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IONOSPHERIC DATA IN JAPAN

FOR AUGUST 1963

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THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

F – 176

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THE RADIO RESEARCH LABORATORIES

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°08.2′E.	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Koganei-shi, Kitatama-gun, Tokyo-to
Yamagawa	31°12.5′N.	130°37.7′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

f_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 ordinary wave frequency at which the highest blanketing E_s layer becomes effectively transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.

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

$M(3000)F2$ — 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 Symbols

Used following the numerical value on monthly tabulation sheets.

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

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

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

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced or impossible because the ionization density is too small compared with that of a lower thick layer.

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

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

M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot readily be interpreted, for example, in the presence of oblique echoes.

O Measurement refers to the ordinary component.

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceeding symbol on 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.

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

l At flat E_s trace at or below the normal E layer minimum virtual height. Use in daytime only.

c An E_s trace showing a relatively symmetrical cusp at or below f_0E. This is usually continuous with the normal E trace though, when the deviative absorption is large, part or all of the cusp may be missing. Use in daytime only.

h An E_s trace showing a discontinuity *in height* with the normal E layer trace at or above f_0E. The cusp is not symmetrical, the low frequency end of the E_s trace lying clearly above the high frequency end of the normal E trace. Use in daytime only.

q As E_s trace which is diffuse and non-blanketing over a wide frequency range. The spread is most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)

r An E_s trace which is non-blanketing over part or all of its frequency range showing an increase in virtual height at the high frequency end similar to group retardation. This is distinguished at present from true group retardation (a blanketing thick layer included in the E layer tables: f_0E, $h'E$) by the lack of group retardation in the F traces at corresponding frequencies.

a An E_s pattern having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These sometimes exceed over several hundred kilometers of virtual height.

s A diffuse E_s trace which rises steadily with frequency. This usually emerges from another E_s trace which should be classified separately. At high latitudes the slant trace usually starts to rise from a horizontal E_s trace, *l*, *h* or *f*, and frequencies which greatly exceed the E layer critical frequency (e.g. about 6 Mc/s) whereas at low latitudes it usually rises from equatorial type E_s, *q*, at frequencies near the E region critical frequency.

f An E_s trace which shows no appreciable increase of height with

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

0=no burst
1=a few bursts
2=many bursts
3=exceptionally many bursts

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

b. Outstanding occurrences

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

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

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

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

S : simple rise and fall of intensity
C : complex variation of intensity
A : appears to be part of general activity
D : distinct from (i.e. apparently superposed upon) the general

activity

M : multiple peaks separated by relatively long period of quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

1=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.

b. Sudden Ionospheric Disturbances (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

W S.....WWV 20 Mc, 15 Mc and 10 Mc (Washington)
S F.....Various commercial circuits (San Francisco)
H A.....WWVH 15 Mc and 10 Mc (Hawaii)
T O.....JJY 15 Mc and 10 Mc (Tokyo)
S H.....BPV 15 Mc and 10 Mc (Shanghai)
L N.....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. Drou-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

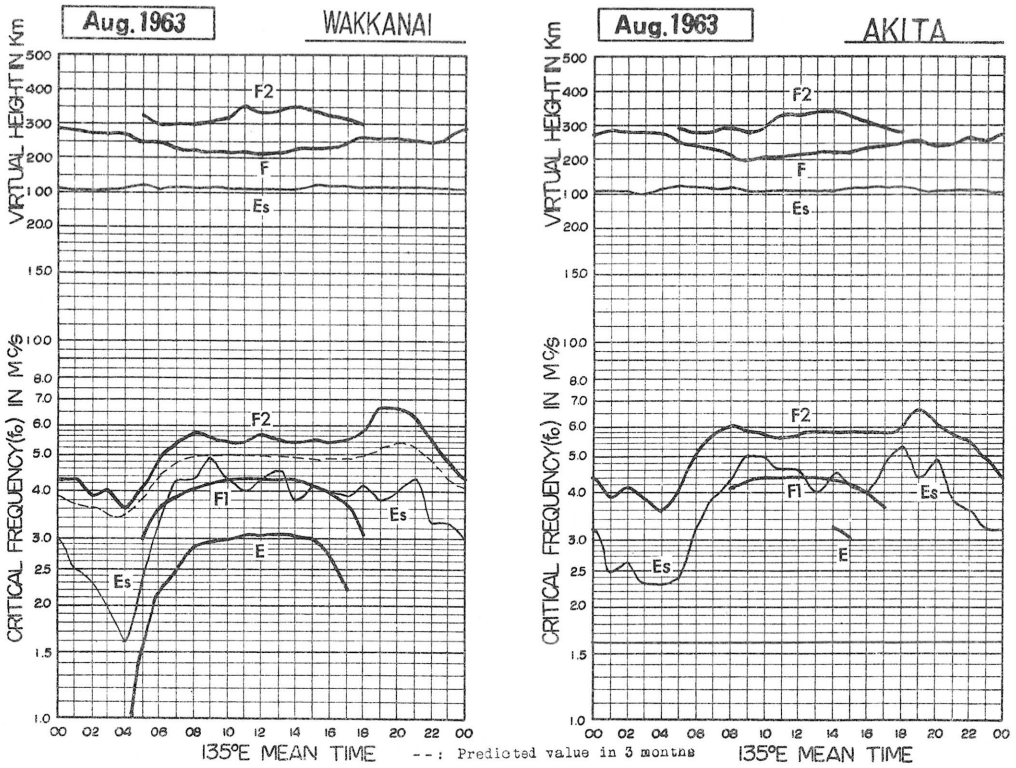
Importances

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

1−	1	1+
2−	2	2+
3−	3	3+

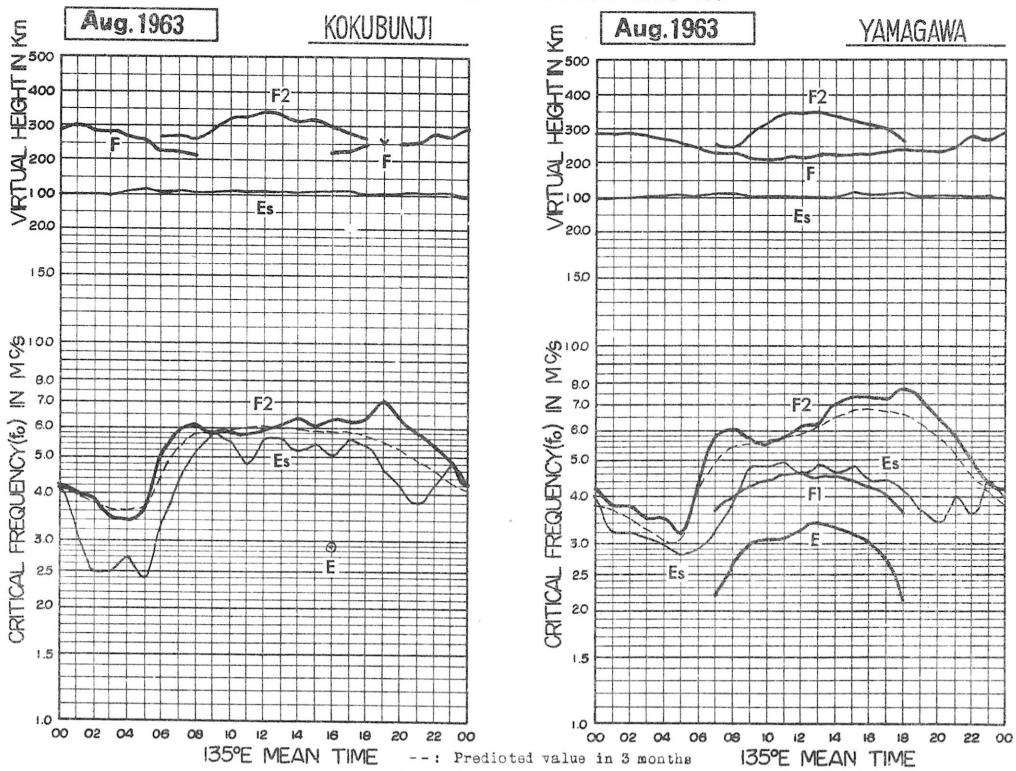
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

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

Aug. 1963 | foF2 | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45°23.6' N, Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	I4.9F	4.3	4.3	4.3	4.6	5.9	6.3	5.6	5.5	4.8	I5.3A	I5.3A	6.0	5.5	I5.3A	A	A	A	I6.8A	7.0	I6.2S	I5.7A	A
2	A	A	A	SF	SF	3.6	4.4	5.2	I5.3A	5.4	A	A	A	A	A	A	I5.2A	I5.2A	I5.8A	I6.7A	7.0	U6.4S	5.4	4.6
3	4.1	U3.7S	3.9	4.1	U4.3S	4.9	5.5	5.5	I5.7A	5.6	5.3	5.1	I5.4A	5.5	5.9	5.9	5.8	5.1	5.6	5.6	7.0	I6.7SF	U6.5S	I5.2S
4	4.7	SF	SF	SF	3.6SF	4.5	5.5	5.9	6.0	5.5	5.0	5.1	5.3	5.5	5.4	5.1	I5.4A	A	A	A	A	SF	SF	SF
5	5.5F	I4.9A	I4.3SF	U3.8F	U3.6F	4.0	4.6	5.2	6.0	6.3	6.3	5.8	5.8	6.0	5.7	5.6	5.7	6.1	5.8	6.0	6.5	U6.5SF	5.3	U5.0F
6	U4.3SF	I4.3SF	3.7	I4.1SF	I4.2SF	4.8	5.3	5.7	5.0	5.8	5.8	6.4	5.9	I5.6A	5.6	5.6	6.2	5.8	5.8	6.8	6.7	7.1	6.3	5.2
7	4.8	4.3	4.3	I4.1SF	3.6	4.4	4.6	5.9	7.0	6.8	6.1	6.1	6.0	5.4	5.3	5.5	5.1	5.6	6.1	7.2	7.3	U7.3S	6.1	4.8
8	4.3	4.1	3.9	3.6	3.7	4.3H	5.1 H	6.1	6.8	6.5	5.3H	5.2	5.3	5.7	5.4	5.1	5.1	I5.3A	5.6	I6.4A	SF	SF	SF	U5.3SF
9	4.6	3.7	U3.6S	3.1	3.4	4.0	5.4	5.9	5.9	5.5	4.9	5.4	I6.0A	I5.6A	5.4	5.5	5.4	5.4	5.4	6.5	6.6	U7.3S	5.9	5.1
10	4.6	4.3	3.6	3.6	3.6	4.6	4.8VH	5.0	5.6	5.1	5.3	5.8	5.6	5.3	5.2	5.0	5.0	4.8	5.0	5.9	6.4	6.3	5.8	5.0
11	4.8	4.2	4.3	3.6	3.9	4.3	3.6	I4.7A	4.9	5.2	I5.3R	5.6	5.0	4.9	5.0	4.8	I4.5A	4.7	4.7	5.9	6.2	6.0	5.6	SF
12	SF	SF	3.6F	3.5F	3.6F	4.0	5.0	I5.8A	5.7	5.8	5.4	5.1	5.3	I4.9A	5.1	4.8	4.6	4.8	5.1	6.3	U6.5SF	6.3	5.3	5.0
13	5.0	4.6	U4.3S	4.3	U4.3SF	4.3	5.3	6.3	5.3	5.7	5.6	5.9	5.1	4.8	5.0	I4.9A	I5.3A	6.1	6.8	7.1	6.9	5.7	4.2	4.6
14	4.1	SF	SF	SF	FS	4.1	4.8	5.7	5.7	5.3	5.4	5.0	I5.8R	5.2	I5.0A	5.5	5.7	5.3	6.1	7.0	I7.3SF	I6.7SF	6.0	U5.3S
15	4.3	U4.3S	4.3	4.0	U4.0S	U4.3H	5.5F	5.4	5.1	C	C	C	C	C	5.3	5.0	I4.7A	5.3	6.2	7.2	I6.9SF	I6.6SF	5.8	A
16	A	A	SF	SF	SF	4.1	5.5	5.3	6.5F	I6.4A	5.8	5.3	5.2	5.5	5.4	5.2	5.0	5.4	6.3	7.1	U7.7S	FS	A	SF
17	SF	SF	SF	4.0	U4.1S	U4.4S	4.9	6.1	5.2	5.1	5.9	I5.6A	5.7	5.4	5.1	5.1	4.9	5.1	5.3	6.6	U7.3S	I7.2S	6.7	5.3
18	4.3	4.3	4.3	4.3	4.3	3.8H	5.3	5.3	5.8	5.5	I5.4A	5.3	5.7	5.2	5.7	5.8	6.1	6.6	6.3	7.3	S	SF	SF	I4.8SF
19	4.3	4.3S	U4.4S	U4.3F	4.3S	3.4	3.7	4.3	I4.4R	5.0	5.0	W	A	A	A	A	A	A	A	A	A	5.3	I4.6A	I4.1A
20	3.6	I3.3SF	3.3F	SF	SF	SF	I5.1A	I5.2A	5.6	W	I4.9R	4.5	I4.6A	I4.9A	5.4	5.4	S	A	A	A	A	A	A	A
21	SF	SF	SF	SF	A	I3.3A	I3.8R	I4.5A	I4.7A	4.9	5.0	4.9	A	A	A	A	4.7	I4.5A	4.3	5.4	I6.0S	5.6	4.8	4.1
22	3.6	3.6	3,4	3.4	3.2	3.4	4.7	5.5	5.8	C	C	C	5.9	5.5	5.7	5.5	5.1	5.1H	5.3	U6.5S	7.1	5.9	U4.9S	4.6
23	F	F	F	3.5	3.1F	3.9	4.6	5.3	5.7	6.0	5.7	5.2	5.8	5.0	5.0	5.5	5.5	5.7	5.7	6.0	6.1	5.9	5.0	4.9
24	4.8	4.6	4.4	3.9	4.1	3.9	4.3	5.3	5.1	5.4	6.5	6.4	6.1	6.2	6.8	6.3	I5.5A	5.6	5.9	6.5	U7.1S	6.8	6.1	5.2
25	4.8	U4.7S	4.3	4.1	3.2	3.8	4.6	4.7	5.4	5.4	5.3	5.7	4.6	5.1	5.2	5.3	5.4	5.6	6.0	7.1	6.3	I4.6A	I4.1A	3.8
26	I3.8A	3.9F	3.8	4.1	I3.8SF	U4.3S	4.7	5.9	5.9	5.6	5.6	5.7	5.9	I5.6A	5.3	5.3	5.5	6.3	7.2	U7.5S	6.6	6.6	U5.5S	I4.6A
27	4.0	U4.0S	U3.8SF	3.7	3.6	4,3	5.5	5.5	6.0	I6.2A	5.4	6.0	6.2	6.5	5.3	5.7	5.6	5.7	5.7	6.4	U6.4S	5.1	5.2	4.8
28	4.3	4.0	3.9	U4.3S	3.8	4.5	5.0	5.3	5.9	6.1	4.9	5.8	I6.2A	5.6	5.7	5.6	5.9	6.1	6.3	7.0	U7.0S	I7.3SF	U6.3S	5.6
29	5.6	5.3	4.3	U4.0S	U3.3S	3.7	I4.5A	5.1	U5.0S	I5.3A	U5.3S	I5.1A	I5.3A	5.9	5.4	5.7	5.7	5.9H	6.0	6.3	6.0	5.3	U4.6S	I4.5SF
30	I4.4SF	U4.3SF	I3.9SF	U3,6SF	U3.6SF	3.6	I4.7A	I5.4A	5.8	5.7	I5.3C	5.2	5.3	5.1	5.3	5.8	6.2	6.0	5.2	5.5	5.3	5.1	U4.3S	4.3
31	3.9	3.8	3.6	3.4	3.5	3.6	4.8	5.2	5.4	5.6	5.4	5.4	5.3	5.3	5.5	5.3	5.9	5.5	6.1	6.6	5.9	5.4	5.1	3.2
No.	24	23	24	25	26	30	31	31	31	28	28	27	27	27	28	28	28	27	27	28	26	26	26	25
Median	4.3	4.3	3.9	4.0	3.6	4.1	4.8	5.4	5.7	5.6	5.4	5.4	5.6	5.5	5.4	5.5	5.4	5.5	5.8	6.6	6.6	6.3	5.4	4.8
U.Q.	4.8	4.6	4.3	4.1	4.1	4.4	5.3	5.9	5.9	5.9	5.6	5.8	5.9	5.6	5.6	5.6	5.7	5.9	6.1	7.0	7.0	6.7	6.0	5.2
L.Q.	4.1	3.9	3.5	3.6	3.6	3.8	4.6	5.2	5.2	5.4	5.2	5.1	5.3	5.1	5.2	5.1	5.0	5.1	5.3	6.2	6.3	5.6	4.9	4.6
Q.R.	0.7	0.7	0.7	0.5	0.5	0.6	0.7	0.7	0.7	0.5	0.4	0.7	0.6	0.5	0.4	0.5	0.7	0.8	0.8	0.8	1.7	1.1	1.1	0.6

The Radio Research Laboratories, Japan

foF2

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

W 1

IONOSPHERIC DATA

Aug. 1963 | foF1 | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45°23.6' N, Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
2							3.5	A	A	A	A	A	A	A	A	A	A	A	A					
3						3.0L	A	A	A	A	I4.3A	A	A	A	4.3	I4.2A	4.0	3.8	A					
4							A	A	I4.2A	I4.3A	4.4	I4.4A	4.5	4.4	4.3	A	A	A	A					
5							3.4	3.9	I4.0R	I4.2R	4.4	I4.3A	I4.3A	4.3	4.3	I4.2A	A	A	A					
6							A	A	4.2	4.2	4.3	4.3	4.3	I4.3A	4.3	4.2	4.0H	3.8	U3.1L					
7							3.8	A	A	A	A	4.4	4.4	4.4	4.3	4.2	4.1	I3.7A	3.2					
8								3.7	4.0	4.3H	4.3	4.3	4.3	4.3	I4.3A	I4.2A	3.9	A	A					
9						U3.0L	3.6	3.9	4.1	I4.3A	I4.2A	I4.3R	I4.3A	I4.3A	4.2	4.1	4.0H	3.7	A					
10								3.9	A	A	A	A	4.3	4.3	4.2	4.1	4.0	3.7L	U3.1L					
11						U2.7L	U3.7L	A	A	A	R	4.3	4.3	4.3	4.3	4.2	I3.9A	3.7						
12							3.7	I3.9A	I4.2A	4.2	4.3	U4.4R	4.3	I4.3A	4.2	4.1	I4.0A	3.7	3.1					
13						3.3	3.5	3.9	4.1	I4.2A	I4.3A	4.3	4.3	I4.3A	A	A	A	A	A					
14								4.0H	I4.0A	I4.2A	4.2	4.3	4.3	4.3H	I4.1A	I4.2A	3.8	3.8	3.1					
15							3.7	I4.0A	A	C	C	C	C	C	4.3	I4.2A	I3.9A	3.7	A					
16						U2.8L	3.4	I3.8A	I3.9A	I4.1A	4.3	4.3	4.3	4.3	I4.3A	4.1	3.8	3.6	3.0					
17							3.6	I3.8A	4.2	A	A	A	4.3	4.3	4.3	4.0	I4.0A	I3.7A	U3.0L					
18							3.5	4.0	I4.0A	4.2	I4.4A	4.5	4.5	I4.4A	4.3	4.3L	3.9	3.6	A					
19							3.2	3.7	I4.6A	4.2	4.3	I4.3R	A	A	A	A	A	A	A					
20						A	A	A	A	U4.0R	U4.1R	4.2	I4.2A	I4.2A	I4.2A	4.0	A	A						
21							3.5	A	A	A	A	I4.2A	A	A	A	A	A	A						
22							3.6	3.8	4.1	C	C	C	4.4	4.3	4.3	4.1	4.0H							
23								4.0	4.2	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.1	3.5						
24							4.0	3.7	4.1	4.4	4.3	4.4	I4.3A	4.3	4.3	A	A	A						
25								4.0	4.2	4.3	4.3	I4.4A	I4.4A	4.3	4.3	4.2	4.0	3.5						
26							I3.4A	U3.9R	4.2H	U4.0R	4.4	4.4	4.4	I4.5A	4.5	4.2	3.8	3.6						
27							A	A	A	A	4.3	I4.4A	4.4	I4.4A	I4.3A	I4.1A	4.0	A						
28							I3.6A	4.0	I4.1A	I4.2A	4.3	4.4	I4.3A	I4.3A	4.3	4.2	4.0	A						
29								A	A	A	A	A	A	4.3	4.3	4.2	I3.9A							
30								I3.9A	4.0	4.2	I4.3C	I4.7R	I4.5A	I4.3A	4.2	4.0	3.8	U3.1L						
31							3.4	3.9	4.0	4.2	4.2	4.3	4.4	4.3	4.3	4.1	3.8H							
No.						5	18	20	20	19	21	23	24	25	26	24	22	16	7					
Median						U3.0	3.6	3.9	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.2	4.0	3.7	3.1					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

foF1

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

IONOSPHERIC DATA

Aug. 1963 | foE | 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	1.50	2.05	A	A	A	A	A	A	A	3.15	3.00	2.85	2.30	S	S				
2					A	1.65	2.20	2.70	2.95	3.00	3.05	3.25	3.15	3.10	3.00	3.00	2.85	2.35	S	S				
3					1.15	1.80	2.20	2.70	2.90	3.00	3.00	3.05	I3.00A	2.95	I3.00A	I3.05A	2.85	2.45	S	S				
4					A	1.85	2.10	2.60	I2.95A	3.00	3.00	I3.05A	3.30	I3.25A	I3.20A	3.05	2.90	A	S	S				
5					E	1.65	2.30	2.65	2.90	2.90	3.10	3.05	3.00	3.00	3.20	2.95	2.85	2.05	S	S				
6					A	A	2.20	2.75	2.95	3.00	3.00	3.00	A	A	A	3.00	2.75	2.45	S	S				
7			E		A	1.55	2.20	2.70	2.95	3.00	3.05	3.00	3.00	3.00	3.15	3.00	2.85	2.40	S	S				
8			E	E	E	1.65	2.15	2.50	2.80	3.00	3.05	3.10	3.10	2.95	3.05	2.95	2.50	2.05	S	S				
9					A	1.80	2.15	I2.55A	2.95	I2.95A	3.00	3.00	3.00	I3.00A	I2.95A	2.95	2.75	2.30	S	S				
10					E	1.80	2.25	2.70	3.15	3.20	3.20	3.15	3.00	A	A	A	2.75	2.35	S	S				
11						1.60	2.25	2.65	2.90	3.05	3.05	3.00	3.05	3.10	3.05	2.90	2.70	2.05	S	S				
12					E	1.60	2.20	2.45	2.85	3.00	3.05	3.05	3.15	3.00	2.85	3.00	2.85	2.20	S	S				
13						1.45	2.05	2.50	2.90H	2.85	I3.10A	3.20	3.30	3.30	3.15	2.90	2.70	2.10	S	S				
14						1.25	I1.90S	2.40	2.60	I2.90A	3.00	3.00	2.95	3.20	3.10	2.95	2.70	2.20	S	S				
15						A	2.00	A	A	C	C	C	C	C	A	3.10	I2.80A	2.30	S	S				
16						1.50	I2.10S	2.50	2.95	3.00	3.00	I3.10A	I3.15R	3.15	I3.00A	I3.00A	2.75	A	A	S				
17						1.30	2.20	2.65	2.95	3.00	3.05	A	A	A	A	3.00	2.70	2.25	S	S				
18						1.45	2.10	I2.50A	2.95	2.95	2.90	3.05	3.10	3.00	I3.00A	2.95	I2.70A	2.15	S	S				
19						1.30	2.00	2.40	2.85	2.95	3.00	3.00	I3.00A	3.05	3.10	3.00	2.60	2.15	S	S				
20					E	1.40	2.05	2.40	2.60	2.90	3.00	3.00	I3.00A	3.05	2.95	2.95	A	A	S					
21						1.45	I1.90S	2.40	2.70	2.90	2.95	2.75	A	A	A	A	A	2.30	S					
22						I1.55S	2.20	2.30	2.50	C	C	C	A	R	3.00	2.90	2.70	2.25	S					
23					1.20	1.35	2.15	2.55	2.75	2.90	I3.05A	I3.20A	3.05	3.05	3.15	I2.85A	I2.55A	2.20	S					
24					E	I1.45S	I2.10S	2.45	2.80	2.85	2.95	A	A	A	3.15	3.00	2.70	2.25	S					
25					E	1.60	2.15	2.50	2.80	2.95	3.00	3.00	2.80	I2.95A	3.00	3.00	2.70	2.15	S					
26						S	S	2.55	2.75	2.95	2.95	2.95	A	A	A	3.00	2.75	2.15	S					
27						1.20	2.05	2.45	2.85	A	A	A	A	A	A	A	A	A	A					
28						I1.35A	I2.00S	2.40	2.75	2.90	3.05	3.10	3.15	3.10	3.05	2.95	2.60	2.10	S					
29						A	S	2.45	2.70	2.95	2.95	A	A	A	A	3.00	2.40	2.05	S					
30						S	S	2.20	2.60	2.95	I3.05C	3.00	3.00	I3.00A	I3.00A	3.00	I2.55R	S	S					
31					E	S	S	2.10	2.40	I2.65A	I2.90A	3.15	3.20	I3.10A	A	A	A	S	S					
No.			2	1	10	25	27	29	29	27	27	24	21	20	22	27	27	25						
Median			E	E	E	1.55	2.15	2.50	2.85	2.95	3.00	3.05	3.05	3.05	3.05	3.00	2.70	2.20						
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

Aug. 1963 | foEs | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45°23.6' N, Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	1.6	J2.3	G	J5.3	J10.0	J 9.0	J10.0	J 5.3	4.9	J 5.3	J10.5	J 5.3	4.5	8.7	J 7.8	J 7.0	J 7.8	J 8.3	J 6.3	J 8.3	J 7.3	J 9.3
2	J 8.3	J 8.2	J 7.5	J 6.3	J 5.3	J 3.3	3.3	J 4.6	6.3	J 7.3	J 8.0	J15.0	J14.2	J14.0	J11.1	J 6.3	J 8.3	J 9.8	J11.3	J10.0	J 8.2	J 3.3	E	J 3.1
3	J 4.3	J 4.3	J 2.3	E	G	2.6	J 4.3	J 5.1	J 7.3	J 5.1	J 5.1	4.5	J 6.2	J 6.8	J 5.3	4.2	3.9	3.2	J 4.2	J 6.6	J 4.3	J 5.0	J 9.3	J 6.3
4	J 2.3	2.1	J 3.6	E	J 3.6	J 3.3	3.7	J 7.3	J10.0Y	J 5.3	J 7.3	J 5.8	G	3.9	3.7	J 5.3	J 9.3	J14.0	12.5	J13.3	J 8.0	J 2.8	J 3.0	J 4.0
5	J 4.3	J 8.0	J 2.3	J 2.8	1.5	2.3	3.0	3.3	4.0	4.0	4.3	J 4.3	J 6.3	J 4.3	G	J 4.5	J 5.3	J 7.0	J 6.2	J 6.3	J 4.3	J 4.3	J 4.5	J 3.3
6	J 4.0	J 3.0	J 2.8	1.7	1.6	2.9	J 4.9	J 6.3	3.6	5.8	J 5.3	G	4.0	6.3	J 4.6	G	G	3.0	2.5	S	J 2.3	J 3.1	J 5.3	J 3.5
7	J 3.0	E	E	E	1.4	2.0	2.7	J 4.3	J 5.8	J 4.3	J 4.5	3.6	3.4	G	G	G	3.8	J 5.2	J 4.0	2.8	J 2.5	J 4.3	E	2.4
8	J 3.3	E	E	E	E	G	2.8	3.1	3.3	G	3.5	G	G	3.3	J 4.3	J 4.3	J 4.0	J 5.8	J 7.3	J 4.0	J 4.0	J 4.3	J 8.3	J 3.3
9	E	J 2.0	J 3.0	J 3.0	J 2.3	G	G	J 4.3	4.0	J 7.0	J 4.3	4.0	J 7.3	J 9.1	3.8	G	G	G	J 3.1	J 3.5	J 3.5	J 3.0	E	E
10	E	E	1.8	1.8	E	G	2.9	3.5	4.5	J 5.2	5.0M	J 6.3	3.7	3.6	3.6	3.9	G	3.2	2.8	J 2.5	E	E	E	2.4
11	E	E	E	E	1.8	G	3.5	J 5.0	J 4.5	J 5.3	4.0	3.8	3.7	J 4.5	J 5.3	J 4.3	J 5.4	2.5	J 4.5	J 4.5	J 3.0	J 3.0	J 4.3	J 3.3
12	J 4.3	J 2.3	J 3.0	J 2.0	1.5	J 4.3	3.3	J 7.2	J 4.3	G	3.8	J 6.3	G	J 7.5	3.3	G	J 4.3	3.3	2.5	2.5	J 4.3	J 4.0	J 2.2	2.9
13	J 3.0	J 2.5	J 3.0	J 2.8	J 2.3	2.0	2.9	3.0	4.2	J 5.3	J 4.3	G	4.8	J 5.3	J14.3Y	J10.6	J 8.5	J10.3	J 6.3	J 3.1	J 2.4	E	J 3.0	J 3.3
14	2.7	J 3.1	J 3.0	E	J 6.3	4.0	4.2	2.8	J 4.3	J 4.9	G	G	G	3.6	4.8	4.8	5.4	3.1	J 3.1	3.3	J 3.3	J 3.0	E	E
15	2.4	2.2	2.2	J 2.1	J 3.0	J 2.0	2.8	J 6.0	J 5.3	C	C	C	C	C	3.8	4.5	J 6.5	3.3	J 6.5	J 5.8	J 9.5	J 5.3	J 6.2	J 5.2
16	J 6.3	J 6.0	J 2.4	E	1.5	2.2	3.3	J 5.3	J 4.3	J 6.3	3.8	3.4	G	4.3	J 5.3	4.0	G	3.9	J 3.0	J 5.3	J 3.1	J 5.3	J 6.1	J 4.3
17	J 4.3	J 2.6	J 2.1	1.8	E	2.5	3.6	J 6.1	J 6.1	J 9.6	J 5.1	J10.8	J 5.3	J 4.5	3.3	3.8	4.0	4.0	2.5	J 2.3	E	J 4.3	E	E
18	E	J 3.1	E	J 3.0	J 2.3	G	2.6	J 4.0	4.1	J 4.2	J 5.8	J 4.3	4.4	4.3	J 3.3	5.0	3.0	3.1	J 5.1	3.1	J13.0	J11.2	J 5.3	J 4.3
19	2.4	J 2.8	2.3	1.5	J 2.5	J 3.3	3.0	3.3	J 4.3	3.4	3.2	3.5	J 5.3	4.7	J 7.1	J 6.3	6.3	J13.0	J 6.3	J 7.3	J 8.4	J 3.1	J 7.3	J 7.6
20	J 4.3	2.4	E	J 2.0	2.1	J 4.3	J 5.4	J 5.3	J 5.0	J 6.8	3.9	4.0	J 7.8	J 5.2	J 6.3	G	4.5	J17.0	J17.2	J11.8	J11.5	J10.4	J 8.0	J 8.3
21	J 5.3	J 5.3	J 6.2	J 6.0	J 7.3	6.0	J 7.1	J 5.1	J 6.1	J 4.3	J 4.5	5.0	J 4.4	J 5.1	J 5.2	5.0	4.0	J 7.3	J 3.3	5.0	J 5.3	J 3.1	E	E
22	E	E	E	E	1.5	S	G	J 4.3	3.8	C	C	C	3.2	G	G	G	G	2.6	2.7	2.6	J 4.3	2.6	J 2.8	J 2.5
23	J 3.8	J 5.0	J 4.3	J 2.0	G	2.4	3.2	3.5	4.0	3.3	3.7	3.8	G	G	G	3.1	2.8	G	S	2.3	J 2.3	J 3.2	3.6	2.4
24	E	1.8	E	1.8	1.4	1.9	2.3	3.1	3.4	3.8	G	3.8	J 4.3	3.5	G	4.3	J 6.3	3.9	J 4.1	J 3.5	2.7	2.4	J 3.1	2.2
25	E	E	E	E	E	G	2.8	3.6	3.5	3.4	G	4.3	J 5.1	4.0	3.7	4.0	G	3.0	3.0	4.0	J 6.0	J 6.3	J 6.9	J 2.9
26	J 4.3	J 2.8	2.4	2.1	E	1.6	J 4.9	3.0	2.9	J 3.2	3.2	3.7	3.8	8.1M	3.9	G	G	3.5	3.4	J 5.4	J 7.0	J 8.3	J 5.1	J 6.4
27	J 4.3	J 5.3	J 3.1	J 3.0	J 3.0	2.6	3.4	4.2	J 5.4	J 7.3	J 4.3	J 5.1	J 4.0	J 4.8	J 5.1	4.1	4.3	J 4.4	J 4.3	J 4.3	J 3.4	J 3.0	J 2.3	J 2.5
28	E	E	J 3.3	J 2.3	J 3.3	2.9	J 4.1	J 4.3	J 6.3	J 4.3	3.5	3.6	J 9.0	J 4.3	3.3	G	3.4	3.5	J 5.1	E	J 6.3	J 6.3	J 3.3	E
29	J 3.1	2.6	J 4.0	J 6.3	J 4.3	J 4.3	J 7.0	J 9.0	J 4.5	J12.0	J12.2	J12.0	J 9.2	J 5.1	J 5.3	J 4.3	J 4.3	4.0	2.3	J 3.1	J 2.3	2.9	J 5.0	J 4.3
30	3.1	J 3.1	J 3.3	J 3.3	J 3.0	2.3	J 6.3	J 5.3	3.5	3.3	C	4.0	J 4.3	5.1	3.3	G	G	S	S	J 2.3	J 2.3	E	J 3.3	J 5.1
31	J 2.4	J 2.3	1.8	1.7	1.6	J 2.3	J 3.2	3.0	3.0	3.4	J 4.3	G	2.8G	3.2	3.8Y	J 3.6	3.0	S	J 2.8	J 3.0	J 3.3	J 4.3	2.3	E
No.	31	31	31	31	31	30	31	31	31	29	28	29	30	30	31	31	31	29	29	30	31	31	31	31
Median	3.0	2.5	2.3	2.0	1.6	2.4	3.3	4.3	4.3	4.9	4.3	4.0	4.3	4.5	3.8	4.1	4.0	3.9	4.1	3.8	4.0	4.3	3.3	3.3
U.Q.	4.3	3.1	3.1	2.8	3.0	3.3	4.3	5.3	5.8	6.0	5.0	5.2	6.2	5.3	5.3	4.8	5.4	7.0	6.3	5.8	6.3	5.3	6.1	4.3
L.Q.	E	E	E	E	E	1.9	2.8	3.3	3.8	3.4	3.6	3.6	3.2	3.6	3.3	G	G	3.1	2.9	2.8	2.5	3.0	2.2	2.4
Q.R.						1.4	1.5	2.0	2.0	2.6	1.4	1.6	3.0	1.7	2.0			3.9	3.4	3.0	3.8	2.3	3.9	1.9

The Radio Research Laboratories, Japan

foEs

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

IONOSPHERIC DATA

Aug. 1963 | f_bEs | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45°23.6' N, Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			E	E		3.3	4.3	5.0	4.9	4.4	4.7	A	A	4.8	4.3	A	A	A	A	A	4.2	4.5	A	A
2	A	A	A	3.1	2.2	G	3.2	4.5	A	4.7	A	A	A	A	A	A	A	A	A	A	4.3	2.1		E
3	3.8	E	E			G	4.1	4.9	A	4.9	4.5	4.5	A	4.7	3.5	4.2	G	G	3.8	4.8	4.0	3.3	2.7	3.0
4	E	E	E		1.9	3.0	3,4	4.3	4.3	4.3	G	4.3		3.5	3.5	4.7	A	A	A	A	A	2.2	2.4	2.4
5	3.0	A	E	E	G	G	G	G	E4.OR	E4.OR	G	4.3	5.5	G		4.3	4.5	4.5	4.5	2.5	3.1	4.0	3.0	E
6	E	E	E	E	1.3	2.5	3.6	4.1	G	G	G		3.5	A	3.5			G	G	S	E	E	4.0	E
7	E				1.1	G	G	4.1	5.7	4.3	4.3	G	G				G	4.5	2.8	2.5	E	E		E
8	2.8						G	G	G		G			G	4.3	4.2	G	A	4.7	A	E	E	E	E
9		E	2.3	E	2.0			3.3	3.8	4.2	4.5	E4.OR	A	A	3.3				3.0	3.3	2.2	E		
10			E	E			G	G	4.3	4.7	4.5	5.4	G	3.5	3.2	3.7		G	2.4	G				E
11					E		G	A	4.4	4.8	A	G	G	G	G	G	A	G	3.0	3.8	E	E	E	E
12	2.7	2.1	E	E	G	G	3.1	A	4.2		G	G		A	G		4.2	3.3	G	G	E	2.7	E	E
13	E	E	E	E	1.8	G	G	G	G	4.3	3.7		4.1	4.3	4.5	A	A	5.2	5.0	3.0	E		E	E
14	E	E	E		E	3.0	G	G	4.3	4.7				G	A	4.4	G	G	2.7	2.4	2.6	2.6		
15	E	E	E	E	E	1.9	G	4.7	4.1	C	C	C	C	C	3.5	2.6	A	G	3.7	5.0	4.2	4.2	4.3	A
16	A	A	E		E	G	3.1	4.2	4.2	A	G	3.4		G	4.3	3.0		2.5	2.7	2.2	E	4.0	A	3.0
17	3.3	E	E	E		G	G	4.7	G	4.5	4.4	A	3.6	3.6	3.3	G	4.0	4.0	G	G		4.0		
18		E		E	E		G	3.3	4.1	4.1	A	4.3	4.4	4.3	3.3	G	2.8	G	3.0	G	E	E	E	E
19	E	2.2	2.2	E	E	G	G	G	A	G	G	G	A	A	A	A	A	A	A	A	A	E	A	A
20	E	E		E	G	3.1	A	A	4.1	G	G	G	A	A	4.6		A	A	A	A	A	A	A	A
21	4.0	2.2	E	2.2	A	A	2.6	A	A	4.2	4.3	4.5	A	A	A	A	4.0	A	3.0	4.6	4.7	E		
22					E	S		G	G				E3.2R					G	2.6	2.4	3.1	2.5	2.5	E
23	2.8	2.9	E	E		G	3.0	G	3.5	G	3.6	3.6				3.1	2.8		S	E	E	2.8	2.9	2.4
24		E		E	G	G	G	G	G	G		3.7	4.3	3.5		4.2	A	3.8	4.1	3.2	E	E	E	E
25							G	G	G	G		4.3	4.2	3.6	G	G		G	2.4	2.8	4.1	A	A	E
26	A	2.2	2.0	E		G	3.7	G	G	G	G	3.7	3.8	A	3.3			3.3	3.1	4.5	3.2	2.7	2.2	A
27	3.1	2.2	2.9	2.2	2.1	G	3.2	4.2	4.5	A	3.6	4.5	4.0	4.3	5.0	4.1	3.7	4.3	4.2	4.2	3.4	E	E	E
28			2.1	E	E	2.4	3.7	G	4.2	4.2	G	G	A	4.3	G		G	3.1	4.2		4.8	5.0	2.8	
29	2.8	E	2.2	E	E	2.4	A	4.2	4.5	A	4.8	A	A	3.5	3.5	G	4.3	G	G	E	E	2.2	3.8	3.5
30	2.2	E	2.4	2.0	E	G	A	A	G	G	C	E4.OR	4.3	4.5	3.1			S	S	2.2	E		E	E
31	E	E	E	E	G	G	G	G	G	3.1	3.2		2.8	3.2	3.1	3.2	2.6	S	2.5	2.6	2.5	2.4	E	
No.																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

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

W 5

IONOSPHERIC DATA

Aug. 1963 | f-min | 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	E1.80S	E1.10S	E	E	E	1.20	1.95	2.20	2.15	2.05	2.60	2.50	2.60	2.20	2.15	2.05	2.05	2.00	E1.90S	E1.90S	E1.90S	E1.90S	E1.90S	E1.95S
2	E1.90S	E	E	E	E	E	1.90	2.10	2.10	2.10	2.50	2.15	2.15	2.20	2.10	2.15	2.15	2.00	E1.90S	E2.00S	E2.00S	E1.90S	E2.00S	E2.00S
3	E1.90S	E1.60S	E	E	E	1.30	1.90	2.00	2.00	2.50	2.30	2.25	2.20	2.50	2.20	2.60	2.15	1.95	E2.00S	E2.00S	E1.85S	E1.90S	E1.95S	E1.90S
4	E1.80S	E1.60S	E1.90S	E	E	1.20	1.85	1.95	2.10	2.10	2.60	2.15	2.20	2.10	2.10	2.00	2.00	2.00	E1.90S	E2.00S	E2.00S	E1.90S	E1.95S	E1.90S
5	E2.00S	E1.10S	E	E	E	E	1.90	2.00	2.00	2.00	2.10	2.15	2.10	2.20	2.10	2.00	2.00	2.00	E1.85S	E2.00S	E1.90S	E2.00S	E2.00S	E1.90S
6	E2.00S	E	E	E	E	E	1.90	2.00	2.15	2.00	2.25	2.50	2.50	2.50	2.20	2.00	2.00	2.00	E2.00S	E2.10S	E2.00S	E2.00S	E1.85S	E2.00S
7	E1.80S	E1.70S	E	E	E	E	1.90	2.00	2.00	2.05	2.20	2.10	2.20	2.15	2.20	2.15	2.00	2.00	E1.90S	E2.00S	E1.90S	E2.00S	E2.00S	E2.00S
8	E1.90S	E	E	E	E	1.20	2.00	1.90	2.00	2.10	2.25	2.10	2.50	2.20	2.10	2.00	2.00	E1.90S	E1.90S	E1.90S	E1.95S	E1.90S	E1.90S	E2.00S
9	E2.00S	E1.60S	E	E	E	1.15	1.80	2.00	2.00	2.00	2.10	2.10	2.50	2.10	2.05	2.10	2.00	1.90	E1.90S	E1.95S	E1.90S	E2.00S	E1.90S	E2.00S
10	E2.00S	E2.10S	E	E	E	E1.15S	1.80	2.00	2.70	2.50	2.50	2.15	2.15	2.50	2.50	2.15	2.15	2.00	E2.00S	E2.00S	E1.95S	E2.00S	E2.00S	E2.00S
11	E1.90S	E1.50S	E	E	E	1.15	1.95	1.90	2.00	2.10	2.20	2.50	2.30	2.50	2.15	2.10	2.20	E1.95S	E1.90S	E1.90S	E2.00S	E1.90S	E2.00S	E2.00S
12	E2.00S	E	E	E	E	E	1.85	2.00	2.00	2.15	2.60	2.30	2.15	2.50	2.15	2.10	2.00	2.00	E1.85S	E2.00S	E2.00S	E1.95S	E1.90S	E2.00S
13	E1.90S	E	E	E	E	1.10	1.90	1.90	2.00	2.05	2.10	2.50	2.15	2.15	2.50	2.00	2.00	1.95	E2.00S	E1.90S	E1.80S	E2.00S	E2.00S	E2.00S
14	E2.00S	E1.50S	E1.20S	E	E	E	E2.20S	2.00	2.10	2.20	2.15	2.15	2.15	2.10	2.50	2.15	2.15	1.90	E1.90S	E1.90S	E1.80S	E2.00S	E2.00S	E2.00S
15	E1.90S	E1.60S	E1.20S	E	E	E	1.85	2.10	2.00	C	C	C	C	C	2.00	2.00	1.80	2.00	E1.90S	E2.00S	E1.90S	E1.90S	E1.85S	E2.00S
16	E1.90S	E1.60S	E	E	E	E	E2.10S	2.00	2.00	2.60	2.10	2.20	2.30	2.50	2.20	2.50	2.00	1.95	E1.80S	E1.85S	E2.00S	E1.90S	E1.90S	E1.90S
17	E1.90S	E	E	E	E	E	1.90	2.00	2.05	2.00	2.10	2.15	2.10	2.00	2.10	2.00	2.15	2.00	E1.80S	E1.90S	E1.90S	E1.90S	E2.00S	E1.90S
18	E2.10S	E1.40S	E1.20S	E	E	E	1.90	2.00	2.00	2.10	2.00	2.25	2.15	2.15	2.15	2.10	2.15	2.00	E1.90S	E2.00S	E2.00S	E1.90S	E2.00S	E2.00S
19	E1.80S	E1.50S	E	E	E	E	1.90	2.00	2.10	2.15	2.05	2.50	2.70	2.50	2.05	2.15	2.00	1.90	E1.90S	E2.00S	E1.95S	E2.00S	E2.00S	E1.90S
20	E1.90S	E1.80S	E2.00S	E	E	E	1.80	2.00	2.00	2.20	2.10	2.05	2.15	2.70	2.15	2.05	2.15	2.10	E2.00S	E2.00S	E1.90S	E2.00S	E2.00S	E1.90S
21	E2.00S	E1.60S	E	E	E	E	E2.10S	1.90	2.00	2.15	2.15	2.15	2.50	2.50	2.20	2.10	2.00	1.90	E1.80S	E2.00S	E1.90S	E1.80S	E2.00S	E2.00S
22	E2.00S	E1.70S	E	E1.70S	E	E2.00S	1.90	1.90	2.00	C	C	C	2.50	2.10	2.10	2.10	1.90	1.95	E2.00S	E2.00S	E2.00S	E2.00S	E1.95S	E1.90S
23	E1.90S	E1.50S	E	E	E	1.35	1.85	2.00	2.00	2.15	2.45	2.50	2.40	2.00	2.00	2.15	1.95	1.90	E2.05S	E2.00S	E1.95S	E1.90S	E1.90S	E2.00S
24	E1.90S	E	E	E	E	E1.50S	E2.00S	2.15	2.10	2.20	2.20	2.60	2.50	2.30	2.00	2.10	1.90	1.85	E1.85S	E2.00S	E1.85S	E2.00S	E2.00S	E1.90S
25	E2.00S	E1.90S	E	E	E	E	1.50	2.00	2.00	2.15	2.10	2.10	2.00	2.45	2.10	2.15	2.10	1.90	E1.80S	E2.00S	E2.00S	E1.85S	E2.00S	E2.00S
26	E2.00S	E1.50S	E	E	E1.20S	E1.15S	E1.95S	1.90	2.30	2.00	2.00	2.55	2.20	2.15	2.00	2.15	2.15	1.90	E1.95S	E2.00S	E2.00S	E2.00S	E2.00S	E1.90S
27	E1.90S	E	E	E	E	E	E1.95S	2.00	2.15	2.00	2.00	2.00	2.10	2.05	2.60	2.00	2.00	1.90	E1.90S	E2.00S	E1.90S	E1.80S	E1.90S	E1.90S
28	E2.00S	E1.60S	E	E	E	E	E2.10S	1.85	2.10	2.15	2.00	2.50	2.15	2.10	2.50	2.15	1.90	1.90	E1.85S	E2.10S	E1.85S	E1.90S	E1.90S	E2.00S
29	E1.85S	E1.85S	E	E	E	E	E1.90S	1.95	2.20	2.15	2.20	2.30	2.10	2.50	2.15	2.10	2.20	E2.00S	E2.00S	E1.85S	E2.00S	E1,85S	E1.80S	E2.00S
30	E1.90S	E1.70S	E	E	E	E1.20S	E1.95S	2.00	2.30	2.15	I2.25C	2.20	2.20	2.50	2.50	2.20	2.20	E2.20S	E1.90S	E1.95S	E2.00S	E2.00S	E1.90S	E1.90S
31	E2.00S	E1.50S	E	E	E	E1.50S	E1.85S	1.90	1.90	2.00	2.25	2.50	2.10	2.05	2.40	1.90	1.80	E2.15S	E1.80S	E1.75S	E1.80S	E1.80S	E1.80S	E2.00S
No.	31	31	26	30	30	25	23	31	31	29	29	29	30	30	31	31	31	28	31	31	31	31	31	31
Median	E1.90	E1.50	E	E	E	E	1.90	2.00	2.00	2.10	2.20	2.20	2.20	2.20	2.15	2.10	2.00	1.95	E1.90	E2.00	E1.95	E1.90	E1.95	E2.00
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

IONOSPHERIC DATA

Aug. 1963 | M(3000)F2 | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45°23.6' N, Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	I2.80F	2.80	2.85	2.80	2.75	3.05	3.50	3.10	3.25	2.95	I2.95A	I2.95A	3.05	2.95	I3.00A	A	A	A	I3.00A	2.70	I3.00S	I2.95A	A
2	A	A	A	SF	SF	2.90	2.85	3.15	I3.10A	3.10	A	A	A	A	A	A	I3.00A	I2.95A	I3.00A	I2.95A	3.00	U2.80S	3.00	3.10
3	2.85	U2.60S	2.80	2.80	U2.90S	3.10	3.25	3.15	I3.10A	3.15	3.40	2.65	I2.70A	2.90	3.00	3.15	3.10	3.10	3.15	2.85	2.85	I2.95F	U3.10S	I3.10S
4	3.00	SF	SF	SF	2.95F	3.20	3.20	3.35	3.00	3.25	2.80	2.80	2.65	2.95	3.05	I3.05A	I3.10A	A	A	A	A	SF	SF	SF
5	2.80F	I2.80A	I2.80F	U2.90F	U2.90F	3.00	3.05	2.85	3.05	2.95	2.90	2.80	I2.95A	3.00	3.00	3.00	3.05	3.15	3.15	2.90	2.90	U2.90F	3.05	U3.05F
6	U2.80F	I2.75F	2.95	I2.85F	I2.95F	3.15	3.30	3.45	3.20	3.10	3.05	3.10	3.25	I3.05A	3.10	2.90	3.20	3.10	3.00	3.00	2.85	2.90	3.15	3.10
7	2.95	2.90	2.85	U2.95F	2.90	3.35	2.80	2.90	3.25	3.25	3.10	3.05	3.10	2.95	2.90	3.05	2.95	3.10	3.00	2.90	3.00	U2.85S	3.10	3.10
8	3.10	3.05	3.05	3.05	3.05	3.00H	2.80H	3.30	3.40	3.25	3.00H	3.00	2.90	3.20	3.15	3.05	2.95	I3.10A	3.05	I2.90A	SF	SF	SF	U3.00SF
9	3.25	2.95	U3.05S	2.90	3.20	2.95	3.15	3.05	3.30	3.25	2.65	2.95	I3.25A	I3.15A	3.10	3.10	3.00	3.15	2.95	2.90	2.85	U3.15S	3.00	3.05
10	3.05	3.10	3.05	2.90	3.10	3.25	3.15H	3.20	3.05	3.15	3.00	I3.25A	3.20	3.20	3.10	3.10	3.15	3.15	3.00	2.95	2.95	3.00	3.05	3.00
11	3.05	2.85	3.10	3.05	2.95	3.25	3.25	I3.15A	3.10	3.25	I3.10R	3.20	3.00	2.85	3.20	3.15	I3.10A	3.10	3.05	2.95	2.90	3.00	3.20	SF
12	SF	SF	3.05F	2.85F	3.10F	3.00	3.00	I3.15A	3.35	3.45	3.35	2.65	3.30	I3.40A	3.15	3.00	2.85	3.10	2.95	3.05	U2.85F	3.00	3.10	2.90
13	3.00	3.20	U2.90S	2.80	U3.00F	2.85	3.20	3.25	3.40	3.55	3.20	3.40	3.20	2.90	3.15	I2.95A	I3.00A	3.10	3.10	3.15	3.20	3.25	2.95	2.85
14	2.80	SF	SF	SF	FS	3.40	3.35	3.40	3.35	3.25	3.35	3.20	I2.95R	3.10	I2.95A	3.10	3.25	3.10	2.95	2.95	I2.95F	I3.00F	3.05	U3.10S
15	3.00	U3.00S	2.80	3.00	U3.00S	3.00H	3.15F	3.30	3.40	C	C	C	C	C	3.05	3.25	I3.10A	3.00	3.00	3.15	I3.00F	I3.05F	3.10	A
16	A	A	SF	SF	SF	3.00	3.35	2.85	3.10F	I3.30A	3.45	3.45	2.90	3.30	3.15	3.10	2.95	3.05	3.00	2.95	U3.25S	FS	A	SF
17	SF	SF	SF	2.95	U2.95S	U3.00S	3.05	3.35	3.45	3.10	3.15	I3.30A	3.15	3.15	3.15	3.35	3.10	3.10	3.05	2.85	U3.00S	I3.05S	3.35	3.25
18	3.00	2.80	3.00	2.90	3.10	3.05H	3.30	3.20	3.50	3.40	I3.30A	3.00	3.15	3.00	3.00	2.95	3.00	3.20	2.85	3.00	S	SF	SF	I2.90F
19	2.65	2.75S	U2.90S	U2.80F	3.25S	3.30	2.45	2.70	I2.50R	2.90	3.10	W	A	A	A	A	A	A	A	A	A	3.20	I3.05A	I3.05A
20	3.05	I2.80SF	2.80F	SF	SF	SF	I3.15A	I2.75A	2.85	W	I3.00R	2.60	I2.50A	I2.55A	2.85	2.95	S	A	A	A	A	A	A	A
21	SF	SF	SF	SF	A	I2.85A	I3.05R	I2.85A	I2.80A	2.75	2.75	U2.75A	A	A	A	A	3.00	I2.90A	2.80	2.80	I2.85S	3.05	2.90	2.95
22	2.85	3.05	2.95	2.85	3.05	3.05	3.00	3.15	3.10	C	C	C	3.00	3.25	3.15	3.25	3.25	3.20H	2.90	U2.90S	3.10	3.05	U2.90S	3.05
23	F	F	F	2.90	2.85F	3.10	3.25	3.20	3.15	3.45	3.15	2.90	3.00	3.05	2.75	2.90	2.90	3.00	3.05	2.95	2.85	3.05	2.85	2.85
24	2.75	2.85	2.95	2.90	3.15	3.35	3.15	3.50	3.30	2.95	3.20	3.15	3.10	3.05	3.10	3.35	I3.25A	3.05	2.95	2.75	U2.85S	3.10	2.95	2.90
25	2.95	U3.00S	3.05	3.15	3.00	2.95	3.25	3.05	3.15	3.35	3.20	3.15	3.50	3.00	2.90	3.00	2.95	3.15	3.05	3.15	3.35	I3.05A	I2.90A	2.90
26	I2.95A	2.70F	3.05	2.95	I3.20F	U3.35S	3.40	3.40	3.55	3.40	3.20	3.20	3.25	I3.15A	3.20	3.00	2.95	3.05	3.00	U3.20S	3.05	3.15	U3.10S	I3.15A
27	2.85	U2.85S	U2.95F	3.20	3.10	3.25	3.40	3.35	3.35	I3.40A	3.50	3.05	3.10	3.40	3.00	3.15	3.20	3.20	3.20	3.00	U2.95S	3.00	2.90	2.75
28	2.85	2.85	2.80	U2.80S	3.10	3.35	3.30	3.20	2.95	3.40	3.55	3.05	I3.25A	3.25	3.00	3.15	3.05	3.10	3.00	3.05	U2.90S	I2.95F	U2.90S	2.80
29	2.90	2.95	3.00	U3.00S	U3.05S	3.25	I3.30A	3.35	U3.60S	I3.05A	U3.30S	I3.00A	I3.00A	3.15	3.15	3.15	3.30	3.20H	3.15	3.00	3.00	3.15	U2.85S	I2.80F
30	I2.80F	U2.75F	I2.90F	U3.05F	U3.10F	3.10	I3.20A	I3.05A	3.50	3.50	I3.30C	2.80	3.30	2.90	3.00	3.15	3.25	3.35	3.10	2.95	2.95	3.15	U2.90S	3.00
31	2.95	3.10	2.95	2.95	3.05	3.10	3.20	3.25	3.50	3.35	3.65	3.35	2.90	3.10	3.30	3.20	3.30	3.25	3.15	3.05	3.10	3.15	3.35	2.80
No.	24	23	24	25	26	30	31	31	31	29	28	28	27	27	28	28	28	27	27	28	26	26	26	25
Median	2.95	2.85	2.95	2.90	3.05	3.10	3.20	3.20	3.20	3.25	3.20	3.00	3.10	3.05	3.10	3.10	3.10	3.10	3.00	2.95	2.95	3.05	3.00	3.00
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

M(3000)F2

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

W 7

IONOSPHERIC DATA

Aug. 1963 | M(3000)F1 | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45°23.6' N Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
2							I3.50A	A	A	A	A	A	A	A	A	A	A	A	A					
3						3.75L	A	A	A	A	A	A	A	A	3.70	I3.60A	3.60	3.40	A					
4							A	A	I3.70A	I3.75A	3.80	I3.80A	3.80	3.70	3.55	A	A	A	A					
5							3.60	3.60	I3.65R	I3.70A	3.65	I3.80A	I3.90A	3.70	3.70	I3.70A	A	A	A					
6							A	A	3.80	4.05	3.95	4.15	3.95	I3.80A	3.65	3.60	3.50H	3.70	U3.70L					
7							3.40	A	A	A	A	3.80	3.85	3.65	3.75	3.60	3.55	A	A					
8								4.05	3.75	3.75H	3.95	4.15	4.20	3.75	I3.70A	I3.65A	3.65	A	A					
9						U3.35L	3.35	3.85	I3.90A	I3.95A	I4.05A	I3.80R	I3.95A	I3.95A	4.05	3.65	3.50H	3.40	A					
10								3.85	A	A	A	A	3.95	3.95	3.85	3.65	3.55	3.70L	L					
11						U3.70L	U3.60L	A	A	A	A	3.95	3.95	3.95	3.60	3.60	I3.70A	3.45						
12							3.45	I3.75A	I3.80A	4.05	3.70	U3.95R	4.15	I4.00A	3.90	3.55	I3.50A	I3.45A	3.40					
13						3.35	3.45	3.65	3.90	I3.80A	I3.90A	3.95	I3.85A	I3.75A	A	A	A	A	A					
14								3.70H	I3.85A	I3.95A	4.05	3.95	3.95	3.70H	I3.70A	I3.70A	3.70	3.45	I3.45A					
15							3.50	I3.75A	A	C	C	C	C	C	3.75	I3.50A	I3.45A	3.40	A					
16						U3.55L	I3.70A	I3.70A	I3.75A	I3.85A	3.95	3.60	4.10	3.70	I3.65A	3.65	3.65	3.55	3.65					
17							3.55	I3.90A	3.80	A	A	A	3.95	3.95	3.70	3.75	I3.60A	I3.45A	U3.65L					
18							3.70	3.75	A	A	A	A	I3.70A	I3.85A	3.75	3.50L	3.75	3.60	A					
19							3.50	3.50	I3.75A	3.75	3.55	I3.80R	A	A	A	A	A	A	A					
20						A	A	A	A	U3.75R	3.90	3.80	I3.60A	I3.55A	I3.60A	3.75	A	A						
21							3.30	A	A	A	A	I3.80A	A	A	A	A	A	A						
22							3.35	3.75	3.85	C	C	C	3.65	3.70	3.55	3.65	3.55H							
23								3.60	3.55	3.85	3.95	3.95	3.95	3.70	3.65	3.55	3.45	3.50						
24							3.30	3.85	3.75	3.65	3.95	3.75	I3.80A	3.60	3.70	A	A	A						
25								3.65	3.75	3.80	3.90	I3.90A	I3.80A	3.75	3.60	3.55	3.65	3.55						
26							I3.80A	U3.60R	3.80H	U3.75R	4.10	3.90	3.70	I3.45A	3.65	3.60	3.65	A						
27							A	A	A	A	3.95	I3.90A	A	A	A	A	A	A						
28							I3.60A	3.55	I3.80A	I3.90A	4.15	4.10	I4.05A	I3.70A	3.70	3.75	3.55	A						
29								A	A	A	A	A	A	3.55	3.55	3.65	A							
30								I3.60A	3.75	3.80	I3.80C	I3.90A	I3.85A	I3.75A	3.70	3.75	3.70	U3.85L						
31							3.60	3.60	3.75	3.80	3.80	3.95	3.70	3.70	3.70	3.65	3.60H							
No.						5	18	20	19	18	19	22	23	24	25	23	20	14	5					
Median						U3.55	3.50	3.70	3.75	3.80	3.95	3.90	3.90	3.70	3.70	3.65	3.60	3.50	U3.65					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

M(3000)F1 Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

IONOSPHERIC DATA

Aug. 1963 | h'F2 | 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						360	300	250	340	315	A	A	A	330	355	I350A	A	A	A					
2							415	320	I335A	350	A	A	A	A	A	A	A	A	A					
3						285	295	I310A	I340A	330	295	470	I420A	375	360	320	310	345	290					
4							280	280	325	315	440	415	450	365	350	I350A	I330A	A	A					
5							370	380	305	315	310	350	I360A	330	345	355	330	295	300					
6							275	270	235	325	330	330	300	I345A	335	370	295	300	295					
7							420	345	300	300	320	315	325	385	400	345	360	350	290					
8								275	270	270	360H	360	395	320	335	350	360	I310A	A					
9						345	310	280	280	305	475	385	I315A	I350A	345	340	340	300	300					
10								315	325	350A	370	I305A	340	330	350	345	315	300	300					
11						285	295	I315A	I315A	320	I345R	320	375	400	370	350	I335A	320						
12							330	I300A	285	285	305	475	305	I345A	350	370	I405A	340	310					
13						350	300	275	275	260	370	290	340	415	350	A	A	A	A					
14								270	275	300	295	325	I395R	365	I380A	340	300	310	290					
15							300	I265A	285	C	C	C	C	C	350	320	I335A	340	I300A					
16						310	275	400	280	I280A	280	290	385	320	340	335	360	315	280					
17							320	265	290	315	290	I310A	330	330	350	310	330	320	295L					
18							280	290	255	270	I300A	370	340	370	360	350L	320	280	300					
19							525	430	I505A	400	360	W	A	A	A	A	A	A	A					
20						325	I365A	I400A	360	W	I380R	500	I525A	I490A	390	350	A	A						
21							R	I400A	I410A	415	425	I415A	A	A	A	A	350	A						
22							345	295	320	C	C	C	330	320	325	305	310							
23								305	315	270	315	385	360	340	420	360	350	310						
24							370	265	300	375	300	300	330	320	300	270	I285A	300						
25								365	335	300	320	315	I365A	375	400	355	345	310						
26							290	265	255	295	315	345	315	I320A	350	350	350	300						
27							260	275	285	I270A	275	350	340	275	I290A	310	295	290						
28							285	305	330	285	290	365	I290A	295	345	320	315	275						
29								275	260	I365A	310A	I375A	I380A	320	325	320	290							
30								I390A	265	275	I310C	425	320	420	375	310	290	255						
31							300	305	270	300	270	320	370	345	315	320	285							
No.						7	23	31	31	29	27	27	26	27	28	27	26	21	12					
Median						325	300	300	300	305	315	350	340	345	350	345	330	310	300					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

h'F2

Sweep 1.0 Mc to 18.6 Mc in 40 sec in automatic operation

W 9

17

IONOSPHERIC DATA

Aug. 1963 | h'F | 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	295	280	280	305	295	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
2	A	A	A	I295A	280	270	I255A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	260	270	250
3	I290A	325	305	295	280	250	A	A	A	A	A	A	A	A	225	I240A	260	255	A	A	A	A	255A	I260A
4	270	260	270	270	300	A	A	A	I225A	I225A	225	I220A	220	225	245	A	A	A	A	A	A	275	295	310
5	I285A	I290A	310	310	275	250	250	240	I240A	I240A	230	I225A	I215A	230	240	I230A	A	A	A	305A	A	A	A	255
6	295	285	295	300	290	270H	I265A	I250A	225	225	225	200	185	I200A	220	235	220H	250	245	255	285	270	I245A	250
7	285	250	255	255	260	235	225	A	A	A	A	230	200	220	215	225	240	I250A	I260A	270A	260	270	230	255
8	280A	260	250	275	250	255H	230H	230	220	200H	220	200	195	205	I220A	I220A	240	A	A	A	285	250	240	255
9	245	250	300	325	270	250	235	235	I225A	I210A	I195A	I215A	I210A	I215A	210	220	220	235	I255A	I275A	290	245	250	250
10	260	250	235	230	270	255	225H	240	A	A	A	A	215	220	220	255A	245	265	265A	275	265	260	250	280
11	260	260	260	230	275	265	230	A	A	A	A	200	215	200	250	230	I250A	245	I290A	I280A	275	260	250	255
12	300A	250	260	290	255	245	260A	I225A	I215A	200	240	210	185	I195A	210	205	I260A	I260A	270	255	260	250A	250	280
13	260	250	270	270	260	225	260	240	235	I220A	I220A	210	I220A	I225A	A	A	A	A	A	A	245	230	260	290
14	295	280	295	260	250	I245A	250	220H	I220A	I220A	195	200	220	210H	I225A	I235A	250	260	I250A	260	260A	240A	245	250
15	260	260	275	275	260	240H	225	I220A	A	C	C	C	C	C	225	I265A	I260A	260	A	A	A	A	A	A
16	A	A	300	250	250	245	I235A	I225A	I220A	I215A	215	220	190	235	I235A	235	225	240	270	255	225	I245A	I270A	I290A
17	I300A	290	275	260	270	250	270	I240A	210	A	A	A	210	210	200	230	I240A	I260A	260	285	260	I250A	230	230
18	250	285	260	280	260	240H	240	235	A	A	A	A	I230A	I225A	200	250	240	250	I270A	250	275	260	240	270
19	315	310	275A	275	250	250	255	260	I240A	220	260	225	A	A	A	A	A	A	A	A	A	250	I245A	I255A
20	260	300	300	290	315	A	A	A	A	225	215	225	I235A	I250A	I245A	220	A	A	A	A	A	A	A	A
21	I330A	280	270	300	I285A	I270A	255	A	A	A	A	I220A	A	A	A	A	A	A	A	A	A	270	260	280
22	310	280	250	305	250	275	245	230	225	C	C	C	225	225	225	235	235H	240H	I265A	280A	I255A	260A	260	275
23	355A	360A	300	255	300	260	I245A	240	250	215	220	210	210	210	215	240	240	245	255	260	290	270A	295A	305
24	300	300	260	255	235	260	225	215	225	210	195	215	I215A	245	225	A	A	A	A	A	275	250	260	260
25	290	265	260	230	260	270	250	245	220	220	220	I220A	I215A	210	225	240	235	260	270	250A	A	A	A	310
26	I310A	315	295	250	245	225	I245A	215	200H	200	190	220	210	I225A	220	240	240	I250A	I260A	I255A	I250A	245	250	I255A
27	I285A	310	330A	270	275	260	A	A	A	A	210	I200A	A	A	A	A	A	A	A	A	I250A	250	265	285
28	290	305	335	275	250	270	I250A	230	I210A	I215A	210	195	I215A	I245A	225	250	240	I250A	I260A	260	I255A	I255A	255A	290
29	275A	275	260	245	270	290	A	A	A	A	A	A	A	255	250	250	I250A	250H	250	260	265	255	I275A	I295A
30	290	305	305	310	270	290	I250A	I230A	240	215	I220C	I215A	I225A	I215A	190	250	230	245	250	250	280	250	250	280
31	290	280	275	295	275	245	255	230	200	190	220	200	210	210	225	230	200H	240	265	260	260	265	240	325
No.	29	29	30	31	31	28	25	21	19	18	19	22	23	24	25	23	21	20	18	19	21	25	26	28
Median	290	280	275	275	270	250	250	230	225	215	220	215	215	220	225	235	240	250	260	260	260	255	250	270
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

h'F | Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

W 10

IONOSPHERIC DATA

Aug. 1963 | h'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	E	E	110	105	G	115	110	110	105	105	110	105	105	110	130	120	120	115	115	120	115	115	110	110
2	110	105	105	105	105	125	125	120	115	115	115	115	120	115	115	120	120	115	110	120	120	110	E	110
3	105	105	105	E	G	125	120	115	115	110	115	115	110	110	115	115	140	130	120	115	120	115	115	110
4	110	110	110	E	110	120	120	115	110	110	110	110	G	105	110	125	115	110	115	115	115	125	120	115
5	110	110	110	110	110	140	130	120	120	120	115	115	110	115	G	120	115	115	110	120	120	115	110	110
6	110	110	105	105	105	125	120	115	120	115	115	G	110	110	110	G	G	135	125	S	120	120	110	110
7	110	E	E	E	110	145	135	120	115	120	115	115	120	G	G	G	130	120	120	125	120	115	E	115
8	110	E	E	E	E	G	125	125	120	G	120	G	G	115	120	120	120	110	110	115	120	115	115	110
9	E	105	105	105	105	G	G	120	115	115	115	115	110	110	105	G	G	G	105	115	115	110	E	E
10	E	E	105	105	E	G	130	125	125	120	115	110	110	110	110	110	G	130	125	125	E	E	E	110
11	E	E	E	E	110	G	135	125	125	120	115	120	120	120	120	115	115	120	120	115	115	115	120	120
12	110	110	105	110	110	110	125	120	120	G	120	120	G	110	115	G	135	125	125	120	120	115	110	110
13	110	110	105	105	105	135	120	135	125	110	110	G	130	125	120	120	115	115	115	110	110	E	120	110
14	110	110	105	E	120	120	125	120	115	105	G	G	G	140	125	125	130	125	120	120	110	110	E	E
15	110	105	105	105	110	105	120	110	110	C	C	C	C	C	105	125	120	120	110	110	110	110	110	105
16	105	105	105	E	125	125	120	120	120	110	115	110	G	115	115	120	G	115	110	115	110	115	105	105
17	105	105	105	100	E	125	120	115	115	110	110	110	105	110	110	120	140	125	125	115	E	110	E	E
18	E	105	E	110	115	G	125	115	120	120	110	115	120	110	110	120	120	130	115	115	120	115	110	115
19	105	120	105	105	120	125	125	120	115	115	135	115	115	120	125	120	120	115	115	115	110	110	110	110
20	105	125	E	115	135	120	120	120	115	115	115	110	110	115	115	G	115	120	115	110	110	110	120	110
21	105	105	130	130	125	130	120	120	115	110	110	110	110	110	110	110	115	120	120	115	115	110	E	E
22	E	E	E	E	105	S	G	120	115	C	C	C	110	G	G	G	G	135	125	115	115	115	115	110
23	110	110	105	115	G	130	125	130	120	120	110	110	G	G	G	110	110	G	S	125	125	110	110	110
24	E	110	E	130	125	130	125	125	115	110	G	110	110	110	G	135	120	120	120	115	115	115	110	110
25	E	E	E	E	E	G	130	125	120	120	G	115	110	110	115	120	G	105	105	120	110	110	110	110
26	105	105	110	105	E	125	120	125	120	120	120	115	110	105	105	G	G	115	110	115	110	110	110	110
27	110	105	105	105	105	125	120	115	110	110	110	105	110	105	105	105	110	105	105	110	110	115	115	110
28	E	E	120	125	125	120	115	115	115	110	120	115	115	115	125	G	140	125	115	E	115	110	110	E
29	105	110	125	115	115	115	115	115	115	110	110	105	105	105	105	130	120	125	125	115	120	115	110	115
30	110	105	105	105	125	130	115	115	115	120	C	115	110	110	110	G	G	S	S	120	120	E	115	110
31	110	110	105	105	125	125	120	120	115	105	105	G	110	110	110	105	105	S	105	105	100	120	105	E
No.	22	23	23	22	23	24	29	31	31	27	25	24	24	27	26	22	23	27	29	29	29	28	24	25
Median	110	110	105	105	110	125	120	120	115	115	115	115	110	110	110	120	120	120	115	115	115	115	110	110
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

h'Es

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

W 11

IONOSPHERIC DATA

Aug. 1963 | Types of Es | 135° E Mean Time (G.M.T. +9h) | Wakkanai | Lat. 45°23.6' N, Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			f	f2		c2	c2	12	1	1	1	12	1	1	h	c2	c2	c2	c3	c2	f2	f3	f3	f3
2	f3	f4	f4	f2	1	c	c	c	c2	c2	c2	c3	c4	c2	c2	c2	c2	c3	c3	c3	f2	f2		f
3	f3	f2	f			c	c2	c2	c2	c	c	c	1	c2	1	1	h	c	c2	c2	f5	f2	f2	f2
4	f	f	f2		12	c2	c2	c2	1	c2	c	1		1	1	c	c3	c31	c3	c4	f3	f	f2	f2
5	f3	f6	f2	f2	1	h	c	c	c	c	c	c	c2	c		c	c2	c4	c2	c2	f3	f3	f2	f2
6	f2	f2	f	f	1	c1	c2	c2	c	c	c		1	12	1			c	c		f	f	f2	f
7	f2				1	h	h	c	c	c	c	c	c				c	c2	c2	c	f	f2		f
8	f3						c	c	c		c		c	c	c	c	c	c2	c2	c3	f2	f2	f	f2
9		f	f2	f2	1			1	c	1	c	c	c2	12	1				1	c1	ff	f		
10			f	f			c	c	c	c	c	c	c	1	1	1		c	c	c				f
11					1		c	c	c	c	c	c	c	c	c	c	c	c	c2	c2	f2	f	f	f
12	f2	f	f	f	1	1	c	c2	c		c	c		c2	c		h	c	c	c	f	f2	f2	f2
13	f	f2	f	f2	f2	h	c	h	c	1	1		h	c	c	c2	c2	c2	c2	c2	f		f	f
14	f	f	f		f	c2	c	c	c	12				h	c	c	c	c	c2	c	f2	f		
15	f	f2	f	f	f	1	c	1	12						1	c1	c1	c	c2	c2	f2	f2	f3	f6
16	f3	f3	f		f	c	c2	c3	c	c2	c	1		c	1	1		1	12	c	f	f4	f3	f2
17	f3	f2	f3	f		c	c	c2	c	c2	c	12	1	1	1	c	h	c2	c	c		f2		
18		f2		f	f		c	1	c	c	c2	c	c	c2	1	c	1	c	c2	c	f2	f2	f2	f2
19	f	ff	f	f2	f2	c	c	c	c	c	h	c	1h	c	c3	c2	c2	c3	c3	f5	f3	f	f3	f2
20	f	f		f	c	c3	c3	c3	c2	c	c	c	1	c	c2		1	12	c2	f2	f2	f3	f3	f3
21	f3	f2	f	f2	f2	c4	c2	c2	c2	c	c	c	1	12	12	12	1	c2	c2	f3	f2	f2		
22					f			c	c				1					h	c	f	f3	f	f2	f2
23	f3	f2	f	f		c	c	c	c	c	1	1				1	1			f	f	f3	f2	f
24		f2		f	c	c	c	c	c	c		12	1	1		h	c3	c2	c2	f2	f	f	f2	f
25							c	c	c	c		c	c	1	c	c		1c	1c	ff	f2	f2	f3	f
26	f2	f	f	f		c	c2	c	c	c	c	12	1	12	1			c2	1	ff	f	f2	f2	f6
27	f4	f3	f2	f2	f2	c	c	c2	c2	12	1	1	1	1	12	1	12	12	12	f3	f2	f	f	f
28			f	f	f	1	c2	c2	c2	c	c	c	c2	c	c		h	c2	c2		f3	f5	f2	
29	f2	f	ff	f	f2	1	12	c2	c2	c2	c2	1	1	1	1	h	c	c	c	f2	f	f	f4	f4
30	f2	f2	f2	f2	f	c	c2	c	c	c		c	c	1	1					f	f		f	f2
31	f	f	f	f2	c	c	c	c	c	1	1		1	1	1	12	1		1	f2	f2	ff	f	
No.																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

Types of Es

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

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Aug. 1963 | foF2 | 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	$I_{4.6}^{RS}$	$I_{4.4}^{FS}$	4.2^{S}	$I_{4.0}^{R}$	3.9	4.5	5.4	6.0	$I_{5.6}^{R}$	$I_{5.5}^{R}$	$I_{5.2}^{R}$	$I_{5.4}^{R}$	A	A	5.9	$I_{5.8}^{A}$	5.6	$I_{6.0}^{A}$	6.4^{R}	7.2^{RS}	A	A	RS	FS
2	RS	A	A	4.3^{S}	$I_{4.0}^{RS}$	$I_{3.8}^{A}$	4.6	5.6	5.1^{RS}	A	A	A	A	A	A	5.7	5.5	5.7	5.4	6.4^{RS}	5.9	6.3^{S}	$I_{5.5}^{R}$	5.4
3	4.0	3.9	4.4	$I_{4.2}^{RS}$	$I_{4.2}^{R}$	4.6	5.2	5.8	6.3	6.5	5.6	A	A	6.0	6.3	6.4	6.2	5.8	$I_{5.8}^{A}$	6.3	6.9	RS	RS	RS
4	$I_{4.5}^{RS}$	4.4	4.2^{S}	4.4	4.1^{S}	4.7^{S}	6.0	6.3	5.5	A	A	5.8	$I_{6.1}^{A}$	A	A	5.6	$I_{5.8}^{A}$	6.1	$I_{6.2}^{A}$	$I_{6.5}^{A}$	6.6	$I_{6.0}^{RS}$	RS	RS
5	RS	RS	4.1	3.9	4.0^{F}	4.4	5.1	5.6	6.5^{H}	7.2^{RS}	$I_{7.5}^{RS}$	7.2^{S}	6.7	6.9	$I_{6.6}^{A}$	6.0	6.3	$I_{6.0}^{A}$	5.6	5.6	5.9^{S}	$I_{6.0}^{RS}$	RS	A
6	A	A	A	R	RF	S	5.5	5.6	$I_{5.7}^{A}$	5.7	5.5	6.1	$I_{6.6}^{C}$	5.9	5.7	5.9	6.6	5.9	6.1	6.8^{RS}	6.9^{S}	6.2^{S}	6.6^{S}	6.1
7	4.5	4.4	4.4	3.6	3.6	4.3^{S}	5.1^{S}	6.4	6.7	7.3	6.3	6.8	6.1	6.0	$I_{5.9}^{A}$	5.9	$I_{6.2}^{A}$	$I_{6.0}^{R}$	6.1	$I_{6.7}^{A}$	RS	RS	RS	5.7
8	$I_{4.6}^{RS}$	$I_{4.1}^{R}$	3.8	3.9	$I_{3.6}^{FS}$	4.0	5.1	5.6	6.3	6.6	5.7	5.2	$I_{5.8}^{A}$	A	A	5.6	$I_{5.6}^{A}$	5.4	$I_{5.6}^{A}$	RS	RS	RS	RS	RS
9	3.9	$I_{3.0}^{A}$	3.3	3.4	$I_{3.4}^{R}$	3.7	5.0	6.0	5.6^{H}	5.5	6.0	5.4	5.6	A	A	$I_{5.3}^{A}$	5.8	5.8	5.8	$I_{6.6}^{R}$	$I_{6.6}^{R}$	$I_{6.8}^{R}$	6.4	5.5
10	4.7^{R}	3.6	3.4	3.4	$I_{3.6}^{F}$	4.1	5.0	$I_{4.8}^{FH}$	7.0	C	C	C	C	C	C	C	C	A	5.2	6.2^{R}	$I_{6.8}^{R}$	6.3^{S}	5.8	5.4
11	4.9	4.5	$I_{3.9}^{RS}$	3.8	$I_{3.9}^{F}$	4.2	4.6	5.0	$I_{5.4}^{A}$	$I_{5.8}^{A}$	6.1	$I_{5.3}^{A}$	5.3	$I_{5.5}^{A}$	5.7	5.3	$I_{5.0}^{A}$	$I_{4.8}^{A}$	4.8	5.6	6.1	F	F	R
12	FS	F	F	F	F	FS	4.6	4.3^{F}	6.6	5.1	5.3	5.5	$I_{5.2}^{R}$	5.2	$I_{5.0}^{R}$	4.9	5.1	5.3^{S}	5.8	6.3	6.1	5.7	5.6^{F}	RF
13	FS	RF	4.1	F	F	RS	5.4^{S}	6.0	$I_{5.4}^{RH}$	5.6^{H}	5.3	5.4	$I_{5.2}^{A}$	5.1	5.0	$I_{5.2}^{A}$	A	A	A	$I_{7.0}^{RS}$	6.1^{S}	R	R	A
14	3.9	F	F	F	$I_{3.6}^{F}$	$I_{4.5}^{RS}$	$I_{5.2}^{R}$	$I_{5.4}^{A}$	5.4	5.6	5.4	R	R	5.2	5.1	5.4	6.2	6.5	6.2	$I_{6.7}^{R}$	RS	RF	F	F
15	RF	RF	F	F	4.0	4.1	5.0	5.6	5.6	5.6	$I_{5.8}^{A}$	6.1	$I_{5.5}^{A}$	$I_{5.2}^{A}$	5.1^{R}	$I_{5.3}^{A}$	5.4	5.8^{R}	6.4	$U_{7.4}^{R}$	R	R	RF	A
16	4.4	RF	RF	RF	F	F	4.8	5.3^{H}	6.9	7.6	5.7	$I_{5.2}^{R}$	$I_{5.2}^{R}$	5.6	5.4	5.9	5.7	5.6	6.1	7.4	6.9	5.4	R	RF
17	RF	F	F	3.7^{F}	F	F	4.9	5.5	$I_{5.8}^{A}$	$I_{5.8}^{A}$	6.0	$U_{5.4}^{R}$	$I_{5.2}^{A}$	5.4	5.7	5.3	5.0	$I_{5.2}^{A}$	5.5	7.1^{S}	7.3^{S}	7.2	6.7	4.5
18	3.6	3.5	3.6	F	F	4.1^{S}	5.6	6.6^{ZR}	6.0	5.6	6.1	5.6	5.7	6.0	6.4	6.7	6.7	6.8	7.1^{R}	$I_{7.8}^{A}$	7.4	FS	A	FS
19	F	F	RF	F	F	$I_{3.4}^{RS}$	$I_{4.0}^{A}$	$I_{4.4}^{R}$	5.1	5.5	5.3^{R}	5.1	R	R	R	R	$I_{5.0}^{A}$	$I_{5.0}^{A}$	$I_{5.2}^{A}$	$I_{6.1}^{A}$	A	A	3.9	A
20	A	3.7^{S}	F	F	F	F	$I_{5.0}^{A}$	5.5	$I_{5.9}^{A}$	5.5	5.6	A	A	A	7.8	6.6	5.2	5.1	5.5	5.7	4.7^{S}	$I_{4.4}^{FS}$	4.2	F
21	RS	F	F	F	FS	RS	4.6	4.5	A	A	A	5.7	$I_{5.4}^{A}$	5.7	$J_{5.2}^{R}$	$I_{5.1}^{R}$	5.2	4.9	$I_{5.0}^{A}$	5.9	6.7	5.7^{F}	4.9	3.5
22	3.5	3.4	3.5	3.3	3.4^{F}	3.5	5.1	5.5	5.8^{V}	5.2	5.7	6.7	6.5	6.0	5.9	5.6	5.6	5.3	5.3^{R}	6.5	7.0^{S}	5.5	RS	F
23	F	3.8	$I_{3.2}^{F}$	3.4^{F}	3.3^{S}	3.6^{S}	4.6	5.4	6.5	6.2	5.7	5.4	6.0	6.4	5.5	5.6	6.1	6.4	$I_{7.2}^{R}$	6.5	5.4^{F}	$I_{5.4}^{F}$	$I_{5.0}^{R}$	$I_{4.6}^{RS}$
24	4.4^{S}	$I_{4.6}^{RS}$	4.6	4.1^{S}	$I_{3.8}^{F}$	$I_{4.5}^{RS}$	5.3	5.8	5.1	$I_{5.2}^{R}$	6.3	6.8	6.4	7.2^{R}	5.9	6.2	$I_{5.8}^{A}$	$I_{5.6}^{A}$	$I_{6.0}^{A}$	A	A	6.9^{S}	5.9^{S}	$J_{5.2}^{R}$
25	4.9	4.9	4.3	4.2	4.1	4.0	4.6	5.7	6.2	6.0	5.3	5.3	5.5	5.2	5.4	6.1	6.1	6.1	6.9	7.2	6.0	$I_{4.4}^{A}$	A	FS
26	F	F	F	$I_{3.6}^{F}$	$I_{3.0}^{F}$	$I_{3.8}^{FS}$	5.1	5.7	6.2	5.9	5.4	$I_{6.1}^{A}$	5.8	5.8	A	A	5.8	6.6	$I_{7.4}^{R}$	$I_{6.8}^{R}$	5.8	A	A	4.2^{S}
27	RS	F	F	F	3.6	4.1	5.7	5.8	6.6	6.2	$U_{5.3}^{R}$	$I_{5.8}^{A}$	6.7	6.7	6.2	5.7	5.8	5.9	6.2	6.9	5.8	5.9	$I_{5.6}^{F}$	5.4^{F}
28	4.5^{F}	4.4^{S}	4.3^{S}	4.4	4.1^{S}	3.9^{F}	5.1	5.7	6.0	$I_{6.2}^{RH}$	6.1	5.6	6.4	6.6	5.8	6.0	5.5	6.5	7.3^{RS}	A	RS	F	F	RF
29	F	F	FS	4.3	$I_{3.6}^{S}$	$I_{3.6}^{RS}$	$I_{4.7}^{A}$	5.6	6.0	5.5	$I_{6.1}^{A}$	5.6	5.5	6.1	6.2	6.7	6.7^{R}	5.7	6.0	6.9	6.6	5.3	$I_{4.4}^{RS}$	4.3
30	4.1	3.7	A	F	$I_{3.6}^{F}$	$I_{3.8}^{F}$	4.6	5.5	6.6	R	A	A	A	5.5	6.1	6.7	7.4	6.2	$I_{5.5}^{A}$	$I_{5.2}^{R}$	5.0	4.6	$I_{4.2}^{FS}$	4.2
31	4.2	3.6	3.6	$I_{3.4}^{A}$	3.5^{S}	3.6	4.6	$I_{6.8}^{R}$	5.8	6.6	5.9	5.3	5.4	5.5	6.3	5.8	6.5	5.8	6.1	7.4^{S}	5.9	5.6^{R}	4.4	$I_{3.8}^{R}$
No.	17	17	17	19	22	24	31	31	30	26	26	25	23	23	24	28	29	29	30	28	23	19	15	14
Median	4.4	3.9	4.1	3.9	$U_{3.6}$	4.0	5.0	5.6	6.0	5.8	5.7	5.6	5.7	5.8	5.8	5.8	5.8	5.8	6.0	6.6	6.1	5.7	5.5	4.9
U.Q.	4.6	4.4	4.3	4.2	4.0	4.4	5.2	5.8	6.5	6.2	6.1	6.1	5.4	6.1	6.2	6.0	6.2	6.1	6.2	7.0	6.9	6.3	5.9	5.4
L.Q.	4.0	3.6	3.6	3.4	3.6	3.8	4.6	5.4	5.6	5.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.5	6.2	5.9	5.4	4.4	4.2
Q.R.	0.6	0.8	0.7	0.8	0.4	0.6	0.6	0.4	0.9	0.7	0.7	0.7	1.0	0.7	0.8	0.6	0.8	0.7	0.7	0.8	1.0	0.9	1.5	1.2

foF2

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Aug. 1963 | foF1 | 135° E Mean Time (G.M.T. +9h) | Akita | Lat. 39°43.5' N, Long. 140°08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	4.0	$I_{4.4}^{RH}$	4.1	$I_{4.4}^{R}$	$I_{4.2}^{A}$	A	A	A	A	A	A	A					
2							A	$I_{3.9}^{A}$	4.2	A	A	A	A	A	A	A	4.1	3.8^{L}	A					
3							L	A	A	A	$I_{4.4}^{A}$	$I_{4.5}^{A}$	$I_{4.4}^{A}$	$I_{4.3}^{A}$	4.3	4.4^{LH}	4.0	A	A					
4							A	A	A	$I_{4.4}^{A}$	A	A	A	A	A	A	A	A	A					
5						L	L	$I_{4.0}^{A}$	$I_{4.0}^{A}$	4.3^{L}	4.5^{H}	4.3	$I_{4.4}^{A}$	4.4	$I_{4.4}^{A}$	4.2	4.1	A	A					
6						L	A	A	A	A	A	$I_{4.4}^{A}$	C	A	4.3	4.1	4.1	L	L					
7							L	L	$I_{4.2}^{A}$	A	A	$I_{4.5}^{A}$	$I_{4.3}^{A}$	A	A	4.2	A	A	A					
8							L	$I_{4.0}^{L}$	4.1	4.4^{H}	$I_{4.4}^{A}$	$I_{4.5}^{A}$	$I_{4.4}^{A}$	A	A	A	A	L	A					
9						L	3.6^{L}	4.0	4.1	4.3^{L}	4.2^{R}	4.5	A	A	A	$I_{4.2}^{A}$	$I_{3.9}^{A}$	$I_{3.6}^{A}$	L					
10							L	4.1	A	C	C	C	C	C	C	C	C	A	A					
11								A	A	A	4.2	$I_{4.3}^{A}$	4.3	$I_{4.3}^{A}$	$I_{4.3}^{A}$	$I_{4.1}^{A}$	A	A	L					
12							3.6	$I_{4.0}^{A}$	$I_{4.0}^{A}$	4.2	4.2	4.3	4.4	4.1	4.4	4.1	4.0	3.7^{RS}	2.9^{L}					
13							L	3.9	4.1	4.2	4.2	A	A	4.2	4.2	A	A	A	A					
14							A	A	A	4.2	4.3	4.1	4.3	4.2	4.2	4.2	A	A	A					
15						L	L	$I_{3.8}^{L}$	4.1^{L}	A	A	A	A	A	4.2	$I_{4.1}^{A}$	4.0	A	A					
16							L	A	4.1	A	A	$I_{4.2}^{R}$	$I_{4.3}^{R}$	4.3	4.3	$I_{4.1}^{A}$	$I_{4.0}^{A}$	L	A					
17							L	A	A	A	A	$I_{4.4}^{A}$	$I_{4.5}^{A}$	4.4	4.4	4.2^{L}	4.1^{L}	A	A					
18							L	4.0^{L}	4.1	4.3	4.3	$I_{4.4}^{R}$	$I_{4.4}^{R}$	4.4	4.4	4.2	$I_{4.1}^{R}$	3.8^{L}	A					
19							A	3.6	4.0	4.2	4.2	4.3	$I_{4.3}^{R}$	4.2	4.2	4.2^{H}	$I_{3.8}^{A}$	$I_{3.6}^{A}$	A					
20							A	A	A	4.1^{A}	4.2	A	A	A	A	4.0	$I_{3.8}^{A}$	3.7^{L}	A					
21							3.3^{L}	L	A	A	A	A	A	4.4^{H}	4.4	4.2	3.7	3.7^{L}	A					
22							L	L	$I_{4.1}^{A}$	4.5	4.4	4.2^{R}	$I_{4.5}^{A}$	4.4	4.5^{H}	4.2	4.0	LH	L					
23							L	$I_{4.0}^{A}$	4.1	4.3	4.4^{H}	4.6	$I_{4.3}^{R}$	4.4	$I_{4.4}^{A}$	4.3^{L}	4.1^{L}	3.8^{L}	A					
24							L	L	4.1^{L}	4.6^{H}	4.5	4.6	4.5	4.5	A	A	A	A	A					
25							L	4.0^{L}	4.2	$I_{4.3}^{A}$	4.5	4.5^{L}	4.5	4.5	4.3	4.3	4.0	3.6^{L}	A					
26							L	L	4.2^{L}	4.2	A	A	A	A	A	A	A	A	A					
27							A	A	$I_{4.2}^{A}$	4.3^{L}	$I_{4.4}^{A}$	$I_{4.4}^{A}$	4.3^{R}	4.5	4.5	4.3^{L}	L	L						
28							L	L	L	A	4.6^{L}	4.6	$I_{4.5}^{A}$	4.5^{H}	4.3	4.1	L	L	A					
29							A	A	$I_{4.0}^{A}$	A	A	A	4.6	4.3	4.3	L	A	A	A					
30							A	A	4.0^{A}	A	A	A	A	4.4	$I_{4.3}^{A}$	$I_{4.2}^{A}$	3.8^{L}	A						
31							L	3.8^{L}	4.0	4.1^{H}	4.3^{H}	$I_{4.3}^{LH}$	$I_{4.4}^{L}$	$I_{4.3}^{L}$	4.2^{L}	4.2^{L}	L	L						
No.							3	14	21	18	19	21	19	20	21	22	17	9	1					
Median							3.6	4.0	4.1	4.3	4.4	$U_{4.4}$	$U_{4.4}$	4.4	4.3	4.2	4.0	3.7	2.9					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

foF1

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

A 2

IONOSPHERIC DATA

Aug. 1963 | foE | 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	A	A	A	A	A	A	A	A	3.35	$I_{3.10}^{A}$	A	A	B					
2							A	A	A	A	A	A	A	R	R	A	A	A	B					
3						B	A	A	A	A	A	A	A	A	A	3.10	A	A	B					
4						E	A	A	A	A	A	A	A	A	A	A	A	A	A					
5						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
6						A	A	A	A	A	A	A	C	A	A	A	2.95	A	A					
7						R	A	A	A	A	A	A	A	A	A	A	A	A	A					
8						A	A	A	A	A	A	A	A	A	A	A	A	A	B					
9						A	A	A	$I_{3.00}^{R}$	R	A	A	A	A	A	A	A	A	R					
10							2.30	$I_{2.70}^{A}$	B	C	C	C	C	C	C	C	C	A	B					
11							A	A	2.95	$I_{2.90}^{A}$	A	A	A	A	A	A	A	A	B					
12							A	A	A	A	A	RS	R	3.20	3.15	3.00	$I_{2.80}^{A}$	2.45	B					
13						E	A	A	A	A	A	A	A	A	A	A	2.75	A	B					
14							A	A	A	A	A	A	A	A	3.25	3.10	A	A	A					
15						E	A	A	A	A	A	A	A	A	A	A	A	A	A					
16							A	A	A	A	A	A	A	A	A	A	A	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	B					
18							A	A	A	R	A	R	R	A	A	A	A	A	A					
19							A	A	A	A	A	A	A	A	3.25	3.10	A	A	A					
20							A	A	A	A	A	A	A	A	A	A	A	A	A					
21						E	A	A	A	A	A	A	A	A	A	A	A	A	A					
22						E	A	A	A	A	A	A	A	A	3.20	3.00	A	A	A					
23						E	A	A	A	A	A	A	A	A	A	A	A	A	A					
24						E	A	A	A	A	A	A	A	R	$I_{3.30}^{A}$	3.15	A	A	A					
25						E	A	A	A	A	A	3.55	3.55	3.45	$I_{3.20}^{R}$	3.00	2.75	A	A					
26							A	A	A	A	A	A	A	A	A	A	A	A	A					
27							A	A	A	A	A	A	A	A	A	A	A	A						
28							A	A	A	A	A	A	A	A	R	3.00	A	A	B					
29							A	A	A	A	A	A	A	A	A	A	A	A	A					
30							A	A	A	A	A	A	A	A	A	A	A	A						
31							A	A	A	A	A	A	A	A	A	2.95	A	A	B					
No.						9	1	1	2	1		1	1	2	7	10	4	1						
Median						E	2.30	$U_{2.70}$	$U_{3.00}$	$U_{2.90}$		3.55	3.55	3.30	3.25	3.05	2.80	2.45						
U.Q.																								
L.Q.																								
Q.R.																								

foE

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 3

23

IONOSPHERIC DATA

Aug. 1963 | foEs | 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	J2.3	J2.6	J2.8	J3.8	J3.3	2.4	2.3	J3.8	J4.3	J4.1	4.2	4.6	J8.8	J7.6	J7.3	J7.0	J7.1	J8.1	J6.1	J3.5	J6.5	J7.3	J6.1	J3.8
2	J6.0	J5.5	J6.3	J5.5	J5.0	J8.2	3.8	J4.3	3.9	J6.3	J5.8	J6.0	J6.5	J7.2	J8.0	J5.3	J4.0	J3.8	J4.2	J3.4	J5.6	J3.9	J3.0	J5.0
3	J2.8	J3.5	J3.0	J3.1	E	2.1	J3.4	J4.6	J6.5	J11.7	J5.5	4.5	J7.1	J5.8	J6.5	G	3.8	J5.3	J6.0	J3.1	J3.3	J4.3	J6.0	J6.8
4	J3.1	J3.5	J2.0	J3.0	E	2.4	J3.9	J4.3	J6.0	J7.9	J7.6	J11.8	J6.7	J8.7	J9.6	J5.2	J12.8	J11.3	J12.2	J6.8	J6.0	J6.1	J2.9	J5.9
5	J3.4	J3.7	J3.9	J3.8	E	J2.1	J3.4	J4.3	J4.1	J4.7	4.2	J4.3	J4.4	3.8	J13.3	J3.9	J3.3	J6.3	J4.9	J2.8	J6.1	J2.9	J4.0	J6.2
6	J7.3	J7.1	J3.5	J5.8	J2.6	J2.5	J5.6	J5.0	J6.5	J5.2	J4.9	J4.6	C	J5.8	J4.0	J3.4	G	2.7	J3.1	2.2	J1.9	J4.5	J3.8	J3.7
7	2.3	J2.0	2.3	2.1	J2.3	G	2.7	J3.8	J5.2	J6.1	J5.6	J6.4	J6.1	J5.9	J6.5	J3.8	J6.1	J8.3	J7.7	J8.0	J4.9	J6.0	J3.7	J5.2
8	J3.8	1.9	J2.3	J1.9	J2.5	J2.9	3.2	3.2	J3.4	J3.5	J5.8	J4.9	J11.6	J10.6	J8.8	J6.5	J12.8	J6.4	J5.6	J12.4	J6.0	J4.1	J4.1	2.0
9	J2.1	J3.5	J3.4	J2.8	J3.0	2.4	J3.0	J3.8	G	G	3.6	J4.2	J6.3	J12.5	J8.0	J6.1	J6.0	J4.5	G	J4.4	J2.3	2.1	J1.7	J1.7
10	J1.7	J1.8	J1.8	J1.9	E	E	G	3.3	5.3	C	C	C	C	C	C	C	C	J4.8	J3.8	J3.5	J3.4	J2.4	2.3	J1.7
11	E	E	E	E	E	E	2.9	J4.0	J5.8	J6.0	3.5	J5.8	4.2	J5.9	J5.5	J7.5	J6.2	J6.3	J2.8	J4.8	J3.0	J2.8	J3.8	J2.9
12	J3.2	J2.3	2.1	2.2	J1.9	J2.9	J3.6	J3.8	J3.7	3.8	3.3	G	G	G	3.6	3.7	3.5	2.7	2.2	E	J4.3	J4.0	J5.0	J4.0
13	J2.4	2.1	2.0	1.8	E	E	J2.6	J3.9	J4.3	J3.7	J4.2	J5.5	J5.4	4.5	J5.1	J7.9	J8.3	J10.9	J6.5	J5.6	J6.1	J3.8	J3.6	J4.3
14	J3.8	J2.7	2.3	E	2.2	2.3	J4.1	J6.0	J4.1	3.1	3.3	3.7	4.1	3.6	3.6	3.6	J4.3	J4.0	J4.8	J8.7	J8.3	J3.6	J3.1	J5.1
15	J3.8	J2.8	J3.9	J3.9	J3.8	J3.3	2.5	3.6	J3.7	J5.6	J8.5	J7.0	J6.1	J4.6	J4.1	J13.7	J6.0	J9.0	J6.1	J5.6	J6.8	J6.0	J6.4	J5.0
16	J3.3	J5.6	J3.7	J3.0	J2.3	J2.8	J3.8	J6.0	3.9	J5.1	J5.0	4.3	4.1	3.5	4.1	J4.9	J4.1	J4.5	J4.4	J4.0	J3.2	J2.9	J4.0	J2.4
17	J2.0	2.2	J2.6	J2.1	J2.0	J2.5	3.2	4.5	J6.0	J7.6	J6.8	J8.9	J5.5	J3.8	3.5	3.3	3.7	J8.3	J4.8	J3.0	2.3	J2.0	J2.9	J1.8
18	J3.5	J2.0	E	2.0	E	J2.0	2.7	3.0	J3.3	G	3.6	3.9	3.6	4.0	J3.4	3.6	J4.0	3.3	J6.1	J10.0	J6.1	J8.4	J7.3	J3.3
19	J3.5	J2.5	J3.2	J2.4	J4.9	J5.0	J5.8	J7.4	3.3	J3.6	J5.0	3.9	3.6	3.5	4.0	4.3	J6.3	J7.3	J6.5	J10.9	J8.1	J6.0	J5.2	J4.0
20	J5.1	J3.2	J3.3	J1.9	J2.4	J3.0	J14.3	J5.0	J9.1	5.0	4.2	J7.2	J7.3	J13.7	J7.3	J5.6	J6.4	J5.0	J6.0	J4.2	J2.5	J2.2	J2.5	J5.0
21	J7.3	J6.0	J2.6	J3.0	J3.8	2.0	J3.1	3.5	J8.8	J7.3	J9.6	J8.9	J6.4	J3.9	J3.9	J4.0	J3.9	2.5	J5.3	J6.1	J6.0	J4.9	J2.2	E
22	E	E	J1.9	2.3	2.1	2.5	2.5	3.0	J4.5	3.9	J4.5	3.8	J5.8	3.3	G	G	3.3	J2.9	J2.3	J2.5	J1.8	J2.5	J3.8	J2.8
23	J2.3	J2.0	2.2	J2.2	E	2.2	3.5	4.0	3.5	4.2	4.0	4.0	4.0	J3.6	J5.8	3.4	J3.5	J2.9	J3.3	J4.9	J3.8	J2.4	J3.5	J3.2
24	J3.6	2.2	2.2	J1.8	J2.0	2.2	2.6	3.2	3.4	3.5	J4.0	J3.8	J4.2	4.6	J7.0	J5.1	J6.5	J10.9	J7.6	J6.4	J7.2	J3.1	J2.6	2.3
25	J2.4	J1.8	2.1	2.3	E	J1.8	J2.8	3.5	J4.4	J5.3	3.6	G	G	G	G	G	3.2	3.0	J3.2	J2.8	J3.6	J6.3	J4.1	J3.8
26	J6.5	J2.5	J2.4	2.3	2.2	E	2.3	3.5	3.8	J3.8	J5.3	J7.5	4.6	J4.6	J5.2	J6.1	J5.6	J4.6	J5.4	J7.5	J6.0	J6.1	J6.3	J2.5
27	J6.2	J3.8	J2.3	J3.6	J3.0	J3.6	J3.6	J4.9	J4.8	J6.0	J7.8	J5.8	J3.8	J3.5	J4.9	J4.3	J3.8	J3.3	J4.3	J2.5	J2.0	J3.8	J3.3	J2.7
28	J2.9	J2.5	J3.6	J2.0	2.3	J1.8	2.6	3.6	J6.4	J7.3	J5.3	J4.3	4.2	3.8	3.5	4.0	3.5	3.0	J6.4	J11.0	J6.1	J5.8	J2.9	J3.0
29	J3.8	J3.8	J3.8	J2.3	J3.1	J6.2	J10.0	J5.8	J5.2	J5.0	J7.2	J5.0	J3.8	3.5	J3.8	4.0	J6.1	J6.1	J8.8	J6.8	J6.0	J3.1	J2.4	J2.0
30	J2.8	J6.5Y	J4.2	2.1	J3.0	J3.0	J4.0	J5.9	J4.0	J6.9	J7.3	J7.0	J7.3	3.9	J4.0	J4.9	J3.5	J4.9	J7.3	J3.0	J2.9	J2.7	J2.9	J2.9
31	J2.1	J3.3	J5.5	J3.3	J2.8	J2.5	J2.6	J3.3	J3.2	3.1	3.1G	3.5	3.1G	3.8	3.7	2.4G	J3.4	J2.5	1.9	J2.4	J3.5	J2.8	J2.3	J2.8
No.	31	31	31	31	31	31	31	31	31	30	30	30	29	30	30	30	30	31	31	31	31	31	31	31
Median	3.2	2.5	2.6	2.3	2.3	2.4	3.2	3.9	4.3	5.0	5.0	4.6	4.6	4.0	4.5	4.2	4.0	4.8	5.3	4.4	4.9	3.8	3.6	3.2
U.Q.	3.8	3.7	3.6	3.1	3.0	2.9	3.8	4.9	5.8	6.1	5.8	6.4	6.4	5.9	7.0	5.6	6.2	7.3	6.4	6.8	6.1	6.0	4.1	5.0
L.Q.	2.3	2.0	2.1	2.0	E	2.0	2.6	3.5	3.7	3.7	4.0	3.9	3.9	3.6	3.7	3.6	3.5	3.0	3.3	3.0	3.0	2.8	2.9	2.4
Q.R.	1.5	1.7	1.5	1.1		0.9	1.2	1.4	2.1	2.4	1.8	2.5	2.5	2.3	3.3	2.0	2.7	4.3	3.1	3.8	3.1	3.2	1.2	2.6

The Radio Research Laboratories, Japan

foEs

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Aug. 1963 | **f_bE_s** | 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	1.8	2.0	2.4	2.8	2.6	2.1	2.3	2.9	3.3	3.7	3.7	$E_{4.6}^{R}$	A	A	5.2	A	5.0	A	5.0	3.2	A	A	1.9	1.8
2	3.5	A	A	2.5	3.0	A	3.3	3.9	3.5	A	A	A	A	A	A	$U_{5.3}^{R}$	3.1	3.5	$E_{4.2}^{R}$	$E_{3.4}^{R}$	3.2	1.8	2.0	2.8
3	1.8	3.0	1.8	2.0		1.8	3.4	4.2	5.3	5.2	4.7	A	A	4.9	3.8		3.3	4.7	A	3.0	2.6	3.5	5.0	1.8
4	2.8	1.8	1.7	2.3		1.9	3.9	4.0	4.2	A	A	4.8	A	A	A	4.6	A	5.4	A	A	3.0	3.3	2.2	3.7
5	2.6	2.3	2.3	2.7		2.0	3.0	$E_{4.3}^{R}$	4.1	4.3	3.6	4.2	$E_{4.4}^{R}$	$U_{3.8}^{R}$	A	3.4	3.3	A	3.5	1.9	2.8	2.4	3.0	A
6	A	A	A	3.1	1.7	1.8	4.6	4.2	A	5.0	4.7	$U_{4.6}^{R}$	C	4.9	4.0	3.3		3.7	3.0	1.9	1.8	3.0	3.4	2.6
7	1.7	1.7	1.7	1.7	1.9		2.5	3.3	4.7	5.0	5.4	4.5	5.0	5.3	A	3.4	A	5.4	5.2	A	$E_{4.9}^{R}$	5.2	3.3	4.2
8	2.0	1.7	1.8	1.7	1.8	2.3	2.7	3.2	3.3	3.4	5.2	4.6	A	A	A	4.9	A	2.7	A	5.0	2.5	3.5	1.8	1.7
9	1.8	A	1.7	1.8	2.4	1.8	2.9	3.4			3.5	3.9	5.1	A	A	A	5.1	4.5		4.4	1.7	E	1.7	E
10	E	E	E	E				3.2	4.9	C	C	C	C	C	C	C	C	A	3.7	3.5	2.2	1.7	E	E
11							2.5	$E_{4.0}^{R}$	A	A	3.5	A	3.8	A	4.8	5.0	A	A	2.8	4.8	1.7	1.7	1.7	2.8
12	2.2	E	E	E	E	1.7	3.2	$E_{3.8}^{R}$	$E_{3.7}^{R}$	3.8	3.3				$U_{3.6}^{R}$	3.5	2.9	2.7	2.1		1.8	1.8	1.8	3.0
13	1.8	E	E	E			2.5	3.5	3.8	3.4	3.5	5.1	A	4.0	4.0	A	A	A	A	5.1	4.0	3.3	$E_{3.6}^{R}$	A
14	2.1	1.7	E		E	1.7	$E_{4.1}^{R}$	A	4.1	$E_{3.1}^{R}$	$U_{3.3}^{R}$	$U_{3.7}^{R}$	3.9	3.5	3.6	3.4	4.3	4.0	$E_{4.8}^{R}$	5.5	4.4	2.0	2.0	3.4
15	2.5	2.5	3.0	1.8	1.7	1.8	2.3	3.1	3.2	4.1	A	5.3	A	A	4.0	A	3.4	3.6	5.2	3.2	5.0	3.3	3.2	A
16	3.0	2.3	2.8	1.8	1.9	E	3.3	4.3	3.7	5.1	4.6	4.0	3.7	$U_{3.5}^{R}$	3.9	4.9	$U_{4.1}^{R}$	3.2	4.1	3.0	2.5	1.9	3.0	2.0
17	1.7	E	1.9	1.7	E	1.7	3.0	4.4	A	A	5.0	5.2	A	3.5	$U_{3.5}^{R}$	3.3	3.5	A	$E_{4.8}^{R}$	2.3	1.7	1.7	1.7	1.7
18	1.7	1.8		E		1.7	2.5	3.0	3.3		3.6	3.9	3.6	3.8	3.5	3.3	3.8	3.0	5.5	A	2.0	1.8	A	2.0
19	E	1.8	2.5	1.8	4.7	2.0	A	2.8	3.1	3.5	3.6	3.6	$E_{3.6}^{R}$	$E_{3.5}^{R}$	3.9	3.8	A	A	A	A	A	A	2.6	A
20	A	2.6	1.8	1.7	E	2.3	A	3.8	A	4.1	3.7	A	A	A	6.1	3.8	5.1	2.3	5.0	3.8	1.8	1.8	1.7	2.1
21	2.1	2.0	E	1.8	2.7	1.8	2.8	3.1	A	A	A	5.0	A	3.7	4.0	4.0	3.3	2.5	A	5.0	4.0	1.7	1.8	
22			E	E	E	1.8	2.5	2.8	4.5	3.4	4.1	3.5	5.1	$E_{3.3}^{R}$			3.0	2.7	1.9	1.9	1.8	1.7	3.5	1.7
23	1.7	1.7	E	1.8		2.0	3.4	4.0	3.3	3.8	3.7	3.9	3.8	3.6	5.0	3.4	3.3	2.5	3.0	3.0	3.0	2.0	2.0	2.0
24	1.8	1.7	1.7	E	1.7	1.8	2.5	3.0	3.2	3.4	$U_{4.0}^{R}$	$E_{3.8}^{R}$	3.9	4.4	5.2	4.6	A	A	A	A	A	2.2	1.7	2.0
25	1.8	1.7	E	E		E	2.3	3.4	4.0	4.3	3.4						3.1	2.9	3.0	2.5	2.5	A	A	2.8
26	1.8	1.7	E	E	E		2.3	3.3	3.1	3.6	5.0	A	$U_{4.6}^{R}$	$E_{4.6}^{R}$	A	A	5.3	4.0	5.4	5.2	5.1	A	A	1.8
27	E	2.5	E	E	2.0	3.0	3.4	4.6	4.8	3.8	4.7	A	4.0	$E_{3.5}^{R}$	3.6	3.5	3.7	3.1	2.9	2.5	1.9	1.8	2.5	2.4
28	2.0	2.1	2.7	E	1.7	E	2.4	3.3	4.0	4.7	4.1	4.3	$E_{4.2}^{R}$	3.8	3.5	3.8	3.0	2.6	5.1	A	3.5	4.1	1.8	1.8
29	3.8	3.0	2.7	1.7	2.6	2.4	A	4.0	4.8	5.0	A	5.0	3.5	$U_{3.5}^{R}$	3.7	4.0	5.5	5.3	5.3	5.0	2.5	1.8	1.8	1.7
30	E	E	A	E	E	2.3	$U_{4.0}^{R}$	5.2	4.0	6.1	A	A	A	3.9	$E_{4.0}^{R}$	4.5	3.3	4.8	A	2.2	2.5	1.7	2.0	1.8
31	1.7	2.8	1.8	A	2.3	2.4	2.5	3.0	3.0	3.1	$U_{3.1}^{FG}$	3.5	$E_{3.1}^{RG}$	3.7	3.4	2.4^{G}	2.8	2.3	1.8	2.2	1.8	2.5	2.3	$E_{2.8}^{R}$
No.																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

f_bE_s

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Akita

Lat. 39°43.5 N
Long. 140°08.2 E

Aug. 1963

f-min

135° E Mean Time (G.M.T. +9h)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.70	1.70	1.70	1.70	1.70	1.75	1.70	1.75	1.75	1.80	2.20	2.05	2.70	2.20	2.00	1.80	1.80	1.70	1.75	1.70	1.75	1.65	1.70	1.70
2	1.70	1.70	1.70	1.70	1.65	1.65	1.65	1.70	1.80	1.90	1.80	2.00	2.00	1.95	2.20	1.80	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70
3	1.70	1.70	1.70	1.70	E	1.65	1.70	1.80	2.05	2.20	2.50	2.80	2.05	2.50	2.30	2.05	1.80	1.70	1.75	1.70	1.70	1.70	1.70	1.70
4	1.70	1.70	1.65	1.70	1.70	E	1.70	1.75	1.75	1.70	1.95	2.20	2.05	1.90	1.95	1.80	1.80	1.75	1.75	1.95	1.65	1.70	1.70	1.70
5	1.70	1.70	1.75	1.70	1.70	1.70	1.70	1.70	1.80	1.75	1.85	1.80	1.80	2.10	1.80	1.80	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.75
6	1.70	1.70	1.70	1.70	1.70	1.65	1.70	1.70	1.70	1.80	1.75	1.75	I 1.95 C	2.05	1.75	1.75	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70
7	1.70	1.65	1.65	1.70	1.70	E	1.70	1.70	1.70	1.70	1.80	1.95	2.00	1.75	1.70	1.80	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
8	1.65	1.70	1.65	1.70	1.70	E	1.70	1.70	1.70	1.70	2.00	2.10	1.80	2.00	2.20	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.65	1.70
9	1.70	1.65	1.70	1.70	1.70	1.65	1.75	1.70	1.80	1.80	1.80	1.80	2.00	2.70	1.80	1.70	1.70	1.70	1.70	E	E	E	E	E
10	E	E	E	E	E	E	1.70	1.70	3.30	C	C	C	C	C	C	C	C	1.70	1.70	E	E	1.65	E	E
11	E	E	E	E	E	E	1.70	1.70	1.70	1.70	1.70	1.70	1.80	1.75	1.70	1.80	1.70	1.70	1.70	1.70	E	E	E	1.65
12	1.70	E	E	E	E	E	1.70	1.70	1.70	1.70	1.70	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.65	E	1.65	1.70	1.65	1.65
13	1.65	E	E	E	E	E	1.70	1.70	1.75	1.70	1.70	1.75	1.65	1.70	1.80	1.70	1.70	1.65	1.70	1.65	1.70	E	1.70	1.65
14	1.65	1.65	E	E	E	1.65	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.70	1.70	1.75	1.70	E	1.75	E	1.70	E	E
15	E	E	E	E	1.65	1.70	1.65	1.70	1.70	1.70	1.75	1.70	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.65	1.70	1.70
16	1.70	1.70	E	E	1.65	E	1.70	1.70	1.75	1.70	1.75	1.80	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
17	1.70	E	E	E	E	E	1.70	1.70	1.70	1.70	1.70	1.70	1.80	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.65	1.70	1.70	1.70
18	1.70	1.70	E	E	E	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.80	1.75	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.65
19	E	1.70	E	1.70	1.70	1.65	1.65	1.70	1.70	1.75	1.70	1.70	1.75	1.80	1.70	1.70	1.70	1.75	1.70	1.70	1.70	1.70	1.70	1.70
20	1.70	1.70	E	1.65	E	1.70	1.70	1.70	1.70	1.80	2.00	1.80	1.80	1.80	1.70	1.70	1.70	1.70	1.65	1.65	1.70	1.70	1.70	1.65
21	1.70	1.70	E	1.70	E	1.65	1.70	1.70	1.70	1.80	1.70	1.80	1.80	1.80	1.75	1.70	1.70	1.70	1.65	1.70	1.65	1.70	1.70	E
22	E	E	E	E	E	1.65	1.70	1.65	1.70	1.70	1.80	1.80	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.75	1.70	1.70	1.65
23	1.70	1.70	E	E	E	E	1.70	1.70	1.70	1.80	1.75	1.80	1.80	1.80	1.75	1.70	1.70	1.70	1.70	1.70	1.75	E	1.70	1.70
24	1.70	1.70	1.70	E	1.70	1.70	1.65	1.70	1.70	1.70	1.75	1.90	1.70	1.80	1.70	1.80	1.70	1.70	1.65	1.70	1.70	1.70	1.70	1.70
25	1.65	1.70	E	E	E	E	1.70	1.70	1.80	1.70	1.70	1.70	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.65
26	1.75	E	E	E	E	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.65	1.65	1.70	1.70	1.70
27	E	E	E	1.65	1.70	1.65	1.70	1.65	1.75	1.70	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70	E	E	1.70	1.80
28	1.65	1.65	E	E	1.70	E	1.65	1.70	1.70	1.70	1.75	1.75	1.70	1.75	1.70	1.70	1.70	1.70	1.70	1.65	1.70	1.70	1.70	1.65
29	1.70	E	1.70	E	E	E	1.70	1.70	1.75	1.70	1.70	1.70	1.70	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
30	E	E	1.70	E	E	1.70	1.70	1.70	1.65	1.70	1.80	1.95	1.70	1.80	1.70	1.70	1.65	1.65	1.65	1.70	1.70	E	1.65	1.70
31	1.70	E	E	E	E	E	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.75	1.80	1.70	1.65	1.65	1.65	1.70	E	E	E	E
No.	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	31	31	31	31	31	31	31
Median	1.70	1.65	E	E	E	1.65	1.70	1.70	1.70	1.70	1.75	1.80	1.80	1.80	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
U.Q.																								
L.Q.																								
Q.R.																								

f-min

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 6

IONOSPHERIC DATA

Akita

Lat. 39°43.5' N
Long. 140°08.2' E

Aug. 1963

M(3000)F2

135° E Mean Time (G.M.T. +9h)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	$I_{2.80}^{R}{}_{S}$	$I_{2.90}^{FS}$	2.90^{S}	$I_{2.80}^{R}$	2.85	3.15	3.25	3.20	$I_{3.50}^{R}$	$I_{3.25}^{R}$	$I_{3.30}^{R}$	$I_{2.95}^{R}$	A	A	3.05	$I_{3.00}^{A}$	2.95	$I_{3.00}^{A}$	3.00^{R}	3.10^{RS}	A	A	RS	RS
2	RS	A	A	2.90^{S}	$I_{3.05}^{R}{}_{S}$	$I_{2.90}^{A}$	3.00	3.40	3.20^{RS}	A	A	A	A	A	A	$I_{3.10}^{A}$	3.10	3.00	2.90	3.20^{RS}	2.85	3.10^{S}	$I_{3.10}^{R}$	3.10
3	3.10	2.80	2.90_{S}^{RS}	$I_{3.05}^{RS}$	$I_{3.20}^{R}$	3.30	3.30	3.30	3.20	3.40	3.10	A	A	3.05	3.05	3.05	3.25	3.10	$I_{3.05}^{A}$	3.00	3.00	RS	RS	RS
4	$I_{3.05}^{RS}$	2.85	3.10^{S}	3.05	3.15^{S}	3.20^{S}	3.45	3.60	3.25	A	A	3.00	$I_{3.15}^{A}$	A	A	3.05	$I_{3.10}^{A}$	3.10	$I_{3.10}^{A}$	$I_{3.00}^{A}$	3.20	$I_{2.90}^{RS}$	RS	RS
5	RS	RS	2.95	3.00	2.80^{F}	3.00	3.00	2.80	2.70H	2.80^{RS}	$I_{3.00}^{RS}$	3.20^{S}	3.15	3.10	$I_{3.10}^{A}$	3.00	3.25	$I_{3.25}^{A}$	3.20	2.90	3.05^{S}	$I_{3.10}^{RS}$	RS	A
6	A	A	A	R	RF	S	3.30	3.30	$I_{3.30}^{A}$	3.20	2.90	3.00	$I_{3.20}^{C}$	3.10	3.00	3.00	3.10	3.05	3.05	3.00^{RS}	3.15^{S}	3.00^{S}	2.90^{S}	3.05
7	3.00	2.90	3.10	3.30	2.90	2.65^{S}	3.10^{S}	3.30	3.00	3.20	2.80	3.15	3.15	2.90	$I_{3.00}^{A}$	2.95	$I_{3.10}^{A}$	$I_{3.15}^{R}$	3.15	$I_{3.10}^{A}$	RS	RS	RS	3.20
8	$I_{3.05}^{RS}$	$I_{3.00}^{R}$	3.10	3.35	$I_{2.90}^{FS}$	2.90	3.25	3.20	3.10	3.40	3.20	3.25	$I_{3.20}^{A}$	A	A	3.10	$I_{3.15}^{A}$	3.20	$I_{3.00}^{A}$	RS	RS	RS	RS	RS
9	3.35	$I_{3.00}^{A}$	2.90	3.00	$I_{3.15}^{R}$	3.00	3.25	3.45	3.25^{H}	2.95	3.15	2.85	3.30	A	A	$I_{2.80}^{A}$	3.05	3.10	2.95	$I_{2.95}^{R}$	$I_{3.15}^{R}$	$I_{3.00}^{R}$	3.00	3.15
10	3.25^{R}	3.10	3.05	3.05	$I_{3.05}^{F}$	3.20	3.30	$I_{3.15}^{FH}$	3.45	C	C	C	C	C	C	C	C	A	3.10	2.95^{R}	$I_{3.10}^{R}$	3.20^{S}	3.05	3.00
11	3.15	3.00	$I_{3.10}^{RS}$	2.95	$I_{3.10}^{F}$	3.35	3.10	3.20	$I_{3.30}^{A}$	$I_{3.25}^{A}$	3.55	$I_{3.20}^{A}$	3.25	$I_{3.20}^{A}$	3.35	3.25	$I_{3.20}^{A}$	$I_{3.15}^{A}$	3.00	2.95	3.15	F	F	R
12	FS	F	F	F	F	FS	3.05	4.00^{F}	3.60	3.40	3.40	3.45	$I_{2.90}^{R}$	3.00	$I_{3.00}^{R}$	2.90	3.05	3.05^{S}	3.15	3.15	3.25	3.00	3.15^{F}	RF
13	FS	RF	3.20	F	F	RS	3.20^{S}	3.50	$I_{3.50}^{RH}$	3.35^{H}	3.40	3.35	$I_{3.05}^{A}$	2.80	3.00	$I_{3.10}^{A}$	A	A	A	$I_{3.30}^{RS}$	3.45^{S}	R	R	A
14	2.90	F	F	F	$I_{3.10}^{F}$	$I_{3.45}^{RS}$	$I_{3.65}^{R}$	$I_{3.70}^{A}$	3.40	3.60	3.55	R	R	2.95	3.00	3.00	3.25	3.30	3.25	$I_{3.05}^{R}$	RS	RF	F	F
15	RF	RF	F	F	3.30	3.20	3.40	3.70	3.30	3.55	$I_{3.20}^{A}$	3.30	$I_{3.35}^{A}$	$I_{3.00}^{A}$	3.10^{R}	$I_{3.10}^{A}$	3.00	3.15^{R}	2.90	$U_{3.15}^{R}$	R	R	RF	A
16	3.00	RF	RF	RF	F	F	3.25	2.95^{F}	3.45	3.50	3.35	$I_{3.35}^{R}$	$I_{3.15}^{R}$	3.05	2.80	3.25	3.20	3.25	3.00	3.20	3.50	3.25	R	RF
17	RF	F	F	3.30^{F}	F	F	3.30	3.30	$I_{3.50}^{A}$	$I_{3.40}^{A}$	3.45	$U_{3.30}^{R}$	$I_{3.20}^{A}$	3.20	3.20	3.35	3.05	$I_{3.10}^{A}$	2.90	3.00^{S}	$3,15^{S}$	3.25	3.50	3.30
18	3.25	2.95	2.95	F	F	3.20^{S}	3.40	3.40^{ZF}	3.65	3.30	3.35	2.85	3.00	3.00	3.00	3.00	3.15	3.10	3.00^{R}	$I_{3.10}^{A}$	3.20	FS	A	FS
19	F	F	RF	F	F	$I_{3.10}^{RS}$	$I_{2.80}^{A}$	$I_{2.60}^{H}$	2.95	3.05	2.80^{R}	3.00	R	R	R	R	$I_{3.00}^{A}$	$I_{3.10}^{A}$	$I_{3.10}^{A}$	$I_{3.20}^{A}$	A	A	3.30	A
20	A	3.00^{S}	F	F	F	F	$I_{3.30}^{A}$	3.45	$I_{3.10}^{A}$	3.10	3.25	A	A	A	3.10	3.05	$I_{3.10}^{A}$	2.85	3.10	3.15	3.00^{S}	$I_{2.85}^{FS}$	2.65	F
21	RS	F	F	F	FS	RS	3.20	2.95	A	A	A	2.90	$I_{3.00}^{A}$	3.00	$J_{3.15}^{R}$	$I_{3.05}^{R}$	3.30	3.10	$I_{3.00}^{A}$	2.75	3.15	3.20^{F}	3.25	2.95
22	3.00	2.75	2.95	2.95	3.00^{F}	2.95	3.20	3.40	3.30^{V}	2.95	3.05	3.30	3.25	3.10	2.95	3.20	3.35	3.30	3.10^{R}	3.00	3.20^{S}	3.50	RS	F
23	F	2.95	$I_{3.05}^{F}$	3.10^{F}	2.90^{S}	3.15^{S}	3.20	3.20	3.40	3.50	3.20	2.95	3.05	3.10	2.90	2.80	3.05	3.15	$I_{3.30}^{R}$	3.25	2.80^{F}	$I_{2.70}^{F}$	$I_{2.85}^{R}$	$I_{2.85}^{RS}$
24	2.85^{S}	$I_{2.90}^{FS}$	3.05	3.25^{S}	$I_{3.05}^{F}$	$I_{3.25}^{RS}$	3.30	3.60	3.40	$I_{3.10}^{R}$	3.15	3.25	3.20	3.40^{R}	3.10	3.20	$I_{3.35}^{A}$	$I_{3.20}^{A}$	$I_{3.00}^{A}$	A	A	3.20^{S}	3.15^{S}	$J_{3.10}^{R}$
25	2.90	3.00	3.05	3.05	3.00	3.10	3.00	3.20	3.40	3.55	3.25	3.20	2.90	2.90	2.80	3.15	3.15	3.30	3.25	3.40	3.30	$I_{3.10}^{A}$	A	FS
26	F	F	F	$I_{3.30}^{F}$	$I_{3.30}^{F}$	$I_{3.30}^{FS}$	3.35	3.45	3.40	3.30	3.20	$I_{3.15}^{A}$	3.30	3.10	A	A	2.95	3.10	$I_{3.05}^{R}$	$I_{3.25}^{R}$	3.20	A	A	3.10^{S}
27	RS	F	F	F	3.20	3.30	3.35	3.50	3.65	3.45	$U_{3.05}^{R}$	$I_{3.10}^{A}$	3.20	3.25	3.45	3.20	3.20	3.20	3.20	3.20	3.00	3.05	$I_{3.10}^{F}$	3.10^{F}
28	3.10^{F}	2.80^{S}	2.85^{S}	3.00	3.20^{S}	3.05^{F}	3.00	3.20	3.50	$I_{3.40}^{RH}$	3.40	2.65	3.15	3.25	3.15	3.15	2.90	3.10	3.15^{RS}	A	RS	F	F	RF
29	F	F	FS	3.15	$I_{3.15}^{S}$	$I_{3.10}^{RS}$	$I_{3.20}^{A}$	3.25	3.60	3.50	$I_{3.05}^{A}$	3.25	3.10	3.15	3.25	3.30	3.40^{R}	3.20	3.10	3.20	2.60	3.10	$I_{2.95}^{RS}$	3.00
30	3.10	2.90	A	F	$I_{3.10}^{F}$	$I_{3.30}^{F}$	3.10	3.25	3.45	R	A	A	A	2.95	3.20	3.15	3.45	3.55	$I_{3.40}^{A}$	$I_{3.10}^{R}$	3.00	3.10	$I_{3.00}^{FS}$	3.05
31	3.15	3.10	2.90	$I_{2.90}^{A}$	2.95^{S}	3.10	2.90	$I_{3.45}^{R}$	3.40	3.70	3.45	3.25	3.00	3.10	3.35	3.30	3.40	3.20	3.05	3.30^{S}	3.20	3.15^{R}	3.20	$I_{3.05}^{R}$
No.	17	17	17	19	22	24	31	31	30	26	26	25	23	23	24	28	29	29	30	28	23	19	15	14
Median	3.05	2.95	3.05	3.05	$U_{3.10}$	3.15	3.25	3.30	3.40	3.40	3.20	3.20	3.15	3.10	3.10	3.10	3.15	3.15	3.10	3.10	3.15	3.10	3.10	3.10
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

M(3000)F2

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

A 7

27

IONOSPHERIC DATA

Akita

Lat. 39°43.5' N
Long. 140°08.2' E

Aug. 1963

M(3000)F1

135° E Mean Time (G.M.T. +9h)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	3.80	$I_{3.70}^{RH}$	4.15	$I_{3.90}^{R}$	$I_{4.25}^{A}$	A	A	A	A	A	A	A					
2							A	$I_{3.60}^{A}$	3.95	A	A	A	A	A	A	A	3.45	3.50^{L}	A					
3							L	A	A	A	$I_{3.95}^{A}$	$I_{3.80}^{A}$	$I_{3.75}^{A}$	$I_{3.70}^{A}$	3.75	3.45^{LH}	3.60	A	A					
4							A	A	A	$I_{3.50}^{A}$	A	A	A	A	A	A	A	A	A					
5						L	L	$I_{3.65}^{A}$	$I_{3.75}^{A}$	$I_{3.80}^{A}$	3.90^{H}	$I_{3.80}^{A}$	$I_{3.65}^{A}$	3.50	$I_{3.65}^{A}$	3.70	3.45	A	A					
6						L	A	A	A	A	A	$I_{4.00}^{A}$	C	A	A	3.80	3.50	L	L					
7							L	L	A	A	A	A	A	A	A	3.60	A	A	A					
8							L	$I_{3.70}^{L}$	3.95	3.70^{H}	A	A	A	A	A	A	A	L	A					
9						L	3.90^{L}	3.70	4.05	4.00^{L}	4.35^{R}	3.95	A	A	A	$I_{3.60}^{A}$	$I_{3.50}^{A}$	$I_{3.45}^{A}$	L					
10							L	3.65	A	C	C	C	C	C	C	C	C	A	A					
11								A	A	A	4.05	$I_{4.00}^{A}$	4.15	A	A	A	A	A	L					
12							3.50	$I_{3.60}^{A}$	$I_{3.75}^{A}$	3.90	4.25	4.15	3.85	4.25	3.45	3.65	3.45	3.55^{RS}	3.80^{L}					
13							L	3.85	3.70	4.05	3.65	A	A	3.90	A	A	A	A	A					
14							A	A	A	3.85	4.15	4.60	4.20	4.05	3.60	3.50	A	A	A					
15						L	L	$I_{3.95}^{L}$	3.90^{L}	A	A	A	A	A	3.65	$I_{3.70}^{A}$	3.70	A	A					
16							L	A	3.65	A	A	$I_{4.20}^{R}$	$I_{3.90}^{R}$	3.60	3.70	A	A	L	A					
17							L	A	A	A	A	$I_{4.00}^{A}$	$I_{4.00}^{A}$	4.15	3.70	3.60^{L}	3.45^{L}	A	A					
18							L	3.80^{L}	4.05	4.40	4.20	$I_{4.10}^{R}$	$I_{4.00}^{R}$	3.85	3.80	3.75	$I_{3.60}^{R}$	3.50^{L}	A					
19							A	3.70	3.60	3.80	3.95	3.75	$I_{3.90}^{R}$	3.80	3.60	AH	A	A	A					
20							A	A	A	A	3.90	A	A	A	A	A	$I_{3.50}^{A}$	3.45^{L}	A					
21							3.45^{L}	L	A	A	A	A	A	3.65^{H}	3.90	3.55	3.85	3.55^{L}	A					
22							L	L	$I_{3.80}^{A}$	3.85	4.05	4.10^{R}	$I_{3.70}^{A}$	3.70	3.65^{H}	3.70	3.55	LH	L					
23							L	$I_{3.55}^{A}$	3.80	4.00	3.95^{H}	3.95	$I_{3.95}^{R}$	3.90	$I_{3.75}^{A}$	3.55^{L}	3.45^{L}	3.50^{L}	A					
24							L	L	4.05^{L}	3.70^{H}	$I_{3.95}^{A}$	$I_{3.80}^{A}$	3.70	$I_{3.75}^{A}$	A	A	A	A	A					
25							L	3.55^{L}	3.75	$I_{3.95}^{A}$	3.90	4.00^{L}	4.00	3.85	3.75	3.35	3.65	3.65^{L}	A					
26							L	L	3.80^{L}	4.20	A	A	A	A	A	A	A	A	A					
27							A	A	$I_{3.65}^{A}$	4.00^{L}	$I_{4.30}^{A}$	$I_{4.00}^{A}$	3.55^{R}	3.60	3.50	3.60^{L}	L	L						
28							L	L	L	A	3.75^{L}	3.95	$I_{3.75}^{A}$	3.55^{H}	3.75	3.70	L	L	A					
29							A	A	A	A	A	A	3.80	3.60	3.60	L	A	A	A					
30							A	A	A	A	A	A	A	3.55	$I_{3.70}^{A}$	$I_{3.65}^{A}$	3.70^{L}	A						
31							L	3.75^{L}	3.90	4.25^{H}	4.10^{H}	$I_{3.90}^{LH}$	$I_{3.90}^{L}$	$I_{3.85}^{L}$	3.50^{L}	3.50^{L}	L	L						
No.							3	14	18	17	18	19	17	19	18	18	15	8	1					
Median							3.50	3.70	3.80	3.95	3.95	$U_{4.00}$	$U_{3.90}$	3.75	3.70	3.60	3.50	3.50	3.80					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

M(3000)F1

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Aug. 1963 | h'F2 | 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						275	280	285	350	200	I_{285}^{R}	I_{370}^{R}	A	A	A	A	A	A	A					
2							365	280	340	A	A	A	A	A	A	I_{345}^{A}	340	325	I_{290}^{A}					
3							270	295	320	295	350	I_{370}^{A}	I_{360}^{A}	345	345	305	300	315	A					
4							255	250	305	A	A	365	I_{340}^{A}	A	A	350	I_{330}^{A}	A	A					
5						325	280	I_{365}^{A}	360	335	300	305	320	315	I_{365}^{A}	345	300	I_{290}^{A}	260					
6						290	I_{285}^{A}	290	A	A	395	355	I_{315}^{C}	340	355	345	305	305	280					
7							285	290	310	295	I_{335}^{A}	310	320	I_{345}^{A}	I_{345}^{A}	355	I_{340}^{A}	315	A					
8							275	295	310	290	I_{300}^{A}	345	I_{335}^{A}	A	A	A	A	290	A					
9						345	305	285	295	330	330	405	A	A	A	I_{420}^{A}	I_{335}^{A}	300^{A}	290					
10							265^{L}	400	280	C	C	C	C	C	C	C	C	A	295					
11								320	I_{300}^{A}	I_{310}^{A}	290	I_{310}^{A}	335	I_{330}^{A}	310	I_{305}^{A}	I_{310}^{A}	I_{315}^{A}	300					
12							345	305	270	305	295	300	I_{390}^{R}	365	I_{420}^{R}	405	345	295	280					
13							295	260	315	290	300	I_{345}^{A}	I_{370}^{A}	400	380	A	A	A	A					
14							A	I_{250}^{A}	295	275	290	I_{340}^{R}	400	370	375	350	295	280	295					
15						295	255	250	285	280	I_{310}^{A}	I_{290}^{A}	I_{295}^{A}	I_{330}^{A}	360	I_{340}^{A}	335	295	I_{295}^{A}					
16							295	370	270	250	295	305	I_{350}^{R}	350	400	310	310	295	295					
17							280	295	I_{280}^{A}	I_{290}^{A}	290	I_{290}^{A}	I_{320}^{A}	340	330	310	330	A	A					
18							245	250	245	295	300	405	360	355	340	340	305	295	I_{295}^{A}					
19							A	A	380	360	405	I_{365}^{R}	I_{400}^{R}	480	395	415	I_{370}^{A}	I_{320}^{A}	A					
20							I_{295}^{A}	290	I_{300}^{A}	340	300	A	A	A	305	325	I_{320}^{A}	380	I_{290}^{A}					
21							305	L	A	A	A	A	I_{345}^{A}	345	I_{300}^{R}	470	305	330	A					
22							295	250	300	380	360	295	300	330	355	305	295	295	295					
23							300	320	280	290	330	395	350	330	I_{380}^{A}	395	330	300	250					
24							270	255	260^{L}	I_{360}^{R}	325	320	325	290	I_{320}^{A}	315	A	A	A					
25							380^{L}	300	295	270	315	340	395	I_{345}^{R}	390	325	305	280	260					
26							255	260	290	295	I_{310}^{A}	I_{335}^{A}	310	345	A	A	A	300	295					
27							270	280	250	275	I_{380}^{A}	I_{350}^{A}	320	300	295	325	295	285						
28							285	245	270	280	290	430	330	295	305	320	300^{L}	295	A					
29							A	295	255	I_{290}^{A}	A	A	365	325	305	295	280^{A}	I_{265}^{A}	A					
30							A	I_{310}^{A}	290	I_{265}^{A}	A	A	A	375	305	305	270	260						
31							L	245	285	245	285	300^{L}	I_{365}^{L}	350	295	295	270	270						
No.						5	25	29	29	26	25	25	25	24	24	26	25	25	16					
Median						295	285	290	295	290	300	340	340	345	345	330	305	295	290					
U.Q.																								
L.Q.																								
Q.R.																								

h'F2 Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Aug. 1963 | h'F | 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	310	295A	310A	A	A	245	200	200	200H	200	195	I205A	A	A	A	A	A	A	A	255	A	A	290A	305
2	A	A	A	305A	I260A	A	A	A	220	A	A	A	A	A	A	A	245	A	A	I265A	I270A	245	270	290A
3	285	I290A	285	300	255	245	A	A	A	A	A	A	A	A	220	245H	230	A	A	255	290	I290A	I290A	255
4	290A	290	260	290A	270	250	A	A	A	A	A	A	A	A	A	A	A	A	A	A	255	250	305	I280A
5	I290A	295	I280A	I300A	265	290	I265A	I230A	I230A	I225A	230	I230A	I230A	I220A	I230A	210	A	A	A	255	290	255	255	A
6	A	A	A	A	295	255	A	A	A	A	A	I205A	C	A	A	200	245	245	I260A	285	240	255	290A	270
7	255	290	245	245	290A	250	245	240	A	A	A	A	A	A	A	230	A	A	A	A	A	A	A	A
8	315A	260	260	245	295A	I285A	245	210	200	200	A	A	A	A	A	A	A	245	I240A	I240A	255	I270A	265	220
9	235	I280A	290	290	I280A	255	240A	230	210	195	190	220	A	A	A	A	A	A	250	I280A	245	245	245	235
10	245	240	285	280	295	245	230	245	A	C	C	C	C	C	C	C	C	A	A	295	255	245	245	255
11	245	250	245	275	290	240	245	A	A	A	205	I205A	195	A	A	A	A	A	A	A	245	290	240	I250A
12	250	245	265	295	290	235	I230A	I230A	I210A	230	195	190	230	185	I220AH	230	220	235	245	245	245	240	245	I270A
13	245	245	245	250	285	250	235	I230A	I220A	200	245	A	A	A	A	A	A	A	A	I240A	240A	I240A	A	A
14	285A	295	290	290	260	245	A	A	A	220	200	205	200	200	230	245	A	A	A	I285A	I260A	255	245	I245A
15	280A	285A	I285A	295	245	245	200	205	195H	A	A	A	A	A	A	A	240	A	A	250	A	A	I245A	I245A
16	I270A	I285A	I290A	295	290	245	A	A	A	A	A	I200A	195	I230A	245	A	A	A	A	250	230	240	I280A	255
17	285	245	295	260	265	245	A	A	A	A	A	I210A	I220A	190	245	245	A	A	A	280	245	245	225	215
18	240	295	290	295	270	245	220	215	210	195	195	210	185	230	230	225	I245A	A	A	A	245	235	I260A	255
19	310	310	I310A	300	I225A	A	A	A	240	240	215	245	I210A	245	I230A	AH	A	A	A	A	A	A	A	I280A
20	A	A	A	275	290	I290A	I260A	A	A	A	220	A	A	A	A	A	A	245	I270A	I250A	250	290	315A	I330A
21	I285A	255	270	290	I275A	290	255A	230	A	A	A	A	A	220A	215	I245A	225	245	A	A	I270A	260	240	245
22	255	300	295	280	280	270	245	225	I220A	200	210	195	I210A	220	195H	230	245	220	250	270	240	220	I280A	240
23	255	275	280	285	295	275	I245A	I240A	220	220	200H	205	220	210	I230A	230	240	245	I250A	245	295A	330	280	310
24	310	280	275	245	280	250	245	230	210	195	I220A	I215A	235	I230A	A	A	A	A	A	I260A	I280A	245	245	255
25	295	255	260	255	265	260	245	240	I225A	I200A	195	200	200	200	205	240	240	245	I245A	240	245	I240A	A	A
26	295	295	295	240	255	250	240	245	205	200	A	A	A	A	A	A	A	A	A	255	A	A	A	245
27	255	I290A	300	250	255	270A	I255A	I245A	I235A	220	I205A	I200A	I210A	I220A	240	240	A	A	260	255	235	280	275A	255
28	250	300A	I300A	280	245	260	255	A	A	A	230A	A	A	I230AH	230	I230A	240	240	A	A	A	I260A	275	295
29	I280A	260	270A	250	I245A	A	A	A	A	A	A	A	200	230	240	A	A	A	A	I250A	245A	245	250	275
30	255	295	A	280	285	255	I250A	I240A	A	A	A	A	A	I210A	I230A	I240A	I240A	I240A	I230A	245	255	245	280	290
31	260	I290A	295	I295A	I295A	285A	230A	240	205	195	190H	195H	205	240A	230	220	235	245	255	245	235	255	240	I280A
No.	28	28	27	29	30	28	22	19	17	16	17	17	15	17	17	16	13	11	11	24	25	26	26	27
Median	275	290	285	280	280	250	245	230	210	200	205	205	210	220	230	230	240	245	U250	255	245	250	260	255
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

h'F | Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Aug. 1963 | f'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	100	100	100	100	100	100	110	105	105	105	110	155	120	130	135	135	125	115	115	120	110	110	110	105
2	105	110	105	105	105	105	135	125	135	125	125	125	125	120	115	125	130	120	115	110	105	110	105	105
3	100	100	100	100	E	140	130	115	110	110	110	110	110	110	105	G	145	135	125	115	115	120	115	110
4	110	105	105	105	E	120	120	115	110	110	110	105	110	105	140	145	130	125	120	120	120	120	120	120
5	115	105	105	110	E	140	125	120	120	115	125	115	110	110	100	105	110	105	110	110	105	120	115	110
6	105	105	100	100	105	105	115	115	115	115	110	110	C	105	110	110	G	145	140	105	115	110	115	110
7	105	105	105	105	110	G	130	120	120	115	110	110	110	110	110	110	110	105	105	105	100	115	120	120
8	115	110	105	105	110	110	130	125	125	120	110	110	110	110	115	110	105	105	130	115	110	125	115	115
9	105	100	100	100	130	145	125	110	G	G	120	110	105	105	105	100	100	100	G	115	115	100	105	105
10	100	100	100	100	E	E	G	135	125	C	C	C	C	C	C	C	C	130	120	120	115	110	100	105
11	E	E	E	E	E	E	135	120	120	120	115	120	120	120	120	120	110	110	110	105	105	110	110	105
12	105	105	100	105	105	105	120	115	110	115	115	G	G	G	165	145	130	145	130	E	115	115	105	105
13	100	105	105	100	E	E	120	110	105	110	130	105	130	140	130	130	120	115	115	105	105	100	105	105
14	105	105	145	E	130	105	120	120	120	120	105	120	120	105	145	135	130	120	120	115	110	110	110	105
15	100	100	130	135	115	100	115	110	120	110	105	105	100	100	145	125	125	110	110	105	105	105	105	100
16	100	100	100	100	100	125	120	120	125	115	115	120	120	115	110	120	120	120	110	105	105	100	105	100
17	100	105	100	100	100	100	120	120	115	110	110	110	105	105	105	110	140	130	125	105	100	110	110	105
18	105	105	E	110	E	120	130	120	120	G	130	145	130	125	120	135	125	120	115	110	110	110	110	115
19	110	105	145	140	125	120	115	115	120	110	110	110	110	115	145	145	130	125	115	110	115	115	110	105
20	105	105	100	100	130	130	120	120	115	110	115	110	110	115	110	125	110	120	110	115	115	115	105	105
21	100	105	120	105	105	140	120	130	110	110	110	110	105	105	105	105	105	105	125	120	115	115	105	E
22	E	E	100	100	100	140	120	120	110	110	105	105	105	105	G	G	100	100	100	120	100	110	115	110
23	105	100	105	105	E	130	130	120	120	110	110	110	110	105	100	110	105	105	105	100	105	120	110	110
24	110	110	105	140	120	125	120	120	120	120	110	110	110	140	135	135	130	120	120	120	115	115	110	110
25	105	105	115	105	E	145	140	125	115	115	110	G	G	G	G	G	145	125	120	110	110	110	110	105
26	105	100	100	100	100	E	125	120	110	110	110	105	105	100	100	100	100	100	100	100	100	105	105	110
27	110	105	105	100	100	105	120	115	110	110	105	105	105	105	105	105	105	105	105	100	100	120	110	100
28	100	100	105	100	115	135	120	125	115	110	105	110	110	160	160	145	140	140	120	120	115	115	110	105
29	105	105	100	105	110	115	120	120	120	120	110	110	110	115	110	140	130	120	120	120	115	105	110	105
30	100	105	100	100	110	120	125	120	120	120	120	120	115	120	100	105	120	130	120	100	120	120	100	100
31	105	100	130	100	100	125	105	110	110	105	105	105	100	100	105	100	105	115	120	100	120	100	100	115
No.	29	29	29	29	22	26	30	31	30	28	30	28	27	28	28	27	29	31	30	30	31	31	31	30
Median	105	105	105	100	110	120	120	120	120	110	110	110	110	110	110	120	120	120	120	110	110	110	110	105
U.Q.																								
L.Q.																								
Q.R.																								

f'Es

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 11

IONOSPHERIC DATA

Aug. 1963 | Types of Es | 135° E Mean Time (G.M.T. +9h) | Akita | Lat. 39°43.5' N, Long. 140°08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f2	f2	f	f2	f	12	c	1	1	1	1	hh	h2	h3	h2	h2	h3	c3	c3	f4	f3	f5	f2	f2
2	f3	f4	f2	f2	f3	f2	h3	h2	h2	h2	h2	h2	h2	h2	c2	h2	h	c2	c2	f	f3	f2	f2	f3
3	f2	f2	f	f		h	h2	c2	c2	c2	c	c2	c2	c2	1		h	h3	h3	f2	f4	f3	f6	f2
4	f3	f2	f2	f2		h3	h3	c3	c2	c2	c2	c2	c2	c2	h3c2	h2	h3	h2	h4	f2	f2	f2	f2	f2
5	f2	f2	f2	f2		h2	h3	h3	h2	c2	h	c	c2	c	c2	12	12	13	13	f2	f2	f3	f2	f3
6	f2	f3	f3	f2	f2	12	c3	c2	c3	c2	c2	c2		c2	c2	c2		h2	h2	f2	f	f2	f4	f3
7	f2	f	f2	f	f2		h	h	h2	c2	c2	c2	c2	c2	c2	c2	c2	12	1	f2	f3	f2	f3	f4
8	f2	f	f2	f	f2	c2	h2	h2	h	h	c2	c2	c2	c2	c3	c2	c2	12	h2	f2	f2	f3	f3	f
9	f	f2	f2	f	ff	h	h3	c3			h	c	c2	c3	c4	12	12	13		f2f2	ff2	f	f2	f2
10	f	f	f2	f2				h	h									h212	h3	f5	f4	f	f2	f
11							h	h2	h2	h2	c	h2	h	h2	h2	h2	c2	c2	c3	f3	f7	f3	f2	f3
12	f3	f2	f2	f2	f2	f2	h	c3	c2	c2	c				h	h	h	h	h2c		f2	f3	f2	f2
13	f2	f	f	f			h21	c3	c3	c2	hc2	c2	h12	h2c	h2	h3	h4	c3	c4	f3	f2	f2	f3	f3
14	f3	f2	ff		f	ff	c4	h3	h2	h	c2	h	h	c	h12	h	h2	h3	c3	f2	f2	f3	f7	f3
15	f2	f5	f2f4	ff2	ff2	1	c2	c	h2	c2	c3	12	1	12	h1	h21	h1	c2	12	f3	f3	f2	f3	f3
16	f3	f4	f4	f2	f2	ff	h3	h2	h2	c2	c2	h2	h	c	c2	h2	h2	h3	c4h	f4	f3	f4	f3	f2
17	f2	f	f2	f2	f2	f	h3	h3	c2	c2	c2	c2	12	1	1h	c2	h2	h2	h3	f4	f	f2	f	f
18	f2	f2		f		f	h31	h2	h		h	h	h	h	h	h	h2	h3	c4	f4	f2	f2	f2	f2
19	f2	f2	f2f2	ff2	f3	f3	c4	c2	h	c	c	c2	c	c	h	h	h2	h4	c3	f3	f4	f5	f2	f3
20	f2	f3	f2	f2	f2	f3	h4	h3	c3	c2	c	c2	c2	h2	c2	h2	c2	h	13	f3	f2	f2	f2	f2
21	f3	f2	f2	f2	f3	h2	h3	h2	c4	c3	c3	c	c2	c2	c2	13	13	1	h5	f4	f2	f2	f2	
22			f	f2	f	h	h3	h2	c2	12	c2	c	12	1			12	13h	1	f3	f	f	f2	f3
23	f2	f2	f	f2		h2	h3	h3	h2	c	c2	c	c	c	1	c2	12	12	13	f2	f3	f3	f3	f2
24	f2	f	f	f	f	h2	h3	h3	h2	h	c2	c2	c2	h	h2	h2	h2	h3	c3	f3	f4	f2	f2	f2
25	f2	f2	f	f2		h	h1	h3	c2	c2	c						h	h3	c3	f3	f3	f3	f2	f2
26	f2	f2	f2	f	f		h2	h2	c	c2	c2	c3	c3	12	13	13	12	12	12	f2	f2	f2	f5	f3
27	f2	f3	f2	f2	f2	f3	c3	c3	c2	c2	12	12	1	1	1h	12	12	13	15	f2	f2	f3f	f3	f
28	f2	f2	f3	f2	f	f	h3	h3	c2	c3	c2	c2	c2	hh	h	h	h	h2	h3	f5	f2	f4	f4	f2
29	f3	f3	f2	f2	f	f2	h3	h2	h2	h2	c3	c2	c	c	c2	h2	h2	h4	c2	f3	f2	f2	f	f
30	f2	f2	f3	f	f2	f2	h3	h2	h2	h3	h3	h2	c3	h	12	13	h2	h21	f3	f2	ff	ff	f2	f2
31	f2	f3	ff2	f3	f2	f2f2	12	c3	c	1	12	13	1	12	c	12	c	c2	h	f3	ff2	f2	f	ff
No.																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

Types of Es

Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation

IONOSPHERIC DATA

Aug. 1963 | foF2 | 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	U 4.1S	A	A	3.5F	I 3.9F	4.4	I 5.2A	A	A	A	A	U 5.5R	I 5.7A	7.1	I 6.4A	6.3	I 5.7A	6.6	7.4	J 7.6S	5.1	A	A	F
2	J 4.5F	J 4.6F	F	A	I 4.1F	I 4.4A	J 5.3R	5.4	6.4	I 5.6A	I 5.6A	5.4	5.8	6.0	I 6.5A	7.0	I 6.2A	I 5.6A	I 5.8S	6.6	6.1	5.8	5.4	I 4.9F
3	4.3	I 4.2F	F	F	F	4.8	5.3	6.1	6.1	5.8	A	A	R	I 6.4A	6.9	U 7.1S	6.5	6.4	I 6.2A	U 7.4S	I 6.6F	I 6.2A	J 5.4A	F
4	A	U 4.1S	4.1	4.0	4.1F	J 4.7S	6.1	6.6	5.3	A	A	A	6.8	I 6.4A	5.9R	U 6.1R	I 6.4A	6.6	6.5	6.6	6.1	6.0	F	F
5	F	F	F	F	I 4.2F	4.1F	5.3	5.5	J 5.5R	6.9	J 7.8S	7.9	U 7.1R	7.4	7.2	7.3S	6.8	6.0	5.9V	5.9	5.5	J 5.3S	I 5.3F	4.9
6	J 4.4S	I 4.5A	U 3.9S	F	F	4.0	I 5.1A	5.6	5.9	A	A	J 6.4R	J 6.3R	J 6.3R	6.4	6.6	6.6	6.5	6.6	6.9	J 7.5S	U 6.0S	I 5.2F	5.4
7	J 5.5F	U 4.8S	J 4.8S	3.9	3.0	3.4	4.9	5.9	6.9S	J 6.4R	I 6.6A	7.1	7.3	7.3	6.8	6.9	7.4	I 7.1A	6.4	6.4	J 6.3S	U 5.8S	F	F
8	F	F	I 4.3F	3.3	3.4	3.4	5.1	6.6	J 6.4R	6.4	5.8R	5.6	6.0	U 6.0R	6.4	I 6.2R	6.1	I 5.7A	I 5.8A	J 7.4S	7.2	A	F	F
9	3.0	3.0	3.0	3.4	U 3.4F	3.4	I 4.9A	6.1	U 5.6S	5.3	5.9	J 6.0R	5.5	U 5.5R	A	A	A	I 6.5A	I 6.8A	U 7.1S	J 6.5S	6.4	U 6.4S	5.7
10	4.3S	U 3.8S	3.8	3.5	3.4	3.5	4.8	5.5	J 6.7R	6.8	A	A	5.7	I 5.9A	6.0R	5.7	5.5	I 5.6A	5.6R	7.0R	U 6.3S	6.1S	I 5.8A	5.4R
11	4.7S	4.6S	4.2S	4.1	3.9	4.3S	4.8	I 5.0A	5.5R	I 6.3A	5.9	I 5.5A	I 5.6A	I 5.7A	I 5.7A	I 6.1A	5.6	4.7R	I 5.0A	5.8	6.5	6.1	U 4.9F	5.0
12	4.0	3.4	3.3	3.1	3.2	3.1	3.6	6.2	6.0	5.4R	5.0R	5.3R	S	S	S	5.3R	5.7	6.2S	6.1	6.3	6.1	5.6	5.4	5.7
13	U 4.3S	5.0	4.3F	3.8F	3.6S	3.8S	5.2	5.3	5.8S	6.3R	5.9S	5.3R	A	A	I 5.4A	5.4	6.4R	7.1	7.2S	I 6.9A	6.1S	U 4.0S	A	A
14	A	3.5	3.5	I 3.3A	3.2	U 4.0S	5.9	4.9	5.5R	5.7R	U 5.4R	S	A	5.4	5.4	I 5.8A	7.0	7.4S	6.8	I 6.7A	I 6.6S	5.9S	5.9F	5.2
15	5.5F	5.2F	5.1F	U 5.0F	4.3	4.3S	5.3	5.3	6.1R	5.7	6.6R	5.8	I 5.6C	I 5.7C	I 5.4A	5.4R	6.0R	6.1	7.2	U 7.9R	7.3S	6.1S	I 5.3F	5.0S
16	I 3.7A	3.6F	3.5F	3.7F	3.3F	U 4.0S	4.3	5.6	7.2S	7.2	5.4	5.1R	5.1R	5.8R	6.1	6.7	6.8	6.4	7.0	U 7.4S	7.1S	5.6	4.4S	U 4.7F
17	U 4.5F	3.8F	3.9F	3.9S	3.3	4.3S	5.1R	5.5	I 6.0A	A	7.0S	I 5.7A	5.3	5.3R	5.8	5.9	5.4	5.1	I 6.2A	7.2	U 7.5S	7.0S	5.8S	U 4.1A
18	3.3	3.3	3.3	3.3	3.2S	U 4.0S	6.0	6.1	5.8	5.2R	5.3	5.5R	6.1R	6.3R	7.1	7.4	7.4S	7.2S	U 7.7S	9.4	J 7.6R	7.0	6.0	U 5.2S
19	5.3S	I 4.6F	U 4.9F	4.6F	4.5S	I 4.0A	4.6	6.0	6.1	5.7	5.7	5.3R	I 5.2S	I 5.2S	I 5.1S	5.1	5.4	I 5.1A	5.7	I 7.2S	6.2S	A	A	A
20	I 3.2S	3.3	3.1	3.5S	3.4S	3.3F	4.9S	U 5.8A	A	A	A	A	6.0R	6.9	8.9	7.9	I 5.8A	5.6	6.1	6.0S	I 4.8A	3.8S	4.2S	U 4.2S
21	U 4.1S	4.1S	4.0F	I 3.4F	3.2F	3.0S	4.8S	6.1S	5.3	I 5.7A	6.9	I 6.7A	6.2R	6.3	5.7	I 5.9A	5.9	5.2	5.8	6.4	I 6.1F	6.3	5.4S	3.4
22	2.9S	2.8	3.2	3.3S	3.1	3.6S	5.0S	5.6R	5.3	5.3	6.5	7.4	7.4	I 7.0A	6.6	6.8	5.9	5.5	5.9	6.8	U 6.5S	5.1	4.5	4.4
23	4.0S	3.7S	3.4	3.3F	3.1S	3.0	4.9S	5.9	6.7	5.8	5.5	6.1R	6.7	U 7.2R	I 6.9A	5.9	6.6	7.4S	J 8.3S	6.8S	I 5.0S	4.2S	4.1S	U 4.0A
24	4.2S	4.0F	4.2	3.6S	3.3	U 4.0S	U 5.5R	5.7S	5.7R	I 5.9S	6.9	7.4	7.2	7.1	U 6.2S	I 6.3A	A	A	A	AS	6.4S	I 6.6A	5.8S	I 5.2A
25	J 4.9S	4.6S	U 4.2S	I 3.9F	U 3.8S	3.4S	4.8	7.0	6.8S	6.4	6.1R	I 5.8S	5.8	5.9	6.0	6.6S	7.2	6.8	U 7.4S	I 7.0C	U 6.3S	A	U 3.5A	3.5S
26	U 3.6S	U 3.9S	3.6S	3.4	2.6	2.9S	5.3S	6.4S	6.9	A	A	A	A	5.7	I 5.8A	I 6.0A	6.7	U 8.0S	U 7.9S	U 7.7S	U 6.7S	5.6S	U 4.6S	I 4.2A
27	U 3.7S	U 3.7S	3.7	3.7S	3.7S	U 3.6S	5.4	6.7	I 6.7A	I 5.8A	6.0	U 6.2R	6.7R	7.7	6.8R	5.9	6.3S	6.3	7.1	7.2S	6.6S	6.3S	5.8S	I 5.0S
28	U 4.1A	I 4.3A	4.2S	U 4.0S	I 3.9S	U 3.7S	5.5	6.6	J 6.3R	5.8	6.6R	U 5.8R	5.9	6.8	6.7	6.2R	6.3R	6.3	U 8.1S	I 8.6S	U 7.4S	U 4.7S	I 4.8S	U 4.7S
29	I 4.7A	I 4.7S	4.6S	U 4.0S	3.6S	U 3.6S	I 4.8S	U 6.5S	U 7.7S	6.2	U 5.3R	6.8	I 6.1A	6.2	7.2R	J 7.6R	I 7.0A	I 6.0A	U 6.3R	I 7.2A	6.2S	I 5.2A	I 4.8S	I 4.6F
30	J 3.9F	3.5	3.4S	3.5	3.5	3.2	J 4.8R	5.8	I 7.2A	I 7.4S	5.4	U 5.4R	I 5.0S	6.0	6.8	J 7.3R	J 8.0S	I 6.9R	I 5.8S	U 5.0S	I 4.6A	A	A	A
31	FS	3.4F	3.4	3.4	3.4	3.2	J 5.0S	I 6.6S	J 8.1S	5.8	I 5.7A	I 5.9A	6.1	6.1	I 6.6R	6.8	6.4	6.3	U 6.8S	I 7.2S	U 6.4S	J 5.3S	I 3.9S	3.7
No.	26	28	27	27	29	31	31	30	29	25	24	25	26	29	29	30	29	30	30	30	31	26	24	23
Median	4.2	4.0	3.9	3.5	3.4	3.7	5.1	5.9	6.1	5.8	5.9	5.8	6.0	6.2	6.4	6.2	6.4	6.3	6.4	7.0	6.4	5.8	5.3	4.9
U.Q.	4.5	4.6	4.2	3.9	3.9	4.1	5.3	6.4	6.8	6.4	6.6	6.6	6.7	7.0	6.8	6.9	6.8	6.8	7.2	7.4	6.7	6.2	5.8	5.2
L.Q.	3.7	3.5	3.4	3.4	3.4	3.4	4.8	5.5	5.6	5.7	5.4	5.4	5.6	5.8	5.8	5.9	5.8	5.6	5.9	6.6	6.1	5.3	4.6	4.2
Q.R.	0.8	1.1	0.8	0.5	0.5	0.7	0.5	0.9	1.2	0.7	1.2	1.2	1.1	1.2	1.0	1.0	1.0	1.2	1.3	0.8	0.6	0.9	1.2	1.0

The Radio Research Laboratories, Japan

foF2

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

K 1

IONOSPHERIC DATA

Aug. 1963 | foF1 | 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							A	A	A	A	A	R	A	A	A	S	A	A	A					
2						A	A	U4.2L	U4.5L	A	A	S	A	A	A	A	A	A	A					
3							L	A	L	A	A	A	4.7S	A	S	S	4.2L	L	A					
4								A	A	A	A	A	A	A	A	A	A	A	A					
5							3.5L	A	A	S	S	A	A	A	S	U4.5R	R	A	B					
6							A	A	A	A	A	A	A	4.5S	A	S	U4.2S	L						
7							L		L	A	A	A	A	4.6L	A	A	4.1	A	A					
8							A	L	A	A	A	4.5L	S	S	A	A	A	A	A					
9							A	A	A	S	S	B	A	S	A	A	A	A	A					
10							L	L	S	A	A	A	A	A	S	S	S	A						
11							L	A	A	A	A	A	A	A	A	A	A	A	A					
12								A	S	S	S	S	S	S	S	S	S	A	L					
13							L	L	A	A	A	A	A	A	A	A	S	A	A					
14							L		S	S	S	S	A	A	A	A	A	A	A					
15							L	A	S	S	A	A	C	C	A	A	A	A	L					
16								A	A	S	S	S	S	A	A	A	A	A	S					
17							L	A	A	A	A	A	S	A	L	S	S	L	A					
18							L	L	L	S	S	S	A	A	S	S	A	A	L					
19						A	A	A	A	A	A	A	S	S	S	S	A	A	A					
20							A	A	A	A	A	A	A	A	A	A	A	A	A					
21							L	L	S	A	A	A	A	A	A	A	S	3.6L	S					
22							L	L	S	S	S	S	S	A	S	A	A	L	S					
23							L	A	A	A	A	A	A	S	A	A	A	L						
24							L		4.3L	S	S	S	S	A	A	A	A	A	A					
25							L	S	S	S	AS	S	S	S	S	S	A	A	A					
26							L	S	A	A	A	A	A	A	A	A	A	S						
27							L	A	A	A	A	S	S	S	S	S	S	L	S					
28							L	L	S	S	S	S	S	S	S	S	S	L	S					
29								S	A	L	S	A	A	S	S	A	A	A	A					
30								A	A	A	L	S	S	S	L	S	S							
31									A	A	A	A	A	4.5S	L	L	L	L						
No.							1	1	2			1	1	3		1	3	1						
Median							3.5	U4.2	U4.4			4.5	4.7	4.5		U4.5	4.2	3.6						
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

foF1

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

K 2

IONOSPHERIC DATA

Aug. 1963 | foE | 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						A	A	A	A	A	A	A	I3.60S	U3.65S	I3.60A	A	A	B	B					
2						S	B	A	A	A	A	I3.40S	I3.50A	A	A	A	B	A	S					
3						B	B	A	A	A	A	A	A	A	S	S	S	A	S					
4						S	B	B	B	A	B	B	B	B	B	B	B	A	B					
5						S	A	A	A	R	A	A	A	A	R	R	R	A	B					
6						S	S	A	A	A	A	S	S	R	A	R	I2.90S	A	S					
7						S	A	A	A	A	A	A	A	A	A	A	A	A	S					
8						S	A	A	A	A	A	A	A	S	A	A	A	B	S					
9						S	A	A	A	A	S	B	A	A	A	A	A	A	B					
10						S	B	A	S	S	S	S	S	A	A	R	S	S	S					
11						S	S	S	R	A	A	A	S	S	S	A	R	R	S					
12						S	S	A	S	A	A	A	S	S	S	S	I2.70R	R	S					
13						S	S	R	S	S	A	A	A	A	A	A	I3.20R	S	S					
14						S	R	R	R	S	S	S	S	S	S	3.05R	I2.70S	S	A					
15						A	A	A	A	A	A	A	C	C	S	I3.00R	R	S	S					
16						S	S	R	A	A	S	A	S	A	A	I3.10S	R	A	A					
17						S	A	A	2.75	A	S	A	S	A	A	S	A	S	A					
18						S	S	R	S	S	S	S	A	A	S	A	A	R	S					
19						S	S	A	S	A	A	A	S	S	S	S	R	S	S					
20						S	S	A	R	A	A	A	A	S	A	A	B	A	S					
21						S	S	R	R	A	A	A	A	A	A	A	S	A	S					
22						1.90R	A	R	S	A	A	A	S	A	S	A	A	S	S					
23						S	S	A	R	A	A	A	A	S	A	A	A	S	S					
24						S	S	S	S	A	S	A	A	S	S	S	I2.90S	S	A					
25						S	R	S	S	A	A	S	S	A	S	S	S	S	S					
26						S	A	S	A	A	A	A	S	A	S	A	S	S	A					
27						S	A	S	A	A	A	S	S	S	S	S	S	S	S					
28						S	S	R	S	S	A	A	A	A	A	S	R	A	S					
29						S	S	S	S	S	S	A	A	A	S	A	A	A	S					
30						S	S	A	A	S	S	S	A	A	A	A	U2.60R	S	S					
31						S	S	A	S	S	A	A	A	S	S	S	S	S	S					
No.						1			1			1	2	1	1	3	6							
Median						1.90			2.75			U3.40	U3.55	U3.65	U3.60	U3.05	U2.80							
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

foE

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

K 3

IONOSPHERIC DATA

Aug. 1963 | foEs | 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	J 3.2	5.5M	5.4M	J 3.4S	2.4M	J 5.6	J 7.8	10.3M	10.4M	10.6M	7.3Y	4.2	5.0	7.0M	7.4M	4.3S	9.1M	6.2M	J 9.1	J 4.9S	2.6S	11.4M	6.1M	J 3.8
2	3.9M	3.9M	J 6.2	9.2M	J 3.4	4.3M	3.7	J 3.8	3.6	5.2M	5.3M	4.4	6.0M	5.3M	8.9M	J 7.6	7.4M	6.7M	5.7M	J 6.8	J 4.3	7.3M	5.4M	4.0M
3	5.2M	J 3.4	3.5M	2.1	E	B	2.8	4.7M	J 5.2	5.9M	5.9M	7.4M	3.7S	7.9M	S	S	S	3.6	J 7.7	7.0M	J 6.0	J 6.2	J 6.2	5.9M
4	J11.1	J 4.0	2.6	3.0M	4.0M	S	3.8M	4.4	J 4.6	5.7M	8.5M	8.9M	7.1M	6.2M	5.2	5.2M	7.3M	8.3M	5.4M	4.6M	J 5.3	J 3.8	3.0M	J 5.3
5	J 5.4	3.1M	2.5	2.4	3.1M	2.5	J 3.4	4.3	5.4M	3.0G	4.1	J 8.0	5.8M	6.4M	3.3G	G	G	6.9	B	3.0	S	S	5.9M	6.0M
6	5.8M	J 5.6	5.4M	J 4.1	J 5.7	J 2.4	J 6.9	5.5	5.6M	6.2M	6.0M	4.9	J 5.2	3.3G	J 5.5	D 2.8S	S	3.1	J 5.6	3.6	3.0M	2.1	3.2M	7.3M
7	J 4.5	S	2.1	J 2.9	2.5	2.5	J 3.0	3.6	J 4.3	6.5M	9.7M	6.3M	6.0M	5.4M	J 5.2	J 5.2	J 4.4	11.9M	J 5.8	6.1M	3.0M	J 7.0	6.3M	J 4.0
8	J 4.7	4.8M	2.5	2.5	2.5M	2.5	4.5M	J 6.4	J 6.4	5.9M	J 6.7	4.2	3.5	S	4.6M	5.3M	J 6.8	8.7M	8.9M	3.8	J 7.7	J 6.3	J 3.8	4.8S
9	S	S	2.5	2.5	3.7	3.4S	8.9M	5.5M	9.4M	3.6	G	B	5.9M	4.3M	5.2M	9.8M	7.7M	7.4M	J 7.5	J 5.0	J 3.2	3.4M	J 3.5	2.4
10	3.1M	S	2.5S	S	E	S	2.5	3.3	4.3	5.9	6.8	J13.0	5.9	6.5	3.4	3.0	S	J 9.8	J 4.2	J 6.3	J 5.1	J 4.7	J 7.0	S
11	S	S	S	S	1.9	2.3	2.3	5.7	J 5.1	8.7	6.4	8.1	12.0	6.7	6.7	7.2	6.5	3.8	5.4	5.9	3.7	3.1	3.5	7.2
12	J 3.8	J 3.1	3.1	3.2	2.6	2.0	2.1	4.6	3.0	2.9	3.1	3.6	S	S	G	S	3.2	4.3	S	S	2.3	2.3	J 3.7	J 5.2
13	J 2.5	3.1	J 2.7	2.3	3.1	2.4	3.1	3.3	5.4	5.8	5.5	J 4.1	6.4	J 6.7	5.9	6.9	3.2	5.6	J 6.2	9.1	J 5.4	3.1	5.7	J 5.1
14	5.9	4.2	J 5.1Y	5.3	J 3.5	2.4	3.6	G	3.0	3.6	3.6	4.0	6.1	7.7	5.5	J 5.6	J 5.1	5.8	8.9	6.8	5.9	J 3.1	J 4.8	J 7.8
15	J 4.8	J 5.6	J 5.0	J 3.5	3.3	2.3	J 5.5	4.3	J 3.8	3.4	4.9	5.7	C	C	6.2	5.5	J 5.5	5.4	3.7	3.6S	5.9	E	5.7	J 6.5
16	J 5.7	3.1	J 3.5	J 2.5	2.5	S	3.6	4.2	J 4.1	3.4	G	3.7	S	J 6.3	5.3	5.4	J 4.6	J 3.6	3.6	3.0	3.2	2.3	2.1	S
17	S	3.1	2.3	2.0	2.1	S	J 2.6	J 4.4	6.7	9.0	5.6	J 6.3Y	3.6	4.8	3.8	S	3.5	J 3.6	7.3	5.7	J 3.5	3.6	2.3	J 4.8
18	S	2.2	2.4	2.3	J 2.5	2.1	3.6	J 3.6	2.9	S	3.8	3.7	5.3	J 5.3	S	J 3.4	J 4.2	5.3	J 2.5	J 4.1	J 2.5	S	J 4.3	J 3.1
19	J 5.3	3.2	2.3	J 3.2	3.3	5.0	J 7.3	J 6.1	J 5.0	5.4	4.8	4.7	S	S	S	4.7	8.9M	7.0	3.6	3.1	5.6	J 7.2	J 5.3	5.8
20	3.1	J 2.6	2.3	2.4	3.4	S	3.7	6.2	6.3	19.0	15.3	18.5	5.9	J 7.1	J13.0	5.4	6.7M	J 7.1	8.1	6.4	J 8.2	3.1	2.9	2.4
21	J 3.5	3.3	S	J 3.4	2.4	S	S	3.3	3.6	14.4	6.8	12.3	J 5.3	4.8	4.6	6.1	J 5.1	2.4	3.0	4.2	J 6.2	J 5.2	J 2.8	2.3
22	S	S	2.0	2.1	2.9	2.5	3.0	G	S	3.4	3.8	3.6	S	6.4	S	4.8	4.3	S	2.2	S	2.3	S	3.5	2.8
23	3.1	J 3.6	E	2.3	E	2.3	2.3	4.4	4.7	5.0	J 4.4	J 4.7	4.9	3.1	8.1	5.7	J 4.4	S	3.5	3.1	J 3.8	J 3.6	J 3.6	J 5.0
24	J 3.6	3.6	2.3	E	1.2	S	3.2	3.7	S	3.4	G	3.6	3.2	6.6	J 6.0	7.7	7.2	J 8.7	6.9	J 8.4	J 4.1	J 7.2	3.1	J 5.2
25	S	J 2.6	2.3	2.1	2.8	2.3	3.1	3.3	3.2	J 5.3	5.8	S	S	3.5	3.1	S	J 5.7	J 5.6	J 4.7	C	5.7	J 5.0	J 5.2	J 2.8
26	J 2.5	S	S	S	3.1	S	3.0	J 4.1	6.4	7.5	5.6	J 8.4	8.8	5.7	7.2	J 6.3Y	4.7	3.5	3.8	3.0	J 5.0	J 5.1	J 5.0	J 7.7
27	3.1	J 3.1	2.3	S	S	S	2.9	J 5.0	7.7	8.8	5.3	2.8	S	3.1	3.1	3.0	3.1	2.7	3.1	3.4	3.1	3.0	S	J 3.0
28	5.6	3.5	3.1	2.3	3.1	2.3	S	G	3.5	G	3.7	3.1	3.0	3.0	3.0	S	3.0	2.7	S	2.1	J 2.5	S	S	3.1
29	5.6	J 2.7	1.9	2.4	2.3	2.3	J 3.5	3.1	5.6	S	S	5.8M	7.5M	4.0S	S	6.2M	7.8M	J 9.3	J 5.4	12.1M	9.1M	10.8S	8.4M	2.3
30	S	S	S	S	E	S	S	5.3M	6.9M	5.8M	S	S	3.9	5.0M	4.3S	3.1	3.3	S	3.2	J 4.1S	J 6.0	5.2S	7.7M	4.6S
31	2.9S	3.2M	3.1	3.1	3.1	3.1	3.2	4.9M	J 6.0S	5.8	7.4M	J 5.2	4.8M	S	S	S	S	S	S	S	3.3	3.1S	3.4	1.9S
No.	24	24	27	26	30	20	28	31	29	29	29	28	24	26	25	24	27	27	27	27	30	27	29	29
Median	4.2	3.2	2.5	2.5	2.7	2.4	3.3	4.3	5.1	5.8	5.5	4.8	5.6	5.6	5.2	5.4	5.1	5.6	5.4	4.6	4.2	3.8	4.3	4.8
U.Q.	5.5	4.0	3.5	3.2	3.3	2.8	3.8	5.3	6.4	7.0	6.8	7.7	6.0	6.6	6.4	6.2	7.2	7.4	7.3	6.4	5.9	6.3	5.8	5.8
L.Q.	3.1	3.1	2.3	2.3	2.3	2.3	3.0	3.3	3.7	3.5	3.8	3.8	4.4	4.3	3.6	4.5	3.5	3.6	3.6	3.4	3.1	3.1	3.3	2.9
Q.R.	2.4	0.9	1.2	0.9	1.0	0.5	0.8	2.0	2.7	3.5	3.0	3.9	1.6	2.3	2.8	1.7	3.7	3.8	3.7	3.0	2.8	3.2	2.5	2.9

The Radio Research Laboratories, Japan

foEs

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

IONOSPHERIC DATA

Aug. 1963 | f_bEs | 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	2.6	A	A	2.2	1.9	3.2	A	A	A	A	A	E4.2S	A	6.4	A	E4.3S	A	4.4	4.1	2.1	2.6	A	A	2.4
2	2.2	2.6	2.2	A	E	A	3.5	3.3	3.5	A	A	E4.4S	5.2	4.7	A	6.5	A	A	3.0	3.5	2.1	2.7	2.6	2.8
3	2.1	2.1	1.9	E		B	2.6	4.0	4.1	5.0	A	A	E3.7S	A	S	S	S	3.6	A	3.1	2.8	A	5.4	4.4
4	A	2.1	1.9	1.9	2.1	S	3.1	4.3	4.5	A	A	A	5.8	A	5.2	4.5	A	4.1	4.4	4.1	2.6	3.2	2.1	4.0
5	2.2	2.1	1.9	E	1.8	2.1	3.0	4.3	4.5	3.0G	E4.1S	5.2	5.4	5.4	E3.3S			4.7	B	S	S	S	3.0	2.6
6	1.9	A	3.0	2.2	2.1	2.1	A	4.7	4.5	A	A	4.9	4.8	E3.3S	4.5	D2.8S	S	3.0	2.8	2.6	2.0	2.1	2.6	4.9
7	2.2	S	E	1.9	1.6	2.1	2.6	3.5	4.2	4.5	A	5.1	4.5	4.1	4.5	4.5	3.2	A	4.1	3.1	2.1	3.5	2.5	2.0
8	3.9	2.2	2.1	1.9	1.9	S	4.0	2.8	4.2	4.9	4.7	4.0	E3.5S	S	4.6	4.6	4.0	A	A	2.1	3.5	A	2.1	2.6
9	S	S	1.8	E	2.6	2.6	A	4.6	3.5	E3.6S	S	B	4.7	E4.3S	A	A	A	A	A	4.0	2.5	2.0	2.2	1.9
10	2.0	S	E	S		S	2.5	3.3	E4.3S	5.4	A	A	A	A	E3.4S	E3.0S	S	A	3.8	E6.3S	4.7	3.1	A	S
11	S	S	S	S	1.8	2.3	E2.3S	A	A	A	5.3	A	A	A	A	A	5.0	3.3	A	4.1	2.6	2.1	2.4	3.7
12	2.5	2.7	2.1	1.9	1.7	2.0	E2.1S	4.0	E3.0S	E2.9S	E3.1S	E3.6S	S	S		S	E3.2S	4.1	S	S	E	E2.3S	2.9	2.2
13	2.4	2.2	2.0	1.7	1.8	2.1	2.5	2.8	4.3	5.1	4.5	4.1	A	A	A	4.4	E3.2S	4.2	5.9	2.9	4.1	2.1	A	A
14	A	2.6	2.2	2.7	1.8	2.0	2.8		E3.0S	3.4	E3.6S	S	A	A	4.7	A	5.1	5.2	6.3	A	4.6	2.6	4.3	2.5
15	2.5	3.8	3.0	3.4	2.5	2.1	2.8	4.3	E3.8S	E3.4S	E4.9S	4.8	C	C	A	4.5	4.6	4.8	2.5	E3.6S	2.6		2.8	4.0
16	A	2.5	2.1	2.1	E	S	2.4	4.0	4.0	E3.4S		E3.7S	S	4.6	4.6	4.2	4.3	3.4	3.0	2.7	2.5	2.1	2.0	S
17	S	2.2	1.8	2.0	E	S	2.6	4.3	A	A	5.4	A	E3.6S	E4.8S	3.8	S	E3.5S	3.0	A	2.7	E3.5S	3.1	E	2.8
18	S	2.0	E	1.5	1.7	2.0	2.6	3.1	E2.9S	S	E3.8S	E3.7S	4.6	5.1	S	E3.4S	4.0	4.6	2.2	2.0	2.2	S	2.5	3.0
19	2.1	2.5	1.6	2.3	2.3	A	2.4	5.2	4.5	4.4	4.5	4.3	S	S	S	4.7	4.4	A	3.6	S	4.2	A	A	A
20	A	2.6	2.3	1.8	E	S	3.5	5.1	A	A	A	A	4.6	4.6	5.3	4.5	A	4.2	3.3	4.1	A	2.2	1.9	2.2
21	2.2	2.1	S	2.0	1.6	S	S	3.1	E3.6S	A	6.4	A	4.8	4.4	4.3	A	4.0	E2.4S	2.5	2.9	5.0	3.1	2.5	1.8
22	S	S	2.0	1.6	1.7	1.9	2.3		S	E3.4S	E3.8S	3.6	S	A	S	4.5	4.3	S	E2.2S	S	E	S	2.2	1.9
23	2.2	2.5		1.6		2.1	E2.3S	4.4	4.4	4.7	4.3	4.7	4.5	E3.1S	A	4.7	4.2	S	2.8	2.7	S	2.5	2.7	2.5
24	2.6	2.1	E		E1.2S	S	G	2.6	S	S		E3.6S	E3.2S	5.6	5.1	A	A	A	A	6.1	3.2	AS	2.1	A
25	S	2.1	2.2	1.9	E	G	2.7	2.8	E3.2S	4.4	5.0	S	S	E3.5S	E3.1S	S	E5.7S	5.3	4.2	C	5.2	A	3.0	1.7
26	2.0	S	S	S	E	S	2.2	E4.1S	4.6	A	A	A	A	A	A	A	4.4	E3.5S	3.3	E3.0S	2.2	4.0	2.6	A
27	2.2	2.2	2.1	S	S	S	2.5	4.2	A	A	5.2	E2.8S	S	E3.1S	E3.1S	E3.0S	E3.1S	2.5	2.5	3.1	2.2	2.0	S	S
28	2.6	A	1.9	1.6	2.6	2.1	S		E3.5S		E3.7S	E3.1S	E3.0S	E3.0S	E3.0S	S	E3.0S	2.7	S	2.1	2.1	S	S	2.8
29	A	S	E	2.0	2.3	2.3	S	E3.1S	4.4	S	S	5.2	A	E4.0S	S	4.5	A	A	5.0	A	2.5	A	2.6	2.1
30	S	S	S	S		S	S	3.9	A	4.8	S	S	E3.9S	4.9	4.1	E3.1S	E3.3S	S	E3.2S	E4.1S	A	A	A	A
31	S	2.1	2.5	2.3	2.5	2.1	2.8	4.0	4.4	4.8	A	A	4.5	S	S	S	S	S	S	S	2.5	S	3.0	1.9
No.																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

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

K 5

IONOSPHERIC DATA

Aug. 1963 | f-min | 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	E1.50S	E1.80S	E1.60S	E1.80S	E1.80S	E1.70S	2.20	E2.00S	2.20	2.80	2.80	3.00	3.10	3.10	2.90	E3.10S	3.00	2.70	2.10	E2.00S	E1.90S	E1.80S	E1.90S	E1.90S
2	E1.50S	E1.60S	E1.60S	1.10	1.10	E1.60S	2.10	2.20	2.20	2.70	2.20	2.80	3.05	2.80	3.30	3.10	2.90	1.80	E1.90S	E1.60S	E1.80S	E1.90S	E1.90S	E1.80S
3	E1.60S	E1.80S	E1.70S	1.50	1.60	2.00	2.20	2.20	2.30	2.80	3.05	2.90	3.05	2.80	E3.10S	E4.50S	E3.50S	2.20	E2.20S	E2.00S	E1.80S	E1.90S	E1.80S	E1.50S
4	E1.50S	1.40	1.40	E1.70S	E1.50S	E1.80S	2.05	2.60	2.90	3.05	4.20	4.10	4.00	4.60	3.90	4.05	3.00	2.10	2.00	E1.70S	E1.60S	E1.70S	E1.80S	E1.80S
5	E1.80S	E1.60S	E1.80S	1.60	E	E1.80S	E1.50S	2.20	2.10	2.70	2.70	2.85	3.05	2.80	2.70	2.20	2.60	2.20	2.00	E1.90S	E2.00S	E2.20S	E1.90S	E1.90S
6	E1.80S	E1.60S	E1.60S	E	1.40	E1.60S	E1.90S	2.20	2.20	2.70	2.80	E3.60S	E3.10S	3.05	2.80	2.00	E3.40S	2.10	E1.95S	E1.80S	E1.90S	E1.60S	E1.80S	E1.80S
7	E1.50S	E1.70S	E1.60S	1.10	E	E1.80S	2.00	2.50	2.70	2.80	2.80	2.60	3.10	2.80	2.30	2.10	2.10	1.80	E1.60S	E1.80S	E1.80S	E2.00S	E2.00S	E1.80S
8	E1.50S	E1.50S	E1.50S	1.40	1.50	E1.80S	E2.00S	1.90	E2.30S	2.60	2.50	3.10	2.90	E3.10S	2.80	2.70	2.10	2.30	E1.90S	E1.90S	E1.90S	E1.90S	E1.60S	E1.80S
9	E1.50S	E1.50S	E1.70S	1.20	E1.50S	E1.50S	2.10	E2.20S	2.20	2.60	E2.80S	4.60	2.90	3.00	E2.80S	2.50	2.20	2.10	2.00	E1.90S	E1.90S	E1.80S	E1.80S	E1.80S
10	E1.70S	E1.60S	E1.80S	E1.90S	1.60	E1.80S	2.10	2.10	E3.80S	E3.70S	E3.80S	E3.50S	E3.60S	2.60	2.80	2.70	E4.30S	E2.65S	E2.10S	E2.10S	E2.00S	E1.90S	E1.90S	E1.90S
11	E1.90S	E1.90S	E1.75S	E1.65S	E1.75S	E1.90S	2.10	E2.60S	2.10	2.90	2.85	3.00	E3.70S	E4.40S	E4.40S	2.80	2.20	2.00	E2.60S	E1.90S	E1.95S	E1.80S	E1.80S	E1.75S
12	E1.85S	1.50	E1.90S	1.60	1.50	E1.60S	E2.00S	2.20	E2.55S	2.60	2.60	2.60	S	S	2.70	E4.40S	2.10	2.05	E2.10S	E1.80S	E1.80S	E2.10S	E2.00S	E1.60S
13	E1.60S	1.50	1.50	E1.70S	E1.60S	E2.00S	2.00	2.10	E2.65S	E2.80S	2.60	2.60	2.70	2.70	2.60	2.50	2.10	E2.55S	E2.20S	E2.00S	E1.95S	1.50	E1.90S	E1.75S
14	E1.70S	E1.75S	1.40	E1.60S	E	E2.00S	2.00	2.10	2.10	E2.90S	E3.00S	E3.50S	E3.50S	2.80	E3.50S	2.50	E2.75S	E2.60S	1.65	E2.10S	E1.90S	E1.75S	E1.90S	E1.90S
15	E1.50S	1.00	1.40	1.50	1.35	1.40	2.05	2.20	2.15	2.65	2.65	2.70	C	C	2.60	2.60	2.10	E2.15S	E2.10S	E1.90S	E2.05S	E2.00S	E1.90S	E1.80S
16	E1.80S	E1.80S	1.40	E1.70S	E1.60S	E2.00S	E2.10S	2.05	2.10	2.70	1.80	3.00	E4.50S	2.80	3.00	E3.50S	2.10	2.10	1.65	E1.90S	E1.75S	E1.80S	E1.85S	E2.20S
17	E2.10S	E1.80S	1.50	1.10	E1.60S	E2.00S	2.00	2.10	2.10	2.60	2.50	2.90	E3.00S	2.70	2.70	E3.50S	2.10	E2.60S	1.80	E1.90S	E1.90S	E2.10S	E1.90S	E1.85S
18	E2.00S	E1.90S	E1.80S	E	1.00	E1.90S	2.00	2.00	E2.70S	E4.20S	E3.45S	2.60	3.10	2.20	E4.50S	2.60	2.60	2.05	E2.00S	E1.90S	E2.05S	E2.10S	E1.90S	E1.90S
19	E1.95S	E1.90S	1.30	E1.65S	E	E2.00S	E2.00S	2.10	E2.70S	2.80	2.80	2.80	I3.00S	S	S	E4.50S	2.05	E2.55S	E2.00S	E1.70S	E1.90S	1.50	E1.90S	E1.80S
20	E1.80S	E1.80S	1.50	E1.65S	E1.60S	E2.60S	E2.10S	2.00	2.15	2.75	2.65	3.00	3.05	E4.50S	3.00	2.80	E2.80S	2.05	E2.10S	E2.00S	E1.80S	E1.90S	E1.80S	E1.95S
21	E1.70S	E1.70S	E1.70S	1.50	1.00	E1.80S	E2.50S	2.10	2.10	2.75	2.80	2.70	3.00	2.70	2.60	2.10	E4.40S	1.95	E2.00S	E2.10S	E1.80S	E1.80S	E2.00S	E1.70S
22	E1.90S	E1.80S	1.30	E1.60S	1.50	1.50	2.05	2.10	E3,90S	2.65	2.70	2.80	E5.05S	2.55	E4.50S	2.10	2.10	E2.80S	E2.00S	E2.05S	E1.90S	E1.80S	E1.70S	E1.80S
23	E1.80S	E1.85S	1.50	1.00	1.20	E1.80S	E2.05S	2.10	2.20	2.80	3.00	3.05	3.00	2.80	2.60	2.40	2.05	E2.65S	E2.70S	E2.50S	E1.80S	E2.10S	E1.75S	E1.85S
24	E1.90S	E1.70S	1.10	1.50	1.00	E1.80S	E2.60S	E2.55S	E3.40S	3.00	2.75	2.70	2.00	E4.50S	E3.30S	E3.60S	E3.00S	1.80	1.80	E1.70S	E1.70S	E1.90S	E1.80S	E1.90S
25	E2.00S	1.50	E1.90S	E1.70S	1.50	E1.80S	1.85	2.05	E2.85S	2.70	2.75	S	E4.55S	2.70	2.55	E4.50S	E2.80S	E2.55S	E2.10S	C	E1.80S	E2.00S	1.35	E1.65S
26	E1.90S	E1.95S	E1.80S	E1.65S	E1.70S	E2.00S	E1.90S	E2.60S	2.10	2.55	2.55	2.70	E4.30S	2.75	E4.40S	2.70	2.05	E2.60S	1.90	E2.20S	E1.90S	E2.00S	E1.90S	E1.70S
27	E1.90S	E1.85S	1.40	E1.75S	E1.70S	E2.10S	1.90	2.10	2.60	2.55	2.70	2.50	E5.00S	2.70	2.90	2.00	E2.85S	E2.20S	E2.10S	E2.00S	E1.95S	E1,90S	E3.05S	E2.10S
28	E2.00S	E1.70S	E1.60S	E	E1.70S	E2.00S	E2.55S	2.10	E2.85S	2.60	2.80	2.60	2.60	2.60	2.80	E4.50S	2.00	2.05	E2.70S	E2.00S	E2.00S	E2.70S	E2.65S	E2.00S
29	E2.00S	E1.85S	E1.60S	E1.90S	E1.85S	E1.90S	E2.15S	E2.60S	E2.80S	E3.20S	E4.90S	3.00	3.10	2.90	4.50	2.20	2.20	2.00	E2.00S	E2.00S	E1.90S	E1.90S	E1.90S	E1.70S
30	E1.80S	E1.90S	E1.80S	E1.80S	1.30	E2.00S	E2.30S	2.10	E2.80S	E2.90S	E4.10S	E4.80S	E3.00S	2.75	2.50	2.60	2.20	E3.00S	E2.20S	E2.10S	E1.70S	E1.90S	E1.90S	E1.90S
31	E1.90S	E1.90S	E1.50S	E1.50S	1.50	E1.90S	E2.00S	1.90	E2.60S	E3.00S	2.20	2.70	2.30	E4.10S	E3.90S	E3.60S	E3.50S	E2.50S	E2.40S	E1.60S	E1.80S	E1.90S	E1.90S	E1.55S
No.	31	31	31	31	19	31	23	26	18	24	25	26	20	23	22	21	21	18	31	30	31	31	31	31
Median	E1.80	E1.75	E1.60	E1.60	1.30	E1.80	2.00	2.10	2.20	2.70	2.75	2.80	3.00	2.80	E2.80	2.50	2.10	2.05	E2,00	E1.90	E1.90	E1.90	E1.90	E1.80
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

f-min

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

IONOSPHERIC DATA

Aug. 1963 | **M(3000)F2** | 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	U2.90S	A	A	2.85F	I3.05F	3.05	I3.15A	A	A	A	A	U3.00R	A	3.25	I3.20A	3.05	I2.85A	2.95	3.20	J3.30S	2.95	A	A	F
2	J3.00F	J2.85F	F	A	I2.85F	I3.00A	J3.20R	3.05	3.40	I3.45A	I3.10A	2.95	3.05	2.90	I3.00A	2.95	I3.10A	I3.10A	I3.15S	3.05	3.10	2.95	2.95	I3.00F
3	3.00	I2.95F	F	F	F	3.15	3.20	3.20	3.25	3.00	A	A	R	I2.95A	2.90	U3.05S	3.05	3.15	I3.00A	U3.25S	I3.00F	A	A	F
4	A	U2.90S	2.95	3.00	3.15F	J3.15S	3.30	3.50	3.40	A	A	A	3.20	I3.10A	3.05R	U3.00R	I3.40A	3.20	3.10	3.25	2.95	3.00	F	F
5	F	F	F	F	I2.85F	2.90F	3.20	2.90	J2.60R	2.95	J3.05S	3.05	U3.10R	3.00	3.05	3.05S	3.25	3.15	3.05V	3.15	3.10	J3.05S	I3.10F	2.90
6	J3.00S	I3.00A	U2.95S	F	F	3.25	I3.10A	3.05	3.25	A	A	J2.95R	J3.00R	J3.00R	3.00	3.05	3.00	3.10	3.05	2.95	J3.00S	U3.30S	I2.80F	3.10
7	J2.95F	U2.95S	J3.10S	3.20	3.00	2.90	3.05	3.25	3.20S	J3.00R	I3.10A	2.95	3.00	3.05	3.05	2.90	3.10	I3.35A	3.20	3.10	J3.15S	U2.95S	F	F
8	F	F	F	3.00	3.25	2.80	3.30	3.30	J3.40R	3.10	3.30R	3.15	3.15	U2.95R	3.10	I3.10R	3.15	I2.95A	I2.95A	J3.10S	3.25	A	F	F
9	2.95	3.00	2.95	2.90	U2.95F	2.95	I3.10A	3.45	U3.00S	3.00	3.05	J3.20R	2.75	U3.10R	A	A	A	I3.05A	I3.05A	U3.10S	J3.10S	3.10	U3.00S	3.20
10	3.20S	U3.10S	3.15	3.10	3.05	3.10	3.10	3.15	J3.35R	3.40	A	A	2.85	I3.05A	3.00R	3.00	3.10	I3.05A	3.05R	3.00R	U2.85S	3.15S	I2.80A	3.00R
11	3.05S	2.95S	2.80S	2.75	2.80	2.90S	3.20	I3.20A	2.80R	I3.15A	3.20	I3.00A	I3.00A	I3.10A	I3.00A	I2.90A	3.20	3.00R	I3.00A	2.95	2.90	3.00	U2.55F	3.15
12	2.85	2.95	3.10	3.20	2.85	2.90	2.90	3.35	3.30	3.15R	2.90R	3.00R	S	S	S	2.80R	3.10	3.10S	3.20	3.00	3.00	3.05	2.80	3.15
13	U2.80S	2.70	2.75F	2.85F	2.85S	2.80S	3.15	3.30	3.35S	3.05R	3.05S	2.90R	A	A	I2.80A	3.00	3.00R	3.15	3.05S	I3.20A	3.20S	U2.95S	A	A
14	A	2.75	2.90	I2.75A	2.85	U3.30S	3.55	3.45	3.15R	3.20R	U3.15R	S	A	2.85	2.90	I3.00A	3.10	3.10S	3.10	I3.00A	I3.00S	3.10S	2.90F	2.90
15	2.65F	2.85F	2.85F	U2.80F	3.10	3.05S	3.40	3.40	3.25R	3.00	3.25R	3.15	I3.00C	I3.10C	I2.80A	2.90R	3.10R	2.95	2.90	U3.15R	3.30S	3.40S	I3.00F	2.95S
16	I2.90A	2.65F	2.70F	2.70F	2.80F	U3.10S	3.20	3.20	3.20S	3.45	3.35	2.80R	3.15R	2.95R	3.00	3.15	3.10	3.00	3.00	U3.25S	3.20S	3.15	2.80S	U2.70F
17	U2.80F	3.10F	2.80F	2.85S	2.95	3.20S	3.35R	3.20	I3.30A	A	3.40S	I3.25A	2.65	2.90R	3.05	3.10	3.15	2.95	I2.85A	3.00	U3.10S	3.20S	3.20S	U3.10A
18	3.10	2.80	2.90	2.80	2.85S	U3.00S	3.50	3.30	3.50	3.10R	2.85	2.75R	2.95R	2.95R	2.85	2.95	3.00S	2.80S	U3.05S	3.15	J3.20R	3.15	2.85	U2.75S
19	2.70S	I2.75F	U2.65F	2.65	2.80S	I2.80A	2.70	2.85	3.10	3.05	2.95	3.00R	I2.95S	I2.85S	I2.80S	2.90	3.05	I2.90A	3.00	I3.10S	3.40S	A	A	A
20	I2.85S	2.75	2.60	2.80S	2.80S	2.65F	2.60S	U2.90A	A	A	A	A	2.70R	2.75	3.05	3.15	I3.10A	2.85	3.10	3.30S	I2.85A	2.65S	2.55S	U2.70S
21	U2.45S	2.75S	2.70F	I2.70F	2.55F	2.85S	3.10S	3.45S	3.05	I3.05A	3.00	I3.05A	3.00R	3.10	3.10	I2.85A	3.05	2.95	3.10	2.80	I2.85F	2.95	2.95S	3.00
22	2.80S	2.65	2.70	2.75S	2.85	2.85S	3.10S	3.20R	3.10	2.70	3.00	2.95	3.00	I3.00A	3.05	3.10	3.05	3.00	3.05	2.95	U3.05S	2.95	2.90	2.85
23	2.80S	2.70S	3.20	2.75F	2.70S	2.95	3.05S	3.15	3.35	3.10	2.90	3.00R	2.90	U2.85R	I2.90A	2.85	2.95	3.10S	J2.65S	3.15S	I3.00S	2.60S	2.90S	U2.75A
24	2.65S	2.70F	2.85	2.80S	2.90	U3.10S	U3.10R	3.20S	3.25R	I3.20S	3.15	3.15	3.10	3.00	U3.35S	I3.30A	A	A	A	AS	2.80S	I3.00A	2.95S	I2.90A
25	J3.00S	2.95S	U2.95S	I2.90F	U2.80S	2.65S	3.15	3.10	3.55S	3.30	3.00R	I2.90S	3.00	3.00	2.95	3.05S	3.05	3.10	U3.25S	I3.15C	U3.35S	A	U2.85A	2.75S
26	U2.90S	U2.70S	2.70S	2.95	2.85	2.85S	3.20S	3.25S	3.40	A	A	A	A	3.05	I3.00A	I2.90A	2.95	U3.05S	U3.10S	U3.15S	U3.45S	2.85S	U2.85S	I3.00A
27	U3.15S	U2.70S	2.60	2.80S	2.95S	U3.05S	3.20	3.30	I3.40A	I3.15A	3.25	U2.95R	3.05R	3.10	3.15R	3.00	3.15S	3.10	2.95	3.05S	3.05S	3.00S	3.05S	I3.15S
28	U2.75A	I2.70A	2.75S	U2.85S	I2.85S	U2.75S	3.25	3.45	J3.50R	3.05	3.05R	U3.15R	2.95	3.10	3.10	3.15R	3.10R	2.95	U3.10S	I3.20S	U3.40S	U2.85S	I2.85S	U2.70S
29	I2.65A	I2.80S	3.00S	U2.85S	2.95S	U2.65S	I2.95S	U3.10S	U2.75S	3.30	U2.85R	3.20	I3.10A	2.90	3.30R	J3.30R	I3.30A	I3.20A	U3.35R	I3.25A	3.20S	A	S	I3.00F
30	J2.85F	2.85	2.80S	2.85	2.90	3.10	J3.10R	3.10	A	S	3.35	U2.90R	I2.80S	3.00	2.95	J3.25R	J3.35S	I3.50R	I3.50S	U3.20S	I3.00A	A	A	A
31	FS	2.90F	2.90	2.90	2.90	2.80	J3.20S	I3.45S	J3.60S	3.60	I3.40A	I3.15A	3.25	3.15	I3.15R	3.35	3.30	3.25	U3.10S	S	U3.30S	J3.20S	I3.15S	2.95
No.	26	28	26	27	29	31	31	30	28	24	24	25	25	29	29	30	29	30	30	29	31	24	22	23
Median	2.90	2.80	2.85	2.85	2.85	2.95	3.15	3.20	3.30	3.10	3.10	3.00	3.00	3.00	3.00	3.00	3.10	3.10	3.05	3.15	3.10	3.00	2.90	2.95
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

M(3000)F2

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

K 7

IONOSPHERIC DATA

Aug. 1963 | M(3000)F1 | 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							A	A	A	A	A	R	A	A	A	S	A	A	A					
2						A	A	U3.55L	U3.35L	A	A	S	A	A	A	A	A	A	A					
3							L	A	L	A	A	A	3.60S	A	S	S	3.55L	L	A					
4								A	A	A	A	A	A	A	A	A	A	A	A					
5							3.40L	A	A	S	S	A	A	A	S	U3.50R	R	A	B					
6							A	A	A	A	A	A	A	3.30S	A	S	U3.35S	L						
7							L		L	A	A	A	A	3.35L	A	A	3.65	A	A					
8							A	L	A	A	A	3.65L	S	S	A	A	A	A	A					
9							A	A	A	S	S	B	A	S	A	A	A	A	A					
10							L	L	S	A	A	A	A	A	S	S	S	A						
11							L	A	A	A	A	A	A	A	A	A	A	A	A					
12								A	S	S	S	S	S	S	S	S	S	A	L					
13							L	L	A	A	A	A	A	A	A	A	S	A	A					
14							L		S	S	S	S	A	A	A	A	A	A	A					
15							L	A	S	S	A	A	C	C	A	A	A	A	L					
16								A	A	S	S	S	S	A	A	A	A	A	S					
17							L	A	A	A	A	A	S	A	L	S	S	L	A					
18							L	L	L	S	S	S	A	A	S	S	A	A	L					
19						A	A	A	A	A	A	A	S	S	S	S	A	A	A					
20							A	A	A	A	A	A	A	A	A	A	A	A	A					
21							L	L	S	A	A	A	A	A	A	A	S	3.55L	S					
22							L	L	S	S	S	S	S	A	S	A	A	L	S					
23							L	A	A	A	A	A	A	S	A	A	A	L						
24							L		3.70L	S	S	S	S	A	A	A	A	A	A					
25							L	S	S	S	AS	S	S	S	S	S	A	A	A					
26							L	S	A	A	A	A	A	A	A	A	A	S						
27							L	A	A	A	A	S	S	S	S	S	S	L	S					
28							L	L	S	S	S	S	S	S	S	S	S	L	S					
29								S	A	L	S	A	A	S	S	A	A	A	A					
30								A	A	A	L	S	S	S	L	S	S							
31									A	A	A	A	A	3.40S	L	L	L	L						
No.							1	1	2			1	1	3		1	3	1						
Median							3.40	U3.55	U3.50			3.65	3.60	3.35		U3.50	3.55	3.55						
U.Q.																								
L.Q.																								
Q.R.																								

M(3000)F1 Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Aug. 1963 | h'F2 | 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							A	A	A	A	A	E360R	A	310	A	325	A	320	260					
2						A	300	305	260	A	A	360	360	360	A	E380A	A	A	E270A					
3							280	285	285	E330A	A	A	R	A	330	305	300	295	A					
4								250	255	A	A	A	310	A	355A	350	A	260	260					
5							300	350	425	345	310	310	345	310	310	300	E280R	E290A						
6							A	E310A	285	A	A	315	345	325	345	325	300	280						
7							325		280	325	A	345	305	300	310	330	295	A	260					
8							280	260	255	295	280	325	310	E345S	320	310	295	A	A					
9							A	260	310	320	325	300	400	345	A	A	A	A	A					
10							280	300	255	265	A	A	360	A	330	330	330	A	275					
11							250	A	365	A	315	A	A	A	A	A	310	275	A					
12								250	265	295	370	355	S	S	S	375	320	280	265					
13							265	250	265	325	325	375	A	A	A	345	310	270	305					
14							230		295	290	320	S	A	375	365	A	305	280	345					
15							255	255	270	275	275	305	C	C	A	355	310	325	295					
16								285	265	245	290	400	330	345	345	300	295	285	275					
17							245	280	A	A	250	A	385	400	305	315	300	315	A					
18							230	245	245	315	365	375	360	350	345	310	295	320	265					
19						A	365	390	325	320	355	330	S	S	S	380	320	A	300					
20							415	375	A	A	A	A	415	385	295	285	A	330	275					
21							250	250	310	A	355	A	340	300	315	A	310	320	300					
22							275	255	285	375	340	310	300	A	300	300	310	300	270					
23							280	280	255	300	330	350	345	340	A	350	320	275						
24							255		275	S	300	295	300	300	260	A	A	A	A					
25							270	265	250	255	330	S	360	335	345	315	250	295	250					
26							265	275	260	A	A	A	A	340	A	A	325	280						
27							270	260	A	A	295	345	330	295	310	330	275	275	260					
28							260	245	255	315	295	300	350	295	310	305	305	305	260					
29								295	255	260	E400S	290	A	360	290	270	A	A	290A					
30								300	A	240	280	E350S	S	350	335	290	260							
31									240	250	A	A	300	325	310	280	280	260						
No.							22	24	26	19	20	18	20	21	21	24	24	21	19					
Median							270	270	265	295	320	330	345	340	315	315	300	285	270					
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

Aug. 1963 | h'F | 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	310	A	A	310	295	E295A	A	A	A	A	A	R	A	A	A	S	A	A	A	205	280A	A	A	E340A
2	300	310	295	I290A	275	I255A	I275A	210	245	A	A	S	A	A	A	A	A	A	A	255A	250A	270	E300A	270A
3	305A	300	260A	270	250	245	210	I245A	E250A	A	A	A	235	A	S	I230S	230	E250A	A	E250A	230	A	E350A	E350A
4	A	300	250	255	235	245	E250A	A	A	A	A	A	A	A	A	A	A	A	A	E250A	250A	280A	295	E310S
5	295	300	260	250	270	255	E290A	I225A	A	S	S	A	A	A	S	245	I235R	I225A	220	245	250	250	260	295
6	250	A	E300A	E300A	300	255	A	A	A	A	A	A	A	E250S	A	I240S	E255S	E270A	E260A	270	235	210	320	E350A
7	285	260	230	250	295	E280A	225	E250A	E245A	A	A	A	A	E260A	A	A	210	I245A	I245A	250A	245	310A	310A	255
8	E340A	260	250	255	250	260	I240A	205	A	A	A	225	S	S	A	A	A	A	A	210	250	I285A	295	245
9	255	295	300	295	310	E340A	A	A	I245A	S	S	B	A	S	A	A	A	A	A	280A	245	235	250	210
10	235	255	250	250	250	255	235	245	S	A	A	A	A	A	S	215	S	A	I280A	350	310	250	I325A	235
11	240	245	290	275	270	270	225	A	A	A	A	A	A	A	A	A	A	A	A	325	255	275	275	255
12	265	300	290	310	280	280	220	I220A	I210S	I215S	S	S	S	I210S	I220S	I240S	I230S	I230A	225	230	230	245	305	255
13	315	280	280	260	290	280	225	225	A	A	A	A	A	A	A	A	S	A	A	230	260	260	A	A
14	A	330	280	345	305	230	205	215	200	210	S	S	A	A	A	A	A	A	A	A	285	250	300	265
15	310	305	300	300	235	235	225	I210A	I220S	S	A	A	C	C	A	A	A	I220A	285	230	230	210	255	330
16	310	320	305	280	260	230	230	I240A	I225A	205	S	S	S	A	A	A	A	275	I265S	235	215	230	260	310
17	280	300	275	245	265	230	230	A	A	A	A	A	S	A	270	220	I260S	255	I285A	260	250	250	225	265
18	230	305	300	295	295	255	220	210	210	S	S	S	A	A	I225S	I220S	I260A	I280A	250	230	225	230	265	305
19	330	315	295	300	265	I295A	255	A	A	A	A	A	S	S	S	S	A	A	A	I260S	230	A	A	A
20	I320A	315	305	285	255	E375S	A	A	A	A	A	A	A	A	A	A	A	A	A	265	I330A	365	325	315
21	355	295	235	355	315	335	230	225	S	A	A	A	A	A	A	A	S	230	280	270	305	270	250	245
22	305	250	315	275	290	280	230	210	I210S	S	S	S	S	A	S	I240A	I240A	230	I245S	250	240	245	260	270
23	290	310	260	275	255	280	245	A	A	A	A	A	A	S	A	A	A	250	245	225	I280S	360	300	340
24	345	310	265	250	285	250	230	225	210	S	S	S	S	A	A	A	A	A	A	285	305	I295A	230	I270A
25	250	275	275	280	265	285	230	225	225	S	AS	S	S	S	210	I235S	A	A	A	C	255	I295A	350	320
26	295	290	300	240	275	285	230	S	A	A	A	A	A	A	A	A	A	I290S	250	255	215	280	300	I270A
27	230	305	310	280	225	250	230	A	A	A	A	S	S	S	S	S	S	215	I240S	245	240	250	255	I250S
28	300	I310A	305	270	255	305	245	220	S	S	S	S	S	S	S	S	S	245	I250S	230	210	300	280	305
29	I305A	I285S	245	235	270	290	I260S	I230S	A	230	S	A	A	S	S	A	A	A	A	A	245	I250A	300A	255
30	255	305	310	285	255	260	245	A	A	I235A	E250S	S	S	A	E280S	S	S	245	I230S	E300S	I260A	I270A	I280A	I290A
31	260	300A	E340A	300	340	310	E250A	225	I235A	A	A	A	A	E290S	E290S	E250S	E250S	230	E255S	225	230	245	E340S	285
No.	28	29	28	30	31	27	24	18	11	5	1	1	1	4	4	9	7	15	15	27	31	28	25	25
Median	295	300	285	280	270	260	230	225	U215	215	E250	225	235	E255	U220	U235	U235	245	U250	E250	250	255	280	270
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

IONOSPHERIC DATA

Aug. 1963 | h'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	100	100	100	100	100	100	100	100	100	100	100	105	125	120	115	115	105	110	105	100	100	100	100	105
2	100	100	100	100	100	120	115	110	100	100	105	110	110	110	110	110	105	105	100	100	100	100	100	100
3	100	100	100	105	E	B	110	100	100	100	100	100	100	100	S	S	S	110	110	105	105	105	100	105
4	100	100	100	100	100	S	110	105	100	100	100	100	100	120	115	115	115	115	105	100	105	105	105	100
5	100	100	100	100	100	100	100	105	105	100	100	100	100	100	100	G	G	100	B	100	S	S	105	100
6	100	100	100	100	100	100	100	105	105	100	100	100	105	100	100	100	S	125	110	105	105	105	100	100
7	100	S	105	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	105	110	105
8	100	100	100	100	100	110	105	105	105	100	100	100	100	S	100	100	115	110	105	100	100	105	105	100
9	S	S	100	125	120	115	105	100	100	105	G	B	100	100	100	100	100	105	100	100	100	100	100	100
10	100	S	100	S	E	S	110	110	115	105	105	105	105	105	100	110	S	110	110	110	110	110	105	S
11	S	S	S	S	105	105	130	110	110	105	105	105	105	110	110	110	110	110	105	105	105	105	110	105
12	105	105	105	105	105	105	110	105	105	105	105	105	S	S	G	S	130	115	S	S	105	105	105	105
13	105	105	105	105	110	110	110	115	105	105	120	105	105	105	115	105	125	110	105	105	105	105	105	105
14	105	105	105	125	115	115	115	G	115	115	115	105	105	120	115	115	115	115	105	105	105	105	105	105
15	105	105	105	105	105	105	105	105	105	110	100	105	C	C	100	115	110	105	105	105	105	E	105	105
16	105	110	105	100	100	S	110	115	110	110	G	105	S	110	110	110	110	110	105	105	110	100	105	S
17	S	100	100	100	120	S	115	115	105	105	105	105	105	105	105	S	100	115	110	105	105	105	105	105
18	S	105	100	105	105	110	115	110	115	S	135	130	115	115	S	115	115	110	110	105	110	S	110	105
19	105	105	105	110	110	110	110	110	105	105	105	105	S	S	S	130	115	110	110	105	105	105	105	105
20	105	105	105	100	110	S	115	110	110	105	105	105	110	110	105	110	105	105	105	105	105	105	110	105
21	105	100	S	105	105	S	S	115	110	105	105	105	105	105	105	105	115	105	115	110	110	105	105	105
22	S	S	100	100	100	115	110	G	S	105	105	100	S	105	S	100	100	S	115	S	110	S	105	105
23	105	105	E	100	E	125	115	115	110	105	110	110	105	100	100	100	100	S	110	110	100	110	105	105
24	100	105	105	E	120	S	115	110	S	115	G	105	105	120	115	115	110	110	110	105	105	105	105	105
25	S	105	100	100	115	125	120	110	110	110	110	S	S	105	110	S	110	110	110	C	105	105	105	105
26	105	S	S	S	100	S	110	110	105	105	105	105	105	105	105	105	105	100	100	105	105	105	105	105
27	100	100	100	S	S	S	110	105	105	100	100	105	S	105	105	105	115	115	110	100	105	100	S	105
28	105	100	105	100	105	105	S	G	110	G	105	100	100	105	105	S	120	110	S	115	110	S	S	105
29	100	100	100	100	110	110	110	115	110	S	S	100	100	105	S	105	110	110	100	105	100	105	100	100
30	S	S	S	S	E	S	S	105	105	105	S	S	100	100	100	100	120	S	105	100	105	100	100	100
31	100	100	100	100	100	105	105	100	100	100	100	100	100	S	S	S	S	S	S	S	100	100	100	110
No.	24	24	26	25	26	20	28	28	29	28	26	28	24	26	24	24	26	27	27	27	30	26	29	29
Median	100	100	100	100	105	110	110	110	105	105	105	105	105	105	105	110	110	110	105	105	105	105	105	105
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

Aug. 1963 | 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	f	f	f	f	f	12	13	13	12	12	12	1	h	h	12	1	12	12	12	f	f2	f2	f3	f2
2	f2	f3	f2	f3	f2	12	12	12	1	1	1	c	1	1	12	12	12	12	12	f3	f2	f2	f3	f2
3	f2	f	f2	f			1	12	1	12	12	12	1	12				1	12	f2	f2	f4	f3	f3
4	f3	f2	f	f2	f2		13	1	1	1	1	12	1	h	1	1	1	12	1	f2	f2	f3	f2	f3
5	f2	f2	f	f	f2	1	12	12	12	1	1	1	1	12	1			12		f			f2	f2
6	f2	f4	f3	f3	f2	1	13	12	1	12	12	1	1	1	1	1		h	12	f2	f	f	f3	f3
7	f2		f	f2	f2	1	1	1	12	12	12	1	1	1	1	1	1	13	12	f3	f	f2	f2	f2
8	f3	f3	f2	f2	f2	1	1	1	1	1	1	1	1		1	1	c1	12	12	f3	f2	f3	f2	f3
9			f	ff	f2f	12	12	12	12	1			1	1	1	12	12	12	13	f3	f	f2	f2	f2
10	f		f				1	1	1	12	12	12	1	12	1	c		12	12	f2	f4	f2	f4	
11					f	1	h	1	c2	13	12	12	12	12	12	12	c2	1	13	f4	f2	f2	f2	f2
12	f2	f2	f2f	ff	f2	1	1	12	12	1	1	1					h	c2			f	f	f2	f2
13	f	f	f	f	f2	1	c	c	12	12	1h	1	1	1	11	12	h	13	13	f2	f3	f2	f3	f2
14	f3	f2	f2	ff2	f2	1	1		c	1	1	1	12	h	1	c	12	12	13	f3	f3	f2	f4	f
15	f2	f	f2	f2	f2	1	1	12	1	1	1	1			c3	c	c2	12	1	f3	f2		f3	f2
16	f2	f	f	f2	f		1	c	1	1		1		12	12	1	c2	12	12	f2	f	f	f	
17		f	f2	f	f		1	12	c2	12	c2	1	1	1	1		1	1	12	f2	f2	f2	f	f2
18		f2	f	f2	f2	1	c	c	1		h	h	1	1		1	1	c2	1	f3	f		f	f2
19	f2	f2	f	f2	f2	13	1	12	1	12	12	1				h	c2	12	12	f	f3	f2	f2	f3
20	f	f	f	f2	f		1	12	c2	12	12	121	1	1	1	1	12	12	1	f3	f2	f	f	f
21	f2	f2		f2	f			c	c	13	12	12	1	1	1	13	1	1	1	f2	f3	f2	f	f
22			f	f	f	c	1			1	1	1		1		1	12		1		f		f2	f
23	f	f2		f2		h	1	12	c	1	1	1	1	1	12	1	12		1	f	f2	f2	f2	f
24	f2	f2	f		f		1	1		1		1	1	h	1	1	12	c2	13	f3	f2	f3	f3	f3
25		f2	f	f	f	h	h	c	1	1	1			1	1		12	13	13		f2	f3	f2	f
26	f				f		1	1	12	12	12	12	12	1	1	1	1	1	12	f2	f	f2	f2	f2
27	f2	f2	f				1	c2	12	12	1	1		1	1	1	1	1	1	f	f	f		f
28	f2	f3	f2	f	f4	1			1		1	1	1	1	1		h	1		f	f			f
29	f2	f	f	f	f	1	1	1	1			1	1	1		1	13	12	12	f3	f2	f2	f	f
30						1		12	12	1			1	1	1	1	h		1	f	f2	f	f2	f2
31	f	f2	f2	f2	f	12	1	12	1	1	12	1	1								f2	f	f	f
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

IONOSPHERIC DATA

Aug. 1963 | hpF2 | 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	U350S	A	A	355F	I310F	300	I295A	A	A	A	A	R	A	A	A	340	A	345	300	J255S	330	A	A	F
2	J350F	J350F	F	A	I350F	I325A	J300R	310	260	A	A	G	A	360	I355A	A	A	I315A	I305S	300	310	320	340	I320F
3	355	I345F	F	F	F	275	300	300	300	A	A	A	R	A	350	U320S	300	300	I310A	U300S	I310F	A	A	F
4	A	U340S	310	310	300F	J295S	285	255	255	A	A	A	A	A	A	U350R	I310A	290	300	295	320	320	F	F
5	F	F	F	F	I345F	325F	300	355	G	345	J340S	330	U345R	330	330	310S	295	300	310V	300	300	J305S	I320F	340
6	J305S	I340A	U310S	F	F	295	A	A	285	A	A	J315R	J345R	J325R	350	325	325	300	300	330	J305S	U260S	F	A
7	J340F	U325S	J280S	275	320	350	350	295	300S	J330R	I320A	350	330	320	310	350	305	I275A	290	300	J295S	U350S	F	F
8	F	F	F	320	280	350	290	275	J255R	300	280R	G	310	S	320	I300R	300	I340A	I330A	J305S	290	A	F	F
9	310	330	330	345	U340F	350	A	260	U320S	S	335	J300R	400	U345R	A	A	A	I320A	I315A	U310S	J290S	295	U310S	280
10	295S	U320S	295	300	300	300	295	300	J260R	270	A	A	A	A	335R	335	345	I310A	300R	A	U330S	295S	A	295R
11	290S	315S	335S	340	320	310S	255	I280A	375R	I285A	A	A	A	A	A	A	A	310R	A	325	310	325	U355F	285
12	315	305	315	345	335	330	260	255	275	300R	S	S	S	S	S	375R	320	300S	280	310	305	305	345	305
13	U335S	345	335F	335F	325	335S	275	255	270S	325R	325S	A	A	A	A	350	320R	290	305S	I270A	275S	U315S	A	A
14	A	345	325	I345A	335	U270S	240	235	295R	295R	S	S	A	375	A	A	310	320S	A	A	I320S	295S	325F	345
15	370F	335F	340F	U345F	295	295S	260	260	285R	310	280R	305	C	C	A	355R	315R	330	320	U275R	275S	245S	I305F	A
16	I335A	380F	355F	350F	335F	U295S	290	305	285S	250	305	S	S	350R	345	305	305	310	325	U275S	285S	285	335S	U375F
17	U355F	350F	335F	305S	310	280S	255R	295	I280A	A	255S	I260A	385	A	310	320	300	325	I335A	315	U305S	270S	270S	U305A
18	295	335	335	350	340S	U305S	245	270	245	325R	S	S	365R	375R	370	330	315S	345S	U295S	265	J270R	270	325	U350S
19	370S	I375F	U375F	385F	345S	I340A	365	A	335	325	355	355R	S	S	S	S	320	I330A	310	I285S	250S	A	A	A
20	I340S	375	405	345S	320S	375F	430S	A	A	A	A	A	415R	395	305	300	I300A	345	305	265S	I345A	405S	405S	U385S
21	U435S	355S	350F	I355F	400F	335S	285S	260S	325	A	A	A	355R	300	325	I345A	315	330	310	345	I320F	325	315S	300
22	345S	375	355	345S	335	315S	290S	270R	300	S	345	320	305	I315A	300	305	310	310	300	305	U285S	305	325	325
23	330S	345S	320	335F	355S	325	285S	295	255	300	350	350R	345	U350R	I340A	355	335	295S	J275S	260S	I310S	395S	330S	U375A
24	385S	375F	330	310S	320	U295S	U290R	270S	285R	I320S	310	300	310	310	U260S	I290A	A	A	A	AS	350S	I310A	320S	I330A
25	J300S	325S	U325S	I340F	U350S	360S	295	280	255S	260	330R	S	360	340	350	315S	310	295	U260S	I275C	U255S	A	U350A	370S
26	U340S	U355S	360S	290	305	335S	285S	285S	270	A	A	A	A	A	A	A	335	U305S	U280S	U270S	U235S	325S	U330S	I305A
27	U280S	U345S	365	325S	295S	U300S	270	275	I245A	A	A	U350R	335R	300	315R	335	285S	295	295	300S	300S	300S	290S	I290S
28	U345A	I365A	355S	U345S	I315S	U355S	275	250	J255R	320	300R	U300R	S	300	310	305R	310R	315	U290S	I290S	U255S	U340S	I325S	U385S
29	I370A	I355S	315S	U310S	300S	U370S	I305S	U300S	U255S	295	S	295	I305A	365	295R	J295R	I280A	A	U290R	I295A	290S	A	S	I310F
30	J325F	340	355S	305	310	305	J300R	305	A	S	280	S	S	G	350	J300R	J285S	I255R	I255S	S	I320A	A	A	A
31	FS	355F	350	340	340	350	J305S	I260S	J250S	250	A	A	300	G	R	290	295	295	U305S	S	U260S	J300S	S	305
No.	26	28	26	27	29	31	30	27	27	18	15	13	16	17	20	25	26	29	28	26	31	24	19	21
Median	340	345	335	340	320	325	290	275	275	300	320	315	345	340	330	320	310	310	300	300	300	305	325	U320
U.Q.																								
L.Q.																								
Q.R.																								

hpF2 Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

K 13

IONOSPHERIC DATA

Aug. 1963 | ypF2 | 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	U 45S	A	A	85F	I 70F	55	I 50A	A	A	A	A	R	A	A	A	50	A	50	50	J 55S	70	A	A	F
2	J 50F	J 75F	F	A	I 85F	I 55A	J 50R	75	45	A	A	G	A	40	I 50A	A	A	I 60A	I 50S	55	70	75	55	I 65F
3	45	I 55F	F	F	F	50	50	50	50	A	A	A	R	A	65	U 75S	60	55	I 70A	U 55S	I 90F	A	A	F
4	A	U 60S	85	85	50F	J 55S	45	45	50	A	A	A	A	A	A	U 45R	I 65A	60	55	60	85	80	F	F
5	F	F	F	F	I 65F	75F	50	80	G	55	J 50S	65	U 50R	65	65	85S	50	60	60V	65	95	J 55S	I 60F	55
6	J 45S	I 50A	U 55S	F	F	50	A	A	60	A	A	J 95R	J 50R	J 70R	45	55	70	50	65	75	J 80S	U 50S	F	A
7	J 55F	U 75S	J 70S	70	75	55	45	55	50S	J 55R	I 45A	55	70	75	85	55	55	I 40A	60	55	J 60S	U 50S	F	F
8	F	F	F	80	65	60	20	50	J 45R	60	35R	G	45	S	40	I 50R	55	I 50A	I 60A	J 80S	55	A	F	F
9	90	70	70	60	U 60F	50	A	45	U 35S	S	60	J 45R	45	U 30R	A	A	A	I 70A	I 65A	U 55S	J 60S	55	U 85S	65
10	55S	U 75S	55	50	65	50	55	50	J 50R	70	A	A	A	A	90R	70	55	I 90A	95R	A	U100S	105S	A	105R
11	100S	95S	55S	85	80	85S	95	I 70A	50R	I 90A	A	A	A	A	A	A	A	90R	A	80	100	75	U 90F	85
12	95	100	90	60	85	75	100	100	85	50R	S	S	S	S	S	75R	65	80S	70	90	85	75	85	75
13	U 85S	95	85F	70F	75S	70S	75	75	60S	40R	75S	A	A	A	A	55	80R	90	85S	I 95A	95S	U 90S	A	A
14	A	80	60	I 70A	70	U 80S	95	90	70R	70R	S	S	A	50	A	A	90	75S	A	A	I 60S	75S	85F	85
15	70F	95F	75F	U 90F	80	90S	70	55	65R	70	70R	65	C	C	A	60R	65R	75	90	U100R	75S	85S	I 85F	A
16	I 65A	60F	50F	95F	70F	U 65S	60	60	65S	65	40	S	S	55R	80	80	90	105	75	U105S	95S	80	85S	U 75F
17	U 75F	60F	85F	95S	95	70S	65R	60	I 70A	A	70S	I 85A	70	A	70	80	50	75	I 80A	85	U 80S	80S	65S	U 55A
18	65	70	60	65	80S	U 90S	90	80	120	55R	S	S	65R	40R	60	80	100S	75S	U105S	90	J 85R	100	80	U 80S
19	80S	I 65F	U 80F	70F	75S	I 90A	65	A	70	55	50	50R	S	S	S	S	80	I 75A	90	I 70S	75S	A	A	A
20	I 80S	75	60	100S	80S	90F	50S	A	A	A	A	A	55R	80	95	80	I 90A	70	80	90S	I 90A	65S	70S	U 80S
21	U 60S	90S	100F	I 90F	80F	70S	70S	75S	60	A	A	A	45R	60	75	I 85A	65	70	65	100	I100F	100	90S	75
22	65S	80	80	90S	65	70S	85S	85R	95	S	70	85	95	I 80A	105	85	95	90	100	95	U100S	75	80	75
23	100S	85S	75	80F	90S	75	90S	55	95	70	75	55R	95	U 75R	I 90A	70	70	95S	J 90S	100S	I 85S	95S	115S	U 75A
24	75S	80F	85	95S	80	U 95S	U 80R	80S	70R	I 60S	75	80	70	90	U 85S	I 60A	A	A	A	AS	95S	I 90A	75S	I 75A
25	J 85S	80S	U 75S	I 80F	U 90S	95S	90	105	95S	85	75R	S	45	65	70	85S	85	90	U105S	I100C	U 90S	A	U 55A	60S
26	U 65S	U 50S	65S	80	95	65S	65S	80S	75	A	A	A	A	A	A	A	70	U 95S	U105S	U105S	U100S	80S	U 90S	I 80A
27	U 75S	U 70S	90	100S	100S	U 85S	85	75	I 80A	A	A	U 55R	60R	85	70R	75	95S	80	105	85S	100S	95S	80S	I 65S
28	U 65A	I 75A	80S	U 80S	I105S	U 90S	80	95	J100R	60	100R	U 80R	S	80	65	65R	85R	105	U105S	I 80S	U100S	U 65S	I 85S	U 65S
29	I 80A	I 90S	90S	U 95S	85S	U 70S	I 85S	U 85S	U 90S	50	S	55	I 45A	40	55R	J 50R	I 60A	A	U 30R	I 50A	55S	A	S	I 90F
30	J 75F	60	60S	95	85	50	J 55R	45	A	S	40	S	S	G	50	J 40R	J 25S	I 40R	I 45S	S	I 80A	A	A	A
31	FS	50F	50	65	65	75	J 45S	I 55S	J 40S	45	A	A	40	G	R	25	50	50	U 80S	S	U 70S	J 45S	S	95
No.	26	28	26	27	29	31	29	27	27	18	15	13	16	17	20	25	26	29	28	26	31	24	19	21
Median	70	75	75	80	80	70	65	75	65	60	70	65	50	65	70	70	70	75	80	80	85	80	85	U 75
U.Q.																								
L.Q.																								
Q.R.																								

ypF2

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

IONOSPHERIC DATA

Aug. 1963 | foF2 | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7 E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	S	S	S	S	S	4.4^{S}	$J_{5.6}{}^{S}$	5.2	$I_{5.1}{}^{A}$	$I_{5.5}{}^{S}$	$I_{5.5}{}^{C}$	5.8	$I_{6.4}{}^{S}$	$I_{6.4}{}^{A}$	6.4	6.2	S	S	S	S	S	S	S
2	S	A	A	S	$J_{3.5}{}^{S}$	$I_{3.5}{}^{S}$	4.7	5.9	$I_{5.1}{}^{S}$	4.9	$I_{5.5}{}^{C}$	5.5	5.4	6.3	$I_{7.0}{}^{S}$	$I_{8.2}{}^{S}$	7.7	A	S	S	S	S	S	A
3	S	S	S	S	S	$I_{3.5}{}^{A}$	$J_{4.2}{}^{S}$	$I_{5.6}{}^{S}$	S	5.2	5.2	5.2	$I_{5.8}{}^{S}$	$I_{6.6}{}^{S}$	$J_{7.6}{}^{S}$	$I_{7.0}{}^{S}$	6.7^{S}	$I_{6.5}{}^{S}$	$I_{7.7}{}^{S}$	S	S	S	S	A
4	A	A	S	S	3.7^{S}	3.1	4.5	$I_{5.5}{}^{S}$	5.2	5.9	6.3^{S}	$I_{7.2}{}^{S}$	7.6	$I_{7.2}{}^{S}$	7.1^{S}	$J_{8.0}{}^{S}$	8.1	$I_{7.3}{}^{S}$	7.9	S	S	5.7	S	S
5	S	S	S	3.9	4.1	3.3^{S}	$J_{4.3}{}^{S}$	5.3	$I_{5.6}{}^{S}$	$I_{6.2}{}^{C}$	$I_{6.7}{}^{S}$	6.4	$I_{6.6}{}^{C}$	$J_{7.7}{}^{S}$	8.5	8.7	8.5	$J_{8.2}{}^{S}$	8.4^{S}	$I_{8.4}{}^{S}$	5.6	$J_{4.9}{}^{S}$	C	S
6	S	S	S	S	S	3.2	4.2	5.7	$I_{5.8}{}^{S}$	5.4	6.2	$I_{6.2}{}^{A}$	6.3	$I_{6.6}{}^{C}$	$J_{7.4}{}^{S}$	8.3	$I_{8.4}{}^{C}$	$J_{8.2}{}^{S}$	$I_{7.7}{}^{S}$	$I_{8.0}{}^{S}$	8.7^{S}	$I_{7.2}{}^{S}$	$J_{5.3}{}^{S}$	$I_{5.4}{}^{S}$
7	$J_{5.5}{}^{S}$	S	A	S	S	S	3.7	5.7	7.1	5.5	6.0	5.8	6.4	8.2^{S}	8.6	8.8	10.1	$J_{10.0}{}^{S}$	$J_{7.6}{}^{S}$	6.0	5.9	6.0	5.9	$J_{5.5}{}^{S}$
8	F	S	S	$I_{4.1}{}^{S}$	$I_{3.8}{}^{S}$	$I_{3.9}{}^{A}$	4.4	5.9	$J_{6.5}{}^{S}$	5.7	4.9	6.3	6.2	5.4	6.5^{S}	6.8	6.2	6.3	7.0^{S}	$J_{7.7}{}^{S}$	$I_{7.5}{}^{S}$	6.4^{S}	5.6	F
9	S	$J_{5.0}{}^{S}$	$I_{4.1}{}^{S}$	$I_{3.6}{}^{S}$	$J_{3.7}{}^{S}$	$I_{3.2}{}^{S}$	$I_{3.8}{}^{A}$	6.3	6.2^{S}	A	A	$I_{5.3}{}^{A}$	$I_{5.4}{}^{A}$	$I_{5.1}{}^{A}$	$I_{5.6}{}^{A}$	6.5	$J_{7.7}{}^{S}$	$J_{8.1}{}^{S}$	8.5	$J_{8.2}{}^{S}$	$J_{7.9}{}^{S}$	$I_{7.1}{}^{S}$	$I_{5.9}{}^{S}$	S
10	S	S	S	4.5^{S}	3.5	3.1	3.5^{S}	5.9	6.7	5.4	5.5	4.9	5.2	6.0	5.7	6.0	$J_{6.4}{}^{S}$	$I_{6.6}{}^{A}$	$I_{7.0}{}^{S}$	S	S	S	S	S
11	S	S	S	S	F	F	4.0	$I_{5.0}{}^{A}$	$J_{7.4}{}^{S}$	$I_{5.8}{}^{S}$	$I_{5.0}{}^{A}$	$I_{5.4}{}^{A}$	5.3	6.2	6.8	7.4	7.3	6.2	5.8	$J_{6.4}{}^{S}$	$J_{6.1}{}^{S}$	$J_{6.2}{}^{S}$	5.0	4.3
12	3.1	3.2	3.1	2.7^{F}	2.6^{F}	2.4^{F}	3.6^{S}	5.5	5.5	5.2	5.1	4.9	$I_{5.1}{}^{R}$	$J_{5.2}{}^{R}$	4.9	5.4	$I_{6.4}{}^{S}$	7.1^{S}	7.5^{S}	$I_{6.8}{}^{S}$	$I_{6.5}{}^{S}$	$U_{6.1}{}^{S}$	$I_{5.4}{}^{S}$	S
13	F	5.3^{S}	F	S	$I_{4.4}{}^{S}$	$I_{3.8}{}^{S}$	$J_{4.3}{}^{S}$	5.7	$I_{6.0}{}^{S}$	5.3	$I_{5.4}{}^{A}$	5.5	$I_{5.4}{}^{A}$	$J_{5.3}{}^{R}$	5.5	6.0	6.9	$I_{7.9}{}^{A}$	$I_{8.2}{}^{A}$	$I_{8.8}{}^{A}$	A	A	A	A
14	$J_{4.4}{}^{S}$	A	A	$I_{3.6}{}^{A}$	$I_{3.7}{}^{S}$	$I_{3.7}{}^{S}$	$I_{4.0}{}^{S}$	5.6	6.1^{S}	5.5	5.1	5.0	5.3	5.4	5.4	5.7	$J_{7.1}{}^{S}$	8.2	$I_{7.2}{}^{S}$	5.7	5.7	5.8	5.0^{S}	$J_{4.0}{}^{S}_{H}$
15	$I_{3.5}{}^{S}$	S	S	S	S	2.7^{F}	$J_{3.9}{}^{S}$	5.0^{S}	5.9	$U_{6.5}{}^{S}$	6.0	5.7	6.2^{S}	$I_{5.4}{}^{R}$	5.4	6.1	6.2	6.6	$J_{7.7}{}^{S}$	$J_{7.6}{}^{S}$	$J_{8.0}{}^{S}$	$J_{6.3}{}^{S}$	$J_{4.7}{}^{S}$	$I_{4.4}{}^{S}$
16	4.6	S	S	S	S	F	3.3	6.4	$I_{6.5}{}^{S}$	5.9	$I_{4.9}{}^{A}$	$I_{5.4}{}^{A}$	5.5	$I_{5.9}{}^{A}$	6.6	$J_{7.6}{}^{S}$	8.2	8.2	$I_{8.6}{}^{S}$	$I_{8.5}{}^{A}$	$I_{7.9}{}^{S}$	$I_{5.8}{}^{S}$	$J_{3.7}{}^{S}$	$I_{3.6}{}^{S}$
17	$I_{3.7}{}^{S}$	$I_{3.8}{}^{S}$	$J_{3.5}{}^{S}$	$J_{3.6}{}^{S}$	2.9^{F}	3.0	3.6	5.8^{S}	$I_{7.2}{}^{S}$	$J_{6.5}{}^{S}$	5.5	$I_{5.6}{}^{A}$	5.7	$I_{5.6}{}^{S}$	$I_{5.6}{}^{A}$	$J_{6.3}{}^{S}$	$I_{6.5}{}^{S}$	$J_{6.3}{}^{S}$	$J_{6.3}{}^{S}$	$I_{7.6}{}^{S}$	8.3	$I_{6.6}{}^{S}$	$J_{5.1}{}^{S}$	$J_{4.4}{}^{S}$
18	4.2	3.7^{S}	$J_{3.6}{}^{S}$	$J_{3.5}{}^{S}$	3.3	3.4^{S}	5.6	$I_{5.8}{}^{S}$	5.1	5.6	5.0	5.8	$I_{6.2}{}^{S}$	6.0	$J_{6.2}{}^{S}$	7.5	7.6	$J_{7.9}{}^{S}$	10.1^{S}	$J_{10.1}{}^{S}$	8.6	$I_{6.4}{}^{S}$	$J_{5.9}{}^{S}$	5.1
19	4.9	$I_{4.8}{}^{S}$	4.8	$I_{4.4}{}^{S}$	$J_{4.2}{}^{S}$	3.6	$I_{4.0}{}^{S}$	$I_{6.1}{}^{S}$	$I_{6.5}{}^{S}$	6.3^{S}	5.6	5.8	6.0	5.5	5.8	5.8	6.1	5.9	7.2	$I_{7.4}{}^{S}$	5.9	$I_{4.4}{}^{S}$	$I_{3.7}{}^{S}$	$I_{3.7}{}^{A}$
20	$J_{3.6}{}^{S}$	$I_{3.2}{}^{A}$	2.8	3.2	3.1^{F}	3.0	4.3	5.6	5.1	$I_{5.1}{}^{S}$	5.4	6.0	6.3	8.1	9.0	9.0	8.9	7.3	$J_{7.5}{}^{S}$	S	S	A	$J_{4.3}{}^{S}$	$J_{4.2}{}^{S}$
21	$I_{4.2}{}^{A}$	$J_{4.3}{}^{S}$	4.3	$I_{3.1}{}^{A}$	$I_{2.7}{}^{F}$	$I_{2.8}{}^{F}$	4.2	$I_{5.7}{}^{S}$	4.9	5.2	6.0	6.6	6.6	6.3	$J_{7.1}{}^{S}$	$J_{7.5}{}^{S}$	6.0	5.9	6.7	$I_{7.0}{}^{S}$	$I_{6.8}{}^{S}$	S	S	3.3
22	2.9	2.5	2.7	2.9	2.8	2.9	3.9^{S}	5.5	5.0	5.8^{S}	6.6	$J_{6.4}{}^{S}$	7.6	$J_{7.4}{}^{S}$	$J_{7.5}{}^{S}$	$J_{7.8}{}^{S}$	$J_{7.4}{}^{S}$	6.1	6.6	6.6	$I_{6.0}{}^{S}$	5.8^{S}	$J_{5.4}{}^{S}$	4.7
23	$J_{4.5}{}^{S}$	$J_{3.7}{}^{S}_{H}$	3.8^{S}	3.5	3.4	3.1^{F}	$J_{3.9}{}^{S}$	$J_{7.2}{}^{S}$	6.2	5.7	5.4	6.0	7.2	8.3	8.8	8.2	8.5	$I_{9.0}{}^{C}$	8.3	$I_{7.0}{}^{S}$	$J_{5.2}{}^{S}$	$I_{4.0}{}^{S}$	$I_{4.4}{}^{C}$	$I_{4.5}{}^{S}$
24	$I_{3.9}{}^{A}$	4.1	4.2^{S}	3.5^{S}	3.5^{S}	$I_{3.5}{}^{S}$	4.2	$I_{6.2}{}^{C}$	5.5	6.0	7.0	6.7	6.9	$J_{6.4}{}^{S}$	6.3	7.0	6.8	6.2^{S}	$I_{6.5}{}^{S}$	7.3^{S}	$I_{7.4}{}^{S}$	A	A	S
25	5.9^{S}	A	S	S	$J_{3.6}{}^{S}$	$I_{4.0}{}^{S}$	4.7	$I_{6.4}{}^{S}$	6.5	6.0	5.4	6.0	$J_{6.7}{}^{C}$	7.7	8.3	9.0	$J_{8.1}{}^{C}$	7.7	$I_{6.8}{}^{A}$	$I_{6.2}{}^{A}$	A	A	A	A
26	A	A	A	A	$I_{3.1}{}^{A}$	3.0^{F}	$I_{4.2}{}^{S}$	6.0	$I_{6.6}{}^{S}$	6.7	5.8	5.9	$I_{6.0}{}^{A}$	5.7	6.4	7.1	$J_{7.9}{}^{S}$	8.4^{S}	8.7	$I_{9.2}{}^{S}$	$I_{7.4}{}^{S}$	4.9	S	A
27	F	A	$I_{3.1}{}^{S}$	3.3^{S}	3.1^{F}	3.1^{F}	4.0	$I_{6.8}{}^{S}$	6.1^{S}	5.9	$I_{6.3}{}^{S}$	6.2	7.1^{S}	$J_{7.7}{}^{S}$	7.8^{S}	7.2^{S}	$J_{7.8}{}^{S}$	$I_{7.0}{}^{S}$	6.7	$J_{6.3}{}^{S}$	6.5^{S}	6.2^{S}	$I_{5.7}{}^{S}$	4.3
28	$I_{4.0}{}^{S}$	3.8	3.9^{S}	3.4	3.3	$I_{3.4}{}^{S}$	4.7	S	5.5	6.5^{S}	5.8	6.0	7.0	6.9	7.1	6.6	$I_{7.2}{}^{S}$	$J_{8.0}{}^{S}$	$I_{9.1}{}^{S}$	$I_{7.5}{}^{S}$	5.7	$I_{4.8}{}^{S}$	$I_{5.0}{}^{S}$	5.1^{S}
29	$J_{4.4}{}^{S}$	4.3	$J_{4.3}{}^{S}$	$J_{3.1}{}^{S}$	3.4	$J_{3.2}{}^{S}$	$I_{3.7}{}^{S}$	6.5	$J_{7.7}{}^{S}$	5.7^{Z}	5.6	6.7	7.2	7.6	8.4	$J_{7.9}{}^{S}$	6.0	6.7	$J_{8.0}{}^{S}$	A	A	5.0	$J_{5.1}{}^{S}$	$I_{4.2}{}^{S}$
30	$J_{4.2}{}^{S}$	$J_{4.1}{}^{S}$	$I_{4.0}{}^{S}$	F	3.8	3.1^{F}	3.6	6.1^{S}	$J_{7.7}{}^{S}$	6.5	$J_{6.0}{}^{S}$	5.7	$I_{5.9}{}^{A}$	5.7	7.8^{S}	8.6	8.8	$I_{7.8}{}^{S}$	$I_{6.5}{}^{S}$	5.2	5.3	4.8	4.8	$J_{3.8}{}^{S}$
31	$I_{3.8}{}^{S}$	$I_{3.6}{}^{S}$	3.4^{S}	3.2^{S}	F	3.2	4.3	6.5	7.7	5.7	5.0	$I_{5.9}{}^{A}$	$I_{6.2}{}^{A}$	6.5	7.2^{S}	7.4	$J_{7.5}{}^{S}$	6.5^{S}	S	S	S	$J_{4.7}{}^{S}$	3.6^{S}	$I_{3.7}{}^{S}$
No.	18	15	15	18	23	27	31	30	30	30	30	31	31	31	31	31	31	29	28	23	21	22	20	18
Median	4.2	3.8	3.8	3.5	3.5	3.2	4.2	5.8	6.1	5.7	5.5	5.8	6.2	6.3	7.0	7.4	7.4	7.3	7.6	$U_{7.4}$	6.5	5.8	5.0	4.3
U.Q.	4.5	4.3	4.2	3.6	3.7	3.5	4.3	6.2	6.6	6.0	6.0	6.2	6.7	7.4	7.8	8.2	8.1	8.2	8.2	8.2	7.9	6.3	5.5	4.7
L.Q.	3.7	3.6	3.1	3.2	3.1	3.0	3.8	5.6	5.5	5.4	5.2	5.5	5.5	5.6	5.8	6.4	6.4	6.4	6.8	6.4	5.8	4.9	4.6	3.8
Q.R.	0.8	0.7	1.1	0.4	0.6	0.5	0.5	0.6	1.1	0.6	0.8	0.7	1.2	1.8	2.0	1.8	1.7	1.8	1.4	1.8	2.1	1.4	0.9	0.9

foF2

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

The Radio Research Laboratories, Japan

Y 1

IONOSPHERIC DATA

Aug. 1963 | foF1 | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5 N, Long. 130°37.7 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	A	A	A	C	C	A	A	4.5	C	C	$I_{3.6}^{A}$					
2							L	$I_{3.7}^{L}$	4.0	L	A	$I_{4.6}^{A}$	A	A	A	A	A	A	A					
3								$I_{3.6}^{A}$	4.1	L	4.5	$I_{4.6}^{S}$	4.7H	$I_{4.4}^{S}$	A	$I_{4.3}^{A}$	4.4	4.1H	3.6					
4								A	L	4.6	A	4.6	4.6	4.5	4.6	4.4	4.2	$I_{4.1}^{A}$	3.6					
5							S	3.7	A	C	$I_{4.4}^{A}$	4.5	C	A	4.6	A	A	A	3.5					
6								A	$I_{4.1}^{A}$	$I_{4.3}^{A}$	A	A	4.5	$I_{4.5}^{C}$	4.5	A	$I_{4.2}^{C}$	3.8	3.7					
7								$I_{3.8}^{L}$	4.1	4.4	4.5	4.8	4.5	4.4	4.5	4.3	$I_{4.2}^{A}$	3.9	L					
8								L	4.0	4.3	4.7	4.3	4.5H	4.6	4.4	4.4	4.3	4.0	3.6					
9								A	A	A	A	A	A	A	A	$I_{4.2}^{A}$	4.2	3.9	3.5					
10								3.7	A	4.3	4.4	$I_{4.5}^{A}$	4.4	4.3	4.5	4.3	4.2R	$I_{4.0}^{A}$	3.6					
11								A	4.1	A	A	A	4.4	A	A	A	A	A	A					
12								A	4.0	4.3H	$I_{4.3}^{R}$	4.4	$I_{4.4}^{R}$	A	4.4	A	R	3.9S	3.4					
13								L	$I_{4.0}^{A}$	A	A	4.4	A	A	A	A	A	A	A					
14								3.6	3.9	$I_{4.4}^{L}$	4.5	4.4H	4.3	4.4	$I_{4.3}^{S}$	$I_{4.2}^{S}$	4.0	3.8	3.6					
15								3.8	4.0	A	$I_{4.2}^{A}$	4.7H	$I_{4.4}^{R}$	$I_{4.4}^{R}$	A	A	A	A	3.4H	L				
16								$I_{3.7}^{A}$	$I_{4.4}^{A}$	4.2	A	A	A	A	4.6	4.4H	$I_{4.3}^{A}$	A	A					
17								L	4.0	A	A	A	A	A	$I_{4.5}^{A}$	4.2	$I_{4.2}^{A}$	A	A					
18								L	4.0	4.5	L	4.6	4.7	A	A	A	4.3	4.1	A					
19								A	A	A	4.4	A	A	4.5	R	4.3H	4.1	4.1	A					
20								L	A	A	4.2	4.6	$I_{4.4}^{R}$	A	A	4.3	$I_{4.2}^{A}$	4.0	A					
21									L	$I_{4.3}^{L}$	4.4	4.6	4.6	4.5	4.5	$I_{4.3}^{C}$	4.1	L	L					
22								L		4.4	4.4	4.7	4.6	4.5	4.4	4.4	4.2	S	A					
23								L	$I_{4.0}^{C}$	$I_{4.4}^{A}$	$I_{4.7}^{A}$	4.7	4.6	A	A	4.5	4.2	4.2	L					
24								L	L	A	4.3	$I_{4.5}^{C}$	4.7	A	A	4.5	$I_{4.6}^{A}$	A	A					
25								L	4.0	4.4	4.7	4.6	$I_{4.6}^{C}$	$I_{4.7}^{C}$	$I_{4.5}^{C}$	4.4	A	A	A					
26								L	4.0	4.4H	A	4.6	$I_{4.6}^{A}$	4.7	4.7	4.4	4.3	4.0	L					
27								L	L	4.3	4.6	4.7	4.7H	4.8	4.5	4.4H	4.2	4.1	L					
28									L	4.4	$I_{4.4}^{L}$	L	4.6H	4.5	4.5	4.4	4.2	4.0	A					
29								L	3.9	$I_{4.3}^{L}$	$I_{4.7}^{L}$	4.6	4.5	$I_{4.5}^{A}$	$I_{4.4}^{A}$	4.5	L	A	A					
30							L	L	4.1	$I_{4.3}^{A}$	A	4.6	A	A	R	$I_{4.3}^{A}$	4.3	$I_{4.0}^{L}$	3.2					
31								L	3.9	4.2	4.5	A	A	4.5	4.4	4.3	$I_{4.1}^{A}$	$I_{3.8}^{A}$	L					
No.								8	19	19	19	22	21	17	18	23	22	18	12					
Median								$^{U}3.7$	4.0	4.3	4.4	4.6	4.6	4.5	4.5	4.4	4.2	4.0	3.6					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

foF1

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

IONOSPHERIC DATA

Aug. 1963 | foE | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' 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	A	2.65	3.05	3.10	C	C	C	C	C	$I_{3.10}^{C}$	2.85	2.10					
2							S	A	2.80	A	C	A	A	C	C	3.30^{C}	3.05	2.60	S					
3							S	$I_{2.10}^{S}$	$I_{2.70}^{S}$	$I_{3.00}^{S}$	C	S	C	C	S	C	3.05	2.85	2.30					
4							S	A	2.75	2.95	3.00	A	C	C	3.50	3.35	3.20	2.80	2.20					
5							S	A	A	C	A	A	C	3.30	3.45	3.40	3.10	2.70	2.10					
6							S	2.25	2.70	3.05	3.20	3.10	3.10	C	A	A	$I_{3.00}^{C}$	2.70	2.20					
7							S	$I_{2.30}^{A}$	A	A	A	A	A	C	A	3.30	3.05	2.70	2.20^{C}					
8							S	A	A	A	3.10	3.10	3.30	A	A	A	A	2.70	2.10					
9							A	2.20	2.65	A	A	A	A	A	A	3.20^{R}	3.10	2.70	2.15					
10							S	2.30	A	A	A	A	A	A	R	$I_{3.30}^{R}$	3.05	2.80	2.10					
11							S	2.30	2.70	3.00	$I_{3.10}^{A}$	3.10	$I_{3.30}^{A}$	3.40	3.35	3.25	3.00	2.70	2.15					
12							S	A	A	$I_{3.00}^{A}$	3.20	R	R	A	A	A	$I_{3.05}^{A}$	2.60	2.10					
13							S	2.10	2.50	2.90	3.00	A	A	A	A	A	2.70	2.50	2.10					
14							S	A	$I_{2.45}^{A}$	2.90	$I_{3.10}^{A}$	3.30	3.30	3.30^{R}	3.30	3.20	3.00	2.70	S					
15							S	2.20	2.65	3.05	3.20	$I_{3.15}^{R}$	3.10	3.10	3.30	3.30	3.10	2.70	2.20	S				
16							S	2.20	2.80	3.00	3.10	3.05	$I_{3.10}^{A}$	3.20	3.10	3.10	3.05	2.50	A					
17							S	2.20	2.70	3.05	3.15	$I_{3.20}^{R}$	A	A	A	A	A	A	A					
18							S	2.50^{H}	2.80	3.10	$I_{3.30}^{R}$	$I_{3.45}^{R}$	$I_{3.50}^{R}$	$I_{3.40}^{A}$	$I_{3.35}^{A}$	3.20	3.10	A	A					
19							S	2.20	2.60	2.95	A	A	A	A	A	3.15	2.85	2.70	2.00					
20							S	A	A	A	A	A	A	3.50^{R}	3.40	3.20	3.10	2.50	1.80					
21							S	A	A	A	A	A	A	A	A	A	C	2.60	A					
22							S	2.10	2.55	A	A	A	A	A	A	A	A	A	A					
23							S	2.25	2.70	3.00	3.10	3.15	$I_{3.20}^{R}$	3.20	A	A	A	A	A					
24							S	A	2.70	3.10	$I_{3.30}^{C}$	$I_{3.35}^{A}$	$I_{3.40}^{C}$	$I_{3.50}^{C}$	3.40	3.40	3.15	2.70	2.15					
25							S	2.20	2.60	3.05	$I_{3.20}^{C}$	3.20	C	C	C	C	C	A	C					
26							S	2.05	$I_{2.50}^{A}$	2.90	C	A	A	A	3.40	3.20	3.00	2.50	2.00					
27							S	2.10	A	A	A	A	A	$I_{3.45}^{A}$	3.40	3.20	3.05	2.50	2.00					
28							A	2.20	2.65	A	A	A	A	A	A	A	A	A	A					
29							S	2.20	2.60	2.90	3.00	3.20	$I_{3.30}^{A}$	3.40	$I_{3.35}^{A}$	3.10	2.90	2.50	1.70					
30							S	2.10	2.50	2.80	2.95	3.10	R	A	3.30	3.20	2.95	2.55	1.90					
31							S	1.80	2.40	A	A	A	A	R	A	3.20	2.90^{H}	2.45	1.80					
No.								21	23	19	17	13	10	11	13	19	24	25	21					
Median								2.20	2.65	3.00	3.10	3.15	U3.30	3.40	3.35	3.20	3.05	2.70	2.10					
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

foE

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

Y 3

IONOSPHERIC DATA

Aug. 1963 | foEs | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N / Long. 130°37.7' 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	5.9M	3.1	S	3.1	S	3.0	J2.9	J5.1	J5.2	J5.3	J5.5	C	C	6.3	7.0	4.8	G	3.9	5.0	5.0	4.9	4.3M	3.2M	2.9
2	4.4	5.8	5.8	J3.3	3.1	2.7	J3.3	3.0	3.3	3.3	4.6	4.7	4.9	J5.5	5.4	J5.8	7.3M	8.9M	J5.3	4.9	3.1M	5.9M	5.6M	5.9M
3	4.2M	2.6	3.0	3.5M	3.6	3.7	2.4	4.9	3.3	4.4	C	3.2G	C	3.9	4.6	J5.4	4.2	G	4.9	4.9	3.6M	5.9M	4.7	5.9M
4	5.8M	5.9M	3.9M	3.1	3.1	2.9	3.8	J5.3	4.3	5.3	J5.4	3.4	4.1	4.0	4.4	4.9	G	J4.8	2.7	3.1	5.0M	4.8	5.7M	4.4M
5	2.9	S	3.3	S	E	S	2.9M	J3.7	J5.3	C	4.6	J5.3	C	5.4	9.0M	6.4	9.1M	6.5	J5.4	2.1	J4.8	3.1	C	S
6	2.8	S	3.1M	3.1	3.2	3.1	S	3.9	11.4M	5.2	J5.4	J8.4	5.1	C	J5.0	J4.3	C	G	2.5	3.8	J2.2	3.1	3.1M	4.3M
7	3.6M	4.5M	J5.2	3.1	3.1	3.0	4.2M	J3.2	2.8	3.7	3.9	5.2	3.7	4.4	J4.1	4.3	J6.2	J4.2	2.7	S	2.4	S	2.0	S
8	3.5M	5.8M	3.8M	3.8	3.0	J5.4	3.1	5.1	5.0	J8.5	9.1	5.8	4.8	4.8	4.4	4.1	3.4	G	G	2.3	S	S	3.0	J5.3
9	J5.2	5.7	8.5	3.8M	3.0	3.1M	6.8M	6.6M	J10.2	18.0M	17.0M	12.1M	11.2M	J8.6	J10.0	J5.4	J5.3	3.6	2.8	J2.4	2.0	J8.4	3.6	2.4M
10	4.0M	3.2	3.2	3.6	J2.4	2.7	J2.4	3.1	4.2	4.0	4.1	J4.8	3.8	6.1M	3.0G	G	G	6.8M	2.5	1.9	3.0	J7.6	3.1	4.8M
11	4.2M	2.7	2.7	3.5	2.7	2.4	3.0	6.4	3.2	8.4M	J8.7	J7.2	J5.4	4.3	6.8	5.1	4.5	J4.8	5.9	J3.3	3.2	2.9	4.5M	3.7F
12	4.4	3.7	2.4	E	3.0	J3.0	2.8	J3.9	J5.2	J3.5	G	3.0G	3.0G	J4.6	J4.2	J5.4	3.5	3.5	2.9	2.4	S	4.0	S	5.7M
13	J2.3	3.1	2.6	2.8	5.7M	2.8	J4.0	2.9	6.0M	J5.1	J6.9	6.0	J12.8	J5.0	J5.4	J5.5	J5.4	12.7	J9.8	9.0M	10.6M	9.1M	9.0M	5.8M
14	2.8	J5.2	5.8	J6.5	J3.0	J3.0	J3.7	3.7	3.1	G	3.2	3.2G	G	G	2.4G	3.9	3.7	3.3	J3.6	3.1	2.5	3.0	S	J2.3
15	J3.4	S	S	2.8	E	2.4	J3.8	2.9	3.6	J4.8	4.7	3.5	3.7	3.7	J7.4	J7.5	J5.4	J5.4	2.1G	J2.3	J4.2	2.9	3.0	2.8
16	3.6M	3.1	5.7	J3.3	J3.3	2.8	2.7	J4.4	6.2M	8.6	J8.0	J8.5	11.2	13.3	3.5	3.4	J5.4	9.2M	J8.3	11.6	2.9	2.1	S	S
17	J5.3	3.0M	J2.9	J3.1	J2.3	2.9	J1.6S	J3.9	J4.3	J5.2	J5.5	J6.6	J5.5	J5.2	J7.4	J3.4	4.9	J7.1	6.0M	J3.8	3.0	3.5M	S	S
18	2.5	2.4	2.7	2.8	2.8	2.7	S	G	3.1	3.6	3.8	4.4	4.2	5.2	J5.2	J9.0	8.2	J8.4	6.0	J4.3	2.1	2.7	S	S
19	S	2.7	2.0	2.6	2.8	2.8	J3.8	J4.8	5.9	6.4M	J8.3	J9.8	J8.5	6.0	4.1	3.5	3.9	J4.4	J4.9	J4.5	J4.3	J3.1	3.6M	J5.2
20	J5.2	4.1M	5.9	2.8	3.0	2.8	2.8	J5.1	J5.3	J5.2	J8.4	5.0	3.7	4.8	J7.7	4.9	J4.5	J8.4	J5.3	3.6M	J5.2	11.6	3.7M	J5.1
21	J5.2	2.8	3.3	J4.7	2.9	3.0	2.9	2.7	J3.8	4.0	4.5M	4.0	J4.8	3.7	J4.0	3.7	3.5	J3.2	3.1	J4.2	3.7M	4.9	5.8	3.7
22	3.1M	2.4	2.8	E	S	2.2	S	2.3	3.1	3.2	J3.9	3.9	J4.6	J4.5	4.5	4.0	J3.6	J3.5	4.3	3.4	3.8M	3.6	J3.1	3.9
23	3.0	2.8	2.8	2.8	E	S	S	2.4	3.8	J4.8	4.8	3.8	3.8	J5.4	5.0	6.1M	5.3	3.7	3.1	2.2	C	S	2.3	5.7M
24	5.9M	2.8	3.6M	2.9	2.4	2.8	2.8	3.0	3.5	6.1	3.6	4.2	D3.0C	5.2	J6.0	4.7	J5.7	5.2	5.7M	J4.6	J5.2	8.4M	6.0M	5.7M
25	J5.1	4.7M	4.4M	3.7M	3.0	2.3	3.7	3.2	3.4	3.8	3.9	4.1	3.8	C	C	4.8	J11.4	J7.6	10.8	J8.3	8.9M	9.0M	9.0M	5.9M
26	5.9M	6.9M	6.0M	5.8	5.8	2.4	S	2.8	J4.1	4.9	J5.0	6.0M	11.7M	4.3M	2.9G	2.9G	G	3.1	2.5	3.1	J5.3	3.0	4.9	6.9M
27	2.8	3.8	3.9	3.3	2.7	S	S	2.1G	3.1	3.2	4.0	3.9	3.7	4.2	J4.6	2.6G	2.4G	2.8	2.7	1.9	2.3	S	J2.9	2.1
28	S	S	S	J2.7	1.5	2.3	2.3	2.4	2.9	3.5	4.5	J4.6	4.1	J5.1	3.9	3.5	J3.4	3.9	J4.1	J5.1	J2.9	5.5	3.3	3.6
29	3.2	3.2	2.7	2.5	J2.8	J2.9	2.9	3.1	3.1	4.0	J5.8	5.2	J4.5	4.8	4.7	J6.3	4.2	6.0	J8.4	10.3M	J9.7	3.4	2.1	2.0
30	5.7M	J8.3	2.4	E	2.2	2.5	S	3.2	5.9	J5.6	J8.0	J5.2	8.5	5.1	4.1	J5.1	4.3	3.8	3.5	6.7M	J2.8	J5.6	4.3M	3.0
31	3.6M	J2.2	J2.9	3.0	3.5M	3.5M	J2.4	5.0	3.8	3.1	J4.3	J8.4	7.3	3.0G	J4.1	3.6	J5.7	9.2M	2.8	J3.2	3.3M	2.6	3.5M	2.3
No.	29	27	28	30	29	28	24	31	31	30	30	30	27	29	30	31	30	31	31	30	28	27	25	26
Median	4.0	3.2	3.2	3.1	3.0	2.8	2.9	3.2	3.8	4.8	4.8	4.9	4.6	4.8	4.6	4.8	4.4	4.4	4.1	3.7	3.4	4.0	3.6	4.4
U.Q.	5.2	5.2	4.8	3.5	3.1	3.0	3.8	4.9	5.3	5.3	6.9	6.0	7.3	5.4	6.0	5.4	5.4	7.1	5.7	4.9	5.0	5.9	5.2	5.7
L.Q.	3.0	2.8	2.8	2.8	2.4	2.6	2.8	2.9	3.2	3.6	4.0	3.9	3.8	4.2	4.1	3.6	3.5	3.5	2.7	2.4	2.8	3.0	3.0	2.9
Q.R.	2.2	2.4	2.0	0.7	0.7	0.4	1.0	2.0	2.1	1.7	2.9	2.1	3.5	1.2	1.9	1.8	1.9	3.6	3.0	2.5	2.2	2.9	2.2	2.8

The Radio Research Laboratories, Japan

foEs

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

IONOSPHERIC DATA

Aug. 1963 | f_bEs | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	S	2.3	S	2.2	2.8	2.6	5.1	A	A	C	C	A	A	4.4		$E_{3.9}^{C}$	4.6	4.6	A	A	A	A
2	A	A	A	2.1	2.1	2.0	2.6	2.9	3.2	$E_{3.3}^{C}$	$E_{4.6}^{C}$	4.7	4.9	$E_{5.5}^{C}$	5.4	5.8	7.0	A	4.3	3.7	A	A	A	A
3	A	2.1	2.1	A	2.7	A	2.2	A	3.3	4.1	C	$E_{3.2}^{S}$	C	$E_{3.9}^{C}$	4.4	5.0	3.8		2.4	2.7	2.3	A	A	A
4	A	A	A	E	2.0	1.7	2.3	A	3.6	4.4	4.6	$E_{3.4}^{C}$	4.1	4.0	3.9	4.0		4.5	G	2.1	3.3	4.2	4.1	A
5	1.8	S	A	S		S	2.2	2.9	A	C	4.5	4.3	C	4.8	4.3	4.6	4.5	4.4	2.6	1.9	4.1	2.6	C	S
6	2.0	S	2.3	2.0	2.4	2.2	S	3.6	5.2	4.6	4.9	A	4.2	C	3.9	4.2	C		G	2.6	2.0	2.7	1.7	A
7	2.6	A	A	2.5	2.1	1.8	2.5	2.6	2.6	3.7	3.6	3.7	3.7	4.2	4.1	3.7	5.5	2.7	G	S	1.9	S	E	S
8	1.8	1.9	2.7	2.4	1.7	A	2.1	3.5	3.5	4.1	4.3	3.7	3.7	3.9	3.8	3.6	3.3			E	S	S	1.7	A
9	A	2.0	2.2	1.9	1.7	2.3	A	4.7	4.6	A	A	A	A	A	A	5.3	3.3	3.6	2.7	2.1	1.9	1.9	2.2	2.0
10	2.1	2.0	2.0	2.2	1.9	1.7	1.9	3.0	4.0	3.8	4.1	4.7	$E_{3.8}^{R}$	4.1	$E_{3.0}^{R}$			A	2.5	1.9	2.2	4.6	3.0	2.8
11	1.9	1.9	E	2.3	1.8	E	A	A	G	5.4	A	A	4.2	$E_{4.3}^{R}$	5.6	4.4	4.4	4.6	5.3	2.8	2.5	2.0	4.2	2.2
12	1.9	2.0	E		E	2.0	1.9	3.6	3.7	$E_{3.5}^{R}$		$E_{3.0}^{R}$	$E_{3.0}^{R}$	$E_{4.6}^{R}$	4.1	4.9	$E_{3.5}^{R}$	3.5	2.5	2.2	S	4.0	S	2.5
13	2.0	2.0	E	E	E	1.9	2.0	2.6	5.1	4.3	A	4.3	A	4.6	4.8	5.1	4.7	A	A	A	A	A	A	A
14	E	A	A	A	2.2	2.0	A	2.6	3.1		$E_{3.2}^{R}$	3.0^{G}			2.4^{G}	$E_{3.9}^{S}$	3.7	3.0	3.5	2.9	E	3.0	S	2.0
15	A	S	S	E		E	2.6	2.6	3.6	4.1	4.6	$E_{3.5}^{R}$	$E_{3.7}^{R}$	$E_{3.7}^{R}$	5.0	4.4	5.0	5.0	1.9^{G}	G	2.5	2.0	2.2	1.8
16	2.0	1.9	2.5	2.0	2.1	E	1.7	3.9	4.5	3.7	A	A	4.8	A	$E_{3.5}^{S}$	$E_{3.4}^{R}$	$E_{5.4}^{S}$	4.3	A	A	2.5	2.0	S	S
17	2.1	1.9	1.7	1.8	1.7	1.9	S	3.4	3.8	5.0	5.3	A	5.1	A	A	3.4	4.6	5.6	3.8	$E_{3.8}^{S}$	2.6	A	S	S
18	1.9	2.0	E	1.9	2.0	E	S		3.0	3.5	3.8	4.2	4.2	5.0	5.2	5.2	3.5	3.1	4.2	2.2	2.0	2.0	S	S
19	S	1.9	2.0	1.8	2.0	2.0	A	4.4	A	4.3	3.9	4.7	5.3	3.8	$E_{4.1}^{R}$	3.5	3.5	3.5	4.2	4.4	4.3	A	2.2	A
20	2.2	A	1.9	2.2	1.6	2.2	G	A	4.2	A	3.7	4.1	$E_{3.7}^{R}$	4.6	5.7	4.0	4.4	3.5	5.1	3.4	A	A	2.2	1.9
21	A	E	2.3	A	1.8	E	2.4	$E_{2.7}^{C}$	3.4	3.4	3.6	3.9	3.9	3.6	$E_{4.0}^{C}$	$E_{3.7}^{C}$	$E_{3.5}^{C}$	2.1	2.8	4.2	2.3	4.0	4.6	1.9
22	E	1.9	E		S	2.0	S	G	2.9	3.2	3.9	3.9	4.1	3.9	4.1	3.7	3.2	3.2	4.0	2.8	$E_{3.8}^{S}$	3.1	2.6	2.3
23	1.9	E	E	1.9		S	S	G	$E_{3.8}^{C}$	4.5	4.8	$E_{3.8}^{R}$	$E_{3.8}^{R}$	5.4	$E_{5.0}^{C}$	3.5	3.4	3.2	2.6	E	C	S	2.0	2.7
24	A	1.9	1.8	2.0	1.8	E	1.8	$E_{3.0}^{C}$	3.1	5.8	3.6	4.1	$D_{3.0}^{C}$	5.2	5.6	4.4	4.8	4.2	5.3	4.5	4.5	A	A	2.4
25	A	A	1.8	2.0	1.8	E	2.2	3.1	3.3	3.6	3.9	4.1	$E_{3.8}^{C}$	C	C	3.9	6.8	6.5	A	A	A	A	A	A
26	A	A	A	A	A	1.9	S	2.6	3.7	4.9	4.6	4.5	A	4.0	2.5^{G}	2.0^{G}		3.0	2.4	A	2.7	2.0	1.9	A
27	E	A	2.6	1.9	E	S	S	1.8^{G}	2.9	3.2	3.8	3.9	$E_{3.7}^{R}$	4.2	4.0	2.4^{G}	2.3^{G}	G	G	E	E	S	A	E
28	S	S	S	1.7	1.3	1.5	1.9	2.4	G	3.5	3.7	4.2	4.0	4.3	3.7	3.5	3.2	3.5	3.7	4.7	2.6	3.1	2.0	3.1
29	2.0	1.9	1.9	1.8	2.0	1.8	A	G	3.0	3.6	3.9	4.1	3.6	4.6	4.6	4.4	4.1	4.6	4.4	A	A	E	E	E
30	1.7	1.8	E		1.6	E	S	3.1	3.5	5.5	4.5	4.4	A	5.0	4.1	4.9	3.2	G	2.6	2.0	E	2.7	1.9	1.8
31	2.4	1.8	1.7	1.8	E	E	1.9	3.3	3.2	$E_{3.1}^{R}$	3.6	A	A	$E_{3.0}^{R}$	3.8	3.5	4.2	4.1	2.2	$E_{3.2}^{S}$	2.5	1.9	2.0	1.7
No.																								
Median																								
U.Q.																								
L.Q.																								
Q.R.																								

f_bEs

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

The Radio Research Laboratories, Japan

Y 5

IONOSPHERIC DATA

Aug. 1963 | f-min | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' 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	$E_{2.00}^{S}$	$E_{1.90}^{S}$	$E_{2.20}^{S}$	$E_{2.00}^{S}$	$E_{2.00}^{S}$	$E_{2.05}^{S}$	$E_{1.80}^{S}$	1.90	2.25	2.40	2.40	C	2.90	$E_{4.50}^{C}$	$E_{3.80}^{C}$	2.40	2.30	2.25	2.00	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{2.20}^{S}$	$E_{1.90}^{S}$	$E_{2.20}^{S}$
2	$E_{1.80}^{S}$	$E_{2.05}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{2.00}^{S}$	$E_{1.60}^{S}$	$E_{2.30}^{S}$	$E_{1.60}^{S}$	1.80	2.20	$E_{4.10}^{C}$	2.30	2.50	2.40	2.30	2.10	2.30	2.00	2.00	$E_{1.70}^{S}$	$E_{1.90}^{S}$	$E_{1.90}^{S}$	$E_{1.90}^{S}$	$E_{1.70}^{S}$
3	$E_{1.90}^{S}$	$E_{2.00}^{S}$	$E_{1.75}^{S}$	$E_{1.70}^{S}$	$E_{2.10}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{S}$	2.20	$E_{2.60}^{S}$	2.40	$E_{4.00}^{C}$	2.30	$E_{4.10}^{C}$	2.80	2.50	2.35	1.70	$E_{1.60}^{S}$	1.40	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.65}^{S}$	$E_{1.60}^{S}$	$E_{1.80}^{S}$
4	$E_{1.60}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{S}$	1.10	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	1.90	1.80	2.30	2.20	2.40	2.30	2.20	2.25	$E_{1.60}^{S}$	1.30	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$
5	$E_{1.60}^{S}$	$E_{1.90}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.30	$E_{2.05}^{S}$	$E_{1.60}^{S}$	1.05	1.70	$I_{1.80}^{C}$	2.05	2.25	$I_{1.75}^{C}$	1.80	2.25	1.70	1.70	1.60	1.65	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	C	$E_{2.00}^{S}$
6	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	1.30	$E_{1.60}^{S}$	$E_{1.80}^{S}$	1.85	1.90	1.80	1.90	2.00	2.40	$I_{2.05}^{C}$	1.65	1.80	$I_{1.60}^{C}$	1.60	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.80}^{S}$	$E_{1.65}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$
7	$E_{1.65}^{S}$	1.35	$E_{1.60}^{S}$	E	E	$E_{1.60}^{S}$	$E_{1.65}^{S}$	$E_{1.60}^{S}$	1.65	1.60	1.85	1.70	1.90	2.35	2.35	1.90	1.60	1.40	1.60	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{2.00}^{S}$
8	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	E	1.10	$E_{1.65}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.40	1.60	1.70	1.85	1.80	1.80	1.90	2.00	1.60	1.80	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$
9	$E_{1.90}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	1.40	E	1.30	1.30	1.40	1.70	1.90	1.95	2.00	1.95	2.20	1.90	2.20	1.80	1.80	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.80}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$
10	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	E	1.10	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.65}^{S}$	2.35	2.00	2.05	2.20	2.30	1.90	2.05	2.00	1.75	1.60	$E_{1.65}^{S}$	$E_{1.70}^{S}$	$E_{1.65}^{S}$	$E_{1.90}^{S}$	$E_{1.75}^{S}$	$E_{1.90}^{S}$
11	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	1.10	1.05	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.50}^{S}$	1.70	1.65	1.85	2.05	2.00	2.10	2.00	1.85	1.80	1.90	$E_{1.65}^{S}$	1.90	$E_{1.70}^{S}$	$E_{1.50}^{S}$	$E_{1.70}^{S}$	$E_{1.65}^{S}$
12	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.80}^{S}$	1.20	1.05	$E_{1.60}^{S}$	$E_{1.65}^{S}$	1.65	1.65	1.70	1.90	1.90	2.20	2.10	2.00	1.70	1.60	1.65	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$
13	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	1.20	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.70	1.90	1.95	2.00	1.90	2.00	1.90	1.70	1.70	1.80	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$
14	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	1.10	E	$E_{1.65}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.90	1.90	1.90	2.00	1.90	2.00	1.90	2.00	1.70	1.80	$E_{1.75}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$
15	$E_{1.65}^{S}$	$E_{1.80}^{S}$	$E_{1.60}^{S}$	$E_{1.90}^{S}$	1.05	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.90	2.05	2.05	2.20	2.00	1.75	2.10	1.90	1.80	1.30	1.40	$E_{1.65}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$
16	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.80}^{S}$	1.20	1.40	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.60	2.00	2.15	1.90	2.20	2.05	2.20	2.00	1.70	1.60	$E_{1.65}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{2.00}^{S}$
17	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	1.10	1.10	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	1.80	1.70	2.00	2.20	2.10	2.20	2.00	1.65	1.60	1.85	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{2.00}^{S}$	$E_{1.80}^{S}$
18	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	1.20	$E_{1.65}^{S}$	$E_{1.70}^{S}$	1.30	1.60	1.90	2.10	2.10	2.10	2.00	2.00	2.00	1.95	1.80	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{S}$	$E_{2.10}^{S}$	$E_{2.00}^{S}$
19	$E_{1.80}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	1.10	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	1.60	1.90	1.85	2.00	2.20	2.20	1.95	1.90	2.10	1.90	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{S}$	$E_{1.80}^{S}$	$E_{1.90}^{S}$	$E_{1.70}^{S}$
20	$E_{1.70}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	E	1.10	$E_{1.90}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	1.80	2.00	2.00	1.70	2.05	2.20	2.00	1.90	1.65	1.60	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{2.00}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$
21	$E_{1.80}^{S}$	$E_{1.90}^{S}$	$E_{1.65}^{S}$	E	E	$E_{1.60}^{S}$	1.80	1.80	1.80	1.80	2.00	2.40	2.20	2.10	2.50	2.30	2.25	1.70	$E_{1.65}^{S}$	$E_{1.70}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$
22	$E_{1.80}^{S}$	$E_{1.65}^{S}$	$E_{1.90}^{S}$	1.00	$E_{2.00}^{S}$	$E_{1.80}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	1.75	1.90	2.10	2.30	2.20	2.00	2.20	1.95	1.75	$E_{1.70}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{S}$	$E_{1.80}^{S}$	$E_{1.80}^{S}$	$E_{1.65}^{S}$
23	$E_{1.80}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	1.35	1.15	$E_{1.80}^{S}$	$E_{1.80}^{S}$	1.90	1.70	1.85	2.30	2.30	2.30	2.30	2.50	2.10	1.85	1.90	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{2.60}^{C}$	$E_{1.90}^{S}$	$E_{1.90}^{C}$	$E_{2.00}^{C}$
24	$E_{1.70}^{S}$	$E_{1.50}^{S}$	$E_{1.70}^{S}$	1.20	1.15	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.85}^{C}$	1.75	2.00	2.00	2.30	2.25	2.40	2.30	2.30	1.70	$E_{1.50}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{C}$	$E_{1.80}^{S}$	$E_{1.90}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$
25	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	E	1.10	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.50}^{S}$	1.70	2.10	2.30	2.10	$E_{3.45}^{C}$	$E_{4.90}^{C}$	$E_{4.80}^{C}$	2.10	$E_{2.40}^{C}$	$E_{2.20}^{C}$	$E_{2.00}^{C}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{S}$	$E_{1.80}^{S}$	$E_{1.80}^{S}$
26	$E_{1.95}^{S}$	$E_{1.90}^{S}$	$E_{1.70}^{S}$	1.30	1.15	$E_{1.80}^{S}$	$E_{1.80}^{S}$	$E_{1.70}^{S}$	1.80	2.10	2.30	2.00	2.40	2.25	1.95	1.70	1.90	1.90	$E_{1.80}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.90}^{S}$	$E_{1.85}^{S}$	$E_{1.70}^{S}$
27	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.80}^{S}$	$E_{1.65}^{S}$	$E_{1.70}^{S}$	1.70	2.00	2.00	2.00	2.20	2.10	1.80	1.80	1.80	1.70	1.40	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	$E_{1.70}^{S}$
28	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.80}^{S}$	E	E	E	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.80	1.80	1.85	1.80	2.20	1.80	2.20	1.90	1.80	1.65	1.70	$E_{1.70}^{S}$	E	E	$E_{1.70}^{S}$	$E_{1.70}^{S}$
29	E	$E_{1.60}^{S}$	1.10	E	E	$E_{1.65}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.60	1.80	1.80	1.90	2.00	1.95	1.80	1.80	1.80	1.65	$E_{1.60}^{S}$	$E_{1.65}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.65}^{S}$	$E_{1.70}^{S}$
30	$E_{1.60}^{S}$	E	$E_{1.70}^{S}$	1.30	E	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	1.65	1.70	1.80	1.80	1.90	1.75	1.80	1.80	1.80	1.40	$E_{1.70}^{S}$	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	1.20	$E_{1.70}^{S}$
31	$E_{1.60}^{S}$	$E_{1.60}^{S}$	1.00	1.00	E	$E_{1.70}^{S}$	$E_{1.60}^{S}$	$E_{1.70}^{S}$	1.60	1.75	1.80	1.70	1.85	1.90	1.80	1.70	1.70	1.60	1.00	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$	$E_{1.60}^{S}$
No.	31	31	31	19	26	31	31	31	30	31	29	30	29	29	29	31	30	30	31	31	31	31	30	31
Median	$E_{1.70}$	$E_{1.70}$	$E_{1.70}$	1.00	1.10	$E_{1.65}$	$E_{1.70}$	$E_{1.65}$	1.70	1.90	2.00	2.00	2.20	2.10	2.00	1.90	1.80	$E_{1.70}$	$E_{1.70}$	$E_{1.70}$	$E_{1.70}$	$E_{1.70}$	$E_{1.70}$	$E_{1.70}$
U.Q.																								
L.Q.																								
Q.R.																								

f-min

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

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Aug. 1963 | M(3000)F2 | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	S	S	S	S	S	3.50^{S}	$J_{3.45}^{S}$	A	$I_{3.10}^{A}$	$I_{3.10}^{S}$	$I_{3.00}^{C}$	2.85	$I_{3.10}^{S}$	$I_{3.05}^{A}$	2.90	2.75	S	S	S	S	S	S	S
2	S	A	A	S	$J_{3.20}^{S}$	$I_{3.05}^{S}$	3.30	3.55	$I_{3.65}^{S}$	3.05	$I_{3.05}^{C}$	2.90	2.65	2.95	$I_{2.95}^{S}$	$I_{3.00}^{S}$	3.00	A	S	S	S	S	S	A
3	S	S	S	S	S	$I_{3.35}^{A}$	$J_{3.35}^{S}$	$I_{3.40}^{S}$	S	3.30	2.95	2.55	$I_{2.60}^{S}$	$I_{2.90}^{S}$	$J_{2.90}^{S}$	$I_{3.00}^{S}$	3.00^{S}	$I_{3.05}^{S}$	$I_{3.15}^{S}$	S	S	S	S	A
4	A	A	S	S	3.30^{S}	3.30	3.35	$I_{3.60}^{S}$	3.35	3.10	2.90^{S}	$I_{2.95}^{S}$	2.95	$I_{3.00}^{S}$	2.85^{S}	$J_{2.90}^{S}$	3.20	$I_{3.15}^{S}$	3.30	S	S	3.00	S	S
5	S	S	S	2.90	3.15	3.25^{S}	$J_{3.30}^{S}$	3.60	$I_{3.00}^{S}$	$I_{3.00}^{C}$	$I_{3.15}^{S}$	2.85	$I_{2.85}^{C}$	$J_{2.85}^{S}$	2.95	3.00	3.05	$J_{3.05}^{S}$	3.15^{S}	$I_{3.35}^{S}$	3.30	$J_{3.05}^{S}$	C	S
6	S	S	S	S	S	3.25	3.35	3.30	$I_{3.40}^{S}$	3.35	3.25	$I_{3.05}^{A}$	2.90	$I_{2.75}^{C}$	$J_{2.75}^{S}$	2.90	$I_{2.95}^{C}$	$J_{3.10}^{S}$	$I_{2.95}^{S}$	$I_{3.05}^{S}$	3.35^{S}	$I_{3.55}^{S}$	$J_{3.00}^{S}$	$I_{2.95}^{S}$
7	$J_{2.75}^{S}$	S	A	S	S	S	3.05	3.35	3.65	3.45	3.00	2.75	2.80	2.80^{S}	2.95	2.90	3.15	$J_{3.35}^{S}$	$J_{3.35}^{S}$	3.35	3.05	2.75	3.05	$J_{3.05}^{S}$
8	F	S	S	$I_{3.05}^{S}$	$I_{3.10}^{S}$	$I_{3.35}^{A}$	3.30	3.40	$J_{3.40}^{S}$	3.60	2.70	3.15	3.25	2.80	3.10^{S}	3.25	3.00	2.95	3.05^{S}	$J_{3.25}^{S}$	$I_{3.20}^{S}$	3.30^{S}	3.15	F
9	S	$J_{3.20}^{S}$	$I_{3.15}^{S}$	$I_{3.20}^{S}$	$J_{3.10}^{S}$	$I_{3.20}^{S}$	$I_{3.25}^{A}$	3.15	3.45^{S}	A	A	$I_{2.90}^{A}$	$I_{2.95}^{A}$	$I_{2.65}^{A}$	$I_{2.80}^{A}$	2.90	$J_{2.75}^{S}$	$J_{2.90}^{S}$	3.05	$J_{3.15}^{S}$	$J_{3.05}^{S}$	$I_{3.00}^{S}$	$I_{3.30}^{S}$	S
10	S	S	S	3.25^{S}	3.25	3.05	3.20^{S}	3.30	3.60	3.40	3.45	2.65	2.90	3.10	3.20	2.95	$J_{3.15}^{S}$	$I_{3.00}^{A}$	$I_{3.10}^{S}$	S	S	S	S	S
11	S	S	S	S	F	F	3.65	$I_{3.20}^{A}$	$J_{3.40}^{S}$	$I_{3.50}^{S}$	$I_{3.20}^{A}$	$I_{3.10}^{A}$	3.15	3.00	3.05	3.10	3.00	3.15	3.05	$J_{2.90}^{S}$	$J_{3.10}^{S}$	$J_{3.50}^{S}$	3.40	3.35
12	2.90	3.10	3.05	2.90^{F}	2.85^{F}	3.05^{F}	3.35^{S}	3.45	3.80	3.25	2.95	3.10	$I_{2.90}^{R}$	$J_{3.10}^{R}$	2.55	2.85	$I_{2.95}^{S}$	3.10^{S}	3.25^{S}	$I_{3.05}^{S}$	$I_{3.15}^{S}$	$U_{3.25}^{S}$	$I_{3.00}^{S}$	S
13	F	3.20^{S}	F	S	$I_{3.10}^{S}$	$I_{3.20}^{S}$	$J_{3.35}^{S}$	3.55	$I_{3.70}^{S}$	3.75	$I_{3.40}^{A}$	3.05	$I_{2.95}^{A}$	$J_{2.85}^{R}$	2.95	3.00	3.00	A	$I_{3.15}^{A}$	$I_{3.30}^{A}$	A	A	A	A
14	$J_{3.00}^{S}$	A	A	$I_{3.25}^{A}$	$I_{3.30}^{S}$	$I_{3.40}^{S}$	$I_{3.40}^{S}$	3.75	3.60^{S}	3.35	3.15	2.95	3.00	3.15	3.05	3.00	$J_{3.10}^{S}$	3.30	$I_{3.30}^{S}$	3.35	3.00	3.15	3.40^{S}	$J_{3.10}^{S}$
15	$I_{3.20}^{S}$	S	S	S	S	3.55^{F}	$J_{3.35}^{S}$	3.40^{S}	3.55	$U_{3.60}^{S}$	3.30	3.15	3.25^{S}	$I_{3.00}^{R}$	2.85	2.95	3.10	2.95	$J_{3.10}^{S}$	$J_{3.00}^{S}$	$J_{3.35}^{S}$	$J_{3.65}^{S}$	$J_{3.05}^{S}$	$I_{3.00}^{S}$
16	3.05	S	S	S	S	F	3.40	3.70	$I_{3.60}^{S}$	3.75	$I_{3.55}^{A}$	$I_{3.40}^{A}$	3.00	$I_{3.00}^{A}$	3.05	$J_{2.95}^{S}$	2.95	3.15	$I_{3.10}^{S}$	$I_{3.25}^{A}$	$I_{3.40}^{S}$	$I_{3.60}^{S}$	$J_{3.15}^{S}$	$I_{3.00}^{S}$
17	$I_{2.95}^{S}$	$I_{2.95}^{S}$	$J_{3.20}^{S}$	$J_{3.35}^{S}$	3.80^{F}	3.35	3.20	3.35^{S}	$I_{3.45}^{S}$	$J_{3.55}^{S}$	A	$I_{3.25}^{A}$	3.00	$I_{2.90}^{S}$	$I_{3.05}^{A}$	$J_{3.05}^{S}$	$I_{3.05}^{S}$	$J_{3.05}^{S}$	$J_{3.05}^{S}$	$I_{2.95}^{S}$	3.25	$I_{3.60}^{S}$	$J_{2.95}^{S}$	$J_{3.20}^{S}$
18	3.05	2.95^{S}	$J_{3.10}^{S}$	$J_{3.15}^{S}$	3.05	3.25^{S}	3.80	$I_{3.90}^{S}$	3.55	3.40	3.15	2.90	$I_{3.00}^{S}$	2.85	$J_{2.90}^{S}$	3.05	2.90	$J_{2.75}^{S}$	3.25^{S}	$J_{3.45}^{S}$	3.35	$I_{3.20}^{S}$	$J_{2.95}^{S}$	3.00
19	2.85	$I_{2.95}^{S}$	3.00	$I_{2.95}^{S}$	$J_{3.05}^{S}$	3.15	$I_{3.00}^{S}$	$I_{3.30}^{S}$	$I_{3.35}^{S}$	3.10^{S}	3.25	2.90	3.05	3.10	3.10	3.00	3.10	3.05	3.30	$I_{3.35}^{S}$	3.40	$I_{3.30}^{S}$	$I_{3.10}^{S}$	$I_{3.10}^{A}$
20	$J_{3.15}^{S}$	$I_{2.80}^{A}$	2.50	3.15	3.25^{F}	2.95	3.00	3.90	3.55	$I_{3.45}^{S}$	2.80	3.00	2.60	2.80	2.90	3.10	3.10	3.30	$J_{3.05}^{S}$	S	S	A	$J_{2.80}^{S}$	$J_{2.85}^{S}$
21	$I_{2.90}^{A}$	$J_{2.85}^{S}$	3.50	$I_{2.95}^{A}$	$I_{2.85}^{F}$	$I_{2.90}^{F}$	3.20	$I_{3.60}^{S}$	3.65	3.10	3.15	3.20	3.25	3.00	$J_{3.05}^{S}$	$J_{3.35}^{S}$	3.00	2.95	3.00	$I_{3.25}^{S}$	$I_{3.25}^{S}$	S	S	3.35
22	2.80	2.90	2.80	3.10	3.00	3.45	3.45^{S}	3.65	3.20	3.20^{S}	3.20	$J_{2.90}^{S}$	3.05	$J_{2.95}^{S}$	$J_{3.00}^{S}$	$J_{3.15}^{S}$	$J_{3.20}^{S}$	3.20	3.25	3.35	$I_{3.20}^{S}$	3.10^{S}	$J_{3.10}^{S}$	3.00
23	$J_{3.20}^{S}$	$J_{3.00H}^{S}$	3.05^{S}	3.15	3.20	3.05^{F}	$J_{3.20}^{S}$	$J_{3.75}^{S}$	3.55	3.50	3.05	3.00	2.95	2.65	2.95	2.60	2.95	$I_{3.35}^{C}$	3.40	$I_{3.40}^{S}$	$J_{3.10}^{S}$	$I_{2.90}^{S}$	$I_{2.85}^{C}$	$I_{2.85}^{S}$
24	$I_{2.95}^{A}$	3.00	3.00^{S}	3.30^{S}	3.10^{S}	$I_{3.10}^{S}$	3.40	$I_{3.50}^{C}$	3.65	A	3.45	3.30	3.20	$J_{3.00}^{S}$	3.05	3.15	3.10	3.25^{S}	$I_{3.20}^{S}$	3.15^{S}	$I_{3.35}^{S}$	A	A	S
25	3.45^{S}	A	S	S	$J_{3.15}^{S}$	$I_{3.15}^{S}$	3.45	$I_{3.60}^{S}$	3.70	3.50	3.15	3.10	$J_{2.95}^{C}$	3.00	3.00	3.15	$J_{3.10}^{C}$	3.40	$I_{3.35}^{A}$	$I_{3.40}^{A}$	A	A	A	A
26	A	A	A	A	$I_{3.45}^{A}$	3.15^{F}	$I_{3.30}^{S}$	3.40	$I_{3.50}^{S}$	3.50	3.10	3.20	$I_{3.10}^{A}$	2.80	2.80	3.10	$J_{2.90}^{S}$	2.90^{S}	3.20	$I_{3.40}^{S}$	$I_{3.40}^{S}$	3.25	S	A
27	F	A	$I_{3.00}^{S}$	3.20^{S}	3.30^{F}	3.25^{F}	3.25	$I_{3.60}^{S}$	3.75^{S}	3.55	$I_{3.40}^{S}$	3.05	3.05^{S}	$J_{3.10}^{S}$	3.00^{S}	3.00^{S}	$J_{3.10}^{S}$	$I_{3.35}^{S}$	3.20	$J_{3.15}^{S}$	3.25^{S}	3.40^{S}	$I_{3.20}^{S}$	2.85
28	$I_{3.00}^{S}$	2.90	2.80^{S}	2.95	3.05	$I_{3.20}^{S}$	3.30	S	3.60	3.25^{S}	3.30	3.05	3.15	3.00	3.10	3.05	$I_{3.10}^{S}$	$J_{3.15}^{S}$	$I_{3.40}^{S}$	$I_{3.50}^{S}$	3.15	$I_{2.80}^{S}$	$I_{2.80}^{S}$	3.05^{S}
29	$J_{3.15}^{S}$	3.05	$J_{3.35}^{S}$	$J_{2.95}^{S}$	2.95	$J_{3.15}^{S}$	$I_{3.00}^{S}$	3.40	$J_{3.75}^{S}$	3.20^{Z}	2.85	3.15	3.20	3.00	3.20	$J_{3.40}^{S}$	3.15	3.15	$J_{3.25}^{S}$	A	A	2.95	$J_{3.20}^{S}$	$I_{3.00}^{S}$
30	$J_{3.00}^{S}$	$J_{2.95}^{S}$	$I_{2.90}^{S}$	F	3.45	3.25^{F}	3.10	3.30^{S}	$J_{3.70}^{S}$	3.70	$J_{3.40}^{S}$	3.10	$I_{3.10}^{A}$	2.80	3.05^{S}	3.20	3.30	$I_{3.35}^{S}$	$I_{3.50}^{S}$	3.10	3.20	2.90	3.15	$J_{3.15}^{S}$
31	$I_{3.05}^{S}$	$I_{2.95}^{S}$	2.95^{S}	3.05^{S}	F	2.95	3.50	3.55	3.75	3.75	3.65	$I_{3.20}^{A}$	$I_{3.10}^{A}$	3.05	3.20^{S}	3.30	$J_{3.20}^{S}$	3.20^{S}	S	S	S	$J_{3.30}^{S}$	3.05^{S}	$I_{3.10}^{S}$
No.	18	15	15	18	23	27	31	30	29	29	29	31	31	31	31	31	31	28	28	23	21	22	20	18
Median	3.00	2.95	3.00	3.10	3.15	3.20	3.30	3.50	3.60	3.40	3.15	3.05	3.00	3.00	3.00	3.00	3.05	3.15	3.20	$U_{3.25}$	3.25	3.20	3.10	3.00
U.Q.																								
L.Q.																								
Q.R.																								

M(3000)F2

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

The Radio Research Laboratories, Japan

Y 7

IONOSPHERIC DATA

Aug. 1963 | M(3000)F1 | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' 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	A	A	A	C	C	A	A	A	C	C	A					
2							L	$I_{3.65}$ L	3.90	L	A	$I_{3.80}$ A	A	A	A	A	A	A	A					
3								$I_{3.65}$ A	3.70	L	4.05	$I_{4.00}$ S	3.85 H	$I_{3.70}$ S	A	A	3.45	3.45 H	3.35					
4								A	L	A	A	3.70	3.85	3.90	3.70	3.60	3.60	A	3.45					
5							S	3.75	A	C	A	A	C	A	A	A	A	A	3.55					
6								A	$I_{3.70}$ A	$I_{3.80}$ A	A	A	3.80	$I_{3.80}$ C	3.90	A	$I_{3.55}$ C	3.60	3.45					
7								$I_{3.60}$ L	3.80	3.90	4.10	3.75	4.00	A	3.60	3.70	A	3.75	L					
8								L	3.75	A	3.45	4.20	4.00 H	3.90	3.85	3.65	3.65	3.65	3.45					
9								A	A	A	A	A	A	A	A	$I_{3.70}$ A	3.45	3.50	3.45					
10								3.55	A	3.75	3.70	$I_{3.80}$ A	4.10	4.00	3.20	3.75	3.60 R	$I_{3.50}$ A	3.55					
11								A	3.60	A	A	A	A	A	A	A	A	A	A					
12								A	A	4.00 H	$I_{4.15}$ R	4.10	$I_{4.05}$ R	A	3.35	A	R	3.60 S	3.60					
13								L	$I_{3.90}$ A	A	A	A	A	A	A	A	A	A	A					
14								3.90	3.85	$I_{3.85}$ L	3.95	4.15 H	3.70	3.75	$I_{4.00}$ S	$I_{3.80}$ S	A	3.70	A					
15								3.70	3.85	A	$I_{4.10}$ A	3.90 H	$I_{4.20}$ R	$I_{4.00}$ R	A	A	A	A	3.55 H	L				
16								A	A	3.90	A	A	A	A	3.70	3.65 H	$I_{3.65}$ A	A	A					
17								L	A	A	A	A	A	A	$I_{3.55}$ A	3.80	A	A	A					
18								L	4.10	3.80	L	3.70	3.20	A	A	A	3.25	3.40	A					
19								A	A	A	3.65	A	A	3.90	A	3.55 H	3.60	3.45	A					
20								L	A	A	4.00	3.25	$I_{3.70}$ R	A	A	A	A	3.55	A					
21									L	$I_{3.85}$ L	3.85	3.80	3.70	3.80	A	$I_{3.80}$ C	C	L	L					
22								L		3.65	4.00	3.65	3.90	4.00	3.95	3.90	3.70	S	A					
23								L	A	A	A	3.85	3.90	A	A	3.70	3.75	3.55	L					
24								L	L	A	4.20	$I_{4.20}$ C	3.70	A	A	A	A	A	A					
25								L	3.85	3.85	3.85	3.65	$I_{3.80}$ C	$I_{3.75}$ C	$I_{3.90}$ C	3.50	A	A	A					
26								L	3.95	AH	A	A	$I_{3.90}$ A	3.85	3.80	3.70	3.55	3.55	L					
27								L	L	4.05	3.75	3.85	4.10 H	3.55	3.75	3.75 H	3.70	3.60	L					
28									L	3.65	$I_{4.05}$ L	A	4.05 H	A	3.85	3.65	3.70	3.50	A					
29								L	3.95	$I_{3.85}$ L	$I_{3.60}$ L	3.90	4.05	A	A	A	L	A	A					
30							L	L	3.85	A	A	A	A	A	R	$I_{3.70}$ A	3.50	L	3.95					
31								L	4.05	4.05	4.00	A	A	3.80	3.85	3.75	A	A	L					
No.								7	15	14	17	18	20	14	15	18	15	15	10					
Median								3.65	3.85	3.85	4.00	3.80	3.90	3.80	3.80	3.70	3.60	3.55	3.50					
U.Q.																								
L.Q.																								
Q.R.																								

M(3000)F1 | Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Aug. 1963 | h'F2 | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' 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	E_{300}^{A}	I_{350}^{A}	I_{350}^{A}	I_{370}^{C}	395	I_{340}^{A}	I_{350}^{A}	370	385	325	270					
2							275	255	230	355^{L}	I_{390}^{A}	390	460	375	350	310	E_{360}^{A}	I_{300}^{A}	275					
3								I_{285}^{A}	245	285	400	500	I_{420}^{S}	355	330	325	345	310	290					
4								I_{270}^{A}	280^{L}	370	355	330	330	350	355	330	285	300	275					
5							275	255	I_{340}^{A}	I_{335}^{C}	310	350	I_{360}^{C}	355	330	305	300	300	270					
6								275	275	305	320	I_{350}^{A}	360	I_{385}^{C}	360	330	I_{305}^{C}	285	290					
7								280	245	260	340	415	380	335	305	330	295	250	250					
8								250	255	255	450	325	310	410	330	295	345	340	295					
9								250	260	A	A	A	I_{385}^{A}	I_{470}^{A}	I_{425}^{A}	355	340	305	280					
10								290	240	290	290	470	405	345	335	360	315	I_{320}^{A}	285					
11								I_{320}^{A}	255	275	I_{310}^{A}	I_{355}^{A}	350	345	340	305	310	305	350					
12								255	245	300	380	355	I_{400}^{R}	I_{390}^{A}	495	400	330	295	260					
13								250	275	255	I_{315}^{A}	370	I_{390}^{A}	410	375	350	330	I_{300}^{A}	A					
14								235	245	295	345	400	360	345	365	355	310	260	240					
15								285	250	245	300	350	300	360	400	355	325	340	270	240				
16								250	245	240	I_{310}^{A}	I_{340}^{A}	360	I_{350}^{A}	345	320	320	290	I_{300}^{A}					
17								260	255	245	E_{305}^{A}	I_{335}^{A}	375	I_{370}^{A}	I_{360}^{A}	340	325	320	300					
18								225	240	290	325^{L}	390	350	380	390	310	325	350	275					
19								260	I_{290}^{A}	340	320	365	340	350	350	350	315	340	265					
20								210	260	I_{290}^{A}	420	350	430	350	330	295	290	275	290					
21									250	300	340	320	305	350	340	280	315	335	305					
22								250		330	310	360	310	330	325	300	285	305	270					
23								240	250	280	365	380	340	345	340	355	320	275	250					
24								250	260	I_{315}^{A}	280	295	300	345	350	325	305	285	350					
25								250	240	275	350	340	355	330	325	300	310	290	I_{285}^{A}					
26								260	250	260	285	320	I_{350}^{A}	400	385	320	330	295	255					
27								245	230	280	335	350	330	310	310	330	290	290	260					
28									250	295	280	345	300	330	320	340	295	295	250					
29								275	225	270	400	325	300	325	300	275	290	300	270					
30							255	280	245	250	295	340	A	405	325	290	275	250	240					
31								250	240	245	260	I_{365}^{A}	I_{350}^{A}	340	305	280	280	300	255					
No.							3	29	29	30	30	30	30	31	31	31	30	31	30	1				
Median							275	255	250	290	320	350	350	350	340	325	310	300	270	240				
U.Q.																								
L.Q.																								
Q.R.																								

The Radio Research Laboratories, Japan

h'F2

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

Y 9

IONOSPHERIC DATA

Aug. 1963 | h'F | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	I320A	305	290	270	240	250	205	I200A	A	A	C	220	A	A	A	220	A	I250A	255	I250A	I290A	I320A	A
2	A	A	A	300	300	335	250	240	230	200	I230A	I230A	A	A	A	A	A	A	A	260	A	A	A	A
3	A	290	300	I285A	250	I240A	245	I245A	240	E255A	205	205	230H	I265R	A	A	250	235H	245	240	215	A	A	A
4	A	A	A	255	250	225	250	I230A	210	I270A	I240A	230	240	220	240	280	240	I240A	235	250	250	E300A	350	I315A
5	300	270	I335A	305	240	250	220	245	A	C	A	A	C	A	A	A	A	A	245	240	260	270	I315C	310
6	300	270	250	300	310	255	235	I240A	I245A	I240A	A	A	250	I240C	205	I200A	I245C	220	235	265	240	230	270	I285A
7	300	I285A	I245A	250	350	300	250	225	225	220	200	190	205	I230A	260	240	I230A	225	210	230	260	260	280	275
8	280	275	255	285	255	I260A	240	I245A	250	E255A	290	200	190H	210	205	245	230	210	230	255	240	205	240	320A
9	I270A	240	255	255	270	280	I280A	A	A	A	A	A	A	A	A	I240A	240	290	245	250	240	240	250	250
10	280	260	260	255	250	290	250	240	A	240	250	I245A	200	230	E310R	245	245	I250A	240	255	240	305	300	260
11	255	270	310	315	270	210	240A	I250A	230	A	A	A	A	A	A	A	A	A	A	280	275	220	E270A	240
12	290	300	295	285	280	305	240	I240A	I210A	200H	195	205	I215R	I260A	E310A	A	I210A	260	240	240	250	250	250	270
13	290	260	270	255	255	240	250	230	I230A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
14	250	I340A	I310A	I270A	275	245	I235A	235	200	215	195	195H	260	235	I205S	I230A	E280A	240	I240A	240	270	255	225	260H
15	310A	275	270	260	225	210	250	205	230	I200A	I195A	190H	200	295	A	A	A	A	200H	220	225	200	245	280
16	300	300	295	295	245	270	225	I230A	I215A	210	A	A	A	A	220	220H	E300A	A	A	A	210	205	275	260
17	290	290	285	230	250	250	240	250	I230A	A	A	A	A	A	A	200	I210A	I240A	I250A	280	240	205A	250	245
18	270	300	290	270	295	250	220	210	200	205	210	250	E300A	A	A	A	290	240	I240A	225	210	205	290	255
19	300	300	275	255	270	260	A	A	A	A	250	A	A	205	I225A	250H	200	260	I250A	245	250	I245A	350	I320A
20	325	A	E400A	270	270	340	250	210A	A	A	205	E300A	I250R	A	A	A	A	250	I255A	220	A	A	330	315
21	I305A	280	240	I315A	340	310	285	230	235	200	200	220	225	225	I230A	I235A	I230A	220	250	275	255	260	270	250
22	310	350	350	270	300	250	245	225	205	205	200	240	220	200	235	225	220	210	I255A	255	300	270	255	290
23	260	275H	290	280	255	305	255	235	I235A	I245A	I240A	200	200	A	A	220	240	245	245	220	230	290	340	390
24	I295A	300	270	280	280	260	245	245	230	I215A	195	200	250	A	A	A	A	A	A	290	275	I275A	I290A	265
25	210A	I265A	305	315	300	290	250	240	220	225	200	250	I225C	I235C	I210C	270	A	A	A	A	A	A	A	A
26	I330A	A	A	A	I265A	290	245	225	240	I240AH	I250A	I225A	I225A	205	200	205	230	240	245	235A	215	240	285	I250A
27	240	I300A	375	270	250	250	245	230	220	195	220	200	180H	260	250	200H	220	205	225	240	235	225	I280A	300
28	275	300	300	300	240	275	245	220	200	225	205	E280A	190H	E250A	210	245	240	275	A	240	240	310	305	300
29	260	270	250	260	275	300	I285A	225	225	210	240	240	195	A	A	A	I260A	A	A	A	A	275	250	260
30	290	290	300	280	230	255	240	260	240	I230A	I240A	I215A	A	A	240	I250A	220	240	240	250	245	290	255	260
31	320	280	300	290	300	300	250	I245A	220	200	200	A	A	200	240	230	A	A	250	240	220	225	300	280
No.	27	27	27	30	31	31	30	29	26	21	23	19	20	16	15	19	20	20	23	27	26	25	27	26
Median	290	285	290	280	270	260	245	235	230	215	205	215	220	230	225	235	230	240	245	245	240	250	280	270
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

Y 10

IONOSPHERIC DATA

Aug. 1963 | h'Es | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	100	S	105	S	105	105	105	105	105	105	C	C	135	125	135	G	135	120	110	110	110	105	105
2	100	105	105	105	105	105	105	105	135	105	140	140	135	130	125	120	110	110	110	110	105	100	100	100
3	100	105	105	105	105	105	130	110	115	115	C	105	C	E 170 G	140	130	125	G	120	115	110	105	110	110
4	110	105	110	105	105	105	105	105	110	105	105	105	150	150	145	135	G	120	125	110	110	105	110	105
5	105	S	105	S	E	S	105	130	115	C	105	100	C	120	110	115	105	105	105	105	105	100	C	S
6	100	S	110	105	105	105	S	105	105	105	105	100	105	C	100	100	G	G	140	105	100	100	105	105
7	100	105	105	105	100	100	105	100	105	105	100	100	105	145	105	120	110	110	150	S	100	S	100	S
8	105	110	100	105	110	105	100	100	105	105	105	105	105	105	105	105	140	G	G	100	S	S	105	105
9	100	100	100	100	105	105	100	110	110	105	100	100	100	100	115	115	125	120	110	110	105	105	105	140
10	105	100	100	100	105	100	105	130	125	105	105	105	105	105	100	G	G	110	110	125	110	105	105	105
11	100	100	100	100	100	105	120	115	125	105	105	105	110	110	110	110	110	110	105	105	100	105	105	105 F
12	100	100	120	E	105	100	100	100	100	100	G	100	100	100	100	100	145	130	120	120	S	110	S	100
13	100	105	100	120	110	110	110	105	105	105	105	105	100	105	100	120	110	110	105	105	100	100	100	100
14	100	100	100	100	100	100	100	100	105	G	100	100	G	G	100	125	120	110	105	105	105	110	S	105
15	100	S	S	125	E	120	110	120	115	115	110	120	105	105	120	120	110	105	105	105	100	100	100	100
16	100	100	100	100	100	100	105	110	110	110	105	105	105	105	110	115	130	105	105	100	95	95	S	S
17	105	100	130	110	110	115	S	110	110	105	105	105	105	100	100	100	100	100	100	100	105	105	S	S
18	105	105	105	105	105	105	S	G	140	150	140	130	140	120	115	110	110	105	105	100	100	100	S	S
19	S	100	100	100	100	120	110	110	105	105	100	100	100	100	100	140	130	125	110	105	105	100	100	100
20	100	100	100	100	100	100	110	100	100	105	100	100	100	115	110	110	110	105	110	105	105	105	100	100
21	100	100	100	100	100	100	125	105	105	105	105	105	105	105	100	100	100	100	100	100	100	110	105	105
22	105	100	100	E	S	105	S	120	110	105	105	105	105	100	100	105	100	100	100	100	100	100	100	105
23	105	105	100	100	E	S	S	125	110	110	105	110	105	105	105	100	100	100	100	100	C	S	120	115
24	105	105	105	105	105	100	100	105	125	120	140	130	100	130	125	140	130	125	120	110	110	110	105	110
25	100	100	100	100	100	105	120	115	115	115	125	110	110	C	C	140	120	120	120	110	105	105	105	100
26	100	100	100	100	95	95	S	110	105 S	105	105	100	100	100	100	100	G	145	130	120	110	105	105	105
27	100	105	100	100	100	S	S	105	105	100	100	100	100	155	100	100	100	170	140	120	105	S	95	95
28	S	S	S	105	105	105	105	130	110	105	105	105	105	100	100	100	100	100	100	100	100	105	105	105
29	105	105	120	120	100	120	115	120	115	110	110	105	105	130	130	125	125	120	110	105	105	110	110	100
30	105	100	100	E	105	100	S	110	110	110	110	105	110	110	120	110	135	145	130	120	120	115	110	110
31	100	100	100	100	125	105	120	110	110	105	100	100	100	100	100	150	130	125	125	100	95	95	100	105
No.	29	27	28	27	26	28	23	30	31	29	29	30	27	27	30	30	26	28	30	30	28	27	25	26
Median	100	100	100	105	105	105	105	110	110	105	105	105	105	105	105	115	110	110	110	105	105	105	105	105
U.Q.																								
L.Q.																								
Q.R.																								

h'Es

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

The Radio Research Laboratories, Japan

Y. 11

IONOSPHERIC DATA

Aug. 1963 | Types of Es | 135° E Mean Time (G.M.T. +9h) | Yamagawa | Lat. 31°12.5' N, Long. 130°37.7' 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	ff	f		f		f	l	l	c2	c	c			h	h2	h		h	c2	f2	f2	f	f2	f
2	f2	f4	f2	f2	f2	f3	l	l c	hl	l	h	hl	h2l	h	h	h3	c3	c2	c3	f3	f	f	f	f
3	f	f2	f2	f2	f2	f2	c	c2	c2	c		l		h	h	h	h		cl	ff	ff2	f2	f2	f2
4	f2	f3	f4	f2	f2	f	l2	l2	c2	c2	c2	l	h	h	h	h2		h	h	f2	f2	f2	f2	f3
5	f2		f2				l	cl	c2l3		l2	l2		h2	h2	h2	c2	c2	c4	f	f4	f2		
6	f2		f	f2	f2	f		c4	c3	c2	c2	c3	c2		l2	l2			h2	f3	f2	f2	f	f3
7	f3	f5	f2	f2	f3	f2	l3	l	l2	l3	l	l	l	h	l2	h	h2	h	h2		f		f	
8	f3	f3	f2	f4	f2	f3	l3	l3	l3	l3	c3	c2	c	l	l	l	hl2			f			f	f3
9	f3	f3	f2	f2	f2	f3	l4	c4l2	c2	l3	l3	l2	l5	l2h2	h2l	h2	h	h2	c2	f3	f	f2	f3	f
10	f2	f2	f3	f2	f2	f2	l	c4l2	cl	l	l	l	l	l	l			c2	c2	f	f5	f4	f2	f3
11	f3	f2	f	f	f	f	c3	c5	h	c3l	l3	c3l	cl	cl	c3l	c2l	c	c2	c3	f3	f2	f2	f3	f3
12	f2	f2	f		f	f3	l2	l4	l2	l h		l	l	l	l2	l2	hl3	h2l	h2l	f3f		f6		f2
13	f	f2	f	f	f2	f	c2	c3	c2	c2h	c4	l2h	l3	l	l2	c2l2	cl2	c4l	c2l	f2f4	f3	f3	f2	f3
14	f	f3	f3	f4	f2	f6	l3	l2	l2		l	l			l	h	h	cl	c2	f7	f	f7		f2
15	f3			f		f	c4	c2l	c2	h	c	hl	cl	cl	h2	h2	c2	c2	l	l	f3	f	f2	f2
16	f2	f2	f2	f2	f2	f2	l	c3	c2	c	c2	c3	l2	c2	c	h	h	c3h2l	c2l2	f4f2	f2	f		
17	f2	f	ff	f	f2	f2	c	c3	c2	c3	c2	c2	l2	l	l2	l2	l2	l5	l4	f3	f2	f3f		
18	f	f2	f	f4	f2	f2			cl	hl	hl	h	hl	cl	cl	c2	c2	l2	l2	f4	f	f		
19		f	f2	f	f2	f2	c3	c2	c2	c3	l	l2	l2	l	l	h	h	h3	c3	f7	f3	f3	f3	f3
20	f4	f3	f2	f5	f2	f	l	l3	l2	l2	l	l	l	h	h2	h	h	c	c2	f4	f2	f2	f2	f2
21	f2	f	f	f3	f2	f2	hl	l	l2	l2	l	l	l	l	l	l	l	l2	l3	f3	f2	f2f2	f2	f2
22	f2	f	f			f		h	h3	l	l2	l2	l2	l2	l	l2	l2	l3	l2	f2	f2	f2	f2	f2
23	f2	f	f	f				c	c	c3	c2	c	c	c2	l2	l	l2	l2	l3	f			f	f3
24	f3	f2	f2	f2	f	f2	l	l	c2l	h2	hl	cl	c	cl	cl	h2	h3	h2	c5	f3	f3	f5	f3	f4
25	f5	f2	f3	f4	f2	f	c4	c3	h2	h	h	h	h			h	h2l	h3l	h2	f2f	f2f2	f3	f2	f2
26	f2	f3	f5	f3	f2	f		c	l2	c2	c	l2	l	l	l	l		h	c2	f	f3	f	f2	f2
27	f	f3	f3	f	f			l	l2	l2	l	l	l	hl2	l h2	l	l	hl	h	f	f2		f2	f
28				f2	f	f2	l3	hl3	c	l	l2	l2	l2	l2	l2	l2	l3	l4	l2	f3	f2	f2f2	f2f2	f3
29	f4	f4	f2	f2	f2	f2f	c2	c2	h2	c2	c2	c2	l2	h	h2l	h3	h2	h6	c4	f4	f4	f2	f	f
30	f2	f2	f		f	f2		c3	c2	h3	c2	c2	c3l	c2l	cl	c2l2	hl	hl	h4	f3	f	f2	f3	f2
31	f4	f2	f2	f2	ff	f2	c	c3	c2	l	l	l2	l4	l	l2	hl	h2l	h3l	h4l	f8	f5	f2	f2	f2f2
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

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

Aug. 1963	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	mean	00-03	03-06	06-09	21-24	mean
1	5	5	5	5	5	0	0	0	0	0
2	5	5	5	5	5	0	0	0	0	0
3	5	5	5	5	5	0	0	0	0	0
4	5	6	6	5	5	0	0	0	0	0
5	5	6	6	5	5	0	0	0	0	0
6	5	5	5	5	5	0	0	0	0	0
7	5	5	5	5	5	0	0	0	0	0
8	5	5	5	5	5	0	0	0	0	0
9	5	5	5	6	5	0	0	0	0	0
10	6	5	5	5	5	0	0	0	0	0
11	5	5	5	5	5	0	0	0	0	0
12	5	5	5	5	5	0	0	0	0	0
13	5	5	5	5	5	0	0	0	0	0
14	5	5	5	5	5	0	0	0	0	0
15	5	5	5	(5)	5	0	0	0	(0)	0
16	5	5	5	(5)	5	0	0	0	(0)	0
17	-	-	-	-	(5)	-	-	-	-	(0)
18	-	-	-	-	-	-	-	-	-	-
19	5	5	5	5	5	0	0	0	0	0
20	5	5	5	5	5	0	0	0	0	0
21	5	5	5	5	5	0	0	0	0	0
22	5	5	5	5	5	0	0	0	0	0
23	5	5	-	-	5	0	0	-	-	0
24	-	-	-	5	-	-	-	-	0	-
25	5	5	5	-	5	0	0	0	-	0
26	-	5	5	5	5	-	0	0	0	0
27	5	(5)	-	-	5	0	(0)	-	-	0
28	-	-	(5)	5	(5)	-	-	(0)	0	(0)
29	5	5	5	5	5	0	0	0	0	0
30	5	5	5	5	5	0	0	0	0	0
31	5	5	5	5	5	0	0	0	0	0

Note No observations during the following periods:

6th	0300-		0400	18th	SR -	19th	0120
8th	0300-		0400	23rd	0510-		SS
13th	0415-		0445	23rd	SR -	24th	0630
15th	SR -		2300	25th	SR -	26th	0340
16th	0610-		0700	27th	0400-		SS
17th	0000-		SS	27th	SR -	28th	0530
17th	SR -	18th	SS				

60

Outstanding Occurrences

Aug. 1963	Start-time	Dura-tion	Type	Max. Int.		Max. Time	Remarks
				Inst.	Smd.		
21	2038.0	2.5	CD/8	420	70	2039.5	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 1963	Whole Day Index	L. N. 06-12	L. N. 12-18	L. N. 18-24	W W V 00-06	W W V 06-12	W W V 12-18	W W V 18-24	S. F. 00-06	S. F. 06-12	S. F. 12-18	S. F. 18-24	W W V H 00-06	W W V H 06-12	W W V H 12-18	W W V H 18-24	Warning 00-06	Warning 06-12	Warning 12-18	Warning 18-24	Principal magnetic storms Start	Principal magnetic storms End	Principal magnetic storms ΔH
1	3+	4	5	3	-	-	3	1	3	4	4	4	5	5	4	4	U	U	U	U			
2	4-	3	4	3	-	-	2	3	5	5	4	3	4	5	4	4	U	U	U	N			
3	4o	4	4	(3)	-	-	(4)	5	4	3	(4	4)	4	5	5	5	N	N	N	N			
4	4-	4	4	(4)	-	-	3	3	4	4	4	4	5	5	4	4	N	N	N	N			
5	4-	4	4	3	-	-	2	4	4	4	4	5	5	4	4	5	N	N	N	N			
6	4o	4	3	2	-	-	4	4	5	5	(4	4)	5	3	4	4	N	N	N	N			
7	4o	4	4	4	-	-	3	4	4	4	(4	4)	4	3	3	4	N	N	N	N			
8	4+	4	4	4	-	-	5	5	5	5	4	4	4	3	3	4	N	N	N	N			
9	4+	4	(4	4)	-	-	2	4	5	5	(5	5)	5	5	4	3	N	N	N	N			
10	4-	5	4	4	-	-	2	3	5	4	4	3	3	2	3	3	N	N	N	N			
11	4o	5	4	4	-	-	3	4	(4	4	4	5)	4	4	4	4	N	N	N	N			
12	5-	5	5	5	-	-	5	4	5	4	4	4	4	3	4	4	N	N	N	N			
(13)	4o	5	5	5	-	-	3	4	3	4	4	4	4	4	4	4	N	N	N	N			
(14)	4+	5	5	5	(5)	-	5	3	4	4	4	4	4	4	(4	4)	N	N	N	N			
(15)	4o	5	4	3	-	-	4	4	4	4	4	4	4	4	4	4	N	N	N	N			
16	4+	5	5	5	(4)	-	4	4	4	4	4	4	3	2	3	4	N	N	N	N			
17	4+	5	5	5	(4)	-	4	5	4	4	4	4	4	3	3	4	N	N	N	N			
18	3-	4	3	1	(4)	-	1	1	4	4	3	3	4	5	4	3	N	U	U	U			
19	3-	5	3	2	-	-	1	2	3	2	3	3	3	4	3	4	U	U	U	U	14.4	---	129γ
20	2+	3	2	2	-	-	1	1	3	2	3	3	4	3	4	3	U	U	U	U	---	---	
21	2o	3	1	2	-	-	1	2	2	2	3	3	3	3	1	3	U	U	U	U	---	17.0	
22	3-	3	3	3	-	-	1	3	3	3	2	4	3	3	2	3	U	U	U	U			
23	3o	3	3	3	-	-	1	2	4	4	3	4	4	4	4	4	U	U	U	U			
24	3-	2	3	3	-	-	1	3	3	2	3	3	5	4	3	4	U	U	U	U			
25	4-	4	4	4	(4)	-	(3)	4	3	4	4	4	4	4	4	4	U	U	U	U			
26	4o	3	4	4	(4)	-	(4	4)	5	4	4	4	4	4	4	4	U	U	U	U			
27	4-	5	3	3	(5)	-	(4)	5	4	5	5	5	4	4	4	5	U	U	U	U			
28	4o	3	3	4	(4)	-	-	4	5	4	5	5	5	5	5	5	U	U	U	U			
29	4o	4	3	C	-	-	-	3	4	5	5	4	5	4	4	4	U	U	U	U			
30	4o	5	4	4	-	-	-	3	4	4	4	4	4	4	3	4	U	U	N	N			
31	3+	2	3	3	(4)	-	-	4	3	3	3	4	4	3	3	4	N	N	N	N			

* = day of Special World Interval

( ) = Regular Warld Day

( ) = inaccurate

C = artificial accident

- = impossible to evaluate

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Aug. 1963	S W F								Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN	SH							
17	12	25					22.58	20	S	2-	x		

IONOSPHERIC DATA IN JAPAN FOR AUGUST 1963
第 15 巻　第8号

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