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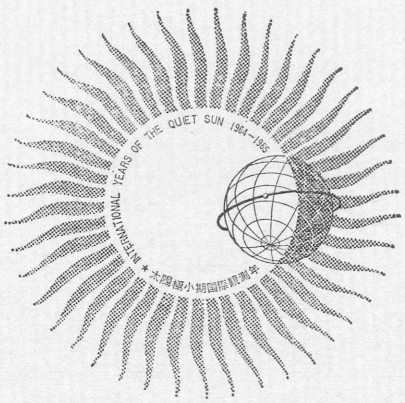
# IONOSPHERIC DATA IN JAPAN

## FOR NOVEMBER 1965

Vol. 17 No. 11

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Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

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CONTENTS

## SITE 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°08.2′E. | Tegata Nishishin-machi, Akita-shi, Akita-ken |
| Kokubunji | 35°42.4′N. | 139°29.3′E. | Koganei-shi, Tokyo-to |
| Yamagawa | 31°12.1′N. | 130°37.1′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. | Isozaki-machi, Nakaminato-shi, Ibaraki-ken |

## SYMBOLS AND TERMINOLOGY

### A. IONOSPHERE

All symbols and terminology in the table of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction," 1961.

**Terminology**

$f_0F2$, $f_0F1$, $f_0E$ — The ordinary wave critical frequency for the $F2$, $F1$ and $E$ layers, respectively.

$f_0E_s$ — The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.

$f_bE_s$ — The lowest ordinary wave frequency at which the $E_s$ layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.

$f$-min — The frequency below which no echoes are observed.

$M(3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$M(3000)F1$ — 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 Letters**

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

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example $E_s$.

B Measurement influenced by, or impossible because of, absorption in the vicinity of *f*-min.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. 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 of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

**b. Qualifying Letters**

The following letters are entered in the first column before a numerical

value on the monthly tabulation sheets.

D greater than.

E less than.

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

O Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magneto-ionic component.

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

The eight standard types of $E_s$ are identified by corresponding lower case letters: *f, l, c, h, q, r, a, s.* These letters suggest the names flat, low, cusp, high, equatorial, retardation, auroral and slant, respectively. It is strongly emphasized that these names are not restrictive. The letter '*n*' is used to designate any $E_s$ trace that does not correspond to any of the eight types.

*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 hight: *h* or *l*.

*l* A flat $E_s$ trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.

*c* An $E_s$ trace showing a relatively symmetrical cusp at or below $f_0E$. This is usually continuous with the normal *E* trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)

*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. (Usually a daytime type.)

*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 showing an increase in virtual height at the high frequency end similar to group retardation but which is non-blanketing over part or all of its frequency range. This is distinguished from the usual group retardation (as in the case of an occulting thick *E* layer) by the lack of group retardation in the *F* layer traces at corresponding frequencies and the lack of complete blanketing.

*a* An $E_s$ having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These

sometimes extend over several hundred kilometers of virtual height.

*s* A diffuse $E_s$ trace which rises steadily with frequency and usually emerges from another type $E_s$ trace. The rising trace alone is classified as '*s*'; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal $E_s$ trace such as $E_s$-*l* or $E_s$-*f*, at frequencies which grealy exceed the $E$ layer critical frequency, whereas at low latitudes it usually rises from $E_s$-*q*, $E_s$-*c*, or $E_s$-*h* at frequencies near the regular $E$ critical frequency. Type *s* is never used to determine $f_0E_s$ and $h'E_s$. The slant trace is sometimes observed to start at $f_0E$ without echoes clearly identifiable as $E_s$ echoes being seen.

*n* The designation '*n*' is used to denote an $E_s$ trace which cannot be classified into one of the standard types. When a trace appears to be intermediate between any two classes a choice should be made whenever possible even if it is uncertain. '*n*' should be used sparingly.

**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 observations are carried out on 200 and 500 Mc/s at Hiraiso Radio Wave Observatory.

Antennas are a broadside array of 6×4 doublets for 200 Mc/s and a parabolic reflector of 5 meter for 500 Mc/s, each having the total power receiver.

Observations are feasible almost from sunrise to sunset.

**a. Time and Unit**

The time is expressed as U.T.

The unit is $10^{-22}$ $W \cdot m^{-2} \cdot (c/s)^{-1}$ for both components of polarization.

**b. Daily Data**

*Flux density*

The three-hourly and daily mean values are given.

*Variability*

The three-hourly and daily mean values are given at 200 Mc/s only.

Variability is expressed in the following four grades:

0=Quiet or no burst,
1=A few bursts,
2=Many bursts,
3=Very many bursts.

The number of bursts exceeding the flux level is counted.

**c. Distinctive Events**

The phenomena are picked up on the following criteria:

1. Distinct from the prevailing kind of activity,
2. Correlated with other known solar phenomena,
3. Remarkable change-over from one situation to another.

*Starting time* and *Time of maximum* are given to nearest minute in general, but to nearest a tenth minute for short intense occurrences or clear commencements.

*Duration* is given in minutes and to nearest a tenth minute, if short or clear.

*Descriptive type* is denoted by the following symbols:

S =Simple rise and fall of intensity;
C =Complex variation of intensity,
C+=Prolonged broad-band enhancement of radiation, generally of spectral type IV;
F =Group of bursts: multiple peaks probably belonging to the same event, but separated by relatively short period of quietness;
RF=More or less irregular rise and fall of intensity, at metric or decimetric wavelengths;
e =Sudden beginning of burst with steep rise of intensity;
E =Steep rise of intensity of continuum background;
p.i.=post-burst increase;
onset storm=clear-cut beginning of a noise storm.

*Peak intensity* is the flux density of the highest peak reached during the occurrence, measured above the pre-burst level.

*Mean intensity* is the flux density averaged over the burst's duration, measured above the pre-burst level; therefore, multiplying the duration, the total energy of the occurrence can be estimated.

## C. RADIO PROPAGATION CONDITIONS

**a. Field Intensities of WWV and WWVH**

Field intensity observations of WWV and WWVH transmitted from Washington D.C. and Hawaii, respectively, are carried out at Hiraiso Radio Wave Observatory. In order to avoid interferences with several standard frequency waves on the same frequency, the upper side-band of 440 c/s is picked up by the use of a narrow band pass filter of ± 40 c/s bandwidth.

Tabulated *field intensity* is the average of peak value of the incident upper side-band field intensity in dB above one microvolt per meter. Tne *duration* of observation is two minutes for WWV and three minutes for WWVH following the time indicated in universal time on the table.

Particulars of the transmitter and receiver are summarized in the following tables:

Transmitter

| | WWV | WWVH |
|---|---|---|
| Location | Washington, D.C. Long. 76°51′ W Lat. 39°00′ N | Maui, Hawaii Long. 156°28′ W Lat. 20°46′ N |
| Power | 3 kW for the upper side-band | 0.5 kW* for the upper side-band |
| Antenna | $\lambda/2$ vertical | $\lambda/2$ vertical |
| Distance | 10050 km | 6270 km |

* Reduced from the carrier power of 2 kW with amplitude modulation of 100%.

Receiver

| | |
|---|---|
| Antenna | 4.5 m vertical rod |
| Bandwidth | ±40 c/s for the upper side-band |
| Calibration | each half hour |

*Descriptive symbols* are as follows:

C: Measurement influenced by, or impossible because of, any non-propagational reasons.

S: Measurement influenced by, or impossible because of, interferences or atmospherics.

( ): Unaccurate measurement influenced by interferences, atmospherics, or non-propagational reasons.

<: Less than the following figure.

## b. Radio Propagation Quality Figures

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

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

The tabulated circuits contain Hamburg (commercial circuit), 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 averages of the 6-hourly indices of Hamburg WWV and S. F.

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

**c. Sudden Ionospheric Disturbance (S. I. D.)**

The data of short wave fade-out (SWF) are preparated from the field intensity records on following circuits received at Hiraiso. Characteristics of the phenomenon are classified as follows.

*Circuits and Drop-out intensity*

WS.....WWV 20 Mc, 15 Mc and 10 Mc (Washington)
SF.....Various commercial circuits (San Francisco)
HA.....WWVH 15 Mc and 10 Mc (Hawaii)
TO.....JJY 15 Mc and 10 Mc (Tokyo)
SH.....BPV 15 Mc and 10 Mc (Shanghai)
HB .....Various commercial circuits(Hamburg)

Start-time and Duration, Types and Importances are described from the data of a circuit whose Drop-out Intensity is underlined. Drop-out Intensities of 10 Mc ( ' ), 15 Mc (none) and 20 Mc ( '' ).

*Start-times and Durations*

*Types*

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

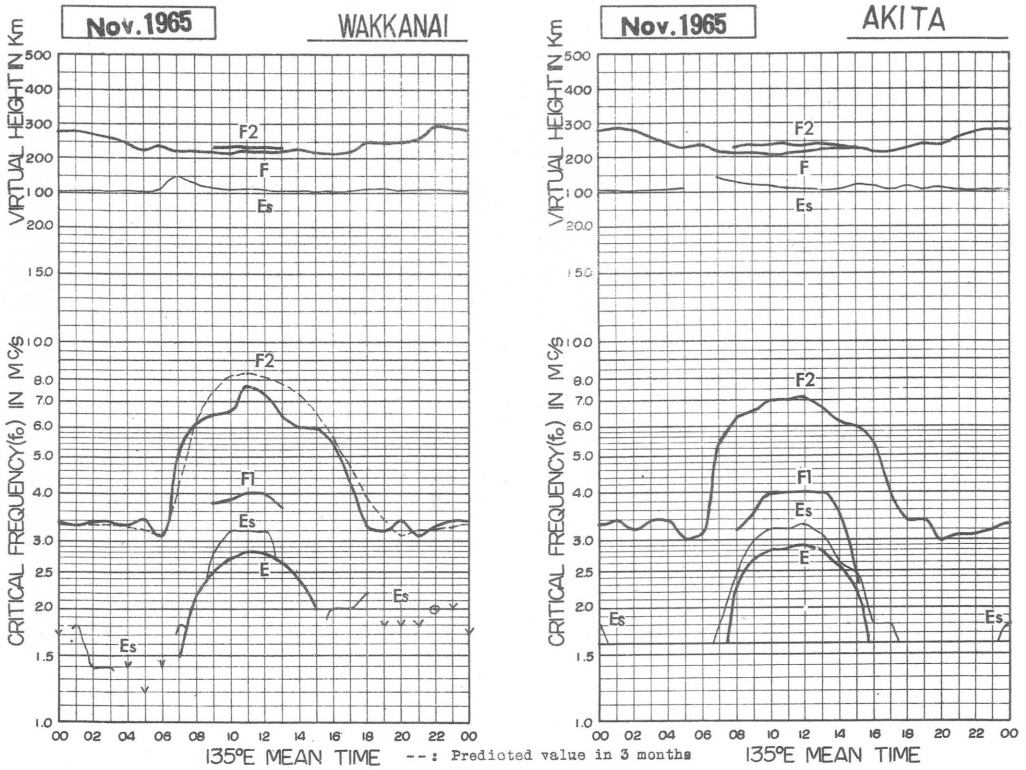
*Importances*

Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

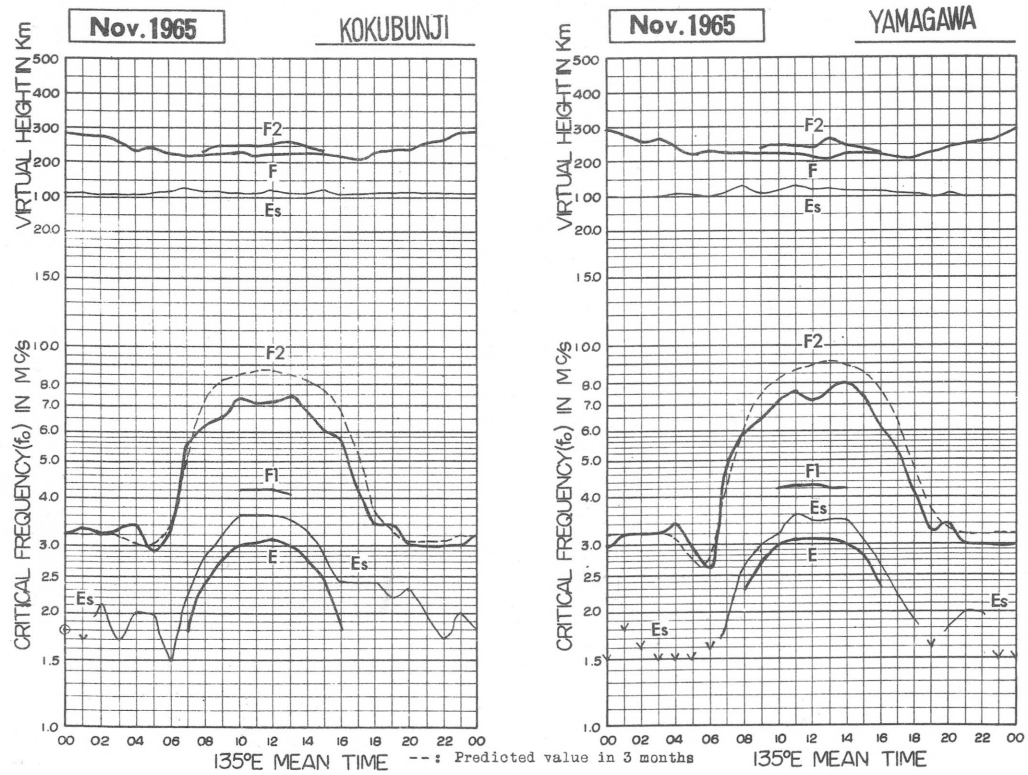
| | | |
|---|---|---|
| 1− | 1 | 1+ |
| 2− | 2 | 2+ |
| 3− | 3 | 3+ |

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

**Nov. 1965** | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SF | SF | SF | SF | SF | SF | SF | 057 | 075 | 081 | 087 | 094 | 104 | 083 | 080 | 080 | I061C | 042 | 038 | 036 | 035 | 037 | SF | F |
| 2 | SF | SF | SF | SF | SF | SF | SF | 063 | 073 | 077 | 096 | 084 | 066 | 078 | 064 | 066 | 073 | 045 | 034 | 036F | SF | F | SF | F |
| 3 | SF | F | F | F | SF | SF | SF | U066S | 072 | 081 | 087 | 092 | 081 | 066 | 068 | 063 | 059 | I044S | I043A | 043 | 043 | 041 | SF | SF |
| 4 | SF | F | F | F | F | 047F | 043 | 060 | 065 | 083 | 064 | 081 | 094 | 073H | 065 | 068 | 060 | 042 | 036 | 035 | 037 | 034F | 034F | 037F |
| 5 | SF | SF | SF | F | SF | SF | SF | U073S | 077 | 082 | 085 | 097 | 084 | 068 | 070 | 067 | 057 | 047 | I043A | 036 | 043 | 040 | 037 | SF |
| 6 | F | SF | 046F | 050F | F | SF | 032 | 050 | 067 | 088 | 088 | 094 | 077 | 074 | 079 | 090 | 073 | 050H | 040 | 051 | 053 | SF | 048F | 047F |
| 7 | SF | SF | 040F | U037F | SF | SF | 048F | 062 | 064 | 069 | 092 | 087 | 074 | 069 | 059H | 069 | 063 | 051 | 044 | 043 | 044 | 043 | 040 | 037 |
| 8 | 037 | 035 | 034 | 036 | 036 | 030 | 031 | 055 | 079 | 068 | 083 | 086 | 083H | 074 | 062 | 063 | 056 | 039 | 028 | 030 | 028 | 031 | SF | 036F |
| 9 | 036F | SF | SF | SF | F | 040F | 029 | 055 | 073 | 068 | 067 | 087 | 077 | 063 | 063 | 069 | 069 | 058 | 045 | 033 | 033 | 033 | 034 | SF |
| 10 | SF | SF | 038F | 036 | 036 | 042 | 031 | 051 | 059 | 063 | 083 | 080 | 073 | 065H | 062H | 065 | 051 | 036 | 033 | 035 | 034 | 030 | 034F | 036F |
| 11 | 037 | 036 | 037 | I036C | 036 | 037 | 033H | 055 | 067 | C | C | C | C | C | C | 060 | 067 | 040 | 031 | 030 | 030 | 030 | 033 | 034 |
| 12 | 036 | 035F | 036F | 034F | 036 | 034 | 029H | 053 | 060 | 066 | 074 | 075 | 067 | 065 | 058H | 058 | 057 | 040 | 030 | 031 | 032 | 034 | 037 | 042 |
| 13 | SF | 036F | 038F | 036F | 036F | 033 | 032 | 061 | 069 | 069 | 061H | 067 | 062 | 061 | 060 | 058H | 054 | 043 | 035 | 024 | 026 | 031 | SF | 033F |
| 14 | 033 | 033 | 035 | 034 | 033F | 031F | 030 | 053 | 062 | 074 | 063 | 068 | 075 | 068 | U070S | 061 | 054 | 047 | 033 | 036 | 036 | 027 | 027 | 030F |
| 15 | 033 | F | SF | SF | SF | 041F | 039F | 056 | 061 | 061 | 069 | 067H | 068 | 070 | 059 | 067 | 055 | 043 | 034 | 031 | 033 | I030A | 032 | 033F |
| 16 | 031F | 033F | 033F | 031F | 030F | 034 | 024 | 053 | 058 | 059 | 067 | 066H | 074 | 064 | 068 | 066 | 054 | 035 | 028 | 033 | 039F | 031F | 030F | 030F |
| 17 | SF | F | F | F | F | 036F | 033F | 054 | 060 | 055H | 064 | 080 | 074 | 053 | 052 | 059 | 053 | 034 | I031A | 028 | 031 | 029F | 030F | 035F |
| 18 | A | SF | SF | SF | 043F | I038A | 028 | 052 | 065 | 063 | 057 | 073 | 075 | 055 | 060 | 053 | 048 | 039 | 027 | I028A | 033 | 031 | 033F | SF |
| 19 | 033F | 030F | I030A | 030F | 033F | 030F | 032 | 057 | U069S | 074 | 083S | 076 | 070 | 057 | 062 | I055A | 048 | 046S | 031 | 030 | 035 | 027 | 033F | 033F |
| 20 | 034F | 030F | 033F | 033 | 030 | 033 | U034S | I060S | 083 | 074 | 074 | 072 | 069H | 064 | 067 | 066 | 047 | A | A | 032 | SF | F | F | F |
| 21 | SF | SF | 028F | 029F | F | F | SF | 061 | C | C | C | C | C | C | C | C | 052 | 047 | 044 | 049 | F | F | F | F |
| 22 | SF | SF | SF | SF | SF | 039 | 026F | 047 | 058 | 057 | 064 | 077 | 073 | 064 | 060 | 052 | 050 | 045 | 027 | 028 | 028 | 026 | 031F | F |
| 23 | SF | SF | SF | 033F | 030F | 031 | 024S | 044 | 056 | 060 | 052H | 076 | 074 | 060 | 057 | 055 | 043 | 044 | 035 | 033 | 034 | 027 | SF | F |
| 24 | F | 030F | 030F | F | 026F | 028 | 025F | 046 | 057 | 063 | 056 | 071 | 067 | 068 | 061 | 051 | 044 | 037 | 036 | 033 | F | F | F | 034F |
| 25 | 035F | 033F | 030F | 033F | 030F | 026F | SF | 048 | 062 | 064 | 062 | 076 | 061 | 057 | 056 | 051 | 036 | 032 | 028 | 032 | 034 | F | 030F | 030F |
| 26 | 030F | F | F | F | F | F | 033F | 041 | 057 | 057 | 060 | 058 | 061 | 059 | 055 | 053 | U049S | 035 | 035 | 031 | 032S | SF | 043 | 043 |
| 27 | U043S | I048S | 050 | 052 | F | F | 031 | 056 | 055 | 056 | 056 | I068R | 059 | 056 | 054 | 057 | 047 | 033 | 027 | 030 | 036 | SF | SF | 034F |
| 28 | SF | SF | SF | SF | 027F | 031F | 028S | 044S | 056 | 056 | U063R | I064R | U061S | 058 | 056 | 051 | 041 | 031 | 030 | I027A | 033 | 026 | 033 | 033S |
| 29 | 034 | 033F | SF | 030 | 033 | 034 | 031 | 044 | U053S | 058 | 058 | R | U073R | 056 | 060 | 049 | 039 | 031 | 028 | 028 | 033 | 030 | 028 | 033 |
| 30 | 033 | 034 | 033F | 033F | 036F | 030 | 028 | 047 | I057S | I056S | U064S | I062S | I064S | 058 | 051 | 046 | 041 | 034 | 026 | 027 | 030 | I032S | 033F | 034F |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 14 | 13 | 16 | 17 | 16 | 21 | 24 | 30 | 29 | 28 | 28 | 27 | 28 | 28 | 28 | 29 | 30 | 29 | 29 | 30 | 26 | 22 | 20 | 20 |
| Median | 034 | 033F | 034F | 034F | 033F | 034 | 031 | 054 | 062 | 065 | 066 | 076 | 073 | 064 | 060 | 060 | 054 | 042 | 033 | 032 | 034 | 031 | 033 | 034 |
| U. Q. | 036 | 036 | 038 | 036 | 036 | 038 | 033 | 060 | 070 | 074 | 083 | 086 | 076 | 068 | 066 | 066 | 059 | 046 | 037 | 036 | 036 | 034 | 036 | 036 |
| L. Q. | 033 | 032 | 032 | 032 | 030 | 030 | 028 | 048 | 058 | 058 | 062 | 068 | 066 | 058 | 058 | 053 | 047 | 035 | 028 | 030 | 032 | 029 | 030 | 033 |
| Q. R. | 003 | 004 | 006 | 004 | 006 | 008 | 005 | 012 | 012 | 016 | 021 | 018 | 010 | 010 | 008 | 013 | 012 | 011 | 009 | 006 | 004 | 005 | 006 | 003 |

The Radio Research Laboratories, Japan

foF2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

W 1

# IONOSPHERIC DATA

Nov. 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E



| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | A | A | 400 | L | | L | | | | | | | | | |
| 2 | | | | | | | | | | L | 400 | 400 | | U400L | | | | | | | | | | |
| 3 | | | | | | | | | | | 400 | 400 | 400 | A | | | | | | | | | | |
| 4 | | | | | | | | | | 400 | 400 | 380 | 410 | | | | | | | | | | | |
| 5 | | | | | | | | | | | A | U410L | 400 | I390A | | | | | | | | | | |
| 6 | | | | | | | | | | A | 400L | 380 | 400 | U400L | | | | | | | | | | |
| 7 | | | | | | | | | | C | 400 | U400L | U400L | | | | | | | | | | | |
| 8 | | | | | | | | | | 380 | 400 | U400L | | | 330 | | | | | | | | | |
| 9 | | | | | | | | | | | 380 | I400A | 410 | | | | | | | | | | | |
| 10 | | | | | | | | | 310 | | 400 | 410 | U400L | | | | | | | | | | | |
| 11 | | | | | | | | | | C | C | C | C | C | C | | | | | | | | | |
| 12 | | | | | | | | | | | | | U400L | U400L | | | | | | | | | | |
| 13 | | | | | | | | | 340 | U400L | 370 | | U390L | | | | | | | | | | | |
| 14 | | | | | | | | | | | U390L | | 400 | U400L | | | | | | | | | | |
| 15 | | | | | | | | | | | 370 | | 400 | L | | | | | | | | | | |
| 16 | | | | | | | | | | | | U400L | U400L | | | | | | | | | | | |
| 17 | | | | | | | | | | | 380 | 400 | 400 | | | | | | | | | | | |
| 18 | | | | | | | | | | | | 400 | 390 | 370L | | | | | | | | | | |
| 19 | | | | | | | | | | U390L | 390 | U390L | U390L | | | | | | | | | | | |
| 20 | | | | | | | | | | | 370 | 390 | | | | | | | | | | | | |
| 21 | | | | | | | | | C | C | C | C | C | C | C | | | | | | | | | |
| 22 | | | | | | | | | | | U340L | I390A | A | | | | | | | | | | | |
| 23 | | | | | | | | | | | | 400 | 400 | 360 | | | | | | | | | | |
| 24 | | | | | | | | | | 350 | | 380 | 400 | 360 | U320L | | | | | | | | | |
| 25 | | | | | | | | | | | 350 | 380 | 390 | 340L | | | | | | | | | | |
| 26 | | | | | | | | | | | | 390 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | 340 | | 360 | | | | | | | | | | | |
| 28 | | | | | | | | | | | | L | | 360 | | | | | | | | | | |
| 29 | | | | | | | | | | | | 370 | 390 | U360L | | | | | | | | | | |
| 30 | | | | | | | | | | 320 | | 380 | 360 | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 2 | 6 | 17 | 22 | 21 | 11 | 2 | | | | | | | | | |
| Median | | | | | | | | | 330 | 380 | 390 | 400 | 400 | U370 | U320 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foF1

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 2

# IONOSPHERIC DATA

Nov. 1965 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | S | 200 | I225A | 270 | 280 | 280 | 250 | A | A | 215 | C | | | | | | | |
| 2 | | | | | | | A | 195 | 240 | 270 | 295 | A | A | A | A | A | A | | | | | | | |
| 3 | | | | | | | S | 180 | 235 | 250 | 260 | A | A | A | A | A | A | | | | | | | |
| 4 | | | | | | | S | 195 | 235 | 260 | 250 | 280 | A | A | A | A | A | | | | | | | |
| 5 | | | | | | | S | 200 | 240 | 275 | 280 | 290 | I295A | 290 | 255 | A | A | | | | | | | |
| 6 | | | | | | | S | 185 | 225 | 240 | 255 | A | A | R | 245 | 200 | E | | | | | | | |
| 7 | | | | | | | S | A | A | C | A | A | A | A | A | A | A | | | | | | | |
| 8 | | | | | | | S | 150 | 225 | 250 | I275A | I290A | A | A | A | A | S | | | | | | | |
| 9 | | | | | | | S | 140 | 215 | 240 | 255 | A | A | A | 245 | 205 | A | | | | | | | |
| 10 | | | | | | | S | 150 | 215 | 245 | 270 | 280 | 280 | 265 | 240 | 200 | S | | | | | | | |
| 11 | | | | | | | S | A | S | C | C | C | C | C | C | A | A | | | | | | | |
| 12 | | | | | | | S | A | 225 | 270 | 290 | 295 | 290 | 280 | 250 | 205 | S | | | | | | | |
| 13 | | | | | | | S | A | A | A | 295 | 290 | 280 | 280 | 250 | 205 | S | | | | | | | |
| 14 | | | | | | | E | 150 | 220 | 270 | 280 | 290 | 290 | 280 | 250 | 200 | S | | | | | | | |
| 15 | | | | | | | S | 150 | 205 | 260 | 280 | 290 | 295 | 290 | 265 | 210 | S | | | | | | | |
| 16 | | | | | | | S | 155 | 230 | 260 | 285 | 285 | A | A | 255 | 200 | A | | | | | | | |
| 17 | | | | | | | S | 135 | 205 | 220 | A | A | A | 260 | 245 | A | A | | | | | | | |
| 18 | | | | | | | S | A | 225 | 230 | 280 | A | A | 280 | 245 | 200 | S | | | | | | | |
| 19 | | | | | | | S | 180 | I230A | I265A | I290A | A | A | A | A | A | A | | | | | | | |
| 20 | | | | | | | S | 140 | A | A | A | A | A | A | A | A | A | | | | | | | |
| 21 | | | | | | | S | A | C | C | C | C | C | C | C | C | A | | | | | | | |
| 22 | | | | | | | S | 180 | 220 | 250 | 265 | A | A | A | 230 | A | S | | | | | | | |
| 23 | | | | | | | S | 120 | 220 | 250 | 270 | 275 | 270 | 255 | 230 | 190 | A | | | | | | | |
| 24 | | | | | | | S | 120 | 215 | A | A | A | A | 255 | 225 | 190 | S | | | | | | | |
| 25 | | | | | | | | 140 | A | A | I270A | 280 | 280 | 265 | 230 | 190 | S | | | | | | | |
| 26 | | | | | | | | S | 205 | I245A | 270 | 275 | 275 | 265 | 225 | 155 | S | | | | | | | |
| 27 | | | | | | | S | 140 | 200 | 230 | 260 | 280 | 285 | 260 | 225 | 195 | S | | | | | | | |
| 28 | | | | | E | | | S | 195 | I230A | 260 | 275 | 265 | 250 | 230 | 200 | S | | | | | | | |
| 29 | | | | | | | S | S | 200 | I250A | 265 | 275 | 280 | 255 | I215A | 180 | S | | | | | | | |
| 30 | | | | | | | S | S | 200 | 245 | 270 | 270 | 270 | 255 | 225 | 175 | S | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | 1 | | 1 | 20 | 24 | 23 | 24 | 17 | 14 | 16 | 20 | 18 | 1 | | | | | | | |
| Median | | | | | E | | E | 150 | 220 | 250 | 270 | 280 | 280 | 265 | 240 | 200 | E | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

foE

Sweep 1.0 Mc to 18.0Mc in 40 sec in automatic operation

W 3

# IONOSPHERIC DATA

Nov. 1965 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 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 | 022 | J023 | 013 | 015 | E012S | E015S | G | 026 | 043 | 041 | 040 | 033 | 038 | 026 | 019G | C | 021 | J023 | J033 | J025 | J038 | J023 | J035 |
| 2 | J033 | J036 | J031 | J036 | 030 | J028 | 020 | G | G | G | G | 033 | 041 | 039 | 030 | 030 | J035 | J030 | J026 | J035 | E015S | J023 | E016S | E018S |
| 3 | E017S | E011S | 013 | E | E | E | E014S | G | 029 | 031 | 032 | 031 | 031 | J041 | J043 | 040 | 041 | 040M | 051 | 038 | J028 | J025 | 019 | E015S |
| 4 | 024 | E | E | E | E | E012S | E012S | G | G | 034 | 030 | G | 033 | 035 | J036 | 024 | 020 | E012S | J033 | 021 | E015S | E012S | 018 | 022 |
| 5 | 017 | 017 | E | 014 | E016S | E013S | E013S | G | 030 | 037 | J070 | 046 | 051 | 053 | 033 | J033 | 020 | J083 | J083 | J026 | J030 | J073 | J073 | J030 |
| 6 | J026 | J026 | 015 | 015 | 018 | E012S | E014S | 022 | G | 050 | 032 | 033 | 033 | G | G | G | 028 | J023 | J048 | E012S | J027 | E012S | J023 | J034 |
| 7 | J028 | 020 | J025 | J036 | J021 | 020 | E012S | 022 | 053 | J045 | J053 | J053 | J065 | J078 | J045 | J023 | J035 | J029 | J025 | J033 | E015S | J023 | J025 | J020 |
| 8 | 025 | J024 | J023 | J028 | J024 | 018 | E012S | G | 026 | 022G | J046 | 038M | 033 | J033 | 032 | 024 | E016S | E016S | E018S | E018S | E015S | E019S | E012S | E020S |
| 9 | E014S | J024 | J023 | E | 026 | E015S | E014S | G | G | G | 030 | J052 | J048 | 032 | 030 | G | 020 | J024 | E018S | E018S | E | E011S | J030 | J025 |
| 10 | E012S | E012S | E | E | E | E014S | E012S | G | G | G | G | G | G | G | G | G | 017 | E017S | 024 | 015 | E018S | E018S | J033 | J020 |
| 11 | 020 | J023 | 012 | C | E012S | E | E012S | 020 | E020S | C | C | C | C | C | C | 024 | 023 | 021 | J025 | J050 | J036 | J024 | J033 | J033 |
| 12 | J031 | J025 | 014 | 013 | E012S | E012S | E011S | 020 | G | G | 030 | 034 | 024G | 020G | G | G | 020 | 019 | J030 | J043 | J023 | E016S | E | E013S |
| 13 | J033 | J025 | J025 | J026 | 021 | E012S | J024 | 031 | 029 | J033 | J043 | 024G | 022G | 030 | 025G | G | E016S | E012S | E | 020 | J025 | 020 | J021 | E016S |
| 14 | 020 | E013S | E | E | E | E | E | 020 | 026 | G | 032 | G | G | G | G | G | E015S | E014S | E015S | E017S | E020S | E015S | E | E011S |
| 15 | E015S | E | E | E | E | E | E012S | G | G | G | 032 | 020G | 032 | 015G | G | G | E015S | E016S | E018S | E015S | E018S | J053 | J021 | 023 |
| 16 | E012S | E | E | 014 | E | E | J053 | 020 | 030 | 035 | 034 | G | 050 | 050 | 037 | 033 | 020 | E015S | 030 | 020 | 024 | E018S | J030 | E011S |
| 17 | E015S | 020 | 013 | 020 | J036 | 014 | J028 | 022 | J028 | 026 | 029 | 032 | J046 | G | 027 | 025 | J030 | J031 | 038M | J026 | 014 | J030 | 020 | J033 |
| 18 | J063 | J030 | J026 | J028 | J026 | J046 | J027 | 018 | G | 027 | 033 | 043 | 030 | G | 023G | G | E015S | E011S | J024 | 037M | J040 | J030 | J053 | J030 |
| 19 | J028 | 050 | J043 | J024 | E | E015S | E011S | G | 027 | 028 | 030 | J036 | 028 | 029 | J050 | J091 | J051 | J030 | 025 | E013S | E017S | J031 | E013S | E015S |
| 20 | E018S | E012S | 018 | E014S | E019S | E011S | E011S | 020 | 024 | J043 | J043 | 040 | J033 | 032 | 038 | 023 | J038 | J051 | 041M | E016S | E016S | E015S | E014S | 022 |
| 21 | E012S | 015 | 020 | J023 | 014 | E | E016S | 020 | C | C | C | C | C | C | C | C | 021 | E015S | 018 | E018S | E014S | E015S | J023 | J025 |
| 22 | E015S | E | E | E | 019 | E | E012S | 022 | G | G | G | 040 | 038 | J043 | 032 | J035 | 018 | J025 | 014 | E011S | E015S | E014S | E015S | E012S |
| 23 | E015S | E | E | 025 | J019 | E012S | E014S | 018 | 027 | 028 | 031 | 032 | 039 | G | G | G | J021 | J025 | E013S | E012S | E011S | E015S | E012S | E015S |
| 24 | E016S | E012S | 022 | J023 | J020 | E014S | E015S | G | G | 037 | J035 | 031 | 030 | G | G | G | E015S | E015S | E016S | 020 | E017S | J024 | J025 | J032 |
| 25 | J030 | J020 | 020 | E013S | 013 | E | E015S | 018 | 028 | J053 | J033 | 020G | G | 020G | G | G | E016S | J018 | E018S | E017S | E013S | E015S | E016S | E012S |
| 26 | J026 | 018 | 016 | 015 | E | E012S | E015S | 020 | G | J032 | G | G | G | G | G | G | E017S | E015S | E013S | E018S | E012S | E012S | E011S | E015S |
| 27 | E012S | E | E | E | E | E | E015S | G | 023 | G | G | G | G | G | G | G | E015S | E017S | E012S | E017S | E018S | E011S | 022 | E015S |
| 28 | E014S | 018 | E | E | E | E012S | E016S | E018S | G | 030 | 030 | G | 024G | G | G | 024 | J026 | J023 | J021 | J033 | J024 | J021 | J025 | 022 |
| 29 | E016S | 020 | E | E | E | E013S | E015S | E015S | G | 027 | G | 022G | 027G | G | 022 | 021 | J031 | J025 | E018S | E015S | E016S | E013S | E018S | E016S |
| 30 | E012S | E011S | E012S | E | E | E012S | E016S | E015S | G | G | G | G | G | G | G | G | E015S | E011S | E016S | E018S | E018S | S | E013S | E012S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 29 | 28 | 28 | 28 | 28 | 28 | 28 | 29 | 29 | 30 | 30 | 30 | 30 | 29 | 30 | 30 |
| Median | E017S | 018 | 014 | 014 | E014 | E012S | E014S | 018 | G | 028 | 032 | 032 | 032 | G | G | G | 020 | 020 | 022 | E018S | E018S | E018S | 020 | E020S |
| U. Q. | 026 | 024 | 023 | 023 | 020 | E014 | E016 | 020 | 027 | 036 | 034 | 039 | 038 | 036 | 032 | 024 | 029 | 025 | 030 | 033 | 024 | 024 | 025 | 025 |
| L. Q. | E014 | E011 | E | E | E | E | E012 | G | G | G | G | G | G | G | G | G | E016 | E015 | E016 | E016 | E015 | E014 | E014 | E015 |
| Q. R. | D012 | D013 | | | | | | | | | | | | | | | D013 | D010 | D014 | D017 | D009 | D010 | D011 | D010 |

foEs

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 4

# IONOSPHERIC DATA

**Nov. 1965** | **$f_bEs$** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 013 | 012 | E | 012 | S | S | | 025 | 040 | 040 | G | G | 036 | 026 | 018G | C | 026 | 022 | 028 | 020 | 023 | 017 | 018 |
| 2 | 018 | 020 | 018 | 019 | 013 | 012 | 015 | | | | | 030 | 031 | 035 | 027 | 023 | 030 | 022 | 020 | 023 | S | 020 | S | S |
| 3 | S | S | 013 | | | | S | | G | G | G | 031 | 030 | 040 | 034 | 036 | 040 | S | A | 024 | 020 | 017 | 017 | S |
| 4 | E016S | | | | | S | S | | | G | G | | 031 | 035 | 035 | 023 | 018 | S | 025 | 018 | S | S | 015 | 018 |
| 5 | 016 | 014 | | 013 | S | S | S | | G | G | 041 | 025F | 031 | 040 | G | 030 | 017 | 015 | A | 023 | 020 | 018 | 020 | 023 |
| 6 | 020 | 017 | 013 | 012 | 012 | S | S | G | | 040 | G | 030 | 030 | | | | 020 | 018 | 024 | S | 019 | S | 018 | 030 |
| 7 | 020 | 017 | 020 | 015 | 019 | 017 | S | 020 | 047 | E040C | 034 | 033 | 030 | 030 | 025 | 022 | 025 | 020 | 022 | 020 | S | 019 | 017 | 015 |
| 8 | 021 | 020 | E | 018 | 020 | 015 | S | | G | 021G | 033 | 032 | 030 | 030 | 026 | 023 | S | S | S | S | S | S | S | S |
| 9 | S | 012 | 012 | | 020 | S | S | | | | G | 045 | 030 | 028 | 020 | | 013 | 018 | S | S | | S | 017 | 018 |
| 10 | S | S | | | | S | S | | | | | | | | | | 016 | S | 024 | 020 | S | S | 019 | 018 |
| 11 | 015 | 019 | 012 | C | S | | S | 020 | S | C | C | C | C | C | C | 023 | 020 | 015 | 020 | 020 | 020 | 018 | 025 | 020 |
| 12 | 020 | 020 | 012 | E | S | S | S | 020 | | | 025 | 020 | 020G | 020G | | | G | 015 | 025 | 020 | 019 | S | | S |
| 13 | 027 | 020 | 014 | 019 | 018 | S | 018 | 030 | 025 | 030 | 020 | 020G | 020G | 020 | 020G | | S | S | | 015 | 018 | 011 | E012S | S |
| 14 | 019 | S | | | | | | G | G | | G | | | | | | S | S | S | S | S | S | | S |
| 15 | S | | | | | | S | | | | G | 020G | G | 015G | | | S | S | S | S | S | A | 016 | 016 |
| 16 | S | | | 012 | | | 014 | G | G | 020 | G | | 032 | 031 | 020 | 032 | 020 | S | 023 | 020 | 021 | S | 015 | S |
| 17 | S | 016 | 011 | E | E | 012 | E015S | G | G | G | 029 | 030 | 030 | | 020 | 025 | 015 | 020 | A | 021 | 011 | 017 | 018 | 014 |
| 18 | A | 019 | 020 | 014 | 013 | A | 015 | 017 | | G | G | 031 | 030 | | 020G | | S | S | 015 | A | 018 | 016 | 018 | 017 |
| 19 | 016 | 020 | A | 019 | | S | S | | 024 | 027 | 029 | 033 | 027 | 026 | 040 | A | 026 | 023 | 022 | S | S | 017 | S | S |
| 20 | S | S | 018 | S | S | S | S | G | 024 | 030 | 027 | 028 | 028 | 026 | 025 | 022 | 034 | A | A | S | S | S | S | E013S |
| 21 | S | 015 | 016 | 014 | 012 | | S | 020 | C | C | C | C | C | C | C | C | 016 | S | 017 | S | S | S | 016 | 016 |
| 22 | S | | | | 018 | | S | G | | | | 039 | 038 | 027 | 017 | 021 | 015 | 018 | 014 | S | S | S | S | S |
| 23 | S | | | 018 | 017 | S | S | G | G | G | G | G | G | | | | 016 | 018 | S | S | S | S | S | S |
| 24 | S | S | 016 | 019 | 017 | S | S | | | 027 | 030 | 029 | 028 | | | | S | S | S | 015 | S | 020 | 020 | 022 |
| 25 | 020 | 020 | 019 | S | 012 | | S | G | 023 | 025 | 027 | 020G | | 018 | | | S | 014 | S | S | S | S | S | S |
| 26 | 016 | 4 | 014 | E | | S | S | G | | 026 | | | | | | | S | S | S | S | S | S | S | S |
| 27 | S | | | | | | S | | G | | | | | | | | S | S | S | S | S | S | 016 | S |
| 28 | S | 015 | | | | S | S | S | | 027 | 020 | | 020G | | | G | 022 | 020 | 019 | A | 020 | 020 | 022 | 018 |
| 29 | S | E012S | | | | S | S | S | | 027 | | 021G | 020G | | 022 | 016 | 025 | 018 | S | S | S | S | S | S |
| 30 | S | S | S | | | S | S | S | | | | | | | | | S | S | S | S | S | S | S | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

$f_bEs$

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 5

# IONOSPHERIC DATA

Nov. 1965 | f-min | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 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 | E012S | E015S | 013 | 011 | 011 | 011 | 013 | 017 | 011 | 012 | 011 | C | E011S | E013S | E017S | E011S | 010 | E013S | E011S |
| 2 | 010 | E | E | E | E | E | E | 011 | 011 | 017 | 017 | 018 | 018 | 017 | 012 | 011 | 010 | E012S | E014S | E012S | E015S | E012S | E016S | E018S |
| 3 | E017S | E011S | E | E | E | E | E014S | 011 | 011 | 011 | 012 | 011 | 012 | 018 | 012 | 011 | 010 | E011S | E015S | E | E015S | E015S | 010 | E015S |
| 4 | E016S | E | E | E | E | E012S | E012S | 012 | 010 | 011 | 012 | 012 | 012 | 011 | 011 | 010 | E015S | E012S | E015S | E012S | E015S | E012S | E011S | E |
| 5 | E | E | E | E | E016S | E013S | E013S | E016S | 017 | 017 | 015 | 013 | 012 | 011 | 012 | 011 | 010 | 010 | E011S | E015S | E011S | E012S | E011S | E011S |
| 6 | E011S | E | E | E | E | E012S | E014S | E | 011 | 011 | 012 | 012 | 018 | 018 | 012 | 012 | 010 | 010 | E012S | E012S | E011S | E012S | E012S | E012S |
| 7 | E | E | E | E | E | E012S | E012S | 011 | 012 | E040C | 013 | 017 | 015 | 011 | 010 | 010 | 011 | E012S | E015S | E012S | E015S | E011S | E015S | E011S |
| 8 | E012S | E013S | E | E | E | E | E012S | 012 | 011 | 011 | 018 | 012 | 013 | 012 | 015 | 012 | E016S | E016S | E018S | E018S | E015S | E019S | E012S | E020S |
| 9 | E013S | E | E | E | E | E015S | E014S | 010 | 011 | 012 | 012 | 016 | 018 | 017 | 012 | 012 | 010 | 010 | E018S | E018S | E | E011S | 010 | E011S |
| 10 | E012S | E012S | E | E | E | E014S | E012S | 010 | 015 | 018 | 017 | 020 | 018 | 020 | 017 | 015 | E011S | E017S | E012S | E015S | E018S | E018S | E012S | E012S |
| 11 | E011S | E | E | C | E012S | E | E012S | 011 | E020S | C | C | C | C | C | C | 012 | E | E014S | E012S | E | E011S | E011S | 010 | 010 |
| 12 | E011S | E | E | E | E012S | E012S | E011S | 011 | 017 | 018 | 018 | 018 | 017 | 017 | 018 | 016 | E015S | E012S | E011S | E016S | E012S | E016S | E011S | E013S |
| 13 | E015S | E | E | E | E | E012S | E012S | E | 011 | 012 | 012 | 012 | 012 | 011 | 011 | 011 | E016S | E012S | 010 | 010 | E011S | E | E012S | E016S |
| 14 | E015S | E013S | E | E | E | E | E | 011 | 014 | 012 | 013 | 018 | 017 | 019 | 019 | 011 | E015S | E014S | E015S | E017S | E020S | E015S | E | E011S |
| 15 | E015S | E | E | E | E | E | E012S | E | 012 | 013 | 018 | 013 | 018 | 011 | 012 | 012 | E015S | E016S | E018S | E015S | E018S | E012S | E011S | E011S |
| 16 | E012S | E | E | E | E | E | E013S | E012S | 011 | 012 | 012 | 012 | 016 | 012 | 011 | 015 | 010 | E015S | E012S | E012S | E013S | E018S | E011S | E011S |
| 17 | E015S | E | E | E | E | E | E015S | E | 011 | 011 | 012 | 018 | 016 | 012 | 012 | 011 | E | 010 | E011S | E012S | E | E011S | E012S | 010 |
| 18 | 011 | E | E | E | E | E011S | E012S | 010 | 5 | 012 | 018 | 018 | 016 | 019 | 018 | 016 | E018S | E011S | E011S | E014S | E015S | E011S | E011S | 010 |
| 19 | E012S | E | E | E | E | E015S | E011S | 011 | 011 | 011 | 011 | 011 | 011 | 012 | 011 | 011 | 010 | E012S | E012S | E013S | E017S | E016S | E013S | E015S |
| 20 | E018S | E012S | E | E014S | E019S | E011S | E011S | E | 011 | 012 | 016 | 011 | 011 | 011 | 011 | 010 | E | E011S | E016S | E016S | E016S | E015S | E014S | E013S |
| 21 | E012S | E | E | E | E | E | E016S | E | C | C | C | C | C | C | C | C | 010 | E015S | E011S | E018S | E014S | E015S | 010 | E015S |
| 22 | E015S | E | E | E | E | E | E012S | 011 | 011 | 012 | 011 | 012 | 011 | 012 | 012 | 017 | E015S | E012S | E011S | E011S | E015S | E014S | E015S | E012S |
| 23 | E015S | E | E | E | E | E012S | E014S | E | 011 | 012 | 011 | 012 | 012 | 011 | 012 | 011 | E011S | E012S | E013S | E012S | E011S | E015S | E012S | E015S |
| 24 | E016S | E012S | E | E | E | E014S | E015S | E | 012 | 012 | 012 | 012 | 011 | 012 | 012 | 012 | E015S | E015S | E016S | E | E017S | E011S | E012S | E |
| 25 | E | E | E | E013S | E | E | E015S | E | 011 | 010 | 011 | 012 | 013 | 011 | 012 | 014 | E016S | E012S | E018S | E017S | E013S | E015S | E016S | E012S |
| 26 | E011S | E | E | E | E | E012S | E015S | E013S | 012 | 011 | 011 | 012 | 012 | 014 | 012 | 012 | E017S | E015S | E013S | E018S | E012S | E012S | E011S | E015S |
| 27 | E012S | E | E | E | E | E | E015S | 011 | 011 | 012 | 013 | 012 | 012 | 016 | 017 | 011 | E015S | E017S | E012S | E017S | E018S | E011S | E015S | E015S |
| 28 | E014S | E | E | E | E | E012S | E016S | E018S | 012 | 011 | 012 | 017 | 011 | 012 | 012 | 012 | E015S | E016S | E016S | E015S | E015S | E018S | E016S | E016S |
| 29 | E016S | E012S | E | E | E | E013S | E015S | E015S | 012 | 011 | 011 | 012 | 017 | 016 | 012 | 011 | E016S | E015S | E018S | E015S | E016S | E013S | E018S | E016S |
| 30 | E012S | E011S | E012S | E | E | E012S | E016S | E015S | 011 | 012 | 012 | 012 | 012 | 011 | 011 | 011 | E015S | E011S | E016S | E018S | E018S | S | E013S | E012S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 29 | 28 | 28 | 28 | 28 | 28 | 28 | 29 | 29 | 30 | 30 | 30 | 30 | 29 | 30 | 30 |
| Median | E012S | E | E | E | E | E012S | E013S | E011E | 011 | 012 | 012 | 012 | 013 | 012 | 012 | 011 | E015S | E012S | E013S | E015S | E015S | E012S | E012S | E012S |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

f-min

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

# IONOSPHERIC DATA

**Nov. 1965** | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SF | SF | SF | SF | SF | SF | SF | 350 | 360 | 355 | 355 | 335 | 345 | 350 | 345 | 365 | I375C | 350 | 330 | 325 | 320 | 310 | SF | F |
| 2 | SF | SF | SF | SF | SF | SF | SF | 365 | 360 | 360 | 355 | 345 | 365 | 365 | 345 | 350 | 365 | 380 | 345 | 340F | SF | F | SF | F |
| 3 | SF | F | F | F | SF | SF | SF | U365S | 345 | 335 | 365 | 360 | 360 | 365 | 355 | 350 | 375 | I360S | I335A | 340 | 315 | 300 | SF | SF |
| 4 | SF | F | F | F | F | 340F | 350 | 370 | 355 | 375 | 345 | 335 | 360 | 315H | 365 | 370 | 370 | 355 | 335 | 315 | 325 | 310F | 280F | 295F |
| 5 | SF | SF | SF | F | SF | SF | SF | U340S | 365 | 365 | 340 | 350 | 355 | 355 | 345 | 370 | 350 | 345 | I345A | 340 | 315 | 315 | 310 | SF |
| 6 | F | SF | 310F | 300F | F | SF | 320 | 360 | 355 | 350 | 300 | 350 | 360 | 340 | 330 | 355 | 355 | 295H | 295 | 300 | 290 | SF | 315F | 300F |
| 7 | SF | SF | 295F | 295F | SF | SF | 315F | 355 | 345 | 335 | 350 | 355 | 350 | 350 | 340H | 360 | 350 | 355 | 320 | 295 | 320 | 310 | 295 | 295 |
| 8 | 310 | 305 | 325 | 330 | 330 | 310 | 315 | 345 | 365 | 355 | 340 | 360 | 315H | 340 | 360 | 350 | 375 | 360 | 330 | 305 | 320 | 295 | SF | 300F |
| 9 | 285F | SF | SF | SF | F | 375F | 330 | 365 | 355 | 370 | 365 | 345 | 365 | 350 | 345 | 360 | 350 | 350 | 360 | 335 | 335 | 335 | 310 | SF |
| 10 | SF | SF | 315F | 310 | 315 | 350 | 325 | 365 | 370 | 365 | 350 | 350 | 355 | 350H | 340H | 360 | 375 | 335 | 325 | 345 | 345 | 305 | 305F | 305F |
| 11 | 315 | 305 | 295 | I310C | 305 | 325 | 335H | 365 | 375 | C | C | C | C | C | C | 375 | 345 | 350 | 350 | 335 | 325 | 335 | 305 | 310 |
| 12 | 305 | 295F | 310F | 315F | 310 | 340 | 325H | 360 | 370 | 365 | 365 | 335 | 355 | 355 | 360H | 345 | 345 | 350 | 335 | 325 | 315 | 325 | 310 | 335 |
| 13 | SF | 300F | 295F | 305F | 305F | 320 | 315 | 360 | 375 | 360 | 330H | 370 | 340 | 365 | 350 | 330H | 350 | 350 | 345 | 315 | 310 | 310 | SF | 305F |
| 14 | 305 | 305 | 320 | 330 | 335F | 340F | 320 | 360 | 340 | 365 | 365 | 355 | 360 | 355 | U345S | 360 | 350 | 360 | 310 | 335 | 335 | 315 | 320 | 290F |
| 15 | 305 | F | SF | SF | SF | 340F | 385F | 365 | 365 | 375 | 355 | 330H | 370 | 355 | 340 | 360 | 380 | 325 | 330 | 350 | 335 | I340A | 295 | 305F |
| 16 | 325F | 290F | 305F | 290F | 325F | 355 | 290 | 360 | 380 | 375 | 345 | 375H | 340 | 355 | 370 | 365 | 370 | 345 | 320 | 310 | 350F | 345F | 305F | 300F |
| 17 | SF | F | F | F | F | 340F | 340F | 355 | 370 | 370H | 345 | 365 | 365 | 365 | 355 | 360 | 360 | 345 | I330A | 320 | 315 | 320F | 295F | 300F |
| 18 | A | SF | SF | SF | 310F | I355A | 315 | 360 | 375 | 375 | 370 | 330 | 335 | 360 | 365 | 370 | 335 | 360 | 375 | I320A | 320 | 330 | 305F | SF |
| 19 | 305F | 300F | I295A | 300F | 305F | 305F | 315 | 370 | U360S | 360 | 370S | 355 | 375 | 370 | 355 | I355A | 360 | 355S | 350 | 335 | 370 | 310 | 295F | 295F |
| 20 | 310F | 300F | 305F | 305 | 300 | 305 | U345S | I350S | 360 | 350 | 340 | 345 | 320H | 360 | 360 | 380 | 360 | A | A | 315 | SF | F | F | F |
| 21 | SF | SF | 345F | 340F | F | F | SF | 360 | C | C | C | C | C | C | C | C | 350 | 330 | 350 | 320 | F | F | F | F |
| 22 | SF | SF | SF | SF | SF | 345 | 345F | 365 | 375 | 385 | 365 | 365 | 370 | 345 | 365 | 365 | 355 | 360 | 325 | 330 | 355 | 325 | 290F | F |
| 23 | SF | SF | SF | 295F | 325F | 335 | 335S | 365 | 355 | 365 | 345H | 345 | 360 | 365 | 370 | 375 | 355 | 340 | 350 | 345 | 355 | 305 | SF | F |
| 24 | F | 300F | 300F | F | 310F | 345 | 320F | 380 | 370 | 375 | 360 | 350 | 360 | 355 | 370 | 380 | 365 | 355 | 355 | 360 | F | F | F | 310F |
| 25 | 325F | 335F | 325F | 320F | 335F | 320F | SF | 340 | 355 | 345 | 340 | 355 | 380 | 365 | 355 | 375 | 360 | 345 | 315 | 320 | 355 | F | 295F | 305F |
| 26 | 300F | F | F | F | F | F | 335F | 350 | 370 | 370 | 355 | 350 | 375 | 355 | 365 | 360 | U335S | 360 | 345 | 355 | 315S | SF | 335 | 300 |
| 27 | U305S | I315S | 305 | 320 | F | F | 325 | 355 | 380 | 375 | 355 | I370R | 355 | 360 | 350 | 370 | 345 | 365 | 335 | 335 | 345 | SF | SF | 295F |
| 28 | SF | SF | SF | SF | 325F | 300F | 345S | 350S | 370 | 365 | U335R | I375R | U375S | 360 | 380 | 375 | 365 | 315 | 325 | I330A | 335 | 310 | 310 | 305S |
| 29 | 325 | 295F | SF | 305 | 305 | 345 | 355 | 365 | U370S | 360 | 380 | R | U355R | 370 | 365 | 390 | 360 | 325 | 320 | 350 | 310 | 355 | 330 | 305 |
| 30 | 305 | 320 | 305F | 305F | 345F | 365 | 330 | 340 | I355S | I350S | U360S | I350S | I360S | 380 | 375 | 355 | 365 | 355 | 340 | 315 | 325 | I295S | 305F | 295F |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 14 | 13 | 16 | 17 | 16 | 21 | 24 | 30 | 29 | 28 | 28 | 27 | 28 | 28 | 28 | 29 | 30 | 29 | 29 | 30 | 26 | 22 | 20 | 20 |
| Median | 305 | 300F | 305F | 305F | 310F | 340 | 330 | 360 | 365 | 365 | 355 | 350 | 360 | 355 | 355 | 360 | 360 | 350 | 335 | 330 | 325 | 310 | 305F | 300F |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

M(3000) F2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 7

# IONOSPHERIC DATA

Nov. 1965 | M(3000)F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | A | A | 400 | L | | L | | | | | | | | | |
| 2 | | | | | | | | | | L | 400 | 405 | | U400L | | | | | | | | | | |
| 3 | | | | | | | | | | | 400 | 400 | 400 | A | | | | | | | | | | |
| 4 | | | | | | | | | | 400 | 425 | 415 | 400 | | | | | | | | | | | |
| 5 | | | | | | | | | | | A | U390L | 400 | I395A | | | | | | | | | | |
| 6 | | | | | | | | | | A | 400L | 410 | 400 | U400L | | | | | | | | | | |
| 7 | | | | | | | | | | C | 400 | U400L | U400L | | | | | | | | | | | |
| 8 | | | | | | | | | | 420 | 400 | U400L | | | 395 | | | | | | | | | |
| 9 | | | | | | | | | | | 420 | I400A | 400 | | | | | | | | | | | |
| 10 | | | | | | | | | 400 | | 400 | 405 | U400L | | | | | | | | | | | |
| 11 | | | | | | | | | | C | C | C | C | C | C | | | | | | | | | |
| 12 | | | | | | | | | | | | | U395L | U400L | | | | | | | | | | |
| 13 | | | | | | | | | 395 | U400L | 425 | | U410L | | | | | | | | | | | |
| 14 | | | | | | | | | | | U410L | | 400 | U400L | | | | | | | | | | |
| 15 | | | | | | | | | | | 405 | | 400 | L | | | | | | | | | | |
| 16 | | | | | | | | | | | | U405L | U400L | | | | | | | | | | | |
| 17 | | | | | | | | | | | 420 | 385 | 400 | | | | | | | | | | | |
| 18 | | | | | | | | | | | | 400 | 400 | 405L | | | | | | | | | | |
| 19 | | | | | | | | | | U385L | 385 | U390L | U385L | | | | | | | | | | | |
| 20 | | | | | | | | | | | 400 | 410 | | | | | | | | | | | | |
| 21 | | | | | | | | | C | C | C | C | C | C | C | | | | | | | | | |
| 22 | | | | | | | | | | | U410S | I390A | A | | | | | | | | | | | |
| 23 | | | | | | | | | | | | 380 | 395 | 405 | | | | | | | | | | |
| 24 | | | | | | | | | | 430 | | 390 | 400 | 390 | U405L | | | | | | | | | |
| 25 | | | | | | | | | | | 405 | 400 | 410 | 410L | | | | | | | | | | |
| 26 | | | | | | | | | | | | 405 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | 415 | | 395 | | | | | | | | | | | |
| 28 | | | | | | | | | | | | L | | 390 | | | | | | | | | | |
| 29 | | | | | | | | | | | | 390 | 385 | U405L | | | | | | | | | | |
| 30 | | | | | | | | | | 405 | | 395 | 415 | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 2 | 6 | 17 | 22 | 21 | 11 | 2 | | | | | | | | | |
| Median | | | | | | | | | 400 | 400 | 405 | 400 | 400 | U400 | U400 | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

M(3000)F1

W 8

# IONOSPHERIC DATA

Nov. 1955 | h'F2 | km | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 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 | 240 | 250 | 245 | | 240 | | | | | | | | | |
| 2 | | | | | | | | | | 225 | 245 | 225 | | 235 | | | | | | | | | | |
| 3 | | | | | | | | | | | 225 | 230 | 235 | 210 | | | | | | | | | | |
| 4 | | | | | | | | | | 225 | 215 | 245 | 235 | | | | | | | | | | | |
| 5 | | | | | | | | | | | 245 | 245 | 220 | 225 | | | | | | | | | | |
| 6 | | | | | | | | | | 240 | 250 | 250 | 230 | 250 | | | | | | | | | | |
| 7 | | | | | | | | | | 250 | 250 | 230 | 235 | | | | | | | | | | | |
| 8 | | | | | | | | | | 240 | 240 | 240 | | | 235 | | | | | | | | | |
| 9 | | | | | | | | | | | 225 | 250 | 235 | | | | | | | | | | | |
| 10 | | | | | | | | | 225 | | 250 | 235 | 235 | | | | | | | | | | | |
| 11 | | | | | | | | | | C | C | C | C | C | C | | | | | | | | | |
| 12 | | | | | | | | | | | | | 235 | 250 | | | | | | | | | | |
| 13 | | | | | | | | | 215 | 240 | 220H | | 220 | | | | | | | | | | | |
| 14 | | | | | | | | | | | 220 | | 240 | 245 | | | | | | | | | | |
| 15 | | | | | | | | | | | 245 | | 240 | 235 | | | | | | | | | | |
| 16 | | | | | | | | | | | | 225 | 250 | | | | | | | | | | | |
| 17 | | | | | | | | | | | 235 | 240 | 225 | | | | | | | | | | | |
| 18 | | | | | | | | | | | | 260 | 230 | 235 | | | | | | | | | | |
| 19 | | | | | | | | | | 230 | 250 | 245 | 225 | | | | | | | | | | | |
| 20 | | | | | | | | | | | 245 | 240 | | | | | | | | | | | | |
| 21 | | | | | | | | | C | C | C | C | C | C | C | | | | | | | | | |
| 22 | | | | | | | | | | | 235 | 230 | 230 | | | | | | | | | | | |
| 23 | | | | | | | | | | | | 240 | 220 | 225 | | | | | | | | | | |
| 24 | | | | | | | | | | 220 | | 250 | 235 | 240 | 220 | | | | | | | | | |
| 25 | | | | | | | | | | | 235 | 240 | 225 | 235 | | | | | | | | | | |
| 26 | | | | | | | | | | | | 240 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | 225 | | 225 | | | | | | | | | | | |
| 28 | | | | | | | | | | | | 240 | | 245 | | | | | | | | | | |
| 29 | | | | | | | | | | | | 260 | 235 | 240 | | | | | | | | | | |
| 30 | | | | | | | | | | 245 | | 230 | 235 | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 2 | 10 | 19 | 23 | 23 | 13 | 3 | | | | | | | | | |
| Median | | | | | | | | | 220 | 240 | 240 | 240 | 235 | 235 | 235 | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F2

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 9

19

# IONOSPHERIC DATA

Nov. 1965 | h'F km | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 285F | 260 | 255 | 275 | 245 | 205 | 225 | 210 | 215 | A | A | 210 | 240 | 225A | 230 | 225 | I210C | 225 | 250 | 300A | 280 | 300A | 295 | 285 |
| 2 | 290 | 300 | 275 | 275 | 235 | 210 | 210 | 210 | 220 | 225 | 225 | 200 | 195H | 245 | 225H | 225 | 215 | 210 | 250 | 260 | 270 | 270 | 245 | 255 |
| 3 | 250 | 260 | 290 | 260 | 240 | 200 | 240 | 220 | 225 | 225 | 215 | 225 | 225 | I235A | 250 | 225 | A | S | A | 260 | 255 | 260 | 270 | 260 |
| 4 | 250 | 260 | 280 | 260 | 245 | 225 | 200 | 210 | 210 | 210 | 200 | 200 | 240 | 225H | 235 | 225 | 205 | 210 | 265 | 275 | 250 | 225 | 345 | 300 |
| 5 | 300 | 300 | 265 | 260 | 260 | 220 | 240 | 225 | 220 | 220 | I235A | 250 | 235 | I220A | 235 | 220 | 215 | 210 | I230A | 245 | 255 | 250 | 285 | 325 |
| 6 | 300 | 280 | 265 | 265 | 260 | 210 | 205 | 210 | 210H | I230A | 240 | 210 | 240 | 225 | 250 | 235 | 210 | 200H | 280 | 265 | 265 | 265 | 260 | I275A |
| 7 | 270 | 275 | 300 | 300 | 290 | 230 | 245 | 240 | I225A | I240C | 245 | 245 | 240 | 240 | 225 | 225 | 220 | 220 | 250 | 275 | 270 | 260 | 270 | 280 |
| 8 | 290 | 285 | 250 | 260 | 250 | 250 | 250 | 240 | 225 | 200 | 205 | 240 | 210H | 235 | 220 | 230 | 210 | 220 | 250 | 270 | 250 | 295 | 280 | 300 |
| 9 | 280 | 300 | 265 | 250 | 250 | 210 | 235 | 220 | 200H | 215H | 220 | I230A | 220 | 225 | 235 | 225 | 220 | 225 | 220 | 250 | 235 | 250 | 260 | 300 |
| 10 | 275 | 275 | 250 | 260 | 250 | 225 | 200 | 210 | 195 | 225 | 215 | 235 | 235 | 200H | 235 | 225 | 205 | 225 | 260 | 245 | 240 | 260 | 300 | 300 |
| 11 | 280 | 300 | 275 | I265C | 265 | 245 | 200 | 220 | 225 | C | C | C | C | C | C | 220 | 225 | 210 | 250 | 260 | 265 | 250 | 300 | 310 |
| 12 | 300 | 300 | 250 | 250 | 250 | 235 | 220 | 220 | 210H | 210 | 220H | 220H | 230 | 230 | 215H | 225 | 215 | 230 | 275 | 260 | 260 | 255 | 270 | 240 |
| 13 | 300A | 305 | 290 | 290 | 285 | 250 | 265 | 225A | 210 | 220 | 210 | 200H | 210 | 235 | 225 | 220 | 215 | 200 | 230H | 250 | 300 | 265 | 325 | 300 |
| 14 | 295 | 275 | 250 | 225 | 245 | 225 | 245 | 210 | 235 | 225 | 210 | 215H | 240 | 210H | 225 | 225 | 220 | 210 | 250 | 250 | 235 | 245 | 250 | 275 |
| 15 | 280 | 290 | 270 | 285 | 250 | 220 | 225 | 220 | 215 | 220 | 235 | 210H | 230 | 240 | 225 | 235 | 200 | 220 | 250 | 240 | 240 | A | 285 | 280 |
| 16 | 265 | 295 | 275 | 270 | 250 | 215 | 300A | 215 | 215 | 220 | 230 | 235 | 250 | 230 | 245 | 225 | 210 | 220 | 300A | 275 | 250 | 230 | 250 | 275 |
| 17 | 280 | 290 | 250 | 250 | 255 | 225 | 225 | 225 | 210 | 215H | 210 | 225 | 220 | 210 | 210H | 230 | 210 | 240 | I290A | 310 | 260 | 255 | 295 | 290 |
| 18 | I300A | 300 | 275 | 250 | 245 | I230A | 250 | 215 | 220 | 220 | 220 | 235 | 215 | 205 | 230 | 220 | 225 | 220 | 225 | A | 250 | 245 | 315 | 300 |
| 19 | 270 | 310 | I310A | 310 | 270 | 250 | 250 | 210 | 215 | 225 | 205 | 245 | 225 | 200H | I240A | I230A | 220 | 230 | 250 | 240 | 210 | 300 | 300 | 320 |
| 20 | 295 | 325 | 300 | 295 | 310 | 250 | 250 | 220 | 225 | 230 | 210 | 225 | 215H | 225H | 245 | 220 | A | A | A | 270 | 290 | 290 | 340 | 300 |
| 21 | 250 | 250 | 230 | 245 | 295 | 250 | 240 | 225 | C | C | C | C | C | C | C | C | 215 | 225 | 220 | 250 | 230 | 240 | 260 | 270 |
| 22 | 275 | 260 | 250 | 200 | 235 | 200 | 245 | 220 | 225 | 215H | 225 | I220A | I230A | 235 | 235 | 215 | 215 | 210 | 220 | 230 | 220 | 250 | 315 | 275 |
| 23 | 300 | 275 | 275 | 290 | 260 | 225 | 220 | 220 | 220 | 225 | 220 | 240 | 225 | 220 | 235 | 220 | 220 | 240 | 210 | 225 | 210 | 285 | 305 | 280 |
| 24 | 260 | 270 | 280 | 300 | 295 | 230 | 250 | 205 | 210 | 220 | 200H | 215 | 225 | 210 | 220 | 210 | 210 | 220 | 225 | 240 | 240 | 300 | 310 | 335 |
| 25 | 285 | 270 | 250 | 265 | 240 | 240 | 250 | 225 | 225 | 210H | 200 | 225 | 225 | 215 | 220 | 215 | 210 | 220 | 275 | 250 | 215 | 300 | 300 | 265 |
| 26 | 265 | 265 | 250 | 250 | 225 | 210 | 220 | 210 | 220 | 215 | 210H | 230 | 230 | 240 | 230 | 220 | 210 | 210 | 230 | 250 | 250 | 220 | 225 | 285 |
| 27 | 255 | 250 | 250 | 240 | 245 | 230 | 230 | 215 | 210 | 220 | 200 | 215H | 215 | 245 | 240 | 220 | 220 | 200 | 240 | 250 | 235 | 250 | 300 | 290 |
| 28 | 265 | 285 | 250 | 225 | 240 | 260 | 240 | 225 | 215 | 225 | 240 | 245 | 225 | 225 | 235 | 215 | 215 | 250 | 255 | I270A | 250 | U300A | 280 | 295 |
| 29 | 270 | 300 | 285 | 275 | 250 | 230 | 225 | 210 | 220 | 225 | 210H | 215 | 240 | 220 | 225 | 210 | 240 | 260 | 280 | 225 | 250 | 220 | 295 | 275 |
| 30 | 265 | 270 | 275 | 265 | 225 | 200 | 250 | 220 | 220 | 210 | 200H | 235 | 210 | 220 | 220 | 220 | 210 | 210 | 230 | 275 | 255 | I290S | 300 | 315 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 27 | 27 | 28 | 28 | 28 | 28 | 29 | 28 | 28 | 28 | 29 | 30 | 29 | 30 | 30 |
| Median | 280 | 280 | 270 | 260 | 250 | 225 | 240 | 220 | 220 | 220 | 215 | 225 | 225 | 225 | 230 | 225 | 215 | 220 | 250 | 250 | 250 | 260 | 295 | 290 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 10

# IONOSPHERIC DATA

Nov. 1965 | h'Es | km | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N | Long. 141° 41.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | E | 110 | 105 | 105 | 105 | S | S | G | 115 | 135 | 120 | 110 | 115 | 110 | 110 | 110 | C | 105 | 105 | 110 | 105 | 115 | 110 | 110 |
| 2 | 115 | 110 | 110 | 110 | 105 | 105 | 105 | G | G | G | G | 110 | 110 | 105 | 105 | 105 | 100 | 100 | 110 | 110 | S | 100 | S | S |
| 3 | S | S | 105 | E | E | E | S | G | 150 | 125 | 110 | 110 | 110 | 105 | 105 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | S |
| 4 | 100 | E | E | E | E | S | S | G | G | 125 | 115 | G | 110 | 110 | 110 | 105 | 110 | S | 130 | 110 | S | S | 100 | 105 |
| 5 | 105 | 105 | E | 100 | S | S | S | G | 160 | 145 | 115 | 140 | 140 | 125 | 125 | 110 | 125 | 110 | 110 | 105 | 105 | 105 | 105 | 100 |
| 6 | 105 | 105 | 100 | 100 | 100 | S | S | 185 | G | 115 | 115 | 110 | 110 | G | G | G | 120 | 115 | 110 | S | 110 | S | 110 | 105 |
| 7 | 105 | 105 | 105 | 105 | 105 | 105 | S | 110 | 110 | 115 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | S | 110 | 105 | 105 |
| 8 | 105 | 105 | 110 | 100 | 100 | 105 | S | G | 160 | 110 | 105 | 105 | 105 | 105 | 105 | 100 | S | S | S | S | S | S | S | S |
| 9 | S | 115 | 115 | E | 110 | S | S | G | G | G | 145 | 105 | 100 | 100 | 105 | G | 105 | 100 | S | S | E | S | 105 | 105 |
| 10 | S | S | E | E | E | S | S | G | G | G | G | G | G | G | G | G | 120 | S | 110 | 110 | S | S | 110 | 110 |
| 11 | 110 | 105 | 105 | C | S | E | S | 105 | S | C | C | C | C | C | C | 100 | 125 | 110 | 110 | 110 | 110 | 105 | 105 | 105 |
| 12 | 105 | 105 | 100 | 105 | S | S | S | 110 | G | G | 105 | 105 | 105 | 105 | G | G | 155 | 120 | 110 | 110 | 110 | S | E | S |
| 13 | 100 | 100 | 110 | 105 | 105 | S | 110 | 110 | 110 | 110 | 105 | 105 | 105 | 105 | 105 | G | S | S | E | 110 | 105 | 105 | 105 | S |
| 14 | 100 | S | E | E | E | E | E | 150 | 155 | G | 140 | G | G | G | G | G | S | S | S | S | S | S | E | S |
| 15 | S | E | E | E | E | E | S | G | G | G | 160 | 110 | 150 | 105 | G | G | S | S | S | S | S | 110 | 110 | 110 |
| 16 | S | E | E | 100 | E | E | 105 | 175 | 160 | 150 | 145 | G | 105 | 105 | 145 | 145 | 105 | S | 125 | 100 | 120 | S | 110 | S |
| 17 | S | 105 | 105 | 105 | 105 | 100 | 100 | 175 | 105 | 115 | 110 | 110 | 105 | G | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 110 | 110 | 110 |
| 18 | 110 | 110 | 105 | 110 | 110 | 105 | 110 | 110 | G | 120 | 135 | 115 | 110 | G | 105 | G | S | S | 110 | 110 | 105 | 110 | 110 | 110 |
| 19 | 110 | 110 | 105 | 110 | E | S | S | G | 115 | 115 | 110 | 110 | 110 | 105 | 105 | 105 | 105 | 105 | 100 | S | S | 110 | S | S |
| 20 | S | S | 110 | S | S | S | S | 150 | 115 | 105 | 110 | 110 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | S | S | S | S | 100 |
| 21 | S | 105 | 105 | 110 | 105 | E | S | 125 | C | C | C | C | C | C | C | C | 105 | S | 105 | S | S | S | 110 | 110 |
| 22 | S | E | E | E | 105 | E | S | 155 | G | G | G | 105 | 105 | 105 | 110 | 110 | 105 | 105 | 105 | S | S | S | S | S |
| 23 | S | E | E | 105 | 100 | S | S | 175 | 160 | 160 | 160 | 150 | 140 | G | G | G | 110 | 105 | S | S | S | S | S | S |
| 24 | S | S | 100 | 100 | 100 | S | S | G | G | 120 | 110 | 110 | 105 | G | G | G | S | S | S | 115 | S | 110 | 105 | 105 |
| 25 | 100 | 100 | 105 | S | 100 | E | S | 170 | 110 | 110 | 105 | 105 | G | 105 | G | G | S | 105 | S | S | S | S | S | S |
| 26 | 105 | 105 | 105 | 105 | E | S | S | 160 | G | 110 | G | G | G | G | G | G | S | S | S | S | S | S | S | S |
| 27 | S | E | E | E | E | E | S | G | 150 | G | G | G | G | G | G | G | S | S | S | S | S | S | 110 | S |
| 28 | S | 100 | E | E | E | S | S | S | G | 105 | 110 | G | 105 | G | G | 145 | 115 | 110 | 110 | 110 | 110 | 105 | 105 | 110 |
| 29 | S | 105 | E | E | E | S | S | S | G | 110 | G | 105 | 105 | G | 105 | 105 | 105 | 105 | S | S | S | S | S | S |
| 30 | S | S | S | E | E | S | S | S | G | G | G | G | G | G | G | G | S | S | S | S | S | S | S | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 14 | 18 | 18 | 16 | 14 | 5 | 5 | 15 | 14 | 19 | 21 | 20 | 22 | 16 | 16 | 15 | 19 | 17 | 18 | 15 | 11 | 13 | 18 | 15 |
| Median | 105 | 105 | 105 | 105 | 105 | 105 | 105 | 150 | 130 | 115 | 110 | 110 | 105 | 105 | 105 | 105 | 105 | 105 | 110 | 110 | 105 | 110 | 110 | 105 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'Es

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 11

# IONOSPHERIC DATA

Nov. 1965 | Types of Es | 135° E Mean Time (G. M. T. +9h) | Wakkanai | Lat. 45° 23.6'N Long. 141° 41.1'E

| Day | 00 | 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 | f | | | | 1 | h | c2 | c | c | 1 | 12 | 1 | | f3 | f2 | f2 | f | f f | f | f2 |
| 2 | f2 | f2 | f4 | f2 | f2 | f | 1 | | | | | 1 | 12 | 12 | 12 | 1 | 12 | f | f | f2 | | f | | |
| 3 | | | f | | | | | | h | c | c | 1 | 1 | 12 | 14 | 14 | 15 | f3 | f2 | f2 | f | f | f | |
| 4 | f | | | | | | | | | c | c | | 1 | 12 | 12 | 1 | 1 | | f2 | f | | · | f | f |
| 5 | f | f2 | | f | | | | | h | h | c2 | h 1 | h12 | c 1 | c | 12 | 1 | f | f3 | f2 | f2 | f2 | f2 | f3 |
| 6 | f2 | f | f | f | f | | | h | | c2 | c | 1 | 1 | | | | 1 | f | f | | f | | f | f2 |
| 7 | f2 | f2 | f2 | f | f2 | f | | 1 | 12 | c | 13 | 1 | 12 | 12 | 12 | 1 | 12 | f2 | f | f | | f2 | f | f |
| 8 | f2 | f | f | f2 | f | f | | | h | 1 | 12 | 1 | 1 | 1 | 1 | 1 | | | | | | | | |
| 9 | | f | f | | f | | | | | | h | 12 | 1 | 1 | 1 | | 1 | f2 | | | | | f | f |
| 10 | | | | | | | | | | | | | | | | | c | | f | f | | | f | f |
| 11 | f | f2 | f | | | | | 1 | | | | | | | | 1 | c 1 | f | f | f2 | f2 | f2 | f2 | f2 |
| 12 | f | f | f | f | | | | 1 | | | 1 | 1 | 1 | 1 | | | h | f | f2 | f2 | f | | | |
| 13 | f2 | f | f | f | f | | 1 | 12 | 12 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | f | f2 | f | f | |
| 14 | f | | | | | | | h | h | | h | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | h | 1 | h | 1 | | | | | | | | f2 | f | f |
| 16 | | | | f | | | 1 | h | h | h 1 | h | | 1 h | 12 | h 1 | h | 1 | | f f | f | f | | f | |
| 17 | | f2 | f | f | f | f | 1 | h | 1 c | c | 1 | 12 | 1 | | 1 | 12 | 1 | f | f3 | f2 | f | f | f | f |
| 18 | f3 | f2 | f | f | f | f2 | 1 | 1 | | c | h | 1 | 1 | | 1 | | | | f | f4 | f | f | f2 | f |
| 19 | f | f | f4 | f | | | | | 1 | 1 | 1 | 12 | 1 | 12 | 12 | 12 | 1 | f | f | | | f | | |
| 20 | | | f | | | | | h | 1 | 12 | 1 | 1 | 12 | 12 | 1 | 1 | 13 | f2 | f2 | | | | | f |
| 21 | | f | f | f | f | | | 1 | | | | | | | | | 1 | | f | | | | f | f |
| 22 | | | | | f | | | h | | | | 12 | 12 | 1 | 1 | 1 | 1 | f | f | | | | | |
| 23 | | | | f2 | f2 | | | h | h | h | h | h | h | | | | 1 | f | | | | | | |
| 24 | | | f2 | f2 | f2 | | | | | 1 | 1 | 1 | 1 | | | | | | | f | | f | f2 · | f2 |
| 25 | f | f | f2 | | f | | | h | 1 | 1 | 1 | 1 | | 1 | | | | f | | | | | | |
| 26 | f | f | f | f | | | | h | | 12 | | | | | | | | | | | | | | |
| 27 | | | | | | | | | h | | | | | | | | | | | | | | f | |
| 28 | | f | | | | | | | | 1 | 1 | | 1 | | | h | c | f | f | f2 | f | f | f2 | f |
| 29 | | f | | | | | | | | 1 | | 1 | 1 | | .1 | 1 | 12 | f2 | | | | | | |
| 30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Types of Es

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 12

# IONOSPHERIC DATA

Nov. 1965 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 036 | FS | FS | FS | 038F | 041 | 042 | 062 | 066 | 073 | 081 | 091 | 092 | 085 | 070 | 077 | 072 | A | A | A | 034 | 032 | 036F | FS |
| 2 | FS | I04CA | F | F | 035F | 035 | 035 | 055 | I071R | 090 | 082 | 081 | 080R | 074H | 080 | 082 | 062 | 048 | 031 | I034A | 032S | 034S | 035F | 036F |
| 3 | 034F | FS | 043F | F | F | F | FS | 067S | 074 | 083 | 078 | 078 | 077 | C | C | C | C | C | C | C | C | C | C | C |
| 4 | C | C | C | C | C | C | C | C | C | 063 | 076 | I072A | 089 | 079 | 062 | 062 | 061 | I039A | 035 | A | A | A | 034 | 036 |
| 5 | 036S | 040 | 044 | 042F | F | F | 044 | 076S | 078S | 073 | I081R | I090R | 102 | 066 | 064 | 071 | 066 | 047 | 035 | 035 | 031 | 035 | 036 | 036 |
| 6 | 036 | 036 | 040 | 041 | 043 | 030F | 036 | 052 | 062 | 074 | 089 | 106 | 071 | 074 | 076 | 091 | 073 | 045 | I038A | 039 | 043 | 044 | 043 | 042 |
| 7 | 044 | 043 | 044S | 039 | 039F | 037F | 035 | 061 | 067 | 071 | 085 | 097 | 079 | 076 | 070 | 063 | 063 | 052 | 045 | 046S | 041S | FS | FS | 039S |
| 8 | FS | 036 | 036 | 040 | 029 | 022 | 031 | 058 | 082 | 080 | 076Z | 082 | 069 | 076 | 078 | 060 | 052 | 041 | 030 | 030 | 030 | 026 | 030 | 031 |
| 9 | 033 | 031 | 032 | 034 | 036 | 025 | 033 | 051 | 066 | 079 | 069 | 074 | 091 | 065 | 072 | 071 | 066 | 053 | 046 | 033 | 031 | 031 | 031F | 032 |
| 10 | 031 | 031F | 032 | 034F | 034 | 034 | 031 | 046 | 065 | 071 | 066 | 076 | 067H | I063R | 062V | I062C | 058 | 035 | 034S | 036 | 033 | 035 | 034 | F |
| 11 | 036F | 038 | 037F | 036 | 037 | 036 | 039 | 056 | 072 | 068 | 064 | 065 | 074 | 071 | 066 | 058 | 053 | 041 | 036 | 034 | 033 | 030 | 034 | 035 |
| 12 | 035 | 035 | 036 | 036 | 035 | 036 | 032 | 055 | 064 | 066 | 081 | 068 | 066 | 067 | 069 | 058 | 050 | 041 | 036 | 034 | 029 | 030 | 033 | 036 |
| 13 | 035 | 035 | 035 | 036 | 035 | 034 | 038 | 066 | 069 | 065 | 076 | 062 | 067 | 063H | 061 | 060 | 050 | 050 | 032 | 029 | 027 | 031 | 029 | I032R |
| 14 | 033 | 034 | 036 | 036 | 034 | 031 | 031 | 056 | 061 | 077S | 072 | 063 | 066H | 071 | 066 | 065 | 062 | 049 | 031 | 034 | 036 | 026 | 025 | 026 |
| 15 | 030S | 030 | 030 | 031 | 035 | 032 | 030 | 056 | 060 | 062 | 063 | 066 | 067 | 069H | 065 | 061 | 064 | 041H | 036 | 033 | 031 | 025 | 026 | 030 |
| 16 | I030A | 030 | 030 | 031 | 033 | 027 | 029 | 052 | 057 | 056 | 062 | 068 | I072R | 075 | 072 | 068 | 063 | 034 | 025 | 029 | 030 | 031 | I031A | 031 |
| 17 | 031F | F | 030F | 029F | 033F | 030 | 033 | 056 | 066 | I058C | 064 | 067 | 064 | 063 | 060 | 057 | 057 | A | A | A | 030 | 028 | 025 | 027 |
| 18 | 029 | 030 | 030 | 032F | 036 | 029 | 028 | 049 | 064 | 066 | 065H | 062 | 065 | 064 | 061 | 056 | 050 | 036 | I030A | 030 | 028 | 030 | 029 | 030 |
| 19 | 033S | 032 | 030 | 031S | 031 | 029 | 031 | 057 | 067 | 066 | 071 | 081H | 071 | 060 | 051 | 063 | 048 | 045 | 033 | 036 | 027 | 023 | 028 | 030 |
| 20 | 031 | 030 | 032 | 032 | 030 | 029 | 033 | 060 | I072R | 070 | 076 | 074S | 069 | 065 | 059 | 060 | 050 | 032 | I031A | 033 | 030 | 031F | FS | FS |
| 21 | 038F | 030 | 029S | 025F | 030 | F | 034 | 055 | 061 | 069 | 076 | 078 | 082 | 076 | 063 | 060 | 056 | 039 | 036 | 030 | 032 | 036 | 040 | FS |
| 22 | FS | FS | 038F | 041F | FS | FS | 034 | 051 | 057 | 067 | 070 | 073 | 061 | 070 | 060 | 060 | 053 | 051 | 033 | 033 | 030 | 031 | 030 | 034F |
| 23 | FS | 034F | 033F | 036F | 037F | 029 | 027 | J049R | 058 | 059 | 061H | 062H | 076 | 069 | 062 | 055 | 049 | 032 | 039S | 034S | 025 | 025 | 028 | 030S |
| 24 | 029 | 030 | 030 | 030 | 029 | 026F | 025 | 049 | 054 | 060 | 061H | 066 | 073 | 071 | 066 | 054 | 044 | 038 | 041 | 034S | 028S | 030S | FS | 033F |
| 25 | 032F | 034 | 032 | 032 | 027 | 024 | 025 | 050 | 057 | I062R | 060 | I072R | 071 | 063 | 054 | 049 | 046 | 034 | 029 | 035 | I034R | 026 | 026F | 027S |
| 26 | 028 | 030 | 029 | 031R | 032 | 030 | 025 | 047 | 052 | 055 | 061 | 061 | 071 | 057 | 056 | 050 | 052 | 034 | 040 | 036 | 030 | 032F | FS | FS |
| 27 | FS | F | 036F | F | F | F | F | 062 | 062H | 053 | 058 | 067 | 063 | 057 | 056 | 058S | I050R | 040S | 035S | 043S | 040S | 035S | FS | FS |
| 28 | F | F | F | 035F | 036 | 025F | 031 | 054 | 051 | 051 | 059 | 068 | 064 | 064 | 057 | 056 | 041 | 034 | 033 | 034 | 033 | 029 | F | F |
| 29 | F | F | F | 030F | 031S | 025 | 023 | 046S | 053 | 053 | 057 | 069 | 066 | 064 | 057 | 051 | 041 | 030 | 031 | 031 | I026A | 027 | F | FS |
| 30 | 030 | 033S | 032F | 029S | 031S | 025S | 027S | 049S | 059 | 066 | 064 | 066 | 063 | 055 | 054 | 050 | 044 | 030 | 030 | 023 | 029 | 033 | 031S | 034S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 22 | 22 | 25 | 25 | 25 | 24 | 27 | 29 | 29 | 30 | 30 | 30 | 30 | 29 | 29 | 29 | 29 | 27 | 27 | 26 | 28 | 27 | 22 | 21 |
| Median | 033 | 034 | 032 | 034 | 034 | 030 | 031 | 055 | 064 | 066 | 070 | 070 | 071 | 067 | 062 | 060 | 053 | 040 | 034 | 034 | 030 | 031 | 031 | 032 |
| U. Q. | 036 | 036 | 036 | 036 | 036 | 034 | 035 | 059 | 068 | 073 | 076 | 078 | 077 | 074 | 070 | 064 | 062 | 047 | 036 | 035 | 033 | 033 | 034 | 036 |
| L. Q. | 030 | 030 | 030 | 031 | 031 | 026 | 028 | 050 | 058 | 060 | 062 | 066 | 066 | 063 | 058 | 056 | 050 | 034 | 031 | 031 | 029 | 027 | 028 | 030 |
| Q. R. | 006 | 006 | 006 | 005 | 005 | 008 | 007 | 009 | 010 | 013 | 014 | 012 | 011 | 011 | 012 | 008 | 012 | 013 | 005 | 004 | 004 | 006 | 006 | 006 |

The Radio Research Laboratories, Japan

foF2

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

A 1

# IONOSPHERIC DATA

Nov. 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 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 | 400L | A | A | 390 | 400L | A | | | | | | | | | |
| 2 | | | | | | | | | L | L | 400 | 390 | LH | L | 380 | | | | | | | | | |
| 3 | | | | | | | | | | L | L | 410 | L | C | C | | | | | | | | | |
| 4 | | | | | | | | | C | 400L | A | A | L | 400L | L | | | | | | | | | |
| 5 | | | | | | | | | | L | A | 400L | L | 400L | L | | | | | | | | | |
| 6 | | | | | | | | | | L | LH | L | LH | 400L | 400L | L | | | | | | | | |
| 7 | | | | | | | | 230 | I320A | L | 400 | L | L | L | L | | | | | | | | | |
| 8 | | | | | | | | | L | L | L | 410L | 360 | 410L | L | L | | | | | | | | |
| 9 | | | | | | | | | LH | LH | 400H | 370 | L | 380 | L | L | | | | | | | | |
| 10 | | | | | | | | | LH | 400H | 400 | 420 | L | L | | | | | | | | | | |
| 11 | | | | | | | | | LH | 350 | 400 | 410 | 360 | L | L | L | | | | | | | | |
| 12 | | | | | | | | | 300 | L | LH | L | 400 | 410 | 390L | | | | | | | | | |
| 13 | | | | | | | | | L | 370 | 400L | 400L | L | 400L | L | | | | | | | | | |
| 14 | | | | | | | | | | L | LH | 380L | 380L | 390L | L | L | | | | | | | | |
| 15 | | | | | | | | | 320H | 330 | L | L | 420 | L | L | | | | | | | | | |
| 16 | | | | | | | | | | | 370 | 420 | 410L | L | L | L | | | | | | | | |
| 17 | | | | | | | | | | C | 380 | L | L | LH | L | | | | | | | | | |
| 18 | | | | | | | | | L | L | 400L | I390A | L | L | L | | | | | | | | | |
| 19 | | | | | | | | | L | L | 400L | 410 | L | L | L | | | | | | | | | |
| 20 | | | | | | | | | | L | L | L | L | 400L | A | | | | | | | | | |
| 21 | | | | | | | | | | A | L | A | LH | 390L | L | 230 | | | | | | | | |
| 22 | | | | | | | | | | 310 | L | L | LH | L | | | | | | | | | | |
| 23 | | | | | | | | | L | L | L | 350 | LH | 380L | 350L | | | | | | | | | |
| 24 | | | | | | | | | 320 | L | 370L | L | 420L | 400 | L | 280L | | | | | | | | |
| 25 | | | | | | | | | | 350 | 370L | 400H | 400L | 380L | L | 230 | | | | | | | | |
| 26 | | | | | | | | | 320 | 350 | L | 380L | 390 | L | L | L | | | | | | | | |
| 27 | | | | | | | | | | L | 370L | 380L | LH | LH | 270 | L | | | | | | | | |
| 28 | | | | | | | | | 260 | 330L | | 400 | L | L | 320 | 250 | | | | | | | | |
| 29 | | | | | | | | | 270 | | 400L | 400L | 400L | I380A | 350L | 230 | | | | | | | | |
| 30 | | | | | | | | | | L | L | 400L | 390 | L | 300 | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 1 | 7 | 10 | 14 | 19 | 12 | 15 | 8 | 5 | | | | | | | | |
| Median | | | | | | | | 230 | 320 | 350 | 400 | 400 | 400 | 400L | 350L | 230 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foF1

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

The Radio Research Laboratories, Japan

A 2

# IONOSPHERIC DATA

**Nov. 1965** | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | 195 | 250 | I270A | A | A | A | A | A | A | A | | | | | | | |
| 2 | | | | | | | | A | A | A | A | A | 300 | I290A | 270 | 245 | A | | | | | | | |
| 3 | | | | | | | | 195 | 245 | A | A | A | A | C | C | C | C | | | | | | | |
| 4 | | | | | | | | C | C | A | A | A | A | 290 | 270 | 250 | A | | | | | | | |
| 5 | | | | | | | | 200 | A | A | A | I300A | 300 | I290A | 275 | A | B | | | | | | | |
| 6 | | | | | | | | I200A | I245A | 280 | 285 | 290 | 300 | 295 | 275 | 235 | B | | | | | | | |
| 7 | | | | | | | | B | A | A | A | A | I290A | 280 | 250 | 215 | B | | | | | | | |
| 8 | | | | | | | | 205 | 250 | 270 | 280 | 290 | 290 | 285 | 265 | 240 | B | | | | | | | |
| 9 | | | | | | | | E | 230 | 260 | 280 | 295 | 295 | 280 | 265 | I235A | E | | | | | | | |
| 10 | | | | | | | | E | 215 | 265 | 280 | 290 | I290A | I280A | 265 | C | A | | | | | | | |
| 11 | | | | | | | | 180 | 250 | 270 | 280 | 290 | 295 | 285 | 270 | 225 | 175 | | | | | | | |
| 12 | | | | | | | | 180 | 245 | 270 | 295 | I300A | 295 | 280 | 255 | 230 | 175 | | | | | | | |
| 13 | | | | | | | | 180 | 245 | 270 | 285 | 295 | 295 | 285 | 260 | 220 | E | | | | | | | |
| 14 | | | | | | | | 175 | 235 | 260 | 285 | 295 | 290 | 280 | 255 | A | E | | | | | | | |
| 15 | | | | | | | | E | 230 | 270 | 275 | 285 | 295 | 280 | 260 | 230 | E | | | | | | | |
| 16 | | | | | | | | E | 225 | 270S | 275 | I285A | I290A | 305 | 275 | A | E | | | | | | | |
| 17 | | | | | | | | E | A | C | A | A | A | A | A | A | A | | | | | | | |
| 18 | | | | | | | | A | 240 | I260A | 270 | A | A | A | 260 | 235 | A | | | | | | | |
| 19 | | | | | | | | E | A | A | A | 285 | 290 | 280 | I255A | 210 | E | | | | | | | |
| 20 | | | | | | | | A | 225 | I260A | I275A | I285A | I285A | A | A | A | A | | | | | | | |
| 21 | | | | | | | | A | A | A | A | A | 280 | 275 | I240A | 210 | E | | | | | | | |
| 22 | | | | | | | | E | 205 | 245 | I260A | 275 | 280 | 265 | 240 | A | E | | | | | | | |
| 23 | | | | | | | | B | A | A | A | A | I280A | 260 | 240 | 205 | E | | | | | | | |
| 24 | | | | | | | | 180 | 220 | A | A | A | A | A | 250 | 205 | E | | | | | | | |
| 25 | | | | | | | | B | A | A | A | 285 | 290 | 280 | 250 | 210 | E | | | | | | | |
| 26 | | | | | | | | E | I230A | I260A | 270 | 285 | A | A | A | 220 | E | | | | | | | |
| 27 | | | | | | | | E | 210 | 260 | 275 | I285A | 290 | 270 | 245 | 210 | | | | | | | | |
| 28 | | | | | | | | B | 200 | 250 | 270 | 285 | 285 | 275 | 250 | 190 | E | | | | | | | |
| 29 | | | | | | | | E | I220A | 265 | I280A | 285 | 290 | 270 | 245 | 200 | E | | | | | | | |
| 30 | | | | | | | | E | A | 260 | 275 | 280 | 290 | 275 | 245 | 205 | E | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 21 | 20 | 19 | 18 | 20 | 23 | 23 | 25 | 21 | 17 | | | | | | | |
| Median | | | | | | | | E | 230 | 265 | 280 | 285 | 290 | 280 | 255 | 220 | E | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foE

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

The Radio Research Laboratories, Japan

A 3

# IONOSPHERIC DATA

Nov. 1965 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J050 | J049 | J033 | J050 | J048 | J026 | J031 | 024 | 028 | 037 | J052 | J078 | J056 | J038 | J058 | J058 | J111 | J138 | J076 | J050 | J060 | J031 | J028 | J027 |
| 2 | J024 | J057 | J034 | J025 | J027 | J016E | E | 024 | J032 | J036 | J040 | J030 | J029G | J041 | J027G | 030 | J028 | J064 | J050 | J036 | J063 | J042 | J024 | J024 |
| 3 | J012E | J024 | J035 | J013E | J018 | E | E | G | G | 033 | 030 | J050 | J049 | C | C | C | C | C | C | C | C | C | C | C |
| 4 | C | C | C | C | C | C | C | C | C | J034 | J064 | J083 | J037 | 022G | G | J042 | J051 | J056 | J051 | J058 | J073 | J077 | J060 | J029 |
| 5 | J019 | E | J015E | J018 | J028 | J026 | J015E | G | J035 | J051 | J055 | J051 | 034 | 032 | 031 | 029 | 019 | J025 | E | J019 | E | E | E | J012E |
| 6 | J023 | J025 | E | J013E | J020 | J012E | J015E | 022 | 026 | 034 | G | J028G | J029G | G | 024G | 025 | 025 | J039 | J049 | J038 | J028 | J030 | J025 | J031 |
| 7 | J024 | J024 | J017 | J017 | J016E | J058 | J036 | E017B | J050 | J039 | J064 | J050 | J033 | 025G | G | 024 | 018 | J018 | J013E | E | J015E | J023 | J020 | E |
| 8 | J018 | J030 | J024 | J022 | J018 | E | E | G | 031 | G | G | 030 | G | G | G | G | E018B | J020 | J016E | E | E | E | J016E | E |
| 9 | J013E | E | E | E | E | E | E | E | G | G | 030 | G | J039 | 032 | 029 | J028 | E | E | E | J015E | E | E | J013E | J018 |
| 10 | J018 | J015E | J018 | J018 | E | J016E | J014E | J031 | 025 | J028 | J024G | 024G | J030 | J030 | 032 | C | J036 | J030 | E028S | J015E | E | E | J018 | E |
| 11 | E | J018 | E | J016E | J013E | E | E | G | G | 028 | 030 | G | G | J033 | G | G | G | E | J016E | J034 | J026 | J024 | J033 | J024 |
| 12 | J019 | J018 | J013E | J016E | J017 | E | E | G | 023G | 032 | G | J048 | J050 | 034 | 030 | 029 | 025 | E | E | E | E | E | E | E |
| 13 | E | E | E | E | E | E | E | G | G | G | G | G | 021G | G | G | 025 | 020 | J014E | E | E | E | E | E | E |
| 14 | E | E | E | E | E | J025 | E | 022 | J027 | G | 032 | 032 | 031 | 030 | 023G | J026 | E | E | E | E | E | E | J026 | E |
| 15 | E | E | E | E | E | J013E | E | E | G | G | 030 | 033 | 033 | G | G | 025 | 018 | E | E | E | E | E | J029 | J036 |
| 16 | J042 | J025 | J034 | J018 | J018 | E | E | E | 026 | G | 033 | 042 | J041 | 039 | G | J031 | J018 | E | E | E | J013E | J028 | J064 | J063 |
| 17 | J026 | J017 | J018 | J089 | J012E | J016E | J013E | J028 | J064 | C | 030 | J051 | J055 | J073 | J054 | J056 | J040 | J061 | J053 | J043 | J020 | J020 | J013E | E |
| 18 | J020 | E | E | J024 | J025 | J018 | J035 | J030 | 029 | J050 | 039 | J045 | J053 | J036 | G | 020 | J023 | J051 | J041 | J020 | J014E | J016E | J028 | J026 |
| 19 | J052 | E | E | E | J013E | J013E | J019 | E | J028 | J031 | J041 | J032 | G | G | J029 | G | E | E | E | E | E | E | E | J026 |
| 20 | J018 | J025 | E | E | E | E | E | 019 | 025 | J041 | J050 | J040 | 033 | J042 | J061 | J036 | J023 | J016E | J041 | J048 | J018 | J025 | J016E | J015E |
| 21 | E | E | J015E | J020 | J018 | J013E | J013E | 022 | 027 | J052 | J033 | J045 | G | G | J031 | J028 | J018 | J017 | J015E | 018M | J018 | J025 | E | E |
| 22 | J038 | J018 | J024 | E | E | E | J012E | 019 | 023 | G | 031 | 030 | J034 | 030 | J030 | 029 | J022 | J025 | J023 | J027 | J018 | J024 | J019 | J016E |
| 23 | E | E | E | E | E | E | E | E017B | J023 | 025 | J030 | J029 | J036 | 031 | 026 | 025 | E | J016E | J016E | J013E | E | J018 | E | J016E |
| 24 | E | J018 | J029 | E | E | E | E | G | G | 032 | J035 | J058 | J041 | 033 | G | G | E | J025 | J013E | J028 | E | J013E | J019 | J016E |
| 25 | J017 | J015E | J018 | J013E | J015E | 018M | E | 020 | J034 | J062 | J039 | J033 | G | J028G | 026 | G | E | E | E | E | E | E | E | E |
| 26 | E | J015E | J015E | E | J013E | E | J012E | 019 | 024 | J027 | 032 | 032 | J030 | J035 | 027 | 020G | E | J020 | J013E | J016E | J015E | J013E | E | E |
| 27 | E | E | E | E | E | E | E | 019 | G | G | 030 | 031 | G | G | G | 020G | E | J018 | J017 | J018 | J017 | E | E | J016E |
| 28 | J018 | J018 | E | E | E | E | E | E018B | G | 028 | 035 | 034 | 032 | 031 | 027 | G | E | E | J044 | E | E | E | J015E | E |
| 29 | E | J015E | E | E | E | E | E | E | 024 | 030 | 030 | J029 | 033 | 039 | 028 | C24 | J019 | J018 | E | J015E | J028 | E | J018 | J020 |
| 30 | J018 | E | E | E | J013E | J018 | E | 018 | 025 | J030 | 030 | J029 | G | G | G | J018G | E | E | J012E | E | E | E | E | E |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 30 | 30 | 30 | 29 | 29 | 28 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 |
| Median | J018 | E | E | E | E | E | E | 018 | 025 | 030 | 032 | J032 | J033 | 031 | 026 | 025 | 018 | J018 | E | E | E | E | E | E |
| U. Q. | 024 | 024 | 021 | 018 | 018 | E | E | 022 | 028 | 036 | 040 | 048 | 039 | 036 | 030 | 029 | 024 | 028 | 041 | 031 | 019 | 024 | 026 | 025 |
| L. Q. | E | E | E | E | E | E | E | G | G | G | 030 | 029 | G | G | G | G | E | E | E | E | E | E | E | E |
| Q. R. | | | | | | | | | | | 010 | 019 | | | | | | | | | | | | |

foEs

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

# IONOSPHERIC DATA

Nov. 1965 | $f_bEs$ | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 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 | 022 | 018 | 018 | E026R | 029 | 024 | 027 | 035 | 045 | 055 | 033 | 030 | 045 | 028 | 036 | A | A | A | 022 | 026 | E | 017 |
| 2 | E | A | 018 | 018 | 017 | | | 024 | 028 | 028 | 033 | 030 | 027G | 030 | 022G | 027 | 025 | 018 | 020 | A | 021 | E | 019 | E |
| 3 | | E | E | | E | | | | | 032 | 030 | 034 | 035 | C | C | C | C | C | C | C | C | C | C | C |
| 4 | C | C | C | C | C | C | C | C | C | 031 | 046 | A | 035 | 021G | | 035 | 041 | A | 028 | A | A | A | 018 | E |
| 5 | E | | | E | E | E | | | 025 | 034 | 045 | 034 | 034 | 031 | 030 | 026 | 018 | E | | E | | | | |
| 6 | E | E | | | E | | | 022 | 026 | G | | 024G | 024G | | 021G | 025 | 023 | 039 | A | 018 | E | 018 | 017 | 019 |
| 7 | E | E | E | E | | E | E | B | 040 | 037 | 037 | 032 | 031 | 021G | | 024 | 018 | 017 | | | | E | 017 | |
| 8 | E | 017 | E | E | E | | | | G | | | 028 | | | | | B | 017 | | | | | | |
| 9 | | | | | | | | | | | 029 | | 021 | 031 | 027 | 026 | | | | | | | | E |
| 10 | E | | E | E | | | | E | 023 | 020 | 020G | 021G | 030 | 029 | 024 | C | 028 | 021 | S | | | | E | |
| 11 | | E | | | | | | | | 028 | 029 | | | 017 | | | | | | E | E | E | 026 | E |
| 12 | E | E | | | E | | | | 022G | 031 | | 035 | 024 | 034 | 029 | 026 | 022 | | | | | | | |
| 13 | | | | | | | | | | | | | 021G | | | 025 | 019 | | | | | | | |
| 14 | | | | | | E | | 022 | 026 | | 030 | 032 | 031 | 029 | 022G | 024 | | | | | | | E | |
| 15 | | | | | | | | | | | 030 | 031 | 032 | | | 024 | 017 | | | | | | E | E |
| 16 | A | 021 | 023 | E | E | | | | 026 | | 033 | 032 | 031 | 037 | | 026 | E | | | | | E | A | 019 |
| 17 | E | E | E | E | | | | E | 027 | C | 030 | 036 | 034 | 028 | 036 | 035 | 035 | A | A | A | 018 | 018 | | |
| 18 | E | | | 018 | E | E | E | 021 | 029 | 030 | 033 | 045 | 039 | 030 | | 017 | 018 | 033 | A | E | | | 021 | E |
| 19 | E | | | | | | E | | 026 | 029 | 030 | G | | | 024 | | | | | | | | | E |
| 20 | E | E | | | | | | 019 | 025 | 033 | 031 | 036 | 030 | 035 | 046 | 026 | 020 | | A | 022 | E | E | | |
| 21 | | | | E | 018 | | | 020 | 026 | 038 | 032 | 043 | | | 027 | 018 | E | E | | E | E | 019 | | |
| 22 | E | E | E | | | | | 019 | 023 | | 030 | 030 | 024 | 030 | 021 | 027 | 018 | 020 | E | 022 | E | 019 | E | |
| 23 | | | | | | | | | 023 | 025 | 028 | 028 | 028 | 030 | 026 | 022 | | | | | | E | | |
| 24 | | E | E | | | | | | | 030 | 029 | 030 | 031 | 029 | | | | E | | E | | | E | |
| 25 | E | | E | | | E | | 019 | 023 | 028 | 029 | 026 | | 025G | 023 | | | | | | | | | |
| 26 | | | | | | | | 019 | 023 | 026 | 032 | 031 | 030 | 030 | 026 | 019G | | E | | | | | | |
| 27 | | | | | | | | 018 | | | 029 | 031 | | | | 017G | | E | E | E | E | | | |
| 28 | E | E | | | | | | B | | 028 | 035 | 032 | 032 | 031 | G | | | | 017 | | | | | |
| 29 | | | | | | | | | 022 | 028 | 028 | G | 033 | 039 | 027 | 019 | E | E | | | A | | E | E |
| 30 | E | | | | | E | | 018 | 024 | 023 | 030 | 021 | | | | E | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

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The Radio Research Laboratories, Japan

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| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | E | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | E | 017 | E | E | E | E | E | E | E |
| 2 | E | E | E | E | E | E | E | E | E | 017 | E | E | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 3 | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 017 | C | C | C | C | C | C | C | C | C | C | C |
| 4 | C | C | C | C | C | C | C | C | C | E | 017 | 017 | 017 | 017 | 018 | 017 | 017 | E | E | E | E | E | E | E |
| 5 | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E |
| 6 | E | E | E | E | E | E | E | 017 | E | 017 | 017 | 017 | 017 | 017 | E | 017 | 017 | E | E | E | E | E | E | E |
| 7 | E | E | E | E | E | E | E | 017 | E | 017 | 017 | 017 | 017 | E | 017 | E | 017 | E | E | E | E | E | E | E |
| 8 | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 018 | 017 | 017 | E | 018 | E | E | E | E | E | E | E |
| 9 | E | E | E | E | E | E | E | E | E | 017 | 017 | E | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 10 | E | E | E | E | E | E | E | E | 017 | 017 | E | 017 | 017 | 017 | 017 | C | 017 | E | E028S | E | E | E | E | E |
| 11 | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E |
| 12 | E | E | E | E | E | E | E | 017 | 017 | E | 017 | 017 | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E |
| 13 | E | E | E | E | E | E | E | 017 | 017 | E | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E | E |
| 14 | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E | E |
| 15 | E | E | E | E | E | E | E | E | 017 | E | E | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 16 | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 018 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 17 | E | E | E | E | E | E | E | E | E | C | 017 | 018 | 017 | E | 017 | E | E | E | E | E | E | E | E | E |
| 18 | E | E | E | E | E | E | E | E | E | 017 | 017 | E | 017 | 018 | 017 | E | E | E | E | E | E | E | E | E |
| 19 | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 20 | E | E | E | E | E | E | E | E | 017 | E | 017 | 017 | 017 | E019S | 017 | E | E | E | E | E | E | E | E | E |
| 21 | E | E | E | E | E | E | E | 017 | E | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E | E |
| 22 | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E | E |
| 23 | E | E | E | E | E | E | E | 017 | E | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E | E | E | E |
| 24 | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | E | 017 | 017 | E | E | E | E | E | E | E | E |
| 25 | E | E | E | E | E | E | E | 017 | E | 017 | 017 | 017 | E | 017 | 017 | 017 | E | E | E | E | E | E | E | E |
| 26 | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E | E |
| 27 | E | E | E | E | E | E | E | E | 017 | E | E | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 28 | E | E | E | E | E | E | E | 018 | E | E | E | E | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 29 | E | E | E | E | E | E | E | E | 017 | E | 017 | 017 | E | 017 | E | E | E | E | E | E | E | E | E | E |
| 30 | E | E | E | E | E | E | E | E | E | E | E | E | E | 017 | 017 | E | E | E | E | E | E | E | E | E |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 30 | 30 | 30 | 29 | 29 | 28 | 29 | 29 | 29 | 29 | 20 | 29 | 29 | 29 |
| Median | E | E | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E | E |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

f-min

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

The Radio Research Laboratories, Japan

A 6

# IONOSPHERIC DATA

**Nov. 1965** | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5′N | Long. 140° 08.2′E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 305 | FS | FS | FS | 315F | 350 | 345 | 375 | 350 | 355 | 335 | 340 | 335 | 345 | 340 | 350 | 355 | A | A | A | 325 | 305 | 315F | FS |
| 2 | FS | I300A | F | F | 320F | 345 | 340 | 365 | I355R | 365 | 375 | 345 | 375R | 325H | 345 | 380 | 370 | 370 | 325 | I300A | 305 | 305S | 305F | 305F |
| 3 | 320F | FS | 305F | F | F | F | FS | 345S | 370 | 360 | 365 | 360 | 355 | C | C | C | C | C | C | C | C | C | C | C |
| 4 | C | C | C | C | C | C | C | C | C | 355 | 365 | I345A | 345 | 355 | 350 | 360 | 385 | I330A | 310 | A | A | A | 305 | 300 |
| 5 | 290S | 285 | 320 | 305F | F | F | 330 | 350S | 355S | 345 | I340R | I340R | 355 | 335 | 350 | 355 | 370 | 350 | 325 | 320 | 315 | 305 | 310 | 305 |
| 6 | 295 | 295 | 310 | 305 | 340 | 295F | 345 | 365 | 360 | 340 | 340 | 355 | 360 | 340 | 330 | 345 | 360 | 345 | I300A | 300 | 295 | 305 | 295 | 315 |
| 7 | 300 | 305 | 300S | 295 | I295F | 315F | 335 | 350 | 365 | 360 | 335 | 345 | 365 | 350 | 355 | 360 | 365 | 335 | 320 | 325S | 300S | FS | FS | 305S |
| 8 | FS | 310 | 325 | 350 | 360 | 290 | 325 | 315 | 355 | 355 | 335Z | 350 | 365 | 340 | 370 | 365 | 375 | 350 | 305 | 335 | 345 | 285 | 305 | 295 |
| 9 | 300 | 295 | 315 | 320 | 355 | 335 | 335 | 350 | 345 | 365 | 370 | 320 | 340 | 360 | 345 | 365 | 355 | 375 | 350 | 325 | 325 | 305 | 310F | 315 |
| 10 | 295 | 305F | 320 | 310F | 320 | 355 | 335 | 355 | 355 | 360 | 345 | 350 | 350H | I350R | 340V | I365C | 390 | 335 | 325S | 350 | 335 | 325 | 305 | F |
| 11 | 315F | 305 | 300F | 315 | 320 | 325 | 340 | 365 | 375 | 370 | 360 | 365 | 355 | 360 | 370 | 345 | 360 | 350 | 340 | 355 | 340 | 295 | 305 | 305 |
| 12 | 305 | 315 | 315 | 310 | 305 | 370 | 330 | 365 | 370 | 345 | 350 | 355 | 345 | 365 | 365 | 335 | 350 | 360 | 340 | 350 | 330 | 290 | 305 | 315 |
| 13 | 320 | 305 | 295 | 310 | 305 | 305 | 330 | 375 | 370 | 345 | 360 | 355 | 335 | 325H | 360 | 355 | 320 | 350 | 345 | 315 | 335 | 325 | 315 | I300R |
| 14 | 295 | 310 | 315 | 335 | 325 | 340 | 325 | 345 | 345 | 335S | 365 | 350 | 325H | 355 | 350 | 365 | 375 | 350 | 330 | 315 | 345 | 330 | 305 | 290 |
| 15 | 300S | 295 | 300 | 310 | 315 | 355 | 335 | 375 | 375 | 380 | 360 | 365 | 350 | 330 | 355 | 345 | 375 | 355H | 350 | 335 | 345 | 290 | 295 | 305 |
| 16 | I310A | 300 | 305 | 320 | 335 | 365 | 315 | 380 | 375 | 365 | 355 | 345 | I345R | 350 | 345 | 360 | 365 | 365 | 310 | 315 | 335 | 325 | I315A | 305 |
| 17 | 315F | F | 305F | 310F | 315F | 340 | 350 | 360 | 385 | I370C | 355 | 370 | 355 | 355 | 360 | 355 | 355 | A | A | A | 335 | 320 | 305 | 290 |
| 18 | 315 | 305 | 325 | 350F | 355 | 365 | 325F | 360 | 360 | 360 | 370H | 365 | 375 | 370 | 365 | 370 | 360 | 335 | I320A | 345 | 320 | 340 | 300 | 305 |
| 19 | 280S | 305 | 315 | 310 | 320 | 325 | 320 | 365 | 355 | 360 | 365 | 365H | 365 | 370 | 370 | 360 | 370 | 330 | 335 | 360 | 320 | 280 | 285 | 275 |
| 20 | 295 | 305 | 305 | 300 | 300 | 300 | 320 | 335 | I360R | 370 | 360 | 340S | 360 | 350 | 355 | 355 | 355 | 365 | I320A | 345 | 300 | 305F | FS | FS |
| 21 | 315F | 350 | 330S | 355F | 300 | F | 325 | 365 | 350 | 355 | 365 | 350 | 350 | 350 | 390 | 360 | 355 | 335 | 330 | 315 | 355 | 320 | 310 | FS |
| 22 | FS | FS | 295F | 335F | FS | FS | 345 | 355 | 355 | 360 | 365 | 370 | 325 | 365 | 380 | 365 | 365 | 335 | 350 | 345 | 335 | 325 | 290 | 300F |
| 23 | FS | 305F | 295F | 310F | 305F | 325 | 335 | 380R | 385 | 350 | 345H | 320H | 360 | 360 | 345 | 360 | 365 | 345 | 335S | 370S | 355 | 315 | 285 | 300S |
| 24 | 290 | 305 | 315 | 305 | 340 | 355F | 335 | 365 | 370 | 380 | 335H | 340 | 365 | 355 | 375 | 380 | 345 | 330 | 360 | 360S | 355S | 320S | FS | 305F |
| 25 | 305F | 340 | 315 | 330 | 350 | 310 | 330 | 350 | 365 | I385R | 355 | I350R | 365 | 380 | 375 | 360 | 380 | 350 | 325 | 325 | I355R | 345 | 305F | 290S |
| 26 | 315 | 315 | 315 | 325R | 335 | 335 | 330 | 380 | 385 | 365 | 360 | 355 | 350 | 345 | 355 | 365 | 370 | 340 | 350 | 355 | 355 | 320F | FS | FS |
| 27 | FS | F | 330F | F | F | F | F | 370 | 370H | 360 | 330 | 355 | 345 | 355 | 350 | 365S | I370R | 345S | 315S | 340S | 345S | 345S | FS | FS |
| 28 | F | F | F | 315F | 345 | 330F | 365 | 360 | 390 | 385 | 340 | 360 | 365 | 370 | 350 | 365 | 370 | 345 | 325 | 350 | 340 | 310 | F | F |
| 29 | F | F | F | 295F | 340S | 385 | 330 | 365S | 345 | 370 | 350 | 350 | 365 | 360 | 365 | 385 | 360 | 335 | 335 | 335 | I350A | 320 | F | FS |
| 30 | 305 | 305S | 305F | 315S | 335S | 365S | 320S | 345S | 365 | 370 | 370 | 365 | 370 | 350 | 365 | 370 | 370 | 345 | 345 | 335 | 290 | 305 | 300S | 280S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 22 | 22 | 25 | 25 | 25 | 24 | 27 | 29 | 29 | 30 | 30 | 30 | 30 | 29 | 29 | 29 | 29 | 27 | 27 | 26 | 28 | 27 | 22 | 21 |
| Median | 305 | 305 | 315 | 310 | 320 | 340 | 330 | 365 | 365 | 360 | 360 | 350 | 355 | 355 | 355 | 360 | 365 | 345 | 330 | 340 | 335 | 315 | 305 | 305 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

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

The Radio Research Laboratories, Japan

M(3000) F2

A 7

# IONOSPHERIC DATA

Nov. 1965 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 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 | 370L | A | A | 400 | 385L | A | | | | | | | | | |
| 2 | | | | | | | | | L | L | 395 | 405 | LH | L | 380 | | | | | | | | | |
| 3 | | | | | | | | | | L | L | 405 | L | C | C | | | | | | | | | |
| 4 | | | | | | | | | C | 420L | A | A | L | 390L | L | | | | | | | | | |
| 5 | | | | | | | | | | L | A | 385 | L | 395L | L | | | | | | | | | |
| 6 | | | | | | | | | | L | LH | L | LH | 390L | 385L | L | | | | | | | | |
| 7 | | | | | | | | 410 | I410A | L | 380 | L | L | L | L | | | | | | | | | |
| 8 | | | | | | | | | L | L | L | 390L | 415 | 380L | L | L | | | | | | | | |
| 9 | | | | | | | | | LH | LH | 405H | 410 | L | 400 | L | L | | | | | | | | |
| 10 | | | | | | | | | LH | 385H | 390 | 375 | L | L | | | | | | | | | | |
| 11 | | | | | | | | | LH | 410 | 395 | 385 | 425 | L | L | L | | | | | | | | |
| 12 | | | | | | | | | 415 | L | LH | L | 395 | 375 | 375L | | | | | | | | | |
| 13 | | | | | | | | | L | 410 | 390L | 390 | L | 390L | L | | | | | | | | | |
| 14 | | | | | | | | | | L | LH | 400L | 400L | 385L | L | L | | | | | | | | |
| 15 | | | | | | | | | 415H | 435 | L | L | 370 | L | L | | | | | | | | | |
| 16 | | | | | | | | | | | 405 | 380 | 385L | L | L | L | | | | | | | | |
| 17 | | | | | | | | | | L | 395 | L | L | LH | L | | | | | | | | | |
| 18 | | | | | | | | | L | L | 385L | I395A | L | L | L | | | | | | | | | |
| 19 | | | | | | | | | L | L | 390L | 370 | L | L | L | | | | | | | | | |
| 20 | | | | | | | | | | L | L | L | L | 385L | A | | | | | | | | | |
| 21 | | | | | | | | | | A | L | A | LH | 385 | L | 455 | | | | | | | | |
| 22 | | | | | | | | | | 425 | L | L | LH | L | | | | | | | | | | |
| 23 | | | | | | | | | L | L | L | 430 | LH | 385L | 415L | | | | | | | | | |
| 24 | | | | | | | | | 415 | L | 410L | L | 375L | 375 | L | 420L | | | | | | | | |
| 25 | | | | | | | | | | 405 | 405L | 375H | 380L | 405L | L | 440 | | | | | | | | |
| 26 | | | | | | | | | 415 | 435 | L | 400L | 385 | L | L | L | | | | | | | | |
| 27 | | | | | | | | | | L | 405L | 400L | LH | LH | 410 | L | | | | | | | | |
| 28 | | | | | | | | | 425 | 425L | | 385 | L | L | 415 | 440 | | | | | | | | |
| 29 | | | | | | | | | 430 | | 385L | 395L | 385 | I390A | 415L | 470 | | | | | | | | |
| 30 | | | | | | | | | | L | L | 380 | 385 | L | 430 | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 1 | 7 | 10 | 14 | 19 | 12 | 15 | 8 | 5 | | | | | | | | |
| Median | | | | | | | | 410 | 415 | 415 | 395 | 390 | 385 | 385L | 410L | 440 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

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

M(3000) F1

# IONOSPHERIC DATA

Nov. 1965 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | 220 | 240 | 255 | 245 | 250 | 245 | 240 | | | | | | | | | |
| 2 | | | | | | | | | 240 | 240 | 240 | 245 | 235 | 245 | 250 | | | | | | | | | |
| 3 | | | | | | | | | | 235 | 240 | 240 | 240 | C | C | | | | | | | | | |
| 4 | | | | | | | | | C | 230 | 235 | I250A | 245 | 240 | 240 | | | | | | | | | |
| 5 | | | | | | | | | | 245 | 260H | 255 | 240 | 230 | 230 | | | | | | | | | |
| 6 | | | | | | | | | | 245 | 260 | 240 | 230 | 250 | 260 | 240 | | | | | | | | |
| 7 | | | | | | | | 240 | 240 | 240 | 255 | 240 | 230 | 250 | 245 | | | | | | | | | |
| 8 | | | | | | | | | 240 | 240 | 235 | 240 | 230 | 250 | 240 | 230 | | | | | | | | |
| 9 | | | | | | | | | 230 | 240 | 235 | 250 | 240 | 240 | 245 | 230 | | | | | | | | |
| 10 | | | | | | | | | 245 | 250 | 250 | 270 | 240 | 245 | | | | | | | | | | |
| 11 | | | | | | | | | 230 | 235 | 220 | 240 | 240 | 250 | 240 | 235 | | | | | | | | |
| 12 | | | | | | | | | 230 | 240 | 245 | 245 | 240 | 245 | 245 | | | | | | | | | |
| 13 | | | | | | | | | 230 | 240 | 245 | 245 | 245 | 245 | 245 | | | | | | | | | |
| 14 | | | | | | | | | | 250 | 230 | 250 | 245 | 250 | 250 | 230 | | | | | | | | |
| 15 | | | | | | | | | 220 | 230 | 240 | 245 | 280 | 255 | 245 | | | | | | | | | |
| 16 | | | | | | | | | | | 255 | 280 | 250 | 245 | 255 | 230 | | | | | | | | |
| 17 | | | | | | | | | | I220C | 250 | 235 | 240 | 250 | 245 | | | | | | | | | |
| 18 | | | | | | | | | 245 | 245 | 245 | 230 | 240 | 245 | 240 | | | | | | | | | |
| 19 | | | | | | | | | 230 | 225 | 250 | 245 | 235 | 230 | 230 | | | | | | | | | |
| 20 | | | | | | | | | | 230 | 240 | 280 | 230 | 250 | 240 | | | | | | | | | |
| 21 | | | | | | | | | | 230 | 235 | 255 | 245 | 240 | 220 | 230 | | | | | | | | |
| 22 | | | | | | | | | | 240 | 240 | 230 | 240 | 240 | | | | | | | | | | |
| 23 | | | | | | | | | 215 | 230 | 240 | 230H | 245 | 245 | 245 | | | | | | | | | |
| 24 | | | | | | | | | 225 | 230 | 230 | 270 | 235 | 245 | 230 | 225 | | | | | | | | |
| 25 | | | | | | | | | | 240 | 245 | 255 | 240 | 235 | 230 | 220 | | | | | | | | |
| 26 | | | | | | | | | 225 | 235 | 240 | 240 | 260 | 245 | 240 | 230 | | | | | | | | |
| 27 | | | | | | | | | | 235 | 240 | 230 | 285 | 245 | 240 | 235 | | | | | | | | |
| 28 | | | | | | | | | 215 | 225 | | 245 | 245 | 230 | 245 | 230 | | | | | | | | |
| 29 | | | | | | | | | 230 | | 250 | 260 | 245 | 240 | 230 | 225 | | | | | | | | |
| 30 | | | | | | | | | | 240 | 230 | 245 | 240 | 240 | 245 | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 1 | 17 | 28 | 29 | 30 | 30 | 29 | 27 | 13 | | | | | | | | |
| Median | | | | | | | | 240 | 230 | 240 | 240 | 245 | 240 | 245 | 240 | 230 | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F2

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

The Radio Research Laboratories, Japan

A 9

# IONOSPHERIC DATA

Nov. 1965 | h'F km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 280 | 295 | I280A | 280 | 255 | I235A | 240A | 210 | 210 | 215 | A | A | 215 | 230 | I230A | 245 | 235 | A | A | A | I260A | I285A | 265 | 270 |
| 2 | 270 | I290A | 250 | 265 | 245 | 220 | 225 | 215 | 230 | 210H | 205 | 195 | 190H | 200H | 200H | 230 | 210 | 205 | 255 | I275A | I270A | 285 | 290A | 270 |
| 3 | 270 | 280 | 300 | 290 | 235 | 230 | 235 | 230 | 220 | 230 | 200 | 205 | 230 | C | C | C | C | C | C | C | C | C | C | C |
| 4 | C | C | C | C | C | C | C | C | C | 205 | A | A | 245 | 230 | 225 | 230 | 235 | I220A | I260A | A | A | A | 295 | 290 |
| 5 | 305 | 305 | 255 | 245 | 260 | 240 | 225 | 235 | 220 | 245 | I240A | 205 | 245 | 220 | 235 | 235 | 220 | 200 | 215 | 245 | 240 | 245 | 270 | 280 |
| 6 | 290 | 295 | 275 | 260 | 240 | 210 | 240 | 225 | 235 | 190H | 195H | 245 | 200H | 235 | 240 | 240 | 215 | A | A | 280 | 275 | 255 | 275 | 250 |
| 7 | 245 | 280 | 280 | 280 | 275 | 235 | 240 | 230 | I220A | I210A | I225A | 240 | 215 | 230 | 245 | 220 | 225 | 215 | 240 | 240 | 280 | 275 | 260 | 240 |
| 8 | 270 | 260 | 260 | 235 | 210 | E325E | 245 | 230 | 240 | 230 | 220 | 195H | 190H | 200 | 250 | 230 | 205 | 215 | 225 | 240 | 230 | E280E | 280 | 280 |
| 9 | 295 | 300 | 285 | 255 | 230 | 195 | 240 | 200H | 185H | 185H | 180H | 190 | 245 | 225 | 230 | 240 | 230 | 205 | 220 | 230 | 245 | 290 | 305 | 250 |
| 10 | 300 | 300 | 280 | 275 | 265 | 195 | 220 | 210 | 195H | 185H | 200H | 195 | 230 | 225 | 230 | I235C | 215 | 230 | I250S | 230 | 240 | 250 | 275 | 300 |
| 11 | 280 | 280 | 280 | 255 | 250 | 235 | 230 | 210 | 210H | 195 | 200 | 190H | 180 | 240 | 240 | 200H | 215 | 210 | 245 | 225 | 230 | 285 | I270A | 275 |
| 12 | 250 | 260 | 255 | 260 | 275 | 240 | 230 | 220 | 205 | 240 | 180H | 240 | 220 | 250 | 240 | 230 | 210 | 200 | 230 | 215 | 240 | 285 | 275 | 260 |
| 13 | 240 | 280 | 270 | 275 | 275 | 280 | 240 | 230 | 210 | 200 | 180 | 200 | 185H | 205 | 240 | 240 | 220 | 210 | 230 | 240 | 240 | 250 | 255 | 280 |
| 14 | 290 | 260 | 245 | 235 | 245 | 235 | 245 | 240 | 230 | 205 | 195 | 230 | 230 | 225 | 215 | 225 | 210 | 215 | 225 | 245 | 230 | 215 | 255 | 290 |
| 15 | 290 | 300 | 290 | 290 | 255 | 230 | 220 | 210 | 190H | 185H | 205 | 225 | 205 | 190H | 240 | 240 | 220 | 205 | 230 | 230 | 210 | 275 | 285 | 280 |
| 16 | I285A | I295A | I290A | 280 | 245 | 215 | 245 | 210 | 205 | 225 | 210 | 200 | 205 | I240A | 245 | 205 | 215 | 195 | 250 | 245 | 240 | 260 | I255A | 250 |
| 17 | 280 | 305 | 290 | 280 | 275 | 225 | 225 | 205H | 230 | I220C | 200 | 230 | 205 | 185H | I235A | 225 | 230 | A | A | A | 250 | 245 | 275 | 310 |
| 18 | 290 | 290 | 280 | 270 | 220 | 205 | 250 | 210 | 240 | 230 | 235 | I230A | I205A | 230 | 225 | 230 | 220 | I215A | I230A | 230 | 235 | 240 | I260A | 290 |
| 19 | 320 | 290 | 290 | 275 | 255 | 245 | 245 | 220 | 225 | 230 | 215 | 210 | 235 | 220 | 200 | 240 | 210 | 230 | 220 | 230 | 220 | E330E | 295 | 305 |
| 20 | 300 | 290 | 290 | 290 | 300 | 290 | 250 | 225 | 210 | I210A | 240 | 240 | 240 | 220A | I225A | 230 | 210 | 215 | I235A | 255 | 275 | 285 | 305 | 290 |
| 21 | 270 | 230 | 255 | 230 | 270 | 240 | 250 | 215 | 220 | I240A | 240 | I235A | 190H | 225 | 235 | 190 | 220 | 210 | 245 | 245 | 245 | 270 | 255 | 270 |
| 22 | 280 | 280 | 270 | 210 | 205 | 190 | 230 | 210 | 220 | 190 | 230 | 210 | 190H | 240 | 235 | 230 | 210 | 220 | 220 | 235 | 240 | 265A | 270 | 255 |
| 23 | 295 | 290 | 295 | 255 | 240 | 220 | 240 | 210 | 205 | 205 | 190 | 180 | 180H | 240 | 225 | 230 | 220 | 195 | 240 | 210 | 205 | 260 | 295 | 285 |
| 24 | 295 | 290 | 285 | 285 | 255 | 230 | 235 | 210 | 195 | 210 | 205 | 230 | 240 | 205H | 225 | 215 | 205 | 235 | 210 | 210 | 230 | 245 | 290 | 290 |
| 25 | 295 | 245 | 260 | 245 | 215 | 275 | 270 | 220 | 220 | 210 | 200 | 195 | 235 | 220 | 205 | 195 | 220 | 215 | 250 | 245 | 210 | 220 | 275 | 300 |
| 26 | 275 | 265 | 265 | 250 | 240 | 210 | 240 | 215 | 200 | 190 | 240 | 230 | 225 | 225 | 235 | 230 | 210 | 215 | 230 | 220 | 230 | 230 | 290 | 285 |
| 27 | 280 | 285 | 250 | 255 | 240 | 220 | 240 | 220 | 205 | 220 | 200 | 225 | 190H | 180H | 210 | 230 | 200 | 220 | 245 | 225 | 230 | 220 | 245 | 275 |
| 28 | 270 | 275 | 250 | 245 | 230 | 220 | 250 | 225 | 180 | 205 | 255 | 245 | 240 | 245 | 200 | 190 | 195H | 235 | 245 | 210 | 225 | 255 | 265 | 295 |
| 29 | 305 | 295 | 295 | 290 | 240 | 200 | 255 | 215 | 195 | 230 | 200 | 180 | 230 | I235A | 215 | 185 | 210 | 230 | 235 | 240 | I220A | 250 | 270 | 275 |
| 30 | 275 | 285 | 280 | 255 | 245 | 200 | 255 | 230 | 240 | 230 | 230 | 210 | 200 | 200H | 195 | 230 | 215 | 225 | 230 | 230 | 255 | 245 | 255 | 310 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 30 | 28 | 28 | 30 | 29 | 29 | 29 | 29 | 26 | 26 | 26 | 28 | 28 | 29 | 29 |
| Median | 280 | 290 | 280 | 260 | 245 | 230 | 240 | 215 | 210 | 210 | 205 | 210 | 215 | 225 | 230 | 230 | 215 | 215 | 230 | 240 | 240 | 260 | 275 | 280 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F

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

The Radio Research Laboratories, Japan

A 10

# IONOSPHERIC DATA

Nov. 1965 | h'Es | km | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 110 | 110 | 105 | 105 | 105 | 105 | 105 | 155 | 135 | 120 | 115 | 110 | 110 | 110 | 105 | 105 | 125 | 120 | 115 | 110 | 115 | 105 | 105 | 105 |
| 2 | 105 | 105 | 105 | 105 | 105 | E | E | 155 | 115 | 115 | 110 | 120 | 110 | 110 | 105 | 145 | 130 | 105 | 105 | 100 | 120 | 100 | 110 | 110 |
| 3 | E | 105 | 105 | E | 105 | E | E | G | G | 145 | 115 | 110 | 105 | C | C | C | C | C | C | C | C | C | C | C |
| 4 | C | C | C | C | C | C | C | C | C | 110 | 105 | 105 | 100 | 100 | G | 140 | 125 | 120 | 115 | 110 | 110 | 105 | 125 | 105 |
| 5 | 105 | E | E | 120 | 130 | 115 | E | G | 110 | 105 | 105 | 105 | 150 | 125 | 140 | 130 | 120 | 115 | E | 110 | E | E | E | E |
| 6 | 105 | 100 | E | E | 115 | E | E | 110 | 110 | 120 | G | 105 | 100 | G | 100 | 155 | 135 | 115 | 115 | 110 | 110 | 105 | 105 | 105 |
| 7 | 105 | 105 | 110 | 105 | E | 120 | 110 | B | 110 | 105 | 105 | 100 | 100 | 100 | G | 155 | 145 | 120 | E | E | E | 110 | 110 | E |
| 8 | 105 | 100 | 105 | 100 | 100 | E | E | G | 130 | G | G | 110 | G | G | G | G | B | 100 | E | E | E | E | E | E |
| 9 | E | E | E | E | E | E | E | E | G | G | 145 | G | 105 | 130 | 130 | 125 | E | E | E | E | E | E | E | 105 |
| 10 | 100 | E | 100 | 100 | E | E | E | 110 | 155 | 105 | 100 | 100 | 100 | 100 | 150 | C | 100 | 100 | S | E | E | E | 110 | E |
| 11 | E | 110 | E | E | E | E | E | G | G | 155 | 155 | G | G | 105 | G | G | G | E | E | 110 | 110 | 105 | 105 | 105 |
| 12 | 105 | 100 | E | E | 100 | E | E | G | 110 | 170 | G | 100 | 100 | 155 | 155 | 145 | 140 | E | E | E | E | E | E | E |
| 13 | E | E | E | E | E | E | E | G | G | G | G | G | 100 | G | G | 170 | 160 | E | E | E | E | E | E | E |
| 14 | E | E | E | E | E | 105 | E | 155 | 130 | G | 130 | 165 | 140 | E155G | 110 | 110 | E | E | E | E | E | E | 120 | E |
| 15 | E | E | E | E | E | E | E | E | G | G | E160G | 145 | 140 | G | G | 155 | 135 | E | E | E | E | E | 105 | 110 |
| 16 | 105 | 100 | 105 | 100 | 100 | E | E | E | 160 | G | 145 | 140 | 110 | 140 | G | 120 | 115 | E | E | E | E | 110 | 105 | 100 |
| 17 | 105 | 105 | 100 | 110 | E | E | E | 105 | 100 | C | 120 | 110 | 105 | 105 | 105 | 105 | 105 | 110 | 105 | 105 | 110 | 105 | E | E |
| 18 | 140 | E | E | 115 | 110 | 110 | 110 | 110 | 165 | 105 | 135 | 120 | 115 | 115 | G | 100 | 115 | 115 | 115 | 110 | E | E | 105 | 105 |
| 19 | 110 | E | E | E | E | E | 100 | E | 125 | 120 | 115 | 115 | G | G | 110 | G | E | E | E | E | E | E | E | 110 |
| 20 | 130 | 115 | E | E | E | E | E | 140 | 140 | 125 | 140 | 110 | 110 | 100 | 100 | 100 | 110 | E | 120 | 115 | 130 | 110 | E | E |
| 21 | E | E | E | 100 | 100 | E | E | 155 | 160 | 115 | 115 | 110 | G | G | 105 | 105 | 115 | 105 | E | 100 | 125 | 120 | E | E |
| 22 | 115 | 110 | 105 | E | E | E | E | 145 | 160 | G | 110 | E170G | 105 | 160 | 100 | 140 | 100 | 100 | 115 | 105 | 105 | 105 | 105 | E |
| 23 | E | E | E | E | E | E | E | B | 115 | 110 | 110 | 115 | 110 | 150 | 150 | 155 | E | E | E | E | E | 120 | E | E |
| 24 | E | 110 | 110 | E | E | E | E | G | G | 130 | 120 | 120 | 115 | 115 | G | G | E | 105 | E | 120 | E | E | 100 | E |
| 25 | 105 | E | 100 | E | E | 110 | E | 120 | 115 | 115 | 105 | 105 | G | 105 | 100 | G | E | E | E | E | E | E | E | E |
| 26 | E | E | E | E | E | E | E | 145 | 150 | 130 | 160 | 155 | 125 | 110 | 115 | 110 | E | 105 | E | E | E | E | E | E |
| 27 | E | E | E | E | E | E | E | 155 | G | G | 140 | 120 | G | G | G | 105 | E | 155 | 120 | 145 | 135 | E | E | E |
| 28 | 105 | 100 | E | E | E | E | E | B | G | 175 | 165 | 145 | E145G | 140 | E150G | G | E | E | 110 | E | E | E | E | E |
| 29 | E | E | E | E | E | E | E | E | 130 | 170 | 120 | 120 | 155 | 140 | 140 | 105 | 105 | 100 | E | E | 120 | E | 120 | 105 |
| 30 | 105 | E | E | E | E | 100 | E | 155 | 155 | 110 | 145 | 105 | G | G | G | 105 | E | E | E | E | E | E | E | E |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 17 | 14 | 11 | 10 | 10 | 7 | 4 | 14 | 21 | 21 | 26 | 27 | 23 | 21 | 18 | 22 | 17 | 16 | 10 | 13 | 11 | 12 | 14 | 11 |
| Median | 105 | 105 | 105 | 105 | 105 | 110 | 110 | 145 | 130 | 120 | 120 | 110 | 110 | 110 | 110 | 120 | 120 | 110 | 115 | 110 | 115 | 105 | 105 | 105 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'Es

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

The Radio Research Laboratories, Japan

A 11

# IONOSPHERIC DATA

**Nov. 1965** | Types of Es | 135° E Mean Time (G. M. T. +9h) | Akita | Lat. 39° 43.5'N | Long. 140° 08.2'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | f2 | f2 | f3 | f2 | f3 | f3 | f4 | h2 | h2 | h4 | c3 | c3 | c2 | c2 | 12 | 13 | h3 | f4 | f3 | f3 | f3 | f5 | f2 | f2 |
| 2 | f2 | f3 | f | f2 | f2 | | | h2 | h | h2 | c2 | h | 1 | 12 | 12 | h3 1 | h3 12 | f4 | f2 | f2 | f f2 | f2 | f2 | f2 |
| 3 | | f2 | f | | f | | | | | h2 | h2 | c3 | 12 | | | | | | | | | | | |
| 4 | | | | | | | | | | c3 | 13 | 14 | 14 | 1 | | h3 | h2 | f5 | f3 | f3 | f8 | f4 | f f2 | f |
| 5 | f | | | f | f | f2 | | | 1 | 13 | 13 | 12 | h h | h | h | h | h | f | | f | | | | |
| 6 | f2 | f2 | | | f | | | 12 | 13 | h | | 1 | 1 | | 1 | h | h2 | f2 | f3 | f2 | f2 | f3 | f2 | f3 |
| 7 | f | f | f | f | | f2 | f3 | | 13 | 13 | 12 | 12 | 12 | 12 | | h | h | f | | | | f2 | f2 | |
| 8 | f | f2 | f2 | f2 | f | | | | h | | | 12 | | | | | | f | | | | | | |
| 9 | | | | | | | | | | | h | | 12 | h2 | h | h2 | | | | | | | | f |
| 10 | f2 | | f | f2 | | | | 1 | h | 1 | 1 | 1 | 12 | 12 | h 12 | | 12 | f2 | | | | | f | |
| 11 | | f | | | | | | | | h | h | | | 1 | | | | | | f | f | f2 | f3 | f2 |
| 12 | f2 | f | | | f | | | | 12 | h 12 | | 12 h | 12 h | h | h | h | h2 | | | | | | | |
| 13 | | | | | | | | | | | | | 1 | | | h | h | | | | | | | |
| 14 | | | | | | f | | h2 | h2 | | h | h | h | h 12 | 12 | 12 | | | | | | | f | |
| 15 | | | | | | | | | | | h | h | h | | | h2 | h2 | | | | | | f2 | f2 |
| 16 | f3 | f3 | f3 | f2 | f | | | | h2 1 | | h2 | h 1 | 1 | h2 | | c2 | c2 | | | | | f2 | f4 | f2 |
| 17 | f2 | f2 | f2 | f f2 | | | | 1 | 1 h | | h2 | c2 | 13 | 1 | 12 | 12 | 14 | f3 | f4 | f5 | f3 | f2 | | |
| 18 | f | | | f2 | f | f | f2 | 12 | h2 | 13 h | h2 | h2 13 | h2 | c | | 1 | 1 | f3 | f4 | f2 | | | f3 | f2 |
| 19 | f2 | | | | | | f | | h2 | h2 | c2 | c | | | 13 | | | | | | | | | f |
| 20 | f | f2 | | | | | | h | h | h2 | h2 c2 | 13 | c | 12 | 13 | 13 | 14 | | f3 | f3 | f | f | | |
| 21 | | | | f2 | f | | | h4 | h2 | c4 | c2 | c5 | | | 13 | 1 | 1 | f | | f | f | f2 | | |
| 22 | f2 | f | f2 | | | | | h | h2 | | c2 | h 12 | 1 | h | 1 | h 12 | 12 | f2 | f | f2 | f | f3 | f2 | |
| 23 | | | | | | | | | c3 | 12 | c | h2 | c2 | h | h 1 | h 1 | | | | | | f | | |
| 24 | | f | f | | | | | | | h2 | h2 | h2 | c2 | c2 1 | | | | f | | f | | | f | |
| 25 | f | | f2 | | | f | | c | c3 | c3 | 12 | 12 | | 12 | 13 | | | | | | | | | |
| 26 | | | | | | | | h2 | h h2 | h | h2 | h | h2 | c2 | h3 h | 1 | | f | | | | | | |
| 27 | | | | | | | | h | | | h2 | h2 | | | | 1 | | f | f | f | f | | | |
| 28 | f | f | | | | | | | | h | h | h2 | h2 | h2 | h | | | | f2 | | | | | |
| 29 | | | | | | | | | h | h | h2 | h | h2 | h | h 1 | 1 | 1 | f | | | f2 | | f | f |
| 30 | f2 | | | | | f2 | | h | h2 1 | 12 | h2 | 12 | | | | 1 | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

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

Types of Es

# IONOSPHERIC DATA

Nov. 1965 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 037S | 036S | U035S | U033S | 038 | 041 | 036 | 057 | 067 | 070S | U076S | U099S | 087 | 095S | 087 | 081 | U079S | 054 | 031S | 034 | 037 | 031 | 032 | 033S |
| 2 | 034S | 035S | 037S | 035F | 034F | 032S | 041 | 054 | U074S | 090 | 081 | A | 084 | J077R | 087 | 091 | 064 | 048 | 031 | 031 | 033 | 034 | 034 | J036S |
| 3 | 032 | 033 | 034 | 035F | 033 | U034F | 044 | 061 | 075 | 085 | 073 | 072R | 066 | 074 | 069 | 070 | 067 | 050 | A | 029 | 032F | 033F | F | A |
| 4 | 034 | 034F | 034 | 034 | 035F | 032 | J038F | 057 | 069 | 067 | 078R | 072 | 073H | 096 | 066 | 066 | 059 | 042 | 030 | 034 | 031 | A | 034 | 033 |
| 5 | 033 | 037F | J040F | 034F | 032F | 035F | 049 | 066 | J074S | 073 | 082 | 089 | 093S | U100S | 073S | 069 | 071 | 048 | 031 | 034 | 030 | 032 | 033 | 034S |
| 6 | 033 | 036 | 035 | 038 | 042 | 026 | 039 | 060S | 060 | 084 | 085 | 114 | U078S | 078 | 083 | 082 | 080 | 050 | 032 | 036 | 040S | 041S | 039S | 040 |
| 7 | 036 | 037S | 045S | 040F | U043F | 040 | 041S | 060S | 072 | 083 | 075 | 094 | 087 | 082 | 082 | U073S | 060 | 052 | 047 | 049 | 038 | 040S | U038F | F |
| 8 | 036S | 036S | 039 | 042 | 026 | 022 | 033 | 058 | 072S | 091 | 091 | 075 | 072 | J075R | 082 | 066 | 056 | 046 | 028 | 032 | 030 | 026 | 029 | 030 |
| 9 | 030 | 030F | 030 | 034 | 036 | 021 | 034 | 054 | 066 | 079S | 087 | 065 | 092 | 086 | 084 | U076S | 067 | 047 | 040 | 040 | 028S | 030 | U030F | U032F |
| 10 | 031 | 031 | 031F | 034 | 035 | 031 | 031 | 050 | 063 | 065 | U079S | 071S | U074S | 066 | 070S | I064A | 057 | 044 | 027 | 035 | 032 | 032 | 030 | 032 |
| 11 | 030 | 034S | 036S | F | 038F | U037S | 037S | C | C | 068 | 084R | 067 | 071 | I076R | 073S | 057 | 058 | 036 | 037S | 036 | 030 | 029 | 032 | 032 |
| 12 | 035 | 034 | 035S | 036S | 036S | 034 | 034S | 061S | 065S | 069 | 070 | 074R | 069 | 071S | 073S | 062 | 057 | 046 | 038 | 035 | 030 | 027 | 031 | 033 |
| 13 | 033 | 035 | 033S | 034S | 034 | 031 | 044R | U067S | 064 | 063 | J074R | J076S | 070 | 073 | 063 | 058 | 060 | 044 | 043 | 039 | 029 | 030 | 031 | 031 |
| 14 | 032 | 034 | 032 | 034 | 036 | 029 | 032 | 051 | 070 | 070 | 077 | 064 | 069 | J073R | J077R | 067 | 068 | 044 | 038 | 033 | 036 | 032 | 020 | 026 |
| 15 | 028 | 030 | 029 | 031 | 033 | 033 | 036 | 063 | 062 | 060 | 066 | 065 | 066 | 076 | J074S | 058 | 063 | 048 | 034 | 030 | 030 | 028 | 025 | 029 |
| 16 | 030 | 030 | 030 | 031 | 039 | 028 | 032 | 054 | 057 | 057 | 062 | 064 | 073 | 074 | 081 | 076S | 061 | 041 | 025 | 028 | 028 | 028 | 028 | 028 |
| 17 | 029F | 028F | A | 030 | 030F | 030F | 033F | 057 | 062 | 055 | 062 | 066 | 061 | 073 | 073 | 060 | 055 | 038 | A | A | A | A | 025 | 028 |
| 18 | 029 | 029 | 031 | 033 | 037S | U023A | 028 | 049 | 055 | 061 | U079S | 070S | 063 | 070 | 060S | 060 | I051A | A | I031A | 030 | 029 | 028 | 028 | 030 |
| 19 | 032 | 032 | 030 | 033 | 030 | 031 | 032 | 057 | 058 | I070S | 070 | 079 | 071S | 064 | 055 | 056 | 056 | 038 | 042 | 035S | 024 | 022 | 027 | 030 |
| 20 | 030 | 031 | 031 | 032 | 031 | 029 | 035S | 056 | U073S | 060 | 073S | 084 | 080 | 071 | 064 | 056 | 052 | 038 | 031 | 030 | 030 | 031S | 031F | 035F |
| 21 | U040F | U042F | 024 | 025 | 021 | 032 | 033S | 058 | 061 | 067 | U079S | 072S | 078S | U078S | 067 | 058 | 061 | 043 | 034S | 032 | 031S | 030S | F | 031S |
| 22 | 035S | U035S | 037S | U037S | 020 | 020 | 029 | 051S | 056 | 062 | U082S | U075S | 061 | U075S | 062 | 060 | U054R | 040 | 037S | 025S | 026S | 030 | 032 | U030F |
| 23 | U033S | F | U033F | 035F | 036S | 028S | 026 | 051S | 059 | 060 | 065 | 066 | 061 | 070S | 065 | 060 | 047 | 032 | 034 | 035 | 025 | 025 | 028 | 028 |
| 24 | 028 | 029 | U030F | 030 | 030 | 025 | 024S | 050 | 058 | 061 | 069 | 066 | 073 | 075S | 064 | 056 | 048 | 037 | 040 | 026S | 028 | 027 | 030 | 031 |
| 25 | 033 | 033 | 034 | 031 | 025 | 023 | 027 | 055S | 058 | 062 | 067 | 068 | J074S | 064 | 054 | 050 | 047 | 036 | 029 | 032 | 030 | 028 | 024 | J027R |
| 26 | 027 | 029 | 027 | 030 | 029 | 027 | 024 | 049 | 056 | 054 | 061 | 062 | 063R | 065 | 060 | 063 | 047 | 036 | 030S | 035S | 024 | 025 | 026 | 030F |
| 27 | 028S | 030 | 032S | 031 | 034S | 029S | 033 | 053 | 059 | U053R | 055 | 070 | 058 | 067 | 060 | 061 | 049 | 035 | U040S | 034 | 032 | U034S | 028 | 029 |
| 28 | 029 | 030 | 030 | 032F | U038S | U027F | U032F | 054S | 052 | 050 | 058 | 071 | 066 | 064 | 060 | 056 | 044 | 031 | 033 | 037 | 028 | 025 | 024 | 030S |
| 29 | 030S | 027 | 028 | 028 | 034 | 021 | 023 | 046 | 056 | 056 | 066 | 067 | J072S | 064 | 063 | 052 | 047 | 038 | 034 | 028 | 023 | 024 | 025 | 027 |
| 30 | 028 | 029 | 029 | 030 | 029 | 021 | 025 | 050 | 060 | 069 | 087 | 062 | 065 | 057 | 059 | 050 | 048 | 030 | 025 | 029 | 025 | 029S | 028 | 030S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 29 | 29 | 29 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 29 | 28 | 29 | 29 | 28 | 28 | 28 |
| Median | 032 | 033 | 032 | 033 | 034 | 029 | 033 | 055 | 062 | 066 | 074 | 071 | 072 | 074 | 068 | 060 | 057 | 042 | 034 | 034 | 030 | 030 | 030 | 030 |
| U. Q. | 034 | 035 | 035 | 035 | 036 | 032 | 037 | 059 | 070 | 073 | 081 | 076 | 078 | 077 | 077 | 069 | 063 | 048 | 038 | 035 | 032 | 032 | 032 | 032 |
| L. Q. | 029 | 030 | 030 | 031 | 030 | 025 | 029 | 051 | 058 | 060 | 066 | 066 | 066 | 067 | 062 | 057 | 049 | 036 | 031 | 030 | 028 | 027 | 026 | 029 |
| Q. R. | 005 | 005 | 005 | 004 | 006 | 007 | 008 | 008 | 012 | 013 | 015 | 010 | 012 | 010 | 015 | 012 | 014 | 012 | 007 | 005 | 004 | 005 | 006 | 003 |

foF2

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

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

Nov. 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 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 | A | A | 430L | L | L | | | | | | | | |
| 2 | | | | | | | | | L | L | A | A | A | 400 | L | | | | | | | | | |
| 3 | | | | | | | | | L | L | L | A | A | A | L | L | | | | | | | | |
| 4 | | | | | | | | | | | L | L | | L | L | | | | | | | | | |
| 5 | | | | | | | | | L | L | L | L | L | 420L | L | A | | | | | | | | |
| 6 | | | | | | | | | | L | L | 440L | L | 420L | L | | | | | | | | | |
| 7 | | | | | | | | L | | A | L | L | 420L | L | L | L | | | | | | | | |
| 8 | | | | | | | | | L | L | L | L | L | L | L | L | L | | | | | | | |
| 9 | | | | | | | | | | L | L | 0L | L | L | 410L | L | | | | | | | | |
| 10 | | | | | | | | | | L | 420L | L | L | | L | A | | | | | | | | |
| 11 | | | | | | | | C | C | 370L | 420L | L | L | 410L | L | L | | | | | | | | |
| 12 | | | | | | | | | | U400L | 400L | 430L | L | L | | L | | | | | | | | |
| 13 | | | | | | | | L | L | L | L | 440L | L | L | L | | | | | | | | | |
| 14 | | | | | | | | | U340L | L | U400L | L | L | L | L | L | | | | | | | | |
| 15 | | | | | | | | L | L | | L | L | L | U440L | L | | | | | | | | | |
| 16 | | | | | | | | | | L | | L | L | L | A | | | | | | | | | |
| 17 | | | | | | | | | L | L | L | A | L | L | L | | | | | | | | | |
| 18 | | | | | | | | L | 340L | | U420L | 410L | L | A | L | L | A | A | | | | | | |
| 19 | | | | | | | | | 340L | L | L | U420L | U420L | L | L | L | | | | | | | | |
| 20 | | | | | | | | | L | L | L | A | L | L | L | | | | | | | | | |
| 21 | | | | | | | | | | L | L | L | L | L | A | A | | | | | | | | |
| 22 | | | | | | | | | | L | U420L | U420L | L | L | L | | | | | | | | | |
| 23 | | | | | | | | | | L | L | L | L | 410L | L | L | | | | | | | | |
| 24 | | | | | | | | | | 400L | L | L | U420L | 410L | L | L | | | | | | | | |
| 25 | | | | | | | | | | L | L | U410L | L | L | L | | | | | | | | | |
| 26 | | | | | | | | | | L | L | 410L | A | L | L | L | | | | | | | | |
| 27 | | | | | | | | | L | L | 430L | L | L | 410L | | 300L | | | | | | | | |
| 28 | | | | | | | | | L | | L | L | L | L | | 290L | | | | | | | | |
| 29 | | | | | | | | | | L | L | | U420L | L | L | L | | | | | | | | |
| 30 | | | | | | | | | | L | 400L | L | 410L | 400L | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 3 | 3 | 8 | 9 | 5 | 10 | 1 | 2 | | | | | | | | |
| Median | | | | | | | | | 340L | 400L | 420L | 420L | U420L | 410L | 410L | 300L | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

foF1

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

K 2

# IONOSPHERIC DATA

Nov. 1965 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 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 | A | A | A | A | A | A | A | A | A | A | B | | | | | | |
| 2 | | | | | | | B | 195 | A | A | A | A | A | A | 285 | A | A | B | | | | | | |
| 3 | | | | | | | B | A | A | A | A | A | A | A | A | 270 | A | A | | | | | | |
| 4 | | | | | | | B | A | A | A | A | A | A | A | 280 | 240 | 190 | B | | | | | | |
| 5 | | | | | | | B | 190 | I250A | 275 | 320R | 315R | A | A | A | A | A | A | | | | | | |
| 6 | | | | | | | B | A | A | A | A | 310R | I305A | A | A | I240A | 200R | B | | | | | | |
| 7 | | | | | | | B | A | A | A | 300R | 320 | 315 | 305 | 280 | 240R | A | S | | | | | | |
| 8 | | | | | | | B | 190 | 255R | A | A | 305 | 305 | 295 | I270R | 255 | A | B | | | | | | |
| 9 | | | | | | | B | 190 | 240 | 270 | 300 | 305 | 310 | 300 | 285 | 265R | 180R | S | | | | | | |
| 10 | | | | | | | B | 180 | 255 | 285 | 305 | 320R | 310 | 300 | 285 | A | A | B | | | | | | |
| 11 | | | | | | | B | C | C | 285 | 300 | 315 | 315 | 310 | 275 | 255 | A | B | | | | | | |
| 12 | | | | | | | B | 170 | 255R | 290R | 305 | 315 | 325 | 310 | I270R | 250 | 180 | B | | | | | | |
| 13 | | | | | | | B | I180A | 255R | 290 | 300 | 310 | 310 | 300 | 280 | 250 | 175 | S | | | | | | |
| 14 | | | | | | | B | 180 | 255 | 280 | 310 | 310 | 310 | 295 | 270 | 245 | 175 | S | | | | | | |
| 15 | | | | | | | B | 180 | 240R | 275 | 300 | 310 | 310 | 300 | 290 | 265 | A | S | | | | | | |
| 16 | | | | | | | B | 170 | 245 | 270 | 295 | 305 | 310 | 300 | 270 | A | A | B | | | | | | |
| 17 | | | | | | | B | 180 | A | A | C | A | 310R | I295A | 275 | 245R | A | B | | | | | | |
| 18 | | | | | | | B | A | 250R | 290 | I300A | 305 | A | A | A | A | A | S | | | | | | |
| 19 | | | | | | | S | 180 | 255 | 275 | A | A | A | 305R | I275A | 245 | 155 | B | | | | | | |
| 20 | | | | | | | B | A | 240 | 270 | R | A | A | 300R | I260A | I230A | 190 | B | | | | | | |
| 21 | | | | | | | B | A | A | A | I295A | R | A | A | A | A | A | B | | | | | | |
| 22 | | | | | | | B | B | 210 | 260 | 280 | I290A | I300A | I285A | I265A | 230 | 175 | S | | | | | | |
| 23 | | | | | | | B | 175 | A | 250 | A | A | A | I285A | I265A | I245A | B | B | | | | | | |
| 24 | | | | | | | B | 150 | 225 | 280 | A | A | A | A | A | A | A | B | | | | | | |
| 25 | | | | | | | B | 175 | A | A | I295A | I300A | 300 | 290 | 255R | 225 | A | | | | | | | |
| 26 | | | | | | | B | 185 | A | I270A | 290 | 300 | A | A | A | A | A | | | | | | | |
| 27 | | | | | | | B | 160R | 220R | 270 | 285 | 305 | 305R | 285 | 275 | 240 | A | | | | | | | |
| 28 | | | | | | | B | A | 230 | 280 | 280 | 300R | 300 | 290 | 255R | 225 | 150 | | | | | | | |
| 29 | | | | | | | B | 165 | 235 | 255 | I290A | 300 | 300 | 290 | 260 | 220 | B | | | | | | | |
| 30 | | | | | | | | B | 240 | A | 305R | A | 310R | I295A | 275 | 245 | A | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 18 | 18 | 19 | 19 | 19 | 18 | 20 | 22 | 21 | 10 | | | | | | | |
| Median | | | | | | | | 180 | 240 | 275 | 300 | 305 | 310 | 300 | 275 | 245 | 180 | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foE

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

The Radio Research Laboratories, Japan

K 3

# IONOSPHERIC DATA

Nov. 1965 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J027 | J028 | 025 | J028 | J025 | J028 | J039 | 029 | J031 | J040 | 038 | J062 | J066 | J056 | 033 | J039 | J037 | J025 | J038 | J031 | J030 | J040 | J029 | J036 |
| 2 | J063 | 024 | J024 | J031 | 023 | 020 | 020 | 025 | J030 | J040 | 077 | J092 | J084 | 036M | 034 | 046 | J036 | J032 | J034 | J040 | J052 | J042 | E015S | E015S |
| 3 | J030 | J024 | 023 | J022 | 019 | E013B | E013B | 023 | J030 | J039 | 057 | J057 | J090 | 056 | 039 | 033 | J030 | J048 | J071 | J054 | J039 | J040 | J052 | J077 |
| 4 | J052 | J028 | J030 | J026 | 023 | 022 | J018 | 031M | J041 | J039 | 044 | J044 | J064 | 045 | 036 | 031 | 025 | J029 | J024 | J023 | J030 | 043M | J034 | J038 |
| 5 | J024 | J063 | J022 | E013B | 020 | J023 | J036 | 019G | J030 | J025G | 024G | G | J040 | J042 | 031 | J038 | J026 | J054 | 024 | J024 | 024 | E013S | E013B | 019 |
| 6 | E013B | 023 | 024 | J028 | 022 | 023 | 027 | 025 | J038 | 037 | 036 | G | 035 | J036 | J035 | 034 | G | 020 | 024 | 025 | J031 | J027 | J031 | E013B |
| 7 | E014S | J023 | J028 | 015 | 024 | 023 | 019 | J027 | J040 | J038 | J028G | 025G | G | G | G | G | 024 | 022 | 019 | E012B | 021 | 023 | J024 | 024 |
| 8 | 018 | E013B | 022 | 025 | J040 | E013B | 020 | 023 | G | 031 | 032 | J028G | 028G | G | 027G | J025G | 021 | J026 | 047 | J038 | 020 | J022 | 019 | 020 |
| 9 | J018 | E013B | E013B | E | E | E012B | E013B | G | 021G | 032 | 037 | 036 | 033 | 033 | 032 | G | G | 021 | 024 | J026 | 020 | 024 | J024 | 021 |
| 10 | E014S | E011B | J020 | 024 | 025 | 022 | J024 | J025 | J030 | 033 | 035 | G | 038 | 037 | 037 | J073 | J030 | J026 | J025 | 022 | 024 | E015S | 021 | E017S |
| 11 | E015S | E013B | E013B | E013B | E013B | E013B | E013B | C | C | G | G | G | 036 | 035 | 032 | 032 | J035 | J024 | J025 | E016S | E015S | E015S | J025 | J026 |
| 12 | J025 | 023 | J027 | 019 | E013B | E015B | E015B | 022 | 033 | 032 | 037 | 038 | 038 | 039 | 033 | 028 | G | 024 | 024 | E013S | E013S | E013S | E013B | E012B |
| 13 | E012B | E012B | E012B | E013B | E016B | E014B | E013B | 022 | G | G | G | G | G | G | G | G | G | J018S | E016S | E015S | E012B | E014S | E015S | E015S |
| 14 | E013B | E012B | E014B | E | E013B | E013B | E012B | G | G | 031 | 035 | J035 | 035 | G | 024G | G | G | 022 | J024 | 022 | J024 | J019 | E013B | E014S |
| 15 | E013B | E013B | E012B | E011B | E012B | E013B | J014 | G | G | G | 032 | G | 033 | G | G | G | 022 | E017S | E013B | E012B | E012B | E015S | E011B | E013B |
| 16 | 022 | 020 | J025 | 024 | J028 | J030 | J039S | G | G | 034 | 039 | 036 | 035 | 034 | J041 | 027 | J022 | J028 | 028M | E012B | E011B | E012B | E012B | 021 |
| 17 | J027 | J030 | J040 | J034 | J032 | 027 | J032 | 020 | 028 | J031 | E052C | J044 | 036 | 035 | 036 | 032 | J025 | J030 | J032 | J040 | J053 | 044 | J024 | 023 |
| 18 | E013B | 021 | J028 | J052 | J025 | J026 | 023 | 020 | J058 | 020G | J037 | 039 | 037 | J044 | 046 | J030 | J063 | J120 | J075 | J036 | 020 | 021 | J025 | 023 |
| 19 | J028 | 024 | 022 | E013B | E011B | 019 | E017S | 030 | 032 | 032 | 036 | 033 | 032 | 034 | J036 | 033 | G | J024 | E012B | E013B | E014S | E011B | E014S | 023 |
| 20 | E013B | E013B | 023 | 021 | 020 | E013B | 023 | 023 | G | G | 034 | J048 | 034 | G | J030 | J025 | G | E013B | 024 | 018 | J035 | J052 | J023 | 023 |
| 21 | 020 | E011B | E013B | 023 | 022 | J026 | 031 | 024 | 035 | 032 | J032 | G | 035 | J053 | J062 | J074 | J030 | J026 | J025 | 024 | 023 | E013B | E014S | J027 |
| 22 | J022 | J025 | J023 | 024 | 024 | 022 | E013B | 024 | G | 031 | 035 | 037 | 036 | 034 | 034 | 025 | 024 | 025 | 024 | J025 | 019 | 020 | 019 | 022 |
| 23 | 019 | E014B | E013B | E013B | E011B | 023 | E013B | G | 032 | 032 | J037 | 037 | 045 | 036 | 035 | 030 | E017B | E013B | J026 | J025 | 023 | E015S | E016S | E013B |
| 24 | J025 | E013B | E013B | E012B | 020 | 019 | E011B | 020 | 027 | 032 | 036 | J041 | 033 | J037 | J030 | 025 | J033 | 024 | 022 | J025 | J020 | 020 | 020 | 020 |
| 25 | 019 | E014B | E014B | 021 | 022 | E013B | E013B | 024 | J030 | J034 | J038 | J037 | J033 | J038 | 023G | G | J022 | J038 | J034 | E013B | E012B | E015S | E013B | E015S |
| 26 | E012B | E014B | 018 | E013B | E013B | E015B | 018 | G | J025 | 028 | 033 | 033 | J040 | J035 | J030 | J033 | 030 | J026 | J037 | 022 | 024 | 022 | 022 | E016S |
| 27 | E013B | E014B | E011B | E | E011B | E012B | E012B | 023 | 028 | G | 030 | 034 | 036 | G | 032 | G | J025 | J021 | J027 | 023 | 024 | E014S | E017S | E013B |
| 28 | E013B | E013B | E013B | E013B | E013B | 025 | E013B | 021 | 028 | 036 | 034 | 035 | 037 | 034 | 034 | 026 | G | J024 | 023 | 018 | 024 | 024 | E014S | E013B |
| 29 | E013B | 021 | E013B | E014B | 029 | E014B | E015B | 022 | J023G | 032 | J031 | 037 | 036 | J025G | G | G | 022 | J022 | E015S | J016 | J023 | E011B | J013 | E015S |
| 30 | E015S | J024 | 018 | E | J013 | J021 | J014S | E015B | 028 | 037 | 036 | 036 | G | 034 | 034 | G | 024 | 022 | 024 | E013B | E013B | E013B | E014S | E015S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Median | 018 | E017B | 021 | 017 | 020 | 020 | 015 | 022 | 028 | 032 | 036 | 036 | 036 | 035 | 033 | 028 | 024 | J024 | 024 | 022 | 023 | 020 | 017 | 020 |
| U. Q. | 025 | 024 | 024 | 024 | 023 | 023 | 023 | 024 | 032 | 036 | 037 | 039 | 038 | 038 | 036 | 033 | 030 | 028 | 032 | 025 | 024 | 024 | 024 | 023 |
| L. Q. | E013 | E013 | E013 | E013 | E013 | E013 | E013 | G | G | 028 | 032 | G | 033 | G | 030 | G | G | 022 | 024 | E015 | E015 | E014 | E014 | E015 |
| Q. R. | D012 | D011 | D011 | D011 | D010 | D010 | D010 | | | 008 | 005 | | 005 | | 006 | | | 006 | 008 | D010 | D009 | D010 | D010 | D008 |

foEs

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

# IONOSPHERIC DATA

**Nov. 1965** | **$f_bEs$** | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 018 | 015 | 014 | 017 | 014 | 015 | 023 | 023 | 025 | 036 | 037 | 051 | 053 | 037 | 032 | 033 | 033 | 023 | 026 | 023 | 023 | 024 | 018 | 026 |
| 2 | 016 | E | 015 | 015 | 013 | E | G | 024 | 026 | 032 | 077 | A | 052 | 032 | 031 | 044 | 025 | 020 | 026 | 015 | 018 | 020 | S | S |
| 3 | 021 | 013 | E | 013 | E | B | B | 023 | 030 | 033 | 040 | 052 | 052 | 049 | 031 | 028 | 038 | 045 | A | 016 | 021 | 021 | 020 | A |
| 4 | 020 | 015 | 025 | 013 | 020 | E | G | 027 | 041 | 038 | 037 | 036 | 038 | 040 | 033 | 030 | 018 | 025 | 019 | 018 | 025 | A | 022 | 024 |
| 5 | 016 | E | E | B | E | 013 | 030 | 018G | 028 | 023G | E024R | | 038 | 030 | 031 | 038 | 024 | 020 | 015 | 018 | 016 | S | B | E |
| 6 | B | 014 | E | 015 | E | E | 014 | 022 | 023 | 029 | 031 | | 032 | 031 | 029 | 025 | | 016 | E | 015 | 017 | 017 | 016 | B |
| 7 | S | 015 | 016 | 013 | E | E | G | 020 | 030 | 036 | 028G | 025G | | | | | 023 | G | E | B | E | E | E | E |
| 8 | E | B | E | E | E | B | G | 023 | | 029 | 032 | 026G | 026G | | E027R | 020G | 020 | 022 | 022 | 021 | E | E | E | E |
| 9 | E | B | B | | | B | B | | 021G | 031 | 035 | 034 | 033 | 033 | 030 | | | G | 014 | E | E | E | 014 | E |
| 10 | S | B | 014 | E | E | 015 | 018 | 020 | 028 | 032 | 034 | | 032 | 034 | 032 | A | 025 | 022 | E | E | E | S | E | S |
| 11 | S | B | B | B | B | B | B | C | C | | | | 036 | 034 | 032 | 028 | 026 | 018 | 023 | S | S | S | 015 | 015 |
| 12 | 017 | 015 | 020 | E | B | B | B | 022 | 029 | 032 | 036 | 037 | 033 | 033 | 033 | 028 | | 018 | 015 | S | S | S | B | B |
| 13 | B | B | B | B | B | B | B | 021 | | | | | | | | | | G | S | S | B | S | S | S |
| 14 | B | B | B | | B | B | B | | | 030 | 033 | 029 | 035 | | 024G | | | G | E | E | 016 | 016 | B | S |
| 15 | B | B | B | B | B | B | G | | | | 032 | | 033 | | | | 021 | S | B | B | B | S | B | B |
| 16 | E | E | 015 | 013 | 024 | 016 | G | | | 034 | 037 | 035 | 035 | G | 041 | 027 | 021 | 019 | 019 | B | B | B | B | 015 |
| 17 | 017 | 016 | A | 021 | 021 | 017 | G | G | 025 | 028 | C | 044 | 032 | 033 | 033 | 031 | 025 | 014 | A | A | A | A | 017 | E |
| 18 | B | E | 014 | 013 | 013 | 020 | G | 018 | 026 | 020G | 033 | 033 | 033 | 044 | 033 | 025 | A | A | A | 021 | E | E | E | 014 |
| 19 | 017 | 015 | E | B | B | E | S | 020 | 027 | 030 | 033 | 032 | 031 | 029 | 031 | 020 | | 016 | B | B | S | B | S | E |
| 20 | B | B | E | E | E | B | G | 022 | | | 034 | 048 | 032 | | 027 | 022 | | B | 015 | E | 020 | 020 | 016 | E |
| 21 | E | B | B | 017 | E | E | G | 022 | 033 | 030 | 030 | | 031 | 028 | 039 | 041 | 023 | 016 | 018 | 015 | 018 | B | S | 014 |
| 22 | 015 | 016 | 015 | 013 | E | E | B | 023 | | 030 | 033 | 036 | 031 | 033 | 028 | 025 | 021 | 019 | 023 | 014 | E | E | E | E |
| 23 | E | B | B | B | B | E | B | | 027 | 030 | 034 | 031 | 035 | 031 | 030 | 027 | B | B | 020 | 017 | E | S | S | B |
| 24 | E | B | B | B | E | 017 | B | 019 | 026 | 031 | 032 | 037 | 033 | 033 | 029 | 024 | 025 | 013 | 013 | 021 | 014 | E | 016 | E |
| 25 | E | B | B | 012 | 014 | B | B | 020 | 022 | 033 | 033 | 031 | 025 | 025 | 021G | | 019 | 029 | 025 | B | B | S | B | S |
| 26 | B | B | E | B | B | B | G | | 025 | 027 | 031 | 032 | 039 | 033 | 030 | 027 | 019 | 018 | 025 | E | E | E | E | S |
| 27 | B | B | B | | B | B | B | 022 | 027 | | 029 | 033 | 036 | | 030 | | 019 | 016 | 020 | 017 | E | S | S | B |
| 28 | B | B | B | B | B | E | B | G | 026 | 034 | 032 | 035 | 035 | 033 | 032 | 024 | | 020 | E | E | 014 | E | S | B |
| 29 | B | E | B | B | 015 | B | B | 021 | E023G | 030 | 030 | 035 | 034 | 024G | | | G | E | S | E | 015 | B | E | S |
| 30 | S | E | E | | E | E | E | B | 027 | 029 | 030 | 031 | | 030 | 025 | | 020 | E | E | B | B | B | S | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

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

$f_bEs$

K 5

# IONOSPHERIC DATA

Nov. 1965 | f-min | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | E015S | 013 | 011 | 013 | 013 | 011 | 012 | 014 | 014 | 015 | 016 | 015 | 018 | 016 | 015 | 015 | 014 | 013 | E015S | 012 | 011 | E013S | 010 | E013S |
| 2 | 011 | 014 | 013 | 011 | 011 | 015 | 015 | 013 | 014 | 016 | 016 | 016 | 017 | 015 | 015 | 015 | 015 | 014 | 012 | 012 | E015S | 012 | E015S | E015S |
| 3 | E014S | 010 | 013 | 010 | 010 | 013 | 013 | 014 | 014 | 016 | 017 | 014 | 015 | 015 | 015 | 014 | 013 | 012 | E013S | E013S | 011 | 012 | 012 | 013 |
| 4 | 013 | 011 | 012 | 011 | 010 | 013 | 012 | 012 | 014 | 016 | 015 | 015 | 015 | 016 | 014 | 014 | 014 | 013 | E013S | 011 | E013S | 012 | 013 | 013 |
| 5 | E015S | 013 | 013 | 013 | 010 | 010 | 012 | 013 | 014 | 014 | 016 | 016 | 017 | 015 | 015 | 014 | 014 | 011 | 012 | 011 | E013S | E013S | 013 | 013 |
| 6 | 013 | 011 | 013 | 011 | 011 | 015 | 012 | 013 | 016 | 014 | 016 | 016 | 015 | 015 | 014 | 014 | 015 | 013 | E015S | 011 | E013S | 012 | E015S | 013 |
| 7 | E014S | 011 | 013 | 010 | 013 | 013 | 014 | 013 | 015 | 016 | 015 | 016 | 015 | 016 | 016 | 014 | 015 | E015S | 012 | 012 | E014S | 012 | 013 | 012 |
| 8 | 013 | 013 | 013 | 013 | 011 | 013 | 013 | 014 | 015 | 015 | 015 | 015 | 016 | 016 | 018 | 014 | 015 | 013 | E015S | E013S | E013S | E015S | 010 | E015S |
| 9 | 011 | 013 | 013 | 010 | 010 | 012 | 013 | 013 | 014 | 015 | 015 | 015 | 016 | 016 | 017 | 015 | 014 | E015S | E013S | E013S | E015S | E014S | 011 | E014S |
| 10 | E014S | 011 | 013 | 013 | 014 | 014 | 015 | 013 | 014 | 015 | 016 | 016 | 015 | 015 | 014 | 014 | 013 | 014 | 011 | E015S | E013S | E015S | E014S | E017S |
| 11 | E015S | 013 | 013 | 013 | 013 | 013 | 013 | C | C | 015 | 015 | 017 | 016 | 017 | 016 | 015 | 015 | 014 | E015S | E016S | E015S | E015S | 013 | E014S |
| 12 | 011 | 014 | 013 | 013 | 013 | 015 | 015 | 014 | 015 | 016 | 017 | 016 | 018 | 017 | 017 | 016 | 014 | 014 | 011 | E013S | E013S | E013S | 013 | 012 |
| 13 | 012 | 012 | 012 | 013 | 016 | 014 | 013 | 014 | 014 | 016 | 016 | 019 | 016 | 016 | 016 | 018 | 015 | E015S | E016S | E015S | 012 | E014S | E015S | E015S |
| 14 | 013 | 012 | 014 | 010 | 013 | 013 | 012 | 013 | 015 | 015 | 016 | 015 | 016 | 015 | 015 | 014 | 013 | E015S | E014S | E013S | 013 | 012 | 013 | E014S |
| 15 | 013 | 013 | 012 | 011 | 012 | 013 | 012 | 015 | 014 | 015 | 015 | 016 | 018 | 016 | 016 | 016 | 013 | E017S | 013 | 012 | 012 | E015S | 011 | 013 |
| 16 | 012 | 014 | 010 | 010 | 012 | 011 | 013 | 015 | 015 | 014 | 015 | 014 | 015 | 016 | 015 | 014 | 013 | 014 | E014S | 012 | 011 | 012 | 012 | 011 |
| 17 | 012 | 011 | 011 | 010 | E | 013 | 012 | 014 | 015 | 013 | E052C | 017 | 016 | 016 | 017 | 013 | 013 | 011 | E014S | 011 | E015S | E016S | 013 | 013 |
| 18 | 013 | 013 | 011 | 010 | 010 | 013 | 015 | 013 | 014 | 015 | 015 | 014 | 015 | 014 | 015 | 016 | 015 | E015S | E014S | E014S | 013 | 011 | 012 | 011 |
| 19 | 012 | 013 | 013 | 013 | 011 | 011 | E017S | 014 | 014 | 016 | 015 | 019 | 015 | 015 | 014 | 014 | 014 | 013 | 012 | 013 | E014S | 011 | E014S | 013 |
| 20 | 013 | 013 | E015S | 015 | 013 | 013 | 015 | 013 | 015 | 015 | 015 | 017 | 015 | 016 | 015 | 015 | 014 | 013 | 011 | E014S | E015S | 011 | E014S | 011 |
| 21 | 013 | 011 | 013 | 014 | 014 | 015 | 015 | 013 | 015 | 016 | 014 | 016 | 016 | 015 | 014 | 014 | 013 | 013 | 011 | 013 | 013 | 013 | E014S | 013 |
| 22 | E014S | 012 | 010 | 010 | 013 | 014 | 013 | 015 | 014 | 015 | 015 | 015 | 015 | 015 | 014 | 015 | 014 | E015S | E015S | 011 | E015S | E015S | E014S | E015S |
| 23 | 011 | 014 | 013 | 013 | 011 | 013 | 013 | 012 | 016 | 014 | 015 | 015 | 015 | 016 | 015 | 015 | 017 | 013 | 013 | 013 | 013 | E015S | E016S | 013 |
| 24 | E014S | 013 | 013 | 012 | 010 | 016 | 011 | 012 | 013 | 016 | 016 | 015 | 013 | 015 | 016 | 017 | 014 | 011 | 011 | 013 | 012 | 013 | E014S | 013 |
| 25 | E015S | 014 | 014 | 010 | 011 | 013 | 013 | 012 | 014 | 016 | 014 | 015 | 016 | 015 | 015 | 015 | 014 | 013 | 012 | 013 | 012 | E015S | 013 | E015S |
| 26 | 012 | 014 | E015S | 013 | 013 | 015 | 013 | 012 | 013 | 015 | 015 | 016 | 015 | 016 | 015 | 014 | 013 | 013 | 013 | 013 | E015S | E014S | E014S | E016S |
| 27 | 013 | 014 | 011 | 010 | 011 | 012 | 012 | 013 | 013 | 014 | 015 | 015 | 015 | 014 | 015 | 015 | 013 | 012 | 013 | E015S | E015S | E014S | E017S | 013 |
| 28 | 013 | 013 | 013 | 013 | 013 | 014 | 013 | 013 | 013 | 015 | 015 | 014 | 015 | 015 | 015 | 015 | 013 | 013 | E015S | 013 | 013 | 013 | E014S | 013 |
| 29 | 013 | 014 | 013 | 014 | 013 | 014 | 015 | 014 | 012 | 015 | 017 | 016 | 015 | 014 | 015 | 014 | 015 | E015S | E015S | 012 | 011 | 011 | E015S | E015S |
| 30 | E015S | 013 | 011 | 010 | 010 | 011 | E014S | 015 | 013 | 013 | 014 | 015 | 015 | 015 | 014 | 014 | 013 | E014S | 013 | 013 | 013 | 013 | E014S | E015S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Median | 012 | 013 | 013 | 012 | 012 | 013 | 013 | 013 | 014 | 015 | 015 | 016 | 015 | 015 | 015 | 014 | 014 | 013 | E013S | 012 | E013S | E013S | E014S | 012 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

f-min

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

The Radio Research Laboratories, Japan

K 6

# IONOSPHERIC DATA

**Nov. 1965** | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 285S | 280S | U265S | U295S | 315 | 345 | 330 | 345 | 350 | 350S | U335S | U335S | 345 | 335S | 330 | 345 | U350S | 345 | 295S | 285 | 320 | 295 | 285 | 290S |
| 2 | 290S | 285S | 270S | 270F | 310F | 320S | 340 | 335 | U340S | 355 | 365 | A | 330 | J325R | 320 | 350 | 370 | 330 | 295 | 285 | 275 | 280 | 295 | J315S |
| 3 | 285 | 280 | 280 | 285F | 300 | U295F | 330 | 345 | 360 | 355 | 345 | 345R | 335 | 325 | 335 | 345 | 345 | 360 | A | 280 | 280F | 280F | F | A |
| 4 | 290 | 285F | 290 | 295 | 305F | 310 | J335F | 355 | 390 | 350 | 335R | 330 | 315H | 345 | 340 | 340 | 360 | 350 | 300 | 315 | 285 | A | 265 | 275 |
| 5 | 275 | 270F | J300F | 325F | 290F | 285F | 335 | 360 | J350S | 335 | 325 | 320 | 325S | U345S | 350S | 345 | 345 | 365 | 315 | 310 | 320 | 305 | 300 | 295S |
| 6 | 295 | 295 | 295 | 305 | 350 | 290 | 335 | 345S | 340 | 345 | 325 | 330 | U315S | 325 | 320 | 335 | 350 | 330 | 320 | 270 | 280S | 270S | 290S | 290 |
| 7 | 295 | 285S | 275S | 295F | U300F | 315 | 305S | 350S | 340 | 345 | 330 | 330 | 330 | 325 | 350 | U350S | 360 | 330 | 320 | 325 | 320 | 290S | U290F | F |
| 8 | 295S | 305S | 295 | 320 | 365 | 265 | 320 | 345 | 340S | 340 | 355 | 340 | 345 | J330R | 340 | 365 | 355 | 330 | 320 | 310 | 325 | 290 | 295 | 280 |
| 9 | 280 | 295F | 275 | 310 | 360 | 295 | 320 | 350 | 345 | 325S | 330 | 315 | 335 | 330 | 345 | U350S | 365 | 355 | 300 | 345 | 285S | 295 | U245F | U290F |
| 10 | 300 | 300 | 270F | 310 | 335 | 375 | 315 | 345 | 340 | 350 | U340S | 325S | U330S | 325 | 345S | I340A | 340 | 360 | 300 | 305 | 305 | 325 | 295 | 280 |
| 11 | 290 | 290S | 300S | F | 305F | U310S | 320S | C | C | 360 | 345R | 350 | 365 | I330R | 355S | 370 | 345 | 325 | 315S | 345 | 325 | 290 | 295 | 290 |
| 12 | 290 | 320 | 275S | 290S | 290S | 315 | 330S | 350S | 345S | 340 | 325 | 335R | 315 | 345S | 335S | 365 | 345 | 345 | 335 | 335 | 315 | 295 | 290 | 285 |
| 13 | 320 | 300 | 290S | 295S | 290 | 280 | 340R | U360S | 345 | 320 | J340R | J355S | 340 | 355 | 325 | 365 | 365 | 320 | 325 | 335 | 325 | 300 | 305 | 290 |
| 14 | 300 | 295 | 315 | 310 | 330 | 295 | 295 | 345 | 350 | 295 | 350 | 350 | 345 | J340R | J350R | 340 | 350 | 345 | 320 | 290 | 325 | 345 | 345 | 280 |
| 15 | 285 | 275 | 280 | 300 | 320 | 330 | 330 | 350 | 370 | 340 | 320 | 310 | 335 | 330 | J345S | 345 | 350 | 350 | 305 | 300 | 325 | 300 | 310 | 280 |
| 16 | 295 | 300 | 295 | 295 | 335 | 305 | 355 | 365 | 370 | 345 | 340 | 340 | 340 | 325 | 350 | 355S | 360 | 350 | 320 | 305 | 300 | 300 | 320 | 320 |
| 17 | 275F | 280F | A | 295 | 300F | 295F | 320F | 365 | 370 | 340 | 345 | 365 | 320 | 335 | 350 | 350 | 355 | 365 | A | A | A | A | 310 | 300 |
| 18 | 290 | 275 | 295 | 330 | 360S | U295A | 315 | 355 | 360 | 355 | U350S | 345S | 330 | 340 | 365S | 375 | I355A | A | I320A | 320 | 330 | 285 | 320 | 285 |
| 19 | 280 | 330 | 300 | 310 | 325 | 325 | 315 | 380 | 345 | I350S | 340 | 340 | 345S | 355 | 360 | 350 | 365 | 340 | 330 | 315S | 315 | 295 | 275 | 265 |
| 20 | 285 | 275 | 275 | 280 | 285 | 295 | 315S | 350 | U350S | 325 | 325S | 340 | 330 | 330 | 350 | 355 | 355 | 325 | 315 | 315 | 290 | 275S | 265F | 275F |
| 21 | U300F | U335F | 295 | 350 | 305 | 290 | 305S | 340 | 345 | 325 | U335S | 340S | 325S | U345S | 350 | 335 | 350 | 365 | 340S | 340 | 305S | 300S | F | 275S |
| 22 | 270S | U285S | 325S | U350S | 335 | 295 | 310 | 330S | 345 | 330 | U350S | U350S | 340 | U340S | 355 | 360 | U350R | 310 | 345S | 325S | 310S | 315 | 330 | U295F |
| 23 | U280S | F | U280F | 310F | 320S | 315S | 330 | 355S | 355 | 350 | 330 | 345 | 325 | 330S | 345 | 350 | 375 | 365 | 310 | 340 | 325 | 310 | 295 | 300 |
| 24 | 285 | 275 | U285F | 295 | 325 | 310 | 340S | 370 | 355 | 330 | 340 | 340 | 340 | 350S | 340 | 370 | 355 | 345 | 340 | 360S | 305 | 285 | 300 | 295 |
| 25 | 275 | 290 | 310 | 335 | 310 | 285 | 295 | 350S | 355 | 340 | 345 | 340 | J350S | 360 | 355 | 355 | 345 | 330 | 305 | 315 | 300 | 320 | 290 | J295R |
| 26 | 295 | 305 | 295 | 325 | 345 | 335 | 320 | 340 | 355 | 355 | 340 | 340 | 350R | 350 | 350 | 350 | 355 | 320 | 320S | 350S | 315 | 320 | 285 | 265F |
| 27 | 280S | 265 | 290S | 295 | 320S | 320S | 325 | 370 | 355 | U320R | 330 | 330 | 320 | 335 | 345 | 340 | 355 | 315 | U325S | 335 | 340 | U325S | 290 | 305 |
| 28 | 295 | 290 | 305 | 290F | U315S | U285F | U290F | 365S | 365 | 350 | 355 | 335 | 345 | 340 | 365 | 345 | 345 | 325 | 325 | 340 | 345 | 330 | 320 | 325S |
| 29 | 280S | 280 | 285 | 285 | 340 | 320 | 285 | 345 | 350 | 350 | 345 | 345 | J345S | 355 | 350 | 345 | 380 | 315 | 320 | 320 | 305 | 290 | 320 | 280 |
| 30 | 285 | 290 | 310 | 315 | 345 | 335 | 280 | 355 | 350 | 330 | 345 | 355 | 375 | 345 | 350 | 360 | 360 | 340 | 325 | 340 | 305 | 310S | 295 | 270S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 29 | 29 | 29 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 29 | 28 | 29 | 29 | 28 | 28 | 28 |
| Median | 290 | 290 | 290 | 300 | 320 | 310 | 320 | 350 | 350 | 345 | 340 | 340 | 335 | 340 | 350 | 350 | 355 | 340 | 320 | 320 | 315 | 300 | 295 | 290 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

M(3000) F2

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

K 7

# IONOSPHERIC DATA

Nov. 1965 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 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 | A | A | 365L | L | L | | | | | | | | |
| 2 | | | | | | | | | L | L | A | A | A | 400 | L | | | | | | | | | |
| 3 | | | | | | | | | L | L | L | A | A | A | L | L | | | | | | | | |
| 4 | | | | | | | | | | | L | L | | L | L | | | | | | | | | |
| 5 | | | | | | | | | L | L | L | L | L | 370L | L | A | | | | | | | | |
| 6 | | | | | | | | | | L | L | 345L | L | 375L | L | | | | | | | | | |
| 7 | | | | | | | | L | | A | L | L | 375L | L | L | L | | | | | | | | |
| 8 | | | | | | | | | L | L | L | L | L | L | L | L | L | | | | | | | |
| 9 | | | | | | | | | | L | L | 400L | L | L | 360L | L | | | | | | | | |
| 10 | | | | | | | | | | L | 365L | L | L | | L | A | | | | | | | | |
| 11 | | | | | | | | C | C | 390L | 370L | L | L | 370L | L | L | | | | | | | | |
| 12 | | | | | | | | | | U370L | 375L | 365L | L | L | | L | | | | | | | | |
| 13 | | | | | | | | L | L | L | L | 360L | L | L | L | | | | | | | | | |
| 14 | | | | | | | | | U380L | L | U375L | L | L | L | L | L | | | | | | | | |
| 15 | | | | | | | | L | L | | L | L | L | U350L | L | | | | | | | | | |
| 16 | | | | | | | | | | L | | L | L | L | A | | | | | | | | | |
| 17 | | | | | | | | | L | L | C | A | L | L | L | | | | | | | | | |
| 18 | | | | | | | | L | 375L | | U355L | 375L | L | A | L | L | A | A | | | | | | |
| 19 | | | | | | | | | 370L | L | L | U370L | U355L | L | L | L | | | | | | | | |
| 20 | | | | | | | | | L | L | L | A | L | L | L | | | | | | | | | |
| 21 | | | | | | | | | | L | L | L | L | L | A | A | | | | | | | | |
| 22 | | | | | | | | | | L | U350L | U370L | L | L | L | | | | | | | | | |
| 23 | | | | | | | | | | L | L | L | L | 360L | L | L | | | | | | | | |
| 24 | | | | | | | | | | 355L | L | L | U355L | 360L | L | L | | | | | | | | |
| 25 | | | | | | | | | | L | L | U370L | L | L | L | | | | | | | | | |
| 26 | | | | | | | | | | L | L | 380L | A | L | L | L | | | | | | | | |
| 27 | | | | | | | | | L | L | 365L | L | L | 355L | | 395L | | | | | | | | |
| 28 | | | | | | | | | L | | L | L | L | L | | 400L | | | | | | | | |
| 29 | | | | | | | | | | L | L | | U370L | L | L | L | | | | | | | | |
| 30 | | | | | | | | | | L | 370L | L | 385L | 380L | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 3 | 3 | 8 | 9 | 5 | 10 | 1 | 2 | | | | | | | | |
| Median | | | | | | | | | 375L | 370L | 370L | 370L | U370L | 370L | 360L | 400L | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

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

The Radio Research Laboratories, Japan

M(3000) F1

K 8

# IONOSPHERIC DATA

Nov. 1965 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N Long. 139° 29.3'E

| Day | 00 | 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 | 260 | 250 | 240 | 260 | 250 | 245 | | | | | | | | |
| 2 | | | | | | | | | 255 | 250 | E250A | A | 270 | 260 | 260 | | | | | | | | | |
| 3 | | | | | | | | | 250 | 250 | 250 | 250A | 250A | 260 | 250 | 240 | | | | | | | | |
| 4 | | | | | | | | | | | 260 | 240 | | 250 | 240 | | | | | | | | | |
| 5 | | | | | | | | | 240 | 245 | 260 | 250 | 275 | 260 | 250 | 235 | | | | | | | | |
| 6 | | | | | | | | | | 250 | 280 | 260 | 235 | 275 | 255 | | | | | | | | | |
| 7 | | | | | | | | 245 | | 250 | 250 | 250 | 255 | 265 | 245 | 240 | | | | | | | | |
| 8 | | | | | | | | | 240 | 250 | 240 | 245 | 250 | 260 | 255 | 240 | 210 | | | | | | | |
| 9 | | | | | | | | | | 260 | 250 | 230 | 260 | 260 | 255 | 245 | | | | | | | | |
| 10 | | | | | | | | | | 255 | 240 | 245 | 275 | | 250 | A | | | | | | | | |
| 11 | | | | | | | | C | C | 225 | 255 | 255 | 230 | 260 | 240 | 230 | | | | | | | | |
| 12 | | | | | | | | | | 250 | 260 | 250 | 280 | 265 | | 220 | | | | | | | | |
| 13 | | | | | | | | 215 | 235 | 255 | 260 | 250 | 260 | 250 | 250 | | | | | | | | | |
| 14 | | | | | | | | | 250 | 240 | 245 | 240 | 255 | 260 | 250 | 255 | | | | | | | | |
| 15 | | | | | | | | 220 | 220 | | 245 | 250 | 270 | 290 | 245 | | | | | | | | | |
| 16 | | | | | | | | | | 255 | | 250 | 255 | 255 | 250 | | | | | | | | | |
| 17 | | | | | | | | | 220 | 235 | 250 | 220 | 280 | 255 | 230 | | | | | | | | | |
| 18 | | | | | | | | 210 | 210 | | 245 | 235 | 250 | 245 | 230 | 220 | A | A | | | | | | |
| 19 | | | | | | | | | 210 | 250 | 250 | 255 | 255 | 250 | 245 | 235 | | | | | | | | |
| 20 | | | | | | | | | 250 | 230 | 260 | 240 | 265 | 250 | 250 | | | | | | | | | |
| 21 | | | | | | | | | | 255 | 260 | 250 | 270 | 250 | 255 | 255 | | | | | | | | |
| 22 | | | | | | | | | | 245 | 245 | 235 | 255 | 260 | 240 | | | | | | | | | |
| 23 | | | | | | | | | | 250 | 255 | 255 | 280 | 270 | 245 | 230 | | | | | | | | |
| 24 | | | | | | | | | | 235 | 250 | 260 | 270 | 255 | 250 | 225 | | | | | | | | |
| 25 | | | | | | | | | | 245 | 250 | 260 | 250 | 245 | 240 | | | | | | | | | |
| 26 | | | | | | | | | | 235 | 255 | 270 | 235 | 255 | 250 | 240 | | | | | | | | |
| 27 | | | | | | | | | 220 | 255 | 280 | 275 | 265 | 270 | | 235 | | | | | | | | |
| 28 | | | | | | | | | 230 | | 255 | 260 | 245 | 250 | | 225 | | | | | | | | |
| 29 | | | | | | | | | | 260 | 250 | | 250 | 240 | 245 | 230 | | | | | | | | |
| 30 | | | | | | | | | | 250 | 250 | 250 | 230 | 260 | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 4 | 13 | 26 | 29 | 28 | 29 | 29 | 26 | 18 | 1 | | | | | | | |
| Median | | | | | | | | 220 | 235 | 250 | 250 | 250 | 255 | 260 | 250 | 235 | 210 | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F2

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

The Radio Research Laboratories, Japan

K 9

# IONOSPHERIC DATA

Nov. 1965 | h'F km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 285 | 285 | 310 | 280 | 250 | 210 | 245 | 210 | 225 | 230 | 250A | A | A | 240 | 230 | 250 | 220 | 210 | E340A | 300 | 255 | 305A | 280 | E345A |
| 2 | 310 | 275 | 295 | 270 | 245 | 230 | 225 | 215 | 230 | 230 | A | A | A | 185 | 240 | 240A | 210 | 205 | E340A | 260 | 300 | 310 | 260 | 250 |
| 3 | 310A | 300 | 260 | 260 | 240 | 255 | 230 | 230 | 230 | 250 | E250A | I235A | I245A | A | 240 | 230 | 245 | E260A | A | 300A | 300A | 310 | E350A | A |
| 4 | 300A | 300 | 300A | 260 | 250 | 245 | 205 | 220 | 220 | 240 | 245 | 225 | 230H | I235A | 230 | 235 | 215 | 210 | 300A | 250 | E350A | A | E340A | E350A |
| 5 | 290 | 300 | 250 | 210 | 290 | 260 | 250 | 205 | 220 | 200H | 220 | 230 | 235 | 250 | 230 | I230A | 225 | 205 | 230 | 250 | 225 | 255 | 275 | 270 |
| 6 | 290 | 285 | 280 | 260 | 215 | 250 | 230 | 220 | 225 | 230 | 215 | 230 | 205 | 210 | 245 | 230 | 220 | 210 | 225 | 300 | 295 | 270 | 260 | 230 |
| 7 | 255 | 270 | 280 | 260 | 250 | 225 | 240 | 210 | 230 | I215A | 225 | 225 | 205 | 200H | 225 | 245 | 210 | 220 | 220 | 225 | 225 | 270 | 285 | 265 |
| 8 | 250 | 260 | 255 | 225 | 210 | 315 | 260 | 225 | 225 | 200H | 230 | 210 | 210 | 250 | 250 | 225 | 225 | 210 | 250A | 260 | 230 | 260 | 275 | 290 |
| 9 | 305 | 300 | 300 | 250 | 205 | E255B | 245 | 210 | 240 | 220H | 210H | 220 | 180H | 200 | 225 | 230 | 225 | 200 | 215 | 210 | 250 | 255 | 355 | 310 |
| 10 | 270 | 275 | 310 | 255 | 230 | 205 | 255 | 220 | 230 | 220 | 235 | 210 | 255 | 250 | 225 | I210A | 210 | 210 | 220 | 255 | 260 | 255 | 270 | 300 |
| 11 | 310 | 280 | 250 | 255 | 250 | 230 | 230 | C | C | 205 | 190 | 190H | 200 | 225 | 250 | 230 | 210 | 205 | 265 | 215 | 230 | 290 | 260 | 300 |
| 12 | 270 | 255 | 300A | 260 | 270 | 230 | 230 | 215 | 230 | 225 | 230 | 235 | 255 | 255 | 250 | 230 | 225 | 210 | 220 | 210 | 230 | 255 | 275 | 275 |
| 13 | 250 | 260 | 270 | 275 | 275 | 300 | 230 | 220 | 205 | 200H | 245 | 220 | 200 | 250 | 220 | 220 | 220 | 220 | 225 | 210 | 250 | 280 | 255 | 300 |
| 14 | 260 | 260 | 250 | 245 | 230 | 245 | 250 | 210 | 210 | 240 | 210 | 220 | 250 | 205 | 200H | 225 | 210 | 205 | 210 | 250 | 250 | 220 | E250B | 300 |
| 15 | 300 | 300 | 300 | 290 | 250 | 240 | 210 | 220 | 205 | 225 | 220 | 200 | 240 | 230 | 245 | 220 | 220 | 210 | 205 | 240 | 230 | 250 | 255 | 300 |
| 16 | 270 | 270 | 300 | 270 | 240 | 250 | 200 | 205 | 205 | 230 | 250A | 245 | 250 | 220 | I240A | 245 | 205 | 200 | E250A | 245 | 230 | 245 | 255 | 255 |
| 17 | 310A | 310 | I305A | 305 | 300A | 250 | 225 | 210 | 210 | 210 | I220C | I210A | 165H | 230 | 235 | 220 | 210 | 205 | A | A | A | A | 260 | 265 |
| 18 | 280 | 305 | 265 | 245 | 205 | E335A | 225 | 195 | 195 | 230 | 225 | 210 | 230 | I240A | 230 | 210 | I220A | I250A | I250A | 255 | 220 | 230 | 230 | 285 |
| 19 | 300 | 275 | 265 | 250 | 210 | 225 | 230 | 215 | 200 | 230 | 230 | 225 | 225 | 220 | 230 | 205 | 220 | 210 | 225 | 225 | 205 | 265 | 300 | 325 |
| 20 | 320 | 300 | 320 | 300 | 290 | 300 | 250 | 225 | 230 | 200H | 250 | I250A | 225 | 230 | 225 | 230 | 225 | 220 | 250 | 250 | 300 | 305 | 320 | 300 |
| 21 | 270 | 220 | 265 | 230 | 265 | 260 | 230 | 225 | 235 | 230 | 230 | 235 | 230 | 200H | A | A | 225 | 255 | 230 | 235 | 255 | 270 | 290 | 305 |
| 22 | 295 | 260 | 245 | 210 | 200 | 280 | 230 | 225 | 230 | 230 | 230 | 235 | 210 | 250 | 230 | 245 | 225 | 210 | 225 | 230 | 250 | 265 | 230 | 275 |
| 23 | 260 | 300 | 300 | 255 | 225 | 240 | 220 | 225 | 230 | 225 | 255 | E255S | 255 | 225 | 230 | 225 | 220 | 200 | 260 | 250 | 225 | 275 | 280 | 275 |
| 24 | 300 | 300 | 305 | 280 | 230 | 250 | 205 | 215 | 220 | 210 | 230 | 230 | 230 | 230 | 230 | 230 | 215 | 220 | 225 | 245 | 265 | 265 | 290 | 270 |
| 25 | 300 | 275 | 260 | 210 | 260 | 300 | 255 | 230 | 230 | 200 | 220 | 210 | 195 | 225 | 205 | 230 | 220 | E255A | E320A | 225 | 240 | 230 | 255 | 300 |
| 26 | 290 | 250 | 290 | 250 | 245 | 210 | 240 | 220 | 210 | 180H | 230 | 205 | I230A | 205 | 230 | 240 | 210 | 245 | 255 | 210 | 205 | 240 | 290 | 300 |
| 27 | 310 | 300 | 275 | 255 | 235 | 220 | 225 | 220 | 215 | 200 | 175H | 200H | 180H | 225 | 235 | 215 | 215 | 235 | 235 | 230 | 220 | 230 | 290 | 270 |
| 28 | 275 | 275 | 265 | 265 | 210 | 275 | 260 | 210 | 205 | 250 | 245 | 255 | 250 | 235 | 235 | 205 | 210 | 255 | 235 | 215 | 210 | 230 | 250 | 285 |
| 29 | 295 | 325 | 320 | 300 | 230 | 225 | 300 | 225 | 230 | 205 | 200H | 250 | 245 | 230 | 200 | 200 | 205 | 230 | 240 | 220 | 240 | 290 | 255 | 310 |
| 30 | 300 | 300 | 260 | 250 | 200 | 200 | 290 | 230 | 245 | 230 | 220 | 210 | 210 | 190 | 230 | 225 | 210 | 205 | 245 | 210 | 275 | 250 | 260 | 325 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 30 | 29 | 28 | 28 | 29 | 29 | 29 | 30 | 30 | 28 | 29 | 29 | 28 | 30 | 29 |
| Median | 290 | 280 | 280 | 260 | 240 | 245 | 230 | 220 | 225 | 225 | 230 | 220 | 230 | 230 | 230 | 230 | 220 | 210 | 230 | 240 | 240 | 260 | 265 | 290 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F

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

The Radio Research Laboratories, Japan

K 10

# IONOSPHERIC DATA

Nov. 1965 | h'Es km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 120 | 115 | 115 | 120 | 110 | 110 | 110 | 110 | 115 | 115 | 115 | 110 | 115 | 110 | 110 | 110 | 110 |
| 2 | 110 | 110 | 105 | 100 | 105 | 105 | 110 | 155 | 115 | 110 | 105 | 105 | 105 | 105 | 140 | 120 | 115 | 115 | 110 | 110 | 110 | 105 | S | S |
| 3 | 105 | 100 | 100 | 100 | 105 | B | B | 110 | 105 | 110 | 105 | 105 | 105 | 105 | 105 | 130 | 125 | 110 | 105 | 110 | 105 | 105 | 105 | 105 |
| 4 | 110 | 110 | 105 | 105 | 110 | 105 | 105 | 115 | 110 | 105 | 105 | 105 | 100 | 100 | 140 | 135 | 100 | 115 | 115 | 110 | 105 | 105 | 105 | 100 |
| 5 | 100 | 125 | 110 | B | 110 | 110 | 110 | 110 | 110 | 110 | 110 | G | 110 | 115 | 150 | 115 | 110 | 110 | 110 | 110 | 110 | S | B | 110 |
| 6 | B | 105 | 105 | 100 | 115 | 120 | 110 | 115 | 110 | 110 | 110 | G | 105 | 105 | 100 | 100 | G | 115 | 115 | 110 | 110 | 110 | 110 | B |
| 7 | S | 110 | 105 | 110 | 110 | 115 | 115 | 110 | 110 | 110 | 110 | 100 | G | G | G | G | 130 | 120 | 115 | B | 110 | 110 | 110 | 110 |
| 8 | 110 | B | 110 | 105 | 105 | B | 170 | 155 | G | 115 | 110 | 110 | 110 | G | 105 | 100 | 100 | 110 | 105 | 105 | 110 | 105 | 105 | 105 |
| 9 | 105 | B | B | E | E | B | B | G | 105 | 175 | 155 | 155 | 140 | 130 | 130 | G | G | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| 10 | S | B | 105 | 110 | 110 | 100 | 115 | 110 | 170 | 170 | 170 | G | 155 | 150 | 130 | 120 | 105 | 100 | 120 | 105 | 105 | S | 110 | S |
| 11 | S | B | B | B | B | B | B | C | C | G | G | G | 170 | 180 | 150 | 130 | 120 | 120 | 105 | S | S | S | 100 | 100 |
| 12 | 100 | 100 | 100 | 110 | B | B | B | 155 | 160 | 190 | 165 | 150 | 150 | 160 | 160 | 155 | G | 130 | 120 | S | S | S | B | B |
| 13 | B | B | B | B | B | B | B | 170 | G | G | G | G | G | G | G | G | G | S | S | S | B | S | S | S |
| 14 | B | B | B | E | B | B | B | G | G | 170 | 160 | 110 | 150 | G | 110 | G | G | 100 | 100 | 105 | 100 | 130 | B | S |
| 15 | B | B | B | B | B | B | B | G | G | G | 155 | G | 130 | G | G | G | 120 | S | B | B | B | S | B | B |
| 16 | 100 | 100 | 100 | 100 | 100 | 105 | 110 | G | G | 150 | 145 | 150 | 150 | 145 | 115 | 120 | 100 | 100 | 100 | B | B | B | B | 105 |
| 17 | 105 | 110 | 100 | 100 | 100 | 100 | 100 | 100 | 110 | 110 | C | 110 | 160 | 160 | 130 | 120 | 100 | 105 | 110 | 100 | 100 | 100 | 110 | 095 |
| 18 | B | 100 | 100 | 100 | 100 | 100 | 090 | 125 | 110 | 100 | 100 | 120 | 115 | 090 | 100 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 19 | 100 | 095 | 100 | B | B | 095 | S | 160 | 125 | 120 | 115 | 115 | 110 | 110 | 110 | 105 | G | 105 | B | B | S | B | S | 110 |
| 20 | B | B | 120 | 115 | 125 | B | 110 | 185 | G | G | 150 | 120 | 110 | G | 100 | 115 | G | B | 110 | 105 | 110 | 110 | 110 | 125 |
| 21 | 150 | B | B | 105 | 105 | 140 | 150 | 125 | 150 | 115 | 115 | G | 115 | 110 | 100 | 100 | 110 | 105 | 100 | 100 | 100 | B | S | 110 |
| 22 | 110 | 110 | 105 | 105 | 110 | 110 | B | 145 | G | 150 | 130 | 110 | 110 | 130 | 100 | 165 | 140 | 100 | 100 | 115 | 110 | 110 | 110 | 110 |
| 23 | 110 | B | B | B | B | 115 | B | G | 120 | 120 | 115 | 110 | 110 | 160 | 150 | 145 | B | B | 110 | 110 | 110 | S | S | B |
| 24 | 110 | B | B | B | 115 | 115 | B | 170 | 170 | 135 | 115 | 110 | 120 | 110 | 115 | 120 | 110 | 115 | 110 | 110 | 105 | 100 | 100 | 100 |
| 25 | 100 | B | B | 105 | 105 | B | B | 125 | 115 | 115 | 110 | 110 | 105 | 105 | 105 | G | 105 | 100 | 100 | B | B | S | B | S |
| 26 | B | B | 110 | B | B | B | 110 | G | 115 | 115 | 170 | 150 | 115 | 110 | 110 | 110 | 110 | 110 | 105 | 110 | 105 | 100 | 100 | S |
| 27 | B | B | B | E | B | B | B | 150 | 170 | G | 150 | 130 | 130 | G | 130 | G | 105 | 165 | 150 | 100 | 110 | S | S | B |
| 28 | B | B | B | B | B | 115 | B | 110 | 160 | 125 | 155 | 160 | 145 | 145 | 125 | 125 | G | 150 | 130 | 130 | 110 | 110 | S | B |
| 29 | B | 110 | B | B | 100 | B | B | 175 | 110 | 110 | 110 | 150 | 150 | 105 | G | G | 100 | 100 | S | S | 110 | B | S | S |
| 30 | S | 105 | 105 | E | 105 | 105 | S | B | 150 | 115 | 110 | 110 | G | 110 | 110 | G | 105 | 100 | 105 | B | B | B | S | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 16 | 15 | 18 | 16 | 19 | 17 | 14 | 22 | 22 | 25 | 27 | 23 | 27 | 23 | 26 | 21 | 21 | 26 | 26 | 20 | 22 | 16 | 15 | 16 |
| Median | 110 | 110 | 105 | 105 | 105 | 110 | 110 | 125 | 115 | 115 | 115 | 110 | 115 | 110 | 110 | 120 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'Es

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

The Radio Research Laboratories, Japan

K 11

# IONOSPHERIC DATA

Nov. 1965

Types of Es

135° E Mean Time (G. M. T. +9h)

Kokubunji Tokyo

Lat. 35° 42.4'N
Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | f2 | f2 | f2 | f3 | f3 | f | 13 | 12h | 1 | 12 | c | 12 | 13 | 12 | 12 | 12 | 15 | 13 | f3 | f3 | f4 | f4 | f4 | f4 |
| 2 | f2 | f | f2 | f2 | f2 | f | 1 | h2 | 1 | 12 | 13 | 13 | 12 | 12 | h1 | h212 | 13 | 13 | f5 | f2 | f2 | f3 | | |
| 3 | f2 | f2 | f2 | f2 | f2 | | | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 13 | h12 | h214 | 13 | f4 | f2 | f3 | f3 | f3 | f5 |
| 4 | f4 | f2 | f4 | f2 | f3 | f | 1 | 12h2 | 13 | 12 | 13 | 12 | 12 | 13 | h12 | h212 | 1h2 | c2 | f3f2 | f3 | f4 | f6 | f6 | f4 |
| 5 | f2 | ff | f | | f | f2 | 14 | 13 | 12 | 1 | 1 | | 12 | 12 | h12 | c2 | 12 | 12 | f | f4 | f2 | | | f |
| 6 | | f2 | f | f2 | f | f | 1 | 12 | 1h | 1 | 12 | | 12 | 1 | 1 | 12 | | 1 | f | f2 | f2 | f2 | f3 | |
| 7 | | f | f2 | f | f2 | f | 1 | 12 | 12 | 12 | 12 | 1 | | | | | h2 | 1 | f | | f | f2 | f2 | f |
| 8 | f | | f | f | f | | h | h2 | | 12 | 1 | 1 | 1 | | 1 | 1 | 1 | 13 | f3 | f4 | f | f | f | f2 |
| 9 | f | | | | | | | | 13 | h | h | h | h | h | h | | | 1 | f | f | f | f | f2 | f2 |
| 10 | | | f2 | f2 | f | f | 12 | 1 | h1 | h1 | h1 | | h | h1 | h12 | 1212 | 12 | 1 | f | f | f2 | | f | |
| 11 | | | | | | | | | | | | | h | h | h | h2 | c2 | 1 | f3 | | | | f2 | f2 |
| 12 | f2 | f2 | f2 | f | | | | h | h | h | h | h | h | h | h | h | | h2 | f | | | | | |
| 13 | | | | | | | | hc2 | | | | | | | | | | 1 | | | | | | |
| 14 | | | | | | | | | | h | h | 1 | h2 | | 1 | | | 1 | f | f | f2 | f | | |
| 15 | | | | | | | 1 | | | | h | | h | | | | c2 | | | | | | | |
| 16 | f | f | f3 | f2 | f3 | f3 | 1 | | | h | h21 | h1 | h | h | c3 | c2 | 13 | 12 | f4 | | | | | f2 |
| 17 | f3 | f2 | f5 | f3 | f6 | f4 | 13 | 1 | c2 | 1 | | 13 | h1 | h21 | h21 | h212 | 13 | 1 | f4 | f4 | f6 | f4 | f4 | f2 |
| 18 | | f2 | f3 | f3 | f | f3 | 1 | h21 | c | 1 | 12 | c21 | c12 | 12 | 12 | 13 | 14 | 13 | f4 | f2 | f | f | f | f2 |
| 19 | f2 | f | f | | | f | | h | h | c | 12 | 12 | 1 | 12 | 13 | 12 | | 1 | | | | | | f |
| 20 | | | f | f | f | | 1 | h212 | | | h | 12 | 12 | | 1 | 1 | | | f2 | f | f3 | f3 | f2 | f |
| 21 | f | | | f2 | f | f | h | hh | h212 | 12 | 1 | | 1 | 1 | 13 | 12 | 13 | 1 | f4 | f2 | f3 | | | f2 |
| 22 | f2 | f2 | f2 | f | f | f | | h3 | | h21 | h | 12 | 12 | h1 | 12 | h12 | h21 | 1 | f2 | f2 | f | f | f | f |
| 23 | f | | | | | f | | | c | c2 | ch | 12 | 12 | h212 | h1 | h212 | | | f3 | f2 | f | | | |
| 24 | f2 | | | | f | f | | h | h | h12 | 12 | 12 | c21 | 12 | 12 | 1 | 13 | 1 | f | f3 | f2 | f | f | f |
| 25 | f | | | f | f | | | h2 | 12 | 12 | 12 | 12 | 1 | 12 | 12 | | 1 | f3 | f3 | | | | | |
| 26 | | | f | | | | 1 | | 1 | 1 | h | h | 12 | 12 | 12 | 13 | 12 | f2 | f3 | f | f | f2 | f | |
| 27 | | | | | | | | h | h1 | | h | h2 | h | | h | | 12 | f | ff | f3 | f | | | |
| 28 | | | | | | f | | 12h | h12 | h | h12 | h1 | h | h1 | h2 | h | | f | f | f | f | f2 | | |
| 29 | | f2 | | | f | | | h | 12 | c2 | 1 | h | h21 | 12 | | | 1 | f | | f | f2 | | f | |
| 30 | | f2 | f | | f | f | f | | h2 | 1h | 1 | 1h | | 1 | 12 | | 1 | f | f | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Types of Es

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

The Radio Research Laboratories, Japan

K 12

# IONOSPHERIC DATA

Nov. 1965 | hpF2 km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 340S | 340S | U380S | U330S | 290 | 255 | 270 | 250 | 250 | 245S | U280S | U265S | 255 | 275S | 275 | 255 | U245S | 250 | A | 340 | 285 | 310 | 335 | A |
| 2 | 335S | 335S | 340S | 345F | 295F | 285S | 240 | 255 | U265S | 250 | A | A | 270 | J290R | 300 | 250 | 220 | 260 | A | 335 | 330 | 340 | 315 | J300S |
| 3 | 335 | 340 | 340 | 345F | 305 | U310F | 260 | 250 | 250 | 260 | 250 | 255R | 260 | 290 | 270 | 255 | 250 | A | A | 340 | 345F | 350F | F | A |
| 4 | 340 | 345F | 340 | 320 | 300F | 300 | J250F | 250 | 220 | 260 | 270R | 260 | 300H | 265 | 260 | 250 | 250 | 250 | 320 | 300 | 350 | A | 370 | 365 |
| 5 | 360 | 350F | J315F | 280F | 330F | 350F | 260 | 240 | J250S | 270 | 280 | 275 | 280S | U265S | 255S | 265 | 250 | 230 | 285 | 295 | 275 | 310 | 315 | 345S |
| 6 | 335 | 330 | 330 | 310 | 245 | 330 | 260 | 250S | 250 | 260 | 295 | 270 | U300S | 300 | 290 | 260 | 255 | 260 | 285 | 360 | 335S | 340S | 330S | 330 |
| 7 | 325 | 335S | 340S | 325F | U305F | 285 | 300S | 260S | 255 | 265 | 275 | 285 | 275 | 280 | 265 | U255S | 230 | 275 | 280 | 275 | 295 | 340S | U340F | F |
| 8 | 320S | 310S | 315 | 270 | 235 | 375 | 300 | 255 | 260S | 260 | 250 | 260 | 260 | J285R | 270 | 250 | 250 | 260 | 290 | 300 | 290 | 310 | 320 | 335 |
| 9 | 345 | 320F | 355 | 300 | 240 | 320 | 300 | 255 | 260 | 290S | 265 | 295 | 280 | 280 | 265 | U255S | 235 | 250 | 295 | 245 | 335S | 325 | U445F | U330F |
| 10 | 305 | 310 | 365F | 295 | 270 | 220 | 295 | 250 | 265 | 260 | U250S | 275S | U275S | 280 | 260S | I260A | 255 | 230 | 325 | 305 | 305 | 295 | 325 | 350 |
| 11 | 340 | 335S | 300S | F | 305F | U300S | 280S | C | C | 230 | 260R | 260 | 230 | I270R | 250S | 235 | 255 | 270 | 300S | 255 | 280 | 335 | 315 | 335 |
| 12 | 325 | 285 | 345S | 325S | 325S | 290 | 265S | 245S | 260S | 250 | 280 | 265R | 300 | 265S | 265S | 240 | 260 | 245 | 260 | 245 | 280 | 305 | 330 | 330 |
| 13 | 285 | 310 | 330S | 320S | 330 | 350 | 260R | U225S | 260 | 290 | J270R | J255S | 280 | 255 | 290 | 245 | 250 | 290 | 290 | 255 | 290 | 335 | 305 | 340 |
| 14 | 310 | 310 | 300 | 300 | 265 | 325 | 320 | 255 | 255 | 330 | 255 | 250 | 270 | J270R | J255R | 270 | 255 | 250 | 290 | 310 | 295 | 250 | 255 | 355 |
| 15 | 330 | 350 | 340 | 340 | 290 | 280 | 260 | 250 | 225 | 255 | 280 | 300 | 285 | 290 | J250S | 250 | 250 | 240 | 300 | 310 | 275 | 300 | 305 | 340 |
| 16 | 320 | 310 | 325 | 310 | 250 | 300 | 240 | 240 | 220 | 265 | 260 | 260 | 280 | 295 | 250 | 250S | 240 | 220 | 290 | 300 | 315 | 310 | 300 | 300 |
| 17 | 355F | 375F | A | 330 | 300F | 320F | 285F | 245 | 240 | 255 | I260C | 230 | 300 | 265 | 250 | 245 | 230 | 225 | A | A | A | A | 295 | 325 |
| 18 | 335 | 345 | 320 | 275 | 230S | A | 285 | 235 | 230 | 245 | U255S | 250 | 265 | 265 | 235S | 230 | I240A | A | I275A | 290 | 265 | 340 | 290 | 340 |
| 19 | 345 | 270 | 320 | 290 | 285 | 280 | 290 | 230 | 250 | I250S | 255 | 275 | 265S | 255 | 250 | 255 | 240 | 250 | 265 | 285S | 295 | 340 | 370 | 385 |
| 20 | 350 | 355 | 365 | 335 | 330 | 340 | 290S | 255 | U260S | 285 | 270S | 255 | 280 | 260 | 255 | 245 | 250 | 275 | 295 | 290 | 325 | 370S | 375F | 355F |
| 21 | U325F | U265F | 325 | 245 | 305 | 325 | 300S | 255 | 255 | 275 | U270S | 250S | 280S | U265S | 265 | 270 | 250 | 235 | 275S | 270 | 305S | 325S | F | 345S |
| 22 | 350S | U330S | 280S | U230S | 230 | 310 | 305 | 270S | 260 | 265 | U265S | U255S | 270 | U265S | 255 | 260 | U240R | 310 | 245S | 285S | 300S | 300 | 265 | U335F |
| 23 | U355S | F | U370F | 300F | 285S | 290S | 265 | 250S | 250 | 250 | 260 | 265 | 285 | 285S | 255 | 250 | 230 | 230 | 300 | 260 | 275 | 305 | 330 | 330 |
| 24 | 335 | 340 | U335F | 325 | 265 | 285 | 245S | 230 | 240 | 230 | 255 | 260 | 270 | 255S | 255 | 230 | 245 | 255 | 265 | 245S | 305 | 330 | 325 | 325 |
| 25 | 355 | 325 | 310 | 250 | 295 | 340 | 315 | 245S | 245 | 260 | 260 | 270 | J255S | 250 | 250 | 255 | 250 | 255 | A | 290 | 300 | 270 | 310 | J345R |
| 26 | 325 | 300 | 310 | 285 | 255 | 250 | 280 | 250 | 250 | 255 | 270 | 275 | 245R | 255 | 255 | 255 | 230 | 275 | 280S | 235S | 295 | 280 | 335 | 350F |
| 27 | 350S | 360 | 325S | 315 | 280S | 280S | 280 | 225 | 245 | U290R | 280 | 285 | 285 | 275 | 250 | 250 | 230 | 285 | U270S | 260 | 250 | U275S | 325 | 305 |
| 28 | 320 | 310 | 300 | 330F | U255S | U330F | U320F | 235S | 230 | 255 | 265 | 265 | 250 | 255 | 245 | 255 | 250 | 275 | 280 | 250 | 250 | 270 | 280 | 280S |
| 29 | 330S | 370 | 340 | 340 | 255 | 285 | 330 | 255 | 255 | 270 | 255 | 250 | J255S | 250 | 250 | 250 | 225 | 290 | 285 | 290 | 305 | 315 | 300 | 350 |
| 30 | 340 | 325 | 310 | 305 | 250 | 250 | 340 | 255 | 255 | 270 | 255 | 250 | 230 | 275 | 265 | 240 | 225 | 255 | 275 | 235 | 305 | 290S | 330 | 375S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 29 | 29 | 29 | 30 | 29 | 30 | 29 | 29 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 28 | 25 | 29 | 29 | 28 | 28 | 27 |
| Median | 335 | 330 | 330 | 310 | 285 | 300 | 280 | 250 | 250 | 260 | 265 | 260 | 270 | 270 | 255 | 250 | 250 | 255 | 285 | 290 | 295 | 310 | 320 | 340 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

hpF2

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

The Radio Research Laboratories, Japan

K 13

# IONOSPHERIC DATA

Nov 1965 | ypF2 | km | 135° E Mean Time (G. M. T. +9h) | Kokubunji Tokyo | Lat. 35° 42.4'N | Long. 139° 29.3'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 060S | 065S | U050S | U070S | 045 | 045 | 045 | 045 | 050 | 055S | U050S | U045S | 050 | 040S | 045 | 045 | U050S | 050 | A | 060 | 060 | 065 | 055 | A |
| 2 | 065S | 065S | 065S | 060F | 060F | 065S | 060 | 045 | U050S | 040 | A | A | 040 | J050R | 045 | 040 | 055 | 055 | A | 065 | 030 | 065 | 080 | J050S |
| 3 | 065 | 070 | 070 | 055F | 075 | U070F | 045 | 045 | 045 | 040 | 050 | 045R | 060 | 050 | 050 | 045 | 050 | A | A | 060 | 070F | 055F | F | A |
| 4 | 060 | 055F | 060 | 070 | 050F | 050 | J060F | 040 | 040 | 040 | 045R | 060 | 060H | 035 | 060 | 060 | 040 | 050 | 080 | 050 | 050 | A | 080 | 075 |
| 5 | 085 | 090F | J055F | 060F | 080F | 055F | 055 | 040 | J045S | 045 | 050 | 050 | 055S | U050S | 050S | 040 | 045 | 035 | 065 | 055 | 055 | 050 | 050 | 050S |
| 6 | 055 | 055 | 045 | 045 | 050 | 085 | 060 | 050S | 050 | 045 | 060 | 055 | U055S | 045 | 050 | 045 | 040 | 045 | 050 | 065 | 070S | 050S | 065S | 050 |
| 7 | 050 | 065S | 065S | 055F | U050F | 050 | 050S | 045S | 050 | 040 | 045 | 045 | 055 | 045 | 035 | U045S | 050 | 045 | 045 | 040 | 045 | 040S | U060F | F |
| 8 | 055S | 045S | 040 | 040 | 055 | 070 | 045 | 045 | 040S | 045 | 045 | 055 | 040 | J035R | 030 | 030 | 045 | 060 | 055 | 050 | 060 | 085 | 075 | 070 |
| 9 | 060 | 070F | 090 | 050 | 030 | 075 | 050 | 045 | 040 | 050S | 050 | 045 | 050 | 050 | 040 | U045S | 040 | 050 | 035 | 055 | 065S | 075 | U060F | U070F |
| 10 | 065 | 045 | 065F | 050 | 050 | 040 | 040 | 050 | 035 | 040 | U055S | 035S | U035S | 035 | 040S | I040A | 050 | 050 | 060 | 050 | 045 | 050 | 035 | 055 |
| 11 | 070 | 065S | 055S | F | 055F | U040S | 050S | C | C | 045 | 040R | 045 | 070 | I055R | 040S | 045 | 040 | 055 | 030S | 045 | 040 | 075 | 045 | 040 |
| 12 | 050 | 045 | 055S | 045S | 045S | 050 | 040S | 040S | 040S | 050 | 050 | 050R | 055 | 040S | 040S | 035 | 040 | 050 | 045 | 055 | 040 | 050 | 065 | 070 |
| 13 | 045 | 050 | 055S | 050S | 040 | 055 | 045R | U050S | 040 | 040 | J045R | J045S | 035 | 040 | 035 | 035 | 030 | 055 | 050 | 055 | 060 | 065 | 055 | 060 |
| 14 | 045 | 085 | 055 | 050 | 080 | 075 | 080 | 065 | 045 | 070 | 045 | 055 | 035 | J040R | J045R | 040 | 045 | 050 | 055 | 080 | 050 | 050 | 085 | 090 |
| 15 | 070 | 095 | 060 | 060 | 040 | 065 | 065 | 030 | 045 | 055 | 065 | 060 | 020 | 035 | J050S | 050 | 050 | 060 | 065 | 080 | 070 | 055 | 090 | 060 |
| 16 | 080 | 085 | 070 | 070 | 060 | 060 | 050 | 050 | 050 | 040 | 055 | 050 | 030 | 050 | 045 | 045S | 055 | 075 | 060 | 055 | 085 | 085 | 050 | 050 |
| 17 | 075F | 070F | A | 070 | 055F | 080F | 065F | 035 | 030 | 050 | I040C | 050 | 045 | 050 | 045 | 045 | 050 | 035 | A | A | A | A | 035 | 055 |
| 18 | 060 | 070 | 045 | 060 | 055S | A | 065 | 050 | 050 | 055 | U040S | 050S | 050 | 040 | 060S | 030 | I040A | A | I035A | 045 | 045 | 060 | 060 | 065 |
| 19 | 050 | 060 | 035 | 055 | 045 | 040 | 040 | 045 | 050 | I045S | 045 | 040 | 045S | 045 | 045 | 050 | 045 | 050 | 040 | 045S | 050 | 040 | 060 | 060 |
| 20 | 055 | 050 | 045 | 065 | 070 | 060 | 050S | 045 | U040S | 035 | 035S | 045 | 045 | 050 | 050 | 040 | 050 | 040 | 040 | 045 | 055 | 055S | 055F | 060F |
| 21 | U055F | U045F | 050 | 060 | 050 | 050 | 050S | 050 | 050 | 050 | U050S | 055S | 045S | U040S | 040 | 040 | 050 | 050 | 035S | 035 | 040S | 050S | F | 065S |
| 22 | 080S | U075S | 075S | U065S | 075 | 060 | 070 | 085S | 050 | 055 | U040S | U045S | 040 | U050S | 040 | 040 | U050R | 060 | 050S | 045S | 060S | 075 | 050 | U065F |
| 23 | U050S | F | U060F | 050F | 045S | 055S | 055 | 050S | 045 | 050 | 055 | 035 | 050 | 035S | 040 | 050 | 040 | 050 | 030 | 040 | 050 | 065 | 070 | 050 |
| 24 | 045 | 075 | U065F | 060 | 050 | 055 | 060S | 050 | 055 | 050 | 050 | 050 | 045 | 045S | 045 | 045 | 045 | 045 | 040 | 060S | 050 | 045 | 050 | 050 |
| 25 | 050 | 040 | 040 | 045 | 040 | 060 | 045 | 060S | 050 | 045 | 045 | 040 | J045S | 050 | 050 | 040 | 050 | 065 | A | 055 | 090 | 075 | 090 | J055R |
| 26 | 070 | 050 | 085 | 040 | 045 | 050 | 060 | 055 | 025 | 035 | 040 | 040 | 055R | 045 | 045 | 035 | 045 | 050 | 050S | 060S | 045 | 055 | 045 | 060F |
| 27 | 055S | 050 | 055S | 045 | 050S | 040S | 045 | 050 | 050 | U055R | 055 | 045 | 065 | 045 | 050 | 055 | 055 | 040 | U050S | 050 | 060 | U050S | 040 | 055 |
| 28 | 040 | 045 | 050 | 045F | U065S | U050F | U035F | 040S | 050 | 050 | 040 | 050 | 050 | 045 | 050 | 045 | 050 | 055 | 040 | 050 | 050 | 035 | 050 | 060S |
| 29 | 070S | 040 | 065 | 060 | 050 | 045 | 070 | 045 | 045 | 030 | 045 | 050 | J045S | 040 | 050 | 050 | 030 | 060 | 050 | 060 | 040 | 080 | 050 | 070 |
| 30 | 060 | 070 | 045 | 045 | 050 | 050 | 060 | 040 | 045 | 055 | 045 | 035 | 045 | 035 | 040 | 055 | 050 | 065 | 035 | 050 | 055 | 040S | 030 | 050S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 29 | 29 | 29 | 30 | 29 | 30 | 29 | 29 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 28 | 25 | 29 | 29 | 28 | 28 | 27 |
| Median | 060 | 065 | 055 | 055 | 050 | 055 | 050 | 045 | 045 | 045 | 045 | 045 | 045 | 045 | 045 | 045 | 050 | 050 | 050 | 055 | 055 | 055 | 055 | 060 |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

ypF2

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

K 14

# IONOSPHERIC DATA

Nov. 1965 | foF2 | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | I037S | 038S | I033S | I034S | I037S | U044S | 023 | 048 | U061S | 068 | 078S | 087 | J089S | 090 | J106S | 115 | 084 | 057 | 048 | 037S | 042S | A | S | S |
| 2 | 030S | J032S | 030 | 031 | 034S | I028S | 025 | J051S | S | 070S | 081 | 067 | 070 | 073 | 109 | 105S | J089S | I061S | J041S | 032S | I035S | J036S | S | S |
| 3 | 030S | J033S | 033 | I031S | I034S | I034S | I040S | 057S | I086S | J073S | J079S | 073S | 069 | I077S | 085S | 108 | 072S | 059 | I050S | 026 | 031S | 036S | S | A |
| 4 | U036S | 035 | I034S | I034S | 037S | I035S | 029S | 051S | 063 | 068 | 081 | 092S | 070 | 084 | 103S | 083S | 060 | 054 | 040 | 032 | I029S | J031S | 034S | I033S |
| 5 | I036S | U037S | J037S | 036S | 032 | I033S | J037S | I059S | 068S | I070S | J081S | J103S | 091 | I097S | 114 | 086 | 073S | 065 | S | A | 036 | 037S | I035S | I033S |
| 6 | 034S | 036 | 037 | 035 | I042S | 025S | 029S | I054S | J066S | 071S | 094 | 094 | 086 | 081S | 114 | J100S | J080S | J064S | 041 | 033S | 039 | I042S | 034 | I031A |
| 7 | 032S | 033S | J036S | 036S | J040S | 030 | 031S | J057S | J083S | 072S | U074S | 082 | J098S | 090 | 110 | 070S | 061S | 060S | J062S | 050 | J042S | J045S | I041S | J041S |
| 8 | I035S | I040S | 041S | 043 | 044S | J024S | 027 | 054S | 068 | 087 | 090S | 095S | J082S | J093S | I090C | 084S | 062S | 055S | J045S | 033S | 040S | 030S | 027S | 028 |
| 9 | I030S | 032S | I033S | I035S | 038S | 023 | 021 | 048 | 062S | 071 | 072 | 082 | 071 | 103 | 109 | 086 | 072S | 056 | 043 | 037 | 034S | 034S | J031S | 027 |
| 10 | 029 | I032S | 030 | 031S | J049S | J025S | 020S | 048 | 062S | 061 | 082 | 084 | 071 | 068 | 081 | 078S | 057 | 053 | 034 | 033 | 037 | 031S | 029 | 029 |
| 11 | 029 | 029 | 031S | J031S | 037 | 033 | 025S | J051S | J067S | J062S | 066S | 080 | 075S | J082S | 089S | 081 | 059S | 052 | 041S | 039 | 037S | 032S | J029S | 031 |
| 12 | 032S | 032S | J030S | J030S | 034S | 030 | 029S | 048S | 071S | 067 | I067S | 070 | 071 | 082S | J078S | U073S | 060 | 054 | 047 | 037S | 037S | 030 | 026 | J029S |
| 13 | J031S | 032 | 032S | 030 | 030 | J031S | 032S | I049C | J064S | 062S | J074S | 079 | 082 | 078 | I070S | 067 | 067 | 047 | 047 | 042S | 040S | 029 | J033S | J030S |
| 14 | 031S | 032S | 033 | I033S | 035 | 029 | 024S | 048S | J061S | U070S | 073S | J077S | 070S | J075S | J100S | 091S | U072S | U066S | 043 | J046S | 038S | 039S | 028 | 028S |
| 15 | J030S | J031S | 031S | U032S | 034S | I032S | I035S | 050S | 060S | 058 | 065 | 074S | 069 | 077S | 081 | J078S | 074S | 062S | 055 | U048S | J027S | I030S | I031S | 028S |
| 16 | 030S | 030S | I031S | J032S | J033S | I031S | I031S | J044S | 055S | 057 | 063 | 069 | 073S | 081 | 084 | 087S | C | C | C | C | C | 032S | 036S | 028S |
| 17 | 027 | C | C | C | C | C | 033 | 048S | 056S | 056 | 058 | J066S | 065 | J064S | 086 | J077S | J066S | 053 | 044 | 031S | I040S | 038 | 032S | J031S |
| 18 | 030S | J032S | 035S | 035 | 031S | 026 | 026 | 046S | 055 | 061 | 067S | 072S | 070S | 064 | 078 | 072S | 058 | 048 | 042 | J032S | J031S | 032 | 031S | 032S |
| 19 | J032S | 033 | I030C | 032S | 037 | 028 | U026S | 046S | 056 | J066S | 066 | 082 | 077 | 079 | 071 | 070S | 065 | 049 | 034 | A | S | A | 026 | U028S |
| 20 | U031S | 033S | 032S | 032S | I034S | I031S | I036S | 047 | 070 | 070C | 072C | 085 | 084 | 076S | 077S | 068 | 058 | 049 | 035 | I032S | 033S | I034S | I037S | 036S |
| 21 | 035S | 036S | I036S | 028S | 025F | FS | 020S | 044S | 060 | 065 | 081 | J090S | J067S | U074S | 076S | U073S | 062S | 053 | 041S | 038 | I036S | 030S | 033 | 032 |
| 22 | 035S | I038S | I039S | I038S | J032S | 020F | J023S | 046 | 059 | 065S | I074S | 075 | 062 | 071S | 074S | 059 | 061 | 053 | 041S | 025 | U027S | 029 | 030S | J032S |
| 23 | I034S | 036 | S | S | I036S | 029 | 025S | J042S | J050S | 061S | 058 | 065 | 055 | 061 | 070 | I074S | 062 | 046 | 038 | J030S | 030S | 029S | 029S | 029S |
| 24 | 029S | 030 | 029S | I030S | I034S | I029S | 023 | J043S | 055S | 054 | 054 | 064 | 073S | 081 | J077S | 061S | 056 | 051 | 032 | 028 | J031S | 027S | I028S | I032S |
| 25 | U029S | 033S | J031S | 026S | I028S | 022 | 023 | 043 | I059S | 062 | 061 | J064S | 071S | 062 | 060 | 054 | 053S | 050 | 038 | 028S | 029S | 026S | I028S | 025S |
| 26 | 025 | J026S | 026 | 028 | 032 | I028S | 019S | 038 | 055S | 058 | 058 | 060 | 067 | 062 | 061 | 069S | 058S | 051 | 036 | 036 | 025 | 022 | 025S | 023 |
| 27 | 027 | I028S | 029 | I030S | I029S | I030S | I029S | U038S | J053S | 058 | 056 | 060 | I063H | 066 | 072 | I063A | 055 | 046 | 046 | I037A | I033S | I030S | 030S | 023 |
| 28 | 026 | 027 | 027 | 030S | U030S | J028S | 027 | 043 | J057S | J053S | 058 | 068 | 071S | 076 | 060 | 057 | 053 | 052 | J034S | J043S | J027S | 028 | 023 | 027S |
| 29 | 028 | I028S | I030S | 029 | 037S | J031S | J019S | U038S | 048 | 051 | 062 | I068S | 069 | I069S | 060 | J065S | 057S | 049 | 037 | 030S | I030S | 027S | 030S | U031S |
| 30 | U033S | 031 | 032S | U032S | I034S | I030S | 024S | 041S | 055 | I068S | U076S | J084S | 065S | 060 | 066S | 065 | 054S | 040 | 029S | 031S | I031S | I030S | I033S | J032S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 29 | 28 | 28 | 29 | 28 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 28 | 27 | 28 | 28 | 27 | 27 |
| Median | 030S | 032S | 032S | 032S | 034S | 030S | 026S | 048S | 060S | 065 | 072 | 076 | 071 | 076 | 080 | 074S | 061S | 053 | 041 | 033S | 034S | 030S | 030S | 030S |
| U. Q. | 034 | 036 | 034 | 034 | 037 | 031 | 031 | 051 | 066 | 070 | 079 | 084 | 077 | 082 | 100 | 086 | 072 | 058 | 046 | 038 | 038 | 035 | 033 | 032 |
| L. Q. | 029 | 030 | 030 | 030 | 032 | 027 | 023 | 043 | 055 | 058 | 062 | 068 | 069 | 068 | 071 | 067 | 058 | 049 | 036 | 031 | 030 | 029 | 028 | 028 |
| Q. R. | 005 | 006 | 004 | 004 | 005 | 004 | 008 | 008 | 011 | 012 | 017 | 016 | 008 | 014 | 029 | 019 | 014 | 009 | 010 | 007 | 008 | 006 | 005 | 004 |

foF2

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 1

# IONOSPHERIC DATA

Nov. 1965 | foF1 | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | L | L | L | L | L | L | 420 | A | | | | | | | |
| 2 | | | | | | | | | | L | U430L | L | U440L | L | L | L | L | | | | | | | |
| 3 | | | | | | | | | L | L | L | 430 | 450H | L | LH | U400L | A | | | | | | | |
| 4 | | | | | | | | | | L | L | 460L | 450H | L | L | L | A | | | | | | | |
| 5 | | | | | | | | | | L | L | L | L | L | 440 | A | A | A | | | | | | |
| 6 | | | | | | | | | | L | L | L | L | LH | LH | L | L | | | | | | | |
| 7 | | | | | | | | | | | 400 | L | 440 | L | LH | L | | | | | | | | |
| 8 | | | | | | | | | | L | L | L | L | L | C | L | | | | | | | | |
| 9 | | | | | | | | | | L | L | 450L | 400 | LH | 420 | L | | | | | | | | |
| 10 | | | | | | | | | | L | 430 | 440 | 450 | 420 | L | L | L | | | | | | | |
| 11 | | | | | | | | | | L | L | 440 | L | L | A | L | | | | | | | | |
| 12 | | | | | | | | | | L | 410L | 450L | L | LH | L | L | | | | | | | | |
| 13 | | | | | | | | | | L | 420 | L | L | 450L | L | L | | | | | | | | |
| 14 | | | | | | | | | | L | L | 430L | 450L | 450 | LH | L | L | | | | | | | |
| 15 | | | | | | | | | | | L | 450L | L | 440 | L | L | A | | | | | | | |
| 16 | | | | | | | | | | | L | U420L | 460 | L | 420L | L | C | | | | | | | |
| 17 | | | | | | | | | | L | 430L | 430 | 390 | A | 430 | L | | | | | | | | |
| 18 | | | | | | | | | | L | A | 430 | L | U440L | L | A | L | | | | | | | |
| 19 | | | | | | | | | | L | L | 420 | U430L | 450 | 400L | L | A | | | | | | | |
| 20 | | | | | | | | | | L | L | 430 | L | 420L | LH | L | | | | | | | | |
| 21 | | | | | | | | | | L | 420 | 400 | L | 410 | L | L | | | | | | | | |
| 22 | | | | | | | | | | L | L | 420 | L | 420L | L | L | | | | | | | | |
| 23 | | | | | | | | | | L | L | 420 | 420 | 400 | 410 | L | A | | | | | | | |
| 24 | | | | | | | | | | | L | 410 | 420 | 420 | L | L | | | | | | | | |
| 25 | | | | | | | | | | L | L | LH | 400 | 400 | L | L | L | | | | | | | |
| 26 | | | | | | | | | | | | U420L | A | 420L | U400L | L | | | | | | | | |
| 27 | | | | | | | | | | L | L | 410 | | A | L | A | | | | | | | | |
| 28 | | | | | | | | | | | L | 420 | 430L | A | A | L | L | | | | | | | |
| 29 | | | | | | | | | | | L | 420 | 430 | I420A | L | L | | | | | | | | |
| 30 | | | | | | | | | | L | 420L | 430 | 420 | 420 | 420 | L | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | 8 | 22 | 16 | 15 | 8 | 2 | | | | | | | | |
| Median | | | | | | | | | | | 420L | 430 | 430 | 420 | 420 | U410L | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foF1

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

# IONOSPHERIC DATA

Nov. 1965 | foE | 0.01 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | S | S | A | R | I305R | I310R | I310A | 310 | 300 | 280 | 240 | S | | | | | | |
| 2 | | | | | | | S | S | 240H | 270 | 300 | 320 | 310R | 320 | 300 | 280 | 240 | S | | | | | | |
| 3 | | | | | | | S | S | A | A | A | A | R | R | I310A | A | A | S | | | | | | |
| 4 | | | | | | | S | A | 235 | 285 | 300 | 305 | I310H | I310R | I315R | 295 | 240 | S | | | | | | |
| 5 | | | | | | | S | 170 | 240 | 285 | 305 | I320R | 320R | I320R | 315 | A | A | S | | | | | | |
| 6 | | | | | | | S | S | A | A | 300 | 310 | I315R | 310 | 300R | 280 | 240 | 170 | | | | | | |
| 7 | | | | | | | S | S | 230H | 285H | 300R | 320 | 315 | 310R | I295A | 275 | 240 | S | | | | | | |
| 8 | | | | | | | S | S | A | A | A | A | 315 | 310 | I305C | I280R | I225A | S | | | | | | |
| 9 | | | | | | | S | S | 225 | 270 | I285A | 305R | I315A | I315R | I305A | I265A | 220 | S | | | | | | |
| 10 | | | | | | | S | S | 230 | I275R | I300R | 315 | 320 | 320 | 305 | 280 | 240 | S | | | | | | |
| 11 | | | | | | | S | S | 230 | 265 | 300 | 310 | 315R | 315R | 300 | 280 | 230 | S | | | | | | |
| 12 | | | | | | | S | 170 | 240 | 280 | 300R | 315R | 320 | A | A | A | A | S | | | | | | |
| 13 | | | | | | | S | S | 220 | 280 | I300R | 320 | 320 | R | R | 270H | 225 | S | | | | | | |
| 14 | | | | | | | S | S | R | 280 | I300R | I310R | 310 | 310 | I295A | I265A | 230 | S | | | | | | |
| 15 | | | | | | | S | 170 | 230 | 270 | 300 | 310 | I310R | 310 | 300 | 290 | 230 | S | | | | | | |
| 16 | | | | | | | S | 180 | 230 | 270 | 300 | 315 | 320 | 315 | 310 | 280 | C | C | | | | | | |
| 17 | | | | | | | S | S | 230H | 270R | 290R | R | R | 310 | 300 | 290 | A | S | | | | | | |
| 18 | | | | | | | S | S | 240H | I270A | I305A | 310 | 310 | 310 | I300A | I285A | 250 | S | | | | | | |
| 19 | | | | | | | S | S | 240H | 280 | 290 | 300 | A | A | A | A | A | S | | | | | | |
| 20 | | | | | | | S | S | 220 | 265 | 285R | I300R | I305R | I305R | 290 | 270 | 210 | S | | | | | | |
| 21 | | | | | | | S | S | 220 | 260 | A | R | A | A | R | 290 | 230 | S | | | | | | |
| 22 | | | | | | | S | 190 | 240H | 270 | 285 | 300R | 300R | 300 | I290R | I275A | 220 | S | | | | | | |
| 23 | | | | | | | S | S | 230 | 260 | 295R | I300R | I300R | I310R | A | A | A | S | | | | | | |
| 24 | | | | | | | S | S | 230H | 270 | I290R | 300 | 300 | 290R | 275 | 250 | I215A | S | | | | | | |
| 25 | | | | | | | S | S | 230 | A | A | A | 300 | 305 | I295R | 260 | 210 | S | | | | | | |
| 26 | | | | | | | S | S | 215 | 265 | I290R | 305 | 310 | 290R | A | A | A | S | | | | | | |
| 27 | | | | | | | S | S | RH | 275H | I290R | 300 | 300 | 300R | I290R | 260 | I215A | S | | | | | | |
| 28 | | | | | | | S | S | 210 | I260R | 290 | 300 | 300R | 300 | 295R | I265A | 230 | S | | | | | | |
| 29 | | | | | | | S | S | 220 | A | A | A | A | A | 290R | 270H | 220 | S | | | | | | |
| 30 | | | | | | | S | S | 230H | 275 | 290 | A | A | R | 290R | 270 | 220 | S | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 5 | 24 | 24 | 25 | 23 | 24 | 23 | 24 | 24 | 22 | 1 | | | | | | |
| Median | | | | | | | | 170 | 230 | 270 | 300R | 310 | 310 | 310 | 300 | 280 | 230 | 170 | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foE

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 3

# IONOSPHERIC DATA

Nov. 1965 | foEs | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | J016S | E016S | E015B | E015B | E015B | E015S | E015S | E015S | 029 | 027G | 035 | 037 | 035 | 040 | 038 | J053 | 066 | J034 | 019 | 028 | J026 | J047 | J053 | J038 |
| 2 | J040 | J029 | J022 | J019 | E016B | E014B | E016S | 019 | 028 | 030 | 033 | 038 | 037 | 034 | 034 | 031 | 028 | J029 | J018 | E015S | J022 | E016S | 019M | J022 |
| 3 | 026M | J038 | J030 | 027 | E015B | J021 | E015S | J021 | J027 | J044 | J036 | J054 | 029G | 026G | J033 | J034 | J039 | J034 | J044 | E016S | J031 | 021M | E015S | J038 |
| 4 | J025 | J023 | J022 | 042 | J038 | J019 | 031M | 036M | J030 | J033 | 033 | 033 | G | G | 037 | 033 | J045 | J037 | J026 | E016S | E016S | E015S | 023 | 023 |
| 5 | 019 | E015S | E015S | 021 | E015B | E017S | E016S | G | G | 034 | 036 | G | 034 | 038 | G | J053 | 059M | J041 | J046 | J068 | J031 | J026 | J023 | 030M |
| 6 | J021 | J022 | E019B | E015B | E015B | E015S | E015S | J029 | J029 | J038 | 030G | J035 | 027G | G | 018G | 029 | G | J021 | E016S | 021 | E015S | J051 | J021 | J051 |
| 7 | J022 | J021 | 020 | E015B | E015B | E012B | E015S | E015S | 026 | 020G | 019G | G | 025G | 029G | J037 | J022G | J021G | 021 | E015S | E015S | E016S | E015S | 020 | 018 |
| 8 | E014S | 022 | J024 | E014B | E | E014S | E015S | E015S | 023 | 030 | 031 | 033 | 029G | G | C | 027G | 026 | E016S | 019 | 017 | E015S | J028 | J021 | 022 |
| 9 | J016 | E016S | E015S | E014B | E013B | E015S | E016S | J017 | 022G | 028 | J030 | 034 | J033 | 031G | J031 | 029 | 023 | E016S | J024 | J027 | 018M | 018M | E015S | E015S |
| 10 | E016S | E015S | E015B | E013B | E015B | E013S | J014S | 024 | 030 | 027G | 029G | 037 | 032 | 033 | 041 | 042 | 030 | J039 | E015S | E015S | 021M | J022 | J023 | E015S |
| 11 | E015S | J021 | 022M | 019M | 020M | E015S | E015S | E017S | 020G | 029 | 028G | 019G | 029G | 040 | 046 | 031 | 024 | E016S | E015S | E015S | 018 | J022 | J019 | J018 |
| 12 | E014S | E015S | E015B | E015B | E | E014S | E013S | 019 | 031 | 035 | 041 | 024G | G | 032 | J041 | 032 | 025 | 022 | J015S | E014S | E015S | E015S | E015S | E015S |
| 13 | E015S | E015S | E015B | E | E | E014S | E015S | 020 | 027 | J022G | 020G | G | 025G | 029G | 028G | 019G | J032 | J036 | 023 | E015S | E015S | E015S | E015S | E015S |
| 14 | E015S | J021 | J019 | J019 | E015B | E015B | E015S | J018S | 022G | G | 028G | 053 | J062 | 035 | 031 | 031 | G | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 15 | E015S | E015S | E015B | E016B | E015B | E014S | 021 | 021 | 026 | 030 | 033 | 034 | 035 | 035 | 035 | 037 | J049 | J028 | 022M | E015S | E016S | E015S | E015S | E015S |
| 16 | E015S | E015S | 019M | J024 | E015B | 019M | E015S | 020 | 030 | 035 | 039 | 044 | 038 | 035 | 036 | 030 | C | C | C | C | C | 019M | E015S | E015S |
| 17 | E015S | C | C | C | C | C | 021M | J023 | 025 | J018G | G | 033 | 042 | 048 | 039 | 038 | 025 | 022 | J029 | J027 | J033 | J018 | 022M | 025M |
| 18 | E015S | E015S | E015B | E015B | E015B | J034 | 023M | 023 | J022G | J040 | J052 | 040 | 038 | 035 | 035 | J042 | 026 | 022 | 018M | E015S | J024 | J027 | E017S | E014S |
| 19 | 022M | J022 | C | J022 | J021 | 021M | 023M | 022M | 026 | G | 034 | J042 | J054 | J040 | J044 | J050 | J054 | J030 | J024 | J031 | 028 | J026 | 021M | J039 |
| 20 | J021 | E020S | J023 | E015B | J021 | J021 | J022 | J022 | G | 021G | 023G | 025G | 035 | 035 | G | 022G | 024 | 020 | 022M | J019 | E015S | E015S | J022 | E015S |
| 21 | J022 | 042M | E017B | E | E015B | E015S | 020M | 026 | 032 | 030 | 031 | 038 | J040 | 036 | 027G | 023G | 022G | 029 | J030 | J022 | J021 | J020 | 019M | E015S |
| 22 | E015S | J024 | J023 | J024 | J022 | 020M | 021M | G | G | 030 | 031 | J037 | 036 | 035 | 018G | 030 | G | E015S | J024 | E015S | E015S | E015S | E015S | E015S |
| 23 | E015S | J022 | J024 | J021 | J021 | 021M | 023M | 022M | 022G | 032 | 034 | 037 | 038 | 036 | J048 | J033 | J039 | J034 | 019 | 018 | 022M | 020M | J024 | E015S |
| 24 | E015S | E015B | E015B | J030 | J023 | 022M | 021M | 023M | G | 025G | 031 | 035 | 039 | 034 | 033 | 029 | J024 | E015S | E015S | E015S | 022M | 022M | 022M | E015S |
| 25 | E015S | E015S | E015B | E015B | E014B | E015S | E015S | E015S | G | J036 | 030 | 031 | 027G | 025G | 020G | G | G | E015S | E015S | E015S | E014S | 020 | E016S | E016S |
| 26 | E015S | E015S | E014B | E012B | E016B | E014B | E016S | E015S | J041 | G | G | 032 | 044 | 035 | 035 | 030 | J035 | J026 | 029 | E015S | 018M | E015S | E015S | E015S |
| 27 | E015S | E016S | E015B | E016B | 018M | E015S | E015S | E015S | G | G | 041 | J039 | 039 | J054 | 027G | J077 | 026 | 018 | E016S | J054 | 030M | 025M | 021M | 018M |
| 28 | E015S | E015S | E015B | E | E015B | E015B | E015S | E017S | 026 | 032 | 038 | 041 | 040 | 048 | J054 | 034 | J049 | 022M | 018 | E015S | E015S | J021 | J021 | E015S |
| 29 | E015S | S | E016S | E015B | E015B | E015S | J018 | E015S | 024 | 034 | 039 | 039 | J048 | J054 | J057 | 035 | 026 | E015S | 022M | 023M | 019 | 022 | 022M | E015S |
| 30 | 023M | J022 | 020M | E015B | E016S | E015S | E015S | E015S | 028 | 033 | 037 | 036 | 032 | 029G | J022G | 023G | 025 | 025 | J022 | 021M | 021M | 018M | E015S | E016S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 28 | 28 | 29 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 29 | 29 | 29 | 29 | 29 | 30 | 30 | 30 |
| Median | E015S | E018S | E016 | E015B | E015B | E015S | E016S | 019 | 026 | 030 | 032 | 036 | 035 | 035 | 035 | 031 | 026 | 022 | 019 | E016S | 018 | 020 | 020 | E015S |
| U. Q. | 021 | 022 | 022 | 021 | 019 | 020 | 021 | 022 | 029 | 034 | 036 | 039 | 039 | 038 | 040 | 037 | 039 | 032 | 024 | 022 | 023 | 022 | 022 | 022 |
| L. Q. | E015 | E015 | E015 | E014 | E015 | E014 | E015 | E015 | G | G | G | 032 | G | G | G | 029 | G | E016 | E016 | E015 | E015 | E015 | E015 | E015 |
| Q. R. | D006 | D007 | D007 | D007 | D004 | D006 | D006 | D007 | | | | 007 | | | | 008 | | D016 | D008 | D007 | D008 | D007 | D007 | D007 |

foEs

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

# IONOSPHERIC DATA

Nov. 1965 | $f_bEs$ | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S | S | B | B | B | S | S | S | 029 | E027R | 034 | 035 | 034 | 040 | 035 | 039 | 055 | 020 | 019 | 022 | 018 | A | E | E |
| 2 | 017 | 016 | 016 | 017 | B | B | S | 019 | G | G | 032 | 038 | 035 | 033 | 032 | G | 028 | 019 | E | S | 016 | S | 018 | 019 |
| 3 | E | 022 | 022 | E | B | E | S | G | 027 | 033 | 033 | 037 | E029R | 026G | 032 | 033 | 025 | 023 | E044S | S | E | E | S | A |
| 4 | 019 | 018 | 019 | 020 | 020 | 020 | 016 | 019 | 019 | 019 | 033 | 033 | | | 036 | 033 | 039 | 034 | 025 | S | S | S | E | E |
| 5 | E | S | S | 015 | B | S | S | | | 034 | 033 | | 034 | 033 | | 046 | 049 | U032A | E046S | A | 023 | 022 | 023 | 022 |
| 6 | 018 | 022 | B | B | B | S | S | 019 | 027 | 030 | 024G | 028G | E027R | | 018G | G | | G | S | E | S | 030 | E | A |
| 7 | E | E | 015 | B | B | B | S | S | G | 019G | 019G | | 021G | 025G | 031 | 021G | G | 020 | S | S | S | S | E | E |
| 8 | S | 018 | 017 | B | | S | S | S | E023R | 029 | 031 | 032 | 029G | | C | E027R | 025 | S | E | E | S | 019 | 019 | 019 |
| 9 | E | S | S | B | B | S | S | G | 019 | 022 | E030R | 033 | 032 | 031 | 030 | E029R | 021 | S | 023 | 023 | E | E | S | S |
| 10 | S | S | B | B | B | S | S | 021 | G | E028R | E029R | 036 | 025G | G | 038 | 037 | 029 | S | S | S | E | 016 | 016 | S |
| 11 | S | 015 | 015 | 015 | 012 | S | S | S | 016G | 028 | 023G | 019G | 024G | 040 | 045 | 031 | G | S | S | S | 018 | 016 | E | E |
| 12 | S | S | B | B | | S | S | G | G | 030 | 036 | 022G | | 032 | 040 | 030 | 023 | 020 | S | S | S | S | S | S |
| 13 | S | S | B | | | S | S | G | 027 | 020G | 020G | | 023G | E029R | 021G | 018G | 030 | 028 | E | S | S | S | S | S |
| 14 | S | E | E | E | B | B | S | S | 022G | | E028R | 037 | 033 | 033 | 030 | 030 | | S | S | S | S | S | S | S |
| 15 | S | S | B | B | B | S | G | G | G | 030 | 032 | 033 | 034 | 034 | 035 | 036 | 041 | 026 | E | S | S | S | S | S |
| 16 | S | S | E | 018 | B | 018 | S | G | G | 034 | 036 | 022 | 038 | 035 | 034 | 030 | C | C | C | C | C | E | S | S |
| 17 | S | C | C | C | C | C | G | 019 | 025 | G | | 033 | 036 | 046 | 037 | 033 | 025 | 018 | 019 | 025 | E033S | E | E | E |
| 18 | S | S | B | B | B | E | G | 017 | G | 030 | 043 | 040 | 036 | 032 | 033 | 040 | 022 | 017 | E | S | E | 019 | S | S |
| 19 | E | E | C | 015 | 015 | E | 016 | G | G | | 031 | 039 | 034 | 032 | 038 | 031 | 030 | 017 | 020 | A | 028 | A | E | 018 |
| 20 | 017 | S | 016 | B | E | 016 | 017 | G | | 020G | 022G | 024G | 034 | 035 | | 021G | E024R | 020 | E | 017 | S | S | E | S |
| 21 | 016 | 025 | B | | B | S | G | 025 | 031 | 030 | 031 | 035 | 036 | 032 | E027R | 019G | 018G | 022 | 030 | 022 | 019 | 019 | E | S |
| 22 | S | E | 016 | 018 | E | E | G | | | 030 | G | 033 | 032 | 031 | 018G | 029 | | S | 022 | S | S | S | S | S |
| 23 | S | 016 | 016 | 015 | E | E | G | G | 020G | 031 | G | 035 | 033 | 033 | 040 | 030 | 032 | 027 | 016 | E | E | E | E | S |
| 24 | S | B | B | 017 | 016 | E | G | G | | 025G | 031 | G | 034 | 033 | 033 | 029 | 023 | S | S | S | E | E | E | S |
| 25 | S | S | B | B | B | S | S | S | | 032 | 028 | E031R | 027G | 025G | 020G | | | S | S | S | S | E | S | S |
| 26 | S | S | B | B | B | B | S | S | 026 | | | 032 | 043 | 034 | 031 | E030R | 028 | 020 | 020 | S | E | S | S | S |
| 27 | S | S | B | B | 015 | S | S | S | | | 038 | 033 | 034 | 047 | 026G | A | 026 | E018R | S | A | E030S | E025S | 017 | E |
| 28 | S | S | B | | B | B | S | S | G | 031 | 037 | 037 | 037 | 046 | 047 | 031 | 034 | 018 | 016 | S | S | E | E | S |
| 29 | S | S | S | B | B | S | 016 | S | 024 | 033 | 037 | 036 | 042 | 043 | 036 | 034 | 026 | S | E | E | 016 | E | E | S |
| 30 | 017 | 017 | E | B | S | S | S | S | 025 | 032 | 035 | 036 | 032 | E029R | 021G | 020G | E025R | 018 | 020 | 017 | E | E | S | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

$f_bEs$ | Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

Y 5

# IONOSPHERIC DATA

Nov. 1965 | f-min | 0.1 Mc | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | E015S | E016S | 015 | 015 | 015 | E015S | E015S | E015S | E015S | 015 | 016 | 016 | 016 | 017 | 016 | 016 | 015 | E015S | E015S | E015S | E016S | E015S | E015S | E015S |
| 2 | E015S | E015S | E014S | 016 | 016 | 014 | E016S | E014S | 015 | 015 | 015 | 017 | 015 | 016 | 016 | 015 | 015 | E015S | E015S | E015S | E015S | E016S | E016S | E015S |
| 3 | E015S | E015S | 015 | 013 | 015 | E016S | E015S | E015S | E015S | 015 | 015 | 015 | 016 | 015 | 015 | 016 | 015 | E014S | E014S | E016S | E015S | E015S | E015S | E015S |
| 4 | E015S | E015S | 015 | 014 | E | E015S | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 019 | 014 | 015 | E015S | E015S | E016S | E016S | E015S | E015S | E015S |
| 5 | E015S | E015S | E015S | E | 015 | E017S | E016S | E015S | 015 | 018 | 017 | 019 | 019 | 017 | 017 | 016 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 6 | E015S | E015S | 019 | 015 | 015 | E015S | E015S | E015S | 013 | 015 | 015 | 016 | 015 | 015 | 015 | 015 | 015 | E016S | E016S | E016S | E015S | E015S | E015S | E016S |
| 7 | E015S | E015S | E | 015 | 015 | 012 | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 016 | 015 | 015 | E015S | E015S | E015S | E016S | E015S | E015S | E015S |
| 8 | E014S | E015S | E | 014 | E | E014S | E015S | E015S | E015S | 015 | 015 | 018 | 019 | 016 | C | 015 | 015 | E016S | E015S | E015S | E015S | E015S | E015S | E016S |
| 9 | E015S | E016S | E015S | 014 | 013 | E015S | E016S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 014 | 014 | E016S | E015S | E015S | E015S | E015S | E015S | E015S |
| 10 | E016S | E015S | 015 | 013 | 015 | E013S | E015S | E015S | 015 | 015 | 015 | 016 | 016 | 018 | 015 | 014 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 11 | E015S | E013S | E | E | E | E015S | E015S | E017S | 012 | 015 | 015 | 015 | 014 | 016 | 015 | 015 | 015 | E016S | E015S | E015S | E015S | E015S | E015S | E015S |
| 12 | E014S | E015S | 015 | 015 | E | E014S | E013S | E015S | 014 | 015 | 015 | 015 | 016 | 015 | 020 | 016 | 014 | E015S | E015S | E014S | E015S | E015S | E015S | E015S |
| 13 | E015S | E015S | 015 | E | E | E014S | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 14 | E015S | E015S | 015 | 015 | 015 | 015 | E015S | E015S | 015 | 013 | 015 | 014 | 015 | 015 | 015 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 15 | E015S | E015S | 015 | 016 | 015 | E014S | E014S | E015S | 016 | 015 | 015 | 015 | 015 | 016 | 015 | 015 | 015 | E015S | E015S | E015S | E016S | E015S | E015S | E015S |
| 16 | E015S | E015S | 015 | 015 | 015 | E015S | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | C | C | C | C | C | E015S | E015S | E015S |
| 17 | E015S | C | C | C | C | C | E015S | E015S | 015 | 016 | 015 | 015 | 015 | 015 | 016 | 015 | 014 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 18 | E015S | E015S | 015 | 015 | 015 | E015S | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 016 | 015 | 016 | E015S | E015S | E015S | E015S | E015S | E017S | E014S |
| 19 | E014S | E015S | C | E | E | E015S | E015S | E016S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E017S | E015S |
| 20 | E015S | E020S | 015 | 015 | 015 | E015S | E015S | E015S | 015 | 014 | 015 | 016 | 015 | 015 | 016 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 21 | E015S | E015S | 017 | E | 015 | E015S | E015S | E015S | 015 | 015 | 014 | 016 | 015 | 015 | 015 | 015 | 014 | E015S | E015S | E015S | E015S | E017S | E015S | E015S |
| 22 | E015S | E015S | 015 | 015 | 015 | E014S | E012S | E015S | 015 | 015 | 015 | 015 | 014 | 015 | 014 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 23 | E015S | E015S | 015 | E | 015 | E015S | E015S | E017S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 013 | E015S | E015S | E015S | E014S | E015S | E015S | E015S |
| 24 | E015S | 015 | 015 | E | E | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 017 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 25 | E015S | E015S | 015 | 015 | 014 | E015S | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | E015S | E015S | E015S | E014S | E015S | E016S | E016S |
| 26 | E015S | E015S | 014 | 012 | 016 | 014 | E016S | E015S | 015 | 015 | 016 | 015 | 015 | 015 | 015 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| 27 | E015S | E016S | 015 | 016 | E | E015S | E015S | E015S | 015 | 015 | 014 | 015 | 015 | 015 | 015 | 015 | 015 | E015S | E016S | E015S | E015S | E014S | E016S | E015S |
| 28 | E015S | E015S | 015 | E | 015 | 015 | E015S | E017S | 015 | 014 | 014 | 015 | 015 | 015 | 015 | 015 | 015 | E015S | E014S | E015S | E015S | E016S | E015S | E015S |
| 29 | E015S | S | E016S | 015 | 015 | E015S | E015S | E015S | 015 | 015 | 016 | 016 | 015 | 016 | 015 | 014 | 015 | E015S | E015S | E015S | E015S | E014S | E015S | E015S |
| 30 | E016S | E015S | E015S | 015 | E016S | E015S | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 014 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E016S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 28 | 28 | 29 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 29 | 29 | 29 | 29 | 29 | 30 | 30 | 30 |
| Median | E015S | E015S | 015 | 015 | 015 | E015S | E015S | E015S | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | 015 | E015S | E015S | E015S | E015S | E015S | E015S | E015S |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

f-min

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 6

# IONOSPHERIC DATA

Nov. 1965 | M(3000) F2 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | I315S | 340S | I310S | I285S | I315S | U365S | 305 | 355 | U360S | 355 | 335S | 335 | J335S | 310 | J340S | 350 | 370 | 375 | 335 | 295S | 310S | A | S | S |
| 2 | 305S | J315S | 315 | 295 | 320S | I365S | 295 | J365S | S | 355S | 365 | 345 | 355 | 300 | 320 | 340S | J370S | I360S | J340S | 295S | I275S | J305S | S | S |
| 3 | 285S | J270S | 290 | I300S | I305S | I315S | I320S | 350S | I340S | J340S | J340S | 340S | 340 | I310S | 320S | 350 | 360S | 370 | I335S | 345 | 275S | 305S | S | A |
| 4 | U280S | 290 | I295S | I310S | 325S | I345S | 345S | 345S | 350 | 355 | 345 | 350S | 345 | 310 | 330S | 350S | 390 | 340 | 350 | 320 | I300S | J295S | 280S | I275S |
| 5 | I290S | U275S | J320S | 335S | 295 | I300S | J325S | I340S | 360S | I335S | J340S | J330S | 320 | I320S | 350 | 350 | 355S | 370 | S | A | 305 | 300S | I300S | I285S |
| 6 | 295S | 290 | 290 | 305 | I350S | 280S | 290S | I350S | J350S | 320S | 330 | 330 | 330 | 295S | 335 | J350S | J350S | J350S | 345 | 275S | 280 | I320S | 325 | I290A |
| 7 | 310S | 305S | J280S | 295S | J330S | 365 | 265S | J335S | J360S | 330S | U325S | 310 | J345S | 320 | 355 | 380S | 345S | 350S | J330S | 320 | J310S | J310S | I315S | J340S |
| 8 | I305S | I315S | 315S | 350 | 365S | J265S | 295 | 350S | 340 | 345 | 345S | 360S | J340S | J345S | I345C | 370S | 365S | 345S | J300S | 305S | 330S | 325S | 335S | 280 |
| 9 | I280S | 295S | I310S | I325S | 345S | 355 | 290 | 355 | 340S | 345 | 320 | 340 | 325 | 325 | 360 | 360 | 350S | 375 | 325 | 350 | 295S | 305S | J305S | 290 |
| 10 | 280 | I280S | 290 | 295S | J345S | J360S | 260S | 345 | 345S | 345 | 340 | 345 | 345 | 325 | 340 | 345S | 370 | 355 | 355 | 315 | 315 | 325S | 310 | 280 |
| 11 | 280 | 280 | 300S | J290S | 325 | 350 | 290S | J365S | J345S | J355S | 320S | 350 | 350S | J330S | 335S | 345 | 375S | 365 | 330S | 305 | 320S | 345S | J295S | 295 |
| 12 | 295S | 295S | J305S | J300S | 320S | 350 | 315S | 355S | 350S | 345 | I355S | 335 | 325 | 340S | J345S | U355S | 350 | 340 | 360 | 310S | 325S | 335 | 290 | J290S |
| 13 | J290S | 315 | 305S | 315 | 305 | J295S | 325S | I340C | J365S | 335S | J330S | 330 | 340 | 345 | I340S | 345 | 360 | 360 | 330 | 335S | 315S | 305 | J335S | J295S |
| 14 | 290S | 295S | 310 | I315S | 325 | 350 | 290S | 355S | J380S | U345S | 340S | J365S | 355S | J305S | J330S | 330S | U360S | U365S | 315 | J315S | 310S | 330S | 305 | 285S |
| 15 | J285S | J275S | 295S | U290S | 295S | I320S | I305S | 345S | 375S | 350 | 345 | 340S | 325 | 325S | 345 | J345S | 350S | 350S | 345 | U370S | J335S | I280S | I290S | 290S |
| 16 | 300S | 305S | I285S | J290S | J305S | I310S | I325S | J340S | 365S | 355 | 350 | 335 | 325S | 335 | 330 | 355S | C | C | C | C | C | 295S | 305S | 320S |
| 17 | 295 | C | C | C | C | C | 335 | 375S | 375S | 350 | 325 | J350S | 340 | J300S | 350 | J365S | J365S | 350 | 350 | 315S | I305S | 305 | 300S | J315S |
| 18 | 300S | J285S | 315S | 345 | 335S | 315 | 310 | 350S | 345 | 350 | 345S | 350S | 360S | 330 | 345 | 360S | 345 | 355 | 335 | J325S | J295S | 310 | 290S | 295S |
| 19 | J290S | 305 | I310C | 280S | 325 | 325 | U310S | 350S | 355 | J340S | 355 | 340 | 350 | 330 | 340 | 345S | 370 | 350 | 340 | A | S | A | 275 | U285S |
| 20 | U265S | 290S | 275S | 280S | I305S | I300S | I310S | 340 | 365 | 350C | 335C | 330 | 345 | 320S | 345S | 370 | 350 | 350 | 325 | I310S | 295S | I295S | I295S | 305S |
| 21 | 285S | 295S | I310S | 320S | 285F | FS | 325S | 340S | 350 | 340 | 325 | J345S | J360S | U325S | 330S | U345S | 355S | 340 | 315S | 305 | I310S | 330S | 295 | 280 |
| 22 | 285S | I285S | I310S | I345S | J345S | 250F | J295S | 335 | 355 | 340S | I350S | 360 | 325 | 350S | 350S | 340 | 360 | 350 | 345S | 320 | U300S | 305 | 305S | J280S |
| 23 | I300S | 320 | S | S | I320S | 310 | 305S | J365S | J380S | 330S | 345 | 345 | 325 | 330 | 330 | I350S | 355 | 370 | 345 | J335S | 315S | 310S | 275S | 275S |
| 24 | 275S | 285 | 280S | I295S | I310S | I365S | 305 | J350S | 365S | 350 | 345 | 330 | 340S | 335 | J350S | 330S | 370 | 355 | 315 | 285 | J315S | 330S | I295S | I280S |
| 25 | U280S | 275S | I310S | 345S | I340S | 280 | 305 | 350 | I370S | 370 | 345 | J345S | 350S | 355 | 335 | 360 | 360S | 350 | 340 | 305S | 345S | 310S | I325S | 280S |
| 26 | 280 | J290S | 285 | 320 | 330 | I325S | 275S | 340 | 345S | 360 | 345 | 335 | 360 | 340 | 330 | 360S | 380S | 370 | 335 | 360 | 360 | 285 | 290S | 290 |
| 27 | 280 | I290S | 280 | I290S | I310S | I325S | I340S | U320S | J375S | 325 | 355 | 350 | I340H | 335 | 360 | I355A | 365 | 345 | 350 | I355A | I335S | I315S | 335S | 260 |
| 28 | 285 | 295 | 295 | 315S | U335S | J305S | 295 | 350 | J335S | J325S | 345 | 325 | 365S | 340 | 350 | 385 | 360 | 345 | J325S | J350S | J335S | 305 | 305 | 295S |
| 29 | 290 | I285S | I280S | 310 | 315S | J360S | S | U315S | 355 | 345 | 355 | I350S | 345 | I325S | 320 | J340S | 340S | 355 | 325 | 335S | I315S | 295S | 305S | U295S |
| 30 | U280S | 290 | 315S | U330S | I335S | I290S | 290S | 315S | 330 | I350S | U340S | J355S | 355S | 350 | 340S | 355 | 370S | 355 | 305S | 305S | I295S | I290S | I290S | J295S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 29 | 28 | 28 | 29 | 28 | 29 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 28 | 27 | 28 | 28 | 27 | 27 |
| Median | 290S | 290S | 300S | 310S | 325S | 320S | 305S | 350S | 355S | 345 | 345 | 340 | 340 | 330 | 340 | 350S | 360S | 355 | 335 | 315S | 310S | 305S | 300S | 290S |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

M(3000) F2

The Radio Research Laboratories, Japan

Y 7

# IONOSPHERIC DATA

Nov. 1965 | M(3000) F1 | 0.01 | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | L | L | L | L | L | L | A | A | | | | | | | |
| 2 | | | | | | | | | | L | U385L | L | U385L | L | L | L | L | | | | | | | |
| 3 | | | | | | | | | L | L | L | 420 | 400H | L | LH | U355L | A | | | | | | | |
| 4 | | | | | | | | | | L | L | 370L | 390H | L | L | L | A | | | | | | | |
| 5 | | | | | | | | | | L | L | L | L | L | 365 | A | A | A | | | | | | |
| 6 | | | | | | | | | | L | L | L | L | LH | LH | L | L | | | | | | | |
| 7 | | | | | | | | | | | 400 | L | 385 | L | LH | L | | | | | | | | |
| 8 | | | | | | | | | | L | L | L | L | L | C | L | | | | | | | | |
| 9 | | | | | | | | | | L | L | 360L | 425 | LH | 355 | L | | | | | | | | |
| 10 | | | | | | | | | | L | 355 | 375 | 375 | 405 | L | L | L | | | | | | | |
| 11 | | | | | | | | | | L | L | 365 | L | L | A | L | | | | | | | | |
| 12 | | | | | | | | | | L | 390L | 360L | L | LH | L | L | | | | | | | | |
| 13 | | | | | | | | | | L | 360 | L | L | 360L | L | L | | | | | | | | |
| 14 | | | | | | | | | | L | L | 385L | 375 | 380 | LH | L | L | | | | | | | |
| 15 | | | | | | | | | | | L | 360L | L | 365 | L | L | A | | | | | | | |
| 16 | | | | | | | | | | | L | U380L | 350 | L | 360 | L | C | | | | | | | |
| 17 | | | | | | | | | | L | 380L | 385 | 425 | A | 365 | L | | | | | | | | |
| 18 | | | | | | | | | | L | A | A | L | U365L | L | A | L | | | | | | | |
| 19 | | | | | | | | | | L | L | A | U395L | 365 | A | L | A | | | | | | | |
| 20 | | | | | | | | | | L | L | 370 | L | 370L | LH | L | | | | | | | | |
| 21 | | | | | | | | | | L | 370 | 400 | L | 390 | L | L | | | | | | | | |
| 22 | | | | | | | | | | L | L | 380 | L | 380L | L | L | | | | | | | | |
| 23 | | | | | | | | | | L | L | 370 | 385 | 370 | A | L | A | | | | | | | |
| 24 | | | | | | | | | | | L | 390 | 375 | 360 | L | L | | | | | | | | |
| 25 | | | | | | | | | | L | L | LH | 400 | 400 | L | L | L | | | | | | | |
| 26 | | | | | | | | | | | | U380L | A | 380L | U370L | L | | | | | | | | |
| 27 | | | | | | | | | | L | L | 370 | | A | L | A | | | | | | | | |
| 28 | | | | | | | | | | | L | 360 | A | A | A | L | L | | | | | | | |
| 29 | | | | | | | | | | | L | 370 | A | A | L | L | | | | | | | | |
| 30 | | | | | | | | | | L | 365L | 370 | 390 | 380 | 370 | L | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | 8 | 20 | 14 | 14 | 6 | 1 | | | | | | | | |
| Median | | | | | | | | | | | 375L | 370 | 390 | 375 | 365 | U355L | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

# IONOSPHERIC DATA

Nov. 1965 | h'F2 km | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | 240 | 250 | 255 | 245 | 270 | 265 | 240 | 220 | | | | | | | |
| 2 | | | | | | | | | | 230 | 240 | 245 | 240 | 330 | 275 | 240 | 220 | | | | | | | |
| 3 | | | | | | | | | 225 | 225 | 240 | 240 | 245 | 295 | 280 | 250 | 230 | | | | | | | |
| 4 | | | | | | | | | | 240 | 260 | 245 | 235 | 290 | 265 | 235 | 215 | | | | | | | |
| 5 | | | | | | | | | | 250 | 270 | 270 | 250 | 280 | 260 | 240 | 225 | 210 | | | | | | |
| 6 | | | | | | | | | | 275 | 255 | 265 | 245 | 290 | 265 | 235 | 225 | | | | | | | |
| 7 | | | | | | | | | | | 250 | 245 | 245 | 275 | 245 | 220 | | | | | | | | |
| 8 | | | | | | | | | | 230 | 245 | 240 | 250 | 260 | I250C | 230 | | | | | | | | |
| 9 | | | | | | | | | | 240 | 250 | 255 | 255 | 270 | 245 | 230 | | | | | | | | |
| 10 | | | | | | | | | | 245 | 265 | 245 | 265 | 270 | 245 | 245 | 220 | | | | | | | |
| 11 | | | | | | | | | | 230 | 280 | 250 | 245 | 250H | 255 | 240 | | | | | | | | |
| 12 | | | | | | | | | | 245 | 240 | 270 | 285 | 255 | 245 | 240 | | | | | | | | |
| 13 | | | | | | | | | | 245 | 275 | 255 | 250 | 255 | 260 | 255 | | | | | | | | |
| 14 | | | | | | | | | | 250 | 245 | 235 | 245 | 300 | 250 | 245 | 225 | | | | | | | |
| 15 | | | | | | | | | | | 255 | 270 | 270 | 270 | 245 | 250 | 240 | | | | | | | |
| 16 | | | | | | | | | | | 240 | 250 | 290 | 260 | 270 | 245 | C | | | | | | | |
| 17 | | | | | | | | | | 250 | 260 | 245 | 250 | 305 | 250 | 235 | | | | | | | | |
| 18 | | | | | | | | | | 240 | 270 | 240 | 235 | 270 | 255 | 235 | 225 | | | | | | | |
| 19 | | | | | | | | | | 245 | 245 | 250 | 255 | 280 | 235 | 240 | 230 | | | | | | | |
| 20 | | | | | | | | | | 240 | 245 | 270 | 245 | 250 | 245 | 235 | | | | | | | | |
| 21 | | | | | | | | | | 245 | 260 | 250 | 230 | 275 | 260 | 235 | | | | | | | | |
| 22 | | | | | | | | | | 250 | 240 | 245 | 290 | 245 | 240 | 245 | | | | | | | | |
| 23 | | | | | | | | | | 250 | 260 | 255 | 265 | 280 | 270 | 240 | 230 | | | | | | | |
| 24 | | | | | | | | | | | 250 | 270 | 255 | 265 | 240 | 245 | | | | | | | | |
| 25 | | | | | | | | | | 230 | 250 | 270 | 245 | 235 | 260 | 230 | 235 | | | | | | | |
| 26 | | | | | | | | | | | | 280 | 245 | 270 | 250 | 240 | | | | | | | | |
| 27 | | | | | | | | | | 245 | 250 | 250 | | 270 | 250 | I245A | | | | | | | | |
| 28 | | | | | | | | | | | 255 | 280 | 230 | 255 | 245 | 215 | 240 | | | | | | | |
| 29 | | | | | | | | | | | 250 | 250 | 250 | 250 | 250 | 235 | | | | | | | | |
| 30 | | | | | | | | | | 245 | 240 | 240 | 245 | 250 | 275 | 240 | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 1 | 23 | 29 | 30 | 29 | 30 | 30 | 30 | 14 | 1 | | | | | | |
| Median | | | | | | | | | 225 | 245 | 250 | 250 | 245 | 270 | 250 | 240 | 225 | 210 | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F2

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 9

# IONOSPHERIC DATA

Nov. 1965 | h'F | km | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 250 | 235 | 260 | 300 | 275 | 210 | S | 215 | 225 | 230 | 240 | 225 | 220 | 250 | 240 | A | A | 200 | 205 | 250 | 250 | I245A | 240 | 280 |
| 2 | 275 | 270 | 290 | 295 | 250 | 200 | E255S | 230 | 225H | 220 | 210 | 235 | 225 | 190 | 260 | 240 | 230 | 215 | 200 | 235 | 285 | 250 | 260 | 275 |
| 3 | 285 | 325 | 300 | 300 | 260 | 240 | 240 | 230 | 225 | 215 | 205 | 200 | 180H | 240 | 205H | 245 | I230A | 210 | E250S | 220 | 300 | 260 | 235 | A |
| 4 | 280 | 275 | 255 | 300 | 255 | 230 | 200 | 225 | 215 | 220 | 210 | 200H | 200 | 245 | 255 | 240 | I230A | 220 | 215 | 220 | E250S | 280 | 295 | 320 |
| 5 | 265 | 275 | 250 | 225 | 275 | 280 | 255 | 215 | 200H | 235 | 220H | 250 | 210 | 200H | 245 | A | A | A | A | A | 285 | 270 | 275 | 320 |
| 6 | 315 | 300 | 280 | 270 | 220 | 295 | 260 | 220 | 230 | 220H | 235 | 235H | 210 | 225 | 200H | 235 | 220 | 215 | 205 | E300S | 300 | E270A | 220 | A |
| 7 | 285 | 275 | 275 | 270 | 245 | 220 | E290S | 240 | 230 | 220 | 200H | 220H | 205 | 205 | 200H | 225 | 220 | 205 | 220 | 225 | 230 | 245 | 240 | 225 |
| 8 | 270 | 250 | 245 | 240 | 205 | 355 | 300 | 230 | 230 | 230H | 220 | 235H | 200 | 200 | I220C | 230 | 225 | 210H | 220 | 250 | 235 | 255 | 250 | E320A |
| 9 | 300 | 280 | 250 | 240 | 220 | 225 | E320S | 225 | 230 | 225 | 215 | 200 | 180H | 180H | 225 | 230 | 230 | 205 | 225 | 215 | 235 | 245 | 245 | E290S |
| 10 | 300 | 300 | 295 | 280 | 225 | 180 | E340S | 240 | 230 | 220 | 225 | 240 | 205 | 200 | 245 | I235A | I220A | 215 | 200 | 240 | 245 | 250 | 265 | 275 |
| 11 | 300 | 300 | 275 | 280 | 240 | 210 | E270S | 215 | 195H | 215 | 225 | 240 | 245 | 255 | I245A | 230 | 225H | 200H | 200 | 255 | 225 | 240 | 295 | 260 |
| 12 | 265 | 260 | 250 | 280 | 250 | 220 | 235 | 220 | 230 | 225 | 225 | 200 | 210 | 175 | I225A | 240 | 225 | 215 | 205 | 220 | 210 | 220 | E280S | 295 |
| 13 | 290 | 250 | 260 | 225 | 250 | 280 | 250 | 215 | 205H | 195 | 250 | 195H | 225 | 180H | 185 | 215 | 220 | 215 | 225 | 205 | 225 | E250S | 250 | E260S |
| 14 | 275 | 265 | 250 | 240 | 245 | 200 | E300S | 235 | 225 | 230 | 225 | 225 | 205H | 205 | 200 | 230 | 225 | 215 | 205 | 240 | 220 | 225 | E230S | E300S |
| 15 | 300 | 300 | 275 | 270 | 255 | 240 | 210 | 210 | 210 | 200H | 205 | 210 | 210 | 240 | 245 | 250 | I235A | 210 | 205 | 195 | 245 | 265 | 240 | 250 |
| 16 | 265 | 255 | 275 | 295 | 250 | 260 | 190 | 190H | 215 | 225H | 230 | 250 | 240 | 240 | 235 | 240 | C | C | C | C | C | 255 | 250 | 250 |
| 17 | 270 | C | C | C | C | C | 220 | 205 | 210H | 210 | 210 | 220 | 200 | A | 250 | I245A | 230 | 190H | 210 | E275A | I260A | 240 | 240 | 265 |
| 18 | 300 | 280 | 250 | 230 | 245 | 240 | E260S | 225 | 215H | 225 | A | A | 220 | 210 | 200 | I240A | 220 | 220H | 205 | 220 | E250H | 250 | 280 | 275 |
| 19 | 290 | 255 | I260C | 300 | 245 | 200 | E290A | 225 | 220 | 230 | 225 | I220A | 205H | 200 | I210A | 230 | I225A | 205 | 220 | I260A | 270 | A | E320S | E310A |
| 20 | 330 | 300 | 300 | 300 | 260 | 290 | 290 | 225 | 225H | 225 | 225 | 200 | 230 | 225 | 205 | 210 | 220 | 220 | 215 | 240 | 250 | 280 | 280 | 255 |
| 21 | 290 | E310A | 235 | 215 | 260 | 350F | E250S | 240 | 225 | 230 | 225 | 210 | 230 | 200 | 230 | 230 | 225H | 215 | 255 | 265 | 240 | 250 | E265S | 255 |
| 22 | 300 | 255 | 255 | 215 | 200 | E400S | E300S | 230 | 225 | 230 | 225 | 200 | 195 | 200H | 210 | 210 | 225 | 220 | 210 | 235 | 255 | 250 | 275 | |
| 23 | 270 | 255 | 260 | 250 | 225 | 210 | E255S | 220 | 220 | 245 | 235 | 245 | 225H | 210 | I255A | 230 | I220A | 210 | 205 | 240 | 250 | 250 | 275 | 300 |
| 24 | 300 | 275 | 300 | 295 | 250 | 205 | 275 | 210 | 215H | 210H | 200H | 215 | 230 | 220 | 220H | 205 | 220 | 210 | 200 | 210H | 225 | 240 | 275 | 260 |
| 25 | 280 | 295 | 255 | 210 | 220 | E300S | 270 | 230 | 220 | 220 | 205 | 220 | 190H | 200H | 195 | 230 | 175 | 215 | 205 | 270 | 210 | 250 | 245 | E270S |
| 26 | 310 | 300 | 300 | 255 | 245 | 195 | E350S | 225 | 225 | 230 | 240 | 195H | I235A | 220 | 200 | 230 | 220 | 210 | 225 | 210 | 200 | E260S | 290 | E290S |
| 27 | 305 | 310 | 300 | 280 | 270 | 225 | 205 | 210 | 220 | 220 | I230A | 225 | 215H | I245A | 245 | I220A | 220H | 230 | 220 | I225A | I240A | I230A | 245 | E300S |
| 28 | 290 | 290 | 300 | 245 | 215 | 270 | 280 | 230 | 220 | 230H | I240A | E250A | A | A | A | 215 | 215 | 220 | 215 | 205 | 210 | 245 | E300S | 290 |
| 29 | 300 | I310S | 300 | 275 | 240 | 195 | I245S | 215 | 195H | 240 | I245A | 230 | A | A | 230 | I225A | 230 | 205 | 205 | 225 | 220 | 270 | 270 | 275 |
| 30 | 300 | 300 | 255 | 240 | 235 | 200 | E270S | 225 | 240 | 240 | 230 | 225 | 200 | 200 | 190H | 240 | 215 | 200 | E275A | 260 | 250 | 260 | 260 | 290 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 29 | 29 | 29 | 29 | 29 | 29 | 30 | 30 | 30 | 29 | 29 | 28 | 27 | 29 | 28 | 27 | 28 | 28 | 28 | 29 | 29 | 30 | 28 |
| Median | 290 | 280 | 260 | 270 | 245 | 220 | U230 | 225 | 220 | 225 | 225 | 220 | 210 | 205 | 225 | 230 | 225 | 210 | 210 | 230 | 240 | 250 | 255 | 270 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

h'F

The Radio Research Laboratories, Japan

Y 10

# IONOSPHERIC DATA

Nov. 1965 | h'Es | km | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | S | S | B | B | B | S | S | S | 110 | 110 | 150 | 140 | 130 | 120 | 120 | 120 | 115 | 115 | 110 | 110 | 110 | 110 | 105 | 105 |
| 2 | 100 | 100 | 100 | 100 | B | B | S | 150 | 165 | 155 | 150 | 130 | 140 | 130 | 125 | 125 | 125 | 115 | 115 | S | 105 | S | 100 | 110 |
| 3 | 105 | 100 | 100 | 100 | B | 105 | S | 105 | 100 | 100 | 100 | 105 | 105 | 105 | 100 | 110 | 105 | 105 | 105 | S | 105 | 100 | S | 105 |
| 4 | 100 | 100 | 100 | 100 | 105 | 100 | 105 | 100 | 100 | 100 | 125 | 130 | G | G | 155 | 150 | 120 | 115 | 110 | S | S | S | 100 | 105 |
| 5 | 105 | S | S | 100 | B | S | S | G | G | 175 | 130 | G | 130 | 130 | G | 120 | 110 | 105 | 100 | 100 | 100 | 100 | 100 | 100 |
| 6 | 100 | 095 | B | B | B | S | S | 105 | 110 | 110 | 105 | 105 | 100 | G | 100 | 135 | G | 100 | S | 095 | S | 105 | 100 | 100 |
| 7 | 105 | 100 | 105 | B | B | B | S | S | 170 | 100 | 105 | G | 100 | 100 | 100 | 100 | 100 | 140 | S | S | S | S | 105 | 100 |
| 8 | S | 100 | 100 | B | E | S | S | S | 120 | 110 | 100 | 110 | 110 | G | C | 110 | 110 | S | 115 | 110 | S | 100 | 100 | 100 |
| 9 | 100 | S | S | B | B | S | S | 100 | 110 | 105 | 105 | 140 | 100 | 100 | 100 | 105 | 105 | S | 100 | 100 | 100 | 100 | S | S |
| 10 | S | S | B | B | B | S | S | 150 | 115 | 110 | 115 | 150 | 105 | 150 | 130 | 125 | 120 | 115 | S | S | 100 | 100 | 100 | S |
| 11 | S | 100 | 100 | 105 | 100 | S | S | S | 100 | 125 | 105 | 100 | 100 | 150 | 125 | 130 | 125 | S | S | S | 110 | 100 | 105 | 105 |
| 12 | S | S | B | B | E | S | S | 170 | 150 | 140 | 135 | 100 | G | 115 | 110 | 110 | 160 | 105 | S | S | S | S | S | S |
| 13 | S | S | B | E | E | S | S | 105 | 145 | 105 | 105 | G | 100 | 100 | 100 | 100 | 145 | 130 | 130 | S | S | S | S | S |
| 14 | S | 105 | 105 | 105 | B | B | S | S | 120 | G | 105 | 130 | 125 | 125 | 125 | 125 | G | S | S | S | S | S | S | S |
| 15 | S | S | B | B | B | S | 105 | 105 | 150 | 155 | 145 | 140 | 130 | 125 | 145 | 135 | 115 | 110 | 110 | S | S | S | S | S |
| 16 | S | S | 100 | 100 | B | 105 | S | 100 | 155 | 150 | 145 | 100 | 145 | 150 | 145 | 125 | C | C | C | C | C | 105 | S | S |
| 17 | S | C | C | C | C | C | 100 | 105 | 145 | 105 | G | 145 | 130 | 125 | 125 | 140 | 120 | 110 | 100 | 100 | 130 | 100 | 100 | 100 |
| 18 | S | S | B | B | B | 105 | 100 | 100 | 100 | 100 | 100 | 120 | 125 | 120 | 115 | 110 | 110 | 105 | 105 | S | 105 | 105 | S | S |
| 19 | 100 | 100 | C | 100 | 100 | 100 | 100 | 100 | 175 | G | 125 | 120 | 110 | 110 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 110 |
| 20 | 110 | S | 100 | B | 115 | 105 | 100 | 105 | G | 105 | 100 | 105 | E160G | 150 | G | 105 | 120 | 170 | 145 | 125 | S | S | 105 | S |
| 21 | 105 | 100 | B | E | B | S | 105 | 145 | 140 | 150 | 105 | 145 | 105 | 125 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | S |
| 22 | S | 105 | 100 | 105 | 105 | 115 | 110 | G | G | 155 | 140 | 120 | 120 | 120 | 100 | 120 | G | S | 100 | S | S | S | S | S |
| 23 | S | 105 | 110 | 105 | 105 | 100 | 100 | 100 | 115 | 160 | 150 | 150 | 145 | 155 | 135 | 110 | 105 | 105 | 145 | 100 | 100 | 100 | 115 | S |
| 24 | S | B | B | 105 | 105 | 105 | 100 | 100 | G | 110 | 135 | 120 | 120 | 120 | 120 | 115 | 105 | S | S | S | 120 | 100 | 100 | S |
| 25 | S | S | B | B | B | S | S | S | G | 115 | 110 | 105 | 105 | 100 | 100 | G | G | S | S | S | S | 115 | S | S |
| 26 | S | S | B | B | B | B | S | S | 100 | G | G | 150 | 140 | 125 | 115 | 115 | 105 | 105 | 100 | S | 100 | S | S | S |
| 27 | S | S | B | B | 110 | S | S | S | G | G | 130 | 130 | 130 | 120 | 105 | 120 | 145 | 130 | S | 125 | 120 | 100 | 100 | 100 |
| 28 | S | S | B | E | B | B | S | S | 155 | 155 | 145 | 140 | 125 | 125 | 115 | 115 | 120 | 100 | 140 | S | S | 105 | 100 | S |
| 29 | S | S | S | B | B | S | 110 | S | 150 | 155 | 145 | 150 | 125 | 105 | 130 | 125 | 160 | S | 100 | 120 | 110 | 105 | 110 | S |
| 30 | 100 | 105 | 100 | B | S | S | S | S | 140 | 125 | 115 | 115 | 115 | 100 | 100 | 100 | 145 | 130 | 100 | 100 | 100 | 115 | S | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 11 | 13 | 12 | 11 | 8 | 9 | 11 | 17 | 24 | 26 | 28 | 27 | 28 | 27 | 27 | 29 | 25 | 21 | 20 | 13 | 17 | 20 | 18 | 12 |
| Median | 100 | 100 | 100 | 100 | 105 | 105 | 100 | 105 | 130 | 110 | 120 | 130 | 120 | 120 | 115 | 115 | 115 | 110 | 105 | 100 | 105 | 100 | 100 | 100 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'Es

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 11

# IONOSPHERIC DATA

Nov. 1965 | Types of Es | 135° E Mean Time (G. M. T. +9h) | Yamagawa | Lat. 31° 12.1'N | Long. 130° 37.1'E

| Day | 00 | 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 | | | | | | | | 15 | 1 | h 1 | h 1 | h 1 | c21 | c 1 | c2 | c2 | c2 | f | f2 | f3 | f2 | f3 | f2 |
| 2 | f2 | f4 | f2 | f2 | | | | h | h | h | h | h 1 | h 1 | h 1 | h | h | h | c2 | f | | f | | f | f2 |
| 3 | f f | f3 | f2 | f | | f | | 1 | 13 | 13 | 12 | 12 | 1 | 1 | 12 | 12 | 14 | 16 | f3 | | f2 | f | | f3 |
| 4 | f3 | f2 | f | f2 | f2 | f | 1 | 12 | 13 | 1 h | h 1 | h | | | h | h 1 | c21 | c3 | f3 | | | | f2 | f2 |
| 5 | f | | | f | | | | | | h | h | | h | h | | 12 | 16 | 17 | f3 | f3 | f4 | f4 | f | f3 |
| 6 | f | f | | | | | | 13 | 12 | 12 | 12 | 12 | 1 | | 1 | h | | 1 | | f | | f2 | f | f2 |
| 7 | f2 | f2 | f | | | | | | h | 1 | 1 | | 1 | 1 | 13 | 12 | 1 | h | | | | | f | f |
| 8 | | f2 | f4 | | | | | | 1 | c | c | 1 | 1 | | | 12 | 12 | | f | f | | f3 | f2 | f2 |
| 9 | f2 | | | | | | | 1 | 1 | 12 | 1 | h 1 | 12 | 12 | 1 | 12 | 1 | | f2 | f4 | f | f | | |
| 10 | | | | | | | h | h2 | 1 h | 12 | 1 | h | 12 | h | h2 | h3 | c2 | c | | | f | f | f | |
| 11 | | f2 | f2 | f | f | | | | 1 | h 12 | 1 | 1 | 1 | h | h2 | h | h | | | | f | f2 | f | f |
| 12 | | | | | | | | h | h2 | h 1 | h 1 | 1 | | 1 | 12 | 1 | h 12 | 12 | f | | | | | |
| 13 | | | | | | | | c | h 1 | 1 | 1 | | 1 | 12 | 12 | 1 | h 1 | c2 | f | | | | | |
| 14 | | f2 | f2 | f2 | | | | 1 | 1 | | 1 | h21 | h | h | c | c | | | | | | | | |
| 15 | | | | | | | 1 | 1 | h | h | h 1 | h 1 | h 1 | c | h | h2 | c3 | c4 | f | | | | | |
| 16 | | | f | f3 | | f | | 1 | h2 | h 1 | h 1 | 1 h | h 12 | h 1 | h | h | | | | | | f | | |
| 17 | | | | | | | 12 | 1 h2 | h | 1 | | h 1 | h21 | c212 | c21 | h c | 1 | 12 | f | f4 | f2f2 | f | f | f |
| 18 | | | | | | f | 12 | 12 | 1 | 13 | 12 | c 1 | c 1 | c 1 | c | c21 | 12 | 1 | f | | f | f | | |
| 19 | f | f | | f2 | f2 | f | 12 | 1 | h | | h | c2 | 1 | 1 | 13 | 12 | 13 | 12 | f2 | f3 | f3 | f4 | f | f2 |
| 20 | f | | f | | f | f | 13 | 1 | | 1 | 12 | 1 | h 1 | h 1 | | 1 | c | h | h | f | | | f | |
| 21 | f2 | f4 | | | | | 1 | h2 | h21 | h | 12 | h 1 | 1 h2 | h 12 | 12 | 12 | 12 | 13 | f2 | f2 | f | f | f2 | |
| 22 | | f2 | f | f2 | f | f | 1 | | | h 1 | h 12 | c 12 | c 1 | c 1 | 12 | c | | | f2 | | | | | |
| 23 | | f2 | f2 | f2 | f | f | 12 | 1 | 12 | h 1 | h | h 1 | h c 1 | h 1 | h2c 1 | 12 | 13 | 12 | f f | f | f | f f | f2 | |
| 24 | | | | f2 | f2 | f | 1 | 1 | | 1 | c 1 | c | c | c | c | c | 1 | | | | f | f | f | |
| 25 | | | | | | | | | | c2 | 12 | 1 | 1 | 1 | 1 | | | | | | | f | | |
| 26 | | | | | | | | | 1 h2 | | | h | h | c | c | c2 | 13 | 13 | f2 | | f | | | |
| 27 | | | | | f | | | | | | h212 | h | h212 | c 1 | 13 | c2 | h212 | h | | f2 | f3 | f | f | f |
| 28 | | | | | | | | | h21 | h 1 | h312 | h212 | h 12 | c212 | c212 | c 1 | c31 | 1 h | h | | | f2 | f | |
| 29 | | | | | | | 1 | | h | h 1 | h31 | h 1 | h21 | 1 h2 | h21 | c31 | h2 | | f | f f | f | f | f2 | |
| 30 | f2 | f2 | f | | | | | | h31 | c3 | c3 | c2 | c | 1 | 1 | 12 | h213 | h212 | f2 | f | f | f | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Types of Es

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

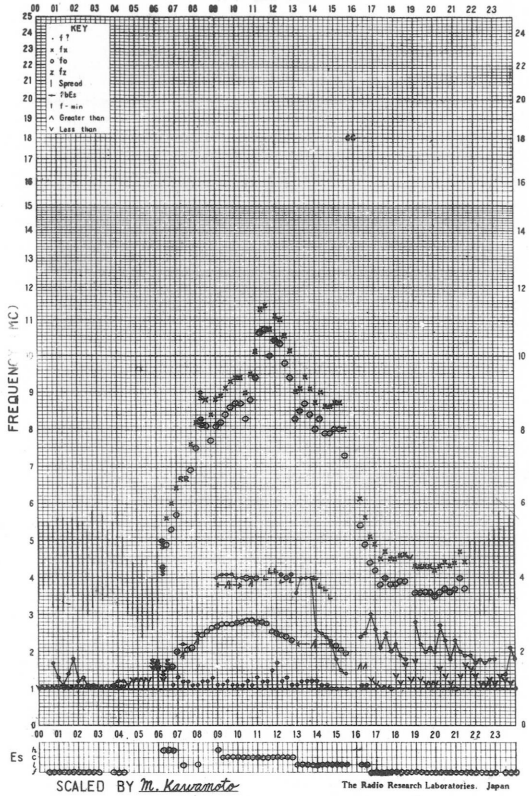
The Radio Research Laboratories, Japan

Y 12

60

f-PLOT OF IONOSPHERIC DATA

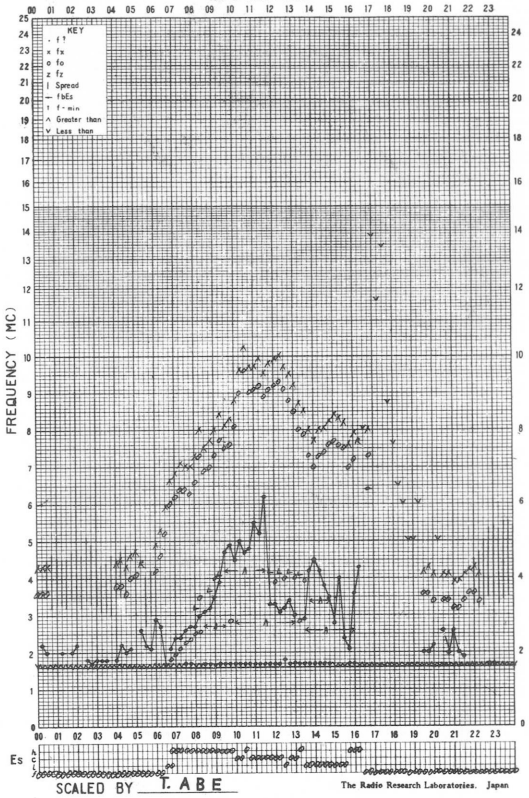
STATION WAKKANAI 135°E MEAN TIME DATE NOV. 1.1965




SCALED BY M. Kawamoto The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Nov. 1. 1965




SCALED BY T. ABE The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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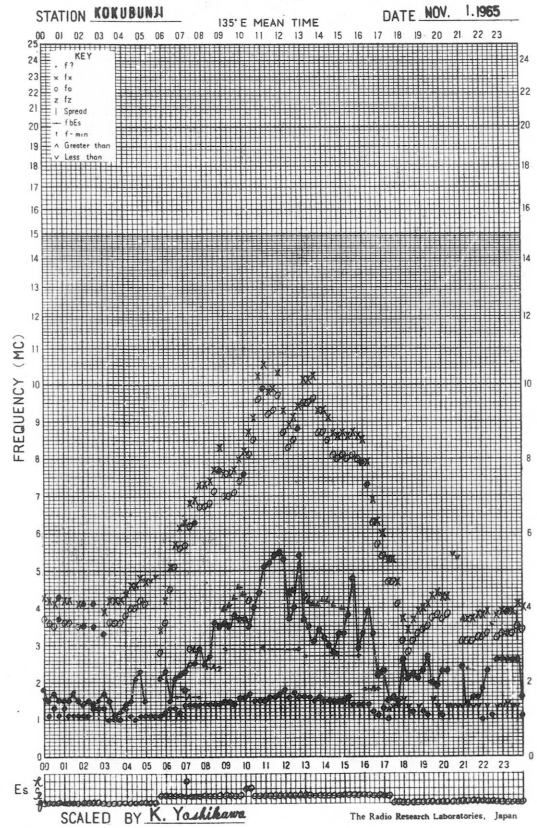


SCALED BY K. Yoshikawa The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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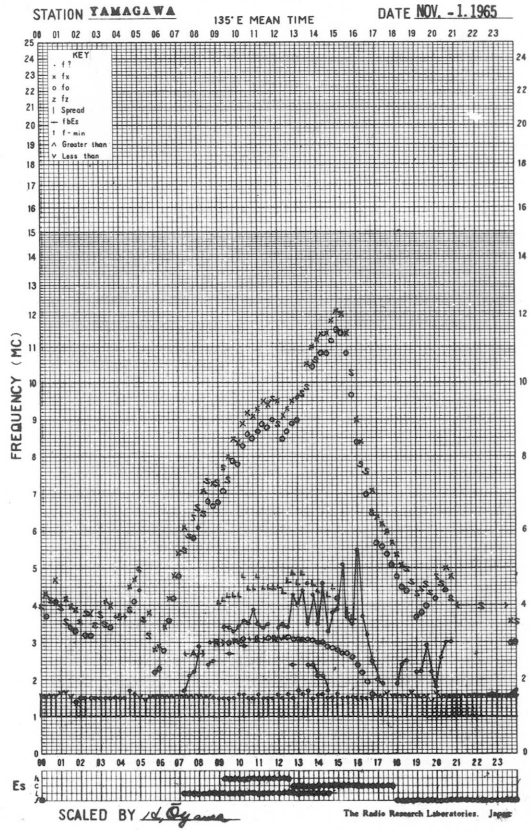


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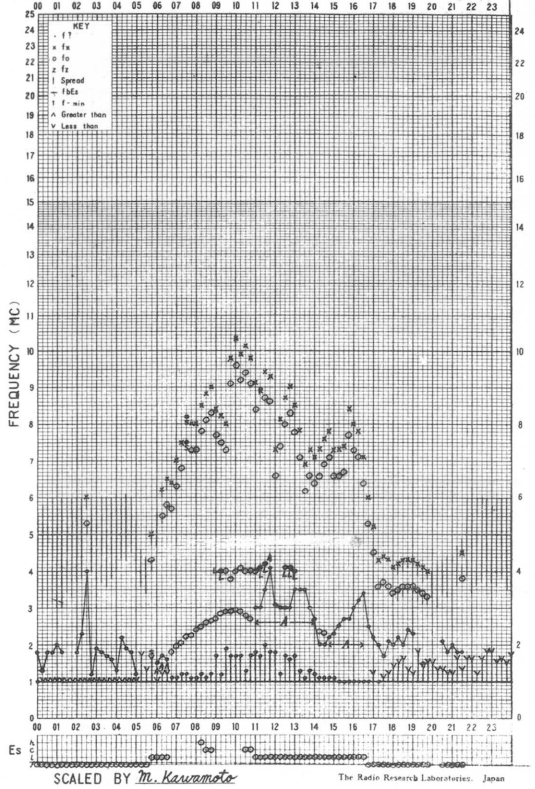
f-PLOT OF IONOSPHERIC DATA

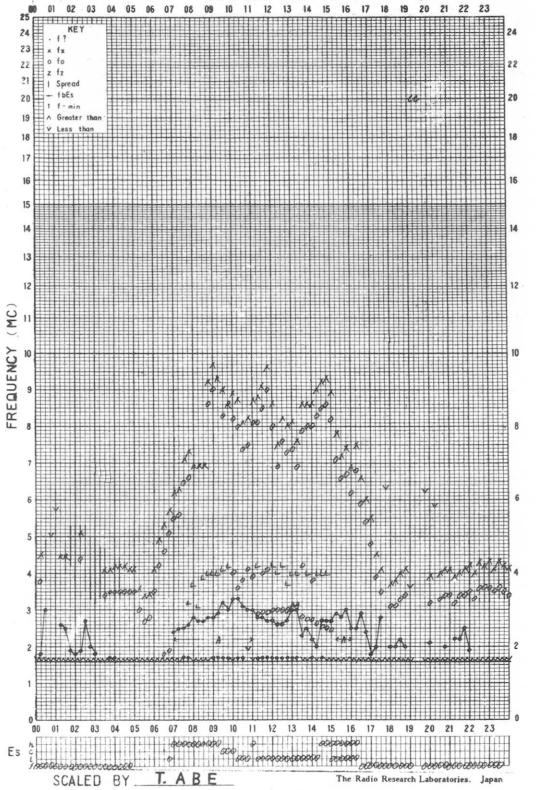
STATION WAKKANAI 135°E MEAN TIME DATE NOV. 2, 1965




SCALED BY M. Kawamoto The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

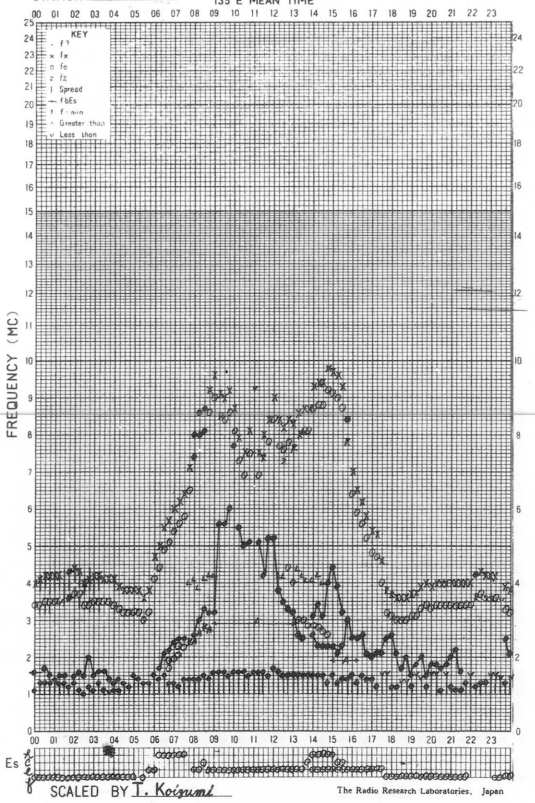
STATION AKITA 135°E MEAN TIME DATE Nov. 2, 1965




SCALED BY T. ABE The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

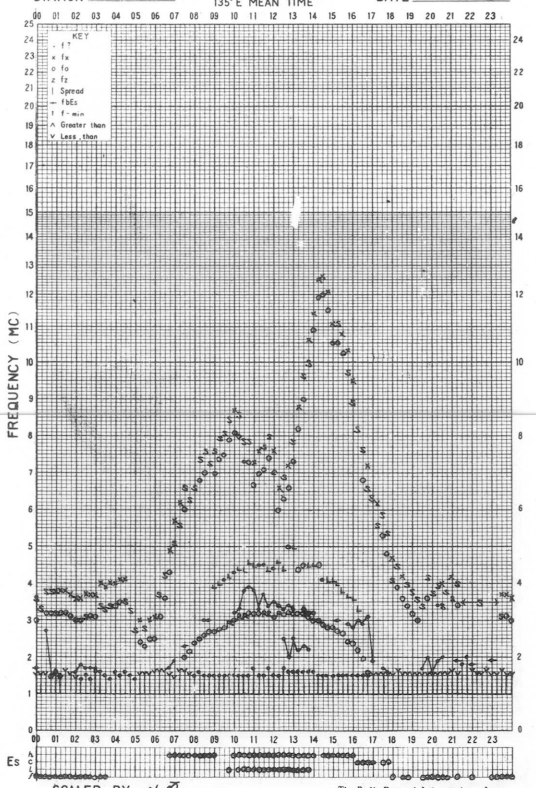
STATION KOKUBUNJI 135°E MEAN TIME DATE NOV. 2 1965




SCALED BY T. Koizumi The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE NOV. -2, 1965




SCALED BY K. Oyama The Radio Research Laboratories, Japan

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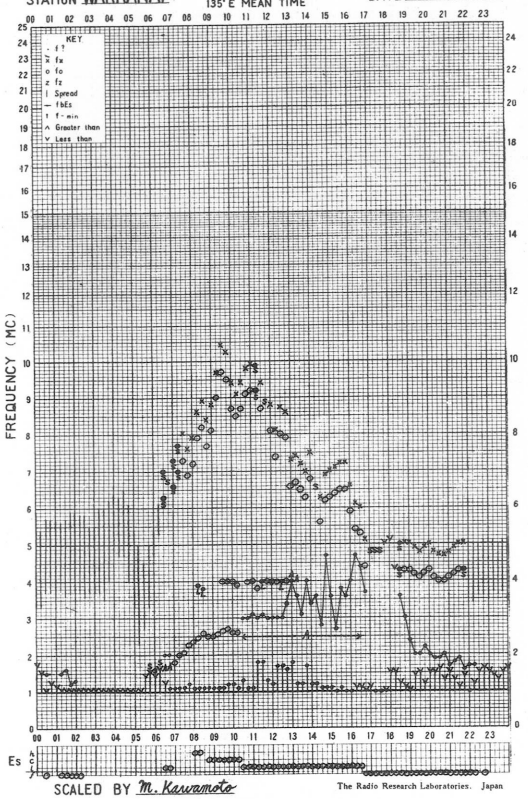


SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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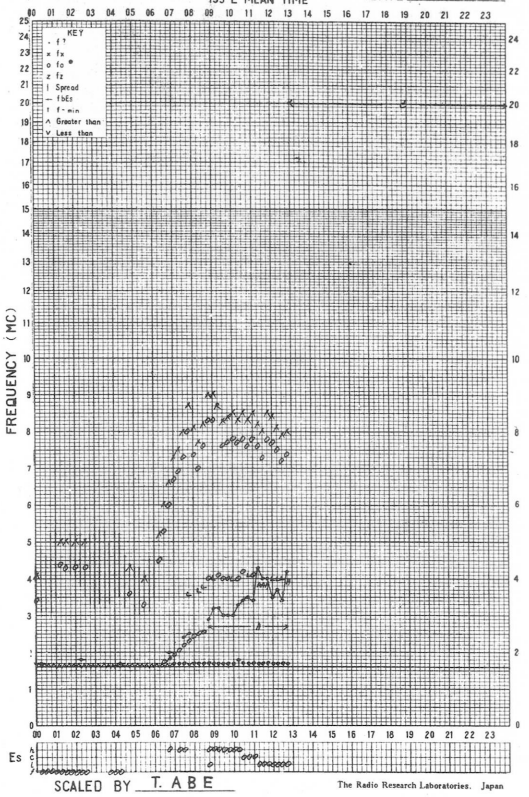


SCALED BY T. ABE The Radio Research Laboratories. Japan

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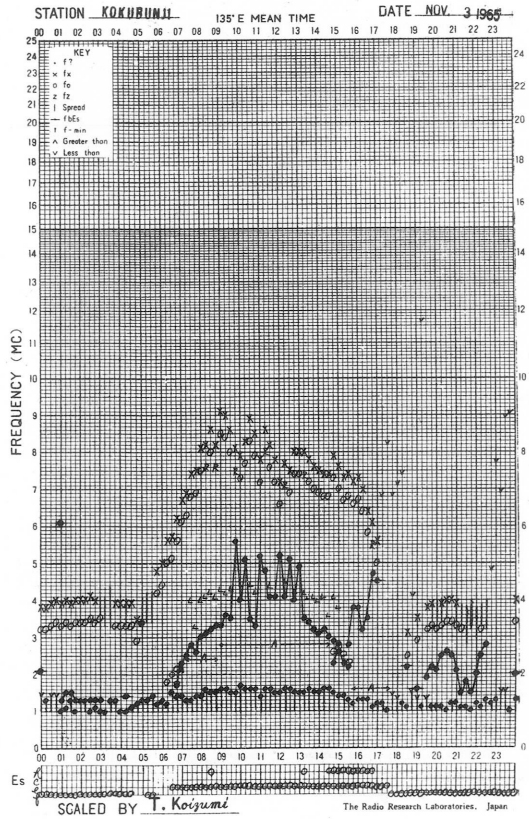


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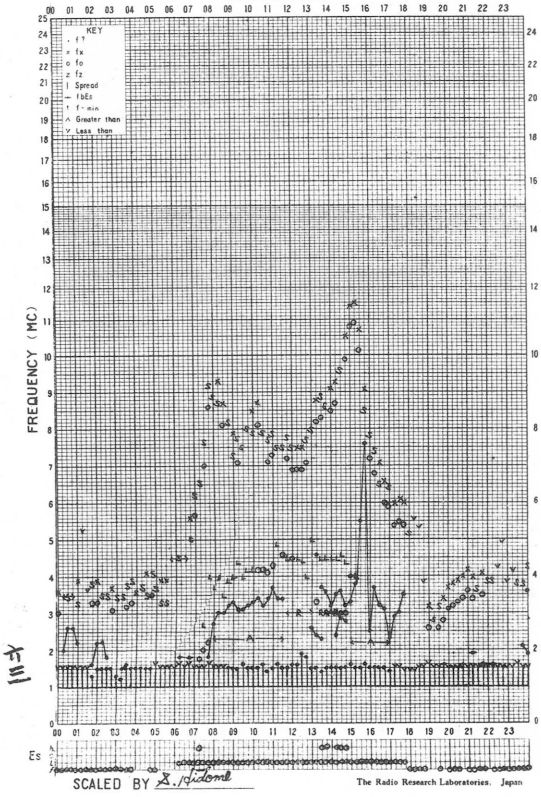


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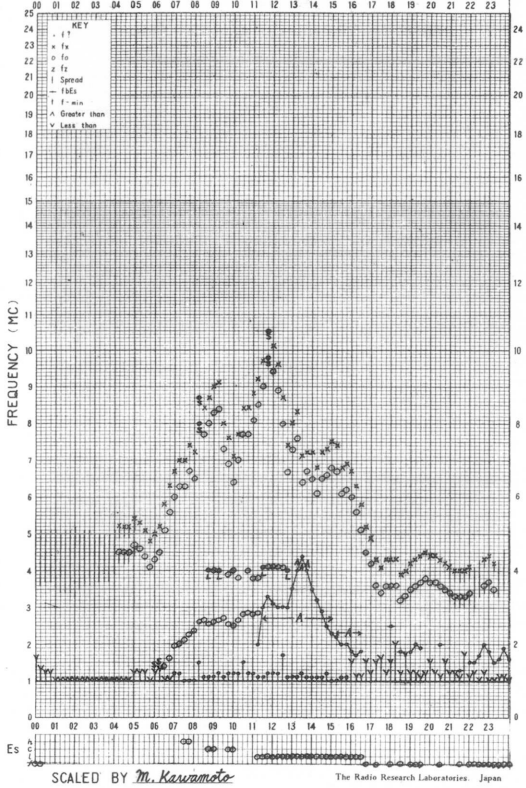


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The Radio Research Laboratories. Japan

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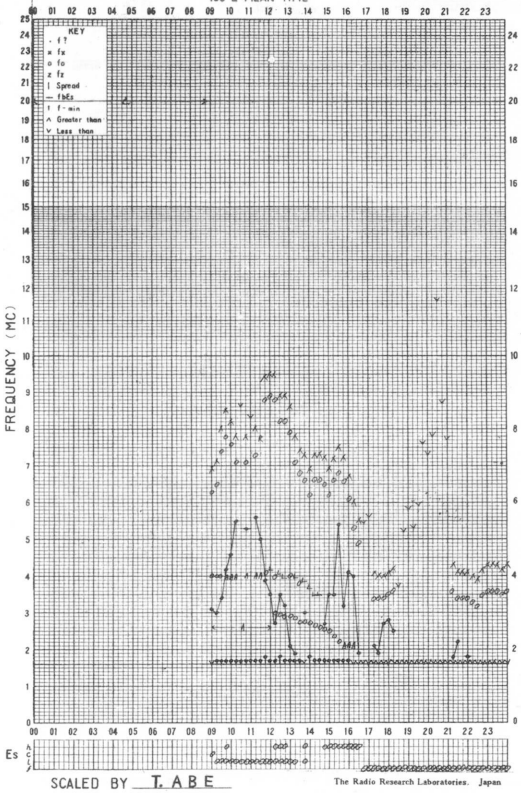


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The Radio Research Laboratories. Japan

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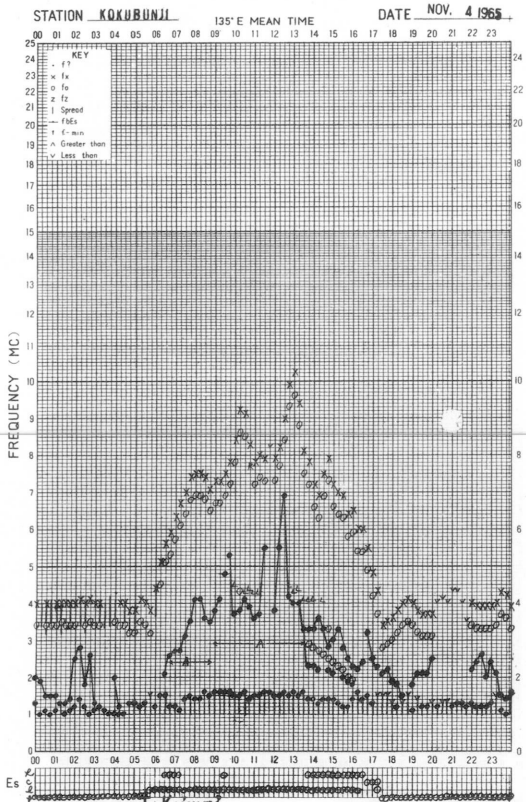


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The Radio Research Laboratories, Japan

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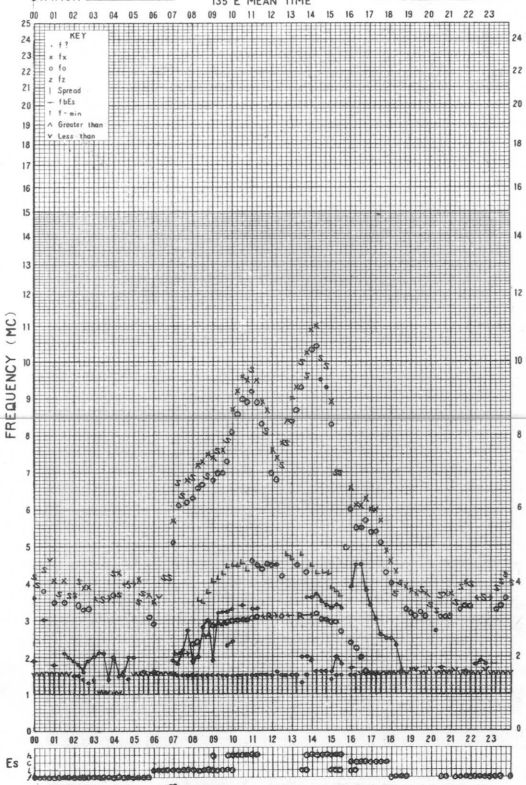


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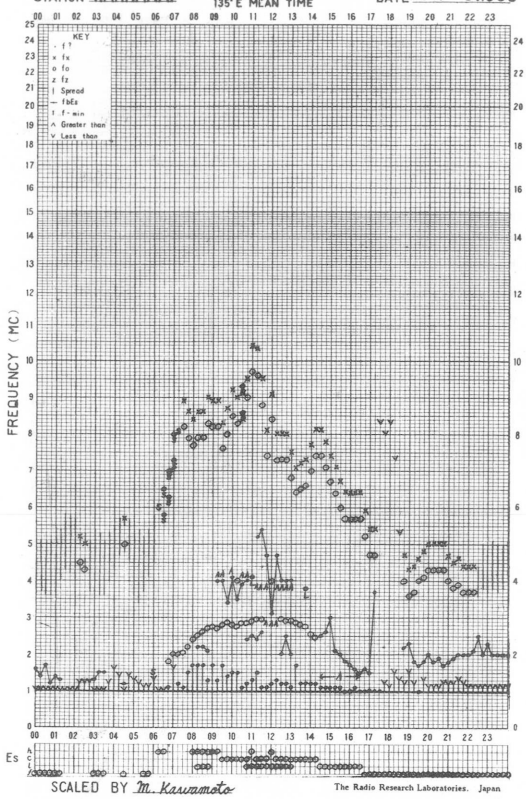


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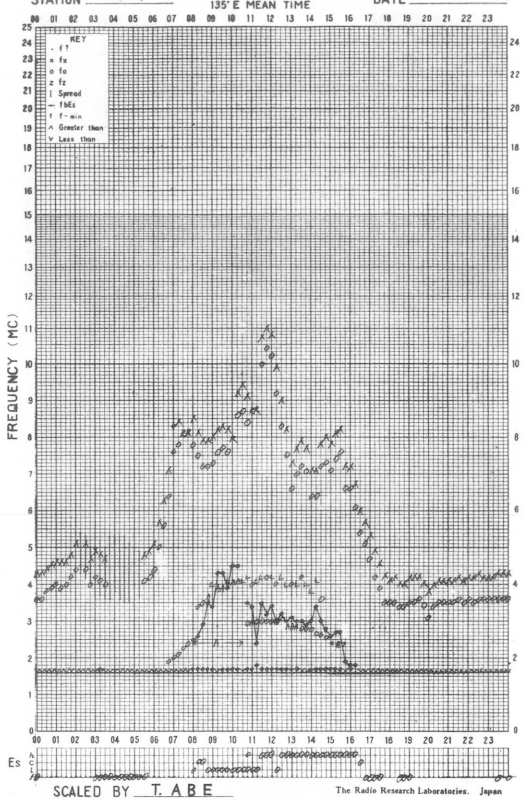


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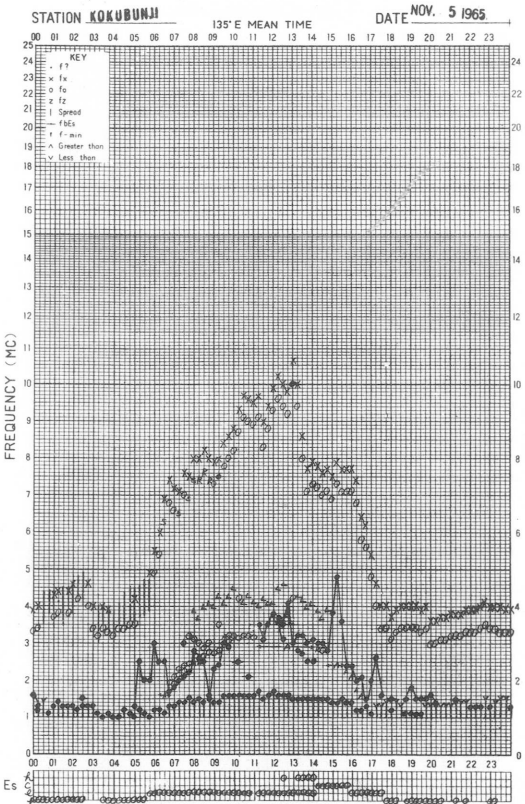


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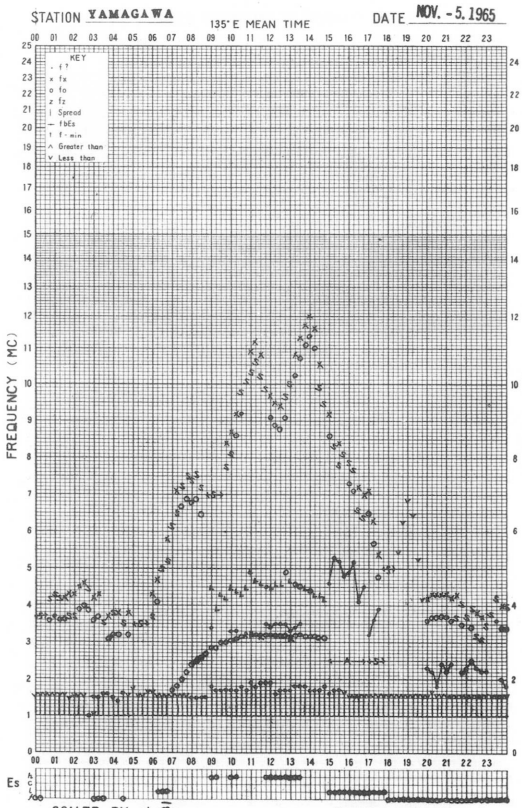


SCALED BY I. Ayama The Radio Research Laboratories. Japan

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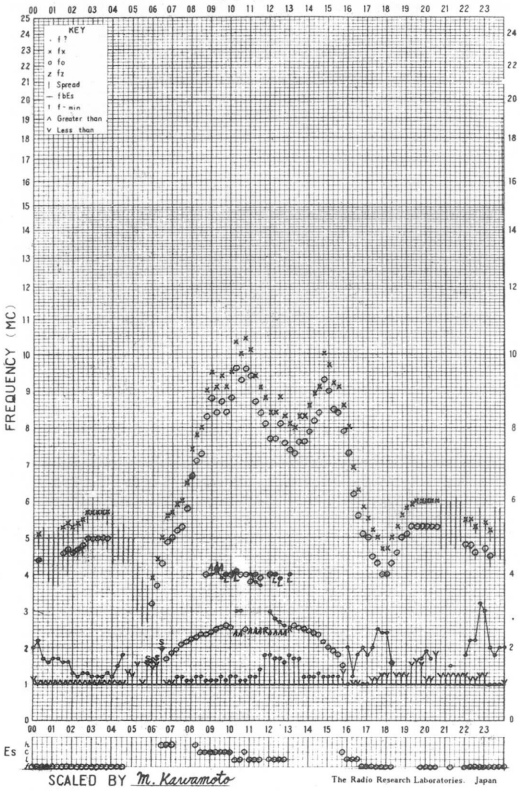


SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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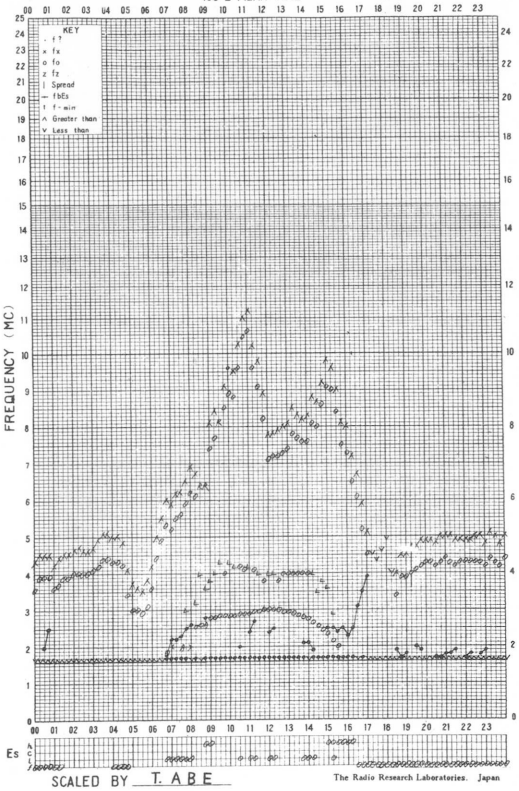


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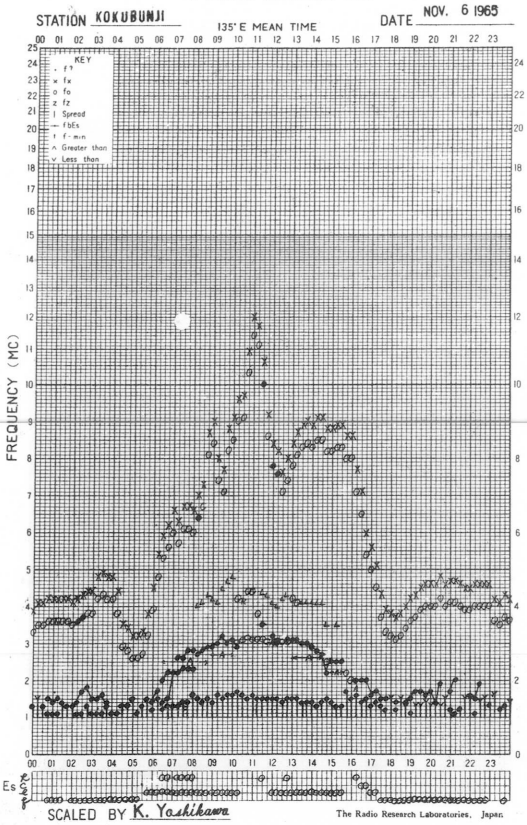


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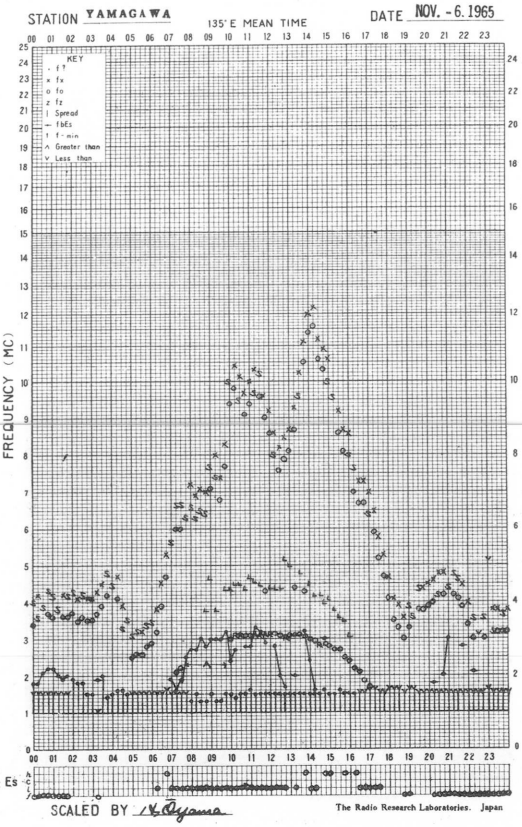


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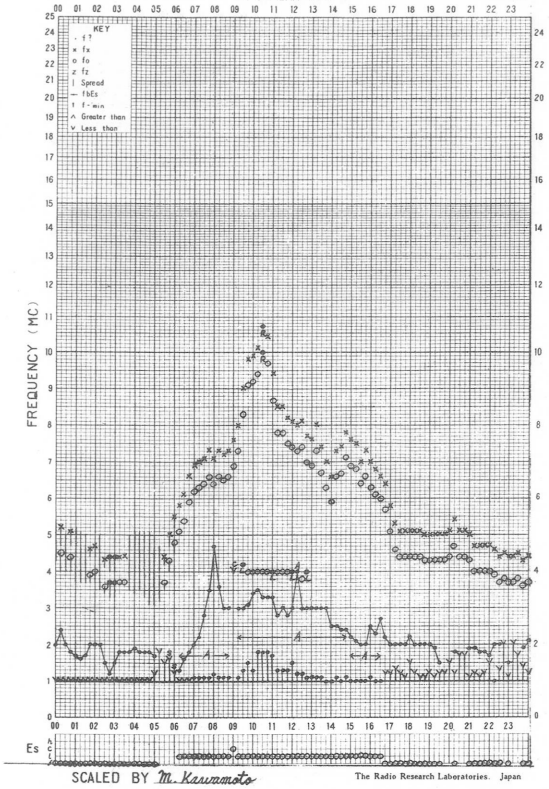


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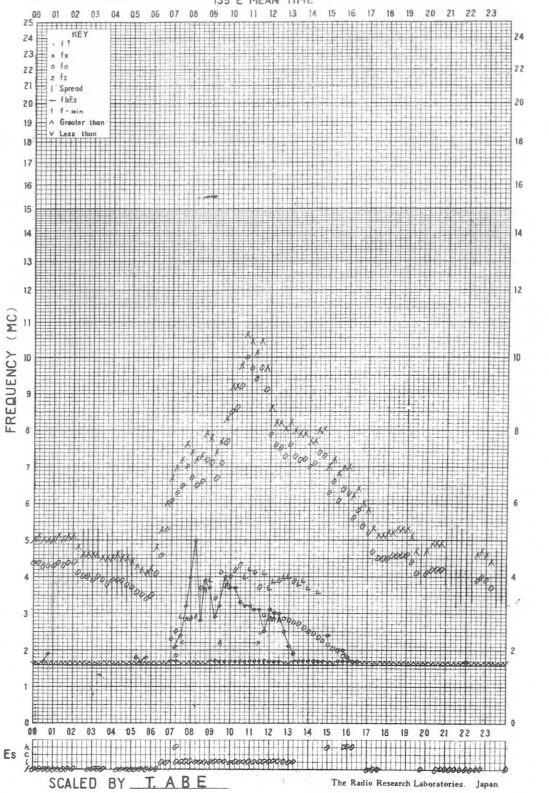


SCALED BY T. ABE The Radio Research Laboratories. Japan

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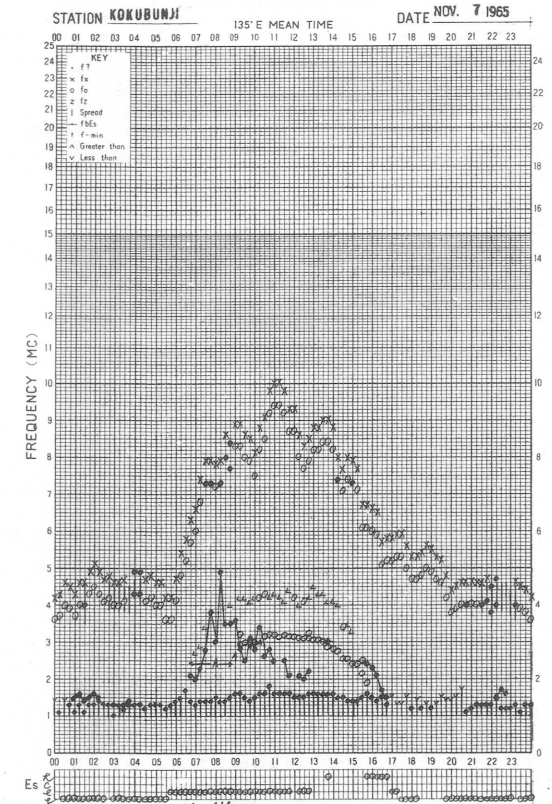


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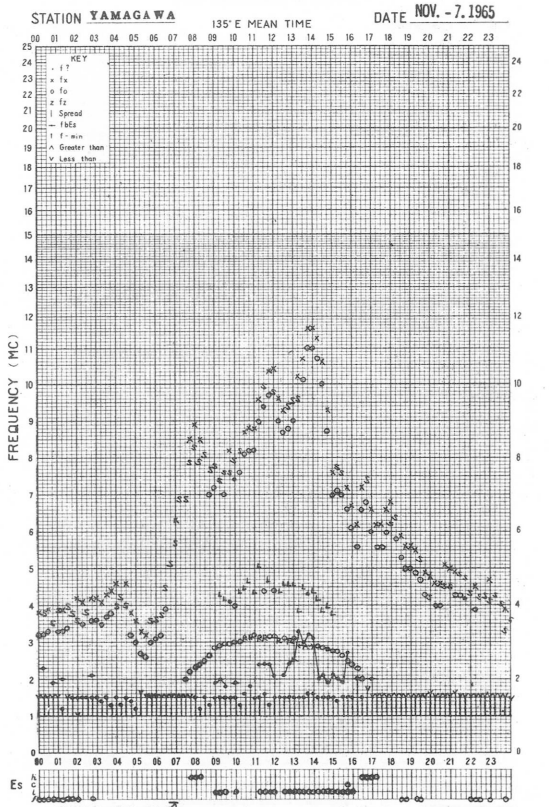


SCALED BY H. Iyama The Radio Research Laboratories. Japan

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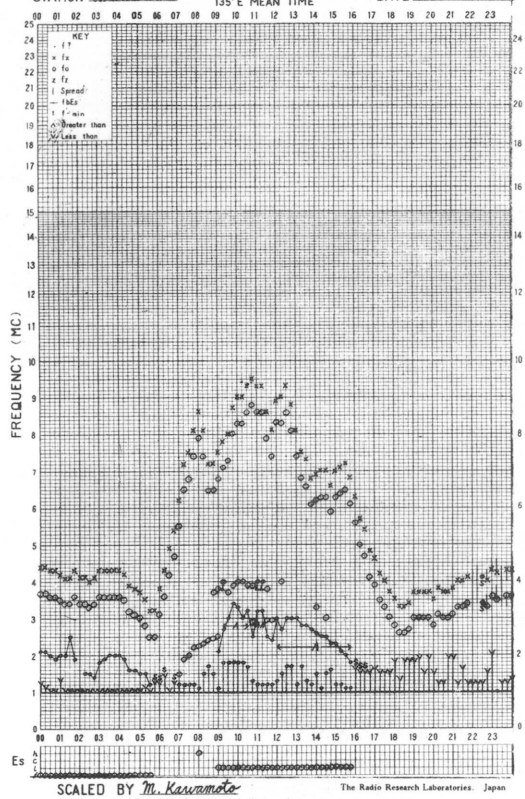


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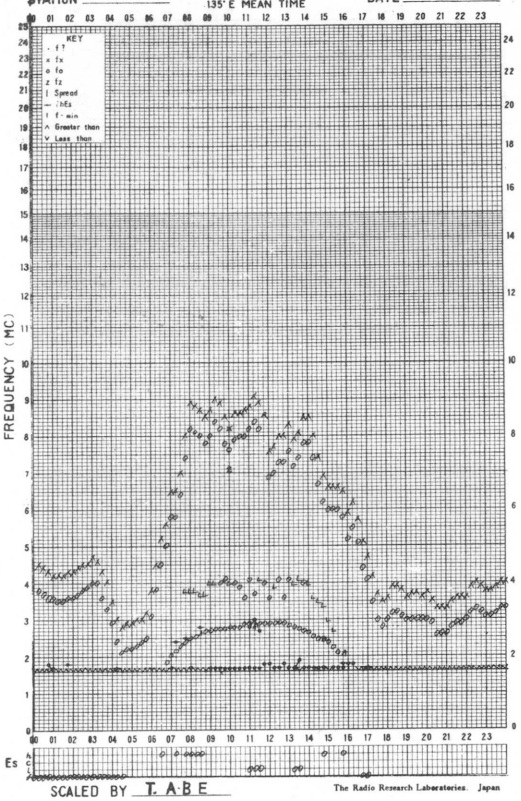


SCALED BY T. A-B E The Radio Research Laboratories. Japan

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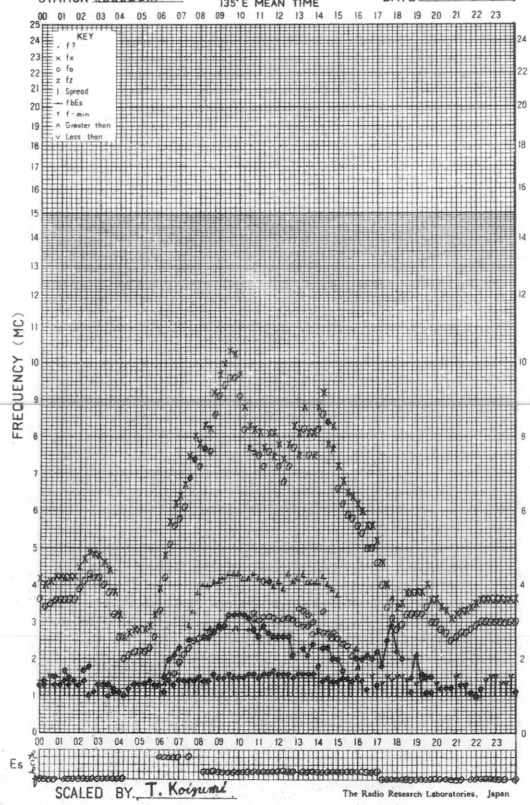


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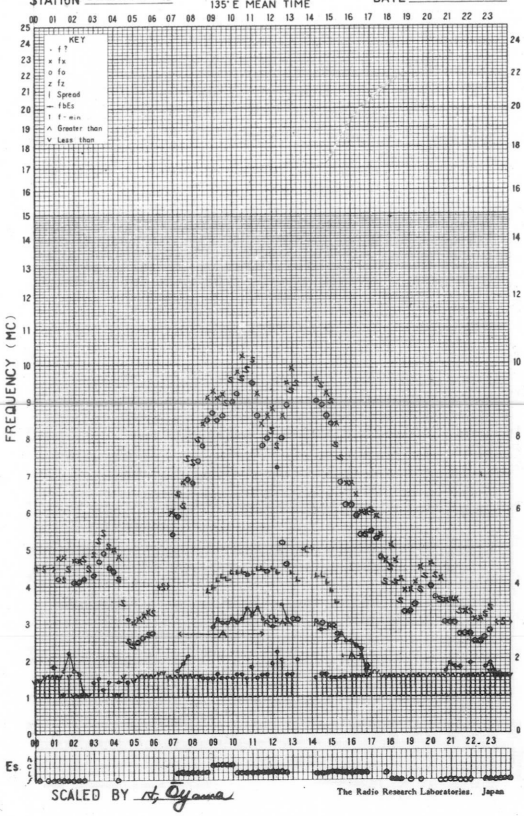


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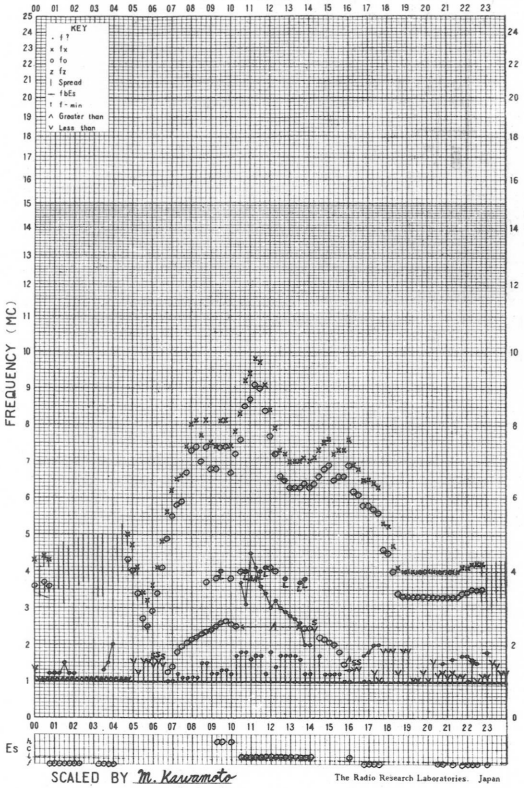


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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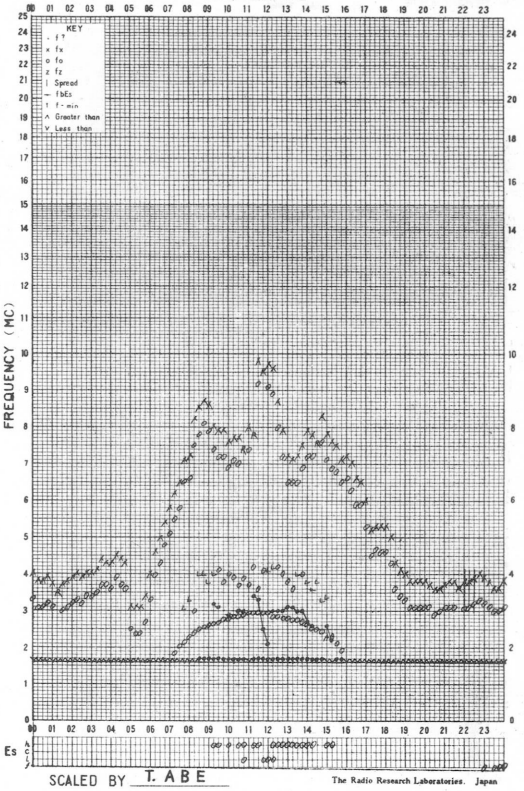


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The Radio Research Laboratories. Japan

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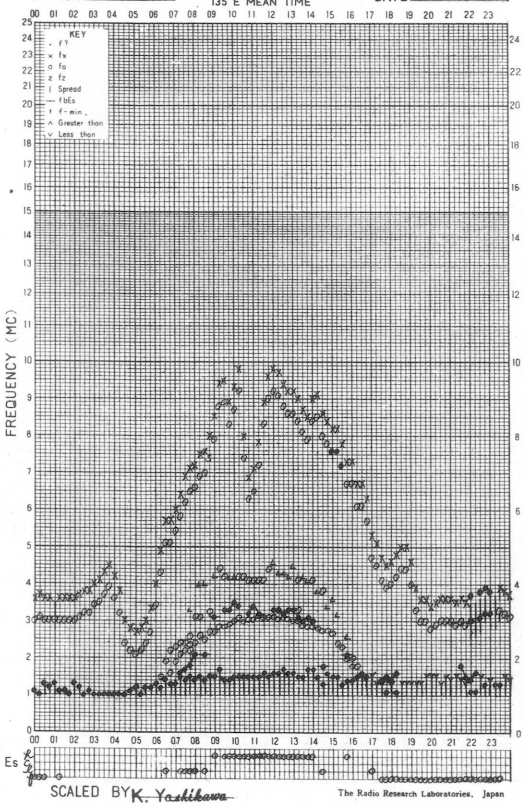


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The Radio Research Laboratories, Japan

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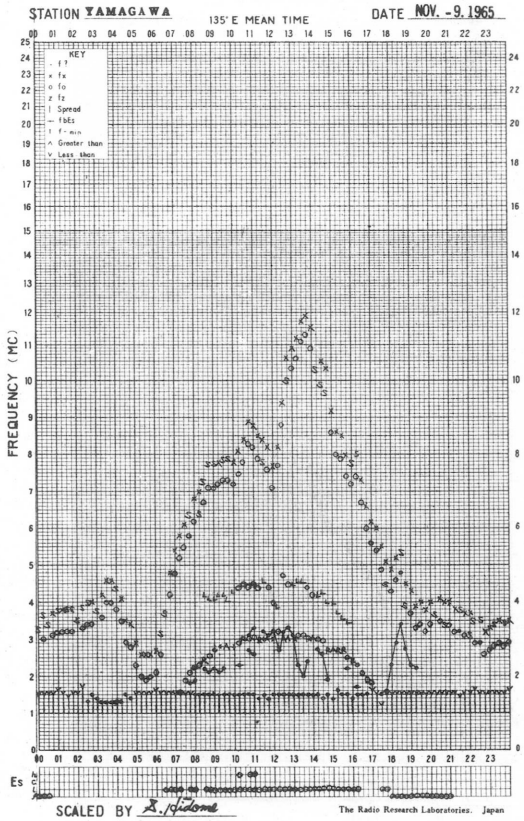


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The Radio Research Laboratories. Japan

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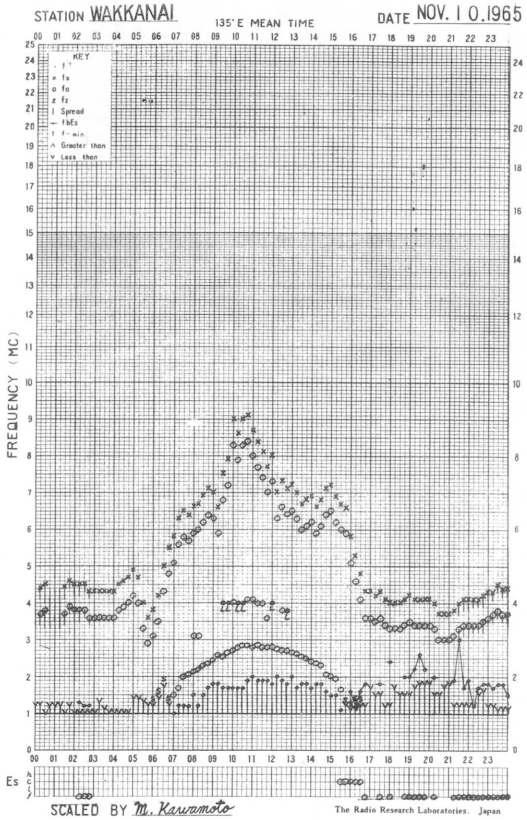


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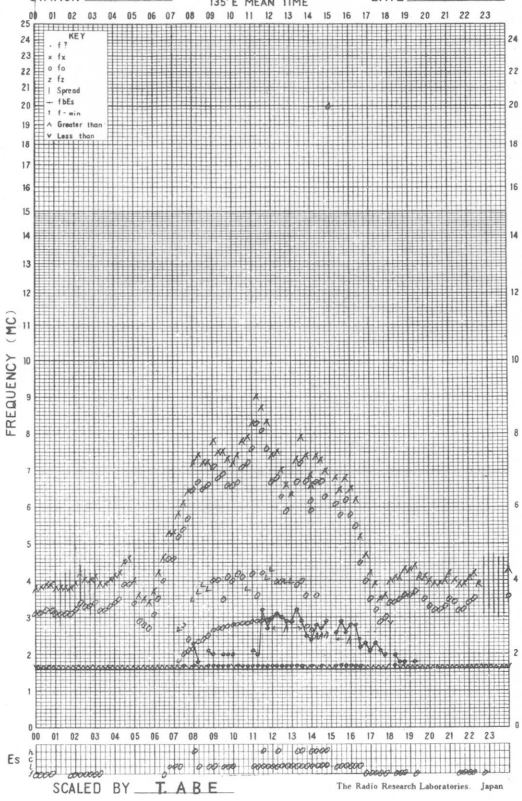


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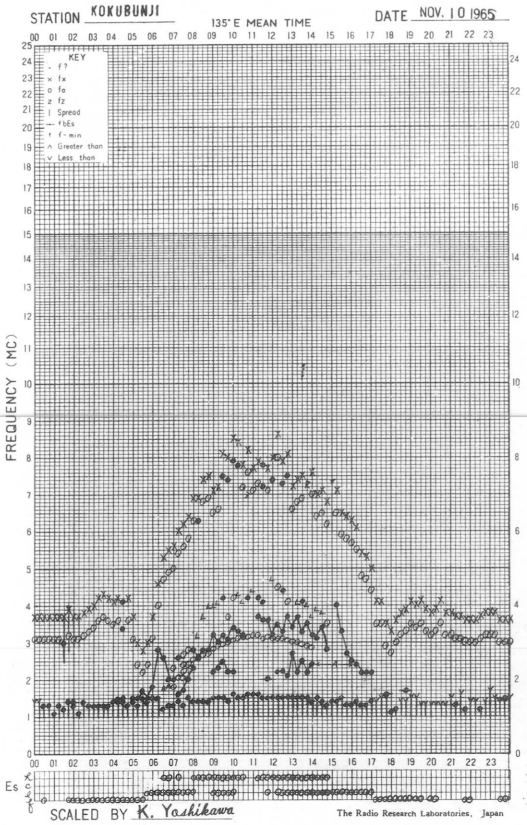


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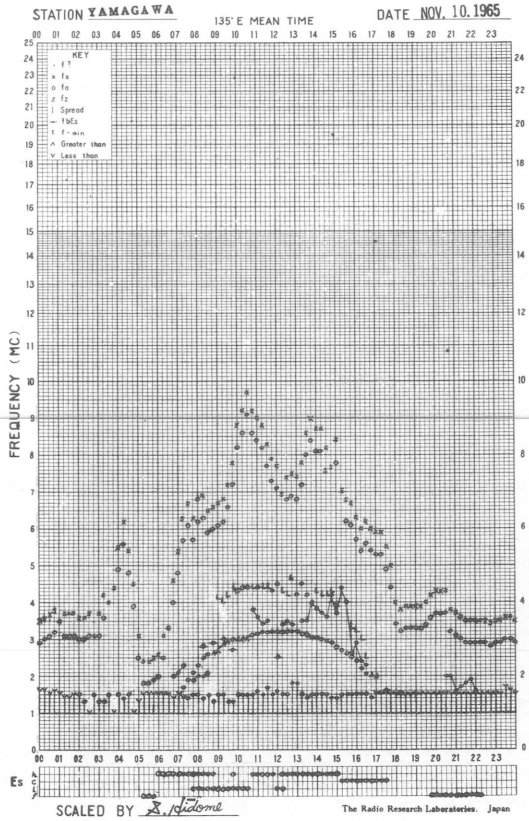


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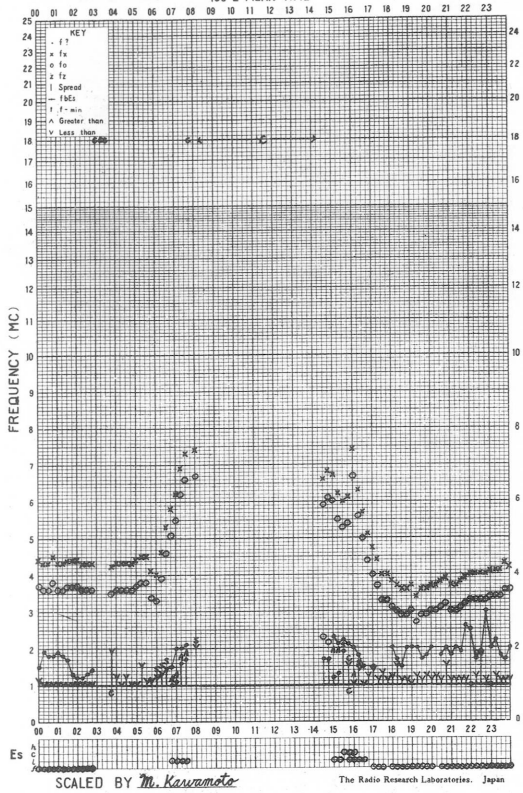


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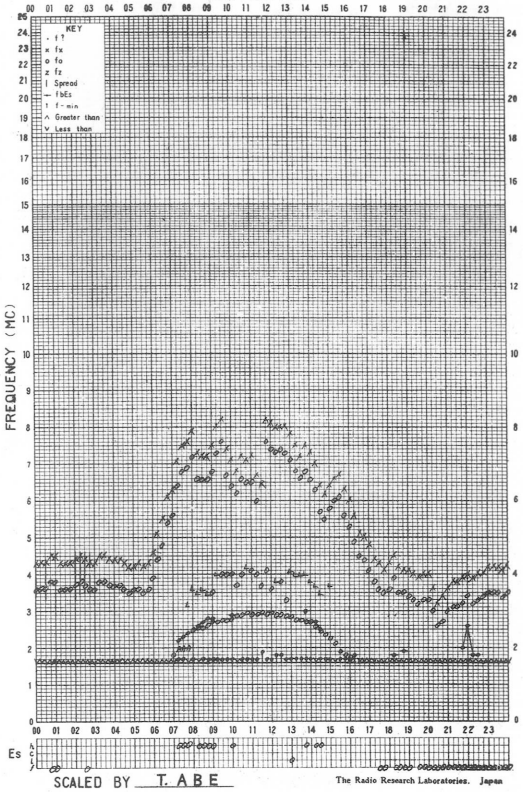


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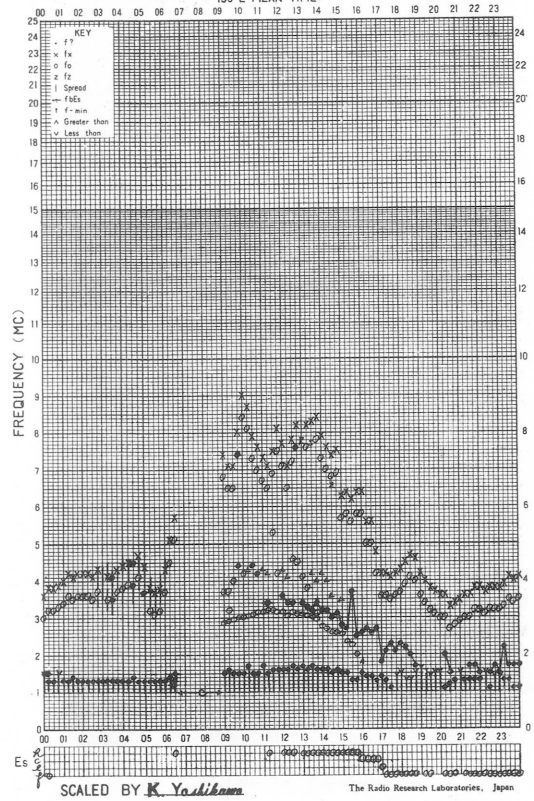


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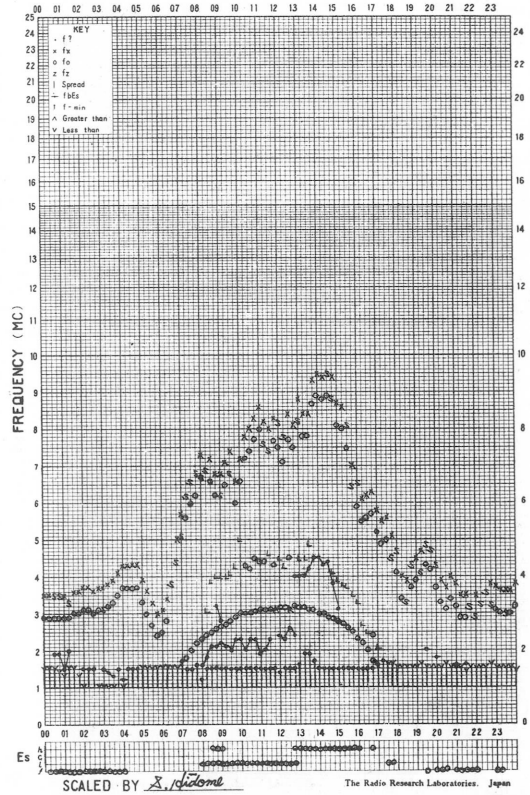


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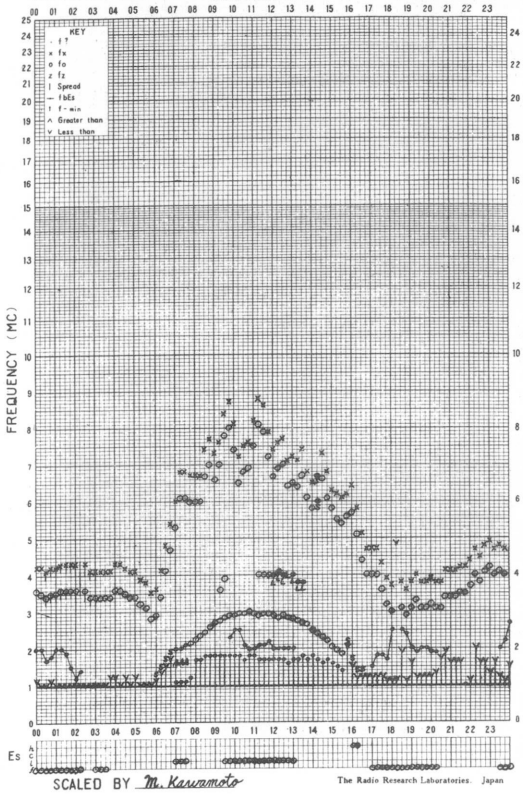


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The Radio Research Laboratories. Japan

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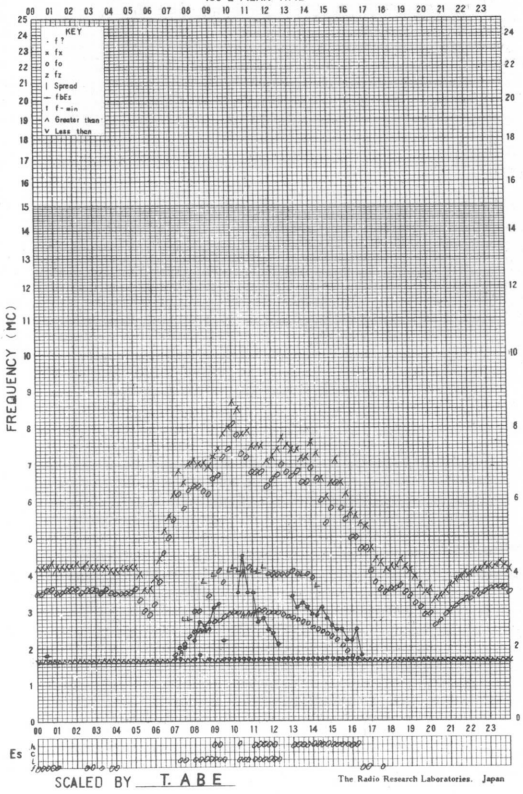


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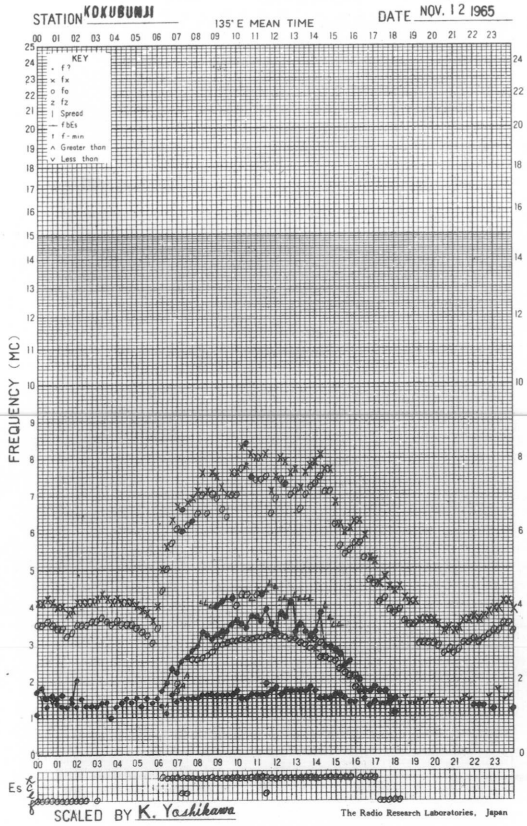


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The Radio Research Laboratories. Japan

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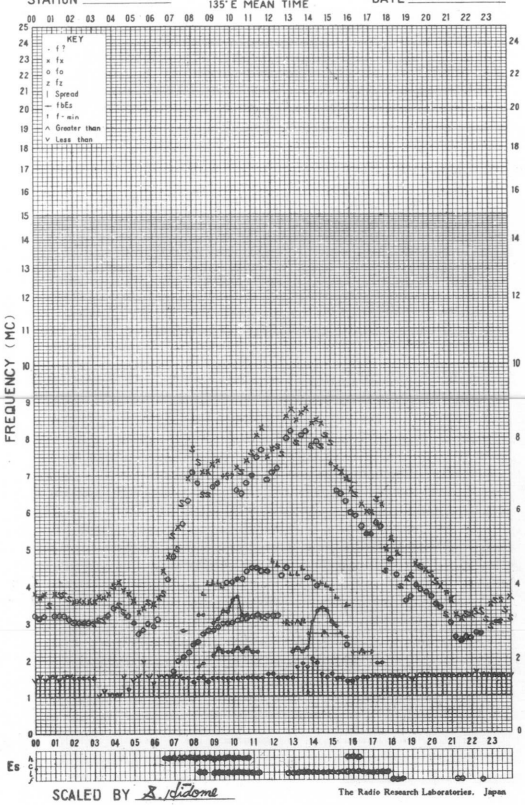


SCALED BY S. Ishome

The Radio Research Laboratories. Japan

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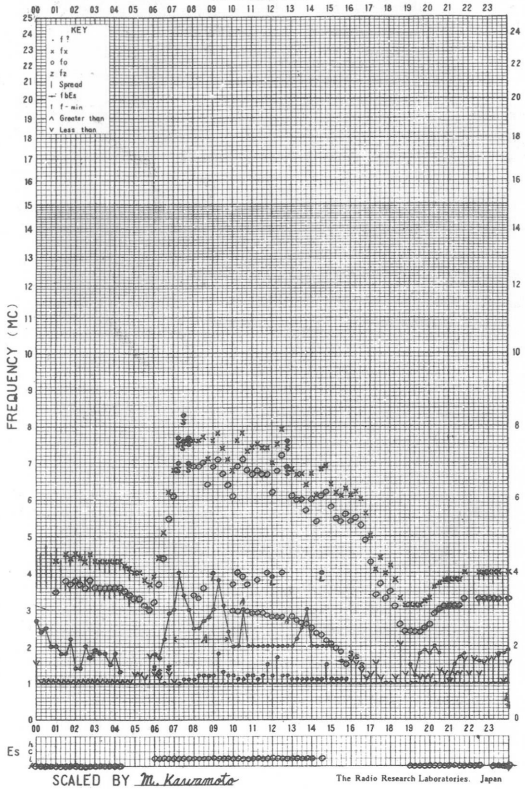


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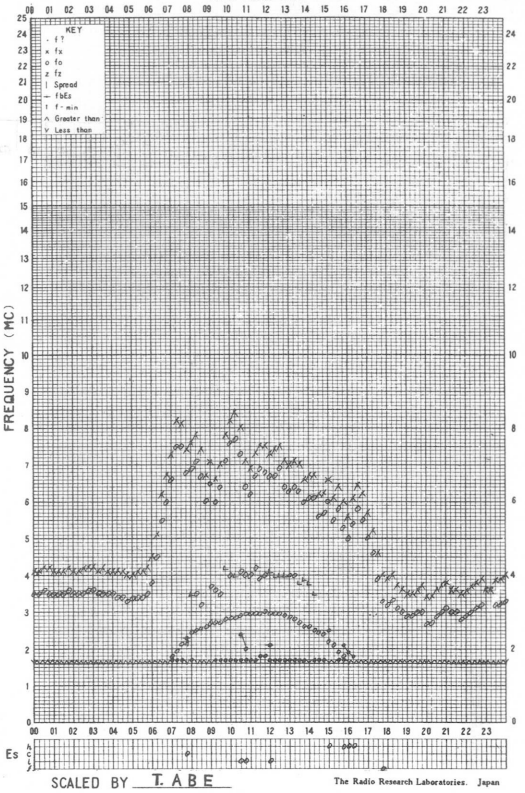


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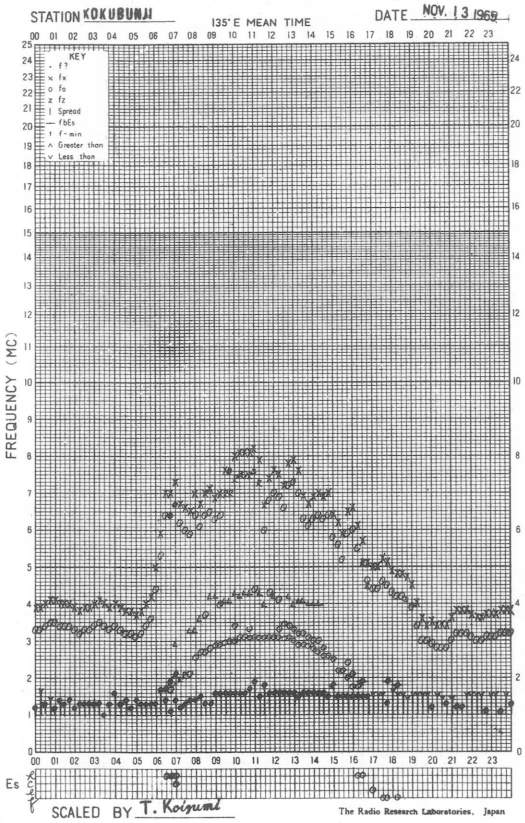


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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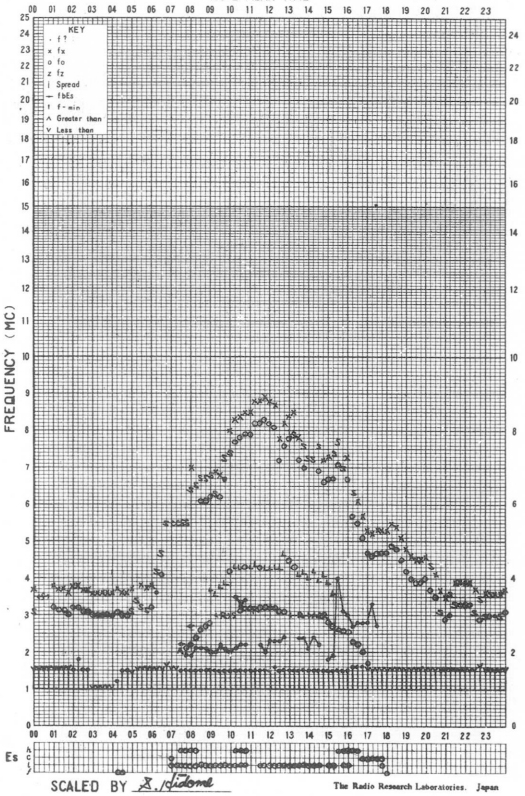


SCALED BY S. Sidomi

The Radio Research Laboratories. Japan

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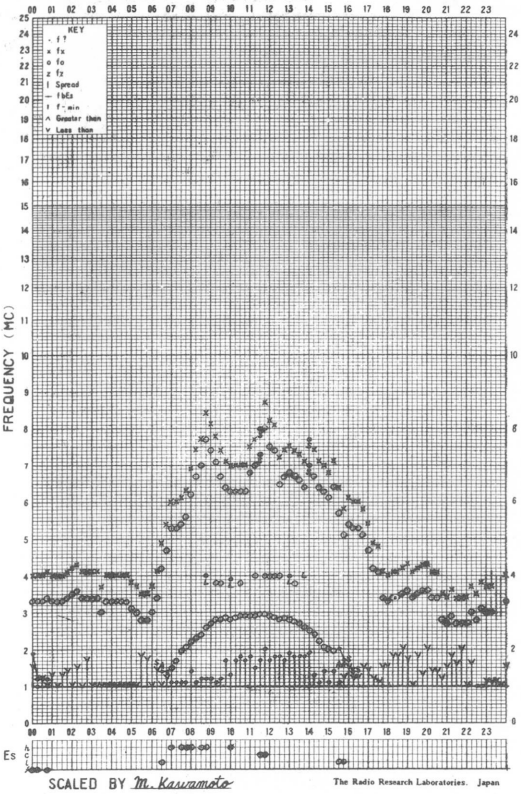


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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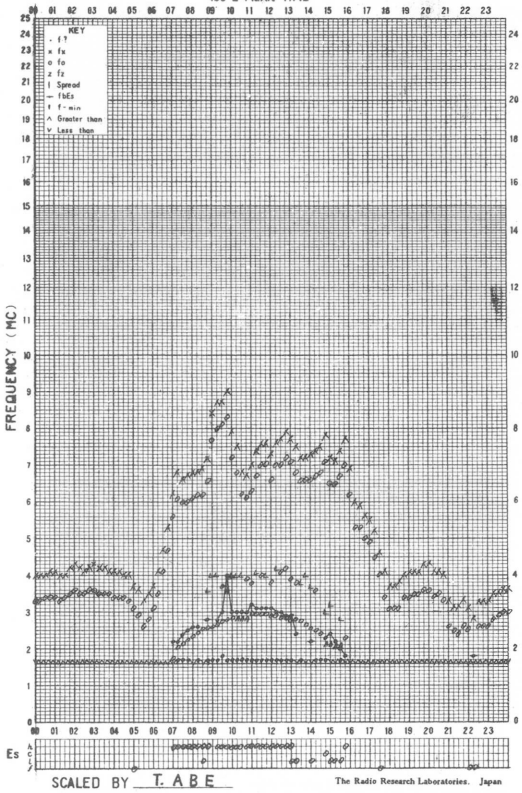


SCALED BY T. ABE

The Radio Research Laboratories. Japan

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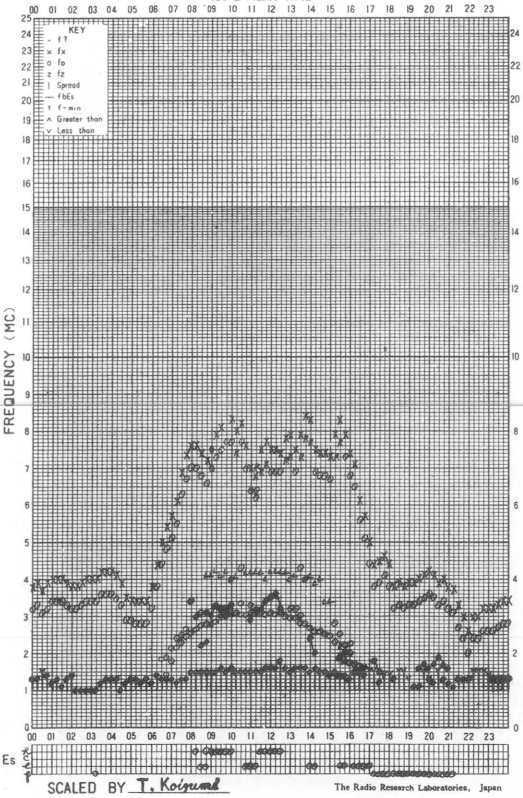


SCALED BY T. Koizumi

The Radio Research Laboratories, Japan

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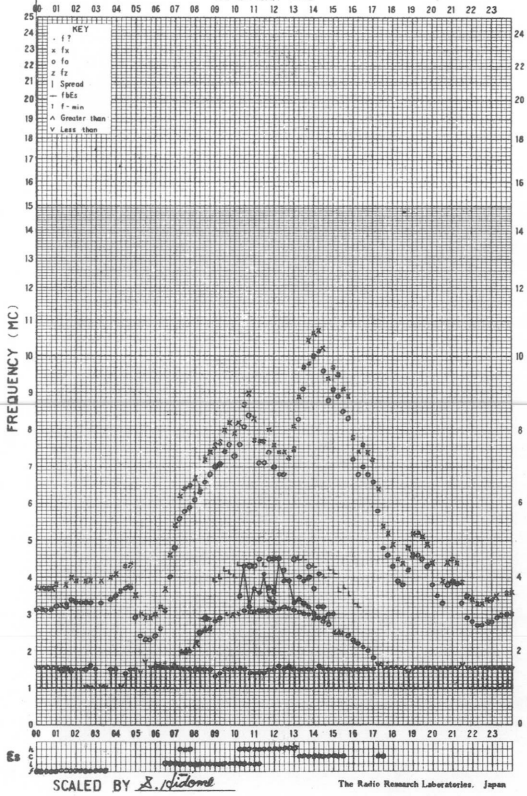


SCALED BY S. Ishimoto

The Radio Research Laboratories. Japan

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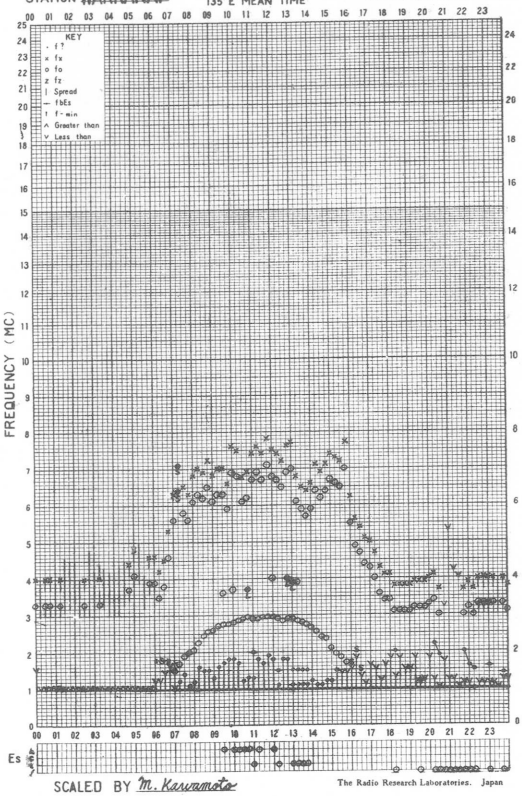


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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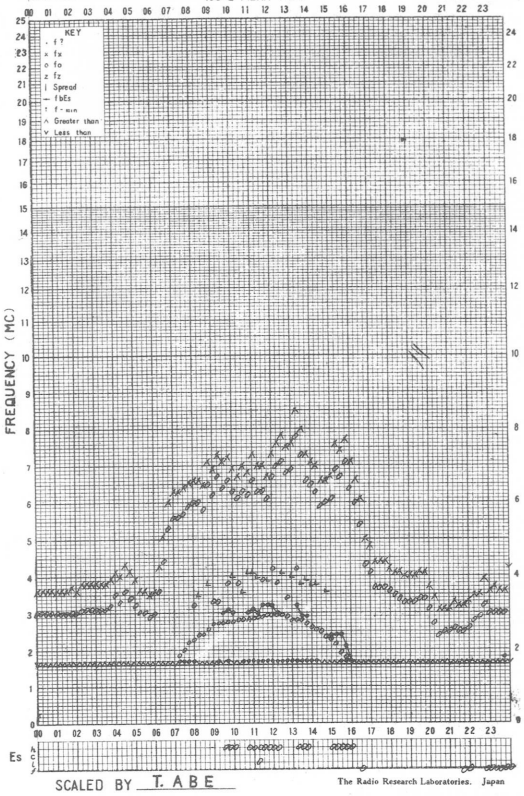


SCALED BY T. ABE

The Radio Research Laboratories. Japan

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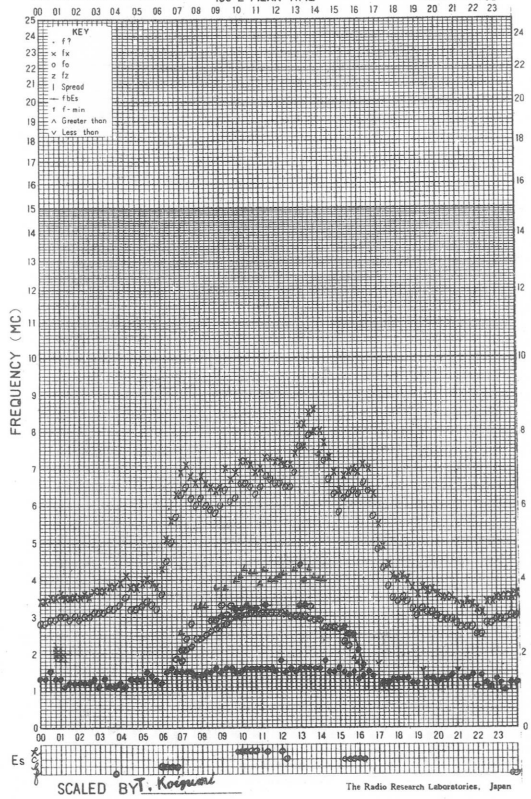


SCALED BY T. Koiguchi

The Radio Research Laboratories. Japan

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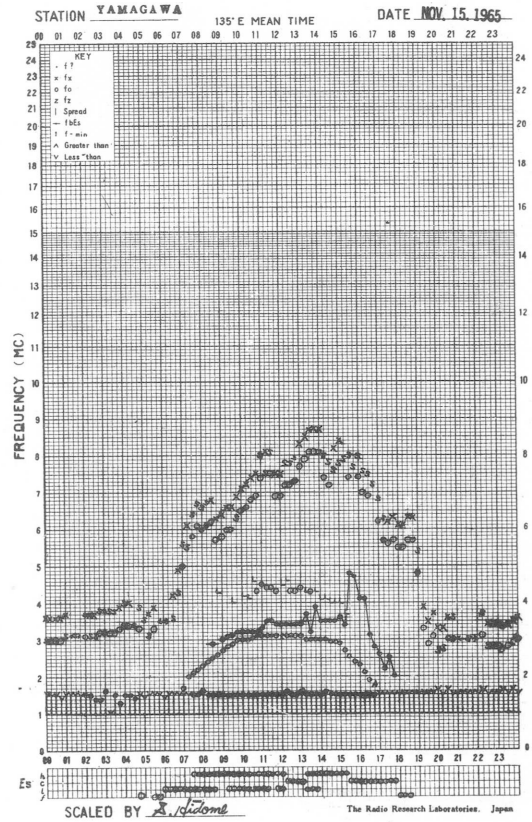


SCALED BY A. Sidomi

The Radio Research Laboratories. Japan

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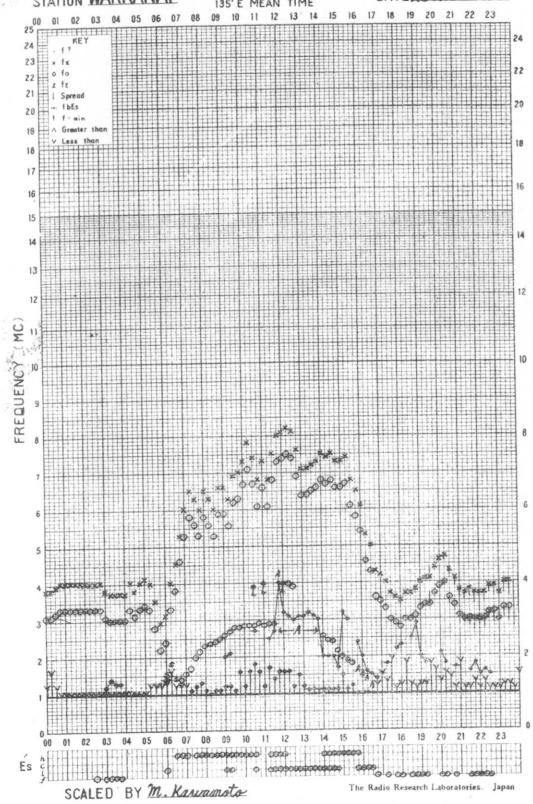


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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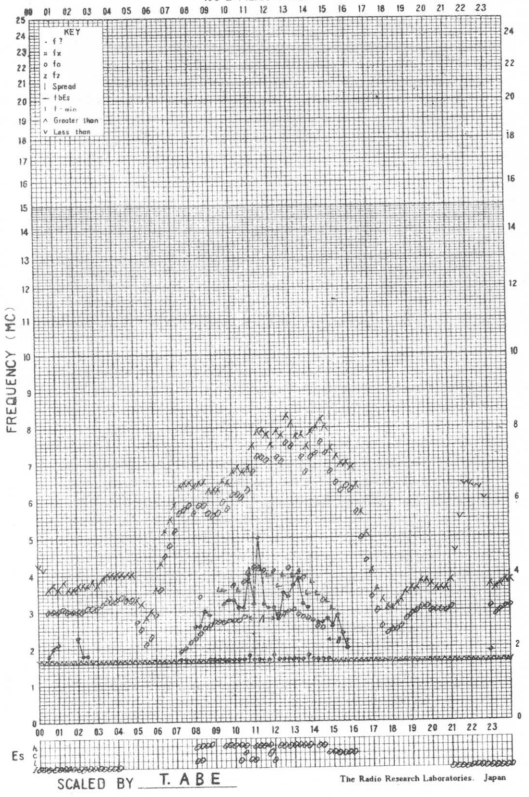


SCALED BY T. ABE

The Radio Research Laboratories. Japan

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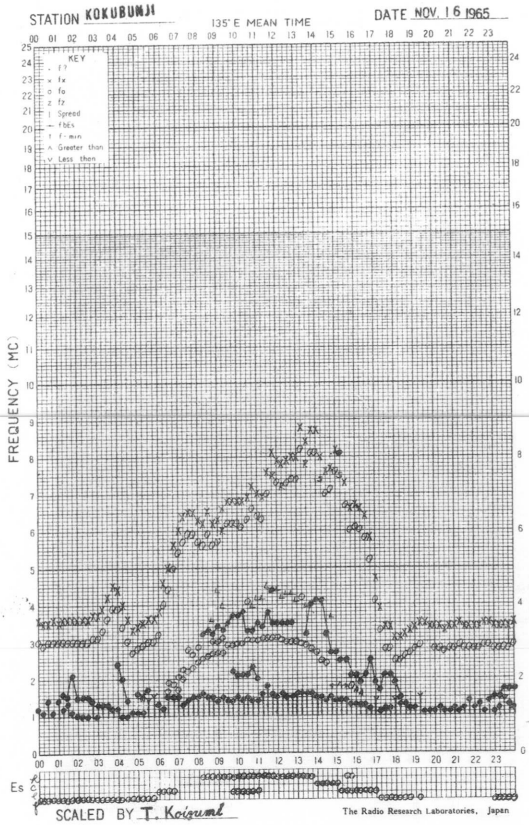


SCALED BY T. Koizumi

The Radio Research Laboratories, Japan

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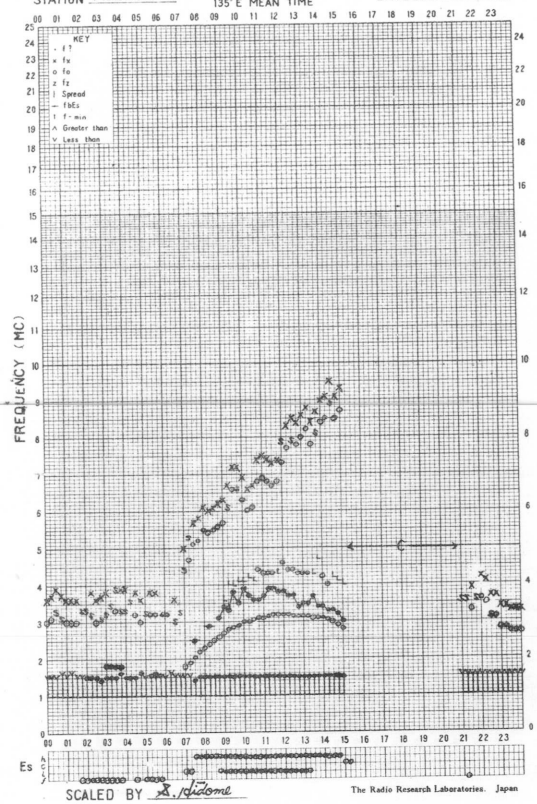


SCALED BY S. Shidome

The Radio Research Laboratories. Japan

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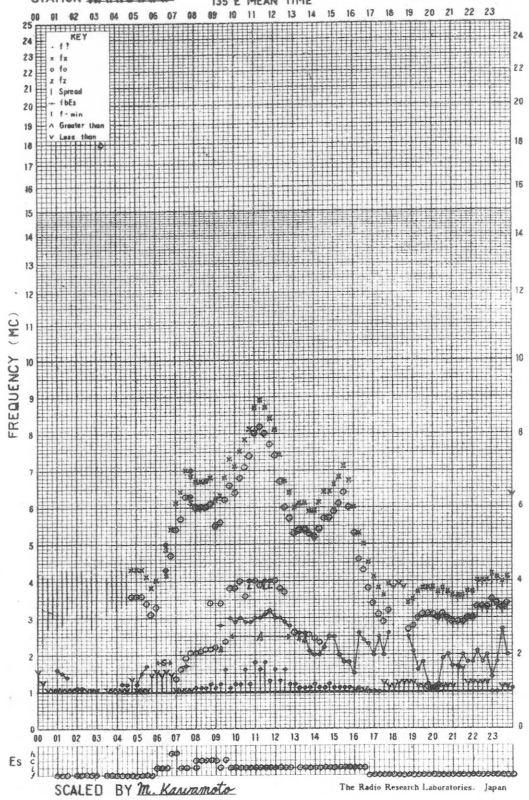


SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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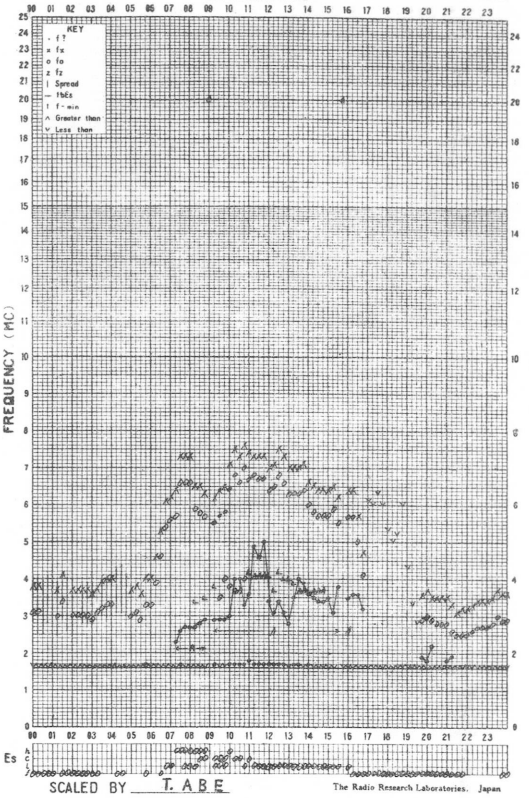


SCALED BY T. ABE The Radio Research Laboratories. Japan

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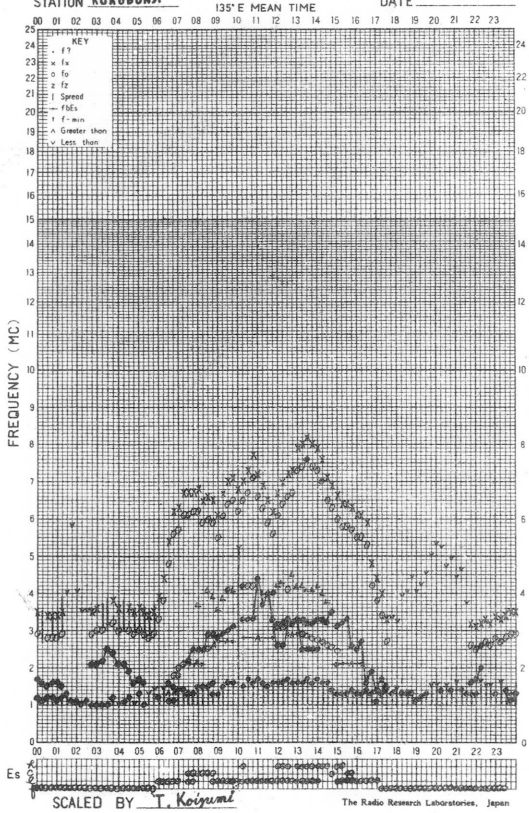


SCALED BY T. Koizumi The Radio Research Laboratories. Japan

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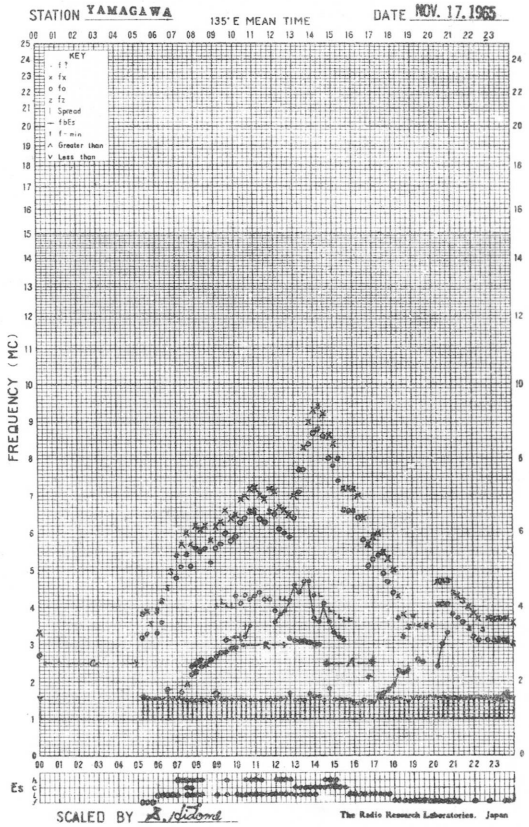


SCALED BY S. Sidomi The Radio Research Laboratories. Japan

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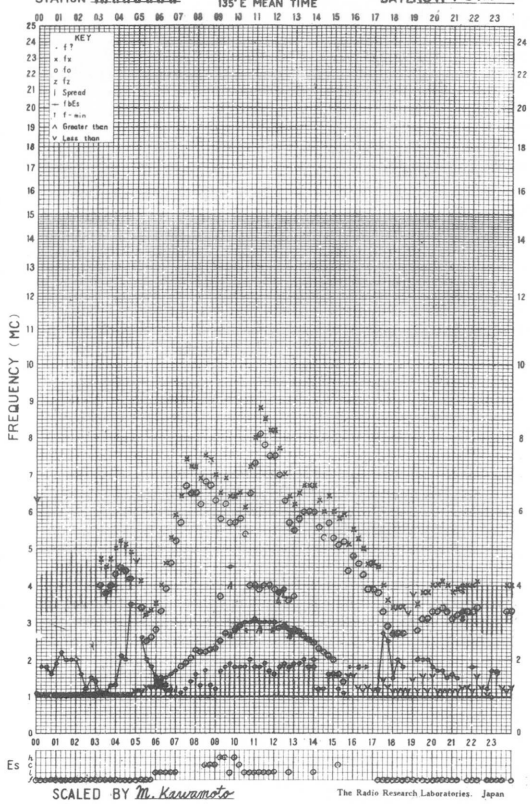


SCALED BY M. Kawamoto

The Radio Research Laboratories, Japan

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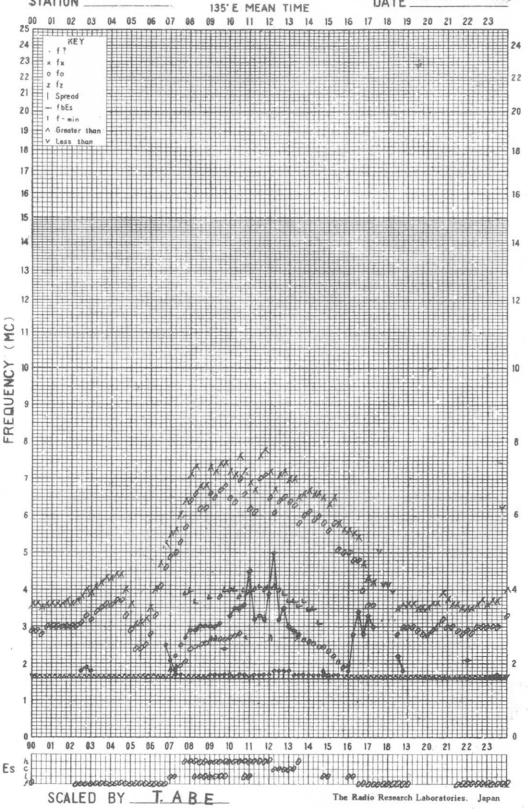


SCALED BY T. ABE

The Radio Research Laboratories, Japan

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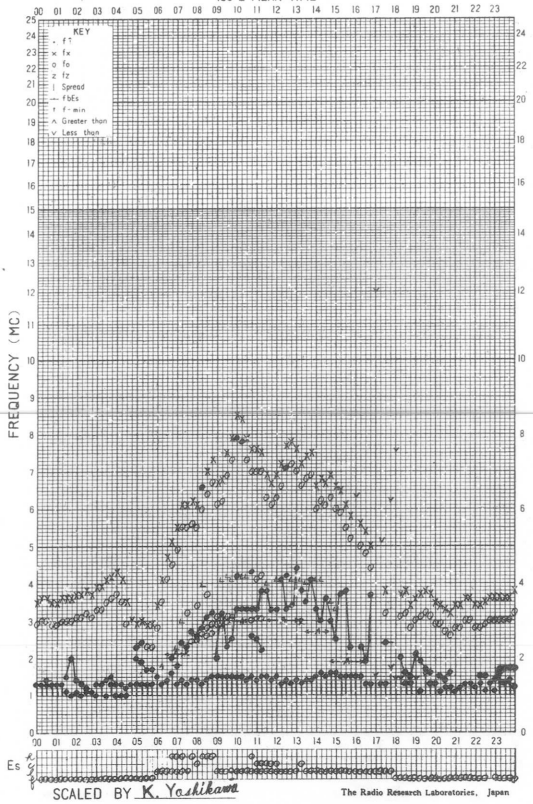


SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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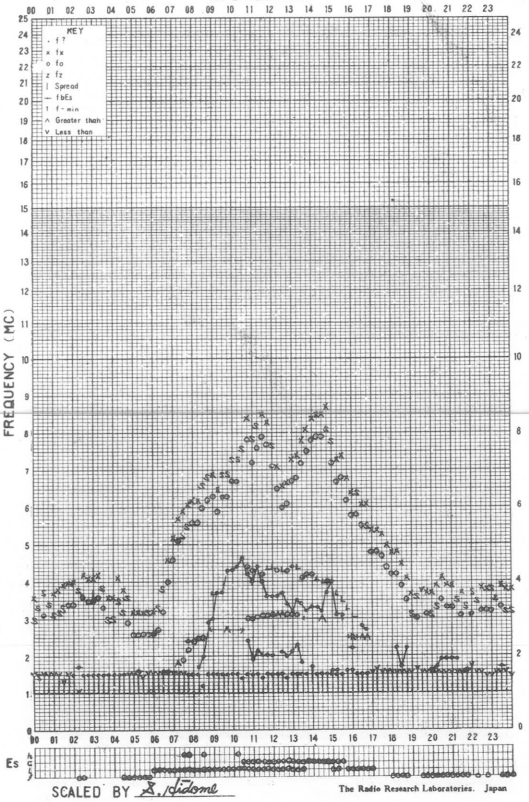


SCALED BY S. Sidomi

The Radio Research Laboratories, Japan

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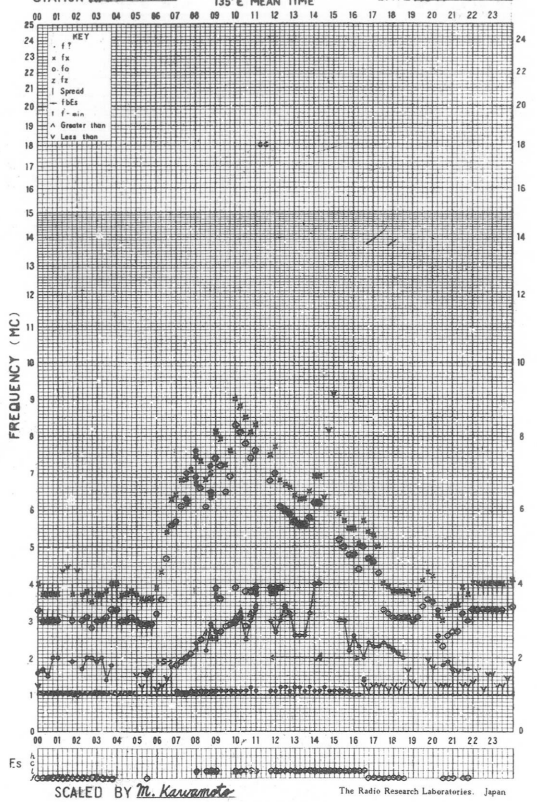


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The Radio Research Laboratories. Japan

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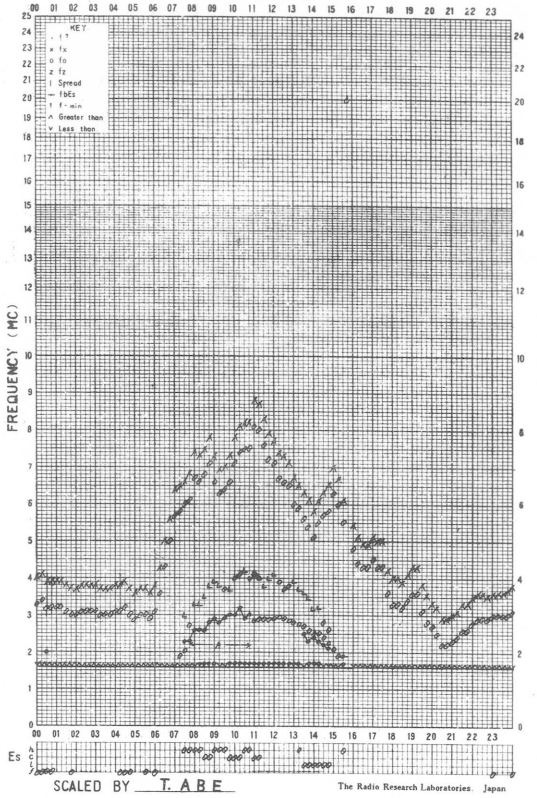


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The Radio Research Laboratories. Japan

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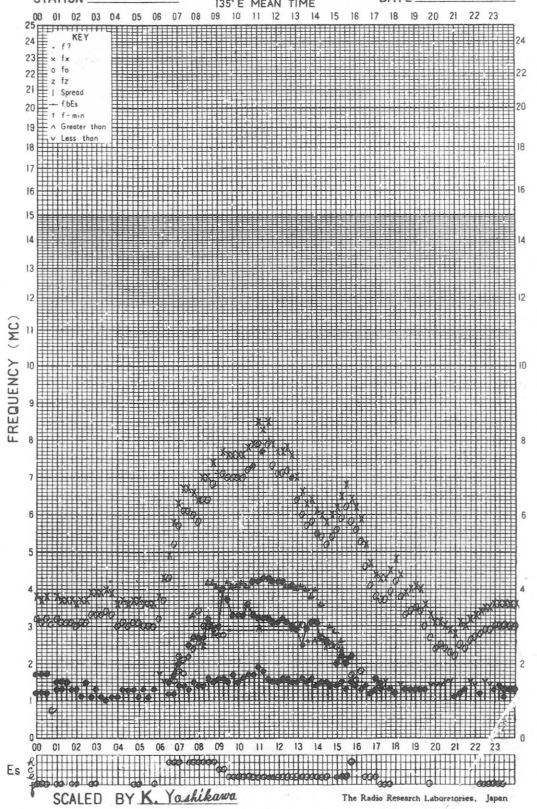


SCALED BY K. Yoshikawa

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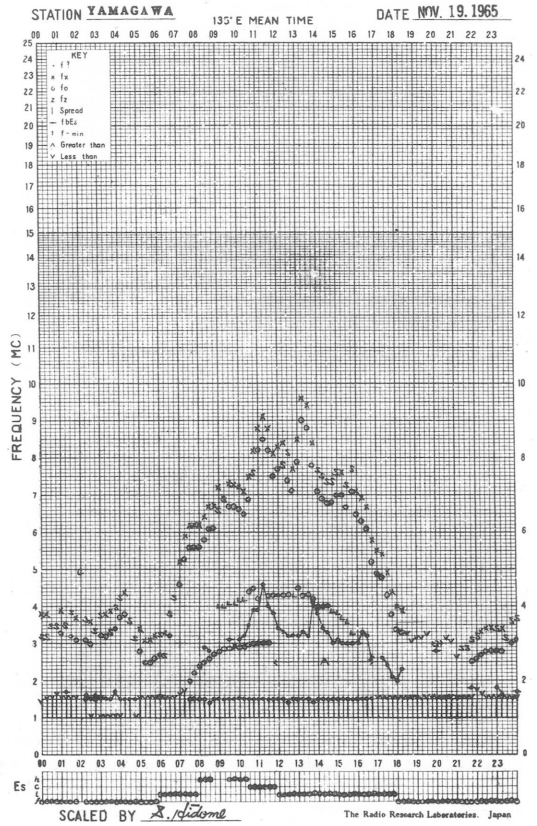
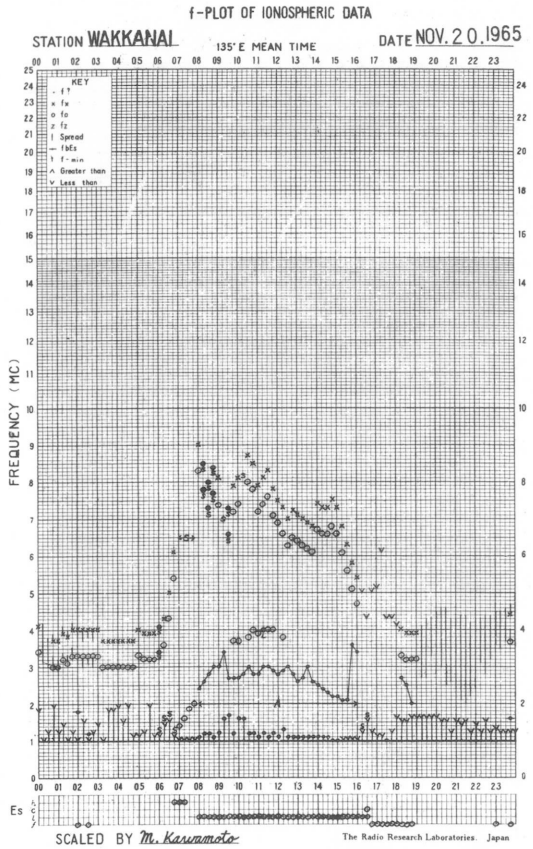



SCALED BY S. Ichidome

The Radio Research Laboratories. Japan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135°E MEAN TIME
DATE NOV. 20, 1965
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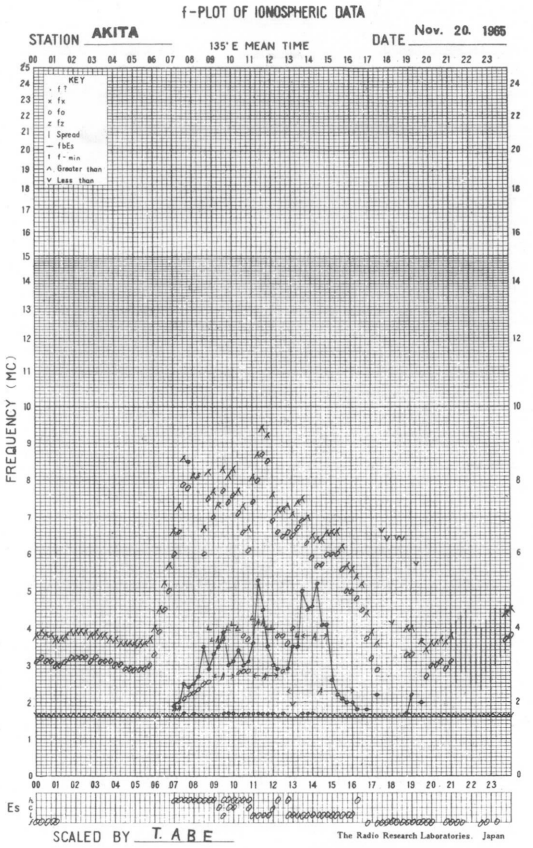
SCALED BY M. Kasumoto
The Radio Research Laboratories, Japan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135°E MEAN TIME
DATE Nov. 20, 1965
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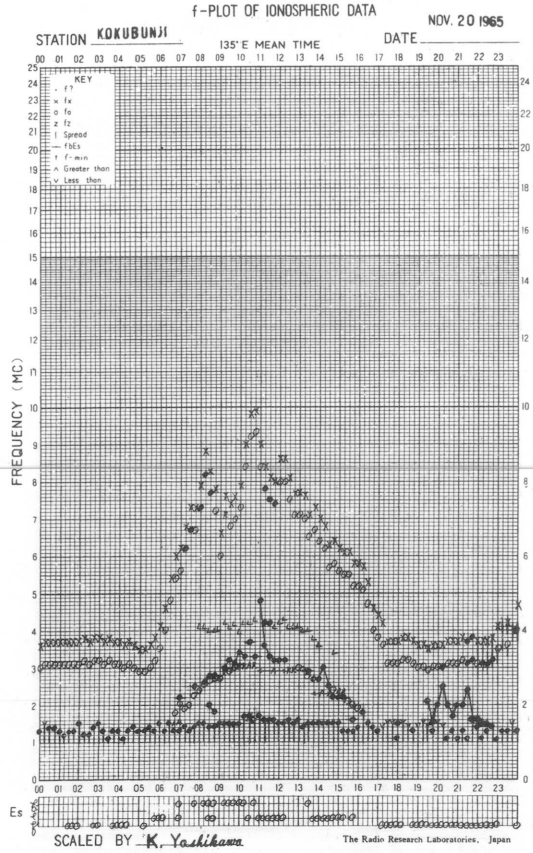
SCALED BY T. ABE
The Radio Research Laboratories, Japan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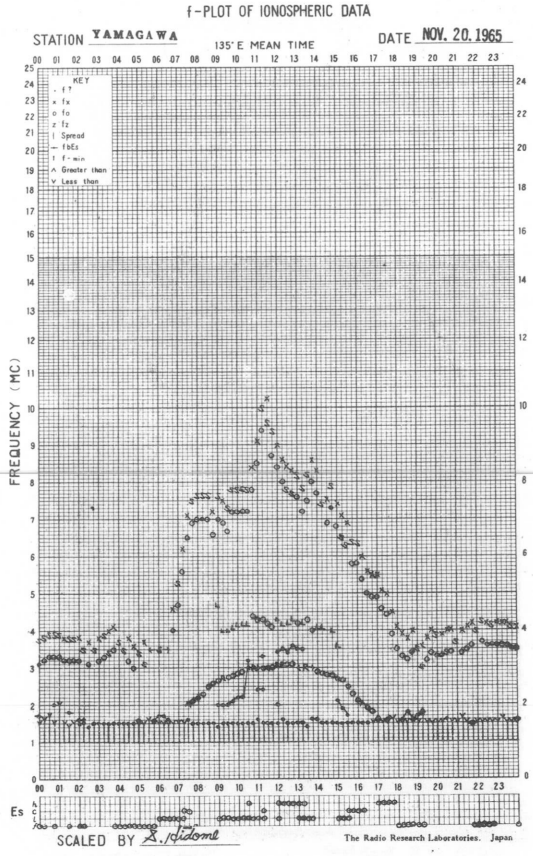
SCALED BY K. Yoshikawa
The Radio Research Laboratories, Japan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DATE NOV. 20, 1965
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FREQUENCY (MC)
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SCALED BY S. Kidome
The Radio Research Laboratories, Japan

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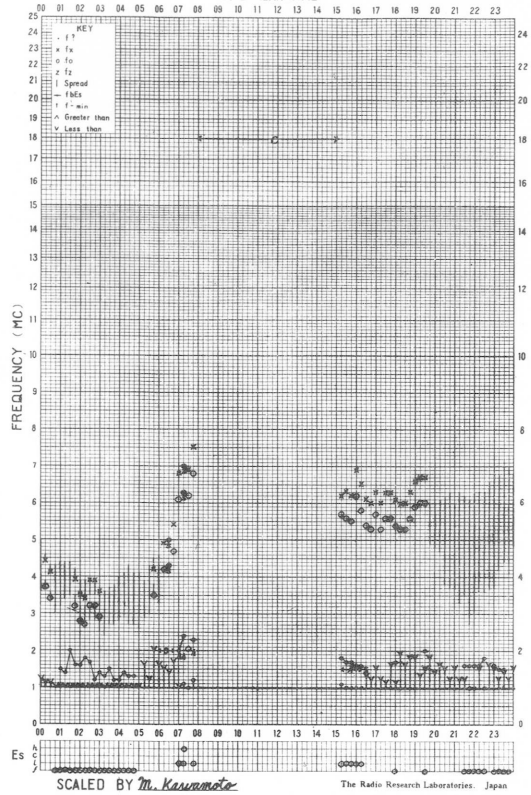


SCALED BY M. Kawamoto

The Radio Research Laboratories, Japan

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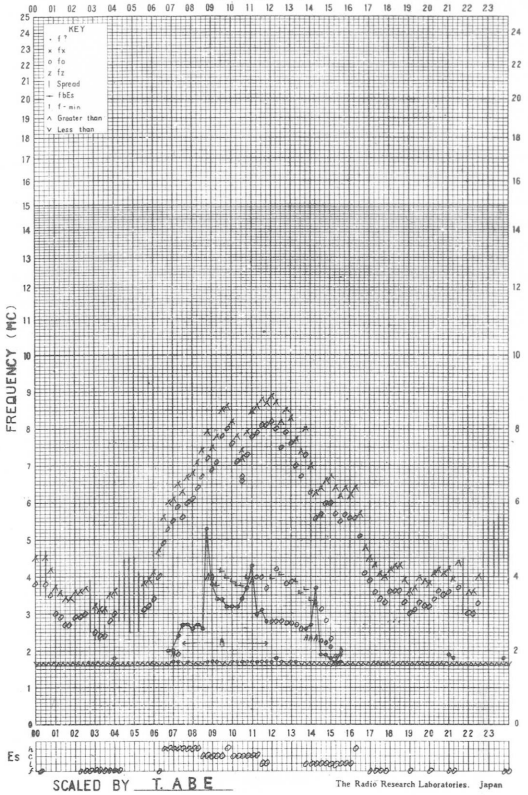


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The Radio Research Laboratories, Japan

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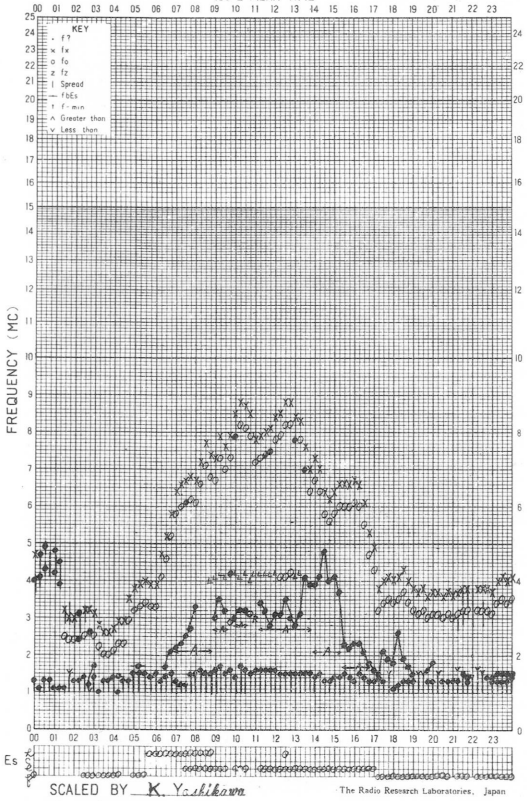


SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

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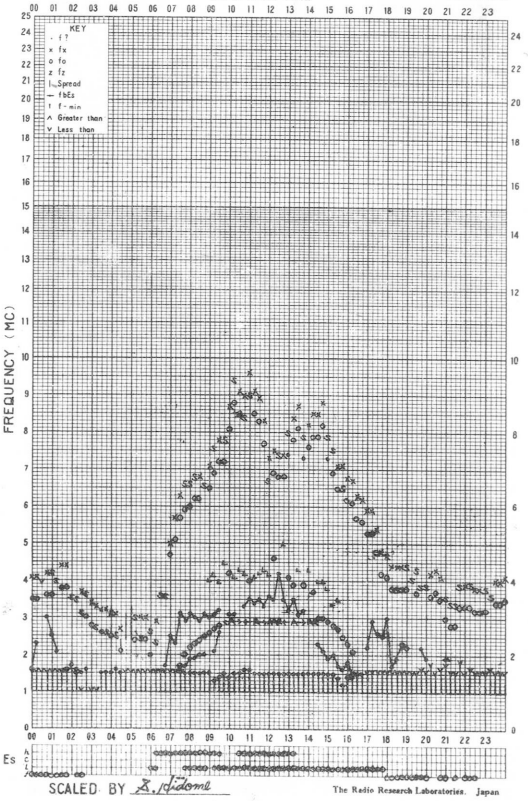


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The Radio Research Laboratories, Japan

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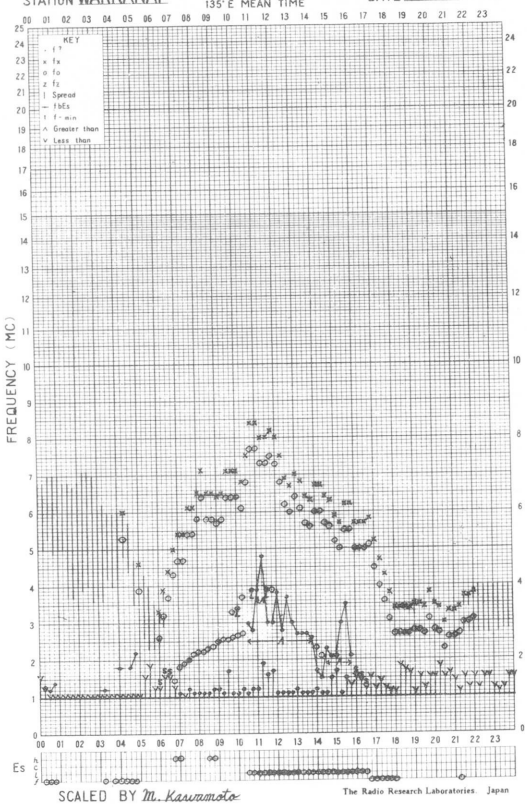


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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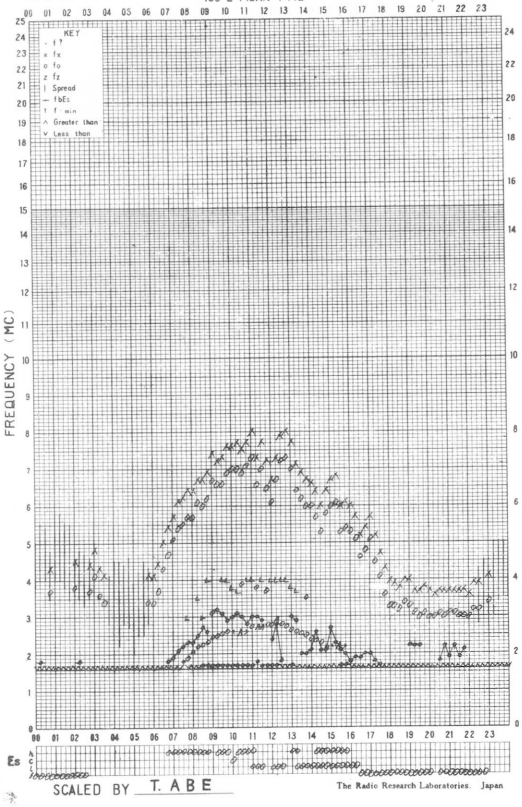


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The Radio Research Laboratories. Japan

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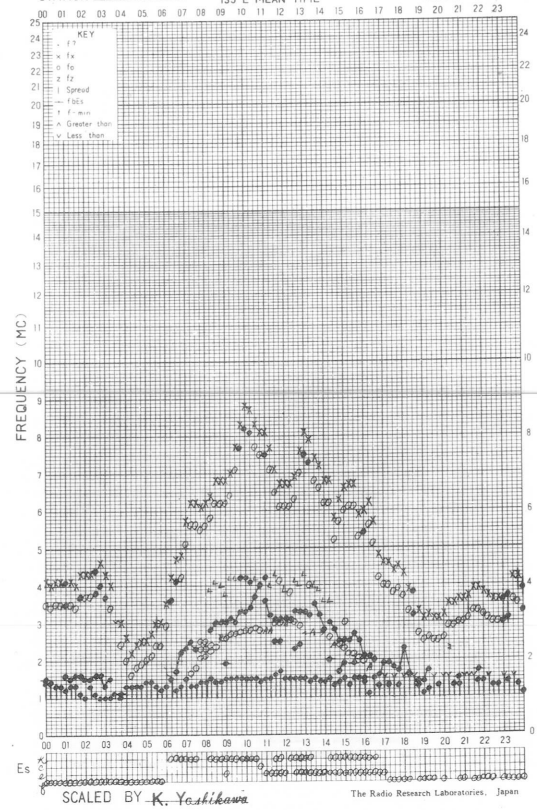


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The Radio Research Laboratories. Japan

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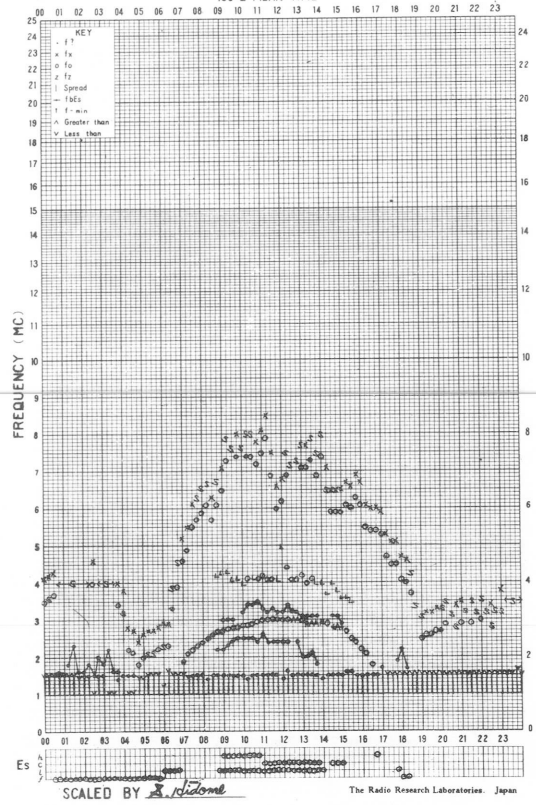


SCALED BY S. Kidome

The Radio Research Laboratories. Japan

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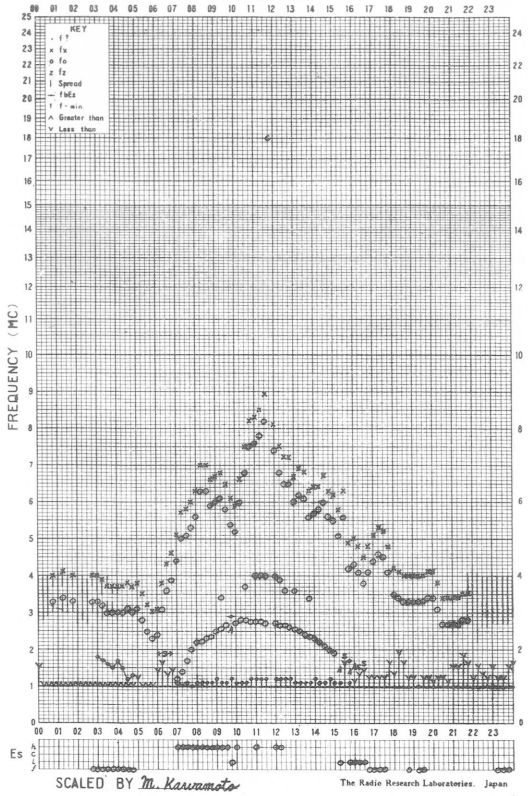


SCALED BY M. Kawamoto The Radio Research Laboratories, Japan

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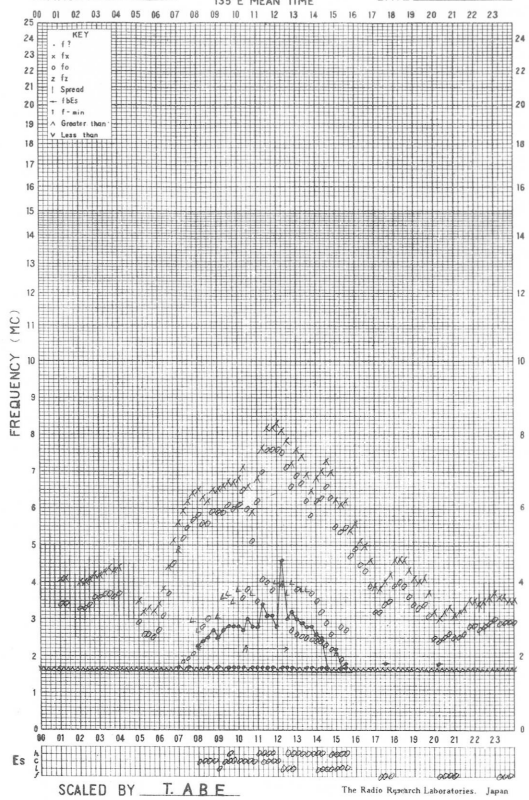


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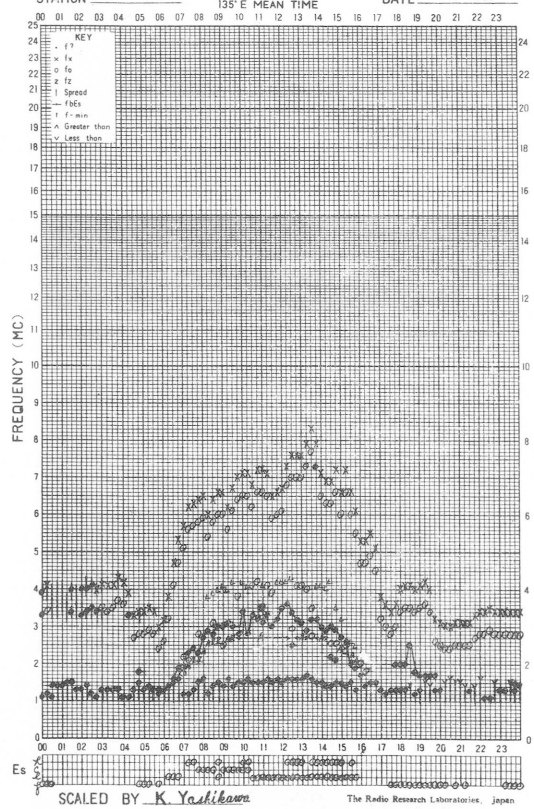


SCALED BY K. Yashikawa The Radio Research Laboratories, Japan

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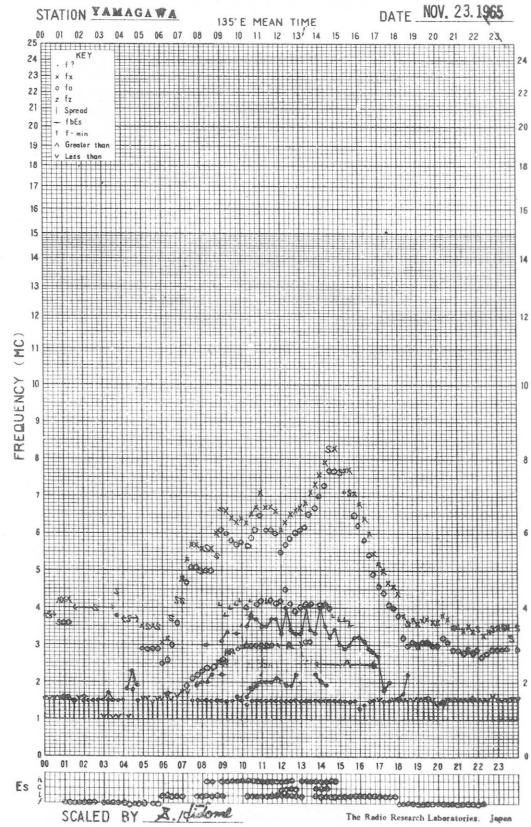


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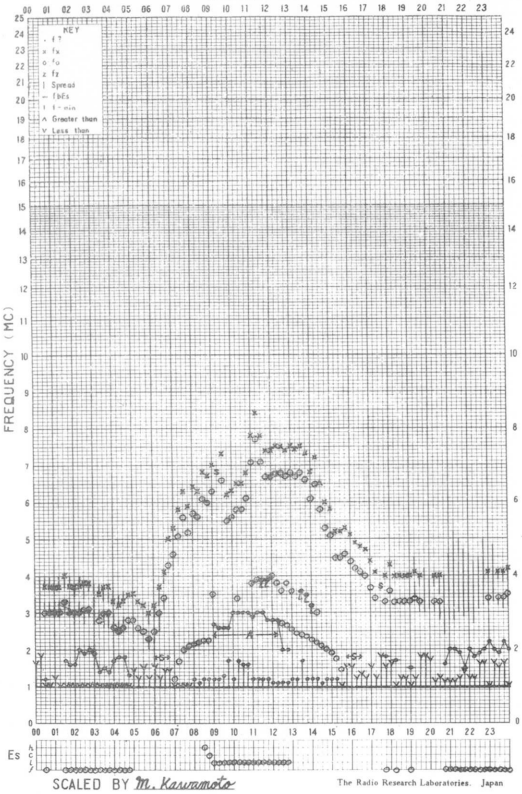


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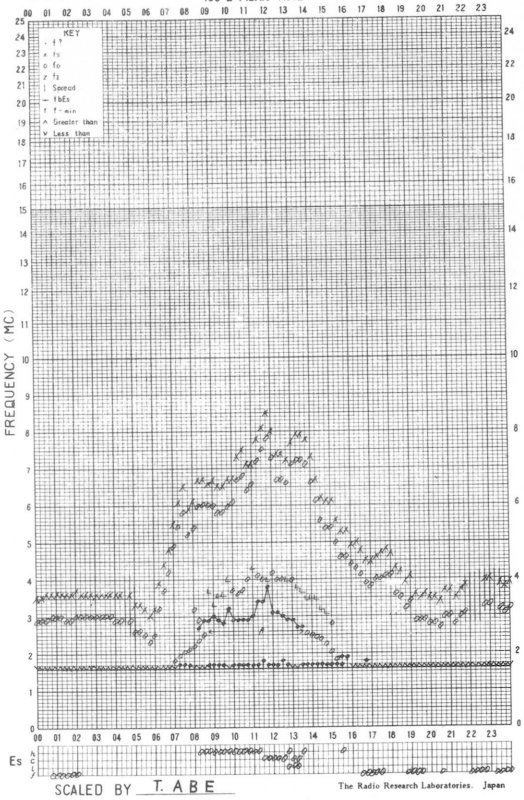


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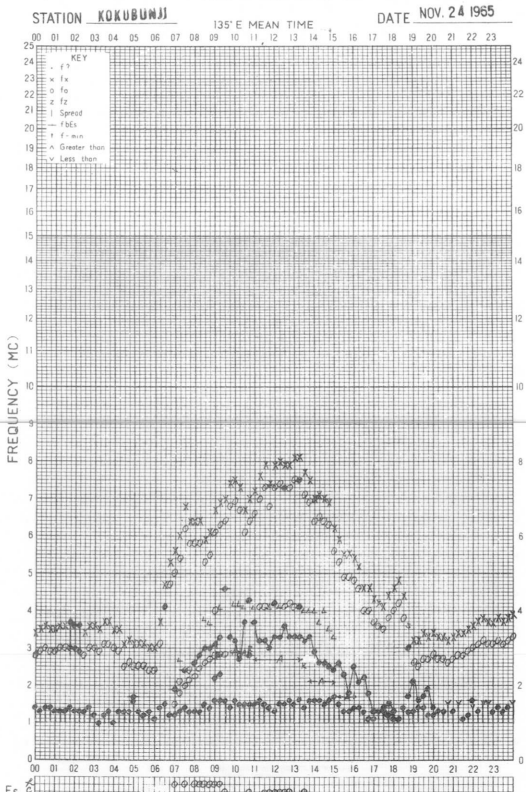
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE NOV. 24 1965

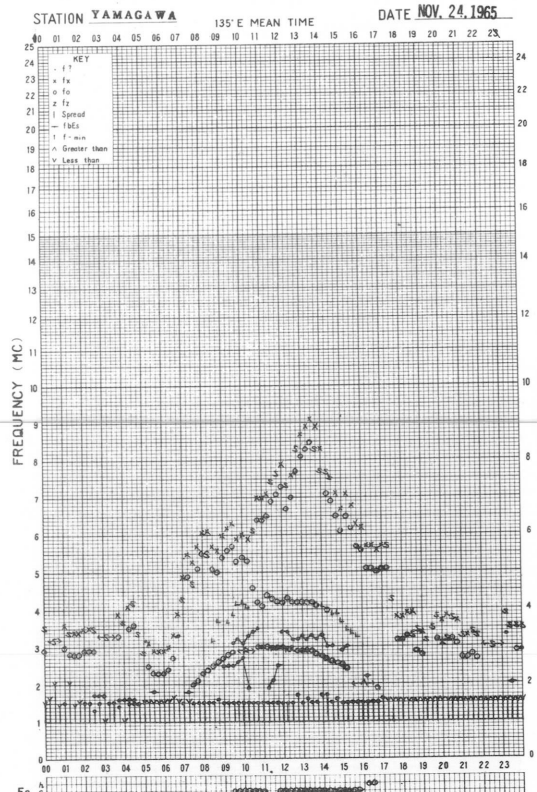



SCALED BY K. Yoshikawa

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE NOV. 24. 1965

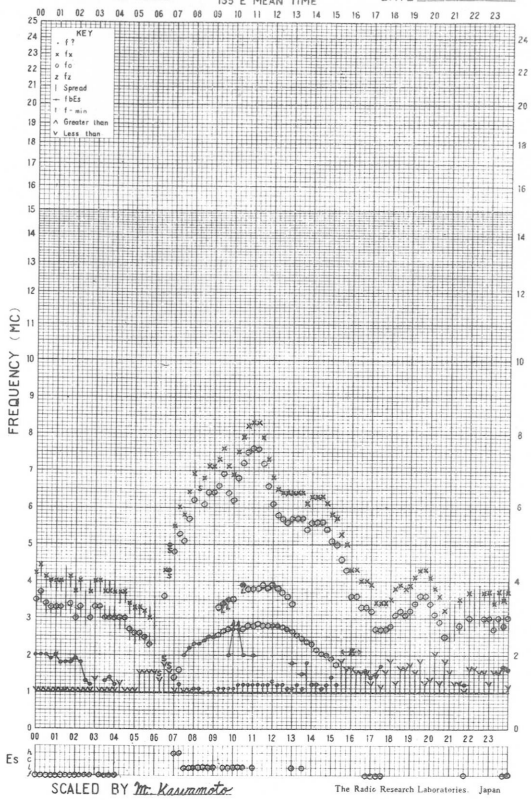



SCALED BY S. Sidomi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

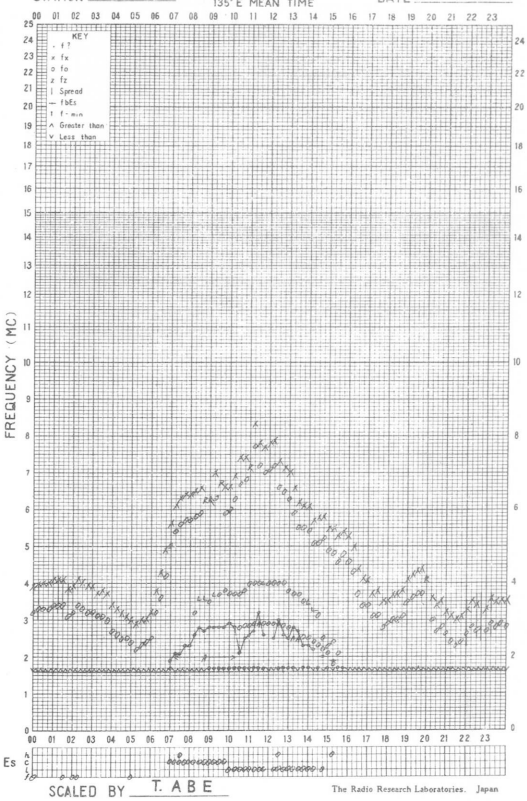
STATION WAKKANAI 135°E MEAN TIME DATE NOV. 25.1965




SCALED BY M. Kawamoto The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

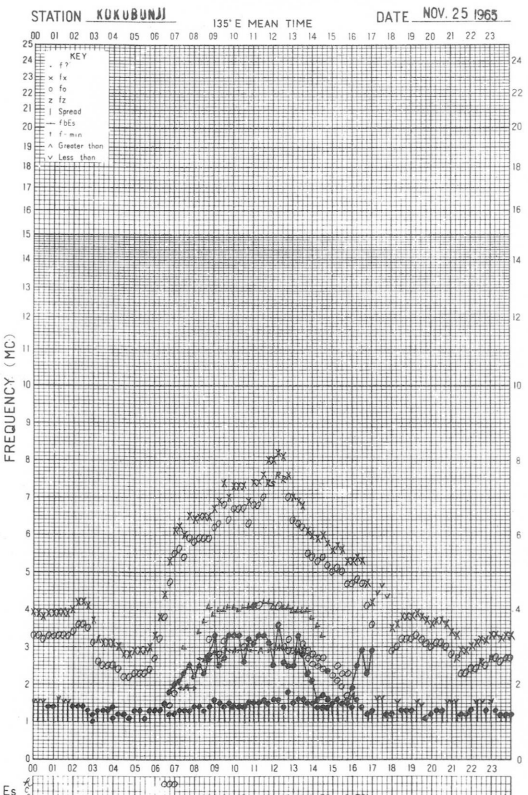
STATION AKITA 135°E MEAN TIME DATE Nov. 25. 1965




SCALED BY T. ABE The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

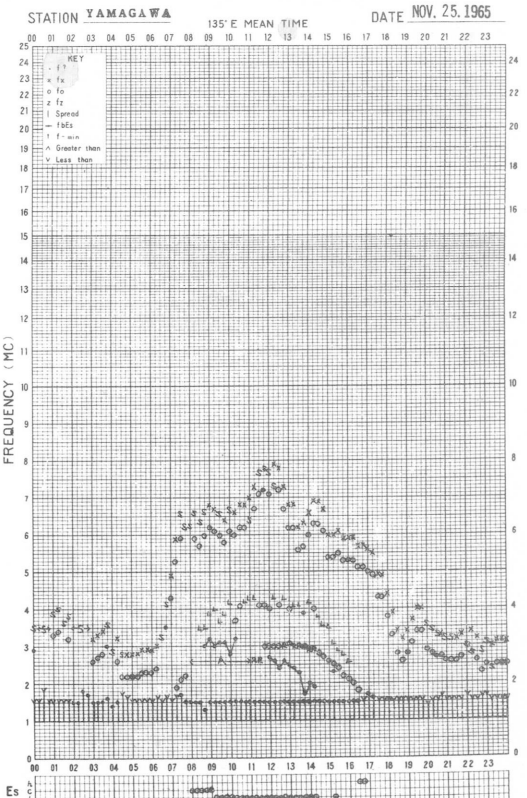
STATION KOKUBUNJI 135°E MEAN TIME DATE NOV. 25 1965




SCALED BY T. Koizumi The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

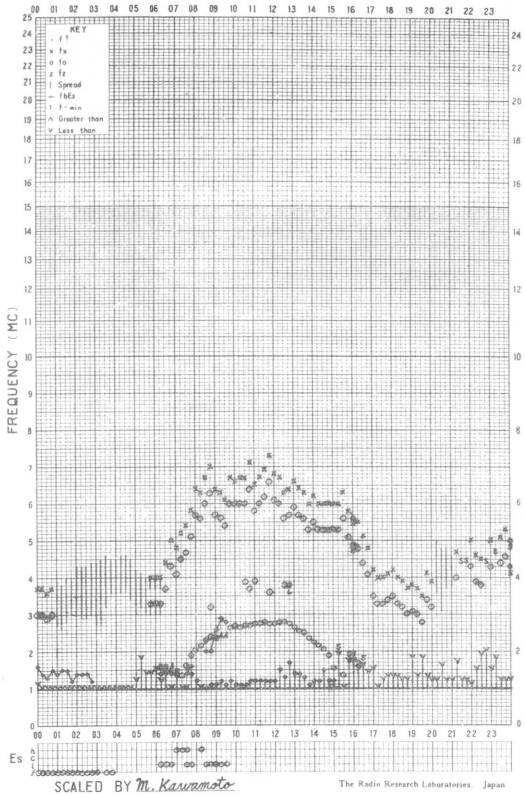
STATION YAMAGAWA 135°E MEAN TIME DATE NOV. 25. 1965




SCALED BY A. Ichidome The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE NOV. 26. 1965

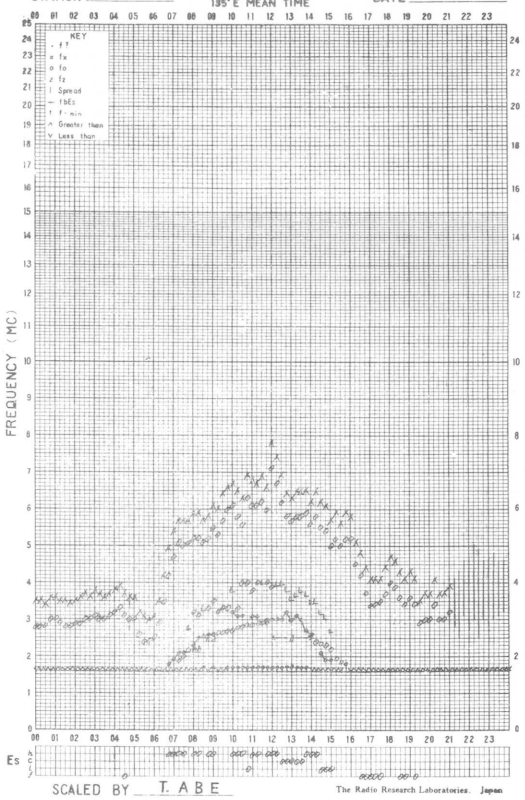



SCALED BY M. Kawamoto

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Nov. 26. 1965

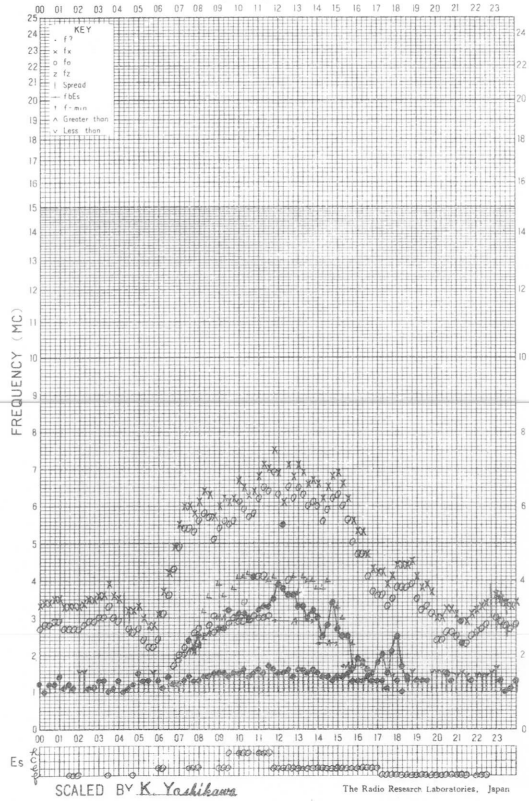



SCALED BY T. ABE

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE NOV. 26 1965

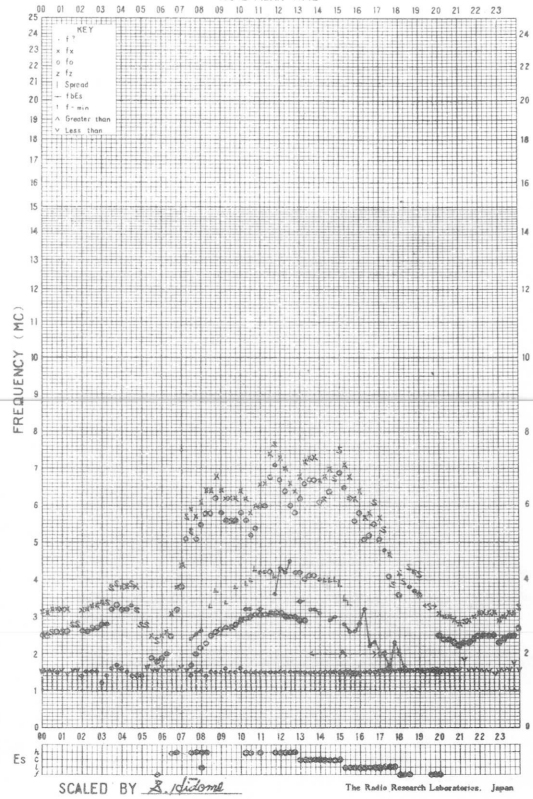



SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE NOV. 26. 1965

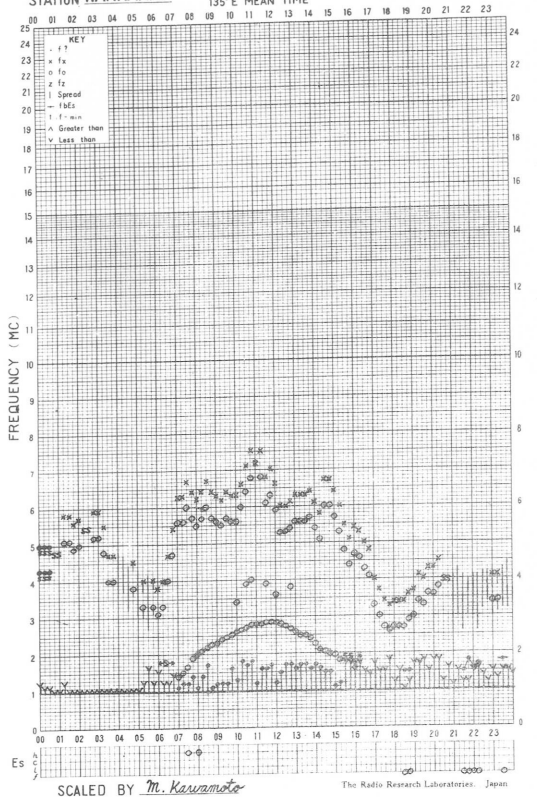



SCALED BY S. Ichimi

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE NOV. 27. 1965

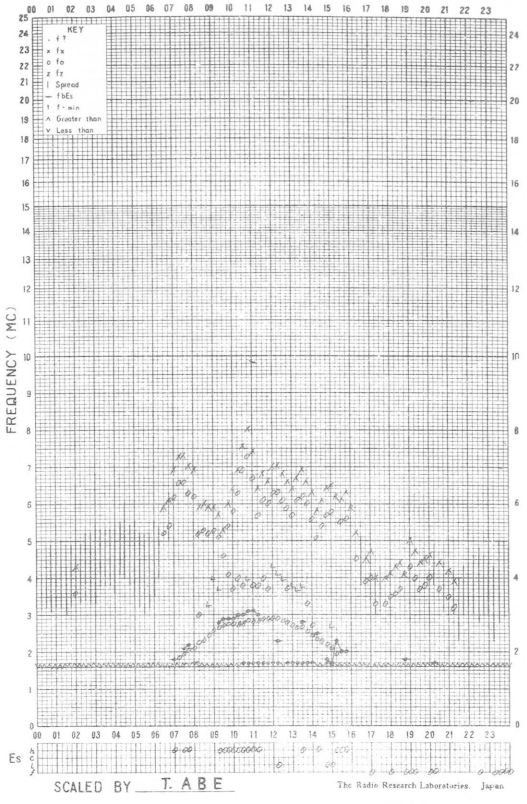



SCALED BY M. Kawamoto

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Nov. 27. 1965

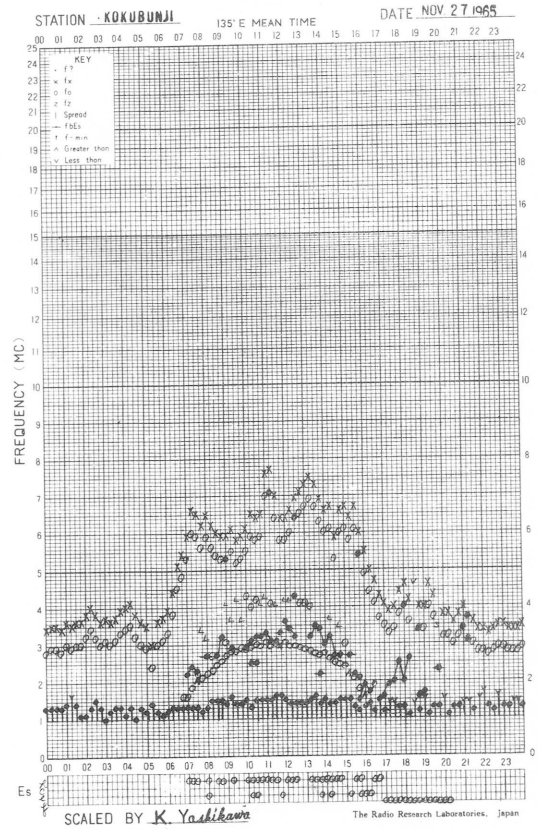



SCALED BY T. ABE

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE NOV 27 1965

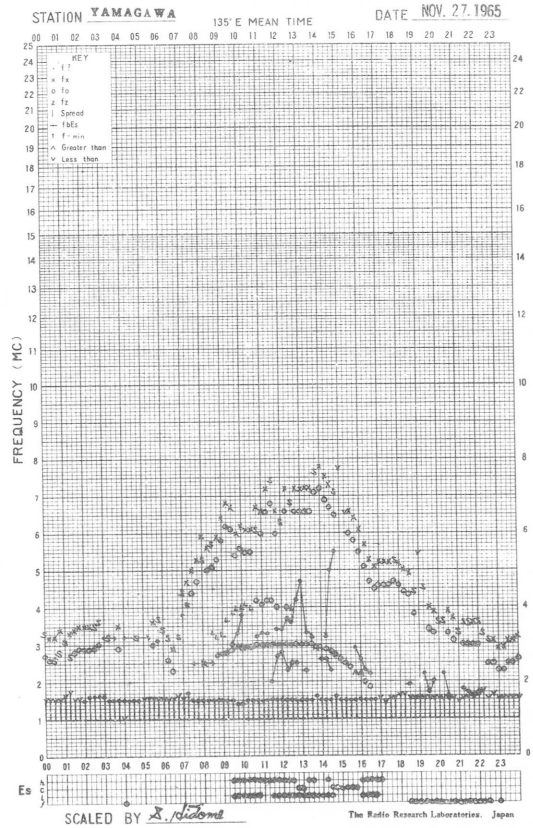



SCALED BY K. Yashikawa

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE NOV. 27. 1965

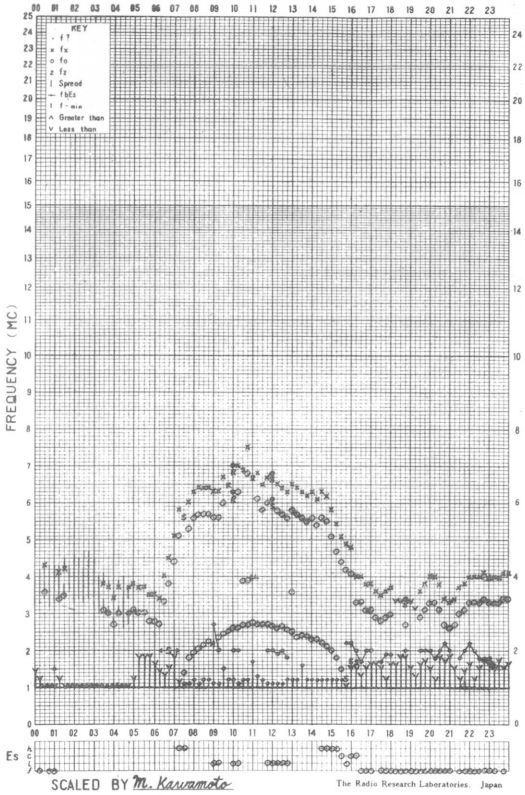



SCALED BY S. Sitomi

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

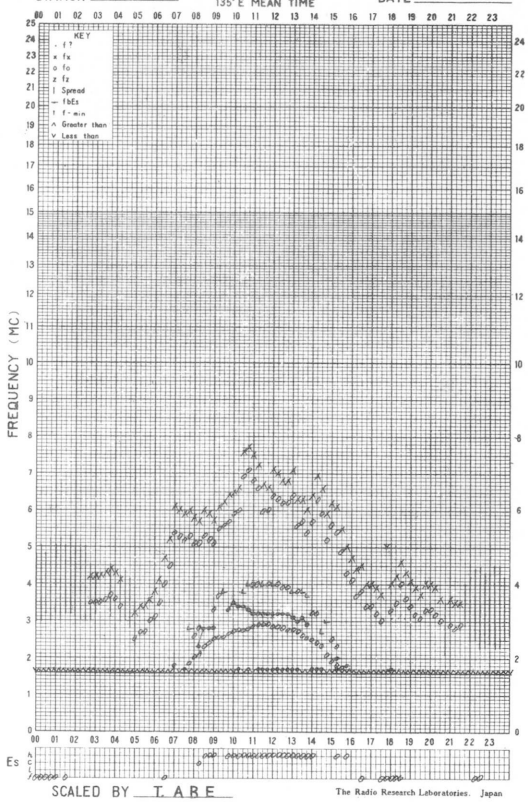
STATION WAKKANAI 135°E MEAN TIME DATE NOV. 28.1965




SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

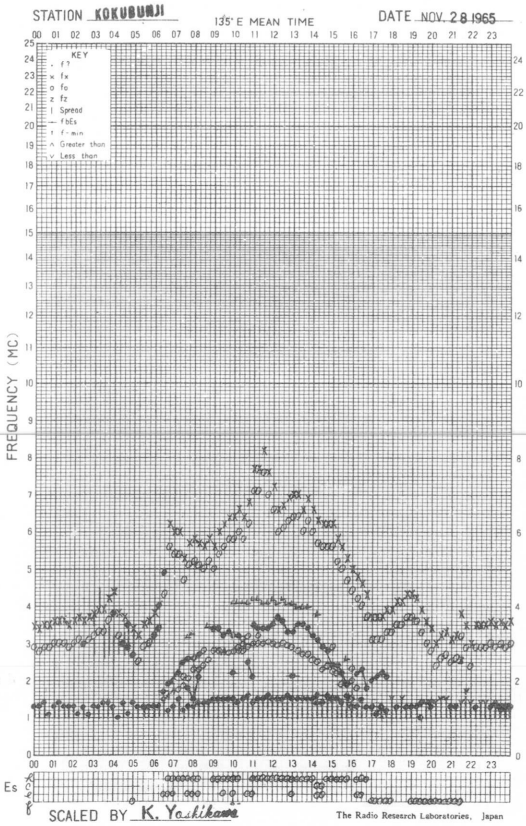
STATION AKITA 135°E MEAN TIME DATE Nov. 28. 1965




SCALED BY T. ABE The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

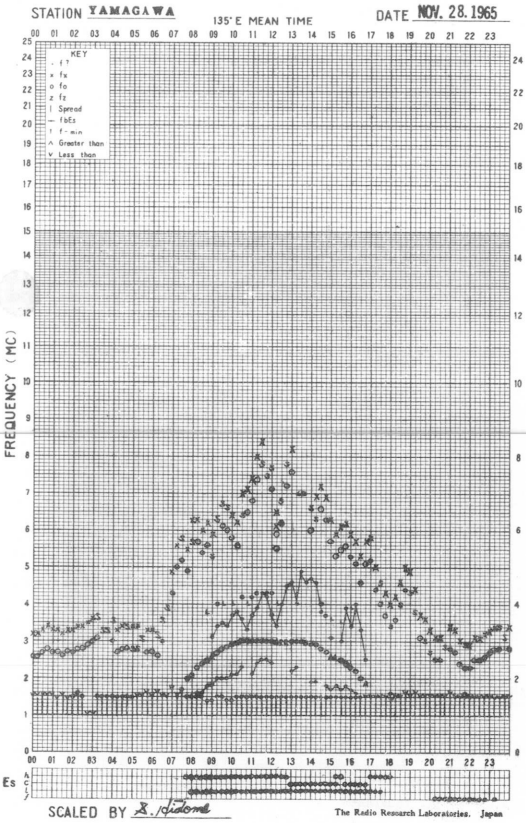
STATION KOKUBUNJI 135°E MEAN TIME DATE NOV. 28 1965




SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

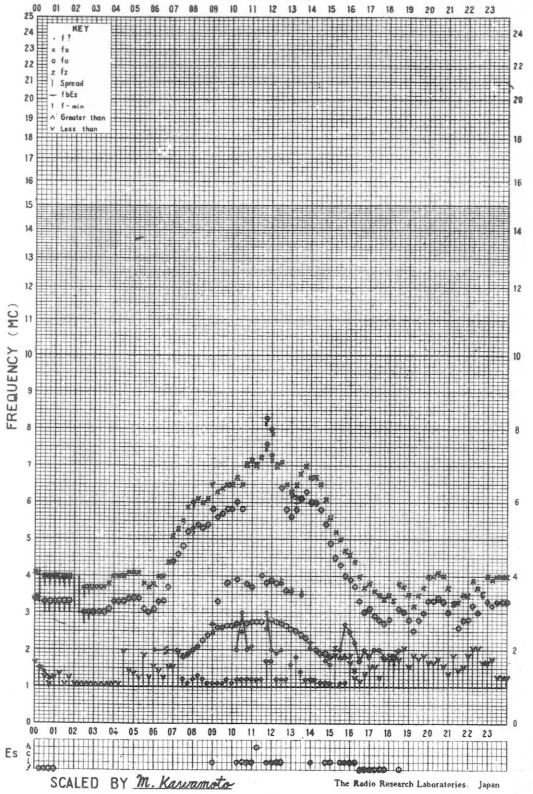
STATION YAMAGAWA 135°E MEAN TIME DATE NOV. 28. 1965




SCALED BY S. Tidoma The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

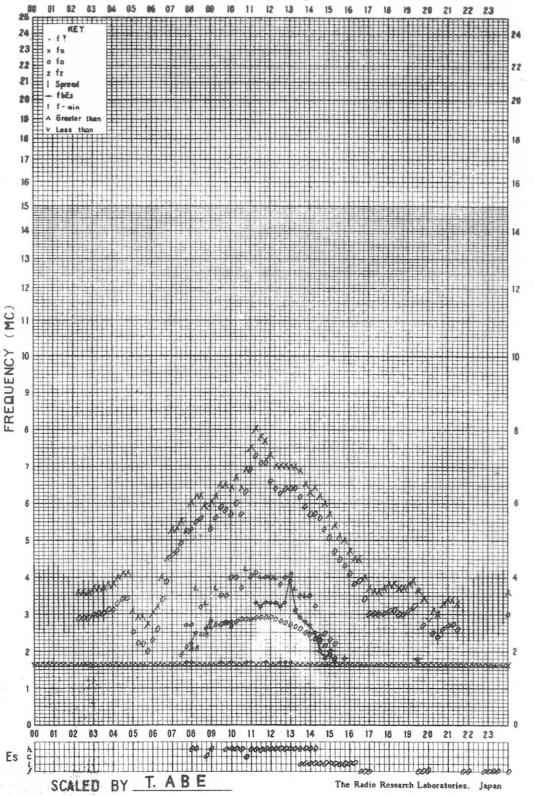
STATION WAKKANAI 135°E MEAN TIME DATE NOV. 29. 1965




SCALED BY M. Kasumoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

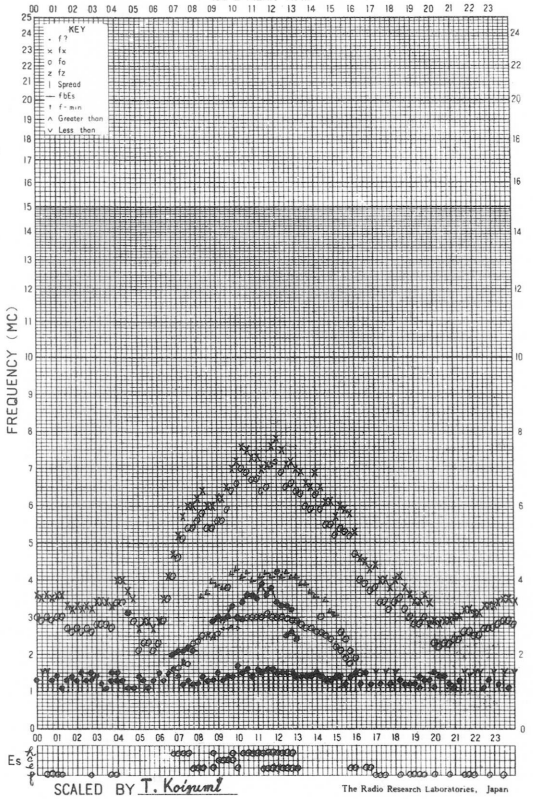
STATION AKITA 135°E MEAN TIME DATE Nov. 29. 1965




SCALED BY T. ABE The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

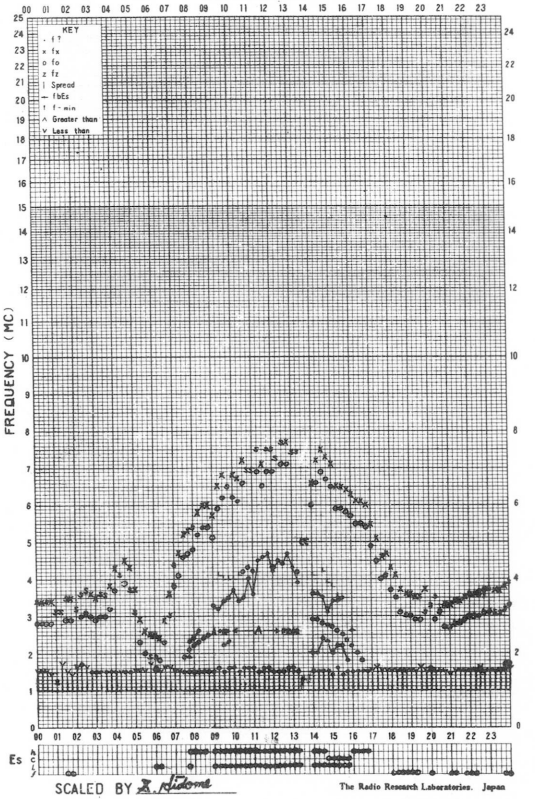
STATION KOKUBUNJI 135°E MEAN TIME DATE NOV. 29 1965




SCALED BY T. Koizumi The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

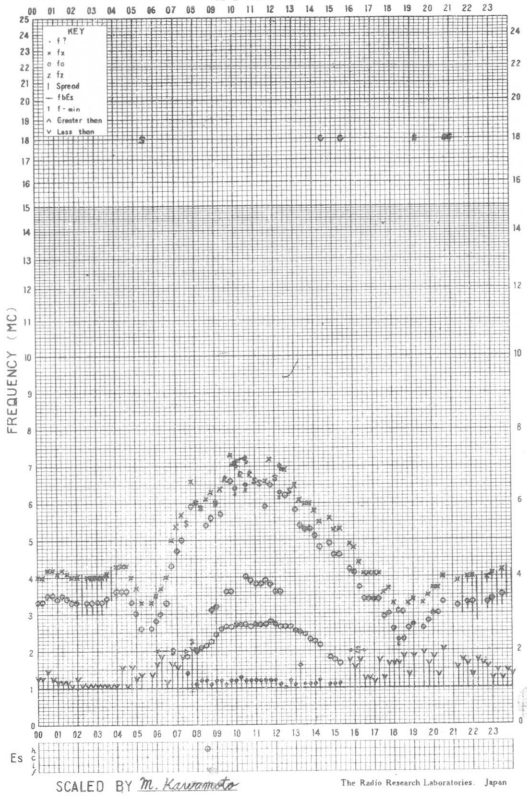
STATION YAMAGAWA 135°E MEAN TIME DATE NOV. 29. 1965




SCALED BY T. Hidoma The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

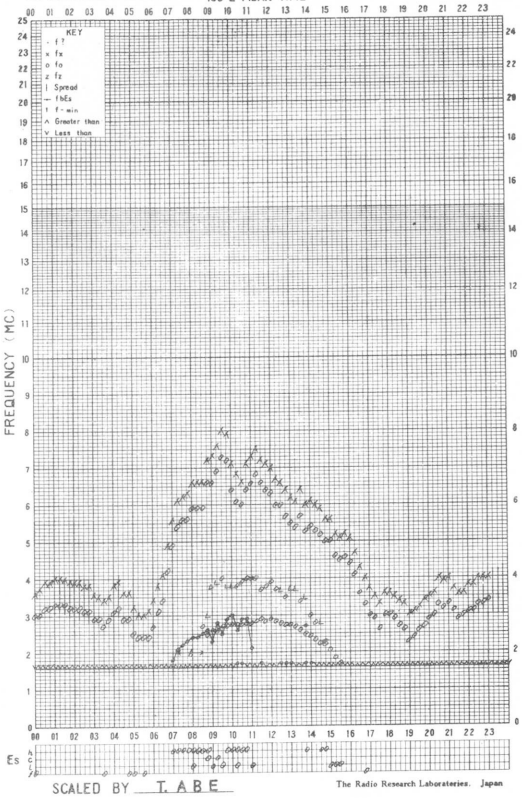
STATION WAKKANAI 135°E MEAN TIME DATE NOV. 30.1965




SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

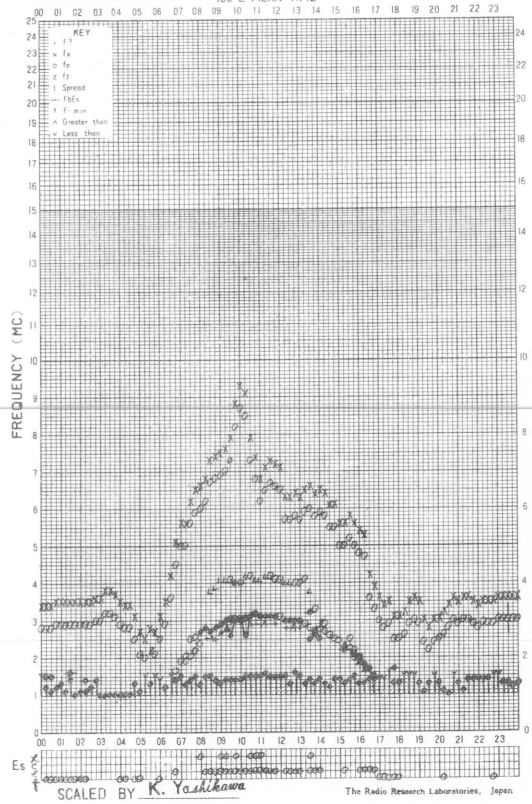
STATION AKITA 135°E MEAN TIME DATE Nov. 30. 1965




SCALED BY T. A B E The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

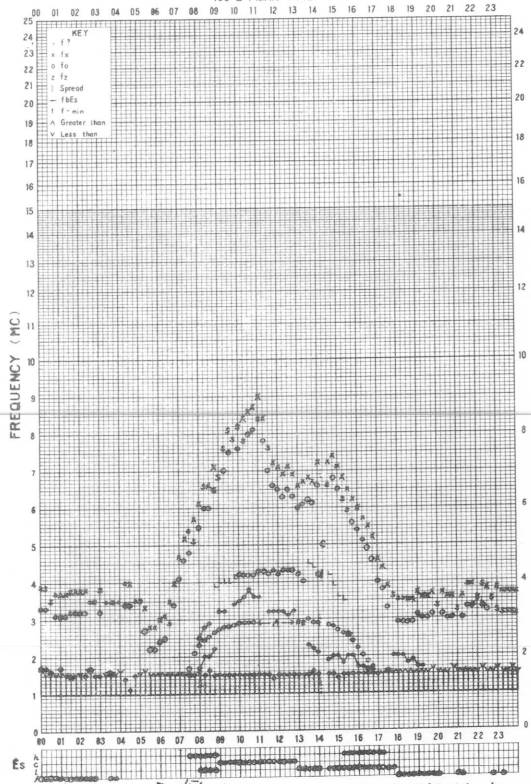
STATION KOKUBUNJI 135°E MEAN TIME DATE NOV. 30 1965




SCALED BY K. Yoshikawa The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE NOV. 30 1965




SCALED BY [illegible] The Radio Research Laboratories. Japan

# SOLAR RADIO EMISSION

## Flux Density and Variability

Month: November 1965.
Observing station: Hiraiso  Frequency: 200 Mc/s

| | Flux density $10^{-22}$ Wm$^{-2}$(c/s)$^{-1}$ | | | | | Variability 0 to 3 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| UT | 00-03 | 03-06 | 06-09 | 21-24 | Day | 00-03 | 03-06 | 06-09 | 21-24 | Day |
| Date | | | | | | | | | | |
| 1 | 9 | 9 | (9) | - | 9 | 0 | 0 | (0) | 0 | 0 |
| 2 | 11 | 10 | 10 | - | 11 | 0 | 0 | 0 | - | 0 |
| 3 | 10 | 9 | (8) | - | 9 | 0 | 0 | (0) | - | 0 |
| 4 | 11 | 11 | (11) | - | 11 | 0 | 0 | (0) | - | 0 |
| 5 | 12 | 9 | (9) | 10 | 10 | 0 | 0 | (0) | 0 | 0 |
| 6 | 11 | 11 | (10) | - | 11 | 0 | 0 | (0) | - | 0 |
| 7 | - | - | - | - | - | - | - | - | - | - |
| 8 | 12 | 14 | (12) | 13 | 13 | 1 | 2 | (1) | 1 | 1 |
| 9 | 13 | 11 | - | - | 12 | 2 | 1 | - | - | 1 |
| 10 | 10 | 10 | (10) | 11 | 10 | 0 | 0 | (0) | 0 | 0 |
| 11 | 11 | 11 | (11) | 11 | 11 | 0 | 0 | (0) | 0 | 0 |
| 12 | 11 | 11 | (11) | 14 | 11 | 0 | 0 | (0) | 1 | 0 |
| 13 | 11 | 10 | (10) | 10 | 11 | 1 | 1 | (1) | 1 | 1 |
| 14 | 11 | 11 | (10) | 10 | 11 | 0 | 0 | (0) | 0 | 0 |
| 15 | 10 | 10 | (9) | 11 | 10 | 0 | 0 | (0) | 0 | 0 |
| 16 | 11 | 10 | (9) | 10 | 10 | 0 | 0 | (0) | 0 | 0 |
| 17 | 11 | 12 | (12) | 11 | 11 | 0 | 0 | (0) | 0 | 0 |
| 18 | 11 | 11 | (10) | 10 | 11 | 0 | 0 | (0) | 0 | 0 |
| 19 | 11 | 11 | - | 10 | 11 | 0 | 0 | - | 0 | 0 |
| 20 | 10 | 10 | (10) | 10 | 10 | 0 | 0 | (0) | 0 | 0 |
| 21 | 10 | 10 | (8) | 9 | 10 | 0 | 0 | (0) | 0 | 0 |
| 22 | 11 | 11 | (10) | 10 | 10 | 0 | 0 | (0) | 0 | 0 |
| 23 | 10 | 10 | (10) | 9 | 10 | 0 | 0 | (0) | 0 | 0 |
| 24 | 11 | 9 | (9) | q | 10 | 0 | 0 | (0) | 0 | 0 |
| 25 | q | q | q | 9 | q | 0 | 0 | 0 | 0 | 0 |
| 26 | 9 | 10 | (10) | 10 | 10 | 0 | 0 | (0) | 0 | 0 |
| 27 | 9 | 10 | (10) | 9 | 9 | 0 | 0 | (0) | 0 | 0 |
| 28 | 10 | 12 | (12) | 11 | 11 | 0 | 0 | (0) | 0 | 0 |
| 29 | 11 | 11 | (10) | 11 | 11 | 0 | 0 | (0) | 0 | 0 |
| 30 | 10 | 11 | (11) | 11 | 10 | 0 | 0 | (0) | 0 | 0 |

Note  No observations during the following periods:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1st | 2120- | 2400 | 5th | 0100- | | 0200 |
| 2nd | 2120- | 2400 | 5th | 0400- | | 0500 |
| 3rd | 2120- | 2400 | 6th | 2120- | 7th | 2400 |
| 4th | 2120- | 2400 | 9th | 2120- | | 2400 |

q : quiet, flux of 9 or 10

# SOLAR RADIO EMISSION

## Flux Density

Month: November 1965.
Observing station: Hiraiso  Frequency: 500 Mc/s

Flux density $10^{-22}$ $Wm^{-2}(c/s)^{-1}$

| UT | 00-03 | 03-06 | 06-09 | 21-24 | Day |
|---|---|---|---|---|---|
| Date | | | | | |
| 1 | 28 | 28 | (26) | 27 | 27 |
| 2 | 28 | 26 | - | 26 | 27 |
| 3 | 29 | 28 | - | 28 | 28 |
| 4 | 28 | 28 | - | 26 | 28 |
| 5 | 27 | 27 | - | 27 | 27 |
| 6 | 28 | 26 | - | 28 | 27 |
| 7 | 29 | 28 | - | 31 | 28 |
| 8 | 30 | 31 | - | 29 | 31 |
| 9 | 29 | 29 | (24) | 30 | 28 |
| 10 | 30 | 28 | (23) | 27 | 29 |
| 11 | 28 | 27 | (25) | - | 27 |
| 12 | (28) | - | (29) | 30 | (29) |
| 13 | 30 | 28 | (27) | 29 | 29 |
| 14 | 29 | 29 | (28) | 28 | 29 |
| 15 | 28 | 27 | (26) | 25 | 27 |
| 16 | 25 | 23 | (24) | 25 | 24 |
| 17 | 25 | 24 | (24) | 25 | 24 |
| 18 | 26 | 28 | (26) | 28 | 27 |
| 19 | 28 | 28 | (26) | 26 | 28 |
| 20 | 27 | 26 | (25) | 26 | 26 |
| 21 | 26 | 25 | (27) | 27 | 26 |
| 22 | 25 | 26 | (26) | 25 | 26 |
| 23 | 26 | 26 | (24) | 25 | 25 |
| 24 | 25 | 26 | (27) | 25 | 26 |
| 25 | 25 | 25 | (24) | 27 | 25 |
| 26 | 26 | 25 | - | 28 | 26 |
| 27 | 28 | 25 | (25) | 26 | 26 |
| 28 | 26 | - | - | 28 | 26 |
| 29 | (26) | 27 | - | 28 | 27 |
| 30 | 26 | 26 | (24) | - | 26 |

Note  No observations during the following periods:

| | | | | | |
|---|---|---|---|---|---|
| 7th | 0200- | 0300 | 28th | 0200- | 0730 |
| 11th | 2120- | 2400 | 29th | 0100- | 0300 |
| 12th | 0100- | 0600 | 29th | 0600- | 0730 |
| 12th | 0700- | 0730 | 30th | 0200- | 0300 |
| 26th | 0600- | 0730 | 30th | 2120- | 2400 |
| 27th | 0100- | 0300 | | | |

## Distinctive Events

(single-frequency observations)

Month: November 1965
Observing station: Hiraiso
Normal observing period: 2120 - 0730 (sunrise to sunset)

| Date | Frequency | Starting time | Time of maximum | Duration | Type | Flux density $10^{-22}$ Wm$^{-2}$(c/s)$^{-1}$ | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | Mc/s | UT | UT | minutes | | peak | mean | |
| 8 | 200 | 0300 | | 24 hrs | storm | | | |

Measurement of H.F. Field Strength (Upper Side-band of WWV)

Nov. 1965 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

| UT / Date | 0015 | 0115 | 0215 | 0315 | 0415 | 0515 | 0615 | 0715 | 0815 | 0915 | 1015 | 1115 | 1215 | 1315 | 1415 | 1515 | 1615 | 1715 | 1815 | 1915 | 2015 | 2115 | 2215 | 2315 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - 4 | <-21s | <-18s | -18 | - 4 | < 3s | - 7 | <-10s | <-12s | <-13s | <-13s | < 8s | <-18s | -19 | -23 | -15 | -19 | -19 | -18 | -23 | (-16)s | - 4 | 4 | 0 |
| 2 | - 6 | -17 | C | -16 | < 3s | < 6s | <-31s | <-19s | <-10s | <-31s | <-32s | <-10s | -28 | -21 | -24 | -21 | -27 | -24 | -20 | -22 | <-11s | <-17s | <-15s | <-15s |
| 3 | <-25s | <-18s | <-27s | <-34s | <-20s | <-22s | <-31s | <-24s | <-23s | <-25s | <-30s | <-12s | <-27s | <-37s | <-34s | -20 | -19 | <-39s | C | C | C | C | C | < 5s |
| 4 | <-26s | <-19s | <-21s | <-31s | S | S | S | S | <-17s | <-19s | <-20s | <-15s | C | <-36s | -32 | - 5 | -15 | -17 | - 9 | - 3 | 0 | 0 | 1 | 1 |
| 5 | -12 | < 9s | S | <-32s | <-11s | S | <-12s | <-16s | < 8s | <-12s | <-16s | <-26s | <-34s | <-35s | <-36s | - 3 | -24 | -22 | (-11)s | C | -11 | (-24)c | C | C |
| 6 | C | -19 | <-24s | <-28s | <-17s | <-12s | < 9s | <-10s | <-17s | <-18s | <-19s | <-27s | <-33s | -30 | -18 | -16 | -25 | -31 | -21 | -18 | < 7s | -20 | -10 | - 5 |
| 7 | -18 | <-21s | <-17s | <-27s | <-19s | <-15s | S | <-21s | <-17s | <-19s | <-23s | <-19s | <-34s | <-35s | <-34s | <-35s | <-34s | <-33s | <-34s | <-34s | -33 | -13 | -10 | (- 5)s |
| 8 | - 9 | (-16)s | -16 | -19 | < 2s | S | <-11s | < 9s | <-18s | <-33s | <-34s | <-25s | <-34s | <-34s | <-34s | <-34s | <-34s | <-34s | <-34s | <-34s | (-22)s | -22 | -14 | (- 3)s |
| 9 | - 4 | (-20)s | (-20)s | (-21)s | < 1s | < 1s | < 3s | S | <-17s | <-16s | <-29s | <-15s | <-31s | <-30s | <-30s | <-39s | <-39s | <-39s | <-39s | <-39s | (-15)s | -18 | -10 | ( 1)s |
| 10 | (-21)s | <-19s | <-21s | <-30s | < 6s | < 9s | <-12s | <-17s | <-22s | <-20s | <-27s | <-16s | <-33s | <-34s | <-33s | <-32s | <-33s | <-30s | <-30s | <-32s | (-11)s | 1 | 0 | 3 |
| 11 | <-26s | <-22s | S | <-33s | <-17s | <-21s | < 7s | S | <-19s | <-26s | <-27s | <-13s | <-34s | -34 | <-35s | <-33s | <-33s | C | C | C | C | C | C | C |
| 12 | -25 | -27 | -24 | -29 | S | S | < 7s | <-20s | <-21s | C | <-31s | C | <-35s | <-35s | C | C | C | C | C | C | C | C | C | 4 |
| 13 | - 6 | <-28s | <-26s | <-24s | < 3s | < 3s | S | S | S | <-25s | <-31s | <-31s | <-39s | <-39s | <-39s | <-39s | <-39s | <-39s | <-38s | <-38s | <-38s | -12 | < 7s | - 6 |
| 14 | <-24s | <-20s | <-25s | <-28s | < 9s | < 1s | < 3s | <-15s | <-19s | <-22s | <-27s | <-40c | <-40c | <-40c | <-40c | <-40c | <-33s | <-32s | <-32s | <-31s | -31 | -17 | - 7 | - 5 |
| 15 | C | (-22)s | -20 | <-23s | <-16s | <-10s | < 6s | S | S | S | <-33s | <-29s | <-34s | <-34s | <-34s | <-34s | <-34s | <-35s | <-35s | <-35s | <-36s | <-28s | - 9 | - 4 |
| 16 | <-25s | <-23s | <-24s | <-25s | < 7s | < 5s | < 2s | < 4s | <-23s | <-33s | <-34s | <-24s | <-33s | <-30s | <-31s | <-32s | <-33s | <-35s | -26 | -22 | -11 | - 2 | 2 | 2 |
| 17 | <-32s | S | <-27s | C | < 8s | < 2s | < 5s | < 6s | < 4s | <-12s | <-32s | <-14s | <-31s | <-34s | <-25s | <-35s | <-35s | -34 | -13 | -13 | -12 | C | C | C |
| 18 | (-23)s | (-23)s | < 9s | -34 | C | < 6s | < 4s | <-13s | < 8s | <-29s | <-35s | <-29s | <-35s | <-35s | -20 | -30 | (-35)s | <-36s | <-36s | -32 | -21 | - 4 | 6 | 3 |
| 19 | -18 | <-13s | <-22s | <-20s | <-18s | <-14s | < 5s | <-16s | <-19s | <-33s | <-33s | <-15s | <-26s | <-24s | <-30s | <-29s | <-28s | <-31s | <-36s | <-35s | -34 | -15 | - 4 | < 2s |
| 20 | -24 | <-21s | <-20s | <-24s | <-12s | < 7s | < 2s | <-10s | <-16s | <-18s | <-19s | <-10s | <-34s | <-34s | <-35s | <-35s | <-35s | <-35s | <-35s | <-35s | -29 | - 6 | 4 | 2 |
| 21 | -29 | -28 | <-29s | <-29s | <-11s | < 3s | < 2s | <-12s | <-16s | <-25s | <-15s | <-26s | <-28s | (-28)s | -18 | -27 | -26 | -20 | -20 | <-31s | <-30c | <-34c | - 8 | (- 9)s |
| 22 | <-12s | - 7 | -12 | -12 | < 5s | < 3s | < 6s | <-14s | <-18s | <-26s | <-34s | <-33s | <-34s | <-34s | <-35s | <-36s | <-36s | <-32s | <-36s | <-32s | -13 | -11 | - 2 | -10 |
| 23 | -23 | <-22s | <-20s | < 8s | <-14s | <-10s | < 4s | <-14s | <-18s | <-33s | <-33s | <-33s | <-34s | <-34s | <-34s | <-35s | <-35s | <-35s | (-35)s | -35 | -31 | -20 | - 9 | -10 |
| 24 | -19 | -12 | -18 | -24 | < 0s | < 2s | < 8s | S | <-21s | <-33s | <-32s | <-25s | <-33s | (-23)s | -23 | <-33s | -13 | <-22s | -16 | -27 | (-31)s | -21 | - 4 | - 3 |
| 25 | -23 | < 8s | <-19s | <-24s | < 2s | < 4s | <-22s | <25s | <-34s | <-35s | <-35s | <-23s | <-34s | <-34s | <-34s | <-34s | <-34s | <-34s | <-34s | <-34s | -33 | -11 | - 9 | -13 |
| 26 | <-21s | <-18s | <-19s | <-23s | < 4s | < 4s | < 3s | <-20s | <-16s | <-32s | <-32s | <-23s | <-33s | - 9 | -16 | -22 | -16 | <-23s | -29 | -28 | -31 | -17 | - 4 | - 4 |
| 27 | <-26s | <-20s | <-20s | <-26s | < 6s | < 6s | < 3s | <-15s | <-16s | <-28s | <-34s | <-34s | <-34s | <-34s | <-34s | <-35s | <-35s | <-35s | <-35s | <-35s | <-19s | -18 | - 3 | -11 |
| 28 | -13 | <-14s | <-22s | <-18s | < 3s | < 0s | S | <-15s | <-29s | <-20s | <-27s | <-16s | <-33s | <-34s | <-35s | <-36s | <-33s | <-33s | <-25s | <-33s | <-17s | 0 | 1 | - 6 |
| 29 | (-27)s | <-24s | C | <-26s | <-17s | <-11s | < 8s | <-16s | <-28s | <-35s | <-31s | <-22s | <-35s | <-35s | <-35s | <-35s | <-36s | <-35s | <-35s | <-28s | <-32s | - 6 | - 4 | < 9s |
| 30 | <-22s | <-18s | <-19s | <-25s | <-18s | <-14s | S | <-19s | <-30s | <-35s | <-35s | <-30s | <-36s | <-36s | <-37s | <-37s | <-37s | <-37s | <-37s | <-37s | <-37s | -14 | - 8 | - 1 |
| Median | (-23)s | <-20s | <-20s | <-25s | < 8s | < 4s | < 6s | <-15s | <-18s | <-26s | <-31s | <-23s | <-34s | <-34s | <-34s | <-34s | <-33s | <-34s | <-34s | <-32s | (-26)s | -15 | - 4 | (- 5)s |
| Med. Count | 28 | 28 | 26 | 29 | 27 | 26 | 25 | 24 | 28 | 28 | 30 | 29 | 29 | 30 | 29 | 29 | 29 | 28 | 27 | 26 | 27 | 25 | 25 | 27 |
| Upper decile | - 6 | < 9s | <-16s | <-16s | < 2s | < 4s | < 4s | < 4s | < 8s | <-13s | <-16s | <-10s | <-27s | -21 | -18 | -15 | -16 | -20 | -13 | -18 | <-11s | 0 | < 4s | 3 |
| Lower decile | <-27s | <-27s | <-27s | <-32s | <-18s | <-15s | <-22s | <-21s | <-29s | <-35s | <-35s | <-33s | <-36s | <-37s | <-37s | <-39s | <-37s | <-39s | <-37s | <-37s | <-36s | <-22s | -10 | -10 |

Measurement of H.F. Field Strength (Upper Side-band of WWVH)

Nov. 1965 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraiso

| UT Date | 0045 | 0145 | 0245 | 0345 | 0445 | 0545 | 0645 | 0745 | 0845 | 0945 | 1045 | 1145 | 1245 | 1345 | 1445 | 1545 | 1645 | 1745 | 1845 | 1945 | 2045 | 2145 | 2245 | 2345 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7 | 15 | 11 | 16 | 16 | 6 | ≤ 3s | ≤ 9s | ≤ 8s | ≤ 6s | ≤ 2s | ≤10s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | -21 | - 7 | -19 | 8 | 6 | 9 | 4 |
| 2 | 11 | ( 9)c | 17 | 24 | < 1s | - 6 | (- 5)s | - 2 | 0 | -21 | ≤-32s | ≤14s | ≤-31s | ≤-33s | ≤-31s | ≤-37s | -24 | -13 | - 4 | -19 | 6 | 7 | 8 | 10 |
| 3 | 9 | 9 | 11 | 12 | 9 | -10 | -12 | -11 | -21 | -26 | -28 | ≤17s | ≤-26s | ≤-37s | ≤-27s | ≤-28s | ≤-39s | ≤-35s | C | C | C | C | 8 | C |
| 4 | C | 12 | 12 | ( 16)s | C | S | ≤11s | -11 | ≤ 9s | ≤19s | ≤14s | ≤28s | C | ≤-36s | ≤-36s | ≤-36s | ≤-36s | 3 | 3 | 1 | 13 | 6 | 9 | 8 |
| 5 | 6 | 12 | ( 11)s | 19 | 5 | - 7 | ≤ 7s | < 0s | ≤ 3s | C | < 0s | ≤21s | ≤-34s | ≤-36s | ≤-36s | ≤-36s | (-34)s | - 8 | -24 | -10 | 7 | ≤-12s | C | 9 |
| 6 | 9 | 10 | 12 | 15 | 11 | 9 | - 3 | < 2s | ≤11s | ≤12s | ≤ 1s | -23 | -30 | -33 | ≤-34s | ≤-35s | ≤-35s | -31 | ≤-34s | ≤-19s | 3 | 8 | 10 | 9 |
| 7 | 5 | 0 | 9 | 10 | 15 | - 8 | ≤ 7s | ≤13s | ≤15s | ≤ 4s | ≤ 3s | ≤27s | (-34)s | ≤-35s | ≤-35s | ≤-34s | ≤-34s | ≤-15s | -33 | -24 | 10 | 5 | 3 | 8 |
| 8 | 8 | 10 | 8 | 19 | ( 27)s | 1 | ≤ 2s | ≤14s | ≤22s | ≤34s | ≤34s | ≤18s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | -19 | 3 | 7 | 7 | 11 |
| 9 | 7 | 10 | 10 | 13 | 17 | ≤ 3s | ≤ 8s | ≤ 4s | ≤ 4s | ≤23s | ≤13s | ≤28s | ≤-31s | ≤-30s | ≤-30s | ≤-39s | ≤-39s | ≤-39s | ≤-39s | -15 | 5 | 9 | 9 | 10 |
| 10 | 7 | 9 | 18 | 28 | 14 | (- 6)s | ≤ 7s | ≤12s | ≤22s | ≤18s | ≤34s | ≤18s | ≤-34s | ≤-33s | ≤-34s | ≤-32s | ≤-33s | ≤-30s | ≤-31s | -27 | - 1 | 5 | 6 | 3 |
| 11 | 5 | 5 | 15 | 15 | 8 | (-11)s | ≤ 5s | S | ≤10s | ≤31s | ≤27s | ≤19s | ≤-34s | ≤-35s | ≤-36s | ≤-33s | ≤-35s | C | C | C | C | C | C | ( 1)c |
| 12 | 9 | 3 | 9 | 14 | 19 | ≤-14s | ≤10s | ≤ 4s | ≤20s | C | ≤17s | C | ≤-35s | ≤-35s | C | C | C | C | C | C | C | C | C | C |
| 13 | C | ( 7)s | S | C | 11 | (-16)s | - 4 | < 9s | ≤ 1s | ≤20s | ≤34s | ≤35s | ≤-39s | ≤-39s | ≤-39s | ≤-39s | ≤-39s | ≤-38s | ≤-38s | -32 | - 6 | 6 | < 7s | 7 |
| 14 | 8 | 11 | 9 | ≤ 9s | 17 | 1 | ≤ 3s | < 2s | ≤17s | ≤25s | ≤28s | ≤33c | ≤-40c | ≤-40c | ≤-40c | ≤-40c | ≤-33s | ≤-33s | ≤-32s | ≤-29s | - 6 | 6 | 8 | 5 |
| 15 | 5 | 9 | ( 9)s | 19 | 18 | - 9 | ≤ 1s | ≤ 7s | < 11s | ≤29s | ≤33s | ≤27s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-35s | ≤-35s | -23 | - 6 | - 1 | 8 | 7 |
| 16 | 5 | S | ( 14)s | S | S | < 2s | ≤ 1s | < 1s | ≤25s | ≤34s | ≤34s | ≤27s | ≤-33s | ≤-31s | ≤-32s | ≤-33s | ≤-34s | -22 | -26 | -23 | 1 | 1 | 8 | 8 |
| 17 | 12 | 8 | C | 22 | ( 7)s | ≤10s | ≤ 1s | < 6s | ≤10s | ≤19s | ≤31s | ≤ 7s | ≤-34s | ≤-27s | ≤-31s | ≤-35s | ≤-35s | - 5 | - 5 | -10 | C | C | C | 9 |
| 18 | 7 | 3 | 9 | 14 | 18 | 14 | ( 10)s | ≤ 4s | ≤12s | ≤34s | ≤35s | ≤31s | ≤-32s | ≤-35s | ≤-35s | ≤-35s | ≤-36s | -35 | (-36)s | -30 | 2 | 7 | 6 | 7 |
| 19 | 7 | 6 | ( 10)s | 5 | 11 | ≤13s | < 0s | < 0s | ≤13s | ≤34s | ≤30s | ≤24s | ≤-25s | ≤-30s | ≤-30s | ≤-29s | ≤-28s | ≤-33s | ≤-35s | -34 | 5 | 4 | 6 | 7 |
| 20 | 3 | 4 | 14 | 16 | 18 | - 3 | ≤ 5s | ≤ 7s | ≤ 9s | ≤11s | ≤12s | ≤ 7s | ≤-34s | ≤-34s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | -29 | 4 | 5 | 7 | 7 |
| 21 | 8 | 8 | 11 | 14 | 17 | -13 | ≤ 6s | ≤ 4s | ≤ 8s | ≤ 2s | ≤33s | ≤34s | ≤-28s | -27 | ≤-30s | (-29)s | ≤-31s | ≤-34c | ≤-33s | -30 | ≤-24c | ≤-20c | 8 | 11 |
| 22 | ≤20s | 8 | 14 | 19 | 2 | (- 3)s | S | ≤ 4s | ≤27s | ≤26s | ≤26s | ≤34s | ≤-34s | ≤-35s | ≤-35s | ≤-36s | ≤-35s | ≤-25s | ≤-35s | -30 | 7 | 2 | 8 | 9 |
| 23 | 9 | 12 | 8 | 13 | 11 | (- 9)s | ≤ 2s | ≤ 8s | ≤32s | ≤33s | ≤33s | ≤33s | ≤-34s | ≤-34s | ≤-34s | ≤-35s | ≤-35s | -31 | -27 | -19 | 5 | 2 | 3 | 1 |
| 24 | 4 | 13 | 8 | 13 | 8 | ≤13s | ≤ 9s | ≤14s | ≤21s | ≤21s | ≤34s | ≤32s | S | ≤-36s | ≤-33s | ≤-33s | ≤-33s | ≤-29s | ≤-31s | ≤-31s | - 3 | 0 | 12 | 17 |
| 25 | 12 | 18 | 14 | ≤10s | 10 | ≤15s | ≤19s | ≤31s | ≤35s | ≤35s | ≤35s | ≤35s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | ≤-34s | -26 | 10 | 16 | 6 | 8 |
| 26 | 8 | 10 | 11 | 16 | 11 | < 5s | ≤19s | ≤11s | ≤31s | ≤32s | ≤32s | ≤32s | ≤-33s | ≤-33s | ≤-33s | ≤-33s | ≤-34s | -24 | ≤-22s | -29 | 1 | 6 | 8 | 5 |
| 27 | 9 | 12 | 14 | 18 | (- 2)s | ≤ 5s | ≤ 9s | ≤ 2s | ≤33s | ≤34s | ≤34s | ≤34s | ≤-34s | ≤-34s | ≤-34s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | 3 | 12 | 13 | 8 |
| 28 | 10 | 10 | 15 | 22 | 14 | ≤ 8s | < 0s | ≤19s | ≤22s | ≤34s | ≤35s | ≤27s | ≤-34s | ≤-34s | ≤-35s | ≤-36s | ≤-33s | ≤-33s | ≤-31s | -22 | 8 | 10 | 10 | 9 |
| 29 | 12 | C | C | 16 | 6 | ≤10s | ≤10s | ≤24s | ≤30s | ≤34s | ≤31s | ≤24s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | ≤-35s | ≤-32s | 0 | 5 | 7 | 8 |
| 30 | 13 | 11 | 10 | 16 | (-12)s | ≤ 8s | S | ≤19s | ≤36s | ≤35s | ≤25s | ≤30s | ≤-36s | ≤-37s | ≤-37s | ≤-37s | ≤-37s | ≤-37s | ≤-37s | ≤-37s | 7 | 8 | 7 | 10 |
| Median | 8 | 10 | 11 | 16 | 11 | (- 9)s | ≤ 5s | ≤ 7s | ≤16s | ≤26s | ≤31s | ≤27s | ≤-34s | ≤-34s | ≤-34s | ≤-35s | ≤-34s | ≤-33s | ≤-33s | (-27)s | 4 | 6 | 8 | 8 |
| Med. Count | 29 | 28 | 27 | 28 | 28 | 29 | 28 | 29 | 30 | 28 | 30 | 29 | 28 | 30 | 29 | 29 | 29 | 28 | 27 | 27 | 26 | 26 | 26 | 28 |
| Upper decile | 12 | 13 | 15 | 22 | 18 | 6 | < 0s | < 2s | ≤ 1s | ≤ 6s | ≤ 2s | ≤10s | ≤-28s | ≤-30s | ≤-30s | ≤-29s | ≤-31s | - 8 | - 5 | -10 | 10 | 10 | 10 | 11 |
| Lower decile | 4 | 3 | 8 | 5 | < 1s | ≤14s | ≤12s | ≤19s | ≤33s | ≤34s | ≤35s | ≤34s | ≤-36s | ≤-37s | ≤-37s | ≤-39s | ≤-39s | ≤-37s | ≤-37s | ≤-34s | - 6 | - 1 | - 6 | 3 |

## RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

| Nov. 1965 | Whole Day Index | H B 06 12 18 / 12 18 24 | W W V 00 06 12 18 / 06 12 18 24 | S F 00 06 12 18 / 06 12 18 24 | W W V H 00 06 12 18 / 06 12 18 24 | Warning 00 06 12 18 / 06 12 18 24 | Principal magnetic storms Start | End | ΔH |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4+ | C (4 5) | - - (5) 5 | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 2 | 4o | C C C | (4) - (4) 3 | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 3 | 4o | C (4) C | - - (4 4) | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 4 | 4o | (4) 4 C | - - (4) 5 | 4 4 4 4 | 4 (4) - 5 | N N N N | | | |
| 5 | 4o | 4 (4) C | - - (4) 4 | 3 4 4 4 | 4 4 - 4 | N N N N | | | |
| 6 | 4o | 5 4 C | - - (4) 4 | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 7 | 4- | 4 4 C | - - - 4 | 3 4 4 3 | 4 4 - 4 | N N N N | | | |
| 8 | 4- | 4 4 3 | - - - 3 | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 9 | 4o | 4 4 4 | - - - 4 | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 10 | 4o | 4 5 4 | - - - 4 | 3 4 4 3 | 4 (3) - 4 | N N N N | | | |
| 11 | 4o | 4 5 4 | - - - C | 3 4 4 4 | 4 4 - C | N N N N | | | |
| 12 | 4o | 5 5 4 | - - - 4 | 3 4 4 4 | 4 4 - 4 | N N N N | | | |
| 13 | 4- | 3 4 4 | - - - (3) | 4 4 4 3 | 4 4 - 4 | N N N N | | | |
| 14 | 4+ | 5 4 5 | - - - 4 | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 15 | 4+ | 4 4 5 | - - - 3 | 5 5 4 4 | 4 4 - 4 | N N N N | | | |
| (16) | 4+ | 3 4 5 | - - - 4 | 5 5 5 4 | 4 C - 4 | N N N N | | | |
| (17)° | 5- | 5 4 4 | - - - 5 | 5 4 4 5 | 4 4 - 5 | N N N N | | | |
| (18) | 4o | 3 4 4 | - - - 5 | 4 4 4 4 | 4 3 - 4 | N N N N | | | |
| 19 | 4o | 4 4 5 | - - - C | 4 4 4 4 | 4 4 - 3 | N N N N | | | |
| 20 | 4+ | 5 4 (5) | - - - 4 | 3 C C C | 4 5 - 4 | N N N N | | | |
| 21 | 4+ | 5 4 4 | - - (4) 4 | C 4 4 5 | 4 4 - 4 | N N N N | | | |
| 22 | 4o | 4 4 4 | (4) - - 4 | 5 4 4 4 | 4 4 - 4 | N N N N | | | |
| 23 | 4- | 4 4 (2) | - - - 4 | 4 4 3 4 | 4 (4) - 4 | N N N N | | | |
| 24 | 4o | 4 4 3 | - - (5) 4 | 3 4 4 5 | 4 4 - 4 | N N N N | | | |
| 25 | 4o | 4 4 4 | - - - 4 | 4 4 4 (5) | 4 (4) - 4 | N N N N | | | |
| 26 | 4o | 4 3 3 | - - (4) 4 | 5 4 4 5 | 4 4 - 4 | N N N N | | | |
| 27 | 4o | 3 4 4 | - - - 4 | 4 4 4 (4) | 4 4 - 4 | N N N N | | | |
| 28 | 4o | 4 4 4 | - - - 4 | 4 4 4 4 | 4 5 - 4 | N N N N | | | |
| 29 | 4o | 3 4 4 | - - - 4 | 4 4 4 4 | 4 4 - 4 | N N N N | | | |
| 30 | 4- | 3 4 3 | - - - 4 | 3 4 4 4 | (4) 3 - (4) | N N N N | | | |

IQSY GEOALERT and ADALERT (Western Pacific Region)

* = MAGSTORM

o = MAGCALME

Δ = COSMIC EVENT

( ) = Regular World Day

\- = impossible to evaluate

( ) = inaccurate

C = artificial accident

--- = continuing magnetic storm

# SUDDEN IONOSPHERIC DISTURBANCES (S.I.D.)

HIRAISO

No Sudden Ionospheric Disturbance was observed during November, 1965.

IONOSPHERIC DATE IN JAPAN FOR NOVEMBER 1965
第 17 巻　第 11 号

1966年2月20日　印　刷
1966年2月25日　発　行　（不許複製非売品）

編集兼発行人　糟谷績
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