

IONOSPHERIC DATA IN JAPAN

FOR SEPTEMBER 1982

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 MINISTRY OF POSTS AND TELECOMMUNICATIONS
 TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere (I), solar radio

emission (S) and radio propagation (P) obtained at the following stations under the Radio Research Laboratories, Ministry of Posts and Telecommunications of Japan.

Station	Geographic		Geomagnetic		Technical Method
	Latitude	Longitude	Latitude	Longitude	
Wakkanai	45°23.5'N	141°41.2'E	35.3°N	206.5°	Vertical Sounding (I)
Akita	39°43.5'N	140°08.0'E	29.5°N	205.9°	" (I)
Kokubunji	35°42.4'N	139°29.3'E	25.5°N	205.8°	" (I)
Yamagawa	31°12.1'N	130°37.1'E	20.4°N	198.3°	" (I)
Okinawa	26°16.9'N	127°48.4'E	15.3°N	196.0°	" (I)
Hiraiso	36°22.0'N	140°37.5'E	26.3°N	206.8°	Radio Receiving (S, P)
Inubo	35°42.2'N	140°51.5'E	25.6°N	207.0°	" (P)

A. IONOSPHERE

Ionospheric observations are carried out at five stations in Japan by means of vertical sounding method.

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 Handbook of Ionogram Interpretation and Reduction (Second Edition) 1972".

a. Characteristics of Ionosphere

$f_x I$	Top frequency of spread F trace
$f_o F_2$	Ordinary wave critical frequency
$f_o F_1$	for the F_2 , F_1 , E and E_s including particle
$f_o E$	E layers respectively
$f_o E_s$	
$f_b E_s$	Blanketing frequency of the E_s layer, e.g. the lowest ordinary wave frequency visible through E_s
f_{min}	Lowest frequency which shows vertical ionospheric reflections
$M(3000)F_2$	Maximum usable frequency factor
$M(3000)F_1$	for a path of 3000 km for transmission by F_2 and F_1 layers respectively
$h'F_2$	Minimum virtual height on the ordinary wave for the F_2 , whole F , E and E_s layers respectively
$h'F$	
$h'E$	
$h'E_s$	
Types of E_s	See below A. 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.

A	Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example E_s .
B	Measurement influenced by, or impossible because of, absorption in the vicinity of f_{min} .
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 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 perturbation of parameters—Presence of polar spure traces.

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.

A	Less than. Used only when $f_b E_s$ is deduced from $f_o E_s$ 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 E_s

When more than one type of E_s trace is present on the ionogram, the type for the trace used to determine $f_o E_s$ must be written first. The number of multiple traces is indicated after the type letter.

f	An E_s trace which shows no appreciable increase of height with frequency.
l	A flat E_s trace at or below normal E layer minimum virtual height or below the particle E layer minimum virtual height.
c	An E_s trace showing a relatively symmetrical cusp at or below $f_o E$. (Usually a daytime type.)
h	An E_s trace showing a discontinuity in height with the normal E layer trace at or above $f_o E$. The cusp is not symmetrical, the low frequency end of the E_s trace lying clearly above the high frequency end of the normal E trace. (Usually a daytime type.)
q	An E_s trace which is diffuse and non-blanking over a wide frequency range.
r	An E_s trace showing an increase in virtual height at the high frequency end similar to group retardation.
a	An E_s 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 associated with high absorption and large *f_{min}*.

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 *f_{oEs}* > *f_{oE}* (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 a median has been computed. In addition to numerical values, the count may include certain descriptive letters.

Median (MED) of a set of numbers is the middle value when the numbers 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.

B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 100, 200 and 500 MHz at Hiraiso. Observation equipments are: a 5 meter parabolic reflector with a total-power receiver for 500 MHz and a 10 meter parabolic reflector with two polarimeters for 100 and 200 MHz. Observations are feasible almost from sunrise to sunset.

Time is expressed in hours, minutes and tenths of minutes U. T. and the unit of flux density is $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$ for both components of polarization.

All symbols and terminology in the table of data are used in accordance with the "Descriptive Text of Solar-Geophysical Data, NOAA" and "Instruction Manual Monthly Report for Solar Radio Emission, WDC-C2".

a. Daily Data

Flux density. The three-hourly and daily mean values are given.

Variability. The three-hourly and daily mean values are given at 200 MHz only. Variability is expressed in the following four grades.

- 0 quiet or no burst,
- 1 a few bursts,
- 2 many bursts,
- 3 very many bursts.

The number of bursts exceeding the mean flux level is counted.

Daily data with parenthesis mean that observation time does not exceed one third of the period.

b. Outstanding Occurrences

The phenomena are picked up on the following criteria:

1. distinct from the prevailing kind of activity,
2. correlated with other known solar phenomena,
3. remarkable change-over from one situation to another.

Type is denoted by numerical code and letter symbol in parallel as follows:

SGD Cord	Letter Symbol	Morphological Classification
1	S	Simple 1
2	S/F	Simple 1F
3	S	Simple 2
4	S/F	Simple 2F
5	S	Simple
6	S	Minor
7	C	Minor+
8	S	Spike
20	GRF	Simple 3
21	GRF	Simple 3A
22	GRF	Simple 3F
23	GRF	Simple 3AF
24	R	Rise
25	R	Rise A
26	FAL	Fall
27	RF	Rise and Fall
28	PRE	Precursor
29	PBI	Post Burst Increase
30	PBI	Post Burst Increase A
31	ABS	Post Burst Decrease
32	ABS	Absorption
40	F	Fluctuations
41	F	Group of Bursts
42	SER	Series of Bursts
43	NS	Onset of Noise Storm
44	NS	Noise Storm in progress
45	C	Complex
46	C	Complex F
47	GB	Great Burst
48	C	Major
49	GB	Major+

Flux density is the increase of flux over the level at which daily flux is calculated, or the increase of flux over the underlying burst when the event is superposed on another burst of long duration.

Polarization is expressed by the polarization degree and sense as follows:

- R or L right- or left-handed polarization,
- W, M or S weak, moderate or strong polarization,
- 0 almost zero or unable to detect polarization due to small increase of flux.
- 00 polarization degree of less than 1 percent.

The following symbols may be attached after numerical values in table, if necessary.

- D greater than, or later than,
- E less than, or earlier than,
- U approximate, or uncertain.

C. RADIO PROPAGATION

a. Measurement of H. F. Field Strength

Field strength observation of 15 MHz standard waves transmitted from WWV and WWVH stations which are located respectively at Fort Collins, Colorado and Kauai, Hawaii, is carried out at Hiraiso. In order to avoid interference among the same frequency waves, the upper side-band of WWV or WWVH with the audio tone 600 Hz is picked up by the use of a narrow band pass filter with 80 Hz band width. Particulars of the transmitters and the receiver are summarized in the following table.

Characteristics	Transmitter		Receiver
	WWV	WWVH	
Station Call	WWV	WWVH	Hiraiso, Ibaraki
Location	Fort Collins, Colorado	Kauai, Hawaii	
latitude	40°41'N	22°00'N	36°22'N
longitude	105°02'W	159°46'W	140°38'E
Distance	9150 km	5910 km	-
Carrier Power	10 kW	10 kW	-
Modulation	50 %	50 %	-
Antenna	$\lambda / 2$ vertical	$\lambda / 2$ vertical	4.5 m vertical rod
Bandwidth	-	-	80 Hz for upper side-band
Calibration	-	-	Every an hour

The tabulated *field strength* in dB above one microvolt per meter is the peak average of the incident upper side-band field intensity in 45 seconds after the universal time indicated on the table. Abbreviated symbols are as follows:

CNT	number of observed values,
MED	median,
UD	value of the uppermost decile when they are ranked according to magnitude,
LD	value of the lowest decile when they are ranked according to magnitude,
U	uncertain,
E	less than,
C	influenced by, or impossible because of, any artificial accident,
S	influenced by, or impossible because of, interferences or atmospherics.

b. Radio Propagation Quality Figures

The tabulated six-hourly quality figures are calculated for standard waves WWV transmitted from Fort Collins and standard waves WWVH transmitted from Kauai.

Quality figures expressing radio propagation conditions are ranged over five grades as follows:

1	very poor (very disturbed),
2	poor (disturbed),
3	rather poor (unstable),
4	normal,
5	good.

Whole day quality figure ranged in grades of 1₀, 1₊, 2₋, 2₀, 2₊, 3₋, 3₀, 3₊, 4₋, 4₀, 4₊, 5₋, 5₀ stands for an average of six-hourly ones of the two circuits. Abbreviated symbols are as follows:

C	artificial accident,
S	propagational accident,
U	inaccurate.

Radio propagation conditions which can be described with a code in the following

N	normal,
U	unstable,
W	disturbed

are forecast 12 hours in advance and broadcast six per an hour from JJY Station.

Data on a *geomagnetic storm* correlated with a radio propagation disturbance are tabulated from observation at Kakioka Magnetic Observatory, Japan Meteorological Agency. *Time* (U.T.) is expressed in unit of hour and minute (or tenth of hour), and *range* in gamma. When they are uncertain quantitatively, /'s are replaced with them. Continuation of a geomagnetic storm is denoted by ---.

c. Sudden Ionospheric Disturbances

(i) SWF

The table of short wave fade-out (SWF) is prepared from the record of field intensities measured at Hiraiso.

Drop-out intensities of the 10 MHz, the 20 MHz, and the 25 MHz waves are respectively distinguished by marks ', '' and ''' from these of the 15 MHz wave for WWV and WWVH. Values of *start*, *duration*, *type*, and *importance* are obtained from data of the circuit whose drop-out intensity in dB is underlined as xx. When these quantities are not given correctly, they are accompanied by the following symbols.

D	greater than,
E	less than,
U	uncertain or doubtful.

Types of fade-out are as follows:

S	sudden drop-out and gradual recovery,
SL	slow drop-out taking 5 to 15 minutes and gradual recovery,
G	gradual and irregular in both drop-out and recovery.

Importance of fade-out is scaled according to its amplitude into nine ascending grades as 1-, 1, 1+, 2-, 2, 2+, 3-, 3, 3+.

Correspondence of solar optical flare, solar radio burst, and geomagnetic crochet to SWF is marked by X in accordance with interchange messages of IUWDS and observations at Hiraiso.

(ii) SPA

Data of sudden phase anomaly (SPA) are prepared from the records of phase measurement of VLF radio waves received at Inubo. The transmitting stations are listed in the following table.

Phase advance is shown in unit of degree at its maximum stage. No transmission or no reception during the period is indicated by —, and indistinguishable record is spaced out, and multi-peak event is marked by *.

Out of more than two circuits on which the same SPA event is observed, the *phase advance* on the circuit on which the SPA is the most remarkable or distinct is underlined. As for the underlined, *phase advance*, *start*, *end* and *maximum* times are obtained.

In table (i) SWF and (ii) SPA, *date* indicates the day to which *start-time* of event belongs.

The following letters may be attached to the value, if necessary.

D	greater than,
E	less than,
U	uncertain or doubtful.

Transmitting Stations

Name	Location (Geographic Coordinate)		Call Sign	Frequency (kHz)	Radiation Power (kW)	Arc Distance from Inubo (km)
Rugby	52° 22' N	001° 11' W	GBR	16.0	(750) 60	9550
Jim Creek	48° 12' N	121° 55' W	NLK	18.6	(1200) 130	7620
North West Cape	21° 49' S	114° 10' E	NWC	22.3	1000	6990
Aldra	66° 25' N	013° 09' E	Ω/N	13.6	10	7820
North Dakota	46° 22' N	098° 21' W	Ω/ND	13.6	10	9140
Haiku	21° 24' N	157° 50' W	Ω/H	13.6	10	6100
La Reunion	20° 58' S	055° 17' E	Ω/LR	13.6	10	10970

IONOSPHERIC DATA

SEP. 1982

FXI (0.1 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station WAKKANAI		Lat. 45° 23.5' N · Long. 141° 41.2' E											Sweep 1 MHz to 20 MHz in 20sec in automatic operation												
Hour Day	00	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 60	X 61	X 62	X 59	X 51															X 81	X 77	X 69	X 69	X 67	
2	66	65	X 64	65	64															X 93	X 83	X 83	X 77	X 73	
3	X 71	X 68	X 66	X 60	X 53															X 79	X 77	X 75	X 70	X 70	
4	X 68	X 67	X 60	X 64	X 54															X 66	X 73	X 68	X 62	X 65	
5	X 62	X 51	55	X 50	X 47															X 63	X 68	X 64	X 62	X 54	
6	X 50	X 51	X 52	X 53	X 53															X 72	X 72	X 80	X 33	X 33	
7	X 33	X 41	X 50	X 48	X 43															X 68	X 64	62	60	57	
8	54	50	42	X 32	X 29															X 59	X 62	X 61	X 61	64	
9	62	61	51	51	50															X 77	X 79	X 74	X 74	X 72	
10	X 68	X 65	X 67	X 63	X 60															X 86	X 81	X 78	X 75	X 76	
11	X 71	X 69	X 67	X 65	X 67															X 87	X 88	X 87	X 77	X 77	
12	X 73	X 73	X 71	X 66	X 62															X 91	X 86	X 82	X 80	X 76	
13	X 77	X 73	X 67	X 68	X 63															X 94	X 83	X 81	X 74	X 73	
14	X 77	X 70	X 70	X 66	X 66															X 88	X 81	X 77	X 76	X 73	
15	X 72	72	70	70	X 52															X 89	X 76	X 74	X 73	X 73	
16	X 72	X 70	X 62	X 65	X 61	X 65														X 109	X 93	X 90	X 80	X 67	X 62
17	X 61	X 63	X 61	X 57	X 53	X 53														X 108	X 92	X 90	X 80	X 78	X 72
18	X 66	X 65	X 61	X 60	X 58	X 57														X 76	X 76	X 77	X 74	X 69	X 67
19	X 58	X 58	X 58	X 57	X 57	X 56														X 107	X 76	X 81	X 77	X 77	X 75
20	X 72	X 74	X 79	X 67	X 66	X 64														X 91	X 88	X 90	X 80	X 73	X 66
21	X 66	X 66	X 60	X 61	X 61	X 62														X 91	X 90	X 82	X 77	X 71	X 69
22	X 71	X 70	X 58	X 58	X 58	X 56														X 80	X 71	X 73	X 49	X 44	X 50
23	X 47	A	A	A	A	X 47														X 95	X 96	X 80	X 68	X 66	X 67
24	X 61	X 60	61	56	56	56														X 94	X 86	X 77	X 69	X 64	X 63
25	X 58	X 56	X 55	X 59	X 56	X 45														X 90	X 79	X 77	X 67	X 65	X 63
26	X 61	X 58	X 59	X 58	X 52	X 51														X 97	X 82	X 82	X 79	X 72	X 64
27	X 52	47	X 43	A	A	X 41														X 90	X 80	X 71	X 64	X 60	X 59
28	X 58	X 52	X 50	50	X 47	X 43			69	70										X 77	X 72	X 66	X 62	X 60	X 58
29	X 59	X 57	X 58	X 53	X 50	X 50														X 92	X 90	X 83	X 78	X 72	X 69
30	X 70	X 70	X 65	X 63	X 61	X 63														X 100	X 91	X 84	X 76	X 73	X 70
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	28	28	15			1	1									15	30	30	30	30	30	
MED	X 64	X 65	X 61	X 60	X 56	X 56			69	70									X 92	X 84	X 80	X 76	X 70	X 67	
UQ	X 71	X 70	X 66	X 65	X 61	X 60													X 98	X 90	X 83	X 80	X 74	X 73	
LQ	X 58	X 57	X 55	X 54	X 52	X 48													X 90	X 76	X 73	X 68	X 62	X 63	

SEP. 1982

FXI (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

FOF2 (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI				Lat. 45 23.5 N		Long 141 41.2 E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation															
Hour Day	00	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	54	55	52	44	47	63	63	60	61	58	61	63	65	66	70	67	68	72	74	70	62	62	60
2	F	F	57	F	F 50	59	76	77	85	90	89	85	82	80	H 83	84	82	76	77	86	76	76	70	66
3	64	61	59	53	46	52	65	71	71	65	73	H 68	70	72	76	72	78	81	79	72	70	68	63	63
4	61	60	53	57	47	45	54	59	56	61	55	55	H 58	60	65	64	62	62	62	59	66	61	55	58
5	55	44	F 43	43	40	43	45	51	57	63	E G 50	E G 50	51	54	55	55	60	56	A	56	61	57	55	47
6	43	44	45	46	46	45	53	55	59	63	63	57	67	63	63	67	52	56	58	65	65	73	26	26
7	27	34	43	41	36	45	37	H 41	E G 45	E G 45	R	R	50	53	55	60	54	54	51	61	57	F 51	F	F
8	F	F	F 35	25	22	32	46	53	51	56	55	59	61	56	57	60	59	57	55	52	55	54	54	F
9	F 48	F 48	45	44	43	44	66	70	71	79	77	82	73	79	83	80	H 79	81	80	70	72	67	67	65
10	61	58	60	56	53	60	71	83	95	V 87	H 86	H 85	85	H 91	91	89	85	88	81	79	74	71	68	69
11	64	62	60	59	60	64	84	90	94	98	89	87	87	93	86	92	86	83	80	80	81	80	70	70
12	66	66	64	59	55	59	75	93	91	90	91	91	96	103	96	96	89	95	91	84	79	75	73	69
13	70	66	60	61	56	62	70	83	104	107	106	104	99	107	109	103	97	91	91	87	76	74	67	66
14	70	63	63	59	59	63	74	77	90	88	87	91	94	96	90	83	90	98	95	81	74	70	69	66
15	65	F 59	F 58	F 58	45	51	76	90	94	94	87	85	98	103	100	93	95	90	95	82	69	67	66	66
16	65	63	55	58	54	58	78	96	98	97	102	107	93	93	87	88	95	101	102	86	83	73	60	55
17	54	56	54	50	46	46	63	71	81	88	97	96	93	93	91	87	90	90	101	85	83	73	71	65
18	59	58	54	53	51	50	57	H 60	67	75	72	80	91	100	93	89	93	86	69	69	70	67	62	60
19	51	51	51	50	51	49	63	95	91	86	85	H 78	86	89	88	93	101	100	100	79	74	70	70	68
20	65	67	72	60	59	57	75	94	100	100	99	96	90	96	97	94	94	89	84	81	83	73	66	59
21	59	59	53	54	54	55	63	69	69	79	86	95	96	94	88	95	100	93	84	83	75	70	64	62
22	64	63	51	51	51	49	45	49	50	58	61	67	70	84	85	103	90	100	73	64	66	42	37	43
23	40	A	A	A	A	40	73	90	108	98	96	100	97	94	98	96	100	98	88	89	73	61	60	60
24	54	53	F 50	F 43	F	F 42	53	62	78	81	89	91	95	101	93	91	93	84	87	79	70	62	57	56
25	51	50	49	52	49	H 38	66	73	92	C	101	100	101	100	90	H 89	95	95	83	72	70	60	59	57
26	54	51	52	51	45	44	74	85	105	103	98	103	106	107	H 103	108	104	105	90	75	75	72	65	57
27	45	J F 40	36	A	A	34	54	63	75	H 76	79	95	96	H 86	H 74	73	75	82	83	73	64	57	53	52
28	51	45	43	F 40	40	36	53	56	F 59	F 61	64	H 65	71	H 74	74	75	77	75	70	65	60	55	53	51
29	52	50	51	46	43	43	68	79	H 88	91	H 100	H 101	100	97	93	94	95	94	85	83	76	71	65	62
30	63	63	58	56	54	56	78	90	105	113	111	114	113	H 114	106	105	100	98	93	84	77	69	66	63
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	29	27	27	30	30	30	30	29	29	29	30	30	30	30	30	30	29	30	30	30	29	28
MED	57	58	53	52	49	48	66	72	83	86	87	87	90	93	88	89	90	88	83	79	72	68	64	61
UQ	64	62	58	58	54	57	74	90	94	94	97	96	96	100	93	94	95	95	91	83	76	73	67	66
LQ	51	50	49	46	44	43	54	60	60	63	72	68	70	74	74	73	77	76	73	69	66	61	57	56

SEP. 1982

FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

F0F1 (0.01 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI																							
	Lat. 45° 23.5' N												Long 141° 41.2' E											
Hour	Sweep 1 MHz to 20 MHz in 20sec in automatic operation																							
Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						390	430	460	460	500	510	500	510 ^L	500	490									
2								480	500	L	540	L	L		L									
3							460 ^H	500	500	510		550 ^L	560	500	L	460								
4					300	360	420	460	490	B	500		520	510	490 ^L									
5						370	410	440	460	500 ^H	500 ^H	490	500	500	480	L								
6							A	450	470	500	490	500	500	490	470		400 ^L							
7								450	450	450	450	450	450	460	440									
8								480	500	500	490 ^H	500	490	460	450 ^L									
9									510		L	L	560	L										
10																								
11											500 ^L	520 ^L	L	L										
12													500	500 ^L										
13											A													
14											L	A	A	460										
15													500 ^L	480	L									
16										L	L	L												
17										L				L										
18								L	460	450			L											
19									450	460			480 ^L											
20											L		L											
21									450	L	500	500		480 ^L										
22							400	420	490	500 ^L														
23														490										
24								L	460			L												
25										C	A													
26																								
27								L				510 ^L	A	A										
28							460		500	500		550 ^L												
29													L											
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	3	6	10	13	12	10	11	12	7	6	2	1						
MED						300	370	425	455	480	500	500	500	500	500	475	455	400 ^L						
UQ							380	460	460	500	500	510	500	515	500	490								
LQ							365	410	450	460	480	500	490	480	490	460								

SEP. 1982

F0F1 (0.01 MHz)

IONOSPHERIC DATA

SEP. 1982 F0E (0.01 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station **WAKKANAI** Lat. **45 23.5 N** Long **141 41.2 E** Sweep **1** MHz to **20** MHz in **20** sec in automatic operation

Hour Day	00	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	210	270	300	345	365	380	375	385	365	330	300		A	S				
2						S	A	A	A		345	370	A	390	380	355	330	300	225	125				
3						S	225	300	310	350	360	370	375	375	A	A	295	235	S					
4						A	220	280		A	A	B	A		B	415	390	335	255	S				
5						135	200	265	300	310		A	A	A	370	A	A	295	225	135				
6						A	220	290	305		A	A	B	355	350	355		A	A	240	190			K 150 K 160
7	K 140	K 110				S	180	260	300		A		340	350	350	335	330	315	290	225	S			
8						180	A	A	A		340	355	370	370	355	335	310	A	250	S				
9						A	A	A		310	350	375	395		A	370	350	315	290	230	A			
10						S	215	290	310	345	370	365	385	370	350	320	A	220	E					
11						S	225	290		A	A		355	370	380		A	A	A	E				
12						E	A		295	310	330		A	350	375	360	340	305	A	A	E			
13						A	215	285	310	335	355	350	350	340	315		A	A	A	E				
14						E	A	A		305	310		A	A	A	A	A	A	A	E				
15						E	195	A	300	325	340	350	350	335	315	305	270	200	S					
16							215	A	A	A	A	A		360	340	315		A	280	205				
17							205	A	A	A	A	A		A	335	A	A	A	A					
18							A	A	A		315	335	330	345	330		A	A	260	195				
19							205	265	300	320	330	335	345	335	320	295	265	A						
20							210	265	300	315	330	335	350	335		A	A	265	A					
21							205	265	300	310	320	330	355	340	315	290	260	A						
22							200	260	295	315	345	340	350		A	A	290	260	190					
23							175	255	305		A	A	A	A	A	A	260	A						
24							200	280	310	330		A	A			A	275	A						
25							210	275	310		C	350	350		A	A	350	300	195	195				
26							200	280	310	330	340	350	355	360	340	310	260	S						
27							205	260	300	320	320	325		A	A	A	A	250	S					
28							210	260	305	320	335	330		A	A	A	300	260	S					
29							A	A	A	A		350		A	A	A	A	A	A					
30							A	A	A	A	A		375	375	365	345	300	260	190					
31																								
CNT	1	1				6	22	20	21	20	20	21	21	21	19	16	21	15	8				1	1
MED	K 140	K 110				E	208	272	305	328	348	350	360	350	340	308	265	225	E				K 150	K 160
UQ						135	215	288	310	342	358	370	375	370	350	318	290	232	130					
LQ						E	200	262	300	315	335	335	350	335	318	300	260	198	E					

SEP. 1982 F0E (0.01 MHz)

IONOSPHERIC DATA

SEP. 1982

FOES (0.1 MHZ)

135° E Mean Time (G.M.T. + 9 h)

Station		WAKKANAI										Lat. 45° 23.5' N		Long 141° 41.2' E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation										
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		60	E	27	33	36	26	33	50	36	G	G	G	G	G	G	G	26	37	30	21	26	23	71	32	40
2		39	38	E	E	E	40	38	43	55	32	G	G	49	31	35	G	G	31	25	34	38	21	26	E	
3		E	E	E	E	E	E S 16	29	38	43	G	G	G	G	G	41	40	35	35	50	25	25	33	90	64	
4		53	44	30	E	24	31	29	40	90	71	E B 52	54	G	E B 44	G	G	G	42	41	51	40	E	54	42	
5		24	21	E S 15	27	35	43	39	36	32	43	49	41	42	G	50	41	G	44	75	31	35	30	30	E	
6		31	E	E	E	E	24	30	53	41	48	37	E B 42	G	G	G	52	35	31	G	E S 14	E S 14	E S 15	K 15	K 16	
7		K 14	K 11	19	32	28	36	31	36	50	41	G	G	G	G	G	27	G	22	G	23	20	37	24	28	33
8		17	32	19	19	20	26	31	36	39	G	G	J A 120	G	38	G	G	G	34	19	32	40	27	E S 16	23	E
9		E	E	E	31	38	35	39	96	G	G	J A 120	G	38	G	G	G	34	30	21	42	40	35	31	E S 15	
10		E S 16	E	E	E	E	E S 15	G	G	42	G	G	G	50	40	G	G	27	33	29	29	35	38	40	35	E S 16
11		E S 15	22	E	E	23	33	28	G	41	58	50	38	G	40	G	43	40	42	36	31	27	32	E	E	
12		23	26	30	36	36	38	31	G	39	39	41	41	G	G	G	G	35	36	34	E	22	30	E S 16	50	
13		36	28	25	31	33	33	30	43	G	70	J A 120	55	G	40	41	42	80	90	J A 113	82	50	37	J A 83	71	
14		63	70	90	60	66	65	26	43	77	97	70	62	72	41	64	38	33	30	42	63	63	90	72	35	
15		E S 15	E S 15	E	40	37	41	50	31	37	G	61	G	G	G	G	G	G	G	E S 14	40	35	32	28	E S 17	
16		E S 15	E	E	E S 15	E	E S 14	G	20	40	40	39	49	43	G	G	35	36	G	30	30	E	E S 16	40	40	36
17		41	31	27	26	E	E S 12	G	40	62	35	46	50	42	G	45	40	33	33	31	33	30	30	30	E S 15	
18		E S 15	23	27	22	26	37	23	29	36	G	G	G	G	39	38	40	G	26	32	32	30	E	21	E S 15	
19		E S 15	21	E	E	E	E S 13	G	G	G	40	73	G	G	G	G	G	23	33	20	32	40	35	30	26	
20		35	31	23	28	E	21	G	G	G	G	G	G	G	G	41	32	30	30	29	25	25	70	40	21	
21		30	E	E	E	32	E S 15	27	35	36	40	G	36	G	32	39	G	G	30	30	E S 14	E S 15	E	E S 15	E S 15	E
22		E	E	30	E	23	E S 15	G	31	35	G	91	59	G	40	40	G	G	G	42	E	E S 15	E S 15	E S 15	15	
23		37	50	60	70	68	35	60	109	80	83	74	62	48	50	49	43	35	41	35	49	35	36	60	30	
24		E S 15	26	37	E	28	24	26	G	37	G	52	59	60	50	53	120	G	30	57	30	E	30	E S 15	E S 15	
25		E	E	E	E	E	E	G	G	50	C	57	55	40	50	39	30	G	G	42	23	E	E	24	25	
26		E	E	E	28	E	E	G	G	G	G	40	G	G	G	25	40	54	36	50	40	51	40	49	E	E S 15
27		E S 15	32	36	42	50	32	G	G	G	36	G	44	91	90	45	91	51	68	90	34	E	24	22	23	
28		E	E	E	E	E	E S 15	G	G	G	38	37	G	38	52	40	G	G	29	33	30	37	41	55	38	
29		62	30	26	21	30	40	50	J A 93	68	45	G	42	44	45	51	50	40	20	E S 15	20	30	58	60	40	
30		40	60	60	60	50	40	21	50	47	62	50	36	G	G	G	28	G	G	G	20	29	30	35	40	40
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	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED		16	22	19	22	25	28	28	36	39	38	42	38	G	U G 28	36	31	32	30	32	31	30	32	30	22	
UQ		37	31	30	32	36	37	31	43	50	45	57	50	42	40	41	42	35	36	42	40	38	40	40	38	
LQ		E S 15	E	E	E	E	E S 15	G	G	32	G	G	G	G	G	G	G	G	26	21	23	22	21	21	E E 15	

SEP. 1982

FOES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1982

FBES (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI																									
Lat.	45 23.5 N											Long 141 41.2 E														
Sweep 1	MHz to 20 MHz in 20sec in automatic operation																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	45	E	E	E	E	25	28	37	G	G	G	G	G	G	G	G	25	G	28	G	E	E	E	E		
2	29	E	E	E	E	30	25	38	40	30	G	38	31	30	G	G	G	28	20	E	E	E	E	E		
3	E	E	E	E	E	E S 16	G	G	40	G	G	G	G	G	36	G	G	34	41	E	E	E	25	36		
4	40	31	E	E	E	16	G	39	40	40	E B 52	40	G	E B 44	G	G	G	33	30	44	E	E	30	27		
5	E	E	E S 15	E	27	37	27	35	G	G	37	39	38	G	40	33	G	30	A A 75	22	E	E	E	E		
6	E	E	E	E	E	18	G	46	40	40	36	E B 42	G	G	G	32	30	G	G	E S 14	E S 14	E S 15	K 15	K 16		
7	K 15	K 11	E	25	E	25	30	33	G	34	G	G	G	G	G	27	G	G	G	21	19	E	E	E		
8	E	E	E	18	18	G	26	29	32	G	G	G	G	G	G	G	30	18	G	30	E	E S 16	E	E		
9	E	E	E	E	E	25	23	30	G	G	27	G	38	G	G	G	26	21	19	E	E	E	E	E S 15		
10	E S 16	E	E	E	E	E S 15	G	G	G	G	G	G	45	G	G	G	26	30	G	15	25	E	E	E S 16		
11	E S 15	E	E	E	E	G	G	G	32	40	G	32	G	38	G	33	28	26	16	E	E	E	E	E		
12	E	E	E	21	E	20	24	G	G	G	40	G	G	G	G	G	25	25	18	E	E	E	E S 16	25		
13	E	E	E	E	E	22	G	37	G	56	77	G	G	G	40	33	50	32	54	50	30	E	E	23		
14	31	E	E	30	36	47	24	28	60	70	50	56	60	36	40	31	28	22	35	35	46	60	E	E		
15	E S 15	E S 15	E	E	16	31	40	30	G	G	G	G	G	G	G	G	G	E S 14	31	E	E	E	E S 17			
16	E S 15	E	E	E S 15	E	E S 14	G	18	30	31	33	35	37	G	G	27	31	G	G	E	E S 16	E	21	E		
17	28	E	E	E	E	E S 12	G	32	31	35	39	36	36	G	33	30	27	20	E	E	E	E	E S 15			
18	E S 15	E	E	E	E	27	22	29	31	G	G	G	G	30	32	31	G	G	21	21	E	E	E	E S 15		
19	E S 15	E	E	E	E	E S 13	G	G	G	G	G	G	G	G	G	G	23	20	E	21	E	E	E	E		
20	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	32	30	20	21	E	E	E	E	27	E	
21	E	E	E	E	E	E S 15	G	G	G	G	G	G	G	G	31	30	G	G	G	21	E S 14	E S 15	E	E S 15	E S 15	
22	E	E	E	E	E	E S 15	G	G	G	G	G	G	G	G	40	32	G	G	G	E	E	E S 15	E S 15	E S 15	15	
23	35	A A 50	A A 60	A A 70	A A 68	E	59	80	50	45	47	49	40	41	38	36	G	20	32	40	30	27	42	E		
24	E S 15	E	E	E	E	E	G	G	G	G	38	38	G	41	34	49	G	17	49	E	E	E	E S 15	E S 15		
25	E	E	E	E	E	E	G	G	41	C	50	43	36	36	30	21	G	G	E	E	E	E	E	E		
26	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	23	G	41	G	26	E	28	E	28	E	E S 15
27	E S 15	20	20	A A 42	A A 50	20	G	G	G	G	G	41	77	50	36	60	32	20	E	E	E	E	E	E		
28	E	E	E	E	E	E S 15	G	G	G	G	G	G	37	43	31	G	G	28	23	E	E	E	E	E		
29	30	E	E	E	E	E	38	50	31	32	G	37	37	36	38	41	28	20	E S 15	E	E	E	47	E		
30	E	35	E	30	36	22	21	42	35	41	40	35	G	G	G	G	G	G	E	E	E	E	E	E		
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	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30		
MED	E S 15	E	E	E	E	16	G	29	G	G	G	G	G	G	27	26	G	20	16	E	E	E	E	E		
UQ	16	E	E	15	E	25	25	37	35	35	38	38	37	36	34	33	28	26	23	25	E	E	E S 15	E S 15		
LQ	E	E	E	E	E		G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E		

SEP. 1982

FBES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

F-MIN (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI																							
	Lat. 45° 23.5' N												Long. 141° 41.2' E											
	Sweep 1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	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	E	E	E	E	E	12	17	18	20	22	22	25	24	19	18	16	19	E S 15	E	E	E	E	E
2	E	E	E	E	E	E S 14	10	10	16	20	20	19	21	19	19	18	15	10	10	E	E	E	E	E
3	E	E	E	E	E	E S 16	17	17	18	19	20	25	21	20	19	19	17	12	E S 12	E	E	E	E	E
4	E	E	E	E	E	E	11	18	18	20	52	22	30	44	40	27	20	16	E S 15	E	E	E	E	E
5	E	E	E S 15	E	E	E	15	17	17	19	20	20	20	20	19	18	11	16	10	E	E	E	E	E
6	E S 15	E	E	E	E	E	10	10	17	19	20	42	20	20	19	19	10	13	11	E S 14	E S 14	E S 15	E	E
7	E	E	E	E	E	E S 15	10	10	17	18	18	19	19	20	19	19	18	17	E S 15	E	E	E	E	E
8	E	E	E	E	E	E	15	16	18	18	20	20	20	20	19	18	17	11	E S 15	E	E	E S 16	E	E
9	E	E	E	E	E	E	E S 16	17	16	17	20	19	20	19	20	17	10	11	E	E	E	E	E	E S 15
10	E S 16	E	E	E	E	E S 15	15	16	18	19	13	18	18	16	18	10	10	10	E	E	E	E	E	E S 16
11	E S 15	E	E	E	E	E S 15	11	12	11	20	19	18	18	17	17	18	10	10	E	E	E	E	E	E
12	E	E	E	E	E	E	15	17	18	19	19	19	20	19	20	11	10	E	E	E	E	E	E S 16	E
13	E	E	E	E	E	E	16	10	17	18	20	19	20	19	20	18	16	E	E	E	E	E	E S 15	E
14	E	E	E	E	E	E	17	17	18	19	18	20	20	20	18	17	11	10	E	E S 15	E	E	E S 15	E S 15
15	E S 15	E S 15	E	E	E	E	E S 15	16	17	18	19	19	19	20	19	17	10	14	E S 14	E S 16	E	E	E	E S 17
16	E S 15	E	E	E S 15	E	E S 14	12	10	18	18	17	19	20	19	18	10	10	10	E	E	E S 16	E	E	E
17	E	E	E	E	E	E S 12	16	17	18	19	19	20	20	19	18	14	12	10	E	E	E	E	E	E S 15
18	E S 15	E	E	E	E	E	10	17	17	18	20	18	18	18	17	17	15	15	E	E	E	E	E	E S 15
19	E S 15	E	E	E	E	E S 13	15	11	11	11	19	20	19	19	18	17	11	10	E	E	E	E	E	E
20	E	E	E	E	E	E S 14	11	10	11	19	19	20	20	20	11	10	10	10	E	E	E	E S 15	E S 15	E
21	E	E	E	E	E	E S 15	14	10	18	18	18	20	18	19	18	10	10	E	E S 14	E S 15	E	E S 15	E S 15	E
22	E	E	E	E	E	E S 15	12	10	11	17	18	18	18	16	19	17	10	10	E	E	E S 15	E S 15	E S 15	E
23	E S 15	E	E	E	E	E	E S 15	16	18	18	20	19	19	17	11	17	10	E	E	E	E S 16	E	E S 15	E
24	E S 15	E	E	E	E	E S 15	16	10	17	19	19	18	20	21	18	10	10	10	E	E	E	E	E S 15	E S 15
25	E	E	E	E	E	E	12	16	17	C	19	19	20	18	19	14	11	11	E	E	E	E	E	E
26	E	E	E	E	E	E	E S 18	17	18	19	20	19	18	20	11	18	18	E S 17	E S 15	E	E	E S 15	E	E S 15
27	E S 15	E	E	E	E	E	E S 17	17	19	21	20	21	20	20	20	17	18	E S 17	E	E	E	E	E	E
28	E	E	E	E	E	E S 15	E S 18	19	20	19	20	20	19	19	17	17	17	E S 15	E	E	E	E	E	E
29	E	E	E	E	E	E	15	18	18	19	19	18	17	17	11	19	E S 15	E S 14	E S 15	E S 15	E	E	E	E
30	E	E	E	E	E	E	15	18	18	20	20	26	20	18	17	17	15	E S 16	E	E S 15	E S 15	E	E	E
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	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	E	E	E	E	E	E	14	16	18	19	20	19	20	19	18	17	11	10	E	E	E	E	E	E
UQ	E S 15	E	E	E	E	E S 15	16	17	18	19	20	20	20	20	19	18	16	14	E S 14	E	E	E	E S 15	E S 15
LQ	E	E	E	E	E	E	12	10	17	18	19	19	19	18	17	14	10	10	E	E	E	E	E	E

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F-MIN (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

M(3000)F2 (0.01)

135 E Mean Time (G.M.T. + 9 h)

Station WAKKANAI Lat. 45 23.5 N Long 141 41.2 E Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	245	260	270	260	270	265	300	305	310	300	265	280	305	300	290	300	310	295	290	300	265	270	285		
2	F	F	265	F	F	295	315	295	305	305	285	295	285	275	290 ^H	295	300	300	280	295	275	280	280	275	
3	280	280	295	285	280	275	290	290	295	300	300	285 ^H	285	290	305	290	295	310	305	275	275	285	270	270	
4	260	270	265	295	260	245	260	285	240	300	220	245	305 ^H	270	290	300	290	290	305	275	270	260	235	255	
5	265	250	255 ^F	255	255	265	245	250	240	295	G	G	200	240	260	270	300	295	A	265	280	260	270	260	
6	255	250	255	260	270	275	285	280	275	270	240	220	270	240	260	300	280	250	240	220	235	290	280	210	
7	220	215	225	245	220	275	305	305 ^H	G	G	R	R	210	230	245	285	265	305	265	270	250	255 ^F	F	F	
8	F	F	F	230 ^F	235	240	250	305	325	335	290	310	255	295	250	285	300	310	300	310	275	260	265	250	
9	255 ^F	260 ^F	265	265	275	295	325	315	300	305	300	300	270	270	290	295	295 ^H	310	300	280	270	270	270	275	
10	270	260	285	265	270	310	330	315	335	310	315 ^V	290 ^H	295	295 ^H	300	305	305	260	295	290	285	280	280	275	
11	280	275	285	265	285	285	310	310	320	315	310	310	300	305	290	305	300	300	295	275	270	290	270	270	
12	270	270	290	255	260	265	310	320	315	315	320	305	300	300	305	305	290	305	305	295	290	285	275	280	
13	280	285	280	290	285	305	320	315	315	315	295	290	270	280	285	295	310	305	295	300	280	285	270	270	
14	275	275	275	285	275	300	330	320	320	305	300	305	310	305	300	300	300	305	315	305	295	280	280	275	
15	275	290 ^F	285 ^F	300 ^F	290	285	320	310	330	320	310	305	300	310	300	310	315	305	315	310	280	285	285	285	
16	290	295	260	280	275	295	330	320	325	320	315	310	305	315	305	305	305	315	315	315	300	315	285	265	
17	255	265	275	280	280	295	315	335	320	320	320	310	310	315	305	310	310	305	315	305	285	275	275	290	
18	275	275	265	250	270	285	315	320 ^H	315	335	310	300	305	310	310	315	315	325	290	290	275	285	280	285	
19	255	255	255	260	270	285	305	315	320	330	330	280 ^H	305	305	295	310	295	310	310	290	285	265	270	280	
20	260	270	290	285	290	285	325	320	340	320	315	305	310	305	300	310	310	310	310	295	305	295	300	270	
21	275	290	265	275	295	300	320	320	320	300	305	305	310	310	320	295	300	310	290	295	265	270	265	260	
22	265	285	240	250	245	250	255	255	220	225	265	285	280	290	275	290	255	305	275	250	265	240	265	345	
23	275	A	A	A	A	290	320	320	340	325	310	315	320	295	305	305	320	325	305	315	300	290	265	285	
24	260	365	260 ^F	265 ^F	F	300 ^F	325	310	325	305	310	305	310	315	305	310	320	305	310	305	285	290	265	265	
25	255	245	250	290	325	290 ^H	325	300	320	C	305	300	295	300	300	295 ^H	315	315	315	300	290	270	275	280	
26	270	275	270	275	265	270	330	305	325	320	295	290	290	285 ^H	285	295	290	305	290	260	260	255	255	245	
27	245	J	F	235	A	A	250	260	290	270	265 ^H	250	265	270	245 ^H	270 ^H	270	280	285	290	285	290	280	265	260
28	255	265	255	275 ^F	260	270	320	290	290 ^F	295 ^F	295	265 ^H	280	290 ^H	295	295	305	305	290	290	285	270	260	255	
29	265	260	260	260	260	280	340	305	320 ^H	320 ^H	300 ^H	290 ^H	295	300	285	290	305	305	295	285	280	275	275	265	
30	270	285	275	285	325	265	320	310	305	305	300	300	300	290 ^H	290	295	300	300	295	305	285	275	285	265	
31																									
CNT	28	27	29	27	27	30	30	30	30	29	29	29	30	30	30	30	30	30	29	30	30	30	29	28	
MED	265	270	265	265	270	285	318	310	318	305	300	295	298	295	292	300	300	305	295	290	280	278	270	270	
UQ	275	282	275	285	285	295	325	320	325	320	310	305	305	305	305	305	310	310	310	300	290	285	280	280	
LQ	255	260	255	260	260	265	305	295	295	300	295	280	280	275	285	295	295	300	290	275	270	265	265	262	

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M(3000)F2 (0.01)

IONOSPHERIC DATA

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M(3000)F1 (0.01)

135° E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI																							
Lat.	45 23.5 N												Long 141 41.2 E											
Sweep	1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							325	350	350	390	375	350	370	350	360	345								
2									365	370	L	350	L	L		L								
3									345 ^H	340	370	375		345 ^L	340	350	L	345						
4						265	310	A	340	325	B	360		B	345	340	L							
5							305	325	350	370	360 ^H	370 ^H	365	340	325	320	L							
6								A	335	375	345	355	340	330	300	320		275 ^L						
7									355	360	375	375	365	345	320	330								
8									365	350	375	385 ^H	360	350	325	345 ^L								
9									360			L	L	335	L									
10																								
11											L	L	L	L										
12											380	285			380	365								
13											A													
14											A	A	A	390										
15													370 ^L	365 ^H	L									
16										L	L	L												
17										L					L									
18										L	370	400		L										
19										400	390		305 ^L											
20											L		L											
21										375	L	380	370		385 ^L									
22										320	345	325	325 ^L											
23														385										
24										L	370		L											
25											C													
26																								
27									L			L	325	A	A									
28										320	345	355		335 ^L										
29														L										
30																								
31																								
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	3	5	10	13	12	10	11	11	7	6	2	1						
MED						265	310	325	350	370	375	358	365	350	345	328	345	275 ^L						
UQ							318	345	365	370	380	370	375	365	350	340								
LQ							308	320	340	360	352	350	342	340	322	320								

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M(3000)F1 (0.01)

IONOSPHERIC DATA

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H^oF2 (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI																							
Lat.	45° 23.5' N												Long 141° 41.2' E											
Sweep	1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						315	325	395	340	425	400	350	335	360	320									
2								275	275	310 ^L	305	300 ^L	350 ^L		300									
3							305	315	305	325		360 ^L	365	310	300 ^L	300								
4					415	365	375	510	370	660	550		455	390	320									
5						525	600	390	365		G	G	800	550	450	400	350							
6							375	415	430	445	620	425	495	460	320			425						
7								G	G	R	R		700	565	520	385								
8										400	355	490	375	530	400	350	315							
9										300		270	400 ^L	370	325									
10																								
11											260	270	300	290										
12													285	290										
13											300													
14											310	280	300	280										
15													280	270	270									
16										250	265	270												
17										250				250										
18									280	265	245		285											
19										250	260		270 ^L											
20											250 ^L		255											
21										275	300	275	270		250									
22											460	630	565	410 ^L										
23															260									
24										275			250											
25											C	250												
26																								
27											335 ^L		350	A	300									
28										390		350	355		350 ^L									
29														270										
30																								
31																								
CNT						1	3	7	12	16	18	13	18	16	9	8	3	1						
MED					415	365	375	362	322	310	305	300	342	390	320	315	425							
UQ						445	425	462	385	410	490	375	475	450	368	332								
LQ						340	350	278	270	260	270	280	285	325	310	308								

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H^oF2 (KM)

IONOSPHERIC DATA

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H^oF (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI																							Lat.	45° 23.5' N		Long.	141° 41.2' E		Sweep	1 MHz to 20 MHz in 20sec in automatic operation																						
Hour Day	00	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	305	300	295	295	340	275	255	230	200	220	205	215	225	215	240	250	255	265	260	240	270	300	310																													
2	350	305	280	275	285	295	245	240	235	215	200	200	220	205	220	225	250	250	260	255	260	255	270	265																													
3	280	270	250	260	270	290	250	200	250	200	200	210	215	220	220	230	225	260	A	A	250	250	255	335	A																												
4	A	A	310	275	275	310	295	280	A	A	270	270	B	215	250	B	265	265	255	296	265	A	310	300	410	345																											
5	285	280	270	320	A	A	280	285	A	245	215	205	210	220	230	250	240	250	275	A	305	280	295	270	280																												
6	285	330	310	315	275	320	265	A	250	245	225	250	B	220	235	250	350	255	310	350	375	370	285	280	500																												
7	520	470	400	385	405	325	A	280	A	240	230	225	215	240	250	245	250	250	265	300	310	305	305	325	355																												
8	310	370	370	A	A	350	270	250	220	210	205	200	195	240	200	235	250	245	260	A	305	295	280	305	305																												
9	315	300	295	310	290	275	250	235	215	200	210	200	200	205	225	230	235	250	245	275	275	300	290	275																													
10	280	300	275	265	275	250	225	210	240	215	225	200	A	205	215	230	250	250	230	255	250	280	290	280																													
11	270	290	285	300	275	285	245	210	H	H	A	210	210	200	205	215	245	230	240	245	270	280	255	275	295																												
12	300	300	250	310	300	305	225	235	215	215	225	230	205	205	235	H	245	245	245	225	240	245	260	270	290																												
13	280	270	275	290	255	250	225	230	H	A	A	240	230	220	A	240	A	260	A	A	270	255	265	315																													
14	305	300	305	295	A	A	245	225	A	A	A	A	A	A	215	240	225	235	250	A	A	A	A	275	275																												
15	275	270	260	250	275	A	A	220	205	205	200	H	200	230	210	225	235	250	245	225	245	260	250	275	275																												
16	270	255	300	270	250	250	230	240	230	210	210	205	225	200	225	225	255	250	240	220	240	230	265	290																													
17	360	315	290	265	255	260	240	225	210	210	215	H	215	H	205	220	235	240	245	245	250	260	250	260	225																												
18	275	280	305	305	305	290	240	205	H	225	205	205	205	220	225	225	220	240	225	220	220	285	270	275	270																												
19	300	330	315	295	265	250	240	250	230	215	205	210	200	210	225	H	240	245	245	225	220	265	300	300	270																												
20	320	320	250	275	245	250	225	225	H	H	205	H	205	220	H	H	230	245	250	225	245	245	250	255	300																												
21	300	270	275	265	245	230	240	H	245	235	210	205	225	210	H	240	245	250	245	235	260	260	300	305																													
22	295	250	325	320	335	310	270	225	230	240	230	220	240	250	250	250	265	225	255	320	320	290	305	335																													
23	A	A	A	A	A	290	A	A	A	230	255	260	205	H	H	240	250	235	240	A	250	250	A	280																													
24	280	295	295	260	295	270	240	250	225	225	220	200	210	250	230	A	240	240	A	230	235	245	300	275																													
25	305	325	305	265	220	H	235	220	245	C	A	220	210	225	225	H	230	230	230	230	235	240	285	295																													
26	290	270	285	260	275	315	225	220	215	225	215	205	240	220	H	230	255	240	225	230	285	280	350	320	330																												
27	360	420	405	A	A	420	315	260	250	H	240	270	A	A	A	H	A	265	265	275	255	245	235	295	315																												
28	300	310	315	305	315	320	270	230	H	235	215	220	H	225	H	235	240	250	250	250	250	265	300	315	345																												
29	A	300	300	295	290	290	A	A	H	210	215	210	H	200	220	225	225	A	240	240	230	255	260	275	A	310																											
30	310	A	295	A	A	300	225	230	225	235	230	220	210	225	H	230	235	250	240	225	245	250	265	275	305																												
31																																																					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																													
CNT	27	28	29	28	26	27	27	26	28	27	26	29	27	28	30	27	29	30	25	27	29	29	28	29																													
MED	300	300	295	295	280	290	245	230	230	215	212	210	220	220	225	240	250	250	245	255	260	265	288	295																													
UQ	312	318	305	308	305	312	270	250	242	235	225	220	225	228	240	242	250	255	260	280	280	290	302	315																													
LQ	280	275	275	265	265	255	232	220	220	210	205	205	208	208	220	230	240	240	230	242	250	250	272	275																													

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H^oF (KM)

IONOSPHERIC DATA

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H^oE (KM)

135 E Mean Time (G.M.T. + 9 h)

Station WAKKANAI Lat. 45 23.5 N Long 141 41.2 E Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	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	110	110	105	110	110	110	110	110	110	110	105	A	S					
2						S	110	A	A	A	120	105	A	115	110	105	105	110	110	115				
3						S	120	115	105	105	105	110	105	105	A	110	110	110	S					
4						A	120	110	A	A	B	A	105	B	B	125	115	110	110	S				
5							115	110	110	105	105	A	105	A	110	A	A	110	115	120				
6						A	120	110	110	105	A	B	110	110	105	A	A	115	140				K	K
7	K	K				S	110	105	105	A	105	105	105	105	110	115	120	120	S					
8	150	155					A	A	A	105	110	115	110	110	105	110	A	120	S					
9						A	A	A	105	105	115	100	105	105	105	105	115	A	A					
10						S	110	110	110	105	100	105	100	100	105	110	A	110	E					
11						S	130	105	A	A	105	120	100	A	100	A	A	A	E					
12						E	A	110	110	110	105	105	110	110	110	110	A	A	E					
13						A	130	110	110	110	110	105	115	105	110	A	A	A	E					
14						E	A	A	105	105	A	105	A	A	A	A	A	A	E					
15						E	S	A	110	105	105	105	105	110	110	110	110	120	S					
16							120	A	A	A	A	A	105	105	110	A	105	125						
17							120	A	A	A	A	A	A	105	A	A	A	A						
18							A	A	105	105	105	105	105	A	A	A	115	120						
19																		A	A					
20							125	110	105	105	105	105	110	110	A	A	120	A						
21							125	120	110	110	110	110	115	115	105	100	115	A						
22							125	115	105	105	105	105	105	A	A	110	110	130						
23							S	110	110	110	105	A	A	A	A	A	130	A						
24							130	110	110	110	105	110	105	105	105	A	105	A						
25							125	110	105	C	105	105	A	A	120	110	105	105						
26							S	150	110	105	105	105	105	105	115	110	110	115	S					
27							120	115	110	110	110	110	105	A	A	115	S							
28							150	120	110	110	110	110	A	A	105	115	S							
29							A	A	A	A	105	A	A	A	A	A	A	A						
30							A	A	A	A	A	125	105	105	115	110	110	S						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1				2	22	20	22	22	23	23	24	21	19	17	20	13	3				1	1
MED	K	K				120	120	110	105	105	105	105	105	110	110	110	110	115	120				K	K
UQ						125	112	110	110	110	110	110	110	110	110	110	115	120	130					
LQ						120	110	105	105	105	105	105	105	105	105	110	110	110	118					

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H^oE (KM)

IONOSPHERIC DATA

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H°ES (KM)

135 E Mean Time (G.M.T. + 9 h)

Station	WAKKANAI																							Lat.	45 23.5 N		Long	141 41.2 E		Sweep	1		MHz to 20		MHz		in 20sec		in		automatic operation	
Hour Day	00	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	E	100	100	105	115	110	110	110	G	G	G	G	G	G	100	125	110	115	100	100	105	105	100																		
2	100	100	E	E	E	110	110	105	105	105	G	100	100	100	G	G	G	115	110	105	105	105	100	E																		
3	E	E	E	E	E	S	120	125	110	G	G	G	G	G	105	120	140	120	110	120	120	110	105	100																		
4	100	100	100	E	100	105	120	110	105	105	B	105	G	B	G	G	G	120	115	110	110	E	105	100																		
5	100	100	S	120	115	115	110	110	110	110	105	110	105	G	105	105	G	120	115	105	110	105	100	E																		
6	115	E	E	E	E	120	125	115	115	110	110	B	G	G	G	100	100	125	G	S	S	S	K	K																		
7	150 ^K	155 ^K	125	115	120	115	115	105	110	105	G	G	G	G	105	G	105	G	135	125	115	125	115	110																		
8	140	125	125	120	125	125	110	115	105	G	115	G	G	G	G	G	100	100	120	110	115	S	110	E																		
9	E	E	E	105	115	105	110	105	G	G	100	G	110	G	G	G	100	100	105	105	100	100	100	S																		
10	S	E	E	E	E	S	G	G	130	G	G	G	120	120	G	100	100	125	100	105	105	100	100	S																		
11	S	100	E	E	100	105	110	G	105	105	125	100	G	100	G	105	100	100	105	105	105	105	E	E																		
12	100	110	105	105	105	105	120	G	120	120	105	110	G	G	G	G	100	100	100	E	100	100	S	105																		
13	105	105	105	105	100	100	145	120	G	115	110	110	G	110	110	105	105	100	100	100	100	105	105	100																		
14	100	105	105	105	105	100	115	105	110	105	110	110	105	100	100	100	105	110	105	105	100	110	110	105																		
15	S	S	E	105	105	120	115	110	115	G	110	G	G	G	G	G	G	G	S	105	100	100	100	S																		
16	S	E	E	S	E	S	105	105	105	105	100	100	G	G	100	100	G	100	110	E	S	105	100	100																		
17	100	100	100	100	E	S	G	110	105	105	105	105	100	G	100	100	100	100	100	100	100	100	100	S																		
18	S	100	100	100	110	105	110	110	105	G	G	G	G	105	100	100	G	120	110	110	110	E	110	S																		
19	S	100	E	E	E	S	G	G	G	135	110	G	G	G	G	G	110	110	115	110	105	100	100	100																		
20	105	105	105	105	E	115	G	G	G	G	G	G	G	G	105	100	100	100	100	100	100	110	105	100																		
21	100	E	E	E	115	S	130	120	115	115	G	110	105	105	G	G	100	100	S	S	E	S	S	E																		
22	E	E	105	E	115	S	G	120	120	G	125	125	G	105	105	G	G	G	110	E	S	S	S	150																		
23	125	115	110	105	110	120	115	110	110	110	105	100	105	100	100	100	150	100	100	115	115	115	110	105																		
24	S	100	130	E	120	140	130	G	130	G	110	115	120	115	110	100	G	100	120	100	E	110	S	S																		
25	E	E	E	E	E	E	G	G	125	C	110	110	105	105	100	100	G	G	105	115	E	E	105	100																		
26	E	E	E	105	E	E	G	G	G	G	110	G	G	100	140	125	120	115	115	110	110	115	E	S																		
27	S	125	115	115	110	115	G	G	G	115	G	110	110	105	105	105	115	115	105	110	E	110	105	105																		
28	E	E	E	E	E	S	G	G	G	120	120	G	110	105	100	G	G	110	105	110	105	105	105	105																		
29	105	105	105	100	105	110	105	105	105	105	G	105	100	100	100	105	105	105	S	110	105	105	105	100																		
30	105	100	105	100	100	100	105	105	105	105	105	110	G	G	100	G	G	G	110	110	105	105	105	110																		
31																																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																		
CNT	16	18	16	17	19	20	21	20	23	18	19	17	13	15	18	18	19	25	26	25	23	23	24	18																		
MED	102	102	105	105	110	112	115	110	110	108	110	110	105	105	102	100	105	110	110	110	105	105	105	102																		
UQ	110	110	112	105	115	118	120	115	115	115	110	110	110	105	105	105	112	115	115	110	110	110	108	105																		
LQ	100	100	102	100	105	105	110	105	105	105	105	105	105	100	100	100	100	100	105	105	100	102	100	100																		

SEP. 1982

H°ES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1982 TYPES OF ES

135° E Mean Time (G.M.T. + 9 h)

Station **WAKKANAI** Lat. **45 23.5 N**, Long. **141 41.2 E** Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	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		F2	F3	F2	C2	C3	C2	C1						L2	C1	L1	C2	F2	F1	F4	F3	F2		
2	F4	F2			C4	C2	L3	L2	L1		L2	L1	L1				C2	C2	F3	F3	F2	F2			
3						C2	C2	C2						L2	C2	H2	C2	C3	F1	F1	F2	F4	F4		
4	F4	F4	F1		F1	L1	C2	C3	L2	L2		L1					C2	C3	F5	F3		F5	F2		
5	F1	F1		F2	F4	C4	C3	C3	C1	C2	L1	C1	L2		L3	L2		C3	C5	F3	F2	F2	F1		
6	F1				L1	C1	C3	C3	C2	L1					L3	L2	C2						K1	K1	
7	K2	K1	F2	F4	F2	C4	C3	C3	C2	L2				L1		L1		C2	F2	F2	F1	F2	F2		
8	F1	F2	F2	F2	F2	C2	L2	L1	L1		C2						L2	L1	C2	F3	F2		F1		
9			F2	F1	L3	L3	L3			L1			C1				L1	L1	L2	F2	F2	F2	F2		
10									C1				C2	C1		L1	L1	C1	L1	F3	F2	F3	F2		
11		F1			F1	L1	L1		L2	L3	C1	L1		L2		L2	L2	L4	L1	F2	F2	F2			
12	F1	F1	F1	F3	F3	L2	L1		C1	C1	C2	C2					L3	L3	L3		F1	F2		F3	
13	F2	F2	F2	F2	F3	L3	C1	C2		C3	C4	C2		C1	C2	L2	L3	L4	L3	F3	F4	F2	F3	F3	
14	F4	F2	F2	F4	F4	L4	L1	L2	C3	C4	C3	C3	L4	L2	L3	L3	L2	L1	C3	F4	F3	FF32	F4	F3	
15			F2	F2	C2	C4	L2	C1		C1										F2	F2	F1	F1		
16					L1	L3	L2	L2	L2	L3	L2			L2	L3			L1	F2			F2	F3	F2	
17	F4	F2	F2	F2			L2	L2	L2	L2	L2	L2	L2	L3	L2	L2	L2	L2	F2	F1	F2	F1	F1		
18		F2	F3	F1	F2	F3	L2	L2	C2					L1	L2	L2		C2	F2	F2	F2		F1		
19		F1							H1	C1							L1	L1	F1	F2	F2	F2	F2	F2	
20	F2	F3	F1	F2		F1									L2	L2	L1	L2	F2	F1	F1	F2	F3	F1	
21	F2				F1		C2	C2	C2	C2		C1	L1	L1			L1	L2							
22			F2		F1			C2	C2		C1	C1		L2	L2				F1					F1	
23	F2	F6	F6	F4	F3	F2	C4	C4	C2	C4	C3	L3	L2	L2	L3	L3	HL11	L4	F2	FF42	F2	F4	F5	F2	
24		F1	F2		F2	F1	C1		C2		C1	C1	C1	C2	C2	L3		LC11	FF33	F1		F1			
25									C2		C2	C2	L1	L2	L2	L1			F1	F2			F1	F2	
26			F1						C2				L1	HL11	C2	C2	C2	C2	F3	F4	F2	F3			
27		F4	F5	F4	F6	F3			C1		C2	C4	C4	L2	L3	C2	C2	C2	F3	F3		F1	F1	F2	
28									C2	C1		C1	L2	L2				C3	F3	F2	F3	F3	F3	F3	
29	F4	F2	F2	F1	F2	F3	L3	L2	L2	L2		L2	L2	L2	L3	L4	L3	L2		F1	F3	F3	F5	F2	
30	F2	F5	F2	F5	F4	F3	L2	L4	L2	L3	L2	L1			L1				F1	F2	F2	F3	F4	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																									
UQ																									
LQ																									

SEP. 1982 TYPES OF ES

IONOSPHERIC DATA

SEP. 1982

FXI (0.1 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station		AKITA										Lat. 39 43.5 N		Long 140 08.0 E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation									
Hour Day	00	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 64	X 63	X 64	X 60	X 56															X 82	X 76	X 69	X 71	X 72	
2	X 71	X 68	X 67	X 62	X 60															X 92	X 83	X 80	X 78	X 78	
3	X 75	X 73	X 70	X 64	X 57															X 82	X 78	X 74	X 71	X 74	
4	X 72	X 74	X 63	X 62	X 60															X 70	X 70	X 65	X 64	70	
5	66	X 60	X 61	X 58	X 57															X 69	A	X 68	X 67	X 57	
6	X 54	X 50	X 55	X 55	X 58															X 77	X 82	X 93	X 83	75	
7	50	X 46	X 48	67	80	88	66													X 72	X 75	X 62	63	59	
8	X 54	53	X 49	X 43	X 37															X 60	X 60	X 61	X 60	X 61	
9	58	59	59	58	57	59														X 76	X 75	X 73	X 72	X 72	
10	X 69	X 67	X 66	X 64	X 63	X 68														X 82	X 87	X 81	X 74	X 71	
11	X 72	X 72	X 71	X 67	X 70	X 72														X 87	X 87	X 85	X 78	X 78	
12	X 75	X 75	X 76	X 66	X 66	X 66														X 97	X 84	X 82	X 82	X 81	
13	X 78	X 77	X 73	X 69	X 68	X 71														X 96	X 78	X 77	X 77	X 77	
14	X 78	X 77	X 72	X 71	X 71	X 70														X 93	X 74	X 71	X 67	X 69	
15	X 71	X 68	X 68	X 67	X 56	X 56														101	X 73	X 72	X 72	X 74	
16	X 72	X 67	X 63	X 63	X 60	X 63														X 116	X 107	X 90	X 71	X 66	X 64
17	X 63	X 65	X 63	X 60	X 57	X 55														X 110	X 98	X 86	X 75	X 80	
18	X 65	X 65	X 63	X 63	X 62	X 62														X 83	X 73	X 78	X 75	X 68	
19	X 64	X 60	X 60	X 59	X 56	X 53														X 109	X 90	X 75	X 71	X 73	X 73
20	X 71	X 71	X 75	X 63	X 61	X 61														X 104	X 93	X 87	X 72	X 70	X 64
21	X 66	X 66	X 62	X 64	X 65	X 65														X 100	X 98	X 80	X 82	X 77	X 75
22	X 73	X 72	X 61	X 65	X 65	X 66														X 98	X 86	X 87	X 81	X 69	X 63
23	X 60	X 42	X 42	X 42	X 45	X 49														X 102	X 89	X 75	X 65	X 66	X 69
24	X 67	X 63	X 60	X 57	X 62	X 56														X 98	X 88	X 73	X 70	X 65	X 68
25	X 63	X 57	X 61	X 64	X 62	X 45														X 92	X 78	X 71	X 67	X 67	X 66
26	X 63	X 62	X 60	X 62	X 54	X 51														X 102	X 76	X 83	X 80	X 84	X 69
27	X 54	X 52	X 40	A	X 45	X 47		75												X 81	X 74	X 67	X 67	X 62	X 62
28	X 61	X 59	X 57	X 54	X 48	X 48														X 86	X 76	X 71	X 71	X 69	70
29	68	X 63	X 67	X 59	X 54	X 54														X 95	X 87	X 83	X 78	X 73	X 72
30	X 72	X 78	X 70	X 64	X 61	X 60														X 102	X 90	X 82	X 78	X 80	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	30	30	30	29	30	23	1	1											15	30	29	30	30	30	
MED	X 66	X 65	X 63	X 63	X 60	X 60	66	75												X 100	X 86	X 78	X 72	X 72	X 70
UQ	X 72	X 72	X 68	X 64	X 63	X 66														X 103	X 93	X 83	X 80	X 77	X 75
LQ	X 63	X 59	X 60	X 59	X 56	X 54														X 94	X 76	X 74	X 69	X 66	

SEP. 1982

FXI (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

FOF2 (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station AKITA Lat. 39 43.5 N Long 140 08.0 E Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	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	57	58	54	50	48	66	67	66	74	76	73	72	76	75	73	76	76	82	76	70	63	65	66	
2	64	62	61	56	53	57	83	82	86	93	98	97	104	95	93	95	88	90	86	86	77	74	72	72	
3	69	67	64	58	51	51	72	95	89	87	85	79	81	84	82	82	86	87	88	76	72	68	65	68	
4	65	68	57	56	53	52	56	67	67	70	65 ^R	70	67	68	73	72	68	63	72	64	63	59	58	F	
5	F	54	54	52	51	48	51	57	67	63	56	57	A	62	63	66	69	64	69	63	A	62	61	51	
6	48	44	49	49	52	53	66	77	77	82	94	84	101	102	80	90	70	55	62	71	76	87	F	F	
7	F ₃₂	40	42	F ₅₀	F	F	F ₅₈	56	65	57	60	65	67	72	79	70	69	66	55	66	68	56	F ₅₀	F ₄₈	
8	48	F	42	37	31	32	57	59	59	62	60	62	62	58	63	63	62	62	61	54	53	55	54	55	
9	F ₅₂	F ₅₀	F ₅₀	F ₄₉	F ₄₉	F ₄₉	66	79	75	79	82	H ₈₉	81	80	87	92	90	90	88	70	69	67	66	66	
10	62	60	60	58	57	62	71	84	90	I ₉₂	C ₈₈	90	87	97	98	98	92	91	87	76	81	75	68	65	
11	66	65	65	61	63	66	96	86	100	102	92	87	92	97	101	95	97	92	92	81	81	79	72	72	
12	69	69	70	60	60	60	90	101	92	92	97	102	96	98	106	95	95	102	100	91	78	76	76	75	
13	72	71	67	63	62	65	80	87	105	109	104	106	102	111	114	113	107	101	97	90	72	71	71	71	
14	72	71	66	65	64	64	82	88	95	95	93	90	96	104	100	94	98	110	111	87	68	65	61	63	
15	64	62	62	61	50	50	74	96	98	80	82	96	102	112	103	97	101	101	97	95	67	66	66	68	
16	66	61	55	57	54	57	75	89	98	105	101	104	112	98	97	97	103	108	110	101	84	65	60	58	
17	57	59	57	53	51	49	70	83	89	90	102	97	103	96	91	95	99	104	103	92	80	69	71	73	
18	59	59	57	57	56	56	73	75	83	82	83	98	105	113	96	100	95	99	77	66	72	69	66	62	
19	58	54	54	53	50	47	62	79	99	93	79	84	96	93	96	94	106	107	103	83	69	65	67	67	
20	64	65	69	57	55	55	81	101	113	99	93	97	98	100	99	102	102	103	98	87	81	66	64	58	
21	60	60	55	58	59	59	72	83	97	103	103	104	116	112	101	93	112	105	93	92	74	76	71	69	
22	67	66	54	58	59	60	57	66	61	77	83	86	92	104	99	113	90	117	92	80	81	S ₇₅	62	H ₅₇	
23	54	36	36	36	38	43	92	107	118	117	115	106	112	110	105	106	104	103	96	83	69	59	60	62	
24	61	57	53	51	F	50	65	86	102	113	102	106	102	112	112	103	97	90	92	82	67	64	59	62	
25	57	53	55	58	56	39	65	88	97	114	107	108	108	105	97	101	106	112	86	72	65	61	61	60	
26	57	56	54	56	48	45	74	92	102	93	101	112	113	113	107	109	110	110	96	70	77	73	78	63	
27	48	H ₄₅	H ₃₄	A	39	41	58	F ₆₆	63	66	68	85	82	H ₇₁	65	66	71	75	75	68	61	61	56	56	
28	55	53	51	48	42	42	50	58	63	66	76	87	90	90	87	85	88	86	80	70	65	64	63	F	
29	F ₆₁	57	F ₅₉	F ₅₂	48	48	70	86	91	97	97	102	106	107	103	102	104	101	89	81	77	72	67	66	
30	66	72	63	58	55	54	75	93	112	118	115	122	121	117	113	112	108	102	96	84	76	72	73	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	29	30	29	28	29	30	30	30	30	30	30	29	30	30	30	30	30	30	30	29	30	29	27	
MED	61	59	56	56	52	51	70	84	90	92	92	93	98	98	97	95	96	100	90	80	72	66	65	65	
UQ	66	65	62	58	56	57	75	89	99	102	101	104	105	110	103	102	104	104	97	87	77	73	71	68	
LQ	57	54	53	52	50	48	62	67	67	77	79	84	87	84	82	85	86	86	80	70	68	63	61	59	

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FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

F0F1 (0.01 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station	AKITA																								
Lat.	39 43.5 N												Long.	140 08.0 E											
Sweep	1 MHz to 20 MHz in 20sec in automatic operation																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							L	L	L	520	490	540	L	L	L	L	A	L	A						
2							L	L	L	L	L	L	600	570	L	L	490	L	L						
3								L	L	L	L	L	560	580	L	L	L	L	L						
4							L	430	A	A	A	530	560	L	530	L	L	L							
5							380	420	450	470	500	510	A	520	L	L	L								
6								L	500	520	510	520	520	520	L	L	L	A							
7								L	L	L	510	500	500	490	500	500	L	L							
8									L	L	510	500	500	510	500	490	L	L							
9								L	L	L	L	L	L	600	L	L	L	L							
10									L	L	L	L	L	L	L	L	L								
11									L	L	L	L	L	L	L	L	L								
12									L	L	L	L	L	L	L	L	L								
13									L	L	L	L	L	L	L	L	A	A							
14								L	L	L	L	L	L	L	L	L	L								
15									A	A	A	L	L	L	500	L	L	L							
16									L	L	L	L	L	L	L	L	L								
17									L	L	L	A	L	L	L	L	L								
18									A	L	L	L	L	L	L	L	L								
19									L	L	L	470	L	L	L	L	L	L							
20									L	L	L	L	L	L	L	L	L								
21									L	L	L	L	L	L	L	L	L								
22								L	L	L	L	L	L	L	L	L	L								
23									A	L	L	580	L	A	L	L	L	L							
24									L	L	L	L	L	L	L	L	L								
25									L	L	L	L	L	L	L	L	A	L							
26									L	L	L	L	L	L	L	L	A								
27							L	L	L	530	540	L	L	L	490	L	L								
28									L	L	L	L	L	L	L	L	A								
29									L	L	L	L	L	L	L	L	L								
30									L	L	L	A	L	L	L	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	2	3	4	8	7	6	6	5	3										
MED						380	425	500	505	510	520	540	515	500	490										
UQ								510	525	540	545	570	520	520	495										
LQ								475	480	505	505	500	500	500	490										

SEP. 1982

F0F1 (0.01 MHz)

IONOSPHERIC DATA

SEP. 1982

FOE (0.01 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station **AKITA** Lat. **39 43.5 N**, Long **140 08.0 E** Sweep **1** MHz to **20** MHz in **20** sec in **automatic** operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	A	A	A	A	A	A	390	385	A	360	310	A	S					
2						S	220	A	A	A	375	385	395	385	A	355	315	A	S					
3						S	240	295	A	A	A	A	A	A	A	355	315	250	S					
4						S	A	A	A	A	B	A	A	B	B	395	350	A	A					
5						S	A	A	A	A	A	A	A	A	375	355	330	A	S					
6						S	A	280	320	A	A	385	A	A	A	A	310	A	S					J K 170
7	K 170	J K 140	J K 150			S	A	A	A	A	A	380	390	370	355	325	300	240	S					
8						S	A	A	A	A	370	385	385	380	A	345	305	A	S					
9						S	A	285	A	A	380	395	A	A	A	340	305	255	A					
10							220	280	320	A	370	390	400	A	A	355	305	250	S					
11							210	285	315	355	A	A	A	A	A	A	A	245	S					
12							220	A	A	A	A	A	A	A	345	330	285	A	S					
13							220	285	320	A	A	A	A	A	A	A	A	A	S					
14							205	A	A	A	A	A	A	A	A	315	A	220	S					
15							A	A	A	A	A	375	380	370	355	325	280	A	S					
16							A	280	A	355	370	A	A	A	A	320	295	210						
17							205	A	A	A	A	A	380	365	A	A	280	225						
18							A	A	A	A	A	A	375	370	350	315	285	A						
19							195	250	295	350	A	385	385	365	345	325	290	A						
20							200	260	305	A	360 ^R	A	385	370	345	310	280	A						
21							A	A	315	A	A	A	370	365	335	A	A	A						
22							A	270	305	325	345	365 ^R	380	365	340	315	280	210						
23							A	260	305	A	A	A	A	A	A	315	280	195						
24							205	A	310	A	A	A	A	A	350	315	280	A						
25							A	270	305	345	A	A	A	A	365	A	A	A						
26							S	270	315	A	A	A	A	A	370	325	280	A						
27							205	285	A	350	A	A	380	375	365	340	275	A						
28							210	275	320	A	A	A	A	380	A	A	A	A						
29							190	A	A	A	A	A	380	A	A	340	285	A						
30							195	265	320	345	A	A	A	370	365	330	275	205						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1	1			15	16	14	7	7	9	14	14	14	23	24	11							1
MED	K 170	J K 140	J K 150			205	278	315	350	370	385	382	370	352	330	288	225							J K 170
UQ						220	285	320	352	372	385	390	380	365	350	308	248							
LQ						202	268	305	345	365	380	380	365	345	318	280	210							

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FOE (0.01 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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FOES (0.1 MHZ)

135 E Mean Time (G.M.T. + 9 h)

Station		AKITA																							
Lat. 39 43.5 N, Long. 140 08.0 E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	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 24	E S 15	J A 16	J A 26	J A 20	J A 26	J A 41	J A 61	35	J A 46	J A 46	45	G	G	45	47	J A 44	37	J A 46	J A 26	J A 30	J A 19	J A 20	E S 16	
2	J A 19	J A 19	J A 95	J A 24	J A 29	E S 16	G	J A 50	J A 45	43	G	G	40	36	J A 46	G	G	32	22	J A 26	J A 26	J A 41	E S 16	J A 19	
3	E S 16	E S 16	E S 16	J A 20	E S 16	E S 16	G	32	37	41	J A 78	J A 44	J A 74	43	J A 40	G	J A 51	31	J A 26	J A 49	J A 33	J A 54	J A 27	J A 30	
4	J A 27	J A 26	J A 29	J A 22	J A 19	J A 26	J A 24	35	55	64	60	89	45	E B 51	E B 48	G	38	J A 36	106	J A 41	J A 54	J A 78	J A 51	J A 39	
5	J A 26	J A 29	J A 27	J A 27	J A 43	J A 39	J A 38	J A 44	J A 45	39	42	J A 45	J A 72	42	45	G	G	33	J A 29	J A 46	J A 86	J A 71	J A 25	J A 21	
6	E S 16	E S 16	J A 19	E S 11	J A 25	J A 21	25	33	37	37	84	G	J A 44	42	J A 65	J A 50	G	J A 54	25	E S 16	E S 15	E S 15	E S 15	20	
7	K 17	J K 14	J K 15	J A 19	J A 38	20	J A 30	36	J A 50	J A 49	J A 47	G	G	G	G	G	36	37	24	J A 24	E S 17	J A 24	E S 15	J A 19	
8	J A 36	J A 18	J A 24	J A 25	J A 21	J A 24	30	37	40	J A 38	G	G	G	G	40	J A 54	G	J A 45	25	J A 24	J A 46	J A 31	J A 18	E S 15	
9	J A 21	J A 21	J A 24	J A 20	E S 16	E S 16	G	G	J A 44	37	G	G	J A 80	J A 50	J A 51	G	J A 84	29	J A 30	J A 37	J A 54	J A 26	J A 22	J A 24	
10	J A 19	E S 15	E S 16	E S 15	J A 24	J A 22	26	32	G	38	40	45	G	43	42	28	G	25	27	E S 18	J A 20	E S 16	J A 21	E S 16	
11	J A 20	E S 16	E S 15	E S 15	E S 15	E S 15	G	G	G	38	45	45	J A 47	J A 54	42	40	J A 37	G	20	J A 26	J A 41	J A 36	J A 30	J A 27	
12	J A 20	E S 16	E S 15	J A 19	E S 15	E S 16	G	35	40	J A 54	J A 44	J A 45	J A 41	42	G	G	35	J A 30	J A 33	J A 25	J A 21	E S 16	J A 21	J A 22	
13	J A 24	J A 24	J A 24	E S 16	E S 12	E S 16	27	G	39	J A 52	41	44	150	J A 67	J A 45	J A 61	J A 44	J A 51	E S 16	E S 16	J A 24	J A 33	113	J A 38	
14	J A 60	J A 52	J A 24	J A 20	J A 23	J A 19	G	31	34	J A 47	43	J A 52	J A 54	J A 43	J A 38	36	30	G	J A 51	J A 24	J A 27	J A 26	J A 20	J A 30	
15	J A 19	E S 17	E S 13	E S 15	J A 21	E S 15	J A 33	J A 57	J A 58	J A 54	J A 46	G	G	G	G	G	32	23	E S 15	E S 16	J A 26	J A 41	J A 24	J A 24	
16	J A 19	J A 23	E S 15	E S 15	E S 15	E S 15	24	G	J A 40	G	G	42	J A 51	J A 52	J A 40	G	G	24	J A 32	J A 30	J A 25	J A 24	J A 27	E S 16	
17	E S 16	E S 16	J A 24	E S 15	E S 15	E S 15	G	30	33	J A 40	J A 66	J A 66	G	G	J A 40	J A 46	G	G	E S 15	J A 33	J A 31	J A 19	E S 16	E S 15	
18	J A 19	J A 25	E S 15	E S 15	E S 15	J A 19	22	31	J A 46	J A 47	38	J A 50	G	G	G	G	G	J A 44	E S 16	E S 15	J A 29	J A 21	J A 26	E S 16	
19	E S 16	J A 20	E S 16	J A 20	J A 25	E S 16	25	G	37	38	38	G	J A 93	G	G	G	G	J A 24	J A 23	J A 25	J A 21	E S 16	E S 16	E S 16	
20	E S 15	E S 15	E S 14	E S 13	E S 14	J A 29	G	G	35	38	G	42	G	G	G	J A 44	G	J A 26	E S 15	J A 34	J A 24	J A 19	E S 16	E S 16	
21	E S 16	E S 16	E S 15	E S 15	E S 15	E S 15	J A 24	32	G	J A 46	J A 54	J A 57	G	G	G	J A 36	J A 31	J A 50	J A 41	J A 37	J A 25	J A 24	E S 17	E S 16	
22	E S 16	E S 15	E S 15	E S 16	J A 19	E S 16	27	30	35	37	G	G	G	G	G	G	G	J A 29	J A 25	E S 16	E S 15	E S 16	J A 24	J A 24	
23	J A 36	J A 33	J A 30	J A 32	J A 30	J A 44	J A 38	32	J A 66	J A 52	J A 54	41	J A 180	41	41	40	31	27	J A 24	J A 32	J A 24	J A 24	J A 20	J A 28	
24	J A 27	J A 21	E S 15	E S 15	J A 20	J A 25	26	64	J A 46	37	41	42	J A 42	40	G	40	39	J A 44	J A 17	J A 20	J A 39	E S 16	E S 15	J A 19	
25	J A 31	J A 20	E S 15	J A 23	J A 21	E S 16	J A 33	32	J A 54	40	39	J A 54	J A 43	41	44	J A 69	J A 65	J A 47	J A 70	J A 33	16	E S 16	E S 16	E S 16	
26	E S 16	E S 14	E S 14	J A 26	E S 15	E S 15	22	33	35	38	40	40	42	J A 44	44	J A 82	J A 44	J A 56	J A 42	J A 31	J A 41	J A 34	J A 20	J A 30	
27	E S 15	E S 15	J A 24	J A 37	E S 15	E S 16	G	J A 51	J A 41	41	J A 69	40	G	G	G	G	31	25	E S 16	E S 16	J A 94	J A 76	J A 52	J A 24	
28	E S 16	E S 13	E S 15	E S 15	E S 13	E S 15	G	G	37	42	42	39	43	40	43	J A 46	J A 36	25	J A 19	E S 15	E S 15	J A 64	J A 69	J A 30	
29	J A 84	J A 93	J A 46	J A 25	J A 45	J A 28	27	J A 45	J A 41	41	60	62	J A 54	J A 61	45	G	40	J A 34	J A 21	E S 16	E S 16	E S 16	E S 16	E S 16	
30	J A 20	E S 13	E S 15	J A 26	E S 15	E S 15	G	G	G	J A 44	J A 66	J A 58	J A 44	G	G	G	30	G	J A 24	J A 44	J A 47	J A 31	J A 26	J A 26	
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 19	15	E S 16	J A 20	J A 19	E S 16	24	32	40	40	42	43	42	40	40	E G 28	31	30	J A 24	J A 26	J A 26	J A 25	J A 20	J A 20	
UQ	J A 26	J A 23	J A 24	J A 25	J A 24	J A 24	27	37	J A 45	J A 47	J A 54	J A 50	J A 54	J A 44	44	J A 46	J A 39	J A 44	J A 32	J A 33	J A 41	J A 36	J A 26	J A 27	
LQ	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15	G	G	35	38	38	G	G	G	G	G	G	24	18	J A 20	J A 21	J A 19	E S 16	E S 16	

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FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1982

FBES (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station		AKITA		Lat. 39 43.5 N		Long 140 08.0 E		Sweep 1		MHz to 20		MHz in 20sec		in		automatic operation										
Hour	Day	00	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	E S 15	E	E	E	17	31	34	35	37	43	41	G	G	40	47	39	36	28	19	E	E	E	E S 16	
2		E	E	E	18	20	E S 16	G	35	36	37	G	G	30	30	38	G	G	29	19	23	E	E	E S 16	E	
3		E S 16	E S 16	E S 16	E	E S 16	E S 16	G	31	36	37	40	41	49	41	38	G	32	30	24	25	23	E	18	E	
4		22	19	E	E	15	G	24	31	47	58	58	45	45	E B 51	E B 48	G	38	36	47	26	18	45	35	22	
5		E	18	23	E	25	33	36	31	38	38	41	41	A A 72	40	45	G	G	29	21	E	A A 86	19	20	E	
6		E S 16	E S 16	E	E S 11	E	18	25	30	35	36	41	G	40	38	47	40	G	43	20	E S 16	E S 16	E S 15	E S 15	18	
7		K 17	S	S	17	13	19	24	35	38	38	39	G	G	G	G	G	34	32	22	19	E S 17	E	E S 15	E	
8		18	E	21	23	21	22	28	34	37	37	G	G	G	G	37	36	G	30	23	22	36	E	E	E S 15	
9		15	E	19	E	E S 16	E S 16	G	G	36	36	G	G	41	40	37	G	31	28	23	25	21	E	E	E	
10		E	E S 15	E S 16	E S 15	E	E	26	32	G	38	40	42	G	40	38	22	G	20	26	E S 18	E	E S 16	E	E S 16	
11		E	E S 16	E S 15	E S 15	E S 13	E S 15	G	G	G	38	40	45	40	40	38	37	30	G	19	20	32	26	24	26	
12		E	E S 16	E S 15	E	E S 15	E S 16	G	30	38	53	40	44	40	39	G	G	25	30	33	20	19	E S 16	E	E	
13		E	19	E	E S 16	E S 12	E S 16	25	G	36	48	39	40	51	43	43	53	40	35	E S 16	E S 16	20	20	40	33	
14		28	28	E	E	E	E	G	30	34	37	40	40	40	40	38	27	30	G	17	E	E	21	E	18	
15		E	E S 17	E S 13	E S 15	E	E S 15	30	57	50	51	39	G	G	G	G	G	30	23	E S 15	E S 16	E	22	E	E	
16		E	E	E S 15	E S 15	E S 15	E S 15	24	G	34	G	G	39	39	37	35	G	G	24	19	19	19	E	21	E S 16	
17		E S 16	E S 16	E	E S 15	E S 15	E S 15	G	28	33	37	45	49	G	G	35	34	G	G	E S 15	30	29	17	E S 16	E S 15	
18		E	E	E S 15	E S 15	E S 15	E	21	29	44	43	38	38	G	G	G	G	G	G	E S 16	E S 15	20	18	20	E S 16	
19		E S 16	E	E S 16	E	E	E S 16	22	G	34	36	36	G	38	G	G	G	G	23	17	22	E	E S 16	E S 16	E S 16	
20		E S 15	E S 15	E S 14	E S 13	E S 14	E	G	G	34	36	G	39	G	G	G	G	G	24	E S 15	30	21	E	E S 16	E S 16	
21		E S 16	E S 16	E S 15	E S 15	E S 15	E S 15	22	30	G	40	40	39	G	G	G	33	30	29	35	27	20	19	E S 17	E S 16	
22		E S 16	E S 15	E S 15	E S 16	E	E S 16	26	28	35	37	G	G	G	G	G	G	G	G	E	E	E S 16	E S 15	E S 16	E	
23		30	25	30	30	26	24	32	31	58	42	49	40	62	38	36	40	31	26	20	28	E	E	E	E	
24		E	E	E S 15	E S 15	E	18	25	62	35	36	40	42	39	39	G	39	39	28	E	E	37	E S 16	E S 15	18	
25		30	E	E S 15	E	E	E S 16	28	30	38	38	39	50	42	39	41	63	39	35	60	30	E S 16	E S 16	E S 16	E S 16	
26		E S 16	E S 14	E S 14	E	E S 15	E S 15	21	31	34	36	40	40	41	39	40	78	40	54	E	29	38	E	E	25	
27		E S 15	E S 15	24	A A 37	E S 15	E S 16	G	30	35	38	52	40	G	G	G	G	29	25	E S 16	E S 16	45	50	E	E	
28		E S 16	E S 13	E S 15	E S 15	E S 13	E S 15	G	G	37	41	41	39	41	39	38	43	35	22	E	E S 15	E S 15	E	19	E	
29		30	36	19	E	20	E	22	30	34	40	41	47	40	42	38	G	40	32	19	E S 16	E S 16	E S 16	E S 16	E S 16	
30		E	E S 13	E S 15	E	E S 15	E S 15	G	G	G	G	40	64	40	38	G	G	21	G	E	29	21	E	21	E	
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	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED		16	E S 15	E S 15	E	E S 15	E S 16	22	30	35	38	40	40	40	38	36	G	30	28	19	20	19	16	E	E	16
UQ		E S 16	E S 16	E S 16	E S 15	E S 15	E S 16	26	31	38	40	41	42	41	40	38	39	35	32	23	26	23	19	19	E	S 16
LQ		E	E	E S 13	E	E	E S 15	G	G	34	36	38	G	G	G	G	G	G	23	E	E	15	16	E	E	E

SEP. 1982

FBES (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1982

F-MIN (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station		AKITA																						
		Lat. 39 43.5 N											Long 140 08.0 E											
		Sweep 1 MHz to 20 MHz in 20sec in automatic operation																						
Hour Day	00	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	S 15	E 15	S 15	E 15	S 16	15	16	18	20	25	22	26	23	19	18	17	17	E 16	S 16	E 16	S 16	E 16	S 16
2	E 16	S 15	E 15	S 15	E 15	S 16	16	16	17	18	19	20	19	18	17	17	18	15	E 15	S 13	E 16	S 17	E 16	S 16
3	E 15	S 16	E 16	S 16	E 16	S 16	16	16	16	18	19	20	20	19	18	18	16	16	E 16	S 16	E 16	S 16	E 16	S 16
4	E 15	S 15	E 15	S 15	E 12	S 15	16	17	18	19	46	27	35	51	48	27	20	16	E 15	S 15	E 16	S 16	E 16	S 16
5	E 13	S 16	E 15	S 15	E 14	S 16	E 16	16	17	20	18	20	25	28	19	17	17	17	E 16	S 16	E 16	S 16	E 16	S 15
6	E 16	S 16	E 16	S 11	E 12	S 16	E 16	16	18	17	18	35	20	18	19	19	16	16	E 16	S 16	E 15	S 15	E 15	S 17
7	E 16	S 14	E 15	S 12	E 16	S 16	16	17	17	19	20	21	25	21	20	17	17	17	E 17	S 15	E 17	S 16	E 15	S 16
8	E 16	S 16	E 16	S 15	E 12	S 15	17	17	18	18	20	E 27	22	20	19	17	17	16	E 16	S 16	E 16	S 15	E 16	S 15
9	E 12	S 16	E 16	S 12	E 16	S 16	16	16	16	18	29	24	19	16	16	17	16	16	16	E 16	S 16	E 16	S 15	E 16
10	E 15	S 15	E 16	S 15	E 15	S 15	15	17	17	17	18	16	19	17	20	16	16	18	E 18	S 16	E 16	S 16	E 15	S 16
11	E 16	S 16	E 15	S 15	E 13	S 15	E 18	16	17	18	19	19	17	20	17	18	16	15	E 16	S 15	E 16	S 16	E 15	S 16
12	E 16	S 16	E 15	S 16	E 15	S 16	16	16	19	19	19	20	22	19	19	16	12	12	E 15	S 16	E 16	S 16	E 16	S 16
13	E 16	S 16	E 16	S 16	E 12	S 16	16	16	17	18	19	18	18	19	17	16	16	E 16	S 16	E 16	S 16	E 16	S 16	
14	E 16	S 15	E 15	S 15	E 15	S 16	E 15	17	16	19	18	20	20	19	20	17	18	E 17	S 16	E 16	S 16	E 15	S 14	
15	E 17	S 17	E 13	S 15	E 15	S 15	E 16	17	18	18	20	19	19	20	17	19	17	E 16	S 15	E 16	S 15	E 16	S 16	
16	E 16	S 15	E 15	S 15	E 15	S 15	16	16	16	18	18	19	16	16	16	16	16	16	E 16	S 16	E 16	S 16	E 16	S 16
17	E 16	S 16	E 16	S 15	E 15	S 15	E 16	17	18	18	18	19	19	20	19	17	16	15	E 15	S 15	E 15	S 14	E 16	S 15
18	E 16	S 15	E 15	S 15	E 15	S 16	E 16	20	16	17	20	19	20	19	18	16	15	16	E 16	S 15	E 16	S 16	E 16	S 16
19	E 16	S 15	E 16	S 16	E 16	S 16	E 16	16	16	16	16	22	17	18	19	17	16	E 16	S 16	E 16	S 16	E 16	S 16	
20	E 15	S 15	E 14	S 13	E 14	S 15	E 16	17	17	17	19	19	19	17	16	18	16	16	E 15	S 15	E 15	S 15	E 16	S 16
21	E 16	S 16	E 15	S 15	E 15	S 15	E 16	17	17	17	18	18	18	18	16	16	17	13	E 16	S 16	E 16	S 15	E 17	S 16
22	E 16	S 15	E 15	S 16	E 15	S 16	E 17	16	16	16	18	20	19	17	17	18	16	E 16	S 15	E 15	S 16	E 15	S 14	
23	E 16	S 12	E 12	S 13	E 13	S 15	E 16	16	15	18	18	20	20	20	17	16	16	E 16	S 13	E 15	S 15	E 16	S 16	
24	E 15	S 15	E 15	S 15	E 16	S 16	E 16	18	16	17	20	20	18	20	18	17	16	E 16	S 15	E 16	S 15	E 16	S 15	
25	E 16	S 16	E 15	S 15	E 16	S 16	E 16	16	16	17	20	25	20	18	17	18	16	16	E 16	S 16	E 16	S 16	E 16	S 16
26	E 16	S 14	E 14	S 14	E 15	S 15	E 18	16	16	16	18	18	18	18	18	16	16	13	E 16	S 16	E 16	S 15	E 16	S 16
27	E 15	S 15	E 12	S 12	E 15	S 16	E 18	16	17	20	22	21	20	21	20	19	17	E 16	S 16	E 16	S 15	E 16	S 16	
28	E 16	S 13	E 15	S 15	E 13	S 15	E 18	18	19	20	20	34	21	22	20	19	17	16	E 16	S 15	E 15	S 16	E 16	S 16
29	E 16	S 13	E 12	S 15	E 15	S 16	E 16	17	17	18	18	19	20	19	18	20	16	E 16	S 16	E 16	S 16	E 16	S 16	
30	E 15	S 13	E 15	S 12	E 15	S 15	E 16	17	20	20	20	33	21	19	19	17	16	E 16	S 16	E 17	S 15	E 17	S 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	E 16	S 15	E 15	S 15	E 15	S 16	E 16	16	17	18	19	20	20	19	18	17	16	16	E 16	S 16	E 16	S 16	E 16	S 16
UQ	E 16	S 16	E 16	S 15	E 15	S 16	16	17	18	19	20	22	21	20	19	18	17	16	E 16	S 16	E 16	S 16	E 16	S 16
LQ	E 15	S 15	E 15	S 14	E 13	S 15	E 16	16	16	17	18	19	19	18	17	16	16	E 16	S 15	E 15	S 15	E 15	S 16	

SEP. 1982

F-MIN (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982 M(3000)F2 (0.01)

135 E Mean Time (G.M.T. + 9 h)

Station		AKITA																				Lat. 39 43.5 N, Long 140 08.0 E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	250	265	265	250	265	270	300	315	265	310	275	300	310	290	295	305	315	300	315	300	290	265	270	270			
2	270	265	280	270	275	275	325	330	295	290	305	280	290	285	285	305	305	310	295	295	300	270	275	275			
3	270	275	295	295	270	275	295	325	290	295	315	295	295	290	305	305	305	310	290	290	275	255	275				
4	265	295	265	270	245	255	250	285	290	275	255 ^R	290	285	285	305	295	315	305	315	280	270	255	250	F			
5	F	260	270	250	260	260	255	250	275	280	230	285	A	285	285	295	305	300	305	275	A	265	285	270			
6	260	255	260	265	280	285	305	305	285	265	270	240	265	275	250	265	310	250	250	240	240	260	F	F			
7	F	225	235	240	250	F	F	F	270	275	285	240	220	235	255	260	275	280	295	305	290	265	285	265	255	F	F
8	255	F	270	255	270	235	350	355	320	290	255	265	285	255	290	295	315	310	310	280	270	260	260	265			
9	F	F	F	F	F	F	335	340	330	290	300	285 ^H	295	275	280	295	300	310	310	290	280	270	280	275			
10	250	260	290	275	280	305	325	325	305	I ^C 300	290	295	280	280	295	300	295	310	310	275	285	295	275	280			
11	270	270	280	265	275	280	345	320	305	325	310	300	295	290	295	290	295	305	300	285	275	285	275	265			
12	265	275	295	265	265	265	320	335	325	310	300	305	300	290	295	310	290	300	310	310	300	275	275	285			
13	280	285	280	275	280	295	340	320	300	315	300	295	270	280	285	300	310	310	310	300	300	270	270	270			
14	280	280	270	280	285	310	335	335	335	320	295	305	295	285	300	295	290	310	325	325	290	280	270	265			
15	270	285	290	305	285	285	315	320	345	330	290	295	285	305	295	295	300	315	320	315	305	280	275	280			
16	305	285	270	290	290	300	330	330	335	325	315	310	310	305	310	300	300	315	315	335	320	295	285	260			
17	260	260	295	285	280	295	335	345	335	310	315	315	325	310	305	315	315	315	320	320	285	265	265	300			
18	270	285	265	270	265	290	335	340	350	325	315	310	300	310	310	315	315	325	315	275	280	280	280	275			
19	270	255	270	265	280	300	320	290	365	345	315	325	295	305	300	290	300	315	310	315	290	270	260	270			
20	268	255	285	265	285	290	335	320	330	340	310	305	305	295	295	305	305	310	315	300	305	285	270	265			
21	265	280	265	270	290	305	335	345	340	330	305	295	300	310	305	280	305	315	305	305	270	270	280	260			
22	270	280	250	250	250	275	265	300	245	280	305	295	285	290	280	290	270	310	275	265	245	280 ^S	260	230 ^H			
23	290	285	275	255	270	270	330	335	325	315	325	300	295	310	305	310	315	335	310	320	320	265	255	280			
24	290	270	290	280	F	290	325	325	330	340	305	315	295	305	310	310	325	320	305	305	315	275	265	285			
25	265	265	265	295	315	305	335	350	320	320	315	300	300	300	295	300	310	335	315	315	300	285	280	285			
26	280	285	260	305	295	255	335	350	335	315	300	290	290	290	280	285	290	310	320	255	260	245	275	250			
27	240	295 ^H	300 ^H	A	245	230	245	305 ^F	245	240	235	260	260	275 ^H	280	270	280	295	295	300	280	270	265	265			
28	265	265	255	260	255	260	300	315	310	300	295	295	300	310	300	305	310	315	295	295	280	280	275	F			
29	F	265	F	F	285	275	330	330	320	310	290	285	285	280	280	285	295	300	295	275	290	280	275	265			
30	265	295	300	285	280	260	330	325	310	315	290	320	290	285	290	295	305	295	300	305	280	280	280	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	29	30	29	28	29	30	30	30	30	30	30	29	30	30	30	30	30	30	30	29	30	29	27			
MED	268	275	270	270	278	280	328	325	320	310	300	295	295	290	295	295	305	310	310	298	285	272	275	270			
UQ	270	285	290	280	285	295	335	335	335	325	310	305	300	305	300	305	310	315	315	310	300	280	275	278			
LQ	260	265	265	265	265	265	300	315	290	290	290	285	285	280	285	290	295	305	300	275	280	265	265	265			

SEP. 1982 M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1982

M(3000)F1 (0.01)

135° E Mean Time (G.M.T. + 9 h)

Station	AKITA																							
Lat.	39° 43.5' N											Long 140° 08.0' E												
Sweep	1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	340	385	365	L	L	L	L	A	L	A					
2							L	L	L	L	L	L	335	350	L	L	355	L	L					
3								L	L	L	L	L	355	345	L	L	L	L	L					
4							L	330	A	A	A	350	325	L	345	L	L	L						
5							A	340	335	385	350	360	A	365	L	L	L							
6								L	325	345	350	345	345	345	305	L	L	A						
7								L	L	L	L	355	365	360	355	330	340	L						
8									L	L	L	370	395	380	370	360	345	L	L					
9								L	L	L	L	L	L	L	335	L	L	L	L					
10									L	L	L	L	L	L	L	L	L							
11									L	L	L	L	L	L	L	L	L							
12									L	L	L	L	L	L	L	L	L							
13									L	L	L	L	L	L	L	L	A	A						
14								L	L	L	L	L	L	L	L	L	L							
15								A	A	A	L	L	L	360	L	L	L							
16									L	L	L	L	L	L	L	L	L							
17									L	L	L	A	L	L	L	L	L							
18									A	L	L	L	L	L	L	L	L							
19									L	L	L	L	L	L	L	L	L							
20									L	L	L	L	L	L	L	L	L							
21									L	L	L	L	L	L	L	L	L							
22								L	L	L	L	L	L	L	L	L	L							
23									A	L	L	L	A	L	L	L	L							
24									L	L	L	L	L	L	L	L	L							
25									L	L	L	L	L	L	L	L	A	L						
26									L	L	L	L	L	L	L	L	A							
27							L	L	L	325	A	L	L	L	390	L	L							
28								L	L	L	L	L	L	L	L	A								
29								L	L	L	L	L	L	L	L	L								
30									L	L	L	A	L	L	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								2	3	4	6	7	6	6	5	3								
MED								335	335	365	360	355	348	358	345	345								
UQ									338	385	370	362	360	365	360	350								
LQ									330	335	350	348	345	345	330	342								

SEP. 1982

M(3000)F1 (0.01)

IONOSPHERIC DATA

SEP. 1982
H^oF₂ (KM)
135° E Mean Time (G.M.T. + 9 h)

Station AKITA		Lat. 39° 43.5' N, Long. 140° 08.0' E											Sweep 1 MHz to 20 MHz in 20sec in automatic operation											
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							290	300	405	310	370	320	325	295	320	290	285	255						
2							260	240	270	280	290	290	320	305	320	300	290	280						
3								275	290	275	280	320	350	320	310	300	285	265						
4							405	355	350		A	A	380	400	375	350	310	280	300					
5							430	475	390	400	600	505		A	400	370	340	300						
6								295	340	355	355	420	340	325	425	290	270		A					
7								325	370	570 ^L	610	470	450	440	360	375	290							
8									320	400	480	450	400	505	385	360	280	260						
9								250	265	275	295	300	310	400	345	305	275	275						
10									260	275	250	270	310	325	290	280	270							
11									275	250	250	260	310	300	290	300	255							
12									240	260	275	290	270	300	290	255	270							
13									255	250	280	295	290	300	290	280	255							
14								240	260	245	250	275	290	290	295	275	275							
15								240	230	235	290	290	300	280	275	290	270							
16									245	250	250	255	260	250	275	270	280							
17									240	240	260	250	265	245	250	270	260							
18									240	230	240	285	290	260	255	255								
19									235	240	245	260	275	290	295	265	270							
20									245	225	245	260	250	270	260	280								
21									250	245	250	245	285	260	250	260	260							
22									265 ^L	500 ^L	355	275	250	325	260	300	290							
23									245	245	255	255	280	290	280	260	255							
24									255	250	240	270	270	260	275	255								
25									245	250	265	275	270	275	275	290	260							
26									235	240	255	270	280	270	260		A							
27								430	305	460	520	555	400	305	280	310	380 ^L	300						
28									330	330 ^L	320	270	290	260	250	245								
29									240	240	245	265	285	270	270	270								
30									255	250	250		A	260	255	255	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							5	12	30	29	29	29	29	30	30	29	22	6						
MED							405	285	258	250	265	275	290	290	290	280	272	270						
UQ							430	315	330	310	295	320	320	320	320	300	285	280						
LQ							290	245	245	245	250	260	275	260	270	265	260	260						

IONOSPHERIC DATA

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H^oF (KM)

135 E Mean Time (G.M.T. + 9 h)

Station		AKITA																							
		Lat. 39 43.5 N												Long 140 08.0 E											
		Sweep 1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	325	315	290	275	260	320	A	235	220	210	210	220	230	230	225	A	A	A	255	245	290	255	295	300	
2	305	290	275	280	295	300	250	230	220	210	200	220	210	210	220	230	220	250	255	250	230	280	280	275	
3	275	285	235	250	280	300	240	250	220	210	200	195	A	220	230	240	240	250	240	260	255	275	325	290	
4	330	270	270	285	305	310	260	240	A	A	A	A	A	B	B	275	270	A	A	270	290	A	A	350	
5	300	280	290	320	A	A	A	240	A	220	245	210	A	230	A	235	250	250	270	260	A	290	270	255	
6	310	365	330	310	270	275	250	245	230	210	230	240	225	225	A	A	A	A	350	340	375	310	220	340	
7	530	345	395	350 ^Q	350 ^Q	295	260	230	A	245	225	205	225	245	240	245	245	270	270	305	280	305	300 ^{E S}	350 ^{E S}	
8	340	330	325	A	A	A	240	240	220	215	210	210	225	230	205	245	250	240	260	270	A	320	315	310	
9	310	300	300	305	290	295	235	230	210	210	210	200	245	240	240	240	245	245	250	250	280	280	295	300	
10	270	295	285	270	280	265	220	235	220	220	215	200	200	200	235	225	225	250	240	240	255	255	255	285	
11	290	290	280	290	280	270	230	225	210	245	220	230	205	210	220	235	240	250	245	255	A	260	275	A	
12	290	290	250	260	290	310	240	240	230	A	230	220	220	205	220	240	245	255	245	235	240	265	280	260	
13	280	275	260	255	255	250	220	230	225	A	210	235	A	A	240	A	A	250	240	240	235	275	A	A	
14	285	285	290	280	260	245	235	230	220	220	200	200	200	220	235	230	235	250	230	210	240	255	260	300	
15	280	270	270	240	235	295	250	A	A	A	200	200	200	220	215	220	240	245	240	230	225	A	290	280	
16	260	250	270	265	240	255	230	230	225	220	200	200	205	210	210	235	240	250	240	225	220	225	275	280	
17	325	305	260	270	245	260	240	230	205	210	A	A	200	225	220	225	245	250	240	240	280	230	295	235	
18	240	275	290	295	295	270	245	225	A	A	200	200	200	235	220	225	245	240	230	260	290	270	260	270	
19	275	340	320	290	270	255	250	250	235	220	195	200	205	210	235	235	250	245	240	220	240	290	310	275	
20	290	325	260	220	245	270	240	240	220	225	225	210	215	210	225	240	250	250	235	255	235	235	270	275	
21	295	285	265	270	250	245	230	230	220	235	210	205	205	230	220	240	200	245	245	250	270	280	255	305	
22	270	270	E S 295	E S 340	325	290	255	245	225	225	225	220	225	240	240	255	250	240	260	270	330	270	270	220	
23	A	A	A	A	A	A	255	235	A	230	A	220	A	200	200 ^H	A	240	240	230	225	225	255	315	300	
24	275	280	245	250	270	270	225	A	220	200	210	210	200	235	230	A	245	240	235	230	A	250	275	290	
25	A	335	300	270	230	210 ^H	230	230	220	210	200	A	A	225	235	A	A	245	A	250	235	250	280	280	
26	260	265	280	255	245	335	235	235	225	220	200	205	225	235	235	A	255	A	235	A	A	325	280	A	
27	E S 330	245	A	A	380	410	320	280	245	240	A	230	240	235	235	200 ^H	200 ^H	280	260	245	A	A	285	295	
28	300	290	290	300	270	320	260	250	225	A	210	220	220	220	230	A	245	245	240	235	245	280	290	290	
29	A	A	290	265	285	285	230	235	A	215	220	A	220	A	230	240	255	245	235	240	260	255	260	285	
30	290	255	235	240	270	280	230	230	230	200	225	A	220	210	240	240	245	240	240	250	260	260	290	280	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	27	28	28	27	27	27	28	28	23	24	26	25	24	27	27	22	26	26	28	29	24	27	28	27	
MED	290	288	281	270	270	280	240	235	220	220	210	210	218	225	230	238	245	248	240	250	255	270	280	285	
UQ	309	310	291	291	290	300	250	240	225	225	225	220	225	232	235	240	250	250	255	260	280	280	294	300	
LQ	275	272	262	258	252	262	230	230	220	210	200	200	202	210	220	230	240	245	238	235	235	255	270	275	

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H^oF (KM)

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IONOSPHERIC DATA

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H^oE (KM)

135° E Mean Time (G.M.T. + 9 h)

Station AKITA Lat. 39 43.5 N, Long 140 08.0 E Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						S	110	110	110	105	110	110	110	110	110	105	110	115		S					
2						S	110	110	A	A	105	100	105	110	A	100	110	110		S					
3						S	120	110	110	110	110	110	110	110	110	110	110	115		S					
4						S	110	110	105	105	B	A	B	B	B	110	110	115		S					
5						S	S	110	110	105	110	105	A	110	110	110	110	110		S					
6						S	S	110	110	110	A	110	A	110	A	110	110	115		S				S	
7	S	S	S			S	115	110	105	110	105	110	110	110	105	110	110	115		S					
8						S	115	110	110	110	110	E S 120	110	110	110	105	110	115		S					
9						S	125	110	110	110	E B 115	110	110	A	A	110	115	110	110						
10							115	110	110	105	100	100	105	100	100	110	110	115		S					
11						S	110	105	105	105	105	105	105	105	105	105	A	110		S					
12							115	115	105	105	105	105	105	105	105	105	A	A		S					
13							120	110	110	110	110	110	110	110	110	110	110		S	S					
14						S	110	110	105	105	A	A	A	A	A	110		S	S						
15						S	110	110	A	A	100	100	105	105	110	110		S	S						
16							115	110	110	105	105	A	A	A	A	105	110	A							
17						S	110	110	110	105	A	110	105	A	A	105	110								
18						S	115	110	110	110	105	105	110	105	110	110	120								
19						S	110	110	110	110	110	110	110	110	110	110		S							
20						S	110	110	110	105	100	100	100	100	110	110	115								
21						S	110	110	110	110	105	105	105	105	A	A	A								
22						S	110	105	105	105	105	100	105	105	110	110		S							
23						S	110	110	110	110	110	A	105	A	105	110		S							
24						S	110	110	105	110	105	105	105	105	110	110		S							
25						S	115	110	110	110	110	110	110	115	110	115	E B 120								
26						S	110	105	105	100	100	100	100	100	100	100	A								
27						S	110	110	110	110	110	105	105	105	110	115		S							
28						S	115	110	110	110	E B 125	110	110	110	110	110	110								
29						S	A	A	110	110	A	110	110	110	110	115		S							
30						S	110	110	110	A	A	A	105	105	105	A	S								
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							11	29	28	28	26	24	23	26	22	27	26	16	1						
MED							115	110	110	110	110	106	105	108	105	110	110	115	110						
UQ							118	110	110	110	110	110	110	110	110	110	110	115							
LQ							112	110	110	105	105	105	105	105	105	105	110	110							

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H^oE (KM)

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IONOSPHERIC DATA

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H^oES (KM)

135 E Mean Time (G.M.T. + 9 h)

Station		AKITA																						
Lat. 39 43.5 N, Long 140 08.0 E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	S	105	105	105	115	110	110	110	105	110	110	G	G	110	135	135	120	110	110	110	100	100	S
2	100	100	115	100	105	S	G	110	105	100	G	G	100	100	100	G	G	120	120	110	110	105	S	100
3	S	S	S	105	S	S	G	125	120	120	120	110	110	110	125	G	110	125	115	110	110	110	105	100
4	100	95	100	100	100	110	120	120	110	105	110	100	110	B	B	G	135	120	110	110	110	105	100	100
5	100	100	100	100	120	115	120	125	110	120	110	105	105	135	135	G	G	120	110	110	110	105	105	100
6	S	S	105	S	105	135	140	125	120	120	100	G	105	110	100	110	G	120	140	S	S	S	S	155
7	S	S	S	125	120	110	120	110	105	110	105	G	G	G	G	G	140	120	140	125	S	110	S	120
8	110	110	130	125	125	135	130	130	125	115	G	G	G	G	120	120	G	115	120	120	110	110	110	S
9	105	100	100	100	S	S	G	G	115	120	G	G	110	100	95	G	100	140	110	100	100	105	100	100
10	100	S	S	S	100	100	145	145	G	125	140	125	G	125	125	100	100	145	S	100	S	105	105	S
11	100	S	S	S	S	S	G	G	G	140	120	120	110	105	110	110	105	G	140	105	105	100	105	100
12	100	S	S	100	S	S	G	130	120	110	105	105	105	110	G	G	100	100	100	95	100	S	100	100
13	100	100	100	S	S	S	140	G	125	110	120	120	110	110	110	110	110	110	S	S	105	100	100	100
14	110	100	100	100	100	100	G	120	115	110	110	100	100	100	100	100	125	G	110	105	105	100	100	100
15	105	S	S	S	110	S	120	110	110	100	120	G	G	G	G	G	125	110	S	S	100	100	100	100
16	100	100	S	S	S	S	145	G	115	G	G	100	100	100	100	G	G	125	105	95	95	100	100	S
17	S	S	120	S	S	S	G	110	110	110	105	100	G	G	100	100	G	G	S	110	105	105	S	S
18	100	120	S	S	S	125	115	115	110	110	110	110	G	G	G	G	G	100	S	S	105	105	105	S
19	S	110	S	105	100	S	140	G	120	140	110	G	110	G	G	G	G	140	125	110	115	S	S	S
20	S	S	S	S	S	120	G	G	130	125	G	110	G	G	G	105	G	120	S	105	105	105	S	S
21	S	S	S	S	S	S	140	135	G	115	115	105	G	G	G	100	100	100	95	95	95	105	S	S
22	S	S	S	S	100	S	135	135	135	125	G	G	G	G	G	G	G	G	115	120	S	S	S	100
23	130	130	125	125	115	120	120	120	120	125	110	110	100	110	105	150	150	135	120	115	110	110	110	105
24	120	115	S	S	110	130	145	110	120	120	115	110	120	105	G	135	135	120	95	100	110	S	S	110
25	105	105	S	110	110	S	130	140	125	125	125	110	110	110	140	125	125	120	115	110	S	S	S	S
26	S	S	S	120	S	S	145	145	135	115	110	110	135	120	140	125	125	115	120	110	110	115	105	115
27	S	S	130	120	S	S	G	130	135	120	110	140	G	G	G	G	135	115	S	S	105	105	100	100
28	S	S	S	S	S	S	G	G	135	120	120	120	120	135	120	110	110	115	110	S	S	105	105	100
29	105	100	100	105	100	115	105	105	100	115	110	100	115	110	115	G	145	125	120	S	S	S	S	S
30	105	S	S	100	S	S	G	G	G	G	100	100	100	110	G	G	100	G	100	110	105	105	100	105
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	14	13	17	16	13	19	22	26	28	24	22	19	18	18	15	20	25	23	23	23	23	19	19
MED	105	100	105	105	105	115	130	122	120	118	110	110	110	110	110	110	125	120	115	110	105	105	100	100
UQ	105	110	120	120	112	125	140	130	125	122	120	110	110	110	125	125	135	125	120	110	110	105	105	105
LQ	100	100	100	100	100	110	120	110	110	110	110	100	102	105	100	102	102	115	110	102	105	102	100	100

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H^oES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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TYPES OF ES

135 E Mean Time (G.M.T. + 9 h)

Station		AKITA																							
		Lat. 39 43.5 N												Long. 140 08.0 E											
		Sweep 1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F2		F1	F2	F2	C2	C3	C3	C1	C2	C2	C1			C1	H2	H2	C2	C4	F2	F2	F1	F1		
2	F1	F1	F1	F2	F4			C2	L2	L2			L1	L1	L2			C2	C2	F3	F1	F2		F2	
3				F1				C1	C1	C1	C1	C1	C2	C1	C1		C1	C2	C3	F4	F6	F2	F2	F2	
4	F3	F2	F1	F1	F3	C1	C2	C1	C3	C3	C1	L2	C1				H1	C2	C4	F3	F3	F6	F4	F3	
5	F3	F2	F4	F3	F4	C5	C3	C1	C2	C1	C2	C2	L3	H1	H1			C2	C3	F2	F3	F3	F5	F2	
6			F1		F2	H1	H1	C1	C1	C1	L2		L1	C2	L3	C2		C4	H1					HK21	
7	K1	K1	K1	F2	F2	C2	C2	C3	C2	C2	C1						H1	C2	H3	F2		F2		F1	
8	F3	FF11	F3	F6	F5	H4	C2	C1	C2	C1					C1	C2		CH12	C5	F3	F6	F2	F2		
9	F2	F2	F5	F2					C1	C1				C1	L1	L1		LH11	H2	C2	F3	F5	F1	F2	F2
10	F1			F1	F1	H2	H2		C1	H1	C1			C1	C1	L1	L1	H1		F1		F2	F1		
11	F1								H1	C1	C1	C1	C2	C1	C1	C1	L2		H2	F2	F4	F5	F3	F4	
12	F2			F1				C2	C2	C2	C2	C2	C2	C1				L3	L2	L4	F2	F1		F1	F1
13	F2	F3	F2				H2		C2	C2	C1	C1	C2	C2	C2	C3	C3	C3			F2	F4	F4	F7	
14	FF13	F3	F1	F2	F2	F1		C1	C1	C1	C1	L2	L1	L1	L2	L2	C2		C2	F1	F2	F2	F1	F2	
15	F2			F2			C3	C4	C2	L2	CL12						C1	C2			F1	F2	F2	F2	
16	F1	F2					H2		C1			L2	L1	L2	L2			CL11	F2	F2	F2	F1	F2		
17			F1					C2	C2	C2	C2	L2			L2	L1				F5	F6	F2			
18	F1	F1				F1	C1	C2	C2	C2	C2	C1						LC12			F5	F2	F2		
19		F1		F2	F2		H1		C1	H1	C1			C1				H2	F1	F4	F2				
20						F1			C1	C1		C1				L1		C2		F4	F2	F2			
21							H2	H2		C2	C2	C2				L2	L2	L2	F3	F3	F2	F2			
22				F1			H3	H1	H1	C1									F1	F1				F1	
23	F4	F6	F6	F4	F6	FF42	C3	C2	C2	C2	C3	C2	L2	C1	L2	H1	H2	H3	F6	F5	F1	F2	F1	F2	
24	F1	F1		F1	F2	H2	C2	C1	C1	C1	C1	C1	C1	C1		H1	H3	C3	F2	F2	F7			F2	
25	F6	F1		F2	F3		C2	H1	C2	C1	C1	C2	C2	C1	HL22	C3	C2	C5	F5	F7					
26				F1			H1	HL21	H1	C2	C1	C1	H1	C1	H1	C3	C2	CL51	F1	F2	F6	F2	F1	F2	
27			F3	F6				CL11	H1	C1	C2	H1					H1	C3			F4	F5	F3	F3	
28								H1	C2	C1	C1	C1	H1	C1	C1	C2	C2	C2	F1			F2	F3	F2	
29	F4	F5	F4	F2	F3	F2	L1	L2	L2	C2	C2	L2	C1	C2	C1		H2	C3	F1						
30	F1			F1							L2	L2	L2	C1			L2		F1	F3	F3	F2	F2	F1	
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																									
UQ																									
LQ																									

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TYPES OF ES

IONOSPHERIC DATA

SEP. 1982

FXI (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station		RUKUBUNJI TOKYO Lat. 35 42.4 N Long 139 29.3 E										Sweep 1 MHz to 20 MHz in 20sec in automatic operation													
Hour Day	00	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 68	S 66	X 67	S 64	X 60	X 57													X 83	X 73	X 71	S 73	X 75		
2	X 73	X 73	S 68	X 62	X 60	X 61													S 96	S 81	S 78	X 79	S 82		
3	S 79	S 78	S 75	X 65	X 58	X 55													X 86	X 74	X 74	X 72	S 74		
4	S 74	S 76	X 66	X 61	X 61	X 61													U 79	S 71	X 67	X 67	S 67		
5	X 67	X 70	S 64	X 61	X 64	X 62													S 75	S 70	X 68	S 67	X 60		
6	X 58	X 52	X 57	X 57	X 62	X 62													S 90	U 81	U 95	S	S 86		
7	68	65	S 58	74	88	118	118												X 70	X 77	X 79	X 68	X 63	X 60	
8	X 60	60	56	X 44	S 38	S 36													X 69	X 63	X 59	X 61	X 61	X 62	
9	X 61	X 59	X 56	X 55	X 54	X 54													S 101	S 79	S 74	X 75	X 75	X 74	
10	X 71	S 68	X 66	X 68	X 64	X 66													S 83	X 86	X 80	X 75	X 72		
11	X 75	X 71	X 71	X 67	X 68	S 72													X 104	X 89	S 86	S 81	X 80	S 76	
12	S 76	X 74	S 75	X 65	X 66	X 62													X 118	S 102	X 83	S 79	X 82	X 85	
13	S 80	S 80	S 80	X 70	X 70	S 74													X 108	X 95	X 76	X 76	U 80	S 76	
14	S 81	S 76	X 70	X 71	X 66	X 68													X 123	S 97	X 68	X 70	X 70	X 70	
15	X 71	S 69	S 68	X 65	X 59	X 54													X 109	X 98	X 75	S 69	X 70	X 75	
16	S 72	X 67	X 61	X 60	X 60	X 60													X 124	X 122	X 84	X 66	X 66	X 66	
17	X 63	X 64	X 68	X 60	X 59	X 59													X 115	S 105	S 75	S 75	S 76	S 80	
18	X 66	S 65	S 62	X 62	X 61	X 66													X 91	X 75	S 78	X 79	S 74	S 69	
19	X 66	X 60	X 60	X 59	X 57	X 54													X 115	S 98	X 70	X 69	X 71	X 74	
20	X 70	X 66	X 71	X 60	X 59	X 60													X 114	X 94	X 83	X 64	X 67	X 65	
21	X 65	X 64	X 60	X 62	X 61	X 62													X 105	S 94	X 79	S 81	S 81	S 72	
22	X 74	X 70	X 64	X 65	X 65	X 70													X 107	X 98	S 98	S 96	S 87	S 80	
23	X 71	X 58	X 49	X 47	S 52	X 54													X 109	S 90	X 73	X 66	X 67	S 70	
24	S 75	X 66	X 63	X 61	X 54	X 57													S 100	X 87	X 71	X 70	X 67	X 69	
25	X 65	X 61	X 62	X 63	X 58	X 49													X 105	S 79	X 71	X 71	X 71	X 71	
26	X 69	X 65	X 63	X 63	X 53	X 49													S 100	X 77	X 84	S 87	S 87	S 85	
27	84	S 61	S 53	X 49	X 50	69	75												X 77	X 70	X 66	X 68	X 65	X 61	
28	X 61	X 60	X 59	S 54	X 52	X 53													X 91	X 75	X 72	X 74	S 75	X 70	
29	X 70	X 70	X 69	X 62	X 60	X 57													S 103	S 88	X 86	X 82	S 80	X 78	
30	X 76	X 82	S 80	X 64	X 60	X 57													X 106	S 86	X 83	S 81	X 81	S	
31																									
CNT	30	30	30	30	30	30	1	1											23	30	30	30	29	29	
MED	X 70	X 66	X 64	X 62	X 60	X 60	118	75											X 105	S 88	X 76	X 74	X 73	X 72	
UQ	75	S 71	S 69	X 65	X 64	X 66													X 112	S 96	X 83	S 80	S 80	76	
LQ	X 66	X 61	X 60	X 60	X 57	X 54													X 100	X 79	X 71	X 68	X 67	X 69	

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FXI (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1982

FOF2 (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station: **OKUBUNJI TOKYO** Lat. **35 42.4 N**, Long **139 29.3 E** Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	S 62	S 60	61	58	54	51	70	69	79	85	93	82	86	80	81	83	80	87	88	S 77	67	65	67	69	
2	67	67	S 62	56	54	55	78	90	86	93	104	110	115	113	105	105	S 101	S 103	S 99	90	S 75	72	73	S 76	
3	S 73	S 72	69	59	52	49	S 76	S 102	S 100	S 104	89	88	92	90	90	89	89	93	93	80	68	68	66	S 68	
4	S 68	70	60	55	55	55	61	72	S 76	78	B	85	R 81	R 79	79	81	75	71	S 79	S 73	65	61	61	S 61	
5	61	64	58	55	58	56	64	65	74	65	68	67	72	74	74	77	78	S 75	79	69	S 64	62	S 61	54	
6	52	46	51	51	56	56	S 75	89	95	96	108	R 101	118	118	90	114	85	57	67	S 84	U 75	S 89	S	F	
7	F	F	S 52	F	F	F 112	F U 64	83	S 80	75	81	90	92	101	85	82	73	64	71	S 73	62	57	54		
8	54	F 51	F	S 38	S 32	S 30	S 70	62	70	64	66	75	73	68	69	70	72	68	63	57	53	55	55	56	
9	55	53	50	49	48	48	68	80	78	R 76	86	93	91	85	94	S 102	S 101	S 98	95	73	S 68	69	69	68	
10	65	62	60	62	58	S 60	S 75	85	88	93	H 93	90	90	98	105	105	100	96	S 88	77	80	S 74	69	66	
11	69	65	65	61	S 62	66	S 81	89	S 97	95	91	90	100	101	108	104	S 104	S 105	S 98	S 83	S 80	S 75	74	70	
12	S 70	68	69	59	60	56	89	S 99	95	91	100	113	103	S 100	103	102	100	110	112	96	S 77	S 73	S 76	S 79	
13	S 74	S 74	S 74	64	64	68	86	88	S 95	111	100	102	104	114	122	118	115	108	S 102	89	70	70	U 74	70	
14	S 75	S 70	64	65	60	62	90	91	91	S 92	S 96	93	98	105	109	104	106	121	117	91	62	64	64	64	
15	S 65	S 63	S 62	59	53	48	S 77	95	95	76	83	103	112	113	105	102	107	110	S 103	92	69	63	S 64	69	
16	S 66	61	55	54	54	54	S 76	84	S 100	S 106	103	105	120	115	106	105	110	123	S 118	116	S 78	60	60	60	
17	57	58	62	54	53	53	S 79	S 95	94	91	96	105	108	104	99	104	107	114	109	S 99	S 69	69	S 70	S 74	
18	60	59	56	56	55	60	S 85	S 86	89	H 80	94	107	115	119	107	106	103	S 103	85	69	S 72	S 73	68	S 63	
19	60	54	54	53	51	S 48	66	S 76	S 104	84	H 74	98	106	100	104	104	108	S 114	S 109	92	64	63	65	68	
20	64	60	65	54	53	54	S 86	S 99	109	101	86	101	109	106	107	107	114	109	108	88	S 77	58	61	59	
21	59	58	54	56	55	56	S 78	S 95	S 100	111	99	108	118	121	111	97	118	115	S 99	S 88	S 73	S 75	S 75	S 66	
22	68	S 64	58	59	59	S 64	65	84	80	87	108	102	114	122	115	120	104	124	S 101	92	92	90	U 81	74	
23	65	52	S 43	41	S 46	48	S 98	116	116	125	127	121	133	125	121	115	106	S 109	S 103	S 84	67	60	61	S 64	
24	69	60	57	55	48	51	S 74	100	105	108	108	106	111	123	120	108	110	S 95	94	81	65	S 64	61	S 63	
25	59	55	56	57	52	43	69	S 94	105	106	111	115	114	110	110	114	119	111	S 99	S 73	65	65	65	65	
26	63	59	57	57	47	43	U S 78	S 105	93	86	103	114	118	118	108	108	115	118	S 94	71	78	S 81	S 81	F	
27	F	55	S 47	43	44	F	S 70	F 69	63	65	R 62	74	66	61	61	63	69	S 72	71	64	60	S 62	59	55	
28	55	54	53	48	46	47	H 67	70	84	80	93	110	104	103	97	93	S 95	95	85	69	66	68	69	64	
29	64	64	S 63	56	54	51	S 75	89	96	98	102	104	109	115	114	109	110	105	S 97	82	S 80	S 76	S 74	72	
30	70	S 76	S 74	58	54	51	S 75	98	112	114	120	125	125	118	120	S 120	S 110	S 107	J S 100	S 80	S 77	S 75	S 75	I S 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	28	29	29	29	29	29	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	29	28	
MED	64	60	58	56	54	54	S 75	89	94	92	96	102	107	106	105	104	104	105	98	82	70	68	67	66	
UQ	68	65	63	59	56	56	S 79	95	100	104	103	108	115	118	110	108	110	111	S 103	90	S 77	S 74	S 74	70	
LQ	60	55	54	54	51	48	70	76	83	80	86	90	91	92	94	93	89	93	85	73	65	62	61	62	

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FOF2 (0.1 MHz)

IONOSPHERIC DATA

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FOF1 (0.01 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station: ROKUBUNJI TOKYO		Lat. 35 42.4 N		Long. 139 29.3 E		Sweep 1 MHz to 20 MHz in 20 sec in automatic operation																		
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	A	L		U L	L	U L	L	A	L						
2								L	L	U L	L	U L	U L	L	L	U L	L	L						
3								L	L	U L	U L	U L	L	U L	U L	U L	L	L						
4							470	500	490	B	540	U L	B	H	U L	U L								
5						U L	A	450	490	490	540	530	U L	L	U L	L	L							
6						U L		L	U L	U L	U L	U L	U L	U L	L	U L	L	L						
7								A	A	L	L	540	570	530	520	U L	L	L						
8									L	530		530	520	U L	510	L	L							
9							L	L	500	H	540	560	L	U L	L	L	L							
10								L	L		L	U L	U L	U L	L	L	L							
11								L	L	L	L	U L	U L	L	L	L	L							
12								L		L	L	A	L	U L	L	L								
13								L	L	A	L	L	L	L	A	L	L							
14							L	L	U L	L	530	L	L	L	L	L	L							
15									A	A	L	500	U L	L	L	L	L							
16								L	L	L	L	L	L	L	L	L	U L	L						
17								L	L	L	L	L	L	L	L	L	L	L						
18								L		L	L	L	L	L	L	L	L	A						
19								L	L	L	L	L	L	L	L	L	L	L						
20									L	450	L	L	L	L	L	L	L	L						
21								L	L	L	L	L	A	L	L	L	A							
22									L	L	L	L	L	L	L	L	L							
23									L	L	A	L	L	L	L	L	L							
24								L	L	L	L	L	U L	L	L	L	L	L						
25								L	L	L	L	L	L	L	L	L	L	L						
26									L	L	L	L	L	L	L	L	L							
27						L	L	470	500	500	520	560	570	540	U L	U L								
28								L	A	L	L	A	A											
29								L	L	L	L	L	L	L	L	L	L							
30									L	L	L	L	L	L	L	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	2	3	10	8	10	13	12	9	7	1							
MED							U L	485	470	515	530	540	570	570	540	U L	U L	U L						
UQ								485	U L	545	U L	U L	U L	U L	U L	U L	U L							
LQ								460	490	510	530	560	U L	U L	540	U L	U L							

SEP. 1982

FOF1 (0.01 MHz)

IONOSPHERIC DATA

SEP. 1982

FOE (0.01 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station: **KOKUBUNJI TOKYO** Lat. **35 42.4 N** Long. **139 29.3 E** Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	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	R	A	A	A	A	360	315	280	A						
2							H 235	300	A	A	A	R	390	390	395	A	360	320	260	S					
3							225	290	340	A	A	A	A	A	385	355	310	250	S						
4							220	280	325	A	B	A	B	B	B	400	350	A	S						
5							H 210	285	315	A	A	A	400	395	R	R	360	315	250	S					
6							A	290	325	A	A	B	R	400	390	370	340	310	245	S	J	K	J	K	
7	J	K					A	A	A	A	A	R	R	380	U	R	370	330	290	245		130	130	150	
8	150						250	290	330	A	375	R	395	380	350	350	315	245	H						
9							A	290	A	A	380	390	390	380	R	R	340	305	255	H					
10							H 235	285	330	355	375	390	390	A	A	A	A	A	A						
11							H 215	A	325	355	370	380	380	375	R	350	340	290	240	H					
12							H 215	280	325	360	A	A	A	A	A	365	A	290	A						
13							H 220	285	325	360	A	A	R	395	A	A	A	A	A						
14							A	A	A	R	375	390	390	380	360	330	H	280	225						
15							A	250	A	A	A	R	395	395	390	355	330	290	215						
16							180	280	320	350	A	375	R	380	370	345	325	290	A						
17							195	A	A	350	A	380	A	A	A	A	H	325	280	220					
18							A	A	A	A	A	A	390	375	355	320	280	200							
19							180	265	310	R	I	R	I	R	370	375	360	345	330	280	200				
20							H 205	270	305	340	I	R	I	R	370	375	370	350	325	285	200				
21							H 200	280	325	340	360	A	A	A	A	345	310	A	A						
22							200	270	310	340	A	A	R	360	340	315	265	200							
23							180	260	310	340	A	A	A	370	335	320	275	205							
24							180	265	A	A	R	A	R	380	375	355	330	285	195						
25							185	H 280	320	345	360	H 380	R	385	390	370	340	285	205						
26							180	275	315	A	375	390	390	395	H	365	330	280	200				J	K	
27	J	K	J	K			A	270	310	H	350	360	A	390	380	365	335	285	A				J	K	
28	120	120	120		K		190	230	310	A	R	390	A	395	400	H	380	340	A	H					
29							195	290	330	A	A	R	395	A	R	400	380	345	290	205					
30							185	280	320	355	370	385	385	380	355	335	280	210							
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	1	1	1		1		22	24	21	14	14	15	21	22	24	27	26	23				1	1	2	2
MED	J	K	J	K	J	K																J	K	J	K
UQ	150	120	120		150		200	280	320	350	372	390	390	380	358	335	290	220			130	130	135	150	
LQ							H 220	288	325	355	375	390	395	390	370	342	310	245							
							185	270	310	340	360	380	380	375	350	328	280	202							

SEP. 1982

FOE (0.01 MHz)

IONOSPHERIC DATA

SEP. 1982

FOES (0.1 MHZ)

135 E Mean Time (G.M.T. + 9 h)

Station: KUBUNJI TOKYO Lat. 35 42.4 N, Long 139 29.3 E Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	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 26	J A 21	J A 21	J A 21	J A 24	J A 30	27	36	35	74	35	47	66	44	51	45	J A 51	41	27	J A 42	J A 24	J A 19	J A 19	20	
2	22	20	20	22	55	J A 26	G 20	G 24	J A 54	J A 51	J A 50	G 30	G 33	G 33	39	36	G 27	32	23	J A 19	J A 30	32	J A 30	22	
3	22	J A 18	22	19	22	21	25	J A 42	39	42	40	42	46	J A 48	G	G	G	30	24	22	J A 32	J A 32	J A 30	J A 50	
4	J A 22	25	J A 30	J A 19	J A 19	23	24	33	42	40	B	40	E B 44	E B 69	E B 47	G	40	29	20	J A 25	J A 86	J A 80	J A 51	J A 50	
5	J A 33	J A 20	J A 23	J A 21	20	23	26	J A 45	J A 85	J A 47	40	40	G 30	G 32	45	39	36	33	21	J A 42	59	J A 117	J A 64	J A 47	
6	24	J A 23	23	20	J A 19	22	25	36	35	39	39	E B 43	G 30	G 26	G 21	G	G	30	J A 29	J A 29	18	20	21	22	
7	23	21	22	24	23	17	28	J A 67	67	40	68	36	G 29	G 33	G	G	40	27	22	16	15	23	J A 29	J A 20	
8	23	J A 24	J A 21	J A 29	J A 25	20	33	34	42	43	G	G	G	G	G	G	G	33	J A 32	J A 30	19	J A 19	31	J A 22	
9	23	21	21	24	J A 22	J A 21	24	G 20	36	38	G	G	G	G	G 35	G 32	34	29	23	25	J A 34	25	27	24	
10	E S 15	E B 13	E S 14	E B 13	E B 13	E S 15	25	33	42	40	42	50	48	39	40	J A 35	32	29	J A 44	J A 22	24	22	E S 15	21	
11	E S 16	E B 13	E B 13	21	21	20	G 21	31	G	40	40	40	41	19	G	G	G	G	21	J A 25	E S 14	J A 19	J A 30	J A 25	
12	J A 24	J A 20	J A 18	21	19	E S 15	G	33	35	G	J A 53	59	J A 65	58	G 28	34	G 25	30	J A 18	J A 26	J A 23	J A 20	22	22	
13	E S 15	22	E B 13	21	E B 13	J S 13	26	33	41	47	J A 69	48	G 34	47	J A 47	65	J A 34	25	E S 16	J A 21	J A 22	J A 24	J A 27	25	
14	J A 20	E S 14	E S 15	E S 14	E B 13	E S 15	23	30	35	35	G 30	G 34	G 31	G 35	G 30	G 31	30	23	E S 16	J A 22	J A 25	E S 15	E S 16	23	
15	22	E S 14	18	J A 26	E B 13	J S 12	23	J A 45	58	53	J A 86	G 30	J A 34	G 28	G 22	43	J A 45	30	J A 18	J A 29	19	24	J A 53	J A 25	
16	24	22	E S 15	E S 14	E B 13	J S 14	24	30	G 29	J A 32	J A 48	J A 34	G 37	38	G 26	G 29	34	36	J A 25	J A 30	24	27	22	21	
17	E S 16	17	E B 13	E S 15	J S 12	J S 12	21	28	J A 39	34	J A 44	35	J A 45	55	J A 42	G 27	G 22	25	18	J A 24	J A 53	J A 24	J A 22	23	
18	E S 15	J S 13	E S 14	E S 14	E S 15	E S 15	21	32	J A 37	40	J A 42	49	G 29	40	39	42	40	23	J A 24	22	J A 19	J A 55	22	J A 24	
19	22	24	J A 20	23	23	24	24	G	34	G 30	G 32	G 30	G	G	G	G	30	25	17	J A 20	J A 26	22	E S 15	J A 18	
20	E S 16	E B 13	E B 13	E B 13	E S 14	J S 13	J A 30	29	39	G	G 36	G 33	G 31	G 25	G 21	G 20	G	24	E S 14	E S 16	E S 16	J A 23	23	22	
21	17	E S 14	E S 14	E S 15	E S 14	E S 15	23	31	40	40	39	39	60	68	G 31	G 23	56	J A 57	J A 42	34	62	J A 30	J A 30	J A 22	
22	E S 16	18	E S 15	20	20	J S 14	24	33	39	38	42	38	G 35	G 34	G 20	35	28	26	20	E S 15	E S 15	E S 15	E S 15	E S 15	
23	J A 23	34	43	J A 30	J A 25	J A 29	29	53	J A 54	43	49	80	40	G 31	G 30	38	45	J A 48	72	J A 20	23	J A 24	E S 15	30	
24	24	21	21	17	E S 15	J S 15	25	30	41	45	36	39	G 32	G 34	G 25	35	35	24	J A 27	44	J A 52	J A 51	23	23	
25	21	22	22	22	J A 17	E S 15	25	35	34	40	40	G	G	G	40	41	34	27	J A 33	72	J A 32	J A 22	23	22	
26	20	E B 13	E B 13	E S 14	E B 13	E S 15	23	29	33	36	G 32	G 25	G 28	G 31	42	J A 48	35	53	J A 25	J A 45	J A 32	23	18	J K 14	
27	E S 15	J K 12	J K 12	22	K 15	19	J A 24	34	37	46	43	55	G	G 23	45	39	J A 36	J A 37	53	J A 34	J A 25	J A 20	J A 52	37	
28	19	J A 21	23	J A 18	21	21	22	32	39	J A 50	G 36	40	54	J A 60	G 20	G	31	17	J A 31	23	21	21	E S 15	J A 25	
29	E S 15	E S 15	20	E B 13	J A 18	J A 19	22	G 17	G 23	37	45	35	G 41	G 22	G	G 18	G	28	88	J A 25	J A 28	J A 21	J S 16	E S 16	
30	E S 15	E S 15	E S 14	E B 13	E S 14	E S 15	21	G	G 25	39	41	G	G 29	G 26	G 21	35	33	29	18	J A 28	J A 24	21	J A 24	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	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	22	20	19	20	18	16	24	32	39	40	40	38	G 33	G 32	G 28	33	34	29	24	J A 25	J A 24	J A 23	23	22	
UQ	23	22	22	22	22	21	25	35	42	45	45	43	44	42	40	39	36	33	J A 31	J A 30	J A 32	J A 27	J A 30	25	
LQ	E S 16	E S 14	E S 14	E S 14	E S 14	E S 15	22	29	35	37	G 36	G 30	G 29	G 25	G 20	G 18	G 25	25	18	J A 22	19	20	18	21	

SEP. 1982

FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1982

FBES (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station **KOKUBUNJI TOKYO** Lat. **35 42.4 N** Long **139 29.3 E** Sweep **1** MHz to **20** MHz in **20** sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23													
1	17	18	18	19	21	28	26	35	35	63	35	44	46	41	49	44	50	38	27	41	22		E	E	E												
2	E	E	E	E	47	21	17	G	G	44	38	40	29	G	31	G	33	39	34	21	G	31	21	E	18	16	25	E									
3	E	E	E	E	E	E	24	36	38	40	40	42	44	45	G	G	G	29	23	E	31	E	26	37													
4	16	15	16	16	17	E	G	32	42	39	B	U	Y	E	B	E	B	E	B	E	47	G	40	29	17	E	23	40	30	44							
5	28	17	23	21	E	15	26	43	42	45	40	40	G	G	30	G	31	41	38	34	32	21	33	42	E	E	E	31									
6	E	19	15	E	17	E	24	33	35	37	39	E	B	G	G	G	G	G	27	18	28	S	S	S	S												
7	S	E	E	E	15	16	22	53	57	40	44	36	G	29	G	33	G	G	37	26	20	15	15	E	17	E											
8	E	E	17	25	22	19	29	33	39	38	G	G	G	G	G	G	G	31	30	26	18	E	22	17													
9	E	E	E	15	19	E	23	G	17	36	37	G	G	G	G	G	34	G	32	34	29	22	16	22	E	E	E	E									
10	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E						
11	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E						
12	E	18	16	E	E	E	S	15	G	32	G	G	48	43	54	50	G	27	34	21	G	27	18	19	17	E	E	E	E								
13	E	S	E	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E					
14	E	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E				
15	E	E	S	E	E	E	S	13	S	21	39	46	43	72	G	30	G	32	G	27	G	22	40	43	30	E	E	E	E	E	23						
16	E	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E				
17	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E		
18	E	S	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E			
19	E	16	16	E	15	16	23	G	33	30	G	32	G	30	G	G	G	G	G	24	16	18	23	E	E	S	E	S	E	S	E	S	E				
20	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E		
21	E	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E		
22	E	S	E	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	
23	21	33	38	29	22	23	27	44	42	43	48	73	39	G	31	G	30	38	44	39	65	19	E	E	E	S	E	S	E	S	E	S	E	S	E		
24	E	E	E	E	E	S	15	S	23	30	40	42	36	G	39	32	G	33	G	25	35	34	23	24	35	22	42	E	E	E	E	E	E	E			
25	E	16	E	E	E	E	S	15	21	34	G	40	39	G	G	G	40	38	33	25	24	51	27	17	E	E	E	E	E	E	E	E	E	E			
26	E	E	B	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	
27	E	S	S	S	20	B	E	21	30	37	42	39	41	G	23	G	44	39	33	33	45	29	20	E	E	E	E	E	E	E	E	E	E	E	E		
28	E	E	15	15	E	E	21	31	38	48	36	40	52	53	G	20	G	31	G	17	30	E	E	E	E	E	E	E	E	E	E	E	E	E	E		
29	E	S	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E	B	E	S	E
30	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E	S	E
31																																					
CNT	29	28	29	30	28	23	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	29	29	27	28												
MED	E	E	E	E	E	E	15	22	30	36	39	40	38	G	32	G	27	32	32	27	20	19	18	E	E	E	E	E	E	E	E	E	E	E	E		
UQ	E	S	16	15	15	16	16	24	33	40	42	41	40	42	40	40	38	35	30	24	26	23	17	23	17												
LQ	E	E	E	E	E	E	21	28	32	37	G	G	G	G	G	G	G	G	G	G	G	24	16	E	E	E	E	E	E	E	E	E	E	E	E	E	

SEP. 1982

FBES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

F-MIN (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station		KOKUBUNJI TOKYO		Lat.	35 42.4 N		Long	139 29.3 E		Sweep	1 MHz to 20 MHz		in 20sec in		automatic operation										
Hour	Day	00	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 S	E S	E S	E S	13	13	E S	15	15	16	21	23	23	27	27	20	17	15	19	14	E S	E S	E S	E S	E S
2	E S	E S	E S	E S	E S	13	E S	14	15	16	16	18	18	18	19	17	15	14	15	E S	E S	E S	E S	E S	E S
3	E S	E S	E S	E S	E S	14	E S	15	15	17	18	18	22	19	17	16	16	16	14	E S	E S	E S	E S	E S	E S
4	E S	13	13	13	13	E S	E S	16	14	16	17	B	35	44	69	47	32	20	16	E S	E S	E S	E S	E S	E S
5	E S	E S	13	13	E S	13	E S	16	15	16	17	19	28	23	22	17	17	15	16	E S	E S	E S	E S	E S	E S
6	E S	12	13	13	13	E S	E S	16	15	15	16	20	43	19	19	16	16	15	15	E S	E S	E S	E S	E S	E S
7	E S	E S	E S	E S	13	E S	E S	15	14	15	17	17	26	17	21	18	17	15	16	E S	13	13	E S	E S	E S
8	E S	E S	13	13	E S	E S	E S	15	17	17	17	23	25	22	23	22	18	18	16	E S	13	E S	E S	E S	13
9	E S	E S	E S	13	13	E S	E S	16	14	15	15	26	19	19	17	17	16	15	15	E S	12	E S	E S	E S	E S
10	E S	13	E S	13	13	E S	E S	16	15	15	16	19	19	21	16	16	16	14	16	E S	E S	E S	E S	E S	E S
11	E S	13	13	E S	E S	E S	E S	16	16	17	18	22	19	17	16	19	15	16	E S	E S	E S	E S	E S	E S	E S
12	E S	E S	13	E S	E S	E S	E S	16	15	16	21	16	24	17	18	18	16	15	15	E S	E S	E S	E S	E S	E S
13	E S	E S	13	E S	13	E S	E S	15	16	16	22	17	22	22	21	18	16	16	15	E S	E S	E S	E S	E S	E S
14	E S	E S	E S	E S	13	E S	E S	15	16	16	18	17	24	20	18	16	14	16	15	E S	E S	E S	E S	E S	E S
15	E S	E S	13	13	13	E S	E S	16	15	15	17	22	18	19	18	16	15	16	15	E S	E S	E S	E S	E S	E S
16	E S	E S	E S	E S	13	E S	E S	14	15	17	16	17	18	18	18	17	16	13	15	E S	E S	E S	E S	E S	E S
17	E S	E S	13	E S	E S	E S	E S	16	15	16	19	18	22	22	18	17	15	13	16	13	E S	E S	E S	E S	E S
18	E S	E S	E S	E S	E S	E S	E S	15	14	15	18	19	18	18	17	16	14	13	16	E S	E S	E S	E S	E S	E S
19	E S	12	13	E S	12	13	E S	16	15	15	17	18	18	22	17	16	16	16	E S	13	E S	E S	E S	E S	E S
20	E S	13	13	13	E S	E S	E S	14	15	16	17	17	19	17	18	15	13	16	E S	E S	E S	E S	12	E S	E S
21	E S	E S	E S	E S	E S	E S	E S	15	15	15	17	16	18	17	18	16	14	14	14	E S	E S	E S	E S	E S	E S
22	E S	E S	E S	12	E S	E S	E S	16	15	14	17	19	19	17	18	15	14	16	E S	E S	E S	E S	E S	E S	E S
23	E S	12	E S	E S	E S	13	E S	15	15	15	17	17	20	18	18	17	15	14	E S	E S	E S	E S	E S	E S	E S
24	E S	E S	E S	E S	E S	E S	E S	15	16	14	16	16	19	19	18	17	14	15	16	E S	E S	E S	E S	E S	E S
25	E S	13	E S	E S	E S	E S	E S	16	15	15	16	19	18	23	22	16	15	15	15	13	E S	E S	13	E S	E S
26	E S	13	13	E S	13	E S	E S	16	16	14	16	19	17	16	17	16	15	13	E S	14	E S	E S	E S	E S	E S
27	E S	E S	E S	13	14	E S	E S	16	16	16	18	18	22	18	19	18	16	16	E S	E S	E S	E S	E S	E S	E S
28	E S	E S	13	13	E S	E S	E S	16	16	17	21	20	31	23	26	19	20	17	E S	E S	E S	E S	E S	E S	E S
29	E S	E S	13	13	13	E S	E S	14	16	16	18	17	25	22	20	19	16	17	E S	E S	E S	E S	E S	E S	E S
30	E S	E S	E S	13	E S	E S	E S	16	16	17	18	23	34	22	18	16	16	17	E S	E S	E S	E S	E S	E S	E S
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
MED	E S	E S	E S	E S	13	E S	E S	15	15	16	17	18	21	19	18	17	16	15	15	E S	E S	E S	E S	E S	E S
UQ	E S	E S	E S	E S	E S	E S	E S	16	16	16	18	20	25	22	21	18	16	16	16	E S	E S	E S	E S	E S	E S
LQ	E S	12	13	13	13	E S	E S	15	15	15	16	17	18	18	18	16	15	14	15	E S	E S	E S	E S	E S	E S

SEP. 1982

F-MIN (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

M(3000)F2 (0.01)

135 E Mean Time (G.M.T. + 9 h)

Station **OKUBUNJI TOKYO** Lat. **35 42.4 N** Long **139 29.3 E** Sweep **1** MHz to **20** MHz in **20** sec in **automatic** operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	265 ^S	265 ^S	280	280	285	280	305	300	290	275	290	275	300	290	280	290	285	285	295	290 ^S	275	265	260	260	
2	265	275	275 ^S	275	275	280	290	290	300	270	260	255	260	265	260	270	275 ^S	275	285 ^S	280	295 ^S	265	260	275 ^S	
3	275 ^S	270 ^S	285	285	275	265	295 ^S	295 ^S	285 ^S	270	300	270	275	275	275	280	280	280	285	285	280	260	250	260 ^S	
4	270 ^S	280	270	255	260	260	270	270	280 ^S	265	B	270	265 ^R	270 ^R	280	280	295	280	285 ^S	280 ^S	270	255	245	250 ^S	
5	255	265	260	250	260	250	260	250	265	255	270	270	275	285	290	290	295	295 ^S	290	280	270 ^S	265	265 ^S	275	
6	260	240	255	265	290	280	295 ^S	285	270	270	260	255 ^R	255	250	240	260	295	275	250	250 ^U	245 ^S	240 ^S		S F	
7	F	F	230	F	F	285 ^F	F	300 ^S	275	270 ^S	270	265	240	260	270	275	285	295	280	255	275 ^S	255	245	250	
8	250	250 ^F	F	255 ^S	250 ^S	255 ^S	320 ^S	310 ^S	325	300	275	280	290	275	280	280	290	300	300	285	260	255	255	265	
9	270	275	270	275	270	285	310	320	325	290 ^R	290	280	280	260	260	260 ^S	265	280 ^S	285	280	265 ^S	265	265	270	
10	280	275	265	285	285	290 ^S	315 ^S	300	295	295	265 ^H	275	265	265	260	275	275	280	285 ^S	275	275	275 ^S	275	265	
11	270	270	275	260	270 ^S	285	305 ^S	310	290 ^S	280	285	275	265	260	260	270	270 ^S	270	285 ^S	280 ^S	265 ^S	270 ^S	260	260	
12	270 ^S	260	280	260	255	250	290	310 ^S	300	280	265	275	265	270 ^S	265	270	265	270	270	280	270 ^S	255 ^S	255 ^S	270 ^S	
13	260 ^S	260 ^S	275 ^S	270	280	290	300	305	275 ^S	295	300	275	265	265	280	280	300	300	305 ^S	295	290	265 ^U	265 ^S	265	
14	265 ^S	290 ^S	260	270	275	280	315	310	305	280 ^S	290 ^S	280	270	280	290	270	295	300	320	305	275	265	275	265	
15	275 ^S	280 ^S	275 ^S	300	305	280	305 ^S	310	300	315	280	285	280	290	270	270	280	285 ^S	290	295	270	255 ^S	270	270	
16	290 ^S	285	280	280	285	300	315 ^S	300	300 ^S	300 ^S	295	285	295	285	295	295	295	310	305 ^S	330	320 ^S	270	270	275	
17	260	270	285	290	285	295	320 ^S	315 ^S	325	335	320	320	305	305	300	300	315	325	335	325 ^S	265 ^S	245	250 ^S	290 ^S	
18	270	260	250	250	255	280	320 ^S	350 ^S	340	290 ^H	300	290	280	295	290	300	300	310 ^S	310	275	265 ^S	275 ^S	270	265 ^S	
19	275	245	260	275	270	285 ^S	305 ^S	305 ^S	320 ^S	315	300 ^H	295	310	290	280	300	290	300 ^S	305	305	275	260	265	270	
20	270	255	285	275	285	295	310 ^S	305 ^S	305	340	300	300	315	300	300	300	315	325	320	305	305 ^S	285	255	255	
21	260	255	265	270	275	285	350 ^S	360 ^S	330 ^S	320	290	285	290	290	285	270	290	305	300 ^S	290 ^S	255 ^S	255 ^S	270 ^S	255 ^S	
22	265	260 ^S	255	240	250	270 ^S	270	275	280	275	300	280	290	280	280	275	270	295	280 ^S	280	245	275	275 ^U	265	
23	290	285	255 ^S	240	260 ^S	270	305 ^S	325	305	300	305	305	295	290	290	295	305	305	305 ^S	320 ^S	300 ^S	290	275	265	275 ^S
24	290	275	280	305	290	290	310 ^S	320	300	305	300	290	290	290	300	300	300	290 ^S	290	290	290	275	275	270 ^S	
25	275	250	275	280	300	305	315	310 ^S	305	300	290	290	285	275	275	280	300	305	305 ^S	300 ^S	275	270	280	280	
26	285	285	280	300	295	260	310 ^U	290 ^S	310	290	290	270	280	275	280	270	285	300	305 ^S	245	245	250 ^S	265 ^S	F	
27	F	290	265 ^S	245	230	F	235 ^S	270 ^F	230	235	255 ^R	245	245	240	235	255	280	275 ^S	275	285	260	275 ^S	275	275	
28	270	270	290	265	255	265	300 ^H	315	295	310	275	285	280	290	280	275	280 ^S	285	285	285	265	270	270	265	
29	270	270	280 ^S	285	280	270	305 ^S	300	295	305	280	280	270	270	260	260	270	275	270 ^S	275	265 ^S	270 ^S	265 ^S	260	
30	265	280 ^S	305 ^S	285	280	265	310 ^S	305	275	290	285	290	290	270	280 ^S	280	285	295	285 ^J	265 ^S	270 ^S	260 ^S	265 ^S	280 ^I	
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	29	29	29	29	29	29	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	29	28	
MED	270	270	275	275	275	280	305 ^S	305	300	290	290	280	280	275	280	278	288	295	288	285	270	265	265	265	
UQ	275	280	280	285	285	285	315 ^S	310	305	305	300	290	290	290	290	290	295	300	305	295	280	270	270	275	
LQ	265	260	260	260	260	265	295	295	280	275	275	270	265	265	265	270	275	280	285 ^S	280	265 ^S	255	255	260	

SEP. 1982

M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1982

M(3000)F1 (0.01)

135 E Mean Time (G.M.T. + 9 h)

Station: **OKUBUNJI TOKYO** Lat. **35 42.4 N** Long **139 29.3 E** Sweep **1** MHz to 20 MHz in 20 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	A	L	UL	L	A	L	A	L							
2								L	L	UL	L	UL	L	L	L	UL	L	L						
3								L	L	UL	UL	UL	L	UL	UL	UL	L	L						
4								315	L	325	375	B	350	B	H	UL								
5							UL	A	A	335	385	335	350	UL	L	UL	L							
6							UL	L	UL	UL	UL	UL	UL	UL	L	UL	L							
7							A	A	L	L	325	345	320	335	325	UL	L							
8								L	360		355	380	UL	UL	L	L								
9								L	L	380	H	355	L	UL	L	L	L							
10								L	L			L	UL	UL	UL	L	L							
11								L	L	L	L	L	UL	UL	L	L	L							
12								L		L	L	A	L	UL	L	L								
13								L	L	A	L	L	L	L	L	A	L							
14								L	L	UL	L	360	L	L	L	L	L							
15									A	A	L	365	UL	UL	L	L								
16								L	L	L	L	L	L	L	L	L	UL							
17								L		L	L	L	L	L	L	L	L							
18								L		L	L	L	L	L	L	L	L	A						
19								L	L	L	L	L	L	L	L	L	L							
20									L	L	L	L	L	L	L	L	L							
21									L	L	L	L	L	A	L	L	A							
22									L	L	L	L	L	L	L	L								
23									L	L	A	L	L	L	L	L								
24								L	L	L	L	L	UL	L	L	L								
25								L	L	L	L	L	L	L	L	L	L							
26									L	L	L	L	L	L	L	L								
27							L	L	320	340	360	330	325	335	325	UL								
28								L	A	L	L	A	A											
29								L	L	L	L	L	L	L	L	L								
30									L	L	L	L	L	L	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	2	2	10	8	10	13	12	8	7	1							
MED							UL	325	322	342	362	342	330	UL	325	UL	UL							
UQ										375	375	355	340	335	330	UL								
LQ									UL	L	UL	UL	UL	UL	L	UL								

SEP. 1982

M(3000)F1 (0.01)

IONOSPHERIC DATA

SEP. 1982

H^oF2 (KM)

135 E Mean Time (G.M.T. + 9 h)

Station: **OKUBUNJI TOKYO** Lat. **35 42.4 N** Long **139 29.3 E** Sweep **1** MHz to **20** MHz in **20** sec in **automatic** operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							285	255	300	E A 320	310		300	L 335	310	290	305	280						
2								270	270	305	295	325	325	305	315	300	290	275						
3								255	265	290	250	310	315	325	320	305	295	275						
4								365	325	360	B 360	355	340	E B 375	340	315								
5							360	420	375	430	400	415	375	L 325	L 330	315	280							
6								310	295	310	330	370	355	315	410	295								
7								E A 320	345	305	380	370	430	360	310	325	270							
8									260	340		350	320	380	370	335	305							
9									250	260	260	295	300	325	370	355	310	290						
10									240	275		300	345	335	300	285	270							
11									270	255	260	L 260	325	315	305	295	295							
12									240		L 240	280	270	300	300	280								
13									260	265	255	300	315	L 330	305	280	270							
14									235	255	300	280	285	300	295	290	300	285						
15										235	E A 370	270	280	305	285	285								
16									250	265	245	L 245	285	275	285	285	270							
17									230	245	275	275	285	270	290	290	265							
18									230		285	290	290	295	280	270	250							
19									240	235	L 270	300	290	285	295		285							
20										235	240	255	280	295	300	285	275							
21										250	250	L 250	290	280	255	300	275							
22										L 340	270	H 255	290	300	290	305								
23										265	255	E A 295	300	295	280	260								
24										240	245	L 255	L 320	L 300		270	255							
25										240	245	250	285	290		310	290	270						
26											260	300	310	280		310								
27										435	325	490	535	465	455	505	565	595	L 455					
28										275	250	270	280	255	265									
29										255	270	L 270	320	325	310	300								
30											270	280	295	H 270	290	280								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	10	22	26	26	25	29	29	27	28	19	3						
MED							360	U 276	260	265	270	300	300	302	305	295	275	275						
UQ							398	325	295	308	295	325	325	328	318	308	290	278						
LQ							322	255	240	250	255	280	290	295	290	285	270	275						

SEP. 1982

H^oF2 (KM)

IONOSPHERIC DATA

SEP. 1982

H*F (KM)

135 E Mean Time (G.M.T. + 9 h)

Station: TOKUBUNJI TOKYO Lat. 35 42.4 N, Long 139 29.3 E Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	325	320	280	285	280	325	265	235	220	A	195	235	E A 270	230	A	A	A	A	265	270	265	275	305	305	
2	305	285	265	270	A	310	A H 255	235	E A 260	200	190	195	230	220	H 220	225	E A 250	250	250	220	265	A 320	A 280		
3	255	275	230	220	290	305	250	240	215	220	200	200	230	E A 230	230	245	235	255	250	250	250	295	E A 345	E A 350	
4	290	260	265	315	320	310	H 260	240	E A 265	200	B	240	240	B	B	260	H 250	265	265	265	280	A	E A 385	A	
5	E A 350	290	E A 315	E A 325	300	305	270	A	A	A	A	H 195	225	230	235	225	235	245	260	275	275	E A 335	290	275	E A 300
6	320	380	320	320	275	240	255	240	225	H 225	205	B 235	225	H 235	245	240	H 245	270	315	320	370	325	230	350	
7	480	370	375	370	340	270	235	A	A	235	E A 255	220	H 210	H 220	H 225	230	250	255	270	305	275	315	E A 310	320	
8	345	335	330	E A 405	E A 450	380	225	H 235	235	215	220	215	200	200	225	235	245	H 270	255	270	295	320	A 345	A 325	
9	305	285	285	295	310	290	240	H 220	225	210	195	H 195	H 180	H 220	H 225	H 235	245	H 255	245	230	280	290	295	285	
10	260	285	300	265	260	265	230	H 230	220	215	H 235	E A 240	220	220	240	225	230	245	240	250	260	240	260	295	
11	295	280	275	290	285	265	220	230	220	225	220	205	H 205	H 210	220	H 220	H 235	260	240	250	270	250	285	305	
12	285	305	A 260	240	310	H 330	245	235	225	200	H E A 255	E A 255	A	E A 275	195	230	H 240	255	245	235	240	265	290	265	
13	275	260	255	260	250	245	225	235	235	230	A	E A 255	215	225	E 260	A	E A 250	255	240	230	225	290	310	285	
14	280	250	300	265	220	255	240	230	H 200	H 200	225	200	200	H 200	235	235	245	250	225	210	245	280	280	295	
15	270	275	265	235	225	280	250	225	240	A	A	E A 235	200	215	H 235	H 245	E A 270	260	245	225	215	265	315	A 300	
16	245	255	265	270	255	250	230	235	H 215	210	215	H 200	215	220	215	240	225	H 255	240	225	200	255	275	280	
17	320	310	260	255	250	250	235	H 230	225	210	210	210	235	E A 255	230	235	240	H 255	240	240	275	270	320	245	
18	245	280	305	300	315	270	220	H 235	215	H 195	H 185	H 195	220	215	245	245	A	245	220	260	280	275	250	285	
19	275	345	315	275	260	250	250	H 235	220	H 210	H 180	H 195	230	220	H 225	H 235	245	255	240	220	235	310	325	280	
20	270	325	270	220	270	260	245	240	H 230	205	230	H 205	225	215	220	230	240	260	245	235	215	235	295	285	
21	290	295	250	275	260	245	220	H 235	H 230	215	225	215	A	A	220	220	A	250	240	250	E A 295	300	270	300	
22	275	275	275	355	340	295	255	235	230	230	230	230	220	230	240	250	H 245	255	265	265	335	270	260	225	
23	250	E A 305	A	E A 410	E A 365	335	255	230	A 250	230	A	A	H 225	215	215	A	255	245	260	220	215	285	310	295	
24	255	250	265	255	255	265	225	240	H 235	220	200	H 220	H 185	H 210	H 230	225	245	240	245	245	235	A	280	300	
25	265	335	295	265	210	230	235	H 230	H 230	205	200	H 210	H 225	H 230	230	245	240	H 240	225	E A 275	275	265	280	275	
26	260	265	270	245	235	355	240	225	H 225	215	200	H 200	H 215	H 225	240	240	H 260	H 260	230	E A 290	355	310	280	290	
27	305	275	235	360	405	390	335	285	250	E A 250	225	255	240	H 235	H 245	H 275	265	285	295	275	270	290	A	E A 320	
28	300	290	285	300	305	320	235	H 240	A 240	A	210	H 200	A	A	H 225	H 230	245	250	245	230	255	275	275	275	
29	280	275	260	235	260	280	230	H 225	H 225	215	225	H 210	H 225	H 230	H 240	235	250	250	E A 310	250	280	270	280	290	
30	290	265	230	240	265	300	H 235	H 240	H 225	H 225	210	H 225	230	225	230	245	250	245	240	240	265	265	290	295	
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	29	30	29	30	30	28	28	26	26	29	27	27	28	27	27	29	30	30	30	28	29	29	
MED	281	284	270	268	270	280	240	235	225	215	209	210	222	220	229	235	245	255	245	249	265	275	285	290	
UQ	305	310	298	305	308	310	255	240	234	225	225	228	230	229	239	245	249	260	262	268	280	292	308	300	
LQ	265	275	260	255	255	255	230	230	220	205	200	H 200	212	215	222	230	240	250	240	230	235	265	275	280	

SEP. 1982

H*F (KM)

IONOSPHERIC DATA

SEP. 1982

H^oE (KM)

135 E Mean Time (G.M.T. + 9 h)

Station **OKUBUNJI TOKYO** Lat. **35 42.4 N** · Long **139 29.3 E** Sweep **1** MHz to **20** MHz in **20** sec in **automatic** operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							115	110	105		A	E A	A	A	E A	E A	110	105	120						B
2							E A	E A	A	A	A	110	110	E A	A	A	E A	E A							S
3							125	105	105	105	105	105	105	105	105	110	105	110							S
4							H	105	105	E A	B	E B	B	B	B	E B	115	115	115						S
5							115	110	105	105	105	E A	E A	E A	120	105	105	110	115						S
6							120	105	105	105	105	B	E A	E A	A	105	110	110				S	S	S	S
7	S						120	105	105	105	105	E A	120	115	E A	105	105	110	110						
8							120	110	105	105	110	110	110	110	105	110	110	115							
9							115	110	110	A	105	110	105	105	E A	E A	105	E A							
10							120	110	105	105	105	105	105	105	110	105	110	120							
11							E S	120	110	105	110	110	105	110	105	110	110	115							
12							E S	125	105	105	110	105	A	A	A	E A	E A	E A							A
13							E S	125	110	105	110	105	105	E A	125	A	105	110	110	115					
14							125	110	110	E A	E A	E A	E A	E A	E A	E A	105	E A							
15							S	110	105	A	A	E A	E A	E A	115	110	A	A	120	115					
16							E A	E A	E A	E A	A	E A	E A	E A	E A	E A	E A	E A							A
17							E S	125	110	105	E A	A	E A	A	A	A	E A	E A	115	120	115				
18							130	115	105	110	105	A	E A	E A	A	110	A	A	120						
19							E S	130	115	E A	E A	E A	E A	105	100	105	110	110	115						
20							A	115	105	110	E A	E A	E A	115	A	115	A	105	115						
21							120	115	110	105	105	105	A	A	E A	E A	A	A							
22							130	110	105	100	105	105	E A	E A	A	A	110	110	110	125					
23							E S	125	110	105	105	105	A	A	E A	E A	E A	105	E S						
24							E S	120	110	105	105	120	A	E A	E A	E A	A	110	125						B
25							E S	135	110	110	E A	E A	105	110	105	105	105	110	115						
26							E S	130	105	105	105	E A	110	A	A	E A	E A	E A	E A						S
27		S	S				E S	135	110	110	105	105	110	110	115	110	110	110							S
28							S	115	110	110	E A	A	E A	130	115	110	115	115	E A						125
29							A	A	A	A	A	E A	105	110	A	105	110	115	E A						125
30							E S	130	110	A	E A	E A	E A	E A	E A	E A	A	115	E S						130
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		26	30	29	27	25	23	24	25	27	29	29	25							
MED					K		120	110	105	108	108	108	110	115	108	110	110	115							
UQ							E S	130	112	110	112	A	E A	E A	E A	E A	112	E E							125
LQ							118	110	105	105	105	105	106	108	105	110	110	115							

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H^oE (KM)

IONOSPHERIC DATA

SEP. 1982

H°ES (KM)

135 E Mean Time (G.M.T. + 9 h)

Station QKUBUNJI TOKYO Lat. 35 42.4 N Long 139 29.3 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation																								
Hour Day	00	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	100	105	105	100	115	115	110	110	105	105	110	100	120	130	130	120	120	110	110	110	115	110	95
2	105	95	105	105	100	100	105	105	105	100	100	100	100	100	100	95	95	115	110	110	105	105	100	105
3	100	100	100	100	100	110	130	120	115	115	120	115	115	115	G	G	G	120	110	115	105	110	100	100
4	100	100	100	100	100	105	120	115	120	120	B	120	B	B	B	G	135	120	110	105	105	100	100	100
5	100	100	100	100	105	120	120	120	115	110	110	115	105	105	135	130	130	115	115	105	105	105	105	105
6	100	100	100	100	100	100	125	115	120	110	110	B	105	100	100	G	G	125	115	110	135	120	115	155
7	140	150	140	150	125	115	115	110	110	120	110	105	105	105	G	G	125	125	120	125	120	115	100	105
8	100	110	130	125	120	125	125	125	125	125	G	G	G	G	G	G	G	135	125	115	115	115	110	105
9	100	100	100	100	100	100	125	100	120	120	G	G	G	G	100	100	140	125	115	100	100	100	100	100
10	S	B	S	B	B	S	150	135	125	130	135	120	115	115	120	120	120	115	105	105	100	100	S	95
11	S	B	B	110	110	115	95	120	G	130	130	125	125	100	G	105	G	G	130	110	S	100	100	100
12	100	100	100	100	95	S	G	130	135	G	110	100	100	100	100	110	100	100	100	95	95	95	95	95
13	S	100	B	95	B	S	140	130	120	120	110	105	105	105	110	105	110	115	S	100	100	100	100	100
14	95	S	S	S	B	S	125	120	115	110	105	105	100	120	100	100	130	115	S	105	105	S	S	100
15	105	S	135	110	B	S	120	120	115	105	100	100	100	100	100	130	120	120	100	120	100	100	100	100
16	100	100	S	S	B	S	155	155	105	105	100	100	100	100	100	100	125	105	95	105	95	100	100	105
17	S	105	B	S	S	S	100	115	110	110	105	110	105	100	100	100	100	145	115	110	105	105	100	100
18	S	S	S	S	S	S	130	120	120	115	110	100	105	145	135	125	120	115	120	100	95	110	95	100
19	105	100	100	100	100	100	140	G	135	110	110	105	G	G	G	G	E G 160	125	115	115	110	110	S	100
20	S	B	B	B	S	S	115	130	125	G	105	105	105	105	105	105	G	120	S	S	S	105	100	100
21	100	S	S	S	S	S	125	130	125	115	120	115	100	100	100	100	100	95	95	95	100	105	105	105
22	S	105	S	105	105	S	130	125	125	125	115	120	110	110	100	125	E G 165	130	120	S	S	S	S	S
23	130	125	125	120	120	115	115	120	120	120	115	105	105	105	105	155	125	125	115	105	110	105	S	105
24	110	100	95	95	S	S	130	120	115	110	105	105	105	100	100	140	125	120	110	105	105	105	110	105
25	110	100	100	100	100	S	130	125	140	125	130	G	G	G	155	130	125	125	110	110	105	100	105	105
26	105	B	B	S	B	S	150	160	125	115	100	100	100	100	145	130	125	115	110	100	110	110	110	S
27	S	S	S	130	B	145	140	140	130	125	125	125	G	105	130	130	120	115	110	110	105	100	100	100
28	105	100	100	100	100	100	150	140	130	125	115	105	120	115	105	G	115	115	105	105	105	105	S	100
29	S	S	105	B	100	100	105	105	105	125	110	110	115	100	G	105	G	130	115	95	95	95	S	S
30	S	S	S	B	S	S	155	G	105	130	125	G	105	105	100	E G 170	145	125	115	115	110	100	110	100
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	20	19	17	20	17	15	29	28	29	28	27	25	24	25	23	23	24	29	27	28	27	28	23	27
MED	100	100	100	100	100	110	125	120	120	118	110	105	105	105	100	115	122	120	110	105	105	105	100	100
UQ	105	102	105	110	105	115	140	130	125	125	118	115	108	110	125	130	128	125	115	110	110	110	108	105
LQ	100	100	100	100	100	100	115	115	115	110	105	105	100	100	100	102	118	115	110	102	100	100	100	100

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H°ES (KM)

IONOSPHERIC DATA

SEP. 1982

TYPES OF ES

135 E Mean Time (G.M.T. + 9 h)

Station **OKUBUNJI TOKYO** Lat. **35 42.4 N** Long **139 29.3 E** Sweep 1 MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F3	F5	F5	F5	F7	F7	C3	C3	C2	L4	L1	L1	L2	CL11	HCL22	H2	C3	C2	C2	F4	F4	F2	FF21	F2	
2	F1	F2	F1	F2	F7	F7	L3	L2	L3	L1	L2	L1	L1	L1	L2	L2	L3	CL31	CL31	F2	F4	F3	F4	F1	
3	F2	F2	F2	F1	F1	F1	H2	C2	C1	C1	C1	C1	C1	C1			C3	C3	F1	F4	F2	F7	F4		
4	F2	F3	F3	F4	F4	F2	CL21	C2	C2	CL11		C1					H2	C2	C2	F2	F5	F4	F3	F5	
5	F7	F7	F6	F5	F2	F3	C2	C2	C2	C2	C1	CL11	L1	L1	HH11	H1	H1	C3	C2	F4	F3	F2	F3	F3	
6	F4	F7	F4	F2	F4	FF21	C2	C3	C2	C1	C1		L1	L1	L1		H2	C2	F7	HK11	CK11	CLK11	HK41		
7	CK51	F1	FF21	F2	F2	F3	C4	C4	C4	C1	C2	L1	L1	L1		H3	H2	F4	F1	F2	F1	F3	F1		
8	F3	FF42	F6	F6	F6	F5	C3	C2	C2	C1							H2	F3	F6	F3	F2	F4	F4		
9	F2	F2	F2	F2	F8	F2	C2	L1	CL21	C1					L1	L1	H2	HL22	FF32	F5	F4	F2	F2		
10						H3	H1	H2	HL11	HL11	CL21	CL11	CL11	CL11	CL11	C1	CL12	CL21	F3	FF31	F2	F2		F1	
11				F2	F2	F1	L1	C1		H1	CL11	C1	C1	L1		L1			F3	F5		F3	F7	F2	
12	F2	F4	F4	F3	F2			H2	H1		C2	L2	L3	L3	L1	CL12	L3	L4	F2	F2	F2	F2	F2	F1	
13		F1		F1		F1	H3	H2	C2	C2	C3	C2	L1	L2	C2	C4	C3	C3		F6	F5	F5	F4	F2	
14	F2						C2	C2	C2	LL11	L1	L1	L1	LL11	L1	L2	C2	L2		FF11	FF31			F1	
15	F1		F1	FF11		F1	C3	C3	C3	L2	L2	L1	L1	L1	L1	HL21	CL32	C3	FF11	FF11	F1	F1	F3	F5	
16	F2	F1			F1	HL22	HL22	L2	L1	L2	L2	L1	L1	L1	L1	L2	CL22	L4	F3	FF32	F3	FF22	F1	F1	
17		F1			F1	F1	L1	C2	C2	L2	L2	L1	L2	L2	L3	L2	L3	H1	F2	F4	F3	F7	F3	F2	
18		F1					C2	C2	C2	C2	C2	L2	L1	HL11	HL11	CL31	CL32	C3	FF12	F2	F2	FF42	F2	F5	
19	F2	F5	F4	F2	F3	F2	H2		HL12	L1	L1	L1					H1	H2	F2	F6	F6	F2		F1	
20					F1	LH22	H2	C3		L2	L1	L1	L1	L1	L2	L1	C3					F6	F2	F2	
21	F1					C3	C2	C2	C2	C1	C1	C1	L3	L3	L2	L2	L5	L4	F6	F4	FF22	FF32	FF22	FF21	
22		F1		F1	F2	F1	C3	C3	C2	C1	C2	C1	LL11	LL11	L1	CL11	H1	CL21	FF41						
23	F5	F4	F5	F6	FF62	FF71	C4	C2	C2	C2	C2	L3	L1	L1	L1	HL22	H4	C5	F7	F4	F1	F2		F2	
24	F2	F1	F2	F1		F1	HH23	C2	C3	C2	L1	L2	L1	L2	L1	HL12	C2	C3	FF61	F7	F4	F6	F2	FF11	
25	F2	F1	F2	F1	F1		H3	H3	H1	CL11	CL11				H1	H1	H2	C3	F7	F5	F6	F7	F2	F2	
26	F1					H2	H1	H1	C1	L1	L1	L1	L1	L1	HL11	HL31	HL22	CL31	F6	F5	F7	F2	LK11	K1	
27		K1	K1	FFF23	K1	F2	C2	C2	C2	C1	C1	C1		L1	HL11	HL11	C2	CL41	F4	F6	F4	F2	F5	F6	
28	F2	F2	F2	F2	F1	F1	H2	H1	H3	HC21	LL11	L2	CL21	C2	L1		C2	L2	F4	F1	F1	F1		F1	
29			F1		F2	F2	L2	L1	L1	CL11	CL11	L1	C1	L1		L1		CL21	FF44	F4	F4	F2	F1		
30						H2		L1	CL11	CL11			L1	L1	L1	HL11	H2	C3	FF21	FF22	FF21	F1	FF21	F1	
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																									
UQ																									
LQ																									

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TYPES OF ES

IONOSPHERIC DATA

SEP. 1982

FXI (0.1 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station		YAMAGAWA											Lat. 31 12.1 N		Long 130 37.1 E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation										
Hour	Day	00	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 80	X 83	X 90	X 86	X 71	X 57														X 93	X 81	X 81	X 85	X 84		
2		X 81	X 79	X 74	X 71	X 66	X 60														S 109	S 108	X 92	X 90	X 91		
3		X 90	X 84	X 83	X 76	X 62	X 56														X 99	X 91	X 87	X 86	X 84		
4		X 89	X 84	X 71	X 65	X 66	X 67														X 106	X 86	S 81	S 77	S 74		
5		X 73	X 76	X 71	X 71	X 70	X 68														S 102	X 91	X 72	X 68	X 67		
6		S 64	X 57	X 61	X 58	X 59	X 56														X 119	X 102	S 149	160	123		
7		X 81	97	65	60	85	150	75	95	110	125	120	121	130							X 104	X 100	X 86	X 85	S 79		
8		X 72	X 72	X 71	X 63	X 50	X 51														X 78	X 67	X 67	X 71	X 71		
9		X 75	X 68	X 67	X 63	X 60	X 62														X 116	S 101	S 92	X 87	X 86		
10		X 79	X 71	X 69	X 73	X 66	X 62														S 104	X 96	X 82	X 76	X 76		
11		S 74	X 73	X 73	X 70	X 67	X 67														X 112	X 97	X 94	X 92	X 87		
12		X 87	X 80	X 80	X 66	X 66	X 64														X 109	X 93	X 83	X 84	X 87		
13		X 83	X 82	X 80	X 68	X 67	X 64														X 110	S 87	X 85	X 87	X 91		
14		S 92	S 90	S 73	X 74	X 69	X 63														X 122	X 81	X 76	X 81	X 82		
15		S 86	S 87	X 84	X 86	X 76	X 48														X 114	X 90	X 71	S 73	S 75		
16		X 81	S 81	X 77	X 70	S 65	X 58														S 129	S 97	X 71	X 71	S 73		
17		X 69	X 67	S 72	X 71	X 59	X 59														S 108	S 74	X 77	S 76	X 79		
18		S 76	X 70	X 67	X 67	S 66	X 64														X 101	X 90	X 83	X 80	X 71		
19		S 71	X 63	X 62	X 62	S 51	X 51														S 120	X 82	X 69	X 71	X 77		
20		X 77	S 66	X 68	X 64	X 56	X 55														X 128	S 97	S 63	X 61	X 66		
21		X 65	X 63	X 64	X 59	X 57	X 56	X 65													X 104	X 82	X 85	X 84	X 77		
22		X 76	S 74	X 70	X 65	X 65	X 66														X 142	X 127	X 133	X 126	X 106		
23		X 96	X 84	X 60	S 53	X 61	X 65	X 88											149		X 125	X 90	S 82	X 79	X 79		
24		X 87	X 70	X 62	X 62	X 53	X 51	X 64													X 101	A	X 73	X 74	X 74		
25		X 83	X 68	X 66	X 63	X 67	X 57	X 63													X 113	S 94	X 91	X 90	X 90		
26		X 84	X 79	X 79	X 66	X 52	X 48	X 57													X 96	X 91	S 102	S 104	X 94		
27		X 92	X 74	X 69	X 70	X 70	X 100	X 88	X 98	X 88	X 95						91	91			S 85	X 86	X 86	X 86	S 75		
28		X 67	X 64	X 62	S 51	X 52	X 51	X 63													X 101	X 91	X 90	X 91	X 90		
29		X 86	X 85	X 80	X 73	X 57	X 55	X 67													X 110	S 101	S 101	S 100	S 103		
30		X 101	S 103	X 98	X 68	X 59	X 53	X 61													X 106	X 94	X 91	X 89	X 90		
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	29	30	11	2	2	2	1	1	1			1	1	1		30	29	30	30	30		
MED		X 81	X 75	X 71	X 66	X 65	X 58	X 65	96	99	110	120	121	130			91	91	149		X 108	X 91	X 84	X 84	X 80		
UQ		X 87	X 84	X 79	X 71	X 67	X 64	X 71													X 116	X 97	X 91	X 90	X 90		
LQ		X 74	X 68	X 66	X 63	X 59	X 55	X 63													X 101	X 86	X 76	X 76	X 75		

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FXI (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

FOF2 (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA																								
Lat.	31 12.1 N												Long 130 37.1 E												
Sweep	1 MHz to 20 MHz in 20sec in automatic operation																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	74	77	84	80	65	51	55	76	85	81	92	102	101	100	104	91	92	95	98	87	75	75	79	78	
2	75	73	68	65	60	54	65	83	89	89	95	109	125	129	119	120	121	125	112	103 ^S	102	86	84	85	
3	84	78	77	70	56	50	61	104	95	100	86	101	103	103	99	99	104	106	111	93	85	81	80	78	
4	83	78	65	59	60	61	65	75	93	90	104	117	122	111	93	90	85	83	88	100	80	75	71	68	
5	67	70	65	65	64	62	73	99	100	87	100	114	117	103	97	89	89	91	94	96	85	66	62	61	
6	58	51	55	52	53	50	55	80	97	92	98	105	132	135	110	132	116	75	92	113	96	143 ^S	F	F	
7	75	F	F	F	F	F	F	F	F	F	F	F	F	124	135	128	118	100	95	98	94	80	79	73	
8	66	66	65	57	44	45	65	66	74	75	87	96	89	98	90	94	101	98	80	72	61	61	65	65	
9	69	62	61	57	54	56	67	73	79	83	89	101	95	105	122	129	132	134	125	110	95	86	81	80	
10	73	65	63	67	60	56	66	83	92	88	92	95	95	107	113	113	115	112	106	98	90	76	70	70	
11	68 ^S	67	67	64	61	61	75	99 ^J	101 ^S	89	89	100	102	109	115	117	118	119	119	106	91	88	86	81	
12	81	74	74	60	60	58	73 ^S	89	83	86	104	110	106	107	98	104	120	131	124	103	87	77	78	81	
13	77	76	74	62	61	58	71	85	99 ^S	117	103	92	104	128	126	128	129	129	120	104	81	79	81	85	
14	86	84 ^J	67 ^S	68	63 ^S	57	72	91	86	88	89	103	105 ^S	117	121	117	116	133	124	116	75	70	75	76	
15	80	81	78	80	70	42	49 ^S	94	95	73	83	120	134	124	126	120	123	115	114 ^H	108	84	65	67	69 ^S	
16	75	75 ^S	71 ^S	64 ^H	59	52	56	81	97 ^S	92	100	110	119	122	121	114 ^{I C}	115	124	123	123 ^S	91 ^S	65	65	67	
17	63	61	66	65	53	53	60	90 ^{I C}	98 ^{I C}	89 ^{I C}	91	110	119	126	113	113	121	127	130	102 ^S	68	71 ^S	70 ^J	73 ^S	
18	70 ^S	64	61 ^S	61 ^S	60 ^S	58 ^S	69	77	84	82	98	121	124	121	117	112	108	106	102	95	84	77	74 ^S	65	
19	65	57	56	56	50 ^{I S}	45	54	78	93	74	72	107	123	127	127	124	112	126	131 ^S	114	76	63	65	71 ^S	
20	71	60 ^S	62	58	50	49	62	84	96 ^S	92	90	111	121	130	125	125	129	130	129 ^S	122	91	57 ^S	55	60	
21	59	57	58	53	51	50	59	82	112	104	94	112	130	130	135	125	138	141	116	98	76	79	78	71	
22	70	68 ^S	64	59	59	59	60	90	101	93	118	123	137	147	158	150	153	139	144	136	121	127	120	100	
23	90	78	54	47 ^S	55	59	82	109	105	126	132	127	146	153	154	142	137	F	141	119	84 ^S	76 ^S	73	73	
24	81	64	56	56	47	45	58	83	105	110	100	116	126	133	136	123	117	111	110	95	A	67	68	68	
25	77	62	60	57	61	51	57	90	105	120	121	123	127	136	137	139	133	129	130	107	88	85	84	84	
26	78	73	73	60	46	42	51	96	92 ^S	91	108	123	130	125	122	117	123	120	101	90	85	96	98	88	
27	86	68	63	F	F	F	F	F	F	F	F	105	97	91	82	83	F	F	83	84	79	80	80	69	
28	61	58	56	45	46	45	57	90	97	100	110	122	119	122	116	119	117	111	105	95	85	84	85	84	
29	80	79	74	67	51	49	61	87	96	110	105	114	126	136	139	131	128	127	119	104	95	95	94	97	
30	95	97	92	62	53	47	55	92	105	106	121	133	136	128	129	127	122	120	118	100	88	85	83	84	
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	28	28	28	28	28	28	28	29	29	29	30	30	29	29	29	30	30	29	30	29	29	
MED	75	68	65	60	58	52	61	86	96	90	98	110	121	124	121	120	118	120	115	102	85	78	78	73	
UQ	81	77	73	65	60	58	68	92	100	102	105	120	127	130	129	128	128	129	124	110	91	85	83	84	
LQ	68	62	61	57	51	48	56	80	90	86	90	102	104	107	110	113	115	106	101	95	80	70	70	69	

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FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

F0F1 (0.01 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA				Lat.	31 12.1 N			Long	130 37.1 E			Sweep	1 MHz to 20 MHz		in 20sec in		automatic operation						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	L	L	L	L	L	L	L	L	L					
2								L	L	L	L	L	L	L	L	L	L	L	L					
3								L	L	L	L	L	L	L	L	L	L	L	L					
4								L	L	L	L	A	L	L	L	L	A	A						
5								L	L	A	L	L	L	L	L	L	L	L	L					
6								L	L	L	L	L	L	L	L	L	L	L	L					
7									L	L	L	L	L	L	A	A	L	L						
8								L	L	L	L	L	L	L	L	L	L	L						
9									L	L	L	L	L	L	L	L	L	L						
10									L	L	L	L	L	L	L	L	L	L						
11										L	L	L	L	L	L	L	L	L						
12											L	L	L	L	L	L	L	L						
13											L	L	L	L	A	L	L							
14											L	L	L	L	L	L	L							
15											L	L	L	L	L	L	L							
16									L	L	L	L	L	L	L	C	L	L						
17									C	C	L	L	L	L	L	L	L							
18										L	L	L	L	L	L	A								
19											L	L	L	L	L	L								
20										L	L	L	L	L	L	L	L							
21									L	L	L	L	L	L	L	L	L							
22										L	L	L	L	L	L	L								
23											L	L	L	L	L	L								
24										L	L	L	L	L	L	L								
25									L	L	L	L	L	L	L	L	L							
26									L	L	L	L	L	L	L	L	L	A						
27									L	L	L	L	L	L	L	L	L	A	A					
28									L	L	L	L	L	L	L	L	L							
29									L	L	L	L	L	L	L	L	L							
30									L	L	L	L	L	L	L	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	1	2	1									
MED												L	L	L	L									
UQ												480	590	575	520									
LQ																								

SEP. 1982

F0F1 (0.01 MHz)

IONOSPHERIC DATA

SEP. 1982

FOE (0.01 MHZ)

135 E Mean Time (G.M.T. + 9 h)

Station		YAMAGAWA										Lat. 31 12.1 N		Long. 130 37.1 E		Sweep 1 MHz to 20 MHz in 20sec in automatic operation														
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1								200	A	A	360	A	A	420	A	400	370	350	310	A										
2								A	A	A	A	A	A	A	410	390	370	340	300	230										
3								190	240	310	A	A	395	400	400	390	370	340	290	220										
4								S	240	290	A	B	A	B	B	B	A	380	A	A										
5								S	250	305	340	A	A	405	405	380	365	330	290	200										
6								S	250	300	340	360	B	A	A	A	A	350	275	200										
7								S	245	280	320	345	A	A	A	A	355	330	290	190										
8								S	260	310	350	375	A	A	A	400	370	350	290	210										
9								S	A	305	340	380	A	A	A	380	360	A	A	A										
10								S	250	300	340	370	A	A	A	A	A	A	280	190										
11								S	220	310	340	360	375	A	A	A	A	330	285	170										
12								S	280	A	A	A	A	A	A	A	A	A	A	A										
13								S	260	A	A	A	A	A	A	A	A	A	A	A	S									
14								S	A	H	300	350	370	380	390	380	370	350	315	A	A									
15								S	A	A	A	A	A	R	R	395	385	375	350	H	270	180								
16								S	A	A	A	R	U	R	390	390	370	I	C	A	H	S								
17								S	I	C	I	C	A	A	R	380	375	365	350	H	265	S								
18								S	H	A	A	A	A	A	380	375	365	345	310	A	S									
19								S	H	H	300	325	A	A	A	A	365	345	310	A	S									
20								S	240	290	320	340	A	H	380	375	365	340	310	250	S									
21									270	A	A	A	A	A	A	355	A	315	265	A										
22									260	300	340	A	A	A	A	A	A	310	255	S										
23									215	290	335	A	A	A	375	R	350	335	300	255	S									
24									225	285	A	A	A	A	A	A	355	335	A	S										
25									240	320	350	A	A	A	405	385	365	330	270	S										
26									230	300	350	375	A	A	405	380	360	320	250	S										
27									240	300	355	375	A	A	400	380	360	320	250	S										
28									250	290	330	A	A	A	A	A	A	A	A	S										
29									250	310	350	A	A	A	A	A	360	320	270	S										
30									250	310	335	A	380	U	R	400	395	375	350	310	250	S								
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	24	23	20	11	5	10	14	19	21	24	21	9										
MED								195	242	300	340	370	380	392	392	375	355	320	270	200										
UQ								250	310	350	375	380	400	405	382	365	338	290	210											
LQ								238	290	332	360	380	380	375	365	350	310	255	190											

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FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1982

FOES (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA																								
	Lat. 31 12.1 N												Long. 130 37.1 E												
	Sweep 1 MHz to 20 MHz in 20sec in automatic operation																								
Hour Day	00	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 40	J A 33	J A 25	J A 20	E S 23	E S 16	G	J A 40	38	G	J A 45	J A 52	G	J A 56	50	45	50	50	50	J A 45	J A 90	J A 74	J A 35	J A 25	
2	J A 25	E S 16	E S 16	E S 16	E S 16	E S 16	J A 60	J A 80	40	J A 50	J A 75	45	48	G	G	G	G	37	J A 40	J A 28	23	E S 16	E S 16	E S 16	
3	E S 16	J A 33	J A 20	J A 25	E S 16	E S 16	G	30	42	J A 90	45	46	52	J A 65	46	50	42	J A 60	J A 45	J A 55	J A 75	J A 30	J A 31	J A 30	
4	J A 54	J A 50	J A 24	J A 25	J A 20	J A 20	25	37	50	J A 50	E B 52	J A 85	J A 60	60	E B 50	52	J A 90	J A 85	J A 90	J A 80	J A 40	J A 105	J A 43	J A 44	
5	J A 35	J A 40	J A 25	J A 24	J A 25	J A 23	J A 25	30	45	82	J A 70	53	G	G	45	42	41	J A 43	35	35	J A 25	J A 30	22	J A 70	
6	J A 50	J A 22	22	J A 25	J A 25	J A 90	J A 34	33	46	40	42	E B 45	43	50	52	50	G	G	32	J A 24	J A 25	J A 45	J A 20	E S 16	
7	J A 20	J A 30	J A 25	J A 30	J A 23	22	28	31	36	42	J A 56	50	48	55	J A 75	J A 75	40	50	50	J A 60	J A 25	J A 25	J A 25	J A 25	
8	21	J A 25	E S 16	E S 16	J A 30	E S 16	J A 30	40	40	40	42	50	45	45	G	G	G	G	32	J A 22	E S 16	25	22	J A 30	
9	J A 30	22	J A 20	E S 16	E S 16	E S 16	E S 16	J A 40	40	40	43	45	45	47	G	G	42	40	32	23	E S 16	E S 16	E S 16	E S 16	
10	30	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	36	65	J A 57	55	45	50	50	43	45	35	J A 30	J A 25	22	E S 16	E S 16	E S 16	
11	E S 16	E S 16	E S 16	24	E S 16	18	E S 16	G	34	39	39	40	40	40	39	J A 35	G	G	27	39	J A 24	J A 22	J A 24	E S 16	
12	J A 24	24	20	E S 16	E S 16	E S 16	E S 16	G	36	J A 40	37	J A 44	J A 50	J A 54	J A 76	J A 46	J A 40	J A 34	J A 51	J A 41	J A 37	J A 21	23	E S 16	
13	E S 16	E S 16	E S 16	E B 13	E B 13	E S 16	19	G	37	J A 55	40	42	48	56	J A 69	42	J A 44	28	J A 47	J A 24	J A 30	J A 25	J A 24	J A 30	
14	J A 18	20	E S 16	E S 16	E S 16	E S 16	E S 16	30	G	32	39	G	30	25	G	33	J A 30	41	J A 44	J A 31	J A 37	J A 44	21	J A 26	E S 16
15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	26	36	J A 51	J A 59	J A 59	J A 30	35	24	38	38	G	G	22	E S 16	E S 16	E S 16	E S 16	
16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	23	29	35	37	30	G	28	G	25	G	C	J A 40	35	J A 36	J A 51	J A 25	E S 16	E S 16	
17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	C	C	C	39	J A 55	34	G	30	G	G	G	27	J A 39	J A 44	J A 24	22	J A 41	
18	J A 34	J A 18	20	E S 16	E S 16	E S 16	E S 16	G	J A 49	35	62	43	31	40	52	57	J A 46	J A 47	J A 30	23	E S 16	E S 16	J A 24	E S 16	
19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	27	G	46	41	41	39	44	G	25	G	24	J A 36	J A 25	E S 16	17	E S 16	J A 33	E S 16
20	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	J A 25	29	34	41	40	38	G	J A 33	28	G	G	21	G	21	23	J A 22	J A 19	J A 22	20
21	J A 32	23	E S 16	E S 16	E S 16	E S 16	E S 16	G	J A 38	J A 41	J A 43	43	J A 48	38	G	J A 37	G	G	J A 20	J A 33	J A 24	J A 20	J A 29	23	
22	20	E S 16	20	E S 16	E S 16	E S 16	E S 16	G	J A 34	J A 45	J A 52	J A 44	J A 45	J A 42	J A 40	J A 36	42	J A 45	J A 44	J A 42	J A 30	J A 25	J A 32	J A 27	
23	E S 16	E S 16	E S 16	J A 37	J A 41	J A 34	J A 36	43	J A 39	J A 45	J A 44	J A 38	J A 42	31	54	J A 31	J A 28	30	22	J A 27	J A 54	65	E S 16	J A 51	
24	J A 33	J A 21	22	J A 21	23	E S 16	E S 16	J A 29	J A 35	J A 36	J A 44	J A 55	J A 40	J A 45	J A 42	41	J A 73	J A 87	J A 89	J A 140	J A 111	J A 74	J A 25	E S 16	
25	E S 16	E S 16	22	22	21	22	E S 16	30	38	43	52	50	50	44	50	47	42	J A 45	J A 75	J A 22	J A 35	J A 35	J A 22	E S 16	
26	E S 16	E S 16	J A 20	E S 16	E S 16	E S 16	E S 16	28	36	45	52	45	J A 62	G	J A 106	J A 77	J A 51	J A 90	J A 85	J A 90	J A 52	J A 32	J A 30	25	
27	22	20	E S 16	E S 16	25	E S 16	E S 16	J A 35	41	J A 65	46	52	50	J A 52	46	43	42	69	J A 60	80	J A 40	J A 24	J A 20	J A 30	
28	22	J A 21	E S 16	E S 16	E S 16	E S 16	E S 16	G	38	41	J A 50	J A 50	52	50	50	45	44	41	J A 63	45	J A 33	J A 33	J A 28	21	
29	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	22	G	G	44	J A 50	50	45	45	44	G	40	40	J A 40	J A 30	J A 25	J A 30	J A 25	J A 31	
30	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	40	42	G	G	G	G	42	41	J A 41	J A 30	E S 16	E S 16	E S 16	E S 16	J A 24	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	29	29	29	30	30	30	30	30	29	30	30	30	30	30	30	30	30	
MED	20	17	E S 16	E S 16	E S 16	E S 16	E S 16	29	37	42	44	45	45	44	44	42	41	40	J A 36	J A 34	J A 25	J A 24	J A 24	22	
UQ	J A 30	J A 23	20	J A 22	23	E S 16	25	33	40	J A 50	J A 52	52	48	50	50	46	44	J A 47	J A 50	J A 45	J A 40	J A 32	J A 28	J A 30	
LQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	35	40	41	42	31	31	G	G	G	G	24	28	30	J A 23	22	E S 16	E S 16

SEP. 1982

FOES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

FBES (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station **YAMAGAWA** Lat. **31 12.1 N** Long **130 37.1 E** Sweep **1** MHz to 20 MHz in 20sec in automatic operation

Hour Day	00	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	25	E	E	E	E S 16	G	35	30	G	40	45	G	52	42	42	40	40	41	40	25	E	20	E	
2	20	E S 16	E S 16	E S 16	E S 16	E S 16	45	28	32	36	50	40	45	G	G	G	G	32	30	23	E S 16	E S 16	E S 16		
3	E S 16	25	E	20	E S 16	E S 16	G	28	38	42	42	43	45	55	42	45	38	45	42	50	43	20	E	E	
4	E	20	E	E	E	E	G	30	43	38	E B 52	68	50	53	E B 50	46	80	75	50	20	E	45	E	18	
5	25	E	18	20	23	18	18	28	38	70	54	45	G	G	41	38	G	39	28	26	20	25	E	22	
6	35	E	E	18	20	25	22	28	38	36	38	E B 45	40	42	46	41	G	G	25	24	E	38	E S 16	E S 16	
7	E	E	E	20	E	E	G	27	32	35	51	45	42	45	70	70	37	40	40	45	18	20	E	E	
8	E	20	E S 16	E S 16	20	E S 16	25	35	37	38	39	43	40	42	G	G	G	G	25	18	E S 16	E	E	20	
9	E	E	E	E S 16	E S 16	E S 16	E S 16	26	G	37	40	40	41	42	G	G	34	30	30	20	E S 16	E S 16	E S 16	E S 16	
10	E	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	32	55	42	45	41	41	42	40	33	G	22	E	E	E S 16	E S 16	E S 16	
11	E S 16	E S 16	E S 16	E	E S 16	E S 16	E S 16	G	G	38	G	39	40	40	39	35	G	G	G	39	17	20	E	E S 16	
12	20	E	E	E S 16	E S 16	E S 16	E S 16	G	33	39	36	43	40	44	50	43	36	32	36	38	34	19	E	E S 16	
13	E S 16	E S 16	E S 16	E B 13	E B 13	E S 16	E	G	33	48	39	42	46	54	67	40	44	28	27	23	28	E	E	21	
14	E	E	E S 16	E S 16	E S 16	E S 16	E S 16	28	G	31	35	G	30	25	33	27	40	42	21	32	32	E	22	E S 16	
15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	25	35	38	52	43	30	35	G	24	37	38	G	E	E S 16	E S 16	E S 16	E S 16	
16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	29	29	35	G	30	27	26	24	25	C	31	32	34	48	25	E S 16	E S 16	E S 16
17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	C	C	C	38	38	34	G	30	25	G	G	G	23	35	33	E	E	24
18	27	E	E	E S 16	E S 16	E S 16	E S 16	G	35	35	38	39	31	G	44	55	44	45	27	E	E S 16	E S 16	E	E S 16	
19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	46	39	40	39	44	25	G	23	32	21	E S 16	E	E S 16	18	E S 16	
20	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E	G	G	39	39	37	G	30	G	26	G	20	G	20	19	19	19	E S 16	E
21	E	E	E S 16	E S 16	E S 16	E S 16	E S 16	G	31	36	40	41	45	38	G	35	G	G	19	31	E	19	27	E	
22	E	E S 16	E	E S 16	E S 16	E S 16	E S 16	G	31	41	45	44	44	41	40	35	40	44	25	40	28	22	30	20	
23	E S 16	E S 16	E S 16	E	40	33	32	41	35	40	40	38	42	31	33	30	G	28	30	22	25	31	E S 16	E	
24	20	E	E	18	E	E S 16	E S 16	26	34	36	39	54	40	44	42	40	69	71	87	74	111	20	18	E S 16	
25	E S 16	E S 16	E	E	E	E	E S 16	26	35	40	45	41	44	42	45	43	40	40	60	19	20	20	19	E S 16	
26	E S 16	E S 16	18	E S 16	E S 16	E S 16	E S 16	20	32	41	44	41	58	G	42	62	48	85	70	50	45	26	18	E	
27	E	E	E S 16	E S 16	E S 16	E S 16	E S 16	30	35	38	42	45	46	48	41	40	37	62	57	65	30	E	E	E	
28	E	E	E S 16	E S 16	E S 16	E S 16	E S 16	G	32	36	46	48	45	42	40	39	38	34	60	38	30	26	25	E	
29	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E	G	G	37	40	42	41	41	41	G	37	32	33	25	E	18	20	20	
30	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	36	39	G	G	G	G	38	38	35	28	E S 16	E S 16	E S 16	E S 16	19	
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	29	29	29	30	30	30	30	30	29	30	30	30	30	30	30	30	30	
MED	16	16	E S 16	E S 16	E S 16	E S 16	E S 16	26	32	38	40	42	40	41	40	38	37	32	28	26	20	17	16	16	
UQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	28	35	40	44	45	45	44	42	42	40	42	41	40	30	20	18	18	
LQ	E	E	E	E S 16	E S 16	E S 16	E S 16	G	29	36	39	39	G	G	G	G	G	G	22	19	16	E S 16	E	E	

The Radio Research Laboratories, Japan

SEP. 1982

FBES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

F-MIN (0.1 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA																							
Lat.	31 12.1 N																							
Long	130 37.1 E																							
Sweep	1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	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 S	E S	E S	E S	E S	E S	E S	16	18	20	22	25	30	30	22	20	18	20	16	E S	E S	E S	E S	E S
2	E S	E S	E S	E S	E S	E S	E S	16	16	16	21	21	22	21	20	21	18	16	E S	E S	E S	E S	E S	E S
3	E S	E S	E S	E S	E S	E S	E S	16	18	18	21	23	22	20	20	20	15	18	E S	E S	E S	E S	E S	E S
4	E S	E S	E S	E S	14	E S	E S	16	15	20	52	25	42	50	50	35	25	20	15	E S	E S	E S	E S	E S
5	E S	E S	E S	E S	E S	E S	E S	16	18	19	20	25	25	23	20	21	19	15	E S	E S	E S	E S	E S	E S
6	E S	E S	E S	E S	E S	E S	E S	16	16	20	22	45	22	22	20	20	20	15	E S	E S	E S	E S	E S	E S
7	E S	E S	E S	E S	E S	E S	E S	16	16	16	20	20	25	25	20	20	18	16	E S	E S	E S	E S	E S	E S
8	E S	E S	E S	E S	E S	E S	E S	16	20	20	20	22	22	25	22	20	22	18	E S	E S	E S	E S	E S	E S
9	E S	E S	E S	E S	E S	E S	E S	16	15	18	25	20	20	22	22	20	20	16	E S	E S	E S	E S	E S	E S
10	E S	E S	E S	E S	E S	E S	E S	16	17	16	20	20	20	20	24	20	20	16	E S	E S	E S	E S	E S	E S
11	E S	E S	E S	E S	E S	E S	E S	16	18	20	20	21	23	20	20	18	20	17	E S	E S	E S	E S	E S	E S
12	E S	E S	E S	E S	E S	E S	E S	16	17	18	20	22	22	22	21	20	19	16	E S	E S	E S	E S	E S	E S
13	E S	E S	E S	13	13	E S	E S	16	17	17	20	22	22	24	22	24	20	20	16	E S	E S	E S	E S	E S
14	E S	E S	E S	E S	E S	E S	E S	16	18	21	23	22	23	20	20	20	20	16	E S	E S	E S	E S	E S	E S
15	E S	E S	E S	E S	E S	E S	E S	16	16	18	20	20	20	21	20	18	16	16	E S	E S	E S	E S	E S	E S
16	E S	E S	E S	E S	E S	E S	E S	16	19	17	23	23	21	21	20	C	17	16	E S	E S	E S	E S	E S	E S
17	E S	E S	E S	E S	E S	E S	E S	C	C	C	21	23	23	21	20	20	17	17	E S	E S	E S	E S	E S	E S
18	E S	E S	E S	E S	E S	E S	E S	16	16	18	20	22	21	20	19	20	19	16	E S	E S	E S	E S	E S	E S
19	E S	E S	E S	E S	E S	E S	E S	16	19	20	22	22	23	21	19	16	E S	E S	E S	E S	E S	E S	E S	E S
20	E S	E S	E S	E S	E S	E S	E S	16	16	19	21	21	22	21	22	17	16	E S	E S	E S	E S	E S	E S	E S
21	E S	E S	E S	E S	E S	E S	E S	16	16	19	20	22	23	25	20	20	20	16	E S	E S	E S	E S	E S	E S
22	E S	E S	E S	E S	E S	E S	E S	16	16	17	21	22	23	22	22	19	16	16	E S	E S	E S	E S	E S	E S
23	E S	E S	E S	E S	E S	E S	E S	16	16	19	20	21	23	22	20	19	16	16	E S	E S	E S	E S	E S	E S
24	E S	E S	E S	E S	E S	E S	E S	16	16	20	21	23	24	26	20	17	16	16	E S	E S	E S	E S	E S	E S
25	E S	E S	E S	E S	E S	E S	E S	16	16	18	20	20	20	20	23	20	16	16	E S	E S	E S	E S	E S	E S
26	E S	E S	E S	E S	E S	E S	E S	16	15	19	20	22	20	25	20	20	19	16	E S	E S	E S	E S	E S	E S
27	E S	E S	E S	E S	E S	E S	E S	16	16	22	20	22	20	20	21	22	18	15	E S	E S	E S	E S	E S	E S
28	E S	E S	E S	E S	E S	E S	E S	16	19	20	23	20	25	25	25	20	19	20	E S	E S	E S	E S	E S	E S
29	E S	E S	E S	E S	E S	E S	E S	16	16	20	20	20	20	23	21	21	19	18	E S	E S	E S	E S	E S	E S
30	E S	E S	E S	E S	E S	E S	E S	16	20	20	20	28	25	25	22	20	16	16	E S	E S	E S	E S	E S	E S
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	29	29	29	30	30	30	30	30	29	30	30	30	30	30	30	30	30
MED	E S	E S	E S	E S	E S	E S	E S	E S	16	19	20	22	22	22	20	20	18	16	E S	E S	E S	E S	E S	E S
UQ	E S	E S	E S	E S	E S	E S	E S	16	18	20	22	23	24	25	22	20	20	17	E S	E S	E S	E S	E S	E S
LQ	E S	E S	E S	E S	E S	E S	E S	16	16	18	20	21	21	21	20	20	16	16	E S	E S	E S	E S	E S	E S

SEP. 1982

F-MIN (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

M(3000)F2 (0.01)

135 E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA																							
Lat. 31 12' N	Long 130 37' E																							
Sweep 1	MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	255	245	285	285	315	315	305	340	340	310	305	295	295	290	300	305	300	315	315	320	280	265	265	270
2	275	275	280	285	300	275	315	355	335	315	285	265	290	285	275	280	290	310	210	^S 290	305	275	275	270
3	285	270	285	315	275	260	295	335	345	330	290	285	270	290	290	290	290	300	305	300	280	255	250	260
4	275	280	290	245	265	280	285	315	290	320	270	300	290	295	290	300	295	290	290	310	275	265	255	250
5	255	265	245	260	255	260	265	290	300	280	270	275	280	290	300	295	295	300	295	305	305	265	275	270
6	260	245	255	270	285	300	290	310	320	290	255	255	265	280	240	315	300	275	250	275	240	^S 235	F	F
7	215	F	F	F	F	F	F	F	F	F	F	F	F	F	260	270	280	295	300	295	280	285	260	260
8	250	240	255	245	250	220	340	365	310	305	310	310	280	295	265	265	295	315	325	305	270	255	255	270
9	245	265	280	270	275	275	330	340	350	315	295	295	275	255	255	280	280	290	295	280	265	240	265	270
10	280	275	270	285	290	285	335	335	325	340	315	295	280	280	280	285	285	300	320	295	295	280	270	265
11	^S 265	275	275	280	260	^S 280	325	^J 340	^S 355	355	290	290	285	275	280	275	275	285	300	300	275	285	275	255
12	285	265	295	315	260	260	^S 315	360	335	315	310	320	300	290	285	260	285	295	305	305	300	270	270	285
13	270	290	295	275	285	310	325	340	^S 325	330	310	280	250	280	285	290	295	300	315	315	275	260	270	270
14	285	^S 295	^J 275	270	^S 275	300	320	350	335	330	320	290	^S 285	285	300	305	300	320	325	325	285	265	265	270
15	285	290	300	320	340	295	^S 275	340	355	350	285	300	305	265	300	295	310	315	^H 310	325	315	270	270	^S 275
16	295	^S 285	^S 300	^H 265	305	305	320	335	^S 340	335	295	285	300	290	315	^I 295	^C 295	315	325	335	^S 330	260	275	285
17	270	260	305	315	285	300	300	^I 345	^C 350	^I 345	295	300	295	295	285	290	300	315	340	^S 345	280	^S 265	^S 255	^J 275
18	^S 285	280	^S 270	^S 270	^S 285	^S 310	335	365	355	365	305	300	300	295	300	260	305	310	285	300	285	310	^S 285	270
19	275	245	265	285	^I 280	290	315	360	375	335	290	290	310	300	290	300	280	300	^S 310	^S 325	310	255	255	^S 265
20	295	^S 250	275	300	280	305	320	345	^S 350	340	320	290	295	290	290	295	295	305	^S 310	^S 325	340	^S 270	265	265
21	290	270	295	290	295	310	315	340	340	355	295	305	290	295	295	280	290	315	320	305	275	285	290	280
22	280	^S 270	280	255	280	270	265	320	330	300	305	285	295	290	270	275	275	270	275	285	255	280	300	290
23	295	315	295	^S 310	265	280	315	350	305	310	320	290	295	295	310	305	300	F	320	310	^S 275	^S 250	275	285
24	300	280	285	305	295	290	310	345	340	320	305	300	300	295	305	310	315	325	320	335	^A 275	270	270	
25	290	260	265	265	310	295	300	335	370	315	315	285	285	285	290	295	295	300	325	325	265	275	275	275
26	280	295	300	315	260	260	300	365	^S 345	330	295	290	290	280	280	275	290	310	315	275	270	270	285	250
27	280	250	265	F	F	F	F	F	F	F	F	F	255	245	260	245	245	F	F	285	275	255	260	255
28	280	265	285	265	260	275	305	330	340	315	300	305	285	290	285	285	300	305	305	300	280	275	280	290
29	280	280	295	315	275	265	305	335	335	320	305	270	275	275	280	280	285	300	300	290	275	275	270	285
30	285	310	335	320	300	255	280	345	315	300	295	300	295	280	280	285	295	300	305	300	270	275	265	280
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	28	28	28	28	28	28	28	29	29	29	30	30	29	29	29	30	30	29	30	29	29
MED	280	270	285	285	280	282	312	340	340	320	295	290	290	290	285	290	295	300	308	305	280	268	270	270
UQ	285	280	295	312	295	300	320	350	350	338	310	300	295	295	300	295	300	315	320	325	295	275	275	280
LQ	270	260	270	268	265	268	298	335	325	312	290	285	280	280	280	280	290	300	295	290	270	260	265	265

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M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1982

M(3000)F1 (0.01)

135 E Mean Time (G.M.T. + 9 h)

Station		YAMAGAWA		Lat. 31 12.1 N		Long. 130 37.1 E		Sweep 1		MHz to 20		MHz in 20sec		in automatic operation										
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	L	L	L	L	L	L	L	L	L					
2								L	L	L	L	L	L	L	L	L	L	L	L					
3								L	L	L	L	L	L	L	L	L	L	L	L					
4								L	L	L	L	A	L	L	L	L	A	A						
5								L	L	A	L	L	L	L	L	L	L	L	L					
6								L	L	L	L	L	L	L	L	L	L	L	L					
7									L	L	L	L	L	L	A	A	L	L						
8								L	L	L	L	L	L	L	L	L	L	L	L					
9									L	L	L	L	L	L	L	L	L	L	L					
10									L	L	L	L	L	L	L	L	L	L	L					
11										L	L	L	L	L	L	L	L	L	L					
12											L	L	L	L	L	L	L	L	L					
13											L	L	L	L	A	L	L							
14											L	L	L	L	L	L	L							
15											L	L	L	L	L	L	L	L						
16										L	L	L	L	L	L	L	L	L	L					
17									C	C	L	L	L	L	L	L	L	L						
18										L	L	L	L	L	L	A								
19											L	L	L	L	L	L								
20											L	L	L	L	L	L	L	L						
21										L	L	L	L	L	L	L	L	L						
22											L	L	L	L	L	L	L	L						
23											L	L	L	L	L	L	L	L						
24											L	L	L	L	L	L	L	L						
25										L	L	L	L	L	L	L	L	L	L					
26										L	L	L	L	L	L	L	L	L	L	A				
27										L	L	L	L	L	L	L	L	L	L	A	A			
28										L	L	L	L	L	L	L	L	L	L					
29										L	L	L	L	L	L	L	L	L	L					
30										L	L	L	L	L	L	L	L	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	1	2	1									
MED												395	340	350	365									
UQ																								
LQ																								

SEP. 1982

M(3000)F1 (0.01)

IONOSPHERIC DATA

SEP. 1982

H^oF2 (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA																							
Lat.	31 12.1 N												Long 130 37.1 E											
Sweep	1 MHz to 20 MHz in 20sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								250	250	330	310	310	310	320	330	280	320	280	280					
2								250	260	260	320	360	330	310	320	320	300	280	260					
3								250	240	250	250	320	310	320	320	310	310	280						
4								260	310	280	340	A	310	310	320	320	A	A						
5								280	280	A	370	320	290	310	310	310	310	280	280					
6								260	280	280	280	350	360	310	390	320	260	320	320					
7								320	260	320	330	340	360	A	A	280	280							
8								240	240	260	320	310	320	310	280	360	300	280						
9								250	280	310	280	350	370	340	330	300	280							
10								270	250	290	330	340	340	320	300	290	260							
11								240	355	275	285	325	300	300	295									
12								275	265	295	300	305	320	325	280									
13								250	310	350	315	295	305	285	275									
14								275	295	285	310	295	285	295										
15								325	300	295	285	300	300	275										
16								235	270	260	275	285	285	I C 285	280	275								
17								C C 250	275	265	290	275	295	285										
18								230	310	280	295	260	290	275										
19								300	290	295	300	285	280											
20								235	245	300	270	280	275	300	285									
21								255	240	250	290	295	310	290	330	310								
22								250	260	325	290	300	290	315										
23								260	280	300	290	280	275											
24								245	260	270	270	280	290	270										
25								240	250	260	280	310	310	310	300	280	280							
26								250	270	290	310	310	290	310	A	290	A							
27								500	460	380	410	390	430	440	380	350	A	A						
28								240	260	280	290	280	310	310	300	280	270							
29								250	240	260	290	310	340	310	300	300	280							
30								260	260	290	280	290	280	290	320	280	280							
31																								
Hour Day	00	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	17	22	30	29	30	30	29	28	24	16	4					
MED								250	255	255	285	295	298	310	300	300	292	280	280					
UQ								260	280	270	320	320	320	320	320	305	280	300						
LQ								250	250	240	260	280	290	290	290	290	280	278	270					

SEP. 1982

H^oF2 (KM)

IONOSPHERIC DATA

SEP. 1982

H^oF (KM)

135 E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA																								Lat.	31 12.1 N		Long	130 37.1 E		Sweep	1 MHz to 20 MHz		in 20sec		in		automatic operation	
Hour Day	00	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 330	E A 350	260	255	230	240	260	A	230	210	210	210	210	A	230	A	240	A	A	E A 250	A 280	E S 280	A 300	E S 310															
2	A 310	290	275	240	260	260	A	240	220	200	A	220	210	210	220	190	H 230	240	A	260	A 240	230	280	290															
3	260	290	260	230	260	E S 310	260	235	A 230	210	A	210	E A 250	A	230	A	230	A	E A 265	A	E A 280	E A 270	E S 320	E S 310															
4	280	280	260	E S 320	E S 300	280	280	240	A	240	B	A	A	A	B	A	A	A	E A 290	A 260	240	E A 330	E S 320	E A 330															
5	E A 350	E S 310	E A 310	280	E A 330	E A 320	290	240	A	A	A	A	230	220	230	230	240	A	A	250	A 255	E A 270	260	E A 310															
6	A	E S 360	E S 340	300	A 280	A 260	A 270	240	240	220	210	210	220	220	A	250	240	260	E A 280	A 290	E S 330	E A 360	E S 260	240															
7	E S 450	E S 360	240	E A 380	E A 340	E S 260	230	240	240	A	A	210	210	230	A	A	240	260	A 260	A	270	A 280	E S 290	280															
8	E S 300	E A 330	E S 320	E S 330	E A 400	E S 400	250	230	220	210	210	220	220	210	210	220	220	240	250	A	250	E S 310	E S 330	A 310															
9	290	E S 290	E S 290	280	E S 290	280	240	240	220	210	H 200	200	200	210	210	240	240	A 250	A 250	230	230	260	E S 290	280															
10	E S 270	260	E S 310	E S 270	250	260	230	230	230	230	A 220	220	220	210	210	240	A 230	240	250	A 240	250	240	E S 270	E S 310															
11	305	300	300	290	290	280	245	240	240	220	200	200	215	225	220	225	240	250	H 250	250	250	255	250	275	285														
12	280	280	265	225	325	345	265	220	225	210	H 200	H E A 230	210	220	A 275	E A 250	E A 240	E A 260	245	250	255	260	295	285															
13	285	270	260	250	230	245	245	230	240	H 250	H 225	225	E A 245	A	A	E A 240	E A 275	250	245	230	245	280	295	300															
14	275	255	275	275	235	250	250	220	225	H 210	H 205	200	H 195	H 210	205	245	250	275	H 235	235	225	E S 285	295	295															
15	285	275	255	235	215	245	280	235	225	H 210	H 215	225	200	H 210	230	255	245	H 250	230	205	235	295	S 295	295															
16	275	255	235	275	240	240	250	225	235	H 230	210	205	220	220	225	I C 230	235	250	250	245	205	225	S 300	285															
17	295	325	275	240	225	250	260	I C 230	I C 225	I C 215	210	200	200	H 205	H 220	230	240	250	H 245	230	E A 250	295	305	295															
18	275	280	300	300	260	255	215	215	H 220	H 210	195	220	235	225	E A 245	A	260	250	250	245	255	245	255	275															
19	295	350	325	255	260	245	265	245	H 225	H 205	H 200	195	H 215	E A 245	235	205	H 235	H 260	250	215	200	E S 295	355	310															
20	250	310	300	230	230	250	245	225	H 225	215	205	200	205	210	220	235	235	250	H 250	250	230	E A 250	325	310															
21	300	300	270	260	250	250	250	230	240	230	210	210	E A 250	225	230	240	225	255	240	250	230	290	280	290															
22	290	280	275	E S 355	325	300	295	250	240	240	245	230	240	230	235	250	260	E A 280	255	265	310	275	250	260															
23	210	250	230	220	A	E A 330	275	240	240	240	225	215	220	220	210	225	240	245	240	220	210	290	290	305															
24	270	240	E A 275	270	240	280	250	230	230	225	210	A	215	240	230	230	280	270	E A 300	270	A	270	290	320															
25	270	290	300	260	240	240	260	240	230	240	230	220	230	210	260	A 260	A 260	A 260	A	220	210	270	A 280	280															
26	260	260	250	220	220	360	280	220	220	220	230	210	A	220	240	A	A	A	A	A	A	A 310	A 280	290															
27	280	310	230	350	E S 360	270	290	280	A 240	240	230	A	240	A	A	A 260	A 260	240	A	A	A	A 280	270	260	270														
28	280	300	280	280	300	320	265	240	230	220	240	A 240	230	220	220	230	220	260	A	A	250	260	280	280	280														
29	265	260	250	240	230	290	270	230	240	230	220	210	210	230	220	230	240	260	240	230	250	260	270	290															
30	280	260	220	220	240	280	290	240	230	220	210	220	210	220	H 200	240	240	250	240	230	250	270	280	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	29	30	30	30	29	30	29	29	28	28	23	27	27	25	26	24	28	24	23	26	28	30	30	30															
MED	280	281	268	255	250	258	260	235	230	220	210	210	218	220	221	231	240	250	248	244	245	262	285	288															
UQ	292	300	288	282	U 280	290	275	240	240	230	222	220	225	225	A 232	241	242	260	251	A 250	256	282	298	302															
LQ	270	260	252	240	235	250	250	230	225	210	205	208	210	210	210	230	234	250	245	230	223	252	272	280															

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H^oF (KM)

IONOSPHERIC DATA

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H[°]E (KM)

135 E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA				Lat. 31 12.1 N				Long 130 37.1 E				Sweep 1 MHz to 20 MHz in 20sec in automatic operation											
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							115	A	A	110	A	A	110	A	110	110	110	110	A					
2							A	A	A	A	A	A	A	110	110	110	110	110	110					
3							E S 130	110	10	110	110	110	110	110	110	110	110	110	E S 125					
4							S	110	110	110	B	110	B	B	B	110	110	110	110					
5							S	110	110	110	110	110	110	110	110	110	110	110	E S 130					
6							S	110	110	110	110	B	110	110	110	110	110	110	E S 120					
7							S	110	110	110	110	110	A	A	110	110	110	110	E S 120					
8							S	110	110	110	110	110	110	110	110	110	110	110	E S 130					
9							S	A	110	110	110	110	110	110	110	110	110	110	A					
10							S	110	110	110	110	110	110	110	110	110	A	110	E S 125					
11							S	115	115	110	110	105	105	E A 115	E A 115	105	115	115	E S 130					
12							S	125	115	110	110	110	110	E B 115	110	A	A	A						
13							S	E S 120	115	110	110	E A 125	E A 125	E A 120	110	E A 125	E A 120	110	S					
14							S	125	115	E A 120	115	110	E A 120	115	E A 125	E A 125	E A 120	115	A					
15							S	120	115	115	110	A	E A 125	E A 125	115	115	115	H E B 120	E S 130					
16							S	A	E A 150	115	E A 125	E A 125	115	115	115	I C 115	A	H	S					
17							S	I C 120	I C 115	I C 115	115	115	E A 125	E A 125	115	115	110	E B 120	S					
18							S	115	115	110	110	A	E A 125	115	115	115	110	115	S					
19							S	E S 120	115	115	E A 125	E A 125	E A 120	A	E A 115	105	E A 115	110	S					
20							S	E S 120	115	E A 135	110	110	105	E A 125	E A 120	110	E A 120	E A 120	S					
21								125	115	115	115	110	110	115	115	115	115	120	125					
22								125	115	115	110	110	110	110	110	110	110	120	S					
23								120	115	115	110	115	A	115	A	A	A	120	S					
24								120	110	110	110	115	A	A	A	115	115	A	S					
25								E S 120	110	110	110	110	110	110	110	110	110	110	S					
26								110	110	110	110	110	110	110	110	110	110	110	S					
27								110	110	110	110	110	110	110	110	110	110	110	S					
28								E S 120	110	110	110	110	110	110	110	110	110	A	S					
29								110	110	110	A	A	110	110	110	110	110	110	S					
30								110	110	110	110	110	110	110	110	110	110	110	S					
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	26	28	29	26	24	25	25	27	29	26	27	11					
MED							118	114	110	110	110	110	110	110	110	110	110	110	E S 125					
UQ							120	115	112	110	111	112	112	112	112	112	112	112	E S 130					
LQ							110	110	110	110	110	110	110	110	110	110	110	110	E S 120					

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H[°]E (KM)

IONOSPHERIC DATA

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H°ES (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	YAMAGAWA																							Lat.	31 12.1 N		Long	130 37.1 E		Sweep	1 MHz to 20 MHz		in 20sec		in automatic operation	
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23												
1	110	110	110	110	220	S	G	110	110	G	110	110	G	110	135	130	130	130	110	110	110	110	110	110												
2	110	S	S	S	S	S	110	110	110	110	100	100	100	G	G	G	G	130	120	110	110	S	S	S												
3	S	110	110	100	S	S	G	130	120	120	120	120	120	120	130	130	130	120	120	110	110	110	110	110												
4	110	110	110	100	110	110	110	120	115	115	B	115	115	115	B	130	120	115	110	110	110	110	110	110												
5	110	110	110	110	110	110	110	130	125	115	115	115	G	G	130	130	130	120	115	110	110	110	110	110												
6	110	110	110	110	110	110	110	120	120	120	120	B	115	115	120	120	G	G	120	110	110	110	110	S												
7	110	130	130	120	130	120	120	120	120	120	115	115	110	110	115	115	130	120	115	110	110	110	110	110												
8	110	110	S	S	130	S	120	130	130	130	130	120	120	120	G	G	G	G	130	120	S	110	110	110												
9	110	110	110	S	S	S	S	110	115	120	120	115	115	115	G	G	115	115	110	110	S	S	S	S												
10	110	S	S	S	S	S	S	G	130	130	130	120	120	115	115	115	110	130	130	120	110	S	S	S												
11	S	S	S	110	S	110	S	G	145	125	130	125	125	125	125	125	G	G	150	120	105	100	100	S												
12	100	100	100	S	S	S	S	G	135	110	120	110	125	110	105	100	100	100	100	100	100	100	100	100												
13	S	S	S	B	B	S	145	G	130	120	125	125	120	110	110	115	110	120	105	105	100	100	100	100												
14	100	100	S	S	S	S	S	125	G	115	115	G	100	100	105	105	130	115	115	110	105	100	100	S												
15	S	S	S	S	S	S	S	125	115	110	105	105	105	100	100	150	130	G	G	100	S	S	S	S												
16	S	S	S	S	S	S	110	140	110	105	105	105	100	100	105	C	100	125	115	105	105	S	S	S												
17	S	S	S	S	S	S	S	C	C	C	115	110	110	105	105	G	G	G	120	110	105	110	110	105												
18	105	100	100	S	S	S	S	G	110	110	105	105	105	150	125	120	120	115	115	100	S	S	100	S												
19	S	S	S	S	S	S	S	150	G	130	125	120	120	145	105	G	100	125	125	S	110	S	105	S												
20	S	S	S	S	S	S	110	145	125	125	120	125	G	100	100	100	100	100	120	110	110	105	S	105												
21	100	100	S	S	S	S	S	G	125	125	120	120	110	120	G	120	G	G	125	110	110	110	105	105												
22	110	S	105	S	S	S	S	G	135	125	120	115	115	115	115	120	140	130	125	115	115	110	110	105												
23	S	S	S	125	130	125	125	120	125	125	120	120	105	105	105	100	100	140	120	115	110	115	S	105												
24	105	100	100	100	100	S	S	130	120	120	115	110	105	105	100	140	125	120	115	110	110	105	105	S												
25	S	S	110	110	100	110	S	130	130	125	120	115	120	130	150	140	130	130	115	110	110	110	110	S												
26	S	S	110	S	S	S	S	125	120	120	120	115	115	G	125	125	125	115	115	110	110	110	110	110												
27	110	110	S	S	140	S	S	130	130	120	130	120	120	120	120	130	135	120	115	110	110	110	110	110												
28	110	110	S	S	S	S	S	G	120	120	120	115	115	115	120	120	115	110	110	110	110	110	110	110												
29	S	S	S	S	S	S	110	G	G	130	110	110	115	115	120	G	140	130	150	110	110	110	100	100												
30	S	S	S	S	S	S	S	G	G	130	120	G	G	G	G	140	130	130	120	S	S	S	S	110												
31																																				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23												
CNT	17	15	13	10	10	7	11	19	25	28	29	27	26	26	24	23	24	24	29	28	25	22	22	17												
MED	110	110	110	110	120	110	110	125	120	120	120	115	115	115	115	120	125	120	115	110	110	110	110	110												
UQ	110	110	110	110	130	115	120	130	130	125	120	120	120	120	125	130	130	130	120	110	110	110	110	110												
LQ	105	100	105	100	110	110	110	120	115	115	110	115	110	105	105	105	115	110	115	115	110	110	105	100	105											

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H°ES (KM)

IONOSPHERIC DATA

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TYPES OF ES

135 E Mean Time (G.M.T. + 9 h)

Station		YAMAGAWA											Lat. 31 12.1 N, Long. 130 37.1 E											Sweep 1 MHz to 20 MHz in 20sec in automatic operation										
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1		F2	F3	F2	F1	F1			L3	L2		L2	L2		L2	H1	H1	H1	H2	L3	F2	F3	F4	F4	F2									
2		F2						L6	L4	L1	L2	L3	L2	L2					H1	C5	F6	F1												
3			F5	F2	F3				H2	C2	C1	C1	C1	C1	C2	H1	H2	H2	C3	C5	F6	F5	F5	F5	F3									
4		F3	F5	F4	F4	F4	F2	L1	C3	C5	C2		C3	C1	C1		H1	C2	C4	C4	F4	F3	F5	F4	F3									
5		F3	F2	F3	F3	F5	F3	L1	H2	H2	C4	C3	C1			H1	H1	H1	C4	C5	F5	F5	F5	F3	F4									
6		F4	F4	F2	F4	F5	F3	L5	C2	C2	C1	C1		C1	C1	C1	C1			C2	F4	F2	F6	F2										
7		F2	F2	F1	F3	F2	F2	L1	C1	C2	C3	C3	C2	L2	L2	C4	C3	H1	C4	C3	F5	F5	F5	F2	F2									
8		F1	F3			F2		L1	H2	H1	H2	H1	C1	C1	C1					H2	F3		F2	F1	F5									
9		F2	F2	F3					L1	C2	C1	C1	C1	C1	C2			C2	C1	L4	F2													
10		F1								H2	H2	H2	C1	C1	C1	C2	C1	L2	H1	H2	F2	F2												
11				F1		F1				H1	C2	H1	C1	C1	CL11	CL12	C1			H2	FF62	F3	F4	F2										
12		F3	F2	F2						HC11	C2	C1	C2	C1	C2	C4	C3	L4	L6	L6	F8	F7	F2	F2										
13							L1			H2	C5	C2	CL11	CL11	CL31	C4	CL21	CL21	L5	F4	F7	F2	F2	F3										
14		F3	F1						C3	C1	C1		L1	L1	C1	L1	H11	C3	C3	F6	F7	F2	F3											
15									C3	C2	C3	C3	L2	L1	L2	L1	HL12	HL21			F2													
16							LL12	HL25	L2	C3	L1	L1	L1	L1	L1			L2	H3	C6	F6	F4												
17											C1	C1	C1	C1	L1					C4	F7	F6	F2	F1	F4									
18		F6	F2	F1						C3	C2	C1	L1	L2	HL11	CL21	C2	C4	C5	LL51	F2			F1										
19									H1		H1	CL21	CL21	CL11	HCL11	L1		L2	C3	L2		F1		F3										
20							LL11	H3	C2	CL21	C2	C1		L1	L2	L2	L1	L2	L2	LL32	FF32	FF12	F2		F1									
21		F2	F3							C1	C1	C2	C1	C2	C1			C2		C1	F7	F2	F2	F4	F2									
22		F2		F2						H1	C2	C2	C2	C2	C1	C2	C1	H2	H5	C5	F5	F5	F7	F7	F4									
23					F3	F6	F6	F6	C6	C1	C3	C2	C1	L3	L1	L1	L2	L2	H3	L3	F6	F4	F2		F2									
24		F4	F3	F2	F2	F3			C3	C3	C1	C1	C3	L2	L2	L3	HL11	CL32	CL65	CL75	F5	F4	F3	F3										
25				F1	F1	F2	F2			H2	H2	H2	C2	C1	C1	H1	H1	H2	H2	H4	C4	F3	F2	F3	F3									
26			F2							H1	C1	C2	C1	C1	C2		H2	H3	H2	C5	C5	F4	F4	F6	F5	F2								
27		F2	F2		F2					H4	H2	C1	H2	C2	C2	C2	C2	C1	H1	H2	C4	C5	F6	F7	F4	F5								
28		F2	F2							C2	C2	C2	C2	C1	C1	C1	C1	C2	L3	L6	F5	F5	F6	F6	F2									
29							F1				H1	L2	L1	C1	C1	C1			H1	H1	C5	F5	F1	F2	F2	F3								
30											H1	C1					H1	H1	H4	C4					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																																		
UQ																																		
LQ																																		

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TYPES OF ES

IONOSPHERIC DATA

SEP. 1982

FXI (0.1 MHZ)

135 E Mean Time (G.M.T. + 9 h)

Station		OKINAWA											Lat. 26 16.9 N		Long 127 48.4 E		Sweep 1 MHz to 25 MHz in 25sec in automatic operation										
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1		S 153	S 153	X 174	S 145	140	100	S 88												U S 106	X 93	X 102	S 100	X 96			
2		S 96	95	100	S 100	X 67	X 56	X 64												S 137	X 148	S 140	X 132	X 133			
3		S 138	X 129	S 122	X 127	X 88	X 65	X 71												X 111	X 108	U S 105	X 94	S 88			
4		S 97	X 94	X 78	X 64	X 64	X 67	X 70												X 127	X 120	U S 99	X 83	X 86			
5		X 83	X 80	X 76	X 72	X 69	X 69	X 82												X 146	X 114	U S 95	X 84	X 84			
6		X 78	X 72	X 64	X 66	X 64	X 60	X 48												S 155	X 134	200	181	X 112			
7		163	155	X 82	85	135	100	90	78			135								U S 126	S 116	X 92	X 91	X 88			
8		X 77	X 77	X 72	X 68	X 57	X 52	X 58												X 100	X 82	X 72	X 72	X 72			
9		X 71	X 70	X 71	X 67	X 62	X 60	X 62												X 153	X 146	S 145	X 147	X 140			
10		S 120	S 128	X 102	X 92	X 81	X 66	X 75												X 134	X 108	S 113	120	105			
11		X 81	X 80	X 79	X 77	X 66	X 69	X 80												X 141	X 130	X 117	X 118	145			
12		110	S 105	X 92	H 62	X 58	X 60	X 66												X 126	X 115	X 110	X 104	X 116			
13		X 126	X 116	X 114	X 90	X 83	X 70	X 63												S 135	X 116	S 118	123	X 132			
14		X 123	X 138	X 120	X 86	X 89	X 70	X 72												X 139	X 115	X 101	X 111	S 114			
15		X 112	X 145	X 145	X 112	X 79	S 42	S 44												X 135	S 136	X 114	X 110	S 119			
16		S 130	U S 125	S 117	S 94	X 81	S 78	S 69												S 134	S 119	S 112	U S 101	S 100			
17		X 90	X 76	X 84	X 86	X 55	X 53	X 51												S 122	X 90	X 76	X 78	X 78			
18		X 84	S 74	X 67	X 66	X 70	X 65	X 66												X 119	U S 104	X 97	X 94	X 86			
19		X 83	X 73	X 66	X 69	X 55	X 48	X 53												X 140	U S 92	X 91	X 83	X 83			
20		X 96	X 80	X 69	X 73	X 56	X 44	X 50												X 173	U S 138	X 105	X 96	X 96			
21		X 97	H 95	X 91	X 84	X 50	X 50	X 53												X 130	X 105	X 93	X 96	X 90			
22		X 80	X 82	X 73	X 66	X 68	X 63	X 63												S 203	X 189	X 196	X 176	X 117			
23		X 127	X 93	X 67	X 56	X 57	X 62	X 78												C	C	C	C	C			
24		C	C	C	C	C	C	C												S 112	X 91	X 87	X 86	X 85			
25		S 97	X 91	X 67	X 67	S 64	X 58	X 57												X 160	X 166	X 164	S 160	S 139			
26		S 120	X 114	U S 108	X 70	X 47	X 41	X 45												X 119	X 116	S 134	S 131	S 117			
27		X 118	X 89	X 79	X 69	X 70	95	85	90	100	115									S 124	X 149	X 150	X 152	X 145			
28		X 122	X 109	X 86	X 59	X 54	X 51	X 57												X 137	X 145	X 147	X 153	X 149			
29		S 139	S 131	S 120	X 81	X 55	X 51	X 59												X 145	X 145	S 156	X 160	X 165			
30		X 170	X 168	X 139	X 69	X 53	X 45	X 52												X 130	U S 134	X 143	X 153	S 155			
31																											
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT		29	29	29	29	29	29	29	2	1	1	1								29	29	29	29	29			
MED		X 110	X 95	X 84	X 72	X 64	X 60	X 63	84	100	115	135								X 134	X 116	X 112	X 110	X 112			
UQ		126	128	114	X 86	X 79	X 69	X 72												X 141	S 138	X 143	X 147	X 133			
LQ		X 84	X 80	X 72	X 67	X 56	X 51	X 53												X 124	X 108	X 97	X 94	X 88			

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FXI (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1982

FOF2 (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station		OKINAWA		Lat. 26 16.9 N		Long 127 48.4 E		Sweep 1		MHz to 25		MHz in 25sec		in		automatic operation									
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		147	S 147	168	139	129	F	J S 82	83	H 82	88	100	116	122	124	126	117	108	111	106	U S 100	S 87	96	S 94	90
2		S 90	F	F	S 94	61	50	58	83	86	83	104	122	143	156	152	150	149	148	136	131	142	134	126	127
3		132	123	S 116	U S 121	82	59	65	104	101	75	93	111	122	115	110	110	118	122	112	105	J S 102	U S 99	88	82
4		91	88	72	58	58	61	64	70	88	93	105	129	147	134	120	110	112	107	108	121	S 114	J S 93	77	80
5		77	74	70	66	63	63	76	92	88	90	108	129	145	138	142	125	135	140	131	140	U S 108	U S 89	78	78
6		72	66	58	60	58	54	42	79	88	90	95	109	155	150	R 154	177	156	111	125	149	128	F	175	106
7		F	F	76	F	F	F	S 75	72	J R 88	117	103	F	S 132	131	142	140	137	124	J R 120	U S 120	110	86	85	82
8		71	71	66	62	51	46	52	60	76	93	93	103	123	112	111	130	143	138	117	94	76	66	66	66
9		65	64	65	61	56	54	56	77	84	85	89	98	R 117	129	154	168	172	169	J S 156	147	140	139	141	134
10		114	112	S 96	86	75	60	69	78	87	89	88	102	114	119	122	124	132	139	137	128	J S 102	107	F	F
11		75	74	73	71	60	63	74	U S 99	93	79	90	113	112	113	124	124	141	148	149	135	124	111	112	F
12		F	U S 99	86	56	52	54	60	89	79	90	102	119	117	114	109	117	140	148	133	S 120	109	J S 104	J S 98	110
13		J S 120	110	108	84	77	64	57	83	101	104	98	95	114	137	134	140	145	143	140	129	110	112	117	126
14		S 117	132	114	80	83	64	66	J S 93	94	84	90	104	120	127	129	130	133	144	148	133	109	S 95	S 105	108
15		106	F	F	106	73	36	38	83	102	89	92	131	153	162	163	149	145	147	138	129	130	108	J S 104	S 113
16		J S 124	U S 119	111	88	75	S 72	S 63	J R 88	S 100	J R 93	98	115	130	140	136	132	131	130	144	128	S 113	S 106	U S 95	S 94
17		84	70	78	80	49	47	45	87	103	87	90	109	133	141	142	141	148	R 154	138	116	S 84	70	72	72
18		78	68	61	60	64	59	60	73	79	90	104	129	131	139	130	125	130	123	114	113	U S 98	91	88	80
19		77	67	60	63	49	42	47	76	94	74	74	112	134	148	161	149	137	142	152	134	86	U S 85	77	77
20		90	S 74	63	67	50	38	44	78	92	89	93	116	142	157	161	165	169	164	166	167	132	U S 99	U S 90	90
21		91	U S 89	85	S 78	44	44	47	78	J R 95	100	94	118	134	146	165	170	179	184	160	124	J S 99	87	90	84
22		74	76	67	60	62	57	57	80	98	90	115	134	150	182	200	R 201	R 210	174	R 204	S 197	183	U S 190	170	111
23		121	87	51	50	51	56	J S 72	109	111	134	144	150	c	c	c	c	152	c	c	c	c	c	c	c
24		c	c	c	c	c	c	c	c	c	112	106	122	140	145	144	135	128	133	129	J S 106	85	81	80	79
25		91	85	61	61	58	52	51	85	J R 100	122	130	130	145	158	168	168	164	169	169	154	U S 160	U S 158	S 154	S 133
26		S 114	J S 108	J S 102	64	41	35	39	94	87	94	112	135	138	144	141	137	140	122	111	113	110	128	125	111
27		112	83	73	63	64	F	F	F	F	F	114	115	112	110	123	122	114	109	110	S 118	143	144	146	139
28		116	U S 103	S 80	53	48	45	51	90	92	104	113	120	127	131	136	141	137	131	128	131	139	141	147	143
29		133	125	S 114	75	49	45	53	90	97	109	112	124	141	J R 155	164	161	J R 154	151	146	139	139	150	154	159
30		164	162	133	63	47	39	46	88	R 99	108	124	140	144	145	147	138	134	132	132	124	128	137	147	149
31																									
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		27	26	27	28	28	26	28	28	28	29	30	29	29	29	29	29	30	29	29	29	29	28	28	27
MED		91	88	76	65	58	54	57	83	92	90	101	118	133	139	142	138	140	140	136	128	110	105	101	106
UQ		118	112	105	82	68	60	66	90	100	104	112	129	143	148	154	150	152	148	148	135	132	136	144	126
LQ		78	74	66	60	50	45	47	78	87	88	93	111	122	127	126	125	132	124	120	118	102	90	86	81

The Radio Research Laboratories, Japan

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FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

FOF1 (0.01 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station	OKINAWA																							
Lat.	26 16.9 N												Long 127 48.4 E											
Sweep	1 MHz to 25 MHz in 25sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	L	L	L	A					
2											L	L	L	L	L	L	L	L						
3											L	L	L	L	L	L	L	L						
4											L	U L 590	L	L	L	L	A	A	A					
5										L	L	L	L	L	L	L	L	L						
6										L	L	L	L	L	L	L	L	L	C					
7										L	L	L	L	L	L	L	L	L						
8										L	L	L	L	L	L	L	L	L						
9									L	L	L	L	L	L	L	L	L	L						
10											L	L	L	L	A	L	L							
11										L	L	L	L	L	L	L	L	L						
12										L	L	L	L	L	L	L	L	L						
13										L	L	A	A	A	L	L	L	L	A					
14										L	L	L	L	L	L	L	L	L	A					
15										L	L	L	L	L	L	L	L	L						
16											L	L	L	L	L	L	L							
17											L	L	L	L	L	L	L	L						
18											L	L	L	A	L	L	L							
19											L	L	L	L	L	L	L							
20										L	L	L	L	L	L	L	L							
21										L	L	L	L	L	L	L	L	L						
22												L	L	L	L	L	L	L						
23												L	C	C	C	C	L	C	C					
24								C	C			L	L	L	L	L								
25										L	L		L	L	L	L	L	L	A					
26												L	L	L	L	A	A							
27										L	L	L	590	570	580	L	L	L	A					
28										L	L	L	L	L	L	L	L							
29											L	L	L	L	L	L	L	L	A					
30										L	L	L	L	L	L	L	L							
31																								
CNT												1	1	1	1									
MED												U L 590	L 590	L 570	L 580									
UQ																								
LQ																								

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FOF1 (0.01 MHz)

IONOSPHERIC DATA

SEP. 1982

FOE (0.01 MHZ)

135 E Mean Time (G.M.T. + 9 h)

Station **OKINAWA** Lat. **26 16.9 N** Long **127 48.4 E** Sweep **1** MHz to **25** MHz in **25** sec in **automatic operation**

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1								H 250	305	350	370	R 390	R 405	405	400	385	350	335		A					
2								H 250	A	355	375	A	A	405	395	370	345	305	230						
3								A	A	A	A	A	A 405	R 405	400	380	350		A	225					
4								A	A	A	B	A	B	B	B	R 415	390	335		A					
5								A	A	A	A		395	405	405	390	370	345	300		A				
6								A	A	340	355	C	380	395		C	365	345	C	A					
7								A	C	330	355	A	A	A	A		370	A	A	A					
8								A	285	325	350	R	385	390		A	380	355	305		A				
9								H 240	A	350	370	380	A	A	H 390	375	350	300		A					
10								230	H 300	340	375	385	A	390	A	A	A	A	A						
11								H 235	H 300	340	370	375	A	A	375	370	345	300	205						
12								A	A	A	A	A	A	A	A	A	A	A	A						
13								A	A	A	A	A	A	A	A 390	375		A	A	A	H 200				
14								A	A	345	A	385	395	395	375	355	320		A	A					
15								A	280	340	A	380	390	A	A	355	A	H 285	A						
16								240	305	A	360	375	385	390	375	350	315	280		A					
17								A	A	A	A	A	380	380	365	350	325	275		A					
18								A	A	A	A	A	A	R 380	370	350	320	275		A					
19								225	290	A	A 345	R	380	U S 380	S	U S 355	S	U S 325	275		A				
20								A	300	A	A	S	S	S	U S 385	S	355	320	270		A				
21								A	A	A	A	A	A	A		370	A	A	A	A					
22								A	220	300	330	360	A	A	A	A	R 345	320	270		A				
23								A	A	A	350	A	C	C	C	C		320	C	C					
24								C	C	A	A	A	A	A	380	A	340		A	A					
25								A	225	A	A	A	A	A	400	390	370	340	280		A				
26								A	A	A	A	A	A	400	405	400	385	330	280		A				
27				J K 150	J K 130			A	A	A	380	395	400	405	400	370	340	275		A					
28								A	A	A	A	A	A	A	A	A	A	A	A	A					
29								240	305	345	365	385	395	400	390	375	340		A	A					
30								220	H 300	345	370	380	400	400	390	365	300	270		A					
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT				1	1			12	11	13	15	11	14	18	19	23	23	18	5						
MED			J K 150	J K 130				235	300	340	365	385	395	398	390	370	340	280	225						
UQ								H 240	302	345	370	388	400	405	392	375	345	300	230						
LQ								225	295	340	355	380	385	390	375	355	320	275	205						

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FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1982

FOES (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	OKINAWA																							Lat.	26	16	9	N	Long	127	48	4	E	Sweep	1	MHz to	25	MHz	in	25	sec	in	automatic operation				
Hour Day	00	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 43	J A 40	J A 36	J A 26	J A 18	J A 17	J S 16	G	32	G 34	G 33	G	48	51	50	J A 56	J A 54	J A 49	J A 55	J A 36	J A 34	J A 18	E S 16	E S 16																							
2	E S 16	E S 16	E S 16	E S 16	19	18	E S 16	18	J A 49	J A 36	J A 38	J A 40	J A 50	50	51	46	39	38	J A 35	J A 36	J A 41	J A 50	J A 22	J A 20																							
3	J A 24	J A 20	E S 16	E S 16	E S 16	20	21	27	J A 43	J A 58	48	J A 58	J A 59	G	44	54	45	41	J A 40	J A 32	J A 52	J A 75	J A 42	J A 40																							
4	J A 40	J A 23	J A 32	22	22	22	J A 22	29	J A 37	42	E B 52	49	51	J A 58	E B 54	59	J A 63	J A 66	J A 84	J A 80	J A 53	J A 49	J A 40	J S 16																							
5	22	J A 30	J A 29	J A 32	J A 24	J A 21	J A 30	J A 27	34	37	J A 85	45	G	G	46	J A 64	47	43	J A 37	J A 28	J A 26	J A 22	J A 23	E S 16																							
6	J A 50	J A 42	J A 26	J A 18	J A 21	J A 25	J A 33	J A 69	J A 64	46	45	C	43	G	C	42	G	C	J A 33	J A 33	C	J A 22	J A 76	C																							
7	J A 36	C	J A 24	J A 38	C	J A 32	C	29	C	40	44	J A 60	G	41	40	45	39	35	25	25	33	27	J A 40	J A 39																							
8	J A 33	J A 24	27	24	J A 20	J A 21	J A 25	J A 26	37	47	45	50	42	45	46	G	G	G	26	J A 36	J A 24	J A 20	J A 21	J A 30																							
9	J A 39	J A 30	J A 30	J A 18	E S 16	E S 16	J S 14	G	J A 36	38	44	44	J A 44	41	G	G	37	37	J A 41	J A 32	J A 18	J A 22	J A 22	J A 22																							
10	J A 25	J A 20	J A 18	J A 18	E S 16	E S 16	E S 16	28	33	J A 49	J A 57	J A 58	J A 50	43	J A 102	J A 58	J A 41	J A 51	J A 33	J A 30	20	J A 33	J A 24	J A 30																							
11	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	37	42	42	43	46	40	J G 34	J A 38	G	G	G	J A 30	J A 41	20	E S 16	J A 18																							
12	E S 16	J A 20	J A 21	J S 14	E S 16	E S 16	E S 16	J A 29	39	J A 46	J A 38	J A 41	J A 42	J A 66	J A 42	J A 39	38	J A 30	J A 37	J A 37	J A 25	J S 14	E S 16	E S 16																							
13	E S 16	E S 16	E S 16	E S 16	E S 16	J S 13	J S 14	J A 29	J A 40	43	45	J A 57	J A 68	57	47	41	41	J A 35	24	J A 17	J A 23	J A 21	J A 21	E S 16																							
14	J A 23	18	E S 16	E S 15	E S 15	E S 16	E S 16	26	35	G	38	33	G	G	G	39	36	J A 46	J A 47	J S 16	J A 22	J A 26	J A 17	J A 24																							
15	E S 16	E S 16	E S 15	E S 16	18	E S 16	E S 16	26	33	G	J A 42	36	J A 49	J A 76	J A 49	J G 34	J A 54	33	24	J A 21	J A 17	J A 21	J A 24	E S 16																							
16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	J A 35	G 26	G	G	G	G	G	G	34	J A 36	J A 32	J A 31	J A 36	J A 32	J A 18																							
17	J A 22	E S 16	E S 16	E S 16	E S 16	J S 13	E S 16	26	36	36	36	J A 80	G 32	G	G	G 28	G 26	31	J A 30	J A 32	J S 14	J A 50	J A 41	J A 24																							
18	E S 16	J S 16	J A 20	24	24	20	E S 16	26	32	J A 47	40	J A 50	J A 50	J A 64	42	39	36	36	J A 35	J A 30	E S 16	24	J A 18	23																							
19	J S 16	E S 16	20	J S 14	E S 16	E S 16	E S 16	G	G	J A 40	38	33	40	46	44	G	D C 33	J A 57	J A 43	J A 54	J A 36	J A 22	J A 21	24																							
20	J S 16	E S 16	E S 16	E S 15	E S 16	E S 16	J S 15	27	G	J A 39	J A 58	J A 42	G	G	44	42	40	J A 56	J A 51	51	J A 32	J A 32	J A 33	J A 27																							
21	J S 16	21	20	E S 16	E S 15	E S 16	E S 16	J A 29	J A 40	J A 43	J A 56	43	J A 43	41	J A 50	46	J A 41	J A 29	J A 26	J A 25	J A 80	18	23	17																							
22	22	22	18	18	E S 16	E S 16	J S 15	27	J A 34	37	J A 54	J A 60	J A 64	57	J A 42	G	36	J A 41	J A 51	J A 34	J A 32	J A 30	J A 30	J S 16																							
23	J A 30	J A 24	17	J A 18	19	J A 26	J A 53	J A 51	J A 53	42	J A 48	J A 50	C	C	C	C	G	C	C	C	C	C	C	C																							
24	C	C	C	C	C	C	C	C	C	J A 50	J A 49	39	42	J A 50	48	60	44	J A 54	J A 88	J A 84	J A 84	J A 50	J A 40	J A 84																							
25	J A 82	J A 36	J A 36	J A 34	J A 24	J A 16	J S 15	26	32	40	42	43	J A 40	G	G	41	J A 61	J A 64	J A 57	J A 89	J A 48	J A 26	J A 26	J A 40																							
26	J A 27	J A 24	J S 13	E S 16	E S 16	E S 16	E S 16	25	34	37	42	44	G	50	J A 57	J A 64	J A 89	J A 57	J A 64	J A 74	J A 74	J A 79	J A 38	J A 24																							
27	J A 20	J A 17	J S 14	18	J K 13	20	J A 24	J A 33	J A 43	J A 79	J A 60	J A 66	51	42	G	J A 50	44	J A 55	J A 51	J A 34	J A 40	J A 50	J A 40	J A 34																							
28	J A 20	J A 18	E S 16	J A 18	E S 15	E S 16	E S 16	31	J A 37	J A 44	J A 45	J A 56	J A 51	J A 56	J A 60	J A 63	J A 84	J A 44	J A 75	J A 40	J A 38	J A 37	J A 24																								
29	J A 30	J A 24	J A 24	J A 18	19	E S 16	E S 16	G	G	37	42	43	44	43	J G 37	41	45	J A 51	J A 64	J A 38	J A 30	J A 26	17	E S 16																							
30	E S 16	J S 16	J A 21	J A 21	J S 14	E S 16	E S 16	G	33	38	39	40	G	G	44	50	J A 54	J A 51	J A 36	E S 16	20	J A 23	J A 20	J A 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	29	28	29	29	28	29	28	29	28	30	30	29	29	29	28	29	30	28	29	29	28	29	29	28																							
MED	J A 22	J A 20	18	18	E S 16	E S 16	E S 16	26	36	40	44	44	43	43	44	42	40	J A 42	J A 37	J A 33	J A 32	J A 26	J A 24	J A 22																							
UQ	J A 30	J A 24	J A 24	J A 21	19	20	18	J A 29	J A 40	J A 46	J A 48	J A 56	J A 50	51	49	54	J A 47	J A 54	J A 51	J A 38	J A 41	J A 38	J A 38	J A 28																							
LQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G 18	32	37	39	40	G 32	G	G	G 36	38	36	34	J A 33	J A 30	J A 22	J A 22	J A 16																							

SEP. 1982

FOES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

FBES (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	OKINAWA																													
Lat. 26 16.9 N.	Long 127 48.4 E																													
Sweep 1	MHz to 25 MHz in 25sec in automatic operation																													
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	40	33	28	20	E	E	S	G	32	G	G	G	48	50	47	53	51	48	53	34	18	E	E	S	E	S				
2	E	S	E	S	E	S	E	S	E	S	E	S	18	34	32	30	40	42	50	50	45	38	38	34	36	26	40	E	18	
3	18	E	E	S	E	S	E	S	E	S	E	S	26	40	40	41	45	45	G	44	54	44	40	36	30	27	45	34	34	
4	25	20	22	20	E	E	E	E	28	31	38	E	B	45	50	58	E	B	54	59	61	62	83	52	30	32	24	S		
5	E	22	29	21	19	20	19	26	34	37	48	44	G	G	46	58	47	42	36	25	18	E	17	E	S	16				
6	17	29	19	E	E	22	30	51	55	43	44	C	42	G	C	41	G	C	31	31	C	22	53	C						
7	29	C	E	35	C	E	C	25	C	37	38	46	G	40	40	44	37	35	24	17	28	18	31	29						
8	32	E	23	17	E	E	E	25	34	45	44	50	41	44	45	G	G	G	25	37	19	E	E	E						
9	19	21	19	E	E	S	G	31	37	40	42	43	41	G	G	36	36	38	30	E	E	E	E							
10	E	E	E	E	E	S	G	26	32	36	44	45	45	41	80	44	35	32	32	24	E	24	E	18						
11	E	S	E	S	E	S	E	S	G	36	40	40	41	44	40	G	30	G	G	G	E	30	E	E	S	16	E			
12	E	S	E	S	E	S	E	S	G	24	34	37	38	39	42	46	40	37	37	29	23	34	20	S	E	S	16	E	S	16
13	E	S	E	S	E	S	E	S	25	34	40	43	54	63	55	45	39	34	28	17	E	18	17	E	E	S	16			
14	E	E	E	S	E	S	E	S	26	34	G	38	33	G	G	G	38	36	40	40	S	18	22	E	17					
15	E	S	E	S	E	S	E	S	24	31	G	37	36	37	43	40	G	25	32	32	24	18	E	20	E	E	S	16		
16	E	S	E	S	E	S	E	S	G	G	34	26	G	G	G	G	G	G	33	35	30	30	30	30	30	30	E			
17	18	E	S	E	S	E	S	E	25	35	34	36	38	32	G	G	28	G	26	31	29	32	S	34	35	18				
18	E	S	S	E	17	17	E	E	25	29	44	39	44	44	62	41	38	36	34	32	25	E	S	16	E	E	E			
19	S	E	S	E	S	E	S	E	G	G	40	36	33	40	46	44	G	D	C	33	54	39	54	25	17	E	E			
20	S	E	S	E	S	E	S	E	23	G	39	49	42	G	G	42	41	38	50	51	51	25	31	22	25					
21	S	E	E	E	S	E	S	E	24	34	37	40	40	38	40	41	44	40	28	24	23	54	E	E	E					
22	E	E	E	E	E	S	S	24	31	37	46	44	48	44	40	G	35	29	41	24	19	18	E	S						
23	E	E	E	E	E	E	36	45	45	37	42	44	C	C	C	C	G	C	C	C	C	C	C	C	C	C	C	C		
24	C	C	C	C	C	C	C	C	C	45	47	39	41	46	46	40	41	51	80	55	30	20	E	45						
25	54	30	34	25	18	S	S	26	32	40	41	43	40	G	G	41	57	62	50	50	41	21	18	34						
26	21	18	S	E	S	E	S	E	25	33	37	40	42	G	48	46	63	71	55	64	43	43	65	26	21					
27	19	E	S	S	K	E	18	27	40	40	44	45	48	G	G	46	43	48	51	28	29	40	26	26						
28	E	E	E	S	E	S	E	S	24	36	33	40	44	46	51	45	53	42	42	37	54	28	34	25	22					
29	24	22	21	E	E	E	S	E	G	G	36	41	42	43	43	G	35	41	42	47	62	38	23	23	E	E	S	16		
30	E	S	S	19	20	S	E	S	E	S	G	32	37	G	40	G	G	43	46	49	48	26	E	S	16	20	23	20	E	
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	27	26	27	26	22	29	28	30	30	29	29	29	28	29	30	28	29	28	27	28	29	26						
MED	16	16	16	16	E	S	E	S	E	S	E	S	25	34	37	40	42	42	41	42	41	38	39	36	30	25	22	16	16	
UQ	21	20	19	17	E	S	E	S	E	S	E	S	26	34	40	44	44	45	46	46	46	43	48	50	40	30	32	25	22	
LQ	E	S	E	E	E	E	E	S	G	31	36	38	39	G	G	G	30	33	32	26	24	18	E	E	17	E	E			

The Radio Research Laboratories, Japan

SEP. 1982

FBES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

F-MIN (0.1 MHz)

135 E Mean Time (G.M.T. + 9 h)

Station	OKINAWA							Lat.	26 16.9 N			Long	127 48.4 E			Sweep	1 MHz to 25 MHz in 25sec in automatic operation										
Hour Day	00	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 S 16	E S 16	E S 16	E S 15	E S 16	E S 15	E S 16	E S 16		20	24	25	27	26	28	26	23	24	26	20	E S 16	E S 16	E S 16	E S 16			
2	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 15		16	21	24	26	24	24	27	25	22	16	15	E S 16	E S 16	E S 16	E S 16			
3	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		16	21	25	26	27	27	24	24	24	21	16	E S 16	E S 16	E S 16	E S 16			
4	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16		17	23	52	30	44	48	54	38	28	23	14	E S 16	E S 16	E S 16	E S 16			
5	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		16	22	24	26	25	28	24	22	21	16		E S 16	E S 16	E S 16	E S 16			
6	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16		16	20	24	E C 58	25	29	E C 57	25	24	E C 65	16	E S 16	E S 50	E S 15	E S 16			
7	E S 16	E C 16	E S 15	E S 16	E C 34	E S 16	E C 16	16		E C 50	16	23	24	27	26	28	25	22	16		E S 16	E S 16	E S 16	E S 16			
8	E S 16	E S 16	E S 16	E S 15	E S 15	E S 16	E S 16	16		19	24	26	26	28	27	25	27	25	18	16	E S 16	E S 15	E S 16	E S 16			
9	E S 15	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16		16	18	24	24	25	28	30	25	22	20		E S 14	E S 16	E S 16	E S 16			
10	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16		17	19	24	25	26	27	27	25	24	20		E S 15	E S 16	E S 16	E S 16			
11	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		20	23	25	25	24	22	20	25	24	17		E S 16	E S 15	E S 16	E S 16			
12	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16		16	20	20	24	25	27	25	24	23			E S 15	E S 15	E S 16	E S 16			
13	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		19	21	24	25	25	27	29	25	20	16		E S 16	E S 15	E S 15	E S 16			
14	E S 16	E S 16	E S 16	E S 15	E S 15	E S 16	E S 16	16		20	22	25	24	24	23	26	25	21	16		E S 16	E S 16	E S 16	E S 16			
15	E S 16	E S 16	E S 15	E S 16	E S 15	E S 16	E S 16	E S 16		20	22	23	26	25	27	22	21				E S 16	E S 15	E S 16	E S 16			
16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		16	20	24	24	24	26	25	24	22	19		E S 16	E S 16	E S 16	E S 16			
17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		16	22	24	26	24	26	26	23	23	17	14		E S 16	E S 16	E S 16			
18	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		16	20	24	26	27	22	20	24	24	15	13		E S 16	E S 16	E S 16			
19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		16	20	24	26	26	24	25	25	24	21		E S 16	E S 16	E S 16	E S 16			
20	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16		16	24	24	26	24	23	25	25	18	20		E S 15	E S 16	E S 16	E S 16			
21	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16		16	18	22	25	25	24	27	25	20			E S 15	E S 15	E S 16	E S 16			
22	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	17		17	20	24	25	25	25	24	24	26	17	16		E S 16	E S 16	E S 16			
23	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16		16	19	20	24					22									
24	C	C	C	C	C	C	C	C			20	24	26	30	30	28	24	15	15		E S 16	E S 16	E S 16	E S 16			
25	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		17	24	24	24	24	34	30	24	18	15		E S 16	E S 16	E S 16	E S 16			
26	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		18	21	25	24	30	30	28	25	20	16		E S 16	E S 16	E S 16	E S 16			
27	E S 15	E S 15	E S 15	E S 16	E S 16	E S 16	E S 15	E S 16		16	23	25	27	27	27	27	26	23			E S 16	E S 16	E S 16	E S 16			
28	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16		16	16	24	23	23	25	27	25	22	19		E S 16	E S 16	E S 16	E S 18			
29	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16		23	24	27	26	33	25	21	18	24	16		E S 16	E S 16	E S 16	E S 16			
30	E S 16	E S 16	E S 16	E S 15	E S 15	E S 16	E S 16	E S 16		20	23	24	30	28	26	26	23	25			E S 16	E S 16	E S 16	E S 16			
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	29	29	29	29	29	29	29	29	29	30	30	30	29	29	29	29	30	29	29	29	29	29	29	29			
MED	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		16	21	24	26	25	27	26	25	22	16		E S 16	E S 16	E S 16	E S 16			
UQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16		19	23	25	26	27	28	28	25	24	20		E S 16	E S 16	E S 16	E S 16			
LQ	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16		16	20	24	24	24	25	25	24	21	16		E S 15	E S 16	E S 16	E S 16			

SEP. 1982

F-MIN (0.1 MHz)

IONOSPHERIC DATA

SEP. 1982

M(3000)F2 (0.01)

135 E Mean Time (G.M.T. + 9 h)

Station		OKINAWA		Lat. 26 16.9 N		Long 127 48.4 E		Sweep 1		MHz to 25		MHz in 25sec in		automatic operation												
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		275	S 295	315	320	330	F	J S 320	390	335	H 305	280	295	290	285	300	300	300	305	310	U S 310	S 270	280	S 285	275	
2		S 280	F	F	S 330	310	285	310	340	330	300	265	270	280	290	285	290	290	310	300	290	290	285	265	275	
3		295	290	S 300	U S 315	350	285	280	340	355	380	295	280	300	295	280	275	300	305	310	295	J S 270	U S 270	260	260	
4		300	310	315	260	270	300	320	330	315	260	260	280	295	300	275	285	295	290	290	320	S 290	J S 265	255	260	
5		260	255	265	265	250	260	295	340	315	235	260	285	290	290	285	275	270	300	280	315	315	U S 285	255	265	
6		265	240	250	275	275	365	300	325	335	290	275	240	280	365	250 ^R	280	285	255	245	285	245	F	295	280	
7		F	F	280	F	F	F	280	S 320	J R 315	330	275	F	280	275	275	285	280	295	J R 295	U S 305	330	275	265	275	
8		260	250	255	275	250	240	390	355	330	320	305	275	295	395	275	280	285	315	325	320	265	255	265	265	
9		270	275	290	295	280	300	310	345	345	345	295	265	275 ^R	260	320	280	290	290	J S 295	295	275	265	275	295	
10		295	285	275 ^S	290	305	290	340	360	335	315	285	275	290	285	280	275	290	290	295	305	J S 275	265	F	F	
11		270	280	285	315	260	280	315	U S 360	S 265	310	275	290	280	270	280	280	285	295	300	295	275	275	270	F	
12		F	U S 295	295	340	255	255	295	365	340	315	285	300	285	290	265	275	290	310	315	290	S 290	J S 285	J S 265	275	
13		J S 285	300	310	300	300	325	320	345	340	315	315	250	260	285	280	285	295	300	310	295	305	275	280	275	
14		S 310	300	310	265	300	310	320	J S 310	310	380	295	280	290	295	285	295	295	310	325	320	280	S 275	S 285	265	
15		290	F	F	355	365	295	260	345	360	345	255	280	295	285	285	300	295	305	320	300	325	295	J S 275	S 295	
16		J S 300	U S 325	330	320	310	315	S 330	J R 340	S 350	J R 335	290	290	290	300	295	300	300	310	310	335	315	S 260	U S 265	S 270	
17		275	265	300	375	305	320	290	350	365	360	310	285	290	290	290	280	310	315 ^R	335	335	S 260	270	270	275	
18		310	290	275	280	295	320	345	350	360	320	280	300	295	290	290	295	310	320	325	315	U S 320	300	290	270	
19		275	260	270	280	300	310	315	360	370	370	270	285	290	290	300	295	290	300	315	345	310	U S 230	245	270	
20		310	270 ^S	280	325	320	325	310	360	340	345	290	275	285	285	285	290	295	300	315	340	310	U S 310	U S 250	265	
21		290	U S 275	280	S 320	285	305	330	345	J R 345	345	310	290	290	285	275	285	290	295	310	295	J S 305	280	295	290	
22		275	295	285	255	275	285	270	305	360	305	285	290	295	285	285	280	285	265	290	R 290	S 280	U S 295	305	285	
23		320	320	360	255	255	380	J S 310	340	335	305	310	295	C	C	C	C	310	C	C	C	C	C	C	C	
24		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	J S 315	295	270	270	270
25		300	320	270	275	290	310	305	350	J R 330	315	315	295	285	280	280	295	290	310	315	295	S 280	U S 285	S 285	S 285	
26		S 300	J S 310	J S 330	340	300	250	280	365	350	330	285	295	280	280	280	285	295	295	290	280	255	275	275	280	
27		290	255	265	255	230	F	F	F	F	F	250	250	255	245	250	275	280	285	280	290	S 275	280	285	295	
28		305	U S 275	S 275	270	270	280	285	355	335	305	300	285	285	275	280	285	295	290	295	285	285	275	290	280	
29		280	295	S 320	345	275	275	300	350	330	300	290	270	275	J R 275	275	285	J R 280	295	300	285	280	285	295	285	
30		300	335	360	340	310	265	275	345	R 345	305	290	290	280	280	270	275	280	290	305	300	265	270	300	305	
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		27	26	27	28	28	26	28	28	28	29	30	29	29	29	29	29	30	29	29	29	29	28	28	27	
MED		290	290	285	298	292	298	310	345	338	315	288	285	290	285	280	285	290	300	310	300	280	275	275	275	
UQ		300	300	312	328	308	315	320	358	350	345	300	290	290	290	285	295	295	310	315	315	305	285	288	285	
LQ		275	270	275	272	270	280	288	340	330	305	275	275	280	280	275	280	285	290	295	290	275	270	265	270	

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SEP. 1982

M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1982

M(3000)F1 (0.01)

135° E Mean Time (G.M.T. + 9 h)

Station	OKINAWA																							
Lat.	26 16.9 N												Long 127 48.4 E											
Sweep 1	MHz to 25 MHz in 25 sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	L	L	L	A					
2											L	L	L	L	L	L	L	L						
3											L	L	L	L	L	L	L	L						
4											L	UL 350	L	L	L	L	A	A	A					
5										L	L	L	L	L	L	L	L	L						
6										L	L	L	L	L	L	L	L	L	C					
7										L	L	L	L	L	L	L	L	L						
8										L	L	L	L	L	L	L	L	L						
9									L	L	L	L	L	L	L	L	L	L						
10											L	L	L	L	A	L	L							
11										L	L	L	L	L	L		L	L						
12										L	L	L	L	L	L	L	L	L						
13										L	L	A	A	A	L	L	L	L	A					
14										L	L	L	L	L	L	L	L	L	A					
15										L	L	L	L	L	L	L	L	L						
16											L	L	L	L	L	L	L							
17											L	L	L	L	L	L	L	L						
18											L	L	L	A	L	L	L							
19											L	L	L	L	L	L	L							
20										L	L	L	L	L	L	L	L							
21										L	L	L	L	L	L	L	L	L						
22											L	L	L	L	L	L	L	L						
23											L	C	C	C	C	L	C	C						
24								C	C			L	L	L	L	L								
25										L	L		L	L	L	L	L	A						
26											L	L	L	L	A	A								
27										L	L	L	345	345	345	L	L	A						
28										L	L	L	L	L	L	L	L							
29										L	L	L	L	L	L	L	L	A						
30										L	L	L	L	L	L	L	L							
31																								
CNT												1	1	1	1									
MED												UL 350	L 345	L 345	L 345									
UQ																								
LQ																								

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M(3000)F1 (0.01)

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H^oF₂ (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	OKINAWA							Lat.	26 16.9 N			Long	127 48.4 E			Sweep	1 MHz to 25 MHz		in 25sec		in automatic operation			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										270	335	305	320	325	295	300	290	295	265					
2											335	350	350	325	315	315	310	285						
3											310	335	315	310	290	340	310	290						
4											300	345	315	290	315	330	305	300	E A	335				
5										L	490	305	320	305	295	300	315	325	285					
6											260	L	315	430	340	360	410	325	E C	340				
7											260	320	285	H	310	350	340	305	290	275				
8											260	270	295	300	280	320	330	H	315	265				
9										250	250	310	295	360	375	350	335	350	280					
10											340	355	310	330	335	335	310							
11										L	350	350	315	290	350	335	325	310	280					
12											240	255	300	280	295	350	350	315	275					
13											245	245	A H	260	H	375	H	325	310	320	305	275	H	245
14											230	280	280	300	315	310	310	300	270					
15											240	L	370	340	290	315	310	295	290	260				
16											305	295	275	305	300	290	285							
17											260	280	300	290	310	315	290	265						
18											280	290	290	300	290	295	290							
19											L	400	305	300	315	300	290	280						
20											235	L	300	325	325	320	315	315	290					
21											230	245	320	305	340	345	325	300	265					
22												270	320	320	300	275	300	340						
23												305	c	c	c	c	290	c	c					
24								c	c			280	300	290	285	280								
25											260	245		300	325	325	300	300	275					
26												300	300	325	325	325	295							
27											450	380	370	375	400	375	330	300	280					
28											265	260	300	300	325	325	310	285						
29												250	340	350	360	325	310	300	275					
30											265	290	295	300	310	325	320	300						
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	26	29	29	29	29	29	29	20	3					
MED									250	260	302	305	305	320	315	315	300	276	255					
UQ										265	335	335	320	330	335	325	310	286	U	282				
LQ										240	260	295	300	305	300	300	290	272	255					

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H^oF₂ (KM)

IONOSPHERIC DATA

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H^oF (KM)

135 E Mean Time (G.M.T. + 9 h)

Station	OKINAWA																								Lat.	26 16.9 N		Long	127 48.4 E		Sweep	1 MHz to 25 MHz		in 25 sec		in automatic operation									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																					
1	300	295	250	210	220	195 ^H	240	230	215	205	200	195	235	E A 260	E A 250	A	A	A	A	250	250	275	260	285																					
2	285	295	265	235	210	245	255	240	230	H 220	H 200	H 200	H 220	E A 265	E A 280	250	240	250	260	260	250	245	250	290																					
3	270	260	250	215	200	250	295	235	235	H 220	H 210	215	225	A 210	H 230	A	E A 270	A 260	A 260	260	285	E A 290	A 315	A 345																					
4	280	245	245	315	310	280	250	230	230	H 230	E B 280	H 215	E A 275	A 290	E B 290	A	A	A	A	270	255	260	A 335	320																					
5	300	335	300	300	305	310	295	245	230	H 215	H 215	E A 270	225	H 220	240	A	E A 270	E A 270	270	250	230	215	280	275																					
6	315	350	360	275	275	215	E A 295	A 275	255	240	210	C	210	220	C	250	235	C	A 290	280	E C 350	325	280	E C 350																					
7	375 ^Q	325	245	390 ^A	295	235	280	240	E C 260	235	220	H 230	A 210	220	H 220	E A 245	230	240	250	260	240	275	330	275																					
8	320	335	325	290	350	380	280	210	220	A 240	230	E A 260	220	210	215	205	H 205	H 210	H 240	240	240	280	320	310																					
9	295	300	285	250	255	250	240	235	210	210	195	195	H 210	H 205	H 185	235	235	250	250	240	225	240	275	255																					
10	260	245	265	255	215	240	240	220	220	H 225	H 235	240	210	225	A 240	225	H 245	H 245	245	235	230	295	285	310																					
11	300	290	285	250	275	285	250	225	220	H 215	H 210	H 190	225	H 215	215	225	230	240	255	240	245	225	250	255																					
12	260	255	245	195	320	340	290	215	215	210	195	195	H 230	215	225	215	230	245	240	240	240	235	275	275																					
13	260	250	235	220	230	235	235	230	235	H 230	A 225	A	A	A	A	240	220	225	H 240	A	220	225	260	275																					
14	265	245	225	270	230	225	245	230	225	H 215	205	195	200	190	H 235	220	235	A	250	225	210	270	275	280																					
15	270	255	235	215	195	210	310	240	225	H 215	215	215	200	215	A 245	225	235	245	245	235	220	220	260	275																					
16	255	245	225	225	215	225	240	240	230	H 225	H 210	H 205	230	225	215	230	230	235	H 260	235	215	230	A 300	280																					
17	275	310	280	205	215	225	280	235	230	H 220	H 215	200	200	210	210	230	H 235	240	240	230	200	335	A 330	300																					
18	250	255	295	300	260	235	225	205	220	H 235	A 205	A 225	220	A 225	225	225	230	245	H 250	250	235	235	265	280																					
19	295	320	325	255	215	240	250	235	220	H 210	H 200	H 190	205	E 270	E A 260	230	E C 245	A 290	250	230	205	275	345	315																					
20	245	250	300	230	205	215	240	215	215	H 205	E A 200	H 205	225	235	245	250	270	250	225	200	A 215	310	315																						
21	270	260	255	210	220	260	235	225	225	215	210	195	190	205	230	A 245	E A 250	235	235	220	E A 255	255	265	255																					
22	240	260	250	340	300	275	290	240	230	215	A 240	A 225	A 260	A 240	A 230	225	240	250	270	265	270	275	235	220																					
23	210	235	200	315	340	295	275	230	240	H 220	H 220	H 215	C	C	C	C	225	C	C	C	C	C	C	C																					
24	C	C	C	C	C	C	C	C	C	C	A 230	A 230	200	200	H 240	E A 235	E A 270	245	H 260	A 265	250	250	280	300	E A 360																				
25	A 310	250	A 340	280	235	235	230	230	225	225	205	230	195	205	225	235	A	A	245	245	260	245	255	275																					
26	280	260	230	200	235	355 ^S	315	220	220	H 225	220	215	210	235	A 245	A	A	A 265	E A 285	A 290	A 320	325	280	285																					
27	285	275	200	265	380	300	320	H 270	250	A 250	A 250	230	245	215	200	H 265	E A 260	A 270	E A 270	250	250	250	250	245																					
28	235	255	240	240	295	280	285	225	225	220	200	225	230	A 250	235	A	250	A 265	A 270	250	270	240	255	265	260																				
29	260	240	230	210	220	275	280	225	230	H 220	210	210	H 200	H 215	225	H 240	A 250	A	260	240	250	260	250	265																					
30	255	230	200	195	230	280	305	235	230	220	210	215	200	H 190	H 230	250	E A 265	E A 270	255	240	235	265	260	255																					
31																																													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																					
CNT	29	29	29	29	29	29	29	29	29	30	30	28	28	26	27	23	26	22	26	29	29	29	29	29																					
MED	270	260	250	250	235	250	265	230	225	H 220	210	214	210	215	228	230	232	246	250	240	240	260	275	275																					
UQ	295	295	285	280	295	280	290	240	230	H 230	225	225	226	A 228	A 238	A 242	A 242	A 262	A 260	260	250	275	300	295																					
LQ	260	250	235	215	215	235	240	225	220	H 215	205	198	200	210	222	225	230	240	245	235	225	240	260	260																					

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H^oF (KM)

IONOSPHERIC DATA

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H^oE (KM)

135° E Mean Time (G.M.T. + 9 h)

Station **OKINAWA** Lat. **26 16.9 N** Long **127 48.4 E** Sweep **1** MHz to **25** MHz in **25** sec in **automatic operation**

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1								H	E	A	E	A	A	110	110	110	E	A	A	110	115	120			
2								A	A	A	E	A	A	115	120	110	110	110	110	H					
3								H	110	110	110	H	110	H	110	110	110	110	110	115					
4								B	H		B		B	B	B	E	B	115	110	E	A				
5								A	E	A	110	110	H	110	110	H	110	110	H	110	115				
6								A	A	A	A	C	H	105	110	C	E	A	110	C		115			
7								115	C	110	110	110	110	110	115	110	110	110	110	115					
8								110	110	110	110	110	110	110	110	110	115	115	115	115					
9								110	A	A	A	A	A	110	H	110	110	110	110	E	A				
10								110	105	105	105	105	105	105	A	105	A	A	A						
11								115	110	105	105	105	100	100	A	E	A	110	105	E	S				
12								110	105	105	105	105	105	A	A	A	105	100	H	A					
13								E	S	115	110	110	110	110	H	E	A	A	110	105	125	A			
14								A	120	110	110	110	A	110	110	110	110	105	125	A					
15								120	115	110	105	E	A	E	A	140	A	A	105	A	115	E	A	125	
16								H	125	H	110	110	A	110	110	H	110	110	115	125	S				
17								115	110	110	110	A	E	A	120	105	110	115	A	120	115	E	A	125	
18								125	110	110	110	A	A	E	A	E	A	130	110	115	120	E	A	130	
19								S	125	110	110	H	E	A	E	A	125	110	A	110	115	115	A		
20								115	105	105	105	105	100	105	105	H	110	105	H	110	115	S			
21								115	110	105	105	105	105	110	110	110	105	105	A						
22								120	110	115	110	110	110	110	110	H	105	115	120	A	125				
23								115	110	110	110	110	C	C	C	C	C	H	110	C	C				
24								C	C	110	110	110	115	B	B	E	A	A	A	A	A				
25								120	H	E	A	115	A	A	E	B	125	115	E	A	A	E	A	S	
26								120	110	110	110	A	A	110	115	110	110	110	110	S					
27			S	S				H	115	110	110	115	110	115	115	110	110	110	110	S					
28								115	105	A	105	110	H	100	A	105	H	110	110	A	A				
29								H	120	H	110	110	110	115	115	A	A	A	115	105	S				
30								S	120	110	110	110	110	105	105	105	105	110	110	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	26	29	29	25	25	26	23	26	27	25	19						
MED								115	110	110	110	110	110	110	110	110	110	110	118						
UQ								120	110	110	110	110	112	112	112	110	115	115	124	A					
LQ								115	110	110	110	110	105	110	110	110	110	110	115						

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H^oE (KM)

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H°ES (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	OKINAWA																							Lat.	26 16.9 N		Long	127 48.4 E		Sweep 1 MHz to 25 MHz in 25sec in automatic operation																						
Hour Day	00	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	95	100	100	105	100	S	G	145	105	110	G	160	140	140	125	120	115	110	110	105	100	S	S																												
2	S	S	S	S	125	125	S	105	100	100	100	100	100	150	140	140	150	135	120	110	105	100	100	100																												
3	100	100	S	S	S	130	140	130	115	110	110	110	120	G	130	125	130	120	115	110	110	105	105	100																												
4	100	100	100	100	100	100	105	115	110	110	B	115	125	125	B	130	120	115	110	110	110	105	105	S																												
5	100	100	100	100	100	100	100	120	125	125	115	130	G	G	130	120	120	115	115	110	105	105	100	S																												
6	100	100	100	100	115	115	115	115	115	115	115	C	125	G	C	120	G	C	115	105	C	110	110	C																												
7	160	C	125	120	C	120	C	130	C	125	125	110	G	120	125	115	120	120	110	110	105	105	105	100																												
8	100	100	100	125	95	110	110	130	130	125	125	125	125	125	115	G	G	G	115	110	105	105	100	100																												
9	100	95	95	105	S	S	S	G	105	115	115	110	110	110	G	G	E G	155	115	110	110	95	100	100	100																											
10	95	100	100	100	S	S	S	130	145	125	120	125	115	120	100	110	100	100	100	100	95	100	95	95																												
11	S	S	S	S	S	S	S	G	130	120	110	110	105	120	100	100	G	G	G	110	100	100	S	100																												
12	S	95	95	S	S	S	S	125	125	115	110	105	100	100	105	105	105	105	100	95	95	S	S	S																												
13	S	S	S	S	S	S	S	125	120	115	115	110	110	115	115	110	120	110	105	100	95	95	95	S																												
14	100	100	S	S	S	S	S	125	120	G	110	110	G	G	G	150	135	115	110	S	100	100	95	90																												
15	S	S	S	S	120	S	S	125	115	G	105	105	105	100	100	100	95	125	120	110	110	100	100	S																												
16	S	S	S	S	S	S	S	G	G	105	100	G	G	G	G	G	G	130	115	110	105	105	100	100																												
17	100	S	S	S	S	S	S	125	110	115	115	100	105	G	G	100	105	135	115	105	S	105	100	100																												
18	S	S	100	100	95	95	S	130	115	105	110	100	100	125	140	135	135	125	115	110	S	100	100	100																												
19	S	S	100	S	S	S	S	G	G	115	110	105	140	150	150	G	C	120	115	110	110	110	100	100																												
20	S	S	S	S	S	S	S	125	G	120	105	105	G	G	150	140	140	115	110	105	100	100	95	100																												
21	S	100	100	S	S	S	S	120	115	115	110	115	110	110	115	115	105	115	105	100	100	105	100	100																												
22	100	100	100	100	S	S	S	130	120	120	110	110	105	105	110	G	155	130	115	110	110	110	100	S																												
23	95	95	95	95	120	120	115	110	110	120	115	110	C	C	C	C	G	C	C	C	C	C	C	C																												
24	C	C	C	C	C	C	C	C	C	110	110	110	105	100	140	100	130	120	110	110	105	105	105	100																												
25	100	100	100	100	100	S	S	130	125	115	110	110	110	G	G	150	125	115	110	105	100	100	100	100																												
26	100	100	S	S	S	S	S	125	120	120	120	115	G	145	135	130	120	115	110	105	100	100	100	100																												
27	100	100	S	105	S	130	120	120	115	115	115	115	120	E G	140	G	135	125	115	105	100	100	100	100																												
28	100	100	S	95	S	S	S	125	110	110	110	110	110	105	115	115	110	105	105	100	100	95	100	95																												
29	95	95	100	100	100	S	S	G	G	135	120	120	125	125	95	160	130	120	110	110	100	95	95	S																												
30	S	S	95	90	S	S	S	G	145	135	145	125	G	G	155	135	125	115	115	S	95	95	95	95																												
31																																																				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																												
CNT	18	18	17	16	11	11	7	22	24	28	29	27	22	20	21	24	24	26	28	27	26	28	26	20																												
MED	100	100	100	100	100	115	115	125	118	115	110	110	110	120	125	122	121	115	110	110	100	100	100	100																												
UQ	100	100	100	102	118	122	118	130	125	120	115	115	125	128	140	135	131	120	115	110	105	105	100	100																												
LQ	100	95	100	100	100	100	108	120	112	110	110	108	105	108	110	110	115	115	110	105	100	100	100	100																												

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H°ES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1982

TYPES OF ES

135° E Mean Time (G.M.T. + 9 h)

Station		OKINAWA											Lat. 26 16.9 N · Long 127 48.4 E											Sweep 1 MHz to 25 MHz in 25 sec in automatic operation										
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
1	F6	F4	F3	F3	F1	F1	F1		HL12	L2	L1		H1	H1	HL11	HL31	H3	H2	C4	FF62	FF24	F1												
2					F2	F1		L1	L3	L1	L1	L2	LH21	HL21	H2	H1	H1	H2	C2	F6	F4	F4	F1	F2										
3	F2	F1			F1	FF11	C1	C3	C2	C2	C1	C2		H1	H2	H2	C3	C4	F6	F5	F5	F5	F5											
4	F5	F4	F5	F3	F2	F2	F3	C3	C2	C2		C1	H1	H1		H1	H2	C5	CL61	FF52	FF31	F5	F3	F1										
5	F2	F2	F5	F2	F2	F2	F2	CL11	CL21	C2	C2	H1			H2	H3	C3	C5	C6	F4	F3	F1	F2											
6	F2	F5	F5	F3	FF21	FF54	F6	CL42	CL43	CL21	C2		C1			CL21			C3	F6	F6	F5	F4											
7	FF31	F2	F3	F6	F6	F6		C2		H3	H1	C2		C1	C1	C1	C1	C2	C2	F2	F7	F3	F5	F6										
8	F6	F6	F5	FF51	F1	F1	FF12	C1	H2	H2	H1	H1	H1	C1	C1				C1	F6	F3	F2	F2	F4										
9	F4	F4	F3	F1			F1		CL11	CL21	CL11	CL11	CL11	C1			H1	H2	CL62	FF33	F1	F2	F1	F1										
10	F1	F1	F1	F1				H2	H1	H2	H2	H1	C1	H1	L4	C1	L3	L4	L4	F5	F2	F2	F2	F1										
11									HL21	H2	C1	C1	C1	C1	L1	L1				F2	F3	F1		F1										
12		F1	F2	F1				C1	HC31	C1	C1	C1	C2	L2	L2	L2	C2	C1	L2	F7	F3	F1												
13					F1	F1	C1	C2	C2	C2	C2	C2	C2	C2	CL11	CL11	C1	C2	L1	F1	F4	F5	F2											
14	F2	F1						C1	C2		C1	L1				H1	H1	C3	C5	F1	F3	F4	F2	F2										
15				F1				C1	C2		C2	L1	L2	L2	L2	L1	LH21	HL11	CL11	FF62	F1	F3	F1											
16									C2	L1								H2	C6	F7	F4	F5	F6	F2										
17	F1				F1			C1	C3	C2	C2	L1	L1			L1	L1	HL21	CL51	F5	F1	F4	F5	F3										
18		F1	F1	F3	F3	F2		C1	C2	C4	C2	L2	L2	HL21	HL12	H1	H2	CL21	CL62	FF33		F2	F1	F2										
19	F1		F3	F1					C2	C1	L1		HL11	H1	HL11			C4	CL51	F5	F3	F2	F1	F1										
20	F1					F1		C1	C1	C3	C1			H1	H1	H1	H5	C6	F6	F3	F5	F3	F2											
21	F1	F1	F1					C1	C3	C2	C1	C1	C1	C1	C1	C2	C2	C1	L2	F6	F5	F2	F2	F1										
22	F2	F2	F2	F1			F1	C1	C1	C3	C3	C2	C2	C3	C1		H1	H1	C6	F4	F6	F2	F2	F1										
23	F3	F2	F1	F2	F1	F1	F6	C6	C5	C2	C2	C2																						
24									C3	C2	C1	C2	C3	HL21	LH23	HL11	CL43	CL62	FF22	F3	F3	F2	F2	F3										
25	F4	F5	F4	F3	F2	F1	F1	D2	C1	CL21	CL21	CL21	CL11		HL21	HL31	CL61	CL61	F3	F7	F2	F1	F4											
26	F2	F2	F1					C1	C1	C2	CL21	CL11		H1	H2	H2	H6	C5	C4	F4	F7	F4	F2	F2										
27	F3	F2	F1	LK11	K1	F1	F6	C2	C3	C2	C2	C2	C1	H1		H2	H2	C6	C6	F6	F7	F7	F3	F2										
28	F1	F1		F1				C1	C3	CL31	C2	C2	CL11	C2	C2	C2	C4	L3	L5	F7	F6	F5	F2	F1										
29	F4	F5	F2	F1	F1					H1	H1	H1	H1	HL11	L1	HL11	H2	CL41	C6	F6	F3	F2	F1											
30		F1	F5	F2	F1				H1	H1	H1	H1			H1	H1	H3	C6	L3		F1	F1	F1	F1										
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																																		
UQ																																		
LQ																																		

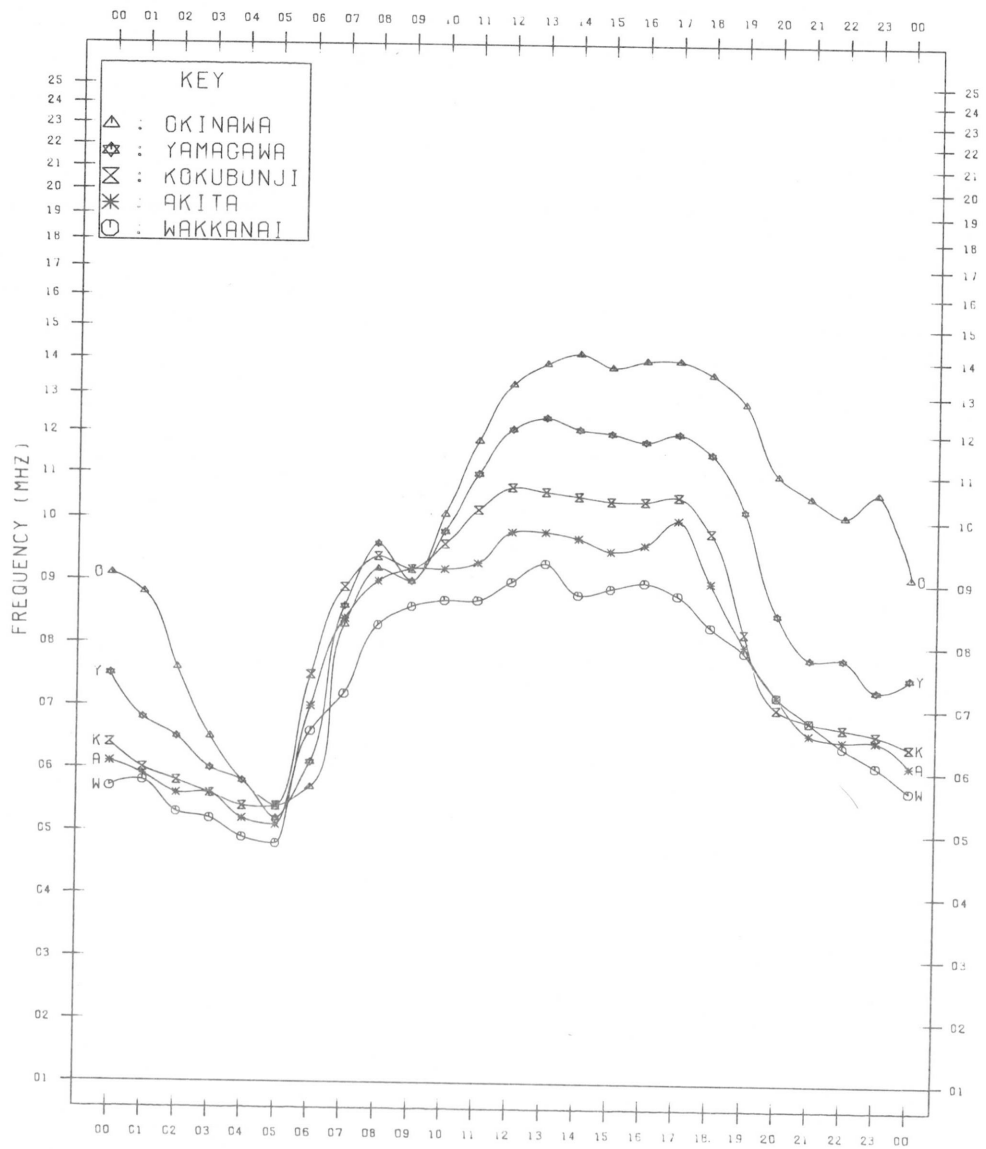
SEP. 1982

TYPES OF ES

MONTHLY MEDIAN VALUES OF FOF2

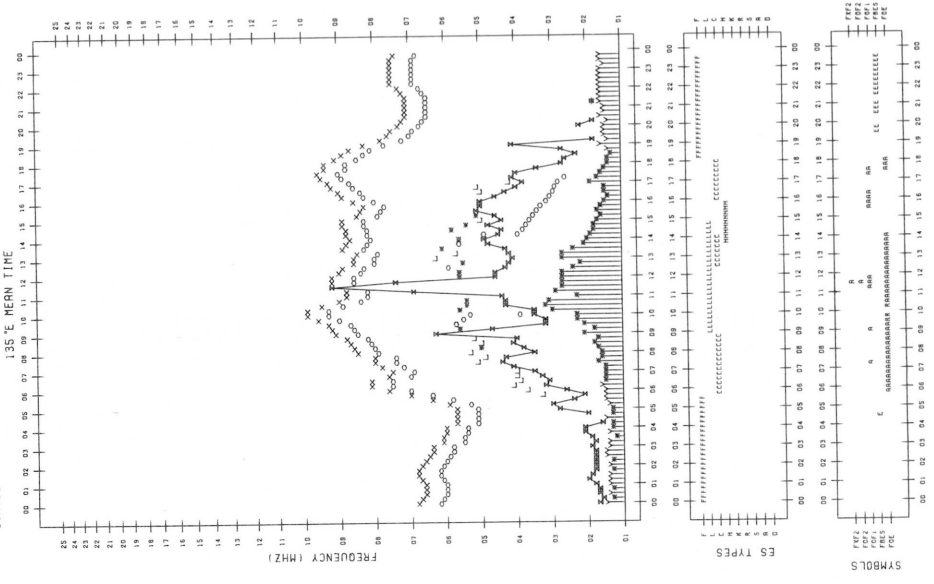
135°E MEAN TIME

SEP. 1982

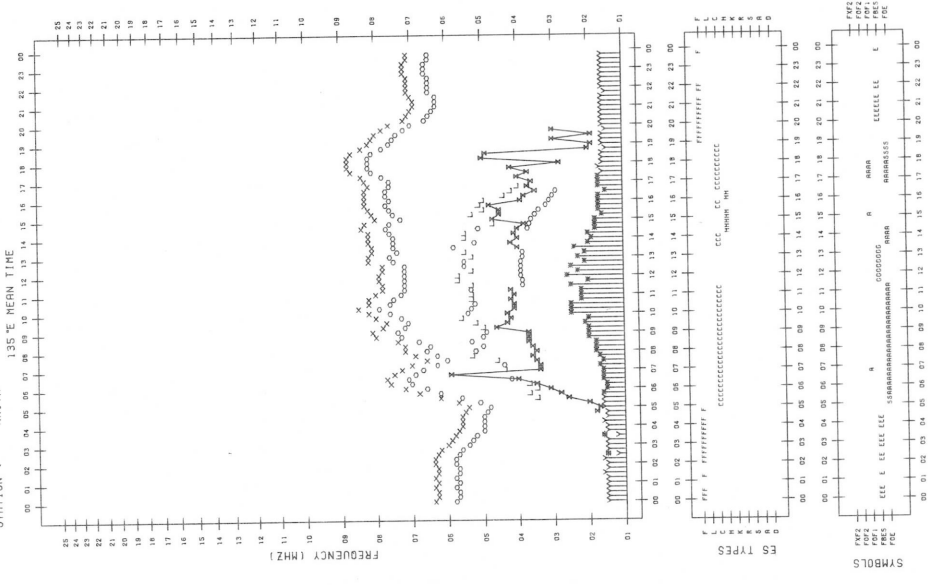


KEY OF F-PLOT	
I	SPREAD
◇	FOF2, FOF1, FOF
×	FXF2
*	DOUBTFUL FOF2, FOF1, FOF
⊗	FBES
L	ESTIMATED FOF1
*, Y	FMIN
^	GREATER THAN
v	LESS THAN

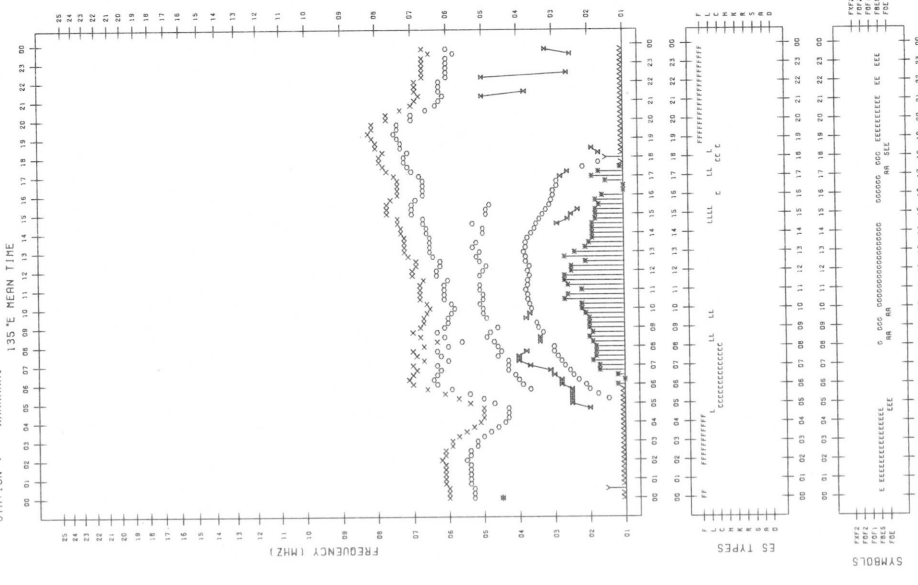
F-PLOT DATA
 STATION : KOKUBUNJI TOKYO
 SCALER : S-HIIDOME
 DATE : 1982/ 9/ 1
 135°E MEAN TIME



F-PLOT DATA
 STATION : BKITA
 SCALER : Y-ECHIZENHA
 DATE : 1982/ 9/ 1
 135°E MEAN TIME



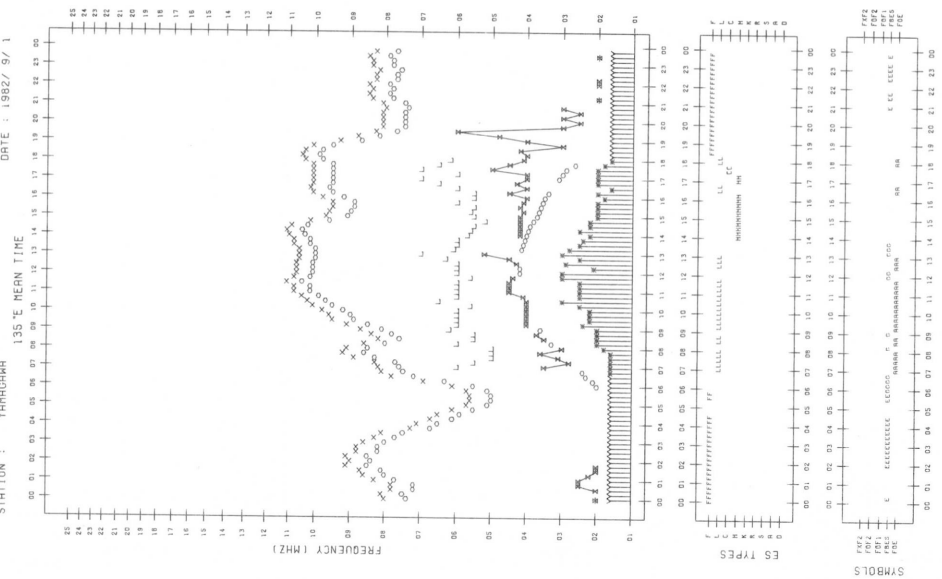
F-PLOT DATA
 STATION : MARIKAWA
 SCALER : T-ODR
 DATE : 1982/ 9/ 1
 135°E MEAN TIME



F-plot DATA

STATION : YANAGAWA SCALER : S. KAMISHIKIRYO

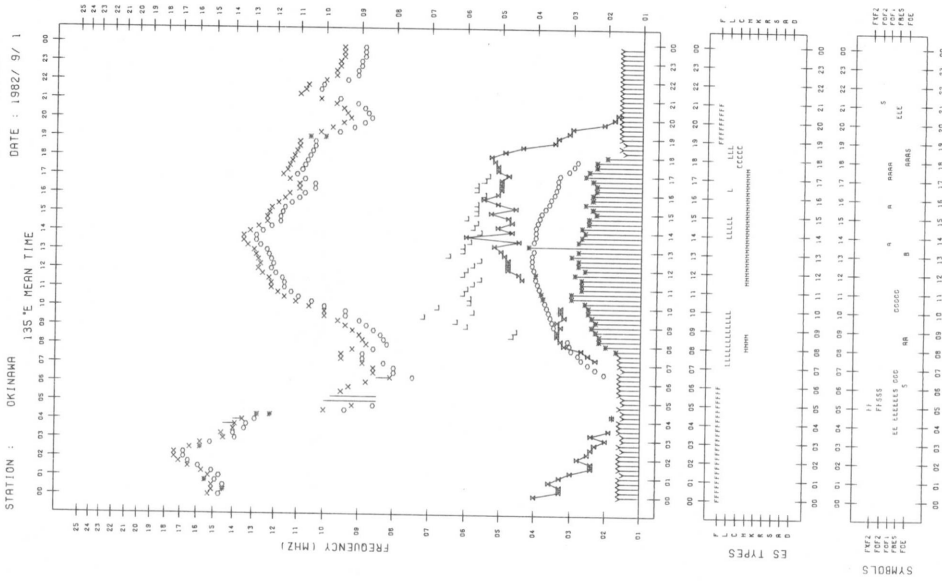
DATE : 1982/ 9/ 1



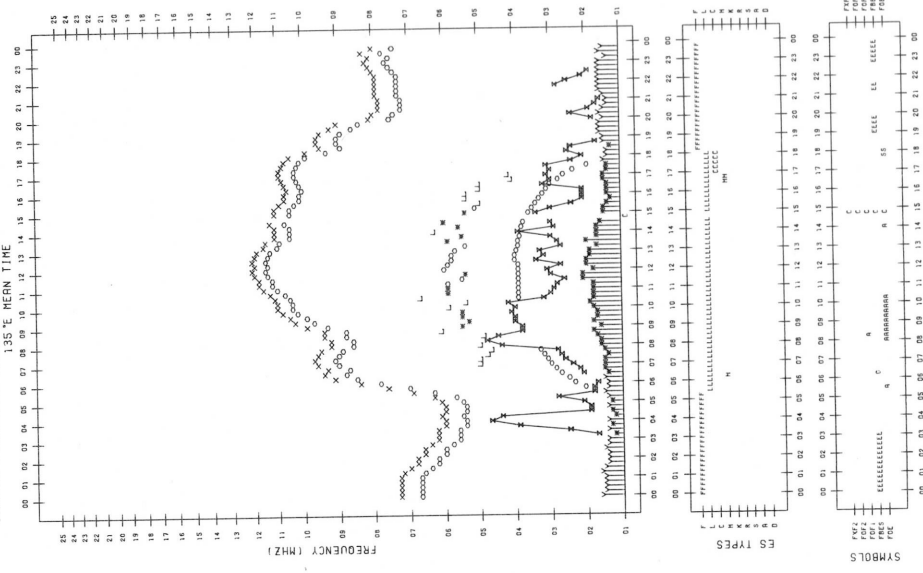
F-plot DATA

STATION : OKINAWA SCALER : H-MENO

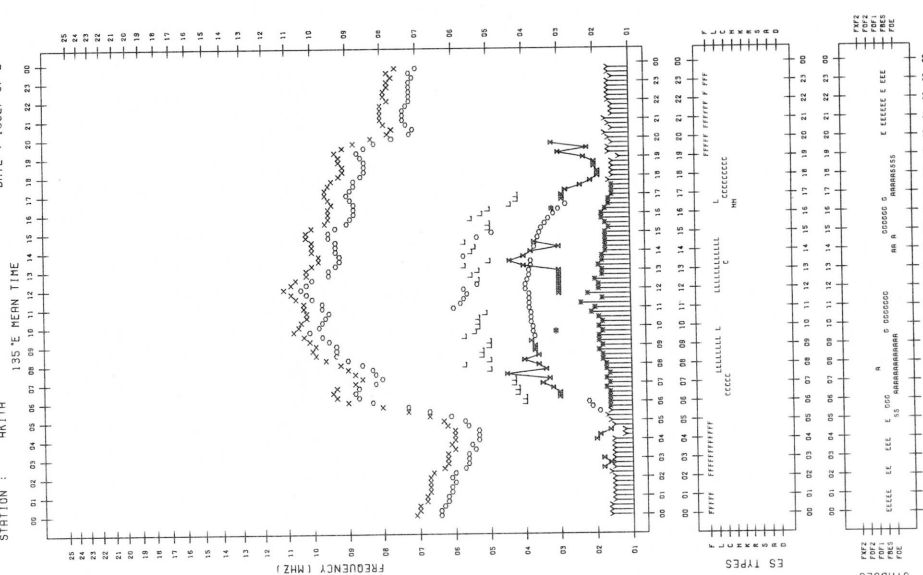
DATE : 1982/ 9/ 1



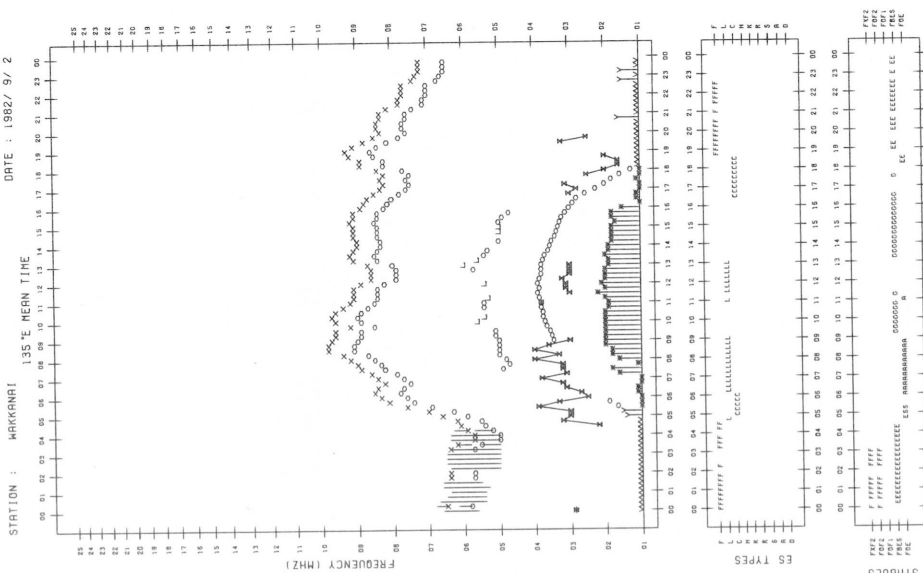
F- PLOT DATA
 STATION : KOKUBUNJI TOKYO
 SCALER : S-HIIDDNE
 DATE : 1982/ 9/ 2
 135°E MEAN TIME



F- PLOT DATA
 STATION : AKITA
 SCALER : Y-ECHIZENYA
 DATE : 1982/ 9/ 2
 135°E MEAN TIME

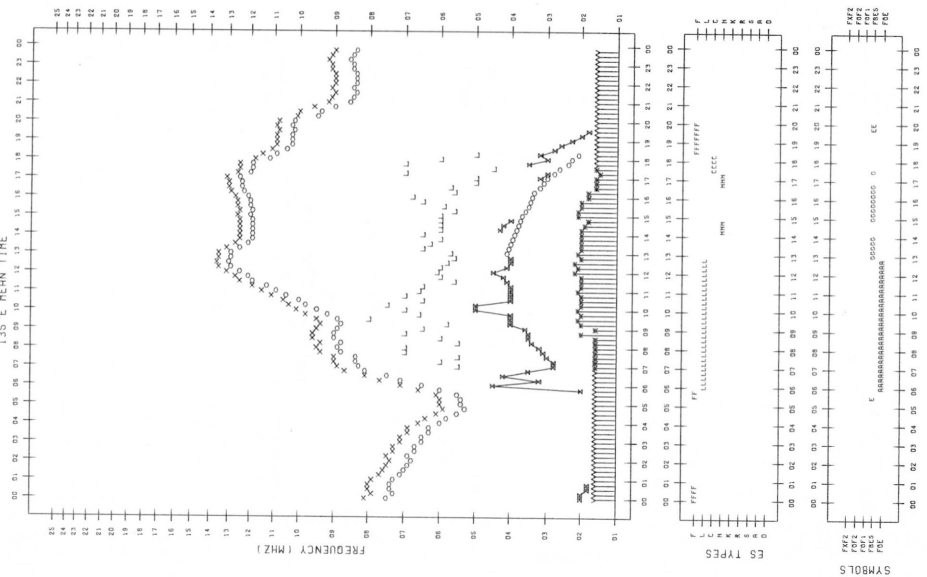


F- PLOT DATA
 STATION : MARIKANI
 SCALER : Y-ODA
 DATE : 1982/ 9/ 2
 135°E MEAN TIME



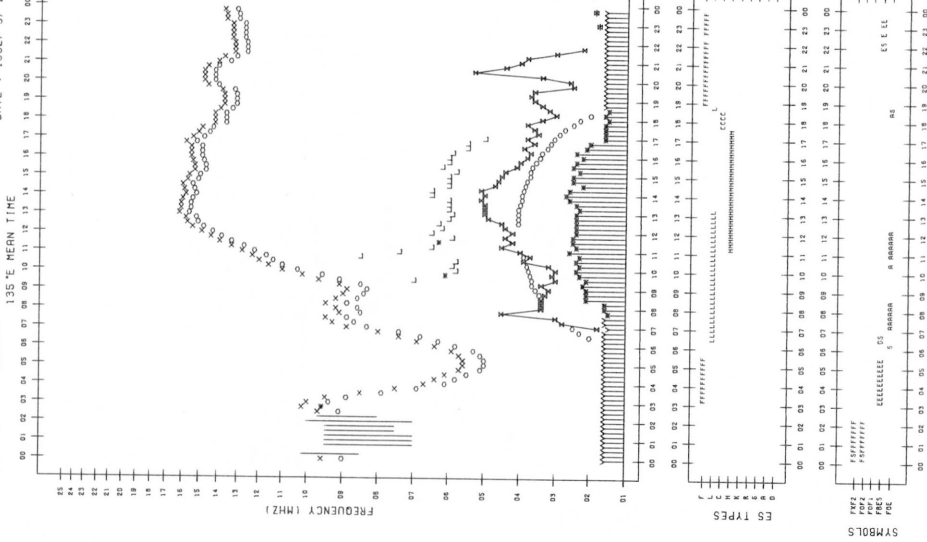
F-plot DATA

STATION : FAKORAMA SCALER : S.KAMISHIRYO
DATE : 1982/ 9/ 2
135°E MEAN TIME

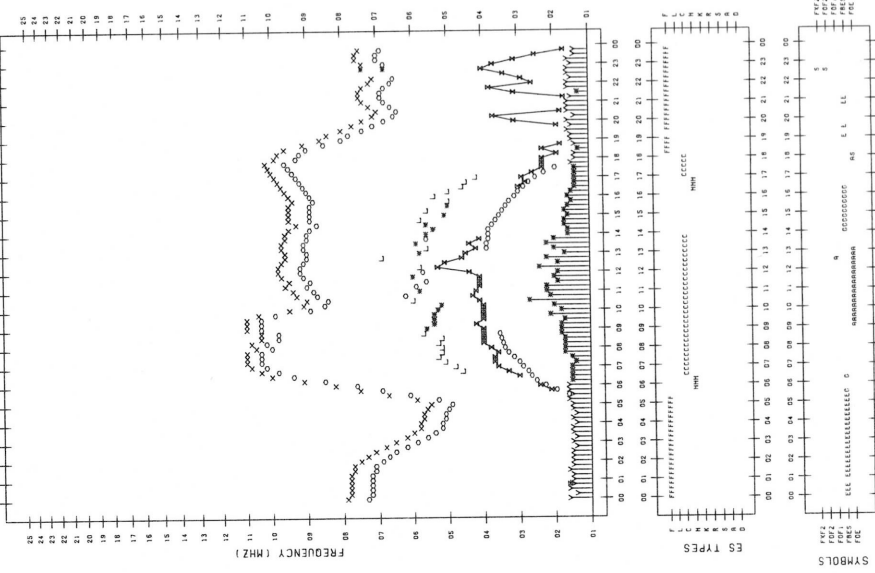


F-plot DATA

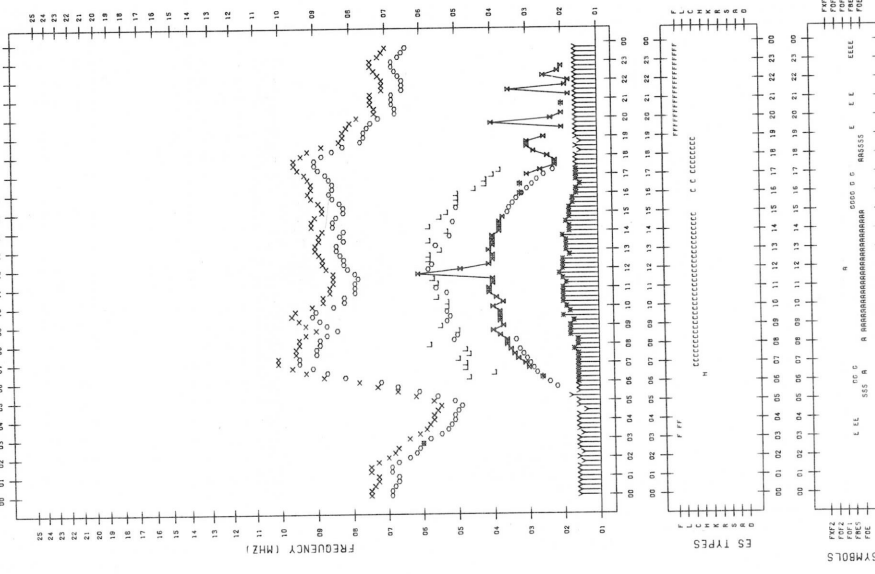
STATION : OKINAWA SCALER : A.OTSUKA
DATE : 1982/ 9/ 2
135°E MEAN TIME



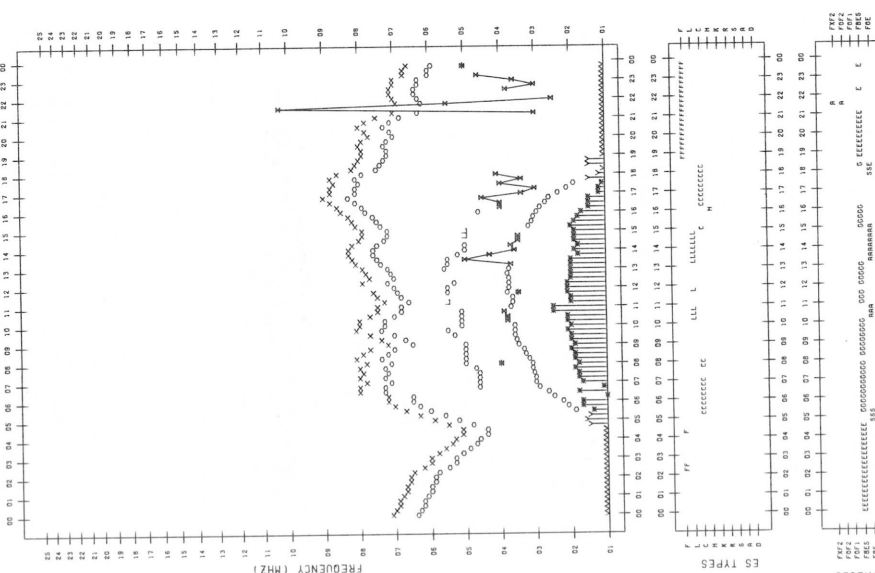
F-PLOT DATA
 STATION : KOKUBUNJI TOKYO
 SCALER : S.HIIDOME
 DATE : 1982/ 9/ 3
 135 °E MEAN TIME



F-PLOT DATA
 STATION : AKITA
 SCALER : T.MORI
 DATE : 1982/ 9/ 3
 135 °E MEAN TIME

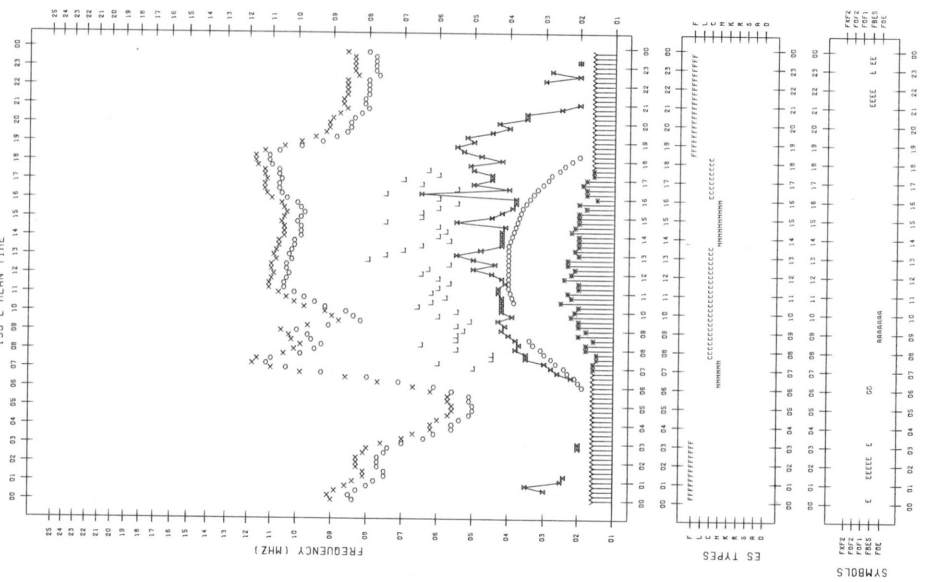


F-PLOT DATA
 STATION : WAKKANAI
 SCALER : T.ODA
 DATE : 1982/ 9/ 3
 135 °E MEAN TIME



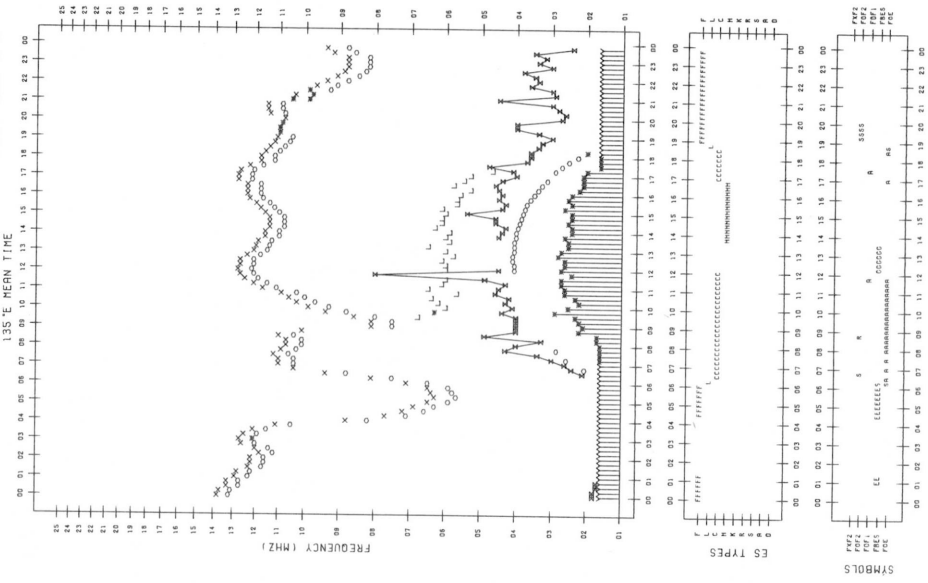
F-PLOT DATA

STATION : YAHORAMA SCALER : S.KAWASHIKIRYO DATE : 1982/ 9/ 3



F-PLOT DATA

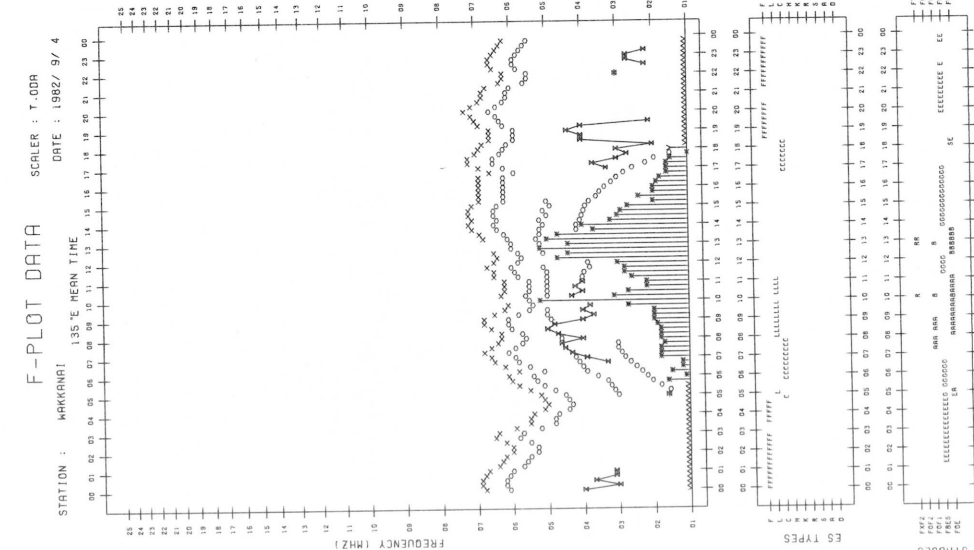
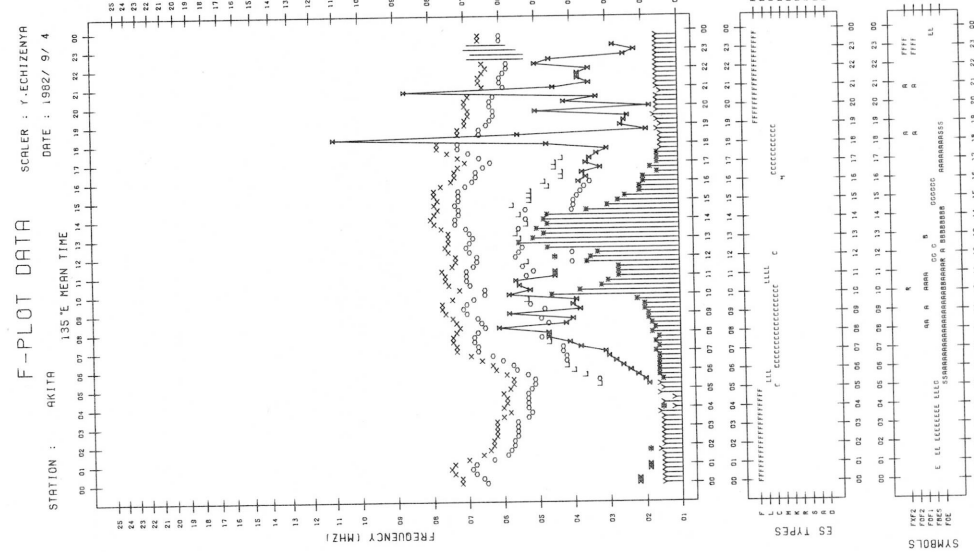
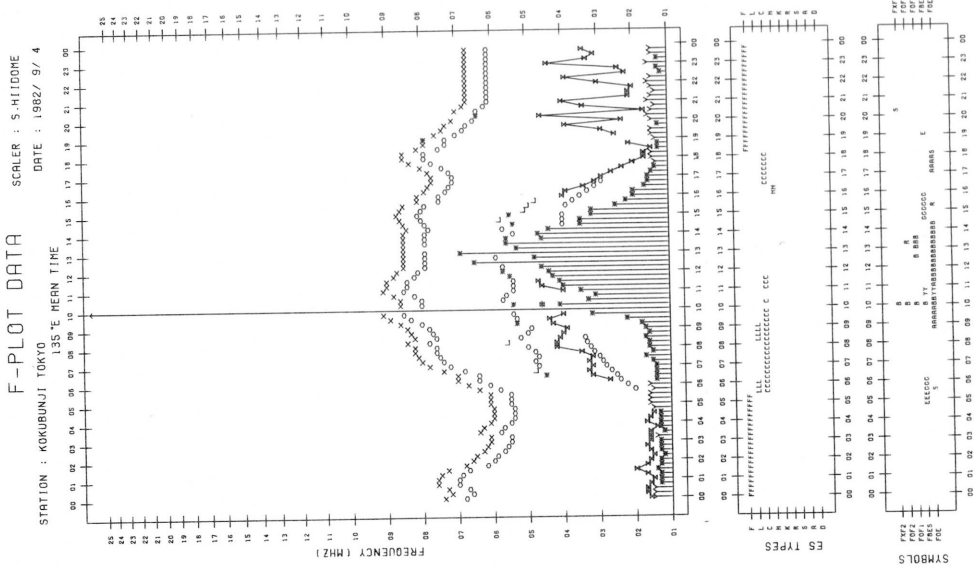
STATION : OKINAWA SCALER : A.OTSUKA DATE : 1982/ 9/ 3



STATION : KOKUBUNJI TOKYO
 SCALER : S-HITODOME
 DATE : 1982/ 9/ 4
 135°E MEAN TIME

STATION : AKITA
 SCALER : F-ECHIZENYA
 DATE : 1982/ 9/ 4
 135°E MEAN TIME

STATION : WAKKANAI
 SCALER : T-00R
 DATE : 1982/ 9/ 4
 135°E MEAN TIME

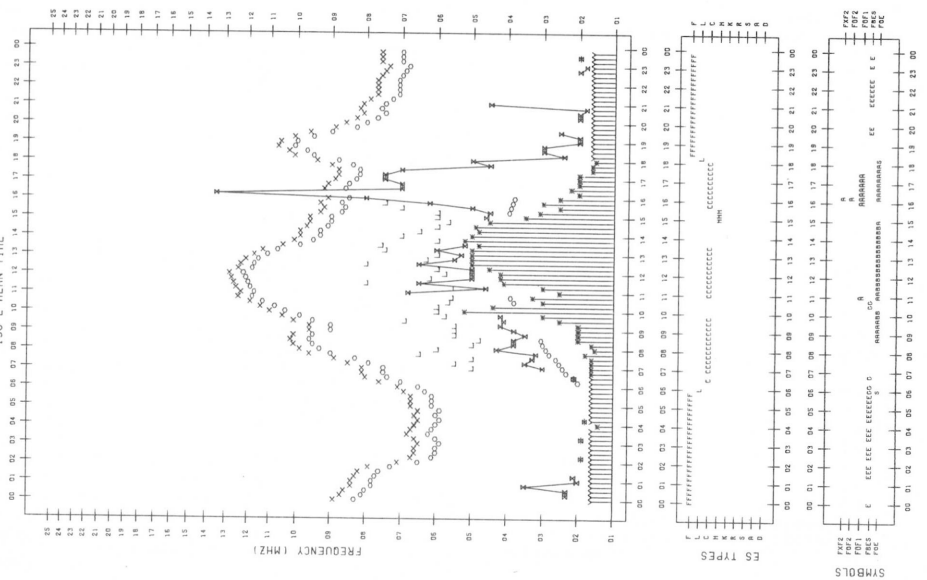


F-PLOT DATA

STATION : FANAGAW SCALER : S.MAMISHIKIRYO

DATE : 1982/ 9/ 4

135°E MEAN TIME

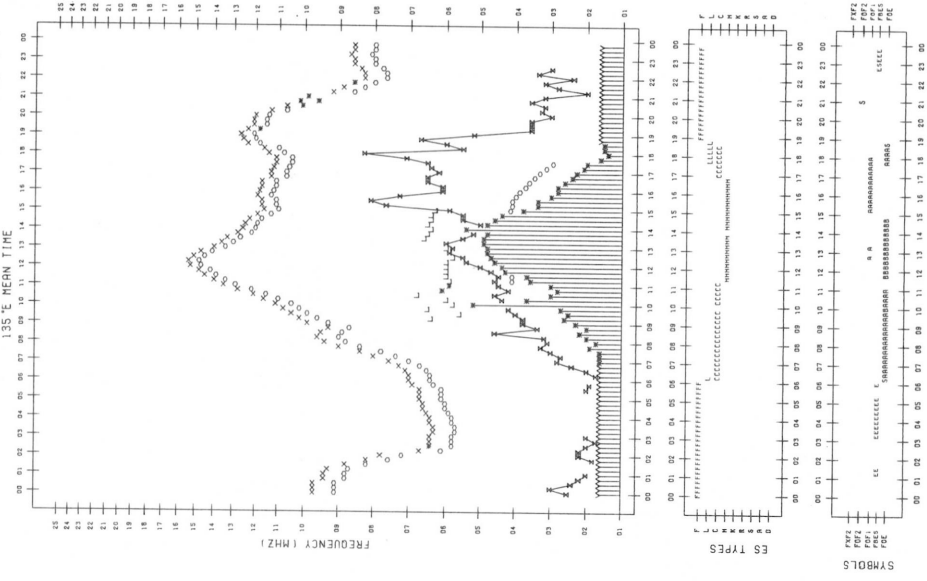


F-PLOT DATA

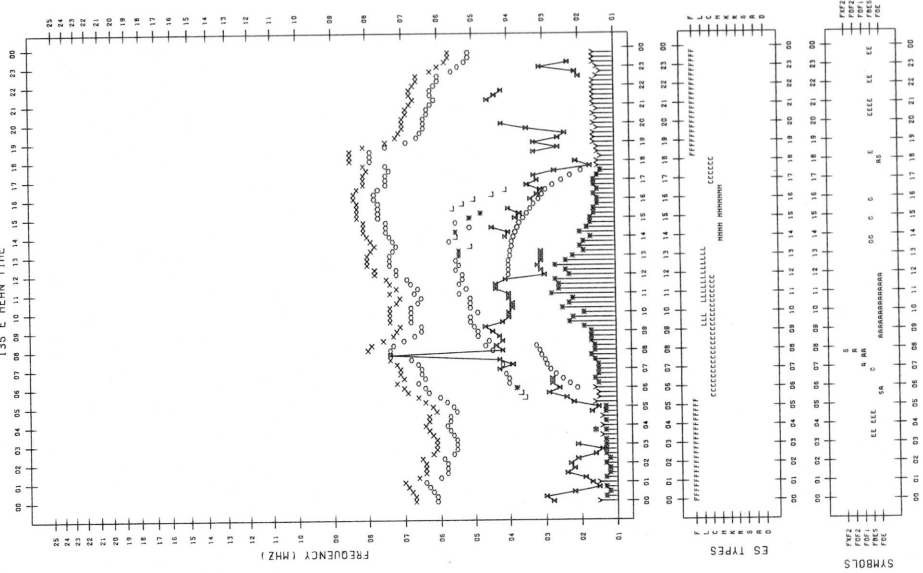
STATION : OKINAWA SCALER : A.OTSUKA

DATE : 1982/ 9/ 4

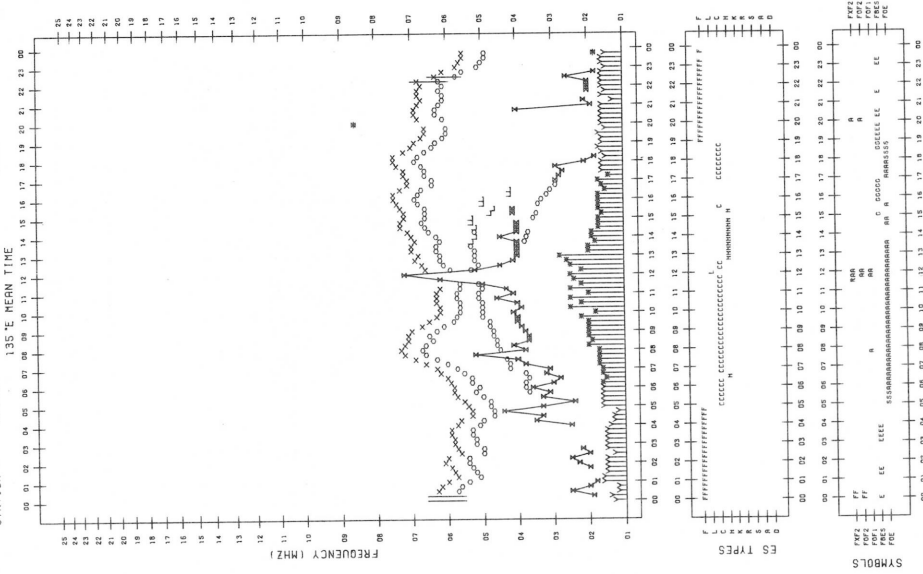
135°E MEAN TIME



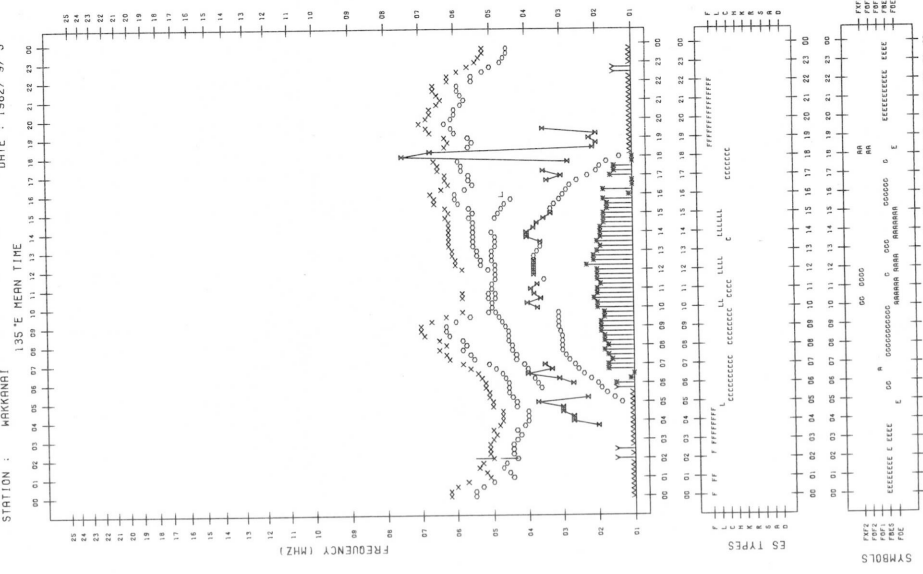
F- PLOT DATA
 STATION : AOKUBUNJI TOKYO
 SCALER : S.MITIDOME
 DATE : 1982/ 9/ 5
 135°E MEAN TIME



F- PLOT DATA
 STATION : AKITA
 SCALER : Y.ECHIZENYA
 DATE : 1982/ 9/ 5
 135°E MEAN TIME

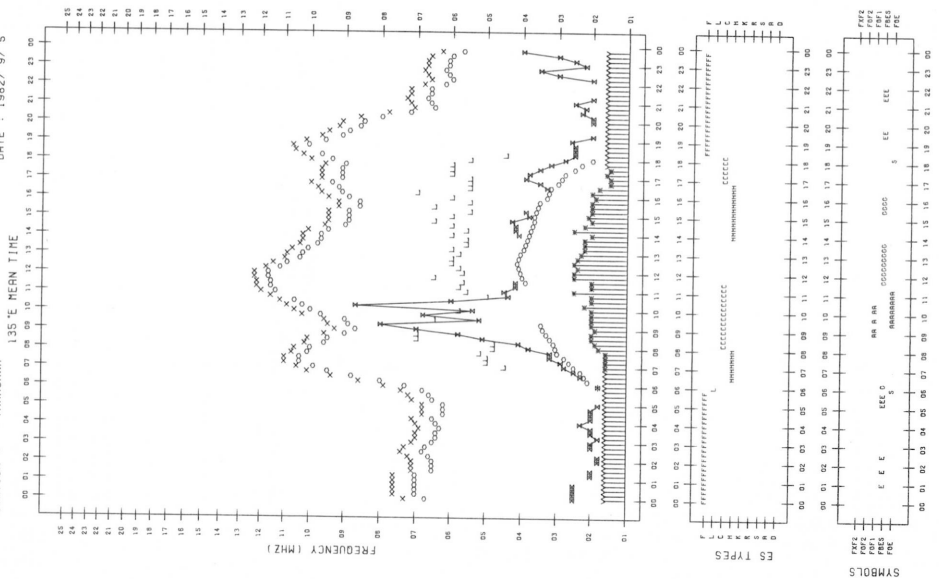


F- PLOT DATA
 STATION : ARIKANAI
 SCALER : T.OBP
 DATE : 1982/ 9/ 5
 135°E MEAN TIME



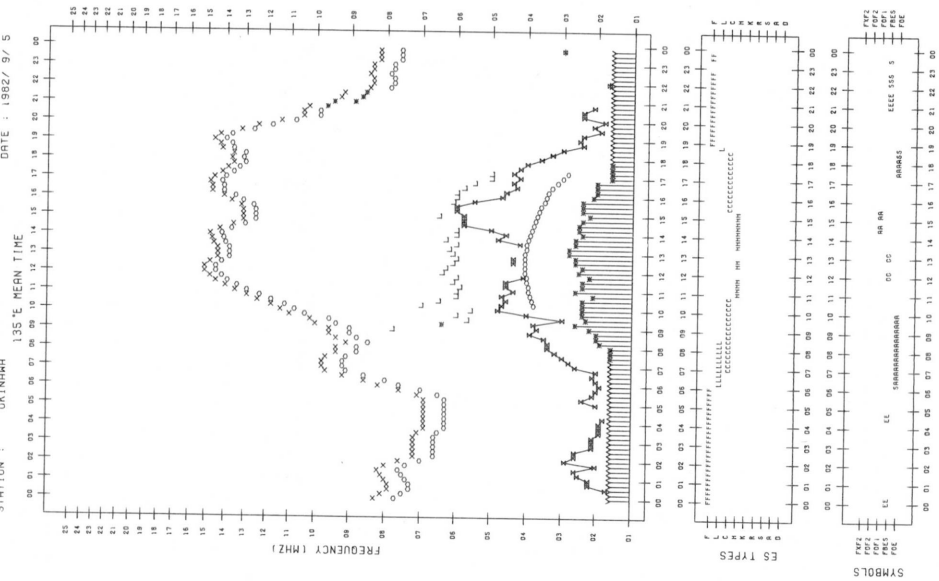
F- PLOT DATA

STATION : YAMAGAWA SCALER : S. KAWASHIKIRYO DATE : 1982/ 9/ 5

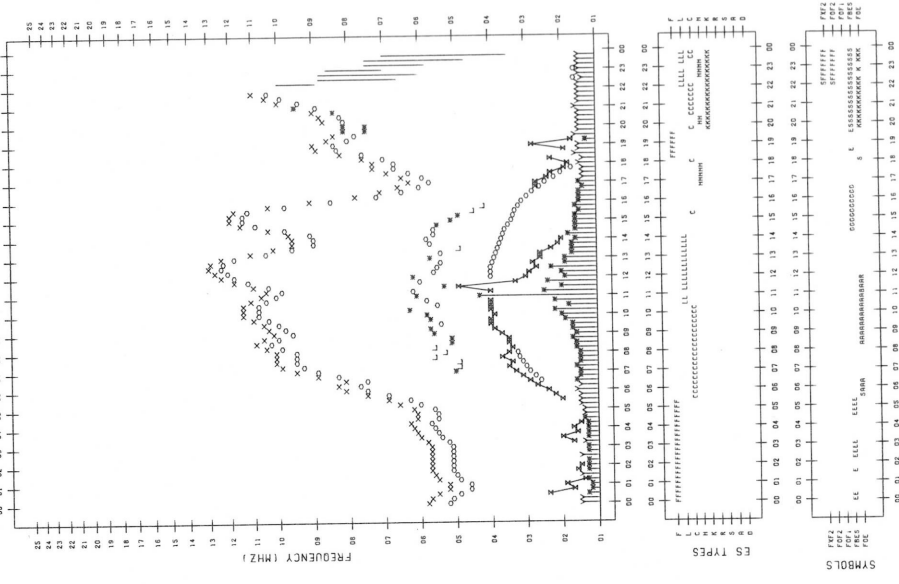


F- PLOT DATA

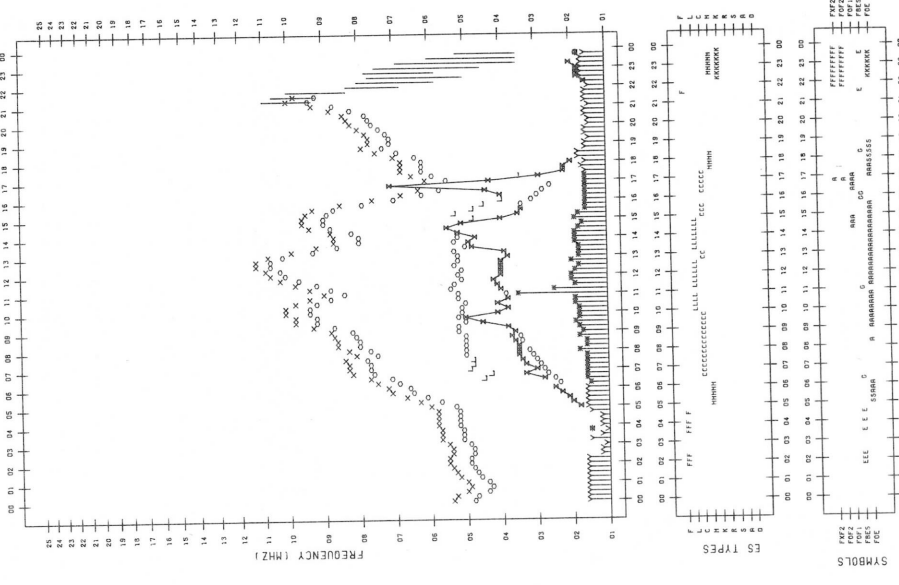
STATION : OKINAWA SCALER : A. OTSUKA DATE : 1982/ 9/ 5



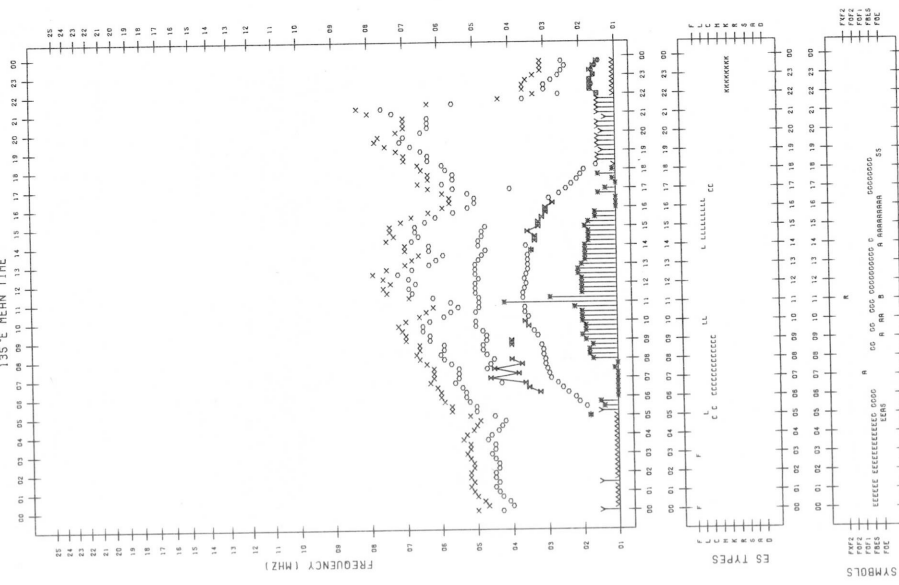
F-PLOT DATA
STATION : KOKUBUNJI TOKYO
SCALER : S-HI/DOME
DATE : 1982/ 9/ 6
135°E MEAN TIME



F-PLOT DATA
STATION : AKITA
SCALER : T-MORI
DATE : 1982/ 9/ 5
135°E MEAN TIME

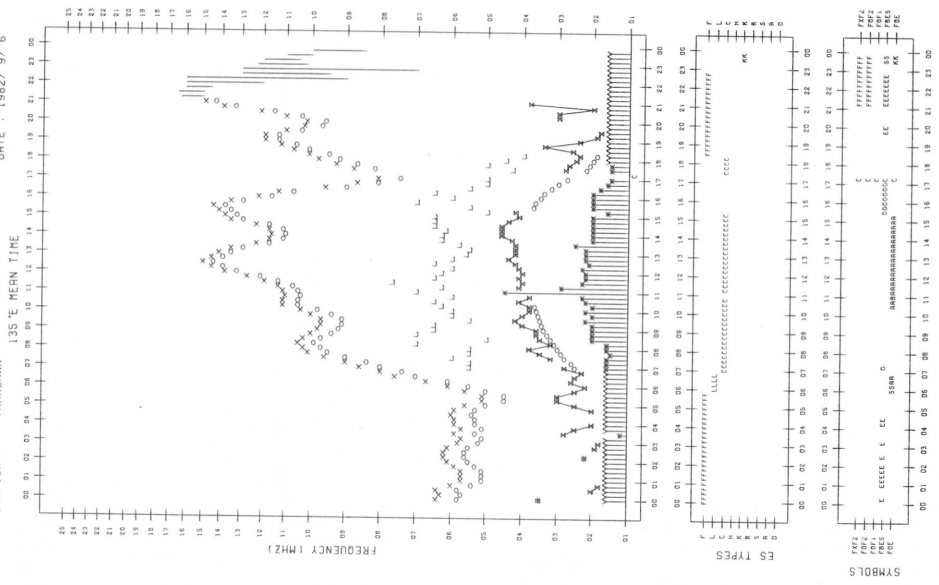


F-PLOT DATA
STATION : MAKIKANI
SCALER : T-ODA
DATE : 1982/ 9/ 6
135°E MEAN TIME



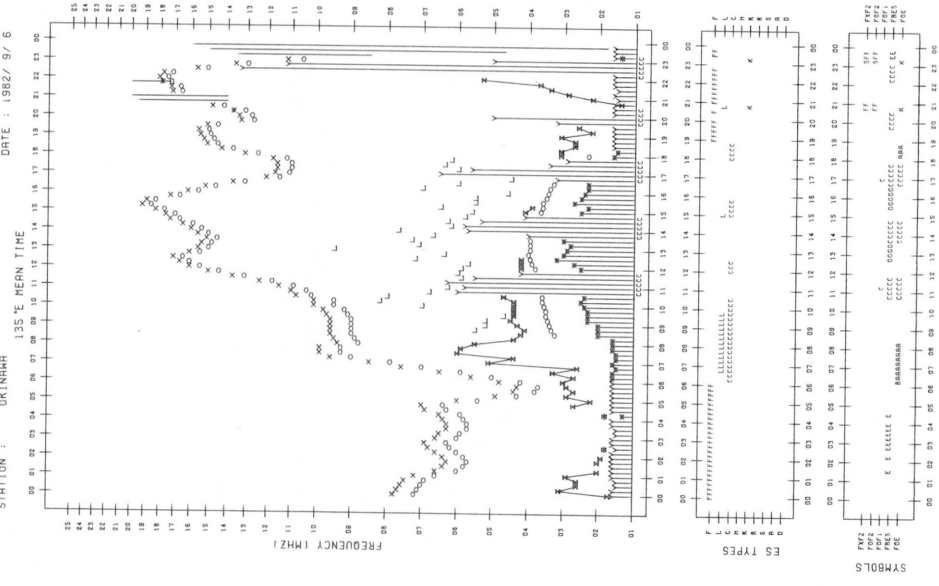
F-PLOT DATA

STATION : YAHAGAWA SCALER : S.MAMISHIKIRYO
DATE : 1982/ 9/ 6



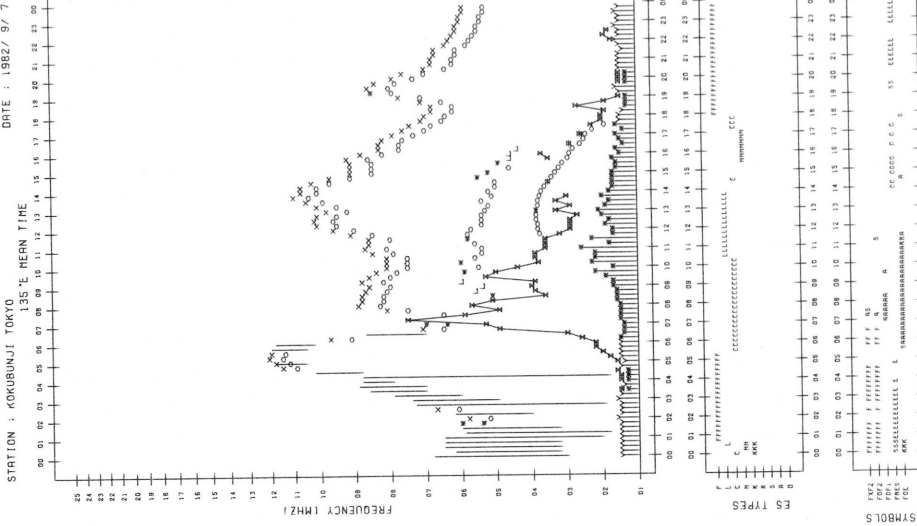
F-PLOT DATA

STATION : OKINAWA SCALER : K.MAKIBAYASHI
DATE : 1982/ 9/ 6



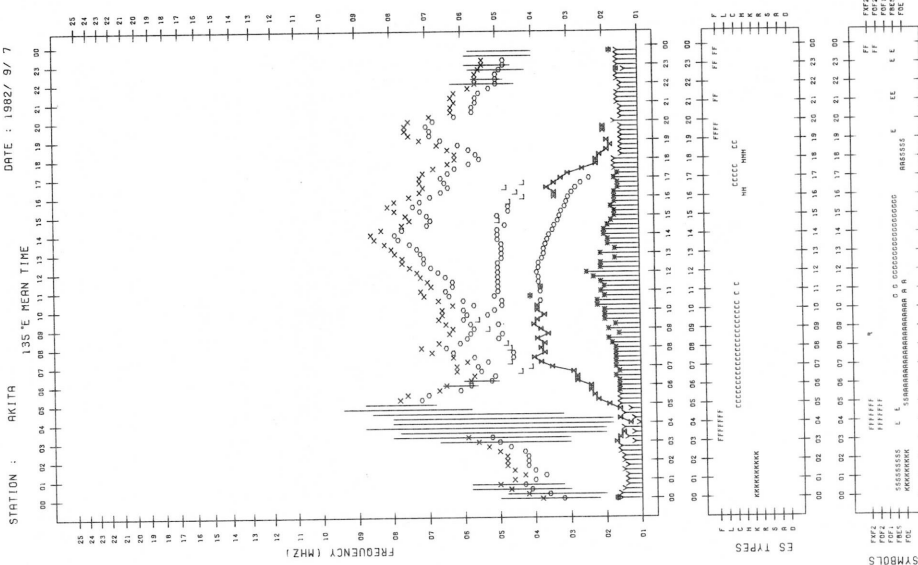
STATION : KOKUBUNJI TOKYO
 SCALER : S-HITODME
 DATE : 1982/ 9/ 7

F-PLOT DATA



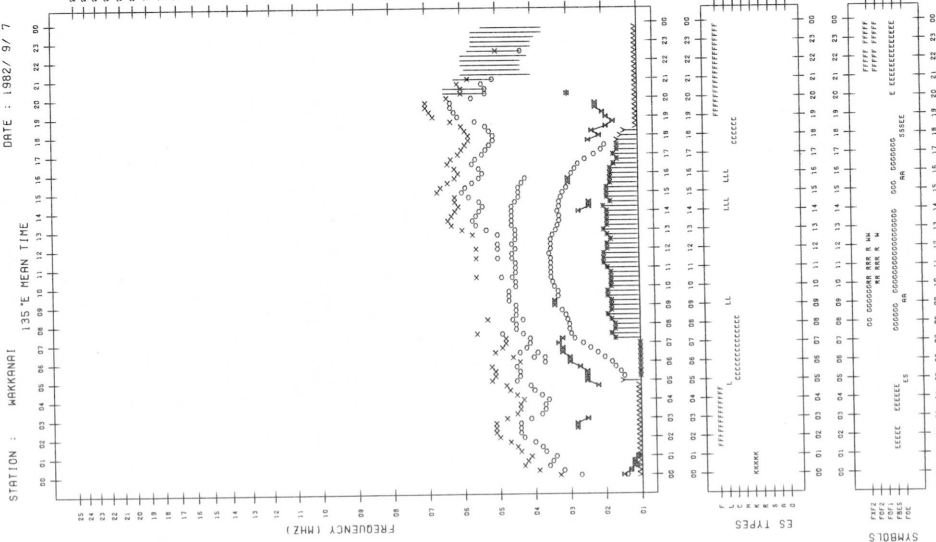
STATION : AKITA
 SCALER : Y-ECHIZENYA
 DATE : 1982/ 9/ 7

F-PLOT DATA



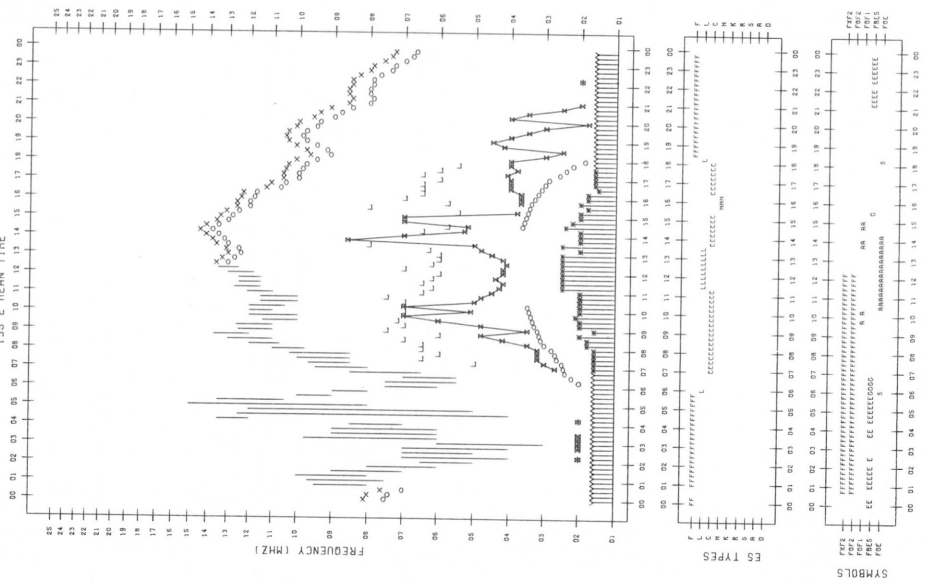
STATION : MARIKINAI
 SCALER : T-ODA
 DATE : 1982/ 9/ 7

F-PLOT DATA



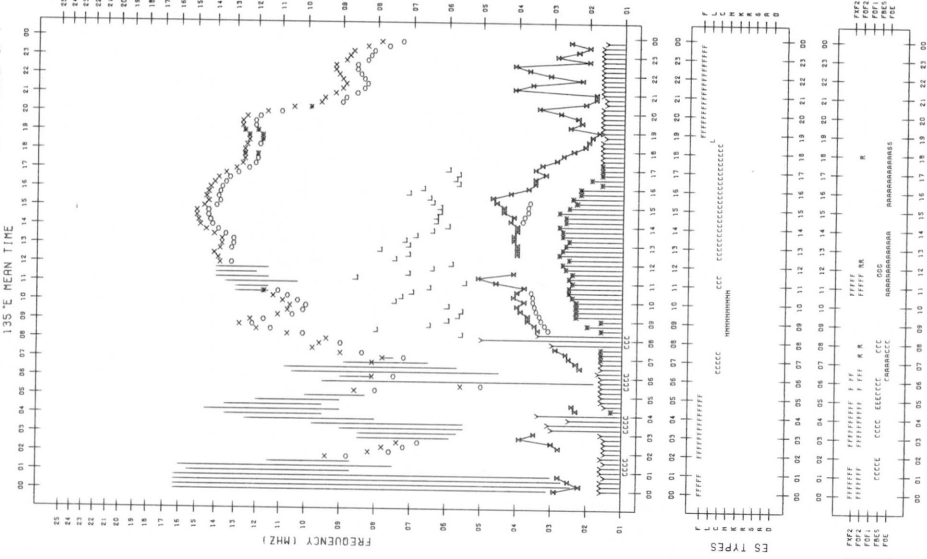
F-plot DATA

STATION : YANAGAWA SCALER : S.WAKHISHIKIRYO DATE : 1982/ 9/ 7



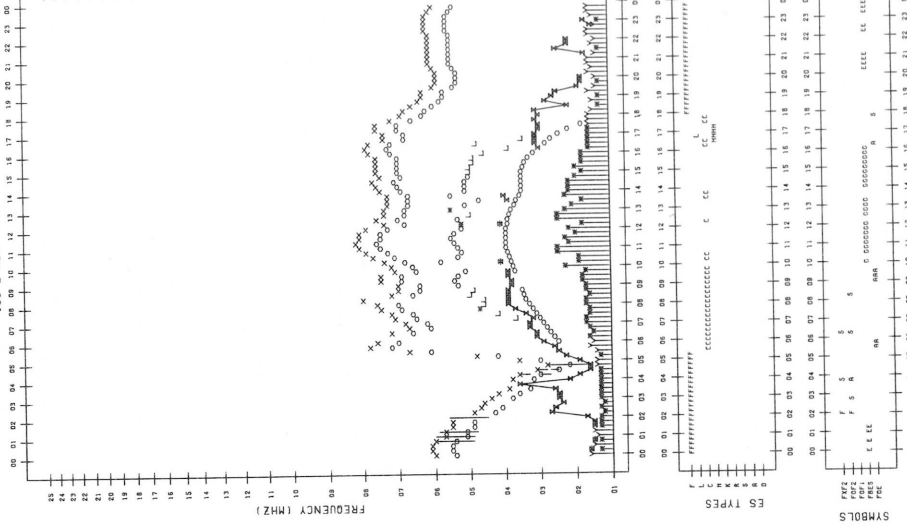
F-plot DATA

STATION : OKINAWA SCALER : K.WAKABAYASHI DATE : 1982/ 9/ 7



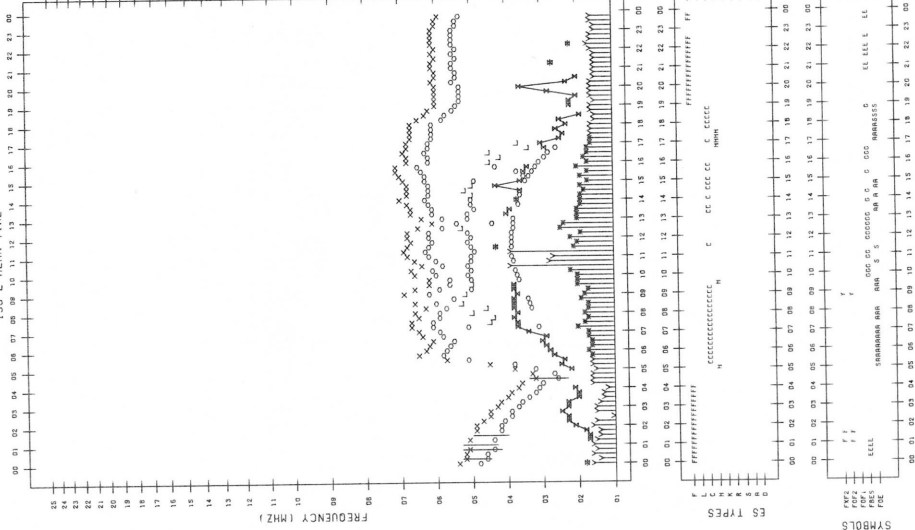
F-PLOT DATA

STATION : KOKURUNJI TOKYO SCALER : S-HIIDOME DATE : 1982/ 9/ 8



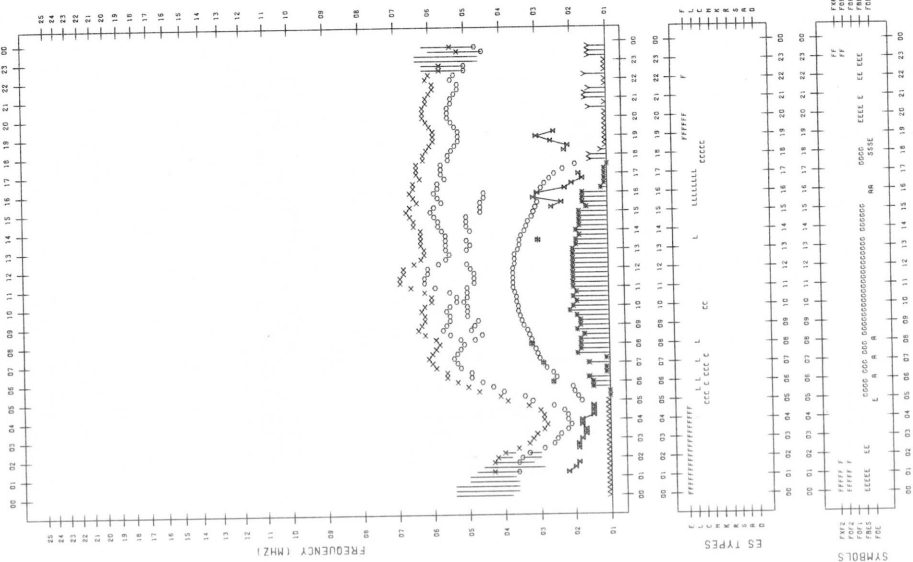
F-PLOT DATA

STATION : AKITA SCALER : Y-ECHIZENYA DATE : 1982/ 9/ 8



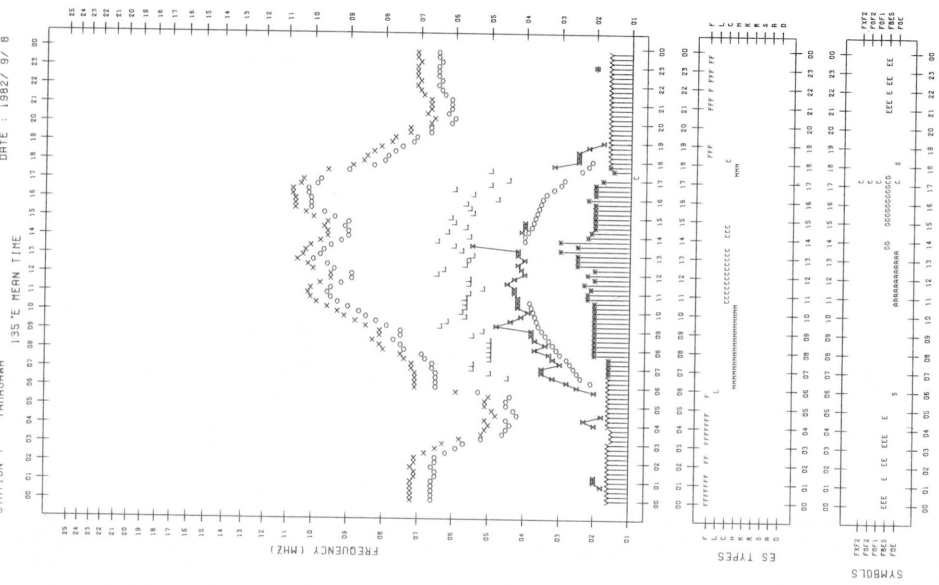
F-PLOT DATA

STATION : HAKKANRI SCALER : T-00R DATE : 1982/ 9/ 8



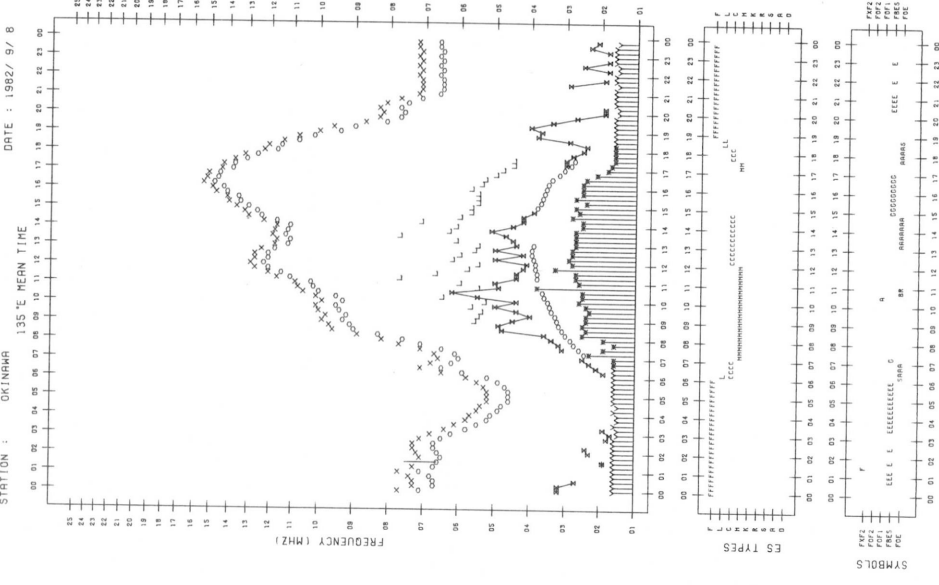
F-plot DATA

STATION : YARACAMA SCALER : S.KAKHSHIKIRYO DATE : 1982/ 9/ 8



F-plot DATA

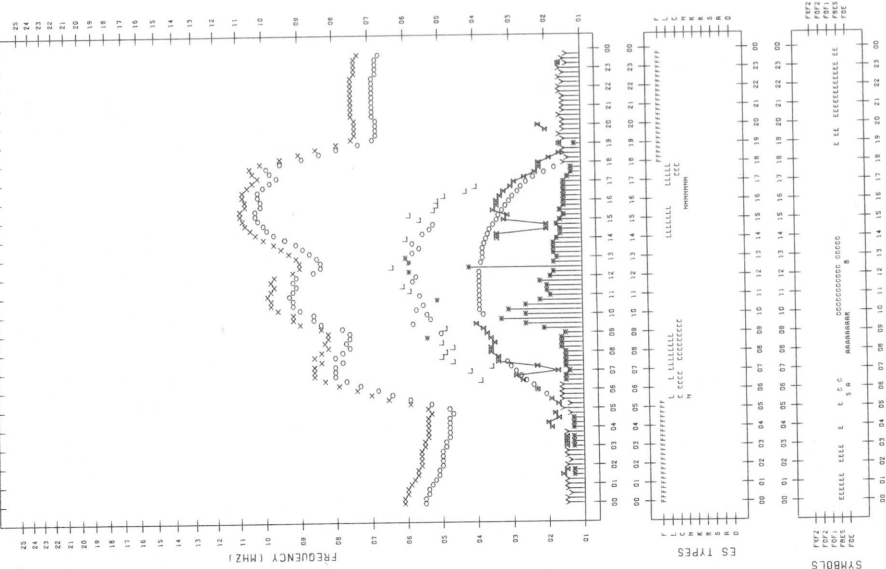
STATION : OKINAWA SCALER : K.KAKHSHIKIRYO DATE : 1982/ 9/ 8



F-PLOT DATA

SCALER : S-HIIDHOE
DATE : 1982/ 9/ 9

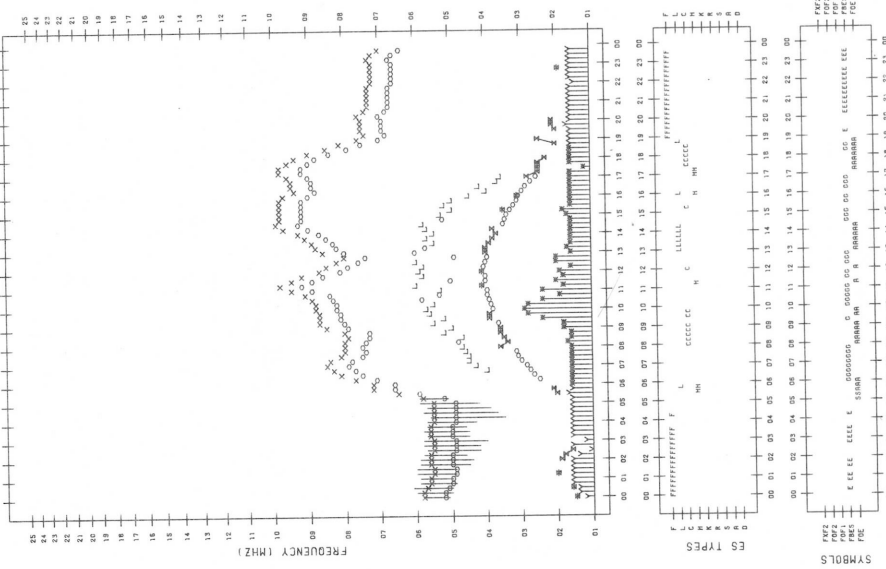
STATION : KOKUBUNJI TOKYO
135°E MEAN TIME



F-PLOT DATA

SCALER : T-MORI
DATE : 1982/ 9/ 9

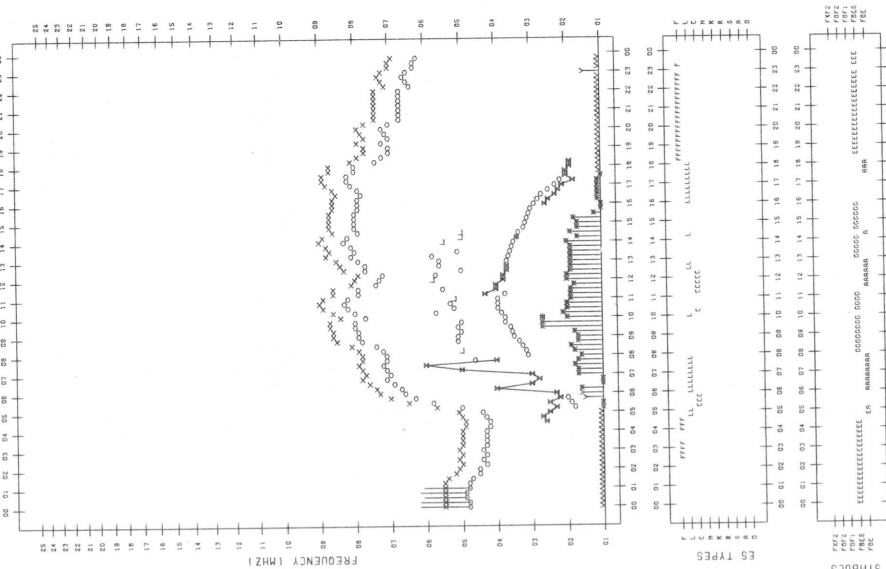
STATION : AKITA
135°E MEAN TIME



F-PLOT DATA

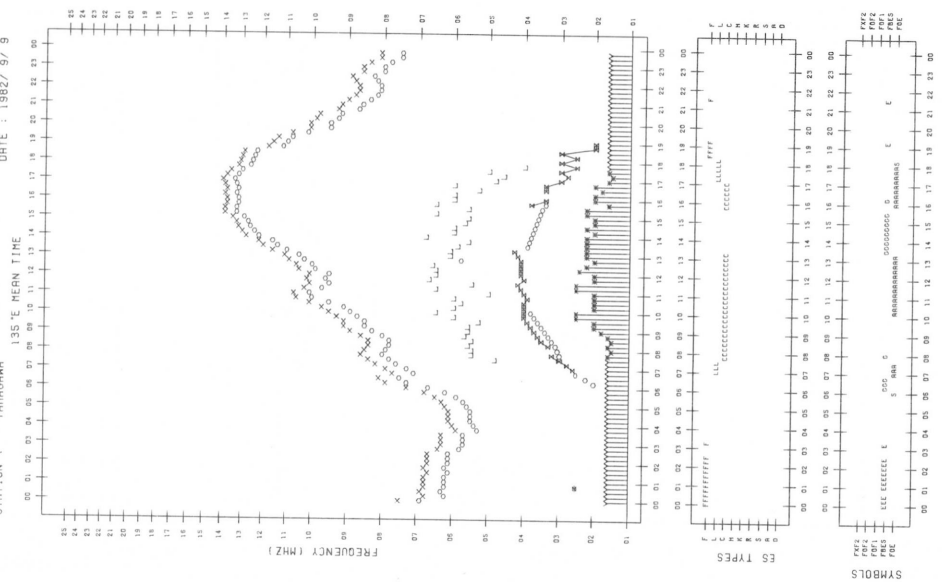
SCALER : T-ODA
DATE : 1982/ 9/ 9

STATION : MIKAKI
135°E MEAN TIME



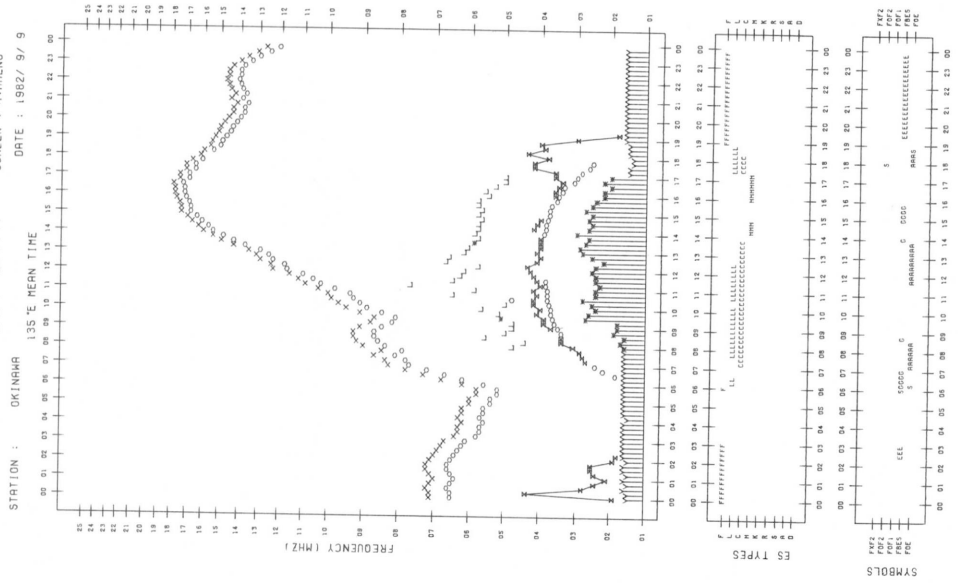
F-plot DATA

STATION : YAHARAWA SCALER : S-MARSHIKIRYO DATE : 1982/ 8/ 9



F-plot DATA

STATION : OKINAWA SCALER : H-MBENO DATE : 1982/ 9/ 9



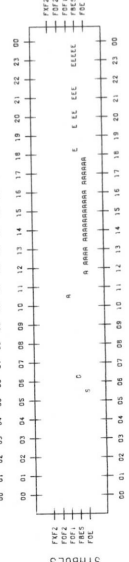
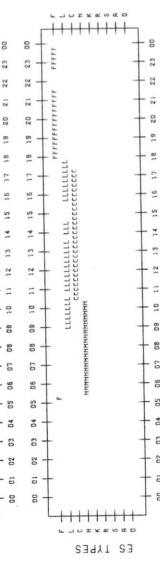
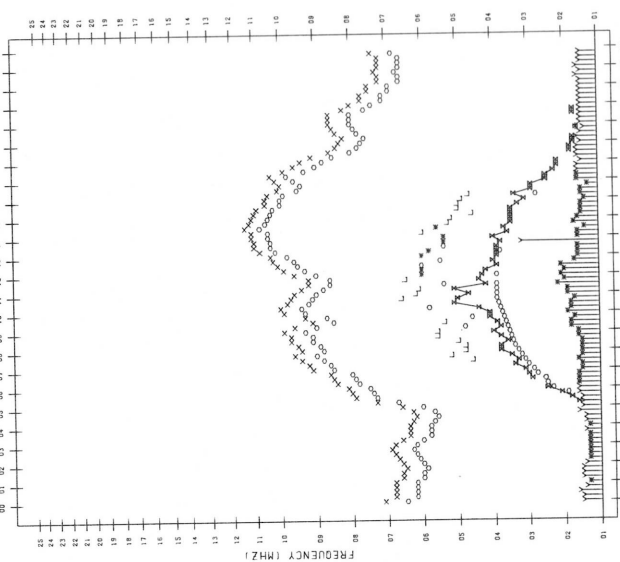
F-PLOT DATA

STATION : KOKUBUNJI TOKYO

SCALER : S-H1100HE

DATE : 1982/ 9/10

135°E MEAN TIME



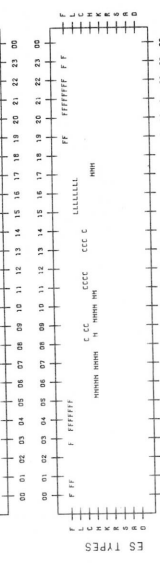
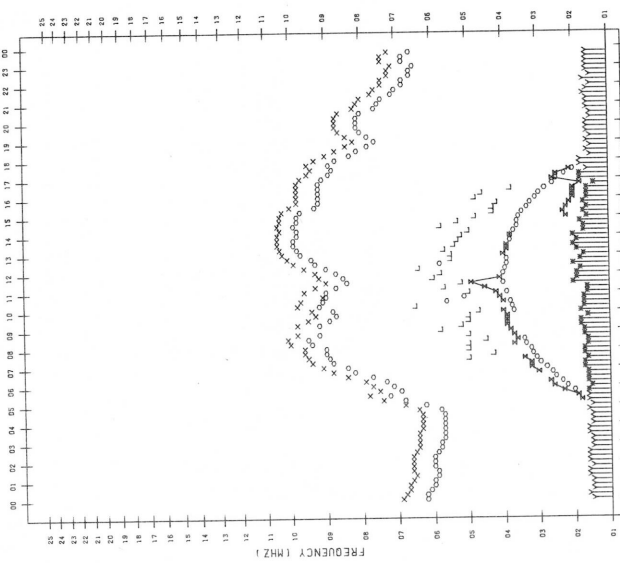
F-PLOT DATA

STATION : AKITA

SCALER : Y-ECHIZENYA

DATE : 1982/ 9/10

135°E MEAN TIME



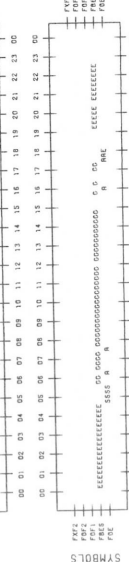
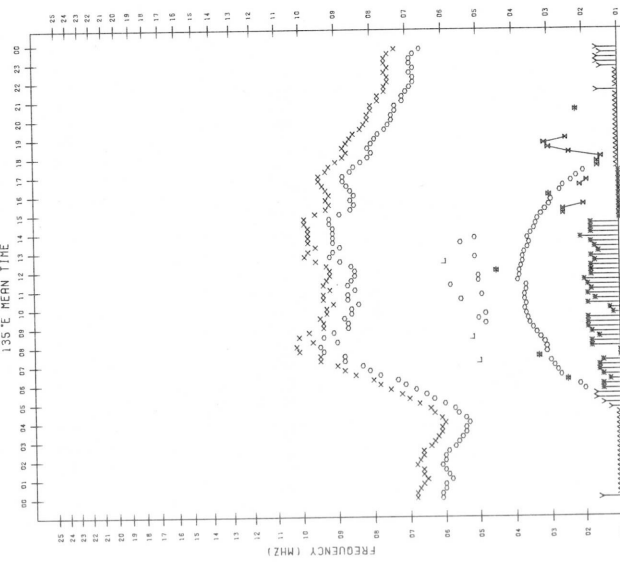
F-PLOT DATA

STATION : MARUKANI

SCALER : T-00A

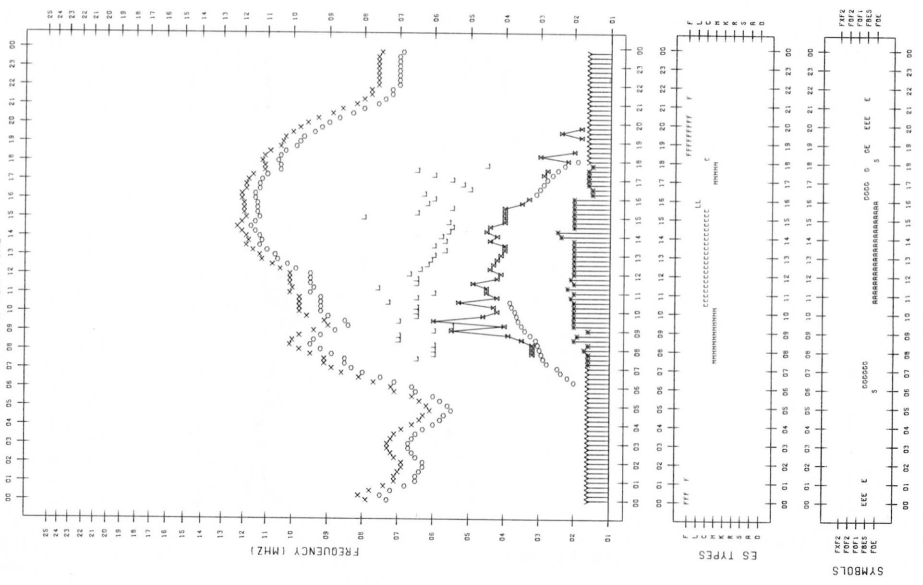
DATE : 1982/ 9/10

135°E MEAN TIME



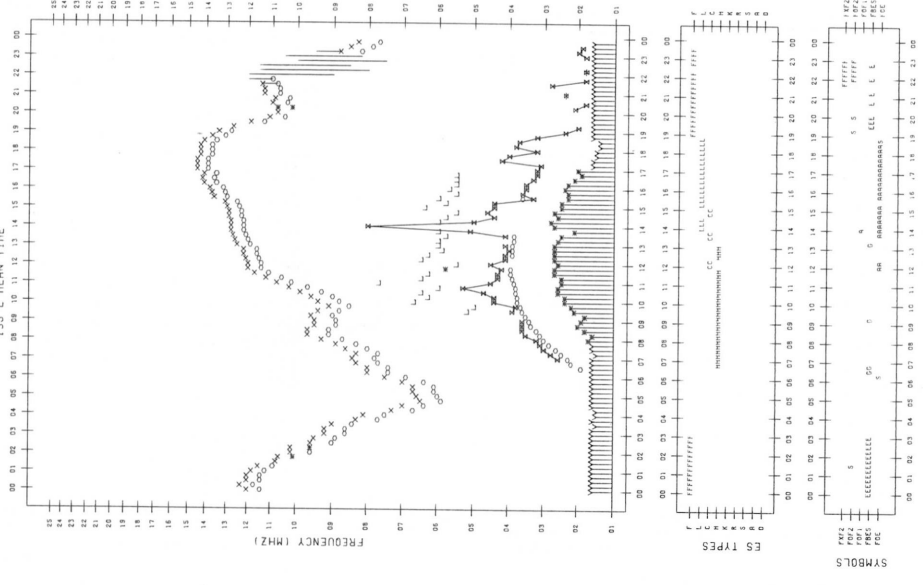
F-PLOT DATA

STATION : FANAGRA SCALER : S.MRMISHIKIRYO
DATE : 1982/ 9/10
135°E MEAN TIME



F-PLOT DATA

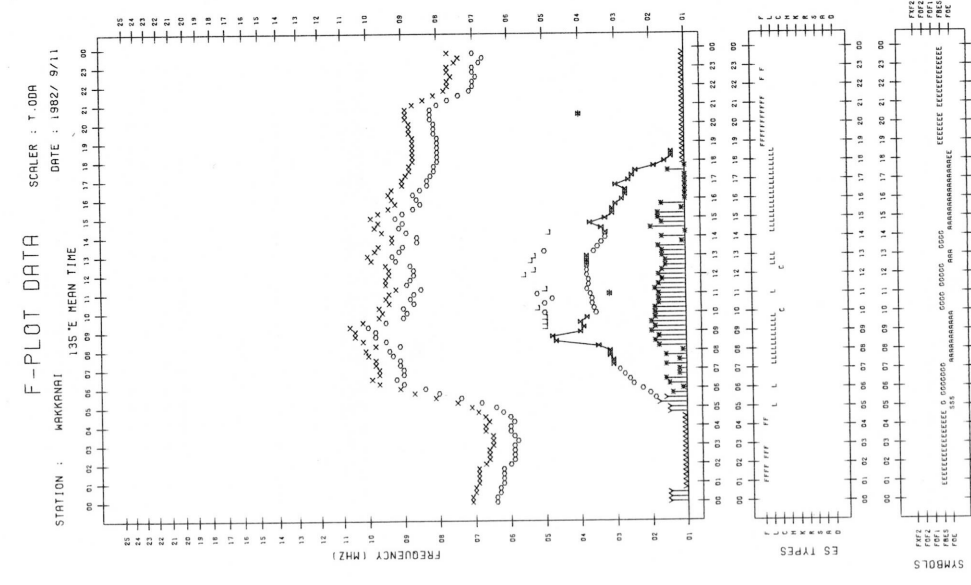
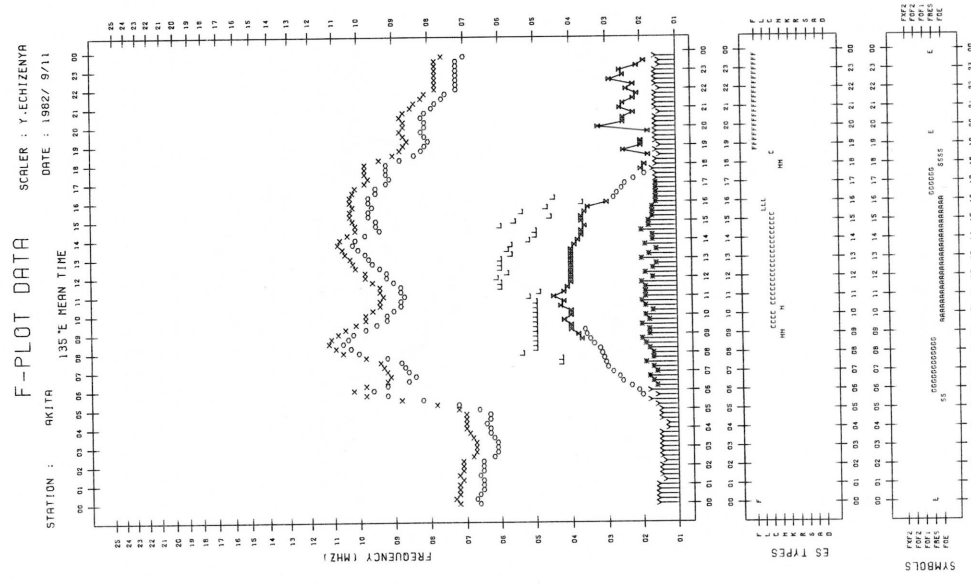
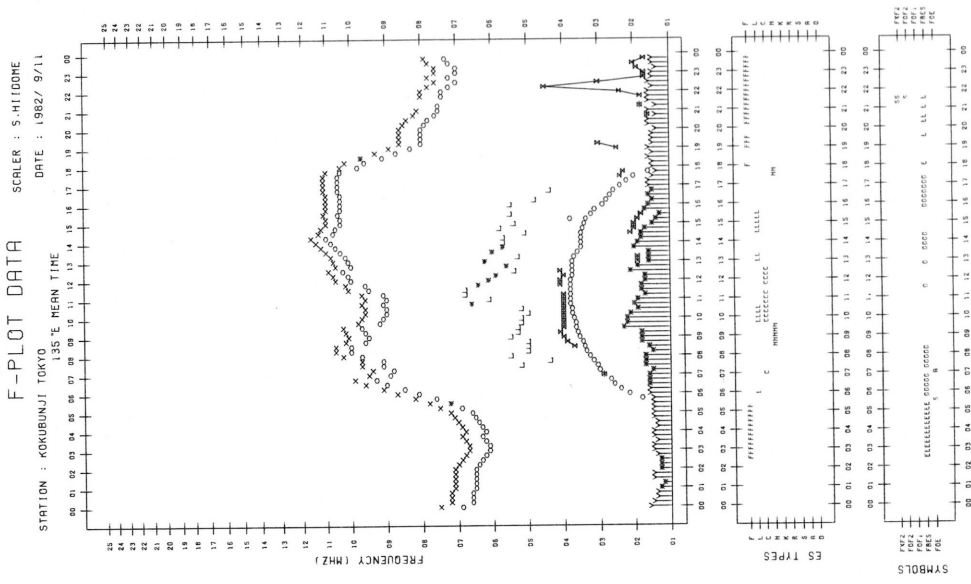
STATION : OKINAWA SCALER : H.MRENO
DATE : 1982/ 9/10
135°E MEAN TIME



STATION : KOKUBUNJI TOKYO SCALER : S-HIIDDNE
 DATE : 1982/ 9/11
 135°E MEAN TIME

STATION : AKITA SCALER : Y-ECHIZENYA
 DATE : 1982/ 9/11
 135°E MEAN TIME

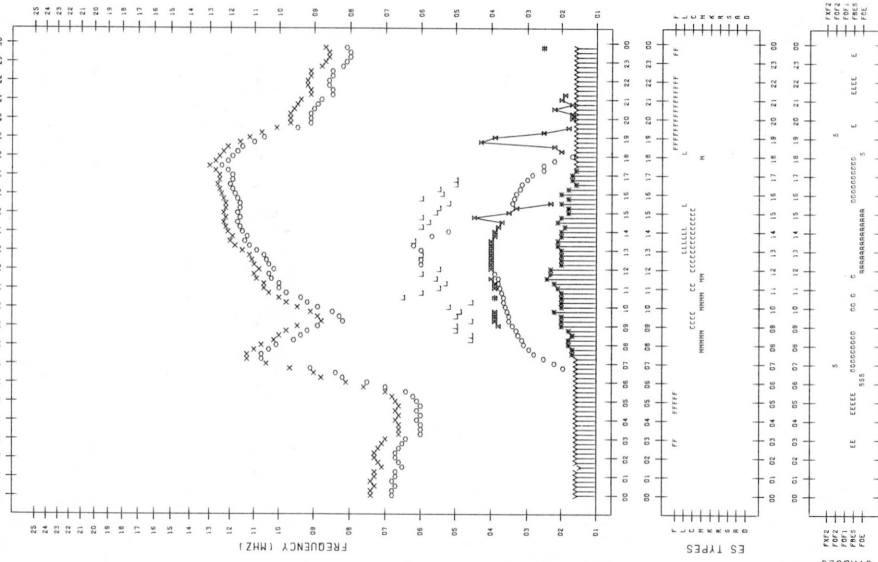
STATION : WAKKANAI SCALER : T-ODA
 DATE : 1982/ 9/11
 135°E MEAN TIME



F-PLOT DATA

STATION : YAMAGAWA SCALER : H.MITSUOONE DATE : 1982/ 9/11

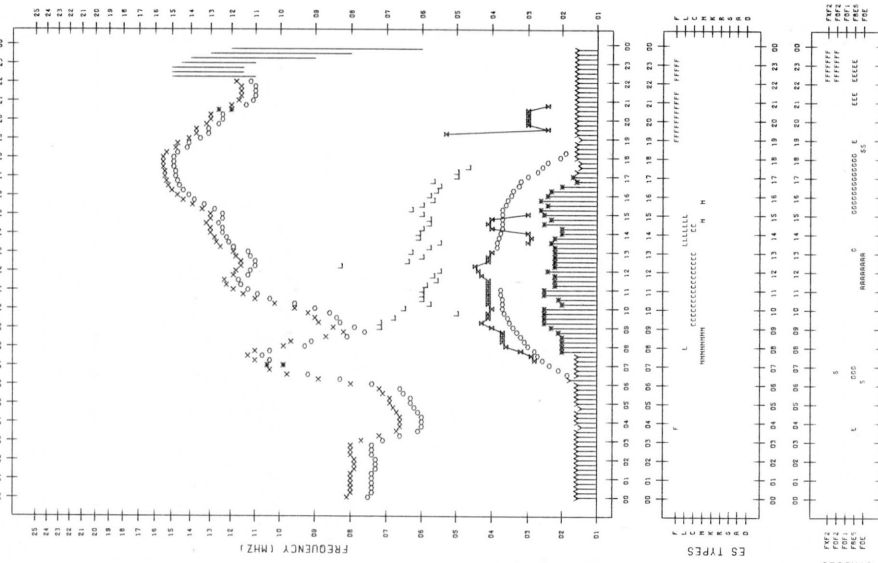
135% MEAN TIME



F-PLOT DATA

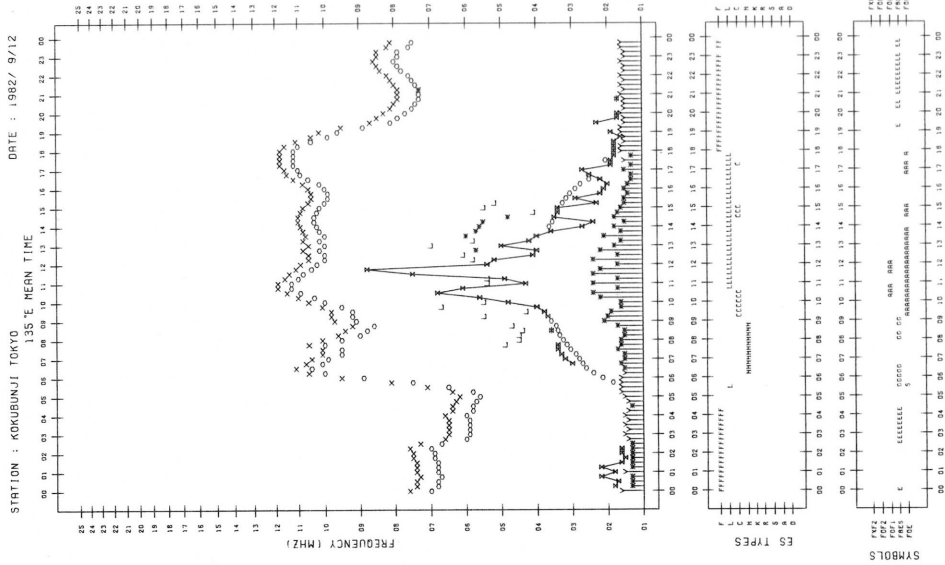
STATION : OKINAWA SCALER : H.MRENO DATE : 1982/ 9/11

135% MEAN TIME



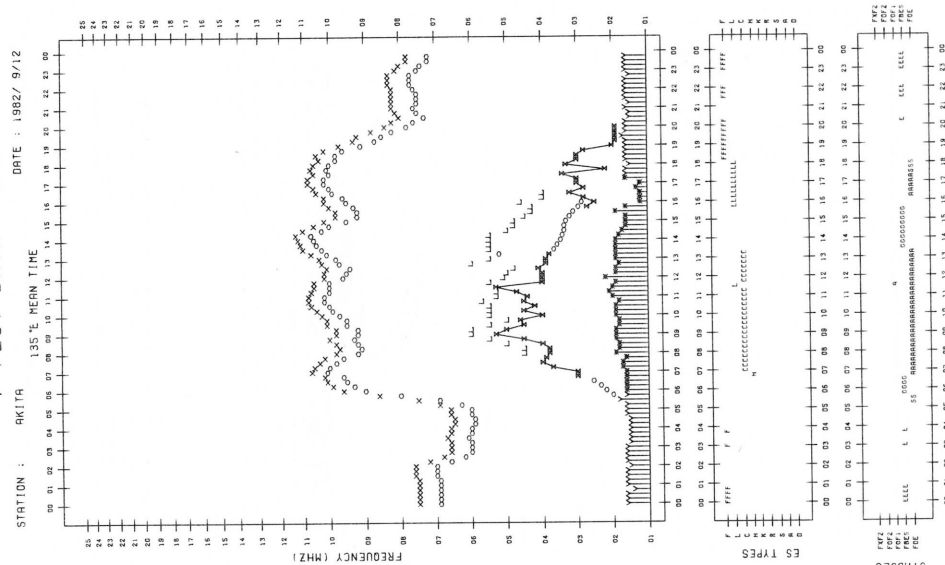
STATION : KOKUBUNJI TOKYO
SCALER : S.HIIDOME
DATE : 1982/ 9/12
135 °C MEAN TIME

F-PLOT DATA



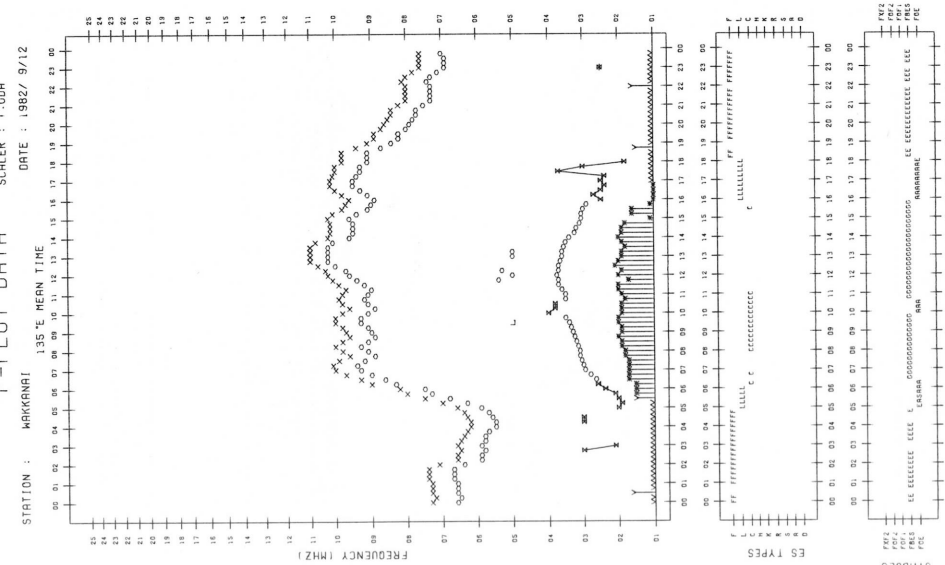
STATION : AKITA
SCALER : Y.ECHIZENYA
DATE : 1982/ 9/12
135 °C MEAN TIME

F-PLOT DATA



STATION : MARIKIRAI
SCALER : T.ODA
DATE : 1982/ 9/12
135 °C MEAN TIME

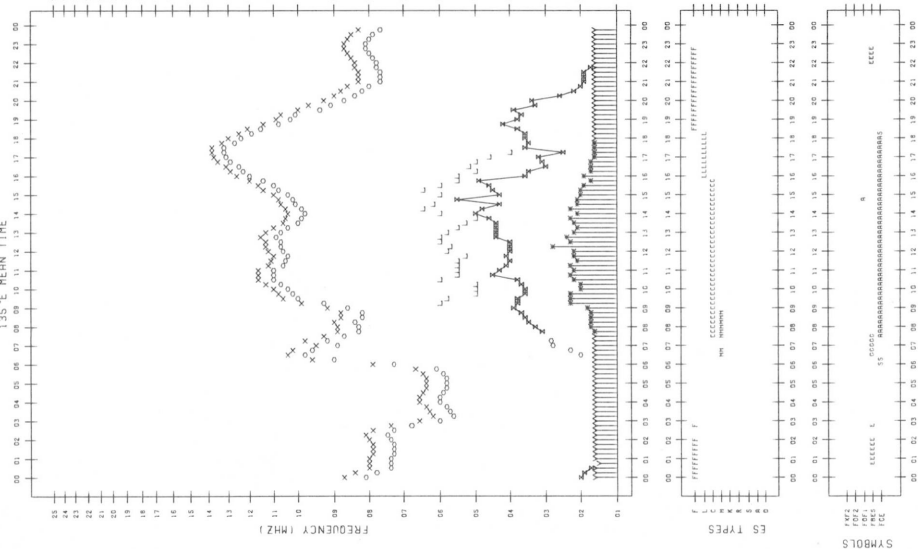
F-PLOT DATA



F-PLOT DATA

STATION : FANBARA SCALER : H. MITSUONO DATE : 1982/ 9/12

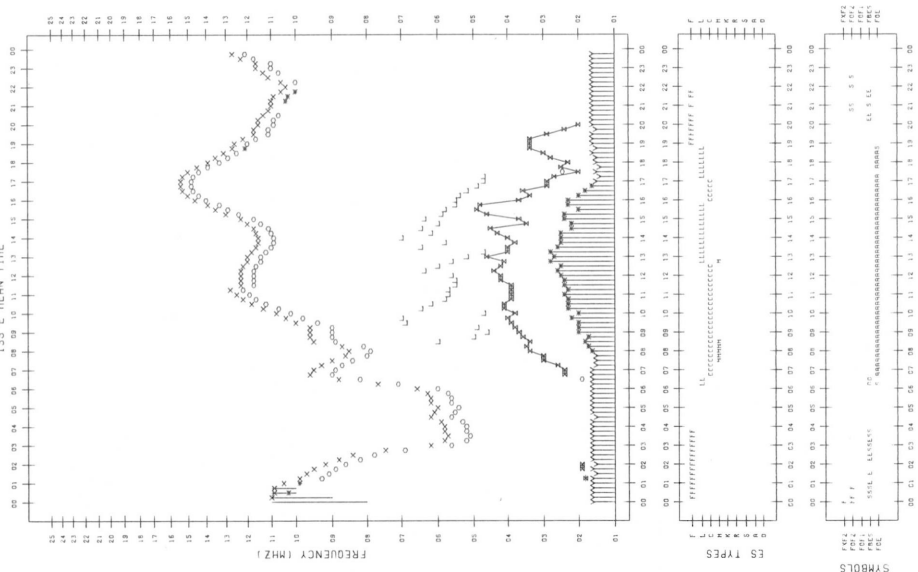
135% MEAN TIME



F-PLOT DATA

STATION : OKINAWA SCALER : H. MIENO DATE : 1982/ 9/12

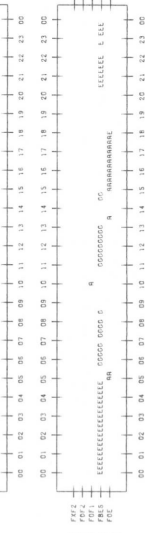
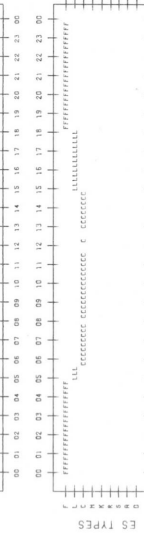
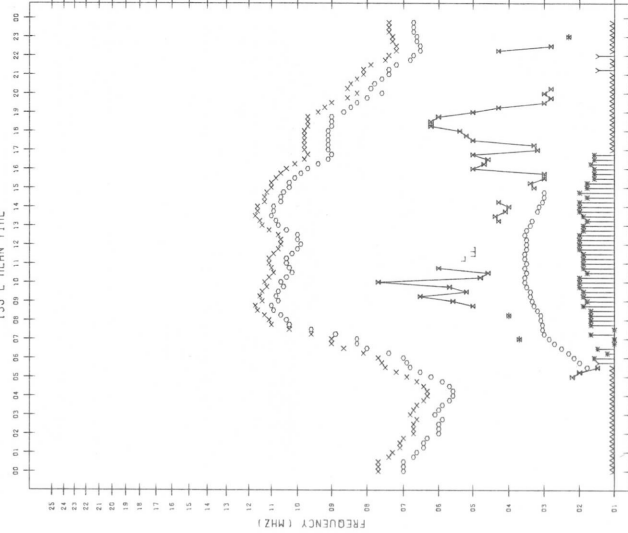
135% MEAN TIME



F-PLOT DATA

STATION : MAKANAI SCALER : Y-COR DATE : 1982/ 9/13

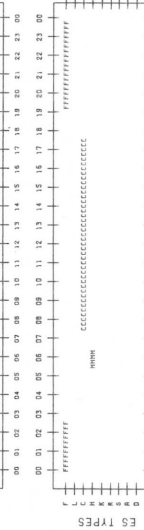
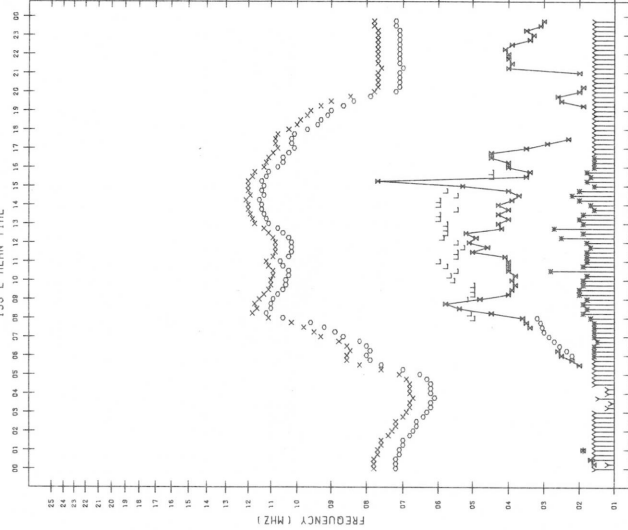
135°E MEAN TIME



F-PLOT DATA

STATION : AKITA SCALER : Y-ECHIZENYA DATE : 1982/ 9/13

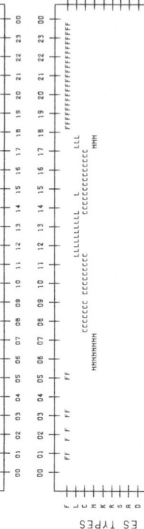
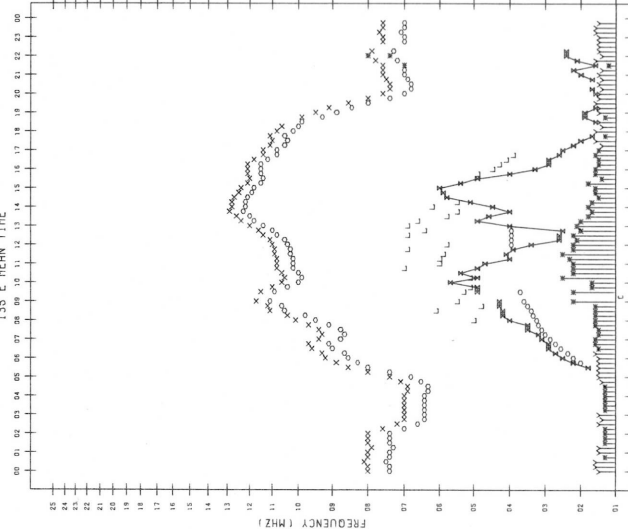
135°E MEAN TIME

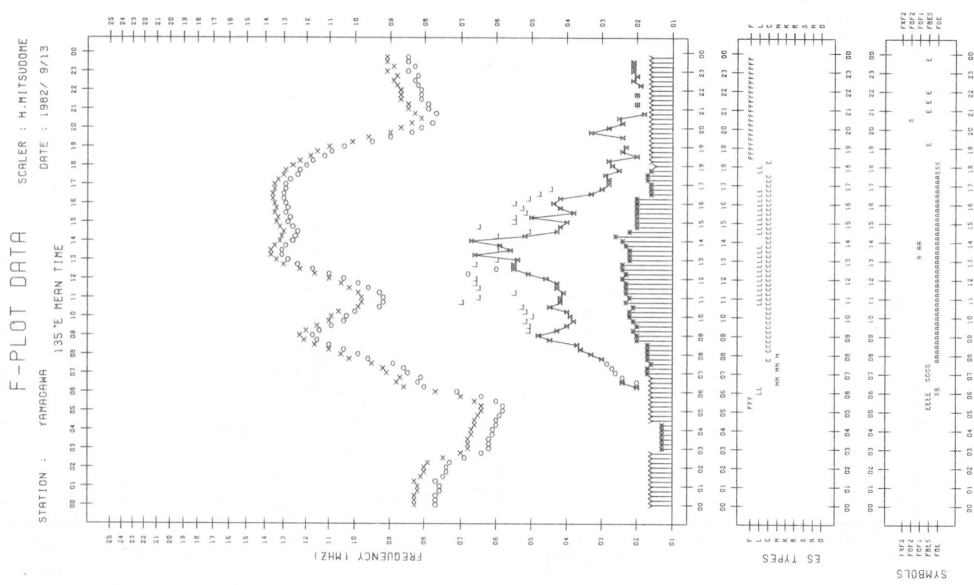
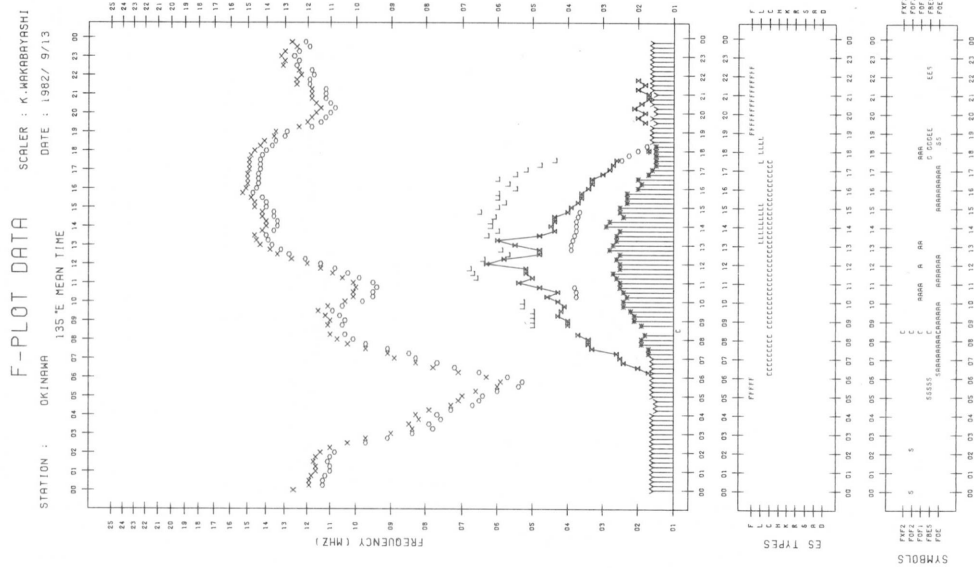


F-PLOT DATA

STATION : KOKUBUNJI TOKYO SCALER : S-HITODOME DATE : 1982/ 9/13

135°E MEAN TIME



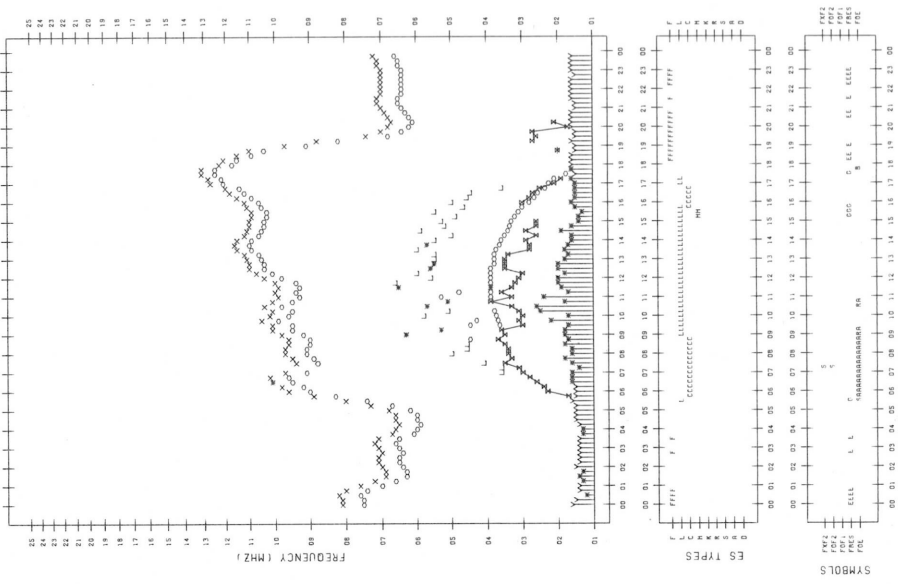


F- PLOT DATA

SCALER : S-HI/DOME

STATION : KOKUBUNJI TOKYO DATE : 1982/ 9/14

135°E MEAN TIME

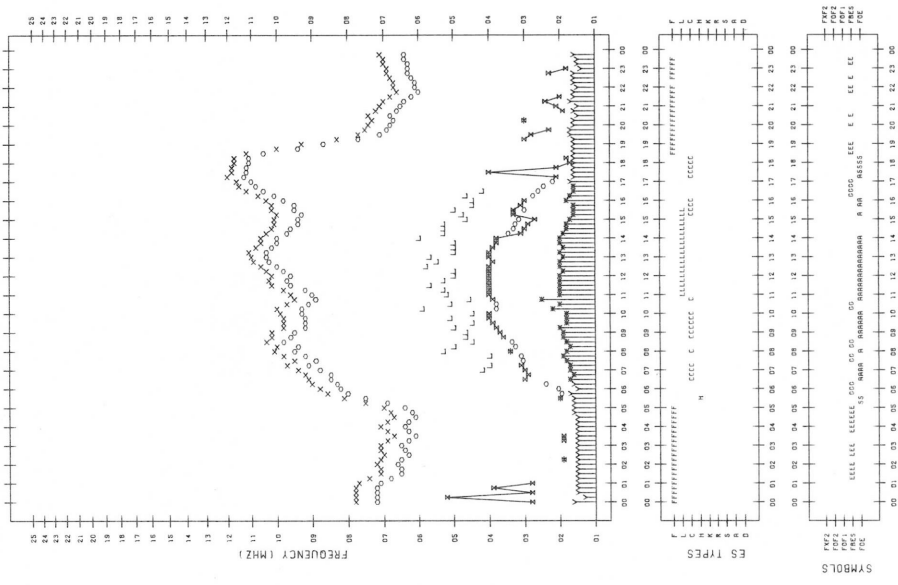


F- PLOT DATA

SCALER : Y-ECHIZENYA

STATION : AKITA DATE : 1982/ 9/14

135°E MEAN TIME

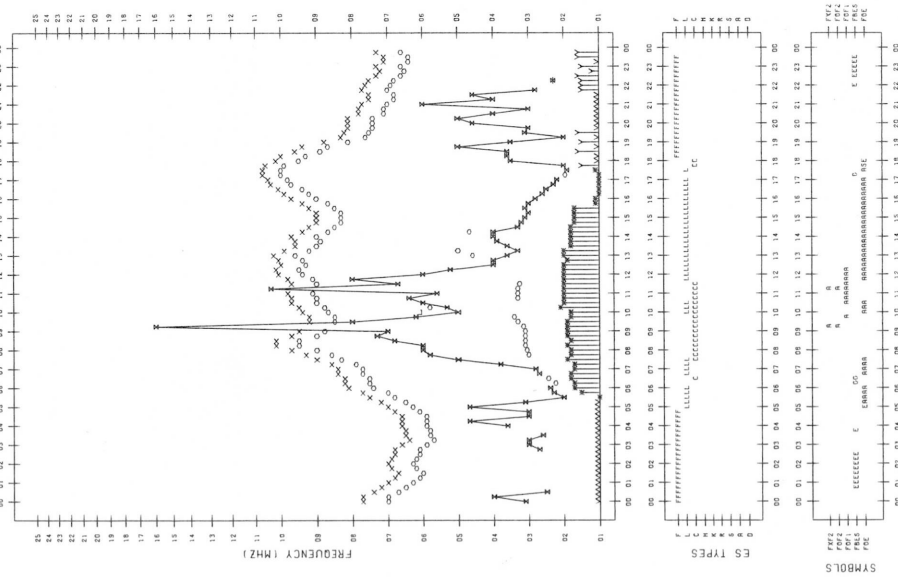


F- PLOT DATA

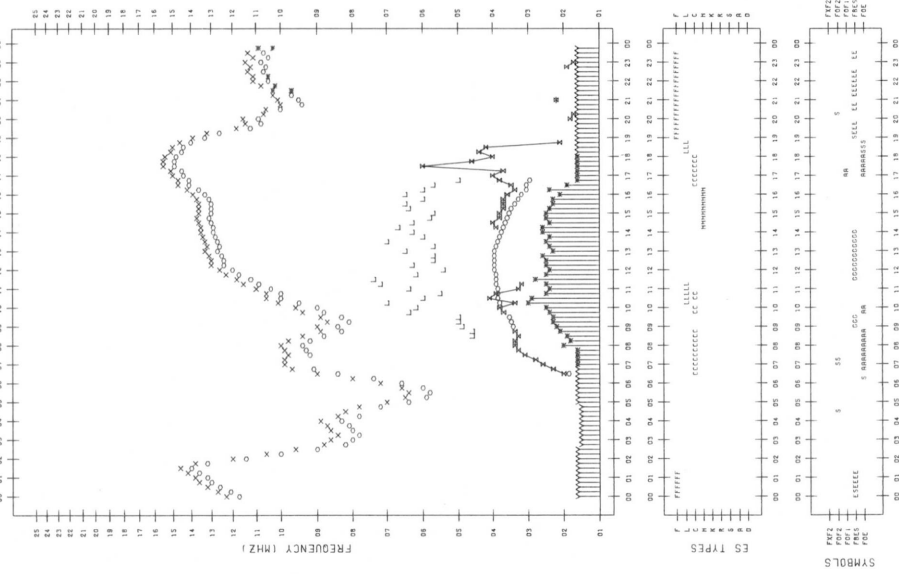
SCALER : T-ODR

STATION : MARIKANRI DATE : 1982/ 9/14

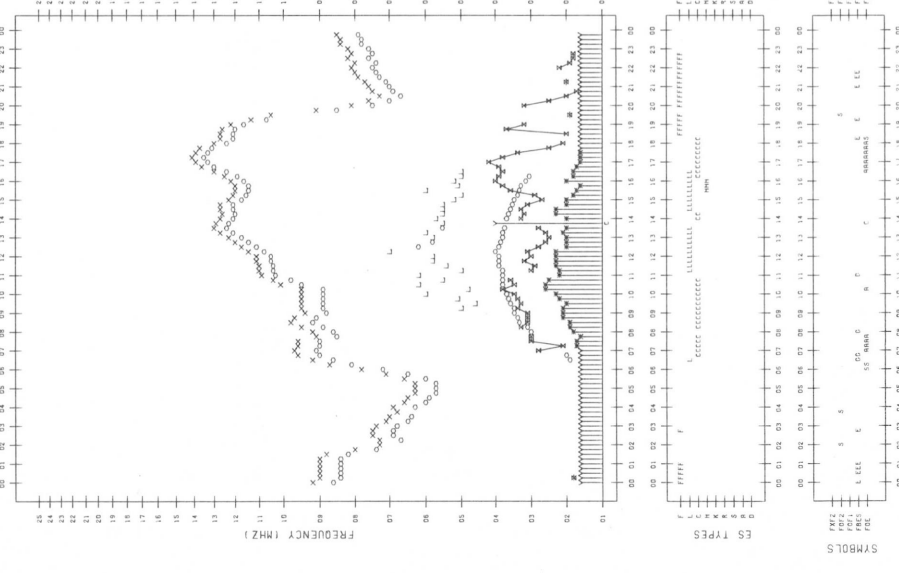
135°E MEAN TIME



F- PLOT DATA
STATION : OKINAWA SCALER : K-HAKBAYASHI
DATE : 1982/ 9/14
135°E MEAN TIME



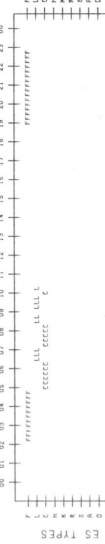
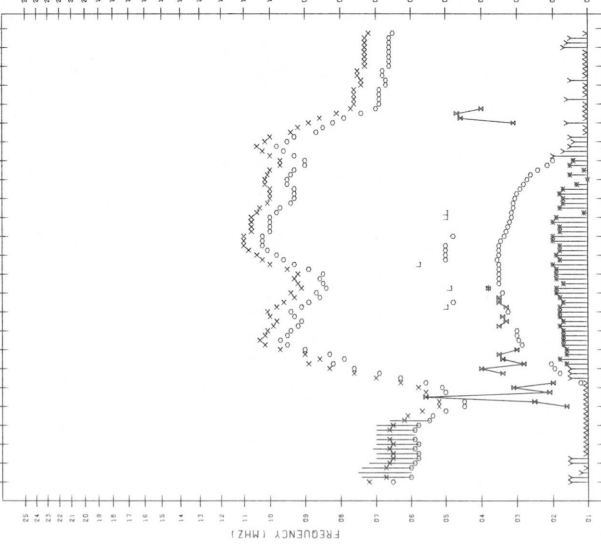
F- PLOT DATA
STATION : YABAGAWA SCALER : H-MITSUONO
DATE : 1982/ 9/14
135°E MEAN TIME



F-plot DATA

STATION : WAKKANAI SCALER : T.ODA DATE : 1982/ 9/15

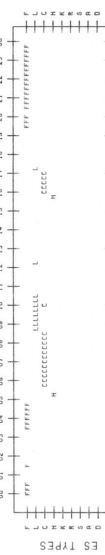
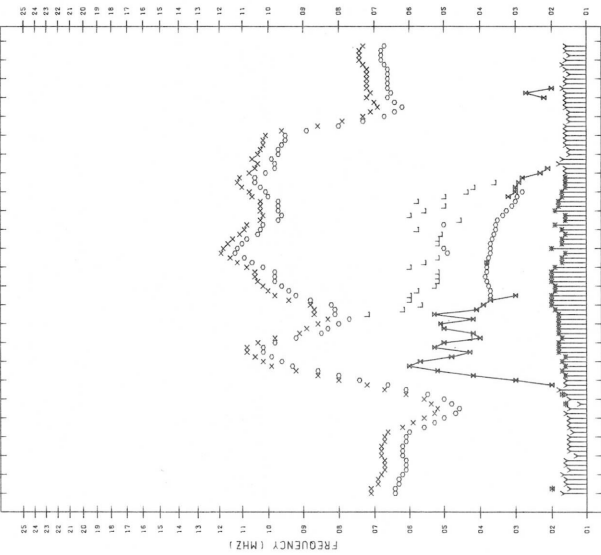
135 °E MEAN TIME



F-plot DATA

STATION : AKITA SCALER : Y.ECHIZENYA DATE : 1982/ 9/15

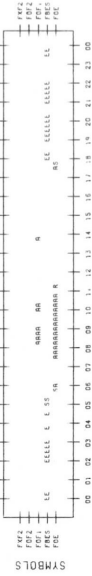
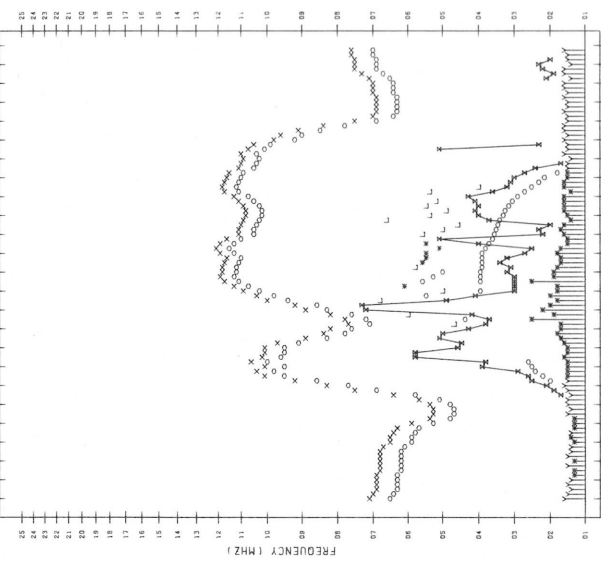
135 °E MEAN TIME



F-plot DATA

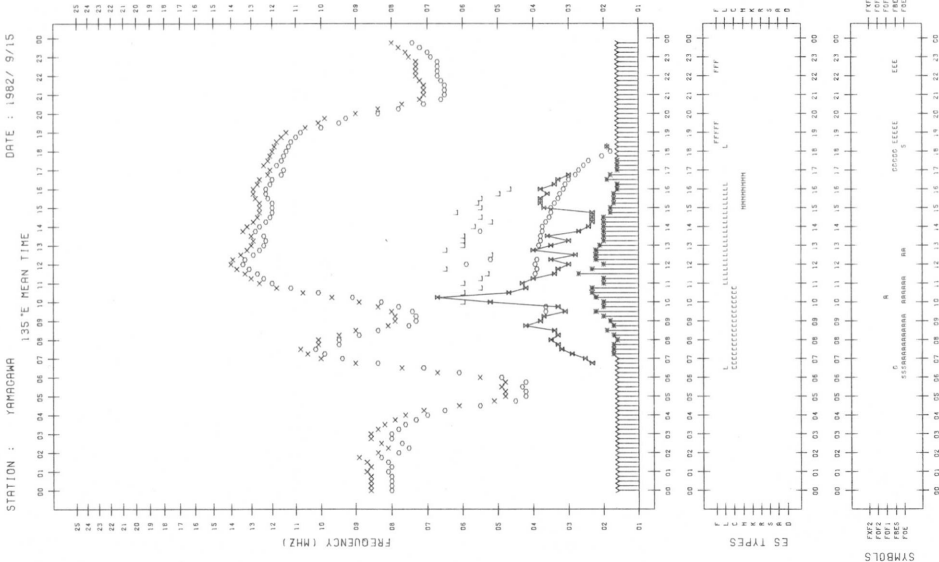
STATION : KOKUBUNJI TOKYO SCALER : S.HIDOME DATE : 1982/ 9/15

135 °E MEAN TIME



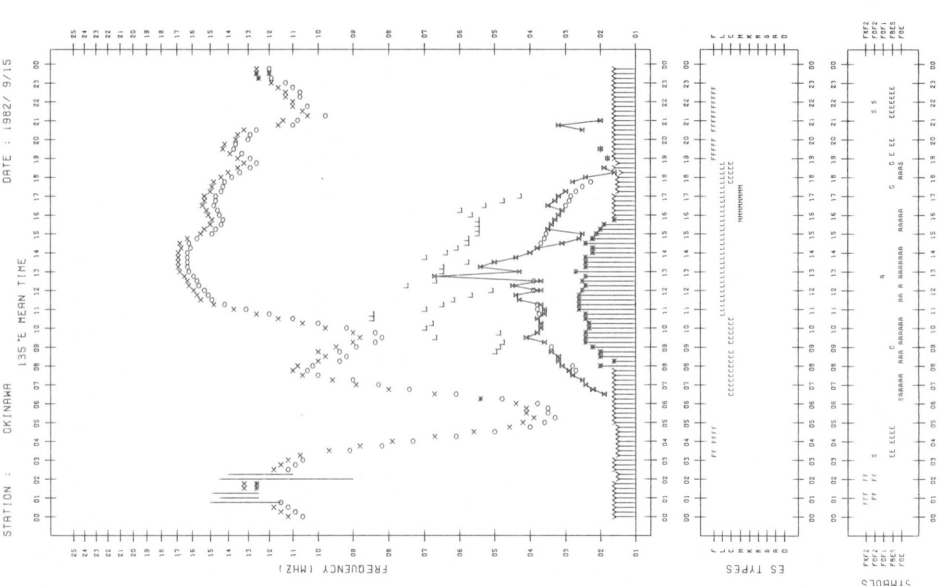
F-PLOT DATA

STATION : IANAGAWA SCALER : H.MISTUJIDDE DATE : 1982/ 9/15



F-PLOT DATA

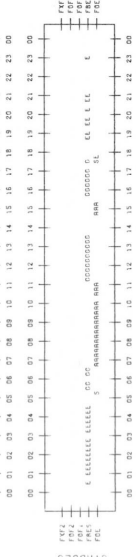
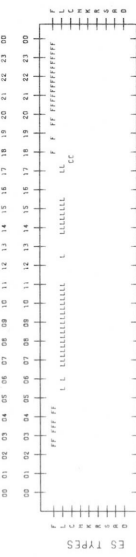
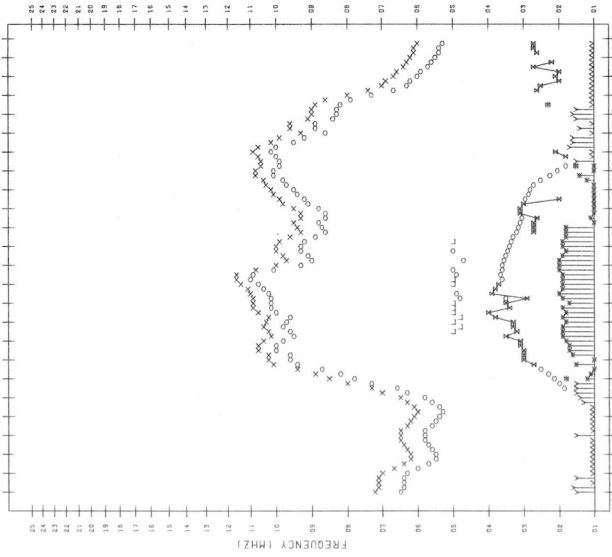
STATION : OKINAWA SCALER : H.ARENO DATE : 1982/ 9/15



F-PLOT DATA

STATION : HAKKONRI SCALER : T_ODR DATE : 1982/ 9/16

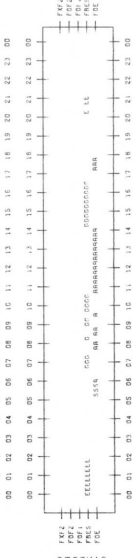
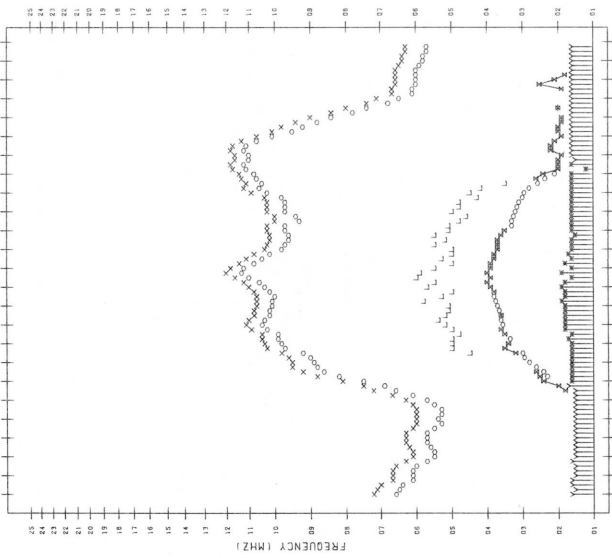
135°E MEAN TIME



F-PLOT DATA

STATION : KAITA SCALER : T_HORI DATE : 1982/ 9/16

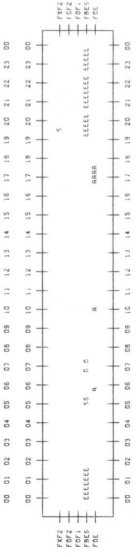
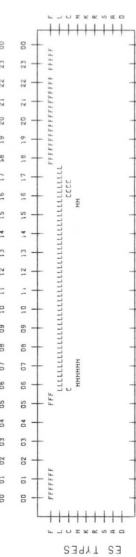
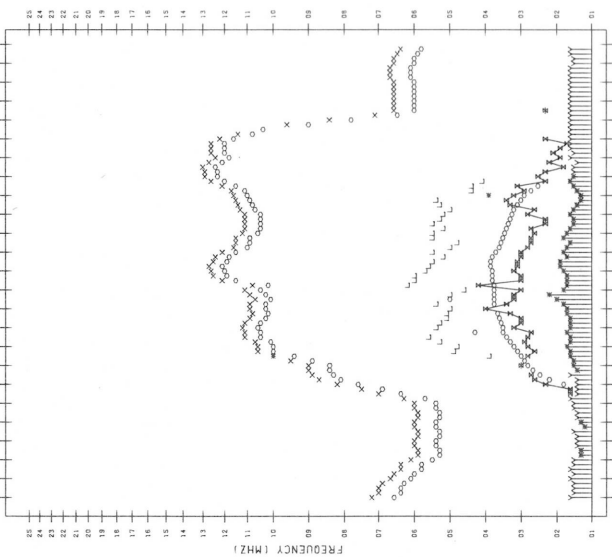
135°E MEAN TIME



F-PLOT DATA

STATION : KOKUBUNJI TOKIO SCALER : S_HITDOHE DATE : 1982/ 9/16

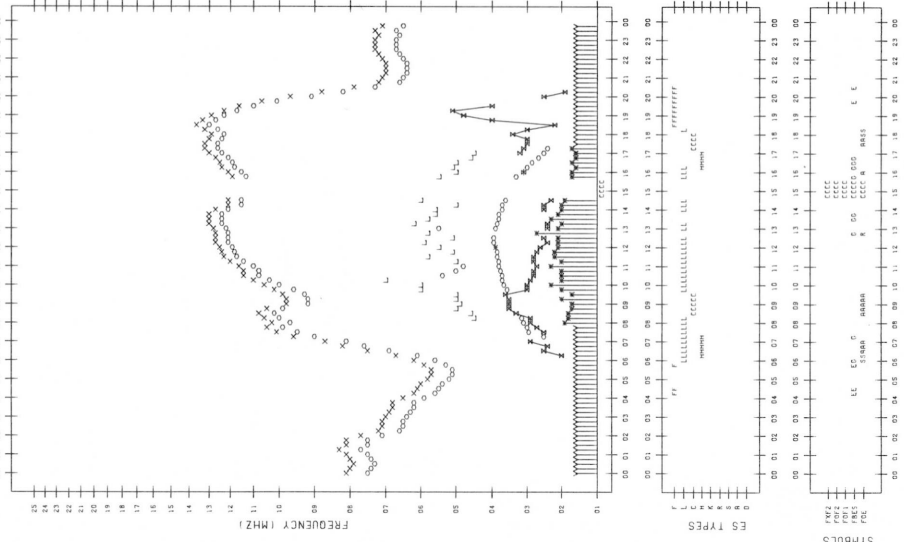
135°E MEAN TIME



F-plot DATA

STATION : YAMAGAWA SCALER : H.MISTUJODOME

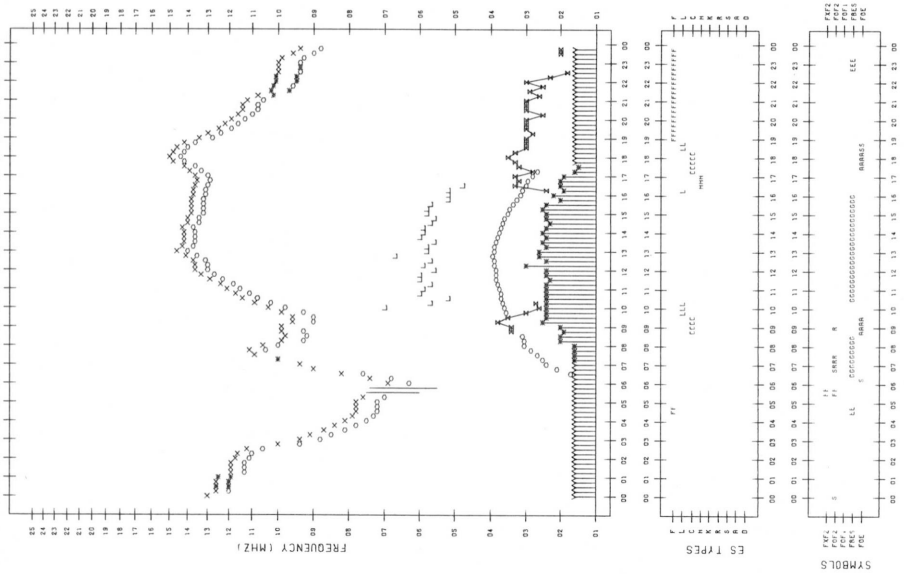
DATE : 1982/ 9/16



F-plot DATA

STATION : OKINAWA SCALER : A.OTSUKA

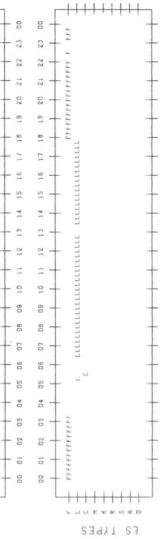
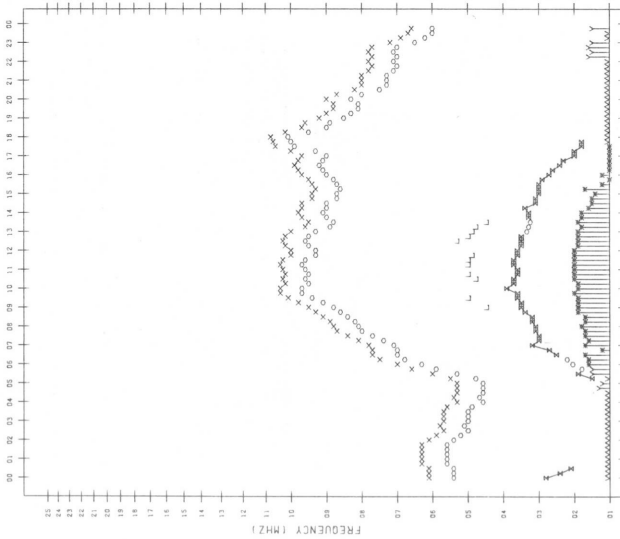
DATE : 1982/ 9/16



F-plot DATA

STATION : MAKINARI SCALER : T.ODA DATE : 1982/ 9/17

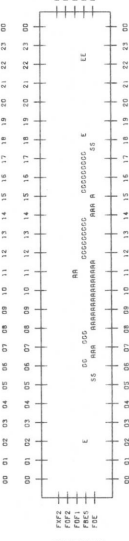
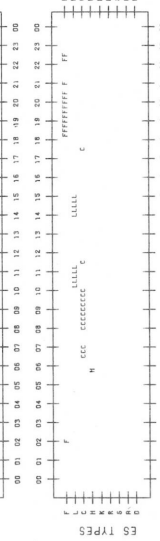
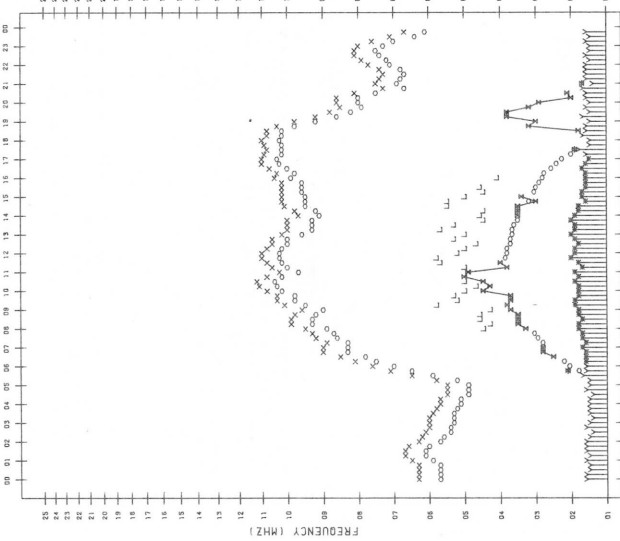
135°E MEAN TIME



F-plot DATA

STATION : AKITA SCALER : Y.ECHIZENYA DATE : 1982/ 9/17

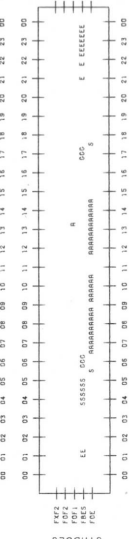
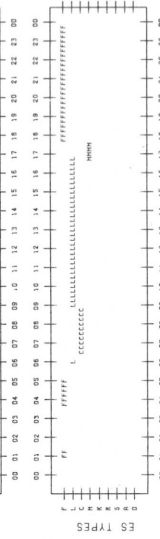
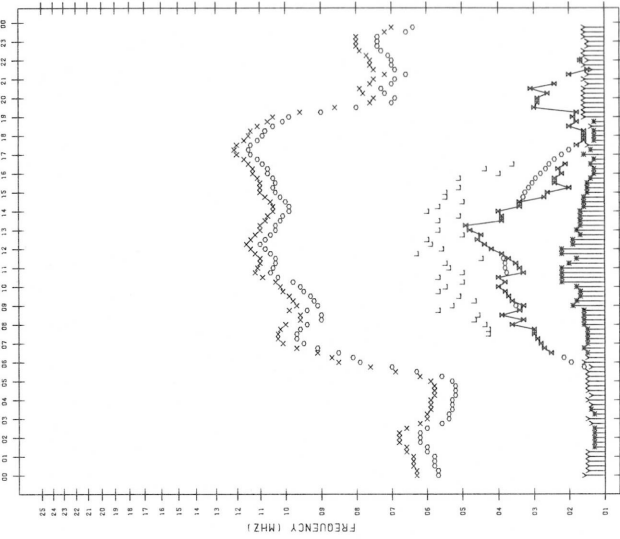
135°E MEAN TIME



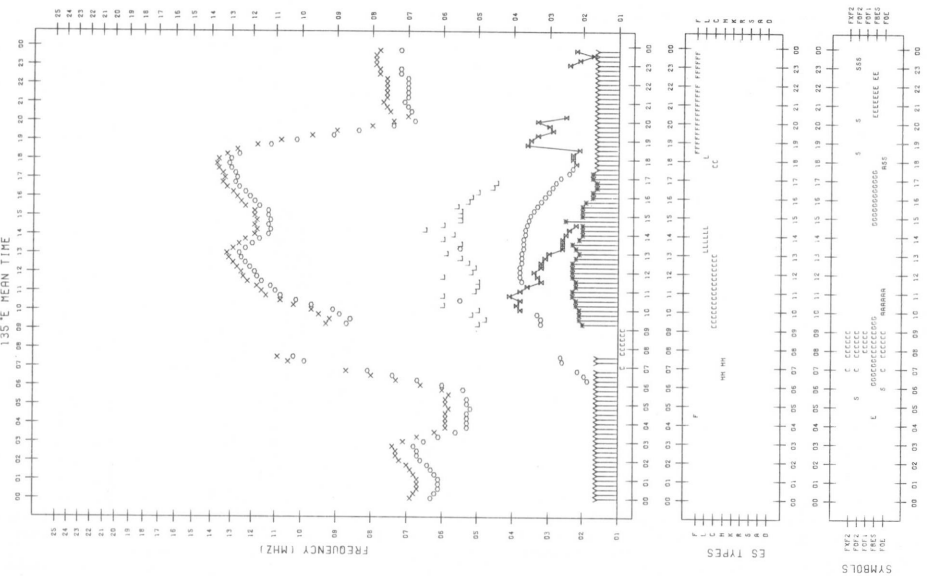
F-plot DATA

STATION : KOKUBUNJI TOKYO SCALER : S.HIDOME DATE : 1982/ 9/17

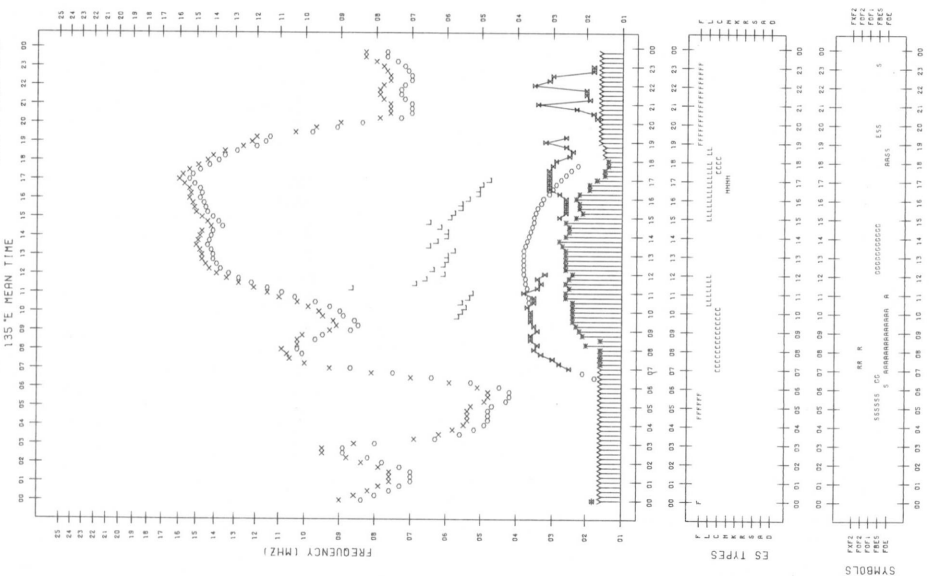
135°E MEAN TIME

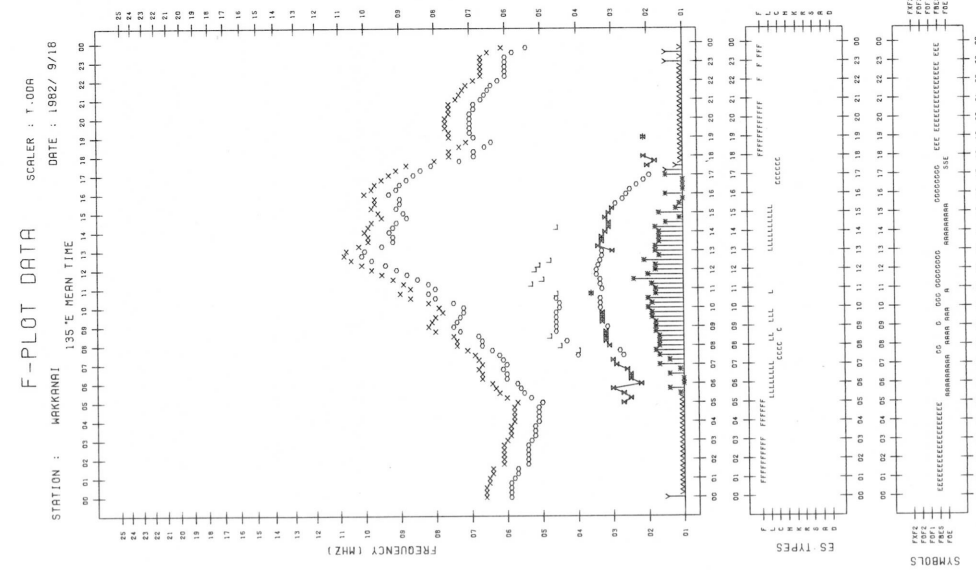
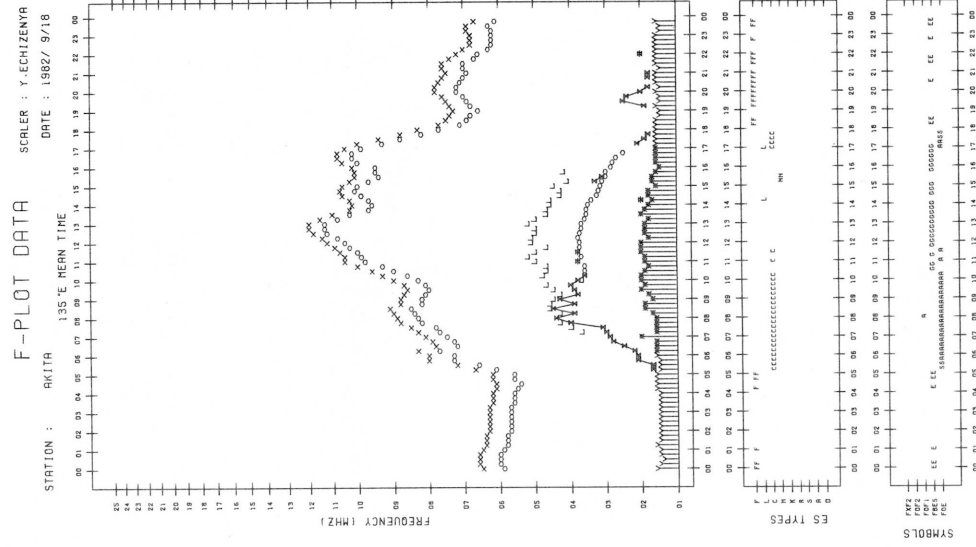
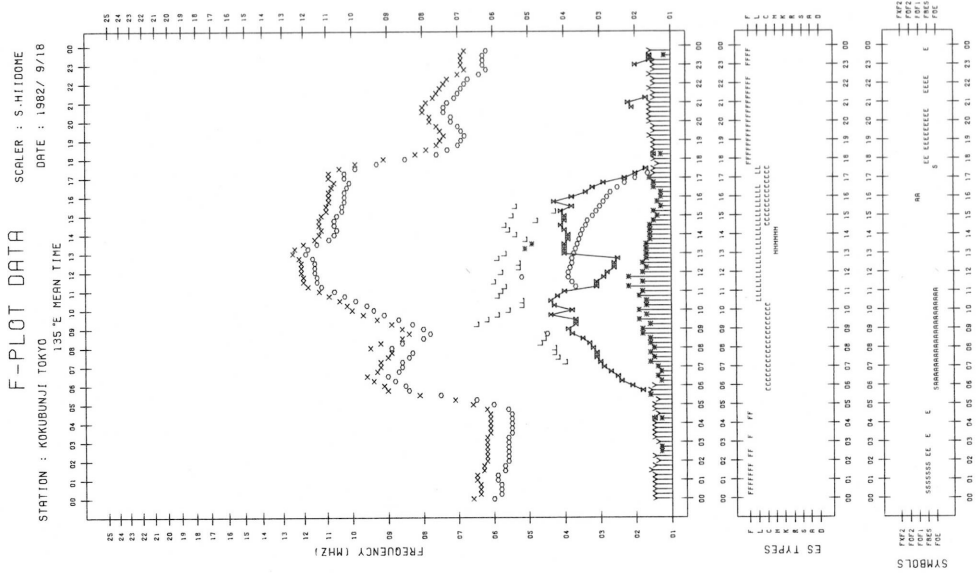


F-PLOT DATA
STATION : YANAGAWA
SCALER : H-MISTUDONE
DATE : 1982/ 9/17
135°E MEAN TIME



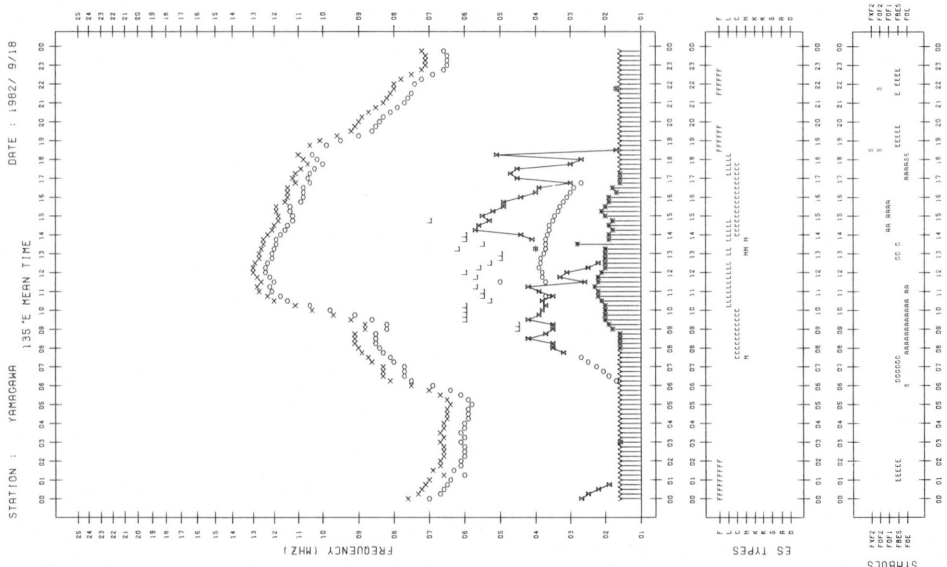
F-PLOT DATA
STATION : OKINAWA
SCALER : A-OTSUKA
DATE : 1982/ 9/17
135°E MEAN TIME





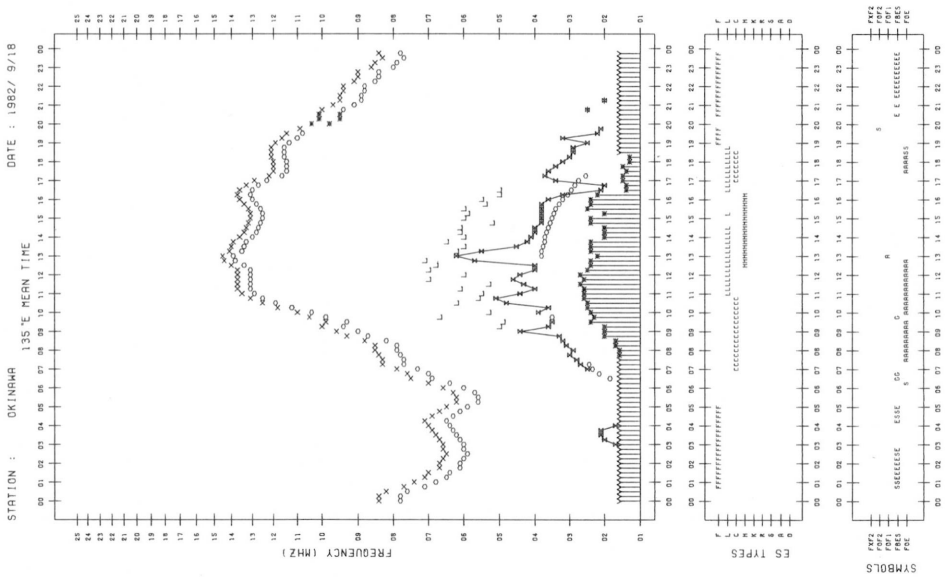
F- PLOT DATA

STATION : YABOGAMA SCALER : H. MISTUDOHNE DATE : 1982/ 9/18

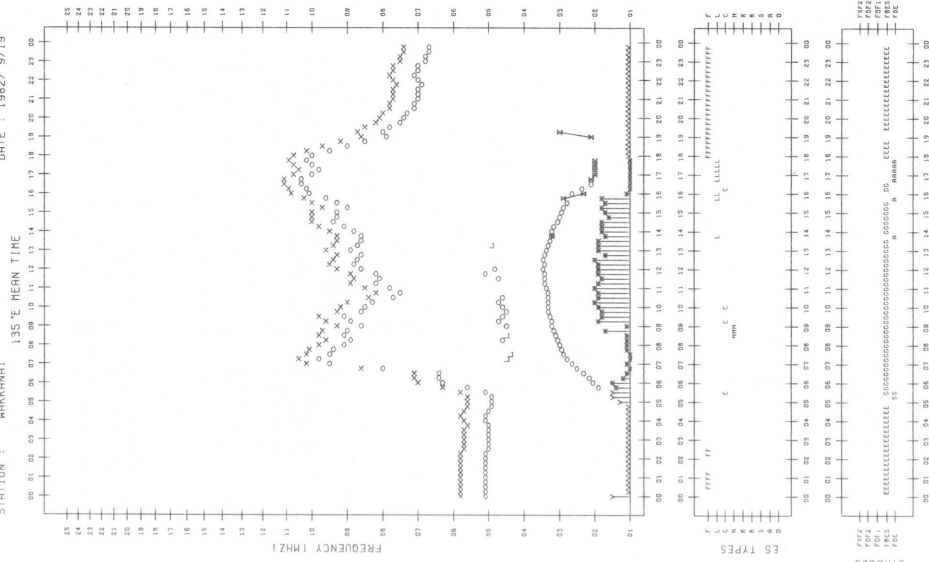


F- PLOT DATA

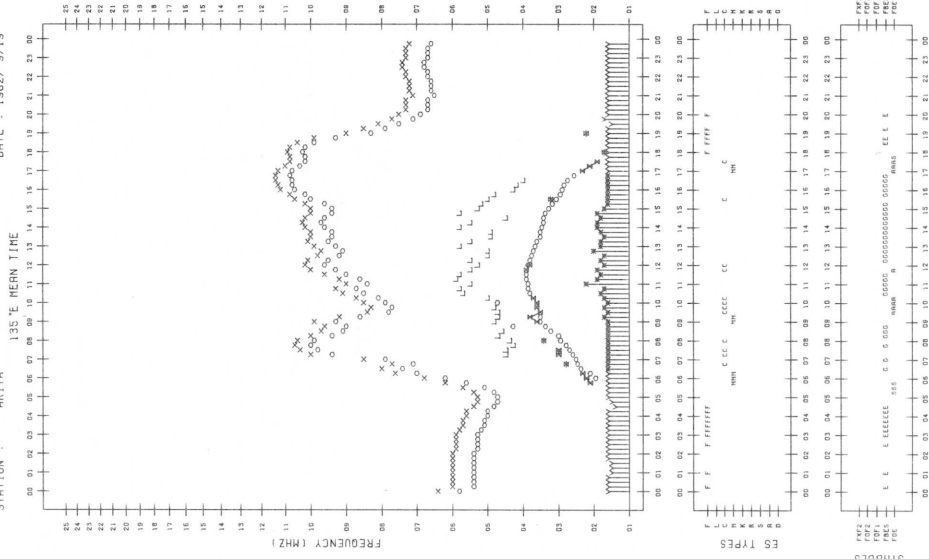
STATION : OKINAWA SCALER : A. OTSUKA DATE : 1982/ 9/18



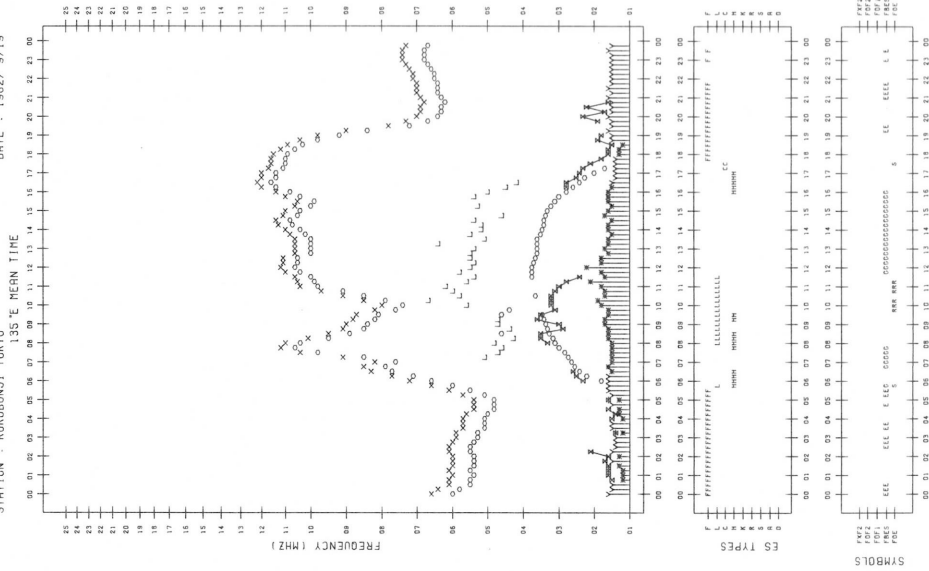
F-PLOT DATA
STATION : WAKKANAI
SCALER : T.ODR
DATE : 1982/ 9/19



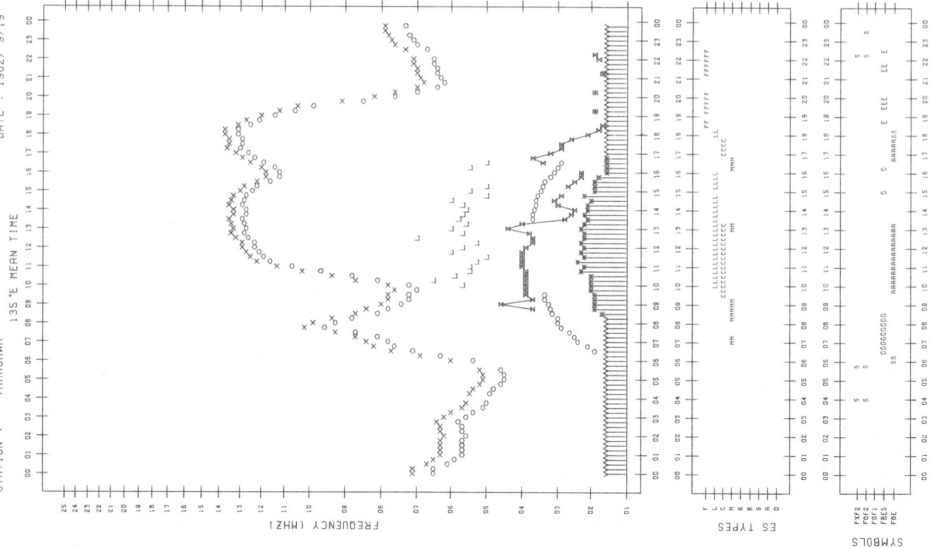
F-PLOT DATA
STATION : AKITA
SCALER : T.NORI
DATE : 1982/ 9/19



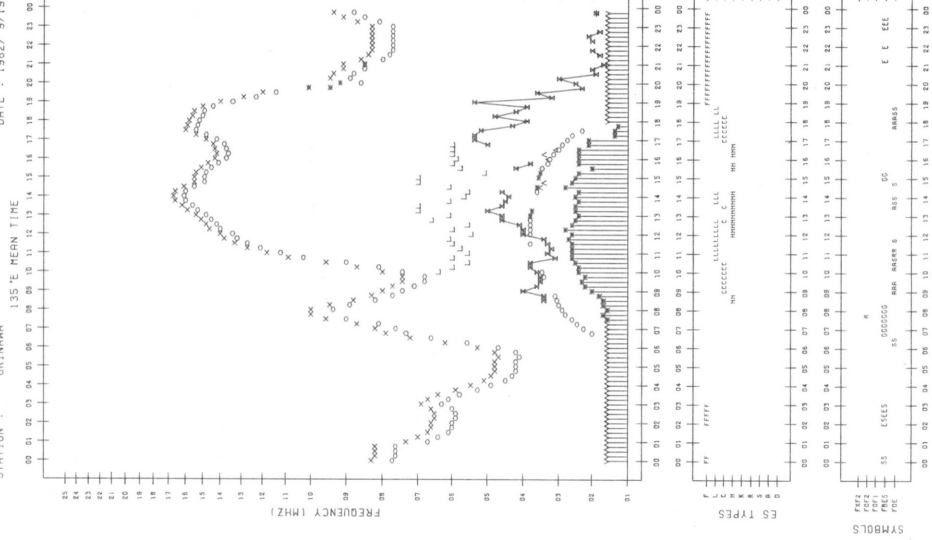
F-PLOT DATA
STATION : KOKUBUNJI TOKYO
SCALER : S.HIDOME
DATE : 1982/ 9/19



F-PLOT DATA STATION : YAMAGAWA SCALER : H-HIYOSHIDOME DATE : 1982/ 9/19



F-PLOT DATA STATION : OKINAWA SCALER : A-OTSUKA DATE : 1982/ 9/19



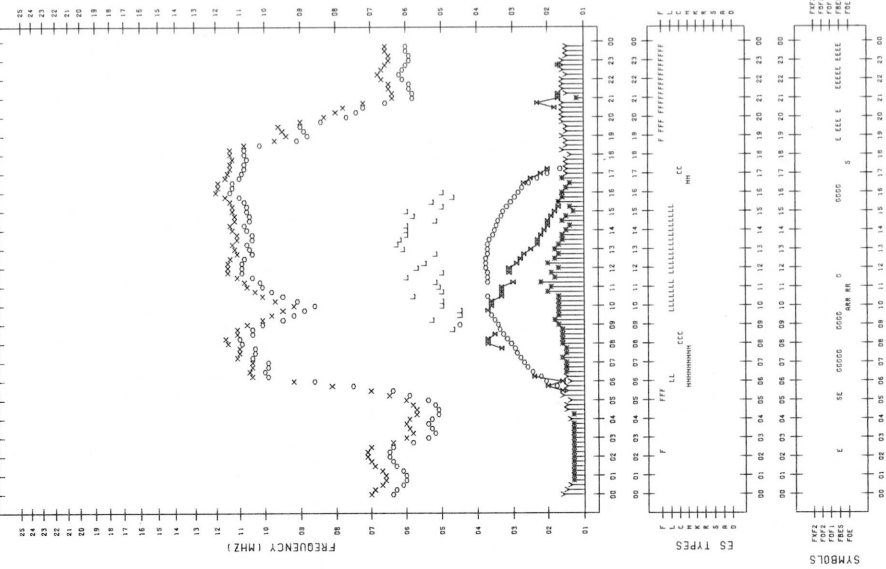
F- PLOT DATA

SCALER : S-HI/DHORE

DATE : 1982/ 9/20

STATION : KOKUBUNJI TOKYO

135°E MEAN TIME



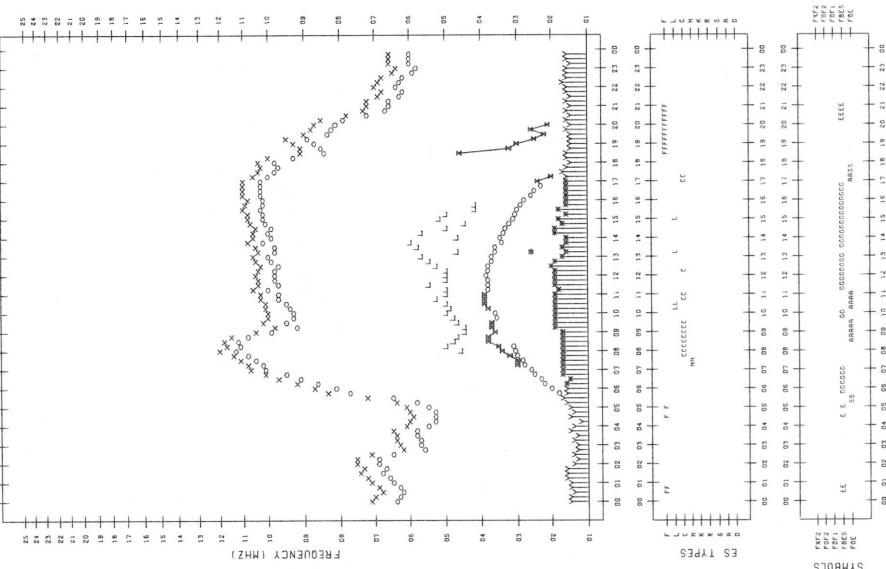
F- PLOT DATA

SCALER : Y-ECHIZENYA

DATE : 1982/ 9/20

STATION : AKIITA

135°E MEAN TIME



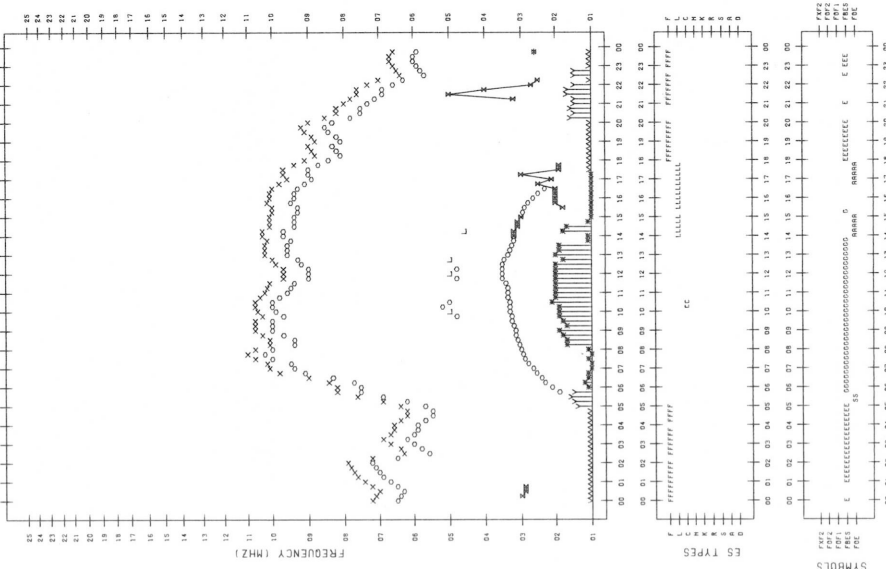
F- PLOT DATA

SCALER : T-009

DATE : 1982/ 9/20

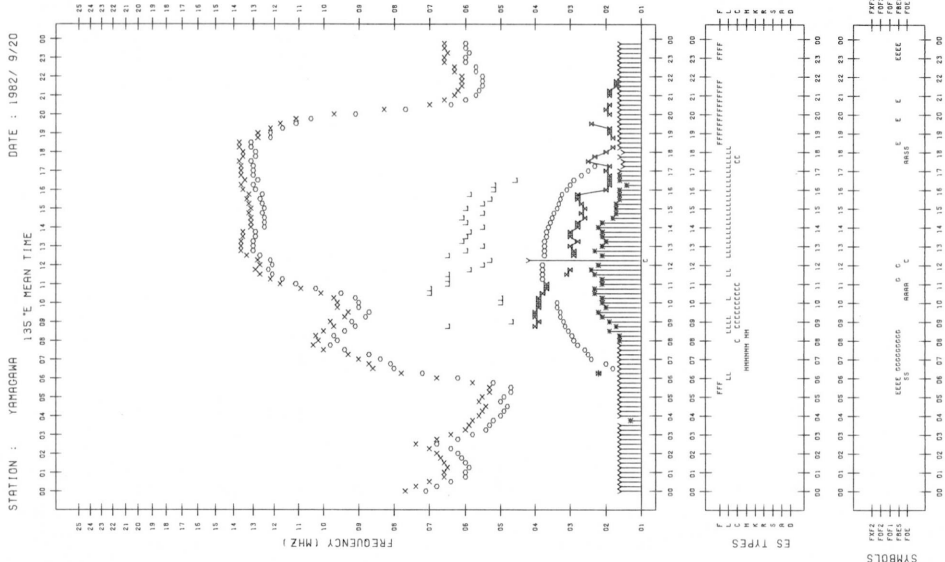
STATION : MARIKANI

135°E MEAN TIME



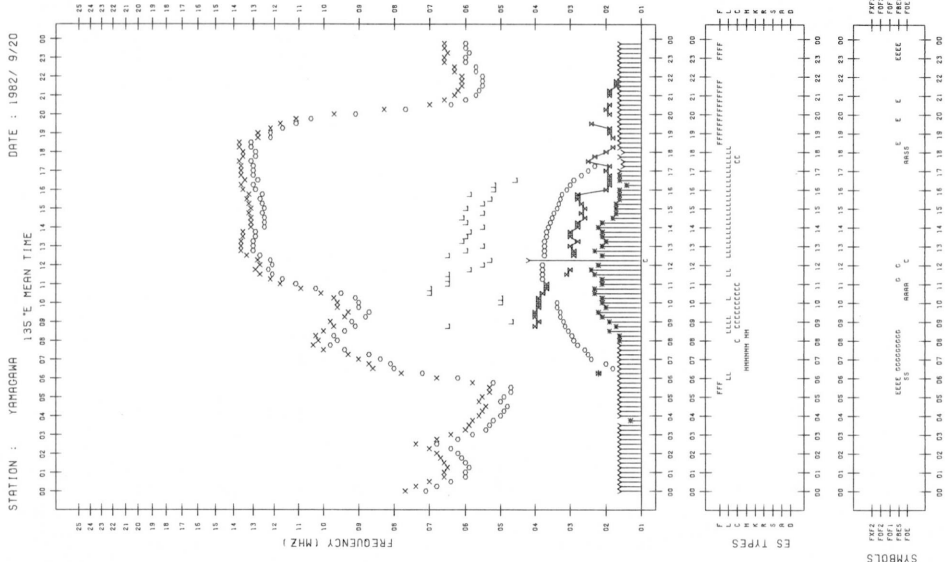
F- PLOT DATA

STATION : YAHADAMA SCALER : H-MISTUDDRE DATE : 1982/ 9/20

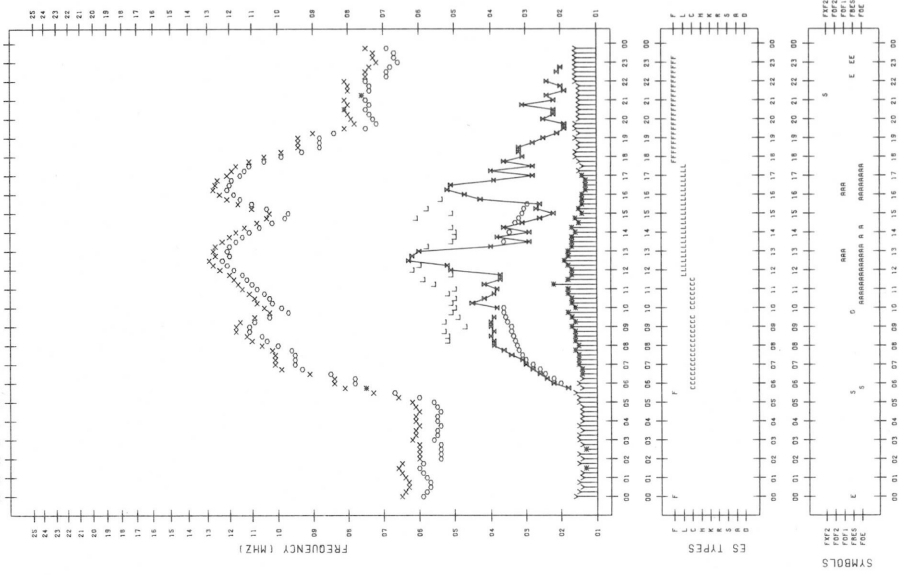


F- PLOT DATA

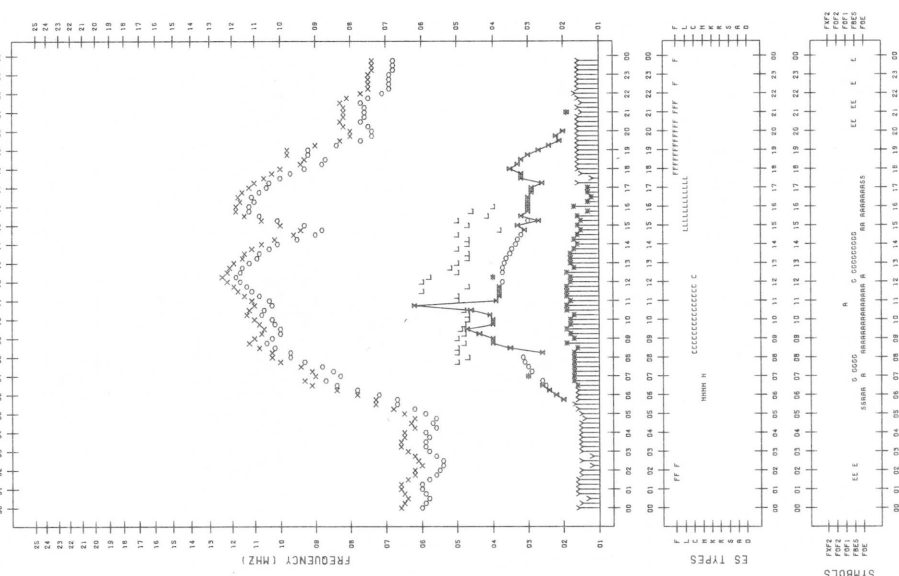
STATION : OKINAWA SCALER : H-ARENO DATE : 1982/ 9/20



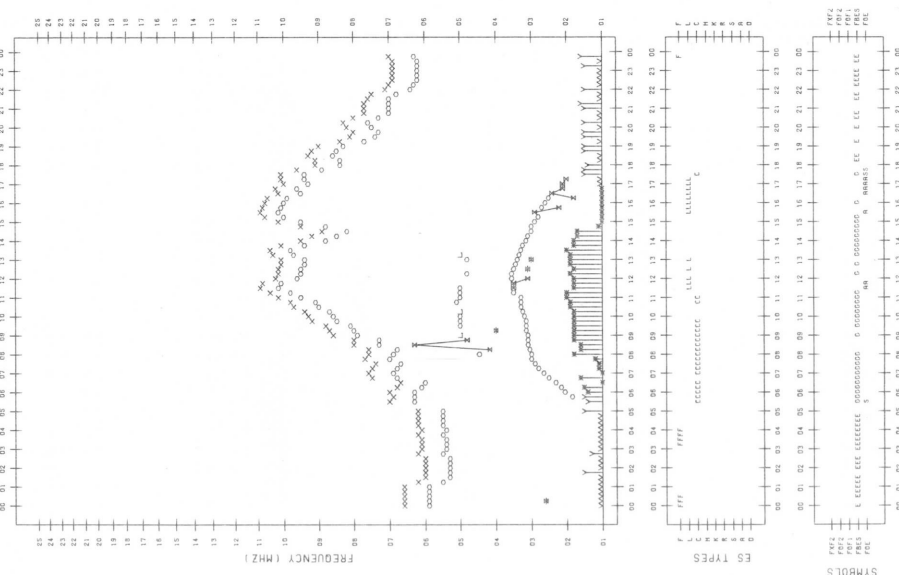
F- PLOT DATA
STATION : KOKUBUNJI TOKYO
SCALER : S-HIJDONE
DATE : 1982/ 9/21
135°E MEAN TIME



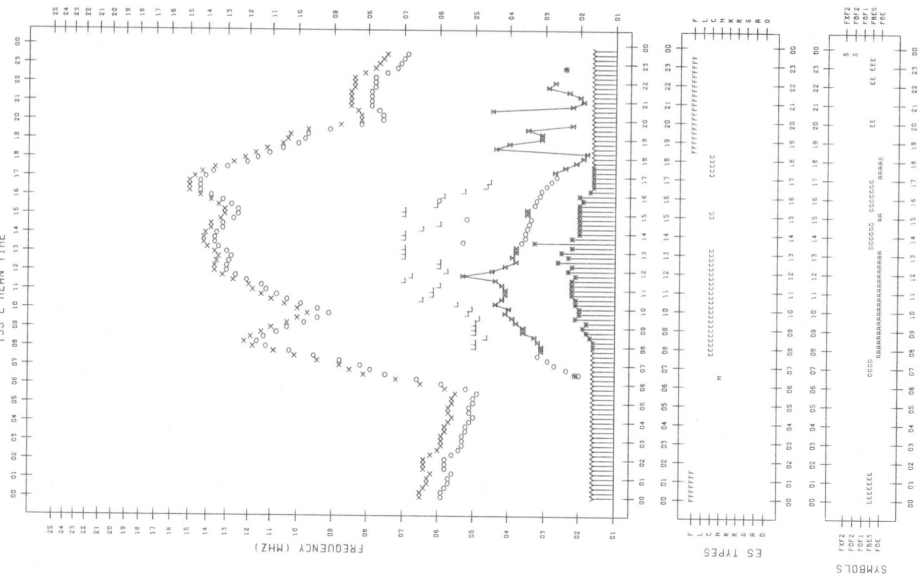
F- PLOT DATA
STATION : AKITA
SCALER : Y-ECHIZENYA
DATE : 1982/ 9/21
135°E MEAN TIME



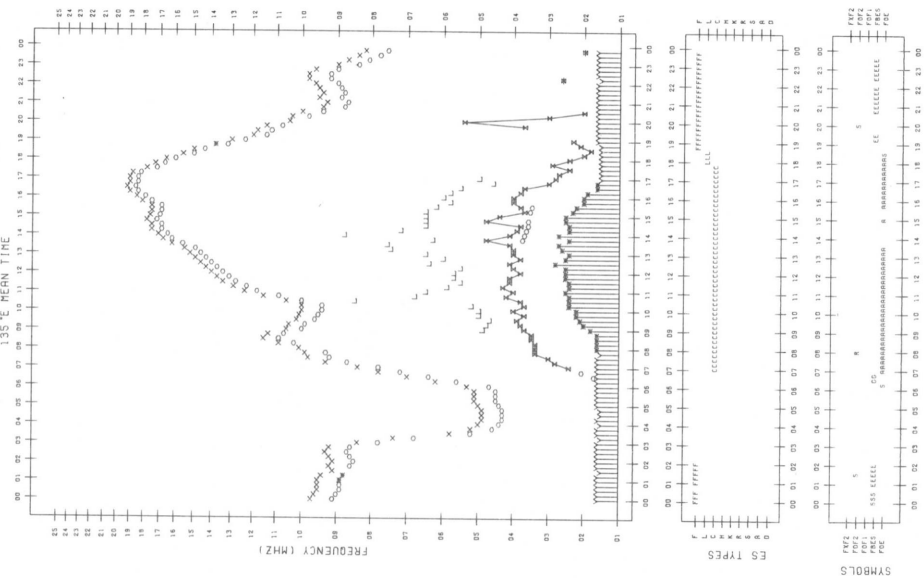
F- PLOT DATA
STATION : HAKKAI
SCALER : T-ODA
DATE : 1982/ 9/21
135°E MEAN TIME



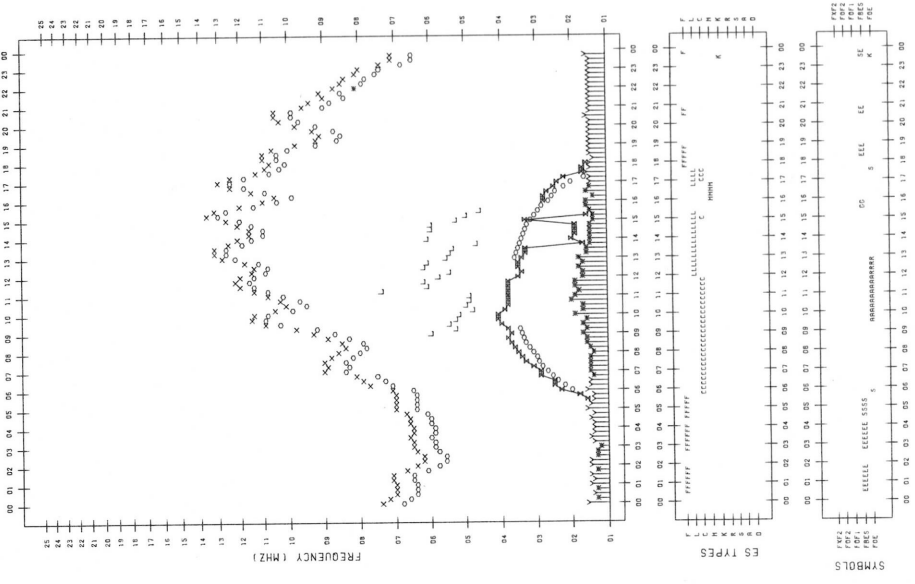
F- PLOT DATA
STATION : YAHARAHA
SCALER : I-NISHIMUTA
DATE : 1982/ 9/21
135 °E MEAN TIME



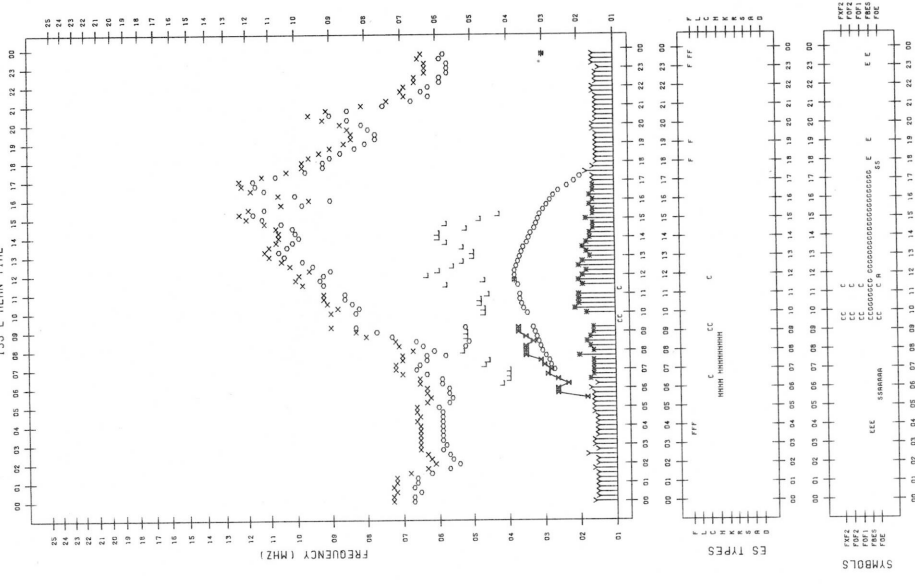
F- PLOT DATA
STATION : OKINAWA
SCALER : H-MRENO
DATE : 1982/ 9/21
135 °E MEAN TIME



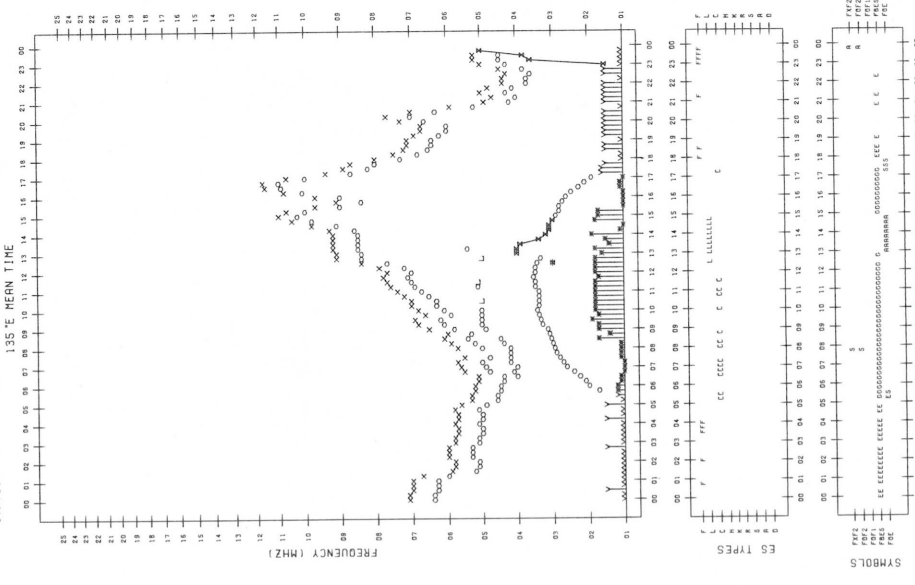
F-plot DATA SCALER : S-HIIDOME
 STATION : KOKUBUNJI TOKYO DATE : 1982/ 9/22
 135°E MEAN TIME



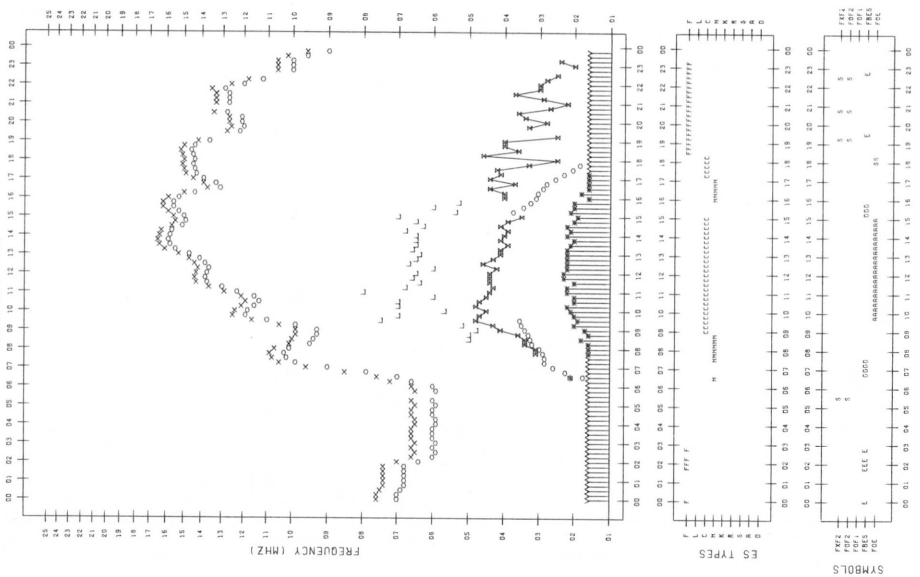
F-plot DATA SCALER : Y-ECHIZENYA
 STATION : AKITA DATE : 1982/ 9/22
 135°E MEAN TIME



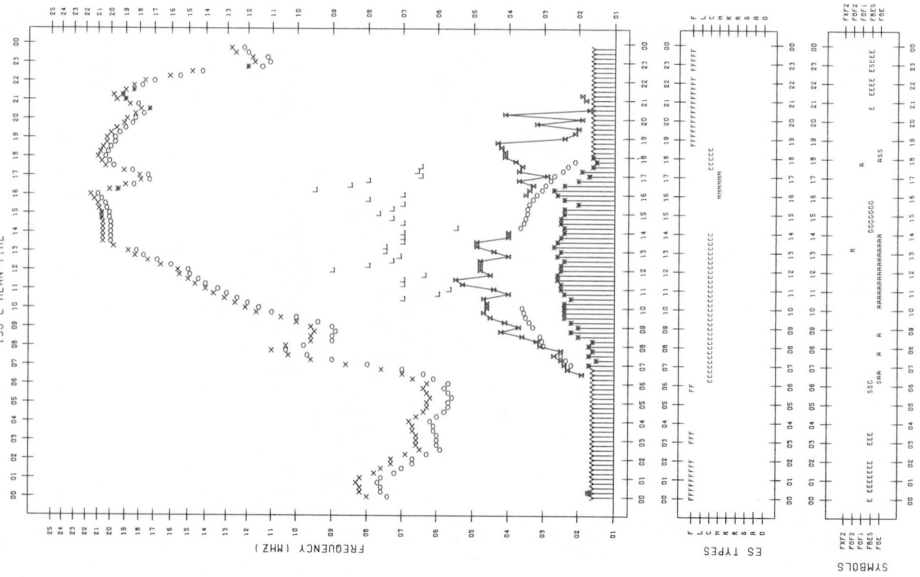
F-plot DATA SCALER : T-ODR
 STATION : MAKKANRI DATE : 1982/ 9/22
 135°E MEAN TIME



STATION : YAMAGUCHI SCALER : I-NISHIMURA
 DATE : 1982/ 9/22
 135°E MEAN TIME

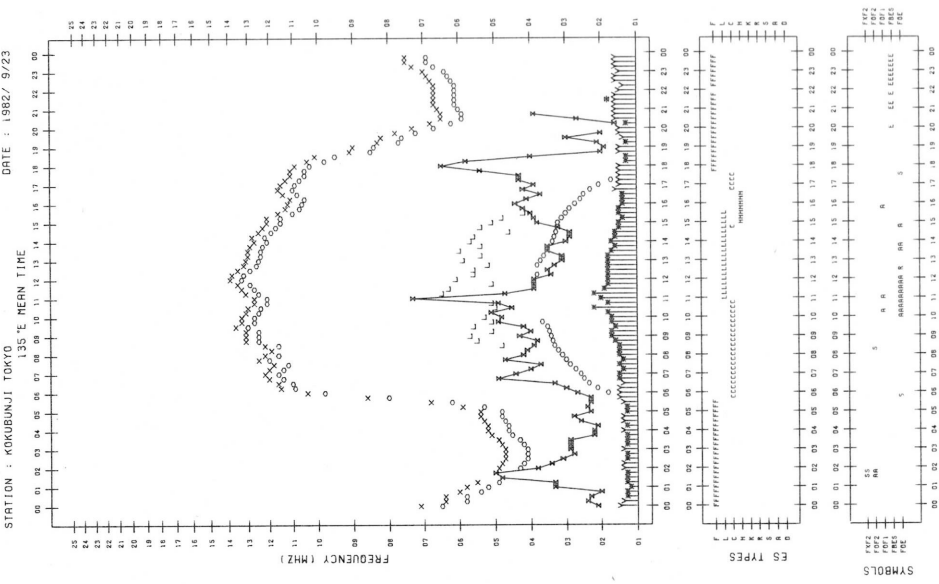


STATION : OKINAWA SCALER : K-NAKABAYASHI
 DATE : 1982/ 9/22
 135°E MEAN TIME



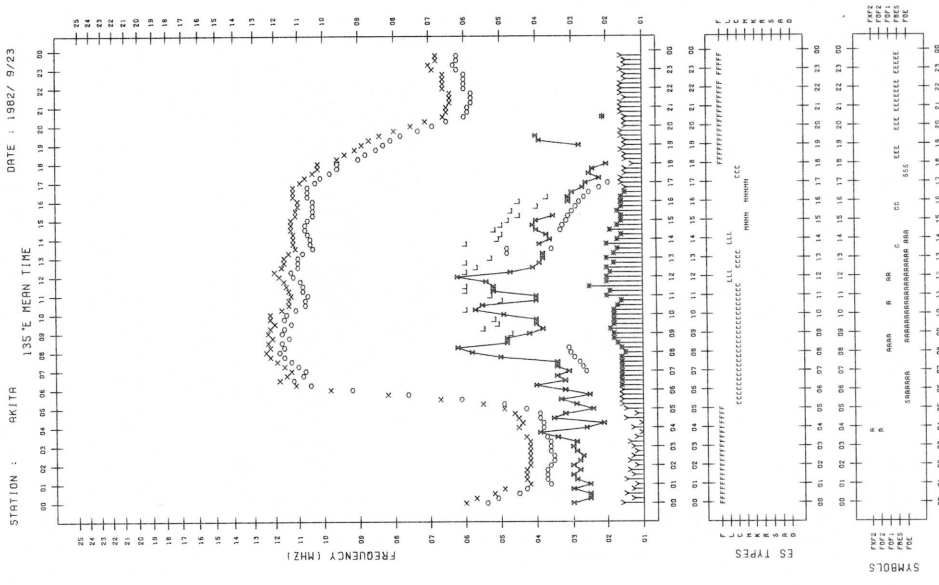
F- PLOT DATA

STATION : KOKUBUNJI TOKYO
SCALER : S-HIUDOME
DATE : 1982/ 9/23
135°E MEAN TIME



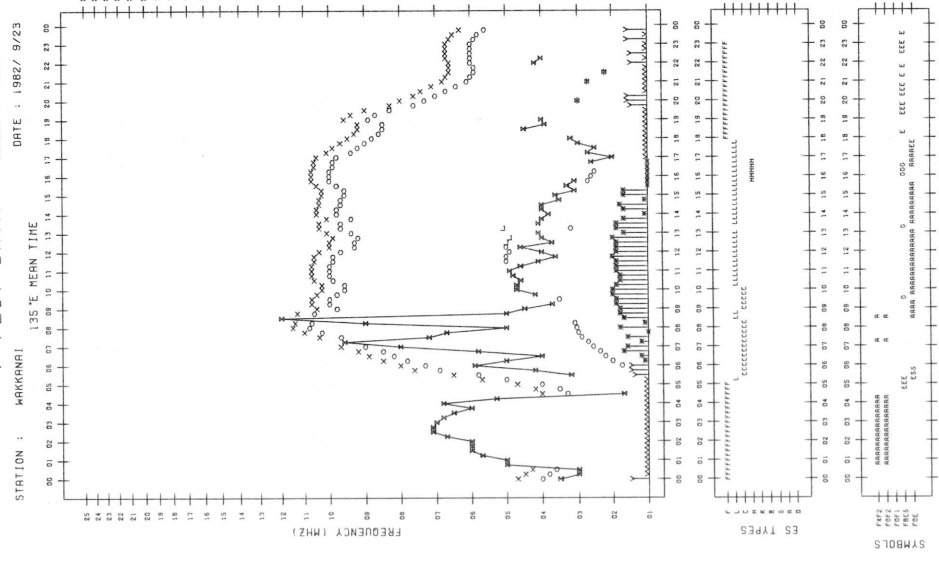
F- PLOT DATA

STATION : RKITA
SCALER : Y-ECHIZENYA
DATE : 1982/ 9/23
135°E MEAN TIME

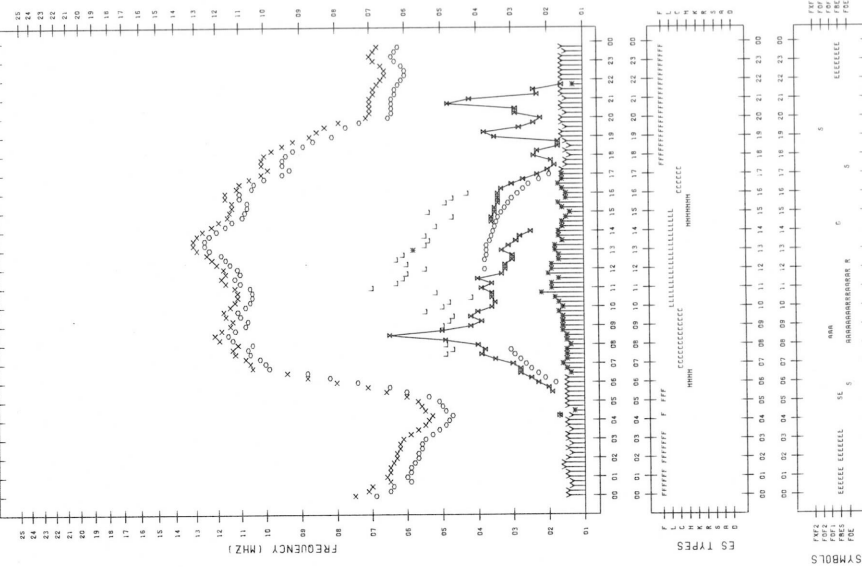


F- PLOT DATA

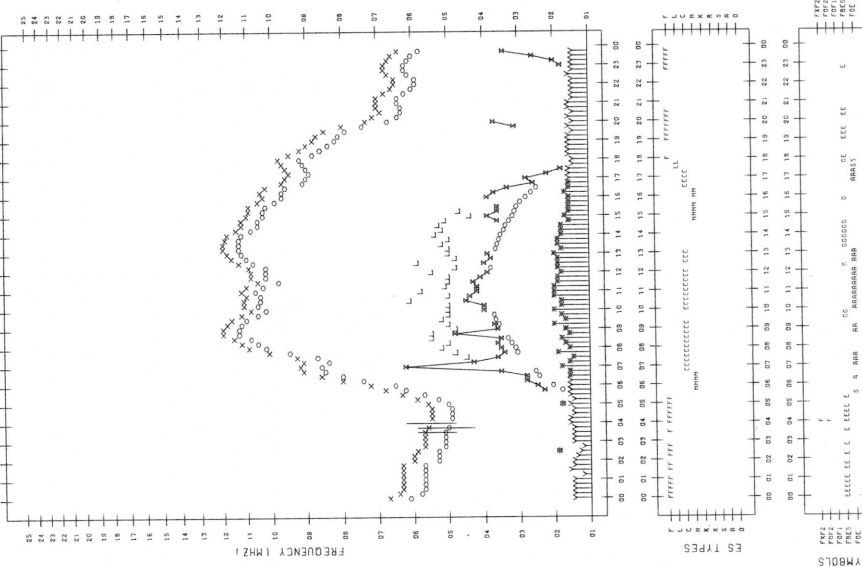
STATION : MARIKANI
SCALER : T-ODA
DATE : 1982/ 9/23
135°E MEAN TIME



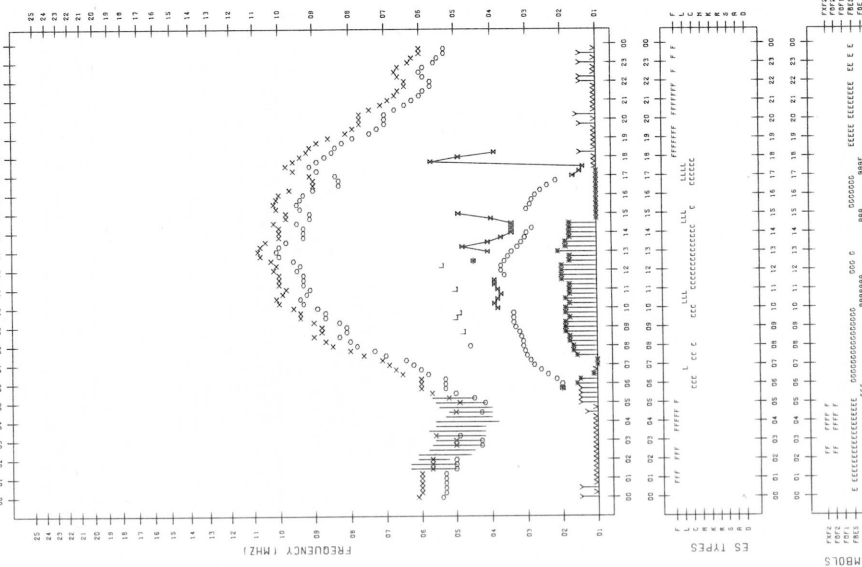
F-PLLOT DATA
 STATION : KOKUBUNJI TOKYO
 SCALER : S-HIDOME
 DATE : 1982/ 9/24
 135°E MEAN TIME



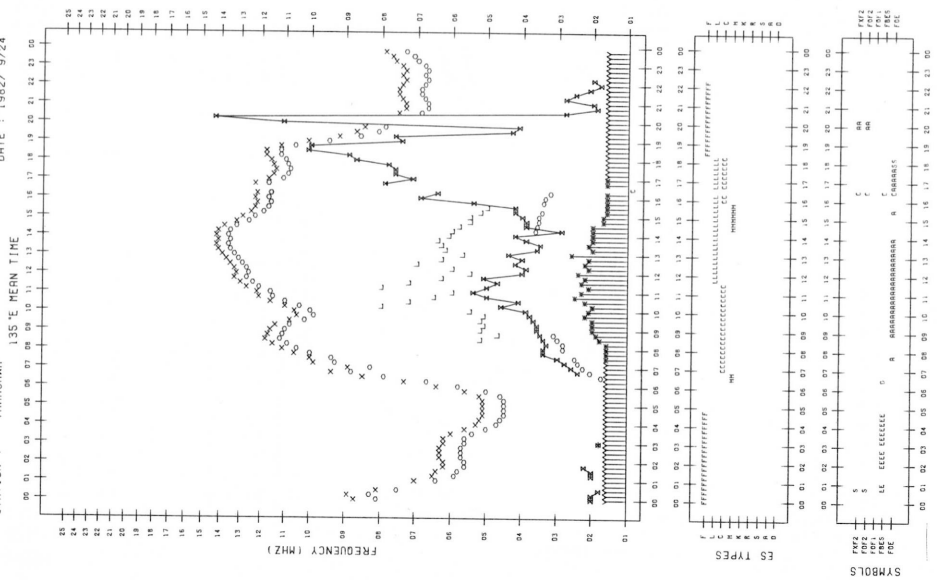
F-PLLOT DATA
 STATION : AKITA
 SCALER : Y-ECHIZENYA
 DATE : 1982/ 9/24
 135°E MEAN TIME



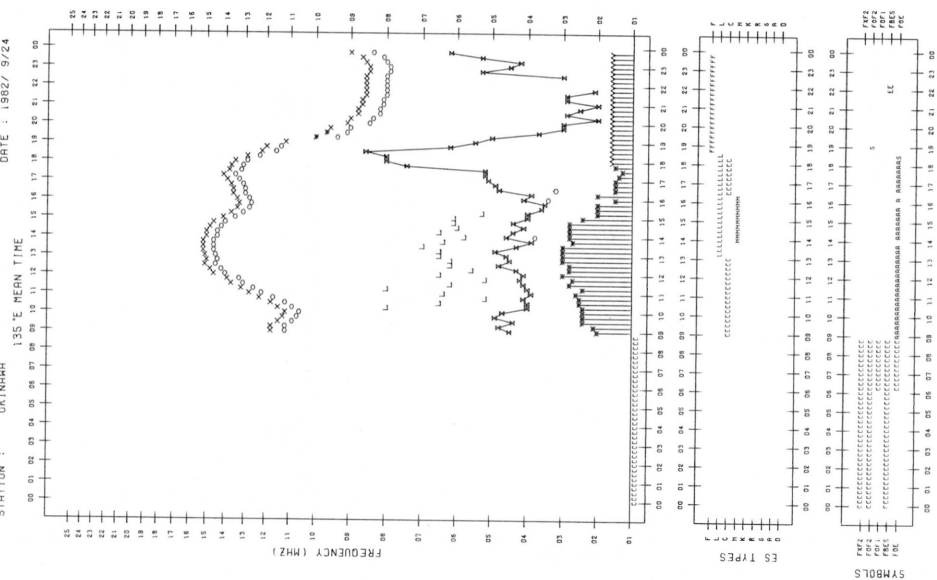
F-PLLOT DATA
 STATION : MARIKIRAI
 SCALER : T-ODR
 DATE : 1982/ 9/24
 135°E MEAN TIME



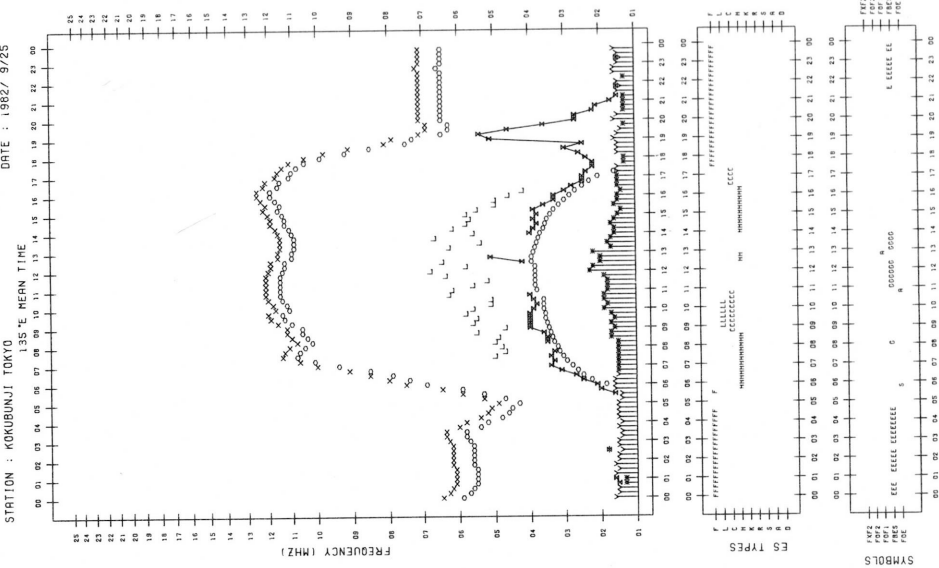
F-PLOT DATA
STATION : YARAGAWA
SCALER : I-NISHIMURA
DATE : 1982/ 9/24



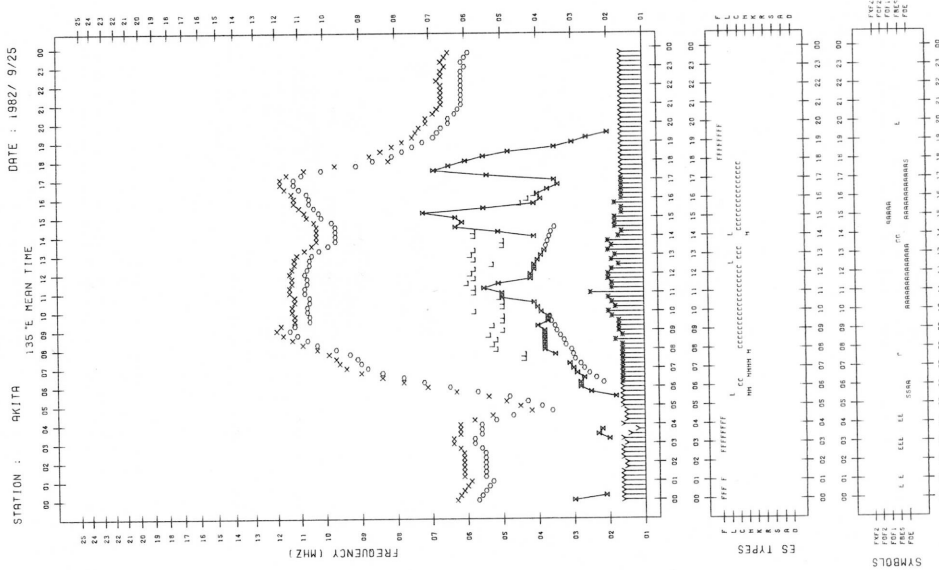
F-PLOT DATA
STATION : OKINAWA
SCALER : A-OTSUKA
DATE : 1982/ 9/24



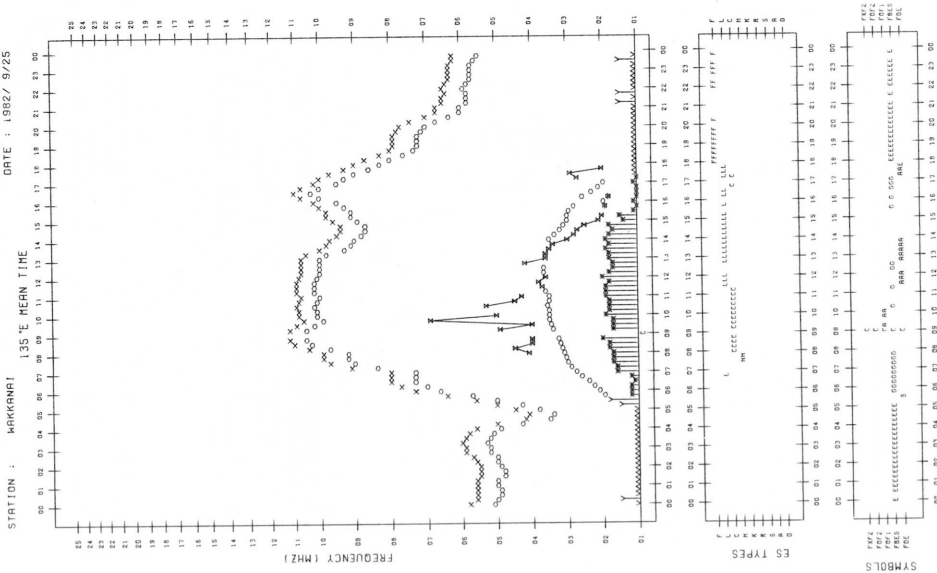
F- PLOT DATA
STATION : KOKUBUNJI TOKYO
SCALER : S-HI100ME
DATE : 1982/ 9/25



F- PLOT DATA
STATION : AKITA
SCALER : T-MORI
DATE : 1982/ 9/25

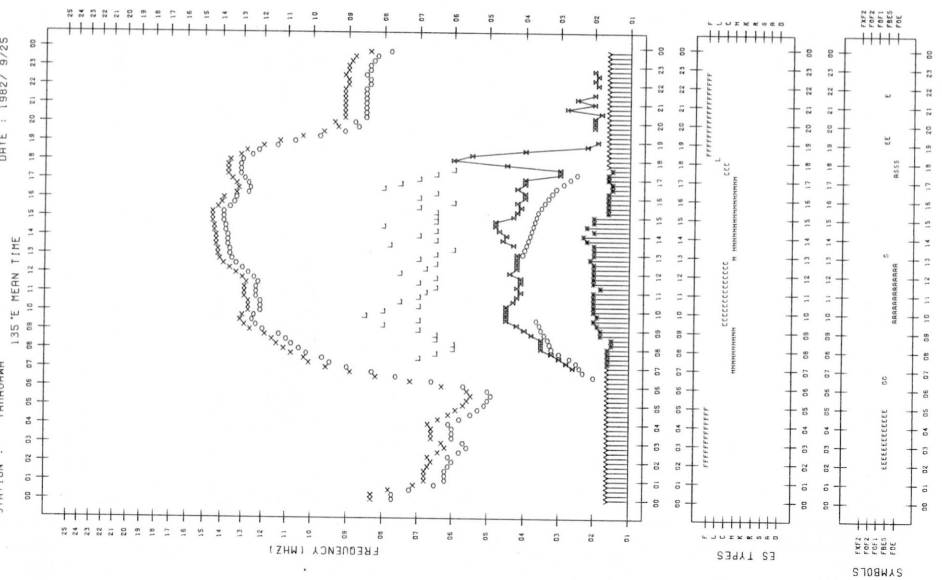


F- PLOT DATA
STATION : MAKINARI
SCALER : T-ODR
DATE : 1982/ 9/25



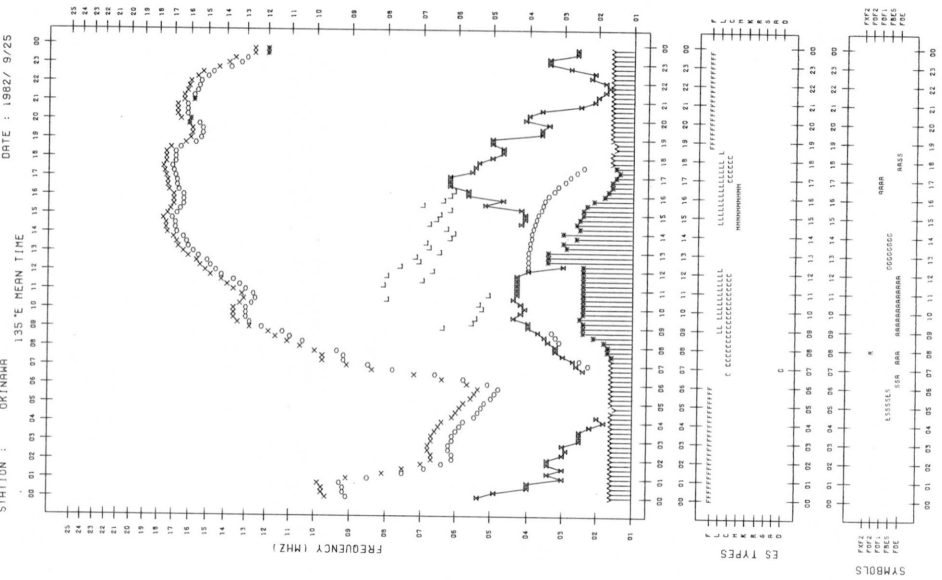
F-PLOT DATA

STATION : YAMAGAWA SCALER : S-KAMIISHIKIRYO
DATE : 1982/ 9/25

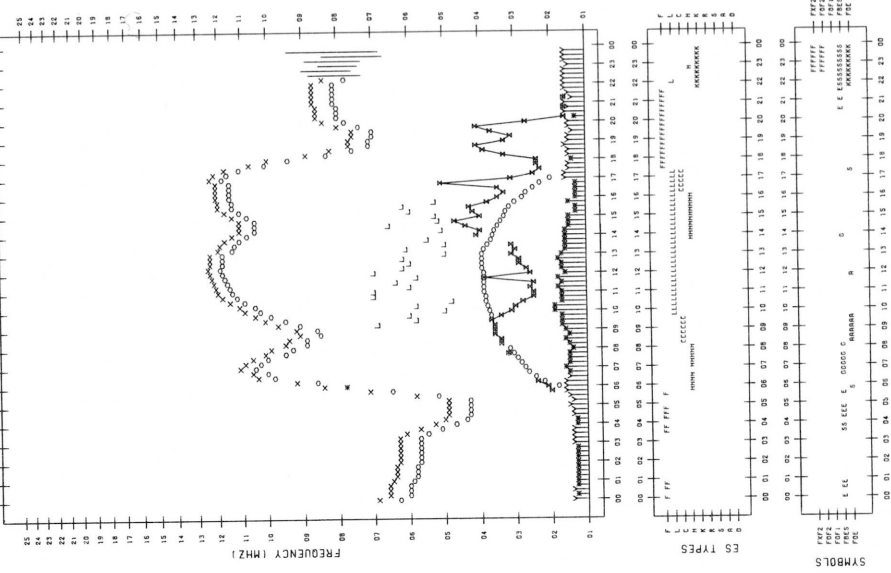


F-PLOT DATA

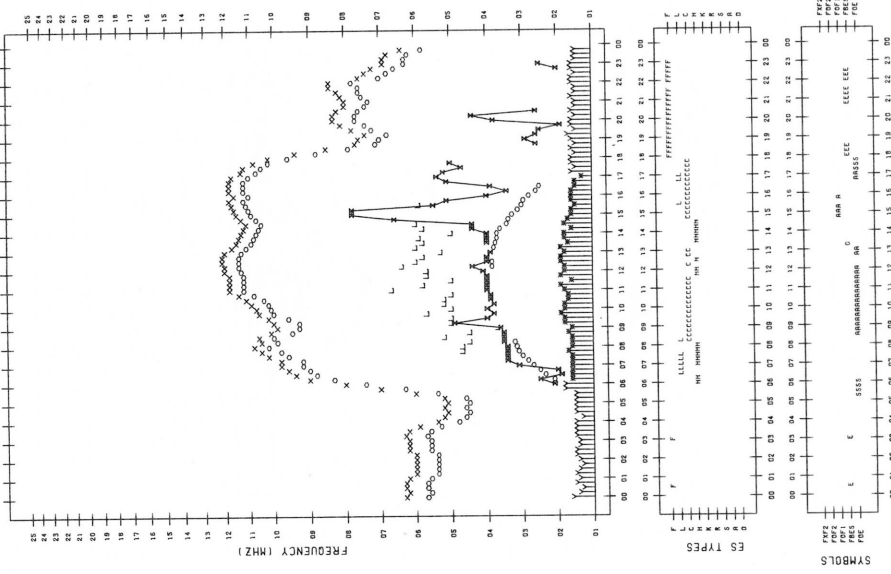
STATION : OKINAWA SCALER : A-OTSUKA
DATE : 1982/ 9/25



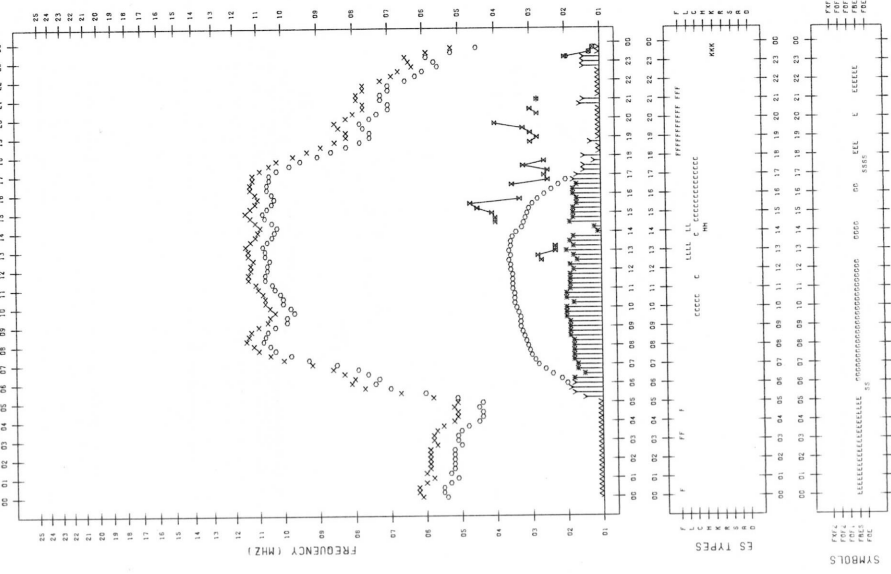
F- PLOT DATA
STATION : KOKUBUNJI TOKYO
SCALER : S-HITODOME
DATE : 1982/ 9/26



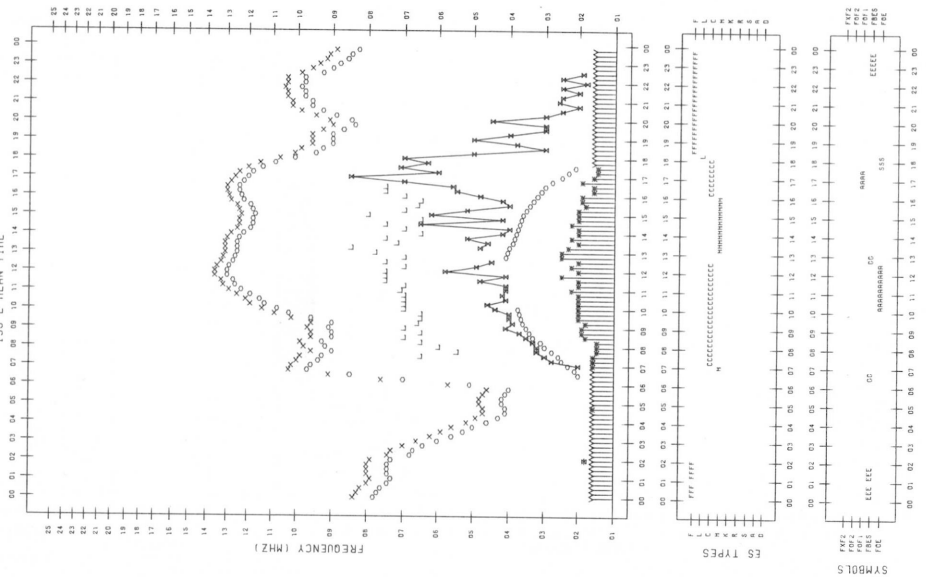
F- PLOT DATA
STATION : AKITA
SCALER : Y-ECHIZENYA
DATE : 1982/ 9/26



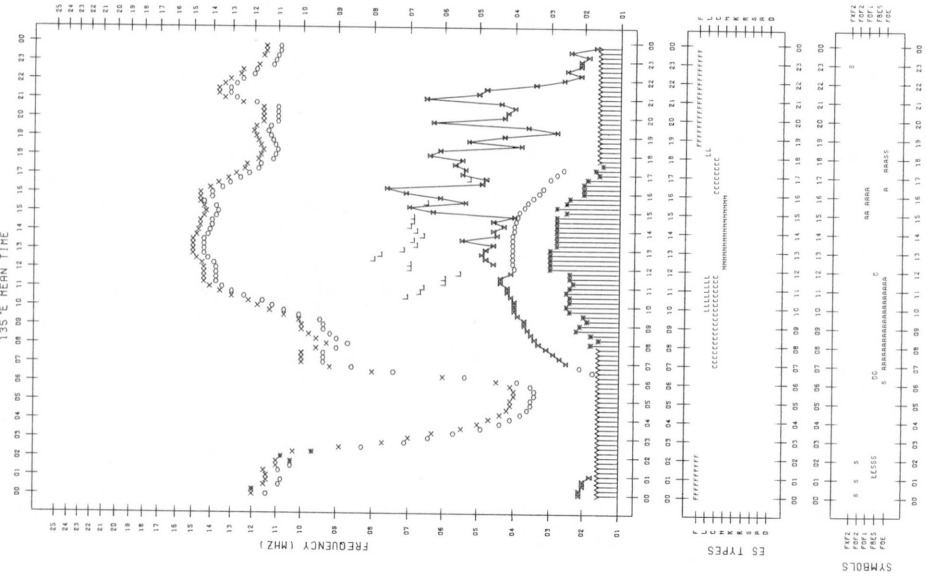
F- PLOT DATA
STATION : MARIKANRI
SCALER : T-00R
DATE : 1982/ 9/26



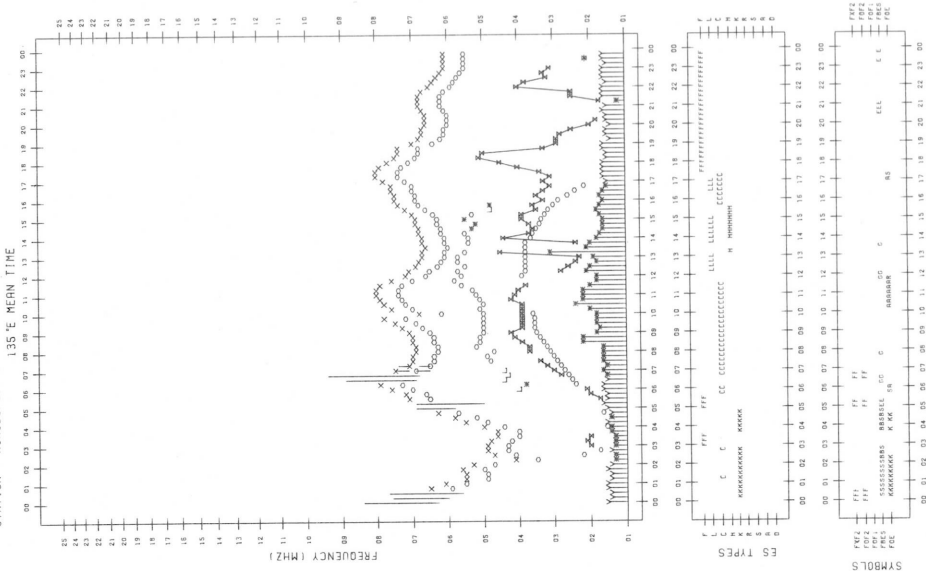
F-plot DATA
STATION : YAMAGAWA
SCALER : S-MANSHIKIRYO
DATE : 1982/ 9/26
135°E MEAN TIME



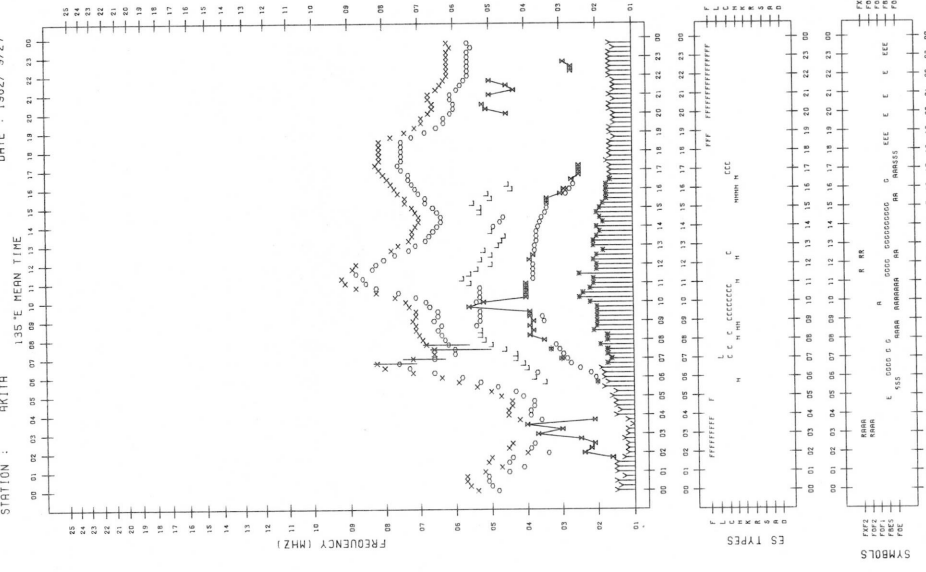
F-plot DATA
STATION : OKINAWA
SCALER : A-OTSUKA
DATE : 1982/ 9/26
135°E MEAN TIME



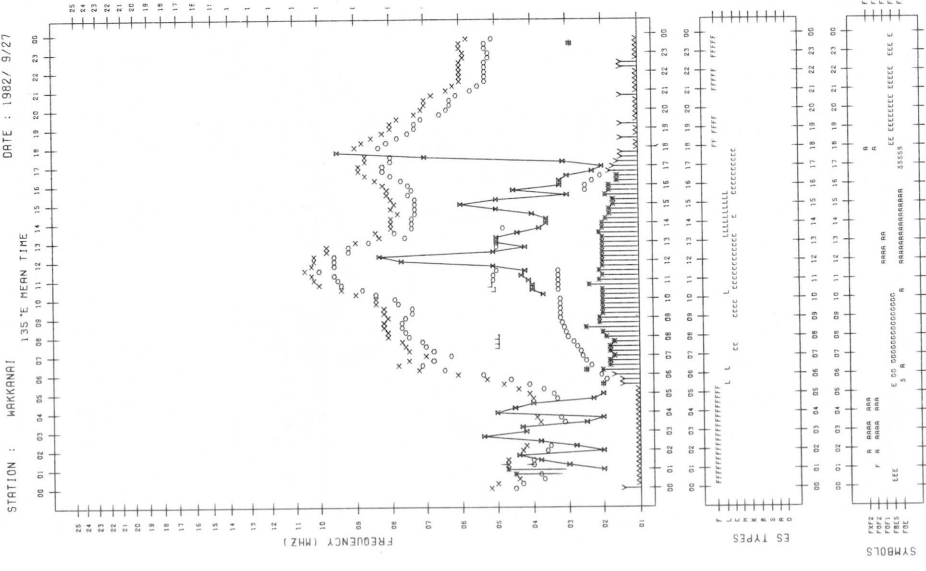
F-PLOT DATA
 STATION : KOKUBUNJI TOKYO
 SCALER : S-HI100HE
 DATE : 1982/ 9/27
 135 °E MEAN TIME



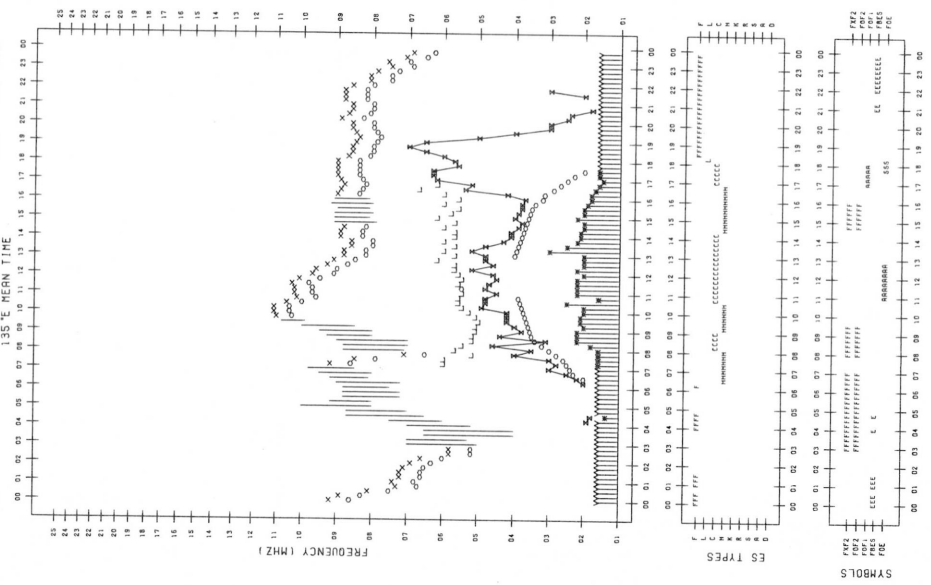
F-PLOT DATA
 STATION : AKITA
 SCALER : Y-ECHIZENYA
 DATE : 1982/ 9/27
 135 °E MEAN TIME



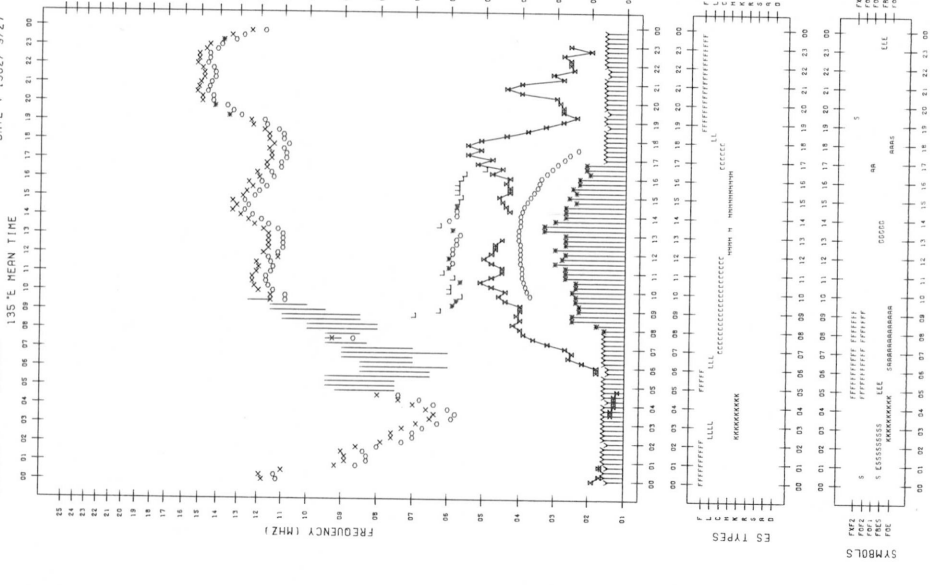
F-PLOT DATA
 STATION : MAKINAI
 SCALER : T-00R
 DATE : 1982/ 9/27
 135 °E MEAN TIME



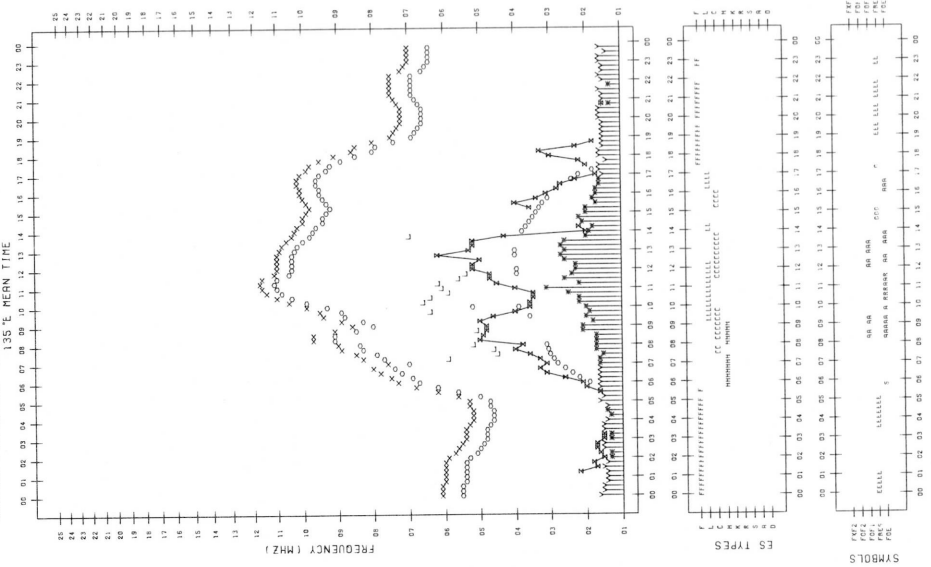
F- PLOT DATA
STATION : YAMAGAMA SCALER : S.KAMISHIKIRYO
DATE : 1982/ 9/27
135°E MEAN TIME



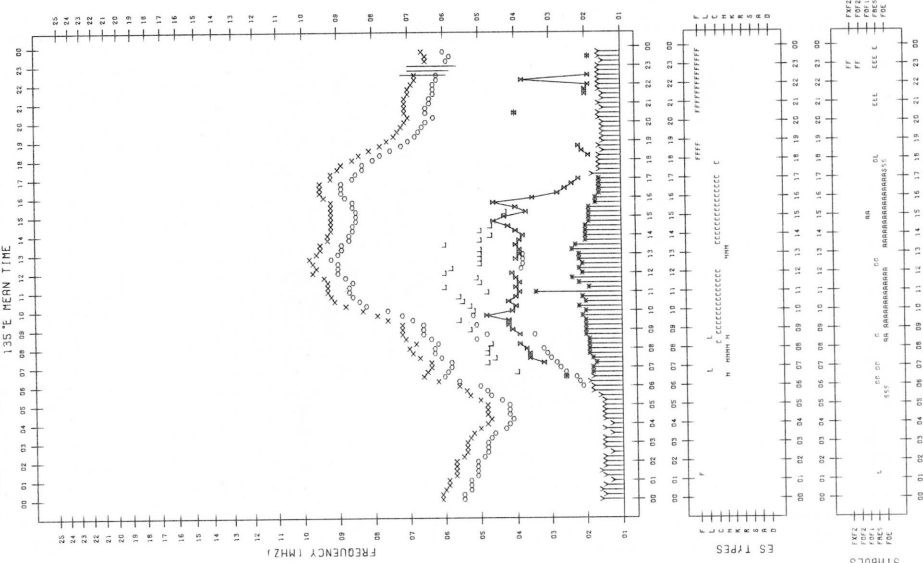
F- PLOT DATA
STATION : OKINAWA SCALER : H.MRENO
DATE : 1982/ 9/27
135°E MEAN TIME



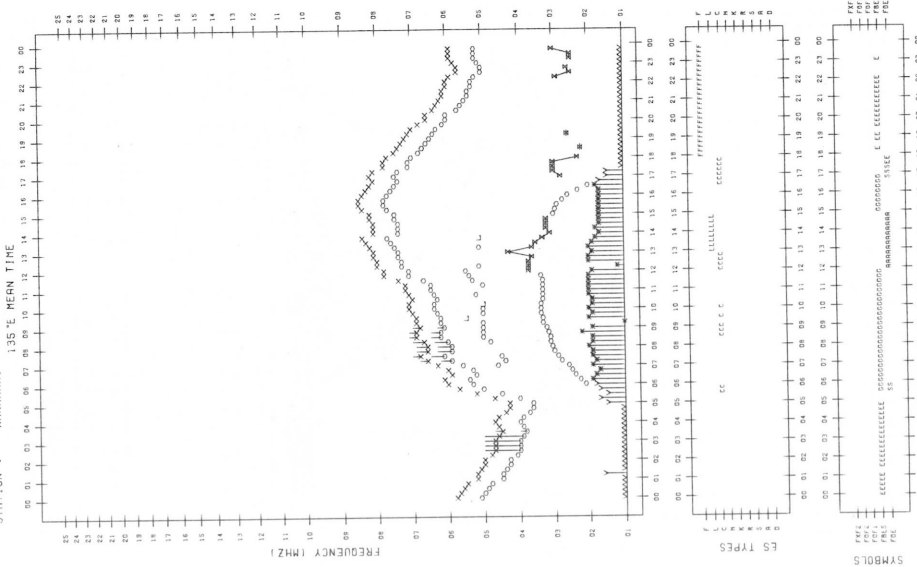
F- PLOT DATA
 STATION : KOKURUNJI TOKYO
 SCALER : S-HITIDONE
 DATE : 1982/ 9/28
 135°E MEAN TIME



F- PLOT DATA
 STATION : AKITA
 SCALER : Y-ECHIZENYA
 DATE : 1982/ 9/28
 135°E MEAN TIME



F- PLOT DATA
 STATION : MAKKANRI
 SCALER : T-ODR
 DATE : 1982/ 9/28
 135°E MEAN TIME

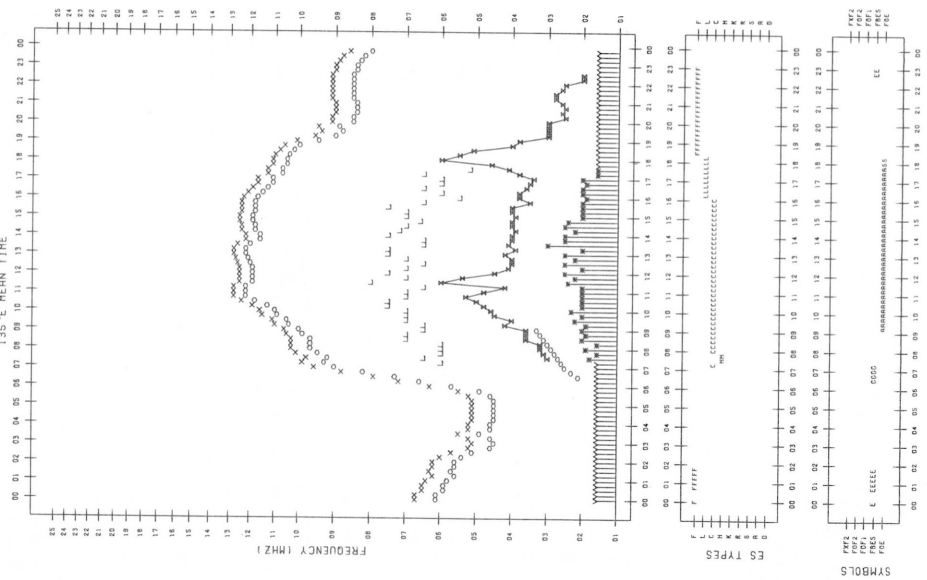


F-PLOT DATA

STATION : YAMAGAWA SCALER : S-KRMISHIKIRYO

DATE : 1982/ 9/28

135°E MEAN TIME

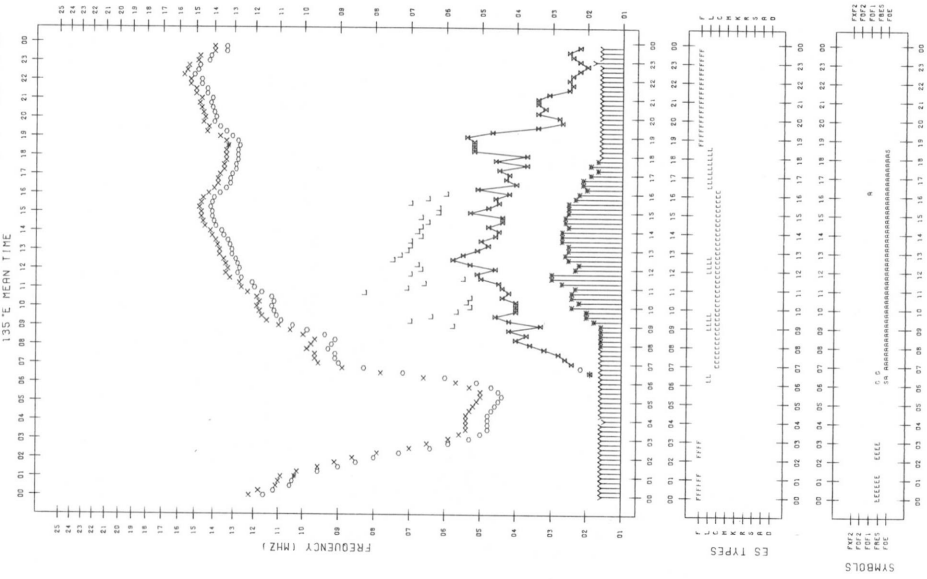


F-PLOT DATA

STATION : OKINAWA SCALER : H-MRENO

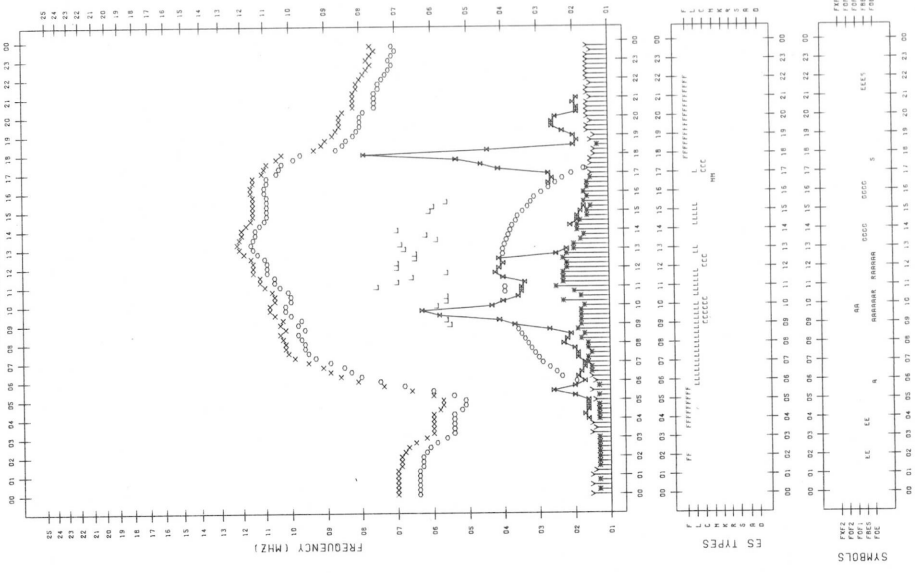
DATE : 1982/ 9/28

135°E MEAN TIME



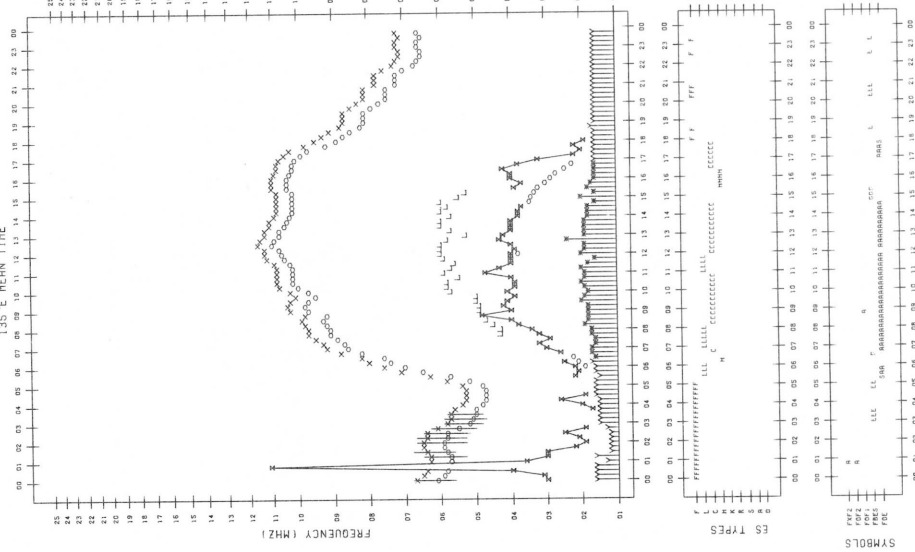
F-PLOT DATA

STATION : KOKUBUNJI TOKYO SCALER : S-HIIDOME DATE : 1982/ 9/29



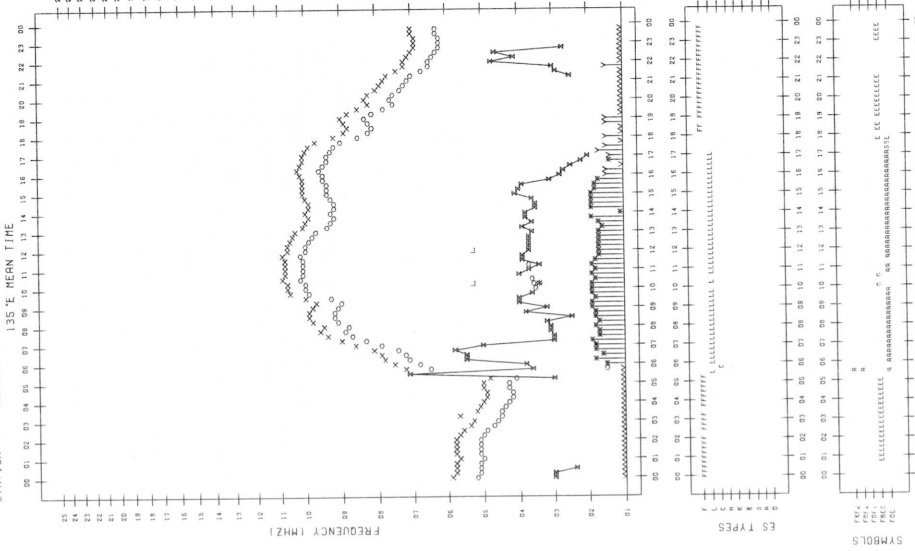
F-PLOT DATA

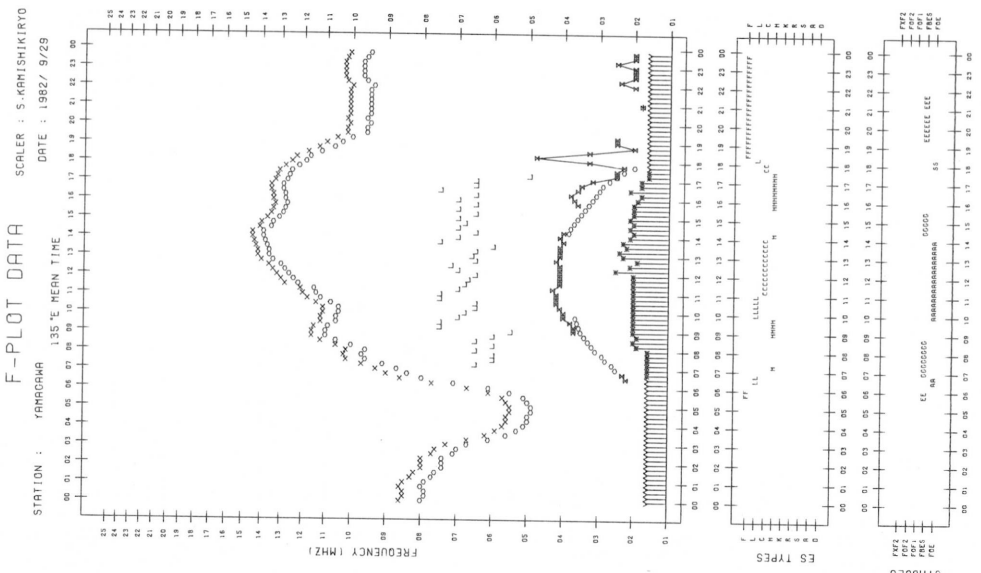
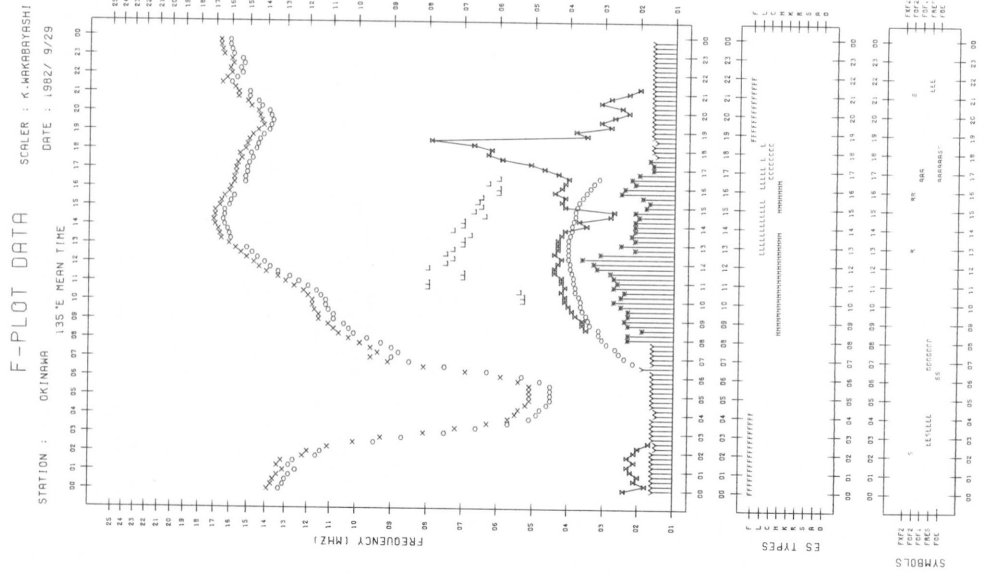
STATION : AKITA SCALER : T-MORI DATE : 1982/ 9/29



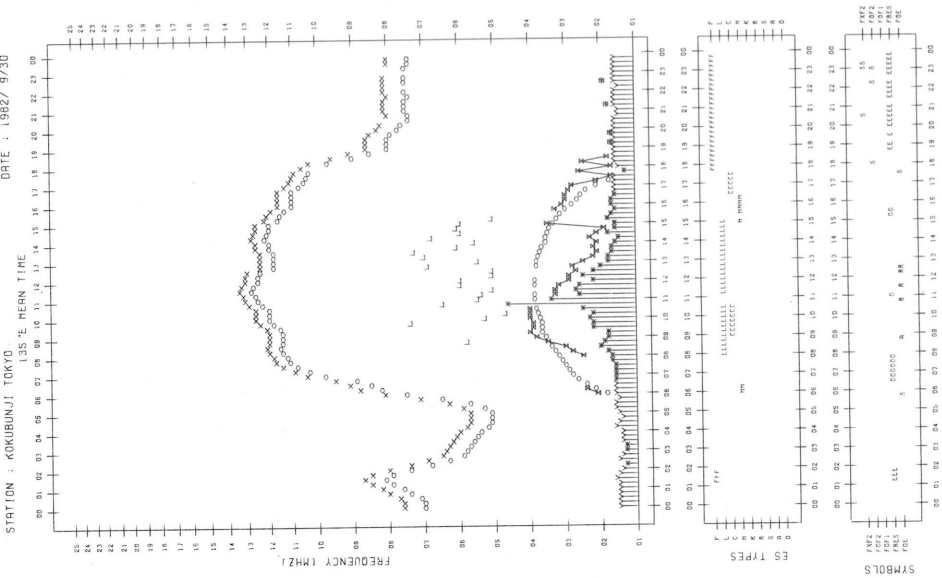
F-PLOT DATA

STATION : MARIKANI SCALER : T-ODA DATE : 1982/ 9/29

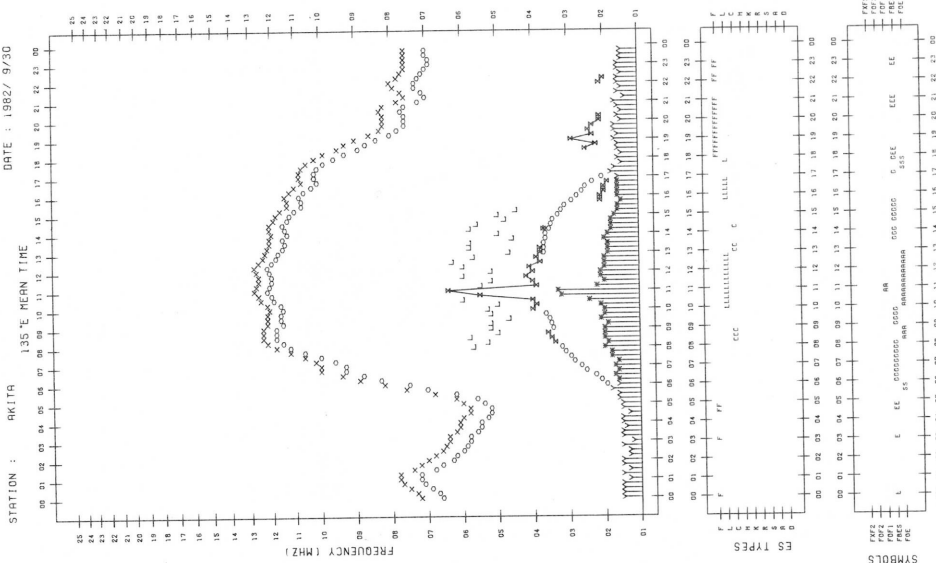




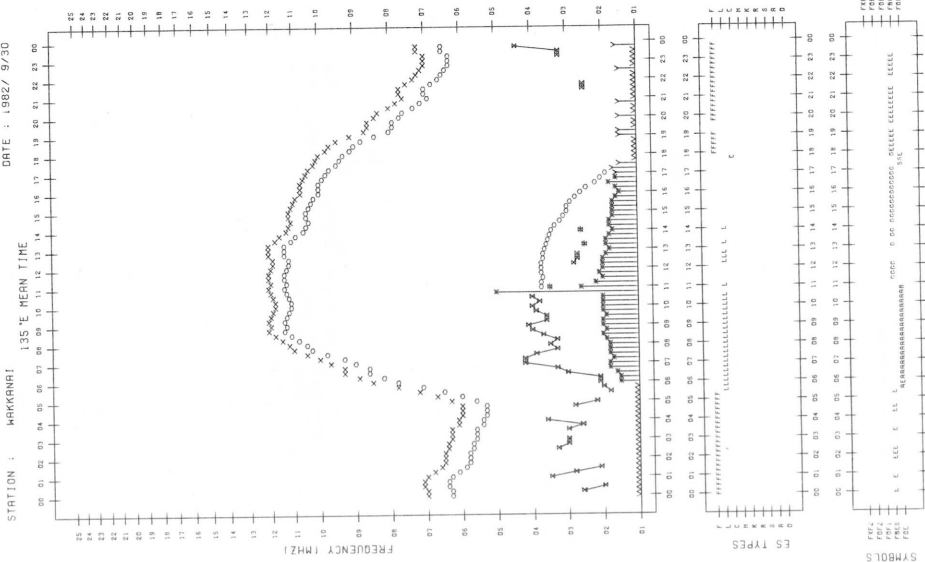
F- PLOT DATA
STATION : KOKUBUNJJI TOKYO
SCALER : S-HIDOME
DATE : 1982/ 9/30
135°E MEAN TIME



F- PLOT DATA
STATION : AKITA
SCALER : Y-ECHIZENYA
DATE : 1982/ 9/30
135°E MEAN TIME

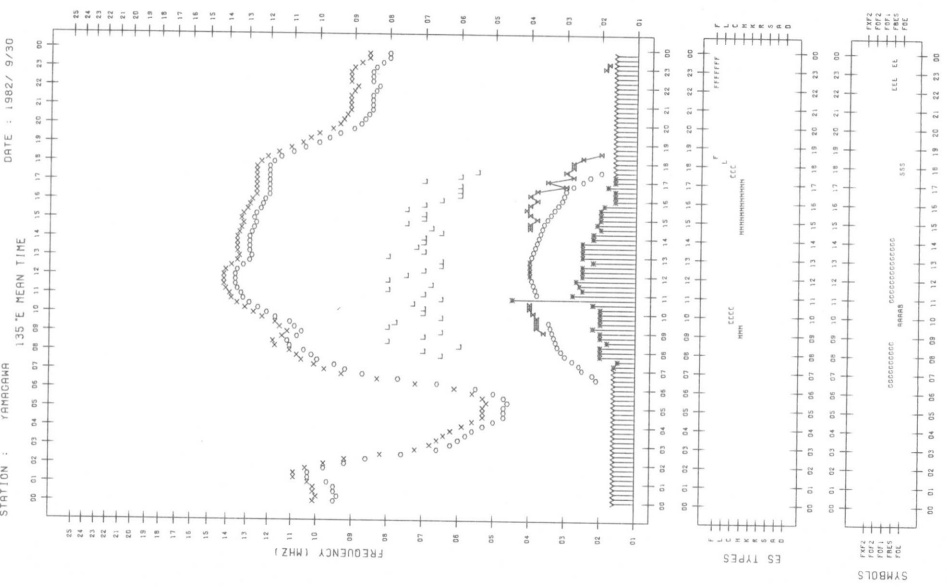


F- PLOT DATA
STATION : HAKKENRI
SCALER : T-ODA
DATE : 1982/ 9/30
135°E MEAN TIME



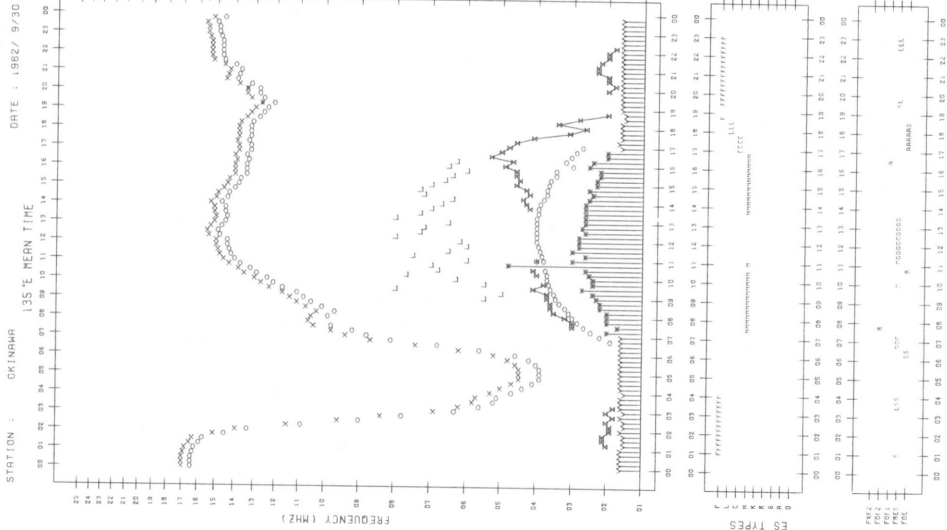
F-PLOT DATA

STATION : YANAGAWA SCALER : S-KRISHIKIRYO DATE : 1982/ 9/30



F-PLOT DATA

STATION : OKINAWA SCALER : H-MENO DATE : 1982/ 9/30



SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

Hiraiso Branch, R.R.L.,
Nakaminato, Ibaraki,
311-12 JAPAN

September 1982

Single-frequency total flux observations at 200 MHz										
Flux density: $10^{-22} \text{Wm}^{-2} \text{Hz}^{-1}$						Variability: 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	11	11	11	12	11	2	1	3	0	2
2	11	12	12	11	11	0	*	*	0	*
3	11	11	11	11	11	0	0	0	0	0
4	13	-	-	10	12	1	-	-	0	0
5	10	10	10	10	10	0	0	0	0	0
6	10	10	9	10	10	0	0	0	0	0
7	10	10	10	10	10	0	0	0	0	0
8	10	10	10	10	10	0	*	*	0	0
9	10	10	10	10	10	2	1	0	0	1
10	10	10	10	10	10	*	0	*	*	0
11	10	10	10	-	10	*	*	*	-	*
12	-	-	-	-	-	-	-	-	-	-
13	12	11	11	10	11	0	1	1	2	1
14	10	10	9	10	10	2	1	1	1	2
15	10	10	10	10	10	1	*	*	*	1
16	10	10	10	9	10	*	*	*	0	*
17	10	9	10	9	9	*	0	0	0	0
18	9	9	9	9	9	0	0	*	0	0
19	8	9	9	-	9	0	0	0	-	0
20	8	8	8	8	8	1	0	0	0	0
21	8	8	8	8	8	0	0	0	*	0
22	8	8	q	8	8	0	*	*	*	*
23	8	8	8	8	8	0	0	0	*	0
24	9	9	9	8	9	*	0	0	0	0
25	9	9	9	9	9	*	*	0	0	0
26	9	9	q	10	9	*	*	*	1	*
27	9	8	8	10	9	1	0	0	2	0
28	10	10	10	10	10	2	3	3	0	2
29	10	10	10	10	10	0	1	2	1	1
30	10	10	10	10	10	1	2	1	1	1

Note No observations during the following periods:

4th	0230 - 0858	12th	2015 - 2352
4th	2010 - 2307	15th	0006 - 0140
11th	2014 - 12th 0817	19th	2022 - 2335

q: likely quiet.

*: interference.

SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

Hiraiso Branch, R.R.L.,
Nakaminato, Ibaraki,
311-12 JAPAN

September 1982

Single-frequency total flux observations at 500 MHz					
Flux density: $10^{-22} \text{Wm}^{-2} \text{Hz}^{-1}$					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	48	48	48	46	48
2	46	46	46	46	46
3	46	46	46	47	46
4	49	-	-	(48)	48
5	48	48	-	(47)	48
6	47	47	47	44	47
7	46	46	46	48	45
8	48	48	48	46	48
9	47	48	47	45	47
10	44	44	44	45	44
11	45	45	46	-	45
12	-	-	-	-	-
13	43	44	42	43	43
14	43	41	40	42	42
15	(42)	42	41	42	42
16	42	42	41	40	42
17	41	41	40	41	41
18	41	41	40	40	41
19	40	39	38	-	39
20	40	40	40	39	40
21	39	39	39	38	39
22	38	38	38	38	38
23	38	39	38	42	38
24	42	42	42	44	42
25	44	44	43	45	44
26	46	46	46	48	46
27	48	48	49	49	48
28	49	50	52	50	50
29	50	51	52	51	51
30	52	57	56	52	54

Note No observations during the following periods:

4th	0225 - 0900	11th	0815 - 12th	2400
4th	2050 - 2310	15th	0006 - 0136	
5th	0600 - 0900	19th	2030 - 2333	
5th	2050 - 2325			

SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

Hiraiso Branch, R.R.L.,
Nakaminato, Ibaraki,
311-12 JAPAN

September 1982

Outstanding Occurrences (single-frequency observations)									
Normal observing period: 2025 - 0845 (sunrise to sunset)									
SEP 1982	FREQ STATION	TYPE	START TIME UT	TIME OF MAXIMUM UT	DUR MIN	FLUX DENSITY		POLARIZATION POSITION REMARKS	
						PEAK	MEAN		
1	200 HIRA	46 C	2126.2	2127.6	2.7	500	124	O	
	500	45 C	2126.7	2127.7	1.6	7	4	WL	
	500	46 C	2318.8	2319.0	0.8	29	-	WL	
3	200	45 C	2319.4	2319.5	0.7	390	73	O	
	200	41 F	0014	0030	56	54	-	ML	
4	500	42 SER	2338.9	2343.9	7	20	-	WR	
	100	48 C	0046.0	0047.3	13.6	9800	550	O	
6	500	45 C	0046.3	0048.0	12	40	14	MR	
	200	46 C	0046.3	0048.0	9.0	3200	174	MR	
	200	46 C	0120.0	0121.0	2.3	195	37	WR	
	500	45 C	0120.3	0120.3	1.0	12	5	WR	
	100	46 C	0120.3	0120.3	4.0	105	14	O	
	500	20 GRF	0130	0205	54	10	6	ML	
	100	46 C	0154.6	0155.6	2.6	440	135	O	
	500	46 C	0124.0	0152.0	35	55	20	SR	
	500	1 S	0224.9	0225.7	1.2	8	4	SR	
	500	42 SER	0241.6	0250.5	32	15	-	SR	
8	100	42 SER	0025.5	0030.6	9.5	1200	-	WL	
	100	46 C	0010.0	0027.5	77	2200	78	O	
9	200	46 C	0013.0	0022.8	40.6	49	8	WR	
	500	42 SER	0016.5	0032.1	41	300	-	SR	
	100	43 NS	0100	0218	160	15	10	WR	
	100	46 C	0106.5	0114.5	24	34	10	O	
	500	46 C	0200.0	0201.6	3	450	100	SR	
	500	45 C	0409.4	0409.4	1.3	550	150	WL	
	500	45 C	0710.5	0714.5	10	40	15	WL	
	100	46 C	0837.4	0839.7	2.8	720U	114U	O, SUNSET	
	200	44 NS	2014E	0645	737D	10	3	WR	
	13	100	46 C	0044.7	0045.3	1.3	50	21	O
100		42 SER	0111.1	0113.0	4.4	590	-	WL	
200		42 SER	0113.0	0113.3	5.6	21	-	WR	
100		41 F	0154.6	0155.4	1.5	180	-	O	
200		42 SER	0218.7	0219.2	9.0	86	-	O	
100		42 SER	0219.0	0219.2	7.6	890	-	WL	
200		43 NS	0423	0545	147	17	6	MR	
100		43 NS	0423	0600	170	25	5	WR	
500		27 RF	0452.0	0509.5	52	8	5	SR	
200		43 NS	0025	0030	225	8	2	O	
14	500	45 C	0109.0	0111.3	5	600	100	WR	
	100	46 C	0109.5	0113.2	7.0	6900	220	WL	
	200	46 C	0109.7	0111.8	7.3	450	100	O	
	100	48 C	0119.0	0122.6	14	2400	430	WL	
	200	43 NS	2150	0617	644D	15	5	WL	
	100	42 SER	2214.9	2215.2	9.5	1500	-	O	
	100	42 SER	2345.7	2352.6	9.7	8000	-	WL	
	200	42 SER	2352.7	2352.9	3.0	6800	-	O	
	200	42 SER	0143.9	0144.0	10.4	1300	-	O	
	100	41 F	0215.2	0217.6	12.3	170	-	O	
15	200	41 F	0215.3	0220.0	7.5	810	-	WL	
	100	8 S	0229.7	0230.0	0.5	890	-	O	
	200	45 C	0229.8	0229.8	0.8	2800	490	O	
	100	46 C	0558.0	0559.5	5.6	120	30	O	
	500	45 C	0558.3	0602.0	6.3	40	16	WL	
	200	46 C	0558.6	0600U	4.1	270	142	O	
	200	41 F	2313.1	2313.7	1.0	135	-	O	

SEP 1982	FREQ STATION	TYPE	START TIME UT	TIME OF MAXIMUM UT	DUR MIN	FLUX DENSITY		POLARIZATION POSITION REMARKS	
						PEAK	MEAN		
16	200 HIRA	42 SER	0147.5	0149.6	4.0	100	-	WL	
	100	8 S	0149.5	0149.5	0.3	2300	-	WL	
	200	42 SER	0316.0	0319.3	4.3	160	-	ML	
	100	45 C	0329.0	0329.2	0.8	1600	318	WL	
	200	45 C	0509.5	0509.7	0.9	280	60	WR	
	100	46 C	0509.5	0509.8	1.3	5100	870	WL	
	500	8 S	0509.6	0509.6	0.3	110	-	MR	
	200	45 C	0604.8	0605.0	1.0	130	35	WR	
	100	45 C	0626.1	0626.9	1.0	1300	328	O	
	200	8 S	0626.4	0626.6	0.6	105	-	WR	
	100	41 F	0658.6	0658.7	0.7	2000	-	O	
	200	42 SER	0658.7	0704.3	5.7	320	-	WL	
	200	45 C	2321.2	2321.6	1.0	750	140	O	
	100	8 S	2321.3	2321.7	0.5	480	-	O	
	17	200	45 C	0145.4	0145.6	1.6	1200	127	O
		100	45 C	0145.4	0145.6	0.8	2000	405	WL
200		42 SER	0731.5	0732.4	5.6	490	-	O	
18	100	41 F	0731.6	0732.3	2.4	340	-	O	
	100	8 S	0142.0	0142.1	0.4	790	-	WL	
	200	42 SER	0142.1	0142.1	3.3	310	-	O	
	200	8 S	0233.3	0233.6	0.5	70	-	O	
	500	8 S	0540.0	0540.1	0.6	40	-	ML	
	200	8 S	0540.1	0540.4	0.4	280	-	O	
	200	46 C	0557.0	0557.3	2.1	250	48	O	
	100	46 C	0557.1	0557.4	1.2	495	189	O	
	200	46 C	2357.8	-	1.0	-	-	O	
	100	46 C	2358.2	2358.6	1.0	205	60	O	
19	200	44 NS	2335E	0039	538D	10	5	MR	
	100	44 NS	2335E	2350	538D	1100	325	SR	
21	500	7 C	0049.3	0049.4	2	160	40	WL	
	200	46 C	0049.5	0049.7	0.7	44	16	O	
	500	7 C	0223.7	0224.1	1	35	15	WL	
22	500	8 S	0302.9	0303.1	0.5	50	-	WL	
	500	7 C	2109.7	2110.6	1.3	1400	100	WL	
	500	8 S	2310.5	2310.5	0.5	150	-	WL	
	500	7 C	2349.3	2349.5	0.8	40	20	WL	
26	500	7 C	2327.0	2327.6	1.0	40	10	WL	
	500	7 C	2354.3	2354.6	1.0	30	6	O	
27	500	7 C	0337.3	0337.3	1.5	250	60	WR	
	500	7 C	0656.3	0656.5	1.3	300	70	WR	
	200	43 NS	2214	0456	730D	50	10	ML	
28	500	42 SER	2324.4	2327.4	6	20	-	SL	
29	500	8 S	0048.4	0048.7	0.5	17	-	O	
	500	8 S	0050.4	0050.4	0.5	18	-	O	
	500	8 S	0135.1	0135.1	0.5	80	-	WR	
	200	43 NS	0248	0750	320D	20	5	WL	
30	200	44 NS	2030E	2239	270D	15	5	WL	
	500	48 C	0134.5	0143.3	140	160	45	SL	
				0238		110		SL	
	200	46 C	0136.5	0137.1	0.8	980	160	O	
	100	8 S	0136.8	0137.0	0.3	360	-	-	
	200	48 C	0138.0	0139.3	251	7600	70	WL	
				0216.0		260		ML	
	100	48 C	0138.7	-	2.4	10000D	8000D	-	
	100	48 C	0141.6	0228	262	1600	540	ML	
	200	44 NS	0549E	0551	150D	10	5	WL	
	100	44 NS	0618E	0618	130D	70	60	WL	
	200	43 NS	2200	2357	420D	10	5	WL	
200	42 SER	2340.6	2346.3	14	310	-	ML		

RADIO PROPAGATION

MEASUREMENT OF H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWV)

SEP 1982	FREQUENCY 15 MHZ		BANDWIDTH 80 HZ		RECEIVING ANTENNA ROD 4.5 M																			
MEASURED AT HIRAISSO																								
UT DAY	00H 15M	01H 15M	02H 15M	03H 15M	04H 15M	05H 15M	06H 15M	07H 15M	08H 15M	09H 15M	10H 15M	11H 15M	12H 15M	13H 15M	14H 15M	15H 15M	16H 15M	17H 15M	18H 15M	19H 15M	20H 15M	21H 15M	22H 15M	23H 15M
1	ES -14	ES -14	ES -14	ES -14	0	-2	7	ES -14	ES -14	ES -14	ES -14	ES -14	5	0	ES 0	1	-8	-2	ES -23	ES -8	ES -8	ES -8	ES 2	ES -23
2	-8	-2	-1	2	11	9	20	ES -8	-8	4	ES -8	ES -2	ES -8	ES -8	ES -8	-8	ES -23	4	ES -8	ES -23	-8	ES -3	ES -1	-14
3	-3	-9	-2	7	-9	16	-9	-3	-3	-3	-3	ES -4	ES -9	ES -9	-4	-9	ES -11	ES -9	ES -24	ES -24	ES -24	-9	ES -9	6
4	-6	ES -9	-12	ES -24	ES -24	0	ES -24	ES -24	ES -24	ES -9	ES -9	ES -9	ES -3	ES -6	ES -9	ES -15	ES -15	-12	ES -15	ES -24	ES -24	ES -24	ES -6	ES -15
5	ES -15	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -9	ES -9	ES -5	ES -3	ES -11	ES 9	ES -2	ES -5	ES -24	ES -24	ES -24	ES -24	ES -24	-9	ES -24	-6	ES -24
6	ES -9	3	ES -24	ES -24	ES -24	-9	-9	ES -24	ES -15	ES -9	ES -5	0	ES 6	ES -5	ES -6	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -6	ES -15
7	ES -15	ES -11	ES -11	ES -24	ES -24	ES -24	ES -24	ES -15	-6	-6	ES -24	ES -6	ES 5	ES -11	ES -6	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -3	ES 1	ES -15
8	ES -15	ES -15	ES -24	ES -5	ES 0	ES -1	-2	ES -8	-4	ES -6	ES -8	-6	ES -3	-4	ES -14	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23
9	ES -24	ES -24	2	3	0	7	-6	ES -11	ES -2	ES -4	ES -4	ES -6	ES -1	ES -9	ES 0	ES -15	-15	-9	ES -15	ES -24	10	9	ES 5	ES -12
10	ES -24	ES -24	-6	ES -24	ES -24	ES -24	ES -24	ES -24	ES -12	-9	ES -12	ES -9	ES -5	ES -9	-2	-6	-6	ES -12	ES -24	-9	ES -12	ES -2	ES -7	ES -15
11	-6	-9	0	6	6	10	-5	-9	-9	ES -24	ES -9	ES -9	-5	-6	2	-7	5	-5	-9	ES -15	-5	-9	-2	-11
12	ES -25	ES -25	ES -24	-1	11	4	ES -11	ES -11	-6	-5	ES -9	-5	ES -7	ES -11	C	C	C	C	-3	-7	ES -24	ES -24	ES -5	ES -1
13	0	-1	-5	ES -24	-6	0	ES -6	ES -6	ES -9	ES -3	ES 0	ES -2	ES -1	ES -2	7	8	-5	3	-1	3	-4	-5	ES -6	ES -23
14	ES -5	-8	-5	-4	ES -5	ES -6	ES -14	ES -14	ES -14	ES -5	ES -8	ES -8	ES 3	-8	ES -23	ES -23	0	-10	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23
15	C	C	ES -8	5	16	13	1	-4	-4	ES -5	ES -2	ES -4	ES -6	ES -15	ES 0	ES -24	-2	-9	-1	-6	-6	-6	ES -6	ES -15
16	ES -9	-6	-9	-6	2	11	13	ES -7	ES -9	ES -9	ES -9	ES -7	ES -6	ES -6	-3	ES -24	7	11	0	-6	-5	-1	-2	-9
17	ES -15	ES -11	-9	-3	-1	0	-2	ES -9	ES -6	ES -5	2	6	-3	ES -10	ES 1	ES -8	18	-5	ES -3	ES -8	-5	-2	3	3
18	-1	3	ES -24	10	12	-3	ES -24	ES -24	ES -7	ES -9	ES -9	ES -9	ES -2	ES -10	-6	ES -24	ES -24	ES -24	ES -24	3	3	-6	ES -6	-9
19	ES -24	ES -24	ES -24	ES -24	ES -24	ES -5	ES -23	ES -23	ES -5	ES -8	ES 0	-2	ES -5	ES -1	ES -8	-8	-5	6	-8	3	8	12	12	4
20	3	-2	-2	7	-4	-2	ES 2	ES 7	ES 5	ES 9	9	2	ES -3	ES 0	ES -3	ES -24	ES -15	ES -24	ES -24	-5	2	-2	5	3
21	-9	3	9	-1	-5	ES -9	-7	-5	ES -6	ES -6	ES -5	-3	ES 2	-1	ES -6	-9	-9	ES -24	ES -24	ES -24	ES -24	-11	C	C
22	-4	-9	-15	ES -24	ES -24	-9	ES -15	ES -24	ES -9	ES -9	ES -15	ES -9	ES 3	ES -12	ES 3	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -6	ES -24
23	-6	ES -24	ES -24	ES -15	ES -15	ES -15	ES -15	ES -9	ES -9	-3	ES -3	ES -6	2	-1	3	ES -24	ES -24	ES -24	ES -24	ES -24	-7	1	6	-5
24	-3	-3	-6	1	ES -12	ES -12	ES -12	-7	-6	ES -10	-4	ES -7	ES 3	ES -9	ES -1	ES -24	ES -24	ES -24	ES -24	-9	3	ES -24	ES -3	ES -24
25	ES -9	ES -3	-2	5	11	-9	ES -15	ES -24	ES -15	ES -24	-5	ES -24	ES -1	ES -3	5	ES -24	ES -24	ES -24	-4	ES -24	-9	-9	ES -7	-9
26	ES -5	-1	2	8	7	0	3	ES 4	-5	ES -5	ES -8	ES -8	ES -9	ES -6	ES -6	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24
27	ES -17	ES -17	ES -16	ES -16	ES -24	ES -24	ES -24	-10	ES -10	ES -6	ES -3	ES -10	ES -3	ES -6	ES -9	ES -24	ES -24	ES -24	ES -24	ES -24	-9	-9	ES -5	ES -11
28	-3	-5	-1	7	6	0	ES -12	ES -9	ES -9	-6	-2	ES -6	ES 1	-8	-6	ES -14	-10	-10	ES -13	ES -13	-14	-10	ES -2	-5
29	S	-1	2	4	5	11	14	-7	-9	ES -15	ES -7	ES -6	ES 3	8	1	-10	2	2	ES -25	ES -24	ES -24	-6	ES -3	-5
30	ES -9	ES -15	-6	2	6	15	7	-6	ES -3	ES -1	ES -6	ES -4	ES 0	2	6	3	-6	-6	ES -24	ES -24	ES -24	ES -24	ES -3	ES -24
CNT	28	29	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	30	30	30	30	29	29
MED	ES -9	US -9	-7	-2	US -2	US -2	US -9	ES -9	ES -8	ES -6	ES -6	ES -6	ES -2	ES -6	ES -3	ES -23	US -15	US -12	ES -23	ES -23	US -10	ES -9	ES -5	US -14
UD	-1	3	2	7	11	13	13	ES -3	ES -3	ES -1	ES 0	0	ES 5	0	5	1	5	4	-1	3	3	1	5	3
LD	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -15	ES -15	ES -14	ES -11	ES -8	ES -11	ES -9	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -23	ES -24

RADIO PROPAGATION

MEASUREMENT OF H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWVH)

SEP 1982	FREQUENCY 15 MHZ		BANDWIDTH 80 HZ		RECEIVING ANTENNA ROD 4.5 M		MEASURED AT HIRAI SO																	
UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M
1	ES -14	ES -14	ES -14	-5	6	13	19	22	20	17	16	18	15	5	ES -23	7	4	16	ES -23	10	10	7	-3	ES -23
2	-8	3	2	8	15	16	21	29	23	26	25	23	27	-2	-8	ES -23	-8	24	ES -23	12	2	-1	-2	-8
3	-3	-3	0	9	12	27	23	28	26	26	26	24	-3	-4	11	18	4	ES -24	ES -24	-6	2	7	-4	-2
4	ES -9	ES -24	ES -24	ES -24	1	9	20	19	19	19	17	12	-4	16	ES -15	4	ES -15	-12	6	6	10	3	-3	-6
5	-4	-7	-2	4	10	20	11	17	23	22	23	17	10	-3	ES -24	ES -24	ES -24	ES -24	ES -24	4	6	-2	0	-1
6	-6	5	6	4	18	22	26	-5	-15	-3	-1	18	ES -3	ES -12	ES -24	ES -24	ES -24	7	11	6	4	-7	-6	-5
7	-4	12	2	3	15	19	16	10	-2	ES -11	-6	ES -9	ES -11	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-5	7	18	-9	-10
8	-7	2	-5	2	9	12	19	8	-4	3	-6	ES -9	ES -3	ES -1	ES -23	ES -23	ES -23	ES -23	ES -23	5	5	-2	-2	ES -23
9	ES -24	-9	-3	4	11	21	21	23	23	20	17	0	-1	-2	-4	ES -15	-9	18	3	9	0	-2	2	-3
10	-6	-2	-2	6	9	16	17	17	19	17	19	15	2	ES -3	ES -15	ES -24	ES -24	21	ES -24	5	3	-1	-3	-5
11	-2	-9	5	7	16	19	21	26	24	24	11	17	6	6	2	3	18	14	ES -15	4	6	4	1	-2
12	-5	-1	6	8	15	21	22	21	26	23	21	13	23	11	C	C	C	C	9	12	7	1	-5	-5
13	0	2	6	6	12	21	16	ES -3	8	16	18	17	5	-4	ES -23	ES -23	ES -23	17	23	12	10	-2	2	-2
14	0	0	5	9	13	19	22	21	28	27	20	3	8	13	ES -23	ES -23	ES -23	17	13	13	7	3	-1	-1
15	-2	7	-1	4	14	23	21	26	25	21	8	15	-6	6	ES -24	ES -24	ES -4	19	17	8	8	-3	-3	-6
16	-4	2	5	9	14	28	24	24	26	20	21	19	-4	-3	ES -24	ES -24	ES -24	-7	2	12	6	2	1	-2
17	7	0	6	7	22	18	20	29	21	24	21	0	4	21	ES -8	ES -8	ES -14	ES -8	ES -8	7	6	3	3	-2
18	1	0	8	12	17	19	24	21	6	-6	-6	11	9	ES -10	-9	ES -24	ES -24	-9	ES -24	10	4	3	-3	-1
19	2	-2	2	7	15	20	22	19	24	17	20	-3	ES -1	ES 3	ES -14	ES -23	ES -23	15	19	16	13	3	0	-8
20	-4	0	4	10	16	22	24	31	29	21	19	29	9	-2	ES -9	ES -24	-6	20	ES -24	13	8	7	2	-1
21	-2	6	7	7	16	23	24	18	25	24	29	27	11	11	2	ES -24	ES -24	ES -24	ES -24	6	6	C	C	-5
22	-3	1	6	12	16	23	21	29	25	26	22	31	23	23	17	12	19	13	15	10	7	7	-1	-2
23	-5	3	-2	13	18	24	22	22	0	14	ES -1	ES -1	ES -3	ES -1	ES -24	ES -24	ES -24	3	ES -24	7	9	2	6	0
24	-3	2	6	13	21	18	23	22	20	20	11	-8	ES -6	ES -9	ES -15	ES -24	ES -24	15	13	7	15	10	-2	-1
25	2	4	3	8	13	26	27	26	21	20	16	14	11	14	-1	ES -24	16	16	5	5	12	5	1	-9
26	-1	1	5	13	16	22	28	20	27	23	7	11	ES -6	ES -6	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -6	ES -24
27	ES -17	ES -17	-7	5	6	2	2	6	8	11	2	ES -6	ES -6	ES -9	ES -24	ES -24	ES -24	ES -24	ES -24	13	11	5	-2	-9
28	-6	0	6	6	14	19	21	20	23	16	11	ES -2	ES -13	ES -14	ES -14	ES -14	ES -14	15	ES -13	3	3	3	-5	-3
29	S	-1	7	7	13	21	23	23	23	18	19	15	16	ES -3	-7	1	15	17	ES -10	-2	13	1	-6	-5
30	-3	ES -24	-1	8	21	22	23	21	22	25	29	21	19	-3	-9	ES -24	-9	-9	ES -24	4	5	-1	-6	-7
CNT	29	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	30	30	30	29	29	30
MED	-4	0	4	7	14	20	22	21	23	20	18	14	3	ES -2	ES -15	ES -24	ES -23	13	ES -14	7	6	3	-2	-5
UD	2	6	7	13	21	26	26	29	27	26	26	27	23	16	2	7	16	20	17	13	13	7	2	-1
LD	ES -14	ES -17	-7	2	6	12	16	6	-2	-3	ES -6	ES -8	ES -6	ES -12	ES -24	ES -24	ES -24	ES -24	ES -24	-5	2	-3	-6	ES -23

RADIO PROPAGATION

RADIO PROPAGATION QUALITY FIGURES

HIRAISO		Time in U.T.														
Sep. 1982	Whole Day Figure	W W V				W W V H				Conditions				Principal Geomagnetic Storms		
		00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	Start	End	Range				
1	4o	4U 5U 5U 3U	3 4 5U 4	U N N N												
2	4+	5 5U 4U 4U	4 5 5U 4	N N N N												
3	4o	4 4U S 4U	4 4 4U 4	N N N N												
4	3+	3U S 4U 3U	2U 4 4U 4	N N N N												
5	3+	2U S 3U 3U	4 4 3U 4	U U U U	2248	---	322									
6	3+	3U 4U 3U 3U	4 2 3U 4	U W W W	---	---										
7	3o	3U 3U 3U 3U	4 2 2U 4	W U U U	---	---										
8	3o	3U 4U 3U 3U	3 2 2U 3	U U U U	---	02.0										
9	4o	4 S 4U 5U	3 4 4U 4	U N N N	0105	---	102									
10	4-	2U S 4U 4U	4 4 4U 4	N N N N	---	05.0										
11	4+	5 4U 5U 4U	4 4 5U 4	N N N N												
12	4o	4U 4U C 4U	4 4 5U 4	N N N N												
13	4o	4 S 5U 4U	4 3 4U 4	N N N N												
14	4o	4U S 4U 3U	4 4 4U 4	N N N N												
15	4+	5 4U 5U 4U	4 4 4U 4	N N N N												
16	4o	4 S 5U 4U	4 4 3U 4	N N N N												
17	4+	4 5U 5U 5U	4 4 4U 4	N N N N												
18	4-	4 S 3U 4U	4 3 4U 4	N N N N												
19	4o	2U 3U 5U 5U	4 4 4U 4	N N N N												
20	4+	4 5U 3U 5U	4 5 5U 4	N N N N												
21	4o	4 4U 4U 4U	4 4 4U 4	N N N N	0339	---	341									
22	4o	3U S 3U 3U	4 5 5U 4	U U U U	---	---										
23	4-	3U 4U 4U 5U	4 3 3U 4	U U U U	---	21.0										
24	4o	4U 4U 4U 4U	4 3 4U 5	U N N N												
25	4o	4 3U 4U 4U	4 4 5U 4	N N N N	1702	---	184									
26	3+	5 4U 3U 3U	4 4 3U 2U	N N N N	---	---										
27	3o	2U S 3U 4U	3 2 2U 4	U U U U	---	---										
28	4o	5 4U 4U 4U	4 3 3U 4	U N N N	---	08.0										
29	4+	5 4U 5U 4U	4 4 5U 4	N N N N												
30	4o	4 4U 5U 3U	4 4 4U 4	N N N N												

SUDDEN IONOSPHERIC DISTURBANCES

HIRAISO		Time in U.T.									
Sep. 1982	S W F				Correspondence						
	Drop-out Intensities (dB)				Start	Duration	Type	Imp.	Solar Flare	Solar Noise	Geomag. Crochet
CO	HA	1)	2)								
4	9		25D	23D	0030	70	G	2	x	x	x
4			25D	10D	0251	189	G	2	x	x	
6	15		9		0113	10	S	1-			
6	20D	25D	20D	15	0151	19	S	2	x	x	
9			9	10	0019	54	G	1-	x	x	
26			14		2322	28	SL	1	x	x	
30	x	x	36D	15D	0136	28	S	3	x	x	

NOTES

CO: Colorado (WWV)
HA: Hawaii (WWVH)

1): Australia
2): Moscow

RADIO PROPAGATION

Sudden Ionospheric Disturbance (SPA)

I N U B O

Sep. 1982	S P A					Time (U.T.)		
	Phase Advance (degrees)					Start	End	Maximum
Date	GBR	Ω /LR	NWC	Ω /H	NLK	Start	End	Maximum
1		24	13	<u>12</u>	—	0022	0108D	0042
1	20	40	44	<u>41</u>	—	0108E	0242	0129
1			<u>7</u>	4	—	0248	0322	0300
1		4	<u>3</u>	9	—	0510	0534	0522
1		<u>28</u>	16		—	0624	0724	0632
1	56	<u>184*</u>	87		—	0732	1145	0758
1			5	<u>9</u>	—	2226	2310	2234
1		14	15	<u>20</u>	—	2334	0045	2345
2			4		—	0302	0347	0312
2				7	—	2157	2222	2202
3			6	<u>4</u>	—	0041	0114	0052
3			14	<u>8</u>	—	0122	0150	0128
3		14	12	<u>7</u>	—	0158	0245	0210
3	15	<u>35</u>	26		—	0609	0746	0618
3		20			—	0828	0914	0844
3		13		<u>4</u>	—	2342	0022	2346
4	48	124	153	<u>143</u>	—	0027	0205D	0058
4		<u>156</u>	134	71	—	0205E	0953	0350
4			92		—	0549E	0942	0600
5		<u>23</u>	20	6	—	0312	0420	0330
5		11	—		—	0820	0946	0826
5		41			—	1000	1303	1018
6	53	<u>104</u>	—	81	—	0150	0408	0201
7			8		—	0349	0428	0400
7		11	<u>6</u>		—	0538	0708	0555
8				3	—	0031	0105	0034
8		<u>33</u>	18		—	0641	0839	0701
9		48	<u>59</u>	46	—	0012	0246	0044
9			6		—	0255	0350	0307
9	17	<u>17</u>	13		—	0606	0652	0622
9	14	<u>57</u>	26		—	0712	0744D	0720
9		<u>41</u>	16		—	0744E	0920	0756
10	12	<u>27</u>	32	14	—	0222	0348	0228
10	10	<u>49</u>	49	14	—	0436	0605	0447
10	12	<u>74</u>	22		—	0826	0939	0838
10			—	4	—	2146	2218	2150
11	9	14	<u>23</u>	8	—	0024	0122	0030
11		<u>15</u>	14		—	0526	0607	0532
11		4			—	0608	0623	0614
11		<u>27</u>	16		—	0636	0808	0644

I N U B O

Sep. 1982	S P A					Time (U.T.)		
	Phase Advance (degrees)					Start	End	Maximum
Date	GBR	Ω /LR	NWC	Ω /H	NLK	Start	End	Maximum
12		15			—	0655	0757	0706
13	25	<u>45</u>	—		—	0451	0623	0509
13		10	—		—	0635	0714	0643
13		19			—	0939	1105	1002
14	9	33	<u>57</u>	—	—	0110	0254	0122
15	14	44	<u>50</u>	—	—	0214	0345	0227
15			18	—	—	0532	0600	0542
15	9	<u>38</u>	43*	—	—	0558	0725	0609
15		14		—	—	0743	0840	0805
19				5	—	2313	2356	2329
22				2	—	2352	0012	0000
24			8		—	0350	0426	0358
24		16	<u>10</u>		—	0515	0622	0528
24		<u>17</u>	6		—	0706	0804	0713
26		14			—	0824	0913	0841
26				16	—	2108	2238	2128
26	43		51	<u>49</u>	—	2316	0100	2334
27	17	<u>72</u>	—	15	—	0404	0710	0422
28		<u>12</u>	13		—	0339	0420	0350
29			<u>4</u>	4	—	0017	0039	0020
29			<u>10</u>	5	—	0107	0144	0114
29		6	<u>8</u>	4	—	0208	0246	0216
29		<u>20</u>	10		—	0809	0956	0827
29			6	<u>7</u>	—	2230	2322	2246
30	56	135	129	<u>97</u>	—	0135	0430	0144
30	—	<u>34</u>	22		—	0616	0739	0621
30		<u>30</u>	19		—	0836	0932	0846
30		15			—	1036	1056	1041
30				18	—	2003	2056	2052
30				4	—	2152	2228	2202
30			5	<u>5</u>	—	2229	2256	2233
30	7		19	<u>11</u>	—	2338	0032	2346

IONOSPHERIC DATA IN JAPAN FOR SEPTEMBER 1982

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