

# IONOSPHERIC DATA IN JAPAN

FOR MARCH 1985

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## 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.

The types are:

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-blanketing 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<sub>min</sub>*.

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<sub>oEs</sub>* > *f<sub>oE</sub>* (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	
Location	Fort Collins, Colorado	Kauai, Hawaii	Hiraiso, Ibaraki
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 atmospheric.

#### 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 1<sub>0</sub>, 1<sub>+</sub>, 2<sub>-</sub>, 2<sub>0</sub>, 2<sub>+</sub>, 3<sub>-</sub>, 3<sub>0</sub>, 3<sub>+</sub>, 4<sub>-</sub>, 4<sub>0</sub>, 4<sub>+</sub>, 5<sub>-</sub>, 5<sub>0</sub> 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

MAR. 1985

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 25 MHz in 24sec 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 40	X 39	X 46	X 42	X 43	X 31													X 57	X 37	X 32	X 37	X 39	X 38										
2	X 39	X 40	X 40	X 38	X 38	X 36													X 63	X 43	X 41	X 42	X 40	X 42										
3	X 40	X 41	X 42	X 42	X 37	X 40													X 50	X 41	X 42	X 37	X 37	X 37										
4	X 37	X 39	X 39	X 40	X 42	X 31													X 50	X 52	X 47	X 46	X 43	X 43										
5	X 43	X 43	X 46	X 44	X 45	X 42													X 51	X 57	X 57	X 52	X 47	X 49										
6	X 45	X 46	X 47	X 46	X 42	X 38													X 47	X 52	X 54	X 48	X 51	X 43										
7	X 48	X 50	X 55	X 52	X 53	X 47													X 66	X 60	X 55	X 50	X 50	X 51										
8	X 50	X 51	X 48	X 46	X 42	X 40													X 61	X 48	X 46	X 49	X 46	C										
9	X 57	X 60	X 56	X 56	X 60	X 43													X 51	X 57	X 50	X 42	X 50	X 49										
10	X 48	X 50	X 50	X 48	X 47	X 40													X 64	X 44	X 44	X 43	X 46	X 45										
11	X 44	X 43	X 43	X 43	X 50	X 40													X 67	X 67	X 55	X 51	X 60	X 57										
12	X 54	X 55	X 54	X 50	X 43	X 34													X 50	X 40	X 37	X 37	X 38	X 38										
13	X 37	X 36	X 37	X 37	X 32	X 26													X 50	X 47	X 44	X 42	X 42	X 45										
14	X 46	X 51	X 46	X 43	X 40	X 32													X 52	X 45	X 41	X 41	X 41	X 41										
15	X 41	X 42	X 43	X 40	X 40	X 36													X 56	X 56	X 48	X 46	X 48	X 44										
16	X 45	X 51	X 43	X 42	X 39	X 37													X 52	X 48	X 47	X 47	X 47	X 48										
17	X 46	X 45	X 44	X 42	X 45	X 34													X 51	X 50	X 52	X 52	X 51	X 53										
18	X 53	X 51	X 50	X 50	X 42	X 39													X 54	X 47	X 49	X 47	X 46	X 47										
19	X 50	X 48	X 40	X 41	X 46	X 45													X 55	X 56	X 55	X 54	X 57	X 57										
20	X 60	X 60	X 60	X 51	X 50	X 45			66	78									X 52	X 50	X 50	X 50	X 53	X 58										
21	X 54	X 52	X 50	X 50	X 50	X 40													X 45	X 46	X 44	X 47	X 47	X 46										
22	X 43	X 42	X 42	X 41	X 41	X 37													X 57	X 56	X 55	X 52	X 47	X 47										
23	X 46	X 46	X 45	X 44	X 46	X 42													X 49	X 51	X 47	X 46	X 46	X 42										
24	X 41	X 41	X 42	X 41	X 42	X 42													X 58	X 57	X 57	X 55	X 55	X 55										
25	X 52	X 50	X 50	X 49	X 47	X 42													X 50	X 48	X 48	X 49	X 47	X 47										
26	X 45	X 45	X 47	X 49	X 41	X 40													X 51	X 49	X 49	X 48	X 48	X 47										
27	X 47	X 46	X 46	X 43	X 38	X 36													X 71	X 66	X 59	X 53	X 54	X 54										
28	X 55	X 51	X 50	X 48	X 47	X 49													X 60	X 52	X 51	X 51	X 50	X 50										
29	X 50	X 49	X 48	X 47	X 42	X 42													X 64	X 54	X 51	X 48	X 47	X 47										
30	X 47	X 46	X 44	X 43	X 44	X 40													X 56	X 56	X 54	X 52	X 50	X 50										
31	X 48	X 47	X 46	X 46	X 44	X 42													X 62	X 65	X 60	X 52	X 51	X 51										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT	31	31	31	31	31	31			1	1									20	31	31	31	31	30										
MED	X 46	X 46	X 46	X 44	X 43	X 40			66	78									X 52	X 51	X 50	X 48	X 48	X 47										
UQ	X 50	X 51	X 50	X 48	X 46	X 42													X 59	X 57	X 55	X 52	X 52	X 51										
LQ	X 43	X 42	X 43	X 42	X 41	X 36													X 50	X 47	X 46	X 44	X 46	X 43										

MAR. 1985

FXI (0.1 MHz)

# IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24 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		33	32	39	35	36	24	32	52	68	85	70	68	73	69	60	70	65	63	50	30	25	30	32	31									
2		32	33	33	31	31	29	37	50	64	54	69	66	81	89	66	62	60	58	56	36	34	35	33	35									
3		33	34	35	35	30	33	38	54	75	<sup>H</sup> 61	<sup>H</sup> 78	87	92	79	67	65	65	57	43	34	35	30	30	30									
4		30	32	32	33	35	24	32	52	58	58	62	74	75	75	73	58	54	50	43	45	40	39	36	36									
5		36	36	39	37	38	35	43	59	62	64	61	73	74	70	60	60	57	46	44	50	50	45	40	42									
6		38	39	<sup>F</sup> 40	39	35	31	33	39	<sup>H</sup> 44	<sup>H</sup> 49	47	57	75	69	62	59	55	51	40	45	47	41	44	36									
7		41	<sup>F</sup> 39	<sup>F</sup> 46	45	46	40	46	53	51	60	61	67	63	63	70	<sup>H</sup> 53	57	55	59	53	48	43	43	44									
8		43	44	41	39	35	33	40	48	53	57	60	64	75	63	66	56	56	62	54	41	39	42	39	<sup>C</sup>									
9		<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	37	44	53	53	56	67	71	61	59	57	51	51	44	<sup>F</sup> 44	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>								
10		<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	36	43	46	50	62	58	65	62	58	58	53	53	57	37	37	36	39	38								
11		37	36	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	38	42	48	53	49	57	70	65	65	61	58	57	60	60	48	44	<sup>F</sup>	<sup>F</sup>									
12		<sup>F</sup> 43	<sup>F</sup> 43	<sup>F</sup>	<sup>F</sup> 38	<sup>F</sup>	27	34	42	46	46	55	58	65	61	62	59	53	51	43	33	30	30	31	31									
13		30	29	30	30	25	19	33	43	47	61	58	57	57	61	61	51	53	52	43	40	37	35	35	38									
14		39	<sup>F</sup>	39	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	35	46	49	60	56	63	68	66	60	57	50	49	45	38	34	34	34	34									
15		34	35	<sup>F</sup> 33	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	36	45	50	60	64	66	63	58	61	55	56	53	49	49	41	39	41	37									
16		38	44	36	35	32	30	40	50	56	64	67	72	68	62	59	54	54	49	45	41	40	40	40	41									
17		39	38	37	35	38	27	39	45	55	58	63	62	59	61	58	57	53	50	44	43	45	45	44	<sup>F</sup>									
18		<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup> 36	35	32	39	46	49	57	65	58	55	58	63	62	58	52	47	40	42	40	39	40									
19		<sup>F</sup>	<sup>F</sup>	<sup>F</sup> 32	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	43	49	62	66	73	67	58	55	56	58	60	60	48	49	48	47	50	50									
20		<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	44	<sup>F</sup>	<sup>F</sup>	40	57	<sup>F</sup> 56	<sup>F</sup> 66	66	62	64	60	62	<sup>C</sup>	63	<sup>C</sup>	45	43	43	43	46	<sup>F</sup>									
21		<sup>F</sup> 40	<sup>F</sup> 44	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	42	46	53	61	66	62	60	63	68	65	56	49	41	38	39	37	40	39									
22		36	35	35	34	34	30	43	47	55	60	63	68	61	60	59	56	52	49	50	50	49	48	45	40									
23		39	39	38	37	39	35	43	52	63	62	61	61	66	61	60	64	55	51	51	42	44	40	39	35									
24		34	34	35	34	35	35	43	53	54	63	61	69	66	69	64	59	56	50	50	51	50	50	48	48									
25		45	43	43	42	40	35	45	55	64	58	61	62	63	68	64	60	57	61	53	43	41	41	42	40									
26		38	<sup>F</sup>	<sup>F</sup>	<sup>F</sup>	34	33	43	49	56	68	66	62	67	70	75	67	63	56	53	44	42	42	41	40									
27		40	39	39	36	31	29	45	53	58	64	67	61	66	68	69	69	66	63	59	64	59	52	46	47									
28		48	44	43	41	40	42	44	54	53	64	59	<sup>H</sup> 59	79	74	72	78	67	66	59	53	45	44	44	43									
29		43	42	41	40	35	35	50	63	70	76	65	67	64	66	59	61	62	67	70	57	47	44	41	40									
30		40	39	37	36	37	33	45	51	57	65	69	67	70	70	65	59	57	56	55	49	49	47	45	43									
31		41	40	39	39	37	35	45	53	60	65	63	64	62	68	63	63	60	55	55	55	58	53	45	44									
		00	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	24	23	23	22	23	31	31	31	31	31	31	31	31	31	30	31	30	31	31	30	30	29	26									
MED		38	39	38	36	35	33	40	50	55	61	63	64	66	65	62	59	57	53	50	44	42	42	41	40									
UQ		41	42	40	39	38	35	43	53	61	64	66	67	72	69	66	63	60	58	55	50	48	45	44	43									
LQ		34	34	35	35	34	29	36	46	50	58	60	61	63	61	60	57	54	50	44	40	39	37	39	36									

MAR. 1985

FOF2 (0.1 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

FOF1 (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 25 MHz in 24sec 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										400	400		L	410	390	L								
2												H 410	400	L	400	L								
3												L		410	390									
4										370	390	400	L	400		L								
5										L 390	L 410	410	410	L 400	390	L								
6											400	430	H 420	400	380									
7										L	390	410	410	410	400									
8										400	400	420	410	400	400	L								
9										L	L	H 410	H 410	410	400	L								
10											390	410	410	410	L	L								
11											390	400	400	H 410	400	400	400							
12										L 370	400	400	410	410	410	400	390							
13										390	390	410	410	410	H 410	400								
14											400	410	400	430	410	400	380							
15										L	400	410	H 420	420	420	400	L							
16											400	410	410	420	410	400	L							
17										L	400	400	420	420	H 400	400	L							
18										L	410	410	L	410	410	390								
19										400	410	430	430	420	420	390	L							
20										L	410	410	420	430	420	L	C							
21											410	420	420	430	430	400	L							
22										L	410	420	420	430	420	410	400							
23										400	400	420	430	430	420	410	400							
24											410	420	430	430	430	420	L							
25										L	400	430	430	430	L 420	400	390							
26											410	430	430	430	440	420	400	L						
27											410	420	430	440	L 430	410	L	L						
28											410	410		410	420	430	400	L						
29											390	410	420	420	420	420	410	400						
30											410	430	420	430	430	410	400							
31											400	410	420	430	440	430	H 420	400						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									6	24	28	28	27	30	28	12								
MED									395	400	410	420	420	410	400	400								
UQ									400	410	420	430	430	420	410	400								
LQ									390	400	400	410	410	410	400	390								

MAR. 1985

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAR. 1985

FOE (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 25 MHz		in 24sec		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	205	240	265	280	300	305	290	A	250	205	S						
2								S	185	A	255	285	300	300	300	290	250	215	S						
3								S	190	A	255	A	300	300	295	290	250	210	S						
4								S	180	215	A	A	295	305	300	290	255	210	S						
5								S	195	230	270	295	300	300	295	290	255	220	S						
6								S	190	A	A	A	300	300	295	290	260	210	S						
7								S	185	240	255	A	A	295	295	275	250	210	175	S					
8								S	195	225	A	A	300	300	295	290	A	220	S						
9								S	160	215	A	A	295	300	A	285	A	215	165	S					
10								S	190	230	265	295	295	300	295	290	255	220	S						
11								S	200	240	255	270	295	305	300	290	270	220	S						
12								S	200	A	A	290	300	300	300	290	270	225	175	S					
13								S	200	A	A	300	300	305	305	290	255	215	175	S					
14								E	200	240	270	295	300	305	305	295	265	220	185	S					
15								E	205	250	265	295	A	305	300	290	265	235	175	S					
16								S	225	250	265	A	A	305	300	290	265	225	170	S					
17								S	200	255	280	300	A	300	300	290	270	A	170	S					
18								S	205	245	265	A	A	305	300	A	260	220	A	S					
19								S	235	245	285	A	310	310	305	295	270	220	175	S					
20								S	215	250	290	295	305	305	305	300	C	230	C	S					
21									150	220	260	290	295	300	310	305	300	285	235	190	S				
22									155	225	270	295	300	300	310	305	300	280	240	190	S				
23								S	225	260	A	A	A	310	310	300	280	240	195	E					
24									150	220	A	295	300	305	A	310	300	275	245	205	E				
25									160	215	270	300	A	A	310	310	300	285	250	205	S				
26									170	225	270	295	300	A	A	300	295	275	245	190	S				
27									150	225	270	295	A	310	315	305	300	280	245	190	E				
28									150	215	280	300	305	305	300	300	300	275	235	185	S				
29									160	230	260	295	300	310	310	305	295	280	A	195	E				
30									190	230	275	290	300	305	310	305	300	275	240	200	S				
31									170	230	255	290	300	A	300	300	300	275	235	190	S				
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								12	31	25	24	19	22	29	30	29	28	29	20	4					
MED								152	205	250	282	295	300	305	300	290	270	220	183	E					
UQ								165	225	260	295	300	305	310	305	300	275	235	192	E					
LQ								150	195	240	265	295	300	300	300	290	255	215	175	E					

MAR. 1985

FOE (0.01 MHz)

The Radio Research Laboratories, Japan



# IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24 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 S 12	E S 15	E S 11	E S 14	E E S 12	E S 15	G	G	G	37	36	22	27	34	G	G	E S 17	18	17	E S 11	23	22	E S 15										
2		E S 15	22	21	22	E	E S 14	G	25	G	G	G	G	G	G	G	G	E S 16	26	27	22	E S 16	E S 15	27										
3	J A 41	27	27	25	E S 16	E S 15	E S 16	G	28	G	30	G	G	G	G	G	G	E S 17	E S 15	E S 15	E S 15	E S 15	21	31										
4	24	24	E S 12	E S 12	E	E S 15	G	G	27	31	G	G	G	G	G	G	G	20	E S 15	24	E S 15	E S 15	E S 16	E S 15										
5	E S 16	E	E S 16	E S 14	E S 15	24	E S 13	G	G	G	25	G	G	G	G	G	G	E S 16	E S 11	E S 16	E S 15	E S 15	E S 17	E S 15										
6	E S 15	E	E S 15	20	E S 15	E S 16	E S 16	G	31	J A 36	40	G	G	G	G	G	G	E S 15	E	E S 12	E S 15	E S 14	E S 16	E										
7	E S 16	E	J A 33	26	E S 13	E S 16	E S 15	G	G	J A 46	J A 35	34	G	G	G	22	G	G	E S 15	E S 12	E S 15	E S 15	E S 15	E S 16										
8	21	E S 15	E S 15	E	E	E S 15	E S 15	G	30	J A 38	J A 50	G	G	G	G	32	G	20	E S 16	E S 11	22	30	35	C										
9	E S 15	E S 15	E S 15	E S 11	E	E	E S 15	G	J A 51	35	37	G	G	34	26	55	G	G	E	E S 15	E S 15	E S 15	E S 15	26										
10	E S 14	E	E S 12	E	E S 15	E S 15	E S 16	G	G	G	G	G	G	G	G	G	G	E S 18	E	E	E S 15	E S 16	E S 15	21										
11	24	24	E	E	E	E	19	G	G	G	G	G	G	G	G	G	G	E S 16	E	E S 15	E S 15	E S 15	E S 12	E S 13										
12	E S 15	E S 15	30	35	30	E S 15	E S 15	G	32	32	G	G	40	22	30	17	G	26	G	28	E S 12	E S 15	24	30	27									
13	33	27	25	23	E	E S 16	E S 15	G	33	29	G	G	G	G	G	G	G	G	E S 15	E S 15	33	J A 44	26	E S 15										
14	E S 15	E S 13	E S 12	E	E	E S 15	18	G	G	30	G	G	G	G	G	G	G	G	E	E S 11	E S 12	E S 11	E S 15	E S 16										
15	E S 15	E S 15	E S 15	E S 14	E S 15	E	18	G	G	29	G	36	G	G	G	G	G	G	E S 15	E S 15	E S 15	E S 15	26	28										
16	32	40	40	30	23	25	19	G	G	G	33	39	27	G	G	G	20	G	G	E S 12	20	E S 16	20	26	E S 12									
17	22	21	23	27	27	22	27	G	G	G	G	40	28	G	G	G	G	29	13	23	E S 16	E S 15	E S 16	E	E S 16									
18	E S 15	E S 12	22	E	21	E	18	G	G	30	38	38	G	35	34	G	20	G	20	22	27	E	E S 14	E S 15	E S 16									
19	E S 15	E S 15	21	24	E S 11	21	19	G	31	G	39	G	G	G	G	G	G	G	G	30	30	26	E S 16	E S 16	E S 16									
20	E S 15	E	E S 13	E S 14	26	E	E S 15	G	G	31	G	G	G	G	G	C	G	C	21	E	E S 16	E S 15	E S 16	E S 15										
21	E S 15	E S 11	E S 12	E S 13	E	E S 15	G	G	G	G	G	G	G	G	G	G	G	G	E S 15	E S 13	E	E S 16	35	34										
22	E S 15	E S 11	E	E S 15	E S 16	E S 15	G	G	G	32	33	35	G	G	G	G	G	G	E S 15	E S 16	E S 15	26	34	22										
23	E S 16	E	E S 16	E	22	E S 11	E S 15	G	G	31	33	32	G	G	G	G	G	G	E	E	E S 15	E S 16	E S 15	E S 11										
24	E	E S 15	E S 11	E S 15	E	E S 15	G	G	32	G	G	G	32	G	G	G	G	G	18	E S 15	E S 15	E S 15	E	E S 13										
25	E S 15	E	E S 11	E	E	E S 12	G	G	G	G	40	J A 55	G	G	G	G	G	17	G	E S 15	E S 15	E S 16	E S 15	21	E S 16									
26	E S 15	E S 12	E S 15	21	E	E S 11	G	G	G	37	36	35	40	35	G	G	G	G	E S 15	E S 15	E S 16	E S 15	E S 15	E S 16										
27	E S 16	E S 12	26	25	E S 15	E S 12	22	G	G	G	35	G	G	G	G	G	G	24	18	E S 12	E S 12	E S 16	E	E S 16										
28	E S 16	E	E S 15	E S 12	E	E S 11	21	G	G	34	G	39	G	G	G	G	G	G	E S 14	E S 15	E S 15	E S 15	E S 16	E S 12										
29	E S 15	E S 13	E	E	E	E S 15	G	G	32	40	J A 53	G	G	G	G	G	20	30	28	30	E S 15	E	E S 15	E S 16										
30	23	23	E S 15	E S 15	E S 15	E S 15	G	G	G	32	G	G	G	29	24	G	G	G	E S 15	E	E	E S 15	E S 15	E S 16										
31	E S 15	E S 11	26	E	24	20	G	G	G	G	32	33	G	G	G	G	G	G	E S 15	E S 14	E S 15	E S 16	E S 15	E S 15										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	30	31	31	31	31	31	30										
MED	E S 15	E S 13	E S 15	E S 14	E S 13	E S 15	E S 15	G	G	29	31	G	G	G	G	G	G	G	E S 15	E S 15	E S 15	E S 15	E S 16	E S 16										
UQ	18	18	22	22	E S 16	E S 16	18	G	29	32	36	35	25	22	G	G	G	E	17	18	16	E S 16	E S 16	23	22									
LQ	E S 15	E S 11	E S 12	E	E	E S 11	G	G	G	G	G	G	G	G	G	G	G	G	E S 13	E S 12	E S 15	E S 15	E S 15	E S 15										

MAR. 1985

FOES (0.1 MHz)

# IONOSPHERIC DATA

MAR. 1985      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 25 MHz in 24 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 S 12	E S 15	E S 11	E S 14	E E S 12	E S 15	G	G	G	G	G	G	G 22	G 27	29	G	G E S 17	E	E	E S 11	E	E S 15		
2	E S 15	E	E	E	E	E S 14	G	24	G	G	G	G	G 24	G	G	G	G E S 16	E	20	E	E S 16	E S 15	E	
3	E	E	E	E	E S 16	E S 15	E S 16	G	23	G	29	G	G	G	G	G	G E S 17	E S 15	E S 15	E S 15	E S 15	E	E	
4	E	E E S 12	E S 12	E	E	E S 15	G	G	27	30	G	G	G 24	G 21	22	G	G	E S 18	E S 15	E S 15	E S 15	E S 16	E S 15	
5	E S 16	E E S 16	E S 14	E S 15	E	E S 13	G	G	G	25	G	G	G	G	G	G	G E S 16	E S 11	E S 16	E S 15	E S 15	E S 17	E S 15	
6	E S 15	E E S 15	E	E S 15	E S 16	E S 16	G	30	30	30	G	G	G	G	G	G	G E S 15	E	E S 12	E S 15	E S 14	E S 16	E	
7	E S 16	E	30	E	E S 13	E S 16	E S 15	G	G	30	31	31	G	G	G 21	G	G	G	E S 15	E S 12	E S 15	E S 15	E S 30	E
8	E	E S 15	E S 15	E	E	E S 15	E S 15	G	G	34	30	G	G	G	G	25	G	G	E S 16	E S 11	E	E	E	C
9	E S 15	E S 15	E S 15	E S 11	E	E	E S 15	G	37	25	29	G	G	31	21	28	G	G	E	E S 15	E S 15	E S 15	E S 15	E
10	E S 14	E E S 12	E	E S 15	E S 15	E S 16	G	G	G	G	G	G	G	G	G	G	G	E S 18	E	E	E S 15	E S 16	E S 15	E
11	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E S 16	E	E S 15	E S 15	E S 12	E S 13	E
12	E S 15	E S 15	E	E	E E S 15	E S 15	G	26	29	G	G	G	28	22	21	17	19	G	E	E S 12	E S 15	E	E	E
13	E	20	E	E	E E S 16	E S 15	G	25	28	G	G	G	G	G	G	G	G	G	E S 15	E S 15	25	30	E E S 15	
14	E S 15	E S 13	E S 12	E	E E S 15	G	G	G	G	G	G	G	G	G	G	G	G	G	E	E S 11	E S 12	E S 11	E S 15	E S 16
15	E S 15	E S 13	E S 15	E S 14	E S 15	E	G	G	G	G	G	31	G	G	G	G	G	G	E S 15	E S 15	E S 15	E S 15	E	E
16	20	E	26	E	E	E	G	G	G	G	30	32	G 27	G	G	G 20	G	G	E S 12	E	E S 16	E	E E S 12	
17	E	E	E	E	E	E	17	G	G	G	G	31	G 26	G 22	G 19	G	23	G	E	E S 16	E S 15	E S 16	E E S 16	
18	E S 15	E S 12	E	E	E	E	G	G	G	G	32	32	G 26	28	30	20	G	20	E	E	E	E S 14	E S 15	E S 16
19	E S 15	E S 15	E	E	E S 11	E	G	G	G	G	37	G	G	G	G	G	G	G	E	E	E	E S 16	E S 16	E S 16
20	E S 15	E E S 13	E S 14	E	E	E S 15	G	G	G	G	G	G	G	G	G	C	G	C	E	E	E S 16	E S 15	E S 16	E S 15
21	E S 15	E S 11	E S 12	E S 13	E E S 15	G	G	G	G	G	G	G	G	G	G	G	G	G	E S 15	E S 13	E E S 16	E	E	E
22	E S 15	E S 11	E E S 15	E S 16	E S 15	G	G	G	G	G	G	G	G	G	G	G	G	G	E S 15	E S 16	E S 15	E	25	E
23	E S 16	E E S 16	E	E	E E S 11	E S 15	G	G	31	31	32	G	G	G	G	G	G	G	E	E	E S 15	E S 16	E S 15	E S 11
24	E	E S 15	E S 11	E S 15	E E S 15	G	G	28	G	G	G	32	G	G	G	G	G	G	E S 15	E S 15	E S 15	E	E S 13	
25	E S 15	E E S 11	E	E	E E S 12	G	G	G	G	33	40	G	G	G	G	G	G 17	G	E S 15	E S 15	E S 16	E S 15	E E S 16	
26	E S 15	E S 12	E S 15	E	E E S 11	G	G	G	G	G	33	32	G	G	G	G	G	G	E S 15	E S 15	E S 16	E S 15	E S 15	E S 16
27	E S 16	E S 12	E	E	E S 15	E S 12	G	G	G	G	32	G	G	G	G	G	G	G	E	E S 12	E S 12	E S 16	E	E S 16
28	E S 16	E E S 15	E S 12	E	E E S 11	G	G	G	G	G	38	G	G	G	G	G	G	G	E S 14	E S 15	E S 15	E S 15	E S 16	E S 12
29	E S 15	E S 13	E	E	E E S 15	G	G	G	G	37	39	G	G	G	G	G	20	25	15	15	E S 15	E	E S 15	E S 16
30	E	E	E S 15	E S 15	E S 15	E S 15	G	G	G	G	G	G	G 25	G 23	G	G	G	G	E S 15	E	E	E S 15	E S 15	E S 16
31	E S 15	E S 11	E	E	E	E	G	G	G	G	G	32	G	G 23	G	G	G	G	E S 14	E S 15	E S 16	E S 15	E S 16	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	30	31	31	31	31	31	30
MED	E S 15	E E 11	E S 12	E	E E S 12	G	G	G	G	G	G	G	G	G	G	G	G	G	E E 11	E S 13	E S 15	E S 15	E S 15	E S 14
UQ	E S 15	E S 13	E S 15	E S 12	E S 14	E S 15	E S 15	G	G	26	30	31	G 24	E G 21	G	G	G	E G 16	E S 15	E S 15	E S 15	E S 16	E S 16	E S 16
LQ	E E 12	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E S 12	E S 14	E	E

MAR. 1985      FBES (0.1 MHZ)

# IONOSPHERIC DATA

MAR. 1985

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

MAR. 1985

FMIN (0.1 MHZ)

IONOSPHERIC DATA

MAR. 1985 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 25 MHz in 24sec 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	285	300	320	335	335	320	345	315	365	360	330	330	345	335	340	340	335	340	345	280	295	295	290		
2	295	305	330	320	320	320	325	360	365	350	350	335	335	360	360	345	350	345	355	320	310	315	285	295		
3	285	295	315	305	295	335	340	335	335	310 <sup>H</sup>	320 <sup>H</sup>	335	335	340	345	340	360	350	350	325	320	300	280	315		
4	285	310	310	310	340	355	345	355	360	355	320	330	335	295	340	355	370	360	325	330	325	315	320	320		
5	305	305	305	310	315	335	325	345	355	345	325	340	335	345	350	350	350	325	320	320	340	320	310	310		
6	300	295	285 <sup>F</sup>	290	295	290	335	310	320 <sup>H</sup>	300 <sup>H</sup>	365	315	320	355	355	355	365	350	315	310	320	310	340	305		
7	280	295 <sup>F</sup>	280 <sup>F</sup>	305	325	295	330	360	335	340	340	335	350	305	345	330 <sup>H</sup>	345	345	340	330	320	300	295	310		
8	290	295	290	295	295	295	325	335	355	335	335	315	340	330	350	350	340	340	350	330	295	310	305	C		
9	F	F	F	F	F	F			325	365	360	345	340	325	340	330	330	345	335	360	330	335 <sup>F</sup>	F	F	F	F
10	F	F	F	F	F	F			345	350	375	340	340	330	335	340	345	345	350	350	350	325	315	315	300	295
11	305	315	F	F	F	F			330	345	355	360	345	345	340	340	355	350	335	340	350	350	335	315	F	F
12	300 <sup>F</sup>	325 <sup>F</sup>	F	315 <sup>F</sup>	F	315	345	335	325	325	340	325	340	325	340	355	360	360	325	335	310	300	295	300		
13	290	280	300	310	330	300	335	325	310	335	345	335	340	330	325	350	345	350	330	300	310	295	315	290		
14	300	F	310	F	F	F			340	345	345	350	350	335	330	335	345	350	340	355	350	315	320	305	295	300
15	315	325	320 <sup>F</sup>	F	F	F			335	355	330	350	330	335	335	330	345	345	355	345	310	295	315	295	290	310
16	300	335	315	315	330	300	330	350	345	340	345	345	330	345	345	350	350	345	335	295	295	290	290	305		
17	300	305	315	315	330	335	335	375	360	340	350	355	330	345	345	350	360	345	320	315	295	310	305	F		
18	F	F	F	305 <sup>F</sup>	320	345	335	370	345	355	340	345	335	335	330	340	360	355	330	300	295	300	295	305		
19	F	F	310 <sup>F</sup>	F	F	F			335	345	320	330	330	325	345	355	335	335	335	340	335	305	295	295	305	300
20	F	F	F	310	F	F			300	340	350 <sup>F</sup>	320 <sup>F</sup>	335	320	330	320	320	C	350	C	320	300	295	280	305	F
21	300 <sup>F</sup>	300 <sup>F</sup>	F	F	F	F			345	345	350	345	350	335	335	315	340	345	355	355	325	295	305	310	295	305
22	305	315	315	305	340	335	350	350	350	345	335	330	325	320	330	350	350	335	325	300	295	310	325	300		
23	295	295	295	305	310	315	340	355	340	350	325	320	325	325	320	335	350	350	345	290	310	305	305	315		
24	310	295	300	325	315	340	355	360	340	340	325	295	305	330	330	335	355	350	320	315	295	295	300	290		
25	310	290	300	310	305	325	335	345	345	335	320	320	315	325	330	350	335	345	350	320	305	305	285	300		
26	290	F	F	F	325	335	345	345	340	340	335	320	315	315	335	345	350	350	345	300	290	285	290	300		
27	300	285	305	315	335	290	335	360	335	330	320	345	320	310	315	335	335	350	320	305	310	305	285	285		
28	290	285	295	285	290	310	365	350	350	335	340	290 <sup>H</sup>	315	325	305	330	330	330	330	335	300	285	285	300		
29	290	300	290	300	315	330	260	315	340	345	340	330	320	335	320	325	325	330	340	340	310	295	290	290		
30	290	290	300	305	330	335	355	360	345	330	335	305	330	330	340	345	340	350	335	295	295	295	305	295		
31	300	290	290	305	325	320	340	365	335	340	340	330	340	325	340	335	335	345	335	310	310	320	305	300		
	00	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	24	23	23	22	23	31	31	31	31	31	31	31	31	31	30	31	30	31	31	30	30	29	26		
MED	300	295	300	310	322	325	335	350	345	340	340	330	335	330	340	345	350	348	335	315	310	302	295	300		
UQ	300	308	312	315	330	335	345	360	352	348	345	335	338	340	345	350	355	350	345	330	315	310	305	305		
LQ	290	290	295	305	310	305	330	345	335	335	330	320	325	325	330	335	338	340	325	300	295	295	290	295		

MAR. 1985 M(3000)F2 (0.01)

# IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24sec 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										360	400			L	360	370	L								
2														H	360	L	375	L							
3														L		390	385								
4										380	385	375		L	375		L								
5										L	L	370	380	L	385	375	L								
6											355	350	H	345	355	370									
7										L	385	365	390	365	365										
8										A	360	355	365	375	360		L								
9										L	L	H	H	H	365	375	L								
10											395	400	365	390	L	L									
11										380	375	410	H	365	375	375	370								
12										L	345	350	400	390	365	365	355	375							
13										360	365	380	375	380	H	355	365								
14										375	390	400	365	390	360	370									
15										L	375	360	H	365	370	355	360	L							
16										375	365	390	360	365	370		L								
17										L	375	400	380	380	H	375	370	L							
18										L	365	390	L	370	355	360									
19										350	355	365	390	400	380	385	L								
20										L	365	390	385	355	380	L	C								
21										365	380	390	380	365	375		L								
22										L	365	380	380	375	380	355	355								
23										375	400	380	360	370	380	360	350								
24										360	360	385	370	350	355		L								
25										L	400	385	A	385	L	355	400	360							
26										365	370	370	385	355	350	370		L							
27										370	375	385	365	L	350	365	L	L							
28										365	365		390	360	355	350		L							
29										A	A	390	380	370	370	370									
30										365	370	390	370	360	365	375									
31										365	390	400	380	365	370	H	355	360							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT									6	22	27	27	27	30	28	12									
MED									360	368	380	385	370	368	365	365									
UQ									365	380	388	390	380	380	375	370									
LQ									350	365	365	370	365	360	358	358									

MAR. 1985

M(3000)F1 (0.01)

### IONOSPHERIC DATA

MAR. 1985

H\*F2 (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 25 MHz in 24sec 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										230	210		240	255	250	250								
2												255	255	225	240	240								
3												245		245	240									
4										240	250	250	255	250		240								
5										245	260	250	255	245	240	245								
6											265	340	275	240	245									
7										255	260	250	250	300	240									
8										270	260	290	265	255	260	250								
9										240	250	275	250	270	260	250								
10											270	255	270	245	250	240								
11										250	275	275	240	270	260	250								
12										280	315	300	280	260	265	260	250							
13										325	260	260	285	280	275	275								
14										245	285	270	275	250	250	250								
15										285	245	260	255	265	290	255	255							
16										255	260	250	260	260	255	250								
17										265	260	255	250	275	260	275	250							
18										255	255	250	270 <sup>L</sup>	280	275	260								
19										275	260	255	265	265	270	270	265							
20										265	260	260	275	280	290	285	<sup>C</sup>							
21										265	255	275	280	295	270	250								
22										250	265	265	265	275	300	270	260							
23										255	240	280	295	280	275	285	260							
24										270	270	305	300	270	275	265								
25										250	265	275	300	285	265	280	250							
26										250	260	290	290	300	265	260	245							
27										270	270	270	310	290	275	260	255							
28										265	255		280	255	300	260	250							
29										240	255	240	275	270	265	270	280							
30										265	260	285	275	270	265	260								
31										270	260	250	275	275	275	270	265							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									11	27	29	29	30	31	30	26	3							
MED									265	260	260	275	272	270	265	250	250							
UQ									278	265	270	285	280	278	275	260	252							
LQ									252	248	255	255	260	255	250	250	248							

MAR. 1985

H\*F2 (KM)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

H\*F (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 25 MHz in 24sec 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	305	305	250	235	220	225	245	225	230	215	205	235 <sup>H</sup>	215	200	215	225	225	220	205	220	275	270	280	310
2	295	260	250	240	230	220	220	210	215 <sup>H</sup>	195 <sup>H</sup>	205 <sup>H</sup>	195 <sup>H</sup>	200	200 <sup>H</sup>	225	210	230	215	205	230	250	240	285	295
3	340	300	260	255	250	240	205	225	210 <sup>H</sup>	205	195 <sup>H</sup>	200 <sup>H</sup>	250 <sup>H</sup>	210	200	210 <sup>H</sup>	225	210	205	225	240	255	290	285
4	300	265	265	250	230	200	225	220	210	200	195	200	230	200	220 <sup>H</sup>	220	225	215	215	230	215	230	235	250
5	260	270	260	255	250	220	225	220	210 <sup>H</sup>	195	195	200	225 <sup>H</sup>	200	205	210	230	215	230	240	220	220	250	235
6	250	265	270	265	265	300	250	240	260 <sup>H</sup>	245 <sup>H</sup>	205	205	250	200	205	240	225	215	215	235	225	235	210	250
7	290	275	A	275	230	265	230	225	210 <sup>H</sup>	225	195	210	205	200	235	205 <sup>H</sup>	205 <sup>H</sup>	230	210	220	220	250	C	250
8	270	265	240	260	275	225	235	240	215	A	200	200	210	205	210	210	220 <sup>H</sup>	235	205	210	235	240	245	C
9	290	250	245	255	235	240	250	200	A	200	200	200	200 <sup>H</sup>	215	210	220	225	215	215	220	210	245	275	275
10	275	250	255	255	250	245	220	205	200 <sup>H</sup>	225 <sup>H</sup>	200	205	200	210	200	205	210	225	215	205	245	250	265	265
11	275	270	255	265	255	245	220	230	230	215	200	195	200 <sup>H</sup>	200	210	200	220	225	210	210	210	250	270	270
12	275	250	250	260	245	245	225	225	210	195	200	200	200	195	205	210	215 <sup>H</sup>	215	210	230	250	280	280	295
13	295	310	275	250	215	S	240	225	220	200	200	200	200	200 <sup>H</sup>	215	215	215 <sup>H</sup>	220	215	245	A	A	260	285
14	270	255	240	225	220	255	225	220	210	235	200	195	200	235	210	205	200	225	215	230	250	255	285	285
15	255	240	255	245	250	235	225	220	215	225	215	200 <sup>H</sup>	210	205	220	215	225	230	230	250	225	275	255	250
16	295	250	275	260	225	250	220	230	225	225	220	205	200	205	210	200	215	225	215	240	265	280	275	255
17	255	260	245	255	225	225	220	225	220	235	205	200	195	200 <sup>H</sup>	200	225	225	230	220	245	250	250	240	250
18	250	250	245	230	250	225	215	210	225	200	220	200	200	200	230	210	225 <sup>H</sup>	225	215	250	270	260	260	245
19	255	270	230	250	255	230	215	230	210	225	A	205	205	200	195	200	230	225	210	255	250	265	250	230
20	250	250	250	240	250	240	245	245	230	215	200	210	205	205	205	C	225 <sup>H</sup>	C	220	230	255	290	260	255
21	270	255	235	250	215	250	215	215	215	230	210	195	200	200	200	240	235	220	220	255	260	275	275	270
22	255	260	250	260	230	230	215	220	220	205	200	210	220	200	205	210	200 <sup>H</sup>	235	225	250	250	245	250	245
23	270	255	270	250	235	225	220	235	220	205	200	200	200	210	200	230	235 <sup>H</sup>	230	215	230	250	245	250	255
24	250	275	265	255	230	240	210	220	210	200	200	200	210	205	205	205	210 <sup>H</sup>	235	230	235	255	265	255	265
25	250	250	250	235	225	220	215	235	225	220	215	A	195	200	200	215	215 <sup>H</sup>	235	215	215	250	255	260	255
26	300	275	300	260	215	225	210	225	205 <sup>H</sup>	225	200	205	200	200	205	210	230	225	210	240	255	280	275	275
27	285	270	255	240	220	270	220	225	215	210	200	200	200	205	225	220	225	235	245	240	225	250	265	285
28	270	260	270	270	265	250	210	235	225	245	210	240 <sup>H</sup>	205	225	210	220	225	245	225	220	250	275	270	260
29	270	260	250	250	240	250	225	230	225	A	A	195	225	205	215	210	235 <sup>H</sup>	250	225	205	230	260	270	285
30	285	275	275	255	245	205	210	220	210 <sup>H</sup>	200	205	200	195	205	205	200	235	230	215	225	250	260	250	255
31	275	260	280	240	225	250	215	240	200	250	205	200	200	200	200	215	205 <sup>H</sup>	220	220	250	250	235	245	260
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	31	31	30	31	31	30	29	29	30	31	31	31	30	31	30	31	31	31	30	30	30
MED	270	260	255	255	235	240	220	225	215	215	200	200	200	200	205	210	225	225	215	230	250	255	260	260
UQ	290	270	270	260	250	250	225	230	225	225	205	205	210	205	215	220	228	230	220	242	252	270	275	285
LQ	255	252	250	242	225	225	215	220	210	200	200	200	200	200	202	205	215 <sup>H</sup>	220	210	220	228	245	250	250

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H\*F (KM)

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### IONOSPHERIC DATA

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H<sup>o</sup>E (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 25 MHz in 24sec 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	150	115	115	110	105	115	A	A	115	120	S						
2							S	B	A	110	110	110	115	115	115	110	110	S						
3							S	120	A	115	A	110	115	115	115	120	120	S						
4							S	120	115	110	A	110	115	115	120	120	120	S						
5							S	125	115	115	115	115	115	110	120	120	120	S						
6							S	125	105	A	A	110	115	115	115	115	120	S						
7							S	120	110	110	A	110	110	110	110	115	115	145						
8							S	125	110	110	A	105	110	110	105	A	120	S						
9							S	120	110	A	A	110	110	A	115	A	120	125						
10							S	120	115	H	110	110	105	110	110	110	115	125	S					
11							S	120	115	115	115	115	115	115	110	115	115	S						
12							S	115	A	A	110	110	A	120	120	115	120	130	S					
13							S	115	A	A	110	110	110	110	110	110	110	125						
14							E	115	110	110	110	110	110	110	110	110	115	125						
15							E	115	110	110	110	110	110	105	105	105	115	125						
16							S	115	110	105	A	A	120	110	110	110	110	115						
17							S	115	110	110	105	A	115	115	110	110	A	125						
18							S	120	110	105	A	A	115	A	A	110	110	A						
19							S	115	115	110	110	110	110	110	110	110	110	115						
20							S	120	115	115	110	110	110	105	110	C	115	C						
21								145	115	110	110	110	110	110	110	115	115	115	120	S				
22								140	115	110	110	105	110	110	110	105	110	115	120	S				
23							S	120	110	110	110	110	105	105	110	105	115	115	E					
24								130	110	A	110	105	110	A	110	110	105	110	120	E				
25								125	110	110	105	105	A	110	110	110	110	110	120	S				
26								125	115	110	105	110	110	A	105	105	110	110	115	S				
27								130	110	110	110	105	105	110	110	105	105	110	115	E				
28								140	115	110	110	110	110	110	110	110	110	110	115	S				
29								130	110	105	105	110	110	110	110	105	110	A	A	E				
30								130	110	110	110	110	110	115	110	110	110	110	120	S				
31								120	110	110	105	105	110	110	115	110	105	110	115	S				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							10	30	26	27	23	27	28	28	29	28	29	20						
MED							130	115	110	110	110	110	110	110	110	110	110	115	120					
UQ							140	120	115	110	110	110	115	115	115	115	120	125						
LQ							125	115	110	110	108	110	110	110	110	110	110	115						

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H<sup>o</sup>E (KM)

The Radio Research Laboratories, Japan



# 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 25 MHz in 24sec 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	S	S	S	E	S	S	G	G	G	120	125	105	100	100	G	G	S	115	110	S	115	110	S																								
2	S	100	100	100	E	E	S	G	110	G	G	G	105	G	G	G	G	S	105	105	105	S	S	105																								
3	100	100	100	100	S	S	S	G	110	G	105	G	G	G	G	G	G	S	S	S	S	S	110	100																								
4	100	100	S	S	E	125	S	G	G	110	105	G	100	100	100	G	G	100	S	100	S	S	S	S																								
5	S	E	S	S	S	100	S	G	G	G	105	G	G	G	G	G	G	S	S	S	S	S	S	S																								
6	S	E	S	100	S	S	S	G	110	105	105	G	G	G	G	G	G	S	E	S	S	S	S	E																								
7	S	E	105	105	S	S	S	G	G	110	110	110	G	G	100	G	G	G	S	S	S	S	C	110																								
8	105	S	S	E	E	S	S	G	115	110	105	G	G	G	100	G	135	S	S	110	105	105	C																									
9	S	S	S	S	E	E	S	G	110	110	105	G	G	105	105	100	G	G	E	S	S	S	S	105																								
10	S	E	S	E	S	S	S	G	G	G	G	G	G	G	G	G	G	S	E	E	S	S	S	125																								
11	105	105	E	E	E	E	160	G	G	G	G	G	G	G	G	G	G	S	E	S	S	S	S	S																								
12	S	S	105	105	105	S	S	G	110	110	G	G	105	105	100	100	100	G	100	S	S	115	115	110																								
13	105	105	105	105	E	S	S	G	105	110	G	G	G	G	G	G	G	G	S	S	110	110	105	S																								
14	S	S	S	E	E	S	155	G	G	110	G	G	G	G	G	G	G	G	E	S	S	S	S	S																								
15	S	S	S	S	S	E	150	G	G	115	G	110	G	G	G	G	G	G	S	S	S	S	105	110																								
16	105	100	100	100	105	105	150	G	G	G	110	110	105	G	G	100	G	G	S	110	S	110	105	S																								
17	105	100	100	100	100	100	100	G	G	G	G	100	100	100	100	G	100	100	100	S	S	S	E	S																								
18	S	S	100	E	100	E	150	G	G	110	105	105	105	100	105	100	G	100	105	100	E	S	S	S																								
19	S	S	100	100	S	100	135	G	115	G	110	G	G	G	G	G	G	G	100	100	100	S	S	S																								
20	S	E	S	S	100	E	S	G	G	120	G	G	G	G	G	C	G	C	100	E	S	S	S	S																								
21	S	S	S	S	E	S	G	G	G	G	G	G	G	G	G	G	G	G	S	S	E	S	110	110																								
22	S	S	E	S	S	S	G	G	G	115	115	110	G	G	G	G	G	G	S	S	S	110	110	110																								
23	S	E	S	E	105	S	S	G	G	110	110	110	G	G	G	G	G	G	E	E	S	S	S	S																								
24	E	S	S	S	E	S	G	G	105	G	G	G	105	G	G	G	G	G	140	S	S	S	E	S																								
25	S	E	S	E	E	S	G	G	G	G	110	105	G	G	G	G	105	G	S	S	S	S	110	S																								
26	S	S	S	105	E	S	G	G	G	110	110	110	105	110	G	G	G	G	S	S	S	S	S	S																								
27	S	S	100	100	S	S	140	G	G	G	110	G	G	G	G	G	G	120	115	S	S	S	E	S																								
28	S	E	S	S	E	S	145	G	G	125	G	115	G	G	G	G	G	G	S	S	S	S	S	S																								
29	S	S	E	E	E	S	G	G	125	120	110	G	G	G	G	100	100	100	100	S	E	S	S	S																								
30	100	100	S	S	S	S	G	G	G	115	G	G	105	105	G	G	G	G	S	E	E	S	S	S																								
31	S	S	105	E	100	100	G	G	G	G	105	110	G	105	G	G	G	100	S	S	S	S	S	S																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																								
CNT	8	8	11	11	7	6	9		10	17	18	12	10	9	7	6	4	7	10	6	4	6	10	9																								
MED	105	100	100	100	100	100	150		110	110	110	110	105	105	100	100	100	100	102	102	108	110	110	110																								
UQ	105	102	105	105	105	105	150		115	115	110	110	105	105	102	100	102	110	115	110	110	115	110	110																								
LQ	100	100	100	100	100	100	140		110	110	105	108	105	100	100	100	100	100	100	100	102	110	105	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	WAKKANAI																							
Lat.	45° 23.5' N																							
Long	141° 41.2' E																							
Sweep	1 MHz to 25 MHz in 24sec 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											C1	C2	L1	L1	L2				F1	F1		F1	F1	
2		F1	F1	F1				L1					L1						F1	F2	F2			F1
3	F2	F2	F2	F1				L1		L1													F1	F2
4	F2	F1				F1			C1	L2			L1	L1	L1		L1		F1					
5						F1				L1														
6				F1				C2	L2	L2														
7			F3	F2					C2	L2	C1				L1									F1
8	F1							C2	C2	L2						L1		C1			F1	F2	F2	
9								C4	L1	L1				L2	L1	L2								F1
10																								F1
11	F1	F1					H1																	
12			F2	F2	F2			L1	L1				L2	L1	L1	L1	L1		F1			F2	F2	F2
13	F2	F3	F2	F1				L2	L2												F4	F3	F1	
14							H1		C1															
15							H1		C2		C2												F2	F1
16	F4	F4	F4	F2	F1	F2	H1			L2	L2		L2			L1				F1		F2	F2	
17	F2	F1	F2	F2	F2	F2	L1				L1		L1	L1	L1		L2	L1	F1					
18			F1		F1		H1		C2	L2	L1		L2	L2	L2	L2		L2	F1	F2				
19			F2	F2		F2	C1		C2		C2								F2	F2	F1			
20					F1				C1										F1					
21																							F2	F2
22									C2	C2	C2											F2	F3	F1
23					F1				C1	C1	C1													
24								L1					L2							C1				
25										C2	L2						L1						F1	
26				F1					C2	C2	C2		L2	C1										
27			F2	F1			C1				C2							C2	C1					
28							C1			C2		C2												
29									C2	C2	C2					L2	L2	L1	L1					
30	F2	F1								C2			L2	L1										
31			F2		F2	F1					C1	C2		L1					L1					
	00	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

MAR. 1985

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 25 MHz in 24sec 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 38	X 38	X 41	X 47	X 41	X 32												X 56	X 43	X 30	X 33	40	40											
2	39	39	40	40	X 37	X 31												X 60	X 50	X 40	X 38	X 36	X 36											
3	X 36	X 37	X 41	X 41	X 38	43												X 52	X 41	X 38	X 37	X 37	40											
4	40	39	40	X 41	X 39	X 27												X 51	X 42	X 43	X 40	X 38	X 39											
5	X 40	X 40	X 41	X 42	X 42	X 40												X 48	X 49	X 53	X 52	X 40	X 38											
6	X 40	X 42	X 45	50	50	43												X 52	X 47	X 51	X 53	X 35	X 37											
7	X 38	50	51	56	62	51	53											X 63	X 48	X 44	X 38	X 40	X 44											
8	43	43	50	48	44	44												X 77	X 48	X 41	X 43	X 44	X 45											
9	X 44	47	52	59	62	50												X 56	X 43	X 41	X 36	X 39	X 41											
10	43	43	44	44	39	39												X 63	X 46	X 37	X 38	X 38	X 41											
11	40	44	50	50	50	50												X 64	X 54	X 44	48	48	52											
12	59	68	60	53	49	37												X 50	X 38	X 38	X 37	40	41											
13	40	37	37	37	33	26												X 54	X 42	X 41	X 38	X 39	X 39											
14	38	40	X 38	X 33	30	X 25												X 56	X 46	X 43	X 39	X 40	X 41											
15	X 40	X 39	X 39	X 36	X 33	X 31												X 57	X 56	X 58	X 49	X 48	X 48											
16	X 45	X 45	X 42	X 37	X 35	X 34												X 55	X 49	X 47	49	48	X 46											
17	X 45	X 42	50	44	40	34												X 56	X 50	X 50	X 48	X 49	X 48											
18	X 47	X 47	X 45	X 44	X 43	48												X 54	X 50	X 46	X 45	X 45	X 43											
19	X 42	45	46	X 41	X 39	X 36												X 63	X 49	X 51	X 50	X 51	X 52											
20	X 50	53	56	X 47	48	X 41												X 58	X 50	X 46	X 46	X 48	X 48											
21	X 45	X 45	X 44	X 43	X 35	X 33													X 42	X 43	X 44	X 46	X 44											
22	X 42	X 41	X 40	X 42	X 38	X 34													X 59	X 55	X 54	X 47	X 43											
23	47	49	48	47	49	X 39													X 54	X 48	X 47	X 43	X 42											
24	X 42	X 41	X 40	X 40	X 38	X 37													X 59	X 55	X 55	X 54	X 53											
25	X 51	X 49	X 48	X 49	X 42	X 39													X 48	X 42	X 42	X 44	X 43											
26	X 41	X 39	X 40	49	50	39													X 53	X 48	X 46	X 45	X 48											
27	48	49	50	44	X 35	X 32													X 71	X 63	X 55	X 52	X 52											
28	X 52	55	X 49	X 46	X 42	X 44													X 63	X 52	X 48	X 50	X 49											
29	X 48	X 46	50	X 46	X 41	X 41													X 73	X 45	X 45	X 44	X 44											
30	X 43	X 44	X 43	X 43	X 41	X 38													X 58	X 52	X 50	X 50	X 48											
31	X 48	X 48	X 45	X 45	X 36	X 38													X 61	X 59	X 58	X 51	X 49											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT	31	31	31	31	31	31	1											20	31	31	31	31	31	31										
MED	X 43	X 44	X 45	X 44	X 41	X 38	53											X 56	X 49	X 46	X 46	X 44	X 44											
UQ	X 47	48	50	48	46	42												X 62	X 55	X 52	X 50	X 48	X 48											
LQ	X 40	X 40	X 40	X 41	X 38	X 34												X 53	X 46	X 42	X 38	X 40	X 41											

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FXI (0.1 MHz)

### IONOSPHERIC DATA

MAR. 1985      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 25 MHz in 24sec 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	32	32	35	41	35	26	29	49	72	82	63	66 <sup>R</sup>	78	68	62	62	72	68	50	37	24	27	31	31 <sup>F</sup>
2	F	F	F	31	31	25	30	54	54	60	62	65	80	86	81	63	60	59	54	44	34	32	30	30
3	30	31	35	35	32	F	39	61 <sup>H</sup>	65	69	80	92	87	92	81	64	68	66	46	35	32	31	31	F
4	F	F	F	35	33	21	31	52	62	56	63	76	82	82	67	68	57	55	45	36	37	34	32	33
5	34	34	35	36	36	34	39	61	64	54	66	71	76	71	66	61	56	54	42	43	47	46	34	32
6	34	36	39	F	F	F	43	47	54	58	60	69	108	102	59	59	57	54	46	41	45	47	29	31
7	32	F	F	F	F	F	F	F	56	56	57	65	71	86	74	73	54	56	61	57	42	38	32	34 <sup>F</sup>
8	F	F	F	F	36	36	43	51	68	54	66	73	89	85	72	63	56	60	71	42	35	37	38	39
9	38	37	F	F	F	F	40	46	58	67	58	55	65	75	72	62	53	52	53	50	37	35	30	33 <sup>F</sup>
10	F	F	F	F	29	F	40	49	55	54	54	62 <sup>H</sup>	66	73	64	53	52	56	57	40	31	32	32	32 <sup>F</sup>
11	F	F	F	F	F	F	44	47	56	53	61	59 <sup>H</sup>	78	72	64	66	66	58	58	48	38	37 <sup>F</sup>	38 <sup>F</sup>	F
12	F	F	F	F	F	29	34	45	50	55	55	66	76	75	62	64	58	54	44	32	32	31	32 <sup>F</sup>	F
13	F	F	30	30	24	F	34	43	53	59	64	61	59	61	66	61	56	54	48	36	35	32	33	32 <sup>F</sup>
14	31	31	32	27	21	19	35	45	A	57	65	63	70	79	62	55	54	53	50	40	37	33	34	35
15	34	33	33	30	27	25	36	52	51	57	62	67	72	70	60	58	55	56	51	50	52	43	42	42
16	39	39	36	31	29	28	40	52	57	64	72	76	70	67	60	56	52	50	49	43	41	40 <sup>F</sup>	39 <sup>F</sup>	40
17	39	36	39	35	33	26	37	48	57	69	72	58	61	61	61	57	55	52	50	44	44	42	43	42
18	41	41	39	38	37	F	44	53	51	56	66	70	57	61	62	71	58	55	48	44	40	39	39	37
19	36	37	F	35	33	30	41	48	54	77	82	67	57	58	56	56	61	62	57	43	45	44	45	46
20	44	44	F	41	38	35	43	60	65	82	68	62	69	64	65	64	67	55	52	44	40	40	42	41 <sup>F</sup>
21	39	39	38	37	29	27	44	53	55	64	66	66	70	64	66	67	57	55	43	36	37	38	40	38
22	36	35	34	36	32	28	42	50	57	65	61	64	65	65	66	58	56	52	53	53	49	48	41	37
23	36	F	36	37	38	33	44	55	56	61	56	67	73	77	63	60	62	58	56	48	42	41	37	36
24	35	35	34	34	32	31	42	51	52	56	65	60	71	76	77	62	54	51	50	53	49	49	48	47
25	45	43	42	43	36	33	44	58	56	61	63	72	67	68	74	63	61	65	67	42	36	36	38	37 <sup>S</sup>
26	35	33	34	F	F	F	43	48	61	63	66	72	76	74	80	77	65	66	49	47	42	40	39	40 <sup>F</sup>
27	F	F	F	38	29	26	44	54	57	59	67	72	61	67	72	73	67	64	64	65	57	49	46	46
28	46	F	43	40	36	38	47	51	54	61	71	66 <sup>UR</sup>	85	95	85	84	77	70	67	57	46	42	44	F
29	42	40	F	40	35	35	52	58	70	68	69	62	67	71	67	63	64	71	76	67	39	39	38	38
30	37	38	37	37	35	32	42	52	61	68	71	73	71	81	71	66	57	65	61	52	46	44	44	42
31	42	42	39	39	30	32	46	52	62	66	67	62	63	63	71	65	64	60	62	55	53	52	45	43
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	21	21	23	25	24	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26
MED	36	36	35	36	33	30	42	52	56	60	65	66	71	72	66	63	57	56	51	43	40	39	38	38
UQ	40	39	39	38	36	34	44	54	62	66	68	72	78	78	72	66	64	63	58	49	46	44	42	42
LQ	34	33	34	34	29	26	37	48	54	56	62	62	66	66	62	58	56	54	48	40	36	32	33	33

MAR. 1985      FOF2 (0.1 MHz)

### IONOSPHERIC DATA

MAR. 1985

FOF1 (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 25 MHz in 24sec 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								
2									L	L	L	L	420	L	L	L	L							
3									L	410	420	420	L	430	430	L	L							
4									L	L	420	L	L	430	L	L	L							
5									L	L	L	430	420	410	400	L	L							
6									L	L	L	L	430	L	L	L								
7									L	400	L	L	420	430	420	L	L							
8									L	430	L	420	420	430	410	370	L							
9									L	390	L	L	460	420	410	L	310							
10									L	L	L	420	430	420	410	L	L							
11									L	L	L	L	420	430	L	400	L							
12									L	410	L	L	430	430	420	L	L							
13									L	400	420	430	410	420	420	L	L							
14									A	L	430	430	430	430	420	L	L							
15									L	410	420	420	430	430	420	390	330							
16									L	420	420	430	430	430	L	L	L							
17									L	410	420	430	430	420	410	L	L							
18									L	L	420	420	430	430	L	400	L							
19									L	410	430	430	440	430	420	390	L							
20								L	L	420	420	430	430	440	430	L	L							
21									L	420	430	440	440	440	430	390	L							
22									400	410	430	430	430	430	430	400	330							
23									L	420	L	430	430	430	430	410	L							
24									L	L	430	430	450	440	420	400	L							
25								L	400	L	L	430	440	440	380	L	L							
26									L	420	L	450	L	440	430	410	L							
27									L	L	430	440	430	430	430	400	L							
28									L	L	L	430	430	430	430	420	L							
29									410	410	L	430	L	440	430	420	L							
30									L	430	430	440	450	440	430	L	L							
31									L	420	L	430	440	440	430	410	L							
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									3	18	16	23	26	28	24	14	3							
MED									400	410	420	430	430	430	420	400	330							
UQ									405	420	430	430	440	440	430	410	330							
LQ									400	410	420	430	430	430	415	390	320							

MAR. 1985

FOF1 (0.01 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

F0E (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 25		MHz in 24sec		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	S	220	260	285	300	305	300	290	260	240	S							
2								S	S	235	265	295	305	310	305	295	A	A	S							
3								S		A	270	A	305	305	305	300	270	A	S							
4								S		190	245	275	295	310	310	310	305	280	240	S						
5								S		200	250	280	300	305	310	310	300	270	250	S						
6								S		190	250	A	A	A	305	305	295	270	240	S						
7								S		195	240	270	A	A	310	305	295	A	A	S						
8								S		205	240	280	A	A	A	305	300	A	A	A						
9								S		195	235	A	A	A	A	A	A	260	235	S						
10								S		195	A	280	295	305	305	305	295	270	240	S						
11								S		200	265	A	A	A	310	315	300	280	245	180						
12								S		210	A	A	A	310	315	310	300	270	240	S						
13								S		205	A	A	305	I S 315	320	A	305	280	240	180						
14								S		205	A	285	305	310	315	315	300	270	245	180						
15								S		220	A	A	A	310	315	320	305	280	250	190						
16								S		215	240	270	A	A	320	315	305	280	255	S						
17								S		210	255	285	305	A	A	310	A	280	235	S						
18								S		220	250	270	A	A	320	A	305	A	235	185						
19								S		220	255	A	A	320	320	320	300	280	250	A						
20								S		230	270	A	305	320	320	315	305	280	250	A						
21								S		215	260	280	295	320	320	315	305	280	245	195	S					
22								S		215	265	295	A	320	320	320	305	280	250	210	S					
23								S		220	270	290	A	320	330	325	310	290	240	A	S					
24								S		220	260	295	315	320	A	A	A	290	245	A	S					
25								S		180	225	265	A	310	A	325	320	305	285	250	195	S				
26								S		220	270	A	A	A	325	A	A	290	250	205	S					
27								S		220	265	300	315	330	335	320	310	285	250	A	S					
28								S		225	260	295	310	A	A	A	A	280	245	205	S					
29								S		220	255	295	320	325	325	A	305	280	245	200	S					
30								S		225	270	300	A	320	325	325	305	290	255	205	S					
31								S		230	270	300	320	A	330	325	305	290	255	200	S					
		00	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	29	25	21	16	19	26	24	26	27	27	13							
MED								180	215	255	280	305	315	320	315	305	280	245	195							
UQ								220	265	295	312	320	325	320	305	282	250	205								
LQ								200	245	270	295	308	310	305	300	270	240	185								

MAR. 1985

F0E (0.01 MHz)

# IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24sec 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	ES 15	ES 15	ES 15	JA 41	ES 15	ES 15	ES 16	ES 17	G	G	G	G	35	32	JA 46	G	G	JA 20	JA 30	ES 16	JA 20	JA 25	ES 15	ES 15
2	ES 16	ES 16	ES 16	ES 16	ES 15	ES 15	ES 15	ES 17	G	G	G	G	G	G	G	34	JA 26	ES 17	ES 16	JA 18	ES 16	ES 16	JA 18	ES 15
3	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	24	JA 29	G	JA 31	G	G	G	G	G	JA 32	JA 32	JA 28	JA 21	ES 15	JA 20	ES 15	ES 15
4	JA 21	JA 20	JA 24	ES 15	ES 15	ES 15	ES 16	G	G	G	G	JA 42	34	G	G	G	G	ES 17	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15
5	ES 15	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15	G	G	G	G	JA 46	G	G	G	G	G	ES 17	JA 20	ES 15	ES 16	ES 16	ES 16	ES 16
6	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	ES 16	G	G	29	JA 42	JA 50	G	G	G	G	G	JA 29	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15
7	ES 15	ES 16	ES 15	ES 15	ES 15	ES 16	ES 16	G	G	G	30	32	25	G	G	JA 41	JA 28	ES 18	ES 16	ES 16	ES 15	ES 15	ES 15	ES 15
8	ES 16	ES 16	ES 15	ES 15	ES 16	ES 15	ES 16	G	G	G	JA 35	JA 66	JA 46	G	JA 36	JA 32	JA 29	21	ES 16	JA 20	ES 15	ES 16	JA 25	ES 16
9	ES 16	JA 20	ES 16	ES 16	ES 15	JA 23	ES 16	G	G	JA 33	JA 50	JA 110	JA 107	JA 83	JA 31	20	19	17	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15
10	ES 16	ES 15	JA 20	ES 16	ES 15	ES 16	ES 15	G	JA 27	G	G	G	G	G	G	G	G	ES 17	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15
11	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	G	G	JA 36	JA 65	JA 54	G	G	G	G	G	G	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15
12	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	G	JA 26	36	JA 36	G	JA 43	36	36	27	G	JA 25	JA 19	ES 16	ES 15	ES 15	JA 20	ES 16
13	JA 29	JA 20	JA 19	JA 19	ES 15	ES 16	ES 16	JA 30	JA 31	JA 39	G	ES 33	G	JA 30	JA 33	27	22	G	G	ES 16	ES 15	ES 15	JA 24	JA 23
14	JA 20	ES 15	JA 20	ES 16	ES 15	ES 16	ES 17	JA 34	JA 74	G	G	G	G	G	G	G	G	G	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15
15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 17	G	36	32	JA 31	G	G	G	G	G	G	G	ES 16	ES 15	ES 15	ES 15	JA 20	ES 16
16	ES 15	ES 15	ES 16	ES 15	JA 24	ES 15	ES 17	24	28	32	JA 41	JA 31	G	G	G	G	G	JA 24	JA 24	ES 16	ES 15	JA 24	ES 16	ES 16
17	JA 20	ES 16	ES 15	ES 15	ES 15	ES 15	20	G	G	G	JA 32	JA 37	JA 36	G	JA 37	26	27	ES 17	ES 15	JA 18	ES 16	ES 16	ES 15	ES 15
18	ES 15	ES 16	ES 15	ES 16	JA 24	ES 16	ES 16	G	30	G	JA 36	JA 36	35	JA 36	G	JA 30	G	G	ES 15	ES 15	ES 15	ES 15	ES 15	
19	JA 34	JA 20	JA 32	JA 24	ES 15	ES 15	ES 16	G	G	JA 32	JA 32	JA 32	G	G	G	G	G	JA 25	ES 16	JA 29	JA 22	JA 21	ES 15	ES 16
20	ES 15	ES 15	ES 16	JA 19	JA 21	ES 15	ES 17	G	G	34	G	G	G	G	G	G	G	JA 24	JA 24	JA 23	JA 20	JA 19	ES 16	ES 16
21	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	ES 16	G	G	G	G	G	G	G	G	JA 28	JA 31	G	JA 19	ES 15	ES 16	ES 16	ES 15	ES 15
22	JA 20	ES 15	JA 19	ES 15	ES 15	ES 15	20	26	G	G	33	G	G	G	G	30	27	26	JA 19	ES 15	ES 15	ES 15	ES 15	JA 38
23	JA 40	JA 21	ES 15	ES 15	ES 15	ES 15	ES 17	G	G	G	JA 32	G	36	G	JA 31	32	G	JA 22	JA 19	ES 16	ES 15	ES 15	ES 15	ES 15
24	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	22	29	31	36	G	G	34	JA 36	JA 37	G	G	25	ES 16	JA 21	JA 21	ES 16	ES 15	ES 15
25	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	G	G	31	JA 33	G	36	G	G	G	G	G	G	ES 16	ES 17	ES 16	ES 15	ES 15	JA 41
26	JA 23	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15	G	G	35	JA 42	JA 37	G	JA 36	34	G	G	G	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15
27	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	G	G	G	G	G	36	34	G	G	G	JA 36	JA 46	JA 28	ES 15	JA 20	ES 16	ES 15
28	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	G	32	38	36	JA 42	38	33	32	G	G	G	ES 16	JA 20	ES 15	ES 15	ES 15	ES 15
29	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	G	G	G	JA 51	G	JA 38	G	G	G	G	G	ES 16	JA 18	JA 21	ES 15	ES 15	ES 15
30	ES 15	ES 15	ES 16	ES 15	ES 15	ES 15	ES 16	29	G	35	36	G	31	G	30	G	G	G	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15
31	ES 15	ES 15	ES 15	ES 15	JA 20	ES 16	ES 16	G	G	G	G	JA 36	G	G	G	34	G	G	JA 19	ES 16	JA 20	ES 15	ES 15	ES 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	G	G	G	31	32	G	G	G	G	G	EG 17	ES 16	ES 16	ES 15	ES 15	ES 15	ES 15
UQ	18	ES 16	ES 16	ES 16	ES 15	ES 16	ES 16	17	28	34	JA 36	JA 40	35	33	31	28	20	JA 24	JA 19	JA 18	ES 16	ES 16	ES 16	ES 16
LQ	ES 15	ES 15	ES 15	ES 15	ES 15	ES 15	ES 16	G	G	G	G	G	G	G	G	G	G	G	ES 16	ES 15	ES 15	ES 15	ES 15	ES 15

MAR. 1985

FOES (0.1 MHZ)

The Radio Research Laboratories, Japan

### IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24sec 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 15	E S 15	E S 15	E	E S 15	E S 15	E S 16	E S 17	G	G	G	G	34	32	31	G	G	G	E	E S 16	E	21	E S 15	E S 15
2	E S 16	E S 16	E S 16	E S 16	E S 15	E S 15	E S 15	E S 17	G	G	G	G	G	G	G	27	23	E S 17	E S 16	E	E S 16	E S 16	E	E S 15
3	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	23	25	G	31	24	G	G	G	G	24	22	E	E	E S 15	E	E S 15	E S 15
4	E	E	E	E S 15	E S 15	E S 15	E S 16	G	G	G	G	26	24	G	G	G	G	E S 17	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
5	E S 15	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15	G	G	G	G	29	G	G	G	G	G	E S 17	E	E S 15	E S 16	E S 16	E S 16	E S 16
6	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	E S 16	G	G	29	31	34	G	G	G	G	G	G	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15
7	E S 15	E S 16	E S 15	E S 15	E S 15	E S 16	E S 16	G	G	G	30	31	22	G	G	28	23	E S 18	E S 16	E S 16	E S 15	E S 15	E S 15	E S 15
8	E S 16	E S 16	E S 15	E S 15	E S 16	E S 15	E S 16	G	G	G	32	32	34	G	26	28	25	21	E S 16	E	E S 15	E S 16	E	E S 16
9	E S 16	E	E S 16	E S 16	E S 15	E	E S 16	G	G	28	40	35	42	34	30	19	19	E S 17	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
10	E S 16	E S 15	E	E S 16	E S 15	E S 16	E S 15	G	27	G	G	G	G	G	G	G	G	E S 17	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15
11	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	G	G	32	32	33	G	G	G	G	G	G	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
12	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	G	26	33	31	G	23	21	G	19	G	22	E	E S 16	E S 15	E S 15	E	E S 16
13	E	E	E	E	E S 15	E S 16	E S 16	G	27	30	G	E S 33	G	30	32	G	22	G	G	E S 16	E S 15	E S 15	E	E
14	E	E S 15	E	E S 16	E S 15	E S 16	E S 17	28	A A 74	G	G	G	G	G	G	G	G	G	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15
15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 17	G	28	30	31	G	G	G	G	G	G	G	E S 16	E S 15	E S 15	E S 15	E	E S 16
16	E S 15	E S 15	E S 16	E S 15	E	E S 15	E S 17	24	28	31	33	32	G	G	G	G	G	20	19	E S 16	E S 15	E	E S 16	E S 16
17	E	E S 16	E S 15	E S 15	E S 15	E S 15	19	G	G	G	29	33	34	G	33	18	20	E S 17	E S 15	E	E S 16	E S 16	E S 15	E S 15
18	E S 15	E S 16	E S 15	E S 16	E	E S 16	E S 16	G	29	G	33	33	29	31	G	29	G	G	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
19	20	E	E	E	E S 15	E S 15	E S 16	G	G	30	32	27	G	G	G	G	G	22	E S 16	E	E	E	E S 15	E S 16
20	E S 15	E S 15	E S 16	E	E	E S 15	E S 17	G	G	33	G	G	G	G	G	G	G	21	E	E	E	E	E S 16	E S 16
21	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	E S 16	G	G	G	G	G	G	G	G	21	21	G	G	E S 15	E S 16	E S 16	E S 15	E S 15
22	E	E S 15	E	E S 15	E S 15	E S 15	19	26	G	G	33	G	G	G	G	23	21	19	G	E S 15	E S 15	E S 15	E S 15	E
23	E	E	E S 15	E S 15	E S 15	E S 15	E S 17	G	G	G	36	26	30	G	28	25	20	22	G	E S 16	E S 15	E S 15	E S 15	E S 15
24	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	19	27	31	33	G	G	34	33	33	G	G	22	E S 16	E	20	E S 16	E S 15	E S 15
25	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	G	G	29	31	G	33	G	G	G	G	G	G	E S 16	E S 17	E S 16	E S 15	E S 15	E
26	E	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15	G	G	33	36	35	G	35	33	G	G	G	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15
27	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	G	G	G	G	G	30	26	G	G	G	34	46	26	E S 15	E	E S 16	E S 15
28	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	G	31	34	34	36	37	33	32	G	G	G	E S 16	E	E S 15	E S 15	E S 15	E S 15
29	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	G	G	G	G	23	G	36	G	G	G	G	E S 16	E	20	E S 15	E S 15	E S 15
30	E S 15	E S 15	E S 16	E S 15	E S 15	E S 15	E S 16	27	G	33	34	G	29	G	22	G	G	G	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15
31	E S 15	E S 15	E S 15	E S 15	E	E S 16	E S 16	G	G	G	G	35	G	G	G	34	G	G	G	E S 16	E	E S 15	E S 15	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	G	G	G	30	26	G	G	G	G	G	E G 17	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	E S 16	E G 17	27	31	32	33	30	28	26	22	20	20	E S 16	E S 16	E S 15	E S 15	E S 15	E S 15
LQ	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16	G	G	G	G	G	G	G	G	G	G	G		E	E S 15	E S 15	E S 15	E S 15

MAR. 1985

FBES (0.1 MHz)

The Radio Research Laboratories, Japan



# IONOSPHERIC DATA

MAR. 1985

FMIN (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 25 MHz in 24sec 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	E 15	E 15	E 15	E 15	E 15	E 16	E 17	16	18	17	17	17	18	16	18	17	E 16	E 16	E 16	E 15	E 15	E 15	E 15
2	E 16	E 16	E 16	E 16	E 15	E 15	E 15	E 17	17	17	17	18	18	17	17	17	17	E 17	E 16	E 15	E 16	E 16	E 15	E 15
3	E 15	E 15	E 15	E 15	E 15	E 15	E 16	E 16	16	16	17	17	17	18	17	17	16	E 16	E 16	E 16	E 15	E 16	E 15	E 15
4	E 15	E 15	E 15	E 15	E 15	E 15	E 16	E 16	16	17	17	17	17	19	17	17	16	E 17	E 15	E 15	E 15	E 15	E 15	E 15
5	E 15	E 16	E 15	E 15	E 15	E 15	16	16	16	17	17	17	17	20	18	16	17	E 17	E 16	E 15	E 16	E 16	E 16	E 16
6	E 15	E 15	E 15	E 15	E 15	E 16	E 16	E 16	17	17	17	17	17	17	16	17	17	E 17	E 16	E 15	E 15	E 15	E 15	E 15
7	E 15	E 16	E 15	E 15	E 15	E 16	E 16	E 17	16	16	18	17	17	17	17	17	17	E 18	E 16	E 16	E 15	E 15	E 15	E 15
8	E 16	E 16	E 15	E 15	E 16	E 15	E 16	E 16	16	16	16	17	17	17	17	17	17	E 17	E 16	E 15	E 15	E 16	E 15	E 16
9	E 16	E 15	E 16	E 16	E 15	E 16	E 16	E 16	16	17	17	17	17	17	17	17	17	E 17	E 15	E 15	E 15	E 15	E 15	E 15
10	E 16	E 15	E 16	E 16	E 15	E 16	E 15	16	17	16	16	17	17	17	17	17	16	E 17	E 16	E 15	E 15	E 15	E 15	E 15
11	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	17	17	17	17	17	17	17	17	17	E 16	E 15	E 15	E 15	E 15	E 15	E 15
12	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	17	17	17	17	17	17	17	16	16	E 17	E 15	E 16	E 15	E 15	E 15	E 15
13	E 16	E 15	E 15	E 15	E 15	E 16	E 16	E 16	17	17	17	E 33	17	18	16	17	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15
14	E 15	E 15	E 15	E 16	E 15	E 16	E 17	16	17	16	16	17	17	17	17	17	16	16	E 16	E 15	E 15	E 15	E 15	E 15
15	E 15	E 15	E 15	E 15	E 15	E 15	E 17	16	16	17	17	17	17	17	18	17	17	16	E 16	E 15	E 15	E 15	E 15	E 16
16	E 15	E 15	E 16	E 15	E 15	E 15	E 17	16	16	16	17	17	17	17	18	17	17	E 17	E 16	E 16	E 15	E 16	E 16	E 16
17	E 15	E 16	E 15	E 15	E 15	E 15	E 16	17	16	16	17	17	17	17	17	16	16	E 17	E 15	E 15	E 16	E 16	E 15	E 15
18	E 15	E 16	E 15	E 16	E 15	E 16	E 16	16	16	17	16	16	17	17	16	17	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
19	E 16	E 15	E 15	E 15	E 15	E 15	E 16	15	17	17	17	17	17	17	17	17	17	16	E 16	E 15	E 15	E 15	E 15	E 16
20	E 15	E 15	E 16	E 15	E 15	E 15	E 17	17	17	16	17	17	17	18	17	17	16	16	E 15	E 16	E 15	E 16	E 16	E 16
21	E 15	E 15	E 15	E 15	E 15	E 16	E 16	16	17	17	17	17	18	17	17	16	16	E 17	E 16	E 15	E 16	E 16	E 15	E 15
22	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	17	17	18	17	17	17	17	16	17	16	E 16	E 15	E 15	E 15	E 15	E 15
23	E 15	E 15	E 15	E 15	E 15	E 15	E 17	16	16	17	17	17	17	18	17	17	16	17	E 16	E 16	E 15	E 15	E 15	E 15
24	E 15	E 15	E 15	E 15	E 15	E 15	E 16	15	16	17	17	17	17	18	17	17	17	E 17	E 16	E 15	E 16	E 16	E 15	E 15
25	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	16	16	18	17	17	17	17	E 17	E 16	E 17	E 16	E 15	E 15	E 15
26	E 16	E 16	E 15	E 15	E 15	E 15	E 15	16	16	16	17	16	17	16	17	17	17	16	E 16	E 15	E 15	E 15	E 15	E 15
27	E 16	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	17	17	18	16	16	17	16	16	E 16	E 16	E 15	E 15	E 16	E 15
28	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	17	17	18	17	17	17	16	16	E 16	E 15	E 15	E 15	E 15	E 15
29	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	18	18	17	18	17	17	16	E 17	E 16	E 15	E 15	E 15	E 15	E 15
30	E 15	E 15	E 16	E 15	E 15	E 15	E 16	16	17	16	17	17	18	17	17	17	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15
31	E 15	E 15	E 15	E 15	E 15	E 16	E 16	16	17	17	17	19	17	19	17	16	17	E 16	E 16	E 16	E 15	E 15	E 15	E 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	17	17	17	17	17	17	17	E 17	E 16	E 15	E 15	E 15	E 15	E 15
UQ	E 16	E 15	E 15	E 15	E 15	E 16	E 16	16	17	17	17	17	17	18	17	17	17	E 17	E 16	E 16	E 15	E 16	E 15	E 15
LQ	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	17	17	17	17	17	17	16	16	E 16	E 15	E 15	E 15	E 15	E 15

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FMIN (0.1 MHz)

### IONOSPHERIC DATA

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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 25 MHz in 24sec 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	280	305	315	340	350	370	325	340	340	355	350	320 <sup>R</sup>	335	350	340	340	360	310	345	370	330	320	310 <sup>F</sup>	310 <sup>F</sup>
2	F	F	330 <sup>F</sup>	335 <sup>F</sup>	355	320	340	360	350	345	340	330	330	360	360	350	355	365	355	355	345	335	305	300
3	300	300	350	315	340	F	355	355 <sup>H</sup>	355	345	325	330	320	350	345	340	350	365	365	350	320	310	310	F
4	F	310 <sup>F</sup>	305 <sup>F</sup>	330 <sup>F</sup>	380	300	325	365	365	340	330	335	335	330	360	355	365	370	350	335	345	340	320	320
5	325	315	315	335	335	330	335	365	365	390	350	335	345	350	340	350	355	375	335	310	330	345	390	320
6	325	310	320	F	F	F	345	365	345	375	355	295	340	350	360	355	365	365	350	310	320	360	305	305
7	300	F	F	F	F	F	F	380	370	345	335	310	335	325	345	350	340	365	355	355	330	310	330	F
8	F	F	F	F	310 <sup>F</sup>	325 <sup>F</sup>	350	350	380	315	335	320	330	330	345	340	350	345	365	365	335	310	325	315
9	310	305 <sup>F</sup>	F	F	F	305 <sup>F</sup>	330	360	375	380	330	330	330	360	360	345	345	355	370	355	320	310	305	320 <sup>F</sup>
10	F	F	F	F	340 <sup>F</sup>	F	350	375	365	360	355	320 <sup>H</sup>	330	355	370	360	360	360	360	350	320	310	305	320 <sup>F</sup>
11	F	F	F	F	F	F	355	375	375	325	385	340 <sup>H</sup>	285	335	345	335	350	355	355	355	345	325 <sup>F</sup>	335 <sup>F</sup>	F
12	F	F	F	F	F	335 <sup>E</sup>	360	355	350	355	320	330	340	340	330	345	360	360	345	345	320	305	295 <sup>F</sup>	F
13	F	F	300 <sup>F</sup>	315 <sup>F</sup>	385 <sup>F</sup>	F	330	335	350	340	355	340	325	330	345	345	360	350	360	335	330	335	305	305 <sup>F</sup>
14	310 <sup>F</sup>	320 <sup>F</sup>	360	355	375 <sup>F</sup>	315	365	345	A	345	345	320	315	340	365	360	355	345	350	340	335	305	315	310
15	315	325	335	340	350	315	365	370	350	350	335	340	325	340	345	360	350	340	335	305	330	310	300	315
16	315	330	350	320	320	320	350	360	350	340	345	345	335	360	355	350	350	345	335	325	310	315 <sup>F</sup>	285 <sup>F</sup>	315
17	340	315	325 <sup>F</sup>	335 <sup>F</sup>	335 <sup>F</sup>	365 <sup>F</sup>	355	350	340	355	365	340	340	340	355	350	350	355	345	320	320	315	315	315
18	320	315	330	340	345	330 <sup>F</sup>	355	360	350	345	335	365	350	340	325	350	360	365	335	330	310	310	315	335
19	320	330 <sup>F</sup>	F	320	335	320	340	355	320	340	355	355	335	340	340	340	340	340	355	305	310	310	310	325
20	300	300 <sup>F</sup>	F	340	320 <sup>F</sup>	320	325	335	340	350	365	325	345	335	335	345	335	330	335	320	305	290	305	310 <sup>F</sup>
21	305	305	325	345	325	325	345	365	345	335	355	330	340	330	345	355	350	350	350	315	320	315	325	330
22	310	310	305	320	310	345	355	360	345	355	325	320	325	325	335	350	340	345	340	325	320	325	335	320
23	305 <sup>F</sup>	F	325 <sup>F</sup>	325 <sup>F</sup>	330 <sup>F</sup>	340	355	350	350	345	320	330	325	330	330	335	345	350	350	335	315	320	315	315
24	315	300	315	325	335	330	370	370	335	325	330	315	305	330	345	350	345	340	335	320	310	290	315	320
25	325	320	315	325	340	335	345	380	355	345	330	335	310	315	330	340	355	340	370	345	315	315	315	305 <sup>S</sup>
26	320	290	295	F	F	F	360	360	345	330	320	310	315	325	325	340	340	360	350	340	305	295	295	295 <sup>F</sup>
27	F	F	F	350	320	305	345	360	350	340	335	330	320	325	325	345	335	345	325	325	330	310	290	290
28	305	F	295	320	310	305	360	355	350	325	330	305 <sup>U R</sup>	300	330	315	320	330	325	350	330	320	300	305	F
29	310	305	F	325	335	335	365	345	350	335	345	320	330	330	345	340	335	340	340	360	325	290	310	305
30	315	305	315	325	335	370	365	365	345	350	340	335	310	325	335	340	345	340	345	325	315	300	300	300
31	305	305	315	330	330	325	370	340	350	345	345	340	335	320	340	340	350	355	335	315	300	305	305	300
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	21	21	23	25	24	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	26
MED	310	310	315	330	335	325	352	360	350	345	340	330	330	335	345	345	350	350	350	335	320	310	310	315
UQ	320	315	330	340	345	335	360	365	355	352	352	338	335	345	350	350	355	360	355	350	330	320	315	320
LQ	305	305	315	322	325	318	340	350	345	340	330	320	320	330	335	340	342	340	338	320	315	305	305	305

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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		AKITA							Lat. 39° 43.5' N , Long 140° 08.0' E				Sweep 1 MHz to 25 MHz in 24sec 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									
2									L	L	L	L	400	L	L	L	L								
3									L	360	380	385	L	370	365	L	L								
4									L	L	390	L	L	370	L	L	L								
5									L	L	L	395	390	385	365	L	L								
6									L	L	385	L	360	L	L	L									
7									L	400	L	L	385	370	365	L	L								
8									L	385	L	375	380	365	380	380	L								
9									L	395	L	L	A	375	360	L	410								
10									L	L	L	405	375	375	385	L	L								
11									L	L	L	L	380	375	L	370	L								
12									L	375	L	L	385	390	380	L	L								
13									L	390	385	390	410	370	365	L	L								
14									A	L	360	390	390	385	370	L	L								
15									L	385	385	400	375	365	390	390	425								
16									L	365	365	390	370	365	L	L	L								
17									L	370	375	395	405	380	380	L	L								
18									L	L	400	400	370	380	L	360	L								
19									L	370	365	390	385	375	375	390	L								
20								L	L	380	380	395	360	365	355	L	L								
21									L	380	370	395	385	370	375	380	L								
22									370	385	395	395	370	365	355	375	410								
23									L	390	L	400	375	385	380	365	L								
24									L	L	390	395	380	370	375	390	L								
25								L	390	L	L	365	370	390	400	L	L								
26									L	355	L	375	L	380	355	360	L								
27									L	L	365	360	390	390	350	370	L								
28									L	L	L	380	380	360	360	350	L								
29									375	375	L	390	L	355	360	360	L								
30									L	365	380	380	370	365	370	L	L								
31									L	375	L	390	380	380	365	370	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT									3	18	16	23	25	28	24	14	3								
MED									375	378	380	390	380	372	368	370	410								
UQ									382	385	388	395	385	380	380	380	418								
LQ									372	370	368	382	370	365	360	360	410								

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M(3000)F1 (0.01)

### IONOSPHERIC DATA

MAR. 1985

H<sup>o</sup>F2 (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 25 MHz in 24sec 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									260	230	240	240	260	255	245	250	245							
2									220	235	270	265	265	245	245	240	240							
3									230	255	260	245	260	245	250	240	245							
4									230	235	270	270	255	260	250	250	235							
5									220	225	260	280	245	255	245	245	235							
6									250	240	270	310	255	235	240	245								
7									235	265	275	270	250	270	260	250	245							
8									235	300	285	285	280	255	250	255								
9									230	225	280	295	290	250	255	255	245							
10									235	245	250	265	280	250	240	230	240							
11									225	310	240	260	270	250	270	275	240							
12									250	265	260	270	260	255	270	250	240							
13									255	285	250	275	295	295	260	250	250							
14									A	300	275	275	300	260	250	260	250							
15									245	265	275	275	275	260	260	255	250							
16									270	260	255	270	270	255	250	250	240							
17									260	250	240	280	270	270	260	270	250							
18									220	275	270	250	270	285	295	250	240							
19									300	260	245	245	275	285	270	280	260							
20								255	250	240	240	270	270	270	275	255	260							
21									250	275	255	295	270	275	270	255	245							
22									260	250	270	295	290	290	270	260	250							
23									245	250	325	305	290	270	280	280	255							
24									265	290	290	320	315	280	260	255	240							
25								235	250	270	290	265	275	305	255	255	245							
26									270	290	305	300	285	300	275	255	260							
27									235	260	285	265	290	300	280	260	250							
28									250	285	280	270	305	265	270	270	250							
29									240	250	260	270	270	290	275	270	255							
30									270	265	255	265	295	275	260	255	260							
31									250	260	255	270	295	305	270	260	250							
	00	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	29	31	31	31	31	31	31	31	29							
MED								245	250	260	270	270	275	270	260	255	245							
UQ									255	275	278	282	290	285	270	260	250							
LQ									235	248	255	265	268	255	250	250	240							

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H<sup>o</sup>F2 (KM)

IONOSPHERIC DATA

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H'F (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 25 MHz in 24sec 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	320	295	280	240	235	230	250	230	230	230	210	210	220	230	200	195	240	210	210	200	240	A	280	275
2	285	275	245	245	220	255	220	205	205	200 <sup>H</sup>	205	200	195	220	220	205	200	210	205	200	220	210	295	305
3	300	295	240	260	230	260	195	220	210	200	200	210	200 <sup>H</sup>	220	225	220	225	210	205	230	225	255	270	E S 305
4	290	280	280	230	200	E S 310	240	220	210	220	200	190	200	205	220	225	220	215	205	205	220	225	245	250
5	245	260	270	245	240	220	235	220	210	200	195	200	195	230	235	200	220	220	215	240	235	225	200	245
6	260	270	240	280	240	280	215	235	215	215	210	225	205	225	205	220	235	220	205	230	245	200	255	270
7	285	280	245	260	245	230	220	220	220	200	200 <sup>H</sup>	200 <sup>H</sup>	210	220	220	210	205	235	210	195	240	245	240	265
8	270	280	245	260	260	260	240	220	240	200	195	230	200	200	220	195	240	235	215	200	220	270	240	255
9	260	290	255	255	230	250	240	225	200	210	A	210	A	225	210	200	205	220	200	210	225	235	270	280
10	275	270	280	255	235	260	215	220	205	200	200	220	200	200	200	205	210	235	205	210	235	270	280	295
11	275	280	250	255	240	265	205	220	220	210	200	200	230	220	200	200	210	225	210	205	230	260	255	245
12	255	250	215	225	210	235	230	210	200	225	200	200	200	210	205	205	220	220	205	205	235	265	295	270
13	295	E S 320	275	240	200	E S 325	245	230	210	205	200	200	195	220	210	220	200	220	205	225	235	245	275	290
14	280	265	235	225	230	E S 320	220	225	A	210	195	205	195	200 <sup>H</sup>	225	200	220	215	215	210	235	270	280	230
15	250	255	245	235	220	275	225	230	220	210	200	200	215	225	210	220	200	235	225	230	230	230	260	250
16	250	250	220	235	235	255	230	230	230	220	210	220	200	200	205	200	205	230	220	220	255	270	295	265
17	240	255	250	230	220	235	230	240	225	220	210	200	195	195	220	220	230	230	220	220	245	240	250	235
18	240	245	235	240	220	235	220	230	200	200	200	195	220	210	200	205	225	210 <sup>H</sup>	215	220	270	255	250	235
19	A 255	250	250	250	235	250	235	230	205	225	200	200 <sup>H</sup>	210	200	200	200	200	240	210	220	255	250	250	240
20	245	270	245	220	235	245	235	230	220	210	200	220	240	225	200	200	200	205 <sup>H</sup>	220	230	255	295	270	260
21	270	255	245	235	225	260	225	230	200	200 <sup>H</sup>	210	200	200	200	200	200	220	210 <sup>H</sup>	210	245	270	260	250	245
22	250	280	270	250	220	235	210	220	210	210	200	200	200	210	225	200	200	235	235	220	235	235	220	250
23	290	280	265	250	230	230	210	230	200	200	200	200	220	195 <sup>H</sup>	220	200	230	240	225	220	235	240	245	255
24	260	275	270	255	230	235	220	220	210	205	210	210	200	210	200	210	210	230	240	240	250	270	255	240
25	235	235	245	230	210	220	220	230	200	205	220	220 <sup>H</sup>	235	210	200	210	200	220 <sup>H</sup>	210	220	240	220	255	270
26	280	290	285	255	215	230	220	220	230	200	200	200	210	200	220	220	225	230 <sup>H</sup>	210	220	240	280	290	285
27	280	260	255	220	225	285	225	225	220	205	200	200	210	210	200	220	230	240 <sup>A</sup>	A	235	220	235	280	275
28	260	275	275	250	270	260	220	230	230	220	220	220	215	205	230	220	220	240	220	225	220	255	270	280
29	255	250	280	240	220	240	220	230	205	200	200	220	200 <sup>H</sup>	A	230	220	220	250	230	205	210	270	275	275
30	275	270	270	240	230	205	220	230	225	225	215	200	205	210	205	210	205	240	240	210	230	260	250	270
31	275	260	255	240	200	255	220	235	220	225	200	210	210	200	200 <sup>H</sup>	230	210	210 <sup>H</sup>	235	230	245	240	245	255
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	30	31	30	31	30	30	31	31	31	31	30	31	31	30	31	31
MED	270	270	250	240	230	245	220	230	210	210	200	200	202	210	210	205	220	225	212	220	235	252	255	262
UQ	280	280	270	255	235	260	232	230	220	220	210	215	215	220	220	220	225	235	220	230	245	270	278	275
LQ	252	255	245	235	220	235	220	220	205	200	200	200	200	200	200	200	205	215	205	208	228	235	250	248

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H'F (KM)

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H<sup>+</sup>E (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 25 MHz in 24sec 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	S	110	105	105	105	110	110	110	110	115		S						
2							S	S	110	105	105	105	105	105	110	110	110		S						
3							S	S	110	110	A	A	110	110	110	110		A	S						
4							S	S	110	110	105		A	A	110	105	110	110		S					
5							S		110	105	105	105	A		105	110	110	110	110		S				
6							S	S	110	105		A	A	105	105	110	110	110		S					
7							S	S	110	110	105		A	110	105	105	110	115		S					
8							S	S	110	110	105		A	A	105	A	A	A	S						
9							S	S	110		A	A	A	A	A	A	110	115		S					
10							S		110	A	105	105	105	105	105	105	110	110		S					
11							S		110	110	105	105	A	105	105	110	110	110		S					
12							S		115	A	105	A	105	110	110	105	110	110		S					
13							S	S	110	105	105	I S	105	A	A	110	110	110		S					
14							S		110	110	105	105	100	100	105	105	110	110	115						
15							S		115	105	105	105	105	105	105	110	110	110	110						
16							S		110	105	105	105	105	105	105	105	110	110		S					
17							S		110	105	105		A	A	A	105	A	105	110		S				
18							S		110	105	105		A	A	A	A	110	A	110		S				
19							S		110	110	105	105		A	105	105	105	105	110		A				
20							S		110	110	110	105	110	110	105	105	105	105		A					
21							S		110	105	105	105	105	105	105	105	110		A	S	S				
22							S		110	110	105	105	105	105	105	100		A	A	A	S				
23							S		110	110	105	105		A	A	105	A	A	A	S					
24							S		110	105	105	105	105	105	110	105	110	110		S	S				
25							S		110	110	105	105	105	105	105	105	110	110		S	S				
26							S		110	110	105	105	105	105	A	A	110	110	115		S				
27							S		110	105	105	105	105		A	A	105	110	110		A	S			
28							S		110	110	110	105	110	105	110	105	105	110	115		S				
29							S		110	105	105	110	110	110	A	105	110	110		S	S				
30							S		110	110	105	105	105		A	105	110	110	110		S	S			
31							S		110	105	105	105	105	105	105	105	110	110		S	S				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								22	29	30	25	19	22	25	26	27	26	4							
MED								110	110	105	105	105	105	105	105	105	110	110	115						
UQ								110	110	105	105	105	110	110	110	110	110	115							
LQ								110	105	105	105	105	105	105	105	110	110	112							

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H<sup>+</sup>E (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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H°ES (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 25 MHz in 24sec 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	S	S	120	S	S	S	S	G	G	G	G	145	145	120	G	G	100	105	S	105	105	S	S																													
2	S	S	S	S	S	S	S	S	G	G	G	G	G	G	G	120	115	S	S	100	S	S	105	S																													
3	S	S	S	S	S	S	S	155	110	G	100	100	G	G	G	G	100	95	100	100	S	120	S	S																													
4	100	100	95	S	S	S	S	G	G	G	G	105	105	G	G	G	G	S	S	S	S	S	S	S																													
5	S	S	S	S	S	S	S	G	G	G	G	100	G	G	G	G	G	S	95	S	S	S	S	S																													
6	S	S	S	S	S	S	S	G	G	110	105	100	G	G	G	G	G	105	S	S	S	S	S	S																													
7	S	S	S	S	S	S	S	G	G	G	110	105	100	G	G	120	120	S	S	S	S	S	S	S																													
8	S	S	S	S	S	S	S	G	G	G	110	105	100	G	95	100	95	140	S	100	S	S	100	S																													
9	S	100	S	S	S	120	S	G	G	105	100	100	100	100	100	100	100	S	S	S	S	S	S	S																													
10	S	S	105	S	S	S	S	G	105	G	G	G	G	G	G	G	G	S	S	S	S	S	S	S																													
11	S	S	S	S	S	S	S	G	G	115	110	105	G	G	G	G	G	G	S	S	S	S	S	S																													
12	S	S	S	S	S	S	S	G	105	110	105	G	100	100	125	95	G	95	95	S	S	S	115	S																													
13	105	100	100	105	S	S	S	100	115	110	G	S	100	100	100	100	G	G	S	S	S	115	110	105																													
14	105	S	100	S	S	S	S	120	115	G	G	G	G	G	G	G	G	G	S	S	S	S	S	S																													
15	S	S	S	S	S	S	S	G	110	110	110	G	G	G	G	G	G	G	S	S	S	S	105	S																													
16	S	S	S	S	100	S	S	145	135	120	110	110	G	G	G	G	G	110	105	S	S	105	S	S																													
17	100	S	S	S	S	S	145	G	G	G	100	100	100	G	95	100	100	S	S	110	S	S	S	S																													
18	S	S	S	S	110	S	S	G	110	G	105	100	100	100	105	G	G	S	S	S	S	S	S	S																													
19	100	100	100	100	S	S	S	G	G	110	110	100	G	G	G	G	G	100	S	100	100	100	S	S																													
20	S	S	S	100	100	S	S	G	G	120	G	G	G	G	G	G	G	105	100	95	100	100	S	S																													
21	S	S	S	S	S	S	S	G	G	G	G	G	G	G	G	100	100	G	95	S	S	S	S	S																													
22	105	S	100	S	S	S	145	145	G	G	120	G	G	G	G	100	100	100	95	S	S	S	S	110																													
23	110	110	S	S	S	S	S	G	G	G	110	100	100	G	100	100	100	100	120	S	S	S	S	S																													
24	S	S	S	S	S	S	145	140	135	120	G	G	110	110	120	G	G	140	S	120	120	S	S	S																													
25	S	S	S	S	S	S	S	G	G	130	110	G	120	G	G	G	G	G	S	S	S	S	S	105																													
26	100	S	S	S	S	S	S	G	G	115	110	110	G	100	100	G	G	G	S	S	S	S	S	S																													
27	S	S	S	S	S	S	S	G	G	G	G	G	100	100	G	G	G	110	110	110	S	110	S	S																													
28	S	S	S	S	S	S	S	G	140	125	120	120	110	115	110	G	G	G	S	100	S	S	S	S																													
29	S	S	S	S	S	S	S	G	G	G	G	105	G	100	G	G	G	G	S	110	110	S	S	S																													
30	S	S	S	S	S	S	S	145	G	120	120	G	105	G	100	G	G	G	S	S	S	S	S	S																													
31	S	S	S	S	105	S	S	G	G	G	G	115	G	G	G	120	G	G	100	S	105	S	S	S																													
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																													
CNT	8	5	6	4	4	1	3	7	11	14	17	18	14	10	12	12	9	12	11	10	6	7	5	3																													
MED	102	100	100	102	102	120	145	145	115	112	110	105	100	100	100	100	100	102	100	100	105	105	105	105																													
UQ	105	100	100	112	108		145	145	132	120	110	110	105	110	115	112	100	110	105	110	110	112	110	108																													
LQ	100	100	100	100	100		145	130	110	110	105	100	100	100	100	100	100	100	95	100	100	102	105	105																													

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H°ES (KM)

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# 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 25 MHz in 24sec 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			F <sub>1</sub>										H <sub>1</sub>	H <sub>1</sub>	C <sub>1</sub>			L <sub>1</sub>	F <sub>1</sub>		F <sub>2</sub>	F <sub>5</sub>			
2															C <sub>1</sub>		C <sub>1</sub>			F <sub>1</sub>			F <sub>1</sub>		
3							H <sub>2</sub>		C <sub>2</sub>		L <sub>2</sub>	L <sub>1</sub>					L <sub>2</sub>	L <sub>3</sub>	F <sub>1</sub>	F <sub>1</sub>		F <sub>1</sub>			
4	F <sub>1</sub>	F <sub>2</sub>	F <sub>1</sub>									L <sub>1</sub>	L <sub>1</sub>												
5												L <sub>1</sub>								F <sub>1</sub>					
6										C <sub>2</sub>	L <sub>2</sub>	L <sub>1</sub>							L <sub>1</sub>						
7											C <sub>1</sub>	L <sub>2</sub>	L <sub>1</sub>			C <sub>1</sub>	C <sub>1</sub>								
8											C <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>1</sub>	H <sub>2</sub>		F <sub>1</sub>			F <sub>3</sub>		
9		F <sub>1</sub>			F <sub>1</sub>					L <sub>3</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>1</sub>	L <sub>1</sub>								
10			F <sub>2</sub>						L <sub>1</sub>																
11										C <sub>2</sub>	C <sub>1</sub>	L <sub>2</sub>													
12									L <sub>2</sub>	C <sub>2</sub>	L <sub>2</sub>		L <sub>1</sub>	L <sub>1</sub>	C <sub>1</sub>	L <sub>2</sub>		L <sub>2</sub>	F <sub>3</sub>				F <sub>1</sub>		
13	F <sub>2</sub>	F <sub>2</sub>	F <sub>1</sub>	F <sub>1</sub>				LH <sub>11</sub>	C <sub>1</sub>	C <sub>2</sub>			L <sub>2</sub>	L <sub>3</sub>	L <sub>2</sub>	L <sub>2</sub>						F <sub>2</sub>	F <sub>2</sub>	F <sub>2</sub>	
14	F <sub>2</sub>		F <sub>1</sub>					C <sub>2</sub>	C <sub>4</sub>																
15									C <sub>1</sub>	C <sub>2</sub>	C <sub>2</sub>													F <sub>2</sub>	
16					F <sub>3</sub>		H <sub>2</sub>	H <sub>2</sub>	C <sub>2</sub>	C <sub>1</sub>	C <sub>1</sub>							C <sub>2</sub>	F <sub>2</sub>				F <sub>2</sub>		
17	F <sub>4</sub>					H <sub>2</sub>					L <sub>3</sub>	L <sub>3</sub>	L <sub>1</sub>		L <sub>3</sub>	L <sub>1</sub>	L <sub>2</sub>			F <sub>1</sub>					
18					F <sub>1</sub>				C <sub>1</sub>		L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>									
19	F <sub>4</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>						C <sub>1</sub>	C <sub>1</sub>	L <sub>2</sub>						L <sub>3</sub>		F <sub>2</sub>	F <sub>2</sub>	F <sub>1</sub>			
20				F <sub>2</sub>	F <sub>2</sub>					C <sub>2</sub>								L <sub>1</sub>	F <sub>1</sub>	F <sub>2</sub>	F <sub>2</sub>	F <sub>2</sub>			
21																L <sub>1</sub>	L <sub>1</sub>		L <sub>1</sub>						
22	F <sub>1</sub>		F <sub>2</sub>			H <sub>2</sub>	H <sub>2</sub>				C <sub>1</sub>					L <sub>2</sub>	L <sub>1</sub>	L <sub>1</sub>	L <sub>1</sub>					F <sub>2</sub>	
23	F <sub>2</sub>	F <sub>1</sub>									C <sub>1</sub>	L <sub>2</sub>	L <sub>2</sub>		L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	L <sub>2</sub>	C <sub>1</sub>						
24						H <sub>2</sub>	H <sub>2</sub>	H <sub>2</sub>	C <sub>2</sub>				C <sub>1</sub>	C <sub>1</sub>	C <sub>1</sub>				HC <sub>11</sub>		F <sub>1</sub>	F <sub>4</sub>			
25									C <sub>1</sub>	C <sub>1</sub>		C <sub>1</sub>												F <sub>2</sub>	
26	F <sub>2</sub>									C <sub>2</sub>	C <sub>2</sub>	C <sub>1</sub>			L <sub>3</sub>	L <sub>2</sub>									
27													L <sub>2</sub>	L <sub>2</sub>				CL <sub>42</sub>	CL <sub>42</sub>	F <sub>3</sub>		F <sub>1</sub>			
28								H <sub>2</sub>	C <sub>2</sub>	C <sub>1</sub>	C <sub>1</sub>	C <sub>1</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>2</sub>					F <sub>2</sub>					
29												L <sub>1</sub>		L <sub>2</sub>						F <sub>1</sub>		F <sub>3</sub>			
30							H <sub>2</sub>		C <sub>1</sub>	C <sub>1</sub>			L <sub>2</sub>		L <sub>1</sub>										
31				F <sub>1</sub>								C <sub>1</sub>				C <sub>2</sub>				L <sub>1</sub>		F <sub>1</sub>			
	00	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

The Radio Research Laboratories, Japan



# IONOSPHERIC DATA

MAR. 1985

FXI (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	X 35	X 35	X 38	X 45	X 34	X 32	X 33												X 52	X 47	X 33	X 33	X 37	X 38
2		S 37	S 38	S 39	S 37	X 29	X 37												X 66	X 48	S 43	X 31	X 34	X 35
3	S 36	S 36	X 39	X 37	X 41	X 37	S 44												X 57	X 41	X 39	X 38	X 37	X 38
4	S 38	S 38	S 40	X 46	X 38	X 26	X 36												X 56	X 40	X 41	X 37	X 36	X 38
5	S 39	X 37	X 38	X 40	X 40	X 36	X 45												X 54	X 46	X 49	X 52	X 41	X 33
6	X 37	X 38	S 39	X 41	X 45	S 40	S 52												X 55	X 46	X 48	X 48	X 31	X 36
7	X 35	S 41	S 40	X 42	S 42	X 41	X 49												X 62	X 48	X 38	X 34	X 37	X 36
8	X 37	S 37	X 39	X 37	X 36	S 38	S 48												U 79	S 51	X 37	X 38	S 45	X 44
9	X 42	S 41	S 42	X 43	X 41	S 42	S 51												X 60	X 38	X 37	X 35	X 34	X 36
10	U 37	S 37	X 37	S 36	X 35	X 33	S 45												X 65	S 46	X 38	X 36	U 37	X 38
11	X 38	X 37	X 38	X 45	X 45	X 40	U 48												X 66	X 52	X 44	X 40	X 40	X 41
12	U 43	U 48	S	S 52	X 43	X 36	X 41												X 54	X 40	X 35	X 36	X 37	X 39
13	S 37	S 37	X 37	X 38	X 25	X 24	X 39												X 59	X 42	X 40	X 40	X 37	X 37
14	U 36	S 38	U 39	X 37	X 24	X 24	X 41												S 61	X 50	S 41	X 40	X 40	S 41
15	X 40	S 39	S 41	X 40	X 29	X 29	X 48												X 61	X 60	X 58	X 51	X 46	X 48
16	S 45	S 44	X 43	X 38	X 31	X 31													X 56	X 54	S 50	S 50	S	S
17	S 48	X 41	X 42	X 45	X 33	X 30													X 59	X 55	S 49	X 48	S 46	X 46
18	S 46	S 43	X 43	X 40	X 38	X 34													X 57	X 50	X 45	S 45	X 44	X 41
19	X 42	X 42	S 45	X 43	X 39	X 35													X 70	X 54	X 49	X 49	S 47	S 47
20	X 44	X 45	X 46	X 44	X 38	X 38													S 64	X 52	X 46	S 46	U 48	X 47
21	X 45	X 42	X 43	X 41	X 36	X 32													X 53	X 45	X 45	X 46	X 46	X 45
22	X 43	X 41	X 40	X 41	X 36	X 32													X 61	X 64	X 57	X 50	X 45	X 42
23	S 42	S 41	U 41	X 42	X 42	S 39													X 66	X 61	X 50	X 46	X 43	X 40
24	X 40	X 40	X 40	X 40	X 36	X 33													X 56	X 60	X 54	S 52	S 52	X 51
25	X 49	X 48	X 46	X 48	X 43	X 40													X 72	X 55	X 38	X 39	S 40	X 41
26	S 41	X 41	C	C	C	C													X 60	X 56	X 44	S 42	X 44	X 43
27	S 43	X 42	X 41	S 42	X 31	X 32													X 76	S 76	S 64	X 54	X 52	S 50
28	S 50	X 49	X 48	X 50	X 42	X 42													X 85	X 69	X 55	X 48	S 46	X 47
29	S	X 45	C	C	X 37	S 37													X 87	S 75	X 47	X 39	X 40	X 40
30	X 40	X 40	X 41	X 42	X 36	X 32													X 70	X 64	X 51	S 47	X 46	X 47
31	S 46	X 45	X 43	S 44	S 31	X 32													S 75	X 67	X 56	X 56	X 53	X 50
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	28	29	30	30	15												31	31	31	31	30	30
MED	S 40	X 41	X 40	X 42	X 37	X 34	X 45												X 61	X 52	X 45	X 45	X 42	X 41
UQ	S 44	X 42	X 43	X 44	X 41	X 38	X 48												X 68	X 60	X 50	X 48	X 46	X 47
LQ	X 37	X 38	X 39	X 40	X 34	X 32	X 40												X 56	X 46	X 40	X 38	X 37	X 38

MAR. 1985

FXI (0.1 MHZ)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

FOF2 (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	29	29	32	39	28	26	27	49	69	90	71	70	72	84	71	56	69	66	46	41	27	27	31	32
2	F	S <sub>31</sub>	F	S <sub>33</sub>	S <sub>31</sub>	F <sub>23</sub>	S <sub>31</sub>	51	59	69	65	73	75	83	84	76	65	62	60	42	S <sub>37</sub>	25	S <sub>28</sub>	S <sub>29</sub>
3	S <sub>30</sub>	S <sub>30</sub>	33	31	35	31	S <sub>38</sub>	51	57	S <sub>75</sub>	85	93	92	S <sub>98</sub>	85	83	67	S <sub>74</sub>	51	35	33	32	31	J <sub>32</sub>
4	S <sub>32</sub>	S <sub>32</sub>	S <sub>34</sub>	40	S <sub>32</sub>	S <sub>20</sub>	30	49	59	69	69	66	85	84	79	S <sub>73</sub>	70	59	50	34	35	31	30	32
5	S <sub>33</sub>	31	S <sub>32</sub>	34	34	30	S <sub>39</sub>	S <sub>61</sub>	60	59	61	73	85	71	S <sub>74</sub>	65	S <sub>63</sub>	S <sub>62</sub>	48	40	43	S <sub>46</sub>	S <sub>35</sub>	27
6	31	32	S <sub>33</sub>	35	S <sub>39</sub>	S <sub>34</sub>	J <sub>46</sub>	53	66	55	63	79	109	111	S <sub>75</sub>	67	S <sub>62</sub>	S <sub>62</sub>	49	40	S <sub>42</sub>	S <sub>42</sub>	25	30
7	32	S <sub>35</sub>	S <sub>34</sub>	36	J <sub>36</sub>	35	43	54	60	56	64	75	S <sub>98</sub>	98	73	73	58	S <sub>65</sub>	56	S <sub>42</sub>	32	28	31	30
8	31	S <sub>31</sub>	33	31	30	S <sub>32</sub>	S <sub>42</sub>	56	S <sub>66</sub>	60	67	79	91	104	S <sub>74</sub>	63	61	63	U <sub>73</sub>	S <sub>45</sub>	31	32	S <sub>39</sub>	38
9	36	35	S <sub>36</sub>	37	35	S <sub>36</sub>	S <sub>45</sub>	S <sub>73</sub>	S <sub>67</sub>	54	55	64	75	S <sub>75</sub>	S <sub>62</sub>	58	55	60	54	32	31	29	28	30
10	U <sub>31</sub>	S <sub>31</sub>	31	S <sub>30</sub>	29	27	S <sub>39</sub>	55	55	58	57	62	74	R <sub>82</sub>	69	55	54	59	59	40	32	30	31	32
11	32	31	32	F	F	F	U <sub>42</sub>	50	54	55	67	69	70	80	62	63	68	S <sub>73</sub>	60	46	38	S <sub>34</sub>	34	35
12	U <sub>37</sub>	U <sub>42</sub>	S	F	F	F <sub>30</sub>	S <sub>35</sub>	47	54	57	54	67	83	88	S <sub>75</sub>	67	67	59	48	34	29	30	31	S <sub>33</sub>
13	S <sub>31</sub>	S <sub>31</sub>	S <sub>31</sub>	32	19	18	33	50	58	61	70	65	64	69	71	76	64	58	53	36	34	34	31	S <sub>31</sub>
14	U <sub>30</sub>	J <sub>32</sub>	U <sub>33</sub>	S <sub>31</sub>	18	18	35	45	50	55	65	79	70	82	70	57	59	56	S <sub>55</sub>	S <sub>44</sub>	35	34	34	35
15	34	S <sub>33</sub>	S <sub>35</sub>	34	23	23	S <sub>42</sub>	52	52	55	59	70	81	80	64	59	59	60	55	54	52	45	S <sub>40</sub>	42
16	S <sub>39</sub>	S <sub>38</sub>	37	32	25	25	S <sub>40</sub>	52	61	68	71	81	80	S <sub>78</sub>	S <sub>64</sub>	58	55	53	50	48	S <sub>44</sub>	S <sub>44</sub>	I <sub>42</sub>	I <sub>42</sub>
17	S <sub>42</sub>	35	36	S <sub>39</sub>	27	24	39	48	68	69	70	63	61	62	61	58	56	56	53	S <sub>49</sub>	S <sub>43</sub>	J <sub>42</sub>	S <sub>40</sub>	40
18	S <sub>40</sub>	S <sub>37</sub>	37	34	32	28	40	51	57	54	65	69	66	63	65	71	66	55	51	S <sub>44</sub>	S <sub>39</sub>	S <sub>39</sub>	38	35
19	36	36	S <sub>39</sub>	37	33	29	39	56	59	S <sub>72</sub>	80	S <sub>75</sub>	67	61	57	56	62	S <sub>63</sub>	S <sub>64</sub>	48	43	43	S <sub>41</sub>	S <sub>41</sub>
20	S <sub>38</sub>	39	40	38	32	32	S <sub>43</sub>	64	S <sub>70</sub>	S <sub>78</sub>	65	66	72	71	69	65	61	64	58	46	S <sub>40</sub>	S <sub>40</sub>	U <sub>42</sub>	41
21	F	36	37	35	30	26	44	56	56	S <sub>72</sub>	66	S <sub>79</sub>	85	80	68	62	63	64	47	39	39	40	40	39
22	37	35	S <sub>34</sub>	35	30	26	44	53	63	66	63	65	73	73	74	S <sub>62</sub>	56	56	55	58	51	44	39	36
23	S <sub>36</sub>	35	U <sub>35</sub>	36	36	S <sub>33</sub>	45	57	57	58	63	74	90	92	82	64	64	66	60	55	44	S <sub>40</sub>	37	34
24	34	34	34	34	30	27	44	49	52	57	62	63	75	84	82	64	55	53	50	54	S <sub>48</sub>	S <sub>46</sub>	S <sub>46</sub>	S <sub>45</sub>
25	43	42	S <sub>40</sub>	42	37	34	S <sub>45</sub>	S <sub>60</sub>	55	60	59	73	S <sub>82</sub>	75	75	70	65	66	66	49	32	33	S <sub>34</sub>	35
26	S <sub>35</sub>	35	c	c	c	c	c	54	54	57	60	79	84	81	85	80	71	62	54	50	38	36	38	37
27	S <sub>37</sub>	36	35	S <sub>36</sub>	25	26	45	57	57	S <sub>62</sub>	69	79	66	70	83	74	68	67	70	S <sub>70</sub>	58	48	46	S <sub>44</sub>
28	S <sub>44</sub>	43	42	44	36	36	50	55	54	62	74	83	S <sub>92</sub>	108	S <sub>99</sub>	90	84	84	S <sub>79</sub>	S <sub>63</sub>	49	S <sub>42</sub>	S <sub>40</sub>	41
29	I <sub>40</sub>	S <sub>39</sub>	c	c	31	S <sub>31</sub>	50	S <sub>63</sub>	64	65	66	69	66	79	80	68	72	71	81	S <sub>69</sub>	S <sub>41</sub>	33	34	34
30	34	34	35	36	30	26	41	52	S <sub>62</sub>	S <sub>71</sub>	S <sub>75</sub>	82	80	87	85	73	60	62	64	58	45	S <sub>41</sub>	40	S <sub>41</sub>
31	S <sub>40</sub>	39	37	S <sub>38</sub>	S <sub>25</sub>	26	45	57	67	65	67	73	66	70	71	69	66	65	69	S <sub>61</sub>	50	50	47	S <sub>44</sub>
	00	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	31	27	27	28	29	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	S <sub>35</sub>	35	35	35	30	27	42	53	59	61	65	73	75	80	74	65	63	62	55	46	39	39	37	35
UQ	S <sub>38</sub>	36	37	38	34	32	45	56	64	69	70	79	85	86	81	73	67	66	62	54	44	S <sub>42</sub>	40	41
LQ	32	32	33	34	28	26	39	50	55	57	62	66	70	72	68	60	59	59	50	40	34	32	31	32

MAR. 1985

FOF2 (0.1 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

FOF1 (0.01 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								L 240	U L 390	L	L	L 430	L 440	L	L 410	L	L							
2									L 340	U L 410	L 410	L 440	L 430	L	L 410	U L 390	L	L 220						
3									L	L 420	L 430	L 420	U L 430	L 400	L	A	L							
4										U L 410	L 420	U L 450	L 430	L	L	L 390	L	L						
5									L	L 380	U L 410	L 420	L 420	L 410	U L 430	L								
6									L		U L 400	L 450	L 430	L 430	U L 410	U L 390	L							
7									L	U L 410	L 420	L 430	L 450	L 430	L	U L 380	L							
8									L	U L 400	L	L 430	L 430	L 430	L 420	L	L							
9									L	L 390	L 410	L 440	L 440	L 420	U L 420	L 400	L	L	A					
10									L	L	L 430	L 470	L 440	L 420	L 410	L	L							
11										L 390	L 430	L 450	L 450	L 430	L 430	U L 390	L							
12									L	U L 400	L 420	L 450	L 430	L 460	A	L 400	L							
13									L	L 410	L 430	L 420	U L 440	L 420	L 410	L 400	U L 350							
14									L	L 420	L 430	L 420	L 430	L 420	L 410	L	L							
15									L	L 410	L 440	L 430	L 440	L 430	L 410	U L 400	L	L						
16									L	L 410	L 430	L 430	L 440	L 440	L 430	L 400	L							
17									L	L 410	L 430	L 430	L 450	L 440	U L 430	U L 410	L							
18										L 420	L 430	L 450	L 450	L 450	L 440	L 400	L	L						
19									U L 410	L 410	U L 430	L 440	L 430	L 430	U L 440	L 410	L	L						
20									L	U L 390	L 420	L 440	L 450	L 460	L 450	L 440	L 410	U L 340	L					
21									L	U L 430	L 450	L 450	L 450	L 440	L 430	L 430	U L 390	L						
22									L	L 410	L 420	L 440	L 480	L 460	L 450	L 440	L 420	L	L					
23									L	L	L 420	L 440	L 440	L 450	L 440	L 430	L 400	L	A					
24									L	U L 440	L 440	L 470	L 440	L 450	L 430	L 400	L	L						
25									L	L 340	L 410	L 450	L 440	L 440	L 440	L 410	A	L						
26									U L 420	U L 450	L 430	L 450	L 450	L 440	L 430	U L 410	U L 390	L						
27									L	U L 420	L 450	L 450	U L 460	U L 460	L 420	U L 420	L	L						
28										U L 430	L 450	L 450	L 460	A	L 440	L 400	L	L 240						
29									L	L 440	L 440	L 450	L 440	L 450	L 430	L	L	L						
30									L	U L 440	L 440	L 440	L 440	L 450	L 420	U L 400	L							
31									L	L	L 430	L 440	L 460	L 450	L 450	L 430	L 410	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	7	28	29	31	31	27	27	24	4	2						
MED								L 240	U L 390	L 415	L 430	L 440	L 440	L 440	L 430	L 400	U L 370	L 230						
UQ								U L 410	L 425	L 440	L 450	L 450	L 450	L 430	L 410	U L 390								
LQ								L 365	L 410	L 430	L 430	L 430	L 430	L 430	L 415	L 400	U L 345							

MAR. 1985

FOF1 (0.01 MHz)

# IONOSPHERIC DATA

MAR. 1985

FOE (0.01 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								165	240	H 280	A 305	H 315	310	295	270	245	A		S					
2								H 180	H 240	H 275	295	310	320	A	300	275	240	A			S		S	
3		B	S		S			185	260	H 280	305	320	320	315	300	A	A	A			S	S	S	
4								H 195	H 255	H 290	305	H 320	A	320	A	280	250	170		S	S		S	
5								H 210	H 260	300	310	320	320	315	305	280	240	160						S
6	S	S	S	S	S			200	H 260	H 290	300	A	A	320	305	280	A	175						
7								180	240	H 280	290	305	315	315	300	280	A	A					S	S
8								H 195	H 250	H 280	300	315	H 320	A	305	285	245	H 180					S	
9								190	A	A	A	A	310	A	A	A	A	A			S	S		
10								H 175	250	270	300	320	330	310	305	280	245	170					S	
11								H 220	260	H 290	A	A	325	325	300	275	250	190					S	S
12								H 185	250	285	A	A	330	H 325	305	280	A	195		S	S	S		
13								H 220	H 250	A	A	330	335	320	310	290	255	A						
14								A	A	A	315	325	330	330	305	280	255	190			S			
15								H 215	H 260	280	A	325	330	325	310	285	250	190						
16							S	200	H 255	H 290	A	A	335	335	315	295	260	A						
17							S	230	265	290	310	325	330	330	310	295	A	180						
18							S	H 225	H 270	A	320	335	A	330	320	290	255	180						
19							S	210	H 260	300	315	R 325	335	320	305	290	255	195						
20							S	H 240	270	310	A	335	340	335	315	290	250	A						
21							S	H 230	H 270	H 300	315	340	345	340	320	290	270	210						
22							S	H 230	270	300	330	340	350	335	320	295	265	H 200						S
23							S	H 240	H 280	H 305	330	H 345	350	340	320	295	260	195						
24							S	H 230	H 270	H 310	A	330	A	A	A	300	260	210						
25							S	210	260	300	H 325	345	345	340	320	295	260	210						
26							C	A	270	A	A	A	340	330	320	A	255	210						
27							S	H 240	H 275	305	A	A	335	330	315	295	260	200						
28							S	220	265	290	H 305	A	A	A	A	290	260	205				S	S	
29							S	H 235	280	300	H 320	H 330	330	330	315	295	260	210					S	
30							S	H 230	H 275	310	A	A	A	340	320	290	255	205			S			
31							S	H 230	H 275	H 310	H 320	H 335	340	340	325	300	265	220						S
	00	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	26	19	22	25	26	27	28	25	23						
MED								H 215	260	H 290	310	325	330	330	310	290	255	195						
UQ								H 230	270	300	H 320	335	340	335	320	295	260	208						
LQ								195	H 255	H 280	302	320	320	320	305	280	250	180						

MAR. 1985

FOE (0.01 MHz)

# IONOSPHERIC DATA

MAR. 1985
FOES (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 **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	19	E S 15	E S 14	E S 14	19	18	G 14	G 19	31	J A 36	34	35	35	33	34	28	18	20	18	20	20	19	17
2	E S 15	19	21	E S 15	J A 20	19	18	G 18	G 18	G 20	G 21	31	35	J A 33	G	G	G 23	17	E S 14	19	18	20	17	17
3	21	16	18	18	E S 15	18	E S 15	G 22	G 22	G 24	G 28	G 23	G 19	35	32	J A 46	J A 49	J A 29	J A 20	E S 15	E S 14	E S 15	17	E S 15
4	E S 16	19	E S 14	18	E S 15	E S 14	E S 15	G 19	G 19	G 22	G 21	G 21	J A 33	35	35	31	27	G	E S 15	E S 16	E S 16	J A 19	E S 15	E S 15
5	19	E S 15	23	E S 14	E S 15	22	18	G 24	G 24	G 25	G 30	G 17	G 25	G 25	G 24	G 20	G 23	17	21	21	E S 15	19	E S 15	E S 15
6	E S 15	E S 15	E S 14	E S 15	E S 15	E S 15	19	G 21	G 23	G 36	J A 34	33	19	G	G	J A 29	J A 22	22	23	18	19	19	J A 16	
7	19	17	19	E S 14	E S 15	E S 15	E S 14	G 21	G 24	G 29	G 23	35	28	G 24	28	25	18	J A 20	23	E S 15	E S 16	E S 15	E S 15	
8	E S 15	19	E S 15	E S 15	E S 15	20	22	G 18	G 18	G 22	G 25	G 27	G 30	42	J A 33	18	G 18	21	J A 18	22	19	19	19	J A 30
9	23	18	J A 19	22	J A 24	E S 15	E S 15	G 25	J A 24	J A 37	J A 37	34	J A 46	J A 74	J A 47	J A 45	J A 29	E S 15	19	E S 15	20	18	E S 14	
10	E S 15	E S 15	19	E S 15	E S 15	18	18	G 24	G 24	G 25	G 20	38	35	G 17	G	G	G	E S 15	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16
11	E S 15	E S 15	E S 15	21	18	19	E S 16	G 28	31	J A 37	32	J A 43	30	32	30	G	G 17	G 19	E S 15	20	20	E S 15	18	
12	E S 15	E S 15	E S 15	E S 15	E S 14	E S 15	19	J A 20	G	33	32	35	36	35	J A 46	38	29	21	20	E S 15	E S 16	E S 14	E S 15	19
13	J A 20	J A 23	J A 21	J A 19	19	E S 15	18	G 17	27	33	31	30	G 24	G 22	G 18	G 26	G 23	21	16	20	19	20	J A 26	J A 25
14	20	J A 24	J A 26	J A 23	21	19	18	23	30	31	G 31	G 27	G 29	G 28	G	G	G	21	E S 14	E S 15	E S 15	E S 15	E S 16	E S 15
15	E S 15	E S 15	E S 16	E S 15	E S 15	E S 14	18	24	28	31	32	30	G 27	G 22	G 23	29	G 24	G 17	19	E S 15	17	17	E S 15	E S 14
16	19	E S 15	E S 13	17	19	E S 15	18	G 28	32	35	J A 36	G 29	G 32	G 30	J A 30	G	25	J A 16	18	17	20	19	J A 27	
17	J A 52	24	20	E S 15	22	E S 15	E S 16	26	32	31	G 28	G 27	G 24	G 25	G 24	G 16	J A 30	21	20	J A 29	22	J A 29	E S 15	18
18	E S 16	19	19	18	19	19	E S 15	G 32	G 32	J A 33	30	J A 52	J A 33	G 24	G	G	G	E S 15	E S 16	E S 15	21	19	E S 15	
19	E S 15	E S 16	19	E S 14	E S 15	E S 15	E S 15	24	G 29	G 27	G 27	G 25	G 24	G 26	G 24	G 21	G 18	J A 29	J A 38	22	23	J A 30	J A 24	
20	22	E S 14	19	E S 14	18	17	17	G 27	27	G 20	J A 33	G 32	G 31	G 30	G 27	G 23	G 22	J A 25	J A 20	J A 18	23	22	21	22
21	19	21	20	22	E S 15	E S 14	19	G 31	G 27	G 22	G 20	G 21	G 28	G 21	G 24	G	G	J A 23	J A 30	J A 22	21	E S 16	E S 16	E S 16
22	E S 15	E S 15	J A 25	E S 16	E S 15	E S 16	19	G 23	G 25	G 26	G 25	G 24	G 22	G	G	G	G	G	20	19	18	E S 15	E S 16	E S 16
23	E S 15	J A 20	20	E S 15	J A 20	E S 13	E S 14	G 30	32	25	25	39	37	35	24	30	29	J A 26	19	18	19	E S 15	E S 15	
24	E S 15	E S 15	E S 14	E S 15	E S 15	24	J A 20	G 30	33	35	39	34	J A 38	J A 34	G	G	G	E S 16	E S 15	J A 20	21	20	E S 15	
25	E S 15	16	E S 15	E S 13	E S 15	E S 15	J A 28	25	28	G 26	G 25	38	G 26	G 27	49	36	J A 48	28	E S 15	E S 15	20	20	20	17
26	E S 15	E S 14	C	C	C	C	J A 25	30	36	J A 43	J A 35	37	29	G 26	33	G 22	21	J A 20	18	18	18	E S 15	18	
27	E S 16	E S 14	18	E S 14	E S 14	E S 15	E S 15	G 31	32	34	35	35	35	33	34	34	28	18	18	19	J A 30	J A 19	J A 19	
28	E S 16	E S 15	E S 13	21	18	18	E S 16	G 30	33	G	35	41	J A 48	35	23	G 23	G	J A 21	18	18	E S 16	E S 16	E S 15	
29	17	E S 14	C	C	E S 15	E S 15	E S 15	27	G 32	G	38	38	35	G	G	G	G	E S 15	E S 15	E S 15	18	18	E S 15	
30	E S 15	E S 15	19	18	E S 13	E S 15	E S 14	28	33	35	34	J A 36	34	G 31	G 26	G 19	G	G	16	21	18	17	E S 15	E S 15
31	E S 15	E S 15	E S 15	E S 15	E S 15	E S 14	E S 14	27	31	25	33	35	G 23	G 20	G	G	G	J A 31	19	J A 23	E S 15	E S 15	E S 15	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	29	29	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E S 16	E S 15	19	E S 15	E S 15	E S 15	18	G 14	27	31	31	31	33	G 31	G 26	G 24	G 23	18	19	18	18	19	E S 16	E S 16
UQ	19	19	20	18	19	19	18	24	30	32	34	35	36	35	33	30	29	22	J A 20	20	20	20	19	18
LQ	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	G	G 18	G 24	G 25	G 26	G 26	G 26	G 20	G	G	G	E S 16	E S 16	E S 16	E S 16	E S 15	E S 15

# IONOSPHERIC DATA

MAR. 1985

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	E	E	E S 15	E S 14	E S 14	E	E	G 14	G 18	31	33	33	34	33	G	32	26	18	E	G	E	E	E	E
2	E S 15	E	E	E S 15	E	E	E	G	G 18	G 20	G 21	30	29	32	G	G	G 22	16	E S 14	E	G	E	G	E
3	E	G	G	E	E S 15	E	E S 15	G	G 22	G 23	G 26	G 22	G 19	34	25	43	27	20	E	E S 15	E S 14	E S 15	G	E S 15
4	E S 16	E	E S 14	E	E S 15	E S 14	E S 15	G	G 18	G 22	G 20	G 21	32	35	33	31	27	G	E S 15	E S 16	E S 16	E	E S 15	E S 15
5	E	E S 15	E	E S 14	E S 15	E	E	G	G 24	G 25	G 29	G 17	G 24	G 23	G 20	G 20	G 23	15	E	E	E S 15	E	E S 15	E S 15
6	E S 15	E S 15	E S 14	E S 15	E S 15	E S 15	E	G	G	G 23	32	33	33	19	G	G	G	25	G	E	E	E	E	E
7	E	E	E	E S 14	E S 15	E S 15	E S 14	G	G 21	G 23	27	23	35	26	G 24	25	25	18	E	E	E S 15	E S 16	E S 15	E S 15
8	E S 15	E	E S 15	E S 15	E S 15	E	E	G 15	G 18	G 22	G 25	G 26	G 27	40	24	16	G 15	21	E	E	E	G	E	E
9	E	E	E	E	E	E S 15	E S 15	G	25	35	34	31	26	33	37	35	34	26	E S 15	E	E S 15	G	E	E S 14
10	E S 15	E S 15	E	E S 15	E S 15	E	E	G	G	G 22	G 25	G 20	38	35	G 16	G	G	G	E S 15	E S 16	E S 16	E S 15	E S 16	E S 16
11	E S 15	E S 15	E S 15	E	E	E	E S 16	G	27	31	32	32	26	23	32	30	G	G	E	E S 15	E	G	E S 15	E
12	E S 15	E S 15	E S 15	E S 15	E S 14	E S 15	E	17	G	33	31	33	35	G	42	34	26	G	E	E S 15	E S 16	E S 14	E S 15	E
13	E	E	E	15	E	E S 15	E	G 17	27	31	31	27	G 24	G 21	G 18	G 26	G 23	21	15	E	E	E	25	E
14	E	E	15	19	15	E	E	23	30	30	G 30	G 26	G 28	G 26	G	G	G	21	E S 14	E S 15	E S 15	E S 15	E S 16	E S 15
15	E S 15	E S 15	E S 16	E S 15	E S 15	E S 14	18	24	28	31	32	30	G 26	G 22	G 23	28	G 24	G 16	E	E S 15	E	E	E S 15	E S 14
16	E	E S 15	E B 13	E	E	E S 15	G	G	27	31	34	34	G 29	G 29	G 25	25	G	23	E	E	E	E	E	E
17	E	E	E	E S 15	E	E S 15	E S 16	25	31	30	28	G 27	G 23	G 25	G 20	G 16	26	21	E	26	E	20	E S 15	E
18	E S 16	E	E	E	E	E	E S 15	G	G	31	30	28	40	30	G 22	G	G	G	E S 15	E S 16	E S 15	E	E	E S 15
19	E S 15	E S 16	E	E S 14	E S 15	E S 15	E S 15	24	G	G 29	G 27	G 26	G 25	G 24	G 26	G 24	G 20	G 17	E	30	E	E	26	21
20	E	E S 14	E	E S 14	E	E	G	21	25	G 20	33	31	G 29	G 28	G 27	G 23	G 20	G 21	E	16	E	E	E	E
21	E	E	E	E	E S 15	E S 14	G	G	30	G 25	G 21	G 20	G 21	G 28	G 21	G 24	G	G	17	E	E	E S 16	E S 16	E S 16
22	E S 15	E S 15	E	E S 16	E S 15	E S 16	G	G	G 22	G 25	G 25	G 25	G 24	G 22	G	G	G	G	E	E	E	E S 15	E S 16	E S 16
23	E S 15	E	E	E S 15	E	E B 13	E S 14	G	29	32	G 24	G 25	37	36	35	G 23	29	29	20	E	E	E	E S 15	E S 15
24	E S 15	E S 15	E S 14	E S 15	E S 15	E	G	G	30	33	33	38	34	35	34	G	G	G	E S 16	E S 15	19	E	E	E S 15
25	E S 15	E	E S 15	E B 13	E S 15	E S 15	G	25	28	G 25	G 25	38	G 26	G 27	36	34	40	26	E S 15	E S 15	E	E	E	E
26	E S 15	E S 14	C	C	C	C	C	25	30	33	34	35	37	G 29	G 26	30	G 21	G 17	E	E	E	E	E S 15	E
27	E S 16	E S 14	E	E S 14	E S 14	E S 15	E S 15	G 19	30	32	33	35	G	35	G	33	32	26	18	17	E	E	E	E
28	E S 16	E S 15	E B 13	E	E	E	E S 16	G 21	30	33	G	34	38	47	33	G 22	G 22	G	E	E	E	E S 16	E S 16	E S 15
29	E	E S 14	C	C	E S 15	E S 15	E S 15	27	G	32	G	38	36	35	G	G	G	G	E S 15	E S 15	E S 15	G	E	E S 15
30	E S 15	E S 15	E	E	E B 13	E S 15	E S 14	27	33	34	33	34	34	G 30	G 26	G 21	G 18	G	E	E	G	E	E S 15	E S 15
31	E S 15	E S 15	E S 15	E S 15	E S 15	E S 14	E S 14	27	31	G 25	33	35	G 23	G 19	G	G	33	G	31	16	22	E S 15	E S 15	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	29	29	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E S 15	E S 14	E	E S 14	E S 15	E S 14	E S 14	G 14	25	30	30	30	29	29	G 24	G 23	G 22	17	E	E	E	E	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	24	30	32	33	34	34	34	30	30	26	21	E S 15	E S 16	E S 15	E S 15	E S 15	E S 15
LQ	E	E	E	E	E	E	E	G	G 18	G 24	G 25	G 26	G 24	G 24	E G 16	G	G	G	E	E	E	E	E	E

MAR. 1985

FBES (0.1 MHz)

# IONOSPHERIC DATA

MAR. 1985

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

MAR. 1985

FMIN (0.1 MHZ)

IONOSPHERIC DATA

MAR. 1985

M(3000)F2 (0.01)

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

Table with columns for Hour/Day (00-23) and rows for days 1-31. Each cell contains numerical values representing ionospheric data, often with superscript 'S' or other markers. Summary rows at the bottom include CNT, MED, UQ, and LQ.

MAR. 1985

M(3000)F2 (0.01)



# IONOSPHERIC DATA

MAR. 1985
M(3000)F1 (0.01)
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								L 385	U L 355	L	L	L 360	L 350	L	L 370	L	L							
2									L 380	U L 380	L 370	L 355	L 380	L	L 355	U L 365	L	L 395						
3									L	L 350	L 370	L 370	U L 370	L 385	L	A	L							
4									U L 370	L 370	L 365	L 365	L	L	L 365	L	L							
5									L 385	U L 375	L 380	L 375	L 370	U L 370	L									
6									L	U L 390	L 355	L 360	L 365	U L 365	U L 360	L								
7									L	U L 360	L 370	L 380	L 350	L 350	L	U L 375	L							
8									L	U L 375	L	L 380	L 365	L 375	L 360	L	L							
9									L	L 380	L 380	L 360	L 350	L 365	A	L 365	L	A						
10									L	L	L 380	L 360	L 360	L 370	L 370	L	L							
11										L 375	L 350	L 370	L 355	L 370	L 350	U L 365	L							
12									L	L 365	U L 380	L 385	L 370	L 340	A	L 360	L							
13									L	L 370	L 375	L 370	U L 360	L 370	L 355	L 355	U L 375							
14									L	L 340	L 370	L 340	L 370	L 385	L 370	L	L							
15									L	L 365	L 370	L 370	L 360	L 355	L 370	U L 355	L	L						
16									L	L 350	L 375	L 380	L 360	L 360	L 365	L 360	L							
17									L	L 370	L 370	L 370	L 375	L 375	U L 355	U L 360	L							
18										L 375	L 370	L 370	L 360	L 350	L 345	L 360	L	L						
19									U L 365	L 370	L 370	L 370	L 390	L 360	U L 365	L 370	L	L						
20								L	U L 370	L 365	L 370	L 355	L 350	L 350	L 365	L 360	U L 370	L						
21								L	U L 355	L 380	L 365	L 360	L 360	L 360	L 350	U L 360	L	L						
22									L 370	L 370	L 370	L 370	L 375	L 345	L 345	L 360	L	L						
23								L	L	L 370	L 380	L 380	L 350	L 350	L 360	L 350	L	A						
24									L	U L 355	L 370	L 360	L 370	L 350	H 345	L 360	L							
25								L	L 380	L 385	L 380	L 370	L 375	L 380	L 370	L 365	A	L						
26									U L 360	U L 360	L 390	H 390	L 380	H 360	L 360	U L 350	U L 360	L						
27									L	U L 375	L 360	L 365	U L 350	U L 345	L 360	U L 360	L	L						
28										U L 350	L 340	L 355	L 350	A	L 340	L 350	L	L						
29									L	L 365	L 360	L 370	L 360	L 360	L 350	L	L	L						
30									L	U L 360	L 360	L 360	L 360	L 365	L 360	U L 370	L							
31								L	L	L 365	L 360	L 365	L 360	L 370	L 370	L 350	L	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	7	28	29	31	31	27	26	24	4	2						
MED								L 385	U L 370	L 368	L 370	L 370	L 360	L 360	L 360	L 360	U L 365	L 392						
UQ								L 375	L 375	L 380	L 370	L 370	L 370	L 370	L 370	L 365	U L 372							
LQ								U L 362	L 360	L 370	L 360	L 358	L 350	L 355	L 355	U L 360								

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H<sup>o</sup>F<sub>2</sub> (KM)

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								230	285	245	255	260	285	240	260	240	260								
2									235	255	245	260	285	270	260	250	235	220							
3									235	270	270	235	270	260	260	235	245								
4									250	250	290	270	265	250	255	235	220								
5									225	240	275	270	255	250	270	250									
6									220		285	310	270	230	250	255	245								
7									240	260	265	295	270	240	260	245	240								
8									225	250	285	300	285	255	250	255	250								
9									225	235	285	310	275	265	290	265	260	235							
10									230	230	285	330	255	250	250	240	245								
11										255	255	280	290	260	270	270	265								
12									240	255	295	310	285	265	250	265	230								
13									245	285	260	260	290	285	280	255	240								
14									260	320	285	270	300	265	255	265	255								
15									230	250	315	290	295	255	260	265	235	240							
16									255	260	275	260	275	255	270	255	240								
17									250	235	250	255	275	300	275	275	250								
18										265	265	265	250	285	275	255	240	225							
19									270	275	255	260	280	280	270	290	265	250							
20								265	235	235	245	290	295	280	265	255	250	230							
21									265	265	305	285	260	270	265	290	275	230							
22									255	250	260	335	300	285	270	265	270	240							
23								235	245	275	295	310	300	270	260	275	260	240							
24									245	300	275	355	310	290	270	245	240								
25								235	235	280	300	305	260	290	280	260	270	240							
26									270	285	300	290	290	290	280	250	250	230							
27									245	275	295	265	305	315	275	265	255	255							
28									290	290	290	290	290	275	265	260	270	250							
29									235	265	280	285	295	295	265	270	265	250							
30									270	270	275	270	290	305	260	265	260								
31								260	245	270	265	275	280	290	285	270	255								
	00	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	27	30	31	31	31	31	31	31	30	15							
MED								235	245	262	275	285	285	270	265	260	250	240							
UQ								260	255	275	288	302	292	288	272	265	260	245							
LQ								235	235	250	260	265	270	258	260	252	240	230							

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H<sup>o</sup>F<sub>2</sub> (KM)

# IONOSPHERIC DATA

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H\*F (KM)

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	335	305	295	225	220	230	245	205	H 190	H 250	220	205	H 220	H 205	210	225	H 225	H 210	195	225	260	280	275	280
2	320	300	260	225	220	235	225	210	205	220	H 185	H 195	H 175	H 175	H 205	215	220	210	215	190	215	E S 285	295	310
3	290	320	265	245	215	290	215	215	215	H 205	H 180	H 195	H 175	H 210	H 205	A	E A 240	H 220	200	205	250	240	270	305
4	300	300	275	225	205	E S 290	235	215	230	H 205	H 190	H 190	H 180	245	235	225	220	215	205	220	235	220	265	260
5	250	260	270	255	220	255	225	H 215	205	200	H 180	H 175	H 175	H 195	H 190	235	240	225	215	250	250	225	205	E S 300
6	285	290	265	305	235	275	230	220	210	H 205	195	205	H 190	H 200	215	195	H 205	H 220	200	255	255	200	330	285
7	290	255	315	250	255	235	215	210	230	H 190	H 185	H 175	A	H 175	H 190	215	220	H 230	H 195	200	255	240	260	300
8	285	295	280	260	255	285	225	225	210	H 205	H 185	H 195	H 180	E A 250	210	220	230	H 245	220	200	240	290	255	255
9	265	295	280	265	240	265	235	H 230	H 200	A 225	190	175	H 190	H 210	A	E A 250	A	A	200	210	245	245	295	285
10	260	275	270	280	225	270	220	215	205	H 200	190	175	A	H 205	205	215	205	H 225	210	200	220	250	280	280
11	275	270	275	250	240	265	215	215	215	H 190	H 190	H 190	210	H 175	205	210	H 235	H 230	210	210	230	255	275	250
12	280	225	225	215	195	225	215	225	H 180	205	H 175	H 175	215	H 195	A	E A 250	220	220	210	215	240	270	270	255
13	290	305	295	235	210	E S 290	240	H 230	205	H 205	205	190	185	H 185	H 190	210	215	225	215	215	240	245	A	320
14	305	265	260	220	E A 300	E S 280	215	215	H 195	H 200	H 210	H 190	205	H 185	220	225	215	H 230	215	220	235	275	295	290
15	275	275	240	220	205	280	225	225	215	210	190	190	H 225	H 170	210	210	H 205	H 230	230	235	255	220	265	265
16	245	255	220	230	260	280	240	225	220	215	210	195	190	225	210	205	195	240	225	230	245	250	280	285
17	250	250	260	225	235	265	230	220	240	225	H 205	H 200	H 185	205	H 185	215	225	240	230	235	240	255	265	260
18	255	255	250	240	210	250	225	220	H 225	215	H 190	H 180	E A 250	H 180	215	205	210	215	215	225	255	280	235	250
19	250	250	245	245	215	275	220	H 235	H 200	H 180	H 190	H 180	175	235	220	215	H 200	230	220	E A 240	255	245	E A 295	260
20	275	275	260	235	240	255	235	230	210	205	195	180	H 170	215	215	205	205	225	225	230	260	265	250	240
21	270	275	250	225	240	270	235	H 235	225	205	200	H 180	H 175	H 190	H 210	H 195	205	H 230	215	240	265	265	250	250
22	255	275	285	250	230	240	220	235	225	210	H 195	H 200	H 180	235	215	220	220	H 190	230	225	220	225	245	265
23	260	280	275	250	230	215	220	220	205	190	H 180	H 175	260	235	220	220	215	A	230	215	215	250	265	280
24	275	280	260	245	220	235	210	H 220	H 200	H 215	H 195	H 195	H 180	220	205	220	220	H 225	230	235	E A 245	275	275	230
25	240	235	250	220	215	220	225	215	195	H 190	H 185	240	H 190	205	235	215	A	E A 230	220	195	235	280	280	275
26	280	285	C	C	C	C	C	230	220	210	185	175	215	175	H 205	H 190	215	230	220	220	220	295	305	290
27	280	270	255	205	E S 275	290	215	H 225	215	210	205	215	220	205	215	230	E A 245	E A 240	245	230	210	250	260	285
28	285	285	280	225	275	275	215	230	H 220	H 215	H 205	205	E A 230	A	H 185	215	230	210	225	220	210	255	275	265
29	245	280	C	C	205	250	225	H 225	210	195	H 195	215	200	190	H 180	235	H 230	230	235	205	195	290	290	280
30	290	280	265	235	220	230	210	230	235	215	220	205	H 180	215	210	205	240	H 240	230	210	215	275	280	280
31	290	270	250	220	E S 280	270	230	240	230	215	H 200	210	210	200	210	H 190	E A 250	250	235	220	250	255	245	260
CNT	31	31	29	29	30	30	30	31	31	31	31	31	29	30	29	30	29	29	31	31	31	31	30	31
MED	275	275	265	235	224	260	225	225	210	205	H 190	H 190	H 188	204	210	215	218	228	220	220	240	255	271	278
UQ	290	288	275	250	240	278	230	230	222	215	202	202	212	215	215	222	228	230	230	230	252	275	280	285
LQ	258	262	250	225	215	235	215	215	205	H 200	H 185	H 180	H 180	H 185	H 205	205	210	220	210	210	220	245	260	260

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H<sup>o</sup>E (KM)

135<sup>o</sup> 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								A 115	A 115	A 110	A 110	A 110	A 105	A 105	A 105	A 110	A 115				S			
2								115	115	115	110	E A 125	E A 125	A	110	105	115	A	A			S		S
3		B	S		S			120	E A 125	E A 125	E A 125	A 115	A 110	A 115	E A 120	A	A	A				S	S	S
4								E S 125	E A 120	E A 125	A 115	A 115	A	A	110	E A 130	A 120	A 115			S	S		S
5								115	E A 135	A 120	E A 125	A 110	A 115	A 110	A 110	A 110	E A 120	A 110						S
6	S	S	S	S	S			E S 130	A 105	A 120	A 120	A 115	A	A 110	A 105	A 110	A 110	E S 120						S
7								115	A 110	E A 120	E A 130	A 115	A 115	A 115	E A 125	A 115	A 115	A						S
8								E A 130	A 115	E A 120	E A 130	E A 130	E A 125	A	A 115	A 110	A 110	E A 125						S
9								110	105	A	A	A	E A 120	A	A	A	A	A				S	S	
10								110	105	110	115	110	A 110	A 105	A 110	A 105	A 110	A 120						S
11								115	120	105	105	E A 120	E A 120	E A 120	A 115	A 110	A 115	E A 120					S	S
12								A	105	A	A	A	E A 125	A 110	E A 120	A 110	A 110	E S 120		S	S	S		
13								E A 125	A 110	A 110	A	E A 125	A 115	A 110	A 110	E A 120	E A 125	A						
14								E A 130	A 110	A	E A 140	E A 125	E A 125	E A 120	105	105	105	120				S		
15								115	105	E A 125	105	E A 130	E A 130	A 110	A 110	E A 120	E A 120	E A 135						
16							S	110	E A 120	A 105	A 115	A	E A 120	E A 125	A 115	E A 125	105	A						
17							S	E A 125	E A 125	A 115	E A 125	E A 125	A 115	A 115	A 110	A 110	A	E A 120						
18							S	110	105	E A 120	A	E A 125	A	E A 125	A 110	A 105	105	110						
19							S	110	105	A	E A 125	E A 120	A 115	A 115	A 115	A 115	A 115	E A 115						
20							S	E A 125	E A 120	A 115	A	E A 140	E A 120	E A 120	E A 120	A 110	A 115	A						
21							S	110	A	E A 120	A 115	A 110	A 110	A 110	A 110	A 110	A 110	110	115					
22							S	110	A	A	A	A	A	A	A	A	A	A						S
23							S	110	105	105	110	A	E A 125	A 115	E A 135	E A 120	E A 130	E S 120						
24							S	110	A	A	A	A	A	A	A	A	A	A						
25							S	E A 120	A 110	E A 125	A 110	A 110	A 115	A 110	A 110	105	105	115						
26							C	A	E A 125	105	A	A	A	120	A 115	A 115	A 115	E A 120	E A 125					
27							S	E A 120	A 115	E A 125	E A 125	110	110	115	A 115	A 110	A 115	A 120	E S 120					
28							S	E A 120	105	110	110	105	105	A	A	A	115	E A 120	115				S	S
29							S	105	105	105	105	105	110	105	110	105	110	110						S
30							S	E A 140	A	105	105	A	A	E A 125	A 115	A 115	A 115	E S 120				S		
31							S	A 115	E A 120	A 115	A 115	A 110	A 110	A 115	A 105	A 105	A 110	A 115						S
	00	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	27	24	27	27	26	28	29	28	24						
MED								112	A	A	A	A	A	A	A	A	A	111	114					
UQ								E A 125	E A 120	E A 120	E A 125	E A 125	E A 120	A 115	A 114	A 112	A 116	E E 120						
LQ								110	105	110	A	A	A	A	A	105	110	115						

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H<sup>o</sup>E (KM)

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# IONOSPHERIC DATA

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H°ES (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 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	125	110	S	S	S	115	110	110	105	E G 175	100	155	165	155	155	120	120	115	110	110	110	105	105	110	
2	S	100	100	S	100	100	100	G	105	105	100	105	105	105	G	G	105	105	S	105	105	100	100	150	
3	100	155	135	135	S	100	S	G	105	105	100	105	105	150	100	100	100	100	100	S	S	S	110	S	
4	S	115	S	100	S	S	S	G	105	105	105	100	105	E G 175	115	155	150	G	S	S	S	115	S	S	
5	100	S	130	S	S	105	155	G	110	100	110	100	105	105	105	105	110	110	95	95	S	95	S	S	
6	S	S	S	S	S	S	100	G	G	105	125	115	110	100	G	G	115	100	100	105	105	100	100	100	
7	100	130	130	S	S	S	S	G	105	100	110	100	160	100	100	100	115	115	95	95	S	S	S	S	
8	S	100	S	S	S	105	105	105	105	105	115	110	100	95	100	100	100	140	95	95	100	100	105	100	
9	100	100	100	100	105	S	S	G	115	100	105	100	100	100	100	100	95	100	S	100	S	110	105	S	
10	S	S	95	S	S	110	105	G	G	100	100	100	155	155	100	G	G	G	S	S	S	S	S	S	
11	S	S	S	100	105	110	S	G	135	140	115	125	100	95	125	130	G	115	115	S	105	105	S	110	
12	S	S	S	S	S	S	105	105	G	170	130	120	160	150	115	115	115	100	95	S	S	S	S	100	
13	120	115	105	100	100	S	105	110	125	115	110	110	105	105	105	110	110	115	120	110	110	110	105	110	
14	115	105	105	100	100	100	120	130	115	110	105	105	100	100	G	G	G	S	S	S	S	S	S	S	
15	S	S	S	S	S	S	140	155	140	125	115	110	115	105	105	105	110	115	100	S	125	110	S	S	
16	100	S	B	100	100	S	105	G	140	125	115	105	105	105	105	105	G	105	110	115	110	105	105	105	
17	100	100	100	S	100	S	S	130	130	130	100	100	100	100	100	100	95	140	95	110	110	105	S	105	
18	S	100	100	100	100	100	S	G	G	120	105	105	100	100	100	G	G	G	S	S	S	110	105	S	
19	S	S	100	S	S	S	S	145	G	105	105	100	105	105	105	105	105	100	100	100	100	105	105	100	100
20	100	S	100	S	100	105	100	115	110	100	105	105	105	105	105	105	100	100	100	100	100	100	100	100	
21	100	100	100	100	S	S	100	G	E G 175	105	105	100	100	100	100	100	G	100	95	95	100	S	S	S	
22	S	S	105	S	S	S	110	G	100	100	105	105	105	100	G	G	G	G	100	95	100	S	S	S	
23	S	105	110	S	125	B	S	G	150	125	105	105	165	160	E G 175	100	155	125	115	100	100	105	S	S	
24	S	S	S	S	S	140	100	G	160	145	125	120	115	105	110	G	G	G	S	S	120	115	115	S	
25	S	110	S	B	S	S	110	150	135	105	100	150	105	105	130	130	120	120	S	S	115	110	105	130	
26	S	S	C	C	C	C	C	105	145	120	105	105	170	105	105	115	100	100	100	100	100	100	S	130	
27	S	S	105	S	S	S	S	110	155	145	125	120	140	140	140	125	115	115	115	110	110	120	105	105	
28	S	S	B	105	105	110	S	110	145	130	G	120	110	105	105	105	100	G	100	105	125	S	S	S	
29	105	S	C	C	S	S	S	150	G	140	G	130	125	135	G	G	G	G	S	S	S	115	115	S	
30	S	S	100	100	B	S	S	150	135	130	125	105	110	105	100	100	100	G	100	115	115	120	S	S	
31	S	S	S	S	S	S	S	165	150	105	140	130	105	105	G	G	120	G	140	115	110	S	S	S	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	12	14	17	11	11	12	16	16	25	31	29	31	31	31	25	22	22	22	22	20	21	22	15	14	
MED	100	105	100	100	100	105	105	122	128	108	105	105	105	105	105	105	110	112	100	102	110	105	105	105	
UQ	110	115	105	100	105	110	110	150	142	129	115	120	120	U 112	112	115	115	115	110	110	110	110	105	110	
LQ	100	100	100	100	100	100	100	110	105	105	105	102	105	100	100	100	100	100	95	98	100	100	102	100	

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H°ES (KM)

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# IONOSPHERIC DATA

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TYPES OF ES

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	F2	F2			F1	F1	L1	L2	HHL11	L2	HL11	HL11	H1	H2	C3	C2	C3	F1	LK11	F3	F3	F2	F1	
2		F2	F1		F2	F1	F1	L2	L1	L1	L1	L1	L1	L1		L2	L2		F1	LK11	F3	LK11	FF11	
3	F2	HK11	HK11	F1	K1	F1		L2	L2	L2	L1	L1	HL11	L2	L4	L3	L2	F1		K1	K1	LK11		
4		F1		F1				L1	L1	L1	L1	LL11	HL11	C2	HL22	HL12			K1	K1	F1	K1		
5	F1		FF11		F1	F1		L2	L1	LL11	L1	L1	L1	L1	L1	L2	L1	F2	F1		F2		K1	
6	K1	K1	K1	K1	K1		F2		L1	HL21	CL11	LL11	L1			C3	L1	F1	FF21	F2	F1	F2	F2	
7	F2	F1	FF12					L1	L2	LL12	L1	HLL11	L1	L2	L3	CL21	LL21	F2	F2			K1	K1	
8		F1			F2	F2	L1	L2	L2	LL12	LL11	L2	L3	L1	L1	L2	HL31	F2	F1	F1	LK11	F1	F3	
9	F2	F1	F1	F1	F1			C2	L4	L3	L2	L2	L3	L2	L3	L3	L3		F1	K1	LK21	F1		
10			FF11		F1	F1		L2	L1	L1	L1	HL21	H1	L1							K1			
11			F2	F2	F1			HL21	H2	C1	CL11	L2	L2	CL21	CL21		L3	F1		F2	LK21	K1	FF11	
12						F1	L2		HL22	CL12	CL12	HL11	HL11	CL21	CL32	C3	L1	F2	K1	K1	K1		F4	
13	FF21	FF12	F2	F2	F1	F1	L2	CL22	CL32	LL22	LL11	L1	L1	L1	L2	L2	LL32	F1	F1	F4	F2	F7	F3	
14	FF21	F3	F3	F4	F3	F2	F1	CL34	CLL33	CL32	L2	L2	L3	L3			C3	F1	F1	K1				
15						F2	H2	H2	CL22	C2	LL21	LL11	L1	L1	L2	L3	L2	F1		F1	F1			
16	F2			F1	F1	L1		HL23	C3	CL21	L1	L1	L1	L1	L2		L4	F1	F1	F2	F4	F4	F5	
17	F5	F4	F2		F1		H1	HL31	HL22	CL12	L1	L1	L1	L1	L2	L1	L4	HL22	F2	FF72	F2	F4	F2	
18		F2	F2	F2	F2	F2			CL32	L2	L2	L3	L2	L2							F2	F1		
19			F1				H2		L2	L1	L1	L1	L1	L2	L2	L3	L2	F2	F4	F2	F3	F4	F7	
20	F4		F1		F1	F1	L2	L2	L1	LL21	LL21	LL21	L1	L2	L2	L3	L2	F2	F3	F3	F3	F2	F3	
21	F2	F1	F1	F1		L1		HL12	L2	L1	L1	L1	L1	L1	L2		L1	F3	F2	F1				
22			F2			L1		L2	L2	L2	L1	L1	L1					F1	F2	F1			K1	
23		F2	F2		F1			H2	H2	L1	L1	HL11	HL12	HL13	L2	HL22	CL41	FF21	F1	F1	FF11			
24					FF11	L1		HL22	HL21	CL11	CL21	CL11	LL22	LL21				F1	F1	F6	F3	F3		
25		F1				L1	HL13	HL22	L2	L1	HL11	L1	L1	HL21	H2	C4	C4	F1		F2	F2	F5	F1	
26							L3	HL22	C3	L2	L2	HL11	L1	L1	CL22	L2	L3	F2	F2	F2	F2		F1	
27			F1			L1		HL22	HL11	CL21	C1	H1	HL11	HL11	CL21	CL31	C4	F3	F6	F1	FF21	F2	F1	
28			F2	F2	F1	L2	H2	H2		C2	C2	C2	L3	L1	L1	L3		F1	FF11	F1	K1	K1		
29	F1					H2		H1		H1	H1	H1	H1					F1	F1	F1	LK21	F2		
30			F1	F1		HL22	HL22	H2	C1	L1	L2	L2	L2	L2	L2	L1		F1	F1	LK11	F1			
31						HL23	HL22	L1	HL12	HL11	L1	L1				C2		F5	F6	F5			K1	
	00	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

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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 25 MHz in 24sec 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 36	X 37	X 37	X 42	X 41	X 27	X 27													X 46	X 47	X 40	X 35	S 32
2	X 37	S 37	X 36	S 35	X 44	U 30	X 25													X 59	X 47	X 32	X 34	X 33
3	U 36	S 34	X 36	X 40	X 38	X 31	X 32													X 46	X 38	X 40	X 40	S 39
4	40	U 40	U 45	U 46	S 40	X 25	X 27													X 49	X 37	S 36	S 35	U 34
5	X 37	X 36	X 35	X 36	X 40	X 31	X 30													X 48	X 51	X 50	A	X 30
6	X 32	X 34	X 35	X 36	X 42	X 33	X 35													X 46	X 49	H 45	X 31	X 34
7	X 36	X 38	X 37	X 38	U 39	X 43	X 35													X 50	X 38	X 38	X 36	X 37
8	X 38	X 40	X 39	X 39	X 38	X 36	X 39													X 67	X 30	X 36	X 39	X 40
9	S 40	X 38	X 39	X 39	X 39	X 40	X 38													X 46	X 39	X 38	X 33	X 32
10	X 35	X 38	X 40	X 49	X 52	X 50	X 54													X 59	X 45	X 36	X 36	X 37
11	X 37	X 38	X 36	X 38	X 38	X 38	X 39													X 61	X 45	X 39	X 39	X 40
12	X 42	X 43	S 39	X 42	X 41	X 27	X 29													X 50	X 46	X 35	X 35	X 37
13	X 36	X 34	X 34	X 37	X 38	A	X 26													X 51	X 45	X 43	X 42	X 40
14	X 40	X 40	X 39	X 42	X 36	A	X 28													X 54	X 49	X 40	X 39	X 39
15	X 39	X 39	X 40	X 43	X 29	X 30	X 31													X 64	X 61	X 59	X 40	X 39
16	S 41	X 37	X 42	X 45	S 27	X 28	X 31													X 65	X 59	U 54	U 49	U 48
17	S 51	X 42	X 39	X 40	X 36	X 27	X 29													X 66	U 58	X 47	X 43	A
18	U 42	X 42	X 39	X 40	X 36	X 31	X 32													X 55	S 55	X 50	X 47	X 42
19	U 44	X 42	X 43	X 43	X 34	X 29	X 32													X 77	X 67	X 47	U 37	X 45
20	X 45	X 44	X 40	X 45	X 36	X 32	X 35													X 61	S 57	X 53	X 49	X 49
21	S 46	X 43	X 44	X 43	X 37	X 34														X 56	X 53	X 53	X 47	X 43
22	S 42	X 40	X 40	X 40	X 41	X 30														X 72	X 70	X 37	X 36	X 37
23	X 38	X 39	X 39	X 38	X 38	X 36														X 84	X 65	X 48	X 42	X 42
24	X 41	X 40	X 39	X 39	X 40	X 37														X 65	X 66	X 45	X 45	X 46
25	X 49	X 46	X 40	X 41	X 39	X 37														X 75	X 47	X 36	X 36	X 37
26	X 37	X 36	X 36	X 37	X 30	X 28														X 59	X 51	X 42	X 44	X 46
27	X 45	X 44	X 41	X 42	X 28	X 30														X 80	X 67	X 53	X 51	X 45
28	X 46	X 47	X 45	X 49	X 42	X 41														X 91	X 75	X 59	X 49	X 46
29	X 46	X 45	X 41	X 44	X 39	X 34														X 71	X 53	X 42	X 42	S 45
30	X 46	X 45	X 44	X 49	X 32	X 25														X 81	X 60	X 39	S 40	40
31	U 40	S 40	X 39	X 41	X 30	S 30														X 82	X 60	X 56	X 54	X 53
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	29	20													31	31	31	30	30
MED	X 40	X 40	X 39	X 41	X 38	X 31	X 32													X 61	X 51	X 42	X 40	X 40
UQ	44	X 42	X 40	X 43	X 40	X 36	X 35													X 72	X 60	X 50	X 45	X 45
LQ	X 37	X 38	X 37	X 38	X 36	X 29	X 28													X 50	X 46	X 38	X 36	X 37

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FXI (0.1 MHz)

# IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24 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		30	31	31	36	35	21	21	42	59	76	80	77	87	104	99	75	63	73	59	40	41	34	29	U S 26
2		31	31	S 30	U S 29	38	U S 24	19	42	53	60	71	74	73	77	85	96	91	S 85	77	53	41	26	28	27
3		30	S 28	30	34	32	25	26	45	54	70	97	101	97	110	116	118	U R 99	84	69	S 40	S 32	34	34	S 33
4		F U S 34	S 39	U S 40	S 34	19	21	44	54	63	71	70	86	94	96	92	87	74	57	43	31	30	29	U S 28	
5		31	30	29	30	34	25	24	45	57	60	64	73	84	88	73	81	84	66	62	42	45	44	A	24
6		26	28	29	30	36	27	29	47	54	54	59	76	105	120	94	H 83	H 78	75	68	40	43	39	25	28
7		30	32	31	32	U S 33	37	29	45	56	57	59	67	89	107	101	U R 104	93	71	73	S 44	32	32	30	31
8		32	34	33	33	32	30	33	50	52	57	67	73	94	117	98	80	81	67	76	S 61	24	30	33	34
9		34	32	33	33	33	34	32	62	51	53	62	77	96	90	79	88	R 93	H 84	59	40	33	32	27	26
10		29	32	34	43	46	44	48	64	65	56	62	61	76	98	98	73	64	61	60	53	39	30	30	31
11		31	32	30	32	32	32	33	47	49	54	62	66	62	81	97	R 99	90	87	83	55	39	33	33	34
12		36	37	S 33	36	35	21	23	47	55	53	58	71	85	104	104	90	86	71	55	44	40	29	29	31
13		30	28	28	31	32	A	20	47	59	60	65	70	74	91	95	95	85	67	57	45	39	37	36	34
14		34	34	33	36	30	A	22	43	50	54	64	87	92	97	83	72	63	63	63	48	43	34	33	33
15		33	33	34	37	23	24	25	50	48	55	57	67	86	97	82	68	72	72	60	58	55	S 53	34	33
16		S 35	31	36	39	S 21	22	25	49	59	65	63	83	89	98	93	74	61	56	58	59	53	U S 48	U S 43	U S 42
17		S 45	36	33	34	30	21	23	49	66	72	57	63	73	75	75	69	58	56	57	60	U S 52	U S 41	37	A
18		U S 36	36	33	34	30	25	26	48	53	63	67	72	79	84	90	91	87	64	53	49	S 49	44	41	36
19		U S 38	36	37	S 37	28	23	26	48	63	63	62	79	84	80	77	64	62	65	64	S 71	S 61	S 41	U S 31	39
20		39	38	S 34	39	30	26	29	54	66	72	63	69	98	101	101	R 75	62	65	61	55	U S 51	47	43	43
21		S 40	37	38	37	31	28	27	51	59	77	74	93	99	95	78	66	67	73	70	50	47	47	41	37
22		S 36	34	34	34	35	24	27	53	58	63	63	66	85	93	90	87	67	63	63	66	64	31	30	31
23		32	33	33	32	32	30	32	50	54	59	62	86	112	U R 127	U R 118	105	95	84	79	78	59	42	36	36
24		35	34	33	33	34	31	29	45	52	54	61	62	81	93	97	85	64	54	53	59	60	39	39	40
25		43	40	34	35	33	31	33	52	56	61	61	68	87	94	89	79	76	67	74	69	41	30	30	31
26		31	30	30	31	24	22	29	49	57	57	58	74	92	97	99	92	86	72	68	53	45	36	38	40
27		39	38	35	36	22	24	29	56	57	58	67	74	84	93	98	84	74	74	83	74	61	47	45	U S 39
28		40	41	39	43	36	35	42	47	54	60	72	87	95	115	U R 120	112	113	105	99	85	69	53	43	40
29		40	39	35	38	33	28	31	55	57	63	66	72	74	94	100	87	82	83	76	65	47	36	36	39
30		40	39	38	43	26	19	29	49	57	71	77	84	80	92	108	99	76	63	71	75	54	33	S 34	F 33
31		U S 34	S 34	33	35	24	S 24	31	53	62	66	65	75	85	81	83	79	85	U H 76	74	76	54	S 50	48	47
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		30	31	31	31	31	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30
MED		34	34	33	35	32	25	29	49	56	60	63	73	86	94	96	85	81	71	64	55	45	36	34	34
UQ		39	36	34	37	34	30	31	52	59	64	67	78	93	102	100	94	87	76	74	66	54	44	39	39
LQ		31	32	31	32	30	23	24	46	54	56	62	68	80	90	84	75	66	64	59	44	40	32	30	31

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FOF2 (0.1 MHz)

The Radio Research Laboratories, Japan



# IONOSPHERIC DATA

MAR. 1985

FOF1 (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 25 MHz in 24sec 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						
2										L	L	L	L	L	L	L	L	L						
3									L	L	L	L	L	L	L	L	L	L						
4									290	L	L	L	L	L	L	L	L	L						
5									L	L	L	L	L	L	L	L	L	L						
6										L	L	L	L	L	L	L	L	L						
7									L	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	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	L	L						
14										L	L	L	L	L	L	L	L	L						
15										L	L	L	L	L	L	L	L	L						
16									L	L	L	L	L	L	L	L	L	L						
17									L	L	L	L	L	L	L	L	L	L						
18										L	L	L	L	L	L	L	L	L						
19									L	L	L	L	L	L	L	L	L	L						
20									L	L	L	L	L	L	L	L	L	L						
21								L	L	L	L	L	L	L	L	L	L	L						
22									L	L	L	L	L	L	L	L	L	L						
23									L	L	L	L	L	L	L	L	L	L						
24									L	L	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						
27									L	L	L	L	L	L	L	L	L	L						
28										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									L	L	L	L	L	L	L	L	L	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	11	27	30	31	30	31	26	12	1						
MED									290	L	L	L	L	L	L	L	L	L						
UQ									L	L	L	L	L	L	L	L	L	L						
LQ									L	L	L	L	L	L	L	L	L	L						

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FOF1 (0.01 MHz)

### IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24sec 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	210	265	295	310	320	320	320	300	280	225	R	S				
2								S	195	H 260	300	305	A	A	A	A	A	A	S					
3								S	H 235	U R 270	300	U R 320	325	U R 330	A	300	265	230	S					
4								S	225	R 275	300	310	A	A	320	A	280	U R 230	S					
5								S	240	290	A	A	330	R 325	R 320	A	H 260	240	S					
6								S	H 235	H 270	H 295	H 305	A	A	A	A	A	A	S					
7								S	220	H 275	295	305	A	H 320	A	300	275	220	S					
8								S	225	280	R 290	305	R 310	310	305	300	275	A	S					
9								S	215	265	300	315	A	A	A	A	A	A	S					
10								S	210	275	300	315	325	325	320	305	280	240	S					
11								S	210	280	305	A	A	320	310	300	280	A	S					
12								S	230	260	290	320	325	320	320	300	295	250	S					
13								180	240	265	290	A	A	A	A	A	A	225	S					
14								180	240	A	280	A	325	325	320	305	280	240	S					
15								S	215	255	285	320	335	325	A	A	A	240	S					
16								200	H 250	270	H 300	H 310	A	A	A	A	A	A	S					
17								200	245	270	295	A	A	330	320	305	290	240	A					
18								180	H 250	280	285	A	A	A	330	310	280	A	S					
19								180	H 250	300	280	A	325	A	325	A	A	A	S					
20								200	250	H 280	300	A	325	A	A	305	280	240	S					
21								S	170	235	280	300	325	340	340	325	310	285	A	S				
22								S	200	250	285	U R 320	R 325	340	U R 325	325	310	A	A	S				
23								S	205	250	285	305	325	340	A	325	310	290	245	A				
24								S	225	245	290	315	A	A	A	A	A	A	245	165				
25								S	210	255	280	305	320	A	340	325	305	295	250	S				
26								S	190	250	295	A	325	330	330	320	300	280	230	190				
27								S	200	250	295	310	320	325	320	320	305	280	230	S				
28								S	185	250	285	310	310	330	335	325	305	280	245	180				
29								S	170	240	295	315	A	330	330	325	310	280	250	195				
30								S	205	260	A	310	A	300	A	A	310	290	250	180				
31								S	180	H 250	290	H 310	A	350	330	A	315	290	245	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								18	31	29	29	19	19	19	19	21	22	21	5					
MED								195	240	280	300	315	325	325	320	305	280	240	180					
UQ								200	250	285	305	320	332	330	325	310	290	245	190					
LQ								180	225	270	295	310	325	320	320	300	280	230	180					

MAR. 1985

FOE (0.01 MHZ)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24sec 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 16	E S 16	E S 16	E S 16	E S 16	G	G	G	35	G	36	35	G	G	J A 36	J A 17	E S 16	E S 16	E S 16	J A 17	E S 16	
2	J A 29	J A 27	J A 27	J A 17	22	18	17	E S 16	G	33	34	34	J A 39	J A 35	J A 33	J A 33	28	24	J A 29	J A 24	J A 20	E S 16	E S 16	21	
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	G	G	31	G	G	36	36	36	29	J A 29	E S 16	21	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	E S 16	G	G	36	35	35	J A 34	G	34	G	G	21	18	20	20	20	J A 20	21
5	E S 15	21	19	17	E S 16	E S 16	E S 16	E S 16	G	G	J A 32	35	34	24	G	19	32	G	G	17	J A 22	21	21	J A 32	J A 17
6	20	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	G	G	G	31	J A 37	J A 40	J A 34	J A 33	39	J A 50	J A 34	J A 33	J A 20	18	E S 16	E S 16	
7	17	20	17	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	29	J A 60	34	48	18	30	20	J A 22	22	E S 16	21	E S 16	E S 16	
8	E S 16	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	34	35	G	20	33	33	G	G	24	J A 17	E S 16	20	22	20	19
9	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	G	J A 36	J A 34	J A 34	J A 33	J A 39	J A 30	J A 24	J A 18	E S 16	E S 16	E S 16	E S 16	
10	E S 16	E S 16	J A 13	E S 16	J A 13	E S 16	E S 16	E S 16	G	G	33	34	34	G	36	G	G	G	E S 16	E S 16	E S 16	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	G	32	34	J A 35	38	J A 44	40	36	30	J A 28	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	
12	E S 16	J A 31	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	34	G	G	G	G	G	J A 26	J A 29	E S 16	E S 16	E S 16	E S 16	E S 16	
13	E S 16	E S 16	E S 16	E S 16	E S 16	J A 21	J A 20	G	G	31	32	33	J A 35	J A 40	J A 45	J A 47	33	J A 27	E S 16	E S 16	J A 20	J A 18	J A 17	E S 16	
14	E S 16	E S 16	E S 16	J A 24	J A 25	J A 27	E S 16	22	28	J A 34	34	34	G	29	G	37	G	G	G	19	J A 18	E S 16	E S 16	E S 16	
15	E S 15	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	J A 23	27	34	34	G	37	G	J A 33	31	J A 33	G	E S 16	E S 16	J A 24	E S 16	E S 16	E S 16	
16	E S 16	E S 15	F S 15	E S 16	E S 16	E S 16	E S 16	G	26	34	34	36	36	36	J A 35	J A 34	J A 33	J A 28	20	18	J A 20	18	E S 16	J A 34	
17	J A 26	18	18	J A 20	E S 16	E S 16	E S 16	G	28	32	34	37	J A 35	J A 40	J A 33	38	J A 34	30	J A 35	J A 48	J A 42	J A 28	J A 41	J A 48	
18	J A 34	24	20	J A 21	J A 18	E S 16	J A 21	22	30	J A 35	36	J A 36	J A 42	J A 37	J A 33	20	G	26	24	E S 16	18	22	E S 16	19	22
19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	24	27	30	32	J A 42	G	J A 37	G	30	32	J A 51	60	J A 18	21	J A 24	J A 50	J A 30	
20	26	J A 37	J A 20	E S 16	E S 16	E S 16	E S 16	G	G	30	33	J A 38	35	J A 35	J A 37	28	J A 30	G	17	J A 18	J A 20	J A 26	22	E S 16	
21	E S 16	E S 16	E S 16	22	E S 16	E S 16	E S 16	G	G	G	G	G	44	36	35	G	G	J A 30	21	22	23	E S 16	E S 16	E S 16	
22	20	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	G	29	30	24	24	G	36	37	G	J A 31	28	21	J A 40	E S 16	E S 16	17	E S 16	
23	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	G	40	40	40	35	G	G	28	J A 20	J A 23	E S 16	E S 16	E S 16	E S 16	
24	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	34	J A 37	J A 35	35	33	J A 35	J A 33	G	23	E S 16	E S 16	J A 20	J A 24	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	G	G	G	G	G	49	45	46	38	J A 36	J A 35	J A 39	E S 16	E S 16	J A 24	J A 26	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	24	30	37	39	37	G	G	G	G	G	G	G	E S 16	E S 16	E S 16	E S 16	E S 16	
27	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	G	G	38	35	36	J A 40	40	37	35	35	30	J A 34	J A 18	E S 16	E S 16	J A 20	J A 20	
28	E S 16	E S 16	J A 19	J A 17	J A 17	E S 16	E S 16	23	G	34	35	37	G	G	G	G	G	G	J A 19	E S 16	J A 18	E S 16	E S 16	E S 16	
29	E S 16	E S 16	E S 15	J A 18	E S 16	E S 16	E S 16	G	G	G	G	J A 41	37	39	40	36	32	27	26	J A 27	J A 21	E S 16	E S 16	E S 16	
30	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	J A 20	26	30	35	39	38	38	40	36	21	G	J G 20	18	18	20	E S 16	E S 16	E S 16	
31	E S 16	E S 16	E S 16	E S 16	21	E S 16	E S 16	24	29	35	36	37	37	39	J A 41	35	31	G	J A 24	23	23	21	J A 24	E S 16	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	G	30	33	35	35	36	35	32	30	26	20	18	20	E S 16	E S 16	E S 16	
UQ	E S 16	16	16	16	E S 16	E S 16	E S 16	20	27	34	34	37	38	40	37	35	33	J A 30	J A 25	J A 22	20	20	J A 20	18	
LQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	E G 24	32	G	24	34	33	G	G	G	17	E S 16	E S 16	E S 16	E S 16	

MAR. 1985

FOES (0.1 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

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 25 MHz in 24sec 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 16	E S 16	E S 16	E S 16	E S 16	G	G	G	35	G	35	35	G	G	35	G	E S 16	E S 16	E S 16	E S 16	E S 16	
2	E	E	E	E	E	E	E	E S 16	G	32	33	32	32	31	32	30	27	23	G	E	20	E S 16	E S 16	E	
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	G	G	G	G	G	35	G	G	29	G	E S 16	E	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	E S 16	G	G	35	35	33	31	G	33	G	G	17	E	E	E	E	E	
5	E S 15	E	E	E	E S 16	E S 16	E S 16	E S 16	G	G	31	G	G	G	G	19	30	G	G	17	19	E	E	A A 32	E
6	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	G	G	G	G	33	33	32	30	32	30	34	27	19	E	E S 16	E S 16	
7	E	E	E	E S 16	E S 16	E S 16	E S 16	G	G	G	G	G	39	29	37	18	G	G	19	20	E	E S 16	E S 16	E S 16	
8	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	33	34	20	32	33	G	G	G	24	G	E S 16	E	E	E	E
9	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	G	33	33	32	30	28	24	22	E	E S 16	E S 16	E S 16	E S 16	
10	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	32	34	34	G	34	G	G	G	E S 16	E S 16	E S 16	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	G	30	32	33	34	36	34	32	29	25	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	
12	E S 16	19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	34	G	G	G	G	G	G	18	E S 16	E S 16	E S 16	E S 16	E S 16	
13	E S 16	E S 16	E S 16	E S 16	E S 16	A A 21	E	G	G	30	31	33	33	35	34	31	30	25	E S 16	E S 16	E	E	E	E S 16	
14	E S 16	E S 16	E S 16	17	20	A A 29	E S 16	20	28	33	34	33	G	G	35	G	G	G	18	E	E S 16	E S 16	E S 16	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	21	25	33	33	G	37	G	32	31	29	G	E S 16	E S 16	17	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	E S 16	G	G	G	33	34	34	33	33	31	30	23	18	E	19	E	E S 16	E	
17	E	E	E	E	E S 16	E S 16	E S 16	G	G	31	32	34	34	30	30	33	31	28	34	28	35	17	20	A A 48	
18	20	17	E	18	E S 16	E S 16	E	G	30	34	34	34	34	34	31	20	G	G	19	24	E S 16	E	E	E	
19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	23	G	G	31	37	G	33	G	31	31	33	36	E	E	22	32	E	
20	E	29	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	33	34	35	34	33	28	27	G	G	E	18	E	E S 16	E S 16	
21	E S 16	E S 16	E S 16	E	E S 16	E S 16	E S 16	G	G	G	G	G	42	36	G	G	G	G	28	G	E	E	E S 16	E S 16	E S 16
22	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	29	G	G	G	G	G	35	G	29	28	G	39	E S 16	E S 16	E	E S 16	
23	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	G	40	40	38	35	G	G	G	27	20	19	E S 16	E S 16	E S 16	E S 16
24	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	33	34	34	34	33	33	30	G	18	E S 16	E S 16	E	E	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	G	G	G	G	G	40	42	36	33	34	32	30	E S 16	E S 16	E	22	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	23	29	32	35	35	G	G	G	G	G	G	G	E S 16	E S 16	E S 16	E S 16	E S 16	
27	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	G	33	34	35	36	35	34	34	29	33	18	E S 16	E S 16	E	18	
28	E S 16	E S 16	E	E	E S 16	E S 16	E S 16	23	G	34	35	34	G	G	G	G	G	G	G	E S 16	17	E S 16	E S 16	E S 16	
29	E S 16	E S 16	E S 16	E	E S 16	E S 16	E S 16	G	G	G	G	35	35	36	38	34	31	27	25	26	19	E S 16	E S 16	E S 16	E S 16
30	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	25	29	33	35	35	35	36	34	21	G	G	19	17	E	E	E S 16	E S 16	E S 16
31	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	34	35	35	G	37	37	G	30	G	21	E	E	E	E	E S 16	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	G	G	32	34	33	33	33	28	G	27	23	17	16	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	G	32	33	34	35	36	35	31	30	28	20	E S 16	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 16	E S 16	E S 16	G	G	G	G	G	G	26	30	G	G	G	G	E S 16	E	E	E	E	E S 16

MAR. 1985

FBES (0.1 MHz)

## IONOSPHERIC DATA

MAR. 1985

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

MAR. 1985

FMIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

MAR. 1985

M(3000)F2 (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 25 MHz in 24 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	290	305	345	370	310	310	345	330	335	335	330	320	325	345	345	335	355	355	310	330	340	310	U S 325
2	305	S 305	S 315	U S 345	370	U S 375	315	345	360	335	340	345	335	325	315	340	340	S 335	355	350	355	290	265	295
3	300	S 285	300	340	345	320	325	375	325	300	335	335	315	325	325	340	U R 320	345	375	S 360	S 310	310	310	S 305
4	F U S 295	S 295	S 295	U S 350	S 395	290	310	350	350	325	345	305	325	320	330	325	345	360	375	370	340	300	295	U S 320
5	305	315	295	315	350	340	335	365	360	350	330	310	335	330	320	320	345	355	355	310	320	350	A 290	
6	290	285	295	285	345	370	310	360	390	340	305	275	315	335	335	H 320	H 325	345	365	335	315	320	300	285
7	285	295	305	330	U S 335	365	380	345	375	335	315	330	305	325	310	U R 310	350	340	370	S 365	310	330	285	290
8	295	295	285	320	345	335	350	380	355	340	345	300	305	335	315	325	325	345	370	S 375	375	285	305	310
9	325	295	305	305	305	325	345	385	370	350	320	310	345	335	320	325	R 345	H 365	370	325	350	330	335	305
10	310	310	310	290	305	305	345	365	385	365	340	320	310	330	350	340	365	360	365	340	360	335	350	305
11	290	295	300	310	330	330	350	380	375	370	320	340	315	295	320	R 310	320	335	350	355	335	320	320	310
12	335	335	S 305	320	370	355	325	370	370	340	320	300	305	335	335	335	360	385	370	350	350	310	310	320
13	315	305	305	320	390	A 325	370	365	365	340	330	305	320	320	335	340	365	370	355	320	310	305	325	
14	310	325	320	360	335	A 340	370	360	340	305	325	325	335	335	335	340	355	375	345	325	340	305	305	
15	305	320	340	350	325	310	320	390	385	355	315	305	310	335	340	315	325	345	350	325	320	S 350	340	305
16	S 300	S 305	320	360	S 285	295	300	355	345	340	315	320	310	325	325	325	335	330	335	330	310	U S 300	U S 300	U S 295
17	S 310	335	305	340	385	285	305	345	355	375	340	335	330	320	320	340	325	330	340	340	U S 355	U S 315	310	A
18	U S 335	S 335	305	325	350	320	325	365	350	350	330	320	310	295	310	315	325	360	350	325	S 325	305	340	290
19	U S 300	S 305	325	S 335	340	305	325	345	350	305	315	330	325	320	320	330	330	340	330	S 340	S 345	S 305	U S 385	280
20	305	300	S 310	320	350	305	310	350	350	370	315	280	300	310	R 320	315	330	340	335	325	U S 315	295	290	300
21	S 300	295	300	335	340	320	315	350	330	345	290	305	325	335	340	320	330	320	350	320	320	320	315	295
22	S 305	310	310	310	355	335	315	360	345	340	325	295	290	310	310	320	335	335	335	325	350	370	285	290
23	310	305	320	295	310	350	345	370	360	340	275	285	305	U R 300	U R 315	320	315	340	335	345	340	320	290	305
24	315	325	320	320	340	370	345	365	355	360	325	280	295	305	315	340	350	350	330	320	350	305	295	300
25	315	325	325	340	350	340	335	375	365	345	320	285	305	320	335	320	335	335	350	360	340	300	300	290
26	305	285	300	355	335	320	345	355	360	340	300	295	305	320	325	325	345	345	350	330	335	305	290	300
27	305	315	330	345	320	290	310	375	370	335	330	310	310	305	325	335	330	335	335	330	345	310	310	U S 305
28	300	290	305	325	320	330	345	370	350	325	300	310	290	315	U R 310	315	315	330	335	330	340	310	315	300
29	300	305	315	330	365	330	340	380	340	350	355	325	285	310	320	335	325	350	355	345	340	305	305	295
30	285	295	315	335	345	315	310	355	325	340	330	310	350	295	320	335	340	335	340	345	350	320	S 295	F 255
31	U S 295	S 310	335	355	310	S 290	320	350	355	350	340	320	330	325	320	315	330	U H 320	330	340	325	S 300	290	310
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	29	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30
MED	305	305	305	330	345	320	325	365	355	340	325	310	310	320	320	325	335	345	350	340	340	310	305	300
UQ	310	315	320	345	352	340	345	372	368	350	338	328	325	330	332	335	342	355	368	350	350	325	315	305
LQ	300	295	302	320	328	305	312	350	350	338	315	300	305	310	318	320	325	335	335	325	320	305	295	290

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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	YAMAGAWA							Lat.	31 12.1 N				Long	130 37.1 E				Sweep	1 MHz to 25 MHz		in 24sec 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	370	355	380	L	L									
2										L	L	370	375	375	U L 335	L	360	L								
3									L	L	355	375	355	355	390	L	L	L								
4									415	L	U L 365	385	365	365	370	U L 355	L	L								
5									L	L	370	U L 360	385	355	U L 355	U L 365	L	L								
6										L	350	U L 370	390	350	365	L	U L 370	L								
7									L	L	365	370	345	365	U L 365	U L 370	350	L								
8										L	L	365	365	355	U L 375	L	L	L								
9									L	405	375	370	355	365	375	355	L	L								
10									L	L	375	375	385	370	385	380	L	L								
11										L	L	380	375	365	365	U L 355	L	L								
12										L	360	365	365	375	365	385	U L 375	U L 390								
13									L	L	U L 375	385	U L 375	355	375	370	L	L								
14										L	385	365	385	395	395	375	360	L	L							
15										L	U L 415	U L 385	375	U L 375	365	355	L	L								
16									L	L	U L 370	365	370	375	365	370	L	L								
17									L	U L 380	395	385	375	375	U L 370	U L 370	L	L								
18										U L 355	U L 365	U L 375	370	385	365	350	360	L								
19									L	L	375	400	400	375	375	U L 380	375	L								
20									L	375	365	U L 365	345	360	355	370	L	L								
21								L	L	L	U L 375	375	370	375	385	U L 355	U L 355	L								
22									L	U L 380	370	U L 360	400	345	375	U L 370	L	L								
23									L	380	340	370	365	355	355	370	L	L								
24									L	L	405	370	415	375	365	380	385	L								
25									L	390	385	375	375	A	355	380	355	L								
26									L	L	385	395	385	375	375	380	375	L								
27									L	L	380	365	375	360	365	365	L	L								
28										L	355	365	340	365	355	365	L	L								
29									L	L	395	375	340	375	375	370	L	L								
30									L	U L 370	355	370	375	370	355	370	U L 380	L								
31									L	380	375	410	375	375	385	U L 365	355	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT									1	11	27	30	31	30	31	26	12	1								
MED									415	380	370	372	375	368	365	370	365	U L 390								
UQ									385	378	385	380	375	375	370	375										
LQ									378	365	365	365	365	355	365	360	355									

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M(3000)F1 (0.01)

### IONOSPHERIC DATA

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H<sup>o</sup>F<sub>2</sub> (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 25 MHz in 24 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									230	270	255	270	295	280	250	250	255	245						
2										255	275	265	255	285	295	260	250	235						
3									245 <sup>L</sup>	270	260	250	280	265	270	240	240	230						
4									235	255	255	290	275	260	255	265	235	235						
5									225	235	270	295 <sup>L</sup>	255	255	280	275	240	245						
6									250 <sup>L</sup>	325	325	295	250	250	260	245	255							
7									230	250 <sup>L</sup>	295 <sup>L</sup>	260	310	275	280	255	245	240						
8									250 <sup>L</sup>	270	315	320	260	255	255	255	245							
9									225	270	310	300	270	265	285	280	250	230						
10									225	230	275	315	300	280	250	265	250	235						
11									250	275	260	295	330	280	270	265	240							
12									230	315	305	305	275	250	265	250	240							
13									240	250	285	280	320	295	285	270	250	240						
14									275	330	275	265	260	275	275	270	250							
15									265	320	325	300	270	250	305	275	250							
16									250	265	295	285	285	265	255	270	260	250						
17									250	225	255	275	270	285	275	275	285	255						
18									265	285	290	295	290	280	270	260	230							
19									245	245	325	275	275	285	280	285	260	260						
20									245	245	295	305 <sup>L</sup>	310	280	255	255	280	260						
21							235		270 <sup>L</sup>	260	285	295	265	260	260	285	275	260						
22									245	255	280	325 <sup>L</sup>	320	295	285	275	260	260						
23									245	270	390	340	295	265	270	275	255	250						
24									250	250	305	380	315	300	280	255	250							
25									245	250	320	345	315	280	270	280	275	250						
26									260	275	320	330	305	290	280	275	255	250						
27									240	270	295	300	300	300	270	270	280	255						
28									280	310	290	330	300	275	275	275	250							
29									245	255	265	295	340	300	270	275	270	250						
30									275 <sup>L</sup>	260	270	285	285	315	275	245	250	260						
31									250	255	275	280	280	275	280	285	265	250						
	00	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	22	31	31	31	31	31	31	31	31	30						
MED								235	245	255	285	295	295	280	275	270	255	250						
UQ									250	268	312	315	310	292	280	275	270	255						
LQ									235	250	272	278	278	265	255	260	250	240						

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H<sup>o</sup>F<sub>2</sub> (KM)

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# IONOSPHERIC DATA

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H \* F (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 25 MHz in 24sec 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 280	S 320	E 295	S 230	220	E 300	S 310	S 240	H 195	H 180	H 180	H 230	H 180	H 225	H 230	H 220	230	A	205	220	230	245	E 260	S 280											
2	E 280	S 275	E 280	S 250	220	200	E 285	S 225	225	210	200	H 190	H 185	H 200	H 180	H 195	225	230	H 210	195	215	E 275	S 305	S 330											
3	E 295	S 310	E 295	S 250	220	E 245	S 230	200	H 200	H 210	H 180	H 185	H 175	H 230	H 205	H 185	225	215	210	195	E 250	S 255	E 250	S 305											
4	E 290	S 295	S 260	S 230	E 295	S 350	E 290	225	195	180	225	215	185	H 175	H 200	H 235	235	230	205	195	220	E 255	E 270	S 300											
5	E 290	S 285	E 295	S 280	230	225	235	210	210	200	H 185	H 200	200	H 190	200	H 135	235	H 175	225	220	230	205	A	E 245											
6	E 330	S 320	E 295	S 310	230	205	E 275	200	H 195	H 185	H 195	H 190	H 185	H 200	H 210	205	E 245	E 245	210	230	235	215	E 245	S 300											
7	E 305	S 295	E 280	S 255	255	205	200	210	210	205	200	H 185	E 245	E 245	E 230	215	210	H 220	220	195	E 245	E 230	E 280	S 290											
8	E 300	S 295	E 280	S 250	225	260	230	205	205	185	H 210	H 200	H 200	H 195	H 210	H 200	H 200	230	225	200	205	E 300	E 270	S 275											
9	E 270	S 300	E 300	S 295	E 280	S 260	S 240	220	210	190	180	180	H 190	H 215	H 200	H 210	225	225	220	200	215	S 250	H 240	S 310											
10	E 315	S 280	E 290	S 280	250	240	230	215	230	195	H 200	H 200	H 190	H 200	H 215	225	230	210	220	220	215	S 250	S 245	E 280											
11	E 305	S 295	E 290	S 275	250	S 245	S 225	200	215	220	H 200	H 200	230	210	H 200	H 210	H 210	225	230	200	225	S 245	E 280	S 290											
12	250	S 250	E 280	S 270	215	S 230	E 270	220	230	205	H 200	H 190	H 190	H 200	H 220	195	H 195	210	210	215	215	S 250	E 280	S 290											
13	E 300	S 300	E 300	S 250	200	A	E 320	225	215	220	H 200	H 200	H 180	H 230	230	225	225	225	H 205	220	220	E 270	E 280	S 280											
14	E 290	S 270	E 270	S 225	E 260	A	E 265	220	225	225	215	200	H 190	H 195	220	H 200	H 200	225	225	225	220	S 245	E 280	S 310											
15	E 290	S 275	S 245	S 235	210	E 290	E 270	210	220	210	H 195	H 180	H 240	H 180	235	220	H 220	H 205	225	240	240	225	230	E 280											
16	E 275	S 285	S 250	S 205	E 250	E 300	E 275	235	225	215	H 200	H 200	H 200	H 205	H 205	H 205	205	220	245	225	E 245	S 245	E 255	S 275											
17	245	235	E 285	S 245	200	E 315	E 295	230	235	220	205	195	H 190	H 170	H 175	225	235	230	E 245	245	235	E 255	E 275	A											
18	250	250	E 270	S 265	225	E 250	E 255	220	225	E 225	H 215	H 195	H 180	H 185	H 190	200	215	225	H 200	225	220	245	225	S 285											
19	E 280	S 255	S 250	S 235	200	E 280	E 260	225	225	H 210	H 195	H 185	H 175	H 175	H 185	200	210	E 255	A 250	230	205	E 255	E 330	S 290											
20	260	E 310	E 290	245	220	E 275	E 260	235	220	H 205	H 200	195	H 190	H 195	H 200	205	210	225	230	220	230	260	260	255											
21	260	E 285	E 275	S 245	215	S 230	E 255	220	225	210	H 190	H 180	E 240	H 210	H 195	H 185	H 190	H 210	H 170	H 225	230	235	235	E 265											
22	E 275	S 275	E 275	S 255	205	E 240	E 255	230	225	205	H 185	H 195	H 175	H 200	H 205	H 195	200	H 225	A 240	E 255	205	200	E 290	S 300											
23	E 290	S 280	E 280	S 290	265	S 230	S 220	225	220	205	H 180	E 240	E 250	H 230	H 215	H 200	220	225	240	225	210	220	E 280	S 295											
24	E 275	S 280	E 280	S 275	240	210	225	220	205	225	H 195	H 190	H 200	H 180	H 220	H 220	210	H 205	H 240	245	220	245	E 295	S 275											
25	250	235	S 260	S 245	225	S 245	S 245	225	215	H 205	H 205	H 200	230	A	225	215	230	A	250	210	200	E 270	E 330	S 320											
26	E 310	S 310	E 295	S 245	245	E 295	S 245	230	225	225	215	H 190	H 190	H 180	H 200	220	220	220	230	215	215	E 280	E 300	S 295											
27	E 290	S 270	S 245	S 220	E 280	E 300	E 280	215	225	230	220	H 200	H 200	H 220	225	220	240	230	245	230	200	240	E 270	S 290											
28	E 300	S 280	E 290	S 240	250	E 275	225	215	230	225	H 205	H 195	H 220	H 190	H 180	225	H 205	230	240	225	225	225	S 245	S 290											
29	E 295	S 275	E 275	S 240	220	S 230	S 250	225	215	215	H 200	H 200	H 205	H 190	H 200	240	235	230	240	225	215	S 245	S 295	S 295											
30	E 295	S 275	S 260	S 225	205	E 300	S 250	225	235	200	205	210	200	H 200	H 195	H 210	215	220	H 245	225	200	210	E 295	S 340											
31	E 295	S 275	S 250	S 225	E 250	E 290	E 250	235	230	225	220	195	195	H 200	H 205	H 230	205	H 220	H 245	220	220	250	265	240											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23											
CNT	31	31	31	31	31	29	31	31	31	31	31	31	31	30	31	31	31	29	31	31	31	31	30	30											
MED	E 290	S 280	E 280	S 238	222	E 250	E 255	220	220	210	H 200	H 195	H 190	H 200	H 205	H 210	218	225	225	220	218	235	E 272	S 290											
UQ	E 298	S 295	E 290	S 268	240	E 290	E 272	225	225	220	H 205	H 200	H 201	H 210	H 219	H 220	229	228	240	225	228	E 255	E 290	S 300											
LQ	E 275	S 275	S 255	S 235	218	228	230	215	210	H 202	H 195	H 190	H 185	H 190	H 200	H 200	H 208	220	210	212	215	232	U 238	E 280											

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H \* F (KM)

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### IONOSPHERIC DATA

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H<sup>o</sup>E (KM)

135<sup>o</sup> E Mean Time (G.M.T. + 9 h)

Station **YAMAGAWA** Lat. 31 12.1 N, Long 130 37.1 E Sweep 1 MHz to 25 MHz in 24sec 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	115	115	115	110	115	110	115	120	120	120	S					
2								S	115	105	105	105	105	105	105	110	A	A	S					
3								S	<sup>H</sup> 110	110	105	105	105	A	A	110	<sup>H</sup> 110	115	S					
4								S	120	<sup>H</sup> 110	<sup>H</sup> 105	<sup>H</sup> 105	105	105	110	A	110	A	S					
5								S	115	105	105	110	115	115	<sup>H</sup> 115	110	110	115	S					
6								S	<sup>H</sup> 115	<sup>H</sup> 105	105	105	110	105	A	A	110	A	S					
7								S	E A 125	E A 110	E A 125	E A 135	A	A	A	110	110	E A 120	S					
8								S	110	110	105	105	110	105	105	110	110	A	S					
9								S	120	<sup>H</sup> 110	<sup>H</sup> 110	<sup>H</sup> 110	110	A	115	A	A	A	S					
10								S	115	<sup>H</sup> 110	<sup>H</sup> 105	<sup>H</sup> 105	<sup>H</sup> 105	115	115	115	120	120	S					
11								S	120	110	A	A	110	110	110	110	115	A	S					
12								S	115	110	110	110	<sup>H</sup> 105	<sup>H</sup> 105	A	115	115	115	S					
13								E S 150	110	<sup>H</sup> 105	110	<sup>H</sup> 105	110	110	110	115	115	120	S					
14								E S 140	115	110	110	110	A	115	A	115	115	120	S					
15								S	115	110	110	110	115	115	115	115	A	120	S					
16								E S 135	110	110	105	<sup>H</sup> 105	105	105	A	A	A	A	S					
17								E S 130	110	105	110	110	105	A	A	105	110	115	A					
18								S	110	105	105	105	105	105	A	110	110	A	S					
19								E S 135	<sup>H</sup> 105	<sup>H</sup> 105	105	105	105	A	A	A	120	115	S					
20								125	110	105	110	A	105	A	105	A	A	110	S					
21								S E S 135	110	105	105	105	105	115	110	110	110	A	S					
22								S	120	110	105	110	110	105	105	<sup>H</sup> 110	105	A	S					
23								S	125	120	110	115	110	115	110	115	115	120	120					
24								S E S 130	120	110	110	110	110	110	110	115	115	120	E S 130					
25								S E S 140	115	110	110	110	115	115	115	120	115	120	S					
26								S E S 130	115	115	110	115	115	115	115	115	115	120	E S 150					
27								S E S 140	115	110	115	115	115	115	120	120	120	120	S					
28								S E S 125	115	115	115	115	120	115	110	115	115	120	A					
29								S E S 150	110	115	115	110	115	115	120	120	120	120	E S 140					
30								S E S 125	<sup>H</sup> 110	A	110	110	105	105	A	115	115	E A 125	A					
31								S E S 125	105	<sup>A</sup> 110	<sup>A</sup> 110	105	105	110	110	110	110	115	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								17	31	30	30	29	29	25	21	25	25	22	4					
MED								E S 130	115	110	110	110	110	110	110	115	115	120	E S 135					
UQ								E S 140	115	110	110	110	115	115	115	115	115	120	E S 145					
LQ								E S 125	110	105	105	105	105	105	110	110	110	115	122					

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H<sup>o</sup>E (KM)

# IONOSPHERIC DATA

MAR. 1985

H<sup>+</sup>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 25 MHz in 24sec 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	S	S	S	S	S	S	S	G	G	G	165	G	145	165	G	G	120	120	S	S	S	115	S	
2		105	105	100	105	105	105	105	S	G	140	135	125	115	115	115	115	110	105	105	105	105	S	S	100	
3		S	S	S	S	S	S	S	S	G	G	E G 130	G	G	160	150	130	140	135	S	100	S	S	S	S	
4		S	S	S	S	S	S	S	S	G	G	180	160	125	115	G	170	G	105	105	105	105	150	135	145	
5		S	100	105	110	S	S	S	S	G	G	120	165	175	105	105	110	G	G	110	105	130	105	105	105	
6		105	S	S	S	S	S	S	S	G	G	G	E G 150	125	115	105	105	110	110	105	105	105	105	S	S	
7		105	105	100	S	S	110	S	105	105	105	105	100	100	100	95	100	125	95	95	95	S	110	S	S	
8		S	130	S	S	S	S	S	S	G	G	155	150	105	135	135	G	G	110	100	S	95	110	110	105	
9		S	S	S	S	S	S	S	S	G	G	G	G	120	100	125	100	100	100	100	100	S	S	S	S	
10		S	S	100	S	100	S	S	S	G	G	145	140	140	G	175	G	G	G	S	S	S	S	S	S	
11		S	S	S	S	S	S	S	S	G	170	150	105	125	125	120	125	130	100	S	S	S	S	S	S	
12		S	100	S	S	S	S	S	S	G	G	G	145	G	G	100	G	G	100	100	S	S	S	S	S	
13		S	S	S	S	S	110	105	G	G	125	125	125	125	125	120	125	120	125	S	S	115	115	120	S	
14		S	S	S	100	105	105	S	150	140	120	120	125	100	G	130	G	G	G	150	125	S	S	S	S	
15		S	S	S	S	S	S	S	140	140	125	120	G	170	G	125	125	110	G	S	S	110	S	S	S	
16		S	S	S	S	S	S	S	G	150	135	125	120	115	110	110	110	105	110	105	105	105	105	S	105	
17		105	105	105	105	S	S	S	G	150	125	120	110	105	105	105	145	120	120	110	110	110	110	110	115	
18		105	105	105	105	100	S	110	150	130	125	120	110	120	120	105	100	100	110	S	100	110	S	105	120	
19		S	S	S	S	S	S	S	135	145	125	115	105	G	105	105	105	120	105	105	110	110	105	105	105	
20		100	105	100	S	S	S	S	G	G	150	120	105	105	105	105	105	105	G	110	105	105	105	105	S	
21		S	S	S	105	S	S	S	G	G	G	G	G	145	160	165	G	G	95	100	95	100	S	S	S	
22		100	S	S	S	S	S	S	G	145	145	105	105	G	130	150	G	115	115	100	105	S	S	105	S	
23		S	S	S	S	S	S	S	G	G	G	G	170	165	150	150	G	G	140	100	100	S	S	S	S	
24		S	S	S	S	S	S	S	G	G	G	140	120	125	125	125	125	125	G	130	S	S	110	115	S	
25		S	S	S	S	S	S	S	G	G	G	G	G	170	140	125	130	130	125	115	S	S	110	105	S	
26		S	S	S	S	S	S	S	140	140	130	125	125	G	G	G	G	G	G	G	S	S	S	S	S	
27		S	S	S	S	S	S	S	G	G	130	125	125	125	125	125	125	120	120	120	120	S	S	105	100	
28		S	S	105	105	110	S	S	160	G	140	125	125	G	G	G	100	G	G	100	S	125	S	S	S	
29		S	S	S	105	S	S	S	G	G	G	G	125	145	130	130	130	175	170	140	125	120	S	S	S	
30		S	S	S	S	S	S	S	105	150	145	130	125	120	115	110	110	105	G	100	100	100	120	S	S	S
31		S	S	S	S	105	S	S	150	155	135	130	145	150	120	120	125	135	G	100	125	110	110	110	S	
		00	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	8	8	8	6	4	4	9	11	17	23	26	24	25	28	22	19	22	24	20	17	13	14	9	
MED		105	105	102	105	105	108	105	150	145	130	125	125	125	120	122	120	120	110	105	105	110	110	108	105	
UQ		105	105	105	105	105	110	108	150	148	140	132	145	145	130	132	125	128	120	112	110	115	110	115	115	
LQ		102	102	100	105	100	105	105	140	140	125	120	110	115	110	105	105	110	100	100	100	105	105	105	105	

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H<sup>+</sup>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 25 MHz in 24sec 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 2			H 2	H 1			C 4	C 1				F 2	
2	F 2	F 2	F 2	F 2	F 1	F 1	F 2			H 3	H 2	C 1	C 2	C 1	C 2	C 2	L 3	L 3	L 2	F 1	F 4			F 3	
3											H 1			HL 12	HL 21	H 1	H 1	H 1		F 1					
4											H 2	H 1	C 1	C 1		HL 12		L 3	L 2	F 1	F 2	FF 12	FF 22	FF 21	
5		F 1	F 2	F 1							C 2	HC 11	HL 11	L 1	L 1	C 2			L 2	F 4	FF 11	F 1	F 7	F 5	
6	F 3											H 1	CL 11	C 1	L 1	L 2	C 2	L 3	L 7	F 6	F 4	F 1			
7	F 2	F 2	F 2		F 1		L 1	L 2	L 2	L 2	L 4	L 3	L 3	L 4	L 2	C 1	L 3	L 5	F 2			F 1			
8		F 2								H 2	H 2	L 1	HL 11	H 1			L 3	L 1			F 3	FF 22	F 1	F 2	
9												C 1	L 2	C 1	L 2	L 4	L 5	L 3	F 1						
10		F 1		F 1						H 2	H 1	H 2		H 1											
11									H 2	HL 21	L 1	C 2	C 2	C 2	C 2	C 2	L 4								
12	F 3											H 1			L 2		L 2	L 2							
13					F 2	F 2			C 2	C 2	C 1	C 1	C 1	C 2	C 1	C 3	C 3				F 2	F 3	F 3		
14			F 3	F 4	F 6		H 3	H 3	C 3	C 2	C 1	L 2		CL 25				H 3	F 1						
15							H 4	H 3	C 2	C 2		H 1		C 1	C 2	L 2					F 2				
16								H 2	H 1	C 2	C 2	C 2	C 2	C 2	L 2	L 2	L 3	L 3	L 4	F 2	F 4	F 2		F 2	
17	F 3	F 2	F 1	F 3				H 2	C 2	C 3	C 2	C 2	L 2	L 2	H 2	C 2	C 3	L 7	F 7	F 4	F 3	F 3	F 7		
18	F 3	F 3	F 2	F 7	F 6		F 2	H 2	H 4	C 4	C 2	C 1	C 1	C 1	L 2	L 2	L 2	L 2	F 1	F 1		F 2	F 1		
19							H 5	H 2	C 1	C 2	C 3		L 2	L 2	L 2	CL 22	C 5	L 4	F 3	F 1	F 6	F 5	F 2		
20	F 2	F 5	F 2						H 1	CL 11	L 2	L 2	L 2	L 3	L 2	L 3		L 1	F 2	F 2	F 3	F 2			
21			F 2										H 2	HL 11	HL 11		L 5	L 1	F 4	F 1					
22	F 1							H 2	H 2	L 1	L 1		C 1	H 1		L 2	C 3	L 1	FF 43				F 1		
23											H 1	C 1	H 2	HC 21	H 2		H 3	L 2	F 4						
24										H 1	C 1	C 1	C 2	C 1	C 1	C 2	C 3	C 1				F 2	F 2		
25												HC 22	H 2	C 2	C 2	C 3	C 3	C 4				F 2	F 5		
26							H 3	H 4	H 2	C 2	C 2														
27									C 1	C 2	C 1	C 1	C 1	C 2	C 3	C 2	C 4	C 5	F 4				F 3	F 2	
28		F 2	F 2	F 3			H 2		H 2	C 2	C 1				L 2			L 2			F 5				
29			F 3								C 1	H 2	H 1	C 2	C 2	H 2	H 2	H 5	F 6	F 5					
30					L 1	H 3	H 2	HL 22	C 3	C 1	C 2	C 2	L 2	L 1		L 2	L 2	F 1	F 1						
31				F 2			H 3	H 1	HL 22	HL 22	HC 11	H 1	C 2	C 2	C 1	H 2		L 6	F 1	F 1	F 3	F 3			
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																									
MED																									
UQ																									
LQ																									

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TYPES OF ES

# IONOSPHERIC DATA

MAR. 1985

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 24sec 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	U S	X 37	X 37	X 38	X 41	X 35	X 24	X 27												X 60	X 58	X 59	X 35	U S 36										
2	X 37	X 35	X 33	X 37	X 35	S 0	S 27													H 80	H 80	S 51	X 48	X 45										
3	X 40	X 42	X 40	X 49	X 43	X 28	X 32													X 74	X 62	X 53	X 48	X 49										
4	S 42	X 45	X 47	X 49	S 38	S 24	S 23													X 58	X 39	X 33	X 34	X 33										
5	X 36	X 37	X 36	X 36	X 43	X 38	X 23													X 70	X 56	X 46	X 36	X 34										
6	X 33	S 33	S 34	X 36	S 45	S 38	X 27													S 98	S 66	S 53	S 48	S 45										
7	X 42	X 41	X 43	X 45	S 50	X 39	S 29													S 70	U S 44	S 40	X 42	X 34										
8	X 43	X 45	X 40	X 41	X 42	U S 39	U S 33													X 57	X 39	X 24	X 36	X 39										
9	S 41	S 41	S 38	S 39	S 38	S 41	X 41													S 96	X 83	S 61	S 53	S 48										
10	S 53	S 59	X 58	X 58	S 58	S 55	X 57													X 64	S 59	S 33	S 36	S 37										
11	X 39	X 39	X 38	X 37	U S 31	S 39	X 37													X 109	X 71	X 40	X 30	U S 38										
12	X 39	X 35	X 38	X 40	X 39	X 30	U S 29													X 71	X 70	X 53	X 40	X 35										
13	X 35	S 37	S 36	X 38	S 38	S 27	S 29													X 57	X 57	X 39	X 41	S 41										
14	X 38	S 39	X 41	X 48	X 35	X 25	A													R 58	U S 51	S 41	X 39	U S 38										
15	S 38	S 38	S 44	S 42	S 29	S 31	X 28													S 77	X 78	S 68	S 51	U S 38										
16	S 38	S 36	X 38	X 42	S 19	X 24	X 25													X 88	H 86	X 67	S 60	S 54										
17	U S 48	S 50	S 43	X 48	X 38	S 24	X 27													X 72	S 67	S 39	U S 34	S										
18	A	S	X 36	X 35	X 32	X 27	X 27													X 77	X 72	X 67	X 46	X 42										
19	X 43	X 42	X 42	X 44	X 29	X 26	X 26													X 89	X 74	X 48	S 42	S 42										
20	X 41	X 40	X 39	X 41	X 33	X 28	X 29													X 84	S 82	X 82	X 57	X 48										
21	X 49	X 48	X 48	X 54	X 40	X 37	X 24													X 83	X 72	X 60	X 38	U S 37										
22	X 37	X 37	X 36	X 39	X 31	X 26	X 25													X 79	X 75	X 35	S 29	X 30										
23	S 34	S 35	X 36	X 37	S 37	S 33	S 27													X 96	X 77	X 65	X 46	U S 44										
24	S 48	X 47	S 48	S 51	S 53	S 34	S 28													X 68	X 74	U S 53	S 37	U S 37										
25	X 40	X 41	X 37	X 37	X 32	X 29	X 31													X 87	H 87	S 46	X 39	U S 38										
26	X 39	U S 37	S 39	S 39	X 31	X 25	X 26													C	X 58	X 45	S 43	U S 45										
27	S 46	X 42	S 41	X 45	X 26	X 27	X 28													X 84	X 75	S 61	S 52	X 48										
28	U S 46	S 45	X 43	X 45	X 38	U S 36	X 38													S 132	S 113	S 104	X 67	X 56										
29	U S 53	U S 51	U S 51	S 54	S 38	S 29	S 29													X 80	X 61	U S 52	X 49	X 49										
30	U S 49	S 50	S 55	S 56	X 27	X 25	X 29													X 91	X 66	X 40	U S 34	U S 35										
31	S 38	S 41	X 46	X 37	X 25	X 25	S 29													S 99	X 67	S 65	X 60	X 57										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT	30	30	31	31	31	30	30													30	31	31	31	30										
MED	X 40	S 41	X 40	X 41	X 37	X 28	X 28													X 80	X 70	X 52	S 42	S 40										
UQ	S 46	S 45	X 44	X 48	S 40	S 37	X 29													X 89	X 76	S 61	X 48	X 48										
LQ	X 38	S 37	X 38	X 38	X 31	X 25	X 27													X 70	X 58	X 40	X 36	U S 37										

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FXI (0.1 MHz)

### IONOSPHERIC DATA

MAR. 1985

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 24sec 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	31	31	32	35	29	18	21	38	59	71	80	88	100	119	124	110	91	81	72	54	52	53	29	30
2	31	29	27	31	U <sub>29</sub>	S	21	39	53	54	65	85	78	81	90	101	117	126	94	71	H <sub>70</sub>	U <sub>45</sub>	U <sub>42</sub>	S <sub>39</sub>
3	34	U <sub>36</sub>	34	S <sub>43</sub>	37	22	26	39	49	67	95	111	113	132	141	U <sub>156</sub>	144	127	109	68	56	47	42	S <sub>43</sub>
4	J <sub>36</sub>	S <sub>39</sub>	41	S <sub>43</sub>	S <sub>32</sub>	18	S <sub>18</sub>	38	58	54	70	88	87	103	113	124	121	106	92	52	33	27	28	27
5	30	31	30	30	37	32	S <sub>17</sub>	40	58	64	69	81	R <sub>99</sub>	104	92	94	110	108	77	63	50	40	30	28
6	S <sub>27</sub>	J <sub>27</sub>	U <sub>28</sub>	S <sub>30</sub>	S <sub>39</sub>	U <sub>32</sub>	S <sub>21</sub>	R <sub>43</sub>	49	57	61	R <sub>83</sub>	105	125	U <sub>118</sub>	R <sub>125</sub>	R <sub>145</sub>	R <sub>133</sub>	R <sub>145</sub>	R <sub>92</sub>	S <sub>60</sub>	S <sub>47</sub>	S <sub>42</sub>	S <sub>39</sub>
7	S <sub>36</sub>	S <sub>35</sub>	37	S <sub>39</sub>	J <sub>44</sub>	S <sub>33</sub>	23	38	53	62	67	85	89	108	130	139	R <sub>143</sub>	U <sub>103</sub>	88	J <sub>64</sub>	S <sub>38</sub>	S <sub>34</sub>	S <sub>36</sub>	U <sub>28</sub>
8	37	S <sub>39</sub>	S <sub>34</sub>	35	36	U <sub>33</sub>	U <sub>27</sub>	42	50	58	74	84	97	123	130	109	103	100	R <sub>74</sub>	51	33	18	30	S <sub>33</sub>
9	S <sub>35</sub>	S <sub>35</sub>	S <sub>32</sub>	S <sub>33</sub>	32	35	S <sub>35</sub>	R <sub>43</sub>	57	60	68	90	112	122	R <sub>136</sub>	U <sub>152</sub>	U <sub>177</sub>	R <sub>153</sub>	R <sub>108</sub>	R <sub>90</sub>	S <sub>77</sub>	S <sub>55</sub>	S <sub>47</sub>	U <sub>42</sub>
10	S <sub>47</sub>	S <sub>53</sub>	52	52	J <sub>52</sub>	49	S <sub>51</sub>	68	S <sub>57</sub>	55	60	71	83	103	R <sub>111</sub>	115	R <sub>104</sub>	89	R <sub>63</sub>	R <sub>58</sub>	S <sub>53</sub>	J <sub>27</sub>	S <sub>30</sub>	S <sub>31</sub>
11	33	S <sub>33</sub>	32	31	S <sub>25</sub>	S <sub>33</sub>	31	40	49	51	64	72	63	83	111	125	135	133	125	103	S <sub>65</sub>	S <sub>34</sub>	24	U <sub>32</sub>
12	S <sub>33</sub>	35	32	34	33	U <sub>24</sub>	S <sub>23</sub>	46	51	55	61	79	97	110	136	143	41	132	98	65	64	47	34	S <sub>29</sub>
13	J <sub>29</sub>	S <sub>31</sub>	J <sub>30</sub>	32	S <sub>32</sub>	S <sub>21</sub>	23	45	58	59	60	79	85	100	113	116	114	96	63	S <sub>51</sub>	51	33	S <sub>35</sub>	35
14	32	S <sub>33</sub>	35	J <sub>42</sub>	S <sub>29</sub>	S <sub>19</sub>	A	R <sub>43</sub>	52	S <sub>58</sub>	68	93	102	R <sub>110</sub>	113	U <sub>105</sub>	102	R <sub>92</sub>	R <sub>65</sub>	R <sub>52</sub>	S <sub>45</sub>	S <sub>35</sub>	S <sub>33</sub>	S <sub>32</sub>
15	S <sub>32</sub>	S <sub>32</sub>	S <sub>38</sub>	S <sub>36</sub>	23	25	22	R <sub>43</sub>	50	52	60	68	88	107	104	105	R <sub>110</sub>	R <sub>104</sub>	R <sub>87</sub>	R <sub>71</sub>	72	S <sub>62</sub>	S <sub>45</sub>	S <sub>32</sub>
16	S <sub>32</sub>	S <sub>30</sub>	32	36	J <sub>13</sub>	S <sub>18</sub>	19	46	59	66	65	75	94	R <sub>115</sub>	126	117	102	84	80	81	79	S <sub>61</sub>	S <sub>54</sub>	U <sub>48</sub>
17	U <sub>42</sub>	S <sub>44</sub>	S <sub>36</sub>	42	H <sub>33</sub>	S <sub>18</sub>	21	48	63	66	59	68	81	100	103	U <sub>98</sub>	83	66	R <sub>62</sub>	R <sub>65</sub>	S <sub>61</sub>	S <sub>32</sub>	U <sub>28</sub>	S
18	A	S	30	29	26	21	21	42	54	65	71	74	95	119	136	137	141	113	77	71	66	61	U <sub>40</sub>	S <sub>36</sub>
19	S <sub>37</sub>	J <sub>36</sub>	U <sub>36</sub>	S <sub>38</sub>	23	20	20	51	59	61	60	71	96	R <sub>113</sub>	117	R <sub>104</sub>	73	62	69	83	68	S <sub>42</sub>	S <sub>36</sub>	S <sub>36</sub>
20	35	34	S <sub>33</sub>	35	27	22	23	50	70	71	60	76	112	145	147	129	105	91	79	77	75	R <sub>75</sub>	51	42
21	43	S <sub>42</sub>	S <sub>42</sub>	48	34	31	18	44	58	72	80	94	110	110	109	92	83	77	81	77	S <sub>66</sub>	54	32	31
22	31	31	30	33	25	20	19	50	56	67	64	71	92	108	112	113	102	83	71	73	69	29	23	24
23	J <sub>28</sub>	S <sub>29</sub>	30	31	31	U <sub>27</sub>	S <sub>21</sub>	R <sub>45</sub>	52	62	82	111	R <sub>128</sub>	127	122	U <sub>120</sub>	116	111	R <sub>89</sub>	90	71	59	U <sub>40</sub>	U <sub>38</sub>
24	U <sub>42</sub>	J <sub>41</sub>	J <sub>42</sub>	S <sub>45</sub>	47	S <sub>28</sub>	22	42	52	58	68	76	89	103	R <sub>118</sub>	108	R <sub>89</sub>	63	57	S <sub>62</sub>	68	U <sub>47</sub>	U <sub>31</sub>	U <sub>31</sub>
25	34	35	31	31	26	23	S <sub>25</sub>	50	59	62	65	75	93	102	112	110	106	94	87	81	J <sub>81</sub>	40	J <sub>33</sub>	32
26	U <sub>33</sub>	S <sub>31</sub>	U <sub>33</sub>	U <sub>33</sub>	U <sub>25</sub>	19	20	45	59	59	61	81	103	118	117	118	116	C	C	C	S <sub>52</sub>	39	37	39
27	S <sub>40</sub>	36	35	39	20	21	22	50	59	62	72	80	95	110	115	103	J <sub>100</sub>	94	90	78	69	55	S <sub>46</sub>	42
28	U <sub>40</sub>	39	37	39	32	U <sub>30</sub>	32	S <sub>48</sub>	52	62	71	90	R <sub>100</sub>	R <sub>119</sub>	140	140	R <sub>148</sub>	J <sub>157</sub>	R <sub>146</sub>	126	107	98	61	50
29	U <sub>47</sub>	U <sub>45</sub>	U <sub>45</sub>	S <sub>48</sub>	J <sub>32</sub>	S <sub>23</sub>	23	48	55	64	66	83	R <sub>101</sub>	116	R <sub>128</sub>	R <sub>118</sub>	117	115	R <sub>102</sub>	74	55	U <sub>46</sub>	43	S <sub>43</sub>
30	U <sub>43</sub>	44	S <sub>49</sub>	50	21	19	23	45	55	75	79	89	U <sub>101</sub>	R <sub>115</sub>	R <sub>129</sub>	R <sub>139</sub>	R <sub>117</sub>	90	89	85	60	34	U <sub>28</sub>	U <sub>29</sub>
31	S <sub>32</sub>	35	40	31	19	20	23	49	65	72	77	89	100	103	110	107	105	107	107	93	61	59	54	51
CNT	30	30	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	30	30	30	31	31	31	30
MED	S <sub>34</sub>	S <sub>35</sub>	34	35	31	22	22	45	56	62	67	81	97	110	117	116	110	102	87	72	64	46	36	S <sub>34</sub>
UQ	S <sub>40</sub>	S <sub>39</sub>	S <sub>38</sub>	S <sub>42</sub>	34	S <sub>31</sub>	23	48	59	66	72	88	102	119	130	127	119	115	98	83	70	55	S <sub>42</sub>	42
LQ	S <sub>32</sub>	31	32	32	25	20	21	42	52	58	61	75	89	103	112	106	102	89	72	63	52	34	30	S <sub>31</sub>

The Radio Research Laboratories, Japan

MAR. 1985

FOF2 (0.1 MHz)

# IONOSPHERIC DATA

MAR. 1985
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 24sec 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	U L 450	U L 450	U L 450	U L 440	L	L							
2										320	L	U L 440	U L 450	U L 450	U L 470	U L 440	U L 430	L							
3										L	U L 430	U L 450	U L 440	U L 430	U L 440	L	L	L							
4										L	U L 450	U L 450	U L 450	U L 440	U L 450	U L 430	L	L							
5										L	L	U L 440	U L 450	U L 450	U L 450	U L 440	L	L							
6									L	L	U L 450	U L 430	U L 440	U L 420	U L 430	U L 420	L	L	L						
7									L	L	L	U L 440	L	U L 460	U L 430	U L 430	U L 420	L	L						
8										L	L	L	L	U L 450	U L 440	U L 440	U L 410	L							
9									L	L	L	U L 430	U L 440	U L 450	U L 440	U L 430	U L 410	L	L						
10									L	L	L	U L 450	A	U L 440	L	U L 420	U L 400	L							
11									320	U L 430	U L 440	U L 460	L	U L 440	U L 440	U L 420	L								
12										L	L	U L 450	U L 450	U L 460	U L 450	U L 440	U L 410	U L 380							
13									L	L	L	L	U L 470	L	U L 440	U L 430	U L 420	L	L						
14									L	L	L	A	U L 440	U L 460	U L 460	U L 430	L	A							
15									L	L	U L 430	L	U L 440	U L 440	L	U L 430	U L 420	L							
16										L	L	L	U L 460	U L 450	U L 450	U L 440	L	L							
17									L	L	L	U L 440	U L 450	U L 450	U L 450	U L 440	A	L							
18									L	L	U L 450	U L 450	U L 460	U L 450	U L 450	U L 450	U L 430	370							
19										L	U L 440	U L 450	U L 460	U L 450	U L 450	U L 440	L	L							
20									L	L	L	L	U L 480	U L 470	U L 450	U L 430	U L 420	L							
21									L	L	U L 470	U L 450	U L 450	U L 470	U L 450	U L 440	L	L							
22									L	L	U L 450	U L 470	U L 460	U L 460	U L 450	U L 450	U L 450	L							
23								L	L	L	L	U L 450	U L 450	U L 470	U L 460	U L 440	U L 420	L	L						
24									L	L	L	A	U L 450	U L 430	U L 440	L	L	L							
25									L	L	U L 460	U L 470	U L 460	U L 450	U L 450	L	A	L	L						
26									L	L	U L 450	U L 460	U L 450	U L 450	U L 440	U L 440	U L 420	C	C						
27									L	L	U L 450	U L 470	U L 470	U L 470	U L 460	U L 450	U L 440	L							
28										L	L	U L 470	L	U L 480	U L 450	U L 450	L	L							
29									L	L	L	U L 450	U L 460	U L 480	U L 450	U L 460	U L 420	L	L						
30									L	L	U L 440	U L 440	U L 480	U L 460	U L 450	U L 440	L	L	L						
31									L	L	U L 440	U L 440	U L 440	U L 460	U L 470	U L 450	U L 430	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT										2	14	23	27	29	29	28	17	2							
MED										320	U L 450	U L 450	U L 450	U L 450	U L 450	U L 440	U L 420	375							
UQ											U L 450	U L 450	U L 460	U L 460	U L 450	U L 440	U L 430								
LQ											U L 440	U L 440	U L 450	U L 450	U L 440	U L 430	U L 420								

# IONOSPHERIC DATA

MAR. 1985

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 24sec 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		220	250	R 285	310	325	A	315	300	A	A	U R 190					
2							S		R 210	245	300	305	320	U R 320	A	A	A	A	A					
3							S		215	270	A	R 310	320	R 320	A	U R 300	A	A	A					
4							S		220	265	300	320	325	320	A	A	A	A	A					
5							S		230	280	A	A	330	A	A	A	A	A	A					
6							S		230	280	300	320	330	330	A	A	A	A	A					
7							S		230	260	300	320	335	A	A	A	A	A	180					
8							S		240	280	305	325	325	330	330	305	280	A	190					
9								170	230	270	300	320	A	A	A	A	280	A	A					
10							S		230	270	290	310	A	A	A	A	A	250	180					
11							S		315	365	290	310	320	330	A	310	285	255	A					
12							S		210	230	260	310	325	330	330	A	300	A	A					
13								180	R 230	R 270	R 300	R 315	A	A	A	A	295	250	S					
14								190	A	A	A	R 325	R 335	R 335	A	A	A	255	180					
15								180	220	280	300	315	R 320	R 320	315	R 310	280	A	S					
16								190	235	280	305	315	A	A	A	A	A	A	A					
17							S		230	275	300	A	A	335	A	325	300	A	A					
18							S		220	260	A	310	A	340	A	315	A	270	A					
19								180	A	280	300	A	A	A	A	A	295	A	A					
20								170	240	280	305	A	A	A	A	A	A	A	A					
21								185	240	285	305	315	325	330	330	320	300	275	A					
22								200	240	280	310	R 330	R 345	350	A	315	300	A	A					
23								180	230	280	315	330	335	335	330	315	295	250	A					
24								190	240	280	300	330	340	A	A	A	A	A	A					
25								195	240	290	315	325	335	350	340	330	300	A	A					
26								200	250	275	310	A	A	R 350	R 350	R 330	280	C	C					
27								200	255	285	305	320	A	330	330	320	290	250	A					
28								A	240	280	310	A	335	R 335	330	R 320	295	270	R					
29								170	230	280	A	R 330	R 340	R 350	330	320	295	260	190					
30								190	A	A	A	R 325	330	330	325	310	290	260	190					
31								210	280	310	315	A	R 340	A	330	320	295	255	200					
	00	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	28	29	25	24	21	20	13	17	18	12	8						
MED							190	230	280	300	320	330	330	330	315	295	255	190						
UQ							195	240	280	305	325	335	338	330	320	300	265	190						
LQ							180	225	270	300	310	325	330	330	310	285	250	180						

MAR. 1985

FOE (0.01 MHz)



# IONOSPHERIC DATA

MAR. 1985
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 24sec 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	ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	34	31	33	34	G	JA35	G	G	JA31	JA27	25	ES16	ES16	ES16	ES16	ES16
2	ES16	ES16	ES16	JA38	JA24	ES16	ES16	G	G	31	34	35	JA36	JA37	37	JA34	31	JA30	JA21	JA22	22	22	ES16	ES16
3	ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	25	G	JA34	G	G	40	37	34	JA29	JA33	JA22	22	JA22	JA27	JA22	22
4	ES16	JA18	22	19	ES16	20	ES16	17	G	31	35	36	40	38	38	34	JA29	JA26	JA21	JA24	22	22	21	ES16
5	ES16	ES16	19	ES16	ES16	ES16	ES16	ES16	G	G	JA38	JA36	38	JA35	JA36	JA34	JA34	JA33	JA25	22	ES16	ES16	23	ES16
6	ES16	ES16	19	23	19	ES16	ES16	ES16	G	33	35	36	37	37	40	41	JA37	JA28	JA23	JA22	20	25	JA21	22
7	20	ES16	ES16	JA24	20	22	19	ES16	G	G	G	G	G	35	35	34	JA35	28	G	19	ES16	22	ES16	ES16
8	ES16	ES16	ES16	ES16	ES16	ES16	ES16	JA19	JA28	G	37	39	G	G	G	34	36	JA28	G	22	JA24	ES16	ES16	ES16
9	ES16	ES16	ES16	ES16	ES16	19	JA22	G	G	G	33	33	42	38	37	JA37	30	38	JA22	19	ES16	22	35	22
10	ES16	ES16	ES16	ES16	ES16	ES16	19	20	G	G	40	42	JA55	49	37	33	32	33	JA30	JA24	JA34	JA22	18	21
11	23	JA27	25	JA28	ES16	ES16	ES16	G	G	G	34	39	39	42	42	37	34	G	21	22	ES16	ES16	ES16	ES16
12	ES16	23	ES16	ES16	ES16	ES16	ES16	G	G	G	30	34	38	41	39	36	32	JA27	JA20	ES16	ES16	JA34	ES16	ES16
13	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	G	G	36	38	40	39	JA45	JA35	32	23	21	21	ES16	ES16	ES16
14	ES16	ES16	ES16	ES16	JA21	21	JA31	23	JA25	JA32	JA35	45	40	40	40	JA35	JA33	JA40	JA35	JA38	JA30	JA30	JA40	ES16
15	22	ES16	ES16	ES16	ES16	ES16	ES16	G	28	35	38	38	38	36	39	35	32	28	23	23	23	23	ES16	ES16
16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	JA31	JA36	JA37	JA37	JA36	JA36	JA36	JA36	JA29	JA21	JA18	JA21	22	22	ES16
17	JA30	23	23	23	ES16	JA21	22	JA21	G	G	JA34	JA35	39	G	JA44	JA41	JA56	JA33	35	JA21	JA24	JA20	ES16	20
18	JA63	JA22	ES16	18	ES16	JA21	JA20	22	28	36	41	39	JA35	G	34	35	32	G	19	ES16	ES16	ES16	ES16	ES16
19	18	ES16	ES16	ES16	ES16	ES16	19	JA21	JA27	JA32	JA34	JA36	JA40	JA47	40	JA36	36	JA32	JA24	JA21	22	22	22	JA24
20	JA28	22	21	20	JA24	ES16	ES16	JA21	G	G	37	37	JA36	JA36	JA39	JA34	JA32	28	JA25	JA18	JA19	JA29	ES16	ES16
21	ES16	ES16	ES16	ES16	ES16	ES16	JA25	G	G	31	36	G	G	38	G	G	G	32	24	JA20	JA36	25	22	ES16
22	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	28	32	33	G	G	40	JA36	45	32	34	JA30	JA29	JA20	ES16	ES16	ES16
23	ES16	ES16	ES16	ES16	ES16	ES16	22	G	G	G	G	G	G	G	G	36	33	32	JA23	20	19	ES16	ES16	ES16
24	22	ES16	ES16	ES16	ES16	ES16	ES16	G	G	33	42	48	40	41	38	38	35	38	33	JA21	JA24	22	ES16	22
25	22	ES16	ES16	ES16	ES16	ES16	ES16	22	29	34	35	35	41	45	45	42	JA45	33	JA25	ES16	JA30	JA24	ES16	ES16
26	ES16	ES16	ES16	ES16	ES16	ES16	ES16	22	30	37	JA43	42	45	G	G	G	30	C	C	C	JA20	22	ES16	ES16
27	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	JA34	JA36	38	40	40	38	42	JA38	JA36	JA30	JA30	30	30	23	ES16
28	ES16	ES16	ES16	ES16	ES16	ES16	ES16	JA28	G	JA32	G	38	42	G	G	G	20	23	JA21	ES16	ES16	22	JA25	ES16
29	ES16	ES16	ES16	ES16	ES16	ES16	21	G	G	G	40	40	41	38	36	43	33	32	32	JA23	JA23	22	JA30	19
30	ES16	ES16	ES16	ES16	ES16	20	19	G	JA28	JA34	JA36	37	39	39	40	42	37	G	24	JA22	23	19	23	ES16
31	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	G	38	JA40	40	39	39	41	37	30	G	JA28	JA33	ES16	22	ES16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	31	31	31	31
MED	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	G	31	35	36	38	38	37	36	33	31	JA23	JA22	22	22	ES16	ES16
UQ	19	ES16	ES16	17	ES16	ES16	19	20	28	32	38	39	40	40	39	41	JA36	33	JA25	JA23	JA24	24	22	18
LQ	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	G	34	34	36	35	36	34	32	28	JA21	19	18	ES16	ES16	ES16

MAR. 1985
FOES (0.1 MHz)
The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

MAR. 1985

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 24sec 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	ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	34	31	32	34	G	34	G	G	29	27	23	ES16	ES16	ES16	ES16	ES16
2	ES16	ES16	ES16	E	E	ES16	ES16	G	G	30	34	35	35	36	34	31	30	26	20	UA22	E	UY22	ES16	ES16
3	ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	25	G	31	G	G	40	36	33	29	32	G	E	21	26	21	E
4	ES16	18	E	E	ES16	E	ES16	19	G	30	35	35	39	37	38	33	29	25	18	E	E	E	E	ES16
5	ES16	ES16	E	ES16	ES16	ES16	ES16	ES16	G	G	36	33	38	UY35	34	33	30	32	19	E	ES16	ES16	E	ES16
6	ES16	ES16	E	E	E	ES16	ES16	ES16	G	33	35	35	36	37	33	32	29	23	20	18	E	24	18	E
7	E	ES16	ES16	20	18	18	E	ES16	G	G	G	G	G	34	33	33	31	27	G	E	ES16	E	ES16	ES16
8	ES16	ES16	ES16	ES16	ES16	ES16	ES16	19	28	G	37	38	G	G	G	34	33	28	G	E	21	ES16	ES16	ES16
9	ES16	ES16	ES16	ES16	ES16	E	18	G	G	G	33	33	38	34	37	32	30	35	20	E	ES16	18	29	E
10	ES16	ES16	ES16	ES16	ES16	E	18	G	G	39	40	52	37	35	32	30	30	27	E	25	18	E	E	
11	E	25	20	24	ES16	ES16	ES16	G	G	G	33	38	37	37	36	35	32	G	20	E	ES16	ES16	ES16	ES16
12	ES16	E	ES16	ES16	ES16	ES16	ES16	G	G	G	30	34	37	40	37	34	30	27	20	ES16	ES16	34	ES16	ES16
13	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	G	G	36	36	38	38	38	35	32	22	E	E	ES16	ES16	ES16
14	ES16	ES16	ES16	ES16	E	E	AA31	17	25	32	35	45	40	40	39	35	32	40	33	30	28	28	E	ES16
15	E	ES16	ES16	ES16	ES16	ES16	ES16	G	28	35	38	38	38	36	39	35	31	28	20	19	19	E	ES16	ES16
16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	31	35	36	37	36	36	33	30	27	20	E	UY21	E	E	ES16
17	E	E	E	E	ES16	E	E	20	G	G	34	35	38	G	41	39	35	30	23	20	E	20	ES16	E
18	AA63	UY22	ES16	E	ES16	E	E	21	28	36	39	38	35	G	34	35	31	G	19	ES16	ES16	ES16	ES16	ES16
19	E	ES16	ES16	ES16	ES16	ES16	E	20	27	30	33	35	38	41	39	36	35	31	23	20	E	E	E	20
20	19	E	E	E	22	ES16	ES16	19	G	G	36	36	36	35	37	32	31	28	23	E	E	UY29	ES16	ES16
21	ES16	ES16	ES16	ES16	ES16	ES16	18	G	G	31	36	G	G	38	G	G	G	32	24	19	36	20	E	ES16
22	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	27	32	33	G	G	40	36	35	31	33	25	19	18	ES16	ES16	ES16
23	ES16	ES16	ES16	ES16	ES16	ES16	E	G	G	G	G	G	G	G	G	36	32	30	22	E	E	ES16	ES16	ES16
24	E	ES16	ES16	ES16	ES16	ES16	ES16	G	G	33	39	46	38	38	38	38	33	38	33	18	21	E	ES16	E
25	E	ES16	ES16	ES16	ES16	ES16	ES16	22	29	33	35	35	41	43	43	41	43	28	UA24	ES16	30	E	ES16	ES16
26	ES16	ES16	ES16	ES16	ES16	ES16	ES16	22	30	34	43	42	45	G	G	G	30	C	C	C	20	E	ES16	ES16
27	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	32	36	37	37	37	38	39	38	34	29	30	28	29	20	ES16
28	ES16	ES16	ES16	ES16	ES16	ES16	ES16	25	G	32	G	36	G	G	G	G	G	G	20	18	21	ES16	ES16	E
29	ES16	ES16	ES16	ES16	ES16	ES16	E	G	G	G	40	40	41	38	36	43	33	32	32	22	21	22	18	17
30	ES16	ES16	ES16	ES16	ES16	E	E	G	28	33	36	37	39	39	40	35	32	G	21	21	20	E	E	ES16
31	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	G	37	39	38	37	38	38	36	27	G	28	UY33	ES16	E	ES16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	31	31	31	31
MED	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	G	30	35	36	37	37	36	34	31	28	21	16	16	16	ES16	ES16
UQ	ES16	ES16	ES16	ES16	ES16	ES16	ES16	19	27	32	36	38	38	38	38	36	33	32	24	20	21	21	ES16	ES16
LQ	ES16	ES16	ES16	ES16	ES16	ES16	ES16	G	G	G	33	34	EG35	34	34	32	30	27	20	E	E	E	E	ES16

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FBES (0.1 MHz)

# IONOSPHERIC DATA

MAR. 1985

FMIN (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 24sec 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		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	16	17	16	17	15	15	16	15	ES16	ES16	ES16	ES16	ES16
2		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	15	15	16	16	17	17	25	17	15	ES16	ES16	ES16	ES16	ES16	ES16
3		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	16	16	16	16	22	17	17	15	16	15	ES16	ES16	ES16	ES16	ES16
4		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	14	14	15	15	22	28	22	16	14	13	14	ES16	ES16	ES16	ES16	ES16
5		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	14	15	16	18	17	17	17	14	14	16	ES16	ES16	ES16	ES16	ES16
6		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	14	15	15	15	15	15	15	15	14	15	ES16	ES16	ES16	ES16	ES16
7		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	15	17	17	17	15	15	15	ES16	ES16	ES16	ES16	ES16	
8		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	18	17	18	24	28	25	22	17	15	16	ES16	ES16	ES16	ES16	ES16
9		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	15	19	16	25	17	15	15	15	ES16	ES16	ES16	ES16	ES16
10		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	16	21	15	15	15	15	15	15	ES16	ES16	ES16	ES16	ES16
11		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	16	16	18	22	21	24	20	19	15	ES16	ES16	ES16	ES16	ES16	
12		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	15	15	17	18	16	17	17	16	15	ES16	ES16	ES16	ES16	ES16	
13		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	15	19	23	21	19	15	15	ES16	ES16	ES16	ES16	ES16	
14		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	22	21	21	20	16	15	15	ES16	ES16	ES16	ES16	ES16	
15		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	16	22	25	22	28	20	15	15	ES16	ES16	ES16	ES16	ES16	
16		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	14	17	22	20	26	24	22	17	17	17	16	ES16	ES16	ES16	ES16	ES16
17		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	16	19	19	22	24	25	17	16	17	ES16	ES16	ES16	ES16	ES16	
18		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	16	16	24	23	24	26	21	17	16	ES16	ES16	ES16	ES16	ES16	
19		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	16	19	24	22	23	22	22	16	16	ES16	ES16	ES16	ES16	ES16
20		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	16	16	16	19	18	18	19	16	15	ES16	ES16	ES16	ES16	ES16	
21		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	16	17	23	25	28	27	24	19	17	16	ES16	ES16	ES16	ES16	ES16
22		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	16	22	24	28	24	22	19	20	16	ES16	ES16	ES16	ES16	ES16	
23		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	17	18	18	18	15	15	17	15	ES16	ES16	ES16	ES16	ES16
24		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	17	20	25	18	21	22	15	15	15	ES16	ES16	ES16	ES16	ES16
25		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	17	17	19	24	28	24	18	22	18	15	16	ES16	ES16	ES16	ES16	ES16
26		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	17	23	26	26	23	27	20	22	C	C	C	ES16	ES16	ES16	ES16
27		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	15	19	22	21	23	26	23	18	16	ES16	ES16	ES16	ES16	ES16	
28		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	16	20	20	27	28	18	16	14	14	16	ES16	ES16	ES16	ES16	ES16
29		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	18	22	23	21	18	22	17	15	15	ES16	ES16	ES16	ES16	ES16
30		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	16	21	21	21	23	27	15	15	16	15	ES16	ES16	ES16	ES16	ES16
31		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	14	15	17	19	22	26	22	19	17	14	15	ES16	ES16	ES16	ES16	ES16
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	30	31	31	31	31
MED		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	16	19	22	22	21	19	16	15	16	ES16	ES16	ES16	ES16	ES16
UQ		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	16	16	18	22	24	24	25	22	17	16	ES16	ES16	ES16	ES16	ES16	
LQ		ES16	ES16	ES16	ES16	ES16	ES16	ES16	ES16	15	15	15	16	18	18	18	16	15	15	15	ES16	ES16	ES16	ES16	ES16

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FMIN (0.1 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

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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 24 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	305	290	310	355	345	305	310	340	340	325	320	310	310	325	335	340	340	320	355	315	305	375	325	315					
2	305	325	315	340	U S	S	S		360	375	335	315	340	305	295	300	305	330	350	360	330	H U S	U S	U S					
3	295	U S	275	335	350	320	345	360	335	295	315	325	300	320	310	U R	340	345	365	340	320	320	310	290					
4	J S	305	315	325	375	S	S		340	380	360	330	350	310	325	320	335	355	360	365	365	335	335	320	315				
5	300	305	315	300	350	375	S	375	370	365	325	320	340	R	345	325	320	345	370	365	350	360	375	315	320				
6	315	J S	U S	300	335	U S	290	R	385	360	325	295	270	R	305	345	U R	320	R	325	R	315	R	345	R				
7	290	S	S	320	J S	365	410	355	350	340	315	330	305	310	315	325	R	305	U R	340	365	J S	380	355	310	290	U S	305	
8	295	305	295	330	360	U S	U S	370	380	310	315	285	285	315	345	R	320	340	370	365	370	365	S	315	365				
9	315	S	S	305	310	340	365	390	350	350	300	310	320	320	300	U S	315	U R	335	350	360	350	345	310	315	U S	320		
10	275	S	320	305	305	J S	335	350	380	360	365	335	325	300	320	325	R	330	340	350	350	345	360	J S	315	300	320		
11	285	285	295	290	320	335	390	375	365	350	335	345	295	270	305	310	320	330	350	350	S	315	340	325	310				
12	285	340	310	325	365	U S	345	300	360	325	305	290	305	305	315	335	340	350	365	340	345	340	295	310					
13	J S	305	J S	310	390	380	325	375	365	355	335	310	290	300	310	325	335	355	365	335	S	335	335	300	S	315			
14	295	320	330	J S	310	S	A	R	360	355	325	300	315	315	290	320	U R	315	R	360	355	335	R	335	315	305	S	295	
15	295	S	310	315	360	325	360	330	360	365	335	335	280	295	315	315	R	305	R	315	R	340	315	335	340	S	345	S	295
16	310	S	335	330	390	S	S	290	360	370	350	330	295	310	320	R	325	335	330	335	310	360	355	345	S	335	U S	320	
17	U S	S	S	S	H	S	335	375	380	365	360	340	295	315	330	U R	325	335	350	355	R	355	S	360	S	330	U S	S	
18	A	S	365	345	345	285	310	355	350	340	330	290	295	305	300	305	325	360	350	340	325	345	U S	350	305				
19	S	J S	U S	S	345	300	325	370	370	375	335	295	320	325	320	R	320	R	300	340	345	355	375	335	S	320	S	305	
20	315	325	335	340	350	365	325	360	370	360	350	275	295	315	330	335	335	330	330	325	340	360	R	350	320				
21	300	295	S	310	355	350	355	S	340	325	320	295	305	320	320	320	305	315	325	335	345	S	355	370	330	290			
22	290	305	315	335	400	350	315	300	340	350	330	260	280	305	305	320	335	325	340	340	360	350	305	335					
23	J S	310	S	315	340	U S	370	335	350	345	305	280	290	R	305	305	R	300	325	325	R	330	345	330	345	U S	300	U S	300
24	U S	J S	J S	S	350	S	S	S	370	345	325	310	295	285	300	330	R	325	R	350	340	350	320	340	U S	U S	U S	290	
25	295	315	340	340	345	345	340	360	365	355	305	265	290	345	310	320	325	340	340	345	J S	310	350	J S	305	310			
26	U S	320	305	U S	U S	U S	340	340	325	355	365	340	285	270	300	315	315	315	325	C	C	C	S	335	320	295	305		
27	S	335	330	385	350	310	320	380	370	345	335	305	305	315	330	325	J R	330	340	355	335	335	325	325	285				
28	U S	280	310	345	360	U S	310	375	365	320	295	310	300	R	300	330	315	315	J R	330	340	350	325	345	320	300			
29	U S	U S	U S	S	J S	S	345	370	345	335	310	285	295	R	300	R	325	320	315	340	R	330	325	U S	280	S	300		
30	U S	295	315	360	355	290	325	355	325	325	315	310	U R	R	300	315	R	340	R	315	335	350	360	310	U S	U S	325		
31	295	330	350	385	315	300	325	365	360	355	325	315	320	310	320	315	325	325	345	355	325	315	305	335					
CNT	30	30	31	31	30	26	25	31	31	31	31	31	31	31	31	31	31	31	30	30	30	31	30	31	30				
MED	S	308	315	340	350	342	325	360	360	340	315	305	300	315	320	320	330	340	350	345	335	335	310	S	308				
UQ	S	325	330	358	360	365	345	375	370	355	332	318	310	320	325	325	340	350	360	350	355	345	325	S	320				
LQ	S	295	S	308	320	335	310	320	355	348	325	305	288	295	302	310	315	325	325	340	335	328	S	S	S	300			

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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		OKINAWA							Lat. 26° 16.9' N , Long. 127° 48.4' E		Sweep 1 MHz to 25 MHz in 24sec 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	U L 355	U L 355	U L 365	U L 365	L	L							
2											470	L	U L 365	375	375	360	340	U L 350	L						
3										L	U L 360	U L 355	410	U L 360	U L 375		L	L	L						
4										L	355	355	375	385	375	370		L	L						
5										L	L	385	375	375	400	385		L	L						
6									L	L	355	350	385	405	370	380		L	L	L					
7									L	L	L	365	L	390	390	385	320	L	L	L					
8										L	L	L	L	400	475	375	390	L	L						
9									L	L	L	L	385	375	375	385	360	365	L	L					
10									L	L	L	L	A	350	L	380	380	L	L						
11										435	U L 360	365	U L 370	L	365	350	U L 355	L							
12										L	L	365	375	335	375	365	365	370	U L						
13									L	L	L	L	360	L	365	370	L	L	L		L				
14									L	L	L	A	410	370	360	370	L	A							
15									L	L	395	L	385	385	L	370	370	L							
16										L	L	L	390	400	375	365	L	L							
17									L	L	L	410	410	375	375	375	A	L							
18									L	L	355	375	370	375	375	355	U L 350	350							
19										L	385	420	415	355	365	385	L	L							
20									L	L	L	L	375	360	375	385	380	L							
21									L	L	340	400	400	360	375	375	L	L							
22									L	L	U L 375	340	U L 400	345	390	355	375	L	L						
23								L	L	L	L	375	400	370	370	370	380	L	L						
24									L	L	L	A	390	395	385	L	L	L							
25									L	L	U L 345	360	345	A	A	L	A	L	L						
26									L	L	355	360	A	400	410	375	355	C	C						
27									L	L	365	360	380	370	370	365	365	L	L						
28										L	L	360	L	375	375	355	L	L							
29									L	L	L	375	370	355	365	370	355	L	L						
30									L	L	390	395	375	380	375	365	L	L	L						
31									L	L	410	410	420	390	360	355	370	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT										2	14	23	26	28	28	28	17	2							
MED										452	360	365	378	375	375	370	365	360							
UQ											385	385	400	388	380	375	375								
LQ											355	360	375	360	365	362	355								

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M(3000)F1 (0.01)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

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H<sup>o</sup>F2 (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 24sec 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										260	270	290	290	270	255	245	250	245						
2										230	275	270	290	290	320	300	275	240						
3										320	280	270	280 <sup>H</sup>	275	285	260	240	230						
4										245 <sup>L</sup>	305	260	310	295	280	260	245	230						
5										250	300	270	260	255	275	300	255	240						
6									240	280	340	330	320	250	260	280	240	230	220					
7									230	220	260	290	310	315	290	260	240	225	225					
8									320 <sup>L</sup>	310	320	330 <sup>L</sup>	295	250	270	255	225							
9									250	250	310	280	290	270	290	270	240	230	210					
10									220	230	280	280	320	300	280	260	250	240						
11									225	280	250	345	365	305	285	265	240							
12									250	325	330	315	295	265	250	250	230							
13									230	250	280	300	310	330	290	260	250	240	225					
14									240	280	330	290	270	280	270	270	260	230						
15									220	270	300	330	320	280	280	280	265	240						
16									265	290	330	320	295	270	255	250	255							
17									245	250	275	300	320	295	270	280	260	255						
18									235	280	275	320	330	300	295	280	250	225						
19									250	300	340	310	300	275	260	255	265							
20									240	245	290	365	350	300	265	255	255	255						
21									280	285	325	310	290	270	265	265	270	270						
22									255	260	295	390	355	310	300	275	255	250						
23							240		230	320	330	320	315	310	280	270	260	240	240					
24									230	290	290	330	350	320	270	260	240	250						
25									240	270	335	355	340	290	285	275	265	250	240					
26									245	280	360	365	325	295	275	275	260		C	C				
27									250	290	300	305	325	310	275	275	275	260						
28									300	310	315	330	320	280	290	285	250							
29									230	270	290	340	320	310	270	270	260	240						
30									250	280	280	300	315	300	280	260	240	240	240					
31									255	260	295	300	295	305	295	280	275	260						
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							1	20	31	31	31	31	31	31	31	31	30	7						
MED							240	240	265	295	310	320	295	280	270	255	240	225						
UQ								250	280	310	330	328	310	288	280	262	250	240						
LQ								230	250	280	290	302	285	270	260	250	230	222						

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H<sup>o</sup>F2 (KM)

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# IONOSPHERIC DATA

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H'F (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 24sec 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	300	275	240	210	S	S	S	240	235	225	210	205	190	H	210	220	220	225	210	215	240	215	235	280					
2	270	270	285	260	255	200	S	S	220	H	220	190	210	220	215	200	H	185	190	230	225	H	200	200	210	S	260			
3	300	275	315	230	230	S	S	S	245	225	230	220	215	190	H	H	A	215	225	220	240	210	195	215	250	A	280			
4	290	295	250	225	205	S	S	S	240	225	220	205	210	210	200	A	240	220	215	225	215	200	200	240	275	300				
5	300	290	295	290	230	200	S	S	210	H	215	180	H	H	H	A	H	205	210	205	A	H	210	200	200	260	250			
6	E	S	S	E	S	E	S	S	230	200	S	200	200	A	240	A	A	240	220	210	A	230	220	240	200	200	A	E	S	270
7	S	S	S	S	A	210	210	200	220	220	200	200	H	H	H	H	230	230	230	230	200	200	250	E	S	E	S	290		
8	310	290	300	260	230	210	210	220	215	H	A	245	245	230	200	220	215	220	210	225	200	200	S	275	255					
9	270	290	S	S	E	S	280	240	240	250	A	200	190	H	A	230	200	210	190	200	H	210	210	220	A	200	200	200	250	250
10	280	260	250	250	220	220	220	210	200	200	A	A	A	A	200	H	200	200	210	220	A	220	220	220	220	255	A	S	250	A
11	300	A	305	A	280	240	295	200	210	190	225	A	205	200	210	225	220	220	225	205	200	210	265	280						
12	290	245	260	250	215	260	240	215	215	215	200	200	200	A	205	220	210	220	210	H	210	215	240	A	250	290				
13	S	S	S	S	200	230	S	225	210	210	200	200	190	200	A	E	A	A	E	A	A	240	225	220	210	220	S	280	S	
14	S	S	S	220	220	S	A	230	230	A	230	210	A	210	250	A	240	210	230	A	230	240	A	240	A	280	S	300	S	
15	S	S	240	210	E	S	S	240	S	220	210	200	200	190	H	200	200	E	A	H	200	210	210	230	240	230	220	210	270	S
16	275	270	260	200	S	S	S	240	245	200	210	200	200	200	200	200	200	210	210	245	220	220	220	240	250					
17	280	250	260	240	200	S	S	S	190	240	215	210	H	H	H	200	200	H	H	A	250	A	240	250	225	210	230	275	270	
18	A	A	225	230	220	S	S	270	215	210	230	A	200	195	200	200	205	210	215	H	215	220	215	220	205	225	280			
19	280	265	240	220	260	S	S	S	295	230	220	210	200	190	180	260	250	220	210	230	250	225	210	200	265	300				
20	290	265	265	250	260	250	S	S	300	245	220	210	210	190	180	H	190	210	200	210	250	240	230	225	215	210	245			
21	260	285	270	220	220	225	S	220	210	195	195	180	180	200	205	205	200	240	250	220	235	U	A	210	225	290				
22	310	290	260	245	195	260	S	S	300	225	205	210	210	185	H	185	260	180	240	230	A	250	225	205	200	S	330	320		
23	S	S	S	260	240	220	S	220	200	200	200	H	200	210	200	200	230	A	A	A	A	A	210	210	210	260	290			
24	S	270	260	240	210	210	S	220	200	H	H	A	230	210	210	240	A	225	210	240	A	A	230	205	S	S				
25	305	260	240	245	240	265	255	225	225	200	205	220	A	A	A	A	A	A	215	A	230	205	205	300	315					
26	300	300	260	220	260	280	S	S	220	225	220	A	A	A	180	H	H	H	H	H	C	C	C	225	250	305	280			
27	265	265	255	210	E	S	S	S	310	305	220	225	210	205	215	200	200	230	245	A	250	A	245	245	230	250	280	300		
28	310	300	290	250	230	260	255	215	230	220	200	H	200	180	H	H	210	H	H	200	235	245	210	215	210	205	270			
29	300	270	250	225	200	S	S	270	215	215	200	200	230	A	A	A	210	E	A	A	A	240	230	225	210	210	230	280	290	
30	S	270	240	210	210	S	E	S	270	220	220	210	220	200	210	210	230	A	210	230	A	210	230	220	210	230	E	S	S	310
31	340	255	225	200	S	S	S	285	230	240	215	215	200	195	175	185	245	235	220	245	215	250	245	250	255					
	00	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	28	31	30	29	22	20	31	31	31	28	26	28	28	28	30	28	28	29	30	31	29	30	30						
MED	298	272	260	240	225	240	270	220	215	210	210	200	200	200	206	214	220	224	230	215	210	220	258	280						
UQ	300	290	285	255	U	242	260	S	298	230	225	218	218	210	210	210	222	228	230	240	245	225	225	240	280	290				
LQ	280	265	250	220	210	210	235	218	210	200	200	190	192	195	200	205	210	215	220	205	202	210	250	258						

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H'F (KM)

### IONOSPHERIC DATA

MAR. 1985

H\*E (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 24sec 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	105	105	105	105	A	105	105	110	115	120					
2								S	110	105	105	110	105	105	105	B	A	A	A					
3								S	110	105	A	105	105	110	A	110	110	A	A					
4								S	115	110	110	110	110	110	110	110	110	110	A					
5								S	110	110	105	105	105	110	110	110	110	110	110					
6								S	110	110	110	110	110	110	110	110	110	110	110					
7								S	110	110	110	110	110	110	110	110	A	100	100					
8								S	110	110	110	110	110	110	110	110	110	110	E B 160					
9								E S 140	110	110	110	110	110	110	110	110	110	110	A					
10								S	110	110	110	110	110	115	110	110	115	110	110					
11								S	115	110	110	105	110	110	110	110	110	110	S					
12								S	110	105	105	105	105	105	110	110	110	105	S					
13								E S 150	110	110	110	110	110	110	110	110	110	110	S					
14								115	A	A	A	110	110	110	110	A	A	110	E S 125					
15								E S 130	110	110	110	110	110	110	110	110	110	110	S					
16								E B 135	110	110	110	110	110	110	110	110	110	110	A					
17								S	110	110	110	110	110	110	110	115	110	110	S					
18								S	110	110	A	A	A	120	105	H B 120	110	115	A	110	A			
19								E B 135	110	110	110	110	110	110	110	110	110	115	110	A				
20								S	110	110	110	110	110	110	110	110	110	110	A					
21								E S 140	110	105	110	110	110	115	B 120	B 115	B 115	B 115	A					
22								E S 130	110	110	110	115	115	110	110	110	110	110	A					
23								E S 150	110	110	110	110	110	110	105	110	110	110	A					
24								E S 140	110	110	110	110	110	110	110	110	110	110	110					
25								S 130	A 125	110	105	110	125	B 125	115	110	115	115	115	A				
26								E S 130	110	110	110	115	115	110	B 115	115	115	C	C					
27								E B 140	110	110	110	110	110	110	110	110	110	110	S					
28								A	110	110	110	110	110	110	105	105	105	110	110					
29								E S 130	110	110	A	110	110	110	110	110	110	110	110					
30								E S 140	110	A	A	110	110	110	110	110	115	110	115					
31								E B 130	110	110	110	110	110	110	110	110	110	110	115	B 115				
	00	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	30	29	26	30	31	30	30	29	28	28	12					
MED								E S 135	110	110	110	110	110	110	110	110	110	110	110					
UQ								E S 140	110	110	110	110	110	110	110	110	112	110	115					
LQ								E S 130	110	110	110	110	110	110	110	110	110	110	110					

MAR. 1985

H\*E (KM)



### IONOSPHERIC DATA

MAR. 1985

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 24sec 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	S	S	S	S	S	S	S	190	185	165	165	G	105	G	G	125	120	125	S	S	S	S	S
2	S	S	S	100	105	S	S	G	G	150	140	140	125	115	110	115	110	105	105	105	100	100	S	S
3	S	S	S	S	S	S	S	S	170	G	105	G	G	165	110	140	115	105	105	100	140	130	115	100
4	S	100	100	100	S	100	S	160	G	170	160	150	120	115	110	110	110	110	105	100	105	105	105	S
5	S	S	100	S	S	S	S	S	G	G	115	115	170	115	110	110	110	110	110	110	S	S	110	S
6	S	S	110	110	110	S	S	S	G	E G 160	E G 160	E G 160	E G 160	140	115	115	115	115	115	110	110	110	110	110
7	110	S	S	110	110	110	110	S	G	G	G	G	G	120	120	E G 130	110	120	G	100	S	110	S	S
8	S	S	S	S	S	S	S	150	150	G	150	145	G	G	G	120	110	110	G	110	105	S	S	S
9	S	S	S	S	S	110	110	G	G	G	E G 165	E G 145	120	120	120	120	115	120	100	100	S	130	110	110
10	S	S	S	S	S	S	110	100	G	G	E G 160	150	115	115	115	E G 140	E G 140	E G 130	115	110	110	110	110	110
11	105	100	105	105	S	S	S	G	G	G	165	130	120	120	120	120	120	G	120	95	S	S	S	S
12	S	105	S	S	S	S	S	G	G	G	115	160	130	120	125	120	120	120	115	S	S	130	S	S
13	S	S	S	S	S	S	S	G	G	G	G	120	120	120	120	120	120	120	120	110	110	S	S	S
14	S	S	S	S	100	110	110	110	110	110	110	120	120	130	130	110	110	120	120	110	110	110	110	S
15	110	S	S	S	S	S	S	G	E G 140	120	120	120	120	120	120	120	120	120	110	120	110	100	S	S
16	S	S	S	S	S	S	S	G	G	140	120	115	115	115	110	110	110	110	105	105	105	110	105	S
17	110	105	100	100	S	100	105	140	G	G	115	115	110	G	110	130	115	115	110	110	110	110	S	115
18	105	110	S	105	S	105	105	150	145	125	120	115	120	G	120	120	125	G	115	S	S	S	S	S
19	100	S	S	S	S	S	150	140	130	120	115	110	110	110	150	110	110	110	105	105	105	105	100	105
20	105	100	100	105	105	S	S	130	G	G	115	110	110	110	110	110	110	110	105	105	105	100	S	S
21	S	S	S	S	S	S	145	G	G	135	180	G	G	170	G	G	G	195	165	135	120	105	100	S
22	S	S	S	S	S	S	S	G	145	140	140	G	G	165	130	120	120	110	110	110	110	S	S	S
23	S	S	S	S	S	S	100	G	G	G	G	G	G	G	G	120	E G 160	130	110	100	100	S	S	S
24	110	S	S	S	S	S	S	G	G	E G 150	120	125	125	125	125	120	120	120	120	115	110	110	S	110
25	110	S	S	S	S	S	S	165	135	125	130	145	160	140	130	125	115	120	115	S	110	105	S	S
26	S	S	S	S	S	S	S	140	130	125	115	115	115	G	G	G	120	C	C	C	115	115	S	S
27	S	S	S	S	S	S	S	G	G	130	115	110	115	115	120	110	110	110	110	110	110	105	100	S
28	S	S	S	S	S	S	S	100	G	155	G	110	160	G	G	G	100	100	150	S	S	120	110	S
29	S	S	S	S	S	S	100	G	G	G	110	E G 160	E G 150	140	140	125	130	130	130	110	110	110	110	110
30	S	S	S	S	S	110	110	G	115	110	110	120	120	120	120	115	120	G	130	100	110	110	110	S
31	S	S	S	S	S	S	S	G	G	G	125	115	125	115	120	115	110	115	G	115	110	S	105	S
CNT	9	6	6	8	5	7	11	11	11	17	27	26	24	25	25	27	30	27	27	25	23	22	15	8
MED	110	102	100	105	105	110	110	140	140	130	118	119	120	120	120	120	115	115	115	110	110	110	110	110
UQ	110	105	105	108	110	110	110	150	148	145	U 145	142	126	130	125	120	120	120	120	110	110	110	110	110
LQ	105	100	100	100	105	102	105	120	126	125	115	115	115	115	110	112	110	110	108	100	105	105	105	108

MAR. 1985

H°ES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

MAR. 1985

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 24 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	F1	F1		F1			F1		H1	H1	H2	H1		L1			C2	C2	C1						
2				F6	F3	F1	F1			H2	H2	H1	C1	C1	C1	L1	L2	L2	L3	F3	F5	F5	F1		
3								H1	H1		L2			H1	HL11	H2	C1	L4	L2	F1	FF34	FF61	F4	F3	
4		F1	F2	F2		F1		H1		H1	H1	H1	C1	C1	C1	C1	C1	C2	L2	F6	F2	F3	F2		
5			F2								C2	C1	H1	CH11	C2	C2	C2	C3	C3	F1			F2		
6			F2	F2	F1				H2	H2	H1	H1	H1	C1	C1	C1	C3	C3	C2	F3	F2	F7	F3	F2	
7	F2			F4	F3	F3	F1							C1	C1	C1	L2	C1		F1		F1			
8								H1	H1		H2	H2				C1	C1	C1		F1	F3				
9					F1	F4				H1	H1	C1	C1	C1	C1	C1	C1	C1	L1	F1		F1	F3	F2	
10						F1	L1				H2	H1	C4	CL11	C1	H1	HL11	H1	C2	F2	F2	F6	F1	F4	
11	F2	F4	F4	F6	F1					H1	H1	H1	C1	C1	C2		H2		C2	F2					
12		F2			F1	F1					C1	H1	H2	H2	H2	C1	C1	C1	L1	F1	F1	F5			
13											C1	C1	C1	C1	C1	C1	C1	C2	C1	F1	F1				
14					F2	F1	F6	L1	L2	L1	L1	C1	C1	C1	C1	L1	L2	C3	C3	F5	F3	F3	F2		
15	F1								H1	C2	C3	C1	C1	C1	C1	C1	C1	C1	L1	F1	F1	F1			
16									H1	C2	C1	C2	C2	C2	C2	C2	C2	C2	L2	F1	F4	F1	F3		
17	F2	F4	F2	F3		F3	F2	H2			C2	C1	C1		C2	H2	C3	C1	C4	F3	F4	F2		F2	
18	F4	F7		F2		F4	F3	H2	H1	C3	CL21	CL11	CL11		C1	C1	CL21		L2						
19	F2					F1	H1		HC11	C1	C1	C2	C2	C2	HC11	C1	C1	C3	L2	F2	F3	F1	F2	L3	
20	F2	F3	F2	F1	F5			H1			C2	C2	C1	C1	C2	C1	C1	C2	L2	F4	F4	F4			
21						F2				H1	H1			H1				HC11	HL11	F2	F7	F7	F2	F1	
22									H1	H1	H1			H1	C1	C1	C1	C3	L6	F5	F1				
23						F2										C1	H1	C2	L1	F1	F1				
24	F2									H1	C2	C1	C1	C1	C1	C1	C2	C1	C1	F2	F4	F1		F2	
25	F4						H2		HL11	H2	H1	H1	H1	H1	H2	C2	C3	C2	L2		F3	F4			
26							H2		H2	H3	H2	C2	C1				C1				F4	F2			
27										H1	C1	C1	C1	C1	C1	C1	C2	C2	C1	F3	F6	F3	F2		
28							L2			H1		C1	H1				L1	L1	HL21		F1	F3			
29						F1					L2	H1	H1	H1	H1	C2	H1	H1	H2	F3	F4	F2	F3	F1	
30					F1	F1			C1	L1	L1	C1	C1	C1	C1	C1	CL11		CL11	F2	F2	F1	F2		
31											H1	C1	H1	C1	C1	C1	C2	C1		F3	F7	F3			
	00	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																									

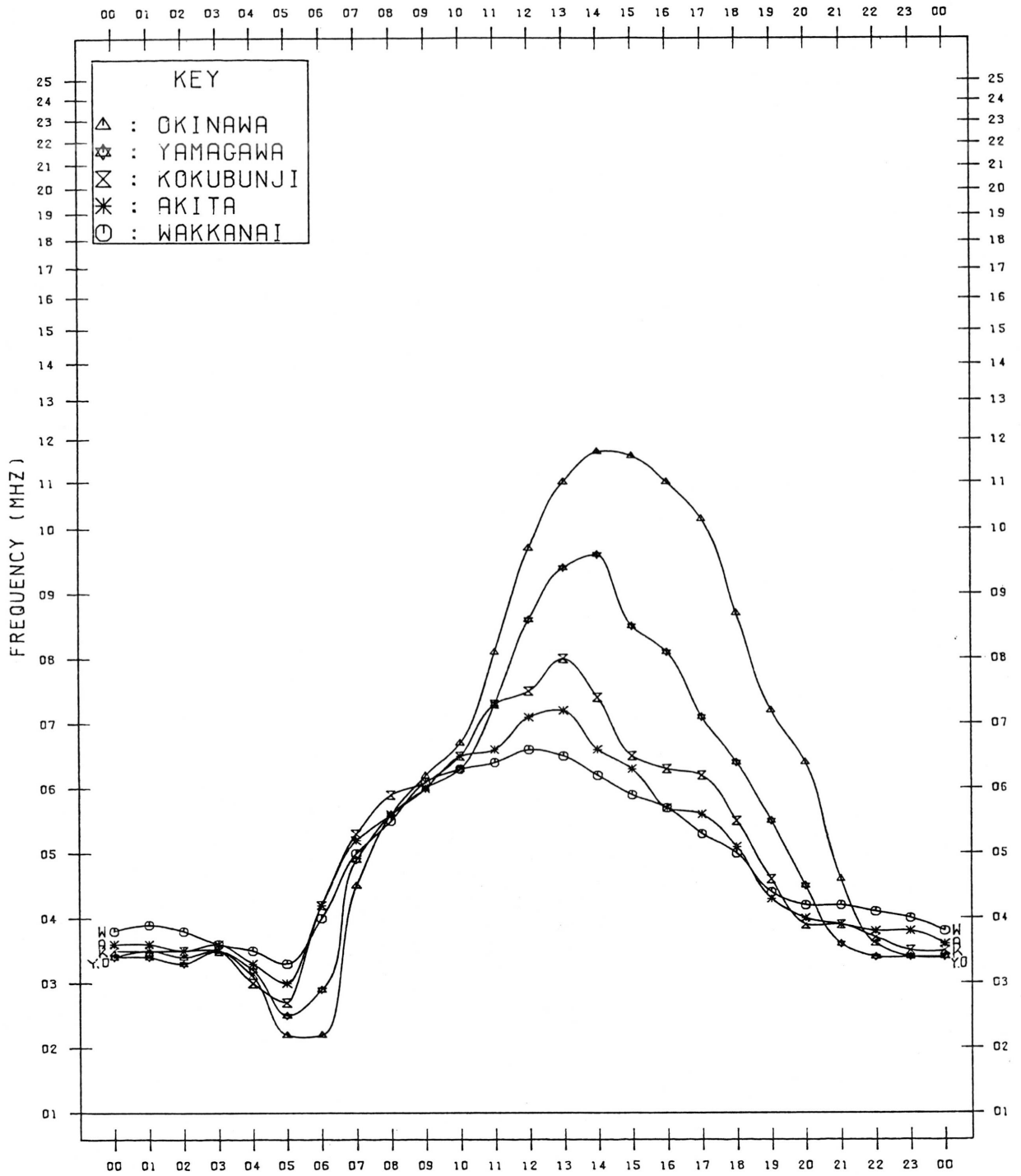
MAR. 1985

TYPES OF ES

# MONTHLY MEDIAN VALUES OF FOF2

135°E MEAN TIME

MAR. 1985



*f*-PLOTS OF IONOSPHERIC DATA

KEY OF F-PLOT	
I	SPREAD
◊	F <sub>0</sub> F <sub>2</sub> , F <sub>0</sub> F <sub>1</sub> , F <sub>0</sub> E
×	F <sub>X</sub> F <sub>2</sub>
*	DOUBTFUL F <sub>0</sub> F <sub>2</sub> , F <sub>0</sub> F <sub>1</sub> , F <sub>0</sub> E
⊗	F <sub>B</sub> E <sub>S</sub>
L	ESTIMATED F <sub>0</sub> F <sub>1</sub>
* <sub>1</sub>	F <sub>MIN</sub>
^	GREATER THAN
v	LESS THAN

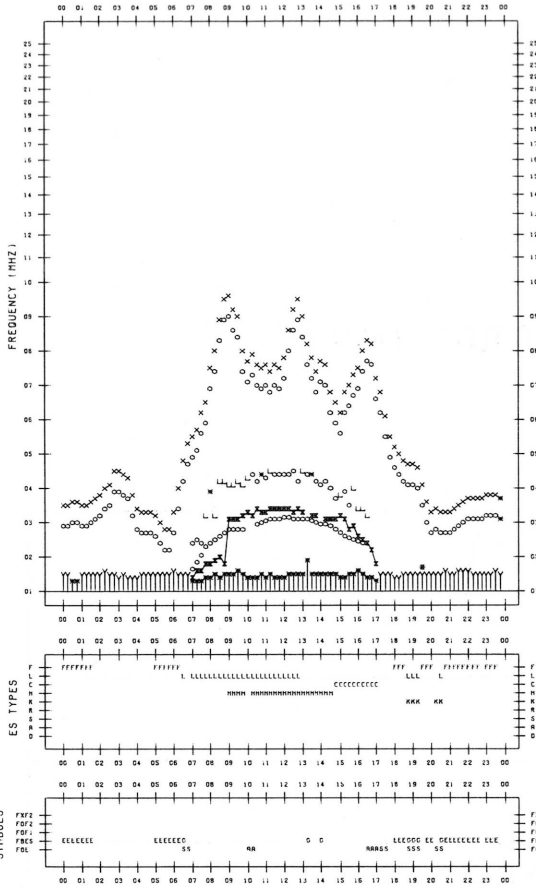
F-PLOT DATA

SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO

DATE : 1985/ 3/ 1

135°E MEAN TIME



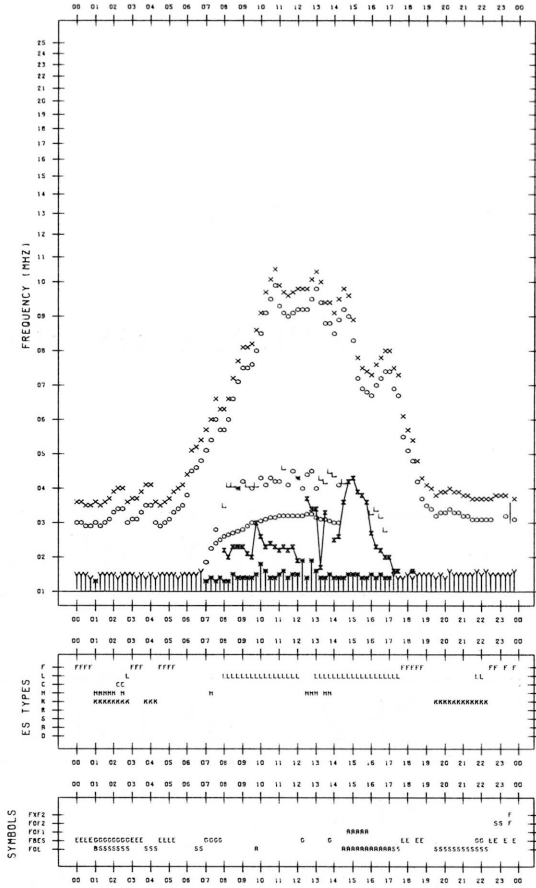
F-PLOT DATA

SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO

DATE : 1985/ 3/ 3

135°E MEAN TIME



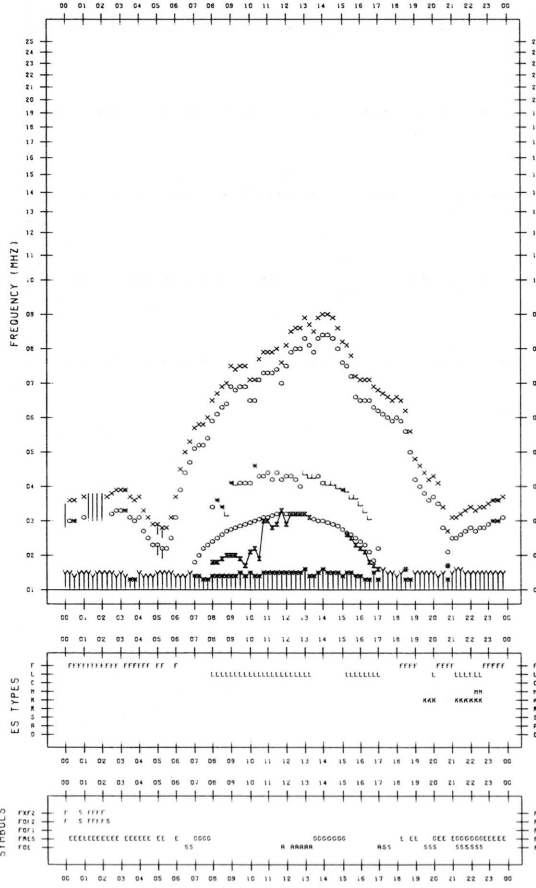
F-PLOT DATA

SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO

DATE : 1985/ 3/ 2

135°E MEAN TIME



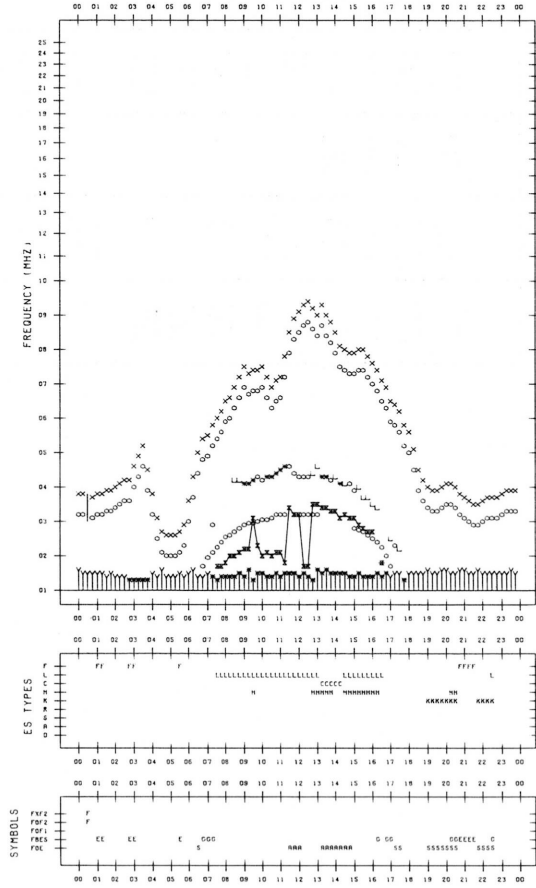
F-PLOT DATA

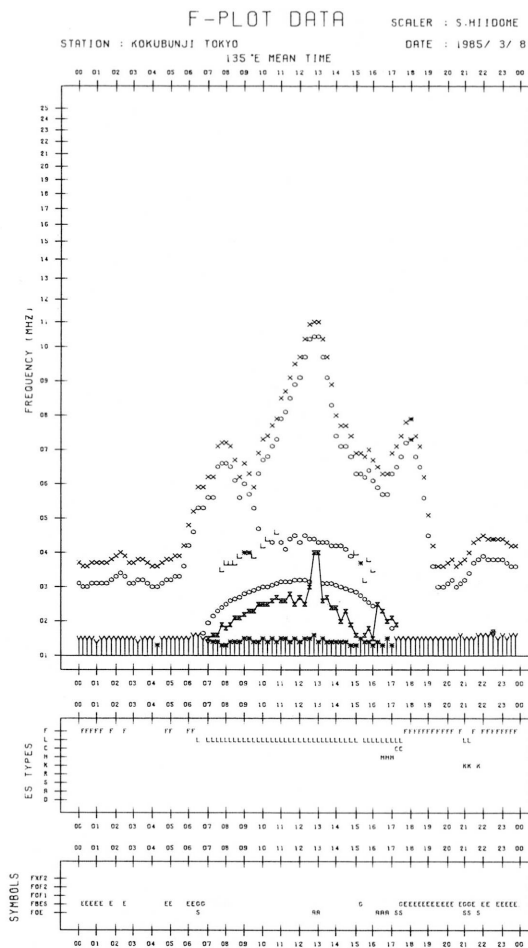
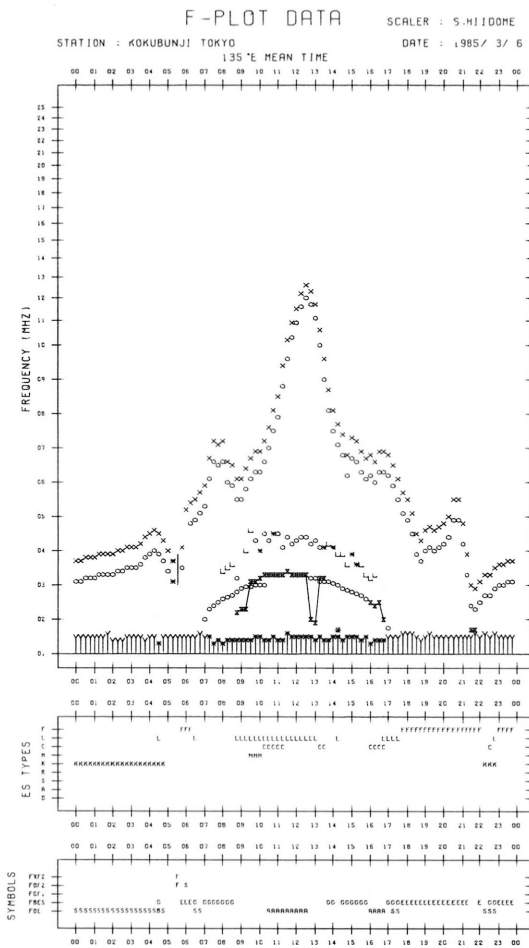
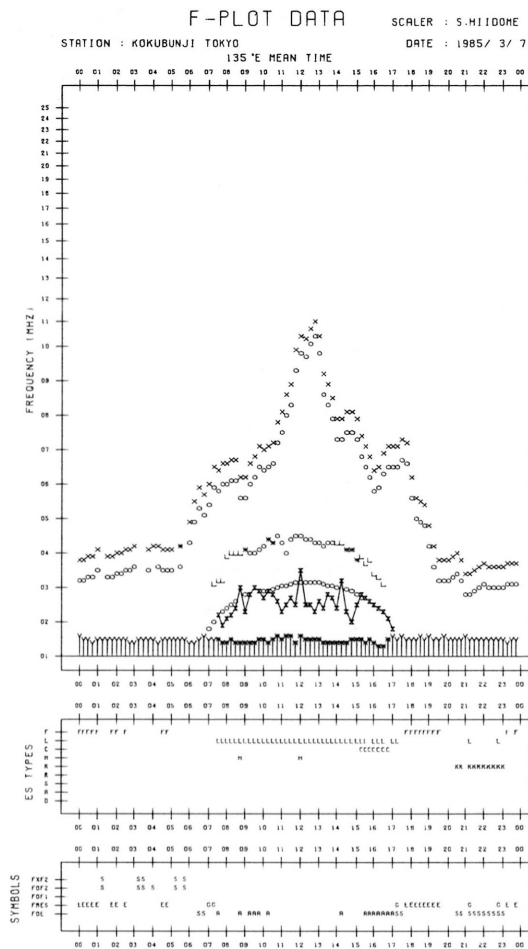
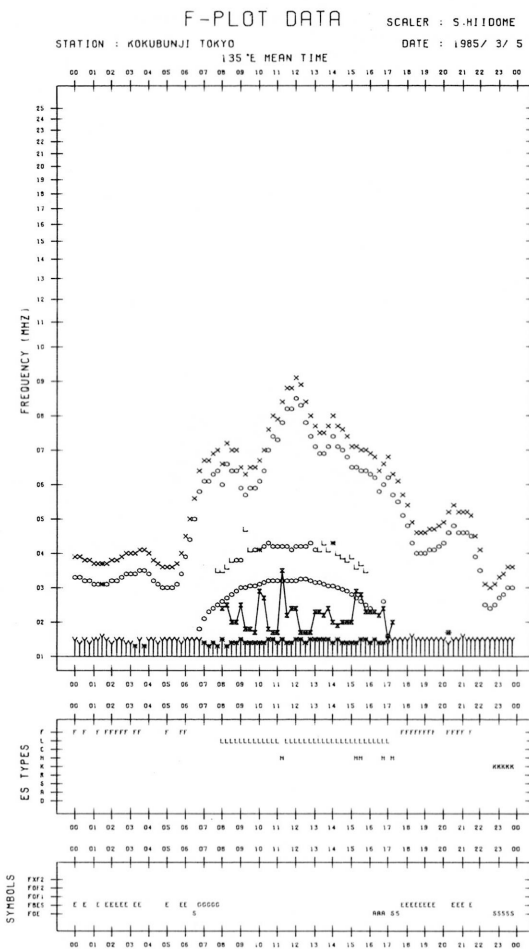
SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO

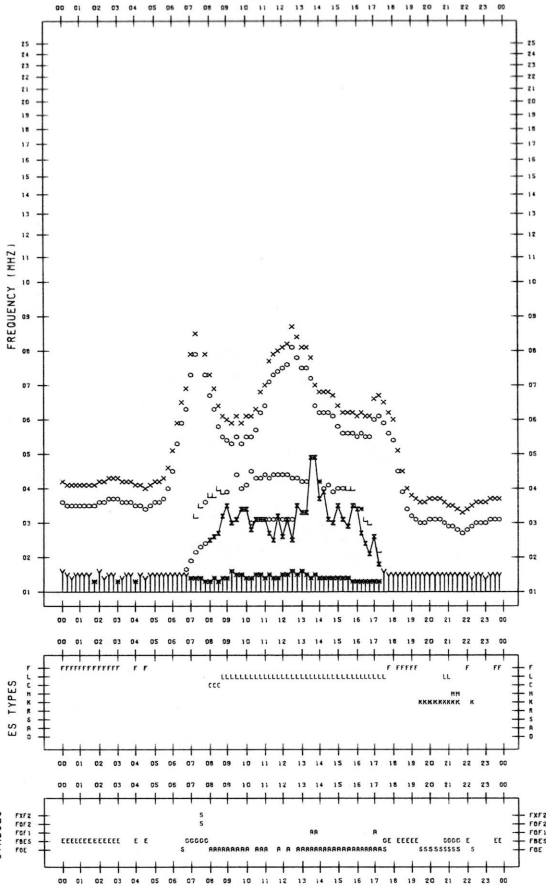
DATE : 1985/ 3/ 4

135°E MEAN TIME

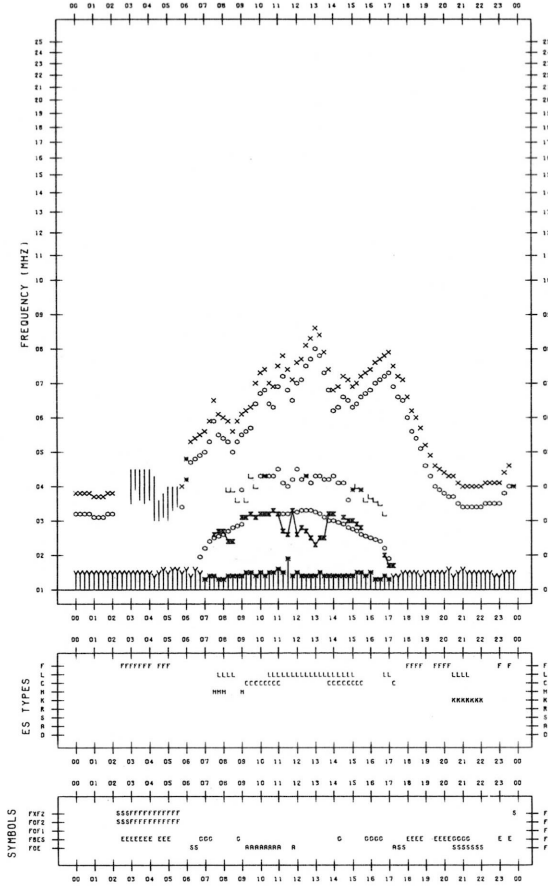




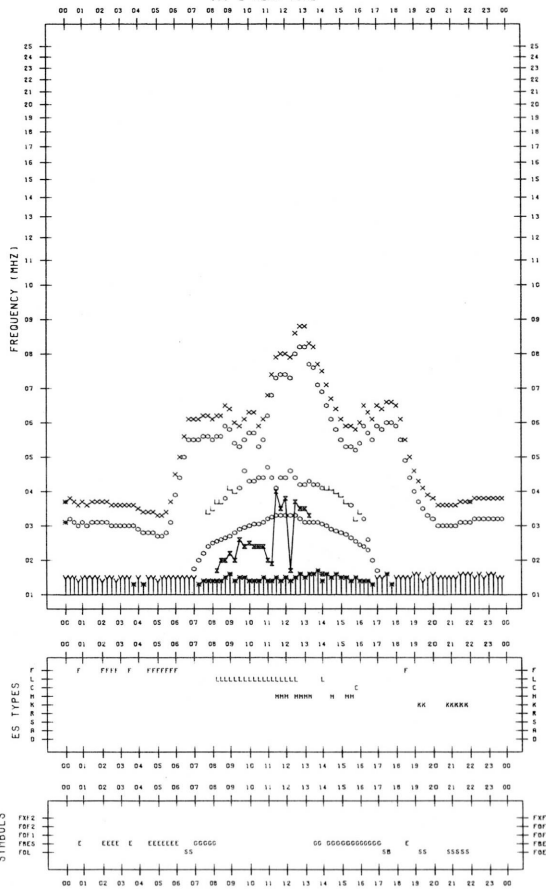
F-PLOT DATA SCALER : S.HIIOOME  
STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/ 9  
135°E MEAN TIME



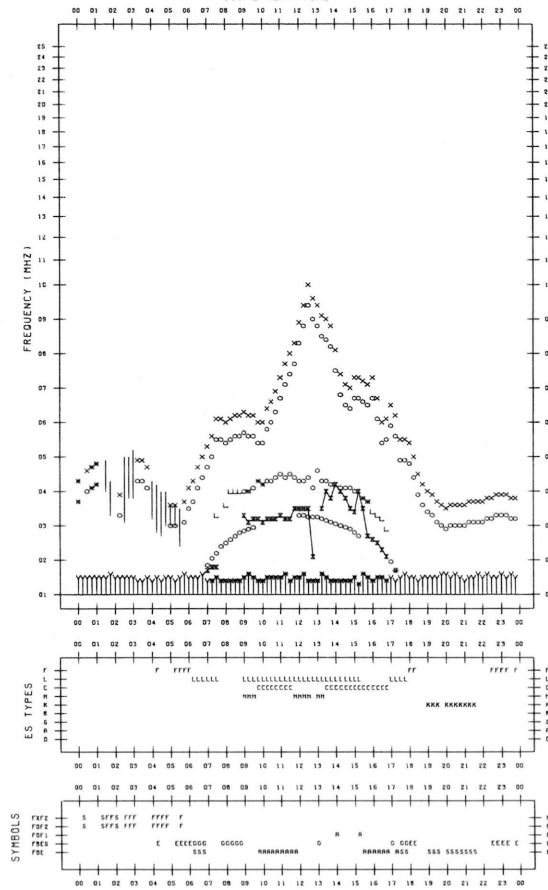
F-PLOT DATA SCALER : S.HIIOOME  
STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/11  
135°E MEAN TIME

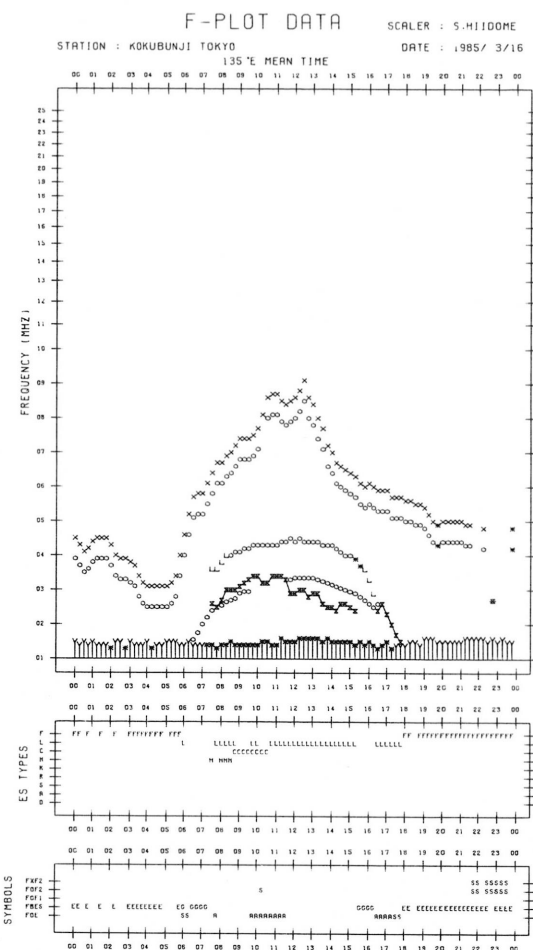
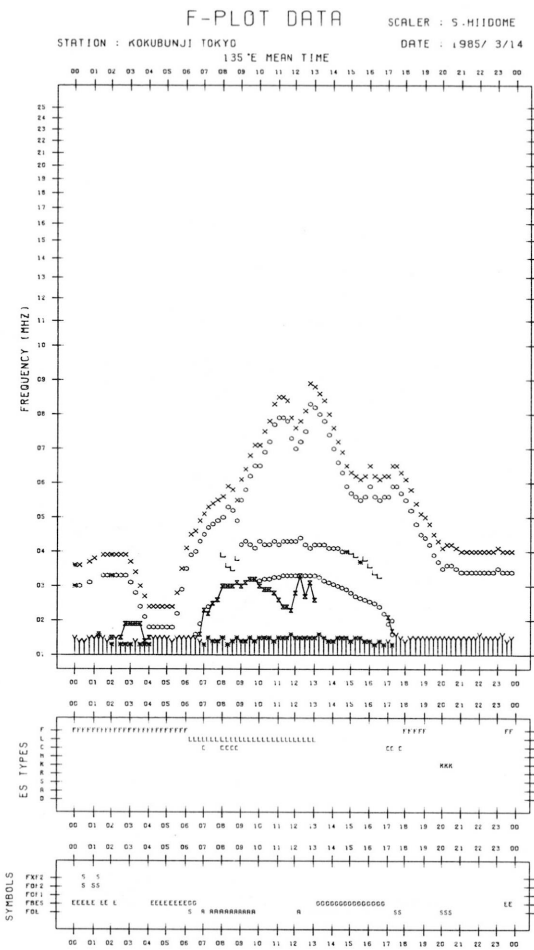
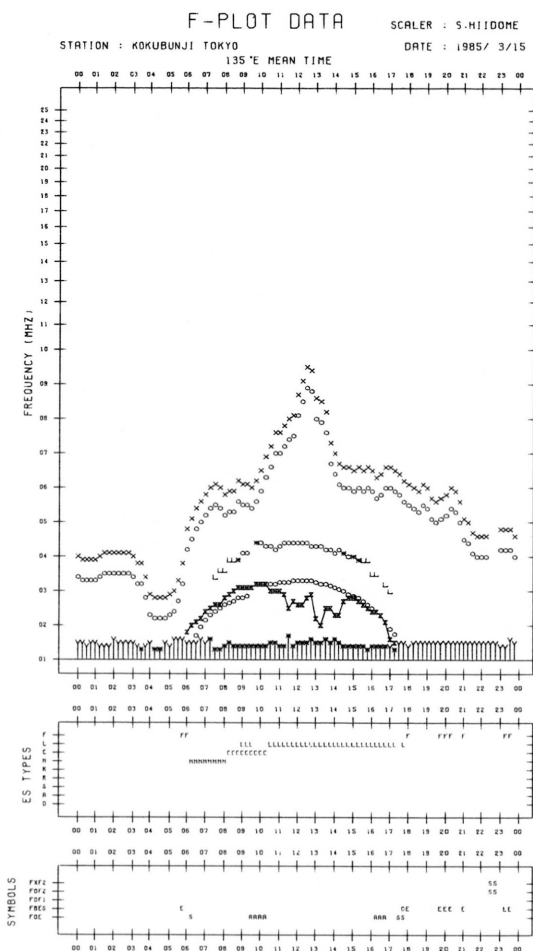
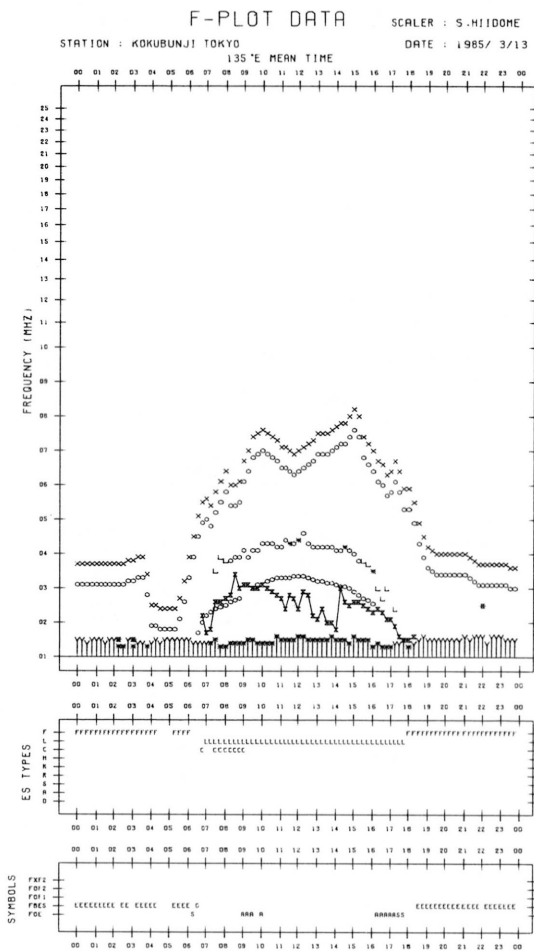


F-PLOT DATA SCALER : S.HIIOOME  
STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/10  
135°E MEAN TIME



F-PLOT DATA SCALER : S.HIIOOME  
STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/12  
135°E MEAN TIME





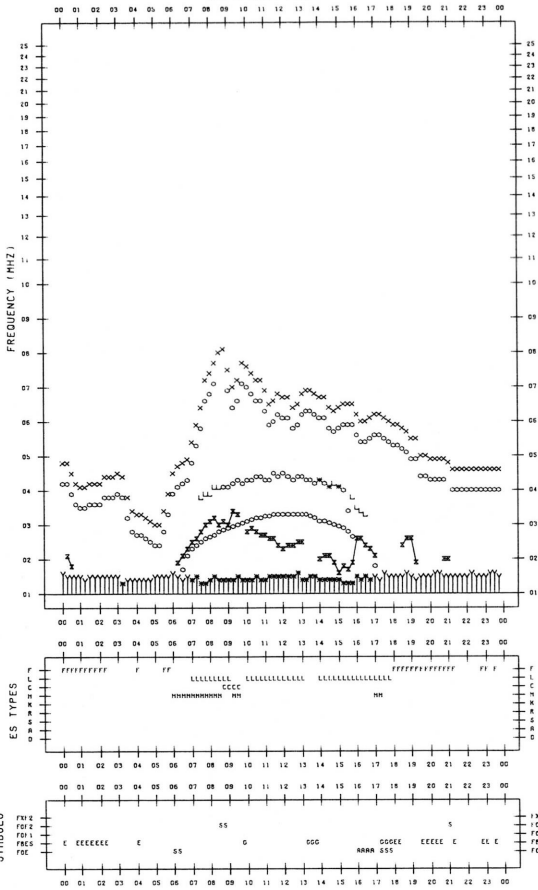


F-PLOT DATA

SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO  
135°E MEAN TIME

DATE : 1985/ 3/17

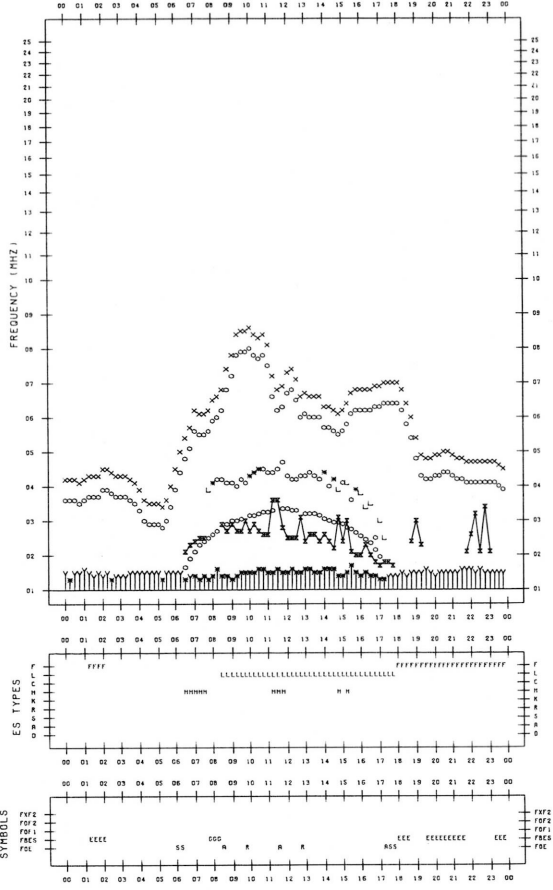


F-PLOT DATA

SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO  
135°E MEAN TIME

DATE : 1985/ 3/19

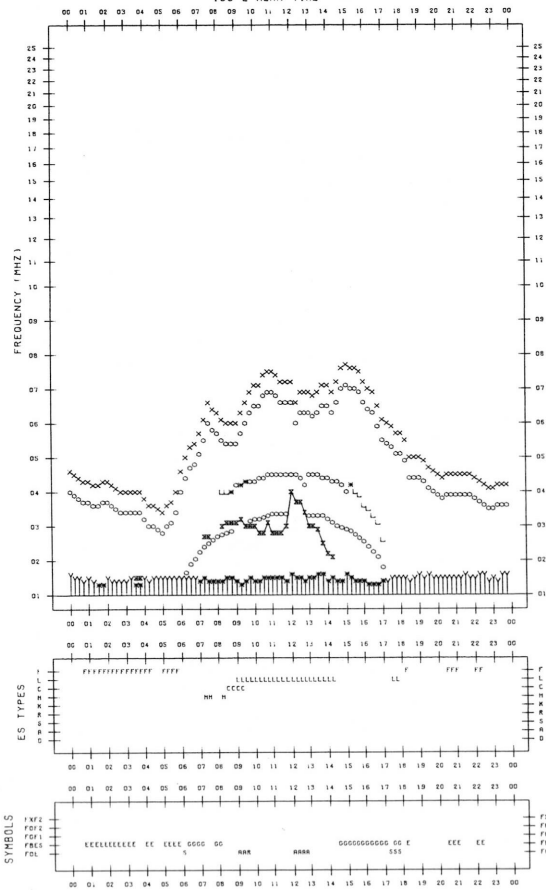


F-PLOT DATA

SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO  
135°E MEAN TIME

DATE : 1985/ 3/18

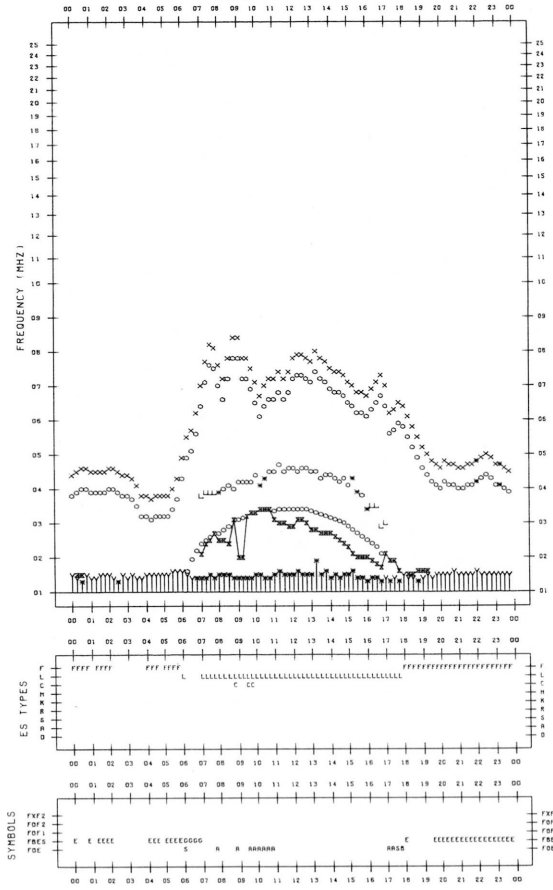


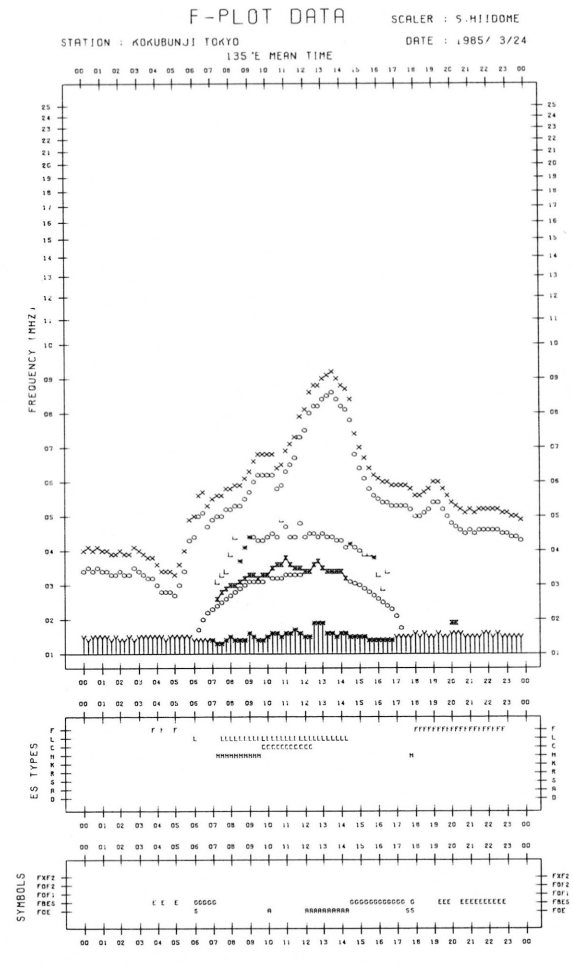
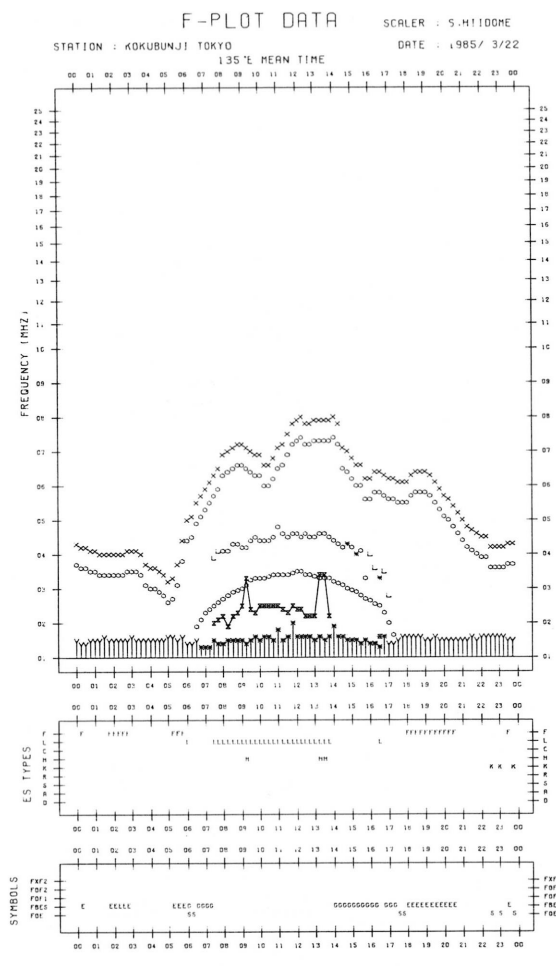
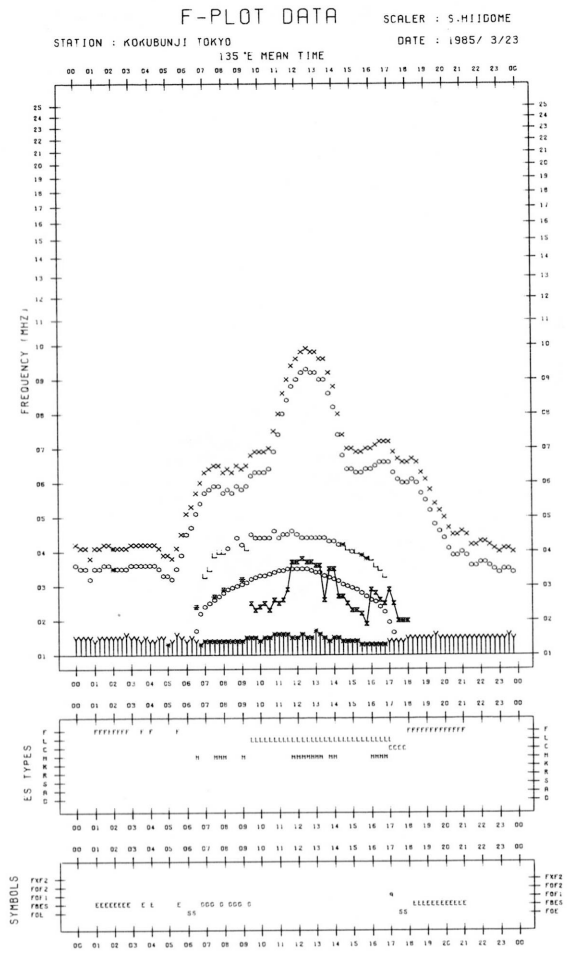
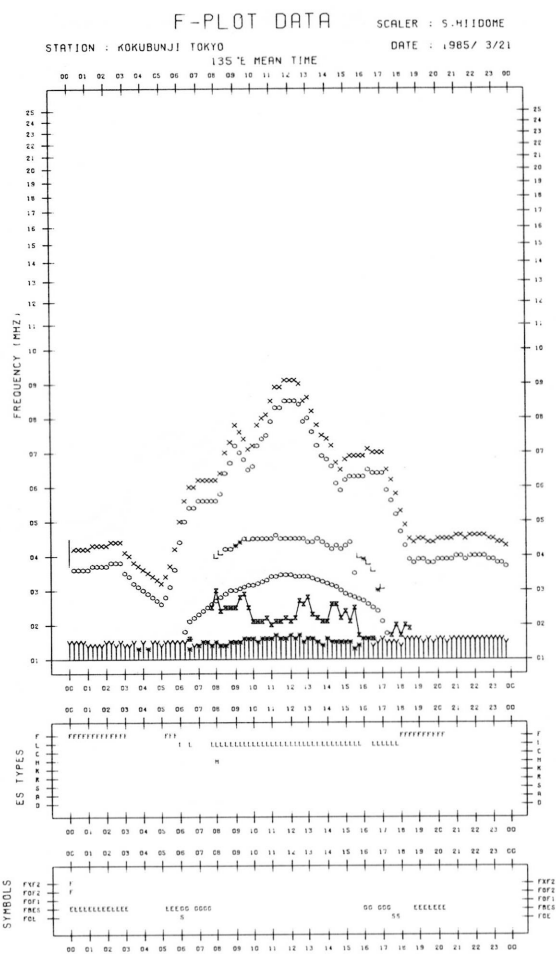
F-PLOT DATA

SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO  
135°E MEAN TIME

DATE : 1985/ 3/20



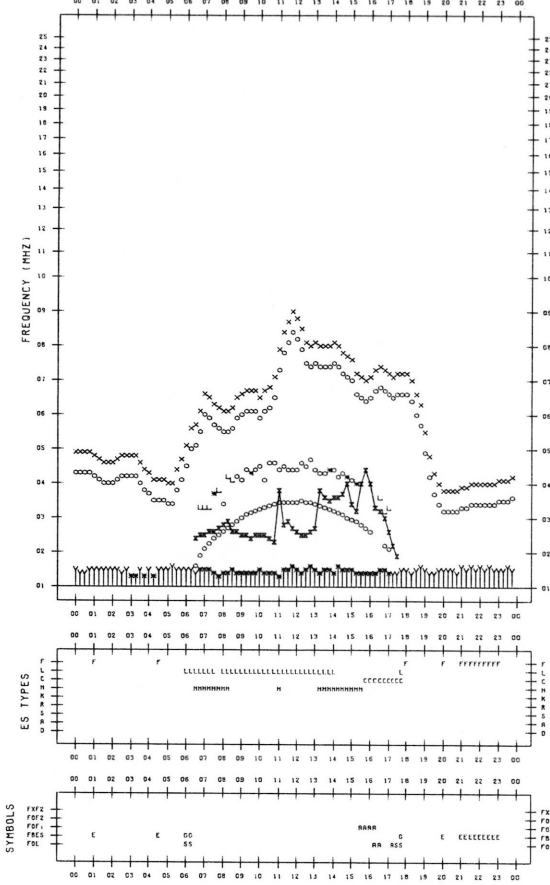


F-PLOT DATA

SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/25

135°E MEAN TIME

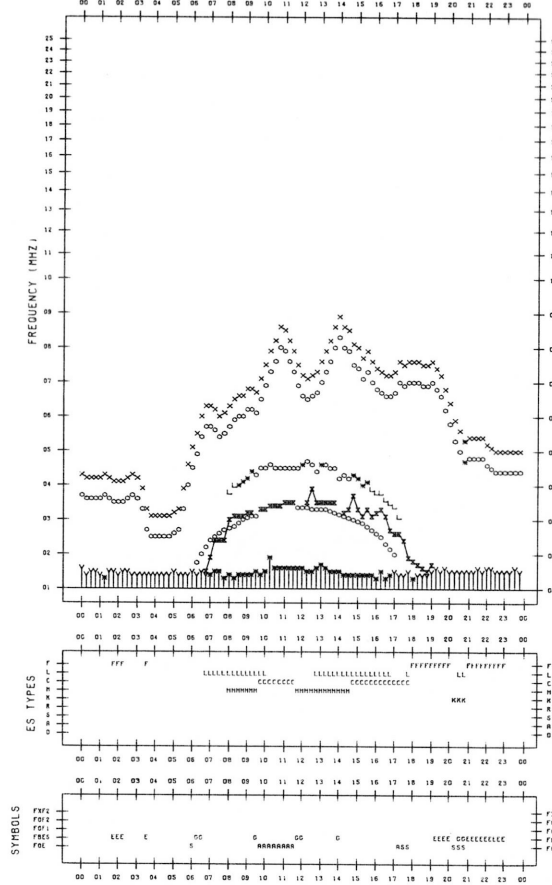


F-PLOT DATA

SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/27

135°E MEAN TIME

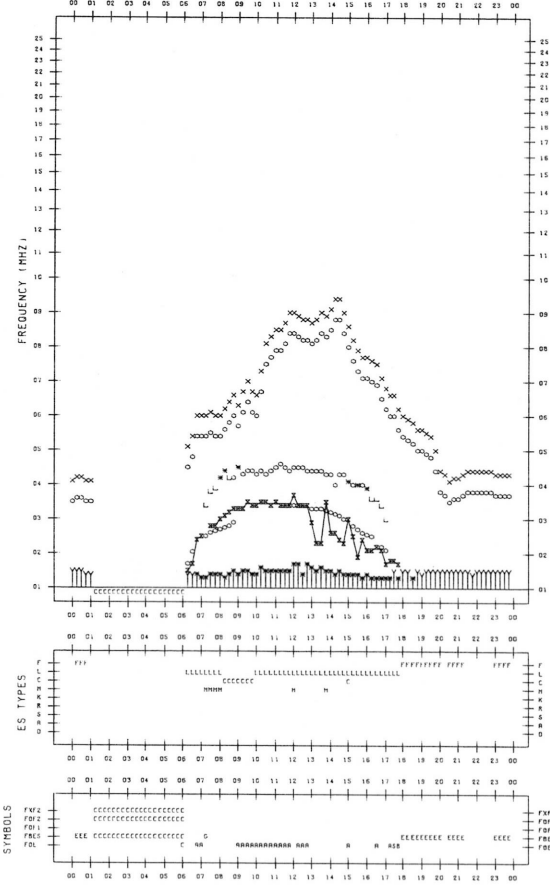


F-PLOT DATA

SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/26

135°E MEAN TIME

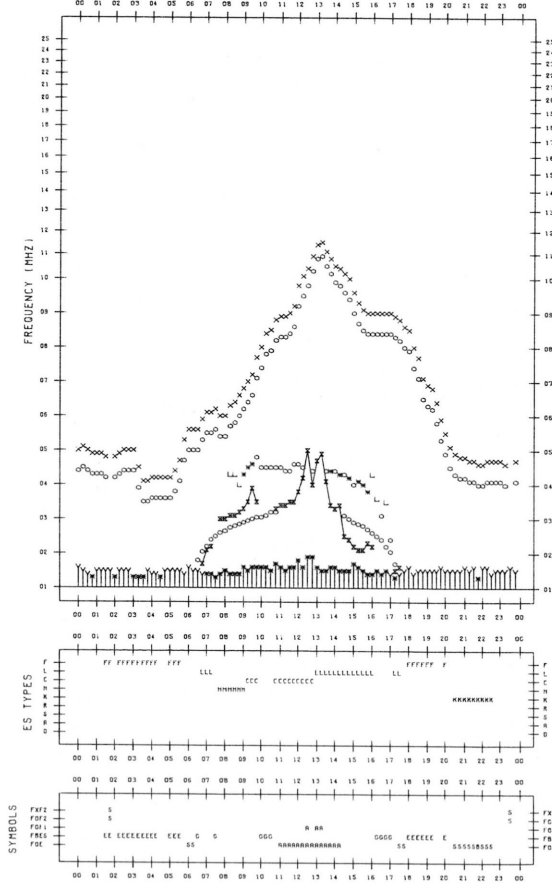


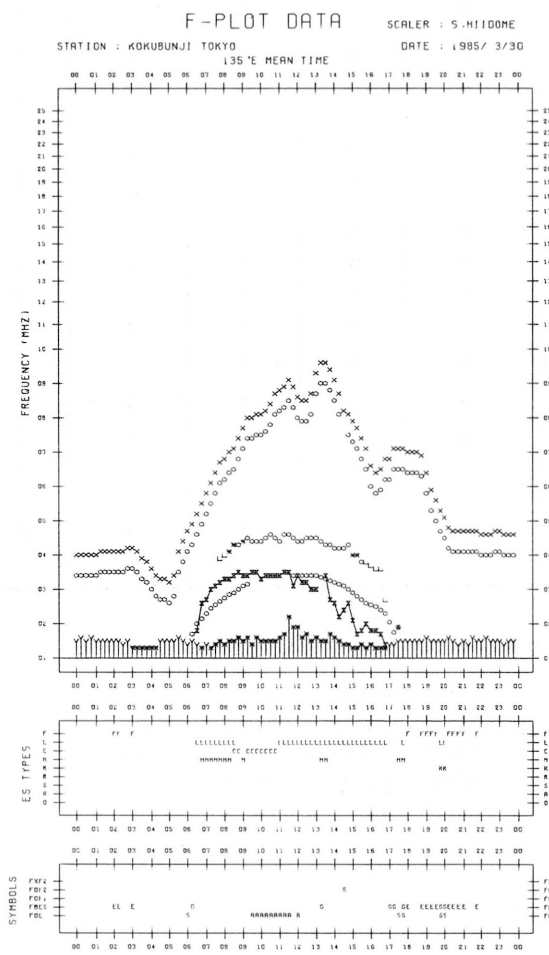
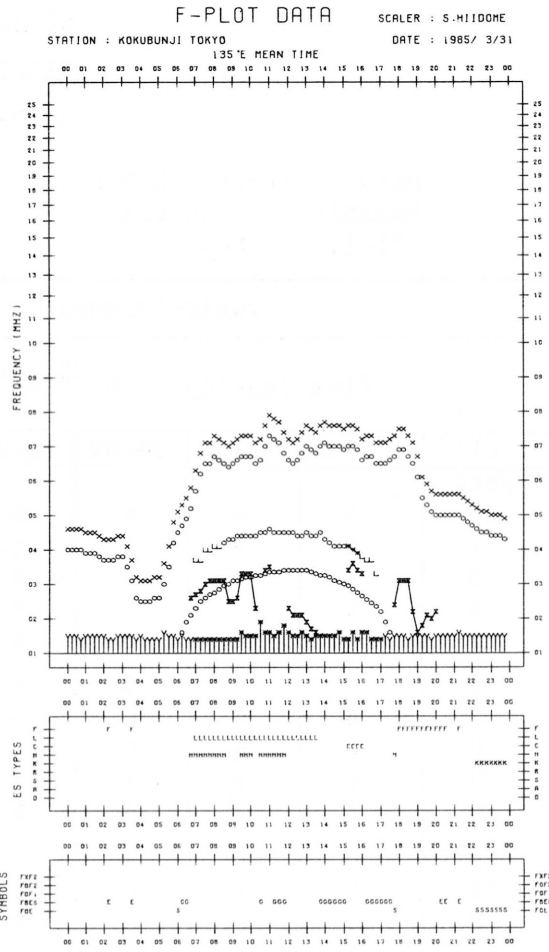
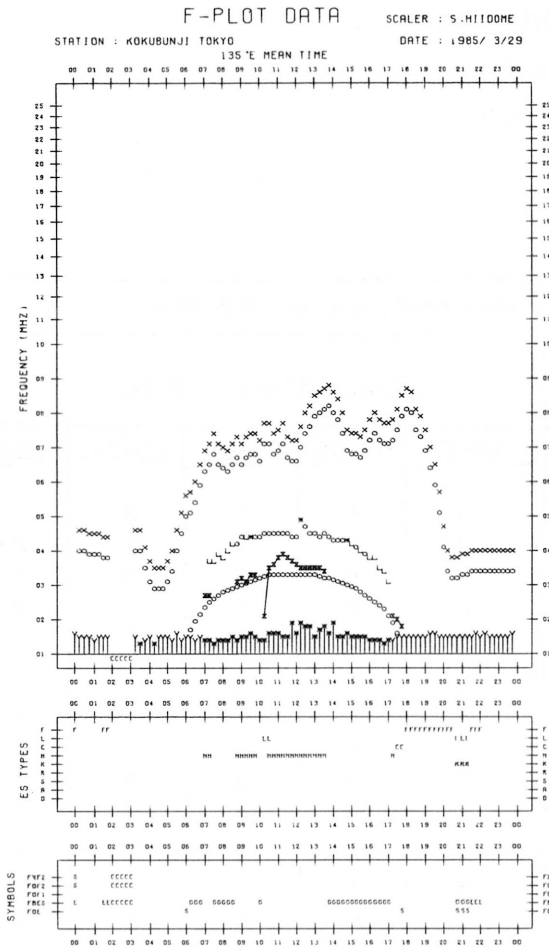
F-PLOT DATA

SCALER : 5.HI100ME

STATION : KOKUBUNJI TOKYO DATE : 1985/ 3/28

135°E MEAN TIME





## SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

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

March 1985

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	6	q	q	6	6	0	*	*	0	*
2	6	6	6	q	6	0	0	0	*	0
3	6	6	6	6	6	*	*	0	0	*
4	6	6	6	6	6	0	0	*	*	0
5	q	6	6	6	6	*	0	0	0	*
6	6	6	6	-	6	0	*	0	-	0
7	6	6	q	6	6	*	*	*	*	*
8	6	q	6	-	6	*	*	*	-	*
9	6	6	6	6	6	*	*	0	*	*
10	6	6	6	6	6	*	0	*	0	*
11	6	6	6	-	6	0	0	0	-	0
12	6	6	q	q	6	*	*	*	*	*
13	q	q	q	6	q	*	*	*	0	*
14	6	6	6	q	6	0	0	0	*	0
15	q	q	q	6	q	*	*	*	*	*
16	6	6	6	6	6	*	0	0	*	*
17	6	6	6	-	6	*	0	0	-	0
18	q	q	q	-	q	*	*	*	-	*
19	6	6	6	-	6	0	0	0	-	0
20	q	q	q	6	q	*	*	*	0	*
21	6	6	6	-	6	0	0	0	-	0
22	q	q	q	-	q	*	*	*	-	*
23	6	6	6	-	6	*	*	*	-	*
24	q	q	q	6	q	*	*	*	*	*
25	6	6	6	6	6	0	0	*	*	0
26	6	6	7	6	6	*	1	1	*	1
27	6	6	6	q	6	0	0	0	*	0
28	6	-	-	-	6	*	-	-	-	*
29	6	q	q	6	6	*	*	*	0	*
30	6	6	6	6	6	*	*	*	0	*
31	6	q	6	6	6	*	*	*	0	*

Note No observations during the following periods:

6th	2101 - 2343	21st	2040 - 2348
8th	2058 - 2348	22nd	2038 - 2331
11th	2035 - 2341	23rd	2037 - 24th 0016
17th	2046 - 2344	28th	0240 - 0853
18th	2045 - 2344	28th	2029 - 2335
19th	2044 - 2340		

q: likely quiet.

\*: interference.

## SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

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

March 1985

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	24	25	25	24	25
2	24	24	24	24	24
3	24	24	24	24	24
4	24	24	24	24	24
5	24	24	24	24	24
6	24	24	24	24	24
7	24	24	24	24	24
8	24	24	24	24	24
9	24	24	24	24	24
10	24	24	24	24	24
11	24	24	24	25	24
12	25	25	25	25	25
13	25	25	25	24	25
14	24	24	24	24	24
15	25	25	25	25	25
16	25	25	25	25	25
17	25	25	24	25	25
18	25	25	25	25	25
19	25	24	24	25	25
20	26	26	25	24	25
21	25	25	24	25	25
22	26	25	25	25	25
23	26	25	25	25	25
24	26	25	25	24	25
25	25	25	26	26	25
26	26	26	26	25	26
27	25	25	25	25	25
28	25	25	25	25	25
29	25	25	25	24	25
30	25	25	25	24	25
31	24	25	25	25	25

## SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

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

March 1985

Outstanding Occurrences

(single-frequency observations)

Normal observing period: 2100 - 0845 (sunrise to sunset)

MAR 1985	FREQ STATION	TYPE	START TIME UT	TIME OF MAXIMUM UT	DUR MIN	FLUX DENSITY		POLARIZATION POSITION REMARKS
						PEAK	MEAN	
20	500 HIRA	8 S	0732.6	0733.0	0.5	6	-	0
21	500	42 SER	2224.7	2310.3	54	36	-	ML
				2225.6		23		WL
				2232.0		31		WL
23	500	46 C	0002.6	0008.9	7.3	5	1	WL
	200	27 RF	0113.8	0129.0	45	6	2	0
	500	27 RF	0116.9	0143.5	58	28	8	WL
	200	41 F	0117.3	0118.4	2.7	75	-	0
	500	45 C	0117.6	0118.0	2.0	35	8	WL
	500	45 C	0311.9	0313.0	3.3	85	10	0
	200	42 SER	0312.0	0313.3	6.3	69	-	0
	200	8 S	0532.7	0532.8	0.3	120	-	0
26	200	42 SER	2106.1	2106.8	25	23	-	ML
27	200	8 S	0109.0	0109.2	0.3	31	-	ML
	200	46 C	0209.2	0209.6	1.2	40	7	0
	200	41 F	0411.7	0413.3	2.0	31	-	ML
	200	41 F	0524.6	0525.6	1.1	29	-	ML
28	200	41 F	0159.0	0159.8	1.3	380	-	0
	500	6 S	0159.1	0159.9	1.3	26	5	0
	500	6 S	0203.2	0203.3	1.5	3	1	0
	500	42 SER	0424.6	0426.7	5.0	10	-	WL
29	500	8 S	0627.5	0627.5	0.3	4	-	WL
	500	8 S	0710.7	0711.0	0.4	6	-	0
30	500	8 S	0106.9	0107.0	0.3	3	-	0







RADIO PROPAGATION

RADIO PROPAGATION QUALITY FIGURES

HIRAISO		Time in U.T.														
Mar. 1985	Whole Day Figure	W W V				W W V H				Conditions				Principal Geomagnetic Storms		
		00	06	12	18	00	06	12	18	00	06	12	18	Start	End	Range
		06	12	18	24	06	12	18	24	06	12	18	24			
1	C	C	C	C	C	C	C	C	C	N	N	N	N			
2	C	C	C	C	C	C	C	C	C	N	N	N	N			
3	C	C	C	C	C	C	C	C	C	N	N	N	N			
4	C	C	C	C	C	C	C	C	C	N	N	N	N			
5	C	C	C	C	C	C	C	C	C	N	N	N	N			
6	C	C	C	C	C	C	C	C	C	N	N	N	N			
7	C	C	C	C	C	C	C	C	C	N	N	N	N			
8	C	C	C	C	C	C	C	C	C	N	N	N	N			
9	C	C	C	C	C	C	C	C	C	N	N	N	N			
10	C	C	C	C	C	C	C	C	C	N	N	N	N			
11	C	C	C	C	C	C	C	C	C	N	N	N	N			
12	C	C	C	C	C	C	C	C	C	N	N	N	N			
13	C	C	C	C	C	C	C	C	C	N	N	N	N			
14	C	C	C	C	C	C	C	C	C	N	N	N	N			
15	C	C	C	C	C	C	C	C	C	N	N	N	N			
16	C	C	C	C	C	C	C	C	C	N	N	N	N			
17	C	C	C	C	C	C	C	C	C	N	N	N	N			
18	C	C	C	C	C	C	C	C	C	N	N	N	N			
19	C	C	C	C	C	C	C	C	C	N	N	N	N			
20	C	C	C	C	C	C	C	C	C	N	N	N	N			
21	C	C	C	C	C	C	C	C	C	N	N	N	N			
22	C	C	C	C	C	C	C	C	C	N	N	N	N			
23	C	C	C	C	C	C	C	C	C	N	N	N	N			
24	C	C	C	C	C	C	C	C	C	N	N	N	N			
25	C	C	C	C	C	C	C	C	C	N	N	N	N			
26	C	C	C	C	C	C	C	C	C	N	N	N	N			
27	C	C	C	C	C	C	C	C	C	N	N	N	N			
28	C	C	C	C	C	C	C	C	C	N	N	N	N			
29	C	C	C	C	C	C	C	C	C	N	N	N	N			
30	C	C	C	C	C	C	C	C	C	N	N	N	N			
31	C	C	C	C	C	C	C	C	C	N	N	N	N			

SUDDEN IONOSPHERIC DISTURBANCES

HIRAISO		Time in U.T.									
Mar. 1985	S W F							Correspondence			
	Drop-out Intensities (dB)				Start	Duration	Type	Imp.	Solar Flare	Solar Noise	Geomag. Crochet
	CO	HA	1)	2)							
	None										

RADIO PROPAGATION  
Sudden Ionospheric Disturbance (SPA)

I N U B O

Mar. 1985	S P A					Time (U.T.)		
	Phase Advance (degrees)							
Date	GBR	$\Omega$ /LR	NWC	$\Omega$ /H	$\Omega$ /ND	Start	End	Maximum
21	13	14	21	<u>18</u>	22	2225	2316	2232
22		<u>6</u>	6	5		0224	0251	0232
23		7	<u>8</u>	5		0313	0344	0320

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IONOSPHERIC DATA IN JAPAN FOR MARCH 1985

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☎ (0423) (21) 1211 (代)

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Queries about "Ionospheric Data in Japan" should be forwarded to:  
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2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184 JAPAN.

Notice: The RADIO RESEARCH LABORATORIES has been  
renamed the RADIO RESEARCH LABORATORY.