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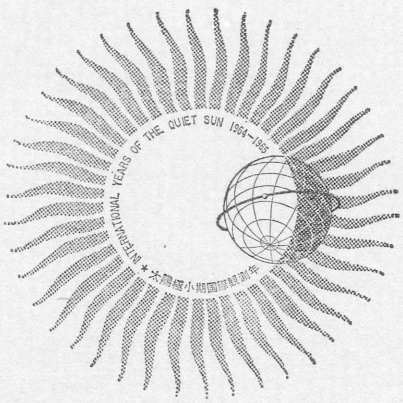
# IONOSPHERIC DATA IN JAPAN

## FOR APRIL 1965

Vol. 17 No. 4

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Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI TOKYO, JAPAN

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 London (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 London, 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)
LN.....Various commercial circuits (London)

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

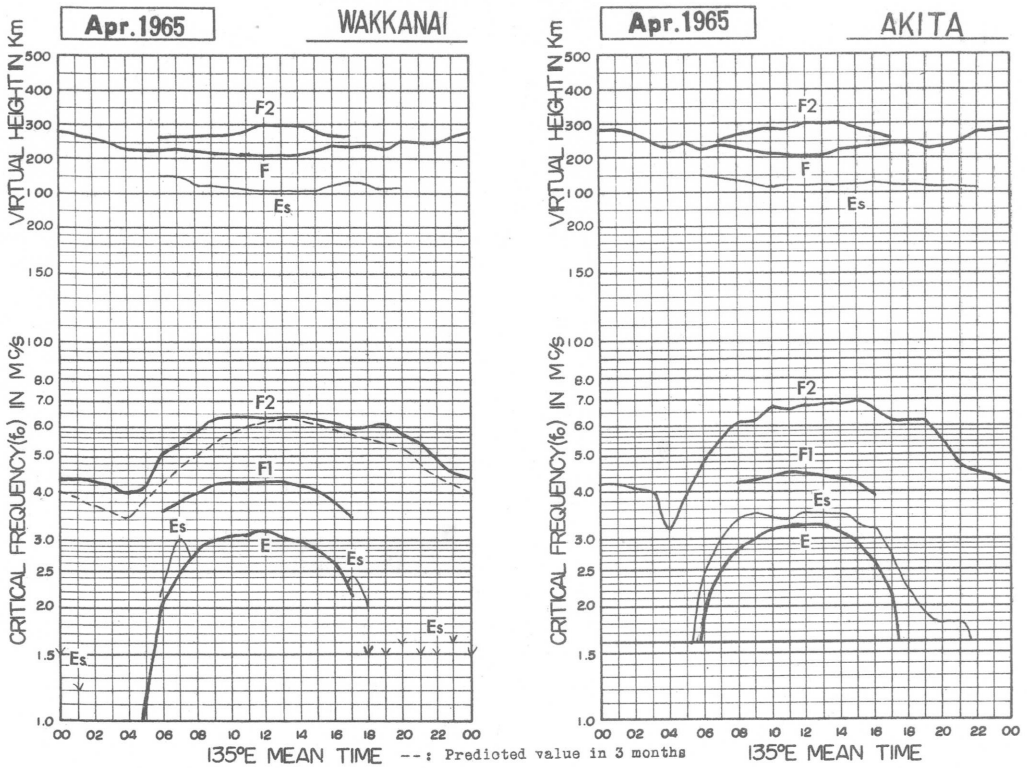
*Importances*

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

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

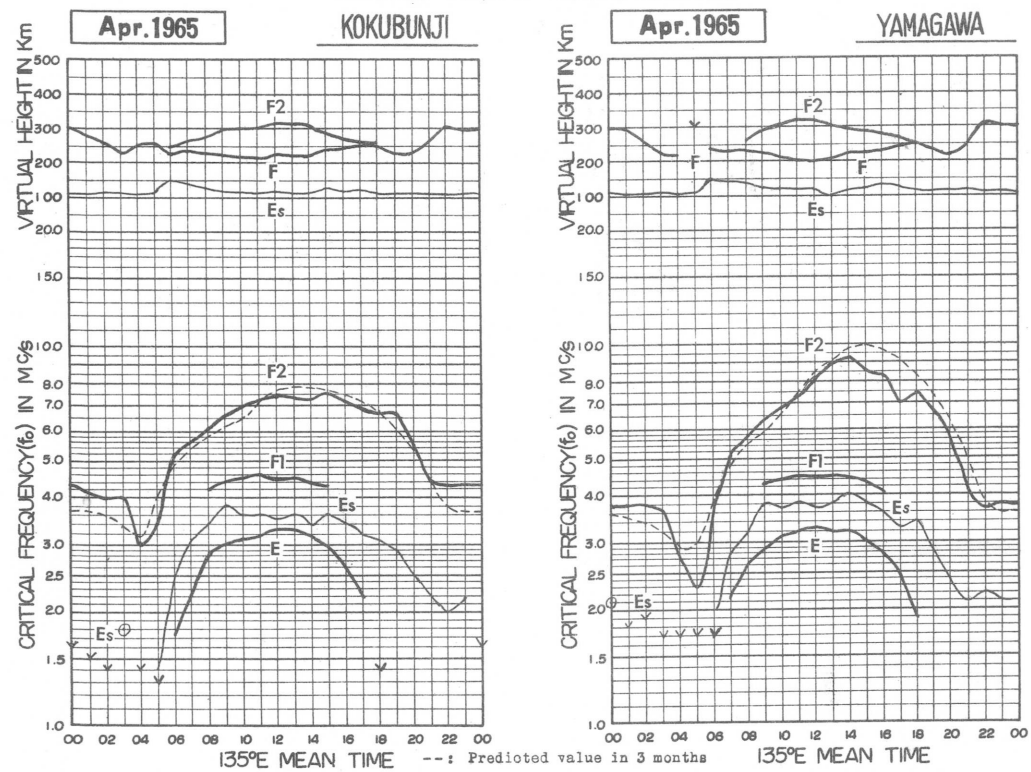
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS




--: Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS




--: Predicted value in 3 months advance by R.R.L.

# IONOSPHERIC DATA

Apr. 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 | 038 | U039S | U040S | 040S | 036 | 040 | 051 | 054 | 062 | 070 | 068 | 069 | 070 | 069 | C | C | C | C | 057 | 056 | 052 | SF | SF | SF |
| 2 | SF | 040 | 040 | 043 | 044 | 042 | 048 | 058 | 066 | 071 | 069 | 069 | 063 | U071S | C | C | C | C | 059 | 059 | 051 | C | C | C |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | 063 | I065C | 065 | 063 | 058 | 053 | 053 | U050S | 048 | I045S | 043 |
| 4 | 043 | 043 | 043 | 044 | 036 | 037 | 051 | 056 | 058 | 063 | 059 | 072 | 058 | 071 | 071 | 066 | 064 | 057 | 062 | 061 | 055 | 050 | I049S | I047S |
| 5 | 045S | 043 | 043 | 043 | 041 | 046 | 052 | 048 | 053 | 063 | 066 | 070 | 070 | 066 | 071 | 063 | 063 | 062 | U066S | 062 | 053 | 048 | U044S | 045 |
| 6 | I044S | I044S | 046 | 047 | 039 | 040 | 046 | 054 | 056 | 064S | 063 | 061 | 067 | 065 | 067S | 067 | 059 | 061 | 061 | U063S | U067S | 054 | U044S | U041S |
| 7 | I039S | U038S | U038S | U042S | I043S | 039 | 045 | 053 | 051 | 060 | 063 | 064 | 073 | 072 | 073 | I070C | I058C | 062 | 062 | 062 | 052 | 051 | 050 | 047 |
| 8 | 046 | 044 | U044S | 043 | 037 | 043 | 049 | 054 | 055 | 066 | 064 | 071 | 069 | 070 | 065 | 063 | I060C | 055 | 058 | 058 | 056 | 053 | 047 | 045 |
| 9 | 043 | 040S | 042 | 039 | 040 | 043 | 051 | 053 | 055H | 061 | 071 | 068 | 075 | 068 | 069 | 068 | 078 | 073 | U072S | 061S | 053 | 049 | 048 | 048 |
| 10 | 045 | 045 | 043 | 042 | 043S | 047 | 055 | 057 | 063 | 068 | 067 | 068S | 066 | 076 | 076 | 074 | U068S | 060 | 066 | 061 | 057 | 051F | A | A |
| 11 | F | F | F | F | SF | 038 | 047 | 055 | 058 | 069 | 068 | 072 | 072 | 072 | 071 | 064 | 065 | 058 | 057 | U063S | 061 | 063S | 054 | SF |
| 12 | SF | 044F | 041F | SF | SF | 042F | 053 | 058 | 061Z | 070 | I066A | 058 | 058 | 057 | 067 | 069 | 066 | 066 | 067 | 068 | 066 | 058 | 053S | 053 |
| 13 | SF | SF | SF | SF | SF | 041 | 051 | 051 | 066 | 064 | 072 | 063 | 065 | 066 | 064 | I064C | 065 | I053C | 055 | U066S | 064 | 063 | 053 | 048 |
| 14 | 047 | 047 | 045 | 046 | 042 | 044 | 053 | 060 | 061 | 074 | 078 | 065 | 058 | I059C | 064 | 069 | I065C | I063C | 065S | U068S | 056 | 053 | 047 | 046 |
| 15 | 044 | 044 | 043 | 041 | 034 | 043 | 051 | 053 | 065 | 073 | 067 | 069 | 064 | 071 | 074 | I068C | 060 | 053 | 053 | 058 | 057 | 059 | 053 | 044 |
| 16 | 044 | 044 | 044 | 043 | 038 | 041 | 053 | 056 | 070 | 074 | 075 | 074 | 068 | 066 | 064 | 063 | 065 | 062 | 062 | 068 | 059 | 056 | 051 | 044 |
| 17 | 043 | 044 | 043 | 041 | 042 | 040 | 046 | 051 | 053 | 065 | 062 | 069 | 059 | 057 | 062 | 061 | 061 | 056 | 054 | 060 | 059 | 057 | 049 | 045 |
| 18 | 046 | 043 | U041S | 040 | 041 | 046 | 048 | 055 | 054 | 061 | 070 | 071 | 068 | 077 | 083 | 087 | 091 | 071 | U098S | U086S | U072S | 058H | 058 | 051 |
| 19 | I051A | I048A | I045A | 053F | 052F | SF | I046A | S | A | E038G | E040G | A | C | E040G | G040G | 040 | E038G | I039C | 041 | 041 | 043 | A | SF | SF |
| 20 | 031 | 030F | 031 | 033 | 032 | 037 | 044 | 043 | 042 | 048 | 053 | 053 | 055 | I053C | 052 | 054 | 050 | 050 | 050 | I054S | 057 | I055S | 050 | U045S |
| 21 | I044S | 044 | 041 | 036 | 026 | 035 | 041 | 046 | 049 | 054 | 057 | 057 | 055 | 053 | 054 | 056 | 058 | 053 | 053 | 050 | 051 | 050 | 044 | U043S |
| 22 | SF | SF | SF | SF | U037S | 040 | 050 | 048 | 054 | 063 | 065 | 061 | 065 | 066 | 060 | 057 | 056 | 058 | 055 | 058 | 054 | 052 | 051 | 049 |
| 23 | SF | SF | SF | SF | 041F | 045 | 051 | 058 | 057 | 057 | 061 | 057 | 065 | 063 | 058 | 054 | 054 | 054 | 063 | U067S | 070 | 061 | 047 | 043S |
| 24 | 042 | 043S | 042 | 039 | 037 | 043 | 053 | 060 | 059V | 062 | 058 | 060V | 057 | 061 | 062 | 063 | 058 | 054 | 053 | 064 | U067S | 061 | 043 | 043 |
| 25 | U043S | 043S | SF | SF | SF | SF | 053 | 056 | 061 | 059 | 058 | 057 | 057 | 050 | 053 | 057 | 061 | 063 | 067 | 070 | 060S | 056S | 051S | 050 |
| 26 | I048S | SF | 043F | 043F | 043F | 050 | 053 | 057 | 053 | 058 | 062 | 057 | 057 | 056 | 060 | 059 | 063 | 063 | 063 | C | C | C | C | C |
| 27 | C | C | C | C | C | C | C | C | C | 060 | 063 | 063 | 063 | 062 | 064 | 063 | 065 | 065 | 062 | 060 | 054 | 050 | 050S | 051S |
| 28 | 049S | 047S | 043 | 042 | 041 | 044 | 050 | 050 | 063 | 064 | 065 | 058 | 051 | 054 | 052 | 057 | 055 | 061 | 062 | 065 | 063 | I057S | U046S | 037 |
| 29 | 036 | 035F | SF | 035F | 039 | 048 | 047 | 050 | 053 | 054 | 055 | 057 | 054 | 056 | 060 | 057 | 060 | 054 | 050 | 058 | 060 | SF | 053F | SF |
| 30 | I046S | 046S | 043 | 042S | 044 | 053 | 056 | 061 | 063 | 060 | 062 | 053 | 053 | 057 | 056 | 061 | 066 | 064 | 065S | 061 | 053S | 053 | 048 | 048S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 22 | 23 | 22 | 22 | 24 | 26 | 28 | 27 | 27 | 29 | 29 | 28 | 28 | 30 | 28 | 28 | 28 | 28 | 30 | 29 | 29 | 25 | 25 | 23 |
| Median | 044 | 044 | 043 | 042 | 040 | 042 | 051 | 054 | 058 | 063 | 064 | 064 | 064 | 064 | 064 | 063 | 062 | 059 | 060 | 061 | 057 | 054 | 049 | 045 |
| U. Q. | 046 | 044 | 043 | 043 | 042 | 045 | 053 | 057 | 063 | 068 | 068 | 069 | 068 | 070 | 070 | 068 | 065 | 063 | 065 | 066 | 062 | 058 | 052 | 048 |
| L. Q. | 043 | 040 | 041 | 040 | 037 | 040 | 047 | 051 | 053 | 060 | 060 | 058 | 057 | 057 | 059 | 057 | 058 | 054 | 054 | 058 | 053 | 050 | 046 | 043 |
| Q. R. | 003 | 004 | 002 | 003 | 005 | 005 | 006 | 006 | 010 | 008 | 008 | 011 | 011 | 013 | 011 | 011 | 007 | 009 | 011 | 008 | 009 | 008 | 006 | 005 |

The Radio Research Laboratories, Japan

foF2

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

W 1

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | | 400 | 410 | 430H | 430 | 430H | 420 | C | C | C | C | | | | | | |
| 2 | | | | | | | | | 410 | 420 | 430 | 430 | 430 | 430 | C | C | C | C | | | | | | |
| 3 | | | | | | | | C | C | C | C | C | C | 420 | I420C | 400 | 400L | | | | | | | |
| 4 | | | | | | | | | 400 | 420 | 420 | 430 | 430 | 430 | 430 | 400 | U370L | | | | | | | |
| 5 | | | | | | | | | 400L | 410 | 430 | 430 | 430 | 430 | 410 | 410 | 380 | | | | | | | |
| 6 | | | | | | | | | 390 | 410 | 430 | 430H | 430 | 430H | 420H | 410 | 380L | | | | | | | |
| 7 | | | | | | | | | | 420H | 430 | 430 | 430 | 420 | 420 | I400C | I370C | | | | | | | |
| 8 | | | | | | | | | 400 | 410 | 430 | 430 | 420 | 430 | 410 | 410 | C | | | | | | | |
| 9 | | | | | | | | | | 410 | 430 | 440 | 440H | 440 | 420H | 420 | 380 | | | | | | | |
| 10 | | | | | | | | | 400 | 420 | 430 | 430 | 430 | 440 | 420H | 410 | 400L | | | | | | | |
| 11 | | | | | | | | | 400 | I420A | I440A | I440A | 450H | 430 | 420H | 400 | 370 | | | | | | | |
| 12 | | | | | | | U380L | 370 | | 420 | I430A | 430 | 440 | U430L | 430 | 410 | 380 | | | | | | | |
| 13 | | | | | | | | 380 | 400 | 420H | 430 | 430 | 440H | 430 | 420 | I400C | U380L | | | | | | | |
| 14 | | | | | | | | U380L | 420 | 420 | 440 | 440 | 440 | I430C | 420 | 410 | C | C | | | | | | |
| 15 | | | | | | | | | 410 | 430 | 440 | 450 | 430 | 440 | 430 | I400C | 370 | | | | | | | |
| 16 | | | | | | | | 400 | 400 | 420 | 430 | 440 | 430 | 440 | 430H | 410H | 390L | | | | | | | |
| 17 | | | | | | | | | 400 | 420 | 430 | 430 | 430 | 430 | 420H | 410 | 380L | 300 | | | | | | |
| 18 | | | | | | | | 400 | 410 | 430 | 440 | 440 | 440 | 450 | 430H | 420 | 390 | 360 | | | | | | |
| 19 | | | | | | | | 360 | I370A | 380 | 400 | I400A | I400C | 400 | 400 | 390 | 380H | I330C | | | | | | |
| 20 | | | | | | | | 370L | 400 | 420 | 420 | 430 | 430 | I420C | 420 | 410 | I380A | 330L | | | | | | |
| 21 | | | | | | | | 370 | 400 | 420 | 420 | 430 | 430 | 430 | 420 | 400 | 390 | | | | | | | |
| 22 | | | | | | | | | 420 | 420 | 430 | 440 | 440 | 430 | 430H | 410 | 380 | U340L | | | | | | |
| 23 | | | | | | | | 400 | 410 | 430 | 430 | 430 | 450H | 430 | 430 | 410 | 390 | U370L | | | | | | |
| 24 | | | | | | | 360L | 390 | 410 | 420 | 430 | 440 | 430 | 430 | 420 | 420 | 400 | | | | | | | |
| 25 | | | | | | | U390L | 390 | 410 | 420 | 430 | 430 | 430 | U420L | A | A | A | A | | | | | | |
| 26 | | | | | | | | I380A | I400A | 420 | 430 | 440 | 430 | 430 | 430 | 410 | A | A | | | | | | |
| 27 | | | | | | | C | C | C | 420 | 430 | 430 | 440H | U430S | 420H | 410H | 390 | 350 | | | | | | |
| 28 | | | | | | | 340 | | 410 | 420 | 430 | 430 | 440 | 430H | 430 | 400 | 400 | 350 | U290L | | | | | |
| 29 | | | | | | | | 390 | 410 | 430 | 430 | 440 | 430 | 440 | 430 | 410H | 390 | 360L | | | | | | |
| 30 | | | | | | | 350L | 390 | 410 | 430 | 430 | 440 | 440 | 440 | 430 | 420 | I390A | 340 | 280 | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 5 | 14 | 25 | 29 | 29 | 29 | 29 | 30 | 27 | 27 | 24 | 10 | 2 | | | | | |
| Median | | | | | | | 360L | 385 | 400 | 420 | 430 | 430 | 430 | 430 | 420 | 410 | 380 | 345 | U285L | | | | | |
| 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

Apr. 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 | | | | | | E | 200 | 250H | 270 | 295 | 305 | 315 | 305 | 300 | C | C | C | C | E130S | | | | | |
| 2 | | | | | | E120C | 185 | E300C | E340C | E350C | E320C | E340C | E360C | E340C | C | C | C | C | E150S | | | | | |
| 3 | | | | | | C | C | C | C | C | C | C | C | 295 | I290C | 285 | 250 | 200 | E140S | | | | | E160S |
| 4 | E120S | E120S | | | | E110S | 200 | 245 | 280 | 290 | 300 | 305 | 310 | 305 | 295 | 275 | 250 | 200 | E140S | | | | | |
| 5 | | | | E | | E120S | 175 | 230 | 270 | I290R | 300 | 300 | 315 | 300 | 300 | 285 | I250A | 205 | E130S | | | | | |
| 6 | | | | | | E140S | 180 | 240 | 285 | 300 | 300 | 300 | 310 | 315 | 300 | 275 | 255 | 215 | E130S | | | | | |
| 7 | | | | | | E120S | 200 | 250 | 280 | 300 | 300 | 310 | 315 | 305 | 300 | I285C | I245C | 200 | E150S | | | | | |
| 8 | | | | | | E120S | 200 | 240 | 285 | 300 | 305 | 315 | 305 | I300A | U290S | 270 | I240C | 205 | E150S | E150S | | | | E150S |
| 9 | | | | | | E150S | 200 | 240 | 275 | 300 | 310 | 310 | 315 | 290 | 300 | 295 | 255 | 210 | 130 | | | | | E150S |
| 10 | | | | | | E130S | 210 | 235 | 280 | 295 | 300 | 295 | I290R | I290R | 290 | 290 | 265 | 200 | E | | | | | |
| 11 | | | | | | 115 | 200 | 245 | 285 | 300 | 310 | 310 | I300A | I300A | I285A | I275R | 260 | 210 | E120S | | | | | |
| 12 | | | | | | 135 | 210 | 255 | 290 | 305 | I310A | 315 | 320 | 300 | I285A | I270A | 255 | A | E150S | | | | | |
| 13 | | | | | E | E160S | 210 | 255 | 285 | I300A | I310A | I320A | 320 | 315 | 300 | I280C | 250H | I210C | A | | | | | |
| 14 | | | | | | 130 | 210 | 250 | 285 | 300 | 315 | 315 | 315 | I305C | 300 | 290 | I265C | I215C | E160S | | | | | |
| 15 | | | | | | 160 | 200 | 255 | 295 | 305 | 310 | 310 | I315R | 310 | 300 | I285C | 270 | 220 | E160S | | | | | |
| 16 | | | | | | 165 | 215 | 265 | 285 | 305 | 310 | 300 | 320 | 305 | 300 | 285 | 270 | 210 | A | | | | | |
| 17 | | | | | | E140S | 205 | 240 | 290 | 310 | 315 | 310 | 310 | 310 | 295 | 285 | 260 | 220 | 150 | | | | | |
| 18 | | | | | | 130 | 205 | 250 | 290 | 300 | 310 | 310 | 320 | 310 | 300 | 285 | 260 | 215 | E130S | E130S | E150S | E130S | E120S | E140S |
| 19 | | | | | | 110 | 195 | 235 | 265 | 290 | 300 | 300 | I290C | 280 | 300 | 275 | 250 | I220C | 150 | | | | | |
| 20 | | | | | | 140 | 200 | 245 | 265 | 285 | 300 | 295 | I295C | I305C | A | A | A | 210 | E160S | E150S | | | | |
| 21 | | | | | | E170S | 210 | 245 | 280 | 295 | 300 | 305 | 315 | 315 | 300 | 280 | 250 | 210 | E160S | E120S | | | | |
| *22 | | | | | | E140S | 210 | 250 | 285 | 300 | 305 | 315 | 315 | 310 | 300 | 290 | 265 | 215 | E150S | E150S | | | | |
| 23 | | | | | E | 120 | 210 | 260 | 300 | 305 | 300 | 305 | 320 | 320 | 305 | 295 | 260 | 230 | 150 | E110S | | | | E150S |
| 24 | | | | | | 120 | 210 | 255 | 295 | 305 | 305 | 325 | 330 | 330 | 310 | 300 | 270 | 215 | E170S | E160S | | | | |
| 25 | | | | | E | 135 | 215 | 260 | 290 | 300 | 305 | 310 | 310 | 325 | 325 | 300 | 265 | 215 | A | E130S | | | | |
| 26 | | | | | E | 145 | 210 | 250 | 290 | 300 | 315 | 320 | 310 | 305 | 305 | 295 | 255 | 220 | E150S | C | | | | |
| 27 | | | | | C | C | C | C | C | 300 | 305 | 310 | 300 | E350S | 305 | 295 | 265 | 215 | 180 | E120S | | | | |
| 28 | | E | | | E | 130 | 225 | 260 | 295 | 300 | 305 | 310 | 305 | 290 | 305 | 300 | 280 | 220 | 170 | E150S | | | | |
| 29 | | | | | E | 150 | 210 | 250 | 285 | 295 | 300 | 290 | 325 | 320 | 305 | 295 | 270 | 220 | E160S | E160S | | | | |
| 30 | | | | | E | 145 | 220 | 270 | 295 | 300 | 310 | 325 | 320 | 320 | 315 | 295 | 260 | 220 | E150S | E160S | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 1 | 2 | | 1 | 7 | 28 | 28 | 28 | 28 | 29 | 29 | 29 | 29 | 30 | 27 | 27 | 27 | 27 | 27 | 12 | 1 | 1 | 1 | 5 |
| Median | E120S | E | | E | E | 120 | 210 | 250 | 285 | 300 | 305 | 310 | 315 | 305 | 300 | 285 | 260 | 215 | E150S | E140S | E150S | E130S | E120S | E150S |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foE

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

The Radio Research Laboratories, Japan

W 3

# IONOSPHERIC DATA

Apr. 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 | E012S | E012S | E | E | E | E | G | 027 | 032 | 033 | G | G | G | G | C | C | C | C | E013S | 018 | E015S | E012S | E012S | E013S |
| 2 | E012S | E | E | E | E012C | E012C | G | E030C | E034C | E035C | E032C | E034C | E036C | E034C | C | C | C | C | E015S | E015S | E014S | C | C | C |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | G | C | G | G | G | E014S | E013S | E014S | E012S | E015S | E016S |
| 4 | E012S | E012S | E | E | E | E011S | 024 | 028 | 032 | G | G | G | G | G | G | G | G | G | E014S | 020 | 022 | E012S | E015S | E014S |
| 5 | E015S | E012S | E | E | E | E012S | 023 | G | G | G | G | G | G | G | G | 020G | 033 | G | E013S | E015S | E015S | E014S | E017S | E015S |
| 6 | E013S | E012S | E012S | E | E | E014S | 023 | G | 033 | 032 | G | G | 027G | 029G | G | G | G | G | E013S | E012S | E012S | E017S | E012S | 020 |
| 7 | E016S | E012S | E | E | E | E012S | G | G | G | G | G | G | G | G | G | C | C | G | E015S | E013S | E015S | E015S | E015S | E011S |
| 8 | E015S | E012S | E | E | E | E012S | 023 | 030 | G | G | 038 | G | G | 035 | G | 020G | C | G | E015S | E015S | E016S | E016S | E016S | E015S |
| 9 | E015S | E | E | E | E | E015S | 023 | G | G | G | 034 | G | G | G | 024G | G | G | 025 | 020 | E015S | E015S | 020 | E014S | E015S |
| 10 | E016S | E | E | E | E | E013S | 025 | 033 | 038 | 038 | G | 033 | 036 | G | G | 035 | 036 | 035 | 027 | 043 | 046 | J035 | 062 | J053 |
| 11 | J031 | 027 | 026 | 024 | J024 | G | 036 | 044 | 038 | 050 | 061 | 053 | 033 | 040M | 031 | 023G | 030 | 028 | 026 | 024 | 023 | E018S | 021 | 024 |
| 12 | 036 | 027 | 020 | E | E | G | 025 | 030 | 040 | 044 | J073 | 043 | 040 | 044 | 036 | 033 | G | 026 | E015S | E015S | 022 | J028 | J023 | 030 |
| 13 | J030 | J028 | E | E | 020 | E016S | G | 030 | 034 | 036 | 035 | J044 | G | G | 020G | C | G | C | 027M | E017S | E017S | E013S | E012S | E017S |
| 14 | E014S | E | E | E | 013 | G | G | G | G | G | G | G | G | C | G | G | C | C | E016S | E015S | E | E | E013S | E015S |
| 15 | E015S | E015S | E011S | E | J021 | G | 024 | 032 | 044 | 043 | G | G | G | G | G | C | G | G | 020 | E015S | 022 | E016S | E015S | E012S |
| 16 | 022 | 015 | E | E | E | G | G | 030 | G | 034 | G | G | 028G | G | G | 034 | G | 026 | 022 | E015S | E016S | E015S | E015S | E016S |
| 17 | E015S | E012S | E012S | E | J018 | E014S | G | G | G | 036 | 036 | G | G | G | G | G | G | G | 019 | E015S | E013S | E014S | E012S | E015S |
| 18 | E015S | E012S | E | E | E | G | 026 | 033 | 033 | 035 | G | G | G | G | G | G | G | G | 021 | E013S | E015S | E013S | E012S | 023 |
| 19 | J060 | J050 | J050 | J051 | J063 | J053 | J065 | 038 | 061 | G | 040 | J050 | C | 036 | 034 | G | G | C | 026 | 024 | J025 | J053 | E012S | E015S |
| 20 | E015S | E012S | 020 | E | E | G | 023 | G | G | G | G | 035 | 036 | C | 038 | 033 | J061 | G | 020 | E015S | J020 | E016S | E015S | E017S |
| 21 | E018S | E | E | E | E | J023 | G | G | G | G | G | G | 024G | 028G | G | G | G | G | E016S | E012S | E016S | E013S | E015S | 023 |
| 22 | E015S | E012S | E | 028 | J021 | 020 | 026 | 030 | G | 033 | G | G | G | 034 | 034 | G | G | 024 | 021 | E015S | E017S | E015S | E017S | E016S |
| 23 | E015S | E | E | E | E | 022 | 028 | 030 | G | G | 040 | G | G | G | G | G | G | G | G | E011S | E015S | E015S | E015S | E015S |
| 24 | E014S | E | E | E | E | 020 | 025 | 031 | G | G | 038 | 040 | 040 | G | G | G | 031 | 029 | 025 | J023 | 018 | E015S | E013S | E017S |
| 25 | E017S | 021 | E | E | E | G | 026 | 031 | 033 | G | G | G | G | 041 | 043 | 045 | 048 | 035 | 030 | 023 | 022 | 020 | E014S | E017S |
| 26 | E015S | E | E | E | E | 022 | 030 | 040 | 040 | 038 | 036 | G | 035 | 038 | G | 033 | 043 | 034 | 041 | C | C | C | C | C |
| 27 | C | C | C | C | C | C | C | C | C | 040 | G | 035 | G | E035S | G | 025G | 031 | 032 | 028 | J025 | J028 | E012S | E016S | E016S |
| 28 | E016S | E | E | E | E | 020 | G | 032 | 037 | 036 | 035 | G | G | 034 | G | G | 034 | 031 | 020 | E015S | E015S | E016S | E014S | E015S |
| 29 | E015S | E015S | E012S | E | E | G | G | G | G | G | 035 | G | 039 | G | G | G | G | 030 | 024 | E016S | E012S | E015S | E018S | E016S |
| 30 | E015S | E014S | E | E | E | 020 | G | 033 | G | G | G | G | 038 | 036 | G | 040 | 041 | 033 | 025 | E016S | E012S | E013S | E015S | E016S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 29 | 29 | 29 | 28 | 28 | 27 | 25 | 25 | 25 | 30 | 29 | 29 | 28 | 28 | 28 |
| Median | E015S | E012S | E | E | E | E012S | 023 | 030 | G | E032G | G | G | G | G | G | G | G | 024 | 020 | E015S | E016S | E015S | E015S | E016S |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | E016 | E015 | E012 | E | E012 | 020 | 026 | 032 | 036 | 036 | 036 | 034 | 036 | 035 | G | 033 | 034 | 030 | 025 | 019 | 022 | E016 | E016 | E017 |
| L. Q. | E015 | E | E | E | E | G | G | G | G | G | G | G | G | G | G | G | G | G | E015 | E015 | E014 | E013 | E013 | E015 |
| Q. R. | | | | | | | | | | | | | | | | | | | D010 | D004 | D008 | | | |

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

# IONOSPHERIC DATA

Apr. 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 | S | S | | | | | | G | G | G | | | | | C | C | C | C | S | 014 | S | S | S | S |
| 2 | S | | | | C | C | | C | C | C | C | C | C | C | C | C | C | C | S | S | S | C | C | C |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | | C | | | | S | S | S | S | S | S |
| 4 | S | S | | | | S | G | G | G | | | | | | | | | | S | E014S | E015S | S | S | S |
| 5 | S | S | | | | S | G | | | | | | | | | 020G | 027 | | S | S | S | S | S | S |
| 6 | S | S | S | | | S | G | | G | G | | | 027G | 029G | | | | | S | S | S | S | S | 016 |
| 7 | S | S | | | | S | | | | | | | | | | C | C | | S | S | S | S | S | S |
| 8 | S | S | | | | S | G | G | | | G | | | 033 | | 020G | C | | S | S | S | S | S | S |
| 9 | S | | | | | S | G | | | | G | | | | 024G | | | G | G | S | S | E015S | S | S |
| 10 | S | | | | | S | G | G | G | G | | G | 033 | | | G | G | 035 | 025 | 040 | 035 | 021 | A | A |
| 11 | 020 | 017 | 015 | 015 | 023 | | 033 | 042 | G | 050 | 058 | 050 | 033 | 035 | 031 | E023R | 017G | G | 022 | 022 | 016 | S | E015S | E016S |
| 12 | 016 | 014 | 013 | | | | G | G | 040 | 040 | A | 041 | G | G | 035 | 030 | | 025 | S | S | E016S | 020 | 020 | 017 |
| 13 | 018 | 020 | | | 017 | S | | G | G | 033 | 033 | 040 | | | 020G | C | | C | 020 | S | S | S | S | S |
| 14 | S | | | | E | | | | | | | | | C | | | C | C | S | S | | | S | S |
| 15 | S | S | S | | E | | G | G | G | G | | | | | | C | | | G | S | E015S | S | S | S |
| 16 | E015S | 012 | | | | | | G | | G | | | 027G | | | G | | 016G | 017 | S | S | S | S | S |
| 17 | S | S | S | | 018 | S | | | | G | G | | | | | | | | G | S | S | S | S | S |
| 18 | S | S | | | | | G | G | G | G | | | | | | | | | G | S | S | S | S | 020 |
| 19 | A | A | A | 046 | 040 | 018 | A | 030 | A | | G | A | C | G | G | | | C | G | 023 | 020 | A | S | S |
| 20 | S | S | E011S | | | | G | | | | | G | 033 | C | 037 | 027 | 044 | | G | S | 019 | S | S | S |
| 21 | S | | | | | E017S | | | | | | | 023G | 028G | | | | | S | S | S | S | S | E015S |
| 22 | S | S | | 020 | 020 | G | G | G | | G | | | | G | G | | | G | G | S | S | S | S | S |
| 23 | S | | | | | G | G | G | | | G | | | | | | | | | S | S | S | S | S |
| 24 | S | | | | | G | G | G | | | G | G | G | | | | G | 015G | 022 | 018 | 015 | S | S | S |
| 25 | S | E016S | | | | | G | G | G | | | | | G | 041 | 045 | 020G | 018G | 028 | 017 | 018 | 017 | S | S |
| 26 | S | | | | | G | G | 040 | 040 | G | G | | G | G | | G | 042 | 033 | 040 | C | C | C | C | C |
| 27 | C | C | C | C | C | C | C | C | C | G | | G | | S | | 025G | G | G | G | 023 | 020 | S | S | S |
| 28 | S | | | | | G | | G | 036 | G | G | | | G | | | G | G | G | S | S | S | S | S |
| 29 | S | S | S | | | | | | | | G | | G | | | | | G | G | S | S | S | S | S |
| 30 | S | S | | | | G | | G | | | | | G | G | | G | 040 | G | 021 | 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

Apr. 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 | E012S | E012S | E | E | E | E | 012 | 011 | 011 | 017 | 011 | 018 | 017 | 017 | C | C | C | C | E013S | E012S | E015S | E012S | E012S | E013S |
| 2 | E012S | E | 010 | 010 | E012C | E012C | 012 | E030C | E034C | E035C | E032C | E034C | E036C | E034C | C | C | C | C | E015S | E015S | E014S | C | C | C |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | 018 | C | 011 | 011 | 011 | E014S | E013S | E014S | E012S | E015S | E016S |
| 4 | E012S | E012S | E | E | E | E011S | 011 | 011 | 011 | 017 | 017 | 020 | 017 | 018 | 017 | 011 | 011 | 012 | E014S | E014S | E015S | E012S | E015S | E014S |
| 5 | E015S | E012S | E | E | E | E012S | E012S | 011 | 011 | 017 | 018 | 025 | 018 | 020 | 018 | 012 | 011 | 011 | E013S | E015S | E015S | E014S | E017S | E015S |
| 6 | E013S | E012S | E012S | E | E | E014S | 011 | 011 | 011 | 011 | 018 | 012 | 020 | 020 | 025 | 020 | 012 | E015S | E013S | E012S | E012S | E017S | E012S | E015S |
| 7 | E016S | E012S | 010 | E | E | E012S | 011 | 011 | 011 | 018 | 017 | 017 | 018 | 020 | 017 | C | C | 015 | E015S | E013S | E015S | E015S | E015S | E011S |
| 8 | E015S | E012S | E | E | E | E012S | 012 | 012 | 017 | 012 | 017 | 020 | 019 | 018 | 017 | 017 | C | 016 | E015S | E015S | E016S | E016S | E016S | E015S |
| 9 | E015S | E | E | E | E | E015S | 011 | 016 | 011 | 016 | 017 | 020 | 017 | 020 | 017 | 017 | 017 | 012 | E012S | E015S | E015S | E015S | E014S | E015S |
| 10 | E016S | E | E | E | E | E013S | E015S | 017 | 017 | 017 | 018 | 020 | 017 | 017 | 016 | 011 | 011 | 012 | E | E015S | E014S | E016S | E013S | E |
| 11 | E013S | E012S | E | E | E | E | E015S | 015 | 017 | 018 | 017 | 017 | 018 | 018 | 017 | 013 | 011 | 012 | E012S | E013S | E015S | E018S | E015S | E016S |
| 12 | E013S | E014S | E | E | E | E | 011 | 017 | 017 | 018 | 017 | 020 | 020 | 016 | 018 | 017 | 017 | 012 | E015S | E015S | E016S | E015S | E015S | E016S |
| 13 | E011S | E | E | E | E | E016S | 014 | 017 | 017 | 017 | 018 | 017 | 018 | 018 | 015 | C | 015 | C | E | E017S | E017S | E013S | E012S | E017S |
| 14 | E014S | E | E | E | E | E | E | 015 | 017 | 017 | 017 | 018 | 017 | C | 017 | 017 | C | C | E016S | E015S | E | E | E013S | E015S |
| 15 | E015S | E015S | E011S | E | E | E | 011 | 011 | 015 | 017 | 016 | 017 | 017 | 016 | 017 | C | 016 | 011 | E016S | E015S | E015S | E016S | E015S | E012S |
| 16 | E015S | E | E | E | E | E | 012 | 012 | 012 | 017 | 018 | 016 | 018 | 017 | 018 | 018 | 016 | E012S | E | E015S | E016S | E015S | E015S | E016S |
| 17 | E015S | E012S | E012S | E | E | E014S | 015 | 010 | 012 | 017 | 018 | 019 | 020 | 018 | 017 | 018 | 016 | 013 | E012S | E015S | E013S | E014S | E012S | E015S |
| 18 | E015S | E012S | E | E | E | E012S | 012 | 011 | 016 | 019 | 018 | 017 | 019 | 017 | 017 | 017 | 012 | 011 | E013S | E013S | E015S | E013S | E012S | E014S |
| 19 | E015S | E | E | E | E | E | E | E | 012 | 018 | 019 | 018 | C | 019 | 018 | 017 | 017 | C | E012S | E012S | E012S | E015S | E012S | E015S |
| 20 | E015S | E012S | E011S | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 019 | C | 017 | 017 | 012 | 016 | E016S | E015S | E012S | E016S | E015S | E017S |
| 21 | E018S | E | E | E | E | E017S | 015 | 017 | 017 | 018 | 020 | 020 | 020 | 019 | 017 | 016 | 013 | 017 | E016S | E012S | E016S | E013S | E015S | E015S |
| 22 | E015S | E012S | E | E | E | E014S | 012 | 012 | 018 | 015 | 017 | 019 | 020 | 019 | 013 | 017 | 017 | 012 | E015S | E015S | E017S | E015S | E017S | E016S |
| 23 | E015S | E | E | E | E | E | 012 | 011 | 017 | 017 | 019 | 018 | 018 | 017 | 018 | 018 | 011 | 011 | 011 | E011S | E015S | E015S | E015S | E015S |
| 24 | E014S | E | E | E | E | E | E015S | 015 | 017 | 015 | 017 | 017 | 018 | 017 | 017 | 016 | 011 | 010 | E017S | E016S | E012S | E015S | E013S | E017S |
| 25 | E017S | E016S | E | E | E | E | 012 | 017 | 020 | 017 | 020 | 020 | 018 | 019 | 017 | 017 | 017 | 011 | 011 | E013S | E013S | E014S | E014S | E017S |
| 26 | E015S | E | E | E | E | E012S | 010 | 016 | 017 | 017 | 017 | 017 | 018 | 019 | 017 | 017 | 012 | 015 | E015S | C | C | C | C | C |
| 27 | C | C | C | C | C | C | C | C | C | 017 | 018 | 017 | 018 | E035S | 018 | 017 | 016 | 013 | E015S | E012S | E012S | E012S | E016S | E016S |
| 28 | E016S | E | E | E | E | E | E | 018 | 017 | 017 | 018 | 018 | 017 | 018 | 018 | 016 | 015 | 011 | 010 | E015S | E015S | E016S | E014S | E015S |
| 29 | E015S | E015S | E012S | E | E | E | 015 | 012 | 017 | 017 | 017 | 018 | 019 | 017 | 017 | 017 | 012 | 012 | E016S | E016S | E012S | E015S | E018S | E016S |
| 30 | E015S | E014S | E | E | E | E | E | 017 | 016 | 018 | 018 | 018 | 018 | 017 | 017 | 018 | 017 | 012 | E015S | E016S | E012S | E013S | E015S | E016S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 29 | 29 | 29 | 28 | 28 | 27 | 25 | 25 | 25 | 30 | 29 | 29 | 28 | 28 | 28 |
| Median | E015S | E012S | E | E | E | E | 012 | 014 | 017 | 017 | 018 | 018 | 018 | 018 | 017 | 017 | 013 | 012 | E014S | E015S | E015S | E015S | E015S | E015S |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

f-min

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

The Radio Research Laboratories, Japan

W 6

# IONOSPHERIC DATA

Apr. 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 | 315 | U310S | U300S | 325S | 335 | 330 | 355 | 350 | 340 | 350 | 330 | 340 | 335 | 320 | C | C | C | C | 335 | 330 | 310 | SF | SF | SF |
| 2 | SF | 340 | 305 | 325 | 335 | 320 | 355 | 345 | 335 | 340 | 330 | 340 | 310 | U325S | C | C | C | C | 340 | 335 | 310 | C | C | C |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | 320 | I340C | 340 | 340 | 355 | 340 | 330 | U320S | 315 | I305S | 300 |
| 4 | 300 | 305 | 330 | 340 | 335 | 340 | 355 | 355 | 360 | 350 | 340 | 345 | 345 | 325 | 330 | 340 | 345 | 335 | 340 | 330 | 320 | 305 | I300S | I305S |
| 5 | 305S | 300 | 285 | 300 | 320 | 340 | 365 | 345 | 340 | 340 | 335 | 335 | 330 | 335 | 340 | 330 | 335 | 335 | U335S | 325 | 325 | 315 | U320S | 310 |
| 6 | I310S | I320S | 325 | 340 | 370 | 325 | 355 | 355 | 355 | 345S | 340 | 310 | 330 | 310 | 330S | 345 | 340 | 335 | 335 | U335S | U315S | 330 | U325S | U300S |
| 7 | I305S | U300S | U315S | U295S | I360S | 355 | 370 | 340 | 345 | 365 | 330 | 330 | 310 | 320 | 340 | I335C | I335C | 335 | 325 | 325 | 310 | 305 | 300 | 300 |
| 8 | 305 | 300 | U300S | 325 | 320 | 335 | 365 | 365 | 350 | 350 | 335 | 325 | 320 | 330 | 330 | 335 | I340C | 345 | 330 | 310 | 310 | 310 | 315 | 310 |
| 9 | 300 | 320S | 295 | 310 | 335 | 330 | 365 | 340 | 345H | 330 | 330 | 340 | 330 | 325 | 320 | 325 | 325 | 330 | U345S | 325S | 305 | 300 | 300 | 300 |
| 10 | 305 | 310 | 300 | 290 | 320S | 340 | 335 | 340 | 335 | 345 | 330 | 325S | 315 | 320 | 330 | 340 | U340S | 335 | 335 | 330 | 315 | 325F | A | A |
| 11 | F | F | F | F | SF | 370 | 365 | 350 | 345 | 335 | 355 | 335 | 325 | 320 | 340 | 345 | 340 | 350 | 325 | U315S | 310 | 315S | 335 | SF |
| 12 | SF | 295F | 285F | SF | SF | 320F | 330 | 360 | 305Z | 345 | I350A | 330 | 345 | 305 | 320 | 340 | 335 | 335 | 330 | 325 | 315 | 310 | 300S | 310 |
| 13 | SF | SF | SF | SF | SF | 325 | 350 | 335 | 350 | 330 | 340 | 300 | 325 | 335 | 315 | I340C | 350 | I335C | 320 | U320S | 315 | 335 | 325 | 305 |
| 14 | 305 | 305 | 320 | 330 | 315 | 340 | 360 | 350 | 330 | 335 | 355 | 345 | 320 | I320C | 315 | 340 | I355C | I340C | 340S | U340S | 320 | 320 | 300 | 305 |
| 15 | 320 | 320 | 315 | 345 | 355 | 350 | 345 | 340 | 340 | 340 | 335 | 335 | 320 | 320 | 330 | I340C | 355 | 345 | 325 | 320 | 300 | 320 | 320 | 295 |
| 16 | 300 | 295 | 300 | 330 | 340 | 345 | 360 | 340 | 345 | 340 | 335 | 330 | 345 | 330 | 330 | 325 | 340 | 330 | 325 | 325 | 320 | 315 | 320 | 305 |
| 17 | 300 | 295 | 300 | 315 | 315 | 340 | 345 | 360 | 340 | 340 | 335 | 335 | 340 | 315 | 325 | 330 | 345 | 340 | 320 | 315 | 310 | 320 | 310 | 295 |
| 18 | 310 | 290 | U295S | 305 | 315 | 350 | 355 | 340 | 350 | 330 | 320 | 315 | 290 | 290 | 290 | 285 | 300 | 280 | U310S | U300S | U305S | 275H | 285 | 295 |
| 19 | I315A | I310A | I295A | 290F | 290F | SF | I290A | S | A | G | G | A | C | G | G | 270 | G | I295C | 300 | 290 | 270 | A | SF | SF |
| 20 | 290 | 295F | 285 | 295 | 290 | 310 | 345 | 335 | 285 | 270 | 310 | 300 | 295 | I305C | 310 | 315 | 330 | 330 | 320 | I300S | 300 | I305S | 310 | U290S |
| 21 | I290S | 295 | 315 | 335 | 320 | 345 | 300 | 340 | 310 | 330 | 325 | 330 | 320 | 330 | 315 | 325 | 335 | 340 | 335 | 325 | 300 | 310 | 310 | U300S |
| 22 | SF | SF | SF | SF | U310S | 320 | 355 | 335 | 320 | 335 | 340 | 325 | 325 | 335 | 330 | 335 | 320 | 330 | 325 | 330 | 315 | 310 | 300 | 300 |
| 23 | SF | SF | SF | SF | 315F | 355 | 335 | 360 | 365 | 335 | 325 | 310 | 320 | 335 | 300 | 330 | 335 | 315 | 315 | U315S | 320 | 340 | 320 | 290S |
| 24 | 285 | 280S | 310 | 315 | 325 | 325 | 325 | 350 | 320V | 350 | 325 | 320V | 320 | 315 | 325 | 335 | 325 | 340 | 320 | 315 | U330S | 330 | 325 | 285 |
| 25 | U290S | 300S | SF | SF | SF | SF | 340 | 345 | 345 | 335 | 345 | 330 | 335 | 320 | 300 | 315 | 330 | 330 | 330 | 330 | 320S | 305S | 305S | 300 |
| 26 | I300S | SF | 305F | 310F | 315F | 340 | 350 | 355 | 330 | 345 | 325 | 320 | 315 | 320 | 300 | 310 | 320 | 335 | 335 | C | C | C | C | C |
| 27 | C | C | C | C | C | C | C | C | C | 315 | 325 | 335 | 315 | 305 | 315 | 315 | 340 | 350 | 355 | 330 | 300 | 290 | 295S | 315S |
| 28 | 310S | 305S | 325 | 310 | 315 | 340 | 320 | 320 | 335 | 330 | 330 | 350 | 315 | 320 | 310 | 330 | 315 | 330 | 325 | 320 | 350 | I315S | U350S | 325 |
| 29 | 305 | 310F | SF | 310F | 330 | 355 | 355 | 340 | 340 | 350 | 335 | 315 | 320 | 315 | 335 | 335 | 330 | 350 | 320 | 310 | 315 | SF | 320F | SF |
| 30 | I305S | 305S | 300 | 310S | 325 | 340 | 340 | 345 | 355 | 320 | 355 | 320 | 290 | 305 | 305 | 315 | 335 | 345 | 345S | 335 | 340S | 315 | 315 | 315S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 22 | 23 | 22 | 22 | 24 | 26 | 28 | 27 | 27 | 29 | 29 | 28 | 28 | 30 | 28 | 28 | 28 | 28 | 30 | 29 | 29 | 25 | 25 | 23 |
| Median | 305 | 305 | 300 | 310 | 320 | 340 | 350 | 345 | 340 | 340 | 335 | 330 | 320 | 320 | 320 | 330 | 335 | 335 | 330 | 325 | 315 | 315 | 310 | 300 |
| 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) F2

W 7

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | | 385 | 370 | 375H | 400 | 380H | 380 | C | C | C | C | | | | | | |
| 2 | | | | | | | | | 380 | 375 | 375 | 370 | 395 | 365 | C | C | C | C | | | | | | |
| 3 | | | | | | | C | C | C | C | C | C | C | 390 | I370C | 380 | 375L | | | | | | | |
| 4 | | | | | | | | | 390 | 375 | 385 | 370 | 395 | 390 | 355 | 375 | U380L | | | | | | | |
| 5 | | | | | | | | | 385L | 370 | 370 | 395 | 375 | 370 | 370 | 375 | 370 | | | | | | | |
| 6 | | | | | | | | | 385 | 385 | 390 | 395H | 370 | 370H | 370H | 365 | 395L | | | | | | | |
| 7 | | | | | | | | | | 365H | 370 | 390 | 370 | 380 | 370 | I375C | I375C | | | | | | | |
| 8 | | | | | | | | | 385 | 380 | 370 | 370 | 385 | 370 | 370 | 375 | C | | | | | | | |
| 9 | | | | | | | | | | 385 | 370 | 365 | 370H | 365 | 360H | 360 | 375 | | | | | | | |
| 10 | | | | | | | | | 375 | 380 | 390 | 385 | 370 | 365 | 375H | 370 | 380L | | | | | | | |
| 11 | | | | | | | | | 380 | I390A | I390A | I385A | 375H | 370 | 380H | 380 | 390 | | | | | | | |
| 12 | | | | | | | U370L | 405 | | I400A | I385A | I390A | 375 | U380L | 350 | 370 | 375 | | | | | | | |
| 13 | | | | | | | | 370 | 375 | 375H | 370 | I390A | 370H | 365 | 375 | I365C | U375L | | | | | | | |
| 14 | | | | | | | | U395L | 360 | 365 | 365 | 395 | 390 | I385C | 365 | 365 | C | C | | | | | | |
| 15 | | | | | | | | | 370 | 375 | 370 | 380 | 400 | 385 | 365 | I375C | 400 | | | | | | | |
| 16 | | | | | | | | 375 | 375 | 380 | 390 | 390 | 395 | 395 | 380H | 375H | 385L | | | | | | | |
| 17 | | | | | | | | | 380 | 365 | 400 | 395 | 395 | 395 | 375H | 370 | 390L | 375 | | | | | | |
| 18 | | | | | | | | 375 | 375 | 365 | 380 | 370 | 385 | 360 | 350H | 345 | 335 | 335 | | | | | | |
| 19 | | | | | | | | 305 | I375A | 370 | 370 | I390A | I385C | 380 | 375 | 380 | 340H | I330C | | | | | | |
| 20 | | | | | | | | 380L | 375 | 370 | 365 | 395 | 370 | I370C | 355 | 365 | I370A | 370L | | | | | | |
| 21 | | | | | | | | 380 | 375 | 375 | 395 | 395 | 375 | 365 | 380 | 360 | 365 | | | | | | | |
| 22 | | | | | | | | | 355 | 390 | 385 | 385 | 385 | 390 | 370H | 370 | 375 | U370L | | | | | | |
| 23 | | | | | | | | 375 | 390 | 390 | 395 | 405 | 395H | 390 | 365 | 370 | 375 | U350L | | | | | | |
| 24 | | | | | | | 360L | 385 | 380 | 400 | 390 | 390 | 390 | 390 | 385 | 355 | 375 | | | | | | | |
| 25 | | | | | | | U385L | 385 | 370 | 380 | 380 | 395 | 400 | U380L | A | A | A | A | | | | | | |
| 26 | | | | | | | | I385A | I385A | 380 | 375 | 385 | 395 | 370 | 350 | 355 | A | A | | | | | | |
| 27 | | | | | | | C | C | C | 380 | 370 | 390 | 365H | U395S | 380H | 350H | 360 | 375 | | | | | | |
| 28 | | | | | | | 355 | | I350A | 380 | 375 | 380 | 390 | 390H | 370 | 375 | 350 | 355 | U345L | | | | | |
| 29 | | | | | | | | 385 | 370 | 375 | 380 | 385 | 390 | 385 | 370 | 365H | 360 | 370L | | | | | | |
| 30 | | | | | | | 370L | 385 | 380 | 400 | 400 | 380 | 400 | 365 | 370 | 355 | I360A | 380 | 395 | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 5 | 14 | 25 | 29 | 29 | 29 | 29 | 30 | 27 | 27 | 24 | 10 | 2 | | | | | |
| Median | | | | | | | 370L | 380 | 375 | 380 | 380 | 390 | 385 | 380 | 370 | 370 | 375 | 370 | U370L | | | | | |
| 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

Apr. 1965 | 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 | | | | | | | | | 260 | 255 | 270 | 270 | 280 | 290 | C | C | C | C | | | | | | |
| 2 | | | | | | | | | 265 | 260 | 275 | 265 | 305 | 295 | C | C | C | C | | | | | | |
| 3 | | | | | | | C | C | C | C | C | C | C | 300 | I285C | 265 | 260 | | | | | | | |
| 4 | | | | | | | | | 260 | 265 | 275 | 270 | 260 | 300 | 275 | 275 | 250 | | | | | | | |
| 5 | | | | | | | | | 260 | 265 | 270 | 280 | 275 | 275 | 275 | 280 | 260 | | | | | | | |
| 6 | | | | | | | | | 265 | 260 | 270 | 300 | 290 | 305 | 280 | 270 | 260 | | | | | | | |
| 7 | | | | | | | | | | 300 | 295 | 300 | 300 | 295 | 270 | I270C | I260C | | | | | | | |
| 8 | | | | | | | | | 255 | 270 | 260 | 285 | 295 | 280 | 270 | 270 | C | | | | | | | |
| 9 | | | | | | | | | | 290 | 275 | 270 | 280 | 290 | 300 | 290 | 265 | | | | | | | |
| 10 | | | | | | | | | 260 | 260 | 275 | 295 | 290 | 300 | 290 | 260 | 260 | | | | | | | |
| 11 | | | | | | | | | 275 | 280 | I275A | 290 | 300 | 275 | 270 | 260 | 260 | | | | | | | |
| 12 | | | | | | | 290 | 245 | | 250 | I260A | 275 | 285 | U315L | 310 | 275 | 265 | | | | | | | |
| 13 | | | | | | | | 275 | 260 | 290 | 260 | 300 | 305 | 290 | 300 | I270C | 250 | | | | | | | |
| 14 | | | | | | | | 250 | 305 | 275 | 250 | 260 | 305 | I300C | 300 | 275 | C | C | | | | | | |
| 15 | | | | | | | | | 270 | 270 | 275 | 285 | 290 | 300 | 280 | I260C | 245 | | | | | | | |
| 16 | | | | | | | | 280 | 260 | 260 | 270 | 275 | 270 | 310 | 290 | 295 | 260 | | | | | | | |
| 17 | | | | | | | | | 290 | 275 | 275 | 275 | 265 | 315 | 290 | 285 | 260 | 250 | | | | | | |
| 18 | | | | | | | | 285 | 270 | 295 | 295 | 290 | 320 | 335 | 320 | 315 | 290 | 350 | | | | | | |
| 19 | | | | | | | | S | A | G | G | A | C | G | G | 495 | G | I350C | | | | | | |
| 20 | | | | | | | | 300 | 385L | 455 | 360 | 375 | 385 | I360C | 340 | 325 | 310 | 280 | | | | | | |
| 21 | | | | | | | | 290 | 360 | 315 | 310 | 310 | 325 | 310 | 340 | 300 | 280 | | | | | | | |
| 22 | | | | | | | | | 310 | 285 | 290 | 310 | 320 | 300 | 290 | 290 | 275 | 275 | | | | | | |
| 23 | | | | | | | | 260 | 265 | 310 | 300 | 330 | 310 | 280 | 300 | 300 | 330 | 300 | | | | | | |
| 24 | | | | | | | 290 | 260 | 290 | 270 | 305 | 305 | 315 | 315 | 295 | 280 | 285 | | | | | | | |
| 25 | | | | | | | 260 | 270 | 265 | 270 | 280 | 300 | 295 | U300L | 345 | 325 | 290 | 270 | | | | | | |
| 26 | | | | | | | | 270 | 290 | 275 | 300 | 320 | 325 | 330 | 330 | 320 | 285 | 260 | | | | | | |
| 27 | | | | | | | C | C | C | 300 | 300 | 290 | 305 | 310 | 310 | 300 | 270 | 250 | | | | | | |
| 28 | | | | | | | 265 | | 290 | 300 | 280 | 270 | 360 | 340 | 340 | 300 | 305 | 280 | 255 | | | | | |
| 29 | | | | | | | | 300 | 280 | 290 | 290 | 310 | 325 | 350 | 300 | 280 | 275 | 260 | | | | | | |
| 30 | | | | | | | 260 | 265 | 255 | 305 | 270 | 325 | 400 | 330 | 350 | 310 | 275 | 250 | 240 | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 5 | 13 | 24 | 29 | 29 | 28 | 28 | 30 | 28 | 28 | 26 | 12 | 2 | | | | | |
| Median | | | | | | | 265 | 270 | 270 | 275 | 275 | 290 | 300 | 300 | 300 | 280 | 270 | 270 | 250 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F2

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

The Radio Research Laboratories, Japan

W 9

19

# IONOSPHERIC DATA

Apr. 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 | 270 | 275 | 260 | 250 | 210 | 235 | 230 | 235 | 230 | 215 | 215 | 200 | 200H | 200 | C | C | C | C | 230 | 235 | 250 | 300 | 300 | 250 |
| 2 | 260 | 260 | 260 | 240 | 220 | 220 | 230 | 240 | 245 | 235 | 215 | 215 | 210 | 210 | C | C | C | C | 235 | 225 | 260 | C | C | C |
| 3 | C | C | C | C | C | C | C | C | C | C | C | C | C | 200 | I215C | 235 | 240 | 235 | 225 | 230 | 245 | 250 | 250 | 260 |
| 4 | 275 | 270 | 250 | 220 | 200 | 230 | 225 | 230 | 230 | 220 | 210 | 210 | 215 | 195 | 245 | 225 | 240 | 240 | 235 | 225 | 250 | 260 | 275 | 250 |
| 5 | 260 | 270 | 265 | 245 | 230 | 230 | 225 | 225 | 225 | 220 | 225 | 200 | 210 | 200 | 225 | 240 | 245 | 250 | 240 | 220 | 240 | 245 | 260 | 260 |
| 6 | 270 | 260 | 250 | 225 | 200 | 225 | 215 | 220 | 250 | 230 | 215 | 200H | 200 | 200H | 205H | 240 | 235 | 245 | 235 | 235 | 225 | 235 | 230 | 275 |
| 7 | 280 | 300 | 275 | 260 | 210 | 220 | 220 | 225 | 220 | 215H | 210 | 210 | 210 | 210 | 230 | I230C | I245C | 230 | 245 | 230 | 250 | 275 | 260 | 260 |
| 8 | 285 | 290 | 270 | 250 | 225 | 245 | 220 | 230H | 235 | 215 | 235 | 210 | 220 | 215 | 220 | 240 | I240C | 235 | 235 | 235 | 255 | 260 | 245 | 270 |
| 9 | 290 | 260 | 275 | 255 | 225 | 230 | 220 | 235 | 230H | 210 | 210 | 205 | 200H | 215 | 200H | 240 | 245 | 245 | 225 | 225 | 245 | 265 | 270 | 270 |
| 10 | 275 | 270 | 275 | 260 | 235 | 230 | 225 | 235 | 250 | 240 | 220 | 200 | 215 | 210 | 200H | 260 | 260 | 250A | 245 | I245A | I250A | 265 | I285A | I305A |
| 11 | 310A | 295 | 295 | 250 | 220 | 220 | 240 | I250A | 250 | I250A | I240A | I215A | 190H | 240 | 210H | 230 | 235 | 245 | 250 | 255A | 260 | 250 | 235 | 260 |
| 12 | 265 | 280 | 290 | 250 | 210 | 245 | 255 | 240 | 240H | I220A | I225A | I225A | 210 | 200 | 250 | 230 | 225 | 245H | 245 | 230 | 245 | 240 | 275 | 275 |
| 13 | 300 | 265 | 245 | 225 | 215 | 220 | 235 | 220 | 215 | 220 | 220 | I210A | 180H | 225 | 215 | I225C | 250 | I230C | 260 | 255 | 255 | 230 | 230 | 250 |
| 14 | 260 | 260 | 250 | 225 | 205 | 225 | 220 | 240 | 230 | 230 | 240 | 215 | 205 | I185C | 240 | 230 | I255C | I245C | 245 | 230 | 230 | 245 | 250 | 275 |
| 15 | 270 | 260 | 255 | 225 | 210 | 220 | 225 | 230 | 240 | 240 | 215 | 220 | 200 | 200 | 200 | I215C | 225 | 235 | 240 | 245 | 270 | 250 | 230 | 270 |
| 16 | 285 | 285 | 270 | 240 | 205 | 230 | 230 | 235 | 245 | 240 | 225 | 210 | 200 | 210 | 190H | 185H | 250 | 250 | 250 | 235 | 240 | 250 | 245 | 260 |
| 17 | 295 | 275 | 260 | 250 | 250 | 220 | 240H | 230H | 225 | 235 | 230 | 210 | 220 | 205 | 190H | 225 | 240 | 220 | 250 | 245 | 245 | 245 | 235 | 280 |
| 18 | 275 | 295 | 290 | 265 | 245 | 235 | 240 | 250 | 225 | 225 | 210 | 210 | 205 | 200 | 200H | 250 | 245 | 250 | 270H | 250 | 260 | 225H | 250 | 260 |
| 19 | I280A | I305A | I305A | I295A | I295A | 275 | I260A | 250A | I265A | 255 | 230 | I225A | I230C | 230 | 240 | 225 | 240H | I265C | 290 | 295 | 310 | I300A | 270 | 280 |
| 20 | 305 | 305 | 315 | 270 | 290 | 265 | 250 | 240 | 225 | 215 | 210 | 210 | 215 | I215C | 250A | 220 | I240A | 245 | 260 | 260 | 280 | 250 | 250 | 285 |
| 21 | 295 | 260 | 245 | 225 | 225 | 250 | 240H | 240 | 220 | 225 | 205 | 200 | 210 | 210 | 215 | 205 | 250 | 240 | 240 | 245 | 250 | 250 | 260 | 275 |
| 22 | 275 | 280 | 260 | 260 | 245 | 260 | 240 | 240 | 240 | 220 | 215 | 205 | 210 | 200 | 200H | 240 | 240 | 245 | 250 | 235 | 245 | 265 | 265 | 275 |
| 23 | 285 | 260 | 260 | 230 | 245 | 245 | 245 | 240 | 220 | 220 | 210 | 200 | 200H | 190 | 245 | 220 | 225 | 250 | 245 | 250 | 235 | 230 | 230 | 275 |
| 24 | 300 | 280 | 250 | 250 | 235 | 250 | 250 | 250 | 230 | 210 | 205 | 210 | 210 | 210 | 210 | 250 | 250 | 250 | 260 | 250 | 240 | 220 | 235 | 290 |
| 25 | 280 | 270 | 260 | 250 | 245 | 245 | 240 | 230 | 225 | 220 | 225 | 225 | 210 | 225 | A | A | A | A | A | 230 | 235 | 260 | 260 | 255 |
| 26 | 260 | 275 | 270 | 255 | 240 | 230 | 240 | I250A | I245A | 245 | 210 | 225 | 200 | 230 | 260 | 250 | A | A | A | C | C | C | C | C |
| 27 | C | C | C | C | C | C | C | C | C | 215 | 225 | 220 | 210H | 205S | 200H | 210H | 250 | 250 | 230 | 240 | 250 | 285 | 275 | 255 |
| 28 | 250 | 260 | 250 | 250 | 235 | 225 | 225 | 225H | I250A | 230 | 210 | 230 | 200 | 195H | 240 | 200 | 250 | 250 | 250 | 240 | 230 | 240 | 220 | 240 |
| 29 | 280 | 285 | 280 | 260 | 240 | 240 | 220H | 210 | 220 | 230 | 215 | 210 | 245 | 195 | 225 | 205H | 225 | 235 | 250 | 240 | 250 | 255 | 250 | 240 |
| 30 | 260 | 265 | 260 | 250 | 240 | 235 | 220 | 225 | 225 | 200 | 190 | 200 | 205 | 210 | 225 | 250 | I255A | 250 | 240 | 230 | 225 | 230 | 245 | 260 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 28 | 29 | 29 | 29 | 29 | 30 | 27 | 27 | 26 | 26 | 28 | 29 | 29 | 28 | 28 | 28 |
| Median | 280 | 270 | 260 | 250 | 230 | 230 | 230 | 235 | 230 | 220 | 215 | 210 | 210 | 210 | 215 | 230 | 245 | 245 | 245 | 235 | 250 | 250 | 250 | 265 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 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

20

# IONOSPHERIC DATA

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

**Apr. 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 | | | | | | | | h | c | c | | | | | | | | | | f | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | h | h | h | | | | | | | | | | | f | f | | | |
| 5 | | | | | | | h | | | | | | | | | 1 | 1 | | | | | | | |
| 6 | | | | | | | h | | h | h | | | 1 | 1 | | | | | | | | | | f |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | h | h | | | c | | | 1 | | 1 | | | | | | | | |
| 9 | | | | | | | h | | | | c | | | | 1 | | | h | c | | | f | | |
| 10 | | | | | | | c | h | c | c | | c | 1 | | | h | h | c | c | f | f2 | f2 | f4 | f2 |
| 11 | f2 | f | f | f | f2 | | h | c | c | c | c | c2 | 1 | 1 | 1 | 1 | c 1 | h | c | f2 | f2 | | f | f |
| 12 | f | f | f | | | | h | h | h | c | c2 | c2 | c | c | 1 | 1 | | 12 | | | f | f | f | f |
| 13 | f2 | f2 | | | h | | | c | c | 1 | 1 | 12 | | | 1 | | | | 1 | | | | | |
| 14 | | | | | f | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | f | | h | h | c | c | | | | | | | | | c | | f | | | |
| 16 | f | f | | | | | | h | | c | | | 1 | | | h | | h 1 | c 1 | | | | | |
| 17 | | | | | f | | | | | h | h | | | | | | | | c | | | | | |
| 18 | | | | | | | h | h | h | h | | | | | | | | | h | | | | | c |
| 19 | f4 | f4 | f4 | f6 | f3 | c5 | c3 | c2 | c2 | | c | c4 | | c | c | | | | c | f3 | f2 | f4 | | |
| 20 | | | f | | | | h | | | | | c | 1 | | 1 | 1 | 12 | | c | | f2 | | | |
| 21 | | | | | | 1 | | | | | | | 1 | 1 | | | | | | | | | | f |
| 22 | | | | f2 | f2 | h | h | h | | h | | | | c | c | | | h | c | | | | | |
| 23 | | | | | | h | h | h | | | c | | | | | | | | | | | | | |
| 24 | | | | | | h | h | h | | | c | c | h | | | | h | h 1 | c | 1 | c | | | |
| 25 | | f | | | | | h | c | c | | | | | h | h | h | h 1 | c 1 | c 1 | c | f | f | | |
| 26 | | | | | | h | h | c | c | c | c | | c | c | | h | h | c | c3 | | | | | |
| 27 | | | | | | | | | | c2 | | c | | | | 1 | h | h | c | c | f2 | | | |
| 28 | | | | | | c | | c | c | c | c | | | c | | | h | c | h | | | | | |
| 29 | | | | | | | | | | | c | | c | | | | | h | c | | | | | |
| 30 | | | | | | h | | h | | | | | c | c | | c | c | c | c | | | | | |
| 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

# IONOSPHERIC DATA

Apr. 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 | 039S | 039 | 039 | 038 | 032 | 033 | 046 | 055 | 061 | 067 | 076 | 079 | 075 | 068 | 073 | 072 | 064 | 062 | 060 | 059 | 043 | 040S | 038S | I038R |
| 2 | U038R | 036S | 037R | 040 | 031 | 035 | 050 | 052 | 065 | 068 | 079 | 083 | 067 | 064 | 076 | 071 | 059 | 064 | 064R | 049 | 041 | 039 | U040S | FS |
| 3 | 039 | 038S | 037 | 035 | 034F | 032F | 046 | 051 | 063 | 063 | 072 | 066 | 062 | 062 | 067 | 073 | 067 | 060 | 052 | 050 | 043 | 040R | 040 | FS |
| 4 | 039R | FS | 040 | 038 | 026S | 032 | 049 | 058 | 056 | 063 | 065 | 067 | 074 | 070 | 081 | 079 | 065 | 062 | 060 | 058 | 045 | U040R | FS | FS |
| 5 | FS | 042 | 039 | 040S | 040 | 043 | 048 | 053 | 058 | 061 | 074 | 081 | 079 | 073 | 064 | 069 | 067 | 068 | 074S | 064 | 043 | 040 | 041 | 040F |
| 6 | 041S | 042 | 042 | 046 | 030 | 032 | 046 | 053 | 055 | 059 | 066 | 068 | 071 | 073 | 076 | I075C | 069 | 063 | 065 | 063 | 061S | 046 | 042S | 040 |
| 7 | 041 | 039 | 036 | FS | FS | 029S | C | C | C | 060 | 068 | 066 | 070 | 079 | 080 | 071 | 066 | 064 | 064 | 065 | 054 | 051 | 050 | 048 |
| 8 | 046 | 045 | 045 | 047 | 036 | 035 | 051 | 058 | 061 | 060 | 066 | 065 | 071 | 074 | 069 | 071R | 067 | 058 | 054 | 054 | 049 | 045 | 045 | 044 |
| 9 | 042 | 042 | J039R | FS | 032R | 031S | 050 | 052 | 059 | 061 | 073 | 083 | 080 | 069 | 067 | 079 | 086 | 083 | 073S | 052 | 047 | 046 | 044R | 045 |
| 10 | 045 | 045 | 043 | 039 | 042 | 040 | 050 | 056 | 067 | 071 | 072 | 069 | 076 | 083R | 084 | 086 | 073 | 065 | 069 | 068 | A | RS | 043S | U043R |
| 11 | I044R | I044R | I044R | 043R | I029A | 033R | 047 | 057 | 061 | 070 | 069 | 070 | 078 | 087 | 079 | 067 | 057 | 059 | 060 | 065 | 063 | C | C | C |
| 12 | C | C | C | C | C | C | C | C | C | C | 062 | 064 | 063 | 057 | 069 | 080 | 083 | 071 | 068 | 072 | 059 | 051 | 050S | 050F |
| 13 | 050 | 051S | 050S | 051S | 031F | 035R | 050 | 055 | 061 | 068 | 072 | 064 | 071 | 078 | 076 | 068 | 058 | 053 | 055 | 069 | 066 | 053 | 048 | 045 |
| 14 | 045F | 045 | 043 | 050 | 024S | 033 | 051 | 055 | 062S | 078 | 095R | 070 | 060 | 063 | 063 | 072 | 072 | 068 | 072 | 068 | 055 | 046 | 044 | 045 |
| 15 | 045 | 045 | 041 | 039 | 029 | 033 | 045 | 053 | 064 | 066 | 078 | 083R | 082 | 073 | 082 | 076 | 062 | 055 | 059 | 063 | 060 | 057 | 053 | 049 |
| 16 | 047 | 046 | 046 | 046 | 031 | 039 | 058 | 064 | 067 | 072 | 080 | 080 | 074 | 070 | 077 | 069 | 070 | 071 | 070 | 068 | 058 | 055 | 050 | 049 |
| 17 | 047 | 047 | 045 | 046 | 036S | 039 | 051 | 052 | 063R | 068 | 071 | 071 | 072 | 058 | 062 | 063 | 064 | 062 | 061 | 061 | 060 | 054 | 049 | 050 |
| 18 | 048 | I046R | 042 | 041 | 042 | 045F | 047H | 056 | 062H | 060 | 076 | 079 | 083 | 090 | 093 | 100R | 103 | J100R | 107 | 090R | I080R | 067 | 065 | 065 |
| 19 | 051R | I034A | 037 | 040 | I044R | I044R | J043R | 039S | I041A | 043 | I043R | I043A | I042R | 042 | I043R | I042R | I042R | 042 | 043 | 046 | 042S | 043S | I042A | 040S |
| 20 | 038F | F | F | F | 032F | 038S | 045 | 050 | 051 | 053 | 062 | 057 | 058 | 065 | 061 | 058 | 057 | I050A | 053 | 060 | 055 | FS | I046R | RF |
| 21 | RF | 042 | 043R | 038R | 025 | 035 | 046 | 048 | 057 | I058C | 058 | 066 | 061 | 057 | 059 | 060 | 061 | 058 | 053 | 053R | 048 | 046 | 047S | 043 |
| 22 | 043 | 041 | 041 | 040 | 032 | 039 | 044 | 050 | 056 | 067 | 064 | 065 | 070 | 074 | 066 | 057 | 061 | 058 | 063 | 062 | 054 | 049 | RS | RS |
| 23 | RS | RS | RS | I039R | U035F | 043R | 050 | 060 | 060V | 061R | 061 | 060 | 067 | 070 | 062 | 060 | 058 | 057 | 063 | 071 | 072 | 053 | 045 | 044 |
| 24 | 042 | 041 | 041 | 039 | 036 | 039 | 055 | 065 | 065 | 066 | 058F | 063 | 060V | 067 | 070 | 065 | 063 | 058 | 058 | 070S | J077R | 049S | 039 | 039 |
| 25 | FS | FS | FS | 037F | I033R | 042 | 055 | 056 | 061 | 059 | 064 | 063 | 056 | 057R | 057 | 065 | 071 | 076 | 074R | 068 | 058 | 048 | FS | U044F |
| 26 | FS | 043R | 039S | FS | 036 | 045 | 048 | 055 | 063 | 060 | 060V | 061 | 058 | 059H | 061 | 066 | 070 | 068 | 068 | U044R | 060 | 047 | FS | 044S |
| 27 | FS | 042F | U043R | 039 | 040 | 044 | 050 | 053 | 054 | 058 | 064 | 069 | 066 | 068 | 076 | 079 | 085 | 070S | U062R | 048 | I046R | 044 | FS | FS |
| 28 | FS | FS | FS | FS | FS | 040S | 048 | 056 | 069 | 081 | 079 | 066 | 056V | 053V | 056 | 060 | 065 | 066 | 071 | 075R | 068 | 043R | 040S | 039 |
| 29 | 037R | 034 | F | 032F | 032F | 044 | 048 | 047 | 050 | 060 | 064 | 053 | 055 | 058 | 063 | 061 | 063 | 056 | 052R | 058 | 060S | 051R | I047R | 048 |
| 30 | 042R | 041F | 041 | 038F | 040 | 048 | 054 | 064 | 060 | 058 | 053H | 057V | 056 | 056 | 061 | 069 | 076S | 076S | 060S | 053 | I054A | 050 | 046R | 045 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 22 | 24 | 24 | 24 | 27 | 29 | 28 | 28 | 28 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 27 | 24 | 23 |
| Median | 042 | 042 | 041 | 040 | 032 | 039 | 048 | 055 | 061 | 061 | 067 | 066 | 068 | 068 | 068 | 069 | 066 | 062 | 062 | 062 | 055 | 047 | 045 | 044 |
| U. Q. | 046 | 045 | 043 | 044 | 036 | 043 | 050 | 056 | 063 | 068 | 074 | 071 | 074 | 073 | 076 | 075 | 071 | 068 | 069 | 068 | 060 | 051 | 048 | 048 |
| L. Q. | 039 | 040 | 039 | 038 | 031 | 033 | 046 | 052 | 056 | 060 | 062 | 063 | 060 | 059 | 062 | 063 | 061 | 058 | 058 | 053 | 046 | 043 | 042 | 040 |
| Q. R. | 007 | 005 | 004 | 006 | 005 | 010 | 004 | 004 | 007 | 008 | 012 | 008 | 014 | 014 | 014 | 012 | 010 | 010 | 011 | 015 | 014 | 008 | 006 | 008 |

The Radio Research Laboratories, Japan

foF2

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

A 1

23

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | | 420L | 440L | 440L | 440 | 440 | 450 | 440 | LH | L | L | | | | | | |
| 2 | | | | | | | | | 410L | 420L | 430 | 440 | 430L | 430 | 420 | 400L | L | L | | | | | | |
| 3 | | | | | | | | | 400L | 430 | 440 | 440 | 450 | 450 | I430A | 410A | L | L | | | | | | |
| 4 | | | | | | | | L | L | 430 | 440 | 440 | 440 | 440 | 430 | 420 | L | L | | | | | | |
| 5 | | | | | | | | | L | 430L | 440L | 430L | 430 | 430 | L | L | L | L | | | | | | |
| 6 | | | | | | | | | L | 400L | 440 | 460 | 440 | 450 | 440 | I430C | L | L | | | | | | |
| 7 | | | | | | | C | C | C | 430 | 440 | 450H | 450 | 450 | 430 | L | L | L | | | | | | |
| 8 | | | | | | | | L | L | 430L | 430 | 450 | 470 | 450 | LH | 420L | L | L | | | | | | |
| 9 | | | | | | | | | L | 420L | 460L | 450L | 450 | 440 | 440 | 430 | L | | | | | | | |
| 10 | | | | | | | | | L | I440A | 440 | 470L | 460 | I440A | 430 | 420 | L | | | | | | | |
| 11 | | | | | | | | | L | 430 | 440 | 450 | 460 | 440 | 440L | 420L | A | A | | | | | | |
| 12 | | | | | | | C | C | C | C | 440 | 430L | 450L | 430L | 410 | 430L | L | L | | | | | | |
| 13 | | | | | | | | L | 420L | 430 | 430 | 460L | 470H | 440H | 430H | 420L | L | | | | | | | |
| 14 | | | | | | | | L | 430L | 440 | 440 | 450 | 490 | 450 | 450 | 440 | 410L | L | | | | | | |
| 15 | | | | | | | | | 430L | 430L | 440 | 450 | 450 | 450L | 420L | 410L | L | | | | | | | |
| 16 | | | | | | | | L | 420L | 430 | 430 | 450L | 460H | 470 | 430L | 420 | L | L | | | | | | |
| 17 | | | | | | | | | 410L | 430 | 440 | 420 | 440L | 440L | 430 | 420L | L | L | | | | | | |
| 18 | | | | | | | | L | 420 | 450H | 430 | 460 | 460 | 450 | 440H | 430 | L | L | L | | | | | |
| 19 | | | | | | | 300 | A | A | A | 410R | I400A | 400 | 400 | 400 | I390R | 370H | 330 | | | | | | |
| 20 | | | | | | | | L | 410 | 430 | 430 | 440 | 440 | 440 | 430 | 420 | 390 | A | | | | | | |
| 21 | | | | | | | | L | 420 | I430C | 440 | 440 | 450 | 440 | 430 | 430 | 390L | L | | | | | | |
| 22 | | | | | | | | L | 420L | 430 | 430H | 450H | 450H | 440 | 440 | 430L | 400L | L | | | | | | |
| 23 | | | | | | | | L | 420 | 440L | 450 | 450 | 450 | 440 | 430 | 420L | L | L | L | | | | | |
| 24 | | | | | | | L | L | 420 | 440L | 460 | 460 | 470 | 440 | 440 | 420 | 400L | A | | | | | | |
| 25 | | | | | | | | L | 410 | 430 | 430 | I440A | 450 | 440 | 440H | 420 | A | A | | | | | | |
| 26 | | | | | | | | A | 410 | 440 | 440 | 430 | 450A | 450 | 430 | 420 | 400A | A | A | | | | | |
| 27 | | | | | | | | L | 410 | 440 | 440 | 450 | 440R | 450H | 420 | 420 | A | A | | | | | | |
| 28 | | | | | | | | A | 420 | 420 | 430 | 450H | 450H | 450 | 440 | 420H | 390L | 370A | | | | | | |
| 29 | | | | | | | LH | L | 420L | 430 | LH | 450L | 450 | 440 | 420 | 420 | 400 | L | | | | | | |
| 30 | | | | | | | L | 390L | 430L | 430 | 440 | 450 | 440 | 450 | 420 | 420 | I390A | L | L | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 1 | 1 | 20 | 28 | 29 | 30 | 30 | 30 | 28 | 27 | 10 | 2 | | | | | | |
| Median | | | | | | | 300 | 390L | 420L | 430 | 440 | 450 | 450 | 440 | 430 | 420 | 395L | 350A | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foF1

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 2

24

# IONOSPHERIC DATA

Apr. 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 | | | | | | | E | 225 | 265 | 290 | 305 | 315R | 320 | I320R | 305R | 285 | 255A | A | | | | | | |
| 2 | | | | | | | E | 220 | 260A | 285 | 305 | 320A | 320 | 305 | 300 | 280 | 255 | 215H | E | | | | | |
| 3 | | | | | | | A | 235 | 265 | 295 | 315 | 320A | I320A | 320S | 305A | A | A | 190 | | | | | | |
| 4 | | | | | | | E | 235 | 275A | 300 | U315R | 320 | 320 | I320R | I310A | 285A | A | A | | | | | | |
| 5 | | | | | | | E | 215 | 255A | 290 | 305 | I310A | 320R | I310A | I300A | I290A | A | A | | | | | | |
| 6 | | | | | | | E170B | 235 | 265 | 300 | I310A | I320A | I320A | 315 | 310 | I290C | 265 | A | | | | | | |
| 7 | | | | | | | C | C | C | 300 | 310A | 315 | 325R | I320A | 315 | 295R | 260 | 215 | | | | | | |
| 8 | | | | | | | 180 | 240 | 280 | 300H | U310A | 320S | 325 | A | A | 290 | 255 | 210 | E | | | | | |
| 9 | | | | | | | E170B | 230 | 275 | U300R | 310 | 325 | I325A | I325A | 320A | I300A | 260 | 210 | | | | | | |
| 10 | | | | | | | E180B | 235 | 275S | 300R | 310R | I315R | I320R | I320A | 310R | 290 | 255 | 210 | E | | | | | |
| 11 | | | | | | | A | 225 | 270 | I295R | A | A | A | U315R | 315A | 295A | 255 | 210A | | | | | | |
| 12 | | | | | | | C | C | C | C | 320 | I320A | I325A | A | A | 295 | 260R | 220R | E | | | | | |
| 13 | | | | | | | A | 250 | 285 | 300A | I315A | 330 | 330 | 325R | 320S | 305R | I265A | 215A | E | | | | | |
| 14 | | | | | | | A | A | A | A | A | 325R | 330 | 330 | I315A | I295R | 260R | 215 | E | | | | | |
| 15 | | | | | | | 190 | 240 | U275R | R | R | 325R | I330R | 325R | 320 | 295 | 260 | 205 | E170B | | | | | |
| 16 | | | | | | | AH | 260 | 290 | 310 | 320 | A | A | 325 | 310 | 285 | 255 | 215 | E170B | | | | | |
| 17 | | | | | | | 215 | 255H | 290 | I310A | 325 | 325 | 330 | I330A | I310A | I295A | 265 | A | A | | | | | |
| 18 | | | | | | | 205 | 275 | 285 | 305 | I315A | 325R | I330R | I325R | I315A | I290A | 255 | 205 | E | | | | | |
| 19 | | | | | | | A | 230 | 270 | I290A | I305A | 315 | I320T | 310 | 295 | I285A | 255 | 210A | E | | | | | |
| 20 | | | | | | E | A | 250 | A | A | 305A | I315A | 320 | A | A | A | A | A | E170B | | | | | |
| 21 | | | | | | E | 205A | 250 | 285A | C | A | A | A | A | I310A | 290 | I270A | 225 | A | | | | | |
| 22 | | | | | | E | 195 | 260A | I295A | I310A | I320A | 325A | A | A | 320 | I305A | I280R | 220 | E | | | | | |
| 23 | | | | | | E | 205A | 260 | 285 | 300A | I315A | 325 | I330R | I330A | I320R | 300 | 255 | 220 | E | | | | | |
| 24 | | | | | | | A | A | I300A | 310R | I320A | I325A | I330A | 325 | I315R | 295 | 260 | A | E | | | | | |
| 25 | | | | | | | A | 260 | 280 | 300A | I315A | I325A | 330A | 325 | U315R | I295A | 265 | I215A | E | | | | | |
| 26 | | | | | | E | 210A | 255 | 285 | U300R | 315A | I325A | 330A | I330A | 320R | 295 | 255 | 220A | A | | | | | |
| 27 | | | | | | | 195R | 255A | 290 | 305 | 315 | I320R | 330 | I325A | I315A | 290 | 265A | 220A | A | | | | | |
| 28 | | | | | | | A | A | A | A | A | A | A | I325A | 315 | 295 | 260 | 220A | E | | | | | |
| 29 | | | | | | | 200A | 250A | 285A | 310A | 320 | I330R | 330R | 320R | 315 | 295 | 265A | 220 | E | | | | | |
| 30 | | | | | | | A | 265A | A | A | A | I330A | I330A | 330 | 320 | 300 | 275A | A | E | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | 5 | 17 | 25 | 24 | 23 | 24 | 26 | 25 | 25 | 27 | 28 | 26 | 22 | 18 | | | | | |
| Median | | | | | | E | 190 | 250 | 280 | 300 | 315A | 320 | 325 | U325 | 315 | 295 | 260 | 215 | E | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foE

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 3

# IONOSPHERIC DATA

Apr. 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 | E | E | E | E | E | E | 021 | 028 | 033 | 036 | 033 | G | G | G | 023G | 021G | 029 | 022 | E | E | E | E | E | E |
| 2 | E | E | E | E | E | E | 022 | 027 | 031 | 032 | 032 | 034 | 034 | 033 | 031 | 031 | G | 023 | 020 | J015E | J020 | E | E | E |
| 3 | E | J023 | J019 | J020 | E | E | 021 | 027 | 036 | 035 | 038 | 036 | 039 | G | J047 | J043 | J034 | 023 | J028 | J016E | J027 | J020 | J014E | E |
| 4 | E | E | E | E | E | E | 023 | 028 | 033 | 035 | 038 | 034 | 035 | J035 | 035 | J036 | J031 | 026 | J017 | J018 | J016E | J018 | J014E | J018 |
| 5 | E | E | E | E | J019 | J038 | E | 027 | 031 | 037 | 038 | 036 | G | 036 | 031 | J037 | 030 | 027 | 019 | J019 | 019 | J020 | J030 | J033 |
| 6 | J034 | E | J013E | E | J025 | E | 022 | 027 | 031 | 036 | 033 | 032 | 034 | 028G | 022G | C | 025G | 024 | J020 | J018 | J018 | J030 | J013E | J015E |
| 7 | J013E | E | E | E | E | J025 | C | C | C | 035 | 033 | 033 | J083 | J034 | G | G | G | G | J014E | J018 | J025 | J020 | J023 | E |
| 8 | E | E | E | E | E | E | 026 | 029 | 033 | 032 | 036 | 039 | 036 | 033 | 032 | 020G | 032 | J021G | J022 | J019 | J020 | E | E | E |
| 9 | E | E | E | E | E | E | 023 | 028 | 034 | 042 | 036 | 033 | 037 | J043 | 039 | 041 | 035 | 033 | J028 | E | E | J013E | E | E |
| 10 | E | E | J011E | J014E | J014E | E | 024 | 030 | J042 | J047 | 036 | 039 | 038 | 048 | 037 | 040 | 034 | J043 | J031 | J022 | J065 | J043 | J031 | J020 |
| 11 | J018 | J043 | J040 | J062 | J052 | J015E | 026 | 043 | 040 | 033 | 033 | 038 | 034 | 035 | 036 | 032 | J056 | J062 | J038 | J062 | J028 | C | C | C |
| 12 | C | C | C | C | C | C | C | C | C | C | 035 | 034 | 037 | 032 | 032 | 042 | 039 | 027 | J040 | 021 | J016E | E | E | E |
| 13 | E | E | J018 | E | E | E | 027 | 030 | 036 | 039 | 034 | 026G | 023G | J035 | J035 | J029G | 029 | 026 | 023 | J018N | E | J020 | J016E | E |
| 14 | J014E | E | E | J018 | E | E | 024 | 030 | 032 | J034 | 032 | J053 | 029G | 025G | 038 | 035 | 034 | 030 | J027 | J019 | J015E | J012E | E | E |
| 15 | E | E | E | E | E | E | 024 | 030 | 033 | 032 | G | 032G | G | G | G | G | G | G | E017B | J015E | J013E | E | E | E |
| 16 | E | E | E | E | E017B | J015E | 025 | 030 | 031 | 034 | 034 | 036 | 038 | G | G | 023G | 029 | J035 | 019 | E | J018 | J015E | E | E |
| 17 | J015E | J012E | E | E | E | E | 025 | 029 | 032 | 037 | 032G | J032G | G | 037 | J033 | 030 | J026G | 027 | 021 | J023 | J016E | J021 | E | E |
| 18 | E | E | E | E017B | E | E | 027 | 033 | 033 | 034 | 034 | 031G | 032G | 030G | 032 | J031 | G | 025 | 022 | J018 | J013E | J020 | J031 | J020 |
| 19 | J027 | J038 | J037 | J014E | E | E | 022 | J037 | J093 | J056 | J066 | J049 | 035 | 038 | G | 029 | 030 | 032 | 025 | 020 | J025 | J027 | J063 | J024 |
| 20 | E | E | E | E | E | 018 | 026 | 032 | 034 | 033 | 035 | 033 | G | 033 | J058 | J060 | J033 | J054 | J038 | J050 | J023 | J074 | J038 | J024 |
| 21 | E | E | E | E | E | E | 024 | 028 | 034 | C | J037 | 033 | 035 | 034 | J034 | 022G | 027 | 026 | 022 | J018 | J018 | J024 | J015E | J013E |
| 22 | E | E | E017B | E | E | 020 | 027 | 032 | 032 | 034 | J034 | 033 | 034 | 038 | G | 032 | G | 025 | 021 | E019B | E | E | E | E |
| 23 | E | E | E | E | E | 019 | 024 | 031 | 032 | 032 | J113 | G | 039 | J035 | 037 | 034 | 032 | 027 | 019 | J013E | E | E | E | E |
| 24 | E | E | E | J011E | E | E | 025 | 033 | 034 | 035 | 044 | 040 | 035 | 040 | 038 | 037 | 033 | J046 | J042 | J044 | J037 | J027 | J023 | J014E |
| 25 | J020 | J027 | J026 | J018 | J035 | J037 | J031 | 033 | J042 | J034Y | 033 | 047 | J063 | 039 | J035 | J038 | J048 | J059 | J050 | J050 | J027 | J017 | J021 | J017 |
| 26 | J018 | J011E | J013E | J012E | E | 022 | J037 | J044 | 042 | 042 | J042 | 035 | 045 | J035 | 041 | 038 | 041 | J044 | J045 | J042 | J038 | J023 | J045 | J037 |
| 27 | J028 | J016E | J013E | E | J013E | J016E | 028 | 028 | 035 | 035 | 035 | 035 | 041 | 038 | 039 | 033 | J048 | J058 | J038 | J027 | J031 | J026 | J028 | J022 |
| 28 | E | E | E | E | E | J015E | 028 | J045 | 036 | J043 | J036 | 037 | J035 | 033 | 035 | G | 034 | J038 | J032 | J018 | J017N | J014E | E | E |
| 29 | E | E | E | E | E | J015E | 022 | 028 | 036 | J045 | 034 | 038 | G | 036 | 036 | 033 | 032 | 026 | 025 | J028 | J018 | J013E | E | J014E |
| 30 | E | E | J017 | J018 | E | J016B | 025 | 032 | J035 | 036 | 033 | J037 | 039 | 045 | 039 | 039 | J047 | J032 | 020 | J053 | J063 | E | E | E |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 29 | 29 | 29 | 29 | 28 | 28 | 28 | 28 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 29 |
| Median | E | E | E | E | E | E | 024 | 030 | 034 | 035 | 034 | 034 | 035 | 035 | 035 | 033 | 032 | 027 | J022 | J019 | J018 | J018 | E | E |
| U. Q. | E | E | E | E | E | 017 | 026 | 032 | 036 | 038 | 037 | 038 | 038 | 038 | 038 | 038 | 034 | 038 | 032 | 027 | 027 | 024 | 026 | 019 |
| L. Q. | E | E | E | E | E | E | 022 | 028 | 032 | 034 | 033 | 033 | G | 032 | 031 | G | 027 | 025 | 020 | 018 | E | E | E | E |
| Q. R. | | | | | | | 004 | 004 | 004 | 004 | 004 | 005 | | 006 | 007 | | 007 | 013 | 012 | 009 | | | | |

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan



foEs

# IONOSPHERIC DATA

Apr. 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 | | | | | | | 021 | 028 | 032 | 035 | U033R | | | | 023G | 021G | G | 022 | | | | | | |
| 2 | | | | | | | 022 | 027 | 031 | U032R | U032R | 034 | U034R | 033 | U031R | 031 | | 022 | 018 | | E | | | |
| 3 | | E | E | 017 | | | 021 | 026 | 035 | 034 | 036 | 035 | 038 | | 045 | 041 | 033 | 023 | E | | 017 | E | | |
| 4 | | | | | | | 023 | 028 | 032 | 034 | 037 | U034R | U035R | 035 | 035 | 030 | 031 | 026 | E | E | | E | | E |
| 5 | | | | | E | 023 | | 027 | 031 | 037 | 036 | 034 | | 033 | 031 | 029 | 029 | 022 | E | E | E | E | 019 | 017 |
| 6 | E | | | | 017 | | 022 | 027 | U031R | 035 | 033 | E032R | 034 | 028G | 022G | C | 022G | 021 | 018 | E | E | 022 | | |
| 7 | | | | | | E | C | C | C | 035 | E033R | 033 | 023 | 033 | | | | | | E | 025 | E | E | |
| 8 | | | | | | | 025 | 029 | 032 | 032 | 035 | 034 | 035 | U033R | G | 019G | 030 | 019G | 018 | 018 | 018 | | | |
| 9 | | | | | | | 023 | 028 | 034 | 039 | 035 | U033R | 034 | 042 | 034 | 033 | 033 | 033 | 026 | | | | | |
| 10 | | | | | | | 024 | 030 | 040 | U047R | 036 | 038 | 038 | 047 | 037 | 035 | 033 | 035 | 026 | 019S | A | 030 | E | E |
| 11 | E | 018 | 031 | 034 | A | | 025 | 040 | 039 | E033R | E033R | 037 | 034 | 035 | 035 | 031 | 052 | 033 | 034 | 027 | E | C | C | C |
| 12 | C | C | C | C | C | C | C | C | C | C | 035 | U034R | 035 | E032R | U032R | 040 | 038 | 025 | 040 | 020 | | | | |
| 13 | | | E | | | | 024 | 030 | 035 | 037 | 033 | 026G | 023G | 027 | 017 | 026G | 029 | 024 | 021 | E | | E | | |
| 14 | | | | E | | | 023 | 030 | 031 | 033 | E032R | 030 | 028G | 025G | 037 | 035 | 034 | 028 | 025 | 018 | | | | |
| 15 | | | | | | | 024 | 030 | 032 | E032R | | E032R | | | | | | | E017B | | | | | |
| 16 | | | | | | | 025 | 030 | 030 | 034 | 034 | 035 | 037 | | | 023G | G | 024 | 018 | | E | | | |
| 17 | | | | | | | 025 | 029 | 032 | 035 | 029G | 030G | | 036 | 032 | U030R | 025G | 024 | 021 | E | | 018 | | |
| 18 | | | | E017B | | | 027 | 031 | 032 | 034 | U034R | 030G | E032R | E030R | U032R | 030 | | 025 | 021 | E | | E | E031R | 017 |
| 19 | E | A | 020 | | | | 022 | 037 | A | 041 | 038 | A | U035R | 039 | | 029 | G | 026 | 022 | 019 | 025 | 027 | A | E |
| 20 | | | | | | 017 | 025 | 031 | 031 | 033 | 034 | 033 | | 033 | 037 | 032 | G | A | 035 | E | E | 020 | E038R | E |
| 21 | | | | | | | 024 | 027 | 031 | C | 035 | U033R | 035 | 034 | 032 | 022G | 027 | 026 | 022 | E | E | 018 | | |
| 22 | | | E017B | | | 019 | 027 | 029 | 032 | 034 | 034 | E033R | 034 | 038 | | 031 | 024 | 020 | E019B | | | | | |
| 23 | | | | | | 018 | 024 | 031 | 032 | E032R | 035 | | 035 | 034 | 037 | 032 | 031 | 026 | 018 | | | | | |
| 24 | | | | | | | 025 | 032 | 032 | 034 | 036 | 037 | 035 | 039 | 038 | 036 | 032 | 045 | 034 | 044 | 025 | 024 | E | |
| 25 | E | 018 | E | E | 023 | 034 | 031 | 031 | 036 | 034 | U033R | 045 | 037 | 035 | 032 | 034 | 042 | 049 | 050 | 031 | 023 | 017 | E | E |
| 26 | E | | | | | 021 | 037 | 043 | 041 | 042 | 037 | U035R | 045 | 035 | 040 | 037 | 040 | 044 | 045 | 040 | U038R | E | 018 | E |
| 27 | E | | | | | | 028 | 028 | 033 | 035 | U035R | E035R | 038 | 037 | 036 | 033 | 041 | 044 | 033 | 023 | 022 | E | 018 | E |
| 28 | | | | | | | 025 | 043 | 035 | 039 | 035 | 035 | 035 | U033R | 034 | | 033 | 037 | 026 | E | E | | | |
| 29 | | | | | | | 022 | 026 | 034 | 041 | 034 | 036 | | 035 | 035 | 033 | 032 | 025 | 023 | 027 | 017 | | | |
| 30 | | | E | E | | | 025 | 030 | 034 | 033 | 033 | 033 | 035 | 039 | 036 | 036 | 045 | 030 | 019 | 044 | A | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foEs

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 5

# IONOSPHERIC DATA

Apr. 1965 | f-min | 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 | E | E | E | E | E | 017 | 018 | 018 | 018 | 021 | 019 | 018 | 017 | 017 | 017 | E | E | E | E | E | E | E |
| 2 | E | E | E | E | E | E | E | E | 017 | 018 | 017 | 018 | 017 | 017 | 018 | 017 | 017 | 017 | E | E | E | E | E | E |
| 3 | E | E | E | E | E | E | 017 | 017 | 017 | 018 | 017 | 019 | 021 | 017 | 017 | 017 | E | 017 | E | E | E | E | E | E |
| 4 | E | E | E | E | E | E | E | E | 017 | 017 | 018 | 018 | 019 | 018 | 017 | 017 | E | 017 | E | E | E | E | E | E |
| 5 | E | E | E | E | E | E | E | E | 018 | 018 | 017 | 018 | 018 | 018 | 017 | 017 | 018 | E | E | E | E | E | E | E |
| 6 | E | E | E | E | E | E | 017 | 017 | 017 | 018 | 018 | 017 | 018 | 017 | 018 | C | 018 | E | E | E | E | E | E | E |
| 7 | E | E | E | E | E | E | C | C | C | 017 | 017 | 017 | 017 | 017 | 017 | E | 017 | 017 | E | E | E | E | E | E |
| 8 | E | E | E | E | E | E | E | 017 | 017 | 018 | 018 | 017 | 018 | 018 | 017 | E | E | 017 | E | E | E | E | E | E |
| 9 | E | E | E | E | E | E | 017 | E | 017 | 019 | 018 | 017 | 017 | 020 | 018 | 017 | 018 | 017 | 017 | E | E | E | E | E |
| 10 | E | E | E | E | E | E | 018 | 018 | 018 | 018 | 022 | 022 | 018 | 017 | 021 | 018 | 017 | 017 | E | E | E | 017 | E | E |
| 11 | E | E | E | E | E | E | 017 | 017 | 017 | 018 | 018 | 018 | 017 | 017 | 018 | 017 | 017 | 017 | 017 | E | E | C | C | C |
| 12 | C | C | C | C | C | C | C | C | C | C | 018 | 017 | 017 | 017 | 018 | 017 | 017 | 017 | E | E | E | E | E | E |
| 13 | E | E | E | E | E | E | 017 | E | 017 | 018 | 017 | 017 | 017 | E | 017 | 017 | 017 | 017 | E | E | E | E | E | E |
| 14 | E | E | E | E | E | E | 017 | E | 017 | E | 017 | 017 | 017 | 018 | 018 | 019 | 017 | E | E | E | E | E | E | E |
| 15 | E | E | E | E | E | E | 017 | 017 | 017 | 018 | 017 | 018 | 021 | 018 | 019 | 018 | 017 | 017 | 017 | E | E | E | E | E |
| 16 | E | E | E | E | 017 | E | 017 | 017 | 017 | 017 | 017 | 020 | 017 | 018 | 017 | 017 | 017 | E | 017 | E | E | E | E | E |
| 17 | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 018 | 017 | 018 | 017 | 017 | E | 017 | E | E | E | E | E | E |
| 18 | E | E | E | 017 | E | E | 017 | 017 | 017 | 017 | 019 | 019 | 019 | 021 | 021 | 017 | E | E | E | E | E | E | E | E |
| 19 | E | E | E | E | E | E | 017 | E | E | 017 | 017 | 017 | 021 | 018 | 017 | 017 | 017 | 017 | E | E | E | E | E | E |
| 20 | E | E | E | E | E | E | 017 | 017 | E | 017 | 017 | 019 | 018 | 019 | 017 | 017 | E | 017 | 017 | E | E | E | E | E |
| 21 | E | E | E | E | E | E | 018 | 017 | 017 | C | 018 | 019 | 018 | 024 | 017 | 017 | 017 | 017 | E | E | E | E | E | E |
| 22 | E | E | 017 | E | E | E | 017 | 018 | 017 | 017 | 019 | 019 | 019 | 022 | 019 | E | E | 017 | E | 019 | E | E | E | E |
| 23 | E | E | E | E | E | E | 017 | E | 017 | 017 | 018 | 018 | 018 | E | 018 | 017 | 017 | 017 | E | E | E | E | E | E |
| 24 | E | E | E | E | E | E | E | 017 | 017 | E | 017 | 017 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E |
| 25 | E | E | E | E | E | E | 017 | 018 | 017 | 017 | 017 | 018 | 017 | 017 | E | E | E | E | E | E | E | E | E | E |
| 26 | E | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 017 | 017 | 019 | 018 | 017 | E | 017 | E | E | E | E | E | E |
| 27 | E | E | E | E | E | E | 017 | E | E | 018 | 018 | 017 | 018 | 018 | 019 | 017 | 017 | E | E | E | E | E | E | E |
| 28 | E | E | E | E | E | E | E | E | E | 017 | 018 | 017 | 018 | 018 | 017 | 017 | E | E | E | E | E | E | E | E |
| 29 | E | E | E | E | E | E | 017 | E | E | 017 | 018 | 017 | 018 | 019 | 018 | 017 | E | E | E | E | E | E | E | E |
| 30 | E | E | E | E | E | 018 | 017 | E | 017 | 017 | 017 | 018 | 017 | 017 | 017 | 017 | E | E | E | E | E | E | E | E |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 29 | 29 | 29 | 29 | 28 | 28 | 28 | 28 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 29 |
| Median | E | E | E | E | E | E | 017 | 017 | 017 | 017 | 018 | 018 | 018 | 018 | 017 | 017 | 017 | 017 | E | E | E | E | E | E |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

f-min

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 6

# IONOSPHERIC DATA

Apr. 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 | 300S | 305 | 305 | 330 | 345 | 320 | 350 | 350 | 345 | 330 | 330 | 335 | 335 | 320 | 325 | 335 | 340 | 340 | 345 | 355 | 335 | 305S | 275S | I290R |
| 2 | U320R | 315S | 310R | 350 | 325 | 325 | 360 | 345 | 350 | 330 | 320 | 340 | 330 | 320 | 325 | 335 | 345 | 345 | 345R | 330 | 315 | 290 | U290S | FS |
| 3 | 305 | 305S | 305 | 315 | 340F | 330F | 340 | 355 | 355 | 345 | 350 | 350 | 325 | 325 | 330 | 345 | 360 | 360 | 345 | 335 | 340 | 315R | 315 | FS |
| 4 | 310R | FS | 325 | 360 | 320S | 310 | 365 | 360 | 345 | 355 | 340 | 330 | 340 | 315 | 320 | 340 | 340 | 340 | 345 | 345 | 335 | U300R | FS | FS |
| 5 | FS | 310 | 305 | 320S | 345 | 345 | 375 | 360 | 345 | 325 | 325 | 345 | 335 | 335 | 320 | 330 | 330 | 325 | 340S | 345 | 330 | 295 | 285 | 295F |
| 6 | 295S | 315 | 325 | 355 | 305 | 320 | 370 | 365 | 355 | 330 | 335 | 320 | 325 | 330 | 330 | I330C | 345 | 340 | 340 | 335 | 350S | 310 | 295S | 300 |
| 7 | 295 | 305 | 305 | FS | FS | 340S | C | C | C | 340 | 335 | 320 | 310 | 320 | 325 | 340 | 335 | 335 | 330 | 335 | 315 | 290 | 300 | 295 |
| 8 | 290 | 290 | 310 | 340 | 350 | 315 | 375 | 365 | 355 | 330 | 335 | 325 | 325 | 325 | 320 | 340R | 360 | 345 | 340 | 335 | 305 | 290 | 295 | 295 |
| 9 | 290 | 285 | J305R | FS | 345R | 325S | 360 | 365 | 355 | 330 | 330 | 340 | 330 | 335 | 315 | 315 | 335 | 350 | 355S | 325 | 295 | 305 | 300R | 300 |
| 10 | 290 | 310 | 305 | 310 | 335 | 340 | 350 | 340 | 345 | 350 | 315 | 305 | 315 | 315R | 325 | 325 | 345 | 340 | 335 | 345 | A | RS | 300S | U305R |
| 11 | I300R | I290R | I310R | 350R | I320A | 335R | 365 | 345 | 345 | 350 | 350 | 330 | 320 | 335 | 340 | 345 | 335 | 340 | 330 | 315 | 320 | C | C | C |
| 12 | C | C | C | C | C | C | C | C | C | C | 350 | 340 | 320 | 320 | 310 | 320 | 340 | 340 | 330 | 335S | 330 | 300 | 285S | 295F |
| 13 | 300 | 300S | 325S | 350S | 340F | 325R | 350 | 355 | 340 | 340 | 325 | 315 | 310 | 320 | 340 | 340 | 345 | 335 | 315 | 320 | 335 | 315 | 300 | 300 |
| 14 | 300F | 300 | 315 | 360 | 335S | 320 | 365 | 355 | 340S | 320 | 360R | 355 | 300 | 320 | 305 | 325 | 335 | 340 | 340 | 350 | 335 | 295 | 300 | 295 |
| 15 | 300 | 310 | 320 | 360 | 325 | 335 | 365 | 350 | 340 | 320 | 320 | 320R | 325 | 305 | 330 | 340 | 340 | 325 | 320 | 320 | 315 | 300 | 305 | 290 |
| 16 | 290 | 295 | 300 | 350 | 300 | 315 | 350 | 345 | 355 | 325 | 330 | 325 | 325 | 305 | 330 | 330 | 315 | 335 | 335 | 330 | 320 | 295 | 300 | 300 |
| 17 | 295 | 295 | 305 | 315 | 355S | 315 | 355 | 345 | 345R | 350 | 340 | 330 | 335 | 330 | 325 | 325 | 330 | 340 | 335 | 320 | 325 | 305 | 300 | 300 |
| 18 | 300 | I290R | 285 | 285 | 305 | 320F | 340H | 365 | 335H | 315 | 310 | 295 | 300 | 295 | 285 | 300R | 300 | J300R | 325 | 335R | I285R | 295 | 265 | 305 |
| 19 | 315R | I300A | 270 | 290 | I295R | I310R | J300R | 245S | I260A | 270 | I245R | I235A | I220R | 220R | I260R | I260R | I280R | 320 | 325 | 305 | 295S | 290S | I285A | 285S |
| 20 | 290F | F | F | F | 285F | 315S | 320 | 330 | 320 | 285 | 320 | 300 | 290 | 310 | 315 | 325 | 335 | I320A | 325 | 315 | 310 | FS | I290R | RF |
| 21 | RF | 310 | 330R | 345R | 295 | 330 | 345 | 335 | 330 | I330C | 330 | 325 | 330 | 335 | 330 | 320 | 345 | 345 | 345 | 325R | 300 | 300 | 305S | 305 |
| 22 | 300 | 290 | 315 | 325 | 290 | 325 | 345 | 340 | 325 | 335 | 325 | 315 | 315 | 325 | 340 | 320 | 330 | 330 | 335 | 325 | 330 | 285 | RS | RS |
| 23 | RS | RS | RS | I330R | U330F | 335R | 330 | 350 | 340V | 355R | 325 | 320 | 315 | 325 | 335 | 335 | 340 | 320 | 320 | 315 | 335 | 330 | 305 | 300 |
| 24 | 295 | 295 | 315 | 320 | 315 | 335 | 345 | 345 | 340 | 340 | 330F | 330 | 315V | 320 | 330 | 325 | 335 | 330 | 315 | 315S | J350R | 330S | 305 | 285 |
| 25 | FS | FS | FS | 325F | I320R | 335 | 365 | 350 | 345 | 335 | 335 | 345 | 320 | 315R | 315 | 310 | 325 | 345 | 345R | 335 | 330 | 300 | FS | U300F |
| 26 | FS | 305R | 310S | FS | 310 | 355 | 355 | 330 | 350 | 335 | 315V | 330 | 310 | 290H | 310 | 335 | 330 | 325 | 330 | U340R | 335 | 325 | FS | 305S |
| 27 | FS | 305F | U305R | 320 | 330 | 345 | 340 | 360 | 350 | 325 | 315 | 325 | 305 | 300 | 315 | 315 | 340 | 355S | U355R | 325 | I310R | 305 | FS | FS |
| 28 | FS | FS | FS | FS | FS | 350S | 320 | 305 | 335 | 330 | 340 | 320 | 340V | 295V | 320 | 315 | 335 | 330 | 325 | 335R | 355 | 325R | 300S | 295 |
| 29 | 305R | 295 | F | 315F | 325F | 365 | 355 | 360 | 340 | 350 | 355 | 340 | 310 | 310 | 330 | 325 | 335 | 340 | 325R | 305 | 335S | 335R | I300R | 315 |
| 30 | 310R | 315F | 315 | 320F | 335 | 340 | 340 | 360 | 345 | 335 | 300H | 295V | 320 | 300 | 295 | 320 | 340S | 355S | 350S | 310 | I320A | 305 | 305R | 305 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 22 | 24 | 24 | 24 | 27 | 29 | 28 | 28 | 28 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 27 | 24 | 23 |
| Median | 300 | 300 | 310 | 330 | 325 | 330 | 350 | 350 | 345 | 330 | 330 | 325 | 320 | 320 | 325 | 325 | 335 | 340 | 335 | 330 | 330 | 300 | 300 | 300 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

M(3000) F2

A 7

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | | 355L | 365L | 365L | 370 | 385 | 360 | 355 | LH | L | L | | | | | | |
| 2 | | | | | | | | | 365L | 375L | 385 | 370 | 380L | 385 | 360 | 370L | L | L | | | | | | |
| 3 | | | | | | | | | 365L | 370 | 380 | 380 | 380 | 380 | A | A | L | L | | | | | | |
| 4 | | | | | | | | L | L | 370 | 365 | 370 | 380 | 385 | 370 | 350 | L | L | | | | | | |
| 5 | | | | | | | | | L | 365L | 360L | 380L | 390 | 380 | L | L | L | L | | | | | | |
| 6 | | | | | | | | | L | 395L | 370 | 355 | 365 | 355 | 355 | I350C | L | L | | | | | | |
| 7 | | | | | | | C | C | C | 365 | 365 | 360H | 380 | 355 | 365 | L | L | L | | | | | | |
| 8 | | | | | | | | L | L | 375L | 375 | 370 | 360 | 360 | LH | 340L | L | L | | | | | | |
| 9 | | | | | | | | | L | I370A | 350L | 355L | 375 | I360A | 365 | 350 | L | | | | | | | |
| 10 | | | | | | | | | L | A | 385 | 340L | 350 | I360A | 370 | 355 | L | | | | | | | |
| 11 | | | | | | | | | L | 370 | 380 | 360 | 355 | 380 | 350L | 360L | A | A | | | | | | |
| 12 | | | | | | | C | C | C | C | 385 | 395L | 360L | 400L | 405 | 350L | L | L | | | | | | |
| 13 | | | | | | | | L | 360L | 365 | 395 | 370L | 385H | 380H | 365H | 360L | L | | | | | | | |
| 14 | | | | | | | | L | 350L | 365 | 360 | 380 | 350 | 375 | 350 | 345 | 365L | L | | | | | | |
| 15 | | | | | | | | | 355L | 375L | 380 | 380 | 380 | 380L | 355L | 370L | L | | | | | | | |
| 16 | | | | | | | | L | 365L | 380 | 380 | 365L | 360H | 365 | 375L | 350 | L | L | | | | | | |
| 17 | | | | | | | | | 370L | 375 | 395 | 440 | 410L | 370L | 375 | 360L | L | L | | | | | | |
| 18 | | | | | | | | L | 355 | 365H | 390 | 370 | 360 | 360 | 345H | 325 | L | L | L | | | | | |
| 19 | | | | | | | 330 | A | A | A | 345R | I370A | 380 | 385 | 365 | I355R | 340H | 320 | | | | | | |
| 20 | | | | | | | | L | 365 | 370 | 370 | 385 | 385 | 350 | 350 | 350 | 360 | A | | | | | | |
| 21 | | | | | | | | L | 345 | I360C | 380 | 385 | 360 | 365 | 360 | 350 | 335L | L | | | | | | |
| 22 | | | | | | | | L | 355L | 365 | 390H | 380H | 380H | 370 | 365 | 350L | 355L | L | | | | | | |
| 23 | | | | | | | | L | 360 | 365L | 380 | 395 | 380 | 385 | 365 | 355L | L | L | L | | | | | |
| 24 | | | | | | | L | L | 360 | 360L | 385 | 370 | 380 | 365 | 355 | 355 | 365L | A | | | | | | |
| 25 | | | | | | | | L | 365 | 380 | 395 | I375A | 375 | 385 | 345H | 345 | A | A | | | | | | |
| 26 | | | | | | | | A | I370A | I370A | 380 | 395 | I350A | 375 | 350 | 345 | A | A | A | | | | | |
| 27 | | | | | | | | L | 370 | 375 | 385 | 410 | 410R | 370H | 380 | 355 | A | A | | | | | | |
| 28 | | | | | | | | A | 355 | 385 | 370 | 380H | 380L | 380 | 360 | 375H | 360L | A | | | | | | |
| 29 | | | | | | | LH | L | 360L | I380A | LH | 360L | 380 | 385 | 385 | 360 | 355 | L | | | | | | |
| 30 | | | | | | | L | 365L | 370L | 395 | 390 | 380 | 380 | 355 | 375 | 355 | I370A | L | L | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 1 | 1 | 20 | 27 | 29 | 30 | 30 | 30 | 27 | 26 | 9 | 1 | | | | | | |
| Median | | | | | | | 330 | 365L | 360L | 370 | 380 | 370 | 380 | 370 | 365 | 350 | 360L | 320 | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

M(3000) F1

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 8

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | | 280 | 275 | 280 | 270 | 275 | 295 | 295 | 275 | 260 | 250 | | | | | | |
| 2 | | | | | | | | | 260 | 280 | 295 | 275 | 285 | 310 | 290 | 270 | 270 | 250 | | | | | | |
| 3 | | | | | | | | | 275 | 255 | 255 | 270 | 290 | 305 | 295 | 270 | 250 | 245 | | | | | | |
| 4 | | | | | | | | 250 | 255 | 260 | 280 | 295 | 280 | 300 | 290 | 260 | 250 | 245 | | | | | | |
| 5 | | | | | | | | | 270 | 295 | 285 | 265 | 280 | 280 | 300 | 285 | 280 | 245 | | | | | | |
| 6 | | | | | | | | | 250 | 275 | 270 | 295 | 285 | 295 | 290 | I270C | 260 | 250 | | | | | | |
| 7 | | | | | | | C | C | C | 280 | 285 | 290 | 310 | 285 | 275 | 270 | 255 | 250 | | | | | | |
| 8 | | | | | | | | 245 | 255 | 280 | 270 | 290 | 300 | 285 | 280 | 275 | 260 | 250 | | | | | | |
| 9 | | | | | | | | | 260 | 285 | 300 | 275 | 275 | 285 | 305 | 305 | 255 | | | | | | | |
| 10 | | | | | | | | | 270 | 255 | 290 | 310 | 295 | 295 | 275 | 265 | 250 | | | | | | | |
| 11 | | | | | | | | | 255 | 260 | 270 | 280 | 295 | 275 | 265 | 265 | I250A | 255 | | | | | | |
| 12 | | | | | | | C | C | C | C | 270 | 285 | 300 | 300 | 315 | 290 | 265 | 250 | | | | | | |
| 13 | | | | | | | | 245 | 295 | 275 | 275 | 290 | 325 | 295 | 270 | 275 | 250 | | | | | | | |
| 14 | | | | | | | | 265 | 275 | 300 | 245 | 250 | 360 | 300 | 315 | 290 | 275 | 260 | | | | | | |
| 15 | | | | | | | | | 280 | 295 | 290 | 280 | 285 | 320 | 280 | 255 | 260 | | | | | | | |
| 16 | | | | | | | | 250 | 260 | 280 | 285 | 280 | 285 | 330 | 285 | 280 | 280L | 260 | | | | | | |
| 17 | | | | | | | | | 270 | 270 | 280 | 290 | 285 | 295 | 310 | 300 | 280 | 255 | | | | | | |
| 18 | | | | | | | | 250 | 280 | 325 | 295 | 315 | 300 | 305 | 320 | 300 | 280 | 295 | 255 | | | | | |
| 19 | | | | | | | 325 | 575 | A | 420A | R | A | 655 | R | I520R | I510R | 400 | 345 | | | | | | |
| 20 | | | | | | | | 295 | 315 | 395 | 310 | 350 | 385 | 320 | 310 | 300 | 295 | A | | | | | | |
| 21 | | | | | | | | 255 | 310 | I300C | 300 | 295 | 300 | 305 | 300 | 315 | 270 | 265 | | | | | | |
| 22 | | | | | | | | 255 | 300 | 280 | 295 | 310 | 305 | 295 | 280 | 295 | 295 | 260 | | | | | | |
| 23 | | | | | | | | 250 | 290 | 260 | 320 | 320 | 315 | 295 | 295 | 295 | 285 | 280 | 265 | | | | | |
| 24 | | | | | | | 250 | 255 | 260 | 265 | 310 | 300 | 335 | 300 | 285 | 295 | 275 | 280 | | | | | | |
| 25 | | | | | | | | 265 | 255 | 290 | 290 | 290 | 340 | 335 | 330 | 325 | 290 | 255 | | | | | | |
| 26 | | | | | | | | 295 | 260 | 290 | 295 | 300 | 335 | 350 | 330 | 280 | 280 | 275 | 260 | | | | | |
| 27 | | | | | | | | 250 | 270 | 325 | 300 | 300 | 325 | 335 | 300 | 290 | 260 | 245 | | | | | | |
| 28 | | | | | | | | 325 | 280 | 290 | 270 | 295 | 340 | 400 | 310 | 325 | 280 | 270 | | | | | | |
| 29 | | | | | | | 230 | 240 | 295 | 280 | 255 | 295 | 355 | 350 | 305 | 305 | 285 | 250 | | | | | | |
| 30 | | | | | | | 250 | 250 | 260 | 290 | 300H | 350 | 340 | 375 | 340 | 300 | 265 | 245 | 230 | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 4 | 18 | 27 | 29 | 29 | 29 | 30 | 29 | 30 | 30 | 30 | 25 | 4 | | | | | |
| Median | | | | | | | 240 | 250 | 270 | 280 | 285 | 290 | 300 | 300 | 300 | 290 | 270 | 255 | 260 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F2

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 9

# IONOSPHERIC DATA

Apr. 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 | 280 | 275 | 250 | 220 | 250 | 220 | 240 | 230 | 235 | 210 | 230 | 200 | 220 | 200 | 200H | 245 | 240 | 235 | 215 | 210 | 245 | 325 | 300 |
| 2 | 250 | 265 | 255 | 235 | 230 | 250 | 225 | 230 | 235 | 225 | 215 | 200 | 210 | 200 | 200H | 235 | 230H | 235 | 230 | 210 | 245 | 290 | 290 | 270 |
| 3 | 270 | 275 | 275 | 250 | 245 | 230 | 220 | 240 | I240A | 240 | 200 | 205 | 220 | 200 | A | A | 250 | 245 | 230 | 225 | 240 | 250 | 255 | 285 |
| 4 | 275 | 300 | 245 | 215 | 250 | 255 | 220 | 235 | 225 | 225 | 230 | 210 | 205 | 210 | 205 | 250 | 240 | 245 | 230 | 210 | 230 | 290 | 310 | 295 |
| 5 | 295 | 275 | 280 | 250 | 230 | 245 | 205 | 235 | 225 | 230 | 210H | 230 | 215 | 195 | 200 | 200 | 250 | 245 | 235 | 205 | 230 | 255 | 295 | 295 |
| 6 | 290 | 270 | 245 | 210 | 220 | 220 | 210 | 205H | 230 | 220 | 200 | 205 | 200 | 200 | 230 | I220C | 235 | 235 | 235 | 235 | 225 | 270 | 275 | 290 |
| 7 | 285 | 295 | 300 | 250 | 210 | 230 | C | C | C | 240 | 220 | 225H | 200 | 200 | 225 | 230 | 225 | 245 | 245 | 235 | 250 | 295 | 275 | 275 |
| 8 | 300 | 295 | 275 | 230 | 225 | 250 | 225 | 240 | 230 | 205H | 210 | 200 | 195H | 195 | 200H | 230 | 230 | 235 | 235 | 235 | 245 | 295 | 290 | 280 |
| 9 | 290 | 295 | 290 | 250 | 215 | 250 | 225 | 230 | 245 | I240A | 225H | 200H | 235 | I225A | 220 | 250 | 255 | 245 | 225 | 220 | 250 | 255 | 290 | 290 |
| 10 | 285 | 270 | 265 | 260 | 235 | 235 | 215 | 235 | I245A | I245A | 205 | 230 | 255 | I250A | 245 | 250 | 255 | 250 | 245 | 240S | I260A | I280A | 285 | 285 |
| 11 | 290 | 300 | I270A | 250 | A | 250 | 220 | 250 | I240A | 225 | 220 | 215 | 185H | 215 | 225 | 230 | A | A | 250 | 260 | 245 | C | C | C |
| 12 | C | C | C | C | C | C | C | C | C | C | 220 | 200 | 220 | 200 | 195H | A | A | 245 | I245A | 235 | 220 | 250 | 290 | 290 |
| 13 | 275 | 260 | 240 | 220 | 200 | 245 | 235 | 240 | 230 | 230 | 200H | 220H | 200H | 195H | 200H | 225 | 235 | 240 | 255 | 245 | 225 | 245 | 245 | 250 |
| 14 | 290 | 275 | 265 | 210 | 220 | 240 | 225 | 240 | 230 | 220 | 220 | 220 | 205 | 200H | 250 | 250 | 245 | 250 | 240 | 225 | 230 | 250 | 270 | 285 |
| 15 | 285 | 255 | 250 | 215 | 225 | 225 | 220 | 240 | 245 | 220 | 200 | 185H | 220 | 225 | 195H | 235 | 230 | 240 | 245 | 245 | 245 | 255 | 240 | 270 |
| 16 | 290 | 290 | 270 | 215 | 215 | 245 | 245 | 245 | 230 | 225 | 225 | 205 | 210 | 205 | 195 | 205 | 245 | 250 | 245 | 230 | 235 | 260 | 245 | 270 |
| 17 | 290 | 285 | 275 | 250 | 200 | 245 | 245 | 240 | 225 | 225 | 230 | 200 | 185 | 245 | 210 | 205 | 235 | 245 | 250 | 235 | 240 | 250 | 250 | 275 |
| 18 | 280 | 295 | 295 | 275 | 270 | 245 | 220 | 240 | 230 | 215 | 205 | 200 | 195 | 230 | 200H | 245 | 240 | 250 | 250 | 235 | 250 | 245 | I310A | 220 |
| 19 | 250 | A | 330 | 295 | 250 | 290 | 235 | A | A | A | A | A | 230 | 230 | 220 | 240 | 225H | 250 | 280 | 265 | I280A | I290A | I300A | 300 |
| 20 | 290 | 295 | 320 | 290 | 300 | 250 | 245H | 240 | 220 | 200 | 205 | 205 | 200 | 200 | I240A | 240 | 235 | I260A | 270S | 250 | 250 | 300 | I310A | 300 |
| 21 | 300 | 275 | 240 | 230 | 250 | 250 | 245 | 240 | 245 | I230C | 205 | 200 | 230 | 205 | 205 | 225 | 225 | 245 | 240 | 240 | 255 | 275 | 260 | 280 |
| 22 | 275 | 295 | 265 | 235 | 290 | 245 | 230 | 245 | 235 | 220 | 190H | 195H | 175H | 240 | 200H | 200H | 230H | 245 | 250 | 235 | 225 | 270 | 290 | 280 |
| 23 | 290 | 280 | 260 | 245 | 240 | 240 | 230 | 240 | 220 | 220 | 220 | 205 | 200 | 200H | 250 | 235 | 245 | 235 | 250 | 245 | 230 | 220 | 255 | 280 |
| 24 | 295 | 295 | 265 | 245 | 245 | 245 | 245 | 245 | 225 | 210 | 210 | 220 | 205 | 250 | 250 | 250 | 245 | I260A | 275 | 280 | 225 | 235 | 280 | 300 |
| 25 | 310 | 310 | 290 | 230 | A | 280A | 240 | 235 | 240A | 210 | 210 | I225A | 225 | 200 | 240H | 240 | A | A | 250A | 245 | 230 | 250 | 295 | 265 |
| 26 | 275 | 275 | 270 | 250 | 260 | 230 | 245 | I250A | I245A | I230A | 225 | 210 | I245A | 220 | I240A | 250A | A | A | A | 250 | 250 | 225 | 270 | 280 |
| 27 | 285 | 280 | 255 | 255 | 225 | 225 | 220 | 215H | 230 | 225 | 250 | 195H | 200H | 225H | 225 | 250 | A | A | 230 | 230 | 250 | 265 | 290 | 270 |
| 28 | 265 | 280 | 255 | 245 | 245 | 225H | 225 | I240A | 250 | 220A | 235 | 205H | 210H | 200 | 220 | 200H | 255 | I255A | 255 | 240 | 210 | 240 | 280 | 265 |
| 29 | 285 | 285 | 285 | 275 | 255 | 220 | 200H | 215 | 225 | I230A | 200H | 220 | 220 | 205 | 215 | 235 | 245 | 240 | 245 | 250 | 230 | 230 | 270 | 255 |
| 30 | 250 | 280 | 255 | 255 | 235 | 245 | 230 | 230 | 200 | 200 | 195H | 205 | 200 | 250A | 240 | 250A | I250A | 240A | 215 | I235A | I240A | 245 | 255 | 265 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 28 | 29 | 29 | 27 | 29 | 28 | 27 | 27 | 28 | 29 | 29 | 30 | 30 | 29 | 28 | 25 | 26 | 29 | 30 | 30 | 29 | 29 | 29 |
| Median | 285 | 280 | 270 | 250 | 235 | 245 | 225 | 240 | 230 | 225 | 210 | 205 | 205 | 205 | 220 | 235 | 240 | 245 | 245 | 235 | 240 | 255 | 280 | 280 |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 10

# IONOSPHERIC DATA

Apr. 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 | E | E | E | E | E | E | 150 | 145 | 130 | 120 | 125 | G | G | G | 105 | 105 | 130 | 145 | E | E | E | E | E | E |
| 2 | E | E | E | E | E | E | 150 | 150 | 145 | 140 | 145 | 130 | 135 | 130 | 145 | 170 | G | 155 | 145 | E | 125 | E | E | E |
| 3 | E | 110 | 110 | 105 | E | E | 160 | 150 | 140 | 130 | 125 | 120 | 110 | G | 115 | 110 | 105 | 150 | 120 | E | 120 | 125 | E | E |
| 4 | E | E | E | E | E | E | 150 | 150 | 135 | 130 | 125 | 135 | 130 | 125 | 130 | 115 | 100 | 110 | 100 | 100 | E | 130 | E | 125 |
| 5 | E | E | E | E | 105 | 105 | E | 155 | 145 | 130 | 120 | 120 | G | 115 | 120 | 110 | 120 | 110 | 105 | 120 | 105 | 100 | 125 | 125 |
| 6 | 145 | E | E | E | 100 | E | 150 | 160 | 145 | 130 | 125 | 115 | 110 | 105 | 105 | C | 105 | 125 | 100 | 100 | 105 | 100 | E | E |
| 7 | E | E | E | E | E | 105 | C | C | C | 130 | 130 | 130 | 105 | 125 | G | G | G | G | E | 110 | 110 | 130 | 110 | E |
| 8 | E | E | E | E | E | E | 150 | 150 | 145 | 135 | 115 | 120 | 135 | 125 | 125 | 105 | 140 | 100 | 100 | 100 | 100 | E | E | E |
| 9 | E | E | E | E | E | E | 155 | 155 | 145 | 130 | 125 | 140 | 125 | 115 | 120 | 130 | 150 | 140 | 130 | E | E | E | E | E |
| 10 | E | E | E | E | E | E | 155 | 145 | 130 | 120 | 120 | 115 | 120 | 120 | 145 | 155 | 150 | 130 | 115 | 110 | 105 | 105 | 115 | 100 |
| 11 | 115 | 115 | 105 | 105 | 110 | E | 140 | 130 | 125 | 130 | 130 | 110 | 120 | 120 | 125 | 125 | 130 | 125 | 120 | 120 | 115 | C | C | C |
| 12 | C | C | C | C | C | C | C | C | C | C | 130 | 130 | 115 | 120 | 120 | 140 | 135 | 145 | 130 | 130 | E | E | E | E |
| 13 | E | E | 110 | E | E | E | 150 | 145 | 135 | 120 | 115 | 105 | 100 | 100 | 100 | 100 | 150 | 145 | 130 | N | E | 115 | E | E |
| 14 | E | E | E | 100 | E | E | 160 | 145 | 150 | 120 | 110 | 110 | 110 | 105 | 165 | 150 | 130 | 125 | 120 | 115 | E | E | E | E |
| 15 | E | E | E | E | E | E | 155 | 150 | 150 | 150 | G | 125 | G | G | G | G | G | G | B | E | E | E | E | E |
| 16 | E | E | E | E | B | E | 150 | 145 | 130 | 125 | 120 | 115 | 110 | G | G | 105 | 135 | 105 | 140 | E | 105 | E | E | E |
| 17 | E | E | E | E | E | E | 170 | 160 | 150 | 135 | 110 | 105 | G | 125 | 110 | 120 | 105 | 120 | 130 | 135 | E | 110 | E | E |
| 18 | E | E | E | B | E | E | 145 | 145 | 145 | 130 | 125 | 110 | 110 | 110 | 110 | 110 | G | 145 | 125 | 120 | E | 115 | 110 | 110 |
| 19 | 130 | 130 | 130 | E | E | E | 145 | 130 | 125 | 125 | 120 | 115 | 120 | 125 | G | 145 | 145 | 145 | 130 | 125 | 120 | 120 | 115 | 115 |
| 20 | E | E | E | E | E | 150 | 145 | 130 | 130 | 120 | 120 | 115 | G | 120 | 110 | 125 | 110 | 125 | 120 | 130 | 120 | 120 | 110 | 110 |
| 21 | E | E | E | E | E | E | 150 | 145 | 125 | C | 110 | 110 | 105 | 105 | 105 | 110 | 110 | 150 | 130 | 120 | 130 | 120 | E | E |
| 22 | E | E | B | E | E | 155 | 150 | 145 | 140 | 125 | 125 | 135 | 125 | 160 | G | 125 | G | 145 | 130 | B | E | E | E | E |
| 23 | E | E | E | E | E | 150 | 150 | 150 | 150 | 120 | 100 | G | 135 | 115 | 165 | 160 | 140 | 135 | 125 | E | E | E | E | E |
| 24 | E | E | E | E | E | E | 150 | 140 | 140 | 130 | 125 | 135 | 125 | 165 | 170 | 150 | 150 | 130 | 125 | 120 | 115 | 115 | 120 | E |
| 25 | 110 | 105 | 105 | 135 | 125 | 130 | 130 | 130 | 125 | 120 | 115 | 125 | 120 | 140 | 125 | 100 | 130 | 125 | 120 | 115 | 110 | 110 | 110 | 110 |
| 26 | 110 | E | E | E | E | 135 | 135 | 130 | 125 | 120 | 115 | 130 | 115 | 115 | 160 | 150 | 135 | 130 | 120 | 115 | 115 | 120 | 115 | 110 |
| 27 | 110 | E | E | E | E | E | 150 | 150 | 135 | 155 | 130 | 125 | 125 | 130 | 120 | E175G | 130 | 125 | 120 | 120 | 115 | 115 | 115 | 110 |
| 28 | E | E | E | E | E | E | 120 | 120 | 125 | 115 | 115 | 115 | 105 | 105 | 160 | G | 145 | 130 | 125 | 120 | N | E | E | E |
| 29 | E | E | E | E | E | E | 140 | 145 | 145 | 125 | 140 | 145 | G | 145 | 135 | 170 | 140 | 145 | 135 | 120 | 115 | E | E | E |
| 30 | E | E | 105 | 105 | E | B | 150 | 130 | 115 | 115 | 115 | 110 | 125 | 125 | 145 | 145 | 130 | 125 | 115 | 110 | 115 | E | E | E |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 6 | 4 | 6 | 5 | 4 | 7 | 27 | 28 | 28 | 28 | 29 | 28 | 24 | 26 | 25 | 26 | 25 | 28 | 27 | 21 | 18 | 16 | 10 | 9 |
| Median | 110 | 110 | 110 | 105 | 110 | 135 | 150 | 145 | 140 | 130 | 120 | 120 | 120 | 120 | 125 | 125 | 130 | 130 | 125 | 120 | 115 | 115 | 115 | 110 |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'Es

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 11

# IONOSPHERIC DATA

Apr. 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 | | | | | | | h2 | h2 | h | h2 | h | | | | 1 | 12 | h | h | | | | | | |
| 2 | | | | | | | h2 | h | h | h | h | h | h | h | h | h | | h2 | h2 | | f | | | |
| 3 | | f | f3 | f2 | | | h2 | h | h2 | h 12 | h 1 | h | c2 | | h2 | c3 | c4 | h2 12 | f | | f | f | | |
| 4 | | | | | | | h2 | h3 | h2 | h2 | h | h | h | h | h 1 | c 1 | 13 | 14 13 | f2 | f2 | | f | | f |
| 5 | | | | | f2 | f3 | | h h | h | h | h | h | | h | h | c2 | h2 1 | c2 12 | f | f | f | f2 | f2 | f2 f |
| 6 | f f | | | | f2 | | h | h | h | h | h | h2 | c | 12 | 1 | | 12 | h 12 | f2 | f2 | f2 | f3 | | |
| 7 | | | | | | f | | | | h | h | h | 1 | h | | | | | | f | f4 | f f2 | f2 | |
| 8 | | | | | | | h2 | h2 | h | h | h2 | h | h | h | h | 1 | h2 12 | 12 | 1 h | f2 f2 | f2 | | | |
| 9 | | | | | | | h2 | h | h | h2 | h | h | h | h2 | h | h2 | h2 | h4 | f4 | | | | | |
| 10 | | | | | | | h | h2 | h2 | h2 | h | h | h | h2 12 | h | h | h3 | h6 | 16 | f6 | f4 | f4 | f2 | f2 |
| 11 | f2 | f4 | f6 | f3 | f4 | | h2 | h2 | h2 | h | h | c2 | h | h | h | h | h2 | h3 | f5 | f3 | f3 | | | |
| 12 | | | | | | | | | | | h | h | h | h | h | h2 | h3 | h2 | h5 | f7 | | | | |
| 13 | | | f2 | | | | h2 | h | h | h2 | h | 1 | 1 | 1 | 1 | 12 | h 1 | h2 | h5 | f | | f2 | | |
| 14 | | | | f | | | h2 | h2 | h h | h | 1 | 12 | 1 | 1 | h c | h | h2 | h3 | c4 | f | | | | |
| 15 | | | | | | | h2 | h | h | h | | h | | | | | | | | | | | | |
| 16 | | | | | | | h | h | h | h | h | c | c2 | | | 12 | h 12 | 12 h | h | | f | | | |
| 17 | | | | | | | h2 | h | h | h | 1 | 12 | | h | c | h 12 | 13 | h | h2 | f f2 | | f2 | | |
| 18 | | | | | | | h3 | h2 | h | h | h | 1 | 1 | 1 | 1 | 12 | | h2 | h3 | f | | f2 | f4 | f3 |
| 19 | f | f4 | f4 | | | | h | h2 | h4 | h3 | h2 | h2 | h | h | | h | h | h2 | h3 | f3 | f5 | f2 | f3 | f2 |
| 20 | | | | | | h | h2 | h3 | h2 | h | h | h | | h | c2 | h c3 | c h | h3 | c7 | f | f | f5 | f2 | f2 |
| 21 | | | | | | | h | h | h | | c2 | c | 12 | 12 | 1 | 1 | 12 | h | h2 | f | f f | f2 | | |
| 22 | | | | | | h | h2 | h | h | h | h | h h | h | h h | | h | | h | h2 12 | | | | | |
| 23 | | | | | | h | h | h2 | h | h | 1 h | | h | h | h | h | h | h2 | h2 | | | | | |
| 24 | | | | | | | h2 | h2 | h2 | h | h | h | h | h | h h | h | h2 | h3 | h4 12 | f6 f2 | f5 | f4 | f2 | |
| 25 | f2 | f2 | f2 | f | f4 | f3 | h3 | h4 | h3 | h | h | h3 c | h | h | h 1 | 13 h | h4 | h4 | c5 | f4 | f4 | f3 | f2 | f2 |
| 26 | f | | | | | h3 1 | h2 | h2 | h2 | h2 | h | h | h2 | h | h2 | h2 | h2 | h3 | c7 | f4 | f6 | f | f3 | f3 |
| 27 | f2 | | | | | | h | h | h | h h | h | h | h2 | h | h | h | h3 | h2 | c4 | f3 | f4 | f2 | f3 | f2 |
| 28 | | | | | | | c2 | h3 | h2 | h3 | h | h | c | c | h | | h | h3 | c7 | f5 | f | | | |
| 29 | | | | | | | h | h | h | h2 | h | h | | h 1 | h | h | h2 | h2 | h3 | f6 | f | | | |
| 30 | | | f | f | | | h | h2 | h2 | h | h | c | h | h2 | h2 | h2 | h3 | h3 | 1 | f3 | f3 | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Types of Es

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 12

34

# IONOSPHERIC DATA

Apr. 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 | U032R | 036 | U034R | 039R | 028 | 028 | 048 | 052 | 066 | 068 | R | 090 | 078R | R | R | 080 | R | U073S | 068 | 053 | 038 | 032 | S | F |
| 2 | J035F | J037F | J040F | 039 | 028 | 033 | 050 | 057 | 060R | 066 | R | 090 | 084 | 069 | R | R | R | 067 | J065R | J042S | 034 | 030 | J032S | J032F |
| 3 | J034F | J035S | 034 | 030 | A | A | 044 | 056 | 056 | 070 | 071R | 068R | 072 | 067 | U072R | 069R | U076R | U063R | 063 | U048R | 038 | U034R | U036R | U038R |
| 4 | U038R | U038R | 040R | 033 | 026 | 028 | 052 | 053 | 058 | U071R | 063 | 069 | 074 | 087 | 085 | 085 | 073R | 069 | 067 | 056 | 041 | 035R | U035R | U034R |
| 5 | 035R | U037R | 036 | 040 | 038 | 040 | 048 | 054 | 056 | 065R | 077 | 091 | 083 | 078 | 068 | 070 | U075R | U077R | I075S | 066R | C | 034 | 032 | U032F |
| 6 | 033R | U033R | 040 | 040 | 022 | 027 | 046 | U053R | 057 | 063 | 068 | 076R | 079R | U080R | 087 | 085 | U080R | U073R | U068R | U063R | 051 | 039 | 039R | U035R |
| 7 | 038 | 036 | U033R | 037 | 028 | 028 | 045 | 050 | 054 | 063R | 070R | 074 | 069R | 082 | U087R | U074R | 066 | 067 | 066 | 068 | 056 | 051 | U045R | I046R |
| 8 | 045 | U045R | 046 | 052 | 029 | 030 | 051 | 058 | 061 | 069 | 070 | U073R | 072 | U074R | U075R | U081R | U072R | 060 | 059 | 055 | 042 | 039 | 037 | U041R |
| 9 | 034R | R | U033R | 040R | 023 | 025 | 050 | 056 | 059 | 063 | 073 | 087R | U078R | U070R | 073R | 087R | 099R | 081 | 072S | 053R | 045 | 042 | 042R | 043R |
| 10 | 043 | 042 | 043 | 040 | 036 | 036 | 055R | 056 | 067 | 071 | 073 | 073R | 086 | 092 | 096 | 090 | U080R | U072S | I072R | U072R | 049 | 034R | U037R | U032R |
| 11 | 036R | 043R | U046R | A | A | 030 | 051 | 058 | 067R | 070 | 071 | 074 | 090 | 092 | 095 | 072 | 063 | 060 | 065 | U070R | 069 | 056R | I046A | U047R |
| 12 | U045R | U045R | U033R | U047R | 033 | 032R | 057 | U071R | 068 | 066R | U063R | U063R | 068 | 070 | 067 | 084 | 089 | U076R | U075R | U073R | 051 | 046 | 046R | 047 |
| 13 | 048R | 048 | 048 | 055 | 025F | 029 | U054R | 057 | 059 | 068 | 072 | U075R | I077R | 090 | 091 | 072 | 061 | 058 | 067 | 071R | 066 | 044 | U043R | 043 |
| 14 | 044 | 043 | 044 | 051 | 019 | 027 | 053 | 061 | 068 | 080R | U092R | 087 | 080R | U076R | 070R | 077 | 083 | U077R | I074R | 070S | 054R | 044 | 045 | 046 |
| 15 | 045 | 045 | 043R | 044 | 024 | 030 | 047 | 057 | 062 | 072 | 082R | 091 | 093 | 091 | I086R | 079 | 061 | I062C | 064 | 071S | 064S | 053 | 050 | I048S |
| 16 | 047S | 046 | U046S | 050S | 028 | 034 | 058 | 066 | 069 | 070R | 071 | 085 | 083 | 084 | 086 | 085 | 076R | 076R | 075S | 067 | 059 | 052 | 051 | U050R |
| 17 | 050 | 048 | 045 | 049 | 037 | 039 | 052 | 061 | 070 | 064 | 072 | 072 | 076 | 075 | 061 | 066 | 066 | 069 | U073S | U067S | 057 | U049S | U047S | 051S |
| 18 | U048S | U048S | U045S | U044S | 040 | 044 | 055 | 057 | 062 | 062 | 075 | 085 | 096 | 104 | 101 | 107 | 111 | 116 | 113 | 093 | U075S | 069 | 062 | 066R |
| 19 | 048 | 038 | 036 | 042 | 051 | 052 | 052 | 043 | A | 046 | I045A | U047R | I046A | 054 | I045R | I044R | 045 | 047R | 047 | U049R | 042S | 044S | U043S | U042S |
| 20 | 041S | 039 | 035S | 033S | 034 | 037 | 048 | 053R | 051 | 058 | 064 | 059 | 066 | 074R | 073 | 062 | 059 | 053 | 055 | 064 | 051 | 046S | U045S | U044S |
| 21 | 043S | 040 | 041 | 034S | 023 | 034 | 047 | 053R | 061 | 065 | 070 | 073 | 071 | 065 | 063 | 068 | 064 | 059 | 059 | U055S | 049 | 046 | 045 | 045 |
| 22 | 043 | 041 | 042 | 035 | 031 | 036 | 049 | 053 | 058 | 069 | 066 | 073 | 078R | 081 | 073 | 063 | 064 | 061 | 069 | 072 | 052 | 045 | 043 | U043S |
| 23 | U046S | U041S | U041S | 042 | 033S | 041 | 051 | 054 | 063 | 063 | 067 | 066 | 072 | 074 | 073 | 067 | 064 | 060 | 063 | U073S | 069 | 045 | 043 | 043 |
| 24 | 042 | 041 | 042 | 042 | 033 | 037 | 059 | I064C | 066 | 070 | C | 063R | 067 | 072 | 075R | 075 | 067 | 064 | 061 | U076S | S | A | A | A |
| 25 | A | U032S | 034S | 026S | 030S | 039 | 059 | 060 | 058 | 063R | 063R | I064R | 060 | 060R | 066R | 072 | 085 | 082 | U076R | 066 | 056 | 050S | U047S | U046S |
| 26 | U042S | U046S | 038 | 035 | 030F | 041 | 053 | 056R | U064R | 066 | 058 | 058 | U063R | 062 | 071 | 075 | U077R | 072 | 073S | U077S | 061 | 043 | I043A | 042S |
| 27 | 044S | 041 | 044F | 036R | 040R | 040R | 052R | 056 | 056 | 058 | 067 | 071 | 077 | 075 | 088 | 096 | 095 | U076S | A | U051R | 041 | 041 | U041S | U036A |
| 28 | I040A | I042S | U037S | 038R | 030 | 034 | 049 | 061 | 068 | 081 | 082R | 080R | 071 | 055R | 066 | 072R | 072 | 071 | U078R | 079S | 068S | 037 | 036 | 036S |
| 29 | 036 | 035 | 032 | 032 | 031 | 043 | 052 | U053R | J054R | 060 | 062 | 057 | U058R | 062 | 064R | 067 | 070 | 060 | 058 | 060 | 058 | 045S | U041R | U045F |
| 30 | U045F | 042 | J041S | 037R | 038 | 044 | U053R | 064 | 060 | C | 063R | A | 058 | 060 | 073 | 083 | 084 | 078 | A | A | 056 | 043 | 041 | 040 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 30 | 29 | 28 | 29 | 30 | 30 | 29 | 29 | 27 | 29 | 30 | 29 | 28 | 29 | 28 | 30 | 28 | 29 | 28 | 29 | 28 | 28 |
| Median | 043 | 041 | 040 | 040 | 030 | 034 | 052 | 056 | 061 | 066 | 070 | 073 | 075 | 074 | 073 | 075 | 072 | 069 | 068 | 067 | 055 | 044 | 043 | U043 |
| U. Q. | 045 | 045 | 044 | 044 | 035 | 040 | 053 | 060 | 066 | 070 | 073 | 085 | 080 | 083 | 086 | 084 | 082 | 076 | 074 | 072 | 062 | 048 | 046 | 046 |
| L. Q. | 036 | 037 | 035 | 035 | 027 | 030 | 048 | 053 | 058 | 063 | 063 | 065 | 068 | 066 | 068 | 068 | 064 | 060 | 063 | 055 | 044 | 038 | 038 | 037 |
| Q. R. | 009 | 008 | 009 | 009 | 008 | 010 | 005 | 007 | 008 | 007 | 010 | 020 | 012 | 017 | 018 | 016 | 018 | 016 | 011 | 017 | 018 | 010 | 008 | 009 |

foF2

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

The Radio Research Laboratories, Japan

K 1

# IONOSPHERIC DATA

Apr. 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 | 450L | 470L | 450L | S | L | L | L | L | | | | | | |
| 2 | | | | | | | | | L | L | 440L | 460L | 470 | 450L | 440 | L | L | L | | | | | | |
| 3 | | | | | | | A | A | A | 440L | A | L | L | A | S | A | A | A | | | | | | |
| 4 | | | | | | | | | L | L | L | L | L | 440L | 430L | L | L | A | | | | | | |
| 5 | | | | | | | | | L | L | L | L | L | L | L | A | A | L | | | | | | |
| 6 | | | | | | | | L | L | L | 460L | L | 460L | L | L | L | L | L | | | | | | |
| 7 | | | | | | | | | L | 440L | L | L | R | S | R | L | L | L | | | | | | |
| 8 | | | | | | | | | A | L | L | R | R | L | L | L | A | A | | | | | | |
| 9 | | | | | | | | L | L | L | A | L | L | L | A | 430L | L | L | | | | | | |
| 10 | | | | | | | | | L | L | L | R | A | A | L | L | L | A | A | | | | | |
| 11 | | | | | | | | | A | A | L | L | 460L | L | L | L | L | A | | | | | | |
| 12 | | | | | | | | L | L | L | L | L | 460L | 450L | 440L | 430L | L | A | A | | | | | |
| 13 | | | | | | | | | 410L | A | L | L | R | 450L | 430L | L | L | L | | | | | | |
| 14 | | | | | | | | L | L | 440L | L | 470L | 450L | L | S | 430L | L | L | | | | | | |
| 15 | | | | | | | | L | L | L | 470L | R | 460L | R | R | L | L | C | | | | | | |
| 16 | | | | | | | | L | L | L | S | 450L | 470L | 470L | 450L | 430L | L | L | | | | | | |
| 17 | | | | | | | | L | L | 440L | 440L | L | L | 450L | L | 440L | L | L | A | | | | | |
| 18 | | | | | | | | L | L | L | 470L | 460L | L | 460L | 450L | 440L | L | L | A | | | | | |
| 19 | | | | | | | L | 350L | A | A | A | A | A | R | S | R | L | L | A | | | | | |
| 20 | | | | | | | | L | L | 450L | 430L | 450L | 440L | 430L | 430L | 410L | L | A | A | | | | | |
| 21 | | | | | | | | L | 420L | 440L | 440L | 450L | 450L | 450L | 440L | 420L | L | L | A | | | | | |
| 22 | | | | | | | | L | 420L | 430L | 450L | 460L | 450L | 450L | 430L | L | 390L | L | | | | | | |
| 23 | | | | | | | | L | 420L | L | 470L | 450L | 450L | 460L | 440L | L | L | L | L | | | | | |
| 24 | | | | | | | L | C | 410L | L | C | 470L | S | 450L | L | L | A | L | A | | | | | |
| 25 | | | | | | | | A | A | A | L | R | A | A | L | L | 400L | L | L | | | | | |
| 26 | | | | | | | | A | A | L | A | A | A | A | R | A | 400L | L | A | | | | | |
| 27 | | | | | | | L | L | L | L | L | A | A | A | L | L | L | A | A | | | | | |
| 28 | | | | | | | | L | A | A | R | L | 450L | R | 440L | S | L | A | A | | | | | |
| 29 | | | | | | | L | S | R | L | L | L | L | L | R | R | 380L | L | | | | | | |
| 30 | | | | | | | | L | L | C | A | A | R | R | A | A | A | A | A | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 1 | 5 | 7 | 10 | 10 | 13 | 12 | 11 | 8 | 4 | | | | | | | |
| Median | | | | | | | | 350L | 420L | 440L | 450L | 460L | 450L | 450L | 440L | 430L | 395L | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

foF1

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

K 2

# IONOSPHERIC DATA

Apr. 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 | | | | | | | 175 | 230 | 270 | 290 | 320 | 320 | A | R | I300R | 275 | I250A | 210 | E190S | | | | | |
| 2 | | | | | | | E150B | 240 | U275R | 290R | 305R | 325 | 340 | 330 | 325 | 310 | 260 | 210 | E140B | | | | | |
| 3 | | | | | | | E140B | A | 275 | 300 | 315 | 325 | 330 | 325 | 300 | A | A | A | E140B | | | | | |
| 4 | | | | | | | 180 | 230 | 265 | 300R | I310R | I320R | 325 | 315R | 310 | 290 | A | A | E130B | | | | | |
| 5 | | | | | | | 165 | 210 | 280 | 295 | I305A | I305A | I305A | A | A | 270 | A | A | E160B | | | | | |
| 6 | | | | | | | 160 | 220 | 290 | 300 | A | A | A | A | 290 | I300R | 260R | I200R | A | | | | | |
| 7 | | | | | | | 145 | 235 | 285R | 310R | I310A | 315 | 320R | A | R | 300R | 260R | 220 | E160B | | | | | |
| 8 | | | | | | | 160R | 245R | I270R | 305 | I310A | 310 | 320 | 315 | I315R | 300 | 260R | 215 | E150B | | | | | |
| 9 | | | | | | | 160 | A | 280R | 305R | 320R | 325 | I330R | I325R | 310 | 295 | 255 | 215 | E140B | | | | | |
| 10 | | | | | | | A | 240 | 290 | 300 | 315R | I320R | 325 | 330R | 315 | 300R | I260R | 210 | E130B | | | | | |
| 11 | | | | | | | 180 | 225 | 280 | 300 | 310R | 320 | 325 | 310 | 310 | A | 260R | 210 | E150B | | | | | |
| 12 | | | | | | | 170 | 240 | 290R | 305 | I310R | 320 | I330R | 325 | 320 | 295R | 255R | 225 | E150B | | | | | |
| 13 | | | | | | | 170 | 255 | 285 | A | A | A | R | A | 320 | R | A | 200 | E140B | | | | | |
| 14 | | | | | | | 180 | 255 | 285 | A | R | R | R | I335R | 325 | I300R | 260R | 220 | E140B | | | | | |
| 15 | | | | | | | 175 | 250 | 280 | A | A | A | R | I330R | I320R | 295 | I260R | C | E140B | | | | | |
| 16 | | | | | | | 170 | 240 | 285 | 300 | 315 | A | A | A | A | 300R | A | 225 | E140B | | | | | |
| 17 | | | | | | | 150 | 230 | 290R | 300 | 305 | A | A | A | A | A | 290R | 225 | A | | | | | |
| 18 | | | | | | | 180 | 250R | 275 | 305 | A | A | A | A | A | 300 | 250 | 205 | E130B | | | | | |
| 19 | | | | | | | 160 | 240 | 275 | 320 | I315A | I320A | 310 | R | A | A | A | 220 | 125R | | | | | |
| 20 | | | | | | E140S | 175 | 245 | 270 | 305 | A | A | R | I330A | I315A | R | 255R | 210 | E130B | | | | | |
| 21 | | | | | | E130B | 180 | 240 | 285 | A | A | A | R | A | A | 305 | A | 240 | A | | | | | |
| 22 | | | | | | E130B | 190 | 245 | 285 | 300 | 310 | R | R | R | 325R | I300R | 265 | 225 | E150B | | | | | |
| 23 | | | | | | E120B | 170 | 250 | 285 | 300 | 315 | I330R | 335 | 340 | 325 | 290 | 260 | 230 | A | | | | | |
| 24 | | | | | | E140S | 200 | I255C | 285 | 305R | I325C | I335A | 340 | I330R | I320R | 300R | 265R | 230 | E140B | | | | | |
| 25 | | | | | | E | 190 | 265 | 290 | 310 | 315R | R | A | A | 325R | 290 | 275 | 225 | A | | | | | |
| 26 | | | | | | E130B | 215 | 265 | 280 | R | R | R | A | 330 | 305 | 300R | 260R | 225 | E140B | | | | | |
| 27 | | | | | | E140B | 195 | 255R | 295 | I305R | 330R | I330R | 335R | 325R | 305R | 300 | 250R | 235 | E130B | | | | | |
| 28 | | | | | | E150S | 210 | 260R | A | A | A | A | A | A | R | 305 | 270 | 210 | E140B | | | | | |
| 29 | | | | | | E130B | 215 | 265R | 290 | A | A | A | R | R | R | 300R | 270 | 230 | E140B | | | | | |
| 30 | | | | | | E150S | 180 | 260R | I280R | C | A | A | I330R | 320 | 320 | 300 | 260 | 200 | E140B | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | 11 | 29 | 28 | 29 | 22 | 19 | 15 | 15 | 16 | 21 | 24 | 23 | 26 | 25 | | | | | |
| Median | | | | | | E130B | 175 | 245 | 285 | 300 | 315 | 320 | 330 | 330 | 315 | 300 | 260R | 220 | E140B | | | | | |
| 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

Apr. 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 | E016S | E013B | 024 | 019 | E | E013B | G | G | 034 | 035 | 035 | 035 | 035 | G | 024G | 023G | J030 | 026 | E019S | 021M | E015S | E015S | E015S | E012B |
| 2 | E014S | E015S | E015B | 019 | E014B | 021 | 024 | 029 | 031 | J024G | 035 | G | G | 024G | G | G | G | G | E014B | 019M | 025M | 019 | 020 | E015S |
| 3 | 021 | E015S | 022 | J028 | 037M | 035 | J040 | J052 | 048 | J040 | J048 | 036 | 043 | J048 | 036 | 049 | J047 | 032 | 031 | 024 | E016S | J038 | 023 | J023 |
| 4 | E013S | 020 | J030 | 023 | 020 | E013B | 023 | 025 | 031 | 037 | 039 | 042 | 037 | 046 | 034 | J040 | J030 | J036 | J028 | J025 | 022 | J018 | 021 | J029 |
| 5 | 019 | E013B | 021 | J053 | J022 | J026 | G | 025 | 033 | 038 | J040 | J051 | J038 | 034 | J033 | 044 | J043 | J030 | E016B | J040 | C | 022 | 021 | 032 |
| 6 | J025 | J018 | J018 | J020 | J017 | E012B | G | 030 | 033 | 035 | 035 | J038 | 033 | 033 | 033 | 042 | 033 | J033 | J051 | J025 | J017 | 018 | 017 | J026 |
| 7 | E013S | E013B | E013B | E012B | E012B | E013B | G | 029 | 035 | 035 | 034 | 035 | 035 | 036 | G | 037 | 033 | 025 | 020 | 022 | 018 | 021 | 019 | J033 |
| 8 | E015S | E015B | E013B | 024 | 019 | 021 | 025 | 034 | 045 | 036 | 035 | G | G | 034 | G | 038 | J043 | 032 | J029 | J027 | 023 | 023 | 021 | E015S |
| 9 | E015S | E013B | E014B | E013B | E011B | 022 | 024 | 032 | 037 | 039 | 050 | 040 | 036 | 039 | J051 | 032 | 030 | 029 | J023 | J041 | J030 | 020 | E012B | J020 |
| 10 | J018 | 018 | 021 | E013B | E013B | E013B | J018 | 029 | 036 | 047 | J043 | 042 | J053 | 059 | 035 | 037 | 035 | J037 | J052 | 033 | J025 | J027 | E014S | J028 |
| 11 | J052 | J030 | J037 | J052 | J052 | 022 | 025 | 033 | J048 | J060 | 039 | 037 | 038 | 037 | 036 | J039 | 036 | J042 | J033 | J041 | J041 | J051 | J052 | J052 |
| 12 | 021 | 018 | E013B | 024 | 021 | E014B | 024 | 029 | 036 | 039 | 036 | 035 | G | G | G | 035 | 035 | 036 | J032 | J029 | J038 | J030 | J026 | E015S |
| 13 | E013S | E013B | E013B | E | E014B | J024 | 025 | 030 | 032 | J043 | J043 | J038 | G | 036 | G | G | J028 | G | J023 | J024 | E014S | 019 | 019 | 021 |
| 14 | E015S | E013B | E014B | E014B | E014B | E014B | 025 | 034 | 036 | 036 | G | G | 035 | G | G | 033 | 036 | J033 | J031 | J029 | J030 | E014S | E015S | 018 |
| 15 | E015S | E013B | E013B | E014B | E014B | E013B | 026 | 030 | 033 | 031 | 035 | 034 | G | G | G | G | 021 | C | J026 | J021 | J017 | J017 | E015S | E015S |
| 16 | E015S | E013B | E014B | 018 | E012B | E014B | 025 | 029 | 036 | J043 | 035 | J037 | J042 | J039 | 036 | J028G | J033 | 026 | 019 | J023 | 019 | 024 | 023 | 018 |
| 17 | 018 | E011B | E | E | 017 | E014B | G | 033 | 034 | 035 | 033 | J038 | 035 | 036 | 034 | 035 | G | 028 | J035 | J052 | J051 | J026 | J026 | 017 |
| 18 | E015S | E014B | E011B | E | 019 | J018 | 029 | 033 | 032 | 041 | 035 | 033 | J042 | J043 | J035 | G | G | 025 | J028 | J030 | 023 | 021 | 020 | J028 |
| 19 | J022 | J043 | 020 | 018 | E014B | E013B | 023 | 030 | J060 | J055 | J067 | J043 | J053 | 035 | 032 | 036 | 032 | 025 | J037 | J042 | J020 | 020 | 022 | J025 |
| 20 | J026 | 020 | 017 | E014B | E013B | 019 | 024 | 031 | J040 | 038 | 035 | 034 | G | J043 | 034 | G | 032 | 037 | J042 | J019 | J030 | J044 | J033 | J043 |
| 21 | J026 | J029 | 017 | 018 | 018 | 015 | 023 | 031 | 032 | 036 | 037 | 035 | G | 036 | J038 | 034 | J030 | C | J033 | J052 | 025 | 022 | J021 | J029 |
| 22 | E015S | E015S | E011B | E011B | E011B | 018 | 025 | 030 | 033 | 035 | G | G | G | G | 037 | 032 | 032 | 025 | 022 | J018 | J020 | J018 | 017 | E014S |
| 23 | E014S | E012B | E | 019 | E | 014 | 025 | 031 | 033 | 035 | 037 | 035 | G | G | 037 | 040 | 035 | 033 | J024 | J018 | E014S | E012B | E015S | E015S |
| 24 | E014S | E014B | E014B | 018 | E011B | J015 | 025 | C | 033 | J055 | C | J053 | G | 042 | 039 | 040 | J043 | 033 | J045 | J037 | J030 | J040 | J044 | J043 |
| 25 | J045 | J030 | J026 | J022 | 020 | J026 | J044 | J055 | J052 | J054 | 040 | G | J060 | J052 | 038 | 031 | 036 | J042 | J031 | J044 | J044 | J030 | J035 | J026 |
| 26 | J025 | J026 | J025 | 023 | J025 | E013B | 034 | J043 | J050 | J053 | J049 | J048 | J052 | 051 | G | 041 | 035 | 030 | J033 | J030 | J025 | J034 | J046 | J021 |
| 27 | J028 | 017 | E014B | E013B | E011B | E014B | 026 | 035 | 034 | 035 | 036 | 049 | 045 | 050 | 036 | 042 | 035 | J045 | J058 | J062 | J031 | J029 | J018 | J051 |
| 28 | J043 | J025 | E013B | 019 | E014B | J016 | 028 | 035 | J060 | J054 | 035 | 036 | 034 | 033 | G | 035 | 035 | 040 | J051 | J053 | J032 | 019 | 018 | E013S |
| 29 | E014S | E014B | E011B | E014B | E015B | E013B | 036 | G | G | 030 | 032 | 035 | G | G | G | 036 | 036 | 035 | 021 | J024 | J021 | J030 | E014S | E015S |
| 30 | E014S | 018 | 024 | 023 | 019 | 019 | 024 | 033 | 033 | C | J043 | J070 | 041 | 040 | J063 | J067 | J136 | J090 | J158 | J118 | J064 | J050 | J029 | J025 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 29 | 30 | 30 | 30 |
| Median | E016S | E015 | E014B | 018 | E014B | 014 | 025 | 031 | 034 | 038 | 036 | 036 | 035 | 036 | 034 | 036 | 034 | 032 | 031 | 029 | 025 | 022 | 020 | 022 |
| U. Q. | 025 | 020 | 021 | 023 | 019 | 021 | 026 | 034 | 040 | 045 | 042 | 042 | 042 | 043 | 036 | 040 | 036 | 036 | 037 | 041 | 030 | 030 | 026 | 029 |
| L. Q. | E014 | E013 | E013 | E013 | E012 | E013 | 023 | 029 | 033 | 035 | 035 | 034 | G | G | G | 031 | 030 | 026 | 022 | 023 | 018 | 019 | 017 | E015 |
| Q. R. | D011 | D007 | D008 | D010 | D007 | D008 | 003 | 005 | 007 | 010 | 007 | 008 | | | | 009 | 006 | 010 | 015 | 018 | 012 | 011 | 009 | D014 |

foEs

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

# IONOSPHERIC DATA

**Apr. 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 | S | B | 015 | E | | B | | | 030 | 035 | E035R | E035R | E035R | | 024G | 023G | 028 | 025 | S | E | S | S | S | B |
| 2 | S | S | B | E | B | E | 020 | 028 | 031 | 024G | E035R | | | 023G | | | | | B | E | E | E | E | S |
| 3 | E | S | E | 019 | A | A | 038 | 050 | 045 | 034 | 045 | E036R | 042 | 046 | 035 | 045 | 044 | 026 | 020 | 019 | S | 016 | E | E |
| 4 | S | E | 015 | 015 | E | B | 021 | 025 | E031R | 033 | 037 | 040 | E037R | 039 | 033 | 039 | 025 | 025 | 015 | 024 | S | S | S | 020 |
| 5 | E | B | E | 020 | 017 | 017 | | E025R | 031 | 036 | E040R | 042 | 035 | E034R | 030 | 041 | 043 | 027 | B | 024 | C | S | S | S |
| 6 | 015 | E | 014 | 015 | 014 | B | | 029 | 033 | E035R | E035R | E038R | E033R | E033R | 032 | 033 | 028 | 027 | 033 | 014 | S | S | S | 016 |
| 7 | B | B | B | B | B | B | | 028 | 032 | 035 | E034R | E035R | E035R | E036R | | 033 | 030 | 023 | 019 | E | E | 016 | 017 | E |
| 8 | S | B | B | 012 | E | E | 023 | 032 | 038 | 035 | E035R | | | E034R | | 035 | 042 | E032R | 025 | 026 | 016 | 017 | S | S |
| 9 | S | B | B | B | B | 014 | 023 | 030 | 036 | 038 | 044 | 040 | E036R | 038 | 047 | 030 | 028 | 027 | 020 | 030 | 017 | 016 | B | E |
| 10 | E | E | E | B | B | B | 016 | 029 | 035 | 034 | 041 | E042R | 045 | 053 | E035R | 033 | 034 | 035 | 042 | E033R | 018 | 016 | S | S |
| 11 | 017 | 015 | E | 017 | A | E | E025R | 032 | 047 | 059 | 039 | E037R | E038R | E037R | E036R | 037 | 034 | 041 | 033 | 025 | 040 | 033 | A | 017 |
| 12 | E | E | B | E | E | B | 023 | 029 | 034 | 034 | E036R | E035R | | | | 034 | 035 | 033 | 032 | 025 | 018 | S | 016 | S |
| 13 | S | B | B | | B | E | 025 | 029 | 032 | 041 | 041 | E038R | | 035 | | | 028 | | 020 | 015 | S | E | S | S |
| 14 | S | B | B | B | B | B | 025 | 031 | 034 | 033 | | | 035 | | | 032 | 033 | 031 | 026 | 024 | 017 | S | S | E |
| 15 | S | B | B | B | B | B | 025 | 030 | 032 | E031R | E035R | E034R | | | | | E021R | C | 017 | 016 | 016 | E | S | S |
| 16 | S | B | B | E | B | B | 024 | 023 | 033 | 040 | E035R | E037R | 037 | 039 | 036 | 028G | 029 | 026 | 018 | 015 | E | 015 | 016 | E |
| 17 | E | B | | | E | B | | 032 | 033 | 035 | E033R | 038 | E035R | 036 | E034R | 033 | | 024 | 033 | 047 | 034 | 017 | 016 | E |
| 18 | S | B | B | | E | E | 027 | 030 | 032 | 036 | 034 | E033R | 040 | 035 | 034 | | | 025 | 026 | 025 | 014 | 014 | E | 017 |
| 19 | 017 | 019 | E | E | B | B | 020 | 026 | A | 034 | A | 035 | A | E035R | E032R | R | E032R | 025 | 033 | 041 | 016 | E | E | 016 |
| 20 | E | E | E | B | B | 016 | 023 | 028 | 033 | 035 | 034 | E034R | | 034 | 034 | | 032 | 033 | 027 | 017 | 025 | 017 | 022 | 026 |
| 21 | E | 013 | E | E | E | 014 | 022 | 028 | 030 | 034 | 035 | 035 | | E036R | 038 | 032 | 029 | | 025 | 037 | E | E | 015 | E |
| 22 | S | S | B | B | B | 017 | 025 | 028 | 033 | 034 | | | | | 035 | 031 | 029 | 024 | 021 | 014 | 016 | 015 | E | S |
| 23 | S | B | | E | | 014 | 025 | 030 | 032 | 035 | 036 | E035R | | | 037 | 040 | 035 | 032 | 022 | 015 | S | B | S | S |
| 24 | S | B | B | E | B | S | 025 | C | 033 | 040 | C | 039 | | 040 | 038 | 039 | 042 | 030 | 042 | 034 | 026 | A | A | A |
| 25 | A | 013 | 012 | 012 | E | 023 | 041 | 043 | 050 | 054 | E040R | | 053 | E052R | 038 | E031R | 033 | 032 | 025 | 025 | 033 | 020 | 025 | 020 |
| 26 | 015 | 015 | 014 | E | E | B | 033 | 040 | 048 | 037 | E049R | 048 | 045 | 051 | | 041 | 033 | 029 | 033 | 024 | 019 | 025 | A | E |
| 27 | 016 | E | B | B | B | B | 025 | 035 | 033 | E035R | E036R | 046 | 045 | E050R | E036R | E042R | E035R | 042 | A | 044 | 020 | 016 | S | 016 |
| 28 | 023 | E | B | E | B | S | 026 | 028 | 053 | 054 | E035R | E036R | E034R | E033R | | 034 | 034 | 040 | 043 | 051 | 017 | E | E | S |
| 29 | S | B | B | B | B | B | 025 | | | E030R | E032R | E035R | | | | E036R | 032 | 027 | 019 | 021 | 014 | 015 | S | S |
| 30 | S | E | 013 | 017 | E | E | 023 | 032 | E033R | C | E043R | A | 039 | 040 | 055 | 067 | 074 | 063 | A | A | 025 | 019 | 025 | 013 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

$f_bEs$ | Sweep 1.0 Mc to 20.0Mc in 20 sec in automatic operation

K 5

# IONOSPHERIC DATA

**Apr. 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 | E016S | 013 | 012 | 012 | 010 | 013 | 014 | 013 | 014 | 015 | 016 | 020 | 020 | 020 | 020 | 015 | 014 | 014 | E019S | E015S | E015S | E015S | E015S | 012 |
| 2 | E014S | E015S | 015 | 010 | 014 | E015S | 015 | 012 | 014 | 015 | 015 | 015 | 016 | 016 | 016 | 015 | 016 | 015 | 014 | E015S | E015S | E015S | E015S | E015S |
| 3 | E015S | E015S | 014 | 011 | 011 | E015S | 014 | 014 | 015 | 015 | 016 | 017 | 017 | 017 | 017 | 015 | 014 | 013 | 014 | E015S | E016S | E015S | E015S | E016S |
| 4 | E013S | 013 | 013 | 010 | 014 | 013 | 015 | 013 | 014 | 015 | 017 | 016 | 016 | 016 | 016 | 015 | 014 | 013 | 013 | E013S | E015S | E016S | E015S | 011 |
| 5 | E015S | 013 | 014 | 011 | 011 | 011 | 013 | 014 | 014 | 015 | 015 | 019 | 015 | 014 | 016 | 015 | 013 | 012 | 016 | E014S | C | E015S | E015S | E015S |
| 6 | 011 | 014 | 011 | 011 | 013 | 012 | 014 | 014 | 014 | 015 | 025 | 025 | 022 | 026 | 016 | 015 | 015 | 014 | 011 | E012S | E015S | E015S | E015S | 010 |
| 7 | E013S | 013 | 013 | 012 | 012 | 013 | 012 | 014 | 015 | 016 | 017 | 020 | 018 | 017 | 016 | 016 | 015 | 014 | 016 | E014S | E015S | E015S | E015S | E015S |
| 8 | E015S | 015 | 013 | 010 | 013 | 013 | 014 | 013 | 014 | 016 | 016 | 016 | 015 | 016 | 017 | 016 | 012 | 014 | 015 | E016S | E015S | E013S | E015S | E015S |
| 9 | E015S | 013 | 014 | 013 | 011 | 013 | 013 | 014 | 015 | 015 | 016 | 016 | 025 | 019 | 016 | 015 | 015 | 013 | 014 | 012 | E014S | E015S | 012 | E015S |
| 10 | E014S | 013 | 013 | 013 | 013 | 013 | 013 | 015 | 015 | 014 | 015 | 015 | 020 | 021 | 018 | 016 | 015 | 013 | 013 | E013S | E015S | E014S | E014S | E015S |
| 11 | E015S | 013 | 015 | 012 | 012 | 013 | 015 | 013 | 014 | 016 | 016 | 016 | 017 | 016 | 017 | 016 | 015 | 015 | 015 | 011 | E015S | E015S | E014S | E013S |
| 12 | E015S | 013 | 013 | 013 | 013 | 014 | 013 | 013 | 015 | 015 | 016 | 018 | 025 | 017 | 015 | 016 | 015 | 013 | 015 | E015S | E014S | E015S | E015S | E015S |
| 13 | E013S | 013 | 013 | 010 | 014 | 013 | 013 | 014 | 015 | 014 | 016 | 016 | 016 | 016 | 015 | 015 | 015 | 014 | 014 | E013S | E014S | E014S | E015S | E016S |
| 14 | E015S | 013 | 014 | 014 | 014 | 014 | 013 | 013 | 014 | 015 | 015 | 016 | 019 | 017 | 014 | 018 | 015 | 015 | 014 | E014S | E012S | E014S | E015S | E015S |
| 15 | E015S | 013 | 013 | 014 | 014 | 013 | 013 | 014 | 015 | 016 | 017 | 018 | 016 | 017 | 019 | 016 | 013 | C | 014 | E015S | E015S | E015S | E015S | E015S |
| 16 | E015S | 013 | 014 | 011 | 012 | 014 | 012 | 013 | 015 | 018 | 017 | 016 | 016 | 016 | 016 | 015 | 014 | 013 | 014 | 011 | E013S | 011 | E014S | E014S |
| 17 | E014S | 011 | 010 | 010 | 011 | 014 | 013 | 013 | 014 | 014 | 015 | 016 | 016 | 015 | 015 | 017 | 013 | 014 | 011 | E015S | E014S | E015S | 011 | E013S |
| 18 | E015S | 014 | 011 | 010 | 010 | 014 | 012 | 012 | 013 | 014 | 015 | 016 | 015 | 017 | 016 | 016 | 015 | 012 | 013 | 011 | 010 | 011 | E013S | E013S |
| 19 | E012S | 010 | 011 | 010 | 014 | 013 | 013 | 013 | 014 | 016 | 015 | 014 | 015 | 015 | 015 | 015 | 014 | 013 | 010 | 011 | 011 | E015S | E014S | E015S |
| 20 | E015S | 011 | 010 | 014 | 013 | E014S | 013 | 013 | 014 | 015 | 014 | 014 | 017 | 015 | 016 | 014 | 013 | 013 | 013 | 010 | 010 | E015S | 011 | 011 |
| 21 | 011 | 012 | 013 | 010 | 011 | 013 | 012 | 013 | 015 | 015 | 016 | 017 | 017 | 016 | 015 | 017 | 014 | 013 | 011 | 011 | E014S | E015S | 011 | E015S |
| 22 | E015S | E015S | 011 | 011 | 011 | 013 | 013 | 013 | 014 | 015 | 016 | 015 | 016 | 016 | 015 | 015 | 014 | 013 | 015 | 011 | E015S | E013S | E014S | E014S |
| 23 | E014S | 012 | 010 | 011 | 010 | 012 | 011 | 014 | 014 | 015 | 016 | 015 | 016 | 015 | 018 | 016 | 014 | 014 | 012 | E013S | E014S | 012 | E015S | E015S |
| 24 | E014S | 014 | 014 | 011 | 011 | E014S | 012 | C | 015 | 015 | C | 016 | 016 | 016 | 015 | 014 | 014 | 014 | 014 | E014S | E015S | E013S | E014S | 011 |
| 25 | 011 | 011 | 011 | 011 | 010 | 010 | 013 | 014 | 016 | 022 | 015 | 025 | 019 | 024 | 016 | 016 | 015 | 013 | 012 | E013S | 010 | 010 | 011 | 011 |
| 26 | 011 | 014 | 013 | 011 | 013 | 013 | 013 | 015 | 016 | 015 | 020 | 025 | 025 | 025 | 016 | 015 | 016 | 015 | 014 | 012 | E014S | E013S | E014S | E013S |
| 27 | 011 | 013 | 014 | 013 | 011 | 014 | 013 | 014 | 015 | 016 | 016 | 025 | 023 | 021 | 016 | 016 | 015 | 014 | 013 | E013S | E013S | E014S | E015S | E013S |
| 28 | E015S | 014 | 013 | 013 | 014 | E015S | 013 | 014 | 015 | 015 | 016 | 020 | 022 | 025 | 017 | 017 | 015 | 015 | 014 | E014S | E015S | E013S | E014S | E013S |
| 29 | E014S | 014 | 011 | 014 | 015 | 013 | 014 | 015 | 016 | 016 | 017 | 020 | 016 | 025 | 025 | 022 | 016 | 015 | 014 | E013S | 011 | 010 | E014S | E015S |
| 30 | E014S | 013 | 011 | 011 | 013 | E015S | 013 | 015 | 019 | C | 015 | 016 | 015 | 013 | 015 | 014 | 014 | 013 | 014 | E013S | E014S | E014S | 010 | 010 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 29 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 29 | 30 | 30 | 30 |
| Median | E014S | 013 | 013 | 011 | 012 | 013 | 013 | 014 | 015 | 015 | 016 | 016 | 016 | 016 | 016 | 016 | 014 | 014 | 014 | E013S | E014S | E014S | E014S | E014S |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

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

f-min

# IONOSPHERIC DATA

Apr. 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 | U285R | 280 | U305R | 315R | 315 | 320 | 335 | 320 | 325 | 330 | R | 320 | 340R | R | R | 310 | R | U335S | 340 | 340 | 315 | 315 | S | F |
| 2 | J310F | J305F | J315F | 335 | 315 | 305 | 360 | 335 | 335R | 310 | R | 300 | 330 | 315 | R | R | R | 345 | J355R | J330S | 320 | 285 | J305S | J315F |
| 3 | J295F | J305S | 310 | 315 | A | A | 340 | 345 | 330 | 315 | 325R | 325R | 315 | 315 | U310R | 325R | U330R | U330R | 335 | U325R | 320 | U270R | U285R | U285R |
| 4 | U285R | U305R | 290R | 330 | 300 | 295 | 305 | 345 | 330 | U330R | 315 | 310 | 310 | 305 | 305 | 320 | 330R | 340 | 345 | 330 | 300 | 280R | U265R | U270R |
| 5 | 275R | U290R | 290 | 295 | 325 | 315 | 350 | 365 | 340 | 300R | 305 | 315 | 310 | 320 | 305 | 305 | U310R | U345R | I340S | 360R | C | 270 | 280 | U280F |
| 6 | 290R | U280R | 315 | 350 | 320 | 300 | 350 | U355R | 325 | 315 | 305 | 315R | 290R | U315R | 310 | 320 | U325R | U340R | U335R | U325R | 330 | 280 | 285R | U285R |
| 7 | 280 | 275 | U275R | 335 | 320 | 295 | 350 | 350 | 315 | 315R | 325R | 320 | 305R | 300 | U325R | U330R | 315 | 320 | 310 | 330 | 310 | 280 | U280R | I285R |
| 8 | 285 | U290R | 295 | 335 | 295 | 300 | 345 | 330 | 325 | 330 | 315 | U305R | 300 | U305R | U320R | U320R | U335R | 325 | 330 | 345 | 300 | 275 | 275 | U265R |
| 9 | 290R | R | U305R | 310R | 330 | 290 | 330 | 345 | 335 | 310 | 310 | 320R | U320R | U315R | 300R | 300R | 330R | 340 | 340S | 305R | 295 | 275 | 265R | 295R |
| 10 | 285 | 295 | 290 | 315 | 335 | 305 | 340R | 335 | 340 | 315 | 315 | 300R | 300 | 310 | 315 | 320 | U315R | U320S | I330R | U330R | 335 | 275R | U275R | U280R |
| 11 | 270R | 280R | U315R | A | A | 295 | 330 | 340 | 325R | 325 | 315 | 300 | 310 | 305 | 325 | 330 | 320 | 315 | 300 | U320R | 320 | 320R | I280A | U280R |
| 12 | U280R | U295R | U275R | U295R | 315 | 295R | 335 | U340R | 345 | 320R | U345R | U315R | 315 | 310 | 295 | 305 | 325 | U320R | U320R | U335R | 320 | 260 | 260R | 275 |
| 13 | 275R | 290 | 315 | 370 | 290F | 305 | U335R | 350 | 325 | 335 | 315 | U305R | I295R | 305 | 315 | 320 | 32> | 315 | 310 | 310R | 335 | 280 | U300R | 280 |
| 14 | 275 | 280 | 305 | 365 | 280 | 305 | 335 | 330 | 320 | 305R | U320R | 300 | 315R | U320R | 310R | 310 | 325 | U325R | I325R | 340S | 315R | 280 | 285 | 285 |
| 15 | 285 | 295 | 315R | 340 | 290 | 325 | 340 | 335 | 315 | 300 | 310R | 305 | 310 | 305 | I320R | 325 | 320 | I310C | 310 | 315S | 315S | 290 | 285 | I270S |
| 16 | 275S | 285 | U300S | 360S | 295 | 310 | 330 | 335 | 335 | 310R | 305 | 300 | 295 | 300 | 300 | 305 | 310R | 320R | 330S | 320 | 310 | 285 | 280 | U280R |
| 17 | 280 | 275 | 295 | 315 | 315 | 315 | 340 | 330 | 325 | 315 | 315 | 300 | 300 | 320 | 310 | 310 | 325 | 325 | U320S | U315S | 320 | U270S | U280S | 290S |
| 18 | U275S | U275S | U265S | U290S | 290 | 295 | 355 | 330 | 345 | 315 | 285 | 275 | 280 | 295 | 280 | 295 | 295 | 295 | 300 | 300 | U290S | 270 | 260 | 320R |
| 19 | 295 | 285 | 260 | 275 | 310 | 305 | 295 | 255 | A | 260 | I240A | U245R | I260A | 260 | I255R | I250R | 260 | 295R | 295 | U290R | 285S | 265S | U275S | U280S |
| 20 | 275S | 295 | 285S | 275S | 285 | 295 | 330 | 305R | 290 | 280 | 310 | 280 | 265 | 295R | 300 | 305 | 320 | 305 | 305 | 320 | 315 | 260S | U260S | U270S |
| 21 | 265S | 275 | 320 | 325S | 265 | 305 | 325 | 325R | 325 | 320 | 315 | 300 | 305 | 300 | 305 | 320 | 325 | 330 | 320 | U325S | 285 | 280 | 290 | 290 |
| 22 | 285 | 275 | 305 | 285 | 280 | 315 | 325 | 330 | 315 | 315 | 300 | 300 | 300R | 305 | 320 | 325 | 330 | 310 | 305 | 325 | 310 | 280 | 280 | U275S |
| 23 | U280S | U295S | U290S | 305 | 305S | 335 | 340 | 345 | 325 | 320 | 310 | 300 | 305 | 305 | 320 | 310 | 325 | 325 | 305 | U320S | 340 | 295 | 275 | 280 |
| 24 | 280 | 280 | 285 | 325 | 300 | 295 | 330 | I340C | 325 | 325 | C | 305R | 305 | 295 | 315R | 315 | 330 | 315 | 310 | U315S | S | A | A | A |
| 25 | A | U275S | 295S | 315S | 265S | 310 | 345 | 335 | 340 | 315R | 310R | I310R | 310 | 290R | 295R | 300 | 315 | 310 | U330R | 320 | 310 | 285S | U265S | U280S |
| 26 | U265S | U285S | 275 | 310 | 300F | 330 | 335 | 315R | U330R | 330 | 325 | 285 | U295R | 295 | 290 | 315 | U320R | 310 | 325S | U330S | 345 | 260 | I280A | 275S |
| 27 | 275S | 280 | 290F | 300F | 300R | 330R | 330R | 335 | 340 | 320 | 310 | 295 | 305 | 280 | 285 | 300 | 335 | U330S | A | U315R | 285 | 280 | U285S | U270A |
| 28 | I275A | I285S | U295S | 320R | 315 | 305 | 315 | 310 | 310 | 315 | 330R | 320R | 330 | 290R | 310 | 315R | 330 | 310 | U320R | 330S | 340S | 315 | 280 | 280S |
| 29 | 290 | 285 | 295 | 295 | 305 | 335 | 355 | U350R | J335R | 325 | 325 | 330 | U295R | 310 | 300R | 315 | 320 | 325 | 330 | 310 | 320 | 310S | U295R | U285F |
| 30 | U290F | 290 | J290S | 320R | 325 | 325 | U330R | 335 | 350 | C | 310R | A | 285 | 280 | 290 | 305 | 330 | 335 | A | A | 315 | 285 | 275 | 280 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 30 | 29 | 28 | 29 | 30 | 30 | 29 | 29 | 27 | 29 | 30 | 29 | 28 | 29 | 28 | 30 | 28 | 29 | 28 | 29 | 28 | 28 |
| Median | 280 | 285 | 295 | 315 | 300 | 305 | 335 | 335 | 325 | 315 | 315 | 305 | 305 | 305 | 310 | 315 | 325 | 320 | 320 | 325 | 315 | 280 | 280 | U280 |
| 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

M(3000) F2

K 7

# IONOSPHERIC DATA

Apr. 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 | 360L | 340L | 355L | S | L | L | L | L | | | | | | |
| 2 | | | | | | | | | L | L | 345L | 335L | 360 | 360L | 360 | L | L | L | | | | | | |
| 3 | | | | | | | A | A | A | 350L | A | L | L | A | S | A | A | A | | | | | | |
| 4 | | | | | | | | | L | L | L | L | L | 350L | 365L | L | L | A | | | | | | |
| 5 | | | | | | | | | L | L | L | L | L | L | L | A | A | L | | | | | | |
| 6 | | | | | | | | L | L | L | 350L | L | 345L | L | L | L | L | L | | | | | | |
| 7 | | | | | | | | | L | 360L | L | L | R | S | R | L | L | L | | | | | | |
| 8 | | | | | | | | | A | L | L | R | R | L | L | L | A | A | | | | | | |
| 9 | | | | | | | | L | L | L | A | L | L | L | A | 330L | L | L | | | | | | |
| 10 | | | | | | | | | L | L | L | R | A | A | L | L | L | A | A | | | | | |
| 11 | | | | | | | | | A | A | L | L | 345L | L | L | L | L | A | | | | | | |
| 12 | | | | | | | | L | L | L | L | L | 350L | 340L | 340L | 335L | L | A | A | | | | | |
| 13 | | | | | | | | | 360L | A | L | L | R | 355L | 350L | L | L | L | | | | | | |
| 14 | | | | | | | | L | L | 355L | L | 330L | 355L | L | S | 345L | L | L | | | | | | |
| 15 | | | | | | | | L | L | L | 355L | R | 355L | R | R | L | L | C | | | | | | |
| 16 | | | | | | | | L | L | L | S | 375L | 345L | 350L | 345L | 345L | L | L | | | | | | |
| 17 | | | | | | | | L | L | 375L | 375L | L | L | 350L | L | 350L | L | L | A | | | | | |
| 18 | | | | | | | | L | L | L | 340L | 345L | L | 340L | 340L | 330L | L | L | A | | | | | |
| 19 | | | | | | | L | 335L | A | A | A | A | A | R | S | R | L | L | A | | | | | |
| 20 | | | | | | | | L | L | 355L | 360L | 350L | 360L | 370L | 365L | 340L | L | A | A | | | | | |
| 21 | | | | | | | | L | 350L | 335L | 370L | 360L | 355L | 355L | 355L | 350L | L | L | A | | | | | |
| 22 | | | | | | | | L | 350L | 365L | 355L | 375L | 365L | 370L | 355L | L | 380L | L | | | | | | |
| 23 | | | | | | | | L | 360L | L | 335L | 370L | 370L | 345L | 335L | L | L | L | L | | | | | |
| 24 | | | | | | | L | L | 340L | L | C | 355L | S | 350L | L | L | A | L | A | | | | | |
| 25 | | | | | | | | A | A | A | L | R | A | A | L | L | 345L | L | L | | | | | |
| 26 | | | | | | | | A | A | L | A | A | A | A | R | A | 350L | L | A | | | | | |
| 27 | | | | | | | L | L | L | L | L | A | A | A | L | L | L | A | A | | | | | |
| 28 | | | | | | | | L | A | A | R | L | 340L | R | 340L | S | L | A | A | | | | | |
| 29 | | | | | | | L | S | R | L | L | L | L | L | R | R | 355L | L | | | | | | |
| 30 | | | | | | | | L | L | C | A | A | R | R | A | A | A | A | A | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No, | | | | | | | | 1 | 5 | 7 | 10 | 10 | 13 | 12 | 11 | 8 | 4 | | | | | | | |
| Median | | | | | | | | 335L | 350L | 355L | 355L | 350L | 355L | 350L | 350L | 340L | 350L | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

M(3000) F1

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

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | | 280 | 290 | 305 | 285 | 270 | 280 | 310 | 290 | 270 | 250 | | | | | | |
| 2 | | | | | | | | | 260 | 305 | 295 | 300 | 275 | 300 | 305 | 270 | 260 | 245 | | | | | | |
| 3 | | | | | | | 250A | E295A | 290A | 275 | 280 | 295 | 300 | 300 | 305 | 280 | 260 | 250 | | | | | | |
| 4 | | | | | | | | | 250 | 280 | 290 | 300 | 310 | 285 | 280 | 275 | 270 | 255 | | | | | | |
| 5 | | | | | | | | | 260 | 305 | 305 | 280 | 275 | 275 | 300 | 310 | 295 | 255 | | | | | | |
| 6 | | | | | | | | 235 | 255 | 295 | 320 | 295 | 310 | 310 | 295 | 275 | 265 | 255 | | | | | | |
| 7 | | | | | | | | | 275 | 300 | 280 | 280 | 305 | 310 | 260 | 270 | 285 | 255 | | | | | | |
| 8 | | | | | | | | | 265 | 270 | 280 | 310 | 315 | 305 | 300 | 275 | 260 | 260 | | | | | | |
| 9 | | | | | | | | 245 | 250 | 300 | 305 | 275 | 275 | 305 | 325 | 300 | 260 | 240 | | | | | | |
| 10 | | | | | | | | | 265 | 285 | 290 | 330 | 310 | 280 | 280 | 265 | 260 | 260 | 260 | | | | | |
| 11 | | | | | | | | | 275 | 295 | 285 | 315 | 300 | 275 | 260 | 270 | 270 | 275 | | | | | | |
| 12 | | | | | | | | 250 | 250 | 255 | 260 | 300 | 310 | 300 | 335 | 300 | 260 | 255 | 260 | | | | | |
| 13 | | | | | | | | | 275 | 275 | 290 | 310 | 330 | 300 | 265 | 255 | 270 | 295 | | | | | | |
| 14 | | | | | | | | 255 | 300 | 300 | 280 | 300 | 275 | 305 | 305 | 300 | 260 | 260 | | | | | | |
| 15 | | | | | | | | 260 | 305 | 305 | 300 | 300 | 300 | 280 | 290 | 260 | 280 | C | | | | | | |
| 16 | | | | | | | | 255 | 265 | 300 | 330 | 300 | 305 | 300 | 305 | 275 | 285 | 260 | | | | | | |
| 17 | | | | | | | | 255 | 265 | 285 | 280 | 310 | 310 | 295 | 310 | 305 | 280 | 275 | 230 | | | | | |
| 18 | | | | | | | | 260 | 250 | 310 | 330 | 310 | 330 | 305 | 320 | 310 | 310 | 300 | 275 | | | | | |
| 19 | | | | | | | 310 | 460 | A | 470 | A | 525 | A | 470 | R | R | 410 | 330 | 310 | | | | | |
| 20 | | | | | | | | 300 | 330 | 320 | 310 | 395 | 400 | 330 | 315 | 315 | 300 | 270 | 255 | | | | | |
| 21 | | | | | | | | 275 | 300 | 305 | 300 | 310 | 310 | 325 | 330 | 280 | 280 | 260 | 255 | | | | | |
| 22 | | | | | | | | 270 | 305 | 295 | 310 | 310 | 310 | 280 | 275 | 295 | 270 | 300 | | | | | | |
| 23 | | | | | | | | 245 | 275 | 285 | 315 | 325 | 305 | 310 | 280 | 300 | 295 | 270 | 275 | | | | | |
| 24 | | | | | | | 255 | C | 275 | 275 | C | 335 | 320 | 325 | 290 | 280 | 265 | 275 | 265 | | | | | |
| 25 | | | | | | | | 250 | 305 | 310 | 305 | 300 | 355 | 370 | 330 | 315 | 270 | 255 | 245 | | | | | |
| 26 | | | | | | | | 265 | 270 | 275 | 310 | 400 | 340 | 350 | 330 | 300 | 275 | 260 | 255 | | | | | |
| 27 | | | | | | | 240 | 250 | 270 | 305 | 310 | 330 | 310 | 350 | 320 | 280 | 260 | 235 | A | | | | | |
| 28 | | | | | | | | 300 | 290 | 280 | 280 | 300 | 280 | 390 | 310 | 300 | 275 | 275 | 255 | | | | | |
| 29 | | | | | | | 230 | 260 | 290 | 280 | 280 | 300 | 350 | 310 | 330 | 300 | 270 | 260 | | | | | | |
| 30 | | | | | | | | 260 | 250 | C | 310 | A | 345 | 380 | 330 | 310 | 290 | 260 | A | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 5 | 20 | 29 | 29 | 28 | 29 | 29 | 30 | 29 | 29 | 30 | 29 | 12 | | | | | |
| Median | | | | | | | 250 | 260 | 275 | 295 | 300 | 300 | 310 | 305 | 305 | 290 | 270 | 260 | 260 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| 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

Apr. 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 | 305 | 280 | 270 | 230 | 205 | 250 | 220 | 230 | 230 | 245 | E250R | 240 | 240 | I240S | 245 | 240 | 245 | 245 | 210 | 205 | 210 | 255 | 300 | 305 |
| 2 | 300 | 260 | 255 | 205 | 255 | 260 | 220 | 240 | 225 | 230 | 245 | 245 | 240 | 245 | 205 | 210 | 210 | 240 | 225 | 210 | 245 | 310 | 310 | 300 |
| 3 | 300 | 290 | 260 | 255 | I260A | I260A | A | A | A | 240 | A | E250R | 240 | A | 205 | I235A | I230A | I250A | 225 | 230 | 230 | 310 | 295 | 295 |
| 4 | 270 | 255 | 280 | 235 | 250 | 260 | 220 | 230 | 230 | 245 | 240 | E250A | 245 | E255A | 210 | 240 | 220 | I240A | 225 | 225 | 225 | 310 | 325 | 290 |
| 5 | 305 | 280 | 270 | 265 | 230 | 240 | 220 | 240 | 225 | 235 | E270R | E280A | 215 | E255R | 210 | I250A | I250A | 250 | 230 | 215 | I220C | 300 | 315 | 305 |
| 6 | 305 | 275 | 240 | 200 | 255 | 225 | 210 | 215H | 225 | 245 | 230 | E255R | E255R | E265R | 205 | 250 | 250 | 250 | 255 | 225 | 220 | 255 | 305 | 300 |
| 7 | 300 | 305 | 300 | 235 | 220 | 260 | 215 | 235 | 230 | 225 | 225 | 220 | I240R | 215 | I220R | 240 | 230 | 255 | 250 | 230 | 220 | 270 | 310 | 300 |
| 8 | 310 | 280 | 260 | 220 | 240 | 255 | 225 | 245 | I250A | E250A | 245 | I220R | I205R | 210 | E260R | 245 | I245A | I255A | 250 | 225 | 250 | 315 | 310 | 305 |
| 9 | 300 | 310 | 290 | 225 | 210 | 275 | 230 | 245 | 230 | E255A | A | 205 | E265R | 205 | I210A | 210H | 245 | 245 | 225 | 255 | 265 | 260 | 310 | 310 |
| 10 | 280 | 275 | 260 | 245 | 230 | 225 | 230 | 230 | 250 | E250A | E260A | R | A | A | 215 | 260 | 260 | A | A | 230 | 210 | 310 | 320 | 315 |
| 11 | 305 | 300 | 255 | 250 | A | 255 | 230 | 250 | A | A | 225 | 210 | E275R | E270R | 225 | 250 | 255 | I260A | 265 | 255 | 255 | 255 | I265A | 275 |
| 12 | 295 | 300 | 290 | 235 | 250 | 270 | 240 | 240 | 230 | 235 | E250R | 200 | 225 | 225 | 250 | 255 | 280 | A | A | 220 | 215 | 310 | 315 | 300 |
| 13 | 280 | 270 | 240 | 200 | 270 | 260 | 230 | 235 | 215 | I235A | 245 | E275R | R | 205 | 215 | 230 | 225 | 240 | 260 | 245 | 215 | 250 | 260 | 280 |
| 14 | 300 | 295 | 255 | 200 | 330 | 255 | 245 | 240 | 245 | 215 | 210 | 225 | 210 | E250R | 210 | 245 | E255A | 250 | 230 | 225 | 220 | 265 | 295 | 300 |
| 15 | 280 | 260 | 230 | 210 | 250 | 245 | 230 | 250 | 235 | E250R | 215 | I230R | 245 | I220R | 205 | 210 | 230 | I230C | 255 | 240 | 240 | 260 | 265 | 300 |
| 16 | 310 | 290 | 260 | 200 | 265 | 255 | 240 | 230 | 220 | 225 | 210 | 210 | 205 | 245 | E265R | 210 | 250 | 255 | 250 | 225 | 230 | 260 | 295 | 290 |
| 17 | 280 | 280 | 260 | 230 | 225 | 250 | 225 | 250 | 230 | 225 | 210 | E250A | 240 | 225 | 215 | 210 | 220H | 255 | A | 255 | 260 | 295 | 300 | 265 |
| 18 | 280 | 300 | 300 | 265 | 260 | 255 | 220 | 235 | 225 | 210 | 210 | 210 | E265A | 205H | 210 | 230H | 200 | 270 | I250A | 250 | 240 | 260 | 310 | 240 |
| 19 | 255 | 260 | 310 | 300 | 260 | 260 | 260 | 255 | A | 240 | I230A | 210 | I235A | R | 225 | I230R | 205 | 240 | I260A | 355 | 260 | 305 | 300 | 300 |
| 20 | 280 | 260 | 270 | 305 | 280 | 260 | 250 | 225 | 240 | 215 | 210 | 215 | 205 | 240 | 230 | 245 | 260 | I260A | I265A | 240 | 220 | 310 | 360 | 325 |
| 21 | 310 | 300 | 240 | 210 | 255 | 255 | 240 | 235 | 250 | 220 | 205 | 190H | 225 | 230 | 235 | 220 | 225 | 240 | I255A | 255 | 245 | 295 | 275 | 280 |
| 22 | 300 | 300 | 255 | 210 | 290 | 245 | 245 | 250 | 230 | 205 | 200H | 180 | 215 | 165H | 225 | 210 | 225 | 230 | 260 | 220 | 225 | 290 | 305 | 280 |
| 23 | 300 | 270 | 265 | 225 | 220 | 230 | 230 | 230 | 220 | 215 | 210 | 220 | 210 | 215 | E260A | 250 | 255 | 260 | 250 | 245 | 215 | 220 | 280 | 295 |
| 24 | 300 | 290 | 260 | 225 | 225 | 260 | 240 | I240C | 230 | 210 | I210C | 210 | 200 | 215 | E260A | E290A | A | 255 | I275A | 260 | 215 | A | A | A |
| 25 | I350A | 310 | 250 | 220 | 300 | 255 | 245 | A | A | A | E305R | R | A | A | E260R | 215 | 250 | 265 | 230 | 225 | 265 | 290 | 325 | 305 |
| 26 | 300 | 280 | 270 | 225 | 260 | 230 | 250 | I240A | I255A | 215 | I210A | A | A | I240A | I245R | I250A | 250 | 255 | I240A | 230 | 210 | 260 | I305A | 300 |
| 27 | 300 | 295 | 255 | 260 | 235 | 235 | 230 | 255 | 225 | 220 | 215 | A | A | A | I270R | I260R | I250R | A | A | 300 | 280 | 300 | 295 | 325 |
| 28 | 310 | 260 | 255 | 230 | 250 | 260 | 230 | 235 | A | A | R | E250R | E250R | 220 | 255 | 230 | 255 | A | A | 255 | 210 | 225 | 310 | 290 |
| 29 | 295 | 290 | 280 | 260 | 255 | 230 | 225 | 225H | 225 | E260R | 245 | E255R | 220 | 210 | 255 | I230R | 240 | 255 | 260 | 250 | 230 | 245 | 270 | 270 |
| 30 | 260 | 275 | 270 | 240 | 210 | 230 | 230 | 230 | 210 | C | I220A | A | E325R | E300R | A | A | A | A | A | A | 260 | 260 | 310 | 270 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 29 | 30 | 29 | 28 | 25 | 26 | 27 | 25 | 25 | 25 | 29 | 29 | 28 | 25 | 24 | 29 | 30 | 29 | 29 | 29 |
| Median | 300 | 280 | 260 | 230 | 250 | 255 | 230 | 240 | 230 | 225 | 220 | 215 | 230 | 220 | 220 | 240 | 245 | 250 | 250 | 230 | 230 | 270 | 305 | 300 |
| 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

Apr. 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 | S | B | 105 | 105 | E | B | G | G | 125 | 125 | 120 | 115 | 110 | G | 105 | 110 | 115 | 145 | S | 100 | S | S | S | B |
| 2 | S | S | B | 105 | B | 110 | 150 | 150 | 150 | 105 | 130 | G | G | 100 | G | G | G | G | B | 130 | 115 | 120 | 115 | S |
| 3 | 115 | S | 110 | 105 | 105 | 105 | 105 | 130 | 130 | 125 | 115 | 115 | 115 | 115 | 115 | 110 | 110 | 110 | 105 | 100 | S | 115 | 120 | 115 |
| 4 | S | 110 | 110 | 110 | 110 | B | 150 | 140 | 140 | 120 | 130 | 125 | 115 | 115 | 130 | 115 | 110 | 105 | 110 | 100 | 100 | 100 | 100 | 110 |
| 5 | 115 | B | 110 | 110 | 105 | 110 | G | 155 | 125 | 120 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | B | 110 | C | 100 | 100 | 100 |
| 6 | 105 | 105 | 105 | 100 | 100 | B | G | 150 | 140 | 125 | 110 | 110 | 110 | 110 | 110 | 150 | 120 | 130 | 125 | 105 | 105 | 105 | 120 | 110 |
| 7 | S | B | B | B | B | B | G | 155 | 130 | 125 | 110 | 130 | 125 | 110 | G | 130 | 125 | 125 | 115 | 105 | 105 | 100 | 105 | 105 |
| 8 | S | B | B | 110 | 110 | 110 | 170 | 140 | 130 | 130 | 110 | G | G | 125 | G | 155 | 145 | 130 | 120 | 120 | 100 | 100 | 100 | S |
| 9 | S | B | B | B | B | 175 | 155 | 150 | 145 | 130 | 125 | 115 | 120 | 130 | 120 | 140 | 125 | 130 | 125 | 110 | 110 | 115 | B | 115 |
| 10 | 120 | 115 | 110 | B | B | B | 115 | 145 | 125 | 120 | 115 | 115 | 115 | 125 | 140 | 160 | 130 | 125 | 120 | 110 | 105 | 105 | S | 110 |
| 11 | 105 | 105 | 110 | 110 | 110 | 115 | 150 | 140 | 125 | 115 | 115 | 115 | 115 | 115 | 110 | 115 | 140 | 125 | 115 | 115 | 110 | 110 | 110 | 110 |
| 12 | 105 | 105 | B | 110 | 110 | B | 155 | 150 | 130 | 125 | 120 | 130 | G | G | G | 155 | 135 | 125 | 115 | 115 | 105 | 115 | 125 | S |
| 13 | S | B | B | B | B | 110 | 150 | 150 | 130 | 110 | 110 | 110 | G | 105 | G | G | 110 | G | 120 | 115 | S | 105 | 100 | 105 |
| 14 | S | B | B | B | B | B | 150 | 140 | 130 | 110 | G | G | 130 | G | G | E175G | 130 | 115 | 110 | 110 | 110 | S | S | 110 |
| 15 | S | B | B | B | B | B | 155 | 150 | 150 | 110 | 110 | 110 | G | G | G | G | 105 | C | 105 | 100 | 100 | 100 | S | S |
| 16 | S | B | B | 105 | B | B | 150 | 145 | 115 | 115 | 110 | 105 | 105 | 110 | 110 | 110 | 110 | 150 | 130 | 105 | 105 | 100 | 100 | 100 |
| 17 | 100 | B | E | E | 110 | B | G | 145 | 150 | 145 | 120 | 110 | 110 | 110 | 110 | 110 | G | 130 | 110 | 110 | 110 | 110 | 110 | 105 |
| 18 | S | B | B | E | 105 | 110 | 150 | 145 | 150 | 145 | 120 | 110 | 110 | 110 | 110 | G | G | 150 | 115 | 110 | 110 | 110 | 110 | 110 |
| 19 | 110 | 110 | 110 | 115 | B | B | 145 | 130 | 120 | 120 | 110 | 110 | 110 | 110 | 110 | 110 | 110 | 125 | 110 | 110 | 110 | 115 | 110 | 110 |
| 20 | 110 | 110 | 130 | B | B | 150 | 130 | 125 | 115 | 110 | 110 | 110 | G | 110 | 110 | G | 140 | 125 | 115 | 110 | 110 | 110 | 110 | 110 |
| 21 | 110 | 110 | 110 | 110 | 110 | 150 | 155 | 120 | 125 | 110 | 110 | 110 | G | 110 | 110 | 110 | 110 | G | 110 | 110 | 110 | 100 | 110 | 105 |
| 22 | S | S | B | B | B | 150 | 150 | 150 | 145 | 115 | G | G | G | G | 150 | 155 | 150 | 145 | 130 | 110 | 100 | 100 | 100 | S |
| 23 | S | B | E | 105 | E | 150 | 150 | 150 | 150 | 145 | 125 | 125 | G | G | 165 | 135 | 130 | 120 | 115 | 115 | S | B | S | S |
| 24 | S | B | B | 125 | B | S | 150 | C | 125 | 120 | C | 115 | G | 155 | 150 | 145 | 130 | 125 | 120 | 115 | 110 | 110 | 110 | 110 |
| 25 | 110 | 105 | 105 | 110 | 175 | 130 | 125 | 115 | 120 | 115 | 120 | G | 115 | 105 | 165 | 165 | 130 | 120 | 115 | 110 | 110 | 110 | 110 | 110 |
| 26 | 105 | 100 | 105 | 105 | 130 | B | 130 | 130 | 125 | 125 | 115 | 115 | 110 | 125 | G | 145 | 145 | 125 | 115 | 110 | 110 | 110 | 110 | 130 |
| 27 | 110 | 100 | B | B | B | B | 155 | 150 | 150 | 125 | 140 | 120 | 115 | 115 | 120 | 140 | 130 | 125 | 120 | 115 | 115 | 110 | 110 | 110 |
| 28 | 110 | 130 | B | 110 | B | E190G | 150 | 125 | 110 | 115 | 110 | 110 | 110 | 110 | G | 165 | 135 | 125 | 115 | 115 | 110 | 110 | 110 | S |
| 29 | S | B | B | B | B | B | 150 | G | G | 110 | 110 | 110 | G | G | G | 130 | 125 | 125 | 120 | 115 | 115 | 110 | S | S |
| 30 | S | 110 | 110 | 110 | 125 | 110 | 155 | 125 | 120 | C | 110 | 110 | 120 | 125 | 145 | 130 | 115 | 120 | 110 | 110 | 110 | 110 | 110 | 110 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 14 | 13 | 13 | 18 | 13 | 15 | 25 | 27 | 29 | 29 | 27 | 25 | 19 | 23 | 20 | 25 | 27 | 26 | 27 | 30 | 25 | 27 | 23 | 21 |
| Median | 110 | 110 | 110 | 110 | 110 | 110 | 150 | 145 | 130 | 120 | 110 | 110 | 115 | 110 | 110 | 130 | 125 | 125 | 115 | 110 | 110 | 110 | 110 | 110 |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

h'Es

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

K 11

# IONOSPHERIC DATA

**Apr. 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 | | | f5 | f | | | | | h | hl | h | c | 1 | | 1 | 1 | cl | h | | f | | | | |
| 2 | | | | f | | f | h | h | h | 1 | h | | | 1 | | | | | | f | f | f | f | |
| 3 | f | | f | f3 | f6 | f5 | 12 | h212 | h | h | c | c | c | c | c | 12 | 12 | 12 | 13 | f3 | | f2 | f | f |
| 4 | | f2 | f6 | f3 | f | | h | h | h | c | h | h | c | c | h | c | 1 | 12 | 1 | f4 | f2 | f3 | f | f2 |
| 5 | f2 | | f2 | f3 | f6 | f3 | | h | h | c | 1 | 1 | 1 | 1 | 1 | c2 | 13 | 13 | | f2 | | f2 | f2 | f2 |
| 6 | f2 | f | f2 | f | f | | | h | h | h | 12 | 1 | 1 | 1 | c | h | c | h | h212 | f2 | f2 | f2 | f | f2 |
| 7 | | | | | | | | h | hl | h | 1 | h | h | 1 | | h | h13 | h | 12 | f | f | f2 | f2 | f2 |
| 8 | | | | f | f2 | f | h | h | hl | h | 1 | | | h | | h | h | h | 13 | f2 | f | f2 | f2 | |
| 9 | | | | | | f | h | hl | hl | h | h | c | c | h | cl | h | h | h | h2 | f5 | f5 | f | | f |
| 10 | f2 | f | f | | | | 1 | h | h | c | c | c | c | h | h | h | h | h3 | 17 | f7 | f2 | f2 | | f2 |
| 11 | f2 | f2 | f2 | f3 | f4 | f | h | h2 | h2 | c2 | c | c | c | c | c | c | h | h2 | 15 | f2 | f2 | f4 | f5 | f2 |
| 12 | f2 | f | | f | f2 | | h | h | h | h | c | h | | | | h | h2 | h21 | 14 | f5 | f2 | f | f2 | |
| 13 | | | | | | f | h | h | h | 1 | 12 | 12 | | 12 | | | 1 | | 131 | f2 | | f | f | f |
| 14 | | | | | | | h | h2 | h | 1 | | | h | | | h | h2 | c2 | 15 | f3 | f2 | | | f |
| 15 | | | | | | | h | h | h | 1 | 1 | 1 | | | | | 1 | | 12 | f2 | f2 | f2 | | |
| 16 | | | | f | | | h | h | c | c | c | 1 | 1 | 12 | 1 | 1 | 12 | h | h2 | f | f | f2 | f2 | f |
| 17 | f | | | | f | | | h | h | hl | c | 1 | 1 | 1 | 1 | 1 | | h | 15 | f6 | f3 | f2 | f2 | f |
| 18 | | | | | f | f | h3 | h2 | h | c | 1 | 1 | 12 | 1 | 12 | | | h2 | 14 | f7 | f | f2 | f | f2 |
| 19 | f3 | f3 | f | f | | | h | h2 | c3 | c2 | 12 | 1 | c2 | c | 12 | 12 | 1 | h2 | c6 | f7 | f3 | f | f2 | f6 |
| 20 | f2 | f | f | | | h | h2 | h2 | c2 | c | 1 | 1 | | 12 | 1 | | h | h4 | 16 | f4 | f7 | f2 | f7 | f7 |
| 21 | f2 | f2 | f | f | f | h | h | c | h | 1 | 1 | 1 | | 1 | 12 | 12 | 12 | | 14 | f7 | f2 | f2 | f2 | f2 |
| 22 | | | | | | h | h3 | h | h | c | | | | | h | hl | h | h | h | f | f2 | f2 | f | |
| 23 | | | | f | | h | h | h2 | h | h | h | h | | | h | h | h2 | c3 | 12 | f | | | | |
| 24 | | | | f | | | h2 | | h | c | | 1 | | h | h | h | h2 | h3 | 16 | f4 | f5 | f4 | f7 | f6 |
| 25 | f6 | f2 | f2 | f | f | h3 | h6 | c3 | c2 | c2 | c | | 112 | 12 | hl | h | h | c3 | 12 | f3 | f4 | f4 | f2 | f6 |
| 26 | f2 | f2 | f | f | ff | | h2 | h2 | h | h | c2 | c | 1 | h2 | | h | h | h2 | 14 | f3 | f | f2 | f4 | f |
| 27 | f2 | f | | | | | h | h2 | h | h | h | c2 | c2 | c2 | c | h | h2 | h2 | 161 | f5f | f3 | f2 | f | f2 |
| 28 | f3 | f | | f | | h | h | h2 | 12 | 12 | 1 | 1 | 1 | 1 | | h | h | h3 | 14 | f7 | f3 | f | f | |
| 29 | | | | | | | h | | | 1 | 1 | 1 | | | | h | h | h | 13 | f2 | f | f3 | | |
| 30 | | f | f | f2 | f | 1 | h | h2 | c | | 1 | 13 | c | h | h2 | h3 | c4 | c2 | 13 | f6 | f3 | f2 | f4 | f2 |
| 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

Apr. 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 | U345R | 345 | U310R | 295R | 330 | 280 | 250 | 275 | 295 | 295 | R | 300 | 270R | R | R | 300 | R | U270S | 260 | 250 | 270 | 305 | S | F |
| 2 | J310F | J305F | J300F | 265 | 310 | 305 | 250 | 270 | 270R | 310 | R | 315 | 275 | 300 | R | R | R | 260 | J245R | J250S | 290 | 345 | J330S | J310F |
| 3 | J320F | J305S | 305 | 295 | A | A | A | A | A | 300 | 285R | 295R | 305 | 305 | U325R | 300R | U275R | U265R | 260 | U270R | 295 | U350R | U350R | U350R |
| 4 | U345R | U300R | 340R | 260 | 315 | 330 | 305 | 260 | 270 | U280R | 295 | 315 | 320 | 310 | 320 | 290 | 280R | 275 | 260 | 270 | 310 | 355R | U375R | U380R |
| 5 | 360R | U330R | 330 | 320 | 275 | 290 | 240 | 240 | 260 | 320R | 325 | 305 | 295 | 290 | 315 | 325 | U300R | U260R | I255S | 240R | C | 370 | 360 | U345F |
| 6 | 335R | U335R | 295 | 245 | 295 | 300 | 245 | U245R | 270 | 295 | 325 | 305R | 335R | U310R | 310 | 305 | U295R | U275R | U270R | U270R | 270 | 345 | 350R | U335R |
| 7 | 345 | 355 | U350R | 260 | 285 | 320 | 245 | 250 | 295 | 300R | 290R | 300 | 325R | 325 | U295R | U290R | 305 | 280 | 305 | 275 | 295 | 350 | U355R | I350R |
| 8 | 355 | U350R | 325 | 265 | 335 | 320 | 250 | 270 | 280 | 270 | 300 | U320R | 330 | U315R | U300R | U295R | U275R | 275 | 275 | 260 | 320 | 370 | 370 | U390R |
| 9 | 340R | R | U325R | 285R | 285 | 340 | 260 | 255 | 285 | 305 | 325 | 295R | U300R | U305R | 340R | 330R | 270R | 255 | 255S | 290R | 325 | 355 | 390R | 375R |
| 10 | 350 | 335 | 330 | 295 | 275 | 300 | 255R | 265 | 270 | 305 | 300 | 340R | 345 | 305 | 305 | 290 | U285R | U280S | I275R | U275R | 255 | 360R | U390R | U360R |
| 11 | 345R | 350R | U295R | A | A | 325 | 260 | 260 | 290R | A | 300 | 335 | 315 | 305 | 290 | 280 | 290 | 300 | 315 | U295R | 290 | 295R | I350A | U350R |
| 12 | U350R | U335R | U380R | U350R | 295 | 330R | 275 | U270R | 255 | 290R | U260R | U300R | 315 | 310 | 345 | 320 | 290 | U275R | U285R | U260R | 275 | 425 | 395R | 370 |
| 13 | 360R | 340 | 295 | 220 | 340F | 315 | U255R | 255 | 290 | 275 | 305 | U325R | I340R | 320 | 300 | 280 | 285 | 300 | 295 | 295R | 270 | 330 | U335R | 355 |
| 14 | 375 | 350 | 300 | 225 | 375 | 300 | 265 | 270 | 300 | 305R | U300R | 315 | 295R | U315R | 320R | 310 | 290 | U265R | I275R | 270S | 270R | 350 | 355 | 355 |
| 15 | 345 | 320 | 280R | 250 | 340 | 290 | 255 | 275 | 320 | 330 | 305R | 320 | 315 | 300 | I300R | 275 | 295 | I300C | 300 | 295S | 290S | 320 | 325 | I360S |
| 16 | 365S | 340 | U320S | 220S | 335 | 295 | 270 | 260 | 285 | 315R | 330 | 320 | 335 | 325 | 330 | 300 | 315R | 290R | 265S | 275 | 300 | 350 | 355 | U345R |
| 17 | 345 | 340 | 325 | 295 | 285 | 295 | 250 | 260 | 275 | 295 | 305 | 325 | 330 | 300 | 315 | 305 | 300 | 300 | U275S | U290S | 285 | U355S | U345S | 335S |
| 18 | U355S | U370S | U380S | U345S | 335 | 305 | 245 | 270 | 255 | 315 | 350 | 365 | 360 | 335 | 360 | 350 | 350 | 340 | 325 | 315 | U340S | 385 | 435 | 285R |
| 19 | 335 | 335 | 390 | 375 | 300 | 300 | 320 | 460 | A | 480 | A | R | A | R | R | R | 415 | 330R | 320 | U355R | 345S | 395S | U370S | U370S |
| 20 | 370S | 335 | 335S | 370S | 345 | 300 | 270 | 305R | 330 | 385 | 315 | 395 | 415 | 335R | 330 | 325 | 305 | 305 | 305 | 285 | 275 | 395S | U400S | U380S |
| 21 | 385S | 365 | 285 | 275S | 375 | 300 | 275 | 280R | 300 | 305 | 305 | 325 | 315 | 325 | 330 | 300 | 300 | 270 | 275 | U275S | 340 | 365 | 340 | 330 |
| 22 | 360 | 385 | 305 | 320 | 365 | 295 | 270 | 270 | 305 | 300 | 310 | 320 | 335R | 305 | 295 | 295 | 280 | 310 | 305 | 275 | 315 | 350 | 365 | U370S |
| 23 | U355S | U335S | U335S | 295 | 295S | 265 | 245 | 260 | 280 | 290 | 325 | 340 | 315 | 320 | 300 | 305 | 300 | 290 | 310 | U295S | 260 | 340 | 350 | 345 |
| 24 | 350 | 350 | 350 | 275 | 300 | 305 | 270 | I270C | 275 | 295 | C | 335R | 320 | 340 | 305R | 305 | 275 | 295 | 310 | U290S | S | A | A | A |
| 25 | A | U375S | 340S | 285S | 380S | 280 | 250 | 255 | A | A | 310R | I330R | A | A | 330R | 325 | 290 | 280 | U260R | 270 | 300 | 350S | U390S | U365S |
| 26 | U385S | U345S | 345 | 285 | 330F | 265 | 270 | 285R | U270R | 275 | A | A | U345R | 350 | 355 | 305 | U295R | 290 | 290S | U265S | 245 | 375 | I360A | 360S |
| 27 | 355S | 370 | 340F | 300R | 305R | 275R | 255R | 255 | 270 | 305 | 315 | 350 | 330 | 370 | 355 | 315 | 295 | U265S | A | A | 345 | 355 | U345S | U370A |
| 28 | I360A | I330S | U320S | 275R | 270 | 300 | 285 | 305 | 300 | 305 | 280R | 310R | 290 | R | 315 | 310R | 275 | 300 | U295R | 270S | 265S | 315 | 355 | 340S |
| 29 | 330 | 345 | 335 | 315 | 295 | 250 | 235 | U250R | J290R | 295 | 290 | 300 | R | 325 | 335R | 300 | 290 | 290 | 285 | 300 | 295 | 290S | U340R | U350F |
| 30 | U335F | 335 | J335S | 290R | 270 | 265 | U270R | 270 | 255 | C | 315R | A | 390 | 400 | 350 | 315 | A | 265 | A | A | 290 | 340 | 375 | 340 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 30 | 29 | 28 | 29 | 29 | 29 | 27 | 27 | 25 | 27 | 27 | 26 | 27 | 28 | 27 | 30 | 28 | 28 | 28 | 29 | 28 | 28 |
| Median | 350 | 340 | 330 | 285 | 310 | 300 | 255 | 270 | 280 | 300 | 305 | 320 | 320 | 315 | 320 | 305 | 290 | 280 | 280 | 275 | 290 | 350 | 355 | U350 |
| 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

47

# IONOSPHERIC DATA

Apr. 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 | U050R | 050 | U045R | 055R | 050 | 070 | 050 | 060 | 045 | 040 | R | 050 | 040R | R | R | 065 | R | U060S | 050 | 060 | 080 | 050 | S | F |
| 2 | J070F | J095F | J055F | 070 | 050 | 060 | 045 | 060 | 060R | 060 | R | 080 | 050 | 055 | R | R | R | 050 | J050R | J060S | 050 | 055 | J060S | J060F |
| 3 | J075F | J050S | 045 | 045 | A | A | A | A | A | 040 | 040R | 055R | 055 | 045 | U050R | 050R | U055R | U060R | 050 | U060R | 045 | U055R | U050R | U050R |
| 4 | U045R | U050R | 040R | 055 | 065 | 050 | 050 | 045 | 055 | U050R | 040 | 055 | 050 | 060 | 050 | 055 | 055R | 045 | 040 | 040 | 050 | 050R | U045R | U045R |
| 5 | 045R | U055R | 050 | 050 | 045 | 050 | 050 | 045 | 045 | 055R | 045 | 065 | 060 | 060 | 050 | 050 | U050R | U045R | I045S | 050R | C | 050 | 045 | U045F |
| 6 | 040R | U040R | 045 | 045 | 055 | 050 | 045 | U055R | 045 | 055 | 045 | 045R | 055R | U040R | 045 | 045 | U050R | U050R | U055R | U060R | 045 | 045 | 050R | U050R |
| 7 | 055 | 045 | U055R | 045 | 055 | 040 | 050 | 045 | 045 | 050R | 045R | 045 | 050R | 055 | U055R | U045R | 050 | 045 | 045 | 050 | 050 | 045 | U050R | I045R |
| 8 | 045 | U050R | 050 | 040 | 045 | 050 | 050 | 040 | 045 | 055 | 045 | U055R | 050 | U055R | U050R | U050R | U050R | 050 | 045 | 045 | 040 | 040 | 040 | U045R |
| 9 | 055R | R | U055R | 055R | 065 | 055 | 045 | 045 | 055 | 045 | 050 | 050R | U045R | U045R | 050R | 050R | 070R | 050 | 050S | 055R | 050 | 050 | 060R | 050R |
| 10 | 050 | 055 | 050 | 055 | 055 | 050 | 055R | 050 | 045 | 045 | 050 | 050R | 050 | 070 | 065 | 065 | U065R | U060S | I060R | U070R | 050 | 050R | U060R | U050R |
| 11 | 055R | 050R | U065R | A | A | 055 | 055 | 050 | 050R | A | 050 | 045 | 060 | 070 | 060 | 050 | 050 | 050 | 045 | U050R | 050 | 045R | I050A | U050R |
| 12 | U050R | U065R | U050R | U055R | 050 | 055R | 045 | U055R | 045 | 050R | U060R | U050R | 055 | 060 | 055 | 055 | 055 | U055R | U055R | U065R | 050 | 080 | 075R | 055 |
| 13 | 055R | 055 | 060 | 055 | 060F | 065 | U055R | 045 | 040 | 050 | 045 | U050R | I055R | 050 | 060 | 060 | 055 | 050 | 055 | 060R | 050 | 045 | U060R | 050 |
| 14 | 050 | 055 | 060 | 060 | 065 | 065 | 050 | 060 | 050 | 050R | U055R | 050 | 055R | U045R | 050R | 060 | 050 | U065R | I060R | 045S | 050R | 050 | 045 | 050 |
| 15 | 055 | 055 | 050R | 050 | 060 | 040 | 050 | 045 | 050 | 065 | 045R | 065 | 075 | 075 | I055R | 065 | 050 | I055C | 060 | 050S | 060S | 055 | 055 | I060S |
| 16 | 060S | 060 | U060S | 040S | 065 | 045 | 050 | 060 | 055 | 045R | 045 | 055 | 070 | 075 | 075 | 060 | 050R | 055R | 060S | 055 | 045 | 060 | 055 | U065R |
| 17 | 055 | 070 | 050 | 055 | 065 | 055 | 055 | 050 | 050 | 050 | 045 | 060 | 055 | 050 | 050 | 055 | 050 | 045 | U055S | U050S | 045 | U055S | U050S | 045S |
| 18 | U055S | U055S | U050S | U055S | 050 | 065 | 050 | 050 | 050 | 045 | 065 | 060 | 070 | 075 | 060 | 060 | 075 | 070 | 080 | 070 | U060S | 065 | 065 | 055R |
| 19 | 055 | 065 | 050 | 075 | 055 | 055 | 055 | 070 | A | 070 | A | R | A | R | R | R | 090 | 065R | 060 | U065R | 050S | 060S | U070S | U080S |
| 20 | 070S | 065 | 065S | 055S | 055S | 060 | 060 | 045R | 065 | 055 | 060 | 045 | 085 | 065R | 065 | 065 | 050 | 055 | 050 | 065 | 065 | •065S | U070S | U050S |
| 21 | 065S | 065 | 075 | 060S | 075 | 050 | 050 | 050R | 050 | 050 | 050 | 050 | 065 | 055 | 050 | 050 | 045 | 055 | 055 | U070S | 060 | 060 | 060 | 055 |
| 22 | 055 | 055 | 055 | 055 | 055 | 055 | 065 | 050 | 050 | 050 | 050 | 065 | 060R | 055 | 060 | 050 | 055 | 050 | 050 | 065 | 045 | 050 | 050 | U055S |
| 23 | U065S | U055S | U065S | 065 | 055S | 055 | 055 | 045 | 050 | 045 | 050 | 055 | 065 | 055 | 045 | 050 | 050 | 055 | 055 | U055S | 060 | 050 | 055 | 055 |
| 24 | 055 | 050 | 050 | 055 | 050 | 055 | 055 | I050C | 050 | 050 | C | 065R | 050 | 060 | 055R | 055 | 055 | 055 | 050 | U060S | S | A | A | A |
| 25 | A | U065S | 060S | 065S | 070S | 070 | 050 | 055 | A | A | 040R | I050R | A | A | 070R | 060 | 060 | 060 | U065R | 055 | 050 | 055S | U060S | U055S |
| 26 | U065S | U065S | 070 | 055 | 070F | 055 | 055 | 060R | U060R | 055 | A | A | U050R | 045 | 045 | 045 | U055R | 060 | 055S | U070S | 045 | 075 | I060A | 055S |
| 27 | 070S | 055 | 060F | 050R | 055R | 060R | 055R | 055 | 050 | 045 | 045 | 050 | 065 | 060 | 070 | 070 | 055 | U065S | A | A | 055 | 050 | U065S | U060A |
| 28 | I055A | I060S | U065S | 065R | 055 | 040 | 055 | 050 | 050 | 045 | 050R | 050R | 055 | R | 055 | 060R | 045 | 055 | U055R | 070S | 065S | 055 | 050 | 060S |
| 29 | 055 | 055 | 055 | 055 | 050 | 055 | 060 | U050R | J050R | 050 | 040 | 050 | R | 050 | 060R | 050 | 060 | 050 | 055 | 055 | 050 | 050S | U060R | U060F |
| 30 | U065F | 065 | J065S | 050R | 065 | 055 | U065R | 055 | 050 | C | 075R | A | 040 | 050 | 050 | 075 | A | 075 | A | A | 060 | 060 | 075 | 060 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 29 | 30 | 29 | 28 | 29 | 29 | 29 | 27 | 27 | 25 | 27 | 27 | 26 | 27 | 28 | 27 | 30 | 28 | 28 | 28 | 29 | 28 | 28 |
| Median | 055 | 055 | 055 | 055 | 055 | 055 | 050 | 050 | 050 | 050 | 045 | 050 | 055 | 055 | 055 | 055 | 055 | 055 | 055 | 060 | 050 | 050 | 060 | U055 |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

ypF2

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

The Radio Research Laboratories, Japan

K 14

# IONOSPHERIC DATA

Apr. 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 | I032S | I036S | I045S | S | 022S | 021 | 029 | I046S | 056 | I062S | I069S | J085S | J095S | I093S | I094S | J094S | I089S | I088S | I071S | I049S | 031S | 029 | 032 | I033S |
| 2 | I034S | I035S | 036S | J040S | 025H | 024S | I032S | J049S | 054 | I063S | I075S | J082S | J094S | 091S | 087S | 086S | J083S | J078S | I063S | 045S | 031 | 030S | 031S | I032S |
| 3 | 033S | 032S | 032S | J036S | 024 | 020 | I031S | I047S | 060S | 064 | I072S | 075S | I077S | 095S | J102S | I076S | S | S | J060S | I049S | I039S | 029S | I033S | I033S |
| 4 | 033S | 032S | I032S | 032S | 028S | 023S | 034S | 047S | 055 | 057 | 066 | 066 | J087S | J103S | J102S | 097S | J097S | J098S | I079S | 054S | 040S | 031S | I031S | S |
| 5 | S | S | 031S | I033S | 033 | 020 | 031S | 047S | 055 | 066 | I081S | 089 | J100S | J100S | J098S | I095S | I092S | S | S | S | I043S | S | S | J037S |
| 6 | J037S | S | S | 045S | 024 | J018S | 033S | J041S | 057 | 061S | J061S | J070S | I093S | J103S | 112 | 109 | J101S | S | S | 058S | S | S | S | S |
| 7 | S | S | 033S | I032S | S | A | 033 | J049S | 056 | I067S | J080S | 068 | J079S | I092S | 096S | J080S | J077S | S | S | S | S | I055S | I046S | I045S |
| 8 | I042S | I041S | I049S | 054S | 028 | 020 | I037S | 052 | I062S | I068S | 067 | I073S | J078S | J090S | 095 | 094S | J084S | 069S | I076S | I062S | I041S | 035S | I036S | I035S |
| 9 | I034S | 032S | I033S | I031S | 018 | 019 | 036S | I048S | 055 | 067 | J080S | I076S | 079S | 085S | 090 | J100S | U090S | I081S | 064 | A | S | I037S | I038S | I040S |
| 10 | I040S | I039S | 042S | 049S | I030A | 020 | 036 | 050 | I058S | 065 | I068S | U071S | 086S | 098S | 092 | J082S | I078S | I081S | S | I067S | I045S | I035S | 036S | I037S |
| 11 | S | S | S | 039 | 019H | 019S | I033S | J051S | I063S | U066S | I074S | J083S | J091S | 100S | J106S | J099S | J085S | I070S | I081S | I088S | I070S | I048S | 036 | 038S |
| 12 | I037S | I036S | I038S | I037S | 028F | J026S | I041S | I059S | I060S | 062 | 060S | 063 | J081S | 087 | I080S | 086S | I092S | I093S | 085S | J064S | 056 | I051S | S | S |
| 13 | S | S | J054S | I040S | 020S | 021 | 037S | 057 | 056 | 063 | 064 | 075S | I095S | 109S | 106 | J083S | 065 | 063 | J081S | J081S | I060S | S | S | S |
| 14 | I039S | I038S | 042S | S | 020 | J016S | I034S | J052S | 065 | U070S | 078S | J098S | 114S | 116 | 108 | J101S | I099S | I093S | I083S | I072S | 059S | J044S | J042S | S |
| 15 | S | I048S | I046S | J038S | S | 020 | I036S | J052S | 065 | I074S | J084S | I092S | J099S | J101S | 092 | J082S | J079S | I074S | I078S | I076S | I059S | I046S | I039S | I040S |
| 16 | 038S | 040S | I037S | I031S | 021 | 022 | I040S | 061S | 060 | 072S | 068S | J077S | I093S | J103S | J101S | J099S | 086S | J080S | I080S | J080S | I061S | I044S | I040S | I041S |
| 17 | I041S | I040S | 037S | 043S | 031S | 026S | I041S | 054 | 062S | 063S | 067S | 078 | J090S | I095S | J092S | 077S | I071S | S | S | S | I060S | J050S | S | S |
| 18 | S | S | S | U042S | I035S | J025A | 042S | 055 | 053 | 064 | 076S | J085S | J104S | I116S | 116 | 114 | I124S | S | J111S | S | S | S | 059S | J060S |
| 19 | J052S | I036S | 031 | J036S | I036S | 031 | I046S | 053 | 055 | 054 | I050S | A | A | 054 | I049A | J049S | 050S | 051 | 050 | I050A | S | A | S | S |
| 20 | I038S | I039S | I037S | I036S | I034S | 030S | 040S | J047S | 057S | 060S | 058 | 059S | 071S | J084S | 092S | 085S | 067 | 055 | 058 | I069S | 057S | 040 | I041S | 039 |
| 21 | I039S | 036 | 038 | 034 | 021F | I021S | 038 | 052 | I061S | 066 | 071S | 072 | 083 | J081S | J076S | 071S | J064S | 058 | 064S | 067S | J050S | S | S | S |
| 22 | 046S | I044S | 039 | 036 | 032 | 030 | 040 | 060S | 060S | I071C | 067 | 074S | J083S | 090S | 085 | 080S | 069S | 066 | I076S | I075S | 059S | I048S | 043S | I044S |
| 23 | 046S | I042S | I040S | I041S | 038 | 023 | 041 | 055H | 057 | 069S | 070S | I076S | 079S | J083S | J081S | I074S | I076S | I068S | I066S | I063S | U062S | S | S | S |
| 24 | S | S | I043S | I044S | J034S | 030S | I044S | I058S | 062 | 069S | 067 | 072S | J080S | 090S | J088S | 089S | J085S | 069S | I063S | J084S | I061S | 034S | 030S | S |
| 25 | S | I034S | S | S | F | 025S | 055 | 060S | 054 | I061A | 059 | 065 | 074 | J085S | 092S | J103S | J088S | 068S | J066S | I063S | 060S | I051S | A | S |
| 26 | S | 044 | I041S | J038S | 033S | 028S | 042 | 053 | 060S | I058A | 060 | 068 | J080S | J082S | J077S | J082S | J083S | 070S | I077S | I068S | 055S | 041S | I040S | S |
| 27 | S | S | S | S | I041S | 023H | 039S | 056S | 055 | 056 | 059 | 069 | I077S | J084S | 093S | I094S | I095S | 089S | 066S | I062S | 041 | J039S | I039S | I039S |
| 28 | J040S | J041S | J038S | I037S | 030 | 027 | 042 | 058 | 064 | 065 | 070S | 072S | J080S | J082S | 074S | J077S | J081S | I077S | I077S | J081S | I064S | U043S | U035S | I036S |
| 29 | 035S | I035S | I033S | 031S | I030S | 029 | I043S | 051S | 052 | 057 | I062S | 058 | 066 | 070 | I075S | J076S | 072S | 064 | I061S | 065 | I058S | I041S | I036S | I038S |
| 30 | S | S | S | 033S | 027 | F | 047S | 057 | 058 | 055 | 058 | 065S | J081S | 086 | I095S | I097S | I092S | A | A | 066S | 056 | S | A | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 19 | 21 | 24 | 26 | 27 | 28 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 30 | 29 | 23 | 24 | 25 | 25 | 22 | 20 | 17 |
| Median | U038S | U038S | U038S | 037S | 028 | 023 | 038S | 052S | 058 | 064 | 068S | 073S | J083S | 090S | 092S | 086S | 084S | 070S | U074S | U066S | U057S | U041S | U037S | U038S |
| U. Q. | U041 | U041 | U042 | 041 | 033 | 026 | 042 | 057 | 061 | 067 | 074 | 080 | J094 | 100 | 101 | 097 | 092 | 081 | U080 | U076 | U060 | U048 | U040 | U040 |
| L. Q. | 034 | U035 | 033 | 033 | 022 | 020 | 034 | 049 | 055 | 061 | 061 | 068 | 079 | 084 | 085 | 080 | 074 | 066 | 064 | 060 | 042 | 035 | U034 | U036 |
| Q. R. | 007 | 006 | 009 | 008 | 011 | 006 | 008 | 008 | 006 | 006 | 013 | 012 | 015 | 016 | 016 | 017 | 018 | 015 | 016 | 016 | 018 | 013 | 006 | 004 |

foF2

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 1

# IONOSPHERIC DATA

Apr. 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 | 430L | 440 | 450H | 450 | 460 | 450 | 440 | 420 | L | | | | | | |
| 2 | | | | | | | | | L | 430 | 440 | 460 | 450 | 450 | 440 | 430 | 410 | L | | | | | | |
| 3 | | | | | | | | | L | 440L | 440 | 450 | 450 | 440 | 440 | A | A | A | | | | | | |
| 4 | | | | | | | | | L | 440 | 440 | 450 | 430 | 440H | 440 | 440 | 420 | L | | | | | | |
| 5 | | | | | | | | | L | 430 | 440 | 450 | 440 | 450 | 450 | I430A | 410 | L | L | | | | | |
| 6 | | | | | | | | | L | 430 | I440A | 460H | I450A | I450A | 440 | I440A | 420H | L | | | | | | |
| 7 | | | | | | | | | L | 420 | 430 | 450 | 450 | 440R | 450 | 440 | L | L | | | | | | |
| 8 | | | | | | | | | L | L | 440S | 450S | 450 | 450S | 440H | 430 | L | L | | | | | | |
| 9 | | | | | | | | | | 430 | A | A | 460 | 450 | I440A | I420A | LH | A | | | | | | |
| 10 | | | | | | | | | L | 430 | 450R | 450H | 440 | 450 | 440 | 430 | A | A | | | | | | |
| 11 | | | | | | | | | L | 430L | I450A | 430 | I440A | 460 | 460 | 450 | L | L | L | | | | | |
| 12 | | | | | | | | | | A | 450L | 450 | 460 | 450 | 440 | 440 | L | A | L | | | | | |
| 13 | | | | | | | | | L | 430L | L | A | 460H | 460 | 440 | 430 | 410L | L | L | | | | | |
| 14 | | | | | | | | | L | 440 | 450 | 470R | I450A | 450R | 450 | 450 | 410 | L | | | | | | |
| 15 | | | | | | | | | L | 430 | 450 | 440 | 450R | 440 | 450H | 460 | L | L | | | | | | |
| 16 | | | | | | | | | L | LH | 470 | 470 | 450H | 470R | 460H | 440 | 410 | L | L | | | | | |
| 17 | | | | | | | | | L | 430 | 440 | 490 | 470 | 470 | 450 | 440 | 410 | A | | | | | | |
| 18 | | | | | | | | | | 450 | 440H | 490 | 470 | I470A | 450R | 460 | 450L | L | L | | | | | |
| 19 | | | | | | | | | 380 | 400 | I410S | A | A | A | A | I420R | 390 | A | | | | | | |
| 20 | | | | | | | | | 400 | 420 | 430 | 440 | 460R | 440 | 430 | 430 | 400 | L | | | | | | |
| 21 | | | | | | | | | L | 430 | 440 | 450 | 440H | 450H | 440 | I430A | 410 | L | | | | | | |
| 22 | | | | | | | | L | L | I420C | 450 | 450 | 460 | 450H | 450H | 430 | 420H | L | L | | | | | |
| 23 | | | | | | | | | L | 430 | 450 | 450 | 460 | 450 | A | A | A | A | | | | | | |
| 24 | | | | | | | | L | L | 410 | 460 | 450 | 460 | 440 | A | A | A | A | | | | | | |
| 25 | | | | | | | | | | A | A | A | A | A | A | 420 | 410 | A | | | | | | |
| 26 | | | | | | | | | A | A | A | A | A | A | 440 | A | 410 | 400 | | | | | | |
| 27 | | | | | | | | | L | 430 | 450 | 430 | 440H | I460H | 430 | 420 | A | A | | | | | | |
| 28 | | | | | | | | L | L | I420A | 440 | 470 | 450 | 450H | 440 | A | A | A | | | | | | |
| 29 | | | | | | | | | L | 410 | 430 | 460 | 440H | 440 | 430 | 420 | 420 | L | A | | | | | |
| 30 | | | | | | | | | L | 420 | 440 | 460 | A | A | A | A | A | A | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 2 | 25 | 26 | 25 | 26 | 26 | 25 | 24 | 17 | 1 | | | | | | |
| Median | | | | | | | | | 390 | 430 | 440 | 450 | 450 | 450 | 440 | 430 | 410 | 400 | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foF1

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

# IONOSPHERIC DATA

Apr. 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 | | | | | | | E160S | 220H | 250 | 290 | 305 | 315R | 320 | 310 | 310R | 305 | 275H | 250 | 175 | | | | | |
| 2 | | | | | | | E170S | 180 | 245 | 290 | R | R | 320R | I320R | 310 | I300R | 275 | 240 | E160S | | | | | |
| 3 | | | | | | | E180S | 180 | 250 | 290 | 310 | 330 | 340 | 340 | A | A | A | A | E170S | | | | | |
| 4 | | | | | | | E170S | 200 | 250 | 290 | I305A | I320R | I325R | I325R | 310R | 300 | 270 | 230 | E170S | | | | | |
| 5 | | | | | | | E160S | 200 | 250 | 290 | 310 | R | R | R | I315R | 300 | 280 | 250 | 175 | | | | | |
| 6 | | | | | | | E160S | 200 | 260 | 290 | 310 | 310 | 325 | 310R | A | A | 280 | A | E170S | | | | | |
| 7 | | | | | | | E160S | 215 | 250R | 295 | R | R | R | R | R | 305 | 280 | A | E160S | | | | | |
| 8 | | | | | | | E180S | 205 | 260 | 290 | R | E370S | R | I330S | I315R | I305R | 280 | 250 | E160S | | | | | |
| 9 | | | | | | | E170S | 215 | 260 | 295 | I315R | I320R | R | R | 330R | 310 | 280 | 245 | 180 | | | | | |
| 10 | | | | | | | E160S | 210 | 250 | I290R | I305R | I315R | 330R | R | R | I310R | 280 | 245H | 175 | | | | | |
| 11 | | | | | | | E160S | 205 | 265 | 290 | 305 | 310R | I310R | A | R | 300 | 270 | 250 | 190 | | | | | |
| 12 | | | | | | | E170S | 220 | 270 | 280 | 300R | R | R | A | R | A | 290 | 250 | 190 | | | | | |
| 13 | | | | | | | E160S | 205 | 260 | 295R | 310 | 320 | A | R | R | I300R | 280 | 260 | 195 | | | | | |
| 14 | | | | | | | E160S | 220 | 270 | 300 | A | A | 330R | R | R | R | 280 | 250 | 185 | | | | | |
| 15 | | | | | | | E160S | 220H | 260 | I295A | R | A | I310R | I320R | I325R | 300R | 280H | 245 | 190 | | | | | |
| 16 | | | | | | | E160S | 205 | 270 | 300 | 300 | 320 | R | R | R | 305 | 280 | 250 | 200 | | | | | |
| 17 | | | | | | | E170S | 210 | 260 | 285 | R | R | R | R | 325 | 320 | 300 | 270 | 190 | | | | | |
| 18 | | | | | | | E160S | 220S | 260 | 280R | R | I305R | I310R | I320R | 325 | 310 | 285 | 250 | E170S | | | | | |
| 19 | | | | | | | E170S | 220 | 250 | 290 | 300 | 310R | A | A | A | I310R | 285 | 250 | 190 | | | | | |
| 20 | | | | | | | E170S | 200 | 255 | 280 | 305 | A | A | A | A | A | 290 | 250 | 185 | | | | | |
| 21 | | | | | | | E160S | 220 | 260 | 290 | 300R | A | R | A | A | A | A | 250 | 195 | | | | | |
| 22 | | | | | | | E170S | 220H | 270 | I290C | 310 | 320 | 310 | I310R | 320R | I305R | 290 | 240 | 190 | | | | | |
| 23 | | | | | | | E170S | 210 | 260 | 290 | A | A | A | A | R | I320R | 285 | 250 | 190 | | | | | |
| 24 | | | | | | | E170S | 230 | 270 | 295 | 315R | 330 | I335R | 345R | I330R | 310R | 285 | 245 | 185 | | | | | |
| 25 | | | | | | | E160S | 225 | 260 | 300R | 315 | R | R | R | 320R | I310R | 290 | 245 | 190 | | | | | |
| 26 | | | | | | | E160S | 225 | 270 | U295S | I300R | 310 | I310R | I320R | 320 | I310R | 300 | 260 | 200 | | | | | |
| 27 | | | | | | | E170S | 235 | 280 | 300 | 310 | R | R | R | R | R | 300R | 255 | 200 | | | | | |
| 28 | | | | | | | E170S | 245 | 280 | 295 | 310R | 325R | 340R | R | I330R | I315R | 290 | 255 | 195 | | | | | |
| 29 | | | | | | | E170S | I215S | 260 | 290 | 305 | 310 | A | A | R | I305R | 295R | 255 | 190 | | | | | |
| 30 | | | | | | | E170S | 240 | 270 | 300 | 310 | 320 | I340A | 340 | 345R | 320R | 295 | 260 | 185 | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | 30 | 30 | 30 | 30 | 22 | 18 | 15 | 12 | 15 | 23 | 28 | 27 | 30 | | | | | |
| Median | | | | | | | E170S | 215 | 260 | 290 | 310 | 320 | 325R | U320R | 320R | 305R | 280 | 250 | 190 | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

foE

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 3

# IONOSPHERIC DATA

Apr. 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 | E017S | E018S | E017S | E017S | E017S | E017S | E016S | 024 | 029 | 033 | 036 | 034 | 037 | 038 | G | G | 021G | 027 | J029 | J037 | J024 | E017S | E018S | E018S |
| 2 | E018S | E016S | E018S | E009B | E009B | E017S | E017S | 026 | 029 | 032 | 034 | 036 | 037 | 036 | G | G | G | G | 019 | E016S | E017S | E017S | E017S | E018S |
| 3 | E017S | E018S | E018S | E017S | E017S | E017S | E018S | 023 | 030 | 037 | 038 | 044 | 044 | J052 | 084M | J058 | 060M | 064M | J052 | J038 | J021 | 021M | J022 | J025 |
| 4 | 022 | 021M | E017S | E010B | E017S | E017S | J018S | 027 | 032 | 035 | 034 | 040 | 043 | 036 | 039 | 035 | J038 | 029 | 022 | 022M | 022M | 020M | E017S | 021M |
| 5 | E018S | 021M | 024 | J027 | J026 | J022 | E016S | G | G | 035 | 044 | 045 | 044 | 041 | 048 | 043 | 041 | G | 032M | J026 | 023M | 024M | 024M | E017S |
| 6 | 022M | E016S | E017S | 023M | 021M | 021M | J021 | 025 | 035 | 041 | J052 | 038 | J052 | J052 | J042 | J050 | 027G | 033 | J040 | J024 | J025 | 044M | 022M | 021M |
| 7 | E017S | E016S | J026 | 020M | J021 | 028M | J021 | 029 | 034 | 035 | 040 | 040 | 031G | 038 | 040 | 040 | J039 | 034 | 021 | 022M | 020M | 020M | 020M | 023M |
| 8 | 021M | 020M | E015S | 026 | 022M | 022M | E018S | 025 | 031 | 036 | 030G | E037S | G | 044 | G | G | 032 | 031 | 029 | J037 | 032 | J021 | E019S | 021M |
| 9 | J021 | E019S | E018S | E017S | E016S | E016S | 023M | 025 | 032 | 043 | 045 | J051 | G | 040 | 051 | 043 | 031 | 036 | J053 | J060 | 067M | 032M | J025 | 022M |
| 10 | E017S | E016S | J036 | J037 | 057M | J026 | J029 | J037 | 032 | 034 | 030G | 030G | 029G | 028G | 039 | 042 | J052 | J046 | 032 | J016S | E017S | E017S | 021M | 027M |
| 11 | 023M | 020M | 021M | E009B | E009B | E015S | 019 | 026 | 030 | 040 | 046 | J048 | 046 | 033 | 021G | 023G | G | 032 | 029 | 025M | 020M | 020M | E017S | 027M |
| 12 | 020M | 028M | 025M | E009B | E008B | 020M | J018S | 026 | 029 | 041 | J047 | 038 | G | 040 | 028G | 041 | 036 | 041 | 027 | 020M | E017S | E018S | E018S | 021M |
| 13 | 024M | E017S | 020M | J021 | 021M | E016S | 017 | 023 | 029 | 032 | 040 | J049 | 035 | 030G | 027G | 024G | G | 030 | 025 | 026 | J020 | E017S | J025 | 020M |
| 14 | E018S | E018S | E019S | E015S | E017S | E019S | 020 | 028 | 035 | 038 | 034 | 038 | J121 | 040 | 030G | 036 | 034 | 031 | 032 | J030 | J038 | J032 | J025 | J026 |
| 15 | 023M | 024M | E017S | 021M | S | E016S | 020 | 032 | 032 | 032 | 028G | J039 | 026G | 022G | G | 027G | G | 020G | 029 | J021 | J022 | 021M | 022M | E018S |
| 16 | E017S | E018S | E017S | E017S | E016S | E016S | 020 | 027 | 029 | 034 | 033 | G | G | 027G | 027G | 023G | 020G | G | G | 019 | 020M | E017S | E017S | E017S |
| 17 | E018S | E017S | E017S | E009B | E010B | E017S | E017S | 029 | 032 | 035 | 034 | 029G | 035 | 027G | G | 043 | J045 | J053 | 035 | J038 | 058M | 057M | 043M | J025 |
| 18 | J038 | J021 | J026 | J026 | J036 | 026M | 020 | 030 | 040 | 040 | 038 | 038 | 041 | J052 | 041 | 038 | 030 | 027 | 020 | 020 | J024 | 027M | 021M | E018S |
| 19 | 023M | E016S | 019M | 024M | 024M | J019 | E017S | 032 | 032 | 039 | 040 | 060 | 120 | J066 | 125M | G | 041 | 040 | J041 | J052 | J030 | 058M | J026 | J025 |
| 20 | J026 | 022M | 029 | J020 | J020 | 024M | 020 | 030 | 030 | 039 | 037 | 036 | 033 | 040 | J050 | 034 | 032 | 030 | J038 | J046 | J025 | J022 | 024M | J027 |
| 21 | J036 | 024M | 025M | E010B | 021M | 021M | 021 | 027 | 030 | 041 | 038 | 035 | 029G | J037 | 040 | J048 | J043 | 029 | 041 | J046 | 052M | 039M | J026 | 021 |
| 22 | E017S | 025M | 024M | J020 | E010B | E017S | 021 | 025 | 030 | C | G | G | G | 038 | G | 035 | G | G | 025 | 021 | 021M | E016S | 021M | E017S |
| 23 | E017S | E017S | E018S | E009B | E010B | E017S | 020 | 026 | 027 | 033 | 032 | 033 | 037 | 038 | 044 | 053 | J061 | 060 | J036 | 020 | J021 | J020 | E018S | E017S |
| 24 | E017S | E018S | E017S | E017S | E009B | E017S | 021 | 030 | 030 | 033 | 037 | 040 | 041 | 043 | 053 | 048 | 045 | J052 | J057 | J030 | J022 | J021 | 023 | 021 |
| 25 | J022 | J024 | 025M | 024M | E009B | E017S | 025 | 034 | J052 | J061 | J052 | J058 | 050 | 044 | J054 | 038 | 037 | J044 | J037 | J025 | J022 | J037 | J051 | 042M |
| 26 | 022M | J026 | 021M | E016S | E017S | E017S | E016S | 028 | J050 | J065 | J054 | J053 | 054 | J053 | 041 | 041 | 040 | 039 | 038 | J052 | J037 | J021 | J027 | J022 |
| 27 | 022M | E017S | E017S | E017S | 024M | 021M | 021 | 035 | 035 | 038 | 041 | 029G | 037 | 030G | 040 | 038 | J061 | 059 | J046 | J040 | J027 | 025 | 023M | 022M |
| 28 | 021M | E017S | 025M | E017S | 021M | 022M | 023 | 030 | 040 | J051 | 036 | 035 | G | G | 043 | 048 | 049 | J053 | J065 | J041 | J029 | J055 | 024M | 021M |
| 29 | 021M | 023 | J023 | 022M | E012B | E018S | 020 | 030 | 037 | 039 | 034 | 034 | 037 | 034 | 028G | G | 035 | 033 | J048 | 039M | J028 | 024 | E016S | E017S |
| 30 | E016S | E016S | E016S | 023M | 020M | E016S | 022 | 032 | 037 | 044 | 037 | 035 | 053 | 044 | J054 | J068 | 065 | 084M | 084 | 058M | 035M | 032M | 057M | 028 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Median | 021 | E018S | E019S | E017 | E017 | E017S | 020 | 028 | 032 | 038 | 037 | 038 | 037 | 038 | 040 | 038 | 036 | 033 | 034 | J028 | J024 | 021 | 022 | 021 |
| U. Q. | 022 | 022 | 025 | 023 | 021 | 021 | 021 | 030 | 035 | 041 | 041 | 044 | 044 | 044 | 048 | 043 | 045 | 046 | J041 | J040 | J030 | 032 | 025 | 025 |
| L. Q. | E017 | E017 | E017 | E015 | E010 | E017 | E018 | 025 | 030 | 034 | 034 | 034 | G | 033 | G | G | G | 029 | 027 | 021 | 021 | 020 | E018 | E018 |
| Q. R. | D005 | D005 | D008 | D008 | D011 | D004 | D003 | 005 | 005 | 007 | 007 | 010 | | 011 | | | | 017 | 014 | 019 | 009 | 012 | D007 | D007 |

Sweep 0.55 Mc to 17.0Mc in 20 sec in automatic operation

# IONOSPHERIC DATA

Apr. 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 | S | S | S | S | S | G | G | 032 | 035 | 034 | 037 | 037 | | | 021G | 026 | 029 | 026 | 019 | S | S | S |
| 2 | S | S | S | B | B | S | S | 026 | 029 | 032 | 035 | 036 | E037R | 036 | | | | | G | S | S | S | S | S |
| 3 | S | S | S | S | S | S | S | G | G | 036 | 036 | 039 | 038 | 039 | 043 | 056 | E060S | E064S | 051 | E038S | E021S | 019 | E022S | 019 |
| 4 | 018 | E | S | B | S | S | S | 026 | 032 | 033 | 034 | 039 | 042 | 036 | 038 | 035 | 033 | 028 | 021 | E | 018 | 019 | S | E |
| 5 | S | E | 017 | 024 | 018 | 018 | S | | | 034 | 041 | 044 | 037 | 039 | 040 | E043R | 036 | | 023 | 025 | E | E | E | S |
| 6 | E | S | S | 015 | E | E | 017 | 025 | 032 | 041 | 046 | 037 | 049 | 046 | 042 | 048 | 025G | 033 | 040 | 019 | E025S | 019 | 018 | E |
| 7 | S | S | 018 | E | E021S | A | 017 | 028 | 034 | 035 | 037 | 038 | E031R | 038 | 039 | 039 | 039 | 028 | 018 | E | 018 | E | 017 | E |
| 8 | 018 | E | S | 018 | 017 | E | S | 025 | 031 | 036 | E030R | S | | 042 | | | G | 030 | 027 | 037 | 029 | E021S | S | E |
| 9 | 019 | S | S | S | S | S | G | G | 031 | 042 | 045 | 047 | | 040 | 051 | 043 | G | 035 | E053S | A | 018 | E032S | E025S | 018 |
| 10 | S | S | E | 033 | A | E | 025 | G | 032 | E034R | E030R | E030R | 029G | 025G | 039 | 041 | 050 | 046 | 030 | S | S | S | E | 019 |
| 11 | E | E | 018 | B | B | S | 019 | G | G | 037 | E046R | 041 | 046 | E033R | 021G | 023G | | 032 | 028 | 025 | 018 | E | S | 017 |
| 12 | 017 | E | E | B | B | E | S | G | G | 040 | 042 | 037 | | 039 | E028R | 041 | 035 | 041 | 026 | E | S | S | S | 018 |
| 13 | E | S | E | 017 | E | S | 017 | E023R | G | E032R | 039 | 047 | E035R | E030R | E027R | 024G | | 029 | 025 | U025A | 018 | S | E025S | 019 |
| 14 | S | S | S | S | S | S | 019 | 028 | 034 | 036 | E034R | 037 | 062 | 040 | E030R | 036 | 033 | 029 | 032 | E030S | E038S | 025 | E | 018 |
| 15 | E | E | S | E | S | S | 020 | 032 | 031 | 032 | 026G | 039 | 026G | E022R | | 027G | | 019G | 028 | 018 | 019 | E | 018 | S |
| 16 | S | S | S | S | S | S | G | 027 | G | 033 | E032R | | | 025G | 026G | 023G | E020R | | | E | E | S | S | S |
| 17 | S | S | S | B | B | S | S | 028 | 032 | 034 | G | 026G | 036 | 026G | | 036 | 036 | 046 | 034 | E038S | E058S | 026 | 020 | 018 |
| 18 | E038S | 019 | 025 | 018 | 021 | A | 020 | 029 | 040 | 039 | 037 | E038R | 038 | 048 | 040 | 037 | E030R | G | G | E | 024 | 026 | E | S |
| 19 | E | S | E | 018 | 019 | 018 | S | 029 | 032 | 038 | E040S | A | A | 046 | A | | 037 | 039 | 041 | A | 020 | A | 019 | 019 |
| 20 | E | E | 019 | 018 | 018 | E | 019 | 029 | 030 | 037 | 037 | 036 | E033R | 038 | 035 | 034 | 032 | 030 | 038 | 038 | 025 | 018 | E | 020 |
| 21 | E | 018 | 018 | B | 012 | 019 | 021 | 026 | 030 | 039 | 037 | 035 | E029R | 036 | 040 | 047 | 032 | 027 | 041 | 039 | 045 | 026 | 019 | E |
| 22 | S | 019 | E | 019 | B | S | 019 | G | E030R | C | | | | 038 | | 035 | | | 025 | 020 | E | S | 018 | S |
| 23 | S | S | S | B | B | S | G | G | E027R | 032 | E032R | E033R | 037 | E038R | 044 | 052 | 061 | E060S | 035 | 019 | 018 | 020 | S | S |
| 24 | S | S | S | S | B | S | 021 | 029 | E030R | G | 036 | 037 | 040 | 042 | 052 | 047 | 042 | 052 | E057S | E030S | E022S | 019 | 020 | 019 |
| 25 | 020 | 019 | 018 | E | B | S | 024 | 033 | 047 | A | 046 | 058 | E050R | 044 | 051 | 038 | 037 | 044 | 032 | 025 | 018 | E037S | A | E042S |
| 26 | E | 017 | E | S | S | S | S | 028 | 047 | A | 048 | 045 | 045 | 044 | 037 | 041 | 040 | 039 | 033 | E052S | 020 | 018 | 022 | 018 |
| 27 | E | S | S | S | 017 | E | 020 | 035 | 035 | 037 | 040 | E029R | 037 | E030R | 039 | 038 | E061S | 045 | 043 | E040S | E027S | E025S | E | 018 |
| 28 | E | S | E | S | E | E | 023 | 028 | 039 | 049 | 036 | E035R | | | 042 | 046 | 049 | 053 | E065S | E041S | 019 | 019 | E | E |
| 29 | E | E | E | 018 | B | S | E020S | E030S | 032 | 037 | E034R | E034R | 036 | E034R | 026G | | 035 | 033 | 046 | 035 | 026 | 019 | S | S |
| 30 | S | S | S | E | E | S | 022 | 032 | 037 | 038 | 036 | 035 | 052 | E044R | 054 | 056 | 048 | A | A | 055 | E035S | E032S | A | 019 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

$f_bEs$

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 5

# IONOSPHERIC DATA

Apr. 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 | E017S | E018S | E017S | E017S | E017S | E017S | E016S | E018S | 017 | 017 | 017 | 019 | 018 | 018 | 017 | 018 | 018 | E016S | E017S | E018S | E016S | E017S | E018S | E018S |
| 2 | E018S | E016S | E018S | 009 | 009 | E017S | E017S | E016S | 016 | 016 | 017 | 018 | 018 | 018 | 018 | 018 | 017 | E017S | E016S | E016S | E017S | E017S | E017S | E018S |
| 3 | E017S | E018S | E018S | E017S | E017S | E017S | E018S | E017S | 017 | 017 | 018 | 018 | 018 | 027 | 018 | 018 | 017 | E017S | E017S | E017S | E016S | E017S | E018S | E018S |
| 4 | E017S | E017S | E017S | 010 | E017S | E017S | E017S | E017S | 016 | 017 | 017 | 019 | 024 | 018 | 018 | 017 | 017 | E016S | E017S | E016S | E017S | E017S | E017S | E017S |
| 5 | E018S | E016S | E016S | 006 | 006 | E016S | E016S | E016S | 017 | 017 | 018 | 018 | 018 | 020 | 020 | 018 | 018 | E016S | E016S | E016S | E017S | E018S | E016S | E017S |
| 6 | E017S | E016S | E017S | 010 | E017S | E018S | E016S | E017S | 016 | 017 | 018 | 019 | 019 | 018 | 019 | 017 | 017 | E016S | E017S | E017S | E016S | E017S | E017S | E017S |
| 7 | E017S | E016S | E016S | E017S | 009 | E016S | E016S | E017S | 016 | 018 | 018 | 018 | 018 | 019 | 019 | 017 | 017 | E016S | E016S | E016S | E017S | E017S | E016S | E017S |
| 8 | E016S | E016S | E015S | E016S | 009 | E015S | E018S | E016S | 017 | 017 | 018 | E037S | 019 | E027S | 019 | 018 | 018 | 017 | E016S | E017S | E016S | E016S | E019S | E016S |
| 9 | E018S | E019S | E018S | E017S | E016S | E016S | E017S | E018S | 017 | 017 | 019 | 019 | 019 | 018 | 018 | E026C | 017 | 017 | E016S | E017S | E017S | E016S | E016S | E017S |
| 10 | E017S | E016S | E016S | E017S | E017S | E016S | E016S | E017S | 016 | 018 | 018 | 018 | 018 | 018 | 018 | 018 | 017 | 016 | E016S | E018S | E017S | E017S | E016S | E017S |
| 11 | E018S | E016S | E016S | 009 | 009 | E015S | E016S | E017S | 016 | 017 | 018 | 018 | 018 | 019 | 018 | 017 | 019 | 014 | E016S | E017S | E016S | E016S | E017S | E016S |
| 12 | E016S | E017S | E016S | 009 | 008 | E016S | E017S | E016S | 017 | 017 | 018 | 022 | 018 | 019 | 018 | 017 | 016 | 016 | E017S | E018S | E017S | E018S | E018S | E017S |
| 13 | E017S | E017S | E017S | 009 | E016S | E016S | E016S | E017S | 017 | 017 | 018 | 018 | 026 | 018 | 017 | 018 | 017 | 017 | E016S | E016S | E017S | E017S | E017S | E016S |
| 14 | E018S | E018S | E019S | E015S | E017S | E019S | E016S | E017S | 016 | 018 | 017 | 018 | 019 | 019 | 019 | 018 | 016 | 017 | E016S | E016S | E017S | E018S | E018S | E016S |
| 15 | E017S | E016S | E017S | 009 | S | E016S | E016S | E016S | 016 | 016 | 017 | 022 | 018 | 019 | 022 | 018 | 017 | 017 | E016S | E016S | E016S | E016S | E017S | E018S |
| 16 | E017S | E018S | E017S | E017S | E016S | E016S | E016S | E016S | 016 | 017 | 017 | 017 | 019 | 018 | 022 | 019 | 017 | 017 | E016S | E017S | E017S | E017S | E017S | E017S |
| 17 | E018S | E017S | E017S | 009 | 010 | E017S | E017S | E016S | 016 | 018 | 018 | 017 | 017 | 019 | 018 | 017 | 018 | 016 | E016S | E016S | E016S | E017S | E016S | E016S |
| 18 | E016S | E016S | E016S | E016S | E | E017S | E016S | E016S | 016 | 017 | 018 | 024 | 017 | 019 | 018 | 017 | 017 | 018 | E017S | 017 | E016S | E017S | E017S | E018S |
| 19 | E017S | E016S | E017S | 009 | 008 | E017S | E017S | E016S | 016 | 017 | 018 | 019 | 018 | 020 | 018 | 018 | 017 | 017 | E017S | E017S | E017S | E017S | E017S | E016S |
| 20 | E016S | E017S | E016S | 008 | E | E015S | E017S | E016S | 017 | 018 | 018 | 019 | 020 | 020 | 019 | 018 | 018 | 017 | E017S | E017S | E016S | E016S | E017S | E017S |
| 21 | E017S | E017S | E017S | 010 | 009 | E017S | E016S | E017S | 017 | 017 | 018 | 019 | 022 | 018 | 018 | 019 | 017 | 016 | E016S | E016S | E017S | E017S | E017S | E017S |
| 22 | E017S | E017S | E016S | 009 | 010 | E017S | E017S | E017S | 017 | C | 018 | 019 | 018 | 026 | 020 | 018 | 017 | 017 | E016S | E016S | E017S | E016S | E017S | E017S |
| 23 | E017S | E017S | E018S | 009 | 010 | E017S | E017S | E016S | 017 | 017 | 017 | 018 | 018 | 027 | 026 | 019 | 017 | 017 | E017S | E016S | E016S | E016S | E018S | E017S |
| 24 | E017S | E018S | E017S | E017S | 009 | E017S | E017S | E017S | 016 | 018 | 019 | 018 | 019 | 018 | 017 | 018 | 017 | 016 | E016S | E017S | E017S | E016S | E016S | E017S |
| 25 | E017S | E017S | E016S | 012 | 009 | E017S | E016S | E016S | 016 | 018 | 018 | 018 | 026 | 018 | 018 | 018 | 017 | 016 | E016S | E016S | E017S | E016S | E016S | E016S |
| 26 | E017S | E016S | E017S | E016S | E017S | E017S | E016S | E016S | 017 | 018 | 019 | 020 | 020 | 018 | 018 | 018 | 017 | 017 | E016S | E017S | E016S | E017S | E016S | E017S |
| 27 | E017S | E017S | E017S | E017S | 009 | E017S | E017S | 016 | 016 | 017 | 018 | 024 | 019 | 020 | 022 | 018 | 018 | 017 | E016S | E016S | E018S | E017S | E017S | E017S |
| 28 | E016S | E017S | E016S | E017S | E017S | E016S | E017S | 016 | 018 | 018 | 018 | 020 | 019 | 026 | 019 | 019 | 018 | 017 | E016S | E017S | E017S | E017S | E016S | E017S |
| 29 | E017S | E017S | E018S | 009 | 012 | E018S | E017S | E017S | 017 | 018 | 018 | 018 | 018 | 024 | 018 | 018 | 018 | 017 | E016S | E017S | E016S | E017S | E016S | E017S |
| 30 | E016S | E016S | E016S | E017S | E016S | E016S | E017S | 017 | 016 | 018 | 018 | 018 | 018 | 018 | 018 | 018 | 016 | 016 | E016S | E017S | E017S | E017S | E016S | E017S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 29 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Median | E017 | E017 | E017 | U009 | U008 | E017S | E017S | E016S | 016 | 017 | 018 | 018 | 018 | 019 | 018 | 018 | 017 | 017 | E016S | E017S | E017S | E017S | E017S | E017S |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

f-min

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 6

# IONOSPHERIC DATA

Apr. 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 | I310S | I330S | I350S | S | 325S | 350 | 340 | I360S | 325 | I325S | I320S | J305S | J310S | I305S | I300S | J310S | I335S | I345S | I360S | I370S | 325S | 285 | 280 | I280S |
| 2 | I290S | I305S | 310S | J355S | 320H | 300S | I335S | J365S | 335 | I320S | I310S | J305S | J310S | 310S | 315S | 330S | S | J355S | I365S | 370S | 315 | 280S | 290S | I295S |
| 3 | 300S | 315S | 315S | J335S | 340 | 300 | I340S | I345S | 345S | 330 | I325S | 320S | I300S | 315S | J335S | S | S | S | J365S | I360S | I340S | 315S | I290S | I310S |
| 4 | 315S | 315S | I315S | 345S | 350S | 350S | 350S | 365S | 345 | 335 | 335 | 290 | J310S | J310S | J315S | 310S | J310S | J330S | I350S | 350S | 330S | 290S | I280S | S |
| 5 | S | S | 295S | I335S | 350 | 365 | 355S | 370S | 345 | 320 | I320S | 315 | J310S | J310S | J305S | I310S | I320S | S | S | S | I325S | S | S | J295S |
| 6 | J295S | S | S | 355S | 375 | J315S | 335S | J380S | 355 | 330S | J310S | J295S | I300S | J310S | 315 | 325 | J320S | S | S | 360S | S | S | S | S |
| 7 | S | S | 280S | I345S | S | A | 335 | J365S | 345 | I330S | J340S | 310 | J290S | I300S | 315S | J315S | J300S | S | S | S | S | I325S | I295S | I275S |
| 8 | I295S | I305S | I315S | 360S | 390 | 300 | I325S | 365 | I355S | I350S | 315 | I315S | J295S | J300S | 315 | 325S | J335S | 340S | I345S | I345S | I345S | 275S | I280S | I295S |
| 9 | I295S | 285S | I305S | I340S | 380 | 295 | 335S | I355S | 355 | 330 | J340S | I315S | 305S | 305S | 310 | J320S | U330S | I355S | 345 | A | S | I300S | I280S | I295S |
| 10 | I300S | I315S | 310S | 360S | I365A | 310 | 335 | 360 | I340S | 335 | I335S | U290S | 300S | 320S | 325 | J325S | I320S | I320S | S | I345S | I350S | I280S | 280S | I285S |
| 11 | S | S | S | 360 | 310H | 280S | I330S | J355S | I350S | U335S | I330S | J325S | J305S | 310S | J310S | J325S | J320S | I330S | I325S | I325S | I335S | I330S | 305 | 290S |
| 12 | I285S | I290S | I305S | I335S | 355F | J310S | I320S | I370S | I375S | 340 | 310S | 300 | J300S | 325 | I305S | 315S | I315S | I340S | 365S | J345S | 340 | I295S | S | S |
| 13 | S | S | J335S | I375S | 300S | 285 | 325S | 350 | 340 | 340 | 300 | 280S | I290S | 310S | 330 | J325S | 340 | 320 | J335S | S | I355S | S | S | S |
| 14 | I280S | I290S | 310S | S | 360 | S | I325S | J330S | 355 | U320S | 290S | J300S | 320S | 320 | 310 | J315S | I325S | I335S | I340S | I340S | 340S | J295S | J255S | S |
| 15 | S | I330S | I355S | J370S | S | 280 | I320S | J330S | 325 | I310S | J310S | I315S | J315S | J315S | 315 | J295S | J305S | I320S | I325S | I345S | I350S | I305S | I290S | I275S |
| 16 | 290S | 275S | I300S | I335S | 300 | 285 | I335S | 345S | 335 | 345S | 310S | J285S | I290S | J310S | J315S | J315S | 330S | J325S | S | S | S | I315S | I300S | I295S |
| 17 | I285S | I290S | 295S | 335S | 330S | 300S | I345S | 360 | 355S | 340S | 330S | 295 | J300S | I310S | J305S | 310S | I325S | S | S | S | I315S | J290S | S | S |
| 18 | S | S | S | U310S | I325S | J315A | 345S | 365 | 340 | 310 | 305S | J270S | J300S | I290S | 300 | 290 | I290S | S | J335S | S | S | S | 290S | J315S |
| 19 | J325S | I290S | 260 | J305S | I325S | 330 | I330S | 320 | 320 | 295 | I265S | A | A | 295 | I270A | J270S | 300S | 315 | 320 | I320A | S | A | S | S |
| 20 | I290S | I285S | I300S | I295S | I300S | 275S | 330S | J320S | 325S | 320S | 310 | 270S | 285S | J285S | 305S | 320S | 340 | 340 | 310 | I340S | 350S | 275 | I270S | 270 |
| 21 | I275S | 280 | 340 | 355 | 285F | I300S | 340 | 350 | I330S | 335 | 325S | 320 | 300 | J315S | J315S | 325S | J335S | 335 | 330S | 345S | J320S | S | S | S |
| 22 | 285S | I310S | 310 | 320 | 305 | 300 | 325 | 340S | 350S | I335C | 315 | 310S | J300S | 310S | 305 | 305S | 320S | 320 | I320S | I310S | 310S | S | 280S | I280S |
| 23 | 280S | I305S | I300S | I335S | 355 | 305 | 340 | 345H | 350 | 335S | 315S | I310S | 305S | J300S | J320S | I310S | I320S | I335S | I330S | I340S | U325S | S | S | S |
| 24 | S | S | I320S | I350S | J355S | 305S | I340S | I350S | 340 | 340S | 315 | 305S | J295S | 310S | J310S | 315S | J320S | 350S | I330S | J335S | S | 325S | 270S | S |
| 25 | S | I310S | S | S | F | 285S | 345 | 385S | 350 | I335A | 355 | 310 | 290 | J295S | 305S | J330S | J365S | 340S | J320S | I300S | 325S | I320S | A | S |
| 26 | S | 295 | I305S | J325S | 335S | 295S | 355 | 360 | 350S | I340A | 300 | 280 | J295S | J295S | J300S | J315S | J325S | 330S | I340S | I335S | 345S | 290S | I280S | S |
| 27 | S | S | S | S | I350S | 310H | 335S | 355S | 345 | 345 | 305 | 305 | I300S | J285S | 305S | I315S | I330S | 350S | 345S | I345S | 335 | J290S | I295S | I290S |
| 28 | J295S | J310S | J320S | I350S | 335 | 305 | 330 | 345 | 335 | 325 | 305S | 295S | J315S | J315S | 315S | J325S | J320S | I335S | I330S | J335S | I335S | U330S | U285S | I295S |
| 29 | 285S | I280S | I280S | 325S | I315S | 320 | I365S | 375S | 365 | 370 | I335S | 310 | 305 | 300 | I310S | J315S | 325S | 330 | I330S | 325 | I330S | I340S | I285S | I290S |
| 30 | S | S | S | 305S | 340 | F | 340S | 370 | 345 | 360 | 300 | 290S | J300S | 290 | I310S | I320S | I335S | A | A | 340S | 340 | S | A | S |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 19 | 21 | 24 | 26 | 27 | 27 | 30 | 30 | 30 | 30 | 30 | 29 | 29 | 30 | 30 | 29 | 28 | 23 | 23 | 23 | 23 | 21 | 20 | 17 |
| Median | U290S | U305S | U310S | 340S | 335 | 300 | 335S | 360S | 345 | 335 | 315S | 305S | J300S | 310S | 310S | 315S | 320S | 335S | U335S | U340S | 335S | 295S | U280S | U290S |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

M(3000)F2

The Radio Research Laboratories, Japan

Y 7

# IONOSPHERIC DATA

Apr. 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 | 370L | 385 | 375H | 380 | 365 | 375 | 365 | 345 | L | | | | | | |
| 2 | | | | | | | | | L | 370 | 370 | 370 | 380 | 385 | 365 | 370 | 365 | L | | | | | | |
| 3 | | | | | | | | | L | 365L | 365 | 385 | 400 | 365 | A | A | A | A | | | | | | |
| 4 | | | | | | | | | L | 365 | 365 | 375 | A | 365H | 365 | 365 | 355 | L | | | | | | |
| 5 | | | | | | | | | L | 350 | A | A | 400 | 360 | 360 | I365A | 355 | L | L | | | | | |
| 6 | | | | | | | | | L | A | I375A | 380H | A | I360A | A | A | 355H | L | | | | | | |
| 7 | | | | | | | | | L | 360 | 370 | 380 | 395 | 390R | 360 | A | A | L | | | | | | |
| 8 | | | | | | | | | L | L | 385S | 375S | 380 | A | 365H | 370 | L | L | | | | | | |
| 9 | | | | | | | | | | A | A | A | 370 | 360 | A | A | LH | A | | | | | | |
| 10 | | | | | | | | | L | 370 | 360R | 400H | 385 | 360 | 365 | A | A | A | | | | | | |
| 11 | | | | | | | | | L | 370 | A | A | I400A | 370 | 365 | 360 | L | L | L | | | | | |
| 12 | | | | | | | | | | A | A | 375 | 390 | 360 | 390 | A | L | A | L | | | | | |
| 13 | | | | | | | | | L | 370L | L | A | 370H | 350 | 365 | 375 | 365L | L | L | | | | | |
| 14 | | | | | | | | | L | 365 | 375 | 385R | I375A | 370R | 360 | 355 | 365 | L | | | | | | |
| 15 | | | | | | | | | L | 350 | 375 | 385 | 375R | 405 | 380H | 350 | L | L | | | | | | |
| 16 | | | | | | | | | L | LH | 365 | 345 | 395H | 365R | 350H | 365 | 365 | L | L | | | | | |
| 17 | | | | | | | | | L | 370 | 385 | 365 | 380 | 365 | 375 | 365 | A | A | | | | | | |
| 18 | | | | | | | | | | 355 | 385H | 345 | 360 | I360A | 365R | 325 | 315L | L | L | | | | | |
| 19 | | | | | | | | | 340 | A | I350S | A | A | A | A | I350R | A | A | | | | | | |
| 20 | | | | | | | | | 355 | 370 | 395 | 410 | 380R | 385 | 395 | 350 | 375 | L | | | | | | |
| 21 | | | | | | | | | L | A | 375 | 390 | 405H | 380H | 385 | A | 365 | L | | | | | | |
| 22 | | | | | | | | L | L | I365C | 400 | 400 | 370 | 400H | 380H | 370 | 355H | L | L | | | | | |
| 23 | | | | | | | | | L | 370 | 375 | 375 | 390 | A | A | A | A | A | | | | | | |
| 24 | | | | | | | | L | L | 390 | 370 | 400 | 370 | A | A | A | A | A | | | | | | |
| 25 | | | | | | | | | | A | A | A | A | A | A | 355 | 365 | A | | | | | | |
| 26 | | | | | | | | | A | A | A | A | A | A | 385 | A | A | A | | | | | | |
| 27 | | | | | | | | | L | 370 | 370 | 415 | 390H | I385H | 355 | 370 | A | A | | | | | | |
| 28 | | | | | | | | L | L | A | 385 | 365 | 400 | 400H | A | A | A | A | | | | | | |
| 29 | | | | | | | | | L | 390 | 420 | 370 | 385H | 385 | 395 | 380 | 360 | L | A | | | | | |
| 30 | | | | | | | | | L | 380 | 410 | 390 | A | A | A | A | A | A | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | 2 | 20 | 23 | 23 | 24 | 23 | 21 | 18 | 14 | | | | | | | |
| Median | | | | | | | | | 350 | 370 | 375 | 380 | 380 | 365 | 365 | 365 | 360 | | | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

M(3000)F1 Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | | 280 | 295 | 310 | 300 | 300 | 300 | 300 | 290 | 265 | 250 | | | | | | |
| 2 | | | | | | | | | 270 | 265 | 295 | 310 | 300 | 295 | 295 | 275 | 260 | 250 | | | | | | |
| 3 | | | | | | | | | 265 | 285 | 280 | 300 | 330 | 300 | 260 | 290 | 290 | I280A | | | | | | |
| 4 | | | | | | | | | 270 | 300 | 300 | 355 | 310 | 300 | 280 | 285 | 275 | 250 | | | | | | |
| 5 | | | | | | | | | 250 | 300 | 300 | 300 | 290 | 295 | 295 | 295 | 280 | 255 | 240 | | | | | |
| 6 | | | | | | | | | 250 | 295 | 300 | 350 | 300 | 300 | 285 | 275 | 260 | 250 | | | | | | |
| 7 | | | | | | | | | 255 | 290 | 270 | 295 | 330 | 300 | 295 | 275 | 295 | 270 | | | | | | |
| 8 | | | | | | | | | 255 | 255 | 300 | 290 | 305 | 305 | 295 | 275 | 260 | 270 | | | | | | |
| 9 | | | | | | | | | | 295 | 270 | 275 | 315 | 300 | 300 | 280 | 255 | 245 | | | | | | |
| 10 | | | | | | | | | 250 | 290 | 300 | 320 | 315 | 285 | 270 | 290 | 280 | 280 | | | | | | |
| 11 | | | | | | | | | 255 | 275 | 285 | 280 | 300 | 290 | 300 | 270 | 270 | 280 | 275 | | | | | |
| 12 | | | | | | | | | | 250 | 300 | 320 | 315 | 285 | 295 | 300 | 285 | 260 | 245 | | | | | |
| 13 | | | | | | | | | 250 | 275 | 300 | 340 | 340 | 300 | 250 | 275 | 280 | 295 | 255 | | | | | |
| 14 | | | | | | | | | 260 | 300 | 300 | 325 | 280 | 290 | 280 | 285 | 260 | 250 | | | | | | |
| 15 | | | | | | | | | 290 | 300 | 300 | 295 | 300 | 280 | 290 | 310 | 285 | 280 | | | | | | |
| 16 | | | | | | | | | 250 | 270 | 310 | 335 | 320 | 295 | 280 | 275 | 265 | 265 | 250 | | | | | |
| 17 | | | | | | | | | 250 | 275 | 300 | 315 | 310 | 300 | 295 | 295 | 295 | 275 | | | | | | |
| 18 | | | | | | | | | | 315 | 300 | 350 | 320 | 330 | 300 | 330 | 330 | 255 | 250 | | | | | |
| 19 | | | | | | | | | 310 | 355 | I480S | A | A | 375 | A | I445S | 365 | 320 | | | | | | |
| 20 | | | | | | | | | 300 | 300 | 325 | 405 | 355 | 320 | 300 | 285 | 285 | 275 | | | | | | |
| 21 | | | | | | | | | 295 | 280 | 290 | 300 | 315 | 300 | 300 | 290 | 280 | 280 | | | | | | |
| 22 | | | | | | | | 270 | 275 | I275C | 305 | 305 | 300 | 295 | 305 | 290 | 300 | 280 | 260 | | | | | |
| 23 | | | | | | | | | 260 | 280 | 305 | 290 | 305 | 325 | 295 | 300 | 300 | 300 | | | | | | |
| 24 | | | | | | | | 250 | 275 | 265 | 320 | 310 | 330 | 305 | 300 | 285 | 285 | 270 | | | | | | |
| 25 | | | | | | | | | | A | 280 | 350 | 340 | 325 | 305 | 280 | 250 | 270 | | | | | | |
| 26 | | | | | | | | | 250 | I285A | 340 | 360 | 320 | 300 | 305 | 295 | 275 | 270 | | | | | | |
| 27 | | | | | | | | | 260 | 290 | 340 | 330 | 320 | 330 | 300 | 295 | 285 | 250 | | | | | | |
| 28 | | | | | | | | 265 | 270 | 290 | 305 | 335 | 305 | 290 | 300 | 300 | 285 | 275 | | | | | | |
| 29 | | | | | | | | | 260 | 255 | 290 | 350 | 330 | 320 | 310 | 295 | 290 | 290 | 285 | | | | | |
| 30 | | | | | | | | | 255 | 275 | 350 | 355 | 330 | 335 | 305 | 290 | 260 | A | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | 3 | 26 | 29 | 30 | 29 | 29 | 30 | 29 | 30 | 30 | 29 | 8 | | | | | |
| Median | | | | | | | | 265 | 260 | 285 | 300 | 320 | 315 | 300 | 295 | 290 | 280 | 270 | 250 | | | | | |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F2

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 9

# IONOSPHERIC DATA

Apr. 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 | 300 | 250 | 250 | 205 | E255S | E255S | 250 | 235 | 235 | 225 | 220 | 200H | 200 | 225 | 220 | 220 | 265 | 225 | 225 | 215 | 225 | E300S | 340 | 300 |
| 2 | 285 | 275 | 260 | 220 | 200H | E290S | 250 | 235 | 230 | 225 | 225 | 205 | 250 | 200 | 200 | 230 | 225 | 225 | 225 | 200 | E250S | E305S | 340 | 305 |
| 3 | 295 | 270 | 255 | 240 | 240 | E330S | 250 | 235 | 245 | 225 | 215 | 245 | 220 | 200 | I230A | A | A | A | 250 | I240A | I240A | 280 | A | 300 |
| 4 | 265 | 260 | 275 | 220 | 240 | E250S | 240 | 215 | 250 | 220 | 235 | 230 | A | 200H | 250 | 200 | 225 | 240 | 230 | 200 | 225 | E300A | 320 | 335 |
| 5 | 300 | 300 | 300 | 290 | E230A | E250A | 240 | 225 | 235 | 225 | A | A | 210 | E250A | E250A | I215A | E260A | I235S | I240A | 210 | 210 | 275 | 310 | 300 |
| 6 | 300 | 290 | 250 | 215 | 200 | S | 225 | 225 | 245 | I240A | A | 200H | A | A | A | A | 220H | 255 | 230 | 225 | 240 | E260A | 300 | 300 |
| 7 | 320 | 310 | 310 | 230 | A | A | 250 | 235 | 250 | 230 | 245 | 220 | 210 | 210 | E250A | A | I270A | 250 | 245 | 235 | 230 | 220 | 300 | 310 |
| 8 | 310 | 300 | 270 | 230 | 200 | E320S | 245 | 230 | 240 | 245 | 210 | 230 | 205 | I230A | 200H | 230 | 245 | 250 | 250 | 240 | 230 | E360S | 340 | 300 |
| 9 | 300 | 330 | 295 | 225 | 200 | E350S | 240 | 230 | 245 | A | A | A | 210 | 250 | I250A | I250A | 225H | A | A | A | 220 | A | A | 300 |
| 10 | 295 | 295F | 255 | 245 | A | E330S | 260 | 235 | 245 | 215 | 210 | 190H | 200 | 250 | 275 | A | A | A | 250 | 220 | 200 | E295S | 320 | 300 |
| 11 | 310 | 310 | 260 | 210 | 180H | E350S | 245 | 240 | 240 | E245A | A | E270A | I220A | 205 | 225 | 240 | 240 | 250 | 260 | 250 | 210 | 205 | 300 | E305S |
| 12 | 300 | 320 | 285 | 225 | 230 | E300S | 245 | 225 | 220 | A | E270A | 200 | 195 | 250 | 205 | A | 275 | A | A | 225 | 215 | 255 | 300 | 300 |
| 13 | 300 | 300 | 250 | 200 | E320S | E370S | 250 | 240 | 230 | 230 | 230 | A | 200H | 230 | 225 | 225 | 225 | 245 | 250 | 230A | 220 | 215 | A | 320 |
| 14 | 300 | 300 | 250 | 215 | E350S | S | 250 | 240 | 250 | 220 | 210 | 195 | A | 250 | 240 | 250 | 225 | 250 | 245 | 240 | 270 | 265 | 330 | 310 |
| 15 | 290 | 255 | 230 | 195 | S | E345S | 250 | E250A | 250 | 240 | 205 | 245 | 235 | 205 | 195H | 235 | 240 | 220 | 250 | 230 | 215 | 230 | 300 | 325 |
| 16 | 325 | 305 | 260 | 200 | E300S | E320S | 240 | 235 | 235 | 210H | 215 | 290 | 200H | 230 | 200H | 210 | 210 | 245 | 250 | 250 | 210 | 235 | 305 | 315 |
| 17 | 300 | 300 | 280 | 225 | 200 | 305 | 230 | 240 | 240 | 235 | 225 | 225 | 200 | 205 | 225 | 240 | E255A | I240A | 250 | E280S | A | 250 | 305 | 300 |
| 18 | A | 305 | E340A | 275 | 225 | A | 220 | 225 | 250 | E250A | 200H | 245 | 225 | A | E250A | E250A | 275 | 245 | 260 | 240 | 240 | 290 | 290 | 275 |
| 19 | 210 | 215 | E370S | 300 | 230 | 250 | 250 | 265 | E250A | A | A | A | A | A | A | R | A | A | E295A | A | 250 | A | 320 | 340 |
| 20 | 330 | 275 | 300 | 300 | 280 | 295 | 245 | 250 | 230 | 250 | 210 | 200 | 195 | 215 | 205 | 240 | 230 | 250 | 280 | 260 | 225 | 320 | 345 | 350 |
| 21 | 305 | 325 | 250 | 200 | 260 | E355A | 250 | 250 | 240 | E275A | 230 | 200 | 195H | 190H | 245 | A | 225 | 240 | 275 | 250 | E320A | 305 | 315 | 295 |
| 22 | 290 | 270 | 270 | 270 | 240 | E280S | 250 | 250 | 245 | I230C | 205 | 200 | 250 | 195H | 200H | 235 | 200H | 240 | 250 | 235 | 220 | 260 | 305 | 300 |
| 23 | 285 | 275 | 280 | 240 | 200 | E300S | 240 | 230H | 230 | 240 | 205 | 225 | 205 | A | A | A | A | A | 255 | 235 | 235 | 235 | 295 | 295 |
| 24 | 295 | 295 | 280 | 235 | 205 | 275 | 245 | 250 | 225 | 220 | 205 | 200 | E250A | A | A | A | A | A | E320S | 250 | 220 | 235 | 305 | 350 |
| 25 | 345 | 320 | 270 | 255 | 240 | E280S | 240 | 235 | 260 | A | A | A | A | A | A | 275 | 255 | A | 270 | 235 | 240 | A | I305A | I335A |
| 26 | 300 | 260 | 255 | 245 | 240 | 270 | 230 | 240 | A | A | A | A | A | A | 225 | A | A | A | 250 | I230A | 220 | 250 | 300 | 325 |
| 27 | 295 | 275 | 250 | 250 | 210 | E300S | 250 | 245 | 250 | 250 | 250 | 205 | 200H | 190H | 280 | E250A | A | A | 240 | 250 | E280S | 310 | 320 | 315 |
| 28 | 300 | 295 | 270 | 230 | 250 | E280S | 245 | 240 | A | A | 220 | 200 | 195 | 200H | A | A | A | A | A | 255 | 210 | 235 | 300 | 300 |
| 29 | 305 | 310 | E305S | 275 | 255 | 270 | 220 | 245 | 240 | 215 | 190 | 210 | 180H | 180 | 250 | 205 | 250 | 270 | A | 260 | 240 | 240 | 305 | 300 |
| 30 | 310 | 295F | 295 | 275 | 230 | 280 | 240 | 240 | I240A | 245 | 205 | 185 | A | A | A | A | A | A | A | E260A | 250 | A | A | 305 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 29 | 30 | 30 | 30 | 27 | 26 | 30 | 30 | 28 | 24 | 23 | 24 | 23 | 22 | 23 | 18 | 21 | 18 | 25 | 28 | 29 | 26 | 26 | 30 |
| Median | 300 | 295 | 265 | 230 | 220 | E300S | 245 | 240 | 240 | 230 | 210 | 200 | 200 | 210 | 225 | 230 | 230 | 245 | 250 | 240 | 220 | U250 | 305 | 300 |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

h'F

Sweep 0.55 Mc to 17.9 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 10

58

# IONOSPHERIC DATA

Apr. 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 | S | S | S | S | S | 155 | 150 | 150 | 145 | 145 | 125 | 110 | G | G | 105 | 150 | 120 | 115 | 110 | S | S | S |
| 2 | S | S | S | B | B | S | S | 150 | 155 | 150 | 150 | 145 | 145 | 140 | G | G | G | G | 110 | S | S | S | S | S |
| 3 | S | S | S | S | S | S | S | 145 | 150 | 130 | 130 | 120 | 120 | 115 | 105 | 105 | 100 | 100 | 100 | 100 | 100 | 100 | 110 | 120 |
| 4 | 110 | 115 | S | B | S | S | S | 145 | 140 | 130 | 105 | 125 | 120 | 140 | 125 | 120 | 115 | 115 | 115 | 100 | 100 | 100 | S | 120 |
| 5 | S | 105 | 105 | 100 | 100 | 100 | S | G | G | 140 | 130 | 120 | 120 | 125 | 120 | 115 | 120 | G | 120 | 120 | 120 | 115 | 110 | S |
| 6 | 100 | S | S | 110 | 100 | 115 | 110 | 150 | 130 | 120 | 120 | 115 | 105 | 105 | 105 | 105 | 105 | 100 | 100 | 100 | 110 | 115 | 115 | 110 |
| 7 | S | S | 105 | 105 | 100 | 100 | 100 | 150 | 150 | 140 | 130 | 125 | 110 | 130 | 125 | 125 | 120 | 120 | 120 | 120 | 120 | 115 | 100 | 100 |
| 8 | 100 | 100 | S | 110 | 110 | 110 | S | 150 | 145 | 135 | 105 | S | G | 130 | G | G | 160 | 145 | 140 | 125 | 120 | 115 | S | 120 |
| 9 | 105 | S | S | S | S | S | 110 | 170 | 150 | 130 | 130 | 120 | G | 130 | 135 | 140 | 150 | 150 | 125 | 115 | 120 | 120 | 115 | 115 |
| 10 | S | S | 115 | 110 | 110 | 110 | 110 | 110 | 140 | 135 | 105 | 105 | 105 | 105 | 150 | 145 | 130 | 120 | 120 | S | S | S | 120 | 115 |
| 11 | 110 | 100 | 100 | B | B | S | 150 | 150 | E145G | 125 | 115 | 115 | 110 | 120 | 105 | 100 | G | 140 | 125 | 120 | 100 | 105 | S | 105 |
| 12 | 105 | 110 | 105 | B | B | 110 | S | 150 | E150G | 120 | 115 | 120 | G | 105 | 105 | 115 | 150 | 130 | 130 | 100 | S | S | S | 110 |
| 13 | 110 | S | 105 | 105 | 105 | S | 165 | 155 | E150G | 140 | 110 | 105 | 105 | 100 | 100 | 100 | G | 145 | 130 | 115 | 110 | S | 110 | 100 |
| 14 | S | S | S | S | S | S | 150 | 145 | 135 | 125 | 120 | 105 | 120 | 165 | 100 | 170 | 150 | 140 | 125 | 115 | 110 | 110 | 110 | 105 |
| 15 | 105 | 105 | S | 110 | S | S | 150 | 145 | E150G | 105 | 105 | 105 | 105 | 105 | G | 105 | G | 105 | 120 | 115 | 110 | 115 | 110 | S |
| 16 | S | S | S | S | S | S | 150 | 145 | E150G | 125 | 125 | G | G | 105 | 105 | 105 | 105 | G | G | 120 | 120 | S | S | S |
| 17 | S | S | S | B | B | S | S | 150 | 145 | 135 | 140 | 105 | 130 | 105 | G | 140 | 125 | 115 | 115 | 110 | 110 | 105 | 105 | 105 |
| 18 | 105 | 105 | 105 | 100 | 100 | 105 | 155 | 150 | 130 | 120 | 115 | 110 | 120 | 125 | 125 | 125 | 145 | E130G | 115 | 120 | 105 | 105 | 110 | S |
| 19 | 140 | S | 105 | 100 | 100 | 100 | S | 130 | 125 | 120 | 120 | 110 | 110 | 105 | 110 | G | 160 | 145 | 125 | 115 | 110 | 110 | 110 | 115 |
| 20 | 110 | 105 | 100 | 100 | 100 | 105 | 150 | 130 | 130 | 125 | 125 | 120 | 105 | 105 | 110 | 120 | 150 | 145 | 120 | 120 | 115 | 110 | 115 | 115 |
| 21 | 110 | 105 | 105 | B | 110 | 110 | 145 | 145 | 135 | 125 | 125 | 110 | 110 | 110 | 110 | 120 | 110 | 150 | 120 | 120 | 115 | 115 | 115 | 115 |
| 22 | S | 105 | 105 | 105 | B | S | 155 | 155 | 150 | G | G | G | G | 120 | G | 155 | G | G | 140 | 125 | 105 | S | 100 | S |
| 23 | S | S | S | B | B | S | 165 | 155 | 155 | 130 | 125 | 115 | 110 | 105 | 145 | 135 | 125 | 125 | 125 | 120 | 120 | 110 | S | S |
| 24 | S | S | S | S | B | S | 140 | 140 | 135 | 130 | 125 | 120 | 175 | 155 | 145 | 140 | 135 | 130 | 120 | 120 | 115 | 110 | 110 | 110 |
| 25 | 110 | 110 | 115 | 120 | B | S | 145 | 145 | 125 | 120 | 125 | 125 | 130 | 130 | 125 | 150 | 140 | 125 | 120 | 120 | 115 | 110 | 110 | 110 |
| 26 | 110 | 100 | 100 | S | S | S | S | 140 | 125 | 120 | 115 | 120 | 120 | 110 | 125 | 160 | 150 | 140 | 125 | 120 | 115 | 115 | 110 | 105 |
| 27 | 110 | S | S | S | 105 | 110 | 110 | 150 | 150 | 130 | 120 | 110 | 120 | 110 | 170 | 150 | 135 | 130 | 130 | 120 | 125 | 120 | 120 | 110 |
| 28 | 110 | S | 110 | S | 110 | 105 | 150 | 140 | 125 | 115 | 115 | 120 | G | G | 155 | 145 | 135 | 125 | 125 | 125 | 120 | 120 | 115 | 110 |
| 29 | 100 | 120 | 110 | 110 | B | S | 135 | 130 | 125 | 120 | 120 | 120 | 110 | 110 | 110 | G | 150 | 140 | 125 | 120 | 120 | 115 | S | S |
| 30 | S | S | S | 110 | 115 | S | 145 | 135 | 130 | 120 | 125 | 120 | 150 | 130 | 140 | 140 | 130 | 125 | 120 | 115 | 110 | 120 | 120 | 115 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | 17 | 13 | 15 | 14 | 13 | 12 | 20 | 29 | 29 | 29 | 29 | 27 | 24 | 29 | 24 | 25 | 25 | 26 | 29 | 28 | 27 | 23 | 21 | 21 |
| Median | 110 | 105 | 105 | 110 | 105 | 110 | 150 | 145 | 140 | 125 | 120 | 120 | 120 | 110 | 120 | 125 | 135 | 130 | 120 | 120 | 115 | 115 | 110 | 110 |
| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

The Radio Research Laboratories, Japan

h'Es

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

Y 11

# IONOSPHERIC DATA

Apr. 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 | | | | | | | | h | h | h | h | h | h | h | | | l | h l | c4 | f2 | f | | | |
| 2 | | | | | | | | h l | h | h l | h l | h l | h l | h | | | | | c | | | | | |
| 3 | | | | | | | | h | h | h | h | h | h | c | c2 | c3 | l2 | l2 | l3 | f3 | f2 | f | f2 | f2 |
| 4 | f2 | f | | | | | h | h2 | h | h | l | h | h | h | h | h | c2 | c3 | c2 | f | f | f | | f |
| 5 | | f2 | f2 | f3 | f3 | f3 | | | | h | h | h | h | h | h | h2 | h2 | | c3 | f2 | f | f2 | f2 | |
| 6 | f | | | f | f | f | l | h | h2 | h | h | c | c | c | c | l2 | l2 | l2 | l2 | f2 | f2f2 | f2 | f2 | f |
| 7 | | | f | f | f | f3 | l2 | h21 | h | h l | h | h | l | h l | h l | h | c | c2 | c | f | f | f | f | f |
| 8 | f2 | f | | f | f | f2 | | h | h | h | l | | | h | | | h | h2 | h312 | f3f2 | f f2 | f2 | | f f |
| 9 | f2 | | | | | | l | h l2 | h l | h21 | h l | h | | h | h | h | h | h | c2 | f | f2 | f2 | f2 | f2 |
| 10 | | | f2 | f2 | f2 | f2 | l3 | l2h | h l | h l | l | l | l | l | h l | h l | h21 | c21 | c2 | f | | | f2 | f |
| 11 | f | f | f | | | | h | h | h | h | c2 | c | c | c l | l | l | | h21 | c21 | f4f | f | f | | f2 |
| 12 | f | f2 | f2 | | | f | h | h | h | h2 | c2 | h | | l | l | c l | h l | h2 | c21 | f | | | | f |
| 13 | f | | f | f | f | | h | h | h | h | c | c2 | l | l | l | l | | h | c2 | f5 | f | | f2 | f |
| 14 | | | | | | | h2 | h2 | h2 | h | c | l | h21 | h l | l | h l2 | h l | h2 | c2 | f2 | f2f | f2 | f | f2 |
| 15 | f2 | f2 | | f | | | h | h2 | h | l | l | l | l | l | | l | | l | c3 | f | f | f | f | |
| 16 | | | | | | | h | h | h | h | h | | | l | l | l | l | | | f f2 | f | | | |
| 17 | | | | | | | | h | h | h | h | l | h | l | | h | h2 | c3 | c5 | f3 | f2 | f2 | f2 | f2 |
| 18 | f3 | f2 | f3 | f4 | f3 | f2 | h | h2 | h2 | h2 | c | c | h | h | h | h | h | h | c | f | f2 | f2 | f | |
| 19 | f | | f | f | f | f2 | | h2 | h2 | h2 | h | c2 | l2 | l2 | l2 | | h2 | h2 | c2 | f3 | f2 | f2 | f2 | f2 |
| 20 | f2 | f | f3 | f2 | f5 | f2 | h2 | h4 | h | h | h | h l | l | l | l | l | h | h | c3 | f4 | f | f3 | f | f3 |
| 21 | f2 | f2 | f2 | | f3 | f2 | h2 | h | h | h | h | l | l | l | l2 | h212 | l2 | h l2 | h312 | f2 | f3 | f2 | f2 | f |
| 22 | | f | f2 | f2 | | | h | h | h | | | | | h | | h | | | h3 | f4 | f | | f2 | |
| 23 | | | | | | | h | h | h | h l | c | c | l | l | h | h | h3 | h3 | c2 | f | f | f2 | | |
| 24 | | | | | | | h2 | h2 | h | h | h | h | h | h | h | h2 | h2 | h3 | c3 | f5 | f6 | f | f2 | f |
| 25 | f2 | f2 | f2 | f | | | h3 | h2 | h4 | h2 | h | h2 | h | h | h2 | h | h | h2 | c2 | f3 | f2 | f3 | f3 | f4 |
| 26 | f2 | f2 | f | | | | | h2 | h2 | h4 | c2 | c | c | l2 | h | h | h2 | h2 | c2 | f2 | f2 | f2 | f2 | f |
| 27 | f | | | | f | f | l2 | h | h | h | h | l | h l | l | h l | h l | h2 | h2 | c3 | f2 | f4 | f2 | f | f2 |
| 28 | f | | f3 | | f | f | h2 | h2 | h | c2 | c | c | | | h | h2 | h2 | h3 | c2 | f4 | f2 | f | f | f |
| 29 | f | f2 | f2 | f | | | h2 | h | h | c | c | c | l | l | l | | h | h | c3 | f5 | f3 | f | | |
| 30 | | | | f | f | | h4 | h21 | h l | c | h | h | h l | h | h2 | h2 | h2 | h2 | c2 | f | f2 | f3 | f2 | f2 |
| 31 | | | | | | | | | | | | | | | | | | | | | | | | |
| No. | | | | | | | | | | | | | | | | | | | | | | | | |
| Median | | | | | | | | | | | | | | | | | | | | | | | | |
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| U. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| L. Q. | | | | | | | | | | | | | | | | | | | | | | | | |
| Q. R. | | | | | | | | | | | | | | | | | | | | | | | | |

Types of Es

Sweep 0.55 Mc to 17.0 Mc in 20 sec in automatic operation

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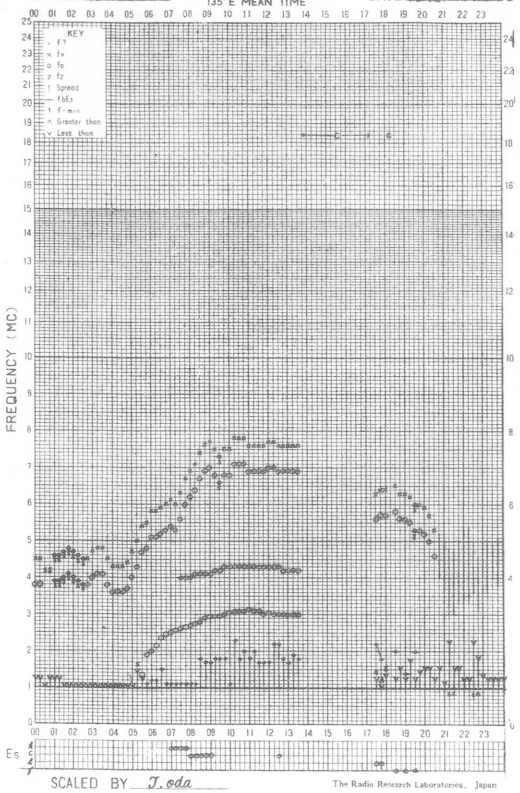
Y 12

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE APR. 1. 1965




SCALED BY T. oda

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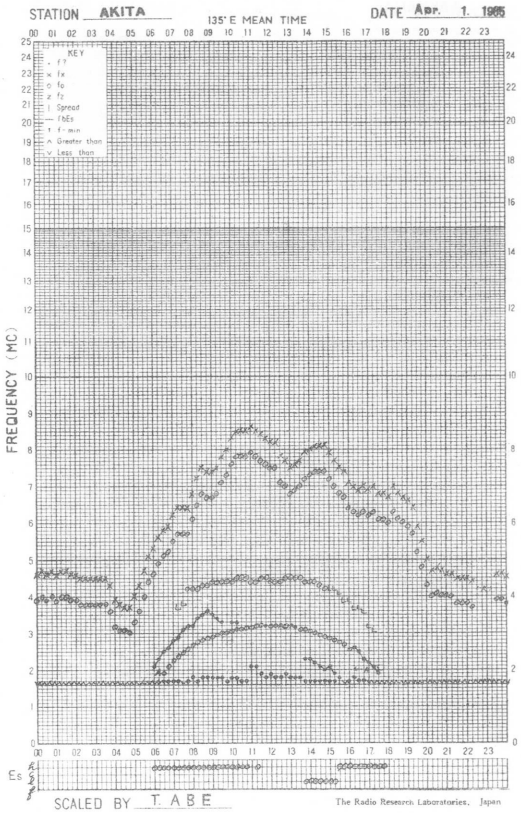
f-PLOT OF IONOSPHERIC DATA

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




SCALED BY T. A B E

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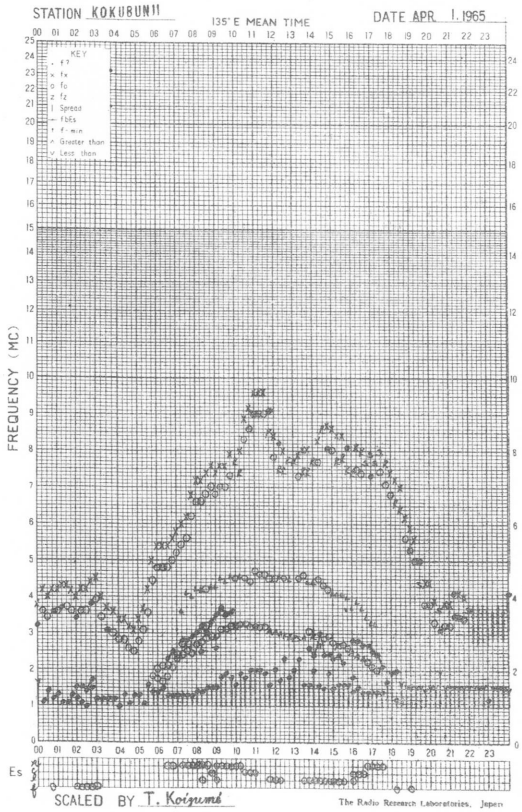


SCALED BY T. Koizumi

The Radio Research Laboratories, Japan

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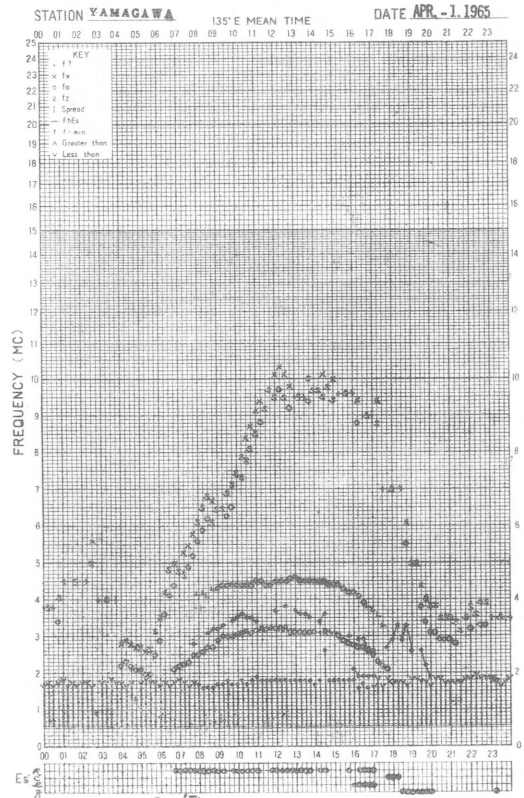


SCALED BY S. Shitomi

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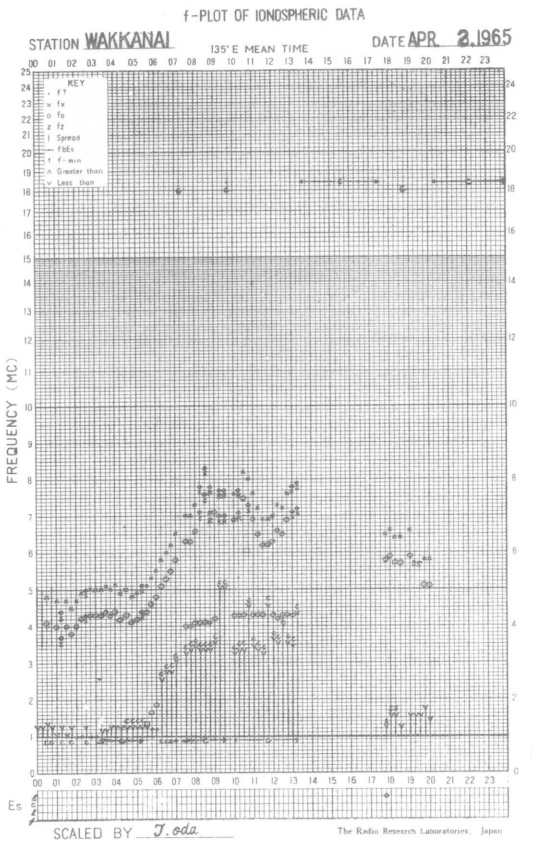
f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE APR. 2, 1965
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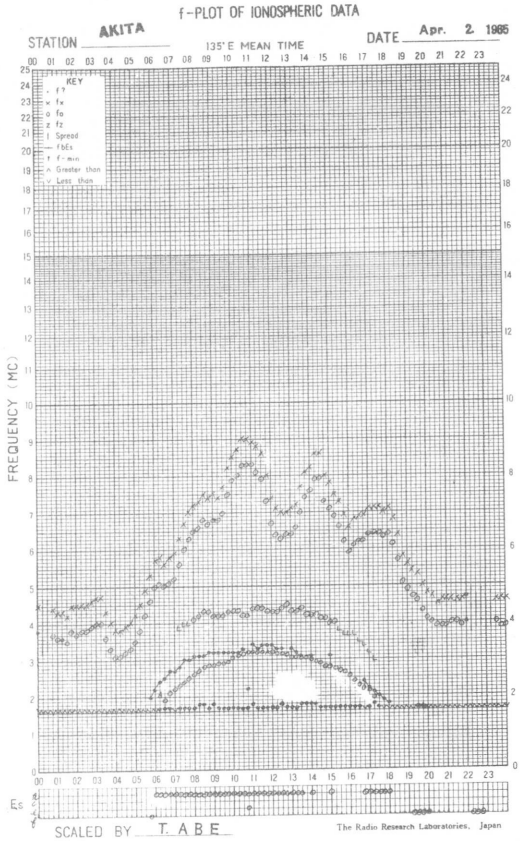
SCALED BY T. oda
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
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DATE Apr. 2, 1965
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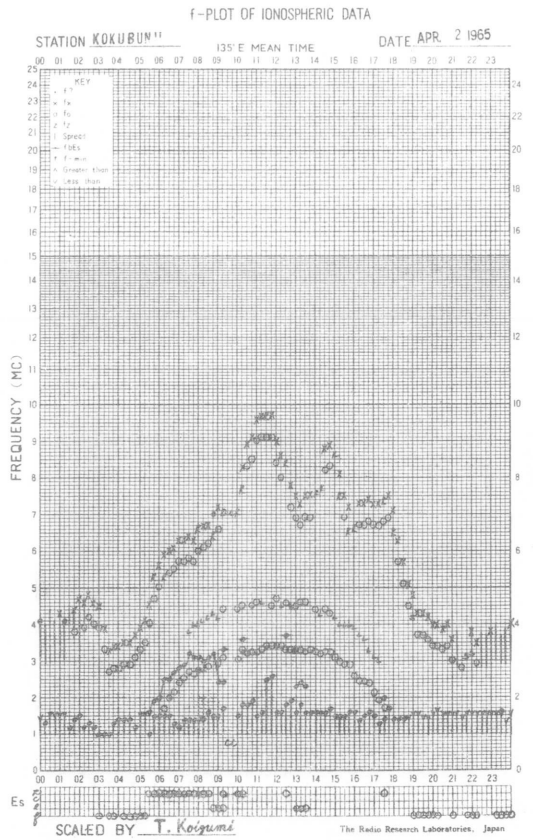
SCALED BY T. ABE
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
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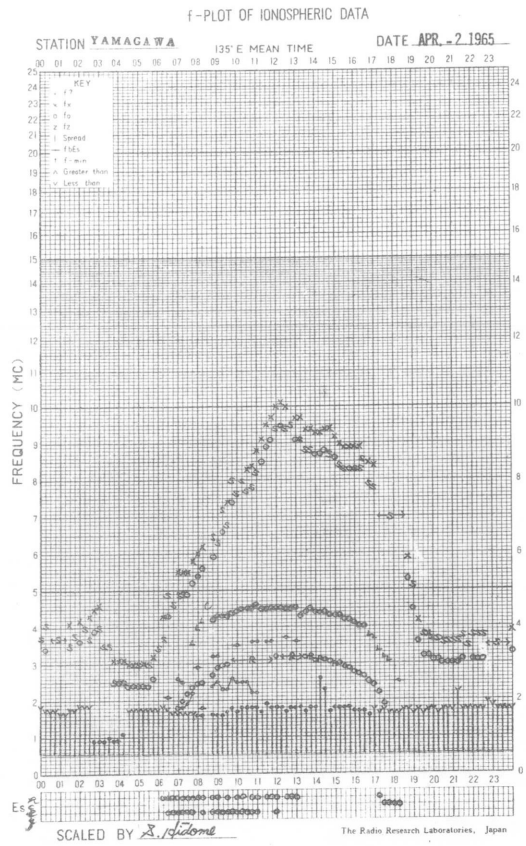
SCALED BY T. Koizumi
The Radio Research Laboratories, Japan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STATION YAMAGAWA
135° E MEAN TIME
DATE APR. 2 1965
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SCALED BY S. Nidome
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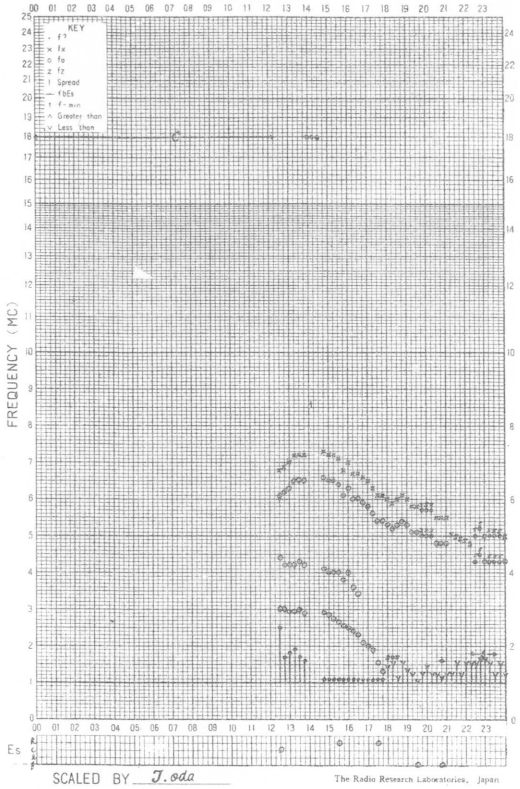
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE APR. 3.1965

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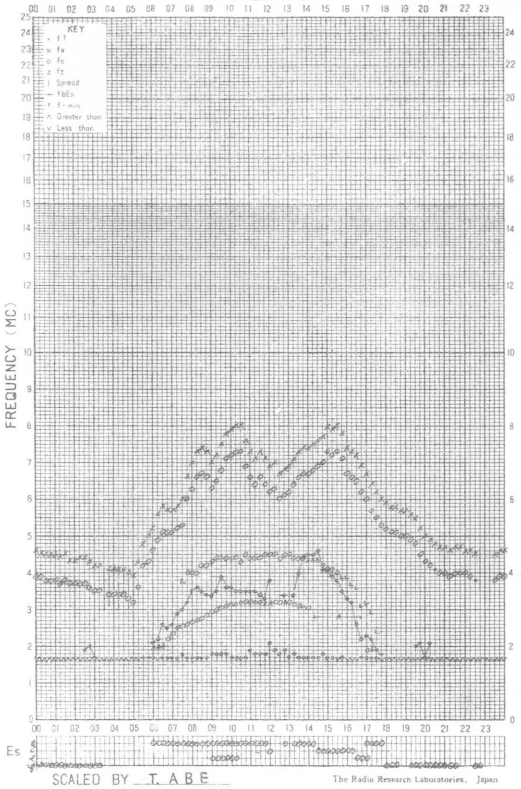


SCALED BY T. ABE

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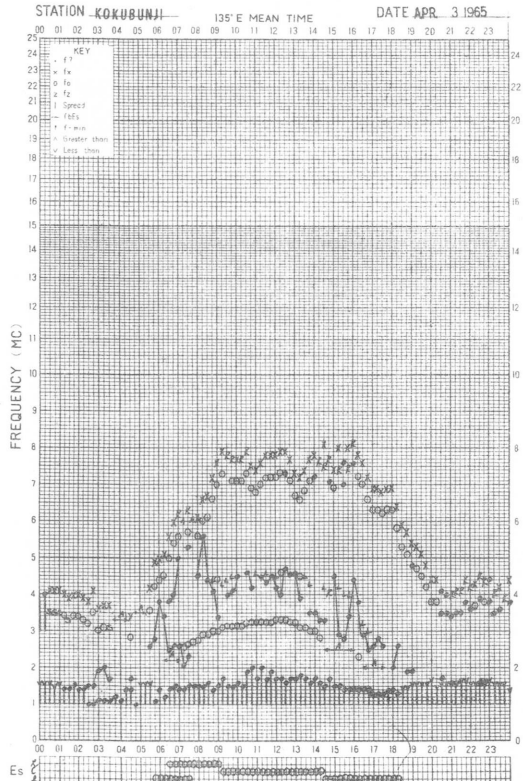


SCALED BY K. Yoshikawa

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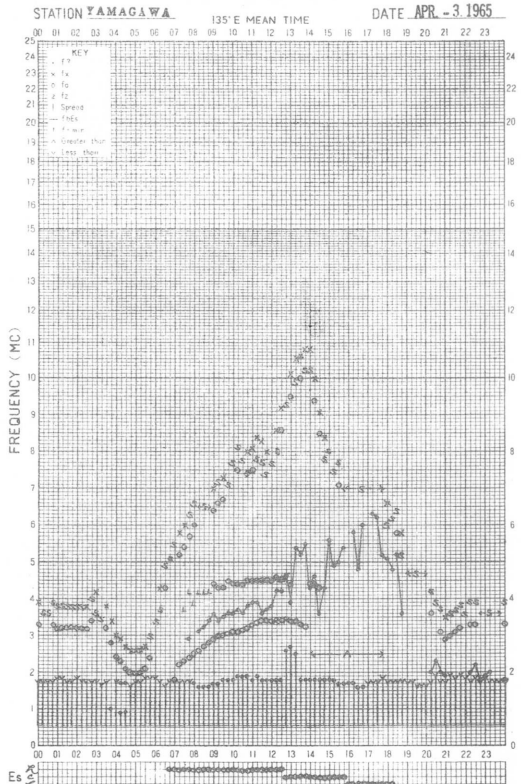
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE APR. - 3 1965

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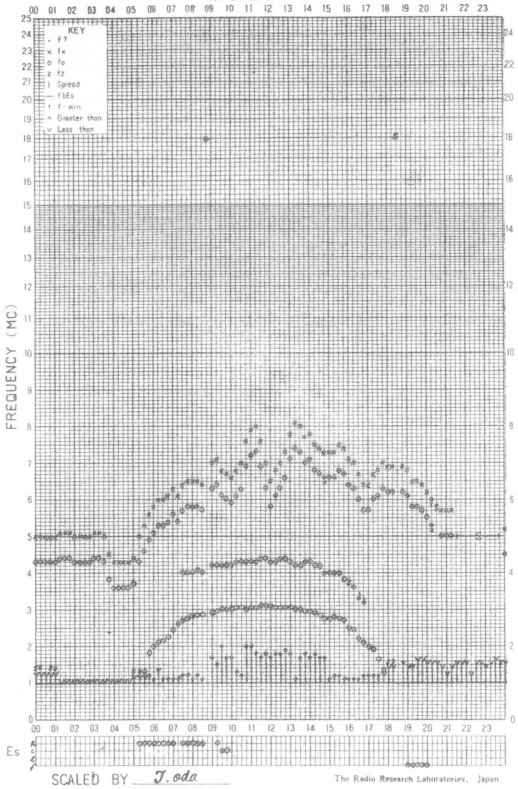
STATION WAKKANAI 135° E MEAN TIME DATE APR. 4 1965

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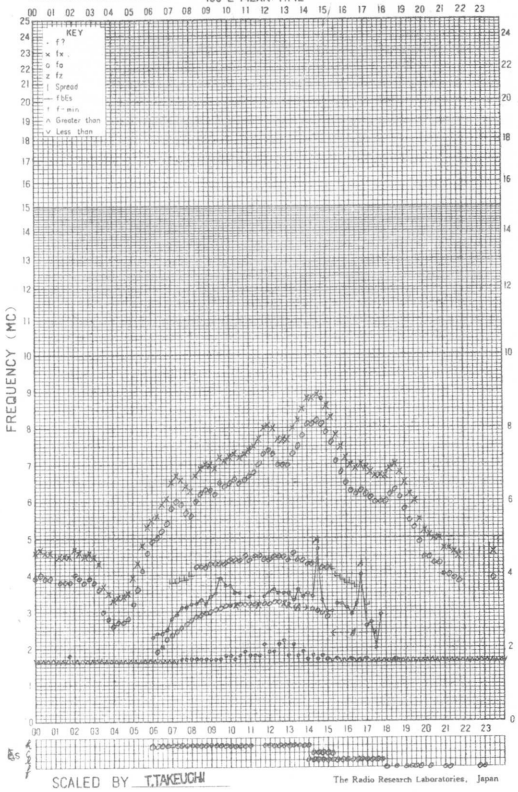


SCALED BY T. TAKEUCHI

The Radio Research Laboratories, Japan

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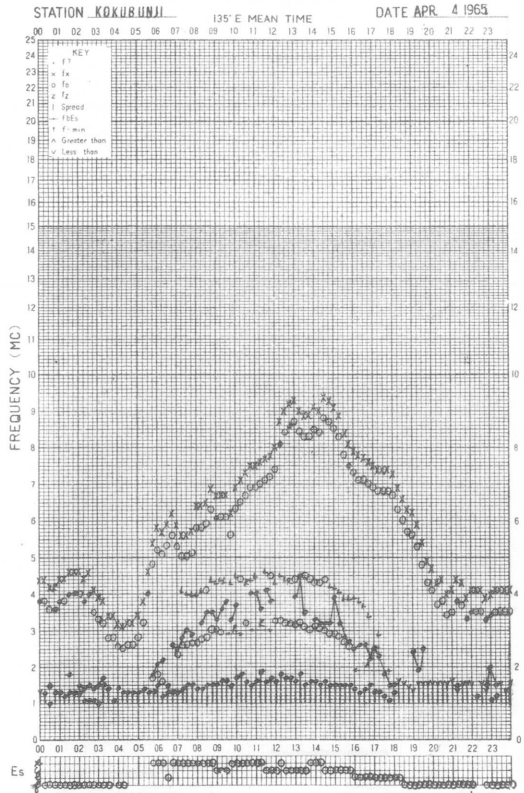


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f-PLOT OF IONOSPHERIC DATA

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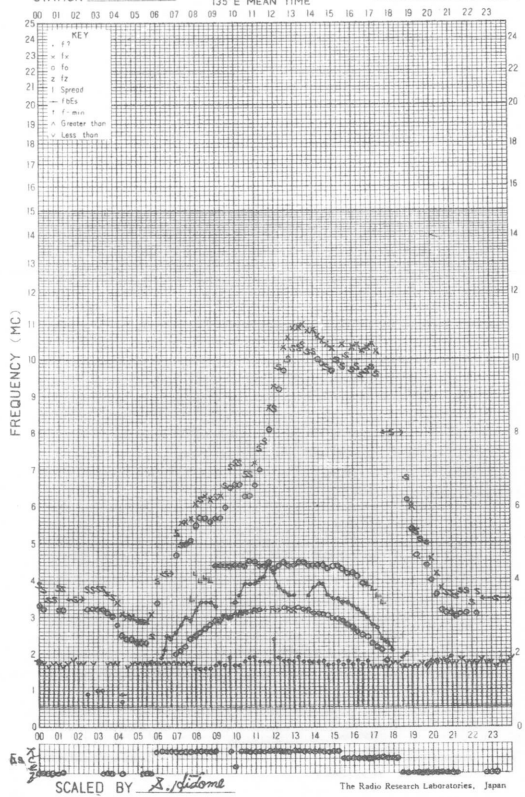


SCALED BY S. Kidome

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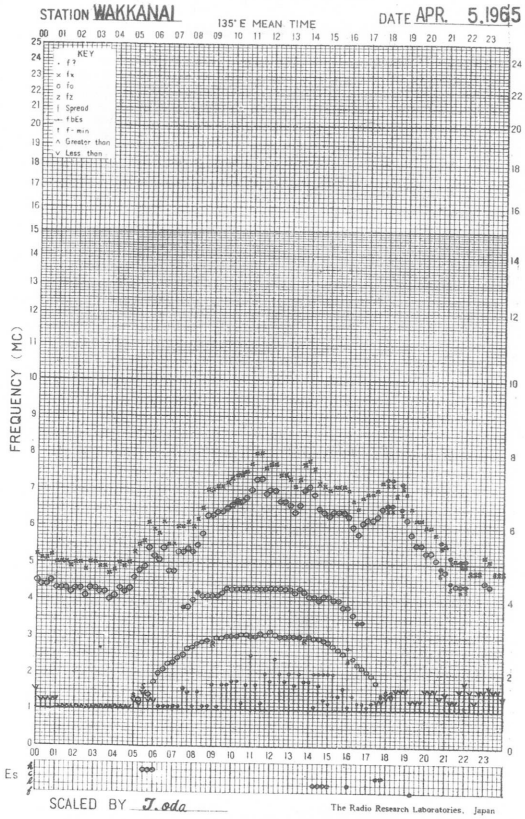


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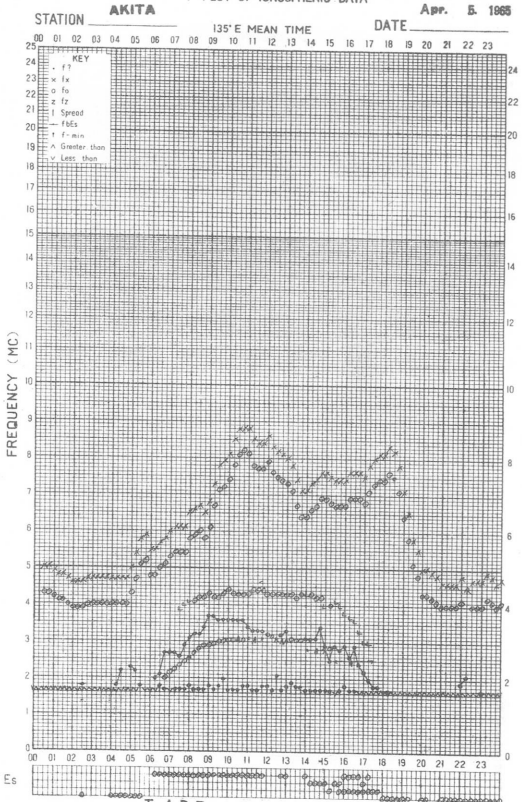


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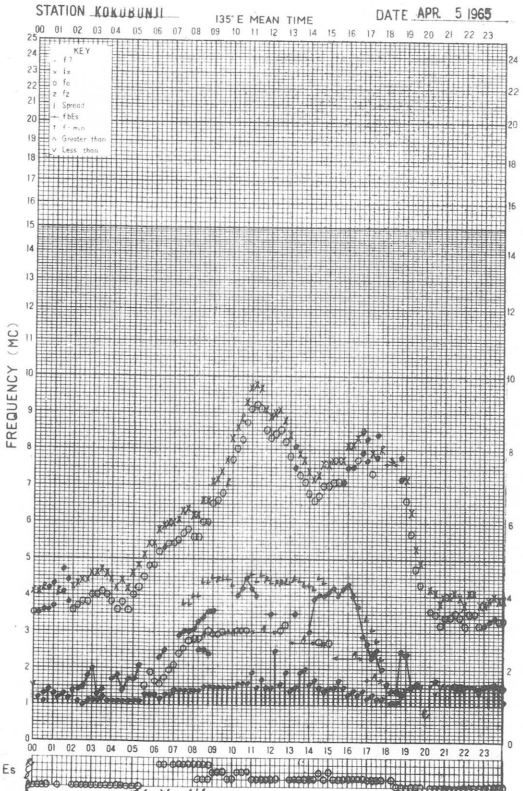


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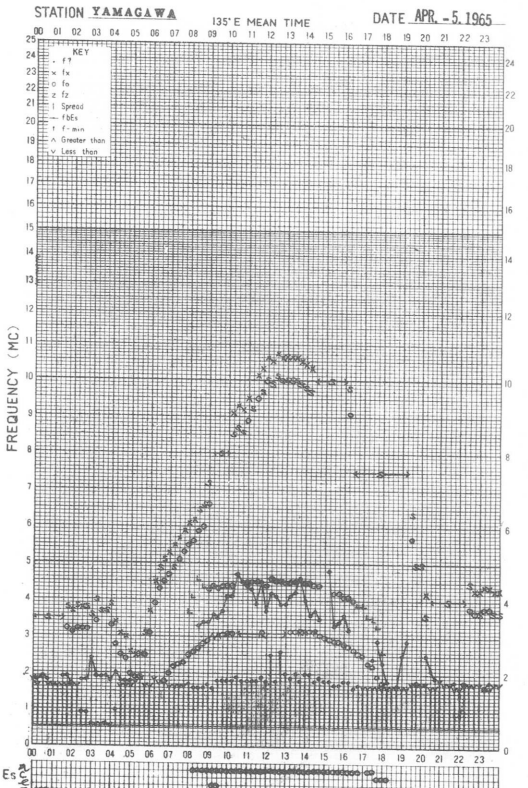


SCALED BY S. Kidome

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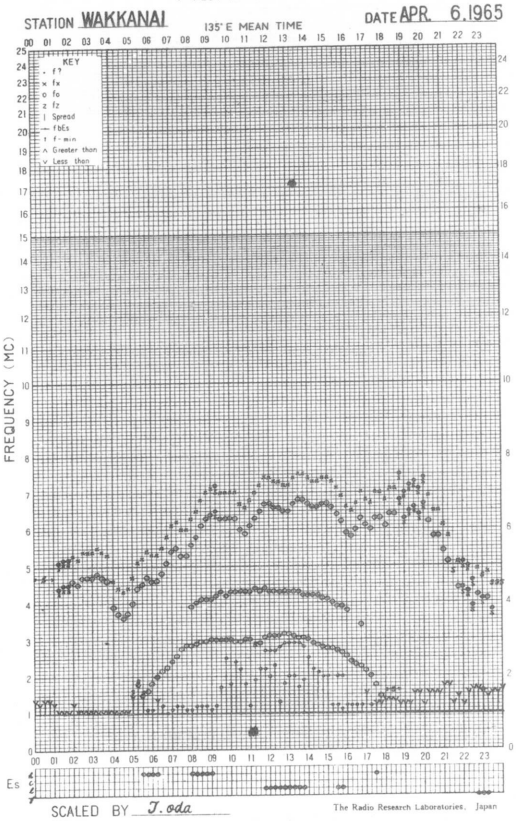


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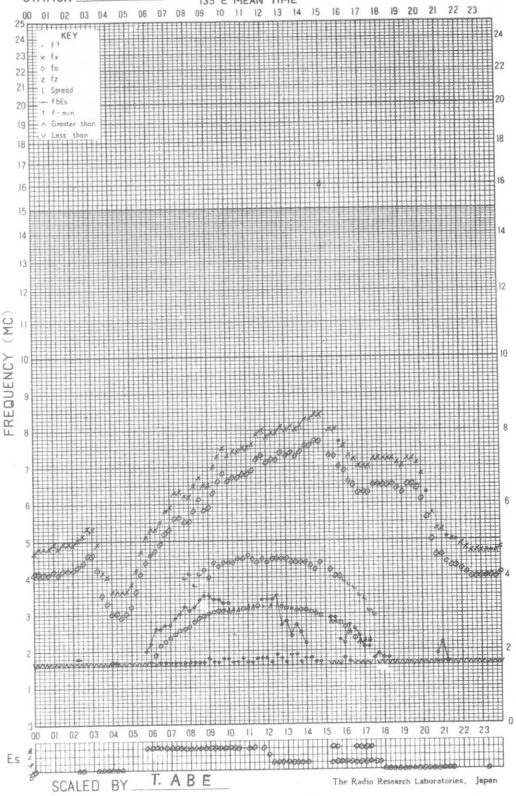


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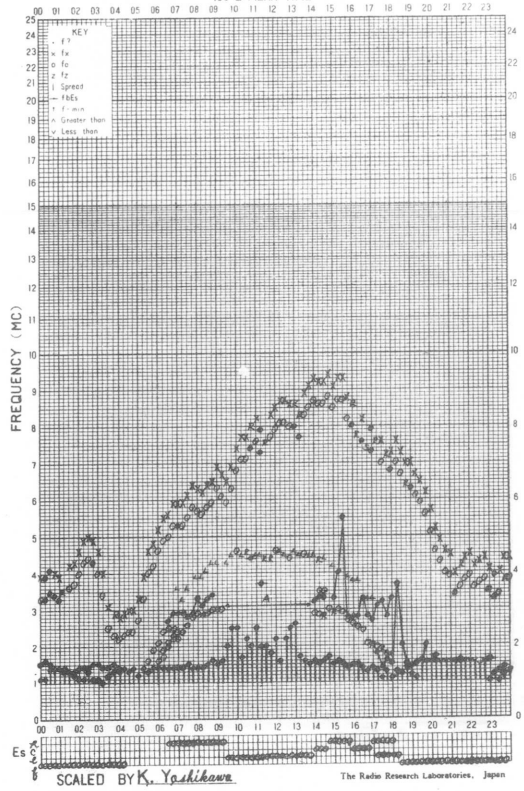


SCALED BY K. Yoshikawa

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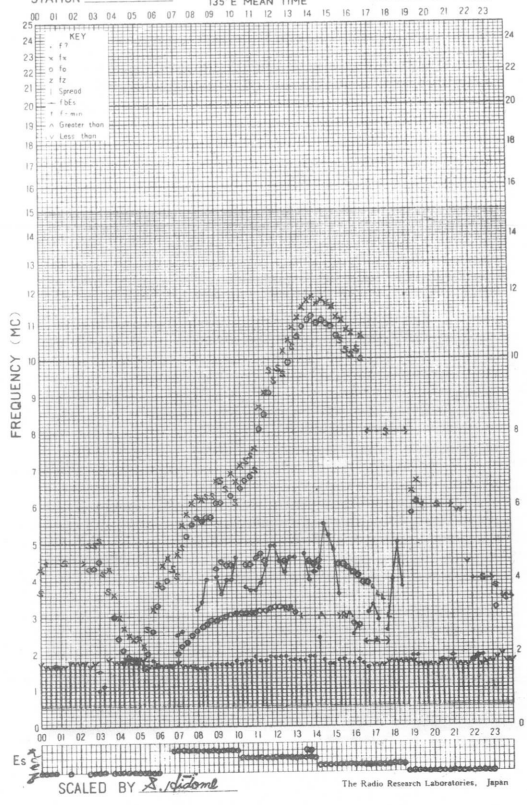


SCALED BY S. Shitomi

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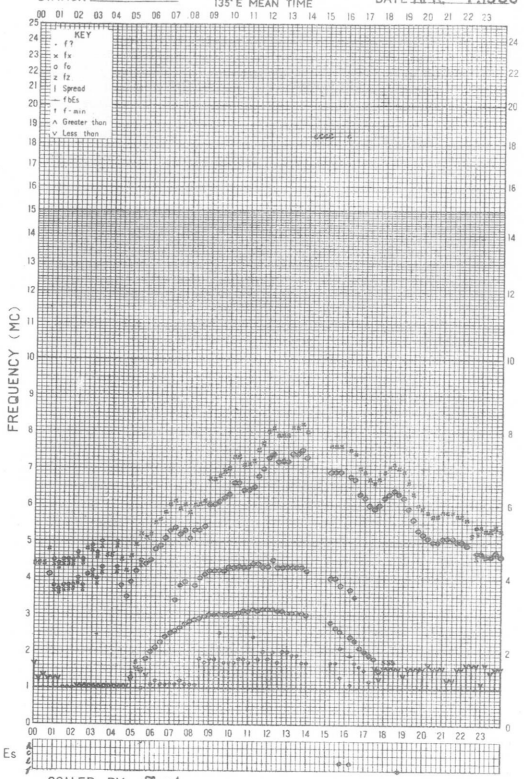


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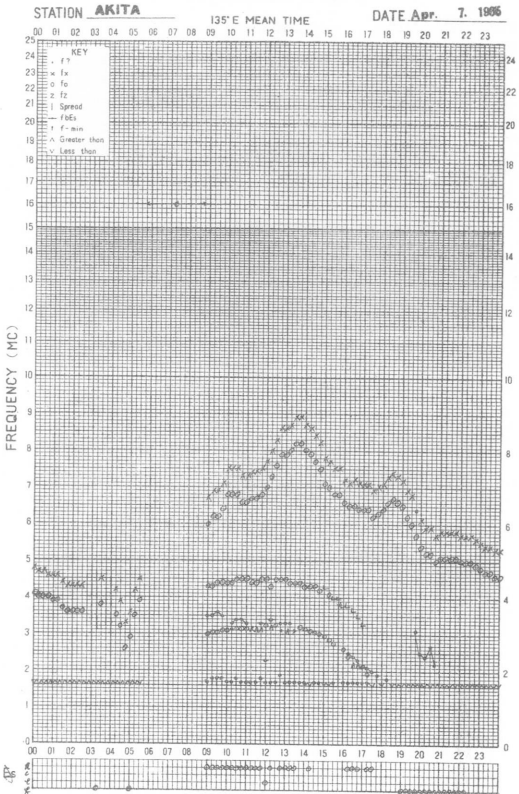


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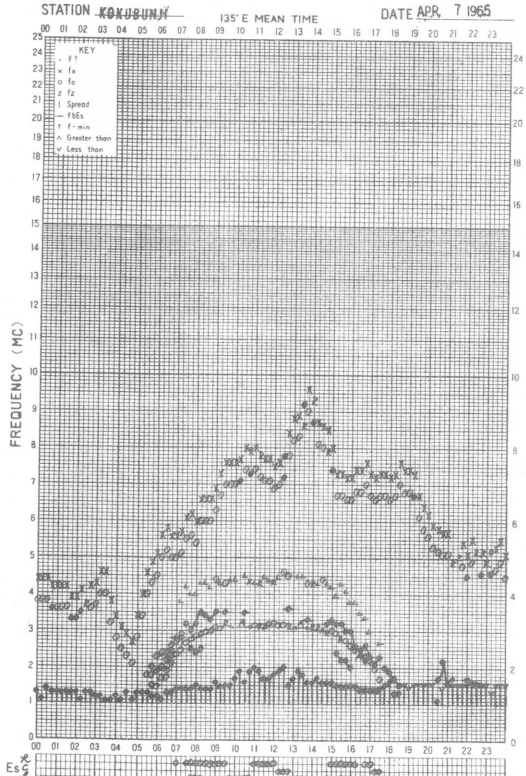


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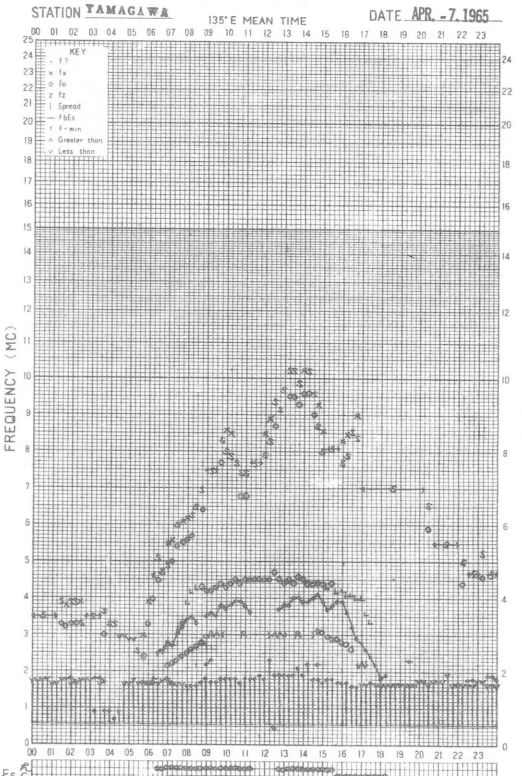


SCALED BY A. Midorne

The Radio Research Laboratories, Japan

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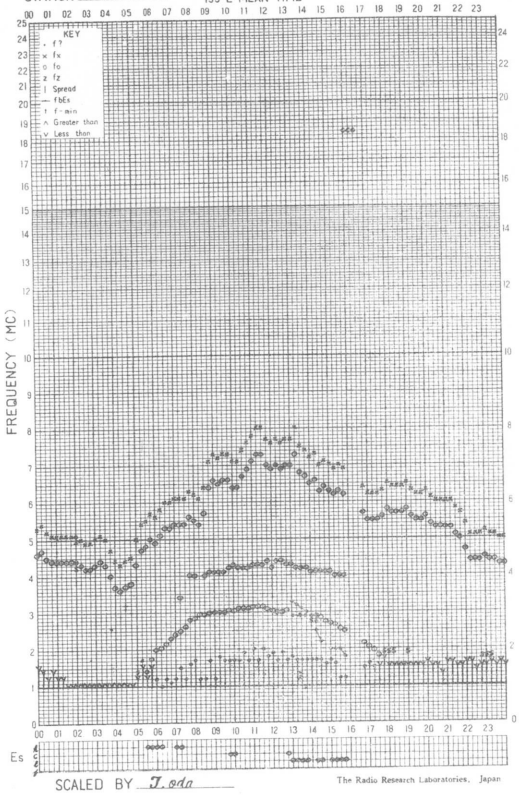
STATION WAKKANAI 135°E MEAN TIME DATE APR. 8, 1965




SCALED BY T. oda

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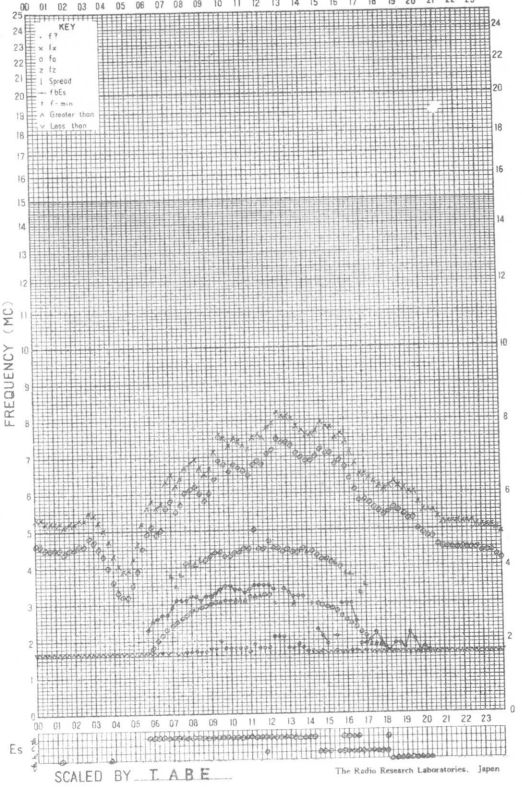


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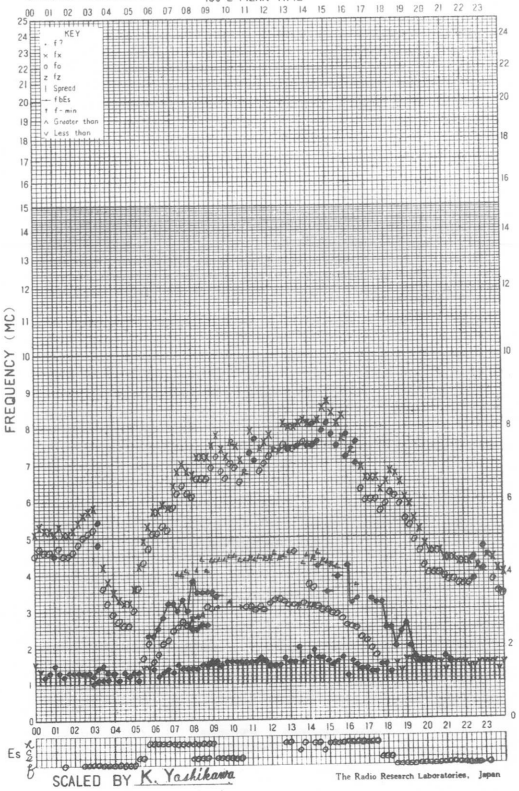


SCALED BY K. Yoshikawa

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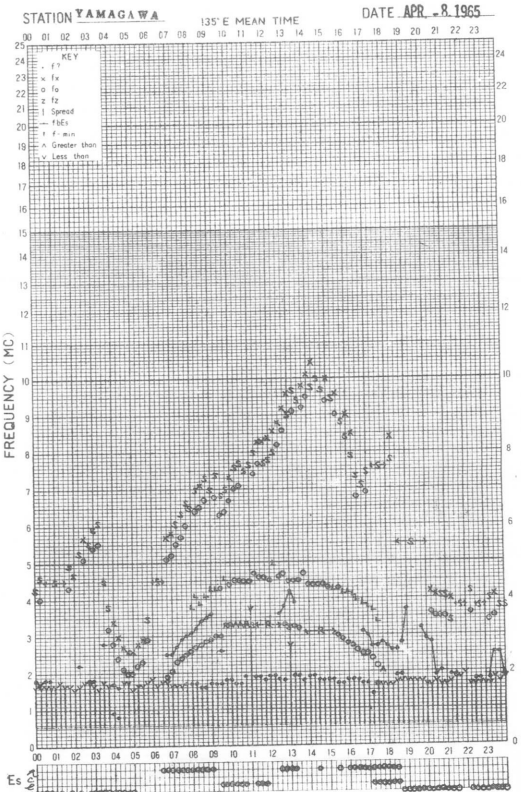


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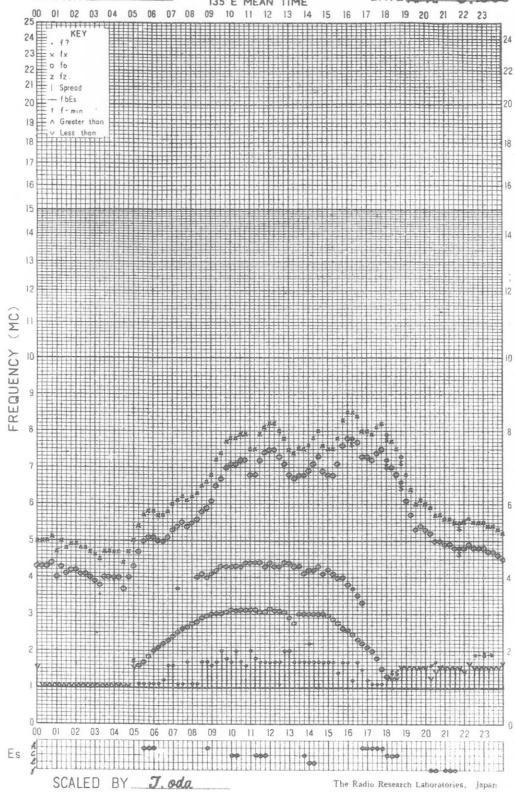


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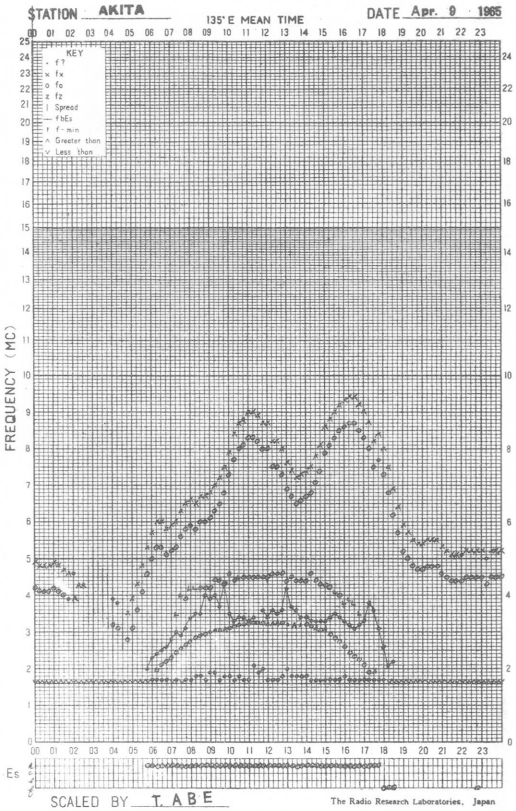


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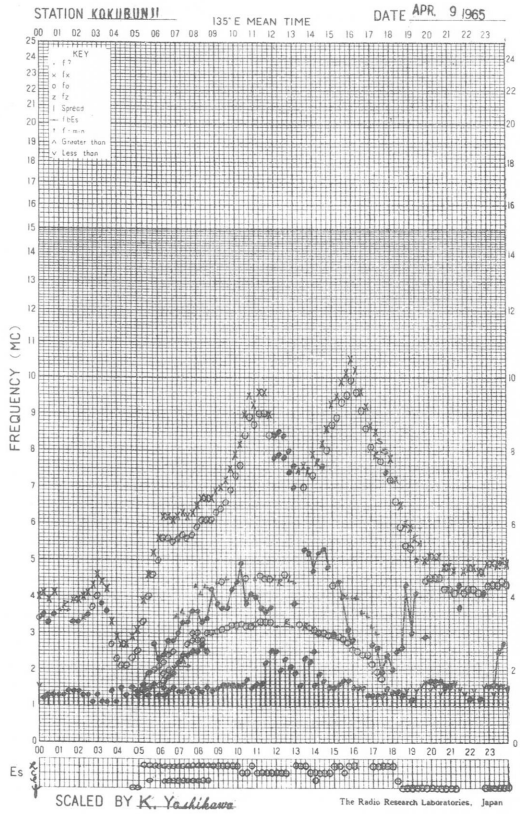


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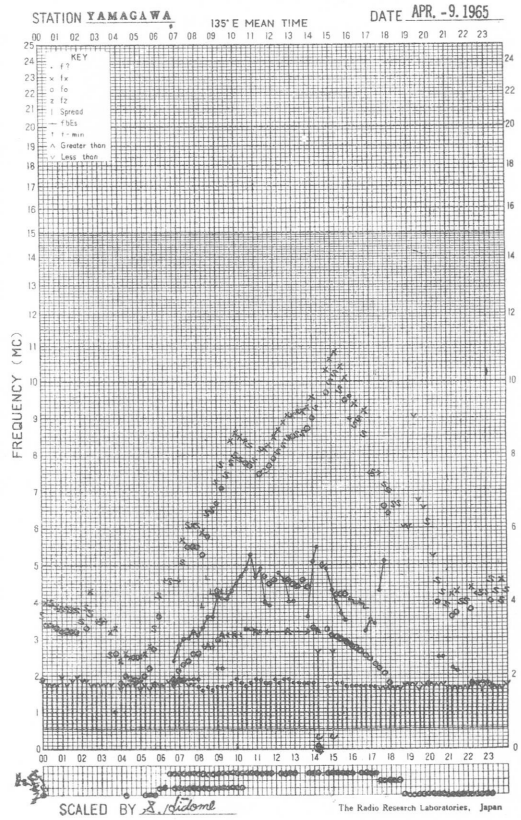


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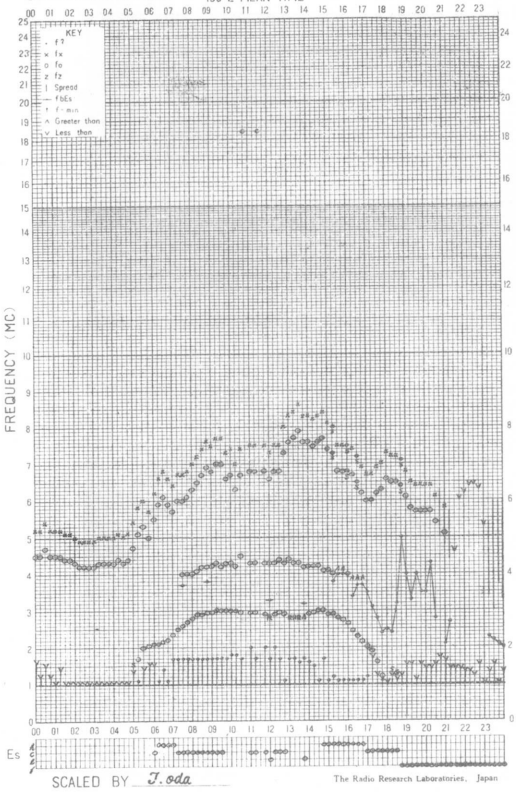


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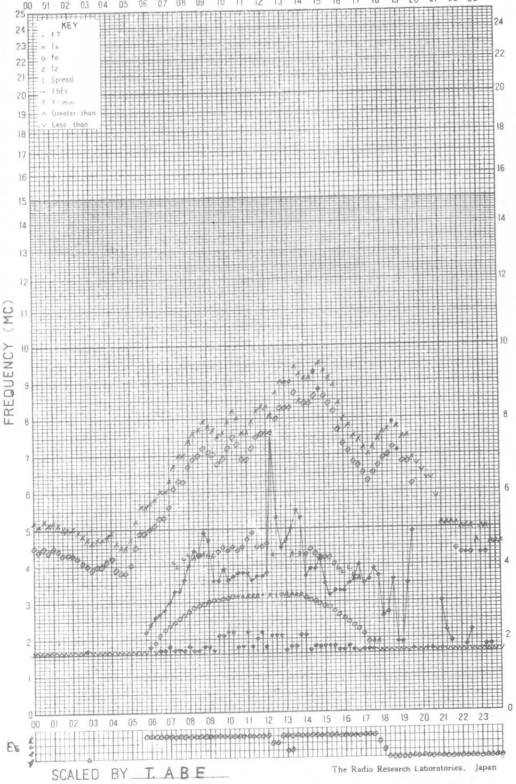


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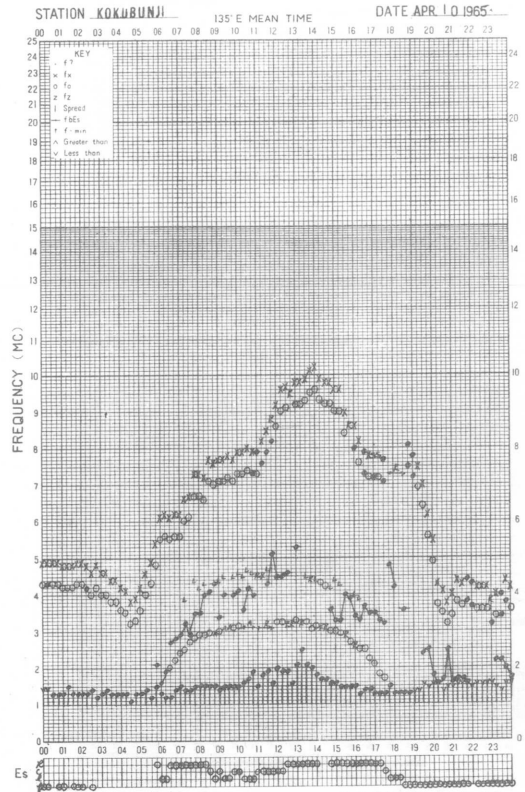


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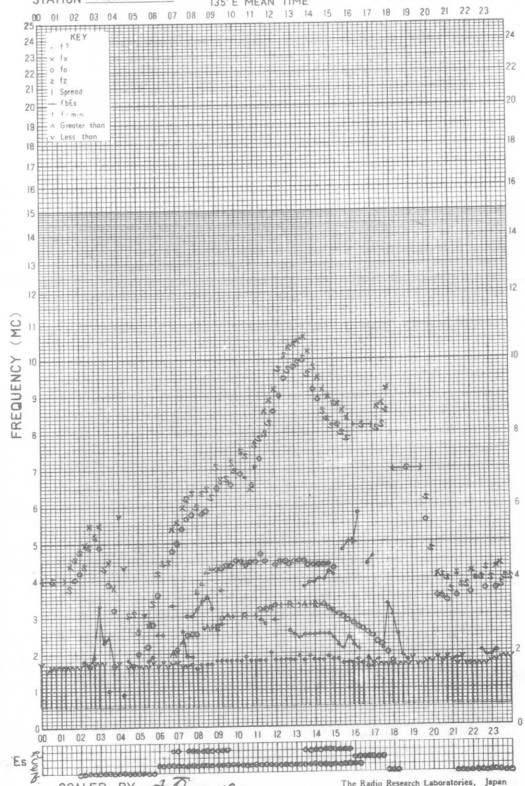


SCALED BY A. Ogawa

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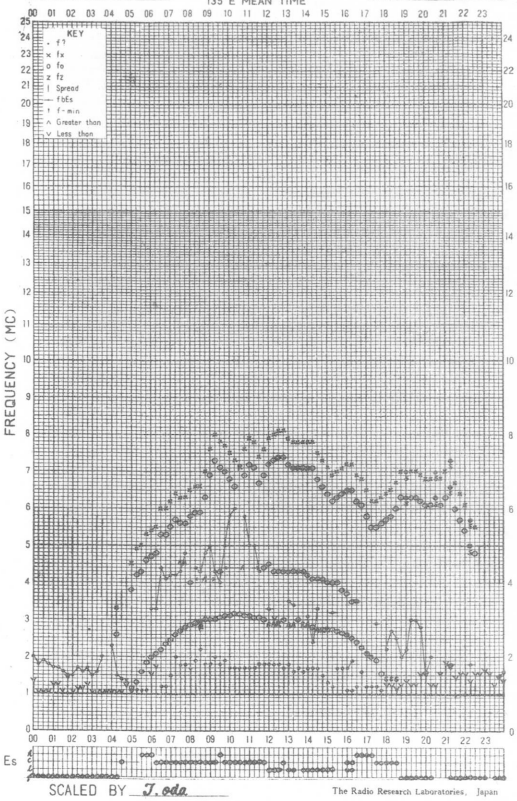


SCALED BY T. oda

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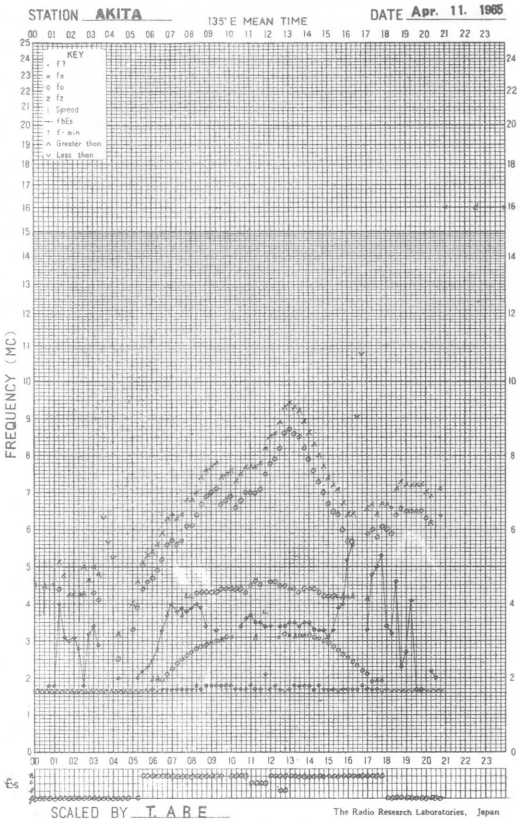


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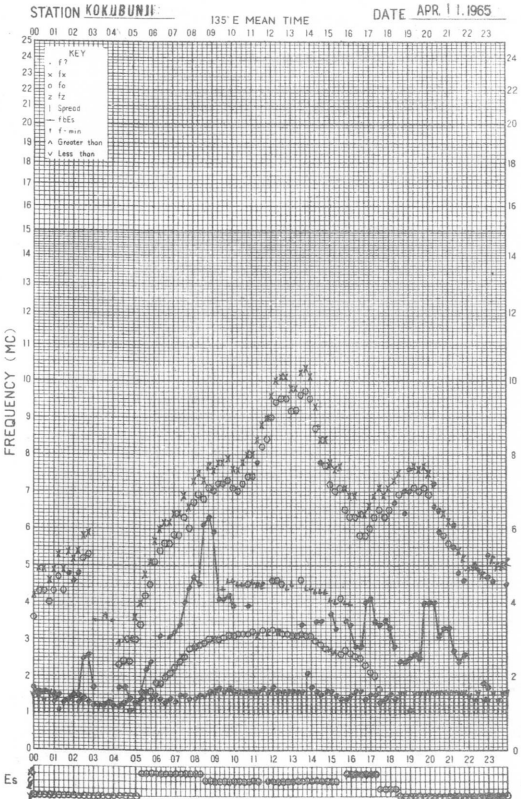


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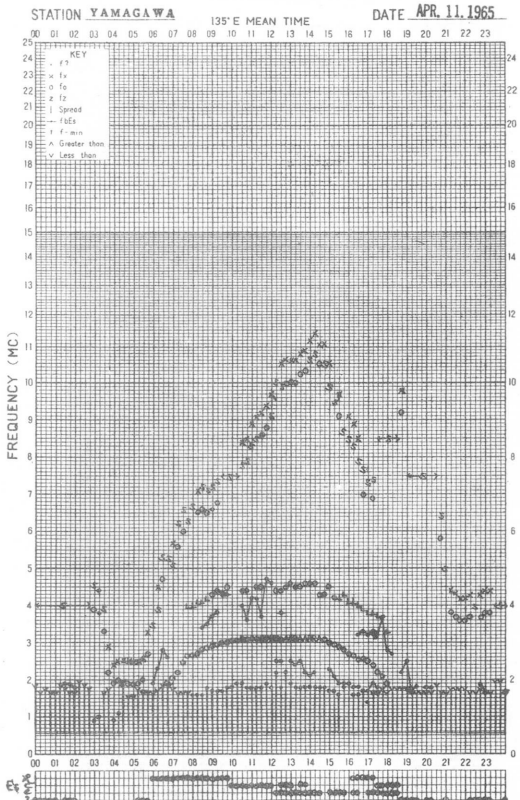


SCALED BY S. Tidome

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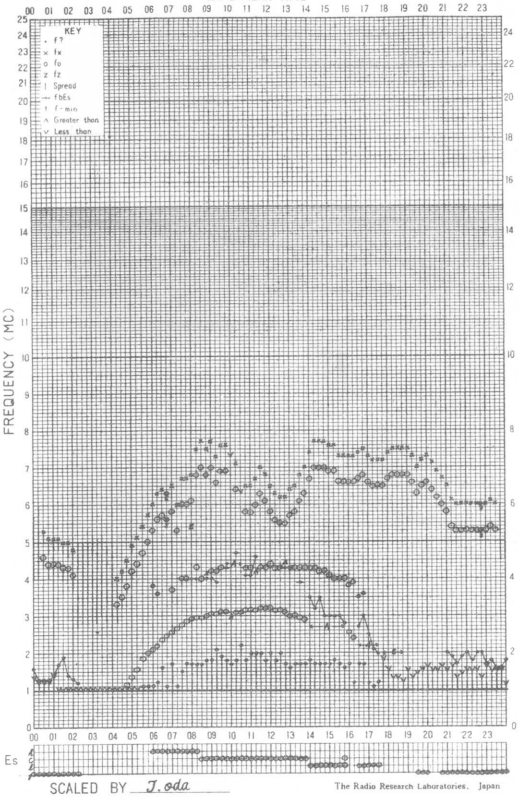


SCALED BY J. oda

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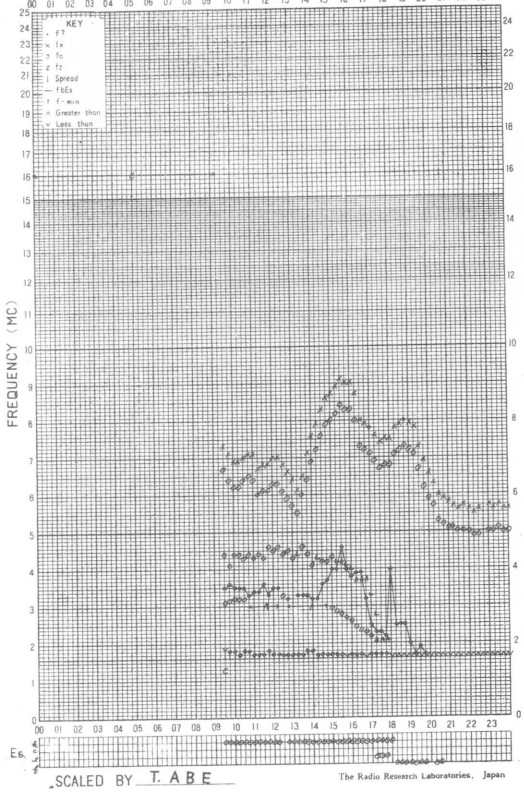


SCALED BY T. ABE

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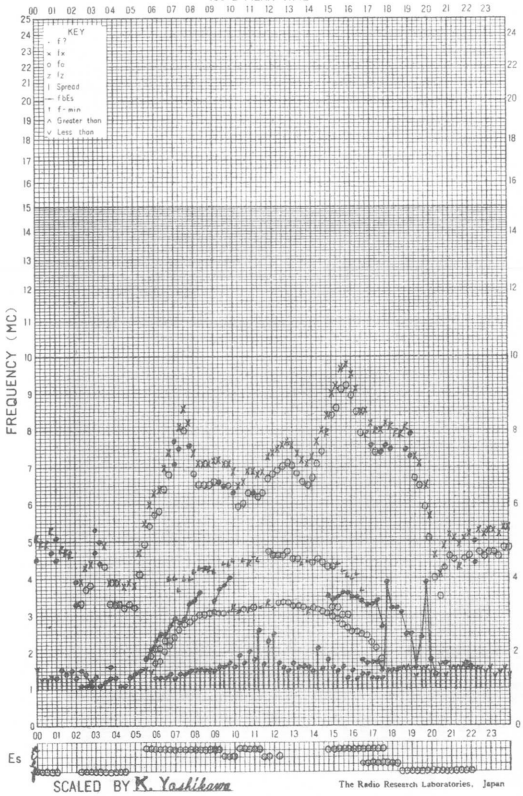


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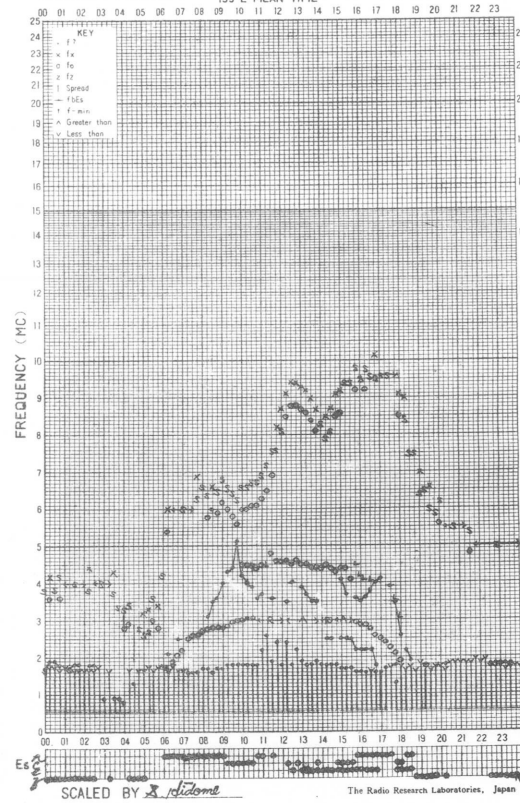


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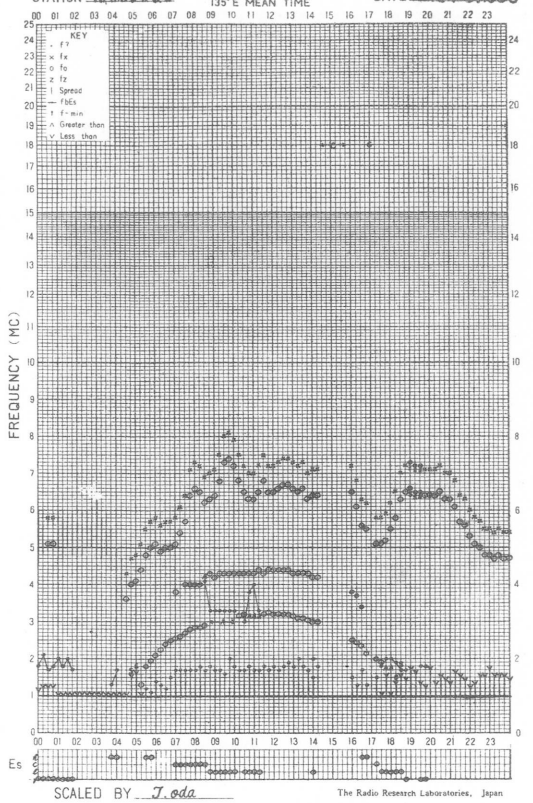


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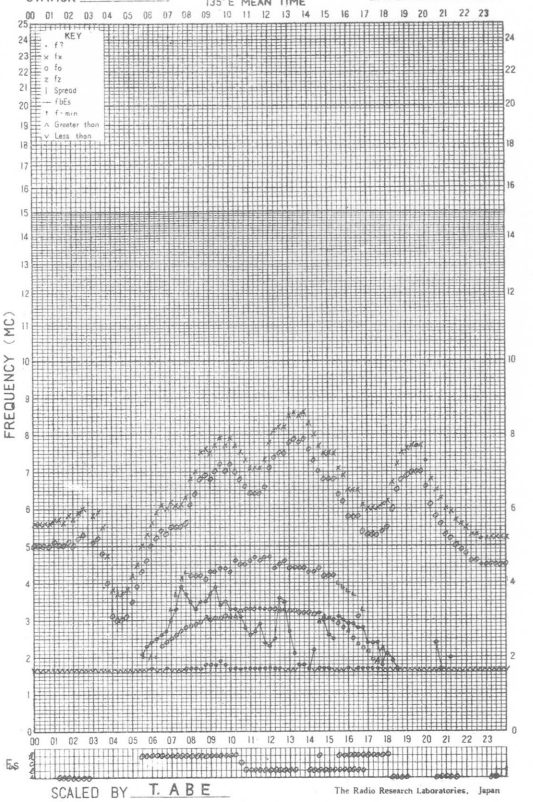


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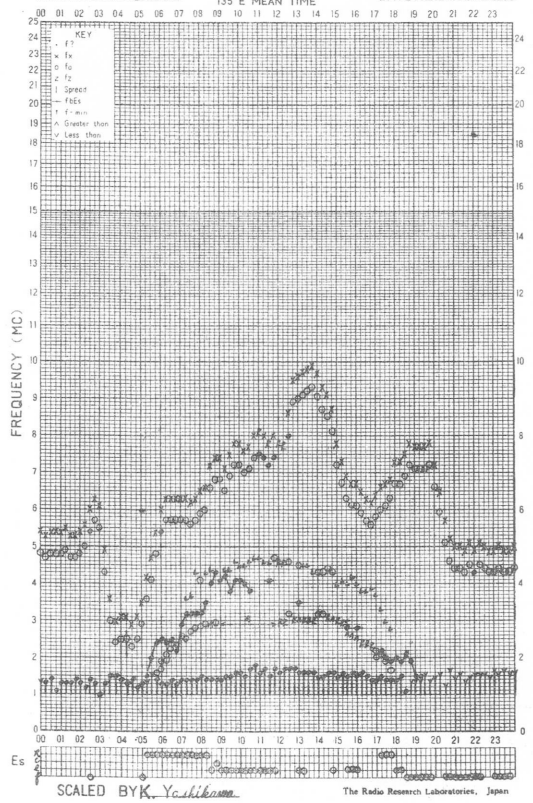


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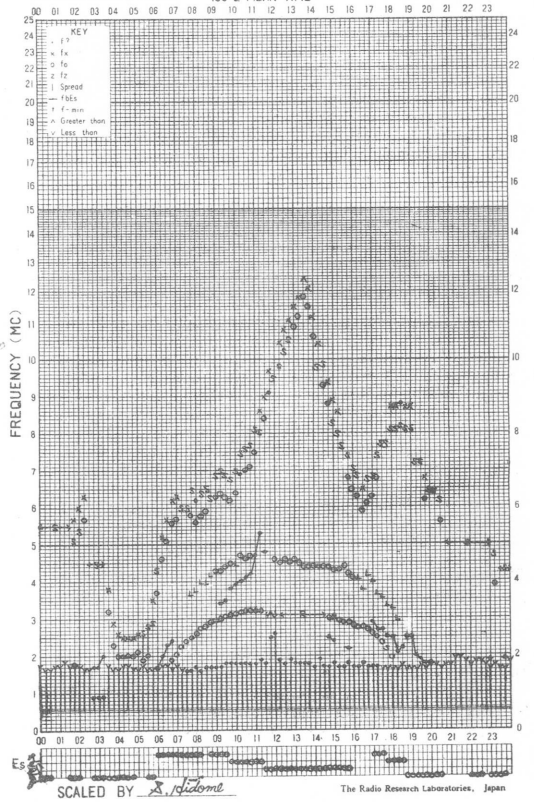


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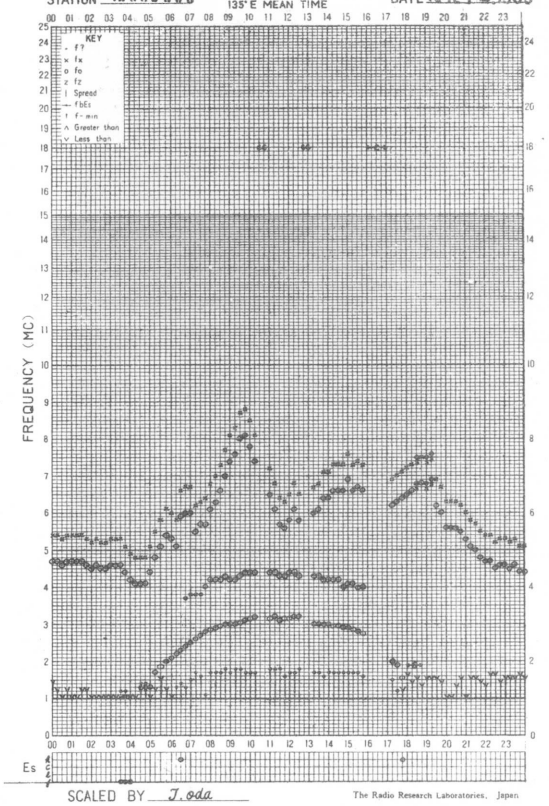


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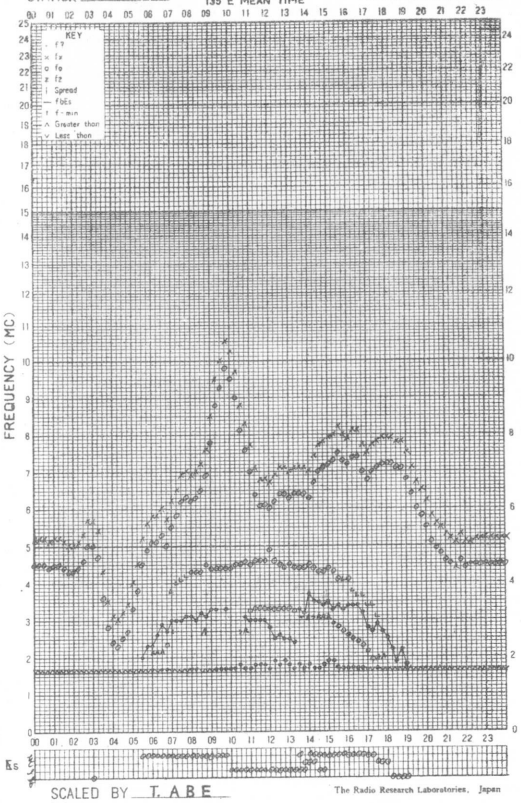


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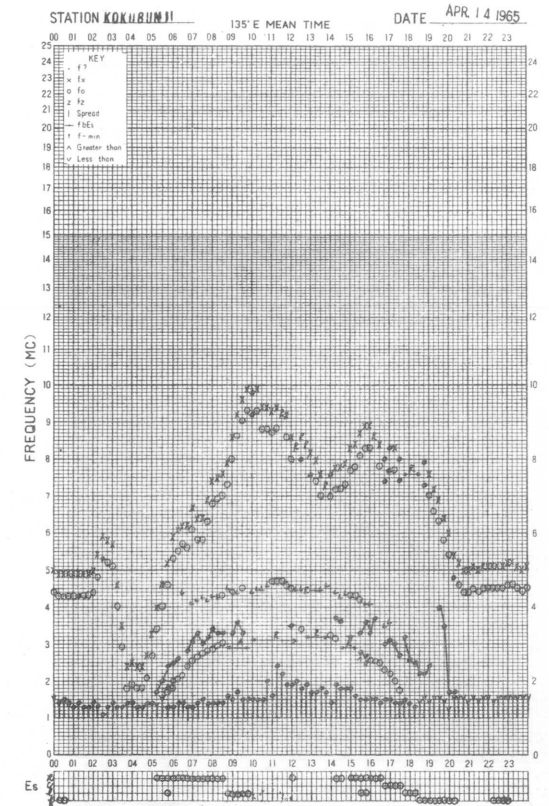


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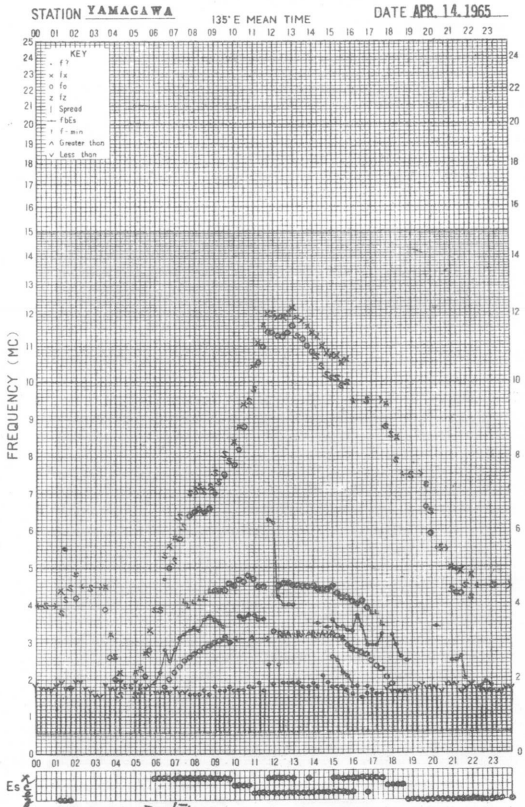


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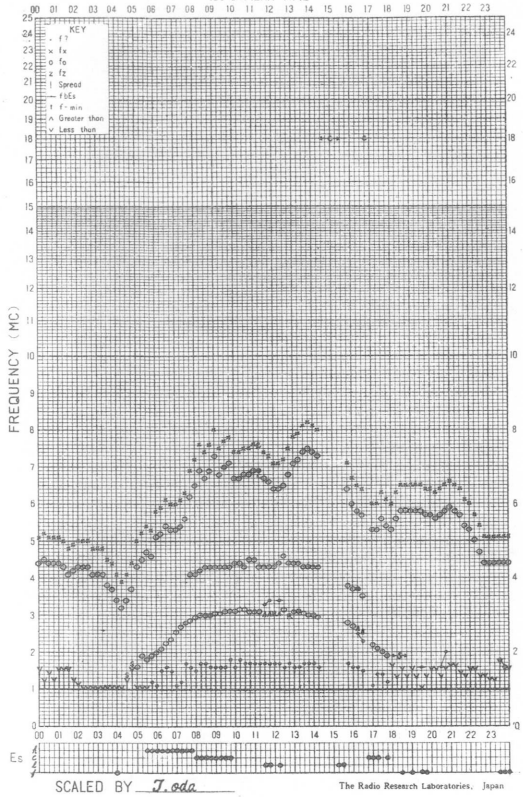


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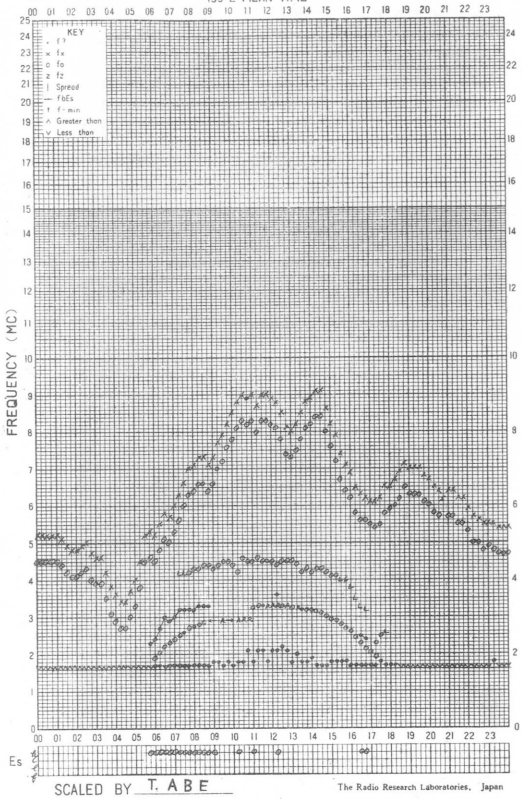


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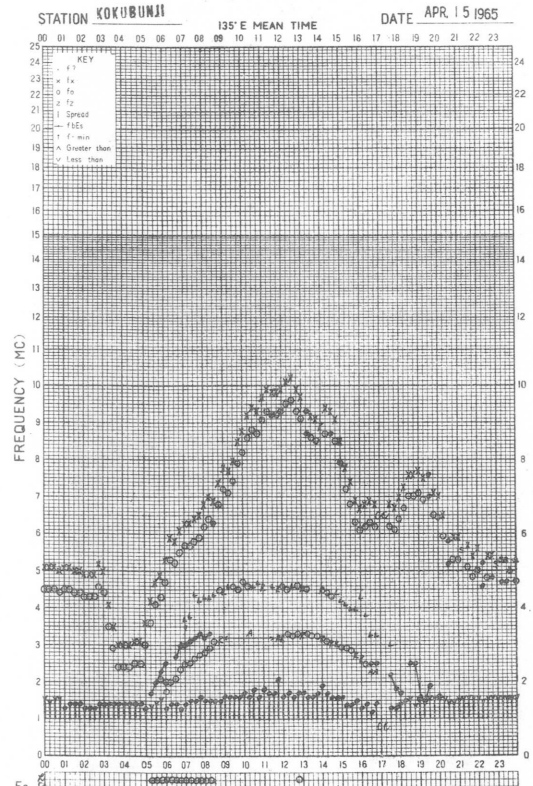


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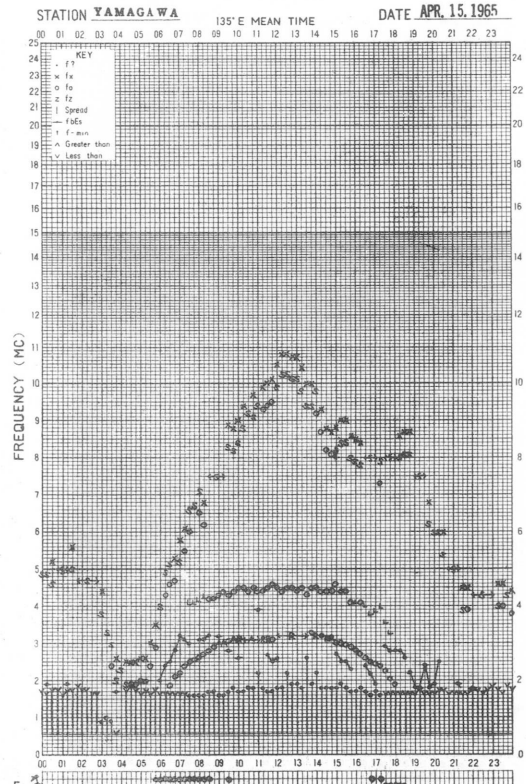


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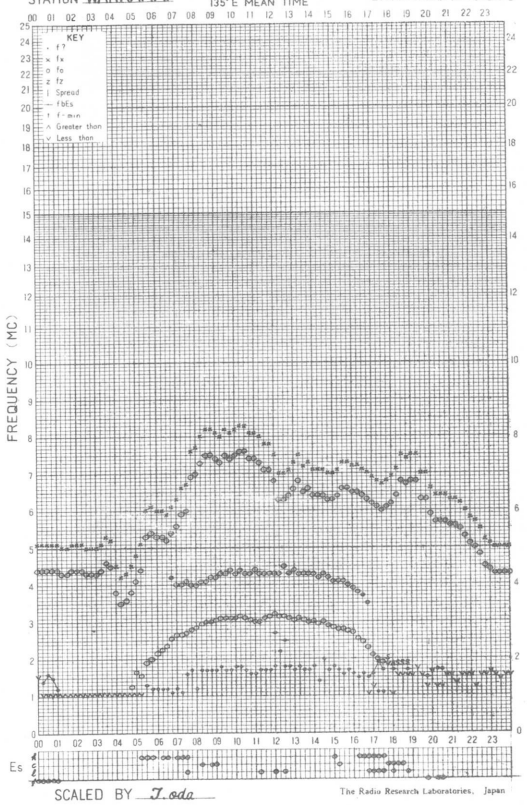


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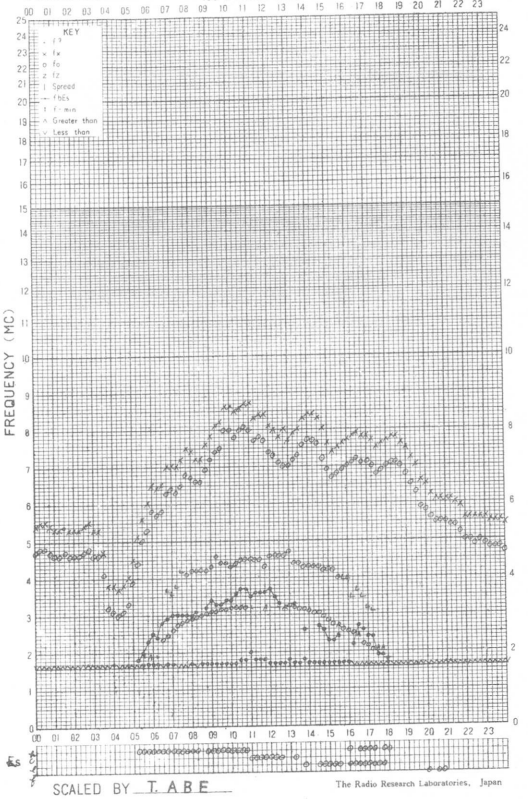


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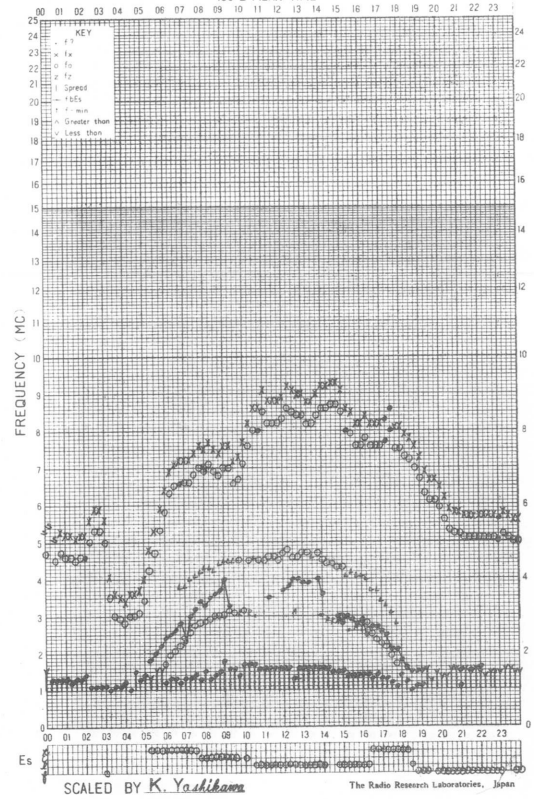


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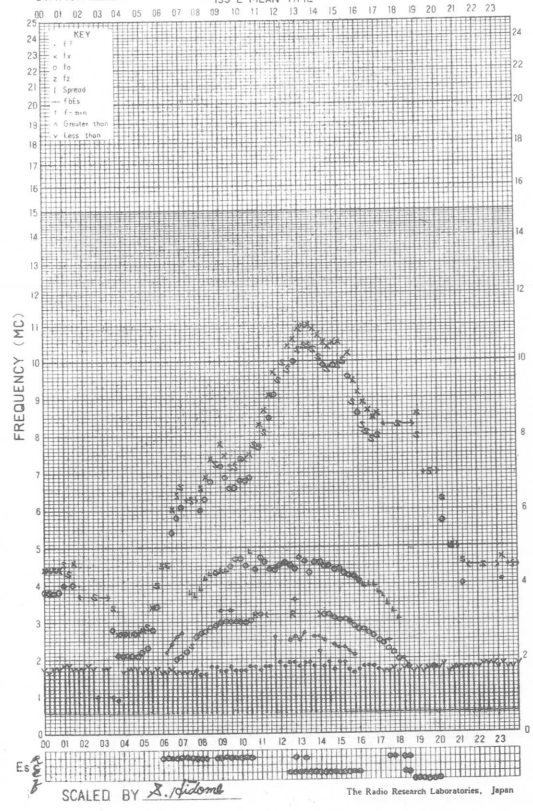


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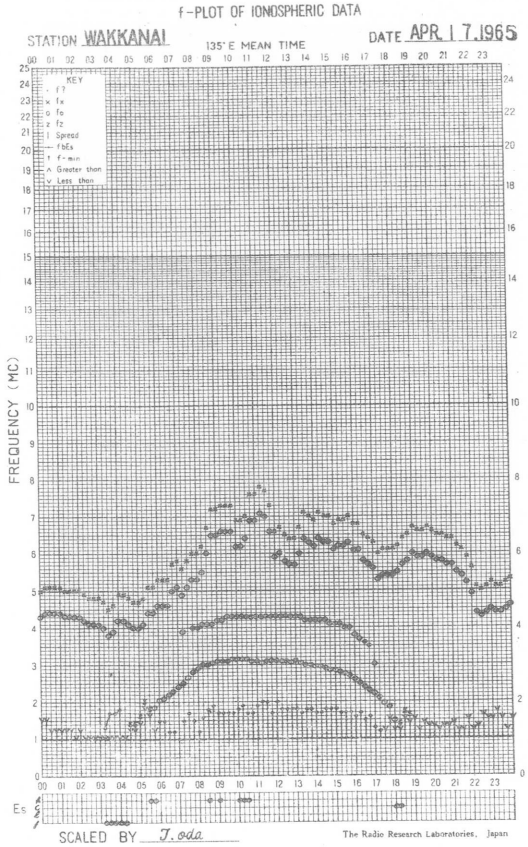


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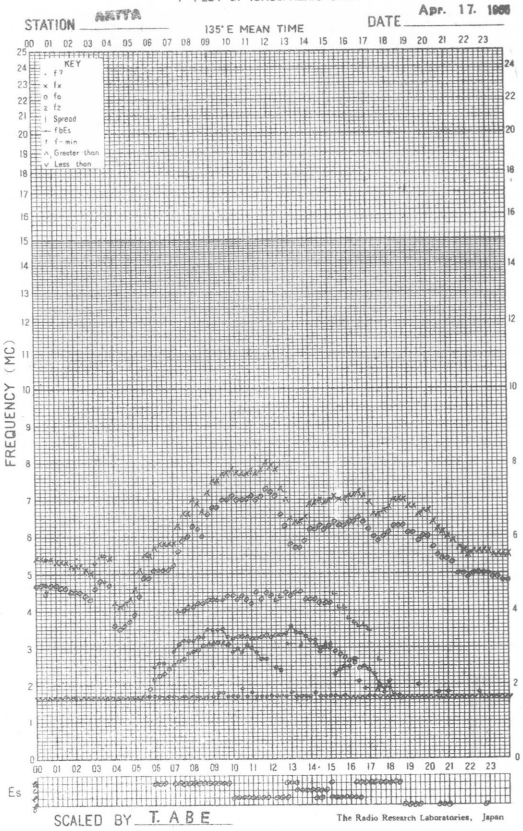


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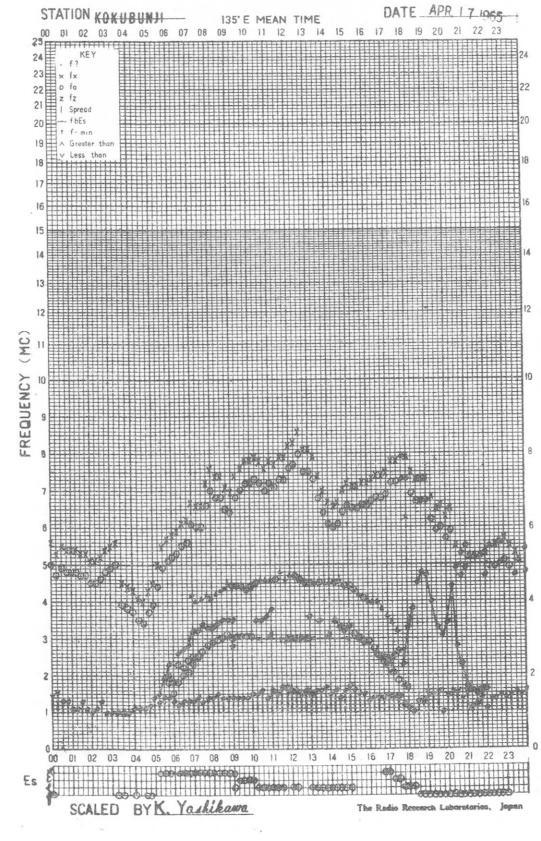


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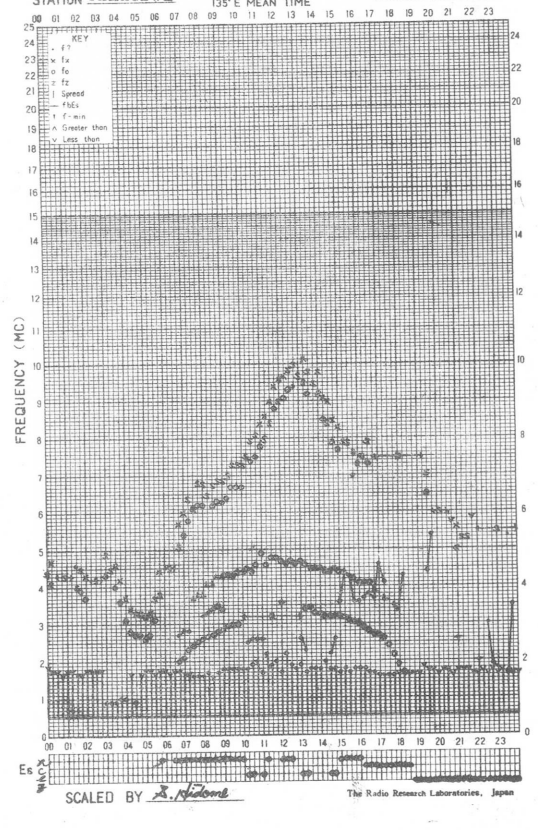


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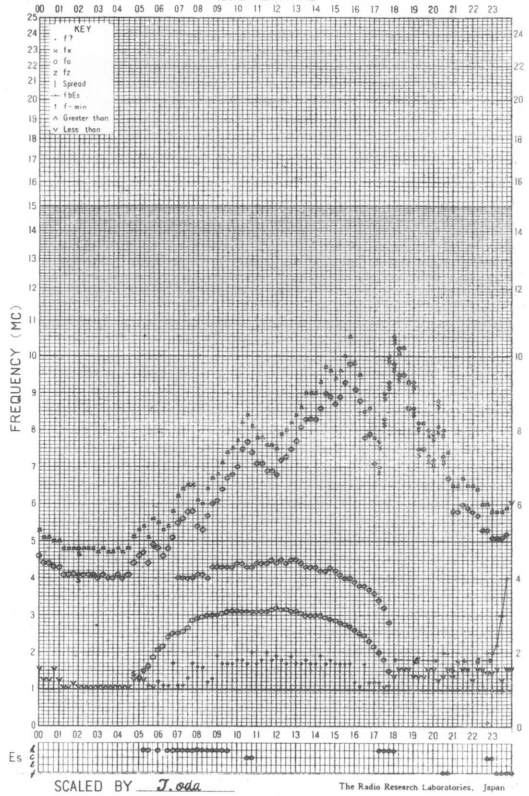


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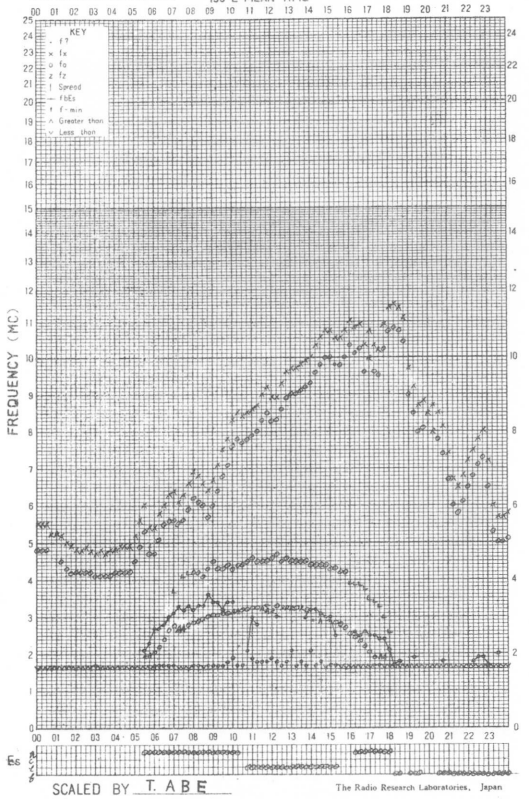


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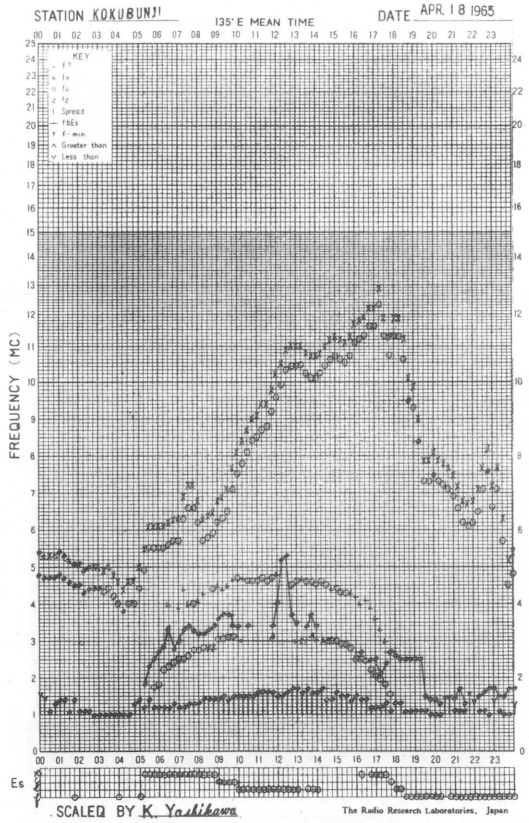


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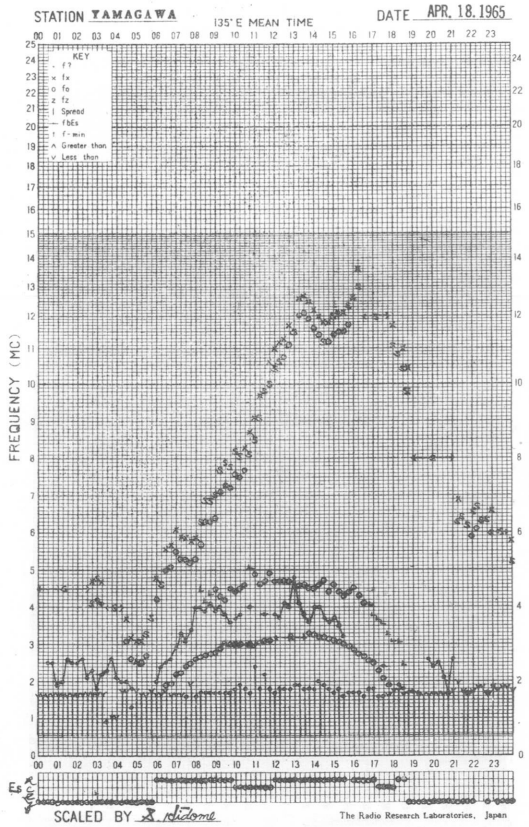


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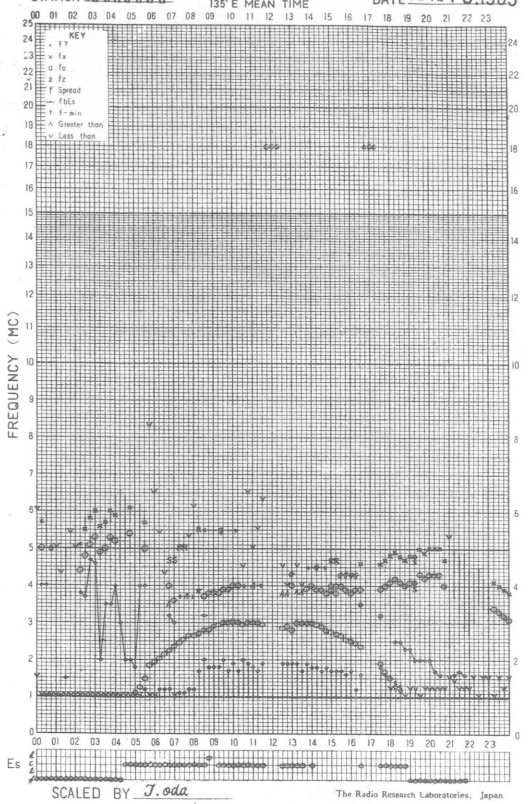


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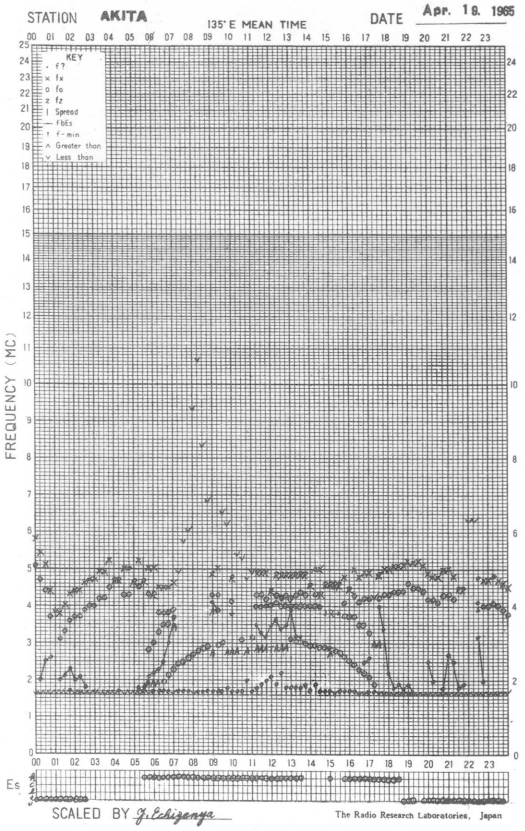
f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135° E MEAN TIME DATE Apr. 19. 1965

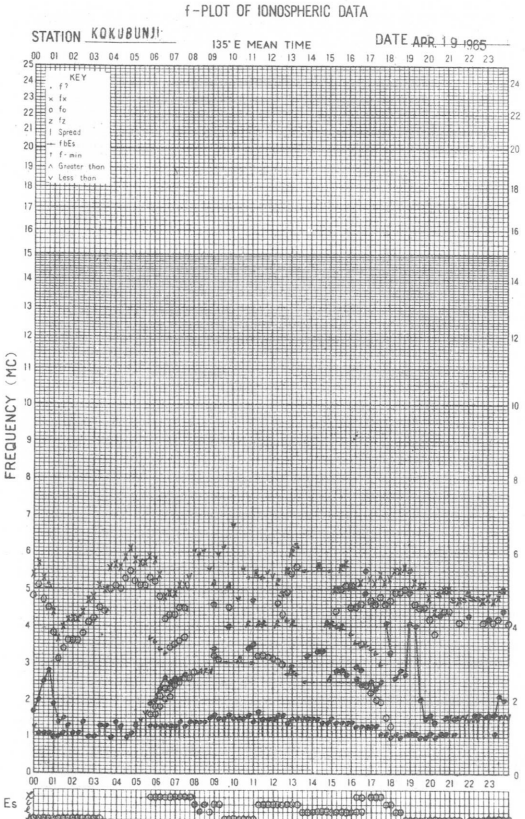



SCALED BY Y. Echizenya

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE APR. 19 1965

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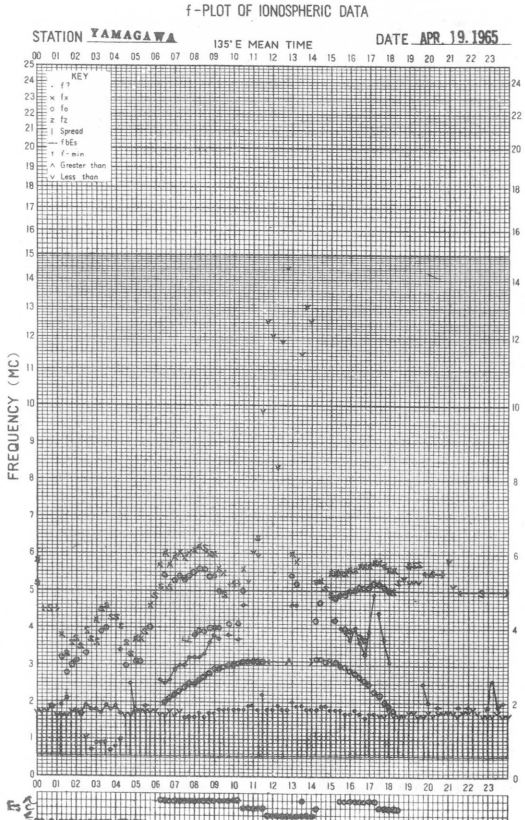


SCALED BY S. Sidooni

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f-PLOT OF IONOSPHERIC DATA

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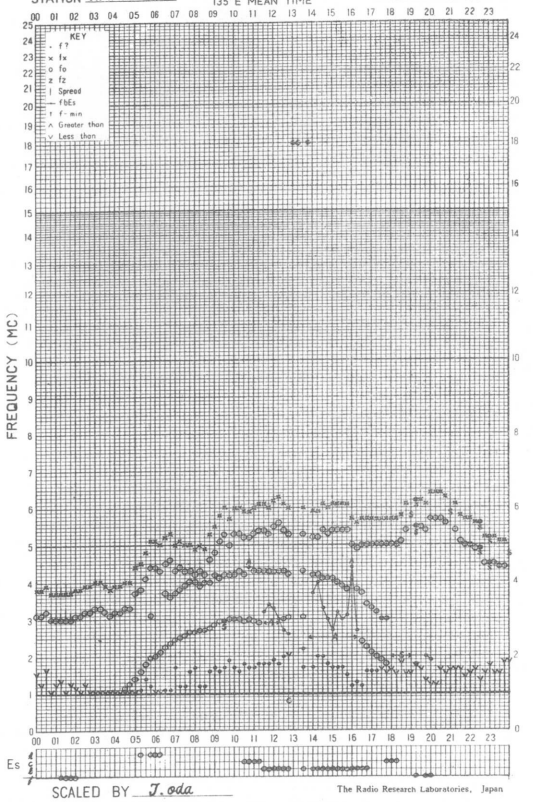


SCALED BY J. oda

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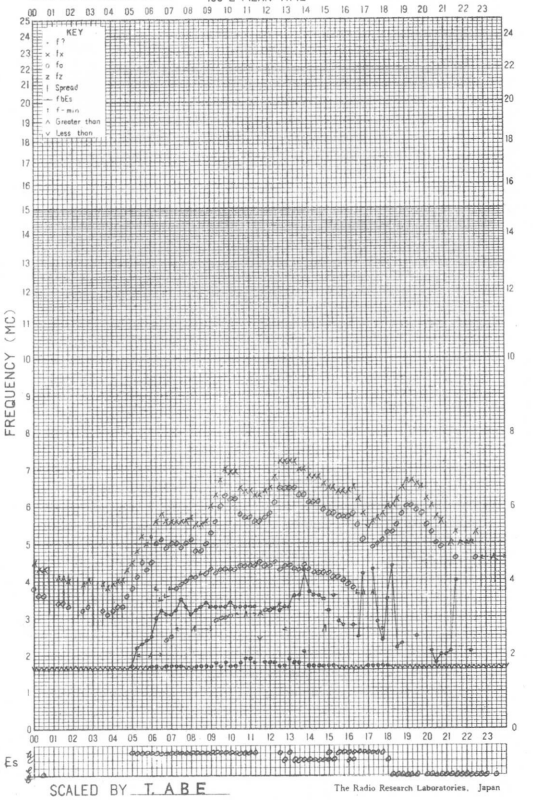


SCALED BY T. ABE

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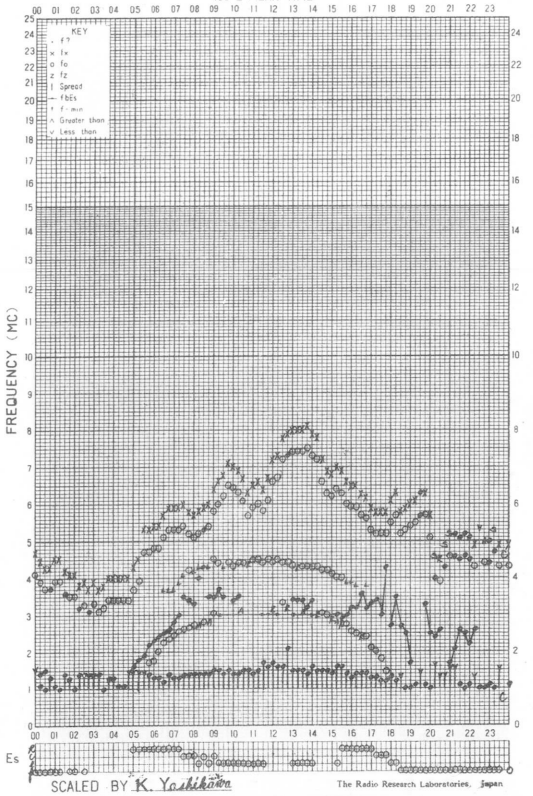


SCALED BY K. Yoshikawa

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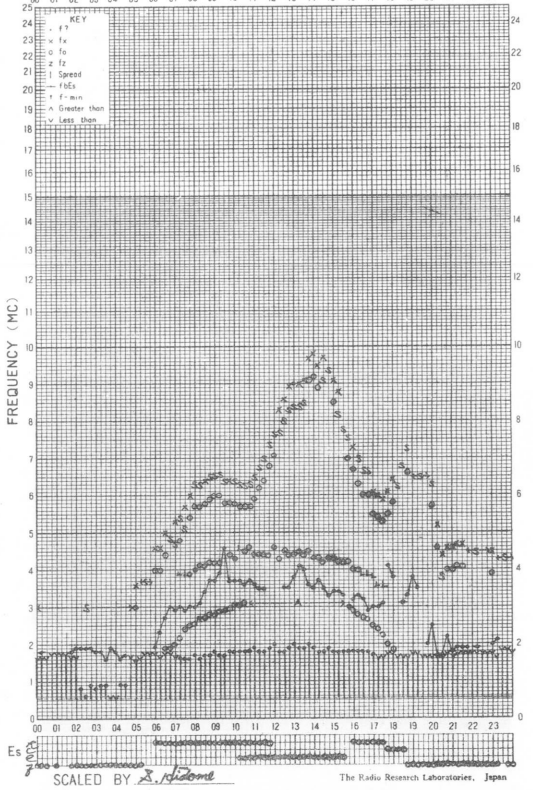


SCALED BY S. Kidome

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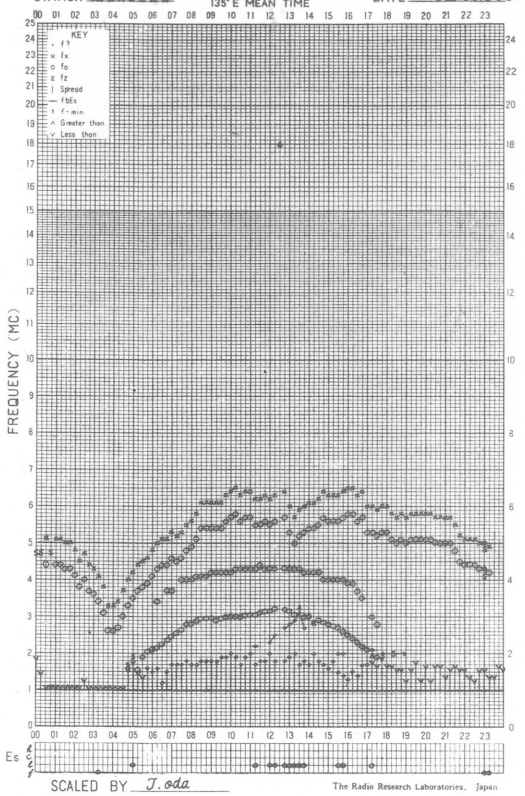


SCALED BY J. oda

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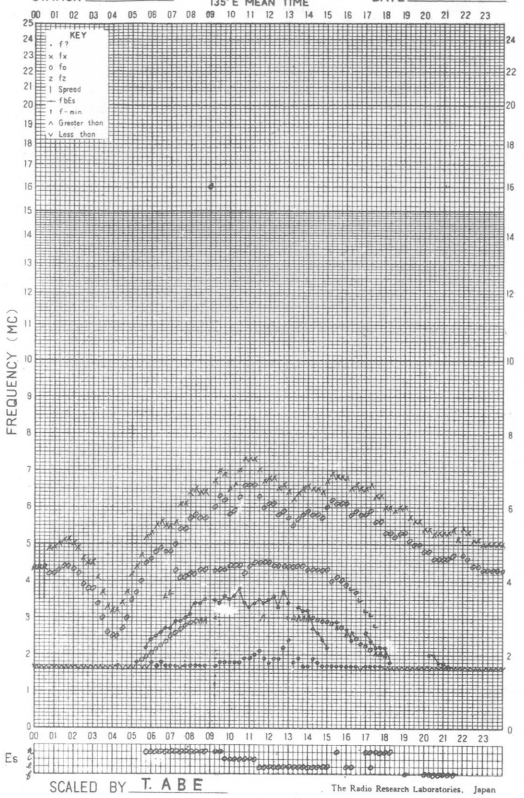


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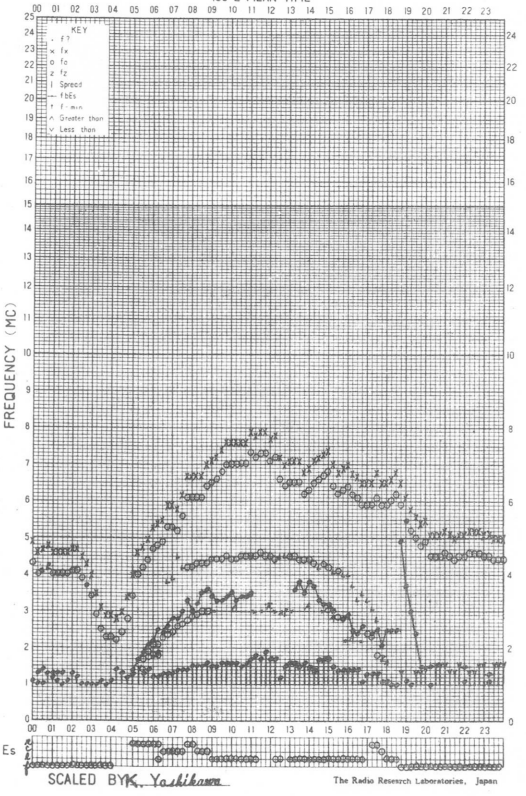


SCALED BY K. Yoshikawa

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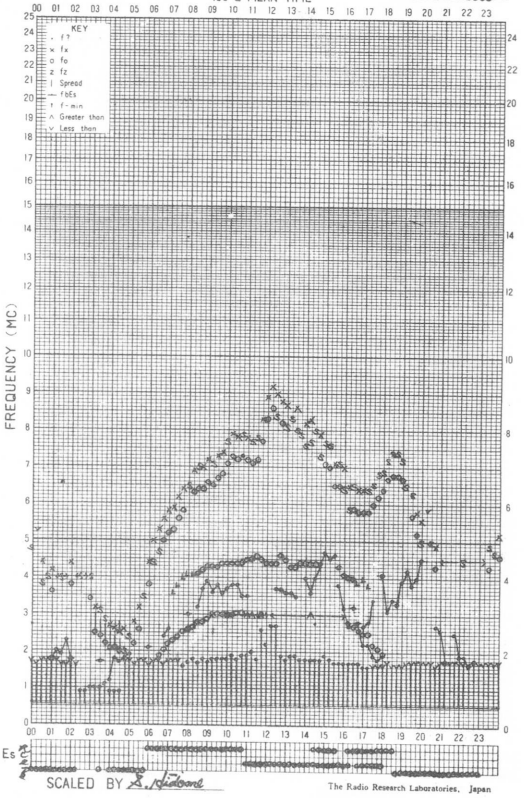


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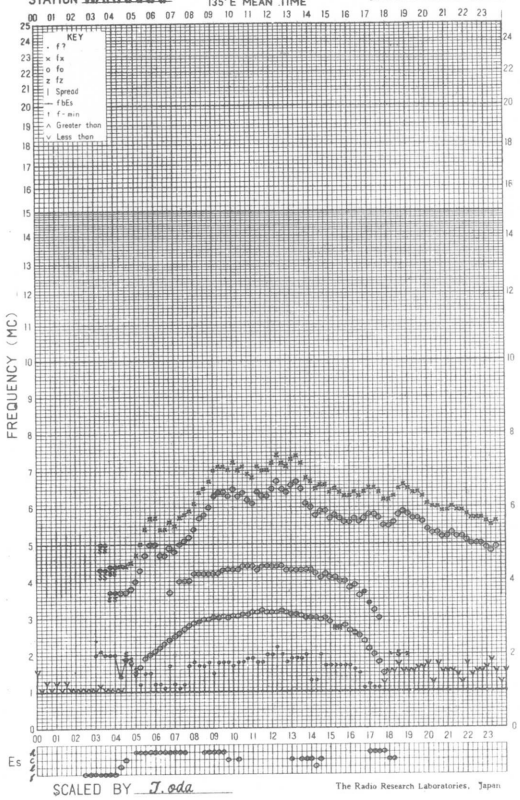


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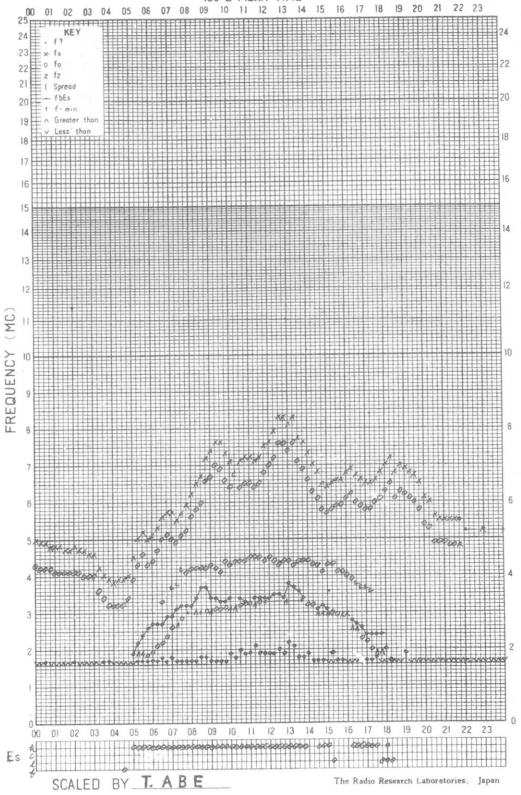


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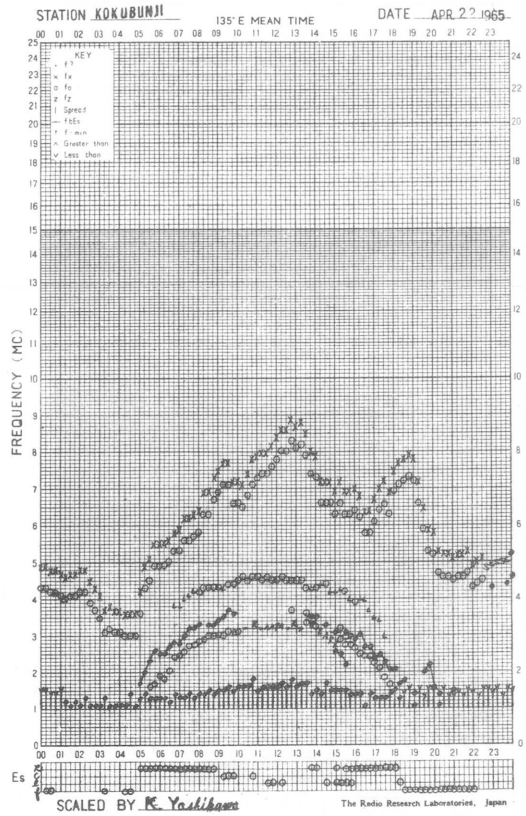


SCALED BY K. Yoshikawa

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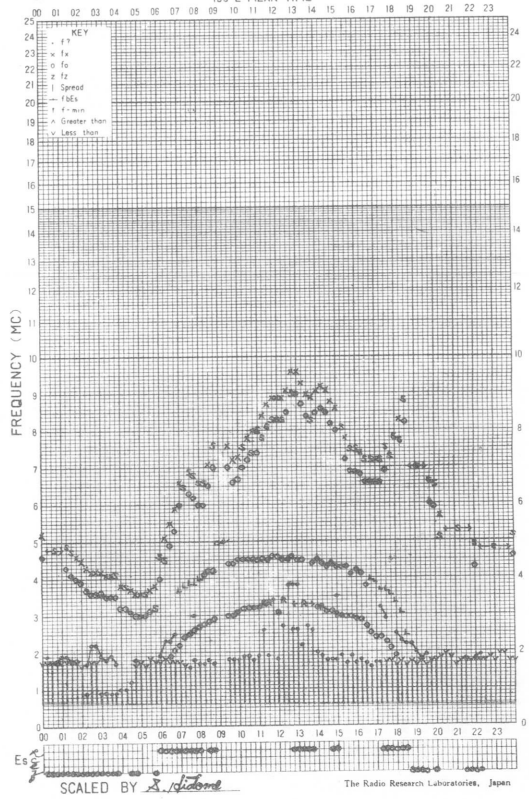


SCALED BY S. Kitami

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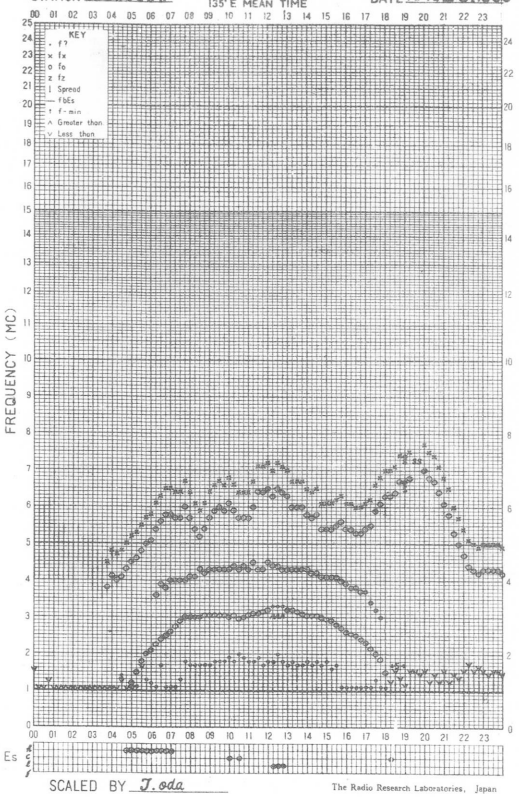


SCALED BY J. oda

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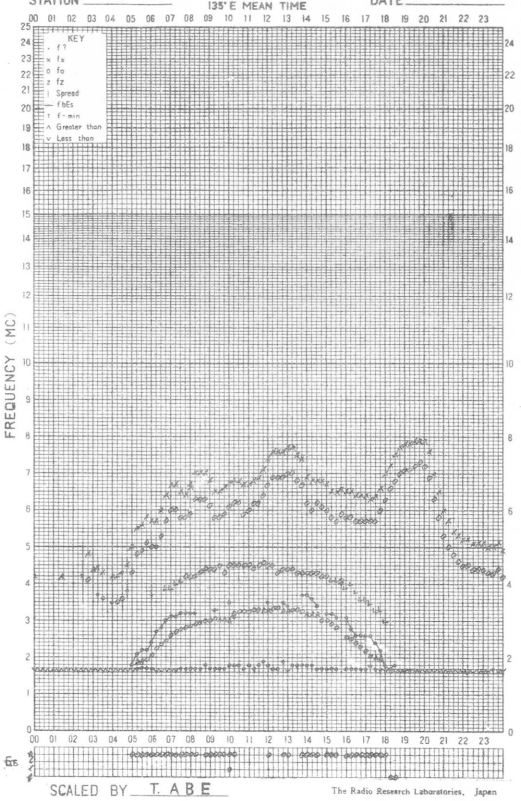


SCALED BY T. A B E

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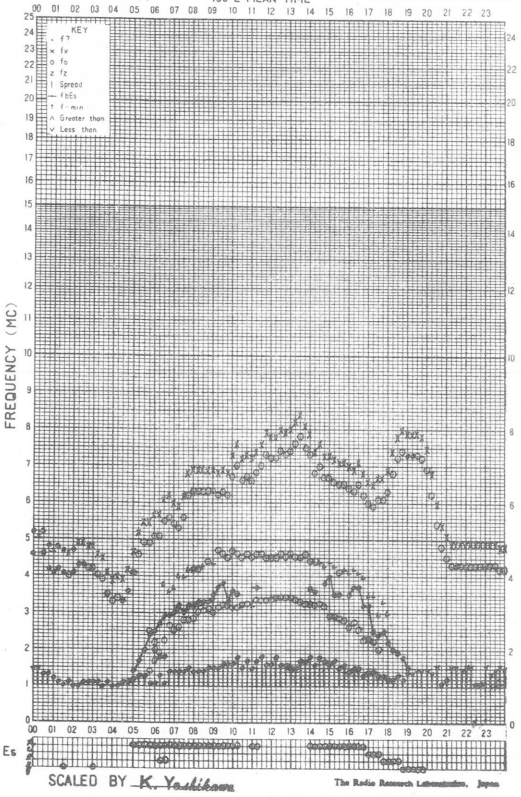


SCALED BY K. Yoshikawa

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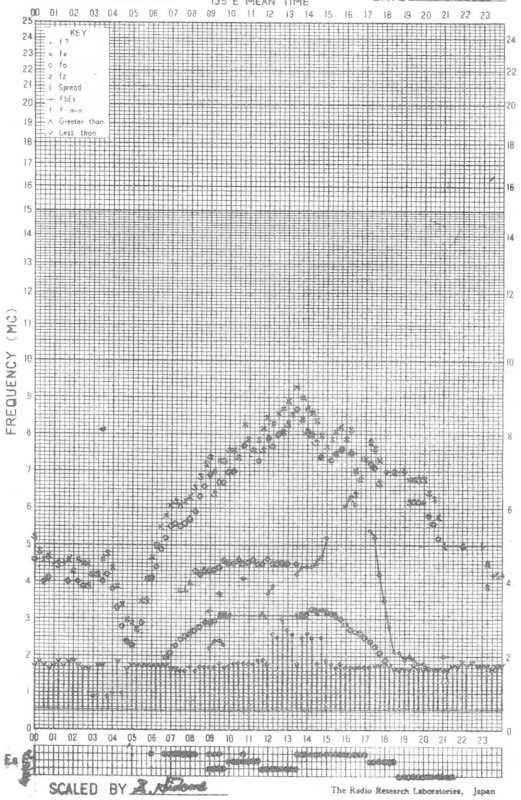


SCALED BY K. Yokoyama

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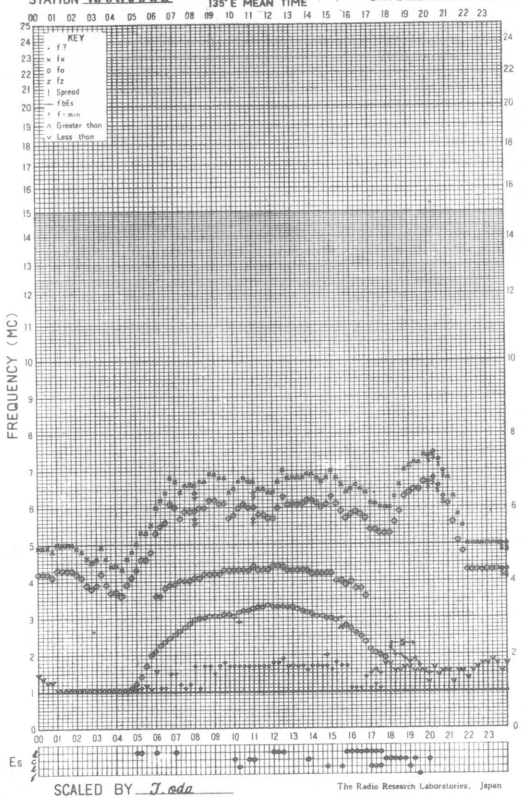


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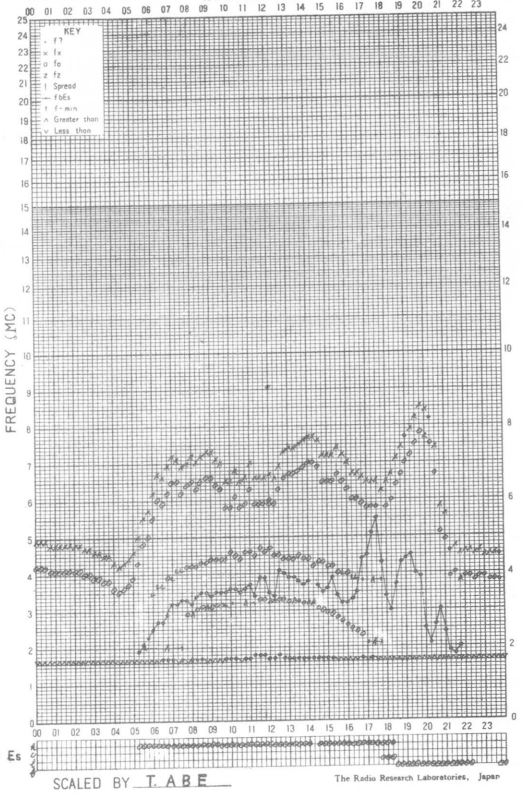


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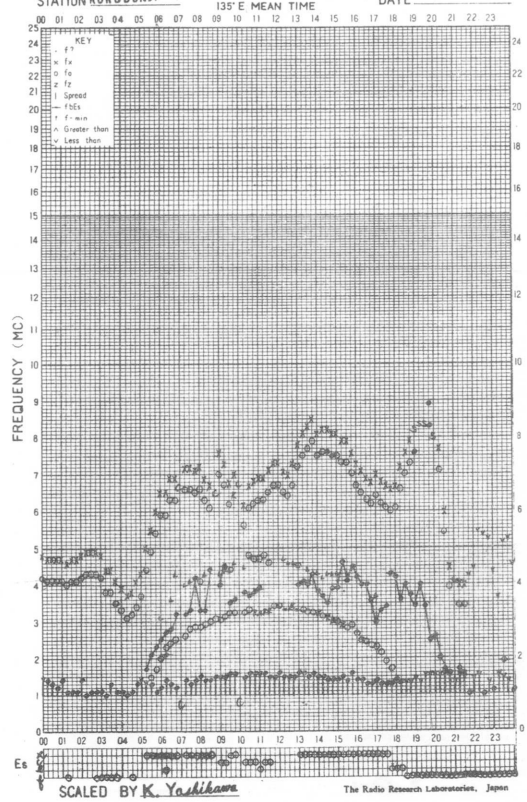


SCALED BY K. Yoshikawa

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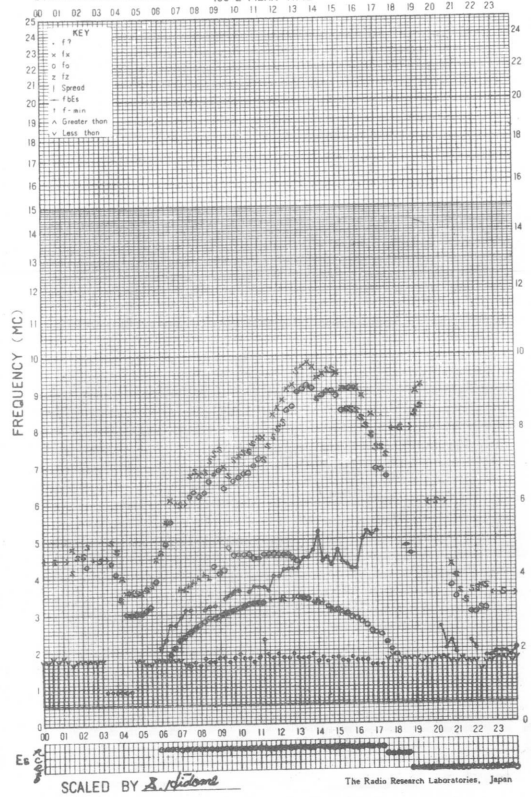


SCALED BY K. Kidowaki

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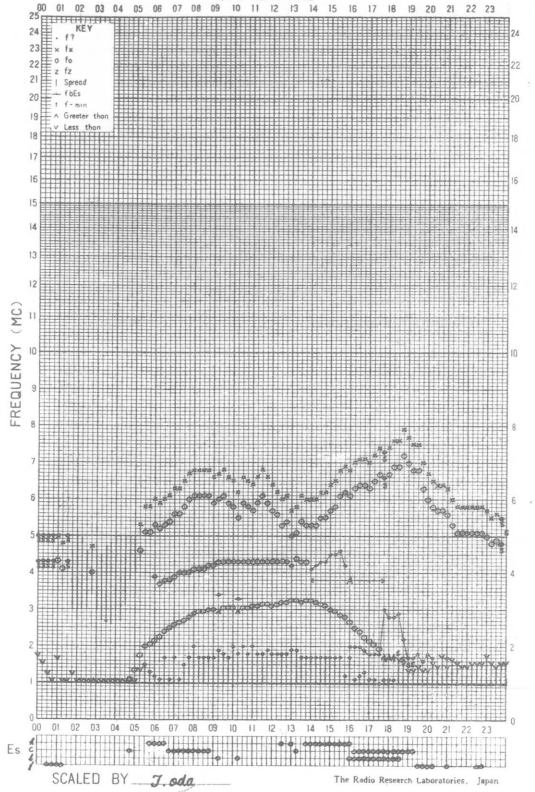


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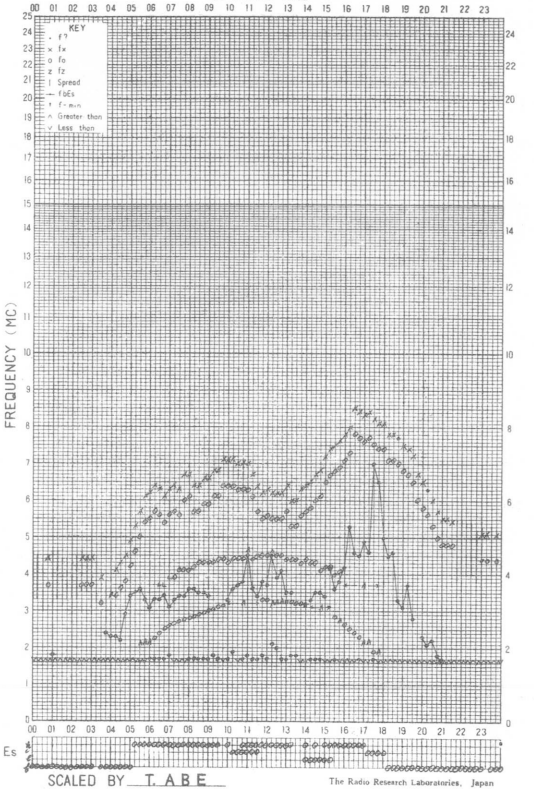


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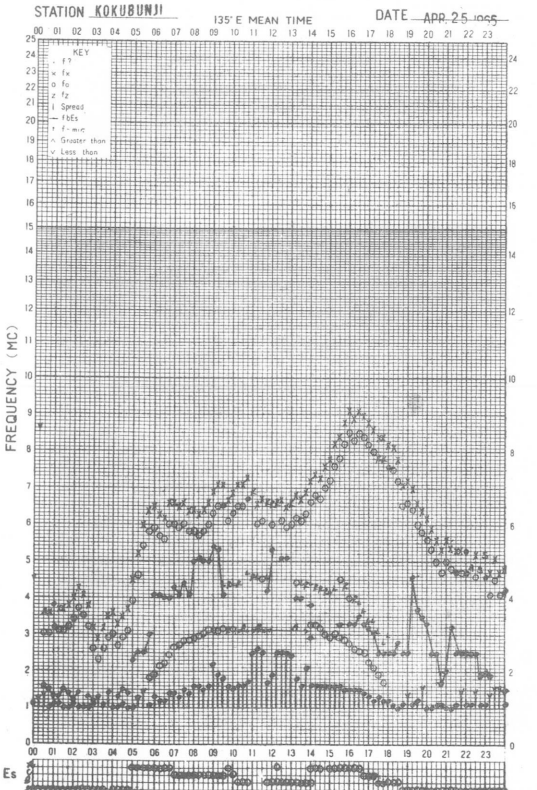


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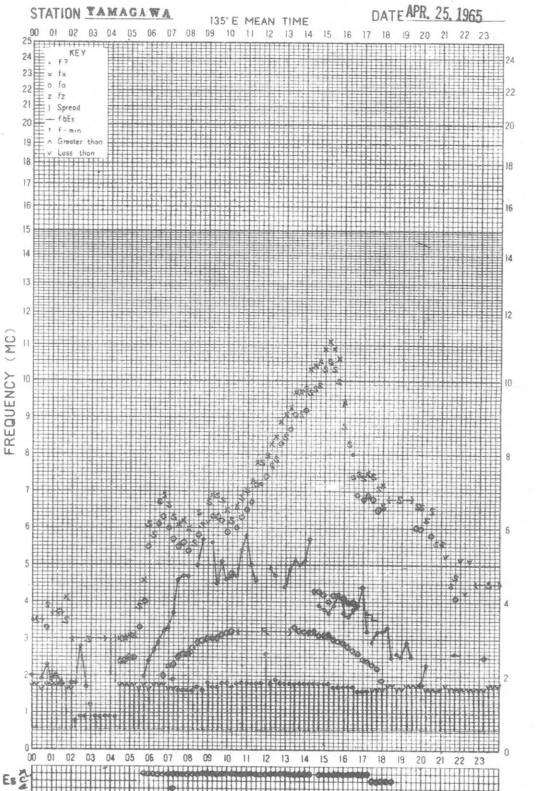


SCALED BY S. Nisbone The Radio Research Laboratories, Japan

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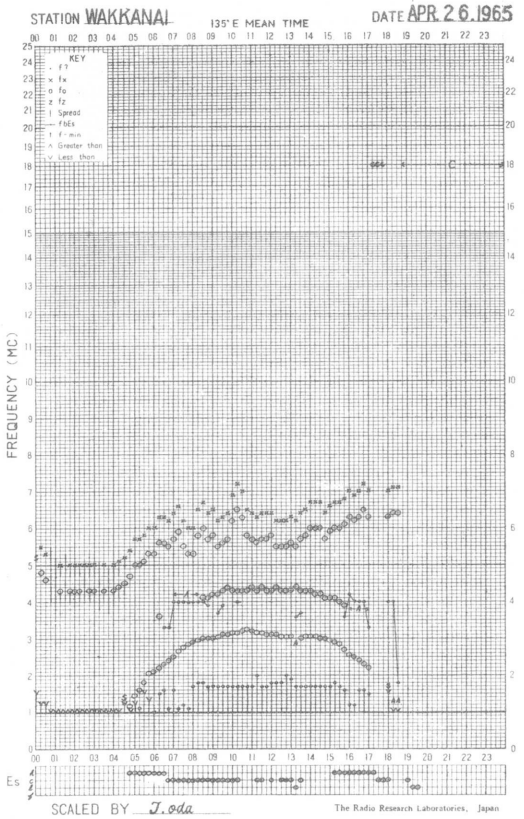


SCALED BY J. Oda

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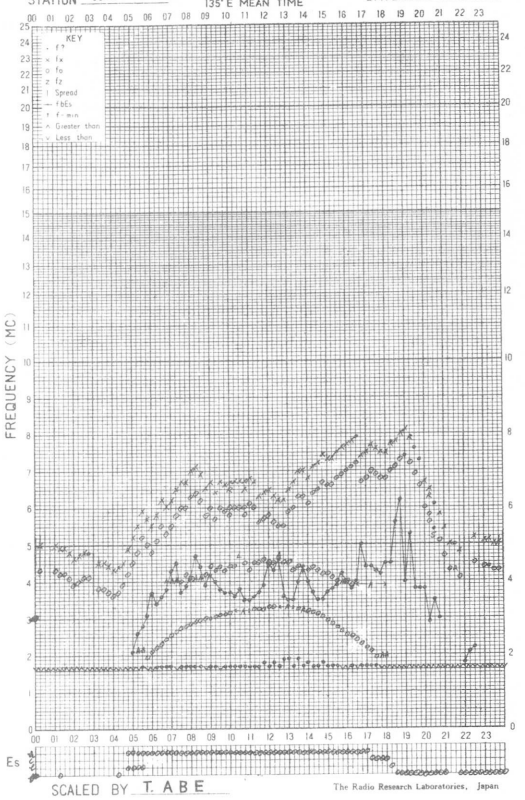


SCALED BY T. ABE

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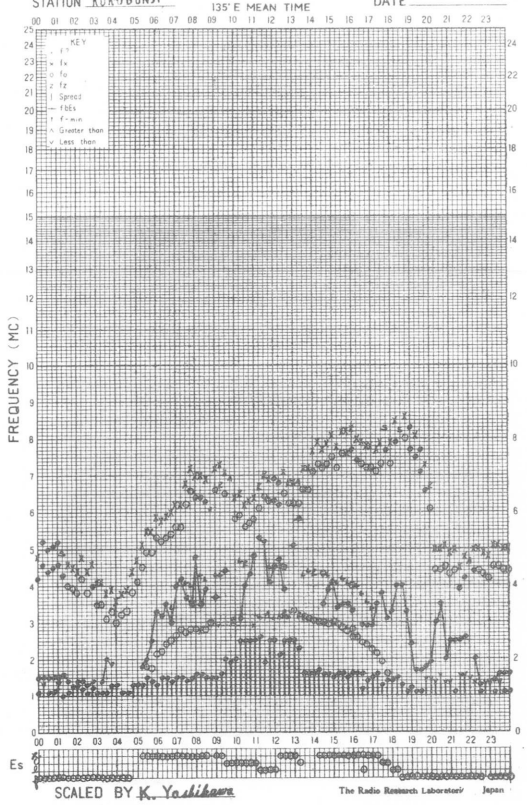


SCALED BY K. Yoshihara

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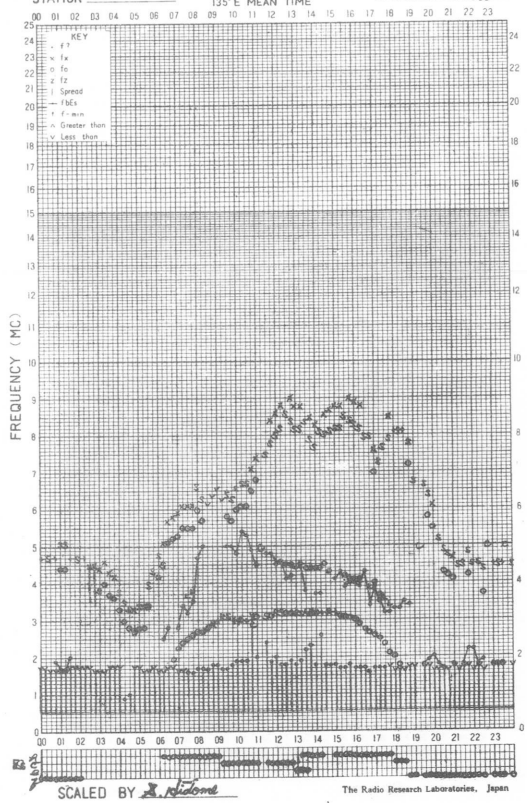


SCALED BY S. Nidome

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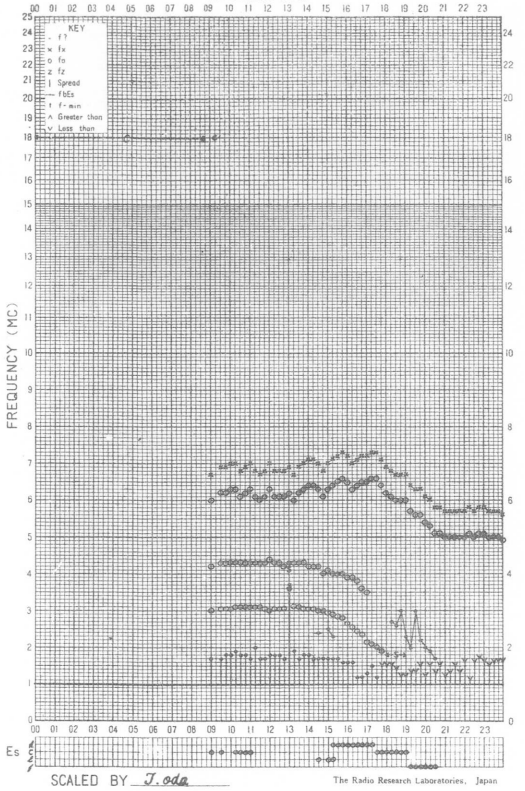


SCALED BY J. oda

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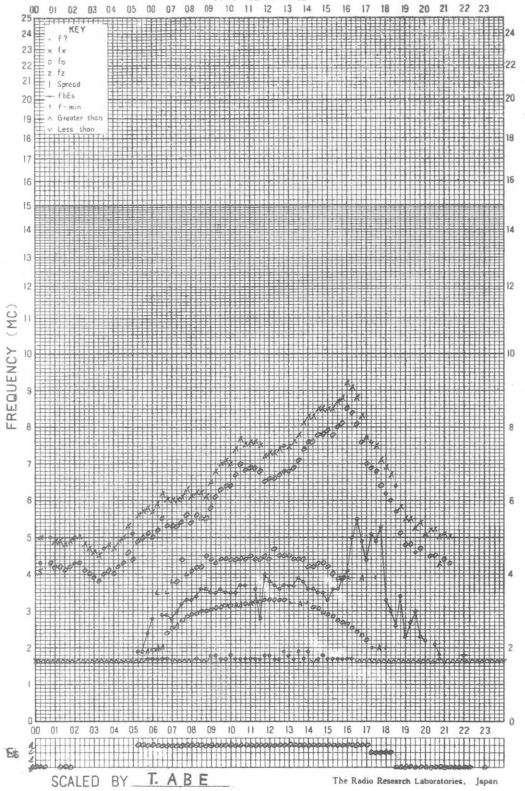


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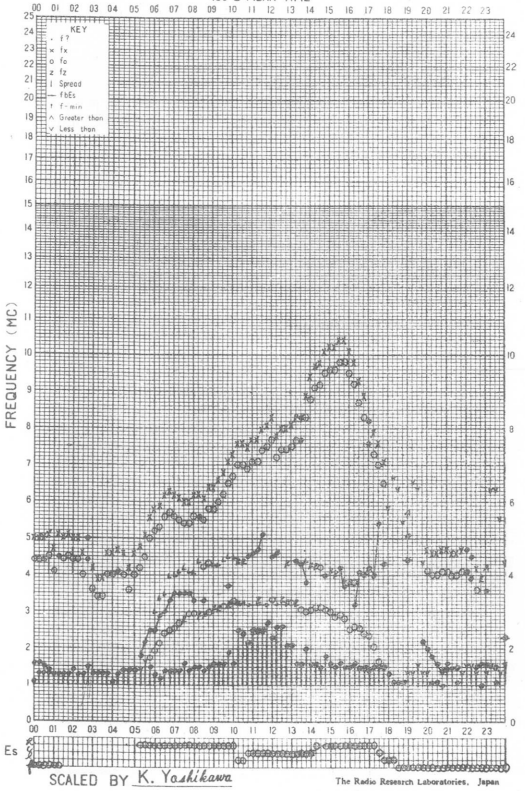


SCALED BY K. Yoshikawa

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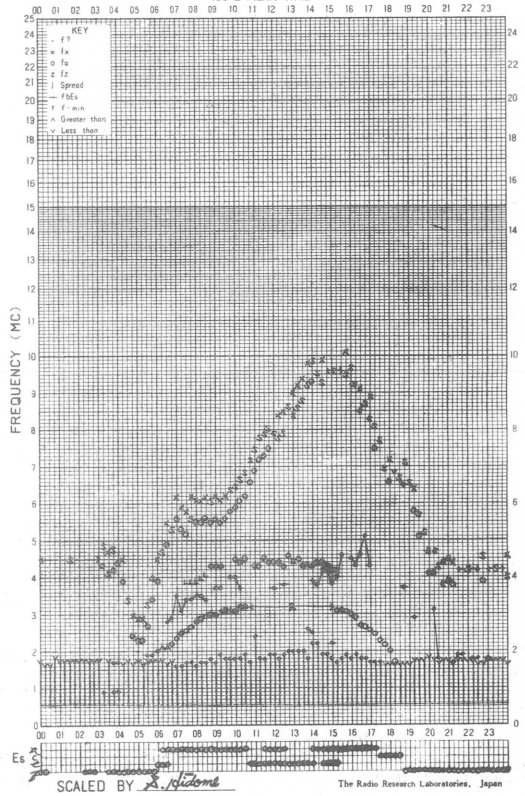


SCALED BY S. Ichidome

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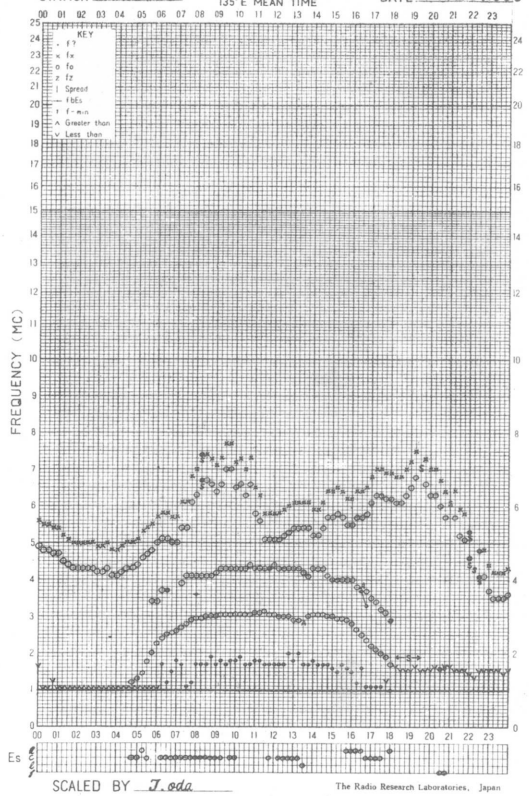


SCALED BY T. oda

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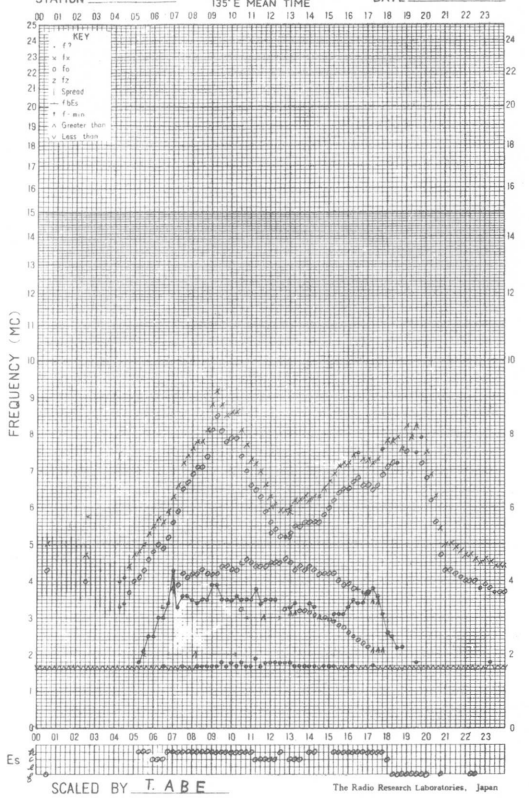


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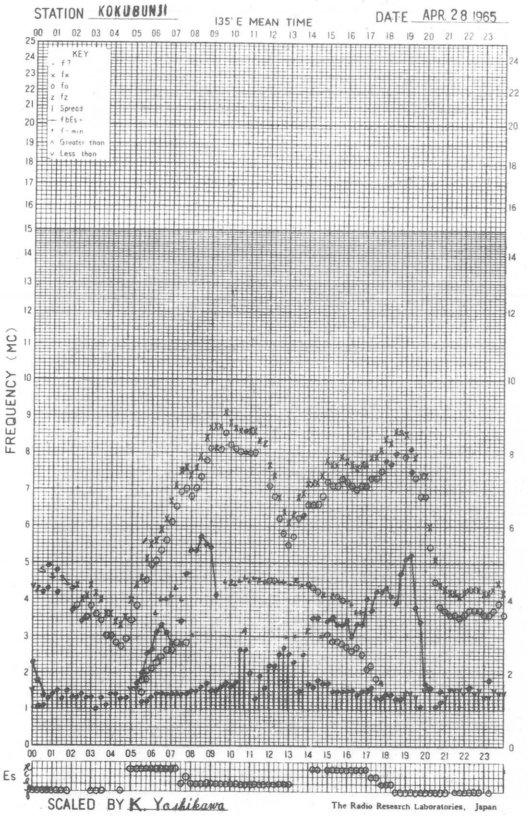


SCALED BY K. Yashikawa

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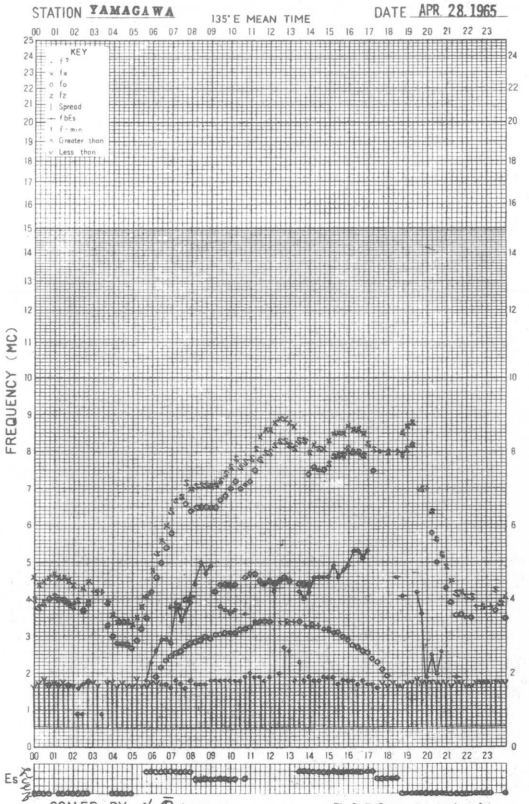


SCALED BY M. Ozima

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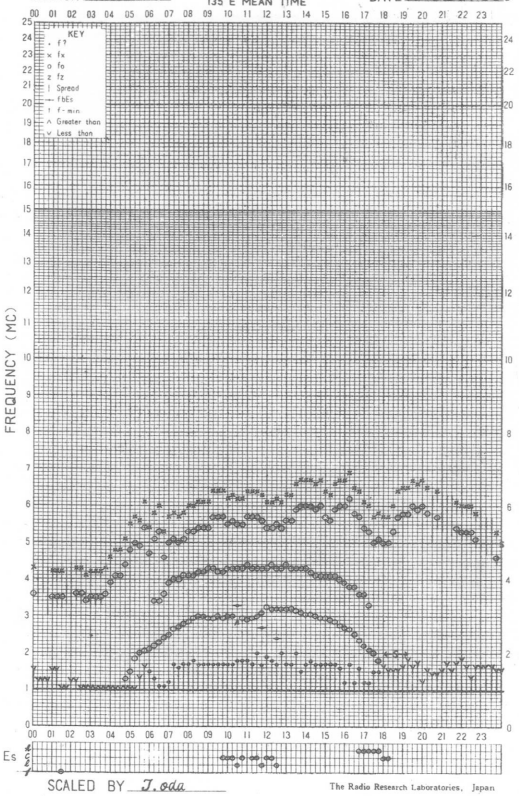


SCALED BY T. Oda

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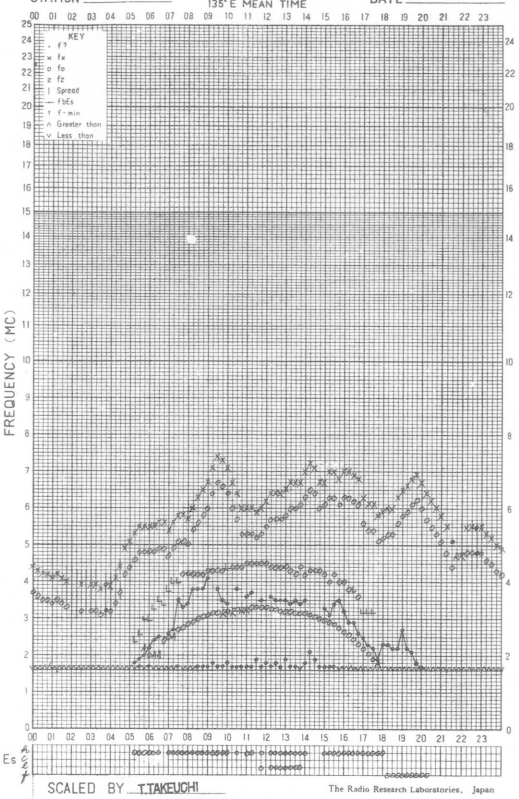


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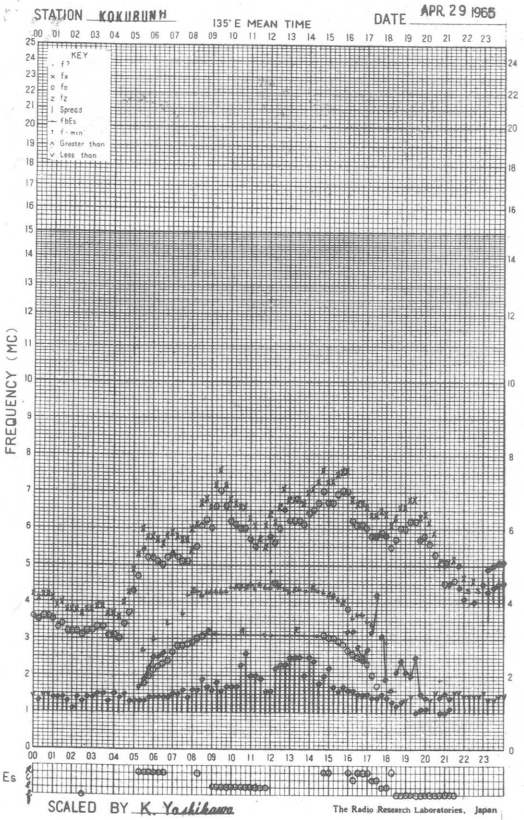


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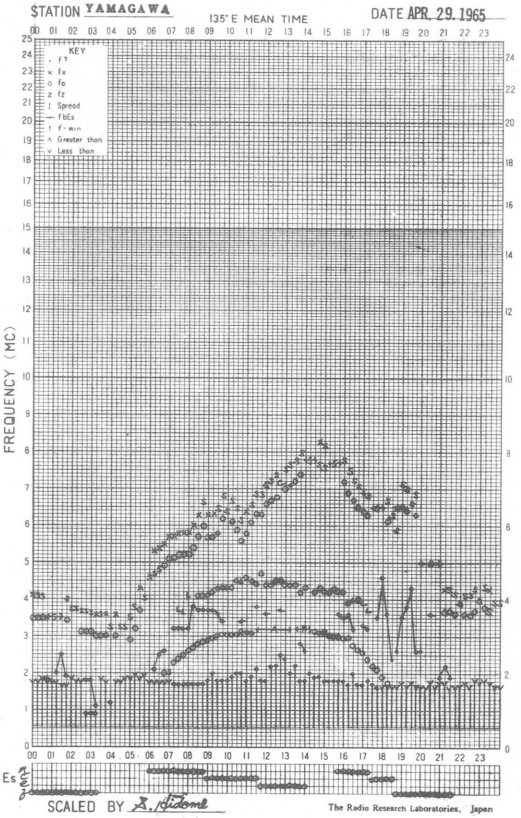


SCALED BY S. Shibano

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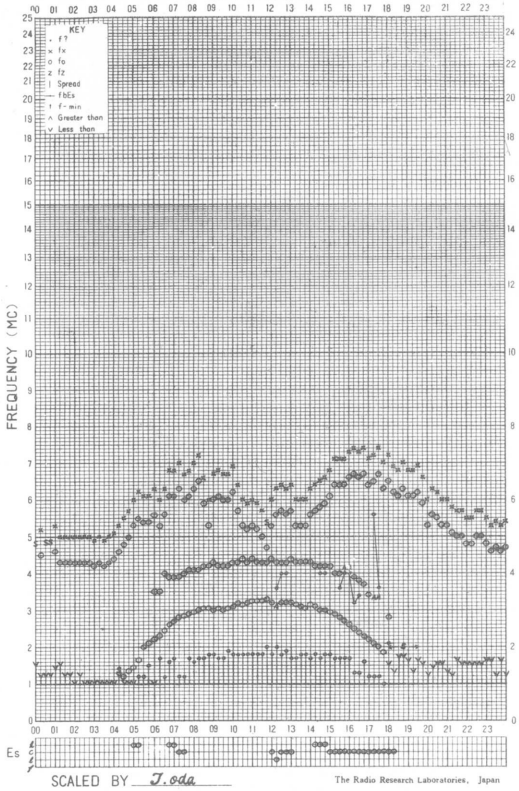


SCALED BY J. Oda

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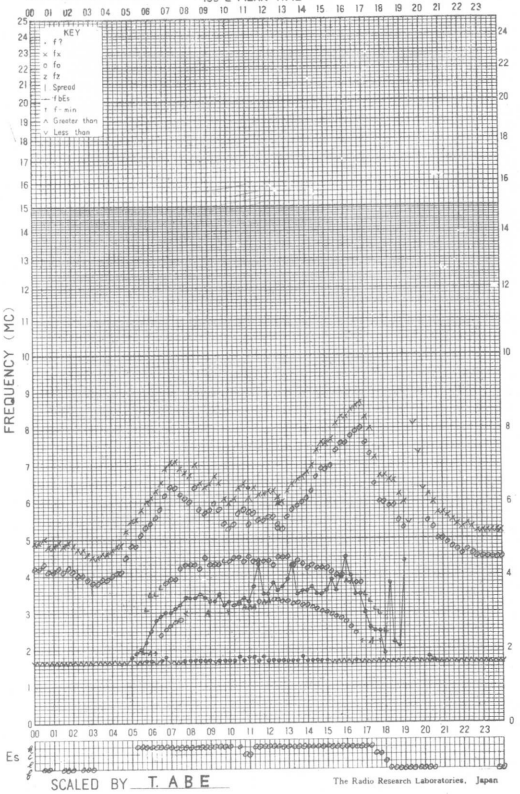


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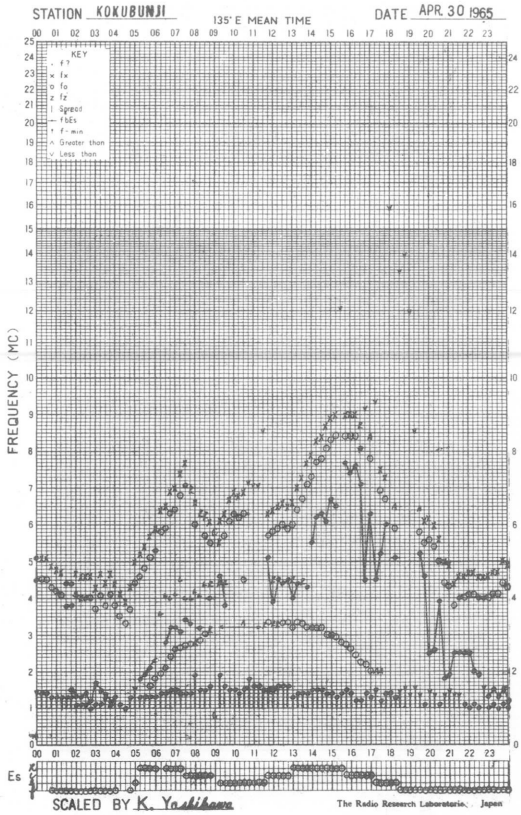
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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

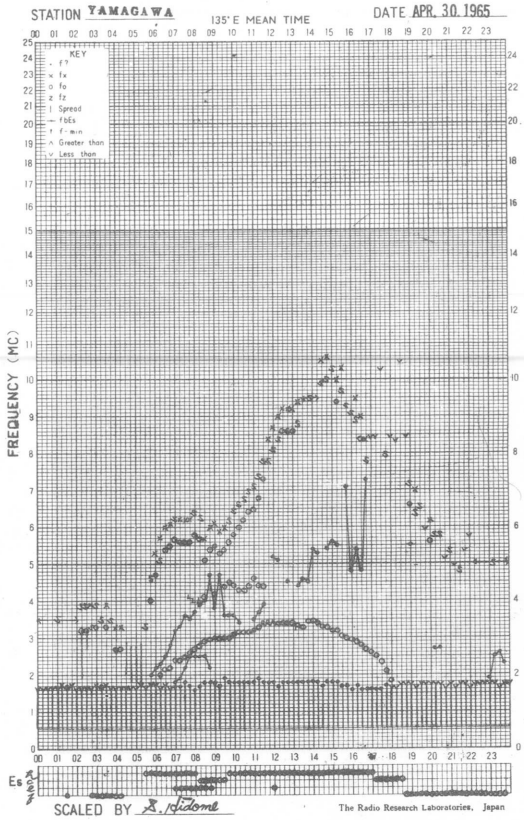



SCALED BY K. Yoshikawa

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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




SCALED BY S. Sidomi

The Radio Research Laboratories, Japan

# SOLAR RADIO EMISSION

## Flux Density and Variability

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

Note No observation during the following periods:

1st 0515- 2nd 0040
4th 2000- 5th 0100
6th 2000- 7th 0020
13th 0100- 14th 0100
15th 0100- 19th 0400
20th 2000- 21st 0100
23rd 2000- 25th 0100

# SOLAR RADIO EMISSION

## Flux Density

Month: April 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 | 26 | 27 | 26 | 26 | 26 |
| 2 | 27 | 27 | 27 | 26 | 27 |
| 3 | 26 | 27 | 27 | 25 | 26 |
| 4 | 26 | 27 | 26 | 23 | 26 |
| 5 | 25 | 25 | 25 | 24 | 25 |
| 6 | 25 | 24 | 25 | 23 | 24 |
| 7 | 23 | 24 | - | - | 23 |
| 8 | 24 | 24 | 24 | 23 | 24 |
| 9 | 24 | 22 | 21 | 21 | 23 |
| 10 | 23 | 22 | 22 | 21 | 22 |
| 11 | 22 | 23 | 24 | 20 | 22 |
| 12 | 22 | 24 | (23) | 20 | 22 |
| 13 | 20 | 23 | 22 | 18 | 22 |
| 14 | 22 | 22 | 21 | 18 | 21 |
| 15 | 20 | 20 | - | - | 19 |
| 16 | - | - | - | - | - |
| 17 | - | - | - | - | - |
| 18 | (21) | 22 | 23 | 22 | 22 |
| 19 | 23 | 22 | 23 | 22 | 22 |
| 20 | 22 | 22 | (23) | 22 | 22 |
| 21 | 22 | 21 | (21) | 21 | 22 |
| 22 | 26 | 25 | 27 | 24 | 25 |
| 23 | 25 | 27 | 28 | 26 | 26 |
| 24 | 27 | 25 | 25 | 25 | 26 |
| 25 | 25 | 26 | 25 | 24 | 25 |
| 26 | 24 | 24 | 25 | 26 | 24 |
| 27 | 24 | 25 | 27 | 25 | 25 |
| 28 | 26 | 28 | 26 | 25 | 26 |
| 29 | 26 | 25 | 25 | 25 | 25 |
| 30 | 27 | 27 | 26 | 21 | 26 |

Note  No observation during the following periods:

| | | | | | |
|---|---|---|---|---|---|
| 7th | 0500- | 2400 | 20th | 0700- | 0910 |
| 12th | 0500- | 0700 | 21st | 0200- | 0300 |
| 15th | 0600- 18th | 0200 | 21st | 0700- | 0910 |

Distinctive Events

(single-frequency observations)

Month: April 1965.
Observing Station: Hiraiso
Normal observing period: 2000 - 0910 (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 | |
| 30 | 200 | 2143 | 2144 | 1.5 | C | 470 | 50 | |
| | 500 | 2143 | 2144 | 1.5 | C | 54 | 11 | |
| 30 | 200 | 2144.5 | 2145.5 | 2.5 | C | 212 | 19 | |
| | 500 | 2145.5 | 2146 | 2.5 | C | 32 | 10 | |

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

Jul. 1964 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 | -15 | -21 | -20 | -14 | -25 | <-27s | <-25s | <-25s | -18 | <-23s | -15 | 3 | 5 | 0 | - 4 | - 8 | - 2 | - 3 | - 8 | -14 | -17 | <- 7s | - 9 | -17 |
| 2 | -14 | - 7 | -13 | -19 | -23 | <-34s | -19 | -14 | -11 | -10 | -18 | 6 | 3 | -11 | -13 | - 2 | - 8 | - 5 | -11 | - 3 | -12 | - 6 | - 6 | -11 |
| 3 | -17 | -17 | -19 | -15 | -15 | - 8 | - 5 | -10 | - 7 | -10 | - 9 | - 5 | - 4 | -16 | (-20)s | <-12s | <-27s | -17 | -24 | -24 | -24 | <-16s | -17 | -21 |
| 4 | -13 | <-39s | <-26s | <-37s | <-38s | <-33s | <-34s | <-32s | <-26s | <-26s | <-20s | <-20s | -19 | -13 | -18 | <-10s | <-27s | <-27s | <-19s | -24 | <-27s | <-16s | <-23 | -21 |
| 5 | - 8 | -15 | -24 | -23 | <-36s | <-13s | -16 | <-24s | -29 | -19 | -21 | - 5 | - 5 | - 5 | - 4 | - 5 | - 9 | - 9 | -13 | -23 | -14 | -15 | -19 | -24 |
| 6 | -24 | -16 | -19 | -12 | -20 | <-23s | <-33s | <-19s | <-19s | <-17s | <-17s | <-19s | -11 | -11 | - 7 | - 9 | - 8 | - 9 | -21 | -23 | - 9 | - 3 | -16 | -22 |
| 7 | - 6 | - 8 | (-23)s | <-40s | <-33s | <-21s | <-24s | <-13s | <-15s | <-12s | <-12s | <-23s | (-22)s | -29 | <-39s | <-39s | <-39s | <-40s | <-32s | <-40s | <-40s | -31 | - 7 | -23 |
| 8 | -14 | -30 | <-37s | <-41s | -26 | <-37s | <-36s | <-36s | <-28s | <-15s | <-21s | <-30s | <-26s | <-27s | <-27s | <-16s | <-30s | -41s | <-37s | <-36s | -26 | <-20s | -24 | <-29 |
| 9 | <-28s | <-42s | <-42s | <-42s | <-12s | <-18s | <-32s | <-32s | <-26s | <-25s | -19 | -22 | -15 | -19 | -18 | <-18s | <-30s | <-39s | <-13s | <-36s | <-33s | <-13s | <-32s | <-26s |
| 10 | <-33s | -20 | C | <-40s | <-27s | <-29s | <-33s | <-26s | <-24s | <-23s | <-18s | <-18s | -15 | <-23s | <-24s | <-14s | <-41s | <-41s | <-34s | <-39s | <-30s | -26 | <-32s | <-24s |
| 11 | -21 | <-39s | <-39s | <-39s | <-34s | <-29s | <-25s | <-21s | -13 | <-17s | <-18s | <-20s | -13 | - 7 | -11 | -28 | <-39s | <-39s | -31 | -30 | -26 | <-16s | <-24s | <-30s |
| 12 | <-40s | <-32s | <-36s | <-40s | <-29s | <-35s | <-31s | <-32s | <-25s | <-25s | (<-20)c | -20 | - 7 | (-10)c | -21 | <-20s | <-32s | <-33s | -26 | <-35s | <-29s | < 9s | -21 | -24 |
| 13 | -24 | <-41s | <-41s | <-21s | <-41s | <-37s | <-40s | <-33s | -24 | (<-25)c | <-21s | (<-21)c | <-13s | (-22)s | (-31)s | <-15s | <-41s | <-41s | -28 | <-41s | <-41s | <-11s | -26 | -19 |
| 14 | -28 | -25 | -21 | -23 | -26 | -17 | -16 | -21 | (-20)c | <-20s | (-19)s | -17 | - 3 | - 2 | -24 | <-20s | <-37s | <-37s | <-38s | -23 | 5 | - 6 | -14 | -16 |
| 15 | -20 | -20 | -18 | < 9s | <-13s | <-13s | -24 | <-25s | (-20)s | -12 | -14 | - 4 | - 5 | - 7 | -17 | -16 | -27 | -19 | -30 | <-40s | -40s | -17 | -12 | -18 |
| 16 | -16 | - 9 | -16 | - 7 | <-23s | <-27s | <-25s | <-33s | <-15s | <-25s | -25 | -21 | 3 | -17 | -29 | -19 | - 7 | -21 | -16 | -19 | -16 | - 2 | - 9 | - 6 |
| 17 | - 9 | -19 | - 9 | <-42s | <-29s | <-25s | <-29s | <-30s | <-28s | <-28s | -10 | -12 | -17 | -19 | <-29s | < 9s | -29 | <-36s | <-23s | C | <-37s | <-14s | <-31s | <-37s |
| 18 | <-36s | -26 | <-34s | <-37s | <-33s | <-13s | C | <-24s | -20 | (-28)s | <-28s | <-24s | <-27s | <-22s | <-26s | <-28s | <-28s | <-42s | <-21s | <-31s | -27s | <-16s | C | <-21s |
| 19 | < 4s | <-27s | <-30s | <-36s | <-36s | <-22s | <-23s | <-21s | <-10s | <-25s | < 4s | <-22s | -21 | -16 | -22 | < 7s | -21 | <-33s | <-28s | <-44s | (-27)s | < 4s | <-22s | <-27s |
| 20 | (-20)c | <-34s | <-37s | <-38s | <-30s | <-25s | <-26s | <-26s | -14 | <-15s | < 2s | -22 | -14 | -24 | -28 | <-10s | -27 | <-32s | <-26s | <-33s | (-30)c | < 3s | - 9 | -28 |
| 21 | -27 | -31 | -23 | -26 | (-20)c | -18 | -14 | -22 | (-21)s | <-19s | <-16s | -20 | -17 | <-34s | -30 | <-21s | <-38s | -32 | <-30s | <-38s | -30 | < 3s | -13 | -22 |
| 22 | -29 | -33 | <-38s | -28 | <-30s | <-27s | <-27s | <-16s | <-20s | <-13s | -24 | <-20s | -23 | <-29s | <-38s | - 3 | -23 | -22 | -30 | <-40s | -22 | -10 | -15 | -24 |
| 23 | -17 | -26 | <-36s | <-36s | <-27s | <-21s | <-32s | -21 | -17 | <-23s | <-23s | (-24)s | -19 | <-35s | <-40s | <-29s | <-46s | <-46s | -30 | (-24)c | -21 | <-13s | -13 | -22 |
| 24 | -31 | <-43s | <-33s | <-43s | <-25s | <-26s | <-32s | <-29s | <-26s | (- 8)s | (- 9)s | <-25s | - 9 | -17 | -27 | -22 | -28 | -40 | -28 | -31 | -24 | -19 | -15 | -21 |
| 25 | -31 | -24 | -27 | <-44s | <-27s | <-19s | <-29s | <-26s | <-22s | -13 | <-23s | -11 | -10 | -13 | -21 | <-25s | -19 | -19 | -16 | (-26)s | -14 | -14 | -17 | -17 |
| 26 | -25 | -12 | -14 | (-36)s | <-25s | <-28s | <-26s | <-25s | <-25s | <-27s | <-26s | -20 | -17 | -19 | -23 | <-25s | -28 | -34 | -14 | -20 | -26 | <-10s | -26 | -26 |
| 27 | <-13s | -18 | -26 | C | <-25s | -22 | <-30s | <-20s | <-19s | <-22s | <-21s | <-23s | -12 | - 1 | -15 | -21 | -34 | -14 | -17 | -16 | -10 | - 3 | -16 | -11 |
| 28 | -11 | -14 | -21 | -18 | <-32s | <-26s | <-27s | <-29s | <-29s | <-29s | <-28s | -13 | - 3 | - 9 | -21 | -22 | -22 | -30 | -14 | -19 | - 4 | -12 | -10 | -14 |
| 29 | -17 | -15 | -12 | -11 | -17 | <-32s | <-41s | <-29s | -18 | <-26s | <-30s | <-29s | -26 | S | <-25s | <-25s | -37 | -31 | <-31s | <-29s | -34 | <-12s | -24 | -16 |
| 30 | - 4 | -21 | -19 | <-42s | <-42s | <-42s | <-32s | <-42s | <-32s | <-32s | <-27s | <-31s | <-34s | <-44s | <-39s | <-27s | -36 | <-45s | <-45s | <-45s | <-45s | <-15s | <-30s | <-34s |
| 31 | < 9s | <-37s | <-39s | <-43s | <-26s | -20 | -22 | <-32s | <-24s | <-26s | <-30s | <-31s | -29 | <-40s | <-43s | <-45s | <-45s | <-45s | <-45s | <-45s | <-42s | <- 7s | <-28s | <-30s |
| Median | (-19)s | -24 | -25 | <-36)s | <-27)s | <-25)s | <-27)s | <-25)s | <-20)s | <-23)s | <-20)s | (-20)s | (-14)s | -17 | -24 | <-19)s | (-29)s | <-33)s | (-28)s | (-30)s | -26 | <-12)s | -17 | -22 |
| Med. Count | 31 | 31 | 30 | 30 | 31 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 31 | 30 | 31 | 31 | 31 | 31 | 31 | 30 | 31 | 31 | 30 | 31 |
| Upper decile | < 6s | - 9 | -13 | <-11s | <-15s | <-13s | -16 | <-14s | <-11s | -10 | < 9s | - 4 | 3 | - 2 | - 7 | - 5 | - 8 | - 9 | -13 | -16 | - 9 | - 3 | - 9 | -11 |
| Lower decile | <-33s | <-41s | <-39s | <-43s | <-38s | <-37s | <-36s | <-33s | <-29s | <-28s | <-28s | <-30s | <-27s | <-35s | <-39s | <-29s | <-41s | <-45s | <-38s | <-44s | <-41s | <-20s | <-31s | <-30s |

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

Aug. 1964 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 | ⩽29s | ⩽29s | ⩽38s | ⩽42s | ⩽28s | -18 | -14 | ⩽23s | ⩽24s | ⩽26s | ⩽25s | ⩽28s | 0 | ⩽33s | ⩽34s | - 8 | -30 | ⩽44s | -24 | ⩽42s | - 5 | -20 | -16 | - 9 |
| 2 | -13 | -25 | -20 | -14 | ⩽35s | (-18)s | -16 | (-18)s | ⩽17s | ⩽21s | ⩽32s | ⩽27s | -24 | ⩽27s | -18 | -12 | -13 | -26 | -37 | -32 | -28 | -16 | -23 | -26 |
| 3 | -17 | -23 | C | -23 | C | ⩽32s | -18 | -21 | ⩽40s | ⩽32s | -27 | ⩽29s | -18 | -25 | -10 | ⩽12s | ⩽25s | ⩽42s | ⩽42s | ⩽43s | -27 | -11 | - 2 | -22 |
| 4 | -16 | -22 | ⩽34s | ⩽44s | ⩽44s | ⩽44s | ⩽30s | ⩽25s | -22 | ⩽21s | ⩽23s | ⩽42s | ⩽28s | ⩽42s | ⩽43s | ⩽18s | ⩽40s | ⩽40s | ⩽40s | ⩽33s | -23 | -24 | ⩽31s | ⩽33s |
| 5 | ⩽32s | ⩽36s | -30 | ⩽39s | ⩽30s | ⩽40s | ⩽38s | ⩽32s | -20 | ⩽ 6s | ⩽22s | -15 | ⩽26s | -25 | -31 | ⩽43s | ⩽42s | ⩽40s | -30 | ⩽30s | ⩽32s | -22 | -20 | -21 |
| 6 | -25 | -17 | ⩽34s | ⩽25s | ⩽27s | ⩽25s | ⩽18s | ⩽25s | ⩽26s | ⩽22s | ⩽19s | ⩽24s | ⩽24s | ⩽38s | ⩽38s | ⩽41s | ⩽41s | ⩽41s | ⩽41s | ⩽41s | ⩽41s | ⩽ 3s | -27 | -21 |
| 7 | ⩽32s | -21 | ⩽33s | ⩽41s | ⩽30s | ⩽36s | ⩽28s | ⩽31s | ⩽28s | ⩽25s | -23 | ⩽34s | ⩽34s | ⩽45s | ⩽45s | ⩽13s | C | C | C | C | C | C | C | C |
| 8 | ⩽42s | ⩽32s | ⩽28s | ⩽33s | ⩽30s | ⩽26s | ⩽22s | ⩽12s | ⩽16s | ⩽41s | ⩽41s | ⩽30s | ⩽37s | ⩽37s | -25 | ⩽23s | ⩽44s | ⩽35s | ⩽31s | ⩽37s | ⩽44s | ⩽14s | ⩽25s | ⩽33s |
| 9 | -29 | -16 | -19 | ⩽38s | ⩽38s | ⩽28s | ⩽30s | ⩽27s | ⩽23s | ⩽27s | ⩽17s | (-24)s | (-28)s | -26 | ⩽30s | ⩽18s | ⩽30s | ⩽28s | ⩽28s | ⩽28s | ⩽41s | ⩽41s | ⩽31s | ⩽31s |
| 10 | ⩽41s | ⩽37s | ⩽42s | ⩽32s | (-21)s | -18 | -11 | -16 | ⩽16s | -24 | -15 | C | C | C | C | C | C | C | C | C | C | C | C | -19 |
| 11 | ⩽41s | ⩽41s | ⩽40s | ⩽39s | ⩽39s | ⩽35s | ⩽27s | ⩽30s | ⩽30s | ⩽30s | ⩽22s | ⩽27s | ⩽30s | -18 | ⩽40s | ⩽22s | ⩽42s | ⩽42s | ⩽32s | ⩽42s | ⩽42s | ⩽12s | ⩽25s | ⩽32s |
| 12 | ⩽ 5s | ⩽41s | C | ⩽31s | ⩽27s | C | ⩽23s | ⩽29s | ⩽29s | ⩽30s | ⩽28s | ⩽28s | ⩽28s | ⩽28s | ⩽41s | ⩽15s | ⩽39s | -35 | ⩽23s | ⩽40s | ⩽30s | C | C | C |
| 13 | C | ⩽39s | ⩽39s | ⩽38s | ⩽37s | -24 | ⩽37s | ⩽28s | ⩽38s | ⩽30s | -28 | -25 | ⩽34s | ⩽38s | ⩽38s | ⩽24s | ⩽42s | ⩽42s | -29 | ⩽43s | ⩽43s | -12 | -22 | -11 |
| 14 | -19 | -17 | ⩽31s | ⩽41s | ⩽23s | ⩽23s | ⩽29s | ⩽41s | ⩽34s | ⩽28s | ⩽24s | ⩽31s | -19 | - 2 | -29 | -18 | -37 | -30 | -27 | -26 | -17 | - 8 | -20 | -23 |
| 15 | -23 | ⩽41s | -30 | -24 | ⩽31s | -23 | ⩽31s | ⩽27s | ⩽29s | ⩽29s | -21 | -17 | - 6 | -14 | ⩽32s | -22 | ⩽32s | ⩽32s | ⩽32s | -24 | -31 | - 8 | - 2 | -15 |
| 16 | -16 | -17 | -18 | ⩽37s | ⩽35s | ⩽34s | ⩽23s | ⩽23s | ⩽18s | ⩽24s | ⩽28s | -17 | -10 | -12 | -31 | -26 | -32 | -39 | ⩽39s | -40 | -18 | 6 | -12 | -19 |
| 17 | -26 | C | C | C | C | C | ⩽24s | ⩽24s | ⩽26s | ⩽24s | ⩽31s | ⩽25s | -11 | -20 | -19 | -22 | ⩽42s | ⩽41s | ⩽41s | ⩽42s | -22 | -12 | -14 | - 9 |
| 18 | -18 | -13 | -11 | -17 | -18 | ⩽22s | ⩽29s | ⩽29s | ⩽29s | ⩽30s | ⩽25s | ⩽28s | -17 | ⩽34s | ⩽42s | ⩽21s | ⩽38s | -24 | -34 | -24 | -10 | -11 | -13 | -18 |
| 19 | -20 | ⩽32s | ⩽32s | -22 | -21 | ⩽30s | ⩽40s | ⩽35s | ⩽19s | ⩽21s | ⩽21s | ⩽25s | -20 | -23 | -25 | ⩽22s | ⩽33s | ⩽38s | -29 | ⩽43s | -20 | (- 8)s | - 6 | -12 |
| 20 | (-29)s | -22 | -14 | ⩽31s | ⩽28s | ⩽32s | ⩽30s | ⩽27s | ⩽26s | ⩽15s | ⩽19s | ⩽18s | -12 | - 9 | -24 | ⩽24s | ⩽41s | ⩽41s | -16 | -16 | 0 | 9 | -15 | -12 |
| 21 | -16 | -13 | - 8 | -12 | -20 | ⩽38s | ⩽25s | ⩽20s | ⩽19s | ⩽17s | ⩽22s | ⩽29s | -28 | -28 | -28 | ⩽21s | (-38)s | (-38)s | ⩽21s | -25 | -14 | -10 | -11 | -12 |
| 22 | - 8 | -12 | -18 | -18 | ⩽24s | ⩽38s | ⩽38s | ⩽38s | ⩽22s | ⩽31s | ⩽22s | ⩽26s | ⩽30s | ⩽40s | (-15)s | C | ⩽40s | ⩽40s | ⩽39s | C | -15 | C | C | -18 |
| 23 | C | C | C | C | C | C | C | C | C | C | ⩽27s | -25 | -22 | -25 | -31 | ⩽21s | ⩽41s | -28 | -27 | C | - 2 | ⩽ 5s | -17 | ⩽19s |
| 24 | -24 | -18 | - 4 | ⩽41s | ⩽25s | ⩽13s | ⩽29s | ⩽30s | ⩽27s | ⩽30s | ⩽30s | -15 | - 1 | - 8 | -31 | ⩽27s | ⩽37s | ⩽40s | -33 | -27 | - 8 | - 7 | -11 | -16 |
| 25 | -18 | -16 | - 6 | ⩽37s | ⩽18s | ⩽22s | (-25)s | - 5 | - 7 | - 5 | -17 | -14 | - 1 | 0 | -14 | ⩽21s | ⩽28s | ⩽27s | ⩽22s | (-28)s | -12 | - 2 | -10 | -14 |
| 26 | -12 | - 6 | -10 | ⩽41s | ⩽24s | ⩽24s | ⩽43s | ⩽45s | ⩽46s | ⩽32s | ⩽30s | ⩽24s | -16 | -23 | -20 | C | C | C | C | C | C | C | C | - 2 |
| 27 | ⩽15s | ⩽ 4s | - 5 | ⩽31s | ⩽20s | ⩽16s | ⩽22s | ⩽25s | ⩽23s | ⩽24s | ⩽26s | ⩽39s | ⩽40s | ⩽26s | ⩽39s | ⩽40s | -27 | ⩽40s | -28 | -17 | - 8 | - 3 | C | C |
| 28 | -13 | -10 | -22 | ⩽28s | ⩽19s | -11 | ⩽22s | ⩽23s | ⩽ 6s | ⩽10s | C | C | C | C | ⩽41s | ⩽41s | -40 | -24 | -27 | -27 | -16 | C | C | C |
| 29 | C | -13 | -11 | -30 | ⩽22s | ⩽28s | ⩽38s | ⩽38s | ⩽31s | ⩽22s | ⩽26s | -19 | -18 | ⩽11s | -27 | ⩽12s | -35 | ⩽40s | ⩽40s | ⩽40s | C | C | C | C |
| 30 | -18 | -21 | C | ⩽37s | ⩽24s | ⩽15s | ⩽31s | ⩽23s | ⩽ 9s | ⩽15s | ⩽20s | -18 | -15 | -14 | -16 | -13 | -12 | -18 | -20 | -22 | -16 | -14 | -11 | -13 |
| 31 | -18 | -12 | -14 | ⩽39s | ⩽25s | ⩽15s | ⩽25s | (-10)s | ⩽16s | ⩽21s | C | C | C | C | C | C | C | C | C | C | C | C | C | C |
| Median | (-20)s | -21 | -21 | (-33)s | (-26)s | (-24)s | (-28)s | (-25)s | (-24)s | (-24)s | (-24)s | (-25)s | -21 | (-26)s | -31 | (-21)s | (-38)s | (-39)s | (-30)s | (-34)s | -19 | (-12)s | -16 | -18 |
| Med. Count | 29 | 29 | 26 | 29 | 28 | 28 | 30 | 30 | 30 | 30 | 29 | 28 | 28 | 28 | 29 | 27 | 27 | 27 | 27 | 25 | 26 | 23 | 22 | 25 |
| Upper decile | ⩽12s | ⩽10s | - 6 | -17 | ⩽19s | ⩽15s | -16 | ⩽12s | ⩽ 9s | ⩽10s | ⩽17s | -15 | - 1 | - 8 | (-15)s | ⩽12s | ⩽25s | -24 | ⩽21s | -22 | - 5 | 6 | - 2 | - 9 |
| Lower decile | ⩽41s | ⩽41s | ⩽39s | ⩽41s | ⩽38s | ⩽38s | ⩽38s | ⩽38s | ⩽39s | ⩽32s | ⩽31s | ⩽34s | ⩽34s | ⩽40s | ⩽42s | ⩽41s | ⩽42s | ⩽42s | ⩽41s | ⩽43s | ⩽42s | ⩽35s | ⩽31s | ⩽32s |

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

Sept. 1964 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 | -14 | - 1 | - 9 | <-28s | <-16s | -21 | C | C | C | C | C | C | C | <-44s | <-44s | <-45s | <-45s | <-46s | -32 | <-46s | -23 | -19 | -11 | -13 |
| 2 | -25 | C | C | -27 | <-40s | <-27s | -27 | <-14s | <- 9s | - 7 | <-26s | -27 | <-36s | <-36s | <-36s | <-35s | <-35s | -32 | -24 | <-36s | -25 | -15 | -16 | -20 |
| 3 | -11 | -10 | -12 | -16 | <-28s | <-26s | <-25s | <-29s | <-30s | <-14s | <-10s | -13 | (-38s | -33 | -31 | <-29s | <-36s | <-36s | <-36s | -26 | - 8 | - 1 | -10 | -16 |
| 4 | -17 | -11 | -15 | -23 | -24 | -17 | -12 | -11 | -11 | -21 | -28 | -28 | <-27s | -27 | <-40s | <-36s | <-36s | <-36s | <-36s | -21 | -18 | - 9 | -14 | -21 |
| 5 | -10 | -13 | -24 | <-32s | <-45s | <-26s | <-34s | <-33s | <-31s | <-27s | <-21s | <-13s | <- 9s | <-32s | <-32s | <-40s | <-40s | <-41s | <-41s | <-42s | -20 | -18 | - 5 | <- 7s |
| 6 | -19 | -14 | <-34s | <-31s | <-26s | <-40s | <-40s | <-29s | <-21s | <-27s | <-16s | <-22s | <-22s | <-15s | <-16s | <-39s | <-39s | <-40s | -22 | -23 | -27 | - 6 | C | C |
| 7 | C | C | C | C | -30 | C | -24 | -21 | -16 | <-15s | <-22s | <-22s | <-28s | <-35s | <-36s | <-24s | <-37s | <-39s | <-33s | <-35s | <-35s | -16 | (-24)s | -21 |
| 8 | <-27s | <-25s | <-36s | <-32s | <-22s | <-26s | <-21s | <-21s | <-22s | <-26s | <-22s | <-23s | <-28s | <-31s | <-34s | <-19s | <-30s | <-29s | <-31s | <-31s | -26 | - 2 | -11 | -15 |
| 9 | -14 | <-29s | <-33s | <-34s | <-22s | <-17s | <-23s | <-21s | <- 5s | <-25s | <-36s | <-36s | <-36s | <-36s | <-36s | <-40s | <-40s | <-40s | <-29s | <-23s | <-20s | 3 | -10 | -17 |
| 10 | -14 | <-40s | <-30s | <-39s | <-30s | <-23s | <-29s | <-23s | <-18s | <-21s | <-20s | <-27s | -28 | -33 | <-40s | <-39s | <-39s | <-40s | <-40s | <-40s | -22 | - 9 | - 9 | -16 |
| 11 | <-21s | <-22s | -23 | -24 | <-25s | <-23s | -25 | <-22s | <-19s | <-18s | <-22s | <-26s | -20 | -26 | -26 | <-31s | -29 | <-41s | -27 | -35 | -21 | -11 | -10 | -20 |
| 12 | -22 | <-33s | <-33s | <-33s | -21 | <-23s | <-29s | <-19s | <-25s | <-25s | <-27s | <-27s | -17 | -25 | <-37s | <-40s | <-40s | <-40s | <-40s | -33 | -21 | - 9 | - 6 | -13 |
| 13 | -13 | -10 | <-32s | <-40s | <-44s | <-39s | <-44s | <-26s | <-26s | <-24s | <-12s | <-24s | <-19s | -27 | -30 | -31 | <-39s | <-40s | -33 | -25 | -18 | -13 | -16 | -24 |
| 14 | C | C | <-32s | <-38s | <-23s | <-25s | <-32s | <-26s | <-21s | <-17s | <-27s | <-36s | -26 | -28 | -25 | -29 | <-35s | -25 | <-36s | <-37s | -16 | C | - 9 | -11 |
| 15 | -12 | (-30)s | <-42s | <-40s | <-26s | <-26s | <-32s | <-25s | <-25s | <-21s | <-20s | <-20s | <-23s | -30 | <-37s | <-40s | <-40s | <-40s | <-40s | <-40s | -15 | - 7 | 3 | - 4 |
| 16 | - 8 | - 6 | <-29s | <-31s | <-29s | <-23s | <-23s | <-19s | <-17s | <-17s | <-17s | <-27s | (-15)s | - 9 | <-38s | <-30s | <-35s | <-35s | <-35s | -30 | -11 | - 3 | -10 | -19 |
| 17 | <-25s | -20 | <-29s | <-27s | <-24s | <-23s | <-16s | <-22s | <-21s | <-22s | <-30s | <-29s | <-21s | -36 | <-37s | <-38s | <-39s | -27 | -14 | -14 | - 9 | -10 | -15 | -18 |
| 18 | <-19s | C | <-33s | <-29s | <-28s | <-24s | <-24s | <-26s | <-22s | <-24s | <-16s | -25 | -25 | -24 | -23 | <-37s | <-37s | -28 | -15 | -20 | -11 | - 8 | -10 | (-15)s |
| 19 | -15 | <-18s | <-21s | -18 | <-25s | <-23s | <-26s | <-26s | <-27s | <-25s | <-26s | <-26s | <-36s | <-36s | <-36s | <-34s | <-34s | -33 | <-27s | -31 | - 8 | - 8 | - 8 | -11 |
| 20 | C | <-29s | <-36s | <-40s | <-24s | <-23s | <-35s | <-40s | <-37s | <-37s | <-29s | <-28s | <-38s | <-38s | <-38s | <-36s | -28 | -17 | -13 | -23 | -16 | - 8 | - 7 | -14 |
| 21 | -23 | <-36s | C | <-42s | <-23s | <-23s | <-42s | <-33s | <-31s | <-35s | <-30s | -23 | -28 | <-35s | <-35s | <-35s | <-34s | -16 | -30 | -24 | -13 | - 3 | - 3 | - 6 |
| 22 | -12 | <-36s | -32 | -34 | <-16s | <-20s | <-31s | <-32s | <-32s | <-35s | <-39s | <-36s | <-37s | <-38s | -34 | C | C | C | C | C | C | C | C | C |
| 23 | <-17s | <-36s | <-40s | <-41s | <-24s | <-18s | -27 | <-33s | <-33s | <-38s | <-33s | <-33s | <-31s | <-36s | -34 | <-40s | <-40s | -24 | -12 | - 5 | - 2 | - 3 | 0 | -10 |
| 24 | -26 | <-40s | <-40s | <-40s | C | C | <-39s | <-28s | <-27s | <-28s | <-40s | <-35s | <-40s | <-40s | <-40s | <-35s | -34 | -21 | -21 | -21 | - 9 | - 2 | -13 | -16 |
| 25 | -22 | -12 | <-42s | <-40s | <-16s | C | C | C | C | C | C | C | C | C | C | <-36s | <-38s | C | -30 | <-37s | -18 | - 9 | - 8 | -12 |
| 26 | -13 | -30 | <-32s | <-39s | C | C | C | C | C | C | C | C | C | <-35s | <-40s | <-35s | <-35s | <-42s | -41 | -35 | -14 | - 2 | - 5 | -13 |
| 27 | - 9 | -14 | -15 | -16 | <-19s | <-25s | <-34s | <-27s | <-27s | <-26s | <-27s | <-40s | -18 | -20 | -28 | <-41s | <-41s | <-40s | -10 | <-47s | -19 | 1 | -10 | - 5 |
| 28 | - 9 | -16 | <-27s | <-36s | <-16s | <-12s | <-37s | <-21s | <-24s | <-26s | <-36s | <-36s | <-36s | <-36s | -33 | <-20s | <-33s | <-33s | <- 8s | <-32s | <-34s | -17 | -15 | <-25s |
| 29 | <-22s | <-32s | <-41s | <-27s | <-15s | <-13s | <-32s | <-28s | <-25s | <-25s | <-12s | <-28s | <-29s | <-26s | <-38s | <-27s | <-39s | <-39s | -35 | -35 | -15 | -14 | - 5 | - 9 |
| 30 | -14 | -10 | <-39s | <-32s | <-17s | <-11s | <-38s | <-28s | <-28s | <-37s | <-18s | C | C | C | <-37s | <-38s | <-38s | <-39s | <-39s | <-39s | -23 | -10 | -12 | - 6 |
| Median | -15 | (-22)s | <-32s | <-32s | <(-24)s | <(-23)s | <-29s | <-26s | <-25s | <(-25)s | <(-26)s | <(-27)s | <(-28)s | <(-33)s | <(-36)s | <(-36)s | <(-37)s | <(-38)s | (-32)s | (-34)s | -18 | - 8 | -10 | (-15)s |
| Med. Count | 27 | 26 | 27 | 29 | 28 | 26 | 27 | 27 | 27 | 27 | 27 | 26 | 26 | 28 | 29 | 29 | 29 | 28 | 29 | 29 | 29 | 28 | 28 | 28 |
| Upper decile | - 9 | -10 | -15 | -18 | <-16s | <-13s | <-21s | <-19s | <-11s | <-15s | <-12s | <-20s | <-17s | <-20s | <-25s | <-24s | <-30s | -21 | <-12s | -20 | - 8 | - 1 | - 3 | - 6 |
| Lower decile | <-25s | <-36s | <-41s | <-40s | <-40s | <-27s | <-40s | <-33s | <-32s | <-37s | <-36s | <-36s | <-38s | <-38s | <-40s | <-40s | <-40s | <-41s | <-40s | <-40s | <-27s | -17 | -16 | <-21s |

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

Jul. 1964 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 | -10 | - 3 | - 2 | - 4 | 6 | 9 | 9 | 10 | 11 | 18 | 7 | 7 | 10 | - 7 | -16 | <-14s | <-41s | (-14)s | - 4 | 0 | - 4 | - 4 | - 5 | 0 |
| 2 | - 4 | 0 | - 5 | 2 | 4 | 8 | 15 | 20 | 18 | 10 | 9 | 4 | 9 | 0 | 2 | - 4 | - 3 | - 6 | - 1 | 0 | 2 | 0 | 3 | 0 |
| 3 | 4 | 3 | - 2 | 0 | 8 | 16 | 8 | 11 | 12 | 17 | 20 | 12 | 5 | 10 | - 1 | - 1 | -20 | - 6 | - 8 | 1 | - 2 | - 7 | - 5 | - 4 |
| 4 | - 4 | - 3 | 2 | 3 | 2 | 4 | 7 | 6 | 14 | 11 | 6 | 7 | - 1 | -12 | -14 | - 4 | 1 | 3 | - 2 | 1 | 6 | 1 | 1 | -19 |
| 5 | 4 | 0 | 3 | 6 | 8 | 16 | 9 | 1 | -13 | - 4 | 1 | 1 | - 4 | - 4 | -13 | <-14s | - 3 | -15 | - 7 | - 4 | 1 | - 4 | - 2 | - 3 |
| 6 | - 3 | - 8 | - 8 | 3 | 9 | 9 | 12 | 16 | 18 | 14 | 7 | - 1 | -11 | -15 | -15 | - 9 | -23 | -13 | -11 | 2 | 2 | 2 | -12 | - 8 |
| 7 | - 9 | - 5 | - 1 | 0 | 6 | 9 | 14 | 17 | 12 | 7 | - 9 | - 4 | -11 | <-35s | <-39s | <-14s | <-39s | (-40)s | <-30s | - 7 | - 9 | -18 | -10 | - 1 |
| 8 | - 6 | - 4 | - 7 | - 3 | - 3 | 4 | 8 | 16 | 15 | 4 | 15 | 9 | -14 | - 5 | - 2 | -14 | <-31s | -22 | - 1 | 3 | - 1 | - 3 | - 9 | - 5 |
| 9 | - 8 | -17 | - 4 | - 2 | 10 | 15 | 9 | 11 | 14 | 17 | - 5 | -22 | <-19s | <-31s | -26 | - 9 | - 7 | - 6 | 4 | 4 | 0 | 0 | - 6 | 5 |
| 10 | 4 | - 1 | - 5 | 2 | 12 | 17 | 15 | 12 | 18 | 14 | 15 | - 1 | <- 5s | - 6 | <-23s | <-18s | -26 | - 6 | - 2 | 0 | - 6 | -11 | -13 | -13 |
| 11 | <-13s | -14 | 2 | - 7 | 9 | 7 | 18 | 11 | 13 | 12 | - 7 | - 5 | -13 | (-20)s | -22 | <-35s | <-39s | -19 | -16 | 1 | - 3 | 1 | 1 | - 1 |
| 12 | - 2 | - 6 | - 1 | 3 | 11 | 8 | 13 | 15 | 18 | 17 | (10)c | 7 | 4 | ( 9)c | 1 | <-21s | -29 | - 9 | -12 | - 2 | 2 | 1 | - 1 | - 6 |
| 13 | - 2 | -11 | - 8 | 3 | 7 | 10 | 7 | 12 | 6 | (14)c | 10 | ( 6)c | 1 | 0 | - 3 | -18 | -21 | -16 | - 2 | - 5 | - 9 | - 5 | - 8 | - 4 |
| 14 | 1 | - 8 | - 5 | - 3 | - 2 | - 4 | -11 | 7 | 14 | 9 | 3 | -15 | -11 | -10 | <-30s | -27 | <-37s | -10 | - 6 | 1 | 1 | 4 | -14 | -12 |
| 15 | -14 | - 4 | 6 | 10 | 12 | 3 | 1 | 6 | 14 | 3 | - 4 | 5 | - 1 | -17 | <-37s | <-23s | <-30s | -27 | -13 | - 4 | (-19)c | - 8 | - 6 | -12 |
| 16 | -13 | - 7 | - 4 | 4 | 5 | 3 | 11 | 9 | 16 | 15 | 11 | - 2 | - 2 | -10 | -16 | -14 | (-28)s | -26 | - 2 | 2 | - 5 | -16 | - 8 | 0 |
| 17 | - 8 | - 8 | - 7 | 3 | 9 | 14 | 14 | 11 | - 1 | 4 | 14 | 6 | - 7 | - 2 | -26 | (-11)s | <-36s | -12 | 0 | ( 9)c | - 3 | 4 | - 4 | - 5 |
| 18 | - 4 | - 9 | - 9 | 6 | 11 | 13 | 3 | 12 | - 9 | - 2 | -18 | -20 | -19 | -15 | -12 | ( 8)c | -22 | <-40c | - 2 | 0 | - 5 | <- 2s | (-23)c | -13 |
| 19 | C | -13 | - 1 | - 4 | 9 | 11 | 14 | 7 | 10 | - 2 | <-23s | - 7 | - 6 | -25 | <-28s | <-18s | <-30s | -15 | - 6 | -17 | - 2 | - 2 | - 3 | -11 |
| 20 | -13 | - 3 | - 9 | - 4 | 9 | 14 | 21 | - 8 | -12 | - 6 | -10 | (-24)s | -17 | -13 | <-33s | <-12s | -19 | -19 | -11 | 0 | 1 | - 3 | -10 | 1 |
| 21 | - 4 | - 7 | - 3 | - 6 | - 1 | 3 | 12 | 17 | 19 | 11 | - 7 | -20 | -22 | -27 | -26 | <-21s | - 9 | -18 | -10 | - 2 | - 2 | 3 | - 4 | -19 |
| 22 | -14 | -11 | - 6 | - 2 | 3 | 14 | 13 | 14 | 21 | 14 | -17 | -15 | -17 | -19 | <-27s | <-19s | <-39s | -13 | - 9 | - 5 | - 6 | - 7 | - 5 | -13 |
| 23 | - 6 | 6 | 3 | 6 | 1 | 5 | 14 | 18 | 3 | <- 9s | <-13s | <30s | <-35s | <-40s | <-40s | <-33s | <-46s | <-46s | (-31)s | - 3 | - 8 | <- 3s | - 4 | 5 |
| 24 | (- 4)s | - 3 | - 2 | 4 | 8 | 10 | 13 | 18 | 11 | 12 | 12 | 8 | - 6 | -17 | - 3 | <-16s | <-37s | 0 | - 3 | - 1 | 1 | - 9 | -10 | - 7 |
| 25 | - 6 | -11 | 0 | 5 | 4 | 9 | 8 | 14 | 13 | 13 | 22 | 2 | 0 | <-22s | <-25s | <-30s | <-32s | -10 | - 3 | - 1 | 5 | 4 | 2 | - 3 |
| 26 | - 4 | - 6 | - 4 | 2 | 8 | 11 | 22 | 2 | - 5 | 5 | 0 | - 4 | -11 | -12 | <-35s | <-25s | <-33s | - 5 | -23 | 5 | - 2 | 0 | - 1 | - 7 |
| 27 | - 5 | 6 | 3 | 2 | 5 | 10 | C | 10 | -12 | <-22s | <-23s | <-20s | <-23s | - 1 | <-38s | <-32s | <-45s | -32 | - 7 | - 7 | 0 | 1 | 1 | 0 |
| 28 | - 9 | - 5 | C | - 8 | 3 | 12 | 7 | -14 | -21 | -14 | -17 | -13 | - 7 | -21 | -26 | <-23s | <-37s | - 8 | - 3 | 1 | - 2 | <- 7s | <-26s | <-28s |
| 29 | <-24s | <-34s | 1 | 6 | <-32s | 12 | C | (-26)c | -16 | 12 | - 9 | <-26s | <-24s | -20 | <-24s | <-24s | -26 | -16 | -22 | 1 | - 3 | -12 | - 4 | <-28s |
| 30 | <-18s | <-30s | - 1 | 7 | 10 | <-14s | 19 | 12 | 7 | <-17s | <-11s | <-33s | -24 | -26 | <-39s | <-28s | -32 | <-45s | -32 | <-35s | - 6 | <-18s | <-28s | 0 |
| 31 | <-22s | 2 | <-34s | 4 | 10 | 14 | 16 | - 1 | 1 | 8 | <-28s | -29 | -18 | -40 | < 29s | <-28s | <-45s | <-45s | -12 | (-39)s | <-35s | <- 4s | - 5 | <-31s |
| Median | - 6 | - 6 | - 2 | 2 | 8 | 10 | 12 | 11 | 12 | 10 | 0 | - 4 | -11 | -15 | (-26)s | <-18)s | <-30)s | -15 | - 7 | 0 | - 2 | - 3 | - 5 | - 5 |
| Med. Count | 30 | 31 | 30 | 31 | 31 | 31 | 29 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 |
| Upper decile | 4 | 3 | 3 | 6 | 11 | 16 | 19 | 18 | 18 | 17 | 15 | 8 | 5 | 0 | - 1 | - 4 | - 3 | - 5 | - 1 | 3 | 2 | 4 | 1 | 1 |
| Lower decile | <-18s | -17 | - 9 | - 6 | - 2 | 3 | 3 | - 8 | -13 | <-14s | <-23s | <-29s | <-24s | <-35s | <-39s | <-32s | <-45s | <-45s | <-30s | -17 | - 9 | -16 | (-23)s | <-28s |

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

Aug. 1964 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 | ≤33s | 2 | -26 | ≤28s | ≤13s | ≤23s | 12 | 13 | ≤12s | (-15)s | 6 | -28 | ≤33s | ≤33s | ≤36s | ≤32s | ≤44s | 2 | - 1 | 3 | - 5 | - 1 | -11 | - 9 |
| 2 | - 4 | - 2 | 6 | 6 | 14 | 12 | 14 | 12 | ≤17s | ( 8)s | - 4 | ≤26s | - 4 | - 9 | - 6 | -12 | ≤30s | (-40)s | -10 | -23 | - 2 | - 4 | -13 | - 2 |
| 3 | - 7 | - 2 | 0 | 3 | 8 | 11 | 11 | 10 | 13 | 4 | 3 | - 9 | - 9 | -24 | ≤15s | ≤16s | ≤29s | -22 | - 1 | 5 | 4 | 8 | 3 | - 5 |
| 4 | - 5 | - 9 | - 1 | 2 | 9 | 8 | 16 | 19 | 19 | 19 | 18 | 12 | 11 | 9 | 1 | ≤18s | ≤40s | -23 | 0 | -13 | - 7 | -13 | -10 | - 5 |
| 5 | -15 | - 8 | - 6 | - 5 | - 6 | -21 | -14 | -15 | - 8 | .- 7 | 0 | 4 | ≤25s | ≤34s | ≤37s | ≤17s | -27 | -17 | - 5 | - 2 | - 2 | -12 | -12 | - 7 |
| 6 | - 5 | 5 | 10 | 10 | 7 | 11 | 10 | 4 | - 1 | 2 | 0 | -15 | ≤25s | ≤38s | ≤38s | -31 | ≤41s | -19 | - 9 | - 1 | 1 | 5 | 5 | - 5 |
| 7 | - 7 | 7 | 5 | 4 | 16 | 15 | 15 | 13 | 9 | 2 | -28 | -26 | -16 | ≤45s | ≤45s | ≤13s | C | C | C | C | C | C | C | C |
| 8 | 3 | 6 | 4 | 5 | 0 | - 7 | -13 | 1 | - 3 | 4 | -11 | ≤31s | -17 | ≤37s | ≤35s | ≤30s | ≤44s | -30 | - 5 | - 6 | - 9 | 2 | -12 | -15 |
| 9 | - 6 | - 3 | -20 | -16 | 6 | 12 | 9 | 5 | ≤23s | ≤17s | - 1 | -14 | -17 | -19 | -18 | ≤22s | -20 | -14 | -21 | -28 | - 8 | -12 | - 7 | - 5 |
| 10 | - 7 | - 9 | - 5 | 2 | - 2 | - 9 | -20 | 2 | ≤25s | ≤25s | C | C | C | C | C | C | C | C | C | C | C | C | C | - 2 |
| 11 | - 5 | 0 | 5 | 8 | 7 | 9 | 12 | 6 | 5 | 7 | 3 | - 6 | -20 | -18 | (-36)s | ≤18s | ≤42s | -30 | -22 | 3 | - 6 | 2 | - 2 | 0 |
| 12 | - 2 | 1 | - 4 | - 2 | 6 | 9 | 3 | - 3 | - 4 | -10 | ≤28s | ≤28s | 8 | - 8 | ≤41s | ≤22s | ≤39s | ≤39s | -30 | 4 | ≤40s | C | C | C |
| 13 | - 5 | - 6 | - 7 | - 1 | 6 | 8 | 7 | 8 | 5 | - 4 | -20 | -22 | (-34)s | ≤38s | ≤38s | ≤27s | -26 | -16 | -15 | - 7 | - 3 | -11 | - 4 | - 6 |
| 14 | - 9 | - 6 | - 2 | 6 | 10 | 13 | 10 | 10 | 12 | 6 | 7 | - 3 | -11 | ≤31s | -26 | ≤20s | ≤41s | - 8 | 3 | 2 | 6 | 5 | - 3 | - 8 |
| 15 | - 5 | 5 | - 2 | 5 | 10 | 14 | 15 | 16 | - 1 | - 4 | - 3 | -21 | - 9 | -12 | -15 | ≤32s | ≤32s | - 9 | -21 | 3 | - 4 | 1 | 1 | - 5 |
| 16 | - 6 | - 5 | 7 | 5 | 11 | 13 | 25 | 19 | - 2 | 0 | -11 | - 1 | ≤28s | ≤41s | ≤42s | -28 | ≤42s | -33 | -29 | - 8 | - 2 | 1 | 1 | - 4 |
| 17 | C | C | C | C | C | C | 14 | 15 | -13 | - 9 | -11 | -22 | - 8 | - 3 | ≤42s | ≤42s | ≤42s | -18 | -30 | 2 | 5 | 5 | 4 | - 1 |
| 18 | - 5 | - 4 | 7 | 4 | 8 | 12 | 19 | 14 | 7 | 3 | -13 | -13 | -18 | ≤43s | ≤43s | ≤30s | ≤38s | -17 | -12 | 0 | 4 | - 8 | -28 | -10 |
| 19 | -10 | - 4 | - 6 | - 2 | 6 | 7 | 8 | 3 | 3 | 2 | 0 | - 4 | -23 | -21 | ≤33s | ≤22s | -31 | -12 | -12 | -10 | - 6 | - 2 | - 1 | - 5 |
| 20 | -10 | - 3 | 2 | 2 | 5 | 6 | 7 | -19 | (-14)s | ≤11s | ≤23s | ≤27s | - 5 | ≤27s | -13 | ≤23s | ≤41s | -23 | -14 | 0 | - 6 | - 4 | - 5 | - 7 |
| 21 | - 5 | - 3 | - 1 | 6 | 8 | 8 | 13 | 16 | 16 | 7 | - 8 | 0 | -15 | ≤38s | -28 | ≤21s | ≤21s | -21 | - 1 | 3 | - 1 | 0 | - 7 | - 4 |
| 22 | - 9 | -14 | 3 | 1 | 5 | 8 | 7 | 10 | 4 | 10 | 13 | - 5 | - 1 | (-11)s | C | ≤19s | ≤40s | ≤22s | C | - 1 | C | C | 1 | - 1 |
| 23 | C | C | C | C | C | C | C | C | C | 3 | - 9 | - 6 | -16 | -22 | -28 | ≤25s | ≤41s | -29 | -19 | - 9 | 3 | 2 | - 4 | -13 |
| 24 | -10 | - 8 | 0 | - 1 | 0 | 8 | 9 | 2 | - 5 | -13 | - 4 | - 9 | - 9 | -11 | - 9 | -26 | -34 | - 2 | -24 | 1 | 1 | 1 | - 7 | - 1 |
| 25 | - 8 | (- 5)s | 2 | 0 | 7 | 7 | 24 | 13 | - 1 | - 7 | ≤ 9s | ≤24s | ≤25s | ≤25s | ≤29s | ≤22s | ≤28s | -18 | 0 | 10 | - 3 | 12 | - 1 | - 6 |
| 26 | - 8 | - 3 | C | 2 | 8 | 11 | -19 | ≤45s | - 1 | (-20)s | ≤20s | 11 | -14 | ≤29s | ≤49s | C | C | C | C | C | C | C | C | - 2 |
| 27 | - 6 | < 6s | 4 | 2 | 10 | ≤21s | 4 | 6 | 18 | 8 | (-38)s | -15 | 5 | ≤34s | ≤39s | ≤40s | ≤40s | -14 | - 6 | - 6 | - 2 | C | C | -12 |
| 28 | - 8 | - 9 | - 2 | 3 | 8 | 4 | 8 | - 5 | < 2s | C | C | C | C | C | ≤41s | ≤41s | ≤41s | -14 | ≤41s | - 3 | - 2 | C | C | C |
| 29 | - 9 | - 8 | - 5 | - 4 | - 2 | - 4 | 13 | 14 | - 5 | -19 | - 4 | -13 | -18 | ≤38s | ≤39s | ≤13s | ≤40s | - 9 | - 2 | C | C | C | C | - 5 |
| 30 | - 6 | C | C | 4 | 11 | 12 | 16 | 12 | 3 | 1 | - 5 | - 7 | -15 | -13 | -10 | -16 | -33 | - 1 | - 3 | 3 | - 5 | 1 | - 1 | - 9 |
| 31 | -10 | - 1 | 2 | 3 | 6 | 16 | 21 | 14 | 10 | C | C | C | C | C | C | C | C | C | C | C | C | C | C | 0 |
| Median | - 7 | (- 3)s | 0 | 2 | 7 | 8 | 10 | 10 | - 1 | 1 | - 4 | -13 | -16 | (-26)s | (-36)s | (-22)s | (-40)s | -18 | -11 | 0 | - 2 | 1 | - 4 | - 5 |
| Med. Count | 29 | 28 | 27 | 29 | 29 | 29 | 30 | 30 | 30 | 29 | 28 | 28 | 28 | 28 | 28 | 28 | 27 | 27 | 26 | 26 | 25 | 22 | 23 | 28 |
| Upper decile | - 4 | < 6s | 7 | 6 | 11 | 14 | 21 | 16 | 16 | 8 | 7 | 4 | 5 | - 8 | - 9 | ≤13s | ≤26s | - 2 | 0 | 4 | 4 | 8 | 4 | - 1 |
| Lower decile | -10 | - 9 | - 7 | - 5 | - 2 | -21 | -14 | -15 | ≤17s | ≤19s | ≤28s | ≤28s | ≤28s | ≤41s | ≤42s | ≤40s | ≤42s | ≤33s | -30 | -13 | - 8 | -12 | -12 | -12 |

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

Sept. 1964 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 | 0 | 1 | 4 | 11 | 9 | C | C | C | C | C | C | C | 5 | (-44)s | <-44s | -29 | <-45s | -27 | - 3 | -11 | 2 | 1 | - 7 | - 3 |
| 2 | C | C | C | 4 | 13 | -11 | 1 | - 9 | (- 8)s | <-20s | -15 | <-34s | <-36s | -27 | <-36s | -25 | -28 | - 2 | -11 | 2 | - 1 | 1 | 0 | - 3 |
| 3 | - 1 | - 2 | - 3 | 4 | 1 | 11 | 14 | -38 | 6 | 6 | -11 | <-21s | -31 | <-38s | -26 | -26 | <-36s | -18 | -14 | 0 | 2 | 1 | 0 | - 3 |
| 4 | - 2 | - 4 | 4 | 3 | 4 | 13 | 13 | 10 | 4 | 1 | 9 | -20 | <-27s | <-40s | <-40s | <-36s | <-36s | <-36s | <-36s | 3 | 1 | 5 | 0 | - 3 |
| 5 | - 1 | 3 | 3 | 5 | 2 | 13 | 9 | - 8 | -15 | 1 | <-27s | (-11)s | <- 8s | <-32s | <-32s | <-40s | <-40s | <-41s | <-41s | - 2 | 2 | - 1 | 6 | - 2 |
| 6 | - 2 | 3 | 3 | 3 | 2 | 10 | 8 | - 8 | 4 | - 9 | <-17s | -17 | <-34s | <-42s | <-36s | <-39s | <-39s | -23 | - 4 | 1 | - 1 | 1 | C | C |
| 7 | C | C | C | 4 | 9 | 4 | -18 | -22 | -21 | 7 | 0 | -17 | -19 | <-35s | <-36s | <-22s | <-37s | -28 | - 7 | 3 | 2 | - 1 | - 3 | - 3 |
| 8 | 0 | - 2 | 2 | 4 | 6 | 9 | 12 | 4 | -13 | - 9 | -18 | -22 | <-28s | <-38s | <-34s | <-21s | <-33s | <-33s | -33 | 2 | - 3 | 4 | - 1 | - 4 |
| 9 | - 5 | - 6 | - 8 | 7 | 7 | 5 | 10 | - 5 | -15 | <-32s | <-36s | <-36s | <-36s | <-36s | <-36s | <-40s | <-40s | <-40s | <-23s | (-18)s | 0 | 2 | - 2 | -14 |
| 10 | - 5 | - 3 | 4 | 11 | 6 | 7 | -14 | -19 | -20 | <-22s | <-23s | <-40s | -31 | <-40s | <-40s | <-39s | <-39s | <-40s | -33 | -10 | - 1 | 3 | - 1 | - 2 |
| 11 | - 7 | 3 | 0 | 6 | 7 | 12 | - 3 | -13 | -18 | <-22s | <-25s | <-31s | <-25s | <-37s | -16 | <-40s | -27 | -28 | -20 | 2 | - 1 | - 4 | - 6 | - 9 |
| 12 | - 9 | 0 | 2 | 7 | 8 | 14 | 14 | 6 | - 1 | - 7 | -13 | <-29s | - 2 | 1 | - 1 | <-40s | <-40s | -26 | -39 | - 1 | 2 | 1 | - 2 | - 5 |
| 13 | - 6 | - 3 | 2 | 10 | 9 | 7 | 16 | 4 | 3 | 9 | -13 | <-20s | <-22s | <-32s | <-31s | <-39s | <-39s | -32 | - 7 | - 1 | - 1 | 7 | 2 | - 3 |
| 14 | C | 0 | - 1 | 7 | 7 | 12 | 13 | 3 | 0 | -11 | <-26s | <-40s | <-24s | <-35s | <-34s | <-35s | <-35s | <-36s | -31 | 4 | 4 | 5 | 2 | - 4 |
| 15 | - 2 | 2 | 8 | 14 | 15 | 6 | 7 | 7 | 2 | - 1 | -14 | <-22s | <-29s | <-26s | <-37s | <-40s | <-40s | <-40s | (-39)s | - 1 | 3 | 8 | 4 | 0 |
| 16 | - 1 | 3 | 7 | 11 | 13 | 16 | 15 | 8 | 6 | 4 | - 2 | -13 | -13 | -11 | -28 | -22 | <-35s | -23 | - 6 | 5 | 1 | 0 | 2 | 0 |
| 17 | - 5 | 7 | 3 | 9 | 15 | 14 | 17 | 12 | - 6 | -15 | -30 | <-22s | <-21s | <-37s | <-37s | -22 | -34 | 3 | 13 | 2 | 5 | 6 | 9 | - 2 |
| 18 | 2 | 1 | 9 | 14 | 15 | 15 | 17 | -14 | -16 | -17 | -25 | <-26s | <-32s | <-41s | -14 | <-33s | <-37s | -18 | - 5 | 3 | 11 | 11 | 8 | 5 |
| 19 | 0 | 2 | 3 | 7 | 8 | -22 | (-26)s | <-26s | <-26s | <-26s | <-26s | <-26s | <-29s | <-36s | <-36s | <-34s | (-34)s | -22 | -13 | 1 | 8 | - 3 | 2 | 0 |
| 20 | 0 | 0 | 6 | 5 | 13 | 13 | 8 | - 5 | -24 | - 8 | <-37s | <-33s | <-38s | <-38s | <-38s | <-36s | -27 | -18 | -24 | 12 | 8 | 7 | - 4 | 0 |
| 21 | - 4 | 0 | - 1 | - 5 | 17 | 15 | 18 | -17 | -17 | -19 | -16 | -33 | -35 | <-35s | <-35s | <-35s | <-34s | -28 | -30 | - 5 | 2 | 10 | 7 | 10 |
| 22 | - 2 | 2 | 13 | 18 | 19 | 17 | 5 | 0 | -31 | <-38s | <-39s | <-36s | -33 | <-38s | <-38s | C | C | C | C | C | C | C | C | C |
| 23 | 4 | 4 | 4 | 10 | 12 | -14 | -16 | -19 | -26 | -33 | <-34s | -13 | -27 | <-36s | <-36s | <-40s | <-40s | <-40s | -30 | 3 | 7 | 6 | 7 | 3 |
| 24 | 0 | 5 | 8 | 12 | C | -14 | -16 | -15 | <-24s | -23 | <-35s | <-28s | <-28s | -13 | <-40s | <-35s | <-35s | -12 | -27 | 3 | 5 | 1 | 3 | 1 |
| 25 | - 4 | 3 | 6 | 12 | C | C | C | C | C | C | C | C | C | C | C | <-36s | C | <-38s | <-37s | - 3 | 2 | - 1 | - 4 | - 2 |
| 26 | - 2 | - 1 | 8 | C | C | C | C | C | C | C | C | C | C | <-35s | <-40s | <-35s | <-35s | <-42s | -29 | 1 | 4 | 0 | - 1 | - 1 |
| 27 | 0 | 4 | 7 | 12 | 14 | 16 | 16 | 6 | -22 | - 6 | -16 | - 9 | -30 | <-40s | <-40s | <-41s | <-40s | -26 | -30 | - 1 | 7 | 3 | - 4 | - 5 |
| 28 | - 2 | 4 | 5 | 6 | 17 | - 8 | -12 | -14 | -14 | 7 | -33 | <-37s | <-29s | (-36)s | <-37s | <-33s | <-33s | -30 | <-12s | - 2 | 2 | 2 | 2 | - 2 |
| 29 | - 4 | - 1 | 0 | 10 | 16 | 4 | -12 | -12 | -16 | - 8 | -20 | -20 | -29 | <-38s | <-38s | <-28s | <-39s | -13 | -15 | - 3 | 0 | - 1 | - 1 | 2 |
| 30 | - 5 | - 3 | - 6 | - 2 | 14 | -17 | -19 | -20 | -20 | - 5 | -23 | C | C | C | <-37s | <-38s | <-38s | -12 | -26 | 0 | - 4 | 1 | 3 | - 3 |
| Median | - 2 | 1 | 4 | 7 | 9 | 10 | 8 | - 8 | -15 | - 9 | -23 | <-24)s | <(-29)s | <(-36)s | <(-36)s | <(-35)s | <-36)s | -28 | (-26)s | 1 | 2 | 1 | 0 | - 2 |
| Med. Count | 27 | 28 | 28 | 29 | 27 | 27 | 27 | 27 | 27 | 27 | 27 | 26 | 27 | 28 | 29 | 29 | 28 | 29 | 29 | 29 | 29 | 29 | 28 | 28 |
| Upper decile | 0 | 4 | 8 | 14 | 17 | 16 | 17 | 8 | 4 | 7 | - 2 | -13 | <- 8s | -13 | -16 | -22s | -28 | -12 | - 4 | 4 | 8 | 8 | 7 | 3 |
| Lower decile | - 6 | - 3 | - 3 | 3 | 2 | -14 | -18 | -22 | <-26s | <-32s | <-36s | <-37s | <-36s | <-41s | <-40s | <-40s | <-40s | <-40s | <-39s | -10 | - 1 | - 1 | - 4 | - 5 |

# RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

| Apr. 1965 | Whole Day Index | L. N. 06 12 / 12 18 | L. N. 18 24 | W W V 00 06 / 06 12 | W W V 12 18 | W W V 18 24 | S. F. 00 06 / 06 12 | S. F. 12 18 | S. F. 18 24 | W W V H 00 06 / 06 12 | W W V H 12 18 | W W V H 18 24 | Warning 00 06 / 06 12 | Warning 12 18 | Warning 18 24 | Principal magnetic storms Start | End | ΔH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4+ | 4 4 | 4 | 5 - | - 5 | | 4 4 | 4 4 | | 4 4 | (4 4) | | N N | N N | | | | |
| 2 | 4+ | 4 4 | 5 | 4 - | - 5 | | 4 4 | 4 4 | | 4 3 | (4) 5 | | N N | N N | | | | |
| 3 | 4+ | 4 5 | 4 | 4 - | (5) 5 | | 4 3 | 4 4 | | 4 4 | 4 4 | | N N | N N | | | | |
| 4 | 4o | - - | - | 5 - | (4) 5 | | (4) 3 | 4 4 | | 4 3 | 4 5 | | N N | N N | | | | |
| 5 | 5- | 5 5 | 5 | 4 - | (4) 5 | | 5 4 | 5 (5) | | 4 3 | (4 4) | | N N | N N | | | | |
| 6 | 4+ | 5 5 | 5 | (4) - | - 4 | | 4 4 | 4 (5) | | (4) 3 | 3 4 | | N N | N N | | | | |
| 7 | 4+ | 4 4 | 4 | 4 - | - (4) | | 5 5 | 4 4 | | 4 4 | 4 (4) | | N N | N N | | | | |
| 8 | 4o | 4 4 | 4 | (3) - | (4) 5 | | 5 4 | 4 4 | | 4 3 | 4 4 | | N N | N N | | | | |
| 9 | 4o | 3 4 | 4 | 3 - | - 4 | | 5 5 | 5 4 | | 5 3 | 4 5 | | N N | N N | | | | |
| 10 | 5- | 4 5 | 5 | 4 - | (4) 5 | | 4 5 | 5 4 | | 5 4 | 4 5 | | N N | N N | | | | |
| 11 | 4+ | - - | - | 4 - | (4) 4 | | 4 4 | 5 5 | | 4 4 | 4 4 | | N N | N N | | | | |
| 12 | 5- | 5 5 | 4 | 5 - | (5) 5 | | (4) 5 | 5 (4) | | 4 4 | 4 4 | | N N | N N | | | | |
| 13 | 5- | 5 5 | 4 | 5 - | (5) 5 | | 5 5 | 4 4 | | 4 4 | 4 4 | | N N | N N | | | | |
| 14 | 5- | 5 4 | 4 | 5 - | (4) 5 | | 4 5 | 5 4 | | 4 4 | 3 4 | | N N | N N | | | | |
| 15 | 4+ | 4 5 | 4 | (4) - | - 5 | | 4 5 | 4 4 | | 4 5 | 3 4 | | N N | N N | | | | |
| 16 | 4o | - - | - | 4 - | - 4 | | 4 4 | 4 4 | | 4 4 | 4 4 | | N N | N N | | | | |
| 17 | 4o | 5 3 | 3 | 4 - | - 5 | | 4 4 | 4 4 | | 4 5 | 5 4 | | N N | N N | | 1313 | --- | 285γ |
| 18 | 3- | - - | - | 3 - | - 1 | | 4 3 | 3 2 | | 4 5 | 5 3 | | N W | W W | | --- | --- | |
| 19* | 2+ | - 2 | 3 | 1 - | - 2 | | 1 3 | 3 3 | | 3 3 | 3 3 | | U U | U U | | --- | 24xx | |
| (20) | 3+ | 3 4 | 4 | 4 - | - 2 | | 3 3 | 4 3 | | 4 4 | 4 5 | | U N | N N | | | | |
| (21) | 4- | 4 4 | 4 | 2 - | - 4 | | 4 4 | 4 4 | | 4 4 | 4 4 | | N N | N N | | | | |
| (22) | 4o | 3 4 | 5 | (3) - | - 4 | | 4 4 | 4 4 | | 4 4 | 3 3 | | N N | N N | | | | |
| 23 | 4- | 4 4 | 4 | 3 - | - 3 | | 4 4 | 4 4 | | 3 5 | 5 3 | | N N | N N | | | | |
| 24 | 4- | 4 4 | 5 | 2 - | - 3 | | 4 4 | 4 (4) | | 3 5 | 5 4 | | N N | N N | | | | |
| 25 | 4o | - - | - | 3 - | - 5 | | (4) 5 | 4 4 | | 4 4 | 5 4 | | N N | N N | | | | |
| 26 | 4+ | 5 5 | 5 | 4 - | - 3 | | 4 5 | (5 4) | | 3 5 | 5 4 | | N N | N N | | | | |
| 27 | 4+ | 5 4 | 5 | 5 - | - 4 | | 4 5 | 4 (4) | | 4 5 | 5 4 | | N N | N N | | | | |
| 28 | 4- | 4 4 | 4 | 3 - | - 4 | | 4 5 | 3 3 | | 4 4 | 4 4 | | N N | N N | | | | |
| 29 | 4+ | 4 4 | 5 | 4 - | (4) 5 | | 4 (5) | 4 4 | | 4 5 | 4 4 | | N N | N N | | | | |
| 30 | 4+ | 5 4 | 4 | 4 - | - 3 | | 5 5 | 4 4 | | 4 3 | 4 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 April, 1965.

IONOSPHERIC DATA IN JAPAN FOR APRIL 1965
第 17 巻　第4号

1965年6月20日　印　刷
1965年6月25日　発　行　（不許複製非売品）

編集兼
発行人　糟谷績
東京都小金井市貫井北町4の573

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