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# IONOSPHERIC DATA IN JAPAN

FOR MAY 1958

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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## SITES OF THE RADIO WAVE OBSERVATORIES

Ionospheric observation is carried out at the following four observatories in Japan.

|           | Latitude   | Longitude   | Site   |
|-----------|------------|-------------|--|
| Wakkanai  | 45°23.6'N. | 141°41.1'E. | Wakkanai-shi, Hokkaido                       |
| Akita     | 39°43.5'N. | 140°03.2'E. | Tegata Nishishin-machi, Akita-shi, Akita-ken |
| Kokubunji | 35°42.4'N. | 139°29.3'E. | Koganei-machi, Kitatama-gun, Tokyo-to        |
| Yamagawa  | 31°12.5'N. | 130°37.7'E. | Yamagawa-machi, Ibusuki-gun, Kagoshima-ken   |

Solar radio emission and radio propagation conditions are observed at Hiraiso Radio Wave Observatory.

|         | Latitude   | Longitude   | Site                                       |
|---------|------------|-------------|--|
| Hiraiso | 36°22.0'N. | 140°37.5'E. | Hiraiso-machi, Nakaminato-shi, Ibaragi-ken |

## SYMBOLS AND TERMINOLOGY

### A. IONOSPHERE

All symbols and terminology in the table of ionospheric data are used in accordance with the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, September 2, 1956, and the Second Report of the Committee, May, 1957, supplementary to the First Report.

#### Terminology

|             |   |
|-------------|---|
| $f_oF2$     | } The ordinary-wave critical frequency for the $F2$ , $F1$ and $E$ layers respectively.   |
| $f_oF1$     |   |
| $f_oE$      |   |
| $f_oE_s$    | The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.  |
| $f_hE_s$    | The ordinary wave frequency at which the highest blanketing $E_s$ layer becomes effectively transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.  |
| $f$ -min    | That frequency below which no echoes are observed.  |
| $(M3000)F2$ | The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.   |
| $(M3000)F1$ | The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.   |
| $h'F2$      | The minimum virtual height, $h'F2$ , refers to the highest, most stable stratification observed in the $F$ region and can only be scaled when such stratification is present.   |
| $h'F$       | The natural and most significant $F$ region virtual height parameter is that for lowest $F$ region stratification. This will be denoted by $h'F$ . Thus $h'F$ is identical with the current $h'F2$ when $F$ region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present. |

|         |   |
|---------|---|
| $h'E_s$ | The lowest virtual height of the trace used to give the $f_0E_s$ .  |
| $hpF2$  | The virtual height of the $F2$ layer measured on the ordinary-wave branch at a frequency equal to $0.834 f_0F2$ .   |
| $ypF2$  | The semi-thickness of the $F2$ layer deduced from a parabolic fit to the "nose" of the electron density distribution with height and based on the observed $h'f$ trace. (The difference between $hpF2$ and the virtual height at $0.969 f_0F2$ ). |

**a. Descriptive Symbols**

Used following the numerical value on 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. Used in a qualifying sense, see below. |
| E | Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below. |
| F | Measurement influenced by, or impossible because of, the presence of spread echoes.  |
| G | Measurement influenced or impossible because the ionization density is too small compared with that of a lower thick layer.                |
| H | Measurement influenced by, or impossible because of, the presence of a stratification.   |
| L | Measurement influenced by or impossible because the trace has no sufficiently definite cusp between layers.                                |
| M | Measurement questionable because the ordinary and extraordinary components are not distinguishable.  |
| N | Conditions are such that the measurement cannot readily be interpreted, for example, in the presence of oblique echoes.                    |
| O | Measurement refers to the ordinary component.  |
| R | Measurement influenced by, or impossible because of, absorption in the vicinity of a critical frequency.                                   |
| S | Measurement influenced by, or impossible because of, interference or atmospherics.   |
| 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 | Intermittent trace.  |
| Z | Third magneto-ionic component present.   |

**b. Qualifying Symbols**

Used as a preceding symbol on monthly tabulation sheets.

|   |  |
|---|--|
| D | <i>greater than.....</i>   |
| E | <i>less than.....</i>  |
| I | Missing value has been replaced by an interpolated value.  |
| J | Ordinary component characteristic deduced from the extraordinary component.                            |
| 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 magnetoionic component.   |

**c. Description of Standard Types of  $E_s$**

The nine standard types of  $E_s$  are identified by small (lower case) letters: *l, c, h, q, r, a, s, f, n*. These letters are suggestive of the names low, cusp, high, equatorial, retardation, auroral, slant, flat and unclassified, respectively; it is strongly emphasized that these names are suggestive, not restrictive. The standard types are:

- l* A flat  $E_s$  trace at or below the normal  $E$  layer minimum virtual height. Use in daytime only.
- c* An  $E_s$  trace showing a relatively symmetrical cusp at or below  $f_0E$ . This is usually continuous with the normal  $E$  trace though, when the deviative absorption is large, part or all of the cusp may be missing. Use in daytime only.
- h* An  $E_s$  trace showing a discontinuity *in height* with the normal  $E$  layer trace at or above  $f_0E$ . 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. Use in daytime only.
- q* An  $E_s$  trace which is diffuse and non-blanketing over a wide frequency range. The spread is most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)
- r* An  $E_s$  trace which is non-blanketing over part or all of its frequency range showing an increase in virtual height at the high frequency end similar to group retardation. This is distinguished at present from true group retardation (a blanketing thick layer included in the  $E$  layer tables:  $f_0E, h'E$ ) by the lack of group retardation in the  $F$  traces at corresponding frequencies.
- a* An  $E_s$  pattern having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These sometimes exceed over several hundred kilometers of virtual height.
- s* A diffuse  $E_s$  trace which rises steadily with frequency. This usually emerges from another  $E_s$  trace which should be classified separately. At high latitudes the slant trace usually starts to rise from a horizontal  $E_s$  trace, *l, h* or *f*, at frequencies which greatly exceed the  $E$  layer critical frequency (e.g. about 6 Mc/s) whereas at low latitudes it usually rises from equatorial type  $E_s, q$ , at frequencies near the  $E$  region critical frequency.
- f* An  $E_s$  trace which shows no appreciable increase of height with

frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat  $E_s$  traces observed in the daytime are classified according to their virtual height:  $h$  or  $l$ .

*n* An  $E$  trace which cannot be classified into one of the standard types. This must not be used for intermediate cases between any two classes. A choice should always be made whenever possible, even if it is doubtful.

**d. Multiple Reflections from  $E_s$**

When the ionogram shows the presence of multiple reflections from  $E_s$ , the number of traces seen should be recorded after the letter indicating the type.

**B. SOLAR RADIO EMISSION**

Solar radio emission is received on 200 Mc at Hiraiso Radio Wave Observatory using a 6×4 dipole broadside array and an ordinary superheterodyne receiver. The type of observation is of intensity recording of both steady flux and outstanding occurrences.

**a. Daily Data**

*Steady flux*

The mean value of recorded base level. Outstanding occurrences are to be omitted except the phenomena with duration of hours or more.

*Variability*

Variability is expressed in four grades as follows:

0 = no burst

1 = a few bursts

2 = many bursts

3 = exceptionally many bursts

Number of bursts is determined relatively in comparison with the base level. If the number of bursts be fixed, the variability is greater, when bursts are widely distributed, than in the case of being concentrated in a short period.

**b. Outstanding occurrences**

*Starting time*

When the start is not obvious, 20% rise time of smoothed flux is adopted and  $x$  is suffixed. (e.g. 0234 $x$ )

*Maximum time*

When the instantaneous maximum can not be taken, the smoothed maximum is used and  $x$  is suffixed. (e.g. 0539 $x$ )

*Time of end*

When the phenomena have ended obscurely the time of 20% of maximum smoothed flux is written.

*Type*

Outstanding emissions are classified as follows: On another point of view, the classification in the URSI Interchange code is to be added.

S : simple rise and fall of intensity

C : complex variation of intensity

A : appears to be part of general activity

D : distinct from (i.e. apparently superposed upon) the general activity

M : multiple peaks separated by relatively long period of

quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

Combined letters express one phenomenon (e.g. SD, ECD); letters joined by + express some phenomena occurring in parallel; the preceding term is more important (e.g. SD+F, SA+C).

*Maximum intensity*

Instantaneous: The highest value above the base level.

Smoothed: By multiplying the duration, the approximate total power of the phenomenon can be estimated.

### C. RADIO PROPAGATION CONDITIONS

#### a. Radio Propagation Quality Figures

Radio propagation quality figures are usually expressed on the scale that ranges from one to five as follows:

1=good

4=poor (disturbed)

2=normal

5=very poor (very disturbed)

3=rather poor (unstable)

The tabulated circuits contain WWV (frequencies 10, 15, 20 Mc broadcast from Washington, D.C.), San Francisco (commercial circuit) and WWVH (frequencies 10, 15 Mc broadcast from Hawaii), which are received at Hiraiso Radio Wave Observatory near Tokyo.

Warnings of radio propagation broadcast from JJY station are expressed in three grades:

N=normal

U=unstable

W=disturbed

The letter W expresses disturbed condition expected to be during the following 12 hours after issue. The letter U and N means also unstable or normal conditions, respectively.

Whole day radio quality indices are the weighted averages of the 6-hourly indices of WWV and S.F., with half weight given to quality grade 2 (normal). This procedure is taken to avoid the concentration of the whole day indices to grade 2.

Start- and end-time of principal geomagnetic storms closely correlated to radio propagation conditions are tabulated from observations at Kakioka.

#### b. Sudden Ionospheric Disturbances (S.I.D.)

The data of short wave fade-out (SWF) are prepared from the field intensities of 6 circuits received at Hiraiso, and are given in the tabulated form.

*Circuits and intensities*

WS.....WWV 20, 15 and 10 Mc (Washington, D.C.)

S F.....WNA-27 7.6550 Mc; WND-20 10.4925 Mc

WNC-93 13.7525 Mc; WNC-37 17.4200 Mc (San Francisco)

HA.....WWVH 15 and 10 Mc (Hawaii)

TO.....JJY 15 and 10 Mc (Tokyo)

MN.....DZM-28 14.5850 Mc (Manila)

LN.....GIJ-37 14.6702 Mc (London)

*Drop-out Intensities* (in db) are tabulated for each circuit arranged above. *Start-time, Duration, Type* and *Importance* given in the table are determined from the data of a circuit (underlined) that secured the event with the highest confidence.

**Types**

- S-SWF: sudden drop-out and gradual recovery
- Slow S-SWF: slow drop-out taking 5 to 15 minutes and gradual recovery
- G-SWF: gradual disturbance; fade irregular in both drop out and recovery

**Importances**

Degrees of SWF are derived from the *Drop-out Intensity* of the underlined circuit with some statistical consideration and classified in 9 grades from 1- (slight) to 3+ (very great) as follows:

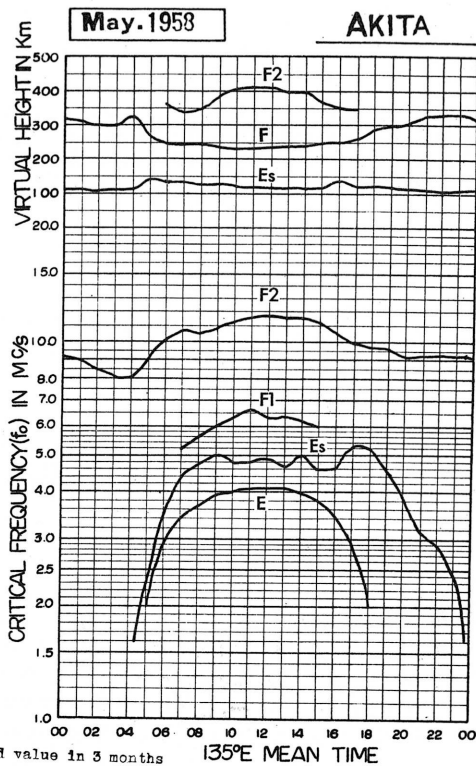
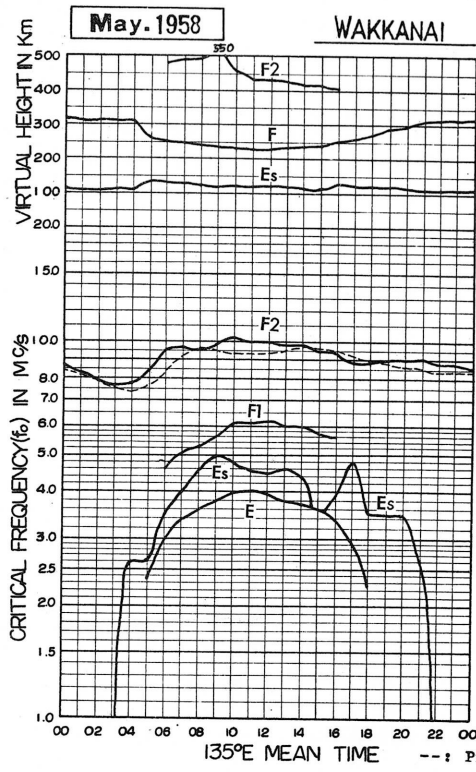
|    |    |    |
|----|----|----|
| 1- | 2- | 3- |
| 1  | 2  | 3  |
| 1+ | 2+ | 3+ |

The data of sudden enhancement of atmospherics (SEA) observed on 28 kc are tabulated on each *Start-time, Duration* and *Importance*.

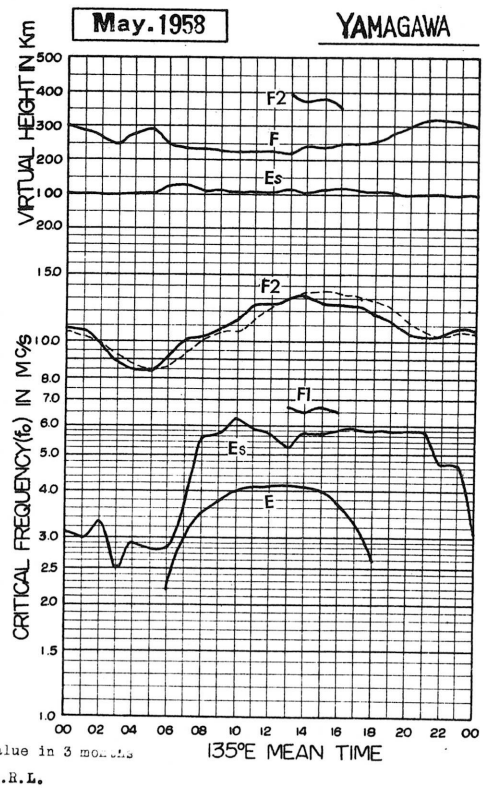
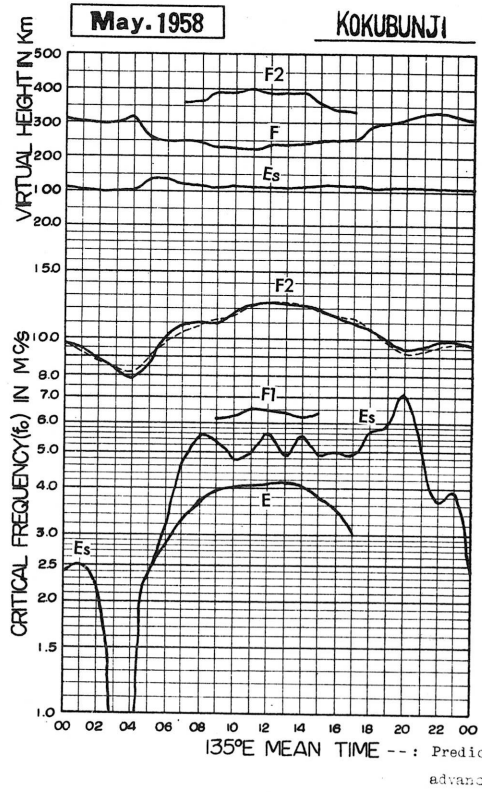
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.



IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS



# IONOSPHERIC DATA

Lat. 45° 28.6' N  
Long. 141° 41.1' E

## Wakkanai

135° E Mean Time (GMT.+9h.)

May. 1958

foF2

| Day    | 00              | 01              | 02              | 03              | 04              | 05              | 06               | 07                | 08                | 09                | 10                | 11                | 12                | 13                | 14                | 15                | 16                | 17                | 18                | 19                | 20                | 21                | 22                | 23                |
|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 1      | 78              | 83              | 78              | 74              | 73              | 78              | 70               | 70 <sup>M</sup>   | 73 <sup>M</sup>   | 73                | 78                | 77                | 74                | 78                | 73 <sup>M</sup>   | 78                | 78                | 78                | 78                | 73                | 73                | 73                | 70                | 70                |
| 2      | 87              | 83              | 83              | 80              | 82              | 70              | 77               | 73 <sup>M</sup>   | 73 <sup>M</sup>   | 77                | 77                | 72                | 71                | 71                | 71                | 71                | 77                | 73                | 73                | 73                | 73                | 70                | 71                | 70                |
| 3      | 87              | 88              | 87              | 78              | 82              | 71              | 70.5             | 71.3              | 71.1 <sup>M</sup> | 71.5 <sup>M</sup> | 71.8 <sup>M</sup> | 72.3 <sup>M</sup> | 72.2              | 72.2              | 71.5              | 71.5              | 71.3              | 71.0              | 70.8              | 70.8              | 70                | 71                | 73                | 73                |
| 4      | 74              | 72              | 87              | 80              | 82              | 74              | 70               | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                |
| 5      | 75              | 83              | 80              | 78              | 80              | 77              | 70               | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                |
| 6      | 77              | 78              | 78              | 73              | 73              | 73              | 73               | 73 <sup>M</sup>   | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                |
| 7      | 83              | 80              | 79              | 77              | 78              | 75              | 77               | 74 <sup>M</sup>   | 75 <sup>M</sup>   | 76 <sup>M</sup>   | 76                | 76                | 76                | 76                | 76                | 76                | 76                | 76                | 76                | 76                | 76                | 76                | 76                | 76                |
| 8      | 89              | 88              | 87              | 80              | 82              | 73              | 72               | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   | 71 <sup>M</sup>   |
| 9      | 70              | 85              | 83              | 78.5            | 83              | 77              | 76.9             | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> | 76.5 <sup>R</sup> |
| 10     | 93              | 91              | 90              | 84              | 87              | 78              | 74.0             | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              | 74.0              |
| 11     | 87              | 83              | 74              | 67              | 67              | 74              | 73               | 67                | 65                | 63                | 62                | 63                | 66                | 68                | 71                | 74                | 73                | 73                | 73                | 73                | 73                | 75                | 78                | 77                |
| 12     | 73              | 70              | 68              | 70              | 65              | 72 <sup>M</sup> | 67 <sup>M</sup>  | 67 <sup>M</sup>   | 67                | 66                | 68                | 71                | 71                | 73                | 72 <sup>M</sup>   | 78                | 70                | 79 <sup>A</sup>   | 79                | 70                | 73                | 75 <sup>S</sup>   | 77 <sup>S</sup>   | 78                |
| 13     | 78.5            | 78              | 74              | 68              | 71              | 77 <sup>M</sup> | 77 <sup>M</sup>  | 71                | 73 <sup>M</sup>   | 73 <sup>M</sup>   | 73                | 73                | 73                | 73                | 73                | 73                | 73                | 73                | 73                | 73                | 73                | 73                | 73                | 73                |
| 14     | 84              | 81              | 71 <sup>C</sup> | 62 <sup>F</sup> | 63 <sup>M</sup> | 67              | 67               | 67                | 75                | 70                | 78                | 75                | 72 <sup>M</sup>   | 73                | 72                | 73                | 72                | 73                | 73 <sup>A</sup>   | 73                | 73                | 73                | 73                | 73                |
| 15     | 70              | 70              | 65              | 61              | 63              | 68              | 80               | 79                | 80                | 83                | 81 <sup>H</sup>   | 85                | 83 <sup>M</sup>   | 84                | 83                | 91                | 91                | 91                | 91                | 89                | 85                | 85                | 88                | 88                |
| 16     | 75              | 72              | 73              | 71              | 72              | 73              | 83               | 88 <sup>M</sup>   | 73                | 83                | 85 <sup>M</sup>   | 100               | 100               | 100               | 101               | 100               | 94                | 93                | 93                | 93                | 92                | 92                | 93                | 93                |
| 17     | 70              | 87              | 80              | 80              | 80              | 93              | 98 <sup>M</sup>  | 95                | 103               | 99                | 103               | 102               | 112               | 103               | 105               | 106               | 103               | 78                | 98                | 100               | 90                | 93                | 92                | 91                |
| 18     | 88              | 83              | 83              | 83              | 83              | 78              | 83               | 87                | 85 <sup>M</sup>   | 79                | 103               | 107               | 110               | 103 <sup>M</sup>  | 106               | 100               | 94                | 72 <sup>M</sup>   | 90                | 97                | 95                | 87                | 83                | 81.5              |
| 19     | 90              | 85              | 78              | 73              | 75 <sup>M</sup> | 78              | 80               | 76                | 72 <sup>M</sup>   | 75                | 75                | 75                | 81                | 81                | 83 <sup>M</sup>   | 86                | 84                | 86                | 86 <sup>A</sup>   | 86                | 87                | 88 <sup>S</sup>   | 88                | 90                |
| 20     | 86              | 85              | 78              | 78              | 80              | 76              | 78               | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                |
| 21     | 86.5            | 83              | 78              | 72              | 75              | 85              | 95               | 76                | 74 <sup>A</sup>   | 74                | 76                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                |
| 22     | 83              | 80              | 78              | 76              | 78              | 75              | 71               | 73 <sup>M</sup>   | 73                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                |
| 23     | 85 <sup>S</sup> | 84 <sup>S</sup> | 83              | 81 <sup>S</sup> | 84              | 78              | 78               | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                | 78                |
| 24     | 88              | 90              | 87              | 82              | 86              | 95              | 117 <sup>R</sup> | 113               | 108 <sup>R</sup>  | 103               | 103               | 98                | 98                | 98                | 98                | 98                | 98                | 98                | 98                | 98                | 98                | 98                | 98                | 98                |
| 25     | 88              | 84              | 80              | 78              | 81              | 78              | 70               | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                |
| 26     | 89              | 88              | 84              | 78              | 78              | 70              | 70               | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                |
| 27     | 77.5            | 77              | 74              | 69              | 70 <sup>H</sup> | 67              | 65               | 61 <sup>A</sup>   | 61                | 62                | 66                | 70                | 72 <sup>A</sup>   | 72                | 78                | 75                | 80 <sup>M</sup>   | 80                | 78 <sup>A</sup>   | 75                | 80                | 80                | 80                | 80                |
| 28     | 79.5            | 78              | 70              | 65              | 63 <sup>H</sup> | 62              | 63               | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                | 70                |
| 29     | 80              | 78              | 79              | 77              | 76.5            | 80 <sup>M</sup> | 83               | 86                | 88                | 91                | 96                | 95                | 94                | 92 <sup>R</sup>   | 91 <sup>M</sup>   | 88                | 87                | 87                | 87                | 87                | 87                | 87                | 87                | 87                |
| 30     | 88.5            | 80.5            | 80              | 70              | 62              | 61              | 56               | 57                | 60                | 62                | 66                | 72 <sup>H</sup>   | 70                | 75                | 73                | 73                | 78                | 78                | 80                | 80                | 83                | 86                | 83                | 80                |
| 31     | 88.5            | 78              | 75              | 73              | 77 <sup>M</sup> | 90              | 100              | 78                | 78                | 88                | 82                | 83                | 80                | 79 <sup>R</sup>   | 77                | 78                | 77                | 77                | 83                | 83                | 83                | 83                | 83                | 80                |
| No.    | 31              | 31              | 31              | 31              | 31              | 31              | 31               | 30                | 28                | 27                | 28                | 28                | 29                | 30                | 30                | 30                | 30                | 31                | 31                | 31                | 30                | 30                | 30                | 31                |
| Median | 86              | 83              | 79              | 77              | 78              | 85              | 96               | 97                | 9.6               | 99                | 102               | 100               | 100               | 99                | 98                | 95                | 93                | 87                | 87                | 90                | 90                | 90                | 88                | 88                |
| U.Q.   | 87              | 85              | 83              | 80              | 82              | 93              | 105              | 111               | 108               | 108               | 109               | 114               | 112               | 108               | 106               | 101               | 100               | 98                | 96                | 95                | 93                | 93                | 91                | 90                |
| L.Q.   | 79              | 78              | 74              | 70              | 71              | 74              | 80               | 86                | 84                | 83                | 82                | 84                | 84                | 83                | 83                | 83                | 82                | 80                | 83                | 80                | 83                | 85                | 83                | 80                |
| Q.R.   | 1.0             | 0.7             | 0.9             | 1.0             | 1.1             | 1.9             | 2.5              | 2.5               | 2.4               | 2.5               | 2.7               | 3.0               | 2.8               | 2.5               | 2.3               | 1.8               | 1.8               | 1.8               | 1.8               | 1.5               | 1.0               | 0.8               | 0.8               | 1.0               |

Sweep 1.6 Mc to 3.0 Mc in 1 min 1 sec in automatic operation.

foF2

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

foF1

May, 1958

135° E Mean Time (GM.T.+9h.)

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08  | 09              | 10              | 11              | 12              | 13    | 14              | 15    | 16              | 17              | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|-----|-----------------|-----------------|-----------------|-----------------|-------|-----------------|-------|-----------------|-----------------|----|----|----|----|----|----|
| 1      |    |    |    |    |    |    |    |    | LH  | L               | L               | LH              | 67 <sup>M</sup> | 67    | LH              | L     | L               |                 |    |    |    |    |    |    |
| 2      |    |    |    |    |    |    |    |    | L   | L               | L               | L               | 65              | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 3      |    |    |    |    |    |    |    |    | L   | L               | L               | L               | 69              | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 4      |    |    |    |    |    |    |    |    |     |                 | LH              | LH              | L               | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 5      |    |    |    |    |    | L  | 55 | 58 | 59  | 59              | 59              | 61 <sup>M</sup> | L               | 62    | 62              | 60    |                 |                 |    |    |    |    |    |    |
| 6      |    |    |    |    |    |    |    |    | L   | L               | L               | 67              | 66 <sup>H</sup> | 64    | L               | L     | 58              | L               |    |    |    |    |    |    |
| 7      |    |    |    |    |    |    |    |    |     | LH              | 66              | 67              | 66              | 66    | 65              | L     | L               | L               |    |    |    |    |    |    |
| 8      |    |    |    |    |    |    |    |    |     |                 | 64              | L               | L               | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 9      |    |    |    |    |    |    |    |    |     |                 | 65              | 65              | 68              | L     | LH              | L     | L               |                 |    |    |    |    |    |    |
| 10     |    |    |    |    |    |    |    |    | L   | 65 <sup>M</sup> | LH              | LH              | 65 <sup>M</sup> | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 11     |    |    |    |    |    |    |    |    | L   | 52              | 54              | 55.5A           | 55              | 55    | 54              | 54    | L               |                 |    |    |    |    |    |    |
| 12     |    |    |    |    |    |    |    |    | 52  | 55              | 55              | 55              | 57              | 55.7A | LH              | 55.6A | L               | A               |    |    |    |    |    |    |
| 13     |    |    |    |    |    |    |    |    | L   | L               | L               | L               | 62              | 58    | 64              | L     |                 |                 |    |    |    |    |    |    |
| 14     |    |    |    |    |    | L  | 47 | L  | 53  | 59              | 58              | 57              | 57 <sup>M</sup> | 57    | 60              | L     | L               |                 |    |    |    |    |    |    |
| 15     |    |    |    |    |    |    |    | L  | L   | 56              | 58 <sup>H</sup> | 57              | 61 <sup>M</sup> | 61    | 59              | L     | L               |                 |    |    |    |    |    |    |
| 16     |    |    |    |    |    |    |    |    | L   | L               | 58 <sup>H</sup> | 65              | L               | 60    | L               | L     | L               |                 |    |    |    |    |    |    |
| 17     |    |    |    |    |    |    |    |    | L   | L               | L               | L               | L               | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 18     |    |    |    |    |    |    |    |    | L   | L               | 61              | L               | L               | LH    | L               | L     | L               |                 |    |    |    |    |    |    |
| 19     |    |    |    |    |    |    |    |    | L   | L               | 62              | L               | L               | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 20     |    |    |    |    |    |    |    |    | L   | A               | A               | A               | A               | 54    | 56 <sup>H</sup> | 53    | 53 <sup>M</sup> |                 |    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |    |    | A   | A               | A               | 60A             | 62A             | 63    | 61              | 60    | LH              |                 |    |    |    |    |    |    |
| 22     |    |    |    |    |    |    |    |    | L   | L               | L               | 64 <sup>M</sup> | L               | L     | 60              | L     | L               |                 |    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |    |    | L   | L               | L               | 61              | 63              | 61    | 61              | 59    | L               | L               |    |    |    |    |    |    |
| 24     |    |    |    |    |    |    |    |    | L   | L               | L               | 61              | 62              | 61    | 60              | 56    | L               | L               |    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |    |    | L   | L               | L               | L               | L               | L     | L               | L     | L               |                 |    |    |    |    |    |    |
| 26     |    |    |    |    |    |    |    |    | L   | L               | L               | 62              | 63              | 61    | 60              | 58    | 57              | 57 <sup>L</sup> | A  |    |    |    |    |    |
| 27     |    |    |    |    |    |    |    |    | L   | L               | L               | 56              | 57A             | 55.8  | 58              | 57    | LH              |                 |    |    |    |    |    |    |
| 28     |    |    |    |    |    |    |    |    | L   | L               | L               | A               | A               | 61    | 57              | 57    | L               | L               |    |    |    |    |    |    |
| 29     |    |    |    |    |    |    |    |    | L   | L               | L               | 63              | 62              | 62    | 58 <sup>H</sup> | L     | L               |                 |    |    |    |    |    |    |
| 30     |    |    |    |    |    |    |    |    | L   | L               | L               | 57              | 57              | 60    | 60 <sup>M</sup> | 58    | 56              | A               |    |    |    |    |    |    |
| 31     |    |    |    |    |    |    |    |    | L   | L               | L               | 58A             | 58              | 57    | 56              | 56    | 54A             | A               |    |    |    |    |    |    |
| No.    |    |    |    |    |    |    |    |    | 2   | 5               | 8               | 10              | 18              | 19    | 21              | 20    | 13              | 5               |    |    |    |    |    |    |
| Median |    |    |    |    |    |    |    |    | 3.8 | 4.6             | 5.1             | 5.3             | 5.6             | 6.1   | 6.2             | 6.0   | 5.7             | 5.6             |    |    |    |    |    |    |

Sweep 1.0 Mc to 2.7 Mc in \_\_\_\_\_ min \_\_\_\_\_ sec in automatic operation.

The Radio Research Laboratories, Japan.

foF1

W 2

# IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

## Wakkanai

May, 1958

foE

135° E Mean Time (GM.T. + 9h.)

| Day    | 00 | 01 | 02 | 03 | 04                | 05                | 06                | 07   | 08   | 09                | 10   | 11                | 12                            | 13                            | 14                            | 15                | 16                | 17                | 18                            | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|-------------------|-------------------|-------------------|------|------|-------------------|------|-------------------|-------------------------------|-------------------------------|-------------------------------|-------------------|-------------------|-------------------|-------------------------------|----|----|----|----|----|
| 1      |    |    |    |    | 1.40              | 2.35              | 2.85              | 3.35 | 3.60 | 3.75              | 3.70 | 4.65              | 4.65                          | A                             | A                             | A                 | 3.45              | 2.70              | E <sub>200</sub> <sup>S</sup> |    |    |    |    |    |
| 2      |    |    |    |    |                   | 2.05              | 2.90              | 3.50 | 3.70 | 3.70 <sup>R</sup> | 4.00 | 4.65              | 4.65                          | 3.70 <sup>R</sup>             | 3.75                          | 3.65              | 3.40              | 2.95              | 2.25                          |    |    |    |    |    |
| 3      |    |    |    |    |                   | 2.25              | 2.75              | 3.40 | 3.60 | 3.75              | 4.00 | 3.70              | 4.20                          | 4.15                          | 4.00                          | 3.65              | 3.50              | 3.00              | 2.20                          |    |    |    |    |    |
| 4      |    |    |    |    | 1.25              | 2.20              | 3.00              | 3.40 | 3.65 | 3.70              | 4.00 | 4.15              | 3.70                          | I <sub>405</sub> <sup>B</sup> | 4.00                          | 3.65              | 3.35              | 2.75              | 2.20                          |    |    |    |    |    |
| 5      |    |    |    |    | 1.25              | 2.35              | 2.75              | 3.40 | 3.60 | 3.70              | 3.75 | 3.75              | 4.00                          | I <sub>370</sub> <sup>S</sup> | 3.70                          | 3.60              | 3.85 <sup>M</sup> | 3.65              | 2.35                          |    |    |    |    |    |
| 6      |    |    |    |    | 1.50              | 2.30              | 3.10              | 3.50 | 3.70 | 4.00              | 4.10 | 4.10              | 4.00                          | I <sub>405</sub> <sup>S</sup> | 3.75 <sup>R</sup>             | 3.70              | 3.45              | 3.05              | 2.25                          |    |    |    |    |    |
| 7      |    |    |    |    | 1.60              | 2.60              | 3.05              | 3.70 | 3.75 | 4.00              | 4.10 | 4.10              | 4.20                          | 4.05                          | 3.70                          | 3.65              | 3.45 <sup>M</sup> | 2.90              | 2.00                          |    |    |    |    |    |
| 8      |    |    |    |    | 1.60              | 2.40 <sup>M</sup> | 2.95              | 3.50 | 3.70 | 3.75 <sup>R</sup> | 4.10 | 4.20              | 4.15                          | 4.00                          | 3.70                          | 3.70              | 3.40              | 2.90              | 2.15                          |    |    |    |    |    |
| 9      |    |    |    |    | 1.60              | 2.20              | 3.00 <sup>M</sup> | 3.40 | 3.70 | 3.70              | 4.00 | 4.10              | 4.10                          | 3.75                          | 3.75                          | 3.60              | 3.40              | 2.70              | 2.15                          |    |    |    |    |    |
| 10     |    |    |    |    |                   | 2.10              | 3.00              | 3.35 | 3.55 | 3.70              | 3.75 | 4.00              | 4.00                          | 3.75                          | 3.70                          | 3.50              | 3.40              | 3.00              | S                             |    |    |    |    |    |
| 11     |    |    |    |    | 1.20              | 2.25              | 2.80              | 3.35 | 3.55 | 3.75              | 3.70 | 3.70              | 3.70                          | 3.75                          | 3.75 <sup>R</sup>             | 3.70              | 3.35              | 2.70              | 2.20                          |    |    |    |    |    |
| 12     |    |    |    |    | A                 | 2.35              | 2.75              | 3.30 | 3.50 | 3.70              | 3.70 | 3.75              | 3.70                          | 3.75                          | 3.75                          | 3.60              | 3.35              | 2.95              | 2.25                          |    |    |    |    |    |
| 13     |    |    |    |    | 1.50              | 2.15              | 3.00              | 3.30 | 3.60 | 3.70              | 3.75 | 4.00              | 4.10                          | 3.75                          | 3.70                          | 3.65              | 3.40              | 2.90              | 2.25                          |    |    |    |    |    |
| 14     |    |    |    |    | 1.40              | 2.20              | 2.70              | 3.15 | 3.50 | 3.70              | 3.70 | 3.70              | 3.70                          | 3.70                          | 3.85                          | 3.50              | 3.25              | 2.70              | 2.00                          |    |    |    |    |    |
| 15     |    |    |    |    | 1.60 <sup>S</sup> | 2.10              | 2.70              | 3.25 | 3.65 | 3.75              | 3.75 | 3.75              | I <sub>370</sub> <sup>A</sup> | I <sub>370</sub> <sup>A</sup> | I <sub>350</sub> <sup>A</sup> | 3.50              | 3.30              | 2.90              | 2.25                          |    |    |    |    |    |
| 16     |    |    |    |    |                   | 2.20              | 2.80              | 3.30 | 3.45 | 3.50              | 3.60 | 3.60 <sup>A</sup> | I <sub>370</sub> <sup>A</sup> | 3.65                          | 3.50 <sup>A</sup>             | 3.50              | 3.35              | 2.85              | 2.10                          |    |    |    |    |    |
| 17     |    |    |    |    |                   | 2.50 <sup>M</sup> | 2.90 <sup>M</sup> | 3.25 | 3.45 | 3.70              | 3.75 | 3.70              | 3.70                          | 3.70                          | 3.70                          | 3.60              | 3.45              | 2.95              | 2.25                          |    |    |    |    |    |
| 18     |    |    |    |    | 1.25              | 2.35              | 2.90              | 3.35 | 3.45 | 3.70              | 3.70 | 3.75              | 3.75                          | 3.75                          | 3.70 <sup>R</sup>             | 3.60              | 3.40              | 2.90              | 2.10                          |    |    |    |    |    |
| 19     |    |    |    |    | A                 | 2.25              | 3.00 <sup>M</sup> | 3.40 | 3.55 | 3.70              | 3.75 | 3.70              | 3.75                          | 3.75                          | 3.70                          | 3.55              | 3.45              | 2.95              | 2.10                          |    |    |    |    |    |
| 20     |    |    |    |    | 1.40              | 2.45              | 2.90              | 3.30 | 3.55 | 3.75              | 3.70 | 3.75              | 3.75                          | 3.75                          | 3.60                          | 3.40 <sup>A</sup> | 3.00              | 2.45              |                               |    |    |    |    |    |
| 21     |    |    |    |    | A                 | 2.50              | 3.00              | 3.40 | 3.60 | 3.75              | 3.75 | 3.75              | 3.75                          | 3.65                          | 3.50 <sup>A</sup>             | 3.45              | 3.05              | 2.45              |                               |    |    |    |    |    |
| 22     |    |    |    |    | 1.55 <sup>M</sup> | 2.50              | 3.05              | 3.50 | 3.60 | 3.75              | 3.70 | 4.05              | 4.05                          | 3.70                          | 3.75                          | 3.60              | 3.15              | 2.30 <sup>A</sup> | 2.45                          |    |    |    |    |    |
| 23     |    |    |    |    | 1.50              | 2.45              | 3.00              | 3.45 | 3.60 | 3.70              | 4.00 | 4.00              | 4.00                          | 3.75                          | 3.65                          | 3.50 <sup>A</sup> | 3.45              | 2.30 <sup>A</sup> | 2.45                          |    |    |    |    |    |
| 24     |    |    |    |    | 1.80              | 2.55 <sup>M</sup> | 3.00              | 3.45 | 3.55 | 3.75              | 3.75 | 3.70              | 3.65                          | 3.60                          | 3.60                          | 3.60 <sup>A</sup> | 3.55              | 3.00              | 2.40                          |    |    |    |    |    |
| 25     |    |    |    |    | 1.65              | 2.55              | 3.10              | 3.50 | 3.75 | C                 | C    | C                 | C                             | C                             | C                             | C                 | C                 | 3.05              | 2.50                          |    |    |    |    |    |
| 26     |    |    |    |    | 1.65              | 2.45              | 3.10              | 3.40 | 3.65 | 3.75              | 3.75 | 4.10              | 4.20                          | 3.80                          | 3.65                          | 3.50 <sup>R</sup> | 3.45              | 3.00              | 2.45                          |    |    |    |    |    |
| 27     |    |    |    |    | 1.50 <sup>A</sup> | 2.40              | 3.00              | 3.45 | 3.60 | 3.75              | 3.70 | 4.00              | A                             | A                             | A                             | A                 | 3.45              | 3.00              | 2.35                          |    |    |    |    |    |
| 28     |    |    |    |    | A                 | 2.50              | 3.10              | 3.40 | 3.70 | 3.70              | 4.00 | 3.75              | 3.75                          | 3.70                          | 3.60                          | A                 | A                 | A                 | 2.40                          |    |    |    |    |    |
| 29     |    |    |    |    | A                 | 2.60              | 3.05              | 3.50 | 3.70 | 3.70              | 4.05 | 4.05              | 4.00                          | 4.00                          | 3.65                          | 3.50              | 3.45              | 3.05              | 2.55                          |    |    |    |    |    |
| 30     |    |    |    |    | 1.50              | 2.45              | 3.05              | 3.40 | 3.70 | 3.75              | 4.10 | 4.20              | 4.05                          | 3.75                          | A                             | A                 | A                 | A                 | 2.60                          |    |    |    |    |    |
| 31     |    |    |    |    | A                 | 2.50              | 3.05              | 3.40 | 3.60 | 3.75              | 4.10 | 4.00              | 3.80                          | 3.70 <sup>A</sup>             | 3.70 <sup>A</sup>             | 3.70              | 3.45              | 3.00              | 2.50                          |    |    |    |    |    |
| No.    |    |    |    |    | 1.8               | 3.1               | 3.1               | 3.1  | 3.1  | 3.0               | 3.0  | 3.0               | 2.9                           | 2.8                           | 2.7                           | 2.6               | 2.8               | 2.9               | 3.0                           |    |    |    |    |    |
| Median |    |    |    |    | 1.50              | 2.35              | 3.00              | 3.40 | 3.60 | 3.70              | 3.75 | 4.00              | 3.75                          | 3.70                          | 3.70                          | 3.60              | 3.40              | 2.95              | 2.25                          |    |    |    |    |    |

Sweep 1.0 Mc to 2.0 Mc in \_\_\_\_\_ min in automatic operation.

foE

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

135° E Mean Time (GMT + 9h.)

foEs

May, 1958

| Day    | 00  | 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   | 32M | G   | G   | G   | G    | 43  | G   | G    | G    | 45  | 1037s | 46M | G   | 33   | 27   | 30M | 35  | 26M | E   | E   |
| 2      | E   | E   | E   | E   | 24M | G   | G   | G   | G    | G   | G   | G    | G    | G   | G     | G   | G   | G    | 25   | E   | E   | E   | E   | E   |
| 3      | E   | E   | E   | 30M | G   | G   | 32  | G   | G    | G   | G   | G    | G    | G   | G     | G   | G   | G    | G    | E   | E   | E   | E   | E   |
| 4      | E   | E   | E   | E   | G   | G   | 31  | G   | G    | G   | G   | 110M | G    | G   | G     | G   | G   | G    | 26   | 35M | 30M | E   | 25M | E   |
| 5      | E   | E   | E   | E   | G   | G   | 35  | 40  | 42   | 53M | 50  | 45   | 43   | G   | G     | G   | G   | 35   | 30   | 45M | 40M | E   | E   | E   |
| 6      | E   | E   | E   | E   | G   | G   | G   | G   | 45   | 50  | 48  | G    | G    | G   | G     | G   | G   | 34   | 31   | 35M | E   | E   | E   | E   |
| 7      | E   | E   | E   | E   | G   | G   | G   | G   | 43   | G   | G   | G    | G    | G   | G     | G   | G   | 40   | G    | E   | E   | E   | E   | E   |
| 8      | E   | E   | E   | E   | 14  | G   | G   | G   | G    | G   | G   | G    | G    | G   | G     | 44  | 41  | 40   | G    | E   | E   | E   | E   | E   |
| 9      | E   | E   | E   | E   | G   | G   | 38  | 41  | 48M  | 42  | G   | G    | G    | G   | G     | G   | 36  | 35   | 32M  | 36M | 31M | E   | E   | E   |
| 10     | E   | E   | E   | E   | 30M | G   | G   | 37  | 43   | 42  | 42  | 44   | G    | G   | 44    | G   | G   | 53M  | 27M  | 42M | 42M | E   | E   | 31M |
| 11     | E   | E   | E   | E   | G   | G   | 35  | 40  | 48   | 47  | 51  | 75M  | G    | G   | G     | 42  | 40  | 55M  | 35   | 42M | 31M | E   | E   | E   |
| 12     | E   | 33M | 35M | 21M | 35M | G   | 35  | 35  | 43   | 43  | 75M | 55   | 42   | 68M | 50    | 72M | 46  | 115M | 71M  | 52M | 33M | 60M | E   | 30M |
| 13     | 38M | 34M | 26M | 29M | G   | G   | G   | 69M | 48   | 47  | 45  | 46   | 49   | 47  | 48    | 70M | 21M | 67M  | 40M  | 60M | 75M | 56M | 27M | E   |
| 14     | 26M | 25M | C   | 46M | 21  | 27  | 35  | 40  | 48   | 53  | 52  | 44   | G    | 62M | 55M   | G   | 44  | 65M  | 80M  | 29M | 30M | 38M | E   | E   |
| 15     | E   | E   | E   | 23M | 33M | 30  | G   | G   | G    | 53M | G   | 42   | 43   | 57M | 65M   | G   | 53  | 53M  | 36   | 35M | 31M | 35M | 26M | 35M |
| 16     | 35M | 47M | 24M | E   | S   | 31  | 62M | 41  | 65M  | 60M | 53M | 60M  | 61M  | 52M | 51M   | G   | 35  | 52   | 34   | 41M | E   | 32M | E   | 29M |
| 17     | 29M | 60M | 50M | 40M | 24M | G   | 36  | 50  | 66M  | 75M | 48  | 58M  | 53M  | 42  | 43    | G   | 70M | 56M  | 55M  | 43M | E   | 26M | E   | E   |
| 18     | 41M | E   | E   | E   | 35M | 30  | 40  | 41  | 41   | 42  | 47  | 44   | G    | G   | G     | G   | G   | 35   | 37   | E   | 35M | E   | 25M | E   |
| 19     | E   | E   | E   | E   | 27M | 26  | G   | 40  | G    | 48  | 47  | 45   | 45   | 45  | 45    | G   | 46  | 65M  | 110M | 48M | 50M | E   | 25M | E   |
| 20     | E   | E   | E   | E   | 31M | 35M | 35  | 78M | 86M  | 96M | 86M | 80M  | 122M | 88M | 45    | 45  | 55M | 60   | 65M  | 70M | 95M | 75  | 71M | 90M |
| 21     | 90M | 50M | E   | E   | 31M | 66M | 55M | 75M | 108M | 86M | 61M | 61M  | 75M  | 44  | 47M   | 49M | G   | 60   | 28   | 33M | 37M | 58M | 60M | 40M |
| 22     | 27M | 24M | 24M | E   | 31  | 26  | G   | 41  | 49   | 65M | 57  | 45   | 45   | 46  | 50    | 50  | 38  | 35M  | 29   | 35M | 46M | 35M | 35M | E   |
| 23     | 25M | 35M | 35M | E   | E   | 27  | 34  | 42  | 52   | 66M | 48  | 52M  | 50M  | 52M | G     | 35  | 35  | 38M  | 35   | 51M | 37M | 25M | 26M | E   |
| 24     | 30M | 24M | 24M | 24M | 14M | G   | 35  | 43  | 67M  | 51  | 45  | 43   | 45   | 41  | G     | 65M | 42  | 68M  | 31   | E   | 31M | E   | 32M | E   |
| 25     | 40M | 32M | 26M | 35M | 30M | 35  | 40  | 50  | 75M  | C   | C   | C    | C    | C   | C     | C   | C   | 60M  | 57M  | 42M | 47M | 31M | 29M | 25M |
| 26     | 23M | 23M | E   | E   | G   | 31  | 35  | 60  | 62M  | 80M | 64M | 49   | 55   | 59M | 51M   | G   | 58M | 70M  | 64M  | 55M | 33M | 30M | E   | 30M |
| 27     | 26M | E   | E   | E   | 35M | 35  | 41  | 75M | 66M  | 52M | 57M | 110M | 92M  | 85M | 50M   | 41M | 42  | 56M  | 104M | 35M | 36M | 58M | 80M | 70M |
| 28     | 70M | 62M | 58M | 41M | 35M | G   | 36  | 40  | 42   | 80M | 90M | 115M | 100M | 88M | 70M   | 72M | 60M | 43M  | 47M  | 68M | 45M | 25M | E   | E   |
| 29     | 26M | 25M | 30M | 30M | 30M | 33  | 35  | G   | 46   | 71M | G   | 60M  | 65M  | 53M | G     | G   | G   | G    | G    | E   | E   | E   | E   | E   |
| 30     | 35M | 48M | 66M | 65M | 20  | 35  | 52M | 50  | 57M  | 57M | 68M | 55   | 42   | 42  | 55M   | 55M | 52M | 74M  | 70M  | 65M | 43M | 26M | 32M | 32M |
| 31     | E   | E   | 32M | 25M | 30M | 31  | 65M | 84M | 48   | 47  | 43  | 80M  | 64M  | 47  | 59M   | 59M | 80M | 71M  | 65M  | 35M | 45M | E   | 25M | 32M |
| No.    | 31  | 31  | 30  | 31  | 30  | 31  | 31  | 31  | 30   | 30  | 30  | 30   | 30   | 28  | 29    | 30  | 30  | 30   | 31   | 31  | 31  | 31  | 31  | 31  |
| Median | E   | E   | E   | E   | 26M | 26  | 35  | 40  | 46   | 50  | 48  | 46   | 45   | 46  | 44    | G   | 39  | 48M  | 35   | 35M | 35M | 26M | E   | E   |
| U.Q.   | 30  | 33  | 30  | 29  | 31  | 31  | 36  | 50  | 62   | 65  | 53  | 68   | 55   | 58  | 50    | 49  | 52  | 65   | 64   | 48  | 43  | 35  | 27  | 30  |
| L.Q.   | E   | E   | E   | E   | G   | G   | G   | G   | G    | 43  | G   | 42   | G    | G   | G     | G   | G   | 33   | 29   | 29  | 30  | E   | E   | E   |
| Q.R.   |     |     |     |     |     |     |     |     |      | 22  |     | 26   |      |     |       |     |     | 32   | 35   | 19  | 13  |     |     |     |

Sweep 1.0 Mc to 20.7 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

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W 4

# IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

**Wakkanai**

135° E Mean Time (GMT.+ 9h.)

May. 1958

f<sub>o</sub>E<sub>s</sub>

| Day    | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09                           | 10  | 11  | 12  | 13  | 14                           | 15  | 16  | 17  | 18                           | 19  | 20  | 21  | 22  | 23  |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------------------------|-----|-----|-----|-----|------------------------------|-----|-----|-----|------------------------------|-----|-----|-----|-----|-----|
| 1      |     |     |     |     | 1.8 |     |     |     |     | P <sub>43</sub> <sup>B</sup> |     |     |     | 4.2 | P <sub>37</sub> <sup>S</sup> | 3.8 |     | 5   | 5                            | 2.1 | E   |     |     |     |
| 2      |     |     | E   |     | E   | G   |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            |     |     |     |     |     |
| 3      |     |     | E   |     | E   | G   |     |     |     |                              |     |     |     |     |                              |     |     |     |                              |     |     |     |     |     |
| 4      |     |     |     |     |     | G   |     |     |     |                              |     |     |     | B   |                              |     |     |     | 5                            | 2.6 | 2.1 |     | E   |     |
| 5      |     |     |     |     |     | G   |     |     |     |                              |     |     |     | S   |                              |     |     |     | 5                            | 2.9 | 3.5 | 3.0 |     |     |
| 6      |     |     |     |     |     |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            | 2.8 | 3.3 |     |     |     |
| 7      |     |     | E   |     |     |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            | 3.0 | 2.3 |     |     |     |
| 8      |     |     |     |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | P <sub>36</sub> <sup>S</sup> | 3.0 | E   | 2.9 | E   | E   |
| 9      |     |     |     |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.0                          | 2.5 | 2.5 | 2.7 |     |     |
| 10     |     |     |     |     |     |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.0                          | 3.4 | 2.2 |     |     |     |
| 11     |     |     | E   |     |     |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.6                          | 4.0 | 2.4 | 3.0 |     | E   |
| 12     |     | 2.5 | 2.6 |     | 1.6 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.6                          | 6.3 | 4.0 | 2.4 |     | E   |
| 13     | 3.0 | E   | E   |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 6.0                          | 2.7 | 5.2 | 4.1 | 5.2 | E   |
| 14     | E   | E   | C   |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5.0                          | A   | E   | E   | 2.4 |     |
| 15     |     |     |     |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.8                          | 3.4 | 2.8 | 2.1 | E   | 2.6 |
| 16     | E   | 2.5 | E   |     | S   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.5                          | 3.4 | 3.0 |     |     | E   |
| 17     | E   | 3.7 | E   |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.5                          | 3.7 | 4.5 | 3.1 |     | E   |
| 18     | 3.7 | E   |     |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            | 2.8 |     | 2.2 |     |     |
| 19     |     |     |     |     | 1.5 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            | A   | 4.4 | 4.0 |     | E   |
| 20     |     |     |     |     | 1.3 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            | 5.7 | A   | A   | 6.1 | 5.5 |
| 21     | 5.5 | 2.0 |     |     | 1.6 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            | 5.0 | 4.4 | A   | 4.5 | A   |
| 22     | E   | E   |     |     | 1.2 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5                            | 2.5 | 3.0 | 4.5 | 4.5 | 2.0 |
| 23     | E   | E   |     |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 3.1                          | 5   | 3.5 | 2.0 | E   |     |
| 24     | E   | E   |     |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 3.1                          | 2.5 | 4.0 | 3.0 | E   | E   |
| 25     | 2.3 | E   |     |     | 1.4 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5.0                          | 2.6 | 2.3 |     | E   | E   |
| 26     | E   | E   |     |     | 1.5 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.7                          | 4.7 | 2.8 | 2.4 | E   | E   |
| 27     | E   | E   |     |     | 1.5 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5.0                          | 5.0 | 3.2 | 2.5 | 2.1 | E   |
| 28     | 5.0 | 3.6 | 3.8 |     | 2.0 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.7                          | A   | 2.8 | 2.8 | 5.5 | A   |
| 29     | E   | E   | E   |     | 1.9 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5.0                          | 3.8 | A   | 3.0 | E   |     |
| 30     | 2.4 | E   | 5.7 |     | 4.0 |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 4.4                          | 5.0 | 3.4 | 2.1 | 2.4 | 2.4 |
| 31     |     |     | E   |     | E   |     |     |     |     |                              |     |     |     |     |                              |     |     |     | 5.7                          | 5.5 | 2.5 | 3.5 | E   | 2.2 |
| No.    | 1.5 | 1.5 | 1.5 | 1.3 | 2.1 | 1.9 | 2.0 | 2.2 | 2.2 | 2.4                          | 2.2 | 2.2 | 1.9 | 2.1 | 1.6                          | 1.4 | 1.8 | 2.3 | 2.8                          | 2.4 | 2.4 | 1.8 | 1.3 | 1.1 |
| Median | E   | E   | E   | E   | 1.5 | 5   | 5   | 5   | 4.7 | 4.7                          | 4.6 | 4.5 | 4.7 | 4.4 | 4.2                          | 4.4 | 2.7 | 4.6 | 3.0                          | 3.0 | 2.8 | E   | E   | 2.0 |

Sweep 1.0 Mc to 2.0 Mc in 1 min sec in automatic operation.

The Radio Research Laboratories, Japan.

**W5**

f<sub>o</sub>E<sub>s</sub>



# IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

## Wakkanai

135° E Mean Time (GMT.+9h.)

(M3000)F2

May, 1958

| Day    | 00  | 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 | 245 | 235              | 225              | 225              | 240              | 255              | 255 <sup>H</sup> | 245 <sup>H</sup> | 260              | 245              | 250 <sup>H</sup> | 240 <sup>H</sup> | 245              | 245              | 255              | 250              | 255 <sup>H</sup> | 255              | 250 | 245 | 245 | 245 | 235 | 235 |
| 2      | 235 | 245 | 245              | 235              | 235              | 245              | 260              | 265 <sup>H</sup> | 255 <sup>H</sup> | 260              | 250              | 245              | 250              | 245              | 245              | 245              | 245              | 250 <sup>H</sup> | 255 <sup>H</sup> | 255 | 260 | 245 | 245 | 240 |     |
| 3      | 240 | 245 | 250              | 255              | 250              | 260              | 270              | 260              | 255 <sup>H</sup> | 245 <sup>H</sup> | 250              | 250              | 245              | 245              | 245              | 245              | 250              | 255              | 255              | 265 | 245 | 245 | 240 | 245 |     |
| 4      | 250 | 255 | 245              | 250              | 245              | 265              | 260              | 265 <sup>R</sup> | 250 <sup>R</sup> | 250 <sup>R</sup> | 235 <sup>R</sup> | 250 <sup>R</sup> | 255 <sup>R</sup> | 250              | 245              | 245              | 245              | 250 <sup>R</sup> | 250 <sup>R</sup> | 255 | 255 | 240 | 240 | 245 |     |
| 5      | 240 | 245 | 245              | 245              | 250              | 250              | 255              | C                | C                | C                | 225              | 235 <sup>H</sup> | 235              | 240              | 245              | 245              | 245              | 250 <sup>H</sup> | 255 <sup>H</sup> | 255 | 245 | 240 | 245 | 235 |     |
| 6      | 250 | 240 | 240              | 235              | 230              | 260              | 255              | 250 <sup>H</sup> | 255              | 245              | 240              | 235              | 225 <sup>H</sup> | 240              | 245              | 240              | 240              | 245              | 245              | 245 | 245 | 240 | 240 | 235 |     |
| 7      | 240 | 235 | 250              | 240              | 235              | 255              | 255              | 265 <sup>H</sup> | 260 <sup>H</sup> | 250 <sup>H</sup> | 245              | 240              | 240              | 245              | 245              | 245              | 240              | 255              | 245              | 245 | 240 | 235 | 235 | 235 |     |
| 8      | 235 | 235 | 250              | 250              | 255              | 260              | 265              | 265 <sup>H</sup> | 255 <sup>H</sup> | 245 <sup>H</sup> | 250              | 245              | 245              | 245              | 245              | 245              | 250              | 255              | 255              | 255 | 250 | 245 | 245 | 240 |     |
| 9      | 240 | 240 | 250              | 245              | 245              | 245              | 255              | 270 <sup>H</sup> | 260 <sup>H</sup> | 250 <sup>H</sup> | 245 <sup>H</sup> | 250              | 245              | 245              | 245              | 250              | 255              | 255              | 255              | 255 | 255 | 245 | 245 | 240 |     |
| 10     | 255 | 235 | 250              | 245              | 245              | 245              | 255              | 270 <sup>H</sup> | 260 <sup>H</sup> | 260              | 250 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 245              | 245              | 250              | 255              | 255              | 255              | 255 | 255 | 245 | 245 | 240 |     |
| 11     | 250 | 250 | 245              | 235              | 225              | 245              | 240              | 230              | 230              | 220              | 210              | 215              | 230              | 235              | 240              | 250              | 245              | 260              | 255              | 260 | 250 | 245 | 245 | 240 |     |
| 12     | 235 | 245 | 235              | 260              | 250              | 255 <sup>H</sup> | 235 <sup>H</sup> | 240              | 235              | 225              | 230              | 240              | 230              | 235              | 240 <sup>H</sup> | 250              | 255              | 265 <sup>H</sup> | 265 <sup>H</sup> | 270 | 250 | 245 | 245 | 240 |     |
| 13     | 245 | 255 | 250              | 240              | 240              | 230 <sup>H</sup> | 245 <sup>H</sup> | 260              | 245 <sup>H</sup> | 255              | 240              | 240              | 250              | 255              | 255              | 260              | 260              | 265              | 265              | 265 | 265 | 250 | 245 | 240 |     |
| 14     | 245 | 255 | 255 <sup>C</sup> | 225 <sup>F</sup> | 220 <sup>H</sup> | 235              | 235              | 235              | 250              | 225              | 245              | 240              | 240              | 250              | 245              | 260              | 260              | 265              | 265              | 265 | 265 | 250 | 245 | 240 |     |
| 15     | 230 | 230 | 245              | 245              | 260              | 255              | 255              | 260              | 235              | 245              | 245              | 245              | 240              | 250              | 245              | 260              | 260              | 265              | 275              | 270 | 260 | 250 | 245 | 245 |     |
| 16     | 240 | 235 | 240              | 250              | 260              | 270              | 245              | 265 <sup>H</sup> | 260              | 245              | 260 <sup>H</sup> | 240              | 255              | 255              | 260              | 260              | 265              | 275              | 270              | 270 | 260 | 250 | 245 | 245 |     |
| 17     | 260 | 245 | 245              | 245              | 245              | 260              | 260 <sup>H</sup> | 265              | 270              | 265              | 250              | 260              | 260              | 260              | 265              | 265              | 275              | 275              | 270              | 275 | 260 | 250 | 245 | 245 |     |
| 18     | 245 | 235 | 235              | 255              | 255              | 250              | 240              | 240              | 245              | 255              | 255              | 255              | 255              | 270 <sup>H</sup> | 260              | 265              | 265              | 265              | 270              | 270 | 260 | 260 | 255 | 245 |     |
| 19     | 245 | 250 | 240              | 235              | 230 <sup>H</sup> | 250              | 240              | 250              | 265 <sup>H</sup> | 265 <sup>H</sup> | 255              | 255              | 255              | 255              | 260              | 265              | 270              | 265 <sup>H</sup> | 260              | 270 | 260 | 260 | 255 | 245 |     |
| 20     | 255 | 255 | 260              | 260              | 265              | 255 <sup>H</sup> | 270              | 265              | 255              | A                | A                | A                | A                | 240              | 245 <sup>H</sup> | 255              | 260 <sup>H</sup> | 260              | 265              | 265 | 260 | 250 | 245 | 245 |     |
| 21     | 245 | 260 | 260              | 250              | 240              | 250              | 255              | 260              | 255 <sup>A</sup> | 265              | 250              | 250              | 255              | 240              | 245 <sup>H</sup> | 255              | 260 <sup>H</sup> | 260              | 265              | 265 | 260 | 250 | 245 | 245 |     |
| 22     | 255 | 250 | 245              | 250              | 260              | 260              | 260              | 255 <sup>H</sup> | 235              | 245              | 235              | 255              | 255              | 255              | 260              | 260              | 265 <sup>H</sup> | 265 <sup>H</sup> | 250 <sup>H</sup> | 270 | 250 | 235 | 245 | 240 |     |
| 23     | 245 | 250 | 255              | 250              | 250              | 255              | 270 <sup>H</sup> | 265              | 255              | 250              | 245 <sup>R</sup> | 250              | 245 <sup>R</sup> | 250 <sup>R</sup> | 250              | 255              | 260              | 265              | 265              | 265 | 265 | 265 | 240 | 240 |     |
| 24     | 250 | 255 | 265              | 255              | 250              | 265              | 265 <sup>R</sup> | 265              | 250 <sup>R</sup> | 250              | 240              | 255              | 245              | 245              | 240              | 255              | 260              | 265              | 260              | 260 | 260 | 250 | 240 | 240 |     |
| 25     | 240 | 255 | 255              | 255              | 240              | 255              | 250              | 260              | C                | C                | C                | C                | C                | C                | C                | C                | C                | 270              | 265              | 265 | 245 | 240 | 240 | 240 |     |
| 26     | 245 | 255 | 260              | 255              | 250              | 270 <sup>R</sup> | 260              | 260              | 250              | 250              | 240              | 235              | 235              | 235              | 240              | 250              | 250              | 260 <sup>S</sup> | 270              | 265 | 255 | 245 | 240 | 240 |     |
| 27     | 230 | 230 | 215              | 225              | 235 <sup>H</sup> | 235              | 235              | 230 <sup>A</sup> | 220              | 220              | 220              | 230              | 240 <sup>A</sup> | 235              | 250              | 245              | 250 <sup>H</sup> | 255              | 260 <sup>A</sup> | 260 | 255 | 245 | 240 | 235 |     |
| 28     | 250 | 245 | 250              | 235              | 240 <sup>H</sup> | 230              | 240              | 240              | A                | A                | A                | A                | 240 <sup>A</sup> | 245              | 250              | 245              | 250 <sup>H</sup> | 245              | 250              | 255 | 245 | 240 | 245 | 245 |     |
| 29     | 240 | 245 | 240              | 245              | 255              | 260 <sup>H</sup> | 265              | 255              | 260              | 235              | 245              | 245              | 240              | 250 <sup>H</sup> | 250              | 255 <sup>H</sup> | 245              | 245              | 245              | 245 | 235 | 245 | 245 | 245 |     |
| 30     | 235 | 235 | 245              | 235              | 245              | 230              | 235              | 240              | 255              | 215              | 225              | 235              | 240              | 240              | 255 <sup>H</sup> | 245              | 260              | 260              | 260              | 250 | 255 | 240 | 240 | 245 |     |
| 31     | 240 | 245 | 240              | 235              | 245 <sup>H</sup> | 260              | 265              | 275              | 260              | 245              | 245              | 235              | 235              | 235 <sup>R</sup> | 240              | 245              | 245              | 245              | 260              | 255 | 255 | 240 | 240 | 245 |     |
| No.    | 31  | 31  | 31               | 31               | 31               | 31               | 31               | 30               | 29               | 27               | 28               | 28               | 29               | 30               | 30               | 30               | 30               | 31               | 31               | 31  | 31  | 30  | 30  | 31  |     |
| Median | 245 | 245 | 245              | 245              | 245              | 255              | 255              | 260              | 255              | 250              | 245              | 245              | 245              | 245              | 245              | 250              | 250              | 260              | 260              | 260 | 250 | 245 | 245 | 245 |     |

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 20.7 Mc in 1 min in automatic operation.

(M3000)F2

May, 1958

(M3000)F2



IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakanai

135° E Mean Time (GMT.+9h.)

(M3000)F1

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06  | 07   | 08   | 09                | 10               | 11               | 12               | 13   | 14               | 15               | 16               | 17   | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|-----|------|------|-------------------|------------------|------------------|------------------|------|------------------|------------------|------------------|------|----|----|----|----|----|----|
| 1      |    |    |    |    |    |    |     |      | LH   | L                 | L                | LH               | 335 <sup>H</sup> | 320  | LH               | L                | L                |      |    |    |    |    |    |    |
| 2      |    |    |    |    |    |    |     |      | L    | L                 | L                | L                | 320              | L    | L                | L                | L                |      |    |    |    |    |    |    |
| 3      |    |    |    |    |    |    |     |      | L    | L                 | L                | L                | 335              | L    | L                | L                | L                |      |    |    |    |    |    |    |
| 4      |    |    |    |    |    |    |     |      | L    | LH                | L                | LH               | L                | L    | L                | L                | L                |      |    |    |    |    |    |    |
| 5      |    |    |    |    |    |    | L   | 305  | 315  | 335               | 340              | 340 <sup>H</sup> | L                | 330  | 310              | 320              | L                | L    |    |    |    |    |    |    |
| 6      |    |    |    |    |    |    |     |      | L    | L                 | 320              | 315              | 315 <sup>H</sup> | 325  | L                | L                | 320              | L    |    |    |    |    |    |    |
| 7      |    |    |    |    |    |    |     |      | L    | L                 | 330              | 320              | 325              | 320  | 310              | L                | L                | L    |    |    |    |    |    |    |
| 8      |    |    |    |    |    |    |     |      | LH   | 335               | L                | L                | L                | L    | L                | L                | L                | L    |    |    |    |    |    |    |
| 9      |    |    |    |    |    |    |     |      | L    | 330               | 345              | L                | 320              | 315  | LH               | L                | L                | L    |    |    |    |    |    |    |
| 10     |    |    |    |    |    |    |     |      | L    | 340 <sup>H</sup>  | LH               | LH               | 325 <sup>H</sup> | L    | L                | L                | L                | L    |    |    |    |    |    |    |
| 11     |    |    |    |    |    |    | 305 | 335  | 330A | 330               | 340              | 340A             | 360              | 340  | 335              | 315              | L                | L    |    |    |    |    |    |    |
| 12     |    |    |    |    |    |    |     | 315  | 330  | 325               | 335              | 335A             | 345              | 340A | LH               | 330A             | L                | A    |    |    |    |    |    |    |
| 13     |    |    |    |    |    |    |     | L    | L    | L                 | L                | L                | 320              | 355  | 315              | L                | L                |      |    |    |    |    |    |    |
| 14     |    |    |    |    |    |    | L   | 315  | 310  | 335               | 350              | 335 <sup>H</sup> | 320A             | 315  | L                | L                | L                |      |    |    |    |    |    |    |
| 15     |    |    |    |    |    |    |     | L    | L    | 330               | 345 <sup>H</sup> | 345              | 315 <sup>H</sup> | 320  | 320              | L                | L                |      |    |    |    |    |    |    |
| 16     |    |    |    |    |    |    |     |      | L    | L                 | 345 <sup>H</sup> | 320              | L                | 340  | L                | L                | L                |      |    |    |    |    |    |    |
| 17     |    |    |    |    |    |    |     |      | L    | L                 | L                | L                | L                | 320  | L                | L                | L                |      |    |    |    |    |    |    |
| 18     |    |    |    |    |    |    |     |      | L    | L                 | 340 <sup>H</sup> | L                | 345              | L    | LH               | L                | L                |      |    |    |    |    |    |    |
| 19     |    |    |    |    |    |    |     | L    | L    | 340               | 320              | 350              | 325              | 340  | 315              | L                | L                |      |    |    |    |    |    |    |
| 20     |    |    |    |    |    |    |     | L    | A    | A                 | A                | A                | A                | 355  | 325 <sup>H</sup> | 350              | 315 <sup>H</sup> |      |    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |     | A    | A    | A                 | A                | 315              | 325A             | 320A | 325              | 315              | 315              | LH   |    |    |    |    |    |    |
| 22     |    |    |    |    |    |    |     | L    | L    | L                 | L                | 330 <sup>H</sup> | L                | L    | 350              | L                | L                |      |    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |     | L    | L    | L                 | L                | 345              | 330              | 335  | 320              | 315              | L                | L    |    |    |    |    |    |    |
| 24     |    |    |    |    |    |    |     | L    | L    | L                 | L                | 355              | 330              | 335  | 330              | 325A             | L                | L    |    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |     | L    | L    | A                 | C                | C                | C                | C    | C                | C                | C                | L    |    |    |    |    |    |    |
| 26     |    |    |    |    |    |    |     | L    | L    | L                 | L                | 345              | 320              | 335  | 320              | 345              | 325              | 325A | A  |    |    |    |    |    |
| 27     |    |    |    |    |    |    | 325 | 325A | 335A | 355               | 340              | 350A             | 345A             | 335S | 330              | 345              | LH               |      |    |    |    |    |    |    |
| 28     |    |    |    |    |    |    | L   | 330  | 315  | 350               | A                | A                | A                | 320  | 335A             | 335A             | L                | L    |    |    |    |    |    |    |
| 29     |    |    |    |    |    |    |     | L    | L    | L                 | 350              | 335              | 340              | 325  | 320              | 345 <sup>H</sup> | L                | L    |    |    |    |    |    |    |
| 30     |    |    |    |    |    |    | 310 | 335  | 340A | 3340 <sup>H</sup> | 365              | 335 <sup>H</sup> | 340              | 320  | 320 <sup>H</sup> | 330              | 305              | A    |    |    |    |    |    |    |
| 31     |    |    |    |    |    |    | L   | L    | A    | L                 | L                | 320              | 355A             | 350  | 340              | 335              | 320A             | A    |    |    |    |    |    |    |
| No.    |    |    |    |    |    |    | 2   | 5    | 8    | 8                 | 10               | 18               | 19               | 21   | 20               | 13               | 5                |      |    |    |    |    |    |    |
| Median |    |    |    |    |    |    | 320 | 325  | 335  | 330               | 340              | 335              | 335              | 330  | 320              | 330              | 320              |      |    |    |    |    |    |    |

The Radio Research Laboratories, Japan.

Sweep 1.5 Mc to 2.0 Mc in 1 min in automatic operation.

(M3000)F1

W 8

IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

135° E Mean Time (GM.T.+ 9h.)

R'F2

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04  | 05  | 06               | 07  | 08               | 09               | 10               | 11               | 12               | 13  | 14               | 15               | 16               | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|-----|-----|------------------|-----|------------------|------------------|------------------|------------------|------------------|-----|------------------|------------------|------------------|----|----|----|----|----|----|----|
| 1      |    |    |    |    |     |     |                  |     | LH               | L                | L                | LH               | 410 <sup>M</sup> | 425 | LH               | L                | L                |    |    |    |    |    |    |    |
| 2      |    |    |    |    |     |     |                  |     |                  | L                | L                | L                | 360              | L   | L                | L                | L                |    |    |    |    |    |    |    |
| 3      |    |    |    |    |     |     |                  |     |                  | L                | L                | L                | 375              | L   | L                | L                | L                |    |    |    |    |    |    |    |
| 4      |    |    |    |    |     |     |                  |     |                  | L                | L                | LH               | L                | L   | L                | L                | L                |    |    |    |    |    |    |    |
| 5      |    |    |    |    |     | L   | 410              |     | 460              | 510              | 505              | 470 <sup>M</sup> | L                | 460 | 435              | 395              | L                | L  |    |    |    |    |    |    |
| 6      |    |    |    |    |     |     |                  |     | L                | L                | 450              | 440              | 445              | L   | L                | L                | 410              | L  |    |    |    |    |    |    |
| 7      |    |    |    |    |     |     |                  |     |                  | LH               | 360              | L                | L                | L   | L                | L                | L                | L  |    |    |    |    |    |    |
| 8      |    |    |    |    |     |     |                  |     |                  |                  | 395              | 390              | L                | L   | L                | L                | L                | L  |    |    |    |    |    |    |
| 9      |    |    |    |    |     |     |                  |     | L                | 350 <sup>M</sup> | LH               | LH               | 390 <sup>M</sup> | L   | L                | L                | L                | L  |    |    |    |    |    |    |
| 10     |    |    |    |    |     |     |                  |     | L                | 525              | 600              | 635              | 570              | 540 | 495              | 440              | L                | L  |    |    |    |    |    |    |
| 11     |    |    |    |    |     | 445 | 500              |     | 490              | 510              | 590              | 535              | 490              | 550 | 520              | LH               | 420 <sup>A</sup> | L  | A  |    |    |    |    |    |
| 12     |    |    |    |    |     |     |                  |     |                  | L                | L                | L                | 390              | 340 | 385              | L                | L                |    |    |    |    |    |    |    |
| 13     |    |    |    |    |     |     |                  |     |                  | L                | L                | L                | 500 <sup>M</sup> | 410 | 460              | L                | L                |    |    |    |    |    |    |    |
| 14     |    |    |    |    | L   | 460 | L                | L   | 455              | 585              | 450              | 510              | 500 <sup>M</sup> | 410 | 460              | L                | L                |    |    |    |    |    |    |    |
| 15     |    |    |    |    | L   | L   | L                | L   | L                | 410              | 460 <sup>M</sup> | 435              | 445 <sup>M</sup> | 370 | 400              | L                | L                |    |    |    |    |    |    |    |
| 16     |    |    |    |    | L   | L   | L                | L   | A                | L                | 360 <sup>M</sup> | 400              | L                | 370 | L                | L                | L                |    |    |    |    |    |    |    |
| 17     |    |    |    |    | L   | L   | L                | L   | L                | L                | L                | L                | L                | L   | L                | L                | L                |    |    |    |    |    |    |    |
| 18     |    |    |    |    | L   | L   | L                | L   | 390 <sup>M</sup> | L                | 350              | L                | L                | LH  | L                | L                | L                |    |    |    |    |    |    |    |
| 19     |    |    |    |    | L   | L   | L                | L   | 455              | 490              | 425              | 440              | 400              | 425 | L                | L                | L                |    |    |    |    |    |    |    |
| 20     |    |    |    |    | L   | L   | L                | L   | A                | A                | A                | A                | A                | 475 | 478 <sup>M</sup> | 425              | 380 <sup>M</sup> |    |    |    |    |    |    |    |
| 21     |    |    |    |    | L   | L   | L                | L   | A                | A                | 420              | 400 <sup>A</sup> | 400 <sup>A</sup> | 410 | 400              | 390              | LH               |    |    |    |    |    |    |    |
| 22     |    |    |    |    | L   | L   | L                | L   | L                | L                | L                | L                | 380              | L   | L                | L                | L                |    |    |    |    |    |    |    |
| 23     |    |    |    |    | L   | L   | L                | L   | L                | L                | L                | 375              | 395              | 415 | 400              | 380              | L                | L  |    |    |    |    |    |    |
| 24     |    |    |    |    | L   | L   | L                | L   | L                | L                | 405              | 405              | 405              | 435 | 425              | 400 <sup>A</sup> | L                | L  |    |    |    |    |    |    |
| 25     |    |    |    |    | L   | L   | L                | L   | 335              | A                | C                | C                | C                | C   | C                | C                | C                | L  |    |    |    |    |    |    |
| 26     |    |    |    |    | L   | L   | L                | L   | L                | L                | 460              | 460              | 460              | 450 | 415              | 405              | 420 <sup>L</sup> | A  |    |    |    |    |    |    |
| 27     |    |    |    |    | 410 | 500 | 600 <sup>A</sup> | 490 | 480              | 465              | 520              | 570              | 530 <sup>A</sup> | 550 | 440              | 440              | LH               |    |    |    |    |    |    |    |
| 28     |    |    |    |    | L   | 480 | 490              | 480 | A                | A                | A                | A                | 450              | 425 | 455              | L                | L                |    |    |    |    |    |    |    |
| 29     |    |    |    |    | L   | L   | L                | L   | L                | L                | 420              | 430              | 455              | 395 | 420              | 395 <sup>M</sup> | L                | L  |    |    |    |    |    |    |
| 30     |    |    |    |    | 460 | 560 | 620              | 620 | 645              | 645              | 570              | 515              | 490              | 570 | 450 <sup>M</sup> | 480              | 405              | A  |    |    |    |    |    |    |
| 31     |    |    |    |    | L   | L   | L                | L   | L                | L                | 510              | 460 <sup>A</sup> | 495              | 505 | 490              | 455              | 425              | A  |    |    |    |    |    |    |
| No.    |    |    |    |    | 2   | 5   | 8                | 8   | 8                | 10               | 18               | 19               | 21               | 21  | 20               | 13               | 5                |    |    |    |    |    |    |    |
| Median |    |    |    |    | 435 | 480 | 490              | 495 | 495              | 550              | 455              | 440              | 440              | 435 | 470              | 420              | 410              |    |    |    |    |    |    |    |

R'F2

**IONOSPHERIC DATA**

Lat. 45° 23.6' N  
Long. 141° 41.1' E

**Wakkanai**

135° E Mean Time (GMT.+ 9h.)

May. 1958

f'F

| Day    | 00  | 01               | 02  | 03  | 04               | 05               | 06               | 07               | 08               | 09               | 10               | 11               | 12               | 13               | 14               | 15               | 16               | 17               | 18               | 19               | 20               | 21               | 22               | 23  |
|--------|-----|------------------|-----|-----|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----|
| 1      | 370 | 335              | 310 | 340 | 370              | 270              | 270              | 245 <sup>M</sup> | 230 <sup>M</sup> | 230              | 235              | 220 <sup>M</sup> | 235 <sup>M</sup> | 235              | 230 <sup>M</sup> | 250              | 255              | 260 <sup>M</sup> | 275              | 300              | 310              | 315              | 310              | 325 |
| 2      | 315 | 320              | 320 | 325 | 320              | 265              | 280              | 245 <sup>M</sup> | 240 <sup>M</sup> | 240              | 230              | 235              | 230              | 240              | 260              | 240              | 250              | 265 <sup>M</sup> | 280              | 290              | 285              | 300              | 310              | 310 |
| 3      | 320 | 305              | 300 | 270 | 310              | 255              | 285              | 240              | 235 <sup>M</sup> | 230              | 230              | 230              | 230              | 240              | 245              | 250              | 255              | 260              | 275              | 275              | 285              | 300              | 310              | 325 |
| 4      | 310 | 275              | 275 | 270 | 305              | 270              | 245              | 240              | 240 <sup>M</sup> | 230 <sup>M</sup> | 230              | 230 <sup>M</sup> | 230              | 235              | 240              | 245              | 260              | 245 <sup>M</sup> | 290              | 285              | 275              | 280              | 295              | 310 |
| 5      | 315 | 310              | 310 | 305 | 340              | 270              | 265              | 265              | 240 <sup>M</sup> | 250              | 260              | 235 <sup>M</sup> | 230              | 250              | 245              | 250              | 255              | 265              | 300 <sup>M</sup> | 320 <sup>A</sup> | 335 <sup>A</sup> | 325              | 315              | 325 |
| 6      | 320 | 310              | 310 | 305 | 355              | 285              | 260              | 250 <sup>M</sup> | 250              | 260              | 250              | 230              | 225 <sup>M</sup> | 245              | 250              | 250              | 250              | 260              | 280              | 310              | 335              | 315              | 310              | 340 |
| 7      | 330 | 345              | 320 | 300 | 320              | 300              | 280              | 250 <sup>M</sup> | 245 <sup>M</sup> | 235 <sup>M</sup> | 235              | 230              | 235              | 245              | 245              | 240              | 250              | 270              | 280              | 285              | 300              | 305              | 320              | 315 |
| 8      | 330 | 335              | 310 | 285 | 300              | 285              | 240              | 245 <sup>M</sup> | 230 <sup>M</sup> | 230 <sup>M</sup> | 235              | 235              | 230              | 240              | 240              | 260              | 260              | 265              | 270              | 290              | 300              | 295              | 300              | 315 |
| 9      | 315 | 385              | 365 | 280 | 335              | 260              | 250              | 245              | 245 <sup>M</sup> | 255 <sup>M</sup> | 230 <sup>M</sup> | 230              | 235              | 240              | 230 <sup>M</sup> | 250              | 255              | 270 <sup>M</sup> | 270              | 275              | 295              | 315              | 310              | 305 |
| 10     | 310 | 300              | 275 | 300 | 320              | 265              | 250              | 245 <sup>M</sup> | 230              | 230 <sup>M</sup> | 220 <sup>M</sup> | 225 <sup>M</sup> | 230 <sup>M</sup> | 250              | 245              | 240              | 255              | 260              | 300 <sup>A</sup> | 285              | 300              | 305              | 300              | 320 |
| 11     | 300 | 270              | 285 | 250 | 345              | 270              | 280              | 270              | 230 <sup>A</sup> | 270 <sup>A</sup> | 275              | 280 <sup>A</sup> | 220              | 250              | 245              | 240              | 275              | 285 <sup>A</sup> | 290              | 310              | 300              | 355              | 315              | 310 |
| 12     | 320 | 325              | 345 | 275 | 305              | 270 <sup>M</sup> | 260 <sup>M</sup> | 265              | 235              | 270 <sup>M</sup> | 230              | 250 <sup>A</sup> | 240              | 240 <sup>A</sup> | 275 <sup>M</sup> | 260 <sup>A</sup> | 270              | 270              | A                | A                | A                | 275 <sup>A</sup> | 350 <sup>A</sup> | 345 |
| 13     | 330 | 310              | 280 | 310 | 320              | 285 <sup>M</sup> | 285 <sup>M</sup> | 245              | 250 <sup>M</sup> | 260              | 240              | 250              | 240              | 235              | 270              | A                | A                | A                | A                | A                | A                | A                | A                | 350 |
| 14     | 320 | 290              | 335 | 385 | 360 <sup>M</sup> | 285              | 275 <sup>A</sup> | 260              | 265              | 275              | 250              | 235              | 235 <sup>M</sup> | 265 <sup>M</sup> | 285 <sup>A</sup> | 260              | 260              | 270 <sup>A</sup> | 270 <sup>A</sup> | 275              | 285              | 305              | 315              | 340 |
| 15     | 370 | 350              | 320 | 320 | 310              | 260              | 245              | 240              | 235              | 230              | 225 <sup>M</sup> | 220              | 230 <sup>M</sup> | 245 <sup>M</sup> | 230              | 245              | 270 <sup>A</sup> | 270 <sup>A</sup> | 275              | 280 <sup>A</sup> | 275              | 285              | 300              | 350 |
| 16     | 350 | 320              | 335 | 275 | 305              | 265              | 250 <sup>M</sup> | 250 <sup>M</sup> | 265 <sup>M</sup> | 240              | 215 <sup>M</sup> | 255              | 260              | 240              | 245              | 240              | 245              | 285 <sup>A</sup> | 270              | 280              | 285              | 310              | 305              | 365 |
| 17     | 300 | 350              | 315 | 340 | 310              | 260              | 280 <sup>M</sup> | 270 <sup>A</sup> | 265 <sup>M</sup> | 230              | 250              | 260 <sup>A</sup> | 265              | 240              | 230              | 245              | A                | 260 <sup>M</sup> | 285 <sup>A</sup> | 275 <sup>A</sup> | 270              | 300              | 295              | 365 |
| 18     | 310 | 335              | 320 | 295 | 295              | 260              | 260              | 240              | 230 <sup>M</sup> | 220              | 235              | 220              | 235              | 230 <sup>M</sup> | 250              | 240              | 250              | 260 <sup>M</sup> | 275              | 290              | 300              | 295              | 310              | 280 |
| 19     | 305 | 300              | 310 | 325 | 320 <sup>M</sup> | 260              | 255              | 240              | 230 <sup>M</sup> | 240 <sup>A</sup> | 225              | 225              | 235              | 225              | 260              | 245              | 260              | 280 <sup>M</sup> | 280 <sup>A</sup> | 295              | 355              | 310              | 315              | 310 |
| 20     | 275 | 290              | 270 | 270 | 270              | 250 <sup>M</sup> | 255              | 240              | 230 <sup>M</sup> | 240 <sup>A</sup> | 225              | 225              | 235              | 225              | 260              | 245              | 225 <sup>M</sup> | A                | A                | A                | A                | A                | A                | A   |
| 21     | A   | 285 <sup>A</sup> | 280 | 305 | 300              | 270              | 250 <sup>M</sup> | 255              | A                | A                | A                | A                | A                | 235              | 225              | 240              | 245              | 250 <sup>M</sup> | 270 <sup>M</sup> | 300 <sup>A</sup> | 300              | 315 <sup>A</sup> | 310 <sup>A</sup> | 305 |
| 22     | 300 | 270              | 290 | 290 | 295              | 285              | 250              | 250 <sup>M</sup> | 250              | 270 <sup>A</sup> | 260 <sup>A</sup> | 270 <sup>A</sup> | 240              | 245              | 245              | 270 <sup>A</sup> | 240              | 240 <sup>M</sup> | 265              | 285              | 300              | 270              | 270              | 300 |
| 23     | 325 | 320              | 310 | 310 | 290              | 260              | 250 <sup>M</sup> | 250              | 260 <sup>A</sup> | 260 <sup>A</sup> | 240              | 235              | 235              | 230              | 240              | 230              | 250              | 260              | 260              | 300 <sup>A</sup> | 275              | 275              | 300              | 310 |
| 24     | 310 | 290              | 280 | 290 | 290              | 260              | 255              | 250              | 240 <sup>M</sup> | 235 <sup>A</sup> | 225              | 240              | 245              | 220              | 230              | 235 <sup>A</sup> | 260              | 300 <sup>A</sup> | 275              | 290              | 300              | 305              | 300              | 300 |
| 25     | 310 | 275              | 280 | 305 | 295              | 260              | 255              | 270 <sup>A</sup> | A                | C                | C                | C                | C                | C                | C                | C                | C                | A                | A                | A                | 300 <sup>A</sup> | 305              | 310              | 310 |
| 26     | 305 | 300              | 280 | 260 | 290              | 255              | 250              | 265 <sup>A</sup> | 260 <sup>A</sup> | 260              | 260 <sup>A</sup> | 265              | 245 <sup>A</sup> | 240              | 250              | 240              | 275 <sup>A</sup> | A                | A                | A                | 310              | 295              | 320              | 340 |
| 27     | 335 | 355              | 375 | 345 | 370 <sup>M</sup> | 300              | 300 <sup>A</sup> | 280 <sup>A</sup> | 250 <sup>A</sup> | 230              | 240              | 245              | 260              | 240              | 245              | 240 <sup>M</sup> | 240 <sup>M</sup> | 260 <sup>A</sup> | 275 <sup>A</sup> | 310 <sup>A</sup> | 330              | 340 <sup>A</sup> | 345 <sup>A</sup> | 360 |
| 28     | 340 | A                | A   | A   | 305 <sup>M</sup> | 265              | 250              | 245              | 235              | A                | A                | A                | 265              | 260              | 245 <sup>A</sup> | 230 <sup>M</sup> | 250              | 275              | 285 <sup>A</sup> | 295 <sup>A</sup> | 320 <sup>A</sup> | 310              | 310              | 330 |
| 29     | 330 | 325              | 325 | 325 | 315              | 260 <sup>M</sup> | 250              | 250              | 235              | 220              | 235              | 225              | 245              | 235              | 260              | 250              | 260              | 280              | 280              | 320              | 315              | 280              | 255              | 350 |
| 30     | 330 | 310              | 330 | 350 | 345              | 280              | 250              | A                | A                | A                | 250              | 250 <sup>M</sup> | 280 <sup>A</sup> | 230              | 230 <sup>M</sup> | 270              | 275              | 260 <sup>A</sup> | 265 <sup>A</sup> | 310 <sup>A</sup> | 320 <sup>A</sup> | 330              | 310              | 310 |
| 31     | 315 | 310              | 310 | 310 | 290              | 285              | 255              | 260 <sup>A</sup> | 255              | 270              | 225              | 235 <sup>A</sup> | 240 <sup>A</sup> | 255 <sup>A</sup> | 260              | 275 <sup>A</sup> | A                | A                | A                | A                | 300              | 315 <sup>A</sup> | 310              | 350 |
| N0.    | 30  | 30               | 30  | 30  | 31               | 30               | 28               | 27               | 27               | 26               | 27               | 27               | 27               | 29               | 30               | 29               | 27               | 25               | 26               | 27               | 29               | 29               | 29               | 30  |
| Median | 320 | 310              | 310 | 305 | 310              | 260              | 255              | 245              | 240              | 235              | 235              | 240              | 245              | 245              | 245              | 245              | 245              | 260              | 275              | 270              | 300              | 310              | 310              | 315 |

Sweep 1.0 Mc to 2.0 Mc in 1 sec in automatic operation.

f'F

The Radio Research Laboratories, Japan.

W 10

# IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

## Wakkanai

135° E Mean Time (GMT.+9h.)

f<sup>o</sup>F<sub>2</sub>

May. 1958

| Day    | 00  | 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   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 2      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 3      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 4      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 5      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 6      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 7      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 8      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 9      | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 10     | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 11     | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 12     | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 13     | 105 | 105 | 105 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   | E   |
| 14     | 105 | 105 | 105 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   | E   |
| 15     | E   | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 16     | 110 | 105 | 100 | E   | S   | 130 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   | E   |
| 17     | 105 | 105 | 105 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   | E   |
| 18     | 110 | E   | E   | 135 | 130 | 140 | 125 | 135 | 125 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | E   |
| 19     | E   | E   | E   | E   | 105 | 105 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 190 | E   |
| 20     | E   | E   | E   | E   | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | E   |
| 21     | 110 | 105 | E   | E   | 105 | 125 | 120 | 115 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | E   |
| 22     | 110 | 110 | 105 | E   | 100 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | E   |
| 23     | 115 | 110 | 105 | E   | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | E   |
| 24     | 110 | 105 | 105 | 110 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 25     | 105 | 105 | 105 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   | E   |
| 26     | 105 | 105 | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 27     | 110 | E   | E   | E   | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 28     | 105 | 105 | 105 | 105 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| 29     | 110 | 110 | 105 | 105 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | E   |
| 30     | 130 | 130 | 125 | 120 | 135 | 125 | 125 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | 120 | E   |
| 31     | E   | E   | 105 | 110 | 105 | 110 | 115 | 120 | 125 | 130 | 135 | 140 | 145 | 150 | 155 | 160 | 165 | 170 | 175 | 180 | 185 | 190 | 195 | E   |
| No.    | 15  | 15  | 15  | 13  | 21  | 19  | 20  | 22  | 22  | 26  | 22  | 23  | 19  | 21  | 17  | 14  | 18  | 24  | 28  | 24  | 24  | 18  | 13  | 11  |
| Median | 110 | 105 | 105 | 110 | 105 | 140 | 135 | 130 | 125 | 120 | 120 | 115 | 115 | 115 | 115 | 110 | 130 | 125 | 120 | 115 | 110 | 110 | 110 | 110 |

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 2.0 Mc in \_\_\_\_\_ min \_\_\_\_\_ sec in automatic operation.

f<sup>o</sup>F<sub>2</sub>

May. 1958

W 11

IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

135° E Mean Time (GMT.+ 9h.)

Types of Es

May. 1958

| Day    | 00             | 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  |    |    |    |    | C  |    |    |    | l  | l  | C  |    | A  | C  | f  | f <sub>2</sub> |                |    |    |
| 2      |                |                |                |                | f  | A  |    |    |    |    |    |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 3      |                |                | f <sub>2</sub> | f <sub>2</sub> | f  |    | A  |    |    |    |    |    |    |    |    |    |    |    | C  | f  | f              |                |    |    |
| 4      |                |                |                |                |    | A  |    |    |    | A  | C  |    |    |    |    |    |    | A  | C  | f  | f <sub>2</sub> |                |    |    |
| 5      |                |                |                |                |    | A  |    |    |    | C  | C  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 6      |                |                |                |                |    |    |    |    |    | A  |    |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 7      |                |                |                |                |    |    |    |    |    |    |    |    |    |    |    |    | A  |    |    |    |                |                |    |    |
| 8      |                |                |                |                | f  | A  |    |    |    | CC | A  |    |    |    |    |    | A  | C  | C  | f  | f <sub>2</sub> | f <sub>3</sub> |    |    |
| 9      |                |                |                |                | f  | C  |    |    |    | A  | A  |    |    |    |    |    |    | C  | C  |    |                |                |    |    |
| 10     |                |                |                |                |    | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 11     |                |                |                |                |    | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 12     |                |                |                |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 13     |                | f <sub>3</sub> | f <sub>2</sub> | f              |    | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 14     | f <sub>4</sub> | f              | f              | f              | A  |    |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 15     | f              |                |                |                |    | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 16     | f <sub>2</sub> | f <sub>2</sub> | f <sub>2</sub> | f              |    | C  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 17     | f <sub>2</sub> | f <sub>5</sub> | f <sub>3</sub> |                | f  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 18     | f <sub>4</sub> | f              | f <sub>2</sub> |                | C  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 19     |                |                |                |                | C  | A  |    |    |    | C  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 20     |                |                |                |                | l  | C  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 21     | f <sub>3</sub> | f <sub>3</sub> |                |                | l  | C  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 22     | f              | f              | f <sub>2</sub> |                | l  | C  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 23     | f              | f <sub>4</sub> | f <sub>5</sub> |                | l  | C  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 24     | f              | f              | f              |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 25     | f <sub>3</sub> | f <sub>2</sub> | f <sub>2</sub> |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 26     | f              |                |                |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 27     | f              |                |                |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 28     | f <sub>3</sub> | f <sub>3</sub> | f <sub>4</sub> |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 29     | f              | f <sub>2</sub> | f <sub>4</sub> |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 30     | f <sub>2</sub> | f <sub>2</sub> | f <sub>6</sub> |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| 31     |                |                | f              |                | l  | A  |    |    |    | A  | A  |    |    |    |    |    |    |    | C  |    |                |                |    |    |
| No.    |                |                |                |                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |                |    |    |
| Median |                |                |                |                |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |                |                |    |    |

Sweep 1.0 Mc to 20.0 Mc in 1 min in automatic operation.

Types of Es

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

IONOSPHERIC DATA

135° E Mean Time (GMT. + 9h.)

foF2

May, 1958

| Day    | 00   | 01   | 02  | 03  | 04  | 05   | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   |
|--------|------|------|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1      | 8.7  | 9.0  | 8.4 | 7.7 | 7.8 | 8.6  | 10.1 | 11.2 | 11.0 | 12.3 | 12.8 | 13.5 | 12.9 | 12.0 | 11.9 | 11.3 | 11.2 | 10.9 | 10.4 | 9.6  | 9.4  | 9.5  | 9.2  | 9.5  |
| 2      | 9.2  | 9.0  | 8.9 | 8.4 | 8.5 | 9.1  | 10.4 | 11.7 | 12.1 | 13.2 | 13.1 | 13.5 | 13.6 | 13.3 | 12.9 | 12.5 | 12.0 | 11.5 | 11.3 | 10.4 | 9.4  | 9.6  | 9.7  | 9.8  |
| 3      | 9.6  | 9.7  | 9.2 | 8.6 | 8.4 | 9.5  | 11.4 | 12.3 | 12.5 | 13.1 | 13.5 | 13.7 | 13.6 | 13.3 | 13.2 | 12.7 | 12.3 | 12.0 | 11.8 | 10.4 | 9.6  | 10.1 | 10.4 | 10.6 |
| 4      | 10.6 | 9.9  | 9.7 | 8.7 | 8.7 | 10.2 | 11.9 | 12.5 | 12.7 | 13.5 | 13.8 | 13.9 | 13.8 | 13.7 | 13.5 | 12.9 | 12.6 | 12.1 | 11.9 | 11.6 | 10.2 | 9.9  | 9.9  | 9.8  |
| 5      | 9.7  | 9.5  | 9.0 | 8.6 | 8.7 | 9.6  | 9.5  | 9.1  | 8.8  | 9.1  | 10.3 | 11.2 | 12.5 | 12.1 | 11.6 | 11.4 | 9.9  | 9.5  | 9.2  | 9.1  | 8.6  | 8.6  | 8.7  | 9.0  |
| 6      | 8.8  | 8.5  | 8.1 | 7.9 | 7.6 | 9.1  | 9.8  | 10.5 | 11.2 | 11.0 | 11.3 | 12.0 | 12.1 | 11.9 | 12.1 | 11.5 | 10.5 | 10.0 | 9.3  | 9.6  | 9.2  | 9.1  | 9.0  | 8.9  |
| 7      | 9.0  | 8.9  | 8.6 | 8.3 | 7.9 | 8.7  | 10.2 | 10.8 | 11.5 | 11.6 | 11.8 | 12.0 | 12.3 | 12.7 | 12.3 | 12.0 | 11.0 | 10.6 | 10.5 | 10.1 | 9.1  | 9.2  | 9.2  | 9.4  |
| 8      | 9.3  | 9.2  | 9.0 | 8.5 | 8.2 | 9.0  | 10.4 | 11.2 | 11.1 | 11.6 | 12.0 | 12.6 | 12.6 | 12.3 | 11.6 | 11.2 | 11.1 | 10.9 | 10.8 | 10.3 | 9.9  | 9.8  | 9.7  | 9.6  |
| 9      | 9.7  | 9.3  | 8.8 | 8.3 | 8.7 | 9.7  | 11.4 | 12.5 | 12.3 | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | 10.7 | 9.8  | 9.9  | 10.5 | 10.6 |
| 10     | 10.5 | 10.1 | 9.6 | 9.0 | 9.0 | 10.4 | 11.5 | 11.5 | 12.0 | 12.3 | 12.6 | 12.7 | 12.9 | 13.0 | 13.1 | 13.0 | 12.5 | 12.0 | 11.7 | 11.8 | 10.7 | 10.3 | 10.0 | 9.8  |
| 11     | 9.9  | 9.6  | 8.0 | 7.5 | 7.3 | 8.4  | 8.1  | 7.7  | 7.1  | 7.0  | 7.3  | 7.7  | 8.0  | 8.1  | 8.5  | 8.8  | 8.6  | 8.1  | 8.0  | 8.3  | 8.0  | 8.2  | 8.5  | 8.2  |
| 12     | 7.7  | 8.0  | 7.4 | 7.3 | 7.8 | 7.5  | 7.3  | 7.6  | 7.5  | 7.4  | 7.9  | 8.4  | 9.0  | 9.0  | 9.5  | 9.9  | 9.8  | 9.4  | 9.1  | 8.1  | 8.0  | 8.2  | 8.5  | 8.5  |
| 13     | 8.6  | 8.4  | 8.4 | 7.1 | 7.1 | 7.8  | 10.2 | 11.1 | 11.4 | 11.7 | 11.7 | 12.0 | 12.0 | 12.1 | 11.5 | 11.1 | 11.0 | 10.9 | 10.2 | 10.1 | 9.4  | 9.3  | 9.1  | 9.2  |
| 14     | 9.6  | 9.2  | 7.9 | 7.4 | 7.0 | 7.8  | 8.1  | 8.1  | 8.6  | 9.1  | 9.4  | 8.7  | 8.6  | 10.1 | 9.7  | 9.6  | 9.0  | 8.4  | 8.4  | 8.8  | 8.1  | 8.7  | 8.7  | 8.8  |
| 15     | 8.2  | 7.9  | 8.0 | 7.5 | 7.0 | 7.6  | 8.5  | 9.2  | 10.3 | 10.5 | 11.1 | 11.9 | 12.3 | 12.3 | 12.1 | 11.6 | 10.9 | 11.3 | 10.3 | 9.4  | 8.8  | 9.1  | 9.4  | 9.1  |
| 16     | 8.8  | 8.5  | 8.5 | 8.4 | 7.1 | 7.7  | 9.2  | 10.1 | 10.4 | 10.9 | 11.9 | 12.2 | 12.1 | 11.6 | 11.6 | 11.6 | 10.8 | 10.6 | 10.1 | 9.6  | 9.6  | 9.8  | 10.0 | 10.4 |
| 17     | 10.1 | 9.0  | 8.7 | 8.4 | 8.4 | 10.1 | 11.2 | 10.8 | 11.3 | 11.5 | 11.6 | 12.1 | 12.4 | 12.6 | 12.3 | 12.5 | 12.2 | 11.4 | 11.4 | 10.3 | 9.4  | 9.8  | 10.0 | 9.7  |
| 18     | 9.2  | 8.8  | 8.6 | 8.9 | 8.1 | 8.2  | 9.0  | 10.1 | 10.2 | 11.6 | 12.1 | 12.5 | 13.1 | 12.6 | 12.2 | 11.3 | 10.6 | 10.1 | 9.7  | 10.3 | 10.3 | 10.5 | 9.8  | 10.3 |
| 19     | 9.3  | 9.2  | 8.5 | 8.0 | 8.1 | 8.6  | 8.6  | 8.5  | 8.4  | 9.0  | 9.8  | 9.8  | 10.0 | 9.5  | 9.6  | 9.9  | 10.0 | 9.6  | 9.3  | 8.9  | 9.0  | 9.5  | 9.6  | 9.7  |
| 20     | 9.6  | 8.9  | 8.9 | 8.0 | 7.9 | 8.9  | 11.0 | 11.0 | 10.0 | 9.2  | 9.3  | 9.5  | 9.1  | 9.2  | 9.4  | 9.5  | 9.3  | 8.8  | 8.5  | 8.1  | 8.3  | 8.5  | 9.1  | 9.1  |
| 21     | 9.2  | 9.1  | 8.2 | 7.4 | 7.4 | 8.5  | 10.0 | 10.5 | 10.6 | 10.7 | 10.9 | 10.9 | 11.4 | 11.5 | 11.5 | 11.3 | 11.3 | 10.6 | 9.7  | 9.6  | 9.4  | 9.2  | 9.0  | 8.8  |
| 22     | 8.9  | 8.6  | 8.2 | 7.8 | 7.9 | 9.1  | 11.1 | 11.9 | 11.5 | 11.8 | 12.0 | 12.3 | 12.6 | 12.3 | 11.9 | 11.6 | 10.8 | 10.2 | 10.1 | 10.0 | 9.8  | 9.5  | 9.3  | 9.1  |
| 23     | 9.3  | 9.1  | 8.8 | 8.4 | 8.7 | 10.1 | 11.2 | 11.3 | 10.6 | 10.8 | 11.2 | 11.6 | 11.7 | 11.6 | 11.5 | 11.0 | 10.7 | 10.3 | 10.0 | 9.9  | 9.2  | 9.2  | 9.7  | 9.6  |
| 24     | 9.7  | 9.7  | 9.1 | 8.3 | 8.7 | 9.7  | 11.8 | 12.0 | 11.3 | 11.1 | 11.2 | 11.5 | 11.4 | 11.1 | 11.0 | 10.4 | 9.8  | 9.5  | 9.1  | 9.2  | 9.7  | 9.6  | 9.8  | 9.6  |
| 25     | 9.2  | 9.0  | 8.5 | 7.8 | 8.0 | 9.5  | 11.1 | 11.4 | 11.7 | 11.3 | 11.1 | 11.5 | 11.4 | 11.3 | 10.9 | 10.5 | 10.1 | 9.8  | 9.5  | 9.5  | 9.2  | 9.2  | 9.4  | 9.5  |
| 26     | 9.5  | 9.4  | 8.9 | 8.1 | 8.0 | 9.3  | 10.5 | 11.3 | 11.4 | 10.9 | 10.7 | 11.0 | 11.1 | 10.8 | 10.9 | 10.0 | 9.5  | 9.4  | 9.3  | 9.6  | 9.2  | 9.3  | 9.2  | 9.1  |
| 27     | 8.6  | 8.7  | 7.9 | 8.1 | 7.5 | 7.7  | 7.4  | 6.3  | 6.6  | 7.3  | 7.8  | 8.3  | 8.7  | 9.0  | 9.0  | 8.8  | 8.7  | 8.6  | 8.1  | 8.0  | 8.8  | 9.1  | 9.0  | 8.8  |
| 28     | 8.6  | 8.4  | 7.6 | 7.0 | 6.7 | 6.5  | 6.8  | 7.2  | 6.9  | 7.4  | 7.5  | 8.3  | 9.5  | 9.6  | 9.5  | 9.1  | 9.1  | 8.6  | 8.3  | 8.4  | 8.6  | 8.4  | 8.6  | 8.5  |
| 29     | 8.5  | 8.3  | 8.0 | 8.0 | 8.1 | 9.1  | 9.3  | 9.8  | 10.3 | 10.3 | 10.9 | 11.1 | 11.1 | 11.7 | 11.3 | 11.1 | 9.6  | 9.5  | 10.0 | 9.5  | 10.7 | 10.9 | 10.8 | 9.3  |
| 30     | 9.8  | 9.6  | 9.4 | 8.1 | 7.4 | 7.5  | 7.0  | 6.9  | 7.0  | 7.5  | 7.6  | 8.5  | 8.5  | 8.5  | 9.0  | 8.8  | 8.8  | 8.8  | 8.7  | 9.0  | 8.7  | 8.8  | 9.3  | 9.0  |
| 31     | 9.1  | 9.0  | 8.2 | 8.0 | 8.2 | 9.2  | 10.7 | 10.4 | 10.3 | 9.6  | 10.3 | 10.1 | 9.9  | 9.9  | 9.7  | 9.9  | 9.8  | 9.7  | 9.7  | 9.6  | 9.0  | 8.7  | 9.0  | 9.0  |
| No.    | 31   | 31   | 31  | 31  | 31  | 31   | 31   | 31   | 31   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 31   | 31   | 31   | 31   | 31   |
| Median | 9.2  | 9.0  | 8.5 | 8.1 | 8.0 | 9.0  | 10.2 | 10.8 | 10.6 | 10.9 | 11.2 | 11.6 | 11.8 | 11.6 | 11.5 | 11.2 | 10.6 | 10.0 | 9.7  | 9.6  | 9.2  | 9.3  | 9.3  | 9.3  |
| U.Q.   | 9.7  | 9.4  | 8.9 | 8.4 | 8.4 | 9.5  | 11.1 | 11.4 | 11.5 | 11.6 | 12.0 | 12.3 | 12.6 | 12.3 | 12.1 | 11.6 | 11.1 | 10.9 | 10.4 | 10.3 | 9.7  | 9.8  | 9.8  | 9.7  |
| L.Q.   | 8.8  | 8.6  | 8.1 | 7.7 | 7.4 | 7.8  | 8.6  | 9.1  | 8.8  | 9.1  | 9.8  | 9.8  | 10.0 | 9.9  | 9.7  | 9.9  | 9.6  | 9.4  | 9.1  | 9.0  | 8.8  | 9.1  | 9.0  | 9.0  |
| Q.R.   | 0.9  | 0.8  | 0.8 | 0.7 | 1.0 | 1.7  | 2.5  | 2.3  | 2.7  | 2.5  | 2.2  | 2.5  | 2.6  | 2.4  | 2.4  | 1.7  | 1.5  | 1.5  | 1.3  | 1.3  | 0.9  | 0.7  | 0.8  | 0.7  |

The Radio Research Laboratories, Japan.

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

foF2

A 1

# IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.2' E

## Akita

foF1

135° E Mean Time (GMT.+ 9h.)

May, 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07  | 08              | 09              | 10              | 11  | 12              | 13              | 14              | 15              | 16              | 17              | 18  | 19 | 20 | 21 | 22 | 23 |  |
|--------|----|----|----|----|----|----|----|-----|-----------------|-----------------|-----------------|-----|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----|----|----|----|----|----|--|
| 1      |    |    |    |    |    |    |    |     |                 |                 | L               | L   |                 |                 |                 |                 |                 |                 |     |    |    |    |    |    |  |
| 2      |    |    |    |    |    |    |    |     |                 |                 |                 |     |                 |                 |                 |                 |                 |                 |     |    |    |    |    |    |  |
| 3      |    |    |    |    |    |    |    |     |                 |                 |                 |     |                 |                 |                 |                 |                 |                 |     |    |    |    |    |    |  |
| 4      |    |    |    |    |    |    |    |     |                 | L               | 64              | 67  | 66              | 67 <sup>L</sup> | 58 <sup>M</sup> | 4.4             | L               |                 |     |    |    |    |    |    |  |
| 5      |    |    |    |    |    |    |    |     |                 | L               | 67 <sup>L</sup> | 71  | 67              | 66              | 65              | 65 <sup>L</sup> | L               | L               |     |    |    |    |    |    |  |
| 6      |    |    |    |    |    |    |    |     |                 | L               | 71              | 68  | 70              | 66              | 66              | L               | L               | L               |     |    |    |    |    |    |  |
| 7      |    |    |    |    |    |    |    |     |                 |                 |                 |     |                 |                 |                 |                 |                 |                 |     |    |    |    |    |    |  |
| 8      |    |    |    |    |    |    |    |     |                 | C               | C               | C   | C               | C               | C               | C               | C               | C               |     |    |    |    |    |    |  |
| 9      |    |    |    |    |    |    |    |     |                 |                 |                 |     |                 |                 |                 |                 |                 |                 |     |    |    |    |    |    |  |
| 10     |    |    |    |    |    |    |    |     | L               |                 |                 |     |                 |                 |                 |                 |                 |                 |     |    |    |    |    |    |  |
| 11     |    |    |    |    |    |    |    | L   | 53              | 54              | 55              | 56  | 57              | 59              | 57              | 57              | 56 <sup>L</sup> | L               |     |    |    |    |    |    |  |
| 12     |    |    |    |    |    |    |    | L   | 50 <sup>L</sup> | 57              | 61              | 58  | 59 <sup>A</sup> | 60 <sup>A</sup> | 62              | 60 <sup>L</sup> | L               | L               |     |    |    |    |    |    |  |
| 13     |    |    |    |    |    |    |    | L   | L               | L               | L               | 66  | 69              | A               | L               | L               | L               | L               |     |    |    |    |    |    |  |
| 14     |    |    |    |    |    |    |    | L   | 57 <sup>A</sup> | 60              | 63              | 63  | 60              | 61              | 63 <sup>M</sup> | 61 <sup>M</sup> | L               | L               |     |    |    |    |    |    |  |
| 15     |    |    |    |    |    |    |    | L   | L               | L               | L               | 63  | 57              | 64              | 65              | 60 <sup>L</sup> | L               | L               |     |    |    |    |    |    |  |
| 16     |    |    |    |    |    |    |    | L   | 64              | 66              | 66              | 66  | 67              | 66              | 63              | 58 <sup>L</sup> | L               | L               |     |    |    |    |    |    |  |
| 17     |    |    |    |    |    |    |    |     | L               | 64              | L               | 48  | 58              | 63              | 62 <sup>A</sup> | L               | A               |                 |     |    |    |    |    |    |  |
| 18     |    |    |    |    |    |    |    |     |                 | 64              | 61              | 66  | 58              | A               | A               | L               | A               |                 |     |    |    |    |    |    |  |
| 19     |    |    |    |    |    |    |    |     | L               | 54 <sup>L</sup> | L               | 64  | 65              | 65              | 62 <sup>L</sup> | L               | A               |                 |     |    |    |    |    |    |  |
| 20     |    |    |    |    |    |    |    | L   | 57 <sup>A</sup> | 60 <sup>A</sup> | 61              | 62  | 61              | 59              | 59              | 58              | 55 <sup>L</sup> | L               |     |    |    |    |    |    |  |
| 21     |    |    |    |    |    |    |    | L   | A               | 65 <sup>A</sup> | 67 <sup>A</sup> | 65  | 63              | 64              | 60              | L               | L               |                 |     |    |    |    |    |    |  |
| 22     |    |    |    |    |    |    |    | L   | L               | 68              | 66              | 65  | 65              | 65              | 64              | 59              | L               | L               |     |    |    |    |    |    |  |
| 23     |    |    |    |    |    |    |    | L   | L               | L               | 67              | 65  | 65              | 64              | L               | L               | L               | L               |     |    |    |    |    |    |  |
| 24     |    |    |    |    |    |    |    | L   | L               | A               | L               | 63  | 65              | 67              | L               | A               | L               | L               |     |    |    |    |    |    |  |
| 25     |    |    |    |    |    |    |    | L   | L               | L               | 67              | 66  | 65              | 63              | 61              | 61              | A               | A               |     |    |    |    |    |    |  |
| 26     |    |    |    |    |    |    |    | L   | L               | L               | 66              | 62  | 62              | 62              | 60              | 62              | 58              | A               |     |    |    |    |    |    |  |
| 27     |    |    |    |    |    |    |    | L   | 39 <sup>L</sup> | 51              | 54              | 55  | 56              | 59              | 60              | 63              | 62 <sup>A</sup> | 63 <sup>A</sup> | A   |    |    |    |    |    |  |
| 28     |    |    |    |    |    |    |    | L   | L               | L               | 49              | 51  | 61              | 60              | 62              | 61              | 60 <sup>A</sup> | A               |     |    |    |    |    |    |  |
| 29     |    |    |    |    |    |    |    | L   | L               | L               | L               | 70  | 67              | 61              | 66              | 64              | 60 <sup>M</sup> | L               | L   |    |    |    |    |    |  |
| 30     |    |    |    |    |    |    |    | L   | A               | 50              | 58              | 57  | 58              | 60              | 63              | 64              | 62              | 63              | L   | L  |    |    |    |    |  |
| 31     |    |    |    |    |    |    |    | L   | L               | L               | A               | 65  | 66              | 60              | 62              | 62              | A               | A               |     |    |    |    |    |    |  |
| No.    |    |    |    |    |    |    |    | 1   | 3               | 6               | 7               | 10  | 19              | 24              | 25              | 22              | 21              | 15              | 3   |    |    |    |    |    |  |
| Median |    |    |    |    |    |    |    | 3.9 | 5.0             | 5.2             | 5.7             | 6.0 | 6.4             | 6.6             | 6.3             | 6.4             | 6.2             | 6.0             | 5.8 |    |    |    |    |    |  |

Lat. 39° 43.5' N  
Long. 140° 08.2' E

IONOSPHERIC DATA

Akita

135° E Mean Time (GMT.+9h.)

foE

May, 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05               | 06  | 07               | 08               | 09               | 10  | 11               | 12               | 13               | 14               | 15               | 16               | 17               | 18               | 19  | 20 | 21 | 22 | 23 |  |
|--------|----|----|----|----|----|------------------|-----|------------------|------------------|------------------|-----|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----|----|----|----|----|--|
| 1      |    |    |    |    |    | B                | 270 | 345              | 380              | 405              | 405 | 400              | 400              | 405              | 390              | 375              | 350              | 275 <sup>B</sup> | S                |     |    |    |    |    |  |
| 2      |    |    |    |    |    |                  | 295 | 345 <sup>B</sup> | 385              | 410              | 415 | 420              | 420 <sup>K</sup> | 425              | 405              | 385 <sup>A</sup> | 355 <sup>A</sup> | 295 <sup>K</sup> | R                |     |    |    |    |    |  |
| 3      |    |    |    |    |    | R                | 295 | 345              | 380              | 410 <sup>S</sup> | 420 | 420              | 420 <sup>K</sup> | 420              | 410              | 385              | 345              | 295              | R                |     |    |    |    |    |  |
| 4      |    |    |    |    |    | R                | 290 | 345              | 370              | 400              | 410 | 415              | 440              | 445 <sup>B</sup> | 420 <sup>A</sup> | 380              | 350              | 300              | 200              |     |    |    |    |    |  |
| 5      |    |    |    |    |    | R                | 285 | 345              | 370              | 390 <sup>K</sup> | 410 | 400              | A                | B                | R                | 380              | 355              | 305              | 200 <sup>K</sup> |     |    |    |    |    |  |
| 6      |    |    |    |    |    | 220              | 300 | 355              | 390              | 400              | 400 | 405              | 410              | 410              | 405              | 350              | 325              | 300              | 200              |     |    |    |    |    |  |
| 7      |    |    |    |    |    | S                | 275 | 345              | 380              | 400              | 405 | 430              | 405              | 405              | 405              | 380 <sup>A</sup> | 325              | 295              | 195              |     |    |    |    |    |  |
| 8      |    |    |    |    |    | 200              | 260 | 350              | 390              | 395              | 415 | 400 <sup>K</sup> | 400 <sup>K</sup> | 410              | 410              | 385              | 355              | 295              | 200              |     |    |    |    |    |  |
| 9      |    |    |    |    |    | 180              | 295 | 340              | 360              | C                | C   | C                | C                | C                | C                | C                | C                | C                | C                |     |    |    |    |    |  |
| 10     |    |    |    |    |    | S                | 295 | 345              | 370              | 395              | 405 | 410              | 405              | 405              | 400              | 395              | 350              | 270              | S                |     |    |    |    |    |  |
| 11     |    |    |    |    |    | S                | 295 | 330              | 355              | 400              | 395 | 400 <sup>K</sup> | 405 <sup>K</sup> | 405              | 400              | 390              | 350              | 295              | 200              |     |    |    |    |    |  |
| 12     |    |    |    |    |    | 200              | 295 | 340              | 365              | 400              | 400 | 400              | 405              | 405              | 400              | 370              | 350              | 295              | 200              |     |    |    |    |    |  |
| 13     |    |    |    |    |    | 295              | 340 | 360              | 395              | 405              | 405 | 405              | 405              | 400              | 400              | 395              | 350              | 300              | 200              |     |    |    |    |    |  |
| 14     |    |    |    |    |    | 190              | 290 | 340              | 355              | 380 <sup>M</sup> | 395 | 405              | 400              | 400              | 380              | 365              | 340              | 285              | 200              |     |    |    |    |    |  |
| 15     |    |    |    |    |    | B                | 280 | 310              | 355              | 380              | 395 | 395              | 395              | 400              | 405              | 370              | 330              | 295              | 210              |     |    |    |    |    |  |
| 16     |    |    |    |    |    | 185              | 280 | 315              | 345              | 355              | 375 | 400              | 400 <sup>A</sup> | 405              | 405              | 395              | 370              | 340              | 295              | 200 |    |    |    |    |  |
| 17     |    |    |    |    |    | R                | 290 | 320              | 360 <sup>K</sup> | 390              | 395 | 395              | 395              | 395              | 395              | 395              | 350 <sup>S</sup> | 300              | 205              |     |    |    |    |    |  |
| 18     |    |    |    |    |    | 280 <sup>B</sup> | 335 | 355              | 380              | 400              | 405 | 405              | 405              | 395 <sup>K</sup> | 380              | 385              | 350              | 300              | 200              |     |    |    |    |    |  |
| 19     |    |    |    |    |    | B                | B   | 345              | 350 <sup>K</sup> | 390              | 400 | 400              | 395 <sup>B</sup> | 390 <sup>B</sup> | 390              | 345              | 310 <sup>B</sup> | 275 <sup>B</sup> | 210              |     |    |    |    |    |  |
| 20     |    |    |    |    |    | 270 <sup>S</sup> | 345 | 380              | 390              | 400              | 405 | 405              | 415              | 395              | 380 <sup>K</sup> | 365              | A                | A                | R                |     |    |    |    |    |  |
| 21     |    |    |    |    |    | B                | 290 | 335              | 370              | 395              | 400 | 400              | 390 <sup>A</sup> | 350              | A                | A                | 370              | 300              | R                |     |    |    |    |    |  |
| 22     |    |    |    |    |    | B                | R   | 340 <sup>K</sup> | 380              | 390              | 400 | 405              | 395              | 400              | 400              | 380 <sup>B</sup> | 345              | 345              | 220              |     |    |    |    |    |  |
| 23     |    |    |    |    |    | B                | 300 | 350              | 355              | 390              | 400 | 410              | R                | R                | A                | A                | A                | A                | 195              |     |    |    |    |    |  |
| 24     |    |    |    |    |    | B                | 295 | 360              | 380              | 395              | 395 | 405              | R                | R                | A                | R                | 355              | 315              | 220              |     |    |    |    |    |  |
| 25     |    |    |    |    |    | R                | 310 | 355              | 385              | 400              | 400 | 400 <sup>B</sup> | 400              | 395 <sup>B</sup> | 380              | 345              | 400              | 310              | R                |     |    |    |    |    |  |
| 26     |    |    |    |    |    | 210              | 300 | 345              | 370              | 390              | 405 | 405 <sup>B</sup> | 405              | 405              | 395              | 395              | 350              | 295              | 245              |     |    |    |    |    |  |
| 27     |    |    |    |    |    | 210              | 295 | 345              | 380              | 400 <sup>K</sup> | 400 | 415              | R                | R                | 400              | 390              | 345              | 300              | 230              |     |    |    |    |    |  |
| 28     |    |    |    |    |    | R                | 280 | 345              | 380              | 395              | 400 | 405              | 405              | 405              | 390              | A                | A                | A                | 240              |     |    |    |    |    |  |
| 29     |    |    |    |    |    | 240              | 300 | 350              | 385              | 400              | 405 | 410              | 405              | 400              | 395              | 380              | 350              | 305              | 230              |     |    |    |    |    |  |
| 30     |    |    |    |    |    | 210              | 300 | 350              | 390              | 400              | 405 | 410              | 410 <sup>B</sup> | 405              | 395              | 305              | 295              | 245              | 230              |     |    |    |    |    |  |
| 31     |    |    |    |    |    | 190              | 295 | 350              | 380              | 405              | 395 | 390              | 395 <sup>K</sup> | 405              | 410              | 390 <sup>B</sup> | 350              | 305              | 230              |     |    |    |    |    |  |
| No.    |    |    |    |    |    | 11               | 29  | 31               | 31               | 30               | 30  | 30               | 26               | 26               | 25               | 26               | 27               | 27               | 23               |     |    |    |    |    |  |
| Median |    |    |    |    |    | 200              | 295 | 345              | 370              | 395              | 400 | 405              | 405              | 405              | 405              | 400              | 380              | 350              | 295              | 200 |    |    |    |    |  |

Sweep 1.6 Mc to 2.0 Mc in 2.0 min in automatic operation.

The Radio Research Laboratories, Japan.

A 3

foE



IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

135° E Mean Time (GMT.+ 9h.)

foEs

May. 1958

| Day    | 00                | 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                | B                | G                | 3.9              | 4.4              | 4.5               | G                | G                | 4.5              | G                | G                | G                | G <sup>M</sup>   | B                 | S                 | 2.9 <sup>M</sup> | 2.6 <sup>M</sup>  | E                 | S                | E                 |    |
| 2      | E                 | E                | E                | E                | E                | E                | 3.1              | B                | G                | G                 | 4.4              | G                | G                | 5.4 <sup>M</sup> | 5.4 <sup>M</sup> | 4.8 <sup>M</sup> | 4.6 <sup>M</sup> | 8.7 <sup>M</sup>  | 3.2               | 3.1              | E                 | E                 | E                | E                 |    |
| 3      | E                 | E                | E                | E                | E                | 2.2              | G                | 3.7              | 4.5              | S                 | 5.4              | 4.7              | 4.5              | G                | G                | G                | 4.0              | 3.5               | 2.6               | E                | E                 | E                 | E                | E                 |    |
| 4      | E                 | E                | E                | E                | E                | 2.5              | 3.6              | 4.3              | 4.8              | 5.0               | 4.5              | 5.2 <sup>M</sup> | G                | G                | G                | G                | G                | G                 | 2.3               | 5.5 <sup>M</sup> | 2.3               | 2.5 <sup>M</sup>  | E                | E                 |    |
| 5      | E                 | E                | E                | E                | E                | 2.3              | 3.5              | 4.2              | 4.5              | 4.6               | 4.4              | 5.0 <sup>M</sup> | G                | B                | B                | G                | 3.9              | 4.2               | 5.9 <sup>M</sup>  | 3.2              | 2.8 <sup>M</sup>  | 3.2               | 2.5 <sup>M</sup> | E                 |    |
| 6      | 2.5 <sup>M</sup>  | E                | E                | E                | E                | G                | G                | G                | 4.5              | 4.6               | 4.2              | G                | G                | G                | G                | 4.2              | 3.7              | G                 | 3.0               | E                | 3.0 <sup>M</sup>  | E                 | E                | E                 |    |
| 7      | E                 | E                | E                | E                | E                | G                | G                | 4.0              | 4.1              | 4.5               | G                | 4.5              | 4.7              | 4.9              | G                | 3.8              | G                | 4.0               | 2.9               | E                | E                 | E                 | 2.6              | E                 |    |
| 8      | E                 | E                | E                | E                | E                | 2.5              | G                | G                | 4.8              | 4.2               | 4.5              | 4.8              | 4.4              | G                | 4.5              | 5.1              | 6.2 <sup>M</sup> | 5.3               | 2.3               | E                | 2.2 <sup>M</sup>  | E                 | E                | E                 |    |
| 9      | E                 | E                | E                | E                | E                | 2.3              | 3.1              | 3.8              | 4.5              | C                 | C                | C                | C                | C                | C                | C                | C                | C                 | C                 | 3.1 <sup>M</sup> | 2.5 <sup>M</sup>  | 3.7 <sup>M</sup>  | 3.2 <sup>M</sup> | 2.4 <sup>M</sup>  |    |
| 10     | E                 | E                | 2.4 <sup>M</sup> | 2.1 <sup>M</sup> | E                | 2.5              | 3.5              | 6.0 <sup>M</sup> | 4.2              | 4.5               | G                | 4.8              | G                | 4.9              | 4.7              | G                | 4.6              | 5.5 <sup>M</sup>  | 2.6 <sup>M</sup>  | E                | E                 | 4.9 <sup>M</sup>  | 3.5 <sup>M</sup> | 2.5 <sup>M</sup>  |    |
| 11     | E                 | E                | 2.5 <sup>M</sup> | E                | E                | 2.1              | 3.5              | 4.4              | 4.1              | 4.4               | 4.5              | G                | 4.5              | G                | 5.2              | 4.6              | 4.9              | 5.1 <sup>M</sup>  | 3.9 <sup>M</sup>  | E                | E                 | 5.8 <sup>M</sup>  | 3.5 <sup>M</sup> | 2.5 <sup>M</sup>  |    |
| 12     | E                 | 2.7 <sup>M</sup> | 3.0 <sup>M</sup> | E                | E                | E                | 2.6              | 3.9              | 4.0              | 4.5               | 5.2              | 8.7 <sup>M</sup> | 7.0 <sup>M</sup> | 5.0              | 6.7 <sup>M</sup> | 4.8              | 4.3              | 4.8               | 5.2               | 5.0 <sup>M</sup> | 6.7 <sup>M</sup>  | 14.4 <sup>M</sup> | 6.0              | 3.1 <sup>M</sup>  |    |
| 13     | 5.5 <sup>M</sup>  | 5.3 <sup>M</sup> | E                | E                | E                | E                | G                | 4.0              | 5.8 <sup>M</sup> | 4.6               | 4.7              | 4.0 <sup>M</sup> | 5.0              | 9.2 <sup>M</sup> | 4.5              | 4.7              | 5.5 <sup>M</sup> | 9.0 <sup>M</sup>  | 4.9 <sup>M</sup>  | 3.6              | 3.9 <sup>M</sup>  | 9.0 <sup>M</sup>  | 5.6              | 7.4 <sup>M</sup>  |    |
| 14     | E                 | 2.7 <sup>M</sup> | E                | E                | E                | E                | 2.5              | 4.9 <sup>M</sup> | 7.2              | 5.1               | 4.8              | 4.6              | 4.4              | G                | G                | G                | 4.3              | 9.0 <sup>M</sup>  | 6.5               | 3.1              | 6.2               | E                 | 3.5              | 2.5 <sup>M</sup>  |    |
| 15     | E                 | E                | E                | E                | E                | E                | B                | 3.5              | G                | 3.9               | 4.5              | 4.6              | 4.4              | 4.2              | G                | 4.4              | 4.1              | 4.4               | 5.6               | 4.3              | 1.4               | 4.0 <sup>M</sup>  | 6.6              | 3.1 <sup>M</sup>  |    |
| 16     | 2.6 <sup>M</sup>  | E                | 3.9 <sup>M</sup> | 3.0 <sup>M</sup> | 3.7 <sup>M</sup> | 4.2 <sup>M</sup> | 5.6 <sup>M</sup> | 6.7 <sup>M</sup> | 6.4 <sup>M</sup> | 6.5 <sup>M</sup>  | 7.6              | 7.6              | 4.6              | 4.7              | 4.8              | G                | 4.3              | 7.2 <sup>M</sup>  | 8.8               | 6.0              | 2.7               | 2.8               | 3.1              | 4.3 <sup>M</sup>  |    |
| 17     | 3.2 <sup>M</sup>  | 4.0 <sup>M</sup> | 3.5 <sup>M</sup> | 2.6 <sup>M</sup> | 3.6 <sup>M</sup> | G                | 4.2              | 6.8 <sup>M</sup> | 6.4 <sup>M</sup> | 7.0 <sup>M</sup>  | 4.4              | 7.5              | 5.9 <sup>M</sup> | 5.6 <sup>M</sup> | 9.5 <sup>M</sup> | G                | 6.5              | 6.5               | 6.9               | 7.9              | 6.5               | E                 | 3.1              | 3.0 <sup>M</sup>  |    |
| 18     | 2.4               | 2.4              | 2.6              | 3.0              | E                | 3.5 <sup>M</sup> | 3.5              | 6.0 <sup>M</sup> | 7.6              | 4.8               | 5.4              | 4.6              | 4.4              | 7.0 <sup>M</sup> | 7.5 <sup>M</sup> | G                | G                | 5.9 <sup>M</sup>  | 6.6               | 7.5              | 6.1               | E                 | E                | E                 |    |
| 19     | E                 | E                | E                | E                | E                | E                | B                | 4.4              | 6.5              | 5.9               | 4.6              | 4.4              | 4.5              | 4.5              | 4.3              | 4.6              | 7.4              | 6.8               | 9.0               | 4.4              | 4.4               | 10.5 <sup>M</sup> | 8.7 <sup>M</sup> | 4.2 <sup>M</sup>  |    |
| 20     | 2.5 <sup>M</sup>  | E                | E                | E                | E                | E                | B                | 5.2 <sup>M</sup> | 6.8              | 7.3               | 6.7              | 6.2              | 6.4              | 6.6              | 7.2              | 4.3              | 3.7              | 4.8               | 5.4               | 4.9              | 19.9 <sup>M</sup> | 14.5 <sup>M</sup> | 2.7              | 10.5 <sup>M</sup> |    |
| 21     | 14.0 <sup>M</sup> | 8.5 <sup>M</sup> | 4.3 <sup>M</sup> | 4.5 <sup>M</sup> | 3.6 <sup>M</sup> | E                | B                | 4.2              | 7.4 <sup>M</sup> | 8.1 <sup>M</sup>  | 9.4 <sup>M</sup> | 8.8              | 9.1              | 6.5              | 5.3              | 6.3              | 3.7              | 4.8               | 4.0               | 14.4             | 3.7               | 3.0               | 4.0              | 6.4 <sup>M</sup>  |    |
| 22     | 3.8 <sup>M</sup>  | 3.5 <sup>M</sup> | 3.2 <sup>M</sup> | 2.8 <sup>M</sup> | E                | B                | 3.5              | 4.3              | 5.8              | 5.4               | 6.7              | 6.8              | 5.6 <sup>M</sup> | 4.3              | 5.3              | 6.3              | G                | 3.6               | 5.3               | 7.6              | 2.6               | E                 | 2.6              | 6.5 <sup>M</sup>  |    |
| 23     | E                 | 2.5 <sup>M</sup> | E                | 3.1              | 3.5 <sup>M</sup> | E                | E                | 3.7              | 4.5              | 4.7               | 6.5              | 6.4              | 6.5              | 6.5              | 7.7 <sup>M</sup> | 7.2              | 7.3              | 4.5               | 2.7               | 3.9              | 6.1               | 3.5               | E                | 3.1 <sup>M</sup>  |    |
| 24     | 2.9 <sup>M</sup>  | E                | E                | E                | 3.0 <sup>M</sup> | B                | 3.5              | 6.0 <sup>M</sup> | 8.5 <sup>M</sup> | 8.7 <sup>M</sup>  | 6.0 <sup>M</sup> | 5.9 <sup>M</sup> | 6.9              | 6.8              | 8.9 <sup>M</sup> | 9.6              | 4.3              | 5.6               | 1.2               | 5.5              | 6.0               | 3.1               | 3.6              | E                 |    |
| 25     | E                 | E                | E                | E                | E                | E                | 2.5              | 3.7              | 6.0 <sup>M</sup> | 5.4               | 7.0              | 6.4              | 5.6              | 8.7              | 8.9              | 6.9              | 8.5              | 15.1              | 18.6              | 13.3             | 4.0               | E                 | E                | E                 |    |
| 26     | E                 | 2.6 <sup>M</sup> | 3.1 <sup>M</sup> | E                | E                | E                | G                | 5.0              | 7.6              | 6.5               | 4.6              | 8.5              | 6.4              | 4.5              | 6.8              | 6.6              | 6.6              | 6.1               | 6.0               | 9.0              | 14.6              | 13.4              | E                | 2.6 <sup>M</sup>  |    |
| 27     | E                 | 4.4 <sup>M</sup> | 3.1 <sup>M</sup> | E                | E                | E                | 3.1              | 5.6              | 5.9              | G                 | 5.0              | 4.6              | 6.8              | 7.6              | 7.4              | 6.0              | 13.2             | 9.6               | 7.0               | 6.7              | 6.3               | 6.6               | 5.2              | 5.7 <sup>M</sup>  |    |
| 28     | 13.1              | 6.7              | 6.5              | 4.1              | E                | G                | 3.3              | 4.3              | 5.3              | 6.5               | 7.5              | 8.8              | 8.2              | 9.3              | 9.0              | 8.7              | 7.9              | 9.0               | 3.0               | 13.0             | 9.0               | 9.0               | 3.6              | E                 |    |
| 29     | E                 | 2.5 <sup>M</sup> | E                | E                | E                | E                | G                | 3.6              | 4.7              | 4.7               | 6.0              | 5.0              | 4.8              | G                | G                | 9.3              | 4.1              | 4.0               | G                 | S                | E                 | E                 | E                | E                 |    |
| 30     | 2.6 <sup>M</sup>  | 3.5 <sup>M</sup> | 4.4 <sup>M</sup> | 5.1 <sup>M</sup> | 6.0 <sup>M</sup> | 7.0 <sup>M</sup> | 7.9 <sup>M</sup> | 4.3              | 4.8              | 5.1               | 6.3              | 5.3              | 4.6              | 4.5              | 6.8              | 9.5              | 7.1              | 4.0               | 2.5               | 7.2              | 7.0 <sup>M</sup>  | 4.0 <sup>M</sup>  | 9.0 <sup>M</sup> | 5.7 <sup>M</sup>  |    |
| 31     | 4.0 <sup>M</sup>  | E                | 2.6 <sup>M</sup> | E                | E                | E                | 2.7              | 3.7              | 8.0 <sup>M</sup> | 12.9 <sup>M</sup> | 4.8              | 4.7              | 4.6              | S                | 6.4              | 10.2             | 14.3             | 12.9 <sup>M</sup> | 17.0 <sup>M</sup> | 14.2             | 7.0 <sup>M</sup>  | 3.4               | 2.6 <sup>M</sup> | E                 |    |
| No.    | 31                | 31               | 31               | 31               | 31               | 25               | 29               | 30               | 31               | 29                | 30               | 30               | 30               | 27               | 30               | 29               | 30               | 29                | 29                | 29               | 30                | 31                | 31               | 30                | 31 |
| Median | E                 | E                | E                | E                | E                | 2.3              | 3.5              | 4.4              | 4.8              | 5.0               | 4.8              | 4.8              | 4.9              | 4.7              | 5.0              | 4.6              | 4.6              | 5.3               | 5.2               | 4.6              | 4.6               | 3.1               | 2.9              | 2.4 <sup>M</sup>  |    |
| U.Q.   | 2.6               | 2.7              | 3.1              | 2.6              | E                | 2.6              | 4.0              | 6.0              | 6.5              | 6.5               | 6.3              | 6.4              | 6.4              | 6.6              | 7.2              | 6.8              | 6.6              | 8.0               | 6.8               | 7.5              | 7.0               | 8.7               | 3.6              | 3.1               |    |
| L.Q.   | E                 | E                | E                | E                | E                | G                | 3.1              | 4.0              | 4.5              | 4.5               | 4.5              | 4.5              | 4.5              | G                | G                | G                | 3.7              | 4.0               | 2.7               | 3.1              | 2.5               | E                 | E                | E                 |    |
| Q.R.   |                   |                  |                  |                  |                  |                  | 0.9              | 2.0              | 2.0              | 2.0               | 1.8              | 1.9              | 1.9              |                  |                  |                  | 2.9              | 4.0               | 4.1               | 4.4              | 4.5               |                   |                  |                   |    |

Sweep 1-6 Mc to 20.0 Mc in 2.0 sec

The Radio Research Laboratories, Japan.

A 4

foEs

May. 1958

Lat. 39° 43.6' N  
Long. 140° 08.2' E

# IONOSPHERIC DATA

**Akita**

135° E Mean Time (GMT.+ 9h.)

May. 1958

**f<sub>o</sub>F<sub>2</sub>S**

| Day    | 00  | 01                | 02  | 03  | 04  | 05                | 06  | 07                | 08                | 09                | 10                | 11                | 12                | 13               | 14                | 15                | 16               | 17  | 18                | 19  | 20  | 21  | 22               | 23  |
|--------|-----|-------------------|-----|-----|-----|-------------------|-----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|-------------------|-------------------|------------------|-----|-------------------|-----|-----|-----|------------------|-----|
| 1      |     |                   |     |     |     | B                 |     | 3.7               | 4.3               | G                 |                   | 4.5               |                   |                  | 4.4               | 4.0               | 3.7              | 3.4 | S                 | 2.4 | 2.0 |     | S                |     |
| 2      |     |                   |     |     |     |                   | G   |                   |                   |                   | p4.4 <sup>B</sup> |                   | 4.4               |                  |                   |                   | 3.8              | 3.5 | 2.5               | 2.4 |     |     |                  |     |
| 3      |     |                   |     |     |     | 2.2               |     | p3.7 <sup>B</sup> | 4.1               | S                 | 4.7               | 4.4               | 4.4               | B                |                   |                   |                  |     |                   | 2.5 | 1.9 | E   |                  |     |
| 4      |     |                   |     |     |     | 2.5               | 3.5 | 4.0               | 4.2               | 4.4               | 4.4               | 4.5               | 4.4               | B                |                   |                   |                  |     |                   | 2.2 | 2.5 |     |                  |     |
| 5      |     |                   |     |     |     | 2.3               | 3.1 | 4.0               | 4.2               | 4.6               | 4.4               | 4.4               | 4.4               | B                |                   |                   |                  |     |                   | 4.0 | 2.7 | 2.4 | 1.9              | E   |
| 6      | E   |                   |     |     |     |                   |     |                   | 4.0               | 4.5               | u4.2 <sup>B</sup> |                   |                   |                  | 4.2               | 3.7               |                  |     |                   |     | 3.0 |     |                  |     |
| 7      |     |                   |     |     |     |                   |     | G                 | 4.0               | 4.4               |                   | 4.5               | 4.6               | G                |                   | u3.8 <sup>B</sup> |                  | 3.4 | 2.5               |     |     |     |                  | 2.0 |
| 8      |     |                   |     |     |     | 2.4               |     |                   | G                 | u4.2 <sup>B</sup> | 4.5               | 4.8               | 4.4               |                  | 4.3               | 5.1               | 5.1              | 4.5 | u2.3 <sup>B</sup> |     | E   |     |                  |     |
| 9      |     |                   |     |     |     | 2.3               | 3.0 | 3.7               | 4.2               | C                 | C                 | C                 | C                 |                  |                   | C                 | C                | 4.0 | 4.1               | 2.5 | 2.0 | 1.9 | 2.0              | 3.0 |
| 10     |     |                   | 1.8 | 1.8 |     | 2.5               |     | G                 | 4.2               | 4.5               |                   | 4.7               |                   | 4.7              | 4.5               |                   | 4.0              | 4.1 | 2.5               | 2.0 | 1.9 | 4.0 | 2.0              | E   |
| 11     |     |                   | E   |     |     | u2.1 <sup>B</sup> |     | G                 | 4.0               | 4.4               | 4.5               |                   | 4.5               |                  | 4.5               | 4.2               | 4.0              | 4.1 | 3.5               |     | 2.8 | 3.0 | 2.5              | 2.0 |
| 12     |     |                   | E   |     |     | 2.5               | 3.3 | 4.0               | 4.1               | 4.9               | 5.1               | 7.5               | 6.5               | 4.7              | 5.7               | 4.5               | G                | 4.0 | 4.8               | 4.4 | 2.8 | 5.5 | A                | 3.0 |
| 13     | 4.8 |                   |     |     |     |                   |     | 4.0               | 5.0               | 4.7               | 4.7               | 4.8               | 4.5               | 8.5              | 4.4               | 4.6               | 4.8              | 5.0 | 4.0               | 3.0 | 2.8 | 3.0 | 3.0              | 5.0 |
| 14     |     |                   |     |     |     | 2.4               | 4.1 | 4.2               | 6.2               | 5.0               | 4.4               | 4.5               | 4.3               |                  |                   |                   | 4.0              | 7.9 | 4.0               | 2.0 | 2.8 | 2.0 | 2.0              | 1.9 |
| 15     |     |                   |     |     |     | B                 | 3.2 | 3.2               | 3.9               | 4.5               | 4.5               | 4.5               | 4.2               | 4.2              |                   | 4.0               | 4.0              | 3.4 | 3.4               | 2.4 | 2.4 | A   | 6.5              | 5.0 |
| 16     | 2.0 |                   | 2.5 | 1.8 | 1.9 | 2.4               | 3.9 | 4.0               | 5.5               | 4.9               | 4.5               | 4.2               | 5.2               | 4.7              | 4.4               |                   | 4.0              | 5.8 | 7.0               | 2.9 | 2.7 | 2.0 | 2.5              | 2.2 |
| 17     | 2.5 | 2.0               | 2.0 | E   | 2.5 | 3.4               | 5.5 | 5.5               | 5.5               | 5.1               | 4.4               | 4.4               | 5.1               | 5.0              | 7.5               |                   | 5.5 <sup>S</sup> | 4.5 | 4.8               | 6.3 | 2.7 | 2.0 | 2.5              | 2.2 |
| 18     | E   | E                 | 2.0 | E   |     | 2.6               | 3.2 | 4.5               | 5.5               | 4.4               | 5.4               | 4.6               | u5.4 <sup>B</sup> | 6.5              | 7.5               |                   |                  | 4.5 | 4.8               | 6.3 | S   |     |                  | 2.0 |
| 19     |     |                   |     | E   |     | B                 | B   | 4.0               | 5.7               | 4.6               | p4.6 <sup>B</sup> | u4.5 <sup>B</sup> | 4.5               | 4.5              | p4.3 <sup>B</sup> | 4.5               | 6.5              | 3.5 | 6.3               | A   | 5.1 | 5.1 | 2.9              |     |
| 20     | 2.5 |                   |     |     |     |                   | S   | 4.0               | 5.4               | 7.3               | 5.9               | 5.5               | 5.8               | 5.5              | 5.5               | 3.4               | 3.5              | 3.6 | 4.0               | 3.0 | 4.9 | 7.4 | E                | 5.7 |
| 21     | E   | 5.0               | 2.3 | 3.5 | 2.2 | B                 | 3.4 | 4.4               | 6.3               | 7.1               | 8.7               | 6.9               | 8.6               | 5.5              | 5.2               | 5.5               |                  | 3.5 | 4.5               | 7.5 | 3.5 | 2.3 | 5.1              | 2.9 |
| 22     | 2.4 | 3.0               | E   | 2.2 |     | B                 | 3.5 | 4.3               | 4.0               | 5.0               | 5.9               | 5.2               | 5.4               | 4.3 <sup>B</sup> |                   |                   |                  | 3.4 | u2.7 <sup>B</sup> | 2.9 | 2.0 | 2.5 | E                | 2.1 |
| 23     |     | p2.5 <sup>S</sup> |     | 2.4 | E   |                   | 3.5 | 4.5               | u4.5 <sup>B</sup> | 4.7               | 5.0               | 5.5               | 4.5               | 5.5              | 5.9               | B                 | 5.5              | 5.0 | 5.6               | 2.8 | 2.0 | 2.5 | E                | 2.5 |
| 24     | 2.3 |                   |     |     | 2.0 | B                 | 3.4 | 4.5               | 7.0               | 5.7               | 5.4               | 5.2               | 6.0               | 5.5              | 7.8               | 9.3               | 4.3              | 5.0 | 5.6               | A   | 3.7 | 2.5 |                  |     |
| 25     |     |                   |     |     |     | 2.5               | 3.6 | 5.0               | 5.4               | 5.2               | 6.2               | 5.6               | 4.9               | 5.4              | 4.5               | 4.5               | 3.0              | 4.0 | 6.6               | 5.0 | 3.5 | 2.5 |                  |     |
| 26     |     |                   | 2.0 | 2.0 |     |                   | 4.2 | 4.0               | 4.9               | 5.3               | 4.6               | 7.5               | 4.6               | 4.4              | 4.5               | 5.3               | 4.9              | 4.4 | 4.0               | 5.1 | 6.5 | 4.0 |                  | 1.9 |
| 27     |     |                   | 2.5 | 2.0 | 2.8 |                   | 4.4 | 4.0               | 4.2               | 4.9               | 4.6               | 4.6               | 6.2               | 6.4              | 6.4               | 5.4               | 7.5              | 8.3 | 5.5               | 5.7 | 4.0 | 2.9 | 3.4              | 4.0 |
| 28     | 3.0 |                   | 3.1 | 3.4 | 2.8 |                   | 3.3 | 3.9               | 4.8               | 5.4               | 6.2               | 7.8               | 6.7               | 8.0              | 7.6               | 8.2               | 5.6              | 4.5 | 3.0               | A   | 5.0 | 5.0 | 3.6 <sup>S</sup> |     |
| 29     |     |                   |     |     |     |                   | 3.3 | 4.0               | 4.5               | 4.5               | 5.0               | 4.7               | 4.0               | 4.7              | G                 | G                 | 4.0              | 3.8 |                   | S   |     |     |                  |     |
| 30     | 2.4 | 3.0               | 4.0 | 4.2 | 4.9 | 6.1               | 6.5 | 4.0               | 4.6               | 5.1               | 5.5               | 5.5               | p4.6 <sup>B</sup> | 4.5              | 5.5               | 6.0               | 5.1              | 3.2 | 2.5               | 6.5 | 5.7 | 7.3 | 5.5              | 4.6 |
| 31     | 3.5 |                   | 2.0 |     |     | 2.7               | 3.6 | 5.7               | 5.2               | 6.5               | 4.8 <sup>B</sup>  | 4.7               | 4.5               | S                | 5.1               | 7.7               | A                | 6.2 | 1.0               | 6.5 | 5.5 | 2.9 | 2.5              |     |
| No.    | 12  | 13                | 14  | 10  | 6   | 15                | 23  | 26                | 30                | 27                | 25                | 25                | 26                | 19               | 20                | 20                | 23               | 26  | 28                | 24  | 25  | 19  | 2.0              | 1.6 |
| Median | 2.4 | 2.5               | 2.0 | 2.0 | 2.1 | 2.5               | 3.4 | 4.0               | 4.6               | 4.7               | 4.8               | 4.8               | 4.6               | 5.0              | 5.2               | 4.6               | 4.3              | 4.2 | 4.0               | 3.7 | 3.4 | 3.0 | 2.5              | 2.2 |

Sweep 1.6 Mc to 20.2 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

**A 5**

**f<sub>o</sub>F<sub>2</sub>S**

IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

f - min

135° E Mean Time (GMT.+9h.)

May, 1958

| Day    | 00   | 01   | 02   | 03   | 04   | 05   | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   |    |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|
| 1      | 1.80 | 1.90 | 1.95 | 1.90 | 2.00 | 2.10 | 2.00 | 2.00 | 2.40 | 3.00 | 2.90 | 2.55 | 3.00 | 2.80 | 2.40 | 2.50 | 2.00 | 2.90 | 2.40 | E    | 1.70 | 1.80 | 1.85 | 1.75 |    |
| 2      | 2.00 | 1.85 | 1.80 | 1.85 | 1.80 | 2.00 | 2.00 | 4.00 | 2.50 | 2.00 | 3.00 | 3.00 | 3.40 | 3.00 | 2.90 | 2.85 | 2.00 | 2.00 | 2.20 | 1.90 | 1.80 | 1.80 | 1.90 | 1.95 |    |
| 3      | 1.95 | 1.90 | 1.80 | 1.80 | 1.90 | 1.80 | 1.95 | 1.90 | 2.30 | 4.40 | 3.00 | 3.20 | 3.25 | 3.00 | 3.00 | 2.50 | 2.30 | 2.30 | 2.00 | 2.00 | 1.90 | E    | 1.90 | 1.90 |    |
| 4      | 1.90 | 1.80 | 1.90 | 1.90 | E    | 2.00 | 2.00 | 2.20 | 3.00 | 2.90 | 2.90 | 3.00 | 2.50 | 5.25 | 2.50 | 2.80 | 1.80 | 1.95 | 1.90 | 1.70 | E    | 1.90 | 1.80 | 1.90 |    |
| 5      | 1.90 | 1.90 | 1.80 | 2.00 | 1.90 | 1.95 | 1.95 | 2.50 | 2.10 | 2.90 | 3.10 | 3.10 | 2.95 | 4.30 | 3.40 | 2.60 | 2.30 | 2.40 | 2.00 | 1.75 | 2.40 | 1.70 | 1.90 | 1.95 |    |
| 6      | 1.90 | 2.00 | 1.90 | 1.85 | 1.90 | 1.90 | 2.20 | 2.40 | 2.80 | 2.80 | 3.00 | 3.50 | 3.50 | 3.50 | 3.20 | 2.85 | 2.05 | 2.00 | 1.95 | 2.00 | E    | E    | E    | 1.80 |    |
| 7      | 2.00 | 1.80 | E    | 2.00 | 1.75 | 2.05 | 2.30 | 2.00 | 2.45 | 2.80 | 3.00 | 3.20 | 3.25 | 3.00 | 2.55 | 2.40 | 2.00 | 2.00 | 1.80 | 2.00 | 2.00 | 2.00 | E    | E    |    |
| 8      | 1.90 | 1.80 | E    | 2.00 | E    | 1.90 | 1.90 | 2.00 | 2.00 | 3.10 | 3.30 | 3.50 | 3.50 | 2.95 | 2.90 | 3.00 | 2.90 | 1.95 | 1.80 | 1.70 | 1.80 | 1.70 | E    | 1.80 |    |
| 9      | 1.90 | 1.80 | E    | 2.00 | 1.80 | 1.80 | 1.90 | 2.10 | 2.50 | C    | C    | C    | C    | C    | C    | C    | C    | C    | C    | 1.70 | E    | E    | E    | 1.75 |    |
| 10     | 1.90 | 1.95 | 1.75 | 1.75 | 1.90 | 1.80 | 2.00 | 2.00 | 2.00 | 3.00 | 3.00 | 2.10 | 3.20 | 3.25 | 3.50 | 3.00 | 2.10 | 2.00 | 1.80 | 1.75 | E    | 1.70 | E    | 1.90 |    |
| 11     | E    | 1.90 | 1.80 | 2.00 | 1.90 | 1.70 | 1.75 | 1.90 | 2.00 | 4.00 | 2.50 | 2.90 | 2.70 | 2.90 | 3.00 | 3.00 | 3.00 | 2.00 | 2.00 | 2.00 | 1.75 | E    | E    | 1.95 |    |
| 12     | E    | 1.90 | 1.80 | 1.90 | 2.00 | 1.80 | 2.00 | 2.00 | 2.50 | 2.40 | 3.00 | 3.40 | 3.00 | 3.00 | 4.00 | 3.05 | 2.50 | 2.00 | 2.00 | 1.90 | 2.00 | E    | 1.90 | E    |    |
| 13     | 1.80 | 1.70 | 1.75 | 2.00 | 2.00 | 2.10 | 2.00 | 2.00 | 2.00 | 3.00 | 3.20 | 3.50 | 3.00 | 3.10 | 3.05 | 2.50 | 2.50 | 2.10 | 1.90 | 1.95 | 2.00 | 1.70 | 1.80 | 1.80 |    |
| 14     | 1.80 | 1.70 | 2.00 | 2.00 | 1.75 | 1.75 | 2.00 | 2.00 | 2.00 | 2.20 | 2.40 | 3.00 | 2.10 | 3.15 | 2.10 | 3.00 | 2.00 | 2.00 | 2.00 | E    | 1.80 | 1.80 | E    | 1.90 |    |
| 15     | 2.00 | E    | 1.90 | 1.80 | 1.95 | 2.30 | 1.90 | 1.90 | 2.00 | 2.00 | 3.00 | 3.10 | 2.50 | 2.40 | 2.05 | 2.00 | 2.00 | 1.90 | 1.85 | 1.70 | 1.90 | E    | 2.00 | E    |    |
| 16     | 1.70 | 1.80 | 1.80 | 1.70 | 1.75 | 1.85 | 1.85 | 1.90 | 2.20 | 2.20 | 2.90 | 2.75 | 3.00 | 2.90 | 2.90 | 2.50 | 2.00 | 2.00 | 2.00 | 1.75 | E    | 1.80 | 1.70 | 2.00 |    |
| 17     | 1.75 | 1.70 | 1.70 | 1.70 | 1.75 | 1.90 | 2.10 | 2.00 | 3.90 | 2.40 | 2.95 | 2.80 | 3.90 | 3.00 | 3.00 | 3.00 | 3.50 | 2.05 | 1.95 | 1.75 | E    | 1.90 | 1.90 | 2.05 |    |
| 18     | 2.00 | 2.00 | 1.90 | 2.00 | 2.00 | 1.75 | 3.00 | 2.00 | 2.50 | 2.50 | 2.80 | 3.40 | 3.60 | 3.00 | 2.90 | 3.40 | 2.00 | 2.50 | 2.00 | 2.00 | 2.00 | 2.00 | 1.90 | 2.00 |    |
| 19     | 2.00 | 1.70 | 2.00 | 2.10 | 2.50 | 2.70 | 3.50 | 2.00 | 2.50 | 3.10 | 3.40 | 3.50 | 4.00 | 3.90 | 3.00 | 2.95 | 3.10 | 2.90 | 2.00 | 2.00 | 2.00 | 1.90 | 1.95 | E    |    |
| 20     | 2.00 | 2.00 | 2.50 | 2.90 | 2.40 | 2.40 | 3.50 | 2.90 | 2.90 | 3.90 | 4.00 | 4.20 | 4.15 | 3.95 | 3.50 | 3.00 | 2.50 | 2.00 | 1.95 | 2.40 | 2.30 | 1.90 | 2.00 | 2.10 |    |
| 21     | 1.90 | 2.00 | 2.00 | 2.20 | 1.90 | 2.90 | 2.90 | 2.60 | 2.90 | 2.90 | 3.00 | 2.95 | 3.60 | 3.50 | 2.90 | 3.45 | 2.30 | 2.00 | 2.30 | 2.00 | 1.90 | 2.00 | 2.00 | 2.00 |    |
| 22     | 2.00 | 2.00 | 1.90 | 1.90 | 2.00 | 2.50 | 2.50 | 2.50 | 2.30 | 3.00 | 3.95 | 2.95 | 3.20 | 3.75 | 3.00 | 4.30 | 2.90 | 2.50 | 2.00 | 1.90 | 2.00 | 1.80 | 2.00 | 1.70 |    |
| 23     | 2.50 | 1.90 | 2.00 | 2.40 | 2.00 | 2.50 | 2.45 | 2.75 | 3.40 | 3.10 | 2.75 | 4.10 | 3.50 | 3.40 | 3.30 | 2.00 | 1.95 | 2.00 | 1.95 | 1.95 | 2.50 | E    | 2.20 | 2.00 |    |
| 24     | 1.95 | 2.45 | 2.30 | 2.00 | 1.90 | 2.45 | 2.30 | 2.00 | 2.80 | 1.90 | 3.60 | 3.10 | 4.00 | 3.40 | 3.10 | 3.40 | 2.50 | 2.10 | 2.00 | 2.00 | 2.00 | 1.90 | 2.00 | 2.00 |    |
| 25     | 2.50 | 2.30 | E    | 1.90 | 1.90 | 2.30 | 2.30 | 2.00 | 2.50 | 2.90 | 2.70 | 4.10 | 3.00 | 4.00 | 3.50 | 2.50 | 3.00 | 2.20 | 2.00 | 2.00 | 2.00 | 2.50 | 2.00 | E    |    |
| 26     | 1.90 | 1.80 | 1.75 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.10 | 2.50 | 3.15 | 4.15 | 3.55 | 2.50 | 2.50 | 2.40 | 2.00 | 2.00 | 2.00 | 1.80 | E    | E    | 2.00 | 1.80 |    |
| 27     | 1.70 | E    | E    | 2.00 | 1.90 | 1.90 | 1.90 | 2.10 | 2.00 | 2.10 | 3.10 | 2.95 | 3.50 | 2.90 | 3.00 | 2.30 | 2.20 | 2.10 | 2.00 | 2.10 | 1.90 | 1.70 | E    | 2.00 |    |
| 28     | 1.85 | 2.00 | 1.80 | 1.90 | 2.00 | 2.20 | 2.10 | 2.20 | 2.20 | 2.95 | 2.50 | 3.30 | 3.00 | 3.00 | 3.45 | 3.00 | 2.30 | 2.00 | 1.90 | E    | 1.70 | E    | E    | 1.80 |    |
| 29     | 1.90 | 2.00 | 1.90 | 2.00 | 1.90 | 1.95 | 2.00 | 2.00 | 2.00 | 2.40 | 3.00 | 3.20 | 3.00 | 2.90 | 2.50 | 2.05 | 2.00 | 2.10 | 1.95 | 2.05 | 2.00 | 1.90 | 1.90 | 2.00 |    |
| 30     | E    | 1.90 | 2.00 | 1.80 | 2.00 | 2.00 | 2.00 | 2.00 | 2.90 | 3.15 | 4.00 | 3.00 | 4.15 | 3.05 | 3.50 | 2.45 | 2.05 | 2.00 | 1.80 | 1.80 | E    | 1.75 | 1.80 | 2.00 |    |
| 31     | 1.90 | 2.00 | 1.70 | 1.70 | 1.90 | 1.80 | 2.00 | 2.00 | 2.40 | 2.05 | 2.95 | 2.95 | 3.50 | 3.40 | 3.05 | 4.00 | 2.00 | 2.15 | 2.00 | E    | E    | E    | E    | 2.40 |    |
| No.    | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 30   | 31   | 31   | 31   | 31   | 31 |
| Median | 1.90 | 1.90 | 1.80 | 2.00 | 1.90 | 2.00 | 2.00 | 2.00 | 2.40 | 2.90 | 3.00 | 3.10 | 3.25 | 3.00 | 3.00 | 2.85 | 2.10 | 2.00 | 2.00 | 2.00 | 1.80 | 1.70 | 1.85 | 1.90 |    |

The Radio Research Laboratories, Japan.

Sweep 1.6 Mc to 2.0 Mc in 2.0 sec min in automatic operation.

f - min

A 6

IONOSPHERIC DATA

Lat. 39° 48.5' N  
Long. 140° 08.3' E

Akita

135° E Mean Time (GMT.+ 9h.)

May, 1958

(M3000)F2

| Day    | 00               | 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              | 245              | 250              | 225              | 225              | 245              | 260              | 270              | 245 <sup>H</sup> | 255 <sup>H</sup> | 245 <sup>H</sup> | 250 <sup>H</sup> | 240 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 250 <sup>H</sup> | 260 <sup>H</sup> | 270              | 250              | 245              | 240              | 240              | 240              |
| 2      | 250              | 235              | 245              | 235              | 240              | 265              | 265              | 265              | 255 <sup>H</sup> | 250 <sup>H</sup> | 250 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 240 <sup>H</sup> | 240 <sup>H</sup> | 250 <sup>H</sup> | 255 <sup>H</sup> | 265              | 265              | 265              | 245              | 240              | 245              | 245              |
| 3      | 250              | 260              | 265              | 255              | 250              | 245              | 275              | 275              | 265 <sup>H</sup> | 250 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 250 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 250 <sup>H</sup> | 260              | 260              | 265              | 260              | 245              | 240              | 245              | 250              |
| 4      | 255              | 270              | 265              | 255              | 255              | 265              | 280              | 275              | 260              | 245 <sup>H</sup> | 250 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 240              | 240              | 240              | 245 <sup>H</sup> | 250 <sup>H</sup> | 270              | 255              | 255              | 235              | 235              | 250              |
| 5      | 250              | 255              | 250              | 255              | 245              | 255              | 265              | 250 <sup>H</sup> | 240 <sup>H</sup> | 225 <sup>H</sup> | 225 <sup>H</sup> | 225 <sup>H</sup> | 240 <sup>H</sup> | 240 <sup>H</sup> | 245              | 245              | 250              | 255              | 255              | 255              | 245              | 235              | 235              | 245              |
| 6      | 250              | 250              | 255              | 245              | 235              | 260              | 255 <sup>V</sup> | 255              | 255 <sup>H</sup> | 240              | 230              | 235              | 240              | 235              | 240              | 245              | 245              | 250              | 255              | 255              | 235              | 240              | 245              | 235              |
| 7      | 240              | 240              | 250              | 255              | 240 <sup>F</sup> | 260              | 275              | 260              | 260 <sup>H</sup> | 250 <sup>H</sup> | 245              | 240              | 245              | 245              | 245              | 245              | 245              | 245              | 255              | 260              | 240              | 240              | 240              | 245              |
| 8      | 250              | 245              | 255              | 260              | 255              | 265              | 280              | 265              | 260              | 255 <sup>H</sup> | 245 <sup>H</sup> | 255              | 240              | 245              | 250              | 245              | 250              | 255              | 260              | 260              | 245 <sup>S</sup> | 240 <sup>S</sup> | 240 <sup>S</sup> | 250              |
| 9      | 245              | 245              | 250              | 235 <sup>F</sup> | 250              | 270              | 265              | 270              | 260              | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                | C                |
| 10     | 260              | 260              | 260              | 255              | 255              | 275              | 280 <sup>V</sup> | 280 <sup>H</sup> | 260 <sup>H</sup> | 250 <sup>H</sup> | 255 <sup>H</sup> | 250 <sup>H</sup> | 250              | 250              | 250              | 255              | 255              | 255              | 260              | 265              | 255              | 250              | 250              | 245              |
| 11     | 255              | 260              | 255              | 245              | 230              | 260              | 260              | 230              | 240              | 220              | 225              | 230              | 235              | 245              | 250              | 260              | 265              | 265              | 260              | 260              | 240              | 235              | 250              | 255              |
| 12     | 250              | 230              | 250 <sup>F</sup> | 260 <sup>F</sup> | 250 <sup>F</sup> | 255 <sup>H</sup> | 250              | 250              | 235              | 230              | 240              | 240              | 250              | 245              | 250              | 265              | 270              | 275              | 285              | 270              | 240              | 235 <sup>A</sup> | 250 <sup>S</sup> | 245              |
| 13     | 255              | 255              | 270              | 245 <sup>H</sup> | 235              | 230              | 255              | 265              | 265              | 250 <sup>H</sup> | 250              | 245              | 245              | 260              | 255              | 260              | 260              | 270 <sup>H</sup> | 270 <sup>S</sup> | 265 <sup>S</sup> | 265              | 245              | 245              | 240              |
| 14     | 250              | 260              | 245              | 230              | 220              | 235              | 250              | 235 <sup>H</sup> | 245              | 250              | 255              | 240              | 235              | 275              | 260              | 260              | 265              | 270              | 270              | 265              | 270              | 240              | 240              | 245              |
| 15     | 225              | 235              | 240              | 250              | 245 <sup>F</sup> | 275              | 270              | 265 <sup>F</sup> | 260              | 245 <sup>H</sup> | 255              | 245              | 260              | 260              | 260              | 265              | 260              | 275              | 275              | 270              | 250 <sup>A</sup> | 250 <sup>A</sup> | 245              | 255              |
| 16     | 250              | 240              | 250              | 285              | 260              | 270 <sup>F</sup> | 285              | 270              | 270 <sup>V</sup> | 245 <sup>F</sup> | 255              | 265              | 260              | 255              | 255              | 265              | 270              | 275              | 275              | 265 <sup>S</sup> | 250 <sup>S</sup> | 255              | 250 <sup>S</sup> | 260 <sup>S</sup> |
| 17     | 260 <sup>S</sup> | 255 <sup>F</sup> | 255              | 250              | 240 <sup>F</sup> | 260              | 290              | 275              | 265              | 260              | 260              | 255 <sup>H</sup> | 255 <sup>H</sup> | 255              | 255              | 260              | 270              | 270              | 275              | 285 <sup>S</sup> | 260 <sup>S</sup> | 250 <sup>F</sup> | 260              | 260              |
| 18     | 255              | 240              | 245              | 260              | 270              | 265              | 260              | 255              | 255              | 255              | 260              | 255              | 260              | 260              | 270              | 265 <sup>H</sup> | 265 <sup>H</sup> | 265 <sup>H</sup> | 270              | 260              | 255 <sup>S</sup> | 255 <sup>S</sup> | 255 <sup>S</sup> | 260 <sup>S</sup> |
| 19     | 260              | 255 <sup>S</sup> | 250              | 250              | 240              | 255              | 275              | 275              | 250 <sup>H</sup> | 260              | 260              | 260              | 270              | 265              | 265              | 260              | 270              | 280              | 270              | 260 <sup>A</sup> | 250              | 245              | 250              | 260              |
| 20     | 265              | 260              | 270              | 260              | 250              | 250              | 275              | 250 <sup>H</sup> | 265              | 250              | 240              | 240              | 240              | 240              | 240              | 255              | 260              | 270              | 275              | 265              | 245 <sup>S</sup> | 245 <sup>S</sup> | 255 <sup>S</sup> | 260 <sup>F</sup> |
| 21     | 260 <sup>F</sup> | 275              | 280 <sup>F</sup> | 255 <sup>F</sup> | 235 <sup>F</sup> | 260 <sup>F</sup> | 270              | 270              | 265              | 250              | 250              | 240              | 245              | 245              | 250              | 255              | 265              | 260              | 275              | 260 <sup>R</sup> | 260              | 260              | 250              | 255 <sup>K</sup> |
| 22     | 260              | 260              | 265 <sup>F</sup> | 260              | 255 <sup>F</sup> | 260 <sup>F</sup> | 260              | 270              | 255              | 250              | 250              | 250              | 260              | 255              | 255              | 260              | 265              | 265              | 270              | 270              | 265 <sup>S</sup> | 260 <sup>S</sup> | 250              | 250              |
| 23     | 250              | 255              | 260              | 250              | 255              | 270              | 280              | 265              | 275              | 250              | 240              | 245              | 250              | 255              | 255              | 255              | 250              | 260              | 260              | 270              | 250              | 250 <sup>S</sup> | 250              | 255              |
| 24     | 250 <sup>S</sup> | 270 <sup>S</sup> | 270              | 260              | 250 <sup>F</sup> | 255              | 280              | 270              | 255              | 240              | 240              | 245              | 245              | 245              | 245              | 255              | 260              | 265              | 265              | 265              | 255 <sup>B</sup> | 255              | 260 <sup>K</sup> | 255              |
| 25     | 255              | 260              | 265              | 255              | 245              | 265              | 270              | 255              | 255              | 255              | 235              | 245              | 240              | 250              | 250              | 250              | 260              | 265 <sup>A</sup> | 275              | 265              | 250              | 245              | 250              | 255              |
| 26     | 255              | 260              | 265              | 260              | 250              | 260              | 275              | 250              | 260              | 235              | 230              | 230              | 235              | 230              | 245              | 245              | 250              | 255              | 260              | 260              | 245              | 245              | 240              | 235 <sup>F</sup> |
| 27     | 225              | 240              | 220              | 240              | 230              | 235              | 245              | 210              | 215              | 245              | 240              | 235              | 250              | 250              | 255              | 260              | 260              | 270 <sup>A</sup> | 260              | 250              | 245              | 230              | 235              | 240 <sup>F</sup> |
| 28     | 245 <sup>F</sup> | 255 <sup>F</sup> | 250 <sup>F</sup> | 240 <sup>F</sup> | 240              | 240              | 240              | 250              | 275              | 240              | 225              | 230              | 245              | 245              | 255              | 250              | 265              | 265              | 265              | 255 <sup>A</sup> | 255 <sup>A</sup> | 255              | 235              | 240              |
| 29     | 235              | 240              | 245              | 250              | 255              | 275              | 265              | 250              | 255              | 250              | 245              | 245              | 250              | 265              | 250              | 265              | 260              | 250              | 250              | 240              | 230              | 245 <sup>S</sup> | 255              | 235              |
| 30     | 245 <sup>S</sup> | 250              | 245              | 265              | 240              | 250              | 230              | 235              | 230              | 240              | 250              | 260              | 270              | 240              | 260              | 260              | 270              | 260              | 265              | 260              | 260              | 245              | 245              | 245 <sup>F</sup> |
| 31     | 250              | 255              | 245              | 240              | 245              | 265              | 270              | 265              | 255              | 240 <sup>H</sup> | 245              | 235              | 240              | 245              | 250              | 245              | 255 <sup>A</sup> | 255 <sup>A</sup> | 260 <sup>A</sup> | 265 <sup>A</sup> | 265 <sup>A</sup> | 250              | 245              | 245              |
| No.    | 31               | 31               | 31               | 31               | 31               | 31               | 31               | 31               | 31               | 30               | 30               | 30               | 30               | 30               | 30               | 30               | 30               | 30               | 30               | 31               | 31               | 31               | 31               | 31               |
| Median | 250              | 255              | 250              | 255              | 245              | 260              | 270              | 265              | 255              | 250              | 245              | 245              | 245              | 250              | 250              | 255              | 260              | 260              | 265              | 260              | 250              | 245              | 250              | 250              |

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 7

(M3000)F2

IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

135° E Mean Time (GMT.+ 9h.)

(M3000)F1

May, 1958

| Day    | 00 | 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                 |                   |                   |                   |                   |                   |                   |      |      |    |    |    |    |    |  |
| 2      |    |    |    |    |    |    |    |    |                   |                   | L                 |                   |                   |                   |                   |                   |                   |      |      |    |    |    |    |    |  |
| 3      |    |    |    |    |    |    |    |    |                   |                   |                   | L                 |                   |                   |                   |                   |                   |      |      |    |    |    |    |    |  |
| 4      |    |    |    |    |    |    |    |    |                   | L                 |                   |                   | L                 | '335 <sup>L</sup> | '340 <sup>H</sup> | 4.20              | L                 |      |      |    |    |    |    |    |  |
| 5      |    |    |    |    |    |    |    |    |                   | 3.35              | 3.40              | 3.15              | 3.50              | 3.15 <sup>L</sup> | 3.40              | L                 | L                 |      |      |    |    |    |    |    |  |
| 6      |    |    |    |    |    |    |    |    |                   | L                 | 3.40 <sup>L</sup> | 3.20              | 3.20              | 3.30              | 3.25              | '320 <sup>L</sup> | L                 | L    |      |    |    |    |    |    |  |
| 7      |    |    |    |    |    |    |    |    |                   |                   | 3.45              | 3.30 <sup>L</sup> | 3.20              | 3.30              | 3.25              | L                 | L                 |      |      |    |    |    |    |    |  |
| 8      |    |    |    |    |    |    |    |    |                   |                   | C                 | C                 | C                 | C                 | C                 | C                 | C                 | C    |      |    |    |    |    |    |  |
| 9      |    |    |    |    |    |    |    |    |                   |                   | C                 | C                 | C                 | C                 | C                 | C                 | C                 | C    |      |    |    |    |    |    |  |
| 10     |    |    |    |    |    |    |    |    | L                 |                   | L                 |                   | 3.50              | L                 | L                 | L                 | L                 | L    |      |    |    |    |    |    |  |
| 11     |    |    |    |    |    |    |    |    | 3.35              | 3.45              | 3.55              | 3.55              | 3.35              | 3.35              | 3.35              | '330 <sup>L</sup> | L                 |      |      |    |    |    |    |    |  |
| 12     |    |    |    |    |    |    |    |    | 3.15              | 3.10              | 3.45              | '340 <sup>A</sup> | '340 <sup>A</sup> | 3.30              | 3.20              | L                 | L                 |      |      |    |    |    |    |    |  |
| 13     |    |    |    |    |    |    |    |    | L                 | L                 | L                 | 3.35              | '320 <sup>L</sup> | A                 | L                 | L                 | L                 |      |      |    |    |    |    |    |  |
| 14     |    |    |    |    |    |    |    |    | '310 <sup>A</sup> | 3.35              | 3.35              | 3.20              | 3.20              | 3.15              | 3.20 <sup>H</sup> | L                 | L                 |      |      |    |    |    |    |    |  |
| 15     |    |    |    |    |    |    |    |    | L                 | L                 | L                 | 3.45              | 3.50              | '335 <sup>L</sup> | '325 <sup>L</sup> | '335 <sup>L</sup> | L                 | L    |      |    |    |    |    |    |  |
| 16     |    |    |    |    |    |    |    |    | L                 | '340 <sup>L</sup> | 3.35              | '330 <sup>L</sup> | 3.25              | '330 <sup>L</sup> | 3.35              | '345 <sup>L</sup> | L                 | L    |      |    |    |    |    |    |  |
| 17     |    |    |    |    |    |    |    |    |                   |                   | L                 | 4.20              | '375 <sup>L</sup> | '335 <sup>L</sup> | '330 <sup>A</sup> | L                 | A                 |      |      |    |    |    |    |    |  |
| 18     |    |    |    |    |    |    |    |    |                   | '345 <sup>L</sup> | 3.45              | '330 <sup>L</sup> | 3.70              | A                 | A                 |                   |                   | A    |      |    |    |    |    |    |  |
| 19     |    |    |    |    |    |    |    |    |                   | L                 | L                 | 3.35              | 3.25              | '325 <sup>L</sup> | '330 <sup>L</sup> | L                 | A                 | L    |      |    |    |    |    |    |  |
| 20     |    |    |    |    |    |    |    |    | '340 <sup>A</sup> | '330 <sup>A</sup> | '330 <sup>A</sup> | 3.25              | A                 | L                 | '330 <sup>L</sup> | 3.15              | 3.30 <sup>L</sup> | L    |      |    |    |    |    |    |  |
| 21     |    |    |    |    |    |    |    |    | A                 | A                 | '325 <sup>A</sup> | '315 <sup>A</sup> | '330 <sup>A</sup> | 3.20              | '325              | 3.35              | L                 | L    |      |    |    |    |    |    |  |
| 22     |    |    |    |    |    |    |    |    | L                 | L                 | 3.30              | 3.40              | 3.25              | '335 <sup>L</sup> | '335 <sup>L</sup> | 3.40              | L                 | L    |      |    |    |    |    |    |  |
| 23     |    |    |    |    |    |    |    |    |                   |                   | L                 | L                 | 3.20              | 3.30              | 3.25              | L                 | L                 | L    |      |    |    |    |    |    |  |
| 24     |    |    |    |    |    |    |    |    |                   | A                 | L                 | 3.35              | 3.15              | 3.05              | L                 | A                 | L                 | L    |      |    |    |    |    |    |  |
| 25     |    |    |    |    |    |    |    |    |                   | L                 | L                 | 3.15              | 3.15              | 3.25              | 3.20              | 3.30              | A                 | A    |      |    |    |    |    |    |  |
| 26     |    |    |    |    |    |    |    |    | L                 | L                 | L                 | 3.25              | '340 <sup>A</sup> | 3.40              | 3.10              | 3.30              | '310 <sup>L</sup> | 3.30 | A    |    |    |    |    |    |  |
| 27     |    |    |    |    |    |    |    |    | '320 <sup>L</sup> | 3.35              | 3.15              | 3.30              | 3.55              | '330 <sup>A</sup> | '330 <sup>A</sup> | 3.10              | 3.10              | A    | A    |    |    |    |    |    |  |
| 28     |    |    |    |    |    |    |    |    | L                 | 3.05              | 3.55              | '320 <sup>L</sup> | 3.30              | '325 <sup>A</sup> | '330 <sup>A</sup> | '325 <sup>A</sup> | '320 <sup>A</sup> | A    | A    |    |    |    |    |    |  |
| 29     |    |    |    |    |    |    |    |    | L                 | L                 | L                 | 3.35              | 3.25              | 3.50              | 3.20              | 3.25 <sup>H</sup> | 3.35 <sup>H</sup> | L    | L    |    |    |    |    |    |  |
| 30     |    |    |    |    |    |    |    |    | A                 | A                 | 3.60              | 3.65              | 3.30              | 3.35              | '330 <sup>L</sup> | '325 <sup>L</sup> | 3.10              | L    | L    |    |    |    |    |    |  |
| 31     |    |    |    |    |    |    |    |    | L                 | L                 | L                 | A                 | 3.25              | 3.20 <sup>2</sup> | 3.55              | 3.30              | 3.20              | A    | A    |    |    |    |    |    |  |
| No.    |    |    |    |    |    |    |    |    | 1                 | 3                 | 6                 | 7                 | 10                | 19                | 24                | 24                | 21                | 21   | 14   |    |    |    |    |    |  |
| Median |    |    |    |    |    |    |    |    | 3.20              | 3.20              | 3.30              | 3.20              | 3.40              | 3.35              | 3.30              | 3.30              | 3.30              | 3.25 | 3.30 |    |    |    |    |    |  |

Sweep 1.6 Mc to 2.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

(M3000)F1

Lat. 39° 48.5' N  
Long. 140° 08.2' E

**Akita**

**IONOSPHERIC DATA**

135° E Mean Time (GMT.+ 9h.)

May. 1958

f'F2

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08               | 09               | 10               | 11               | 12               | 13               | 14               | 15               | 16               | 17               | 18               | 19  | 20  | 21  | 22  | 23  |     |  |
|--------|----|----|----|----|----|----|----|----|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----|-----|-----|-----|-----|-----|--|
| 1      |    |    |    |    |    |    |    |    |                  |                  | 245 <sup>H</sup> | 250 <sup>H</sup> | 250 <sup>H</sup> |                  |                  | 260 <sup>H</sup> |                  |                  |                  |     |     |     |     |     |     |  |
| 2      |    |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |     |     |     |     |     |     |  |
| 3      |    |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |     |     |     |     |     |     |  |
| 4      |    |    |    |    |    |    |    |    |                  | L <sup>H</sup>   |                  | L                | 380              | 400              | 395              | 265 <sup>H</sup> | 260 <sup>H</sup> |                  |                  |     |     |     |     |     |     |  |
| 5      |    |    |    |    |    |    |    |    |                  | 500              | 460              | 430              | 425              | 390              | 465              | 370              | 360 <sup>L</sup> |                  |                  |     |     |     |     |     |     |  |
| 6      |    |    |    |    |    |    |    |    |                  | L                | 410              | 445              | 440              | 445              | 410              | 375 <sup>L</sup> | L                | L                |                  |     |     |     |     |     |     |  |
| 7      |    |    |    |    |    |    |    |    |                  |                  | 425              | 415              | 410              | 440              | 460              | 370 <sup>L</sup> | L                | L                |                  |     |     |     |     |     |     |  |
| 8      |    |    |    |    |    |    |    |    |                  |                  |                  | 375              | 390              | 390              | 370              | 375              | L                | L                |                  |     |     |     |     |     |     |  |
| 9      |    |    |    |    |    |    |    |    |                  | C                | C                | C                | C                | C                | C                | C                | C                | C                |                  |     |     |     |     |     |     |  |
| 10     |    |    |    |    |    |    |    |    | 245 <sup>H</sup> | 250 <sup>H</sup> | 250 <sup>H</sup> | 390              | 360 <sup>L</sup> | 350 <sup>L</sup> | 350              | 350              | L                | L                |                  |     |     |     |     |     |     |  |
| 11     |    |    |    |    |    |    |    |    | 495              | 575              | 555              | 510              | 500              | 460              | 450              | 400              | 360              |                  |                  |     |     |     |     |     |     |  |
| 12     |    |    |    |    |    |    |    |    | 510              | 545              | 495              | 445              | 445              | 445              | 400              | 360              | L                |                  |                  |     |     |     |     |     |     |  |
| 13     |    |    |    |    |    |    |    |    | 335              | 400 <sup>H</sup> | 350              | 400              | 385              | 375              | 360              | 350              | 350 <sup>L</sup> |                  |                  |     |     |     |     |     |     |  |
| 14     |    |    |    |    |    |    |    |    | 445              | 410              | 405              | 445              | 490              | 400              | 400              | 380              | L                |                  |                  |     |     |     |     |     |     |  |
| 15     |    |    |    |    |    |    |    |    | 280              | 345              | 385              | 400              | 345              | 355              | 350              | 350              | L                |                  |                  |     |     |     |     |     |     |  |
| 16     |    |    |    |    |    |    |    |    | 345              | 360 <sup>L</sup> | 380              | 320 <sup>L</sup> | 360              | 360 <sup>L</sup> | 370              | 330 <sup>L</sup> | L                |                  |                  |     |     |     |     |     |     |  |
| 17     |    |    |    |    |    |    |    |    |                  |                  | 290 <sup>L</sup> | 250 <sup>H</sup> | 360 <sup>H</sup> | 370              | 395              | 345              | 310              |                  |                  |     |     |     |     |     |     |  |
| 18     |    |    |    |    |    |    |    |    |                  |                  | 345 <sup>L</sup> | 320              | 360              | 340              | 360              | 345              |                  |                  |                  |     |     |     |     |     |     |  |
| 19     |    |    |    |    |    |    |    |    |                  |                  | 390 <sup>L</sup> | 360              | 395              | 380              | 395              | 370 <sup>L</sup> | 375              | A                |                  |     |     |     |     |     |     |  |
| 20     |    |    |    |    |    |    |    |    | 300              | 380 <sup>A</sup> | 445              | 440              | 445              | 450              | 400              | 390              | 350              | 350              |                  |     |     |     |     |     |     |  |
| 21     |    |    |    |    |    |    |    |    |                  | A                | 370 <sup>A</sup> | 410              | 410 <sup>A</sup> | 390              | 395              | 370              | 350              | L                |                  |     |     |     |     |     |     |  |
| 22     |    |    |    |    |    |    |    |    |                  |                  | 350 <sup>L</sup> | 355              | 355              | 365              | 380              | 355 <sup>L</sup> | 350              | L                |                  |     |     |     |     |     |     |  |
| 23     |    |    |    |    |    |    |    |    |                  |                  | 370              | 400              | 395              | 400              | 400              | 375              | 370              | L                |                  |     |     |     |     |     |     |  |
| 24     |    |    |    |    |    |    |    |    |                  |                  | 345              | 365 <sup>L</sup> | 405              | 410              | 405              | 405              | 365 <sup>A</sup> | 355              | 320 <sup>L</sup> |     |     |     |     |     |     |  |
| 25     |    |    |    |    |    |    |    |    |                  |                  | 285              | 350              | 360              | 400              | 400              | 395              | 375              | A                |                  |     |     |     |     |     |     |  |
| 26     |    |    |    |    |    |    |    |    |                  |                  | 300 <sup>L</sup> | 380 <sup>L</sup> | 450              | 445              | 445              | 400              | 405              | 350              |                  |     |     |     |     |     |     |  |
| 27     |    |    |    |    |    |    |    |    |                  |                  | 365              | 445              | 695              | 645              | 550              | 470              | 450              | 405              | A                |     |     |     |     |     |     |  |
| 28     |    |    |    |    |    |    |    |    |                  |                  | 400 <sup>L</sup> | 450              | 475              | 515              | 545              | 420 <sup>A</sup> | 395 <sup>A</sup> | 395              | A                |     |     |     |     |     |     |  |
| 29     |    |    |    |    |    |    |    |    |                  |                  | L                | L                | L                | L                | 405              | 405              | 370              | 400 <sup>L</sup> |                  |     |     |     |     |     |     |  |
| 30     |    |    |    |    |    |    |    |    |                  |                  | A                | 500              | 495              | 495              | 445              | 410              | 445              | L                |                  |     |     |     |     |     |     |  |
| 31     |    |    |    |    |    |    |    |    |                  |                  | 300 <sup>L</sup> | 300 <sup>L</sup> | 280 <sup>L</sup> | 320 <sup>L</sup> | 375 <sup>A</sup> | 410              | 445              | 390 <sup>A</sup> | 350              | A   |     |     |     |     |     |  |
| No.    |    |    |    |    |    |    |    |    |                  |                  | 3                | 6                | 11               | 15               | 19               | 26               | 26               | 27               | 27               | 27  | 27  | 27  | 13  | 6   | 1   |  |
| Median |    |    |    |    |    |    |    |    |                  |                  | 365              | 365              | 345              | 350              | 390              | 405              | 410              | 400              | 400              | 400 | 400 | 370 | 355 | 350 | 350 |  |

f'F2

IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

135° E Mean Time (GMT.+ 9h.)

f'F

May. 1958

| Day    | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11  | 12  | 13  | 14   | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22               | 23  |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|------------------|-----|
| 1      | 360 | 340 | 300 | 350 | 350 | 290 | 250 | 250 | 240 | 245 | 210 | 205 | 240 | 245 | 245  | 245 | 245 | 260 | 290 | 300 | 305 | 345 | 340 <sup>S</sup> | 345 |
| 2      | 310 | 330 | 320 | 315 | 310 | 260 | 245 | 245 | 245 | 240 | 245 | 220 | 230 | 245 | 245  | 245 | 250 | 260 | 290 | 290 | 295 | 305 | 330              | 330 |
| 3      | 320 | 300 | 295 | 280 | 295 | 320 | 250 | 240 | 235 | 230 | 235 | 240 | 240 | 240 | 240  | 245 | 250 | 260 | 280 | 270 | 295 | 340 | 340              | 330 |
| 4      | 305 | 285 | 290 | 280 | 300 | 260 | 250 | 250 | 250 | 250 | 220 | 220 | 235 | 240 | 240  | 220 | 245 | 255 | 290 | 285 | 275 | 290 | 305              | 325 |
| 5      | 305 | 305 | 310 | 300 | 320 | 290 | 270 | 250 | 240 | 250 | 225 | 230 | 225 | 230 | 250  | 250 | 245 | 290 | 310 | 300 | 310 | 340 | 330              | 330 |
| 6      | 320 | 310 | 300 | 315 | 350 | 280 | 250 | 250 | 250 | 245 | 240 | 245 | 240 | 245 | 250  | 245 | 250 | 260 | 290 | 305 | 330 | 310 | 310              | 345 |
| 7      | 350 | 345 | 315 | 300 | 300 | 265 | 250 | 245 | 245 | 245 | 230 | 225 | 245 | 245 | 245  | 245 | 250 | 260 | 290 | 295 | 300 | 305 | 345              | 315 |
| 8      | 340 | 315 | 300 | 300 | 295 | 260 | 245 | 245 | 245 | 225 | 240 | 240 | 240 | 240 | 240  | 270 | A   | A   | 260 | 290 | 295 | 310 | 300              | 310 |
| 9      | 330 | 340 | 300 | 300 | 345 | 270 | 245 | 240 | 240 | 240 | C   | C   | C   | C   | C    | C   | C   | C   | 295 | 295 | 295 | 340 | 345              | 310 |
| 10     | 305 | 300 | 295 | 295 | 305 | 280 | 250 | 245 | 220 | 245 | 240 | 245 | 245 | 245 | 245  | 245 | 250 | 260 | 290 | 295 | 255 | 300 | 315              | 325 |
| 11     | 300 | 295 | 290 | 345 | 345 | 295 | 270 | 260 | 250 | 240 | 235 | 240 | 245 | 245 | 245  | 245 | 250 | 255 | 280 | 295 | 300 | 355 | 340              | 300 |
| 12     | 305 | 340 | 305 | 300 | 285 | 280 | 260 | 250 | 255 | 245 | 250 | 230 | 245 | 245 | 250  | 250 | 255 | 280 | 295 | 295 | A   | A   | 350              | 340 |
| 13     | 350 | 340 | 290 | 300 | 370 | 290 | 255 | 250 | 250 | 255 | 250 | 250 | 245 | 245 | 245  | 260 | 270 | 290 | 295 | 280 | 300 | 340 | 355              | 315 |
| 14     | 320 | 300 | 300 | 350 | 400 | 300 | 250 | 250 | 250 | 260 | 240 | 225 | 240 | 245 | 240  | 250 | 260 | A   | A   | 270 | 330 | 325 | 320              | 340 |
| 15     | 350 | 355 | 325 | 300 | 290 | 275 | 240 | 240 | 240 | 245 | 245 | 210 | 205 | 245 | 245  | 250 | 250 | 270 | 270 | 260 | 315 | 335 | 330              | 330 |
| 16     | 340 | 340 | 340 | 270 | 270 | 270 | 270 | 250 | 250 | 250 | 230 | 230 | 235 | 240 | 245  | 240 | 250 | 250 | 255 | 260 | 300 | 320 | 330              | 320 |
| 17     | 300 | 300 | 310 | 305 | 350 | 270 | 250 | 250 | 250 | 250 | 220 | 210 | 250 | 250 | 250  | 250 | 280 | 295 | 295 | 295 | 325 | 305 | 300              | 300 |
| 18     | 305 | 350 | 345 | 300 | 255 | 260 | 255 | 250 | 235 | 220 | 240 | 240 | 245 | 245 | 240  | 250 | 250 | 250 | 265 | 285 | 300 | 300 | 305              | 300 |
| 19     | 300 | 310 | 320 | 335 | 350 | 290 | 260 | 245 | 250 | 245 | 245 | 245 | 245 | 245 | 245  | 245 | 250 | 250 | 295 | 320 | 360 | 355 | 340              | 305 |
| 20     | 300 | 300 | 295 | 285 | 300 | 250 | 250 | 250 | A   | A   | A   | A   | A   | A   | 1265 | 240 | 250 | 250 | 290 | 290 | 340 | 365 | 300              | 340 |
| 21     | 300 | 300 | 290 | 345 | 370 | 270 | 260 | 250 | 265 | 285 | A   | A   | A   | A   | A    | 235 | 250 | 270 | 300 | 300 | 300 | 350 | 330              | 330 |
| 22     | 300 | 310 | 300 | 300 | 300 | 250 | 245 | 250 | 245 | 245 | 255 | 265 | 250 | 245 | 245  | 250 | 245 | 255 | 280 | 295 | 295 | 295 | 300              | 325 |
| 23     | 345 | 345 | 300 | 305 | 345 | 260 | 250 | 255 | 250 | 250 | 250 | 250 | 240 | A   | A    | A   | A   | 250 | 265 | 290 | 330 | 320 | 310              | 310 |
| 24     | 320 | 300 | 280 | 295 | 330 | 260 | 250 | 250 | 250 | 260 | 260 | 260 | A   | A   | A    | A   | 260 | A   | A   | 300 | 320 | 305 | 305              | 305 |
| 25     | 310 | 300 | 290 | 295 | 340 | 270 | 250 | 250 | 250 | A   | A   | A   | A   | A   | 270  | 250 | A   | A   | A   | 305 | 300 | 330 | 310              | 305 |
| 26     | 300 | 305 | 275 | 295 | 345 | 260 | 255 | 250 | 255 | 270 | 225 | 245 | 245 | 220 | 245  | 250 | 275 | 255 | 305 | 320 | 315 | 350 | 320              | 345 |
| 27     | 375 | 355 | 375 | 350 | 355 | 290 | 290 | 250 | 250 | 230 | 250 | 250 | 270 | 270 | A    | A   | A   | A   | A   | 350 | 355 | 355 | 375              | 375 |
| 28     | 340 | 300 | 345 | 350 | 340 | 280 | 250 | 240 | 290 | 245 | 245 | A   | A   | A   | A    | A   | A   | 270 | 285 | 350 | 345 | 370 | 345              | 345 |
| 29     | 345 | 345 | 340 | 305 | 300 | 255 | 250 | 250 | 245 | 245 | 250 | 260 | 245 | 250 | 245  | 245 | 245 | 285 | 295 | 305 | 350 | 300 | 280              | 315 |
| 30     | 355 | 340 | 340 | 305 | A   | A   | A   | 245 | 250 | 260 | 250 | 250 | 250 | 245 | A    | A   | A   | 245 | 275 | 370 | 365 | 385 | 375              | 355 |
| 31     | 345 | 305 | 305 | 330 | 345 | 270 | 250 | A   | A   | A   | 260 | 245 | 230 | 250 | 290  | A   | A   | A   | A   | A   | A   | 340 | 350              | 350 |
| No.    | 31  | 31  | 31  | 31  | 30  | 30  | 30  | 30  | 28  | 26  | 27  | 26  | 26  | 25  | 24   | 24  | 23  | 24  | 25  | 30  | 29  | 30  | 31               | 31  |
| Median | 320 | 310 | 300 | 300 | 335 | 270 | 250 | 250 | 250 | 245 | 240 | 240 | 240 | 245 | 245  | 250 | 250 | 260 | 290 | 295 | 305 | 330 | 330              | 330 |

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

f'F

The Radio Research Laboratories, Japan.

A 10

# IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.3' E

## Akita

May, 1958

f<sup>o</sup>F<sub>2</sub>S

135° E Mean Time (GMT.+9h.)

| Day    | 00  | 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   | β   | G   | 145 | 140 | 135 | G   | G   | 120 | G   | G   | G   | G   | B   | S   | 120 | 115 | E   | S   | E   |
| 2      | E   | E   | E   | E   | E   | E   | 155 | β   | G   | G   | 140 | G   | G   | 110 | 110 | 110 | 120 | 120 | 130 | 130 | E   | E   | E   | E   |
| 3      | E   | E   | E   | E   | E   | E   | 145 | G   | 140 | S   | 120 | 120 | 140 | G   | G   | G   | 145 | 140 | 135 | E   | E   | E   | E   | E   |
| 4      | E   | E   | E   | E   | E   | E   | 150 | 145 | 130 | 125 | 120 | 115 | G   | B   | G   | G   | G   | G   | 140 | 115 | 120 | 115 | E   | E   |
| 5      | E   | E   | E   | E   | E   | E   | 150 | 140 | 135 | 130 | 130 | 140 | 130 | 110 | β   | G   | G   | 140 | 130 | 120 | 120 | 125 | 120 | 120 |
| 6      | 110 | E   | E   | E   | E   | E   | G   | G   | 130 | 130 | 125 | G   | G   | G   | 135 | 135 | G   | 140 | E   | 110 | E   | E   | E   | E   |
| 7      | E   | E   | E   | E   | E   | E   | G   | G   | 145 | 145 | 130 | G   | 140 | 125 | 120 | G   | 110 | G   | 145 | 140 | E   | E   | E   | 115 |
| 8      | E   | E   | E   | E   | E   | E   | 170 | G   | 130 | 150 | 130 | 125 | 120 | G   | 155 | 140 | 130 | 125 | 125 | E   | 120 | E   | E   | E   |
| 9      | E   | E   | E   | E   | E   | E   | 130 | 150 | 140 | 130 | C   | C   | C   | C   | C   | C   | C   | C   | C   | 120 | 110 | 110 | 110 | 110 |
| 10     | E   | E   | E   | E   | E   | E   | 145 | 145 | 140 | 140 | 120 | G   | 120 | G   | 125 | 140 | G   | 140 | 125 | 120 | E   | E   | 110 | 105 |
| 11     | E   | E   | E   | E   | E   | E   | 150 | 145 | 145 | 145 | 140 | G   | 145 | G   | 145 | 145 | 140 | 135 | 125 | E   | 110 | 110 | 110 | 110 |
| 12     | E   | 110 | 105 | E   | E   | E   | 145 | 145 | 145 | 140 | 120 | 115 | 120 | 145 | 130 | 140 | 145 | 135 | 120 | 115 | 115 | 110 | 110 | 110 |
| 13     | 105 | 110 | E   | E   | E   | E   | E   | G   | 140 | 125 | 125 | 130 | 135 | 140 | 120 | 145 | 145 | 140 | 125 | 120 | 110 | 110 | 110 | 110 |
| 14     | E   | 110 | E   | E   | E   | E   | 145 | 140 | 140 | 125 | 120 | 120 | 125 | 130 | G   | G   | 140 | 120 | 120 | 125 | 120 | E   | 110 | 110 |
| 15     | E   | E   | E   | E   | E   | E   | β   | 140 | G   | 155 | 140 | 125 | 115 | 120 | 140 | G   | 140 | 145 | 125 | 125 | 115 | 110 | 110 | 110 |
| 16     | 110 | E   | 105 | 105 | E   | E   | 140 | 130 | 125 | 120 | 115 | 115 | 120 | 110 | 130 | 130 | G   | 140 | 120 | 120 | 115 | 115 | 110 | 110 |
| 17     | 110 | 110 | 110 | 110 | 110 | E   | G   | 140 | 125 | 125 | 125 | 135 | 125 | 115 | 120 | 120 | G   | 140 | 125 | 115 | 110 | 115 | E   | 110 |
| 18     | 110 | 110 | 110 | E   | E   | E   | 145 | 145 | 140 | 120 | 125 | 120 | 120 | 120 | 115 | 120 | G   | G   | 130 | 115 | 115 | E   | E   | E   |
| 19     | E   | E   | E   | E   | E   | E   | β   | β   | 135 | 120 | 135 | 125 | 125 | 120 | 115 | 115 | 120 | 115 | 120 | 120 | 110 | 110 | 110 | 105 |
| 20     | 105 | E   | E   | E   | E   | E   | E   | S   | 145 | 140 | 120 | 120 | 120 | 120 | 110 | 110 | 110 | 110 | 105 | 120 | 120 | 115 | 115 | 110 |
| 21     | 110 | 105 | 105 | 105 | 110 | E   | β   | 140 | 135 | 120 | 120 | 115 | 110 | 110 | 110 | 110 | G   | 160 | 125 | 115 | 120 | 120 | 120 | 115 |
| 22     | 115 | 115 | 110 | 110 | E   | β   | 140 | 140 | 130 | 140 | 125 | 125 | 120 | 145 | G   | β   | G   | 130 | 120 | 115 | 120 | 115 | E   | 110 |
| 23     | E   | 110 | E   | 105 | 105 | E   | 145 | 135 | 130 | 130 | 120 | 120 | 125 | 120 | 105 | 105 | 105 | 105 | 110 | 110 | 125 | 120 | 115 | 115 |
| 24     | 110 | E   | E   | E   | E   | β   | 140 | 120 | 115 | 120 | 120 | 120 | 110 | 110 | 110 | 110 | 125 | 140 | 125 | 120 | 120 | 115 | 115 | 115 |
| 25     | E   | E   | E   | E   | E   | E   | 150 | 140 | 125 | 120 | 125 | 115 | 120 | 110 | 110 | 115 | 140 | 130 | 125 | 120 | 110 | E   | E   | E   |
| 26     | E   | 105 | 105 | E   | E   | E   | G   | 130 | 140 | 125 | 140 | 115 | 120 | 125 | 140 | 110 | 115 | 110 | 140 | 120 | 120 | 110 | E   | 105 |
| 27     | E   | 105 | 105 | E   | E   | E   | G   | 145 | 140 | 100 | 145 | G   | 130 | 140 | 120 | 120 | 125 | 115 | 115 | 110 | 110 | 110 | 125 | 115 |
| 28     | 110 | 105 | 105 | 105 | E   | E   | G   | 150 | 145 | 130 | 140 | 125 | 120 | 110 | 110 | 110 | 105 | 105 | 145 | 140 | 120 | 115 | 115 | 110 |
| 29     | E   | 105 | E   | E   | E   | E   | G   | 145 | 140 | 140 | 135 | 130 | 120 | 120 | G   | G   | 140 | 145 | G   | S   | E   | E   | E   | E   |
| 30     | 145 | 145 | 145 | 140 | 140 | 135 | 125 | 140 | 140 | 135 | 135 | 130 | 140 | 130 | 115 | 110 | 110 | 110 | 145 | 115 | 110 | 110 | 110 | 105 |
| 31     | 100 | E   | 100 | E   | E   | E   | 150 | 145 | 140 | 125 | 125 | 115 | 130 | S   | 145 | 145 | 125 | 120 | 145 | 125 | 110 | 110 | 105 | E   |
| No.    | 12  | 13  | 14  | 10  | 6   | 15  | 23  | 27  | 30  | 27  | 27  | 26  | 26  | 19  | 21  | 20  | 23  | 26  | 28  | 24  | 26  | 19  | 20  | 16  |
| Median | 110 | 110 | 105 | 110 | 110 | 145 | 140 | 140 | 130 | 130 | 125 | 120 | 120 | 120 | 120 | 120 | 140 | 125 | 125 | 120 | 115 | 110 | 110 | 110 |

Sweep 1.6 Mc to 2.0 Mc in 2.0 sec <sup>min</sup> in automatic operation.

The Radio Research Laboratories, Japan.

A 11



IONOSPHERIC DATA

Lat. 39° 48.5' N  
Long. 140° 08.3' E

Akita

135° E Mean Time (GMT.+9h.)

Types of Es

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |  |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| 1      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 2      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 3      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 4      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 5      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 6      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 7      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 8      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 9      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 10     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 11     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 12     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 13     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 14     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 15     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 16     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 17     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 18     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 19     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 20     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 21     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 22     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 23     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 24     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 25     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 26     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 27     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 28     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 29     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 30     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| 31     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| No.    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Median |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |

Sweep 1.6 Mc to 20.0 Mc in 20 sec

The Radio Research Laboratories, Japan.

Types of Es

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+ 9h.)

foF2

May. 1953

Table with columns Day, 00-31, and rows 1-31. Each cell contains ionospheric data points with various suffixes (R, S, U, H, M, N, etc.).



foF2

# IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.3' E  
**Kokubunji Tokyo**

foF1

May. 1958

135° E Mean Time (GMT.+ 9h.)

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07               | 08               | 09               | 10               | 11               | 12               | 13               | 14               | 15               | 16               | 17 | 18 | 19 | 20 | 21 | 22 | 23 |  |
|--------|----|----|----|----|----|----|----|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----|----|----|----|----|----|----|--|
| 1      |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |    |    |    |    |    |    |  |
| 2      |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |    |    |    |    |    |    |  |
| 3      |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |    |    |    |    |    |    |  |
| 4      |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |    |    |    |    |    |    |  |
| 5      |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |    |    |    |    |    |    |  |
| 6      |    |    |    |    |    |    |    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |    |    |    |    |    |    |    |  |
| 7      |    |    |    |    |    |    |    |                  |                  |                  |                  | 7.2 <sup>L</sup> | 7.5 <sup>L</sup> | L                | 7.0 <sup>L</sup> | 6.5 <sup>L</sup> | L                |    |    |    |    |    |    |    |  |
| 8      |    |    |    |    |    |    |    |                  |                  |                  | LH               | 7.1 <sup>L</sup> | 7.1 <sup>H</sup> | 7.0 <sup>H</sup> | 6.7 <sup>L</sup> | L                | C                |    |    |    |    |    |    |    |  |
| 9      |    |    |    |    |    |    |    |                  |                  |                  | 6.6              | L                | 7.1 <sup>H</sup> | L                | 6.7 <sup>L</sup> | L                | A                |    |    |    |    |    |    |    |  |
| 10     |    |    |    |    |    |    |    |                  |                  |                  |                  | 5.9 <sup>S</sup> | 6.1              | 6.0 <sup>S</sup> | 6.0              | 5.6 <sup>L</sup> | L                |    |    |    |    |    |    |    |  |
| 11     |    |    |    |    |    |    |    | L                | 5.7              | 5.8              | 6.1              | 5.9 <sup>S</sup> | 6.1              | 6.0 <sup>S</sup> | 6.0              | 5.6 <sup>L</sup> | L                |    |    |    |    |    |    |    |  |
| 12     |    |    |    |    |    |    |    | 5.2 <sup>L</sup> | L                | 6.1              | 6.6              | A                | 6.5 <sup>L</sup> | L                | A                | L                | L                |    |    |    |    |    |    |    |  |
| 13     |    |    |    |    |    |    |    |                  |                  |                  | L                | 7.0 <sup>L</sup> | 6.7 <sup>L</sup> | A                | A                | L                | L                |    |    |    |    |    |    |    |  |
| 14     |    |    |    |    |    |    |    | L                | 6.5 <sup>L</sup> | 6.0 <sup>L</sup> | 6.3              | L                | 6.3 <sup>L</sup> | A                | A                | L                | L                |    |    |    |    |    |    |    |  |
| 15     |    |    |    |    |    |    |    |                  |                  |                  | 6.9 <sup>L</sup> | L                | L                | A                | L                | L                | L                |    |    |    |    |    |    |    |  |
| 16     |    |    |    |    |    |    |    |                  | A                |                  | A                | A                | L                | L                | L                | L                | L                |    |    |    |    |    |    |    |  |
| 17     |    |    |    |    |    |    |    |                  |                  |                  | A                | A                | A                | A                | L                | L                | A                | A  |    |    |    |    |    |    |  |
| 18     |    |    |    |    |    |    |    |                  |                  |                  | 6.8 <sup>L</sup> | 6.3 <sup>H</sup> | L                | L                | L                | L                | L                | A  |    |    |    |    |    |    |  |
| 19     |    |    |    |    |    |    |    | L                | L                | 6.6 <sup>L</sup> | 6.3 <sup>L</sup> | A                | 6.5 <sup>L</sup> | 6.4 <sup>L</sup> | 6.5 <sup>L</sup> | A                | L                | A  |    |    |    |    |    |    |  |
| 20     |    |    |    |    |    |    |    | A                | A                | L                | 6.0              | S                | 6.2              | 6.2              | 6.2              | A                | A                | A  |    |    |    |    |    |    |  |
| 21     |    |    |    |    |    |    |    |                  |                  |                  | L                | L                | A                | A                | 6.4 <sup>L</sup> | L                | 6.1 <sup>L</sup> | L  |    |    |    |    |    |    |  |
| 22     |    |    |    |    |    |    |    |                  |                  |                  | L                | L                | 6.6              | 6.7 <sup>L</sup> | A                | A                | 6.5 <sup>L</sup> | L  | A  |    |    |    |    |    |  |
| 23     |    |    |    |    |    |    |    |                  | A                | A                | L                | 6.3              | 6.6              | 6.3              | 6.3              | 6.3              | 5.9 <sup>L</sup> | L  | A  |    |    |    |    |    |  |
| 24     |    |    |    |    |    |    |    | L                | A                | A                | L                | 7.0 <sup>L</sup> | A                | 6.6              | C                | 5.9 <sup>L</sup> | L                | L  |    |    |    |    |    |    |  |
| 25     |    |    |    |    |    |    |    |                  | A                | A                | A                | A                | A                | A                | A                | L                | L                | L  |    |    |    |    |    |    |  |
| 26     |    |    |    |    |    |    |    |                  |                  |                  | L                | 6.4              | A                | A                | L                | A                | A                | A  |    |    |    |    |    |    |  |
| 27     |    |    |    |    |    |    |    | L                | 5.2              | A                | 6.2              | S                | 6.6              | A                | A                | A                | L                | L  |    |    |    |    |    |    |  |
| 28     |    |    |    |    |    |    |    | L                | LH               | 6.0 <sup>L</sup> | 6.0 <sup>L</sup> | L                | S                | 6.2              | A                | A                | L                | L  | A  |    |    |    |    |    |  |
| 29     |    |    |    |    |    |    |    |                  | L                | A                | 6.4              | 6.5              | L                | 6.2 <sup>L</sup> | A                | L                | L                | A  |    |    |    |    |    |    |  |
| 30     |    |    |    |    |    |    |    | L                | A                | A                | 6.2 <sup>L</sup> | A                | 6.3 <sup>S</sup> | A                | A                | A                | L                | L  |    |    |    |    |    |    |  |
| 31     |    |    |    |    |    |    |    |                  | A                | A                | A                | A                | A                | A                | 5.8              | A                | A                | A  |    |    |    |    |    |    |  |
| No.    |    |    |    |    |    |    |    | 2                | 3                | 8                | 8                | 11               | 13               | 8                | 8                | 8                | 8                | 8  |    |    |    |    |    |    |  |
| Median |    |    |    |    |    |    |    | 5.2              | 6.0              | 6.2              | 6.3              | 6.6              | 6.5              | 6.4              | 6.2              | 6.4              | 5.9              |    |    |    |    |    |    |    |  |

foF1

Sweep 1.0 Mc to 2.0 Mc in 20 <sup>min</sup> sec in automatic operation.

The Radio Research Laboratories, Japan.

**K 2**

Lat. 35° 42.4' N  
Long. 139° 29.3' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

135° E Mean Time (GMT.+9h.)

foE

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05   | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|----|----|----|----|
| 1      |    |    |    |    |    | B    | 2.80 | 3.40 | 3.80 | 3.90 | 4.00 | R    | R    | B    | R    | 3.85 | 3.45 | 3.10 | B    |    |    |    |    |    |
| 2      |    |    |    |    |    | B    | 2.90 | 3.50 | 3.75 | R    | R    | 4.20 | 4.10 | 4.10 | 4.10 | 3.95 | 3.60 | 3.45 | B    |    |    |    |    |    |
| 3      |    |    |    |    |    | B    | 2.85 | 3.30 | 3.65 | 3.90 | 4.20 | B    | A    | 4.25 | 4.20 | 4.10 | 3.60 | 3.00 | B    |    |    |    |    |    |
| 4      |    |    |    |    |    | 2.25 | 2.90 | 3.40 | 3.70 | 4.00 | 4.10 | B    | A    | B    | 4.15 | 3.85 | 3.55 | 3.10 | R    |    |    |    |    |    |
| 5      |    |    |    |    |    | 2.35 | 3.05 | 3.50 | 3.65 | 3.90 | 4.00 | B    | R    | R    | R    | 3.90 | 3.65 | 3.10 | B    |    |    |    |    |    |
| 6      |    |    |    |    |    | B    | 3.40 | 3.80 | 3.80 | 4.00 | R    | A    | R    | B    | B    | 3.90 | 3.55 | 2.90 | B    |    |    |    |    |    |
| 7      |    |    |    |    |    | B    | 3.05 | 3.30 | 3.70 | 4.00 | 4.10 | 4.00 | 4.20 | 4.20 | 4.20 | 3.90 | 3.45 | 3.05 | B    |    |    |    |    |    |
| 8      |    |    |    |    |    | B    | 2.70 | 3.30 | 3.65 | 3.95 | 4.10 | 4.10 | 4.25 | 4.10 | 4.10 | 4.00 | 3.60 | 3.00 | B    |    |    |    |    |    |
| 9      |    |    |    |    |    | 2.20 | 2.85 | 3.30 | 3.60 | 3.80 | 4.00 | 4.15 | 4.25 | 4.20 | 4.10 | 3.80 | 3.50 | 2.70 | B    |    |    |    |    |    |
| 10     |    |    |    |    |    | B    | 3.00 | 3.25 | 3.55 | 3.80 | 4.00 | 4.15 | R    | R    | R    | 3.80 | 3.45 | 2.90 | B    |    |    |    |    |    |
| 11     |    |    |    |    |    | B    | 2.90 | 3.20 | 3.65 | R    | B    | 4.10 | 4.00 | 4.05 | 3.95 | 3.70 | 3.40 | 2.90 | B    |    |    |    |    |    |
| 12     |    |    |    |    |    | B    | 3.25 | 3.55 | 4.00 | 4.00 | 4.00 | 4.05 | 4.15 | 4.15 | 3.95 | 3.80 | 3.45 | 3.00 | B    |    |    |    |    |    |
| 13     |    |    |    |    |    | B    | 2.75 | 3.30 | 3.60 | 3.80 | 3.95 | 4.00 | 4.00 | 3.90 | 3.70 | 3.75 | 3.40 | 2.95 | B    |    |    |    |    |    |
| 14     |    |    |    |    |    | B    | 2.80 | 3.25 | 3.50 | 3.70 | 3.90 | 4.10 | A    | A    | A    | 3.65 | 3.30 | 2.85 | B    |    |    |    |    |    |
| 15     |    |    |    |    |    | B    | 2.80 | 3.30 | 3.45 | 3.75 | 3.80 | 4.10 | 4.10 | 4.10 | 3.90 | 3.70 | 3.40 | 2.90 | B    |    |    |    |    |    |
| 16     |    |    |    |    |    | B    | 2.80 | 3.30 | 3.65 | 3.85 | 3.90 | 3.95 | B    | R    | R    | 3.70 | 3.40 | 3.00 | A    |    |    |    |    |    |
| 17     |    |    |    |    |    | B    | 2.90 | 3.20 | 3.60 | 3.80 | 3.90 | 3.90 | 4.10 | 4.10 | 3.90 | 3.70 | 3.55 | 3.10 | B    |    |    |    |    |    |
| 18     |    |    |    |    |    | B    | 2.80 | 3.30 | 3.60 | 3.85 | 4.05 | 4.05 | 4.05 | 4.00 | 3.80 | 3.65 | 3.20 | 2.80 | B    |    |    |    |    |    |
| 19     |    |    |    |    |    | B    | 2.80 | 3.45 | 3.65 | 3.85 | 3.90 | 4.00 | 4.00 | 3.90 | A    | A    | A    | A    | B    |    |    |    |    |    |
| 20     |    |    |    |    |    | B    | 3.10 | 3.50 | 3.75 | 3.85 | R    | B    | A    | A    | A    | A    | 3.50 | 3.00 | B    |    |    |    |    |    |
| 21     |    |    |    |    |    | B    | 3.40 | 3.70 | B    | B    | B    | B    | B    | B    | B    | A    | 3.25 | 3.20 | 2.40 |    |    |    |    |    |
| 22     |    |    |    |    |    | B    | 2.95 | 3.45 | 3.75 | 3.85 | 4.10 | B    | 4.00 | A    | A    | 3.85 | 3.50 | A    | A    |    |    |    |    |    |
| 23     |    |    |    |    |    | B    | 2.80 | 3.35 | 3.70 | 3.95 | 4.05 | 4.05 | A    | A    | C    | 3.90 | 3.50 | 3.10 | A    |    |    |    |    |    |
| 24     |    |    |    |    |    | B    | 3.05 | 3.50 | 3.80 | 3.90 | 4.05 | 4.05 | 3.90 | A    | A    | A    | 3.60 | 3.15 | A    |    |    |    |    |    |
| 25     |    |    |    |    |    | 2.30 | 3.00 | 3.40 | 3.60 | 3.90 | 4.00 | 4.05 | 4.00 | 3.95 | 4.15 | 3.80 | A    | A    | A    |    |    |    |    |    |
| 26     |    |    |    |    |    | B    | 3.00 | 3.20 | 3.50 | 3.90 | 4.40 | 4.00 | 4.10 | 4.10 | 4.10 | 3.80 | 3.50 | S    | BS   |    |    |    |    |    |
| 27     |    |    |    |    |    | B    | 2.95 | 3.40 | 3.65 | 3.85 | 4.00 | 4.15 | 4.00 | A    | A    | A    | 3.70 | 3.15 | A    |    |    |    |    |    |
| 28     |    |    |    |    |    | 2.40 | 3.00 | 3.30 | 3.75 | 3.95 | 4.15 | 4.10 | 4.00 | 4.00 | 4.15 | 3.95 | 3.55 | 3.00 | 2.40 |    |    |    |    |    |
| 29     |    |    |    |    |    | B    | 2.85 | 3.25 | 3.75 | 3.85 | 4.00 | 4.00 | B    | A    | A    | 3.85 | 3.60 | 3.05 | 2.80 |    |    |    |    |    |
| 30     |    |    |    |    |    | A    | 2.90 | 3.40 | 3.70 | 4.00 | 4.00 | 4.00 | A    | A    | A    | 4.25 | 4.00 | 3.50 | 3.00 |    |    |    |    |    |
| 31     |    |    |    |    |    |      |      |      |      |      |      |      |      |      |      |      |      |      |      |    |    |    |    |    |
| N.O.   |    |    |    |    |    | 5    | 28   | 31   | 31   | 28   | 26   | 22   | 19   | 16   | 18   | 26   | 29   | 27   | 3    |    |    |    |    |    |
| Median |    |    |    |    |    | 2.30 | 2.90 | 3.30 | 3.65 | 3.90 | 4.00 | 4.05 | 4.05 | 4.10 | 4.05 | 3.80 | 3.50 | 3.00 | 2.40 |    |    |    |    |    |

Sweep 1.0 Mc to 2.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

foE

K 3

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 39.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+ 9h.)

May, 1958

foEs

| Day    | 00               | 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                | 25 <sup>M</sup>  | E                | E                | E                | B   | G   | 38               | 46                | 43                | G                 | G                | G                 | B                 | G                 | 43                | 3.7               | G                 | B                 | 33 <sup>M</sup>   | 28 <sup>M</sup>   | 34 <sup>M</sup>   | 32 <sup>M</sup>   | 3.9 <sup>M</sup>  |    |
| 2      | E                | E                | E                | E                | E                | B   | G   | 39               | B                 | G                 | G                 | 46               | G                 | 46                | 6.0 <sup>M</sup>  | 6.0 <sup>M</sup>  | 6.1               | 33                | 4.7 <sup>M</sup>  | 6.8 <sup>M</sup>  | 2.9 <sup>M</sup>  | 2.5 <sup>M</sup>  | E                 | E                 |    |
| 3      | E                | E                | E                | E                | E                | B   | G   | 36               | B                 | 48                | 45                | 45               | 46                | 35.9              | 5.0               | 6.6               | 6.1               | 46                | 6.0 <sup>M</sup>  | 2.1 <sup>M</sup>  | E                 | E                 | E                 | E                 |    |
| 4      | E                | E                | E                | E                | E                | G   | 34  | 44               | 51                | 58                | 45                | B                | 7.3 <sup>M</sup>  | B                 | G                 | G                 | G                 | G                 | 3.6 <sup>M</sup>  | 13.3 <sup>M</sup> | 3.1 <sup>M</sup>  | 2.4 <sup>M</sup>  | E                 | E                 |    |
| 5      | E                | E                | E                | E                | E                | B   | 31  | 42               | 50                | 48                | 47                | B                | G                 | G                 | B                 | 5.6               | 4.4               | 3.9               | 4.5 <sup>M</sup>  | 5.7 <sup>M</sup>  | 3.1 <sup>M</sup>  | 2.6 <sup>M</sup>  | E                 | 2.6 <sup>M</sup>  |    |
| 6      | E                | E                | E                | E                | E                | G   | 38  | 38               | 47                | 47                | 45                | 43               | G                 | B                 | G                 | G                 | G                 | G                 | 2.2               | 3.5 <sup>M</sup>  | 3.1 <sup>M</sup>  | 2.9 <sup>M</sup>  | E                 | E                 |    |
| 7      | E                | E                | E                | E                | E                | B   | 31  | 38               | 42                | B                 | B                 | 50               | 52                | 44                | G                 | 4.7               | 3.9               | G                 | 5.0               | E                 | 2.6 <sup>M</sup>  | E                 | 3.1 <sup>M</sup>  | E                 |    |
| 8      | 2.4 <sup>M</sup> | E                | E                | E                | E                | B   | G   | 37               | 44                | 46                | 45                | G                | 6.0 <sup>M</sup>  | 4.5               | 4.6               | 4.3               | 6.0 <sup>M</sup>  | 5.0               | 4.3 <sup>M</sup>  | 6.0 <sup>M</sup>  | 2.4 <sup>M</sup>  | 2.2 <sup>M</sup>  | E                 | E                 |    |
| 9      | 2.3 <sup>M</sup> | E                | E                | E                | E                | B   | 30  | 37               | 42                | 46                | 47                | 47               | G                 | B                 | 4.4               | 4.9               | 4.7               | C                 | 3.6 <sup>M</sup>  | 11.3 <sup>M</sup> | 4.8 <sup>M</sup>  | 4.3 <sup>M</sup>  | 4.9 <sup>M</sup>  | E                 |    |
| 10     | 2.2 <sup>M</sup> | 2.6 <sup>M</sup> | 3.9 <sup>M</sup> | 2.6              | E                | G   | 30  | 50 <sup>M</sup>  | 43                | 42                | G                 | 46               | 6.8 <sup>M</sup>  | 4.9               | 4.9               | 4.9               | 12.6              | 8.5 <sup>M</sup>  | 5.5 <sup>M</sup>  | 3.5 <sup>M</sup>  | 2.5 <sup>M</sup>  | E                 | E                 | 4.6 <sup>M</sup>  |    |
| 11     | 4.1 <sup>M</sup> | 3.1 <sup>M</sup> | E                | C                | E                | B   | 31  | 50               | 42                | 41                | 45                | 44               | G                 | B                 | G                 | 4.9               | 5.0               | 6.4 <sup>M</sup>  | 5.0 <sup>M</sup>  | 4.3 <sup>M</sup>  | 9.0 <sup>M</sup>  | 3.2 <sup>M</sup>  | 3.8 <sup>M</sup>  | 7.6 <sup>M</sup>  |    |
| 12     | 3.9 <sup>M</sup> | 3.7 <sup>M</sup> | 2.5 <sup>M</sup> | 2.5 <sup>M</sup> | E                | E   | 24  | 40               | 56 <sup>M</sup>   | 6.6 <sup>M</sup>  | 5.2 <sup>M</sup>  | 7.6 <sup>M</sup> | 7.0 <sup>M</sup>  | 6.2 <sup>M</sup>  | 6.5 <sup>M</sup>  | 5.6 <sup>M</sup>  | 4.9 <sup>M</sup>  | 4.9 <sup>M</sup>  | 4.3               | 5.9 <sup>M</sup>  | 4.9 <sup>M</sup>  | 4.0 <sup>M</sup>  | 12.8 <sup>M</sup> | 5.8 <sup>M</sup>  |    |
| 13     | 3.3 <sup>M</sup> | E                | 3.6 <sup>M</sup> | 2.9 <sup>M</sup> | E                | B   | G   | 40               | 6.1               | 5.6 <sup>M</sup>  | 6.0 <sup>M</sup>  | 5.0 <sup>M</sup> | B                 | 5.9 <sup>M</sup>  | 7.2 <sup>M</sup>  | 5.0               | 6.0               | 4.9               | 7.5 <sup>M</sup>  | 4.8 <sup>M</sup>  | 2.9 <sup>M</sup>  | 2.7 <sup>M</sup>  | 6.8 <sup>M</sup>  | 4.9 <sup>M</sup>  |    |
| 14     | 4.3 <sup>M</sup> | 6.8 <sup>M</sup> | E                | E                | E                | B   | 35  | 6.1 <sup>M</sup> | 5.9 <sup>M</sup>  | 6.7               | 5.7               | 6.5              | 4.8 <sup>M</sup>  | 7.9 <sup>M</sup>  | 9.5 <sup>M</sup>  | 6.0 <sup>M</sup>  | 5.0 <sup>M</sup>  | 6.5 <sup>M</sup>  | 9.4 <sup>M</sup>  | 7.4 <sup>M</sup>  | 9.4 <sup>M</sup>  | 6.7 <sup>M</sup>  | 4.7 <sup>M</sup>  | 2.4 <sup>M</sup>  |    |
| 15     | 2.4 <sup>M</sup> | E                | E                | E                | E                | B   | G   | 40               | 4.9 <sup>M</sup>  | 4.9               | 4.7               | 4.4              | 4.8 <sup>M</sup>  | 8.5 <sup>M</sup>  | 4.9               | G                 | 9.1               | 4.9 <sup>M</sup>  | 6.9 <sup>M</sup>  | 9.3 <sup>M</sup>  | 11.5 <sup>M</sup> | 11.6 <sup>M</sup> | 7.0 <sup>M</sup>  | 9.0 <sup>M</sup>  |    |
| 16     | 5.0 <sup>M</sup> | 3.2              | 2.5 <sup>M</sup> | 3.6 <sup>M</sup> | 6.7 <sup>M</sup> | B   | 32  | 50 <sup>M</sup>  | 13.6 <sup>M</sup> | 7.4 <sup>M</sup>  | 12.0 <sup>M</sup> | 6.3              | 5.0               | 5.0               | 4.9               | G                 | 3.5               | 4.4 <sup>M</sup>  | 4.9 <sup>M</sup>  | 6.8 <sup>M</sup>  | 9.0 <sup>M</sup>  | 6.4 <sup>M</sup>  | 3.2 <sup>M</sup>  | 6.7 <sup>M</sup>  |    |
| 17     | 3.7 <sup>M</sup> | 4.1 <sup>M</sup> | 3.7 <sup>M</sup> | E                | E                | G   | 32  | 53 <sup>M</sup>  | 6.8 <sup>M</sup>  | 7.2               | 11.9 <sup>M</sup> | 7.4 <sup>M</sup> | 11.7              | 9.0               | 13.5 <sup>M</sup> | G                 | 7.9               | 9.3 <sup>M</sup>  | 10.2 <sup>M</sup> | 7.6 <sup>M</sup>  | 9.0               | 11.4 <sup>M</sup> | 9.2 <sup>M</sup>  | 5.4 <sup>M</sup>  |    |
| 18     | 2.5 <sup>M</sup> | 3.3              | 2.4 <sup>M</sup> | E                | E                | E   | 23  | 39               | 5.5 <sup>M</sup>  | 6.0 <sup>M</sup>  | 4.9               | 4.7              | 6.7               | G                 | B                 | 4.1               | 3.7               | 3.6               | 2.4               | 2.8 <sup>M</sup>  | 7.2 <sup>M</sup>  | 5.8 <sup>M</sup>  | E                 | 2.1 <sup>M</sup>  |    |
| 19     | 2.3 <sup>M</sup> | E                | E                | E                | E                | B   | 33  | 42               | 6.4               | 5.4               | 6.8               | 9.2              | 4.6               | 4.8               | 6.4               | 9.4               | 12.8              | 13.4              | 20.0              | 18.8              | 13.6 <sup>M</sup> | 13.7 <sup>M</sup> | 9.3 <sup>M</sup>  | 6.2 <sup>M</sup>  |    |
| 20     | 2.7 <sup>M</sup> | 2.5 <sup>M</sup> | 3.0 <sup>M</sup> | 2.6 <sup>M</sup> | E                | B   | 32  | 50 <sup>M</sup>  | 6.1               | 4.4               | 4.7               | 6.5              | 7.3               | 4.9               | 4.4               | 9.0               | 8.9 <sup>M</sup>  | 5.4               | 6.9               | 6.7 <sup>M</sup>  | 14.7 <sup>M</sup> | 9.5 <sup>M</sup>  | 8.9 <sup>M</sup>  | 11.4 <sup>M</sup> |    |
| 21     | 8.0 <sup>M</sup> | 7.5 <sup>M</sup> | 5.4 <sup>M</sup> | 5.9 <sup>M</sup> | E                | B   | 38  | 7.2              | 6.6               | 6.1               | 4.7               | 7.6              | 13.2 <sup>M</sup> | 4.5               | 6.3               | 4.9               | 3.7               | 5.9 <sup>M</sup>  | 3.8               | 3.8               | 8.4               | 7.5 <sup>M</sup>  | 3.9 <sup>M</sup>  | 5.3 <sup>M</sup>  |    |
| 22     | 7.5 <sup>M</sup> | 4.1              | 4.8 <sup>M</sup> | 3.8 <sup>M</sup> | E                | B   | 32  | 46               | 4.4               | 6.8               | 6.1               | 6.7              | 7.1               | 8.9               | 8.0               | 4.3               | 4.7               | 7.1 <sup>M</sup>  | 10.4              | 10.0              | 8.5 <sup>M</sup>  | 9.3 <sup>M</sup>  | 3.0               | 3.6 <sup>M</sup>  |    |
| 23     | 5.0 <sup>M</sup> | 3.1              | 3.2              | 2.5 <sup>M</sup> | E                | B   | 35  | 5.8              | 7.8               | 8.3               | 6.6               | 4.8              | 6.2               | 4.3               | 4.2               | 3.7               | G                 | 5.3 <sup>M</sup>  | 5.9 <sup>M</sup>  | 7.2 <sup>M</sup>  | 4.5 <sup>M</sup>  | 3.0 <sup>M</sup>  | E                 | E                 |    |
| 24     | 3.3 <sup>M</sup> | E                | 3.6 <sup>M</sup> | 3.2              | 2.7 <sup>M</sup> | B   | 34  | 5.0              | 6.4               | 6.8               | 9.5               | 7.3              | 11.7              | 4.0               | G                 | 3.7               | G                 | 5.0               | 7.3               | 7.0 <sup>M</sup>  | 8.5 <sup>M</sup>  | 9.5 <sup>M</sup>  | 3.9 <sup>M</sup>  | 4.4 <sup>M</sup>  |    |
| 25     | 3.1              | 3.2              | 3.3              | 3.3              | 3.9 <sup>M</sup> | B   | 34  | 6.0              | 7.3               | 10.1 <sup>M</sup> | 7.5               | 9.1              | 7.2               | 15.7 <sup>M</sup> | 9.5               | 4.9               | 4.4               | 5.1               | 8.0               | 12.9 <sup>M</sup> | 9.2 <sup>M</sup>  | 5.0 <sup>M</sup>  | 4.9 <sup>M</sup>  | 2.8 <sup>M</sup>  |    |
| 26     | E                | E                | E                | E                | E                | G   | 34  | 4.7              | 7.4               | 5.4               | 5.4               | 8.4              | 8.4               | 9.8               | 7.5               | 6.9 <sup>M</sup>  | 7.6 <sup>M</sup>  | 7.1 <sup>M</sup>  | 7.3               | 6.6 <sup>M</sup>  | 12.5 <sup>M</sup> | 9.5 <sup>M</sup>  | 6.8 <sup>M</sup>  | 7.5 <sup>M</sup>  |    |
| 27     | E                | E                | E                | E                | E                | E   | 25  | 3.3              | 7.2               | 5.4               | 4.8               | 5.0              | 8.8               | 7.5               | 7.3               | 12.0 <sup>M</sup> | 5.3 <sup>M</sup>  | 3.8               | 4.8               | 5.5 <sup>M</sup>  | 5.1               | 5.0 <sup>M</sup>  | 3.4               | 7.7 <sup>M</sup>  |    |
| 28     | 5.4 <sup>M</sup> | 6.2              | 5.7 <sup>M</sup> | 6.7 <sup>M</sup> | E                | B   | G   | 3.9              | 5.0               | 5.3 <sup>M</sup>  | 4.8               | 5.2              | 5.0               | 7.5               | 6.7               | 8.7 <sup>M</sup>  | G                 | G                 | 8.5 <sup>M</sup>  | 5.3 <sup>M</sup>  | 11.5 <sup>M</sup> | 7.9 <sup>M</sup>  | 3.9               | 2.5 <sup>M</sup>  |    |
| 29     | E                | E                | 2.2              | 3.0              | 3.9 <sup>M</sup> | E   | 50  | 5.0              | 5.2               | 5.0               | 4.9               | 5.4              | 5.3               | 4.6               | 4.2               | 7.5               | 5.3               | 8.5 <sup>M</sup>  | 4.4               | 3.2               | 2.9               | 2.5               | 2.4 <sup>M</sup>  | E                 |    |
| 30     | E                | 3.1              | 2.3              | 2.4              | 3.2              | B   | 32  | 9.0              | 7.0               | 4.9               | 8.6               | 4.9              | 4.9               | 8.9               | 7.3               | 8.5               | 5.3               | 3.7               | 2.8               | 3.5 <sup>M</sup>  | 3.8 <sup>M</sup>  | 9.5 <sup>M</sup>  | 11.7 <sup>M</sup> | 8.9 <sup>M</sup>  |    |
| 31     | 2.4 <sup>M</sup> | 4.2 <sup>M</sup> | 2.8 <sup>M</sup> | 3.3              | 3.2              | B   | 34  | 6.0              | 8.4               | 13.6              | 13.4              | 17.6             | 12.0              | 9.5               | 5.5               | 13.4              | 17.9 <sup>M</sup> | 20.0 <sup>P</sup> | 9.1 <sup>M</sup>  | 14.9 <sup>M</sup> | 12.4              | 12.0 <sup>M</sup> | 3.7 <sup>M</sup>  | 7.1 <sup>M</sup>  |    |
| No.    | 31               | 31               | 31               | 30               | 31               | 1.3 | 31  | 31               | 30                | 30                | 2.9               | 3.0              | 2.7               | 2.7               | 31                | 31                | 31                | 31                | 30                | 30                | 31                | 31                | 31                | 31                | 31 |
| Median | 2.4 <sup>M</sup> | 2.5              | 2.2 <sup>M</sup> | E                | E                | 2.3 | 3.2 | 4.7              | 5.6 <sup>M</sup>  | 5.4               | 4.8               | 5.0 <sup>M</sup> | 5.6 <sup>M</sup>  | 4.9               | 5.5 <sup>M</sup>  | 4.9               | 5.0 <sup>M</sup>  | 4.9 <sup>M</sup>  | 5.7 <sup>M</sup>  | 5.9 <sup>M</sup>  | 7.2 <sup>M</sup>  | 5.0 <sup>M</sup>  | 3.7               | 3.9 <sup>M</sup>  |    |
| U.O.   | 3.9              | 3.3              | 3.3              | 3.0              | 3.2              | 2.6 | 3.4 | 5.8              | 6.8               | 6.7               | 6.6               | 7.4              | 7.3               | 7.9               | 7.3               | 6.9               | 6.1               | 6.5               | 7.5               | 7.4               | 9.4               | 9.5               | 6.8               | 6.7               |    |
| L.O.   | E                | E                | E                | E                | E                | G   | G   | 3.9              | 4.6               | 4.7               | 4.5               | 4.6              | 4.6               | 4.4               | 4.4               | 4.1               | 3.7               | 3.7               | 4.4               | 3.5               | 2.9               | 2.6               | E                 | E                 |    |
| Q.R.   |                  |                  |                  |                  |                  | 1.7 |     |                  | 2.2               | 2.0               | 2.1               | 2.8              | 2.7               | 3.5               | 2.9               | 2.8               | 2.4               | 2.8               | 3.1               | 3.9               | 6.5               | 6.9               |                   |                   |    |

Sweep 1.0 Mc to 20.0 Mc in 2.0 min in automatic operation.

foEs

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+9h.)

May. 1958

fbEs

| Day    | 00  | 01  | 02  | 03  | 04               | 05               | 06  | 07  | 08  | 09               | 10               | 11               | 12               | 13               | 14               | 15  | 16               | 17               | 18               | 19               | 20  | 21  | 22  | 23  |     |
|--------|-----|-----|-----|-----|------------------|------------------|-----|-----|-----|------------------|------------------|------------------|------------------|------------------|------------------|-----|------------------|------------------|------------------|------------------|-----|-----|-----|-----|-----|
| 1      |     | 2.0 |     |     |                  | B                | 3.7 | 4.6 | 4.3 | 4.3 <sup>B</sup> |                  |                  |                  |                  |                  | 4.3 | 3.7              |                  | B                | 2.7              | 2.2 | 2.6 | 2.1 | 2.3 |     |
| 2      |     |     |     |     |                  | B                | 3.9 | B   |     |                  |                  | 4.6              | 4.6 <sup>B</sup> | 4.5 <sup>B</sup> | 5.3              | 5.2 |                  | 3.2              | 4.1              | 6.1              | 2.1 |     |     |     |     |
| 3      |     |     |     |     |                  | B                | 3.6 | 4.2 | 4.8 | 4.5              | 4.5              | 4.5              | 4.6 <sup>B</sup> | 3.5 <sup>B</sup> | 5.0              | 5.2 | 5.3              | 4.6              | 5.1              | 2.1              |     |     |     |     |     |
| 4      |     |     |     |     |                  | B                | 3.3 | 4.3 | 5.1 | 5.0              | 4.5 <sup>B</sup> |                  | 6.0              | B                |                  |     |                  |                  |                  | 2.8              | 6.6 |     |     |     |     |
| 5      |     |     |     |     |                  | B                | 3.1 | 3.7 | 4.4 | 4.7              | 4.7              | B                |                  |                  | B                | 5.5 | 4.4              | 3.7              | 3.7              | 4.1              | 2.4 |     |     | 2.0 |     |
| 6      |     |     |     |     |                  | B                | 3.8 | 4.6 | 4.6 | 4.5 <sup>B</sup> | 4.3 <sup>B</sup> |                  | 5.2 <sup>S</sup> | 4.3 <sup>S</sup> |                  |     |                  | 2.2 <sup>B</sup> | 2.6              | 2.3              |     |     |     |     |     |
| 7      |     |     |     |     |                  | B                | 3.1 | 3.7 | 4.2 | B                | B                | 5.0              |                  |                  |                  | 4.7 | 3.7              |                  | 4.7              | 2.1              | 2.1 |     |     | 2.2 |     |
| 8      | E   |     |     |     |                  | B                | 3.7 | 4.4 | 4.5 | 4.5              | 4.5              |                  | 5.5              | 4.5              | 4.5              | 4.2 | 5.3              | 4.7              | 3.4              | 5.2              | E   |     |     |     |     |
| 9      | 2.0 |     |     |     |                  | B                | 3.0 | 3.5 | 4.1 | 4.5              | 4.6              | 4.6              |                  | B                | 4.8              | 4.5 | 3.9              | C                | 2.9              | 7.7              | 2.3 | 2.6 | 3.0 |     |     |
| 10     | E   | E   | 2.1 | E   |                  | B                | 3.6 | 4.0 | 4.0 | 4.1              | 4.1              | 4.4              |                  | 4.8              | 4.8              | 4.7 | 4.2              | 7.4              | 4.8              | 3.6              | E   |     |     | 2.3 |     |
| 11     | 2.8 | 2.1 |     | C   |                  | B                | 3.1 | 4.8 | 4.1 | 4.1              | 4.5              | 4.4              |                  |                  | B                | 4.7 | 4.5              | 5.7              | 3.6              | 6.4              | 2.6 | 2.6 | 2.5 | 5.7 |     |
| 12     | 2.9 | 2.3 | 2.3 | 2.1 |                  | 2.4              | 3.6 | 3.7 | 5.1 | 5.8              | 5.2              | 7.1              | 5.3 <sup>S</sup> | 5.7              | 5.9              | 4.9 | 4.5              | 4.4              | 3.9              | 4.0 <sup>A</sup> | 3.7 | 2.9 | 3.8 | 2.4 |     |
| 13     | 2.0 | 2.3 | 2.0 |     |                  | B                | 4.6 | 4.6 | 5.4 | 5.6              | 5.5 <sup>S</sup> | 5.0 <sup>S</sup> | B                | 5.9 <sup>S</sup> | 6.6              | 5.0 | 5.1              | 4.2              | 7.1              | 4.1              | 2.1 | E   | 2.5 | 3.3 |     |
| 14     | 3.0 | 4.5 |     |     |                  | B                | 3.4 | 4.5 | 5.0 | 5.8              | 5.2              | 5.8              | 4.6              | 6.2              | 9.1              | 5.3 | 4.7              | 5.8              | A                | 4.3              | 4.7 | 3.9 | 4.0 | E   |     |
| 15     | E   |     |     |     |                  | B                | 3.3 | 4.2 | 4.9 | 4.7              | 4.4              | 4.4              | 4.6              | 7.8              | 4.4              |     | 5.2              | 4.1              | 6.2              | A                | 6.2 | 6.5 | 5.2 | 3.4 |     |
| 16     | 2.6 | E   | E   | 2.6 | 3.0 <sup>S</sup> | 2.7              | 4.3 | 6.1 | 8.2 | 5.9              | 9.0              | 5.2              | 5.0              | 5.0 <sup>B</sup> | 4.9 <sup>B</sup> |     | 6.4              | 8.2              | 9.8              | 7.4              | 8.2 | 5.6 | 4.5 | 1.9 | 4.2 |
| 17     | 2.2 | 2.1 | 2.1 |     |                  | 2.3              | 3.7 | 4.6 | 5.1 | 5.1              | 4.5              | 4.6              | 6.2              |                  | B                | 4.1 | 9.8              | 6.0              | A                | A                | 5.6 | 4.5 | 7.6 | E   |     |
| 18     | E   | 2.0 | E   |     |                  | B                | 3.2 | 4.0 | 5.3 | 4.6              | 5.3              | 6.5              | 4.5              | 4.5              |                  |     |                  | 9.8              | 6.0              | A                | 2.0 | 5.6 | 4.5 | 2.1 |     |
| 19     | 2.1 |     |     |     |                  | B                | 3.2 | 4.2 | 5.3 | 4.4              | 4.7              | 6.5 <sup>S</sup> | 6.1              | 4.9              | 4.3              | 8.1 | 5.2              | 4.5              | 6.3              | A                | A   | 4.0 | 8.1 | 2.3 |     |
| 20     | E   | E   | E   | E   |                  | B                | 3.2 | 4.2 | 5.0 | 5.2              | 4.7              | 6.5 <sup>S</sup> | 6.1              | 4.9              | 4.3              | 8.1 | 5.2              | 4.5              | 6.3              | A                | A   | 4.0 | 8.1 | 2.3 |     |
| 21     | 3.0 | 5.1 | 3.4 | 4.1 | 2.0              | B                | 3.7 | 6.5 | 5.0 | 5.2              | 4.7              | 7.4              | 7.8              | 4.5 <sup>B</sup> | 5.4              | 4.5 | 4.1              | 3.7              | 5.8              | 2.9              | 4.7 | 2.8 | 4.1 | 7.2 |     |
| 22     | 4.1 | 2.2 | 3.4 | 2.8 | 2.2              | B                | 3.1 | 4.1 | 4.4 | 6.2              | 5.5              | 6.1              | 6.2              | 8.1              | 6.7              | 4.1 | 3.7              | 5.8              | 10.5             | 10.0             | 4.0 | 4.1 | 2.1 | E   |     |
| 23     | E   | 2.2 | 2.4 | 2.2 | 2.6              | B                | 3.2 | 4.8 | 6.9 | 7.9              | 5.7              | 4.8              | 5.0              | 4.3              | 4.2              | 3.6 |                  | 4.2              | 5.3              | 6.2              | 3.8 | E   |     | E   |     |
| 24     | E   |     | 2.3 | 2.0 | 2.0              | B                | 3.2 | 4.9 | 5.8 | 6.1              | 7.6              | 6.2              | 11.0             | 5                | C                |     | 4.1              | 4.6              | 7.3 <sup>S</sup> | 4.6              | 4.5 | 6.5 | 2.0 | 2.3 |     |
| 25     | 2.2 | 2.0 | 1.9 | 2.0 | 2.9              | 3.0              | 4.3 | 5.3 | 6.3 | 9.6              | 7.5 <sup>B</sup> | 8.5              | 7.3 <sup>B</sup> | A                | 9.0              | 4.2 | 4.3              | 4.3              | 8.0              | A                | 2.8 | 2.3 | 3.4 | 1.8 |     |
| 26     |     |     |     |     |                  | GT               | 4.6 | 6.5 | 5.3 | 4.7              | 5.8              | 6.2              | 9.3              | 9.0              | 4.2              | 4.2 | 4.3              | 4.3              | 8.0              | A                | 2.8 | 2.3 | 3.4 | 1.8 |     |
| 27     |     |     |     |     |                  | 2.5 <sup>B</sup> | 3.2 | 4.8 | 6.1 | 4.3              | 4.8              | 7.7              | 7.5              | 7.2              | 7.3 <sup>B</sup> | 8.1 | 6.5              | 6.4              | 6.3              | 4.7              | A   | 4.4 | 4.4 | 3.7 |     |
| 28     | 4.2 | 5.5 | 3.6 | 4.5 | 1.8              | B                | 3.9 | 3.9 | 5.0 | 5.2              | 4.8              | 5.2 <sup>S</sup> | 5.0              | 7.5              | 6.6              | 5.5 |                  | 3.8 <sup>B</sup> | 4.3              | 4.8              | 2.4 | 2.5 | 4.1 | E   |     |
| 29     |     |     | E   | 2.1 | 2.5              | 2.6              | 4.1 | 4.8 | 4.9 | 4.7              | 4.8              | 5.1              | 4.6              | 4.2              | 7.5              | 7.5 | 5.2 <sup>S</sup> | 7.9              | 3.1              | 2.6              | 2.0 | E   |     | E   |     |
| 30     |     |     | 2.5 | 1.6 | 2.0              | 2.3              | 6.3 | 6.3 | 6.2 | 4.4              | 7.1              | 4.9 <sup>S</sup> | 4.9 <sup>S</sup> | 8.0              | 7.3 <sup>B</sup> | 7.7 | 3.8              | 3.3              | 2.8              | 2.7              | E   | 6.4 | 8.1 | 6.3 |     |
| 31     | E   | E   | 1.8 | 2.0 | 2.2              | 2.4              | 5.1 | 5.1 | 7.6 | A                | 6.6              | A                | 7.5              | 7.3              | 5.1              | 9.1 | A                | A                | 6.3              | A                | A   | 2.1 | 2.2 |     |     |
| No.    | 2.0 | 1.6 | 1.6 | 1.4 | 1.0              | 8                | 2.2 | 3.1 | 3.0 | 2.9              | 2.5              | 2.4              | 2.1              | 1.8              | 2.2              | 2.5 | 2.6              | 2.4              | 2.8              | 3.0              | 2.9 | 2.8 | 2.2 | 2.2 |     |
| Median | 2.0 | 2.1 | 2.1 | 2.0 | 2.2              | 2.4              | 3.2 | 4.2 | 5.0 | 4.8              | 5.2              | 6.0              | 6.7              | 5.4              | 5.0              | 4.6 | 4.6              | 4.6              | 5.2              | 4.8              | 3.8 | 2.6 | 2.5 | 2.3 |     |

Sweep 1.0 Mc to 2.0 Mc in 2.0 sec in automatic operation.

The Radio Research Laboratories, Japan.

K 5

fbEs

# IONOSPHERIC DATA

**Kokubunji Tokyo**

Lat. 35° 42.4' N  
Long. 139° 29.3' E

135° E Mean Time (GMT.+ 9h.)

f - min

May, 1958

| Day    | 00   | 01   | 02   | 03   | 04   | 05   | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   |      |
|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1      | 1.70 | 1.90 | 1.70 | 2.00 | 2.00 | 2.10 | 2.40 | 2.40 | 3.80 | 4.10 | 3.20 | 3.70 | 3.00 | 5.90 | 3.00 | 2.60 | 2.65 | 2.40 | 2.40 | 1.60 | 1.50 | 1.60 | 1.65 | 1.80 |      |
| 2      | 1.70 | 1.65 | 1.70 | 2.00 | 2.00 | 2.10 | 2.80 | 4.50 | 4.50 | 3.60 | 3.75 | 3.60 | 3.70 | 3.60 | 2.90 | 2.70 | 2.40 | 2.60 | 2.00 | 1.85 | 1.75 | 1.85 | 1.70 | 1.90 |      |
| 3      | 1.80 | 2.10 | 1.70 | 2.00 | 2.10 | 2.30 | 2.90 | 2.85 | 2.85 | 3.10 | 3.10 | 4.30 | 3.65 | 3.20 | 2.80 | 4.15 | 3.15 | 2.25 | 2.10 | 1.60 | 1.60 | 1.85 | 1.95 | 1.65 |      |
| 4      | 1.50 | 1.60 | 1.60 | 1.50 | 2.00 | 2.05 | 2.35 | 3.00 | 3.15 | 3.10 | 3.60 | 4.80 | 3.75 | 5.50 | 3.10 | 2.70 | 2.30 | 2.20 | 2.10 | 2.80 | 2.00 | 1.70 | 1.90 | 1.75 |      |
| 5      | 1.80 | 1.70 | 1.70 | 2.20 | 1.60 | 2.30 | 2.75 | 3.70 | 3.70 | 3.10 | 3.20 | 4.60 | 3.80 | 3.20 | 4.60 | 2.90 | 2.70 | 2.70 | 2.10 | 2.00 | 1.80 | 1.80 | 2.00 | 1.60 |      |
| 6      | 2.10 | 1.90 | 1.65 | 1.90 | 1.80 | 2.20 | 2.40 | 2.30 | 2.80 | 4.10 | 3.40 | 3.55 | 3.65 | 5.70 | 3.00 | 3.15 | 2.80 | 2.30 | 1.95 | 1.95 | 2.00 | 1.95 | 1.90 | 1.60 |      |
| 7      | 2.20 | 2.05 | 1.80 | 1.60 | 1.70 | 2.46 | 2.90 | 2.75 | 3.10 | 4.40 | 4.50 | 3.10 | 3.30 | 3.10 | 3.05 | 2.60 | 2.40 | 2.30 | 2.15 | 1.70 | 2.00 | 2.30 | 1.95 | 2.00 |      |
| 8      | 1.95 | 1.60 | 1.80 | 2.05 | 2.00 | 2.20 | 2.30 | 2.50 | 2.50 | 2.65 | 2.90 | 3.20 | 3.10 | 3.15 | 2.75 | 3.10 | 2.65 | 2.35 | 2.10 | 2.00 | 1.95 | 1.95 | 1.80 | 1.80 |      |
| 9      | 1.90 | 1.80 | 2.00 | 2.00 | 1.90 | 2.30 | 2.15 | 2.25 | 2.55 | 2.90 | 3.10 | 2.80 | 3.10 | 4.80 | 2.95 | 2.75 | 2.80 | 2.30 | 2.00 | 1.90 | 1.95 | 1.85 | 1.60 | 1.95 |      |
| 10     | 1.60 | 2.00 | 1.80 | 1.95 | 2.00 | 2.00 | 2.40 | 2.60 | 2.60 | 2.80 | 3.05 | 3.15 | 3.20 | 3.10 | 2.80 | 2.80 | 2.60 | 2.30 | 2.10 | 1.75 | 1.60 | 1.70 | 2.10 | 1.70 |      |
| 11     | 1.65 | 1.80 | 2.00 | 1.80 | 1.90 | 2.30 | 2.25 | 2.40 | 2.90 | 3.95 | 3.15 | 4.20 | 3.70 | 3.70 | 3.00 | 4.20 | 2.90 | 2.20 | 2.05 | 1.80 | 2.20 | 1.90 | 1.85 | 1.90 |      |
| 12     | 1.90 | 2.00 | 2.10 | 1.80 | 2.05 | 2.20 | 2.30 | 2.40 | 2.80 | 2.80 | 4.10 | 2.80 | 3.00 | 3.05 | 2.80 | 3.10 | 2.80 | 2.65 | 2.05 | 2.00 | 1.70 | 1.70 | 1.80 | 1.55 |      |
| 13     | 1.75 | 1.60 | 1.70 | 1.80 | 1.80 | 2.60 | 2.15 | 2.30 | 2.90 | 3.80 | 3.75 | 2.90 | 5.00 | 3.10 | 3.10 | 2.70 | 2.75 | 2.20 | 2.00 | 2.00 | 1.90 | 2.00 | 1.90 | 2.00 |      |
| 14     | 2.00 | 2.10 | 1.90 | 1.90 | 1.90 | 2.20 | 2.20 | 2.30 | 2.80 | 3.85 | 4.10 | 3.10 | 2.70 | 2.80 | 2.80 | 2.80 | 2.65 | 2.40 | 2.10 | 2.00 | 1.80 | 1.60 | 1.60 | 2.10 |      |
| 15     | 1.60 | 1.70 | 2.00 | 1.90 | 1.95 | 2.20 | 2.10 | 2.40 | 2.50 | 2.60 | 2.80 | 3.00 | 4.00 | 3.00 | 2.80 | 2.70 | 2.20 | 2.25 | 2.00 | 1.70 | 1.65 | 1.80 | 1.90 | 1.70 |      |
| 16     | 2.00 | 2.10 | 1.90 | 2.00 | 2.15 | 2.30 | 2.10 | 2.60 | 2.60 | 2.70 | 2.70 | 3.10 | 2.75 | 2.80 | 2.70 | 2.70 | 2.60 | 2.30 | 2.20 | 2.10 | 1.90 | 1.80 | 1.60 | 2.05 |      |
| 17     | 1.70 | 1.75 | 1.90 | 2.00 | 2.10 | 2.20 | 2.55 | 2.30 | 2.60 | 3.90 | 2.70 | 2.80 | 3.40 | 3.85 | 2.90 | 2.60 | 2.70 | 2.30 | 2.10 | 2.40 | 2.00 | 2.00 | 1.80 | 2.00 |      |
| 18     | 1.80 | 1.50 | 1.90 | 1.70 | 2.00 | 2.05 | 2.30 | 2.35 | 2.40 | 2.75 | 3.70 | 3.25 | 3.15 | 3.10 | 3.80 | 2.90 | 2.70 | 2.40 | 1.95 | 1.70 | 1.70 | 1.70 | 2.10 | 1.90 |      |
| 19     | 1.90 | 2.00 | 1.70 | 1.80 | 1.70 | 2.30 | 2.10 | 2.40 | 2.60 | 3.00 | 3.20 | 4.10 | 3.25 | 3.10 | 4.10 | 2.70 | 2.75 | 2.25 | 2.25 | 2.00 | 1.80 | 1.65 | 1.90 | 1.70 |      |
| 20     | 1.90 | 1.90 | 1.80 | 1.60 | 1.60 | 2.30 | 2.30 | 2.30 | 2.80 | 3.10 | 2.90 | 3.00 | 4.05 | 3.70 | 3.40 | 2.65 | 2.60 | 2.10 | 2.10 | 1.65 | 1.70 | 1.70 | 1.70 | 2.00 |      |
| 21     | 1.60 | 1.60 | 1.70 | 1.80 | 1.60 | 2.60 | 2.35 | 2.80 | 2.90 | 3.10 | 3.45 | 3.75 | 3.60 | 3.60 | 3.65 | 3.40 | 2.80 | 2.30 | 2.10 | 1.80 | 1.90 | 2.10 | 1.90 | 1.90 |      |
| 22     | 2.00 | 1.80 | 1.80 | 1.90 | 2.00 | 2.30 | 2.90 | 2.95 | 3.20 | 4.10 | 4.40 | 4.60 | 4.30 | 4.00 | 4.00 | 3.50 | 2.80 | 2.40 | 2.20 | 1.80 | 1.80 | 2.00 | 1.90 | 2.00 |      |
| 23     | 1.90 | 2.00 | 1.70 | 1.80 | 1.60 | 2.40 | 2.30 | 2.80 | 3.20 | 2.70 | 3.40 | 4.10 | 3.60 | 3.80 | 3.30 | 2.80 | 2.60 | 2.20 | 2.05 | 2.10 | 1.90 | 1.40 | 1.90 | 1.90 |      |
| 24     | 1.60 | 1.60 | 1.40 | 1.40 | 1.40 | 2.20 | 2.20 | 2.10 | 2.10 | 3.10 | 2.80 | 3.20 | 3.10 | 2.60 | 2.75 | 2.50 | 2.40 | 2.10 | 1.75 | 1.70 | 1.40 | 1.80 | 1.60 | 1.70 |      |
| 25     | 1.90 | 1.50 | 1.30 | 1.30 | 1.25 | 2.20 | 2.15 | 2.40 | 2.50 | 2.70 | 2.50 | 2.70 | 2.80 | 2.80 | 2.70 | 2.70 | 2.40 | 2.10 | 2.00 | 1.80 | 1.80 | 1.70 | 1.60 | 1.40 |      |
| 26     | 2.00 | 1.90 | 1.75 | 1.15 | 1.40 | 1.40 | 2.15 | 2.20 | 2.50 | 2.60 | 2.50 | 3.00 | 3.15 | 2.80 | 2.50 | 2.50 | 2.30 | 2.20 | 1.60 | 1.50 | 1.50 | 1.60 | 1.80 | 1.70 |      |
| 27     | 2.00 | 1.70 | 1.30 | 1.50 | 1.60 | 2.20 | 1.30 | 2.20 | 2.15 | 2.50 | 3.10 | 2.80 | 3.40 | 2.80 | 2.60 | 2.40 | 2.20 | 2.20 | 2.10 | 2.10 | 1.70 | 1.70 | 1.40 | 1.70 |      |
| 28     | 1.90 | 1.70 | 1.60 | 1.40 | 1.20 | 2.30 | 2.25 | 2.30 | 2.70 | 2.70 | 2.70 | 4.50 | 3.00 | 3.10 | 2.30 | 2.50 | 3.00 | 2.30 | 2.00 | 2.10 | 1.60 | 1.90 | 1.60 | 1.80 |      |
| 29     | 2.00 | 1.55 | 1.70 | 1.30 | 1.50 | 2.00 | 2.10 | 2.60 | 2.30 | 2.50 | 2.80 | 2.70 | 3.00 | 2.85 | 3.50 | 2.60 | 2.30 | 2.20 | 1.50 | 2.10 | 1.50 | 1.80 | 1.30 | 1.70 |      |
| 30     | 2.00 | 1.60 | 1.30 | 1.45 | 1.50 | 2.10 | 2.15 | 2.20 | 2.80 | 2.90 | 3.10 | 3.30 | 4.30 | 3.20 | 2.70 | 4.20 | 2.70 | 2.00 | 1.90 | 1.60 | 1.90 | 2.00 | 1.70 | 2.00 |      |
| 31     | 1.70 | 1.70 | 1.40 | 1.60 | 1.80 | 1.80 | 2.10 | 2.50 | 2.20 | 2.65 | 3.55 | 2.90 | 3.00 | 2.80 | 3.10 | 3.25 | 2.30 | 2.60 | 1.80 | 2.40 | 1.80 | 1.60 | 1.20 | 1.70 |      |
| No.    | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   | 31   |
| Median | 1.90 | 1.75 | 1.70 | 1.80 | 1.80 | 2.20 | 2.25 | 2.40 | 2.80 | 2.90 | 3.15 | 3.20 | 3.30 | 3.10 | 2.95 | 2.70 | 2.65 | 2.30 | 2.05 | 1.90 | 1.80 | 1.80 | 1.80 | 1.80 | 1.80 |

Sweep 1.0 Mc to 2.0 Mc in  $\frac{10}{\text{min}}$  sec in automatic operation.

f - min

The Radio Research Laboratories, Japan.

**K 6**





IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+ 9h.)

(M3000)F1

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10                | 11                | 12                | 13                | 14                | 15                | 16                | 17                | 18   | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|----|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------|----|----|----|----|----|
| 1      |    |    |    |    |    |    |    |    |    |    |                   |                   |                   |                   |                   |                   |                   |                   |      |    |    |    |    |    |
| 2      |    |    |    |    |    |    |    |    |    |    |                   |                   |                   |                   |                   |                   |                   |                   |      |    |    |    |    |    |
| 3      |    |    |    |    |    |    |    |    |    |    |                   |                   |                   |                   |                   |                   |                   |                   |      |    |    |    |    |    |
| 4      |    |    |    |    |    |    |    |    |    |    |                   |                   |                   |                   |                   |                   |                   |                   |      |    |    |    |    |    |
| 5      |    |    |    |    |    |    |    |    |    |    |                   |                   |                   |                   |                   |                   |                   |                   |      |    |    |    |    |    |
| 6      |    |    |    |    |    |    |    |    |    |    |                   |                   |                   |                   |                   |                   |                   |                   |      |    |    |    |    |    |
| 7      |    |    |    |    |    |    |    |    |    |    |                   |                   |                   |                   |                   |                   |                   |                   |      |    |    |    |    |    |
| 8      |    |    |    |    |    |    |    |    |    |    |                   | 3.20 <sup>L</sup> | L <sup>L</sup>    | L                 | 3.25 <sup>A</sup> | L                 | L                 | L                 |      |    |    |    |    |    |
| 9      |    |    |    |    |    |    |    |    |    |    | 3.35              | LH                | 3.25              | 3.10 <sup>H</sup> | LH                | L                 | L                 | C                 |      |    |    |    |    |    |
| 10     |    |    |    |    |    |    |    |    |    |    | L                 | 3.30 <sup>H</sup> | L                 | 3.30 <sup>L</sup> | L                 | 3.30 <sup>L</sup> | A                 | A                 |      |    |    |    |    |    |
| 11     |    |    |    |    |    |    |    |    |    |    | 3.40              | 3.40              | 3.30              | 3.30 <sup>S</sup> | 3.15              | 3.35 <sup>L</sup> | L                 | A                 |      |    |    |    |    |    |
| 12     |    |    |    |    |    |    |    |    |    |    | L                 | A                 | 3.20              | A                 | L                 | L                 | L                 |                   |      |    |    |    |    |    |
| 13     |    |    |    |    |    |    |    |    |    |    | L                 | 3.30 <sup>L</sup> | 3.20 <sup>L</sup> | A                 | A                 | L                 | L                 |                   |      |    |    |    |    |    |
| 14     |    |    |    |    |    |    |    |    |    |    | A                 | 3.35 <sup>L</sup> | 3.20 <sup>L</sup> | A                 | A                 | L                 | L                 |                   |      |    |    |    |    |    |
| 15     |    |    |    |    |    |    |    |    |    |    | 3.35 <sup>L</sup> | L                 | L                 | A                 | L                 | L                 | L                 |                   |      |    |    |    |    |    |
| 16     |    |    |    |    |    |    |    |    |    |    | A                 | A                 | L                 | L                 | L                 | L                 | L                 |                   |      |    |    |    |    |    |
| 17     |    |    |    |    |    |    |    |    |    |    | A                 | A                 | A                 | L                 | L                 | L                 | A                 | A                 |      |    |    |    |    |    |
| 18     |    |    |    |    |    |    |    |    |    |    | 3.25 <sup>L</sup> | 3.35 <sup>H</sup> | L                 | L                 | L                 | L                 | L                 | A                 |      |    |    |    |    |    |
| 19     |    |    |    |    |    |    |    |    |    |    | L                 | 3.30 <sup>L</sup> | L                 | A                 | 3.40              | 3.30 <sup>L</sup> | A                 | A                 |      |    |    |    |    |    |
| 20     |    |    |    |    |    |    |    |    |    |    | A                 | L                 | 3.50              | S                 | A                 | 3.25              | 3.20 <sup>L</sup> | A                 | A    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |    |    |    |    | L                 | L                 | A                 | A                 | A                 | 3.20 <sup>L</sup> | L                 | 3.10 <sup>L</sup> |      |    |    |    |    |    |
| 22     |    |    |    |    |    |    |    |    |    |    | L                 | L                 | 3.30              | A                 | A                 | A                 | 3.25              | L                 | A    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |    |    |    |    | A                 | L                 | 3.50              | 3.20              | 3.35              | 3.25 <sup>L</sup> | 3.20              | 3.25 <sup>L</sup> |      |    |    |    |    |    |
| 24     |    |    |    |    |    |    |    |    |    |    | L                 | A                 | 3.00 <sup>L</sup> | A                 | 3.05              | C                 | 3.20 <sup>L</sup> | L                 | L    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |    |    |    |    | A                 | A                 | A                 | A                 | A                 | L                 | L                 | L                 |      |    |    |    |    |    |
| 26     |    |    |    |    |    |    |    |    |    |    | L                 | A                 | A                 | A                 | L                 | A                 | A                 | A                 |      |    |    |    |    |    |
| 27     |    |    |    |    |    |    |    |    |    |    | L                 | A                 | 3.25              | L                 | 3.10              | A                 | A                 | L                 |      |    |    |    |    |    |
| 28     |    |    |    |    |    |    |    |    |    |    | L                 | LH                | 3.35 <sup>L</sup> | A                 | S                 | 3.30              | A                 | A                 | L    | A  |    |    |    |    |
| 29     |    |    |    |    |    |    |    |    |    |    | L                 | A                 | 3.40              | L                 | 3.20              | L                 | 3.25 <sup>L</sup> | L                 | A    |    |    |    |    |    |
| 30     |    |    |    |    |    |    |    |    |    |    | L                 | A                 | 3.20 <sup>L</sup> | A                 | S                 | A                 | A                 | L                 |      |    |    |    |    |    |
| 31     |    |    |    |    |    |    |    |    |    |    | A                 | A                 | A                 | A                 | A                 | 3.45              | A                 | A                 |      |    |    |    |    |    |
| No.    |    |    |    |    |    |    |    |    |    |    | 3                 | 5                 | 7                 | 9                 | 8                 | 7                 | 6                 | 1                 |      |    |    |    |    |    |
| Median |    |    |    |    |    |    |    |    |    |    | 3.20              | 3.25              | 3.25              | 3.30              | 3.25              | 3.30              | 3.25              | 3.20              | 3.25 |    |    |    |    |    |

Sweep / sec Mc to 2.0 Mc in 20 sec in automatic operation.

(M3000)F1

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GM.T.+9h.)

R'F2

May, 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9      |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 17     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 18     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 19     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 20     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 22     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 23     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 24     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 25     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 26     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 27     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 28     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 29     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 30     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 31     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| No.    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Median |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

The Radio Research Laboratories, Japan.

K 9

Sweep 1.0 Mc to 20.0 Mc in 20 sec with in automatic operation.

R'F2

Lat. 35° 42.4' N  
 Long. 139° 29.3' E

## Kokubunji Tokyo

### IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

f'F

May. 1958

| Day    | 00               | 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              | 330              | 265 | 320              | 350              | 285 | 245 | 240              | 240              | 225              | 210              | 225              | 215              | 300 <sup>H</sup> | 250 <sup>H</sup> | 245 <sup>H</sup> | 250 <sup>H</sup> | 255 <sup>H</sup> | 275              | 295              | 320              | 350              | 345              | 330              |     |
| 2      | 300              | 320              | 310 | 305              | 310              | 260 | 240 | 235              | 235              | 220              | 245 <sup>H</sup> | 225 <sup>H</sup> | 230 <sup>H</sup> | 250 <sup>H</sup> | 255 <sup>H</sup> | 270 <sup>H</sup> | 300 <sup>H</sup> | 250 <sup>H</sup> | 255 <sup>H</sup> | 290              | 320              | 300              | 320              | 340              | 315 |
| 3      | 310              | 300              | 270 | 275              | 300              | 260 | 240 | 240              | 230              | 235              | 220              | 210 <sup>H</sup> | 240 <sup>H</sup> | 245 <sup>H</sup> | 250 <sup>H</sup> | 260 <sup>H</sup> | 300 <sup>H</sup> | 280 <sup>H</sup> | 280 <sup>H</sup> | 300 <sup>H</sup> | 275              | 330              | 330              | 330              | 320 |
| 4      | 295              | 270              | 260 | 250              | 290              | 270 | 245 | 240              | 240              | 235              | 210              | 230              | 285 <sup>A</sup> | 250 <sup>H</sup> | 230 <sup>H</sup> | 345 <sup>H</sup> | 240 <sup>H</sup> | 240 <sup>H</sup> | 255 <sup>H</sup> | 290              | 285              | 350              | 300              | 330              | 320 |
| 5      | 300              | 290              | 290 | 300              | 305              | 265 | 250 | 250              | 245 <sup>H</sup> | 230 <sup>H</sup> | 225 <sup>H</sup> | 220 <sup>H</sup> | 220 <sup>H</sup> | 230 <sup>H</sup> | 210 <sup>H</sup> | 300 <sup>H</sup> | 250              | 250              | 260              | 300              | 320              | 320              | 325              | 340              | 325 |
| 6      | 320              | 305              | 300 | 300              | 325              | 270 | 250 | 250              | 250              | 235 <sup>H</sup> | 230 <sup>H</sup> | 225 <sup>H</sup> | 230              | 255 <sup>H</sup> | 230 <sup>H</sup> | 245 <sup>H</sup> | 245 <sup>H</sup> | 250 <sup>H</sup> | 280              | 300              | 310              | 320              | 325              | 325              | 350 |
| 7      | 350              | 325              | 320 | 300              | 275              | 265 | 245 | 235              | 230              | 235 <sup>H</sup> | 220              | 240              | 270 <sup>H</sup> | 230              | 245 <sup>H</sup> | 250 <sup>H</sup> | 250 <sup>H</sup> | 250 <sup>H</sup> | 255              | 310              | 275              | 300              | 330              | 330              | 325 |
| 8      | 325              | 300              | 300 | 280              | 260              | 270 | 250 | 230              | 230              | 230 <sup>H</sup> | 225              | 245              | 260              | 230              | 230              | 250              | 290              | 280 <sup>H</sup> | 280              | 305              | 310              | 320              | 320              | 305              | 320 |
| 9      | 330              | 310              | 300 | 300              | 320              | 260 | 245 | 240              | 230              | 225              | 225              | 210              | 240              | 250 <sup>H</sup> | 230 <sup>H</sup> | 250              | 240              | 240 <sup>C</sup> | 270              | 340              | 300              | 340              | 350              | 310              |     |
| 10     | 300              | 295              | 280 | 275              | 300              | 275 | 250 | 230              | 230              | 230 <sup>H</sup> | 220              | 210 <sup>H</sup> | 240              | 265 <sup>A</sup> | 240              | 270              | A                | A                | A                | 290              | 290              | 275              | 270              | 320              | 330 |
| 11     | 305              | 280              | 250 | 300              | 315              | 275 | 255 | 255              | 245              | 225              | 220              | 215              | 240              | 240              | 240              | 250              | 280 <sup>A</sup> | 290              | 280              | 310              | 405              | 350              | 340              | 355              |     |
| 12     | 310              | 345              | 315 | 280              | 275              | 270 | 260 | 250              | 300              | A                | 265              | A                | 250 <sup>A</sup> | 330 <sup>A</sup> | A                | 270 <sup>A</sup> | 270 <sup>A</sup> | 280 <sup>A</sup> | 260              | 325              | 330              | 355              | 390              | 335              |     |
| 13     | 315              | 300              | 270 | 280              | 370              | 275 | 250 | 250              | 265              | 300              | 280 <sup>S</sup> | 260              | 255              | A                | A                | 280 <sup>A</sup> | 300 <sup>A</sup> | 265              | 310              | 275              | 300              | 315              | 350              | 370              |     |
| 14     | 310 <sup>A</sup> | 305 <sup>A</sup> | 265 | 345              | 390              | 300 | 255 | 250              | 255              | 355 <sup>A</sup> | 250              | 300              | 225              | A                | A                | 305 <sup>A</sup> | 305 <sup>A</sup> | 300              | A                | 340              | 350              | 390              | 355              | 330              |     |
| 15     | 325              | 350              | 315 | 295              | 300              | 255 | 235 | 245              | 230              | 255 <sup>H</sup> | 230              | 220              | 240              | 265 <sup>A</sup> | 250              | 240              | 305 <sup>A</sup> | 265              | 290              | A                | 440 <sup>S</sup> | 440 <sup>S</sup> | 355 <sup>A</sup> | 320              |     |
| 16     | 340              | 315              | 300 | 255              | 260              | 255 | 270 | 280 <sup>A</sup> | A                | 290              | 250              | 270              | 250              | 250              | 280              | 240              | 240              | 250              | 265              | 315              | 355              | 355              | 310              | 320              |     |
| 17     | 290              | 305              | 315 | 320              | 345              | 260 | 240 | 255              | 265              | A                | A                | A                | A                | A                | A                | 250              | A                | A                | A                | 320              | 415              | 400              | 260              | 300              |     |
| 18     | 300              | 350              | 340 | 295              | 250              | 250 | 240 | 250              | 245              | 250              | 200 <sup>H</sup> | 230              | A                | 205              | 230              | 230              | 240              | 250              | 255              | 295              | 350              | 330              | 310              | 305              |     |
| 19     | 295              | 300              | 310 | 310              | 345              | 275 | 245 | 240              | 250              | 260              | A                | 230              | 235              | 300 <sup>A</sup> | A                | 305              | 280              | 250              | A                | A                | A                | 350              | 495              | 310              |     |
| 20     | 275              | 295              | 270 | 250              | 300              | 255 | 245 | 240              | A                | 225              | 220              | S                | A                | 250              | 220              | 240              | 260              | 280              | A                | A                | A                | 320              | 325              | 350              | 390 |
| 21     | 300              | 295              | 275 | 380 <sup>A</sup> | 345              | 260 | 250 | 280              | 260              | 280              | 250              | A                | A                | 230              | 300              | 250              | 270              | 250              | 305              | 300              | 315              | 310              | 305              | 320              |     |
| 22     | 320              | 300              | 300 | 305              | 310              | 255 | 250 | 245              | 245              | 295              | 270              | 305              | A                | A                | A                | 225              | 240              | A                | A                | A                | 300              | 310              | 310              | 320              |     |
| 23     | 325              | 310              | 340 | 305              | 320              | 260 | 245 | 250              | A                | 295              | 220              | 230              | 250              | 210              | 230              | 230              | 240              | 270              | 305              | 310              | 305              | 305              | 300              | 300              |     |
| 24     | 300              | 280              | 270 | 270              | 310              | 275 | 250 | 270              | 270              | A                | 330              | A                | A                | 305              | C                | 240              | 255              | 270              | 350              | 320              | 355              | 370              | 320              | 305              |     |
| 25     | 300              | 295              | 270 | 280              | 350 <sup>A</sup> | 260 | 250 | 260              | 270              | A                | A                | A                | A                | A                | A                | 240              | 250              | 270              | 355              | 300              | 315              | 320              | 350              | 305              |     |
| 26     | 350              | 300              | 275 | 270              | 325              | 255 | 250 | 255              | 315              | 265              | 270              | 300              | 300              | A                | 300              | A                | A                | A                | A                | 350              | 350              | 310              | A                | 365              | 385 |
| 27     | 380              | 350              | 365 | 350              | 330              | 280 | 250 | A                | 235              | 220              | 235              | A                | A                | A                | A                | A                | 265              | 260              | 305              | 350              | 350              | 355              | 350              | 360              |     |
| 28     | 340              | 300              | 320 | 400              | 340              | 260 | 250 | 255              | 250              | 270              | 245              | S                | 245              | A                | A                | 390              | 210              | 250              | 390              | 300              | 350              | 325              | 350              | 350              |     |
| 29     | 350              | 315              | 315 | 300              | 300              | 255 | 250 | 240              | 245              | 240              | 210              | 205              | 255              | 230              | 245              | 250              | 355              | A                | 305              | 305              | 255              | 310              | 275              | 300              |     |
| 30     | 355              | 300              | 300 | 250              | 315              | 270 | 250 | 240              | 245              | A                | A                | 300              | 350              | A                | 260              | A                | 240              | 250              | 255              | 300              | 300              | 440 <sup>A</sup> | 445              | 440 <sup>S</sup> |     |
| 31     | 300              | 290              | 300 | 315              | 320              | 265 | 250 | 250              | A                | A                | 240              | 255              | A                | 240              | A                | A                | A                | A                | A                | 340              | A                | A                | 350              | 350              |     |
| No.    | 31               | 31               | 31  | 29               | 23               | 23  | 25  | 18               | 17               | 19               | 19               | 23               | 21               | 23               | 21               | 24               | 24               | 24               | 27               | 29               |                  |                  |                  |                  |     |
| Median | 310              | 300              | 300 | 300              | 315              | 265 | 250 | 250              | 245              | 235              | 225              | 240              | 240              | 240              | 245              | 250              | 250              | 250              | 290              | 300              | 310              | 325              | 330              | 320              |     |

Sweep 1.0 Mc to 2.0 Mc in 2.0 sec #Hz in automatic operation.

f'F

The Radio Research Laboratories, Japan.

K 10

# IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.3' E

**Kokubunji Tokyo**

135° E Mean Time (GMT.+9h.)

f<sub>o</sub>'E<sub>s</sub>

May, 1958

| Day    | 00  | 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   | 100 | E   | E   | E   | B   | G   | 140 | 120 | 130 | 130 | G   | G   | B   | G   | 150 | 140 | G   | B   | 115 | 115 | 110 | 105 | 105 |
| 2      | E   | E   | E   | E   | E   | B   | G   | 130 | B   | G   | G   | 115 | G   | 120 | 110 | 110 | G   | 155 | 120 | 110 | 110 | 110 | E   | E   |
| 3      | E   | E   | E   | E   | E   | B   | G   | 150 | 130 | 125 | 125 | 125 | 120 | 110 | 135 | 130 | 125 | 120 | 120 | 120 | E   | E   | E   | E   |
| 4      | E   | E   | E   | E   | E   | G   | G   | 135 | 130 | 120 | 120 | B   | B   | B   | B   | G   | G   | G   | G   | 105 | 105 | 105 | E   | E   |
| 5      | E   | E   | E   | E   | E   | B   | B   | 150 | 120 | 120 | 120 | B   | G   | G   | B   | 135 | 130 | 130 | 120 | 115 | 110 | 115 | E   | 105 |
| 6      | E   | E   | E   | E   | E   | G   | G   | 145 | 125 | 120 | 120 | 115 | G   | B   | G   | G   | G   | G   | 130 | 110 | 110 | 110 | E   | E   |
| 7      | E   | E   | E   | E   | E   | B   | B   | 160 | 150 | 130 | B   | B   | 120 | 115 | 130 | 150 | 150 | G   | 130 | E   | 100 | E   | 105 | E   |
| 8      | 105 | E   | E   | E   | E   | B   | B   | 150 | 140 | 130 | 130 | G   | 105 | 155 | 145 | 150 | 120 | 120 | 115 | 110 | 110 | 110 | E   | E   |
| 9      | 110 | E   | E   | E   | E   | B   | B   | 150 | 130 | 125 | 120 | 125 | 125 | G   | B   | 150 | 130 | 125 | C   | 110 | 105 | 105 | 105 | E   |
| 10     | 105 | 105 | 110 | 110 | E   | G   | G   | 150 | 120 | 115 | 115 | G   | 130 | 110 | 110 | 140 | 115 | 115 | 105 | 105 | 110 | E   | E   | 100 |
| 11     | 100 | 100 | E   | E   | E   | B   | B   | 150 | 130 | 130 | 140 | 125 | 135 | G   | B   | 125 | 120 | 115 | 115 | 110 | 105 | 105 | 105 | 105 |
| 12     | 105 | 105 | 100 | 100 | E   | E   | E   | 150 | 140 | 130 | 125 | 120 | 120 | 120 | 130 | 120 | 120 | 120 | 110 | 105 | 105 | 105 | 105 | 105 |
| 13     | 105 | E   | 105 | 105 | E   | B   | G   | 120 | 120 | 110 | 115 | 125 | B   | 135 | 120 | 120 | 115 | 115 | 110 | 110 | 110 | 110 | 105 | 105 |
| 14     | 105 | 100 | E   | E   | E   | B   | B   | 130 | 115 | 120 | 120 | 110 | 115 | 105 | 110 | 140 | 130 | 120 | 110 | 110 | 110 | 110 | 105 | 110 |
| 15     | 100 | F   | E   | E   | E   | B   | G   | 140 | 125 | 115 | 110 | 120 | 150 | 120 | 105 | G   | 115 | 115 | 105 | 105 | 110 | E   | E   | 100 |
| 16     | 105 | 105 | 100 | 100 | 100 | 135 | 120 | 110 | 105 | 105 | 110 | 110 | 130 | 130 | 130 | G   | 150 | 120 | 115 | 105 | 105 | 105 | 105 | 105 |
| 17     | 105 | 100 | 100 | E   | E   | G   | G   | 145 | 120 | 120 | 110 | 105 | 110 | 110 | 105 | 110 | 130 | 115 | 110 | 110 | 105 | 105 | 105 | 110 |
| 18     | 105 | 105 | 105 | E   | E   | E   | E   | 135 | 125 | 115 | 110 | 115 | 110 | 115 | G   | B   | 150 | 120 | 120 | 110 | 105 | 105 | E   | 100 |
| 19     | 105 | E   | E   | E   | E   | B   | B   | 145 | 125 | 120 | 110 | 115 | 110 | 120 | 115 | 110 | 105 | 110 | 110 | 105 | 105 | 105 | 105 | 105 |
| 20     | 105 | 100 | 100 | 100 | E   | B   | B   | 130 | 130 | 120 | 125 | 115 | 110 | 110 | 105 | 100 | 100 | 100 | 110 | 105 | 110 | 110 | 105 | 100 |
| 21     | 100 | 100 | 100 | 100 | 100 | B   | B   | 130 | 120 | 115 | 110 | 105 | 100 | 110 | 105 | 110 | 120 | 150 | 120 | 110 | 105 | 105 | 100 | 105 |
| 22     | 105 | 100 | 100 | 100 | 100 | B   | B   | 140 | 120 | 120 | 110 | 110 | 110 | 110 | 105 | 110 | 120 | 120 | 110 | 110 | 105 | 105 | 105 | 110 |
| 23     | 105 | 100 | 100 | 100 | 100 | B   | B   | 140 | 120 | 115 | 110 | 110 | 110 | 110 | 110 | 110 | G   | 105 | 105 | 110 | 110 | 105 | E   | E   |
| 24     | 105 | E   | 100 | 100 | 105 | B   | B   | 130 | 100 | 110 | 110 | 105 | 105 | 105 | C   | G   | 130 | 125 | 115 | 105 | 110 | 110 | 105 | 105 |
| 25     | 105 | 100 | 100 | 100 | 100 | 140 | 125 | 115 | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 140 | 120 | 120 | 110 | 110 | 105 | 105 | 105 |
| 26     | E   | E   | E   | E   | E   | G   | G   | 125 | 120 | 110 | 115 | 120 | 110 | 100 | 105 | 110 | 110 | 105 | 110 | 105 | 105 | 105 | 105 | 105 |
| 27     | E   | E   | E   | E   | E   | E   | E   | 140 | 145 | 105 | 110 | 115 | 110 | 115 | 115 | 110 | 110 | 120 | 110 | 105 | 105 | 105 | 105 | 105 |
| 28     | 105 | 100 | 100 | 100 | 100 | B   | B   | G   | 145 | 120 | 115 | 120 | 120 | 115 | 105 | 105 | G   | G   | 110 | 110 | 110 | 105 | 105 | 105 |
| 29     | E   | E   | 100 | 100 | 100 | 150 | G   | 115 | 120 | 110 | 110 | 105 | 110 | 105 | 110 | 135 | 125 | 115 | 130 | 115 | 110 | 105 | 105 | E   |
| 30     | E   | 105 | 105 | 105 | 125 | 130 | 125 | 115 | 110 | 110 | 110 | 110 | 120 | 110 | 110 | 105 | 105 | 115 | 125 | 115 | 105 | 100 | 100 | 105 |
| 31     | 100 | 100 | 100 | 100 | 100 | 105 | 130 | 115 | 105 | 105 | 110 | 105 | 105 | 110 | 120 | 115 | 110 | 110 | 110 | 105 | 105 | 105 | 105 | 105 |
| No.    | 20  | 16  | 16  | 14  | 10  | 8   | 22  | 31  | 30  | 29  | 28  | 27  | 24  | 24  | 23  | 25  | 26  | 25  | 29  | 30  | 30  | 28  | 22  | 22  |
| Median | 105 | 100 | 100 | 100 | 100 | 140 | 140 | 120 | 120 | 110 | 115 | 110 | 110 | 110 | 110 | 120 | 120 | 120 | 110 | 110 | 110 | 105 | 105 | 105 |

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 2.0 Mc in 2.0 sec <sup>min</sup> in automatic operation.

f<sub>o</sub>'E<sub>s</sub>

K 11

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+ 9h.)

Types of Es

May, 1958

| Day    | 00 | 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  |    |    |    |    |    | h  | C  | h  | h  |    |    |    | C  | h  | h  |    |    | f3 | f3 | f2 |    |    |  |
| 2      |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | C  | l  | C  | C  | C2 | h  | C2 | f2 | f2 | f  |    |    |  |
| 3      |    |    |    |    |    |    |    | C2 | C2 | C  | C  |    | l  | l  | h  | h  | C2 | C2 | l4 | f2 | f3 | f  |    |    |  |
| 4      |    |    |    |    |    |    |    | C  | C  | C  | C  |    |    |    | h  | h  | C2 | h  | h  | f4 | f2 | f  |    |    |  |
| 5      |    |    |    |    |    |    |    | h  | h  | C  | C  | l  | l  |    |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 6      |    |    |    |    |    |    |    | h  | h  | C  | C  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 7      |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 8      |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 9      |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 10     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 11     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 12     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 13     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 14     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 15     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 16     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 17     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 18     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 19     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 20     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 21     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 22     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 23     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 24     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 25     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 26     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 27     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 28     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 29     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 30     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| 31     |    |    |    |    |    |    |    | h  | h  | h  | h  | C  | l  | l  |    | h  | h  | h  | h  | f3 | f  | f  |    |    |  |
| No.    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
| Median |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |

Sweep 1.0 Mc to 2.0 Mc in 2.0 min in automatic operation.

Types of Es

The Radio Research Laboratories, Japan.

K 12









IONOSPHERIC DATA

Lat. 31° 12.5' N  
Long. 130° 37.7' E

Yamagawa

foF1

135° E Mean Time (GMT.+9h.)

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08    | 09               | 10   | 11  | 12 | 13 | 14 | 15 | 16  | 17  | 18 | 19 | 20 | 21 | 22 | 23 |  |
|--------|----|----|----|----|----|----|----|----|-------|------------------|------|-----|----|----|----|----|-----|-----|----|----|----|----|----|----|--|
| 1      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 2      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 3      |    |    |    |    |    |    |    |    |       | C                |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 4      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 5      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 6      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 7      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 8      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 9      |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 10     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 11     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 12     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 13     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 14     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 15     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 16     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 17     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 18     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 19     |    |    |    |    |    |    |    |    |       |                  |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 20     |    |    |    |    |    |    |    |    | A     | 6.5              |      |     |    |    |    |    |     |     |    |    |    |    |    |    |  |
| 21     |    |    |    |    |    |    |    |    | 16.5A | 6.7A             |      |     |    |    |    |    | 6.2 | 5.8 | L  |    |    |    |    |    |  |
| 22     |    |    |    |    |    |    |    |    | 6.8   | 7.0 <sup>H</sup> |      |     |    |    |    |    | 6.4 |     |    |    |    |    |    |    |  |
| 23     |    |    |    |    |    |    |    |    | 6.7   | 6.6              |      |     |    |    |    |    | A   | A   |    |    |    |    |    |    |  |
| 24     |    |    |    |    |    |    |    |    | 6.8   | 6.5              |      |     |    |    |    |    | 6.5 |     |    |    |    |    |    |    |  |
| 25     |    |    |    |    |    |    |    |    | 6.3   | 6.5 <sup>H</sup> |      |     |    |    |    |    | 6.5 |     |    |    |    |    |    |    |  |
| 26     |    |    |    |    |    |    |    |    | 6.7   | 6.4              |      |     |    |    |    |    | 6.2 | A   | A  |    |    |    |    |    |  |
| 27     |    |    |    |    |    |    |    |    | 6.7   | 6.7 <sup>H</sup> | 6.6A |     |    |    |    |    | 6.7 | L   | L  | L  |    |    |    |    |  |
| 28     |    |    |    |    |    |    |    |    | A     | A                | 6.5  |     |    |    |    |    | A   | 5.8 | L  |    |    |    |    |    |  |
| 29     |    |    |    |    |    |    |    |    | 6.7   | 6.9              | 6.8  |     |    |    |    |    | L   | A   | A  |    |    |    |    |    |  |
| 30     |    |    |    |    |    |    |    |    | A     | A                | A    |     |    |    |    |    | A   | L   |    |    |    |    |    |    |  |
| 31     |    |    |    |    |    |    |    |    | A     | A                | A    |     |    |    |    |    | 6.5 | A   | A  |    |    |    |    |    |  |
| No.    |    |    |    |    |    |    |    |    | 3     | 5                | 9    | 8   |    |    |    |    | 5   | 2   |    |    |    |    |    |    |  |
| Median |    |    |    |    |    |    |    |    | 6.7   | 6.7              | 6.5  | 6.6 |    |    |    |    | 6.5 | 5.8 |    |    |    |    |    |    |  |

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

foF1

Y 2

# IONOSPHERIC DATA

Lat.  $31^{\circ} 12.6' N$   
Long.  $130^{\circ} 37.7' E$

**Yamagawa**

foE

May. 1958

135° E Mean Time (GMT.+9h.)

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06                | 07                | 08                | 09                | 10                | 11                | 12                | 13                | 14                | 15                | 16                | 17                | 18                | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|----|----|----|----|----|
| 1      |    |    |    |    |    |    | 2.10              | 3.00              | 3.55              | 3.70              | 4.10              | 4.25 <sup>H</sup> | 4.30              | 4.35 <sup>R</sup> | 4.20              | 4.00              | 3.80 <sup>S</sup> | 3.30              | 2.45              |    |    |    |    |    |
| 2      |    |    |    |    |    |    | 2.00              | 3.10              | 3.60              | 4.00              | 4.20              | 4.20 <sup>R</sup> | 4.40              | 4.20              | 4.40 <sup>S</sup> | 4.00              | 3.60              | 3.35 <sup>H</sup> | 2.60              |    |    |    |    |    |
| 3      |    |    |    |    |    |    | 2.15              | 3.00              | 3.50              | 3.80 <sup>C</sup> | 3.95              | 4.10              | 4.10 <sup>R</sup> | 4.40              | 4.30              | 4.20              | 3.85              | 3.40              | 2.60              |    |    |    |    |    |
| 4      |    |    |    |    |    |    | 2.05              | 3.10              | 3.50              | 3.80              | 3.90              | 4.15              | 4.25 <sup>A</sup> | 4.35 <sup>S</sup> | 4.30              | 3.90              | 3.75              | 3.30              | 2.60              |    |    |    |    |    |
| 5      |    |    |    |    |    |    | 2.00              | 3.00              | 3.50              | 3.80              | 4.00              | 4.05              | 4.10 <sup>S</sup> | 4.10              | 4.20 <sup>R</sup> | 4.10              | 3.80              | 3.40              | 2.60              |    |    |    |    |    |
| 6      |    |    |    |    |    |    | 2.30              | 3.05              | 3.65              | 3.90 <sup>H</sup> | 4.00              | 4.00 <sup>H</sup> | R                 | 4.20 <sup>R</sup> | A                 | A                 | 3.80 <sup>A</sup> | 3.35              | 2.75              |    |    |    |    |    |
| 7      |    |    |    |    |    |    | 2.35              | 3.00 <sup>H</sup> | 3.45              | 3.70              | 3.95              | 3.95              | 3.90              | A                 | 4.00              | 4.00              | 3.80              | 3.40              | A                 |    |    |    |    |    |
| 8      |    |    |    |    |    |    | 2.20              | 2.95              | A                 | A                 | R                 | 4.15 <sup>R</sup> | 4.10 <sup>R</sup> | 4.10              | 4.10              | 4.10              | 3.80              | 3.30              | 2.50              |    |    |    |    |    |
| 9      |    |    |    |    |    |    | 2.25 <sup>H</sup> | 2.90              | 3.40 <sup>R</sup> | 3.70              | 4.00              | 4.15              | 4.25 <sup>R</sup> | 4.30              | 4.20              | 4.00              | 3.70              | 3.40              | 2.55              | S  |    |    |    |    |
| 10     |    |    |    |    |    |    | A                 | 2.85              | 3.50              | 3.80              | 4.00              | 4.10 <sup>A</sup> | 4.25              | 4.15              | 4.00 <sup>R</sup> | 3.90 <sup>R</sup> | 3.50              | 3.20              | 2.50              |    |    |    |    |    |
| 11     |    |    |    |    |    |    | 2.05              | 2.95              | 3.50              | 3.65              | 3.75              | 4.00              | 4.10 <sup>R</sup> | R                 | 4.30              | 4.05              | 3.65              | 3.25              | 2.50              |    |    |    |    |    |
| 12     |    |    |    |    |    |    | 2.20 <sup>H</sup> | 2.90              | 3.40              | 3.70              | 3.90              | 4.10              | 4.20              | 4.20 <sup>R</sup> | 4.10              | 3.70              | 3.60              | 3.10              | 2.50              |    |    |    |    |    |
| 13     |    |    |    |    |    |    | A                 | 2.80              | 3.45              | 3.75              | 3.90              | 3.80              | 4.10 <sup>S</sup> | 4.15 <sup>R</sup> | 4.15              | 3.90              | 3.60              | 3.10              | 2.25              |    |    |    |    |    |
| 14     |    |    |    |    |    |    | 2.30              | 3.00              | 3.40              | 3.70              | 3.90              | 3.75              | 4.10              | 4.05 <sup>R</sup> | 3.90 <sup>R</sup> | 3.70              | 3.60              | 3.10              | 2.40              |    |    |    |    |    |
| 15     |    |    |    |    |    |    | 2.10              | 2.90              | 3.40              | 3.70              | A                 | A                 | R                 | R                 | 3.90              | 3.80              | 3.60              | 3.10              | 2.50              |    |    |    |    |    |
| 16     |    |    |    |    |    |    | 2.30 <sup>H</sup> | 2.90 <sup>H</sup> | 3.40              | 3.80              | 4.00              | 4.10 <sup>R</sup> | 4.10              | 4.10 <sup>R</sup> | 3.70              | 3.80              | 3.65              | 3.30              | 2.60              | S  |    |    |    |    |
| 17     |    |    |    |    |    |    | 2.15              | 3.10              | 3.40              | 3.80              | 3.95              | 3.95              | 4.05              | 4.05 <sup>R</sup> | 4.00              | 3.70              | 3.60              | 3.25              | 2.50              |    |    |    |    |    |
| 18     |    |    |    |    |    |    | 2.05              | 2.90              | 3.40              | 3.60              | 3.70              | 3.70              | 3.95 <sup>R</sup> | 4.15              | 4.10              | 3.70              | 3.60              | 3.15 <sup>R</sup> | 2.20              |    |    |    |    |    |
| 19     |    |    |    |    |    |    | 2.25 <sup>H</sup> | 3.05              | 3.50              | 3.80              | 4.00              | 4.00              | 4.00              | 4.20              | 4.25              | 4.00              | 3.60              | 3.15              | 2.35              |    |    |    |    |    |
| 20     |    |    |    |    |    |    | 2.15              | 3.05              | 3.40              | 3.60              | 3.90              | 4.00 <sup>R</sup> | 4.00              | 4.00 <sup>A</sup> | 4.10 <sup>A</sup> | 4.00              | 3.70              | 3.30              | 2.65              |    |    |    |    |    |
| 21     |    |    |    |    |    |    | 2.05              | 3.00              | 3.50              | 3.65              | 4.00              | A                 | A                 | A                 | A                 | A                 | A                 | A                 | A                 |    |    |    |    |    |
| 22     |    |    |    |    |    |    | 2.10              | 3.10              | 3.55              | 3.70              | 4.10              | 4.15              | 4.20              | 4.00 <sup>A</sup> | 4.10 <sup>A</sup> | 4.10              | 3.70              | 3.45              | 2.80 <sup>H</sup> |    |    |    |    |    |
| 23     |    |    |    |    |    |    | 2.20              | 3.00              | 3.50              | 3.70              | 4.10              | 4.10              | 4.10              | 4.00              | 3.90              | A                 | A                 | A                 | 2.85              |    |    |    |    |    |
| 24     |    |    |    |    |    |    | 2.45 <sup>H</sup> | 3.10              | 3.60 <sup>C</sup> | 3.70              | 4.10              | 4.20 <sup>R</sup> | 4.30 <sup>A</sup> | 4.30              | A                 | R                 | 3.80              | 3.50              | 2.60 <sup>A</sup> |    |    |    |    |    |
| 25     |    |    |    |    |    |    | 2.35              | 3.10              | 3.60              | 3.95              | 4.10              | 4.10 <sup>R</sup> | 4.10              | 4.00 <sup>R</sup> | 4.00              | 3.90              | 3.80              | 3.40              | 2.80              |    |    |    |    |    |
| 26     |    |    |    |    |    |    | 2.45              | 3.05              | 3.60              | 3.80              | 3.90              | 4.00              | 4.00              | 4.00              | 4.00              | 4.00              | 3.80              | 3.45              | 2.70              |    |    |    |    |    |
| 27     |    |    |    |    |    |    | 2.45 <sup>H</sup> | 3.10              | 3.50              | 3.70              | 3.95              | 3.70              | 4.05              | 4.20              | 4.10              | 4.00 <sup>A</sup> | 3.75              | 3.25              | 2.70              |    |    |    |    |    |
| 28     |    |    |    |    |    |    | 2.20              | 3.05 <sup>H</sup> | 3.50              | 3.75              | 4.00 <sup>R</sup> | 4.00              | 4.10              | 4.10              | 4.10              | 4.10              | 3.70 <sup>S</sup> | 3.15              | 2.70              |    |    |    |    |    |
| 29     |    |    |    |    |    |    | 2.40              | 3.05              | 3.50              | 3.70 <sup>C</sup> | 3.90 <sup>R</sup> | 4.00 <sup>A</sup> | 4.15              | 4.30              | 4.20 <sup>R</sup> | A                 | R                 | 3.40              | 2.70              |    |    |    |    |    |
| 30     |    |    |    |    |    |    | 2.20 <sup>H</sup> | 3.00 <sup>A</sup> | 3.65              | 3.80 <sup>C</sup> | 4.00 <sup>R</sup> | 4.20 <sup>R</sup> | 4.15 <sup>R</sup> | 4.05              | A                 | A                 | A                 | A                 | A                 |    |    |    |    |    |
| 31     |    |    |    |    |    |    | 2.20              | 3.10              | 3.60              | 3.80 <sup>C</sup> | 3.70              | 4.05 <sup>S</sup> | 4.10 <sup>S</sup> | S                 | A                 | R                 | 3.80              | 3.40              | 2.70              |    |    |    |    |    |
| No.    |    |    |    |    |    |    | 2.9               | 3.1               | 3.0               | 3.0               | 2.9               | 2.9               | 2.8               | 2.6               | 2.5               | 2.4               | 2.7               | 2.8               | 2.8               |    |    |    |    |    |
| Median |    |    |    |    |    |    | 2.20              | 3.00              | 3.50              | 3.80              | 4.00              | 4.05              | 4.10              | 4.15              | 4.10              | 4.00              | 3.75              | 3.30              | 2.60              |    |    |    |    |    |

Sweep 1.0 Mc to 20.0 Mc in 1.0 sec in automatic operation.

The Radio Research Laboratories, Japan.

foE

Y 3



Lat. 31° 12.6' N  
Long. 130° 37.7' E

**Yamagawa**

**IONOSPHERIC DATA**

135° E Mean Time (GMT.+ 9h.)

fbEs

May, 1958

| Day    | 00  | 01  | 02  | 03  | 04  | 05  | 06  | 07  | 08  | 09  | 10  | 11   | 12   | 13  | 14   | 15   | 16   | 17   | 18   | 19   | 20  | 21  | 22  | 23  |
|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|-----|------|------|------|------|------|------|-----|-----|-----|-----|
| 1      | 1.6 | E   |     |     | E   |     | 3.4 | 4.0 | 4.6 | G   | 4.8 |      |      |     | G    | 4.9  | 3.6  | 5.3  | 1.9  | 1.7  | S   | 2.1 | 2.2 | 2.5 |
| 2      | E   | 1.7 | 1.3 |     |     |     | 2.5 | 3.5 | 4.2 | 4.4 |     |      | 4.7  | G   | 4.9  | 6.1  | 5.1  | 4.5  | 4.5  | 3.4  | E   | E   | S   | S   |
| 3      | S   |     |     |     |     | E   | G   | 3.4 | 4.1 | C   | G   |      |      |     |      | 6.0  | 7.8  | A    | 7.2  | 5.4  | 2.5 | S   | S   | S   |
| 4      | E   |     |     |     |     |     | 2.5 | 3.6 | 4.6 | 5.5 | 4.4 |      | 4.4  | B   |      | G    | G    | 3.0  | 2.7  | 1.8  | A   | 2.5 | 2.2 | 2.2 |
| 5      | E   |     |     |     | 1.2 | 1.3 | G   | 3.4 | 4.5 | 5.1 | 5.1 | 5.2  | 4.4  |     |      |      |      |      | G    | 3.9  | 3.4 | 1.8 | 2.6 | 2.8 |
| 6      | C   | 1.8 | 1.7 |     |     |     | G   | 3.4 | 5.4 | 4.6 | 4.4 | 5.4  | 4.6  |     | 5.1  | 4.3  | 2.6  | 2.3  | 4.9  | 3.4  | 3.4 | 2.4 | 2.5 | 1.8 |
| 7      | E   | 2.0 | 1.7 | 1.3 |     |     |     |     | 5.4 | 4.6 | G   | 4.6  | 4.4  | 4.9 | 4.7  | 4.5  | 4.1  | 3.5  | 3.7  | 1.7  | 1.7 | 2.1 | 1.7 | 2.5 |
| 8      | 2.0 | 2.0 | 1.7 |     | E   |     | G   | 3.7 | 3.7 | G   | G   | 5.5  | 4.6  | G   | 4.5  | 4.8  | 6.3  | 6.5  | 3.9  | 3.8  | 3.4 | 3.4 | 4.1 | 1.7 |
| 9      | 1.6 |     | 1.1 | 1.1 |     | E   | G   | 3.8 | 3.8 | G   | 4.2 | 4.3  | 4.9  | 6.5 | 8.2  | 9.0  | 5.4  | 4.2  | 4.0  | 3.5  | 4.8 | 4.4 | 4.4 | 3.6 |
| 10     | 2.1 | 2.0 | 3.5 | 2.6 | 2.5 | 1.9 | G   | 3.5 | G   | 4.2 | 4.3 | G    | 6.3  | G   | 5.2  | 6.7  | 5.3  | 4.4  | 2.9  | 2.5  | S   | 2.0 | 4.7 | 2.6 |
| 11     | S   | 1.7 | 4.3 | 2.7 | 3.4 | S   | G   | 3.5 | 4.1 | 5.1 | 5.5 | 4.5  | 6.3  |     | 5.2  | 4.6  | 4.1  | 5.2  | 4.0  | 5.0  | 2.6 | 4.2 | 2.6 | 3.5 |
| 12     | 1.7 | 3.6 | 4.8 | 2.6 | 2.6 | 2.8 | G   | 3.6 | 5.6 | 5.4 | 5.3 | 5.1  | 5.2  | 4.6 | 5.0  | 4.6  | 4.1  | 5.2  | 4.0  | 2.0  | 2.6 | S   | 4.6 | 2.9 |
| 13     | 2.5 | 2.6 | 3.6 | 3.2 | 2.8 | 2.7 | G   | G   | 6.1 | 5.6 | 7.5 | 10.0 | 6.5  | 6.5 | 6.5  | 6.5  | 5.7  | 4.6  | 5.0  | 2.0  | 2.6 | S   | 4.6 | 2.9 |
| 14     | S   | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | G   | 3.4 | 4.0 | 4.7 | 5.4 | 4.4  | 5.1  | 8.9 | 12.0 | G    | G    | 4.3  | A    | 3.1  | 3.1 | 5.1 | 3.6 | 3.4 |
| 15     | S   |     |     |     |     | S   | G   | G   | G   | 4.3 | 4.8 | 4.9  |      |     |      | 4.1  | 8.4  | 8.3  | 8.4  | 10.4 | 2.4 | A   | 5.1 | 4.2 |
| 16     | 3.8 | 3.2 | 2.5 | 2.6 | 2.1 | 1.7 | G   | 3.2 | 5.1 | G   | 4.6 | 4.6  | 4.8  | 4.6 | G    | 5.5  | 5.5  | 7.2  | 3.1  | 2.0  | 1.9 | E   | 3.5 | 3.4 |
| 17     | 2.6 | 2.7 | 3.3 | 1.7 | 1.2 | E   | G   | 4.3 | 6.4 | 4.5 | 4.9 | 5.5  | 6.4  | G   | G    | 4.5  | 10.0 | 7.2  | 8.0  | 9.4  | 4.6 | 4.5 | 4.6 | 7.7 |
| 18     | A   | 1.3 | 1.6 | 1.3 | 1.3 | 1.3 | G   | 4.5 | 5.4 | 7.3 | 5.8 | 4.5  | 5.2  | 4.5 | 5.1  | G    | 5.5  | 7.0  | 3.1  | 1.9  | E   | 2.0 | 1.7 | 3.3 |
| 19     | 2.6 | 1.2 | 1.1 |     | 1.1 |     | G   | 3.5 | 5.1 | 6.7 | 4.3 | 6.0  | 5.1  | G   | 8.3  | G    | 5.3  | 4.7  | 10.5 | A    | 9.5 | 8.2 | 3.7 | 8.4 |
| 20     | 8.3 | A   | 4.1 | 1.6 | 1.8 | 2.0 | G   | 3.6 | 4.9 | 4.6 | 4.8 | 6.3  | 7.8  | 7.9 | 5.3  | 5.6  | 8.2  | 7.7  | 7.9  | 5.8  | 4.4 | 1.6 | 1.7 | 4.6 |
| 21     | 3.4 | 3.5 | 3.1 | 2.1 | 2.5 | 2.3 | G   | 2.6 | 4.1 | 4.4 | 5.5 | A    | 1.2  | 1.0 | 5.3  | 7.3  | 3.9  | 3.2  | 2.5  | A    | A   | 2.0 | S   |     |
| 22     | 1.7 | E   | 1.7 | 2.7 | 2.5 | E   | G   | 4.2 | 4.8 | 6.1 | 6.2 | 7.0  | 6.1  | 9.5 | 5.0  | 4.4  | 4.5  | 6.1  | 7.2  | 7.2  | 3.5 | 2.1 | 1.6 | 5.5 |
| 23     | 1.7 | S   | 3.0 | 1.6 | 1.7 | 1.7 | G   | 4.2 | 4.0 | 5.4 | 8.0 | 6.2  | 6.5  | 5.3 | 5.4  | 4.8  | 10.2 | 10.0 | 5.5  | 4.4  | 4.7 | 3.5 | 3.8 | 1.7 |
| 24     | 2.2 | 2.5 | 1.7 | 1.3 | E   | 1.7 | G   | 4.8 | C   | C   | 5.0 | 4.4  | 4.6  |     | 4.6  | 4.9  | G    | 3.5  | 2.3  | 1.6  | E   | E   | E   | 8.1 |
| 25     | 4.2 | 3.2 | 2.3 | 2.4 | 2.0 | 2.3 | G   | 1.7 | 3.5 | 5.4 | 7.8 | 10.3 | 9.0  | G   | G    | G    | 4.1  | 3.4  | 3.2  | 2.5  | A   | 5.1 | 2.5 |     |
| 26     | 1.7 |     |     |     |     | E   | G   | 3.9 | 5.3 | 7.5 | 8.2 | 5.6  | 5.4  | 5.2 | 4.8  | 4.9  | 6.0  | 8.5  | 9.2  | 9.0  | A   | 4.5 | 8.3 | 3.2 |
| 27     | A   | 2.3 | 2.8 | 1.2 | 5.5 | 4.1 | G   | 6.0 | 6.5 | A   | 4.9 | 5.1  | 4.9  | A   | 4.8  | 4.8  | 4.6  | 4.1  | 3.6  | 6.1  | 4.8 | 3.3 | A   | 4.6 |
| 28     | 3.5 | 4.0 | 4.4 | 4.0 | 3.6 | 1.7 | G   | 3.4 | 5.2 | 5.6 | 7.5 | 7.5  | 8.0  | 7.5 | 5.2  | 8.5  | 4.2  | 4.2  | 4.1  | 3.8  | 4.0 | 5.1 | 4.5 |     |
| 29     | 2.1 | 2.6 | 1.7 | 1.7 | 1.7 | 1.9 | G   | 2.0 | 3.5 | 8.0 | 5.1 | 4.4  | 4.6  |     | 6.2  | 4.6  | 5.9  | A    | A    | 3.9  | 3.9 | 3.8 | S   |     |
| 30     | 2.5 | 1.7 | 2.6 | 1.3 | 1.9 | 1.7 | G   | 2.9 | 4.2 | 5.3 | 5.3 | 4.8  | A    | 9.3 | 10.3 | 10.0 | 8.0  | 6.0  | 4.2  | 3.2  | 2.3 | S   | 2.5 |     |
| 31     | 2.9 | 2.5 | 2.1 | 2.4 | 1.8 | 1.7 | G   | 3.5 | 4.8 | 9.1 | 9.5 | 8.0  | 10.0 | 8.5 | A    | 9.0  | 5.6  | 6.0  | 8.3  | 6.6  | 8.8 | 6.9 | 2.5 |     |
| No.    | 26  | 24  | 24  | 22  | 2.3 | 2.2 | 2.8 | 3.0 | 3.0 | 2.9 | 3.0 | 3.1  | 2.7  | 2.2 | 2.4  | 2.7  | 2.7  | 2.4  | 2.8  | 3.1  | 3.0 | 2.8 | 2.9 | 2.6 |
| Median | 2.2 | 2.2 | 2.4 | 1.7 | 1.9 | 1.7 | 1.8 | 3.5 | 4.8 | 5.1 | 5.0 | 5.1  | 5.1  | 5.2 | 5.2  | 4.8  | 5.4  | 4.9  | 4.5  | 4.1  | 3.4 | 3.4 | 2.6 | 3.2 |

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

fbEs

Y 5





IONOSPHERIC DATA

Lat. 31° 12.5' N  
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+ 9h.)

(M3000)F1

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13   | 14 | 15 | 16 | 17 | 18 | 19 | '20 | 21 | 22 | 23 |  |  |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|-----|----|----|----|--|--|
| 1      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 2      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 3      |    |    |    |    |    |    |    |    |    | C  |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 4      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 5      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 6      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 7      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 8      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 9      |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 10     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 11     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 12     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 13     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 14     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 15     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 16     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 17     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 18     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 19     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 20     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 21     |    |    |    |    |    |    |    |    |    |    |    |    | A  | 3.25 |    |    |    |    |    |    |     |    |    |    |  |  |
| 22     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 23     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 24     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 25     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 26     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 27     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 28     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 29     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 30     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| 31     |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| No.    |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |
| Median |    |    |    |    |    |    |    |    |    |    |    |    |    |      |    |    |    |    |    |    |     |    |    |    |  |  |

Sweep 1.0 Mc to 20.0 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

(M3000)F1

Y 8

IONOSPHERIC DATA

Lat. 31° 12.5' N  
 Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+ 9h.)

h'F2

May. 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12   | 13   | 14 | 15   | 16                | 17                | 18                | 19                | 20   | 21   | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|------|------|----|------|-------------------|-------------------|-------------------|-------------------|------|------|----|----|
| 1      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 2      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 3      |    |    |    |    |    |    |    |    |    | C  |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 4      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 5      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 6      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 7      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 8      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 9      |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 10     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 11     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 12     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 13     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 14     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 15     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 16     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 17     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 18     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 19     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 20     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    |      |                   |                   |                   |                   |      |      |    |    |
| 21     |    |    |    |    |    |    |    |    |    |    |    |    | 3.60 | 3.50 |    |      |                   |                   |                   |                   |      |      |    |    |
| 22     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 3.85 | 3.80              | 3.50              | 3.30              | 2.95              |      |      |    |    |
| 23     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 3.70 | 3.80              | 3.60              |                   |                   |      |      |    |    |
| 24     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 3.75 | 3.80              | A                 | A                 |                   |      |      |    |    |
| 25     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 3.95 | 3.60              | 3.50              | 3.55              |                   |      |      |    |    |
| 26     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 3.95 | 3.85              | 3.60              | 3.50              | L                 |      |      |    |    |
| 27     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 4.15 | 4.05              | 3.90              | 3.80              | 3.90 <sup>A</sup> |      |      |    |    |
| 28     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 4.00 | 3.95 <sup>A</sup> | 3.75              | L                 | L                 |      |      |    |    |
| 29     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 3.75 | 3.50              | 3.55              | 3.50 <sup>A</sup> | 3.05              | 2.95 |      |    |    |
| 30     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 4.05 | 3.85              | 3.75              | 3.80              | 3.80              | A    | A    |    |    |
| 31     |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | A    | 4.00              | 4.15 <sup>A</sup> | 4.00 <sup>A</sup> | 3.40              | 2.95 |      |    |    |
| No.    |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | A    | A                 | A                 | A                 | 3.55              | 3.50 | 3.50 |    |    |
| Median |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 3    | 8                 | 10                | 10                | 8                 | 4    | 4    |    |    |
|        |    |    |    |    |    |    |    |    |    |    |    |    |      |      |    | 4.05 | 3.90              | 3.75              | 3.80              | 3.55              | 3.35 | 2.95 |    |    |

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 20.0 Mc in 1 min in automatic operation.

h'F2

Y 9



Lat. 31° 12.6' N  
Long. 130° 37.7' E

**Yamagawa**

**IONOSPHERIC DATA**

135° E Mean Time (GMT.+9h.)

**f<sub>o</sub>F**

**May, 1958**

| Day    | 00  | 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 | 290 | 285 | 285 | 300 | 290 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 2      | 285 | 275 | 270 | 270 | 290 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 3      | 290 | 285 | 280 | 280 | 290 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 4      | 270 | 265 | 260 | 260 | 270 | 265 | 265 | 265 | 260 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 |
| 5      | 290 | 285 | 280 | 280 | 290 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 6      | 290 | 285 | 280 | 280 | 290 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 7      | 305 | 295 | 280 | 280 | 295 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 8      | 300 | 290 | 270 | 270 | 285 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 9      | 300 | 290 | 270 | 270 | 285 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 10     | 295 | 275 | 260 | 260 | 285 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 11     | 290 | 285 | 280 | 280 | 290 | 285 | 285 | 285 | 280 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 12     | 285 | 300 | 300 | 300 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 | 280 |
| 13     | 285 | 270 | 260 | 260 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 14     | 300 | 285 | 245 | 245 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| 15     | 300 | 300 | 295 | 295 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 |
| 16     | 340 | 310 | 275 | 275 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 | 250 |
| 17     | 290 | 300 | 350 | 350 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 | 270 |
| 18     | A   | 300 | 275 | 275 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 |
| 19     | 290 | 290 | 275 | 275 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 | 295 |
| 20     | 350 | A   | 265 | 265 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 | 260 |
| 21     | 295 | 265 | 245 | 245 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 22     | 300 | 290 | 270 | 270 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 23     | 300 | 295 | 270 | 270 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |
| 24     | 300 | 280 | 250 | 250 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 | 265 |
| 25     | 340 | 295 | 285 | 285 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 | 290 |
| 26     | 290 | 260 | 250 | 250 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 | 275 |
| 27     | 365 | 305 | 305 | 305 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 | 340 |
| 28     | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| 29     | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| 30     | 350 | 290 | 285 | 285 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 | 240 |
| 31     | 300 | 300 | 290 | 290 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| No.    | 29  | 30  | 31  | 31  | 30  | 31  | 30  | 30  | 26  | 25  | 22  | 24  | 23  | 24  | 27  | 24  | 23  | 24  | 25  | 27  | 28  | 29  | 30  | 31  |
| Median | 300 | 290 | 270 | 250 | 280 | 295 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 | 285 |

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

**f<sub>o</sub>F**

The Radio Research Laboratories, Japan.

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

May. 1958

f<sub>o</sub>F<sub>2</sub>S

| Day    | 00  | 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 | 105 | E   | E   | 100 | E   | G   | 130 | 130 | 110 | 130 | 120 | G   | G   | G   | 145 | 125 | 135 | 120 | 105 | S   | 100 | 100 | 100 |
| 2      | 100 | 100 | 100 | E   | E   | E   | 140 | 140 | 130 | 130 | C   | G   | 115 | 120 | 105 | 105 | G   | 125 | 115 | 110 | 100 | 100 | 100 | S   |
| 3      | S   | E   | E   | E   | E   | 150 | 50  | 40  | 25  | 30  | 20  | 25  | G   | 145 | 130 | 125 | 125 | 115 | 110 | 105 | 105 | 100 | S   | S   |
| 4      | 100 | E   | E   | E   | E   | E   | 40  | 35  | 20  | 10  | 05  | 15  | 105 | B   | G   | 100 | 100 | G   | 20  | 05  | 100 | 100 | 100 | 100 |
| 5      | 100 | E   | E   | E   | 130 | 135 | 40  | 30  | 15  | 10  | 05  | 05  | 110 | G   | G   | G   | G   | G   | 145 | 105 | 105 | 105 | 100 | 100 |
| 6      | C   | 100 | 100 | E   | E   | E   | 100 | 40  | 30  | 15  | 10  | 05  | 105 | G   | 100 | 100 | 100 | 100 | 100 | 100 | 105 | 100 | 100 | 100 |
| 7      | 100 | 100 | E   | 100 | E   | E   | 25  | 10  | 10  | 10  | 25  | 05  | 100 | 155 | 100 | 100 | 145 | 145 | 100 | 20  | 100 | 100 | 05  | 100 |
| 8      | 100 | 100 | 100 | E   | 100 | E   | 100 | G   | 05  | 05  | 20  | 45  | 100 | 110 | 150 | 140 | 125 | 135 | 105 | 105 | 105 | 100 | 100 | 100 |
| 9      | 105 | E   | 100 | 100 | E   | 100 | G   | 40  | 35  | 10  | 00  | 20  | 145 | 140 | 130 | 120 | 115 | 110 | 110 | 105 | 100 | 100 | 100 | 100 |
| 10     | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 110 | 00  | 25  | 110 | 05  | 110 | G   | G   | 150 | 135 | 135 | 110 | 105 | 100 | 100 | 100 | S   |
| 11     | S   | 100 | 100 | 100 | 100 | 100 | 40  | 30  | 30  | 20  | 05  | 100 | 115 | 105 | 145 | 130 | 125 | 25  | 115 | 105 | 100 | 100 | 100 | 100 |
| 12     | 100 | 100 | 100 | 100 | 100 | 05  | 40  | 30  | 20  | 10  | 15  | 25  | 130 | 140 | 125 | 125 | 130 | 110 | 110 | 105 | 100 | 100 | 100 | 100 |
| 13     | 100 | 100 | 100 | 100 | 100 | 100 | 00  | 45  | 110 | 110 | 00  | 105 | G   | 125 | G   | 120 | 110 | 110 | 105 | 105 | 100 | S   | 100 | 100 |
| 14     | 100 | 100 | 100 | 100 | 100 | 100 | 35  | 30  | 20  | 20  | 05  | 110 | 110 | 105 | 100 | 100 | G   | 145 | 05  | 100 | 100 | 105 | 100 | 100 |
| 15     | S   | E   | E   | E   | E   | S   | 50  | 35  | 40  | 10  | 00  | 100 | G   | G   | G   | 150 | 110 | 110 | 105 | 105 | 100 | 100 | 100 | 100 |
| 16     | 100 | 100 | 100 | 100 | 100 | 100 | 30  | 20  | 05  | 110 | 20  | 20  | 125 | 135 | 100 | G   | 120 | G   | 130 | 120 | 105 | 105 | 100 | 100 |
| 17     | 100 | 100 | 100 | 100 | 100 | 100 | 50  | 30  | 15  | 20  | 05  | 100 | 100 | G   | 170 | 150 | 125 | 20  | 05  | 105 | 100 | 100 | 100 | 100 |
| 18     | 100 | 100 | 100 | 100 | 100 | 100 | 40  | 20  | 10  | 05  | 105 | 05  | 105 | 125 | 115 | 125 | 110 | 105 | 100 | 105 | 105 | 100 | 100 | 100 |
| 19     | 100 | 100 | 100 | E   | 100 | E   | 00  | 30  | 10  | 05  | 20  | 05  | 110 | 140 | 130 | 140 | 20  | 110 | 100 | 100 | 100 | 100 | 100 | 100 |
| 20     | 100 | 100 | 100 | 100 | 100 | 100 | 00  | 20  | 10  | 10  | 10  | 05  | 105 | 105 | 100 | 135 | 120 | 115 | 110 | 105 | 100 | 100 | 100 | 100 |
| 21     | 100 | 100 | 100 | 100 | 100 | 100 | 30  | 20  | 10  | 05  | 100 | 100 | 100 | 100 | 100 | 100 | 100 | G   | 05  | 100 | 100 | 100 | 100 | 100 |
| 22     | 100 | 100 | 100 | 100 | 100 | 100 | 00  | 25  | 125 | 110 | 05  | 105 | 100 | 100 | 100 | 130 | 40  | 120 | 110 | 105 | 100 | 100 | 100 | 100 |
| 23     | 100 | S   | 100 | 100 | 100 | 100 | 00  | 10  | 110 | 110 | 05  | 105 | 100 | 100 | 100 | 105 | 130 | 100 | 120 | 110 | 105 | 100 | 100 | 100 |
| 24     | 100 | 100 | 100 | 100 | 100 | 100 | 40  | 20  | C   | 110 | 140 | 100 | 100 | G   | 100 | 150 | 100 | G   | 05  | 110 | 105 | 100 | 105 | 100 |
| 25     | 100 | 100 | 100 | 100 | 100 | 100 | 00  | 20  | 105 | 05  | 05  | 105 | 100 | 100 | 100 | G   | G   | 140 | 125 | 110 | 105 | 100 | 100 | 100 |
| 26     | 100 | E   | E   | 100 | E   | 100 | 25  | 110 | 105 | 05  | 05  | 05  | 105 | 110 | 105 | 105 | 120 | 110 | 110 | 105 | 100 | 100 | 100 | 100 |
| 27     | 100 | 100 | 100 | 100 | 100 | 100 | 25  | 120 | 110 | 05  | 05  | 05  | 115 | 115 | 105 | 100 | 120 | 110 | 120 | 105 | 100 | 100 | 100 | 100 |
| 28     | 100 | 100 | 100 | 100 | 100 | 100 | 00  | 40  | 20  | 10  | 10  | 05  | 105 | 105 | 105 | 100 | 105 | 105 | G   | 105 | 100 | 100 | 100 | 100 |
| 29     | 100 | 20  | 100 | 100 | 100 | 100 | 25  | 00  | 20  | 10  | 05  | 100 | 115 | G   | 100 | 140 | 125 | 115 | 105 | 105 | 100 | 100 | 100 | 100 |
| 30     | 100 | 100 | 100 | 100 | 100 | 100 | 10  | 10  | 110 | 20  | 20  | 25  | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 31     | 100 | 100 | 100 | 100 | 100 | 100 | 20  | 120 | 105 | 05  | 100 | 05  | 105 | 115 | 115 | 120 | 125 | 115 | 105 | 105 | 100 | 100 | 100 | 100 |
| No.    | 27  | 24  | 24  | 22  | 23  | 22  | 28  | 30  | 30  | 29  | 30  | 31  | 27  | 22  | 24  | 27  | 27  | 26  | 30  | 31  | 31  | 29  | 30  | 28  |
| Median | 100 | 100 | 100 | 100 | 100 | 100 | 125 | 130 | 110 | 110 | 105 | 105 | 105 | 110 | 105 | 120 | 120 | 115 | 110 | 105 | 100 | 100 | 100 | 100 |

Sweep 1.0 Mc to 20.0 Mc in  $\frac{\text{min}}{4500}$  in automatic operation.

The Radio Research Laboratories, Japan.

Y 11

f<sub>o</sub>F<sub>2</sub>S

IONOSPHERIC DATA

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+ 9h.)

Types of Es

May, 1958

| Day    | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1      | F  | F  |    |    | F  |    |    | F2 | F  | C2 | F  |    |    | C  |    | F  | F3 | F3 | F3 | F3 | F3 | F3 | F3 | F3 |
| 2      | F  | F  |    |    | F  |    | C2 | F2 | F  | F  | F  |    |    | F  | F2 | F  | F4 | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 3      |    |    |    |    |    | F  |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 4      |    |    |    |    |    |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 5      |    |    |    |    | F  |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 6      |    |    |    |    |    |    |    | F  | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 7      | F  | F  | F  | F  | F  |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 8      | F  | F  | F  | F  | F  |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 9      | F  | F  | F  | F  | F  |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 10     | F3 | F3 | F3 | F3 | F3 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 11     | F3 | F3 | F3 | F3 | F3 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 12     | F2 | F2 | F2 | F2 | F2 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 13     | F5 | F5 | F5 | F5 | F5 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 14     | F  | F  | F  | F  | F  |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 15     | F6 | F6 | F6 | F6 | F6 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 16     | F6 | F6 | F6 | F6 | F6 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 17     | F5 | F5 | F5 | F5 | F5 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 18     | F5 | F5 | F5 | F5 | F5 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 19     | F3 | F3 | F3 | F3 | F3 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 20     | F5 | F5 | F5 | F5 | F5 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 21     | F5 | F5 | F5 | F5 | F5 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 22     | F2 | F2 | F2 | F2 | F2 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 23     | F4 | F4 | F4 | F4 | F4 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 24     | F4 | F4 | F4 | F4 | F4 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 25     | F4 | F4 | F4 | F4 | F4 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 26     | F2 | F2 | F2 | F2 | F2 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 27     | F5 | F5 | F5 | F5 | F5 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 28     | F8 | F8 | F8 | F8 | F8 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 29     | F2 | F2 | F2 | F2 | F2 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 30     | F3 | F3 | F3 | F3 | F3 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| 31     | F5 | F5 | F5 | F5 | F5 |    |    | F2 | F  | F  | F  |    |    |    |    | F  | F  | F5 | F5 | F5 | F5 | F5 | F5 | F5 |
| No.    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| Median |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

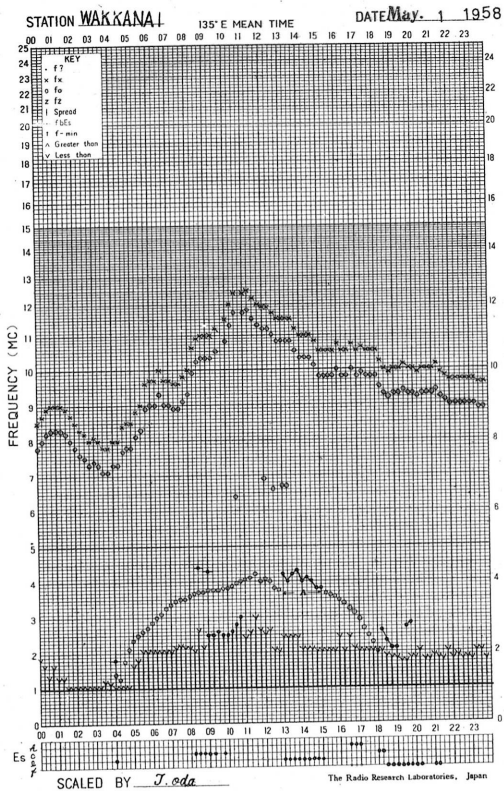
Sweep 4.2 Mc to 2.0 e. Mc in 1.0 min in automatic operation.

The Radio Research Laboratories, Japan.

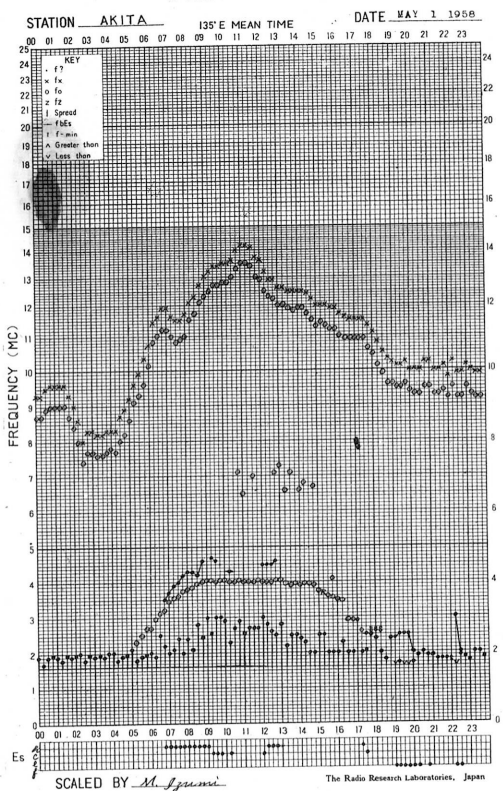
Y 12

Types of Es

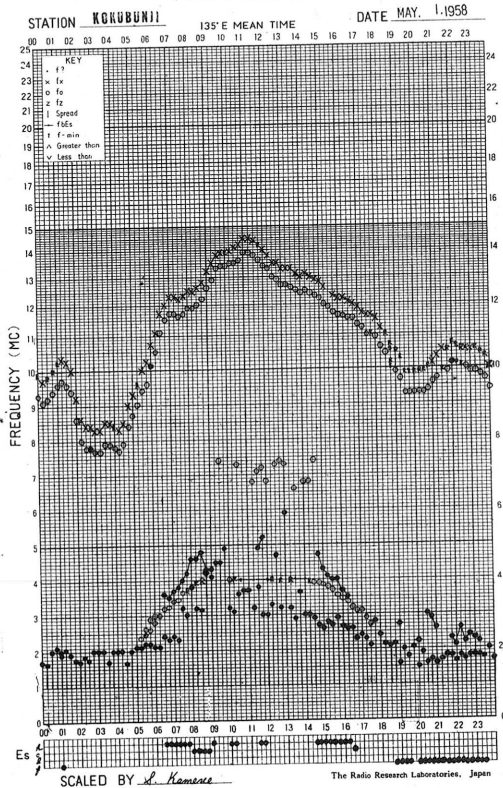
f-PLOT OF IONOSPHERIC DATA



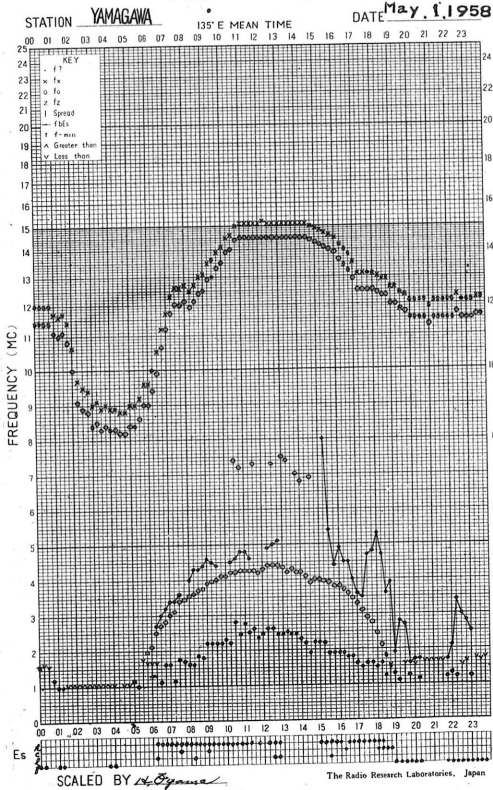
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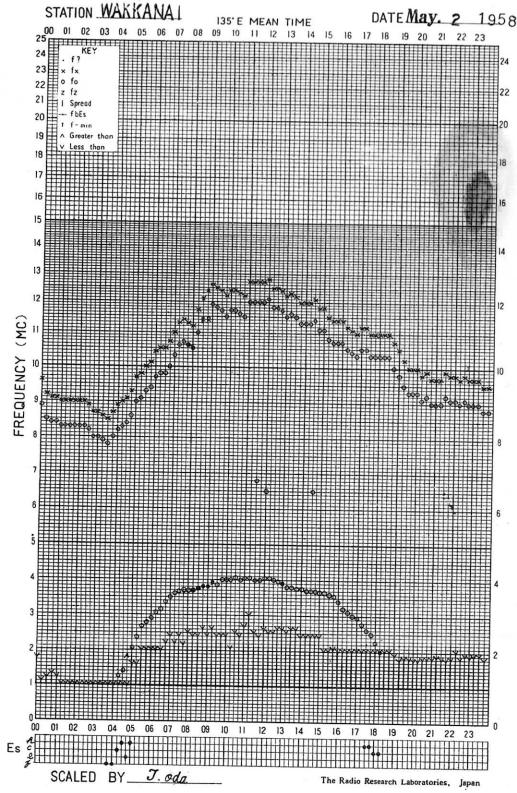
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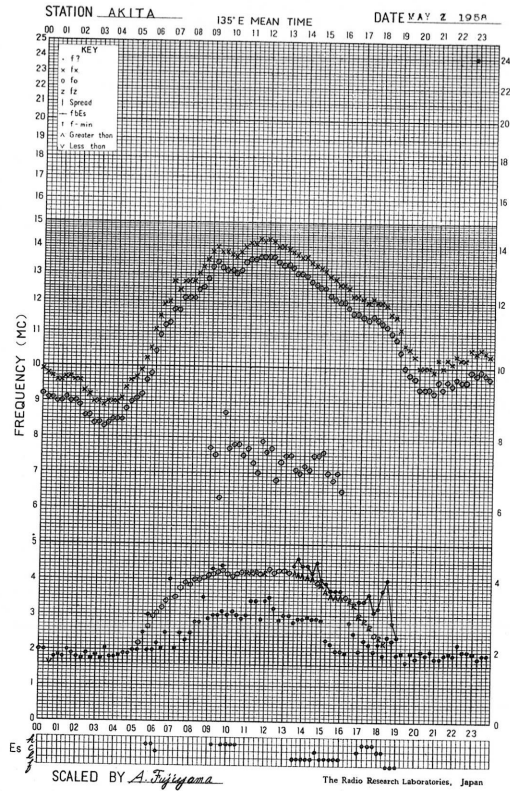
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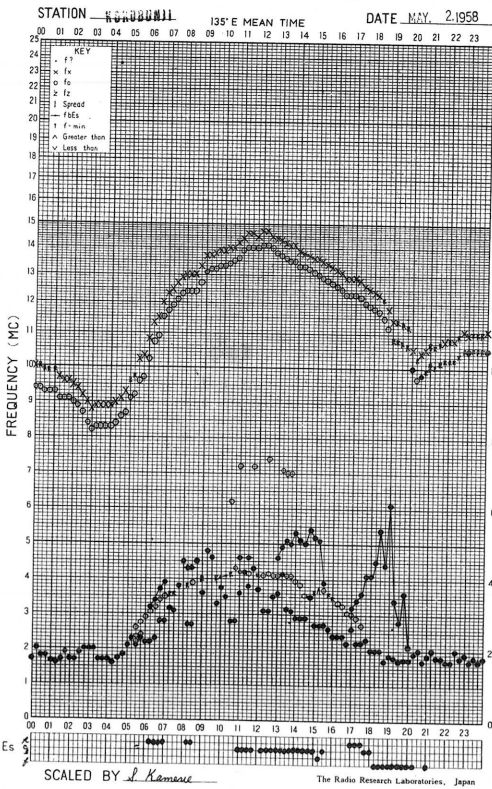
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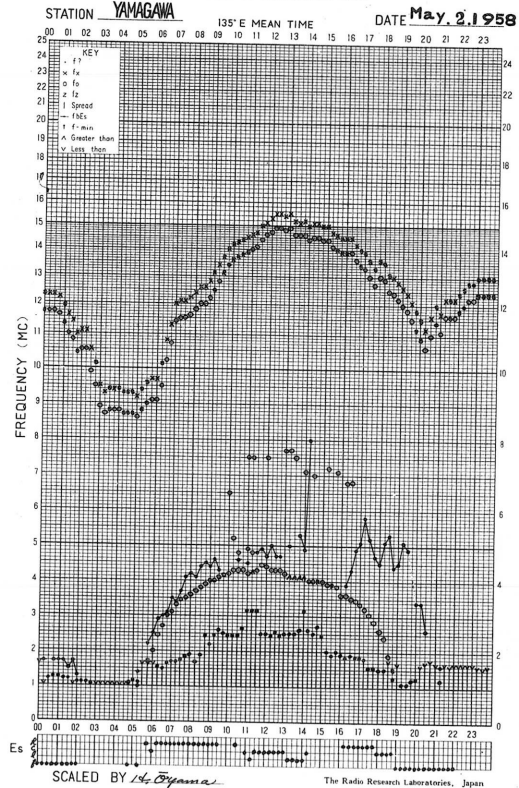
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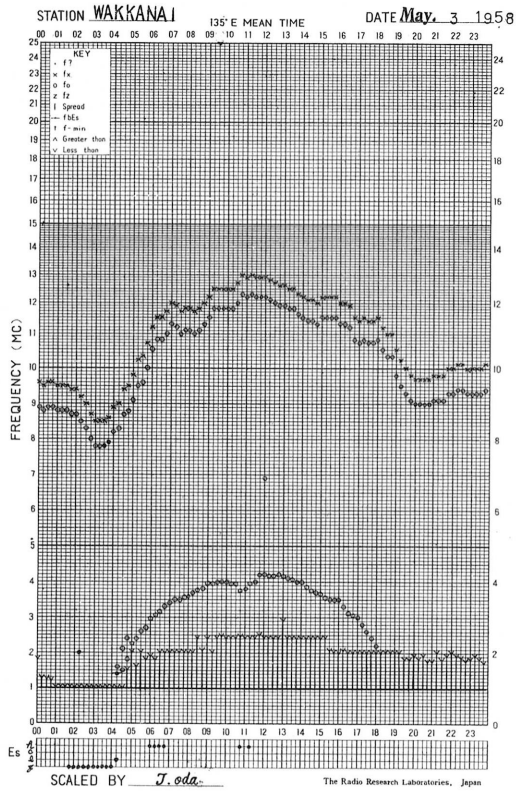
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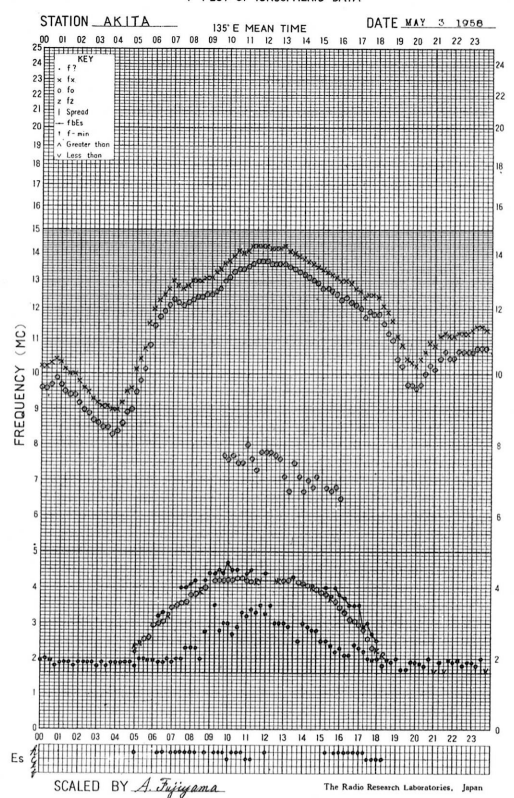
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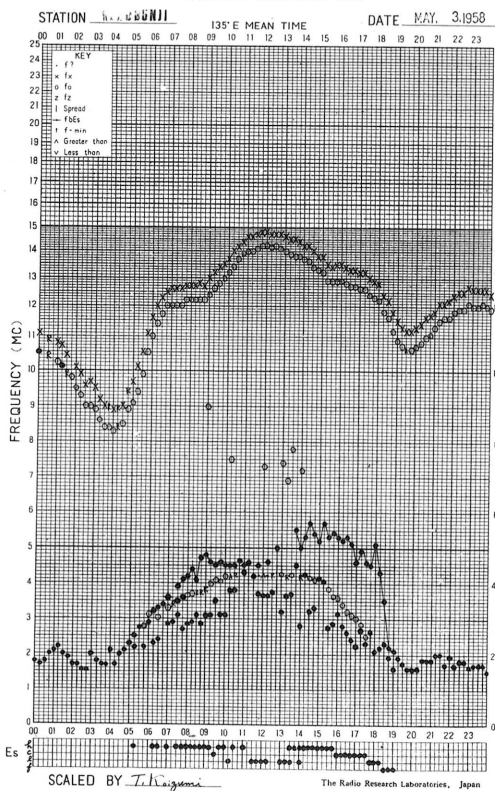
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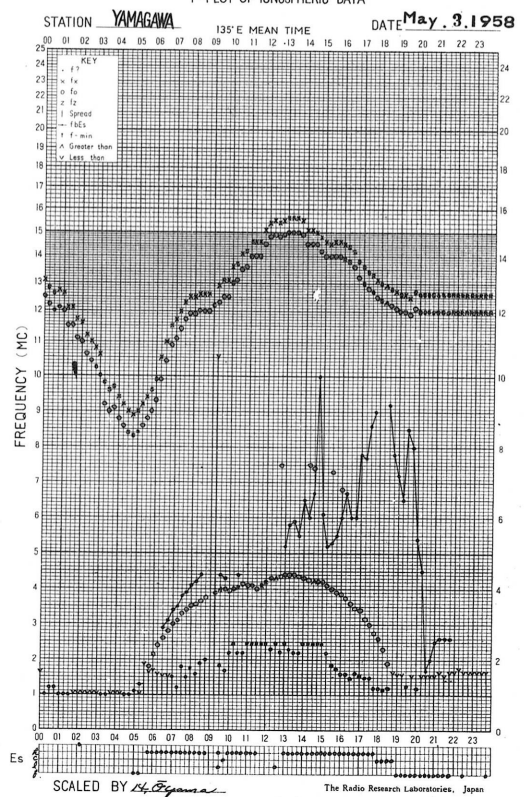
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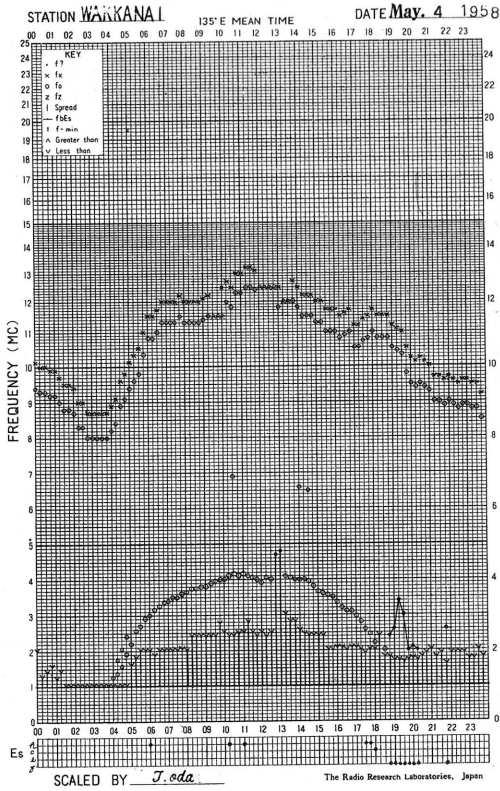
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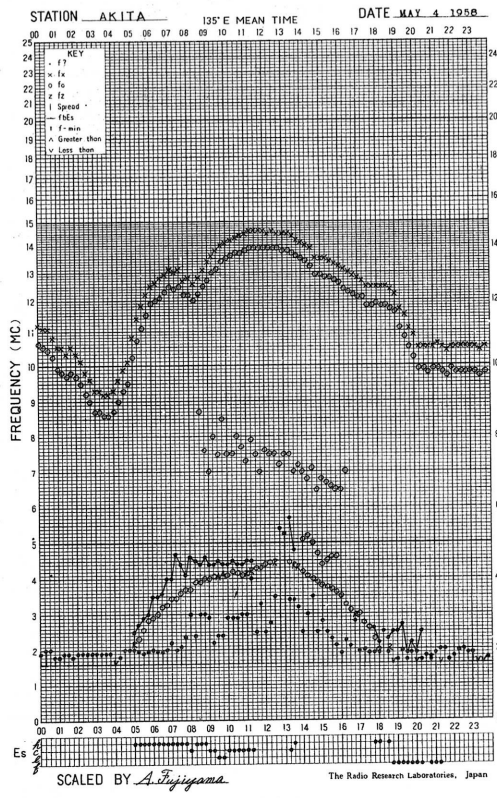
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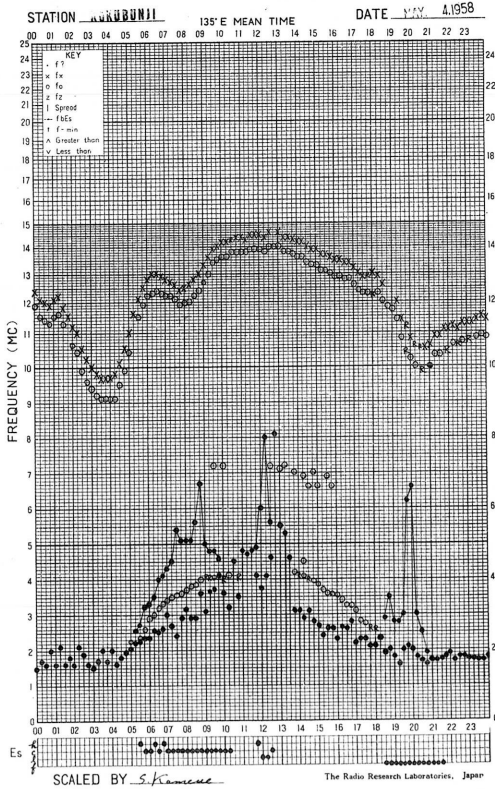
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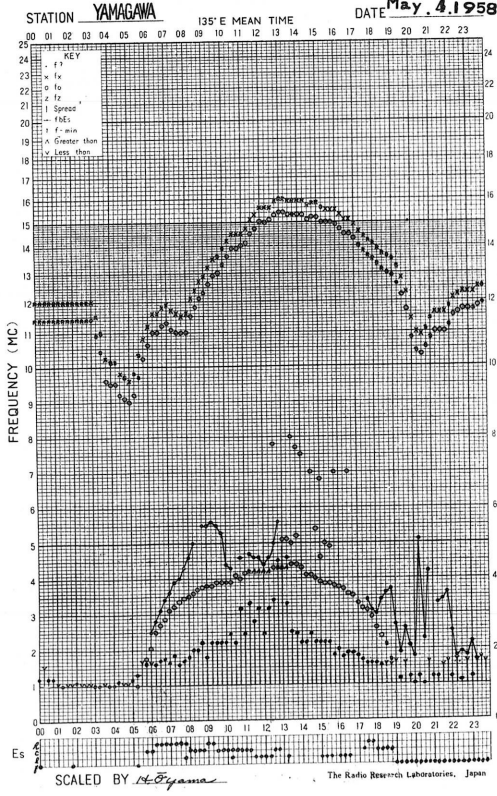
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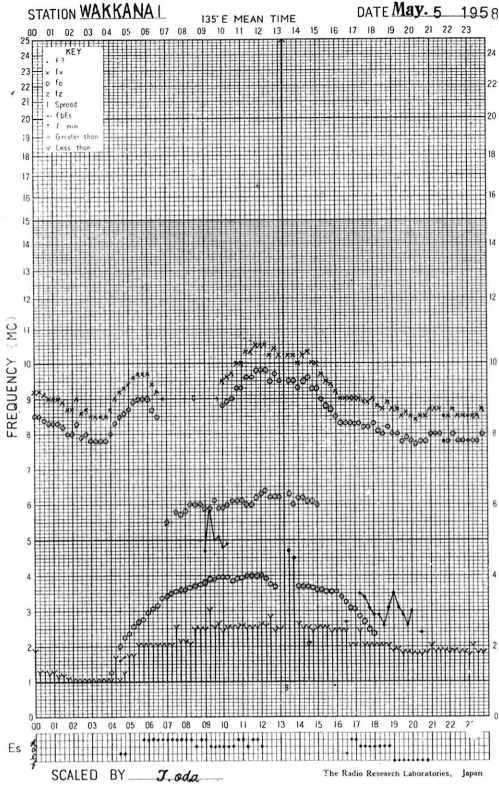
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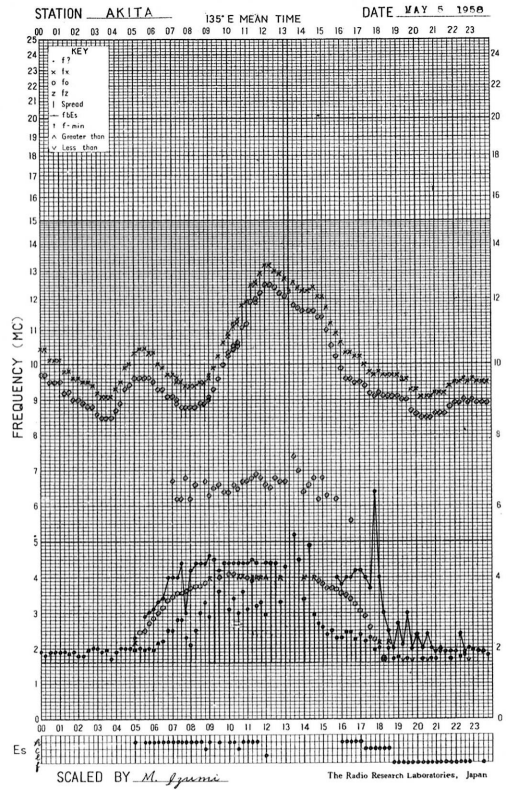
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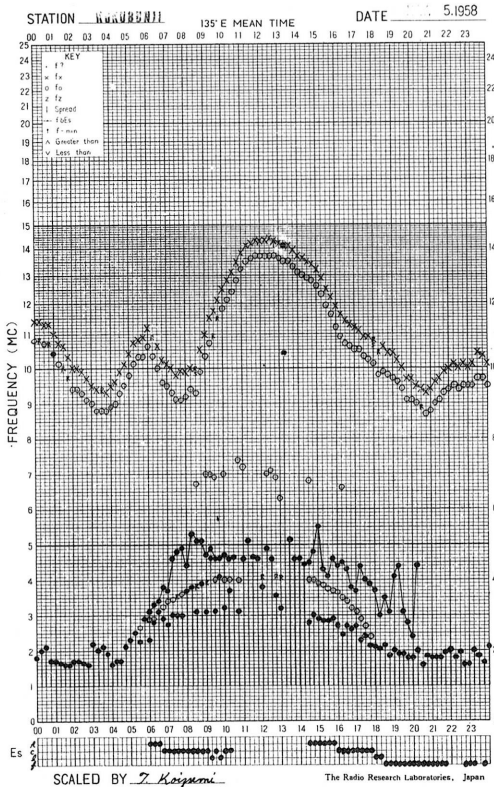
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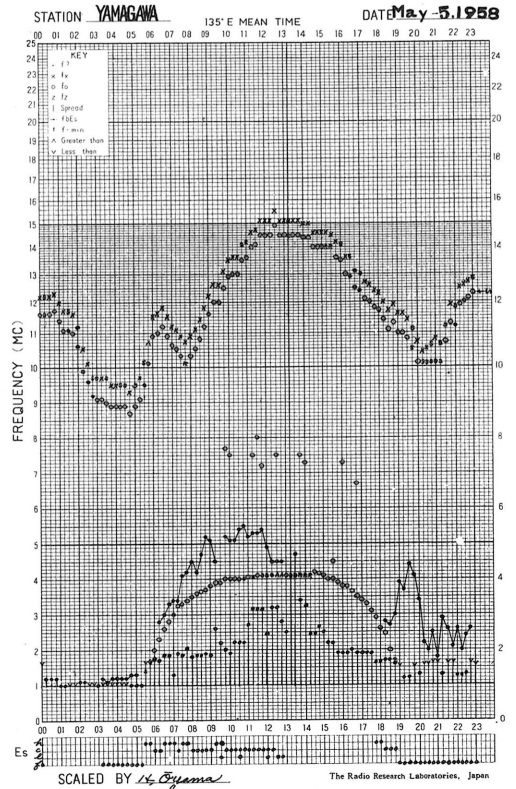
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f-PLOT OF IONOSPHERIC DATA

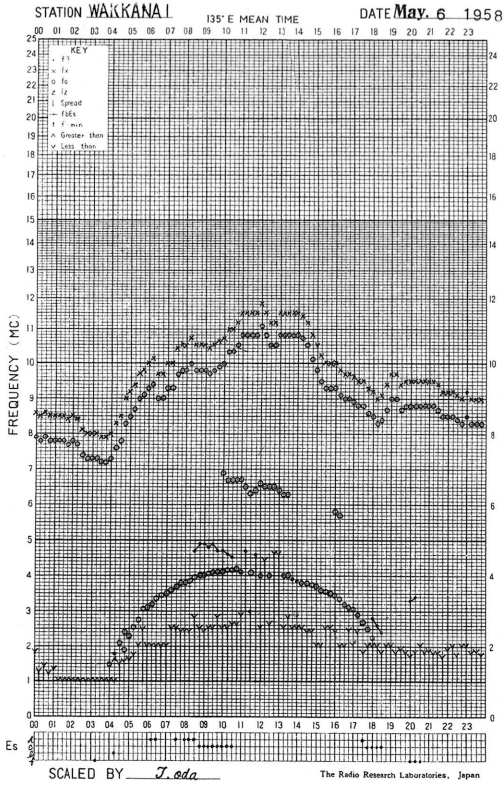


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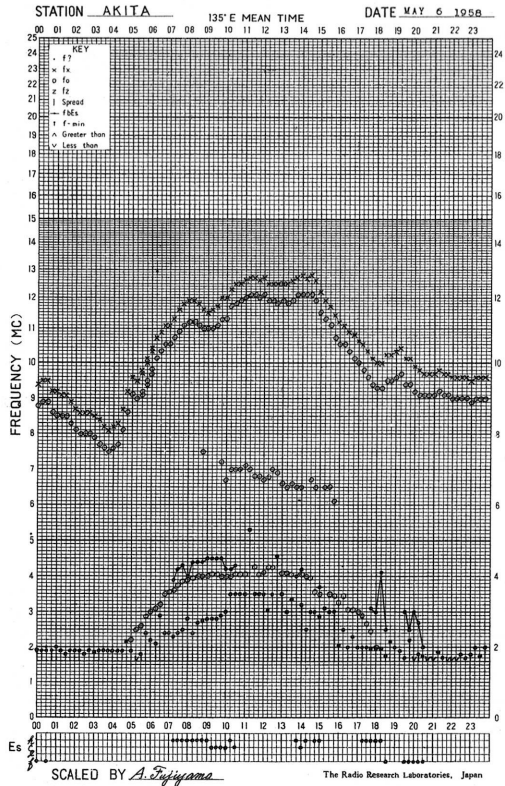




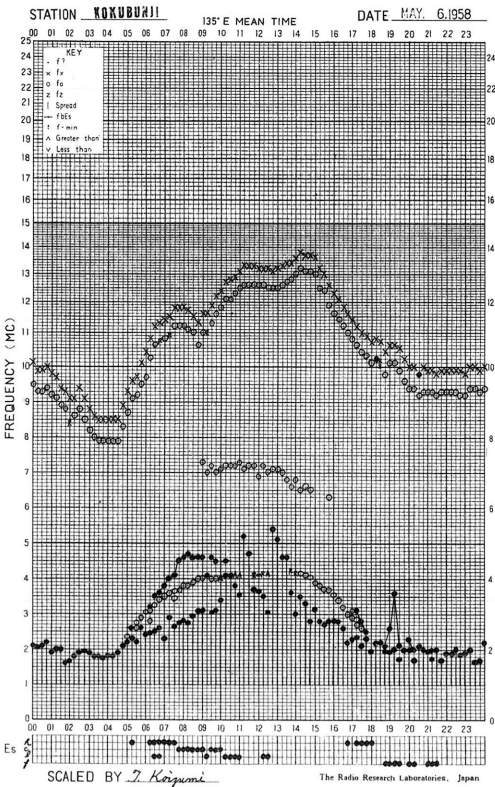
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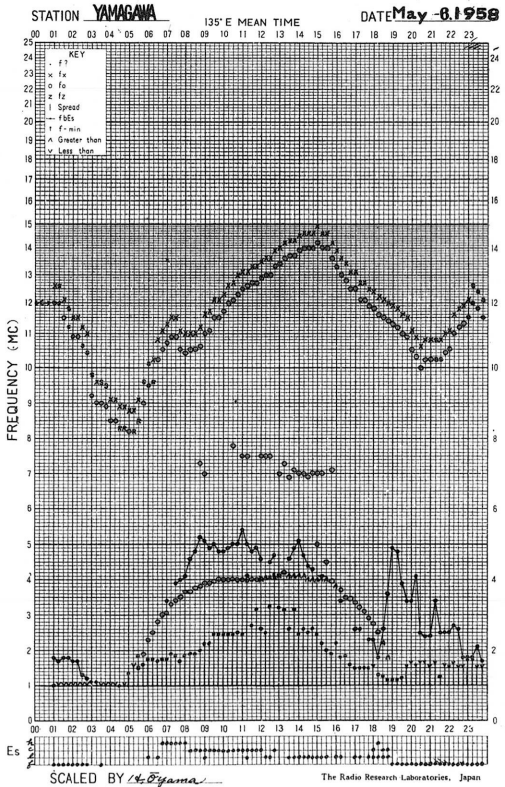
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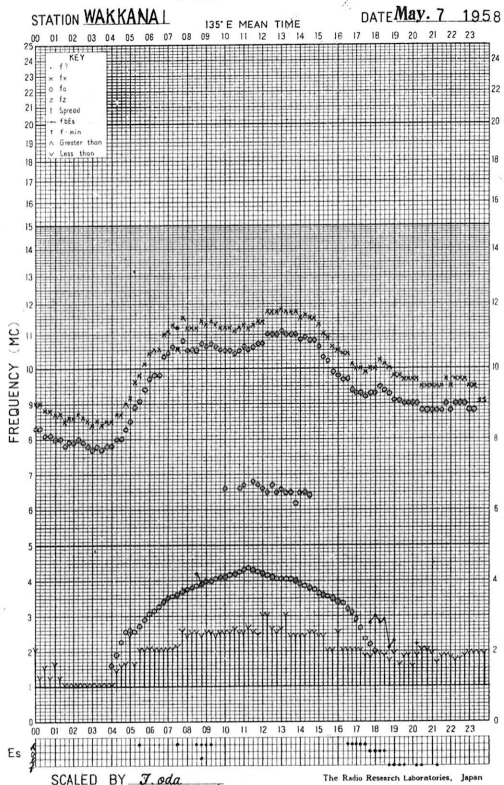
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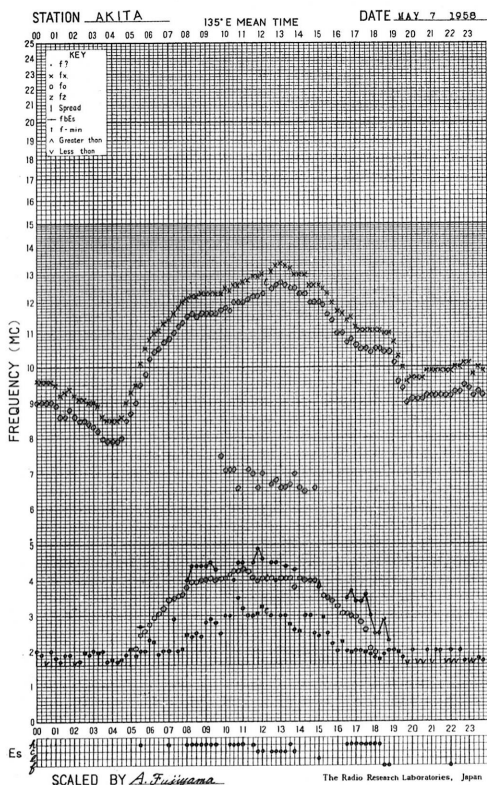
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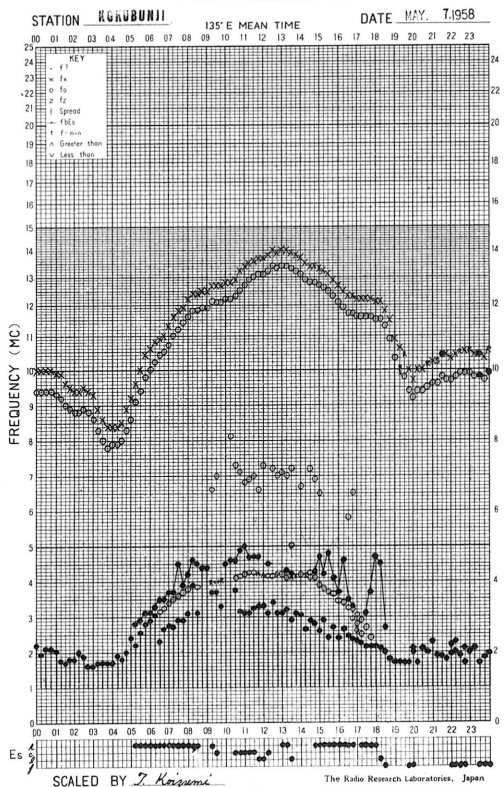
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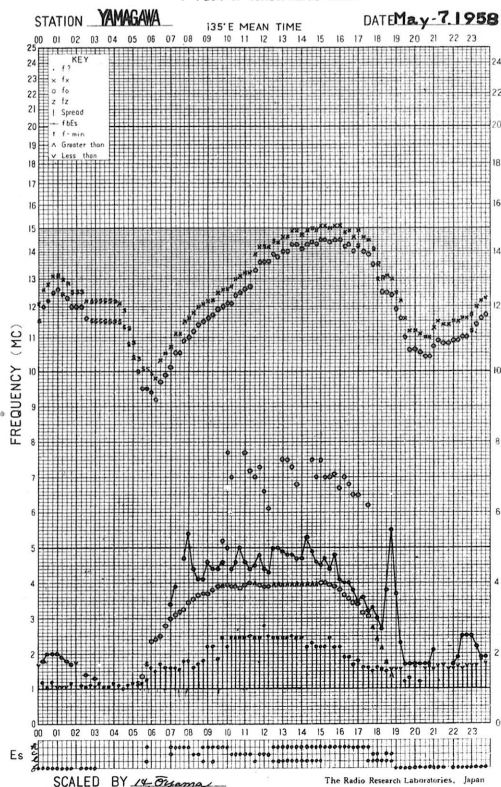
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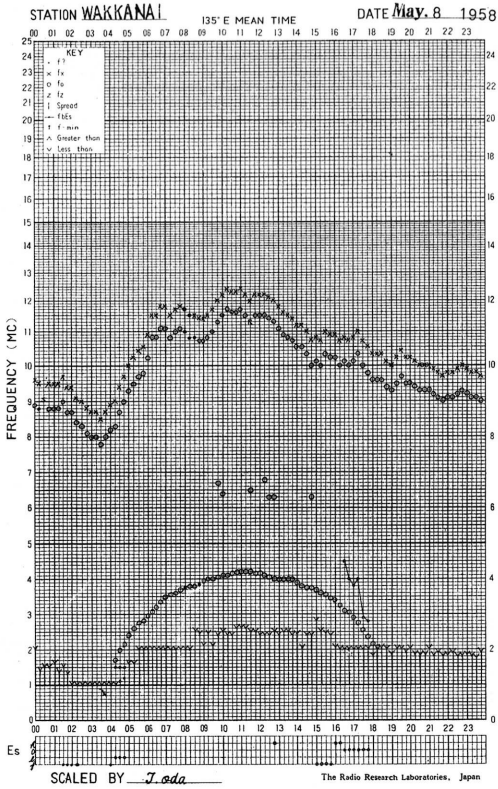
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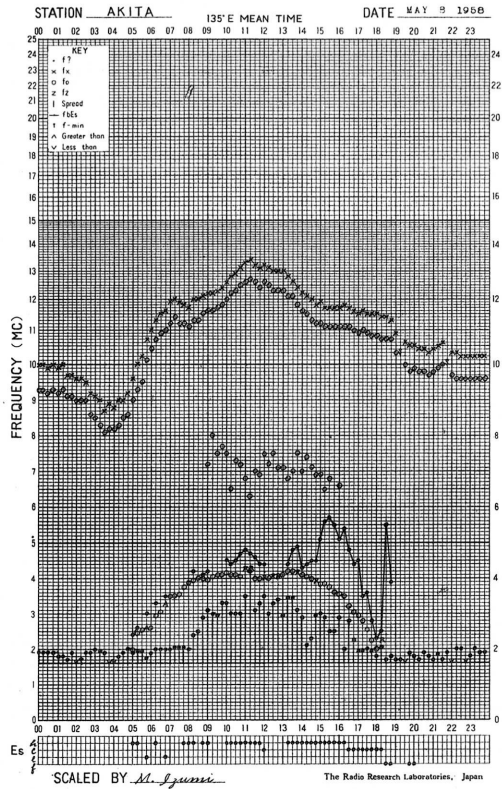
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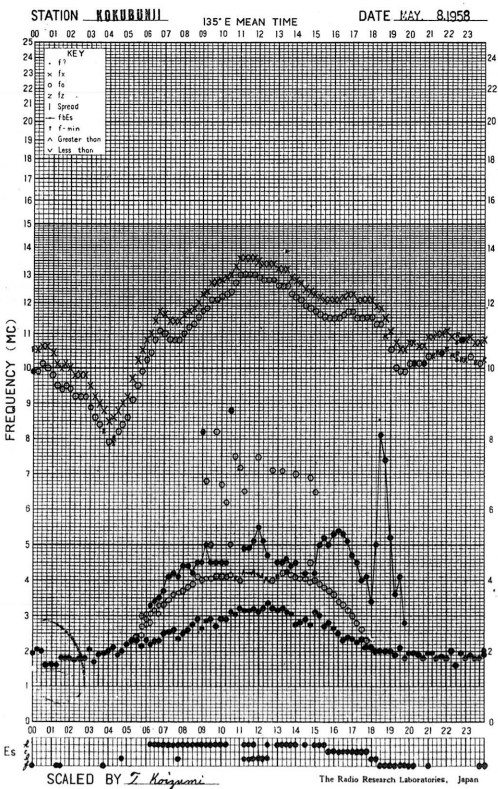
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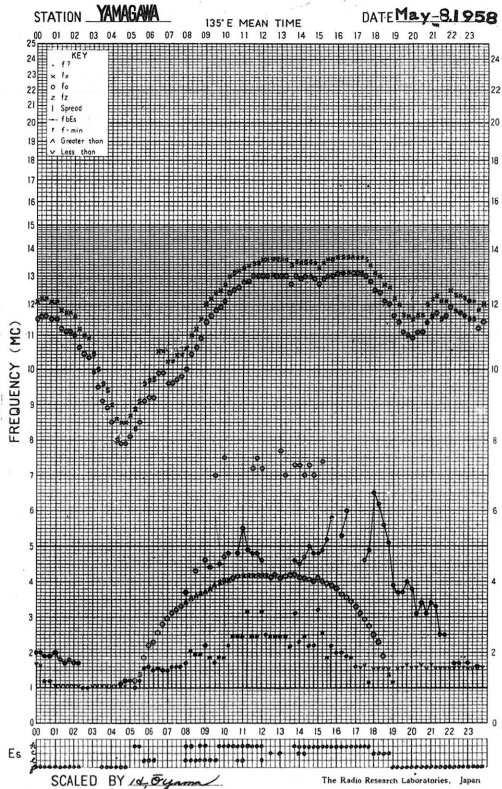
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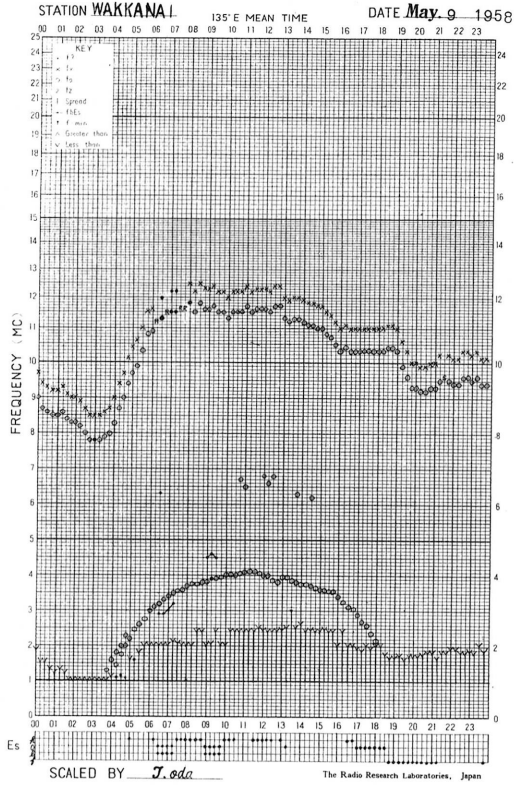
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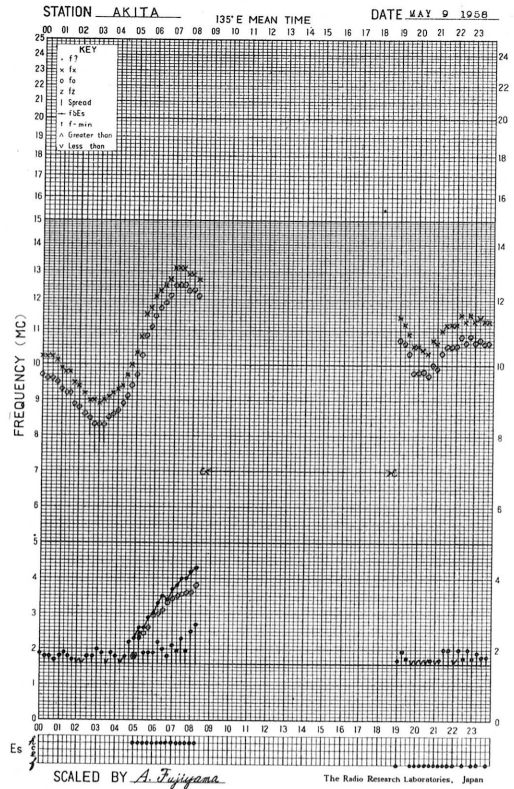
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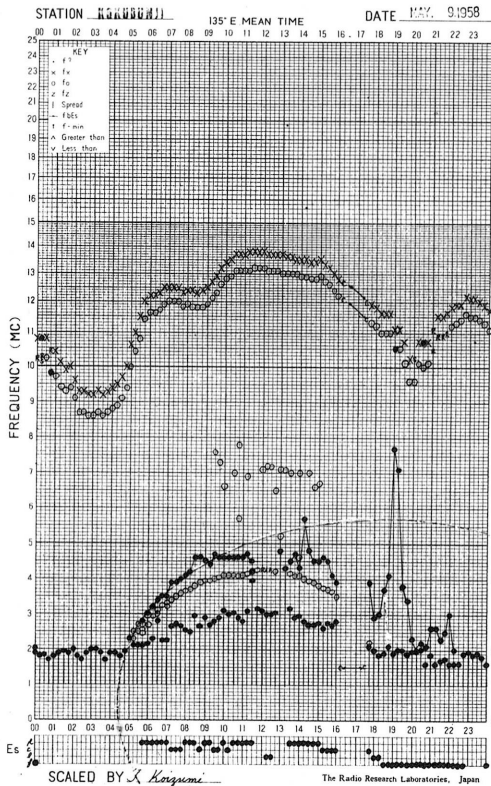
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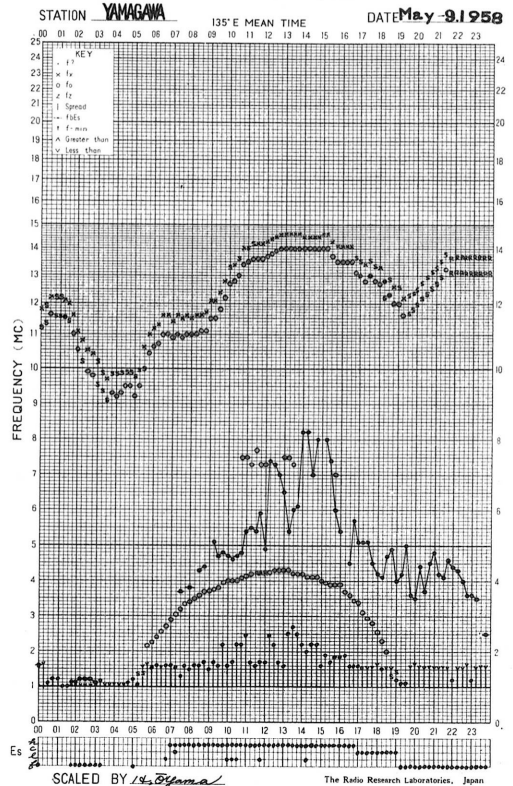
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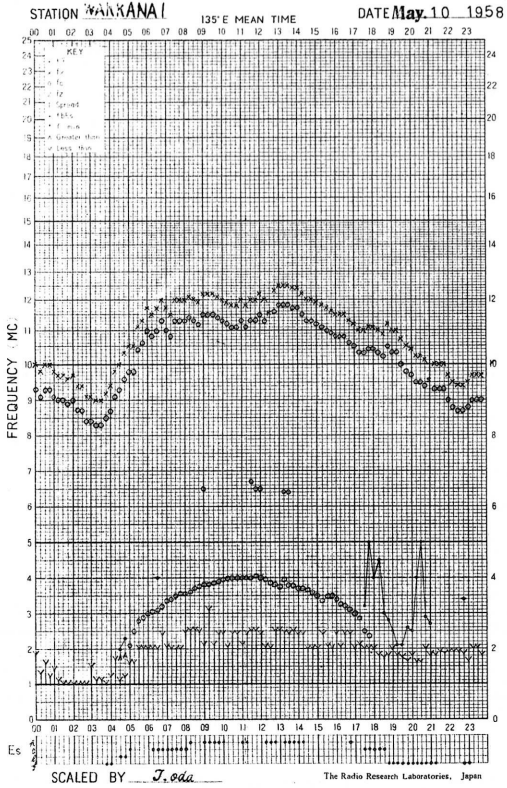
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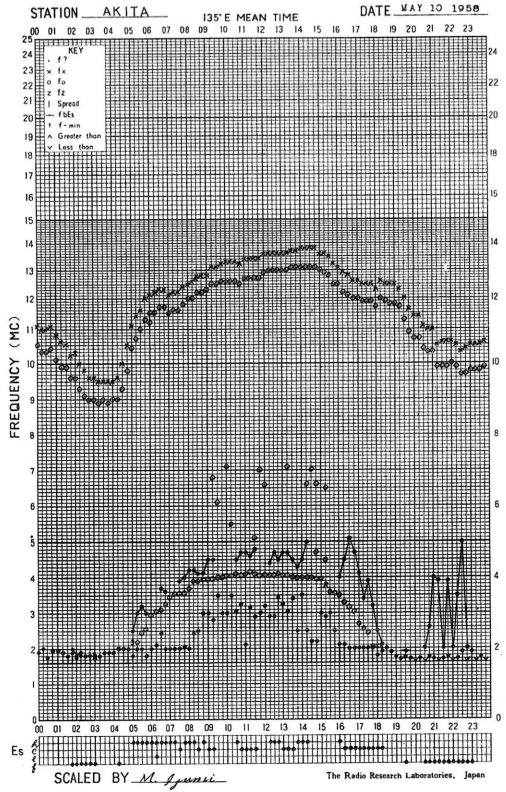
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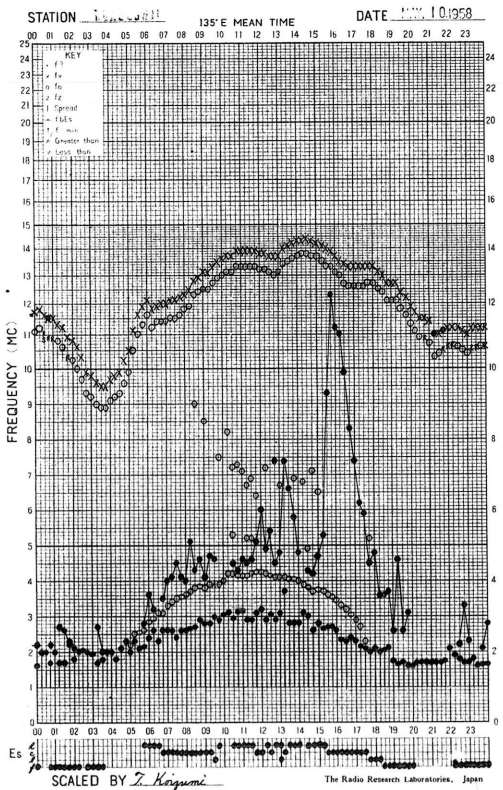
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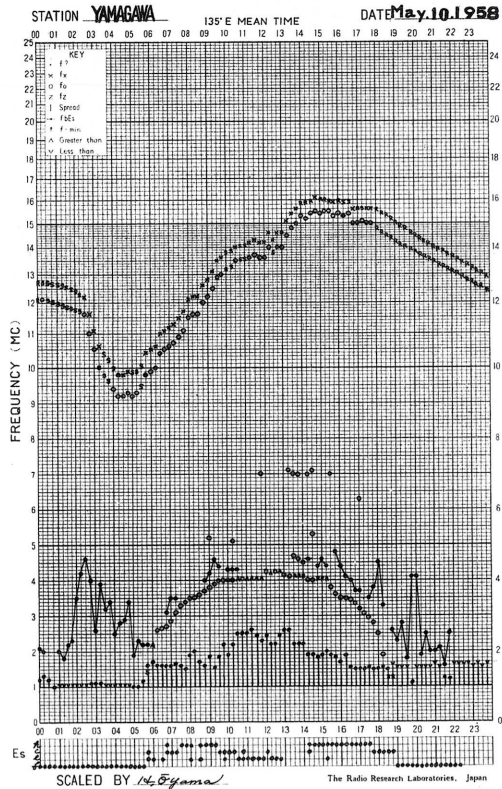
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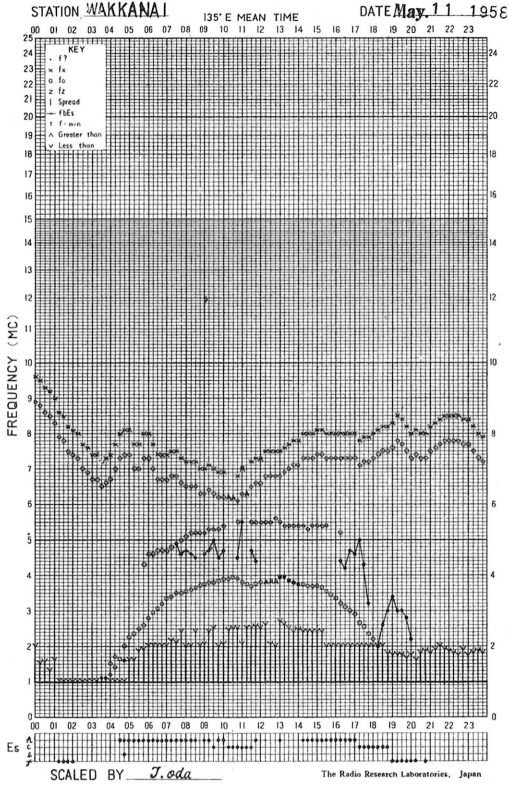
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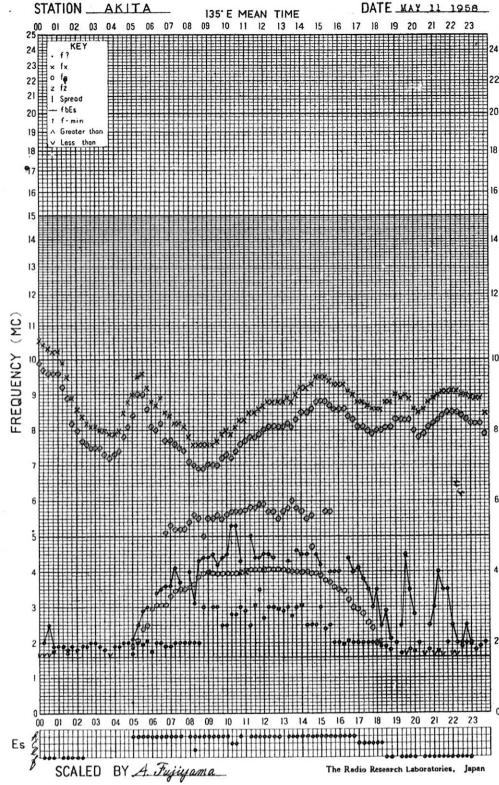
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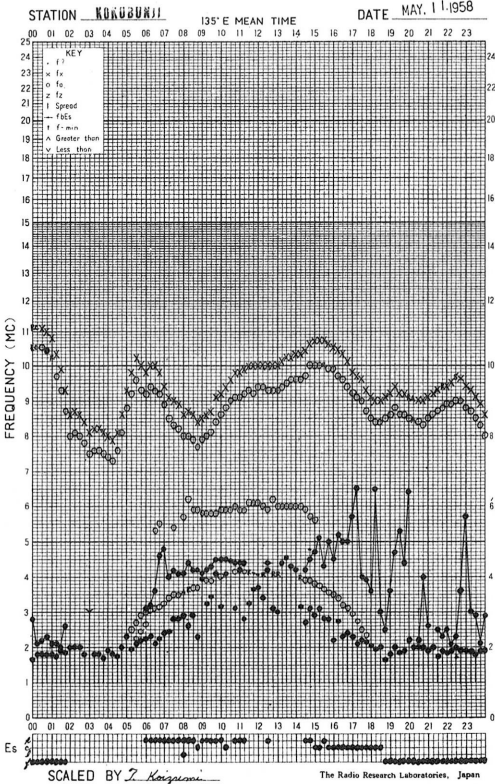
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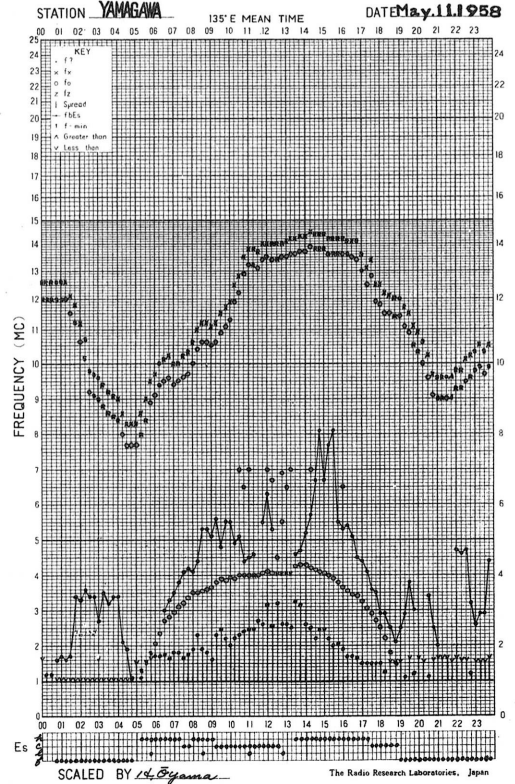
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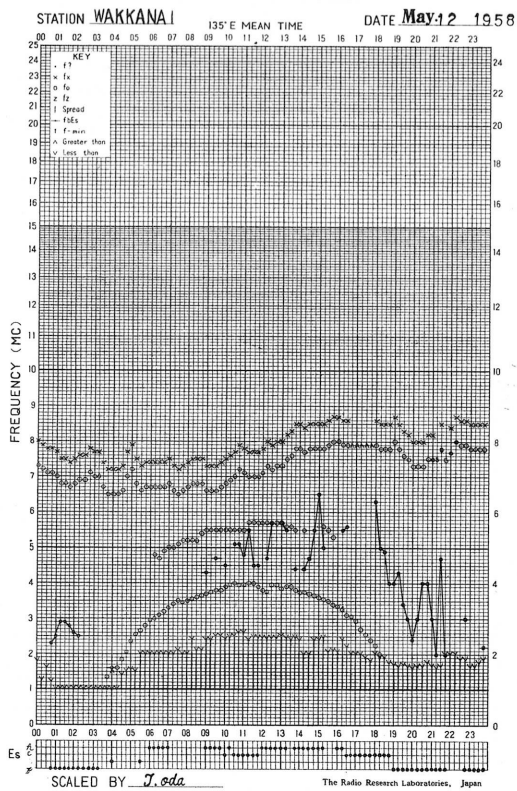
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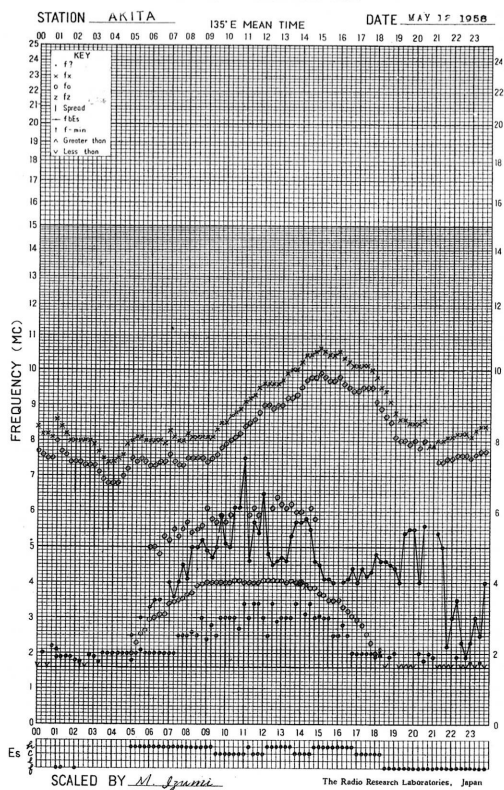
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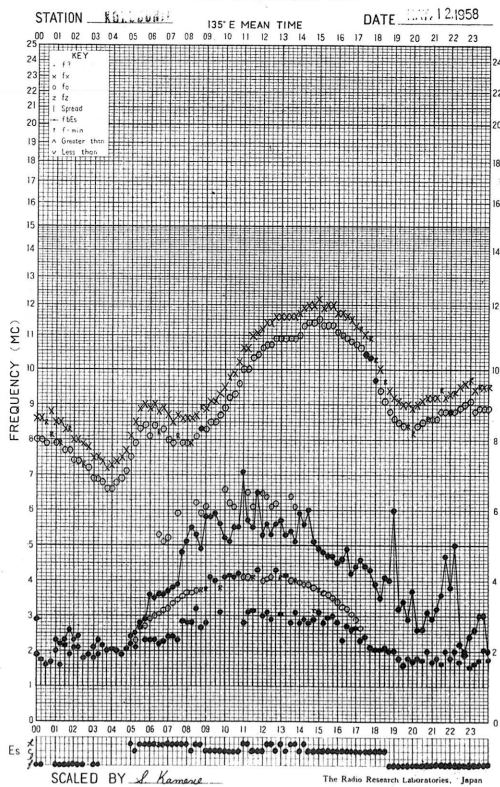
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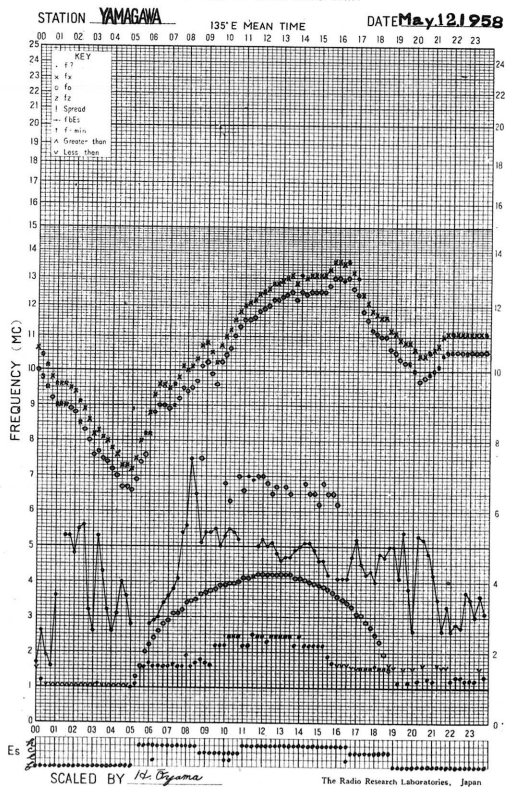
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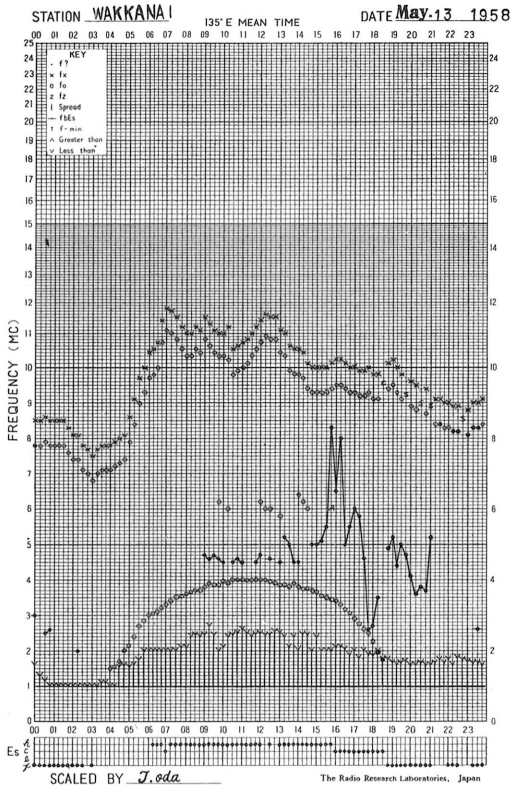
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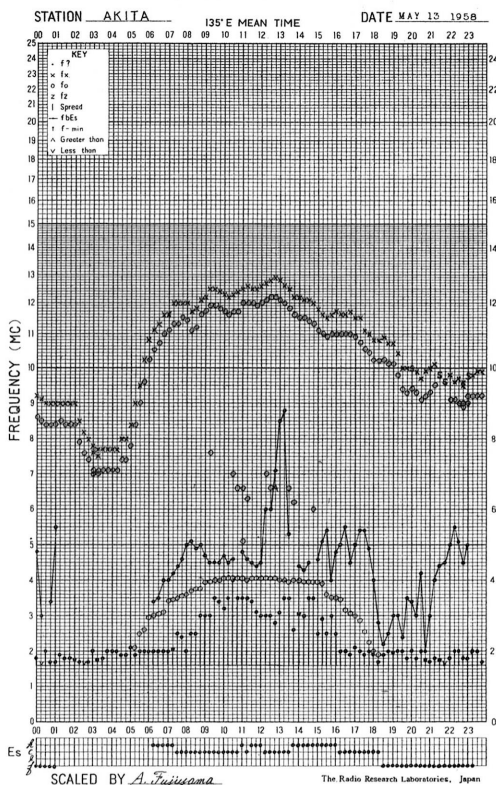
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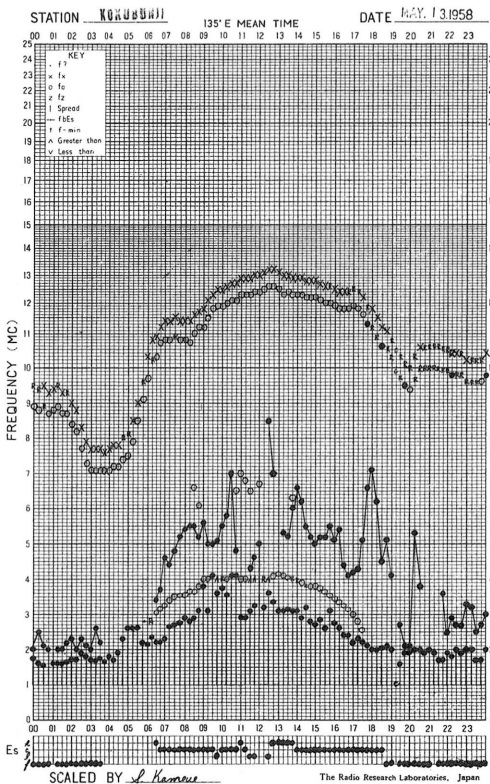
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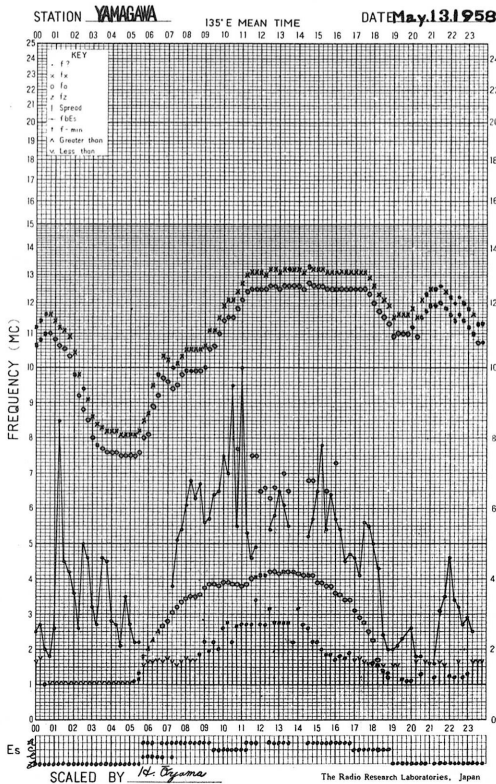
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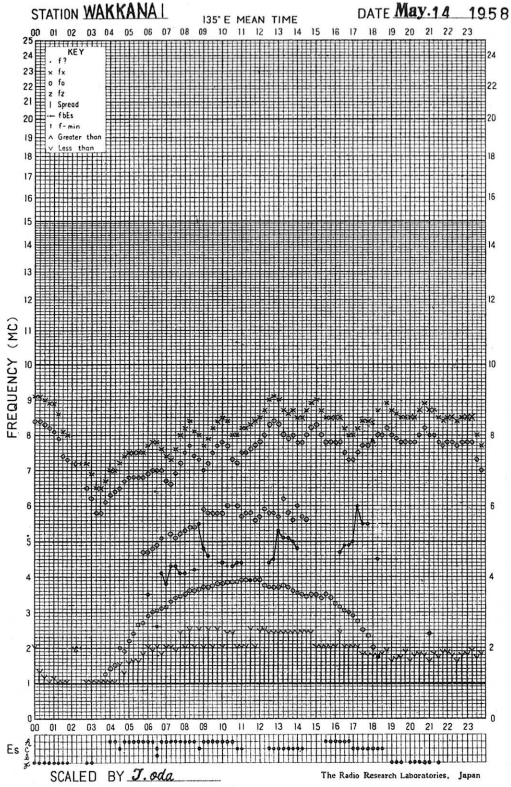


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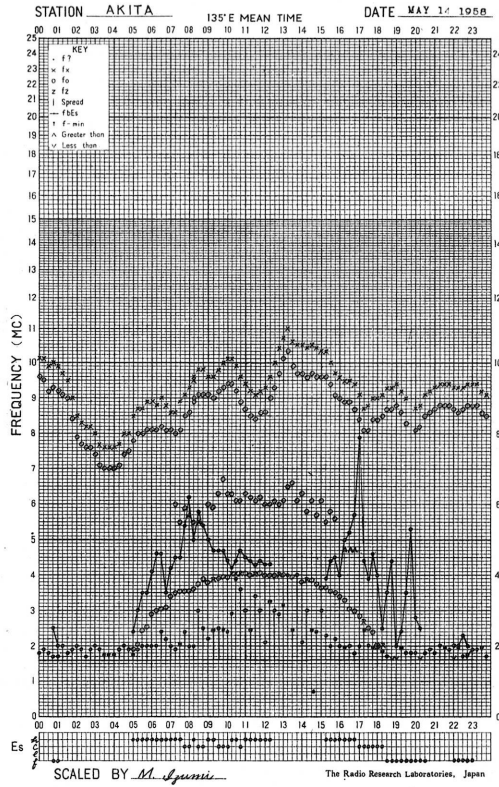




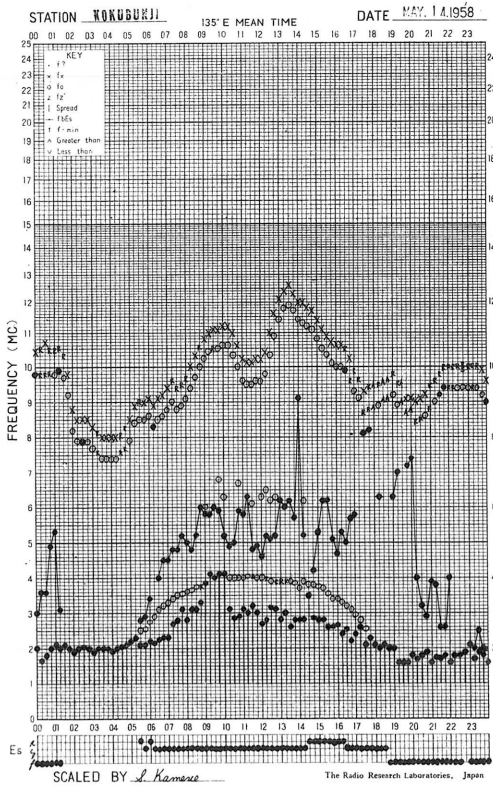
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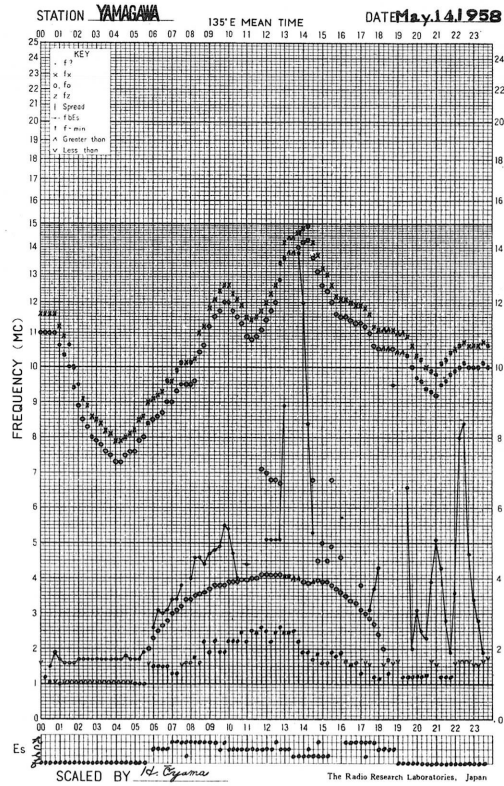
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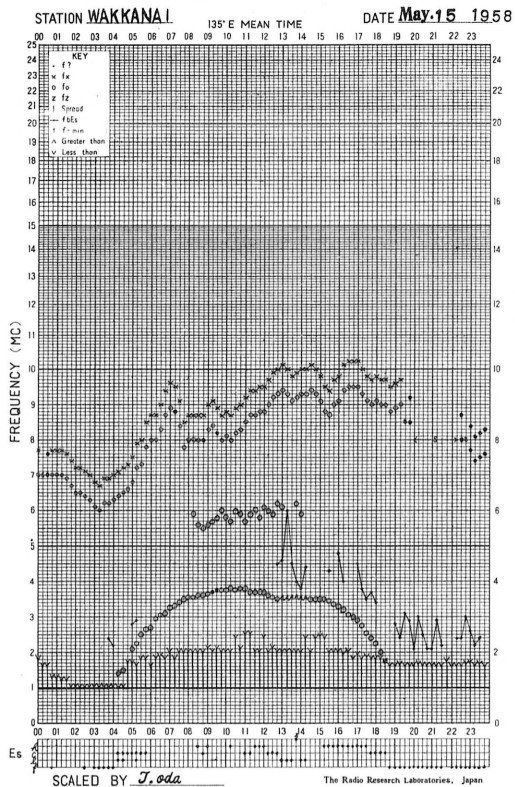
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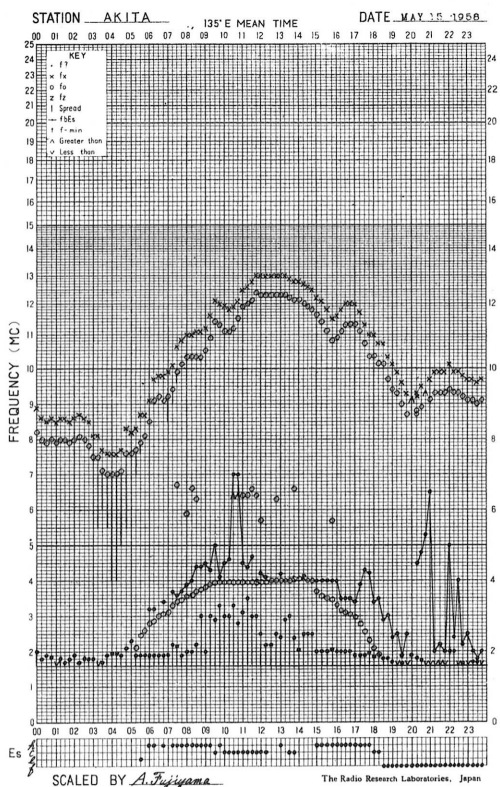
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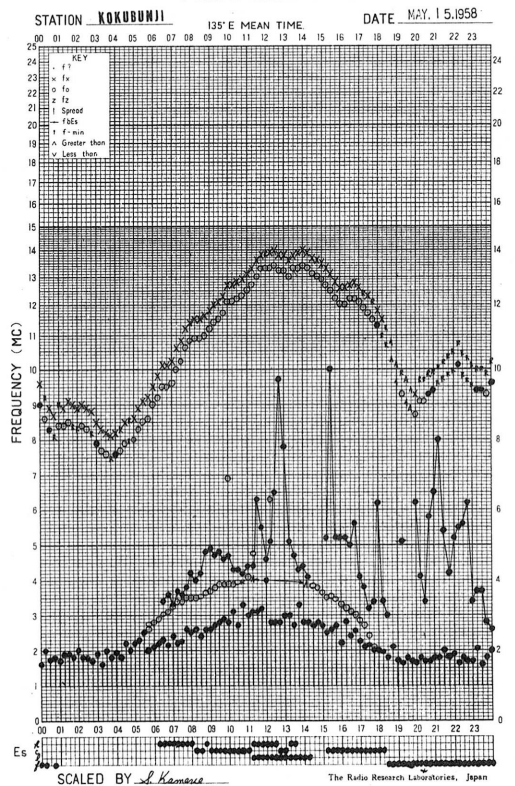
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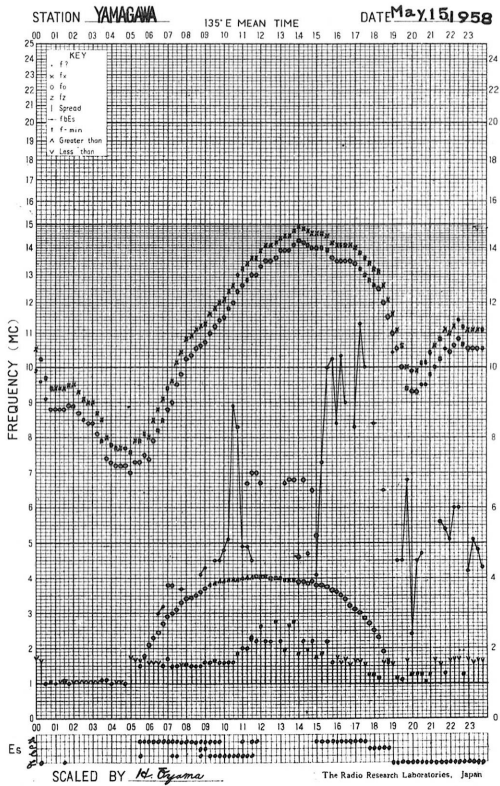
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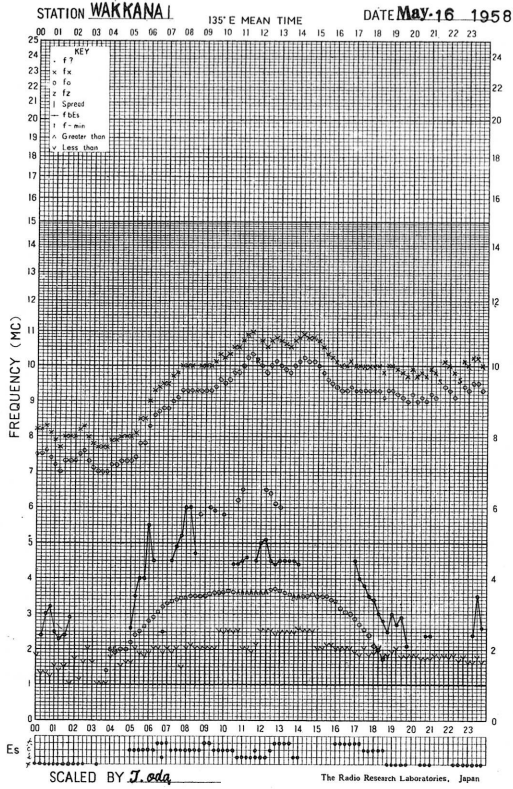
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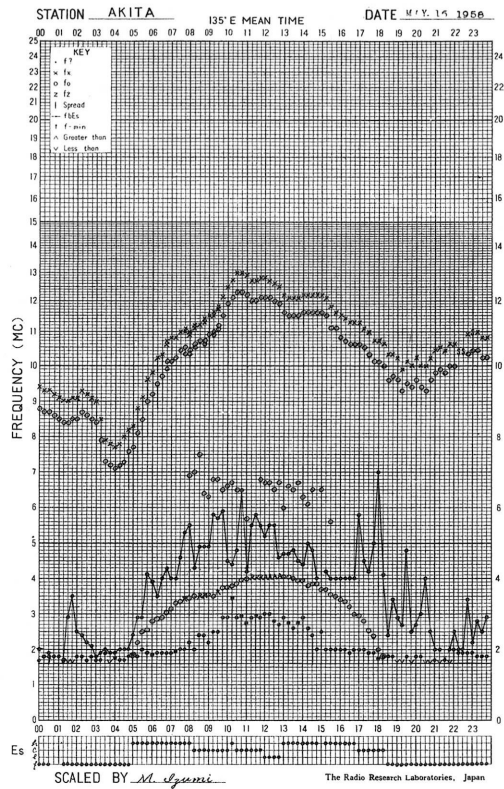
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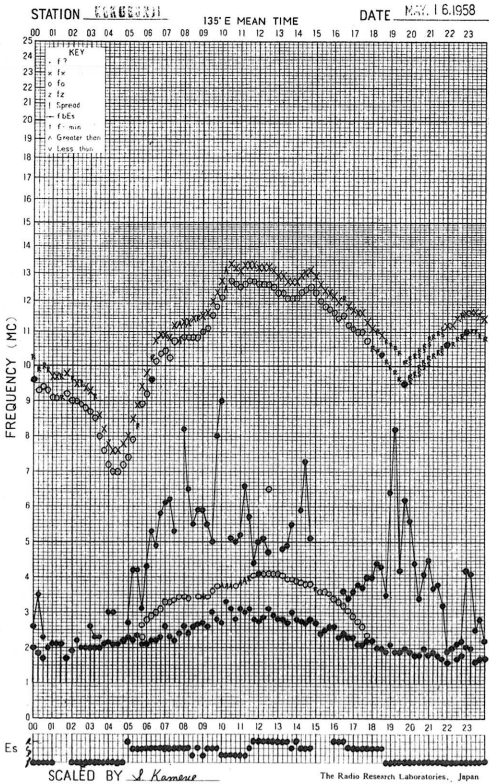
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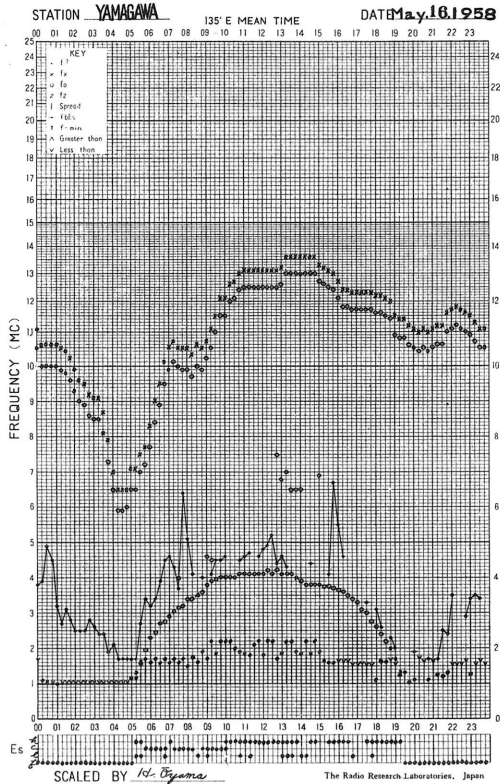
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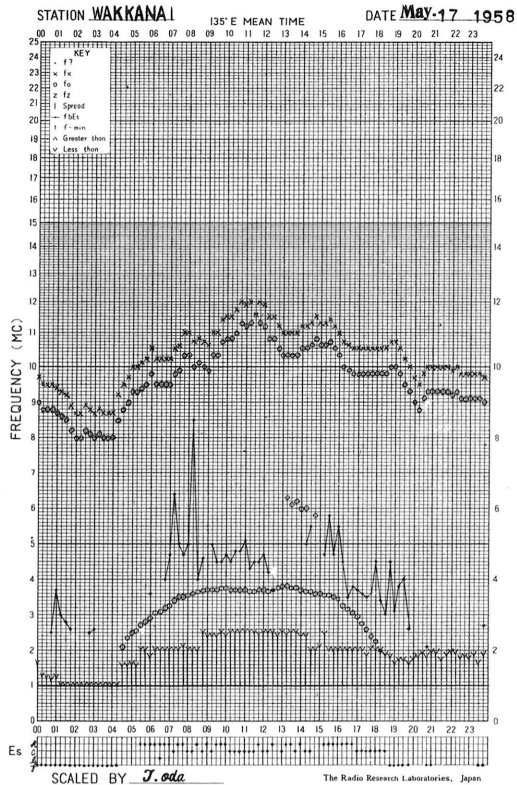
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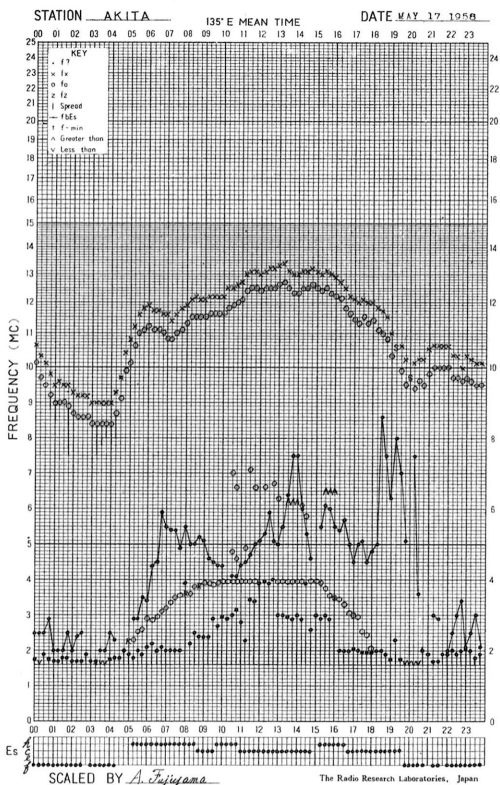
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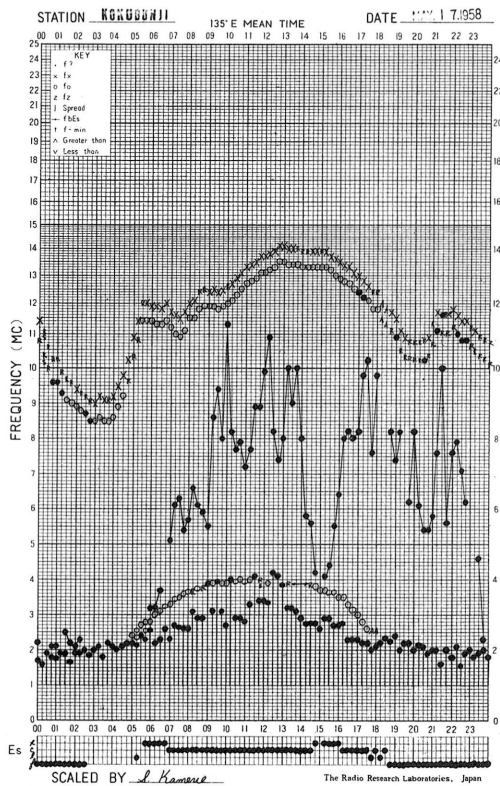
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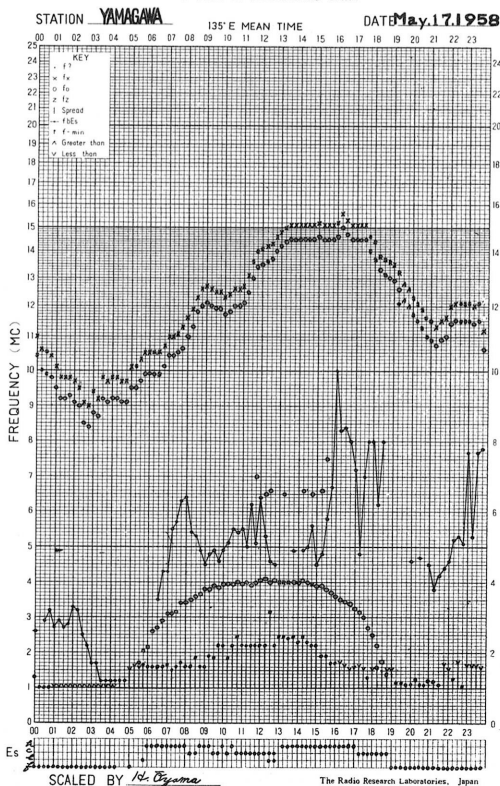
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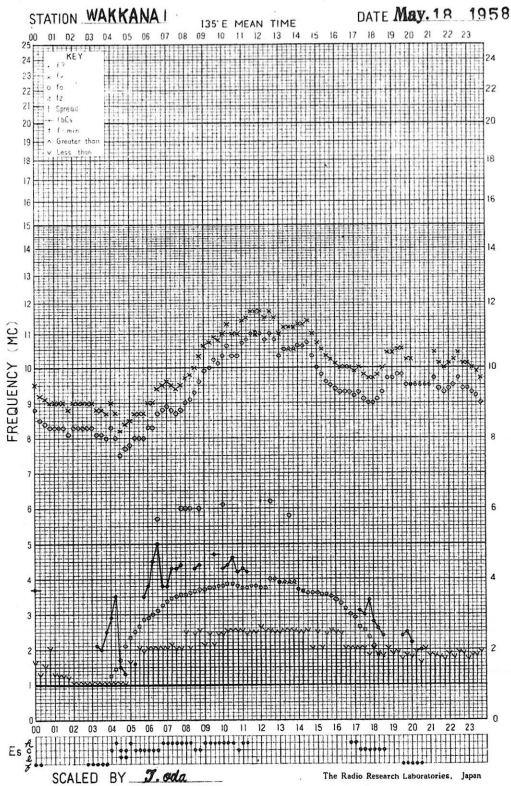
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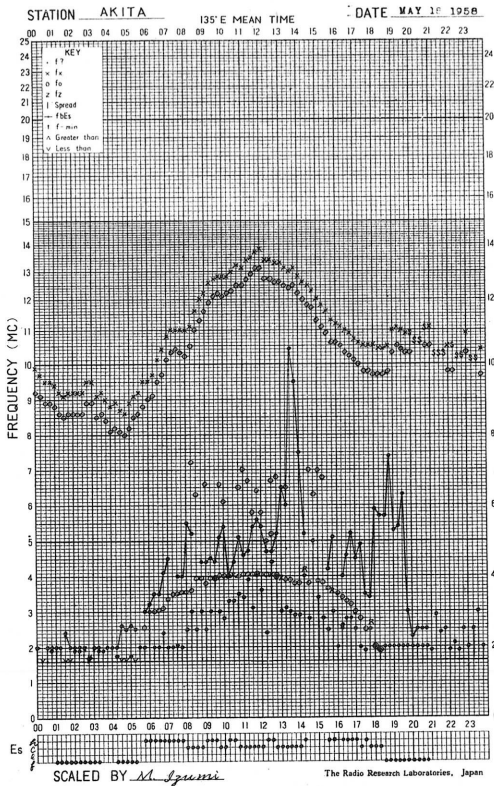
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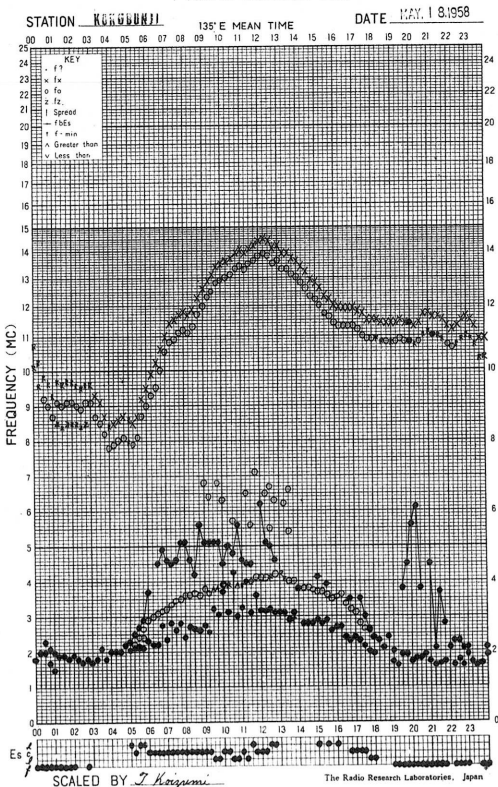
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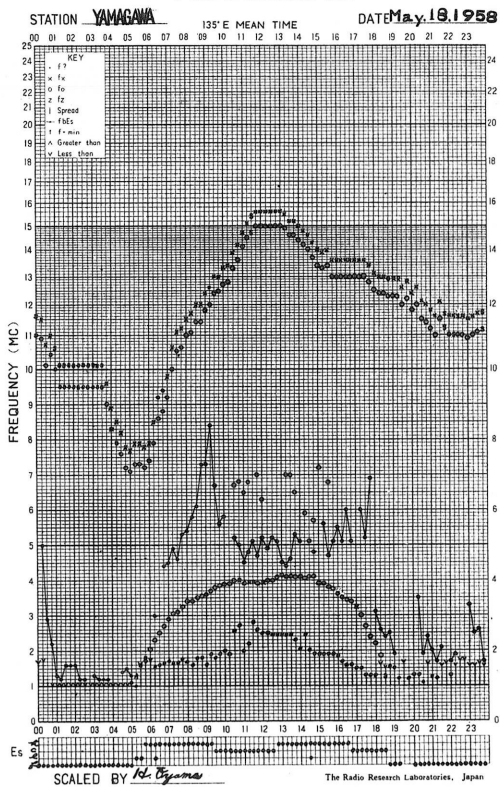
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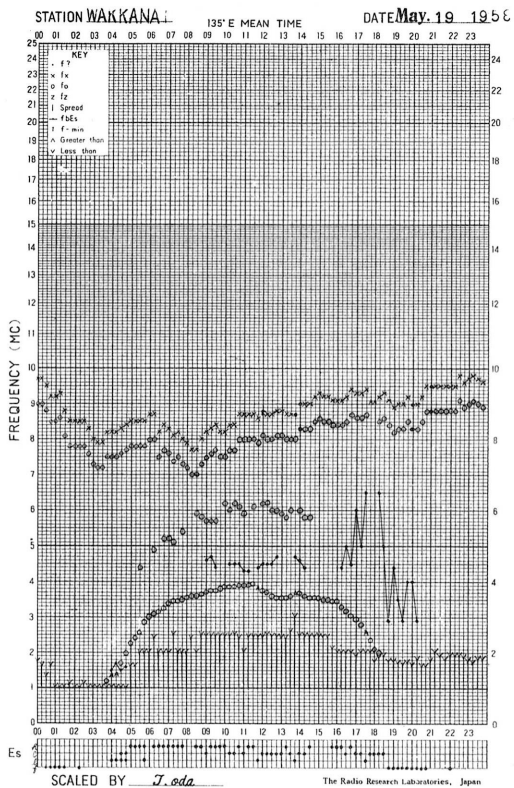
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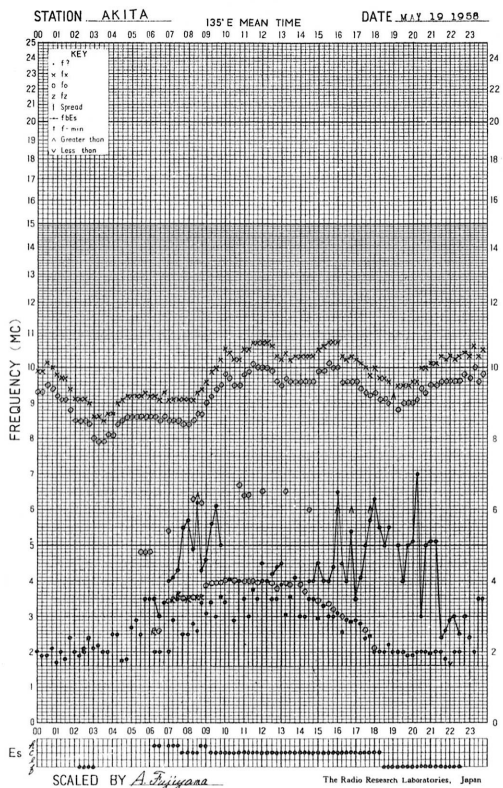
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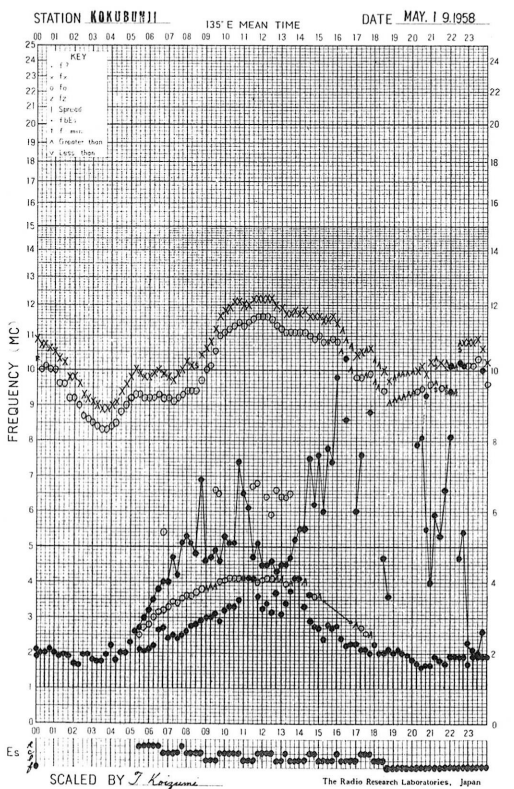
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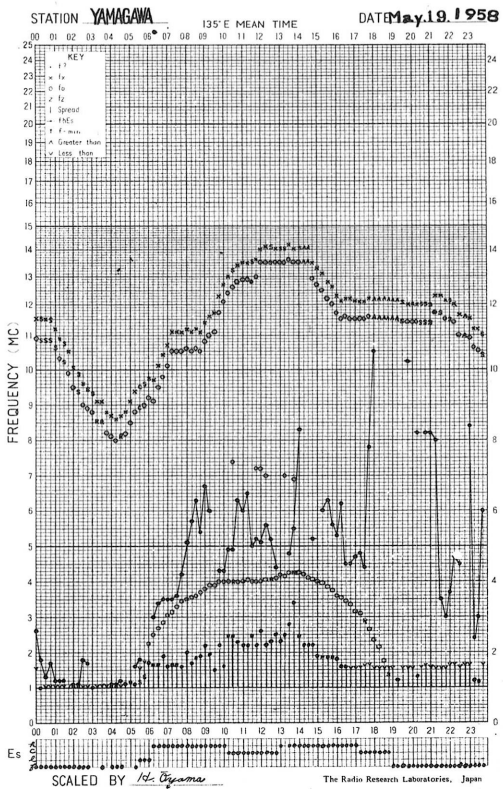
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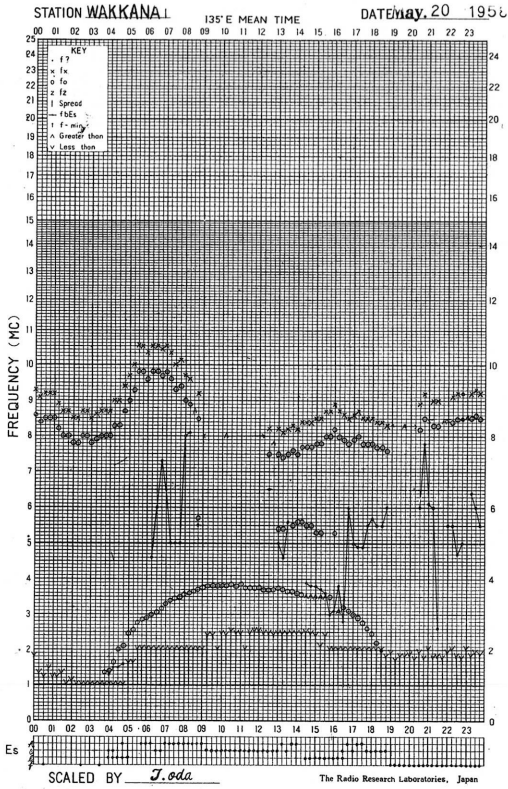
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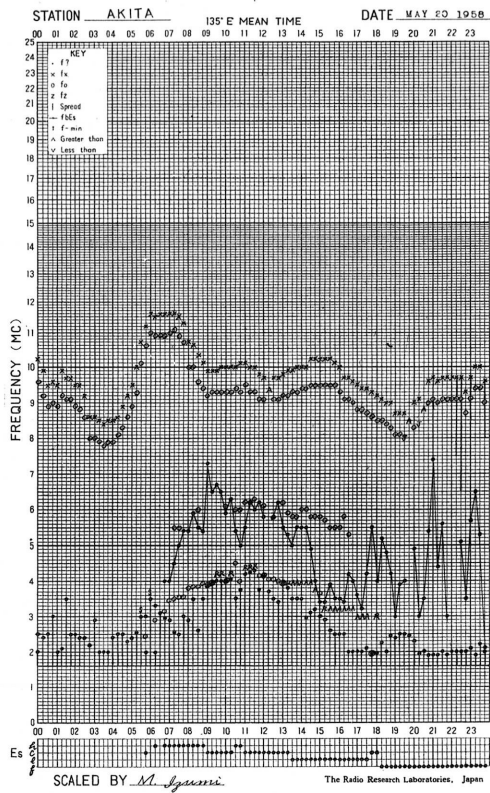
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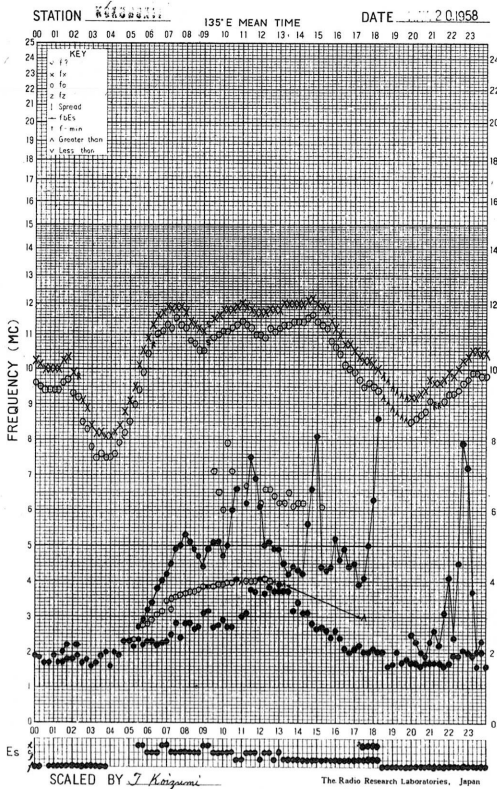
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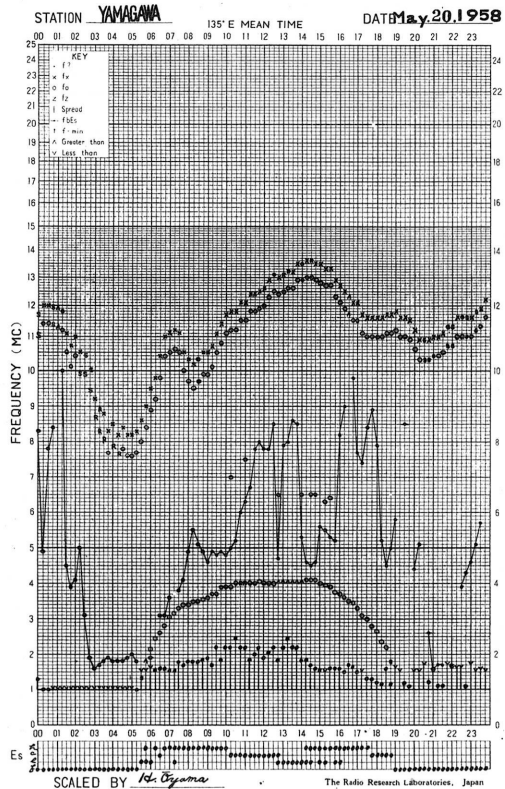
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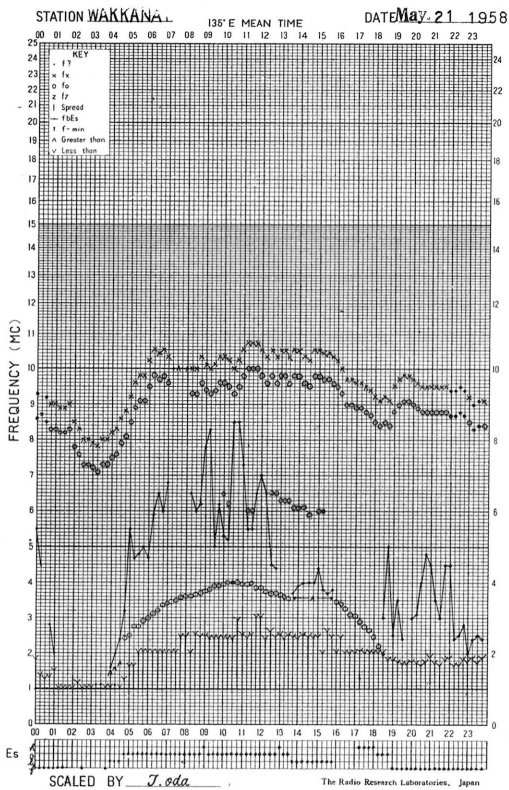
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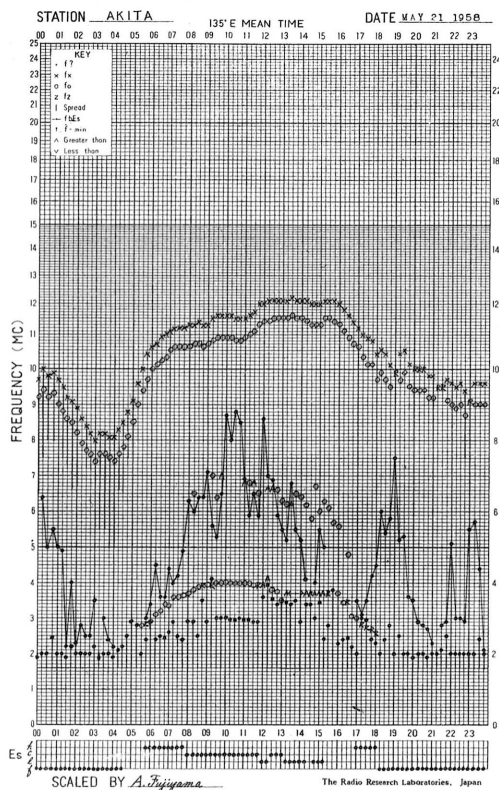
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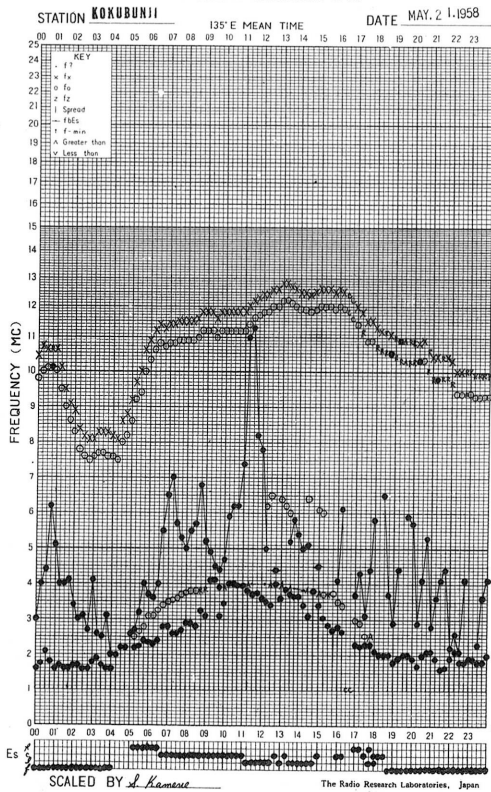
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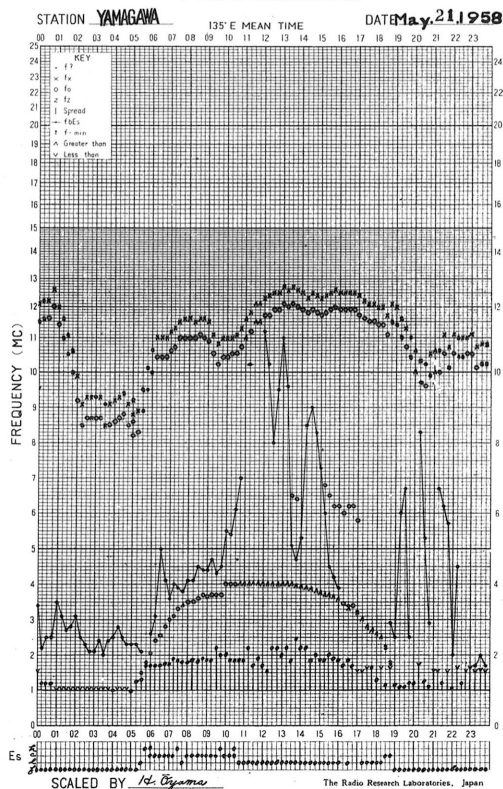
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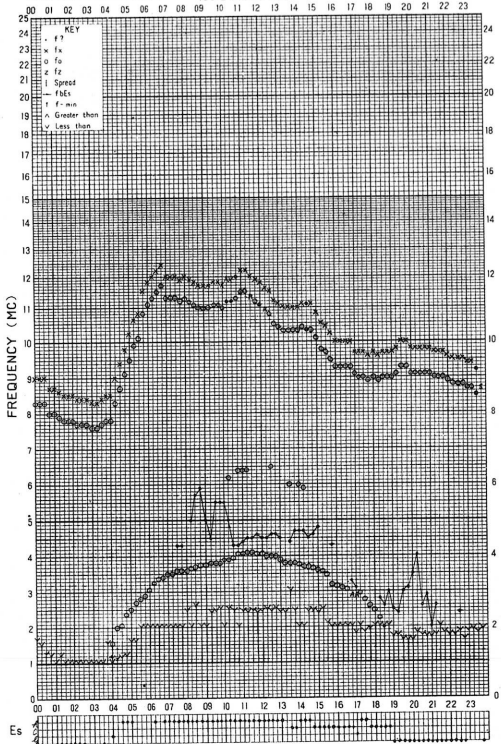
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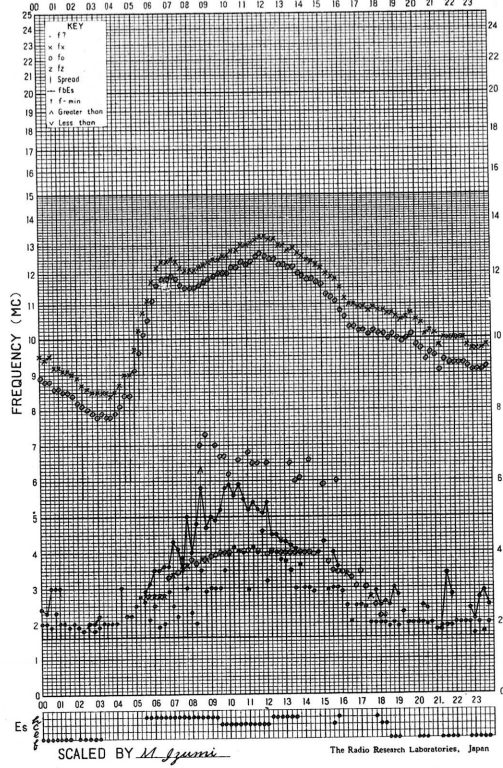
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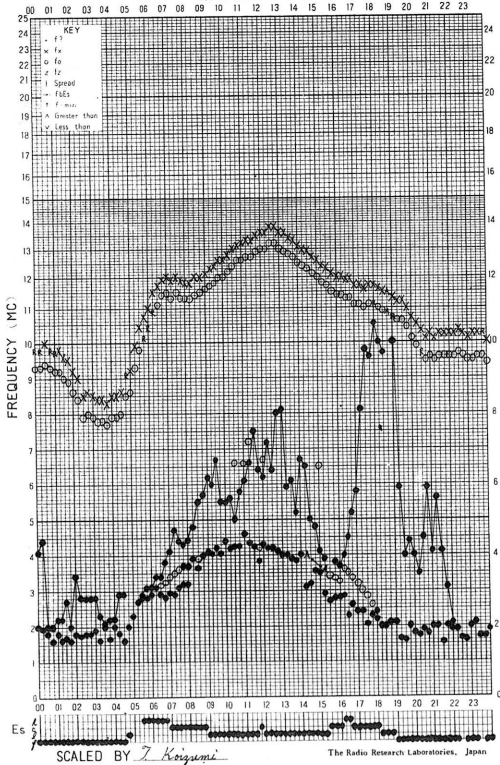
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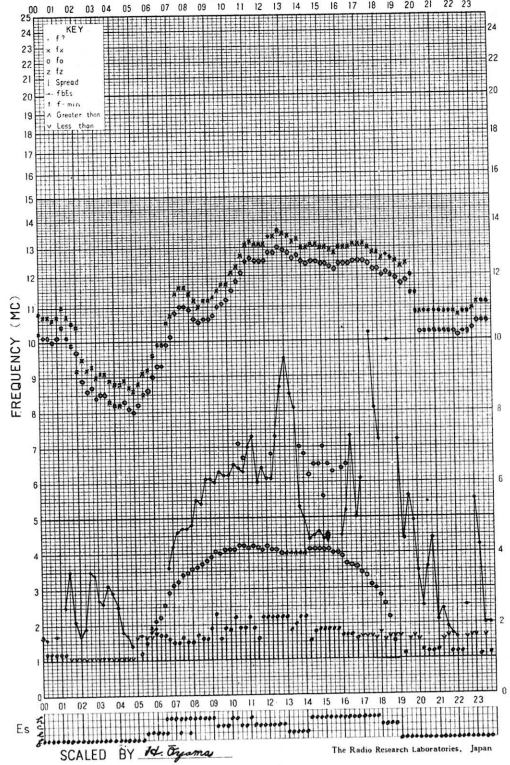
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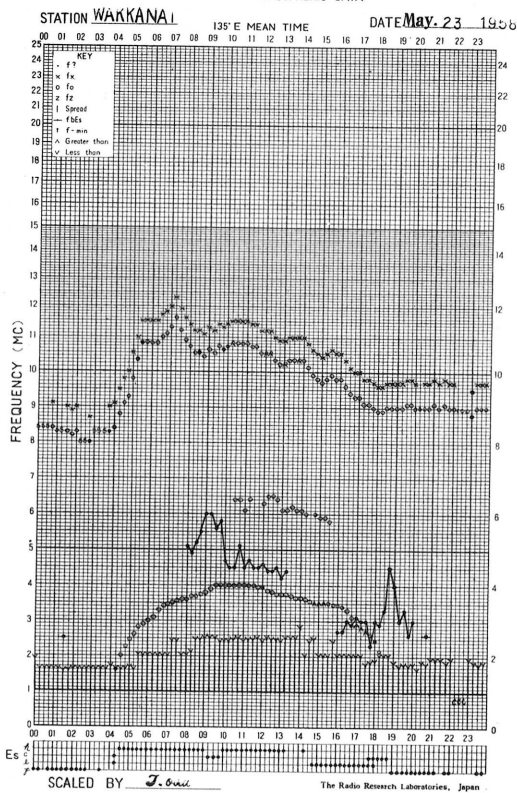


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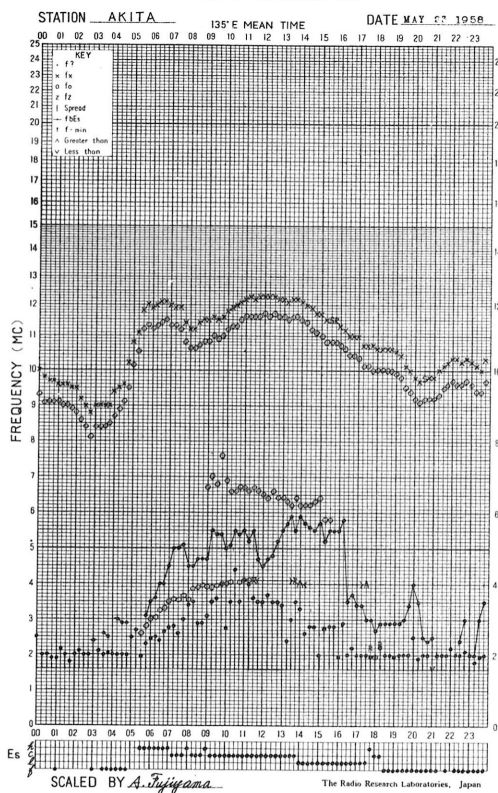
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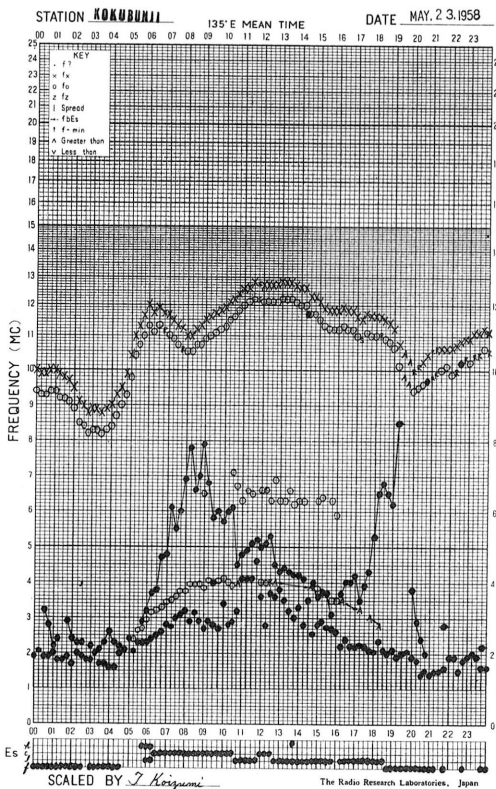
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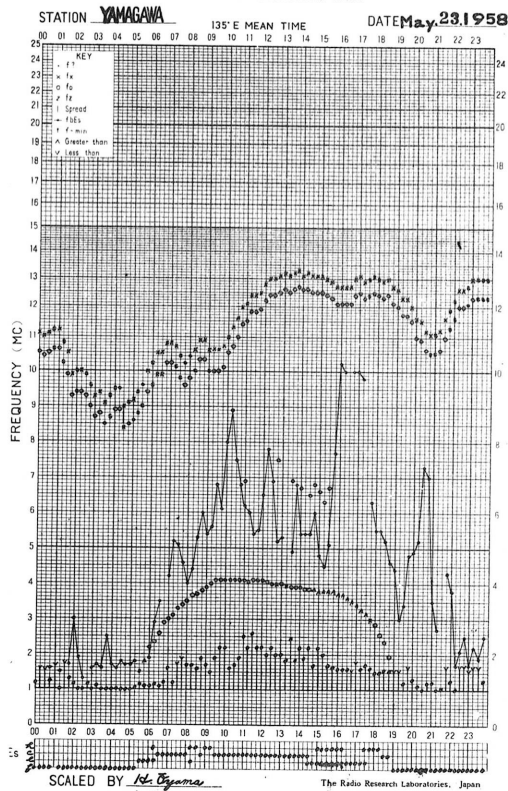
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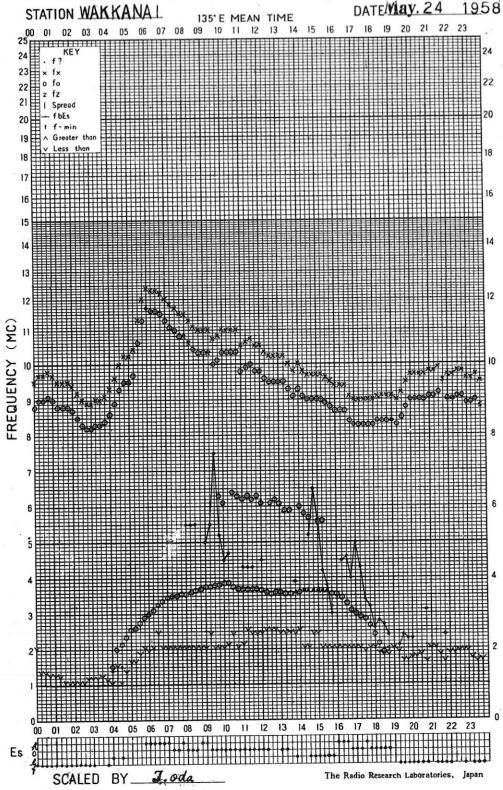
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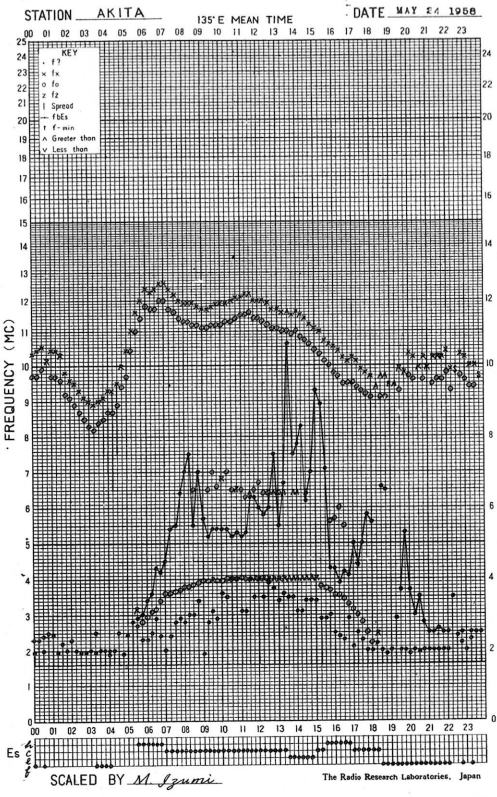
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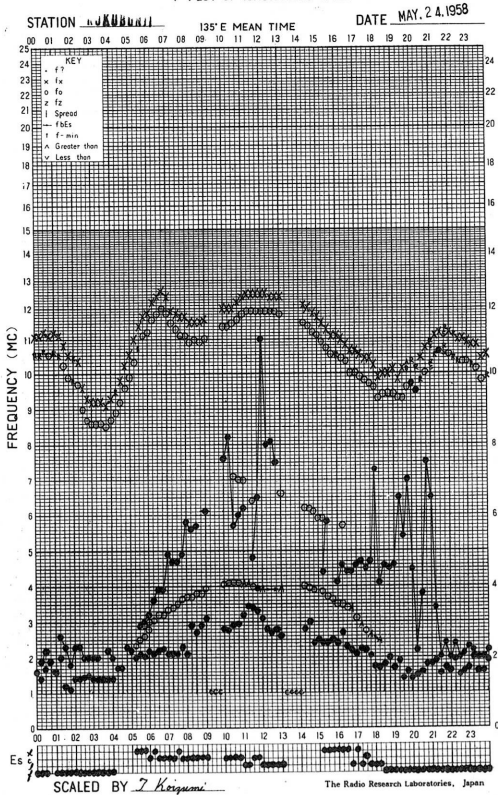
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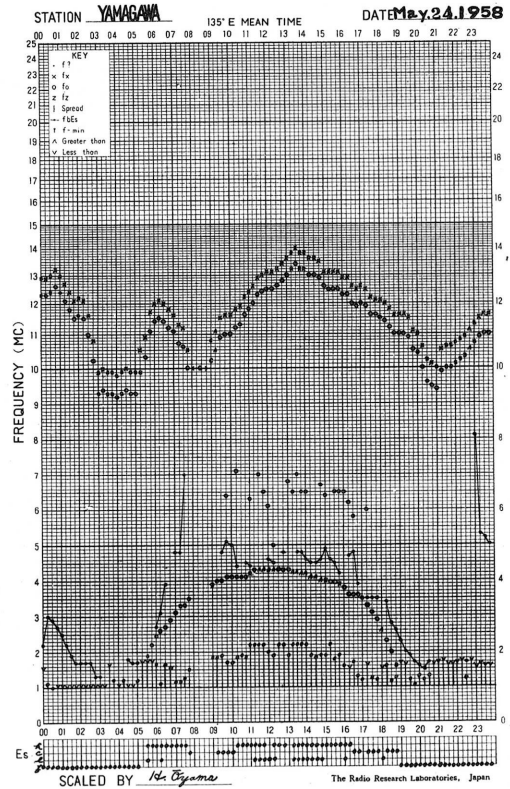
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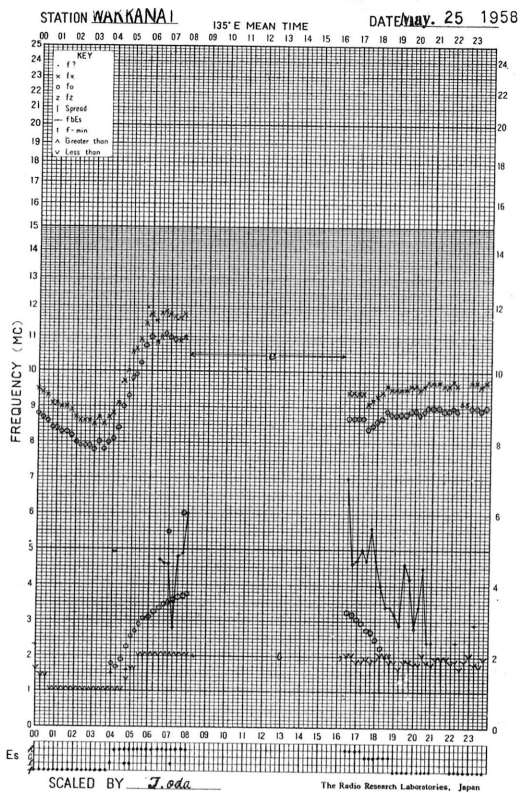
f-PLOT OF IONOSPHERIC DATA



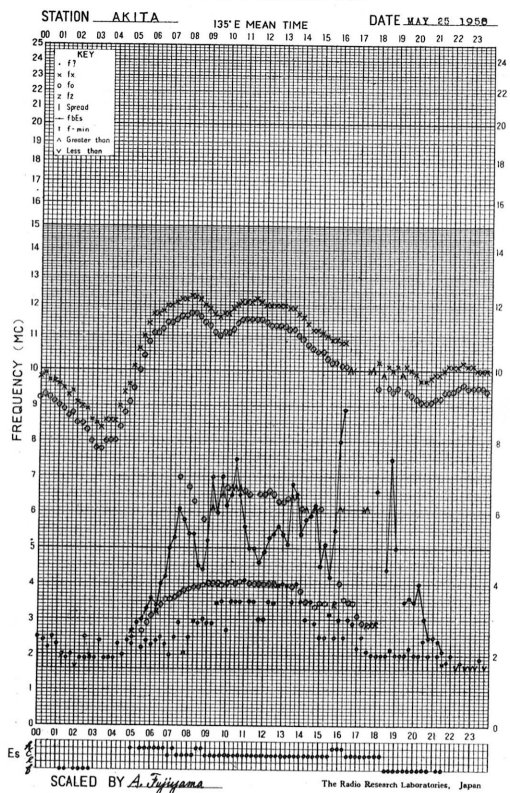
f-PLOT OF IONOSPHERIC DATA



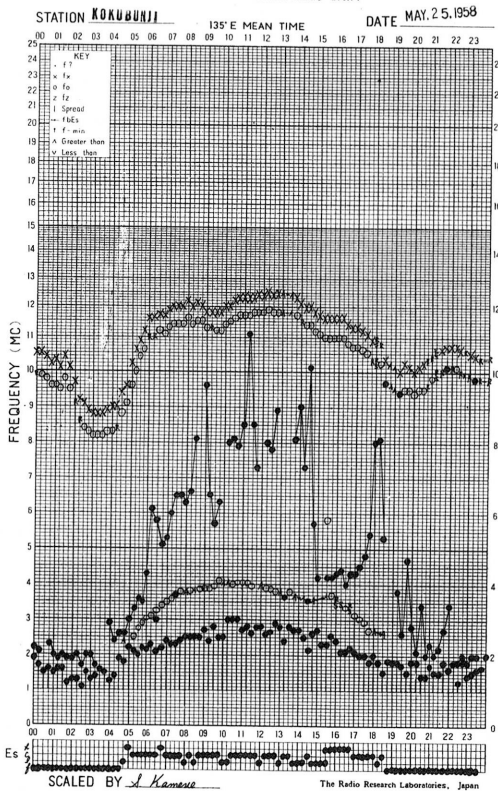
f-PLOT OF IONOSPHERIC DATA



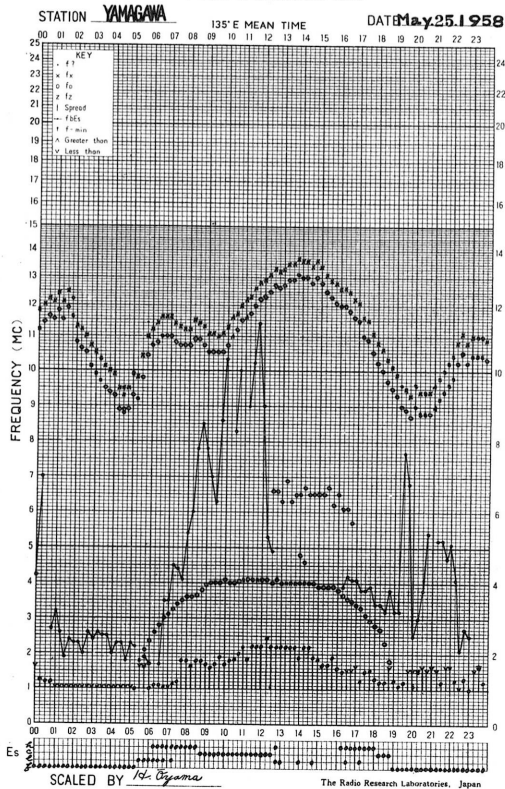
f-PLOT OF IONOSPHERIC DATA



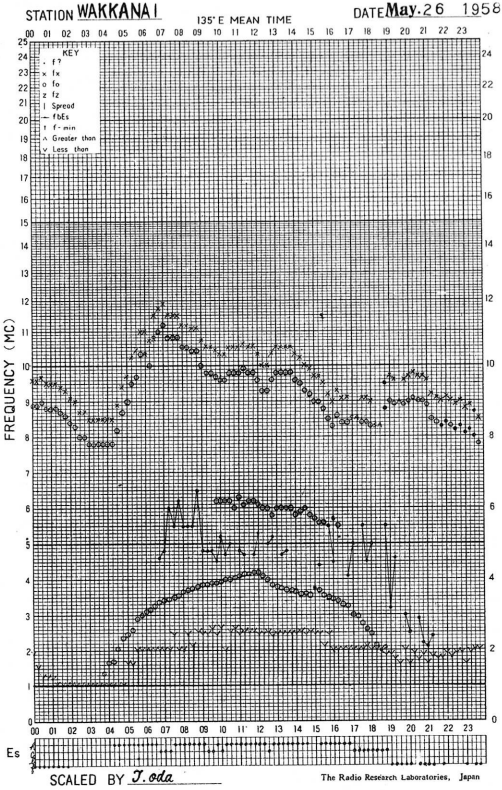
f-PLOT OF IONOSPHERIC DATA



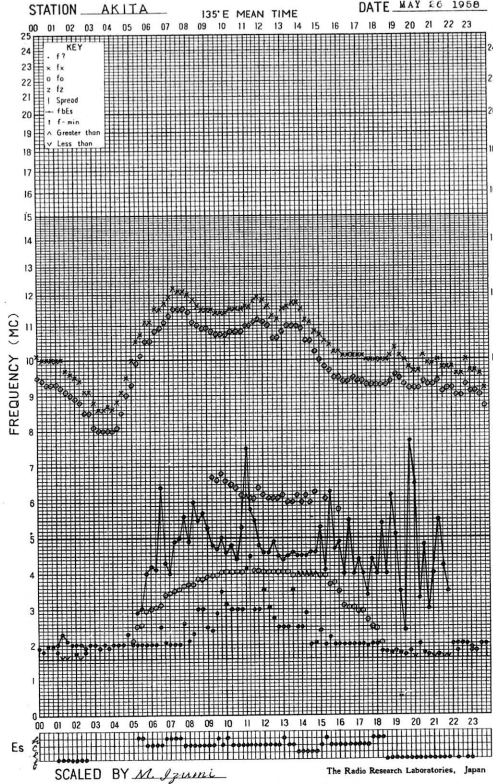
f-PLOT OF IONOSPHERIC DATA



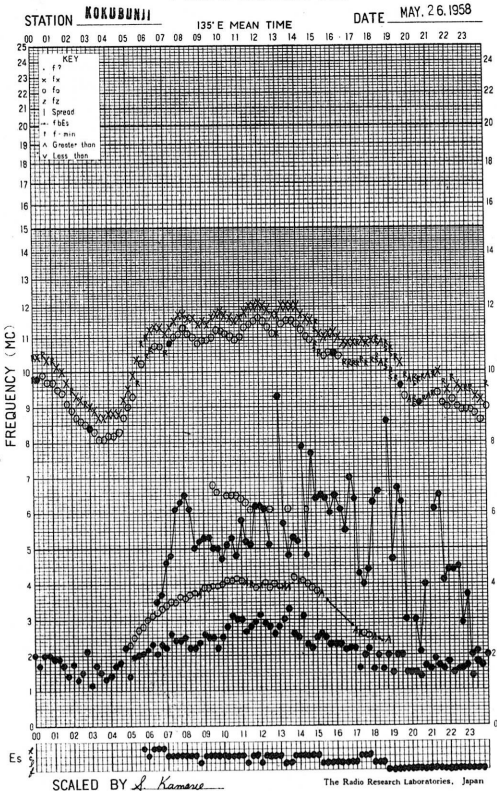
f-PLOT OF IONOSPHERIC DATA



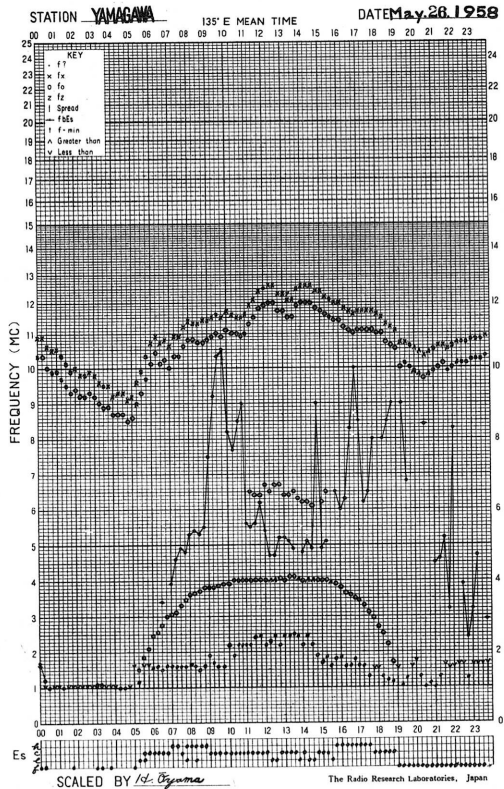
f-PLOT OF IONOSPHERIC DATA



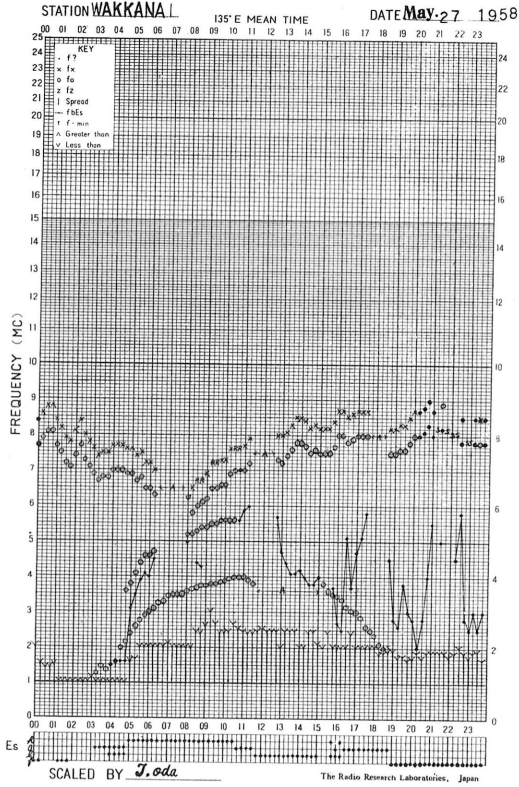
f-PLOT OF IONOSPHERIC DATA



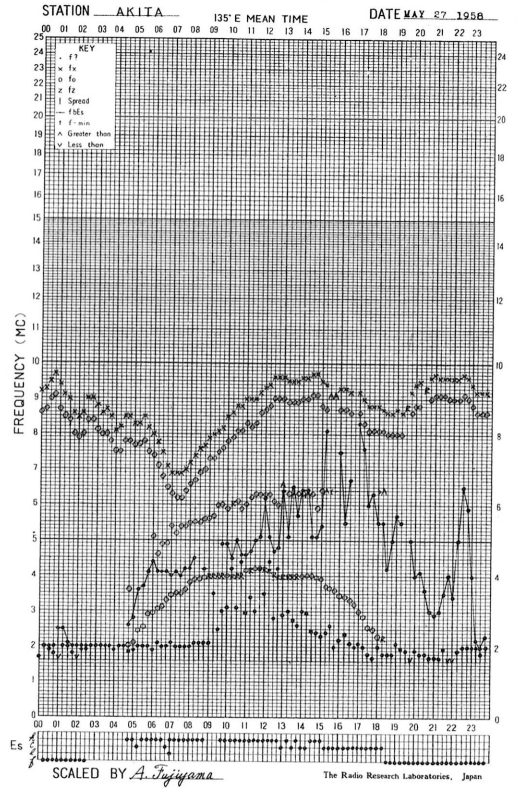
f-PLOT OF IONOSPHERIC DATA



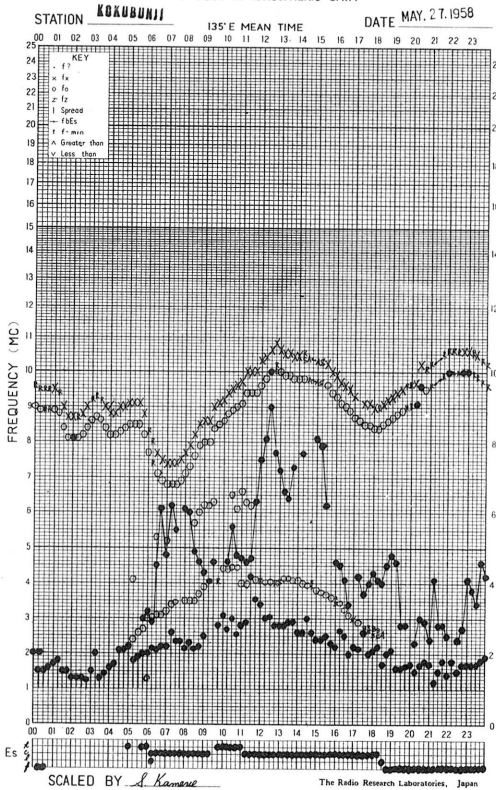
f-PLOT OF IONOSPHERIC DATA



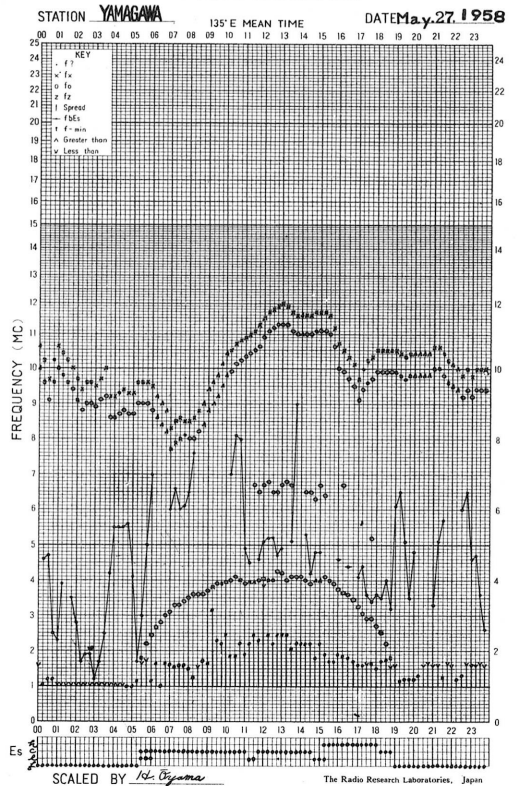
f-PLOT OF IONOSPHERIC DATA



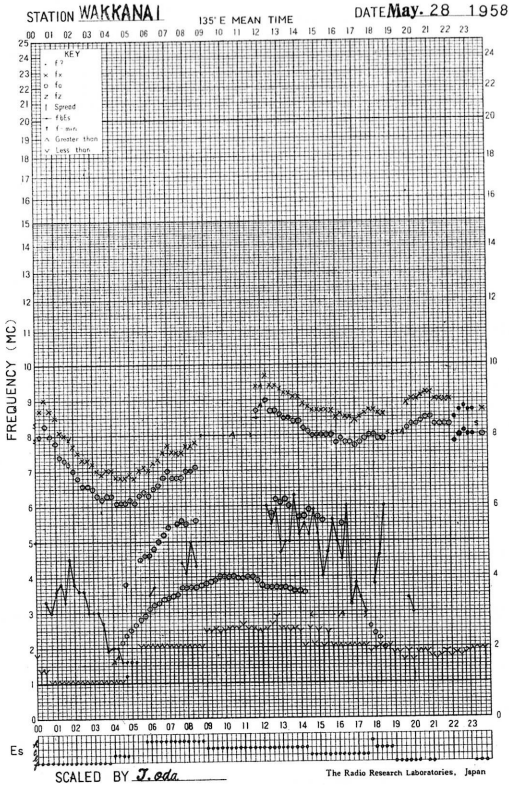
f-PLOT OF IONOSPHERIC DATA



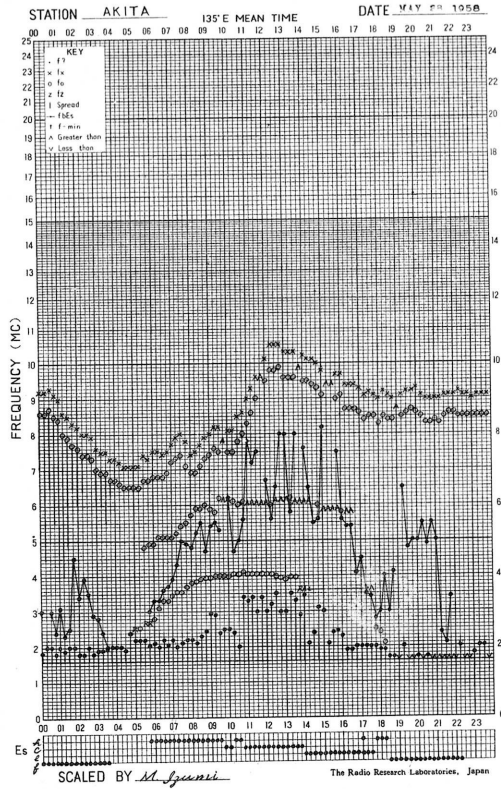
f-PLOT OF IONOSPHERIC DATA



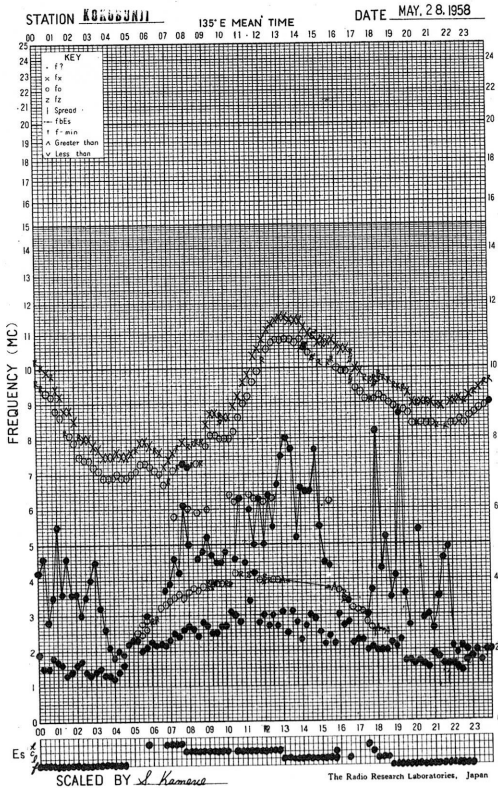
f-PLOT OF IONOSPHERIC DATA



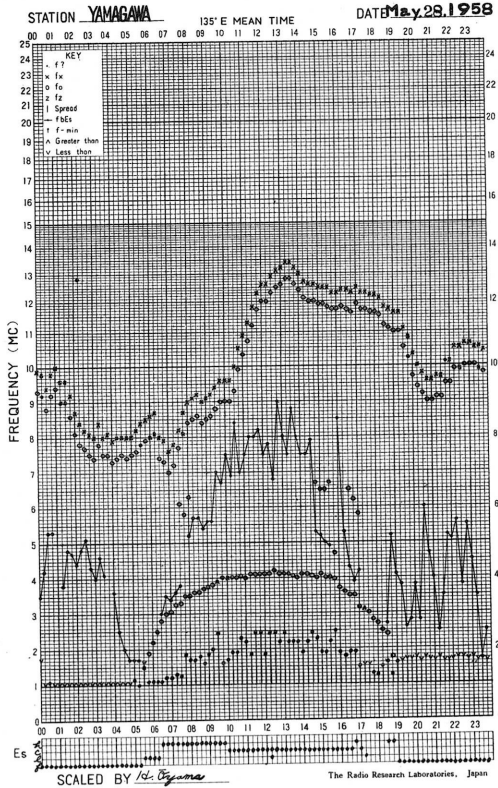
f-PLOT OF IONOSPHERIC DATA



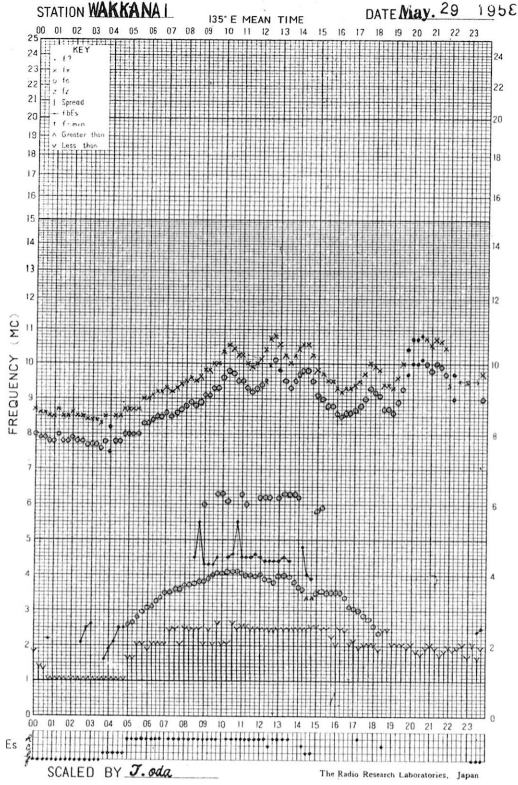
f-PLOT OF IONOSPHERIC DATA



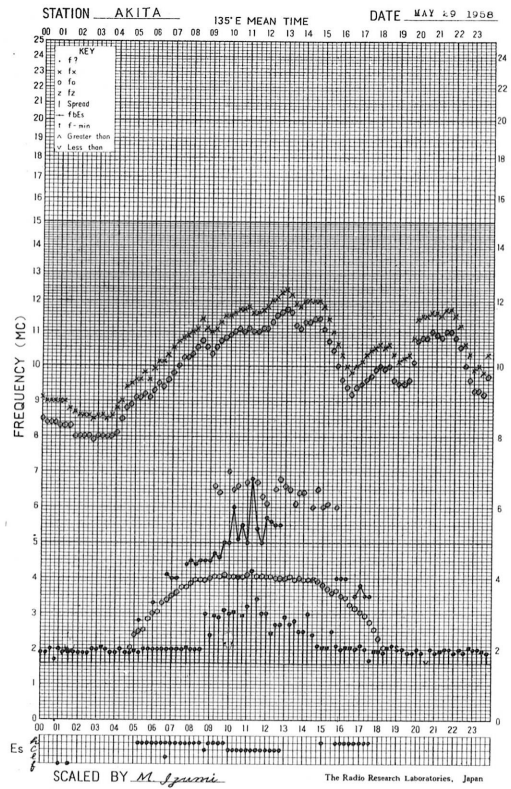
f-PLOT OF IONOSPHERIC DATA



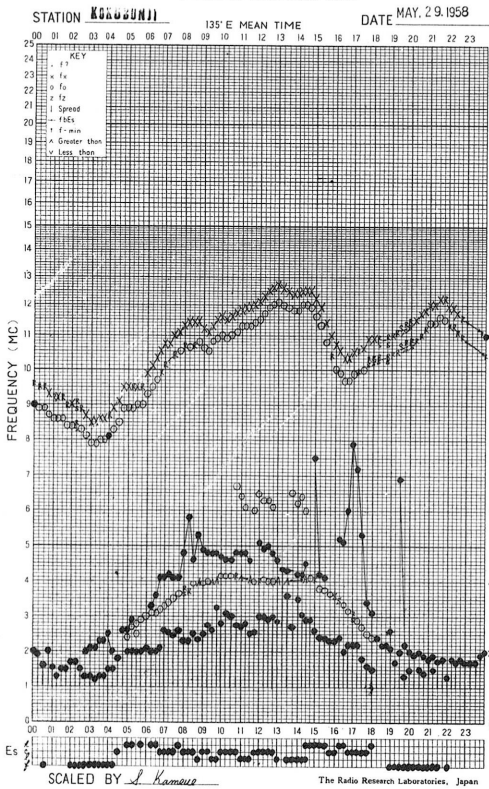
f- PLOT OF IONOSPHERIC DATA



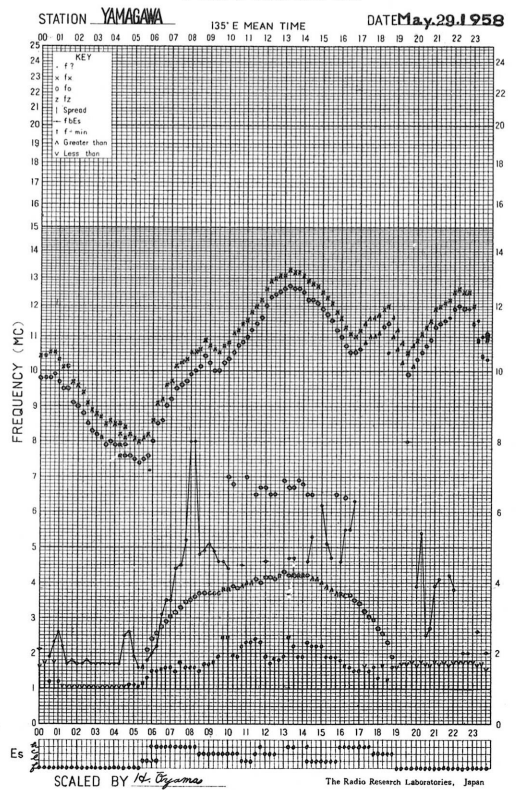
f- PLOT OF IONOSPHERIC DATA



f- PLOT OF IONOSPHERIC DATA

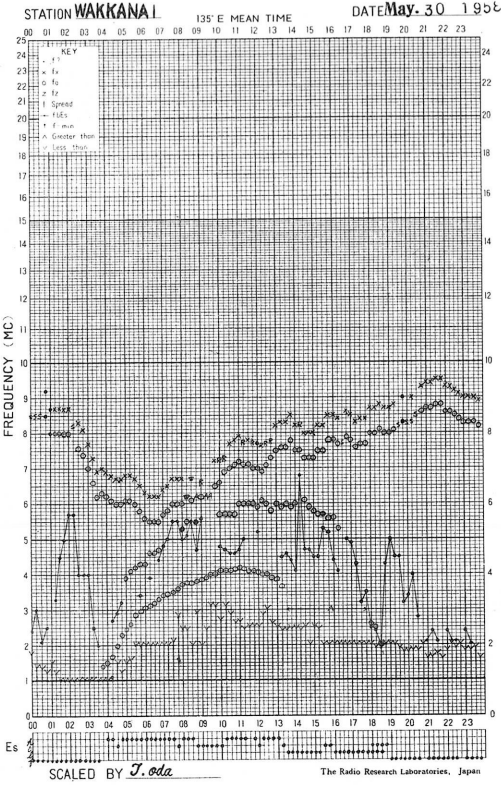


f- PLOT OF IONOSPHERIC DATA

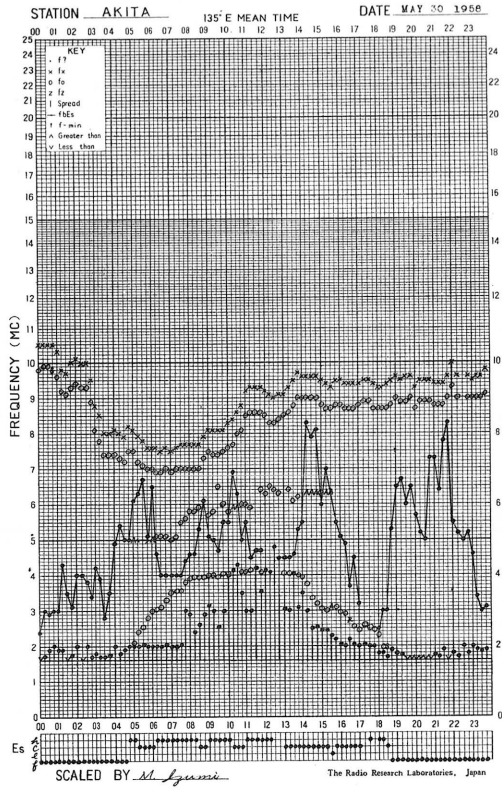




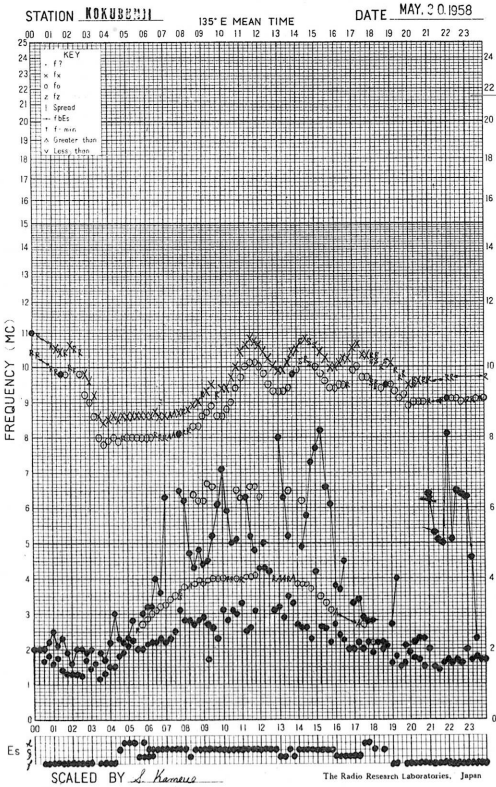
f-PLOT OF IONOSPHERIC DATA



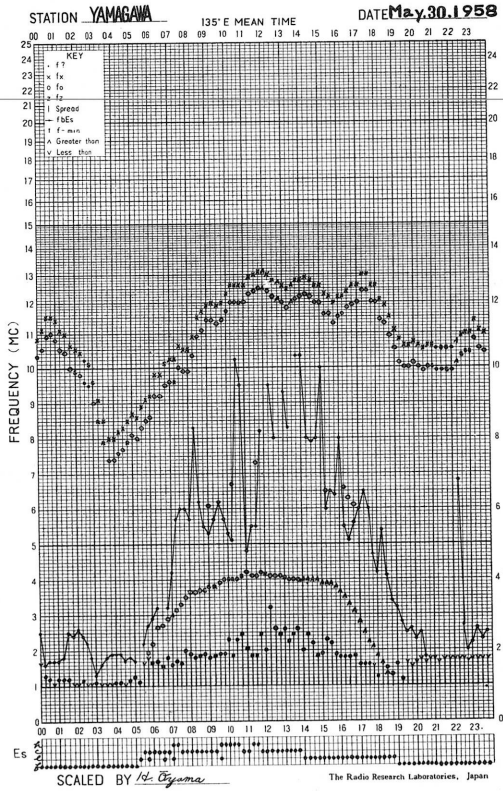
f-PLOT OF IONOSPHERIC DATA



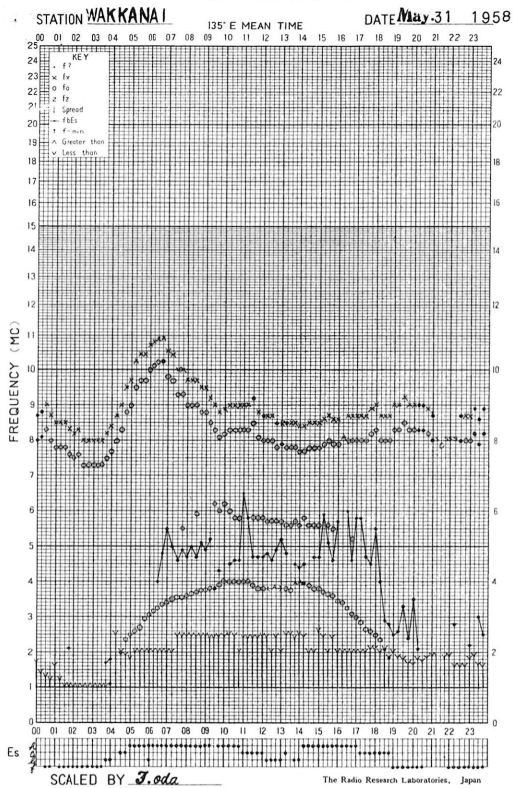
f-PLOT OF IONOSPHERIC DATA



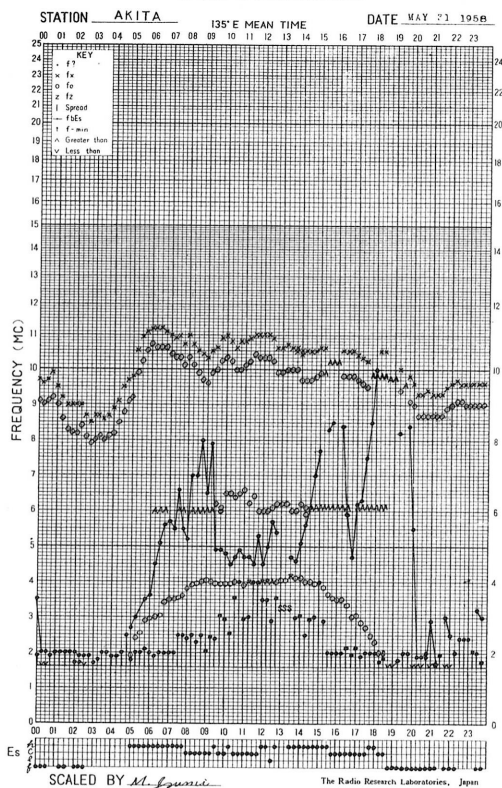
f-PLOT OF IONOSPHERIC DATA



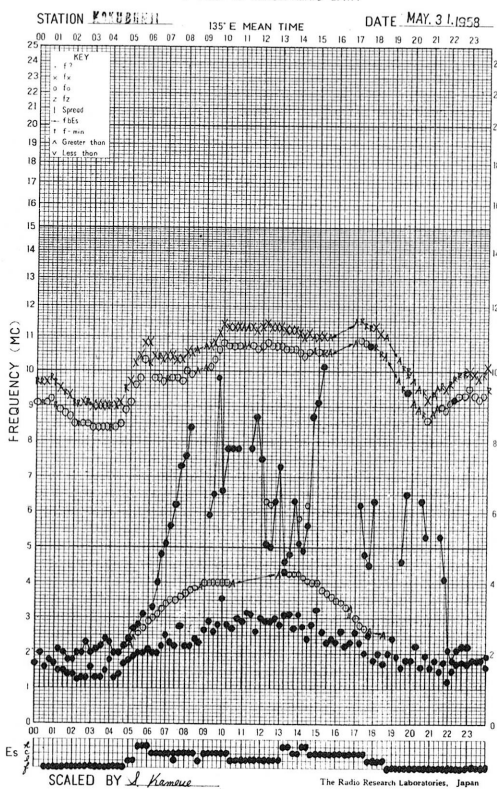
f-PLOT OF IONOSPHERIC DATA



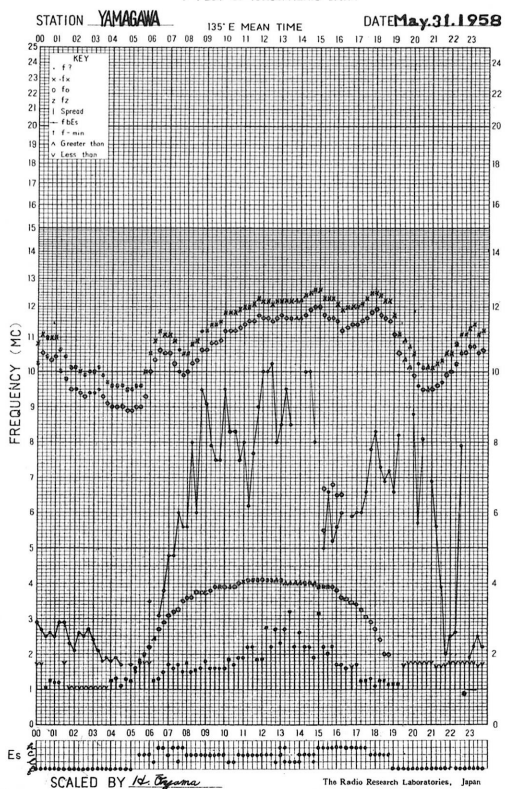
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



## SOLAR RADIO EMISSION 200 Mc/s

Flux in  $10^{-22}$  w.m.<sup>-2</sup> (c/s)<sup>-1</sup>, 2 polarizations

HIRAISO

Time in U.T.

| May<br>1958 | Steady Flux |       |       |       |      | Variability |       |       |       |     |
|-------------|-------------|-------|-------|-------|------|-------------|-------|-------|-------|-----|
|             | 00-03       | 03-06 | 06-09 | 21-24 | Day  | 00-03       | 03-06 | 06-09 | 21-24 | Day |
| 1           | 44          | 40    | 51    | (46)  | 41   | 2           | 2     | 3     | (2)   | 2   |
| 2           | 48          | 27    | 26    | 31    | 34   | 2           | 1     | 2     | 2     | 2   |
| 3           | 36          | 53    | 43    | 24    | 41   | 2           | 2     | 2     | 2     | 2   |
| 4           | 34          | 27    | 20    | 33    | 27   | 2           | 1     | 1     | 2     | 2   |
| 5           | 37          | 39    | 39    | 32    | 37   | 2           | 2     | 2     | 2     | 2   |
| 6           | 31          | 26    | 21    | 16    | 28   | 2           | 1     | 1     | 1     | 2   |
| 7           | 19          | 17    | 18    | -     | 18   | 1           | 1     | 1     | 1     | 1   |
| 8           | 17          | 18    | 18    | 21    | 18   | 1           | 1     | 1     | 1     | 1   |
| 9           | 17          | 22    | 20    | 20    | 22   | 1           | 1     | 1     | 1     | 1   |
| 10          | 21          | 20    | -     | -     | 20   | 1           | 1     | 1     | -     | 1   |
| 11          | -           | -     | -     | 27    | (20) | -           | -     | -     | 1     | (1) |
| 12          | 28          | 11    | -     | 15    | 20   | 0           | 0     | -     | 0     | 0   |
| 13          | 16          | 21    | 19    | -     | 17   | 1           | 1     | 1     | 0     | 1   |
| 14          | 20          | 25    | -     | 17    | 23   | 1           | 1     | -     | -     | 1   |
| 15          | 18          | 21    | 14    | -     | 18   | 1           | 1     | 1     | -     | 1   |
| 16          | 17          | 14    | 15    | 20    | 16   | 1           | 1     | 1     | 1     | 1   |
| 17          | 21          | 24    | 18    | 21    | 21   | 1           | 1     | 1     | 1     | 1   |
| 18          | 22          | 22    | 23    | 23    | 22   | 2           | 1     | 1     | 1     | 1   |
| 19          | 19          | 28    | 26    | -     | 24   | 1           | 1     | 2     | -     | 1   |
| 20          | 15          | 12    | 22    | 27    | 16   | 0           | 1     | 1     | 1     | 1   |
| 21          | 19          | 20    | 22    | 18    | 22   | 1           | 1     | 1     | 1     | 1   |
| 22          | 18          | 22    | 16    | 18    | 19   | 1           | 1     | 1     | 1     | 1   |
| 23          | 19          | 24    | 17    | 20    | 20   | 0           | 1     | 1     | 1     | 1   |
| 24          | 18          | 18    | 18    | 15    | 19   | 1           | 1     | 1     | -     | 1   |
| 25          | 16          | 22    | 19    | 20    | 19   | 1           | 1     | 1     | 1     | 1   |
| 26          | 20          | 21    | 18    | -     | 19   | 1           | 1     | 1     | 1     | 1   |
| 27          | 19          | 21    | 15    | 17    | 18   | 1           | 1     | 1     | 1     | 1   |
| 28          | 15          | 22    | 20    | 19    | 18   | 1           | 1     | 1     | 0     | 1   |
| 29          | 15          | 19    | 24    | 18    | 18   | 1           | 1     | 1     | 1     | 1   |
| 30          | 14          | 16    | 18    | 20    | 16   | 1           | 0     | 1     | 1     | 1   |
| 31          | 15          | 18    | 14    | 19    | 16   | 1           | 1     | 1     | 1     | 1   |

## Outstanding Occurrences

| May<br>1958 | Start-<br>time | Dura-<br>tion | Type  | Max.   | Int. | Max.<br>Time | Remarks                 |
|-------------|----------------|---------------|-------|--------|------|--------------|-------------------------|
|             |                |               |       | Inst.  | Smd. |              |                         |
| 3           | 0700           | 30s ?         | CD/8  | >3000  | 900  | -            |                         |
|             | 2050-30s       | 1m30s         | CD/8  | 320    | 70   | -            |                         |
|             | 2054           | 2m30s         | CD/8  | 210    | 50   | -            |                         |
| 4           | 0728           | 30s           | CD/4  | 320    | 60   | -            |                         |
| 6           | 0616-30s       | 1m            | CD/4  | 180    | 70   | -            |                         |
| 8           | 2226-30s       | 30s           | CD/4  | 520    | 90   | -            |                         |
| 11          | 0231-30s       | 2m30s         | CD/8  | 330    | 90   | -            |                         |
| 12          | 0716           | 1m30s         | CD/8  | 530    | 120  | -            |                         |
| 17          | 0323           | 1m30s         | ECD/8 | 450    | 75   | -            | x                       |
|             | 0629           | 1m            | CD/8  | 330    | 65   | -            |                         |
| 18          | 0121-30s       | 2m            | F/3   | -      | 40   | -            |                         |
|             | 0125           | 1m30s         | F/3   | -      | 30   | -            |                         |
|             | 0614           | 1m30s ?       | CD/8  | 490    | 140  | 0614-30s     |                         |
| 19          | 0059-15s       | 2m            |       | 730    | 450  | 0059-30s     | first part<br>plus part |
|             |                | 4m            | CD/9  | 1500   | 870  | 0104         |                         |
| 20          | 0412-30s       | 30s           | SD/8  | 580    | 350  | -            |                         |
| 21          | 0811           | 40s           | CD/8  | > 3000 | 530  | -            |                         |
|             | 2018           | 30s           | SD/8  | 830    | 480  | -            |                         |
| 22          | 0438-30s       | 30s           | CD/4  | 220    | 100  | -            |                         |
| 23          | 2251           | 30s           | CD/8  | 910    | 470  | -            |                         |
| 25          | 0635           | 30s           | SD/8  | 1240   | 750  | -            |                         |
| 27          | 0653-30s       | 30s           | CD/4  | 610    | 130  | -            |                         |
|             | 2133           | 1m            | CD/8  | > 2000 | -    | -            |                         |
|             | 2251-30s       | 1m30s         | CD/8  | 810    | 210  | -            |                         |
| 29          | 2224-30s       | 1m30s         | CD/8  | 320    | 55   | -            |                         |
| 30          | 0650-30s       | 1m50s         | CD/8  | 770    | 230  | -            |                         |

x followed by a small peak of 30 seconds.

## RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

| May<br>1958 | Whole<br>Day<br>Index | W W V |    |     |    | S. F. |     |     |     | W W V H |    |    |    | Warning |    |    |    | Principal<br>magnetic storms |     |                 |
|-------------|-----------------------|-------|----|-----|----|-------|-----|-----|-----|---------|----|----|----|---------|----|----|----|------------------------------|-----|-----------------|
|             |                       | 00    | 06 | 12  | 18 | 00    | 06  | 12  | 18  | 00      | 06 | 12 | 18 | 00      | 06 | 12 | 18 | Start                        | End | ΔH              |
|             |                       | 06    | 12 | 18  | 24 | 06    | 12  | 18  | 24  | 06      | 12 | 18 | 24 | 06      | 12 | 18 | 24 |                              |     |                 |
| 1           | 3-                    | 4     | 4  | 3   | 3  | 1     | 1   | 1   | 3   | 3       | 3  | 3  | 3  | N       | N  | N  | N  |                              |     |                 |
| 2           | 2-                    | 3     | 1  | 1   | 2  | 2     | 1   | 1   | 2   | 2       | 2  | 2  | 3  | N       | N  | N  | N  |                              |     |                 |
| 3           | 2-                    | 2     | 2  | 2   | 3  | 1     | 1   | 2   | 2   | 2       | 2  | 2  | 1  | N       | N  | N  | N  |                              |     |                 |
| 4           | 2-                    | 2     | 2  | 2   | 2  | 2     | 1   | 2   | 2   | 2       | 2  | 2  | 2  | N       | N  | N  | N  |                              |     |                 |
| [5]         | 2-                    | 1     | 1  | 2   | 2  | 2     | 1   | 2   | (3) | 2       | 2  | 2  | 2  | N       | N  | N  | N  |                              |     |                 |
| 6           | 2-                    | 2     | 2  | 1   | 2  | 2     | 1   | 2   | (2) | 1       | 2  | 2  | 3  | N       | N  | N  | N  |                              |     |                 |
| 7           | 2-                    | 2     | 3  | 2   | 2  | 2     | 1   | 1   | 2   | 2       | 2  | 3  | 2  | N       | N  | N  | N  |                              |     |                 |
| 8           | 1+                    | 1     | 1  | 2   | 1  | 2     | 1   | 2   | 2   | 2       | 2  | 2  | 2  | N       | N  | N  | N  |                              |     |                 |
| 9           | 1+                    | 1     | 1  | 1   | 1  | 2     | 2   | 2   | 2   | 2       | 2  | 2  | 2  | N       | N  | N  | N  |                              |     |                 |
| 10          | 2-                    | 1     | 2  | 2   | 1  | (2)   | (2) | 2   | (2) | 2       | 2  | 2  | 2  | N       | N  | N  | N  |                              |     |                 |
| 11          | 2o                    | 2     | 2  | 2   | 2  | 3     | 1   | 1   | 3   | 2       | 2  | 2  | 3  | N       | N  | N  | N  |                              |     |                 |
| 12          | 2-                    | 1     | 1  | 1   | 1  | 2     | 2   | 2   | 3   | 2       | 1  | 1  | 2  | N       | N  | N  | N  |                              |     |                 |
| 13          | 2o                    | 1     | 1  | 2   | 3  | 2     | (1) | 2   | 3   | 1       | 1  | 1  | 2  | N       | N  | N  | N  |                              |     |                 |
| 14          | 3o                    | 2     | 2  | (4) | 2  | 3     | 3   | 3   | 3   | 1       | 1  | 1  | 2  | N       | N  | N  | N  |                              |     |                 |
| 15          | 3-                    | 2     | 1  | 3   | 2  | 3     | 3   | 4   | 3   | 1       | 1  | 1  | 1  | N       | N  | N  | N  |                              |     |                 |
| 16          | 2o                    | 1     | 1  | 1   | 2  | 3     | 4   | 3   | 2   | 1       | 1  | 1  | 1  | N       | N  | N  | N  |                              |     |                 |
| 17          | 3-                    | 4     | 1  | 2   | 2  | 3     | 2   | 3   | 3   | 2       | 1  | 1  | 1  | N       | N  | N  | N  |                              |     |                 |
| [18]        | 3o                    | 3     | 3  | 2   | 3  | 3     | (4) | 3   | 2   | 2       | 2  | 1  | 2  | N       | N  | N  | N  |                              |     |                 |
| [19]        | 2+                    | 3     | 2  | 3   | 2  | 3     | (2) | 2   | 1   | 2       | 3  | 2  | 3  | N       | N  | N  | N  |                              |     |                 |
| 20          | 1o                    | 1     | 1  | 1   | 2  | 2     | 1   | 1   | 1   | 1       | 2  | 1  | 2  | N       | N  | N  | N  |                              |     |                 |
| 21          | 1o                    | 2     | 1  | 1   | 1  | 1     | 1   | 2   | 1   | 2       | 2  | 1  | 2  | N       | N  | N  | N  |                              |     |                 |
| 22          | 1o                    | 2     | 1  | 1   | 1  | 1     | (1) | 2   | 1   | 2       | 1  | 3  | 2  | N       | N  | N  | N  |                              |     |                 |
| 23          | 1o                    | 1     | 1  | 1   | 2  | 1     | (1) | 1   | 1   | 2       | 2  | 2  | 3  | N       | N  | N  | N  |                              |     |                 |
| 24          | 1+                    | 2     | 1  | 2   | 1  | 1     | 1   | 2   | 1   | 3       | 2  | 2  | 2  | N       | N  | N  | N  |                              |     |                 |
| 25          | 1o                    | 1     | 1  | 1   | 1  | 1     | 1   | 1   | 1   | 2       | 1  | 1  | 1  | N       | N  | N  | N  |                              |     |                 |
| 26          | 2o                    | 1     | 1  | 3   | 2  | 1     | (1) | 3   | 4   | 1       | 1  | 1  | 1  | N       | N  | N  | N  |                              |     |                 |
| 27          | 2o                    | 2     | 2  | 1   | 2  | 3     | 1   | 3   | 2   | 2       | 1  | 1  | 2  | U       | U  | U  | U  |                              |     |                 |
| 28          | 3-                    | 2     | 3  | 2   | 3  | 3     | 1   | 3   | 3   | 2       | 2  | 2  | 2  | U       | U  | N  | N  |                              |     |                 |
| 29          | 4-                    | 3     | 4  | 4   | 4  | 4     | 4   | 3   | 4   | 2       | 2  | 3  | 2  | N       | U  | U  | U  |                              |     |                 |
| 30          | 2+                    | 2     | 2  | 2   | 2  | 4     | 3   | (1) | 2   | 2       | 3  | 3  | 2  | U       | U  | N  | N  |                              |     | 0030 2100 180 ⋆ |
| 31          | 4o                    | 3     | 4  | 5   | 5  | 4     | 3   | 3   | 4   | 3       | 3  | 3  | 3  | N       | N  | N  | N  |                              |     | 1653 --- 188 ⋆  |

\* = day of Special World Interval

[ ] = Regular World Day

( ) = inaccurate

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAIISO

Time in U. T.

| May<br>1958 | S W F                     |    |    |     | S E A      |               |      |      | Correspondence |               |      |       |                |      |
|-------------|---------------------------|----|----|-----|------------|---------------|------|------|----------------|---------------|------|-------|----------------|------|
|             | Drop-out Intensities (db) |    |    |     | Start-time | Dura-<br>tion | Type | Imp. | Start-time     | Dura-<br>tion | Imp. | Flare | Solar<br>noise | Mag. |
|             | WS                        | SF | HA | TO  |            |               |      |      |                |               |      |       |                |      |
| 1           | 16                        |    |    |     | 23.31      | 10            | S    | 1+   | 23.31          | 29            | 1    | x     |                |      |
| 2           |                           |    |    | 9   |            |               |      |      | 05.40          | 25            | 1-   |       |                |      |
| 4           |                           |    |    | 7   | 03.28      | 45            | S    | 2    |                |               |      |       |                |      |
| 5           |                           |    |    |     | 04.12      | 12            | S    | 3+   | 00.10          | 20            | 1    | x     |                |      |
| 5           | 56                        |    |    | 26' | 20.35      | 30            | S    | 2+   | 04.08          | 34            | 1    |       |                |      |
| 5           | 32                        |    |    | >29 | 02.10      | 23            | G    | 1    |                |               |      | x     |                |      |
| 6           | 10"                       |    |    | 12  | 03.40      | 46            | S    | 1+   |                |               |      | x     |                |      |
| 6           | -                         |    |    | 11  | 03.31      | 26            | G    | 1    |                |               |      |       |                |      |
| 19          | 20                        |    |    | 8   | 04.20      | 30            | G    | 1+   |                |               |      |       |                |      |
| 19          | 12                        |    |    | 10  |            |               |      |      | 02.50          | 27            | 1    | x     |                |      |
| 19          | 17                        |    |    | -   |            |               |      |      |                |               |      |       |                |      |
| 29          |                           |    |    |     |            |               |      |      |                |               |      |       |                |      |

NOTE (1) Suffixes of Drop-out Intensities for WS, HA and TO

' : 10 Mc, no suffix : 15 Mc, " : 20 Mc.

(2) - : unreadable, ( ) : uncertain

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IONOSPHERIC DATA IN JAPAN FOR MAY 1958

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発行人

岡 登 博 美

東京都北多摩郡小金井町573

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