

# IONOSPHERIC DATA IN JAPAN

FOR SEPTEMBER 1976

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## CONTENTS

|  | Page |
|--|------|
| Introduction .....                                 | 1    |
| A. Ionosphere                                      |      |
| Hourly Values at Wakkanai .....                    | 5    |
| Hourly Values at Akita .....                       | 19   |
| Hourly Values at Kokubunji .....                   | 33   |
| Hourly Values at Yamagawa .....                    | 47   |
| <i>f</i> -plot at the above Stations .....         | 61   |
| B. Solar Radio Emission                            |      |
| Daily Data at Hiraiso .....                        | 123  |
| Outstanding Occurrences at Hiraiso .....           | 125  |
| C. Radio Propagation                               |      |
| H. F. Field Strength at Hiraiso .....              | 126  |
| Radio Propagation Quality Figures at Hiraiso ..... | 128  |
| Sudden Ionospheric Disturbances                    |      |
| SWF at Hiraiso .....                               | 129  |
| SPA at Inubo .....                                 | 130  |

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## INTRODUCTION

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

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

| Station   | Geographic |            | Geomagnetic |           | Technical Method       |
|-----------|------------|------------|-------------|-----------|------------------------|
|           | Latitude   | Longitude  | Latitude    | Longitude |                        |
| Wakkanai  | 45°23.6'N  | 141°41.1'E | 35.3°N      | 206.0     | Vertical Sounding (I)  |
| Akita     | 39°43.5'N  | 140°08.2'E | 29.5°N      | 205.4     | " (I)                  |
| Kokubunji | 35°42.4'N  | 139°29.3'E | 25.4°N      | 205.4     | " (I)                  |
| Yamagawa  | 31°12.1'N  | 130°37.1'E | 20.3°N      | 197.8     | " (I)                  |
| Hiraiso   | 36°22.0'N  | 140°37.5'E | 26.2°N      | 206.3     | Radio Receiving (S, P) |
| Inubo     | 35°42.2'N  | 140°51.5'E | 26.0°N      | 206.8     | " (P)                  |

## A. IONOSPHERE

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

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

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction (Second Edition) 1972".

## a. Characteristics of Ionosphere

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

## b. Symbols

## (i) Descriptive Letters

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

|   |   |
|---|---|
| A | Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example $E_s$ .                      |
| B | Measurement influenced by, or impossible because of, absorption in the vicinity of $f_{min}$ .                                    |
| C | Measurement influenced by, or impossible because of, any non-ionospheric reason.  |
| D | Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.                        |
| E | Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.                        |
| F | Measurement influenced by, or impossible because of, the presence of spread echoes.   |
| G | Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately. |
| H | Measurement influenced by, or impossible because of, the presence of a stratification.  |
| K | Presence of particle $E$ layer.   |
| L | Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.                          |
| M | Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.             |
| N | Conditions are such that the measurement cannot be interpreted.   |
| O | Measurement refers to the ordinary component.   |
| P | Man-made perturbation of parameters—Presence of polar sparse traces.  |

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

## (ii) Qualifying Letters

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

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

(iii) Description of Types of  $E_s$ 

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

The types are:

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

diffuse traces present above it.

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

d A weak diffuse trace at heights below 95 km associated with high absorption and large *f<sub>min</sub>*.

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

k The designation k is used to show the presence of particle *E*. When *f<sub>oEs</sub>* > *f<sub>oE</sub>* (particle *E*) the *Es* type precedes k.

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

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

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

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

B. SOLAR RADIO EMISSION

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

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

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

a. Daily Data

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

*Variability.* The three-hourly and daily mean values are given at 200 MHz only.

Variability is expressed in the following four grades.

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

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

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

b. Outstanding Occurrences

The phenomena are picked up on the following criteria:

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

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

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

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

*Polarisation* is expressed by the polarization degree and sense as follows:

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

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

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

C. RADIO PROPAGATION

a. Measurement of H. F. Field Strength

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

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

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

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

#### b. Radio Propagation Quality Figures

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

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

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

*Whole day quality figure* ranged in grades of 1<sub>0</sub>, 1<sub>+</sub>, 2<sub>-</sub>, 2<sub>0</sub>, 2<sub>+</sub>, 3<sub>-</sub>, 3<sub>0</sub>, 3<sub>+</sub>, 4<sub>-</sub>, 4<sub>0</sub>, 4<sub>+</sub>, 5<sub>-</sub>, 5<sub>0</sub> stands for an average of six-hourly ones of the two circuits. Abbreviated symbols are as follows:

|   |                         |
|---|-------------------------|
| C | artificial accident,    |
| S | propagational accident, |
| U | inaccurate.             |

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

|   |           |
|---|-----------|
| N | normal,   |
| U | unstable, |
| W | disturbed |

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

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

#### c. Sudden Ionospheric Disturbances

##### (i) SWF

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

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

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

*Types* of fade-out are as follows:

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

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

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

##### (ii) SPA

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

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

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

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

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

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

| Transmitting Stations |                                     |          |           |                    |                            |                                    |
|-----------------------|-------------------------------------|----------|-----------|--------------------|----------------------------|------------------------------------|
| Name                  | Location<br>(Geographic Coordinate) |          | Call Sign | Frequency<br>(kHz) | Radiation<br>Power<br>(kW) | Arc Distance<br>from Inubo<br>(km) |
| Rugby                 | 52°22'N                             | 001°11'W | GBR       | 16.0               | 40                         | 9550                               |
| Cutler                | 44°38'N                             | 067°17'W | NAA       | 17.8               | 1000                       | 10640                              |
| Jim Creek             | 48°12'N                             | 121°55'W | NPG       | 18.6               | 250                        | 7620                               |
| North West Cape       | 21°48'S                             | 114°09'E | NWC       | 22.3               | 1000                       | 6990                               |
| Aldra                 | 66°25'N                             | 013°08'E | AL3       | 13.6               | 10                         | 7820                               |
| Reunion               | 20°58'S                             | 055°17'E | RE3       | 13.6               | 10                         | 10970                              |
| North Dakota          | 46°22'N                             | 098°20'W | ND3       | 13.6               | 10                         | 9140                               |
| Haiku                 | 21°24'N                             | 157°50'W | HA3       | 13.6               | 10                         | 6100                               |



# IONOSPHERIC DATA

SEP. 1976

FOF2 (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |    |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1           | 40 | F  | F  | F  | F  | 34 | 38 | 44 | 43 | 53 | 50 | 54 | 53 | 58 | 58 | A  | 50 | 47 | 48 | 48 | 47 | 48 | 46 | 37 |    |
| 2           | 34 | 37 | 34 | F  | F  | 32 | R  | 44 | A  | 56 | 53 | 51 | 54 | 56 | 54 | 53 | 51 | 54 | 56 | 68 | 64 | 67 | 49 | 36 |    |
| 3           | 30 | 32 | 34 | 34 | 37 | 35 | 44 | 48 | 56 | 54 | 55 | 53 | 53 | 54 | 53 | 50 | 51 | 50 | 53 | 61 | 61 | 57 | 46 | 37 |    |
| 4           | 37 | 36 | 35 | 36 | 35 | 40 | 46 | 63 | 60 | 56 | 51 | 55 | 53 | 54 | 59 | 52 | 46 | 51 | 58 | 63 | 61 | 59 | A  | S  |    |
| 5           | 39 | 37 | 37 | 38 | 32 | 32 | 40 | 55 | 60 | 56 | 61 | C  | 55 | 50 | 53 | 52 | 50 | 56 | 51 | 56 | 54 | 53 | 47 | S  |    |
| 6           | 43 | F  | 41 | 36 | 35 | 37 | 40 | 48 | 56 | 58 | 52 | 52 | 54 | 53 | 49 | 48 | 51 | 51 | 51 | 59 | 59 | 57 | 44 | 37 |    |
| 7           | 36 | 35 | 35 | 36 | 35 | 43 | 40 | 49 | 53 | 53 | 51 | 48 | 54 | 53 | 52 | 52 | 48 | 51 | 53 | 58 | 62 | 44 | 41 | 36 |    |
| 8           | 33 | 34 | 35 | 36 | 36 | 40 | 47 | 52 | 51 | 52 | 50 | 53 | 48 | 54 | 54 | 46 | 49 | 52 | 56 | 60 | 62 | 59 | 48 | 34 |    |
| 9           | 31 | 31 | 34 | 36 | 36 | 37 | 50 | 47 | 53 | 53 | 53 | 50 | A  | 50 | 51 | 50 | 51 | 55 | 63 | 68 | F  | 54 | 49 | 39 |    |
| 10          | 38 | 40 | 43 | 44 | 30 | 29 | 40 | 41 | 50 | 56 | 50 | 47 | 51 | 48 | 50 | 48 | 48 | 47 | 51 | A  | 53 | 47 | 42 | 33 |    |
| 11          | 33 | A  | 33 | 32 | 31 | 34 | 43 | 48 | 57 | 57 | 56 | 53 | 50 | 53 | 51 | 53 | 52 | 52 | 46 | 53 | 45 | 41 | 37 | 33 |    |
| 12          | 32 | 34 | 34 | 33 | 34 | 34 | 40 | 48 | 58 | 68 | 60 | 53 | 53 | 52 | 49 | 52 | 48 | 46 | 51 | 55 | 53 | 47 | 36 | 33 |    |
| 13          | 34 | 35 | 33 | 33 | 33 | 36 | 45 | 48 | 57 | 60 | 61 | 56 | 53 | 51 | 51 | 50 | 48 | 47 | 55 | 60 | 57 | F  | F  | F  |    |
| 14          | F  | F  | 35 | 36 | 36 | 39 | 49 | 56 | 57 | 54 | 53 | 60 | 59 | 52 | 50 | 52 | 52 | 46 | 52 | 57 | 56 | 49 | 45 | 42 |    |
| 15          | 42 | 39 | 37 | 39 | 32 | 33 | 42 | 51 | 56 | 58 | 60 | 55 | 57 | 56 | 51 | 53 | 61 | 63 | 76 | 78 | 60 | 40 | 37 | 36 |    |
| 16          | 38 | 38 | 36 | 35 | 28 | 33 | 50 | 59 | 79 | 78 | 63 | 58 | 58 | 53 | 58 | 54 | 56 | 53 | 60 | 59 | 52 | 48 | 43 | 43 |    |
| 17          | 43 | 41 | 43 | 37 | 38 | 36 | 51 | 55 | 60 | 62 | 60 | 63 | 62 | 60 | 57 | 54 | 53 | 53 | 57 | 55 | 51 | 49 | 45 | 45 |    |
| 18          | 42 | 40 | 40 | 40 | 37 | 40 | 48 | 59 | 60 | 73 | 63 | 61 | 60 | 60 | 60 | 72 | 60 | 77 | 82 | 78 | 70 | 38 | 30 | 35 |    |
| 19          | 29 | 31 | A  | A  | A  | A  | A  | 41 | 46 | R  | R  | 56 | 63 | 61 | 56 | 53 | 55 | 53 | 50 | 48 | 44 | S  | 41 | 41 |    |
| 20          | 42 | 28 | 26 | 31 | 25 | 27 | 38 | 43 | 43 | 46 | 47 | 50 | 56 | 54 | 55 | 53 | 50 | 58 | 65 | 51 | A  | 43 | 40 | 33 |    |
| 21          | 32 | 33 | 32 | 32 | 30 | 30 | A  | A  | R  | 52 | A  | A  | 47 | A  | 48 | A  | 46 | J  | S  | 49 | 46 | 42 | 36 | 36 | 35 |
| 22          | 33 | 34 | 32 | 32 | 31 | 31 | 43 | 51 | 53 | 56 | 52 | 55 | 57 | 51 | 53 | 46 | 52 | 50 | 48 | 50 | 50 | 44 | 39 | 38 |    |
| 23          | 35 | 34 | 31 | F  | F  | A  | 44 | 50 | 51 | 62 | 58 | 58 | 56 | 53 | 53 | 50 | 48 | 55 | 66 | 58 | 55 | F  | 46 | 35 |    |
| 24          | 37 | 34 | 36 | 36 | F  | U  | S  | 43 | 51 | 59 | 62 | 65 | 60 | 57 | 55 | 55 | 58 | 54 | 54 | 57 | 53 | 48 | 44 | 41 | 38 |
| 25          | 32 | 33 | 33 | 33 | 34 | 36 | 46 | 51 | 53 | 58 | 56 | 63 | 63 | 62 | 63 | 63 | 57 | 57 | 53 | 46 | 43 | 42 | 42 | 43 |    |
| 26          | 37 | 34 | 36 | 34 | 33 | 34 | 51 | 53 | 71 | 80 | 69 | 62 | 58 | 62 | 58 | 54 | 58 | 58 | 59 | 53 | 50 | 50 | 45 | 43 |    |
| 27          | 40 | 39 | 38 | 36 | 35 | 35 | 47 | 54 | 60 | 67 | 70 | 66 | 61 | 65 | 59 | 59 | 54 | 49 | 51 | 50 | 49 | S  | 45 | 42 |    |
| 28          | 36 | 35 | 35 | 34 | 34 | 36 | 49 | 51 | 59 | 68 | 76 | 68 | 61 | 63 | 63 | 53 | 59 | 56 | 60 | 52 | 48 | 43 | 43 | 42 |    |
| 29          | 40 | 37 | 37 | 36 | 36 | 36 | 45 | 51 | 58 | 69 | 73 | 62 | H  | 56 | 60 | 56 | 53 | 58 | 58 | 51 | 48 | 45 | 43 | 38 |    |
| 30          | 37 | 40 | 39 | 39 | 39 | 38 | 52 | 47 | 58 | 68 | 69 | 65 | 60 | 64 | 63 | 54 | 50 | 49 | 51 | 51 | 50 | 46 | 43 | 44 |    |
| 31          |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |    |
| CNT         | 29 | 27 | 28 | 27 | 26 | 28 | 27 | 29 | 28 | 30 | 29 | 28 | 29 | 29 | 30 | 28 | 30 | 30 | 30 | 29 | 29 | 28 | 28 | 29 |    |
| MED         | 37 | 35 | 35 | 36 | 34 | 35 | 45 | 51 | 57 | 58 | 56 | 56 | 56 | 54 | 54 | 53 | 51 | 52 | 54 | 55 | 53 | 47 | 43 | 38 |    |
| UQ          | 40 | 38 | 37 | 36 | 36 | 37 | 48 | 53 | 60 | 67 | 63 | 62 | 60 | 60 | 58 | 54 | 54 | 56 | 59 | 60 | 59 | 54 | 46 | 42 |    |
| LQ          | 33 | 34 | 34 | 34 | 31 | 33 | 41 | 48 | 53 | 54 | 52 | 53 | 53 | 53 | 51 | 50 | 49 | 49 | 51 | 51 | 48 | 44 | 40 | 35 |    |

The Radio Research Laboratories, Japan

SEP. 1976

FOF2 (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOF1 (0.01 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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           |    |    |    |    |    |     |     |                  |                  | 410 | 430              | 430 | A                | 420              | A                | A                | A                |                  |    |    |    |    |    |    |
| 2           |    |    |    |    |    |     |     |                  | A                | 420 | 430              | 430 | 440              | 440              | 420              | 410              | A                |                  |    |    |    |    |    |    |
| 3           |    |    |    |    |    |     |     | 400 <sup>b</sup> | 400              | 420 | 430              | 420 | 430              | 430              | 410              | 400              | 390              |                  |    |    |    |    |    |    |
| 4           |    |    |    |    |    | 350 | 370 | 400              | 420              | 430 | A                | A   | 430              | 430              | 430              | 400              |                  |                  |    |    |    |    |    |    |
| 5           |    |    |    |    |    |     |     | 380              | 410              | 420 | A                | C   | A                | A                | 420              | 400              |                  |                  |    |    |    |    |    |    |
| 6           |    |    |    |    |    |     |     | 390              | 400              | 400 | 430              | 440 | 430              | 430              | 430              | 400              | 380              |                  |    |    |    |    |    |    |
| 7           |    |    |    |    |    |     |     | 370              | 400              | 410 | 430              | 430 | 430              | 430              | 420              | 400              | 390 <sup>b</sup> |                  |    |    |    |    |    |    |
| 8           |    |    |    |    |    |     |     | 360              | 400              | 410 | 420              | 430 | 440              | 420              | 400              |                  | 370              |                  |    |    |    |    |    |    |
| 9           |    |    |    |    |    |     |     | A                | A                | 410 | 420              | 430 | A                | 430              | 420              |                  | 380 <sup>L</sup> | 330 <sup>L</sup> |    |    |    |    |    |    |
| 10          |    |    |    |    |    |     |     | 390              | 380              | 400 | 410              | 420 | 420              | 430              | 410              | 400              |                  |                  |    |    |    |    |    |    |
| 11          |    |    |    |    |    |     |     | 380              | 400              | 410 | 420              | 430 |                  | 420              | 400              | 400              | 380              |                  |    |    |    |    |    |    |
| 12          |    |    |    |    |    |     |     | 400 <sup>b</sup> | 400              | A   | 430              | 420 | 430              | 420              | 400              | 390              |                  |                  |    |    |    |    |    |    |
| 13          |    |    |    |    |    |     |     | 380              | A                | A   | 430              | 430 | 430              | 430              | 410              | 390              | 380              |                  |    |    |    |    |    |    |
| 14          |    |    |    |    |    |     |     | 370              | 400              | 410 | 420              | 430 | 430              | 420              | 400              | 400              |                  |                  |    |    |    |    |    |    |
| 15          |    |    |    |    |    |     |     | 400              | 420              | 420 | 430 <sup>L</sup> | 430 | 430              | 410              | 390              | 380              | 320              |                  |    |    |    |    |    |    |
| 16          |    |    |    |    |    |     |     | 380 <sup>L</sup> | 410              | 410 | A                | 430 | 430              | 420              | 410              |                  |                  |                  |    |    |    |    |    |    |
| 17          |    |    |    |    |    |     |     |                  | 410              | 430 | 440              | 440 | 430              | 400              | 390              |                  |                  |                  |    |    |    |    |    |    |
| 18          |    |    |    |    |    |     |     | A                | 420              | 430 | 440              | 410 | 420              | 450              | 410 <sup>L</sup> |                  |                  |                  |    |    |    |    |    |    |
| 19          |    |    |    |    |    |     |     | 350              | 380              | 410 | 420              | 420 | 420              | 420              | 400              |                  |                  |                  |    |    |    |    |    |    |
| 20          |    |    |    |    |    |     |     |                  | 350              | 390 | A                | 410 | 420              | 430 <sup>H</sup> | 400              | 390              |                  |                  |    |    |    |    |    |    |
| 21          |    |    |    |    |    |     |     |                  | 370              | A   | A                | A   | A                | A                | A                | A                |                  |                  |    |    |    |    |    |    |
| 22          |    |    |    |    |    |     |     |                  | 380 <sup>L</sup> | 400 | 430              | 430 | 420              | 410 <sup>L</sup> | 400              |                  |                  |                  |    |    |    |    |    |    |
| 23          |    |    |    |    |    |     |     |                  | 400              | 420 | 410              | 420 | 410              | 400              |                  |                  |                  |                  |    |    |    |    |    |    |
| 24          |    |    |    |    |    |     |     |                  | 400              | 400 | 420              | 420 | 420              |                  | 370              |                  |                  |                  |    |    |    |    |    |    |
| 25          |    |    |    |    |    |     |     |                  | 410              | 410 | 430              | 430 | 420              | 420 <sup>L</sup> |                  | L                |                  |                  |    |    |    |    |    |    |
| 26          |    |    |    |    |    |     |     | 390              |                  | 410 | 420              | 420 | 420 <sup>L</sup> | 400              |                  | L                |                  |                  |    |    |    |    |    |    |
| 27          |    |    |    |    |    |     |     |                  | A                | 410 | 420              | 430 | 420              | 420              | 400 <sup>b</sup> |                  |                  |                  |    |    |    |    |    |    |
| 28          |    |    |    |    |    |     |     |                  | 400 <sup>L</sup> | 410 | 420              | 430 | 420              | 420              | 410              |                  |                  |                  |    |    |    |    |    |    |
| 29          |    |    |    |    |    |     |     |                  | 410              | 410 | 420 <sup>L</sup> |     | 410 <sup>L</sup> | 400 <sup>L</sup> | 400 <sup>L</sup> |                  |                  |                  |    |    |    |    |    |    |
| 30          |    |    |    |    |    |     |     |                  | 400 <sup>L</sup> | 410 | 420              | 430 | 420              | 410              | 410              | 350 <sup>L</sup> |                  |                  |    |    |    |    |    |    |
| 31          |    |    |    |    |    |     |     |                  |                  |     |                  |     |                  |                  |                  |                  |                  |                  |    |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05  | 06  | 07               | 08               | 09  | 10               | 11  | 12               | 13               | 14               | 15               | 16               | 17               | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |     | 1   | 14               | 19               | 27  | 26               | 27  | 24               | 27               | 27               | 17               | 8                | 2                |    |    |    |    |    |    |
| MED         |    |    |    |    |    | 350 | 380 | 400              | 410              | 420 | 430              | 430 | 420              | 410              | 400              | 380              | 325              |                  |    |    |    |    |    |    |
| UQ          |    |    |    |    |    |     | 390 | 400              | 410              | 430 | 430              | 430 | 430              | 420              | 400              | 385              |                  |                  |    |    |    |    |    |    |
| LQ          |    |    |    |    |    |     | 370 | 390              | 410              | 420 | 420              | 420 | 420              | 400              | 390              | 380              |                  |                  |    |    |    |    |    |    |

SEP. 1976

FOF1 (0.01 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOE (0.01 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |
|-------------|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|
| 1           |    |    |    |    |    | S  | 210 | 250 | 280 | 300 | 305 | 305 | 305 | 300 | 280 | A   | A   | A   | S  |    |    |    |    |    |
| 2           |    |    |    |    |    | S  | 205 | 255 | 290 | 300 | 310 | 310 | 310 | 310 | 300 | 285 | 255 | 205 | S  |    |    |    |    |    |
| 3           |    |    |    |    |    | E  | 200 | 230 | 255 | A   | 305 | 320 | A   | 310 | 300 | 290 | 255 | 200 | S  |    |    |    |    |    |
| 4           |    |    |    |    |    | E  | 200 | 230 | 280 | 300 | 305 | 305 | 295 | 305 | 295 | 280 | C   | 205 | E  |    |    |    |    |    |
| 5           |    |    |    |    |    | S  | A   | 235 | 275 | 295 | 285 | C   | 300 | A   | 300 | 280 | 250 | 210 | S  |    |    |    |    |    |
| 6           |    |    |    |    |    | E  | 205 | 235 | 265 | 290 | 290 | A   | 305 | 300 | 295 | 285 | 260 | 205 | S  |    |    |    |    |    |
| 7           |    |    |    |    |    | S  | 180 | 235 | 270 | 290 | 305 | 300 | 305 | 305 | 290 | 270 | 235 | 195 | S  |    |    |    |    |    |
| 8           |    |    |    |    |    | S  | 165 | 215 | 230 | A   | A   | A   | A   | 300 | 300 | 295 | A   | A   | A  |    |    |    |    |    |
| 9           |    |    |    |    |    | E  | 165 | 205 | A   | A   | A   | A   | A   | A   | 300 | 280 | 245 | 190 | S  |    |    |    |    |    |
| 10          |    |    |    |    |    | S  | 155 | 215 | 245 | 270 | 275 | A   | A   | 300 | 285 | 265 | 235 | 185 | E  |    |    |    |    |    |
| 11          |    |    |    |    |    |    | 185 | 230 | 260 | 285 | 295 | 300 | 300 | 300 | 300 | A   | A   | A   |    |    |    |    |    |    |
| 12          |    |    |    |    |    |    | 190 | 235 | 255 | A   | A   | A   | A   | A   | A   | A   | A   | A   |    |    |    |    |    |    |
| 13          |    |    |    |    |    |    | 180 | 230 | 270 | 285 | A   | 305 | A   | 305 | 300 | 280 | 240 | 185 |    |    |    |    |    |    |
| 14          |    |    |    |    |    |    | 190 | 230 | A   | A   | A   | A   | A   | 305 | 300 | 265 | 225 | 180 |    |    |    |    |    |    |
| 15          |    |    |    |    |    |    | A   | 240 | 285 | 300 | 305 | 305 | 305 | 300 | A   | A   | A   | A   |    |    |    |    |    |    |
| 16          |    |    |    |    |    |    | A   | A   | A   | A   | A   | A   | A   | A   | A   | A   | 235 | S   |    |    |    |    |    |    |
| 17          |    |    |    |    |    |    | 205 | 240 | 285 | 295 | 305 | 310 | 305 | 310 | 300 | 280 | 240 | 165 |    |    |    |    |    |    |
| 18          |    |    |    |    |    |    | 190 | 235 | 270 | 290 | 300 | A   | A   | A   | 290 | 280 | 235 | S   |    |    |    |    |    |    |
| 19          |    |    |    |    |    |    | A   | A   | A   | A   | 300 | 305 | 305 | 310 | 295 | 265 | 225 | S   |    |    |    |    |    |    |
| 20          |    |    |    |    |    |    | A   | 220 | 255 | A   | A   | 300 | 300 | A   | 280 | 265 | 220 | S   |    |    |    |    |    |    |
| 21          |    |    |    |    |    |    | 170 | 215 | 245 | 260 | 290 | 300 | 300 | 290 | 275 | 260 | 220 | 155 |    |    |    |    |    |    |
| 22          |    |    |    |    |    |    | A   | A   | A   | A   | A   | 300 | 300 | A   | 285 | A   | 220 | S   |    |    |    |    |    |    |
| 23          |    |    |    |    |    |    | A   | A   | A   | A   | 300 | A   | 305 | 300 | 295 | 255 | 230 | S   |    |    |    |    |    |    |
| 24          |    |    |    |    |    |    | 190 | 220 | 255 | 290 | 300 | A   | 300 | 295 | 275 | 260 | 215 | A   |    |    |    |    |    |    |
| 25          |    |    |    |    |    |    | 165 | 230 | A   | A   | A   | 305 | 300 | 295 | 285 | 260 | 210 | S   |    |    |    |    |    |    |
| 26          |    |    |    |    |    |    | 190 | 225 | 250 | A   | 295 | 295 | 290 | 295 | 280 | 250 | 220 | S   |    |    |    |    |    |    |
| 27          |    |    |    |    |    |    | 170 | 215 | 250 | A   | A   | A   | 300 | 290 | 280 | 260 | A   | A   |    |    |    |    |    |    |
| 28          |    |    |    |    |    |    | A   | 230 | 260 | 285 | 295 | 295 | 290 | A   | 280 | A   | A   | S   |    |    |    |    |    |    |
| 29          |    |    |    |    |    |    | 150 | 225 | 255 | 275 | A   | 300 | 295 | 295 | 275 | 260 | 210 | A   |    |    |    |    |    |    |
| 30          |    |    |    |    |    |    | 175 | 220 | 260 | 290 | 300 | 300 | 295 | 290 | A   | A   | A   | A   |    |    |    |    |    |    |
| 31          |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |
| Hour        | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    | 4  | 22  | 26  | 23  | 17  | 19  | 18  | 21  | 22  | 26  | 22  | 21  | 12  | 2  |    |    |    |    |    |
| MED         |    |    |    |    |    | E  | 188 | 230 | 260 | 290 | 300 | 302 | 300 | 300 | 292 | 268 | 235 | 192 | E  |    |    |    |    |    |
| UQ          |    |    |    |    |    | E  | 200 | 235 | 272 | 295 | 305 | 305 | 305 | 305 | 300 | 280 | 240 | 205 |    |    |    |    |    |    |
| LQ          |    |    |    |    |    | E  | 170 | 220 | 255 | 285 | 295 | 300 | 300 | 295 | 280 | 260 | 220 | 182 |    |    |    |    |    |    |

SEP. 1976

FOE (0.01 MHz)



# IONOSPHERIC DATA

SEP. 1976

FOES (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station **WAKKANAI** Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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           | 25     | J A 40 | J A 34 | J A 31 | J A 29 | 25     | 26     | 30     | 37     | 40     | J A 43 | 40     | J A 45 | J A 45 | J A 61 | J A 80 | J A 43 | J A 60 | J A 55 | J A 30 | E S 15 | J A 40 | J A 53 | J A 64 |        |        |        |
| 2           | J A 31 | 29     | 27     | E S 15 | E S 15 | E S 15 | 24     | 30     | 54     | 37     | 40     | 35     | G      | G      | G      | G      | 37     | 33     | 33     | 20     | J A 24 | E S 16 | E S 15 | 26     |        |        |        |
| 3           | E S 14 | E S 16 | E      | E S 15 | 18     | 24     | 30     | 38     | 35     | 34     | G      | G      | 30     | 35     | G      | G      | G      | 34     | 31     | 34     | 26     | J A 26 | 23     | 23     | 26     |        |        |
| 4           | 24     | E S 14 | E      | 19     | 23     | 19     | 26     | 35     | 31     | G      | 35     | J A 49 | 37     | G      | G      | 33     | 33     | 28     | J A 31 | J A 23 | J A 23 | 42     | 48     | 32     |        |        |        |
| 5           | 34     | 32     | 32     | 30     | J A 30 | 26     | 25     | G      | 34     | 35     | J A 45 | C      | J A 70 | J A 52 | 37     | G      | 21     | 33     | J A 45 | J A 40 | J A 46 | J A 32 | J A 53 | 36     | 34     |        |        |
| 6           | 33     | J A 31 | J A 30 | 30     | 22     | 26     | 30     | 30     | 30     | G      | G      | 33     | G      | 25     | 18     | G      | G      | 24     | E S 16 | 20     | J A 23 | E S 15 | E S 15 | E S 15 |        |        |        |
| 7           | 23     | E S 13 | E S 15 | E S 16 | E S 15 | J A 30 | 25     | 30     | 34     | 36     | 38     | 36     | 40     | 41     | 38     | G      | 29     | 26     | J A 31 | J A 45 | J A 40 | J A 31 | 27     | E S 15 |        |        |        |
| 8           | E S 15 | 28     | 27     | 24     | 25     | E S 14 | 25     | 30     | 31     | 31     | J A 40 | J A 51 | 35     | 27     | 25     | 33     | 31     | J A 30 | J A 30 | J A 30 | J A 32 | 27     | E S 17 | 28     |        |        |        |
| 9           | E S 17 | E S 16 | E S 16 | E S 16 | E      | 17     | 26     | J A 43 | 47     | J A 43 | 36     | J A 35 | 58     | 31     | 27     | G      | 20     | G      | 24     | 26     | J A 30 | J A 35 | J A 30 | J A 28 |        |        |        |
| 10          | E S 15 | E S 14 | E S 15 | E S 12 | E      | 19     | 29     | 31     | 40     | 36     | 33     | 32     | 36     | G      | G      | G      | G      | 20     | 23     | 22     | J A 65 | J A 30 | E S 16 | J A 24 | 26     |        |        |
| 11          | 35     | 40     | 35     | J A 30 | J A 22 | J A 25 | J A 53 | J A 38 | 35     | 33     | 34     | G      | J A 40 | G      | G      | J A 30 | J A 35 | J A 38 | J A 33 | J A 40 | J A 28 | J A 26 | J A 22 | J A 30 |        |        |        |
| 12          | J A 33 | 30     | 28     | 26     | 25     | E S 16 | 22     | 32     | 38     | J A 51 | 30     | 40     | J A 39 | 39     | 36     | 30     | 34     | 33     | J A 36 | J A 64 | J A 38 | E S 16 | J A 30 | J A 30 |        |        |        |
| 13          | E S 15 | E S 13 | E S 15 | 24     | E S 15 | E S 15 | 24     | J A 38 | 39     | 43     | 31     | 30     | 35     | 29     | 24     | G      | G      | 24     | 33     | 24     | 21     | E S 15 | J A 29 | 28     | J A 28 | E S 15 |        |
| 14          | E S 15 | E S 16 | E S 14 | E S 16 | E S 14 | E S 14 | G      | 29     | 29     | 41     | 36     | J A 34 | 39     | 25     | G      | 18     | 28     | 22     | 20     | E S 15 | J A 30 | E S 16 | E S 16 | E S 15 |        |        |        |
| 15          | 24     | J A 31 | 28     | J A 26 | E      | 18     | 24     | G      | G      | G      | G      | G      | 20     | 35     | 34     | 33     | 35     | J A 36 | J A 31 | 30     | J A 53 | 30     | E S 16 | 26     |        |        |        |
| 16          | 25     | 25     | 27     | 22     | 20     | J A 31 | 28     | 28     | 33     | 39     | J A 45 | J A 43 | J A 43 | 37     | 40     | 31     | 24     | 28     | J A 32 | 34     | E S 14 | E S 15 | E S 15 | E S 17 |        |        |        |
| 17          | E S 15 | 23     | E S 16 | E S 14 | E      | E S 14 | 19     | G      | G      | 34     | 22     | G      | G      | 23     | 36     | G      | 19     | G      | 18     | 29     | 23     | J A 26 | J A 24 | E S 15 | E S 15 | E S 15 | E S 16 |
| 18          | E S 15 | E S 15 | E S 15 | E S 14 | J A 23 | E S 17 | G      | 29     | 41     | 31     | 35     | J A 53 | J A 50 | 32     | G      | 18     | G      | G      | 29     | E S 12 | E S 15 | E S 16 | E S 15 | 25     | E S 12 |        |        |
| 19          | 23     | 31     | J A 48 | 42     | 40     | J A 51 | J A 56 | 24     | J A 33 | 32     | 25     | G      | 34     | 29     | 36     | 21     | 15     | 33     | 26     | J A 26 | J A 30 | J A 24 | J A 33 | 36     | 32     |        |        |
| 20          | E S 16 | 29     | 26     | 24     | 18     | E S 17 | 20     | 29     | 31     | 30     | 42     | 34     | 21     | 34     | G      | G      | G      | J A 33 | 32     | J A 30 | J A 53 | J A 26 | J A 24 | 25     |        |        |        |
| 21          | E S 15 | E S 15 | E S 15 | J A 22 | J A 22 | J A 31 | J A 49 | 50     | 35     | J A 60 | J A 62 | J A 62 | 57     | J A 57 | 38     | 58     | 32     | J A 50 | 38     | J A 27 | J A 54 | 30     | 34     | J A 36 |        |        |        |
| 22          | 28     | E S 15 | 17     | E S 12 | 18     | J A 23 | J A 30 | 27     | 30     | 40     | 38     | 27     | G      | 25     | 34     | 26     | 33     | G      | E S 19 | E S 15 | E S 15 | J A 32 | J A 40 | 25     | 26     |        |        |
| 23          | 23     | 23     | E S 15 | E S 15 | J A 22 | 47     | J A 35 | J A 44 | 30     | 31     | 27     | 39     | 30     | G      | G      | G      | 34     | 30     | 30     | J A 84 | 30     | 27     | E S 12 | 26     | E S 17 |        |        |
| 24          | 23     | E S 16 | E S 14 | 27     | E      | 26     | 25     | 30     | 36     | 33     | 38     | 36     | 34     | 18     | G      | 31     | G      | 19     | 24     | J A 33 | 29     | 33     | 26     | E S 15 |        |        |        |
| 25          | E S 16 | E S 15 | E S 14 | E S 14 | E S 14 | E S 14 | 20     | G      | 40     | 36     | 36     | 22     | G      | G      | 26     | 33     | G      | E S 17 | E      | E S 12 | E S 15 | E S 15 | 26     | E S 17 |        |        |        |
| 26          | E S 15 | 22     | E      | 24     | E S 15 | 18     | 26     | 32     | 42     | 30     | G      | G      | G      | 27     | G      | G      | G      | E S 17 | J A 23 | 33     | J A 25 | E S 15 | E S 15 | E S 15 |        |        |        |
| 27          | 24     | E S 14 | E S 17 | 24     | 22     | E S 14 | G      | 25     | J A 43 | 34     | 35     | J A 36 | 20     | G      | 21     | 31     | 31     | 30     | 27     | 30     | 25     | E S 15 | 24     | 25     |        |        |        |
| 28          | E S 16 | 25     | E S 14 | E S 15 | J A 23 | 22     | 20     | 27     | 31     | 37     | 34     | G      | G      | 30     | 25     | 33     | 33     | 21     | E S 15 | E S 15 | 29     | E S 15 | J A 28 | 25     |        |        |        |
| 29          | 23     | E S 15 | E S 14 | E S 15 | E S 14 | E S 15 | 20     | G      | 32     | 34     | 31     | 25     | G      | 21     | 22     | 33     | 31     | 28     | 21     | 20     | 29     | J A 26 | E S 15 | E S 15 | E S 15 |        |        |
| 30          | E S 15 | E S 15 | E S 15 | 22     | E S 15 | E S 15 | G      | G      | G      | 33     | 34     | 33     | G      | G      | 32     | 30     | 29     | 25     | E S 15 | E S 15 | 25     | 22     | 22     | E S 15 |        |        |        |
| 31          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
| CNT         | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 29     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     |        |        |
| MED         | 23     | 19     | E S 16 | 22     | 18     | 18     | 25     | 30     | 34     | 34     | 35     | 34     | 34     | 27     | 22     | 27     | 30     | 27     | 26     | 30     | J A 28 | 22     | 24     | 25     |        |        |        |
| UQ          | 25     | 29     | 27     | 26     | 23     | 26     | 29     | 32     | 39     | 39     | 38     | J A 39 | 40     | 35     | 33     | 33     | 33     | 33     | J A 33 | J A 33 | J A 32 | J A 30 | 28     | 28     |        |        |        |
| LQ          | E S 15 | E S 15 | E S 14 | E S 15 | E S 14 | E S 15 | 20     | 25     | 31     | 31     | 30     | 27     | 20     | G      | G      | 15     | 20     | 23     | 20     | 20     | 24     | E S 15 | E S 16 | E S 15 |        |        |        |

SEP. 1976

FOES (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

FBES (0.1 MHz)

135° E Mean Time (G. M. T. + 9h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00     | 01     | 02     | 03     | 04     | 05     | 06     | 07     | 08     | 09 | 10     | 11     | 12     | 13     | 14 | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22     | 23     |        |        |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|--------|--------|--------|--------|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1           | E      | E      | E      | E      | E      | G      | G      | G      | G      | 38 | 40     | 39     | 43     | 40     | 52 | A A 80 | 36     | 37     | 25     | E      | E S 15 | E      | E      | 20     |        |        |
| 2           | E      | E      | E      | E S 15 | E S 15 | E S 15 | G      | G      | A A 54 | G  | G      | G      | G      | G      | G  | G      | 37     | 33     | 27     | E      | E      | E S 16 | E S 15 | E      |        |        |
| 3           | E S 14 | E S 16 | E      | E S 15 | E      | 22     | G      | 35     | 34     | 32 | G      | G      | G      | G      | G  | G      | 34     | 30     | 27     | E      | E      | E      | E      | E      |        |        |
| 4           | E      | E S 14 | E      | E      | E      | G      | 25     | 34     | G      | G  | G      | 46     | G      | G      | G  | G      | G      | G      | 31     | E      | E      | 42     | A A 48 | E      |        |        |
| 5           | 20     | 20     | E      | E      | 23     | 20     | G      | G      | G      | G  | 42     | C      | 45     | 42     | G  | G      | G      | 40     | 40     | 46     | 27     | 30     | 25     | E      |        |        |
| 6           | 33     | E      | E      | E      | E      | 26     | 28     | G      | G      | G  | G      | 33     | G      | G      | 18 | G      | G      | G      | E S 16 | E      | 20     | E S 15 | E S 15 | E S 15 |        |        |
| 7           | E      | E S 13 | E S 15 | E S 16 | E S 15 | 20     | G      | G      | G      | G  | G      | G      | 40     | 38     | G  | G      | G      | G      | 30     | 40     | 40     | 31     | E      | E S 15 |        |        |
| 8           | E S 15 | E      | E      | E      | E      | E S 14 | G      | G      | G      | 31 | 36     | 40     | 35     | 27     | 25 | G      | 27     | 28     | 27     | 26     | 22     | E      | E S 17 | E      |        |        |
| 9           | E S 17 | E S 18 | E S 18 | E S 18 | E      | G      | G      | 40     | 45     | 38 | 35     | 35     | A A 58 | 31     | G  | G      | 20     | G      | 18     | E      | 25     | E      | 30     | 25     |        |        |
| 10          | E S 15 | E S 14 | E S 15 | E S 12 | E      | 19     | 26     | G      | G      | G  | G      | 32     | 35     | G      | G  | G      | G      | G      | 21     | A A 65 | E      | E S 16 | E      | E      |        |        |
| 11          | 25     | A A 40 | 25     | 23     | E      | E      | 29     | 33     | G      | G  | G      | G      | G      | G      | G  | 29     | 31     | 35     | 26     | 32     | E      | E      | E      | E      |        |        |
| 12          | 27     | 23     | E      | E      | E      | E S 16 | G      | G      | 36     | 49 | 30     | 35     | 36     | 33     | 31 | 30     | 27     | 26     | 34     | 30     | E      | E S 16 | E      | 23     |        |        |
| 13          | E S 15 | E S 13 | E S 15 | E      | E S 15 | E S 15 | G      | 37     | 39     | 40 | 31     | 28     | 33     | 28     | 24 | 23     | 20     | G      | E      | E S 15 | E      | E      | 25     | E S 15 |        |        |
| 14          | E S 15 | E S 16 | E S 14 | E S 16 | E S 14 | E S 14 | G      | G      | 29     | 38 | 36     | 32     | 34     | 25     | G  | G      | G      | G      | E      | E S 15 | E      | E S 16 | E S 16 | E S 15 |        |        |
| 15          | E      | E      | E      | E      | E      | E      | 23     | 20     | G      | G  | G      | G      | G      | G      | G  | 32     | 31     | 23     | 26     | 23     | 18     | E      | E      | E S 16 | E      |        |
| 16          | E      | E      | E      | E      | E      | 22     | 23     | 26     | 32     | 35 | 42     | 35     | 36     | 33     | 33 | 27     | 19     | G      | 27     | 28     | E S 14 | E S 15 | E S 15 | E S 17 |        |        |
| 17          | E S 15 | E      | E S 16 | E S 14 | E      | E S 14 | G      | G      | 27     | 21 | G      | G      | G      | G      | G  | 19     | G      | G      | E      | 20     | E S 15 | E S 15 | E S 15 | E S 16 |        |        |
| 18          | E S 15 | E S 15 | E S 15 | E S 14 | E      | E S 17 | G      | G      | 40     | G  | G      | 36     | 36     | 32     | G  | G      | G      | G      | E S 12 | E S 15 | E S 16 | E S 15 | E      | E S 12 |        |        |
| 19          | E      | 22     | A A 48 | A A 42 | A A 40 | A A 51 | A A 56 | 24     | 30     | 31 | 23     | 27     | 28     | G      | G  | G      | G      | G      | 16     | 28     | E      | 28     | 23     | E      |        |        |
| 20          | E S 16 | E      | E      | E      | E      | E S 17 | 19     | G      | G      | G  | 41     | G      | G      | G      | G  | G      | G      | G      | 29     | 22     | E      | A A 53 | 22     | E      | E      |        |
| 21          | E S 15 | E S 15 | E S 15 | E      | E      | E      | A A 49 | A A 50 | G      | 47 | A A 62 | A A 62 | 42     | A A 57 | 38 | A A 58 | 32     | 49     | 27     | E      | 22     | E      | 22     | 25     |        |        |
| 22          | E      | E S 15 | E      | E S 12 | E      | 20     | 27     | 25     | G      | 33 | 33     | 26     | G      | 25     | 32 | G      | 26     | G      | E S 19 | E S 15 | E S 15 | E      | 25     | E      | E      |        |
| 23          | E      | E      | E S 15 | E S 15 | E      | A A 47 | 34     | 50     | 29     | 31 | 27     | 38     | 29     | G      | G  | G      | G      | G      | 23     | 44     | E      | E      | E S 12 | E      | E S 17 |        |
| 24          | E      | E S 16 | E S 14 | E      | E      | 20     | G      | G      | 35     | G  | G      | 33     | G      | G      | G  | G      | G      | G      | 18     | E      | E      | E      | E      | E      | E S 15 |        |
| 25          | E S 16 | E S 15 | E S 14 | E S 14 | E S 14 | E S 14 | G      | G      | 32     | 31 | 32     | 21     | G      | G      | 25 | 23     | G      | E S 17 | E      | E S 12 | E S 15 | E S 15 | E      | E S 17 |        |        |
| 26          | E S 15 | E      | E      | E      | E S 15 | E      | G      | 32     | G      | 30 | G      | G      | G      | G      | G  | G      | G      | E S 17 | E      | 25     | E      | E S 15 | E S 15 | E S 15 |        |        |
| 27          | E      | E S 14 | E S 17 | E      | E      | E S 14 | G      | G      | 40     | 33 | 33     | 32     | 19     | G      | G  | G      | 23     | 24     | 21     | 20     | 19     | E      | E S 15 | E      | E      |        |
| 28          | E S 16 | E      | E S 14 | E S 15 | 21     | E      | 19     | G      | G      | G  | G      | G      | G      | G      | G  | G      | 30     | 25     | 27     | 27     | G      | E S 15 | E S 15 | E      | E      |        |
| 29          | E      | E S 15 | E S 14 | E S 15 | E S 14 | E S 15 | G      | G      | G      | G  | 30     | 22     | G      | G      | 21 | 22     | 23     | 22     | G      | G      | E      | 25     | 26     | E S 15 | E S 15 | E S 15 |
| 30          | E S 15 | E S 15 | E S 15 | E      | E S 15 | E S 15 | G      | G      | G      | G  | G      | G      | G      | G      | G  | 30     | 27     | 24     | 24     | E S 15 | E S 15 | E      | E      | E      | E S 15 |        |
| 31          |        |        |        |        |        |        |        |        |        |    |        |        |        |        |    |        |        |        |        |        |        |        |        |        |        |        |
| CNT         | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30 | 30     | 29     | 30     | 30     | 30 | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     |        |
| MED         | E S 15 | E S 14 | E S 14 | E S 12 | E      | E S 15 | G      | G      | G      | 26 | 25     | 30     | 26     | 25     | 20 | 18     | E S 19 | E S 18 | 20     | 15     | E      | E S 15 | E S 15 | E S 15 |        |        |
| UQ          | E S 16 | E S 16 | E S 15 | E S 15 | E S 15 | 20     | 25     | 30     | 34     | 33 | 35     | 35     | 36     | 32     | 25 | 27     | 27     | 28     | 27     | 26     | 20     | E S 16 | E S 16 | E S 16 |        |        |
| LQ          | E      | E      | E      | E      | E      |        | G      | G      | G      | G  | G      | G      | G      | G      | G  | G      | G      | G      | G      | E S 12 | E      | E      | E      | E      |        |        |

SEP. 1976

FBES (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

F-MIN (0.1 MHz)

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

| Station     | WAKKANAI        |                 |                 |                 |                 |                 |                 |    |    |    |    |    |    |    |    |    |    |                 |                 |                 |                 |                 |                 | Lat.            | 45° 23.6' N, | Long. | 141° 41.1' E | Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|----|----|----|----|----|----|----|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------|-------|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Hour<br>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 <sub>16</sub> | E <sub>12</sub> | E <sub>12</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | 11              | 11 | 14 | 17 | 20 | 18 | 17 | 16 | 15 | 12 | 11 | 10              | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2           | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 11              | 15 | 19 | 19 | 18 | 20 | 16 | 17 | 18 | 15 | 11 | 10              | E <sub>12</sub> | E <sub>12</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3           | E <sub>14</sub> | E <sub>16</sub> | E               | E <sub>15</sub> | E <sub>13</sub> | E               | 13              | 10 | 11 | 13 | 16 | 19 | 19 | 16 | 17 | 14 | 15 | 10              | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>12</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4           | E <sub>16</sub> | E <sub>14</sub> | E               | E               | E               | E               | E               | 10 | 10 | 16 | 16 | 17 | 19 | 18 | 16 | 12 | 10 | 10              | E               | E               | E               | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5           | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | E               | 11 | 10 | 16 | 20 | C  | 12 | 17 | 17 | 11 | 10 | 10              | E <sub>15</sub> | E <sub>14</sub> | E               | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6           | E <sub>15</sub> | E <sub>16</sub> | E               | E <sub>13</sub> | E <sub>12</sub> | E               | E               | 13 | 12 | 16 | 18 | 17 | 16 | 13 | 11 | 11 | 11 | 12              | E <sub>16</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7           | E <sub>15</sub> | E <sub>13</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | 12              | 12 | 17 | 14 | 20 | 20 | 12 | 19 | 16 | 15 | 12 | 11              | E <sub>13</sub> | E <sub>15</sub> | E               | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8           | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | 12              | 11 | 16 | 15 | 17 | 18 | 18 | 17 | 15 | 17 | 12 | 10              | 10              | E <sub>14</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>17</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9           | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E               | E               | 10              | 10 | 11 | 16 | 17 | 20 | 20 | 19 | 18 | 13 | 10 | 10              | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10          | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>12</sub> | E               | E <sub>14</sub> | 10              | 10 | 15 | 16 | 18 | 18 | 17 | 19 | 16 | 10 | 10 | 10              | E               | E               | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11          | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E               | E               | E               | 11              | 10 | 11 | 11 | 16 | 17 | 18 | 15 | 17 | 11 | 16 | 10              | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12          | E <sub>16</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | 14 | 11 | 15 | 19 | 18 | 15 | 17 | 17 | 12 | 10 | E               | E <sub>15</sub> | E <sub>18</sub> | E <sub>17</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 11              | 11 | 18 | 16 | 17 | 17 | 18 | 18 | 17 | 14 | 10 | 10              | E               | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14          | E <sub>15</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>14</sub> | 11              | 13 | 11 | 16 | 20 | 19 | 19 | 16 | 15 | 11 | 11 | 12              | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15          | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | E               | 12 | 12 | 16 | 16 | 17 | 15 | 12 | 18 | 17 | 15 | 13              | E <sub>15</sub> | E <sub>15</sub> | E <sub>17</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16          | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>16</sub> | E               | E <sub>13</sub> | 13              | 13 | 16 | 17 | 17 | 15 | 16 | 16 | 10 | 10 | 10 | E <sub>18</sub> | E <sub>15</sub> | E <sub>12</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>17</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17          | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>14</sub> | E               | E <sub>14</sub> | 10              | 15 | 13 | 15 | 17 | 17 | 19 | 17 | 10 | 10 | 15 | 11              | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E               | E <sub>17</sub> | 12              | 12 | 12 | 17 | 17 | 17 | 17 | 12 | 16 | 10 | 15 | E <sub>16</sub> | E <sub>12</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>12</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19          | E <sub>15</sub> | E               | E               | E               | E               | E               | E               | 10 | 11 | 16 | 15 | 15 | 16 | 11 | 12 | 10 | 13 | E <sub>15</sub> | E               | E <sub>13</sub> | E               | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20          | E <sub>16</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>16</sub> | E               | E <sub>17</sub> | 10              | 10 | 11 | 13 | 11 | 15 | 13 | 12 | 15 | 10 | 10 | E <sub>15</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E               | E               | E <sub>15</sub> | 12              | 12 | 10 | 12 | 12 | 15 | 15 | 15 | 14 | 11 | 10 | 11              | E <sub>11</sub> | E <sub>15</sub> | E               | E <sub>13</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22          | E <sub>15</sub> | E <sub>15</sub> | E               | E <sub>12</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | 16 | 12 | 16 | 17 | 17 | 18 | 16 | 16 | 15 | 12 | E <sub>19</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E               | E <sub>14</sub> | E <sub>14</sub> | 17 | 18 | 17 | 18 | 17 | 19 | 18 | 17 | 16 | 17 | E <sub>15</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>12</sub> | E <sub>15</sub> | E <sub>17</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24          | E <sub>16</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | E               | E <sub>14</sub> | E <sub>15</sub> | 16 | 17 | 18 | 17 | 18 | 14 | 13 | 18 | 17 | 15 | 11              | E <sub>12</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25          | E <sub>16</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | 12              | 11 | 13 | 15 | 11 | 13 | 12 | 11 | 10 | 10 | 11 | E <sub>17</sub> | E               | E <sub>12</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>17</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26          | E <sub>15</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 14              | 11 | 11 | 16 | 16 | 12 | 17 | 16 | 13 | 16 | 17 | E <sub>17</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27          | E <sub>16</sub> | E <sub>14</sub> | E <sub>17</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | 11              | 15 | 13 | 12 | 17 | 14 | 12 | 18 | 16 | 10 | 10 | 15              | E <sub>17</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28          | E <sub>16</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E               | E <sub>15</sub> | 11              | 11 | 15 | 12 | 18 | 16 | 11 | 10 | 14 | 11 | 10 | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29          | E <sub>16</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | 10              | 15 | 11 | 13 | 15 | 12 | 14 | 12 | 10 | 10 | 10 | 10              | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 14              | 10 | 10 | 11 | 17 | 16 | 18 | 12 | 11 | 12 | 11 | 10              | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31          |                 |                 |                 |                 |                 |                 |                 |    |    |    |    |    |    |    |    |    |    |                 |                 |                 |                 |                 |                 |                 |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|             | 00              | 01              | 02              | 03              | 04              | 05              | 06              | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17              | 18              | 19              | 20              | 21              | 22              | 23              |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CNT         | 30              | 30              | 30              | 30              | 30              | 30              | 30              | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30              | 30              | 30              | 30              | 30              | 30              | 30              |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MED         | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E               | E <sub>14</sub> | 11              | 12 | 12 | 16 | 17 | 17 | 16 | 16 | 16 | 12 | 11 | 10              | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UQ          | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 12              | 14 | 15 | 16 | 18 | 18 | 18 | 17 | 17 | 15 | 15 | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LQ          | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | E               | E <sub>13</sub> | 10              | 10 | 11 | 13 | 16 | 15 | 14 | 12 | 13 | 10 | 10 | 10              | E <sub>12</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

SEP. 1976

F-MIN (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

M(3000)F2 (0.01)

135° E Mean Time (G. M. T. + 9 h)

Station **WAKKANAI** Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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 | F                | F   | F   | F   | 330            | 355 | 320 | 350 | 325              | 325              | 330 | 310              | 315 | 325 | A   | 340 | 320            | 320 | 295 | 300 | 300              | 325 | 305              |     |
| 2           | 295 | 295              | 295 | 315 | 325 | 295            | R   | 365 | A   | 330              | 300              | 335 | 310              | 290 | 315 | 320 | 330 | 315            | 285 | 285 | 290 | 325              | 325 | 335              |     |
| 3           | 300 | 285              | 290 | 295 | 345 | 340            | 320 | 300 | 310 | 315              | 315              | 320 | 315              | 325 | 335 | 340 | 335 | 320            | 300 | 295 | 310 | 315              | 320 | 295              |     |
| 4           | 295 | 305              | 300 | 315 | 310 | 300            | 295 | 340 | 335 | 325              | 340              | 305 | 330              | 315 | 320 | 335 | 325 | 300            | 300 | 300 | 300 | 320              | A   | 300 <sup>S</sup> |     |
| 5           | 305 | 295              | 295 | 320 | 300 | 300            | 320 | 325 | 305 | 320              | 310              | C   | 315              | 330 | 320 | 315 | 300 | 315            | 315 | 305 | 295 | 300              | 295 | 310 <sup>S</sup> |     |
| 6           | 325 | 290 <sup>F</sup> | 295 | 310 | 315 | 325            | 350 | 300 | 325 | 315              | 325              | 305 | 315              | 325 | 300 | 310 | 320 | 325            | 310 | 295 | 305 | 310              | 305 | 295              |     |
| 7           | 310 | 285              | 285 | 305 | 315 | 325            | 300 | 325 | 340 | 305              | 315              | 250 | 315              | 320 | 305 | 325 | 305 | 330            | 320 | 285 | 305 | 320              | 310 | 320              |     |
| 8           | 290 | 295              | 300 | 305 | 305 | 325            | 340 | 355 | 350 | 325              | 320              | 305 | 305              | 310 | 310 | 310 | 305 | 330            | 310 | 295 | 305 | 320              | 355 | 295              |     |
| 9           | 300 | 290              | 295 | 305 | 300 | 310            | 355 | 320 | 345 | 330              | 350              | 340 | A                | 320 | 315 | 290 | 300 | 315            | 290 | 320 | F   | 310              | 315 | 340              | 295 |
| 10          | 295 | 295              | 305 | 335 | 345 | 305            | 300 | 315 | 300 | 305              | 350              | 305 | 330              | 290 | 330 | 310 | 340 | 320            | 315 | A   | 310 | 310              | 310 | 305              |     |
| 11          | 310 | A                | 280 | 300 | 290 | 295            | 315 | 310 | 335 | 345              | 315              | 330 | 330              | 320 | 330 | 330 | 330 | 335            | 315 | 320 | 310 | 315              | 310 | 305              |     |
| 12          | 305 | 295              | 295 | 295 | 300 | 325            | 340 | 310 | 325 | 350              | 335              | 300 | 320              | 325 | 325 | 320 | 320 | 320            | 320 | 315 | 310 | 340              | 335 | 285              |     |
| 13          | 295 | 295              | 285 | 305 | 290 | 335            | 355 | 320 | 335 | 335              | 315              | 325 | 320              | 315 | 320 | 345 | 335 | 320            | 310 | 315 | 310 | F                | F   | F                |     |
| 14          | F   | F                | 315 | 310 | 305 | 315            | 365 | 350 | 350 | 340              | 340              | 335 | 330              | 335 | 340 | 340 | 340 | 325            | 305 | 305 | 315 | 305              | 300 | 290              |     |
| 15          | 295 | 295              | 300 | 335 | 310 | 335            | 345 | 340 | 335 | 330              | 350              | 300 | 325              | 340 | 325 | 310 | 310 | 300            | 315 | 335 | 350 | 300              | 295 | 285              |     |
| 16          | 300 | 300              | 315 | 335 | 330 | 305            | 340 | 320 | 330 | 350              | 365              | 325 | 345              | 330 | 330 | 315 | 325 | 340            | 310 | 310 | 310 | 310              | 285 | 295              |     |
| 17          | 295 | 290              | 285 | 315 | 320 | 325            | 350 | 330 | 320 | 345              | 310              | 340 | 320              | 330 | 315 | 335 | 340 | 330            | 320 | 320 | 295 | 305              | 310 | 295              |     |
| 18          | 310 | 300              | 300 | 300 | 300 | 300            | 355 | 325 | 350 | 330              | 350              | 345 | 325              | 325 | 300 | 335 | 290 | 310            | 315 | 310 | 340 | 310              | 265 | 295              |     |
| 19          | 250 | 265              | A   | A   | A   | A              | A   | 280 | 315 | 295 <sup>R</sup> | 300 <sup>R</sup> | 315 | 335              | 345 | 340 | 340 | 330 | 330            | 330 | 295 | 270 | 270 <sup>S</sup> | 270 | 275              |     |
| 20          | 310 | 320              | 280 | 300 | 280 | 280            | 310 | 340 | 305 | 310              | 305              | 330 | 305              | 330 | 320 | 320 | 320 | 310            | 315 | 295 | A   | 285              | 280 | 270              |     |
| 21          | 280 | 300              | 290 | 310 | 295 | 300            | A   | A   | R   | 290              | A                | A   | 310              | A   | 310 | A   | 305 | J <sup>S</sup> | 335 | 325 | 315 | 290              | 285 | 285              | 280 |
| 22          | 285 | 325              | 290 | 290 | 320 | 305            | 330 | 350 | 330 | 340              | 315              | 310 | 345              | 330 | 340 | 345 | 330 | 340            | 310 | 295 | 320 | 320              | 295 | 290              |     |
| 23          | 285 | 280              | 290 | F   | F   | A              | 330 | 345 | 335 | 340              | 325              | 335 | 355              | 325 | 340 | 330 | 310 | 320            | 330 | 300 | 305 | 320 <sup>F</sup> | 325 | 285              |     |
| 24          | 295 | 300              | 290 | 315 | F   | U <sup>S</sup> | 315 | 325 | 335 | 335              | 355              | 355 | 365              | 335 | 340 | 320 | 325 | 340            | 335 | 315 | 320 | 305              | 305 | 305              | 305 |
| 25          | 290 | 290              | 300 | 300 | 295 | 325            | 360 | 350 | 340 | 345              | 350              | 340 | 350              | 320 | 330 | 340 | 335 | 330            | 330 | 315 | 295 | 290              | 285 | 285              |     |
| 26          | 295 | 295              | 300 | 295 | 300 | 295            | 350 | 290 | 350 | 335              | 355              | 345 | 320              | 340 | 330 | 330 | 320 | 315            | 310 | 285 | 295 | 300              | 290 | 300              |     |
| 27          | 295 | 300              | 290 | 310 | 300 | 295            | 340 | 335 | 350 | 360              | 345              | 350 | 345              | 335 | 340 | 325 | 335 | 330            | 315 | 295 | 300 | S                | 295 | 300              |     |
| 28          | 290 | 305              | 305 | 295 | 300 | 320            | 350 | 340 | 340 | 340              | 340              | 360 | 325              | 335 | 345 | 340 | 325 | 330            | 325 | 325 | 335 | 315              | 285 | 285              |     |
| 29          | 300 | 295              | 295 | 300 | 305 | 325            | 355 | 350 | 310 | 360              | 360              | 350 | 325 <sup>H</sup> | 340 | 335 | 340 | 330 | 325            | 325 | 315 | 305 | 290              | 295 | 305              |     |
| 30          | 305 | 300              | 285 | 305 | 310 | 300            | 355 | 360 | 330 | 340              | 360              | 325 | 350              | 340 | 345 | 350 | 340 | 335            | 320 | 315 | 320 | 310              | 300 | 295              |     |
| 31          |     |                  |     |     |     |                |     |     |     |                  |                  |     |                  |     |     |     |     |                |     |     |     |                  |     |                  |     |
| 00          | 01  | 02               | 03  | 04  | 05  | 06             | 07  | 08  | 09  | 10               | 11               | 12  | 13               | 14  | 15  | 16  | 17  | 18             | 19  | 20  | 21  | 22               | 23  |                  |     |
| CNT         | 29  | 27               | 28  | 27  | 26  | 28             | 27  | 29  | 28  | 30               | 29               | 28  | 29               | 29  | 30  | 28  | 30  | 30             | 30  | 29  | 29  | 28               | 28  | 29               |     |
| MED         | 295 | 295              | 295 | 305 | 305 | 312            | 340 | 330 | 335 | 332              | 335              | 330 | 325              | 325 | 325 | 330 | 328 | 325            | 315 | 305 | 305 | 310              | 300 | 295              |     |
| UQ          | 305 | 300              | 300 | 315 | 315 | 325            | 355 | 345 | 342 | 345              | 350              | 340 | 335              | 335 | 335 | 340 | 335 | 330            | 320 | 315 | 310 | 318              | 315 | 305              |     |
| LQ          | 295 | 290              | 290 | 300 | 300 | 300            | 322 | 320 | 322 | 320              | 315              | 308 | 315              | 320 | 315 | 318 | 310 | 315            | 310 | 295 | 300 | 300              | 288 | 285              |     |

The Radio Research Laboratories, Japan

SEP. 1976

M(3000)F2 (0.01)

# IONOSPHERIC DATA

SEP. 1976

M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9 h)

| Station     | WAKKANAI   |    |    |    |    |    |     |     |                  |                  |                  |                  |     |                  |                  |                  |                  |                  |                  |     |    |    |    |    |
|-------------|--|----|----|----|----|----|-----|-----|------------------|------------------|------------------|------------------|-----|------------------|------------------|------------------|------------------|------------------|------------------|-----|----|----|----|----|
| Lat.        | 45° 23.6' N, Long. 141° 41.1' E                  |    |    |    |    |    |     |     |                  |                  |                  |                  |     |                  |                  |                  |                  |                  |                  |     |    |    |    |    |
| Sweep       | 1 MHz to 20 MHz in 20 sec in automatic operation |    |    |    |    |    |     |     |                  |                  |                  |                  |     |                  |                  |                  |                  |                  |                  |     |    |    |    |    |
| Hour<br>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           |  |    |    |    |    |    |     |     |                  | 395              | 390              | 400              |     | A                | A                | A                | A                |                  |                  |     |    |    |    |    |
| 2           |  |    |    |    |    |    |     |     | A                | 380              | 390              | 335              | 380 | 565              | 355              | 350              |                  | A                |                  |     |    |    |    |    |
| 3           |  |    |    |    |    |    |     |     | 350 <sup>L</sup> | 355              | 375              | 385              | 405 | 380              | 380              | 365              | 375              |                  | A                |     |    |    |    |    |
| 4           |  |    |    |    |    |    |     |     | 330              | A                | 355              | 380              | 395 | A                | 385              | 375              | 350              | 375              |                  |     |    |    |    |    |
| 5           |  |    |    |    |    |    |     |     |                  | 370              | 390              | 385              | A   | C                | A                | A                | 380              | 360              |                  |     |    |    |    |    |
| 6           |  |    |    |    |    |    |     |     |                  | 365              | 355              | 410              | 385 | 380              | 385              | 370              | 360              | 360              | 370              |     |    |    |    |    |
| 7           |  |    |    |    |    |    |     |     |                  | 355              | 380              | 390              | 380 | 385              | A                | A                | 355              | 350              | 360 <sup>L</sup> |     |    |    |    |    |
| 8           |  |    |    |    |    |    |     |     |                  | 390              | 370              | 390              | 405 | A                | 340              | 380              | 360              |                  | 345              |     |    |    |    |    |
| 9           |  |    |    |    |    |    |     |     |                  | A                | A                | 405              | 405 | 390              | A                | 350              | 355              |                  | 340              | 365 |    |    |    |    |
| 10          |  |    |    |    |    |    |     |     |                  | 345              | 370              | 405              | 365 | 385              | 360              | 365              | 365              | 350              |                  |     |    |    |    |    |
| 11          |  |    |    |    |    |    |     |     |                  | 355              | 370              | 390              | 390 | 380              |                  | 355              | 375              | 360              | 370              |     |    |    |    |    |
| 12          |  |    |    |    |    |    |     |     |                  | 350 <sup>L</sup> | A                | A                | 385 | 410              | 385              | 390              | 375              | 345              |                  |     |    |    |    |    |
| 13          |  |    |    |    |    |    |     |     |                  | A                | A                | A                | 370 | 370              | 380              | 355              | 355              | 360              | 370              |     |    |    |    |    |
| 14          |  |    |    |    |    |    |     |     |                  | 385              | 400              | A                | 390 | 395              | 390              | 390              | 400              | 360              |                  |     |    |    |    |    |
| 15          |  |    |    |    |    |    |     |     |                  |                  | 370              | 380              | 395 | 385 <sup>L</sup> | 385              | 370              | 365              | 360              | 340              | 375 |    |    |    |    |
| 16          |  |    |    |    |    |    |     |     |                  | 370 <sup>L</sup> | 365              | 365              | A   | 390              | 375              | 390              | 360              |                  |                  |     |    |    |    |    |
| 17          |  |    |    |    |    |    |     |     |                  |                  | 390              | 390              | 385 | 385              | 385              | 400              | 375              |                  |                  |     |    |    |    |    |
| 18          |  |    |    |    |    |    |     |     |                  |                  | A                | 380              | 395 | 385              | 400              | 390              | 370              | 365 <sup>L</sup> |                  |     |    |    |    |    |
| 19          |  |    |    |    |    |    |     |     |                  | 340              | 340              | 370              | 390 | 390              | 370              | 370              | 375              |                  |                  |     |    |    |    |    |
| 20          |  |    |    |    |    |    |     |     |                  |                  | 370              | 380              | A   | 395              | 380              | 355 <sup>H</sup> | 355              | 360              |                  |     |    |    |    |    |
| 21          |  |    |    |    |    |    |     |     |                  |                  | 380              | A                | A   | A                | A                | A                | A                | A                |                  |     |    |    |    |    |
| 22          |  |    |    |    |    |    |     |     |                  |                  | 365 <sup>L</sup> | 370              | 370 | 375              | 390              | 380 <sup>L</sup> | 375              |                  |                  |     |    |    |    |    |
| 23          |  |    |    |    |    |    |     |     |                  |                  |                  | 375              | 380 | 395              | 390              | 400              | 380              |                  |                  |     |    |    |    |    |
| 24          |  |    |    |    |    |    |     |     |                  |                  | A                | 385              | 400 | 390              | 390              |                  | 405              |                  |                  |     |    |    |    |    |
| 25          |  |    |    |    |    |    |     |     |                  |                  |                  | 390              | 410 | 385              | 390              | 360              | 380 <sup>L</sup> |                  | L                |     |    |    |    |    |
| 26          |  |    |    |    |    |    |     |     |                  |                  | 335              | 390              | 390 | 405              | 380 <sup>L</sup> | 400              |                  | L                |                  |     |    |    |    |    |
| 27          |  |    |    |    |    |    |     |     |                  |                  |                  | A                | 380 | 400              | 390              | 390              | 380              | 375 <sup>L</sup> |                  |     |    |    |    |    |
| 28          |  |    |    |    |    |    |     |     |                  |                  |                  | 375 <sup>L</sup> | 375 | 390              | 385              | 395              | 380              | 370              |                  |     |    |    |    |    |
| 29          |  |    |    |    |    |    |     |     |                  |                  |                  |                  | 390 | 390              | 390 <sup>L</sup> |                  | 390 <sup>L</sup> | 375 <sup>L</sup> | 375 <sup>L</sup> |     |    |    |    |    |
| 30          |  |    |    |    |    |    |     |     |                  |                  |                  | 400 <sup>L</sup> | 365 | 380              | 385              | 390              | 390              | 365              | 400 <sup>L</sup> |     |    |    |    |    |
| 31          |  |    |    |    |    |    |     |     |                  |                  |                  |                  |     |                  |                  |                  |                  |                  |                  |     |    |    |    |    |
| Hour<br>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         |  |    |    |    |    |    | 1   | 12  | 17               | 26               | 26               | 26               | 23  | 25               | 27               | 17               | 7                | 2                |                  |     |    |    |    |    |
| MED         |  |    |    |    |    |    | 330 | 355 | 370              | 382              | 390              | 388              | 385 | 380              | 370              | 360              | 360              | 370              |                  |     |    |    |    |    |
| UQ          |  |    |    |    |    |    | 370 | 380 | 390              | 395              | 395              | 390              | 390 | 375              | 375              | 370              |                  |                  |                  |     |    |    |    |    |
| LQ          |  |    |    |    |    |    | 348 | 365 | 375              | 385              | 385              | 380              | 365 | 360              | 360              | 342              |                  |                  |                  |     |    |    |    |    |

SEP. 1976

M(3000)F1 (0.01)

# IONOSPHERIC DATA

SEP. 1976

H<sup>1</sup>F<sub>2</sub> (KM)

135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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 | 320 | 310 | 335 | 315 | A   | A   | 275 |     |    |    |    |    |    |    |
| 2           |    |    |    |    |    |     |     |                  | A   | 275 | 340 | 305 | 350 | 370 | 300 | 315 | 290 |     |    |    |    |    |    |    |
| 3           |    |    |    |    |    |     |     | 320 <sup>L</sup> | 300 | 320 | 305 | 315 | 340 | 315 | 290 | 275 | 280 |     |    |    |    |    |    |    |
| 4           |    |    |    |    |    | 350 | 260 | 255              | 280 | 295 | 350 | 300 | 320 | 295 | 280 |     |     |     |    |    |    |    |    |    |
| 5           |    |    |    |    |    |     | 270 | 270              | 290 | 295 |     | C   | 315 | 285 | 315 | 300 |     |     |    |    |    |    |    |    |
| 6           |    |    |    |    |    |     |     | 350              | 280 | 295 | 300 | 330 | 310 | 310 | 355 | 310 | 290 |     |    |    |    |    |    |    |
| 7           |    |    |    |    |    |     |     | 300              | 275 | 325 | 350 | 510 | 330 | 325 | 350 | 310 | 315 |     |    |    |    |    |    |    |
| 8           |    |    |    |    |    |     |     | 250              | 270 | 305 | 320 | 345 | 350 | 350 | 300 |     | 305 |     |    |    |    |    |    |    |
| 9           |    |    |    |    |    |     |     | A                | 250 | 280 | 265 | 285 | A   | 340 | 325 |     | 310 | 280 |    |    |    |    |    |    |
| 10          |    |    |    |    |    |     |     | 400              | 335 | 300 | 285 | 360 | 310 | 380 | 305 | 315 |     |     |    |    |    |    |    |    |
| 11          |    |    |    |    |    |     |     | 300              | 275 | 255 | 315 | 310 |     | 310 | 305 | 275 | 275 |     |    |    |    |    |    |    |
| 12          |    |    |    |    |    |     |     | 305              | 285 | 250 | 260 | 350 | 305 | 310 | 305 | 300 |     |     |    |    |    |    |    |    |
| 13          |    |    |    |    |    |     |     | 300              | 265 | 270 | 300 | 285 | 310 | 325 | 300 | 280 | 280 |     |    |    |    |    |    |    |
| 14          |    |    |    |    |    |     |     | 245              | 255 | 275 | 270 | 275 | 290 | 275 | 290 | 275 |     |     |    |    |    |    |    |    |
| 15          |    |    |    |    |    |     |     |                  | 265 | 270 | 280 | 305 | 280 | 270 | 305 | 315 | 300 | 275 |    |    |    |    |    |    |
| 16          |    |    |    |    |    |     |     | 270              | 255 | 250 | 245 | 275 | 270 | 285 | 280 |     |     |     |    |    |    |    |    |    |
| 17          |    |    |    |    |    |     |     |                  |     | 250 | 255 | 280 | 270 | 275 | 265 | 270 |     |     |    |    |    |    |    |    |
| 18          |    |    |    |    |    |     |     |                  | 245 | 255 | 250 | 265 | 260 | 270 | 350 | 275 |     |     |    |    |    |    |    |    |
| 19          |    |    |    |    |    |     |     | 395              | 330 | 350 | 360 | 350 | 275 | 275 | 265 |     |     |     |    |    |    |    |    |    |
| 20          |    |    |    |    |    |     |     |                  | 295 | 350 | 360 | 310 | 335 | 300 | 305 | 300 |     |     |    |    |    |    |    |    |
| 21          |    |    |    |    |    |     |     |                  | R   | 350 | A   | A   | 330 | A   | 325 | A   |     |     |    |    |    |    |    |    |
| 22          |    |    |    |    |    |     |     |                  | 300 | 260 | 305 | 310 | 265 | 280 | 265 |     |     |     |    |    |    |    |    |    |
| 23          |    |    |    |    |    |     |     |                  |     | 265 | 270 | 270 | 265 | 300 | 260 |     |     |     |    |    |    |    |    |    |
| 24          |    |    |    |    |    |     |     |                  | 260 | 260 | 250 | 250 | 280 |     | 265 |     |     |     |    |    |    |    |    |    |
| 25          |    |    |    |    |    |     |     |                  |     | 265 | 260 | 270 | 270 | 270 | 275 | 250 |     |     |    |    |    |    |    |    |
| 26          |    |    |    |    |    |     |     | 325              |     | 250 | 250 | 260 | 290 | 260 | 270 |     |     |     |    |    |    |    |    |    |
| 27          |    |    |    |    |    |     |     |                  | 250 | 250 | 260 | 260 | 270 | 280 | 250 |     |     |     |    |    |    |    |    |    |
| 28          |    |    |    |    |    |     |     |                  | 255 | 250 | 250 | 245 | 260 | 275 | 255 |     |     |     |    |    |    |    |    |    |
| 29          |    |    |    |    |    |     |     |                  |     | 250 | 245 | 250 |     | 270 | 275 | 270 |     |     |    |    |    |    |    |    |
| 30          |    |    |    |    |    |     |     |                  | 250 | 260 | 250 | 275 | 260 | 260 | 255 | 250 |     |     |    |    |    |    |    |    |
| 31          |    |    |    |    |    |     |     |                  |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05  | 06  | 07               | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |     | 1   | 14               | 22  | 30  | 29  | 28  | 27  | 28  | 29  | 18  | 10  | 2   |    |    |    |    |    |    |
| MED         |    |    |    |    |    | 350 | 300 | 268              | 270 | 280 | 295 | 290 | 292 | 295 | 280 | 290 | 278 |     |    |    |    |    |    |    |
| UQ          |    |    |    |    |    |     | 325 | 285              | 300 | 305 | 322 | 322 | 318 | 305 | 310 | 305 |     |     |    |    |    |    |    |    |
| LQ          |    |    |    |    |    |     | 270 | 255              | 255 | 255 | 270 | 270 | 275 | 265 | 275 | 280 |     |     |    |    |    |    |    |    |

SEP. 1976

H<sup>1</sup>F<sub>2</sub> (KM)

# IONOSPHERIC DATA

SEP. 1976

H'F (KM)

135° E Mean Time (G. M. T. + 9h)

| Station     | WAKKANAI |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Lat. 45° 23.6' N. | Long. 141° 41.1' E | Sweep 1 | MHz to 20 MHz in 20 sec in automatic operation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------------|--------------------|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Hour<br>Day | 00       | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23                |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1           | 270      | 300 | 320 | 285 | 305 | 210 | 240 | 230 | 235 | 240 | 250 | 205 | A   | A   | A   | A   | A   | A   | 250 | 250 | 265 | 285 | 235 | 255               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2           | 325      | 285 | 300 | 250 | 235 | 265 | 250 | 240 | A   | 240 | 240 | 230 | 215 | 250 | 200 | 235 | A   | A   | 300 | 275 | 260 | 235 | 225 | 240               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3           | 275      | 300 | 280 | 295 | 225 | 250 | 250 | 260 | 245 | 225 | 215 | 200 | 205 | 205 | 220 | 220 | A   | A   | 275 | 265 | 250 | 250 | 225 | 250               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4           | 260      | 260 | 270 | 250 | 250 | 250 | 260 | A   | 235 | 200 | 205 | A   | 220 | 200 | 225 | 225 | 230 | 245 | A   | 250 | 250 | A   | A   | 260               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5           | 275      | 300 | 300 | 240 | 270 | 255 | 235 | 250 | 225 | 215 | A   | C   | A   | A   | 220 | 240 | 250 | A   | A   | A   | 290 | 275 | 265 | 265               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6           | A        | 270 | 260 | 250 | 265 | 295 | A   | 230 | 220 | 215 | 200 | 230 | 200 | 205 | 205 | 200 | 200 | 250 | 250 | 250 | 260 | 260 | 225 | 235               | 250                |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7           | 250      | 280 | 280 | 260 | 250 | 255 | 235 | 240 | 210 | 220 | 225 | 210 | A   | A   | 250 | 225 | 250 | 250 | 250 | A   | A   | A   | 250 | 235               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8           | 260      | 280 | 285 | 270 | 250 | 225 | 225 | 230 | 220 | 205 | 200 | A   | 245 | 215 | 235 | 215 | 235 | 260 | 260 | 270 | 250 | 230 | 215 | 270               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9           | 275      | 300 | 280 | 260 | 275 | 265 | 225 | A   | A   | 210 | 200 | 225 | A   | 250 | 250 | 245 | 250 | 250 | 260 | 250 | 250 | 220 | 230 | 300               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10          | 270      | 265 | 250 | 225 | 200 | 265 | 250 | 225 | 235 | 200 | 225 | 205 | 240 | 225 | 225 | 220 | 245 | 250 | 250 | A   | 250 | 250 | 225 | 250               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11          | 275      | A   | 325 | 300 | 290 | 295 | 275 | A   | 250 | 225 | 215 | 200 | 200 | 215 | 205 | 215 | 235 | 250 | A   | 250 | A   | 250 | 235 | 250               | 260                |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12          | A        | 305 | 290 | 290 | 250 | 250 | 225 | 245 | A   | A   | 200 | 210 | 210 | 200 | 200 | 225 | 245 | 255 | A   | 250 | A   | 250 | 225 | 225               | 305                |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13          | 280      | 260 | 270 | 250 | 270 | 235 | 220 | A   | A   | A   | 200 | 200 | 210 | 210 | 220 | 240 | 240 | 230 | 250 | 240 | 250 | 295 | 265 | 250               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14          | 245      | 255 | 260 | 265 | 265 | 250 | 225 | 215 | 205 | A   | 240 | 190 | 215 | 225 | 200 | 245 | 250 | 245 | 240 | 250 | 250 | 250 | 255 | 270               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15          | 270      | 295 | 280 | 250 | 230 | 215 | 225 | 240 | 240 | 220 | 205 | 200 | 195 | 240 | 210 | 210 | 250 | 260 | 250 | 215 | 210 | 250 | 265 | 300               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16          | 275      | 275 | 250 | 225 | 235 | 270 | 245 | 235 | 240 | 250 | A   | 205 | 245 | 205 | 260 | 215 | 245 | 245 | 250 | A   | 245 | 250 | 235 | 260               | 265                |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17          | 275      | 270 | 265 | 250 | 235 | 230 | 225 | 220 | 240 | 210 | 215 | 205 | 205 | 240 | 210 | 210 | 250 | 245 | 230 | 245 | 255 | 250 | 250 | 260               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18          | 245      | 250 | 265 | 260 | 265 | 260 | 230 | 240 | A   | 205 | 210 | 215 | 225 | 200 | 210 | 250 | 235 | 250 | 225 | 245 | 210 | 230 | 300 | 270               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19          | 325      | 350 | A   | A   | A   | A   | A   | A   | 255 | 250 | 225 | 205 | 200 | 225 | 240 | 205 | 235 | 250 | 245 | 225 | 275 | A   | 305 | 325               | 315                | 295     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20          | 250      | 260 | 310 | 275 | 305 | 300 | 250 | 245 | 250 | 225 | A   | 215 | 200 | 240 | 240 | 230 | 245 | 250 | 225 | 240 | A   | 295 | 285 | 320               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21          | 310      | 275 | 290 | 250 | 300 | 305 | A   | A   | 250 | A   | A   | A   | A   | A   | A   | A   | A   | A   | A   | 250 | 250 | 280 | 285 | 320               | 350                |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22          | 305      | 250 | 270 | 270 | 240 | 260 | 245 | 205 | 210 | 240 | 225 | 200 | 210 | 200 | 205 | 230 | 250 | 245 | 225 | 260 | 250 | 250 | 265 | 285               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23          | 290      | 275 | 265 | 270 | 250 | A   | A   | A   | 255 | 230 | 225 | 215 | 230 | 200 | 200 | 200 | 250 | 250 | 260 | A   | 250 | 270 | 225 | 225               | 270                |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24          | 270      | 250 | 260 | 250 | 215 | 265 | 230 | 230 | A   | 215 | 205 | 200 | 200 | 205 | 195 | 240 | 245 | 245 | 235 | 235 | 250 | 255 | 260 | 240               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25          | 260      | 265 | 260 | 255 | 270 | 245 | 220 | 225 | 225 | 205 | 200 | 200 | 205 | 205 | 205 | 200 | 240 | 225 | 225 | 245 | 270 | 250 | 300 | 270               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26          | 260      | 275 | 270 | 250 | 255 | 300 | 225 | 270 | 230 | 210 | 215 | 200 | 195 | 200 | 185 | 240 | 245 | 250 | 235 | 270 | 260 | 250 | 250 | 250               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27          | 260      | 260 | 275 | 250 | 250 | 265 | 230 | 230 | A   | 235 | 205 | 205 | 200 | 205 | 230 | 235 | 240 | 225 | 250 | 260 | 250 | 280 | 250 | 250               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28          | 260      | 265 | 265 | 270 | 285 | 250 | 220 | 225 | 225 | 230 | 205 | 200 | 200 | 190 | 245 | 210 | 250 | 240 | 225 | 240 | 235 | 230 | 280 | 275               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29          | 250      | 265 | 270 | 265 | 260 | 245 | 210 | 220 | 210 | 205 | 210 | 200 | 200 | 190 | 200 | 225 | 235 | 245 | 225 | 260 | 260 | 250 | 245 | 250               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30          | 260      | 250 | 260 | 250 | 250 | 260 | 215 | 215 | 225 | 220 | 215 | 200 | 200 | 225 | 240 | 230 | 240 | 225 | 240 | 250 | 230 | 245 | 250 | 260               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31          |          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                   |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CNT         | 28       | 29  | 29  | 29  | 29  | 28  | 27  | 26  | 23  | 26  | 26  | 26  | 25  | 26  | 28  | 28  | 26  | 25  | 26  | 26  | 28  | 28  | 29  | 30                |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MED         | 270      | 270 | 270 | 255 | 250 | 258 | 230 | 232 | 230 | 218 | 210 | 200 | 205 | 205 | 212 | 230 | 245 | 245 | 250 | 250 | 250 | 250 | 250 | 262               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UQ          | 275      | 285 | 285 | 270 | 270 | 265 | 245 | 245 | 240 | 225 | 225 | 210 | 215 | 225 | 232 | 240 | 250 | 250 | 250 | 260 | 260 | 265 | 265 | 275               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LQ          | 260      | 260 | 265 | 250 | 240 | 248 | 225 | 225 | 222 | 205 | 205 | 200 | 200 | 200 | 200 | 218 | 240 | 245 | 225 | 245 | 250 | 230 | 235 | 250               |                    |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

The Radio Research Laboratories, Japan

SEP. 1976

H'F (KM)

### IONOSPHERIC DATA

SEP. 1976

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

135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00 | 01 | 02 | 03 | 04 | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |
|-------------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|
| 1           |    |    |    |    |    | S   | 115 | 105 | 105 | 105 | 105 | 110 | 105 | 110 | 105 | A   | A   | A   | S  |    |    |    |    |    |
| 2           |    |    |    |    |    | S   | 115 | 115 | 115 | 105 | 110 | 110 | 105 | 105 | 110 | 110 | 110 | 110 | S  |    |    |    |    |    |
| 3           |    |    |    |    |    | E   | 120 | 105 | 105 | A   | 105 | 110 | A   | 105 | 110 | 110 | 110 | 110 | S  |    |    |    |    |    |
| 4           |    |    |    |    |    | E   | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 110 | 110 | E  |    |    |    |    |    |
| 5           |    |    |    |    |    | S   | A   | 110 | 105 | 105 | 105 | C   | 100 | A   | A   | 110 | 110 | 120 | S  |    |    |    |    |    |
| 6           |    |    |    |    |    | E   | 115 | 110 | 105 | 105 | 105 | A   | 100 | 110 | 105 | 105 | 105 | 115 | S  |    |    |    |    |    |
| 7           |    |    |    |    |    | S   | 120 | 110 | 110 | 105 | 105 | 105 | 100 | 105 | 105 | 105 | 105 | 115 | S  |    |    |    |    |    |
| 8           |    |    |    |    |    | S   | 110 | 105 | 105 | A   | A   | A   | A   | 120 | 115 | 110 | A   | A   | A  |    |    |    |    |    |
| 9           |    |    |    |    |    | E   | 115 | 110 | A   | A   | A   | A   | A   | A   | 125 | 110 | 120 | A   | S  |    |    |    |    |    |
| 10          |    |    |    |    |    | S   | 115 | 110 | 105 | 110 | 105 | A   | A   | 105 | 105 | 105 | 110 | 120 | E  |    |    |    |    |    |
| 11          |    |    |    |    |    |     | 120 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 110 | A   | A   | A   |    |    |    |    |    |    |
| 12          |    |    |    |    |    |     | 125 | 110 | 105 | A   | A   | A   | A   | A   | A   | A   | A   | A   |    |    |    |    |    |    |
| 13          |    |    |    |    |    |     | 120 | 110 | 105 | 105 | A   | 120 | A   | A   | 120 | 115 | 120 | 120 |    |    |    |    |    |    |
| 14          |    |    |    |    |    |     | 115 | 110 | A   | A   | A   | A   | A   | 105 | 105 | 105 | 105 | 120 |    |    |    |    |    |    |
| 15          |    |    |    |    |    |     | A   | 125 | 105 | 105 | 100 | 110 | 110 | 105 | A   | A   | A   | A   |    |    |    |    |    |    |
| 16          |    |    |    |    |    |     | A   | A   | A   | A   | A   | A   | A   | A   | A   | A   | 120 | S   |    |    |    |    |    |    |
| 17          |    |    |    |    |    |     | 115 | 110 | A   | 110 | 105 | 105 | 110 | 120 | 110 | 110 | 110 | 115 |    |    |    |    |    |    |
| 18          |    |    |    |    |    |     | 120 | 110 | 105 | 105 | 105 | A   | A   | A   | 100 | 110 | 110 | S   |    |    |    |    |    |    |
| 19          |    |    |    |    |    |     | A   | A   | A   | A   | 105 | 115 | 115 | 110 | 110 | 110 | 115 | S   |    |    |    |    |    |    |
| 20          |    |    |    |    |    |     | A   | 105 | 110 | A   | A   | A   | 110 | A   | 110 | 105 | 105 | S   |    |    |    |    |    |    |
| 21          |    |    |    |    |    |     | 120 | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 115 | 125 |    |    |    |    |    |    |
| 22          |    |    |    |    |    |     | A   | A   | A   | A   | A   | 120 | 115 | A   | 120 | A   | 110 | S   |    |    |    |    |    |    |
| 23          |    |    |    |    |    |     | A   | A   | A   | A   | 110 | A   | A   | 105 | 105 | 110 | 120 | S   |    |    |    |    |    |    |
| 24          |    |    |    |    |    |     | S   | 125 | 115 | 110 | 105 | 105 | A   | 105 | 105 | 105 | 110 | 115 | A  |    |    |    |    |    |
| 25          |    |    |    |    |    |     | 115 | 110 | A   | A   | A   | 110 | 105 | 115 | 120 | 110 | 115 | S   |    |    |    |    |    |    |
| 26          |    |    |    |    |    |     | 120 | 110 | 105 | A   | 105 | 105 | 105 | 110 | 105 | 110 | 130 | S   |    |    |    |    |    |    |
| 27          |    |    |    |    |    |     | 120 | 115 | 105 | A   | A   | A   | 105 | 105 | 115 | A   | A   | A   |    |    |    |    |    |    |
| 28          |    |    |    |    |    |     | A   | 115 | 110 | 105 | 105 | 105 | 105 | A   | A   | A   | A   | S   |    |    |    |    |    |    |
| 29          |    |    |    |    |    |     | 125 | 120 | 105 | 105 | A   | 105 | 105 | 110 | 110 | 125 | A   | A   |    |    |    |    |    |    |
| 30          |    |    |    |    |    |     | 135 | 115 | 105 | 105 | 105 | 105 | 105 | 105 | A   | A   | A   | A   |    |    |    |    |    |    |
| 31          |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |
| 00          | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20 | 21 | 22 | 23 |    |
| CNT         |    |    |    |    |    | 22  | 26  | 22  | 17  | 19  | 17  | 20  | 21  | 24  | 21  | 21  | 11  |     |    |    |    |    |    |    |
| MED         |    |    |    |    |    | 120 | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 110 | 110 | 110 | 115 |     |    |    |    |    |    |    |
| UQ          |    |    |    |    |    | 120 | 115 | 105 | 105 | 105 | 110 | 108 | 110 | 112 | 110 | 115 | 120 |     |    |    |    |    |    |    |
| LQ          |    |    |    |    |    | 115 | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 110 | 112 |     |    |    |    |    |    |    |

The Radio Research Laboratories, Japan

SEP. 1976

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



# IONOSPHERIC DATA

SEP. 1976

H<sup>°</sup>ES (KM)

135° E Mean Time (G. M. T. + 9 h)

Station **WAKKANAI** Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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 | 110 | 105 | 105 | 105 | 105 | 150 | 140 | 125 | 120 | 110 | 115 | 110 | 110 | 105 | 105 | 105 | 105 | 100 | 105 | S   | 110 | 110 | 110 |
| 2           | 105 | 105 | 105 | S   | S   | S   | 145 | 150 | 115 | 120 | 115 | 110 | G   | G   | G   | G   | 145 | 125 | 120 | 115 | 110 | S   | S   | 110 |
| 3           | S   | S   | E   | S   | 120 | 120 | 120 | 115 | 110 | 105 | G   | 105 | 105 | G   | G   | G   | 125 | 120 | 115 | 110 | 110 | 105 | 115 | 105 |
| 4           | 105 | S   | E   | 115 | 125 | 120 | 115 | 110 | 115 | G   | 110 | 105 | 105 | G   | G   | 145 | 125 | 125 | 120 | 110 | 110 | 105 | 105 | 105 |
| 5           | 105 | 100 | 100 | 100 | 115 | 105 | 115 | G   | 120 | 115 | 105 | C   | 105 | 100 | 120 | 100 | 150 | 135 | 125 | 115 | 115 | 110 | 105 | 100 |
| 6           | 100 | 100 | 105 | 105 | 125 | 120 | 115 | 120 | 120 | G   | G   | 100 | G   | 100 | 100 | G   | G   | 120 | S   | 115 | 110 | S   | S   | S   |
| 7           | 100 | S   | S   | S   | S   | 100 | 120 | 115 | 115 | 115 | 115 | 115 | 110 | 115 | 110 | G   | 145 | 130 | 115 | 115 | 115 | 110 | 110 | S   |
| 8           | S   | 100 | 100 | 100 | 100 | S   | 115 | 110 | 110 | 105 | 100 | 100 | 100 | 100 | 100 | 135 | 100 | 100 | 100 | 100 | 100 | 100 | S   | 100 |
| 9           | S   | S   | S   | S   | E   | 120 | 115 | 110 | 105 | 105 | 100 | 105 | 100 | 105 | 105 | 105 | 100 | 120 | 100 | 110 | 110 | 110 | 105 | 105 |
| 10          | S   | S   | S   | S   | E   | 115 | 115 | 110 | 110 | 110 | 110 | 105 | 105 | G   | G   | G   | 105 | 120 | 115 | 110 | 115 | S   | 105 | 105 |
| 11          | 100 | 105 | 100 | 100 | 100 | 120 | 120 | 110 | 110 | 110 | 110 | G   | 110 | G   | G   | 105 | 100 | 100 | 100 | 110 | 105 | 110 | 105 | 100 |
| 12          | 100 | 100 | 100 | 100 | 100 | S   | 140 | 120 | 110 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 115 | 110 | 105 | S   | 105 | 105 |
| 13          | S   | S   | S   | 100 | S   | S   | 120 | 115 | 115 | 110 | 105 | 100 | 105 | 100 | 100 | 100 | 100 | 120 | 110 | S   | 105 | 105 | 100 | S   |
| 14          | S   | S   | S   | S   | S   | S   | G   | 110 | 105 | 105 | 105 | 100 | 100 | 100 | G   | 100 | 110 | 120 | 115 | S   | 110 | S   | S   | S   |
| 15          | 100 | 105 | 105 | 105 | E   | 100 | 100 | 100 | G   | G   | G   | 100 | 100 | 115 | 110 | 110 | 110 | 100 | 105 | 105 | 110 | 110 | S   | 100 |
| 16          | 100 | 100 | 100 | 100 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 100 | 105 | 100 | 100 | 100 | 100 | 125 | 115 | 105 | S   | S   | S   | S   |
| 17          | S   | 100 | S   | S   | E   | S   | 105 | G   | 105 | 100 | G   | 100 | 115 | 100 | 100 | 100 | 150 | 115 | 110 | 105 | S   | S   | S   | S   |
| 18          | S   | S   | S   | S   | 115 | S   | G   | 120 | 110 | 110 | 110 | 105 | 105 | 100 | G   | 100 | G   | 120 | S   | S   | S   | S   | 105 | S   |
| 19          | 140 | 120 | 120 | 115 | 115 | 105 | 105 | 105 | 105 | 100 | 100 | 100 | 100 | 155 | 100 | 100 | 140 | 125 | 115 | 110 | 105 | 105 | 100 | 100 |
| 20          | S   | 100 | 100 | 100 | 110 | S   | 100 | 125 | 125 | 150 | 120 | 120 | 100 | 150 | G   | G   | G   | 120 | 110 | 105 | 100 | 100 | 105 | 105 |
| 21          | S   | S   | S   | 125 | 125 | 125 | 125 | 115 | 115 | 110 | 110 | 110 | 110 | 110 | 150 | 130 | 125 | 120 | 115 | 110 | 110 | 110 | 105 | 105 |
| 22          | 100 | S   | 115 | S   | 110 | 105 | 105 | 105 | 175 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | G   | S   | S   | S   | 110 | 105 | 100 | 100 |
| 23          | 100 | 100 | S   | S   | 110 | 110 | 105 | 105 | 115 | 105 | 105 | 110 | 105 | G   | G   | 150 | 125 | 120 | 110 | 110 | 105 | S   | 100 | S   |
| 24          | 100 | S   | S   | 100 | E   | 135 | 125 | 125 | 120 | 115 | 110 | 105 | 110 | 100 | G   | 150 | G   | 105 | 110 | 105 | 100 | 100 | 100 | S   |
| 25          | S   | S   | S   | S   | S   | S   | 125 | G   | 105 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | G   | S   | E   | S   | S   | S   | 100 | S   |
| 26          | S   | 100 | E   | 105 | S   | 120 | 125 | 115 | 115 | 105 | G   | G   | G   | 100 | G   | G   | G   | S   | 115 | 105 | 105 | S   | S   | S   |
| 27          | 100 | S   | S   | 100 | 100 | S   | G   | 115 | 110 | 105 | 105 | 100 | 100 | G   | 100 | 100 | 100 | 100 | 100 | 100 | 100 | S   | 100 | 105 |
| 28          | S   | 105 | S   | S   | 100 | 105 | 120 | 120 | 115 | 110 | 110 | G   | G   | 105 | 105 | 100 | 100 | 135 | S   | S   | 105 | S   | 105 | 100 |
| 29          | 100 | S   | S   | S   | S   | S   | 125 | G   | 110 | 110 | 105 | 100 | 100 | 100 | 100 | 100 | 150 | 125 | 115 | 115 | 115 | S   | S   | S   |
| 30          | S   | S   | S   | 105 | S   | S   | G   | G   | G   | 120 | 120 | 120 | G   | G   | 105 | 105 | 105 | 105 | S   | S   | 100 | 100 | 100 | S   |
| 31          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| CNT         | 16  | 15  | 12  | 17  | 17  | 18  | 26  | 25  | 28  | 27  | 25  | 26  | 25  | 22  | 19  | 23  | 23  | 27  | 24  | 23  | 25  | 16  | 21  | 17  |
| MED         | 100 | 100 | 102 | 100 | 110 | 112 | 118 | 115 | 112 | 110 | 105 | 102 | 105 | 100 | 100 | 100 | 110 | 120 | 115 | 110 | 110 | 105 | 105 | 105 |
| UQ          | 105 | 105 | 105 | 105 | 115 | 120 | 125 | 120 | 115 | 112 | 110 | 110 | 105 | 110 | 105 | 108 | 132 | 125 | 115 | 110 | 110 | 110 | 105 | 105 |
| LQ          | 100 | 100 | 100 | 100 | 100 | 105 | 105 | 110 | 110 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 105 | 108 | 105 | 105 | 102 | 100 | 100 |

SEP. 1976

H<sup>°</sup>ES (KM)

# IONOSPHERIC DATA

SEP. 1976

TYPES OF ES

135° E Mean Time (G. M. T. + 9 h)

Station **WAKKANAI** Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00             | 01             | 02             | 03             | 04             | 05               | 06               | 07               | 08               | 09               | 10               | 11               | 12               | 13               | 14               | 15               | 16               | 17               | 18               | 19               | 20             | 21             | 22             | 23             |                |  |
|-------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------|----------------|----------------|----------------|----------------|--|
| 1           | F <sub>2</sub> | F <sub>3</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>2</sub> | C <sub>1</sub>   | H <sub>1</sub>   | H <sub>1</sub>   | C <sub>2</sub>   | C <sub>3</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>1</sub>   | C <sub>3</sub>   | L <sub>3</sub>   | L <sub>3</sub>   | L <sub>3</sub>   | L <sub>2</sub>   | F <sub>2</sub>   |                | F <sub>3</sub> | F <sub>2</sub> | F <sub>3</sub> |                |  |
| 2           | F <sub>2</sub> | F <sub>1</sub> | F <sub>1</sub> |                |                |                  | H <sub>1</sub>   | H <sub>1</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>1</sub>   |                  |                  |                  |                  | H <sub>2</sub>   | C <sub>2</sub>   | C <sub>3</sub>   | F <sub>2</sub>   | F <sub>2</sub> |                |                | H <sub>2</sub> |                |  |
| 3           |                |                |                |                | F <sub>1</sub> | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>3</sub>   | C <sub>2</sub>   | L <sub>1</sub>   |                  | L <sub>1</sub>   | L <sub>1</sub>   |                  |                  |                  | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>3</sub>   | F <sub>2</sub>   | F <sub>2</sub> | F <sub>1</sub> | F <sub>1</sub> | F <sub>2</sub> |                |  |
| 4           | F <sub>1</sub> |                |                | F <sub>1</sub> | F <sub>1</sub> | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>1</sub>   |                  | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>1</sub>   |                  |                  | H <sub>1</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>3</sub>   | F <sub>2</sub>   | F <sub>2</sub> | F <sub>3</sub> | F <sub>4</sub> | F <sub>2</sub> |                |  |
| 5           | F <sub>3</sub> | F <sub>3</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>2</sub> | LC <sub>11</sub> | CL <sub>11</sub> |                  | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>2</sub>   |                  | C <sub>2</sub>   | L <sub>2</sub>   | CL <sub>11</sub> | L <sub>1</sub>   | H <sub>1</sub>   | HL <sub>21</sub> | C <sub>2</sub>   | F <sub>4</sub>   | F <sub>3</sub> | F <sub>2</sub> | F <sub>3</sub> | F <sub>2</sub> |                |  |
| 6           | F <sub>3</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>1</sub> | F <sub>2</sub> | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>1</sub>   | C <sub>1</sub>   |                  |                  | L <sub>1</sub>   |                  | L <sub>1</sub>   | L <sub>1</sub>   |                  |                  | C <sub>1</sub>   |                  | F <sub>2</sub>   | F <sub>3</sub> |                |                |                |                |  |
| 7           | F <sub>1</sub> |                |                |                | L <sub>2</sub> | C <sub>2</sub>   | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   |                  |                  | H <sub>1</sub>   | C <sub>1</sub>   | C <sub>3</sub>   | F <sub>4</sub>   | F <sub>4</sub> | F <sub>3</sub> | F <sub>2</sub> |                |                |  |
| 8           |                | F <sub>1</sub> | F <sub>1</sub> | F <sub>1</sub> | F <sub>1</sub> |                  | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | CL <sub>11</sub> | L <sub>2</sub>   | L <sub>3</sub>   | L <sub>3</sub>   | F <sub>3</sub>   | F <sub>2</sub> | F <sub>3</sub> |                | F <sub>1</sub> |                |  |
| 9           |                |                |                |                |                | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | L <sub>2</sub>   | L <sub>3</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>3</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | CL <sub>11</sub> | CL <sub>11</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>3</sub> | F <sub>3</sub> |                |  |
| 10          |                |                |                |                | C <sub>2</sub> | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | L <sub>1</sub>   | L <sub>2</sub>   |                  |                  |                  |                  | L <sub>1</sub>   | CL <sub>11</sub> | C <sub>2</sub>   | F <sub>3</sub>   | F <sub>1</sub> |                | F <sub>2</sub> | F <sub>2</sub> |                |  |
| 11          | F <sub>3</sub> | F <sub>2</sub> | F <sub>3</sub> | F <sub>3</sub> | F <sub>2</sub> | F <sub>2</sub>   | C <sub>3</sub>   | C <sub>2</sub>   | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>1</sub>   |                  | C <sub>1</sub>   |                  |                  | L <sub>2</sub>   | L <sub>3</sub>   | L <sub>2</sub>   | F <sub>2</sub>   | F <sub>4</sub>   | F <sub>2</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>2</sub> |                |  |
| 12          | F <sub>3</sub> | F <sub>3</sub> | F <sub>1</sub> | F <sub>1</sub> | F <sub>1</sub> |                  | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | FF <sub>11</sub> | F <sub>2</sub>   | F <sub>2</sub> |                | F <sub>2</sub> | F <sub>3</sub> |                |  |
| 13          |                |                |                | F <sub>1</sub> |                |                  | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | LC <sub>11</sub> | CL <sub>11</sub> | F <sub>1</sub>   |                  | F <sub>2</sub> | F <sub>2</sub> | F <sub>2</sub> |                |                |  |
| 14          |                |                |                |                |                |                  |                  | C <sub>2</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | F <sub>1</sub>   |                  | F <sub>2</sub> |                |                |                |                |  |
| 15          | F <sub>1</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>2</sub> |                | F <sub>1</sub>   | L <sub>2</sub>   | L <sub>1</sub>   |                  |                  |                  | L <sub>1</sub>   | L <sub>1</sub>   | CL <sub>11</sub> | L <sub>1</sub>   | L <sub>2</sub>   | HL <sub>11</sub> | L <sub>2</sub>   | F <sub>2</sub>   | F <sub>1</sub>   | F <sub>1</sub> | F <sub>1</sub> |                | F <sub>1</sub> |                |  |
| 16          | F <sub>1</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>1</sub> | F <sub>1</sub> | F <sub>2</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>3</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | C <sub>2</sub>   | F <sub>3</sub>   | F <sub>3</sub>   |                |                |                |                |                |  |
| 17          |                | F <sub>1</sub> |                |                |                |                  | L <sub>1</sub>   |                  | L <sub>1</sub>   | L <sub>1</sub>   |                  | L <sub>1</sub>   | CL <sub>11</sub> | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | H <sub>1</sub>   | C <sub>1</sub>   | F <sub>1</sub>   | F <sub>2</sub>   |                |                |                |                |                |  |
| 18          |                |                |                |                | F <sub>1</sub> |                  |                  | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   |                  | L <sub>1</sub>   |                  |                  | C <sub>2</sub>   |                  |                |                |                | F <sub>2</sub> |                |  |
| 19          | F <sub>1</sub> | F <sub>2</sub> | F <sub>3</sub> | F <sub>4</sub> | F <sub>4</sub> | F <sub>3</sub>   | L <sub>3</sub>   | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | HL <sub>11</sub> | L <sub>1</sub>   | L <sub>1</sub>   | H <sub>1</sub>   | C <sub>2</sub>   | F <sub>1</sub>   | F <sub>3</sub>   | F <sub>2</sub> | F <sub>3</sub> | F <sub>3</sub> | F <sub>2</sub> |                |  |
| 20          |                | F <sub>2</sub> | F <sub>1</sub> | F <sub>1</sub> | F <sub>2</sub> |                  | L <sub>1</sub>   | C <sub>1</sub>   | CL <sub>11</sub> | HL <sub>11</sub> | CL <sub>11</sub> | CL <sub>11</sub> | L <sub>1</sub>   | HL <sub>11</sub> |                  |                  |                  | C <sub>2</sub>   | F <sub>3</sub>   | F <sub>2</sub>   | F <sub>2</sub> | F <sub>2</sub> | F <sub>1</sub> | F <sub>1</sub> |                |  |
| 21          |                |                |                | F <sub>1</sub> | F <sub>2</sub> | F <sub>2</sub>   | C <sub>3</sub>   | C <sub>4</sub>   | C <sub>2</sub>   | C <sub>3</sub>   | C <sub>3</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | H <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>3</sub>   | F <sub>2</sub>   | F <sub>2</sub>   | F <sub>2</sub> | F <sub>2</sub> | F <sub>2</sub> | F <sub>3</sub> |                |  |
| 22          | F <sub>1</sub> |                | F <sub>1</sub> |                | F <sub>1</sub> | F <sub>2</sub>   | L <sub>3</sub>   | L <sub>2</sub>   | HL <sub>11</sub> | L <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | LC <sub>11</sub> |                  |                  |                  |                  | F <sub>2</sub> | F <sub>3</sub> | F <sub>2</sub> | F <sub>2</sub> |                |  |
| 23          | F <sub>1</sub> | F <sub>1</sub> |                |                | F <sub>2</sub> | F <sub>3</sub>   | L <sub>3</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | CL <sub>11</sub> | L <sub>1</sub>   |                  |                  | H <sub>1</sub>   | C <sub>1</sub>   | C <sub>2</sub>   | F <sub>2</sub>   | F <sub>1</sub>   | F <sub>1</sub> |                | F <sub>1</sub> |                |                |  |
| 24          | F <sub>1</sub> |                |                | F <sub>1</sub> |                | F <sub>1</sub>   | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>1</sub>   | CL <sub>11</sub> | L <sub>1</sub>   | CL <sub>11</sub> | L <sub>1</sub>   |                  | H <sub>1</sub>   |                  | L <sub>1</sub>   | F <sub>1</sub>   | F <sub>2</sub>   | F <sub>1</sub> | F <sub>1</sub> | F <sub>1</sub> |                |                |  |
| 25          |                |                |                |                |                | C <sub>1</sub>   |                  |                  | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   |                  |                  |                  |                  |                |                |                | F <sub>1</sub> |                |  |
| 26          |                | F <sub>1</sub> |                | F <sub>1</sub> |                | F <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | C <sub>2</sub>   | L <sub>1</sub>   |                  |                  |                  | L <sub>1</sub>   |                  |                  |                  |                  |                  | F <sub>1</sub>   | F <sub>3</sub> | F <sub>2</sub> |                |                |                |  |
| 27          | F <sub>1</sub> |                |                | F <sub>1</sub> | F <sub>1</sub> |                  |                  | C <sub>1</sub>   | C <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | L <sub>1</sub>   |                  | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | F <sub>1</sub>   | F <sub>2</sub> | F <sub>1</sub> |                | F <sub>1</sub> | F <sub>2</sub> |  |
| 28          |                | F <sub>1</sub> |                |                | F <sub>3</sub> | F <sub>1</sub>   | L <sub>1</sub>   | CL <sub>11</sub> | C <sub>1</sub>   | C <sub>2</sub>   | C <sub>1</sub>   |                  |                  |                  | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>2</sub>   | L <sub>3</sub>   | C <sub>1</sub>   |                  |                | F <sub>1</sub> |                | F <sub>2</sub> | F <sub>1</sub> |  |
| 29          | F <sub>1</sub> |                |                |                |                | C <sub>1</sub>   |                  |                  | C <sub>2</sub>   | C <sub>2</sub>   | L <sub>2</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | HL <sub>11</sub> | CL <sub>11</sub> | F <sub>1</sub>   | F <sub>2</sub>   | F <sub>2</sub> |                |                |                |                |  |
| 30          |                |                |                | F <sub>1</sub> |                |                  |                  |                  | C <sub>1</sub>   | C <sub>1</sub>   | C <sub>1</sub>   |                  |                  |                  | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>1</sub>   | L <sub>3</sub>   |                  |                  | F <sub>1</sub> | F <sub>1</sub> | F <sub>1</sub> |                |                |  |
| 31          |                |                |                |                |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                |                |                |                |                |  |
|             | 00             | 01             | 02             | 03             | 04             | 05               | 06               | 07               | 08               | 09               | 10               | 11               | 12               | 13               | 14               | 15               | 16               | 17               | 18               | 19               | 20             | 21             | 22             | 23             |                |  |
| CNT         |                |                |                |                |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                |                |                |                |                |  |
| MED         |                |                |                |                |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                |                |                |                |                |  |
| UQ          |                |                |                |                |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                |                |                |                |                |  |
| LQ          |                |                |                |                |                |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                |                |                |                |                |  |

SEP. 1976

TYPES OF ES

# IONOSPHERIC DATA

SEP. 1976

FXI (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. **39° 43.5' N**, Long. **140° 08.2' E** Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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<br>48 | X<br>43 | X<br>42 | X<br>43 | X<br>42 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>63 | X<br>58 | X<br>60 | X<br>56 | X<br>52 |  |
| 2           | X<br>47 | X<br>44 | X<br>42 | X<br>44 | X<br>38 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>76 | X<br>83 | X<br>62 | X<br>51 | X<br>44 |  |
| 3           | X<br>38 | X<br>40 | X<br>39 | X<br>39 | X<br>40 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>76 | X<br>72 | X<br>60 | X<br>46 | X<br>44 |  |
| 4           | X<br>43 | X<br>43 | X<br>43 | X<br>43 | X<br>41 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>78 | X<br>70 | X<br>61 | X<br>49 | X<br>45 |  |
| 5           | X<br>45 | X<br>42 | X<br>41 | X<br>40 | X<br>39 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>67 | X<br>62 | X<br>57 | X<br>60 | X<br>53 |  |
| 6           | X<br>46 | X<br>47 | X<br>50 | X<br>45 | X<br>44 | X<br>45 |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>74 | X<br>61 | X<br>58 | X<br>52 | X<br>46 |  |
| 7           | X<br>43 | X<br>42 | X<br>41 | X<br>46 | X<br>42 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>66 | X<br>58 | A       | R       | X<br>43 |  |
| 8           | X<br>41 | X<br>40 | X<br>41 | X<br>41 | X<br>43 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>72 | X<br>68 | X<br>70 | X<br>54 | X<br>38 |  |
| 9           | X<br>40 | X<br>38 | X<br>40 | X<br>41 | X<br>40 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>79 | X<br>71 | X<br>55 | X<br>46 | X<br>44 |  |
| 10          | X<br>44 | X<br>43 | X<br>47 | X<br>48 | X<br>40 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>64 | X<br>57 | X<br>56 | X<br>51 | X<br>50 |  |
| 11          | X<br>39 | R       | X<br>37 | X<br>38 | X<br>38 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>54 | X<br>53 | X<br>50 | X<br>42 | X<br>42 |  |
| 12          | X<br>38 | X<br>40 | X<br>41 | X<br>40 | X<br>40 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>66 | X<br>51 | X<br>44 | X<br>39 | X<br>40 |  |
| 13          | X<br>42 | X<br>41 | X<br>39 | X<br>39 | X<br>39 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>70 | X<br>62 | X<br>52 | X<br>50 | X<br>42 |  |
| 14          | X<br>41 | X<br>38 | X<br>40 | X<br>45 | X<br>44 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>65 | X<br>61 | X<br>52 | X<br>45 | X<br>43 |  |
| 15          | X<br>44 | X<br>43 | X<br>43 | X<br>39 | X<br>37 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>91 | X<br>52 | X<br>38 | X<br>40 | X<br>39 |  |
| 16          | X<br>42 | X<br>41 | X<br>43 | X<br>41 | X<br>33 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>72 | X<br>56 | X<br>48 | X<br>45 | X<br>44 |  |
| 17          | X<br>45 | X<br>42 | X<br>42 | X<br>44 | X<br>39 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>68 | X<br>57 | X<br>51 | X<br>50 | X<br>49 |  |
| 18          | X<br>48 | X<br>46 | X<br>44 | X<br>42 | X<br>42 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>93 | X<br>63 | X<br>38 | X<br>37 | X<br>39 |  |
| 19          | X<br>38 | X<br>39 | X<br>39 | X<br>39 | A       |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>58 | X<br>51 | X<br>46 | X<br>47 | X<br>46 |  |
| 20          | X<br>43 | X<br>42 | X<br>33 | X<br>36 | X<br>34 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>70 | X<br>47 | X<br>41 | X<br>42 | X<br>39 |  |
| 21          | X<br>39 | X<br>40 | X<br>39 | X<br>38 | X<br>32 | X<br>38 |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>56 | X<br>42 | X<br>42 | X<br>40 | X<br>42 |  |
| 22          | X<br>41 | X<br>41 | X<br>33 | X<br>33 | X<br>35 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>58 | X<br>58 | X<br>52 | X<br>42 | X<br>42 |  |
| 23          | X<br>42 | X<br>42 | X<br>43 | X<br>39 | X<br>40 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>72 | X<br>65 | X<br>58 | X<br>48 | X<br>43 |  |
| 24          | X<br>42 | X<br>43 | X<br>41 | X<br>42 | X<br>35 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>65 | X<br>53 | X<br>43 | X<br>41 | X<br>39 |  |
| 25          | X<br>38 | X<br>37 | X<br>39 | X<br>40 | X<br>40 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>58 | X<br>46 | X<br>47 | X<br>46 | X<br>48 |  |
| 26          | X<br>46 | X<br>46 | X<br>44 | X<br>43 | X<br>38 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>75 | X<br>60 | X<br>55 | R       | X<br>48 |  |
| 27          | X<br>48 | X<br>47 | X<br>45 | X<br>43 | X<br>41 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>61 | X<br>55 | X<br>53 | X<br>54 | X<br>45 |  |
| 28          | X<br>43 | X<br>42 | X<br>41 | X<br>40 | X<br>40 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>64 | X<br>52 | X<br>48 | X<br>47 | X<br>47 |  |
| 29          | X<br>43 | X<br>44 | X<br>41 | X<br>42 | X<br>43 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>58 | X<br>51 | X<br>48 | X<br>47 | X<br>46 |  |
| 30          | X<br>44 | X<br>45 | X<br>41 | X<br>40 | X<br>42 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>59 | X<br>55 | X<br>49 | X<br>46 | X<br>45 |  |
| 31          |         |         |         |         |         |         |    |    |    |    |    |    |    |    |    |    |    |    |    |         |         |         |         |         |  |
|             | 00      | 01      | 02      | 03      | 04      | 05      | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19      | 20      | 21      | 22      | 23      |  |
| CNT         | 30      | 29      | 30      | 30      | 29      | 2       |    |    |    |    |    |    |    |    |    |    |    |    |    | 30      | 30      | 29      | 28      | 30      |  |
| MED         | X<br>43 | X<br>42 | X<br>41 | X<br>41 | X<br>40 | X<br>42 |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>66 | X<br>58 | X<br>52 | X<br>46 | X<br>44 |  |
| UQ          | X<br>45 | X<br>43 | X<br>43 | X<br>43 | X<br>42 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>74 | X<br>62 | X<br>57 | X<br>50 | X<br>46 |  |
| LQ          | X<br>41 | X<br>40 | X<br>39 | X<br>39 | X<br>38 |         |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>61 | X<br>52 | X<br>47 | X<br>42 | X<br>42 |  |

SEP. 1976

FXI (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOF2 (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

| Station                              |    | AKITA  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|--------------------------------------|----|--|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Lat. 39° 43.5' N, Long. 140° 08.2' E |    | Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Hour<br>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                                    | 42 | 37   | 36 | 37 | 36 | 33 | 38 | 48 | 53 | 53 | 52 | 59 | 54 | 59 | A  | 58 | 55 | 54 | 56 | 57 | 52 | 54 | F  | F  |    |
| 2                                    | F  | F  | F  | F  | F  | 34 | 48 | 54 | 49 | 60 | A  | 57 | 58 | 60 | 63 | 61 | 56 | 51 | 57 | 70 | 77 | 56 | 45 | 38 |    |
| 3                                    | 32 | 34   | 33 | 33 | 34 | 38 | 48 | 59 | 59 | 64 | 59 | 58 | 55 | 57 | 56 | 52 | 48 | 51 | 58 | 70 | 66 | 54 | 40 | 38 |    |
| 4                                    | 37 | 37   | 37 | 37 | 35 | 36 | 47 | 63 | 66 | 56 | 58 | 57 | 55 | 57 | 56 | 57 | 49 | 52 | 58 | 71 | 64 | 55 | 41 | 39 |    |
| 5                                    | 39 | 36   | 35 | 34 | 32 | 32 | 46 | 59 | 64 | 64 | 60 | 62 | 52 | 57 | 56 | 54 | 55 | 54 | A  | 61 | F  | 51 | F  | 46 |    |
| 6                                    | 40 | 41   | F  | 38 | F  | F  | 50 | 57 | 63 | 53 | 55 | 53 | 56 | 53 | R  | 54 | 50 | 51 | 58 | 64 | 67 | 55 | 52 | 46 | 39 |
| 7                                    | 37 | 36   | 35 | F  | 35 | 40 | 55 | 55 | 50 | 57 | 56 | 50 | 56 | 58 | 51 | 54 | 53 | 52 | 59 | 59 | 52 | A  | R  | 40 | 37 |
| 8                                    | 35 | 33   | 35 | 35 | F  | 33 | 49 | 50 | 56 | 54 | 54 | 53 | 55 | 54 | 53 | 53 | 52 | 56 | 66 | 66 | 62 | F  | F  | 32 |    |
| 9                                    | 34 | 32   | 34 | 35 | 34 | 33 | 51 | 51 | 57 | 59 | 52 | 47 | 52 | 55 | 51 | 52 | 54 | 56 | 64 | 73 | 65 | 49 | 40 | 38 |    |
| 10                                   | 38 | 37   | 41 | 42 | 34 | 31 | 41 | 55 | 60 | 59 | 54 | 55 | 55 | 52 | 51 | 48 | 50 | 50 | 52 | 58 | 51 | F  | F  | F  | 41 |
| 11                                   | 33 | 31   | 31 | 32 | 32 | 32 | 45 | 54 | 65 | A  | 56 | 59 | 55 | 56 | 59 | 57 | 52 | 52 | 56 | 48 | 47 | F  | 36 | 36 |    |
| 12                                   | 32 | 34   | 35 | 34 | 34 | 31 | 45 | 51 | 65 | 71 | 68 | 58 | 56 | 51 | A  | 51 | 52 | 51 | 61 | 60 | 45 | 38 | 33 | 34 |    |
| 13                                   | 36 | 35   | 33 | 33 | 33 | 34 | 50 | 52 | 53 | 58 | 57 | 64 | 59 | 53 | 56 | 54 | 49 | 53 | 60 | 64 | 56 | 46 | F  | F  |    |
| 14                                   | F  | F  | F  | F  | F  | 40 | 56 | 54 | 63 | 59 | 56 | 67 | 70 | 61 | 53 | 54 | 51 | 51 | 52 | 59 | 55 | 46 | 39 | 37 |    |
| 15                                   | 38 | 37   | 37 | 33 | 31 | 27 | 48 | 54 | 63 | 61 | 59 | 60 | 61 | 57 | 55 | 53 | 56 | 65 | 76 | 85 | 46 | 32 | 34 | 33 |    |
| 16                                   | 36 | 35   | 37 | 35 | 27 | 29 | 47 | 60 | 93 | 83 | 60 | 57 | 59 | 56 | 53 | 54 | 66 | 59 | 58 | 66 | 49 | 42 | 39 | 38 |    |
| 17                                   | 39 | 36   | 36 | 38 | 33 | 33 | 49 | 55 | 60 | 71 | 61 | 64 | 59 | 61 | 61 | 57 | 55 | 62 | 68 | 62 | 51 | 45 | 44 | 43 |    |
| 18                                   | 42 | 40   | 38 | 36 | 36 | 35 | 51 | 58 | 90 | 69 | 62 | 61 | 59 | 59 | 62 | 66 | 76 | 80 | 87 | 87 | 57 | 32 | 31 | 33 |    |
| 19                                   | 32 | 33   | 33 | 33 | A  | A  | A  | 49 | 65 | 65 | 59 | 63 | 72 | 67 | 58 | 55 | 57 | 62 | 59 | 52 | 45 | 40 | 41 | 40 |    |
| 20                                   | 37 | 36   | 27 | 30 | 28 | 27 | 49 | 45 | 50 | 61 | 52 | 57 | 54 | 63 | 54 | 51 | 58 | 61 | 74 | 64 | 41 | 35 | 36 | 33 |    |
| 21                                   | 33 | 34   | 33 | 32 | 26 | F  | 46 | 50 | 51 | 48 | 57 | 48 | 49 | 48 | 49 | 47 | 49 | 58 | 56 | 50 | 36 | 36 | 34 | 36 |    |
| 22                                   | F  | F  | 27 | 27 | F  | 25 | 45 | 47 | 51 | 59 | 57 | 60 | 62 | 62 | 54 | 52 | 50 | 57 | 58 | 52 | 52 | 46 | 36 | 36 |    |
| 23                                   | 36 | 36   | 37 | 33 | 34 | 31 | 47 | 55 | 58 | 69 | 71 | 69 | 61 | 57 | 54 | 55 | 52 | 58 | 73 | 66 | 59 | 52 | 42 | 37 |    |
| 24                                   | 36 | 37   | 35 | 36 | 29 | 29 | 45 | 59 | 71 | 80 | 66 | 60 | 62 | 60 | 59 | 59 | 65 | 64 | 68 | 59 | 47 | 37 | 35 | 33 |    |
| 25                                   | 32 | 31   | 33 | 34 | 34 | 35 | 47 | 56 | 58 | 66 | 68 | 60 | 66 | 69 | 71 | 65 | 57 | 66 | 62 | 52 | 40 | 41 | 40 | 42 |    |
| 26                                   | 40 | 40   | 38 | 37 | 32 | 30 | 51 | 59 | 96 | 88 | 60 | 62 | 59 | 66 | 59 | 59 | 59 | 68 | 69 | 69 | 54 | 49 | R  | 46 | 42 |
| 27                                   | 42 | 41   | 39 | 37 | 35 | 34 | 48 | 68 | 66 | 75 | 71 | 69 | 72 | 68 | 64 | 57 | 59 | 54 | 52 | 55 | 49 | 47 | 48 | 39 |    |
| 28                                   | 37 | 36   | 35 | 34 | 34 | 35 | 53 | 59 | 65 | 70 | 84 | 70 | 59 | 64 | 63 | 59 | 54 | 66 | 66 | 58 | 46 | 42 | 41 | 41 |    |
| 29                                   | 37 | 38   | 35 | 36 | 37 | 36 | 54 | 59 | 60 | 68 | 70 | 65 | 66 | 68 | 56 | 58 | 61 | 60 | 65 | 52 | 45 | 42 | 41 | 40 |    |
| 30                                   | 38 | 39   | 35 | 34 | 36 | 32 | 49 | 55 | 58 | 66 | 66 | 69 | 66 | 66 | 61 | 54 | 55 | 63 | 59 | 53 | 49 | 42 | 40 | 39 |    |
| 31                                   |    |  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|                                      | 00 | 01   | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |    |
| CNT                                  | 28 | 28   | 28 | 27 | 25 | 28 | 29 | 30 | 30 | 29 | 29 | 30 | 30 | 30 | 28 | 30 | 30 | 30 | 29 | 30 | 29 | 26 | 26 | 28 |    |
| MED                                  | 37 | 36   | 35 | 34 | 34 | 33 | 48 | 55 | 60 | 64 | 59 | 60 | 59 | 58 | 56 | 54 | 54 | 58 | 60 | 60 | 51 | 46 | 40 | 38 |    |
| UQ                                   | 38 | 37   | 37 | 36 | 35 | 35 | 50 | 59 | 65 | 69 | 66 | 64 | 62 | 63 | 60 | 58 | 57 | 62 | 66 | 67 | 56 | 51 | 42 | 40 |    |
| LQ                                   | 34 | 34   | 33 | 33 | 32 | 31 | 46 | 51 | 56 | 59 | 56 | 57 | 55 | 56 | 54 | 52 | 51 | 52 | 58 | 55 | 46 | 40 | 36 | 36 |    |

SEP. 1976

FOF2 (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOF1 (0.01 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. **39° 43.5' N**, Long. **140° 08.2' E** Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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 | 410 | A   | 440 | 430 | 430 | A   | 420 | 370 | A   |    |    |    |    |    |    |
| 2           |    |    |    |    |    |    | L   | L   | 420 | A   | A   | 440 | 430 | 430 | 420 | 410 | L   | 370 | L  |    |    |    |    |    |
| 3           |    |    |    |    |    |    | L   | L   | A   | A   | 430 | 430 | 430 | 430 | 420 | 390 | A   | A   |    |    |    |    |    |    |
| 4           |    |    |    |    |    |    | 350 | 370 | 410 | 420 | 440 | 450 | H   | H   | H   | 430 | 420 | L   | L  | L  |    |    |    |    |
| 5           |    |    |    |    |    |    | 370 | 400 | 420 | 430 | 430 | 430 | 430 | A   | A   | L   | L   | A   |    |    |    |    |    |    |
| 6           |    |    |    |    |    |    | A   | A   | 400 | 420 | 430 | 440 | 430 | H   | 430 | A   | H   | A   | A  |    |    |    |    |    |
| 7           |    |    |    |    |    |    | A   | L   | 400 | 420 | 430 | 430 | 430 | 420 | 430 | 410 | 360 | L   | A  |    |    |    |    |    |
| 8           |    |    |    |    |    |    | L   | L   | 400 | 420 | A   | H   | 430 | 430 | 410 | 410 | 410 | A   | A  |    |    |    |    |    |
| 9           |    |    |    |    |    |    | L   | L   | 400 | 410 | 420 | 430 | 430 | H   | 430 | 420 | 410 | 390 | L  |    |    |    |    |    |
| 10          |    |    |    |    |    |    | 370 | A   | 420 | 430 | 430 | 430 | H   | 420 | 400 | L   | 360 | L   |    |    |    |    |    |    |
| 11          |    |    |    |    |    |    | L   | 370 | 390 | A   | A   | 430 | 430 | 430 | 420 | 400 | L   | L   |    |    |    |    |    |    |
| 12          |    |    |    |    |    |    | L   | 400 | H   | 420 | 420 | 430 | A   | A   | A   | 400 | 370 | L   | L  |    |    |    |    |    |
| 13          |    |    |    |    |    |    | L   | 420 | A   | A   | A   | A   | A   | 430 | 420 | 400 | L   | L   |    |    |    |    |    |    |
| 14          |    |    |    |    |    |    | L   | 370 | L   | 400 | 420 | 430 | 440 | H   | 430 | 420 | H   | 390 | L  | L  |    |    |    |    |
| 15          |    |    |    |    |    |    | L   | 400 | L   | 420 | 430 | 440 | 430 | 430 | H   | 410 | 410 | 370 | L  |    |    |    |    |    |
| 16          |    |    |    |    |    |    | L   | 400 | H   | 420 | 430 | 430 | 440 | 430 | 420 | L   | L   | L   | L  |    |    |    |    |    |
| 17          |    |    |    |    |    |    | L   | L   | 410 | 450 | 430 | 440 | 440 | 440 | 430 | H   | 410 | 360 | A  |    |    |    |    |    |
| 18          |    |    |    |    |    |    | L   | 400 | 430 | 430 | 450 | H   | 460 | 430 | 420 | 420 | L   | L   |    |    |    |    |    |    |
| 19          |    |    |    |    |    |    | 370 | 390 | 420 | 450 | 430 | H   | H   | 420 | 430 | 410 | 420 | L   | A  |    |    |    |    |    |
| 20          |    |    |    |    |    |    | L   | A   | 410 | 430 | 420 | 440 | 430 | 430 | 400 | H   | 400 | L   | L  |    |    |    |    |    |
| 21          |    |    |    |    |    |    | A   | 380 | H   | 410 | 400 | A   | 430 | 410 | 400 | 400 | 350 | L   |    |    |    |    |    |    |
| 22          |    |    |    |    |    |    | L   | L   | 420 | 430 | 430 | 430 | 430 | 430 | 460 | 370 | L   | A   |    |    |    |    |    |    |
| 23          |    |    |    |    |    |    | L   | H   | 400 | 410 | H   | 430 | H   | 430 | 420 | 410 | 430 | H   | L  | A  |    |    |    |    |
| 24          |    |    |    |    |    |    | L   | 400 | 420 | 430 | H   | 450 | 430 | 420 | 420 | H   | 380 | L   |    |    |    |    |    |    |
| 25          |    |    |    |    |    |    | L   | 370 | L   | 410 | 430 | 450 | H   | 460 | 430 | H   | 440 | L   | L  |    |    |    |    |    |
| 26          |    |    |    |    |    |    | 370 | L   | 410 | 420 | 440 | 430 | 420 | L   | L   | L   | L   | L   |    |    |    |    |    |    |
| 27          |    |    |    |    |    |    | L   | L   | H   | 410 | 430 | 430 | 430 | H   | 400 | H   | L   | L   |    |    |    |    |    |    |
| 28          |    |    |    |    |    |    | L   | 390 | 420 | 430 | 430 | 440 | 430 | L   | L   | L   | L   | L   |    |    |    |    |    |    |
| 29          |    |    |    |    |    |    | L   | L   | 420 | H   | 420 | L   | H   | 440 | 440 | L   | H   | L   |    |    |    |    |    |    |
| 30          |    |    |    |    |    |    | L   | L   | 420 | 420 | 440 | 440 | L   | L   | L   | L   | L   | L   |    |    |    |    |    |    |
| 31          |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |    | 2   | 9   | 21  | 26  | 25  | 27  | 28  | 28  | 22  | 21  | 9   | 1   |    |    |    |    |    |    |
| MED         |    |    |    |    |    |    | 280 | 370 | 400 | 420 | 430 | 430 | 430 | 430 | 420 | 400 | 370 | 370 |    |    |    |    |    |    |
| UQ          |    |    |    |    |    |    | 370 | 400 | 420 | 430 | 440 | 430 | 430 | 430 | 410 | 370 |     |     |    |    |    |    |    |    |
| LQ          |    |    |    |    |    |    | 370 | 400 | 410 | 430 | 430 | 430 | 420 | 410 | 400 | 360 |     |     |    |    |    |    |    |    |

SEP. 1976

FOF1 (0.01 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOE (0.01 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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  | 200 | 245 | 270 | 300 | 310 | 320 | 325 | A   | A   | A   | A   | A   | A   |     |    |    |    |    |
| 2           |    |    |    |    |    | S  | 200 | 250 | 280 | 300 | 310 |     | A   | A   | A   | A   | A   |     | 215 | A   |    |    |    |    |
| 3           |    |    |    |    |    | S  | A   | 245 | 275 | 295 | 300 | 310 |     | A   | A   | A   | 300 | 270 | 215 | S   |    |    |    |    |
| 4           |    |    |    |    |    | S  | A   | A   | A   | A   | 315 | 325 | 330 | 320 | 310 | 290 | 255 | 220 |     | A   |    |    |    |    |
| 5           |    |    |    |    |    | S  | 185 | 235 | 270 | 295 | 310 | 315 | 330 |     | A   | A   | 280 | 245 | 205 |     | B  |    |    |    |
| 6           |    |    |    |    |    | S  | A   | 230 | 265 |     | A   | A   | 320 | 320 | 320 | A   | 285 | A   | A   | S   |    |    |    |    |
| 7           |    |    |    |    |    | S  | A   | 225 | 265 | 285 | 300 | 315 | 320 |     | A   | 310 | 275 | 240 | 190 |     | S  |    |    |    |
| 8           |    |    |    |    |    | S  | 180 | A   | A   | A   | A   | A   | 320 |     | A   | A   | A   | 290 | 250 | 195 |    | S  |    |    |
| 9           |    |    |    |    |    | S  | A   | A   | A   | A   | A   | A   | 320 | 320 | 310 | 300 |     | A   | 240 | 195 |    | S  |    |    |
| 10          |    |    |    |    |    | S  | A   | 230 | 255 |     | A   | A   | A   | 320 | 315 | 300 |     | A   | 240 | A   | S  |    |    |    |
| 11          |    |    |    |    |    | S  | A   | 235 | 260 | 285 | 295 | 310 |     | A   | 320 | A   | 280 | A   | A   | S   |    |    |    |    |
| 12          |    |    |    |    |    | S  | A   | 235 |     | A   | A   | A   | A   | A   | A   | A   |     | 255 | 190 |     | S  |    |    |    |
| 13          |    |    |    |    |    | S  | A   | A   | 260 |     | A   | A   | A   | A   | A   | A   | 290 | 260 |     | A   | S  |    |    |    |
| 14          |    |    |    |    |    | S  | A   | A   | A   | A   | 315 | 320 | 325 | 315 | 310 | 280 | 240 |     | A   | S   |    |    |    |    |
| 15          |    |    |    |    |    | S  | A   | 245 | 275 |     | A   | 310 | 315 | 320 |     | A   | A   | A   | A   | S   |    |    |    |    |
| 16          |    |    |    |    |    | S  | A   | 225 | A   | 285 | 310 | 320 | I R | 320 | 315 | A   | 275 | A   | A   | S   |    |    |    |    |
| 17          |    |    |    |    |    | S  | 180 | A   | A   | A   | 310 | 320 | 325 | 325 | 310 | 300 | 265 |     | A   | S   |    |    |    |    |
| 18          |    |    |    |    |    | S  | A   | A   | 280 | 295 | 310 | 315 | 325 | 320 | 305 | 285 | 250 | 180 |     | S   |    |    |    |    |
| 19          |    |    |    |    |    | S  | A   | A   | A   | 300 | 305 | 310 | 320 | 315 |     | A   | 275 | 230 | 180 |     | S  |    |    |    |
| 20          |    |    |    |    |    | S  | 185 | 225 | 260 | 290 | 300 | 310 | 320 | 305 | 290 | 270 | 240 |     | A   | S   |    |    |    |    |
| 21          |    |    |    |    |    | S  | A   | 215 | 250 | 285 | 295 | 305 | 315 | 310 | 295 | 260 | 230 | 165 |     | S   |    |    |    |    |
| 22          |    |    |    |    |    | S  | A   | A   | A   | A   | A   | 285 |     | A   | A   | A   | 275 | 230 |     | A   | S  |    |    |    |
| 23          |    |    |    |    |    | S  | A   | A   | A   | A   | A   | A   | A   | A   | A   | 290 | 270 | 235 |     | A   | S  |    |    |    |
| 24          |    |    |    |    |    | S  | A   | A   | 260 |     | A   | A   | 310 | 315 | 310 | 295 | 265 | 230 | 175 |     | S  |    |    |    |
| 25          |    |    |    |    |    | S  | A   | 215 | 265 |     | A   | 305 | 315 | 320 | 315 | 300 | 275 | 240 |     | A   | S  |    |    |    |
| 26          |    |    |    |    |    | S  | A   | 225 | 255 |     | A   | A   | A   | A   | A   | A   | 260 | 220 |     | A   | S  |    |    |    |
| 27          |    |    |    |    |    | S  | A   | A   | A   | A   | 305 | 310 | 320 | 310 | 290 | 270 | 220 |     | A   | S   |    |    |    |    |
| 28          |    |    |    |    |    | S  | A   | A   | 265 | 285 | 300 |     | A   | 315 | 310 | 295 | 265 | 230 |     | A   | S  |    |    |    |
| 29          |    |    |    |    |    | S  | A   | A   | A   | 285 | 295 | 310 | 315 | 305 | 285 | 260 | 215 |     | B   | S   |    |    |    |    |
| 30          |    |    |    |    |    | S  | A   | 230 | 260 | 295 | 305 | 310 |     | A   | A   | 280 |     | A   | A   | B   | S  |    |    |    |
| 31          |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |    | 6   | 16  | 18  | 14  | 21  | 22  | 20  | 17  | 16  | 23  | 23  | 12  |     |     |    |    |    |    |
| MED         |    |    |    |    |    |    | 185 | 230 | 265 | 292 | 305 | 315 | 320 | 315 | 298 | 275 | 240 | 192 |     |     |    |    |    |    |
| UQ          |    |    |    |    |    |    | 200 | 240 | 270 | 295 | 310 | 320 | 325 | 320 | 308 | 285 | 250 | 210 |     |     |    |    |    |    |
| LQ          |    |    |    |    |    |    | 180 | 225 | 260 | 285 | 300 | 310 | 320 | 310 | 290 | 270 | 230 | 180 |     |     |    |    |    |    |

The Radio Research Laboratories, Japan

SEP. 1976

FOE (0.01 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOES (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

| Station     |        | AKITA   |        |        |        |        |        |        |        |        |        |        |        |        |         |        |        |        |        |         |        |        |        |        |        |
|-------------|--------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--------|---------|--------|--------|--------|--------|--------|
|             |        | Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |        |        |        |        |        |        |        |        |        |        |        |        |         |        |        |        |        |         |        |        |        |        |        |
| Hour<br>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 18 | M 20  | E S 13 | J A 28 | J A 30 | J A 20 | 28     | 36     | 38     | 39     | J A 47 | 39     | 38     | J A 42 | J A 74  | J A 55 | J A 47 | J A 54 | J A 54 | J A 54  | J A 27 | J A 24 | J A 56 | J A 24 |        |
| 2           | J A 18 | E S 13  | J A 20 | J A 19 | J A 24 | J A 31 | G      | 33     | J A 42 | J A 46 | J A 62 | J A 53 | 36     | J A 83 | 32      | J A 51 | 34     | 30     | J A 22 | J A 30  | J A 39 | J A 59 | J A 51 | J A 25 |        |
| 3           | E S 15 | J A 21  | E S 13 | M 21   | J A 30 | J A 18 | 25     | 32     | J A 43 | J A 50 | J A 44 | J A 46 | J A 38 | J A 43 | 38      | 38     | 40     | J A 40 | J A 36 | J A 33  | J A 48 | J A 28 | J A 19 | E S 14 |        |
| 4           | J A 18 | E S 14  | E S 14 | E S 14 | J A 26 | J A 25 | 28     | 30     | 32     | 32     | G      | G      | G      | G      | G       | 33     | J A 36 | J A 26 | J A 27 | J A 33  | J A 20 | J A 32 | J A 24 | J A 17 |        |
| 5           | J A 24 | J A 26  | J A 20 | J A 17 | J A 17 | J A 20 | 24     | G      | 32     | J A 44 | J A 46 | 42     | J A 50 | J A 52 | J A 134 | J A 84 | 28     | 31     | J A 64 | J A 122 | J A 64 | J A 79 | J A 51 | J A 26 |        |
| 6           | J A 41 | J A 31  | J A 26 | J A 22 | J A 24 | J A 24 | J A 39 | J A 52 | 37     | 35     | 34     | 37     | 35     | G      | J A 84  | 44     | 31     | J A 45 | J A 39 | J A 59  | J A 52 | J A 34 | J A 54 | J A 20 |        |
| 7           | J A 51 | J A 64  | J A 46 | J A 59 | J A 33 | J A 26 | 32     | 31     | 32     | 39     | 39     | 35     | 34     | 37     | J A 84  | G      | 27     | 31     | J A 37 | J A 29  | J A 36 | J A 52 | J A 24 | J A 29 |        |
| 8           | J A 27 | J A 32  | J A 21 | J A 23 | J A 20 | J A 29 | G      | 30     | 36     | J A 41 | J A 50 | J A 29 | J A 50 | J A 44 | J A 35  | 35     | J A 39 | J A 40 | J A 52 | J A 65  | J A 45 | J A 28 | J A 34 | J A 26 |        |
| 9           | J A 18 | E S 15  | J A 20 | J A 18 | J A 20 | J A 20 | 28     | J A 44 | J A 51 | J A 41 | J A 54 | G      | G      | J A 30 | J A 28  | 31     | 28     | 24     | J A 19 | J A 18  | J A 17 | J A 54 | J A 34 | J A 54 |        |
| 10          | J A 32 | J A 30  | J A 33 | J A 29 | J A 19 | J A 20 | 33     | 33     | 50     | J A 36 | J A 74 | J A 41 | G      | G      | G       | J A 32 | J A 27 | 26     | J A 30 | J A 28  | J A 78 | J A 51 | J A 53 | J A 27 |        |
| 11          | J A 21 | J A 30  | J A 24 | J A 40 | J A 30 | J A 20 | J A 30 | J A 40 | 40     | J A 75 | J A 50 | 35     | 38     | J A 54 | J A 33  | G      | J A 52 | 24     | E S 16 | E S 15  | J A 51 | J A 27 | J A 27 | J A 26 |        |
| 12          | J A 27 | J A 26  | J A 26 | J A 18 | J A 18 | J A 18 | 20     | 27     | J A 33 | J A 31 | 65     | 54     | 62     | J A 49 | J A 61  | J A 54 | J A 50 | 25     | J A 25 | J A 89  | J A 54 | J A 65 | J A 44 | J A 23 |        |
| 13          | J A 26 | J A 21  | J A 23 | J A 21 | J A 20 | J A 25 | J A 26 | 30     | J A 39 | J A 44 | J A 49 | J A 51 | J A 54 | J A 36 | J A 36  | J A 19 | 37     | J A 39 | J A 34 | J A 19  | J A 51 | E S 15 | J A 41 | J A 27 |        |
| 14          | E S 14 | J A 24  | J A 20 | J A 26 | J A 20 | J A 18 | J A 29 | 29     | 31     | 33     | G      | G      | G      | G      | G       | G      | 28     | 26     | J A 20 | E S 16  | E S 16 | J A 18 | J A 18 | J A 38 |        |
| 15          | J A 18 | J A 18  | E S 13 | J A 22 | E S 15 | J A 18 | 24     | 28     | 32     | 34     | 35     | 35     | 34     | 34     | 33      | J A 50 | J A 33 | J A 33 | J A 39 | J A 51  | J A 36 | E S 16 | E S 16 | J A 20 |        |
| 16          | J A 19 | J A 17  | J A 19 | E S 15 | E S 14 | J A 18 | J A 26 | 26     | 32     | 34     | G      | 26     | 25     | G      | J A 33  | J A 26 | J A 32 | J A 29 | J A 24 | J A 30  | J A 41 | J A 24 | J A 27 | J A 20 |        |
| 17          | J A 25 | J A 17  | J A 17 | J A 19 | M 17   | E S 15 | G      | 28     | J A 36 | 35     | J A 54 | J A 28 | J A 28 | J A 19 | G       | G      | 30     | 33     | J A 29 | J A 34  | J A 31 | J A 25 | J A 20 | J A 18 |        |
| 18          | E S 16 | E S 14  | J A 18 | J A 17 | J A 18 | E S 15 | 25     | 27     | 32     | 32     | J A 30 | 35     | G      | J A 29 | G       | G      | 30     | 32     | J A 46 | J A 20  | J A 51 | J A 19 | J A 21 | E S 15 |        |
| 19          | J A 17 | J A 20  | J A 18 | J A 24 | J A 39 | J A 40 | J A 65 | J A 34 | J A 33 | J A 41 | 35     | J A 36 | 22     | G      | J A 32  | 30     | 29     | J A 32 | J A 29 | E S 13  | J A 26 | J A 36 | J A 33 | J A 27 |        |
| 20          | J A 26 | J A 20  | J A 17 | J A 17 | E S 13 | E S 15 | G      | 30     | J A 40 | J A 42 | 35     | 41     | J A 44 | G      | 34      | 35     | J A 28 | E S 15 | J A 40 | J A 25  | J A 66 | J A 42 | J A 33 |        |        |
| 21          | J A 22 | J A 18  | J A 18 | J A 35 | J A 18 | E S 13 | 25     | J A 51 | G      | 32     | 37     | J A 46 | J A 49 | G      | 34      | 32     | 30     | 29     | J A 31 | J A 46  | J A 33 | J A 30 | J A 26 | J A 25 |        |
| 22          | J A 20 | J A 18  | J A 18 | J A 25 | J A 25 | J A 26 | J A 25 | 25     | J A 41 | J A 40 | J A 31 | J A 36 | J A 32 | J A 43 | J A 39  | 38     | 34     | J A 40 | J A 40 | J A 54  | J A 24 | J A 20 | E S 15 | J A 30 |        |
| 23          | J A 25 | J A 24  | J A 17 | J A 17 | J A 18 | J A 22 | J A 37 | J A 40 | 29     | 32     | J A 33 | J A 34 | J A 41 | J A 33 | G       | G      | 26     | J A 47 | J A 52 | J A 36  | J A 51 | J A 34 | J A 17 | J A 24 |        |
| 24          | J A 17 | J A 20  | J A 18 | J A 18 | J A 20 | J A 25 | J A 32 | J A 35 | J A 30 | J A 32 | J A 39 | J A 28 | J A 26 | J A 32 | G       | G      | 39     | 31     | J A 27 | J A 38  | J A 26 | J A 25 | J A 26 | J A 26 |        |
| 25          | J A 23 | J A 20  | E S 15 | J A 18 | J A 18 | E S 15 | 24     | 27     | J A 28 | J A 54 | J A 38 | J A 31 | 28     | J A 26 | G       | G      | G      | G      | 21     | E S 14  | E S 15 | E S 16 | E S 15 | J A 19 | E S 16 |
| 26          | J A 17 | E S 15  | E S 15 | E S 14 | J A 20 | E S 14 | 20     | 29     | 33     | J A 44 | J A 75 | J A 37 | J A 39 | J A 32 | J A 33  | 31     | J A 52 | 24     | J A 22 | J A 18  | J A 25 | J A 25 | J A 42 | J A 20 |        |
| 27          | J A 17 | J A 17  | E S 14 | E S 15 | M 19   | E S 13 | J A 20 | 29     | 32     | J A 33 | J A 29 | J A 30 | 25     | G      | J A 34  | G      | 29     | 19     | J A 18 | J A 30  | J A 24 | J A 24 | E S 16 | J A 24 |        |
| 28          | E S 15 | E S 15  | E S 13 | E S 13 | E S 15 | E S 15 | 23     | J A 40 | 38     | 37     | 36     | 31     | G      | G      | G       | G      | 25     | 22     | E S 13 | J A 25  | J A 21 | J A 21 | J A 19 | E S 16 |        |
| 29          | J A 19 | M 14  | E S 13 | E S 13 | E S 14 | 23     | 32     | J A 34 | 33     | G      | G      | G      | G      | G      | G       | 30     | 24     | J A 24 | J A 25 | J A 22  | J A 37 | J A 26 | J A 25 |        |        |
| 30          | J A 20 | J A 18  | E S 15 | J A 24 | J A 25 | J A 19 | 22     | 26     | 30     | J A 42 | 35     | 36     | 33     | 38     | 31      | 33     | J A 26 | J A 26 | J A 28 | J A 30  | E S 15 | J A 20 | J A 20 | M 20   |        |
| 31          |        |   |        |        |        |        |        |        |        |        |        |        |        |        |         |        |        |        |        |         |        |        |        |        |        |
|             | 00     | 01  | 02     | 03     | 04     | 05     | 06     | 07     | 08     | 09     | 10     | 11     | 12     | 13     | 14      | 15     | 16     | 17     | 18     | 19      | 20     | 21     | 22     | 23     |        |
| CNT         | 30     | 30  | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30      | 30     | 30     | 30     | 30     | 30      | 30     | 30     | 30     | 30     |        |
| MED         | J A 20 | J A 20  | J A 18 | J A 19 | J A 20 | J A 20 | 25     | 30     | 33     | J A 38 | J A 38 | 35     | 34     | J A 31 | 33      | 30     | 30     | 30     | J A 28 | J A 30  | J A 32 | J A 28 | J A 26 | J A 24 |        |
| UQ          | J A 25 | J A 24  | J A 20 | J A 24 | J A 25 | J A 25 | J A 29 | J A 35 | J A 39 | J A 42 | J A 50 | J A 41 | J A 39 | J A 42 | J A 36  | 38     | J A 37 | J A 33 | J A 39 | J A 46  | J A 51 | J A 37 | J A 42 | J A 27 |        |
| LQ          | J A 17 | J A 17  | E S 15 | J A 17 | J A 18 | E S 15 | 22     | 28     | 32     | 33     | 33     | 29     | G      | G      | G       | G      | 28     | 25     | J A 22 | J A 20  | J A 24 | J A 21 | J A 19 | J A 20 |        |

SEP. 1976

FOES (0.1 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

SEP. 1976

FBES (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00                           | 01                           | 02                           | 03                           | 04                           | 05                           | 06                           | 07 | 08 | 09                           | 10                           | 11 | 12                           | 13                           | 14                           | 15 | 16 | 17 | 18                           | 19                           | 20                           | 21                           | 22                           | 23                           |    |
|-------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----|----|------------------------------|------------------------------|----|------------------------------|------------------------------|------------------------------|----|----|----|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----|
| 1           | E                            | E                            | E <sup>S</sup> <sub>13</sub> | E                            | E                            | G                            | 25                           | 35 | 37 | 35                           | 44                           | 36 | 37                           | 41                           | A <sup>A</sup> <sub>74</sub> | 40 | 35 | 50 | 39                           | 33                           | E                            | E                            | 35                           | E                            |    |
| 2           | E                            | E <sup>S</sup> <sub>13</sub> | E                            | E                            | E                            | 20                           | G                            | 29 | 38 | 44                           | A <sup>A</sup> <sub>62</sub> | 42 | 35                           | 34                           | 32                           | 35 | 31 | 27 | 18                           | 28                           | 36                           | 40                           | 21                           | 19                           |    |
| 3           | E <sup>S</sup> <sub>15</sub> | E                            | E <sup>S</sup> <sub>13</sub> | E                            | 20                           | G                            | 23                           | 31 | 41 | 46                           | 42                           | 35 | 35                           | 35                           | 34                           | 36 | 39 | 38 | 34                           | 29                           | 22                           | 23                           | E                            | E <sup>S</sup> <sub>14</sub> |    |
| 4           | E                            | E <sup>S</sup> <sub>14</sub> | E <sup>S</sup> <sub>14</sub> | E <sup>S</sup> <sub>14</sub> | 22                           | G                            | 25                           | 27 | 31 | 32                           | G                            | G  | G                            | G                            | G                            | 32 | 29 | G  | 20                           | 33                           | 18                           | 25                           | 17                           | E                            |    |
| 5           | E                            | E                            | E                            | E                            | 15                           | 15                           | 22                           | G  | 31 | 34                           | 41                           | 35 | 38                           | 33                           | 45                           | 18 | 27 | 26 | A <sup>A</sup> <sub>64</sub> | 46                           | 37                           | 18                           | 28                           | 20                           |    |
| 6           | 25                           | 24                           | 17                           | 16                           | E                            | 18                           | 38                           | 52 | 35 | 33                           | 34                           | 36 | 34                           | G                            | 41                           | 44 | 30 | 40 | 35                           | 50                           | 22                           | 17                           | 23                           | 17                           |    |
| 7           | E                            | 16                           | 25                           | 29                           | 20                           | G                            | 30                           | 30 | 32 | 38                           | 39                           | 35 | 34                           | 34                           | G                            | G  | 26 | 27 | 36                           | 25                           | 34                           | 52                           | 23                           | E                            |    |
| 8           | 22                           | 25                           | 19                           | 19                           | 16                           | 16                           | G                            | 28 | 34 | 36                           | 44                           | 28 | 35                           | 39                           | 34                           | 32 | 37 | 37 | 34                           | 32                           | 35                           | 22                           | 21                           | E                            |    |
| 9           | E                            | E <sup>S</sup> <sub>15</sub> | E                            | E                            | E                            | G                            | 25                           | 28 | 36 | 38                           | 40                           | G  | G                            | G                            | 27                           | 25 | 30 | 27 | 23                           | 17                           | E                            | E                            | 18                           | E                            |    |
| 10          | 20                           | 20                           | 24                           | 25                           | E                            | 17                           | 28                           | 32 | 42 | 32                           | 42                           | 40 | G                            | G                            | G                            | 30 | 23 | 23 | 23                           | 21                           | E                            | 27                           | E                            | E                            |    |
| 11          | E                            | 27                           | E                            | E                            | 27                           | G                            | 27                           | 33 | 37 | A <sup>A</sup> <sub>75</sub> | 43                           | 35 | 34                           | G                            | 33                           | G  | 26 | 23 | E <sup>S</sup> <sub>16</sub> | E <sup>S</sup> <sub>15</sub> | E                            | E                            | 18                           | E                            |    |
| 12          | E                            | E                            | E                            | E                            | E                            | G                            | 20                           | 26 | 30 | 31                           | 37                           | 40 | 45                           | 47                           | A <sup>A</sup> <sub>61</sub> | 34 | 23 | 23 | 20                           | 37                           | 30                           | 24                           | 26                           | E                            |    |
| 13          | E                            | E                            | E                            | 17                           | 17                           | G                            | 20                           | 29 | 37 | 42                           | 47                           | 47 | 46                           | 36                           | 33                           | 19 | 34 | 33 | 26                           | E                            | 22                           | E <sup>S</sup> <sub>15</sub> | 27                           | 20                           |    |
| 14          | E <sup>S</sup> <sub>14</sub> | E                            | E                            | E                            | E                            | G                            | 26                           | 27 | 29 | 33                           | G                            | G  | G                            | G                            | G                            | 24 | G  | 27 | 23                           | G                            | E <sup>S</sup> <sub>16</sub> | E <sup>S</sup> <sub>16</sub> | E                            | E                            |    |
| 15          | E                            | E                            | E <sup>S</sup> <sub>13</sub> | E                            | E <sup>S</sup> <sub>15</sub> | G                            | 23                           | 27 | 30 | 32                           | 34                           | 34 | 34                           | 34                           | 31                           | 32 | 28 | 24 | 23                           | 35                           | 27                           | E <sup>S</sup> <sub>16</sub> | E <sup>S</sup> <sub>16</sub> | E                            |    |
| 16          | E                            | E                            | E                            | E <sup>S</sup> <sub>15</sub> | E <sup>S</sup> <sub>14</sub> | G                            | 17                           | 25 | 32 | 32                           | G                            | 26 | G <sup>S</sup> <sub>25</sub> | G <sup>S</sup> <sub>26</sub> | G <sup>S</sup> <sub>26</sub> | 32 | 23 | 25 | 24                           | 20                           | 22                           | 22                           | E                            | 17                           | E  |
| 17          | E                            | E                            | E                            | E                            | E                            | E <sup>S</sup> <sub>15</sub> | G                            | 27 | 30 | 35                           | 37                           | 26 | G                            | G                            | 19                           | G  | G  | G  | 31                           | 23                           | 32                           | 19                           | 16                           | E                            | E  |
| 18          | E <sup>S</sup> <sub>16</sub> | E <sup>S</sup> <sub>14</sub> | E                            | E                            | E                            | E <sup>S</sup> <sub>15</sub> | 20                           | 27 | 30 | 32                           | 29                           | 34 | G                            | G                            | 25                           | G  | G  | 27 | 28                           | 45                           | E                            | 21                           | E                            | E <sup>S</sup> <sub>15</sub> |    |
| 19          | E                            | E                            | E                            | 21                           | A <sup>A</sup> <sub>39</sub> | A <sup>A</sup> <sub>40</sub> | A <sup>A</sup> <sub>65</sub> | 26 | 28 | 25                           | 34                           | 20 | G                            | G                            | 32                           | 30 | 27 | 31 | 21                           | E <sup>S</sup> <sub>13</sub> | 19                           | 17                           | E                            | E                            |    |
| 20          | E                            | E                            | E                            | E                            | E <sup>S</sup> <sub>13</sub> | E <sup>S</sup> <sub>15</sub> | G                            | 28 | 38 | 39                           | 33                           | 40 | 36                           | G                            | 34                           | G  | 31 | 21 | E <sup>S</sup> <sub>15</sub> | 40                           | 20                           | 20                           | 20                           | E                            |    |
| 21          | E                            | E                            | E                            | 20                           | E                            | E <sup>S</sup> <sub>13</sub> | 23                           | 43 | G  | 32                           | 35                           | 45 | 41                           | G                            | 34                           | 31 | 27 | 27 | 26                           | 40                           | 17                           | 17                           | E                            | E                            |    |
| 22          | E                            | E                            | E                            | E                            | E                            | 20                           | 23                           | 24 | 38 | 40                           | 27                           | 33 | 32                           | 34                           | 36                           | 35 | 32 | 31 | 32                           | 20                           | 17                           | 18                           | E <sup>S</sup> <sub>15</sub> | E                            |    |
| 23          | E                            | E                            | E                            | E                            | E                            | 17                           | 22                           | 23 | 27 | 32                           | 33                           | 33 | 40                           | 32                           | G                            | G  | 25 | 41 | 31                           | 19                           | 20                           | E                            | E                            | E                            |    |
| 24          | E                            | E                            | E                            | E                            | E                            | G                            | 20                           | 24 | 19 | 32                           | 33                           | 21 | G                            | 24                           | 19                           | G  | G  | 31 | 25                           | 16                           | E                            | 18                           | E                            | E                            |    |
| 25          | E                            | E                            | E <sup>S</sup> <sub>15</sub> | E                            | E                            | E <sup>S</sup> <sub>15</sub> | 20                           | 26 | 24 | 36                           | 20                           | 25 | G                            | G                            | 20                           | G  | G  | 21 | E <sup>S</sup> <sub>14</sub> | E <sup>S</sup> <sub>15</sub> | E <sup>S</sup> <sub>16</sub> | E <sup>S</sup> <sub>15</sub> | 17                           | E <sup>S</sup> <sub>16</sub> |    |
| 26          | E                            | E <sup>S</sup> <sub>15</sub> | E <sup>S</sup> <sub>15</sub> | E <sup>S</sup> <sub>14</sub> | E                            | E <sup>S</sup> <sub>14</sub> | 19                           | 27 | 31 | 39                           | 36                           | 35 | 36                           | 32                           | 34                           | 30 | G  | 20 | 18                           | E                            | 19                           | E                            | 21                           | E                            |    |
| 27          | E                            | E                            | E <sup>S</sup> <sub>14</sub> | E <sup>S</sup> <sub>15</sub> | E                            | E <sup>S</sup> <sub>13</sub> | 16                           | 28 | 30 | 31                           | 25                           | 27 | G                            | 23                           | G                            | 25 | G  | 27 | 19                           | G                            | 26                           | E                            | E                            | E <sup>S</sup> <sub>16</sub> | E  |
| 28          | E <sup>S</sup> <sub>15</sub> | E <sup>S</sup> <sub>15</sub> | E <sup>S</sup> <sub>13</sub> | E <sup>S</sup> <sub>13</sub> | E <sup>S</sup> <sub>15</sub> | E <sup>S</sup> <sub>15</sub> | 20                           | 27 | 34 | 34                           | 34                           | 31 | G                            | G                            | G                            | G  | G  | 21 | E <sup>S</sup> <sub>13</sub> | E                            | E                            | E                            | E                            | E <sup>S</sup> <sub>16</sub> |    |
| 29          | E                            | E                            | E <sup>S</sup> <sub>14</sub> | E <sup>S</sup> <sub>13</sub> | E <sup>S</sup> <sub>13</sub> | E <sup>S</sup> <sub>14</sub> | 20                           | 25 | 30 | 31                           | G                            | G  | G                            | G                            | G                            | 19 | G  | 29 | 23                           | 21                           | E                            | 19                           | 23                           | 19                           | E  |
| 30          | E                            | E                            | E <sup>S</sup> <sub>15</sub> | E                            | E                            | G                            | 21                           | 25 | 29 | 32                           | 34                           | 33 | 35                           | 35                           | 31                           | 27 | 25 | 20 | 17                           | 17                           | E <sup>S</sup> <sub>15</sub> | E                            | 17                           | E                            |    |
| 31          |                              |                              |                              |                              |                              |                              |                              |    |    |                              |                              |    |                              |                              |                              |    |    |    |                              |                              |                              |                              |                              |                              |    |
|             | 00                           | 01                           | 02                           | 03                           | 04                           | 05                           | 06                           | 07 | 08 | 09                           | 10                           | 11 | 12                           | 13                           | 14                           | 15 | 16 | 17 | 18                           | 19                           | 20                           | 21                           | 22                           | 23                           |    |
| CNT         | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30 | 30 | 30                           | 30                           | 30 | 30                           | 30                           | 30                           | 30 | 30 | 30 | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30 |
| MED         | E                            | E                            | E                            | E                            | E                            | E <sup>S</sup> <sub>14</sub> | 22                           | 27 | 31 | 34                           | 34                           | 34 | 34                           | 34                           | 26                           | 32 | 25 | 27 | 24                           | 21                           | 22                           | 19                           | 16                           | 17                           | E  |
| UQ          | E                            | 15                           | E <sup>S</sup> <sub>14</sub> | 15                           | 15                           | 15                           | 25                           | 29 | 37 | 38                           | 41                           | 36 | 36                           | 34                           | 34                           | 32 | 31 | 31 | 32                           | 33                           | 22                           | 22                           | 21                           | E <sup>S</sup> <sub>14</sub> |    |
| LQ          | E                            | E                            | E                            | E                            | E                            | G                            | 20                           | 26 | 30 | 32                           | 29                           | 26 | G                            | 22                           | G                            | G  | G  | 25 | 23                           | 17                           | E <sup>S</sup> <sub>13</sub> | 16                           | E                            | E                            | E  |

SEP. 1976

FBES (0.1 MHz)



# IONOSPHERIC DATA

SEP. 1976

F-MIN (0.1 MHz)

135° E Mean Time (G. M. T. + 9h)

Station AKITA Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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 <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 14 | 16 | 16 | 14 | 16 | 16 | 15 | 14 | 14 | 13 | 13              | E <sub>13</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> |
| 2           | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 14 | 14 | 16 | 16 | 16 | 16 | 16 | 18 | 16 | 16 | 14 | 14 | 13              | E <sub>15</sub> | E <sub>14</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>16</sub> |
| 3           | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 16 | 13 | 14 | 14 | 16 | 16 | 14 | 14 | 14 | 16 | 14 | E <sub>13</sub> | E <sub>14</sub> | E <sub>13</sub> | E <sub>16</sub> | E <sub>13</sub> | E <sub>14</sub> |
| 4           | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 14 | 18 | 16 | 16 | 18 | 16 | 16 | 13 | 13 | 13 | 13              | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> |
| 5           | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 15 | 13 | 13 | 14 | 14 | 16 | 15 | 16 | 16 | 14 | 14 | 14 | 14              | E <sub>14</sub> | E <sub>14</sub> | E <sub>13</sub> | E <sub>16</sub> | E <sub>13</sub> |
| 6           | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 16 | 13 | 14 | 14 | 16 | 16 | 14 | 16 | 14 | 15 | 14 | E <sub>14</sub> | E <sub>13</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>13</sub> |
| 7           | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 15 | 15 | 14 | 14 | 16 | 14 | 16 | 16 | 16 | 14 | 16 | 13 | E <sub>13</sub> | E <sub>13</sub> | E <sub>15</sub> | E <sub>18</sub> | E <sub>18</sub> | E <sub>15</sub> |
| 8           | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 15 | 14 | 14 | 16 | 16 | 16 | 16 | 15 | 14 | 14 | 14 | 13 | E <sub>13</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>13</sub> | E <sub>14</sub> | E <sub>16</sub> |
| 9           | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 14 | 16 | 14 | 17 | 14 | 14 | 14 | 15 | 13 | 13 | E <sub>13</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>13</sub> |
| 10          | E <sub>13</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 14 | 13 | 14 | 14 | 14 | 17 | 16 | 16 | 13 | 13 | 13 | 13 | E <sub>13</sub> | E <sub>14</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>15</sub> |
| 11          | E <sub>14</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 14 | 14 | 16 | 16 | 17 | 18 | 17 | 14 | 14 | 16 | 16 | E <sub>16</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 12          | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 16 | 14 | 16 | 16 | 14 | 16 | 16 | 16 | 14 | 13 | 13 | 13 | E <sub>13</sub> | E <sub>13</sub> | E <sub>14</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>13</sub> |
| 13          | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 15 | 15 | 18 | 16 | 18 | 19 | 20 | 15 | 14 | 16 | 15 | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> |
| 14          | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 12 | 13 | 14 | 14 | 16 | 17 | 16 | 16 | 16 | 13 | 14 | 13 | E <sub>14</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>13</sub> |
| 15          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 14 | 14 | 16 | 14 | 16 | 16 | 17 | 16 | 14 | 14 | 12 | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 16          | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | 16 | 13 | 14 | 16 | 16 | 16 | 16 | 16 | 14 | 13 | 13 | 14 | E <sub>16</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> |
| 17          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 16 | 13 | 13 | 14 | 16 | 14 | 16 | 16 | 13 | 16 | 13 | 13 | E <sub>14</sub> | E <sub>16</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>15</sub> | E <sub>15</sub> |
| 18          | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 13 | 14 | 14 | 16 | 16 | 14 | 16 | 14 | 13 | 14 | E <sub>14</sub> | E <sub>13</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> |
| 19          | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 16 | 16 | 13 | E <sub>13</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>15</sub> | E <sub>16</sub> |
| 20          | E <sub>16</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 16 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 16 | 14 | 14 | 16 | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>13</sub> |
| 21          | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 15 | 13 | 14 | 16 | 14 | 18 | 14 | 14 | 14 | 14 | 13 | 13 | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> |
| 22          | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>13</sub> | 14 | 16 | 15 | 16 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 15 | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |
| 23          | E <sub>15</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> | 13 | 16 | 13 | 16 | 16 | 18 | 16 | 19 | 16 | 14 | 14 | 13 | E <sub>13</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>13</sub> | E <sub>13</sub> |
| 24          | E <sub>14</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>13</sub> | 13 | 13 | 14 | 16 | 14 | 14 | 14 | 13 | 16 | 16 | 14 | 14 | E <sub>13</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>16</sub> |
| 25          | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 13 | 14 | 13 | 16 | E <sub>14</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>13</sub> | E <sub>16</sub> |
| 26          | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>14</sub> | 16 | 13 | 13 | 14 | 16 | 14 | 16 | 16 | 13 | 14 | 16 | 13 | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 27          | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 14 | 14 | 16 | 16 | 14 | 13 | 13 | 16 | 14 | 16 | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> |
| 28          | E <sub>15</sub> | E <sub>15</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 14 | 14 | 14 | 13 | 16 | 14 | 16 | 16 | 16 | 13 | 16 | E <sub>13</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 29          | E <sub>16</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>14</sub> | 13 | 14 | 14 | 14 | 16 | 16 | 14 | 14 | 14 | 14 | 13 | 15 | E <sub>13</sub> | E <sub>16</sub> | E <sub>13</sub> | E <sub>13</sub> | E <sub>15</sub> | E <sub>13</sub> |
| 30          | E <sub>16</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>14</sub> | 14 | 14 | 14 | 16 | 16 | 16 | 14 | 16 | 16 | 15 | 14 | 16 | E <sub>15</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |
| 31          |                 |                 |                 |                 |                 |                 |    |    |    |    |    |    |    |    |    |    |    |    |                 |                 |                 |                 |                 |                 |
| CNT         | 30              | 30              | 30              | 30              | 30              | 30              | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30              | 30              | 30              | 30              | 30              | 30              |
| MED         | E <sub>15</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | E <sub>14</sub> | 13 | 13 | 14 | 15 | 15 | 16 | 16 | 16 | 14 | 14 | 14 | 14 | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> |
| UQ          | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 15 | 14 | 14 | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 14 | 15 | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| LQ          | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | E <sub>15</sub> | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 13 | 13 | E <sub>13</sub> | E <sub>13</sub> | E <sub>14</sub> | E <sub>13</sub> | E <sub>14</sub> | E <sub>14</sub> |

SEP. 1976

F-MIN (0.1 MHz)

### IONOSPHERIC DATA

SEP. 1976

M(3000)F2 (0.01)

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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           | 310 | 300 | 305 | 315 | 310 | 295 | 320 | 320 | 335 | 330 | 295 | 320 | 315 | 310 | A   | 315 | 340 | 325 | 320 | 305 | 305 | 315 | F   | F   |     |
| 2           | F   | F   | F   | F   | F   | 315 | 330 | 350 | 310 | 325 | A   | 310 | 320 | 305 | 315 | 325 | 335 | 295 | 285 | 305 | 340 | 315 | 305 | 310 |     |
| 3           | 295 | 295 | 295 | 290 | 300 | 315 | 325 | 340 | 320 | 320 | 335 | 315 | 320 | 320 | 325 | 335 | 315 | 315 | 300 | 315 | 325 | 325 | 295 | 290 |     |
| 4           | 295 | 305 | 300 | 310 | 310 | 295 | 315 | 325 | 320 | 340 | 320 | 315 | 315 | 315 | 310 | 330 | 320 | 310 | 290 | 320 | 325 | 325 | 300 | 285 |     |
| 5           | 300 | 295 | 285 | 295 | 290 | 295 | 310 | 330 | 330 | 335 | 330 | 345 | 330 | 320 | 320 | 330 | 330 | 320 | A   | 320 | F   | 305 | 315 | 300 |     |
| 6           | 290 | 295 | 310 | 315 | F   | 295 | 325 | A   | 345 | 340 | 320 | 325 | 340 | 320 | 315 | 325 | 305 | 325 | 330 | 330 | 300 | 300 | 300 | 300 |     |
| 7           | 305 | 300 | 285 | F   | 315 | 310 | 345 | 325 | 345 | 315 | 350 | 295 | 295 | 340 | 300 | 310 | 320 | 325 | 320 | 320 | 310 | A   | I R | 310 | 300 |
| 8           | 300 | 295 | 295 | 305 | F   | 300 | 340 | 340 | 345 | 335 | 320 | 310 | 320 | 315 | 310 | 305 | 320 | 310 | 320 | 315 | 315 | F   | F   | 305 |     |
| 9           | 305 | 305 | 305 | 305 | 295 | 305 | 325 | 335 | 345 | 345 | 345 | 340 | 310 | 305 | 305 | 310 | 305 | 310 | 320 | 315 | 330 | 335 | 310 | 300 |     |
| 10          | 295 | 300 | 305 | 320 | 310 | 305 | 305 | 325 | 325 | 315 | 320 | 325 | 320 | 325 | 310 | 315 | 315 | 320 | 310 | 325 | 305 | F   | F   | 300 |     |
| 11          | 315 | 305 | 290 | 300 | 300 | 300 | 310 | 335 | 325 | A   | 345 | 325 | 330 | 320 | 325 | 330 | 330 | 325 | 335 | 315 | 330 | F   | 320 | 325 |     |
| 12          | 310 | 305 | 295 | 300 | 305 | 305 | 320 | 330 | 325 | 345 | 350 | 335 | 325 | 300 | A   | 320 | 320 | 315 | 330 | 330 | 335 | 325 | 300 | 295 |     |
| 13          | 295 | 305 | 305 | 305 | 305 | 320 | 345 | 350 | 325 | 325 | 310 | 320 | 330 | 305 | 320 | 335 | 325 | 320 | 325 | 330 | 325 | 310 | F   | F   |     |
| 14          | F   | F   | F   | F   | 305 | 315 | 350 | 345 | 330 | 345 | 330 | 320 | 330 | 330 | 340 | 330 | 320 | 335 | 310 | 320 | 330 | 325 | 290 | 290 |     |
| 15          | 295 | 290 | 315 | 310 | 340 | 310 | 340 | 345 | 345 | 345 | 345 | 325 | 335 | 330 | 340 | 320 | 315 | 310 | 310 | 350 | 345 | 290 | 290 | 285 |     |
| 16          | 295 | 295 | 310 | 335 | 315 | 310 | 320 | 315 | 345 | 350 | 335 | 335 | 340 | 330 | 310 | 310 | 330 | 330 | 310 | 325 | 330 | 300 | 280 | 280 |     |
| 17          | 290 | 295 | 290 | 310 | 310 | 315 | 335 | 350 | 330 | 340 | 320 | 345 | 335 | 325 | 330 | 330 | 320 | 330 | 335 | 345 | 315 | 310 | 300 | 305 |     |
| 18          | 310 | 300 | 305 | 305 | 300 | 300 | 325 | 310 | 340 | 335 | 335 | 330 | 330 | 335 | 335 | 300 | 325 | 310 | 315 | 330 | 330 | 335 | 290 | 285 |     |
| 19          | 280 | 280 | 280 | 315 | A   | A   | A   | 305 | 340 | 325 | 335 | 320 | 335 | 340 | 345 | 325 | 335 | 330 | 335 | 320 | 305 | 275 | 280 | 290 |     |
| 20          | 285 | 310 | 280 | 290 | 300 | 290 | 335 | 330 | 310 | 330 | 325 | 330 | 305 | 320 | 330 | 330 | 330 | 310 | 320 | 325 | 330 | 280 | 280 | 280 |     |
| 21          | 280 | 280 | 295 | 335 | 300 | F   | 325 | 325 | 325 | 280 | 330 | 265 | 270 | 310 | 305 | 325 | 310 | 320 | 330 | 335 | 295 | 285 | 280 | 285 |     |
| 22          | 290 | 290 | 305 | 295 | F   | 320 | 355 | 325 | 330 | 335 | 335 | 325 | 325 | 340 | 330 | 335 | 325 | 325 | 325 | 315 | 315 | 335 | 285 | 290 |     |
| 23          | 300 | 285 | 305 | 300 | 335 | 290 | 340 | 325 | 325 | 325 | 345 | 345 | 345 | 340 | 335 | 340 | 330 | 315 | 325 | 325 | 325 | 320 | 300 | 295 |     |
| 24          | 290 | 305 | 305 | 320 | 330 | 305 | 330 | 335 | 340 | 345 | 355 | 335 | 345 | 330 | 340 | 320 | 335 | 330 | 335 | 340 | 320 | 310 | 295 | 295 |     |
| 25          | 305 | 305 | 305 | 310 | 305 | 310 | 345 | 355 | 340 | 330 | 345 | 345 | 335 | 340 | 345 | 340 | 340 | 340 | 335 | 335 | 300 | 295 | 290 | 305 |     |
| 26          | 295 | 305 | 300 | 320 | 310 | 290 | 335 | 315 | 335 | 355 | 345 | 345 | 320 | 335 | 335 | 335 | 320 | 330 | 320 | 335 | 315 | 310 | I R | 290 |     |
| 27          | 295 | 300 | 305 | 300 | 300 | 300 | 330 | 350 | 345 | 345 | 340 | 330 | 335 | 330 | 335 | 340 | 335 | 330 | 315 | 310 | 305 | 305 | 320 | 310 |     |
| 28          | 305 | 300 | 305 | 295 | 300 | 315 | 345 | 350 | 345 | 335 | 345 | 340 | 330 | 330 | 335 | 340 | 335 | 330 | 335 | 340 | 310 | 300 | 310 | 305 |     |
| 29          | 305 | 300 | 310 | 300 | 295 | 305 | 350 | 340 | 345 | 345 | 335 | 325 | 335 | 335 | 335 | 330 | 330 | 330 | 335 | 315 | 310 | 290 | 300 | 300 |     |
| 30          | 305 | 310 | 305 | 300 | 310 | 295 | 340 | 350 | 345 | 340 | 330 | 335 | 335 | 335 | 330 | 345 | 335 | 330 | 325 | 330 | 325 | 315 | 310 | 295 |     |
| 31          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Hour        | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |     |
| CNT         | 28  | 28  | 28  | 27  | 25  | 28  | 29  | 29  | 30  | 29  | 29  | 30  | 30  | 30  | 28  | 30  | 30  | 30  | 29  | 30  | 29  | 26  | 26  | 28  |     |
| MED         | 295 | 300 | 305 | 305 | 305 | 305 | 330 | 335 | 335 | 335 | 335 | 325 | 330 | 328 | 330 | 330 | 325 | 325 | 320 | 325 | 320 | 310 | 300 | 295 |     |
| UQ          | 305 | 305 | 305 | 315 | 310 | 312 | 340 | 345 | 345 | 345 | 345 | 335 | 335 | 335 | 335 | 335 | 335 | 330 | 330 | 330 | 330 | 325 | 310 | 302 |     |
| LQ          | 292 | 295 | 295 | 300 | 300 | 295 | 325 | 325 | 325 | 325 | 325 | 320 | 320 | 315 | 312 | 320 | 320 | 315 | 315 | 315 | 310 | 300 | 290 | 290 |     |

SEP. 1976

M(3000)F2 (0.01)

# IONOSPHERIC DATA

SEP. 1976

M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. **39° 43.5' N**, Long. **140° 08.2' E** Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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           |    |    |    |    |    |     |     | 340 | 355 | 395 | A   | 385 | 390 | A   | A   | A   | A   | A   |    |    |    |    |    |    |  |
| 2           |    |    |    |    |    |     | L   | L   | 345 | A   | A   | A   | 365 | 385 | 350 | 345 | L   | 340 | L  |    |    |    |    |    |  |
| 3           |    |    |    |    |    |     | L   | L   | A   | A   | A   | 370 | 375 | 360 | 355 | A   | A   | A   |    |    |    |    |    |    |  |
| 4           |    |    |    |    |    | 340 | 350 | 360 | 380 | 370 | 385 | 380 | 365 | 345 | 345 | L   | L   | L   |    |    |    |    |    |    |  |
| 5           |    |    |    |    |    |     | 365 | 365 | 360 | A   | 350 | 370 | 370 | A   | A   | L   | L   | A   |    |    |    |    |    |    |  |
| 6           |    |    |    |    |    | A   | A   | 380 | 390 | 385 | 370 | 375 | 370 | A   | A   | 340 | A   | A   |    |    |    |    |    |    |  |
| 7           |    |    |    |    |    | A   | L   | 385 | A   | A   | 395 | 380 | 365 | 365 | 335 | 355 | L   | A   |    |    |    |    |    |    |  |
| 8           |    |    |    |    |    |     | L   | 350 | 375 | A   | 380 | 370 | A   | 355 | 340 | A   | A   |     |    |    |    |    |    |    |  |
| 9           |    |    |    |    |    | L   | L   | 350 | A   | A   | 380 | 400 | 370 | 345 | 345 | 350 | L   |     |    |    |    |    |    |    |  |
| 10          |    |    |    |    |    |     | 350 | A   | 375 | A   | A   | 375 | 360 | 370 | L   | 360 | L   |     |    |    |    |    |    |    |  |
| 11          |    |    |    |    |    | L   | 350 | A   | A   | A   | 380 | 370 | 355 | 365 | 345 | L   | L   |     |    |    |    |    |    |    |  |
| 12          |    |    |    |    |    |     | L   | 360 | 375 | 375 | A   | A   | A   | A   | 350 | 340 | L   | L   |    |    |    |    |    |    |  |
| 13          |    |    |    |    |    |     | L   | A   | A   | A   | A   | A   | 360 | 360 | 350 | L   | L   |     |    |    |    |    |    |    |  |
| 14          |    |    |    |    |    | L   | 355 | 360 | 370 | 375 | 390 | 380 | 360 | 365 | 360 | L   | L   |     |    |    |    |    |    |    |  |
| 15          |    |    |    |    |    |     | L   | 355 | 380 | 385 | 390 | 375 | 370 | 370 | 350 | 360 | L   |     |    |    |    |    |    |    |  |
| 16          |    |    |    |    |    | 350 | 360 | 350 | 390 | 385 | 375 | 380 | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 17          |    |    |    |    |    | L   | L   | 360 | 380 | 375 | 370 | 375 | 360 | 360 | 360 | 360 | A   |     |    |    |    |    |    |    |  |
| 18          |    |    |    |    |    |     | L   | 355 | 375 | 380 | 375 | 375 | 370 | 370 | 345 | L   | L   |     |    |    |    |    |    |    |  |
| 19          |    |    |    |    |    | 345 | 350 | 365 | 370 | 385 | 380 | 375 | 365 | 350 | L   | A   |     |     |    |    |    |    |    |    |  |
| 20          |    |    |    |    |    | L   | A   | A   | 380 | A   | 355 | 350 | 360 | 355 | L   | L   |     |     |    |    |    |    |    |    |  |
| 21          |    |    |    |    |    |     | A   | 365 | 365 | 350 | A   | A   | 395 | 360 | 345 | 350 | L   |     |    |    |    |    |    |    |  |
| 22          |    |    |    |    |    |     | L   | L   | A   | 375 | 380 | 370 | 355 | 350 | A   | L   | A   |     |    |    |    |    |    |    |  |
| 23          |    |    |    |    |    |     | L   | 350 | 375 | 375 | 385 | A   | 395 | 375 | 370 | L   | A   |     |    |    |    |    |    |    |  |
| 24          |    |    |    |    |    |     | L   | 355 | 350 | 375 | 375 | 360 | 365 | 365 | 385 | L   |     |     |    |    |    |    |    |    |  |
| 25          |    |    |    |    |    |     | L   | 365 | 350 | 375 | 380 | 370 | 370 | 360 | L   | L   |     |     |    |    |    |    |    |    |  |
| 26          |    |    |    |    |    |     | 345 | L   | A   | 375 | 375 | 380 | 375 | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 27          |    |    |    |    |    | 420 | L   | L   | 360 | 385 | 375 | 380 | 365 | 360 | L   | L   |     |     |    |    |    |    |    |    |  |
| 28          |    |    |    |    |    |     | L   | 360 | 375 | 375 | 380 | 375 | 365 | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 29          |    |    |    |    |    |     | L   | L   | 395 | 395 | L   | 380 | 375 | L   | 355 | L   |     |     |    |    |    |    |    |    |  |
| 30          |    |    |    |    |    |     | L   | L   | 370 | 380 | 360 | 380 | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 31          |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |  |
|             | 00 | 01 | 02 | 03 | 04 | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |  |
| CNT         |    |    |    |    |    |     | 2   | 9   | 19  | 21  | 20  | 23  | 26  | 26  | 21  | 18  | 8   | 1   |    |    |    |    |    |    |  |
| MED         |    |    |    |    |    |     | 380 | 350 | 360 | 375 | 375 | 380 | 375 | 370 | 360 | 350 | 352 | 340 |    |    |    |    |    |    |  |
| UQ          |    |    |    |    |    |     | 350 | 362 | 375 | 382 | 385 | 380 | 375 | 365 | 355 | 360 |     |     |    |    |    |    |    |    |  |
| LQ          |    |    |    |    |    |     | 345 | 352 | 360 | 375 | 375 | 370 | 360 | 355 | 345 | 345 |     |     |    |    |    |    |    |    |  |

SEP. 1976

M(3000)F1 (0.01)

# IONOSPHERIC DATA

SEP. 1976

H<sup>1</sup>F<sub>2</sub> (KM)

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>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 | 265 | 295 | 380 | 290 | 330 | 330 | A   | 305 | 275 | A   |     |    |    |    |    |    |
| 2           |    |    |    |    |    |    | 255 | 245 | 340 | 285 | A   | 355 | 315 | 335 | 300 | 285 | 265 | 335 | 305 |    |    |    |    |    |
| 3           |    |    |    |    |    |    | 265 | 255 | 285 | 285 | 275 | 335 | 300 | 315 | 285 | 280 | 300 | 275 |     |    |    |    |    |    |
| 4           |    |    |    |    |    |    | 295 | 280 | 240 | 260 | 305 | 300 | 300 | 315 | 315 | 280 | 280 | 290 | 285 |    |    |    |    |    |
| 5           |    |    |    |    |    |    | 265 | 255 | 275 | 295 | 270 | 300 | 305 | 320 | 290 | 280 | 280 | A   |     |    |    |    |    |    |
| 6           |    |    |    |    |    |    | 270 | A   | 250 | 265 | 315 | 290 | 290 | 345 | 335 | 310 | 325 | 275 | 250 |    |    |    |    |    |
| 7           |    |    |    |    |    |    | 245 | 270 | 250 | 290 | 280 | 385 | 325 | 280 | 360 | 320 | 280 | 260 | 265 |    |    |    |    |    |
| 8           |    |    |    |    |    |    | 250 | 260 | 285 | 310 | 335 | 320 | 305 | 330 | 340 | 300 | 300 |     |     |    |    |    |    |    |
| 9           |    |    |    |    |    |    | 250 | 245 | 265 | 245 | 270 | 315 | 355 | 355 | 335 | 330 | 310 | 290 |     |    |    |    |    |    |
| 10          |    |    |    |    |    |    | 280 | 280 | 270 | 335 | 310 | 310 | 315 | 295 | 250 | 280 | 255 |     |     |    |    |    |    |    |
| 11          |    |    |    |    |    |    | 255 | 285 | 260 | A   | 285 | 310 | 310 | 315 | 300 | 285 | 265 | 255 |     |    |    |    |    |    |
| 12          |    |    |    |    |    |    | 265 | 280 | 250 | 255 | 300 | 300 | A   | A   | 315 | 300 | 270 |     |     |    |    |    |    |    |
| 13          |    |    |    |    |    |    | 235 | 285 | 285 | 335 | 290 | 290 | 325 | 305 | 280 | 275 | 280 |     |     |    |    |    |    |    |
| 14          |    |    |    |    |    |    | 240 | 245 | 265 | 255 | 280 | 295 | 280 | 295 | 285 | 290 | 260 | 250 |     |    |    |    |    |    |
| 15          |    |    |    |    |    |    | 250 | 260 | 280 | 280 | 305 | 285 | 295 | 280 | 305 | 295 | 280 |     |     |    |    |    |    |    |
| 16          |    |    |    |    |    |    | 295 | 255 | 235 | 275 | 285 | 260 | 295 | 275 | 310 | 260 | 245 |     |     |    |    |    |    |    |
| 17          |    |    |    |    |    |    | 240 | 300 | 255 | 280 | 265 | 285 | 295 | 280 | 265 | 280 | 250 |     |     |    |    |    |    |    |
| 18          |    |    |    |    |    |    | 245 | 240 | 255 | 275 | 270 | 295 | 280 | 280 | 305 | 265 | 275 |     |     |    |    |    |    |    |
| 19          |    |    |    |    |    |    | 335 | 280 | 280 | 295 | 305 | 280 | 260 | 255 | 285 | 250 | 250 |     |     |    |    |    |    |    |
| 20          |    |    |    |    |    |    | 260 | 290 | 280 | 305 | 285 | 355 | 295 | 285 | 290 | 275 | 280 |     |     |    |    |    |    |    |
| 21          |    |    |    |    |    |    | A   | 320 | 395 | 290 | A   | 460 | 365 | 350 | 305 | 300 | 260 |     |     |    |    |    |    |    |
| 22          |    |    |    |    |    |    | 260 | 280 | 280 | 280 | 290 | 280 | 265 | 300 | 270 | 265 | 255 |     |     |    |    |    |    |    |
| 23          |    |    |    |    |    |    | 230 | 270 | 280 | 250 | 265 | 260 | 275 | 290 | 270 | 265 | 270 |     |     |    |    |    |    |    |
| 24          |    |    |    |    |    |    | 265 | 250 | 235 | 235 | 285 | 260 | 280 | 275 | 285 | 255 |     |     |     |    |    |    |    |    |
| 25          |    |    |    |    |    |    | 230 | 240 | 240 | 250 | 265 | 280 | 270 | 255 | 255 | 240 |     |     |     |    |    |    |    |    |
| 26          |    |    |    |    |    |    | 295 | 235 | 235 | 240 | 255 | 270 | 270 | 270 | 255 | 275 |     |     |     |    |    |    |    |    |
| 27          |    |    |    |    |    |    | 240 | 245 | 250 | 250 | 255 | 265 | 265 | 265 | 255 | 250 | 245 |     |     |    |    |    |    |    |
| 28          |    |    |    |    |    |    | 235 | 235 | 255 | 245 | 250 | 265 | 275 | 255 | 255 | 240 |     |     |     |    |    |    |    |    |
| 29          |    |    |    |    |    |    | 240 | 235 | 250 | 265 | 260 | 270 | 255 | 260 | 280 | 250 |     |     |     |    |    |    |    |    |
| 30          |    |    |    |    |    |    | 235 | 250 | 255 | 260 | 260 | 265 | 275 | 270 | 245 | 245 |     |     |     |    |    |    |    |    |
| 31          |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |    | 9   | 28  | 30  | 29  | 29  | 29  | 30  | 29  | 28  | 30  | 30  | 22  | 4   |    |    |    |    |    |
| MED         |    |    |    |    |    |    | 255 | 252 | 260 | 265 | 280 | 290 | 290 | 295 | 285 | 285 | 275 | 272 | 275 |    |    |    |    |    |
| UQ          |    |    |    |    |    |    | 265 | 275 | 280 | 280 | 295 | 305 | 310 | 315 | 310 | 305 | 280 | 280 | 295 |    |    |    |    |    |
| LQ          |    |    |    |    |    |    | 245 | 242 | 250 | 250 | 260 | 265 | 270 | 275 | 272 | 270 | 260 | 255 | 258 |    |    |    |    |    |

The Radio Research Laboratories, Japan

SEP. 1976

H<sup>1</sup>F<sub>2</sub> (KM)

# IONOSPHERIC DATA

SEP. 1976

H'F (KM)

135° E Mean Time (G. M. T. + 9 h)

| Station     | AKITA |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Lat. | 39° 43.5' N. | Long. | 140° 08.2' E | Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--------------|-------|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Hour<br>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           | 235   | 260 | 265 | 250 | 275 | 275 | 240 | A   | 230 | 205 | A   | 210 | 190 | A   | A   | A   | A   | A   | 270 | 275 | 260 | 235 | A   | 230  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2           | 280   | 295 | 305 | 260 | 245 | 255 | 230 | 230 | A   | A   | A   | A   | 205 | 200 | 205 | 235 | 240 | 250 | 270 | 270 | 230 | 260 | 255 | 250  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3           | 250   | 280 | 290 | 270 | 280 | 250 | 235 | 230 | A   | A   | A   | 205 | 210 | 205 | 225 | A   | A   | A   | 280 | 250 | 225 | 220 | 245 | 255  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4           | 255   | 265 | 265 | 240 | 280 | 270 | 230 | 220 | 220 | 215 | 210 | 185 | 180 | 195 | 230 | 220 | 235 | 240 | A   | 245 | 230 | 235 | 250 | 270  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5           | 260   | 270 | 290 | 270 | 280 | 270 | 225 | 230 | 230 | 225 | A   | 230 | 220 | 200 | A   | A   | 230 | 250 | A   | A   | A   | 275 | 275 | 255  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6           | A     | 300 | A   | 270 | 245 | 260 | 295 | A   | A   | 210 | 205 | 200 | 215 | 200 | 190 | A   | A   | H   | A   | A   | 255 | 245 | 260 | 260  | 245          |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7           | 260   | 280 | A   | A   | 255 | 260 | A   | 220 | 200 | A   | A   | 200 | 190 | 225 | 220 | 220 | 225 | A   | A   | 230 | 260 | A   | A   | 255  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8           | 280   | A   | 280 | 280 | 245 | 250 | 220 | 230 | A   | 205 | A   | 180 | 210 | A   | 230 | 240 | A   | A   | 250 | 260 | 265 | 235 | 225 | 275  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9           | 255   | 275 | 265 | 260 | 285 | 280 | A   | 220 | 215 | A   | A   | 185 | 180 | 185 | 180 | 235 | 235 | 240 | 255 | 230 | 205 | 225 | 255 | 275  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10          | 290   | 280 | 270 | 240 | 215 | 275 | 255 | 250 | A   | 205 | A   | A   | 180 | 215 | 220 | 225 | 215 | 235 | 255 | 230 | 245 | 285 | 250 | 240  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11          | 230   | A   | 280 | 265 | A   | 280 | A   | A   | A   | A   | A   | 195 | 210 | 205 | 225 | 230 | 230 | 220 | 225 | 225 | 225 | 270 | 250 | 230  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12          | 230   | 270 | 275 | 270 | 275 | 260 | 230 | 220 | 205 | 200 | 215 | A   | A   | A   | A   | A   | 250 | 235 | 235 | 230 | 235 | 240 | A   | 295  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13          | 270   | 265 | 270 | 265 | 275 | 230 | 230 | 225 | A   | A   | A   | A   | A   | 230 | 215 | 230 | A   | A   | 245 | 220 | 245 | 235 | A   | 285  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14          | 265   | 275 | 275 | 270 | 280 | 235 | A   | 210 | 200 | 185 | 185 | 180 | 180 | 210 | 220 | 185 | 230 | 230 | 245 | 245 | 220 | 220 | 280 | 315  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15          | 280   | 280 | 245 | 240 | 210 | 260 | 235 | 235 | 235 | 205 | 200 | 190 | 180 | 180 | 180 | 240 | 230 | 240 | 255 | 215 | 220 | 290 | 290 | 315  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16          | 295   | 270 | 245 | 225 | 225 | 260 | 235 | 230 | H   | 230 | 210 | 200 | 195 | 195 | 200 | 210 | 225 | 260 | A   | 245 | 245 | 225 | 245 | 290  | 285          |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17          | 280   | 275 | 270 | 245 | 235 | 245 | 230 | 220 | 220 | 230 | 210 | 190 | 205 | 205 | 205 | 180 | 215 | A   | A   | 230 | 235 | 245 | 250 | 265  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18          | 250   | 255 | 270 | 260 | 275 | 280 | 235 | 230 | 230 | 215 | 195 | 205 | 185 | 210 | 190 | 220 | 255 | A   | 250 | 225 | 215 | 215 | 285 | 295  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19          | 295   | 325 | 295 | 255 | A   | A   | A   | 235 | 225 | 215 | 205 | 190 | 185 | 180 | 225 | 225 | 240 | A   | 220 | 220 | 260 | 320 | 300 | 280  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20          | 290   | 250 | 300 | 305 | 245 | 300 | 235 | 235 | A   | A   | 210 | A   | 220 | 200 | 215 | 185 | 245 | 245 | 225 | 235 | 230 | 310 | 325 | 285  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21          | 325   | 300 | 255 | 245 | 285 | 290 | 260 | A   | 200 | 205 | 240 | A   | A   | 185 | 235 | 245 | 245 | A   | 230 | 255 | 260 | 300 | 325 | 300  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22          | 295   | 275 | 240 | 300 | 280 | 290 | 225 | 200 | H   | A   | A   | 190 | 185 | 180 | 215 | 230 | A   | A   | 250 | 235 | 250 | 230 | 300 | 300  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23          | 280   | 285 | 260 | 260 | 225 | 270 | 245 | 210 | 180 | 205 | 180 | 180 | A   | 200 | 205 | 190 | H   | A   | 250 | 230 | 240 | 230 | 235 | 250  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24          | 285   | 265 | 250 | 235 | 235 | 265 | 235 | 230 | 215 | 230 | 200 | 190 | 185 | 190 | 190 | 180 | H   | A   | 235 | 230 | 210 | 220 | 220 | 265  | 305          |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25          | 255   | 280 | 260 | 255 | 250 | 245 | 210 | 220 | 200 | A   | 205 | 190 | 190 | 210 | 195 | H   | 210 | H   | 200 | 235 | 215 | 215 | 245 | 270  | 285          | 265   |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26          | 275   | 260 | 260 | 240 | 225 | 295 | 250 | 250 | 230 | A   | 215 | 200 | 210 | 185 | 235 | 245 | 235 | 255 | 230 | 225 | 240 | 240 | 265 | 265  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27          | 275   | 265 | 245 | 265 | 260 | 275 | 180 | 250 | 225 | H   | 200 | 200 | 200 | 195 | 190 | 180 | H   | H   | 230 | 230 | 225 | 255 | 240 | 245  | 240          | 235   |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28          | 260   | 255 | 260 | 275 | 275 | 240 | 230 | 220 | 220 | 205 | 205 | 195 | 185 | 185 | 180 | H   | H   | 230 | 240 | 220 | 215 | 235 | 255 | 245  | 235          |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29          | 255   | 265 | 245 | 270 | 245 | 250 | 225 | 230 | 225 | 200 | 185 | 180 | 180 | 190 | 185 | H   | H   | A   | 235 | 230 | 230 | 250 | 300 | 270  | 250          |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30          | 265   | 235 | 245 | 270 | 255 | 275 | 215 | 230 | 220 | 210 | 200 | 230 | 195 | 225 | 235 | 195 | 235 | 245 | 230 | 230 | 230 | 235 | 260 | 270  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31          |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|             | 00    | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23   |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CNT         | 29    | 28  | 29  | 29  | 28  | 29  | 24  | 26  | 22  | 20  | 20  | 24  | 26  | 27  | 26  | 24  | 23  | 17  | 26  | 29  | 29  | 29  | 27  | 30   |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MED         | 270   | 272 | 265 | 260 | 258 | 270 | 230 | 230 | 220 | 205 | 200 | 192 | 190 | 200 | 215 | 220 | 235 | 240 | 240 | 230 | 240 | 245 | 260 | 268  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UQ          | 280   | 280 | 275 | 270 | 278 | 280 | 235 | 230 | 230 | 215 | 210 | 202 | 205 | 210 | 225 | 232 | 240 | 245 | 250 | 245 | 245 | 270 | 285 | 285  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LQ          | 255   | 265 | 255 | 245 | 240 | 250 | 225 | 220 | 205 | 205 | 198 | 185 | 180 | 190 | 190 | 185 | 230 | 235 | 230 | 225 | 225 | 235 | 250 | 250  |              |       |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

SEP. 1976

H'F (KM)

# IONOSPHERIC DATA

SEP. 1976

H'E (KM)

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

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

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SEP. 1976

H'E (KM)

# IONOSPHERIC DATA

SEP. 1976

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

135° E Mean Time (G. M. T. + 9 h)

| Station     | AKITA |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | Lat. 39° 43.5' N, Long. 140° 08.2' E | Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Hour<br>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   | 110 | S   | 105 | 105 | 105 | 130 | 125 | 125 | 120 | 115 | 115 | 115 | 110 | 110 | 110 | 110 | 105 | 105 | 100 | 105 | 105 | 110 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2           | 110   | S   | 110 | 110 | 105 | 105 | G   | 125 | 115 | 115 | 115 | 115 | 115 | 105 | 105 | 105 | 130 | 125 | 105 | 110 | 115 | 115 | 110 | 110                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3           | S     | 110 | S   | 135 | 120 | 115 | 115 | 120 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 130 | 125 | 120 | 115 | 115 | 110 | 110 | 110 | S                                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4           | 100   | S   | S   | S   | 120 | 115 | 115 | 115 | 115 | 115 | G   | G   | G   | G   | G   | 145 | 130 | 140 | 115 | 110 | 110 | 110 | 110 | 110                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5           | 105   | 105 | 105 | 110 | 125 | 130 | 135 | G   | 130 | 120 | 110 | 115 | 115 | 100 | 110 | 105 | 150 | 145 | 135 | 125 | 120 | 120 | 105 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6           | 100   | 100 | 100 | 105 | 100 | 130 | 125 | 120 | 125 | 110 | 120 | 125 | 130 | G   | 105 | 130 | 115 | 120 | 115 | 115 | 110 | 110 | 110 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7           | 110   | 100 | 100 | 100 | 100 | 105 | 120 | 120 | 115 | 120 | 115 | 120 | 120 | 115 | 155 | G   | 150 | 135 | 120 | 120 | 115 | 120 | 110 | 110                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8           | 105   | 100 | 100 | 100 | 100 | 115 | G   | 115 | 110 | 105 | 100 | 105 | 105 | 105 | 105 | 125 | 120 | 115 | 110 | 110 | 105 | 105 | 100 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9           | 100   | S   | 100 | 115 | 100 | 105 | 115 | 115 | 110 | 105 | 105 | G   | G   | 105 | 105 | 155 | 140 | 125 | 100 | 100 | 105 | 110 | 110 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10          | 105   | 105 | 100 | 100 | 100 | 120 | 115 | 115 | 115 | 105 | 100 | 100 | G   | G   | G   | 105 | 105 | 120 | 115 | 110 | 110 | 110 | 110 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11          | 105   | 105 | 105 | 100 | 100 | 105 | 120 | 120 | 115 | 110 | 110 | 150 | 110 | 105 | 105 | G   | 105 | 130 | S   | S   | 100 | 115 | 100 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12          | 100   | 100 | 100 | 100 | 100 | 100 | 130 | 130 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 120 | 100 | 100 | 100 | 105 | 100 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13          | 105   | 105 | 100 | 100 | 100 | 100 | 100 | 120 | 115 | 110 | 105 | 100 | 100 | 100 | 100 | 100 | 125 | 115 | 115 | 115 | 115 | S   | 110 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14          | S     | 140 | 125 | 120 | 115 | 105 | 115 | 115 | 120 | 115 | G   | G   | G   | G   | 100 | G   | 150 | 120 | 100 | S   | S   | 100 | 100 | 115                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15          | 105   | 100 | S   | 100 | S   | 100 | 140 | 150 | 135 | 115 | 120 | 120 | 120 | 115 | 115 | 115 | 100 | 100 | 105 | 100 | 105 | S   | S   | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16          | 100   | 100 | 100 | S   | S   | 120 | 110 | 120 | 110 | 115 | G   | 100 | 100 | 100 | 100 | 100 | 95  | 95  | 125 | 115 | 110 | 110 | 110 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17          | 100   | 100 | 100 | 100 | 100 | S   | G   | 110 | 110 | 140 | 120 | 100 | 100 | 100 | G   | G   | 165 | 130 | 120 | 105 | 105 | 105 | 105 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18          | S     | S   | 100 | 100 | 120 | S   | 150 | 145 | 125 | 115 | 100 | 160 | G   | 100 | G   | G   | 140 | 120 | 115 | 115 | 110 | 110 | 110 | S                                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19          | 105   | 100 | 125 | 120 | 115 | 110 | 110 | 105 | 110 | 105 | 130 | 100 | 100 | G   | 100 | 155 | 135 | 120 | 115 | S   | 105 | 105 | 105 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20          | 100   | 100 | 100 | 100 | S   | S   | G   | 130 | 120 | 120 | 120 | 115 | 125 | G   | 150 | G   | 130 | 115 | S   | 105 | 105 | 105 | 105 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 21          | 125   | 105 | 105 | 120 | 150 | S   | 125 | 120 | G   | 130 | 125 | 120 | 115 | G   | 160 | 145 | 135 | 120 | 115 | 110 | 110 | 115 | 110 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22          | 105   | 100 | 100 | 110 | 115 | 110 | 110 | 110 | 105 | 100 | 100 | 100 | 100 | 105 | 100 | 125 | 120 | 115 | 110 | 110 | 105 | 105 | S   | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 23          | 105   | 110 | 110 | 105 | 105 | 115 | 105 | 110 | 110 | 110 | 105 | 105 | 105 | 110 | G   | G   | 140 | 115 | 110 | 110 | 110 | 110 | 105 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 24          | 100   | 100 | 100 | 100 | 100 | 105 | 105 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | G   | G   | 130 | 130 | 105 | 105 | 105 | 100 | 100 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25          | 100   | 100 | S   | 125 | 130 | S   | 130 | 120 | 105 | 100 | 100 | 100 | 100 | 100 | G   | G   | G   | 140 | S   | S   | S   | S   | S   | S                                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26          | 100   | S   | S   | S   | 105 | S   | 145 | 125 | 120 | 115 | 105 | 105 | 100 | 100 | 100 | 165 | 110 | 120 | 115 | 115 | 105 | 110 | 105 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 27          | 100   | 100 | S   | S   | 130 | S   | 120 | 115 | 115 | 115 | 105 | 100 | 100 | 100 | 100 | G   | 130 | 140 | 100 | 115 | 100 | 100 | S   | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 28          | S     | S   | S   | S   | S   | S   | 120 | 120 | 115 | 115 | 115 | 115 | G   | G   | G   | G   | 140 | 135 | S   | 115 | 105 | 100 | 100 | S                                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29          | 100   | 100 | S   | S   | S   | S   | 115 | 115 | 115 | 115 | G   | G   | G   | G   | 100 | G   | 135 | 125 | 115 | 110 | 110 | 115 | 100 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30          | 100   | 100 | S   | 105 | 115 | 105 | 135 | 140 | 135 | 115 | 120 | 120 | 115 | 115 | 125 | 120 | 125 | 110 | 110 | 110 | S   | 100 | 100 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 31          |       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |                                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CNT         | 26    | 24  | 20  | 24  | 25  | 21  | 26  | 29  | 29  | 30  | 26  | 26  | 23  | 21  | 22  | 18  | 29  | 30  | 26  | 26  | 27  | 27  | 27  | 26                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MED         | 102   | 100 | 100 | 105 | 105 | 105 | 120 | 120 | 115 | 115 | 110 | 110 | 105 | 105 | 105 | 122 | 130 | 120 | 115 | 110 | 105 | 110 | 105 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| UQ          | 105   | 105 | 105 | 112 | 120 | 115 | 130 | 125 | 120 | 115 | 120 | 120 | 115 | 110 | 115 | 145 | 140 | 130 | 115 | 115 | 110 | 110 | 110 | 105                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| LQ          | 100   | 100 | 100 | 100 | 100 | 105 | 115 | 115 | 110 | 105 | 100 | 100 | 100 | 100 | 100 | 105 | 115 | 115 | 105 | 105 | 105 | 105 | 100 | 100                                  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

The Radio Research Laboratories, Japan

SEP. 1976

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

# IONOSPHERIC DATA

SEP. 1976

TYPES OF ES

135° E Mean Time (G. M. T. + 9 h)

Station **AKITA** Lat. 39° 43.5' N, Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00 | 01 | 02 | 03 | 04 | 05 | 06   | 07   | 08   | 09   | 10  | 11  | 12 | 13 | 14   | 15  | 16  | 17   | 18   | 19  | 20 | 21  | 22 | 23 |  |
|-------------|----|----|----|----|----|----|------|------|------|------|-----|-----|----|----|------|-----|-----|------|------|-----|----|-----|----|----|--|
| 1           | F1 | F1 |    | F2 | F2 | L2 | H3   | H3   | H2   | C2   | C2  | C2  | C2 | C2 | C4   | C4  | C5  | L4   | L3   | F3  | F2 | F2  | F3 | F2 |  |
| 2           | F1 |    | F2 | F1 | F2 | L3 |      | H2   | C2   | C3   | C4  | C2  | C2 | L1 | L2   | L3  | H13 | H23  | L3   | F3  | F6 | F6  | F4 | F3 |  |
| 3           |    | F2 |    | F1 | F6 | C1 | C3   | C4   | C3   | C3   | C3  | C2  | C1 | C2 | C2   | H2  | H2  | C5   | C6   | F4  | F2 | F2  | F2 |    |  |
| 4           | F1 |    |    |    | F4 | C2 | C4   | C3   | C2   | C2   |     |     |    |    |      | H2  | H3  | H1   | C3   | F3  | F3 | F4  | F2 | F2 |  |
| 5           | F3 | F2 | F2 | F1 | F2 | H1 | H3   |      | H2   | H2   | C2  | C2  | C2 | L2 | C132 | L24 | H1  | H2   | H5   | F3  | F6 | F4  | F4 | F3 |  |
| 6           | F3 | F3 | F2 | F2 | F1 | H3 | H3   | C3   | H3   | C2   | H1  | H1  | H1 |    | C3   | H2  | C3  | C4   | C4   | F4  | F2 | F2  | F4 | F2 |  |
| 7           | F2 | F2 | F4 | F3 | F3 | L2 | C6   | C2   | C3   | H2   | C2  | H2  | H1 | C1 | H1   |     | H2  | H3   | C4   | F4  | F6 | F7  | F3 | F2 |  |
| 8           | F4 | F5 | F5 | F4 | F3 | C3 |      | C3   | C3   | L3   | L4  | L2  | L2 | L3 | L2   | H1  | C5  | C3   | L6   | F5  | F3 | F4  | F3 | F2 |  |
| 9           | F1 |    | F2 | F1 | F2 | L2 | C4   | C3   | C3   | L3   | L3  |     |    | L3 | L3   | H13 | H13 | H122 | L2   | F1  | F1 | F2  | F3 | F2 |  |
| 10          | F3 | F2 | F3 | F7 | F1 | C3 | C3   | C5   | C5   | L3   | L2  | L3  |    |    |      | L4  | L3  | C4   | C6   | F4  | F3 | F6  | F2 | F2 |  |
| 11          | F2 | F5 | F2 | F2 | F6 | L2 | C4   | C4   | C4   | C4   | C3  | H1  | C2 | L1 | L2   |     | L3  | H2   |      |     | F2 | F3  | F3 | F2 |  |
| 12          | F2 | F2 | F2 | F1 | F1 | L1 | H2   | H2   | L2   | L2   | L2  | L2  | L3 | L2 | L2   | L3  | H22 | C3   | L4   | F3  | F2 | F3  | F3 | F2 |  |
| 13          | F2 | F2 | F2 | F2 | F2 | L2 | L1   | C3   | C3   | L2   | L3  | L3  | L2 | L2 | L3   | L1  | H3  | C3   | C4   | F1  | F2 |     | F3 | F3 |  |
| 14          |    | F1 | F2 | F2 | F2 | L1 | C4   | C2   | C2   | C2   |     |     |    |    | L2   |     | H2  | C4   | L1   |     |    | F1  | F1 | F2 |  |
| 15          | F1 | F1 |    | F1 |    | L2 | H122 | H123 | H122 | C1   | C12 | C12 | C1 | C1 | C2   | C2  | C3  | L3   | L4   | F3  | F4 |     |    | F3 |  |
| 16          | F2 | F2 | F1 |    |    | C1 | L22  | C2   | C4   | C2   |     | L1  | L2 | L2 | L3   | L2  | L21 | L2   | H122 | F3  | F3 | F2  | F2 | F1 |  |
| 17          | F2 | F1 | F2 | F2 | F1 |    |      | C3   | C2   | H12  | C12 | L2  | L2 | L1 |      |     | H2  | H3   | C2   | F5  | F4 | F2  | F2 | F2 |  |
| 18          |    |    | F1 | F2 | F2 |    | H1   | H2   | H2   | C1   | L3  | H12 |    | L2 |      |     | H2  | C4   | C4   | F1  | F3 | F1  | F2 |    |  |
| 19          | F1 | F3 | F2 | F4 | F6 | L6 | L4   | L4   | L3   | L21  | H1  | L1  | L2 |    | L2   | H1  | H2  | C4   | C4   |     | F3 | F3  | F2 | F2 |  |
| 20          | F2 | F2 | F1 | F2 |    |    |      | H2   | C3   | C122 | C1  | C3  | H1 |    | H1   |     | H3  | C4   |      | F6  | F3 | F3  | F3 | F2 |  |
| 21          | F1 | F1 | F1 | F2 | F2 |    | H6   | C4   |      | H2   | H2  | C3  | C3 |    | H2   | H2  | H3  | C6   | C7   | F6  | F3 | F3  | F2 | F2 |  |
| 22          | F2 | F2 | F2 | F3 | F4 | L4 | L2   | L3   | L5   | L4   | L3  | L3  | L2 | L2 | L3   | H2  | C3  | C3   | L5   | F4  | F4 | F2  |    | F2 |  |
| 23          | F2 | F2 | F1 | F1 | F1 | C2 | L3   | L2   | L2   | L3   | L2  | L2  | L3 | L1 |      |     | H2  | C6   | L3   | F3  | F3 | F2  | F1 | F3 |  |
| 24          | F1 | F1 | F1 | F2 | F1 | L2 | L3   | L3   | L2   | L2   | L2  | L2  | L2 | L2 |      |     | H2  | H3   | L2   | F1  | F2 | F1  | F2 | F2 |  |
| 25          | F2 | F2 |    | F1 | F1 |    | H132 | C3   | L2   | L2   | L2  | L2  | L2 | L2 |      |     |     | H3   |      |     |    |     | F2 |    |  |
| 26          | F1 |    |    |    | F1 |    | H1   | H4   | C2   | C3   | L2  | L3  | L3 | L4 | L3   | H2  | L11 | C3   | C2   | F1  | F4 | F2  | F3 | F1 |  |
| 27          | F1 | F1 |    |    | F1 |    | C1   | C3   | C3   | C1   | L2  | L2  | L2 | L2 | L3   |     | H3  | H2   | L2   | F41 | F1 | F1  |    | F1 |  |
| 28          |    |    |    |    |    |    | C3   | C3   | C3   | C2   | C2  | C2  |    |    |      |     | H1  | H3   |      | F1  | F2 | F2  | F1 |    |  |
| 29          | F2 | F2 |    |    |    |    | C3   | C3   | C1   | C2   |     |     |    |    | L2   |     | H3  | H5   | C6   | F1  | F2 | F53 | F3 | F2 |  |
| 30          | F1 | F1 |    | F2 | F1 | L2 | H3   | H1   | H2   | C2   | H2  | H1  | C1 | C3 | H2   | H1  | C1  | C2   | C2   | F2  |    | F2  | F2 | F1 |  |
| 31          |    |    |    |    |    |    |      |      |      |      |     |     |    |    |      |     |     |      |      |     |    |     |    |    |  |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06   | 07   | 08   | 09   | 10  | 11  | 12 | 13 | 14   | 15  | 16  | 17   | 18   | 19  | 20 | 21  | 22 | 23 |  |
| CNT         |    |    |    |    |    |    |      |      |      |      |     |     |    |    |      |     |     |      |      |     |    |     |    |    |  |
| MED         |    |    |    |    |    |    |      |      |      |      |     |     |    |    |      |     |     |      |      |     |    |     |    |    |  |
| UQ          |    |    |    |    |    |    |      |      |      |      |     |     |    |    |      |     |     |      |      |     |    |     |    |    |  |
| LQ          |    |    |    |    |    |    |      |      |      |      |     |     |    |    |      |     |     |      |      |     |    |     |    |    |  |

SEP. 1976

TYPES OF ES



# IONOSPHERIC DATA

SEP. 1976

FXI (0.1 MHz)

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

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

| Hour<br>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<br>45 | X<br>42 | X<br>42 | X<br>42 | S<br>39 | 39 |    |    |    |    |    |    |    |    |    |    |    |    |    | U<br>72 | X<br>65 | X<br>56 | S<br>50 | S       |  |
| 2           | S       | S       | 37      | 37      | X<br>36 | 36 |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>84 | X<br>83 | A       | A       | A       |  |
| 3           | X<br>40 | X<br>39 | X<br>39 | X<br>38 | 39      |    |    |    |    |    |    |    |    |    |    |    |    |    |    | O<br>92 | S<br>69 | S<br>39 | S<br>40 | X<br>44 |  |
| 4           | X<br>43 | X<br>43 | X<br>43 | X<br>40 | X<br>37 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>85 | S<br>76 | S<br>53 | X<br>43 | S<br>44 |  |
| 5           | S<br>44 | X<br>43 | O<br>40 | S<br>39 | S<br>39 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>77 | S<br>59 | S<br>57 | S       | S       |  |
| 6           | S<br>45 | S<br>44 | S<br>45 | O<br>42 | S<br>39 | 39 |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>76 | S       | A       | U<br>49 | S       |  |
| 7           | S       | S<br>43 | S<br>42 | S<br>42 | O<br>42 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | O<br>68 | S<br>50 | A       | S       | A       |  |
| 8           | A       | O<br>38 | O<br>39 | 42      | O<br>38 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>76 | A       | A       | S       | 37      |  |
| 9           | X<br>38 | X<br>37 | X<br>37 | 40      | S<br>39 | 37 |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>81 | S<br>73 | X<br>45 | X<br>39 | S       |  |
| 10          | S<br>39 | O<br>39 | S       | S       | X<br>40 | 35 |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>66 | X<br>58 | X<br>48 | S       | S       |  |
| 11          | S<br>39 | S<br>35 | X<br>33 | S<br>39 | S<br>35 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | A       | S<br>52 | S<br>44 | A       | A       |  |
| 12          | S       | S<br>37 | S<br>38 | S<br>36 | S<br>36 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>63 | S       | S<br>36 | S       | 39      |  |
| 13          | S<br>42 | X<br>41 | X<br>39 | O<br>39 | X<br>40 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>68 | O<br>55 | O<br>43 | O<br>41 | S       |  |
| 14          | S<br>39 | X<br>37 | 39      | 38      | 38      |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>67 | S<br>62 | X<br>47 | O<br>42 | X<br>41 |  |
| 15          | X<br>41 | X<br>43 | X<br>41 | X<br>40 | X<br>31 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>88 | A       | A       | S<br>37 | X<br>39 |  |
| 16          | S<br>39 | X<br>40 | X<br>41 | X<br>42 | 29      |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>72 | X<br>62 | X<br>43 | X<br>43 | X<br>44 |  |
| 17          | X<br>43 | X<br>43 | X<br>42 | X<br>43 | X<br>36 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>69 | S<br>55 | S<br>50 | X<br>48 | X<br>46 |  |
| 18          | X<br>46 | X<br>46 | X<br>44 | X<br>42 | X<br>40 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>89 | S<br>52 | S       | S<br>37 | O<br>38 |  |
| 19          | X<br>39 | S<br>38 | X<br>39 | O<br>42 | S<br>37 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>65 | X<br>50 | S       | A       | S       |  |
| 20          | O<br>40 | S<br>42 | S<br>35 | S<br>35 | S<br>35 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S       | S<br>33 | S<br>35 | A       | S<br>40 |  |
| 21          | S<br>37 | S<br>39 | X<br>42 | S<br>36 | X<br>31 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | O<br>53 | S<br>37 | S<br>37 | S<br>37 | S<br>39 |  |
| 22          | S<br>39 | O<br>38 | X<br>36 | 33      | S<br>31 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>73 | O<br>52 | S<br>41 | A       | A       |  |
| 23          | X<br>36 | 37      | 39      | 36      | 37      |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>80 | S<br>63 | S       | S       | X<br>42 |  |
| 24          | O<br>40 | S<br>43 | S<br>42 | S<br>38 | X<br>31 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>71 | S       | O<br>40 | S<br>37 | S<br>36 |  |
| 25          | O<br>39 | X<br>36 | S<br>35 | S<br>36 | S<br>36 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | O<br>51 | O<br>42 | O<br>42 | S<br>42 | X<br>42 |  |
| 26          | O<br>45 | X<br>43 | O<br>39 | S<br>45 | X<br>38 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>82 | S<br>58 | S<br>50 | X<br>50 | X<br>46 |  |
| 27          | X<br>47 | S       | X<br>44 | X<br>40 | S<br>39 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>64 | S<br>59 | S<br>52 | X<br>47 | X<br>45 |  |
| 28          | S<br>43 | S<br>40 | U<br>40 | S<br>39 | U<br>39 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>60 | X<br>46 | U<br>45 | S<br>44 | O<br>43 |  |
| 29          | S<br>45 | X<br>45 | X<br>39 | S<br>39 | S<br>39 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>59 | X<br>50 | X<br>46 | X<br>43 | U<br>43 |  |
| 30          | S<br>47 | S<br>43 | S<br>37 | X<br>36 | S<br>37 |    |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>64 | X<br>49 | S<br>47 | X<br>46 | S<br>45 |  |
| 31          |         |         |         |         |         |    |    |    |    |    |    |    |    |    |    |    |    |    |    |         |         |         |         |         |  |
| CNT         | 26      | 28      | 29      | 29      | 30      | 5  |    |    |    |    |    |    |    |    |    |    |    |    |    | 28      | 25      | 22      | 19      | 19      |  |
| MED         | S<br>40 | 40      | 39      | S<br>39 | S<br>38 | 37 |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>72 | S<br>55 | S<br>45 | S<br>43 | 42      |  |
| UQ          | S<br>44 | X<br>43 | X<br>42 | S<br>42 | S<br>39 | 39 |    |    |    |    |    |    |    |    |    |    |    |    |    | X<br>80 | S<br>62 | S<br>50 | 46      | 44      |  |
| LQ          | S<br>39 | S<br>38 | S<br>38 | S<br>36 | S<br>36 | 36 |    |    |    |    |    |    |    |    |    |    |    |    |    | S<br>64 | S<br>50 | S<br>41 | S<br>40 | 39      |  |

SEP. 1976

FXI (0.1 MHz)

The Radio Research Laboratories, Japan

### IONOSPHERIC DATA

SEP. 1976

FOF2 (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

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

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

SEP. 1976

FOF2 (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOF1 (0.01 MHz)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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   | 410 | L   | A   | A   | A   | A   | A   | 420 | L   | 400 | L  |    |    |    |    |    |  |
| 2           |    |    |    |    |    |    |     | L   | A   | A   | A   | A   | 450 | 450 | 430 | A   | U   | L   | L  | L  |    |    |    |    |  |
| 3           |    |    |    |    |    |    | L   | L   | L   | 440 | A   | 450 | 440 | 440 | 430 | A   | A   | A   | A  |    |    |    |    |    |  |
| 4           |    |    |    |    |    | L  | L   | L   | 440 | 440 | 440 | 440 | 440 | 430 | L   | L   | A   |     |    |    |    |    |    |    |  |
| 5           |    |    |    |    |    | L  | A   | L   | 410 | 430 | L   | 450 | 460 | 450 | A   | A   | L   | L   | A  |    |    |    |    |    |  |
| 6           |    |    |    |    |    |    |     | C   | C   | C   | C   | L   | A   | 440 | L   | 400 | R   | L   |    |    |    |    |    |    |  |
| 7           |    |    |    |    |    | L  | A   | A   | 430 | 440 | L   | 440 | 440 | 430 | 410 | L   | L   |     |    |    |    |    |    |    |  |
| 8           |    |    |    |    |    | L  | A   | A   | A   | 450 | 450 | A   | 430 | 410 | A   | A   | A   |     |    |    |    |    |    |    |  |
| 9           |    |    |    |    |    | A  | L   | 400 | 420 | 440 | C   | C   | 430 | 410 | 420 | 390 | L   |     |    |    |    |    |    |    |  |
| 10          |    |    |    |    |    | L  | A   | A   | A   | 420 | 430 | 440 | 420 | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 11          |    |    |    |    |    | A  | L   | 410 | 420 | 450 | A   | A   | 440 | 430 | L   | L   | A   |     |    |    |    |    |    |    |  |
| 12          |    |    |    |    |    | L  | 410 | 420 | L   | 440 | 440 | 430 | L   | 410 | L   | L   |     |     |    |    |    |    |    |    |  |
| 13          |    |    |    |    |    | L  | A   | A   | 450 | 440 | 440 | 440 | L   | L   | A   | A   |     |     |    |    |    |    |    |    |  |
| 14          |    |    |    |    | L  | L  | L   | 430 | 450 | 450 | 450 | 440 | 420 | 420 | L   | L   |     |     |    |    |    |    |    |    |  |
| 15          |    |    |    |    |    | L  | U   | L   | 410 | 420 | 440 | 450 | 450 | 450 | 430 | 430 | 390 | L   |    |    |    |    |    |    |  |
| 16          |    |    |    |    |    | L  | 400 | 430 | 460 | 440 | L   | 440 | L   | 430 | L   | L   |     |     |    |    |    |    |    |    |  |
| 17          |    |    |    |    |    | L  | 400 | 440 | 430 | 450 | 460 | 450 | 430 | 410 | L   | L   |     |     |    |    |    |    |    |    |  |
| 18          |    |    |    |    |    | L  | U   | L   | 430 | 440 | 470 | L   | L   | 450 | L   | L   | L   |     |    |    |    |    |    |    |  |
| 19          |    |    |    |    |    | A  | L   | L   | L   | 450 | L   | L   | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 20          |    |    |    |    |    | L  | L   | 410 | 440 | L   | 450 | 430 | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 21          |    |    |    |    |    | L  | L   | L   | 420 | 440 | 430 | L   | L   | L   | L   | L   | A   |     |    |    |    |    |    |    |  |
| 22          |    |    |    |    |    | A  | L   | L   | 420 | 430 | 430 | 440 | L   | L   | L   | A   | A   |     |    |    |    |    |    |    |  |
| 23          |    |    |    |    |    | L  | 380 | 410 | L   | L   | L   | L   | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 24          |    |    |    |    |    | L  | 410 | L   | L   | L   | L   | 440 | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 25          |    |    |    |    |    | L  | L   | L   | L   | 440 | L   | 440 | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 26          |    |    |    |    |    | L  | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 27          |    |    |    |    |    | L  | L   | L   | L   | L   | U   | L   | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 28          |    |    |    |    |    | L  | L   | L   | L   | L   | L   | U   | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 29          |    |    |    |    |    | L  | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 30          |    |    |    |    |    | L  | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |    |    |    |    |    |    |  |
| 31          |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |    |  |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |  |
| CNT         |    |    |    |    |    |    |     |     | 11  | 15  | 12  | 15  | 16  | 19  | 13  | 9   | 5   |     |    |    |    |    |    |    |  |
| MED         |    |    |    |    |    |    |     |     | 410 | 430 | 440 | 450 | 445 | 440 | 430 | 420 | 390 |     |    |    |    |    |    |    |  |
| UQ          |    |    |    |    |    |    |     |     | 410 | 435 | 450 | 450 | 450 | 445 | 430 | 420 | 400 |     |    |    |    |    |    |    |  |
| LQ          |    |    |    |    |    |    |     |     | 400 | 420 | 435 | 440 | 440 | 440 | 430 | 410 | 390 |     |    |    |    |    |    |    |  |

SEP. 1976

FOF1 (0.01 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOE (0.01 MHz)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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  | 180 | 255 | 290              | 315 | 330              | A                | A                | A                | A   | A   | 280              | 230              | B  |    |    |    |    |    |
| 2           |    |    |    |    |    | A  | 210 | 270 | 300              | 310 | A                | A                | A                | A                | A   | A   | A                | 215              | S  |    |    |    |    |    |
| 3           |    |    |    |    |    | B  | 190 | 260 | 290              | 305 | A                | A                | 335              | A                | 320 | 300 | 280              | 230 <sup>H</sup> | S  |    |    |    |    |    |
| 4           |    |    |    |    |    | B  | A   | 235 | 280              | A   | A                | A                | 340              | 330              | 315 | 300 | 270              | 215 <sup>H</sup> | B  |    |    |    |    |    |
| 5           |    |    |    |    |    | S  | 190 | 250 | 280              | 300 | 320              | 330              | 330              | A                | 315 | A   | 270              | 215              | B  |    |    |    |    |    |
| 6           |    |    |    |    |    | B  | 180 | 240 | C                | C   | C                | C                | A                | A                | 330 | 290 | 260 <sup>C</sup> | 190              | S  |    |    |    |    |    |
| 7           |    |    |    |    |    | S  | 175 | 240 | 275              | A   | A                | A                | A                | 330              | 320 | 300 | 260              | 200              | B  |    |    |    |    |    |
| 8           |    |    |    |    |    | S  | 165 | 220 | A                | A   | A                | A                | A                | A                | A   | 290 | 260 <sup>C</sup> | 195              | B  |    |    |    |    |    |
| 9           |    |    |    |    |    | S  | 155 | 235 | A                | A   | A                | C                | C                | C                | C   | A   | 250 <sup>C</sup> | 200              | S  |    |    |    |    |    |
| 10          |    |    |    |    |    | S  | 165 | 240 | A                | A   | A                | 320              | 340              | 330              | 310 | 305 | A                | 200              | A  |    |    |    |    |    |
| 11          |    |    |    |    |    | S  | 180 | 240 | 270              | A   | A                | A                | A                | A                | A   | 290 | A                | A                | S  |    |    |    |    |    |
| 12          |    |    |    |    |    | S  | A   | 230 | A                | A   | A                | A                | A                | 330              | 315 | 300 | 265              | 200              | B  |    |    |    |    |    |
| 13          |    |    |    |    |    | S  | 170 | 230 | 270              | A   | A                | A                | 340              | 330              | 320 | A   | 280              | S                | B  |    |    |    |    |    |
| 14          |    |    |    |    |    | B  | B   | 245 | A                | 320 | 330              | 340              | 335              | A                | A   | 285 | 260              | 185              | S  |    |    |    |    |    |
| 15          |    |    |    |    |    | S  | 190 | 260 | 290              | 310 | A                | A                | A                | 325              | 300 | A   | 260              | 200              | A  |    |    |    |    |    |
| 16          |    |    |    |    |    | B  | 190 | 250 | 280              | 310 | 320              | 325 <sup>R</sup> | 330              | 320              | 300 | 285 | 245              | 210 <sup>H</sup> | S  |    |    |    |    |    |
| 17          |    |    |    |    |    | S  | 170 | 250 | 290              | 315 | 330              | 335              | 340              | 340              | 320 | 285 | 250 <sup>C</sup> | 195              | S  |    |    |    |    |    |
| 18          |    |    |    |    |    | S  | S   | 250 | 290              | 310 | 320              | A                | 330              | 325              | 310 | 290 | 260              | 200              | S  |    |    |    |    |    |
| 19          |    |    |    |    |    | S  | A   | A   | A                | 290 | 320              | 325 <sup>R</sup> | 320              | 320              | 305 | 275 | 265              | 190              | S  |    |    |    |    |    |
| 20          |    |    |    |    |    | S  | A   | A   | A                | 295 | 310              | A                | 325              | 320              | 310 | 280 | 255              | 150              | B  |    |    |    |    |    |
| 21          |    |    |    |    |    | B  | 170 | 230 | 260 <sup>C</sup> | 285 | 320 <sup>R</sup> | 325 <sup>R</sup> | 325              | 310 <sup>R</sup> | 305 | 280 | 240              | 180              | B  |    |    |    |    |    |
| 22          |    |    |    |    |    | B  | A   | A   | A                | A   | A                | A                | A                | 310              | 290 | 270 | 240              | 150              | S  |    |    |    |    |    |
| 23          |    |    |    |    |    | S  | S   | A   | A                | A   | 320              | 325              | 320              | 310              | 295 | 280 | 250              | B                | S  |    |    |    |    |    |
| 24          |    |    |    |    |    | S  | S   | 230 | A                | A   | A                | A                | 320              | 320              | 300 | 290 | 260              | B                | S  |    |    |    |    |    |
| 25          |    |    |    |    |    | S  | 185 | 230 | 260 <sup>C</sup> | 310 | A                | 320 <sup>R</sup> | 330              | 320              | 300 | 280 | 240              | 170              | S  |    |    |    |    |    |
| 26          |    |    |    |    |    | S  | 180 | 250 | 275              | 290 | A                | 320              | 320              | 315              | 300 | 280 | 250              | 180              | S  |    |    |    |    |    |
| 27          |    |    |    |    |    | S  | A   | A   | A                | A   | 320              | 330              | 330              | 315              | 300 | 280 | 240              | 170              | S  |    |    |    |    |    |
| 28          |    |    |    |    |    | S  | 160 | 255 | 275              | 300 | A                | A                | 330              | 320              | 300 | 285 | 230              | S                | S  |    |    |    |    |    |
| 29          |    |    |    |    |    | S  | B   | 230 | 285              | A   | 320              | 330              | 330 <sup>R</sup> | 310              | 300 | A   | 230              | S                | S  |    |    |    |    |    |
| 30          |    |    |    |    |    | S  | S   | 250 | 285              | 300 | A                | A                | A                | A                | A   | 275 | 250              | S                | S  |    |    |    |    |    |
| 31          |    |    |    |    |    |    |     |     |                  |     |                  |                  |                  |                  |     |     |                  |                  |    |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07  | 08               | 09  | 10               | 11               | 12               | 13               | 14  | 15  | 16               | 17               | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |    | 18  | 25  | 18               | 16  | 12               | 12               | 19               | 20               | 23  | 23  | 27               | 23               |    |    |    |    |    |    |
| MED         |    |    |    |    |    |    | 180 | 240 | 280              | 308 | 320              | 325              | 330              | 320              | 305 | 285 | 260              | 200              |    |    |    |    |    |    |
| UQ          |    |    |    |    |    |    | 190 | 250 | 290              | 310 | 325              | 330              | 335              | 330              | 315 | 290 | 262              | 205              |    |    |    |    |    |    |
| LQ          |    |    |    |    |    |    | 170 | 230 | 275              | 298 | 320              | 322              | 325              | 315              | 300 | 280 | 248              | 182              |    |    |    |    |    |    |

The Radio Research Laboratories, Japan

SEP. 1976

FOE (0.01 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOES (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00     | 01     | 02     | 03     | 04     | 05     | 06     | 07     | 08     | 09     | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18      | 19      | 20     | 21     | 22     | 23     |        |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|--------|--------|
| 1           | J A 26 | 24     | 22     | E B 14 | E B 14 | E S 15 | E B 14 | 34     | J A 41 | J A 44 | J A 48 | J A 52 | J A 55 | J A 66 | J A 46 | 36     | 35     | G      | J A 26  | 20      | 20     | J A 30 | J A 27 | J A 28 |        |
| 2           | J A 26 | J A 41 | J A 25 | 21     | 24     | J A 24 | 32     | J A 41 | J A 59 | J A 57 | 57     | J A 54 | J A 48 | J A 47 | J A 41 | J A 71 | J A 28 | 25     | 20      | 23      | J A 27 | J A 54 | 36     | J A 42 |        |
| 3           | 22     | J A 27 | 20     | 28     | J A 26 | J A 44 | J A 28 | 37     | 40     | J A 47 | J A 54 | 40     | 37     | 43     | J A 42 | J A 63 | J A 42 | J A 65 | J A 37  | J A 63  | J A 73 | J A 30 | J A 26 | 22     |        |
| 4           | 20     | E B 13 | E B 14 | E B 13 | 19     | 27     | J A 30 | 31     | 30     | 32     | 34     | 35     | 32     | G      | G      | 35     | 36     | J A 40 | J A 43  | J A 53  | J A 19 | J A 24 | J A 22 | J A 33 | J A 34 |
| 5           | J A 27 | J A 24 | 23     | J A 25 | 23     | J S 15 | 29     | J A 48 | 33     | 38     | J A 42 | J A 43 | J A 47 | J A 54 | J A 65 | J A 78 | J A 42 | J A 60 | J A 42  | J A 50  | J A 62 | J A 51 | J A 26 | J A 26 |        |
| 6           | J A 27 | J A 25 | J A 28 | J A 24 | 22     | 16     | J A 37 | J A 51 | C      | C      | C      | C      | J A 84 | J A 47 | G      | 35     | J A 42 | J A 30 | J A 54  | J A 55  | J A 42 | J A 60 | J A 30 | J A 52 |        |
| 7           | J A 27 | J A 42 | J A 30 | J A 42 | J A 26 | 22     | J A 30 | J A 42 | J A 48 | J A 47 | 36     | 36     | 40     | 31     | 36     | 36     | J A 48 | 30     | J A 38  | J A 42  | J A 30 | J A 54 | J A 52 | J A 58 |        |
| 8           | J A 52 | J A 27 | J A 29 | 23     | 23     | 22     | J A 37 | J A 33 | J A 58 | J A 60 | J A 62 | J A 58 | J A 43 | J A 49 | 34     | 37     | J A 42 | J A 44 | J A 52  | J A 110 | J A 87 | 60     | J A 26 | J A 26 |        |
| 9           | 29     | J A 23 | J A 25 | 24     | 25     | 23     | J A 41 | J A 41 | J A 41 | J A 39 | 37     | C      | C      | C      | C      | J A 47 | 29     | 25     | 20      | J A 22  | 24     | 21     | 21     | J A 30 |        |
| 10          | J A 27 | 25     | 25     | J A 22 | J A 30 | J A 26 | J A 26 | J A 38 | J A 44 | J A 60 | J A 47 | 40     | G      | 36     | G      | J A 28 | J A 30 | 25     | J A 27  | J A 27  | J A 30 | J A 24 | J A 32 | J A 37 |        |
| 11          | J A 26 | 23     | 19     | 22     | 19     | E S 16 | J A 27 | J A 44 | J A 36 | 36     | J A 41 | J A 65 | J A 48 | 36     | 36     | J A 30 | 36     | J A 90 | J A 160 | J A 140 | J A 74 | J A 30 | J A 54 | J A 60 |        |
| 12          | J A 37 | J A 27 | J A 24 | 25     | J A 26 | J A 24 | J A 26 | 28     | J A 30 | 35     | 36     | J A 39 | 37     | 32     | 34     | 33     | 32     | J A 30 | J A 25  | J A 42  | J A 44 | J A 30 | J A 42 | J A 27 |        |
| 13          | E S 16 | J A 36 | J A 24 | E B 14 | J A 26 | E S 16 | G      | 28     | 34     | J A 47 | J A 48 | J A 38 | 34     | 36     | 34     | 37     | 34     | J A 93 | J A 54  | J A 54  | J A 54 | J A 54 | J A 30 | J A 30 |        |
| 14          | J A 27 | E B 13 | 19     | J A 26 | J A 27 | 21     | 29     | 29     | J A 42 | G      | G      | G      | 39     | 37     | J A 31 | G      | 29     | 23     | 25      | 24      | 24     | 23     | E S 15 | 25     |        |
| 15          | 24     | 28     | 25     | E B 13 | 21     | E S 16 | 24     | 28     | 33     | 35     | 37     | 34     | 34     | G      | 32     | 32     | 31     | 25     | J A 30  | J A 30  | J A 52 | J A 42 | J A 23 | 25     |        |
| 16          | 23     | 25     | E B 14 | E B 13 | 21     | 21     | 24     | 29     | 31     | G      | G      | G      | G      | G      | G      | G      | J A 29 | 26     | 24      | 25      | J A 30 | 36     | J A 24 | E S 16 |        |
| 17          | J A 26 | J A 28 | J A 22 | 22     | 25     | J A 28 | 29     | 29     | 31     | 34     | 35     | 21     | 20     | G      | 35     | 34     | 32     | J A 30 | J A 27  | J A 24  | J A 38 | J A 30 | J A 26 | J A 24 |        |
| 18          | J A 26 | 23     | 22     | 22     | E S 16 | E S 16 | 19     | G      | G      | G      | G      | 37     | G      | G      | G      | G      | G      | 25     | J A 25  | E S 16  | J A 24 | J A 43 | J A 27 | J A 30 |        |
| 19          | J A 26 | 23     | 19     | J A 28 | 21     | J A 18 | J A 36 | J A 54 | J A 30 | G      | G      | G      | G      | G      | G      | G      | 29     | 28     | J A 50  | J A 22  | 24     | J A 27 | J A 41 | J A 44 |        |
| 20          | J A 25 | 25     | E B 14 | 20     | 21     | J A 28 | J A 27 | J A 31 | 35     | 36     | 39     | 34     | J A 29 | J A 26 | G      | G      | G      | J A 28 | J A 29  | J A 30  | J A 43 | J A 26 | J A 33 | J A 34 |        |
| 21          | J A 24 | J A 22 | 24     | 21     | E B 13 | E B 14 | G      | G      | G      | G      | 37     | 37     | 37     | G      | 34     | 31     | 34     | J A 32 | J A 23  | J A 26  | J A 26 | J A 26 | E B 14 | E S 16 |        |
| 22          | 20     | 20     | 21     | J A 32 | J A 26 | J A 24 | J A 28 | J A 43 | J A 33 | J A 38 | J A 43 | J A 39 | J A 52 | 36     | G      | 33     | J A 41 | J A 58 | J A 62  | J A 30  | J A 29 | J A 24 | J A 42 | J A 34 |        |
| 23          | J A 27 | J A 26 | 22     | 24     | J A 24 | J A 27 | 24     | J A 36 | 28     | 36     | 28     | G      | G      | G      | G      | G      | G      | J A 41 | J A 88  | J A 53  | J A 37 | J A 40 | J A 42 | J A 30 |        |
| 24          | J A 24 | 23     | 23     | 22     | E S 16 | 18     | 20     | J A 30 | J A 30 | J A 47 | 36     | 35     | J A 29 | J A 24 | G      | G      | 29     | 24     | J A 24  | J A 41  | J A 30 | J A 28 | J A 25 | J A 26 |        |
| 25          | 22     | E S 16 | E S 16 | E B 14 | E S 16 | E S 16 | 21     | 29     | 31     | J A 29 | J A 36 | J A 27 | J A 25 | G      | G      | G      | G      | E S 16 | J A 23  | E S 16  | J A 25 | E S 16 | E S 16 | E S 16 |        |
| 26          | E S 16 | E S 16 | E S 16 | E S 16 | E B 14 | E S 16 | 24     | G      | 30     | 36     | 36     | G      | G      | G      | G      | G      | G      | J A 27 | J A 27  | J A 26  | J A 24 | J A 30 | E S 16 | J A 24 |        |
| 27          | 21     | E S 16 | E S 16 | E B 13 | E S 16 | E S 16 | 20     | J A 30 | J A 30 | 32     | G      | G      | G      | G      | G      | G      | 30     | 24     | E S 16  | E S 16  | J A 22 | E S 16 | 22     | E S 16 |        |
| 28          | E S 16 | E B 14 | E S 16 | E S 16 | E S 16 | E S 16 | 21     | G      | 33     | 36     | 37     | 36     | J A 24 | 20     | G      | G      | 29     | 24     | J A 26  | J A 24  | J A 23 | J A 30 | E S 16 | E B 13 |        |
| 29          | E S 16 | E S 16 | E S 16 | E S 16 | E B 13 | E S 16 | 18     | 30     | 35     | 38     | G      | G      | G      | G      | G      | 33     | 28     | J A 31 | J A 31  | J A 36  | J A 52 | E S 16 | J A 23 | J A 24 |        |
| 30          | J A 27 | J A 30 | J A 27 | J A 19 | J A 26 | J A 28 | 22     | 29     | 31     | 34     | 37     | 37     | 38     | J A 40 | 36     | G      | 29     | J A 37 | J A 30  | J A 21  | 22     | 23     | 22     | 21     |        |
| 31          |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |         |         |        |        |        |        |        |
|             | 00     | 01     | 02     | 03     | 04     | 05     | 06     | 07     | 08     | 09     | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18      | 19      | 20     | 21     | 22     | 23     |        |
| CNT         | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 29     | 29     | 29     | 28     | 29     | 29     | 29     | 30     | 30     | 30     | 30      | 30      | 30     | 30     | 30     | 30     |        |
| MED         | J A 26 | 24     | 22     | 22     | 22     | 20     | 26     | 30     | 33     | 36     | 37     | 36     | 34     | 26     | 31     | 32     | 30     | J A 29 | J A 28  | J A 26  | J A 30 | J A 30 | J A 26 | J A 26 |        |
| UQ          | J A 27 | J A 27 | J A 25 | 24     | J A 26 | J A 24 | J A 29 | J A 41 | J A 40 | J A 44 | J A 42 | J A 40 | 40     | 37     | 35     | 36     | J A 36 | J A 41 | J A 50  | J A 42  | J A 44 | J A 42 | J A 33 | J A 34 |        |
| LQ          | 22     | 20     | E 16   | E 16   | E 16   | E S 16 | 21     | 29     | 30     | 32     | 34     | E G 21 | G      | G      | G      | G      | 29     | 25     | J A 25  | J A 23  | J A 24 | J A 24 | 22     | 24     |        |

SEP. 1976

FOES (0.1 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

SEP. 1976      FBES (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00              | 01              | 02              | 03              | 04              | 05              | 06              | 07 | 08              | 09 | 10              | 11              | 12              | 13              | 14              | 15              | 16 | 17              | 18               | 19               | 20              | 21              | 22              | 23              |    |                 |
|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|-----------------|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|-----------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|----|-----------------|
| 1           | E               | E               | E               | E <sub>14</sub> | E <sub>14</sub> | E <sub>15</sub> | E <sub>14</sub> | 30 | 38              | 41 | 44              | 44              | 50              | A <sub>66</sub> | 44              | 35              | G  | G               | 23               | E                | E               | 20              | 23              | E               |    |                 |
| 2           | E               | E               | 16              | E               | E               | 20              | 25              | 35 | A <sub>59</sub> | 57 | A <sub>57</sub> | 49              | 44              | 42              | 38              | 59              | 26 | 19              | 19               | E                | 18              | A <sub>54</sub> | A <sub>36</sub> | A <sub>42</sub> |    |                 |
| 3           | E               | 23              | E               | 17              | E               | 16              | 22              | 37 | 40              | 42 | 53              | 39              | 37              | 42              | G               | A <sub>63</sub> | 40 | A <sub>65</sub> | 32               | 43               | 53              | 17              | 18              | E               |    |                 |
| 4           | E               | E <sub>13</sub> | E <sub>14</sub> | E <sub>13</sub> | E               | 18              | 27              | 31 | 30              | 32 | 34              | 35              | 31              | G               | G               | 35              | 36 | 37              | 40               | 20               | 17              | 20              | E               | E               | 30 |                 |
| 5           | 19              | 17              | E               | 17              | 16              | S               | 26              | 45 | 31              | 38 | 40              | 41              | 41              | 40              | A <sub>65</sub> | 52              | 30 | 30              | 34               | 45               | 46              | 19              | 20              | 19              |    |                 |
| 6           | 22              | 18              | E               | 18              | E               | 14              | 35              | 48 | C               | C  | C               | C               | 41              | 43              | G               | 31              | 34 | 26              | 46               | 40               | 40              | A <sub>60</sub> | 25              | E               |    |                 |
| 7           | E               | 26              | 26              | 22              | E               | G               | 26              | 38 | 41              | 41 | 36              | 33              | 40              | 31              | G               | G               | 36 | 26              | 38               | 40               | E               | A <sub>54</sub> | 20              | A <sub>58</sub> |    |                 |
| 8           | A <sub>52</sub> | 26              | 25              | E               | E               | G               | 28              | 30 | 46              | 52 | 44              | 40              | 40              | 47              | 33              | 35              | 40 | 44              | 38               | 47               | A <sub>87</sub> | A <sub>60</sub> | 26              | E               |    |                 |
| 9           | E               | E               | 21              | E               | 17              | G               | 40              | 36 | 33              | 37 | 37              | C               | C               | C               | C               | 30              | 28 | 24              | G                | 18               | E               | E               | E               | E               |    |                 |
| 10          | 17              | E               | 16              | 19              | 19              | 17              | 18              | 35 | 44              | 44 | 40              | 40              | G               | G               | G               | G               | 26 | 26              | 18               | 19               | 23              | 29              | E               | 18              | 20 |                 |
| 11          | E               | E               | E               | E               | E               | E <sub>16</sub> | 25              | 40 | 33              | 34 | 40              | 52              | 46              | 35              | 33              | 27              | 27 | A <sub>90</sub> | A <sub>160</sub> | A <sub>140</sub> | E               | E               | A <sub>54</sub> | A <sub>60</sub> |    |                 |
| 12          | 28              | 20              | 16              | E               | E               | G               | 20              | 27 | 29              | 31 | 33              | 38              | 37              | 28              | 28              | 26              | 30 | 27              | 21               | 26               | 22              | E               | E               | E               |    |                 |
| 13          | E <sub>16</sub> | 20              | 19              | E <sub>14</sub> | E               | E <sub>16</sub> | G               | 27 | 33              | 44 | 46              | 37              | 32              | G               | G               | 31              | 34 | A <sub>93</sub> | 45               | 27               | 40              | 28              | 19              | 27              |    |                 |
| 14          | 17              | E <sub>13</sub> | E               | 18              | 16              | 16              | 28              | 27 | 31              | G  | G               | G               | 38              | 37              | 31              | 24              | 28 | 23              | G                | E                | E               | E               | E <sub>15</sub> | 17              |    |                 |
| 15          | E               | E               | 17              | E <sub>13</sub> | E               | E <sub>16</sub> | 23              | G  | 32              | 35 | 36              | E <sub>34</sub> | E <sub>34</sub> | G               | 32              | 32              | 30 | 24              | 21               | 25               | A <sub>52</sub> | A <sub>42</sub> | 20              | 16              |    |                 |
| 16          | 17              | 17              | E <sub>14</sub> | E <sub>13</sub> | E               | G               | G               | 28 | 31              | G  | G               | G               | E <sub>22</sub> | E <sub>20</sub> | G               | G               | 18 | 19              | 18               | 26               | 17              | 23              | 17              | 20              | E  | E <sub>16</sub> |
| 17          | 17              | 19              | 17              | E               | 18              | 26              | 26              | 28 | 31              | 34 | 35              | 21              | E <sub>20</sub> | G               | 35              | 32              | 29 | 26              | 24               | E                | 26              | 21              | 19              | 22              |    |                 |
| 18          | 17              | E               | E               | E               | E <sub>16</sub> | E <sub>16</sub> | 18              | G  | G               | G  | G               | 35              | G               | G               | G               | G               | G  | 22              | 20               | E <sub>16</sub>  | E               | 34              | E               | 23              |    |                 |
| 19          | 22              | E               | E               | 26              | E               | 16              | 30              | 41 | 29              | G  | G               | G               | G               | G               | G               | G               | G  | 28              | 45               | E                | E               | E               | A <sub>41</sub> | 25              |    |                 |
| 20          | E               | E               | E <sub>14</sub> | E               | E               | 20              | 21              | 26 | 30              | 35 | 39              | 34              | G               | G               | G               | G               | G  | 26              | 27               | 26               | 21              | 20              | A <sub>33</sub> | 23              |    |                 |
| 21          | E               | 16              | E               | E               | E <sub>13</sub> | E <sub>14</sub> | G               | G  | G               | G  | 36              | 37              | 35              | G               | 34              | 30              | 32 | 30              | 22               | E                | E               | 20              | E <sub>14</sub> | E <sub>16</sub> |    |                 |
| 22          | E               | E               | E               | E               | E               | G               | 23              | 38 | 31              | 36 | 41              | 39              | 42              | 29              | G               | 29              | 40 | 51              | 17               | 28               | 23              | 18              | A <sub>42</sub> | A <sub>34</sub> |    |                 |
| 23          | 18              | 18              | E               | 16              | 16              | G               | 19              | 33 | 28              | 33 | 27              | G               | G               | G               | G               | G               | G  | 32              | 46               | 40               | 28              | 28              | 30              | 20              |    |                 |
| 24          | 18              | E               | 17              | E               | E <sub>16</sub> | G               | 20              | 20 | 29              | 30 | 34              | 35              | 28              | G               | G               | G               | 28 | 22              | 23               | 26               | 25              | E               | 20              | 19              |    |                 |
| 25          | E               | E <sub>16</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>16</sub> | 20              | 27 | G               | G  | 26              | 33              | 26              | G               | G               | G               | G  | G               | E <sub>16</sub>  | E                | E <sub>16</sub> | E               | E <sub>16</sub> | E <sub>16</sub> |    |                 |
| 26          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | 20              | G  | 30              | 35 | 35              | G               | G               | G               | G               | G               | G  | 24              | 24               | 20               | 21              | 20              | E <sub>16</sub> | E               |    |                 |
| 27          | E               | E <sub>16</sub> | E <sub>16</sub> | E <sub>13</sub> | E <sub>16</sub> | E <sub>16</sub> | 17              | 27 | 29              | 32 | G               | G               | G               | G               | G               | G               | 28 | 21              | E <sub>16</sub>  | E <sub>16</sub>  | 18              | E <sub>16</sub> | E               | E <sub>16</sub> |    |                 |
| 28          | E <sub>16</sub> | E <sub>14</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 18              | G  | 31              | 33 | 37              | 33              | 24              | G               | G               | G               | 26 | 20              | 20               | E                | E               | E               | E <sub>16</sub> | E <sub>13</sub> |    |                 |
| 29          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>13</sub> | E <sub>16</sub> | 18              | 26 | G               | 32 | G               | G               | G               | G               | G               | 32              | 27 | 25              | 20               | 21               | 27              | E <sub>16</sub> | E               | 16              |    |                 |
| 30          | 23              | 20              | 20              | E               | E               | 17              | G               | 26 | 30              | 34 | 36              | 37              | 38              | 38              | 34              | G               | G  | 30              | 24               | E                | E               | E               | E               | E               |    |                 |
| 31          |                 |                 |                 |                 |                 |                 |                 |    |                 |    |                 |                 |                 |                 |                 |                 |    |                 |                  |                  |                 |                 |                 |                 |    |                 |
| 00          | 01              | 02              | 03              | 04              | 05              | 06              | 07              | 08 | 09              | 10 | 11              | 12              | 13              | 14              | 15              | 16              | 17 | 18              | 19               | 20               | 21              | 22              | 23              |                 |    |                 |
| CNT         | 30              | 30              | 30              | 30              | 29              | 30              | 30              | 29 | 29              | 29 | 28              | 29              | 29              | 29              | 30              | 30              | 30 | 30              | 30               | 30               | 30              | 30              | 30              | 30              |    |                 |
| MED         | 16              | 16              | 16              | E <sub>13</sub> | E <sub>13</sub> | 16              | 20              | 28 | 31              | 34 | 36              | 35              | 32              | 20              | G               | 26              | 28 | 26              | 22               | 22               | 20              | 18              | 18              | 16              |    |                 |
| UQ          | 18              | 18              | 17              | 16              | E <sub>16</sub> | 16              | 26              | 36 | 33              | 38 | 40              | 39              | 40              | 37              | 33              | 32              | 32 | 30              | 34               | 28               | 28              | 28              | 25              | 23              |    |                 |
| LQ          | E               | E               | E               | E               | E               | G               | 18              | 26 | 29              | 31 | 33              | E <sub>21</sub> | E <sub>20</sub> | G               | G               | G               | G  | 22              | 19               | E                | E               | E               | E               | E               |    |                 |

SEP. 1976      FBES (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

F-MIN (0.1 MHz)

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

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

| Hour<br>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 <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | 14              | E <sub>15</sub> | 14              | 14 | 15 | 17 | 17 | 18 | 18 | 17 | 17 | 16 | 16 | 16              | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 2           | E <sub>16</sub> | E <sub>16</sub> | 13              | E <sub>16</sub> | E <sub>16</sub> | 15              | 14              | 15 | 16 | 16 | 17 | 17 | 16 | 16 | 16 | 16 | 15 | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 3           | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> | 13              | E <sub>16</sub> | 14 | 16 | 16 | 17 | 16 | 17 | 18 | 17 | 16 | 16 | 16              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 4           | 14              | 13              | 14              | 13              | E <sub>16</sub> | 13              | 14              | 15 | 15 | 16 | 17 | 17 | 16 | 17 | 16 | 17 | 15 | 15              | 15              | 13              | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 5           | E <sub>16</sub> | 13              | E <sub>16</sub> | 13              | 12              | E <sub>16</sub> | 13              | 15 | 14 | 15 | 17 | 17 | 16 | 18 | 16 | 16 | 15 | 15              | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 6           | 14              | 13              | 14              | E <sub>16</sub> | E <sub>16</sub> | 11              | 15              | 15 | C  | C  | C  | C  | 18 | 16 | 16 | 15 | 15 | 16              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 7           | E <sub>16</sub> | 13              | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 15              | 15 | 16 | 16 | 16 | 16 | 16 | 16 | 17 | 16 | 15 | 15              | 14              | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 8           | E <sub>16</sub> | 13              | 15              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 15              | 14 | 15 | 16 | 17 | 17 | 17 | 19 | 17 | 15 | 15 | 16              | 13              | E <sub>16</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 9           | E <sub>16</sub> | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | 13              | E <sub>16</sub> | 13              | 16 | 15 | 16 | 16 | C  | C  | C  | C  | 15 | 15 | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 10          | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> | 13              | 13              | E <sub>16</sub> | 13              | 15 | 15 | 15 | 16 | 15 | 17 | 17 | 17 | 16 | 15 | 15              | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 11          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 15              | E <sub>16</sub> | 15              | 15 | 16 | 15 | 18 | 17 | 18 | 17 | 16 | 16 | 15 | 15              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 12          | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 16              | 16 | 16 | 17 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 15              | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 13          | E <sub>16</sub> | E <sub>16</sub> | 12              | 14              | 13              | E <sub>16</sub> | 15              | 15 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 13 | E <sub>16</sub> | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 14          | E <sub>16</sub> | 13              | E <sub>16</sub> | E <sub>16</sub> | 12              | 12              | 15              | 16 | 16 | 16 | 16 | 17 | 17 | 18 | 16 | 15 | 16 | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 15          | E <sub>16</sub> | E <sub>16</sub> | 12              | 13              | 13              | E <sub>16</sub> | E <sub>16</sub> | 14 | 14 | 16 | 16 | 17 | 18 | 17 | 16 | 16 | 17 | 14              | E <sub>15</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> | E <sub>15</sub> |
| 16          | E <sub>16</sub> | E <sub>16</sub> | 14              | 13              | E <sub>16</sub> | 13              | 14              | 16 | 15 | 16 | 16 | 16 | 16 | 15 | 16 | 15 | 14 | 14              | E <sub>16</sub> | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 17          | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14 | 14 | 17 | 15 | 16 | 16 | 19 | 18 | 16 | 16 | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 13              | E <sub>16</sub> |
| 18          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14 | 14 | 15 | 16 | 17 | 18 | 17 | 16 | 15 | 15 | 15              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 19          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>15</sub> | 15              | 13 | 15 | 17 | 16 | 17 | 17 | 16 | 16 | 15 | 15 | 16              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 20          | E <sub>16</sub> | E <sub>16</sub> | 14              | 14              | 13              | E <sub>16</sub> | 15              | 15 | 16 | 15 | 16 | 16 | 16 | 16 | 15 | 15 | 16 | 14              | 13              | E <sub>16</sub> | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 21          | E <sub>16</sub> | 13              | E <sub>16</sub> | E <sub>16</sub> | 13              | 14              | 15              | 15 | 15 | 16 | 16 | 15 | 16 | 16 | 15 | 15 | 15 | 16              | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> |
| 22          | E <sub>16</sub> | 13              | 13              | E <sub>16</sub> | E <sub>15</sub> | 13              | 15              | 16 | 16 | 16 | 16 | 16 | 17 | 16 | 17 | 15 | 15 | 14              | E <sub>16</sub> | 13              | E <sub>16</sub> | 13              | E <sub>16</sub> | 12              |
| 23          | E <sub>16</sub> | 14              | 14              | 13              | 13              | E <sub>16</sub> | E <sub>16</sub> | 16 | 16 | 16 | 18 | 27 | 23 | 18 | 18 | 16 | 15 | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 24          | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14 | 15 | 16 | 15 | 15 | 14 | 14 | 15 | 15 | 14 | 16              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 25          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> | E <sub>16</sub> | 16              | 15 | 16 | 16 | 15 | 15 | 16 | 15 | 16 | 16 | 15 | 15              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 26          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> | 15              | 13 | 16 | 16 | 16 | 16 | 16 | 17 | 16 | 16 | 16 | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 27          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 13              | E <sub>16</sub> | E <sub>16</sub> | 14              | 14 | 15 | 16 | 16 | 17 | 16 | 16 | 15 | 15 | 16 | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 28          | E <sub>16</sub> | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 13              | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 16 | 16 | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 13              |
| 29          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 13              | E <sub>16</sub> | 13              | 15 | 16 | 16 | 15 | 18 | 17 | 16 | 16 | 16 | 16 | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 13              |
| 30          | E <sub>16</sub> | 13              | 13              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | 16 | 15 | 17 | 16 | 16 | 16 | 16 | 17 | 16 | 15 | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| 31          |                 |                 |                 |                 |                 |                 |                 |    |    |    |    |    |    |    |    |    |    |                 |                 |                 |                 |                 |                 |                 |
| CNT         | 30              | 30              | 30              | 30              | 30              | 30              | 30              | 30 | 29 | 29 | 29 | 28 | 29 | 29 | 29 | 30 | 30 | 30              | 30              | 30              | 30              | 30              | 30              | 30              |
| MED         | E <sub>16</sub> | E <sub>16</sub> | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 14              | 15 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 15 | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| UQ          | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | 16              | 15 | 16 | 16 | 17 | 17 | 17 | 17 | 17 | 16 | 16 | 16              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |
| LQ          | E <sub>16</sub> | 13              | 14              | 14              | 13              | U               | 13              | 14 | 14 | 15 | 16 | 16 | 16 | 16 | 16 | 15 | 15 | 14              | 14              | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> | E <sub>16</sub> |

SEP. 1976

F-MIN (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

M(3000)F2 (0.01)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00               | 01               | 02               | 03               | 04               | 05               | 06               | 07               | 08               | 09               | 10               | 11      | 12               | 13    | 14               | 15               | 16  | 17  | 18               | 19               | 20               | 21               | 22               | 23               |
|-------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|---------|------------------|-------|------------------|------------------|-----|-----|------------------|------------------|------------------|------------------|------------------|------------------|
| 1           | 305              | 305              | 300              | 315              | 285 <sup>S</sup> | 285 <sup>F</sup> | 345              | 360              | 370              | 370              | 300 <sup>R</sup> | 340     | 310              | A     | 300              | 320              | 320 | 325 | 310              | 320 <sup>S</sup> | 320              | 320              | 310 <sup>S</sup> | S                |
| 2           | S                | S                | F                | F                | 335              | 335 <sup>F</sup> | 360              | 340              | A                | A                | A                | 310     | 310              | 320   | 315              | 340              | 320 | 285 | 290 <sup>S</sup> | 335              | 365 <sup>S</sup> | A                | A                | A                |
| 3           | 310              | 315              | 300              | 310              | F                | 320              | 340 <sup>J</sup> | 340              | 345              | 315              | 330              | 315     | 335              | 345   | 340              | A                | 335 | A   | 310              | 325              | 350 <sup>J</sup> | 335              | 295              | 290              |
| 4           | 310              | 300 <sup>J</sup> | 315              | 325              | 310              | 290              | 320              | 335              | 375              | 335              | 350              | 350     | 340              | 315   | 320              | 320              | 340 | 310 | 320 <sup>J</sup> | 330 <sup>J</sup> | 360              | 320 <sup>S</sup> | 290 <sup>S</sup> | A                |
| 5           | 310 <sup>S</sup> | 310 <sup>S</sup> | 300 <sup>S</sup> | 320 <sup>S</sup> | 290 <sup>S</sup> | 310              | 350              | 360              | 335              | 325              | 310              | 340     | 320              | 315   | A                | A                | 340 | 330 | 325              | 325              | S                | A                | F                | S                |
| 6           | J 305            | 290 <sup>S</sup> | 295 <sup>S</sup> | 305 <sup>S</sup> | 305 <sup>S</sup> | 295 <sup>F</sup> | 345              | I 360            | C                | C                | C                | C       | 320              | 300   | 300              | J R 310          | 315 | 350 | U 325            | U 340            | S                | A                | U 340            | S                |
| 7           | S                | 300 <sup>S</sup> | A                | 300 <sup>S</sup> | U 305            | 305 <sup>S</sup> | 350              | 370              | 350              | 345              | 320              | 295     | 310              | 315   | 300              | 310              | 325 | 325 | I 340            | 345 <sup>S</sup> | 340 <sup>S</sup> | A                | S                | A                |
| 8           | A                | 310              | 305              | 295 <sup>F</sup> | 310 <sup>S</sup> | 345 <sup>S</sup> | 380              | 365              | 370              | 350              | 320              | 300     | 320              | 310   | 310              | 330 <sup>H</sup> | 330 | 310 | 335              | 340              | A                | A                | I 335            | F                |
| 9           | 310              | 315              | 305              | 300              | 305              | F                | 350              | 380              | 380              | 375              | 370              | C       | C                | I 320 | I 305            | 325              | 325 | 310 | 305              | J 335            | 370              | 325              | 300              | I 300            |
| 10          | 305 <sup>S</sup> | U 305            | I 305            | I 345            | 380 <sup>S</sup> | 315 <sup>F</sup> | J 300            | 330              | 350              | 340              | 310              | 325     | 325              | 310   | 335              | 340              | 335 | 325 | 325              | 335              | 345              | 300 <sup>S</sup> | S                | S                |
| 11          | 335 <sup>S</sup> | 325 <sup>S</sup> | 300              | 310 <sup>S</sup> | 310 <sup>S</sup> | 310 <sup>S</sup> | 320              | 340              | 345 <sup>S</sup> | 350 <sup>R</sup> | 320              | 320     | 325              | 315   | 325 <sup>R</sup> | 335              | 340 | A   | A                | A                | 330              | 340 <sup>S</sup> | A                | A                |
| 12          | S                | 310 <sup>S</sup> | 295 <sup>S</sup> | 300 <sup>S</sup> | 300 <sup>S</sup> | 310 <sup>S</sup> | 310              | 340 <sup>S</sup> | 345 <sup>S</sup> | 345              | 345              | 310     | 320              | 320   | 305              | 315              | 320 | 330 | 350              | 360              | I 350            | 310 <sup>S</sup> | S                | 280 <sup>F</sup> |
| 13          | 305 <sup>S</sup> | 295 <sup>S</sup> | 305 <sup>S</sup> | 305 <sup>S</sup> | 325 <sup>S</sup> | 325 <sup>S</sup> | 360              | 365              | 350              | 320              | 310              | 320     | 320              | 325   | 310              | 330              | 345 | A   | 350              | 360              | 345              | 325 <sup>S</sup> | 315              | I 290            |
| 14          | 310              | 305              | F                | F                | F                | 325              | 360 <sup>S</sup> | 355              | 340              | 335              | 325              | J R 310 | J R 305          | 335   | 345              | 335              | 330 | 340 | 325              | 325 <sup>S</sup> | 355              | 335              | 285              | 295              |
| 15          | 295              | 300              | 315              | 350              | 345              | 315              | 345              | 360              | 355              | 350              | 330              | 330     | 335              | 310   | 335              | 320              | 320 | 315 | J 325            | 365              | A                | A                | 305              | 285              |
| 16          | 300              | 310              | 315              | 365              | 320              | 295              | 315              | 325 <sup>S</sup> | 350              | 355              | 345              | 355     | 330              | 355   | 325              | 320              | 325 | 330 | 335              | 335              | 355              | 295              | 300              | 290 <sup>S</sup> |
| 17          | J 295            | 325 <sup>S</sup> | 305              | 335              | 330              | 320              | 345              | 350              | 365              | 345              | 350              | 340     | 350              | 320   | 330              | 330              | 325 | 330 | 340              | U 350            | 325              | 295 <sup>S</sup> | 310              | J 285            |
| 18          | 305              | 305              | 295              | 310              | 305              | 300              | 330              | 360 <sup>S</sup> | 360              | 355              | 340 <sup>H</sup> | 355     | 320              | 335   | 315              | 315              | 320 | 300 | 330              | 350              | 315              | S                | 290              | 280              |
| 19          | 280              | 265              | 290              | 300              | 300              | 285              | 315              | 320 <sup>S</sup> | 320              | 340              | 350              | 325     | 335              | 350   | 340              | 335              | 350 | 325 | 340 <sup>S</sup> | 350              | 330              | S                | A                | S                |
| 20          | 295 <sup>S</sup> | 305 <sup>S</sup> | 295 <sup>S</sup> | 275              | 310 <sup>S</sup> | 285              | 330 <sup>S</sup> | 340              | 325 <sup>S</sup> | 330              | 350              | 325     | 315              | 320   | 345              | 310              | 340 | 310 | 345              | I 370            | 380              | 265              | A                | 295 <sup>S</sup> |
| 21          | 270 <sup>S</sup> | 280 <sup>S</sup> | 310 <sup>S</sup> | 335              | 300              | 290              | 330              | 340              | 360              | 310              | 325              | 325     | 320              | 335   | 325              | 320              | 310 | 325 | 350              | 380 <sup>S</sup> | 275              | 290 <sup>S</sup> | 265 <sup>S</sup> | 285 <sup>S</sup> |
| 22          | 295 <sup>S</sup> | 295 <sup>S</sup> | 335              | F                | 320              | 320              | 360              | 370              | 325              | 330              | 340              | 330     | 345              | 340   | 350              | 350              | 340 | 335 | 340              | 350              | 320              | 320              | A                | A                |
| 23          | 320 <sup>S</sup> | F                | 330              | F                | F                | 325              | 340              | 360              | 360              | 330              | 340              | 350     | 345              | 350   | 340              | 320              | 340 | 325 | I 330            | 350              | 350              | I 325            | I 315            | 305              |
| 24          | 295 <sup>S</sup> | 300              | 335              | 320              | 320              | 310 <sup>S</sup> | 335              | 345 <sup>S</sup> | 350              | 360              | 365              | 350     | 325              | 340   | 350              | 340              | 325 | 335 | J 340            | 355              | I 340            | 310              | 310 <sup>S</sup> | 300              |
| 25          | 290 <sup>S</sup> | 315              | 330 <sup>S</sup> | 320              | 325              | 315 <sup>S</sup> | 370              | 370              | 380              | 350              | 355              | 340     | 325              | 340   | 335              | 330              | 340 | 345 | 345              | 370 <sup>S</sup> | 275 <sup>S</sup> | U 290            | 285 <sup>S</sup> | 300 <sup>S</sup> |
| 26          | U 285            | 310              | 310 <sup>S</sup> | 330 <sup>S</sup> | 310              | 285              | 340              | 340              | J 335            | 380              | 345              | 330     | 325              | 350   | 350              | 350              | 325 | 315 | 320 <sup>S</sup> | 350              | J 350            | 295 <sup>S</sup> | 350              | 280 <sup>S</sup> |
| 27          | 290 <sup>S</sup> | 310 <sup>S</sup> | 315              | 325 <sup>S</sup> | 300              | 300              | 345              | 370 <sup>S</sup> | 360              | 345              | 340              | 315     | 340              | 345   | 355              | 345              | 355 | 355 | 325              | 320              | 330 <sup>S</sup> | 325              | 305              | 300 <sup>S</sup> |
| 28          | 325 <sup>S</sup> | 295              | 300              | 305              | 305 <sup>S</sup> | 300              | 350              | 355              | 370              | 345              | 350              | 350     | 325              | 345   | 330              | 345              | 345 | 330 | 340              | 355              | J 315            | J 310            | J 305            | 305 <sup>S</sup> |
| 29          | 310 <sup>S</sup> | 325 <sup>S</sup> | 310              | 295              | 310              | 320 <sup>S</sup> | 365              | 360 <sup>S</sup> | 365              | 365              | 350              | 325     | 335 <sup>R</sup> | 355   | 340              | 340              | 350 | 350 | 345              | 360 <sup>S</sup> | 300              | J 325            | J 310            | U 300            |
| 30          | J 320            | 325              | 305              | 310              | 300              | 295              | 360              | 350              | 350              | 365              | 335              | 335     | 350              | 350   | 350              | 350              | 335 | 345 | 345              | 360              | 310              | 310              | 295              | 300              |
| 31          |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |         |                  |       |                  |                  |     |     |                  |                  |                  |                  |                  |                  |
| CNT         | 26               | 28               | 27               | 26               | 27               | 29               | 30               | 30               | 28               | 28               | 28               | 28      | 29               | 29    | 29               | 28               | 30  | 27  | 29               | 29               | 26               | 22               | 21               | 19               |
| MED         | 30 <sup>S</sup>  | 305              | 305              | 310              | 310              | 310              | 345              | 355              | 350              | 345              | 340              | 328     | 325              | 335   | 330              | 330              | 332 | 325 | 335              | 350              | 340              | 315 <sup>S</sup> | 305              | 295 <sup>S</sup> |
| UQ          | 310 <sup>S</sup> | 312              | 315              | 325              | 320              | 320              | 360              | 360              | 365              | 355              | 350              | 340     | 335              | 345   | 340              | 340              | 340 | 335 | 340              | 360              | 350 <sup>S</sup> | 325              | 310 <sup>S</sup> | 300 <sup>S</sup> |
| LQ          | 295 <sup>S</sup> | 300              | 300              | 300              | 302              | 295              | 330              | 340              | 345              | 332              | 322              | 318     | 320              | 315   | 315              | 320              | 325 | 315 | 325              | 335 <sup>S</sup> | 320              | 295 <sup>S</sup> | 295              | 285 <sup>S</sup> |

SEP. 1976

M(3000)F2 (0.01)



# IONOSPHERIC DATA

SEP. 1976

M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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  | 390 | L   | A   | A   | A   | A   | A   | L   | 350 | L   |     |    |    |    |    |    |  |
| 2           |    |    |    |    |    |    |    | L  | A   | A   | A   | A   | A   | A   | 380 | A   | U   | L   | L   |    |    |    |    |    |  |
| 3           |    |    |    |    |    |    | L  | L  | L   | A   | A   | 380 | 385 | A   | 440 | A   | A   | A   | A   |    |    |    |    |    |  |
| 4           |    |    |    |    |    |    | L  | L  | L   | 380 | 380 | 410 | 420 | 390 | 370 | L   | L   | A   |     |    |    |    |    |    |  |
| 5           |    |    |    |    |    |    | L  | A  | L   | 390 | 380 | L   | 380 | A   | L   | A   | A   | L   | L   | A  |    |    |    |    |  |
| 6           |    |    |    |    |    |    |    |    | C   | C   | C   | C   | L   | A   | 365 | L   | 355 | L   |     |    |    |    |    |    |  |
| 7           |    |    |    |    |    |    | L  | A  | A   | A   | 375 | L   | 385 | 365 | 355 | 365 | L   | L   |     |    |    |    |    |    |  |
| 8           |    |    |    |    |    |    |    | L  | A   | A   | A   | 370 | 370 | A   | 370 | 370 | A   | A   | A   |    |    |    |    |    |  |
| 9           |    |    |    |    |    |    | A  | L  | 400 | 405 | 395 | C   | C   | I   | C   | I   | C   | 340 | 360 | L  |    |    |    |    |  |
| 10          |    |    |    |    |    |    |    | L  | A   | A   | A   | 425 | 385 | 375 | 380 | L   | L   | L   | L   |    |    |    |    |    |  |
| 11          |    |    |    |    |    |    |    | A  | 365 | 390 | 375 | A   | A   | 365 | 370 | L   | L   | A   |     |    |    |    |    |    |  |
| 12          |    |    |    |    |    |    |    | L  | 365 | 405 | L   | 385 | 410 | 370 | L   | 365 | L   | L   |     |    |    |    |    |    |  |
| 13          |    |    |    |    |    |    |    |    | L   | A   | A   | 380 | 385 | 365 | 365 | L   | L   | A   | A   |    |    |    |    |    |  |
| 14          |    |    |    |    |    |    | L  | L  | L   | 395 | 400 | 380 | 390 | 370 | 385 | 365 | L   | L   | L   |    |    |    |    |    |  |
| 15          |    |    |    |    |    |    |    | L  | U   | L   | U   | L   | 450 | 405 | 375 | 375 | U   | L   | L   | L  |    |    |    |    |  |
| 16          |    |    |    |    |    |    |    | L  | 395 | 395 | 375 | 390 | L   | 385 | L   | 355 | L   | L   |     |    |    |    |    |    |  |
| 17          |    |    |    |    |    |    |    |    | 400 | 390 | 395 | 400 | 375 | 400 | 380 | 370 | L   | L   |     |    |    |    |    |    |  |
| 18          |    |    |    |    |    |    |    | L  | U   | 370 | 375 | 410 | L   | L   | 370 | L   | L   | L   | L   |    |    |    |    |    |  |
| 19          |    |    |    |    |    |    |    | A  | L   | L   | L   | 400 | L   | L   | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 20          |    |    |    |    |    |    |    | L  | L   | 400 | 370 | L   | 370 | 380 | L   | L   | L   | L   | L   |    |    |    |    |    |  |
| 21          |    |    |    |    |    |    |    | L  | L   | L   | 380 | 350 | 370 | L   | L   | L   | L   | L   | A   |    |    |    |    |    |  |
| 22          |    |    |    |    |    |    |    | A  | L   | 380 | A   | 395 | A   | L   | L   | L   | A   | A   |     |    |    |    |    |    |  |
| 23          |    |    |    |    |    |    |    | L  | 400 | 415 | L   | L   | L   | L   | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 24          |    |    |    |    |    |    |    | L  | 380 | L   | L   | L   | L   | 390 | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 25          |    |    |    |    |    |    |    | L  | L   | L   | L   | 385 | L   | 395 | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 26          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |    |    |    |    |    |  |
| 27          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | U   | L   | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 28          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | L   | U   | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 29          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 30          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |    |    |    |    |    |  |
| 31          |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |  |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20 | 21 | 22 | 23 |  |
| CNT         |    |    |    |    |    |    |    |    | 11  | 13  | 11  | 15  | 15  | 17  | 13  | 9   | 5   |     |     |    |    |    |    |    |  |
| MED         |    |    |    |    |    |    |    |    | 390 | 390 | 380 | 385 | 385 | 375 | 370 | 365 | 360 |     |     |    |    |    |    |    |  |
| UQ          |    |    |    |    |    |    |    |    | 398 | 400 | 398 | 400 | 385 | 390 | 380 | 365 | 370 |     |     |    |    |    |    |    |  |
| LQ          |    |    |    |    |    |    |    |    | 375 | 380 | 375 | 380 | 370 | 370 | 365 | 355 | 355 |     |     |    |    |    |    |    |  |

SEP. 1976

M(3000)F1 (0.01)

# IONOSPHERIC DATA

SEP. 1976

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

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00 | 01 | 02 | 03 | 04 | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20 | 21 | 22 | 23 |
|-------------|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|
| 1           |    |    |    |    |    |     |     | 255 | 250 | 260 | 385 | 295 | 345 | A   | 350 | 300 | 300 | 260 |     |    |    |    |    |    |
| 2           |    |    |    |    |    |     |     | 285 | A   | E A | A   | E A | 340 | 330 | 310 | 290 | 300 | 350 | 295 |    |    |    |    |    |
| 3           |    |    |    |    |    |     | 265 | 255 | 275 | 325 | 310 | 330 | 290 | 285 | 295 | A   | 295 | A   | 280 |    |    |    |    |    |
| 4           |    |    |    |    |    |     | 300 | 265 | 240 | 300 | 275 | 290 | 300 | 320 | 315 | 310 | 295 | 300 |     |    |    |    |    |    |
| 5           |    |    |    |    |    |     | 255 | 250 | 280 | 290 | 300 | 290 | 320 | 320 | A   | A   | 270 | 265 | 260 |    |    |    |    |    |
| 6           |    |    |    |    |    |     |     |     | C   | C   | C   | C   | 325 | 350 | 375 | 340 | 330 | 280 |     |    |    |    |    |    |
| 7           |    |    |    |    |    |     | 245 | 240 | 275 | 290 | 300 | 330 | 345 | 305 | 310 | 340 | 270 | 285 |     |    |    |    |    |    |
| 8           |    |    |    |    |    |     |     | 240 | 245 | 280 | 315 | 370 | 320 | 360 | 340 | 335 | 300 | 300 | 245 |    |    |    |    |    |
| 9           |    |    |    |    |    |     | 260 | 240 | 230 | 240 | 270 | C   | C   | I C | I C | I C | 300 | 295 | 300 |    |    |    |    |    |
| 10          |    |    |    |    |    |     |     | 285 | 245 | 370 | 350 | 290 | 320 | 320 | 315 | 300 | 290 | 250 |     |    |    |    |    |    |
| 11          |    |    |    |    |    |     |     | 255 | 250 | 250 | 340 | 310 | 300 | 330 | 300 | 290 | 260 | A   |     |    |    |    |    |    |
| 12          |    |    |    |    |    |     |     | 260 | 270 | 260 | 260 | 310 | 320 | 330 | 370 | 325 | 300 | 270 |     |    |    |    |    |    |
| 13          |    |    |    |    |    |     |     |     | 280 | 325 | 340 | 305 | 300 | 305 | 340 | 295 | 280 | A   | 250 |    |    |    |    |    |
| 14          |    |    |    |    |    |     | 250 | 240 | 270 | 280 | 300 | 290 | 290 | 260 | 280 | 295 | 290 | 270 |     |    |    |    |    |    |
| 15          |    |    |    |    |    |     |     | 255 | 255 | 270 | 290 | 300 | 290 | 315 | 300 | 320 | 300 | 290 |     |    |    |    |    |    |
| 16          |    |    |    |    |    |     |     | 290 | 250 | 240 | 280 | 280 | 290 | 275 | 310 | 320 | 280 | 245 |     |    |    |    |    |    |
| 17          |    |    |    |    |    |     |     |     | 250 | 290 | 270 | 280 | 280 | 310 | 300 | 290 | 275 | 255 |     |    |    |    |    |    |
| 18          |    |    |    |    |    |     |     | 245 | 250 | 250 | 280 | 275 | 305 | 290 | 315 | 300 | 290 | 270 |     |    |    |    |    |    |
| 19          |    |    |    |    |    |     |     | 290 | 270 | 255 | 250 | 280 | 290 | 260 | 280 | 275 | 250 |     |     |    |    |    |    |    |
| 20          |    |    |    |    |    |     |     | 290 | 290 | 300 | 260 | 295 | 345 | 310 | 280 | 315 | 255 | 285 |     |    |    |    |    |    |
| 21          |    |    |    |    |    |     |     |     | 275 | 255 | 330 | 325 | 325 | 340 | 300 | 325 | 335 | 315 | 265 |    |    |    |    |    |
| 22          |    |    |    |    |    |     |     | 245 | 280 | 290 | 280 | 290 | 275 | 290 | 270 | 275 | 280 | E A | 300 |    |    |    |    |    |
| 23          |    |    |    |    |    |     |     | 250 | 250 | 290 | 270 | 245 | 260 | 255 | 295 | 300 | 270 |     |     |    |    |    |    |    |
| 24          |    |    |    |    |    |     |     | 255 | 250 | 235 | 240 | 270 | 290 | 290 | 270 | 250 | 290 |     |     |    |    |    |    |    |
| 25          |    |    |    |    |    |     |     | 225 | 230 | 260 | 270 | 275 | 295 | 295 | 275 | 250 |     |     |     |    |    |    |    |    |
| 26          |    |    |    |    |    |     |     | 280 | 250 | 225 | 255 | 290 | 275 | 275 | 250 | 255 | 260 | 270 |     |    |    |    |    |    |
| 27          |    |    |    |    |    |     |     | 240 | 250 | 250 | 270 | 290 | 265 | 260 | 255 | 255 | 250 |     |     |    |    |    |    |    |
| 28          |    |    |    |    |    |     |     | 240 | 240 | 265 | 250 | 250 | 285 | 265 | 275 | 250 | 250 |     |     |    |    |    |    |    |
| 29          |    |    |    |    |    |     |     | 240 | 235 | 240 | 250 | 300 | 265 | 260 | 280 | 275 | 245 |     |     |    |    |    |    |    |
| 30          |    |    |    |    |    |     |     | 250 | 250 | 240 | 290 | 275 | 260 | 270 | 265 | 275 | 260 |     |     |    |    |    |    |    |
| 31          |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |
| Hour        | 00 | 01 | 02 | 03 | 04 | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    | 6   | 27  | 28  | 29  | 28  | 28  | 29  | 29  | 29  | 28  | 29  | 19  | 5   |     |    |    |    |    |    |
| MED         |    |    |    |    |    | 258 | 255 | 250 | 268 | 280 | 290 | 295 | 300 | 300 | 298 | 280 | 270 | 260 |     |    |    |    |    |    |
| UQ          |    |    |    |    |    | 265 | 270 | 270 | 290 | 305 | 305 | 320 | 320 | 315 | 318 | 295 | 292 | 280 |     |    |    |    |    |    |
| LQ          |    |    |    |    |    | 250 | 240 | 248 | 250 | 265 | 280 | 285 | 275 | 280 | 275 | 260 | 265 | 250 |     |    |    |    |    |    |

SEP. 1976

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

# IONOSPHERIC DATA

SEP. 1976

H'F (KM)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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     | 260     | 275     | 260     | 290     | 300     | 240     | 240 | E A 240 | A     | A       | A       | A       | A     | A       | 245     | 230     | 225     | 250 | 240 | 230 | 245     | 275     | 310     |         |     |     |
| 2           | 240     | 305     | 315     | 295     | 245     | 270     | 240     |     | A       | A     | A       | A       | A       | A     | 230     | A       | 230     | 245     | 260 | 240 | 210 | A       | A       | A       |         |     |     |
| 3           | 250     | 300     | 295     | 250     | 285     | 260     | 240     |     | A       | A     | A       | A       | 230     | 230   | A       | 175     | A       | A       | A   | A   | 250 | E A 250 | 240     | 290     | 270     |     |     |
| 4           | 255     | 280     | 250     | 230     | 270     | 310     | 245     | 240 | 240     | 210   | 200     | 205     | 190     | 190   | H 230   | A       | A       | A       |     | 260 | 240 | 210     | 215     | 290     | A       |     |     |
| 5           | 260     | 270     | 290     | 265     | 290     | 275     | 245     |     | A       | 205   | 230     | E A 250 | E A 245 | A     | E A 240 | A       | A       |         |     | 235 | 250 |         | 250     | A       | 270     | 270 | 245 |
| 6           | 295     | 310     | 300     | 250     | 270     | 290     | 250     | 240 |         | C     | C       | C       | C       | 250   | A       | 245     | 245     | 250     | 250 | 250 | 235 | A       | A       |         | 275     | 250 |     |
| 7           | 280     | 320     | A       | 290     | 255     | 280     |         | A   | A       | A     | A       | 225     | H 190   | 230   | 200     | 240     | 230     | A       |     | 250 | 250 | 230     | 210     | A       | 270     | A   |     |
| 8           | A       | E A 340 | E A 330 | 290     | 245     | 230     | 220     | 210 |         | A     | A       | A       | 250     | 255   | A       | 220     | E A 230 | A       | A   | A   | 250 | A       | A       | 245     | 285     |     |     |
| 9           | 270     | 260     | 305     | 270     | 285     | 300     |         | A   | A       | 215   | 210     | 220     | C       | C     | I C 185 | I C 215 | 265     | 240     | 250 | 250 | 235 | 200     | 225     | E S 300 | 300     |     |     |
| 10          | 290     | 270     | 255     | 225     | 225     | 270     | 245     |     | A       | A     | A       | A       | 200     | 195   | 230     | 225     | 215     | 215     | 240 | 245 | 230 | 245     | 290     | 305     | 255     |     |     |
| 11          | 240     | 240     | 290     | 290     | 290     | 300     | 245     |     | A       | 230   | H 200   | 235     | A       | A     | 200     | 215     | 220     | 240     | A   | A   | A   | 220     | 225     | A       | A       |     |     |
| 12          | A       | 295     | 290     | 290     | 300     | 295     | 245     | 225 | H 210   | 200   | 185     | H 200   | 200     | 195   | 230     | 230     | 245     | 250     | 230 | 210 | 260 | 260     | 310     | 310     |         |     |     |
| 13          | 270     | 290     | 290     | 260     | 250     | 250     | 225     | 215 | 210     |       | A       | A       | 200     | H 190 | H 220   | 210     | 240     | E A 250 | A   | A   | 215 | E A 260 | E A 290 | 250     | A       |     |     |
| 14          | 270     | 265     | 300     | 310     | 250     | 245     |         | A   | 210     | 195   | 195     | 190     | 190     | H 190 | 240     | 195     | 215     | H 245   | 240 | 250 | 235 | 210     | 220     | E S 295 | 300     |     |     |
| 15          | 300     | 290     | 245     | 220     | 240     | 280     | 235     | 240 | 230     | 200   | 200     | 185     | 220     | 200   | 200     | 240     | 240     | 245     | 250 | 205 |     | A       | A       | 330     | 300     |     |     |
| 16          | 300     | 265     | 250     | 210     | E S 240 | 280     | 250     | 225 | H 225   | 200   | H 220   | 200     | H 200   | 195   | H 200   | 190     | 215     | 240     | 235 | 240 | 240 | 205     | 280     | 285     | 295     |     |     |
| 17          | 280     | 270     | 275     | 240     | 250     | E A 330 | 230     | 240 | 230     | 225   | H 205   | 220     | 200     | 195   | 230     | 205     | 250     | 245     | 230 | 210 | 250 | 290     | 270     | 300     |         |     |     |
| 18          | 260     | 260     | 270     | 275     | 260     | 295     | 240     | 240 | 235     | 200   | H 210   | H 200   | 195     | 210   | 240     | 190     | 225     | 250     | 245 | 210 | 200 | E A 260 | 280     | E A 350 |         |     |     |
| 19          | E A 330 | 345     | 290     | E A 315 | 275     | 300     | E A 275 |     | A       | 230   | 210     | 195     | H 195   | 200   | 205     | 220     | 215     | 240     | 250 | 250 | 215 | 240     | 320     | A       | E A 350 |     |     |
| 20          | 290     | 270     | 255     | 325     | 260     | 320     | 245     | 240 | 230     | 205   | E A 250 | 225     | 205     | 200   | 200     | H 200   | H 250   |         | A   | 240 | 205 | 220     | 360     | A       | 340     |     |     |
| 21          | 340     | 300     | 250     | 240     | 290     | 290     | 250     | 200 | H 200   | H 200 | 190     | H 230   | 280     | 230   | 200     | 245     | 240     | 260     | A   |     | 230 | 205     | 305     | 240     | 340     | 300 |     |
| 22          | 285     | 275     | 230     | 340     | 280     | 250     | 225     |     | A       | 210   | 220     |         | 210     | A     | H 225   | 230     | 210     |         | A   | A   | 230 | 225     | 255     | 240     | A       | A   |     |
| 23          | 310     | 330     | 245     | 240     | 250     | 250     | 230     |     | A       | 205   | 200     | 180     | H 190   | H 185 | 200     | 200     | 200     | 240     | 250 | 250 | 240 | 225     | A       | A       | 290     |     |     |
| 24          | 300     | 285     | 240     | 225     | 230     | 290     | 240     | 245 | 220     | 235   | 200     | 200     | 200     | 200   | 200     | H 190   | H 250   | 245     | 230 | 210 | 210 | 250     | 290     | 320     |         |     |     |
| 25          | 290     | 280     | 250     | 245     | 240     | 250     | 210     | 210 | 215     | 200   | 190     | 190     | 200     | 215   | 200     | 215     | 230     | H 245   | 220 | 200 | 275 | 295     | 295     | 295     |         |     |     |
| 26          | 290     | 270     | 245     | 245     | 250     | 315     | 250     | 245 | 230     | 240   | 225     | 180     | H 205   | 195   | 195     | 240     | 250     | 250     | 240 | 225 | 225 | 270     | 255     | 300     |         |     |     |
| 27          | 295     | 270     | 245     | 250     | 260     | 300     | 250     | 230 | 210     | 205   | 195     | H 190   | H 210   | 210   | 200     | H 175   | 240     | 240     | 235 | 245 | 240 | 235     | 255     | 245     |         |     |     |
| 28          | 245     | 265     | 260     | 275     | 265     | 260     | 235     | 240 | 225     | 200   | 220     | 185     | H 200   | 200   | 180     | H 230   | 235     | 245     | 230 | 205 | 250 | 260     | 280     | 265     |         |     |     |
| 29          | 265     | 245     | 245     | 275     | 255     | 250     | 225     | 225 | 220     | 200   | 190     | 190     | H 180   | H 200 | H 185   | H 240   | 240     | 240     | 240 | 210 | 290 | 240     | 290     | 295     |         |     |     |
| 30          | 270     | 240     | 275     | 275     | 275     | 305     | 230     | 225 | 225     | 220   | 200     | 200     | 200     | 240   | 210     | 225     | 245     | 245     | 240 | 205 | 245 | 250     | 290     | 275     |         |     |     |
| 31          |         |         |         |         |         |         |         |     |         |       |         |         |         |       |         |         |         |         |     |     |     |         |         |         |         |     |     |
|             | 00      | 01      | 02      | 03      | 04      | 05      | 06      | 07  | 08      | 09    | 10      | 11      | 12      | 13    | 14      | 15      | 16      | 17      | 18  | 19  | 20  | 21      | 22      | 23      |         |     |     |
| CNT         | 28      | 30      | 29      | 30      | 30      | 30      | 27      | 20  | 24      | 22    | 22      | 25      | 24      | 25    | 28      | 26      | 25      | 22      | 25  | 29  | 26  | 24      | 24      | 24      |         |     |     |
| MED         | 278     | 271     | 265     | 261     | 260     | 282     | 240     | 235 | 221     | 202   | 201     | 200     | 200     | 200   | 212     | 220     | 240     | 245     | 240 | 225 | 230 | 252     | 284     | 296     |         |     |     |
| UQ          | 294     | 298     | 290     | 290     | 280     | 300     | 245     | 240 | 230     | 220   | 222     | 208     | 215     | 212   | 230     | 240     | 250     | 250     | 250 | 240 | 250 | 280     | 292     | 302     |         |     |     |
| LQ          | 260     | 265     | 250     | 240     | 250     | 260     | 230     | 220 | 210     | 200   | 195     | 190     | H 195   | 200   | 200     | 210     | 235     | 240     | 230 | 210 | 210 | 240     | 270     | 272     |         |     |     |

The Radio Research Laboratories, Japan

SEP. 1976

H'F (KM)

# IONOSPHERIC DATA

SEP. 1976

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

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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  | 125                   | 105 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 115 |                       | B  |    |    |    |    |    |
| 2           |    |    |    |    |    | A  | A                     | 110 | 105 | 105 | 105                   | A                     | A                     | A                     | 105 | 105 | A   | A                     | S  |    |    |    |    |    |
| 3           |    |    |    |    |    | B  | S                     | 125 | 110 | 110 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 110 | 110                   | S  |    |    |    |    |    |
| 4           |    |    |    |    |    | B  | B                     | 110 | 105 | 105 | 105                   | 105                   | A                     | 105                   | 105 | 105 | 105 | 110                   | B  |    |    |    |    |    |
| 5           |    |    |    |    |    | S  | 130                   | 110 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 105 | 115                   | B  |    |    |    |    |    |
| 6           |    |    |    |    |    | B  | E <sup>B</sup><br>140 | 110 | C   | C   | C                     | C                     | 105                   | 105                   | 105 | 105 | 110 | 115                   | S  |    |    |    |    |    |
| 7           |    |    |    |    |    | S  | E <sup>B</sup><br>125 | 110 | 105 | 105 | 105                   | 105                   | 105                   | A                     | 105 | 105 | 105 | 115                   | B  |    |    |    |    |    |
| 8           |    |    |    |    |    | S  | B                     | 110 | 105 | 100 | A                     | A                     | A                     | 105                   | 105 | 105 | 110 | 120                   | B  |    |    |    |    |    |
| 9           |    |    |    |    |    | S  | B                     | 110 | 105 | 105 | A                     | C                     | C                     | C                     | C   | A   | 100 | 125                   | S  |    |    |    |    |    |
| 10          |    |    |    |    |    | S  | 115                   | 105 | 105 | 105 | A                     | A                     | 105                   | 105                   | 105 | A   | A   | A                     | A  |    |    |    |    |    |
| 11          |    |    |    |    |    | S  | E <sup>B</sup><br>135 | 105 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | A   | A   | A                     | S  |    |    |    |    |    |
| 12          |    |    |    |    |    | S  | A                     | A   | 105 | A   | A                     | A                     | A                     | A                     | A   | A   | 105 | 115                   | B  |    |    |    |    |    |
| 13          |    |    |    |    |    | S  | E <sup>B</sup><br>135 | 110 | 105 | 105 | 105                   | A                     | A                     | A                     | 110 | A   | A   | S                     | B  |    |    |    |    |    |
| 14          |    |    |    |    |    | B  | B                     | 110 | H   | 110 | 110                   | 105                   | 105                   | A                     | A   | A   | 120 | S                     | S  |    |    |    |    |    |
| 15          |    |    |    |    |    | S  | E <sup>S</sup><br>130 | 110 | A   | A   | 110                   | 105                   | 105                   | 105                   | 110 | 105 | 115 | 120                   | A  |    |    |    |    |    |
| 16          |    |    |    |    |    | B  | 130                   | 115 | 105 | 105 | 105                   | 100                   | 110                   | 115                   | 110 | 115 | 120 | A                     | S  |    |    |    |    |    |
| 17          |    |    |    |    |    | S  | S                     | 110 | 110 | H   | 110                   | 110                   | I <sup>C</sup><br>115 | 110                   | 110 | 110 | 110 | S                     | S  |    |    |    |    |    |
| 18          |    |    |    |    |    | S  | S                     | 110 | 105 | 105 | 105                   | A                     | 105                   | 105                   | 105 | 105 | 105 | 130                   | S  |    |    |    |    |    |
| 19          |    |    |    |    |    | S  | A                     | A   | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 110 | E <sup>B</sup><br>130 | S  |    |    |    |    |    |
| 20          |    |    |    |    |    | S  | B                     | 105 | 105 | 110 | 105                   | 100                   | A                     | E <sup>A</sup><br>120 | 100 | 105 | 110 | B                     | B  |    |    |    |    |    |
| 21          |    |    |    |    |    | B  | 140                   | 110 | 105 | 105 | 100                   | 105                   | 100                   | 105                   | 105 | 105 | 110 | E <sup>B</sup><br>140 | B  |    |    |    |    |    |
| 22          |    |    |    |    |    | B  | A                     | B   | 105 | A   | A                     | A                     | A                     | A                     | 105 | 110 | 115 | R                     | S  |    |    |    |    |    |
| 23          |    |    |    |    |    | S  | S                     | A   | 110 | 105 | E <sup>A</sup><br>125 | E <sup>B</sup><br>125 | E <sup>B</sup><br>110 | 105                   | 110 | 110 | 110 | B                     | S  |    |    |    |    |    |
| 24          |    |    |    |    |    | S  | S                     | A   | A   | A   | A                     | A                     | A                     | E <sup>A</sup><br>115 | 100 | 100 | 105 | R                     | S  |    |    |    |    |    |
| 25          |    |    |    |    |    | S  | E <sup>B</sup><br>145 | 110 | 105 | A   | A                     | E <sup>A</sup><br>115 | E <sup>A</sup><br>110 | 105                   | 105 | 110 | 110 | 120                   | S  |    |    |    |    |    |
| 26          |    |    |    |    |    | S  | E <sup>B</sup><br>140 | 120 | 110 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 110 | 115 | 130                   | S  |    |    |    |    |    |
| 27          |    |    |    |    |    | S  | A                     | 110 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 110 | 125                   | S  |    |    |    |    |    |
| 28          |    |    |    |    |    | S  | 130                   | 115 | 110 | 110 | 105                   | 105                   | E <sup>A</sup><br>115 | E <sup>A</sup><br>110 | 105 | 105 | 120 | S                     | S  |    |    |    |    |    |
| 29          |    |    |    |    |    | S  | B                     | 110 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 110 | S                     | S  |    |    |    |    |    |
| 30          |    |    |    |    |    | S  | S                     | 105 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 105 | S                     | S  |    |    |    |    |    |
| 31          |    |    |    |    |    |    |                       |     |     |     |                       |                       |                       |                       |     |     |     |                       |    |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06                    | 07  | 08  | 09  | 10                    | 11                    | 12                    | 13                    | 14  | 15  | 16  | 17                    | 18 | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |    | 14                    | 25  | 27  | 24  | 22                    | 20                    | 20                    | 23                    | 27  | 24  | 26  | 16                    |    |    |    |    |    |    |
| MED         |    |    |    |    |    |    | 122                   | 110 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 110 | 118                   |    |    |    |    |    |    |
| UQ          |    |    |    |    |    |    | E <sup>B</sup><br>140 | 110 | 105 | 105 | 105                   | 105                   | 106                   | 105                   | 105 | 108 | 110 | 125                   |    |    |    |    |    |    |
| LQ          |    |    |    |    |    |    | 125                   | 110 | 105 | 105 | 105                   | 105                   | 105                   | 105                   | 105 | 105 | 105 | 115                   |    |    |    |    |    |    |

SEP. 1976

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

# IONOSPHERIC DATA

SEP. 1976

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

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1           | 100 | 100 | 100 | B   | B   | S   | B   | 140 | 125 | 125 | 115 | 110 | 110 | 110 | 105 | 110 | 135 | G   | 115 | 110 | 105 | 105 | 105 | 100 |
| 2           | 110 | 105 | 105 | 105 | 105 | 100 | 140 | 115 | 110 | 110 | 110 | 105 | 100 | 100 | 105 | 105 | 105 | 105 | 120 | 100 | 105 | 105 | 105 | 100 |
| 3           | 100 | 105 | 100 | 105 | 120 | 120 | 130 | 120 | 125 | 115 | 110 | 110 | 120 | 115 | 125 | 130 | 130 | 120 | 115 | 110 | 110 | 105 | 105 | 105 |
| 4           | 105 | B   | B   | B   | 125 | 115 | 115 | 115 | 115 | 115 | 110 | 105 | 100 | G   | 155 | 140 | 120 | 110 | 110 | 110 | 110 | 110 | 105 | 105 |
| 5           | 105 | 105 | 105 | 105 | 105 | S   | 125 | 115 | 125 | 125 | 120 | 115 | 110 | 110 | 110 | 110 | 140 | 130 | 135 | 125 | 120 | 120 | 110 | 100 |
| 6           | 100 | 100 | 105 | 100 | 95  | 140 | 120 | 120 | C   | C   | C   | C   | 110 | 105 | G   | 125 | 110 | 110 | 115 | 110 | 115 | 110 | 110 | 110 |
| 7           | 105 | 105 | 105 | 100 | 100 | 140 | 115 | 115 | 110 | 110 | 110 | 110 | 110 | 105 | 160 | 145 | 130 | 135 | 110 | 110 | 110 | 110 | 105 | 100 |
| 8           | 100 | 100 | 100 | 100 | 100 | 125 | 115 | 110 | 105 | 100 | 100 | 100 | 105 | 105 | 110 | 130 | 130 | 120 | 115 | 110 | 105 | 110 | 105 | 105 |
| 9           | 100 | 100 | 100 | 100 | 100 | 100 | 115 | 110 | 110 | 105 | 175 | C   | C   | C   | C   | 100 | 145 | 130 | 100 | 100 | 100 | 100 | 100 | 110 |
| 10          | 105 | 100 | 100 | 100 | 100 | 100 | 130 | 110 | 110 | 105 | 100 | 120 | G   | 160 | G   | 105 | 100 | 100 | 100 | 110 | 105 | 105 | 105 | 105 |
| 11          | 105 | 105 | 105 | 100 | 100 | S   | 120 | 115 | 115 | 120 | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 115 | 110 | 105 | 100 | 100 |
| 12          | 100 | 100 | 100 | 100 | 95  | 100 | 95  | 120 | 110 | 105 | 100 | 100 | 165 | 100 | 100 | 105 | 140 | 115 | 110 | 105 | 105 | 105 | 105 | 100 |
| 13          | S   | 100 | 100 | B   | 100 | S   | G   | 115 | 110 | 110 | 105 | 100 | 100 | 135 | 130 | 100 | 120 | 110 | 110 | 110 | 105 | 105 | 105 | 110 |
| 14          | 110 | B   | 135 | 125 | 120 | 120 | 120 | 125 | 115 | G   | 100 | G   | 170 | 165 | 100 | 100 | 150 | 135 | 100 | 100 | 100 | 100 | S   | 105 |
| 15          | 110 | 105 | 100 | B   | 100 | S   | 150 | 145 | 135 | 120 | 120 | 120 | 120 | G   | 125 | 155 | 130 | 125 | 105 | 100 | 100 | 100 | 100 | 100 |
| 16          | 100 | 100 | B   | B   | 130 | 110 | 140 | 130 | 130 | G   | G   | G   | 100 | 100 | 100 | 100 | 100 | 130 | 100 | 120 | 110 | 110 | 105 | S   |
| 17          | 105 | 105 | 100 | 100 | 100 | 105 | 140 | 170 | 150 | 145 | 170 | 100 | 100 | G   | 180 | 150 | 150 | 130 | 120 | 105 | 105 | 105 | 100 | 100 |
| 18          | 100 | 100 | 100 | 100 | S   | S   | 130 | G   | G   | G   | 100 | G   | G   | G   | G   | G   | 145 | 125 | S   | 110 | 105 | 105 | 100 | 100 |
| 19          | 100 | 100 | 100 | 115 | 100 | 100 | 105 | 100 | 105 | G   | G   | G   | G   | G   | G   | G   | 150 | 120 | 110 | 110 | 110 | 105 | 100 | 100 |
| 20          | 100 | 100 | B   | 115 | 125 | 120 | 110 | 110 | 140 | 125 | 120 | 125 | 100 | 100 | G   | G   | G   | 110 | 105 | 105 | 105 | 105 | 105 | 100 |
| 21          | 100 | 100 | 100 | 135 | B   | B   | G   | G   | G   | G   | 150 | 145 | 150 | G   | 170 | 150 | 140 | 125 | 120 | 100 | 105 | 105 | B   | S   |
| 22          | 100 | 100 | 100 | 115 | 110 | 130 | 110 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | G   | 150 | 120 | 110 | 110 | 105 | 100 | 100 | 100 | 100 |
| 23          | 105 | 105 | 100 | 105 | 100 | 100 | 110 | 110 | 115 | 105 | 105 | G   | G   | G   | G   | G   | 110 | 110 | 105 | 100 | 105 | 105 | 105 | 105 |
| 24          | 100 | 100 | 100 | 100 | S   | 100 | 140 | 105 | 100 | 100 | 100 | 100 | 95  | 95  | G   | G   | 155 | 145 | 115 | 100 | 100 | 100 | 100 | 100 |
| 25          | 100 | S   | S   | B   | S   | S   | 150 | 125 | 160 | 100 | 100 | 100 | 100 | G   | G   | G   | G   | G   | S   | 110 | S   | 115 | S   | S   |
| 26          | S   | S   | S   | S   | B   | S   | 150 | G   | 140 | 120 | 110 | G   | G   | G   | G   | G   | G   | 125 | 115 | 110 | 110 | 100 | S   | 100 |
| 27          | 100 | S   | S   | B   | S   | S   | 125 | 115 | 115 | 110 | G   | G   | G   | G   | G   | G   | 145 | 130 | S   | S   | 110 | S   | 100 | S   |
| 28          | S   | B   | S   | S   | S   | S   | 125 | G   | 120 | 125 | 115 | 110 | 100 | 100 | G   | G   | 125 | 125 | 115 | 115 | 115 | 110 | S   | B   |
| 29          | S   | S   | S   | S   | B   | S   | 125 | 120 | 120 | 110 | G   | G   | G   | G   | G   | 150 | 145 | 125 | 120 | 120 | 115 | S   | 100 | 100 |
| 30          | 100 | 100 | 100 | 105 | 105 | 105 | 140 | 140 | 145 | 125 | 120 | 110 | 115 | 120 | 115 | G   | 150 | 140 | 105 | 105 | 105 | 100 | 100 | 100 |
| 31          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|             | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
| CNT         | 26  | 23  | 22  | 20  | 21  | 18  | 27  | 26  | 27  | 24  | 24  | 21  | 22  | 18  | 16  | 20  | 25  | 28  | 28  | 28  | 29  | 28  | 25  | 25  |
| MED         | 100 | 100 | 100 | 102 | 100 | 108 | 125 | 115 | 115 | 110 | 110 | 105 | 105 | 105 | 112 | 118 | 130 | 125 | 110 | 110 | 105 | 105 | 105 | 100 |
| UQ          | 105 | 105 | 105 | 110 | 110 | 120 | 140 | 125 | 128 | 122 | 120 | 110 | 115 | 115 | 142 | 148 | 145 | 130 | 115 | 110 | 110 | 110 | 105 | 105 |
| LQ          | 100 | 100 | 100 | 100 | 100 | 100 | 115 | 110 | 110 | 105 | 100 | 100 | 100 | 100 | 105 | 105 | 120 | 110 | 105 | 105 | 105 | 102 | 100 | 100 |

SEP. 1976

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

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

SEP. 1976

TYPES OF ES

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00 | 01   | 02   | 03 | 04   | 05 | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19 | 20 | 21 | 22 | 23   |    |
|-------------|----|------|------|----|------|----|------|------|------|------|------|------|------|------|------|------|------|------|------|----|----|----|----|------|----|
| 1           | F2 | F2   | F1   |    |      |    |      | C3   | C2   | C2   | C2   | C2   | C3   | C3   | C3   | C2   | H2   |      | C4   | F1 | F1 | F4 | F3 | F2   |    |
| 2           | F2 | F2   | F2   | F1 | F1   | L4 | HL23 | C4   | C3   | C3   | C3   | L3   | L3   | L2   | C2   | C3   | L1   | LC11 | C4   | F1 | F4 | F3 | F4 | F3   |    |
| 3           | F1 | FF32 | F2   | F3 | F3   | C3 | C1   | C3   | C3   | C2   | C2   | C1   | C1   | C2   | C1   | C3   | C2   | C4   | C6   | F2 | F3 | F2 | F3 | F2   |    |
| 4           | F1 |      |      |    | F1   | L2 | C5   | C5   | C1   | C1   | C2   | C2   | L2   |      | H1   | H2   | C5   | C4   | C4   | F2 | F5 | F1 | F3 | F6   |    |
| 5           | F5 | F4   | F2   | F4 | F3   | C1 | C4   | C5   | C2   | C2   | C2   | C2   | C2   | C2   | C3   | C3   | H2   | H3   | C4   | F5 | F4 | F4 | F5 | F4   |    |
| 6           | F7 | F3   | FF13 | F4 | F2   | C1 | C5   | C3   |      |      |      |      | C2   | C3   |      | C1   | C2   | C4   | C5   | F4 | F5 | F6 | F4 | F4   |    |
| 7           | F3 | F3   | F5   | F4 | F3   | C2 | C3   | C5   | C3   | C2   | C2   | C2   | CL22 | L2   | H1   | H2   | C3   | C4   | C5   | F6 | F1 | F5 | F3 | F4   |    |
| 8           | F6 | F7   | F6   | F2 | F2   | C1 | C3   | C4   | C4   | C4   | L2   | L2   | L2   | C3   | C2   | C2   | C3   | C5   | C6   | F3 | F5 | F5 | F4 | F2   |    |
| 9           | F2 | F2   | F4   | F2 | F2   | L2 | C3   | C3   | C3   | C3   | H1   |      |      |      |      | H21  | H2   | C32  | L1   | F6 | F1 | F1 | F3 | FF22 |    |
| 10          | F2 | F2   | F2   | F3 | F3   | L1 | CH22 | C5   | C5   | C5   | L3   | CL11 |      | H1   |      | L2   | LH11 | LC32 | L3   | F4 | F5 | F2 | F4 | F4   |    |
| 11          | F4 | F3   | F2   | F2 | F1   |    | C3   | C4   | C3   | C2   | C2   | C3   | C2   | C2   | C2   | L2   | L3   | L3   | L3   | F4 | F2 | F2 | F3 | F4   |    |
| 12          | F3 | F4   | F2   | F2 | F2   | L1 | L1   | CL22 | C2   | L2   | L2   | L3   | HL12 | L1   | L1   | L1   | H2   | C3   | C4   | F4 | F3 | F3 | F3 | F2   |    |
| 13          |    | F3   | F4   |    | F2   |    |      | C2   | C3   | C2   | C2   | L2   | L2   | CL11 | CL11 | L1   | CL22 | C2   | C3   | F2 | F3 | F2 | F2 | F3   |    |
| 14          | F3 |      | F1   | F4 | F2   | C2 | C3   | C2   | C2   |      | L1   |      | HL11 | HL12 | L1   | L2   | HL11 | C2   | L1   | F1 | F1 | F1 |    | F2   |    |
| 15          | F2 | F3   | F2   |    | F1   |    | C2   | CL11 | CL12 | CL12 | CL11 | C1   | C1   |      | CL21 | HC12 | C2   | C2   | L2   | F4 | F3 | F4 | F5 | F1   |    |
| 16          | F2 | F2   |      |    | F1   | C2 | H1   | C2   | C2   |      |      |      | L1   | L1   | L1   | L1   | L2   | CL11 | LC11 | F6 | F2 | F3 | F2 |      |    |
| 17          | F2 | F4   | F3   | F1 | F4   | L7 | CL41 | H1   | HL12 | CL11 | HL11 | L1   | L1   |      | H1   | H1   | H1   | C21  | C51  | F1 | F5 | F3 | F3 | F3   |    |
| 18          | F2 | F2   | F1   | F2 |      |    | C1   |      |      |      | L2   |      |      |      |      |      |      | C2   | C3   |    | F2 | F5 | F2 | F4   |    |
| 19          | F3 | F1   | F1   | F5 | FF22 | L2 | L4   | L4   | C3   |      |      |      |      |      |      |      | H2   | C3   | C6   | F1 | F2 | F2 | F5 | F4   |    |
| 20          | F2 | F4   |      | F1 | F2   | C5 | C4   | C2   | C21  | C2   | C2   | C1   | L2   | L2   |      |      |      | C4   | L6   | F5 | F4 | F6 | F6 | F4   |    |
| 21          | F2 | F2   | F2   | F1 |      |    |      |      |      |      | H2   | H1   | H1   |      | H1   | H1   | H3   | C5   | C4   | F3 | F2 | F5 |    |      |    |
| 22          | F2 | F2   | F2   | F3 | F2   | C2 | L4   | C3   | C3   | L3   | L3   | L2   | L2   | L2   |      | H1   | C4   | C4   | C2   | F4 | F3 | F3 | F3 | F7   |    |
| 23          | F2 | F3   | F1   | F2 | F2   | L2 | L2   | L4   | C1   | C2   | L1   |      |      |      |      |      |      | C3   | C3   | F4 | F3 | F5 | F4 | F4   |    |
| 24          | F2 | F1   | F1   | F1 |      | L1 | C2   | LC32 | L31  | HL31 | L1   | L2   | L2   | L1   |      |      | H1   | HC24 | C2   | F3 | F3 | F2 | F2 | F3   |    |
| 25          | F1 |      |      |    |      |    | C2   | C2   | H1   | L2   | L2   | L2   | L1   |      |      |      |      |      |      | F1 |    | F1 |    |      |    |
| 26          |    |      |      |    |      |    | H2   |      | C2   | C2   | C2   |      |      |      |      |      |      | C4   | C4   | F4 | F2 | F3 |    | F2   |    |
| 27          | F1 |      |      |    |      |    | C2   | C2   | C2   | C2   |      |      |      |      |      |      |      | H21  | C3   |    | F3 |    | F1 |      |    |
| 28          |    |      |      |    |      |    | C3   |      | C2   | C1   | C2   | C2   | L2   | L1   |      |      |      | C1   | C3   | C3 | F1 | F2 | F2 |      |    |
| 29          |    |      |      |    |      |    | C1   | C2   | C1   | C2   |      |      |      |      |      |      | HC22 | C2   | C3   | C4 | F4 | F4 |    | F2   | F1 |
| 30          | F4 | F3   | F4   | F2 | F2   | L3 | C2   | C2   | H2   | C2   | C2   | C2   | C2   | C2   | C2   |      | H2   | C3   | L3   | F1 | F3 | F2 | F2 | F1   |    |
| 31          |    |      |      |    |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |    |    |      |    |
|             | 00 | 01   | 02   | 03 | 04   | 05 | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19 | 20 | 21 | 22 | 23   |    |
| CNT         |    |      |      |    |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |    |    |      |    |
| MED         |    |      |      |    |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |    |    |      |    |
| UQ          |    |      |      |    |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |    |    |      |    |
| LQ          |    |      |      |    |      |    |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |    |    |      |    |

SEP. 1976

TYPES OF ES

# IONOSPHERIC DATA

SEP. 1976

FXI (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

| Station     | YAMAGAWA        |                 |                 |                 | Lat. 31° 12' N, Long. 130° 37.1' E |    |    |    | Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |    |    |    |    |    |    |    |    |    |    |    |                 |                 |                 |                 |
|-------------|-----------------|-----------------|-----------------|-----------------|------------------------------------|----|----|----|--|----|----|----|----|----|----|----|----|----|----|----|-----------------|-----------------|-----------------|-----------------|
| Hour<br>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 <sub>39</sub> | X <sub>41</sub> | X <sub>39</sub> | X <sub>40</sub> | X <sub>35</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>68</sub> | X <sub>40</sub> | X <sub>43</sub> | 47              |
| 2           | X <sub>44</sub> | S <sub>40</sub> | 40              | 41              | X <sub>37</sub>                    | 30 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | 101             | X <sub>35</sub> | A               | A               |
| 3           | A               | 37              | A               | 37              | 35                                 | 35 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>79</sub> | A               | A               | A               |
| 4           | X <sub>37</sub> | X <sub>36</sub> | A               | 36              | 35                                 | 33 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>90</sub> | X <sub>43</sub> | X <sub>42</sub> | X <sub>41</sub> |
| 5           | X <sub>43</sub> | X <sub>44</sub> | X <sub>37</sub> | X <sub>36</sub> | X <sub>35</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | S <sub>81</sub> | X <sub>53</sub> | X <sub>47</sub> | X <sub>47</sub> |
| 6           | X <sub>44</sub> | X <sub>42</sub> | X <sub>42</sub> | X <sub>42</sub> | X <sub>39</sub>                    |    |    | 69 |  |    |    |    |    |    |    |    |    |    |    | 98 | A               | S               | S               | A               |
| 7           | A               | X <sub>39</sub> | 38              | S <sub>39</sub> | 37                                 | 38 | 47 |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>50</sub> | S <sub>39</sub> | X <sub>41</sub> | X <sub>43</sub> |
| 8           | S <sub>42</sub> | 37              | A               | 36              | 37                                 | 34 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>63</sub> | A               | 40              | A               |
| 9           | S <sub>40</sub> | A               | 39              | X <sub>36</sub> | 35                                 | 35 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>74</sub> | X <sub>42</sub> | X <sub>38</sub> | X <sub>40</sub> |
| 10          | X <sub>38</sub> | X <sub>39</sub> | X <sub>39</sub> | X <sub>42</sub> | 27                                 |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>61</sub> | S               | X <sub>46</sub> | X <sub>46</sub> |
| 11          | X <sub>40</sub> | X <sub>34</sub> | X <sub>33</sub> | X <sub>33</sub> | X <sub>32</sub>                    | 31 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | A               | A               | A               | C               |
| 12          | X <sub>40</sub> | S <sub>39</sub> | S <sub>37</sub> | S <sub>37</sub> | 33                                 | 33 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | S <sub>48</sub> | S <sub>38</sub> | A               | 38              |
| 13          | A               | 36              | 35              | 35              | 36                                 | 35 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>44</sub> | 38              | 37              | 34              |
| 14          | 37              | 40              | X <sub>38</sub> | 36              | 37                                 | 34 | 40 |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>64</sub> | X <sub>43</sub> | X <sub>35</sub> | X <sub>37</sub> |
| 15          | X <sub>37</sub> | X <sub>37</sub> | X <sub>38</sub> | X <sub>36</sub> | X <sub>34</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>39</sub> | X <sub>32</sub> | A               | X <sub>37</sub> |
| 16          | 39              | X <sub>39</sub> | X <sub>40</sub> | X <sub>39</sub> | X <sub>27</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>69</sub> | X <sub>42</sub> | X <sub>42</sub> | X <sub>38</sub> |
| 17          | X <sub>43</sub> | X <sub>43</sub> | X <sub>40</sub> | X <sub>40</sub> | X <sub>38</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>64</sub> | X <sub>38</sub> | X <sub>39</sub> | X <sub>38</sub> |
| 18          | X <sub>40</sub> | X <sub>40</sub> | X <sub>38</sub> | X <sub>38</sub> | X <sub>34</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>64</sub> | S <sub>39</sub> | X <sub>36</sub> | X <sub>35</sub> |
| 19          | X <sub>38</sub> | X <sub>34</sub> | X <sub>39</sub> | X <sub>39</sub> | X <sub>38</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>52</sub> | S <sub>40</sub> | X <sub>39</sub> | X <sub>38</sub> |
| 20          | X <sub>41</sub> | X <sub>41</sub> | X <sub>38</sub> | X <sub>35</sub> | X <sub>37</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>40</sub> | X <sub>33</sub> | X <sub>35</sub> | X <sub>38</sub> |
| 21          | X <sub>36</sub> | X <sub>35</sub> | 38              | 40              | 30                                 | 32 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | 40              | X <sub>41</sub> | 43              | X <sub>42</sub> |
| 22          | X <sub>44</sub> | X <sub>40</sub> | X <sub>37</sub> | X <sub>33</sub> | X <sub>35</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>44</sub> | A               | A               | X <sub>37</sub> |
| 23          | X <sub>39</sub> | X <sub>38</sub> | X <sub>41</sub> | X <sub>36</sub> | X <sub>29</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>84</sub> | A               | X <sub>36</sub> | 37              |
| 24          | 39              | S <sub>38</sub> | X <sub>41</sub> | X <sub>35</sub> | X <sub>29</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>54</sub> | A               | X <sub>37</sub> | X <sub>39</sub> |
| 25          | X <sub>37</sub> | X <sub>39</sub> | X <sub>39</sub> | X <sub>42</sub> | X <sub>46</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>39</sub> | X <sub>41</sub> | X <sub>42</sub> | X <sub>41</sub> |
| 26          | X <sub>41</sub> | X <sub>41</sub> | X <sub>40</sub> | 39              | X <sub>35</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>79</sub> | X <sub>46</sub> | X <sub>45</sub> | X <sub>45</sub> |
| 27          | X <sub>43</sub> | X <sub>44</sub> | X <sub>43</sub> | X <sub>37</sub> | X <sub>36</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>70</sub> | X <sub>47</sub> | X <sub>40</sub> | X <sub>45</sub> |
| 28          | X <sub>39</sub> | X <sub>36</sub> | X <sub>36</sub> | X <sub>36</sub> | X <sub>34</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>54</sub> | X <sub>44</sub> | X <sub>42</sub> | X <sub>42</sub> |
| 29          | X <sub>41</sub> | X <sub>41</sub> | X <sub>39</sub> | X <sub>37</sub> | X <sub>39</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>45</sub> | X <sub>44</sub> | X <sub>45</sub> | X <sub>46</sub> |
| 30          | X <sub>44</sub> | X <sub>39</sub> | X <sub>39</sub> | X <sub>38</sub> | X <sub>36</sub>                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>48</sub> | S <sub>46</sub> | 46              | X <sub>46</sub> |
| 31          |                 |                 |                 |                 |                                    |    |    |    |  |    |    |    |    |    |    |    |    |    |    |    |                 |                 |                 |                 |
|             | 00              | 01              | 02              | 03              | 04                                 | 05 | 06 | 07 | 08   | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20              | 21              | 22              | 23              |
| CNT         | 27              | 29              | 27              | 30              | 30                                 | 11 | 2  |    | 1  |    |    |    |    |    |    |    |    |    |    | 1  | 28              | 22              | 23              | 25              |
| MED         | X <sub>40</sub> | X <sub>39</sub> | X <sub>39</sub> | X <sub>37</sub> | X <sub>35</sub>                    | 34 | 44 |    | 69   |    |    |    |    |    |    |    |    |    |    | 98 | X <sub>62</sub> | X <sub>42</sub> | X <sub>41</sub> | X <sub>40</sub> |
| UQ          | X <sub>42</sub> | X <sub>41</sub> | X <sub>40</sub> | X <sub>39</sub> | X <sub>37</sub>                    | 35 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>72</sub> | X <sub>44</sub> | X <sub>43</sub> | X <sub>45</sub> |
| LQ          | X <sub>38</sub> | X <sub>37</sub> | X <sub>38</sub> | X <sub>36</sub> | X <sub>34</sub>                    | 32 |    |    |  |    |    |    |    |    |    |    |    |    |    |    | X <sub>46</sub> | X <sub>38</sub> | X <sub>38</sub> | X <sub>38</sub> |

SEP. 1976

FXI (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOF2 (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00              | 01              | 02              | 03              | 04              | 05 | 06              | 07              | 08 | 09 | 10              | 11              | 12              | 13              | 14              | 15              | 16              | 17              | 18              | 19              | 20              | 21              | 22              | 23              |
|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|-----------------|-----------------|----|----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 1           | 33              | 35              | 33              | 34              | 29              | 31 | 42              | 59              | 52 | 54 | 51              | 51              | 62              | 65              | 66              | 77              | 79              | 75              | 76              | 69              | 62              | 40 <sup>S</sup> | 37              | F               |
| 2           | 38              | 34 <sup>S</sup> | F               | 33              | 31              | 24 | 36              | 55              | 58 | A  | A               | A               | 63              | 70              | 76              | 80              | 67              | 57              | 75              | 86              | 95              | 29              | A               | A               |
| 3           | A               | F               | A               | 29              | 26              | 25 | 36              | 62              | 62 | 51 | 60              | 75              | 81              | 66              | 65              | 56              | 55              | 58              | 76              | 93              | 73              | A               | A               | A               |
| 4           | 31              | 30              | A               | 30              | 29              | 27 | 30              | 57              | 75 | 57 | 66              | 60              | A               | 57              | 57              | 63              | 55              | 54              | 71              | 87              | 84              | 37              | 36              | 35              |
| 5           | 37              | 38 <sup>S</sup> | 31              | 30              | 29              | 30 | 46              | 53              | 54 | 65 | 71              | 68              | 66              | 60              | 55              | 61              | 61              | 58              | 73              | 81 <sup>S</sup> | 75 <sup>S</sup> | 47 <sup>S</sup> | 41              | 41              |
| 6           | 38              | 36              | 36              | 36              | 33              | 31 | 36              | 65              | 63 | 54 | 52              | A               | 66              | 62              | 61              | 74              | 86              | 89              | 97 <sup>S</sup> | 92 <sup>F</sup> | A               | S               | S               | A               |
| 7           | A               | 33 <sup>S</sup> | 32              | 33              | F               | F  | 41              | 61              | 56 | 54 | A               | 55              | 62              | 62              | 62              | 67              | 77              | 84 <sup>H</sup> | 65              | 66              | 44              | 33 <sup>J</sup> | 35              | 37 <sup>S</sup> |
| 8           | 36 <sup>S</sup> | F               | A               | 30              | 30              | F  | 39              | 52              | 55 | 58 | 60              | 64              | 62              | 60              | 63              | 67              | 69              | 80              | 87              | 90              | 57              | A               | F               | A               |
| 9           | 34 <sup>S</sup> | A               | 33 <sup>F</sup> | 30              | F               | 29 | 38              | 55              | 62 | A  | 54              | 51              | 52              | A               | 62              | 65              | 61              | 68              | 80              | 81              | 68              | 36              | 32              | 34              |
| 10          | 32              | 33              | 33 <sup>U</sup> | 36              | 21              | 19 | 30              | 56              | 73 | 61 | 65              | 67              | 70              | 70              | 58              | 54              | 62              | 65              | 63              | 56              | 55              | 44 <sup>I</sup> | 40              | 40              |
| 11          | 34              | 28              | 27              | 27              | 26              | 25 | 33              | 58              | 65 | 64 | 55              | 60              | 77 <sup>H</sup> | 75 <sup>H</sup> | 69              | 70              | 61              | 59              | 66              | 63              | A               | A               | A               | C               |
| 12          | 34              | 33 <sup>S</sup> | 31              | 31              | 27              | 27 | 30              | 58              | 85 | 63 | 51              | 53              | 64              | 63              | 61              | 60              | 62              | 68              | 66              | 59              | 42 <sup>S</sup> | 32 <sup>S</sup> | A               | F               |
| 13          | A               | 30              | F               | F               | 30              | 29 | 36              | 53              | 53 | 54 | 60              | 72              | 77              | 89 <sup>H</sup> | 85 <sup>H</sup> | 67 <sup>V</sup> | 62 <sup>H</sup> | 64              | 67              | 55 <sup>S</sup> | 38 <sup>S</sup> | F               | 31              | F               |
| 14          | F               | F               | 32 <sup>S</sup> | 30              | F               | 26 | 32              | 55              | 60 | 63 | 60              | 64              | 86              | 91              | 91              | 79 <sup>J</sup> | 65 <sup>R</sup> | 61              | 69              | 62 <sup>S</sup> | 58              | 37              | 29              | 31              |
| 15          | 31              | 31              | 32              | 30              | 28              | 24 | 34              | 54              | 62 | 61 | 68              | 66              | 72              | 73              | 67              | 66              | 62              | 74              | 80              | 91              | 33              | 26              | A               | 31              |
| 16          | 30 <sup>F</sup> | 33              | 34              | 33              | 21              | 21 | 29              | 58              | 93 | 73 | 58              | 64              | 63              | 56              | 60              | 57              | 61              | 71              | 72              | 65              | 62              | 36              | 36              | 32 <sup>S</sup> |
| 17          | 37              | 37              | 34              | 34              | 32              | 27 | 33              | 57              | 62 | 63 | 60              | 62              | 57              | 60              | 65              | 64              | 62              | 76              | 85              | 75              | 58              | 32              | 33              | 32 <sup>F</sup> |
| 18          | 34 <sup>S</sup> | 34              | 32              | 32              | 28              | 28 | 31              | 64              | 79 | 90 | 63              | 55              | 61              | 63              | 78              | 75              | 77              | 75              | 95              | 98 <sup>S</sup> | 58              | 33              | 30              | 29              |
| 19          | 32              | 28 <sup>S</sup> | 33              | 33              | 32              | 30 | 34              | 63              | 87 | 77 | 79 <sup>H</sup> | 75 <sup>H</sup> | 72              | 72              | 79              | 60              | 69              | 64              | 74              | 75              | 48 <sup>S</sup> | 34 <sup>S</sup> | 33              | 32              |
| 20          | 35              | 35              | 32              | 29              | 31              | 30 | 32              | 56              | 69 | 66 | 85              | 60              | 60              | 69              | 87              | 75              | 81              | 79              | 91 <sup>S</sup> | 93 <sup>S</sup> | 34 <sup>S</sup> | 27              | 29              | 32 <sup>S</sup> |
| 21          | 30              | 29              | 32 <sup>F</sup> | 32 <sup>F</sup> | 23 <sup>F</sup> | F  | 36 <sup>S</sup> | 59 <sup>S</sup> | 58 | 55 | 64              | 72              | 75              | 67              | 58              | 56              | 62              | 78              | 80              | 68              | 34 <sup>F</sup> | 35              | 36              | 36              |
| 22          | 38              | 34              | 31              | 27              | 29              | 32 | A               | 48              | 55 | 58 | 71              | 69              | 72              | 72              | 67              | 57              | 57              | 63              | 83              | 86              | 38              | A               | A               | 31              |
| 23          | 33              | 32              | 35              | 30              | 23              | 25 | 35              | 60              | 67 | 74 | 72              | 79              | 77              | 66              | 60              | 62              | 66              | 75              | 80              | 87              | 78              | A               | 30              | 31 <sup>F</sup> |
| 24          | 30 <sup>F</sup> | 32              | 35              | 29              | 23              | 24 | 32              | 66              | 77 | 75 | 60              | 63              | 67              | 73              | 66              | 60              | 60              | 78              | 95              | 78              | 48 <sup>S</sup> | A               | 31              | 33 <sup>S</sup> |
| 25          | 31              | 33              | 33              | 36              | 40              | 28 | 32              | 50              | 61 | 67 | 60              | 66              | 67              | 72              | 73              | 65              | 66              | 75              | 71              | 52              | 33              | 35 <sup>S</sup> | 36              | 35              |
| 26          | 35 <sup>S</sup> | 35 <sup>S</sup> | 34 <sup>S</sup> | 33 <sup>F</sup> | 29              | 25 | 34              | 63              | 92 | 71 | 62              | 65              | 90              | 68              | 74              | 63              | 65              | 75              | 94              | 91              | 73 <sup>V</sup> | 40              | 39              | 39              |
| 27          | 37              | 38              | 37              | 31              | 30              | 30 | 35              | 61              | 64 | 85 | 81              | 88              | 101             | 92              | 82              | 80              | 65              | 66              | 71              | 65              | 64 <sup>S</sup> | 41 <sup>J</sup> | 34 <sup>S</sup> | 39 <sup>S</sup> |
| 28          | 33 <sup>S</sup> | 30 <sup>S</sup> | 30              | 30              | 28              | 28 | 36              | 59 <sup>S</sup> | 71 | 87 | 82              | 72              | 87              | 72              | 66              | 63              | 64              | 64              | 69              | 69              | 48              | 38              | 36              | 36              |
| 29          | 35              | 35 <sup>S</sup> | 33              | 31              | 33              | 27 | 33              | 59              | 69 | 67 | 57              | 70              | 81              | 88              | 78              | 66              | 65              | 67              | 78              | 68 <sup>S</sup> | 39              | 38              | 39              | 40 <sup>S</sup> |
| 30          | 38              | 33              | 33              | 32              | 30              | 31 | 31              | 60              | 72 | 77 | 62              | 63              | 71              | 82              | 65              | 63              | 66              | 71              | 81              | 61              | 42              | 40              | 40              | 40 <sup>S</sup> |
| 31          |                 |                 |                 |                 |                 |    |                 |                 |    |    |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |
| CNT         | 26              | 26              | 25              | 29              | 27              | 27 | 29              | 30              | 30 | 28 | 28              | 28              | 29              | 29              | 30              | 30              | 30              | 30              | 30              | 30              | 28              | 22              | 22              | 22              |
| MED         | 34              | 33              | 33              | 31              | 29              | 27 | 34              | 58              | 64 | 64 | 61              | 64              | 70              | 69              | 66              | 64              | 64              | 70              | 76              | 75              | 56              | 36              | 36              | 34              |
| UQ          | 37              | 35              | 34              | 33              | 30              | 30 | 36              | 61              | 73 | 74 | 70              | 71              | 77              | 73              | 76              | 70              | 67              | 75              | 83              | 87              | 66              | 40              | 37              | 39              |
| LQ          | 32              | 31              | 32              | 30              | 26              | 25 | 32              | 55              | 58 | 58 | 59              | 60              | 63              | 63              | 61              | 60              | 61              | 64              | 71              | 65              | 40              | 33              | 31              | 32              |

SEP. 1976

FOF2 (0.1 MHz)



# IONOSPHERIC DATA

SEP. 1976

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 20 MHz in 20 sec in automatic operation

| Hour<br>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   | 420 | 430 | 470 | 440 | 440 | 450 | 430 | 420 | U   | L   | L  |    |    |    |    |
| 2           |    |    |    |    |    |    |    | L  | A   | A   | A   | A   | A   | 440 | 440 | 430 | 410 | U   | L   | A  |    |    |    |    |
| 3           |    |    |    |    |    |    |    | L  | L   | 460 | 440 | 450 | 440 | 430 | 430 | A   | L   | A   | A   |    |    |    |    |    |
| 4           |    |    |    |    |    |    |    | L  | L   | A   | 440 | A   | A   | 460 | 440 | 430 | 420 | 390 | A   |    |    |    |    |    |
| 5           |    |    |    |    |    |    |    |    | A   | 420 | 430 | 440 | 450 | 450 | 460 | A   | 410 | 380 | A   |    |    |    |    |    |
| 6           |    |    |    |    |    |    |    | A  | L   | A   | L   | A   | 450 | A   | 460 | 430 | A   | 370 | L   | A  |    |    |    |    |
| 7           |    |    |    |    |    |    |    | A  | A   | A   | A   | A   | A   | A   | A   | A   | 410 | A   | A   |    |    |    |    |    |
| 8           |    |    |    |    |    |    |    | L  | L   | U   | L   | 450 | 450 | 460 | A   | A   | A   | A   | A   |    |    |    |    |    |
| 9           |    |    |    |    |    |    |    | L  | 400 | A   | 440 | 450 | 450 | A   | 440 | 420 | 400 | L   | L   |    |    |    |    |    |
| 10          |    |    |    |    |    |    |    | L  | L   | 430 | 450 | 450 | 440 | 450 | 430 | 430 | 390 | L   | L   |    |    |    |    |    |
| 11          |    |    |    |    |    |    |    | L  | L   | 420 | 440 | 450 | 440 | 440 | 420 | A   | A   | A   | A   |    |    |    |    |    |
| 12          |    |    |    |    |    |    |    | L  | L   | 420 | 430 | 440 | 430 | 440 | 440 | 420 | 390 | L   | L   |    |    |    |    |    |
| 13          |    |    |    |    |    |    |    | L  | L   | L   | I   | C   | 440 | 440 | 450 | A   | A   | 420 | 400 | A  | L  |    |    |    |
| 14          |    |    |    |    |    |    |    | L  | L   | L   | 430 | 460 | A   | 450 | 440 | 420 | 410 | L   | L   |    |    |    |    |    |
| 15          |    |    |    |    |    |    |    |    | U   | L   | 420 | 440 | 440 | 440 | 450 | 440 | 420 | 410 | L   |    |    |    |    |    |
| 16          |    |    |    |    |    |    |    | L  | U   | 400 | 420 | 450 | 450 | 450 | 440 | 450 | L   | L   |     |    |    |    |    |    |
| 17          |    |    |    |    |    |    |    | L  | L   | 430 | 450 | 450 | U   | L   | 470 | 430 | 420 | L   | 360 |    |    |    |    |    |
| 18          |    |    |    |    |    |    |    | L  | L   | L   | L   | 440 | 450 | 450 | 440 | 450 | L   | L   |     |    |    |    |    |    |
| 19          |    |    |    |    |    |    |    | L  | L   | L   | 450 | 450 | 440 | 450 | 430 | 430 | L   | L   |     |    |    |    |    |    |
| 20          |    |    |    |    |    |    |    |    | A   | L   | U   | L   | L   | 450 | 470 | L   | L   | L   | L   |    |    |    |    |    |
| 21          |    |    |    |    |    |    |    |    | L   | U   | 420 | 430 | 440 | 440 | 440 | 420 | 420 | U   | L   | A  |    |    |    |    |
| 22          |    |    |    |    |    |    |    |    | L   | U   | 420 | A   | 460 | 450 | 450 | 430 | L   | L   | L   |    |    |    |    |    |
| 23          |    |    |    |    |    |    |    |    | L   | L   | 430 | 450 | 470 | L   | L   | 440 | 430 | 410 | L   |    |    |    |    |    |
| 24          |    |    |    |    |    |    |    | L  | L   | 420 | L   | 450 | 450 | 440 | 450 | L   | L   | A   |     |    |    |    |    |    |
| 25          |    |    |    |    |    |    |    |    | L   | L   | L   | 450 | 450 | L   | L   | 410 | L   | L   |     |    |    |    |    |    |
| 26          |    |    |    |    |    |    |    |    | L   | L   | 470 | 450 | 440 | 450 | L   | L   | L   |     |     |    |    |    |    |    |
| 27          |    |    |    |    |    |    |    |    | L   | L   | 440 | 470 | 460 | 450 | L   | L   | L   | L   |     |    |    |    |    |    |
| 28          |    |    |    |    |    |    |    |    | L   | 430 | 450 | 450 | 460 | U   | L   | U   | L   | L   | L   |    |    |    |    |    |
| 29          |    |    |    |    |    |    |    |    | L   | U   | 420 | 440 | 450 | 460 | 450 | L   | L   | U   | 390 | L  |    |    |    |    |
| 30          |    |    |    |    |    |    |    | L  | L   | L   | 440 | 450 | 470 | U   | L   | L   | U   | 400 | 410 | L  |    |    |    |    |
| 31          |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |    |    |    | 3   | 14  | 22  | 25  | 25  | 24  | 22  | 18  | 15  | 6   |     |    |    |    |    |    |
| MED         |    |    |    |    |    |    |    |    | U   | 400 | 420 | 440 | 450 | 450 | 440 | 425 | 410 | 375 |     |    |    |    |    |    |
| UQ          |    |    |    |    |    |    |    |    | 405 | 430 | 440 | 450 | 450 | 455 | 440 | 430 | 410 | 390 |     |    |    |    |    |    |
| LQ          |    |    |    |    |    |    |    |    | 400 | 420 | 430 | 450 | 440 | 440 | 430 | 420 | 400 | 370 |     |    |    |    |    |    |

SEP. 1976

FOF1 (0.01 MHz)

# IONOSPHERIC DATA

SEP. 1976

FOE (0.01 MHZ)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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  | 230      | 265 | 295 | A   | 325        | 335        | 335        | 330      | 315      | 290      | 250      | 160 |    | S  |    |    |    |
| 2           |    |    |    |    |    | S  | S  | A        | 275 | A   | A   | A          | A          | A          | A        | A        | 290      | 250      | 165 |    | S  |    |    |    |
| 3           |    |    |    |    |    | S  | S  | 210      | 260 | 290 | 310 | 320        | 330        | 330        | 330      | 310      | 290      | 250      | 160 |    | S  |    |    |    |
| 4           |    |    |    |    |    | S  | S  | H<br>205 | 250 | A   | A   | A          | A          | A          | 330      | 310      | 280      | A        | 160 |    | S  |    |    |    |
| 5           |    |    |    |    |    | S  | S  | 220      | 270 | 300 | 310 | 320        | 330        | 330        | 320      | 300      | 270      | 250      |     | S  | S  |    |    |    |
| 6           |    |    |    |    |    | S  | S  | A        | 240 | 290 | 300 | 320        | A          | 320        | 325      | 310      | 290      | A        | S   | S  |    |    |    |    |
| 7           |    |    |    |    |    | S  | S  | A        | 250 | 290 | A   | A          | A          | A          | A        | A        | 285      | 250      | 155 |    | S  |    |    |    |
| 8           |    |    |    |    |    | S  | S  | 185      | 245 | 280 | A   | A          | A          | A          | A        | A        | A        | 235      | 150 |    | S  |    |    |    |
| 9           |    |    |    |    |    | S  | S  | 190      | A   | A   | A   | A          | A          | A          | A        | A        | 290      | A        | A   | S  |    |    |    |    |
| 10          |    |    |    |    |    | S  | S  | 200      | A   | A   | 310 | 320        | A          | I C<br>330 | 320      | 290      | H<br>270 | 240      | 150 |    | S  |    |    |    |
| 11          |    |    |    |    |    | S  | S  | 210      | 250 | A   | A   | A          | 330        | 330        | 320      | A        | A        | A        | A   | S  |    |    |    |    |
| 12          |    |    |    |    |    | S  | S  | 200      | 250 | 280 | A   | A          | A          | A          | A        | A        | 280      | 240      | A   | S  |    |    |    |    |
| 13          |    |    |    |    |    | S  | S  | 200      | 245 | A   | C   | A          | A          | A          | A        | 300      | 270      | 230      |     | S  | S  |    |    |    |
| 14          |    |    |    |    |    | S  | S  | A        | A   | A   | A   | A          | A          | 330        | 320      | 305      | A        | A        | S   | S  |    |    |    |    |
| 15          |    |    |    |    |    | S  | S  | 195      | 260 | 300 | 320 | 330        | 335        | 335        | 320      | 300      | 280      | 240      |     | S  | S  |    |    |    |
| 16          |    |    |    |    |    | E  | S  | 220      | A   | 300 | 315 | 325        | U C<br>330 | 330        | 320      | 305      | 280      | 225      |     | S  | S  |    |    |    |
| 17          |    |    |    |    |    | S  | S  | 225      | 275 | 300 | 310 | 330        | R<br>330   | R<br>330   | 330      | 300      | 270      | 230      |     | S  | S  |    |    |    |
| 18          |    |    |    |    |    | S  | S  | 180      | 250 | 280 | A   | A          | 330        | 330        | 320      | 300      | 270      | 230      |     | S  | S  |    |    |    |
| 19          |    |    |    |    |    | S  | S  | 180      | 250 | 280 | A   | A          | A          | 320        | 310      | 300      | 260      | 220      |     | S  | S  |    |    |    |
| 20          |    |    |    |    |    | S  | S  | 210      | A   | 270 | 310 | 320        | C<br>320   | C<br>325   | C<br>320 | 300      | 280      | 220      |     | S  | S  |    |    |    |
| 21          |    |    |    |    |    | S  | S  | 200      | 260 | 280 | 300 | 320        | 325        | 330        | C<br>320 | 295      | 260      | 210      |     | S  | S  |    |    |    |
| 22          |    |    |    |    |    | S  | S  | 180      | 260 | A   | A   | A          | 325        | A          | 320      | 280      | 275      | 215      |     | S  | S  |    |    |    |
| 23          |    |    |    |    |    | S  | S  | 200      | A   | A   | 305 | 320        | 320        | 320        | 315      | 280      | 265      | 220      |     | S  | S  |    |    |    |
| 24          |    |    |    |    |    | S  | S  | A        | A   | 290 | A   | 320        | 320        | 320        | 310      | 280      | 260      | 230      | H   | S  | S  |    |    |    |
| 25          |    |    |    |    |    | S  | S  | 180      | 250 | 280 | 320 | 320        | 325        | 320        | 320      | C<br>330 | 260      | 220      |     | S  | S  |    |    |    |
| 26          |    |    |    |    |    | S  | S  | 170      | 250 | 280 | 300 | A          | C<br>320   | 320        | 310      | 280      | 270      | 210      |     | S  | S  |    |    |    |
| 27          |    |    |    |    |    | S  | S  | A        | A   | A   | 300 | I C<br>315 | 320        | 330        | 320      | 300      | 270      | C<br>220 |     | S  | S  |    |    |    |
| 28          |    |    |    |    |    | S  | S  | 190      | A   | A   | A   | A          | A          | 530        | 315      | 300      | 270      | 215      |     | S  | S  |    |    |    |
| 29          |    |    |    |    |    | S  | S  | 195      | 265 | 300 | 310 | 325        | 330        | A          | A        | 290      | 260      | 220      |     | S  | S  |    |    |    |
| 30          |    |    |    |    |    | S  | S  | 200      | 260 | A   | 300 | 325        | 330        | 325        | 295      | 290      | 260      | 215      |     | S  | S  |    |    |    |
| 31          |    |    |    |    |    |    |    |          |     |     |     |            |            |            |          |          |          |          |     |    |    |    |    |    |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07       | 08  | 09  | 10  | 11         | 12         | 13         | 14       | 15       | 16       | 17       | 18  | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    | 1  |    | 24       | 21  | 18  | 15  | 16         | 18         | 21         | 23       | 24       | 27       | 25       | 7   |    |    |    |    |    |
| MED         |    |    |    |    |    | E  |    | 200      | 250 | 290 | 310 | 320        | 330        | 330        | 320      | 300      | 270      | 230      | 160 |    |    |    |    |    |
| UQ          |    |    |    |    |    |    |    | 210      | 260 | 300 | 310 | 325        | 330        | 330        | 320      | 305      | 280      | 240      | 160 |    |    |    |    |    |
| LQ          |    |    |    |    |    |    |    | 188      | 250 | 280 | 300 | 320        | 320        | 320        | 318      | 290      | 268      | 220      | 152 |    |    |    |    |    |

The Radio Research Laboratories, Japan

SEP. 1976

FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1976

FOES (0.1 MHz)

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

| Station     | YAMAGAWA  |        |        |        |        |        |        |        |         |         |        |        |        |        |        |        |        |        |        |        |        |        |        |         |    |    |
|-------------|---|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|----|----|
|             | Lat. 31 12.1 N, Long. 130 37.1 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |        |        |        |        |        |        |        |         |         |        |        |        |        |        |        |        |        |        |        |        |        |        |         |    |    |
| Hour<br>Day | 00  | 01     | 02     | 03     | 04     | 05     | 06     | 07     | 08      | 09      | 10     | 11     | 12     | 13     | 14     | 15     | 16     | 17     | 18     | 19     | 20     | 21     | 22     | 23      |    |    |
| 1           | J A 24  | 24     | J A 26 | J A 21 | 23     | 22     | 17     | 30     | J A 45  | 38      | J A 41 | G 30   | G      | G      | G      | G      | G      | G      | 22     | E S 14 | 23     | J A 49 | J A 31 | 22      |    |    |
| 2           | J A 51  | E S 14 | E S 15 | J A 25 | J A 23 | 21     | J A 29 | J A 33 | J A 44  | 75      | J A 85 | J A 87 | J A 77 | J A 64 | J A 36 | J A 53 | G 17   | 30     | J A 50 | J A 21 | 22     | 22     | J A 51 | J A 51  |    |    |
| 3           | J A 42  | J A 25 | J A 48 | J A 26 | J A 21 | 22     | J A 19 | J A 34 | 33      | 31      | G 26   | G 28   | G 26   | G 25   | 36     | 45     | 33     | 57     | 56     | J A 31 | 60     | J A 70 | 95     | J A 64  |    |    |
| 4           | 43  | J A 50 | 55     | J A 34 | 30     | 21     | 25     | 24     | 37      | 42      | 37     | J A 49 | 91     | J A 52 | 35     | 36     | 39     | J A 39 | J A 48 | J A 49 | 36     | 26     | J A 21 | J A 24  |    |    |
| 5           | 17  | E S 14 | E S 14 | E S 14 | E B 13 | 18     | 17     | 27     | J A 48  | 40      | 40     | 44     | 42     | 46     | J A 46 | J A 54 | 35     | J A 54 | J A 89 | J A 81 | 53     | 17     | 21     | E S 15  |    |    |
| 6           | E S 15  | E S 14 | J A 27 | 27     | J A 26 | 26     | J A 25 | J A 54 | J A 113 | J A 65  | 48     | J A 78 | 39     | 48     | 41     | 36     | J A 43 | 48     | 44     | 60     | 59     | 34     | 34     | J A 56  |    |    |
| 7           | 57  | 34     | 33     | J A 35 | J A 41 | 35     | J A 49 | J A 48 | J A 65  | J A 46  | J A 78 | J A 49 | 60     | J A 59 | J A 59 | J A 50 | 33     | J A 51 | J A 42 | J A 50 | J A 32 | J A 33 | J A 60 | J A 110 |    |    |
| 8           | 25  | J A 77 | J A 60 | J A 48 | J A 25 | J A 21 | J A 22 | J A 29 | J A 41  | J A 39  | J A 52 | J A 50 | J A 64 | J A 64 | J A 86 | J A 86 | J A 72 | J A 54 | J A 62 | J A 32 | J A 52 | J A 64 | J A 39 | J A 76  |    |    |
| 9           | J A 51  | J A 50 | J A 31 | J A 34 | J A 40 | J A 39 | J A 32 | 24     | J A 39  | J A 108 | J A 36 | J A 42 | J A 45 | J A 88 | J A 41 | J A 30 | J A 41 | J A 33 | J A 28 | J A 28 | J A 27 | J A 26 | J A 26 | J A 21  |    |    |
| 10          | J A 22  | E S 14 | J A 22 | E S 15 | E S 15 | E S 15 | J A 22 | J A 27 | J A 33  | 32      | 29     | 35     | 40     | 31     | G 25   | G 19   | G      | G      | 24     | 23     | J A 25 | J A 29 | 35     | 20      |    |    |
| 11          | E S 15  | 22     | 20     | E S 15 | 16     | 22     | 23     | 25     | J A 37  | J A 79  | 37     | 35     | G 32   | G 30   | G 17   | 55     | 92     | 90     | J A 92 | J A 41 | 153    | 93     | 59     | C       |    |    |
| 12          | 37  | 32     | 30     | J A 25 | 20     | 23     | J A 27 | 22     | 25      | 26      | 33     | J A 48 | 42     | 36     | 37     | J A 44 | 30     | 27     | J A 53 | J A 84 | J A 45 | 60     | J A 64 | 23      |    |    |
| 13          | J A 41  | 30     | 25     | 25     | 23     | J A 21 | J A 22 | 25     | 29      | 33      | C      | J A 34 | 54     | 56     | 59     | 46     | 36     | J A 43 | 40     | 51     | 45     | 58     | 32     | 35      |    |    |
| 14          | 26  | 27     | J A 22 | 23     | 22     | 17     | E S 15 | J A 32 | 40      | J A 34  | J A 54 | J A 36 | J A 77 | J A 30 | J A 33 | G      | J A 29 | J A 30 | 19     | J A 23 | J A 24 | J A 26 | E S 15 | 19      |    |    |
| 15          | E S 15  | J A 21 | 23     | J A 25 | J A 19 | E S 15 | E S 15 | 23     | 29      | J A 24  | 22     | G      | 37     | G      | G      | G      | 32     | 30     | 28     | J A 26 | J A 22 | J A 24 | J A 30 | J A 32  |    |    |
| 16          | J A 26  | 24     | E B 15 | E B 14 | J A 18 | J A 19 | 23     | 25     | 28      | G       | G      | G      | G      | G      | G      | G      | 30     | 26     | 20     | J A 27 | 21     | E S 15 | J A 19 | J A 22  |    |    |
| 17          | 20  | E S 15 | 21     | E B 13 | E B 15 | E S 14 | E S 15 | 28     | 31      | 32      | 35     | 31     | G 32   | 35     | G      | G      | 31     | 25     | J A 29 | J A 74 | 35     | J A 31 | J A 25 | J A 28  |    |    |
| 18          | 26  | J A 24 | J A 21 | 19     | 20     | 17     | E S 15 | 26     | 30      | 33      | J A 39 | 36     | G      | G      | G      | G      | G      | 25     | 21     | J A 29 | 21     | J A 30 | J A 21 | J A 26  |    |    |
| 19          | 21  | E S 16 | E S 17 | 19     | J A 21 | 18     | J A 27 | 22     | 27      | 30      | 45     | 36     | 36     | G      | G 23   | 31     | 30     | 34     | J A 31 | J A 42 | J A 24 | J A 44 | 23     | 21      |    |    |
| 20          | 19  | 18     | E B 14 | 20     | E B 15 | E S 14 | 21     | 23     | J A 54  | 33      | 39     | 37     | 27     | 38     | 37     | G      | 33     | 45     | 42     | 22     | J A 24 | 25     | 21     | E S 15  |    |    |
| 21          | 20  | 22     | 18     | 21     | 22     | 19     | 25     | 27     | 34      | 36      | 36     | 44     | 41     | 36     | G      | G      | G      | J A 46 | J A 56 | J A 40 | J A 73 | J A 24 | J A 26 | J A 22  |    |    |
| 22          | J A 27  | J A 26 | J A 23 | 20     | 20     | J A 23 | J A 36 | 27     | 27      | J A 37  | J A 52 | J A 35 | G 25   | 36     | J G 31 | 34     | 37     | J A 36 | J A 24 | J A 39 | J A 34 | J A 51 | J A 51 | J A 27  |    |    |
| 23          | 23  | 25     | 23     | 18     | 23     | 19     | 19     | G      | J A 31  | J A 32  | G      | G      | G      | 33     | G      | G      | G      | 33     | 47     | 50     | 53     | 70     | 32     | 21      |    |    |
| 24          | J A 26  | J A 25 | E S 15 | 21     | 18     | 22     | 24     | J A 26 | J A 29  | 34      | J A 50 | 23     | 37     | 42     | 40     | 36     | G      | 35     | J A 39 | J A 33 | J A 51 | J A 54 | 35     | J A 26  |    |    |
| 25          | 23  | J A 20 | 16     | E S 15 | E B 14 | E S 15 | E S 14 | 24     | 27      | 30      | 31     | 34     | G      | G 23   | G      | G      | G      | G      | 16     | 21     | J A 21 | 21     | E C 18 | E C 19  |    |    |
| 26          | E S 16  | E S 15 | E S 13 | E B 14 | E B 13 | E S 14 | 19     | 25     | 32      | J A 48  | 37     | 34     | G 30   | G 27   | G 27   | G 25   | 30     | J A 37 | 27     | J A 20 | 44     | 31     | 28     | J A 25  |    |    |
| 27          | J A 24  | E C 17 | E B 15 | 21     | 21     | 21     | E S 15 | 25     | 28      | 32      | 31     | 29     | G      | G      | G      | G      | G 23   | J G 20 | 20     | 33     | 23     | 19     | E C 17 | E S 15  |    |    |
| 28          | E S 15  | E S 15 | E S 15 | E S 15 | E S 15 | E S 15 | 21     | J A 30 | 32      | 34      | 35     | 34     | J A 34 | G 30   | G 28   | G 23   | 20     | 29     | J A 27 | J A 26 | 18     | 23     | 21     | E S 15  |    |    |
| 29          | E S 15  | E S 15 | E B 14 | E C 20 | E      | E S 14 | E S 15 | 23     | 27      | G       | G      | 34     | 29     | 34     | 35     | G      | 26     | 34     | J A 33 | J A 22 | J A 26 | 23     | 25     | 24      |    |    |
| 30          | E S 15  | 21     | 21     | E B 13 | E S 15 | E S 15 | E S 15 | 28     | J A 40  | 37      | 35     | 30     | G 30   | G 32   | 30     | J G 28 | 30     | 27     | 19     | J A 26 | 22     | J A 26 | J A 30 | J A 21  |    |    |
| 31          |   |        |        |        |        |        |        |        |         |         |        |        |        |        |        |        |        |        |        |        |        |        |        |         |    |    |
| Hour<br>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         | 30  | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30      | 30      | 29     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 30     | 29      |    |    |
| MED         | 24  | 22     | 21     | 20     | 20     | 19     | 22     | 26     | 32      | 34      | 37     | 35     | 35     | 34     | 30     | 26     | 30     | 34     | J A 32 | J A 32 | 30     | J A 30 | 29     | J A 23  |    |    |
| UQ          | J A 27  | 26     | J A 26 | J A 25 | 23     | 22     | J A 25 | J A 29 | J A 40  | J A 40  | J A 45 | J A 44 | 42     | 46     | 37     | 44     | 35     | J A 45 | J A 48 | J A 50 | 51     | J A 51 | J A 35 | J A 28  |    |    |
| LQ          | 17  | E S 15 | E S 15 | E S 15 | E S 15 | E S 15 | E S 15 | 24     | 29      | 32      | 31     | 30     | G 26   | G 25   | G      | G      | G      | G      | 17     | 27     | 24     | J A 23 | J A 23 | 24      | 21 | 21 |

SEP. 1976

FOES (0.1 MHz)

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

SEP. 1976

FBES (0.1 MHZ)

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

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

| Hour<br>Day | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07 | 08 | 09  | 10  | 11  | 12  | 13  | 14 | 15 | 16 | 17 | 18 | 19  | 20  | 21  | 22  | 23  |  |
|-------------|-----|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|--|
| 1           | 17  | E   | 25  | 16  | E   | G   | 15  | G  | 45 | 38  | 36  | G   | G   | G   | G  | G  | G  | G  | 22 | E S | E   | 29  | 19  | E   |  |
| 2           | E   | E S | E S | E   | 15  | G   | 27  | 31 | 42 | A A | A A | A A | 50  | 39  | 35 | 35 | 17 | G  | 40 | 19  | E   | E   | A A | A A |  |
| 3           | A A | 15  | A A | 16  | 14  | G   | 18  | 33 | 32 | G   | G   | G   | G   | G   | 35 | 45 | 31 | 48 | 45 | 18  | 55  | A A | A A | A A |  |
| 4           | 23  | 21  | A A | 16  | E   | G   | G   | 24 | 36 | 42  | 35  | 48  | A A | 41  | 30 | 36 | 36 | 35 | 36 | 43  | 29  | 15  | E   | 17  |  |
| 5           | E   | E S | E S | E S | E B | G   | G   | 26 | 43 | 38  | 40  | 42  | 41  | 44  | 44 | 50 | G  | 35 | 60 | 52  | 34  | E   | E   | E S |  |
| 6           | E S | E S | 19  | 16  | 20  | 16  | 22  | 43 | 31 | 47  | 40  | A A | 39  | 46  | 40 | 35 | 40 | 35 | 40 | 49  | A A | 20  | 22  | A A |  |
| 7           | A A | 16  | 22  | 28  | 16  | 21  | 17  | 45 | 53 | 44  | A A | 47  | 50  | 58  | 58 | 47 | G  | 51 | 42 | 50  | 29  | 32  | 18  | E   |  |
| 8           | E   | 16  | A A | 15  | 16  | G   | 17  | 28 | 33 | 34  | 37  | 41  | 42  | 40  | 50 | 64 | 65 | 41 | 45 | 19  | 25  | A A | 19  | A A |  |
| 9           | 31  | A A | 28  | 26  | 19  | 16  | 28  | G  | 30 | A A | 34  | 39  | 42  | A A | 36 | 34 | 28 | 24 | 16 | 17  | 25  | 22  | 26  | 18  |  |
| 10          | E   | E S | 15  | E S | E S | E S | 19  | 17 | 30 | 30  | G   | 30  | 37  | G   | G  | G  | G  | G  | 20 | G   | 15  | 22  | 22  | E   |  |
| 11          | E S | E   | E   | E S | E   | G   | G   | 24 | 30 | 35  | 36  | 35  | G   | G   | 17 | 45 | 48 | 40 | 40 | 31  | A A | A A | A A | C   |  |
| 12          | 19  | 20  | 17  | 22  | E   | G   | 19  | G  | 20 | G   | 33  | 35  | 38  | 36  | 35 | 40 | G  | 27 | 22 | 46  | 23  | 28  | A A | E   |  |
| 13          | A A | 16  | E   | E   | E   | G   | G   | 24 | 28 | 33  | C   | E C | 40  | 45  | 51 | 38 | 35 | 40 | 22 | 41  | E   | E   | E   | E   |  |
| 14          | E   | 16  | 17  | 16  | E   | G   | E S | 23 | 35 | 31  | 36  | 36  | 49  | G   | 30 | G  | 28 | 28 | 18 | 19  | E   | E   | E S | E   |  |
| 15          | E S | E   | E   | 17  | E   | E S | E S | G  | G  | G   | G   | G   | G   | G   | G  | G  | G  | 28 | 28 | 23  | 18  | 20  | A A | 21  |  |
| 16          | 15  | E   | E B | E B | E   | 17  | G   | G  | G  | G   | G   | G   | G   | G   | G  | G  | G  | 26 | 17 | 26  | E   | E S | E   | 16  |  |
| 17          | E   | E S | E   | E B | E B | E S | E S | 27 | G  | G   | 34  | 31  | G   | 35  | G  | G  | G  | G  | 25 | 43  | 32  | 20  | E   | 16  |  |
| 18          | E   | 20  | E   | 15  | E   | G   | E S | 25 | G  | 32  | 37  | 35  | G   | G   | G  | G  | G  | G  | 20 | 19  | E   | 29  | 20  | 17  |  |
| 19          | E   | E S | E S | E   | 18  | 16  | 21  | G  | G  | G   | 35  | 34  | 35  | G   | G  | 23 | 27 | 30 | 32 | 30  | 42  | 21  | 22  | E   |  |
| 20          | E   | E   | E B | E   | E B | E S | G   | G  | 52 | 32  | 34  | 35  | G   | 37  | 36 | G  | 32 | 30 | 34 | 21  | 19  | E   | E   | E S |  |
| 21          | 17  | E   | E   | E   | E   | G   | 17  | 25 | 33 | 36  | G   | 40  | 40  | 36  | G  | G  | G  | 46 | 49 | 40  | 22  | 16  | E   | 20  |  |
| 22          | 21  | 22  | 21  | E   | E   | G   | A A | 26 | G  | 33  | 43  | 35  | G   | 35  | G  | G  | 31 | 36 | G  | 22  | 31  | A A | A A | 20  |  |
| 23          | E   | E   | E   | E   | E   | G   | G   | G  | 29 | 32  | G   | G   | G   | 31  | G  | G  | G  | 32 | 43 | 41  | 53  | A A | 21  | 19  |  |
| 24          | 22  | 25  | E S | E   | E   | G   | G   | 22 | 28 | G   | 32  | G   | 35  | 41  | 40 | 33 | G  | 35 | 37 | 22  | 21  | A A | 23  | 23  |  |
| 25          | E   | 20  | 15  | E C | E B | E S | E S | 23 | G  | 30  | G   | 29  | G   | G   | G  | G  | G  | G  | 16 | G   | E   | E   | E C | E C |  |
| 26          | E S | E S | E S | E B | E B | E S | G   | 25 | 30 | 37  | 33  | 34  | G   | G   | G  | G  | 30 | 32 | 17 | 15  | 29  | 20  | 17  | 20  |  |
| 27          | 19  | E C | E B | 18  | E   | G   | E S | 23 | 28 | 31  | 31  | E C | G   | G   | G  | G  | G  | 23 | 17 | G   | 29  | 21  | 18  | E C |  |
| 28          | E S | E S | E S | E C | E S | E S | G   | 22 | 28 | 32  | 32  | 34  | 34  | G   | G  | G  | G  | 20 | 28 | 27  | 25  | E   | E   | E S |  |
| 29          | E S | E S | E B | E C | E   | E S | E S | G  | G  | G   | G   | G   | G   | 29  | 33 | 34 | G  | 25 | 29 | 33  | G   | 21  | E   | E   |  |
| 30          | E S | E   | E   | E B | E S | E S | E S | 27 | 35 | 35  | 34  | 36  | G   | G   | 29 | 27 | G  | 25 | G  | 20  | E   | E   | 19  | 18  |  |
| 31          |     |     |     |     |     |     |     |    |    |     |     |     |     |     |    |    |    |    |    |     |     |     |     |     |  |
| Hour<br>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         | 30  | 30  | 30  | 30  | 30  | 30  | 30  | 30 | 30 | 30  | 29  | 30  | 30  | 30  | 30 | 30 | 30 | 30 | 30 | 30  | 30  | 30  | 30  | 29  |  |
| MED         | E S | E S | E S | E S | E S | G   | 15  | 24 | 30 | 32  | 34  | 34  | 33  | 32  | 29 | 24 | 18 | 30 | 28 | 22  | 21  | 20  | 18  | 16  |  |
| UQ          | 19  | 17  | 19  | 16  | E S | E S | 18  | 26 | 35 | 37  | 36  | 39  | 40  | 40  | 36 | 36 | 31 | 35 | 40 | 41  | 29  | 29  | 23  | 20  |  |
| LQ          | E   | E   | E   | E   | E   | G   | G   | G  | G  | G   | G   | G   | G   | G   | G  | G  | G  | 24 | 18 | 19  | E   | E   | E   | E   |  |

SEP. 1976

FBES (0.1 MHZ)

# IONOSPHERIC DATA

SEP. 1976

F-MIN (0.1 MHz)

135° E Mean Time (G. M. T. + 9 h)

| Station                            | YAMAGAWA   |                              |                              |                              |                              |                              |                              |    |    |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |
|------------------------------------|--|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|----|----|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Lat. 31 12.1' N, Long. 130 37.1' E | Sweep 1 MHz to 20 MHz in 20 sec in automatic operation |                              |                              |                              |                              |                              |                              |    |    |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |
| Hour<br>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 <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 13 | 14 | 15                           | 18                           | 19                           | 21                           | 19                           | 18                           | 16                           | 15                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 2                                  | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14                           | 16 | 19 | 20                           | 19                           | 20                           | 19                           | 17                           | 15                           | 14                           | 14                           | 13                           | E <sub>13</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 3                                  | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 14 | 14 | 16                           | 17                           | 21                           | 21                           | 20                           | 20                           | 19                           | 13                           | 15                           | E <sub>14</sub> <sup>S</sup> | E <sub>13</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>13</sub> <sup>S</sup> |
| 4                                  | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 16                           | 20                           | 20                           | 22                           | 20                           | 20                           | 17                           | 14                           | 13                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 5                                  | E <sub>14</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 14 | 14 | 16                           | 21                           | 21                           | 20                           | 19                           | 20                           | 20                           | 14                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 6                                  | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13                           | 13                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 13 | 14 | 17                           | 15                           | 21                           | 22                           | 20                           | 20                           | 20                           | 15                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 7                                  | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15 | 15 | 16                           | 15                           | 18                           | 17                           | 21                           | 21                           | 17                           | 15                           | 16                           | E <sub>15</sub> <sup>S</sup> | E <sub>13</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 8                                  | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 16                           | 16                           | 19                           | 20                           | 20                           | 19                           | 16                           | 15                           | 15                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 9                                  | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 16                           | 16                           | 20                           | 16                           | 21                           | 21                           | 15                           | 14                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 10                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 13 | 14                           | 15                           | 20                           | 19                           | 17                           | 15                           | 14                           | 17                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 11                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 18                           | 18                           | 21                           | 21                           | 20                           | 15                           | 15                           | 20                           | 14                           | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | C                            |
| 12                                 | E <sub>14</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 15                           | 17                           | 18                           | 20                           | 16                           | 20                           | 20                           | 15                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 13                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 16 | 16                           | C                            | 15                           | 16                           | 15                           | 15                           | 22                           | 16                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>16</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 14                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 19 | 17                           | 20                           | 19                           | 17                           | 17                           | 17                           | 15                           | 15                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 15                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | 15                           | 13                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 15 | 15                           | 13                           | 20                           | 19                           | 21                           | 17                           | 15                           | 14                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> |
| 16                                 | E <sub>14</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | 15                           | 14                           | 12                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13 | 14 | 15                           | 18                           | 23                           | 27                           | 15                           | 14                           | 15                           | 17                           | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 17                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13                           | 15                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15 | 15 | 14                           | 20                           | 24                           | 21                           | 22                           | 22                           | 20                           | 18                           | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> |
| 18                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 15 | 14                           | 16                           | 21                           | 23                           | 21                           | 20                           | 15                           | 15                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 19                                 | E <sub>14</sub> <sup>S</sup>                           | E <sub>16</sub> <sup>S</sup> | E <sub>17</sub> <sup>S</sup> | 14                           | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 15                           | 15                           | 17                           | 16                           | 16                           | 17                           | 15                           | 21                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 20                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | 14                           | 13                           | 15                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 15                           | 21                           | 22                           | 18                           | 21                           | 22                           | 17                           | 15                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 21                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 17 | 15                           | 17                           | 17                           | 17                           | 16                           | 15                           | 15                           | 16                           | 13                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 22                                 | E <sub>15</sub> <sup>S</sup>                           | 13                           | 14                           | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>13</sub> <sup>S</sup> | 14 | 15 | 16                           | 22                           | 21                           | 20                           | 18                           | 15                           | 15                           | 14                           | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 23                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | 15                           | 15                           | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15 | 16 | 19                           | 21                           | E <sub>C</sub> <sup>24</sup> | 22                           | 21                           | 22                           | 15                           | 15                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 24                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15 | 14 | 19                           | 22                           | 20                           | 20                           | 20                           | E <sub>C</sub> <sup>25</sup> | 17                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 25                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>C</sub> <sup>15</sup> | 14                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 14 | 15 | 18                           | 22                           | 20                           | E <sub>C</sub> <sup>25</sup> | 20                           | E <sub>C</sub> <sup>28</sup> | 22                           | 17                           | 17                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>18</sub> <sup>S</sup> | E <sub>C</sub> <sup>19</sup> |
| 26                                 | E <sub>16</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14                           | 13                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15 | 14 | 15                           | 20                           | 23                           | 21                           | 21                           | 20                           | 16                           | 16                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 27                                 | E <sub>14</sub> <sup>S</sup>                           | E <sub>C</sub> <sup>17</sup> | 15                           | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13 | 15 | E <sub>C</sub> <sup>20</sup> | E <sub>C</sub> <sup>22</sup> | E <sub>C</sub> <sup>21</sup> | E <sub>C</sub> <sup>29</sup> | E <sub>C</sub> <sup>26</sup> | E <sub>C</sub> <sup>24</sup> | E <sub>C</sub> <sup>21</sup> | E <sub>C</sub> <sup>20</sup> | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>17</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 28                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>C</sub> <sup>15</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15 | 16 | 14                           | 16                           | 21                           | 20                           | E <sub>C</sub> <sup>25</sup> | 19                           | 15                           | 14                           | 16                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 29                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | 14                           | E <sub>C</sub> <sup>20</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 15 | 16                           | 17                           | 17                           | 21                           | 21                           | 19                           | 15                           | 14                           | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 30                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 15 | 14 | 17                           | 18                           | 21                           | 19                           | 19                           | 14                           | 15                           | 14                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| 31                                 |  |                              |                              |                              |                              |                              |                              |    |    |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |                              |
| Hour<br>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                                | 30   | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30 | 30 | 30                           | 29                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 30                           | 29                           |
| MED                                | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 16                           | 18                           | 20                           | 20                           | 20                           | 20                           | 16                           | 15                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| UQ                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 15 | 17                           | 20                           | 21                           | 21                           | 21                           | 20                           | 18                           | 16                           | 15                           | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |
| LQ                                 | E <sub>15</sub> <sup>S</sup>                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | 13                           | E <sub>15</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | 14 | 14 | 15                           | 16                           | 19                           | 19                           | 18                           | 17                           | 15                           | 14                           | 14                           | E <sub>14</sub> <sup>S</sup> | E <sub>14</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> | E <sub>15</sub> <sup>S</sup> |

SEP. 1976

F-MIN (0.1 MHz)

IONOSPHERIC DATA

SEP. 1976

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 20 MHz in 20 sec in automatic operation

| Hour<br>Day | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1           | 320 | 300 | 305 | 340 | 315 | 295 | 350 | 375 | 385 | 365 | 345 | 245 | 320 | 315 | 295 | 305 | 325 | 315 | 340 | 345 | 370 | 325 | 290 | F   |
| 2           | 310 | 275 | F   | 280 | 365 | 300 | 320 | 360 | 380 | A   | A   | A   | 300 | 300 | 310 | 320 | 325 | 290 | 305 | 330 | 385 | 375 | A   | A   |
| 3           | A   | F   | A   | 285 | 290 | 285 | 310 | 355 | 375 | 270 | 300 | 305 | 340 | 335 | 340 | 310 | 310 | 310 | 305 | 345 | 385 | A   | A   | A   |
| 4           | 290 | 300 | A   | 295 | 290 | 295 | 305 | 335 | 345 | 350 | 350 | 345 | A   | 315 | 315 | 325 | 315 | 295 | 300 | 325 | 370 | 310 | 295 | 295 |
| 5           | 295 | 315 | 325 | 300 | 310 | 320 | 330 | 370 | 345 | 330 | 350 | 345 | 335 | 315 | 290 | 330 | 330 | 305 | 305 | 335 | 340 | 320 | 295 | 300 |
| 6           | 290 | 300 | 300 | 300 | 305 | 325 | 310 | 355 | 380 | 380 | 315 | A   | 310 | 310 | 280 | 280 | 305 | 320 | 335 | 360 | A   | S   | S   | A   |
| 7           | A   | 295 | 280 | 305 | F   | F   | 320 | 375 | A   | 335 | A   | 290 | 320 | 320 | 295 | 300 | 295 | 330 | 345 | 345 | 375 | S   | 310 | 325 |
| 8           | 335 | F   | A   | 300 | 310 | F   | 360 | 390 | 355 | 355 | 330 | 325 | 320 | 310 | 295 | A   | 320 | 305 | 320 | 350 | 345 | A   | F   | A   |
| 9           | 315 | A   | 310 | 295 | F   | 320 | 320 | 375 | 365 | A   | 355 | 305 | 305 | A   | 305 | 315 | 305 | 320 | 325 | 340 | 355 | 340 | 290 | 300 |
| 10          | 305 | 295 | 350 | 365 | 285 | 295 | 315 | 340 | 355 | 325 | 305 | 330 | 315 | 330 | 310 | 300 | 320 | 340 | 350 | 340 | 325 | 310 | 275 | 305 |
| 11          | 325 | 320 | 295 | 290 | 305 | 280 | 335 | 345 | 355 | 360 | 325 | 300 | 305 | 320 | 335 | 350 | 330 | 325 | 335 | 350 | A   | A   | A   | C   |
| 12          | 300 | 285 | 300 | 295 | 295 | 280 | 305 | 345 | 375 | 370 | 375 | 290 | 325 | 315 | 315 | 305 | 330 | 360 | 350 | 355 | 335 | 310 | A   | F   |
| 13          | A   | 320 | F   | F   | 335 | 330 | 345 | 375 | 360 | 315 | 320 | 325 | 305 | 290 | 295 | 305 | 320 | 350 | 360 | 365 | 300 | F   | 320 | F   |
| 14          | F   | F   | 295 | 290 | F   | 305 | 330 | 370 | 370 | 360 | 335 | 305 | 310 | 325 | 300 | 270 | 255 | 325 | 340 | 330 | 370 | 345 | 275 | 285 |
| 15          | 300 | 305 | 315 | 315 | 345 | 315 | 345 | 355 | 360 | 340 | 340 | 330 | 330 | 325 | 325 | 330 | 315 | 315 | 315 | 370 | 395 | 280 | A   | 285 |
| 16          | 285 | 320 | 315 | 360 | 350 | 315 | 290 | 340 | 355 | 370 | 345 | 345 | 345 | 315 | 350 | 315 | 320 | 335 | 335 | 335 | 360 | 325 | 290 | 290 |
| 17          | 295 | 310 | 305 | 305 | 330 | 305 | 330 | 370 | 370 | 335 | 350 | 340 | 335 | 310 | 330 | 325 | 325 | 330 | 340 | 335 | 360 | 340 | 300 | 280 |
| 18          | 295 | 305 | 315 | 315 | 315 | 285 | 325 | 365 | 340 | 365 | 350 | 365 | 330 | 325 | 325 | 305 | 315 | 305 | 325 | 355 | 325 | 305 | 265 | 275 |
| 19          | 295 | 280 | 295 | 305 | 315 | 300 | 310 | 380 | 355 | 350 | 330 | 320 | 335 | 320 | 340 | 275 | 340 | 345 | 335 | 360 | 370 | 295 | 270 | 280 |
| 20          | 285 | 290 | 315 | 275 | 290 | 305 | 315 | 355 | 345 | 320 | 350 | 345 | 330 | 290 | 330 | 325 | 335 | 325 | 340 | 375 | 340 | 260 | 270 | 290 |
| 21          | 265 | 280 | 290 | 330 | 280 | F   | 305 | 355 | 355 | 345 | 320 | 315 | 325 | 340 | 325 | 320 | 325 | 330 | 355 | 365 | 290 | 285 | 265 | 290 |
| 22          | 300 | 305 | 340 | 290 | 295 | 365 | A   | 360 | 340 | 325 | 355 | 330 | 330 | 335 | 345 | 335 | 340 | 330 | 340 | 370 | 375 | A   | A   | 285 |
| 23          | 305 | 295 | 345 | 365 | 290 | 335 | 335 | 365 | 365 | 340 | 330 | 335 | 350 | 345 | 335 | 325 | 325 | 335 | 335 | 350 | 385 | A   | 295 | 295 |
| 24          | 300 | 300 | 335 | 365 | 305 | 305 | 325 | 365 | 360 | 385 | 365 | 315 | 345 | 340 | 345 | 335 | 335 | 325 | 345 | 370 | 380 | A   | 295 | 285 |
| 25          | 305 | 285 | 310 | 290 | 325 | 340 | 335 | 360 | 360 | 375 | 360 | 350 | 325 | 335 | 345 | 335 | 325 | 345 | 350 | 385 | 295 | 290 | 295 | 290 |
| 26          | 290 | 300 | 295 | 310 | 345 | 300 | 310 | 350 | 360 | 365 | 360 | 305 | 345 | 325 | 335 | 320 | 325 | 315 | 330 | 350 | 365 | 280 | 280 | 285 |
| 27          | 295 | 290 | 325 | 325 | 305 | 300 | 315 | 360 | 345 | 355 | 345 | 320 | 325 | 335 | 315 | 335 | 345 | 340 | 340 | 340 | 340 | 305 | 295 | 320 |
| 28          | 310 | 310 | 305 | 300 | 305 | 285 | 325 | 355 | 340 | 365 | 365 | 330 | 345 | 345 | 340 | 345 | 350 | 350 | 330 | 350 | 350 | 310 | 315 | 285 |
| 29          | 300 | 315 | 315 | 305 | 320 | 345 | 345 | 360 | 385 | 365 | 345 | 330 | 325 | 340 | 325 | 330 | 345 | 340 | 350 | 365 | 315 | 290 | 305 | 320 |
| 30          | 310 | 315 | 315 | 315 | 325 | 325 | 305 | 365 | 360 | 370 | 345 | 345 | 320 | 345 | 335 | 325 | 335 | 340 | 360 | 345 | 310 | 305 | 300 | 285 |
| 31          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|             | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
| CNT         | 26  | 26  | 25  | 29  | 27  | 27  | 29  | 30  | 29  | 28  | 28  | 28  | 29  | 29  | 30  | 29  | 30  | 30  | 30  | 30  | 28  | 21  | 22  | 22  |
| MED         | 300 | 300 | 310 | 305 | 310 | 305 | 320 | 360 | 360 | 355 | 345 | 328 | 325 | 325 | 325 | 320 | 325 | 328 | 338 | 350 | 358 | 310 | 295 | 290 |
| UQ          | 310 | 310 | 315 | 315 | 325 | 322 | 335 | 370 | 370 | 365 | 352 | 342 | 335 | 335 | 335 | 330 | 335 | 340 | 345 | 365 | 372 | 325 | 300 | 300 |
| LQ          | 295 | 290 | 300 | 295 | 295 | 295 | 310 | 355 | 355 | 335 | 330 | 305 | 320 | 315 | 305 | 305 | 315 | 315 | 325 | 340 | 330 | 290 | 275 | 285 |

The Radio Research Laboratories, Japan

SEP. 1976

M(3000)F2 (0.01)

# IONOSPHERIC DATA

SEP. 1976

M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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   | L   | L   | L   | 380 | 405 | 365 | 400 | 385 | 365 | 365 | 355 | L   | U   | L   | L  |  |
| 2           |    |    |    |    |    |    |    | L  | A   | A   | A   | A   | A   | A   | 390 | 370 | 365 | 365 | 340 | U   | L   | A   |     |    |  |
| 3           |    |    |    |    |    |    |    | L  | L   | L   | H   | H   | 330 | 380 | 380 | 385 | 420 | H   | A   | L   | A   | A   |     |    |  |
| 4           |    |    |    |    |    |    |    | L  | L   | A   | A   | A   | A   | A   | 370 | 375 | 350 | 355 | A   | A   |     |     |     |    |  |
| 5           |    |    |    |    |    |    |    |    | A   | L   | A   | A   | A   | L   | A   | A   | A   | 365 | A   | A   |     |     |     |    |  |
| 6           |    |    |    |    |    |    |    | A  | L   | A   | L   | A   | A   | H   | A   | A   | 335 | 350 | A   | A   | A   |     |     |    |  |
| 7           |    |    |    |    |    |    |    | A  | A   | A   | A   | A   | A   | A   | A   | A   | A   | 345 | A   | A   |     |     |     |    |  |
| 8           |    |    |    |    |    |    |    |    | L   | L   | U   | L   | A   | A   | A   | A   | A   | A   | A   | A   |     |     |     |    |  |
| 9           |    |    |    |    |    |    |    | L  | 390 | A   | 390 | 375 | A   | A   | A   | 375 | 355 | 365 | L   | L   |     |     |     |    |  |
| 10          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 375 | 375 | 375 | 395 | 355 | 395 | 360 | 385 | L   | L   |     |    |  |
| 11          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 380 | 385 | 375 | 385 | H   | H   | 380 | A   | A   | A   | A   |    |  |
| 12          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 395 | 415 | 440 | 420 | 365 | 360 | A   | 385 | L   | L   |     |    |  |
| 13          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 380 | L   | L   | L   | L   | L   | A   | 350 | A   | L   |     |    |  |
| 14          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 405 | 380 | A   | 365 | 365 | 375 | 360 | L   | L   |     |     |    |  |
| 15          |    |    |    |    |    |    |    |    | U   | L   | L   | L   | 365 | 380 | 380 | 400 | 390 | 365 | H   | 365 | 375 | 355 | L   |    |  |
| 16          |    |    |    |    |    |    |    | L  | U   | L   | L   | L   | 360 | 395 | 400 | 385 | 390 | 365 | L   | 370 | 345 | L   | L   |    |  |
| 17          |    |    |    |    |    |    |    |    | L   | L   | L   | L   | 375 | 375 | 400 | U   | L   | 360 | 395 | H   | 370 | L   | 365 |    |  |
| 18          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 395 | 450 | 375 | 395 | 355 | L   | L   |     |     |     |     |    |  |
| 19          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 375 | 375 | 385 | 375 | 370 | 370 | L   | L   |     |     |     |    |  |
| 20          |    |    |    |    |    |    |    |    | A   | L   | U   | L   | L   | L   | L   | 390 | H   | 360 | L   | L   | L   | L   |     |    |  |
| 21          |    |    |    |    |    |    |    |    | L   | U   | L   | L   | L   | L   | A   | A   | 355 | 410 | 360 | L   | U   | L   | A   |    |  |
| 22          |    |    |    |    |    |    |    |    | L   | U   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |
| 23          |    |    |    |    |    |    |    |    | L   | L   | L   | L   | L   | L   | L   | L   | 370 | U   | L   | 365 | L   | L   |     |    |  |
| 24          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | 405 | L   | 400 | 385 | A   | 380 | L   | L   | A   |     |     |    |  |
| 25          |    |    |    |    |    |    |    |    | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | 385 | L   | L   |     |     |    |  |
| 26          |    |    |    |    |    |    |    |    | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |
| 27          |    |    |    |    |    |    |    |    | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |
| 28          |    |    |    |    |    |    |    |    | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |
| 29          |    |    |    |    |    |    |    |    | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |
| 30          |    |    |    |    |    |    |    | L  | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |
| 31          |    |    |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |
|             | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23 |  |
| CNT         |    |    |    |    |    |    |    |    | 3   | 14  | 21  | 21  | 21  | 22  | 21  | 16  | 15  | 3   |     |     |     |     |     |    |  |
| MED         |    |    |    |    |    |    |    |    | U   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |
| UQ          |    |    |    |    |    |    |    |    | 378 | 380 | 400 | 395 | 395 | 385 | 380 | 372 | 365 | 360 | 360 |     |     |     |     |    |  |
| LQ          |    |    |    |    |    |    |    |    | U   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   | L   |     |     |     |    |  |

SEP. 1976

M(3000)F1 (0.01)

### IONOSPHERIC DATA

SEP. 1976

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

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>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 | 240 | 250 | 290        | 525        | 315 | 305        | 345        | 320        | 270 | 270        | 250 |    |    |    |    |    |
| 2           |    |    |    |    |    |    |    | 250 | 225 | A   | A          | A          | 350 | 320        | 300        | 285        | 275 | 335        | 285 |    |    |    |    |    |
| 3           |    |    |    |    |    |    |    | 250 | 230 | 450 | 355        | 300        | 255 | 290        | 290        | 325        | 330 | E A<br>320 | 280 |    |    |    |    |    |
| 4           |    |    |    |    |    |    |    | 250 | 245 | 250 | 265        | 270        | A   | 530        | 345        | 290        | 300 | 335        | 280 |    |    |    |    |    |
| 5           |    |    |    |    |    |    |    | 255 | 290 | 345 | 270        | 295        | 305 | 390        | 295        | 285        | 325 | 300        |     |    |    |    |    |    |
| 6           |    |    |    |    |    |    |    | 230 | 225 | 245 | 305        | A          | 320 | 325        | 375        | 335        | 280 | 265        | 240 |    |    |    |    |    |
| 7           |    |    |    |    |    |    |    | 225 | A   | 265 | A          | E A<br>350 | 315 | E A<br>345 | E A<br>400 | 325        | 300 | 250        | 245 |    |    |    |    |    |
| 8           |    |    |    |    |    |    |    | 230 | 250 | 290 | 300        | 330        | 320 | 355        | E A<br>370 | E A<br>350 | 280 | 250        |     |    |    |    |    |    |
| 9           |    |    |    |    |    |    |    | 230 | 230 | A   | 275        | 350        | 350 | A          | 330        | 300        | 315 | 280        | 250 |    |    |    |    |    |
| 10          |    |    |    |    |    |    |    | 280 | 240 | 275 | 295        | 295        | 300 | 290        | 335        | 345        | 295 | 250        | 230 |    |    |    |    |    |
| 11          |    |    |    |    |    |    |    | 250 | 240 | 250 | 300        | 340        | 295 | 290        | 290        | 265        | 290 | 275        | 245 |    |    |    |    |    |
| 12          |    |    |    |    |    |    |    | 265 | 230 | 240 | 250        | 395        | 300 | 330        | 305        | 325        | 285 | 245        | 240 |    |    |    |    |    |
| 13          |    |    |    |    |    |    |    | 230 | 230 | 300 | I C<br>300 | 290        | 300 | 290        | 280        | 300        | 280 | 255        | 230 |    |    |    |    |    |
| 14          |    |    |    |    |    |    |    | 225 | 235 | 250 | 280        | 330        | 295 | 270        | 280        | 280        | 285 | 275        | 240 |    |    |    |    |    |
| 15          |    |    |    |    |    |    |    | 255 | 270 | 265 | 275        | 280        | 290 | 280        | 290        | 300        | 275 |            |     |    |    |    |    |    |
| 16          |    |    |    |    |    |    |    | 275 | 250 | 220 | 275        | 285        | 280 | 300        | 275        | 320        | 305 | 255        |     |    |    |    |    |    |
| 17          |    |    |    |    |    |    |    | 235 | 240 | 275 | 275        | 290        | 310 | 295        | 290        | 300        | 260 |            |     |    |    |    |    |    |
| 18          |    |    |    |    |    |    |    | 235 | 245 | 235 | 245        | 255        | 295 | 300        | 290        | 285        | 265 | 290        |     |    |    |    |    |    |
| 19          |    |    |    |    |    |    |    | 240 | 240 | 235 | 245        | 255        | 270 | 295        | 255        | 280        | 260 | 250        |     |    |    |    |    |    |
| 20          |    |    |    |    |    |    |    | 260 | 260 | 250 | 270        | 280        | 335 | 265        | 270        | 260        | 265 |            |     |    |    |    |    |    |
| 21          |    |    |    |    |    |    |    | 250 | 255 | 305 | 290        | 280        | 270 | 285        | 310        | 295        | 265 |            |     |    |    |    |    |    |
| 22          |    |    |    |    |    |    |    | 245 | 255 | 250 | 280        | 280        | 270 | 260        | 300        | 270        | 265 |            |     |    |    |    |    |    |
| 23          |    |    |    |    |    |    |    | 230 | 255 | 260 | 270        | 250        | 260 | 285        | 295        | 280        | 250 |            |     |    |    |    |    |    |
| 24          |    |    |    |    |    |    |    | 225 | 240 | 225 | 235        | 295        | 275 | 275        | 275        | 265        | 280 | 280        |     |    |    |    |    |    |
| 25          |    |    |    |    |    |    |    | 240 | 245 | 245 | 285        | 275        | 280 | 260        | 270        | 275        | 235 |            |     |    |    |    |    |    |
| 26          |    |    |    |    |    |    |    | 230 | 240 | 330 | 245        | 255        | 260 | 295        | 285        | 275        |     |            |     |    |    |    |    |    |
| 27          |    |    |    |    |    |    |    | 235 | 240 | 250 | 280        | 260        | 250 | 270        | 255        | 250        | 250 |            |     |    |    |    |    |    |
| 28          |    |    |    |    |    |    |    | 250 | 240 | 230 | 270        | 265        | 260 | 255        | 265        | 250        | 250 |            |     |    |    |    |    |    |
| 29          |    |    |    |    |    |    |    | 220 | 235 | 255 | 285        | 270        | 260 | 270        | 275        | 250        | 255 |            |     |    |    |    |    |    |
| 30          |    |    |    |    |    |    |    | 235 | 240 | 235 | 250        | 260        | 295 | 255        | 270        | 270        | 275 | 245        |     |    |    |    |    |    |
| 31          |    |    |    |    |    |    |    |     |     |     |            |            |     |            |            |            |     |            |     |    |    |    |    |    |
| Hour        | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07  | 08  | 09  | 10         | 11         | 12  | 13         | 14         | 15         | 16  | 17         | 18  | 19 | 20 | 21 | 22 | 23 |
| CNT         |    |    |    |    |    |    |    | 17  | 28  | 28  | 28         | 28         | 29  | 29         | 30         | 30         | 30  | 30         | 14  |    |    |    |    |    |
| MED         |    |    |    |    |    |    |    | 235 | 240 | 250 | 265        | 285        | 290 | 290        | 284        | 291        | 281 | 265        | 248 |    |    |    |    |    |
| UQ          |    |    |    |    |    |    |    | 250 | 245 | 258 | 292        | 308        | 300 | 308        | 318        | 315        | 298 | 278        | 280 |    |    |    |    |    |
| LQ          |    |    |    |    |    |    |    | 230 | 230 | 238 | 250        | 270        | 275 | 270        | 270        | 275        | 270 | 250        | 240 |    |    |    |    |    |

SEP. 1976

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



# IONOSPHERIC DATA

SEP. 1976

H'F (KM)

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

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

| Hour<br>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        | 260        | E A<br>300 | 240        | 250        | 275        | 230 | 230        | A          | E A<br>230 | 200        | 220        | 200        | 210      | 200        | 205        | 225        | 215        | 225        | 225        | 205        | E A<br>250 | 290        | 300        |
| 2           | 260        | 300        | 300        | 270        | 210        | 300        | 280 | E A<br>245 | A          | A          | A          | A          | A          | 200      | 200        | 235        | 230        | 250        | A          | 250        | 200        | 190        | A          | A          |
| 3           | A          | 335        | A          | 290        | 290        | 290        | 250 | A          | E A<br>230 | 200        | 195        | H<br>180   | H<br>195   | H<br>180 | 225        | A          | H<br>225   | A          | A          | 225        | 210        | A          | A          | A          |
| 4           | E A<br>300 | E A<br>295 | A          | 275        | 250        | 300        | 245 | 240        | 230        | A          | 220        | A          | A          | A        | 210        | E A<br>250 | E A<br>250 | A          | A          | 250        | 200        | 210        | 275        | 290        |
| 5           | 270        | 245        | 270        | 270        | 250        | 240        | 240 | 205        | A          | E A<br>250 | A          | A          | E A<br>250 | A        | A          | A          | 245        | A          | A          | E A<br>240 | 230        | 210        | 255        | 245        |
| 6           | 265        | 275        | 280        | 260        | E A<br>290 | 260        | 275 | A          | 210        | A          | E A<br>230 | A          | H<br>200   | A        | A          | 240        | A          | A          | A          | 210        | A          | 340        | E A<br>380 | A          |
| 7           | A          | 280        | E A<br>325 | E A<br>340 | 280        | 280        | 240 | A          | A          | A          | A          | A          | A          | A        | A          | A          | 235        | A          | A          | E A<br>250 | 210        | E A<br>290 | 255        | 250        |
| 8           | 250        | 265        | A          | 265        | 250        | 230        | 220 | 210        | 210        | 205        | 190        | E A<br>260 | A          | 200      | A          | A          | A          | A          | A          | 220        | 220        | A          | 305        | A          |
| 9           | E A<br>350 | A          | E A<br>350 | E A<br>340 | E A<br>350 | 300        | 250 | 225        | 220        | A          | 205        | E A<br>225 | A          | A        | 200        | 240        | 240        | 240        | 240        | 230        | 205        | 220        | E A<br>350 | 295        |
| 10          | 290        | 280        | 250        | 215        | 255        | E S<br>300 | 250 | 245        | 225        | 205        | H<br>200   | 205        | 200        | 195      | H<br>210   | 225        | H<br>205   | H<br>240   | 225        | 215        | 225        | 240        | 300        | 245        |
| 11          | 230        | 230        | 285        | 295        | 270        | 335        | 240 | 225        | 215        | 200        | 200        | 200        | 195        | H<br>190 | 200        | A          | A          | A          | A          | 230        | A          | A          | A          | C          |
| 12          | 250        | E A<br>300 | 265        | E A<br>300 | 275        | 285        | 255 | 235        | 195        | H<br>200   | 200        | 190        | 200        | 225      | 230        | A          | 230        | 235        | 230        | 240        | 230        | A          | A          | 230        |
| 13          | A          | 275        | 270        | 260        | 240        | E A<br>250 | 225 | 205        | 200        | 200        | I C<br>190 | 200        | H<br>200   | A        | A          | A          | A          | A          | A          | 240        | 200        | 250        | 250        | E S<br>290 |
| 14          | 300        | 280        | 280        | 270        | 245        | 215        | 240 | 205        | A          | H<br>190   | 200        | H<br>180   | A          | 250      | 225        | 210        | 220        | 240        | 240        | 235        | 200        | 205        | 300        | 325        |
| 15          | 310        | 280        | 265        | 265        | 225        | 260        | 230 | 235        | 210        | 200        | 210        | 200        | 210        | H<br>180 | 200        | 210        | H<br>220   | 245        | 255        | 205        | 200        | E A<br>380 | A          | 305        |
| 16          | 305        | 270        | 255        | 205        | 200        | E A<br>280 | 260 | 250        | 225        | 205        | H<br>200   | H<br>185   | 205        | H<br>190 | 200        | 205        | 230        | 225        | 245        | 240        | 205        | 205        | 285        | 305        |
| 17          | 275        | 255        | 250        | 275        | 225        | 260        | 250 | 225        | 225        | 220        | 215        | 200        | 230        | H<br>200 | H<br>200   | 210        | 245        | 230        | 240        | 225        | 220        | 240        | 295        | 315        |
| 18          | 295        | 275        | 255        | 250        | 250        | 295        | 250 | 230        | 225        | H<br>205   | 215        | 200        | 200        | H<br>180 | 190        | H<br>205   | H<br>220   | H<br>240   | H<br>240   | 215        | 200        | A          | A          | 345        |
| 19          | 280        | E S<br>340 | 300        | 250        | 275        | 275        | 290 | 235        | 225        | 220        | 210        | 200        | 205        | 200      | H<br>200   | H<br>205   | H<br>240   | H<br>240   | 245        | 225        | 200        | E A<br>300 | 325        | 345        |
| 20          | 300        | 255        | 255        | 325        | 300        | 255        | 245 | 225        | A          | 225        | H<br>215   | 205        | H<br>200   | H<br>220 | H<br>220   | H<br>195   | 250        | E A<br>250 | 245        | 200        | 200        | E S<br>350 | E S<br>350 | 290        |
| 21          | 345        | 320        | 280        | 225        | 260        | 295        | 255 | 230        | 240        | E A<br>230 | 205        | A          | E A<br>250 | 220      | H<br>200   | H<br>195   | 235        | A          | E A<br>240 | E A<br>230 | E A<br>300 | 310        | 320        | 310        |
| 22          | 290        | 295        | 250        | 290        | 295        | 225        | A   | 220        | 220        | 200        | A          | H<br>200   | H<br>200   | H<br>205 | H<br>195   | H<br>200   | 225        | 230        | 240        | 210        | E A<br>220 | A          | A          | 310        |
| 23          | 290        | 290        | 250        | 205        | 300        | 250        | 240 | 225        | 220        | 205        | H<br>200   | 220        | H<br>200   | H<br>200 | 200        | 200        | 220        | E A<br>250 | 250        | 230        | 205        | A          | 305        | 300        |
| 24          | E A<br>310 | E A<br>330 | 245        | 210        | 240        | 295        | 250 | 225        | 225        | 200        | 200        | 195        | 180        | A        | E A<br>250 | 220        | H<br>200   | A          | 230        | 205        | 200        | A          | 275        | E A<br>305 |
| 25          | 295        | 330        | 280        | 250        | 215        | 225        | 225 | 210        | 220        | 205        | 200        | 200        | H<br>185   | H<br>200 | H<br>210   | 205        | 220        | 240        | 220        | 200        | 250        | 295        | 295        | 295        |
| 26          | 295        | 270        | 270        | 275        | 225        | 270        | 250 | 225        | H<br>230   | 225        | 200        | 200        | H<br>195   | H<br>205 | H<br>200   | 200        | 250        | A          | 245        | 210        | 220        | 250        | 295        | 300        |
| 27          | 295        | 280        | 235        | 250        | 250        | 275        | 250 | 225        | 220        | 210        | H<br>200   | 215        | 200        | H<br>200 | H<br>195   | H<br>200   | H<br>200   | 245        | 230        | 225        | 225        | 205        | 280        | 250        |
| 28          | 245        | 270        | 280        | 260        | 250        | 280        | 240 | 225        | 215        | 215        | 210        | 190        | 185        | 185      | H<br>195   | 205        | 225        | 245        | 235        | 220        | 205        | 245        | 250        | 300        |
| 29          | 295        | 255        | 250        | 290        | 240        | 220        | 235 | 225        | 220        | 205        | 195        | 185        | H<br>180   | H<br>180 | H<br>175   | 225        | 225        | 250        | 235        | 205        | E A<br>240 | 275        | 260        | 250        |
| 30          | 250        | 255        | 260        | 270        | 250        | 235        | 260 | 230        | E A<br>240 | 230        | 205        | 200        | 200        | H<br>180 | H<br>195   | 200        | 235        | 235        | 220        | 210        | 205        | 255        | 270        | 295        |
| 31          |            |            |            |            |            |            |     |            |            |            |            |            |            |          |            |            |            |            |            |            |            |            |            |            |
| CNT         | 27         | 29         | 27         | 30         | 30         | 30         | 29  | 27         | 24         | 25         | 26         | 24         | 23         | 23       | 25         | 23         | 26         | 19         | 21         | 30         | 28         | 22         | 23         | 25         |
| MED         | 285        | 275        | 265        | 264        | 250        | 270        | 250 | 225        | 220        | 205        | 200        | 200        | 200        | H<br>200 | 200        | 205        | 226        | 240        | 240        | 222        | 205        | U<br>232   | 288        | 298        |
| UQ          | 298        | 288        | 280        | 282        | 272        | 292        | 250 | 231        | 225        | 215        | 210        | 202        | 201        | 205      | 210        | 218        | 238        | 244        | 245        | 232        | 221        | U<br>272   | 302        | 305        |
| LQ          | 262        | 265        | 252        | 250        | 240        | 250        | 240 | 225        | 215        | 200        | 200        | 192        | 195        | H<br>185 | H<br>200   | 200        | 220        | 235        | 230        | 210        | 200        | 210        | 272        | 290        |

SEP. 1976

H'F (KM)

# IONOSPHERIC DATA

SEP. 1976

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

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

Station **YAMAGAWA** Lat. 31° 12.1' N, Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 30 sec in automatic operation

| Hour<br>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   | 120     | 105     | 105     | 105     | E A 120 | 105     | 105     | 105     | 105     | 105     | 105     | 120     | S  |    |    |    |    |
| 2           |    |    |    |    |    | S  | S   | A       | E A 125 | A       | A       | A       | A       | A       | A       | A       | 105     | 110     | 120     | S  |    |    |    |    |
| 3           |    |    |    |    |    | S  | S   | 110     | 110     | 105     | E A 120 | E A 115 | E A 110 | E A 110 | 105     | E A 110 | E A 110 | 110     | 115     | S  |    |    |    |    |
| 4           |    |    |    |    |    | S  | S   | 110     | 105     | 105     | 105     | A       | A       | A       | E A 110 | E A 120 | E A 115 | A       | 110     | S  |    |    |    |    |
| 5           |    |    |    |    |    | S  | S   | 120     | 105     | 105     | E A 120 | E A 110 | E A 110 | 105     | 105     | 105     | 105     | 105     | S       | S  |    |    |    |    |
| 6           |    |    |    |    |    | S  | S   | A       | 105     | 105     | 105     | 105     | A       | 100     | 105     | 105     | 105     | 110     | S       | S  |    |    |    |    |
| 7           |    |    |    |    |    | S  | S   | 115     | 105     | 110     | 105     | 105     | 105     | A       | A       | A       | 110     | 110     | 130     | S  |    |    |    |    |
| 8           |    |    |    |    |    | S  | S   | 120     | 105     | 105     | 105     | 105     | A       | A       | A       | A       | 105     | 105     | E S 130 | S  |    |    |    |    |
| 9           |    |    |    |    |    | S  | S   | 110     | A       | A       | A       | A       | A       | A       | A       | A       | A       | A       | A       | S  |    |    |    |    |
| 10          |    |    |    |    |    | S  | S   | 115     | A       | A       | E A 135 | E A 125 | A       | E A 110 | E A 110 | E A 105 | 105     | 105     | 130     | S  |    |    |    |    |
| 11          |    |    |    |    |    | S  | S   | 115     | 105     | 105     | 105     | 105     | E A 120 | E A 115 | E A 105 | A       | A       | 105     | 110     | S  |    |    |    |    |
| 12          |    |    |    |    |    | S  | S   | E A 120 | E A 120 | E A 115 | A       | A       | A       | A       | A       | A       | E A 120 | 100     | A       | S  |    |    |    |    |
| 13          |    |    |    |    |    | S  | S   | 120     | 110     | 100     | C       | A       | A       | A       | A       | 110     | 110     | 110     | S       | S  |    |    |    |    |
| 14          |    |    |    |    |    | S  | S   | A       | A       | A       | A       | A       | A       | E A 120 | E A 130 | 100     | A       | A       | S       | S  |    |    |    |    |
| 15          |    |    |    |    |    | S  | S   | 115     | 110     | E A 110 | 105     | 105     | E A 115 | 105     | 100     | 100     | 100     | 110     | S       | S  |    |    |    |    |
| 16          |    |    |    |    |    | E  | S   | 115     | A       | 105     | 105     | 105     | E C 120 | 100     | 100     | 100     | 110     | 110     | S       | S  |    |    |    |    |
| 17          |    |    |    |    |    | S  | S   | 125     | 105     | E A 110 | 105     | E A 120 | E A 125 | 105     | 105     | 105     | 110     | 110     | S       | S  |    |    |    |    |
| 18          |    |    |    |    |    | S  | S   | 115     | 105     | 105     | 105     | A       | 105     | 105     | 105     | 105     | 105     | 105     | S       | S  |    |    |    |    |
| 19          |    |    |    |    |    | S  | S   | 120     | 105     | E A 120 | A       | A       | A       | 100     | E A 110 | E A 120 | 110     | 115     | S       | S  |    |    |    |    |
| 20          |    |    |    |    |    | S  | S   | 115     | 105     | 105     | 100     | 105     | E A 120 | 105     | 110     | 105     | 110     | 110     | S       | S  |    |    |    |    |
| 21          |    |    |    |    |    | S  | S   | 120     | 115     | 105     | 105     | 105     | 105     | 105     | 105     | 105     | 110     | 115     | S       | S  |    |    |    |    |
| 22          |    |    |    |    |    | S  | S   | 125     | A       | A       | A       | A       | E A 120 | A       | E A 125 | E A 120 | 100     | E A 120 | S       | S  |    |    |    |    |
| 23          |    |    |    |    |    | S  | S   | 110     | A       | A       | 105     | 105     | 105     | A       | 105     | 105     | 105     | 110     | S       | S  |    |    |    |    |
| 24          |    |    |    |    |    | S  | S   | A       | A       | 105     | 105     | E A 110 | E A 110 | E A 115 | E A 110 | E C 120 | 105     | 110     | S       | S  |    |    |    |    |
| 25          |    |    |    |    |    | S  | S   | 125     | 105     | E A 120 | A       | E A 110 | 110     | E A 115 | E C 120 | 110     | 105     | 120     | S       | S  |    |    |    |    |
| 26          |    |    |    |    |    | S  | S   | 125     | 105     | 105     | 105     | 105     | E A 110 | E A 110 | E A 110 | E A 110 | E A 110 | 110     | S       | S  |    |    |    |    |
| 27          |    |    |    |    |    | S  | S   | A       | A       | A       | E A 120 | C       | E C 120 | 105     | 110     | 110     | E A 120 | E A 110 | S       | S  |    |    |    |    |
| 28          |    |    |    |    |    | S  | S   | 110     | 105     | 105     | 105     | A       | A       | E A 120 | E A 120 | E A 120 | 110     | 115     | S       | S  |    |    |    |    |
| 29          |    |    |    |    |    | S  | S   | 115     | 115     | 105     | 105     | 105     | E A 115 | A       | 105     | 105     | A       | 110     | S       | S  |    |    |    |    |
| 30          |    |    |    |    |    | S  | S   | 120     | 110     | A       | E A 115 | E A 120 | E A 120 | E A 125 | E A 130 | E A 130 | E A 115 | 120     | S       | S  |    |    |    |    |
| 31          |    |    |    |    |    |    |     |         |         |         |         |         |         |         |         |         |         |         |         |    |    |    |    |    |
| 00          | 01 | 02 | 03 | 04 | 05 | 06 | 07  | 08      | 09      | 10      | 11      | 12      | 13      | 14      | 15      | 16      | 17      | 18      | 19      | 20 | 21 | 22 | 23 |    |
| CNT         |    |    |    |    |    |    | 25  | 22      | 22      | 22      | 19      | 19      | 20      | 24      | 24      | 26      | 27      | 8       |         |    |    |    |    |    |
| MED         |    |    |    |    |    |    | 115 | 105     | 105     | 105     | 105     | E A 110 | 102     | 104     | 104     | 108     | 110     | 119     |         |    |    |    |    |    |
| UQ          |    |    |    |    |    |    | 120 | 110     | 108     | 105     | E A 112 | E A 120 | E A 115 | E A 110 | E A 115 | 110     | 110     | 130     |         |    |    |    |    |    |
| LQ          |    |    |    |    |    |    | 115 | 105     | 105     | 105     | 105     | 106     | 105     | 105     | 105     | 105     | 106     | 112     |         |    |    |    |    |    |

The Radio Research Laboratories, Japan

SEP. 1976

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

# IONOSPHERIC DATA

SEP. 1976

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

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1           | 100 | 100 | 100 | 100 | 100 | 100 | 140 | 125 | 115 | 110 | 105 | 105 | G   | G   | G   | G   | G   | G   | 115 | S   | 105 | 100 | 100 | 105 |
| 2           | 105 | S   | S   | 100 | 100 | 105 | 100 | 100 | 115 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 150 | 110 | 110 | 110 | 100 | 100 | 100 |
| 3           | 100 | 105 | 100 | 100 | 100 | 130 | 105 | 115 | 110 | 130 | 105 | 100 | 100 | 100 | 165 | 135 | 145 | 120 | 110 | 105 | 105 | 105 | 105 | 105 |
| 4           | 100 | 125 | 125 | 100 | 105 | 115 | 100 | 130 | 115 | 105 | 105 | 100 | 100 | 100 | 100 | 145 | 125 | 120 | 105 | 105 | 105 | 105 | 105 | 105 |
| 5           | 105 | S   | S   | S   | B   | 125 | 130 | 125 | 115 | 125 | 125 | 125 | 120 | 110 | 110 | 105 | 105 | 130 | 120 | 110 | 110 | 125 | 110 | S   |
| 6           | S   | S   | 100 | 100 | 95  | 95  | 95  | 110 | 110 | 105 | 105 | 105 | 110 | 110 | 120 | 120 | 130 | 115 | 105 | 100 | 100 | 100 | 105 | 105 |
| 7           | 105 | 100 | 100 | 100 | 100 | 100 | 120 | 110 | 105 | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 135 | 125 | 120 | 105 | 105 | 105 | 105 | 105 |
| 8           | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 120 | 110 | 115 | 105 | 105 | 100 | 105 | 100 | 100 | 125 | 120 | 120 | 115 | 110 | 105 | 105 | 105 |
| 9           | 105 | 105 | 105 | 100 | 100 | 105 | 125 | 120 | 105 | 100 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 95  | 100 |
| 10          | 105 | S   | 105 | S   | S   | S   | 125 | 100 | 100 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | G   | G   | 130 | 120 | 110 | 100 | 100 | 100 |
| 11          | S   | 100 | 100 | S   | 135 | 125 | 130 | 120 | 110 | 110 | 110 | 105 | 100 | 100 | 100 | 100 | 100 | 105 | 105 | 100 | 105 | 100 | 100 | C   |
| 12          | 100 | 100 | 95  | 90  | 100 | 100 | 105 | 140 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 150 | 130 | 105 | 100 | 100 | 100 | 100 | 100 |
| 13          | 100 | 100 | 100 | 130 | 125 | 100 | 100 | 115 | 115 | 105 | C   | 100 | 95  | 115 | 110 | 110 | 110 | 110 | 105 | 105 | 105 | 110 | 100 | 105 |
| 14          | 115 | 105 | 100 | 100 | 100 | 120 | S   | 105 | 105 | 105 | 105 | 100 | 100 | 100 | 100 | G   | 100 | 100 | 120 | 100 | 105 | 105 | S   | 95  |
| 15          | S   | 105 | 105 | 100 | 100 | S   | S   | 125 | 120 | 100 | 100 | G   | 155 | G   | G   | G   | 120 | 125 | 125 | 120 | 120 | 120 | 100 | 100 |
| 16          | 100 | 100 | B   | B   | 125 | 120 | 125 | 125 | 130 | G   | G   | G   | G   | G   | G   | G   | 160 | 150 | 130 | 115 | 120 | S   | 105 | 110 |
| 17          | 100 | S   | 100 | B   | B   | S   | S   | 135 | 130 | 135 | 150 | 105 | 120 | 120 | G   | G   | 160 | 140 | 115 | 105 | 100 | 100 | 100 | 100 |
| 18          | 100 | 100 | 100 | 100 | 100 | 100 | S   | 110 | 120 | 110 | 105 | 100 | G   | G   | G   | G   | G   | 165 | 125 | 110 | 105 | 100 | 100 | 100 |
| 19          | 100 | S   | S   | 125 | 115 | 110 | 110 | 125 | 125 | 125 | 100 | 100 | 100 | G   | 100 | 100 | 150 | 120 | 110 | 105 | 105 | 100 | 105 | 100 |
| 20          | 100 | 105 | B   | 125 | B   | S   | 120 | 155 | 110 | 110 | 125 | 125 | 100 | 135 | 130 | G   | 150 | 125 | 110 | 105 | 100 | 100 | 100 | S   |
| 21          | 100 | 100 | 100 | 105 | 105 | 150 | 145 | 145 | 135 | 115 | 140 | 135 | 140 | 150 | G   | G   | G   | 120 | 110 | 105 | 105 | 110 | 105 | 100 |
| 22          | 100 | 100 | 100 | 100 | 120 | 125 | 120 | 120 | 155 | 100 | 100 | 100 | 100 | 100 | 100 | 140 | 125 | 110 | 110 | 105 | 100 | 100 | 100 | 100 |
| 23          | 100 | 100 | 100 | 100 | 100 | 120 | 125 | G   | 105 | 100 | G   | G   | G   | 100 | G   | G   | G   | 110 | 105 | 100 | 100 | 105 | 100 | 100 |
| 24          | 100 | 100 | S   | 100 | 100 | 100 | 100 | 120 | 110 | 120 | 105 | 100 | 110 | 110 | 105 | 105 | G   | 135 | 110 | 105 | 100 | 100 | 100 | 100 |
| 25          | 100 | 95  | 100 | C   | B   | S   | S   | 135 | 120 | 125 | 110 | 100 | G   | 100 | G   | G   | G   | G   | 145 | 125 | 100 | 100 | C   | C   |
| 26          | S   | S   | S   | B   | B   | S   | 150 | 125 | 125 | 110 | 115 | 105 | 100 | 100 | 100 | 100 | 150 | 115 | 115 | 105 | 100 | 100 | 100 | 100 |
| 27          | 100 | C   | B   | 100 | 100 | 100 | S   | 150 | 150 | 150 | 135 | 105 | G   | G   | G   | G   | 110 | 100 | 100 | 110 | 100 | 100 | C   | S   |
| 28          | S   | S   | S   | C   | S   | S   | 125 | 115 | 110 | 115 | 110 | 105 | 105 | 105 | 105 | 100 | 100 | 130 | 115 | 100 | 100 | 100 | 100 | S   |
| 29          | S   | S   | B   | C   | E   | S   | S   | 120 | 120 | G   | G   | 115 | 105 | 105 | 105 | G   | 105 | 125 | 115 | 115 | 110 | 115 | 105 | 105 |
| 30          | S   | 105 | 100 | B   | S   | S   | S   | 120 | 115 | 120 | 110 | 105 | 105 | 100 | 100 | 105 | 160 | 135 | 125 | 115 | 100 | 105 | 105 | 100 |
| 31          |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|             | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  |
| CNT         | 23  | 20  | 20  | 20  | 21  | 21  | 22  | 29  | 30  | 28  | 26  | 27  | 24  | 24  | 21  | 18  | 23  | 27  | 30  | 29  | 30  | 29  | 27  | 24  |
| MED         | 100 | 100 | 100 | 100 | 100 | 105 | 120 | 120 | 115 | 110 | 105 | 105 | 100 | 100 | 100 | 102 | 125 | 120 | 112 | 105 | 105 | 100 | 100 | 100 |
| UQ          | 105 | 105 | 100 | 100 | 105 | 120 | 125 | 125 | 120 | 120 | 110 | 105 | 108 | 110 | 105 | 110 | 150 | 130 | 120 | 110 | 105 | 105 | 105 | 105 |
| LQ          | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 115 | 110 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | 105 | 112 | 105 | 105 | 100 | 100 | 100 | 100 |

SEP. 1976

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

# IONOSPHERIC DATA

SEP. 1976

TYPES OF ES

135° E Mean Time (G. M. T. + 9 h)

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

| Hour<br>Day | 00 | 01   | 02   | 03 | 04   | 05   | 06   | 07   | 08   | 09   | 10   | 11 | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22 | 23 |    |
|-------------|----|------|------|----|------|------|------|------|------|------|------|----|------|------|------|------|------|------|------|------|------|------|----|----|----|
| 1           | F4 | F2   | F3   | F2 | F2   | L2   | H1   | H2   | C3   | C2   | C1   | L1 |      |      |      |      |      |      | C2   |      | F1   | F3   | F2 | F1 |    |
| 2           | F3 |      |      | F2 | F2   | L1   | L4   | L3   | CL31 | L5   | L3   | L4 | L2   | L2   | L2   | L2   | L1   | H2   | C6   | L3   | F1   | FF11 | F7 | F4 |    |
| 3           | F5 | F2   | F4   | F2 | F2   | CL11 | L1   | C2   | C3   | H1   | L1   | L1 | L1   | L1   | H1   | HL11 | HL11 | C4   | C5   | C5   | F4   | F4   | F4 | F3 |    |
| 4           | F2 | FF22 | FF15 | F2 | F1   | C2   | LH11 | H1   | C2   | C2   | C1   | L2 | L2   | L2   | L1   | H1   | H1   | CL33 | C7   | L7   | F5   | F1   | F2 | F3 |    |
| 5           | F1 |      |      |    |      | C1   | C1   | C3   | C3   | H2   | H1   | H1 | C1   | C1   | C1   | C4   | C1   | H3   | C6   | C6   | F3   | F1   | F2 |    |    |
| 6           |    |      | F2   | F2 | F4   | L4   | L2   | CL31 | C2   | C3   | C2   | C3 | C1   | C2   | H1   | H1   | H2   | C3   | C4   | L4   | F3   | F3   | F4 | F7 |    |
| 7           | F7 | F5   | F5   | F4 | F3   | L4   | LL32 | C5   | C5   | C3   | C4   | C2 | C3   | L2   | L3   | L3   | H2   | H4   | C6   | L4   | F3   | F2   | F3 | F2 |    |
| 8           | F2 | F2   | F4   | F3 | F2   | L2   | L2   | C2   | C3   | C2   | C2   | C2 | L2   | L2   | L4   | L4   | HC22 | C5   | C4   | CL32 | FF22 | F3   | F2 | F3 |    |
| 9           | F4 | F5   | F6   | F3 | F3   | L3   | C3   | C1   | L2   | L4   | L2   | L2 | L2   | L4   | L2   | L3   | LH21 | LH31 | LH22 | L3   | F3   | F3   | F3 | F1 |    |
| 10          | F2 |      | F1   |    |      |      | C1   | LC11 | L2   | L2   | L1   | L1 | L2   | L1   | L1   | L1   |      |      | H2   | C1   | F1   | F2   | F2 | F1 |    |
| 11          |    | F2   | F1   |    | F1   | C2   | C1   | C3   | C4   | C2   | C2   | C2 | L1   | L1   | L1   | L3   | L3   | C4   | C4   | L3   | F4   | F3   | F3 |    |    |
| 12          | F2 | F2   | F2   | F2 | F2   | L1   | L3   | HL11 | L1   | L1   | L1   | L1 | L2   | L1   | L1   | L2   | HL12 | H1   | L4   | L4   | F3   | F2   | F2 | F2 |    |
| 13          | F2 | F2   | F1   | F1 | FF12 | LC12 | L1   | C2   | C2   | C2   |      | L1 | L2   | CL12 | CL22 | C2   | C4   | C5   | L2   | L4   | F1   | F3   | F3 | F2 |    |
| 14          | F1 | F1   | F2   | F1 | F1   | L1   |      | L1   | L2   | L2   | L2   | L2 | L2   | L1   | L1   |      | L1   | L3   | C2   | L3   | FF14 | FF12 |    | F1 |    |
| 15          |    | F1   | F1   | F2 | F1   |      |      | H1   | H1   | L1   | L1   |    | H1   |      |      |      | C1   | H3   | H2   | CL21 | FF11 | FF21 | F2 | F3 |    |
| 16          | F1 | F1   |      |    | F1   | C2   | CL11 | CH11 | HL12 |      |      |    |      |      |      |      |      | H1   | H1   | H1   | C3   | F1   |    | F2 | F2 |
| 17          | F1 |      | F1   |    |      |      |      | H3   | HL11 | HL11 | H1   | C1 | C1   | C1   |      |      | H1   | H1   | C5   | C5   | F6   | F4   | F2 | F3 |    |
| 18          | F2 | F2   | F1   | F2 | F2   | L1   |      | C3   | C1   | C2   | C2   | L2 |      |      |      |      |      | H1   | CL21 | CL22 | FF11 | F6   | F3 | F2 |    |
| 19          | F1 |      |      | F1 | F2   | C3   | C2   | H1   | H1   | CL12 | L2   | L2 | L1   |      | L1   | L1   | H1   | C4   | C6   | C7   | F5   | F2   | F1 | F2 |    |
| 20          | F1 | F1   |      | F1 |      |      | H1   | H1   | C2   | C2   | H1   | H1 | L1   | H1   | H1   |      | H1   | H3   | C6   | L6   | F2   | F2   | F1 |    |    |
| 21          | F1 | F1   | F1   | F2 | F2   | H1   | H1   | H2   | H3   | C2   | H1   | H1 | H1   | H1   |      |      |      | C2   | L5   | L3   | F2   | F1   | F1 | F3 |    |
| 22          | F2 | F4   | F2   | F1 | F1   | C2   | C3   | C2   | HL11 | L2   | L2   | L2 | L1   | L3   | L1   | HL11 | H1   | CL21 | L1   | L3   | F3   | F2   | F3 | F2 |    |
| 23          | F2 | F2   | F2   | F1 | F3   | C1   | H1   |      | L2   | L2   |      |    |      | L1   |      |      |      | C2   | L2   | L4   | F4   | F3   | F2 | F1 |    |
| 24          | F3 | F3   |      | F1 | F1   | L1   | L1   | L1   | L1   | C1   | C1   | L1 | CL11 | CL11 | CL21 | C2   |      | H2   | C4   | L3   | F4   | F2   | F2 | F2 |    |
| 25          | F1 | F3   | F1   |    |      |      |      | HC11 | C1   | H1   | C1   | L1 |      | L1   |      |      |      |      | H1   | C1   | F2   | F1   |    |    |    |
| 26          |    |      |      |    |      | H1   | H2   | H3   | C2   | C1   | C1   | L1 | L1   | L1   | L1   | L1   | HL12 | C2   | C2   | L3   | F4   | F3   | F2 | F2 |    |
| 27          | F2 |      |      | F3 | F2   | L1   |      | HL12 | HL11 | HL12 | HL11 | L1 |      |      |      |      | L1   | L1   | L1   | CL32 | F3   | F2   |    |    |    |
| 28          |    |      |      |    |      | C1   | C2   | C1   | C2   | C1   | C1   | L1 | L1   | L1   | L1   | L1   | L1   | H2   | C3   | L3   | F1   | F1   | F1 |    |    |
| 29          |    |      |      |    |      |      | C2   | C1   | C1   |      | C1   | L1 | L1   | L1   | C1   |      | L2   | H3   | C5   | CL11 | F3   | F1   | F1 | F2 |    |
| 30          |    | F1   | F1   |    |      |      |      | H4   | C4   | CL12 | CL21 | L1 | L1   | L1   | L1   | L1   | H1   | H2   | C1   | L3   | F2   | F2   | F2 | F1 |    |
| 31          |    |      |      |    |      |      |      |      |      |      |      |    |      |      |      |      |      |      |      |      |      |      |    |    |    |
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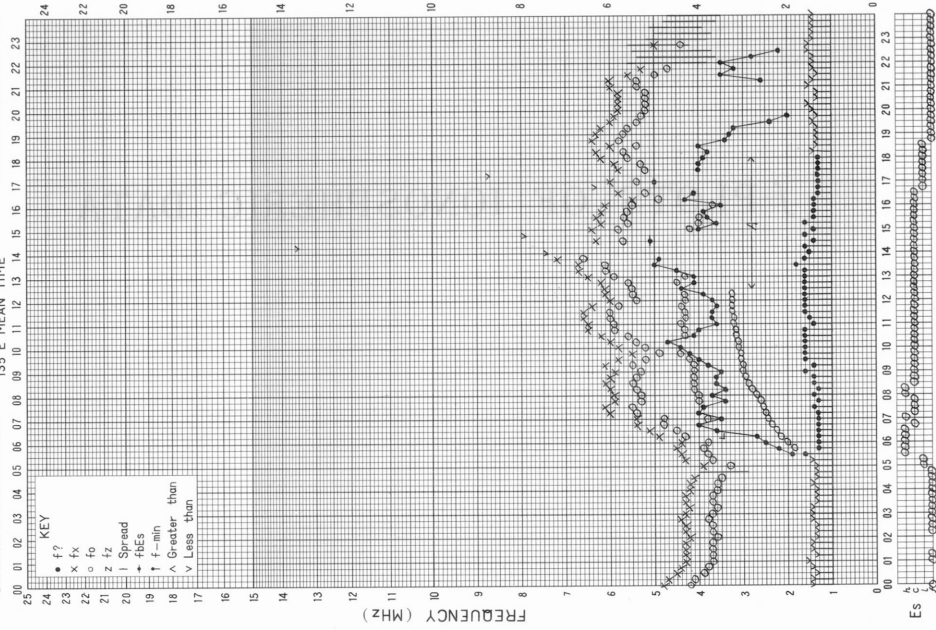
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*f*-PLOTS OF IONOSPHERIC DATA

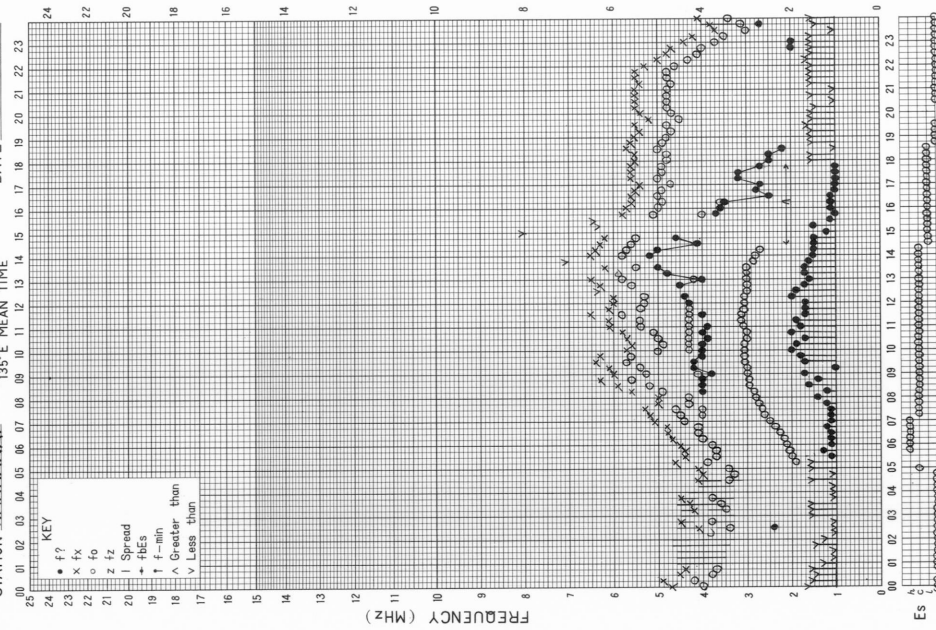
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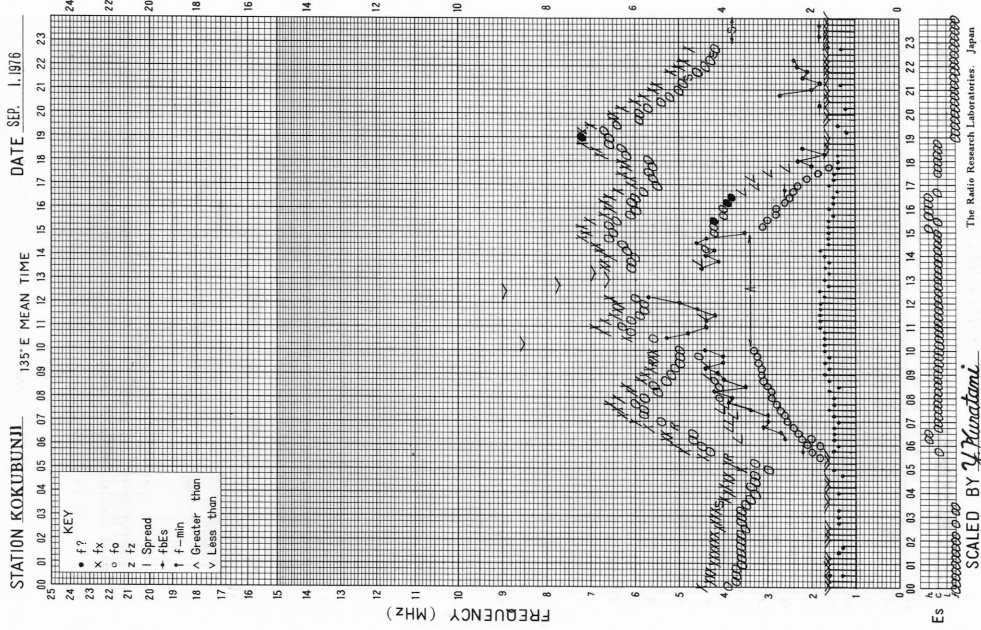


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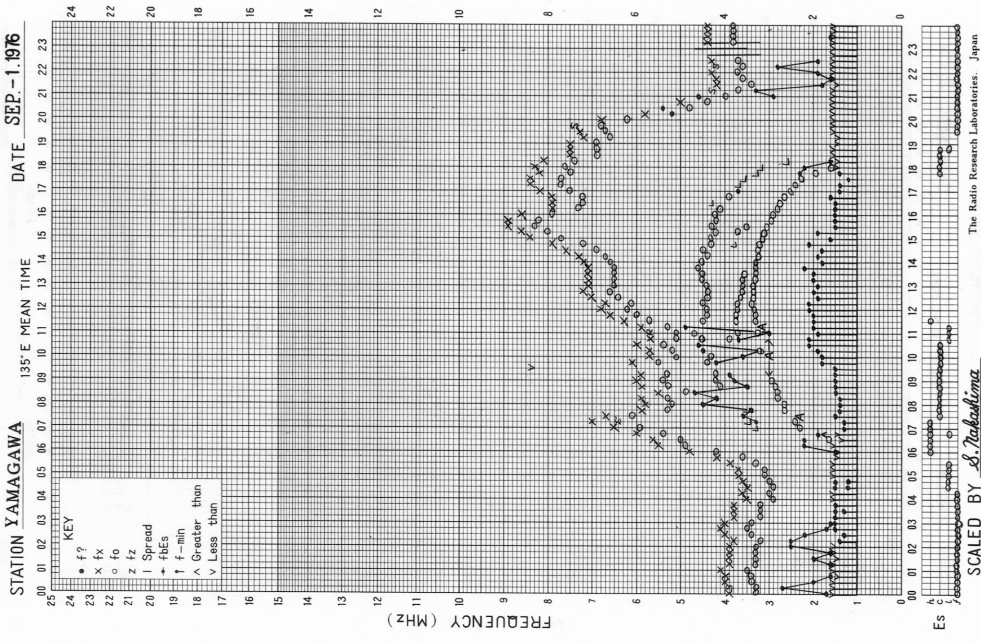
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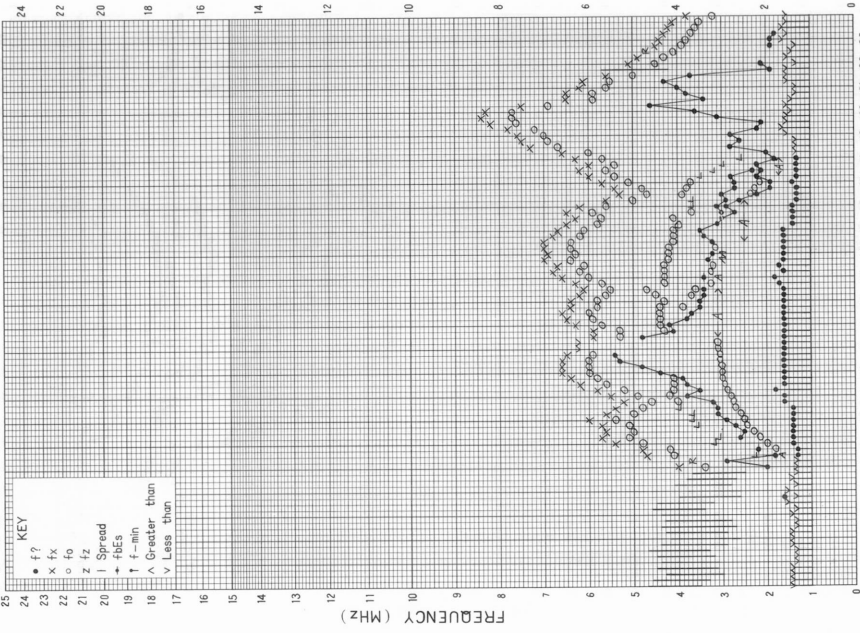
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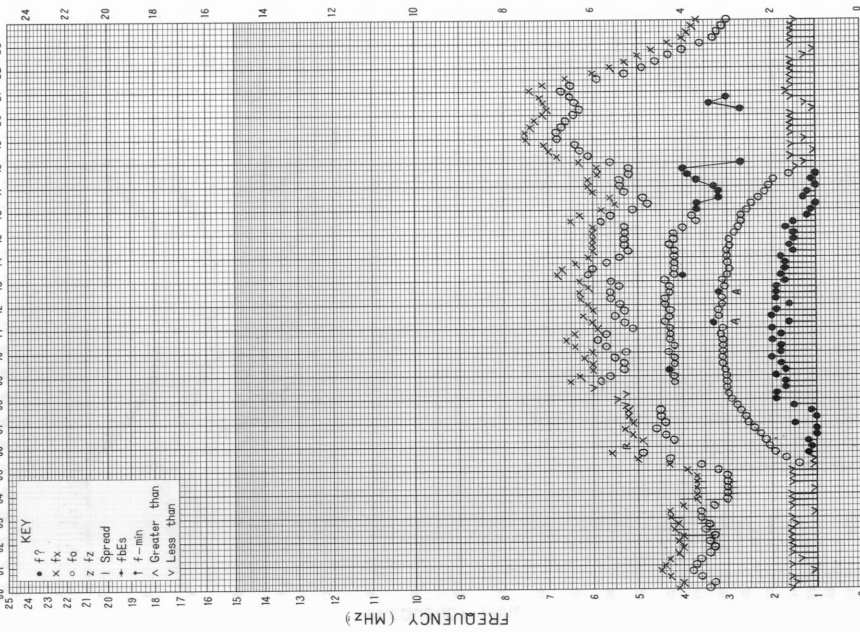
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The Radio Research Laboratories, Japan

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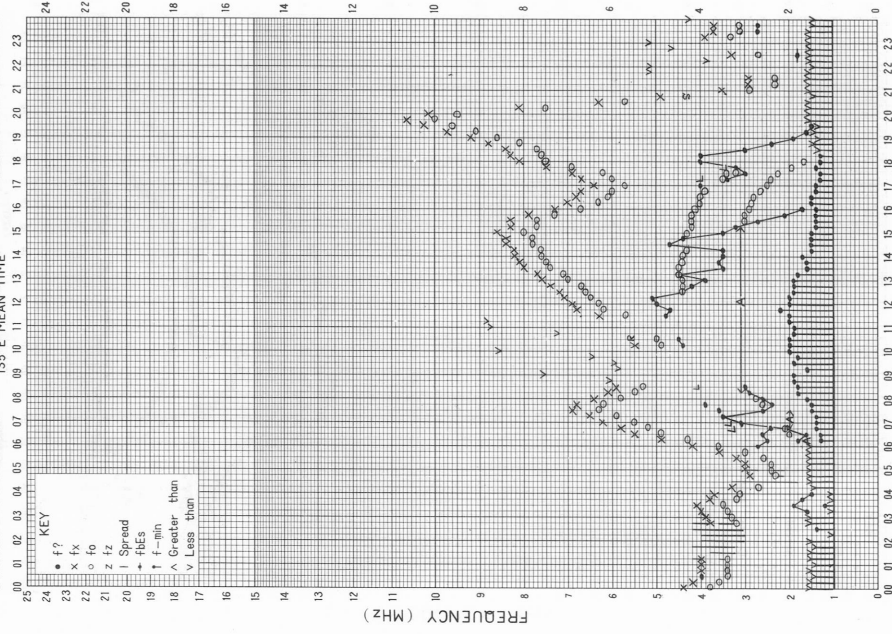
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The Radio Research Laboratories, Japan



f-PLOT OF IONOSPHERIC DATA

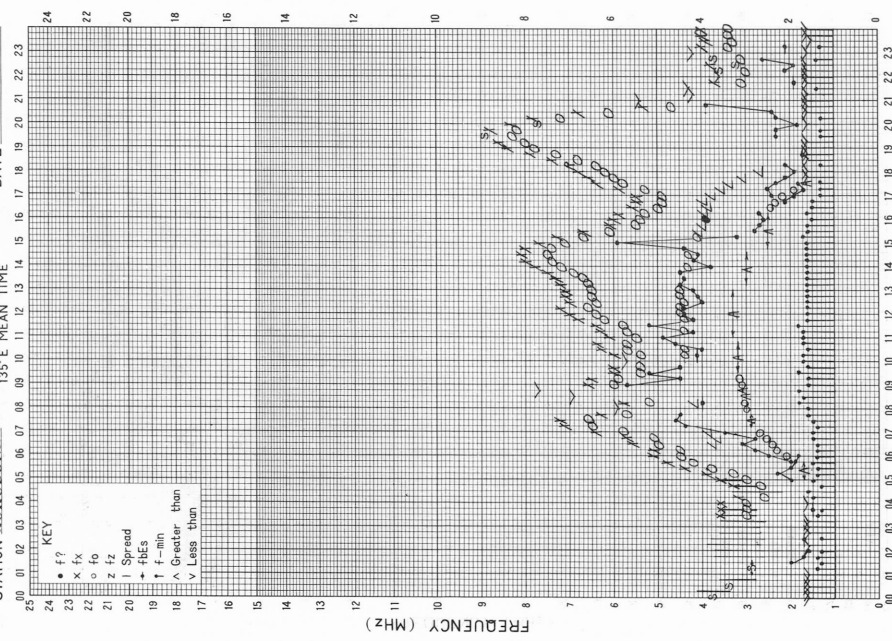
STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 2, 1976



Es  
The Radio Research Laboratories, Japan  
SCALED BY S. Nakadoma

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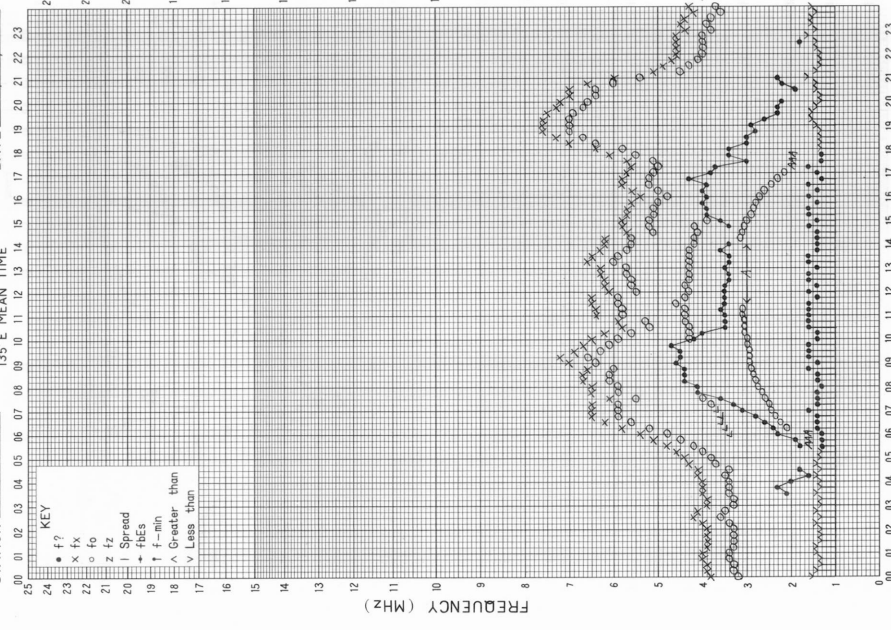
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Es  
The Radio Research Laboratories, Japan  
SCALED BY H. Oyama

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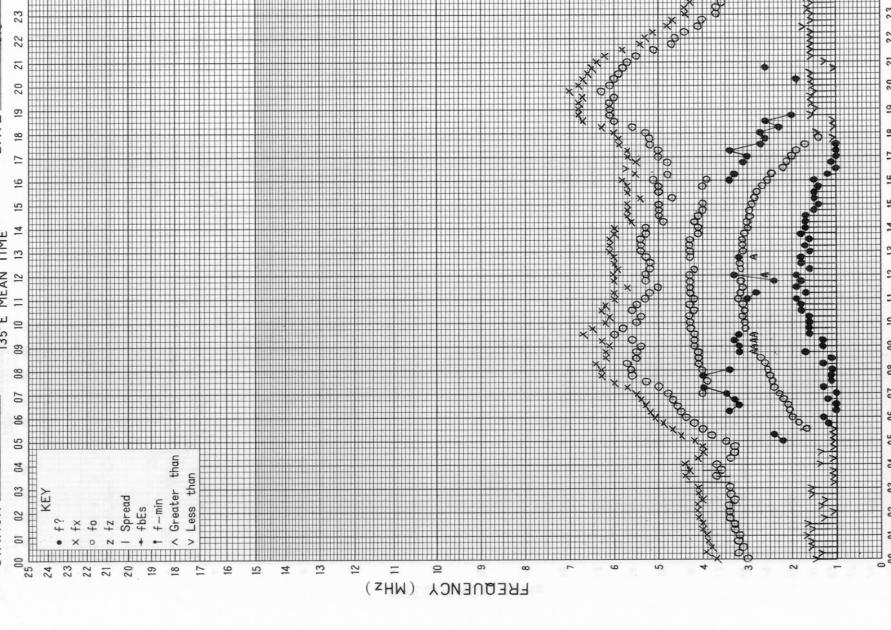
STATION AKITA DATE SEP. 3, 1976



ES  
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The Radio Research Laboratories, Japan  
SCALED BY T. Takahashi

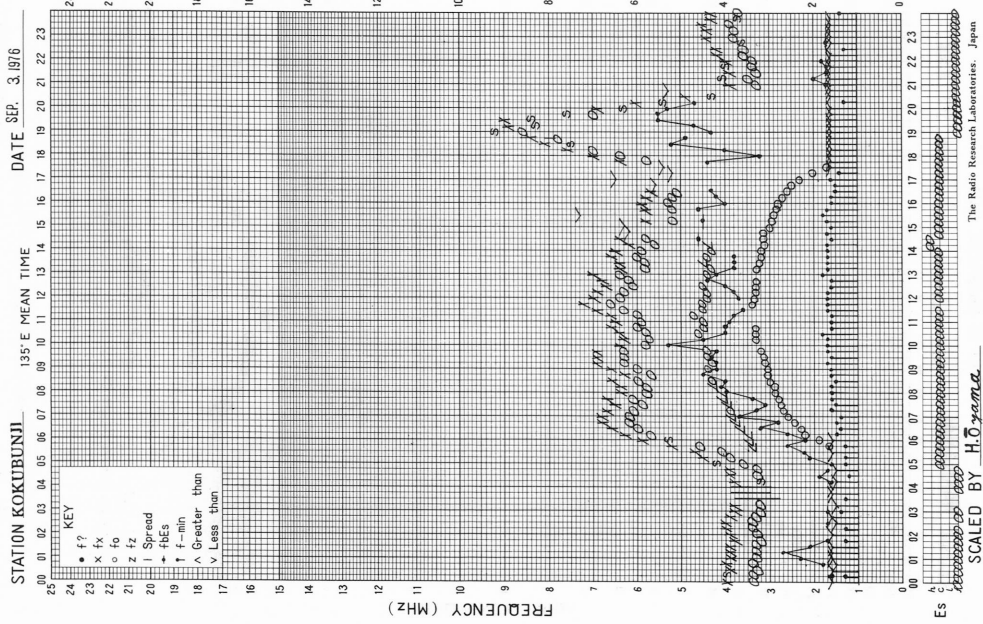
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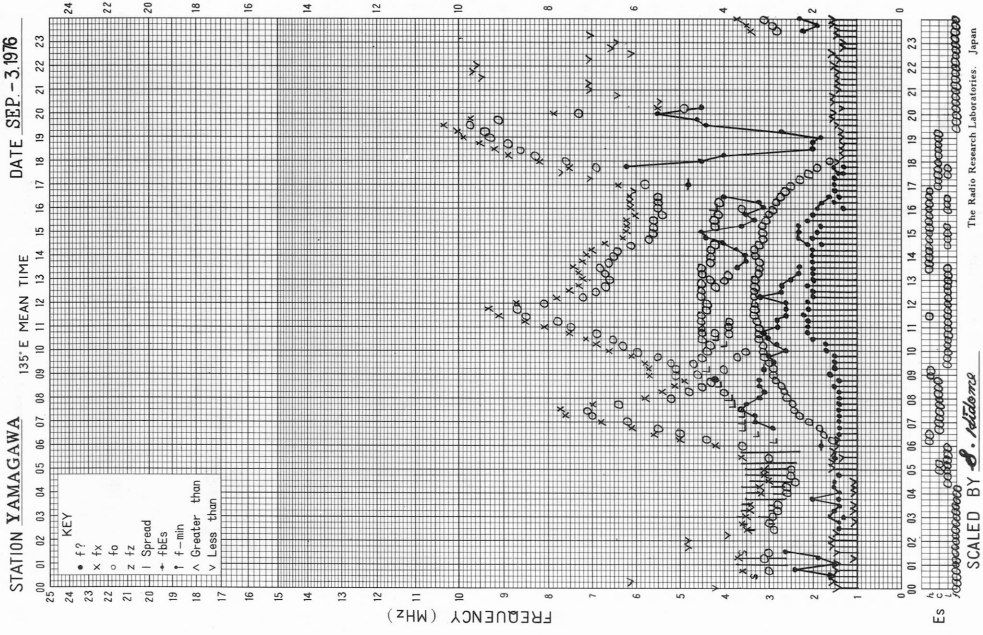


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The Radio Research Laboratories, Japan  
SCALED BY J. Oda

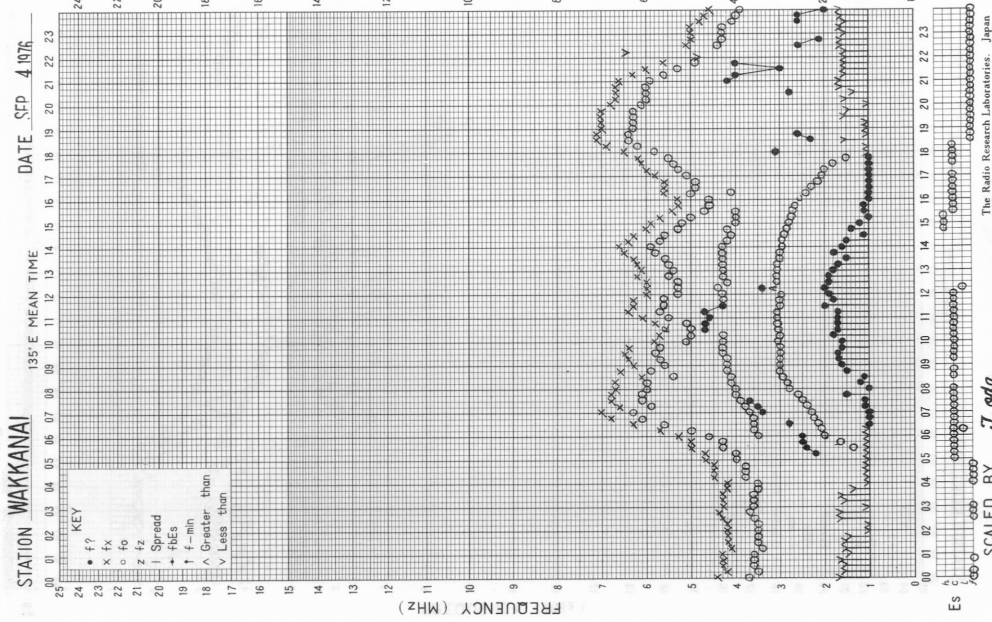
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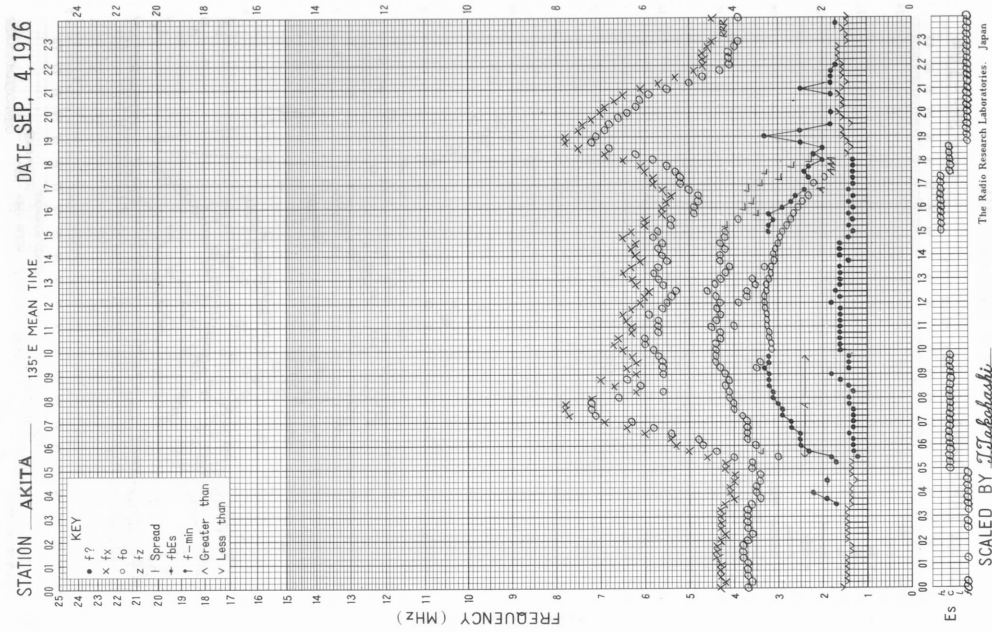
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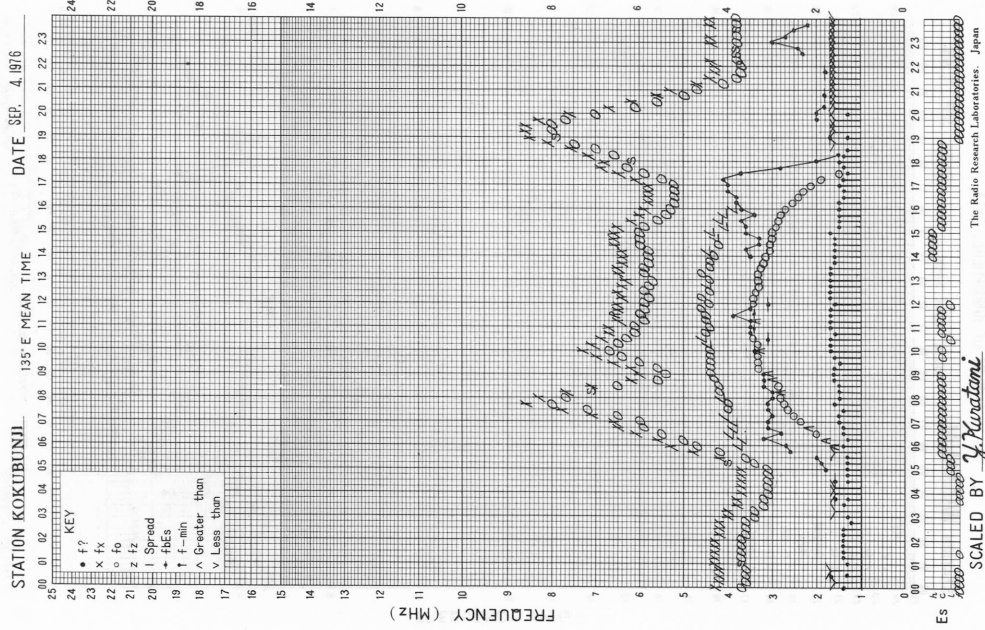
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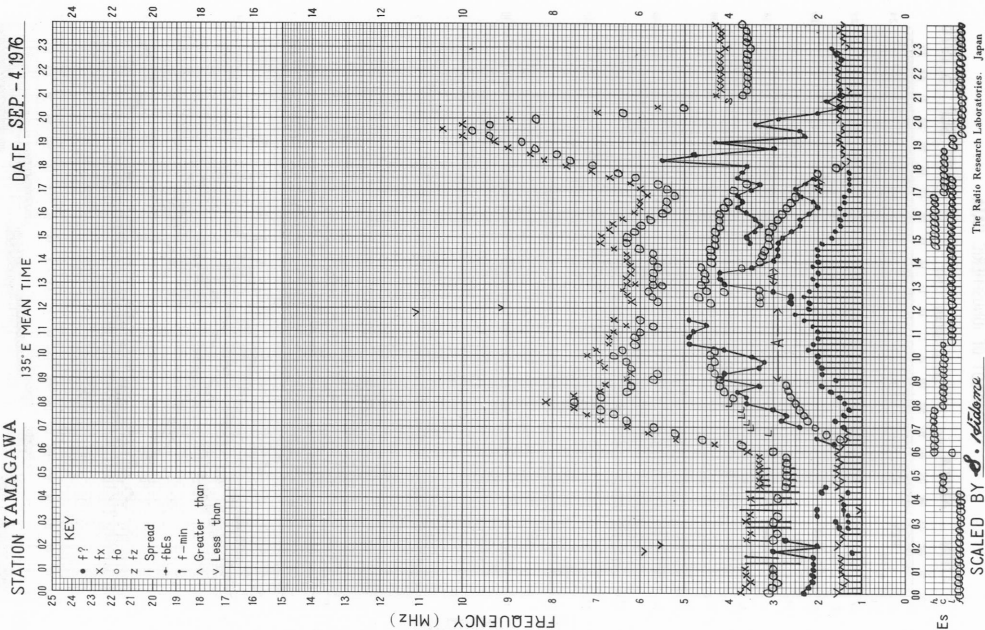
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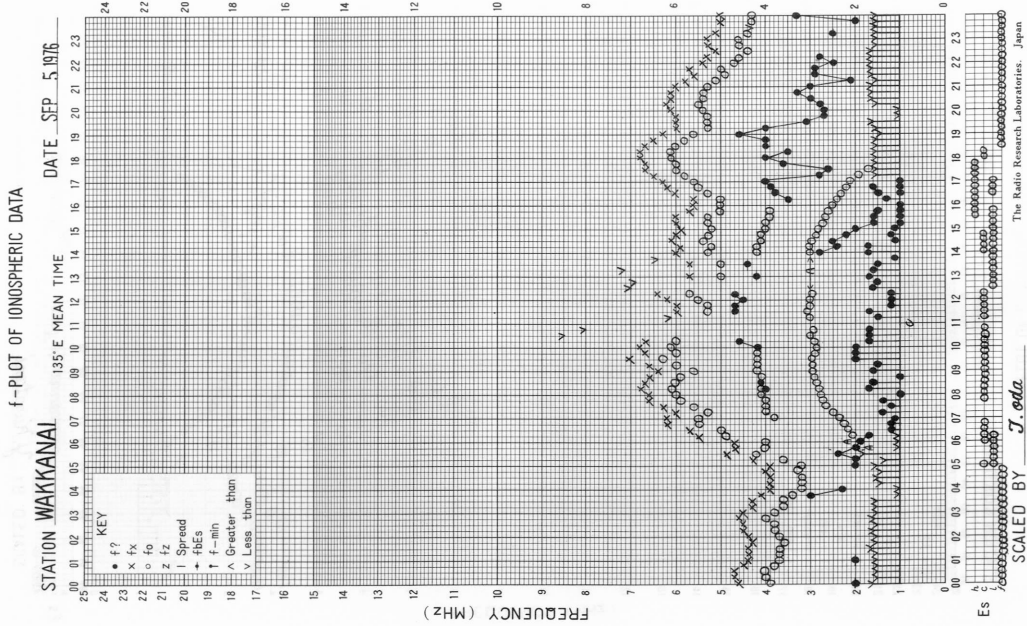
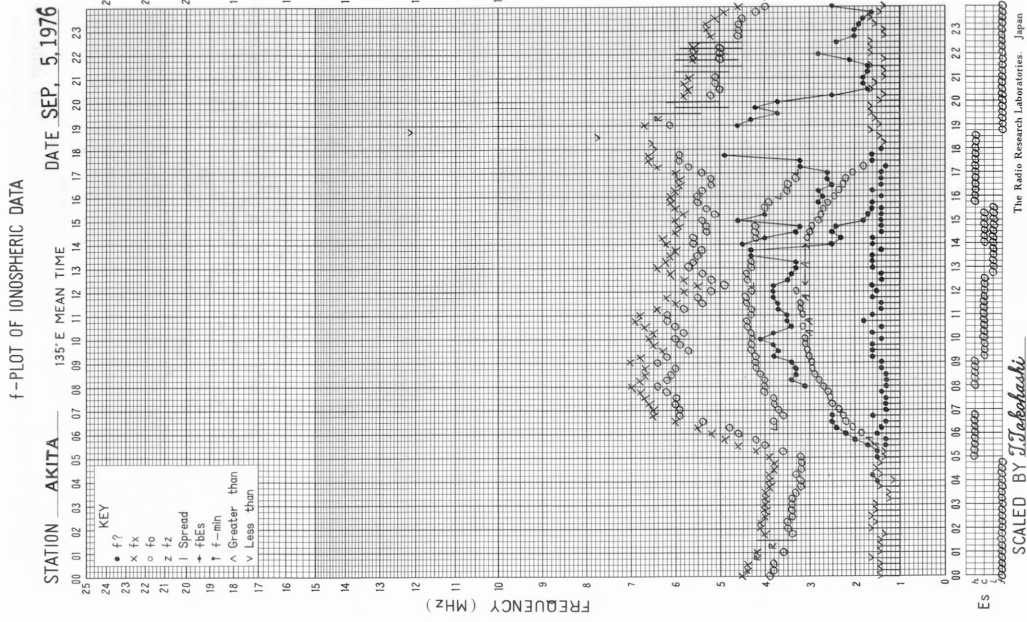


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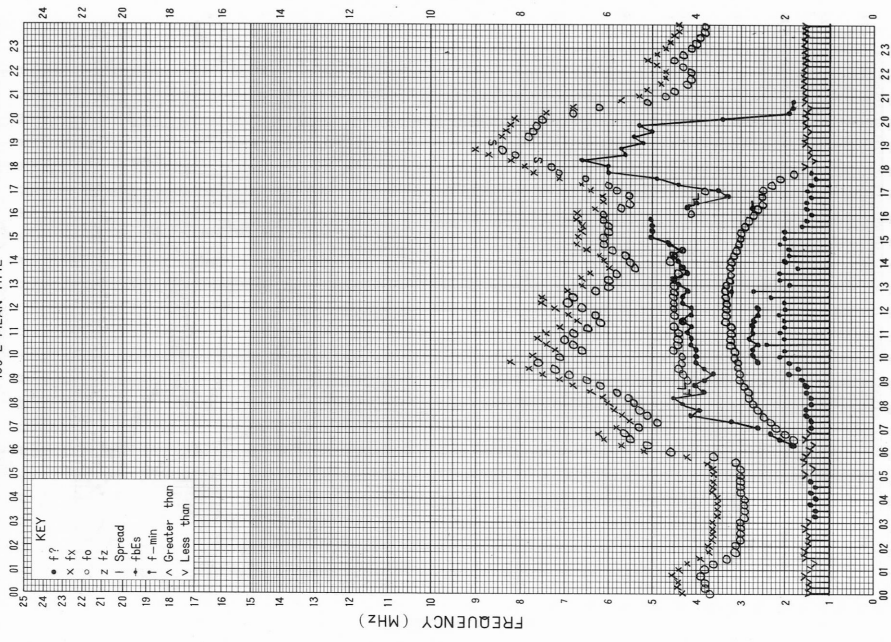
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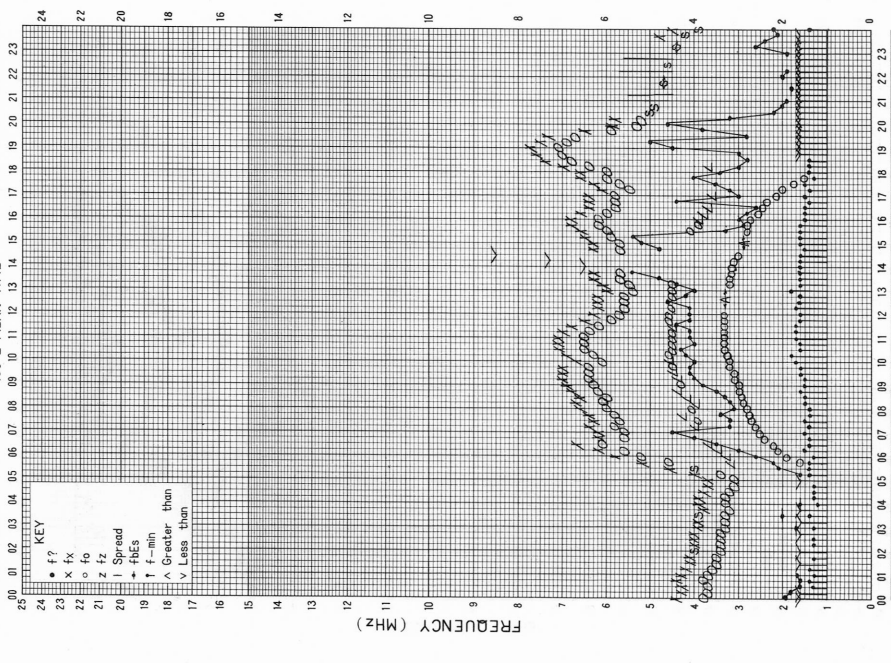
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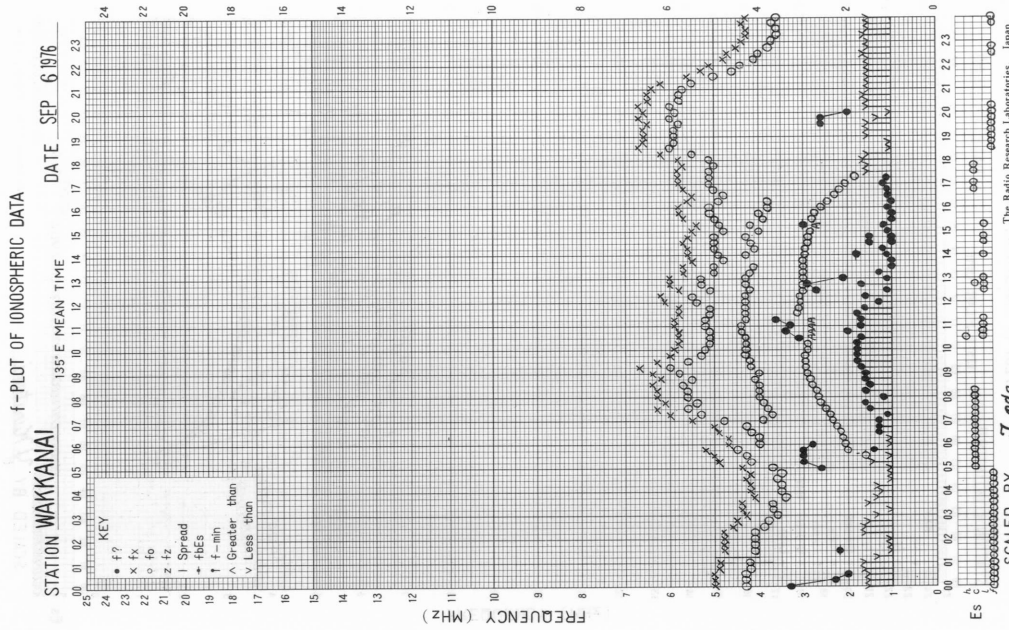
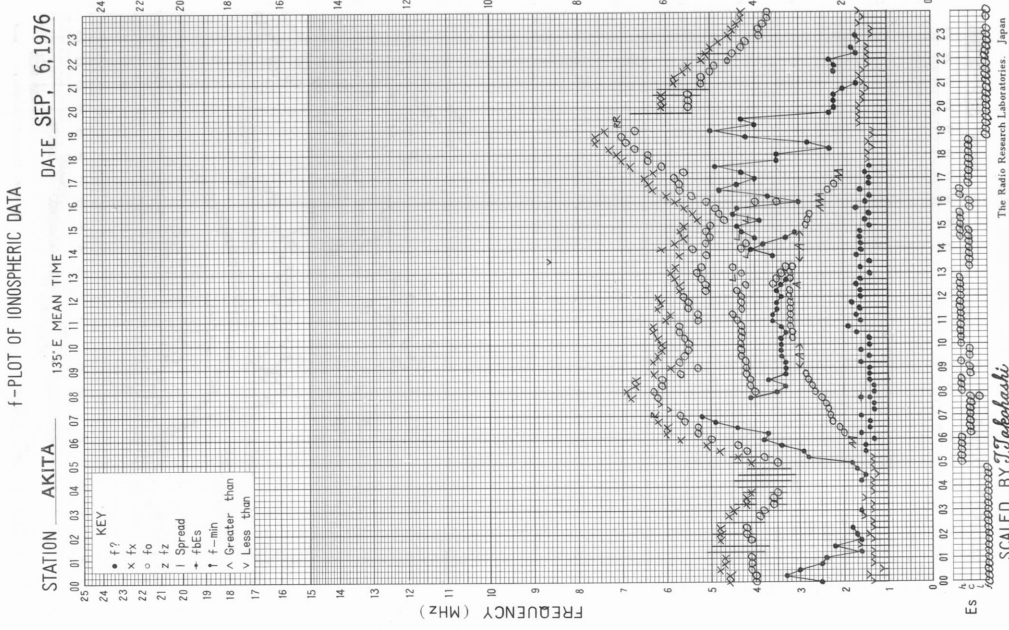
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f-PLOT OF IONOSPHERIC DATA

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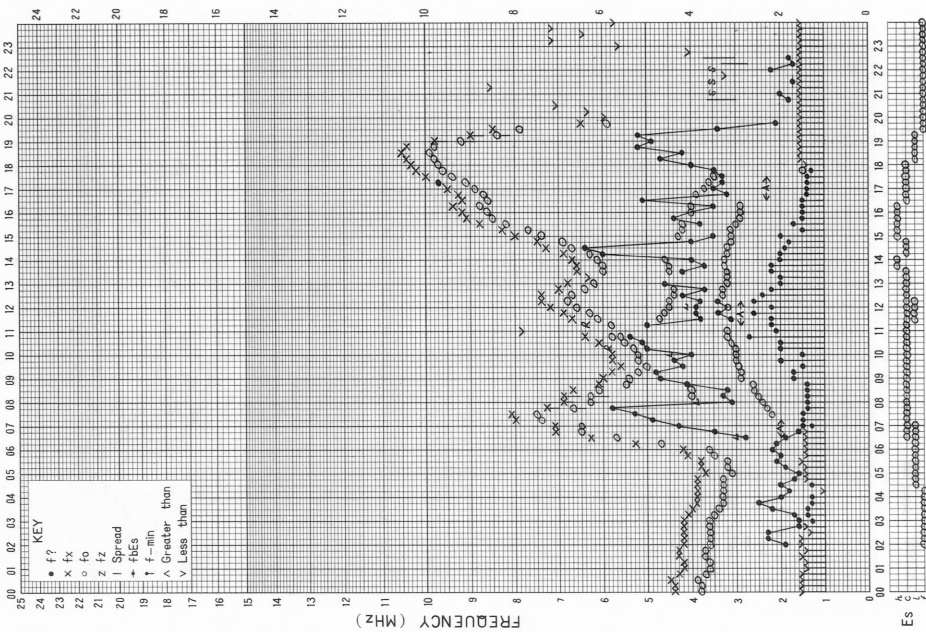
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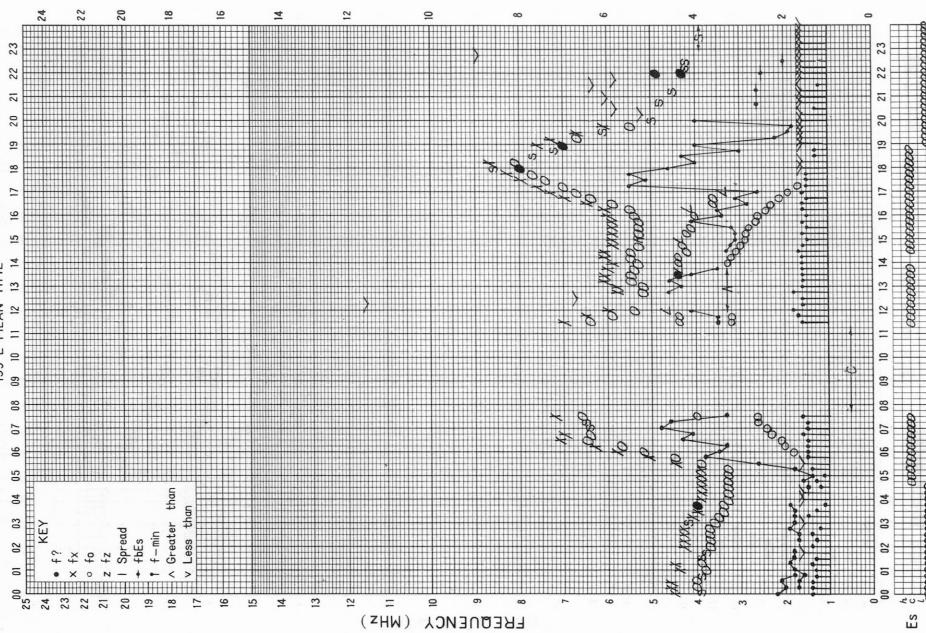
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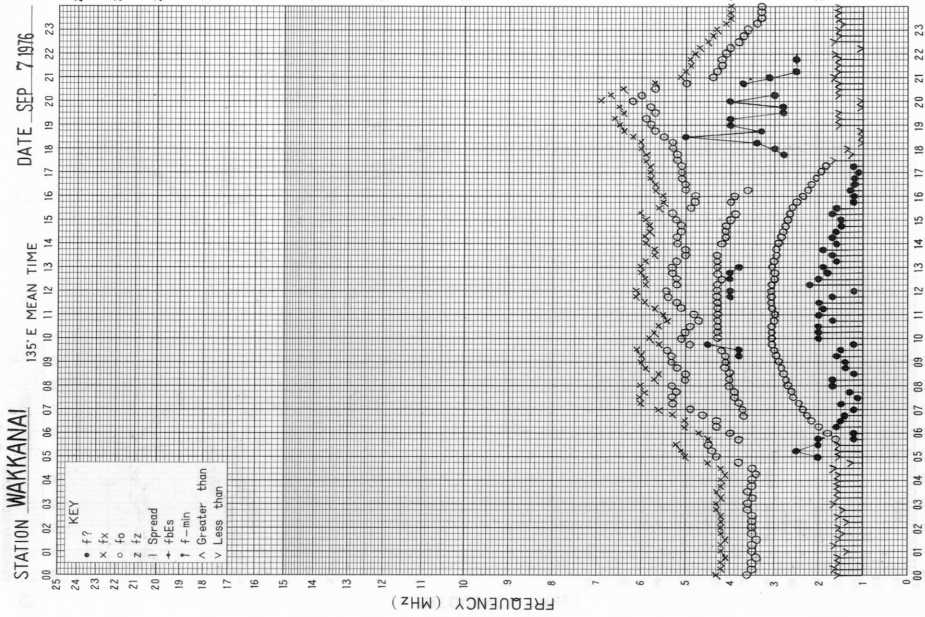


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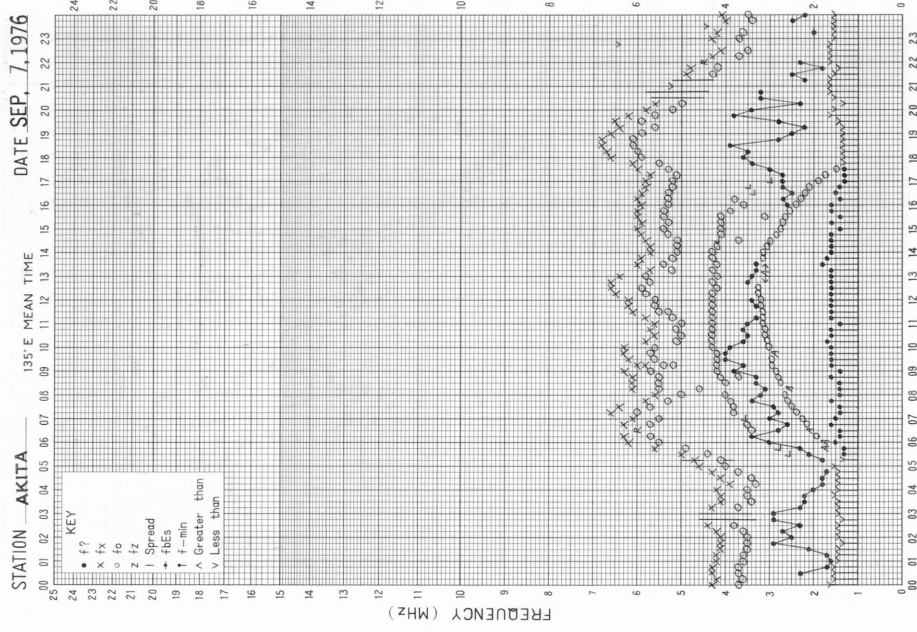


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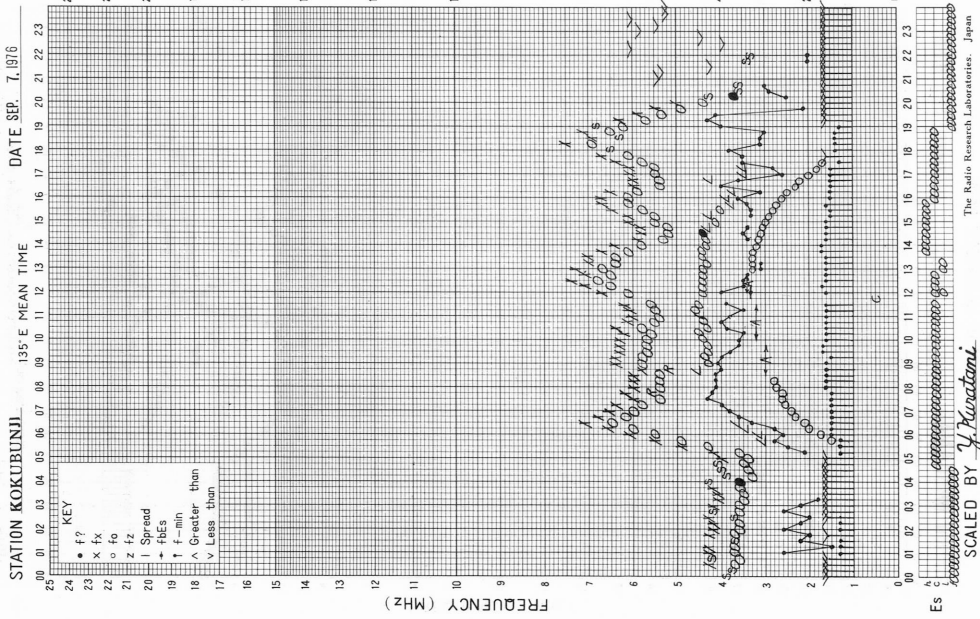
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 The Radio Research Laboratories, Japan

f-Plot of Ionospheric Data

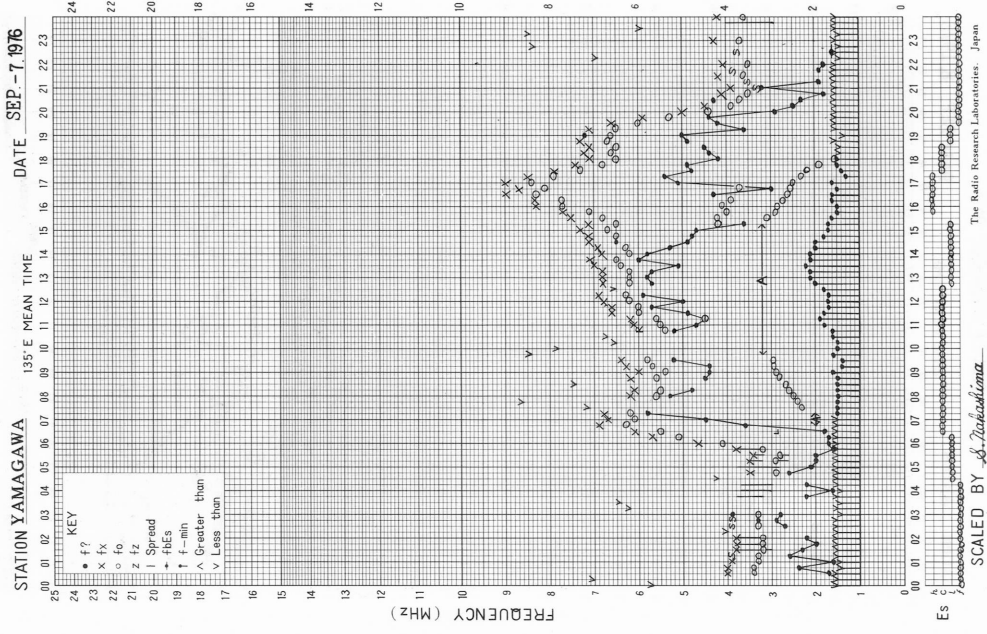


ES  
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 The Radio Research Laboratories, Japan

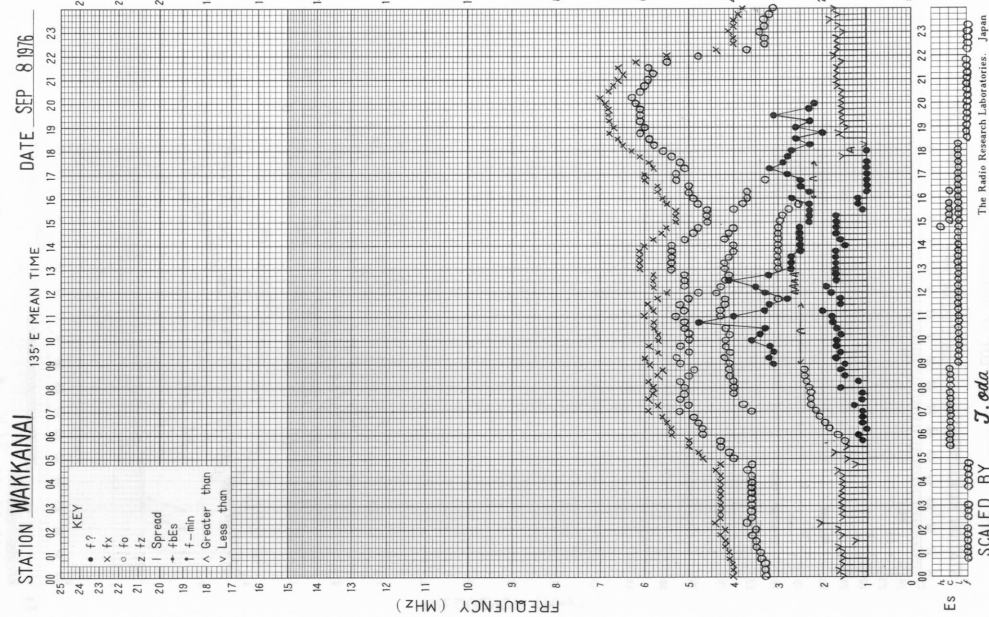
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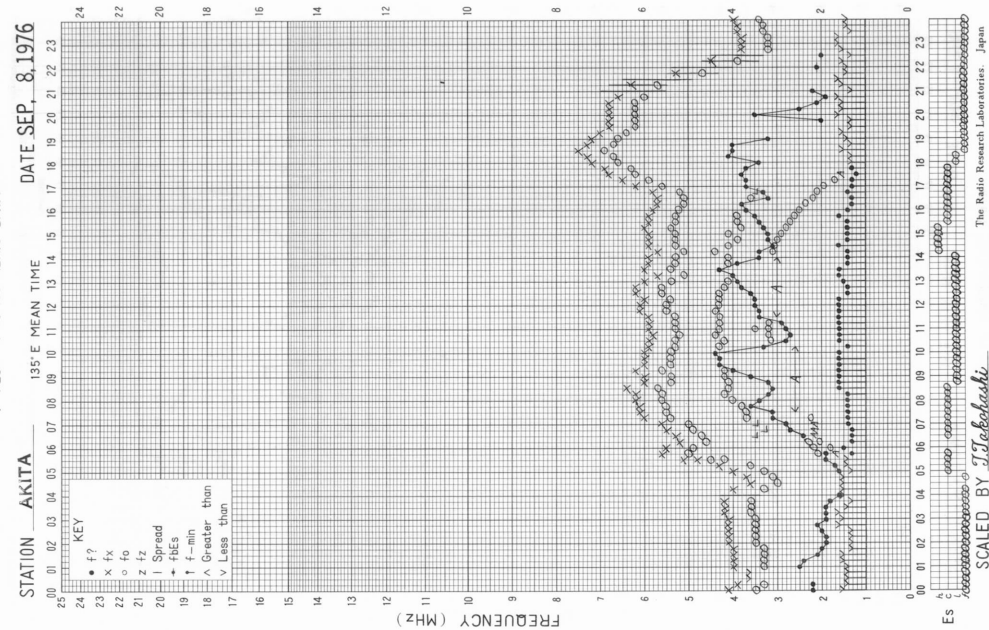
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f-PLOT OF IONOSPHERIC DATA



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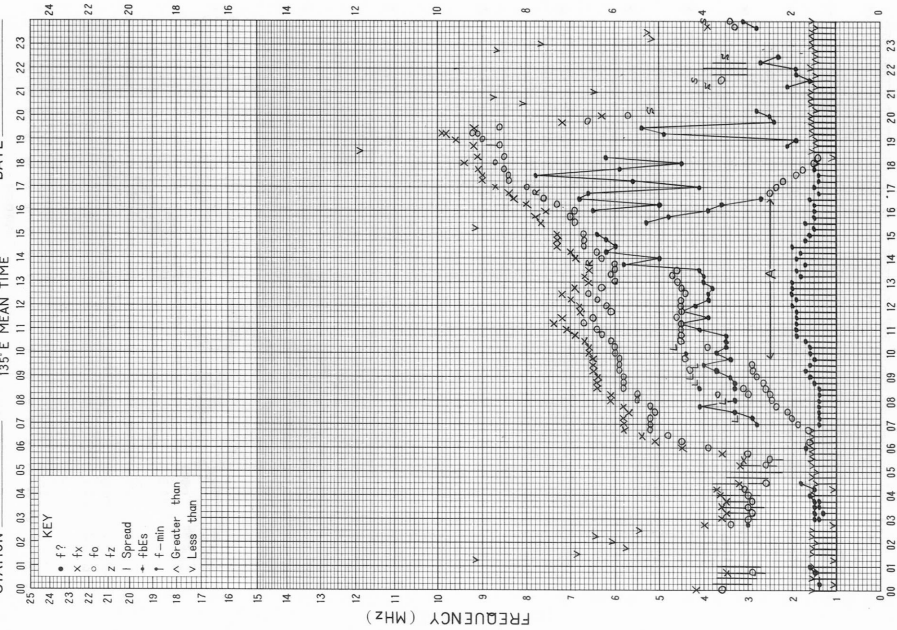


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STATION YAMAGAWA

135° E MEAN TIME

DATE SEP-8 1976



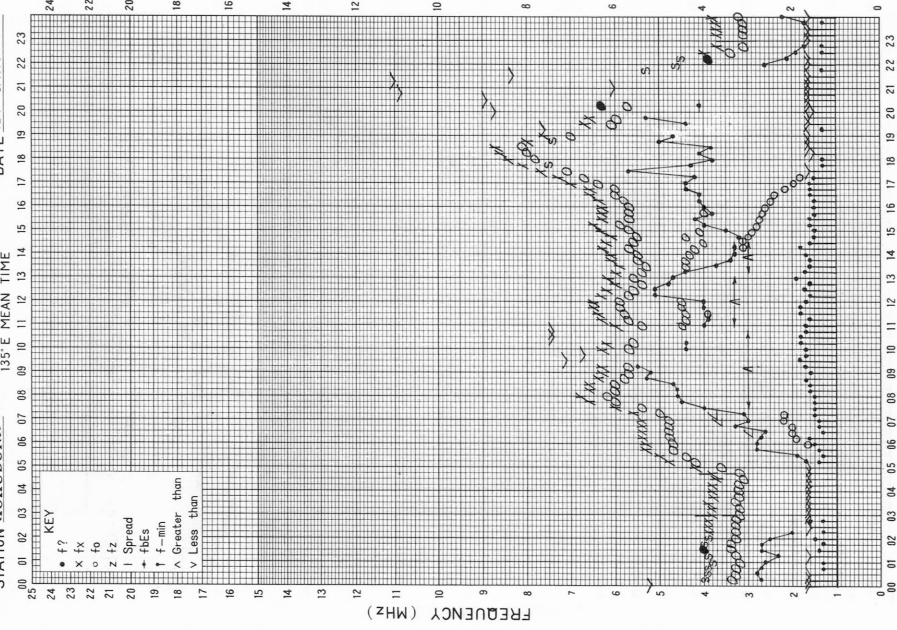
Es  
The Radio Research Laboratories, Japan  
SCALED BY S. Nakakima

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI

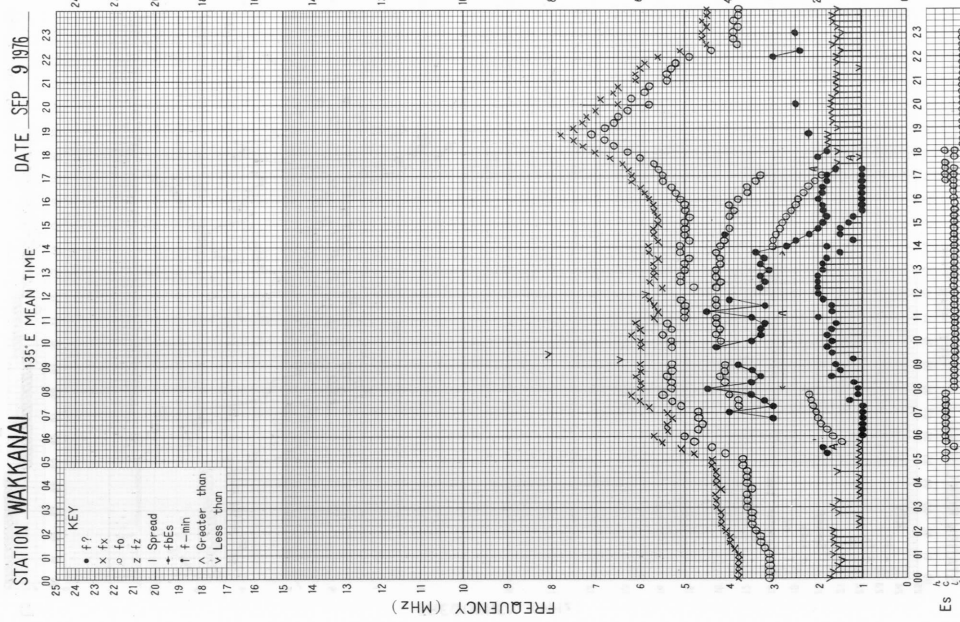
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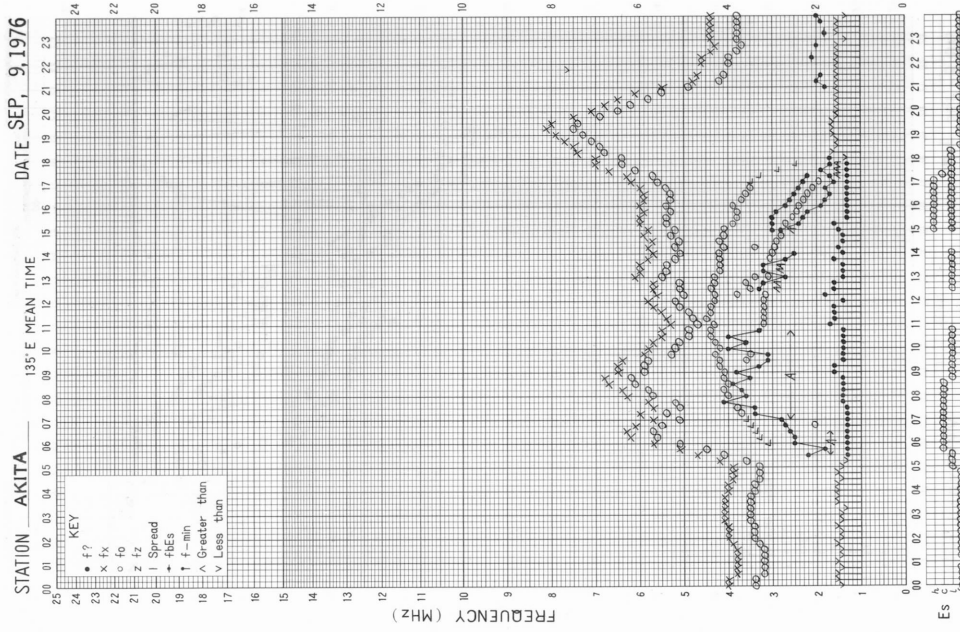
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The Radio Research Laboratories, Japan  
SCALED BY H.O. yamae

f-plot of IONOSPHERIC DATA



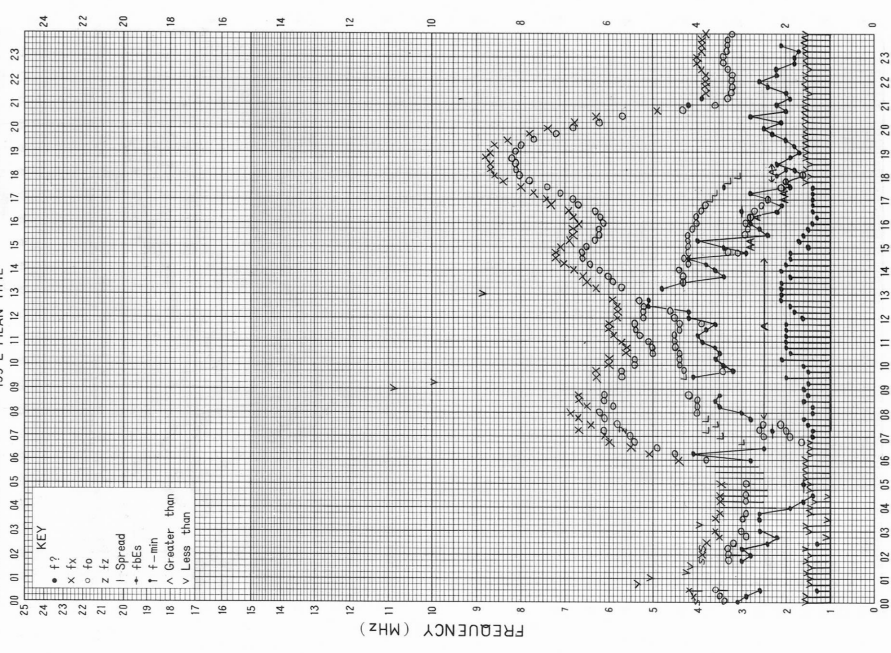
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f-plot of IONOSPHERIC DATA



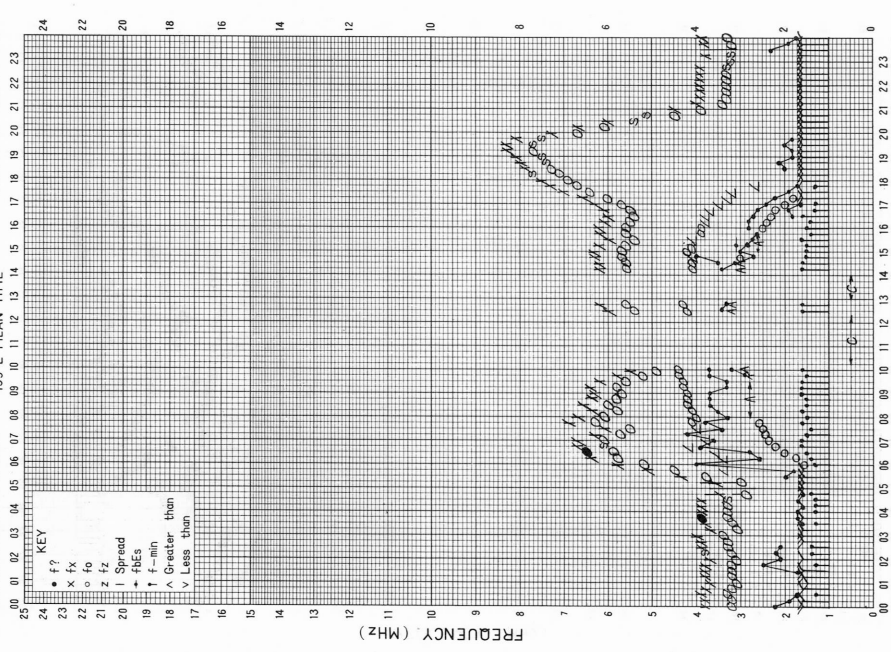
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f-PLOT OF IONOSPHERIC DATA  
 STATION YAMAGAWA 135° E MEAN TIME DATE SEP. - 9 1976



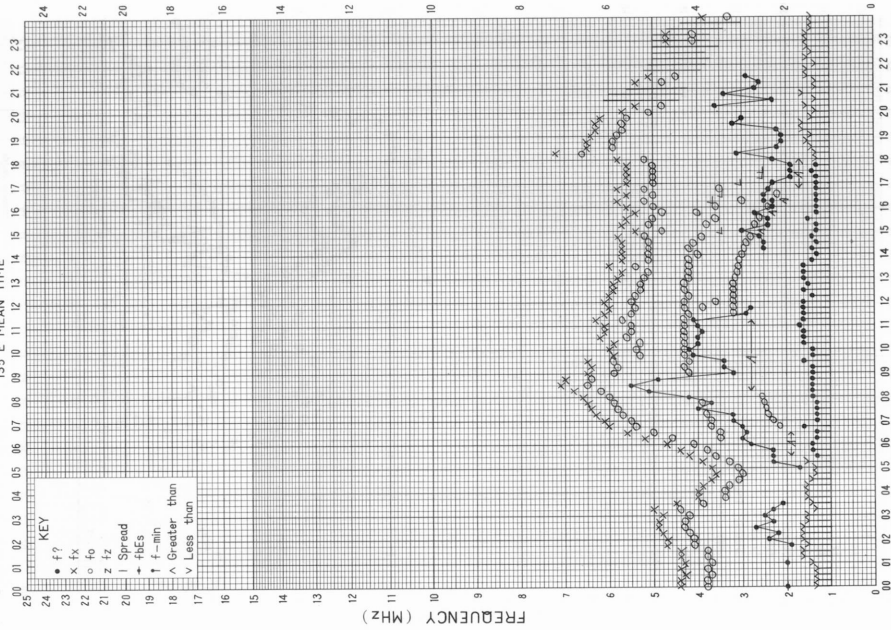
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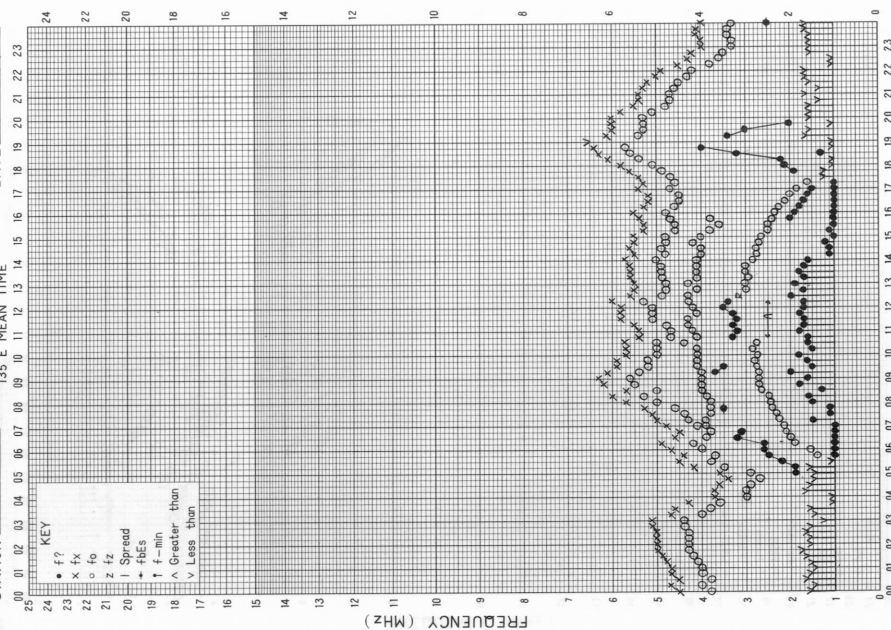
ES  
 The Radio Research Laboratories, Japan  
 SCALED BY H.O. yamae

f-PLOT OF IONOSPHERIC DATA  
 STATION AKITA DATE SEP 10 1976  
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Es  
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 Scaled by J. Takahashi  
 The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA  
 STATION WAKKANAI DATE SEP 10 1976  
 135° E MEAN TIME



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 The Radio Research Laboratories, Japan

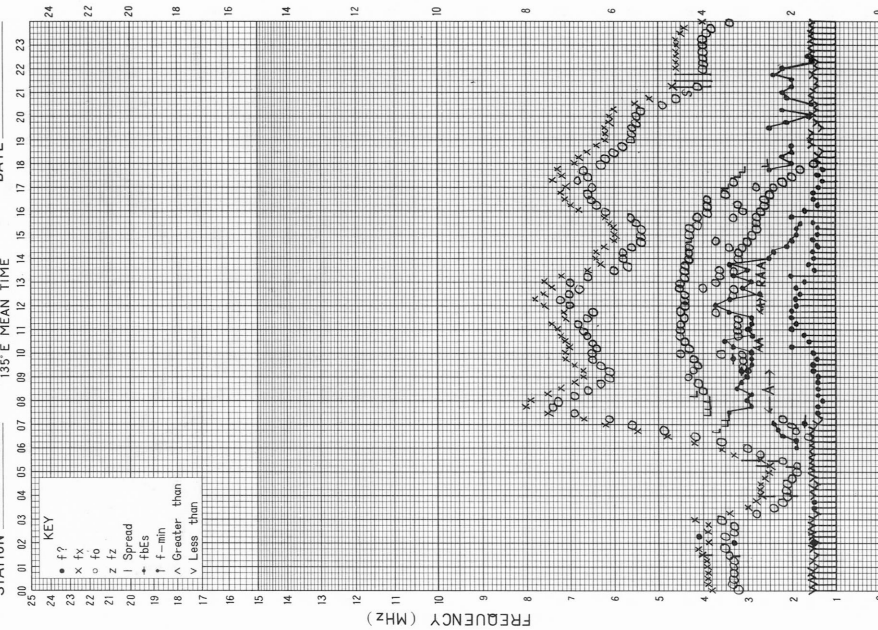


f - PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA

135° E MEAN TIME

DATE SEP. 10 1976



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SCALED BY *S. Nakama*

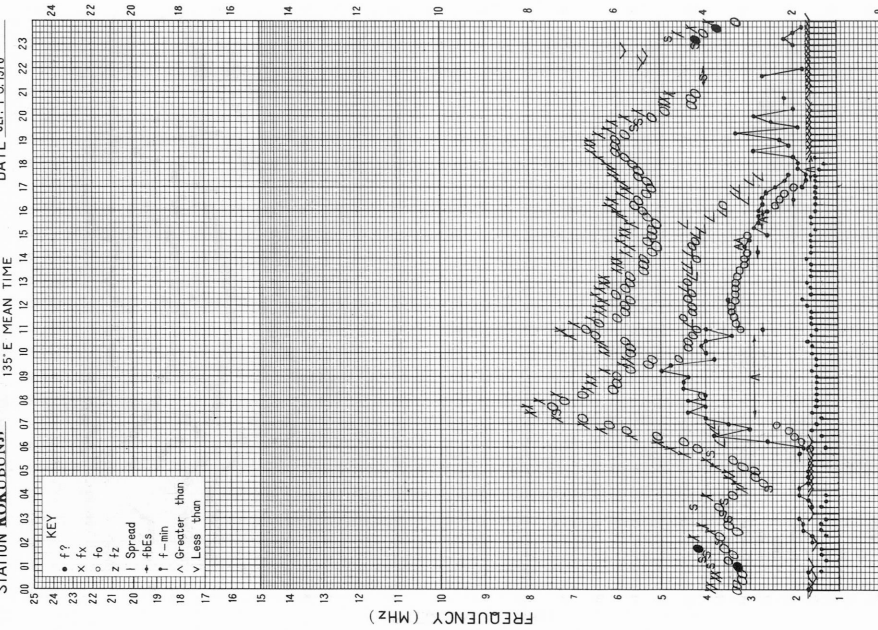
The Radio Research Laboratories, Japan

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STATION KOKUBUNJI

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DATE SEP. 10 1976

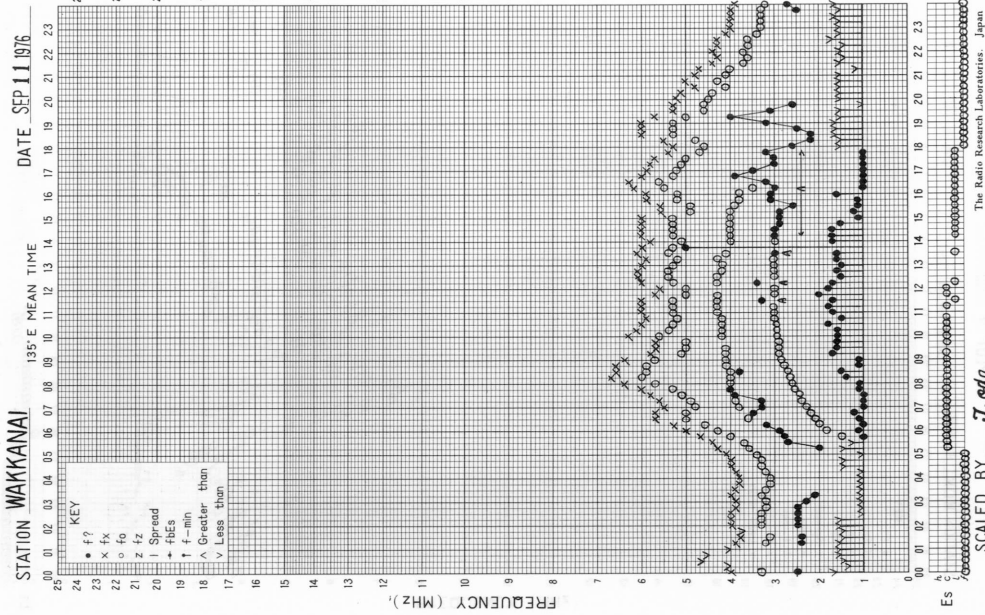


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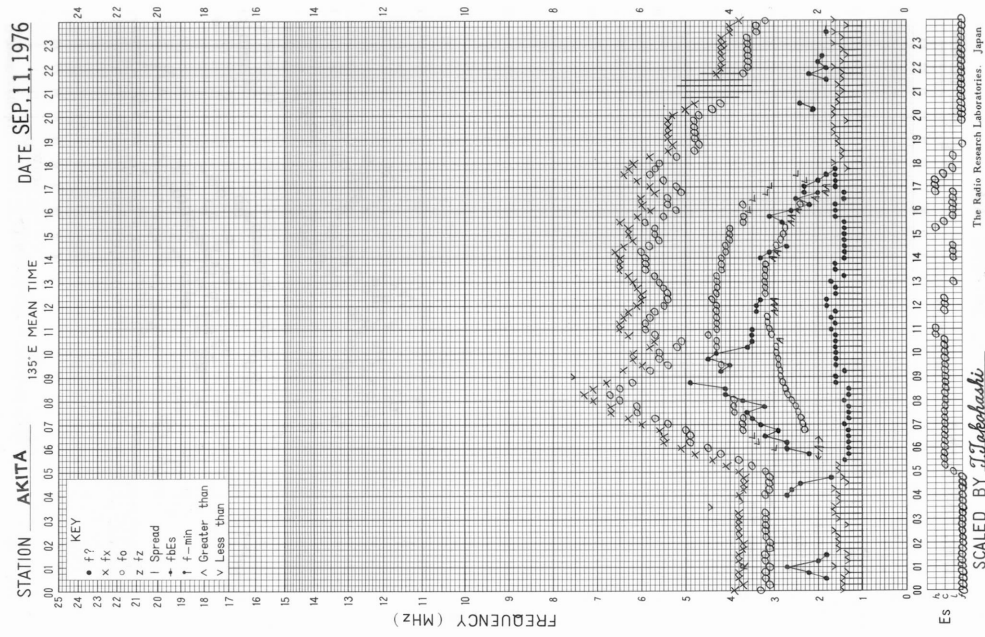
SCALED BY *Y. Kawatani*

The Radio Research Laboratories, Japan

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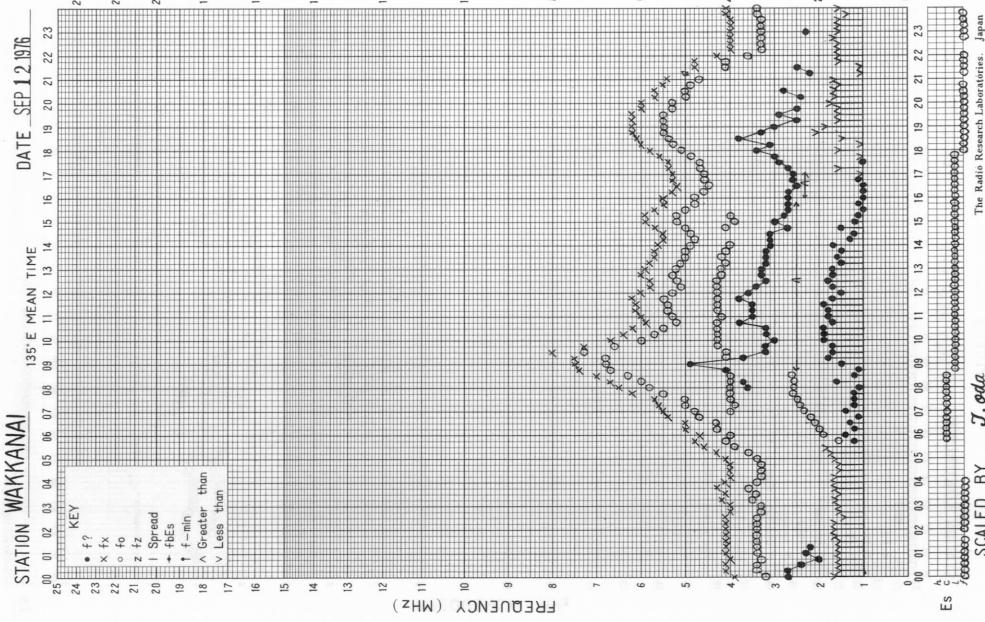


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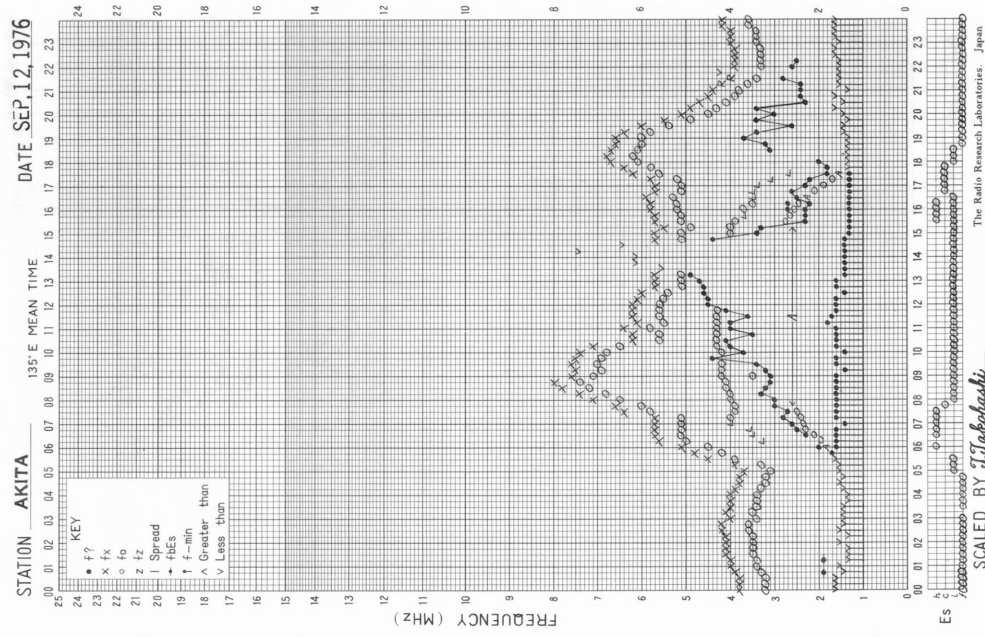




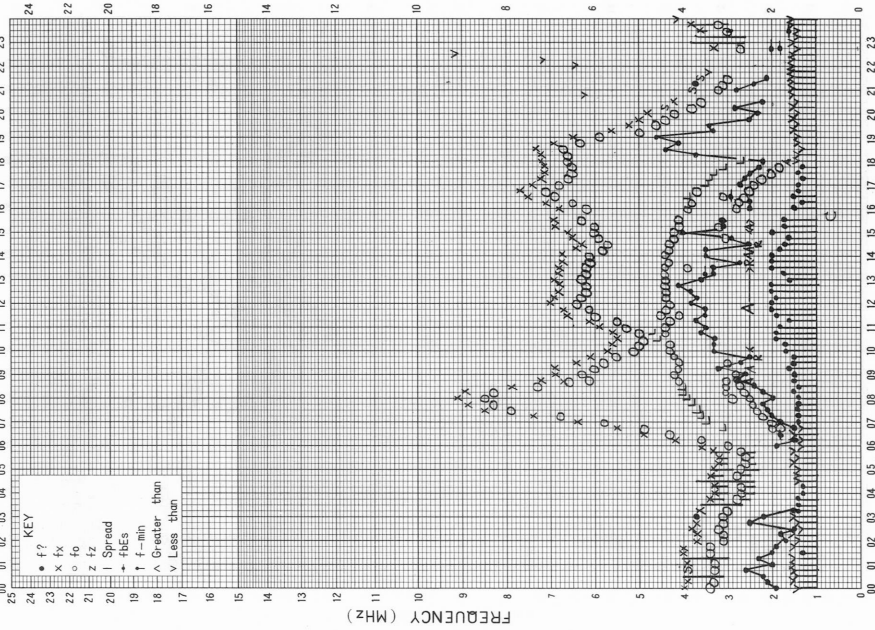
f-plot of IONOSPHERIC DATA



f-plot of IONOSPHERIC DATA

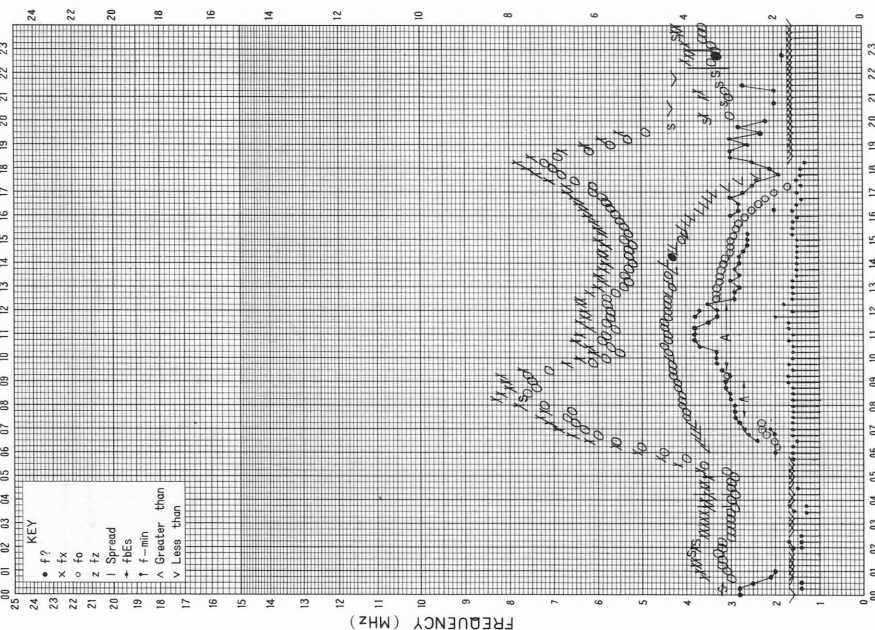


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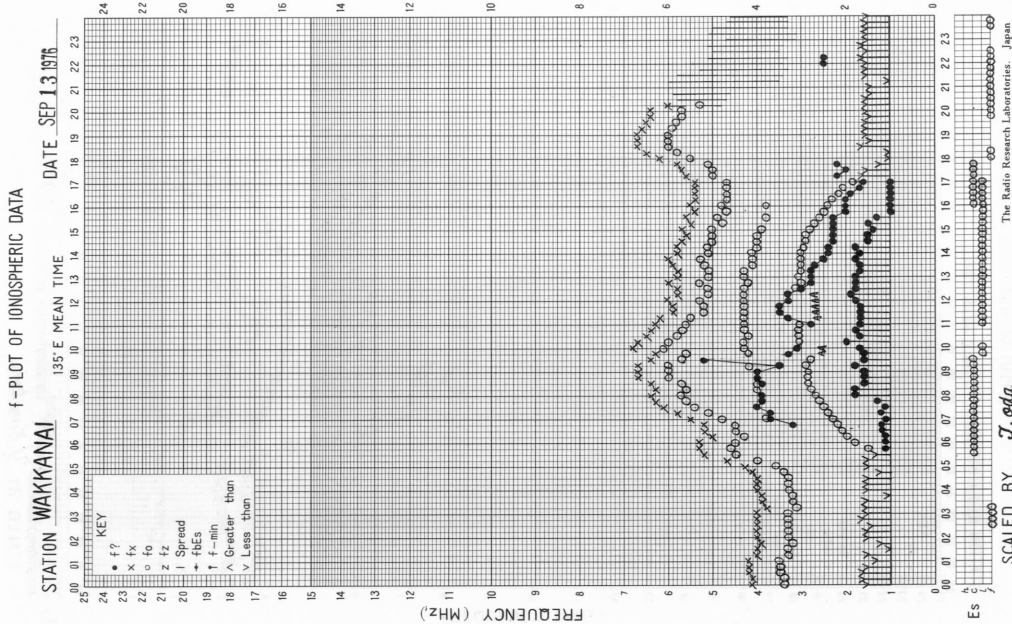
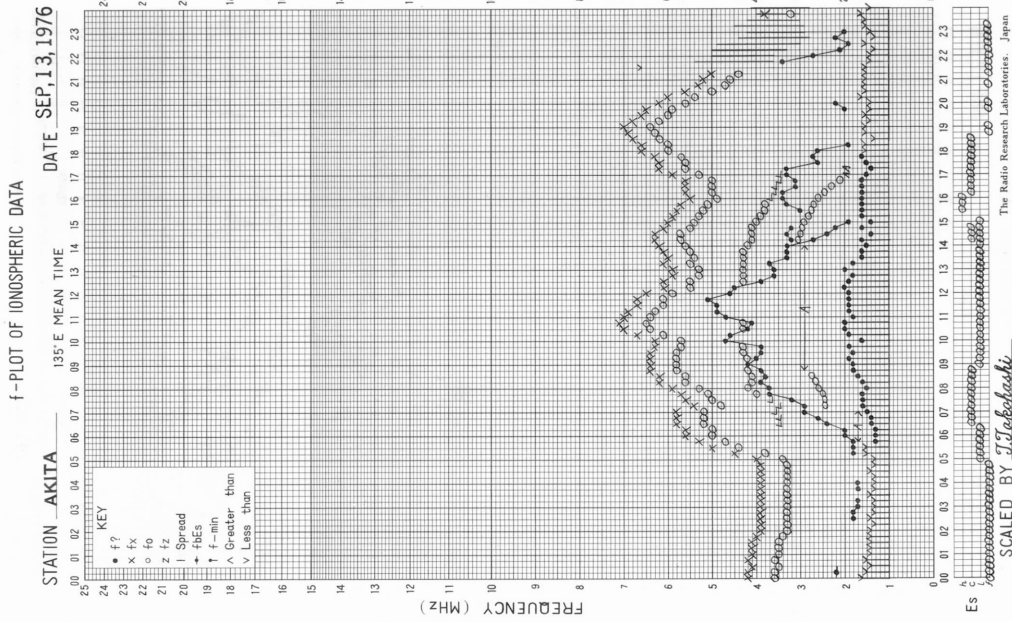


Es  
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 Scaled by **S. Nakano**  
 The Radio Research Laboratories, Japan

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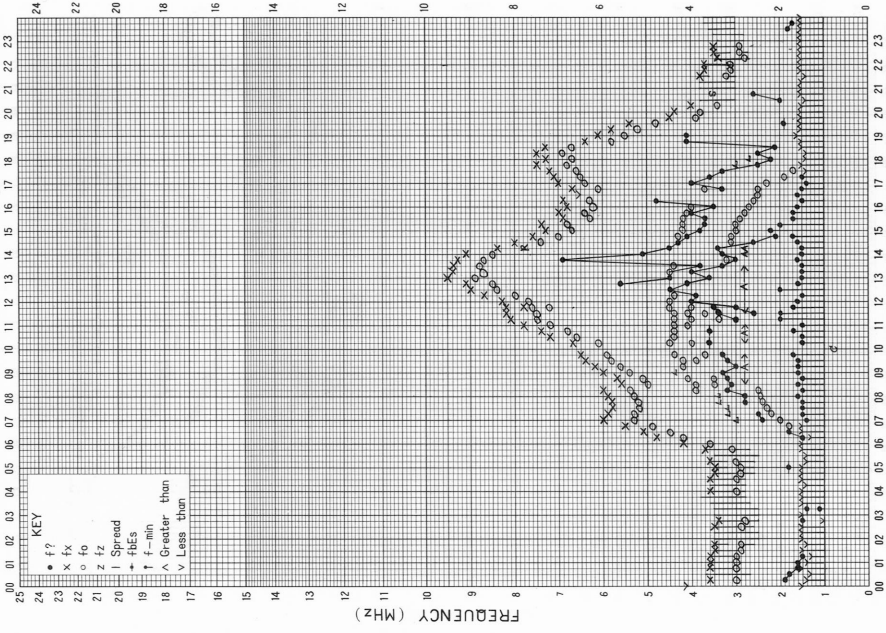


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 The Radio Research Laboratories, Japan



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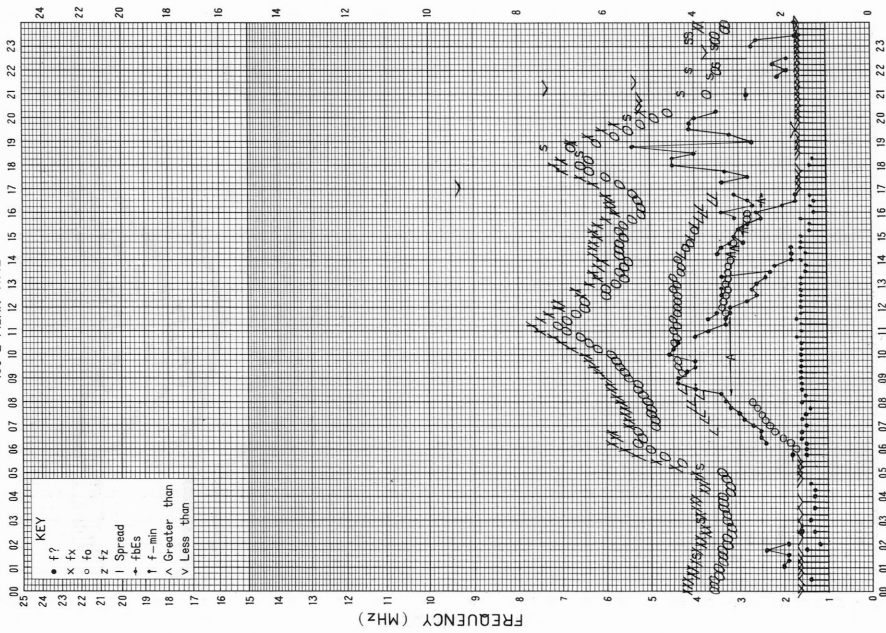
STATION YAMAGAWA 135° E MEAN TIME DATE SEP. 13, 1976



Es  
The Radio Research Laboratories, Japan  
SCALED BY Tadaama

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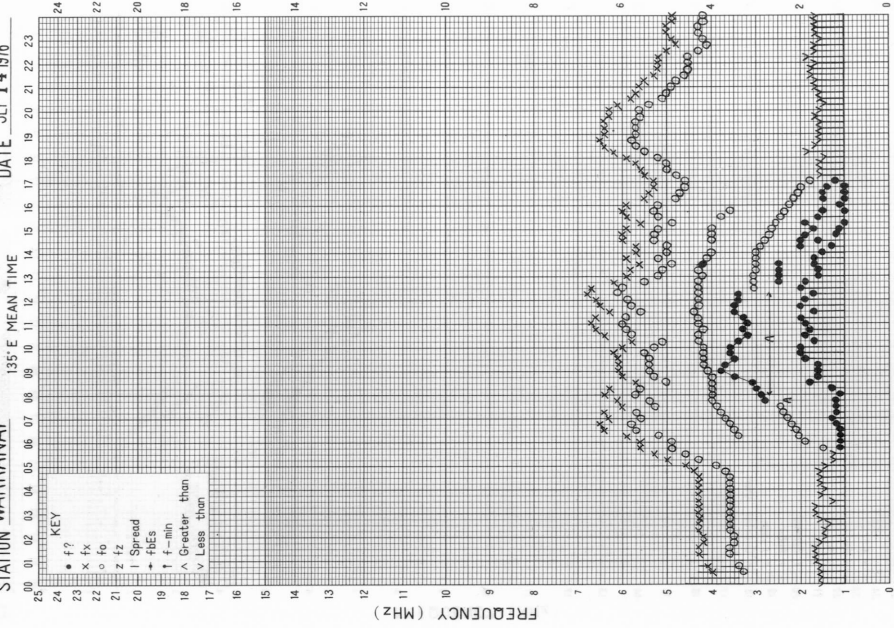
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The Radio Research Laboratories, Japan  
SCALED BY H. Oyamada

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STATION WAKKANAI DATE SEP 14 1976

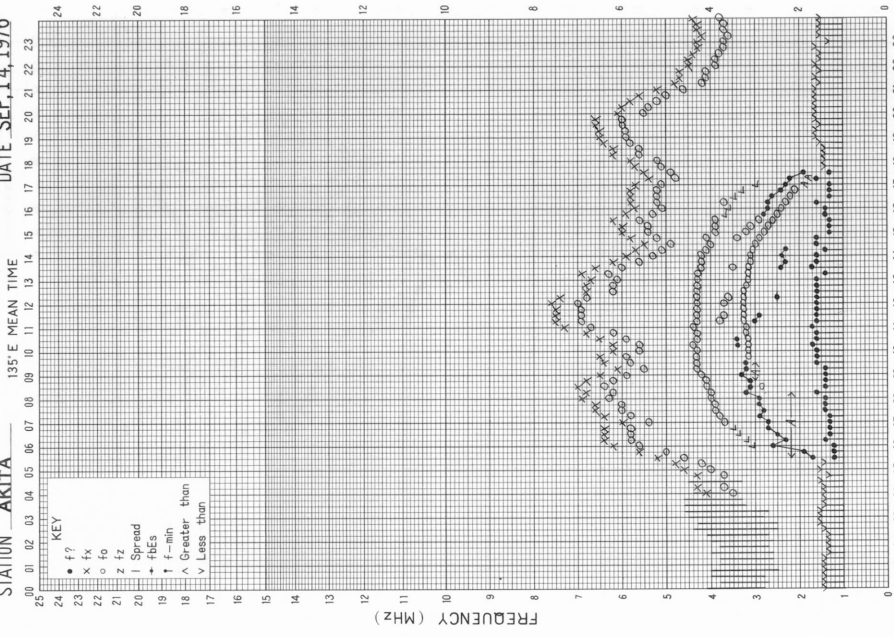


SCALED BY J. Oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA DATE SEP 14 1976

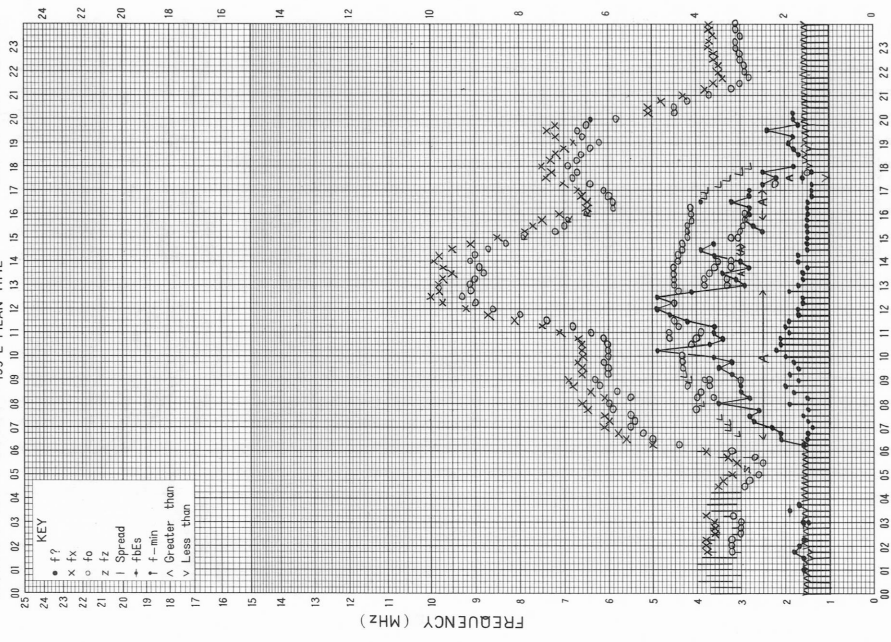


SCALED BY J. Takahashi

The Radio Research Laboratories, Japan

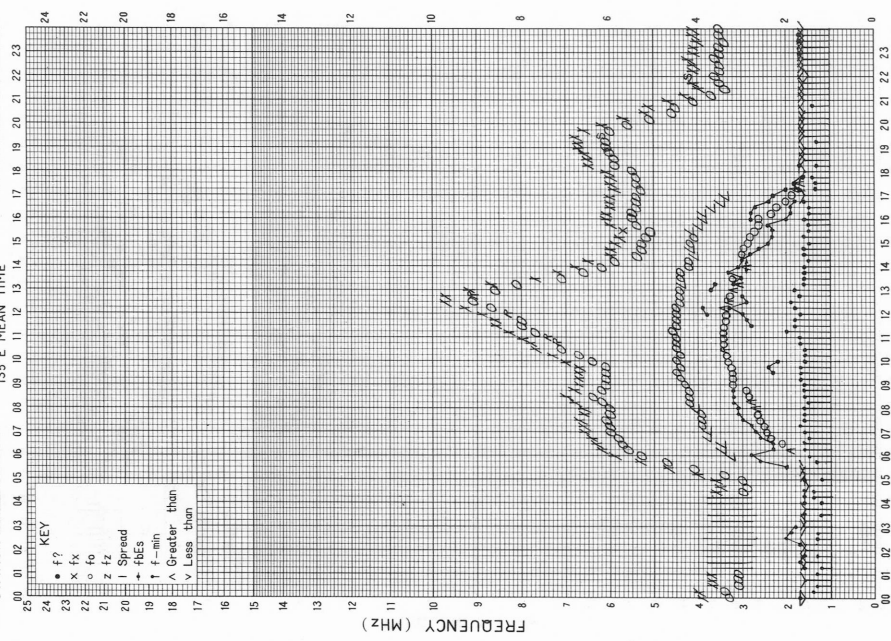


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Es  
 The Radio Research Laboratories, Japan  
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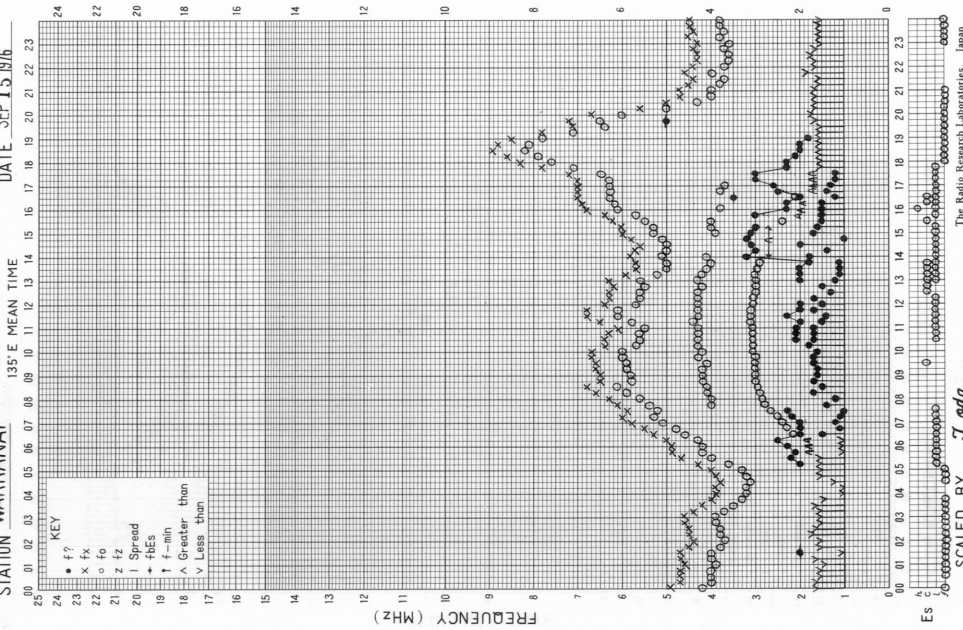
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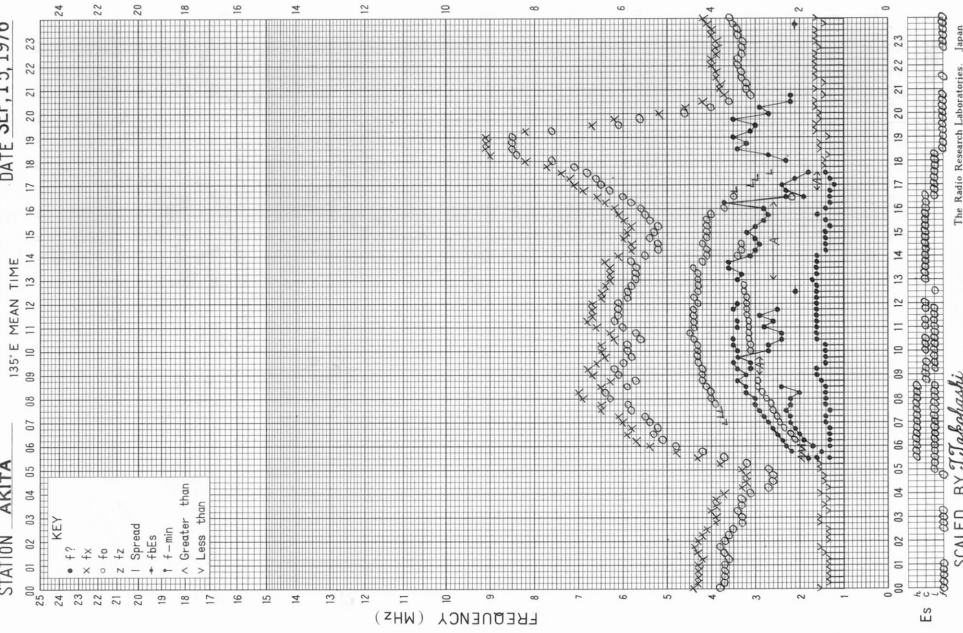
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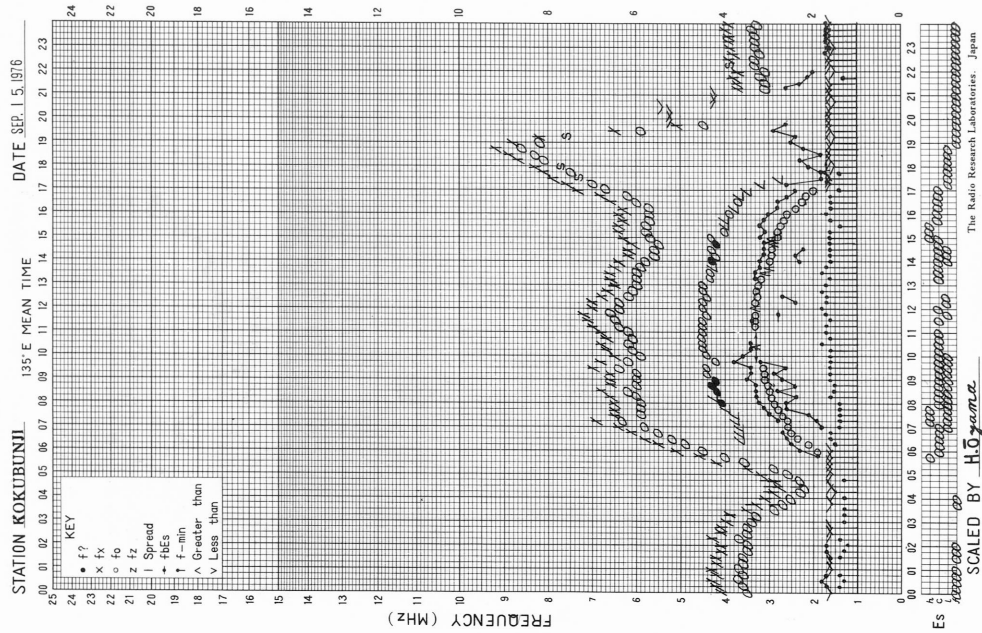


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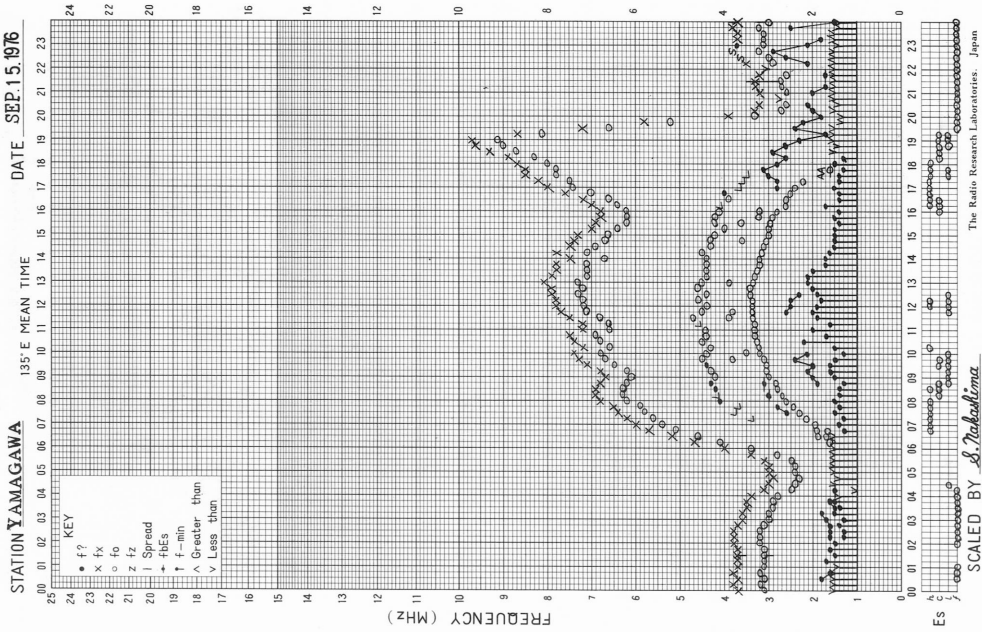
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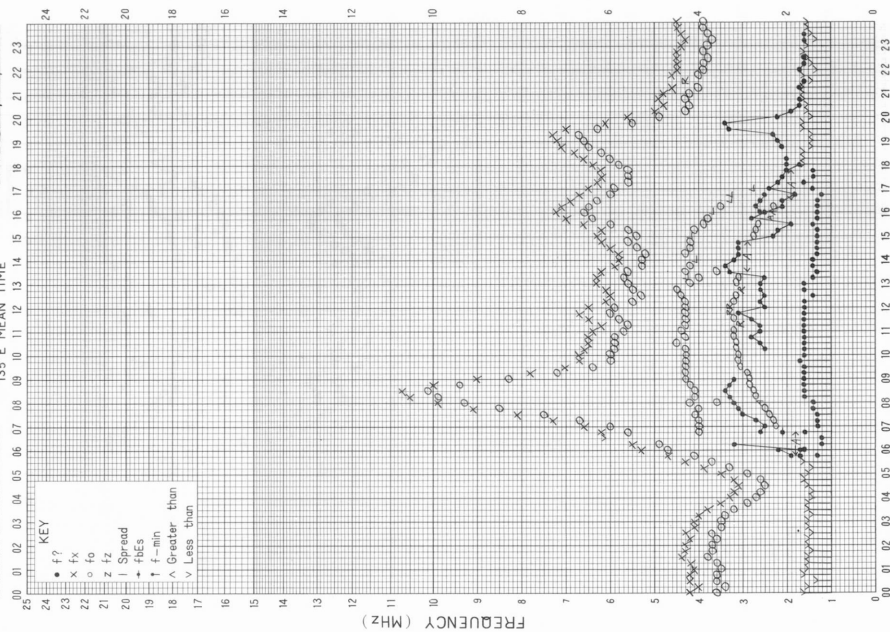
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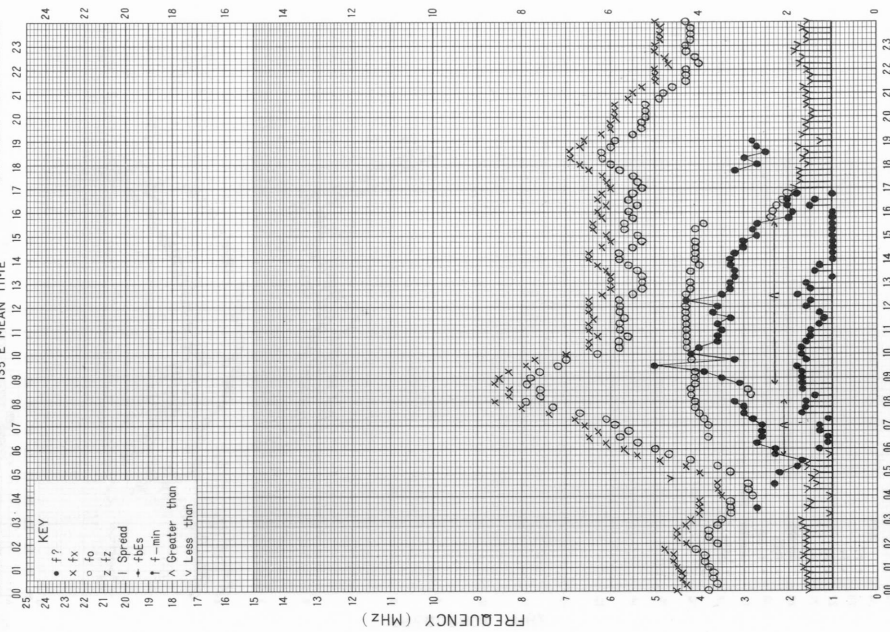


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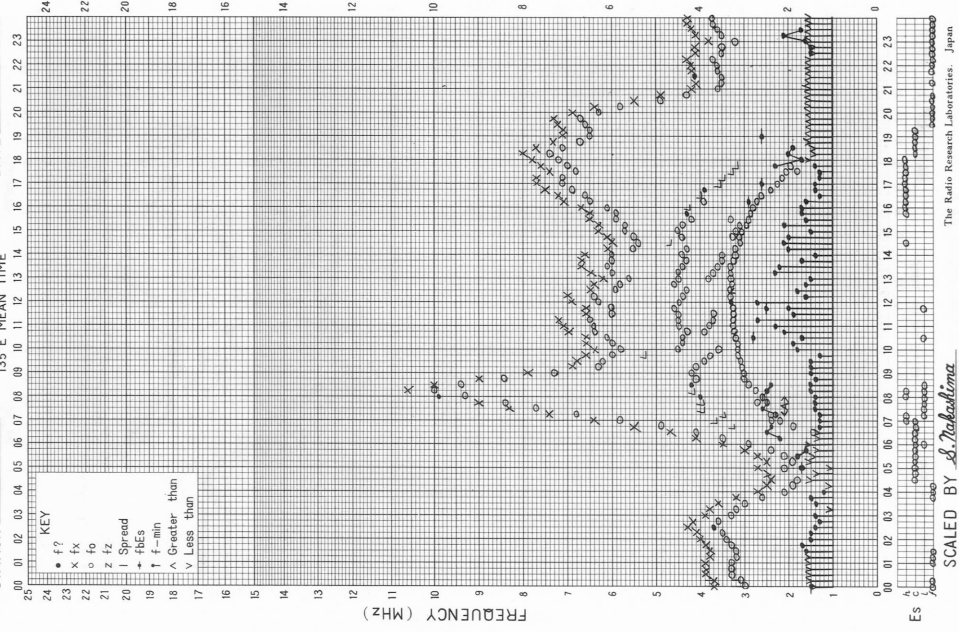
Es  
 A  
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 The Radio Research Laboratories, Japan

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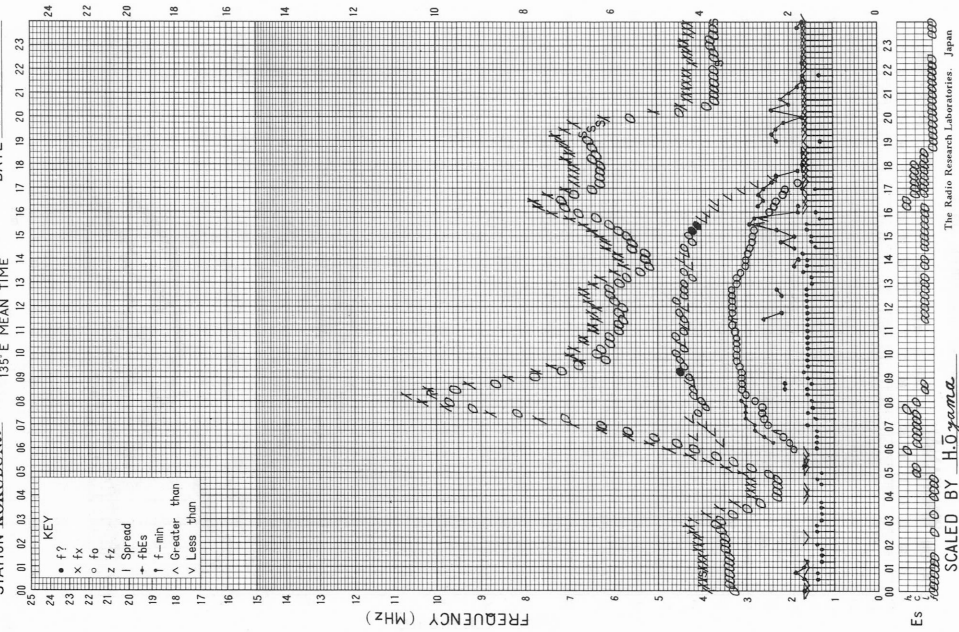


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 SCALED BY J. Oda  
 The Radio Research Laboratories, Japan

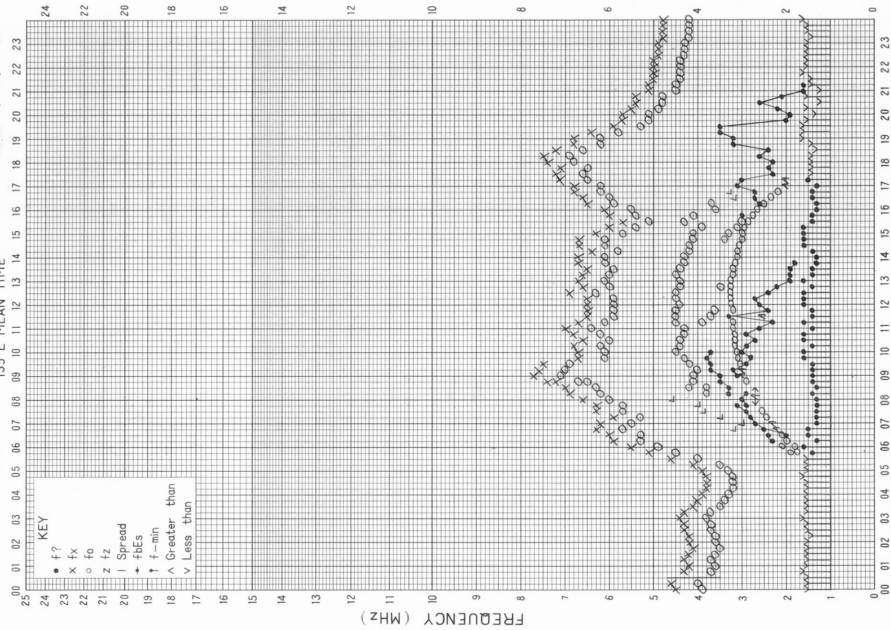
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STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 16 1976



f-PLOT OF IONOSPHERIC DATA  
STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 16 1976

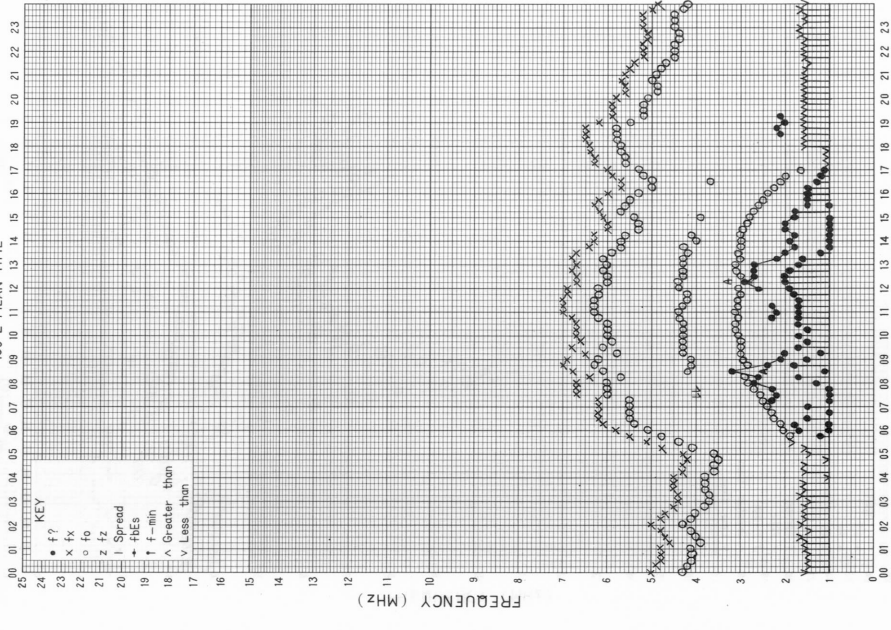


f-PLOT OF IONOSPHERIC DATA  
 STATION AKITA 135°E MEAN TIME DATE SEP. 17, 1976



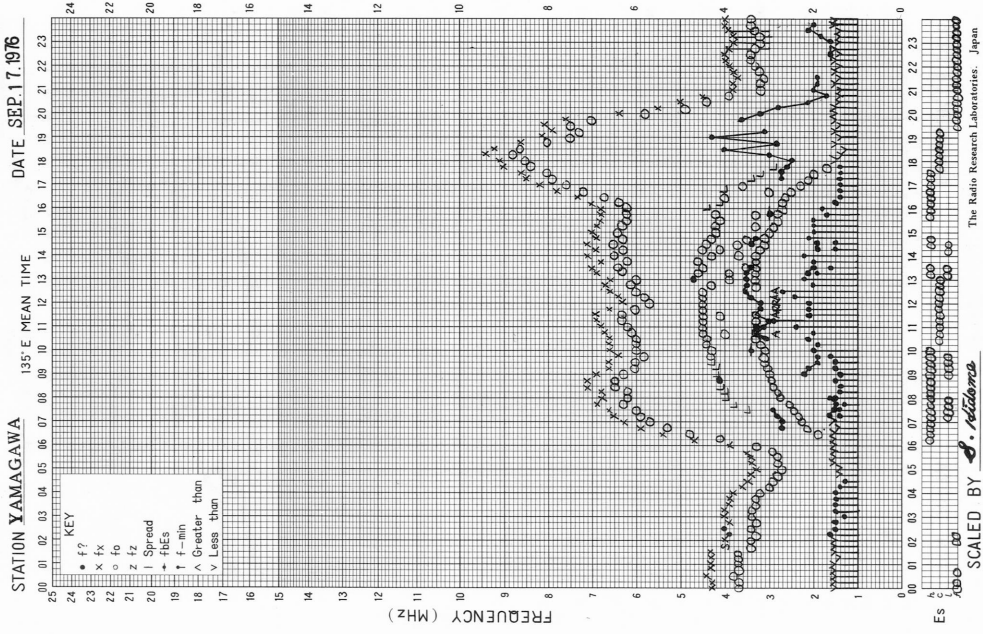
Es  
 The Radio Research Laboratories, Japan  
 SCALED BY J. Tabuchi

f-PLOT OF IONOSPHERIC DATA  
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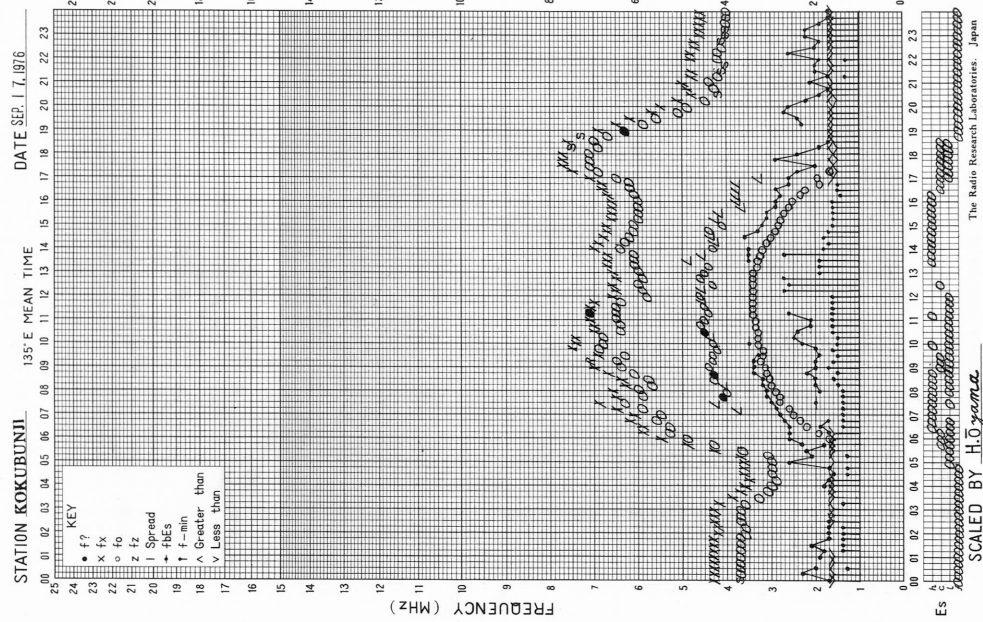


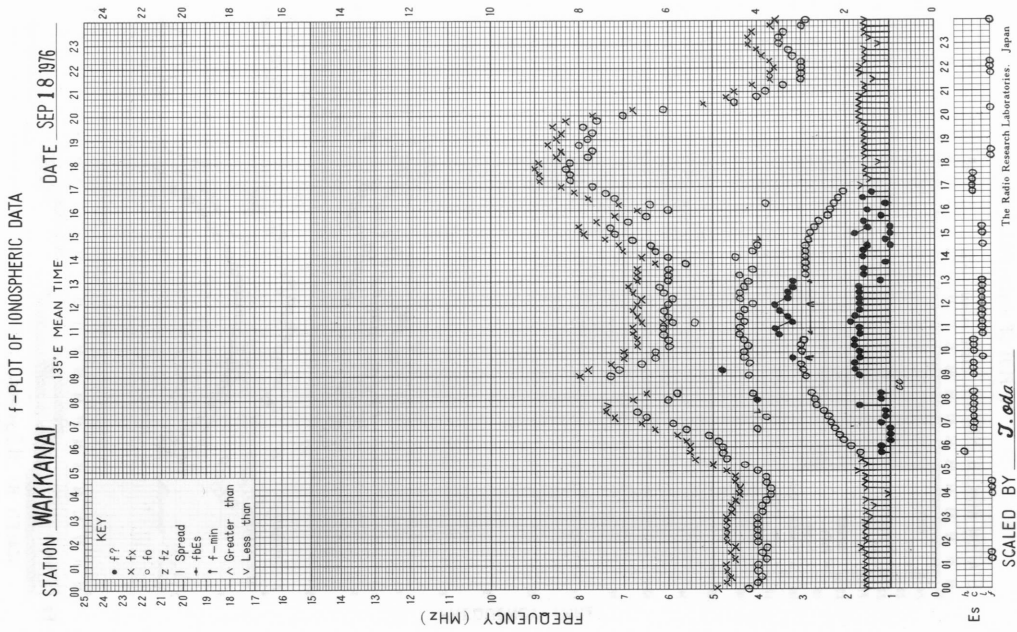
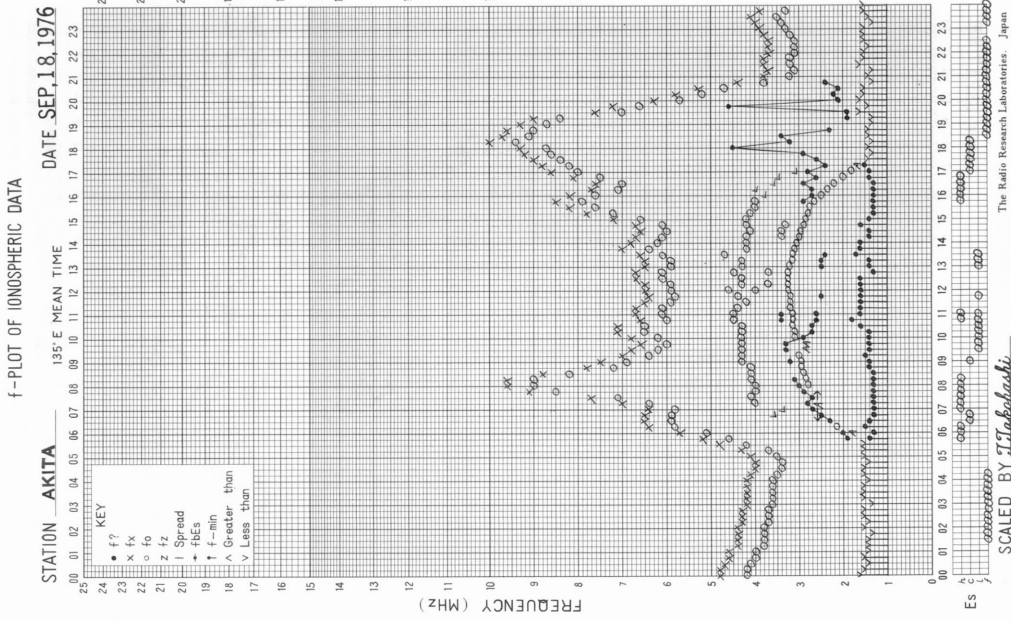
Es  
 The Radio Research Laboratories, Japan  
 SCALED BY J. oda

f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

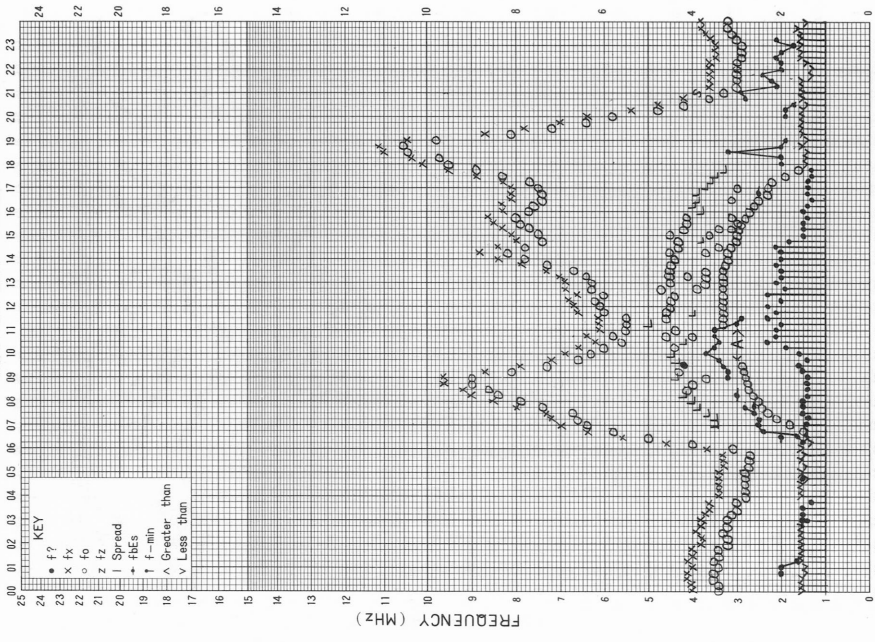






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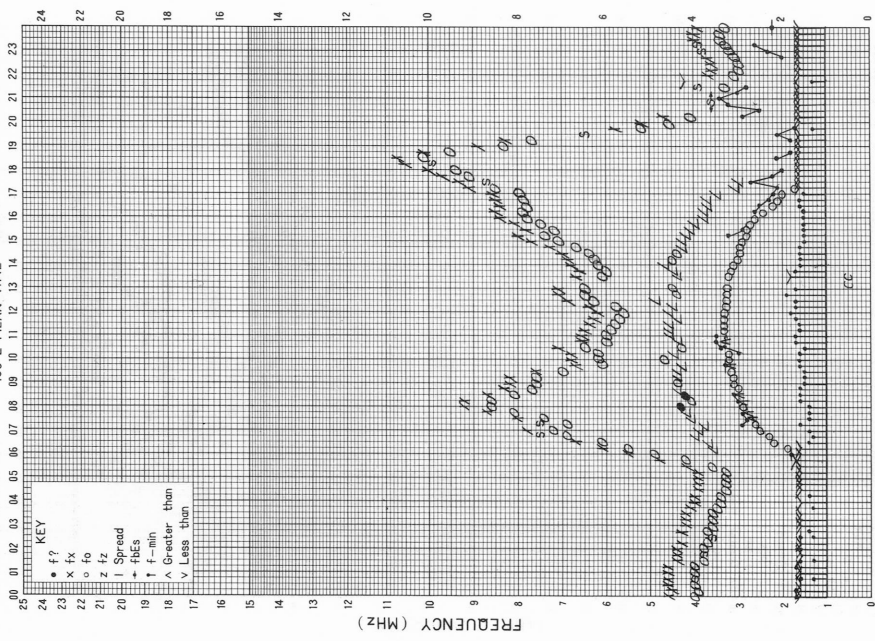
STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 18, 1976



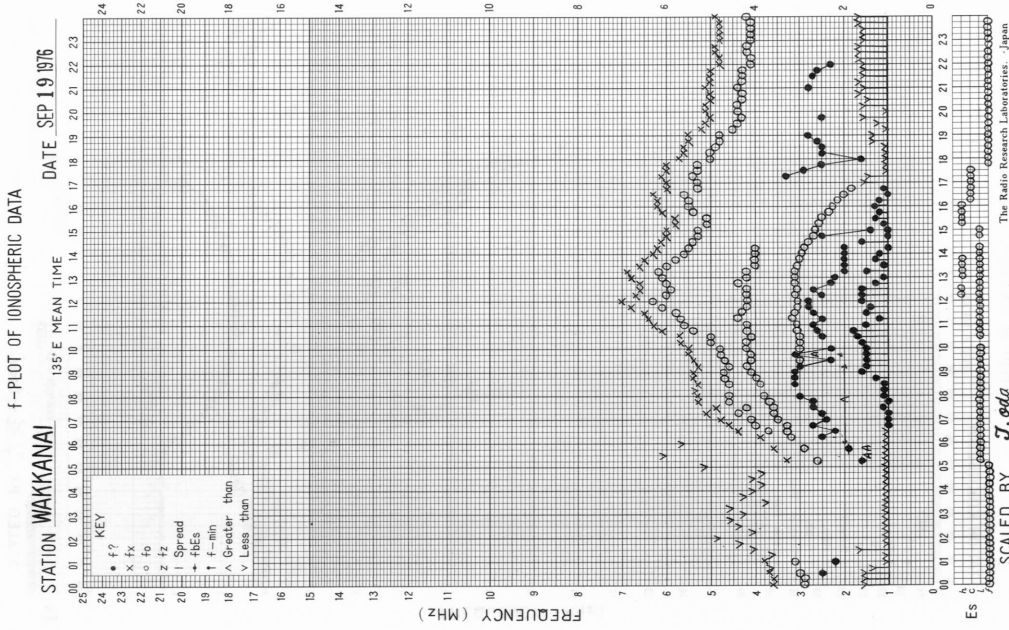
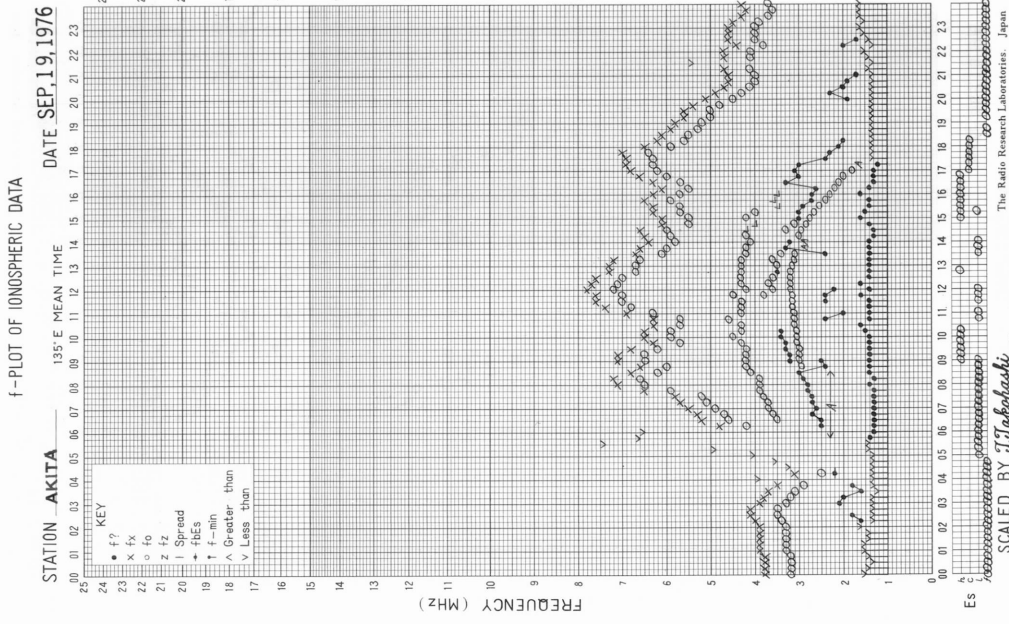
Es c  
The Radio Research Laboratories, Japan  
SCALED BY S. Nakama

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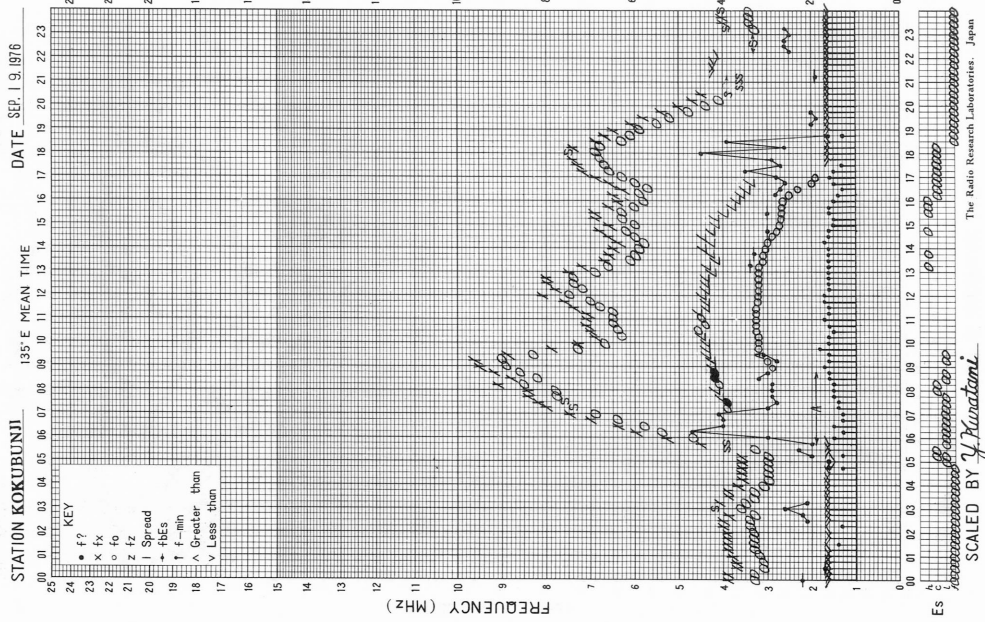
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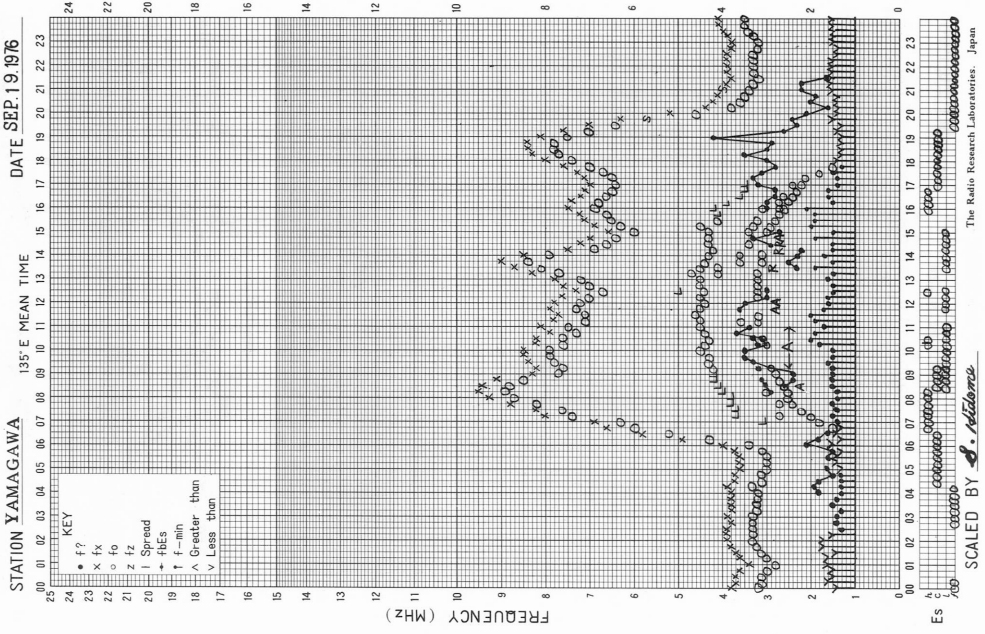
Es c  
The Radio Research Laboratories, Japan  
SCALED BY Y. Kawatani



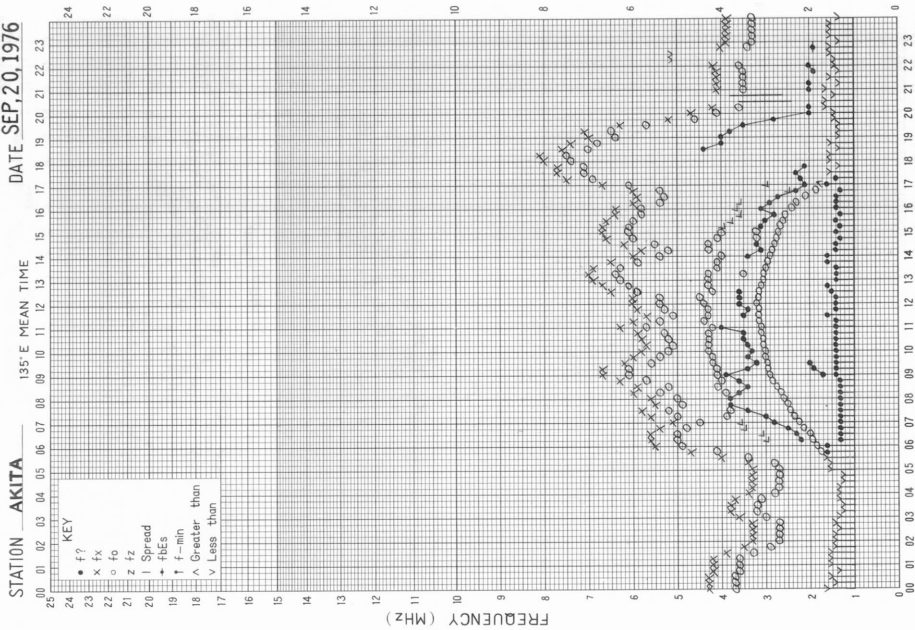
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

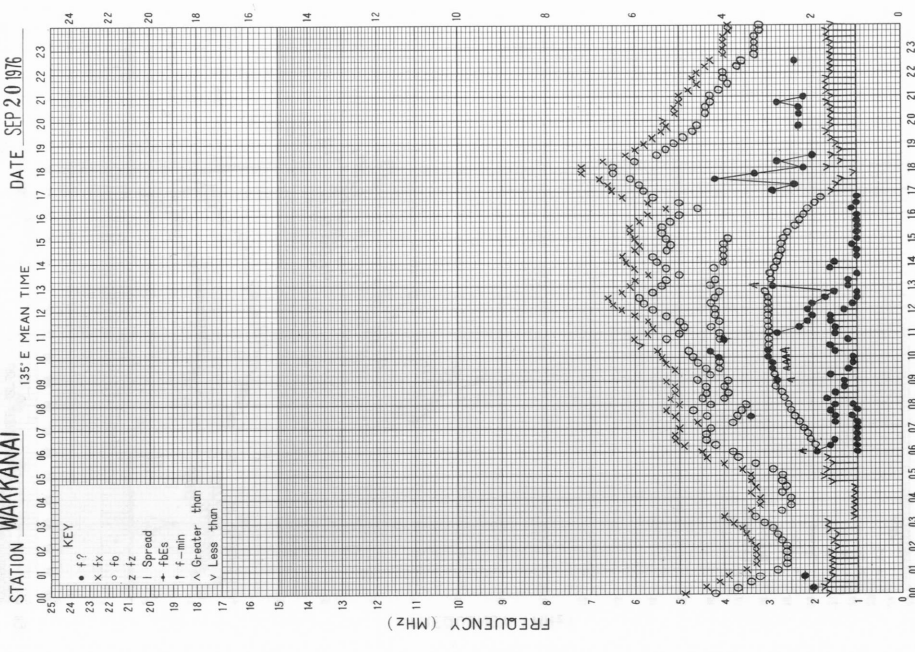


f - PLOT OF IONOSPHERIC DATA  
STATION AKITA DATE SEP, 20, 1976



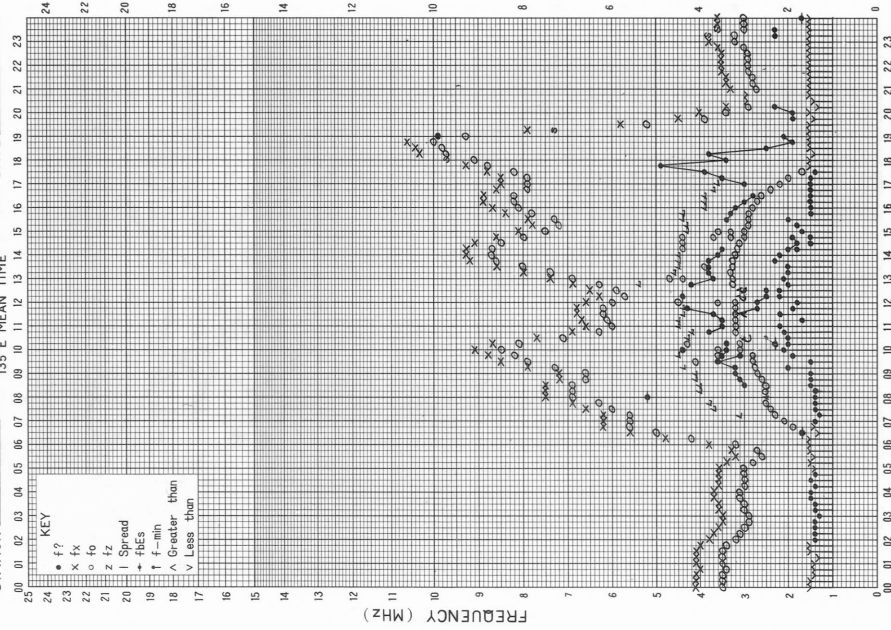
Es  
The Radio Research Laboratories, Japan  
SCALED BY J. Tabekashi

f - PLOT OF IONOSPHERIC DATA  
STATION WAKKANAI DATE SEP 20, 1976



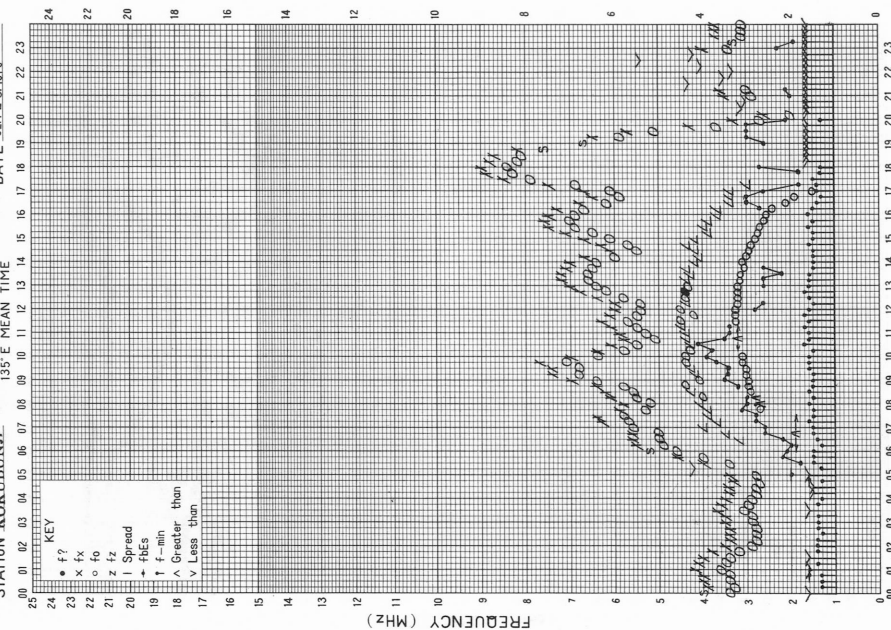
Es  
The Radio Research Laboratories, Japan  
SCALED BY J. eda

f-PLOT OF IONOSPHERIC DATA  
STATION **YAMAGAWA** 135°E MEAN TIME DATE **SEP. 20 1976**



ES  
A  
C  
SCALED BY *T. Sakemoto*  
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA  
STATION **KOKUBUNJI** 135°E MEAN TIME DATE **SEP. 20 1976**

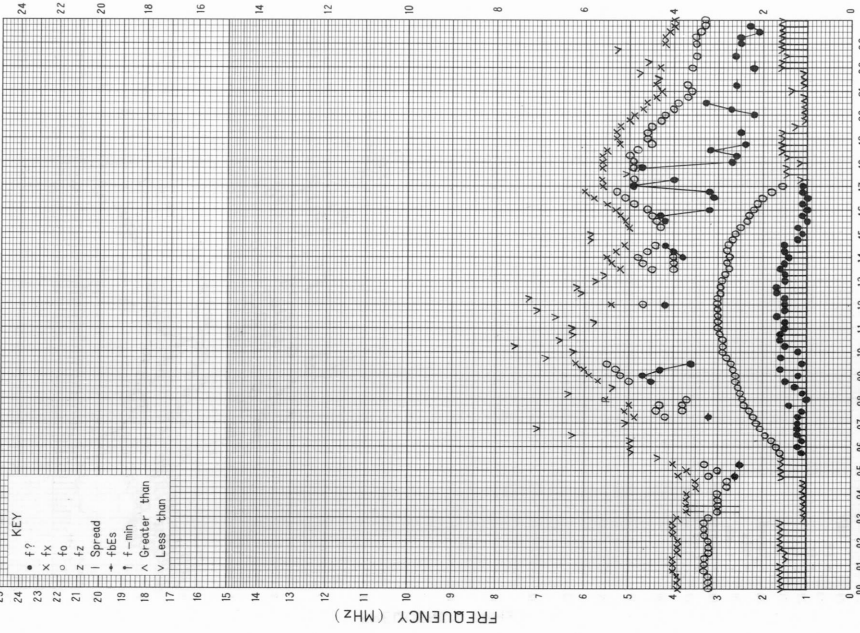


ES  
A  
C  
SCALED BY *A. Kawatani*  
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI DATE SEP 21 1976

135°E MEAN TIME

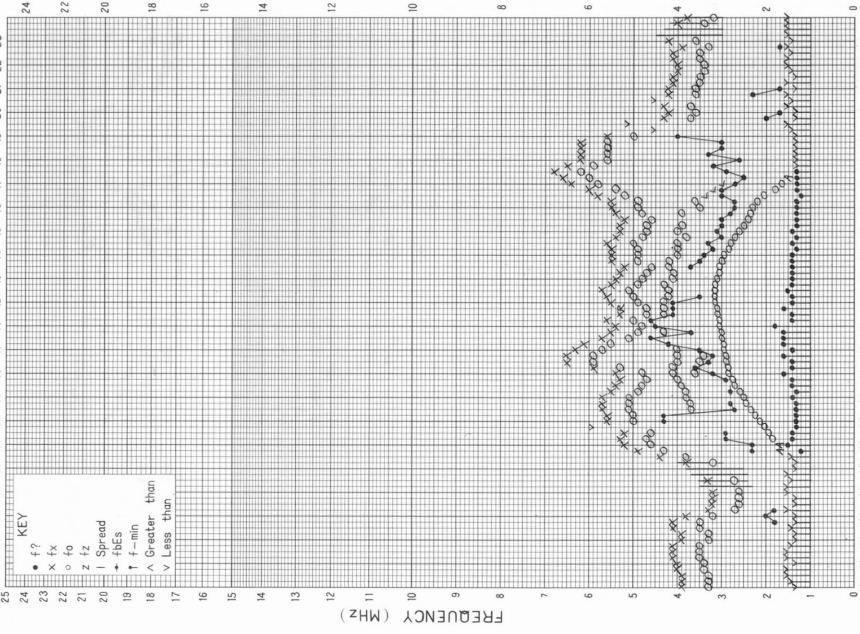


Es  
The Radio Research Laboratories, Japan  
SCALED BY J. oda

f-PLOT OF IONOSPHERIC DATA

STATION AKITA DATE SEP 21, 1976

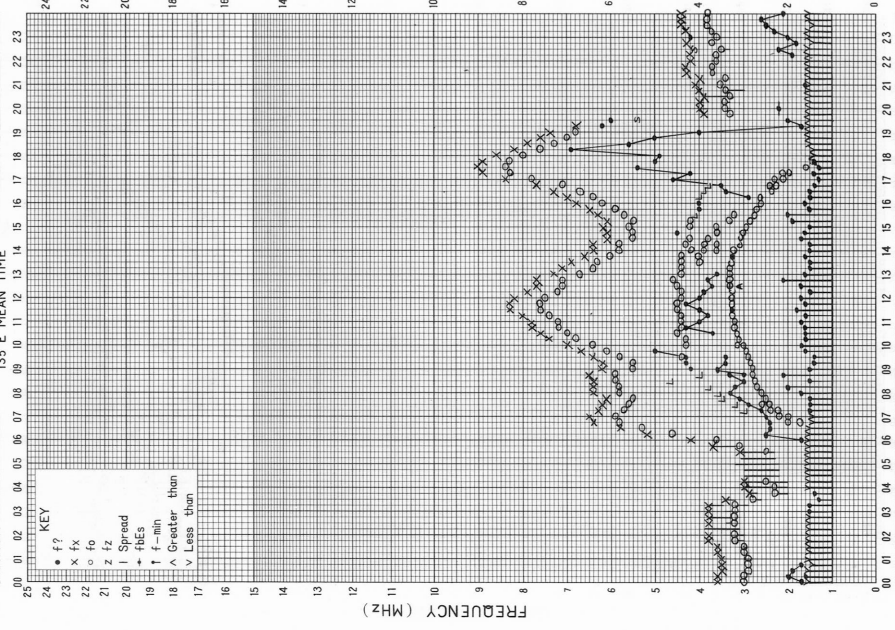
135°E MEAN TIME



Es  
The Radio Research Laboratories, Japan  
SCALED BY J. Takahashi

f-PLOT OF IONOSPHERIC DATA

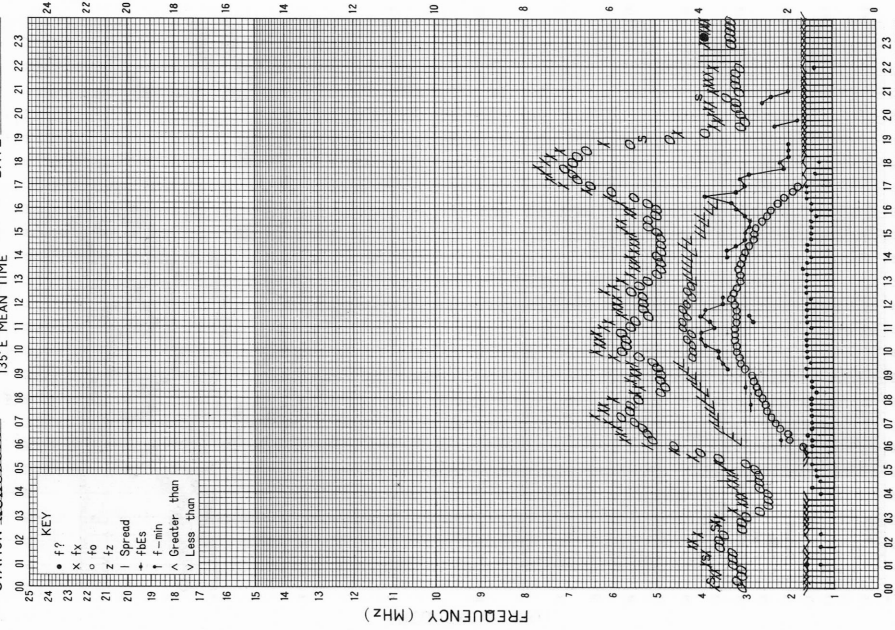
STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 21, 1976



ES  
The Radio Research Laboratories, Japan  
SCALED BY S. Nakashima

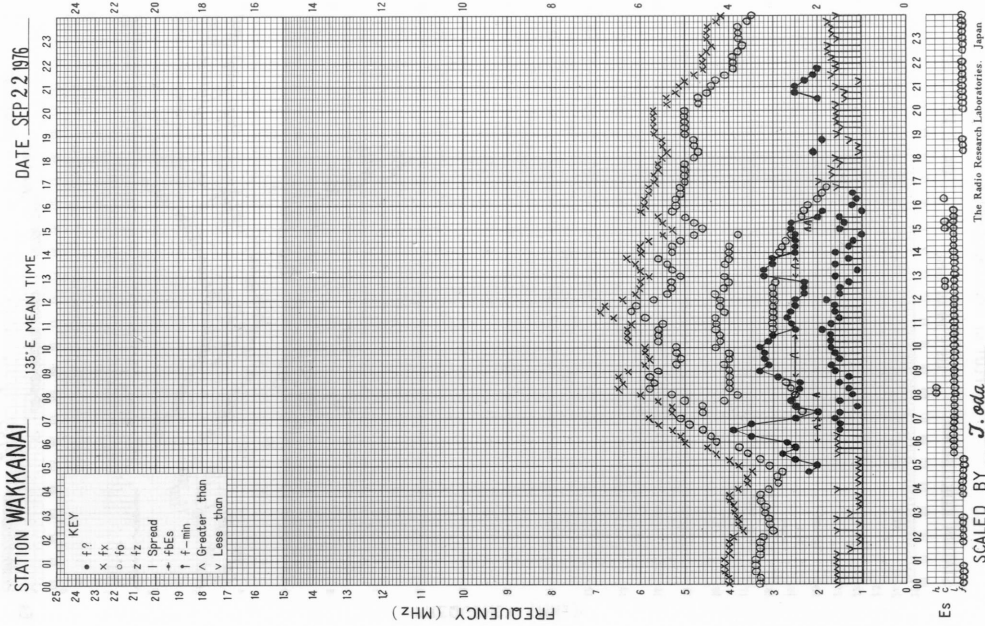
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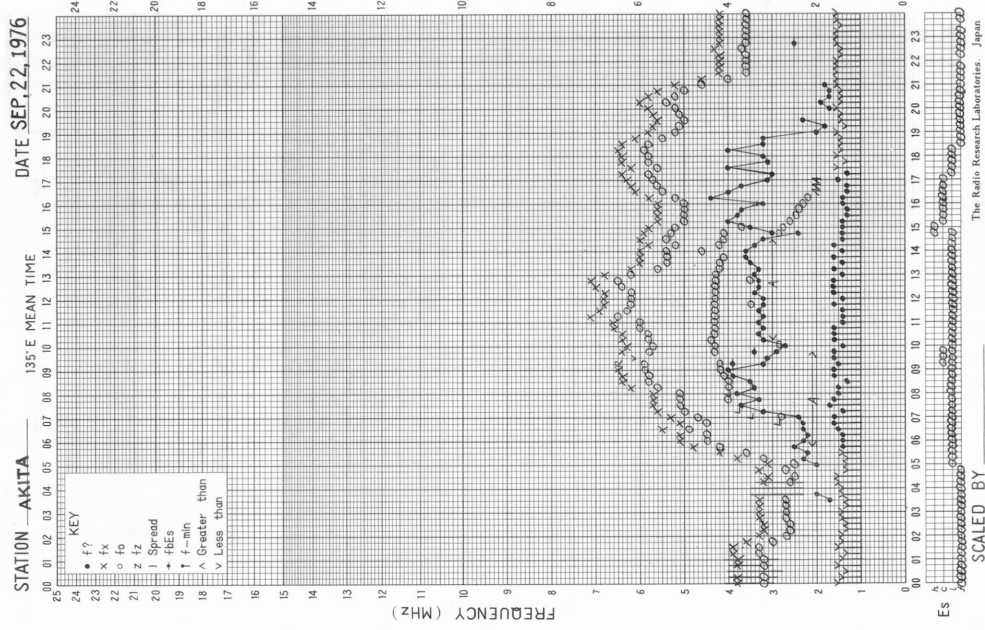


ES  
The Radio Research Laboratories, Japan  
SCALED BY J. Kawatani

f-PLOT OF IONOSPHERIC DATA

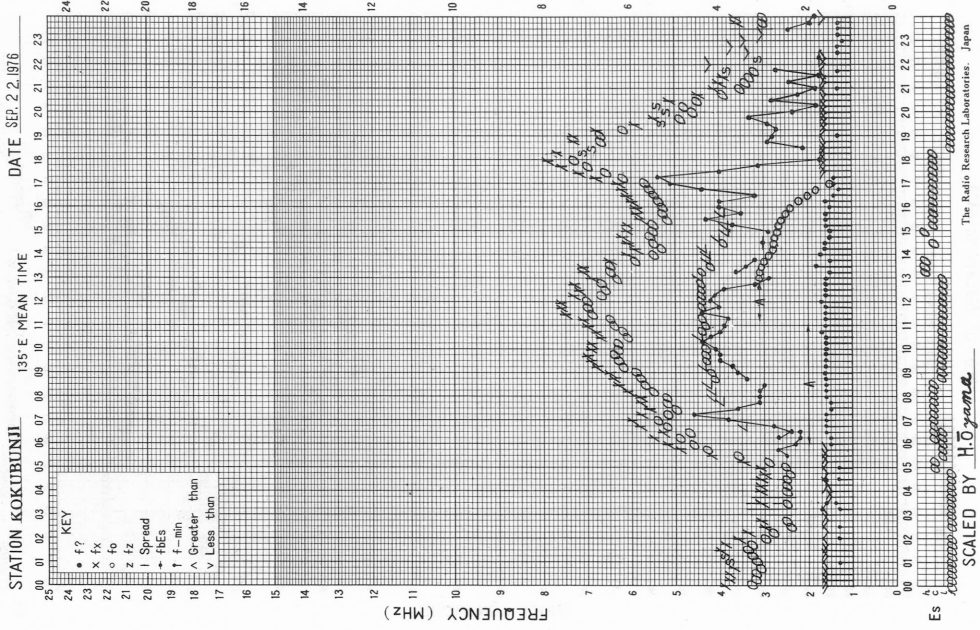


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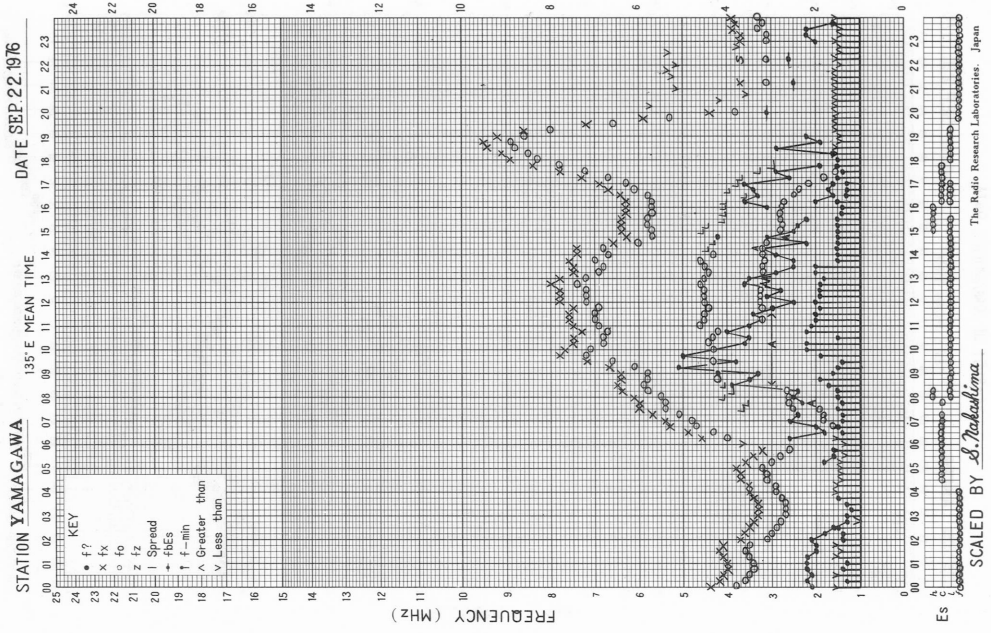


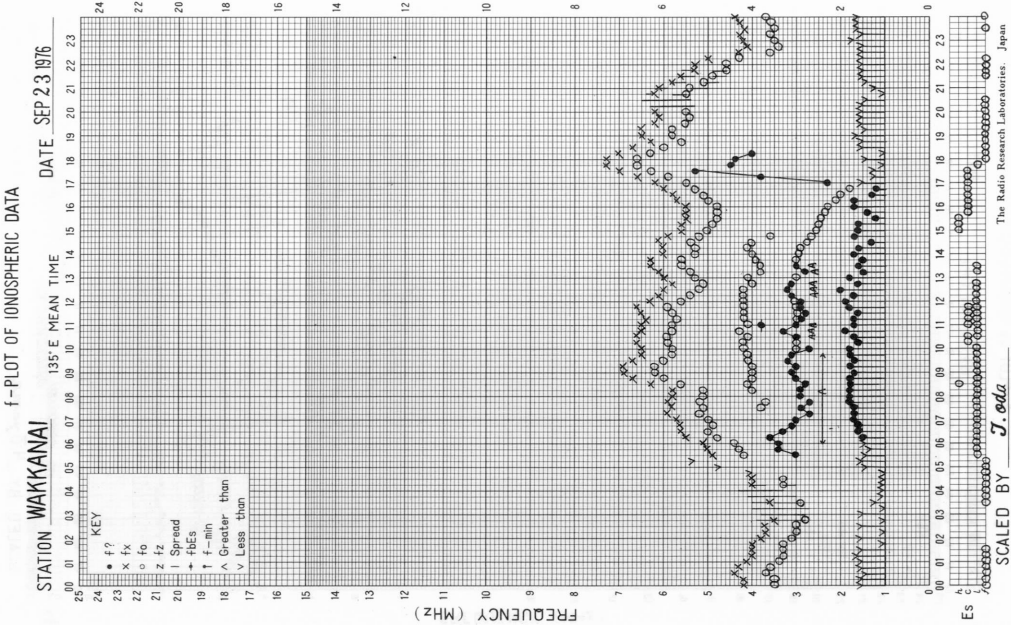
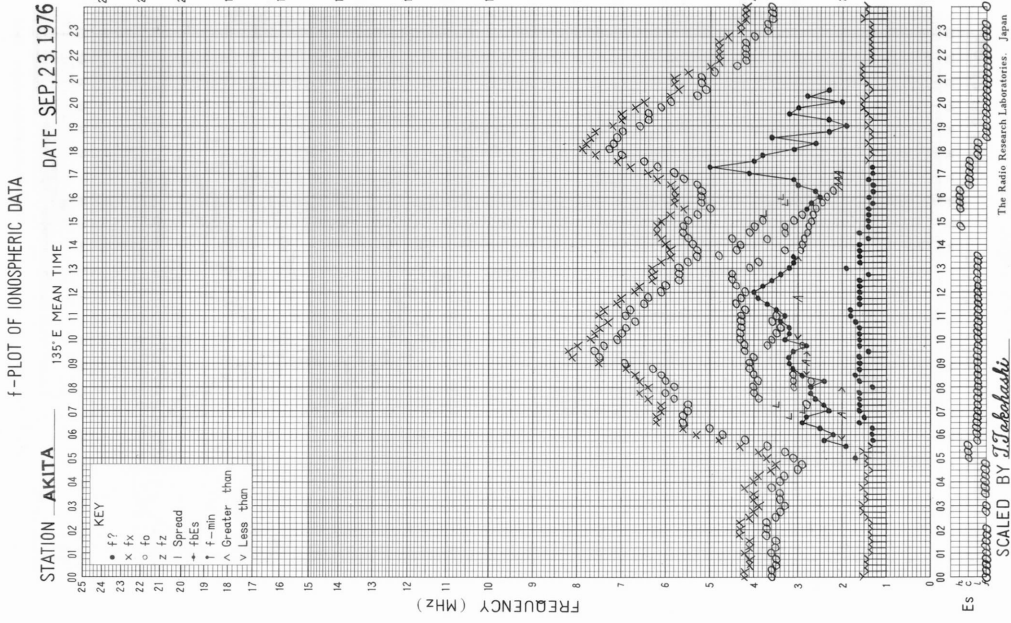


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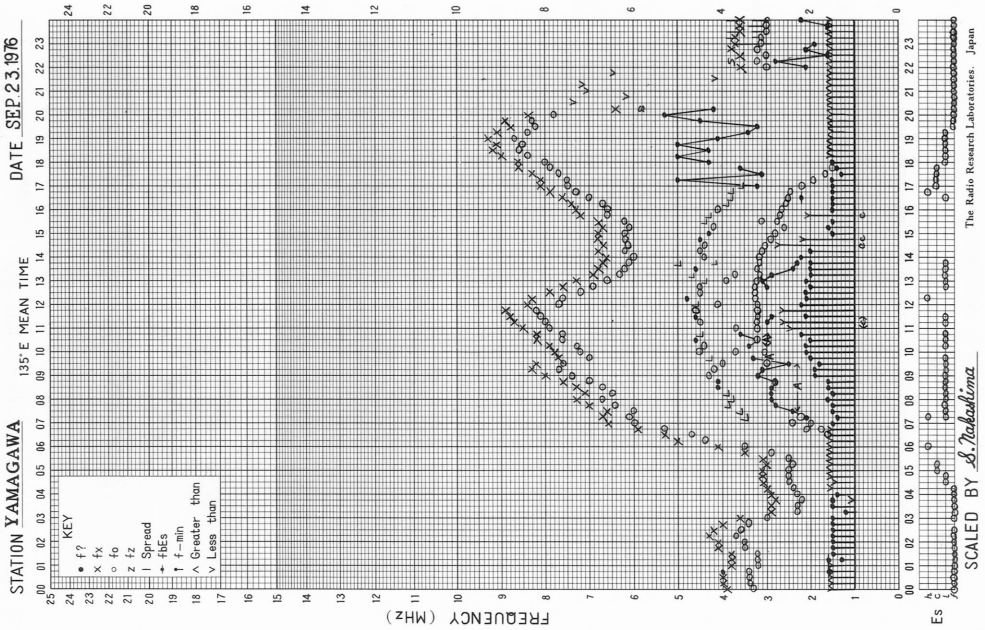


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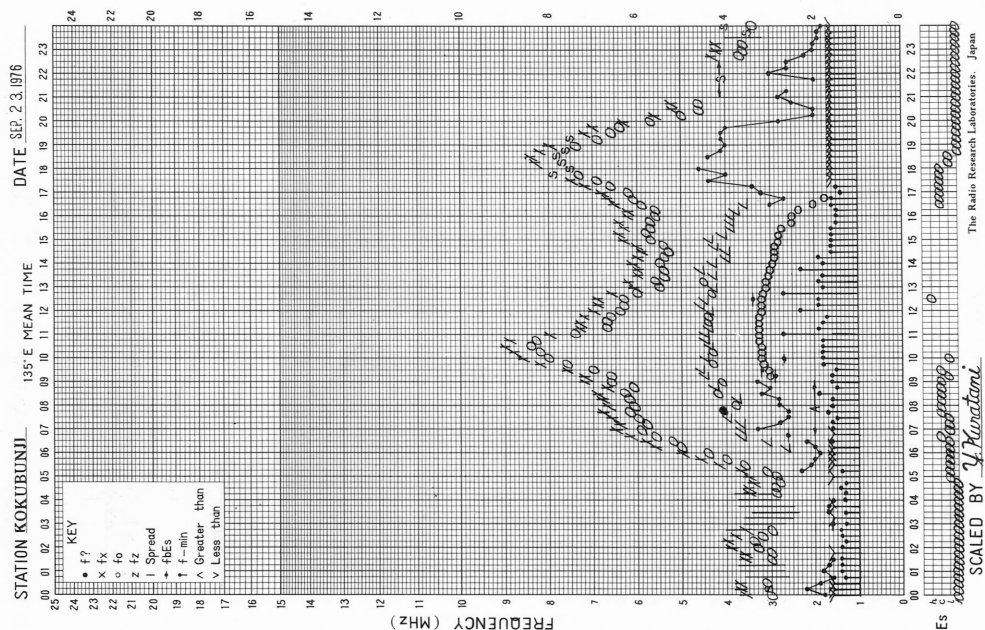


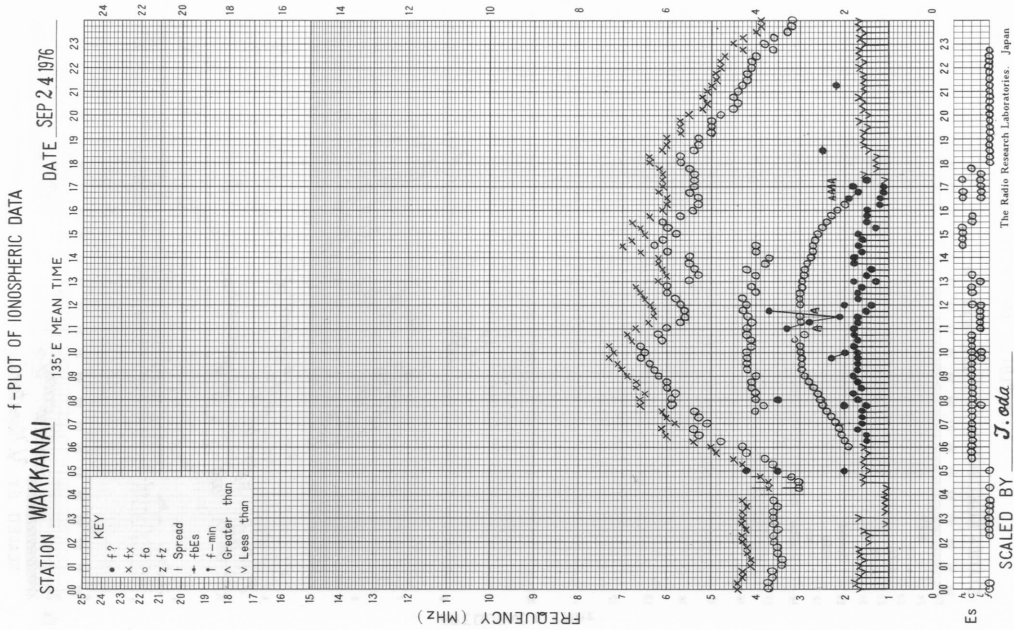
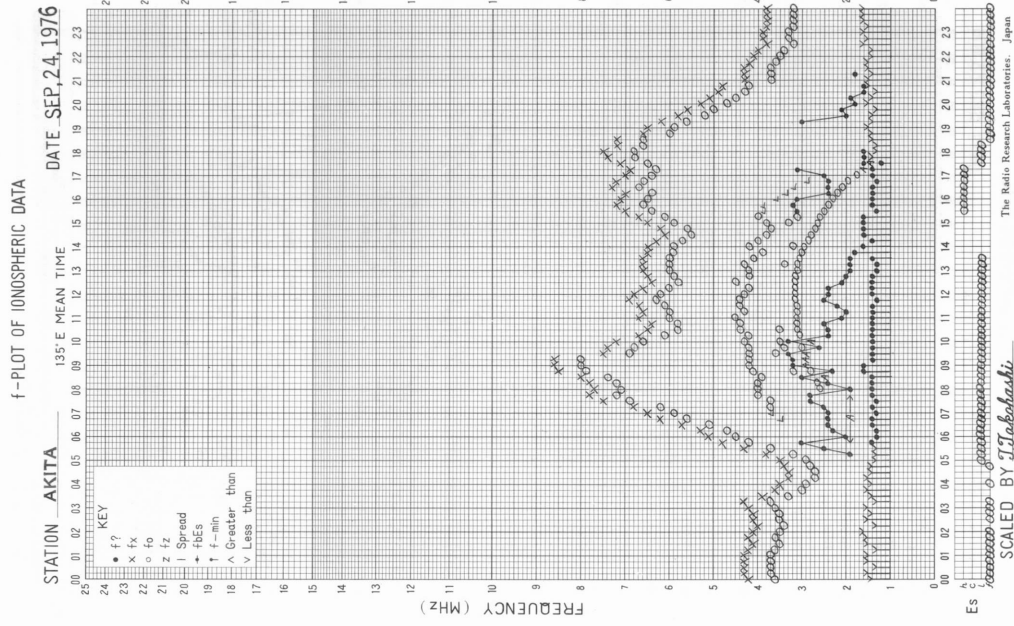


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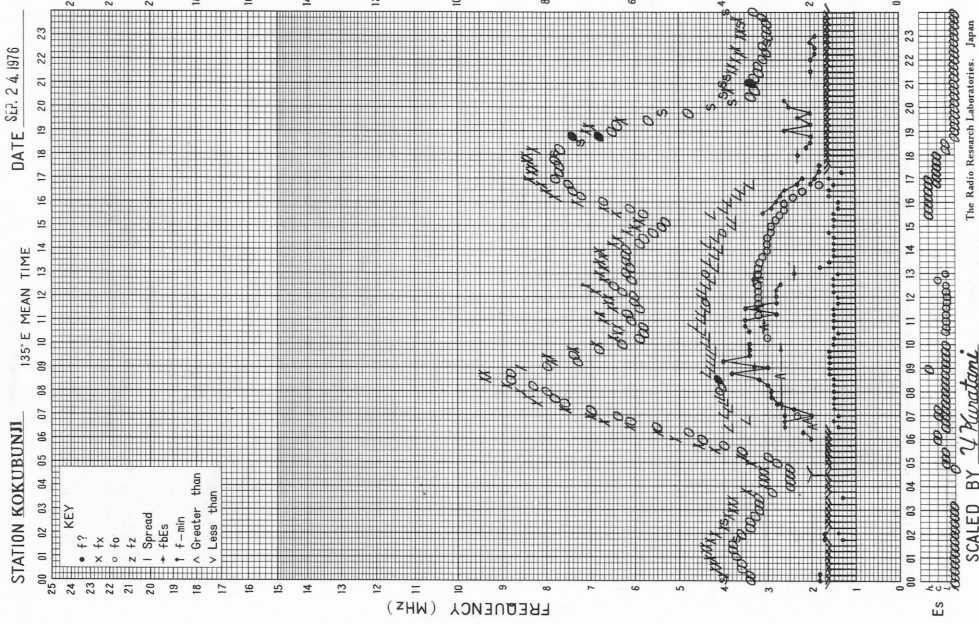


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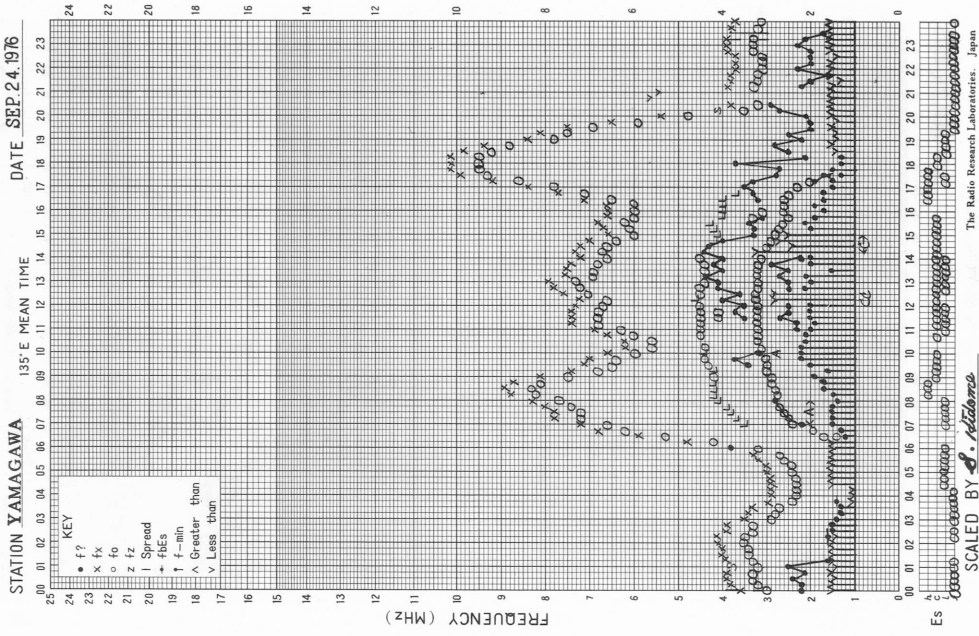




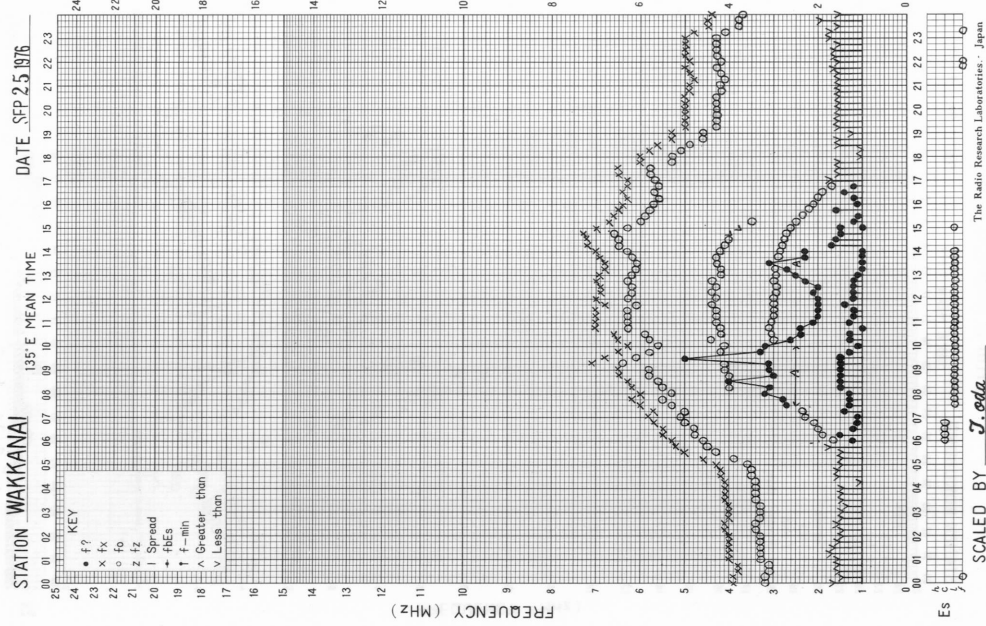
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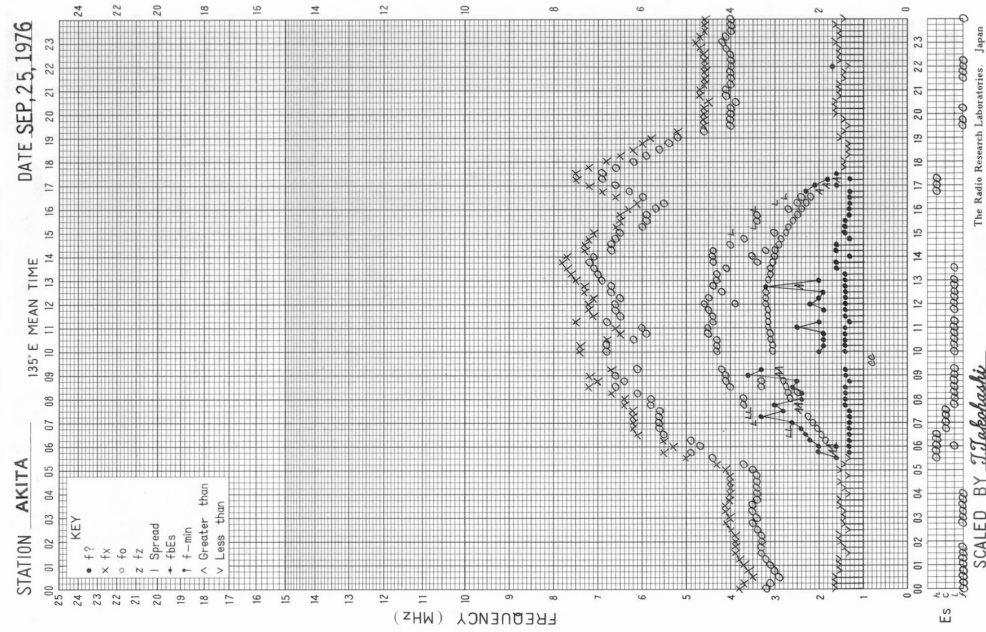
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f-PLOT OF IONOSPHERIC DATA

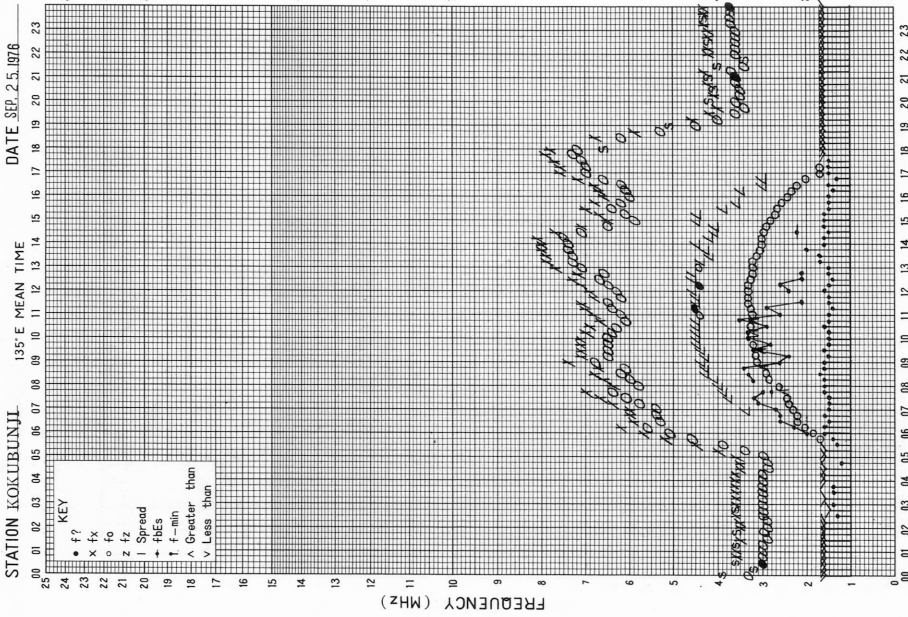


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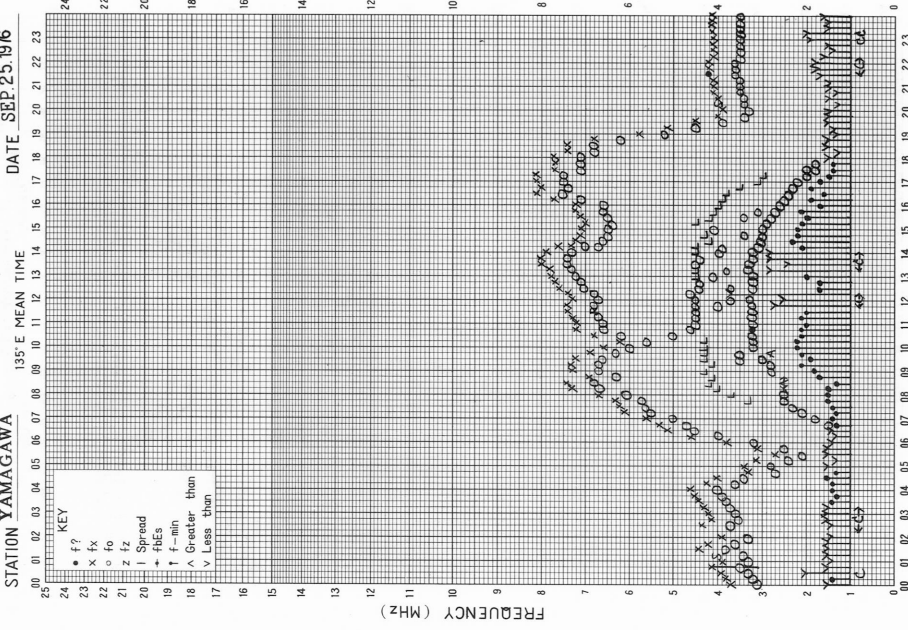
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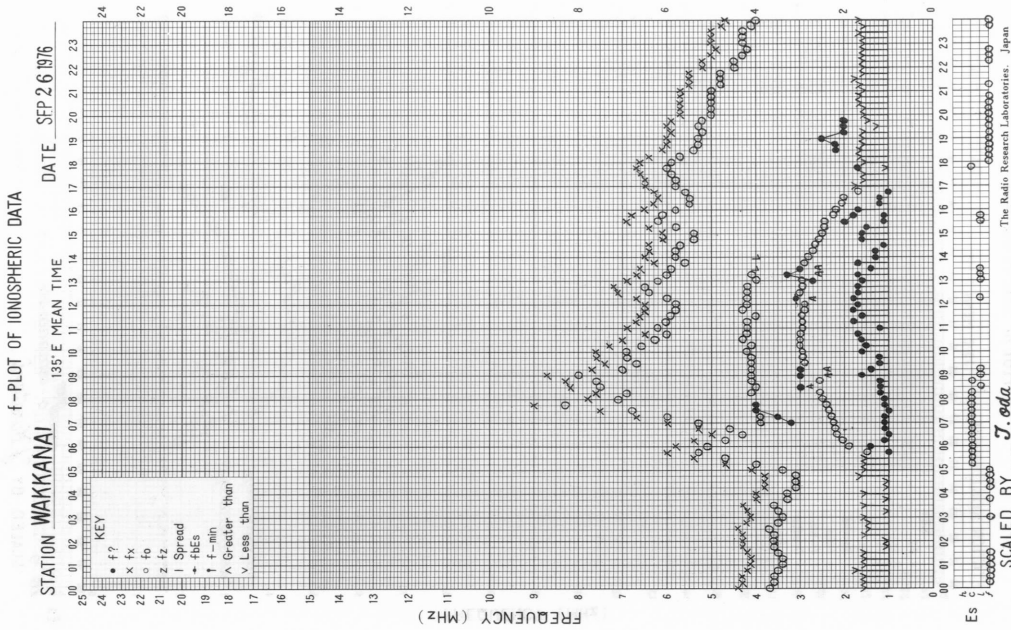
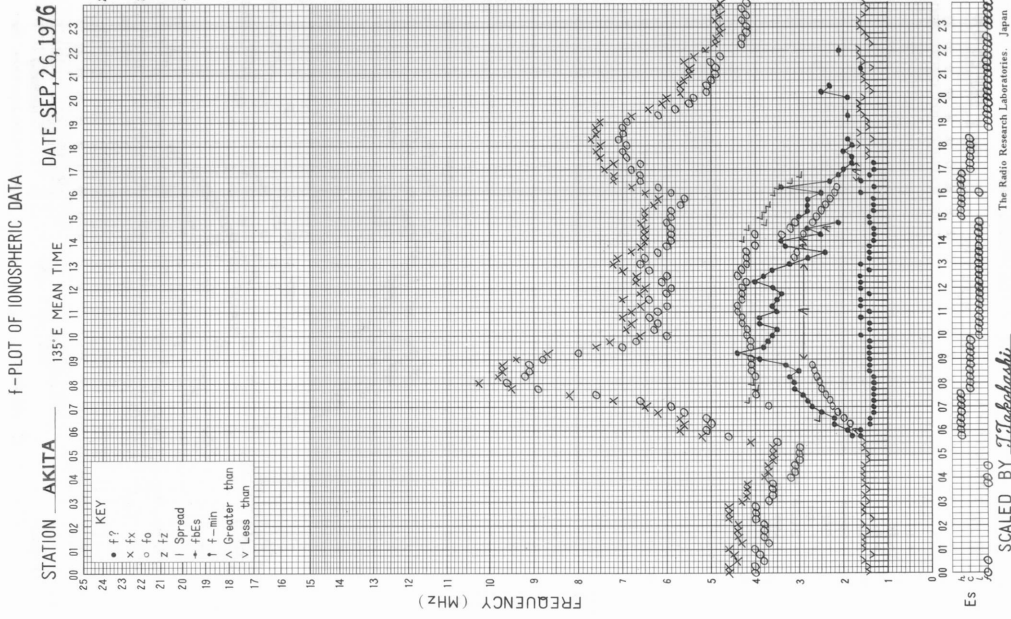
STATION KOKUBUNJI DATE SEP. 25. 1976



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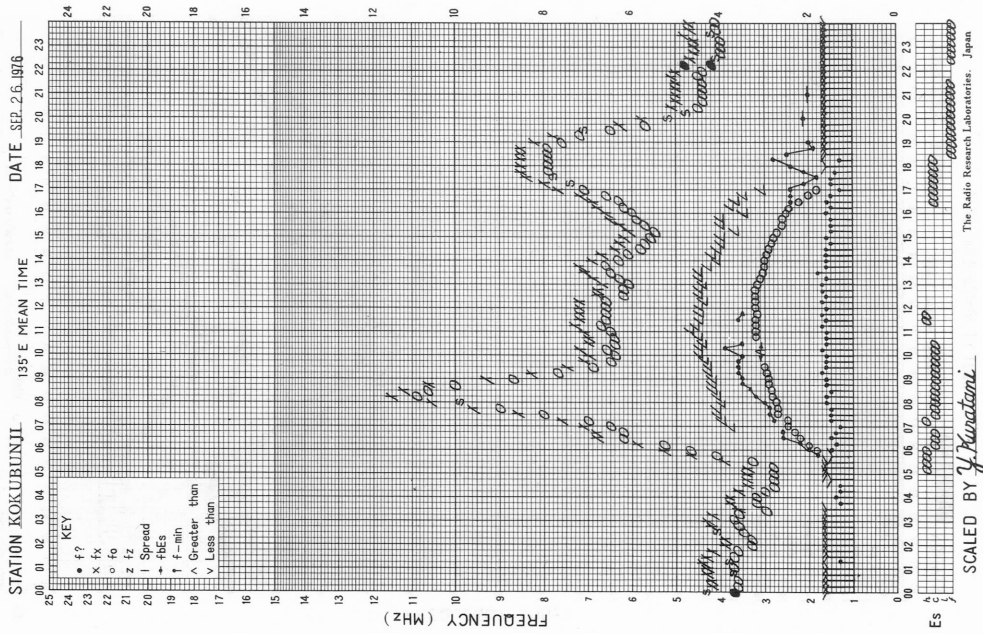
STATION YAMAGAWA DATE SEP. 25. 1976



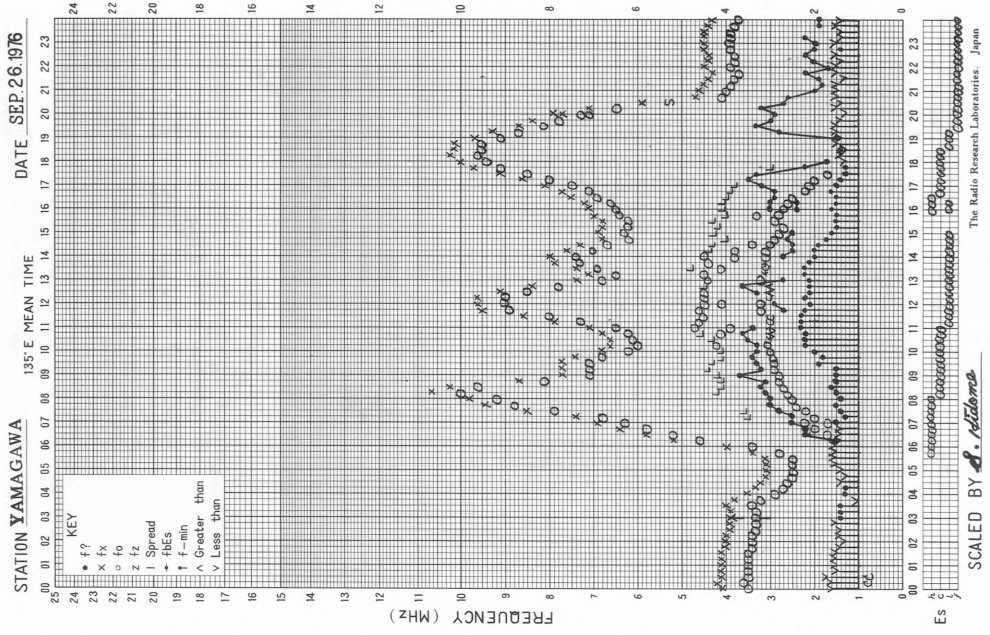


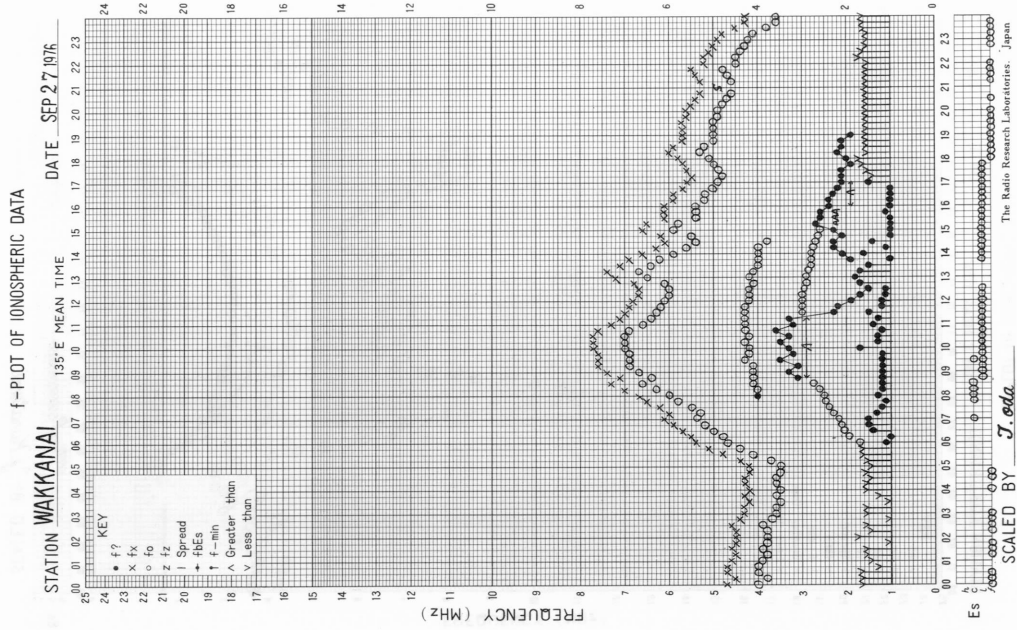
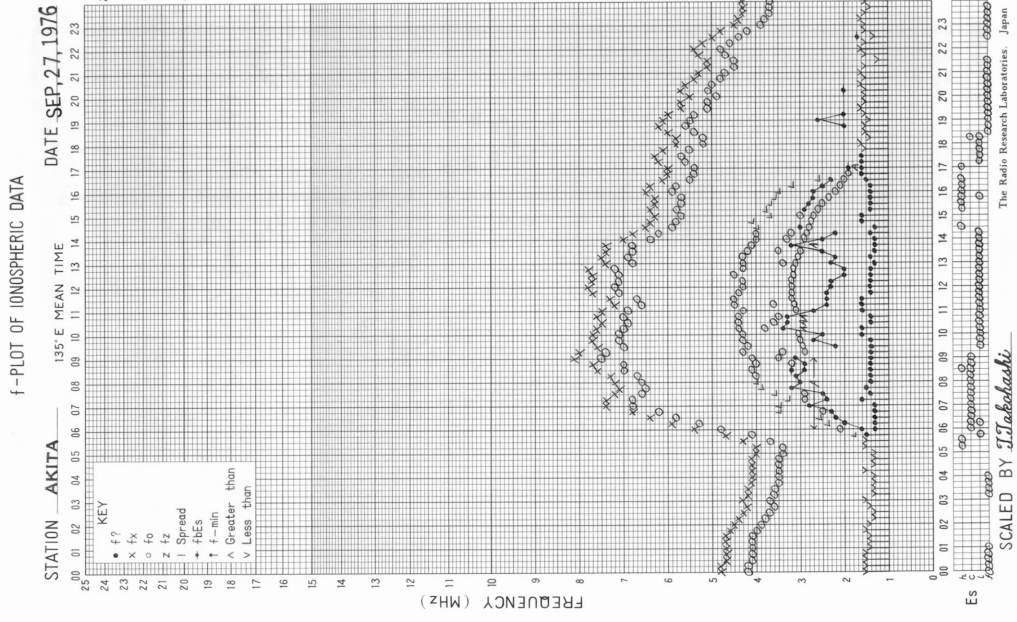


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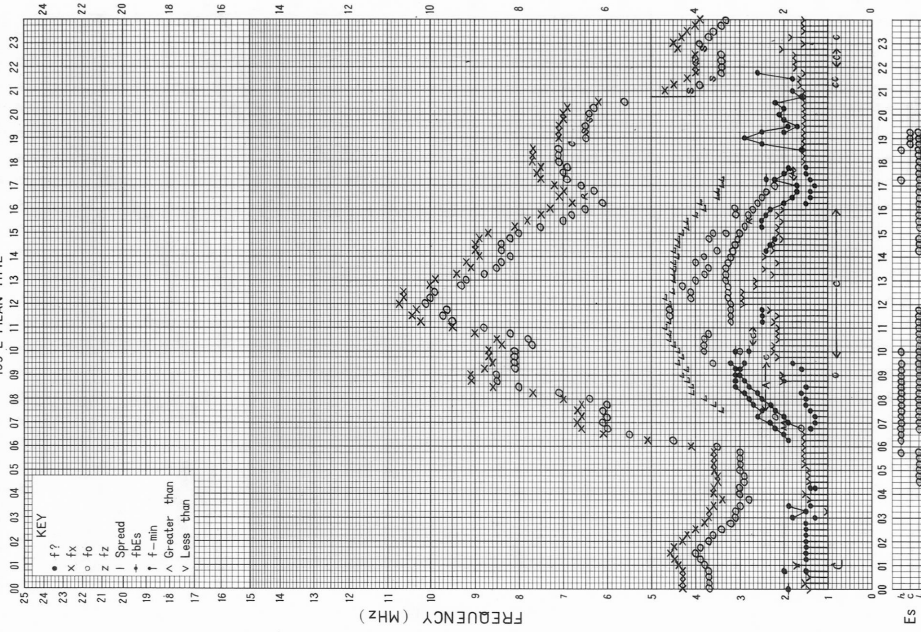
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f-PLOT OF IONOSPHERIC DATA

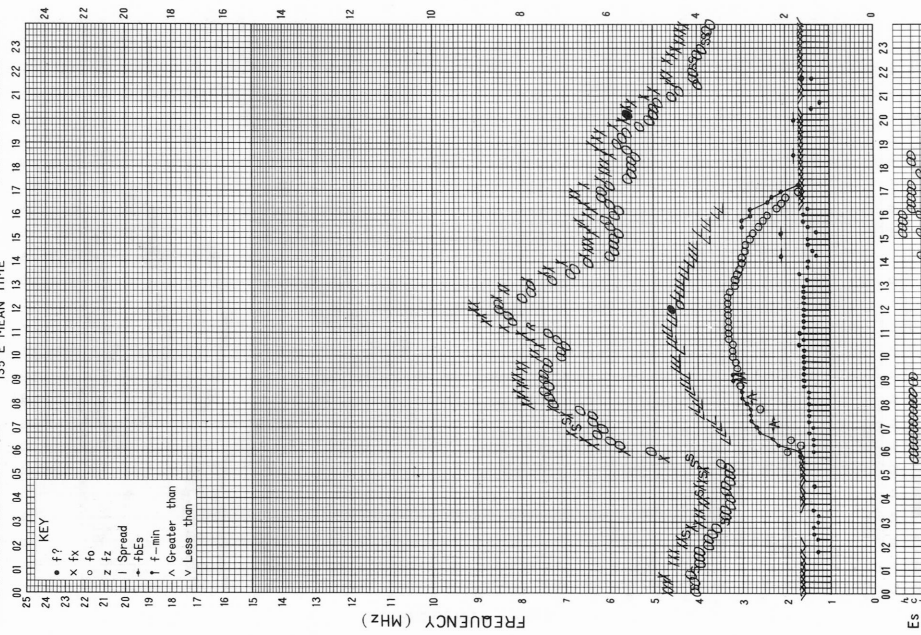
STATION **YAMAGAWA** 135° E MEAN TIME DATE **SEP. 27, 1976**



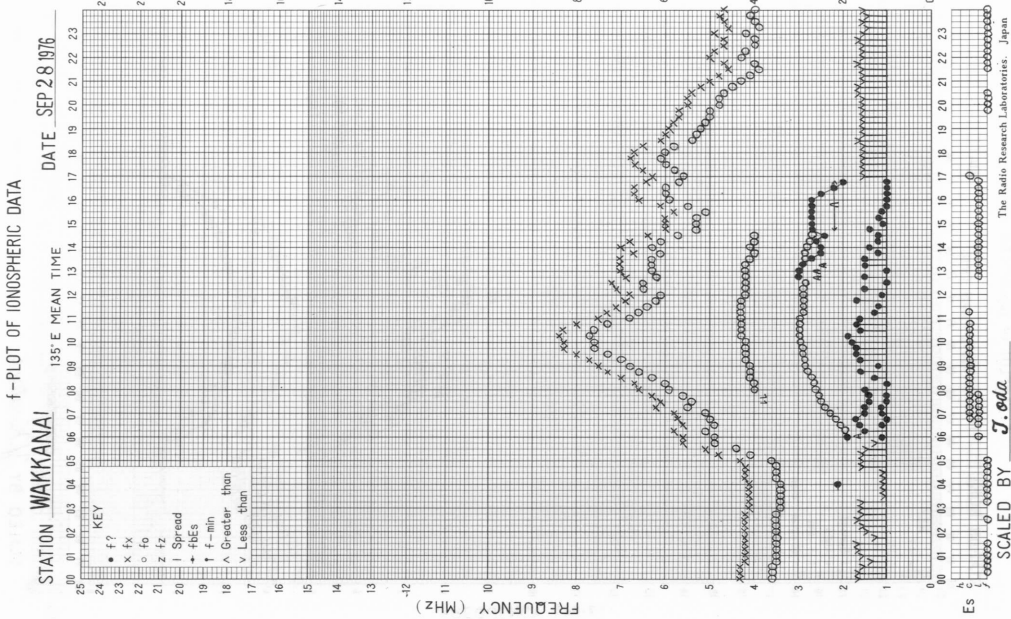
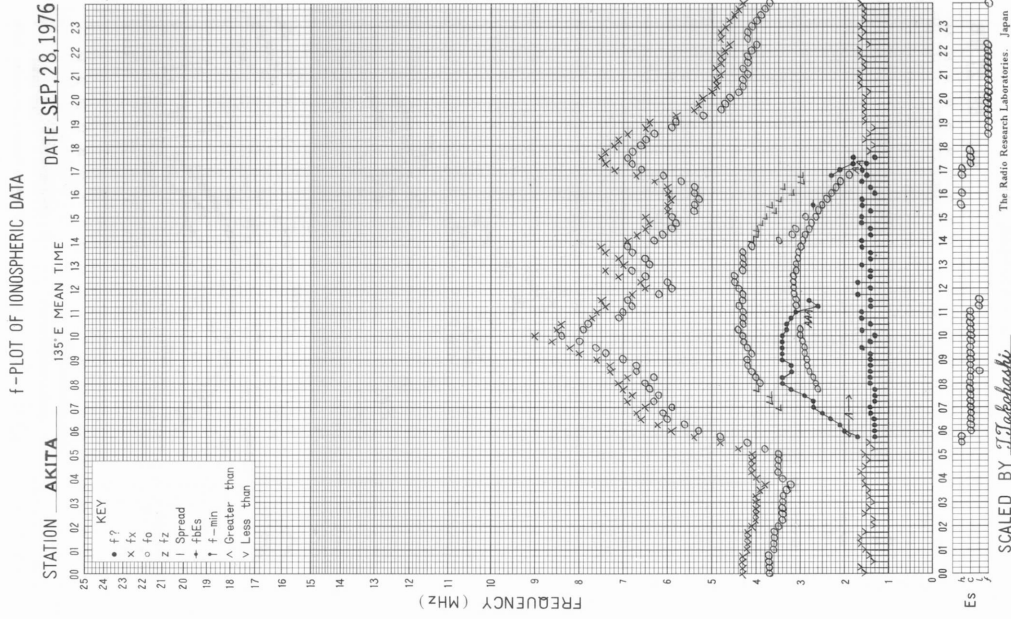
SCALED BY *T. Sakamoto*  
The Radio Research Laboratories, Japan

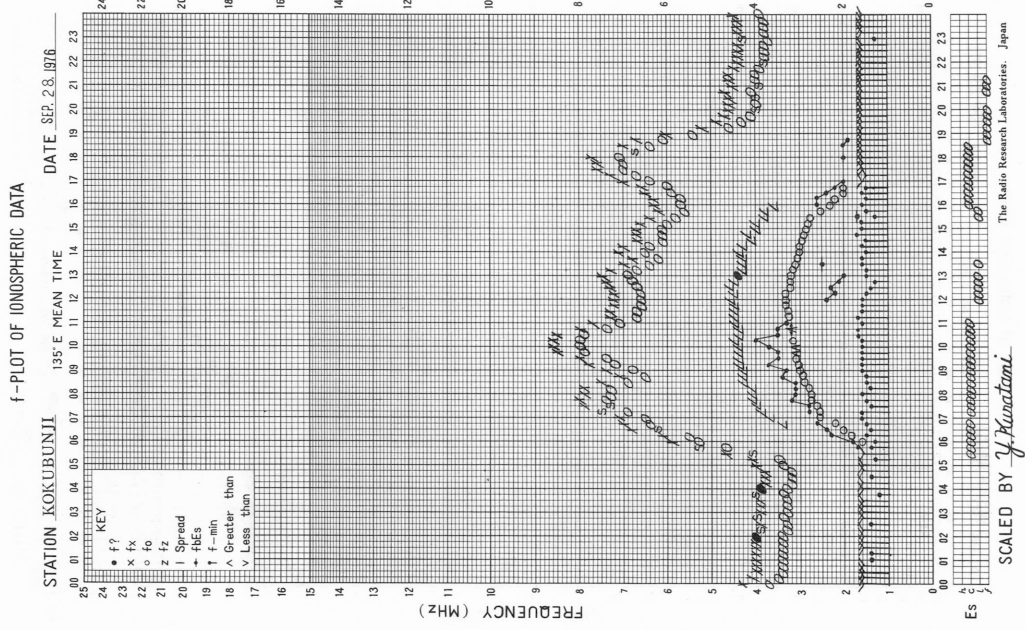
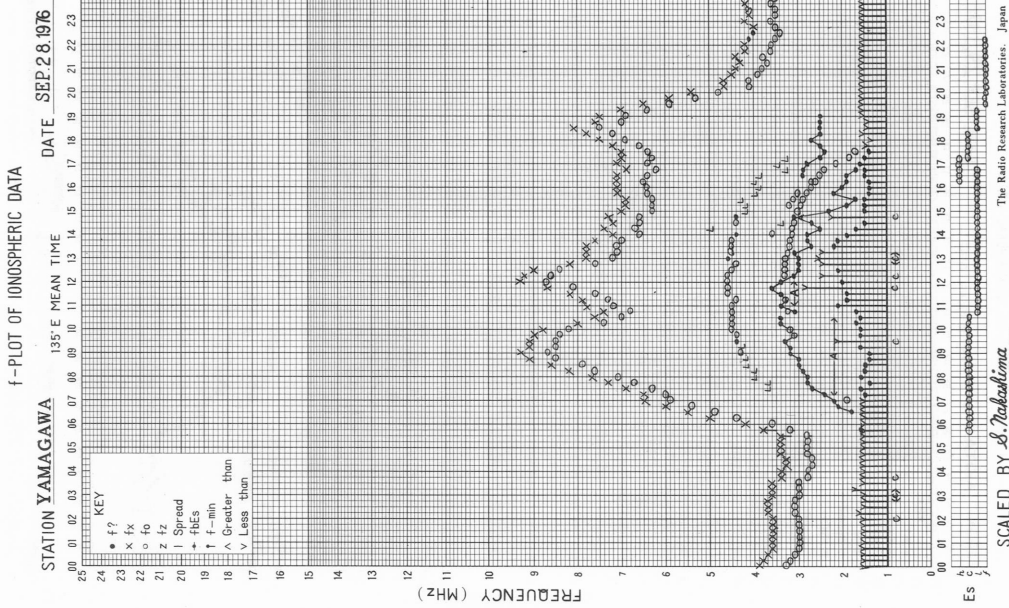
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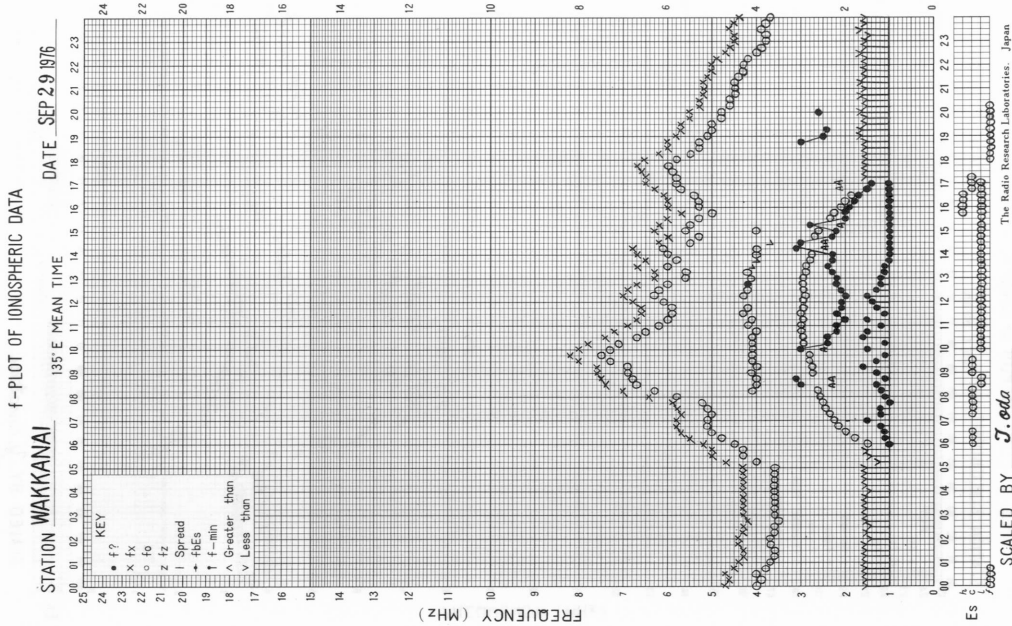
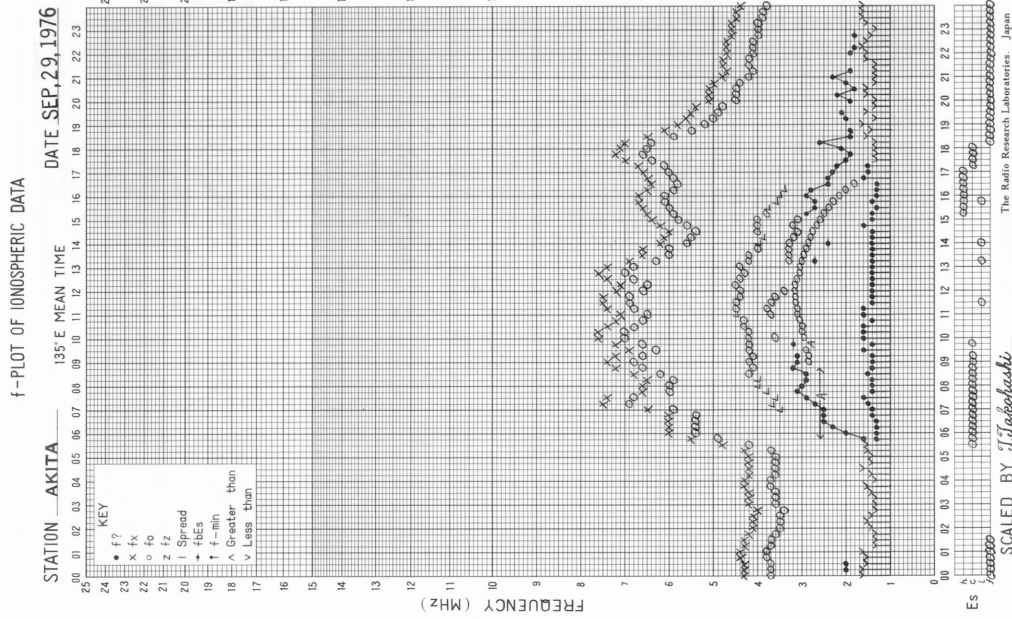
STATION **KOKUBUNJI** 135° E MEAN TIME DATE **SEP. 27, 1976**

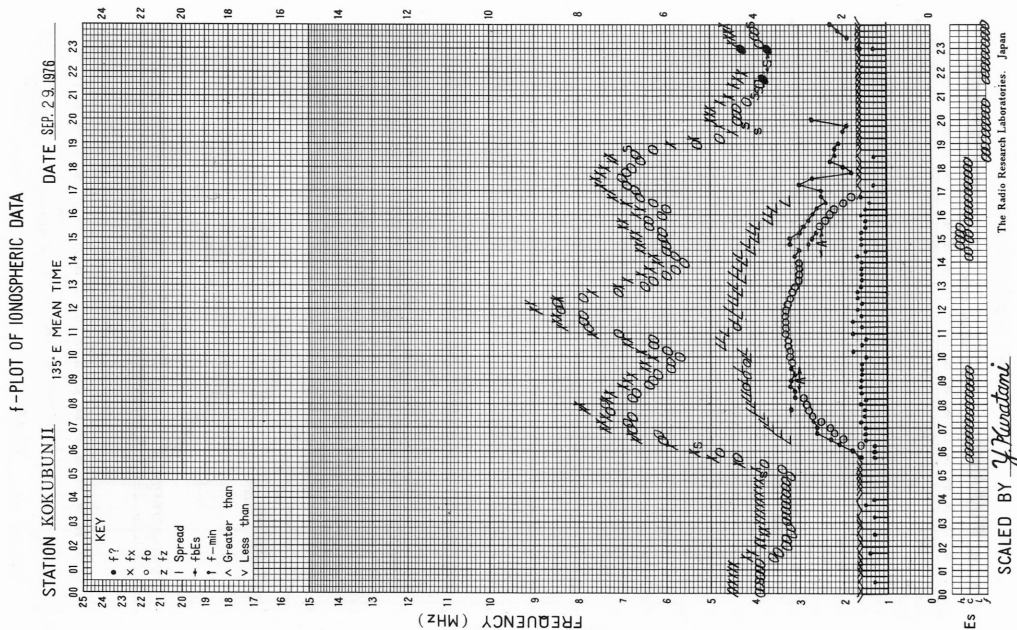
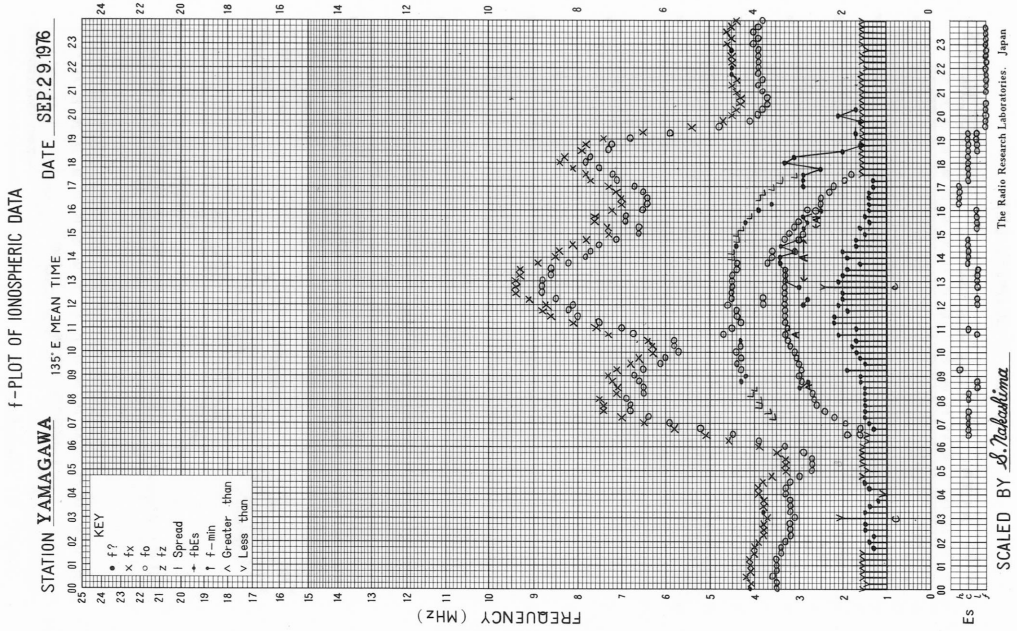


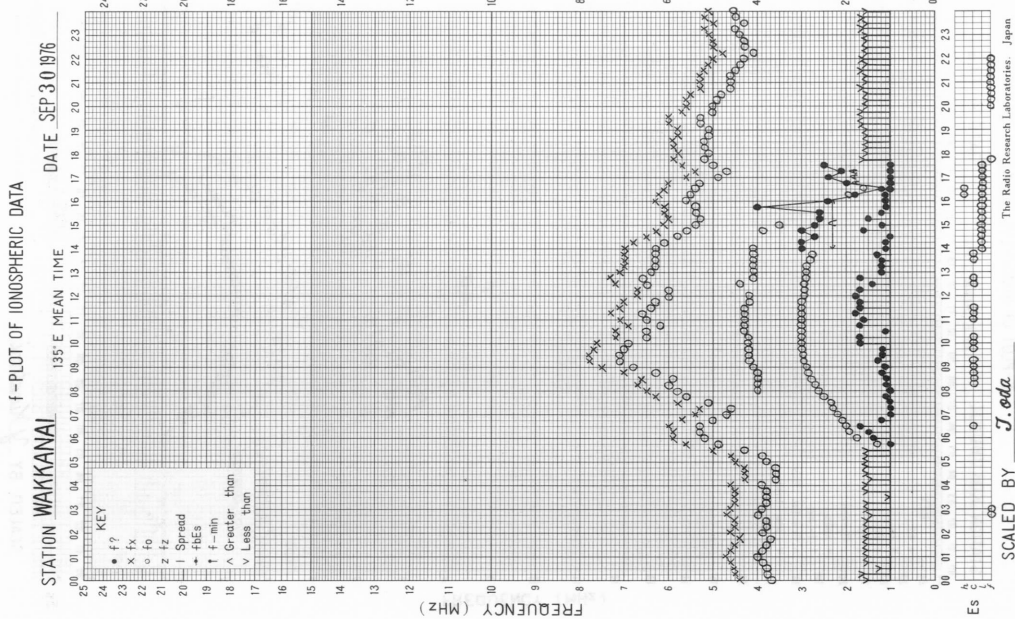
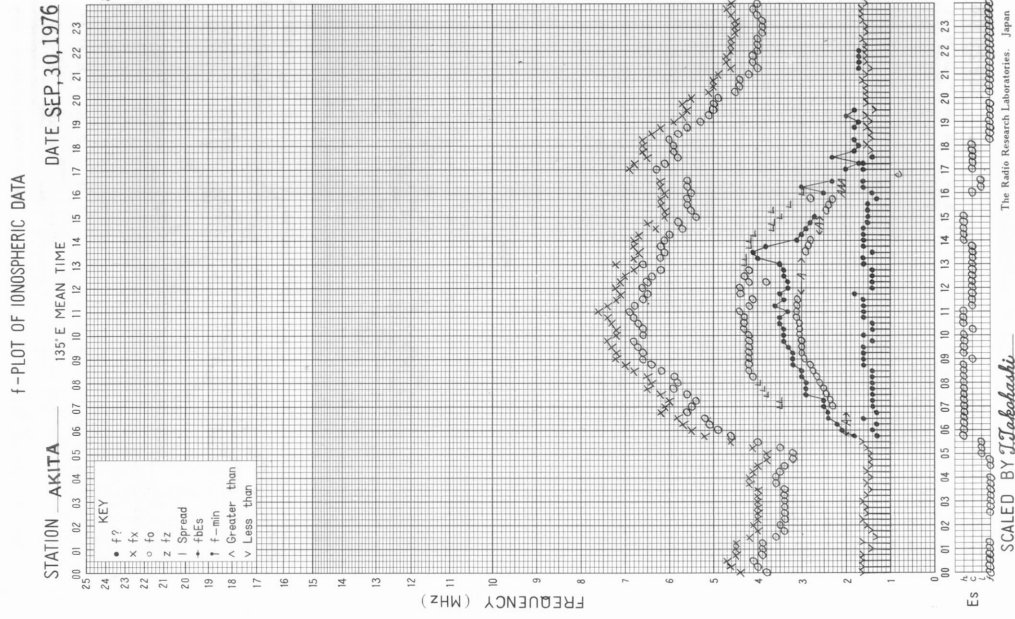
SCALED BY *Y. Kawatani*  
The Radio Research Laboratories, Japan







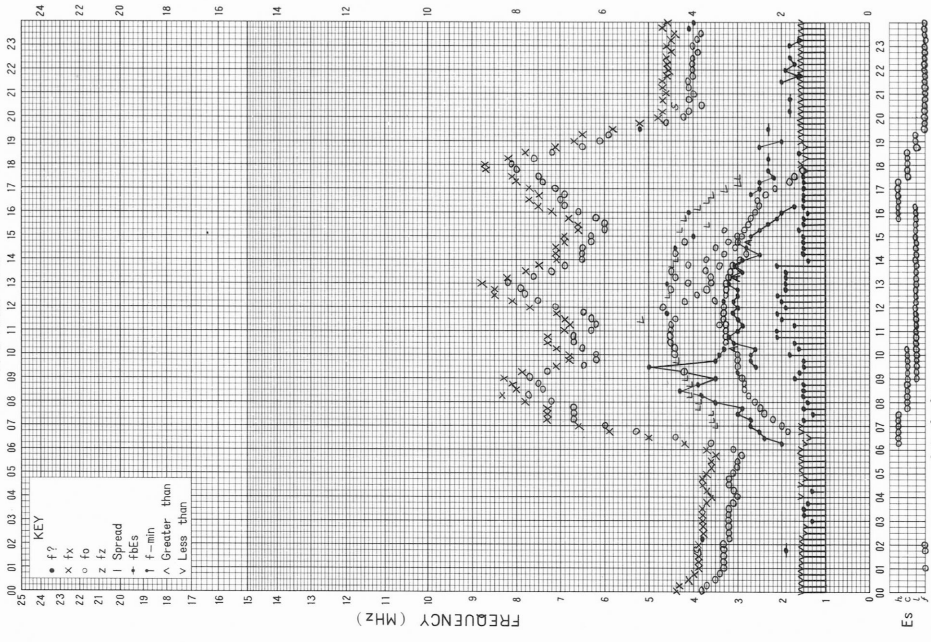






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STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 30. 1976

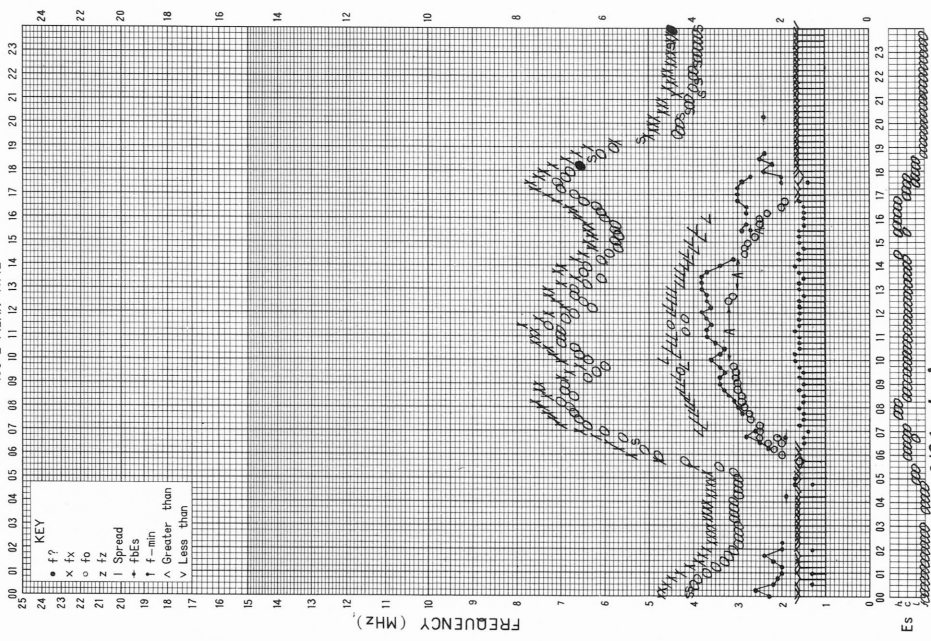


SCALED BY S. Tachibana

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 30. 1976



SCALED BY Y. Kawatani

The Radio Research Laboratories, Japan

## SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

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

September 1976

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

Note No observations during the following periods:

8th 2030 - 2345

27th 0500 - 0615

q: likely quiet.

\*: interference.

## SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

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

September 1976

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

Note No observations during the following periods:

24th 0515 - 0545

## SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

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

September 1976

| Outstanding Occurrences<br>(single-frequency observations) |              |        |                     |                          |            |              |              |                                     |
|--|--------------|--------|---------------------|--------------------------|------------|--------------|--------------|-------------------------------------|
| Normal observing period: 2030 - 0825 (sunrise to sunset)   |              |        |                     |                          |            |              |              |                                     |
| SEP<br>1976  | FREQ STATION | TYPE   | START<br>TIME<br>UT | TIME OF<br>MAXIMUM<br>UT | DUR<br>MIN | FLUX DENSITY |              | POLARIZATION<br>POSITION<br>REMARKS |
|  |              |        |                     |                          |            | PEAK         | MEAN         |                                     |
| 1  | 200 HIRA     | 45 C   | 0718.0              | 0723.0                   | 28.0       | 100          | 60           | WL, 1st peak                        |
|  |              |        |                     | 0731.8                   |            | 310          |              | WL, 2nd peak                        |
|  | 500          | 45 C   | 0718.1              | 0720.1                   | 60         | 30           | 60           | ML, 1st peak                        |
|  |              |        |                     | 0728.6                   |            | 37           |              | ML, 2nd peak                        |
|  |              |        |                     | 0731.7                   |            | 110          |              | WL, 3rd peak                        |
|  |              |        |                     | 0736.8                   |            | 50           |              | ML, 4th peak                        |
|  |              |        |                     | 0744.5                   |            | 25           |              | ML, 5th peak                        |
|  | 100          | 45 C   | 0727.7              | 0731.7                   | 15.5       | 85           | 35           | WL                                  |
|  | 200          | 44 NS  | 2010E               | 0319                     | 770D       | 27           | 5            | SL                                  |
|  | 500          | 28 PRE | 2241.3              | 2242.0                   | 3.5        | 3            | 2            | WR                                  |
|  | 200          | 45 C   | 2244.0              | 2245.5                   | 4.0        | 100          | 30           | ML                                  |
|  | 500          | 45 C   | 2244.8              | 2245.5                   | 4.0        | 100          | 30           | ML                                  |
|  | 3            | 200    | 45 C                | 0142.7                   | 2245.8     | 21           | 26           | 10                                  |
| 2252.7   |              |        |                     |                          | 24         |              | MR, 2nd peak |                                     |
| 100  |              | 45 C   | 0142.8              | 0143.0                   | 1.0        | 500          | 180          | WL                                  |
| 200  |              | 45 C   | 0245.5              | 0245.6                   | 0.3        | 380          | 120          | WL                                  |
| 100  |              | 45 C   | 0245.5              | 0245.7                   | 0.5        | 490          | 250          | WL                                  |
| 500  |              | 45 C   | 0559.6              | 0602.3                   | 31         | 23           | 3            | 0                                   |
| 200  |              | 45 C   | 0824.0              | 0824.8                   | 1.5        | 170          | 20           | WL                                  |
| 100  |              | 45 C   | 0824.0              | 0825.0                   | 1.5        | 200          | 50           | ML                                  |
| 200  |              | 45 C   | 0827.3              | 0828.2                   | 2.7        | 580          | 130          | WL                                  |
| 100  |              | 45 C   | 0827.5              | 0828.5                   | 2.8        | 600          | 150          | ML                                  |
| 200  |              | 45 C   | 0832.0              | 0833.1                   | 3.0        | 180          | 50           | WL                                  |
| 100  |              | 45 C   | 0832.0              | 0833.3                   | 3.0        | 350          | 100          | ML                                  |
| 200  |              | 44 NS  | 2010E               | 2035                     | 410D       | 27           | 2            | SL                                  |
| 4  | 100          | 45 C   | 0214.7              | 0215.4                   | 1.5        | 400          | 70           | WL                                  |
|  | 100          | 43 NS  | 0700                | 0835                     | 120D       | 120          | 40           | SL                                  |
| 5  | 200          | 43 NS  | 0715                | 0747                     | 100D       | 27           | 7            | SL                                  |
|  | 100          | 45 C   | 0145.5              | 0146.6                   | 2.5        | 200          | 60           | ML                                  |
| 6  | 200          | 45 C   | 0145.5              | 0146.8                   | 2.5        | 300          | 50           | SL                                  |
|  | 200          | 45 C   | 0131.0              | 0135.5                   | 8.0        | 30           | 10           | WL                                  |
| 14   | 100          | 45 C   | 0131.0              | 0136.2                   | 8.0        | 170          | 40           | WL                                  |
|  | 500          | 45 C   | 0134.0              | 0137.2U                  | 6.0        | 20           | 5            | ML                                  |
|  | 500          | 45 C   | 0750.5              | 0753.5                   | 6.0        | 500          | 150          | SLMR                                |
| 16   | 200          | 5 S    | 0041.4              | 0041.5                   | 0.5        | 140          | 80           | 0                                   |
|  | 100          | 5 S    | 0041.4              | 0041.5                   | 0.5        | 520          | 200          | WL                                  |
| 24   | 200          | 45 C   | 0602.5E             | 0603.8                   | 3.0D       | 280          | 15U          | 0                                   |
|  | 200          | 45 C   | 0757.0              | 0757.2                   | 2.8        | 110          | 15           | WL                                  |
|  | 100          | 45 C   | 0757.0              | 0757.6                   | 2.0        | 1200         | 500          | WL                                  |
|  | 200          | 45 C   | 0436.5              | 0437.0                   | 1.0        | 90           | 25           | WL                                  |





RADIO PROPAGATION

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

| Sep.<br>1976 | Whole<br>Day<br>Figure | W W V |    |    |    | W W V H |    |    |    | Comdition |    |    |    | Principal<br>Geomagnetic Storms |      |       |
|--------------|------------------------|-------|----|----|----|---------|----|----|----|-----------|----|----|----|---------------------------------|------|-------|
|              |                        | 00    | 06 | 12 | 18 | 00      | 06 | 12 | 18 | 00        | 06 | 12 | 18 | Start                           | End  | Range |
|              |                        | 06    | 12 | 18 | 24 | 06      | 12 | 18 | 24 | 06        | 12 | 18 | 24 |                                 |      |       |
| 1            | 4o                     | 4U    | S  | S  | 3  | 4       | 4U | 5U | 4  | N         | N  | N  | N  |                                 |      |       |
| 2            | 4-                     | 3U    | S  | S  | 3U | 4       | 5U | S  | 4  | N         | U  | U  | U  |                                 |      |       |
| 3            | 4o                     | 3U    | S  | S  | 4  | 4       | 5U | S  | 4  | U         | U  | U  | U  |                                 |      |       |
| 4            | 4+                     | 4U    | S  | S  | 4  | 4       | 5U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 5            | 4-                     | 4U    | S  | S  | 4  | 4       | 3  | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 6            | 3+                     | 4U    | S  | S  | 3  | 4       | 4U | S  | 3  | N         | N  | N  | N  |                                 |      |       |
| 7            | 3+                     | 2U    | S  | S  | 4  | 4       | 4U | S  | 3  | N         | N  | N  | N  |                                 |      |       |
| 8            | 4-                     | 4U    | S  | S  | 4  | 3U      | 4U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 9            | 3+                     | 3U    | S  | S  | 3U | 3U      | 4U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 10           | 4-                     | 4U    | S  | S  | 3  | 4       | 5U | S  | 3  | N         | N  | N  | N  |                                 |      |       |
| 11           | 4-                     | 3U    | S  | S  | 3U | 4       | 5U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 12           | 4o                     | 5U    | S  | S  | 4U | 4       | 3U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 13           | 4o                     | 4U    | S  | S  | 4  | 4       | 4U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 14           | 4o                     | 4U    | S  | S  | 5  | 4       | 3U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 15           | 4+                     | 4U    | S  | S  | 5  | 4       | 4U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 16           | 4-                     | 3U    | S  | S  | 5  | 4       | 3U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 17           | 4+                     | 5U    | S  | S  | 5  | 4       | 4U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 18           | 4o                     | 4U    | S  | S  | 3U | 4       | 5U | S  | 4  | N         | U  | U  | U  | 02.8                            | 20.0 | 141   |
| 19           | 3+                     | 2U    | S  | S  | 3U | 4       | 4U | S  | 4  | U         | U  | U  | U  | 04.8                            | ---  | 73    |
| 20           | 3+                     | 2U    | S  | S  | 2U | 4       | 5U | S  | 3U | U         | U  | U  | U  | ---                             | ---  |       |
| 21           | 3+                     | 2U    | S  | S  | 3U | 3U      | 4U | S  | 4  | U         | U  | U  | U  | ---                             | 22.0 |       |
| 22           | 4-                     | 3U    | S  | S  | 4  | 4       | 3U | S  | 4  | U         | U  | U  | U  |                                 |      |       |
| 23           | 4o                     | 4U    | S  | S  | 5  | 4U      | 3U | S  | 4  | U         | U  | U  | U  |                                 |      |       |
| 24           | 4-                     | 4U    | S  | S  | 4  | 4U      | 2U | S  | 4  | U         | N  | N  | N  |                                 |      |       |
| 25           | 4-                     | 4U    | S  | S  | 3U | 4       | 3U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 26           | 4-                     | 2U    | S  | S  | 5  | 4       | 4  | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 27           | 4-                     | 4U    | S  | S  | 4  | 4       | 3U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 28           | 4o                     | 4U    | S  | S  | 5  | 4       | 3U | S  | 4  | N         | N  | N  | N  |                                 |      |       |
| 29           | 4+                     | 5U    | S  | C  | C  | 4       | 4U | C  | 4  | N         | N  | N  | N  |                                 |      |       |
| 30           | 4+                     | 4U    | S  | S  | 5  | 4       | 4U | 5U | 4  | N         | N  | N  | N  |                                 |      |       |

RADIO PROPAGATION

SUDDEN IONOSPHERIC DISTURBANCE

HIRAIISO

No Sudden Ionospheric Disturbance was observed during September, 1976



RADIO PROPAGATION  
Sudden Ionospheric Disturbance (SPA)

I N U B O

| Sep.<br>1976 | S P A                   |     |     |     |     |     |           |           |             |      |         |
|--------------|-------------------------|-----|-----|-----|-----|-----|-----------|-----------|-------------|------|---------|
|              | Phase Advance (degrees) |     |     |     |     |     |           |           | Time (U.T.) |      |         |
| Date         | GBR                     | NAA | NPG | NWC | AL3 | ND3 | HA3       | RE3       | Start       | End  | Maximum |
| 1            |                         | —   | 21  | 20  |     |     | <u>31</u> |           | 2244        | 0030 | 2306    |
| 3            |                         | —   |     | 22  |     |     |           | <u>25</u> | 0604        | 0712 | 0621    |
| 3            |                         | —   |     |     |     |     |           | 21        | 0910        | 0948 | 0916    |
| 3            |                         | —   | 8   | 12  |     |     | <u>13</u> |           | 2334        | 0035 | 2355    |
| 6            |                         | —   | 5   | 15  |     |     | 7         | —         | 0134        | 0221 | 0143    |

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IONOSPHERIC DATA IN JAPAN FOR SEPTEMBER 1976

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