

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1986

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RADIO RESEARCH LABORATORY
 MINISTRY OF POSTS AND TELECOMMUNICATIONS
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BRIEFING

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

sion (S) and radio propagation (P) obtained at the following stations under the Radio Research Laboratory, 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" and its revision of chapters 1-4, published in July 1978.

a. Characteristics of Ionosphere

fxI	Top frequency of spread F trace
$foF2$ $foF1$ foE $foEs$	Ordinary wave critical frequency for the $F2$, $F1$, E and Es including particle E layers respectively
$fbEs$	Blanketing frequency of the Es layer, e.g. the lowest ordinary wave frequency visible through Es
$fmin$	Lowest frequency which shows vertical ionospheric reflections
$M(3000)F2$ $M(3000)F1$	Maximum usable frequency factor for a path of 3000 km for transmission by $F2$ and $F1$ layers respectively
$h'F2$ $h'F$ $h'E$ $h'Es$	Minimum virtual height on the ordinary wave for the $F2$, whole F , E and Es layers respectively
Types of Es	See below 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 Es .
- B Measurement influenced by, or impossible because of, absorption in the vicinity of $fmin$.
- C Measurement influenced by, or impossible because of, any non-ionospheric reason.
- D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.
- E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.
- F Measurement influenced by, or impossible because of, the presence of spread echoes.
- G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.
- H Measurement influenced by, or impossible because of, the presence of a stratification.
- K Presence of particle E layer.
- L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
- M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
- N Conditions are such that the measurement cannot be interpreted.

- O Measurement refers to the ordinary component.
- P Man-made perturbations of the observed parameter; or spur type spread F present.
- Q Range spread present.
- R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
- S Measurement influenced by, or impossible because of, interference or atmospheric.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- V Forked trace which may influence the measurement.
- W Measurement influenced or impossible because the echo lies outside the height range recorded.
- X Measurement refers to the extraordinary component.
- Y Lacuna phenomena, severe layer tilt.
- Z Third magneto-electronic component present.

(ii) Qualifying Letters

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

- A Less than. Used only when $fbEs$ is deduced from $foEs$ because total blanketing of higher layer is present.
- D Greater than.
- E Less than.
- I Missing value has been replaced by an interpolated value.
- J Ordinary component characteristic deduced from the extraordinary component.
- M Mode interpretation uncertain.
- O Extraordinary component characteristic deduced from the ordinary component. (Used for x-characteristics only.)
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- U Uncertain or doubtful numerical value.
- Z Measurement deduced from the third magneto-electronic component.

(iii) Description of Types of Es

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

The types are:

- f An Es trace which shows no appreciable increase of height with frequency.
- l A flat Es trace at or below normal E layer minimum virtual height or below the particle E layer minimum virtual height.
- c An Es trace showing a relatively symmetrical cusp at or below foE . (Usually a daytime type.)
- h An Es trace showing a discontinuity in height with the normal E layer trace at or above foE . The cusp is not symmetrical, the low frequency end of the Es trace lying clearly above the high frequency end of the normal E trace. (Usually a daytime type.)
- q An Es trace which is diffuse and non-blanketing over a wide frequency range.
- r An Es trace showing an increase in virtual height at the high frequency end similar to group retardation.
- a An Es trace having a well-defined flat or gradually rising lower edge with stratified and diffuse traces

present above it.

- s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.
- d A weak diffuse trace at heights below 95 km associated with high absorption and large *fmin*.
- n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.
- k The designation 'k' is used to show the presence of particle *E*. When $foEs > foE$ (particle *E*) the *Es* type precedes k.

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

Median count (CNT) is the number of values from which 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 pair of crossed doublet antennas with a 6-meter and a 10-meter parabolic reflectors for 500 MHz and for 100 and 200 MHz, respectively, and three appropriate receivers. Each pair of crossed doublet antennas is used as a polarimeter. 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 for Monthly Report of Solar Radio Emission, WDC-C2".

a. Daily Data at Hiraiso

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 parentheses mean that observation time does not exceed one third of the period.

b. Outstanding Occurrences at Hiraiso

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. H.F. Field Strength at Hiraiso

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 sideband of WWV or WWVH with the audio tone 660 Hz is picked up by the use of a narrow band pass filter with 80 Hz bandwidth. Particulars of the transmitters and the receiver are summarized in the following table.

Characteristics	Transmitter		Receiver
	WWV	WWVH	
Station Call			Hiraiso, Ibaraki
Location	Fort Collins, Colorado	Kauai, Hawaii	36° 22' N
latitude	40° 41' N	22° 00' N	140° 38' E
longitude	105° 02' W	159° 46' W	
Distance	9150 km	5910 km	-
Carrier Power	10 kW	10 kW	-
Power in each sideband	625 W	625 W	-
Modulation	50 %	50 %	-
Antenna	$\lambda / 2$ vertical	$\lambda / 2$ vertical	4.5 m vertical rod
Bandwidth	-	-	80 Hz for upper sideband
Calibration	-	-	Every an hour

The tabulated *field strength* in dB above one microvolt per meter is the peak average of the incident upper sideband 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 ranked according to magnitude,
U	uncertain,
E	less than,
C	influenced by, or impossible because of, any artificial accident,
S	influenced by, or impossible because of, interferences or atmospherics.

b. Radio Propagation Quality Figures at Hiraiso

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

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

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

Whole day quality figure ranged in grades of 10, 1+, 2-, 2o, 2+, 3-, 3o, 3+, 4-, 4o, 4+, 5-, 5o 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 times per 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 nanotesla. When they are uncertain quantitatively, /'s are used to replace the numerical values. Continuation of a geomagnetic storm is denoted by ---.

c. Phase Variations in OMEGA Radio Waves at Inubo

Variations in phase and in phase deviation are monthly depicted for four OMEGA radio waves received at Inubo. Particulars of transmitting stations concerned which relate to the measurement are given in the table below.

In each of the four figures, variations in phase (ϕ) and those in phase deviation ($\Delta\phi$) are shown in the lower part and the upper one, respectively. Variations in phase (ϕ) are expressed by relative values at intervals of 30 minutes within every day (U.T.) (48 dots). An increasing value in this case denotes a phase delay. On the other hand, variations in phase deviation ($\Delta\phi$) are expressed by values at intervals of 30 minutes within every day (U.T.)

(48 dots), deviated from average values at the same time for the six quietest days within the month concerned. A negative value in this case denotes a phase advance.

When a polar cap phase anomaly (PCPA) is detected on the Aldra-Inubo and/or the North Dakota-Inubo circuit[s], PCPA's detected only on the Aldra-Inubo circuit are listed, in principle, below the four figures. The list mentions the start, the end, and the maximum times of a PCPA in a form of day/hour & minute in U.T. and its maximum phase deviation as a negative value.

The following letters may be attached to values, if necessary.

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

d. Sudden Ionospheric Disturbances

(i) Short Wave Fade-out (SWF) at Hiraiso

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.

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

(ii) Sudden Phase Anomaly (SPA) at Inubo

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 (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	60	9550
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

OCT. 1986

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 44	X 42	X 43	X 42	X 41	X 43													X 64	X 55	X 52	X 49	X 47	X 46	
2	X 45	X 44	X 47	X 46	X 43	X 40													X 58	X 49	X 49	X 49	X 48	X 47	
3	X 43	X 45	X 46	X 43	X 43	X 41													X 52	X 50	X 46	X 43	X 45	X 45	
4	X 45	X 45	X 45	X 42	X 40	X 38													X 58	X 57	X 51	S	X 51	X 52	
5	X 49	X 49	X 45	X 44	X 44	X 43													X 54	X 52	X 52	X 51	X 50	X 51	
6	X 45	X 46	X 42	X 40	X 40	X 37													X 64	X 64	X 63	X 61	X 55	X 56	
7	X 53	X 52	X 51	X 51	X 51	X 47													X 48	X 51	X 50	X 50	X 52	X 54	
8	X 51	X 50	X 46	X 46	X 47	X 49													X 53	X 50	X 51	X 51	X 51	X 51	
9	X 50	X 50	X 49	X 48	X 45	X 40													X 51	X 50	X 43	X 48	X 47	X 49	
10	X 48	X 47	X 47	X 45	X 47	X 47													X 53	X 49	X 50	X 50	X 50	X 47	
11	X 45	X 43	X 41	X 40	X 39	X 41													X 50	X 49	X 48	X 47	X 44	X 42	
12	X 43	X 42	X 43	X 43	X 45	X 41													X 50	X 52	X 47	X 46	X 47	X 47	
13	X 44	X 44	X 44	X 44	X 44	X 43													X 40	X 40	X 42	X 41	X 43	X 43	
14	X 43	X 41	X 43	X 43	X 47	X 37													X 57	X 49	X 52	X 52	X 51	X 55	
15	X 57	X 60	X 47	A	X 38	X 40													X 52	X 56	X 50	X 50	X 44	X 45	
16	X 48	X 47	X 46	X 45	X 44	X 40													C	X 45	X 44	X 45	X 46	X 46	
17	X 46	X 46	X 43	X 44	X 45	X 33													X 55	X 53	X 50	X 47	X 41	X 47	
18	X 58	X 60	X 59	X 58	X 60	X 57													X 47	X 42	X 46	X 48	X 50	X 50	
19	X 50	X 51	X 50	X 47	X 44	X 40													X 57	X 50	X 48	X 45	X 45	X 42	
20	A	X 44	X 47	X 45	X 48	X 35													X 57	X 57	X 53	X 50	X 49	X 47	
21	X 46	X 47	X 51	X 51	X 50	X 47	X 57												X 50	X 56	X 59	X 57	X 52	X 53	X 52
22	X 48	X 50	X 54	X 55	X 58	X 57	X 57												X 56	X 51	X 46	X 47	X 47	X 43	
23	X 44	X 45	X 44	X 46	X 48	X 46	X 47												X 60	S	X 43	X 41	X 40	X 40	X 40
24	X 39	X 40	X 44	X 44	X 40	X 45	X 51												C	X 43	A	A	X 43	X 43	A
25	X 42	X 38	X 40	X 42	X 41	X 40	X 50												X 50	S	S	X 40	S	X 42	X 41
26	X 40	X 40	X 41	X 42	S	X 43	X 45												A	A		X 42	X 43	X 43	X 44
27	X 42	X 42	X 43	X 41	X 42	X 47	X 50												X 52	X 56	C	C	C	C	C
28	X 44	X 42	A	S	X 44	C	A												A	X 48	A	X 51	X 49	X 52	X 57
29	X 53	X 51	X 51	X 52	X 50	X 50	X 50												X 50	X 50	X 48	X 47	X 47	X 47	X 45
30	X 47	X 50	X 51	X 50	X 48	X 45	X 52												X 58	X 47	X 45	X 42	X 47	X 43	
31	X 45	X 46	X 49	X 45	X 45	X 43	X 44												X 53	X 58	X 60	X 60	X 58	X 50	X 60
	00	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	30	29	30	30	10											8	27	26	29	28	30	28	
MED	X 46	X 46	X 46	X 45	X 44	X 43	X 50											X 54	X 53	X 50	X 49	X 48	X 47	X 47	
UQ	X 49	X 50	X 49	X 47	X 48	X 47	X 52											X 52	X 57	X 55	X 51	X 50	X 51	X 52	
LQ	X 44	X 42	X 43	X 43	X 42	X 40	X 47											X 50	X 50	X 48	X 45	X 46	X 44	X 44	

OCT. 1986

FXI (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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	37	35	36	35	34	36	50	58	64	61	68	61	53	55	54	51	58	56	57	48	45	42	40	39
2	38	37	40	39	36	33	50	56	64	73	71	74	66	66	61	52	51	60	51	42	42	42	41	40
3	41	39	39	36	36	34	43	42	45	53	69	59	58	67	57	57	57	49	45	43	39	36	38	38
4	38	38	38	35	33	31	38	H 48	51	69	59	57	65	55	62	61	60	57	51	50	44	S	44	45
5	42	41	38	37	37	36	49	55	50	60	71	68	65	65	63	58	59	54	47	45	45	44	43	44
6	38	39	35	33	33	30	46	55	57	59	68	80	69	67	67	59	56	60	57	57	56	54	48	49
7	46	45	44	44	44	40	44	54	52	A	73	79	67	64	54	53	56	55	41	44	43	43	45	47
8	44	43	39	39	40	42	53	58	52	59	71	80	71	67	60	53	53	53	46	43	44	44	44	44
9	43	43	42	41	F	33	42	52	54	61	68	70	71	64	57	57	63	59	44	43	41	41	40	42
10	41	40	40	38	40	40	52	52	57	65	81	63	61	60	54	55	62	57	46	42	43	43	F	F
11	38	36	34	33	32	34	43	54	H 54	60	74	68	62	58	55	56	56	57	43	42	41	40	37	35
12	36	35	35	36	38	34	40	50	53	63	66	64	64	66	57	57	65	57	43	S 45	40	39	40	40
13	37	37	37	37	37	36	49	60	54	66	77	70	62	60	C	C	60	53	33	33	35	34	36	36
14	36	34	35	36	40	30	40	63	H 86	73	67	61	71	79	90	96	93	86	50	42	45	45	S 44	S 48
15	F	F	40	A	31	33	44	68	76	81	70	72	66	63	62	67	66	53	45	49	43	43	37	38
16	41	40	39	38	37	33	43	55	67	84	C	C	66	61	C	C	C	C	C	38	37	38	39	39
17	39	39	35	F	F	F 26	37	54	60	73	73	60	68	64	53	60	61	55	48	46	43	40	34	F 35
18	F	F	F	F	F 48	F	43	58	64	69	70	74	77	63	58	55	60	59	40	35	39	41	43	43
19	F 40	F	F	40	37	33	38	63	64	75	82	81	83	66	65	66	59	59	50	43	41	38	38	35
20	A	37	40	38	41	29	44	64	78	A	C	C	85	61	C	C	C	C	50	50	46	43	42	40
21	39	40	44	44	43	40	50	59	67	74	75	71	73	63	64	66	60	43	49	52	50	45	46	45
22	41	43	47	48	51	50	50	59	64	68	79	83	75	63	71	71	63	49	44	39	40	40	40	36
23	37	38	37	39	41	39	40	57	64	70	78	96	73	64	60	69	65	S 53	I 40	S 36	34	33	33	33
24	32	33	F 34	F 33	33	F 32	44	61	70	C	C	C	C	66	C	C	C	C	36	A	A	36	36	A
25	35	31	33	35	34	33	43	65	67	72	74	76	73	76	66	S 63	S 61	S 43	S	S	U 33	S 35	U 35	U 34
26	U 33	S 33	34	S 35	S	U 36	S 33	S 64	73	73	75	85	84	S 72	S	63	S 62	A	A	U 37	U 35	U 36	U 36	U 37
27	U 35	S 35	S 36	34	35	U 40	U 43	60	70	A	73	89	90	68	69	73	60	45	49	C	C	C	C	C
28	S 37	J 35	A	S	37	C	A	C	C	C	C	C	96	80	73	65	65	A	41	A	44	42	45	F
29	F	44	44	45	43	43	43	59	67	71	75	77	87	73	61	74	66	43	43	41	40	40	40	38
30	40	43	44	S 43	41	38	45	57	76	70	78	83	75	71	64	67	76	51	40	38	35	40	36	
31	38	39	42	38	38	36	37	60	68	106	S 83	93	87	68	83	71	73	51	F 44	F	F	F	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	28	27	28	29	30	30	30	26	27	27	30	31	26	27	28	26	27	27	28	27	28	25
MED	38	38	38	38	37	34	44	58	64	70	73	74	71	65	62	61	60	54	45	43	42	41	40	39
UQ	41	40	41	40	41	39	49	60	68	73	76	80	77	68	66	67	65	57	50	46	44	43	44	44
LQ	37	35	36	35	34	33	40	54	54	61	70	66	65	63	57	56	58	51	42	40	39	38	36	36

The Radio Research Laboratory, Japan

OCT. 1986

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1986

FOF1 (0.01 MHz)

135° E Mean Time (G.M.T. + 9h)

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									380	400	400	420	410	400	L	L										
2									380	400	410	420	420	410	L	L										
3									400	410	410	410	400	400	L	L										
4									400	400	400	410	410	420	400											
5									A	400	410	410	410	L	A	A										
6									400	410	400	410	L	L	390	360										
7									A	A	410	410	400	350												
8									360	L	L	420	410	400	370											
9									420	L	410	410	420	400												
10									L	360	400	400	H	410	L	400										
11									L	400	H	420	H	410	400	L										
12									390	400	400	L	L	410	400	A	A									
13									390	A	400	410	400	C												
14										A	A	A	L	420	410	H	410	L	370							
15									360	A	410	L	400	A	A	A										
16									L	400	C	C		400	C											
17										A	U	A	L	400	L	L										
18									L	400	A	400	400	390												
19									L	400	B	430	L	A	U	A	380									
20									A	A	C	C	L	410	390	C										
21										L	400	A	L	400	L	390										
22										L	410	L	410		L											
23									L	370	L	410	L	410	400	L										
24									L	C	C	C	C	C	A	C										
25										A	A	420	L	410	L	L	370									
26										A	L	430	A	A	L	400										
27										A	A	410	420	390	L											
28									C	C	C	C	C	A	L	A										
29										L	L	L	410	A	A											
30											L	L	L	400	L											
31												400	400													
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									6	15	16	22	23	21	3	2										
MED									370	400	410	410	410	400	390	365										
UQ									380	400	410	410	410	400	400											
LQ									360	400	400	400	405	400	370											

OCT. 1986

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 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	220	255	290	300	300	A	295	285	A	210	S						
2							A	A	A	290	300	300	300	295	280	245	210	S						
3							155	210	250	280	290	295	295	285	270	250	195	S						
4							S	220	260	280	295	295	290	A	A	A	A	S						
5							155	210	255	285	290	295	295	A	A	A	A	S						
6							S	A	250	270	280	295	A	285	270	240	200	A						
7							S	215	250	270	275	A	A	280	260	A	210	A						
8							S	210	255	270	290	295	295	290	270	240	A	S						
9							165	215	245	275	295	285	295	285	A	240	205	S						
10							S	A	A	A	A	300	300	290	275	250	205	S						
11							S	200	A	A	A	A	300	290	270	A	A	A						
12							S	205	245	A	A	A	A	A	A	A	200	S						
13							E	A	A	A	A	295	295	290	C	C	200	S						
14							S	205	245	285	285	A	A	300	280	230	190	S						
15							S	215	255	265	275	A	A	A	A	A	A	A						
16							S	205	245	275	C	C	A	290	C	C	C	C						
17							A	215	250	A	275	A	A	295	290	A	A	S						
18							S	215	260	280	290	A	A	A	A	A	A	S						
19							A	210	260	280	A	305	A	A	275	240	A	S						
20							S	205	255	275	C	C	A	A	C	C	C	C						
21								205	250	270	290	290	A	A	A	A	A							
22								205	250	275	290	290	A	A	A	A	A							
23								200	250	A	A	A	300	295	280	230	S							
24								205	250	C	C	C	C	295	C	C	C							
25								210	250	285	295	295	295	A	A	A	S							
26							S	S	250	275	290	A	A	A	S	A	S							
27							S	S	C	A	A	A	A	A	A	A	A							
28							C	C	C	C	C	C	A	A	A	A	A							
29							A	A	270	285	295	290	275	A	A	A								
30								200	240	270	285	285	A	275	A	215	S							
31								205	230	265	270	C	C	C	C	C	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							4	23	24	22	20	16	12	17	12	10	10							
MED							160	210	250	275	290	295	295	290	275	240	202							
UQ							155	215	255	280	292	298	300	295	280	245	210							
LQ							E 155	E 205	E 248	E 270	E 282	E 292	E 295	E 285	E 270	E 230	E 200							

OCT. 1985

FOE (0.01 MHz)

IONOSPHERIC DATA

OCT. 1986

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 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		27	27	21	21	E 16	E 16	E 17	G	G	G	G	G	40	G	G	42	G	23	25	22	21	26	E 17	E 16	
2		E 16	E 16	E 16	E 15	E 15	E 16	26	30	34	G	G	G	G	G	G	G	G	20	E 15	E 15	E 15	E 16	E 16	E 16	
3		E 17	E 16	E 16	E 13	E 16	E 15	G	G	20	32	33	33	39	G	G	21	G	E 17	E 16	E 16	E 15	E 16	E 16	E 16	
4		E 16	E 15	E 15	E 15	E 15	E 15	24	31	31	36	37	35	35	30	35	J A 56	36	J A 50	J A 51	32	39	D 44	26	22	
5		21	22	22	E 15	E 16	E 16	G	33	36	40	34	31	G	31	J A 41	52	30	E 15	32	J A 47	J A 43	30	28	E 12	
6		E 15	E 16	22	E 13	E 16	23	28	J A 41	34	32	35	G	32	G	3	25	G	19	36	34	32	28	J A 25	31	E 16
7		E 16	E 16	21	E 15	24	E 16	E 18	26	29	J A 35	56	40	J A 33	G	G	34	33	J A 51	24	E 16	E 16	E 16	E 16	26	
8		24	E 16	E 16	E 16	E 14	E 14	31	26	32	34	41	34	34	G	G	G	25	26	23	23	25	26	28	E 16	
9		E 14	E 16	E 16	E 16	E 16	E 16	25	27	32	35	40	39	33	31	35	G	19	E 15	23	30	23	E 16	23	E 16	
10		E 16	E 16	E 16	E 16	E 16	E 15	24	31	36	34	41	G	34	33	G	G	G	24	31	E 16	E 15	35	28	21	
11		26	23	E 15	E 16	E 15	E 16	19	J A 43	33	34	40	40	G	G	21	34	35	31	30	28	24	E 17	31	30	
12		30	30	24	27	29	24	22	G	G	34	43	35	34	35	J A 50	J A 44	27	24	J A 49	J A 53	J A 33	39	E 16	E 17	
13		32	28	35	30	33	J A 40	J A 40	32	31	33	J A 50	G	G	G	C	C	G	E 15	31	39	35	27	23	E 17	
14		E 15	E 15	23	E 16	E	40	E 16	G	G	37	J A 50	J A 43	40	G	G	G	G	E 16	21	E 16	E 16	30	E 15	25	
15		30	31	30	35	30	30	27	G	G	40	37	32	53	55	J A 56	40	31	34	34	31	25	E 17	E 16	E 16	
16		E 16	22	22	E	E 16	E 16	E 15	G	G	38	C	C	39	G	C	C	C	C	C	E 16	E 15	E 16	31	J A 40	
17		35	42	35	31	41	31	29	G	40	J A 50	J A 50	37	34	G	G	34	32	28	E 15	E 18	E 16	37	38	30	
18		30	30	30	30	31	30	21	G	30	39	47	J A 50	J A 71	J A 55	J A 50	30	40	J A 43	34	28	31	E 17	E 16	E 16	
19		E 15	31	30	30	30	30	J A 25	G	G	35	E 47	41	J A 56	J A 43	G	21	32	43	J A 53	E 17	38	31	J A 33	J A 33	
20		J A 51	36	29	32	28	E 17	E 15	28	40	J A 76	C	C	34	31	C	C	C	C	E 16	27	26	E 17	33	E 17	
21		27	30	32	24	32	31	E 15	G	G	34	35	40	37	31	34	34	32	E 16	E 16	E 16	E 16	E 17	E 16	E 15	
22		E 16	E 16	E 12	E 11	E 16	31	31	G	34	35	38	34	33	39	32	36	31	30	E 16	25	24	E 17	E 18	E 15	
23		E 16	E 15	26	E 15	24	23	31	23	30	34	34	39	G	G	G	G	E 19	E 20	S	18	25	23	E 16	24	
24		E 15	E 15	24	E	E 15	E 16	E 15	25	G	C	C	C	C	J A 86	C	C	C	C	33	J A 62	43	26	25	J A 50	
25		25	E 16	E 16	24	26	22	21	30	37	J A 50	J A 57	40	40	34	33	43	E 22	34	S	S	E 18	S	E 20	E 23	
26		E 27	E 19	30	25	S	E 19	E 27	E 27	G	47	J A 50	J A 71	J A 43	40	S	J A 46	34	J A 61	J A 70	38	E 27	J A 51	40	40	
27		J A 53	25	30	J A 30	E 20	E 20	E 20	E 22	E 30	J A 72	J A 123	J A 53	43	40	37	35	31	35	J A 42	C	C	C	C	C	
28		34	J A 51	J A 51	30	E 20	C	J A 74	C	C	C	C	C	43	31	J A 41	J A 53	J A 127	J A 70	J A 54	J A 61	J A 51	44	J A 55	43	
29		20	27	20	E 17	E 15	22	E 15	32	34	33	36	J A 41	J A 43	J A 41	J A 43	40	41	29	31	31	E 17	E 16	31	26	
30		E 13	E 12	E 12	26	E 16	E 12	E 16	G	G	G	40	35	J A 60	36	29	G	E 19	E 18	E 17	E 15	E 17	E 17	E 16		
31		E 12	E 11	E 17	E 15	E	E 12	E 15	G	26	30	33	34	E 33	E 31	32	E 23	E 20	E 17	21	36	E 17	E 16	E 16	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	30	30	31	30	30	29	27	27	30	31	26	27	28	28	28	29	30	29	30	29	
MED		E 20	E 19	22	E 16	E 16	E 18	21	23	30	35	40	37	34	31	30	34	28	27	30	27	24	23	23	E 17	
UQ		28	29	30	28	28	30	27	30	34	40	48	40	43	38	37	41	32	36	34	32	31	30	31	26	
LQ		E 16	E 16	E 15	E 15	E 15	E 15	E 15	G	G	33	35	33	33	G	G	G	E 19	E 18	19	E 16	E 16	E 17	E 16	E 16	

OCT. 1986

FOES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1936

FRES (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	E S 15	18	E S 15	E S 16	E S 16	E S 16	E S 17	G	G	G	G	G	31	G	G	30	G	20	23	E S 17	E S 16	E S 17	E S 17	E S 16	
2	E S 16	E S 16	E S 15	E S 15	E S 15	E S 16	17	23	27	G	G	20	G	G	G	G	G	E S 15	E S 15	E S 15	E S 15	E S 16	E S 16	E S 16	
3	E S 17	E S 16	E S 16	E S 15	E S 16	E S 15	G	20	G	G	G	G	G	23	21	G	G	E S 17	E S 16	E S 16	E S 15	E S 16	E S 16	E S 15	
4	E S 16	E S 15	E S 16	E S 15	E S 15	E S 15	22	G	G	G	37	G	G	G	30	30	28	22	23	47	22	23	D S 44	E S 17	E S 17
5	E S 15	E S 16	E S 16	E S 15	E S 16	E S 16	G	30	32	40	G	G	G	23	30	41	46	22	E S 15	28	31	24	20	E S 16	E S 12
6	E S 15	E S 16	E S 14	E S 13	E S 16	E S 15	27	35	34	31	35	G	32	G	3	23	19	29	25	25	20	21	21	E S 16	
7	E S 16	E S 16	E S 15	E S 15	E S 16	E S 16	E S 16	G	G	A A 85	52	33	30	G	G	26	G	34	16	E S 16	E S 15	E S 16	E S 16	E S 16	
8	E S 16	E S 16	E S 16	E S 16	E S 14	E S 14	E S 17	G	G	34	34	34	G	G	G	G	G	23	17	16	E S 16	E S 15	E S 16	E S 15	E S 15
9	E S 14	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	30	G	38	37	G	G	33	G	19	E S 15	E S 15	20	E S 15	E S 16	E S 17	E S 15	
10	E S 16	E S 16	E S 16	E S 16	E S 16	E S 15	20	30	29	30	34	G	G	G	3	G	G	20	20	E S 16	E S 15	20	E S 16	E S 12	
11	E S 16	E S 16	E S 15	E S 16	E S 15	E S 16	G	33	28	29	30	31	G	G	20	26	26	20	23	18	E S 16	E S 17	E S 17	20	
12	E S 17	E S 16	E S 17	19	E S 16	E S 15	E S 15	G	G	30	34	34	30	33	33	42	G	16	28	22	23	23	E S 16	E S 17	
13	20	E S 17	22	17	21	20	35	24	27	30	46	G	G	G	C	C	G	E S 15	23	23	20	19	E S 17	E S 17	
14	E S 15	E S 15	E S 15	E S 16	E S 16	E S 16	G	G	G	47	39	30	G	G	G	G	G	E S 16	E S 16	E S 16	E S 15	E S 16	E S 15	E S 17	
15	17	26	E S 16	A A 35	16	E S 16	E S 15	G	G	40	35	30	47	45	42	30	21	22	20	20	E S 15	E S 17	E S 16	E S 16	
16	E S 16	E S 15	E S 15	E	E S 16	E S 16	E S 15	G	G	37	C	C	30	G	C	C	C	C	C	E S 16	E S 15	E S 16	19	23	
17	20	27	30	17	20	17	20	G	G	42	40	34	30	G	G	25	22	E S 16	E S 15	E S 18	E S 15	30	20	16	
18	16	20	E	17	16	17	E S 16	G	G	39	46	33	35	34	G	25	27	35	25	19	22	E S 17	E S 16	E S 16	
19	E S 15	E S 15	18	19	18	17	15	G	G	G	E B 47	38	53	38	23	20	G	20	30	20	E S 17	20	17	19	24
20	A A 51	17	17	24	17	E S 17	E S 15	G	40	A A 76	C	C	32	30	C	C	C	C	C	E S 16	18	20	E S 17	20	E S 17
21	18	16	19	16	18	20	E S 15	G	G	G	33	40	34	29	30	24	23	E S 16	E S 16	E S 16	E S 16	E S 17	E S 16	E S 15	
22	E S 16	E S 16	E S 12	E S 11	E S 16	17	15	G	G	33	G	G	32	29	29	24	20	E S 17	E S 16	18	18	E S 17	E S 18	E S 15	
23	E S 16	E S 15	E S 15	E S 15	E S 15	15	E S 16	G	G	29	30	30	G	G	G	G	E S 19	E S 20	S	E S 18	17	17	E S 16	16	
24	E S 15	E S 15	E S 16	E	E S 15	E S 16	E S 15	G	G	C	C	C	C	55	C	C	C	C	25	A A 62	A A 43	20	20	A A 50	
25	E S 17	E S 16	E S 16	E S 15	E S 16	E S 16	E S 15	30	33	45	48	40	38	30	30	43	E S 22	23	S	S	E S 13	S	E S 20	E S 23	
26	E S 27	E S 19	22	22	S	E S 19	E S 27	E S 27	G	40	41	62	41	35	S	40	25	A A 61	A A 70	29	E C 27	22	E S 20	23	
27	20	20	E S 17	17	E S 20	E S 20	E S 22	E S 30	A A 72	41	34	34	30	30	25	21	29	22	C	C	C	C	C	C	
28	E S 19	32	A A 51	20	E S 20	C	A A 74	C	C	C	C	C	39	30	40	27	53	A A 70	25	A A 61	37	34	22	20	
29	16	E S 16	E	E S 17	E S 15	17	E S 15	22	26	G	G	39	42	40	31	30	21	23	18	19	E S 17	E S 16	25	17	
30	E S 13	E S 12	E S 12	E S 16	E S 16	E S 12	E S 15	G	G	G	37	G	31	G	26	G	E S 19	E S 18	E S 17	E S 15	E S 17	E S 17	E S 16		
31	E S 12	E S 11	E S 17	E S 15	E S 12	E S 15	G	G	G	G	G	G	E C 33	E C 31	32	E C 23	E S 20	E S 17	20	23	E S 17	E S 16	E S 16	E S 13	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	30	30	31	30	30	29	27	27	30	31	26	27	28	28	28	29	30	29	30	29	
MED	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	G	30	34	31	30	U	27	24	25	20	20	20	18	E S 17	E S 17	E S 16	
UQ	16	16	E S 17	17	E S 16	E S 17	E S 19	22	28	40	40	36	34	30	31	29	22	23	25	22	20	20	20	16	
LQ	E S 15	E S 16	E S 15	E S 15	E S 15	E S 15	G	G	G	E G 30	G	G	G	G	G	G	G	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	

OCT. 1936

FRES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1986

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 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 16	E S 16	E S 16	E S 16	E S 16	E S 17	17	17	19	17	19	18	17	17	18	15	E S 17	E S 17	E S 17	E S 16	E S 17	E S 17	E S 16
2	E S 16	E S 16	E S 16	E S 15	E S 15	E S 16	E	10	11	13	18	11	20	19	18	11	13	E S 15	E S 15	E S 15	E S 16	E S 16	E S 16	E S 16
3	E S 17	E S 16	E S 16	E S 13	E S 16	E S 15	10	15	17	18	20	18	17	15	10	19	12	E S 17	E S 16	E S 16	E S 15	E S 15	E S 16	E S 16
4	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	12	16	17	19	19	18	18	19	10	11	E S 15	E S 16	E S 15	E S 17	E S 17	E S 17	E S 17
5	E S 15	E S 16	E S 15	E S 15	E S 16	E S 16	12	17	18	19	17	19	18	18	13	10	11	E S 15	E S 16	E	E S 16	E S 16	E S 12	E S 12
6	E S 15	E S 16	E S 14	E S 13	E S 16	E S 15	E S 15	11	18	17	17	18	20	18	16	16	16	E	E S 16	E S 16	E S 12	E S 16	E S 16	E S 16
7	E S 16	E S 16	E S 15	E S 15	E S 16	E S 16	E S 18	16	16	17	19	17	16	18	17	16	13	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
8	E S 16	E S 16	E S 15	E S 16	E S 14	E S 14	E S 17	14	16	17	17	19	17	17	17	16	15	E S 16	E S 16	E S 16	E S 16	E S 13	E S 16	E S 16
9	E S 14	E S 15	E S 15	E S 16	E S 16	E S 16	E S 13	17	16	13	18	19	18	18	18	17	10	E S 15	E S 15	E S 12	E S 15	E S 16	E S 17	E S 16
10	E S 16	E S 16	E S 15	E S 16	E S 18	E S 15	E S 15	17	17	17	17	18	18	17	17	17	17	E S 14	E S 15	E S 16	E S 15	E S 16	E S 12	E S 12
11	E S 16	E S 16	E S 15	E S 16	E S 15	E S 16	E S 15	11	11	17	18	19	19	18	11	10	10	10	E S 18	E S 12	E S 16	E S 17	E S 17	E S 17
12	E S 17	E S 16	E S 17	E S 16	E S 16	E S 15	E S 15	16	17	20	20	19	18	19	18	10	17	E S 15	E S 15	E S 16	E S 16	E S 17	E S 16	E S 17
13	E	E S 17	E	E	E S 15	E S 17	E	E	10	15	12	20	19	19	C	C	17	E S 15	E S 16	E S 17	E S 17	E S 17	E S 17	E S 17
14	E S 15	E S 15	E S 15	E S 16	E	E S 16	E S 16	18	17	17	19	19	17	18	19	19	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 15	E S 17
15	E S 15	E S 12	E S 15	E S 14	E	E S 16	E S 15	11	16	17	17	20	18	17	17	17	15	E S 15	E S 17	E S 18	E S 17	E S 16	E S 16	E S 16
16	E S 16	E S 15	E S 15	E	E S 16	E S 16	E S 15	17	17	17	C	C	19	18	C	C	C	C	C	E S 16	E S 16	E S 16	E S 17	E S 17
17	E S 17	E S 16	E	E	E S 15	E S 17	E S 17	10	17	18	19	18	20	19	16	15	15	E S 16	E S 15	E S 18	E S 16	E S 17	E S 16	E S 15
18	E	E S 17	E	E S 15	E S 15	E S 16	17	17	13	20	20	19	17	10	10	10	10	E S 15	E S 17	E S 17	E S 17	E S 17	E S 16	E S 16
19	E S 15	E S 15	E	E S 15	E	E S 16	11	16	17	13	47	25	20	19	17	16	11	E S 17	E S 15	E S 17	E S 17	E S 15	E S 16	E S 15
20	E S 12	E S 15	E	E	E S 17	E S 15	16	16	17	C	C	C	18	18	C	C	C	C	E S 16	E S 15	E S 17	E S 17	E S 15	E S 17
21	E S 16	E	E	E	E S 16	E S 17	E S 15	12	13	19	18	19	18	18	19	17	17	E S 17	E S 16	E S 16	E S 16	E S 16	E S 17	E S 15
22	E S 16	E S 16	E S 12	E S 11	E S 16	E S 14	E	11	17	19	18	20	20	17	15	11	11	E S 17	E S 16	E S 16	E S 16	E S 17	E S 18	E S 15
23	E S 16	E S 15	E S 15	E S 15	E S 14	E S 16	16	16	17	13	19	18	18	18	17	17	19	E S 19	E S 20	S	E S 18	E S 13	E S 15	E S 16
24	E S 15	E S 15	E S 15	E	E S 15	E S 16	E S 15	E S 16	18	C	C	C	C	20	C	C	C	C	E S 16	E S 15	E S 16	E S 17	E S 15	E
25	E S 17	E S 16	E S 16	E S 15	E S 16	E S 16	E S 17	16	15	17	20	19	18	19	20	20	22	E S 22	E S 19	S	S	E S 13	S	E S 20
26	E S 27	E S 19	E S 16	E S 19	S	E S 19	E S 27	E S 27	20	19	17	19	17	20	S	20	20	E S 20	E S 15	E S 11	E S 20	E S 27	E S 19	E S 19
27	E S 15	E S 17	E S 17	E	E S 20	E S 20	E S 20	E S 22	E S 30	E S 23	18	18	18	18	17	17	17	E S 17	E S 17	E S 16	C	C	C	C
28	E S 19	E S 18	E S 17	E S 19	E S 20	C	E S 20	C	C	C	C	C	19	19	13	17	10	E S 17	E S 17	E S 15	E S 16	E S 17	E S 17	E S 17
29	E S 15	E S 16	E	E S 17	E S 15	E	E S 15	E	16	17	24	19	24	19	19	17	17	E S 17	E S 17	E S 15	E S 17	E S 16	E S 17	E
30	E S 13	E S 12	E S 12	E S 16	E S 16	E S 12	E S 16	17	18	20	19	20	20	19	13	17	19	E S 19	E S 13	E S 17	E S 15	E S 17	E S 17	E S 16
31	E S 12	E S 11	E S 17	E S 15	E	E S 12	E S 15	E S 18	17	19	19	E S 30	E S 33	E S 31	E S 23	E S 23	20	E S 17	E S 17	E S 17	E S 17	E S 16	E S 16	E S 13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	30	31	30	30	29	27	27	30	31	26	27	28	28	28	29	30	29	30	29
MED	E S 16	E S 16	E S 16	E S 15	E S 16	E S 16	E S 15	14	17	17	18	19	18	18	13	16	U 13	E S 16	E S 15	E S 16	E S 16	E S 17	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	17	17	19	19	20	19	19	18	17	E S 17	E S 17	E S 16	E S 17	E S 17	E S 17	E S 17	E S 17
LQ	E S 15	E S 15	E S 15	E S 15	E S 14	E S 15	E S 14	12	16	17	17	19	18	18	17	14	11	E S 15	E S 11	E S 15	E S 15	E S 16	E S 16	E S 15

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FMIN (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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										390	400	400	400	390	400	L 385																		
2										370	400	390	380	390	365	L	L																	
3										350	365	365	365	365	360	375	L	L																
4										375	370	A	405	390	380	360																		
5										A	375	390	380	365	A	A																		
6										370	375	395	350	360	355	360																		
7										A	A	360	380	350	385																			
8										345	L 390	L 365	365	385	355	380																		
9										L 370	A	A	365	400																				
10										L 410	L 375	L 370	H 400	390	L 375																			
11										L 400	H 380	H 400	400		L																			
12										380	400	400	390	A	A	A																		
13										385	A	380	390	385	C																			
14										A	A	380	L 375	380	H 370	L 370																		
15										375	A	390	L 375	A	A	A																		
16										L	A	C	C	375	C																			
17										A	A	L	400	L	L																			
18										L	A	A	400	A	L																			
19										L 400	B	A	A	A																				
20										A	A	C	C	L 415	L 385	C																		
21										L 400	A	L 400	L 390																					
22										L	400	400		L																				
23										L 400	L 410	L 380	405	L																				
24										L	C	C	C	C	A	C																		
25										A	A	A	A	L	L 385																			
26										A	A	A	A	L 400																				
27										A	A	390	405	L 385																				
28										C	C	C	C	A	L	A																		
29										L	L	A	A	A																				
30										L	L	375	L																					
31												375	385																					
		00	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	13	12	18	21	19	3	2																	
MED										375	385	385	390	390	380	380	L 365																	
UQ										390	L 400	400	400	400	385	385																		
LQ										370	370	372	375	380	365	368																		

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M(3000)F1 (0.01)

IONOSPHERIC DATA

OCT. 1986 H^oF2 (KM)

135° E Mean Time (G.M.T. + 9 h)

Station WAKKANAI Lat. 45 23.5 N, Long 141 41.2 E Sweep 1 MHz to 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	235	250	240	250	245	250										
2									245	230	260	250	265	255	255	245									
3										310	270	270	290	255	250	240	230								
4									265	235	240	275	250	270	270										
5										245	245	240	250	260	245	265									
6										250	245	250	240	250	245	250									
7										A	A	255	235	250	235	230									
8									225	250	255	245	230	225	245										
9										275	265	250	255	250											
10									230	275	250	240	250	265											
11										255	245	240	250		250										
12										245	225	245	255	240	245	260									
13										225	240	230	240	250		C									
14											235	250	280	270	280	260									
15										250	235	245	250	245	260	270									
16										250	230	C	C		245	C									
17										230	225	235	250	250	250										
18										240	225	225	250	240	225										
19										250	230	255	240	225											
20										245	A	C	C	225	225	C									
21											225	225	240	245											
22											245	230	230		250										
23											230	250	235	230	225										
24										240	C	C	C	C	400	C									
25											235	230	230	235	250	240									
26											225	245	A	230	255										
27											A	240	250	245	225										
28										C	C	C	C	235	245	235									
29											235	245	245	235	230										
30												240	240	235	235										
31													230	230											
	00	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	21	26	26	28	29	15	6	1								
MED									242	235	245	242	242	245	250	255	230								
UQ									250	250	250	250	250	255	252	260									
LQ									230	230	235	235	235	230	245	245									

OCT. 1986 H^oF2 (KM)

IONOSPHERIC DATA

OCT. 1986

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	250	270	275	255	250	245	220	230	220	215	200	210	195	215	225	240	245	225	230	240	240	250	250	250	
2	260	290	250	240	225	240	235	210	200	215	195	200	200	200	210	205 ^H	220	220	240	255	280	260	270		
3	275	285	270	270	270	250	230	240	235	235	230	200	200	200	225	220	220	215	230	230	240	265	265	275	
4	275	270	250	225	240	255	220	220	215	235	A	200	200	215	205	250	235	225	A	250	250	A	270	255	
5	270	250	250	255	250	250	220	225	235	A	205	210	205	205	A	A	230	210	250	A	285	295	270	255	
6	225	270	250	250	245	250	220	225	A	205	210	195	200	230	220	215	230	240	255	250	255	250	245	230	
7	250	250	250	250	225	220	225	235	195 ^H	A	A	225	205	200	200	235	235	240	205	255	255	255	250	245	
8	245	230	240	240	225	220	210	220	200 ^H	215	215	230	210	200	205	220 ^H	235	220	205	250	250	255	260	275	
9	255	250	245	255	250	240	200	210	225	200	A	A	225	210	240	240	240	215	215	250	245	250	265	270	
10	265	270	255	260	240	235	210	215	210	205	230 ^A	200 ^H	210	210	200 ^H	235	230	210	210	240	250	275	270	265	
11	250	250	255	260	260	240	200	220	200	200	200 ^H	205	200	220	215	245	240	215	240 ^A	260	230	240	255	275	
12	230	235	280	265	225	215	200	205	205	200	220 ^A	215	200	A	A	A	230	210	250	240	250	270	265	250	
13	255	275	275	260	250	250	A	215	205	200	A	200	220	200	C	C	230	210	250	250	300	290	270	280	
14	260	260	265	260	225	225	225	245 ^H	225 ^H	210	A	A	210	210	200 ^H	245	225	200	200	260	260	290	305	285	
15	295	300	240	A	240	245	220	240	220	A	220	200	A	A	A	250	225	215	250	250	250	245	265	265	
16	245	260	280	265	245	230	230	225	220	A	C	C	200	210	C	C	C	C	C	225	245	250	255	300 ^A	
17	280	295 ^A	A	290	265	260	220	220	215	A	A	215	200	225	235	240	215	205	230	225	235	250 ^A	250	270	
18	270	260	250	250	245	220	210	210	215	A	A	200	A	225	220	230	225	A	240	235	275	255	255	260	
19	280	260	250	255	255	200	210	210	225	225	B	A	A	A	235	220	220	220	225	245	245	250	255	320 ^A	
20	A	280	285	275 ^A	225	230	220	225	A	A	C	C	220	200	C	C	C	C	250	250	235	250	260	250	
21	265	280	290	275	260	250	210	205	215	220	215	A	215	200	245 ^A	240	210	220	250	245	225	250	260	255	
22	250	255	255	255	245	225	200	210	215	225	240	220	205	205	240	235	215	200	235	240	245	255	285	275	
23	275	255	255	255	250	205	205	210	215	205	205	200	200	205	210	230	220	215	250 ^{I S}	235	250	270	275	280	
24	300	265	250	260	265	255	220	215	220	C	C	C	C	A	C	C	C	C	300	A	A	285	300	A	
25	235	270	270	275	270	250	220	225	225	A	A	A	A	200 ^H	210	A	215	230	S	S	S	S	265	S	
26	U S 300	280	305	280	S	250	235 ^S	220	220	A	A	A	A	A	230	S	A	220	A	A	A	310 ^C	300	300	300
27	285	300	275	290	275	245	215	205	225	A	A	230	225	210	230	225	210	255	250	C	C	C	C	C	
28	325	A	A	320	335	C	A	C	C	C	C	C	A	200	A	225	A	A	275 ^A	A	A	A	305	295	
29	250	260	250	250	245	225	220	215	240	225	225	A	A	A	230	230	215	210	265	255	265	255	300 ^A	270	
30	270	270	250	255	245	255	235	225	230	215	A	240	210	220	220 ^H	235	215	200	245	260	260	265	265		
31	275	275	260	255	255	215	250	220	225	245	225	230	215 ^H	210	250	225	220	205	240	250	250	225	270	260	
CNT	30	30	27	30	30	30	29	30	28	19	15	20	23	26	22	23	27	25	27	25	28	27	30	28	
MED	268	270	255	258	248	240	220	220	220	215	215	208	205	210	220	235	225	215	240	250	250	255	265	270	
UQ	280	280	275	270	260	250	225	225	225	225	225	222	212	215	235	240	230	220	250	250	260	272	270	280	
LQ	250	260	250	255	240	225	210	210	212	205	205	200	200	200	205	225	215	210	228	240	245	250	260	255	

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H*F (KM)

IONOSPHERIC DATA

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H^oE (KM)

135° E Mean Time (G.M.T. + 9 h)

Station WAKKANAI Lat. 45° 23.5' N, Long 141° 41.2' E Sweep 1 MHz to 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	120	115	115	105	105	A	110	110	A	115	S						
2							A	110	A	105	105	115	110	110	110	110	120	S						
3							125	A	110	110	110	110	105	110	115	120	120	S						
4							S	120	120	115	110	110	105	A	A	A	A	S						
5							130	120	120	115	110	115	115	A	A	A	A	S						
6							S	120	120	110	110	110	110	105	105	A	A	A						
7							S	120	115	110	110	A	A	110	110	A	105	A						
8							S	125	110	105	105	110	110	110	110	110	A	S						
9							145	S	120	110	110	110	110	110	110	115	A	S						
10							S	A	A	A	A	A	105	130	110	115	115	130	S					
11							S	120	A	A	A	A	110	110	115	A	A	A						
12							S	120	115	115	110	A	A	A	A	A	130	S						
13							E	A	A	A	A	110	110	120	A	C	C	S						
14							S	130	115	115	110	110	A	105	115	120	125	S						
15							S	120	115	110	105	105	A	A	A	A	A	A						
16							S	125	115	110	C	C	A	105	C	C	C	C						
17							A	125	110	110	110	110	A	110	115	A	A	S						
18							S	125	115	110	110	A	A	A	A	A	A	S						
19							A	125	115	110	B	B	A	A	130	120	A	S						
20							S	125	120	110	C	C	110	110	C	C	C	C						
21							120	120	115	110	110	A	A	A	A	A	A							
22							115	110	115	110	110	110	A	A	A	A	A							
23							135	110	110	110	110	110	115	115	115	S								
24							125	115	C	C	C	C	120	C	C	C								
25							S	130	110	110	105	105	110	A	A	A	S							
26							S	115	115	105	A	A	A	A	S	A	S							
27							S	S	C	A	A	A	A	A	A	A	A							
28							C	C	C	C	C	C	A	A	A	A	A							
29							A	A	105	120	105	115	115	A	A	A								
30							130	120	115	115	120	A	110	A	110	S								
31							S	115	115	110	C	C	C	C	C	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							3	23	24	25	22	20	15	18	13	9	8							
MED							130	120	115	110	110	110	110	110	115	115	122							
UQ							138	125	118	115	110	110	110	110	115	120	128							
LQ							128	120	110	110	105	108	110	110	110	110	118							

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H^oE (KM)

IONOSPHERIC DATA

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H⁺ES (KM)

135° E Mean Time (G.M.T. + 9 h)

Station		WAKKANAI												Lat. 45 23.5 N, Long 141 41.2 E												Sweep 1 MHz to 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		105	105	110	105	S	S	S	G	G	G	G	G	105	G	G	105	G	125	100	100	100	100	S	S												
2		S	S	S	S	S	S	110	120	100	G	G	100	G	G	G	G	G	150	S	S	S	S	S	S												
3		S	S	S	S	S	S	G	110	125	125	120	130	G			G	G	S	S	S	S	S	S	S												
4		S	S	S	S	S	S	140	140	135	120	115	110	110	105	105	100	105	100	100	100	100	100	100	100												
5		100	100	100	S	S	S	S	120	120	115	110	100	100	100	100	100	105	S	105	105	105	105	105	S												
6		S	S	100	S	S	S	125	125	120	120	115	110	G	110	G	G	105	105	105	105	100	100	105	105												
7		S	S	110	S	105	S	S	145	150	110	110	105	100	G	G	105	110	105	105	S	S	S	S	100												
8		100	S	S	S	S	S	110	150	125	120	145	150	140	G	G	G	105	105	105	110	110	105	105	S												
9		S	S	S	S	S	S	150	145	125	125	120	110	115	115	110	G	110	S	110	105	105	S	100	S												
10		S	S	S	S	S	S	145	105	110	110	100	G	105	135	G	G	G	125	120	S	S	105	105	105												
11		100	100	S	S	S	S	130	120	105	105	105	105	G	G	100	100	100	100	100	100	100	S	110	105												
12		105	105	105	100	100	100	100	G	G	115	110	105	110	105	100	100	140	120	110	115	105	105	S	S												
13		110	105	105	105	100	100	100	100	100	100	100	G	G	105	C	C	G	S		105	100	100	105	105	S											
14		S	S	100	S	E	105	S	G	G	120	110	110	105	G	G	G	G	S	100	S	S	120	S	110												
15		105	100	100	100	105	105	105	G	G	115	105	105	100	100	100	100	100	100	100	100	100	S	S	S												
16		S	105	100	E	S	S	S	G	G	120	C	C	110	G	C	C	C	C	C	C	S	S	S	110	110											
17		105	100	100	100	100	100	100	G	120	110	110	105	105	G	G	100	100	105	S	S	S	110	105	105												
18		110	105	105	105	100	100	100	G	125	115	110	105	105	105	125	105	100	100	100	100	100	S	S	S												
19		S	105	100	100	100	100	105	G	G	115	B	115	105	105	110	110	115	115	110	S	110	110	110	105												
20		105	105	115	100	105	S	S	130	120	110	C	C	110	110	C	C	C	C	S	105	105	S	105	S												
21		110	105	105	100	100	100	S	G	G	115	110	110	105	105	105	110	105	S	S	S	S	S	S	S												
22		S	S	S	S	S	105	105	G	125	125	120	115	110	105	105	105	105	105	S	105	100	S	S	S												
23		S	S	110	S	110	100	105	150	125	120	120	110	G	G	G	G	S	S	S	S	100	100	S	105												
24		S	S	110	E	S	S	S	145	G	C	C	C	C	120	C	C	C	C	110	100	100	105	100	115												
25		100	S	S	110	105	105	105	135	125	115	115	110	110	110	105	110	S	105	S	S	S	S	S	S												
26		S	S	105	105	S	S	S	S	G	120	115	110	105	120	S	110	115	110	105	105	C	120	120	115												
27		115	105	110	115	S	S	S	S	S	110	105	100	100	100	105	105	105	100	100	C	C	C	C	C												
28		115	110	110	115	S	C	C	C	C	C	C	C	110	110	105	110	120	105	105	105	105	105	120	110												
29		110	110	110	S	S	105	S	105	100	120	120	115	115	110	115	115	115	120	110	105	S	S	130	135												
30		S	S	S	110	S	S	S	G	G	G	120	120	110	115	110	G	S	S	S	S	S	S	S	S												
31		S	S	S	S	E	S	S	G	135	125	130	130	C	C	130	C	S	S	110	105	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		15	15	20	14	11	13	17	16	19	26	24	23	24	20	17	18	18	19	21	18	17	15	16	13												
MED		105	105	105	105	100	100	105	125	125	115	110	110	108	105	105	105	105	105	105	105	100	105	105	105												
UQ		110	105	110	110	105	105	125	145	125	120	120	115	110	112	110	110	115	118	110	105	105	108	110	110												
LQ		102	102	100	100	100	100	105	115	115	110	110	105	105	105	100	100	105	102	100	100	100	105	105	105												

OCT. 1986

H⁺ES (KM)

IONOSPHERIC DATA

OCT. 1936

TYPES OF ES.

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

Station		WAKKANAI											Sweep 1											MHz to 25	MHz in 24sec in	automatic operation
Lat. 45 23.5 N, Long 141 41.2 E																										
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 ₂	F ₂	F ₁	F ₂										L ₂		L ₂		C ₁	F ₂	F ₂	F ₁	F ₁				
2							L ₁	C ₂	L ₂			L ₁						C ₁								
3							L ₁	C ₁	C ₂	C ₂	C ₁		L ₁	L ₁												
4						C ₁	C ₁	C ₁	C ₁	C ₂	C ₁	C ₂	L ₁	L ₂	L ₂	L ₂	L ₂	F ₄	F ₃	F ₂	F ₂	F ₂	F ₁			
5	F ₂	F ₂	F ₁				C ₂	C ₂	C ₃	CL ₂₂	L ₂		L ₂	L ₂	L ₃	L ₄	L ₂		F ₃	F ₃	F ₃	F ₂	F ₂			
6			F ₂		F ₁	C ₃	C ₃	C ₂	C ₃	C ₂			C ₁			L ₃	L ₂	L ₅	F ₄	F ₄	F ₃	F ₃	F ₅			
7			F ₂		F ₁		C ₂	C ₁	C ₆	C ₄	L ₂		L ₂			L ₂	C ₁	L ₃	F ₁				F ₂			
8	F ₂					L ₁₁	C ₁	CH ₁₁	CH ₁₁	H ₁	H ₁	H ₁	H ₁				L ₂	L ₁	F ₁	F ₁	F ₁	F ₁	F ₁			
9						C ₁	C ₂	C ₂	C ₁	C ₂	C ₂		C ₂	C ₁	C ₂		L ₁		F ₁	F ₂	F ₁		F ₁			
10						H ₁	L ₂	L ₂	L ₁	L ₃			L ₁	C ₁				C ₁	F ₁			F ₂	F ₂	F ₂		
11	F ₂	F ₂				C ₁	C ₃	L ₂	L ₁	L ₂	L ₂				L ₁	L ₃	L ₂	L ₂	F ₁	F ₁	F ₁		F ₂	F ₂		
12	F ₂	F ₂	F ₁	F ₂	F ₂	L ₁			C ₁	C ₂	L ₂		L ₁	L ₂	L ₄	L ₄	C ₁	C ₁	F ₄	F ₂	F ₃	F ₃				
13	F ₂	F ₂	F ₃	F ₂	F ₄	F ₃	L ₃		L ₂	L ₂	L ₂			L ₂					F ₂	F ₄	F ₂	F ₁	F ₁			
14			F ₂			F ₂			C ₂	C ₃	C ₃		L ₂						F ₁			F ₁		F ₁		
15	F ₂	F ₃	F ₃	F ₂	F ₁	F ₂	L ₁		C ₄	C ₄	C ₂		L ₃	L ₃	L ₃	L ₂	L ₂	L ₂	F ₂	F ₂	F ₁					
16		F ₂	F ₁						C ₂				L ₁										F ₂	F ₄		
17	F ₂	F ₄	F ₄	F ₂	F ₂	F ₂	L ₁		C ₂	C ₂	C ₃	C ₂	L ₁			L ₂	L ₂	L ₁				F ₂	F ₂	F ₂		
18	F ₂	F ₂	F ₂	F ₂	F ₂	F ₂	L ₁		C ₂	C ₂	C ₃	L ₂	L ₂	L ₂	CL ₁₂	L ₁	L ₂	L ₃	L ₂	F ₁	F ₂					
19		F ₂	F ₂	F ₃	F ₂	F ₁	L ₁		C ₂		C ₁		L ₃	L ₃	L ₁	L ₁	L ₁	C ₂	F ₁		F ₂	F ₂	F ₂	F ₂		
20	F ₆	F ₂	F ₁	F ₂	F ₃		C ₁	C ₂	C ₄				C ₂	C ₁						F ₁	F ₁		F ₃			
21	F ₁	F ₂	F ₂	F ₂	F ₃	F ₂			C ₂	C ₂	C ₂		L ₃	L ₁	L ₂	L ₂	L ₂									
22						F ₂	F ₁		C ₂	C ₂	C ₁	C ₁	C ₂	L ₂	L ₂	L ₂	L ₂	F ₁		F ₁	F ₁					
23			F ₁		F ₁	F ₁	F ₁	H ₁	C ₂	C ₁	C ₁	C ₁									F ₁	F ₁		F ₁		
24			F ₁					H ₁							C ₃					F ₂	F ₃	F ₅	F ₁	F ₂	FF ₅₁	
25	F ₁			F ₁	F ₂	F ₁	F ₁	C ₂	C ₂	C ₃	C ₂	C ₂	C ₂	L ₁	L ₂	L ₁			F ₁							
26			F ₃	F ₁					C ₂	C ₃	L ₄		L ₂	CL ₁₁		L ₂	C ₁	F ₄	F ₄	F ₂		F ₁	F ₁	F ₂		
27	F ₁	F ₁	F ₁	F ₂					C ₃	L ₃	L ₂		L ₂	L ₂	L ₂	L ₂	L ₁	F ₃	F ₂							
28	F ₂	F ₂	F ₃	F ₂		F ₁							L ₂	L ₁	L ₃	L ₂	CL ₁₃	F ₂	F ₂	F ₃	F ₃	F ₂	FF ₁₁	F ₂		
29	F ₁	F ₂	F ₁			F ₁		L ₂	L ₁	C ₁	C ₁	C ₂	C ₂	C ₃	L ₁	L ₁	L ₁	F ₁	F ₁	F ₁			F ₁	F ₁		
30			F ₁							C ₁	C ₁		L ₁	C ₁	L ₁											
31									C ₁	C ₁	C ₁	C ₁				C ₁				F ₁	F ₁					
	00	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																										

OCT. 1936

TYPES OF ES.

IONOSPHERIC DATA

OCT. 1986

FXI (0.1 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station		AKITA										Sweep 1 MHz to 25 MHz in 24sec in automatic operation																						
		Lat. 39 43.5 N.					Long 140 08.0 E																											
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 42	X 41	X 40	X 40	X 40	X 39												X 68	X 54	X 50	X 47	X 45	X 42										
2		X 42	X 41	X 42	X 40	X 37	X 37												X 52	X 46	X 44	X 44	X 44	X 42										
3		X 42	X 42	X 41	X 40	X 40	X 37												X 45	X 50	X 41	X 40	X 42	X 42										
4		X 42	X 41	X 42	X 38	X 38	X 35												X 55	X 49	X 48	X 45	X 46	X 46										
5		S 44	X 45	X 45	X 46	X 45	X 41												X 55	X 52	X 51	X 50	X 50	X 50										
6		X 43	X 41	X 41	X 40	X 38	X 36												X 61	X 61	X 53	X 55	X 54	X 51										
7		X 52	X 50	X 51	X 55	X 49	X 39												X 53	X 48	X 50	X 50	X 50	X 52										
8		50	49	47	48	49	49												X 53	X 43	X 45	X 46	X 44	X 48										
9		X 44	X 42	X 41	X 40	X 40	X 40												X 60	X 43	X 44	X 42	X 47	X 49										
10		48	49	49	48	49	40												X 55	X 42	X 42	X 47	X 46	X 50										
11		53	49	46	48	42	X 39												X 51	X 42	X 48	X 51	X 44	X 43										
12		43	X 41	X 39	X 40	X 49	X 36												X 59	X 42	X 45	X 40	X 41	X 43										
13		X 40	X 39	X 39	X 38	X 37	X 37												X 38	X 34	X 38	X 38	X 40	X 39										
14		X 40	X 39	X 38	X 38	X 37	X 36												X 42	X 36	X 40	X 41	X 40	X 44										
15		42	X 42	X 51	X 29	X 28	X 31												X 45	X 48	X 46	X 47	X 45	X 45										
16		X 48	X 45	X 44	X 44	X 45	X 40												X 49	X 41	X 39	X 39	X 42	X 42										
17		42	48	40	39	38	X 34												A	X 52	X 51	X 45	X 41	X 41										
18		51	52	53	53	56	50												X 48	X 38	X 38	X 41	X 48	X 50										
19		52	49	47	45	X 41	X 36												X 58	X 46	X 41	X 45	X 41	X 39										
20		41	X 40	X 40	X 41	X 48	X 38												X 50	X 56	X 52	X 44	X 41	X 42										
21		X 40	X 42	X 42	X 41	X 43	X 40												X 45	X 50	X 50	X 44	X 39	X 41										
22		X 41	X 41	X 42	X 42	X 44	X 41	53											A	X 47	X 47	X 42	X 40	X 42										
23		X 42	X 43	X 41	X 41	X 40	X 36												X 50	X 43	X 37	X 37	X 37	X 40										
24		44	X 39	X 39	X 39	X 38	X 36												X 39	X 43	X 43	X 42	X 44	X 41										
25		41	A	41	44	44	X 38												X 38	A	A	48	44	48										
26		43	X 40	X 39	X 39	X 40	X 40												A	X 41	X 41	A	48	50										
27		48	49	X 42	X 41	X 41	X 42												X 46	X 46	X 45	X 43	X 45	X 42										
28		X 42	X 43	X 43	X 42	X 42	X 43												A	A	A	X 52	X 53	X 54										
29		52	X 51	55	53	51	46												X 42	X 47	X 47	X 47	X 45	X 45										
30		X 43	X 43	X 46	X 45	X 42	X 38												H 38	X 42	X 43	X 41	X 45	X 42										
31		X 44	X 45	X 45	X 47	X 41	X 40												78	62	63	64	62	64										
CNT		31	30	31	31	31	31	1										1		27	29	29	30	31	31									
MED		X 43	X 42	X 42	X 41	X 41	X 39	53										78		X 50	X 46	X 45	X 44	X 44	X 43									
UQ		48	49	45	46	45	40													X 55	X 50	X 50	X 47	X 46	X 50									
LQ		X 42	X 41	X 40	X 40	X 39	X 36													X 45	X 42	X 41	X 41	X 41	X 42									

OCT. 1986

FXI (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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	36	35	34	34	34	33	51	59	64	65	67	66	59	54	54	56	56	61	62	48	44	41	39	36
2	36	35	36	34	31	31	45	64	74	63	63	75	74	60	60	62	56	56	46	40	38	38	38	36
3	36	36	35	34	34	31	52	57	74	66	89	78	64	76	68	61	65	55	39	44	35	34	F ₃₄	36
4	36	35	36	32	F	29	42	49	59	66	63	65	63	75	66	66	69	65	49	43	42	39	40	40
5	S ₃₈	39	39	40	39	35	49	59	59	60	70	76	64	72	66	63	64	61	49	46	45	44	44	44
6	37	35	35	34	32	30	42	54	66	66	73	76	71	64	65	65	63	55	55	55	52	49	48	45
7	46	44	45	F ₄₅	43	33	45	54	69	61	78	A	78	66	54	52	55	60	47	42	44	44	44	F
8	F	F	F	F	F	F	47	56	68	H ₅₈	61	86	81	62	56	57	57	56	47	37	39	40	38	F ₃₆
9	38	36	35	F	F	F	45	53	56	56	66	72	78	69	59	62	65	65	54	37	38	36	F ₃₈	F
10	F ₃₉	F ₃₉	F	F	F ₃₈	F	50	58	68	64	66	72	63	58	61	62	63	64	49	36	36	41	40	F
11	F	F	F	F	F ₃₂	33	43	47	66	70	64	71	60	62	54	55	65	65	45	36	F	F	F	F
12	F	35	33	34	F	F ₂₈	47	52	56	58	66	69	61	66	61	60	61	67	53	36	39	34	35	F ₃₅
13	34	33	33	32	31	31	41	60	71	73	64	60	62	60	57	60	61	61	32	28	32	32	34	33
14	34	33	32	32	31	30	47	83	112	H ₇₃	54	60	79	97	86	105	107	80	36	30	34	35	34	F ₃₅
15	F	36	45	23	22	25	45	54	85	78	68	64	70	60	57	74	81	60	39	42	40	41	39	39
16	42	39	38	F ₃₆	F	F	50	60	68	93	72	71	61	66	61	56	60	56	43	35	33	33	36	36
17	F	F ₃₆	F	F ₃₀	F ₃₀	28	40	57	67	70	64	65	61	68	64	69	66	57	A	46	45	39	35	35
18	F	F	F	F	F	F	49	50	82	66	66	67	87	65	63	63	69	66	42	32	32	35	F ₃₇	F
19	F	F ₃₆	F ₃₆	F ₃₄	35	30	39	64	73	79	81	87	87	66	64	69	64	61	52	40	35	39	35	33
20	F ₃₄	34	34	35	42	32	47	62	65	81	66	74	64	72	59	65	64	56	44	50	46	38	35	36
21	34	36	36	35	37	34	50	67	72	71	66	67	75	72	61	70	62	48	39	44	44	38	33	35
22	35	35	36	36	38	35	F ₄₇	67	68	71	78	76	84	67	71	71	80	A	A	41	41	36	34	36
23	36	37	35	35	34	30	39	57	69	72	75	82	83	66	69	63	69	66	44	37	31	31	31	F
24	F	33	33	33	32	30	44	68	72	73	69	74	72	72	71	78	76	56	33	37	37	36	38	35
25	F	A	F ₃₂	F ₃₃	F ₃₃	32	46	65	70	80	72	69	73	69	73	67	64	51	32	A	A	F	F ₃₆	F
26	F ₃₄	34	33	33	34	34	45	56	70	75	74	71	84	72	72	68	67	52	A	35	35	A	F	F
27	F ₃₆	F ₃₆	36	35	35	36	42	58	H ₆₄	A	78	76	H ₈₈	70	82	70	64	47	40	40	39	37	39	36
28	36	37	37	36	36	37	40	66	85	88	106	102	87	78	78	70	64	49	A	A	A	46	F	F
29	F	45	F	F ₄₆	F	F	42	59	68	76	74	83	74	69	73	79	70	50	36	41	41	41	39	39
30	37	37	40	39	36	32	40	72	75	75	74	75	87	76	65	65	71	66	H ₃₂	36	37	35	39	36
31	38	39	39	41	35	34	35	58	73	74	103	H ₈₅	91	71	69	85	F ₆₉	61	F	F	F	F	F ₅₁	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	27	25	26	24	25	31	31	31	30	31	30	31	31	31	31	31	30	26	28	27	27	28	21
MED	36	36	36	34	34	32	45	59	69	71	69	73	74	68	64	65	64	60	44	40	39	38	38	36
UQ	38	37	37	36	36	34	47	64	73	75	74	76	84	72	70	70	69	65	49	44	43	41	39	36
LQ	35	35	34	33	32	30	42	56	66	66	66	67	64	64	60	62	62	55	39	36	35	35	35	35

OCT. 1986

FOF2 (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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									360	420	420	420	420	L	L	L	L							
2								L	380	410	L	430	420	410	400	330								
3								L	L	L	420	420	430	430	L	L								
4									A	400	420	L	L	L	L	L	L							
5									L	410	L	L	420	420	400	L								
6									L	A	430	430	410	L	L	370								
7									L	L	410	A	430	420	L	L								
8									L	L	410	410	420	L	L	310								
9										L	420	A	420	420	L	L	L							
10									L	400	L	L	410	L	L	L								
11									380	400	420	L	L	L	L	L								
12									L	390	L	420	L	420	L	L	L							
13									L	400	400	420	420	L	L	L	L							
14								L	L	L	A	A	A	420	410	L								
15									L	390	L	L	L	A	L	A								
16									L	A	410	A	L	L	L	L								
17										A	410	L	L	A	L	L								
18									L	L	410	L	420	L	L	L								
19									L	L	B	A	L	420	420	L	L							
20									L	L	A	410	A	A	L	L								
21										L	L	L	L	L	L	L								
22										A	L	L	L	L	A	A								
23										A	A	A	L	L	L	300								
24									L	L	L	L	L	430	L	380								
25										L	420	L	L	L	A	L								
26										A	420	L	440	L	L	L								
27										A	L	L	L	L	L									
28									A	L	L	A	L	L	L									
29									L	L	L	L	430	A	L	L								
30										L	L	L	L	L										
31										360	L	L	L	430	L	L								
CNT									4	10	14	9	15	8	4	4								
MED									380	400	420	420	420	420	400	340								
UQ									390	410	420	430	430	420	405	375								
LQ									370	390	410	420	420	420	390	305								

OCT. 1986

FOF1 (0.01 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

FOE (0.01 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station **AKITA** Lat. 39° 43.5' N, Long 140° 08.0' E Sweep 1 MHz to 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	A	A	A	305	310	310	300	285	260	225	S						
2							S	225	A	A	305	310	305	300	280	255	210	S						
3							S	220	260	290	A	A	310	300	275	245	215	S						
4							S	220	A	280	300	A	305	300	A	255	A	S						
5							S	A	A	A	A	A	A	A	A	265	245	S						
6							S	A	A	A	A	A	315	310	290	270	A	S						
7							S	225	255	290	295	A	A	A	A	A	A	S						
8							S	215	A	295	305	310	310	305	A	250	220	S						
9							S	A	A	A	A	310	305	A	A	250	205	S						
10							S	A	260	A	A	305	310	305	295	250	215	S						
11							S	A	A	A	300	A	300	300	280	250	A	S						
12							S	A	A	A	A	305	305	300	285	255	215	S						
13							S	235	260	295	A	A	310	305	280	250	220	S						
14							S	215	260	A	A	A	A	A	A	A	A	S						
15							S	205	250	280	290	A	A	A	A	A	A	S						
16							S	230	255	280	A	A	A	300	285	260	220	S						
17							S	220	A	A	A	A	A	A	A	A	A	S						
18							S	220	A	A	A	A	A	300	290	260	210	S						
19							S	220	255	295	B	A	320	310	280	270	A	S						
20							S	220	255	A	A	A	A	A	A	A	A	S						
21							S	210	250	290	300	A	A	A	A	250	A	S						
22							S	A	255	300	A	A	A	A	A	A	A	S						
23							S	215	260	A	295	A	A	A	A	250	200	S						
24							S	205	255	290	305	310	310	305	290	250	195	S						
25							S	A	260	290	300	A	A	A	A	A	A	S						
26							S	210	A	A	A	A	A	A	A	A	A	S						
27							S	225	A	A	305	320	320	305	A	A	A	S						
28							S	A	A	A	A	A	310	A	A	245	190	S						
29							S	A	A	290	300	A	A	A	275	240	A	S						
30							S	A	255	290	300	A	A	A	A	A	S	S						
31							S	190	255	285	290	305	300	295	285	A	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								19	16	15	15	9	16	16	14	20	14							
MED								220	255	290	300	310	310	300	285	250	215							
UQ								222	260	292	305	310	310	305	290	260	220							
LQ								212	255	288	298	305	305	300	280	250	205							

OCT. 1986

FOE (0.01 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

FOES (0.1 MHz)

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

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 16	J A 37	J A 20	J A 20	J A 28	J A 23	J A 24	J A 26	J A 28	J A 42	G	G	G	J G 23	G	G	G	J A 27	J A 31	J A 21	J A 32	J A 18	J A 20	E S 15
2		E 15	E 15	E 15	E 15	E 15	E 15	22	G	J A 31	J A 30	30	G	G	G	G	G	E S 17	E S 15	E S 16	E S 15	E S 15	E S 15	E S 15	
3		E 16	E 15	E 15	E 15	E 15	E 15	E 16	J A 30	G	G	J A 46	J A 36	G	G	G	26	G	E S 17	E S 15	E S 15	E S 15	J A 25	J A 18	J A 23
4		J A 25	J A 13	J A 24	J A 18	E 15	E 15	20	29	J A 41	32	G	34	G	G	30	G	J A 44	J A 25	J A 26	J A 25	J A 23	J A 21	J A 25	J A 26
5		J A 21	E 16	E 16	E 15	E 15	E 15	E 16	J A 30	J A 32	35	J A 40	J A 45	J A 36	J A 36	J A 32	G	G	J A 25	J A 37	J A 24	J A 36	J A 31	E S 16	E S 15
6		E 15	E 15	E 15	E 15	J A 19	E 15	E 16	J A 28	J A 42	J A 62	J A 44	33	G	G	G	G	J A 30	J A 31	J A 25	J A 46	J A 29	J A 24	J A 18	E S 15
7		E 15	E 15	E 15	E 15	J A 18	E 15	J A 33	27	30	G	35	J A 93	38	J A 44	J A 32	30	J A 29	J A 29	J A 24	J A 31	E S 16	E S 15	E S 15	E S 15
8		E 15	E 15	E 15	E 15	E 15	E 15	J A 24	J A 32	J A 37	34	J A 70	J A 48	G	G	32	26	G	J A 28	J A 46	J A 24	J A 25	J A 20	J A 18	J A 24
9		J A 20	J A 18	E 15	E 15	E 15	E 15	20	J A 32	J A 37	J A 76	J A 70	J A 54	37	J A 40	J A 46	G	G	E S 16	J A 21	J A 25	J A 31	J A 32	J A 22	J A 28
10		J A 18	J A 24	J A 24	E 15	J A 24	E 15	J A 25	32	J A 50	J A 50	J A 32	G	J A 70	33	33	G	G	E S 17	J A 18	J A 29	E S 16	E S 15	J A 25	E S 16
11		J A 31	J A 13	J A 24	E 16	E 16	E 17	18	J A 26	J A 29	J A 34	G	J A 45	33	35	30	30	31	J A 47	J A 27	J A 46	J A 52	J A 26	E S 15	J A 26
12		J A 25	J A 21	E 15	J A 23	J A 26	J A 22	J A 25	J A 25	J A 28	J A 41	32	G	G	G	G	G	30	J A 35	J A 34	J A 29	J A 30	J A 24	J A 20	J A 18
13		J A 18	J A 21	J A 21	J A 18	J A 18	J A 21	J A 24	27	G	G	J A 59	35	G	G	G	G	30	J A 30	J A 18	J A 21	J A 28	J A 18	J A 21	J A 21
14		E 16	E 16	J A 13	J A 25	J A 19	E 15	E 16	26	J A 41	J A 44	J A 50	J A 50	J A 56	J A 40	30	J A 27	J A 27	J A 27	E 16	J A 24	J A 24	E 15	E 15	E 15
15		E 15	E 16	E 16	J A 18	E 16	E 15	20	25	30	34	J A 44	33	J A 86	J A 54	J A 66	J A 65	J A 45	J A 40	J A 42	J A 31	J A 24	J A 18	E 15	E 15
16		J A 19	J A 29	J A 18	J A 21	E 15	E 15	E 16	G	32	J A 50	J A 41	J A 50	J A 36	G	J A 36	J A 31	G	J A 25	J A 25	E 15	J A 19	E 16	E 15	E 15
17		J A 44	J A 30	J A 34	J A 25	J A 34	J A 24	J A 16	28	37	J A 53	J A 52	J A 46	J A 44	J A 87	J A 54	J A 54	J A 41	J A 32	J A 63	J A 46	J A 52	J A 52	J A 34	E 15
18		J A 44	J A 32	J A 25	J A 23	J A 24	J A 23	J A 25	G	32	J A 60	J A 44	J A 36	J A 66	J A 33	J A 30	G	G	E 16	E 15	E 15	E 15	E 15	E 15	E 15
19		J A 23	J A 30	J A 20	J A 18	J A 22	E 15	E 16	J A 29	G	39	E 43	J A 50	G	G	G	G	J A 30	J A 26	J A 34	J A 38	J A 44	J A 44	J A 29	J A 20
20		J A 44	J A 44	J A 24	J A 20	J A 26	J A 18	E 15	G	32	38	J A 50	J A 43	J A 67	J A 106	J A 65	J A 29	J A 32	J A 64	J A 20	J A 19	E 16	E 15	E 15	J A 43
21		J A 33	J A 26	J A 24	J A 21	J A 26	J A 29	J A 24	G	30	37	40	J A 42	J A 38	J A 39	J A 36	G	J A 39	J A 31	J A 49	J A 52	J A 20	E 15	E 16	J A 26
22		J A 25	E 16	J A 25	J A 25	J A 24	J A 24	J A 22	J A 24	32	J A 46	J A 53	J A 46	36	J A 54	J A 50	J A 34	J A 76	J A 86	J A 65	J A 29	J A 26	J A 26	J A 25	J A 26
23		E 15	E 15	E 15	J A 21	E 15	E 15	E 15	G	29	J A 42	J A 46	J A 49	J A 42	J A 52	J A 36	G	G	E 16	E 15	E 15	E 15	E 15	E 15	E 15
24		J A 26	E 16	E 15	E 15	J A 18	E 15	E 16	27	30	35	G	35	37	G	G	G	26	J A 25	J A 21	J A 20	E 15	J A 23	J A 37	J A 64
25		J A 50	J A 54	J A 50	E 16	J A 26	J A 29	J A 29	J A 35	32	G	J A 44	J A 54	J A 59	J A 46	J A 61	J A 37	32	J A 30	J A 32	J A 36	J A 61	J A 28	J A 43	J A 29
26		J A 23	J A 24	J A 21	J A 24	J A 21	E 16	E 16	G	J A 32	J A 43	J A 36	J A 41	J A 50	J A 42	J A 31	26	J A 54	J A 32	J A 46	J A 27	J A 31	J A 81	J A 25	J A 32
27		J A 20	J A 21	J A 24	E 16	J A 18	J A 24	J A 16	J A 29	J A 32	107	G	G	G	G	J A 46	J A 44	J A 35	J A 28	J A 25	J A 26	E 15	J A 28	J A 32	J A 23
28		J A 52	J A 29	E 15	E 15	E 15	E 15	J A 29	J A 50	J A 60	J A 73	J A 78	J A 82	G	J A 35	J A 34	G	21	J A 54	J A 112	J A 81	J A 80	J A 21	J A 30	J A 25
29		J A 23	E 16	J A 44	J A 45	J A 27	J A 44	J A 42	J A 29	J A 33	36	J A 43	J A 49	J A 62	J A 40	G	27	J A 24	J A 49	J A 44	J A 29	J A 29	J A 24	E 16	E 15
30		E 16	E 15	E 15	E 15	J A 25	J A 33	J A 24	25	G	32	J A 40	40	35	34	J A 50	J A 30	J A 30	J A 21	J A 25	E 15	E 15	E 15	E 16	E 16
31		E 15	E 16	E 16	J A 21	E 15	E 15	E 16	G	G	32	34	33	G	33	G	32	J A 28	J A 19	J A 23	J A 32	J A 39	J A 26	E 16	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		J A 20	J A 18	J A 18	J A 18	E 15	20	27	32	J A 33	J A 43	J A 42	36	J A 34	J A 32	26	29	J A 28	J A 25	J A 26	J A 25	J A 21	J A 18	J A 18	J A 18
UQ		J A 27	J A 23	J A 24	J A 21	J A 24	J A 24	J A 24	J A 29	J A 35	J A 43	J A 48	J A 49	J A 47	J A 41	J A 41	J A 30	J A 32	J A 32	J A 45	J A 32	J A 32	J A 26	J A 25	J A 26
LQ		E 16	E 16	E 15	E 15	E 15	E 15	E 16	E 24	29	33	32	34	G	G	G	G	G	J A 23	J A 20	J A 20	E 16	E 15	E 15	E 15

OCT. 1986

FOES (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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 16	E 15	E 15	E 15	E 15	E 15	18	25	28	31	G	G	G	G 25	G	G	G	13	E 15	E 15	E 15	E 15	E 15	E 15
2	E 15	E 15	E 15	E 15	E 15	E 15	E 16	G	28	30	28	G	G	G	G	G	G	E 17	E 15	E 16	E 15	E 15	E 15	E 15
3	E 16	E 15	E 15	E 15	E 15	E 15	E 16	E 16	G	G	33	34	G	G	G	19	G	E 17	E 15	E 15	E 15	E 15	E 15	E 15
4	E 15	E 15	E 15	E 15	E 15	E 15	19	27	40	31	G	33	G	G	30	G	23	22	25	19	E 15	E 15	E 15	19
5	E 15	E 16	E 16	E 15	E 15	E 15	E 16	23	28	32	35	41	35	34	31	G	G	22	30	19	26	E 15	E 16	E 15
6	E 15	E 15	E 15	E 15	E 15	E 15	E 16	25	29	44	36	33	G	G	G	G	27	20	E 16	20	E 15	E 15	E 15	E 15
7	E 15	E 15	E 15	E 15	E 15	E 15	E 16	26	28	G	35	A 93	35	40	30	27	26	19	20	E 15	E 16	E 15	E 15	E 15
8	E 15	E 15	E 15	E 15	E 15	E 15	19	29	30	31	32	34	G	G	29	18	G	25	40	20	E 15	E 15	E 15	E 15
9	E 15	E 15	E 15	E 15	E 15	E 15	18	30	30	32	34	48	35	35	35	G	G	E 16	E 15	19	E 15	E 15	20	E 15
10	E 15	E 15	E 15	E 15	E 15	E 15	23	26	30	31	31	G	G 21	G 21	21	G	G	E 17	E 15	21	E 16	E 15	E 15	E 15
11	E 15	E 15	E 15	E 16	E 16	E 17	18	24	28	31	G	33	G 25	G 27	G 27	22	26	28	20	25	E 15	E 15	E 15	E 15
12	E 15	E 15	E 15	E 15	E 15	E 15	E 15	25	28	20	31	G	G	G	G	G	28	25	26	E 15	19	20	18	E 15
13	E 15	E 15	E 15	E 15	E 15	E 15	E 15	16	G	G	34	35	G	G	G	G	25	23	E 15	E 15	E 15	E 15	E 15	E 15
14	E 16	E 16	E 15	E 15	E 15	E 15	E 16	25	E 16	41	50	47	48	35	30	27	21	13	E 16	21	23	E 15	E 15	E 15
15	E 15	E 16	E 16	E 15	E 16	E 15	19	25	30	32	37	33	40	49	30	50	36	30	32	23	E 15	E 15	E 15	E 15
16	E 15	E 15	E 15	E 15	E 15	E 15	E 16	G	32	46	35	41	32	G	G 23	G 20	G	20	22	E 15	E 15	E 16	E 15	E 15
17	18	E 15	21	19	23	E 15	E 16	27	29	45	34	33	33	45	33	28	24	22	A 63	28	33	22	22	E 15
18	18	18	E 15	E 15	E 15	E 15	E 16	G	29	38	34	35	32	27	20	G	G	E 16	E 15	E 15	E 15	E 15	E 15	E 15
19	E 15	E 15	E 15	E 15	E 15	E 15	E 16	E 16	G	37	E 43	43	G	G	G	G	28	20	34	29	E 15	E 15	E 15	E 15
20	E 15	26	E 15	E 15	E 15	E 15	E 15	G	31	35	48	36	61	64	37	28	24	28	E 15	E 15	E 16	E 15	E 15	E 15
21	19	E 15	E 15	E 15	E 15	18	18	G	28	35	34	37	34	34	33	G	22	21	29	22	E 15	E 15	E 16	E 15
22	E 15	E 16	E 15	E 15	E 15	E 15	19	23	30	42	40	35	33	40	43	41	62	A 86	A 55	22	19	24	E 15	E 15
23	E 15	E 15	E 15	E 15	E 15	E 15	E 15	G	29	40	44	45	35	34	30	G	G	E 16	E 15	E 15	E 15	E 15	E 15	E 15
24	E 16	E 16	E 16	E 16	E 15	E 15	E 16	26	29	33	G	34	36	G	G	G	22	13	19	19	E 15	E 15	E 15	E 15
25	22	A 54	E 15	E 16	18	20	21	29	31	G	36	35	35	36	58	30	25	20	28	A 86	A 61	20	18	22
26	18	E 15	E 15	E 15	E 15	E 16	E 16	G	29	41	34	37	34	35	31	26	21	23	A 46	22	E 15	A 81	E 15	E 15
27	E 15	E 15	E 15	E 16	E 15	E 15	E 16	E 16	32	A 107	G	G	G	G	31	42	27	E 15	E 16	18	E 15	24	E 15	18
28	E 15	E 15	E 15	E 15	E 15	E 15	29	50	50	33	39	46	G	34	30	G	20	40	A 112	A 81	A 80	E 16	E 15	19
29	E 16	E 16	E 15	18	E 15	18	20	24	28	30	35	36	44	35	G	26	24	32	23	19	E 15	19	E 16	E 15
30	E 16	E 15	E 15	E 15	E 15	27	19	24	G	31	39	35	35	34	31	25	19	E 16	E 16	E 15	E 15	E 15	E 16	E 16
31	E 15	E 16	E 16	E 15	E 15	E 15	E 16	G	G	31	33	33	G	33	G	28	19	E 15	E 15	18	20	E 15	E 16	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	24	29	32	34	35	32	33	30	18	22	20	20	19	E 15	E 15	E 15	E 15
UQ	E 16	E 16	E 15	E 15	E 15	E 15	19	26	30	39	36	39	35	35	31	27	26	24	30	22	18	E 16	E 16	E 15
LQ	E 15	E 15	E 15	E 15	E 15	E 15	E 16	E 16	28	31	32	33	G	G	G	G	G	E 17	E 15	E 15	E 15	E 15	E 15	E 15

The Radio Research Laboratory, Japan

OCT. 1986

FBES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1986

FMIN (0.1 MHz)

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

Station	AKITA				Lat. 30 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 16	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	17	16	19	16	19	17	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
2	E 16	E 15	E 15	E 15	E 15	E 15	E 16	16	16	15	16	16	16	18	17	16	16	E 17	E 15	E 16	E 15	E 15	E 15	E 15
3	E 16	E 15	E 15	E 15	E 15	E 15	E 16	16	17	16	16	19	17	18	16	16	16	E 17	E 15	E 15	E 15	E 15	E 15	E 15
4	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	17	13	18	16	17	15	16	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15	E 15
5	E 15	E 16	E 16	E 15	E 15	E 15	E 16	17	16	15	16	17	16	17	17	16	16	E 16	E 16	E 15	E 15	E 15	E 16	E 15
6	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	16	17	18	19	17	17	17	E 15	E 16	E 15	E 15	E 15	E 15	E 15
7	E 16	E 16	E 16	E 16	E 16	E 16	E 16	16	16	17	17	16	16	17	17	16	16	E 16	E 15	E 15	E 16	E 15	E 15	E 15
8	E 16	E 16	E 16	E 16	E 16	E 16	E 16	16	16	17	16	17	17	17	16	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
9	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	17	17	17	17	17	16	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
10	E 15	E 15	E 15	E 15	E 15	E 15	E 15	16	16	17	16	18	16	16	15	16	E 18	E 17	E 15	E 15	E 15	E 15	E 15	E 16
11	E 15	E 15	E 15	E 16	E 16	E 17	E 16	16	16	17	17	18	16	16	16	16	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
12	E 16	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	17	17	19	18	16	17	E 16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
13	E 15	E 15	E 15	E 15	E 15	E 15	E 16	17	17	18	18	17	17	17	17	17	E 16	E 15	E 15	E 15	E 15	E 15	E 15	E 15
14	E 16	E 16	E 15	E 15	E 15	E 15	E 16	16	16	16	17	17	17	16	15	16	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15
15	E 15	E 16	E 16	E 15	E 16	E 15	E 16	16	16	17	17	18	17	16	16	16	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
16	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	17	17	17	16	16	16	16	E 16	E 15	E 15	E 15	E 16	E 15	E 15
17	E 16	E 16	E 16	E 16	E 16	E 15	E 16	16	16	17	17	17	17	17	17	16	16	E 15	E 16	E 15	E 15	E 15	E 15	E 15
18	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	17	17	17	16	16	16	15	16	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15
19	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	43	25	19	18	16	17	17	E 16	E 16	E 16	E 16	E 15	E 15	E 15	E 15
20	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	17	18	17	17	17	16	16	16	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
21	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	17	17	17	17	16	16	16	E 15	E 15	E 15	E 15	E 15	E 16	E 15
22	E 15	E 16	E 15	E 15	E 15	E 15	E 16	16	16	16	18	17	16	16	16	16	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
23	E 15	E 15	E 15	E 15	E 15	E 15	E 15	16	16	17	17	17	17	16	17	16	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15
24	E 16	E 16	E 16	E 16	E 15	E 15	E 16	16	16	16	17	17	17	16	17	16	16	E 15	E 15	E 15	E 15	E 15	E 15	E 15
25	E 15	E 15	E 15	E 16	E 15	E 15	E 16	16	16	17	17	17	17	17	17	17	16	E 15	E 16	E 16	E 16	E 16	E 15	E 15
26	E 15	E 15	E 15	E 15	E 15	E 16	E 16	16	16	16	17	18	17	17	19	16	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15
27	E 15	E 15	E 15	E 16	E 15	E 15	E 16	16	16	17	17	17	17	17	16	17	16	E 15	E 16	E 15	E 15	E 15	E 15	E 15
28	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	16	16	18	16	17	17	16	E 15	E 16	E 16	E 15	E 15	E 16	E 15
29	E 16	E 16	E 15	E 15	E 15	E 16	E 15	15	17	17	17	17	17	16	16	16	16	E 16	E 16	E 15	E 15	E 15	E 16	E 15
30	E 16	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	17	17	18	17	17	17	17	E 16	E 16	E 16	E 15	E 15	E 16	E 16
31	E 15	E 16	E 16	E 15	E 15	E 15	E 16	16	17	17	17	17	17	17	17	16	16	E 16	E 16	E 15	E 15	E 15	E 16	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	16	16	16	E 16	E 15	E 15	E 15	E 15	E 15	E 15
UQ	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	17	17	18	17	17	17	17	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15
LQ	E 15	E 15	E 15	E 15	E 15	E 15	E 16	16	16	16	16	17	16	16	16	16	16	E 16	E 16	E 15	E 15	E 15	E 15	E 15

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FMIN (0.1 MHz)

The Radio Research Laboratory, Japan

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	335	305	325	315	345	325	360	355	380	380	375	360	350	335	335	355	345	350	350	345	310	325	305	325																									
2	315	310	320	350	350	320	345	350	360	365	330	335	360	350	355	355	360	370	345	345	315	305	305	300																									
3	310	320	335	320	310	310	360	350	365	335	345	345	340	345	365	345	380	365	360	350	340	330	325	305																									
4	305	310	325	335	F	325	375	365	390	360	380	350	345	345	340	350	360	340	340	325	325	300	300	305																									
5	S 300	325	315	325	325	335	365	355	390	350	350	350	330	350	345	350	355	360	335	315	300	295	295	320																									
6	325	315	335	345	320	335	355	355	370	365	350	355	355	345	340	350	350	350	325	310	305	310	310	310																									
7	325	315	325	300	F	350	340	375	360	375	350	355	A	355	365	360	355	340	345	355	300	315	315	315	F																								
8	F	F	F	F	F	F	365	375	365	330	335	350	360	355	345	365	370	350	320	300	320	310	305	320	F																								
9	330	340	315	F	F	F	380	360	365	365	335	335	345	350	340	340	345	350	370	350	320	315	310	F	F																								
10	F	F	F	F	F	F	355	360	365	380	335	350	360	360	335	340	350	370	360	330	305	310	335	F																									
11	F	F	F	F	F	F	345	360	375	380	365	370	375	365	350	360	335	330	355	365	355	320	F	F	F	F																							
12	F	315	310	330	F	F	320	370	375	390	380	365	360	350	345	335	350	345	370	375	325	320	325	320	295	F																							
13	325	335	320	320	330	370	345	360	365	370	355	360	355	355	350	360	355	375	380	300	305	310	310	325	F																								
14	310	335	325	315	330	335	355	330	375	H	385	370	305	285	330	300	330	345	365	365	280	295	290	295	290	F																							
15	F	305	335	380	305	310	345	340	355	380	370	355	330	350	345	335	365	365	335	295	315	315	345	325	F																								
16	300	300	295	310	F	F	355	365	350	375	385	355	340	370	365	355	350	360	355	330	320	320	335	340	F																								
17	F	F	F	F	F	F	315	335	360	380	375	370	370	345	345	350	340	360	380	370	A	315	335	335	330	325	F																						
18	F	F	F	F	F	F	350	355	380	385	365	345	365	355	340	355	350	370	355	355	310	310	310	F	F																								
19	F	F	F	F	F	F	335	375	355	340	350	360	325	355	355	345	345	355	355	355	345	355	320	335	315	305	F																						
20	F	300	295	330	355	345	365	360	345	360	365	360	360	355	345	340	360	360	310	340	355	325	325	310	F																								
21	330	300	305	295	325	340	345	375	375	365	375	350	335	360	350	345	355	350	320	315	310	350	335	310	F																								
22	315	320	315	320	340	330	325	375	365	360	345	350	345	345	330	340	360	A	A	320	325	335	300	310	F																								
23	320	330	330	325	345	360	370	375	360	355	355	335	350	345	360	340	330	365	355	335	330	310	320	F	F																								
24	F	325	325	320	330	315	340	360	365	380	360	355	355	340	335	350	370	380	335	325	320	305	330	360	F																								
25	F	A	F	F	F	F	325	350	365	355	370	370	355	355	355	355	360	375	350	A	A	A	F	F	F																								
26	F	325	310	315	325	325	355	350	355	360	365	340	340	355	345	355	350	345	A	320	310	A	F	F	F																								
27	F	F	310	320	315	335	340	370	H	335	A	345	355	315	340	335	355	360	350	320	320	300	305	300	300	F																							
28	295	295	295	290	300	300	310	365	340	360	345	360	325	340	345	355	360	355	A	A	A	310	F	F	F																								
29	F	310	F	F	F	F	360	370	365	355	345	335	345	350	355	330	355	350	275	300	300	315	305	305	F																								
30	305	320	315	335	340	A	330	360	340	350	365	355	345	345	365	340	340	365	H	290	305	320	315	305	300	F																							
31	300	305	305	340	325	320	320	345	350	325	345	340	365	350	335	365	355	360	F	F	F	F	F	F	F	F																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																									
CNT	21	27	25	25	24	24	31	31	31	30	31	30	31	31	31	31	31	30	25	28	27	27	28	21																									
MED	315	315	315	320	330	332	355	360	365	365	355	350	350	350	345	350	355	360	345	320	315	315	310	310																									
UQ	325	325	325	330	342	340	365	370	375	375	370	355	355	355	352	355	360	365	355	338	320	325	325	325																									
LQ	305	305	305	315	322	320	345	355	355	355	345	345	340	345	335	340	350	350	325	308	303	310	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									420	400	385	400	390	L	L	L	L								
2								L	395	385	L	400	390	395	390	390									
3								L	L	L	385	400	385	370	L	L									
4									A	395	400	L	L	L	L	L	L								
5									L	400	L	L	410	380	385	L									
6									L	A	390	395	390	L	L	395									
7									L	L	405	A	370	A	L	L									
8									L	L	410	405	380	L	L	435									
9										L	395	A	370	380	L	L	L								
10									L	405	L	L	395	L	L	L									
11									395	400	385	L	L	L	L	L									
12									L	420	L	405	L	370	L	L	L								
13									L	375	375	420	410	L	L	L	L								
14								L	L	L	A	A	A	365	365	L	L								
15									L	390	L	L	L	A	L	A									
16									L	A	410	A	L	L	L	L									
17										A	410	L	L	A	L	L									
18									L	L	395	L	380	L	L	L									
19									L	L	B	A	380	395	L	L									
20									L	L	A	400	A	A	L	L									
21										L	L	L	L	L	L	L									
22										A	L	L	L	L	A	A									
23										A	A	A	L	L	L	425									
24									L	L	L	L	400	L	395										
25										L	420	L	L	L	A	L									
26										A	405	L	405	L	L	L									
27										A	L	L	L	L	L										
28									A	L	L	A	415	L	L										
29									L	L	L	400	A	L	L										
30										L	L	L	L	L											
31										405	L	L	385	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									4	10	14	9	15	7	4	4									
MED									395	400	402	400	390	380	383	410									
UQ									408	405	410	405	398	388	392	430									
LQ									385	390	390	400	380	370	375	392									

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M(3000)F1 (0.01)

IONOSPHERIC DATA

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H^oF2 (KM)

135° E Mean Time (G.M.T. + 9 h)

Station 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									225	240	240	260	255	255	280	260	250							
2								240	240	240	290	280	240	255	270	255								
3								265	230	270	250	240	270	260	250	250								
4									230	240	230	260	280	265	260	255	245							
5									225	250	250	250	250	260	260	255								
6									235	250	250	230	245	260	250	245								
7									230	250	250	A	245	240	235	245								
8									220	245	250	255	240	250	255	250								
9										235	270	280	250	250	260	255	250							
10									230	240	260	250	250	260	285	255								
11									240	240	230	240	250	260	250	240								
12									210	215	245	255	255	260	260	250	255							
13									245	240	230	245	255	260	270	250								
14								255	225	205	A	A	320	260	300	260								
15									240	225	240	245	260	260	260	255								
16									250	230	210	230	250	250	245	250								
17										230	240	260	255	260	255	250								
18									225	225	245	270	240	230	250	255								
19									245	240	270	245	245	240	250	250								
20									250	230	245	245	A	A	270	260								
21										230	230	245	260	245	245	250								
22										235	250	245	250	245	270	240								
23										230	245	245	245	235	230	240								
24									225	220	250	230	245	250	245									
25										230	230	250	230	245	250	235								
26										230	245	245	270	245	245	245								
27										A	250	240	260	240	260									
28										270	240	270	235	240	240	250								
29										230	240	240	255	235	245	250								
30										245	240	240	260	240										
31										250	245	230	240	240	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							3	21	30	30	29	30	30	29	26	4								
MED							265	230	240	245	245	250	250	255	250	250								
UQ							265	240	240	250	255	260	260	260	255	252								
LQ							252	225	230	240	240	245	240	250	245	248								

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H^oF2 (KM)

IONOSPHERIC DATA

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H^oF (KM)

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

Station	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	245	260	260	250	230	255	230	205	210	200	200	195	200 ^H	210	195 ^H	225	230	230	220	210	255	230	260	250																												
2	260	275	245	215	220	240	220	220	200	205	200	220	200	210	210	240	230	215	205	210	270	285	275	295																												
3	280	255	285	270	270	215	220	240	235	220	200	220	210	220	240	225	230	210	200	220	235	260	270	290																												
4	280	275	270	220	230	240	205	220	A	210	205	200	200	210	245	230	240	220	220	225	235	280	280	260																												
5	255	255	255	250	230	240	220	225	220	200	215	A	200	210	200	230	230	220	230 ^A	250	290 ^A	285	280	245																												
6	220	280	240	230	235	230	220	225	230	A	220	205	195	200	205	205	230	220	220	260	250	240	240	240																												
7	230	250	235	250	205	200	210	210	220	220	210	A	220	A	210	210	245	220	205	275	255	245	245	220																												
8	225	210	240	235	210	220	210	220	215	200	200	205	225	200	200	195	235	220	A	210	250	260	270	290																												
9	250	245	265	275	235	245	205	220	225	215	205	A	240	230	220	210	240	230	205	220	245	255	A	245																												
10	280	260	260	240	205	245	230	220	215	200	200	235	225	225	200	205	235	210	205	240 ^A	270	255	240	270																												
11	260	220	250	250	235	230	200	205	200	200	230	200	200	200	230	220	245	210	210	A	280	255	240	260																												
12	275	270	280	255	220	255	200	205	205	200	200	200	230	210	220	240	A	220	210	225	265	250 ^A	260	285																												
13	265	255	255	255	250	210	210	225	210	200	200	195	195	195	240	240	240	210	200	290 ^{E S}	275	275	280	275																												
14	275	250	250	255	215	220	240	245	230	200	A	A	A	A	210	250	230	250	215	A	A	300 ^{E S}	300 ^{E S}	320 ^{E S}																												
15	290 ^{E S}	270	230	200	295 ^{E S}	285	235	230	235	220	220	200	A	A	240	A	230	220	A	A	230	245	230	250																												
16	270	270	285	270	220	200	235	230	230	A	A	A	200	195	220	230	240	210	215	225	240	245	260	240																												
17	280	250	A	285 ^A	A	245	210	225	230	A	200	200	230	A	210	225	230	210	A	A	A	230	A	250																												
18	270	260	260	260	230	260	210	225	230	A	200	200	200	200	200	225	240	205	200	210	270	275	270	255																												
19	290	275	235	250	240	200	220	230	225	A	B	A	220	220	200	240	230	220	220	A	260	245	260	285																												
20	300	A	290	260	230	220	220	225	225	225	A	210	A	A	A	210	220	230	240	230	220	230	255	250																												
21	240	285	290	290	260	230	220	225	220	A	220	A	220	A	A	230	225	210	A	260	240	205	235	280																												
22	255	260	260	255	240	230	210	210	220	A	A	200	200	A	A	A	A	A	A	260	240	A	280	270																												
23	270	245	240	250	230	205	205	205	225	A	A	A	200	230	225	200	230	205	205	230	230	260	255	280																												
24	280	255	260	240	235	275	230	225	230	215	200	210	205	210	210	240	210	200	220	260	245	270	255	225																												
25	A	A	290	260	250	280 ^A	230	220	230	225	220	200	210	A	A	230	220	210	A	A	A	280	255	A																												
26	260	250	270	260	255	230	215	235	225	A	200	210	195	A	230	220	225	210	A	A	270	A	300 ^{E S}	290																												
27	280	275	270	255	270	225	205	210	205	A	205	225	200	200 ^H	210	225	210	205	235	250	260	A	280	285																												
28	300	295	285	320	280	235	A	230 ^A	A	A	A	A	195	230	225	230 ^H	225	A	A	A	250	285	280																													
29	245	260	240	250	225	235	230	225	220	220	210	205	A	225	240	225	220	220	A	290	245	250	270	260																												
30	260	270	250	235	235	A	245	235	220	220	A	230	200	220	230	220 ^H	240	200	210	265	265	260	260	290																												
31	290	270	270	230	250	255	245	230	220	220	210	240	200	225	220	230	210	205	225	250	240	240	240	250																												
CNT	30	29	30	31	30	30	30	31	29	20	23	22	27	22	27	29	29	29	22	23	27	28	29	30																												
MED	269	260	260	250	234	232	220	225	220	212	205	205	200	210	220	225	230	210	212	235	250	254	260	262																												
UQ	230	270	270	260	250	245	230	228	230	220	212	220	220	225	230	230	240	220	220	260	268	268	275	285																												
LQ	255	250	245	240	225	220	210	215	215	200	200	200	200	200	208	220	225	210	205	222	240	245	255	250																												

OCT. 1986

H^oF (KM)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

H[°]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	105	105	105	105	105	105	A	105	110	110	S						
2							S	105	110	A	A	100	105	105	110	110	110	S						
3							S	110	110	110	105	105	105	100	105	105	115	S						
4							S	S	110	110	110	110	110	105	105	105	A	S						
5							S	115	110	110	110	105	100	A	A	110	115	S						
6							S	115	110	110	105	110	110	110	110	110	A	S						
7							S	110	110	110	100	105	105	105	110	110	A	S						
8							S	115	105	105	105	105	105	105	105	110	S	S						
9							S	S	110	110	105	105	105	105	105	110	110	S						
10							S	110	105	105	105	105	105	105	110	110	S	S						
11							S	110	110	110	105	105	110	A	110	A	A	S						
12							S	110	110	110	105	105	105	110	110	110	S	S						
13							S	S	110	110	110	105	100	100	105	105	S	S						
14							S	110	110	110	105	105	A	A	100	A	A	S						
15							S	110	110	105	105	105	A	A	A	A	A	S						
16							S	120	110	110	105	105	A	105	A	110	110	S						
17							S	110	105	105	105	105	A	A	A	A	A	S						
18							S	115	110	110	105	105	A	A	A	110	S	S						
19							S	S	110	110	I ^B 110	110	105	105	105	105	S	S						
20							S	S	110	110	105	105	105	A	A	A	A	S						
21							S	115	105	105	105	105	105	105	A	105	A	S						
22							S	A	110	110	110	105	105	A	A	A	A	S						
23							S	115	110	110	105	105	100	105	105	110	S	S						
24							S	S	110	105	105	105	110	110	110	110	A	S						
25							S	110	105	105	105	105	105	105	A	105	A	S						
26							S	110	110	105	105	105	105	A	A	105	110	S						
27							S	S	110	110	105	105	100	105	A	A	A	S						
28							S	S	110	110	110	110	110	110	110	110	S	S						
29							S	S	A	A	110	105	105	110	110	115	110	S						
30							S	110	105	110	105	110	105	105	110	A	S	S						
31							S	S	105	105	105	A	105	105	105	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								20	30	29	30	30	26	21	20	23	8							
MED								110	110	110	105	105	105	105	108	110	110							
UQ								115	110	110	105	105	105	105	110	110	112							
LQ								110	105	105	105	105	105	105	105	105	110							

OCT. 1986

H[°]E (KM)

IONOSPHERIC DATA

OCT. 1986

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	100	100	100	105	105	105	105	110	110	G	G	G	100	S	G	G	130	120	100	120	100	100	S
2	S	S	S	S	S	S	130	G	115	100	100	G	G	G	G	G	G	S	S	S	S	S	S	S
3	S	S	S	S	S	S	S	100	G	G	110	120	G	G	G	100	G	S	S	S	S	120	120	110
4	100	100	100	100	S	S	150	140	120	120	G	110	G	G	105	G	100	100	100	100	100	100	100	100
5	100	S	S	S	S	S	S	120	120	120	110	105	110	105	105	G	G	110	105	105	105	105	105	S
6	S	S	S	S	120	S	S	120	120	110	110	110	G	G	G	G	105	100	105	100	100	100	100	S
7	S	S	S	S	105	S	110	140	135	G	150	110	115	105	120	115	105	105	105	105	S	S	S	S
8	S	S	S	S	S	S	135	130	120	120	120	135	G	G	115	100	G	145	105	105	105	100	100	100
9	100	100	S	S	S	S	145	125	115	110	115	115	120	110	110	G	G	S	105	105	100	100	100	110
10	100	110	110	S	100	S	145	125	120	115	110	G	100	95	95	G	G	S	120	110	S	S	105	S
11	100	100	100	S	S	S	130	120	115	110	G	130	100	100	100	100	130	120	110	110	110	110	S	105
12	100	100	S	100	100	100	100	120	120	100	110	G	G	G	G	G	135	110	110	110	105	105	105	105
13	105	105	105	105	100	100	100	100	G	G	130	115	G	G	G	G	130	115	110	115	130	105	100	100
14	S	S	95	100	100	S	S	145	105	110	110	105	100	100	125	95	100	100	S	120	120	S	S	S
15	S	S	S	100	S	S	150	145	145	130	110	110	100	100	100	95	95	95	100	100	100	100	S	S
16	105	105	105	100	S	S	S	G	130	115	110	105	105	G	100	100	G	120	110	S	110	S	S	S
17	105	105	100	100	100	100	S	135	115	110	110	110	105	100	100	100	100	120	110	120	110	110	105	S
18	105	105	105	100	105	100	100	G	110	110	105	110	105	105	105	G	G	S	S	S	S	S	S	S
19	105	100	105	100	100	S	S	100	G	120	B	110	G	G	G	G	120	110	130	105	105	110	105	105
20	100	100	100	100	100	105	S	G	125	120	110	110	105	105	105	100	100	100	100	100	S	S	S	105
21	105	105	105	100	100	100	100	G	130	120	110	110	110	105	105	G	105	105	105	105	105	S	S	105
22	100	S	100	100	100	100	100	105	135	120	115	115	115	100	105	105	100	100	100	100	100	95	100	100
23	S	S	S	145	S	S	S	G	140	120	110	110	110	110	110	G	G	S	S	S	S	S	S	S
24	110	S	S	S	100	S	S	145	150	125	G	145	135	G	G	G	130	100	100	100	S	105	110	105
25	110	105	105	S	100	100	105	130	130	G	120	110	105	110	110	110	120	100	110	105	100	105	100	100
26	100	100	100	100	110	S	S	G	110	110	110	105	105	100	100	110	110	105	105	105	120	105	100	100
27	100	100	100	S	110	110	S	100	120	110	G	G	G	G	100	100	100	100	105	100	S	100	110	100
28	110	110	S	S	S	S	120	120	110	110	110	110	G	110	125	G	135	105	105	105	100	105	100	100
29	105	S	110	105	105	105	100	105	100	120	120	120	110	110	G	145	120	105	105	105	105	105	S	S
30	S	S	S	S	105	105	105	150	G	135	120	115	115	115	110	100	100	105	100	S	S	S	S	S
31	S	S	S	100	S	S	S	G	G	145	130	145	G	145	G	125	100	100	105	105	100	105	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	20	17	17	17	19	12	18	23	26	27	25	26	19	20	21	16	21	25	26	25	21	21	17	16
MED	102	100	100	100	100	100	108	120	120	115	110	110	105	105	105	100	105	105	105	105	105	105	100	102
UQ	105	105	105	100	105	105	135	138	130	120	120	115	112	110	110	110	120	110	110	105	110	105	105	105
LQ	100	100	100	100	100	100	100	105	115	110	110	110	105	100	100	100	100	100	105	100	100	100	100	100

OCT. 1986

H°ES (KM)

IONOSPHERIC DATA

OCT. 1986

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 ₂	F ₁	F ₁	F ₁	F ₂	L ₁	C ₂	C ₁	C ₁				L ₁			C ₁	F ₁	F ₁	FF ₁₁	F ₁	F ₁			
2							C ₁		C ₁	L ₂	L ₁														
3								LH ₁₂			C ₁	C ₁				L ₁						F ₄	F ₁	F ₂	
4	F ₂	F ₂	F ₂	F ₁		H ₁	H ₂	C ₂	C ₂		C ₁				C ₂		L ₂	L ₂	F ₄	F ₃	F ₂	F ₂	F ₁	F ₃	
5	F ₁						C ₂	C ₁	C ₂	C ₂	C ₃		C ₁	L ₂	L ₂		C ₂	F ₃	F ₂		F ₃	F ₂			
6				F ₁			C ₂	C ₁	C ₂	C ₂	C ₁						L ₂	L ₂	F ₁	F ₃	F ₂	F ₂	F ₁		
7				F ₁		C ₁	H ₁	H ₂		H ₁	C ₂		C ₂	C ₂	C ₁	C ₁	L ₃	L ₂	F ₃	F ₂					
8						H ₂	C ₃	C ₁	C ₁	CL ₁₁	H ₁				CL ₁₁	L ₁		H ₃	F ₄	F ₃	F ₁	F ₁	F ₂	F ₁	
9	F ₂	F ₁				H ₂	C ₂	C ₂	C ₂	C ₁	C ₂		C ₁	C ₂	C ₂				F ₁	F ₃	F ₃	F ₂	F ₃	FF ₂₁	
10	F ₁	F ₂	F ₂		F ₁	HG ₂₂	C ₂	C ₂	C ₁	C ₁			L ₁	L ₁	L ₂				F ₁	F ₂			F ₁		
11	F ₂	F ₁	F ₁			C ₁	C ₁	C ₁	C ₂		C ₁		L ₂	L ₂	L ₂		CL ₁₃	CL ₁₃	F ₂	F ₃	F ₂	F ₂		F ₂	
12	F ₂	F ₂		F ₂	F ₂	F ₁	L ₁	C ₂	C ₂	L ₁	C ₂						H ₃	C ₃	F ₃	F ₂	F ₃	F ₂	F ₂	F ₂	
13	F ₂	F ₁	F ₂	F ₁	F ₂	F ₃	L ₂	L ₁			C ₁	C ₂					C ₂	C ₂	F ₁	F ₁	F ₁	F ₁	F ₂	F ₂	
14			F ₂	F ₁	F ₁			H ₁	L ₁	C ₂	C ₂	C ₂	L ₂	L ₂	C ₁	L ₁	L ₂	L ₁		F ₂	F ₂				
15				F ₁		H ₂	H ₂	H ₂	H ₂	C ₁	C ₁		L ₃	L ₄	L ₂	L ₃	L ₃	L ₃	F ₅	F ₂	F ₁	F ₁			
16	F ₂	F ₂	F ₁	F ₁				C ₂	C ₂	C ₂	C ₂		L ₂		L ₂	L ₁		C ₂	F ₂			F ₁			
17	F ₃	F ₃	F ₄	F ₂	F ₄	F ₁		H ₂	C ₁	C ₂	C ₂	C ₂	L ₂	L ₂	L ₂	L ₂	L ₂	C ₂	F ₃	F ₄	F ₃	F ₂	F ₃		
18	F ₃	F ₄	F ₂	F ₂	F ₁	F ₃	L ₂		C ₁	C ₂	C ₁	C ₂	L ₂	L ₂	L ₁										
19	F ₂	F ₂	F ₁	F ₁	F ₁			L ₁		C ₂		C ₁					C ₂	C ₂	FF ₁₃	F ₃	F ₂	F ₂	F ₄	F ₂	
20	F ₃	F ₄	F ₂	F ₃	F ₂	F ₂			C ₂	C ₂	C ₂	C ₂	C ₃	L ₄	L ₄	L ₄	L ₃	L ₃	F ₁	F ₁				F ₂	
21	F ₂	F ₂	F ₂	F ₂	F ₃	F ₃	L ₂		C ₂	C ₂	C ₁	C ₂	C ₂	C ₃	L ₂		L ₅	L ₅	F ₃	F ₅	F ₂			F ₂	
22	F ₂		F ₂	F ₂	F ₂	F ₂	L ₂	3	H ₂	C ₂	C ₂	C ₁	C ₁	L ₄	L ₄	L ₃	L ₃	L ₃	F ₃	F ₂	F ₂	F ₃	F ₁	F ₂	
23				F ₁					H ₂	C ₂	C ₂	C ₂	C ₁	C ₁	C ₁										
24	F ₁				F ₂			H ₂	H ₂	C ₂		H ₁	H ₁				CL ₂₁	L ₁	F ₂	F ₁		F ₁	F ₂	F ₂	
25	F ₂	F ₄	F ₂		F ₂	F ₃	L ₂	C ₂	C ₃		C ₂	C ₂	C ₂	C ₂	C ₂	CL ₃₃	C ₃	CL ₂₁	L ₂	F ₆	F ₃	F ₃	F ₂	F ₃	
26	F ₂	F ₂	F ₂	F ₁	F ₂				C ₁	C ₃	C ₂	C ₃	C ₁	L ₅	L ₅	C ₁	C ₁	L ₂	F ₄	F ₅	F ₁	F ₃	F ₂	F ₂	
27	F ₁	F ₂	F ₁		F ₁	F ₁		L ₁	C ₂	C ₂					L ₃	L ₄	L ₃	L ₁	F ₂	F ₂		F ₃	F ₂	F ₂	
28	F ₂	F ₂				C ₃	C ₄	C ₃	C ₃	C ₃	C ₄	C ₃		C ₂	C ₁		H ₁	C ₃	F ₂	F ₄	F ₂	F ₁	F ₂	F ₂	
29	F ₂		F ₂	F ₃	F ₁	F ₂	L ₄	L ₂	L ₃	CL ₁₂	CL ₂₂	C ₂	C ₂	C ₂		H ₁	C ₂	L ₃	F ₂	F ₂	F ₂	F ₂			
30					F ₂	F ₄	L ₂	H ₂		H ₁	C ₂	C ₁	C ₂	C ₂	C ₂	L ₁	L ₁	L ₁	F ₁						
31				F ₁					H ₁	C ₁	HL ₁₁			H ₁		C ₂	L ₁	L ₁	F ₂	F ₃	F ₂	F ₁			
	00	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																									

OCT. 1986

TYPES OF ES

IONOSPHERIC DATA

OCT. 1986

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 **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	X 42	X 40	X 39	X 39	X 37															X 57	X 47	X 47	X 45	X 44
2	X 42	X 41	X 42	X 39	X 32															X 44	X 40	X 40	X 41	X 40
3	X 40	X 41	X 39	X 38	X 38															X 45	X 39	X 39	X 39	X 39
4	X 39	X 39	X 40	X 38	X 33															X 45	X 45	X 42	X 40	X 42
5	X 42	X 42	X 43	X 46	X 39															X 56	50	48	49	X 47
6	X 47	X 44	X 45	X 43	X 34															X 57	X 54	X 56	X 51	X 49
7	X 50	X 49	X 50	X 48	X 46															X 46	X 47	X 47	X 46	X 45
8	X 45	X 44	X 41	X 40	X 38															X 42	X 41	X 41	X 43	X 40
9	X 43	X 44	X 40	X 39	X 36															X 39	X 40	X 41	X 41	X 42
10	X 45	X 42	X 43	X 42	X 36															X 41	X 41	X 42	X 45	X 44
11	X 45	X 44	X 41	X 40	X 40	36														X 38	X 41	X 41	X 41	X 42
12	X 42	X 41	X 40	X 40	X 40															X 38	X 41	X 39	X 40	X 41
13	X 40	X 40	X 38	X 40	X 40															X 34	X 37	X 38	X 39	X 40
14	X 40	X 40	X 38	X 38	X 33															S	X 41	X 40	X 41	X 40
15	X 42	X 43	X 46	X 32	X 24															X 42	X 45	X 46	X 43	X 42
16	X 43	X 41	X 44	X 42	X 42															X 39	X 40	X 41	X 41	X 41
17	X 39	X 38	X 38	X 37	X 37															X 45	X 43	X 42	A	X 40
18	X 41	X 40	X 40	X 46	X 46	42														X 37	X 36	X 39	X 41	X 41
19	X 40	X 38	X 38	X 37	X 40															X 39	X 38	X 40	X 39	X 38
20	X 38	X 39	X 38	X 41	X 41															X 52	X 50	X 38	X 37	X 38
21	X 39	X 39	X 39	X 39	X 40															X 47	X 47	X 45	X 41	X 40
22	X 39	X 40	X 40	X 41	X 47															A	X 45	X 42	X 42	X 44
23	X 45	X 46	X 42	X 41	X 41															C	X 37	X 36	X 39	X 49
24	X 41	X 40	X 41	X 36	X 36															X 40	X 44	X 42	X 42	X 42
25	X 41	X 39	X 38	X 38	X 39															A	A	X 41	X 42	X 41
26	X 40	X 39	X 39	X 39	X 41															X 39	X 40	X 41	X 41	X 43
27	X 43	X 44	X 42	X 47	X 41															X 45	X 44	X 45	X 46	X 44
28	X 43	X 45	X 45	X 44	X 42															X 44	X 47	X 47	X 47	X 46
29	X 46	X 46	X 46	X 47	X 46															X 46	X 43	X 48	X 43	X 45
30	X 42	X 42	X 44	X 45	X 39															X 41	X 42	X 43	X 45	X 42
31	X 42	X 45	X 44	X 49	X 38	X 37														X 50	X 48	X 45	X 49	X 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	31	31	31	31	31	3														27	30	31	30	31
MED	X 42	X 41	X 41	X 40	X 39	37														X 44	X 42	X 42	X 42	X 42
UQ	X 43	X 44	X 44	X 44	X 41	40														X 46	X 47	X 45	X 45	X 44
LQ	X 40	X 40	X 39	X 38	X 36	36														X 39	X 40	X 40	X 41	X 40

OCT. 1986

FXI (0.1 MHz)

IONOSPHERIC DATA

OCT. 1986

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	S 36	S 34	S 33	S 33	S 31	S 30	S 48	S 65	S 70	S 62	S 65	S 63	S 65	S 57	S 55	S 58	S 65	S 63	S 63	S 51	S 41	S 41	S 39	S 38
2	S 36	S 35	S 36	S 33	S 26	S 26	S 48	S 70	S 75	S 70	S 69	S 75	S 81	S 64	S 60	S 65	S 64	S 54	S 43	S 38	S 34	S 34	S 35	S 34
3	S 34	S 35	S 33	S 32	S 32	S 31	S 45	S 62	S 85	S 70	S 84	S 84	S 81	S 79	S 69	S 66	S 64	S 61	S 48	S 39	S 33	S 33	S 33	S 33
4	S 33	S 33	S 34	S 32	S 27	S 27	S 47	S 53	S 64	S 61	S 63	S 59	S 66	S 71	S 79	S 73	S 71	S 80	S 54	S 39	S 39	S 36	S 34	S 36
5	S 36	S 36	S 37	S 40	S 33	S 34	S 51	S 60	S 75	S 64	S 70	S 80	S 74	S 68	S 69	S 68	S 68	S 60	S 54	S 50	F	F	F	S 41
6	S 41	S 38	S 39	S 37	S 28	S 25	S 41	S 56	S 73	S 73	S 77	S 94	S 60	S 59	S 65	S 72	S 62	S 58	S 55	S 51	S 48	S 50	S 45	S 43
7	S 44	S 43	S 44	S 42	S 40	S 33	S 47	S 59	S 65	S 69	S 79	S 74	S 80	S 68	S 55	S 54	S 55	S 56	S 56	S 40	S 41	S 41	S 40	S 39
8	S 39	S 38	S 35	S 34	S 32	S 27	S 46	S 63	S 66	S 65	S 59	S 71	S 89	S 70	S 57	S 56	S 59	S 57	S 49	S 36	S 35	S 35	S 37	F
9	S 37	S 38	F	F	F	S 28	S 45	S 54	S 65	S 69	S 59	S 70	S 84	S 72	S 65	S 67	S 66	S 69	S 68	S 33	S 34	S 35	S 35	S 36
10	S 39	S 36	S 37	S 36	S 30	S 31	S 51	S 70	S 80	S 69	S 57	S 69	S 66	S 60	S 62	S 63	S 69	S 68	S 50	S 35	S 35	S 36	S 39	S 38
11	S 39	S 38	S 35	S 34	S 34	F	S 43	S 60	S 69	S 75	S 65	S 66	S 66	S 59	S 55	S 57	S 68	S 73	S 52	S 32	S 35	S 35	S 35	S 36
12	S 36	S 35	S 34	S 34	S 34	S 31	S 47	S 61	S 60	S 66	S 59	S 63	S 67	S 63	S 62	S 65	S 64	S 73	S 60	S 32	S 35	S 33	S 34	S 35
13	S 34	S 34	S 32	S 34	S 34	S 29	S 41	S 58	S 84	S 79	S 66	S 58	S 55	S 58	S 59	S 67	S 64	S 55	S 34	S 28	S 31	S 32	S 33	S 34
14	S 34	S 34	S 32	S 32	S 27	S 27	S 48	S 67	S 113	S 68	S 50	S 60	S 85	S 106	S 93	S 105	S 105	S 69	A	A	S 35	S 34	S 35	S 34
15	S 36	S 37	S 40	S 26	S 18	S 22	S 44	S 69	S 81	S 75	S 66	S 66	S 70	S 69	S 65	S 74	S 84	S 63	A	S 36	S 39	S 40	S 37	S 36
16	J 37	S 35	S 38	S 36	S 36	S 35	S 50	S 67	S 75	S 79	S 75	S 66	S 70	S 68	S 65	S 63	S 62	S 58	S 41	S 33	S 34	S 35	S 35	S 35
17	S 33	S 32	S 32	S 31	S 31	S 28	S 45	S 57	S 73	J 74	S 69	S 72	S 66	S 68	S 71	S 79	S 75	S 64	S 44	S 39	S 37	S 36	A	S 34
18	S 35	S 34	S 34	F	F	F	S 51	S 64	S 75	S 69	S 62	S 71	S 85	S 73	S 60	S 65	S 70	S 65	S 46	S 31	S 30	S 33	S 35	S 35
19	S 34	S 32	S 32	S 31	S 34	S 25	S 44	S 60	S 78	S 83	S 85	S 99	S 75	S 75	S 65	S 65	S 69	S 67	S 60	S 33	S 32	S 34	S 33	S 32
20	S 32	S 33	S 32	S 35	S 35	S 33	S 45	S 64	S 63	S 76	S 70	S 64	S 63	S 64	S 71	S 60	S 68	S 56	S 48	S 46	S 44	S 32	S 31	S 32
21	S 33	S 33	S 33	S 33	S 34	S 32	S 50	S 68	S 80	S 63	S 65	S 64	S 73	S 78	S 74	S 69	S 71	S 59	S 39	S 41	S 41	S 39	S 35	S 34
22	S 33	S 34	S 34	S 35	S 41	S 28	S 47	S 59	S 65	J 75	S 75	S 80	S 83	S 75	S 72	S 81	S 81	S 61	S 35	A	S 39	S 36	S 36	S 38
23	S 39	S 40	S 36	S 35	S 35	S 31	S 45	S 55	S 69	J 81	I 80	I 80	S 84	S 84	S 73	S 68	C	S 83	C	C	S 31	S 30	S 33	S 43
24	S 35	S 34	S 35	S 30	S 30	S 26	S 46	S 70	S 84	S 71	C	C	I 76	S 73	S 88	S 71	S 79	S 61	S 40	S 34	S 38	S 36	S 36	S 36
25	S 35	S 33	S 32	S 32	S 33	A	S 45	S 70	S 69	S 76	S 70	S 69	S 78	S 68	S 71	S 73	S 65	S 53	S 31	A	A	S 35	S 36	S 35
26	S 34	S 33	S 33	S 33	S 35	S 33	S 44	S 60	S 68	S 74	S 72	S 72	S 73	S 85	S 79	S 75	S 71	S 60	S 36	S 33	S 34	S 35	S 35	S 37
27	S 37	S 38	S 36	S 41	S 35	S 32	S 44	S 59	J 72	J 75	S 89	J 75	S 78	S 94	S 82	S 84	S 64	S 50	A	S 39	S 38	S 39	S 40	S 38
28	S 37	S 39	S 39	S 38	S 36	S 39	S 44	S 83	S 84	S 94	S 92	S 114	S 86	S 87	S 87	S 75	S 63	S 53	S 35	S 38	S 41	S 41	S 41	S 40
29	S 40	S 40	S 40	S 41	S 40	S 32	S 43	S 59	S 68	S 73	S 85	S 79	S 74	S 69	S 81	S 77	S 74	S 49	S 37	S 40	S 42	S 42	S 37	S 39
30	S 36	S 36	S 38	S 39	S 33	S 30	S 40	S 70	S 83	S 79	S 72	S 75	J 79	S 92	H 73	S 64	S 66	S 71	S 41	S 35	S 36	S 37	S 39	S 36
31	S 36	S 39	S 38	S 43	S 32	S 31	S 39	S 57	S 80	S 69	S 100	S 97	S 78	J 75	S 66	S 79	S 78	S 51	S 42	S 44	S 42	S 39	S 43	S 41
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	S 31	S 31	S 30	S 29	S 29	S 28	S 31	S 31	S 31	S 31	S 30	S 30	S 31	S 31	S 31	S 31	S 30	S 31	S 27	S 27	S 29	S 30	S 29	S 30
MED	S 36	S 35	S 35	S 34	S 33	S 30	S 45	S 61	S 73	S 73	S 70	S 72	S 75	S 70	S 69	S 68	S 68	S 61	S 46	S 38	S 36	S 36	S 35	S 36
UQ	S 37	S 38	S 38	S 37	S 35	S 32	S 48	S 68	S 80	S 76	S 79	S 80	S 81	S 76	S 73	S 74	S 71	S 68	S 54	S 40	S 41	S 39	S 39	S 38
LQ	S 34	S 34	S 33	S 32	S 31	S 27	S 44	S 59	S 68	S 69	S 65	S 66	S 66	S 66	S 62	S 65	S 64	S 56	S 40	S 33	S 34	S 34	S 35	S 34

OCT. 1986

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1986

FOF1 (0.01 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								L	L 390	L 430	L 430	L 440	L 440	L 430	L 440	L	L								
2								L	L	L 420	L 440	L 450	L 430	L 420	L 460	L 380	L								
3									L	L 410	L 440	L 440	L 450	L 440	L 420	L	L								
4									L	L	L 440	L	L 430	L 450	L 430	L	L								
5									L	L	L 430	L 440	L 440	L 430	L	L 390									
6									L	A	L 450	L 440	L 430	L	L 420	L	L								
7									L	L 450	L 450	L 460	L 480	L	L	A	A								
8									L 390	L 430	L 440	L 440	L 430	L 440		L	L								
9									L	L 420	L 430	L 440	L 430	L 430	L 410	L									
10								A	L	L 430	L 440	L 450	L 450	L 440	L	L	L								
11									L	L 410	L 430	L 440	L 430		L		L								
12									L	L 420	L 440	L	L 440	L 430	L	L	L								
13									L	L 420	L 410	L 430	L	L	L	L									
14								L	L	L	L 400	L 440	L	L 440	L 430	L	A								
15									L	L 430	L 420	L 430	L 440	L 430	L	L									
16									L	L	L 430	L	L 440	L	L 410	L									
17									L	L	L 430	L 440	L 430	L 430	L	L									
18									L	L 410	L 440	L 440	L 420	L 370	L 370	L									
19									L	L	L	L 450	L 430	L 410	L	L									
20									A	L	L 440	L 430	L 420		L	A	A								
21									L	L	L	A	L 440	L	L										
22									L	L	A	L	A	L 420	A	L									
23										L	C	C	L 440	L	L 410	L									
24									L 400	L 410	C	C	C	L 430	L	L									
25										L	L 440	L 440	L	L	L	L	A								
26									L	L	L 430	L 460	L 470	L 450	L	L									
27									L	L 440	L 520	L 460	L 430	L 460	L	L									
28									L	L	L 450	L	A	L	L	L									
29									L	L	L 450	L 450	L	A	L	A									
30									L	L	L	L 440	L	L	L										
31											L	L 440	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									3	14	24	23	22	18	10	2									
MED									L 390	L 420	L 440	L 440	L 435	L 430	L 420	L 385									
UQ									L 395	L 430	L 440	L 450	L 440	L 440	L 430										
LQ									L 390	L 410	L 430	L 440	L 430	L 430	L 410										

OCT. 1986

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 1986

FOE (0.01 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						S	S	A	A	A	R	310	330	330	310	300	270	240	A	S					
2						S	S	240	270	U A	U A	310	325	330	310	300	270	240	A	S					
3		S	S	S	S	S	S	240	A	A	A	325	325	310	A	270	230	S	S		S				
4					S	160	240	270	295	A	R	R	310	290	A	A	A	A	S						
5					S	S	A	A	A	A	A	A	R	I R	330	315	295	230	A	S	S				
6		S	S		S	S	A	A	A	A	A	A	A	A	A	A	A	A	A	S					
7			B		S	S	240	275	290	R	310	330	320	310	A	A	A	A	S	S					
8					S	S	A	A	A	H	300	310	330	330	A	290	260	230	S	S					
9					S	S	A	A	A	300	305	310	315	305	285	260	230	S	S						
10					S	S	A	U A	U A	275	300	320	A	A	A	A	255	210	S	S					
11					S	S	230	A	A	A	A	A	315	310	A	A	U A	200	S	S					
12					S	S	240	A	300	310	A	A	325	310	300	270	225	S	S						
13					S	S	A	A	A	310	315	320	310	295	270	230	A	S	S						
14					S	S	215	270	300	A	U A	320	320	305	295	260	A	S	S						
15					S	S	210	265	290	295	A	A	315	A	290	270	220	S	S						
16					S	S	230	270	290	A	A	A	320	A	290	270	240	S	S						
17					S	S	250	270	290	A	A	A	A	320	310	270	230	S	S						
18					S	S	230	A	A	A	320	320	305	A	A	210	S	S							
19					S	S	220	265	295	B	A	A	320	300	270	A	S	S							
20					S	S	A	A	A	300	A	A	A	A	A	260	A	S	S						
21					S	S	H	H	H	240	270	295	300	A	A	A	A	A	S	S					
22					S	S	210	270	300	305	A	A	A	A	A	A	A	S	S						
23					S	S	190	265	290	I C	I C	305	310	A	A	A	265	C	S	C		S			
24					S	S	220	275	295	C	C	I C	315	305	295	260	A	S	S						
25					S	S	A	U A	270	300	315	315	A	310	300	270	220	H	S	S					
26					S	S	A	U A	260	295	A	A	A	A	295	U A	255	A	S	S					
27					S	S	A	270	A	A	A	A	A	R	A	A	U A	210	B	S					
28			S	S	S	S	210	270	300	A	A	A	A	A	290	A	220	S	B						
29					S	S	A	A	295	310	300	320	310	295	255	190	S	S							
30					S	S	U A	H	200	270	295	310	320	A	310	A	A	S	S						
31					S	195	255	290	300	315	320	305	290	260	190	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						1	19	19	22	17	14	17	19	19	21	18									
MED						160	230	270	295	310	320	320	310	295	270	222									
UQ							240	270	300	310	325	325	310	300	270	230									
LQ							210	268	290	305	315	320	308	290	260	210									

OCT. 1986

FOE (0.01 MHz)

IONOSPHERIC DATA

OCT. 1986

FOES (0.1 MHz)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 28	J A 18	J A 24	J A 23	24	20	18	J A 33	J A 37	J A 32	G 27	G 27	37	27	27	34	26	J A 30	J A 30	J A 33	24	22	23	J A 19
2	23	23	21	21	19	J A 19	19	27	G 26	33	33	24	G 30	G 28	G 26	G	31	25	J A 32	J A 34	J A 29	20	21	20
3	E S 16	E S 15	18	E S 15	E S 15	E S 15	20	27	28	32	37	27	G 29	G 30	J A 32	17	25	21	J A 19	J A 20	E S 16	E S 15	21	23
4	J A 28	J A 26	23	18	24	E S 15	19	27	30	32	36	31	G 31	G 29	G 28	29	J A 35	J A 40	23	25	J A 30	J A 34	J A 25	J A 25
5	24	22	21	20	20	E S 15	21	J A 29	J A 44	J A 50	J A 47	35	G 31	G 30	G 29	G	25	E S 15	J A 21	22	23	26	J A 26	24
6	22	17	22	18	E S 15	E S 14	E S 16	27	J A 63	J A 54	J A 48	J A 53	34	33	J A 40	35	J A 27	J A 34	J A 26	J A 30	J A 33	J A 29	J A 23	23
7	19	19	E B 13	E S 14	E S 15	E S 16	20	28	29	G	36	39	35	G	J A 34	J A 44	J A 36	J A 30	J A 30	J A 26	J A 20	J A 19	19	E S 16
8	22	18	19	E B 13	E B 13	E S 15	J A 22	J A 32	J A 34	G 19	34	20	G 23	J A 34	30	G	G	J A 29	20	25	J A 32	J A 26	J A 33	J A 27
9	21	23	20	19	E S 15	E S 16	21	33	J A 44	J A 43	J A 43	J A 44	36	38	33	43	30	17	21	24	23	J A 23	J A 50	J A 30
10	24	J A 29	19	19	E S 15	23	J A 29	J A 62	35	32	G 27	J A 44	33	J A 36	J A 30	27	26	24	E S 16	J A 35	J A 22	J A 31	J A 24	J A 20
11	19	J A 34	J A 26	J A 18	20	18	19	J A 39	30	35	J A 34	J A 33	G 26	G 25	J A 31	J A 37	28	28	J A 35	J A 50	J A 32	J A 35	J A 25	J A 25
12	22	J A 25	J A 24	J A 23	J A 25	23	J A 19	G 19	29	30	G 27	J A 54	G 24	G 19	G 24	G	29	21	E S 16	J A 26	J A 33	J A 26	J A 25	22
13	22	21	22	24	18	19	22	26	33	31	27	35	34	17	G	G	35	35	J A 22	16	J A 25	E S 15	20	23
14	J A 23	J A 25	19	20	19	E S 16	21	27	G	33	36	42	41	36	33	33	J A 44	J A 44	J A 44	J A 44	J A 33	J A 30	23	21
15	22	19	19	20	18	19	18	27	30	33	37	36	24	J A 31	G 25	32	33	J A 54	83	J A 53	J A 29	E S 15	E S 16	19
16	19	23	23	J A 21	E S 15	E S 15	21	G	35	37	J A 63	34	31	J A 51	32	30	31	J A 33	J A 27	18	24	E S 15	J A 26	22
17	22	J A 19	J A 24	J A 21	J A 20	E S 15	19	G 18	33	J A 39	J A 51	J A 54	J A 47	G 31	39	32	29	18	18	E S 15	E S 16	J A 29	J A 45	J A 26
18	J A 44	J A 27	J A 19	J A 26	J A 19	J A 18	22	25	J A 30	33	J A 36	G 30	G 27	32	J A 33	J A 29	32	18	E S 15	19	E S 16	E S 16	E S 15	E S 15
19	J A 26	22	J A 20	J A 28	16	59	E S 15	G	30	35	E B 42	39	J A 43	G 30	G 28	G	25	J A 30	E S 15	23	J A 21	J A 32	J A 36	23
20	J A 25	J A 29	19	22	24	23	22	J A 26	J A 41	36	39	39	34	J A 44	J A 37	J A 46	J A 44	J A 54	J A 27	J A 25	J A 17	E S 15	23	J A 23
21	J A 26	J A 34	J A 43	J A 32	J A 29	J A 26	J A 25	25	29	38	43	J A 46	J A 34	J A 42	J A 35	J A 40	J A 28	J A 50	J A 34	J A 22	J A 51	J A 31	E S 15	25
22	J A 26	J A 44	J A 23	21	J A 19	E S 15	E S 14	G	30	J A 41	J A 50	J A 54	J A 54	J A 53	J A 85	J A 64	J A 30	J A 22	J A 29	J A 51	J A 32	J A 29	J A 26	22
23	J A 20	19	E S 13	E S 15	E S 14	22	E S 15	G	31	40	C	C	40	45	36	G	C	22	C	C	E S 16	E S 16	E S 16	E S 15
24	E S 15	20	E S 15	E S 15	E S 15	E S 15	22	25	30	G	C	C	C	G 26	33	32	J A 30	17	21	J A 20	17	E S 15	E S 15	18
25	25	J A 35	J A 64	J A 50	J A 44	J A 40	25	27	33	J A 45	36	J A 46	J A 45	J A 46	40	38	J A 46	J A 23	J A 17	J A 36	J A 54	J A 53	J A 29	J A 52
26	J A 24	J A 27	J A 20	21	19	J A 21	E S 14	24	30	34	37	35	36	J A 43	35	28	J A 32	J A 28	J A 40	J A 27	23	22	J A 52	J A 33
27	J A 22	J A 25	22	J A 18	J A 19	21	J A 19	25	J A 47	J A 49	J A 48	35	J A 33	G 30	J A 38	J A 34	27	50	J A 51	J A 30	J A 29	J A 29	J A 49	J A 25
28	J A 19	E S 15	E S 14	E S 14	E S 14	E S 14	19	35	J A 40	J A 40	J A 40	J A 64	J A 65	33	39	29	G 20	J A 21	J A 28	E S 14	J A 34	J A 49	J A 33	J A 31
29	J A 22	J A 13	J A 30	J A 21	22	J A 21	J A 25	J A 30	29	G 21	39	43	J A 46	39	36	J A 32	J A 19	J A 55	J A 51	J A 29	J A 31	J A 26	J A 26	J A 26
30	E S 14	E S 14	E S 13	24	21	21	22	J A 35	G 18	32	33	43	39	37	38	J A 63	J A 54	J A 37	J A 20	22	E S 15	E S 15	E S 14	22
31	E S 15	J A 21	E S 14	E B 13	E S 14	E S 15	22	G	G	33	34	34	J A 53	35	J A 46	39	31	43	J A 33	21	J A 25	J A 22	J A 29	18
CNT	31	31	31	31	31	31	31	31	31	31	29	29	30	31	31	31	30	31	30	30	31	31	31	31
MED	22	J A 22	20	20	19	18	20	27	30	33	36	39	34	33	33	32	30	J A 28	J A 26	J A 25	J A 24	J A 26	J A 25	23
UQ	J A 24	J A 26	24	J A 22	20	21	22	30	35	40	J A 43	J A 44	41	J A 40	33	38	J A 33	J A 36	J A 33	J A 34	J A 32	J A 30	J A 29	J A 25
LQ	20	19	19	18	E S 15	E S 15	19	24	29	32	34	34	31	G 30	30	28	27	21	19	22	20	E S 16	20	20

OCT. 1986

FOES (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

F3ES (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	23	16	16	19	E ₁₅	E ₁₅	17	26	37	31	27	G	G	26	27	30	G	20	E ₁₆	31	E ₁₅	E ₁₆	E ₁₆	E ₁₆			
2	E ₁₆	E ₁₆	E ₁₅	E ₁₅	E ₁₅	16	18	25	G	26	33	33	G	24	G	27	G	27	24	28	26	E ₁₅	E ₁₅	E ₁₆	E ₁₅		
3	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	20	26	28	31	35	G	G	28	G	27	G	17	25	17	15	16	E ₁₆	E ₁₅	E ₁₅	E ₁₅	
4	25	21	E ₁₅	E ₁₅	E ₁₅	E ₁₅	19	26	29	32	35	G	G	31	G	29	G	28	28	33	40	E ₁₆	13	24	33	22	E ₁₆
5	E ₁₆	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	25	31	31	33	34	G	G	G	G	G	25	E ₁₅	20	E ₁₆	E ₁₅	E ₁₆	E ₁₆	E ₁₅		
6	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₆	26	35	44	44	38	34	33	33	33	25	34	20	28	21	E ₁₆	19	E ₁₆	E ₁₆		
7	E ₁₆	E ₁₅	E ₁₃	E ₁₄	E ₁₅	E ₁₆	19	26	29	G	35	36	35	G	32	40	29	21	E ₁₄	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆		
8	E ₁₅	E ₁₅	E ₁₅	E ₁₃	E ₁₃	E ₁₅	17	25	28	19	34	20	G	21	31	30	G	G	19	E ₁₆	E ₁₆	20	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
9	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	19	27	30	33	36	35	35	36	31	32	27	15	E ₁₆	E ₁₅	E ₁₅	E ₁₅	20	E ₁₆	E ₁₆		
10	E ₁₆	16	E ₁₅	E ₁₅	E ₁₅	E ₁₄	25	50	30	32	G	26	40	33	31	30	G	24	19	E ₁₆	21	17	E ₁₆	E ₁₆	E ₁₄		
11	E ₁₆	27	E ₁₅	E ₁₆	E ₁₅	E ₁₅	17	36	28	34	32	33	G	G	23	25	31	33	28	27	22	22	20	E ₁₆	17	E ₁₆	
12	E ₁₅	16	16	E ₁₆	18	E ₁₅	16	G	19	28	G	25	40	G	19	G	20	26	20	E ₁₆	21	20	20	E ₁₆	E ₁₆		
13	E ₁₆	E ₁₅	E ₁₃	15	E ₁₅	E ₁₅	E ₁₆	26	30	31	26	35	34	G	G	31	32	18	E ₁₅	16	20	E ₁₅	E ₁₅	E ₁₆	E ₁₆		
14	E ₁₆	23	E ₁₆	E ₁₅	E ₁₅	E ₁₆	21	25	G	32	34	37	36	35	31	29	34	26	A ₄₄	A ₄₄	21	24	E ₁₅	E ₁₆	E ₁₆		
15	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	26	G	32	37	34	24	G	31	G	31	25	34	A ₃₃	21	E ₁₅	E ₁₅	E ₁₆	E ₁₆	E ₁₆		
16	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	G	33	35	39	33	28	G	34	31	29	29	29	23	E ₁₅	E ₁₆	E ₁₅	E ₁₆	E ₁₅	E ₁₅		
17	E ₁₆	15	16	16	18	E ₁₅	18	G	18	32	37	43	40	34	G	29	34	31	27	16	16	E ₁₅	E ₁₆	E ₁₆	A ₄₅	E ₁₄	
18	30	E ₁₅	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₆	25	29	32	33	G	G	27	32	31	29	30	16	E ₁₅	E ₁₅	E ₁₆	E ₁₆	E ₁₅	E ₁₅	E ₁₅	
19	E ₁₅	E ₁₄	E ₁₅	17	E ₁₄	E ₁₅	E ₁₆	G	29	34	E ₄₂	36	36	G	30	G	G	24	19	E ₁₅	E ₁₆	19	E ₁₆	25	E ₁₅	E ₁₅	
20	18	23	E ₁₃	E ₁₃	E ₁₃	E ₁₅	E ₁₅	24	37	36	37	35	32	36	32	43	44	50	22	22	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₆		
21	E ₁₅	19	15	E ₁₄	E ₁₃	16	19	25	29	33	40	43	32	31	30	33	24	34	31	E ₁₆	20	20	E ₁₅	E ₁₅	15	E ₁₅	
22	E ₁₆	25	20	E ₁₅	E ₁₅	E ₁₅	E ₁₄	G	29	34	45	44	54	38	52	39	23	E ₁₅	18	A ₅₁	25	21	19	E ₁₆	E ₁₆		
23	E ₁₆	E ₁₄	E ₁₃	E ₁₅	E ₁₄	E ₁₅	E ₁₅	G	30	40	C	C	40	34	31	G	C	E ₁₆	C	C	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₅	E ₁₅	
24	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	25	30	G	C	C	C	G	26	33	31	29	E ₁₄	E ₁₅	17	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	
25	E ₁₅	14	28	26	25	A ₄₀	E ₁₄	27	33	40	34	44	40	35	36	37	44	15	15	A ₃₆	A ₅₄	25	E ₁₅	E ₁₅	E ₁₅	E ₁₅	
26	16	18	15	E ₁₃	E ₁₄	E ₁₅	E ₁₄	24	29	34	34	34	35	33	35	28	23	19	30	23	E ₁₄	E ₁₄	20	19	E ₁₆	E ₁₆	
27	15	16	E ₁₄	18	15	E ₁₄	E ₁₄	24	38	31	33	35	33	G	30	35	34	26	39	A ₅₁	19	E ₁₅	20	E ₁₄	19	E ₁₆	
28	15	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	19	33	34	40	40	40	59	33	38	27	20	E ₁₄	24	E ₁₄	19	20	E ₁₅	20	E ₁₆	E ₁₆	
29	E ₁₅	15	20	E ₁₄	E ₁₄	E ₁₄	E ₁₄	24	29	G	G	21	39	40	45	35	34	31	E ₁₄	25	26	23	27	20	E ₁₄	E ₁₄	
30	E ₁₄	E ₁₄	E ₁₃	15	E ₁₃	E ₁₄	E ₁₄	20	G	16	32	33	41	37	36	36	28	23	E ₁₅	E ₁₅	20	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	
31	E ₁₅	E ₁₅	E ₁₄	E ₁₃	E ₁₄	E ₁₅	E ₁₅	G	G	33	34	34	20	G	34	33	34	30	37	19	E ₁₅	18	17	E ₁₄	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	29	29	30	31	31	31	30	31	30	30	31	31	31	31	31	31	31	
MED	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	25	29	32	34	35	34	31	31	30	26	19	17	18	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
UQ	E ₁₆	16	16	E ₁₅	E ₁₅	E ₁₅	13	26	32	34	37	40	36	34	34	33	30	23	24	23	20	20	18	E ₁₆	E ₁₆	E ₁₆	
LQ	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₅	22	28	31	33	33	28	G	G	29	24	24	16	E ₁₅	E ₁₆	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	

OCT. 1986

F3ES (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

FMIN (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	E ₁₅	E ₁₅	E ₁₅	13	E ₁₅	E ₁₅	E ₁₄	14	14	15	15	16	20	14	15	15	15	E ₁₆	E ₁₆	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆
2	E ₁₆	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	15	15	15	15	15	15	15	15	15	14	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₅
3	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	15	15	14	15	15	14	14	15	15	E ₁₅	E ₁₄	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅
4	E ₁₅	13	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	15	15	16	17	16	20	16	16	14	15	14	E ₁₆	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₆
5	E ₁₆	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	14	15	16	19	17	17	16	15	14	15	E ₁₅	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₅
6	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₆	14	14	14	16	16	19	20	15	14	14	13	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆
7	E ₁₆	E ₁₅	13	E ₁₄	E ₁₅	E ₁₆	E ₁₅	14	14	19	16	20	17	20	17	16	14	E ₁₄	E ₁₄	13	E ₁₆	E ₁₆	E ₁₆	E ₁₆
8	E ₁₅	E ₁₅	E ₁₅	13	13	E ₁₅	E ₁₆	15	14	15	15	15	14	16	15	16	15	E ₁₅	E ₁₆	E ₁₆	E ₁₅	E ₁₆	E ₁₆	E ₁₆
9	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₅	15	14	14	15	16	16	15	16	14	14	E ₁₄	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₆
10	E ₁₆	13	E ₁₅	E ₁₅	E ₁₅	E ₁₄	E ₁₆	15	15	14	16	15	16	14	14	16	15	E ₁₄	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₄
11	E ₁₆	E ₁₅	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₄	15	15	14	16	16	15	15	14	13	15	E ₁₆	E ₁₅	E ₁₅	E ₁₆	E ₁₆	E ₁₅	E ₁₆
12	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	16	14	14	17	17	15	14	14	14	16	E ₁₃	E ₁₆	E ₁₅	E ₁₄	E ₁₅	E ₁₆	E ₁₆
13	E ₁₆	E ₁₅	13	13	E ₁₅	E ₁₅	E ₁₆	15	14	16	15	15	16	15	19	16	14	E ₁₄	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₆
14	E ₁₆	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₆	E ₁₅	14	15	14	15	15	15	15	14	14	15	E ₁₆	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₅	E ₁₆
15	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	15	16	15	15	16	15	15	14	15	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₆
16	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	15	14	16	15	17	15	14	14	14	15	E ₁₆	E ₁₆	E ₁₅	E ₁₆	E ₁₅	E ₁₆	E ₁₅
17	E ₁₆	E ₁₄	E ₁₅	13	E ₁₅	E ₁₅	E ₁₅	14	14	15	16	16	17	20	16	16	15	E ₁₄	E ₁₄	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₄
18	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₆	15	14	16	16	17	15	15	14	14	14	E ₁₄	E ₁₅	E ₁₅	E ₁₆	E ₁₆	E ₁₅	E ₁₅
19	E ₁₅	E ₁₄	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₆	E ₁₅	16	15	42	27	21	17	15	14	14	E ₁₄	E ₁₅	E ₁₆	E ₁₄	E ₁₆	E ₁₆	E ₁₆
20	E ₁₅	13	13	13	13	E ₁₅	E ₁₅	15	15	16	15	17	17	16	14	16	13	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆
21	E ₁₅	E ₁₅	E ₁₄	E ₁₄	13	E ₁₄	E ₁₅	13	13	14	14	15	14	17	15	15	14	E ₁₅	E ₁₆	E ₁₆	E ₁₅	E ₁₆	E ₁₅	13
22	E ₁₆	E ₁₅	13	E ₁₅	E ₁₅	E ₁₅	E ₁₄	14	14	16	16	16	16	15	16	14	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₅	E ₁₆
23	E ₁₆	E ₁₄	13	E ₁₅	E ₁₄	E ₁₅	E ₁₅	15	14	14	C	C	20	14	16	16	C	E ₁₆	C	C	E ₁₆	E ₁₆	E ₁₆	E ₁₅
24	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	16	16	16	C	C	C	16	16	15	13	E ₁₄	E ₁₅	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅
25	E ₁₅	13	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	13	13	15	15	19	16	14	13	13	15	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₅	E ₁₅
26	E ₁₄	E ₁₄	E ₁₄	13	E ₁₄	E ₁₅	E ₁₄	14	14	13	15	20	16	15	14	14	13	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄
27	E ₁₄	13	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	13	14	16	15	20	16	19	16	13	13	13	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₅
28	E ₁₄	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	14	15	14	16	21	20	17	16	14	14	E ₁₄	13	E ₁₄	E ₁₄	E ₁₆	E ₁₅	E ₁₄
29	E ₁₅	13	13	E ₁₄	E ₁₄	E ₁₄	E ₁₄	14	14	19	16	19	15	14	15	14	13	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₆	E ₁₄	E ₁₄
30	E ₁₄	E ₁₄	13	13	13	E ₁₄	E ₁₄	14	13	13	13	14	15	13	13	13	13	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₅
31	E ₁₅	E ₁₅	E ₁₄	13	E ₁₄	E ₁₅	E ₁₅	13	13	16	14	15	14	14	15	16	14	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₄	E ₁₄	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	29	29	30	31	31	31	30	31	30	30	31	31	31	31
MED	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	14	15	15	16	16	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	15	15	16	16	17	17	16	16	16	15	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆
LQ	E ₁₅	E ₁₄	E ₁₄	14	E ₁₄	E ₁₄	E ₁₄	14	14	14	15	15	15	14	14	14	14	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅

OCT. 1986

FMIN (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1936

M(3000)F2 (0.01)

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	285 ^S	310 ^S	300	320	325	325	340	350 ^S	360 ^S	355	340	355 ^S	345 ^S	355	345	320	340	340 ^S	330 ^S	335 ^S	320 ^S	315 ^S	300 ^S	310	
2	300	300 ^S	325	340	325	320	350	340 ^S	310 ^S	345 ^S	330	330 ^S	330 ^S	340	320	350	360	370	325	330 ^S	290	285 ^S	290	285	
3	300	310	300	310	310	330	340	335	355 ^S	335	330	330	330	330	340	340	345	360 ^S	350	320	320	300	300	290	
4	290	290 ^S	320	330	300	330	370	320 ^H	370	365 ^S	330	320	350	320	335 ^S	340 ^S	335	355 ^S	350	320	310	305	330 ^S	310 ^S	
5	310	320	320	335	315	320	345	360	355 ^S	355 ^S	335	340	340	330	335	330	350	345	340	330	F	F	F	310 ^S	
6	310 ^S	300 ^S	330 ^S	330	320	320 ^S	350 ^S	345	330 ^S	350	320	360 ^S	355	340	340	335 ^S	335 ^S	340	330	320	320	315	310	310	
7	315	310	320 ^S	320	330	320	360	355 ^S	325	340	335	325 ^S	335	360	345	340	350	340	350	310	310 ^S	305 ^S	310	320	
8	325	335	320	330	330	310	345	320 ^S	310	340	330	340	330	345	335	340	340	350	330	325	305 ^S	290 ^S	290 ^S	F	
9	305 ^S	290 ^S	F	F	F	320 ^S	370	360	350	350	325	320	340	340	340	340	340	345	360	310 ^S	290 ^S	290	300	300 ^S	
10	300 ^S	310	305	330	310 ^S	300 ^S	330	350 ^S	360 ^S	365 ^S	360	330	335	340	330 ^S	340	345	355	340	330 ^S	285 ^S	305 ^S	310	315 ^S	
11	310	320	320 ^S	310 ^S	320 ^S	F	350	360	360 ^S	355 ^S	360	340	330	320	330	330	340	350 ^S	340	320 ^S	310 ^S	310 ^S	310 ^S	315 ^S	
12	320	315	310	315	310 ^S	350	360	355 ^S	350	360	335	325 ^S	345	350	330 ^S	340	340	340 ^S	345 ^H	315	305	305	305	320	
13	345 ^S	310	310	320	350	330	340	330	350	360 ^S	340	340	330	325	330	345	360	355	330	290	300	300	300	300	
14	305	320	325	320	350	340	330	330 ^U	340	370	360	270	310	330	320 ^S	330	340	350	A	A	290	280 ^S	290	280	
15	295	320 ^S	350	385	335	300	340	350	345 ^S	340 ^S	355	345	330	330	330	330 ^S	355	365 ^S	A	300	320 ^S	310	320	315 ^S	
16	310 ^S	290 ^S	300	310 ^S	320	340 ^S	345	360	350 ^S	360 ^S	355 ^S	330	340	340	330	360 ^S	350	345	330 ^S	325	310	310	320 ^S	330	
17	320	315 ^S	305	300 ^S	300 ^S	320	345	360	360 ^J	355 ^S	355	350	350	320	335	350	350 ^U	350 ^S	370	345	300	330	315 ^S	A	310
18	315 ^S	300 ^S	305 ^S	F	F	F	330	365	355 ^S	340	340	325	325	340	335	350	355	360	355	310	300	310	310	310	
19	300 ^S	300	310	320	350	330	360	345	345 ^S	330	340	345	340	330	335	340	340	340	350	320	320	310	305	290	
20	290 ^S	295	300	320	345	360	350	345	340	340 ^S	350	330	340	330	345	350	350	340 ^S	330	325	340 ^S	320	310	300	
21	320 ^S	310	280 ^S	290 ^S	320	320 ^S	350	355	350 ^S	370	350	335	330	330	325	340	345	350	320	310 ^S	325	310	315 ^S	290	
22	310	290 ^S	320	320	340	320	350	350	355 ^J	330 ^S	360	345	340	330 ^S	330 ^S	335 ^S	340	360	315	A	315	330	300 ^S	310	
23	315	320	310	305	330	340	340	360	360 ^J	350 ^S	350	350	340	340	335	350	C	345	C	C	330	315	290 ^S	290	
24	310	280 ^S	315	330	350	300	340	355	330	355 ^S	C	C	330 ^I	320 ^S	340	330	335	350	340	315	315	320	300	300 ^S	
25	320 ^S	300 ^S	285 ^S	285 ^S	310 ^S	A	340	350 ^S	350	360 ^S	350	345	340	330	350	345	355	340	310	A	A	340 ^S	325 ^S	300 ^S	
26	300	310	305	285 ^S	315 ^S	320	345	350	350 ^S	350 ^S	340	330	320 ^R	325	330	330	340 ^S	355	355	290	290 ^S	290 ^S	280 ^S	300 ^S	
27	290 ^S	300 ^S	310	310 ^U	320	310	330	350	340 ^J	330 ^S	350	325 ^J	320	320	330	350	345	340	A	290	295	290	290 ^S	300	
28	320	290	300	280	280	290	335	340 ^S	330	350	320	340	330	330	330	350	350	355	310	290	310	290 ^S	290 ^S	300	
29	300 ^S	300	310	320 ^S	340	270	330	345	350	330 ^S	350	350	335	320	330	350	340 ^S	330	340 ^S	270 ^S	310	300	300	310	
30	300	300	305	330	330	290	320	340	355 ^S	345	340	335	310 ^J	345	335 ^H	350	345	345	340	290	300	300	300	290	
31	280	310	320	330	330	290	310	345	340 ^S	330	340	335	355 ^J	330 ^R	350	330 ^S	345 ^S	340	320	300	305	300	315	300 ^S	
CNT	31	31	30	29	29	28	31	31	31	31	30	30	31	31	31	31	30	31	27	27	29	30	29	30	
MED	310	310	310	320	325	320	345	350	350 ^S	350 ^S	340	335	335	330	335	340	345	350	340	315	310	305	300	300	
UQ	315	312	320	330	335	330	350	355	355 ^S	358 ^S	350	345	340	340	340	350	350	355	348	322	320	315	310	310	
LQ	300	300 ^S	305	310 ^S	315	305	338	342	340	340	335	330	330	328	330	332	340	340	330	300	300	300	300	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 **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	A	380	L 390	L 390	L 375	L 370	L 350	L	L							
2								L	L	385	L 390	L 380	L 380	L 370	U 350	L 370	L							
3									L	L 380	L 380	L 370	L 360	L 350	L 370	L	L							
4									L	L	L 390	L	L 380	L 360	U 350	L	L							
5									L	L	L 380	L 370	L 360	L 380	L	L 360								
6									L	A	A	L 380	L 335	L	A	L	L							
7									L	L 380	L 370	L 380	L 350	L	L	A	A							
8									L	L 375	L 375	L 390	L 390	L 390	L 370		L	L						
9									L	L 370	L 380	L 380	L 370	L 370	L 365	L								
10								A	L	L 370	L 385	L 370	L 380	U 370	L	L	L							
11									L	L 380	L 390	L 360	L 330		L		L							
12									L	L 390	L 370	L	L 390	U 360	L	L	L							
13									L	L 380	L 410	L 380	L	L	L	L								
14								L	L	L	L 400	L 345	L	L 360	L 360	L	A							
15									L	U 360	L 380	L 375	L 360	U 350	L	L								
16									L	L	L 370	L	L 335	L	U 370	L								
17									L	L	A	L 360	L 400	L 370	L	L								
18									L	L 380	U 360	L 370	L 360	L 390	L 375	L								
19									L	L	L	L 365	L 375	L 380	L	L								
20									A	L	L 380	L 400	L 400		L	A	A							
21									L	L	L	A	L 380	L	L									
22									L	L	A	L	A	U 375	A	L								
23										L	C	C	L 390	L	L 350	L								
24									L	L 380	L 395	C	C	C	U 375	L	L							
25										L	L	L 375	A	L	L	L	A							
26									L	L	L 390	U 380	L 380	L 360	L	L								
27									L	L 375	L 370	L 390	L 380	L 360	L	L								
28									L	L	U 370	L	A	L	L	L								
29									L	L	L 355	L 380	L	A	L	A								
30									L	L	L	L 380	L	L	L									
31										L	L	L 360	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									2	14	22	22	22	18	9	2								
MED									L 378	L 380	L 380	L 380	L 380	L 370	L 360	L 365								
UQ									L 380	L 390	L 380	L 385	L 375	L 370										
LQ									L 375	L 370	L 370	L 370	L 370	L 360	L 350									

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M(3000)F1 (0.11)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1936

H⁺F₂ (KM)

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 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								230	230	235	260	245	270	265	300	275	250							
2								245	230	270	280	290	260	255	305	265	230							
3									230	250	270	255	255	265	250	260	245							
4									220	235	260	270 ^L	255	300	265	255	255							
5									240	225	260	250	245	270	260	265								
6									255	240	275	240	230	250 ^L	270	260	235							
7									250	250	260	300	280	240	270 ^{E A}	250	245							
8									250	245	270	260	260	245		255	250							
9									255	245	260	305	265	265	270	260								
10								245	230	225	240	285	235	255	280	260	240							
11									240	235	240	260	270		275 ^L		255							
12									225	240	260	280 ^L	270	260	280	265	240							
13									240	225	250	260	285 ^L	300	275	255								
14								230	240	220	230	355	325	260	260	270	225							
15									235	240	245	250	280	265	230	265								
16									240	225	230	250	255	260	260	250								
17									240	230	240	245	260	280	260	245								
18									225	235	260	280	255	240	245	250								
19									245	255	265	250	250	275	245	245								
20									240	235	235	245	245		255	250	235							
21									225	230	235	245	285	260	255									
22									235	250	240	260	255	250	270	255								
23									240	245	250	250	250	250	240	235								
24									220	220		c	c	I c	260	255	240	245						
25									235	225	245	245	250	250	250	240	230							
26									230	235	245	265	270	270	265	250								
27									250	270	235	250	260	280	255	240								
28									250	245	280	250	250	275	250	235								
29									240	250	255	240	255	250	255	245								
30									225	235	235	255	275	245	245									
31											245	255	225	255	240	250								
CNT									4	28	30	30	30	31	29	30	28	13						
MED									245	240	235	248	255	260	260	260	252	240						
UQ									262	242	245	260	270	270	270	260	250							
LQ									238	230	230	240	250	252	250	250	245	235						

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H⁺F₂ (KM)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

H^oF (KM)

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	300	270	270	270	235	255	220	225	A	H 210	H 190	H 175	H 215	H 235	H 200	H 230	H 225	H 230	E A 225	E A 230	260	250	280	265	
2	275	280	250	225	255	275	235	215	H 190	H 190	H 195	H 180	H 190	H 205	H 215	H 230	H 230	E A 205	E A 235	E A 255	290	300	295	310	
3	260	240	295	265	265	220	225	235	225	205	200	195	H 185	H 205	H 220	H 220	H 230	H 215	H 215	H 225	245	275	280	305	
4	E A 330	E A 300	260	225	275	235	210	210	215	210	210	H 205	H 200	H 200	H 200	H 235	E A 255	H 230	H 200	H 220	E A 275	A 340	E A 285		
5	275	280	250	230	235	250	225	225	H 220	H 210	H 210	H 210	H 185	H 205	H 220	H 205	H 235	H 225	H 220	H 220	315	275	290	275	
6	255	260	235	225	230	240	215	230	E A 250	A	A	E A 225	H 210	H 195	A	H 250	H 235	E A 230	H 235	H 265	265	250	255	260	
7	235	235	230	235	220	215	200	220	220	H 220	H 190	H 205	H 175	H 225	H 220	A	A	A	H 230	H 215	H 235	280	245	255	235
8	240	230	240	230	220	240	220	225	H 210	H 205	H 200	H 190	H 205	H 185	H 215	H 210	H 230	H 225	H 210	H 220	285	305	305	305	
9	275	255	275	265	245	240	210	215	235	225	215	205	H 185	E A 245	H 215	E A 250	H 245	H 230	H 210	H 200	280	285	300	280	
10	270	275	255	235	220	250	235	A	H 220	H 215	H 195	H 215	H 180	H 185	H 225	H 190	H 235	H 215	H 205	E A 240	285	275	255	265	
11	250	E A 280	260	265	240	215	210	230	H 220	H 200	H 190	H 180	H 195	H 180	H 225	E A 245	H 245	H 220	H 205	E A 265	265	270	260	255	
12	255	275	270	260	265	215	210	H 215	H 210	H 195	H 195	E A 250	H 185	H 175	H 220	H 210	H 225	H 225	H 190	H 225	270	305	275	250	
13	270	250	265	250	225	220	210	220	230	215	185	215	200	H 185	H 250	H 250	H 235	H 215	H 200	E A 270	E A 320	280	285	280	
14	290	E A 285	255	250	210	245	240	240	220	H 210	H 210	E A 260	H 225	E A 245	H 240	E A 255	A	H 210	A	A	E A 315	E A 350	305	315	
15	305	255	215	210	560	300	245	235	225	215	225	200	H 190	H 185	H 245	H 245	H 230	H 215	A	H 315	245	250	245	270	
16	265	275	290	270	225	220	225	H 230	H 240	H 220	H 225	H 185	H 185	H 245	H 235	H 240	H 240	H 215	H 225	H 225	250	265	260	245	
17	240	280	275	285	265	250	220	225	225	E A 230	A	E A 230	H 220	H 195	H 250	H 245	H 235	H 205	H 210	H 250	H 220	H 225	A	255	
18	E A 320	290	260	255	230	240	225	230	H 220	H 200	H 190	H 195	H 185	H 190	H 225	H 240	H 225	H 210	H 205	H 225	280	280	280	265	
19	270	285	240	260	220	225	225	230	225	230	B	E A 250	H 220	H 215	H 230	H 225	H 240	H 220	H 200	H 225	265	280	E A 300	300	
20	335	E A 310	255	255	220	220	220	220	A	E A 240	H 195	H 205	H 185	H 250	H 250	A	A	E A 275	H 235	H 240	H 205	H 230	H 255	H 275	
21	265	295	E A 325	300	245	230	220	220	H 220	E A 230	A	A	H 185	H 185	H 230	H 245	H 225	H 225	E A 280	E A 255	255	260	230	265	
22	270	E A 315	A 290	245	230	260	235	220	H 220	H 235	A	A	A	E A 245	A	A	H 230	H 210	H 230	A	E A 275	250	290	280	
23	255	250	250	255	235	225	215	200	H 230	A	C	C	C	H 225	H 230	H 210	H 235	C	H 220	C	C	230	265	275	285
24	265	295	250	225	220	290	235	220	H 215	H 215	C	C	I C 190	H 205	H 235	H 215	H 235	H 205	H 210	H 265	H 270	H 255	H 265	H 295	
25	255	265	A	A	E A 285	A	235	H 225	H 230	H 230	A	H 215	A	A	H 215	A	A	A	H 210	H 215	A	A	E A 325	H 240	H 265
26	250	260	270	275	245	240	220	225	H 225	H 230	H 210	H 190	H 210	H 195	H 245	H 230	H 230	H 210	E A 245	E A 310	275	290	E A 355	H 285	
27	300	280	255	255	240	245	215	215	E A 240	H 200	H 225	H 205	H 190	H 195	H 245	E A 245	H 215	E A 245	A	E A 290	270	E A 300	285	295	
28	310	295	275	305	270	255	250	235	E A 250	E A 255	225	A	A	H 185	H 250	H 225	H 225	H 210	E A 255	H 270	255	300	285	295	
29	275	260	270	245	225	230	235	220	H 225	H 195	H 215	220	E A 250	A	A	H 250	H 220	H 210	H 250	E A 355	280	E A 290	265	275	
30	255	275	270	235	215	260	255	235	H 225	H 225	H 220	E A 250	H 235	H 255	E A 240	H 240	H 235	H 215	H 215	H 300	285	280	265	270	
31	305	270	265	225	235	300	225	230	H 240	H 240	H 225	H 220	H 225	H 230	H 235	A	H 225	E A 245	H 235	H 265	250	255	250	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	30	31	30	31	30	29	23	24	25	23	30	27	26	26	31	27	27	30	30	30	31	
MED	270	270	260	252	235	240	225	225	222	212	210	200	191	200	223	234	230	215	212	U 238	268	270	272	275	
UQ	286	282	270	265	248	255	235	230	228	225	218	212	215	222	240	242	235	225	228	260	280	285	283	290	
LQ	255	260	250	230	222	225	215	220	H 220	H 205	H 195	H 195	H 185	H 185	H 220	H 225	H 225	H 210	H 208	H 225	255	255	255	265	

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H^oF (KM)

IONOSPHERIC DATA

OCT. 1986

H^oE (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	S	A	A	110	120	115	110	115	A	120	105	A	S					
2						S	S	E A	A	110	A	110	E A	120	110	105	105	E S	S					
3		S	S	S	S	S	S	A	110	105	105	E A	E A	115	115	110	E A	S	S		S			
4						S	E S	110	110	E A	A	A	E A	E A	A	A	A	A	S					
5						S	S	115	110	105	A	110	E A	A	A	110	110	S	S					
6		S	S			S	S	115	110	105	110	110	A	A	A	A	A	A	S					
7			3			S	S	115	105	115	110	110	115	110	A	105	A	S	S					
8						S	S	115	105	110	E A	110	110	105	115	110	115	S	S					
9						S	S	120	105	105	105	105	105	105	110	105	115	S	S					
10						S	S	110	A	A	A	A	A	A	A	110	110	S	S					
11						S	S	115	110	A	A	A	120	E A	A	A	A	S	S					
12						S	S	E A	A	120	120	A	115	110	115	110	110	S	S					
13						S	S	115	105	A	A	A	A	A	110	110	115	S	S					
14						S	S	115	110	110	A	A	E A	115	E A	E A	A	S	S					
15						S	S	110	110	110	105	105	120	A	E A	E A	120	S	S					
16						S	S	110	105	120	A	A	120	A	E A	110	E A	S	S					
17						S	S	E A	105	105	105	A	A	E A	115	115	115	S	S					
18						S	S	E A	A	105	A	E A	120	115	A	A	A	S	S					
19						S	S	110	110	105	B	110	A	A	E A	115	115	S	S					
20						S	S	115	110	105	110	115	115	A	A	E A	A	S	S					
21						S	S	135	110	110	110	110	110	A	A	A	A	S	S					
22						S	S	110	110	110	105	105	A	A	A	A	A	S	S					
23						S	S	120	105	105	C	C	110	E A	A	110	C	S	C			S		
24						S	S	115	120	110	C	C	C	125	E A	E A	A	S	S					
25						S	S	A	A	E A	E A	E A	A	A	E A	E A	120	S	S					
26						S	S	A	A	A	A	A	A	A	E A	A	A	S	S					
27						S	S	A	E A	A	A	A	A	A	A	A	A	B	S					
28		S	S	S	S	S	S	120	115	115	110	A	A	A	110	A	A	S	B					
29						S	S	120	115	110	115	120	E A	E A	E A	115	E A	S	S					
30						S	S	A	110	115	125	120	A	E A	A	115	A	S	S					
31						S	S	115	110	110	120	120	115	115	110	115	120	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						1	26	26	26	19	19	19	18	20	22	17	1							
MED						E S	115	110	110	110	110	110	112	112	115	111	115	E S						
UQ							118	110	112	119	115	113	120	125	115	118								
LQ							115	105	105	108	110	112	110	111	110	110								

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H^oE (KM)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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	105	100	100	100	100	110	125	105	100	120	105	100	160	100	105	125	130	115	120	105	100	100	100	100	
2	100	100	100	120	100	125	145	125	105	160	^{E G} 170	105	100	100	100	^G	130	110	110	105	100	100	100	100	
3	S	S	100	S	S	S	150	150	150	120	110	105	105	105	120	100	135	120	120	105	S	S	105	125	
4	100	100	95	95	125	^S	145	140	125	140	105	105	105	110	110	105	100	100	105	105	100	100	100	100	
5	100	95	95	95	95	^S	100	125	115	115	110	110	110	110	110	^G	120	^S	110	110	125	125	105	100	
6	100	100	100	100	^S	^S	^S	120	115	110	110	110	110	110	105	110	110	105	105	100	100	100	100	100	
7	105	100	^B	^S	^S	^S	140	130	125	^G	130	145	160	^G	120	115	110	105	105	100	100	100	100	^S	
8	100	100	95	^B	^B	^S	125	115	120	100	160	100	100	115	120	^G	^G	130	135	110	105	105	120	120	
9	100	100	100	100	^S	^S	145	125	120	120	120	115	120	115	125	130	175	130	110	100	100	140	100	115	
10	100	105	95	100	^S	150	135	120	140	160	105	100	110	110	95	130	150	125	^S	115	115	110	110	110	
11	100	95	100	95	100	100	140	120	110	105	105	100	100	100	100	100	130	115	115	110	110	105	105	100	
12	100	100	100	100	100	100	100	115	120	105	105	100	100	100	100	100	130	115	^S	105	100	105	100	105	
13	100	100	100	100	100	100	100	125	115	105	105	155	^{E G} 170	100	^G	135	125	125	110	105	105	^S	105	100	
14	100	95	95	95	95	^S	145	150	^G	145	135	130	130	125	130	115	110	105	105	105	105	100	105	100	
15	100	100	100	95	95	100	95	130	130	130	120	115	105	100	100	140	125	120	110	110	115	^S	^S	100	
16	95	100	100	100	^S	^S	95	^G	120	120	105	105	100	100	170	155	130	120	115	115	110	^S	^S	105	105
17	100	100	100	95	95	^S	140	110	120	115	110	105	100	100	145	145	145	120	110	^S	^S	110	105	105	
18	105	100	100	100	100	105	110	165	105	110	105	105	105	125	100	100	130	150	^S	95	^S	^S	^S	^S	
19	105	100	100	100	100	100	^S	^G	140	125	^B	120	110	100	100	^G	125	110	^S	110	110	105	105	105	
20	105	100	100	100	100	100	100	125	115	115	110	110	110	100	100	130	130	120	95	95	100	^S	110	110	
21	105	105	105	105	100	100	100	145	135	120	115	110	110	110	110	110	110	105	105	110	105	105	^S	100	
22	100	100	100	95	100	^S	^S	^G	145	125	115	105	105	105	105	100	100	105	100	100	100	100	105	100	
23	100	100	^B	^S	^S	105	^S	^G	140	115	^C	^C	110	115	110	^G	^C	^C	^C	^S	^S	^S	^S	^S	
24	^S	110	^S	^S	^S	^S	100	150	145	^G	^C	^C	^C	105	^{E G} 170	135	105	100	105	105	105	^S	^S	105	
25	130	115	110	110	110	110	115	140	125	120	125	120	115	125	150	145	125	100	100	140	125	120	115	105	
26	100	100	100	105	105	105	^S	110	155	135	110	110	110	105	165	160	115	105	105	100	105	105	105	105	
27	100	100	100	100	105	100	110	105	120	110	105	105	105	110	105	105	140	105	105	105	110	105	105	105	
28	105	^S	^S	^S	^S	^S	145	125	125	120	115	110	105	110	140	110	120	125	110	^S	105	105	105	105	
29	100	105	100	110	105	105	105	125	125	^G	105	120	125	120	120	125	115	120	105	105	105	105	105	105	
30	^S	^S	^B	105	105	105	105	105	105	130	140	120	125	120	115	115	125	105	110	95	^S	^S	^S	100	
31	^S	105	^S	^B	^S	^S	110	^G	^G	155	150	150	105	150	140	125	120	110	110	110	105	105	105	105	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	27	28	25	24	20	17	26	26	29	28	28	29	30	30	30	26	29	30	26	28	26	22	25	28	
MED	100	100	100	100	100	105	112	125	120	120	110	110	109	110	110	120	125	112	110	105	105	105	105	105	
UQ	105	100	100	102	105	105	140	140	135	130	121	120	112	115	128	135	130	120	110	110	110	105	105	105	
LQ	100	100	100	95	100	100	100	145	115	112	105	105	105	100	100	105	115	105	105	100	100	100	100	100	

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H⁺ES (KM)

IONOSPHERIC DATA

OCT. 1986

TYPES OF ES

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

Station **OKUBUNJI TOKYO** Lat. **35 42.4 N**, Long **139 29.3 E** Sweep 1 MHz to 20 MHz in 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	F3	F2	F2	F4	F2	L1	C4	L3	L4	CL12	L1	L1	HL11	L1	L2	HL22	C2	CL11	C2	F5	F4	F3	F1	F2
2	F2	F1	F2	FF12	F2	C3	H2	HL23	L2	HL12	HLL11	L1	L2	L2	L2		H3	C6	C5	FF41	F2	F2	F1	F1
3		K1	LK21	K1	K1		HL51	HL22	HC12	C2	C2	L1	L2	L1	CL12	L1	HL22	C2	CL11	F3	K1		F1	FF22
4	F5	F4	F2	F2	FF11		H2	H2	H2	HL11	L2	L1	L2	L1	L2	L3	L4	L5	L1	F3	F6	F5	F3	F2
5	F2	F2	F4	F2	F1		L1	C2	C3	C2	L2	C2	L1	L2	L2		C3		L2	F1	FF11	FF11	F2	F2
6	F2	LK21	LK11	F2			C3	C3	C3	C3	C2	L2	L2	L2	LL41	LL31	LL21	L4	LL41	F4	F5	F2	F2	F1
7	F1	F2	K1			H2	H2	H1		HL11	HL11	HL11		CL11	C4		L5	L5	L1	F2	F1	F1	F1	
8	F1	F1	F2			CHL22	C2	C2	L1	HL12	L1	L1	L1	C1	CL11			H3	CL11	F2	F4	F2	FF21	FF22
9	F2	F2	F1	F1		H2	HC32	C2	C2	C3	C1	C3	C2	C2	H2	H3	C1	LC11	F1	F2	FF12	F4	FF22	
10	F2	FF12	F2	F1		HL11	H5	C5		HL22	HL12	L2	L3	LL11	LL11	L2	CL11	H1	H2	F2	F2	F2	FF21	F1
11	F1	F4	FF22	F2	F1	L1	H2	C4	C2	L3	L2	L3	L2	L2	L2	L4	CL21	CL42	CL24	FF32	F2	F2	F3	F2
12	F2	F3	F2	F2	F2	L1	L2	L1	CL22	L1	L1	L2	L1	L1	L1	L2	H3	C3	C1	F4	F4	F5	F3	F1
13	F2	F2	F2	F2	F2	L2	L2	C2	C3	L2	L2	HL12	HL11	L1		H2	C4	C2	C1	F3	F5		F1	F1
14	F2	F4	F2	F2	F2	H1	H5	H2		H1	HL22	HL21	HL21	HL21	HL13	CL22	LL32	LL14	LL34	FF62	FF32	F4	FF22	F1
15	F1	F1	F1	F3	F2	L1	L1	H3	H1	H1	C2	C2	L1	L3	L2	HL32	CL51	CL32	CL41	FF31	F2			F2
16	F1	FF12	F1	F2		L1			C3	CL32	LL32	LL21	L1	L2	HL12	HL21	CL22	CL41	CL31	F1	F1		F3	F2
17	F2	F2	F3	F2	F2	H5	L2		C3	C3	C3	L2	L2	L2	HL21	H1	H3	H1	L3			FF21	F5	F5
18	F7	F2	F2	F2	F2	L2	L1	HL23	LL22	C2	L2	L1	L2	CL11	L4	L3	HL41	HL21		F2				
19	F2	F2	F3	F4	F1	L1			HL23	H2		C1	L1	L2	L2		C3	L3		F1	F4	F5	F3	F2
20	F4	F4	F2	F2	F3	L2	L1	CL31	C4	C2	CL21	CL21	CL11	L2	L3	HL33	HL25	CL41	L3	F3	F1		F2	FF21
21	F3	F2	F3	F2	F2	L4	L3	HL23	HL11	CL21	CL21	CL21	CL11	L1	LL21	L4	L3	L4	L6	F2	F3	F4		F2
22	F2	F4	F4	F2	F1	L1			H2	C3	C3	C2	L3	L3	L3	L3	L2	L2	L3	F3	F3	F2	F2	F2
23	F2	F1				L1			H2	C3			C2	CL22	LL11			L1				K1		
24		F1				L1	H2		HL21					L2	HL12	HL22	L3	L1	L1	F1	F1			F1
25	F1	FF22	F4	FF71	F4	L5	L1	HL32	CL22	CL32	CL12	CL21	CL22	CL21	HL22	HL32	HL51	LH11	L1	F5	FF32	FF33	FF22	F3
26	F2	F3	F3	F2	F2	L2		L2	HL23	HLL12	L2	L1	L2	L5	H3	HLL22	LL13	L3	L5	F3	F1	F1	F3	F2
27	F2	F2	F2	F2	F1	L1	L1	L2	CL31	L2	L2	L2	L1	L2	L3	L3	HL22	LL43	LL31	F3	FF11	F2	F2	F2
28	F2		K1	K1	K1		H4	H5	C3	C2	C2	L2	L3	L1	H2	L2	L1	L1	L3		F2	F2	F2	F2
29	F2	F2	F4	F2	F1	L2	L2	CL21	C2		L1	CL22	CL23	CL22	CL31	H2	CL31	C1	L2	F2	F4	F5	FF21	F1
30			F2		F1	L2	L2	L2	L1	HL22	CL13	CL22	CL12	CL22	CL21	CL21	CL11	L1	LL11	F2				F1
31		F1				L1			HL11	HL12	HL12	HL11	HL11	H2	H2		CL41	CL51	L2	F2	F2	F2	F2	F1
	00	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

OCT. 1986

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 38	X 39	X 39	X 40	X 35	X 31	X 35												X 58	X 45	X 46	X 47	X 46	
2		X 44	X 42	X 41	X 42	X 30	X 29	X 33												X 42	X 39	X 39	A	X 36	
3		X 39	X 41	X 39	X 39	X 36	X 34	X 38												X 47	X 41	X 35	X 36	X 37	
4		X 36	X 37	X 37	X 36	X 36	X 35	X 35												A	X 44	X 44	X 45	X 43	
5		X 47	X 42	X 42	X 43	X 37	X 34	X 33												X 59	X 49	A	X 48	X 47	
6		X 49	X 49	X 50	X 43	X 25	X 28	X 35												X 53	X 53	X 51	X 48	X 44	
7		X 45	X 46	X 41	X 40	X 40	X 34	X 36												X 59	X 50	X 50	S	X 45	
8		X 41	X 40	X 42	X 40	X 40	X 30	X 33												X 55	X 36	X 36	X 39	X 38	
9		X 40	X 39	X 39	X 36	X 35	X 35	X 34												X 60	X 35	X 37	X 39	X 41	
10		X 40	X 46	X 41	X 39	X 38	X 31	X 39												X 56	X 33	X 40	S	X 45	
11		X 44	X 43	X 38	X 37	X 40	X 35	X 36												X 77	X 50	X 37	X 43	X 49	
12		X 40	X 47	X 40	X 36	X 38	X 35	X 35												X 30	X 56	X 39	A	X 39	
13		X 41	X 41	X 40	X 40	X 49	X 27	X 31												U X 49	X 36	X 41	X 41	X 41	
14		X 42	X 43	X 41	X 39	X 36	X 26	X 34												X 40	X 39	X 41	X 42	X 42	
15		X 44	X 51	U X 35	X 29	0 X 24	X 25	X 34												X 40	X 44	X 45	A	X 43	
16		X 42	X 40	X 43	X 49	X 50	X 41	X 45												X 42	X 41	X 45	X 41	X 39	
17		X 40	X 36	X 37	X 38	X 37	X 35	X 37												X 42	X 43	X 44	0 X 34	X 34	
18		X 40	X 37	X 33	X 40	X 40	X 36	X 42												0 X 44	X 34	X 35	X 38	X 39	
19		X 39	X 37	X 33	X 37	X 39	X 31	X 31												X 45	X 39	X 40	X 37	X 35	
20		X 35	X 36	X 37	X 39	X 44	X 37	X 37												X 56	X 42	X 39	X 31	X 33	
21		X 34	X 36	X 35	X 36	X 41	X 33	X 37												A	X 43	X 55	X 35	X 33	
22		X 40	X 41	X 42	X 44	X 44	X 27	X 33												X 38	X 41	X 44	X 45	X 45	
23		X 46	X 45	X 42	X 39	X 37	X 35	X 34												X 33	X 43	X 41	X 43	X 38	
24		X 38	X 39	X 38	X 36	X 37	X 32	X 35												X 73	X 45	X 46	X 45	X 40	
25		X 37	X 35	X 40	X 41	X 44	X 37	X 34												X 54	X 49	A	X 42	X 46	
26		X 47	X 43	X 45	X 38	X 39	X 38	X 36												X 59	X 40	A	A	A	
27		X 41	X 44	X 45	X 38	X 40	X 46	X 39												X 54	X 48	X 45	X 49	X 48	
28		0 X 46	X 43	X 43	X 43	X 42	X 45	X 47												X 60	X 46	X 51	X 51	X 42	
29		X 41	X 43	X 46	X 45	X 41	X 33	X 31												X 57	X 46	X 47	X 53	X 46	
30		X 45	X 44	X 44	X 44	X 46	X 30	X 32												X 65	X 39	X 41	X 44	X 44	
31		X 42	X 45	X 48	X 45	X 31	X 32	X 34												X 61	X 42	X 50	X 45	X 39	
		00	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												11	29	27	28	26	30
MED		X 41	X 42	X 41	X 39	X 39	X 34	X 36												X 61	X 46	X 41	X 44	X 42	X 41
UQ		X 44	X 45	X 42	X 42	X 41	X 35	X 37												X 75	X 55	X 46	X 46	X 47	X 45
LQ		X 40	X 39	X 38	X 38	X 36	X 30	X 34												X 58	X 42	X 39	X 40	X 39	X 38

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FXI (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1936

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 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	33	33	34	29	25	30	63	74	73	60	65	73	64	59	63	62	66	67	52	43	40	F	40
2	38	36	35	36	24	23	27	60	73	32	H 67	72	84	71	63	68	69	63	52	36	33	33	A	30
3	33	35	33	33	30	28	32	55	79	83	71	34	97	95	93	33	69	77	64	41	35	29	30	31
4	30	31	31	30	30	29	30	49	54	62	59	62	70	31	36	39	94	95	69	A	33	38	F	37
5	F	36	36	37	31	23	32	51	66	72	78	32	73	82	35	35	77	70	69	53	43	A	F	41
6	F	43	43	S 36	20	22	29	51	70	75	74	103	97	64	65	73	30	65	61	47	47	45	41	J S 33
7	40	40	35	35	34	23	30	52	65	37	U R 83	66	H 79	86	71	64	A	A	S 62	53	44	44	S	39
8	35	35	36	34	32	24	23	50	64	64	76	30	70	79	33	H 63	59	63	55	S 49	30	R 31	33	32
9	34	S 33	32	30	30	29	28	47	74	69	70	60	79	95	89	30	36	85	75	54	30	31	33	35
10	34	F 35	35	33	31	25	32	62	75	75	74	H 69	75	94	R	H 37	33	69	67	S 49	31	35	S	J S 39
11	38	36	31	31	F	29	30	55	69	75	70	65	79	101	R	R	68	74	71	45	31	36	43	S
12	J S 34	F	34	30	32	29	29	53	60	71	64	61	69	80	63	60	70	77	74	50	32	A	33	34
13	J S 35	35	34	34	43	21	25	50	65	74	67	63	74	65	71	76	65	51	49	U S 43	30	35	35	35
14	36	37	35	33	30	20	28	51	123 R	57	50	57	91	117	105 R	90	109	71	49	34	33	35	36	36
15	38	45	U C 29	23	18	19	23	57	J R 77	72	64	65	71	81	C	C	81	67	47	34	33	39	A	37
16	36	34	37	39	41	35	F 39	67	74	79	77	72	85	U R 99	U R 103	37	69	69	49	36	35	39	F 33	S 33
17	34	30	31	32	31	29	31	55	65	70	75	75	C	C	86	39	32	64	50	36	37	38	28	28
18	F	S 31	J F 30	F 29	F	30	F 36	64	57	63	63	66	77	78	H 79	76	59	67	67	S 38	28	29	32	S 33
19	33	31	32	31	33	25	25	47	65	67	86	J R 99	85	H 85	R 95	79	80	81	37	39	33	34	31	29
20	29	30	31	33	38	31	31	58	72	68	79	74	65	66	85	83	67	73	74	50	36	33	25	27
21	28	30	29	30	35	27	31	57	67	61	I C 72	67	64	83	92	90	93	72	62	A	37	39	29	27
22	F	F	F 32	F	F 33	21	27	53	59	70	69	75	87	73	85	97	95	73	46	32	35	38	39	39
23	40	39	36	33	31	29	28	55	65	76	98	95	96	90	90	84	76	77	77	37	35	37	36	32
24	32	33	32	30	31	26	30	62	81	62	66	74	81	82	86	71	75	77	67	39	40	39	35	34
25	31	29	F	F	F	31	28	61	77	79	76	78	71	80	73	84	81	53	48	43	A	36	39	40
26	41	42	39	32	33	32	30	54	68	66	81	74	74	88	100	97	92	77	53	34	A	A	A	34
27	35	37	39	32	F 32	F 31	32	55	66	75	89	80	75	101	96	J S 99	84	60	47	41	39	43	42	42
28	40	41	42	S 42	S 36	39	41	36	94	S 95	102	127 R	120	S 118	120	J R 103	S 73	61	54	39	U S 45	45	44	36
29	35	38	40	39	35	27	25	55	62	H 77	78	83	77	74	85	93	78	60	50	40	J S 41	F 44	46	40
30	39	38	S 38	S 38	40	25	27	S 60	85	71	83	85	90	90	89	75	66	68	59	33	36	38	39	38
31	36	39	41	39	25	26	28	57	70	61	95	J S 98	88	80	80	76	82	61	55	35	F 40	39	35	33
CNT	27	29	30	29	28	31	31	31	31	31	31	31	30	30	28	29	30	30	31	29	29	28	23	30
MED	35	35	34	33	32	28	30	55	69	72	74	74	78	82	86	83	78	69	61	40	36	38	35	35
UQ	38	38	37	36	34	29	31	60	76	76	80	82	87	94	92	89	83	77	68	49	40	39	39	39
LQ	33	33	32	31	30	25	28	52	65	66	67	66	73	78	78	76	69	63	50	36	33	34	32	32

OCT. 1986

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1936

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	U L 430	L 440	U L 450	U L 440	L 430	A	L	A						
2								L	L	U L 420	L 420	U L 450	U L 450	L 440	L 440	L 410	L							
3								L	L	L	U L 440	L 450	U L 450		L	L	L							
4									L	L	U L 460	L 460	L 440	U L 450	U A 430	U A 410	L							
5								L	A	L	450	L 460	L 450		L	L	L							
6									L	L	A	A	450	A	A	L	L	L						
7										440	L	450	450	L	410	410	A	A						
8									L	L	450	450	L 480	L 500	450	L	L							
9									L	A	440	A	450	450	A	L	L	L						
10									L	L	L	440	440	440	L	L	L	L						
11									L	L	L	450	H 480	H 450	L	L	L	300						
12								L		L	L	450	450	420	450	420	L	A						
13									L	410	420	450	430	L	L 430	400	L							
14									L	L	450	L	L 450	A	L 430	U L 430	L							
15									L	L	A	430	L 450	U L 460	C	C	L							
16									L	L	A	U L 420	430	U L 420	420	L	L							
17									L	U L 420	L 440	L 440	C	C	420	L	A							
18									L	U L 420	U L 420	U L 430	430	430	A	A	A							
19									L	L	E B 470	U L 430	U L 450	L 430	U L 420	U L 410	L	L						
20										L	L	L	L 450	U L 460	L 440	L	A							
21										A	C	A	A	450	L	L	A							
22									L	L	L	L 430	L 440	U L 420	L	L	L							
23									L	L	L	L 450	L	L	L	L	L							
24									L	L	L	L 450	L 460	U L 440	L	L	A							
25									L	L	L	L	U L 440	L	L	L								
26									L	L	L	L	L 440	L 450	L	L	L							
27									L	L	L	450	450	L	L	A	L							
28									L	L	L	L	450	L	L	L	L							
29									L	L	L	L 430	L 470	L	L	L	A							
30									L	L	L	L 450	L	L 440	L	L	L							
31										A	450	L	L 450	L	L 400	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											5	9	22	27	20	13	7	1	1					
MED											U L 420	435	L 450	L 450	L 440	L 430	L 410	U A 410	300					
UQ											U L 420	450	450	450	L 450	L 440	L 425							
LQ											U L 420	L 420	L 430	L 445	L 435	L 420	L 410							

OCT. 1936

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 1986

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								A	A	A	320	330	C	A	A	A	A	A	S					
2								200	A	C	C	C	C	C	C	300	265	205	S					
3								210	A	A	A	A	C	C	C	C	C	C	S					
4								200	250	275	295	A	A	A	A	A	A	A	S					
5								195	250	A	A	A	A	330	A	A	A	A	S					
6								215	A	A	A	C	A	A	A	A	A	205	S					
7								200	255	295	300	305 ^R	C	305	300	290	A	A	S					
8								185	250	295	305 ^R	A	A	C	C	295	A	A	S					
9								180	250 ^H	270 ^H	A	C	C	C	A	235	A	A	S					
10								200	245	305	A	A	A	C	A	A	A	A	S					
11								210	250	A	C	A	A	315	A	295	245	190						
12								200	250 ^R	A	R	A	C	C	C	295	250	A						
13						S		200	250	250 ^R	C	R	325	330 ^U	310	285	250	190	S					
14								210	260	285	R	A	A	A	A	A	250	180 ^U	S					
15								185	250	285 ^R	300 ^R	300 ^U	305 ^R	310 ^R	C	C	240	175	S					
16								165	260	A	A	A	A	310 ^U	300 ^R	285	250	A	S					
17								200	250	280 ^U	300	310	C	C	A	295	255	190	S					
18								195	255	A	295	A	305	305	300	290	245	A	S					
19								A	250	285 ^U	B	330	330 ^R	330	305 ^A	A	A	A	S					
20								200	A	A	A	315	A	A	335	305	265	220	A					
21								A	A	A	C	315	A	A	A	A	A	S						
22								190	A	300	A	A	340	A	A	A	250	A	S					
23								170	250	A	A	A	310	320	305	280	A	A						
24								205	250	A	A	325	330	325	310	295	250	A						
25								A	A	A	A	A	A	A	340	295	250	A						
26								195	250	A	A	A	A	A	335	A	A	A						
27								195	A	A	A	A	A	A	305	A	A	A						
28								S	250	300	A	A	A	A	A	A	245	170						
29								S	250 ^H	270	315	320	330	325	310	295	245	A						
30								S	250	A	305	320	340	335	305	285 ^R	245	A						
31								S	235	265	305	R	320	310 ^R	300	285	A	170						
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								23	22	14	10	10	10	13	14	17	16	10						
MED								200	250	285	302	318	328	320	305	295	250	190						
UQ								200	250	295	305	325	330	330	310	295	250	205						
LQ								192	250	270	300	310	310	310	300	285	245	175						

OCT. 1986

FOE (0.01 MHz)

IONOSPHERIC DATA

OCT. 1986

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	J A 20	J A 17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	23	J A 34	30	32	31	G	C	J A 35	J A 41	J A 57	J A 38	J A 36	J A 26	J A 20	J A 20	J A 36	J A 22	J A 19
2	J A 17	J A 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	23	J A 27	C	C	C	C	C	C	33	32	33	J A 24	J A 29	J A 27	J A 27	J A 46	J A 24	
3	J A 15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	J A 20	27	27	33	37	J A 36	C	C	C	C	C	C	J A 18	J A 36	J A 44	J A 19	J A 17	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	27	J A 38	36	34	42	J A 39	J A 36	J A 37	J A 44	J A 42	J A 31	J A 29	J A 69	J A 24	J A 37	J A 30	J A 16	
5	J A 16	J A 18	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	20	J A 39	J A 60	J A 42	37	38	G	34	J A 36	J A 42	J A 41	J A 18	J A 26	J A 31	J A 44	J A 27	J A 33	
6	J A 39	J A 44	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	G	35	J A 74	J A 57	61	37	J A 70	J A 55	J A 56	J A 36	J A 35	J A 19	E S 16	E S 16	E S 16	E S 16	E S 16	
7	J A 29	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	23	30	32	36	38	36	35	33	39	J A 74	J A 76	J A 65	J A 33	24	J A 36	J A 20	J A 18	
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	22	30	31	33	36	35	C	C	32	31	25	21	J A 26	J A 20	27	E S 16	J A 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	26	J A 46	64	J A 36	J A 60	34	34	60	30	J A 33	J A 27	G	E S 16	E S 16	E S 16	E S 16	E S 16	
10	E S 16	J A 17	J A 18	E S 16	E S 16	22	J A 28	J A 39	31	J A 35	C	40	C	C	C	31	34	24	J A 37	J A 38	E S 16	J A 29	J A 28	J A 33		
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	C	C	34	34	G	24	C	34	32	J A 40	J A 61	J A 41	J A 24	39	J A 36	J A 28
12	J A 32	J A 17	25	E S 16	E S 16	E S 16	E S 16	E S 16	G	30	31	33	C	C	C	35	C	G	G	J A 37	J A 32	J A 23	E S 16	J A 32	J A 19	20
13	E S 16	E S 16	20	17	E S 16	E S 16	E S 16	E S 16	31	29	D C	27	G	G	26	40	36	35	35	27	E S 16	E S 16	J A 22	J A 33	22	20
14	J A 25	J A 21	E S 16	E S 16	E S 16	E S 16	E S 16	22	34	G	35	35	41	J A 42	J A 48	38	30	27	J A 31	E S 16	20	20	J A 21	J A 26	E S 16	
15	J A 21	21	J A 19	18	E S 16	E S 16	E S 16	27	31	38	J A 46	36	35	G	27	C	C	31	34	24	J A 37	J A 38	E S 16	J A 24	J A 39	
16	E S 16	E S 16	E S 16	E S 16	E S 16	20	E S 16	22	29	39	44	J A 36	J A 44	G	G	33	J A 34	J A 43	J A 30	J A 41	J A 25	J A 25	E S 16	E S 16	E S 16	
17	E S 16	18	E S 16	J A 20	20	E S 16	19	23	31	36	J A 40	J A 41	C	C	J A 47	J A 35	J A 58	J A 38	J A 25	J A 20	J A 25	J A 25	J A 46	J A 51		
18	J A 51	J A 41	J A 22	J A 33	J A 27	E S 16	J A 25	22	J A 33	J A 41	J A 35	J A 33	35	38	J A 49	J A 46	40	J A 40	J A 47	J A 41	22	22	J A 19	J A 22		
19	J A 21	22	E S 16	J A 23	17	21	22	J A 22	30	J A 47	E S 16	J A 60	39	41	55	J A 40	J A 33	J A 29	J A 26	18	E S 16	E S 16	E S 16	E S 16	18	
20	E S 16	J A 17	E S 16	J A 17	J A 23	J A 17	E S 16	J A 33	32	J A 33	J A 38	J A 36	41	J A 36	40	40	J A 42	J A 41	J A 26	J A 44	J A 79	18	J A 25	E S 16		
21	E S 16	J A 37	J A 33	J A 24	J A 23	J A 33	J A 26	J A 33	41	J A 53	C	J A 58	J A 48	J A 40	37	35	J A 39	J A 30	J A 22	J A 61	J A 33	J A 51	J A 19	J A 18		
22	E S 16	E S 16	E S 16	J A 19	E S 16	J A 17	E S 16	23	J A 33	32	J A 44	J A 41	J A 37	J A 39	36	J A 36	G	J A 27	J A 36	J A 50	J A 19	J A 32	J A 35	J A 25		
23	J A 32	J A 25	J A 19	J A 17	J A 20	J A 17	J A 17	22	27	J A 72	J A 30	J A 32	23	36	36	34	J A 30	J A 22	J A 16	J A 17	E S 16	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	E S 16	18	G	J A 31	J A 36	G	J A 41	38	37	41	J A 47	J A 50	J A 36	E S 16	E S 16	E S 16	E S 16	E S 16	
25	E S 16	J A 21	E S 16	J A 17	J A 17	J A 21	J A 33	J A 33	J A 40	J A 46	J A 41	J A 75	J A 46	41	39	33	J A 41	J A 26	J A 21	J A 33	J A 41	J A 41	J A 33	J A 24		
26	J A 30	J A 25	J A 21	J A 18	J A 17	J A 22	J A 21	28	35	36	37	37	37	J A 41	42	J A 41	30	J A 51	J A 33	J A 30	J A 50	J A 40	J A 65	J A 52		
27	J A 28	J A 29	J A 17	J A 17	E S 16	E S 16	E S 16	22	26	J A 34	J A 35	J A 50	J A 39	J A 34	38	J A 46	J A 37	J A 25	J A 34	J A 24	E S 16	E S 16	E S 16	E S 16	E S 16	
28	E S 16	J A 25	J A 21	J A 21	E S 16	J A 21	E S 16	24	35	J A 43	34	39	J A 44	J A 79	J A 43	35	29	J A 44	J A 30	J A 34	J A 32	J A 64	J A 22	E S 16		
29	J A 22	J A 36	J A 24	J A 22	E S 16	E S 16	E S 16	20	J A 32	30	33	34	36	40	33	30	32	J A 50	J A 30	J A 34	J A 41	J A 33	J A 32	J A 16		
30	E S 16	J A 25	E S 16	E S 16	E S 16	J A 25	J A 20	J A 19	28	J A 37	36	41	23	G	34	35	J A 33	G	J A 53	J A 30	J A 33	J A 36	J A 26	E S 16	E S 16	
31	E S 16	J A 25	J A 22	J A 20	J A 17	J A 17	E S 16	J A 21	31	34	36	38	46	36	34	32	34	30	J A 30	J A 32	J A 33	J A 38	J A 44	J A 32	J A 32	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		31	31	31	31	31	31	31	31	31	29	27	29	25	26	24	29	30	30	31	31	31	31	31	31	
MED	E S 16	J A 18	E S 16	E S 17	E S 16	E S 16	E S 16	23	31	36	36	38	37	36	38	35	34	J A 33	J A 29	J A 30	J A 24	J A 27	J A 22	J A 18		
UQ	J A 24	J A 25	J A 20	J A 18	17	J A 18	20	27	34	J A 43	J A 40	J A 41	J A 41	J A 40	44	J A 40	J A 40	J A 41	J A 34	J A 37	J A 32	J A 36	J A 32	J A 24		
LQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	22	29	32	34	36	35	34	36	33	31	J A 27	J A 21	J A 20	18	20	E S 16	E S 16		

OCT. 1986

FOES (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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 16	E 16	E 16	E 16	E 16	E 16	E 16	23	28	30	32	29	C	35	41	47	29	33	26	E 16	E 16	30	20	E 16	
2	E 16	E 16	E 16	E 16	E 16	E 16	E 16	23	27	C	C	C	C	C	C	33	30	32	23	29	22	E 16	A 46	21	
3	E 16	E 16	E 16	E 16	E 16	E 16	E 16	23	27	31	34	35	C	C	C	C	C	C	E 16	30	27	E 16	E 16	E 16	
4	E 16	E 16	E 16	E 16	E 16	E 16	E 16	23	32	34	34	41	38	36	36	43	41	30	26	A 69	E 15	21	25	E 16	
5	E 16	E 16	E 15	E 16	E 16	E 16	E 16	G	29	43	37	37	35	G	34	33	32	25	E 16	18	E 16	A 44	20	29	
6	32	18	E 16	E 16	E 16	E 16	E 16	G	32	36	44	51	35	60	55	38	29	21	19	E 16	E 16	E 16	E 16	E 16	
7	23	E 16	E 16	E 16	E 16	E 16	E 16	22	29	31	35	37	35	35	33	38	A 74	A 76	55	26	20	20	20	17	
8	E 16	E 16	E 16	E 16	E 16	E 16	E 16	21	29	31	33	35	35	C	C	32	30	20	E 16	23	20	24	E 16	E 16	
9	E 16	E 16	E 16	E 16	E 16	E 16	E 16	25	34	43	34	50	34	34	60	30	33	24	G	E 16	E 15	E 16	E 16	E 16	
10	E 16	E 16	E 16	E 18	E 16	20	26	39	29	31	C	34	C	C	C	31	33	21	S	17	E 16	E 16	E 16	E 16	
11	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	29	C	C	34	34	G	C	34	31	27	60	23	22	22	19	21	
12	25	E 16	20	E 16	E 16	E 16	E 16	G	29	30	33	C	C	34	C	G	G	34	30	20	E 16	A 32	19	18	
13	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	29	D	C	U	C	G	G	G	34	33	26	E 16	E 16	E 16	18	E 16	E 16
14	E 16	E 16	E 16	E 16	E 16	E 16	E 16	33	G	34	34	36	41	45	35	30	G	31	E 16	20	E 16	E 16	E 16	E 16	
15	E 16	E 16	17	E 16	E 16	E 16	E 16	25	31	33	45	36	34	G	C	C	31	28	42	20	20	E 16	A 54	E 16	
16	E 16	E 16	E 15	E 16	E 16	E 16	E 15	22	29	36	42	33	34	G	G	32	23	33	28	23	E 16	E 16	E 16	E 16	
17	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	30	35	39	39	C	C	40	31	55	31	18	E 16	23	22	23	19	
18	E 16	23	E 16	E 16	E 16	E 16	E 16	G	29	38	32	33	33	37	47	45	39	33	41	33	E 16	E 16	E 16	E 16	
19	E 16	E 16	E 15	E 16	E 16	E 16	E 16	19	28	31	E 47	40	38	37	40	34	29	21	20	E 16	E 16	E 16	E 16	E 16	
20	E 16	E 16	E 16	E 16	E 16	E 16	E 16	19	28	32	32	33	33	34	39	32	38	41	19	44	19	E 16	22	E 16	
21	E 16	E 16	E 16	E 16	E 16	20	20	21	35	51	C	44	42	35	36	34	39	23	E 16	A 61	23	39	E 16	E 16	
22	E 16	E 16	E 16	E 16	E 16	E 16	E 16	G	25	G	33	33	32	33	32	30	G	20	18	21	E 16	20	17	E 16	
23	19	E 16	E 16	E 16	E 16	E 16	E 16	20	G	29	30	32	G	22	35	35	34	25	19	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	18	G	30	30	G	35	38	36	37	46	43	28	E 16	E 16	E 16	E 16	E 16	
25	E 16	E 16	E 16	E 16	E 16	E 16	E 16	20	22	32	31	33	41	40	40	37	32	29	22	18	33	A 41	20	E 16	E 16
26	20	E 16	E 16	E 16	E 16	19	E 16	25	34	33	37	35	35	36	42	39	30	23	31	24	A 50	A 40	A 55	22	
27	19	E 16	E 16	E 16	E 16	E 16	E 16	19	26	31	33	34	34	32	35	44	24	25	32	20	E 16	E 16	E 16	E 16	
28	E 16	24	E 16	E 16	E 16	E 16	E 16	24	34	33	33	37	36	41	39	32	27	44	19	E 16	E 16	23	E 16	E 16	
29	E 16	25	19	E 16	E 16	E 16	E 16	20	E 16	30	33	34	36	37	36	30	32	49	E 16	32	34	E 16	20	E 16	
30	E 16	E 16	E 16	E 16	E 16	19	E 16	E 16	27	34	35	37	G	20	G	34	G	20	E 16	E 16	20	E 16	E 16	E 16	
31	E 16	E 16	E 16	E 16	E 16	E 16	E 16	31	34	35	36	44	36	34	31	30	21	24	E 16	E 16	21	18	23	25	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	29	27	29	25	26	24	29	30	30	30	31	31	31	31	31	
MED	E 16	E 16	E 16	E 16	E 16	E 16	E 16	20	29	32	34	35	35	35	36	33	30	26	19	20	E 16	E 16	E 16	E 16	
UQ	E 16	E 16	E 16	E 16	E 16	E 16	E 16	23	31	35	36	37	36	37	40	37	33	33	28	28	22	22	20	16	
LQ	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	27	31	33	33	34	32	34	31	27	21	E 16	E 16	E 16	E 16	E 16	E 16	

OCT. 1986

FBES (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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 S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	20	18	20	20	22	18	17	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
2	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	15	18	18	20	16	21	18	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
3	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	16	15	18	18	20	20	22	18	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
4	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	22	18	22	22	20	21	18	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
5	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	17	21	22	21	23	21	17	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
6	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	13	18	E C 27	24	22	21	20	16	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
7	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	17	20	19	21	E C 32	21	24	20	16	17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
8	E S 16	18	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	16	18	21	E C 25	22	21	18	18	18	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
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	17	16	17	23	E C 23	21	20	17	17	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
10	E S 16	E S 16	E S 16	E S 18	E S 16	E S 16	E S 16	E S 16	E S 16	16	21	22	21	E C 24	22	22	17	17	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	17	18	E C 26	16	18	17	20	17	17	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
12	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	18	18	20	E C 27	E C 26	E C 25	E C 23	18	17	16	E S 16	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	E S 16	E S 16	E S 16	17	18	E C 21	E C 23	16	17	18	18	17	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
14	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	13	17	17	17	22	21	17	17	17	E S 16	E S 16	E S 16	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	E S 16	16	17	17	18	17	17	C	C	17	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	17	17	18	18	18	16	13	12	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 15	12	15	16	C	C	21	14	14	13	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
18	E S 16	13	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	14	14	17	16	17	17	17	13	16	14	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	14	13	47	25	21	21	17	15	15	E S 15	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16
20	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 15	E S 16	16	16	15	15	16	17	15	15	15	15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
21	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	15	15	C	16	17	17	17	16	15	E S 15	E S 16	E S 16	E S 15	E S 15	E S 15	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	E S 16	15	16	16	18	16	16	16	16	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
23	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	15	15	15	17	17	15	16	16	15	E S 16	E S 16	E S 16	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	E S 16	16	16	16	16	16	17	15	16	16	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
25	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 15	E S 16	15	15	16	16	18	18	15	15	15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
26	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	15	15	16	16	17	17	16	16	E S 16	E S 15	E S 16	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	E S 16	E S 16	15	17	17	17	18	16	15	15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
28	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	15	16	16	17	16	16	16	15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
29	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	15	15	16	16	15	16	19	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
30	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	15	15	15	15	15	15	15	16	E S 16	E S 16	E S 16	E S 16	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	E S 16	E S 16	E S 16	16	17	19	19	16	13	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
	00	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	30	31	30	30	30	30	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	E S 16	16	16	17	18	18	18	17	16	16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16
UQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	16	18	18	U 20	20	21	21	18	17	16	E S 16	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	E S 16	14	15	16	16	17	17	16	15	15	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16

OCT. 1986

FMIN (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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 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	295	320	335	350	345	300	335	375	370	375	350	345	350	345	340	340	340	355	375	355	350	310		F	310	
2	315	305	315	345	355	325	315	360	365	380	305 ^H	320	340	345	325	345	355	365	375	320	320	285		A	335	
3	320	315	320	320	350	320	330	355	350	360	315	315	330	330	340	345	345	365	380	330	340	295	300		320	
4	315	305	320	315	350	380	350	385	390	380	365	340	315	315	320	325	340	370	375		A	315	300	F	295	
5	F	305	375	350	340	375	345	360	370	355	345	340	340	315	310	340	345	340	360	350	315		A	F	315	
6	F	325	350	390 ^S	325	320	345	350	355	345	315	345	370		A	315	325	325	355	345	310	320	310	330	S	
7	275	335	330	315	350	355	335	355	325	335	355 ^{U R}	355	315 ^H	330	340	345		A	A	345 ^S	340	320	320	S	320	
8	330	315	335	350	345	355	320	370	360	360	350	355	320	315	325	325	340	365	345	355 ^S	315	305 ^R	305	310		
9	310	335 ^S	345	315	315	345	320	360	370	335	340	300	315	325	325	325	335	340	360	360	300	305	305	315		
10	295	315 ^F	340	335	355	320	330	360	375	360	360	335 ^H	305	325		R	325 ^H	335	335	350	345 ^S	305	285	S	J S	
11	315	335	320	320	F	325	350	365	360	375	365	325	305	310		R	R	340	360	375	335	305	305	300	S	
12	S	F	350	335	375	345	345	375	350	380	345	350	305	350	340	325	340	350	370	360	295		A	335	295	
13	J S	300	315	310	325	385	335	320	350	345	360	360	315	330	315	330	340	360	370	345	335 ^{U S}	300	285	300	300	
14	290	310	340	305	350	350	285	295	365 ^R	385	250	230	285	335	340 ^R	310	340	360	345	310	270	270	275	275		
15	290	335	310 ^{U C}	325	360	290	305	350	J R	390	360	360	330	325	315		C	C	320	345	360	295	290	305	A	295
16	305	325	295	320	315	340	320 ^F	330	365	355	365	325	305	315 ^{U R}	320 ^{U R}	345	345	360	345	320	300	320	350 ^F	305 ^S		
17	340	335	320	345	320	345	320	370	360	355	360	345		C	C	325	350	365	365	370	320	310	340	320	305	
18	F	305 ^S	315 ^{U F}	310 ^F	F	335	335 ^F	380	375	355	350	325	305	335	330 ^H	340	345	350	375	340 ^S	305	310	310	335 ^S		
19	305	305	310	305	335	360	320	340	355	375	325	345 ^{J R}	325	295 ^H	325 ^R	330	335	335	365	335	305	310	305	295		
20	275	300	320	320	355	355	340	385	355	350	365	345	330	305	315	350	335	350	365	360	320	335	320	295		
21	305	300	295	300	340	350	340	370	380	360	360 ^{I C}	345	320	320	325	325	345	355	355		A	310	305	310	315	
22	F	F	330 ^F	F	350 ^F	380	315	365	380	370	345	335	345	335	310	345	355	365	360	310	300	290	305	295		
23	300	320	335	335	340	345	355	355	370	340	355	345	340	335	335	335	355	350	370	335	300	325	320	310		
24	310	335	330	315	320	345	335	360	365	385	355	350	350	340	360	350	360	350	365	335	325	335	340	325		
25	340	310	F	F	F	355	320	360	370	330	360	365	330	330	320	340	350	360	355	350		A	305	320	300	
26	305	320	335	330	320	345	335	350	395	355	350	335	325	320	325	340	355	365	350	340		A	A	A	295	
27	315	335	370	345	330 ^F	275 ^F	375	365	365	345	360	355	295	315	355		S	365	360	330	330	280	300	285	285	
28	285	305	310	320 ^S	305 ^S	280	290	345	355	335 ^S	315	320 ^R	325	305 ^S	335		R	335 ^S	345	335	280	300 ^{U S}	320	305		
29	315	300	325	335	330	350	320	355	360	330 ^H	345	350	350	315	325	345	360	350	340	300	305 ^{U S}	285 ^F	315	300		
30	305	290	315	315 ^S	375	280	295	340 ^S	370	350	335	330	335	335	350	345	350	325	340	305	275	300	305	300		
31	275	305	340	345	380	290	305	350	340	345	320	335 ^{J S}	340	325	350	340	360	360	335	370	300 ^F	305	315	305		
	00	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	29	30	29	28	31	31	31	31	31	31	31	30	29	28	27	30	30	31	29	29	28	23	29		
MED	305	315	328	325	345	345	330	360	365	355	350	340	325	325	325	340	345	355	360	335	305	305	310	305		
UQ	315	325	340	345	355	352	340	368	370	372	360	345	340	335	340	345	355	365	370	350	315	310	320	315		
LQ	295	305	315	315	328	320	320	350	355	345	338	325	315	315	322	325	340	350	345	320	300	298	305	295		

OCT. 1986

M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1986

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	U L 395	L	U L 375	U L 385	A	A	L	A						
2								L	L	U L 380	U L 405	U L 375	U L 375	L	U L 385	L	U L 380	L						
3									L	L	L	U L 375	L	U L 375	L	L	L							
4										L	L	A	L	U L 370	L	U L 375	A	A	L					
5									L	A	L	L	U L 375	L	L	L	L							
6									L	L	A	A	355	A	A	L	L	L						
7										340	L	375	390	L	390	A	A	A						
8									L	L	355	365	365	L	340	365	L	L						
9									L	A	A	A	375	365	A	L	L	L						
10									L	L	L	375	385	385	L	L	L	L						
11									L	L	L	390	H	H	L	L	L	A						
12								L		L	L	375	390	405	345	355	L	A						
13									L	390	380	375	420	L	360	375	L							
14									L	L	365	L	A	A	360	U L 335	L							
15									L	A	A	385	375	U L 360	C	C	L							
16									L	L	A	U L 390	395	U L 390	370	L	L							
17									L	U L 380	L	L	375	C	C	A	L	A						
18									L	A	U L 390	U L 395	385	370	A	A	A							
19									L	L	B	A	U L 365	L	385	A	U L 365	L	L					
20										L	L	L	390	U L 380	L	365	L	A						
21										A	C	A	A	L	365	L	L	A						
22									L	L	L	L	395	395	415	L	L	L						
23									L	L	L	L	390	L	L	L	L	L						
24									L	L	L	L	390	380	U L 385	L	L	A						
25									L	L	L	L	U L 395	L	L	L								
26									L	L	L	L	395	L	390	L	L	L						
27									L	L	L	375	400	L	L	A	L							
28									L	L	L	L	390	L	L	L	L							
29									L	L	L	405	380	L	L	L	A							
30									L	L	L	390	L	385	L	L	L							
31										A	355	L	A	L	385	L								
CNT											4	7	20	25	20	10	5							
MED											380	380	380	380	382	368	365							
UQ											385	392	390	390	385	375	375							
LQ											360	360	375	375	372	360	U L 355							

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M(3000)F1 (0.01)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

H^oF₂ (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	YAMAGAJA				Lat. 31° 12.1' N				Long 133° 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							230	230	235	255	280	255	280	290	270	270	240							
2							250	245	235	270	275	255	255	295	275	250								
3							250	230	270	280	270	255	260	250	250									
4							240	250	300	310	230	230	275	255	240									
5							240	255	250	250	270	290	230	255	250									
6							245	250	280	250	230	A	E A 320	230	260	240								
7							265	240	240	295	265	260	270		A	A								
8							240	255	260	240	300	285	260	255	250									
9							250	275	245	E A 310	300	230	A	265	270	260	240							
10							230	240	250	255	285	270	255	260	250	235								
11							240	230	245	265	305	270	270	270	260	245								
12							210	235	255	255	265	255	275	300	260	245								
13							255	240	240	L 295	275	280	275	250	235									
14							230	215	530	L	345	255	245	230	245									
15							235	235	245	265	280	230		C	C	245								
16							235	245	235	255	230	270	255	245	245									
17							235	245	240	250		C	C	270	250	240								
18							220	245	260	280	275	255	255	255	235									
19							245	L 245	270	235	260	270	255	260	245	245								
20							250	240	250	270	320	295	250	250										
21							250	I C 245	260	250	300	265	260	245										
22							230	240	280	260	260	250	230	260	240									
23							230	255	250	250	255	250	260	250	230									
24							215	225	250	255	260	260	250	240	245									
25							235	230	250	245	250	280	275	265										
26							230	250	265	265	265	275	275	245	240									
27							235	260	240	240	250	280	250	250	230									
28							230	260	300	255	235	270	250	240	235									
29							230	265	250	250	265	280	275	250	230									
30							240	245	250	245	270	260	250	240	235									
31							230	285	240	260	265	255	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							3	25	31	31	30	30	29	30	30	28	3							
MED							230	235	245	250	255	268	270	264	255	245	240							
UQ							240	240	252	268	265	280	280	275	270	250	245							
LQ							220	230	235	245	250	255	260	255	250	238	240							

OCT. 1986

H^oF₂ (KM)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

H^oF (KM)

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

Station		YAMAGAWA												Lat. 31 12.1 N, Long 130 37.1 E												Sweep 1 MHz to 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 315	E S 280	S 250	S 235	220	E S 290	E S 250	225	225	210	H 190	H 180	H 180	200	A	A	230	A	225	220	220	E A 300	E A 270	E S 270													
2	E 270	E S 280	E S 275	220	220	E S 250	E S 260	230	230	200	H 190	H 200	H 180	H 205	H 195	H 220	E A 240	230	205	E A 275	E A 300	E S 320	A	E S 310													
3	E S 280	E S 270	E S 270	E S 270	245	245	S 250	225	230	205	205	200	H 195	H 190	230	225	220	235	205	E A 255	E A 265	E S 295	E S 300	E S 280													
4	E 290	E S 295	E S 275	S 250	230	225	220	205	210	215	205	A	225	230	220	A	A	A	200	A	245	E S 300	A	E S 290													
5	E S 280	E S 290	E S 255	225	225	215	230	220	225	A	A	H 240	H 205	H 200	H 195	210	235	E A 240	A 240	230	215	220	A	E A 300													
6	E A 305	250	A 215	200	S	S	E S 250	215	240	235	A	A	195	A	A	A	220	215	230	230	S 245	S 250	S 230	S 265													
7	E A 320	240	E S 225	E S 250	E 215	E S 205	E S 245	225	230	215	E A 210	200	185	255	205	A	A	A	A	240	245	255	E S 300	245													
8	E S 260	E S 265	S 250	E S 230	220	230	E S 250	210	220	235	215	210	185	200	185	230	240	240	210	220	A 255	A	E S 290	E S 295													
9	S 280	S 250	E S 250	S 270	E S 280	E S 240	E S 250	220	250	A	210	A	240	230	A	235	E A 255	240	220	210	E S 245	E S 285	E S 295	E S 270													
10	E S 290	S 275	S 250	E S 255	E S 210	S	A	A	235	230	215	205	210	195	190	235	240	A	220	230	210	E S 270	E S 310	S 285	S 255												
11	255	E S 245	E S 255	E S 270	E S 250	E S 230	E S 235	220	220	215	205	205	180	180	260	245	240	A	E A 245	210	A	E S 295	E S 280	295													
12	E A 300	265	245	E S 260	E S 225	E S 240	E S 215	215	220	230	210	200	H 190	190	225	220	220	A	210	215	S	A	E S 255	E A 305													
13	270	265	265	255	200	E S 245	255	230	210	H 210	210	200	190	265	250	240	A	210	220	200	E S 250	310	E S 275	E S 290													
14	280	255	225	E S 275	205	E S 210	E S 300	255	240	210	205	H 250	A	A	245	220	H 240	220	200	E A 280	E S 305	E S 325	E S 325	E S 315													
15	295	230	210	E S 250	E S 300	E S 360	E S 275	235	235	A	A	210	195	180	C	C	245	220	E A 260	E A 245	E A 295	275	A	270													
16	E S 260	E S 250	E S 275	250	225	220	230	230	220	245	A	195	195	175	H 180	250	250	225	225	E A 250	260	245	255	275													
17	225	245	250	230	245	230	E S 240	215	225	225	A	230	C	C	A	245	A	210	205	220	E A 285	235	E S 290	E A 290													
18	E S 290	E A 325	265	E S 295	245	E S 240	220	210	215	E A 240	200	200	180	240	A	A	A	245	215	E S 270	E S 255	E S 270	E S 275	E S 270													
19	E S 250	E S 285	E S 255	250	230	205	E S 255	230	230	220	B	A	200	235	A	235	A 240	245	205	205	E S 265	220	E S 255	E S 280													
20	E S 325	E S 295	E S 275	E S 275	225	220	S 230	220	230	215	225	200	H 190	H 180	H 270	A	A	A	250	215	E A 280	E A 250	225	A	E S 285												
21	E S 300	E S 300	S	E S 295	E S 240	225	E A 250	220	220	A	C	A	A	195	H 245	235	A	230	210	A	E A 290	250	E S 250	E S 300													
22	E S 295	E S 295	S 250	240	220	205	E S 260	215	220	225	H 205	210	200	200	H 180	H 190	230	225	220	E A 265	E S 295	A	E A 280	E S 280													
23	E S 290	E S 250	E S 240	E S 250	E S 240	E S 245	E S 240	220	200	H 200	220	210	190	200	215	220	230	230	215	200	E S 270	E S 250	E S 250	E S 280													
24	E S 295	E S 280	S 250	S 250	E S 260	210	E S 250	220	220	205	H 200	H 195	H 200	225	A 230	A	A	A	250	215	205	E S 250	225	230	E S 240												
25	E S 250	E S 280	E S 290	E S 280	S 250	225	E A 280	230	230	A 230	A 215	A	210	205	E A 245	230	225	215	225	E A 240	A	A	E S 255	E S 280													
26	E A 300	E S 255	E S 240	E S 270	E S 265	E A 240	220	215	A	210	H 190	200	H 195	H 180	A	A	E A 240	225	215	E A 240	A	A	A	A													
27	E A 305	270	235	E S 245	E S 280	E S 290	230	215	235	215	215	205	190	285	240	A	235	210	A	E A 220	S 300	S 265	S 280	S 290													
28	280	E S 295	E S 260	240	E S 255	E S 305	E S 280	250	A	215	215	205	200	E A 260	A	230	225	250	220	E S 225	265	E A 265	245	E S 250													
29	E S 245	E A 300	250	240	245	E S 200	E S 260	230	220	210	220	200	200	200	A 260	245	A	A	215	E A 295	A	S 310	S 260	E S 255													
30	S 250	E S 260	S 255	E S 245	S 210	A	E S 320	245	240	225	220	210	190	185	210	225	235	230	S 205	E S 215	E A 320	E S 280	S 265	E S 260													
31	E S 305	280	240	225	E S 215	E S 340	270	235	230	A	230	240	A	215	200	225	240	220	235	A 200	290	260	290	A													
CNT	31	31	30	31	30	28	30	31	29	26	25	25	27	28	22	21	21	25	29	29	26	25	25	29													
MED	E S 290	E S 270	U 235	E S 250	U 219	E S 230	E S 250	220	225	215	210	205	195	200	223	230	235	228	215	210	A 265	U 245	E S 275	E S 280													
UQ	E S 300	E S 288	E S 265	E S 270	E S 250	E S 245	E S 260	230	230	225	215	210	200	229	A 245	240	240	240	222	E A 250	E S 290	E S 300	E S 290	E S 290													
LQ	E S 265	244	S 238	S 231	220	215	E S 230	215	220	210	205	200	190	190	205	225	228	220	210	210	E S 250	242	E S 255	E S 270													

OCT. 1986

H^oF (KM)

IONOSPHERIC DATA

OCT. 1986

H^oE (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								120	115	115	105	A	110	A	A	A	A	A	S					
2								E S 125	A	110	110	110	115	110	115	115	115	120	S					
3								120	115	110	110	110	105	105	110	110	110	115	S					
4								E S 130	120	115	115	115	110	110	A	A	115	120	S					
5								S 125	120	115	115	115	115	120	120	115	120	115	S					
6								S	120	115	115	C	115	115	120	115	A	110	S					
7								S	115	115	110	110	C	110	B	A	A	A	S					
8								S	115	115	115	A	A	105	110	115	120	A	S					
9								S	110	105	110	110	110	110	110	110	A	A	S					
10								S	H 105	105	110	110	110	C	B	A	A	A	S					
11								125	115	115	C	105	A	A	A	115	115	B						
12								S	115	A	A	C	C	C	C	115	120	115						
13								S E S 125	110	110	115	105	E A 115	115	E A 120	110	115	125	S					
14								E S 135	105	110	105	105	A	A	A	A	A	A	S					
15								E S 135	110	105	110	A	A	110	C	C	115	E S 125	S					
16								S	110	105	A	A	A	105	100	A	A	A	S					
17								125	105	145	A	A	C	C	115	E A 115	E A 115	125	S					
18								130	105	105	105	A	A	115	A	A	A	A	S					
19								125	105	105	B E 120	115	105	105	105	110	A	S						
20								S 120	110	110	110	105	A	A	A	A	A	A	A					
21								A	A	A	C	A	110	H 105	H 105	110	S 115	S						
22								S 120	110	110	A	A	A	A	110	A	110	A	S					
23								S	110	110	A	A	A	A	110	110	A	A						
24								E S 125	110	110	105	105	105	105	H 105	H 105	H 105	A						
25								A	A	A	A	A	A	A	A	A	A	A						
26								A	110	A	A	105	105	105	A	A	A	A						
27								S	110	110	105	105	A	A	A	A	A	A						
28								S	110	110	110	110	110	110	110	110	110	S						
29								S	A	A	A	A	A	A	A	115	A	A						
30								S	A	A	A	A	A	A	A	A	115	A						
31								S	A	A	A	A	A	A	A	A	A	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								15	25	24	18	16	14	17	15	16	16	9						
MED								S 122	110	110	110	109	110	110	110	111	115	118						
UQ								126	115	115	115	110	115	110	114	115	115	125						
LQ								S 121	110	108	105	105	110	105	108	110	110	115						

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H^oE (KM)

IONOSPHERIC DATA

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H°ES (KM)

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

Station	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	105	105	S	S	S	S	S	120	115	120	105	100	C	105	100	100	100	100	100	100	100	100	100	100																								
2	100	100	S	S	S	S	S	160	100	C	C	C	C	C	C	155	145	130	130	120	115	125	100	100																								
3	100	S	S	S	S	S	S	140	125	120	120	115	C	C	C	C	C	C	115	105	100	105	105	S																								
4	S	S	S	S	S	S	S	140	125	120	120	110	110	110	105	105	110	110	105	100	105	100	100	105																								
5	100	100	S	S	S	S	S	120	125	115	115	120	115	G	115	115	110	110	115	105	105	100	110	105																								
6	105	105	S	S	S	S	S	G	120	115	115	110	115	110	110	110	110	125	110	S	S	S	S	S																								
7	105	S	S	S	S	S	S	140	130	130	120	115	125	120	130	110	110	100	105	105	105	100	105	105																								
8	S	B	S	S	S	S	S	125	125	130	130	115	120	E C	C	120	110	145	130	120	115	105	S	105																								
9	S	S	S	S	S	S	S	145	130	120	120	110	115	120	110	115	110	105	G	S	S	S	S	S																								
10	S	105	105	S	S	105	140	130	130	120	115	110	110	C	C	C	110	105	105	105	110	S	110	110	100																							
11	S	S	S	S	S	S	S	G	130	115	110	105	100	110	105	155	140	130	115	110	100	110	110	110																								
12	110	110	100	S	S	S	S	G	130	130	130	125	E C	C	C	G	G	110	110	110	S	105	100	105																								
13	S	S	100	100	S	S	S	155	120	110	110	G	105	185	175	150	135	125	S	S	105	105	105	105																								
14	100	100	S	S	S	S	S	150	150	G	140	145	125	115	105	115	105	E G	155	125	S	160	135	120	115	S																						
15	105	110	100	100	S	S	S	135	130	125	110	115	115	100	C	C	135	125	110	110	105	105	105	105																								
16	S	S	S	S	S	100	S	145	135	115	110	105	105	G	G	150	95	95	115	110	110	110	S	S																								
17	S	110	S	100	110	S	105	135	120	125	115	115	C	C	115	125	130	120	120	130	110	105	105	105																								
18	105	105	105	105	105	S	105	150	130	110	105	105	125	155	140	130	130	130	120	115	120	110	110	105																								
19	145	120	S	120	100	105	105	125	150	120	B	120	120	120	110	110	110	110	105	105	S	S	S	110																								
20	S	105	S	105	120	100	S	105	120	120	110	115	115	100	150	145	140	130	130	120	120	115	105	S																								
21	S	110	105	100	100	100	100	125	120	C	115	110	110	110	110	110	110	110	110	110	105	100	100	100																								
22	S	S	S	100	S	100	S	120	120	170	105	105	105	120	115	110	G	100	100	100	105	100	100	100																								
23	100	100	100	100	105	105	100	140	140	120	100	100	100	125	125	120	120	100	100	110	S	S	S	S																								
24	S	S	S	S	S	S	S	100	G	125	120	G	125	170	150	140	125	120	110	S	S	S	S	S																								
25	S	100	S	100	100	120	105	100	100	105	105	100	100	125	150	165	100	100	100	125	120	115	115	100																								
26	100	100	100	110	100	100	105	140	130	120	110	110	110	110	150	100	145	100	100	95	100	100	100	100																								
27	100	100	100	100	S	S	S	115	110	110	110	110	105	100	150	105	105	105	100	105	S	S	S	S																								
28	S	100	105	105	S	135	S	140	125	120	115	110	110	105	110	115	140	115	110	115	105	100	115	S																								
29	120	100	100	110	S	S	S	130	105	145	160	150	130	125	120	140	120	110	110	105	100	110	100	S																								
30	S	140	S	S	S	100	100	105	150	125	120	115	100	100	160	100	G	105	110	110	100	100	S	S																								
31	S	105	100	100	S	100	S	105	145	135	140	140	120	140	135	150	135	135	110	105	105	100	100	100																								
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	15	21	12	15	8	12	11	28	29	30	28	28	26	26	24	28	27	30	28	27	23	25	22	19																								
MED	105	105	100	100	102	100	105	130	125	120	115	111	112	112	118	115	115	110	110	110	105	105	105	105																								
UQ	105	110	105	105	108	105	122	140	130	125	120	115	120	125	150	142	135	125	115	115	112	110	110	105																								
LQ	100	100	100	100	100	100	102	118	120	115	110	108	105	105	110	110	110	105	105	105	102	100	100	100																								

OCT. 1986

H°ES (KM)

IONOSPHERIC DATA

OCT. 1986

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	F3	F2						C4	C4	C1	C2	L2		L2	L3	L3	L2	L4	L5	F1	F1	F2	F3	F2
2	F2	F2						H2	L2							H3	H2	H3	H6	H7	F6	F2	F7	F7
3	F1					F5		C3	C2	C1	C1	C1							C1	F3	F7	F2	F2	
4								H3	C3	C1	C1	C1	C1	C2	L2	L4	C5	C6	C7	F6	F2	F4	F7	F1
5	F2	F2						C2	C2	C2	C2	C1	C1	C1	C1	C2	C2	C2	C1	F3	F2	F3	F4	F5
6	F6	F3							C5	C2	C2	C2	C1	C4	C2	C2	L2	C1	L1					
7	F3							H3	H2	H2	C1	C2	C1	C1	C1	CL21	CL32	L6	L6	F5	F2	F3	F1	F1
8								H3	C2	H1	H1	HL11	HL11	C1		H1	C1	HL11	CL21	F6	F1	F7		F2
9								C1	C2	C2	C1	C3	C1	C1	C3	C2	L5	L5						
10		F2	F2		F2	F5		C5	C2	C1	C1	C1	C1	C1		L1	L4	L2	L2	F4		F2	F2	F2
11									C2	C2	C1	C2	L1	L1	L2	H2	H1	C3	F7	FF21	F2	FF12	FF11	F2
12	F5	F2	F1					H1	HL12	H1	C1			C1				C3	F3	F6		F5	F2	F2
13			F1	F1				H2	C2	L1	L1		L1	HL11	HL11	H2	HL32	C4			F2	F2	F1	F1
14	F1	F2				F1		HL31		H1	H2	C1	CL21	L5	CL21	L1	HL11	CL21		F1	F1	FF31	FF22	
15	FF11	FF11	F2	F1				C4	C3	C3	C3	CL11	CL22	L1			H3	C6	L7	F7	F7	F2	F5	F2
16					F1			H3	C2	C3	CL42	L1	L2			HL23	LH42	L6	CL37	FF42	F2	F3		
17		F1		F2	FF11		F1	H3	C4	CL43	CL32	CL23			C2	CHL21	CL62	CL42	CL41	FF11	F6	F6	F6	F6
18	F4	F6	F2	F3	F2		F1	H2	H3	C3	C2	L3	CL12	HCL22	HCL21	CL44	CL55	CL44	LL61	F6	F1	F1	F1	F3
19	FF12	FF11		FF12	F1	F1	F1	CL11	HL11	C2		C1	CL11	C2	C3	C3	C3	L3	L2	F1				F1
20		F1		F2	FF12	F2		LC13	C5	C2	C1	C1	CL13	L3	HL33	HL43	HL43	HL52	HL53	FF51	F4	F1	F4	
21		F2	F3	F4	F2	F2	F5	L5	CL43	CL43		CL32	C4	C2	C3	C4	C4	C5	F1	F6	F5	F3	F2	F2
22				F2		F1		C2	C3	H2	L2	L2	L2	CL11	C1	CL22		L3	L3	F7	F3	F5	F4	F2
23	F4	F2	F3	F1	F2	F2	F1	H4	H3	C1	L3	L2	L2	CL22	CL21	CL21	CL22	L2	F1	F1				
24								L1		C1	C1		C1	HC11	H2	H3	C4	CL53	FF22					
25		F2		F2	F1	F2	F5	L6	L5	L2	L2	L4	L2	CL22	HL22	HL22	LH22	L3	F2	FF74	FF73	FF23	FF23	F2
26	F5	F3	F2	FF21	F2	F7	F1	HL52	H4	CL23	CL32	C2	C2	C4	HC22	L4	HL33	L5	L8	F4	F7	F3	F5	F4
27	F5	F2	F3	F2				CHL11	C3	C3	C2	C2	L2	L2	HL12	L3	LH32	L3	F7	F7				
28		F5	F3	F1		F1		H3	C3	C2	C2	C2	C1	C3	C3	C2	H1	C6	F4	F3	F2	F5	F1	
29	FF11	F4	F5	FF22				H3	L1	HL11	HL11	HL11	CL11	CL11	CL21	H1	CL32	C7	F1	F7	F4	FF12	F7	
30		F1				F5	F4	L1	HL23	CL33	CL22	C2	L1	L2	HL12	L2		CL34	FF11	FF22	FF22	F2		
31		F1	F2	F2	F1	F2		L3	HL33	HL33	HL22	HL22	CL31	CL11	HL11	HL13	HL33	HL31	FF71	F2	F4	F3	F4	F5
	00	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																								

OCT. 1986

TYPES OF ES

IONOSPHERIC DATA

OCT. 1936

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	X 36	40	46	44	X 31	23	X 30													X 57	X 55	X 44	X 45	X 42
2	X 41	X 42	X 40	X 46	X 26	X 24	X 28													X 39	X 39	X 39	X 41	X 41
3	X 39	X 41	X 44	X 39	X 38	X 30	X 31													X 79	X 72	X 71	X 61	X 51
4	X 44	X 40	X 42	X 42	X 41	X 27	X 30													X 35	X 63	X 47	X 48	X 47
5	X 47	X 47	X 47	X 60	X 38	X 26	X 30													X 30	X 60	X 44	X 37	X 52
6	X 62	74	52	X 32	A	23	32													X 62	X 50	X 50	X 53	X 50
7	X 49	X 50	X 50	X 43	X 36	X 30	X 29													X 61	X 55	X 43	X 40	X 38
8	44	37	40	40	34	24	23													X 55	X 54	38	39	38
9	X 41	X 40	X 36	X 38	X 36	X 26	X 27													X 81	X 54	X 47	X 42	X 40
10	X 42	X 41	X 39	X 40	31	25	31													X 90	X 71	X 53	X 56	X 64
11	X 62	X 60	X 51	X 42	X 37	X 33	X 32													X 82	X 66	X 57	X 60	S 60
12	X 57	X 52	X 49	X 50	X 48	X 40	X 37													H 71	H 57	X 57	X 52	X 53
13	X 53	X 54	X 56	X 63	X 47	X 26	X 30													X 68	X 50	X 43	X 46	X 47
14	X 46	X 43	X 53	X 46	X 39	X 23	X 28													C	X 47	X 45	X 46	X 49
15	X 46	X 57	X 26	X 27	X 24	X 23	X 23													X 70	X 50	X 44	X 44	X 42
16	X 41	X 42	X 40	X 41	X 45	X 32	X 36													X 78	X 65	X 63	X 56	X 54
17	X 48	X 45	X 44	X 36	X 35	X 31	X 30													X 63	X 50	X 50	X 49	X 31
18	X 33	X 32	X 32	X 37	X 38	X 41	X 33													X 71	X 64	X 41	X 36	X 38
19	X 38	X 39	X 43	X 39	X 37	X 30	X 29													X 124	X 91	X 56	X 59	X 50
20	X 43	X 39	X 43	X 44	X 50	X 40	X 31													X 108	X 84	X 47	X 46	X 33
21	X 35	X 36	X 34	X 39	X 49	X 35	X 30													X 124	X 92	X 58	A	A
22	36	38	42	59	50	31	31													X 73	X 49	X 44	X 47	X 43
23	X 43	X 43	X 33	X 35	X 35	X 30	X 28													X 94	X 97	X 73	X 64	X 45
24	X 43	X 45	X 44	X 40	X 37	X 37	X 32													X 101	X 91	X 77	X 76	X 38
25	X 40	X 38	X 34	X 37	X 38	X 42	X 28													X 91	X 90	X 70	X 58	X 62
26	X 57	X 51	X 46	X 42	X 41	X 37	X 33													X 96	X 77	X 62	X 53	X 44
27	X 44	X 46	X 65	X 38	X 36	X 36	X 36													X 82	X 72	X 66	X 68	X 70
28	X 63	X 55	X 49	X 57	X 37	X 39	X 43													X 85	X 74	X 71	X 70	X 59
29	X 51	X 54	X 56	X 45	X 48	31	X 28													X 63	X 60	X 53	X 58	X 45
30	X 43	X 47	X 38	X 41	X 40	X 28	X 29													X 36	X 71	X 47	X 52	X 50
31	X 44	X 47	X 52	X 39	X 29	X 30	X 31													X 74	X 65	X 45	X 51	X 34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	31	31													17	30	31	30	30
MED	X 44	X 45	X 44	X 41	X 38	X 30	X 30													X 85	X 72	X 55	X 50	X 46
UQ	X 48	X 50	X 50	X 44	X 41	X 36	X 32													X 96	X 84	X 64	X 58	X 52
LQ	X 41	X 40	X 40	X 38	X 35	X 26	X 28													X 73	X 61	X 48	X 44	X 40

OCT. 1936

FXI (0.1 MHz)

IONOSPHERIC DATA

OCT. 1936

FOF2 (0.1 MHz)

135° E Mean Time (G.M.T. + 9 h)

Station	OKINAWA				Lat. 26 16.9 N.	Long 127 43.4 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 30	F	F	F	25	F	24	58	R 86	68	62	70	82	83	R 84	76	R 72	73	70	U S 51	49	38	S 39	S 36
2	35	36	34	S 40	20	18	22	53	82	79	82	92	106	83	76	71	R 72	72	59	33	33	33	S 35	35
3	33	35	38	33	32	24	25	53	R 73	84	76	84	113	107	R 120	R 132	R 124	R 126	R 105	R 73	S 65	S 65	S 55	45
4	38	34	36	36	35	S 21	24	48	53	57	65	71	78	96	104	R 118	R 131	R 125	R 115	R 79	S 57	S 41	S 42	S 41
5	S 41	S 41	S 41	54	32	20	24	51	64	70	87	90	R 101	110	124	134	R 116	R 116	34	S 74	S 54	38	S 34	U S 46
6	56	F	F	26	A	F	F	54	62	72	88	112	109	U R 118	R 128	R 119	110	U R 99	U R 83	56	44	44	47	44
7	43	S 44	44	37	30	24	23	48	68	95	97	88	91	110	126	108	76	60	61	55	49	37	34	32
8	F	F	F	F	F	F	F	46	55	75	J R 85	104	93	R 109	U R 133	145	117	R 97	68	49	U S 43	F	F	32
9	35	34	30	32	30	20	21	47	69	68	78	70	72	R 95	103	108	122	123	U R 102	75	R 43	U R 41	36	34
10	36	35	33	34	F	20	25	59	69	72	91	93	R 101	127	139	140	128	116	92	34	65	47	50	58
11	56	54	S 45	36	31	S 27	26	60	68	67	75	37	106	R 137	144	137	R 118	101	37	S 76	S 60	51	54	54
12	51	S 46	S 43	S 44	S 42	34	F 27	R 50	66	74	83	R 97	R 104	R 106	94	39	33	90	76	H 65	H 51	S 51	46	S 47
13	47	48	50	57	S 41	20	24	49	73	62	R 68	90	R 104	R 104	R 104	R 101	68	56	60	62	S 44	37	40	S 41
14	S 40	42	S 47	S 40	33	S 17	22	49	133	54	47	45	93	122	R 123	39	97	77	54	C	S 41	39	40	S 39
15	40	51	20	21	18	17	S 22	54	R 85	64	64	80	79	87	101	94	83	75	S 64	44	33	U S 33	S 39	36
16	35	36	34	35	S 39	26	30	R 63	R 73	79	73	83	R 108	R 145	160	R 148	136	95	72	59	57	S 50	J S 51	S 48
17	42	39	38	30	S 27	F	F	50	64	U R 67	84	90	88	R 98	103	103	105	R 83	57	44	44	S 43	S 38	25
18	27	26	S 26	F	F	F	F	49	53	59	65	77	88	94	R 113	95	86	71	65	S 58	35	30	31	32
19	U S 32	33	37	33	31	24	23	46	62	70	93	108	101	115	U R 140	R 143	128	113	R 118	85	S 50	53	S 50	S 44
20	S 37	33	37	38	44	34	25	60	65	69	73	101	80	U R 98	R 111	115	114	110	U R 102	78	U S 41	S 40	S 32	27
21	29	30	28	J S 33	43	29	24	53	63	67	71	77	78	94	R 119	R 142	J R 164	U R 138	S 118	S 86	U S 52	A	42	A
22	F	F	F	F	F	F	F	53	64	60	68	88	92	90	103	U R 117	116	101	67	43	38	41	42	37
23	37	37	32	30	29	S 24	22	51	64	77	85	100	123	126	R 137	U R 154	144	113	88	R 91	67	58	S 45	39
24	37	39	38	34	S 31	S 31	27	58	76	69	72	90	109	97	110	102	R 87	R 101	95	85	S 71	70	S 42	32
25	S 34	32	28	F 28	F 29	36	22	53	74	79	77	94	R 104	114	140	144	126	R 104	85	S 84	S 64	U S 52	54	56
26	51	S 45	S 40	36	35	31	27	55	64	64	72	86	100	111	R 124	U R 130	R 139	R 138	S 90	S 71	S 56	S 52	S 42	38
27	38	40	39	32	30	30	30	57	R 73	84	88	92	103	125	U R 160	U R 159	R 141	R 94	H 76	H 66	S 60	S 62	S 67	S 64
28	57	49	43	51	31	33	37	66	110	R 95	117	148	144	148	152	147	R 127	R 90	79	S 68	S 65	U S 64	U S 65	53
29	45	48	50	39	S 42	F	22	50	66	72	91	93	75	84	101	103	98	74	57	54	47	52	50	39
30	37	S 41	32	35	34	22	23	55	84	82	95	111	108	112	130	U R 118	81	80	30	U S 65	S 41	46	S 44	44
31	38	S 41	46	33	23	24	S 25	57	72	62	89	90	97	94	85	90	75	75	68	59	39	45	J S 30	28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	27	27	27	26	24	26	31	31	31	31	31	31	31	31	31	31	31	31	30	31	29	30	30
MED	38	39	38	35	31	24	24	53	68	70	78	90	101	107	120	118	116	97	79	66	49	45	S 42	39
UQ	43	44	43	38	35	30	26	57	74	78	88	96	106	116	R 138	141	128	113	91	S 78	S 58	52	S 50	S 46
LQ	35	34	32	32	29	20	22	50	64	66	72	84	88	94	104	102	84	78	66	55	42	39	S 38	34

OCT. 1986

FOF2 (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

FOF1 (0.01 MHz)

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

Station	OKINAWA										Lat. 25 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 430	L 440	U L 450	440	430	U L 420	L	L						
2									L	L	U L 440	440	440	470	430	400	L	L						
3									L	L	U L 450	U L 470	U L 460	U L 460	450	U L 430	U L 400	L						
4										L	U L 460	440	U L 470	U L 460	L	440	A	A						
5										L	U L 450	450	460	U L 460	460	440	L	A						
6										L	U L 440	450	450	U L 500	450	420	L							
7									L	L	L	440	U L 450	480	440	L	L							
8										L	440	440	450	U L 440	450	430	L	L						
9										A	A	440	U L 500	430	U L 430	430	L							
10										L	440	450	460	U L 450	450	430	L	L						
11									L	L	U L 460	460	460	U L 480	440	430	A	A						
12									L	L	440	450	U L 440	U L 470	440	420	L	L						
13									L	U L 420	L	430	440	U L 440	430	L	L							
14									L	A	L	420	U L 430	A	430	U L 420	L	L						
15									L	L	L	U L 440	460	460	440	U L 420	A							
16									L	L	L	440	440	430	U L 430	U L 430	L	L						
17									L	L	430	450	450	440	440	A	L	L						
18									L	L	L	430	440	A	A	400	L	A						
19									L	L	B	450	440	U L 460	440	L	L	A						
20									L	L	A	440	U L 460	L	L	L	L	L						
21									L	A	A	L	470	L	U L 460	L	L							
22									L	L	L	460	A	L	U L 460	L	A							
23									L	L	L	U L 450	460	U L 470	A	A	L							
24									L	L	L	U L 460	U L 450	U L 440	A	L	L							
25									L	U L 430	470	470	460	460	U L 480	L	L							
26									L	L	L	A	U L 470	480	440	A	U L 400	L						
27									L	U L 450	480	480	480	U L 480	470	U L 450	U L 400	A						
28									L	L	L	U L 470	460	U L 450	L	L	L	L						
29									L	L	U L 440	L	470	L	L	L	L	A						
30									L	L	L	440	460	L	L	L	L							
31									L	A	L	L	A	L	L	U L 440	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	14	27	29	23	22	17	3							
MED										U L 430	U L 440	450	460	U L 460	440	430	U L 400							
UQ										U L 440	U L 460	455	460	U L 470	450	430	U L 400							
LQ										U L 425	440	440	450	440	430	420	U L 400							

OCT. 1986

FOF1 (0.01 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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								180	A	290	A	325	A	335	A	U A 300	U A 270	A	A					
2								S	250	U A 285	U A 310	U A 315	U A 330	330	320	A	A	A	S					
3								S	A	A	A	A	A	A	320	A	R 270	A	A					
4								200	R 255	A	R 305	A	A	A	A	A	A	A	A					
5								R 200	A	A	A	A	A	330	A	A	A	A	A	S				
6								R 205	A	A	A	A	A	A	A	A	A	A	S					
7								A	A	290	A	325	A	A	A	R 300	A	A	S					
8								A	A	A	310	A	330	A	A	300	270	210	S					
9								200	240	A	A	A	A	A	A	300	A	205	S					
10								190	240	280	A	A	A	A	R 315	295	250	A	S					
11								R 200	R 250	300	A	A	A	R 325	320	300	R 275	R 210	S					
12								S	R 205	A	A	315	A	A	A	A	R 280	R 215	S					
13								R 180	R 255	295	A	A	R 330	R 335	R 320	R 295	260	205	S					
14								195	A	A	A	320	325	325	R 310	R 305	275	210	S					
15								R 185	R 245	285	305	320	R 325	R 310	305	A	A	A						
16								S	U A 240	A	A	A	A	330	R 320	295	A	A						
17								S	R 240	A	A	325	330	330	325	A	A	A						
18								S	A	A	A	A	U A 340	U A 340	U A 330	U A 320	U A 270	A						
19								S	250	290	B	B	330	335	320	300	A	A						
20								S	R 240	280	A	A	A	330	320	300	U A 270	210						
21								S	A	A	310	A	R 325	R 320	R 320	A	A	A						
22								S	A	A	A	A	A	A	A	A	A	A						
23								S	250	A	A	R 325	A	A	A	A	A	A						
24								S	A	A	A	R 320	330	320	U A 315	300	280	210						
25								S	A	A	U A 310	U A 330	A	A	A	A	R 280	A						
26								S	240	R 290	R 305	A	A	R 330	A	A	R 270	A						
27								S	A	A	A	A	A	A	A	A	A	A						
28								S	U A 250	A	A	A	A	A	R 325	300	R 255	200						
29								S	250	280	310	U A 330	A	A	320	A	270	A						
30								S	250	280	310	325	A	A	A	A	270	A						
31								S	235	280	300	320	330	330	320	300	260	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								10	18	13	10	13	11	16	18	15	17	9						
MED								198	248	285	310	325	330	330	320	300	270	210						
UQ								R 200	250	290	310	325	330	332	320	300	275	210						
LQ								185	240	280	305	320	328	325	320	300	270	205						

OCT. 1986

FOE (0.01 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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	J A 21	J A 32	J A 21	J A 30	22	18	E S 16	G	30	G	33	G	J A 50	G	34	37	33	27	J A 24	J A 24	22	E S 16	E S 16	J A 23					
2	J A 21	22	E S 16	18	19	E S 16	19	23	29	30	34	38	38	37	40	38	J A 40	J A 34	J A 36	J A 30	J A 23	J A 20	23	22					
3	J A 26	J A 25	J A 21	J A 27	J A 22	J A 21	22	22	J A 33	J A 41	J A 54	J A 41	J A 35	J A 34	G	J A 32	G	J A 37	J A 33	J A 30	J A 24	J A 33	J A 42	J A 21					
4	E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	25	31	J A 38	J A 41	J A 54	J A 50	J A 78	J A 46	J A 78	J A 61	J A 77	J A 24	J A 30	J A 25	J A 38	J A 26	E S 16					
5	23	E S 16	E S 15	E S 16	E S 16	E S 15	E S 16	G	J A 37	J A 37	J A 38	J A 44	J A 36	G	J A 39	J A 46	J A 78	J A 60	J A 35	E S 15	E S 15	22	22	J A 38					
6	J A 35	J A 26	J A 24	J A 24	J A 24	J A 20	J A 17	G	J A 43	J A 54	J A 65	J A 46	J A 90	J A 65	39	J A 40	J A 33	30	J A 26	J A 30	J A 33	J A 22	E S 16	E S 16					
7	E S 16	E S 16	J A 25	E S 16	E S 16	E S 16	E S 16	24	32	39	38	39	42	42	38	G	J A 36	J A 33	J A 25	E S 16	E S 16	E S 16	E S 16	E S 16					
8	J A 17	J A 13	E S 15	J A 24	E S 16	E S 16	E S 15	J A 22	J A 32	J A 38	G	J A 50	G	J A 34	J A 35	G	30	34	J A 30	J A 29	J A 32	J A 41	J A 26	J A 21					
9	E S 16	J A 24	J A 22	E S 16	E S 16	E S 16	E S 16	27	J A 38	J A 55	J A 72	J A 76	J A 41	39	J A 65	35	J A 32	23	J A 32	E S 16	E S 16	E S 16	20	J A 25					
10	E S 16	E S 16	J A 25	J A 25	E S 16	J A 25	E S 16	27	33	J A 38	J A 48	J A 42	J A 46	J A 47	G	G	30	J A 23	J A 24	E S 16	J A 24	22	J A 25	J A 33					
11	E S 16	E S 16	E S 16	E S 15	E S 16	E S 15	E S 15	24	32	36	36	J A 35	J A 54	39	36	33	J A 47	J A 50	J A 98	J A 33	J A 31	J A 32	J A 36	J A 41					
12	J A 33	J A 25	E S 16	E S 15	E S 16	E S 15	E S 16	22	J A 36	J A 38	J A 42	38	J A 40	J A 39	J A 41	J A 33	G	G	E S 15	E S 16	22	J A 22	J A 25	E S 16					
13	E S 16	E S 15	E S 15	E S 15	E S 16	E S 15	E S 15	26	36	34	J A 42	J A 34	G	G	G	35	36	34	J A 29	J A 26	E S 16	E S 16	J A 34	J A 26					
14	J A 22	J A 22	22	E S 16	E S 16	E S 16	J A 19	27	J A 33	J A 41	J A 32	38	J A 65	J A 77	J A 42	G	G	G	E S 16	C	E S 16	E S 16	J A 23	E S 16					
15	E S 16	E S 16	E S 16	E S 16	E S 15	E S 15	E S 15	J A 27	J A 32	J A 42	J A 54	37	39	J A 45	36	32	J A 50	J A 61	J A 64	J A 41	23	J A 27	J A 32	J A 26					
16	J A 26	J A 21	22	20	23	22	23	22	30	30	J A 40	J A 40	J A 38	G	40	35	J A 44	J A 30	J A 28	J A 34	E S 16	J A 21	E S 16	E S 16					
17	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	22	33	J A 33	38	40	38	40	40	J A 45	J A 38	32	J A 20	21	J A 30	E S 16	19	23					
18	J A 25	J A 25	J A 24	J A 35	J A 25	J A 19	J A 22	J A 20	30	J A 42	J A 43	38	40	46	46	42	42	34	J A 32	J A 41	J A 40	J A 40	J A 32	22					
19	J A 33	23	E S 16	E S 16	E S 16	E S 16	E S 16	23	G	40	E S 46	43	39	42	40	40	J A 34	J A 40	J A 84	J A 41	J A 40	J A 40	E S 16	E S 16					
20	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	23	29	J A 43	J A 50	J A 36	35	G	42	42	40	32	J A 32	J A 41	J A 64	J A 25	J A 21	22					
21	E S 16	E S 16	E S 16	E S 16	J A 18	J A 23	J A 51	J A 24	J A 41	J A 43	J A 54	42	G	G	42	40	J A 65	J A 33	J A 33	J A 33	32	J A 78	J A 40	J A 36					
22	J A 28	J A 22	E S 16	E S 16	J A 22	22	E S 16	E S 16	29	J A 42	J A 44	J A 46	J A 75	J A 37	J A 65	J A 64	J A 61	J A 42	J A 30	J A 38	J A 23	J A 52	J A 25	E S 16					
23	E S 16	E S 16	E S 16	20	J A 25	J A 18	22	E S 16	G	32	37	G	J A 36	38	50	J A 46	35	J A 30	J A 17	E S 16	J A 22	J A 22	21	J A 17					
24	J A 22	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16	29	J A 37	39	G	40	47	J A 54	42	36	33	J A 29	J A 29	E S 16	E S 16	E S 16	E S 16					
25	J A 26	E S 15	E S 16	E S 16	E S 16	E S 16	E S 15	22	29	33	J A 51	J A 88	36	J A 38	J A 42	J A 42	G	J A 26	J A 25	22	J A 41	J A 26	J A 37	23					
26	J A 22	J A 25	J A 33	J A 33	J A 22	23	E S 15	22	32	38	37	J A 50	J A 48	40	J A 46	J A 65	G	J A 26	J A 25	22	J A 25	J A 33	J A 55	J A 40					
27	J A 33	J A 24	23	23	E S 16	E S 15	E S 16	20	J A 36	J A 34	J A 34	J A 38	J A 35	J A 36	J A 37	J A 46	J A 34	J A 44	J A 25	J A 22	J A 34	E S 16	J A 26						
28	E S 16	23	J A 25	J A 40	J A 25	J A 26	J A 23	23	29	J A 43	J A 40	38	J A 41	J A 41	J A 45	G	38	32	J A 30	J A 33	E S 16	J A 24	E S 16	E S 16					
29	E S 16	E S 16	E S 16	E S 16	J A 25	J A 25	22	E S 16	G	34	40	40	J A 45	47	J A 47	35	34	32	J A 50	E S 16	E S 16	E S 16	J A 30	22					
30	J A 26	J A 21	J A 30	21	E S 16	20	18	E S 16	G	32	34	38	40	J A 36	41	J A 40	G	J A 34	J A 35	J A 31	23	22	22	20					
31	E S 16	J A 25	J A 24	J A 21	J A 20	20	18	23	28	40	41	42	48	42	38	35	30	29	J A 24	22	E S 16	J A 40	J A 30	J A 20					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31					
MED	J A 21	21	E S 16	E S 16	E S 16	E S 16	E S 16	22	32	J A 38	J A 40	40	J A 40	40	40	38	35	J A 33	J A 29	J A 29	J A 23	J A 22	J A 23	22					
UQ	J A 26	J A 24	J A 24	J A 24	J A 22	20	19	24	J A 33	J A 42	J A 47	J A 44	J A 47	46	J A 46	J A 42	J A 41	J A 36	J A 33	J A 33	J A 32	J A 33	J A 31	J A 25					
LQ	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	18	29	34	37	38	36	35	38	33	30	30	J A 24	21	E S 15	E S 16	20	E S 16					

OCT. 1986

FOES (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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		E S 16	20	E S 16	E S 16	E S 16	E S 16	E S 16	G	28	G	33	G	34	G	34	37	33	27	24	E S 16	E S 16	E S 16	E S 16	20	
2		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	20	29	30	34	38	38	34	40	33	34	30	27	E S 16	20	E S 16	E S 16	E S 16	
3		E S 16	16	16	17	E S 15	E S 16	E S 16	20	23	37	31	34	35	34	G	32	G	25	27	30	17	27	41	20	
4		E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	23	29	30	34	34	34	36	33	37	46	64	19	22	20	27	20	E S 16	
5		E S 16	E S 16	E S 15	E S 16	E S 16	E S 15	E S 16	G	28	30	32	36	35	G	34	39	37	33	E S 16	E S 15	E S 15	16	16	E S 16	
6		E S 16	19	E S 16	20	A A 24	E S 16	E S 16	G	27	33	34	37	36	37	37	32	29	24	19	28	24	E S 16	E S 16	E S 16	
7		E S 16	E S 16	20	E S 16	E S 16	E S 15	E S 16	22	29	38	35	37	39	38	36	G	30	23	17	E S 16	E S 16	E S 16	E S 16	E S 16	
8		E S 16	E S 16	E S 15	E S 16	E S 16	E S 16	E S 16	20	28	32	G	40	G	33	33	G	29	27	21	21	E S 15	18	E S 16	E S 16	
9		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	25	30	41	50	37	33	34	40	35	29	22	31	E S 16	E S 16	E S 16	E S 16	E S 16	
10		E S 16	E S 16	19	E S 16	E S 16	E S 16	E S 16	24	32	37	40	34	41	40	G	G	28	22	21	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 15	E S 16	E S 15	E S 15	21	27	31	33	34	43	38	35	33	40	50	81	30	13	29	34	40	
12		32	19	E S 16	E S 15	E S 16	E S 15	E S 16	21	25	33	35	37	37	38	35	32	G	G	E S 15	E S 16	15	E S 15	20	E S 16	
13		E S 16	E S 15	E S 15	E S 15	E S 16	E S 15	E S 15	25	29	33	36	33	G	G	G	34	35	32	29	E S 16	E S 15	E S 16	24	E S 15	
14		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	17	24	25	41	22	37	34	53	33	G	G	G	E S 16	C	E S 15	E S 16	E S 16	E S 16	
15		E S 16	E S 16	E S 16	E S 16	E S 15	E S 15	E S 15	24	31	33	33	35	37	39	36	32	46	59	58	33	17	25	26	E S 16	
16		E S 16	18	E S 16	E S 16	E S 16	E S 16	E S 16	22	28	30	34	36	33	G	38	35	32	25	28	34	E S 16	E S 16	E S 16	E S 16	
17		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	22	32	35	38	40	38	40	40	45	31	24	E S 16	E S 16	22	E S 16	E S 16	E S 16	
18		E S 16	E S 16	E S 16	E S 16	20	17	18	20	30	41	41	38	40	46	46	38	33	34	32	25	23	20	27	E S 16	
19		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	20	G	35	E 3 46	E 3 36	37	39	33	38	34	40	40	30	40	34	E S 16	E S 16	
20		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	20	28	40	47	34	35	G	42	40	38	28	28	30	32	18	E S 16	E S 16	
21		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	20	20	30	42	48	40	G	G	40	38	37	31	31	22	28	A A 78	37	A A 36	
22		26	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	28	31	40	35	48	40	34	37	56	24	22	24	25	E S 16	E S 16	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	30	36	G	35	34	43	36	33	28	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	
24		20	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	28	31	36	G	38	33	52	40	33	31	27	E S 16	E S 16	E S 16	E S 16	E S 16	
25		21	E S 15	E S 16	E S 16	E S 16	E S 16	E S 15	22	28	32	36	40	36	37	42	40	G	26	19	E S 16	30	17	28	E S 16	
26		18	17	24	23	E S 16	E S 16	E S 15	21	31	36	37	48	38	38	42	46	G	23	20	E S 16	17	24	29	24	
27		20	17	E S 16	17	E S 16	E S 15	E S 16	20	27	31	33	34	34	44	37	35	34	42	22	20	34	E S 16	E S 16	22	
28		E S 16	22	21	33	23	22	E S 16	23	29	32	32	38	39	38	43	G	34	25	E S 16	22	E S 16	E S 16	E S 16	E S 16	
29		E S 16	E S 16	E S 16	E S 16	E S 16	17	E S 16	E S 16	G	34	38	40	42	40	42	33	29	32	40	E S 16	E S 16	E S 16	E S 16	E S 16	
30		E S 16	E S 16	25	E S 16	E S 16	E S 16	E S 16	E S 16	G	32	34	36	40	35	41	35	G	34	25	E S 16	E S 16	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	21	28	40	40	38	48	41	38	35	30	22	24	E S 16	E S 16	24	25	18	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31
MED		E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	20	28	33	35	36	37	37	38	35	33	28	24	E S 16	16	E S 16	E S 16	E S 16	
UQ		E S 16	16	E S 16	E S 16	E S 16	E S 16	E S 16	22	29	37	38	38	39	40	42	38	34	33	28	25	22	22	24	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	18	27	31	33	34	34	34	34	32	29	24	19	E S 16	E S 16	E S 16	E S 16	E S 16	

OCT. 1986

FBES (0.1 MHz)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986

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	E 16	E 16	E 16	E 16	E 16	E 16	E 16	15	14	15	18	18	17	22	13	16	17	15	15	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	15	17	16	16	16	16	15	15	14	15	E 16	E 16	E 16	E 16	E 16	E 16	
3	E 16	E 15	E 14	E 16	E 15	E 16	E 16	E 15	14	13	15	18	19	19	17	17	13	12	15	E 15	E 16	E 16	E 16	E 16	
4	E 16	E 16	E 15	E 16	E 16	E 16	E 16	16	15	14	16	18	23	18	13	16	16	14	14	E 14	E 15	E 16	E 15	E 16	
5	E 16	E 16	E 15	E 16	E 16	E 15	E 16	13	16	16	16	17	17	17	13	18	17	16	E 16	E 15	E 15	E 14	E 14	E 16	
6	E 16	E 16	E 16	E 16	E 16	E 15	E 16	15	14	16	17	18	21	20	19	18	16	14	E 15	E 15	E 15	E 16	E 16	E 16	
7	E 16	E 16	E 15	E 16	E 16	E 16	E 16	14	15	16	21	21	24	19	21	17	15	14	E 14	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	15	16	14	16	18	17	16	15	16	15	16	E 14	E 15	E 16	E 16	E 16	E 16	
9	E 16	E 16	E 16	E 16	E 16	E 16	E 15	14	15	14	17	18	16	16	17	14	16	14	E 14	E 16	E 16	E 16	E 16	E 16	
10	E 16	E 16	E 15	E 16	E 16	E 16	E 16	16	14	14	18	21	18	17	16	17	14	14	E 15	E 16	E 16	E 16	E 16	E 16	
11	E 16	E 16	E 16	E 15	E 16	E 15	E 15	14	14	13	15	18	15	21	21	17	15	16	E 14	E 16	E 16	E 16	E 16	E 16	
12	E 15	E 16	E 16	E 15	E 16	E 15	E 16	E 16	14	14	17	17	15	16	13	17	16	14	E 15	E 16	E 15	E 15	E 14	E 16	
13	E 16	E 15	E 15	E 15	E 16	E 15	E 15	15	14	14	14	16	17	13	17	18	14	14	E 15	E 16	E 16	E 16	E 14	E 15	
14	E 16	E 16	E 16	E 16	E 16	E 16	E 15	14	14	14	17	17	18	20	18	19	17	16	E 16	E 16	E 16	E 16	E 16	E 16	
15	E 16	E 16	E 16	E 16	E 15	E 15	E 15	15	14	14	17	16	17	17	16	14	14	14	E 16	E 16	E 14	E 14	E 16	E 16	
16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	15	16	17	18	16	18	15	14	15	14	14	E 16	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	16	15	15	15	18	25	20	17	15	15	E 16	E 16	E 16	E 16	E 16	E 16	
18	E 16	E 16	E 15	E 15	E 15	E 16	E 16	E 16	15	15	16	16	17	17	16	16	13	15	E 16	E 16	E 15	E 16	E 16	E 16	
19	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	14	16	46	36	28	27	22	18	15	15	E 16	E 16	E 16	E 16	E 16	E 15	
20	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	15	16	15	16	21	18	15	15	14	14	E 16	E 16	E 16	E 16	E 16	E 16	
21	E 16	E 16	E 15	E 16	E 16	E 16	E 15	14	16	16	15	20	13	13	15	15	16	16	E 16	E 16	E 14	E 15	E 15	E 16	
22	E 16	E 16	E 15	E 16	E 16	E 16	E 16	15	16	16	20	20	17	22	23	15	16	15	E 15	E 16	E 16	E 16	E 15	E 16	
23	E 16	E 16	E 16	E 16	E 16	E 16	E 16	16	15	16	19	17	18	15	14	14	14	14	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 15	E 16	14	14	19	21	16	15	15	16	14	16	E 16	E 16	E 16	E 16	E 16	E 15	
25	E 16	E 15	E 16	E 16	E 16	E 16	E 16	14	14	16	20	13	23	17	17	14	14	14	E 15	E 16	E 16	E 16	E 15	E 16	
26	E 16	E 15	E 15	E 16	E 16	E 16	E 15	E 14	15	14	16	22	18	17	16	15	14	17	E 15	E 16	E 16	E 16	E 16	E 16	
27	E 16	E 16	E 16	E 15	E 16	E 15	E 16	E 16	15	17	17	18	13	18	23	23	16	15	E 16	E 15	E 16	E 16	E 16	E 16	
28	E 16	E 16	E 15	E 16	E 16	E 16	E 16	E 16	15	16	16	19	24	13	20	17	15	15	E 16	E 16	E 16	E 16	E 16	E 16	
29	E 16	E 16	E 15	E 16	E 16	E 16	E 16	E 16	15	15	16	16	15	15	18	17	16	15	E 16	E 16	E 16	E 16	E 16	E 16	
30	E 16	E 15	E 15	E 16	E 16	E 16	E 16	E 16	15	14	15	15	18	16	16	16	15	15	E 16	E 16	E 15	E 16	E 16	E 16	
31	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	15	15	15	13	22	23	21	16	15	15	E 16	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	30	31	31	31	31
MED	E 16	E 16	E 16	E 16	E 16	E 16	E 16	E 16	15	15	16	18	18	18	13	17	15	15	E 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	15	16	17	19	20	20	20	17	16	16	E 16	E 16	E 16	E 16	E 16	E 16	E 16
LQ	E 16	E 16	E 16	E 16	E 16	E 16	E 16	14	14	14	16	16	17	17	16	16	14	14	E 15	E 16	E 16	E 16	E 16	E 16	E 16

OCT. 1986

FMIN (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1986

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 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 300	F	F	F	340	F	335	360	360	365	340	320	330	325	320	355	345	360	350	U S S	325	315	335	320	
2	300	290	310	350	350	335	320	340	355	330	305	315	350	315	330	340	345	365	365	335	305	300	300	300	
3	285	300	340	320	330	335	320	360	350	355	340	295	325	315	325	335	325	355	340	310	305	315	270	290	
4	275	310	335	345	355	355	355	365	365	360	330	340	290	305	300	315	335	350	345	310	305	315	310	305	
5	S 305	S 305	S 315	360	360	350	335	360	365	340	320	315	305	305	315	315	325	U R	300	355	365	305	315	280	U S 270
6	320	F	F	385	A	F	F	380	355	340	320	340	320	U R 295	310	310	320	U R 335	U R 325	350	320	295	320	305	
7	290	340	350	365	365	375	325	355	330	345	350	330	290	310	325	320	340	350	350	365	345	335	325	345	
8	F	F	F	F	F	F	F	370	345	355	J R 330	345	315	295	315	335	335	345	350	325	U S 365	F	F	310	
9	315	325	350	345	365	350	335	360	355	350	335	340	290	315	325	320	325	350	U R 335	395	310	U R 290	290	325	
10	335	315	335	350	F	350	360	365	360	360	350	340	315	310	315	335	340	355	345	345	340	275	300	325	
11	320	315	320	335	340	335	345	365	365	365	335	310	295	300	310	340	355	345	355	360	S 310	285	295	325	
12	315	335	325	340	345	365	350	360	350	365	350	335	295	285	325	320	325	355	370	355	H 325	H 265	305	310	
13	310	310	330	350	365	300	310	355	365	345	325	310	310	305	305	305	365	350	350	345	350	285	285	290	
14	310	335	340	360	365	325	320	305	355	370	360	290	285	330	350	325	340	365	340	C	280	280	285	280	
15	300	360	350	310	305	295	320	340	365	365	320	345	320	310	325	355	350	355	360	S	320	300	300	305	320
16	315	320	325	330	355	345	335	365	365	365	355	300	295	295	310	325	350	355	345	340	300	300	J S 315	310	
17	320	320	340	335	345	F	F	360	360	360	345	350	330	315	320	320	350	365	355	320	305	335	355	320	
18	315	325	325	F	F	F	F	365	355	355	340	325	330	320	295	335	330	365	345	325	340	300	320	310	
19	U S 330	335	350	350	320	355	345	345	340	320	315	340	315	315	U R 315	330	345	335	R 340	365	320	310	300	295	
20	S 295	305	325	315	365	365	320	360	365	360	315	345	325	U R 320	305	305	315	345	U R 335	360	U S 340	310	330	315	
21	295	300	305	J S 320	370	380	335	375	335	360	340	355	320	290	310	300	J R 325	U R 340	345	350	U S 305	A	335	A	
22	F	F	F	F	F	F	F	360	375	335	330	340	335	300	305	U R 330	330	360	365	350	290	305	345	310	
23	325	335	345	335	345	355	320	360	350	335	330	320	330	325	315	330	340	345	335	345	330	310	335	305	
24	310	305	315	350	320	370	315	355	380	360	335	335	355	310	325	335	315	345	355	370	310	350	335	330	
25	S 310	310	320	320	310	360	365	365	365	365	325	350	325	300	315	320	340	325	340	335	S	335	300	305	320
26	305	300	S 325	305	340	340	335	365	365	360	340	325	325	310	305	U R 320	340	335	340	290	285	280	310	300	
27	315	325	345	310	315	300	315	360	355	350	345	335	320	285	310	U R 315	345	335	H 295	H 265	265	300	305	275	
28	280	300	315	320	295	305	310	325	355	330	305	325	310	305	295	320	355	345	330	295	275	295	305	300	
29	310	310	300	360	335	F	340	360	350	345	350	355	320	320	325	330	335	365	335	315	285	325	330	305	
30	310	315	330	315	345	320	305	325	355	340	335	350	325	305	325	U R 305	320	325	335	U S 325	290	305	320	320	
31	315	315	360	365	325	290	320	340	365	320	305	315	330	330	330	345	335	345	340	355	280	335	J S 335	320	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	27	27	27	26	24	26	31	31	31	31	31	31	31	31	31	31	31	31	30	31	29	30	30	
MED	310	315	325	340	345	348	330	360	355	355	335	335	320	310	315	325	340	350	345	342	305	300	310	310	
UQ	315	325	342	350	360	358	340	365	365	360	342	342	328	315	325	335	345	355	352	355	328	315	330	320	
LQ	300	305	318	320	325	322	320	355	352	340	322	318	308	300	310	318	325	342	338	320	295	295	300	300	

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M(3000)F2 (0.01)

The Radio Research Laboratory, Japan

IONOSPHERIC DATA

OCT. 1986
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 420 410	L	U L 400 410	395	U L 380	L	L							
2									L	L	U L 410 410	L	U L 410 400	420	U L 410	L	L							
3									L	L	U L 355 370	U L 370	U L 390 370	U L 370 355	U L 370	U L 375	L	L						
4										L	U L 370 395	U L 380	U L 360	L	U L 350	A	A							
5										L	U L 395 390	U L 390	U L 390 370	U L 370	U L 365	L	A							
6										L	U L 385 375	L	U L 410 360	U L 365	U L 370	L	L							
7									L	L	L	U L 410	U L 400 375	U L 365	L	L								
8										L	L	U L 375 385	U L 400 420	U L 400 370	U L 370	L	L							
9										A	A	U L 410 370	U L 420 395	U L 360	L	L								
10										L	U L 375 400	U L 380	U L 400 400	U L 350	L	L								
11									L	L	U L 370 370	U L 370	U L 375 375	U L 360	A	A								
12									L	L	U L 375 375	U L 395	U L 370 375	U L 370	L	L								
13									L	U L 390	L	U L 395 385	U L 375 385	L	L	L								
14									L	A	L	U L 390 395	A	U L 370 380	L	L								
15									L	L	L	U L 385 390	U L 370 365	U L 380	A									
16									L	L	L	U L 410 430	U L 440 395	U L 370	L	L								
17									L	L	U L 395 400	U L 400 410	U L 385	A	L	L								
18									L	L	L	U L 420 395	U L A	U L 415	L	A								
19									L	L	B	B	U L 430 390	U L 410	L	L	A							
20									L	L	A	U L 385 390	L	L	L	L	L							
21									L	A	A	L	U L 360	L	U L 360	L	L							
22									L	L	L	U L 370	A	L	U L 380	L	A							
23									L	L	L	U L 400 390	U L 380	U L A	U L A	L								
24									L	L	L	U L 390 420	U L 410	A	L	L								
25									L	U L 395 380	U L 370 390	U L 415 355	L	L										
26									L	L	L	A	U L 380 375	U L 365	A	U L 375	L							
27									L	U L 375 375	U L 375 385	U L 385 360	U L 355 400	U L 400	A									
28									L	L	L	U L 380 415	U L 420	L	L	L	L							
29									L	L	U L 410	L	U L 405	L	L	L	L	A						
30									L	L	L	U L 410 415	L	L	L	L	L							
31									L	A	L	L	A	L	L	U L 385	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	14	26	29	23	22	17	3						
MED											U L 390 378	U L 390	U L 395	U L 390	U L 375	U L 370	U L 375							
UQ											U L 392 395	U L 410	U L 405	U L 410	U L 395	U L 380	U L 388							
LQ											U L 382 375	U L 375	U L 385	U L 375	U L 365	U L 360	U L 375							

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H^oF₂ (KM)

135° E Mean Time (G.M.T. + 9 h)

Station	OKINAWA							Lat. 26° 16.9' N	Long 127° 43.4' 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								240	240	240	250	285	270	280	230	260	260	240						
2									250	260	280	280	250	250	260	275	260	225						
3									250	235	270	315	270	275	270	250	250	230						
4										235	295	270	330	305	305	280	250	240						
5										255	275	265	290	295	280	260	240	230						
6										265	280	260	260	300	270	270	260							
7									280	255	250	255	300	305	255	250	250							
8										260	290	250	255	310	290	250	235	220						
9										250	280	260	355	300	275	290	265							
10										250	260	260	260	290	265	255	240	225						
11									225	235	270	275	280	320	280	250	235	230						
12									255	250	255	250	270	305	275	260	270	245						
13									245	270	285	280	255	270	270	245	230							
14									225	220	255	400	330	265	245	265	250	225						
15									230	230	280	270	285	300	270	245	240							
16									225	240	250	285	300	280	255	240	235	265						
17									240	245	265	250	265	275	265	260	240	230						
18									230	260	230	290	260	280	260	250	250	230						
19									230	280	280	260	275	280	270	240	230	235						
20									220	250	260	250	265	310	275	265	260	230						
21									210	240	270	255	280	325	295	275	245							
22									230	^U _L 275	270	270	265	275	300	265	255							
23									230	255	275	270	255	250	265	250	240							
24									215	240	260	265	250	270	265	250	250							
25									230	235	270	250	240	270	265	245	230							
26									230	255	265	280	270	275	225	265	250	220						
27									245	250	250	270	245	285	265	250	225	230						
28									240	260	290	265	240	270	280	250	230	225						
29									230	245	250	255	260	270	270	260	240	220						
30									240	260	260	245	240	250	260	240	240							
31									240	^A 240	300	240	260	^A 260	260	260	235							
	00	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	25	31	31	31	31	31	31	31	31	19						
MED								240	230	250	270	265	265	280	270	255	240	230						
UQ									240	260	280	278	280	300	275	265	250	232						
LQ									230	240	258	255	255	270	260	250	235	225						

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H^oF₂ (KM)

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	S 310	A 300	250	230	S 255	S 260	S	225	210	210	200	190	H 190	H 180	220	A 240	200	A 220	220	210	210	240	250	A 280	
2	S 290	280	270	215	S 230	S	S	230	220	210	210	200	200	H 200	A 230	200	A 240	A	215	220	E A 280	S	E S 300	E S 280	
3	S 330	280	235	265	240	S 250	270	220	225	225	215	205	200	190	200	225	215	240	205	205	220	225	A	275	
4	295	295	270	230	205	205	230	230	205	200	200	185	190	200	205	E A 250	A	A	205	200	210	275	A 280	270	
5	285	280	255	215	195	S 240	270	220	220	200	190	205	200	205	200	A	A	A	215	205	200	235	A 330	S 345	
6	275	235	230	200	A	S	265	210	225	225	210	205	200	200	220	205	230	230	210	220	255	260	245	250	
7	290	250	225	220	210	215	E S 290	220	240	A	215	200	205	H 200	225	H 200	225	240	220	215	210	220	250	250	
8	225	250	265	250	200	S	265	215	220	225	210	A 230	195	190	180	250	230	A	210	215	205	A 250	300	295	
9	275	250	250	250	215	S	S	220	245	A	A	200	H 190	H 175	A	235	210	225	210	200	200	245	285	295	
10	265	255	265	245	220	S 275	250	230	225	230	A	200	A	220	175	190	215	220	205	200	205	270	290	250	
11	240	240	240	250	220	240	235	215	220	205	200	200	A	195	200	235	A	A	A 285	210	200	315	A 295	285	
12	270	245	235	245	200	200	215	210	225	225	205	200	200	200	230	225	225	225	205	200	200	S 265	A 270	255	
13	270	260	235	220	185	E S 290	S 275	230	230	205	215	190	190	190	220	235	A 245	230	225	215	205	S 270	A 330	295	
14	280	255	210	215	200	S	345	255	230	A	200	220	220	A	A 250	225	230	240	200	C	255	285	315	315	
15	300	220	S 225	S 290	S 280	S	S 300	235	235	220	210	200	200	235	255	245	A	250	A 270	A 280	260	305	295	270	
16	290	A 265	255	250	240	240	240	230	A	210	200	200	190	190	A	A	A	A	210	A 230	220	240	240	245	
17	240	240	225	220	215	220	S	220	A 225	A 230	190	A	210	A	A	A	A	A	A 230	210	210	A 240	230	E S 250	
18	S 230	S 230	E S 300	S 290	250	220	210	215	210	A	A	A 220	A 300	A	A	A	A	A	230	200	240	A	A	E S 260	
19	S 260	260	235	230	225	225	S 240	230	225	A	B	B	210	A 240	A 220	A	A	A	210	210	A	A	230	240	
20	S 300	S 300	E S 300	S 260	210	190	S 250	240	215	A 240	A	205	210	200	A	A	A	A	210	210	A	A 260	A 220	E S 290	
21	310	300	325	275	210	215	S	210	A	A	A	A	200	H 180	A	A	A	210	210	200	A 230	A	A	A	
22	S	300	265	240	200	205	260	210	225	210	A	200	A	A	195	A	A	A	215	200	230	305	265	250	275
23	280	250	245	250	250	235	S 290	220	210	210	200	220	205	205	A	A	A	220	210	200	210	220	225	260	
24	300	275	250	245	255	225	255	230	210	200	230	A	200	175	A	A	235	240	210	195	200	215	210	245	
25	A 280	250	275	300	295	220	190	220	225	205	220	A 230	210	200	A	A	220	220	205	205	220	270	275	230	
26	245	265	250	A 290	235	230	225	220	A 230	200	235	A	200	200	E A 250	A	230	230	195	200	225	275	270	A 295	
27	290	265	230	255	255	S 270	255	230	225	220	210	200	200	E A 250	205	255	A 230	A	220	215	A 300	265	240	265	
28	270	240	A 270	240	A	A	S 280	250	A	220	200	210	200	200	A	H 190	A	A	215	210	235	240	220	225	
29	S 240	S 255	S 260	200	240	A 260	S	240	215	220	A	205	A 220	A	A	A 230	A	A	A	230	S 240	S 250	S 230	S 230	
30	S 275	240	A	S 250	210	S	S	240	210	210	220	200	200	H 200	A	A	200	A 240	225	200	260	S 270	S 240	S 250	
31	S 270	S 270	215	210	S 240	S	S	240	A	A	A 250	A 250	A	A	A	A 230	A 220	A	225	215	210	S	A 260	A 250	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	30	31	30	31	29	22	23	31	27	24	23	26	26	25	20	18	17	19	30	30	28	27	28	29	
MED	280	260	249	245	220	226	255	220	225	210	210	200	200	200	220	226	230	230	210	210	220	260	250	260	
UQ	290	280	265	252	240	S 245	271	230	225	225	215	210	205	200	230	238	230	240	220	215	244	270	290	282	
LQ	270	250	235	220	210	215	238	218	215	205	200	200	200	190	200	205	215	220	205	200	205	240	235	248	

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H*F (KM)

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H°E (KM)

135° E Mean Time (G.M.T. + 9 h)

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

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H°E (KM)

IONOSPHERIC DATA

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H^oES (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	110	105	105	105	105	105	S	G	115	G	120	G	115	G	115	145	140	130	110	105	105	S	S	100					
2	100	100	S	110	110	S	120	120	125	120	E 135	E 130	130	130	E 160	150	130	125	115	110	110	110	110	110					
3	105	105	100	100	100	110	110	115	115	105	105	115	105	100	G	105	G	105	100	100	100	95	100	100					
4	S	S	S	S	S	S	S	S	135	125	120	115	105	110	105	105	105	105	105	105	105	100	100	S					
5	100	S	S	S	S	S	S	S	G	105	105	105	105	105	G	105	105	105	105	120	S	S	100	95	105				
6	100	100	100	100	100	100	G	110	110	110	110	110	110	105	110	105	110	105	105	100	100	105	S	S					
7	S	S	100	S	S	S	S	120	110	110	115	115	110	110	110	G	110	110	100	S	S	S	S	S					
8	100	100	S	100	S	S	S	120	115	110	G	105	G	110	105	G	155	125	120	115	105	105	100	100					
9	S	100	100	S	S	S	S	140	115	110	110	110	110	110	105	165	105	150	100	S	S	S	100	105					
10	S	S	100	100	S	100	S	130	110	110	105	105	105	100	G	G	105	100	100	S	105	110	100	110					
11	S	S	S	S	S	S	S	125	125	125	120	105	110	120	120	120	125	115	120	100	95	140	130	130					
12	125	100	S	S	S	S	S	125	120	120	120	115	115	120	120	120	G	G	S	S	105	100	100	S					
13	S	S	S	S	S	S	S	135	130	130	110	105	G	G	G	E 155	130	120	115	115	S	S	100	95					
14	100	100	100	S	S	S	135	130	120	120	120	135	125	115	115	G	G	G	S	C	S	S	120	S					
15	S	S	S	S	S	S	S	125	120	120	115	120	120	115	125	125	125	115	110	105	105	105	100	100					
16	100	100	100	100	100	100	110	130	130	E 135	115	115	110	G	160	140	100	100	100	100	S	110	S	S					
17	S	S	S	S	S	S	S	130	125	125	120	120	125	125	125	125	120	125	100	100	110	S	110	110					
18	110	100	100	110	100	105	105	100	115	115	115	115	150	150	140	140	140	100	100	110	110	110	110	110					
19	110	110	S	S	S	S	S	130	G	125	B	125	130	120	125	120	120	110	110	105	105	110	S	S					
20	S	S	S	S	S	S	S	130	125	120	115	125	130	G	160	150	140	140	115	110	110	110	110	110					
21	S	S	S	S	100	105	100	100	100	110	110	110	G	G	155	150	140	105	105	105	100	100	100	100					
22	100	100	S	S	105	100	S	S	110	110	105	105	100	110	135	110	105	105	110	105	100	105	100	S					
23	S	S	S	100	100	100	100	S	G	110	115	G	100	100	115	110	110	110	100	S	110	105	100	100					
24	100	S	S	S	S	S	S	S	110	110	160	G	120	150	135	140	130	110	110	110	S	S	S	S					
25	100	S	S	S	S	S	S	135	140	140	115	115	105	100	100	100	G	105	95	100	105	115	100	100					
26	100	95	100	100	105	105	S	130	125	120	115	105	110	115	105	105	G	100	95	95	100	100	100	100					
27	100	100	100	100	S	S	S	125	115	105	105	105	110	105	110	105	105	105	105	105	100	S	100	100					
28	S	100	100	100	100	100	105	140	135	125	115	115	115	115	115	G	140	125	115	110	S	100	S	S					
29	S	S	S	S	100	100	100	S	G	150	150	140	125	160	120	130	125	120	110	S	S	S	110	110					
30	110	100	100	100	S	110	110	S	G	125	125	125	120	110	125	110	G	100	110	110	110	110	110	100					
31	S	110	100	100	100	100	100	145	140	140	140	130	130	125	E 140	E 140	130	120	100	110	S	110	110	100					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	17	17	14	14	13	14	12	23	27	30	29	28	28	25	28	26	25	29	29	23	21	22	24	21					
MED	100	100	100	100	100	100	105	130	120	120	115	115	112	115	118	121	125	110	105	105	105	105	100	100					
UQ	110	100	100	100	105	105	110	132	125	125	120	121	125	120	130	140	130	120	110	110	110	110	110	110					
LQ	100	100	100	100	100	100	100	122	112	110	110	105	110	105	110	105	105	105	100	100	100	100	100	100					

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H^oES (KM)

IONOSPHERIC DATA

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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 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	F2	F4	F3	F3	F2	F1			C1		C1		C1		C1	HL11	HL22	CL22	L5	F2	F2			F5
2	F2	F2		F1	F1		F1	C3	C3	CL11	CL11	CL12	CL11	C1	H2	HL11	C2	C4	C6	F3	F4	F3	F4	F2
3	F6	F5	F6	F4	F4	F4	F2	C3	C3	L3	L2	L1	L2	L3		L2		L3	L4	F7	F5	F4	F3	F3
4								H2	C2	C1	C3	L2	L2	L2	L1	L3	L4	L5	L3	F6	F4	F5	F4	
5	F2								L3	L2	L2	L2	L1		L2	L4	L4	L5	C1			F3	F2	F3
6	F3	F5	F6	F5	F8	F4	F1		L2	L2	L1	L2	L2	L2	L2	L2	L2	L2	L4	F3	F5	F1		
7			F5					C3	C3	C4	C2	C2	C2	C2	C2		F2	L3	F2					
8	F1	F1		F2				C3	C2	L2		L3		L1	L2		H1	H3	C2	F2	F2	F4	F4	F2
9		F2	F4					H2	C3	L3	L4	L2	L1	L2	L4	HL11	L2	HL12	L3				F2	F2
10			F3	F1		F1		H1	C4	C3	L3	L1	L3	L3			C1	L3	L2		F3	F4	F5	FF21
11								C3	C2	C2	C1	L2	L2	C2	C1	C1	C4	C7	C7	F6	F5	FF52	FF62	FF52
12	FF32	F2						C3	C3	C2	C2	C2	CL12	CL12	C1	C1					F1	F3	F5	
13								H3	H3	HL13	L2	L1				H1	H3	C4	C7	F2			F5	F5
14	F2	F2	F1				F3	C4	C1	C1	C1	H2	C1	C5	C2								F5	
15								C5	C3	C3	C2	C1	C1	C2	C1	CL12	CL52	CL43	FF72	F7	F3	F7	F8	F7
16	F2	F4	F4	F1	F2	F1	F2	C3	CL11	CL12	C1	C2	L1		HL21	HL22	L5	L2	F5	F5		F1		
17								C2	C2	C3	C2	C2	C2	C2	C1	C2	CL32	CL21	F1	F1	F4		F1	F1
18	F2	F1	F2	F3	F5	F3	F1	L2	C2	C5	C3	C2	HL21	HL21	HL22	HL21	HL23	L3	F2	F4	F2	F2	F4	F1
19	F2	F1						C1		C3		C1	C1	C1	C1	C2	C4	L4	F5	F5	F6	F4		
20								C1	C3	C6	C4	C1	C1		HL21	HL11	HL23	HL33	F3	F4	F2	F1	F1	F1
21					F1	F1	F4	L2	L4	CL52	C4	CL21			H2	HC21	HC21	L3	F7	L4	F4	F5	F6	F5
22	F4	F1			F1	F2			C2	L2	L3	L2	L3	CL21	HC11	L2	L4	L1	FF11	FF27	F3	FF11	F1	
23				F1	F2	F2	F2		C2	C2	C1		L2	L2	CL31	CL32	CL31	CL12	F1		F1	F2	F2	F1
24	F2								C2	CL21	HL11		C2	HL21	HL31	HL21	HL21	C3	F3	F1				
25	F4							H2	HL12	HL12	LH21	LH22	L2	L3	L1	LH31		L2	F6	F2	F4	F2	F3	F2
26	F2	F2	F4	F3	F1	F1		C2	C2	C2	C3	L4	L2	C2	L4	L3		L2	F3	F2	F5	F3	F4	F4
27	F2	F2	F1	F1				C2	C2	L2	L2	L1	L1	L3	L1	L2	L3	L5	F2	F3	F5		F1	F2
28		F1	F3	F5	F5	F4	F2	H3	CL31	C3	C1	C1	C2	C2	C4		H4	C3	F2	F2		F2		
29					F2	F2	F1			H2	H2	HL21	C2	HL22	C4	C1	C1	C2	F5				F3	F1
30	F2	F4	F5	F1					C2	C1	C1	C1	C2	L1	C1	L1		L1	FF11	F1	F1	F1	F1	F1
31		F1	F1	F1	F2	F2	F2	H3	H2	H4	H3	H2	C2	C1	C1	C2	C2	C3	F2	F1		F4	F4	F1
	00	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																								

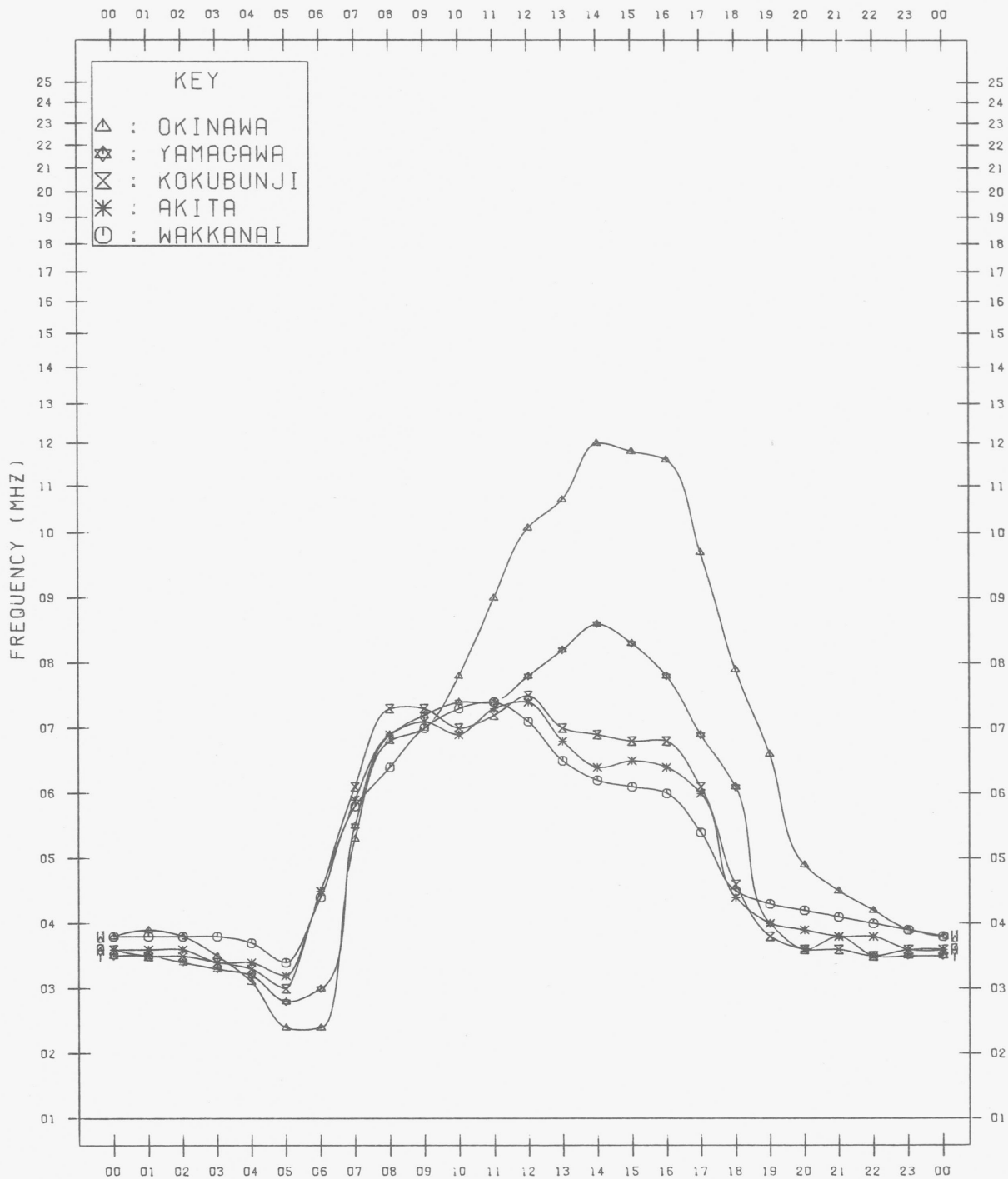
OCT. 1986

TYPES OF ES

MONTHLY MEDIAN VALUES OF FOF2

135 °E MEAN TIME

OCT. 1986



f-PLOTS OF IONOSPHERIC DATA

KEY OF F-PLOT	
I	SPREAD
○	F ₀ F ₂ , F ₀ F ₁ , F ₀ E
×	F _X F ₂
*	DOUBTFUL F ₀ F ₂ , F ₀ F ₁ , F ₀ E
⊗	FBES
L	ESTIMATED F ₀ F ₁
†, ‡	F _{MIN}
^	GREATER THAN
v	LESS THAN

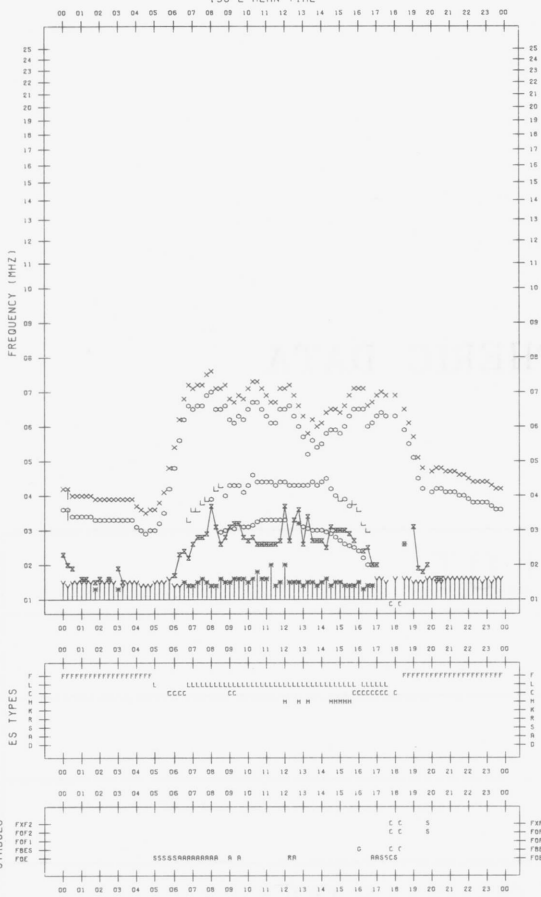
F-PLOT DATA

SCALER : S-HI100ME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/ 1

135°E MEAN TIME



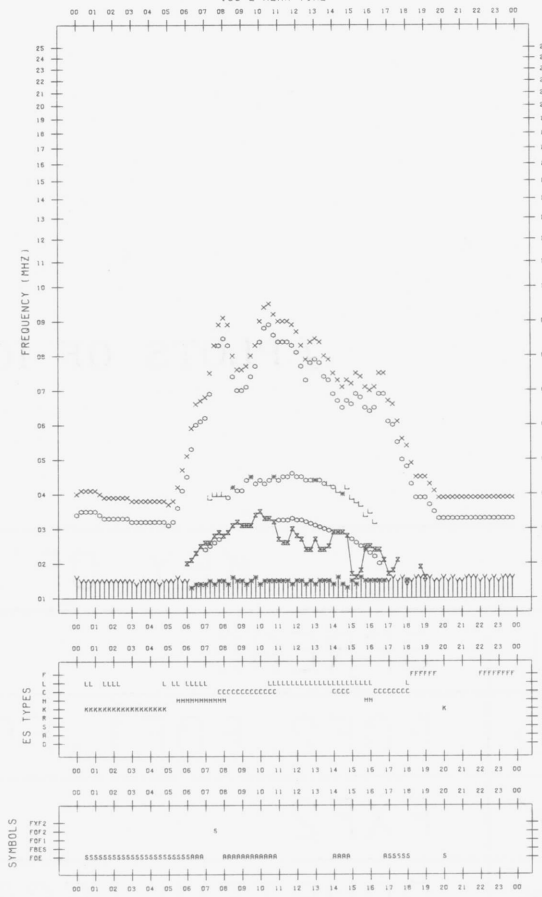
F-PLOT DATA

SCALER : S-HI100ME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/ 3

135°E MEAN TIME



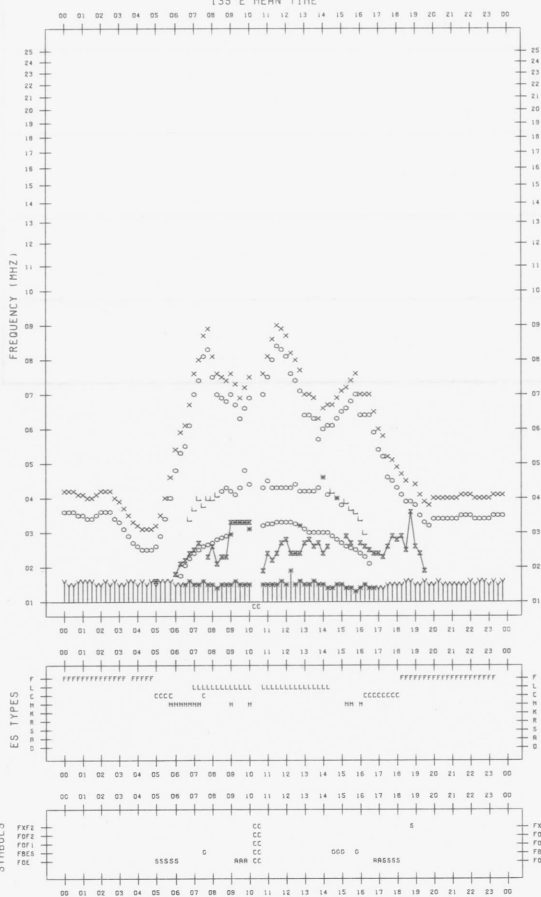
F-PLOT DATA

SCALER : S-HI100ME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/ 2

135°E MEAN TIME



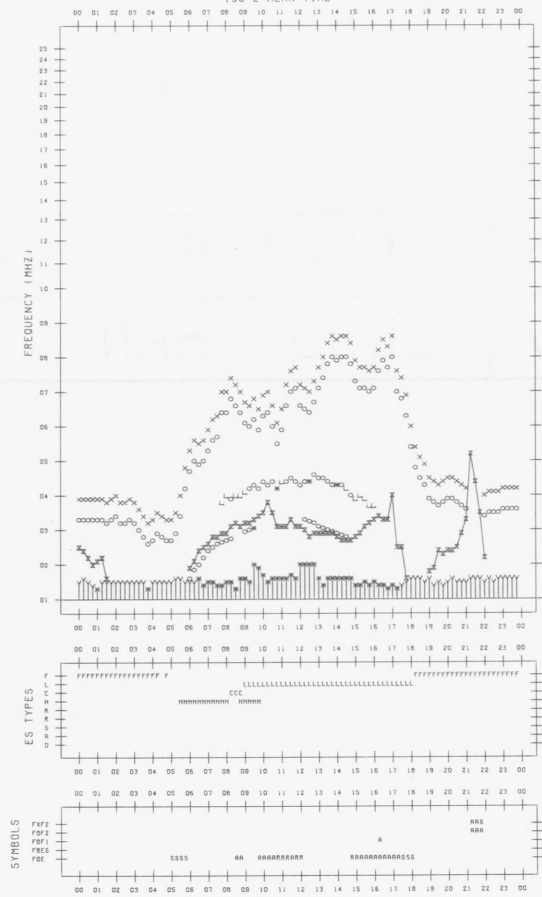
F-PLOT DATA

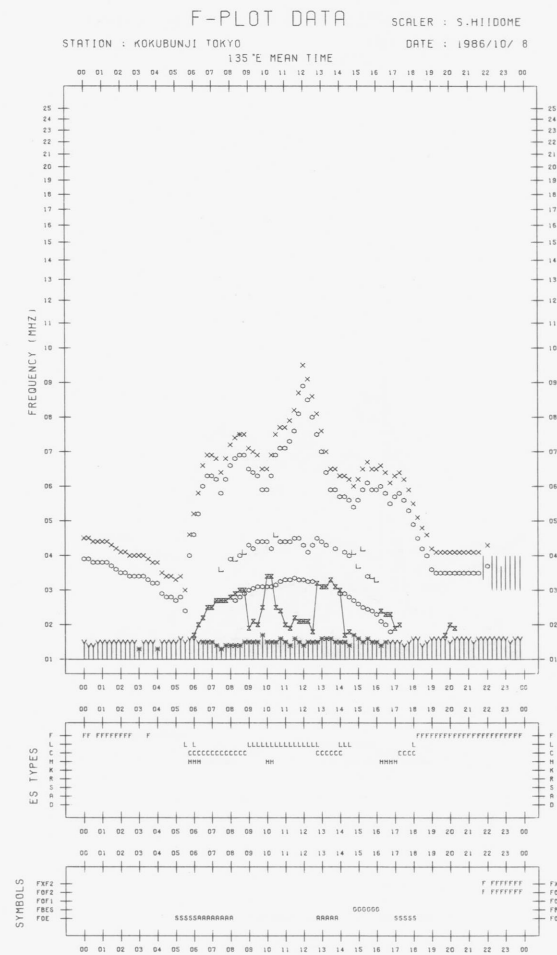
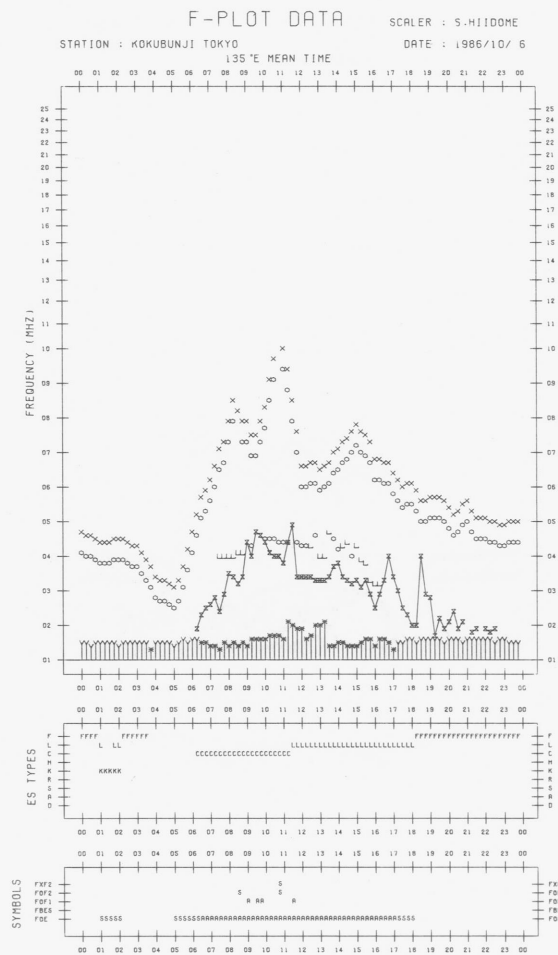
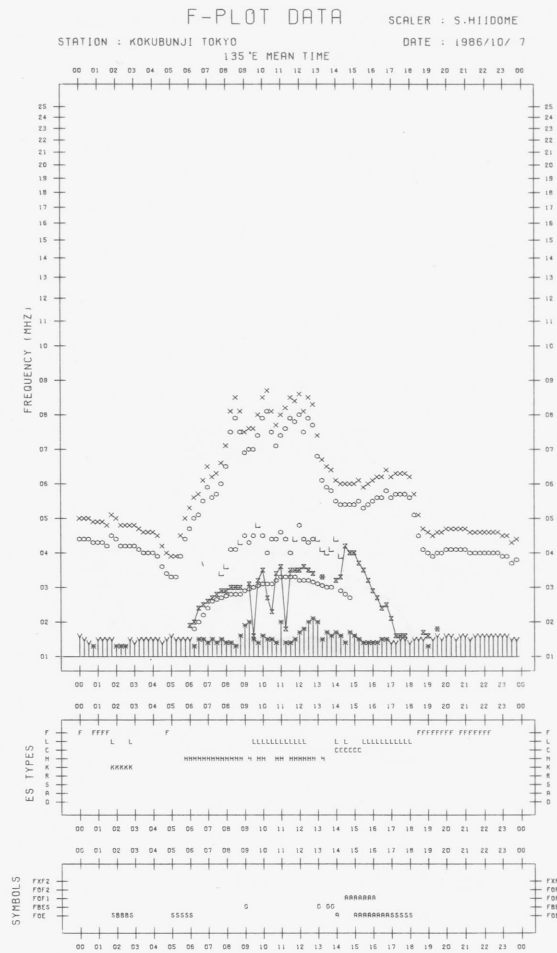
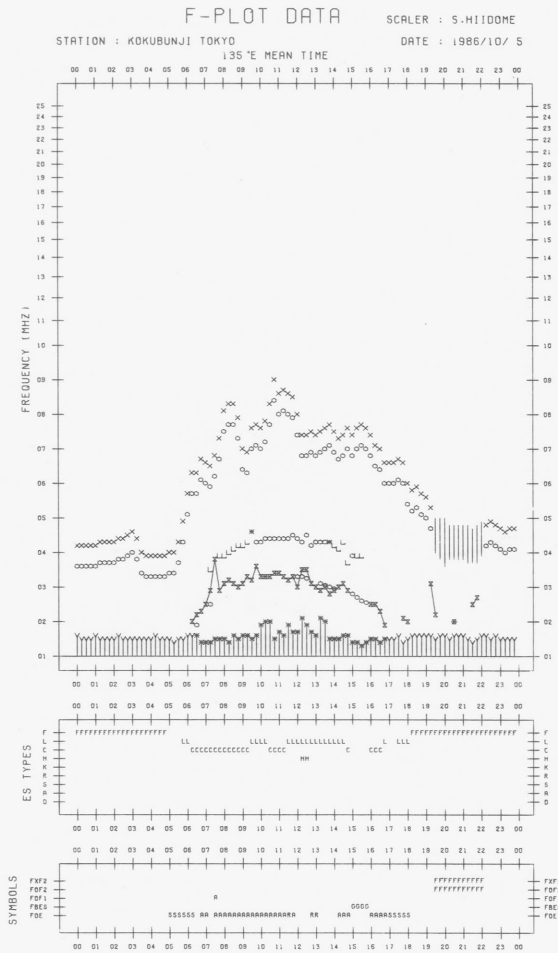
SCALER : S-HI100ME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/ 4

135°E MEAN TIME





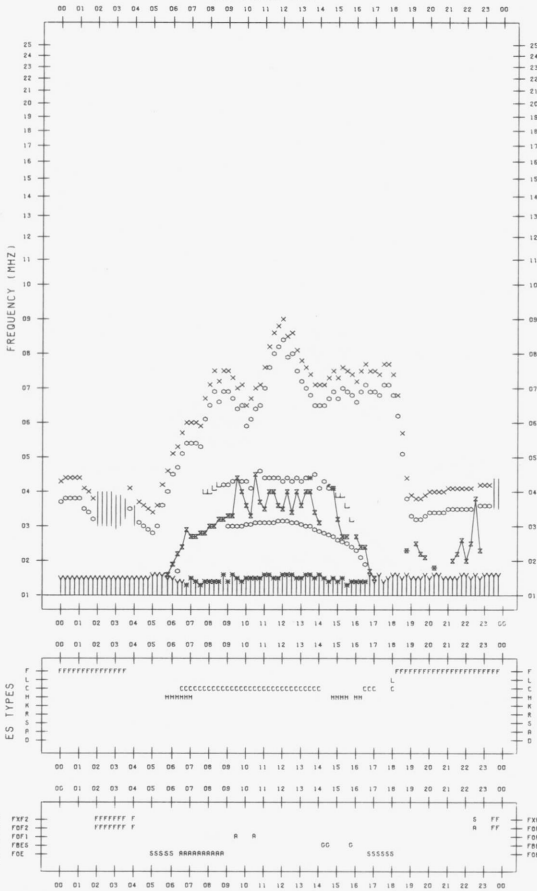
F-PLOT DATA

SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/9

135°E MEAN TIME



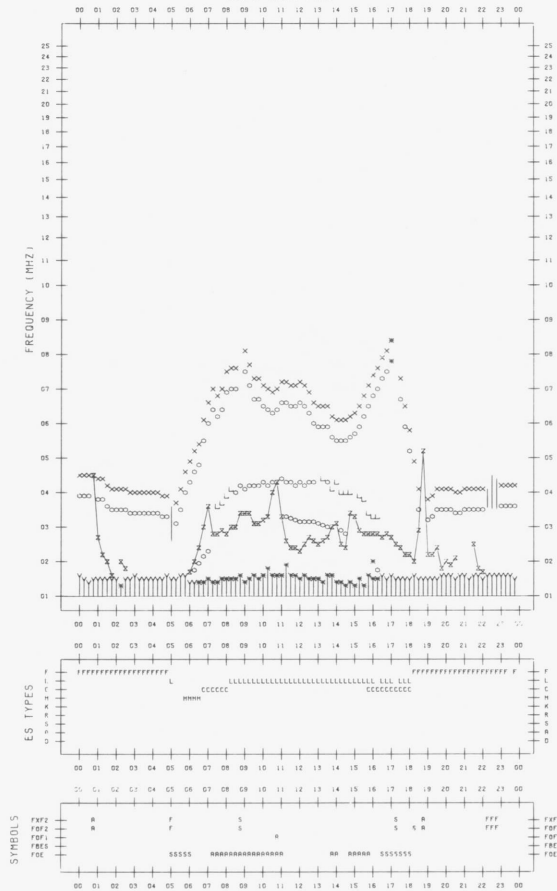
F-PLOT DATA

SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/11

135°E MEAN TIME



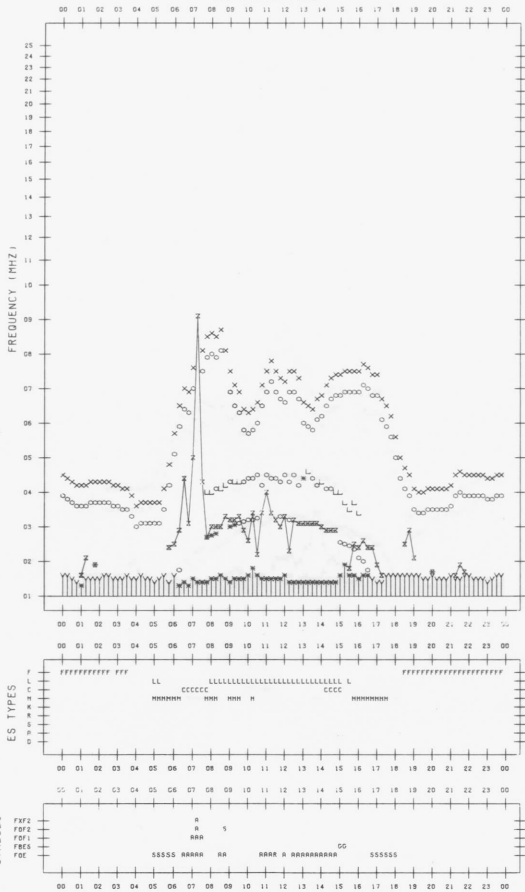
F-PLOT DATA

SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/10

135°E MEAN TIME



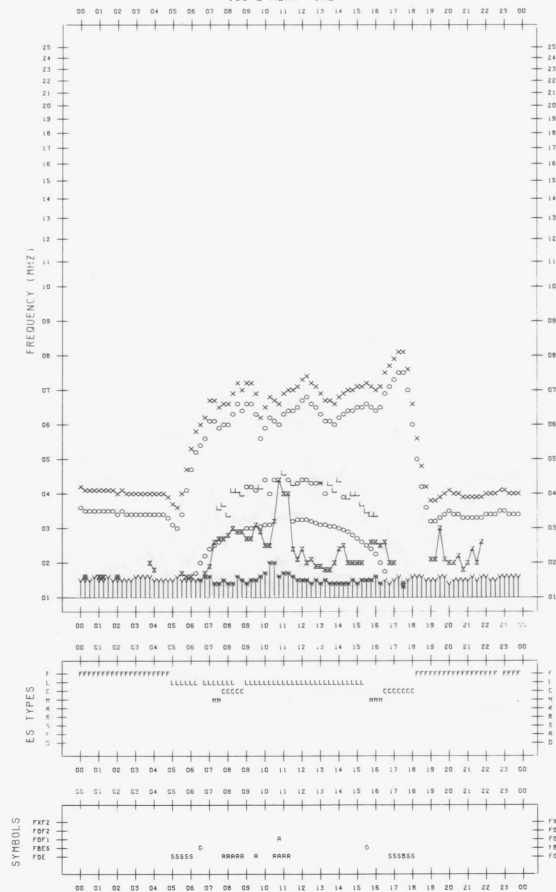
F-PLOT DATA

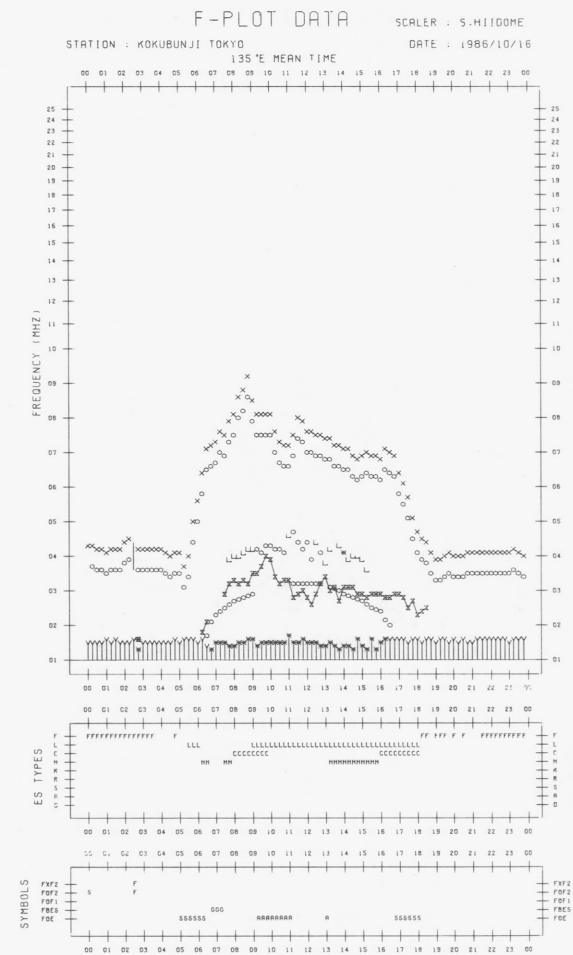
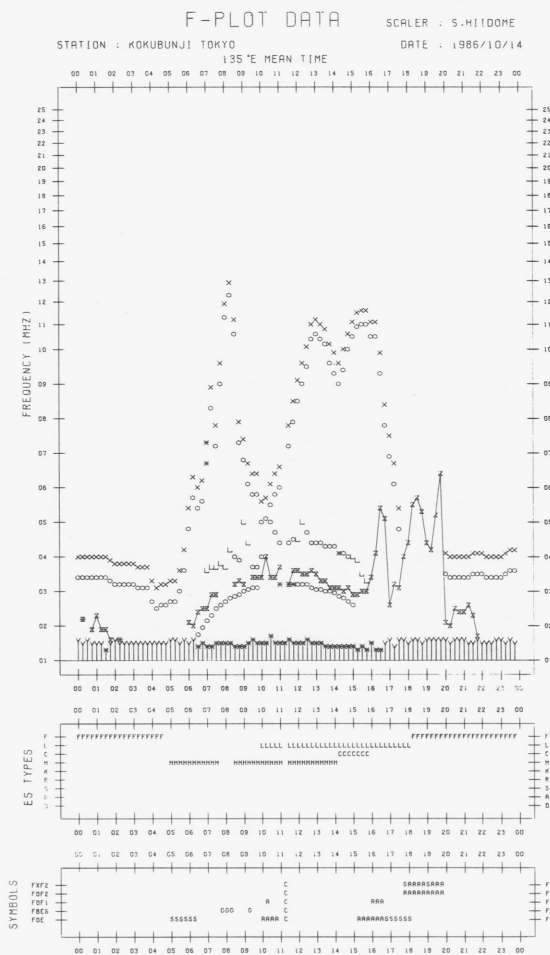
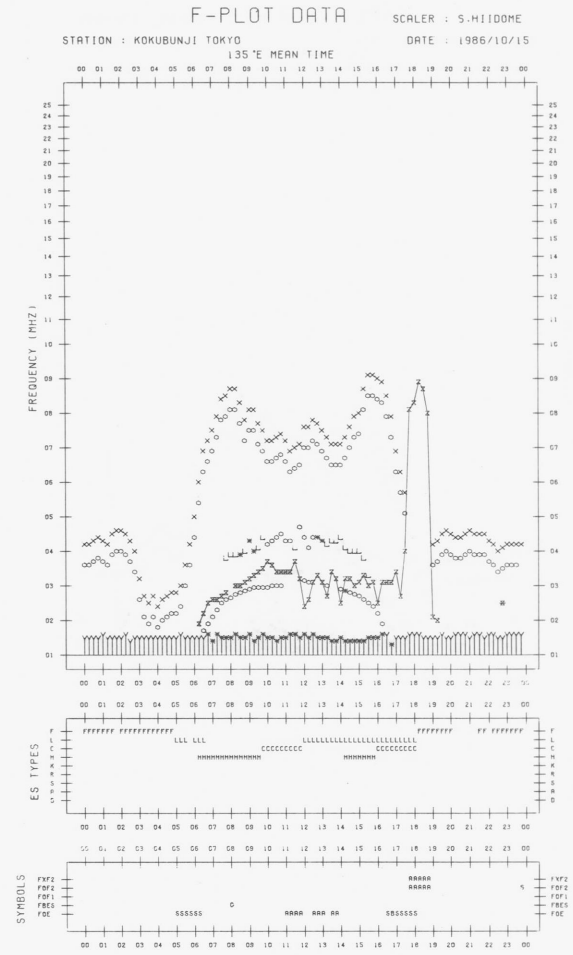
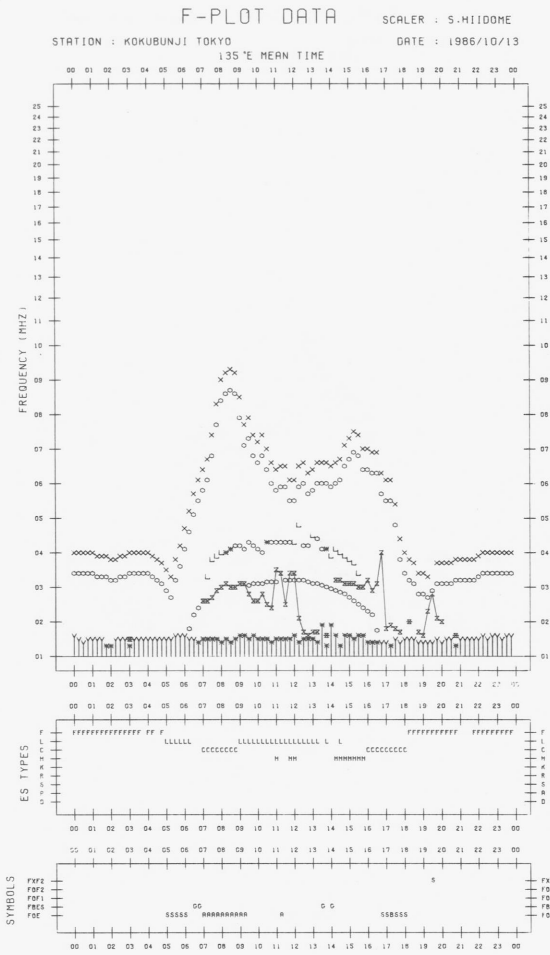
SCALER : S.HIIDOME

STATION : KOKUBUNJI TOKYO

DATE : 1986/10/12

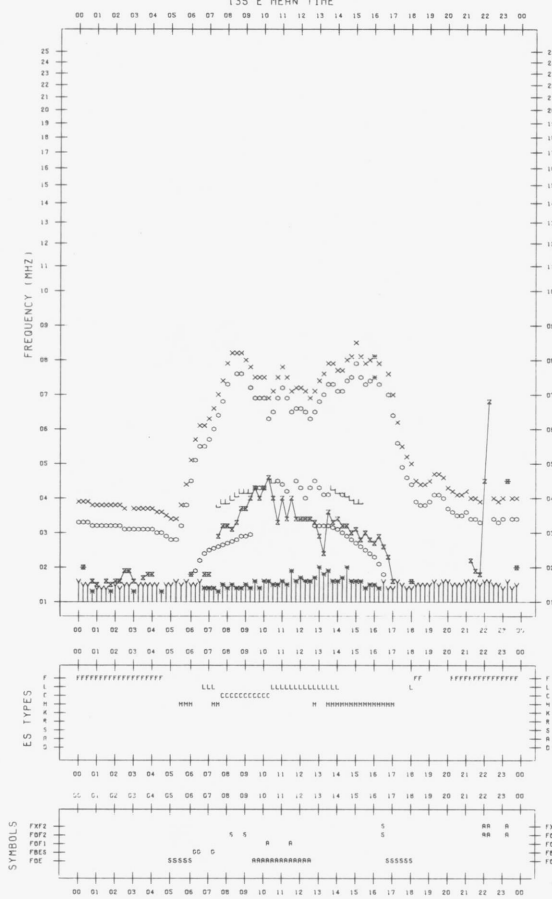
135°E MEAN TIME





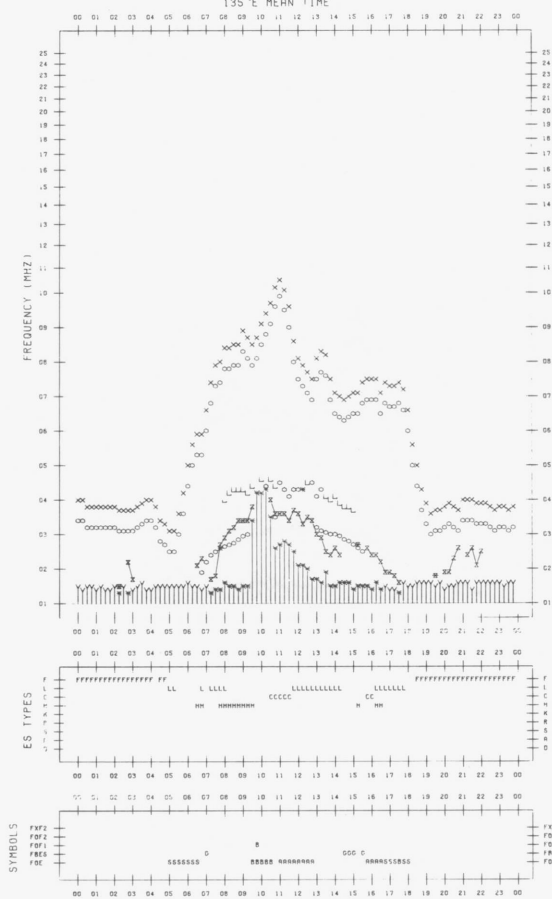
F-PLOT DATA

SCALER : S.HIIDOME
STATION : KOKUBUNJI TOKYO
DATE : 1986/10/17
135°E MEAN TIME



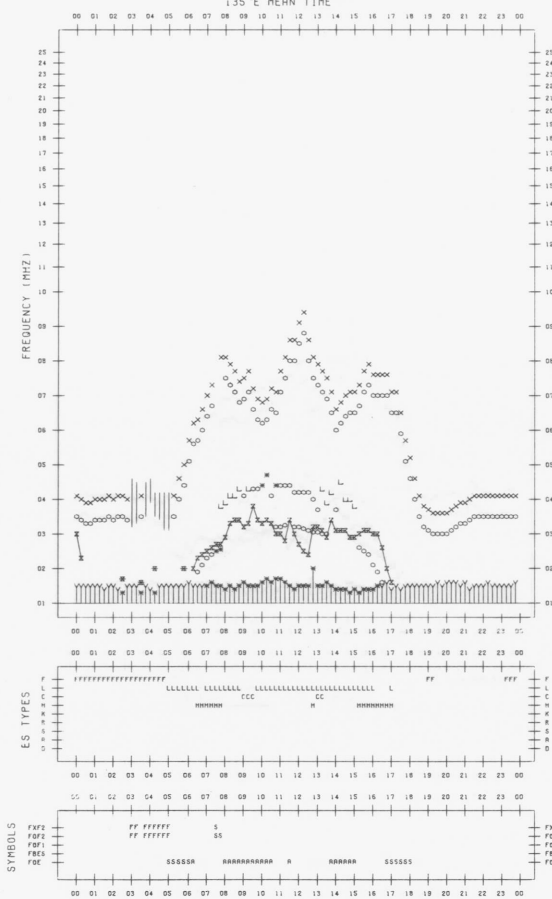
F-PLOT DATA

SCALER : S.HIIDOME
STATION : KOKUBUNJI TOKYO
DATE : 1986/10/19
135°E MEAN TIME



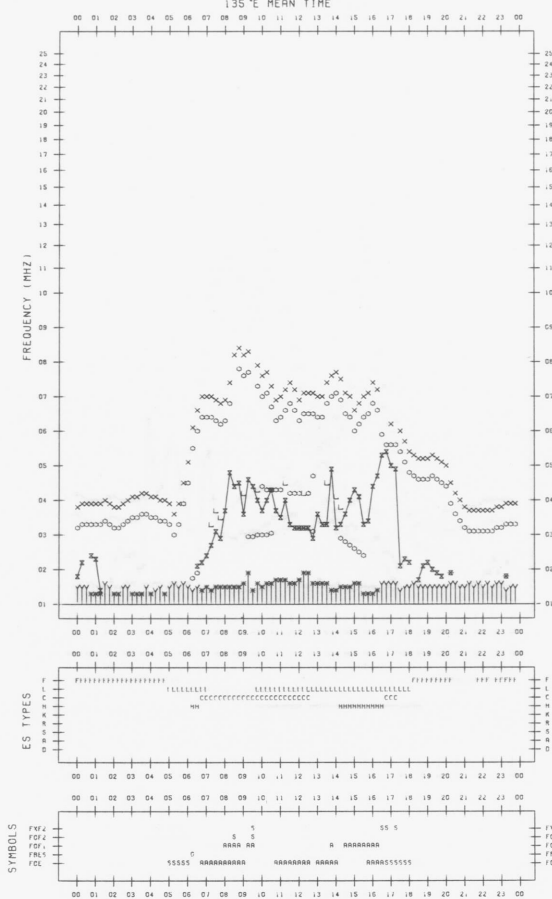
F-PLOT DATA

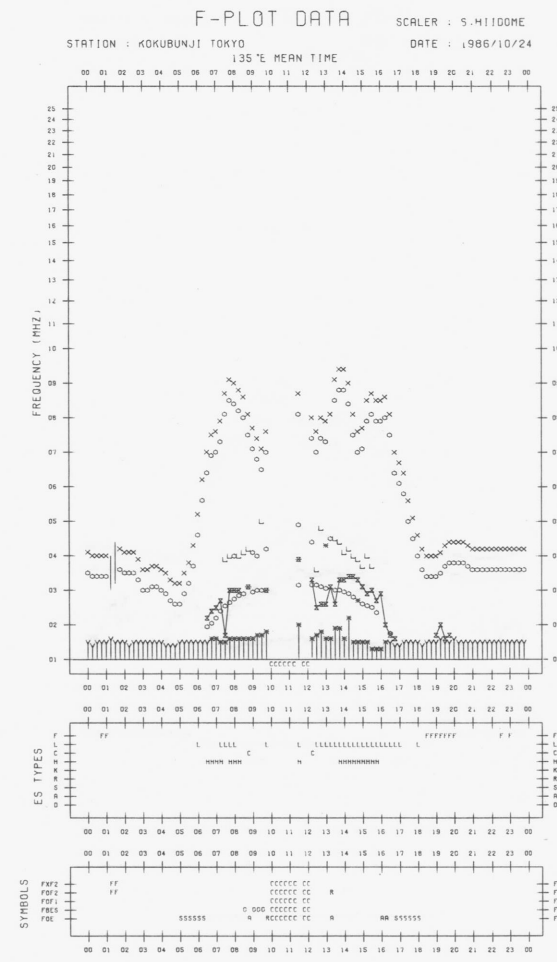
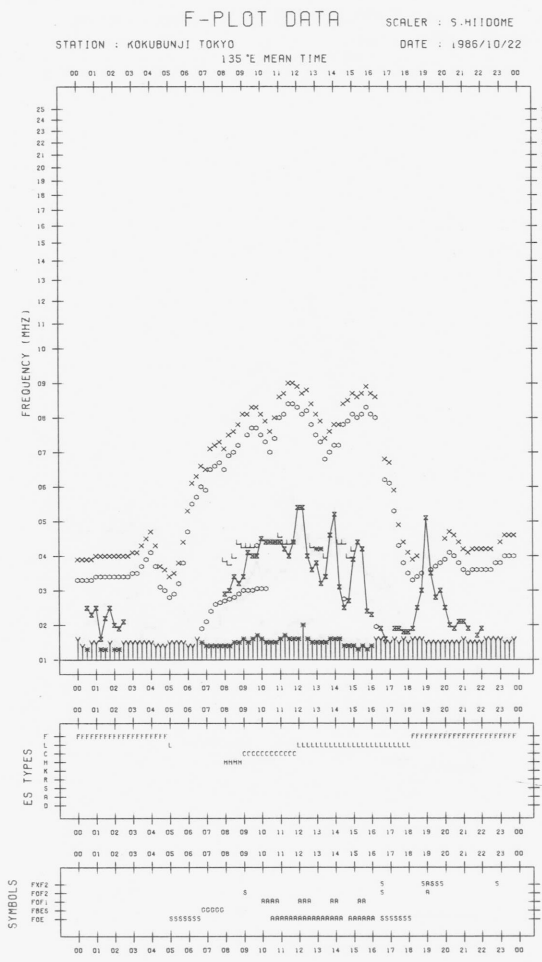
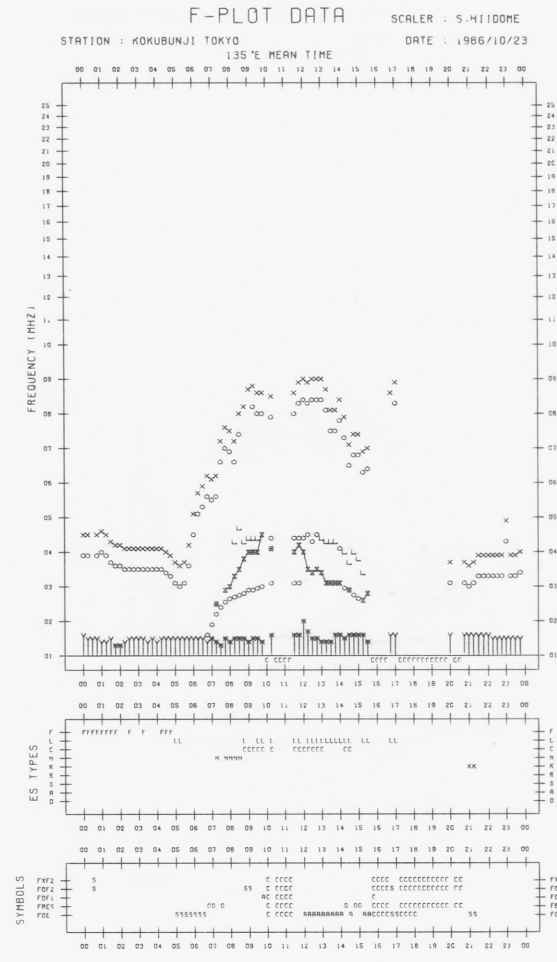
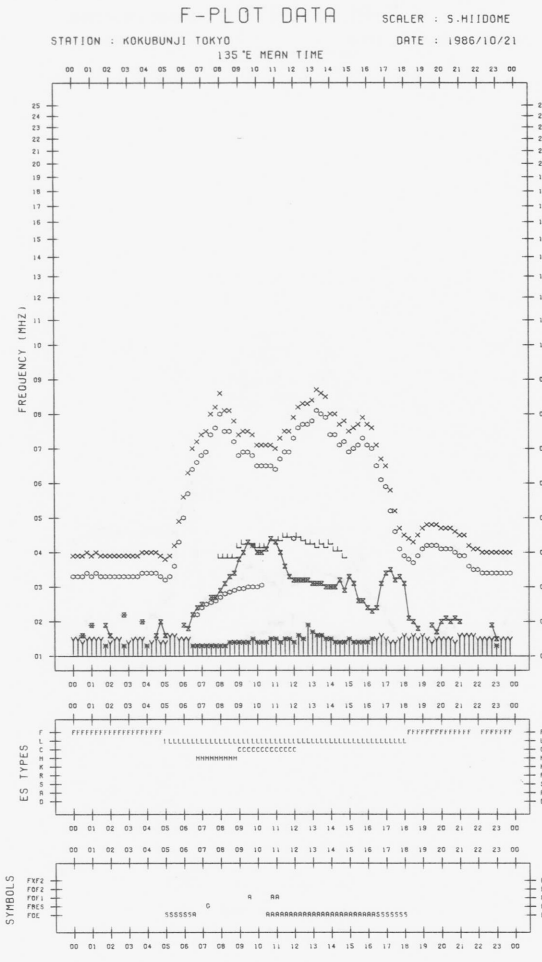
SCALER : S.HIIDOME
STATION : KOKUBUNJI TOKYO
DATE : 1986/10/18
135°E MEAN TIME



F-PLOT DATA

SCALER : S.HIIDOME
STATION : KOKUBUNJI TOKYO
DATE : 1986/10/20
135°E MEAN TIME



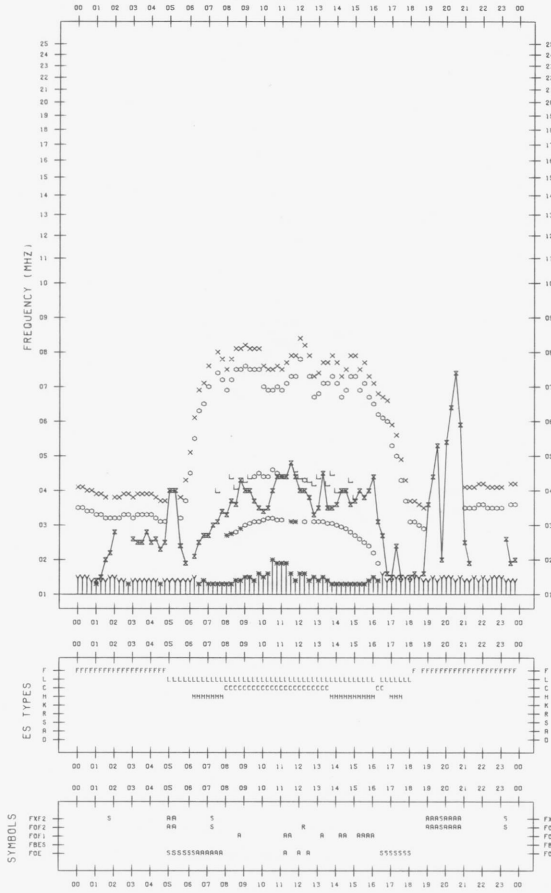


F-PLOT DATA

SCALER : 5.HI10DME

STATION : KOKUBUNJI TOKYO
135°E MEAN TIME

DATE : 1986/10/25

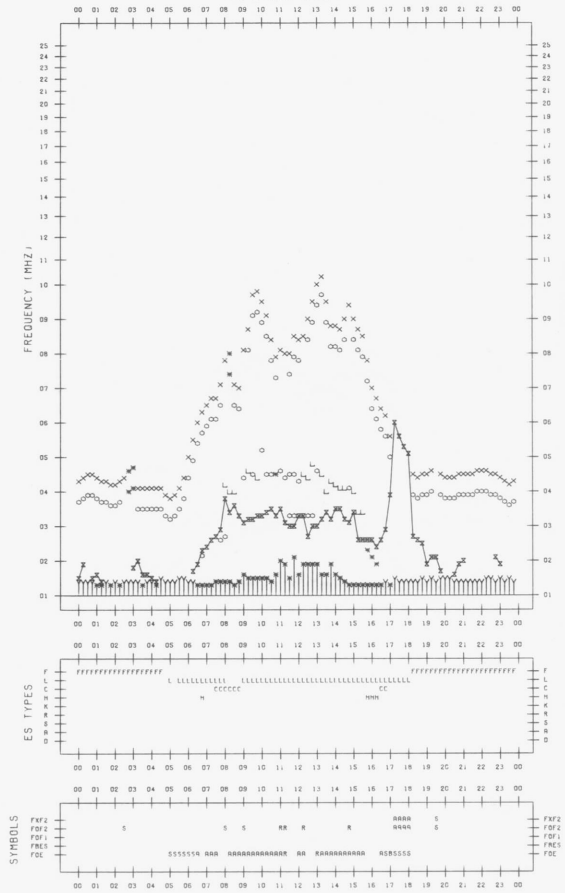


F-PLOT DATA

SCALER : 5.HI10DME

STATION : KOKUBUNJI TOKYO
135°E MEAN TIME

DATE : 1986/10/27

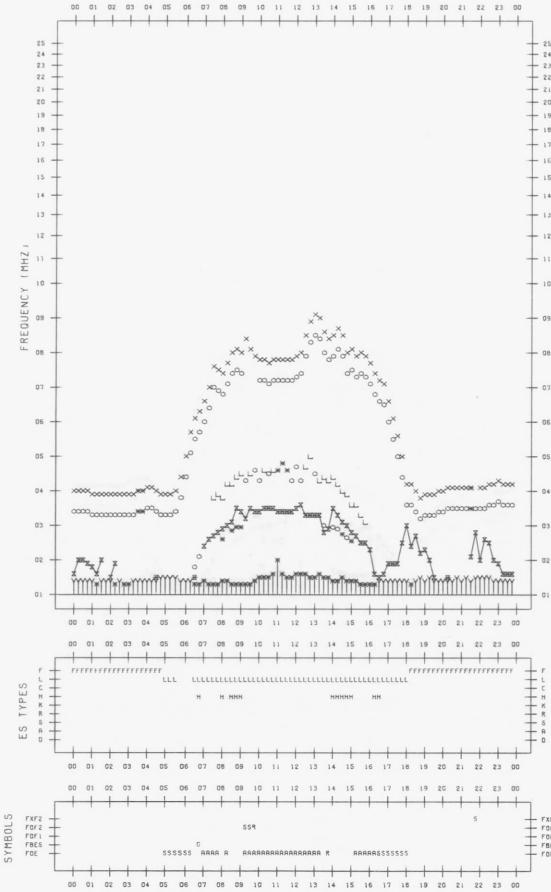


F-PLOT DATA

SCALER : 5.HI10DME

STATION : KOKUBUNJI TOKYO
135°E MEAN TIME

DATE : 1986/10/26

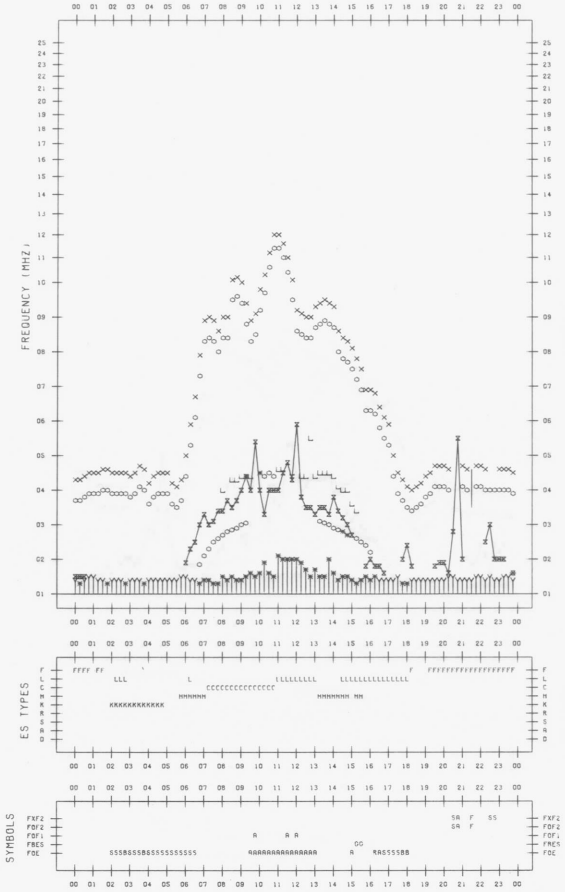


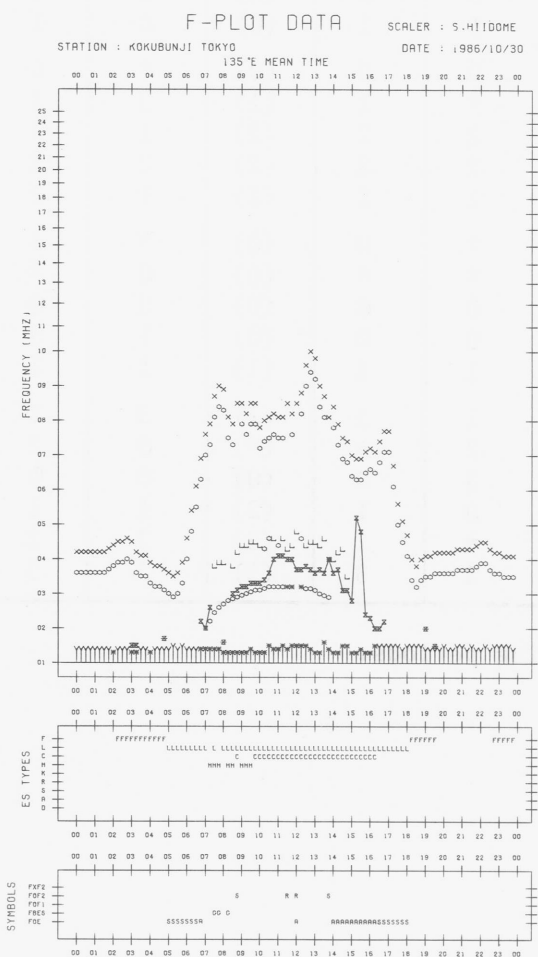
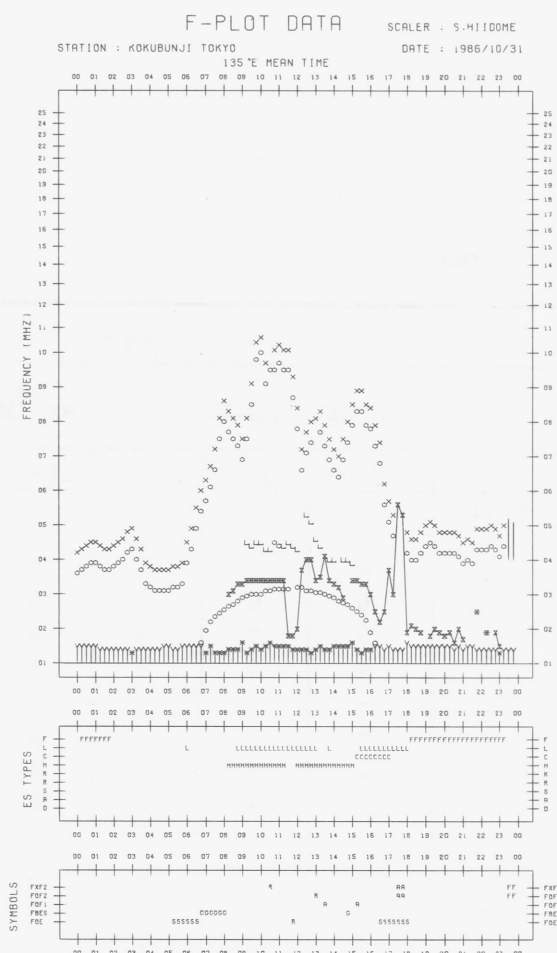
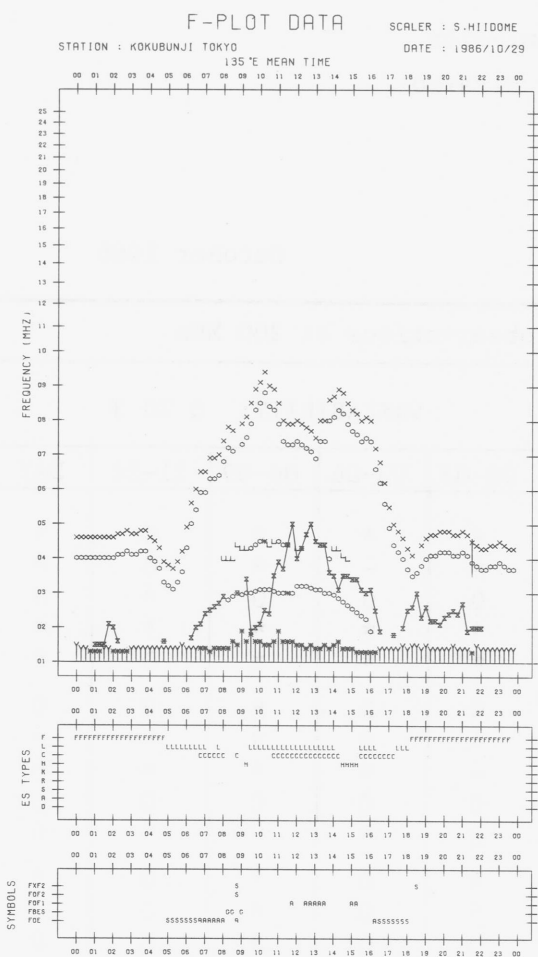
F-PLOT DATA

SCALER : 5.HI10DME

STATION : KOKUBUNJI TOKYO
135°E MEAN TIME

DATE : 1986/10/28





B. Solar Radio Emission
 a. Daily Data at Hiraiso
 200 MHz

Hiraiso

October 1986

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

Notes: 1. No observations during the following periods.

2nd 0214 - 0600
 7th 2250 - 8th 0515
 30th 0100 - 0240

2. (q) likely quiet.

3. (*) interference.

B. Solar Radio Emission
 a. Daily Data at Hiraiso
 500 MHz

Hiraiso

October 1986

Single-frequency total flux observations at 500 MHz					
FLUX DENSITY: $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$					
UT DATE	00-03	03-06	06-09	21-24	DAY
1	24	(24)	24	24	24
2	24	25	25	24	25
3	24	25	25	24	24
4	24	24	24	24	24
5	24	24	24	25	24
6	25	25	25	24	25
7	25	25	24	24	25
8	-	(24)	24	24	24
9	24	25	24	25	24
10	25	25	24	-	25
11	25	25	24	24	25
12	25	25	25	25	25
13	25	25	25	25	25
14	25	25	(24)	24	25
15	25	25	(24)	24	25
16	25	25	(25)	26	25
17	26	27	(27)	26	26
18	26	26	(26)	27	26
19	28	27	(27)	27	28
20	27	26	(26)	27	27
21	27	26	(25)	27	26
22	27	26	(26)	-	27
23	27	27	(27)	28	27
24	28	27	(27)	28	28
25	28	28	(28)	28	28
26	28	28	(28)	28	28
27	29	29	(29)	-	29
28	29	30	(29)	(29)	29
29	(30)	30	(29)	30	30
30	31	30	(30)	30	30
31	31	30	(29)	-	30

Note: No observations during the following periods.

1st	0415 - 0548	27th	2100 - 2345
7th	2241 - 0515	28th	2300 - 0130
10th	2042 - 2337	31st	2100 - 2400
22nd	2055 - 2340		

B. Solar Radio Emission
b. Outstanding Occurrences at Hiraiso

Hiraiso

October 1986

Single-frequency observations								
Normal observing period: 2050 - 0800 U.T. (sunrise to sunset)								
OCT 1986	FREQ. (MHz)	TYPE	START TIME (U.T.)	TIME OF MAXIMUM (U.T.)	DUR. (MIN.)	FLUX DENSITY ($10^{-22} \text{Wm}^{-2} \text{Hz}^{-1}$)		POLARIZATION REMARKS
						PEAK	MEAN	
13	500	42 SER	0430.0	0439.0	10	5	-	0
14	200	44 NS	2044E	2215	670D	5	3	0
	500	41 F	2206.5	2212.6	13	3	1	0
16	200	42 SER	0354.8	0358.0	32	170	-	0
	100	42 SER	0355.1	0411.9	18.5	480	-	-
	500	42 SER	0357.1	0358.8	3.0	5	-	WR
	500	42 SER	0427.9	0428.2	7.5	4	-	0
	200	42 SER	2156.4	2202.3	9.2	3700	-	0
	200	43 NS	2158	0623	600D	26	6	WR
	500	46 C	2200.0	2200.0	6.0	275	15	MR
	100	42 SER	2201.0	2203.0U	5.3	1000D	-	-
17	200	44 NS	2048E	2328	670D	28	12	WR
	100	44 NS	2048E	0053U	670D	20U	10U	-
	500	8 S	2147.3	2147.5	0.2	8	-	WR
	100	42 SER	2311	2325.7U	17	1000D	-	-
	500	8 S	2327.6	2327.6	0.9	32	22	WR
	500	8 S	2343.6	2343.6	0.1	9	-	WR
	500	8 S	2354.4	2354.4	0.1	95	-	WR
18	100	41 F	0010.0	0011.0U	12	1000D	-	-
	200	42 SER	0010	0011.9	12	10000	-	WR
	500	42 SER	0011.0	0012.0	12	1200	-	MR
	500	42 SER	0028.5	0029.4	5	51	-	MR
	500	42 SER	0129.1	0131.3	6	15	-	WR
	100	46 C	0340.0	0341.3	3.3	870	340	-
	500	42 SER	0341.1	0350.4	9.5	130	-	MR
	200	44 NS	2048E	0326	660D	24	10	WR
	100	44 NS	2048E	0444U	670D	35U	20U	-
	100	46 C	2221.5	2222.4	2.6	650	210	-
	200	46 C	2221.6	2222.4	2.6	4300	290	0
19	500	48 C	0024.5	0057.3	88	300	70	MR
	200	48 C	0028.4	0043.6	148	650	39	0
				0056.1		260		0
	100	48 C	0032.3	0033.7U	142	1000D	190D	-
				0042.6U		1000D		-
	200	41 F	0151.8	0154.5	4.0	2700	-	0
	100	41 F	0152.0	0154.8	4.0	810	-	-
	200	44 NS	2048E	0446	660D	15	7	WR
	500	8 S	2111.9	2112.1	0.9	20	9	MR
	200	46 C	2206.3	2208.6	4.6	610	78	0
	100	46 C	2207.3	2208.3	1.7	230	85	-
	200	46 C	2225.4	2226.1	1.3	1500	310	0
	200	41 F	2319.8	2322.8	4.6	630	-	0
	100	41 F	2320.0	2322.4	4.3	930	-	-
	500	46 C	2320.6	2323.6	4.0	27	5	WR
20	200	46 C	0320.5	0324.4	6.0	1240	270	0
	100	46 C	0321.8	0322.4U	5.0	1000D	-	-
				0324.4U		1000D		-
	500	6 S	0324.1	0325.0	2.0	270	30	WR
	200	46 C	0640.7	0641.7	2.0	160	75	0
	200	44 NS	2048E	2255	250D	6	3	WR
24	200	44 NS	2100E	0200	660D	6	4	WR
25	200	44 NS	2100E	0000	660D	6	4	0
26	200	44 NS	2100E	2230	660D	17	7	0
28	500	8 S	0237.5	0237.5	0.3	7	4	WR
29	200	8 S	0332.0	0332.3	0.3	350	-	0
	200	43 NS	0400	0532	280D	8	3	0
	200	8 S	0524.5	0525.0	1.1	130	-	0
	100	8 S	0524.5	0525.2	0.8	360	-	-
	200	44 NS	2100E	0410	660D	10	6	WR
30	500	6 S	0016.1	0016.6	1.0	100	20	WR
	200	44 NS	2100E	0255	660D	18	9	WR
	200	45 C	2212.7	2213.8	1.2	710	140	0
	100	45 C	2212.9	2214.1	1.3	760	230	-
31	200	44 NS	2100E	0100	660D	15	9	WR

C. Radio Propagation
a. HF Field Strength at Hiraiso

WWV 15 MHz

October 1986

UT DAY	00H 15M	01H 15M	02H 15M	03H 15M	04H 15M	05H 15M	06H 15M	07H 15M	08H 15M	09H 15M	10H 15M	11H 15M	12H 15M	13H 15M	14H 15M	15H 15M	16H 15M	17H 15M	18H 15M	19H 15M	20H 15M	21H 15M	22H 15M	23H 15M
1	-6	7	ES -8	-11	ES -13	-17	ES -13	ES -6	ES -3	-17	ES -21	-25	ES -26	-26	ES -26	-26	ES -26	-26	ES -26	-26	-8	1	1	3
2	0	1	-5	ES -4	ES -6	ES -9	-4	ES -6	-17	-26	-26	ES -26	-26	ES -26	-26	ES -26	-26	ES -26	-26	ES -26	-26	-5	-3	5
3	-5	ES -6	-2	-7	-12	ES -6	-9	ES -2	-6	-15	-24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -24	-24	-4	4	3	
4	-2	ES -14	-14	ES -14	ES -8	ES -14	ES -8	ES -8	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	4	4	2 7
5	-1	ES -3	ES -6	ES -6	ES -6	ES -6	ES -3	ES -6	-8	-23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	-3	7	5 2
6	5	ES -2	-1	ES -2	-23	ES -3	-5	ES -2	2	-23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -2	10	-2	-2	6	3	-2
7	4	ES -2	ES -2	ES -2	ES -2	-14	-14	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	4	7	7 4
8	2	ES 4	-5	ES -6	-3	-14	-14	ES -8	-14	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	4	3	6 5
9	11	ES 4	ES -2	ES 1	-3	ES 1	-4	ES 1	-10	-10	-10	ES -22	-22	ES -22	-22	ES -22	-22	ES -22	-22	ES -22	-22	9	8	6 11 13
10	5	ES 0	ES -5	ES -5	-11	ES -5	-23	ES -4	-5	-11	-23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	2	9	9 8	
11	3	ES 0	ES -5	ES -3	-3	-23	-23	ES -3	0	-3	-3	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -3	-15	1	10	5 9
12	9	ES -5	ES -5	ES -5	ES -5	-11	-23	ES -5	-5	-3	-3	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	2	5	10 5
13	0	5	ES -22	-22	ES -22	-22	ES -3	ES -3	-3	-22	-22	ES -22	-22	ES -22	-22	ES -22	-22	ES -22	-22	ES -22	-22	5	12	9
14	4	ES -10	ES -1	ES -4	ES -4	ES -4	ES 1	ES 4	ES -4	-22	-22	ES -22	-22	ES -22	-22	ES -22	-22	ES -22	-22	ES -10	-4	3	7	10 4
15	0	4	ES 2	ES -1	ES 2	ES -3	ES -2	ES 1	ES 5	-22	-22	ES -22	-22	ES -22	-22	ES -22	-22	ES -22	-22	ES -22	-22	12	6	10 7
16	-1	ES 2	ES -3	ES 6	ES -1	ES 1	ES -1	ES -1	-1	-24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -24	-24	13	7	8
17	11	ES -3	ES 0	ES -2	ES -9	ES -3	ES 2	ES 2	ES -9	-24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -15	3	-3	-2	4	5	3 2
18	3	ES 1	ES -9	2	ES -9	ES -9	ES -6	1	ES 3	-24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -25	-25	ES -25	-25	4	4	8 9
19	10	ES -24	ES -24	-2	ES -3	ES -9	2	ES 0	ES 0	-15	-25	ES -25	-25	ES -25	-25	ES -25	-25	ES -25	-25	ES -19	ES -25	-25	-1	1 5 3
20	-4	ES -4	ES -3	-1	ES 0	ES -3	ES -3	ES -2	ES -23	-23	ES -23	-23	ES -23	-23	ES -23	-23	ES -6	ES -25	ES -25	ES -25	ES -25	8	5	6
21	-6	ES -5	-12	-5	ES -9	ES -4	ES -5	ES 0	ES 1	-24	-24	ES -24	-24	ES -24	-24	ES -15	1	-5	7	10	1	6	11 14 6	
22	7	ES 6	ES 4	ES 1	ES -3	1	ES -2	ES 0	ES -9	-24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -3	ES -24	7	8	8 7
23	4	0	-1	0	ES -3	ES -5	ES 1	ES -9	ES -5	-15	-15	ES -15	-15	ES -24	-24	ES -24	-24	ES -24	-24	ES -24	-24	-15	6	4 7
24	6	6	ES -5	ES 1	ES -4	ES 0	ES 1	ES -1	ES 0	-24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -24	-24	-18	-3	3 9 7
25	7	1	ES -3	ES -1	ES -3	ES -2	ES -2	ES -3	ES 3	ES -5	-1	-2	ES -24	-24	ES -12	-24	ES -24	ES -24	ES -24	ES -24	-7	6	6 7 12	
26	10	6	11	ES -5	ES -2	ES 2	ES 1	-2	ES 6	-9	-24	ES -24	-24	ES -24	-24	ES -10	-24	ES -24	-15	ES -24	ES -24	2	6	6 3
27	6	7	7	ES -2	ES -4	ES -2	ES 0	ES 2	ES -6	-24	-24	ES -24	-24	ES -24	-24	ES -24	-24	ES -15	7	ES -24	ES -24	10	9	11 11
28	4	6	US 8	0	ES 1	ES -1	ES 1	ES 1	ES -3	ES -25	-25	ES -25	-25	ES -25	-25	ES -25	-25	ES -7	-10	-4	-2	4	8 5	
29	3	ES -1	-7	-4	ES -6	ES -2	-6	ES 8	ES -5	-25	-25	ES -25	-25	ES -25	-25	ES -25	-25	ES -25	-25	ES -25	-25	4	7	2
30	C	C	C	C	C	C	C	ES -6	ES -6	-25	-25	ES -25	-25	ES -26	-26	ES -26	-26	ES -26	-26	ES -26	-26	-2	6	6 4
31	6	-5	-5	ES -12	ES -1	-1	-11	ES -7	ES -13	-26	-26	ES -26	-26	ES -26	-26	ES -26	-26	-4	-8	-4	-4	4	-15	4 2 2
CNT	30	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	4	ES 0	ES -4	ES -2	ES -4	ES -5	ES -4	ES -2	ES -5	-23	-23	ES -24	-24	ES -24	-24	ES -24	-24	ES -23	-23	ES -23	-23	1	6	7 5
UD	10	6	7	ES 1	ES 0	ES 1	ES 1	ES 2	ES 3	-10	-15	ES -22	-22	ES -22	-22	-15	-6	-15	7	-3	1	8	10	11 11
LD	-5	-10	ES -14	ES -12	ES -13	ES -17	ES -23	ES -8	ES -17	-25	-25	ES -25	-25	ES -26	-26	ES -26	-26	ES -26	-26	ES -26	-26	1	2	2

C. Radio Propagation

a. HF Field Strength at Hiraiso

WWVH 15 MHz

October 1986

UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M					
1	7	12	13	16	15	23	23	19	9	-11	-11	-25	-26	-26	-26	-26	-26	-26	-26	6	17	7	10	6					
2	5	5	18	16	11	0	2	8	-14	-5	-11	-26	-26	-26	-26	-26	-26	-26	-26	8	9	11	12	10					
3	7	7	8	20	13	11	14	ES 0	C	-6	-6	-24	-24	-24	-24	-24	-24	-24	-7	-24	-9	16	11	8	8				
4	8	10	17	22	19	22	ES -8	ES -2	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	-5	12	15	17	15			
5	14	9	12	19	25	19	ES -4	ES -1	7	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	2	14	12	12	12			
6	11	11	17	16	20	21	ES -1	ES -2	-5	0	17	15	-23	-23	-23	-23	-23	-23	4	4	13	17	12	13	12				
7	12	13	12	19	17	-6	ES -5	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	1	15	16	16	9			
8	17	15	14	20	20	22	3	ES -2	ES -14	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	-1	9	9	13	7			
9	14	19	20	26	22	20	1	ES 4	ES -10	ES -10	0	-22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	-2	12	19	20	11			
10	9	14	14	25	23	25	21	ES -3	ES 0	ES -11	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	8	17	12	14	13			
11	12	10	22	18	20	24	ES 0	ES 0	ES 0	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	4	11	16	11	8			
12	11	13	14	21	30	30	17	ES -5	ES -5	-3	-3	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	1	16	14	13	11			
13	18	14	20	22	20	14	ES -3	ES -3	ES -3	ES -22	ES -22	ES -22	ES -22	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	12	15	14	10			
14	C	5	19	18	26	25	30	20	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	25	ES -22	ES -22	11	20	11	12		
15	16	13	16	18	26	23	9	2	6	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	20	26	20	14	17			
16	14	13	11	16	21	17	ES -1	ES -1	ES -1	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	4	6	16	11	7			
17	14	13	12	16	19	16	ES -3	ES 4	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-4	-9	14	19	26	17	11	
18	8	11	15	20	18	17	10	5	ES -3	-9	ES -24	ES -24	ES -24	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	9	17	16	9				
19	ES -24	ES -24	8	20	19	19	6	ES 0	23	-6	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	5	-7	-5	13	15	13	10		
20	15	17	15	23	19	22	-1	ES 2	ES 1	-4	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	0	-3	2	15	16	16	7		
21	11	10	14	19	19	10	ES -2	ES 1	ES -3	6	8	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	12	-4	15	16	22	20	15		
22	13	19	15	16	22	16	0	5	ES -9	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	8	21	15	13	11		
23	11	9	14	15	21	20	4	3	ES -2	ES -15	ES -15	ES -15	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	7	16	22	13	11			
24	12	16	19	24	19	19	13	11	-12	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	7	9	15	18	19	12	10		
25	11	17	17	20	21	15	ES -2	ES 7	ES 1	ES -2	ES 2	-9	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	12	19	19	17	16		
26	13	13	23	19	24	12	12	11	ES 3	-3	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-12	-24	6	11	18	17	17	
27	16	16	16	24	21	15	ES -2	ES 0	ES -9	ES -11	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-9	13	20	17	16	
28	18	17	22	23	23	18	6	6	ES -6	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-11	-19	-19	-3	10	13	14	13
29	12	10	17	15	14	13	7	ES -3	ES -12	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-12	12	14	11	13	
30	C	C	C	C	C	C	C	ES -3	ES -7	ES -25	ES -25	ES -25	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	1	ES -26	11	10	12	14	9		
31	12	16	16	14	12	-4	0	15	-12	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-15	7	9	10	7		
CNT	29	30	30	30	30	30	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31		
MED	12	13	16	19	20	18	2	ES 1	ES -5	ES -22	ES -23	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -23	ES -23	4	14	15	13	11				
UD	17	17	22	24	26	25	21	15	7	ES -2	ES 2	ES -15	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	ES -22	7	-2	15	19	22	17	16		
LD	7	5	11	15	13	0	ES -4	ES -3	ES -23	ES -25	ES -25	ES -25	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -25	ES -26	ES -26	9	9	10	7			

C. Radio Propagation

b. Radio Propagation Quality Figures at Hiraiso

Hiraiso

Time in U.T.

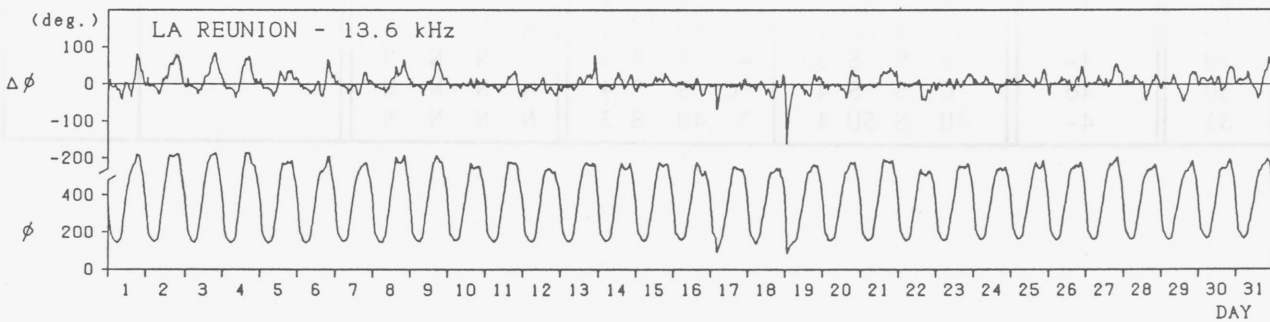
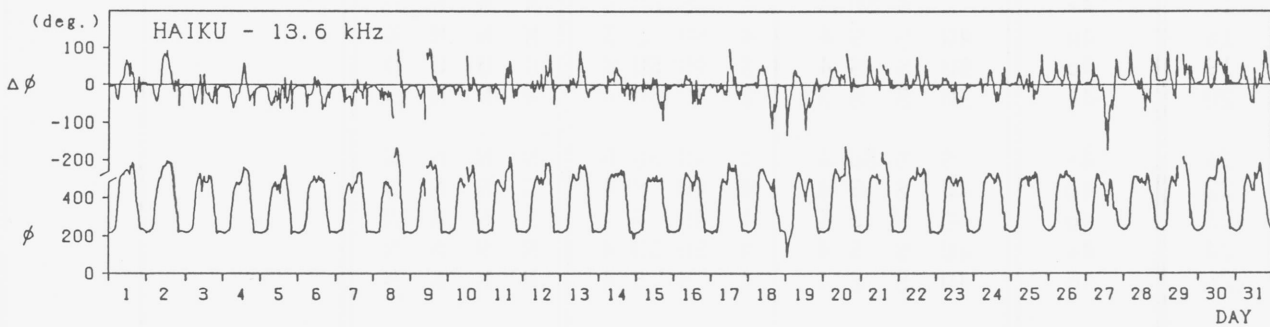
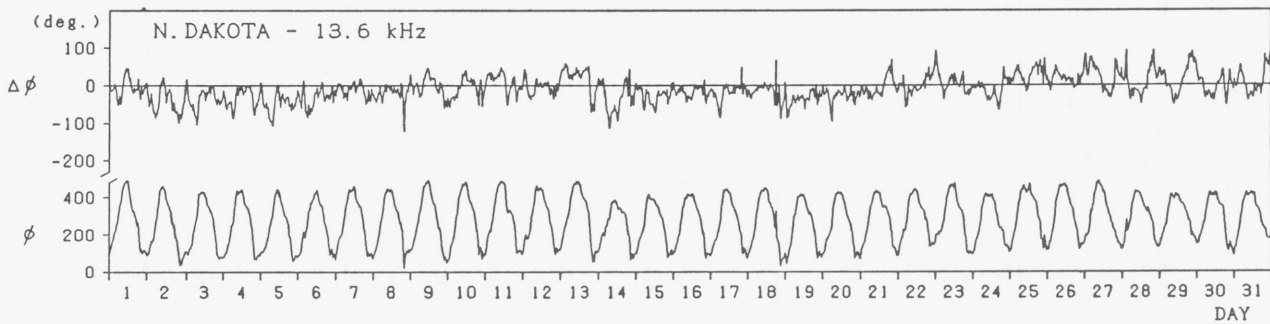
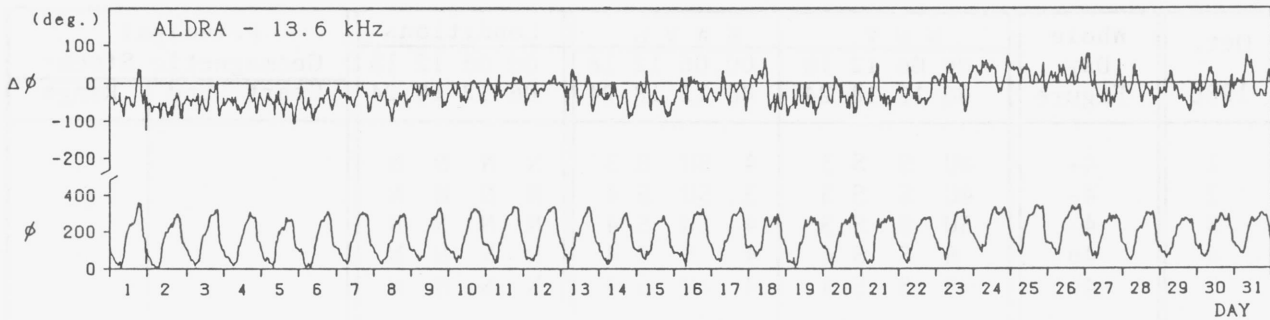
Oct. 1986	Whole Day Figure	W W V				W W V H				Conditions				Principal Geomagnetic Stoems		
		00	06	12	18	00	06	12	18	00	06	12	18	Start	End	Range
		06	12	18	24	06	12	18	24	06	12	18	24			
1	4-	4U	S	S	3	4	5U	S	3	N	N	N	N			
2	4-	4U	S	S	3	3	5U	S	4	N	N	N	N			
3	4-	3U	S	S	3	4	5U	S	4	N	N	N	N			
4	4o	S	S	S	4	4	S	S	4	N	N	N	N			
5	4o	S	S	S	4	4	4U	S	4	N	N	N	N			
6	4+	S	S	5U	4	4	5U	5U	4	N	N	N	N			
7	4o	S	S	S	4	4	S	S	4	N	N	N	N			
8	4o	4U	S	S	4	4	S	S	4	N	N	N	N			
9	4o	S	S	S	4	4	4U	S	4	N	N	N	N			
10	4o	S	S	S	4	4	S	S	4	N	N	N	N			
11	4o	S	S	S	4	4	S	S	4	N	N	N	N			
12	4+	S	S	S	4	4	5U	S	4	N	N	N	N			
13	3-	4U	S	S	4	4	S	S	3	N	N	N	N			
14	4o	S	S	S	4	4	5U	S	3	N	N	N	N			
15	4o	4U	S	S	4	4	4U	S	4	N	N	N	N			
16	4o	S	S	S	4	4	S	S	4	N	N	N	N			
17	4+	S	S	5U	4	4	S	5U	4	N	N	N	N			
18	4o	4U	S	S	4	4	5U	S	3	N	N	N	N			
19	4o	5U	S	S	4	3	4U	5U	4	U	U	U	U			
20	4-	3U	S	S	3	4	4U	5U	4	N	N	N	N			
21	4+	S	S	5U	4	4	4U	5U	5	N	N	N	N			
22	4o	4U	S	S	4	4	4U	S	4	N	N	N	N			
23	4o	4U	S	S	4	4	4U	S	4	N	N	N	N			
24	4+	4U	S	S	4	4	5U	5U	4	N	N	N	N			
25	4o	4U	S	S	4	4	S	S	4	N	N	N	N			
26	4+	5U	S	5U	4	4	5U	S	4	N	N	N	N			
27	4+	5U	S	5U	4	4	S	S	4	N	N	N	N			
28	4o	4U	S	5U	4	4	4U	4U	4	N	N	N	N			
29	4-	S	S	S	3U	4	S	S	4	N	N	N	N			
30	4o	C	S	S	4	C	S	S	4	N	N	N	N			
31	4-	4U	S	5U	4	3	4U	S	3	N	N	N	N			

C. Radio Propagation

c. Phase Variations in OMEGA Radio Waves at Inubo

Inubo

October 1986



Polar Cap Phase Anomaly (PCPA) on Aldra-Inubo Circuit

NONE

C. Radio Propagation

d. Sudden Ionospheric Disturbance

(i) Short Wave Fade-out (SWF) at Hiraiso

Hiraiso

Time in U.T.

Oct. 1986	S W F							Correspondence			
	Drop-out Intensities (dB)				Start	Duration	Type	Imp.	Solar Flare	Solar Noise	Geomag. Crochet
	CO	HA	1)	2)							
19	x	x	25		0025	xx	SL	2	0023	x	

Notes CO: Colorado(WWV) HA: Hawaii(WWVH) 1): Australia 2): London

(ii) Sudden Phase Anomaly (SPA) at Inubo

Inubo

Oct. 1986	S P A					Time (U.T.)		
	Phase Advance (degrees)					Start	End	Maximum
Date	GBR	Ω /LR	NWC	Ω /H	Ω /ND	Start	End	Maximum
11		<u>10</u>	8			0533	0604	0540
13			8	<u>7</u>		0005	0104	0014
13				5		2308	2318	2309
14				36		2155	0032	2226
15				8		2112	2236	2130
16				6		2204	2232	2207
17			<u>16</u>	13		0050	0133	0055
17		<u>83</u>	64	23		0336	0730	0418
18			8	<u>5</u>		0012	0030D	0016
18			8	<u>7</u>		0030E	0101	0037
18			6	<u>4</u>		0145	0204	0149
18		16	<u>10</u>	5		0342	0402D	0346
18		18	<u>15</u>			0402E	0443	0416
18		16	<u>10</u>			0516	0553	0524
19	66	162	<u>164</u>	148	108	0008	0508	0049
19				22		2111	2151	2121
20		10	—			0318	0358	0323
20	<u>33</u>	15	—			0750	0839	0801
23	<u>12</u>		<u>24</u>	13	19	0106	0150	0110
24			5			0125	0150	0130
24		<u>33</u>	14		23	0530	0646	0551
25		<u>45</u>	24			0608	0714	0615

IONOSPHERIC DATA IN JAPAN FOR OCTOBER 1986

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