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IONOSPHERIC DATA IN JAPAN

FOR AUGUST 1961

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THE RADIO RESEARCH LABORATORIES

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KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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°03.2′E.	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Koganei-machi, Kitatama-gun, Tokyo-to
Yamagawa	31°12.5′N.	130°37.7′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

f_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 nomal frequency range. Used in a qualifying sense, see below.

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

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

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

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

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

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

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

O Measurement refers to the ordinary component.

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a 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 magnetoionic component.

c. Description of Standard Types of E_s

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

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

r An E_s trace which is non-blanketing over part or all of its frequency range showing an increase in virtual height at the high frequency end similar to group retardation. This is distinguished at present from true group retardation (a blanketing thich 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 con 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 circuit (London)

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

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly

Slow : slow drop-out taking 5 to 15 minutes and gradual recoverly

G : gradual disturbances ; fade irregular in both drop-out and recoverly

Importances

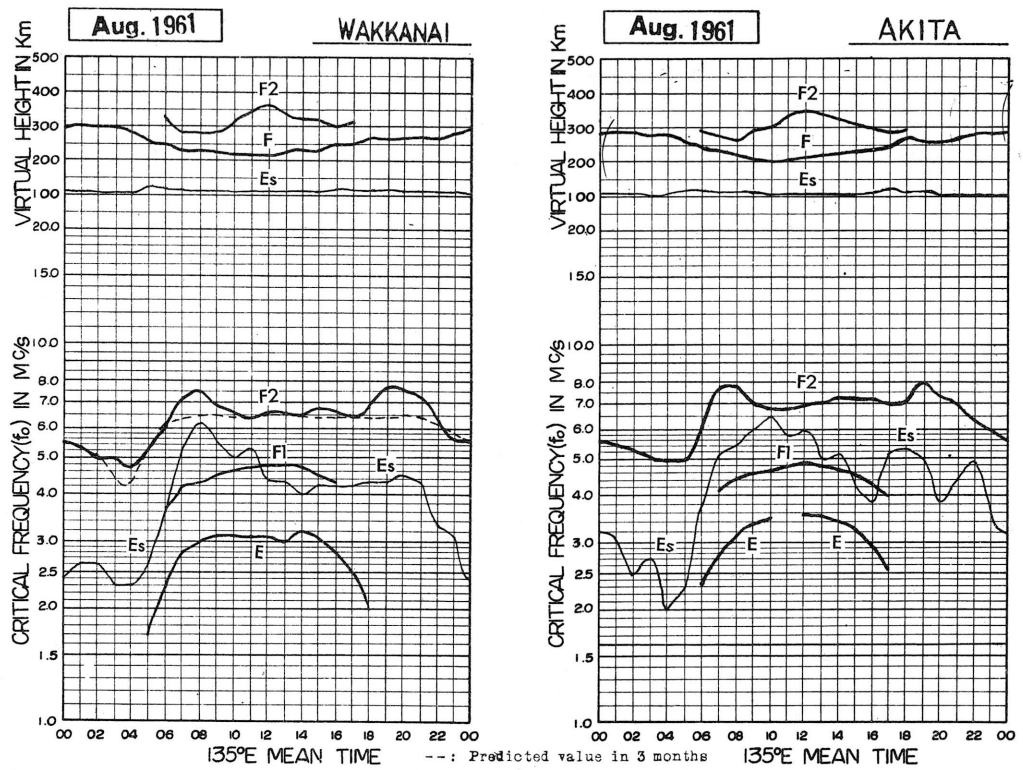
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out ;

1—	1	1+
2—	2	2+
3—	3	3+

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

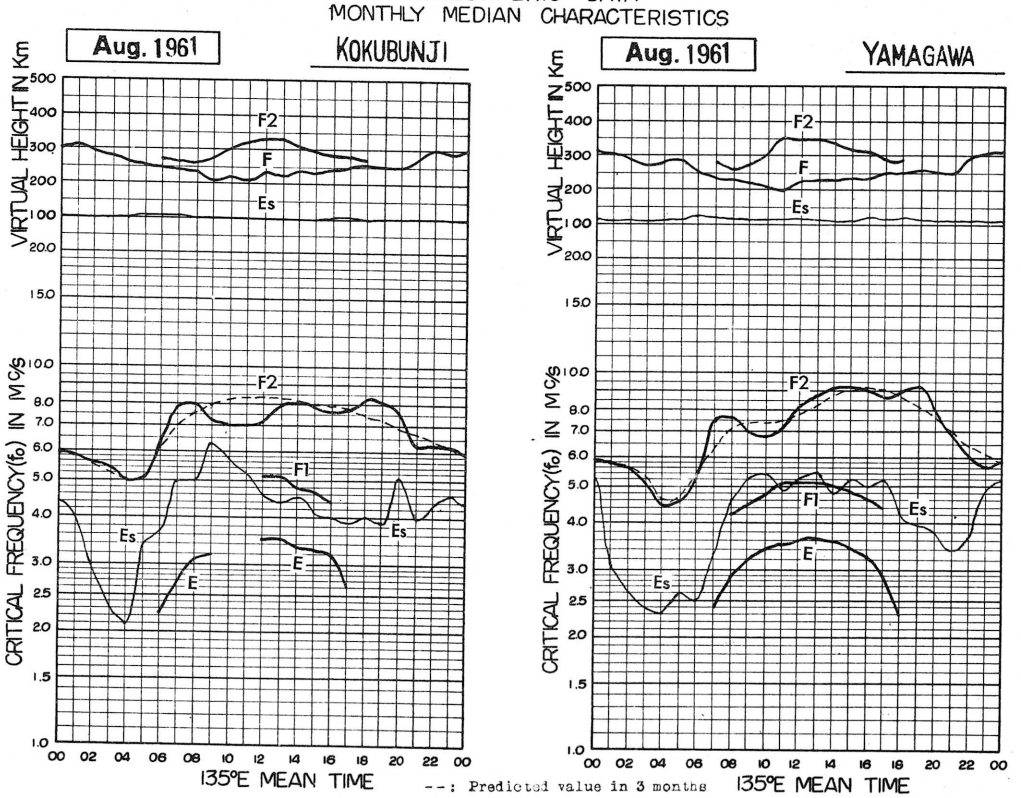
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



--: 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. 1961 | 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	5.3	4.8	4.7F	4.3	4.5	5.5	6.6	8.5	8.2	6.6	6.1	5.6	6.2	6.9	6.6	6.8	I6.0A	I5.6A	5.8	I6.6A	SF	F	F	F
2	5.8	5.5	5.0	4.5	4.7	5.4H	6.0H	7.7	7.4	6.8	6.0	5.7	5.6	7.5	I6.5A	7.0	6.8	8.7	8.3	9.3	7.6	5.9	5.4	5.0F
3	A	F	A	F	F	4.0F	4.3	A	A	A	A	A	A	A	5.0	W	4.8	5.0H	5.0	5.0	I6.0A	I6.0A	5.4	5.3
4	5.3F	F	F	F	4.0	4.3	5.0	I5.4A	I5.7A	6.0	I5.8A	5.6	5.4	5.3	5.6	6.2	6.0	I6.0A	6.1	A	A	F	F	F
5	F	F	F	F	F	4.3	I5.3A	5.8	I6.1A	I5.3A	I5.8A	6.2	6.3	6.1	6.5	5.6	5.6H	6.0	6.7H	6.9	7.0	I6.9F	6.3	6.4F
6	6.0F	4.6F	4.4F	4.3F	3.6	4.5	5.6	6.6	5.3	6.2	6.2	I5.6A	5.8	6.5	6.3	6.1	6.0	6.0	6.7	8.1	8.0F	I6.6A	5.6F	5.2F
7	Fs	F	F	F	Fs	4.9	5.8	6.0	6.2	6.2	6.2	5.6	5.8	6.1	6.2	6.3	5.3	I5.3A	5.7	I6.5A	7.3	A	A	A
8	6.0	F	F	F	F	5.4	5.8	7.5	8.3	I7.5A	I6.9A	I6.9A	I6.7A	6.3	6.3	6.5	6.8	I6.6A	8.0	8.0	Fs	F	F	F
9	F	F	4.6F	4.4F	4.1F	I4.6A	5.3	A	A	A	5.0	W	5.3	5.0	5.4	5.4	5.6	5.7	5.8	I6.4A	U6.8S	7.0F	6.5	6.0
10	5.7	5.3	5.2	5.0	5.0	5.3H	6.1	6.4	6.6	6.5	6.2	6.3	6.3	6.3	6.4	6.8	6.6	6.5	6.8	7.8	7.6	7.3	7.1	6.6
11	5.8	5.0	5.1	5.0	4.9F	5.5F	6.0	5.4F	5.3	5.3	5.0	5.1	I5.1A	5.2	W	5.3	5.1H	5.0H	5.2H	5.5	6.7	7.0	6.9	5.9
12	4.6	5.0	5.3F	I4.4F	4.0	4.6	5.0	I5.2A	5.4	5.0	W	5.1	W	G	5.0	5.1	A	A	A	5.6	6.1	6.2	6.0	5.6
13	5.5	5.3	5.3F	5.1	4.7	5.7	6.3	7.3	7.8	7.2	6.9	6.3	6.5	6.1	6.8	7.0	6.6	6.3	6.0	6.8	7.3	7.3	I7.1S	6.3
14	I6.1F	5.9F	5.5F	5.3F	5.3F	5.8	7.5	8.8	8.9	8.0	7.2	6.4	7.3	7.5	7.5	7.1	7.0	I6.7A	6.9	7.9	8.1	F	F	F
15	6.4	6.5	6.3F	5.5F	5.6F	5.4F	6.6H	7.6	7.6	7.4	6.7	6.7	6.7	7.3	7.6	7.0	6.8	6.3	6.6	7.8	8.1	8.1	6.1	6.0
16	5.9	5.6	5.8	5.6	6.0	6.4	6.8	6.3	5.9	7.0	6.7	I6.6A	7.4	7.6	7.6	7.3	6.6	6.6	6.8	7.9	8.0	8.0	7.3F	6.3
17	6.3	6.1	6.0F	6.0F	6.0F	6.6	7.3	8.6	8.3	7.6	7.3	6.8H	7.1H	7.8	7.6	7.2	7.2	7.2	7.3	8.3	8.1	8.0	7.0	7.0
18	6.0	5.8	5.8	5.6	5.6	6.6	7.9	7.9	7.1	6.8	I6.5A	7.0	7.3	7.4	7.0	7.0	7.0	7.0	6.8	8.3	8.1	8.1	7.6	6.8
19	6.0	5.7	5.6	5.5	5.5	6.5	7.2	7.8	7.9	7.9	8.6	8.6	7.4	7.3	7.9	7.4	7.3	7.5	8.6	9.8	8.2	7.5	6.6	6.5
20	5.9	5.0	5.0	4.9	4.8	4.9	5.1	5.5	6.2	5.4	5.6	5.3	5.3	5.5	5.6	5.8	5.5	6.0	6.2	6.4	6.1	6.1	5.8	5.6
21	5.4	5.3	4.9	4.6	4.6	4.9	5.7H	7.2	7.9	6.3H	7.2	I6.4A	6.5	7.0	6.5	6.8	6.5	6.3	6.7	6.8	7.0	7.1	6.0	5.3
22	5.1	5.0	5.0	5.0	4.8	5.3H	7.1	7.2	8.3	7.1	7.1	6.8	7.1	6.7	6.3	6.9	6.7	6.5	7.0	7.7	7.6	7.5	6.6	5.3
23	I5.2F	I5.2F	I5.0F	4.6F	4.6F	5.6	7.4	7.6	7.6	7.0	6.2	6.4	6.4	6.6	7.0	7.3	7.1	I6.9A	I7.0A	8.1	I8.4S	7.6	7.4	5.7
24	5.3	5.3	5.2	5.3	5.0	5.3	6.4	7.7	7.5	6.7	7.0	6.6	7.1	7.0	7.2	7.1	7.2	7.3	7.6	8.6	8.3	6.8	6.5	5.3F
25	F	F	F	F	4.3F	5.0	6.1	7.5	8.0	I7.1A	7.5	7.1	7.0	6.5	7.0	7.4	7.5	I7.6A	I7.8A	7.9	I7.9S	I7.4S	6.3F	I5.6F
26	F	F	F	F	5.1F	4.8	5.1	7.6	I7.6A	7.7	7.9	6.4	6.7	6.7	6.6	6.4	6.9	7.2	6.9	7.1	7.2	7.2	6.4	5.5
27	5.5	5.3	5.0	4.8	4.9	5.3	6.6	7.6	8.4	C	C	C	C	C	C	C	C	C	C	C	8.6	8.1	4.5	3.7
28	3.6	4.0	4.1	4.2	4.3	4.6	C	C	C	7.6	6.3	6.3	6.7	6.0	6.3	6.5	6.8	7.4	I7.9A	8.4	8.0	7.9	5.8	5.2
29	4.7	4.8	4.8	4.6	5.0	5.8	6.5	6.8	7.5	8.3	7.2	7.0	7.4	7.0	6.5	6.6	6.2	6.3	6.6	7.4	7.2	7.2	5.7	5.7
30	5.3	5.3	5.2	5.1	4.4	4.8	6.1	7.1	7.3	7.1	7.6	6.3	6.8	7.6	8.3	7.6	7.3	7.4	8.0	7.6	6.8	6.3F	I6.1F	6.0F
31	5.5F	6.0	4.6	4.3	3.6	3.4	4.1	I4.6A	5.0	5.0	5.1	5.4	5.7	5.3	6.0	5.7	5.7	6.1	5.7	5.7	5.8	4.8	4.3	4.8
No.	25	23	24	24	27	31	30	28	28	28	28	28	28	29	29	29	29	29	29	29	28	26	26	26
Median	5.5	5.3	5.0	5.0	4.8	5.3	6.1	7.2	7.5	6.9	6.6	6.4	6.6	6.6	6.5	6.8	6.6	6.5	6.8	7.7	7.6	7.2	6.3	5.6
U.Q	6.0	5.7	5.4	5.3	5.1	5.6	6.6	7.6	8.0	7.4	7.2	6.8	7.1	7.3	7.1	7.1	7.0	7.2	7.4	8.1	8.1	7.6	6.9	6.3
L.Q	5.3	5.0	4.8	4.4	4.3	4.8	5.3	6.2	6.2	6.2	6.0	5.6	5.8	6.0	6.1	6.2	5.8	6.0	6.0	6.6	6.9	6.6	5.8	5.3
Q.R	0.7	0.7	0.6	0.9	0.8	0.8	1.3	1.4	1.8	1.2	1.2	1.2	1.3	1.3	1.0	0.9	1.2	1.2	1.4	1.5	1.2	1.0	1.1	1.0

foF2

Sweep 1.0 Mc to 18.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 1

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IONOSPHERIC DATA

Aug. 1961 | 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							4.1	I 4.2 A	4.3	4.5	I 4.6 A	4.7	4.6	4.6	4.5	4.3	I 4.3 A	I 4.0 A						
2								4.1	I 4.3 A	I 4.4 A	I 4.6 A	4.6	4.7	4.5	I 4.6 A	I 4.3 A	4.2	4.0						
3						A	3.6	A	A	A	A	A	A	A	4.2	4.3	4.0							
4						3.1	A	A	A	A	A	A	4.5	I 4.4 A	I 4.6 A	4.3	A	A	A					
5								I 4.1 A	I 4.1 A	I 4.3 A	I 4.4 A	I 4.5 A	4.6	4.6	4.5	4.4		4.0						
6							3.6	4.1	I 4.2 A	I 4.4 A	4.5	I 4.7 A	4.8	4.6	4.7	A	A	A						
7								A	4.5	4.6	4.5	4.6	4.8	4.9	4.6	A	A	A						
8								4.3	A	A	A	A	A	4.8	4.7	4.5	4.3	A						
9							3.8	A	A	A	I 4.6 A	4.7	I 4.7 A	4.7	4.6	4.3	4.3	A						
10							3.9	4.3	4.5	I 4.7 A	4.9	4.8	4.9	4.9	4.7	4.7	I 4.4 A	I 4.1 A						
11						A	A	A	A	4.5	4.5	4.7	I 4.8 A	I 4.9 A	4.8	4.6								
12						3.1	I 3.7 A	I 4.0 A	4.3	4.6	4.9	4.7	4.8	5.0	4.8	4.6	A	A						
13							L	A	L	5.0	5.0	5.3 H	5.1	5.3 H	4.9	4.8	4.2							
14								L	4.8	4.9	5.0	5.4 H	5.0	5.1	5.1	4.9	L	A						
15								A	A	A	5.1	I 5.1 A	I 5.2 L	5.0	5.0	L	L							
16							A	A	A	A	5.1	I 5.0 A	5.2	5.1	5.1	4.6	L	L						
17								L	4.5	4.8	5.0			5.1	5.0	L	L							
18							L	4.3	4.5	I 4.8 A	I 5.0 A	5.1	5.1	5.0	5.0	4.8	L	L						
19							L	A	L	4.9	5.0	5.0	5.0	I 5.1 L	5.0	4.8	L	L						
20								4.2	4.3	4.5	4.6	4.8	4.8	4.8	4.6	4.6	L	L						
21						L		4.3	4.4		4.7 H	I 4.6 A	I 4.9 A	4.9	4.8	4.5	A	A						
22									A	4.7	4.7	5.1 H	4.9	5.0	I 4.8 A	I 4.4 L	L							
23							L	L	A	A	4.6	I 4.7 L	I 4.9 L	I 5.0 A	I 4.8 A	I 4.6 A	A							
24									A		I 4.6 A	I 4.8 A	4.9	4.8	4.8	4.5	L	L						
25								A	A	A	A	4.8	4.7	I 4.7 L	4.7	4.5	A							
26							A	A	A	A	A	A	4.6	4.6	4.6	A	A	L						
27								L	A	C	C	C	C	C	C	C	C	C						
28							C	C	C	4.3	I 4.5 A	I 4.6 L	4.7	4.6	I 4.5 L	L	A	A						
29							L	A	I 4.4 A	4.4	4.6	4.6	4.7	4.8	4.5	4.3	L							
30							L	4.1	I 4.2 A	4.4	4.5	5.0	4.8	4.7	4.7	4.2	L	L						
31							I 3.4 A	I 3.6 A	4.2	4.4	4.4	I 4.4 A	4.3	4.5 L	4.3	4.3	L	L						
No.						2	7	12	15	19	25	25	27	29	30	24	7	4						
Median						3.1	3.7	4.2	4.3	4.5	4.6	4.7	4.8	4.8	4.7	4.5	4.3	4.0						

foF1

Sweep 1.0 Mc to 18.0 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | 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					A	1.90	2.35	2.85	3.05	3.15	3.20	3.05	3.00	2.90	I 3.05 A	I 3.15 A	3.00	2.55	2.00	S				
2					E	1.80	2.25	I 2.75 A	3.00	3.05	A	A	A	3.00	I 3.35 A	3.00	A	A	A					
3					A	I 1.50 S	I 2.20 A	2.55	I 3.00 A	3.05	3.10	3.05	2.95	3.00	2.90	I 2.85 A	I 2.75 A	2.45	S					
4					A	1.75	2.35	2.80	3.00	3.10	3.10	2.95	3.40	3.05	3.00	3.00	3.05	2.50	1.90					
5						1.85	2.25	2.85	3.05	3.15	3.20	3.20	3.10	3.00	3.25	3.00	3.00	2.50	2.05					
6						A	2.60	2.85	3.00	3.05	3.00	3.05	3.05	3.00	I 3.20 A	3.10	3.00	2.30	S					
7						1.60	2.20	2.70	3.00	3.05	2.95	A	A	A	A	A	A	2.60	S					
8						S	2.30	2.90	3.00	3.15	3.20	3.00	A	A	A	A	3.00	2.50	2.00					
9						1.95	2.35	2.80	3.05	3.15	3.00	3.10	I 3.05 A	I 3.10 A	3.25	3.10	3.05	2.70	2.00					
10						1.85	2.40	2.90	3.10	3.15	3.15	3.10	3.15	I 3.10 B	3.05	3.20	3.05	2.60	S					
11						1.65	2.30	2.85	3.00	3.15	3.05	3.00	A	A	A	A	2.95	2.60	S					
12						1.70	2.30	2.90	3.10	3.15	3.25	3.25	3.25	3.05	I 3.10 A	3.10	3.05	2.60	S					
13						1.75	2.40	2.90	3.00	3.00	I 3.10 A	3.00	3.00	I 3.10 A	3.30	3.25	3.00	2.65	S					
14						1.85	2.35	2.80	3.05	3.05	S	A	A	A	A	3.00	3.05	2.50	S					
15						1.75	2.50	3.00	3.10	3.25	3.30	3.30	3.10	3.15	I 3.10 A	I 3.05 A	3.05	2.80	A					
16						1.50	2.40	2.90	3.15	3.20	3.10	I 3.05 A	I 3.05 A	I 3.00 A	I 3.30 A	3.25	2.95	2.60	S					
17						A	2.35	2.80	3.05	3.20	3.25	3.20	3.00	2.95	3.15	3.25	I 3.00 A	A	A					
18						1.60	2.30	2.85	3.00	3.00	3.00	3.10	3.10	I 3.20 A	I 3.10 A	I 3.05 A	I 3.00 A	I 2.60 A	A					
19						I 1.65 S	2.35	2.80	3.00	3.05	3.15	3.20	3.40	3.30	3.20	3.05	3.00	2.50	S					
20						I 1.65 S	2.30	2.90	3.00	3.10	3.20	3.15	3.00	I 2.90 A	I 2.95 A	I 3.00 A	3.00	2.50	S					
21						1.40	2.20	2.80	3.05	3.10	3.20	3.30	3.15	3.00	I 3.00 A	I 3.10 A	I 2.85 A	2.40	S					
22						S	2.10	2.70	3.05	3.15	3.20	3.20	A	A	A	A	A	2.30	S					
23						A	2.10	2.70	2.90	3.05	3.05	3.20	3.00	2.90	3.15	2.90	A	A	A					
24						S	A	A	A	A	A	3.00	3.00	I 3.00 A	3.20	I 3.05 A	2.80	2.20	S					
25						A	A	2.35	2.90	I 2.95 A	I 3.05 A	I 3.05 A	I 3.10 A	3.25	3.35	3.05	2.90	A	A					
26						S	2.05	2.50	2.95	2.95	A	A	R	A	A	A	A	A	S					
27						S	S	2.45	2.85	C	C	C	C	C	C	C	C	C	C					
28						S	C	C	C	A	A	A	A	A	I 3.20 A	3.00	2.85	2.10	S					
29						1.60	2.15	2.50	2.80	3.00	3.00	2.90	A	A	A	A	2.80	A	A					
30						1.30	2.15	2.60	3.00	3.05	3.15	I 3.25 A	3.20	3.00	3.20	I 2.90 A	I 2.75 A	2.30	S					
31						A	2.15	2.70	2.95	3.10	3.10	3.25	3.30	2.95	A	A	A	A	A					
No.					1	20	27	29	29	28	25	25	21	22	22	23	24	23	5					
Median					E	1.70	2.30	2.80	3.00	3.10	3.10	3.10	3.10	3.00	3.20	3.05	3.00	2.50	2.00					

foE

Sweep 1.0 Mc to 18.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

Aug. 1961 | 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	4.3	E	2.6	2.3	1.5	2.3	3.6	5.6	8.0	4.3	5.3	4.0	4.3	3.8	4.3	4.3	6.3	9.4	6.4	10.4	8.3	8.5	4.3	3.0
2	3.0	2.5	E	E	G	G	4.3	4.3	11.3	8.4	4.8	6.5	4.0	3.9	13.0	7.0	5.0	4.3	5.2	4.3	5.3	4.3	4.3	6.3
3	6.0	4.6	5.3	4.5	4.3	5.3	4.0	11.3	8.3	6.3	6.6	14.3	7.3	5.5	4.3	4.0	4.0	3.2	3.2	4.6	7.3	8.6	3.3	2.3
4	2.4	3.3	3.0	3.3	3.0	2.5	4.3	8.1	10.6	6.3	12.0	6.2	4.5	4.5	5.0	5.3	5.6	8.5	6.3	9.6	7.0	4.3	4.8	6.6
5	4.3	4.2	3.6	4.3	5.3	4.3	10.3	6.3	8.0	7.5	10.9	10.3	3.5	3.5	G	G	G	G	G	3.0	5.1	4.3	3.3	3.3
6	E	2.3	3.0	3.3	2.3	3.0	G	3.5	4.2	5.3	6.3	11.3	5.3	3.9	5.3	11.3	17.1	14.3	11.0	6.3	10.0	10.1	7.3	6.3
7	4.3	3.0	2.8	3.0	3.0	3.8	4.3	4.3	4.1	3.8	6.8	7.2	4.3	3.5	4.0	5.3	6.3	13.5	6.4	D	D	10.0	10.6	7.0
8	6.3	4.0	5.0	4.0	3.2	S	4.3	5.3	10.8	8.8	12.3	12.1	9.3	6.2	4.5	4.2	4.0	6.5	5.2	6.3	5.3	8.3	9.8Y	5.3
9	4.8	3.0	2.3	E	7.0	4.6	3.6	5.6	5.3	6.2	6.5	4.3	4.5	4.3	G	G	3.5	4.3	6.3	11.0	3.2	5.3	2.8	E
10	E	2.3	E	E	E	2.6	3.2	10.0	5.3	5.3	4.3	3.8	3.9	5.3	3.5	G	4.6	4.6	4.3	4.3	6.1	5.3	3.1	E
11	E	E	2.0	2.5	2.9	6.3	8.1	5.0	4.3	3.8	4.8	4.3	6.0	5.0M	3.5	7.0	G	3.5	2.8	5.3	E	3.3	3.0	E
12	E	3.0	E	E	E	2.5	3.6	5.3	7.3	4.1	3.8	G	4.1	5.3	5.3	4.3	6.3	10.3	8.3	5.0	3.3	3.2	3.3	5.3
13	E	E	E	2.3	E	3.3	4.0	7.0	12.0	5.3	4.3	4.2	3.5	3.5	G	G	2.4G	G	4.3	3.1	3.0	3.3	3.0	2.6
14	4.3	6.0	3.0	5.3	2.3	2.9	4.3	4.3	6.0	7.0	4.2	5.2	5.1	5.3	5.3	4.3	5.2	13.5	5.3	7.3	11.0	4.0	7.0	E
15	E	5.2	4.1	3.0	3.1	G	3.1	6.3	6.3	5.6	5.3	5.9	8.5	5.5	4.3	4.0	G	G	3.3	2.9	4.3	3.3	3.1	3.1
16	2.9	2.8	2.8	E	1.6	3.0	4.1	4.3	5.4	5.4	4.3	7.6	5.3	4.3	3.8	G	G	G	3.2	3.3	5.3	5.3	4.3	3.1
17	3.0	E	3.5	3.5	3.0	3.0	3.3	4.3	4.4	5.0	5.3	4.6	5.0	4.3	G	G	4.3	2.8	3.3	3.3	3.6	E	E	4.3
18	5.3	E	2.4	E	E	2.4	3.2	3.9	4.4	8.0	8.3	6.3	4.3	5.0	5.0	4.3	5.5	3.0	4.1	6.3	6.6	2.3	E	4.3
19	4.0	5.8	6.3	5.3	2.3	S	G	4.9	7.3	6.0	4.1	5.3	4.3	4.0	4.0	G	G	3.5	3.1	3.3	3.3	5.1	3.3	E
20	E	2.3	E	E	E	G	G	G	3.5	G	G	3.9	4.0	3.9	4.0	4.4	3.5	3.0	2.9	3.1	E	E	E	E
21	E	2.9	E	2.3	E	G	3.0	5.3	3.8	4.3	G	8.0	8.5	5.3	5.3	4.3	5.2	4.3	4.3	4.3	5.3	5.3	4.3	4.3
22	E	E	3.1	1.6	2.3	S	3.0	3.5	5.8	4.3	4.0	4.4	4.6	4.3	5.5	3.5	3.9	4.0	3.6	2.3	3.3	6.1	6.3	4.3
23	2.5	4.3	3.3	3.0	1.6	5.1	3.8	3.9	6.6	7.8	4.3	4.3	3.9	5.0	5.3	5.5	7.3	7.3	8.6	6.5	6.3	5.3	5.0	4.3
24	2.3	1.8	2.7	E	4.3	6.3	6.3	8.1	10.5	7.0	6.5	5.5	5.0	4.3	5.3	5.0	3.8	4.8	2.8	3.0	3.3	8.3	7.0	6.3
25	4.3	3.0	2.6	2.3	3.5	3.0	3.5	5.3	4.3	11.3	8.3	4.9	5.0	G	G	4.3	8.0	11.0	8.0	7.5	4.5	5.0	5.3	5.3
26	E	2.6	2.8	5.0	5.5	2.6	4.3	7.3	11.0	8.0	5.3	6.2	G	3.9	3.5	4.8	4.3	3.0	S	E	2.4	E	E	E
27	E	2.2	2.1	1.6	E	2.4	3.0	G	7.3	C	C	C	C	C	C	C	C	C	C	C	E	E	2.3	2.5
28	E	2.3	2.0	E	2.6	2.0	C	C	C	5.1	7.0	4.3	4.3	3.5	3.9	G	5.0	6.3	10.3	2.3	3.1	2.3	3.0	2.6
29	2.9	2.6	E	2.3	E	G	2.8	4.3	6.3	5.6	4.0	4.3	3.5	4.3	3.4	3.4	G	3.0	4.3	3.0	E	E	E	E
30	E	1.8	1.5	1.8	E	2.0	G	G	4.3	3.9	G	3.8	3.8	4.1	G	3.3	3.3	G	S	2.4	E	E	2.9	E
31	E	E	E	E	3.0	2.0	4.0	5.3	3.8	G	3.0	5.3	G	G	3.3	3.5	3.3	3.3	2.4	4.2M	5.0	E	3.3	2.7
No.	31	31	31	31	31	28	30	30	30	30	30	30	30	30	30	30	30	30	28	30	31	31	31	31
Median	2.4	2.6	2.6	2.3	2.3	2.6	3.6	5.2	6.2	5.5	5.0	5.2	4.3	4.3	4.0	4.2	4.2	4.2	4.3	4.3	4.5	4.3	3.3	3.1
U.Q	4.3	3.3	3.1	3.3	3.1	3.6	4.3	6.3	8.0	7.0	6.6	6.5	5.1	5.0	5.3	4.8	5.5	7.3	6.4	6.3	6.3	5.3	5.0	5.3
L.Q	E	1.8	E	E	E	2.0	3.0	4.3	4.4	4.3	4.1	4.3	3.9	3.9	3.4	G	3.3	3.0	3.2	3.0	3.1	2.3	2.9	E
Q.R		1.5				1.6	1.3	2.0	3.6	2.7	2.5	2.2	1.2	1.1	1.9		2.2	4.3	3.2	3.3	3.2	3.0	2.1	

foEs

Sweep 1.0 Mc to 18.0 Mc in 1 min (~~sec~~) in automatic operation.

The Radio Research Laboratories, Japan.

W 4

IONOSPHERIC DATA

Aug. 1961 | f_bE_s | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E		E	E	1.3	G	3.3	4.7	G	4.3	5.2	G	G	G	4.1	3.5	A	A	3.7	A	E	E	E	E
2	E	E					3.3	3.0	4.6	4.5	4.6	4.3	4.0	G	A	5.9	3.2	3.1	4.0	2.9	4.2	4.2	4.1	2.8
3	A	A	A	3.0	3.0	3.0	3.0	A	A	A	A	A	A	A	G	3.2	3.1	G	G	E	A	A	E	E
4	E	E	E	E	2.4	G	3.8	A	A	4.7	A	4.7	4.2	4.6	4.5	4.0	5.4	A	4.8	A	A	3.3	4.2	4.2
5	E	2.3	1.9	E	E	4.0	A	4.0	A	A	A	4.7	G	G						E	3.9	E	3.1	E
6		E	E	E	E	2.0		G	4.2	5.4	4.1	A	G	G	4.2	4.5	5.1	4.3	4.6	5.0	5.2	A	E	E
7	E	E	E	E	E	3.2	4.1	4.1	G	G	4.3	4.4	4.2	E3.5A	3.6	4.3	4.5	A	4.8	A	4.0	A	A	A
8	4.2	3.3	4.1	2.6	2.2	S	4.0	4.1	6.8	A	A	A	A	4.0	4.1	3.3	4.0	A	4.2	4.5	4.1	4.5	E	E
9	2.5	E	E		2.1	A	3.2	A	A	A	4.6	G	E4.5A	4.2			G	4.1	4.3	A	2.9	E	E	
10		E				G	G	3.5	G	4.8	G	G	G	4.0	G		4.3	3.7	3.3	3.3	4.3	2.5	E	
11			E	E	E	3.0	4.5	4.5	4.3	G	G	G	A	4.9	3.5	3.2		G	G	4.6		3.0	2.7	
12		E				G	3.6	A	G	G	G		G	G	3.2	G	A	A	A	E	E	E	E	3.2
13				E		3.2	3.9	5.3	G	G	4.2	G	G	G			G		G	E	E	E	E	E
14	E	E	E	E	E	G	4.1	4.1	4.2	G	G	4.4	4.3	4.1	4.3	G	4.3	A	G	E	4.5	3.2	E	
15		E	E	E	E		G	4.2	5.2	5.0	4.8	5.3	4.5	G	4.0	3.4			2.8	2.9	4.1	3.1	3.0	3.0
16	E	2.7	3.0		E	G	3.9	4.3	5.0	5.0	G	A	4.2	4.2	3.8				G	3.1	E	E	E	E
17	E		E	E	E	2.2	G	4.0	4.2	4.3	4.3	4.5	4.5	4.3			3.1	3.0	3.1	E	3.1			E
18	4.0		E			G	G	G	4.1	5.0	A	4.5	G	4.9	4.5	3.7	3.1	3.0	3.8	4.6	4.7	E		3.1
19	2.6	2.3	4.1	2.1	E	S		4.1	4.3	4.2	G	G	G	G	G			G	G	3.2	3.1	3.3	3.1	
20		E							G			G	G	3.6	3.5	3.6	G	G	G	E				
21		E		E			G	G	G	G		A	4.9	G	3.3	3.4	4.4	4.3	4.2	4.2	3.2	E	4.1	4.2
22			E	E	E	S	G	G	5.5	G	G	4.4	4.4	4.1	5.1	3.6	3.7	G	3.4	E	E	4.1	E	3.5
23	E	E	E	2.2	E	4.3	3.4	3.7	6.6	6.1	4.0	4.3	G	4.9	5.0	4.7	6.8	A	A	2.6	3.2	E	2.6	E
24	E	E	E		3.1	4.1	4.6	4.5	5.6	4.3	4.7	5.0	4.5	3.9	4.3	3.9	G	G	G	E	E	3.2	4.0	4.5
25	E	E	2.2	E	E	2.4	3.4	5.0	4.1	A	4.5	4.4	3.9			4.4	4.1	A	A	5.0	4.1	3.1	4.1	3.1
26		E	E	E	E	G	4.3	4.3	A	5.6	4.9	5.9		3.6	3.5	4.6	4.1	2.8	S		E			
27		E	E	E		G	G		6.0	C	C	C	C	C	C	C	C	C	C	C			E	2.3
28		E	E		E	G	C	C	C	4.0	4.6	4.2	4.2	3.5	3.3		4.1	4.9	A	E	E	E	E	E
29	E	E		E			G	4.0	4.5	G	G	3.9	3.4	4.2	3.2	3.2		2.8	3.8	3.1				
30		E	E	E		G			4.3	G		3.6	G	G		3.2	3.1		S	E			E	
31					E	2.0	4.0	A	G		G	4.5			3.2	3.4	3.2	2.8	2.1	4.2	3.2		E	E
No.	17	24	23	21	21	23	26	27	30	28	27	29	27	28	24	22	24	25	27	29	26	24	26	22
Median	E	E	E	E	E·	2.0	3.4	4.1	4.3	4.4	4.3	4.4	4.0	3.8	3.7	3.6	4.0	3.7	3.7	3.1	3.2	3.0	E	E

f_bE_s

Sweep 1.0 Mc to 18.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 5

IONOSPHERIC DATA

Aug. 1961 | 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	E	E	E	E	1.20	2.00	2.00	2.00	2.20	2.40	2.15	2.10	2.30	2.20	2.15	2.00	1.90	1.85	E1.90s	E1.90s	E2.00s	E1.90s	E1.80s
2	E1.90s	E	E1.80s	E	E	1.50	1.85	2.00	2.15	2.50	2.15	2.80	2.20	2.05	2.40	2.15	2.40	1.90	1.70	E1.80s	E1.70s	E1.80s	E1.80s	E1.90s
3	E1.70s	E	E	E	E	E1.50s	1.70	1.95	2.15	2.30	2.10	2.20	2.10	2.20	2.20	2.10	1.90	1.90	E1.90s	E2.00s	E1.90s	E2.00s	E2.00s	E1.90s
4	E1.90s	E	E	E	E	1.50	2.00	2.00	2.10	2.15	2.40	2.40	2.95	2.40	2.15	2.15	2.15	2.05	1.85	E2.10s	E2.00s	E2.00s	E1.90s	E1.90s
5	E1.90s	E	E	E	E	1.50	1.90	1.90	2.20	2.15	2.20	2.20	2.70	2.30	2.20	2.00	2.15	2.00	2.00	E2.10s	E2.00s	E1.80s	E1.90s	E1.80s
6	E1.80s	E	E	E	E	E1.50s	1.80	2.00	1.90	2.05	2.30	2.40	2.30	2.40	2.00	2.20	2.00	1.90	E1.90s	E1.90s	E1.85s	E1.90s	E2.00s	E1.80s
7	E1.80s	E	E	E	E	1.35	1.85	2.00	2.00	2.20	2.10	2.40	2.40	2.30	2.10	1.80	1.90	1.95	E1.95s	E2.10s	E1.85s	E1.90s	E1.85s	E1.80s
8	E1.80s	E	E	E	E	E2.05s	1.90	2.00	2.10	2.10	2.50	2.00	2.20	2.10	2.00	2.30	2.15	2.15	1.85	E1.80s	E1.90s	E1.90s	E2.00s	E2.00s
9	E1.80s	E1.80s	E	E	E	1.20	1.85	1.90	2.10	2.10	2.20	2.10	2.25	2.40	2.40	2.20	2.00	2.00	E1.90s	E2.00s	E1.90s	E1.90s	E2.00s	E1.90s
10	E1.80s	E	E	E2.10s	E	E	1.80	2.20	2.15	2.10	2.15	2.20	3.00	3.20	2.20	2.15	2.10	1.90	E1.90s	E2.00s	E2.00s	E1.90s	E1.90s	E2.00s
11	E1.90s	E2.10s	E	E	E	1.50	1.90	1.90	2.00	2.30	2.30	2.10	2.20	2.50	2.30	2.10	2.15	2.00	E2.00s	E2.15s	E2.10s	E1.85s	E2.00s	E2.10s
12	E2.20s	E	E2.00s	E2.00s	E	1.30	1.90	1.90	1.95	2.15	2.10	2.30	2.20	2.15	2.10	2.10	2.00	1.90	E1.90s	E1.90s	E1.90s	E1.80s	E1.90s	E1.90s
13	E1.90s	E1.80s	E	E	E	1.30	2.00	2.00	2.00	2.50	3.00	2.50	2.40	2.40	2.60	2.10	1.90	2.05	E2.00s	E1.90s	E2.00s	E2.00s	E2.00s	E2.00s
14	E1.90s	E	E	E	E	1.40	1.90	2.10	2.20	2.20	E3.00s	2.50	2.80	2.90	2.50	2.10	2.00	2.00	E1.90s	E1.90s	E2.00s	E1.90s	E1.90s	E2.00s
15	E2.00s	E1.90s	E	E	E	1.50	2.00	1.90	2.20	2.10	2.30	2.50	2.50	2.50	2.10	2.20	2.05	1.90	1.85	E2.30s	E2.00s	E1.90s	E1.90s	E1.80s
16	E1.90s	E	E	E1.50s	E	E	1.90	1.90	2.05	2.10	2.10	3.00	3.00	3.00	2.30	2.10	2.10	2.00	E1.80s	E2.00s	E2.00s	E2.00s	E1.90s	E2.00s
17	E1.80s	E2.00s	E	E	E	1.50	1.90	2.00	2.10	2.10	3.00	2.40	2.25	2.40	2.10	2.10	1.90	1.80	1.80	E2.00s	E1.90s	E2.00s	E2.00s	E1.90s
18	E2.00s	E2.40s	E	E	E	1.20	1.90	2.00	2.10	2.30	2.40	2.40	2.70	2.30	2.10	2.10	2.00	2.00	1.80	E2.00s	E2.00s	E2.00s	E2.10s	E1.90s
19	E1.90s	E	E	E	E	E2.00s	2.00	2.00	2.00	2.10	2.40	2.30	2.15	2.15	2.20	2.20	2.10	2.00	E1.90s	E2.00s	E2.00s	E2.00s	E2.00s	E2.10s
20	E2.00s	E	E2.00s	E	E	E2.00s	2.00	1.90	2.10	2.05	2.50	2.20	2.15	2.50	2.10	2.10	2.00	1.90	E1.90s	E2.00s	E1.90s	E2.10s	E2.00s	E2.20s
21	E2.00s	E	E	E	E	E	1.90	1.95	2.10	2.00	2.15	2.15	2.10	2.30	2.30	2.00	1.90	1.95	E1.90s	E2.15s	E2.00s	E2.00s	E2.10s	E2.00s
22	E2.10s	E1.90s	E	E	E	E1.85s	1.70	2.10	2.10	2.30	2.20	2.50	2.30	2.90	2.30	2.10	2.00	2.00	E1.90s	E2.00s	E2.00s	E2.15s	E2.00s	E1.90s
23	E1.80s	E	E	E	E	1.50	2.00	2.00	2.00	2.20	2.20	2.50	2.15	2.20	2.50	2.15	2.30	2.60	1.90	E1.90s	E2.00s	E1.90s	E1.90s	E1.90s
24	E1.90s	E	E	E2.00s	E	E1.50s	1.90	2.00	2.05	2.05	2.40	2.50	2.30	2.95	2.20	2.00	2.15	2.00	E1.80s	E2.00s	E1.90s	E1.90s	E2.00s	E2.00s
25	E1.90s	E	E	E	E	E	2.00	2.00	2.15	2.20	3.00	3.00	2.50	2.50	2.50	2.15	2.00	1.90	1.90	E2.10s	E1.90s	E2.00s	E2.00s	E2.00s
26	E2.00s	E	E	E	E	E1.50s	1.90	2.00	2.10	2.30	2.85	2.50	2.30	2.40	2.00	2.10	1.90	1.90	E2.00s	E2.00s	E2.00s	E2.10s	E2.10s	E2.10s
27	E2.10s	E	E	E	E	E1.30s	E2.00s	2.05	2.15	C	C	C	C	C	C	C	C	C	C	C	E2.00s	E2.00s	E1.80s	E1.90s
28	E2.00s	E1.50s	E	E2.30s	E	E1.30s	C	C	C	2.10	2.25	2.10	2.10	2.10	2.10	2.00	2.00	1.95	E1.90s	E1.80s	E2.00s	E2.00s	E1.90s	E1.90s
29	E1.80s	E	E	E	E	E	1.90	1.95	2.00	2.10	2.30	2.10	2.10	2.10	2.00	2.10	2.15	1.80	1.85	E1.95s	E2.00s	E2.10s	E2.00s	E1.90s
30	E1.90s	E	E	E	E	E	1.85	1.90	2.00	2.10	2.15	2.50	2.20	2.15	2.15	2.05	2.00	1.90	E2.00s	E1.80s	E2.00s	E1.80s	E1.90s	E2.00s
31	E1.90s	E1.50s	E	E	E	E	1.80	2.00	2.10	2.05	2.30	2.20	2.20	2.10	2.30	2.30	2.00	1.90	E1.80s	E2.10s	E2.00s	E2.15s	E1.90s	E1.80s
No.	31	22	28	26	31	23	29	30	30	30	29	30	30	30	30	30	30	30	30	30	31	31	31	31
Median	E1.90	E	E	E	E	E1.30	1.90	2.00	2.10	2.10	2.30	2.40	2.25	2.35	2.20	2.10	2.00	1.95	E1.90	E2.00	E2.00	E2.00	E2.00	E1.90

f-min

Sweep 1.0 Mc to 18.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | 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	2.90	2.90	3.15F	2.90	3.00	3.25	2.75	3.20	3.15	3.40	3.35	2.90	2.85	3.05	3.10	3.10	I3.10A	I2.90A	3.10	I2.85A	SF	F	F	F
2	3.05	2.95	3.00	2.90	3.00	3.23H	2.85H	3.15	3.25	3.40	3.20	2.90	2.50	3.05	I2.90A	2.85	2.70	2.75	2.65	3.05	3.05	2.80	3.05	2.70F
3	A	F	A	F	F	2.75F	2.95	A	A	A	A	A	A	A	2.85	W	2.70	2.70H	3.00	2.70	I2.85A	I2.85A	2.95	2.85
4	2.70F	F	F	F	2.90	2.95	2.65	I3.00A	I3.05A	3.15	I3.10A	3.05	2.75	2.85	2.85	3.10	3.10	I3.05A	3.10	A	A	F	F	F
5	F	F	F	F	F	3.00	I3.15A	3.45	I3.20A	I3.05A	I2.60A	3.00	3.15	3.10	3.30	3.20	2.95H	3.00	3.05H	2.95	2.85	I2.80F	2.90	2.95F
6	3.15F	2.85F	2.15F	3.00F	2.80	2.90	2.95	3.35	3.60	3.25	3.25	I3.30A	2.85	3.05	3.15	3.00	3.05	2.95	3.05	3.10	3.00F	I3.10A	2.95F	2.75F
7	FS	F	F	F	FS	3.00	3.25	3.35	3.20	3.25	3.25	3.15	2.95	2.95	3.05	3.50	3.10	I3.10A	2.90	I2.90A	2.90	A	A	A
8	2.95	F	F	F	F	3.35	2.95	3.05	3.25	I3.25A	I3.20A	I3.20A	I3.10A	2.95	2.95	3.00	3.05	I3.00A	3.00	3.05	FS	F	F	F
9	F	F	2.85F	2.70F	2.80F	I2.90A	2.85	A	A	A	2.60	W	2.85	2.80	2.80	2.85	3.00	3.05	3.00	I2.90A	U2.70S	2.85F	2.90	2.85
10	2.85	2.85	2.85	2.95	2.70	2.85H	3.10	3.15	3.05	3.15	2.95	2.95	3.10	2.85	2.85	2.95	3.05	2.90	2.95	2.95	2.75	2.80	2.80	2.80
11	2.80	2.60	2.75	2.50	2.55F	2.90F	2.75	2.75F	2.65	2.85	2.30	2.40	I2.35A	2.55	W	2.85	3.00H	2.80H	2.90H	2.65	2.65	2.65	2.75	2.90
12	2.55	2.60	2.85F	I2.70F	2.60	2.65	2.50	I2.70A	2.95	2.80	W	2.45	W	W	2.80	2.55	A	A	A	2.90	2.80	2.75	2.70	2.75
13	2.90	2.90	2.65F	2.85	2.80	3.00	3.05	3.05	2.80	3.05	3.10	2.75	2.95	2.50	2.80	3.00	3.10	3.05	2.90	2.80	2.80	2.80	I2.95S	2.95
14	I2.85F	2.75F	2.80F	2.85F	2.85F	2.95	2.85	3.10	3.05	3.20	3.20	2.65	2.95	2.95	2.90	3.15	2.95	I3.05A	2.95	2.90	2.90	F	F	F
15	2.65	2.75	2.85F	2.75F	2.70F	2.70F	2.90H	3.15	3.20	3.30	3.00	3.15	2.80	3.00	3.05	3.05	3.05	2.85	2.90	2.80	2.85	3.00	2.85	2.70
16	2.70	2.70	2.75	2.70	2.70	3.00	3.25	3.15	3.20	3.00	2.85	I2.85A	2.95	3.10	3.05	3.15	3.05	3.10	2.95	2.90	2.75	2.80	2.95F	2.85
17	2.75	2.80	2.80F	2.85F	2.85F	3.05	3.10	3.00	3.15	3.05	3.30	2.95H	2.75H	2.95	3.15	2.95	3.05	3.05	3.00	2.80	2.85	3.00	2.85	2.95
18	2.70	2.80	2.80	2.85	2.90	3.00	3.10	3.25	3.15	3.25	I3.10A	2.90	3.00	3.10	3.05	3.00	3.15	2.95	2.95	2.85	2.80	2.95	3.00	2.85
19	2.85	2.80	2.85	2.90	2.90	3.10	3.20	3.25	2.95	2.90	2.90	3.00	3.00	2.75	2.90	2.95	2.90	2.95	2.80	3.10	2.95	2.95	2.70	2.80
20	2.90	2.60	2.80	2.85	2.75	3.00	2.85	2.75	3.00	2.90	2.80	2.85	2.55	2.75	2.85	2.95	3.00	3.00	3.05	3.00	2.85	2.80	2.75	2.85
21	2.80	2.70	2.50	2.50	2.60	2.60	2.70H	3.05	3.15	3.05H	3.20	I2.70A	3.10	3.15	3.10	3.00	3.25	3.20	3.15	2.85	2.75	2.85	2.95	2.90
22	2.95	2.85	2.90	2.90	2.90	2.95H	3.25	3.20	3.30	3.25	3.25	2.95	3.10	3.05	2.90	2.95	3.20	3.10	3.00	2.90	3.00	2.95	3.25	3.15
23	I2.90F	I2.85F	I2.80F	2.85F	2.85F	3.05	3.25	3.30	3.30	3.40	3.10	3.00	2.95	3.10	2.95	2.15	I3.15A	I3.10A	I3.00A	2.90	I2.95S	3.10	3.10	3.10
24	2.90	2.80	2.90	3.00	3.00	3.20	3.05	3.20	3.35	3.30	3.20	3.10	3.10	3.00	3.15	3.20	3.20	3.20	2.95	3.10	3.15	2.80	3.10	2.85F
25	F	F	F	F	2.75F	3.00	3.15	3.15	3.40	I3.25A	3.45	3.25	3.25	2.90	3.05	3.10	3.10	I3.05A	I2.95A	2.90	I3.00S	I3.10S	3.00F	I2.90F
26	F	F	F	F	3.05F	3.15	2.90	3.05	I3.10A	3.10	3.35	3.00	3.15	3.30	3.05	3.00	3.10	3.15	3.20	2.90	2.95	2.95	3.00	2.90
27	2.90	2.90	2.95	2.90	2.85	3.10	3.10	3.15	3.20	C	C	C	C	C	C	C	C	C	C	C	3.15	3.35	3.15	2.80
28	2.80	2.75	2.80	2.90	2.90	3.20	C	C	C	3.40	3.25	3.10	3.30	3.10	2.85	3.10	3.10	3.20	I3.15A	3.00	3.00	3.05	3.10	3.00
29	3.10	2.90	2.95	3.05	2.85	3.20	3.25	3.15	3.15	3.25	3.30	3.20	3.20	3.15	3.25	3.20	3.20	3.35	3.10	3.00	3.00	3.20	2.90	2.85
30	2.85	2.85	2.90	2.95	3.30	3.10	3.30	3.25	3.20	3.40	3.55	3.05	2.70	2.90	3.10	3.15	3.15	3.20	3.00	3.05	2.75	2.75F	I2.70F	2.70F
31	2.55F	2.80	2.65	2.75	2.50	2.60	2.75	I2.85A	2.40	2.50	2.55	2.85	2.90	2.90	3.00	2.90	3.10	3.20	3.15	2.90	3.10	2.90	2.70	2.75
No.	25	23	24	24	27	31	30	28	28	28	29	29	29	27	30	30	29	29	29	29	28	26	26	26
Median	2.85	2.80	2.80	2.85	2.85	3.00	3.00	3.15	3.15	3.20	3.20	2.95	2.95	2.95	3.00	3.00	3.10	3.05	3.00	2.90	2.90	2.90	2.95	2.85

M(3000)F2

Sweep 1.0 Mc to 18.0 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Aug. 1961 | 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							I3.35A	I3.60A	3.75	I3.95A	I3.90A	3.90	3.85	3.70	I3.55A	3.65	I3.65A	I3.55A						
2								3.75	I3.80A	I4.05A	I3.70A	I3.55A	I3.65A	3.90	I3.65A	I3.70A	3.55	3.40						
3						A	3.30	A	A	A	A	A	A	A	3.80	3.50	3.65							
4						3.25	A	A	A	A	A	A	A	A	A	I3.60A	A	A	A					
5								I3.65A	A	A	A	A	3.75	3.70	3.80	3.75		3.40						
6							3.45	3.45	A	A	A	I3.70A	3.70	3.85	A	A	A	A						
7								A	3.75	3.70	A	A	A	A	3.70	A	A	A						
8								A	A	A	A	A	A	3.80	3.60	3.60	A	A						
9							3.45	A	A	A	I3.95A	3.90	I3.80A	I3.80A	3.50	3.70	3.50	A						
10							3.65	3.55	3.80	I3.75A	3.55	3.80	3.70	3.50	3.85	3.40	I3.55A	I3.50A						
11						A	A	A	A	3.85	4.00	3.60	I3.65A	I3.70A	3.65	3.50								
12						3.15	I3.35A	I3.55A	3.75	3.70	3.70	3.90	3.75	3.45	3.40	3.50	A	A						
13							LA	A	L	3.70	3.70	3.75H	3.60	3.55H	3.65	3.55	3.80							
14								LA	A	3.70	3.95	3.70H	3.80	I3.70A	3.45	3.55	LA	A						
15								A	A	A	A	I3.60A	I3.45L	3.80	3.60	L	L							
16							A	A	A	A	3.60	I3.80A	3.85	3.45	3.55	3.70	L	L						
17								L	I3.85A	I3.80A	A			A	3.45	L	L							
18							L	3.70	A	A	A	A	3.60	I3.65A	I3.50A	3.40	L	L						
19							L	A	A	3.65	3.45	3.75	3.85	I3.60L	3.45	3.50	L	L						
20								3.55	3.70	3.80	3.90	3.75	3.70	3.55	3.35	3.50	L	L						
21						L		3.55	3.85		3.90H	I3.75A	I3.60A	3.60	3.55	3.60	A	A						
22									A	3.70	3.85	I3.85AH	I3.65A	3.45	I3.55A	I3.55L	L							
23							LA	LA	A	A	4.00	I3.90L	I3.65L	I3.60A	I3.55A	A	A							
24									A		A	A	A	3.55	A	A	L	L						
25								A	A	A	A	I3.55A	3.75	I3.65L	3.45	A	A							
26							A	A	A	A	A	A	3.85	3.75	3.50	A	A	L						
27								L	A	C	C	C	C	C	C	C	C	C						
28							C	C	C	4.00	I3.95A	I3.75L	3.55	3.70	I3.60L	L	A	A						
29							L	A	A	3.90	3.75	3.95	3.95	3.55	3.60	3.60	L							
30							L	3.75	I3.85A	3.85	3.80	3.80	3.70	3.50	3.45	3.65	L	L						
31							I3.10A	I3.35A	3.55	3.50	3.85	I3.85A	3.70	3.50L	3.55	3.50	L	L						
No.						2	7	11	10	16	18	21	24	26	27	21	6	4						
Median						3.20	3.35	3.55	3.80	3.80	3.85	3.75	3.70	3.60	3.55	3.55	3.60	3.45						

M(3000)F1 Sweep 1.0 Mc to 18.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | 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							330	275	250	270	280	390	390	330	320	305	I300A	I310A						
2								275	275	260	310	380	510	325	I390A	375	350	340						
3						420	475	A	A	A	A	A	A	A	415	W	430							
4						350	390	I360A	I345A	330	I350A	375	465	380	400	315	I310A	A	A					
5								280	I310A	I380A	I480A	370	340	340	300	350		330						
6							335	290	280	300	300	I310A	400	350	315	340	330	325						
7								260	320	300	310	350	385	375	340	275	A	A						
8								300	A	A	A	A	A	370	350	345	320	A						
9							365	A	A	A	490	W	430	610	450	400	360	320						
10							290	300	315	310	360	360	360	360	380	350	315	I320A						
11						340	350	430	460	415	600	550	I565A	520	W	410								
12						400	445	I430A	385	465	W	540	W	G	600	500	A	A						
13							320L	I320A	I295L	320	320	425	360	500	370	325	300							
14								280	285	275	300	470	345	330	300	310	300	A						
15								290	275	280	360	320	350L	350	340	310	295							
16							270	290	I340A	300	355	I340A	350	335	320	300	L	L						
17								I290L	260	290	280			325	310	325	L							
18							L	260	265	285	I315A	350	345	320	320	315	L	L						
19							270	255	I325L	280	300	310	300	I345L	320	320	L	L						
20								410	350	385	420	435	500	450	400	365	L	L						
21						L		300	300		320	I330A	340	325	325	325	290	280						
22									I275A	300	300	350	320	310	I330A	325	285							
23							260	250	I270A	I275A	280	360	370	335	I320A	300	A							
24									A		295	310	315	320	310	300	285	I270L						
25								270	250	I255A	260	300	295	340	320	295	280							
26							A	275	I280A	I290A	265	I305A	310	300	320	320	295	270						
27								270	A	C	C	C	C	C	C	C	C	C						
28							C	C	C	260	285	325L	300	320	I325L	320	295	275						
29							L	260	280	270	260	285	300	320	295	295	L							
30							L	275	275	265	250	340	395	310	300	295	280	L						
31							I430A	I410A	500	500	500	405	400	390L	350	355	310	275						
No.						4	13	26	25	25	28	27	27	29	30	30	19	11						
Median						375	335	285	285	290	310	350	360	340	325	320	300	310						

h'F2 | Sweep 1.0 Mc to 18.0 Mc in 1 ~~sec~~ min in automatic operation.

The Radio Research Laboratories, Japan.

W 9

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IONOSPHERIC DATA

Aug. 1961 | 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	290	275	260	290	290	250	I250A	I240A	225	I210A	I210A	200	200	235	I225A	240	I250A	I250A	I270A	I265A	260	300	255	265
2	250	270	250	270	285	240H	260H	225	I215A	I205A	I200A	I220A	I215A	230	I260A	I240A	230	240	I270A	245A	A	A	A	335A
3	A	A	A	A	A	I310A	270	A	A	A	A	A	A	A	235	225	230	260H	270	300	I300A	I280A	290	295
4	300	325	290	285	300	275	A	A	A	A	A	A	A	A	A	I250A	A	A	A	A	A	A	A	A
5	275	300	265	300	260	A	A	A	A	A	A	A	240	240	205	235	200H	240	260H	240	I275A	280	I290A	275
6	235	285	300	275	310	250	240	250	A	A	A	A	225	225	A	A	A	A	A	A	A	A	275	300
7	330	340	315	305	285	A	A	A	230	210	A	A	A	A	230	A	A	A	A	A	A	A	A	A
8	A	A	I310A	300	280	250	A	A	A	A	A	A	A	220	250	230	A	A	A	A	A	A	275	250
9	295	300	270	300	300	I300A	260	A	A	A	I230A	210	I215A	I220A	250	230	250	A	A	A	290A	275	260	280
10	275	295	285	290	310	265H	250	245	225	I240A	240	210	220	260	215	230	I260A	I260A	I260A	I260A	I270A	290	290	285
11	270	250	305	325	340	A	A	A	A	210	220	220	I220A	I225A	220	230	250H	270H	270H	I340A	320	315A	290	260
12	350	310	295	330	330	290	I280A	I260A	240	250	220	220	225	230	220	245	A	A	A	275	310	315	290	I310A
13	280	285	305	300	270	A	A	A	240	230	230	210H	230	240H	235	235	230	250	275	280	275	290	270	260
14	270	280	310	300	270	275	A	A	A	230	200	225H	205	I230A	260	230	I255A	I240A	260	275	I260A	I285A	275	300
15	300	300	300	295	325	250	260H	A	A	A	A	I250A	250	230	225	225	230	250	280H	285	A	A	A	I310A
16	305	325	I310A	300	290	290	A	A	A	A	230	I210A	200	260	235	225	230	250	275	I280A	285	275	255	285
17	300	290	310	295	280	270	240	260	I235A	I220A	I215A	250AH	I250AH	I250A	235	230	250	250	275	270	I270A	260	260	260
18	I285A	310	295	275	295	270	240	250	A	A	A	A	235	I250A	I250A	230	245	260	A	A	A	255	250	I255A
19	280	310	I310A	295	260	240	250	A	A	A	240	230	235	220	210	230	245	260	280	I265A	I255A	I255A	I290A	290
20	260	280	310	270	290	270	250	235	220	210	215	200	220	215	230	250	250	260	290	260	270	300	300	300
21	300	310	325	350	325	260	240H	240	200	240H	190H	I205A	I210A	250	220	240	A	A	A	A	A	270	I265A	I290A
22	300	300	270	285	270	240H	250	245	A	240	210	AH	A	A	A	235	250	250	I255A	260	270	I255A	250	I260A
23	320	300	310	310	300	I275A	I250A	A	A	A	215	I205A	230	A	A	A	A	A	A	270	I255A	250	260	250
24	290	310	300	260	A	A	A	A	A	A	A	A	A	230	I235A	I245A	250	260	250	250	240	A	A	A
25	320	270	275	260	300	280	A	A	A	A	A	A	215	210	245	A	A	A	A	A	A	260	I265A	I285A
26	300	315	305	300	285	240	A	A	A	A	A	A	210	200	235	A	A	245	255	260	270	260	250	260
27	300	290	275	290	250	255	240	230	A	C	C	C	C	C	C	C	C	C	C	C	240	230	235	315
28	320	335	310	305	260	255	C	C	C	230	I225A	230A	250A	220	225	245	A	A	A	250	255	250	250	250
29	290	300	270	270	280	250	245	I240A	I220A	220	220	210	200	235	220	230	240	265	I260A	I255A	260	255	250	260
30	295	300	290	295	220	260	250	235	I240A	210	205	195	195	240	250	245	250	250	260	260	290	305	325	315
31	350	300	290	260	360	325	I300A	I270A	235	245	230	I225A	220	235	250	250	250	260	260	I270A	I255A	275	325	300
No.	29	29	30	30	29	26	19	14	12	16	19	19	24	25	26	25	20	20	19	22	22	24	26	28
Median	295	300	300	295	290	260	250	240	230	225	220	210	220	230	235	235	250	250	270	265	270	275	270	285

h'F

Sweep 1.0 Mc to 18.0 Mc in 1 ~~sec~~ min in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | 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	1.05	E	1.05	1.05	1.05	1.45	1.25	1.20	1.05	1.15	1.15	1.10	1.10	1.15	1.10	1.10	1.30	1.15	1.15	1.15	1.10	1.10	1.10	1.05
2	1.05	1.10	E	E	G	G	1.15	1.15	1.10	1.10	1.05	1.05	1.05	1.10	1.10	1.20	1.15	1.15	1.15	1.05	1.05	1.05	1.10	1.15
3	1.10	1.10	1.10	1.25	1.20	1.20	1.20	1.15	1.10	1.10	1.10	1.10	1.10	1.10	1.15	1.10	1.05	1.25	1.15	1.15	1.15	1.10	1.10	1.10
4	1.05	1.05	1.05	1.05	1.00	1.40	1.20	1.20	1.10	1.10	1.10	1.10	1.20	1.20	1.10	1.15	1.25	1.20	1.15	1.15	1.15	1.15	1.15	1.10
5	1.15	1.10	1.25	1.15	1.15	1.20	1.15	1.15	1.15	1.15	1.10	1.10	1.20	1.15	G	G	G	G	G	1.25	1.15	1.10	1.10	1.10
6	E	1.05	1.05	1.05	1.05	1.15	G	1.30	1.15	1.10	1.05	1.10	1.15	1.20	1.15	1.20	1.15	1.10	1.10	1.10	1.10	1.10	1.10	1.10
7	1.05	1.05	1.05	1.15	1.00	1.20	1.15	1.15	1.10	1.10	1.05	1.05	1.05	1.05	1.05	1.20	1.20	1.10	1.10	1.05	1.05	1.05	1.05	1.05
8	1.05	1.00	1.00	1.05	1.10	S	1.20	1.20	1.10	1.10	1.10	1.05	1.05	1.05	1.05	1.15	1.25	1.15	1.20	1.20	1.20	1.10	1.10	1.10
9	1.05	1.05	1.10	E	1.10	1.25	1.20	1.10	1.10	1.05	1.05	1.10	1.10	1.10	G	G	1.40	1.15	1.15	1.15	1.10	1.10	1.10	E
10	E	1.10	E	E	E	1.25	1.30	1.10	1.20	1.10	1.10	1.15	1.15	1.10	1.10	G	1.25	1.20	1.15	1.10	1.10	1.10	1.10	E
11	E	E	1.05	1.05	1.25	1.05	1.15	1.10	1.15	1.10	1.05	1.10	1.05	1.05	1.10	1.10	G	1.25	1.20	1.15	E	1.10	1.10	E
12	E	1.10	E	E	E	1.30	1.20	1.15	1.10	1.20	1.20	G	1.10	1.10	1.05	1.25	1.25	1.20	1.10	1.15	1.15	1.15	1.10	1.10
13	E	E	E	1.10	E	1.25	1.15	1.10	1.10	1.10	1.10	1.10	1.10	1.10	G	G	1.05	G	1.20	1.05	1.10	1.10	1.10	1.10
14	1.25	1.10	1.05	1.05	1.10	1.25	1.20	1.15	1.10	1.10	1.15	1.10	1.05	1.10	1.10	1.15	1.25	1.15	1.15	1.10	1.25	1.10	1.15	E
15	E	1.10	1.05	1.05	1.05	G	1.35	1.20	1.15	1.10	1.10	1.10	1.10	1.10	1.05	1.05	G	G	1.05	1.05	1.15	1.10	1.10	1.10
16	1.10	1.00	1.00	E	1.10	1.25	1.20	1.15	1.10	1.10	1.10	1.10	1.10	1.10	1.10	G	G	G	1.15	1.15	1.10	1.05	1.10	1.05
17	1.05	E	1.05	1.05	1.05	1.05	1.25	1.15	1.10	1.15	1.10	1.10	1.05	1.05	G	G	1.05	1.05	1.10	1.05	1.15	E	E	1.10
18	1.05	E	1.05	E	E	1.30	1.20	1.15	1.10	1.10	1.05	1.05	1.10	1.10	1.10	1.10	1.05	1.10	1.05	1.15	1.10	1.10	E	1.05
19	1.05	1.05	1.05	1.05	1.05	S	G	1.10	1.10	1.10	1.10	1.10	1.15	1.15	1.20	G	G	1.30	1.25	1.15	1.15	1.10	1.10	E
20	E	1.10	E	E	E	G	G	G	1.15	G	G	1.15	1.10	1.10	1.05	1.05	1.40	1.35	1.20	1.15	E	E	E	E
21	E	1.10	E	1.05	E	G	1.40	1.20	1.15	1.20	G	1.10	1.10	1.20	1.05	1.05	1.30	1.25	1.20	1.15	1.10	1.15	1.10	1.10
22	E	E	1.10	1.05	1.05	S	1.35	1.25	1.15	1.15	1.20	1.10	1.10	1.10	1.05	1.05	1.05	1.20	1.20	1.20	1.15	1.10	1.10	1.05
23	1.05	1.10	1.10	1.10	1.35	1.20	1.20	1.15	1.10	1.10	1.10	1.15	1.10	1.10	1.10	1.10	1.15	1.10	1.10	1.10	1.10	1.10	1.10	1.10
24	1.10	1.05	1.15	E	1.05	1.10	1.15	1.10	1.10	1.10	1.10	1.05	1.10	1.15	1.25	1.25	1.25	1.20	1.20	1.15	1.15	1.20	1.10	1.10
25	1.10	1.05	1.05	1.05	1.20	1.10	1.10	1.10	1.10	1.05	1.10	1.10	1.15	G	G	1.25	1.15	1.10	1.10	1.05	1.05	1.10	1.05	1.10
26	E	1.05	1.05	1.25	1.20	1.25	1.15	1.10	1.10	1.10	1.05	1.05	G	1.10	1.10	1.05	1.05	1.10	S	E	1.05	E	E	E
27	E	1.05	1.10	1.05	E	1.10	1.10	G	1.10	C	C	C	C	C	C	C	C	C	C	C	E	E	1.10	1.05
28	E	1.10	1.05	E	1.05	1.25	C	C	C	1.05	1.05	1.10	1.05	1.10	1.05	G	1.25	1.15	1.10	1.15	1.10	1.10	1.05	1.05
29	1.05	1.05	E	1.10	E	G	1.25	1.15	1.10	1.15	1.15	1.10	1.05	1.05	1.05	1.05	G	1.05	1.15	1.15	E	E	E	E
30	E	1.05	1.05	1.05	E	1.35	G	G	1.15	1.20	G	1.10	1.15	1.10	G	1.10	1.05	G	S	1.25	E	E	1.10	E
31	E	E	E	E	1.05	1.30	1.20	1.15	1.15	G	1.20	1.15	G	G	1.10	1.10	1.10	1.05	1.10	1.15	1.15	E	1.10	1.10
No.	17	24	23	21	21	23	26	27	30	28	27	29	28	28	24	22	24	25	27	29	26	24	26	22
Median	1.05	1.05	1.05	1.05	1.05	1.25	1.20	1.15	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.20	1.15	1.15	1.15	1.10	1.10	1.10	1.10

h'Es

Sweep 1.0 Mc to 18.0 Mc in 1 min sec in automatic operation.

The Radio Research Laboratories, Japan.

W 11

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IONOSPHERIC DATA

Aug. 1961 | **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	f2		f	f	l	h	c	C3	l.C	c	C2	c	c	c	l2	l2	h3	C5	C2	C4	f2	f4	f1	f
2	f	f					C1	l	C2	C2	l	l2	l	c	l3	C2	l	l2	l3	f1	f4	f3	f2	f2
3	f5	f	f2	f2	l3	C3	l2	C4	l2	C3	C2	C2	C2	c	c	l	l	c	c	f3	f1	f6	f2	f2
4	f	f	f	f2	l	h	C2	C2	C2	C2	C2	c	c	c	c	c	C2	C3	C3	f3	f5	f3	f3	f3
5	f2	f2	f.f	f2	f	C3	C4	C2	C4	C3	C2	C2	c	c						f	f2	f2	f2	f
6		f	f	f	f	l		c	c	C2	c	C2	c	c	l	C2	C3	C3	C3	f4	f5	f5	f2	f2
7	f3	f2	f2	f	f	C2	C2	C2	c	c	C2	l2	l	l	l	c l	c.l	C4	C3	f4	f2	f3	f6	f3
8	f2	f3	f	f.f	f.f		C2	C2	C2	C3	C3	C3	l3	l2	l	l	c	C3	c	f4	f3	f2	f2	f
9	f2	f2	f		f2	C4	c	C2	C2	C2	C3	c	l	l			h	C3	C5	f4	f2	f2	f	
10		f				c	c	l.C	c	C2	c	c	c	l	c		C2	C2	C2	f2	f2	f2	f	
11			f	f	f.f	l.C2	C3	C2	c	c	C2	c	l	l	l	l		c	c	f3		f4	f2	
12		f				c	c	C3	l.C	c	c		c	C2	l2	c	C3	C4	C6	f2	f2	f2	f	f2
13				f		c	C2	C4	C2	c	l	c	c	l			l		C2	f2	f2	f2	f2	f2
14	f.f	f2	f2	f2	f	c	c	c	c	C2	c	l	l	l	l	c	c	C2	c	f	f f	f3	f2	
15		f	f	f	f2		c	C2	c	C2	C2	C2	C2	c	l	l			l2	f2	f4	f2	f2	f
16	f	f3	f		f	C2	C2	C2	C2	c	c	c	l	l	l				C2	f	f2	f2	f	f2
17	f2		f	f	f	l	c	c	C2	C2	c	c	c	c			l	l	l2	f	f f			f
18	f2		f			c	c	c	C2	C2	C3	C2	c	l	l	l	l	l	l3	f.f	f3	f		f3
19	f2	f2	f3	f	f			C2	C2	c	c	c	c	c	c			h	c	f	f2	f2	f3	
20		f2							c			c	c	l	l	l	h	h	c	f				
21		f		f			c	c	c	c		C3	C2	c	l	l	h l	c	C3	f2	f2	f2	f2	f3
22			f	f	f		h	c	C2	c	c	c	l	l	l3	l	l2	c	c2	f	f2	f2	f2	f
23	f2	f2	f	f2	f	l2	c	c	C2	C2	c	c	c	c	C2	C2	l3	l4	l3	f2	f2	f	f.f	f
24	f	f	f		f2	C2	l2	l2	l2	l2	l2	C2	C2	l	c.l	c.l	c	c	c	f	f	f2	f2	f3
25	f2	f	f2	f	f2.f2	l2	l2	C4	c	l3	l2	l	l			c	C2	l2	l3	f4	f2	f2	f2	f2
26		f	f	f.f	f2	c	C2	C2	C3	C2	l2	l2		l	l	l2	l	l			f			
27		f2	f2	f		c	c		C2														f	f
28		f	f		f	c				l2	l2	l	l	l	l		c	C3	C4	f	f2	f	f	f
29	f2	f		f			c	c	C2	C2	c	c	l	l	l	l		l	c.l	f.f				
30		f	f	f		c			c	c		l	c	c		l	l			f			f	
31					f	l	C3	C2	c		c	c			l	l	l	l	l	f3	f2		f2	f
No.																								
Median																								

Types of Es | Sweep 1.0 Mc to 18.0 Mc in 1 ~~min~~ ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

Aug. 1961 | 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	5.1	5.0F	4.8	4.6	4.3	5.0	6.1F	8.7	8.6	7.4	7.1	I 6.0A	6.4	7.2	I 7.6A	7.1	6.4	6.2	6.1	7.2	I 7.6A	I 7.6A	R F	F
2	F	F	F	F	F	5.3	6.0	6.8	6.3	6.6	6.7	I 6.0A	I 5.8A	7.0	I 7.4A	7.5	7.5	8.1	8.3	9.9R	8.0	6.0	I 4.7R	4.6
3	A	F	F	A	A	3.9	A	A	A	A	A	A	G	A	A	4.9	5.0	5.3	I 4.9A	I 5.2A	5.8	5.5	5.9R	A
4	A	A	F	RF	F	4.3	5.0	5.5	5.8	6.3	5.4	5.6	6.1	6.2	6.4	6.9	6.6	6.4	6.0	6.6	6.1	A	F	F
5	F	A	F	F	F	4.4	A	A	6.3	5.8	I 6.2A	6.8	7.1	7.4	7.0	6.1	5.8	6.2	6.4	7.2	7.1	7.3F	6.9	I 6.4F
6	5.3	F	F	F	4.6F	5.1	5.4	6.5	6.6H	6.9	6.2	5.6	6.0	6.8	7.3	6.6	6.1	I 6.9A	8.2	9.1	7.0	A	A	F
7	F	A	F	F	F	F	5.3F	I 6.2A	I 7.0A	I 6.2A	6.7	5.6	6.0	I 6.5A	6.8	I 6.2R	I 5.8A	5.7	6.1	7.1	F	F	F	F
8	F	F	F	F	F	5.1F	6.1F	8.2	8.6	7.3R	7.3	6.1	6.5	6.9	7.5	7.5	7.3	6.8	8.0	8.5	7.1F	F	F	F
9	F	F	F	A	F	F	F	I 6.0R	5.8	5.5	5.4	5.5	5.2	5.5	5.9	6.0	I 6.2A	6.3	6.2	7.0	6.5	F	R F	F
10	F	F	F	F	F	5.5	6.0	6.8	7.8	7.2	7.0	7.0	6.9	6.4	6.9	I 7.4L	7.2	7.1	7.5	A	A	A	F	F
11	F	F	F	F	I 5.2F	I 5.6F	A	A	A	I 5.7A	I 5.6A	I 5.5A	I 5.4A	I 5.4R	5.4	5.8	5.6	5.4	5.5	5.9	6.7	F	F	F
12	5.2	5.1F	5.5	4.9	4.7F	4.5	5.5	5.8	5.8	5.3	I 5.3A	I 5.6A	I 5.6A	5.6	5.2	I 5.4A	6.1	6.2	6.5	5.8	6.1	6.1	F	F
13	F	F	F	5.1F	I 4.8F	4.9	6.2	7.0	8.0	I 7.5A	I 6.8A	6.6	6.7	6.5	7.2	7.8	7.1	6.1	6.2	7.2	7.6	7.0	6.9	6.6
14	5.8F	F	F	F	5.4F	5.8	7.4	U 9.6R	8.9	8.1	7.4	7.5	7.6	8.4	8.4	7.9	7.7	6.9	7.1	8.0	7.9	F	A	F
15	F	F	F	F	F	F	7.0	8.6	8.6	7.5	6.8	7.3	7.5	7.9	8.1	8.2	7.5	I 6.9A	7.2	I 7.6A	I 7.6R	7.3	6.8	6.5
16	F	F	F	F	F	7.0	8.0	I 7.6A	7.6	6.8	7.5	7.1	8.1	8.9	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	A	6.9	7.4	7.9	8.6	8.7	8.4	8.1	7.9	8.2	8.9	9.0	7.4R	7.2	6.4
18	6.1	6.1	I 6.0F	I 6.0F	I 6.0F	6.4	8.6	8.4	7.6	7.3	I 7.0A	7.7	8.1	7.7	7.9	7.9	7.8	7.5	7.5	8.6	8.5	F	F	F
19	F	F	F	F	F	F	6.6	7.6	7.9	I 8.0A	I 8.6A	8.6	8.6	8.0	8.3	8.2	8.0	8.4	9.1	10.0R	8.6	7.1	6.6	6.8
20	6.2	6.1	5.4	5.2	5.4	5.0	5.4	6.3	6.4	6.2	5.9	5.7	5.5	6.2	6.6	6.3	6.4	6.5	6.5	6.5	6.5	6.2	6.0	5.9
21	5.9	5.8	5.3	5.4	5.3	5.0	5.9	7.8	7.8	6.9	6.6	6.8	7.0	7.4	7.1	7.0	6.8	6.6	I 7.1A	7.6	I 7.2F	6.7F	F	F
22	6.1F	5.8F	5.8F	5.4F	5.1	5.4F	7.0	8.0	9.1	8.6	8.0	I 7.0A	7.0	7.4	7.3	6.9	7.5	7.1	7.6	8.6	I 8.6R	7.8	6.8	5.7
23	5.6	I 5.6F	I 5.4F	5.3F	5.2F	5.3	7.5	7.8	8.8	7.9	A	A	6.9	7.3	8.1	8.0	7.8	7.1	7.3	8.5	I 8.6F	F	F	F
24	5.3F	F	F	5.3F	4.4	4.9	6.6	7.8	8.3	7.1	6.6	7.0	7.1	7.0	7.9	8.4	8.3	7.9	8.9	8.9	7.9R	7.1	5.7	5.0
25	F	F	F	F	F	F	6.0	8.3F	7.5	6.8F	7.4	7.6	7.2	7.2	7.6	8.3	8.4	7.9	8.3	8.0	7.6	7.8F	6.9	6.1F
26	F	F	F	F	F	RF	5.0	7.0	8.3	7.3	7.2	7.8	7.1	7.0	6.6	7.5	7.6	7.8	7.7	8.1R	7.2	7.2	6.3	6.0
27	5.8	5.5	5.3	5.1	5.1	5.2	6.9	8.5	8.3	8.0	7.6	6.9	7.5	6.8	6.8	6.9	6.9	7.9	8.7	9.0	9.5R	I 7.6F	4.4R	I 3.8F
28	3.5	I 3.6F	I 3.8F	3.9F	I 3.6F	4.4	6.4	7.7	8.4	7.0	6.5	6.4	7.0	6.8	6.6	7.2	7.6	8.2R	8.3	I 8.5R	F	F	C	C
29	C	4.8F	4.9	I 4.9F	4.9	I 5.0R	6.6F	8.0R	8.3	7.9	8.0	7.2	7.3	7.7	7.6	6.8	6.8	7.0	7.1	I 7.6R	I 7.4R	6.6	5.5	5.6
30	5.3F	5.1	5.2	5.1F	4.9	4.1	6.1	8.1	8.7	6.6	6.4	6.0	6.8	9.0	8.9	8.7	8.1	8.0	8.6	8.4	6.8	F	F	F
31	C	C	C	C	C	C	C	C	C	5.4	6.6	6.1	6.6	6.4	6.6	6.9	6.8	7.1	I 6.6A	I 6.0A	5.2	I 4.7R	R	R F
No.	13	11	11	13	16	23	25	26	27	29	29	29	31	30	29	30	30	30	30	29	27	18	14	13
Median	5.6	5.5	5.3	5.1	5.0	5.0	6.1	7.8	7.9	7.0	6.8	6.8	6.9	7.0	7.3	7.2	7.2	7.0	7.2	8.0	7.4	7.1	6.4	6.0
U Q	6.0	5.8	5.5	5.4	5.2	5.4	7.0	8.2	8.6	7.5	7.4	7.2	7.3	7.7	7.9	7.9	7.7	7.9	8.2	8.6	8.0	7.4	6.9	6.4
L Q	5.2	5.0	4.9	4.9	4.6	4.5	5.7	6.8	6.6	6.2	6.3	5.8	6.0	6.5	6.6	6.6	6.4	6.3	6.4	7.0	6.7	6.2	5.7	5.3
Q R	0.8	0.8	0.6	0.5	0.6	0.9	1.3	1.4	2.0	1.3	1.1	1.4	1.3	1.2	1.3	1.3	1.3	1.6	1.8	1.6	1.3	1.2	1.2	1.1

foF2

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

The Radio Research Laboratories, Japan.

A 1

21

IONOSPHERIC DATA

Aug. 1961 | 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							I 3.8 L	I 4.2 A	4.4	A	A	A	I 4.8 A	A	A	A	A	A	A					
2							L	I 4.1 L	4.2 L	I 4.3 A	I 4.4 H	A	A	4.7	I 4.6 A	4.5	4.5	4.0 R						
3						L	A	A	A	A	A	A	4.5	A	A	4.4	4.1	A						
4						2.9 L	A	A	A	4.6 L	4.7 L	4.7	I 4.6 A	I 4.6 A	I 4.6 A	4.5	4.2 L	4.0	L					
5									A	A	A	I 4.4 A	A	A	4.7	4.5	4.4 L	3.7 L						
6							L	I 4.2 L	5.0	4.5	4.6	I 4.8 A	4.8	4.6	I 4.6 A	I 4.6 A	A	A	A					
7							A	A	A	A	A	I 4.6 A	4.9	I 4.8 A	I 4.8 A	I 4.6 A	A	A						
8								4.0 L	I 4.6 L	4.6 H	I 5.0 A	4.7 L	4.9	4.8 L	4.7	4.5	4.3 L	4.1 L	L					
9						L	A	A	A	A	4.7 L	4.8	4.8	4.8	4.6	4.5	A	A	A					
10							A	A	I 4.6 A	4.7	5.0	5.0	5.0	5.3 L	I 4.8 A	I 4.6 C	A	A	A					
11							A	A	A	A	A	I 5.0 A	I 4.9 A	4.9	4.7	4.6 H	4.4 L	A	L					
12							I 3.6 A	I 4.0 A	4.4	A	A	A	A	4.8	I 4.9 L	I 4.6 A	4.3	4.2 L	L					
13							L	A	A	A	A	A	A	5.3 H	5.1	I 4.8 L	4.4 L	L	A					
14							L	L	4.6 L	5.1 L	5.0 L	5.2 L	5.2	5.5 H	A	A	A	A						
15							L	A	A	A	A	A	I 5.4 A	I 5.5 A	5.0 L	4.9 L	A	A	A					
16									A	A	A	A	5.1	5.5 L	C	C	A	A	A					
17							C	C	C	A	I 5.2 A	5.1 L	5.2	5.2	A	A	I 4.6 L	L	A					
18							A	A	A	A	A	A	I 5.1 A	5.1 L	5.0 L	4.9	A	A	A					
19								L	L	A	A	A	A	I 5.1 A	5.1 L	5.0 H	I 4.6 L	L	L					
20							A	4.3	4.5	4.7	4.8	4.9	5.0	4.8	4.7	4.7	4.3 L	L						
21							L	4.3 L	4.5 L	4.6	I 4.9 A	4.8	5.1 L	5.0	5.0 L	I 4.6 A	A	A	A					
22							L	L	A	I 4.6 A	4.9 L	A	A	5.0 L	I 4.6 A	4.6 L	4.3 L	L						
23								A	A	4.6	A	A	A	I 4.8 A	I 4.8 A	I 4.7 A	L	A						
24								L	A	4.5	4.6 L	4.8 L	5.0	5.1 H	4.8 L	4.5	A	A						
25								A	4.5	I 4.5 L	I 4.6 A	A	A	A	L	I 4.6 A	4.0 L	A						
26							A	A	4.4	A	A	A	L	I 5.0 A	I 4.8 A	4.5 L	4.2 L	L						
27								4.0 L	4.5 L	4.5 L	4.7 L	4.6 L	4.7 L	I 4.6 L	4.5	4.3 L	4.0	A						
28							L	L	4.5	4.5	4.5	I 4.6 H	4.8 L	4.6 L	I 4.6 A	4.3	L	A						
29							L	A	4.5	4.5	I 4.5 L	4.7 L	4.7 H	4.8 L	4.6 L	4.6 L	L	L						
30								4.1 L	4.4	I 4.4 A	I 4.6 L	I 4.8 L	5.0	4.8 H	4.6	4.5 L H	L	L						
31						C	C	C	C	L H	A	4.6	I 4.6 A	4.7	I 4.6 A	4.3 L	4.1 L	A						
No.						1	2	9	15	16	17	18	22	27	25	27	16	5						
Median						2.9	U 3.7	4.1	4.5	4.6	4.7	4.8	4.9	4.8	4.7	4.6	4.3	4.0						

foF1

Sweep 1.6.0 Mc to 2.0.0 Mc in 2.0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 2

IONOSPHERIC DATA

Aug. 1961 | 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						B	I2.30A	2.75	3.05	3.25	3.35	A	A	3.50	3.40	I3.25A	I3.00A	2.55	A					
2							A	A	A	A	A	A	A	3.70	3.25	3.05	2.85	2.45						
3							I2.15A	I2.85A	I3.10A	3.55	A	A	A	A	A	A	A	A						
4						A	A	2.80	3.10	3.15	A	A	A	3.30	I3.20A	A	A	A						
5						A	A	A	3.20R	I3.45A	3.50	A	A	A	A	A	2.95	2.45	1.75					
6							A	A	A	R	A	A	3.55	3.55	3.45	I3.30R	I2.90R	2.55	A					
7							A	2.85	3.15	A	A	A	A	A	A	A	A	2.60						
8							I2.25A	2.80	3.15	3.50	I3.60A	I3.70A	I3.65A	3.55	I3.50A	3.35	3.05	2.65	1.85					
9							2.95	A	A	A	A	A	A	3.60	3.55	I3.30A	3.05	2.60	A					
10							A	A	A	A	A	A	A	R	A	C	R	2.65	2.00					
11							2.95	I2.80A	3.25	I3.40A	I3.50A	A	A	A	A	A	3.00	2.65	A					
12							2.35	I2.75A	A	R	3.55	A	A	A	3.55	3.35	3.05	I2.70A	A					
13							2.35	A	A	3.55	A	A	A	3.65R	A	A	A	A	A					
14							2.40	I2.90A	I3.30A	3.55	A	A	A	A	A	3.55	I3.20A	I2.60R						
15							I2.35A	I2.90A	3.25	I3.50A	I3.55A	A	A	A	A	A	A	A	A					
16							2.35	2.95	I3.25A	A	A	A	A	3.65	C	C	C	C	C					
17							C	C	C	3.50	3.60	I3.65A	A	A	A	A	A	A	A					
18							A	A	I3.15A	A	A	A	A	A	A	A	A	A	A					
19							2.35	I2.80A	I3.15A	A	A	A	A	A	A	3.25	3.00	2.55	A					
20							A	A	A	A	A	A	3.65	I3.60R	A	A	A	A	A					
21							A	A	A	3.30	A	A	A	A	A	A	A	2.50	B					
22							A	2.70	I3.10A	A	A	A	A	A	A	A	A	2.45	A					
23							2.25	2.90	I3.15A	3.35	A	A	A	A	A	A	A	2.35						
24							A	A	A	A	A	A	A	3.50	3.40	3.10	2.90	2.40						
25							A	A	A	A	A	A	A	3.60	3.50	3.25	A	A						
26							A	A	A	A	A	A	A	A	A	A	A	A						
27							2.15	A	A	A	A	A	A	A	A	A	I2.80A	2.25						
28							A	A	A	A	A	A	3.55	A	A	A	A	A						
29							A	2.70	3.05	3.30	I3.40A	3.55	I3.55A	3.40	A	A	A	A						
30							2.20	2.75	3.10	A	A	A	3.55	3.50	3.40	3.30	2.85	A						
31							C	C	C	3.25	3.40	A	A	A	A	A	A	A						
No.							14	15	16	14	9	3	6	13	10	11	13	17	3					
Median							2.35	2.80	3.15	3.40	3.50	3.65	3.55	3.55	3.40	3.30	3.00	2.55	1.85					

foE

Sweep 1.60 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

IONOSPHERIC DATA

Aug. 1961 | 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	1.9	1.9	2.3	2.3	1.8	G	2.8	7.1	3.9	6.0	5.4	7.1	6.4	5.5	8.8	5.9	5.2	6.1	8.5	10.9	16.8Y	8.3	6.0	2.7
2	3.7	5.8	3.8	2.3	E	2.1	2.9	5.9	9.0	6.5	8.5	5.6	11.7Y	4.6	20.0V	4.0	3.9	5.8	5.9	5.1	3.2	2.3	2.3	2.3
3	7.8Y	5.0	3.7	6.3	8.3	3.4	7.1	6.8	11.2	13.8	12.4	7.4	5.9	7.4	6.3	4.7	3.8	4.4	6.1	6.1	2.8	2.8	6.0	14.0
4	8.6	8.3	5.0	5.0	2.8	3.6	5.0	5.0	5.4	5.5	8.5	5.3	8.5	8.4	7.1	5.0	4.0	4.2	2.9	3.8	5.0	10.9	6.9	8.3
5	6.3	12.3	5.0	4.6	3.7	3.5	8.3	12.6Y	5.1	8.5	14.3	5.0	6.3	8.5	4.7	3.6	G	G	4.4	2.2	5.0	6.0	3.0	4.2
6	4.9	5.6	2.5	2.8	2.8	E	3.1	G	5.4	4.2	G	8.3	4.0	5.5	7.3	8.3	13.8	10.0	4.3	5.3	8.3	8.3	8.4	5.0
7	3.5	8.3	2.8	3.6	2.3	2.3	5.3	11.7	17.4	10.4	8.3	5.3	4.7	8.5	8.4	5.8	14.3	7.3	5.0	4.9	2.8	6.1	6.0	3.8
8	2.8	1.8	2.3	2.0	2.0	2.6	3.1	6.0	G	G	5.9	4.9	4.0	3.7	6.9	G	G	4.8	6.5	8.2Y	8.3Y	14.9	6.0	7.9
9	1.7	4.9	8.6	8.3	6.4	3.3	6.3	6.1	5.1	6.0	4.3	3.9	3.9	G	G	3.6	6.1	5.0	6.1	5.0	5.2	6.0	5.1	3.2
10	5.1	1.8	E	2.8	E	2.3	5.0	5.1	5.8	4.5	4.9	5.3	6.6	5.0	6.0	C	6.0	6.0	6.3	12.0	8.3	13.9	12.6Y	8.4Y
11	3.4	3.4	2.9	2.8	6.4	6.0	10.9	12.8	10.9Y	6.5	6.1	5.9	8.7	3.8	4.6	3.5	3.8	5.6	3.3	2.8	3.6	2.6	2.8	2.3
12	2.3	E	1.9	2.3	E	2.0	4.4	4.3	4.2	5.1	7.3	8.1	7.3	3.8	G	5.3	3.9	5.2	2.5	2.3	2.8	2.6	8.3	6.6
13	5.0	8.0	2.3	1.8	1.7	2.6	3.4	8.3	8.3	10.1	11.4	8.2	8.4	G	4.0	4.3	4.9	5.6Y	5.3	2.8	2.4	2.3	2.8	2.8
14	6.1	3.3	2.8	2.8	2.3	3.7	3.5	4.3	4.9	4.9	6.1	5.8	6.0	5.3	5.8	6.0	7.8Y	13.7	6.0	5.2	5.9	6.1	12.5	5.0
15	8.3	2.4	2.8	3.1	1.7	3.0	3.1	6.1	7.2	7.7	8.3	8.4	7.1	5.3	4.1	3.8	5.1	10.0	8.0	10.5	6.0	5.0	6.0	3.4
16	8.3	4.9	6.0	3.5	3.0	10.5Y	3.3	6.3	7.4	6.4	9.9	7.9	5.4	3.4G	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	9.9	11.8	12.9	12.3	5.9	8.3	8.3	3.5	5.9	4.6	5.0Y	2.8	2.3	E	2.3
18	E	6.2	3.8	1.9	E	E	4.2	6.9	6.5	8.4	8.4	6.0	5.2	5.0	5.0	5.0	4.3	8.3	7.0	8.2Y	2.8	4.9	6.0	3.7
19	2.8	2.8	2.8	3.3	2.3	E	4.9	4.8	5.9	10.3	10.9	9.3	7.3	5.4	5.0	G	3.7	2.9	2.4	2.8	4.6	3.9	3.8	5.8
20	2.9	E	E	E	E	2.2	3.8	3.5	3.7	4.2	3.9	4.2	G	G	3.5	5.2	5.1	3.8	3.0	2.8	2.9	2.8	3.0	5.6
21	3.1	2.8	E	2.8	E	E	2.8	6.0	8.3	3.8	5.5	3.9	8.6	3.9	5.6	5.7	8.2	7.8	10.8	8.3	8.3	7.9	6.3	5.0
22	2.7	E	2.9	2.2	E	2.6	3.1	4.3	6.0	5.0	8.5	10.3	7.2	5.9	5.2	3.8	3.3	3.5	2.9	7.8	4.2	2.9	2.4	2.8
23	2.8	3.5	3.6	6.1	8.8	6.1	3.8	4.5	7.1	4.0	10.7	8.8	8.4	6.5	5.3	4.5	3.7	4.4	6.3	6.6	6.1	13.6Y	4.9	2.8
24	E	3.1	2.3	2.7	5.0	3.2	5.0	4.2	6.0	4.0	5.9	3.9	4.0	G	G	3.6	4.3	3.9	5.3	2.4	2.8	3.5	2.4	3.7
25	5.0	3.5	2.4	2.3	3.9	2.1	4.0	5.9	3.6	8.8	6.5	6.4	6.0	5.4	4.1	4.9	4.3	5.1	3.5	2.4	2.9	5.0	7.8	3.6
26	3.7	2.8	E	E	8.5	3.7	5.4	4.5	3.5	6.5	6.0	8.3	5.8	6.4	6.1	3.9	3.3	2.7	E	E	E	E	E	E
27	E	E	1.9	E	1.9	E	2.1G	3.0	3.4	5.8	4.3	4.2	3.9	3.9	3.4	3.7	3.5	5.2	2.5	3.0	3.5	6.1	3.3	2.8
28	2.4	E	E	E	E	E	2.9	4.5	4.9	5.8	G	5.2	G	5.1	6.0	3.8	3.2	5.2	7.7	6.1	6.6	2.9	C	C
29	C	2.0	2.2	E	E	E	2.6	4.9Y	3.4	3.8	3.7	G	3.6	G	4.0	3.8	3.5	3.2	5.8	5.2	2.8	1.9	E	2.3
30	2.8	E	E	E	E	E	G	G	3.9	5.0	8.5	4.6	G	G	G	G	G	3.0	3.1	3.5	1.8	2.2	2.4	2.4
31	C	C	C	C	C	C	C	C	C	6.2	5.8	3.9	5.0	4.3	5.0	5.3	3.3	4.1	7.8	7.8	4.3	3.0	3.9	2.3
No.	28	29	29	29	29	29	29	29	29	31	31	31	31	31	30	29	30	30	30	30	30	30	29	29
Median	3.2	3.1	2.5	2.7	2.0	2.3	3.8	5.1	5.4	6.0	6.5	5.8	6.0	5.0	5.1	4.3	3.9	5.2	5.3	5.0	3.9	4.4	4.9	3.6
U.Q	5.0	5.3	3.6	3.4	3.8	3.4	5.0	6.6	7.3	8.4	8.5	8.2	7.3	5.9	6.3	5.3	5.1	6.0	6.3	7.8	6.0	6.1	6.2	5.3
L.Q	2.6	1.8	1.9	1.8	E	E	3.0	4.3	3.9	4.5	5.4	4.6	4.0	3.7	4.0	3.6	3.5	3.9	3.1	2.8	2.8	2.6	2.6	2.6
Q.R	2.4	3.5	1.7	1.6			2.0	2.3	3.4	3.9	3.1	3.6	3.3	2.2	2.3	1.7	1.6	2.1	3.2	5.0	3.2	3.5	3.6	2.7

foEs

Sweep 1.60 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 4

IONOSPHERIC DATA

Aug. 1961 | 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	E	E	E	E	E		2.8	6.5	3.5	5.0	4.7	A	5.2	4.7	A	4.4	4.2	5.2	5.5	5.0	A	A	1.7	2.4
2	3.5	4.3	2.9	E		1.8	2.4	2.9	3.4	5.0	3.7	A	A	4.5	A	3.9	3.5	3.1	3.2	4.0	E	E	1.7	E
3	A	2.5	3.1	A	A	1.9	A	A	A	A	A	A	4.0	A	A	4.0	3.4	4.0	A	A	2.4	E	5.5	A
4	A	A	2.5	3.5	2.3	2.0	4.5	4.9	U 5.4 B	4.1	3.7	4.1	5.4	5.0	4.9	3.7	3.4	3.3	2.0	2.2	4.6	A	4.8	2.1
5	4.6	A	2.6	4.0	1.7	2.0	A	A	4.8	5.1	A	4.7	5.6	5.5	3.9	3.5			4.0	E	3.4	4.0	2.9	2.7
6	3.0	3.5	E	E	E		2.9		4.5	4.0		5.0	3.8	3.8	6.1	4.4	4.4	A	3.5	4.4	5.6	A	A	3.3
7	3.0	A	2.8	2.2	E	E	4.6	A	A	A	4.6	5.1	4.1	A	4.7	4.5	A	4.0	4.4	4.1	E	3.5	4.9	3.5
8	2.5	E	E	E	E	2.5	2.4	G			5.1	4.0	3.8	3.6	4.0			3.8	2.5	E	1.9	3.3	5.2	4.0
9	E 1.7 B	E	4.7	A	4.2	2.0	4.2	5.5	4.6	5.2	3.9	3.9	3.8			U 3.6 B	A	4.5	5.7	4.6	3.6	4.5	4.5	2.9
10	3.4	E		E		2.0	4.5	4.6	4.7	4.4	4.5	4.7	4.8	4.5	4.9	C	4.9	5.0	4.9	A	A	A	E	5.0
11	E	E	2.0	2.4	E	4.5	A	A	A	A	A	A	A	3.7	4.0	3.5	3.8	5.0	3.1	U 2.8 B	E 3.6 B	1.8	E	E
12	2.0		E	E		1.9	4.1	4.2	4.0	4.7	A	A	A	U 3.8 B		A	G	2.8	2.5	E	1.8	E	4.5	4.0
13	2.2	E	E	E	E	1.9	3.2	4.7	4.8	A	A	6.0	6.0		4.0	4.0	3.5	3.0	4.9	2.0	2.4	E	E	2.0
14	3.5	2.5	E	E	E	2.9	3.2	3.9	4.0	4.1	4.0	4.7	4.2	4.2	5.1	5.2	5.3	4.4	3.5	2.6	5.5	5.3	A	1.7
15	3.5	E	E	1.8	E	1.8	2.6	5.7	E 7.2 B	5.5	6.2	5.8	6.4	5.1	4.0	3.8	5.0	A	5.0	A	E 6.0 B	4.1	4.2	2.8
16	2.7	3.4	4.0	1.8	2.0	1.7	3.0	A	6.4	5.8	5.6	5.5	4.6	3.4 4	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	A	5.2	4.8	4.6	3.9	6.1	5.1	3.4	3.7	3.4	3.5	2.6	2.3		E
18		2.0	3.0	E			4.0	6.1	5.6	6.2	A	5.5	5.0	4.7	4.8	4.0	U 4.3 B	5.1	5.5	3.7	2.5	2.2	2.6	3.0
19	1.8	E	E	E	E		3.6	3.5	4.0	A	A	7.8	6.9	5.3	4.6		3.0	2.6	2.4	2.8	4.5	3.0	2.0	E
20	2.5					U 2.2 B	3.6	3.2	3.5	3.7	3.7	3.9			3.5	4.4	3.9	3.1	2.9	2.0	2.5	E	E	E
21	2.6	E		2.3			2.7	3.4	4.0	3.6	4.6	3.9	4.2	3.9	4.5	5.0	5.9	4.6	A	3.1	4.9	3.5	2.2	2.0
22	2.7		2.5	1.8		2.2	3.0	4.0	5.8	4.9	4.6	A	6.5	4.0	5.0	3.6	3.3	3.1	2.6	5.0	4.1	2.5	2.3	2.0
23	2.5	E	E	2.6	4.0	2.5	3.1	4.4	5.5	3.5	A	A	5.9	5.4	5.2	4.5	U 3.7 B	U 4.4 B	6.0	4.0	4.8	6.6	3.2	2.4
24		2.0	E	E	4.4	1.7	3.4	3.0	4.6	3.7	3.9	3.9	3.7			3.5	4.2	3.9	5.2	2.4	E	2.5	E	2.7
25	3.0	3.3	E	E	2.5	E	3.1	4.7	3.5	3.8	5.5	5.7	5.0	4.8	4.0	4.4	3.3	4.0	2.1	1.8	2.6	4.0	6.0	3.0
26	3.5	2.0			2.6	3.0	4.5	4.4	3.5	5.7	5.5	6.1	4.0	4.9	4.9	3.3	3.0	2.6						
27			E		1.7		1.8 A	2.9	3.2	4.0	4.0	3.7	3.9	3.8	3.4	3.1	2.9	U 5.2 B	2.5	2.4	2.9	4.2	3.0	2.8
28	1.7						2.5	3.9	3.4	4.0		3.8		4.1	5.0	3.2	3.1	5.2	7.5	5.8	5.4	2.6	C	C
29	C	E	U 2.2 B				2.4	4.5	3.4	3.7	3.7		3.6		4.0	3.5	3.0	3.1	4.7	5.0	1.9	E		E
30	2.0								3.6	4.8	3.6	4.0						3.0	3.1	2.0	1.7	2.0	E	2.3
31	C	C	C	C	C	C	C	C	C	3.8	5.3	3.8	4.8	4.2	5.0	4.1	3.1	4.0	A	A	4.2	E 3.0 B	3.2	U 2.3 B
No.	25	23	23	23	19	20	28	27	27	30	29	30	28	25	26	26	27	29	29	29	27	29	26	28
Median	2.7	2.0	E	E	1.7	2.0	3.2	4.5	4.5	4.8	5.1	5.0	4.8	4.5	4.8	4.0	3.5	4.0	4.0	3.5	2.9	3.0	3.0	2.4

f_bE_s

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | f-min | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	1.75	E	E	E	1.75	1.65	1.80	1.95	1.80	1.95	E	E	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	E	1.65	1.65	1.70	2.55	2.00	1.70	E	1.65	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E	E	E	1.70	1.70	1.80	1.80	1.90	1.70	2.00	E	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E	E	2.05	1.65	2.00	1.75	1.80	2.00	2.05	1.70	E	1.65	E	E	E	E	E	E
5	E	E	E	E	E	E	1.65	E	1.70	1.70	1.80	2.00	1.95	1.80	1.85	1.85	E	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E	E	E	1.65	1.65	1.65	1.70	1.90	1.85	2.00	1.65	E	E	E	E	E	E	E
7	E	E	E	E	E	E	E	E	E	E	1.90	2.00	2.00	1.70	2.00	2.50	E	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	E	E	1.90	2.00	2.50	2.15	2.00	2.05	2.00	1.75	E	1.65	E	E	E	E	E
9	E	E	E	E	E	E	E	E	E	1.70	1.65	2.00	2.00	1.80	1.75	1.70	E	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	E	1.65	1.70	1.70	1.75	2.40	2.00	1.80	1.80C	1.70	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	E	E	1.95	1.90	1.95	1.80	2.00	1.70	1.80	E	1.70	E	E	E	E	E	E
12	E	E	E	E	E	E	E	E	E	1.70	1.70	1.85	1.95	2.00	1.80	1.70	1.70	1.70	E	E	E	E	E	E
13	E	E	E	E	E	E	E	E	E	1.65	1.70	2.65	1.70	2.50	1.90	1.70	E	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E	E	E	1.65	1.70	2.00	2.00	1.70	2.00	1.90	E	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	E	1.70	2.00	1.90	2.00	1.95	1.85	1.90	E	2.00	E	E	E	E	E	E	E
16	E	E	E	E	E	E	E	E	E	1.70	1.90	2.05	1.80	2.45	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	1.80	1.85	1.95	2.00	2.00	1.80	E	E	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	E	1.70	1.65	2.05	1.95	2.05	1.75	2.00	1.70	E	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	1.65	1.65	1.70	1.65	2.05	2.00	1.95	1.90	2.00	1.80	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	E	1.65	1.80	2.00	1.95	2.05	1.80	2.00	1.90	E	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	E	E	1.65	1.65	1.70	1.70	E	1.65	E	E	E	1.70	E	E	E	E	E
22	E	E	E	E	E	E	E	E	1.75	1.80	1.70	1.90	2.55	1.80	2.00	1.70	E	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	E	1.65	2.00	1.90	1.80	1.90	1.85	1.75	E	E	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	E	1.70	1.80	1.80	1.70	2.00	1.70	1.75	1.70	E	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	1.65	1.70	1.65	1.75	1.90	2.00	1.95	1.95	1.90	1.70	1.65	E	E	E	E	E	E
26	E	E	E	E	E	E	1.65	1.65	1.70	1.70	1.75	1.65	2.20	1.75	1.90	1.70	E	E	1.70	E	E	E	E	E
27	E	E	E	E	E	E	E	1.65	1.75	1.75	2.00	1.75	2.00	2.00	1.65	1.65	E	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	1.65	E	1.65	1.65	1.90	1.70	2.00	1.90	1.70	E	E	E	E	E	E	C	C
29	C	E	E	E	E	E	E	E	1.70	1.75	1.80	2.00	2.00	1.70	1.95	1.75	1.70	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	1.70	1.70	2.00	1.80	2.15	1.80	1.75	2.00	1.70	E	2.05	1.65	E	E	E	E	E
31	C	C	C	C	C	C	C	C	C	2.10	2.00	2.10	2.00	1.85	2.00	1.80	1.70	1.80	E	E	E	E	E	E
No.	28	29	29	29	29	29	29	29	29	31	31	31	31	31	30	30	30	30	30	30	30	30	29	29
Median	E	E	E	E	E	E	E	E	1.65	1.70	1.75	1.95	2.00	1.85	1.90	1.70	E	E	E	E	E	E	E	E

f-min

Sweep 1.60 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

IONOSPHERIC DATA

Aug. 1961 | M(3000)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	280	290F	295	290	285	280	285F	300	330	335	350	I 290A	285	300	I 320A	300	310	310	310	295	I 305A	I 315A	RF	F
2	F	F	F	F	F	320	305	325	320	315	320	I 300A	I 270A	285	I 295A	290	280	260	280	310R	300	340	I 280R	250
3	A	F	F	A	A	245	A	A	A	A	A	A	G	A	A	240	275	305	I 300A	I 285A	295	290	270R	A
4	A	A	F	RF	F	295	305	290	295	320	300	290	300	295	280	310	320	310	295	300	290	A	F	F
5	F	A	F	F	F	310	A	A	335	310	I 290A	310	310	315	320	320	295	305	290	300	300	290F	300	I 290F
6	280	F	F	F	280F	315	315	300	295H	325	350	290	290	290	325	320	310	I 310A	310	325	320	A	A	F
7	F	A	F	F	F	F	310F	I 310A	I 330A	I 340A	325	300	300	I 310A	315	I 310R	I 305A	310	310	310	F	F	F	F
8	F	F	F	F	F	300F	295F	330	340	340R	340	330	285	295	305	310	320	300	295	310	300F	F	F	F
9	F	F	F	A	F	F	F	I 310R	290	295	290	285	250	255	285	295	I 295A	315	305	320	285	F	RF	F
10	F	F	F	F	F	295	290	300	320	315	300	300	290	270	290	I 300C	295	285	295	A	A	A	F	F
11	F	F	F	F	I 270F	I 270F	A	A	A	I 290A	I 290A	I 270A	I 245A	I 260R	260	280	300	285	280	260	260	F	F	F
12	250	260F	270	315	280F	260	275	270	280	310	I 280A	I 270A	I 275A	270	290	I 260A	300	310	305	285	270	280	F	F
13	F	F	F	285F	I 295F	300	310	305	300	I 325A	I 330A	330	275	275	290	310	325	315	290	290	300	280	290	305
14	265F	F	F	F	270F	280	300	U 315R	330	310	300	305	280	290	315	305	300	305	300	295	295	F	A	F
15	F	F	F	F	F	F	300	325	325	320	300	295	300	290	310	310	315	I 295A	300	I 290A	I 295R	290	280	270
16	F	F	F	F	F	315	315	I 330A	305	315	310	285	290	285	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	A	320	300	305	290	300	300	300	300	295	295	300	310R	295	280
18	280	285	I 285F	I 285F	I 285F	300	310	310	330	310	I 305A	300	310	290	300	305	310	315	300	280	300	F	F	F
19	F	F	F	F	F	F	320	320	315	I 305A	I 290A	290	295	290	290	295	290	285	295	305R	325	285	270	280
20	280	285	270	290	295	285	270	305	295	305	275	270	230	295	310	305	315	310	325	300	280	285	275	270
21	265	275	260	260	260	270	275	310	315	330	315	310	295	300	310	310	335	305	I 310A	300	I 295F	290F	F	F
22	295F	280F	290F	285F	285	295F	320	315	320	335	320	I 310A	300	305	320	305	320	310	310	300	I 320R	310	315	280
23	285	I 280F	I 280F	290F	290F	285	320	320	335	310	A	A	290	295	300	310	330	325	305	295	I 295F	F	F	F
24	275F	F	F	300F	310	300	325	335	340	330	305	330	325	290	305	310	315	315	310	305	310R	320	290	285
25	F	F	F	F	F	F	315	340F	360	315F	310	330	305	300	305	310	315	305	315	315	305	300F	295	285F
26	F	F	F	F	F	RF	265	315	330	330	320	330	320	315	305	310	310	325	310	310R	295	305	290	285
27	295	290	280	295	310	310	310	340	340	325	335	300	325	320	310	325	310	305	300	315	325R	I 330F	270R	I 275F
28	275	I 280F	I 280F	270F	I 300F	310	330	340	350	340	325	310	310	300	310	320	315	320R	315	I 310R	F	F	C	C
29	C	290F	290	I 290F	290	I 285R	320F	325R	340	310	340	320	315	310	320	310	320	325	320	I 320R	I 315B	320	280	290
30	285F	290	285	280F	325	300	325	335	345	360	300	315	265	290	295	320	315	315	315	320	290	F	F	F
31	C	C	C	C	C	C	C	C	C	310	305	295	300	300	305	310	325	325	I 325A	I 310A	295	I 290R	R	RF
No.	13	11	11	13	16	23	25	26	27	29	29	29	31	30	29	30	30	30	30	29	27	18	14	13
Median	280	285	280	290	290	295	310	315	330	320	310	300	295	290	305	310	310	310	305	300	300	295	285	280

M(3000)F2 | Sweep 160 Mc to 200 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | M(3000)F1 | 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							I340L	I340A	365	A	A	A	I370A	A	A	A	A	A	A					
2							L	I380L	400L	I430A	L H	A	A	A	A	335	335	330R						
3						L	A	A	A	A	A	A	370	A	A	A	345	A						
4						320L	A	A	A	350L	400L	415	A	A	I360A	380	365L	355	L					
5									A	A	A	A	A	A	355	360	355L	360L						
6							L	I350L	345	390	380	I380A	370	375	I360A	I355A	A	A	A					
7							A	A	A	A	A	I420A	360	I380A	I380A	I360A	A	A						
8								360L	I350L	390H	I385A	405L	410	390L	370	375	350L	I340A	L					
9						L	A	A	A	A	365L	380	380	370	370	360	A	A	A					
10							A	A	I345A	370	390	A	A	340L	I365A	I365C	A	A	A					
11							A	A	A	A	A	I370A	I370A	380	360	395H	330L	A	L					
12							I340A	I350A	I360A	A	A	A	A	390	I365L	I370A	370	340L	L					
13							L	A	A	A	A	A	A	380H	340	I370L	355L	L	A					
14							L	L	370L	365L	380L	I365A	365	340H	A	A	A	A						
15							L	A	A	A	A	A	I350A	I340A	380L	355L	A	A	A					
16									A	A	A	A	350	330L	C	C	C	C	C					
17							C	C	C	A	I385A	I350L	350	355	A	A	I360L	L	A					
18							A	A	A	A	A	A	I350A	355	I350A	355	A	A	A					
19								L	L	A	A	A	A	A	I360A	345H	I350L	L	L					
20							A	335	360	370	395	375	350	365	360	I355A	I365A	L						
21							L	355L	365L	400	I380A	410	350L	360	340L	I355A	A	A	A					
22							L	L	A	I395A	A	A	A	360L	I365A	370L	370L	L						
23								A	A	390	A	A	A	I375A	I350A	I340A	L	A						
24								L	A	395	395L	360L	380	350H	340L	355	A	A						
25								A	380	I380L	A	A	A	A	L	I365A	360L	A						
26							A	A	365	A	A	A	L	A	I350A	340L	360L	L						
27								380L	360L	395L	375L	385L	380L	I370L	355	355L	350	A						
28							L	L	375	405	425	I400H	350L	370L	I355A	365	L	A						
29							L	A	375	400	I410L	400L	390H	375L	355L	365L	L	L						
30								365L	365	I390A	I395L	I380L	350	360H	365	355H	L	L						
31						C	C	C	C	L H	A	370	I360A	340	I345A	360L	350L	A						
No.						1	2	9	15	16	14	16	20	23	24	26	16	5						
Median						320	U340	355	365	390	390	380	360	365	U360	360	355	340						

M(3000)F1 Sweep 160 Mc to 200 Mc in 20 sec in automatic operation.

IONOSPHERIC DATA

Aug. 1961 | 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							330	290A	260	265	270	I330A	345A	345	I315A	300	290	A	A					
2							250L	280	265	345	300	I375A	I440A	395	I345A	345	350	395						
3						440L	A	A	A	A	A	A	G	A	A	545	435	345						
4						345	I330A	I340A	I370A	310	360	400	380	360	315	315	305	300	270L					
5									290	320A	I360A	320	345	325	300	305	355	305						
6							255	345	350	300	280	400	395	345	300A	305	330	I310A	290					
7							A	A	A	I280A	320	395	380	I350A	305	310	I315A	305						
8								255	250	280	290	295	400	350	340	310	300	335	295					
9						300L	I340A	I325A	395	I365A	400	425	525	500	400	375	I350A	295	A					
10							310A	315	300	335	355	340	385	445	360	I335L	335	330A	305					
11							A	A	A	A	I415A	I445A	I550A	I500R	470	400	345	I305A	310L					
12							390	390	390	A	A	A	I480A	455	I385L	I470A	350	325	290					
13							295	300	310	I295A	A	A	A	435	395	305	300	285L	A					
14							295L	265	255	300	295	335	390	350	305	325	305	295						
15							295	265	I255A	305	I335A	365	I345A	345	335	305	295	I300A	300A					
16									A	A	310	395	350	345	C	C	C	C	C					
17							C	C	C	A	280	345	345	345	300A	300	300L	295L	295					
18							290	295A	260	A	A	345	300	345	325	310	305	295	310A					
19								270L	260	I310A	I310A	I330A	I320A	350	345	330	310	310	295					
20							340	335	345	350	425	460	595	380	345	350	315	300						
21							345	300	290	295	305	345	355	345	325	305	I290A	300	A					
22							285	280	280	260	295	I310A	I340A	345	300	320	300	295						
23								255	260	245	A	A	A	345	305	300	280	280						
24								255	260	245	285	295	315	365	325	300	290	285						
25								245	245	295L	295	295	335	345	295	295	295	270						
26							A	300	255	280	300	295	305	305	300	300	295	260						
27								255	260	275	250	300	300	300	300	295	300	295A						
28							255	260	250	365	285	300L	335	300	340	300	295	265						
29							265	255	250	260	255	295	300	315	295	320	295	290						
30								250	250	240	I300L	300	405	320	305	285	285	270						
31						C	C	C	C	340L	335	385	350	350	340	320	295	280						
No.						3	16	24	25	25	26	27	29	30	29	30	30	29	10					
Median						345	295	280	260	295	300	340	350	345	325	310	300	295	295					

h'F2

Sweep 160 Mc to 200 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 9

29

IONOSPHERIC DATA

Aug. 1961 | 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	295	295	280	280	295	255	250	I 240A	235	A	A	A	A	A	A	A	A	A	A	A	I 290A	I 290A	250	240
2	I 270A	I 290A	I 295A	280	280	250	240	240	205	I 195A	180H	A	A	A	A	255	230	255	290	245	225	215	290	305
3	A	A	A	A	A	295	A	A	A	A	A	A	215	A	A	A	240	A	A	A	295	295	A	A
4	A	I 290A	260	I 280A	300A	295	A	A	A	A	195	205	A	A	I 240A	210	220	250A	245	255	I 265A	I 290A	I 305A	295
5	A	A	290A	I 290A	245	255	A	A	A	A	A	A	A	A	210	220	210	245	I 280A	255	290A	I 290A	255	255
6	I 275A	I 290A	260	255	295	250	235	205	I 220A	210	200	I 210A	235	235	A	A	A	A	A	245	A	A	A	A
7	A	A	A	295	265	250	A	A	A	A	A	I 200A	240	I 220A	I 210A	I 225A	I 240A	I 250A	290A	290A	245	260	I 300A	290A
8	240A	295	275	270	245	250	245	I 240A	245	200H	I 215A	205	190	195	225	205	245	I 240A	240A	240	235	A	A	290A
9	330A	305	I 295A	A	A	280A	A	A	A	A	205	205	210	220	245	245	A	A	A	285A	290A	I 320A	I 285A	290A
10	I 320A	295	290	325	295	255	A	A	A	A	215	A	A	A	I 220A	I 245C	A	A	A	A	A	A	295	I 295A
11	255	305	290	305	295	A	A	A	A	A	A	I 230A	I 235A	205	I 230A	200H	I 250A	I 255A	I 275A	320A	I 315A	305	295	255
12	330A	330	305	245	300	A	A	A	A	A	A	A	A	220	230	I 245A	245	245	250A	270	295	295	I 330A	I 305A
13	295	270	280	275	250	250	255	I 245A	A	A	A	A	A	190H	240A	240	245	245	I 280A	290	255	255	280	255
14	I 290A	305	295	300	255	290A	255	I 240A	225	225	200	I 230A	205	245	I 230A	A	A	A	290A	275	I 280A	A	A	330A
15	310A	270	255	260	300	270	255	A	A	A	A	A	I 240A	I 245A	245	225	A	A	A	A	A	290A	I 290A	310A
16	300A	285	305A	295	295	255	245	A	A	A	A	A	A	230	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	A	A	A	A	210	A	A	245	I 260A	I 290A	275	255	255	255	255
18	295	295	340A	295	295	255	A	A	A	A	A	A	A	A	A	240	A	A	A	295	250	260	260	I 245A
19	270	305	295	295	250	245	255	240	225A	A	A	A	A	A	I 210A	220H	245	245	280	255	255	270A	295	295
20	290	255	280	250	270	295	I 270A	255	220	210	205	200	210	225	230	I 230A	I 230A	245A	265	255	270A	275	295	305
21	340A	300	300	340A	340	295H	255	240	I 210A	205	I 200A	200	240	245	I 225A	I 235A	A	A	A	285	I 290A	I 290A	290	300
22	270	280	290	260	280	260	255	I 255A	I 235A	I 225A	A	A	A	200	I 220A	240	235	245	275	295	255	255	245	280A
23	295	305	295	295	I 310A	295	255	I 235A	I 225A	205	A	A	A	A	A	A	A	A	A	295	295	I 265A	240	250
24	285	300	290	245	I 260A	255	255	245	I 230A	205	205	220	200	205H	220	240	A	A	290	250	245	250	220	300A
25	I 290A	I 280A	255	245	295A	275	255	I 240A	225	205	A	A	A	A	A	I 240A	230A	I 250A	255	245	255	295A	I 270A	295A
26	330A	340A	255	245	240	250A	I 245A	I 240A	230	A	A	A	210	A	A	240	245	250	255	245	250	250	245	285
27	275	255	295	290	250	250	245	230	215	210	235	200	205	240	200	240	235	I 280A	290	245	245	230	I 245A	I 275A
28	300	335	305	300	255	260	240	I 220A	205	200	195	190	245	I 230A	I 230A	220	245	A	A	250A	I 250A	260	C	C
29	C	290	280A	295	265	290	245	I 240A	225	205	200	200	195H	200	I 240A	240	245	245	275	290A	245	240	245	255
30	290A	285	295	270	230	270	250	245	240	I 225A	195	205	220	200	235	235H	250	250	250	245	245	315	335	A
31	C	C	C	C	C	C	C	C	C	230	I 240A	235	A	A	A	I 240A	240	I 260A	A	A	A	A	A	320A
No.	24	26	27	27	27	27	20	18	17	15	15	15	16	19	20	24	20	18	19	25	26	25	24	26
Median	290	295	290	280	280	255	250	U 240	225	205	200	205	210	220	U 230	240	240	250	275	255	255	270	280	290

h'F

Sweep 160 Mc to 200 Mc in 20 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | h'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	105	105	105	105	100	G	145	120	130	110	110	105	105	110	110	110	145	130	115	105	110	110	105	105
2	100	100	100	100	E	120	105	105	105	110	105	105	105	130	110	145	130	120	110	110	105	105	100	105
3	105	105	140	120	115	135	115	110	110	105	105	105	105	105	105	105	105	100	100	100	100	100	105	105
4	100	105	100	100	100	105	135	130	115	120	115	105	115	110	110	115	135	110	110	105	110	105	105	105
5	110	105	105	105	100	105	110	110	110	105	105	110	105	105	105	105	G	G	120	110	105	110	100	105
6	100	100	100	100	100	E	110	G	105	105	G	105	115	140	125	125	115	110	105	105	105	105	105	100
7	100	125	105	100	100	100	110	105	105	105	105	105	105	100	105	110	110	115	110	110	105	105	105	105
8	100	100	105	100	100	125	125	100	G	G	105	105	105	125	105	G	G	130	120	110	125	110	110	105
9	105	100	125	100	105	110	125	110	105	105	105	105	105	G	G	105	125	125	115	110	110	110	105	105
10	105	105	E	100	E	140	125	120	115	110	115	105	105	105	100	C	135	120	110	105	110	110	105	105
11	105	100	100	100	135	130	115	110	105	105	105	105	105	105	105	105	145	125	120	115	105	115	110	105
12	105	E	105	105	E	145	130	120	115	110	105	105	105	105	G	140	145	125	125	120	110	125	110	105
13	105	105	105	100	105	145	115	105	105	105	105	105	105	G	105	100	100	125	125	100	100	100	100	105
14	105	105	100	105	145	135	115	115	110	110	105	105	105	105	105	140	135	115	110	110	110	115	110	110
15	110	105	100	100	105	100	125	115	120	115	110	110	105	105	105	105	105	105	100	100	100	100	105	100
16	105	100	100	100	100	105	125	110	105	105	105	105	105	105	C	C	C	C	C	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	110	110	110	110	105	105	100	100	100	100	100	100	100	E	100
18	E	100	100	100	E	E	120	110	105	105	105	105	105	105	105	105	105	120	115	120	100	110	105	105
19	105	105	100	100	105	E	120	110	110	105	105	105	105	105	105	G	130	145	125	100	100	125	110	110
20	105	E	E	E	E	135	120	125	115	115	110	110	G	G	105	105	105	105	105	110	110	110	105	105
21	105	105	E	100	E	E	110	115	110	115	105	120	105	105	105	105	105	125	130	110	110	105	105	100
22	100	E	100	100	E	135	125	125	110	110	105	105	105	105	105	105	105	130	105	105	100	100	100	100
23	105	105	110	105	105	105	125	115	110	110	105	105	105	105	105	105	110	120	115	110	110	115	110	105
24	E	100	105	105	110	105	105	105	105	105	105	105	125	G	G	145	125	120	110	110	105	110	105	105
25	105	105	105	105	105	115	110	105	110	110	105	110	120	115	130	115	110	105	105	105	105	100	100	100
26	100	100	E	E	140	115	110	105	110	105	105	105	105	100	105	105	105	135	E	E	E	E	E	E
27	E	E	105	E	105	E	105	105	105	105	105	110	105	105	105	105	145	120	115	105	105	105	105	105
28	100	E	E	E	E	E	120	110	105	110	G	105	G	105	105	105	105	115	110	110	105	105	C	C
29	C	105	100	E	E	E	135	120	135	110	120	G	105	G	105	105	105	110	120	110	105	105	E	105
30	100	E	E	E	E	E	G	G	115	105	105	105	G	G	G	G	G	125	115	110	115	110	110	105
31	C	C	C	C	C	C	C	C	C	110	110	115	105	110	105	105	105	105	100	100	100	100	100	100
No.	25	23	23	23	19	20	28	27	28	30	29	30	28	25	26	26	27	29	29	29	29	29	26	28
Median	105	105	105	100	105	120	120	110	110	110	105	105	105	105	105	105	110	120	110	110	105	105	105	105

h'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. 1961

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	fz	f	fz	fz	f		hz	h3	hz	Cz	Cz	Cz	C3	Cz	C4	Cz	hz	h4	C3	fz	f4	fz	fz	fz
2	f3	f3	fz	f		C	l	lz	l	Cz	C	lz	lz	h	C3	hz	h	hz	fz	f3	f	f	fz	fz
3	f3	f3	f4	f4	f3	hz	C5	C3	C4	C3	C3	Cz	Cz	C3	Cz	lz	lz	l3	f3	fz	fz	fz	f4	fz
4	fz	fz	fz	fz	fz	l3	h3	h3	Cz	hz	C	lh	Cz	Cz	Cz	Cz	h	Cz	C	fz	f3	fz	fz	fz
5	f3	f3	fz	f5	f3	lz	l3	C4	Cz	C3	C3	Cz	C3	Cz	Cz	lz			hz	fz	fz	fz	fz	fz
6	fz	f3	f	f	fz		lz		Czl	Cz		Cz	C	h	hz	hz	C3	Cz	l4	f3	f3	f3	fz	f3
7	f5	f6	fz	f3	f	f	C3	C3	C4	C4	lz	lz	lh	lz	lz	lz	Cz	C3	C3	f4	f	fz	f3	f3
8	fz	f	f	f	f	hz	Cl	lhz			lz	l	l	h	lz			h3	C3	f	fz	fz	fz	f3
9	fz	fz	fz	fz	fz	fz	h5	C4	C3	C3	lz	l	Cz			lzh	h5	h3	C3	f5	f4	f4	fz	f3
10	f3	f		f		h3	h4	h4	C3	Cz	Cz	Cz	Cz	Cz	lz		hz	h4	C3	f3	fz	fz	fz	f3
11	fz	fz	fz	fz	fz	h4	C4	C5	C4	C4	Cz	Cz	lz	l	lz	lz	hlz	h5	Cz	f5	f4	fz	f3	fz
12	f3		fz	f		hz	h3	h3	Cz	Cz	Cz	l4	l3	lz		hz	h	hl	hz	fz	fz	fz	f4	f3
13	fz	fz	f	f	f	h	C3	C4	C3	C3	l4	l3	C3		lz	l3	lz	hlz	hzlz	fz	fz	fz	fz	fz
14	f3	fz	f	fz	f	fz	C3	C3	C3	Cz	C	Cz	Cz	Cz	Cz	hz	hz	Cz	Cz	f3	fz	fz	f3	fz
15	f4	fz	fz	fz	fz	f	hl	Czlz	h3	C3	C4	Cz	C3	Cz	lz	lz	l3	l4	lz	f5	f3	fz	fz	fz
16	fz	f3	f3	fz	fz	f	h4	C4	Cz	Cz	Cz	C3	lz	l										
17										C5	Cz	Cz	Cz	l	l3	lz	lzhz	l4	l3	f3	f3	f		f
18		fz	f3	f			C4	C4	C4	C3	C3	lz	Cz	lz	lz	lz	lzh	h3lz	C5l3	f3	fz	f	fz	fz
19	fz	fz	fz	fz	fz		Cz	C3	Cz	l3	l3	l3	l4	Cz	Cz		h	hl	hzlz	fz	f4	fz	fz	fz
20	f3					hz	C3	h3	C3	Cz	C	Cz			lz	lz	l4	l3	lz	f3	f4	f	fz	fz
21	f3	fz		fz			Cz	C3	Cz	C	Cz	h	lz	l	lz	lz	l3	h4	h3	fz	fz	fz	fz	fz
22	fz		fz	f		fz	hz	h3	Cz	C3	Cz	C3	C6	lz	l3	lz	lzh	hzlz	C3lz	f4	f3	fz	fz	fz
23	fz	fz	fz	f3	f3	fz	C3	C3	C3	Cz	Cz	C3	Cz	C3	C3	lz	C4	h3	Cz	f3	f3	f3	fz	fz
24		fz	fz	f	fz	fz	l6	lz	l3	Cz	Cz	Cz	h			h	h3	h3lz	Cz	fz	fz	fz	f	fz
25	f3	f4	fz	fz	fz	C	C4	C3	Cz	Cz	Cz	Cz	hz	Cz	hz	Cz	Cz	l3	l	fz	fz	fz	fz	fz
26	f	f			f	f3	C4	C3	Cz	C4	Cz	lz	lz	lz	l3	lz	lz	hz						
27			fz		fz		l	lz	lz	lz	Cz	Cz	lz	l	lz	l	h	Cz	fz	fz	f3	fz	f4	f4
28	fz						C4	C3	Cz	Cz		lz		lz	l3	lz	l3	C3	f3	fz	f	f		
29		f	f				h	Cz	hz	Cz	hz		l		lz	lz	l	Cz	fz	fz	f	f		f
30	fz								Cz	C3	l	lz						hz	f3	fz	fz	f	f	f
31										Cz	Cz	C	Cz	Cz	Cz	lz	lz	lz	fz	fz	f3	f3	fz	fz
No.																								
Median																								

Types of Es

Sweep 1.60 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Aug. 1961 | 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	J 4.8 S	4.8	4.7	4.5	4.2	4.4	5.7	8.2	8.7	7.9	6.7	6.1	6.7	7.9	J 7.9 R	J 7.8 R	7.6	7.2	6.8	I 7.4 A	8.1 R	I 7.9 A	I 7.0 F	I 5.8 A
2	5.2	J 5.8 F	F	F	u 5.0 S	5.2	I 5.9 A	6.6	5.8	6.1	7.0	J 6.2 S	5.6	6.6	8.6	7.8 R	7.9	7.9	8.6	9.9 R	9.4 R	5.5	4.0	I 4.2 A
3	4.2 V	J 4.1 S	4.4 S I	3.8 A	3.1 S	3.4	4.3	A	A	A	A	A	A	A	A	A	A	A	A	I 5.4 A	5.3	5.4	5.4	5.4
4	I 5.2 A	5.4 S I	4.9 F	3.6	u 4.0 F I	4.8 S	4.7	I 5.8 A	6.4 V	6.9	6.2	6.0	6.2 R	6.8	6.9	6.7	7.3	6.1	6.1	6.2	6.2	6.0	u 5.4 S I	5.2 F R
5	I 5.4 A I	5.4 A I	5.1 F S u	4.6 S	I 4.4 A	4.3	5.5	6.5	J 5.7 S u	5.3 S I	5.8 A	6.7	I 7.4 A	8.2	J 7.5 R	6.9	6.3	I 6.2 A	6.5	7.4 S	J 7.6 S	7.3	I 7.1 F	5.9
6	5.2	I 5.0 C	4.6	u 5.0 S	4.9 S u	4.9 S I	5.2 C	5.1	7.8	7.3	5.6	6.4	I 6.8 C I	7.5 C J	8.0 R	7.3	I 7.2 C J	8.2 R I	9.4 C	I 8.8 C	5.9	I 4.6 C I	4.4 C I	4.4 C
7	C	C	I 4.7 C I	4.5 C	u 4.4 S I	4.5 S I	5.1 C I	6.8 C	I 7.6 C	6.6	A	A	A	A	6.8	6.4	5.9 R	6.5	7.0	7.6	7.5	u 6.4 S	7.3	6.7
8	5.5	u 5.4 F I	5.2 F I	5.1 S u	4.6 F I	5.0 S	7.0	8.2	8.0	7.1	7.1 R	6.6	6.5	7.5	8.9	8.2	J 7.6 R	7.9	8.2	8.3	7.2	u 6.0 F I	6.1 A u	6.4 F
9	u 6.7 S	F	SF	S	A	u 5.3 S	5.6	7.1	A	A	A	A	A	A	6.5	6.4	I 6.6 A I	6.8 A	7.4	I 7.2 A	u 7.0 S I	6.0 A I	5.8 F I	5.6 A
10	J 5.5 S I	5.4 S I	4.9 A S I	4.6 S u	4.6 S	4.8 S	5.8	6.7	I 7.4 A	7.4	7.3	7.4	7.0	6.9	7.7	7.4	I 7.6 A	7.6	u 8.5 R	8.0	I 6.8 A	6.2	I 6.4 F I	6.9 A
11	I 7.0 F S u	7.0 F u	6.9 S	6.0	5.6 S J	5.4 S I	6.0 A	u 7.0 S	7.2	A	A	A	A	5.7	6.1 S	6.0	6.2	I 6.1 A	5.9	6.3	6.7	u 6.2 S u	6.3 S	7.0
12	5.8	5.5	5.7 S	5.9	4.5	4.9	5.9	I 5.7 A	6.5	A	A	I 5.6 A	6.3 R I	5.8 S	6.0	5.7	6.4	6.6	6.7	6.0	6.2	5.8 F	6.2	6.0 F
13	6.2 F u	6.2 F I	5.8 S F	5.7	u 5.1 S	4.8	6.2	6.9	7.8	7.2	6.2	6.9	I 6.6 A	6.9	I 7.7 A I	7.9 A	7.1	6.6	7.0	7.7	I 7.6 R	6.0	6.7	6.6
14	5.9	5.7 I	5.6 S F	I 5.2 F	5.4	5.4	7.2	u 9.6 S	8.5	I 7.8 A I	8.2 A	8.4	J 7.9 S	8.8	9.0	8.6	7.7	7.4	J 7.9 R	7.9	8.1	6.9	6.7	6.6
15	F	F I	7.4 F	5.7	5.5 S	5.1 S	7.2 S	9.0	J 8.0 R J	7.4 R	6.9	8.2	8.6	9.0	8.6	8.5	J 8.1 R	7.6 R J	8.0 R	8.6	8.1	6.8	6.6 R	6.7
16	6.6	6.6 S J	6.5 F I	6.9 F S u	6.4 F J	7.4 S	8.2	u 7.1 S I	I 7.5 A	A	A	I 8.0 A	9.1	u 10.0 S	9.3	8.9	A	A	A	A	A	7.9 I	7.9 F	8.1
17	u 7.1 S	6.5	6.3	J 5.7 S	5.4 S u	5.5 S	6.8	8.6	10.1	8.2 S	A	A	8.6	I 9.2 A	9.7 S I	9.5 A	I 9.3 A	I 9.2 A I	9.2 A	I 9.4 A	u 9.1 R	7.9 R	7.0	6.9
18	6.7	6.1	5.7	5.6	5.7	5.9	8.4	8.5	8.4	7.2	I 7.5 A	8.4	8.4	8.0	9.1	8.8	8.4	J 8.2 R J	8.3 R	8.6	I 9.1 A J	8.3 S J	7.3 S I	7.3 F
19	7.0	6.8	6.5	6.6	6.1	6.1	6.6	8.1	8.3	8.0 R	8.3	9.1	9.2	9.1	9.0	9.1	8.5	9.4	9.8 R J	10.2 S J	8.7 S	C	C	J 6.4 S
20	6.6	6.4	5.8 I	5.5 C	5.0	5.0	6.6	8.1 S	7.0	6.4	6.0	6.3	6.8	7.0	7.5	6.8	7.2	7.2	7.2	6.6	6.6	6.6	6.6	6.1
21	6.0	5.8	5.5	5.5	5.5	5.1 I	6.0 A	8.2	8.2 R	7.4	6.0	7.0	J 7.7 R I	7.8 A	8.2	7.6	7.2	7.0	J 8.0 R	8.1	I 7.2 A I	5.8 F u	6.4 F I	6.4 F
22	I 6.2 F u	6.2 F J	6.8 F I	6.0 F J	5.4 S J	5.0 S	6.7	8.8	9.1	I 9.0 A I	7.9 A	7.4	7.1	J 8.1 R	J 8.2 R	7.4	7.1	7.6	8.4	9.3 S	J 9.0 S J	7.6 R	6.0	6.4
23	I 6.2 F I	6.2 S	6.0 F	5.4	5.3	5.8	6.9	9.0	J 10.4 R	7.0	6.4	6.3	7.4	8.4	9.4	9.0	J 8.1 R	7.2	7.6	8.4 S	J 8.3 R	7.6	6.5 I	6.4 A
24	6.0 F u	6.2 F	6.5 I	5.7 F S	I 4.5 A S	4.3	6.5	7.9	9.1	7.0	6.9	7.3	6.8	7.5	8.7	9.8	9.4	8.9	8.8	8.1 S J	8.6 S	7.4	5.5	5.1 S
25	4.9 S I	4.6 F I	4.8 S	5.1 S u	4.3 S	4.1 S	5.9	9.2 S J	7.8 R	7.1	I 7.0 A	7.5 S J	8.1 R	8.5	8.8	9.1	8.6	8.6	9.3 R J	8.3 R J	8.0 R	7.2	5.8	6.0
26	6.0	5.8 I	6.6 S	6.8 J	5.4 S	4.3	5.1	I 7.2 A	8.6	7.9	7.4 R	8.3 R J	7.9 R	8.1	7.5	J 8.0 R	J 8.0 R	8.0	8.5	u 9.5 R	7.4	u 6.9 S	6.4	6.6
27	6.0	5.5	5.2 S J	5.2 S u	5.1 S I	5.4 S	7.2	8.0 R	8.1	8.7	7.5 R	7.5	7.8 R	8.0	7.9 J	7.9 R	7.4	J 8.3 R	8.9	J 10.1 R I	10.5 R	4.2	I 4.2 A u	3.7 F
28	3.8	3.6	3.7	3.5	3.6	I 4.4 S	6.4	J 7.5 R J	8.3 R	6.6	6.4	6.4	7.0	8.0 R	7.4 J	7.8 R	8.6	9.1	9.2	9.1	J 7.8 S	C	C	C
29	C	C	C	C	C	C	C	C	C	7.0	7.6	8.0	J 8.1 R	8.5	8.9 J	8.1 R	7.6 R	7.6	J 8.3 R I	8.0 R	7.5	6.0 S u	5.1 F	5.2
30	5.6	u 5.3 F	5.1 F J	5.4 F	4.6	u 4.1 S	6.5	8.3	9.2	6.7	u 5.5 S	6.3	6.9 H	9.5	9.6	9.5	9.1	8.9	9.5 S	9.1 S I	6.4 S	5.8	5.1	5.4
31	5.5	5.8	5.5 F	4.4 F	4.1	4.2	6.3	J 7.6 R	6.3	5.9 S	7.1	6.8	7.0	7.1	7.5	8.6	8.2 R	8.3	7.4	5.8	5.0	I 4.2 A I	4.6 F u	4.2 F
No.	28	27	28	27	29	30	30	29	28	26	24	26	27	28	30	30	29	29	29	30	30	29	29	30
Median	6.0	5.8	5.6	5.4	5.0	5.0	6.2	7.9	8.0	7.2	7.0	7.0	7.1	8.0	8.1	7.9	7.6	7.6	8.2	8.1	7.6	6.2	6.3	6.2
U. Q.	6.4	6.2	6.4	5.7	5.4	5.4	6.8	8.4	8.6	7.8	7.4	8.0	8.1	8.5	8.9	8.8	8.3	8.3	8.8	9.1	8.3	7.4	6.7	6.6
L. Q.	5.3	5.4	4.9	4.6	4.4	4.4	5.7	6.8	7.3	6.7	6.2	6.3	6.8	7.0	7.5	7.3	7.2	6.9	7.1	7.4	6.7	5.8	5.4	5.4
Q. R.	1.1	0.8	1.5	1.1	1.0	1.0	1.1	1.6	1.3	1.1	1.2	1.7	1.3	1.5	1.4	1.5	1.1	1.4	1.7	1.7	1.6	1.6	1.3	1.2

foF2

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

The Radio Research Laboratories, Japan.

K 1

IONOSPHERIC DATA

Aug. 1961 | 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							L	"4.2L		S		"4.9S	A	A	A	A	4.2L	A	A					
2										4.3	S	4.8L	4.9R	A	A	4.4L	A	3.9	L					
3							A	A	A	A	A	A	A	A	A	A	A	A	A					
4								A	4.8L	A	4.7L	S	S	4.6	4.7S	4.6L	R	L						
5							L	L	A	L	A	A	A	5.1L	A	A	A	A	L					
6							C		4.5L	"4.6L	L	4.7	C	C	A	L	C		C					
7							C	C	C	A	A	A	A	A	A	"4.7L	L	A						
8							L	L	"4.5L		L	L	S	S	S	4.7	4.4	L						
9							L	S	A	A	A	A	A	A	S	"4.5S	A	A	A					
10								A	A	A	A	L	5.0S	5.0	"4.8L	"4.9S	A	A						
11						L	A	A	A	A	A	A	A	S	A	4.7L	4.4L	A	A					
12							L	A	S	A	A	A	5.0S	S	4.8S	"5.0L	4.6	A	A					
13								L	A	L	5.2L	A	A	5.2L	A	A	L	L						
14								L	A	A	A	A	A	L	5.3L	L	A	L						
15								A	A	L	S	A	A	A	A	L	A	L						
16									A	A	A	A	A	S	S	A	A	A	A					
17								L	A	A	A	A	S	A	A	A	A	A	A					
18									A	A	A	A	"5.3L	L	"5.2L	L	L							
19								A	A	A	A	A	L	A	L	L	L	L						
20							L	A	A	A	"5.0L	A	5.1	5.1	4.9	"4.9L	4.4L	L						
21							A	L	L	L	S	5.2L	L	A	L	L	L	L	A					
22								L	L	A	A	A	L	"5.2S	L	A	L	A						
23							A	A	A	L	L		A	"5.4L	S	L	L							
24							A		L	L	S	S	S	S	S	S	L	L						
25										A	A	A	5.6L	A	L	L	L							
26								A	A	L	L	A	L	L	L	L	L	L						
27								L	L	L	L	LH	"5.1L	4.8L	L	4.3L	L	L						
28							L	A	L	L	L	LH	A	L	L	S	A	L						
29						C	C	C	C		L	L	L	L	"4.5L	L	L							
30							L	L	L	A	4.9	LH	LH	L	4.5L	L	L	A						
31								L	L	"4.8S	A	L	L	L	L	4.6L	L	L						
No.								1	3	3	4	4	7	8	8	11	15	1						
Median								"4.2	4.5	"4.6	5.0	4.8	5.1	5.1	4.8	4.7	4.4	3.9						

foF1

Sweep 1.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

K 2

IONOSPHERIC DATA

Aug. 1961 | 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						S	I 2.20 B	I 2.70 B	3.10	3.30	3.35	I 3.50 B	I 3.45 B	3.20	3.20	I 3.00 A	I 3.00 A	2.60 A	B					
2						A	A	B	A	A	A	A	3.60 R	3.55	u 3.30 S I	3.20 A	2.85	I 2.60 B	u 1.85 A					
3						A	I 2.00 A	I 2.60 A	3.00	A	B	A	I 3.25 A	A	A	A	A	A	A					
4						B	2.20	I 2.65 A	I 3.00 A	3.10	I 3.25 A	u 3.65 R	I 3.40 B	3.40	I 3.35 A	I 3.30 A	B	S	S					
5						S	R	A	I 3.15 A	3.25	3.40	A	A	A	A	A	A	B	A					
6						S	C	A	A	A	A	R	C	I 3.60 C	3.60	3.25	C	R	C					
7						S	C	C	C	A	A	A	A	A	A	A	3.00	2.60	A					
8						S	R	u 2.65 R	A	A	A	A	A	R	I 3.55 A	I 3.30 R	3.05	I 2.70 A	A					
9						A	u 2.40 R	I 2.80 A	3.00	A	A	A	A	A	A	A	3.15	I 2.55 R	B					
10						2.15	2.25	I 2.75 A	3.10	3.30	A	A	A	A	I 3.75 A	I 3.50 A	3.20	u 2.65 S	B					
11						S	I 2.30 A	u 2.80 S	3.15	A	A	A	A	A	A	A	A	2.60	A					
12						A	u 2.35 R	2.60 R	3.20	A	A	A	A	R	I 3.55 A	3.45	3.10 R	2.55 R	A					
13						S	A	A	A	A	A	A	A	A	A	A	B	A	B					
14						S	A	I 2.90 A	3.05	A	A	A	A	A	3.65	3.50 R	3.20	2.60 R	S					
15						S	R	A	A	3.40	A	A	A	A	A	A	A	A	S					
16						1.90	I 2.30 A	I 2.80 A	I 3.15 A	A	A	A	A	A	A	A	A	A	B					
17						2.10	I 2.35 B	A	A	A	A	A	A	A	A	A	A	A	A					
18						S	A	A	A	A	A	A	A	A	A	I 3.50 A	3.10	B	B					
19						S	R	I 2.80 A	I 3.20 A	A	A	A	A	A	A	A	A	A	S					
20						S	2.20	A	A	A	A	A	A	A	3.45	A	A	u 2.55 R	A					
21						S	A	A	A	A	R	A	A	A	A	A	A	2.65	A					
22						S	A	A	A	A	A	A	A	A	A	A	A	R	A					
23						S	A	2.70 S	I 3.10 A	3.20	A	A	A	A	3.30	A	A	B	A					
24						S	A	A	A	A	A	R	I 3.70 S I	3.70 A	3.45	3.30	I 2.90 B	S	A					
25						S	A	B	2.65	I 3.00 A	A	A	A	A	I 3.35 A	3.20	2.75	A	B					
26						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
27						S	2.20	A	A	A	A	R	I 3.65 A	3.45 R I	3.35 A	3.25	2.80	R	A					
28						S	I 2.20 R	I 2.50 A	I 2.80 A	A	A	R	A	A	A	A	A	A	A					
29						C	C	C	C	3.15	A	A	A	R	3.25 R	3.10 R	u 2.85 R	S	S					
30						S	2.25 R	u 2.70 R	2.70	3.10	R	R	R	R	I 3.30 A	3.20	u 2.90 R	2.35	S					
31						S	A	2.60	3.05	I 3.20 A	3.25	A	A	A	A	A	A	A	B					
No.						3	13	15	16	10	4	2	6	6	15	14	14	12	1					
Median						2.10	u 2.25	u 2.70	3.10	3.20	3.30	u 3.60	u 3.50	3.50	u 3.35	3.30	3.00	2.60	u 1.85					

foE

Sweep 1.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

K 3

35

IONOSPHERIC DATA

Aug. 1961 | 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	E	3.9	2.0	2.0	E	S	3.1	4.0	4.7	4.7	5.6	4.5	5.2	11.3	4.5	6.2	3.6	8.7M	9.8Y	11.3Y	9.3	9.4	7.4	8.3
2	5.8	5.0	3.8	2.1M	4.2	7.8	8.3	6.9	8.9	4.4	4.5	4.5	3.9	5.3	10.7	5.2	5.0	3.1	3.2	3.8	4.0	3.3	4.3	4.6M
3	2.7Y	5.4	3.4	7.2M	7.8S	6.8	4.5M	8.6M	9.8M	8.2M	13.2M	8.5	14.7	10.2M	14.6	9.8M	5.4	5.4	6.7M	5.5	5.1	5.0	4.4	5.4
4	5.4	6.4	6.4	3.6Y	2.7Y	B	3.3	D5.0S	4.0	6.5	8.0	4.3	3.9	3.9	5.6	4.3	3.6	4.2	5.1	4.1	3.6	4.2	5.3	4.6
5	7.0M	6.3	4.5M	8.9	5.3	3.8	3.1	3.0	5.0S	3.9	5.7M	5.8	12.2M	4.1	4.7M	6.5	5.1S	8.1M	3.2	2.4	3.2M	5.8	5.6M	3.0S
6	4.4	C	3.8M	2.0	4.0	2.8S	C	4.2	3.7	4.2	3.6	3.5	C	C	6.5	5.0	C	5.1	C	C	2.2	C	C	C
7	C	C	C	C	3.9	4.0S	C	C	C	6.5M	9.3	17.5	19.2M	12.6	8.2	3.9	8.6	4.8S	5.6M	8.2	7.9	3.5	3.0	3.0
8	4.6	3.9M	4.1	3.8	3.4	S	G	3.5	3.7	4.5M	4.1	4.2	3.9	3.4G	3.7	3.1G	3.4	3.6	3.6	5.1M	2.2	4.2	5.3	5.0
9	5.7M	4.0M	4.1	3.5	7.1M	3.5S	8.4	4.4	13.0	D20.0D	19.3	D20.0D	13.5M	7.9M	4.8M	4.1	14.3	8.8M	5.8	9.2	8.9	6.9	5.7M	7.1M
10	4.7	4.9	4.7S	2.6	2.0	2.5	3.1	6.9	9.1M	6.8	5.4	5.3	4.0	4.2	4.6M	3.8	9.0M	8.8	9.7M	7.4Y	8.5M	5.2	4.9	7.5
11	5.9M	5.3	3.0	2.3M	3.4S	2.1	7.1M	7.6M	6.5	8.6	11.0M	7.0M	8.9M	6.8Y	5.0S	4.1	3.1	6.2M	4.3M	3.9M	4.1M	2.2	3.5M	3.8
12	2.5	2.1M	2.9S	3.8	1.3	2.2	3.6	6.9	4.5	6.7M	8.0	4.7S	4.1	3.5G	3.9S	3.9	4.1	4.4	6.6	5.1	E	3.0M	4.8SD	7.1S
13	5.1	3.4	2.1M	2.0M	2.0M	S	3.5	5.0	8.2	4.9	5.9Y	6.1	8.6	5.3	7.8M	11.5M	3.9	3.4	4.5	2.7	4.2	2.5	4.0	4.6
14	4.0M	2.7	3.4S	2.0M	E	S	3.3	3.9	6.2	12.6	12.0M	8.5	8.1M	4.0	G	4.0	5.1	4.5	9.0Y	7.0Y	7.0Y	4.7	3.5	4.7
15	6.2	8.0S	3.7S	2.0M	3.0	2.6	3.8	6.9	6.9M	6.3	4.7	7.9M	7.7M	5.7	4.8	4.7	6.5	3.6	3.4M	5.4	3.6	3.7	3.4	3.1
16	2.5	2.8	2.2	E	2.0M	G	3.4	5.7S	8.3	8.4M	13.0	11.9M	6.8	3.9	3.9	6.5M	8.9M	11.7M	13.7	13.9	11.3M	7.8	5.9	5.0
17	4.6M	4.6S	4.3S	2.2	2.7Y	2.5Y	4.0	5.7	9.0	8.4	12.8	10.0	4.4	11.0	7.6	12.2M	9.5M	9.0	13.6M	10.7	7.1	6.7	5.0	S
18	S	E	E	2.2	2.1M	S	4.4M	4.2M	5.0	7.1M	9.2	7.9	4.7	4.4	4.3Y	3.8	4.2	3.8	4.4	5.3M	8.5	2.2M	4.6	5.5
19	3.0	5.4	3.9	3.5	4.4	3.2S	4.2	7.1	8.0	6.9	11.4	5.6S	5.1S	7.7M	4.6	4.1	4.0	3.2	3.0	2.6M	S	C	C	5.4
20	5.4	4.0	2.0M	C	2.1M	S	3.4	6.2	5.1	5.7	5.0Y	5.3	3.8	4.0	3.7	4.0	4.3	3.2	2.7	3.0	8.0	3.8	3.9	3.4
21	3.4	2.1M	2.5	1.4	1.5	3.4	7.1	5.0	3.8	9.3	4.5	4.4	4.5	7.5M	3.9	4.1	3.2	3.0	3.8	2.9	9.9	3.8	3.9	4.9
22	4.9	2.4Y	2.2M	4.2S	1.9S	4.0	4.6	4.0	3.9	8.7M	8.3M	5.2S	5.9M	4.5	5.0S	5.0	4.0	4.7	3.3	3.1M	4.8	3.0	3.3	6.7
23	4.4	3.9	2.2	2.1M	2.1	3.5M	4.8	5.2S	4.8	4.1	4.3	4.7	6.3	4.1	3.8	4.6	3.2	3.3	3.1M	2.5	2.6M	8.2	7.4	5.7
24	4.4	4.0M	4.0	2.5	7.1	3.4	7.4Y	4.0	4.0	3.4	4.1	3.5	G	3.9	3.5	3.7	3.5	2.9	2.3	2.2	S	2.3	3.5	3.8
25	3.1	S	2.5	5.1	3.1	4.7	4.0	3.5	3.4	4.4S	7.9M	6.4M	4.6	4.7	4.3	3.4	3.4	2.9	3.0	E	2.3	2.0	3.9	3.7
26	2.3	S	S	2.5	E	S	2.8	8.0M	5.7	4.1	4.4	11.0	4.5	5.2	4.7	4.0	3.1Y	2.8	2.5	E	E	E	E	E
27	E	E	E	S	E	S	G	2.9	3.3	4.9	4.0	3.4G	4.2	3.0G	3.4	3.7	4.0	3.5	3.4	4.5M	5.2	S	7.2Y	2.6
28	2.5	S	E	E	E	S	G	4.5	4.4	5.1S	4.5	3.3G	4.6	4.3	4.2	4.6M	4.6	3.8	3.6	3.6	5.9	C	C	C
29	C	C	C	C	C	C	C	C	C	4.7	4.6	3.5	4.0	3.2G	2.6G	2.6G	3.6	3.9	4.3	3.4M	5.1	6.0M	3.2S	2.2
30	2.4	S	2.3M	2.0M	E	S	G	3.0	4.0	6.4Y	3.3G	3.2G	3.0G	3.0G	3.5	G	G	4.2	4.5	3.3	6.0	S	2.7	3.0M
31	3.5	4.0	3.0	3.3	2.0	2.2	4.3	3.4	3.8	4.2	6.5	4.0	4.6	4.5	4.5	3.5	3.5	2.5	3.8	3.9	3.7	4.9	4.1M	3.7
No.	28	24	28	27	30	19	28	29	29	31	31	31	30	30	31	31	30	31	30	30	29	26	28	28
Median	4.4	4.0	3.0	2.3	2.1	3.4	3.7	5.0	5.0	6.3	5.7	5.3	4.6	4.4	4.5	4.1	4.0	3.9	4.0	3.9	5.1	4.0	4.2	4.6
U.Q.	5.2	5.2	4.0	3.6	3.9	4.0	4.6	6.9	8.1	8.2	9.3	7.9	7.7	6.8	D5.0	5.0	5.1	5.4	5.8	5.5	8.0	5.8	5.3	5.4
L.Q.	2.6	2.8	2.2	2.0	1.5	2.5	3.1	4.0	4.0	4.4	4.5	4.2	4.0	3.9	3.8	3.8	3.5	3.2	3.2	2.9	3.4	3.0	3.5	3.2
Q.R.	2.6	2.4	1.8	1.6	2.4	1.5	1.5	2.9	4.1	3.8	4.8	3.7	3.7	2.9		1.2	1.6	2.2	2.6	2.6	4.6	2.8	1.8	2.2

foEs

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

The Radio Research Laboratories, Japan.

K 4

IONOSPHERIC DATA

Aug. 1961 | 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		2.7	E	E		S	B	3.9	4.5	E 4.7 S	5.0	4.4	5.2	6.0	4.4	5.3	3.5	5.5 S	4.2	A	3.2	A	5.0	A
2	4.0	2.8	2.6	1.9	2.3	2.6	A	5.3	3.9	4.0	4.0	4.3	3.8	5.3	6.5	3.9	5.0	2.9	2.7	3.4	2.3	1.8	2.1	A
3	E	3.8	2.8	A	2.4	2.6	3.7	A	A	A	A	A	A	A	A	A	A	A	A	A	3.8	3.1	3.8	4.6
4	A	3.0	2.8	1.9	1.7	B	3.3	A	3.9	5.8	4.3	4.2	E 3.9 S	3.9	4.3	3.4	E 3.6 R	3.6	2.7	2.8	2.5	3.7	4.0	4.0
5	A	A	2.6	3.0	A	2.7	2.5	3.0	4.8 S	3.9	A	5.7	A	3.9	4.7	5.7	4.9	A	2.8	2.1	2.4	1.9	2.7	E
6	3.0	C	2.1	E	1.8	u 2.8 S	C	3.8	3.6	3.9	3.6	3.5	C	C	5.0	4.4	C	4.1	C	C	1.8	C	C	C
7	C	C	C	C	1.5	2.4	C	C	C	u 6.0 S	A	A	A	A	6.3	3.5	3.6	4.1	3.7	5.6	3.0	2.1	1.9	1.9
8	2.0	2.0	2.8	2.7	2.1	S		3.4	3.7	4.2	4.0	4.1	E 3.9 S	E 3.4 R	E 3.7 S	E 3.1 R	3.4	3.5	3.3	u 5.1 S	E	2.1	A	3.5
9	3.0	3.0	2.7	1.8	A	2.6	3.6	E 4.4 S	A	A	A	A	A	A	E 4.8 S	3.7	A	A	5.2	A	4.1	A	5.2	A
10	2.9	u 4.5 S	AS	1.7	1.9	2.3	3.0	5.4	A	6.0	5.4 S	4.7	4.0	4.1	4.2	3.8	A	6.8	3.5	2.1	A	3.3	2.5	A
11	5.4	4.6	2.7	2.3	1.9	2.1	A	6.3	6.0	A	A	A	A	4.3	E 5.0 S	3.5	3.1	A	4.2	3.3	2.5	2.0	2.6	2.2
12	1.9	E	2.1	2.8	1.3	2.1	3.5	A	E 4.5 S	A	A	A	4.1	E 3.5 S	3.9 S	3.9	3.8	4.4	4.8	2.5		E	1.7	3.4
13	2.6	E	E	E	E	S	3.0	4.0	5.9	4.6	4.4	5.2	A	4.5	A	A	3.3	3.2	3.6	2.4	3.7	2.2	2.1	2.6
14	2.6	2.5	2.0	1.4		S	2.8	3.7	6.0	A	A	7.6	6.1	E 4.0 R		4.0	4.8	3.0	3.7	3.1	2.8	2.3	2.1	3.2
15	4.9	2.7	2.3	E	2.3	2.6	3.1	6.8	6.0	5.1	E 4.7 S	6.3	7.6	5.5	4.8	4.4	6.3	3.0	2.9	5.3	2.7	1.9	2.4	1.8
16	2.3	2.8	1.7		E		2.5	u 4.0 S	A	A	A	A	6.7	E 3.9 R	E 3.9 S	6.0	A	A	A	A	A	5.3	4.0	2.9
17	4.3	2.6	2.2	2.1	2.5	2.0 G	3.7	4.0	6.1	u 7.5 S A	A	A	E 4.4 S	A	6.0	A	A	A	A	A	4.1	3.0	3.2	S
18	S			1.9	E	S	4.0	3.9	4.9	6.4	A	7.0	4.7	4.4	4.2	3.8	3.9	3.4	4.1	4.7	5.0	E	3.3	3.5
19	2.5	2.7	2.3	2.3	2.2	2.6	4.1	6.1	8.0	5.3	6.6	5.6	5.0 S u	7.7 S	4.4	4.1	3.6	3.1	2.7	E	S	C	C	3.5
20	2.4	2.1	1.9	C	2.0	S	3.4	5.8	5.1	5.6	4.2	5.3	3.8	4.0	3.6	3.6	3.4	2.9	2.6	2.8	4.6	1.8	2.1	1.8
21	2.4	E	1.9	1.4	E	2.8	A	3.4	3.3	4.0	E 4.0 S	4.4	4.3	A	3.9	3.9	3.2	2.8	3.4	2.6	A	2.6	2.0	2.5
22	2.9	1.8	1.7	1.9	E	3.8	3.0	3.8	3.5	A	A	u 5.2 S	4.9	4.2	4.1	5.0	E 4.0 S	4.5	3.3	2.2	4.0	2.1	2.5	4.0
23	2.5	3.4	1.9	1.9	1.6	2.5	4.8	4.8	4.8	4.0	4.3	4.6	5.8	4.0	E 3.8 S	4.1	3.2	2.8	2.4	2.2	2.3	6.4	4.9	A
24	3.9	2.4	2.8	E	1.9	2.3	4.5	4.0	3.9	3.4	3.9	E 3.5 S		3.8	3.4	3.1	3.4	2.9	2.2	2.0	S	E	2.1	2.1
25	2.4	S	1.9	3.4	2.2	2.4	3.7	E 3.5 S	3.4	4.4	A	6.0	4.4	4.7	4.2	3.4	3.3	2.7	2.4		E	1.9	2.7	2.4
26	1.8	S	S	2.5		S	2.4	A	5.5	4.0	4.4	5.8	4.3	4.2	4.0	3.9	2.9	2.5	2.5					
27				S		S		2.9	3.2	3.8	3.9	3.4 G	4.2	3.0 G	3.4	3.4	3.0	3.1	3.4	3.8	u 3.3 A	S	A	2.1
28	1.9	S				S		4.1	3.9	4.4	4.3	E 3.3 R	4.6	4.2	3.5	E 4.6 S	4.4	3.3	3.1	2.4	5.3	C	C	C
29	C	C	C	C	C	C	C	C	C	4.7	4.2	3.5	4.0	E 3.2 R	2.6 G	2.6 G	3.4	3.9	3.0	3.2	2.4	5.1	1.9	1.9
30	2.0	S	1.9	E		S		2.9	4.0	5.4	E 3.3 R	E 3.2 R	E 3.0 R	E 3.0 R	3.5			3.8	3.9	2.4	2.8	S	1.9	2.0
31	2.0	3.1	1.8	2.5	E	S	3.6	u 3.1 S	3.8	4.2	5.0	4.0	4.3	4.5	4.2	3.3	3.4	2.5	3.4	3.4	3.7	A	2.1	2.5
No.	26	22	25	25	24	17	23	28	29	31	31	31	29	30	28	29	28	31	30	28	27	25	27	27
Median	2.6	2.7	2.1	1.9	1.9	2.6	3.6	4.0	4.8	5.1	5.0	5.3	4.6	4.2	4.2	3.9	E 3.6	3.5	3.4	3.2	3.2	2.2	2.5	2.9

foEs

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

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

Aug. 1961 | 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	1.50	1.50	1.40	1.50	1.10	E 1.95 S	2.40	2.70	2.20	2.30	2.60	3.50	3.60	2.45	2.35	2.40	2.50	1.90	1.80	E 1.60 S	E 1.70 S	E 1.75 S	1.50	1.40
2	E 1.70 SE	1.60 SE	E 1.40 S	1.35	E 1.80 S	1.45	1.70	2.70	2.20	2.70	2.70	3.20	2.40	2.30	2.80	2.85	2.60	2.60	1.50	E 1.50 S	1.20	1.20	E 1.70 S	E 1.50 S
3	1.65	E 1.60 S	1.20	1.65	E 1.60 S	1.30	1.75	2.60	1.90	3.30	4.60	2.80	2.70	2.20	2.70	2.20	2.60	1.45	1.80	1.60	E 1.80 S	1.30	E 1.70 S	1.20
4	1.60	1.10	1.30	1.40	1.10	1.80	1.85	2.50	2.00	2.20	2.20	3.10	3.60	3.00	3.15	2.50	2.85	E 2.75 SE	2.00 SE	E 1.95 S	E 1.70 SE	E 1.85 SE	E 1.70 SE	E 1.60 S
5	E 1.70 SE	E 1.95 SE	E 1.70 S	1.45	E 1.60 SE	E 1.60 S	1.80	2.40	2.20	2.40	2.20	2.70	2.45	2.60	2.40	1.95	2.60	2.60	1.60	E 1.75 S	E 1.60 SE	E 1.50 S	1.40	1.40
6	1.70	C	E 1.70 SE	E 1.60 SE	E 1.60 S	E 1.85 S	C	E 1.80 S	2.20	2.20	2.25	2.40	I 2.50 C	I 2.50 C	2.70	2.70	I 2.40 C	2.00	I 1.70 C	C	E 1.70 S	C	I 1.30 C	C
7	C	C	C	C	1.10	E 1.90 S	C	C	C	2.20	2.40	2.40	2.45	2.35	2.30	2.40	2.40	1.80	1.60	E 1.50 S	E 1.65 SE	E 1.70 SE	E 1.65 SE	E 1.50 S
8	E 1.70 SE	E 1.70 SE	E 1.70 SE	E 1.50 S	1.40	E 1.95 S	1.60	1.90	2.10	2.30	2.45	2.90	2.80	2.60	2.40	2.40	2.55	2.60	1.70	E 1.50 S	E 1.70 SE	E 1.50 SE	E 1.65 SE	E 1.50 S
9	E 1.55 SE	E 1.60 S	1.35	1.40	E 1.50 S	1.40	1.70	2.60	1.90	2.50	2.40	E 2.50 C	3.10	2.60	2.60	2.20	2.60	2.10	1.60	E 1.65 S	E 1.50 SE	E 1.70 SE	E 1.50 SE	E 1.70 S
10	E 1.70 SE	1.50 SE	E 1.70 SE	E 1.50 S	1.45	E 2.00 S	1.85	2.00	2.20	2.40	2.55	2.90	2.95	2.90	3.15	2.40	2.40	1.70	1.95	F 1.75 S	E 1.70 SE	E 1.60 SE	E 1.70 SE	E 1.70 S
11	E 1.60 SE	E 1.70 SE	E 1.70 S	1.35	1.45	E 1.80 SE	E 1.75 S	1.90	2.40	2.40	2.40	3.10	2.60	2.80	2.60	2.20	2.45	1.70	1.70	1.50	E 1.85 SE	E 1.50 SE	E 1.60 SE	E 1.65 S
12	1.50	E 1.70 SE	E 1.50 S	1.20	1.00	E 1.70 S	1.70	1.90	2.00	2.20	3.05	2.65	2.50	2.60	2.60	2.30	2.70	1.90	1.50	E 1.70 S	1.40	E 1.50 SE	E 1.50 SE	E 1.55 S
13	E 1.70 SE	E 1.60 SE	E 1.50 S	1.40	1.30	E 1.70 S	1.90	2.50	1.90	2.20	2.45	2.65	3.10	3.10	2.40	2.50	2.75	E 1.70 S	2.20	E 1.60 SE	E 1.70 SE	E 1.60 SE	E 1.70 SE	E 1.70 S
14	E 1.70 SE	E 1.70 S	1.20	1.10	1.10	E 1.90 S	1.80	2.45	2.40	2.25	2.50	2.50	2.45	2.60	2.40	2.25	2.80	2.00	E 1.50 SE	1.70 S	E 1.70 SE	E 1.70 SE	E 1.65 SE	E 1.70 S
15	E 1.50 SE	E 1.50 SE	E 1.70 S	1.40	1.40	E 1.80 S	1.80	2.70	2.20	2.20	2.80	2.70	2.60	3.20	2.60	2.40	2.70	2.00	E 1.90 SE	1.70 S	E 1.70 SE	E 1.45 S	1.30	E 1.50 S
16	1.20	E 1.70 SE	E 1.50 S	1.40	1.20	1.50	1.70	E 2.50 S	2.20	2.40	3.60	3.60	3.10	2.80	2.75	2.40	2.65	2.50	1.80	1.60	E 1.90 SE	E 1.90 SE	E 1.70 SE	E 1.50 S
17	E 1.75 SE	E 1.60 SE	E 1.80 S	1.40	E 1.60 SE	E 1.75 SE	E 2.50 S	2.45	2.40	2.90	2.90	3.50	3.00	2.90	2.80	2.00	2.60	2.00	1.95	E 1.70 S	E 1.80 SE	E 1.80 SE	E 1.90 SE	E 1.80 S
18	E 1.85 S	1.50	1.45	1.50	1.60	E 1.95 S	1.90	2.60	2.25	2.60	3.15	2.65	3.15	2.80	2.80	2.75	2.50	2.60	2.20	1.45	E 1.70 SE	E 1.70 SE	E 1.50 SE	E 1.90 S
19	E 1.90 SE	E 1.95 SE	E 1.60 SE	E 1.85 SE	E 1.50 SE	E 1.80 S	1.80	E 2.70 S	2.30	2.70	2.90	3.05	3.40	2.85	2.65	2.70	2.10	2.00	E 1.80 S	1.50	E 1.70 S	C	C	E 1.85 S
20	1.45	E 1.70 SE	E 1.70 S	C	E 1.50 SE	E 1.50 S	1.80	2.00	2.10	2.40	2.35	2.80	2.50	2.75	2.50	2.30	2.60	1.70	1.70	E 1.80 S	E 1.50 SE	E 1.50 SE	E 1.70 SE	E 1.70 S
21	E 1.70 S	1.45	1.20	1.10	1.00	E 1.80 S	1.80	2.30	2.00	2.25	2.60	2.70	2.40	2.20	2.20	2.15	2.65	2.00	1.70	E 1.50 S	E 1.70 SE	E 1.70 SE	E 1.50 SE	E 1.50 S
22	E 1.80 SE	E 1.70 S	1.35	E 1.50 S	E 1.70 SE	E 1.80 S	1.80	2.20	2.25	2.45	2.50	2.50	2.70	2.55	2.40	2.30	2.40	2.10	1.70	1.45	E 1.70 SE	E 1.70 SE	E 1.70 SE	E 1.75 S
23	E 1.85 SE	E 1.70 SE	E 1.60 SE	E 1.60 SE	E 1.50 SE	E 1.90 S	1.95	1.90	2.50	2.20	2.70	3.40	3.10	3.40	2.20	2.25	2.45	2.65	1.55	E 1.70 S	E 1.75 SE	E 1.50 SE	E 1.85 SE	E 1.50 S
24	E 1.60 SE	E 1.50 SE	E 1.60 S	1.10	E 1.65 SE	E 1.80 S	1.60	E 1.90 S	2.20	2.20	2.40	2.80	3.50	2.50	2.70	2.10	2.90	2.60	1.70	1.75	E 1.90 S	E 1.90 SE	E 1.70 SE	E 1.90 S
25	E 1.70 SE	E 1.80 SE	E 1.70 S	1.10	1.50	E 1.90 S	1.90	2.70	1.90	2.40	2.60	2.60	3.45	2.90	2.60	2.40	2.30	E 1.95 S	1.85	1.30	E 1.80 SE	E 1.70 SE	E 1.80 SE	E 1.70 S
26	E 1.40 SE	E 1.70 SE	E 1.40 S	1.30	1.40	E 1.70 SE	E 1.80 SE	E 2.25 SE	E 1.80 S	2.30	3.00	2.20	2.50	2.15	2.15	2.00	2.00	1.70	E 1.70 S	1.40	1.40	1.40	1.50	1.40
27	1.40	1.40	1.20	E 1.60 S	1.30	E 1.90 SE	E 1.90 S	2.20	1.95	2.40	2.30	2.20	2.90	2.50	2.15	2.25	1.90	1.70	1.50	E 1.70 SE	E 1.80 SE	E 1.50 SE	E 1.60 SE	E 1.85 S
28	E 1.70 SE	E 1.95 S	1.40	1.40	1.20	E 1.80 S	1.90	2.20	2.15	2.50	2.40	2.20	2.45	2.40	2.30	2.00	1.80	E 1.70 SE	E 1.75 SE	E 1.50 SE	E 1.70 S	C	C	C
29	C	C	C	C	C	C	C	C	C	2.10	2.55	2.70	2.70	2.50	2.20	2.20	2.25	E 2.50 SE	E 1.80 S	E 1.50 SE	E 1.70 SE	E 1.50 SE	E 1.65 SE	E 1.80 S
30	E 1.50 SE	E 1.70 SE	E 1.60 S	1.35	1.40	E 1.60 S	1.70	2.00	2.10	2.20	2.70	2.50	2.60	2.45	2.00	2.40	2.40	1.90	E 1.70 SE	E 1.70 S	E 1.85 SE	E 1.80 SE	E 1.50 SE	E 1.50 S
31	E 1.70 SE	E 1.70 SE	E 1.60 S	1.40	1.40	E 1.90 S	1.70	1.95	2.00	2.40	2.30	3.20	3.40	2.50	2.95	2.40	1.80	E 1.70 S	1.90	1.40	E 1.50 SE	E 1.85 SE	E 1.70 S	E 1.80 S
No.	29	28	29	21	19	30	26	27	29	31	31	31	31	31	31	31	31	29	26	30	31	28	29	29
Median	E 1.70	E 1.70	E 1.50	1.40	1.30	E 1.80	1.80	E 2.25	2.20	2.40	2.55	2.70	2.70	2.60	2.60	2.30	2.50	2.00	1.70	E 1.60	E 1.70	E 1.65	E 1.65	E 1.65

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

Aug. 1961 | 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	J z.80^{S}	z.80	3.00	z.90	z.85	z.95	z.80	3.05	3.30	3.10	3.30	z.80	z.85	z.80	J3.05^{R}	J3.00^{R}	3.15	3.05	z.95	I z.90^{A}	z.95^{R}	I z.95^{A}	I 3.00^{F_1}	I z.90^{A}
2	z.90	J z.75^{F}	F	F	U 3.05^{S}	3.15	I 3.30^{A}	3.35	z.95	z.80	3.00	J z.90^{S}	z.70	z.60	3.00	z.95^{R}	z.90	z.55	z.70	3.05^{R}	3.30^{R}	3.30	z.65	I z.60^{A}
3	z.65^{V}	J z.70^{S}	z.95^{S}	I z.85^{A}	z.75^{S}	z.50	z.40	A	A	A	A	A	A	A	A	A	A	A	A	I 3.00^{A}	z.70	z.70	z.80	z.75
4	I z.75^{A}	z.60^{S}	I z.80^{F}	z.75	U z.75^{F_1}	I z.75^{S}	z.95	I 3.00^{A}	z.75^{V}	3.20	z.90	z.85	z.75^{R}	z.95	3.05	z.85	3.25	3.05	3.05	z.90	z.75	z.85	U z.60^{S}	I z.80^{F_2}
5	I z.80^{A}	I z.70^{A}	I z.80^{F_2}	SU 3.00^{S}	I 3.00^{A}	3.05	3.05	3.40	J 3.00^{SU}	z.85^{S}	I z.85^{A}	z.80	I z.90^{A}	3.15	J 3.05^{R}	z.90	3.00	I 3.00^{A}	3.00	z.95^{S}	J z.90^{S}	z.90	I z.80^{F}	3.05
6	z.75	I z.70^{C}	z.80	U z.80^{S}	3.05	S U 3.20^{S}	I 3.20^{C}	3.15	3.20	3.25	3.20	3.00	I z.90^{C}	I 3.05^{C}	J 3.00^{R}	3.00	I 3.00^{C}	J 3.05^{R}	I 3.10^{C}	I 3.30^{C}	3.40	I z.75^{C}	I z.80^{C}	I z.60^{C}
7	C	C	I z.80^{C}	I z.90^{C}	U z.80^{S}	I 3.00^{S}	I 3.00^{C}	I 3.20^{C}	I 3.70^{C}	3.05	A	A	A	A	z.95	3.10	3.05^{R}	z.90	3.00	z.90	z.85	U z.70^{S}	z.90	z.95
8	z.75	U z.75^{F}	I z.85^{F}	I z.90^{S}	U z.90^{F}	I z.80^{S}	3.15	3.05	3.25	3.40	z.95^{R}	3.20	z.75	z.80	z.95	z.95	J z.90^{R}	z.90	z.90	3.15	3.20	U z.70^{F}	I z.70^{A}	U z.75^{F}
9	U z.60^{S}	F	SF	S	A	U z.80^{S}	z.85	z.85	A	A	A	A	A	A	z.75	z.80	I z.95^{A}	I 3.10^{A}	3.10	I 3.10^{A}	U 3.00^{S}	I z.80^{A}	I z.95^{F_1}	I 3.00^{A}
10	J z.90^{S}	I z.80^{S}	I z.70^{A}	I z.80^{S}	U z.70^{S}	z.90^{S}	z.95	3.20	I 3.05^{A}	3.25	3.05	z.90	z.90	z.75	z.95	z.85	I z.90^{A}	3.00	U 3.05^{R}	3.00	I 3.00^{A}	z.65	I z.70^{F_2}	I z.70^{A}
11	I z.65^{F}	S U z.55^{F}	U z.60^{S}	z.70	z.70^{S}	J z.50^{S}	I z.70^{A}	U z.75^{S}	z.90	A	A	A	A	z.55	z.65^{S}	z.75	3.00	I 3.00^{A}	z.95	z.70	z.60	U z.60^{S}	U z.55^{S}	z.75
12	z.60	z.55	z.65^{S}	z.85	z.65	z.65	3.05	I z.80^{A}	z.90	A	A	A	z.70^{R}	I z.80^{S}	z.95	z.75	z.95	3.00	3.15	z.85	z.75	z.60^{F}	z.70	z.70^{F}
13	z.70^{F_1}	U z.85^{F}	I z.90^{S}	z.85	U z.95^{S}	3.10	3.10	3.05	3.20	3.35	3.40	3.15	I z.75^{A}	z.75	I z.85^{A}	I 3.00^{A}	z.95	3.00	z.85	z.85	I 3.10^{R}	3.00	z.55	z.90
14	z.75	z.70	I z.80^{F_2}	I z.70^{F}	z.80	z.80	3.00	U 3.35^{S}	3.20	I 3.05^{A}	I z.90^{A}	3.00	J z.65^{S}	z.85	z.85	z.90	3.00	z.95	J 3.05^{R}	z.90	z.85	z.75	z.65	z.55
15	F	F	F	z.95	z.55^{S}	z.75^{S}	3.25^{S}	3.35	J 3.15^{R}	J 3.25^{R}	z.95	z.90	z.90	z.90	z.90	3.00	J 3.05^{R}	z.90^{R}	J z.90^{R}	z.90	3.00	z.70	z.55^{R}	z.70
16	z.70	z.70^{S}	J z.50^{F_1}	I z.70^{F_2}	U z.90^{F}	J 3.05^{S}	3.30	U 3.10^{S}	I 3.15^{A}	I 3.10^{A}	I 3.00^{A}	I z.85^{A}	z.85	U 3.00^{S}	z.90	3.05	A	A	A	A	A	z.80	I z.80^{F}	z.85
17	U z.85^{S}	z.80	3.00	J z.80^{S}	z.80^{S}	U z.95^{S}	z.95	3.15	3.15	A	A	A	z.80	I z.85^{A}	z.90^{S}	I z.90^{A}	I z.90^{A}	I z.90^{A}	I z.95^{A}	I 3.00^{A}	U 3.05^{R}	z.80^{R}	z.85	z.75
18	z.95	z.90	z.80	z.80	z.85	z.95	3.25	3.05	3.45	3.05	I 3.10^{A}	3.00	z.95	z.75	z.95	z.95	3.00	J z.95^{R}	J z.90^{R}	z.90	I z.95^{A}	J z.95^{S}	J z.90^{S}	I z.80^{F}
19	z.80	z.55	z.70	z.75	z.90	3.00	3.10	3.20	I 3.15^{A}	3.00^{R}	z.90	z.80	z.95	z.85	z.85	z.85	z.85	z.85	3.05^{R}	J 3.05^{S}	J 3.20^{S}	C	C	J z.55^{S}
20	z.75	z.80	z.80	I z.90^{C}	z.70	z.90	z.75	z.95^{S}	z.85	3.00	z.70	z.70	z.85	z.85	3.05	3.05	3.05	3.05	3.05	z.90	z.90	z.65	z.75	z.65
21	z.50	z.75	z.55	z.55	z.70	z.55	I z.75^{A}	3.15	3.15^{R}	3.10	3.00	z.85	J 3.00^{R}	I z.85^{A}	3.05	3.05	3.05	3.00	J 3.10^{R}	3.10	I z.90^{A}	I z.85^{F_2}	U z.65^{F}	I z.70^{F}
22	I z.85^{F}	U z.75^{F}	F	F	J z.95^{S}	J z.80^{S}	3.00	z.95	3.20	I 3.20^{A}	I 3.20^{A}	3.10	z.85	J z.95^{R}	J 3.05^{R}	z.95	3.10	3.05	z.95	3.10^{S}	J 3.35^{S}	J 3.15^{K}	z.85	z.65
23	I z.85^{F}	I z.80^{S}	z.75^{F}	z.80	z.85	z.95	3.10	3.10	J 3.35^{R}	3.30	z.95	z.70	z.85	z.85	z.95	3.00	J 3.10^{R}	3.00	z.90	3.10^{S}	J 3.25^{R}	z.80	z.75	I z.70^{A}
24	z.65^{F}	U z.85^{F}	z.90	I 3.00^{F_2}	I z.95^{A_2}	3.00	3.25	3.20	3.55	3.25	3.15	3.05	z.80	z.85	z.85	z.85	3.15	3.15	3.10	3.10^{S}	J 3.00^{S}	3.10	z.90	z.90^{S}
25	z.70^{S}	I z.75^{F}	I z.90^{S}	3.00^{S}	U z.70^{S}	z.60^{S}	3.10	3.40^{S}	J 3.50^{R}	3.40	I 3.00^{A}	z.90^{S}	J 3.00^{R}	z.95	z.95	z.95	3.10	z.90	3.25^{R}	J 3.05^{R}	J 3.00^{R}	3.30	z.80	z.80
26	z.80	z.85	I z.90^{S}	3.10	J 3.30^{S}	3.00	3.15	I 3.10^{A}	3.35	3.30	z.95^{R}	3.00^{R}	J 3.05^{R}	3.00	z.95	J 3.00^{R}	J 3.15^{R}	3.05	3.15	U 3.25^{R}	3.10	U 3.05^{S}	z.80	z.90
27	z.90	z.85	z.85^{S}	J z.90^{S}	U z.95^{S}	J 3.00^{S}	3.20	3.25^{R}	3.20	3.15	3.20^{R}	3.00	3.05^{R}	3.15	z.90	J 3.20^{R}	3.00	J 3.00^{R}	z.90	J 3.15^{R}	I 3.40^{R}	3.45	I z.70^{A}	U z.70^{F}
28	z.90	z.60	z.75	z.85	3.10	I 3.10^{S}	3.40	J 3.45^{R}	J 3.75^{R}	3.50	3.30	3.00	3.00	3.15^{R}	z.95	J z.95^{R}	3.15	3.10	3.25	3.30	J 3.20^{S}	C	C	C
29	C	C	C	C	C	C	C	C	C	3.45	3.15	3.15	J 3.05^{R}	3.05	3.05	J 3.00^{R}	3.15^{R}	3.00	J 3.25^{R}	I 3.30^{R}	3.30	z.90^{S}	U z.75^{F}	z.90
30	z.85	U z.65^{F}	z.80^{F}	J z.75^{F}	3.45	U z.80^{S}	3.15	3.25	3.50	3.70	U z.90^{S}	z.85	z.60^{U}	z.85	3.00	3.05	3.05	3.15	3.15^{S}	3.40^{S}	I z.90^{S}	z.75	z.70	z.55
31	z.55	z.80	3.00^{F}	z.75^{F}	z.45	z.60	3.00	J 3.15^{R}	3.35	z.70^{S}	3.05	z.90	3.00	z.95	z.85	3.05	3.05^{R}	3.25	3.35	3.30	z.80	I z.70^{A}	I z.70^{A}	U z.85^{F}
No.	z8	z7	z6	z7	z9	30	30	z9	z8	z6	z5	z5	z7	z8	30	30	z9	z9	z9	30	30	z9	z9	30
Median	z.75	z.75	z.80	z.85	z.85	z.90	3.10	3.15	3.20	3.20	3.00	z.90	z.85	z.85	z.95	z.95	3.05	3.00	3.05	3.05	3.00	z.80	z.75	z.75

M(3000)F2

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

The Radio Research Laboratories, Japan.

K 7

IONOSPHERIC DATA

Aug. 1961 | 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							L	A		S		"3.30^{S}	A	A	A	A	3.55^{L}	A	A					
2										4.20	S	3.55^{L}	3.55^{R}	A	A	3.40^{L}	A	3.35	L					
3							A	A	A	A	A	A	A	A	A	A	A	A	A					
4								A	3.35^{L}	A	3.80^{L}	S	S	3.65	3.50^{S}	3.50^{L}	R	L						
5							L	L	A	L	A	A	A	3.55^{L}	A	A	A	A	L					
6							C		3.55^{LL}	3.65^{L}	L	3.65	C	C	A	L	C		C					
7							C	C	C	A	A	A	A	A	A	"3.45^{L}	L	A						
8							L	L	"3.75^{L}		L	L	S	S	S	3.55	3.60	L						
9							L	S	A	A	A	A	A	A	S	"3.55^{S}	A	A	A					
10								A	A	A	A	L	3.60^{S}	3.60	"3.65^{L}	"3.55^{S}	A	A						
11						L	A	A	A	A	A	A	A	S	A	3.60^{L}	3.65^{L}	A	A					
12							L	A	S	A	A	A	3.60^{S}	S	3.70^{S}	"3.60^{L}	3.50	A	A					
13								L	A	L	3.50^{L}	A	A	3.45^{L}	A	A	L	L						
14								L	A	A	A	A	A	L	3.40^{L}	L	A	L						
15								A	A	L	S	A	A	A	A	L	A	L						
16									A	A	A	A	A	S	S	A	A	A	A					
17								L	A	A	A	A	S	A	A	A	A	A	A					
18									A	A	A	A	"3.55^{L}	L	"3.75^{L}	L	L							
19								A	A	A	A	A	L	A	L	L	L	L						
20							L	A	A	A	"3.70^{L}	A	3.55	3.55	3.45	"3.45^{L}	3.60^{L}	L						
21							A	L	L	L	S	3.45^{L}	L	A	L	L	L	L	A					
22								L	L	A	A	A	L	"3.65^{S}	L	A	L	A						
23							A	A	A	L	L		A	"3.50^{L}	S	L	L							
24							A		L	L	S	S	S	S	S	S	L	L						
25										A	A	A	3.75^{L}	A	L	L	L							
26								A	A	L	L	A	L	L	L	L	L	L						
27								L	L	L	L	LH	"3.50^{L}	3.70^{L}	L	3.75^{L}	L	L						
28							L	A	L	L	L	LH	A	L	L	S	A	L						
29						C	C	C	C		L	L	L	L	"3.70^{L}	L	L							
30							L	L	L	A	3.90	LH	LH	L	3.75^{L}	L	L	A						
31								L	L	"3.70^{S}	A	L	L	L	L	3.45^{L}	L	L						
No.									3	3	4	4	7	8	8	11	5	1						
Median									3.55	"3.70	3.75	3.50	3.55	3.60	3.60	3.55	3.60	3.35						

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. 1961 | 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							310	z90		z95		395	355	380	z95	300	300	z95	z90^{A}					
2										320	305	345	455	425	305	300	305	355	z60					
3							515	A	A	A	A	A	A	A	A	A	A	A	A					
4								A	360	300^{A}	330	^{E}400^{S}	400	350	315	335	285	300						
5							z75	z55	^{E}300^{A}	z90^{A}	A	370^{A}	A	300	305	^{E}340^{A}	305	A	z75					
6							C		z90	z55	z55	340	C	C	300	z95	C		C					
7							C	C	C	^{E}350$^{A}_{S}$	A	A	A	A	^{E}360^{A}	305	305	325						
8							z75	z60	z60		305	z90	^{E}390^{S}	350	300	300	305	300						
9							350	305	A	A	A	A	A	A	^{E}370^{S}	355^{S}	A	A	z70^{A}					
10								z70^{A}	A	z90^{A}	315	320	310	400	325	325	A	^{E}345^{A}						
11						355	A	^{E}400^{A}	^{E}340^{A}	A	A	A	A	505	^{E}440^{S}	390^{S}	330	A	^{E}300^{A}					
12							z95	A	^{E}340^{S}	A	A	A	S	S	355^{S}	440	350	300	z70^{A}					
13								300	z80^{A}	z75	350	305	A	400	A	A	300	z95						
14								z50	z60^{A}	A	A	^{E}350^{A}	360^{A}	335	340	300	z60^{A}	z70						
15								z50^{A}	z60^{A}	z75	^{E}300^{A}	^{E}350^{A}	^{E}355^{A}	315	310	310	310	300						
16									A	A	A	A	340^{A}	300	^{E}310^{S}	300^{A}	A	A	A					
17								z60	^{E}z60^{A}	^{E}300^{A}	A	A	350	A	310	A	A	A	A					
18									z50	^{E}345^{A}	A	^{E}345^{A}	310	350	310	305	z90							
19								z75	^{E}395^{A}	z75	310^{A}	320	300	^{E}350$^{A}_{S}$	320	305	305	300						
20							315	305	310^{A}	^{E}325^{A}	410	415	360	360	310	315	300	z75						
21							A	z70	z85	z90	^{E}310^{S}	360	330	A	305	305	z90	z60	z75					
22								z75	z50	A	A	z95	350	340	z90	^{E}290^{A}	305	z85						
23							z60^{A}	z55	z40	z50	315		350^{A}	325	300	z85	z65							
24							z60^{A}		z35	z50	z85	305	^{E}365^{S}	335	325	z85	z65	z55						
25										z55	A	340^{A}	310	305	300	z95	z75							
26								A	z45	z55	310	300^{A}	z85	300	310	300	z75	z80						
27								z50	z60	z60	z55	305	305	300	305	z65	z90	z85						
28							z50	z50	z30	z40	z70	300	325	300	305	305	z60	z60						
29						C	C	C	C		z90	z85	300	300	z90	z95	z75							
30							z65	z45	z20	z25	375	355	305^{H}	310	z75	z60	z85	z60						
31								z90	z60	^{U}410^{S}	305	310	335	315	340	300	z75	z55						
No.						1	11	18	18	18	17	19	20	23	25	27	25	19	6					
Median						355	z75	z65	z60	z75	305	320	330	335	305	300	z90	z85	z70					

h'F2 | Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

Aug. 1961 | 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	300	305	250	250	265	255	240	I255A	250	I245S	250	E295A	A	A	A	A	245	A	A	I265A	270	I280A	E310A	I285A
2	310A	310	270	290	260	250A	I250A	255A	240	200	170H	250	245	I220A	I245A	250	I250A	245	255	250	210	205	350A	I310A
3	300	E390A	290	I290A	340A	E430A	I280A	A	A	A	A	A	A	A	A	A	A	A	A	A	E350A	340A	310A	E360A
4	A	320A	300	270	310	250	260A	I260A	245	I250A	230	200	I250S	240	270A	230	I220R	260A	280A	270	250	300A	E360A	300A
5	I335A	I325A	300	290A	I260A	255	235	210	I235A	205	A	A	A	205	I210A	I220A	I255A	I240A	260A	250	260	255	270	210
6	315	I310C	310	260	250	255	I215C	250A	200	210	205	195	C	C	A	A	I250C	260A	I250C	I230C	200	I270C	I300C	I300C
7	I340C	I350C	I320C	I300C	255	250	I220C	I250C	C	A	A	A	A	A	A	205	210	I230A	260A	E300A	255A	290	255	250
8	300	300	300	300	250	260	250	240	205	E250A	210	210	I195S	I190S	I210S	220	230	250A	E270A	250S	210	340	I355A	355A
9	300	325	I300S	310	I290A	290	E310A	S	A	A	A	A	A	A	S	240	A	A	A	I260A	250A	I290A	E420A	I260A
10	300A	E355S	I305S	300	305	250	250	A	A	A	A	260A	225	245	240A	225	A	A	260A	250A	I265A	300A	340A	A
11	E350A	E350A	295	290	300	305	A	A	A	A	A	A	A	245	I250A	210	220	A	A	300A	300	305	350A	275
12	305	310	305	300	260	305	I250A	A	S	A	A	A	260A	I200S	225	225	245	I240A	I250A	250A	255	330	290	350A
13	325	260	275	255	250	250	250	E290A	I210A	E260A	250	I250A	I250A	250A	A	A	215	250	E260A	255	260A	245	320	260
14	300	305	300	260	260	255	250	245	I260A	A	A	A	A	E300S	210	240	I240A	210	270	260A	E260A	240	300A	340A
15	E440A	305	245	245	325A	300	245	A	A	250A	S	A	A	A	A	250A	I255A	240	270	E280A	250A	240	325	295
16	300	310	295	255	250	250	225	255	A	A	A	A	A	210	I245S	A	A	A	A	A	A	E310A	E350A	255
17	310A	300A	255	270	300A	270	255	250A	A	A	A	A	I230S	I225A	A	A	A	A	A	A	250A	260A	270A	255
18	255	255	300	305	275	275	240A	240	A	A	A	A	260A	250	240	245	250A	260A	260A	290A	E300A	245	280A	275
19	275	305	300	295	250	245	250A	I245A	A	A	A	A	A	I250A	E290S	250	275A	250	260	245	210	C	C	350A
20	305	255	255	I250C	250	275	245	A	A	A	225	I250A	205	215	225	220	245	245	255	250	E300A	290	275	300
21	305	300	305	345	300	350	L310A	250	205	200	I190SE	250A	225	I250A	240	240	220	210	I260A	245	I300A	305	305	300
22	300A	255	255	250	260	E305A	255	245	245	A	A	A	260A	205	245	I250A	E250S	I255A	260	245	240A	225	250A	E350A
23	300A	305	255	290	255	260	A	A	A	200	205	E280A	I260A	205	I250S	240	245	245	255	250	225	E340A	E310A	A
24	E350A	300	250A	210	290	260	I260A	250A	245	200	200	200	I200S	215	205	235	225	245	250	235	230	205	255	265
25	300	310	250	250	280	345	265	235	240	A	A	A	205	I260A	250	205	240	250	245	210	245	205	275	305
26	300	305	260	250	200	250	250	I250A	I240A	215	260A	I225A	260A	225	240	245	240	250	255	245	210	240	265	260
27	250	255	260	255	250	250	225	210	200	205	210	180H	245	205	225	205	250A	250A	275	250A	220	195	I290A	260
28	285	340	300	300	250	250	225	I210A	210	230A	250A	175H	I170A	260A	200	I230S	I240A	255A	250	225	E250A	C	C	C
29	C	C	C	C	C	C	C	C	C	240	225	200	210	190	190H	240	240	255	245	250A	235	E340A	300	260
30	290	300	260	255	200	255	250	225	225	I200A	190	155H	165H	245	225	210	245	I250A	250A	210	E355A	305	345	340
31	350	310	285	310	350	355	E290A	220	255A	200	I240A	245	270A	250A	250	245	250A	250A	245	240A	325A	I320A	340A	325A
No.	26	27	30	30	30	28	26	21	17	15	16	14	20	24	22	25	25	24	23	26	24	26	24	26
Median	300	305	290	280	260	255	250	245	240	205	220	205	240	225	240	235	245	250	255	250	250	275	300	290

h'F

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

The Radio Research Laboratories, Japan.

K 10

IONOSPHERIC DATA

Aug. 1961 | 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	E	100	100	100	E	S	B	110	105	105	100	105	105	100	100	115	150	115	105	105	105	100	100	100
2	100	100	100	100	105	105	100	100	100	100	100	100	150	115	100	110	105	110	110	100	100	100	100	100
3	100	100	100	105	100	110	105	110	105	100	100	100	110	100	100	100	100	100	100	100	100	100	100	100
4	100	100	100	100	100	B	110	105	105	100	100	115	130	115	115	115	110	110	105	105	100	100	100	100
5	100	100	100	100	100	100	100	110	105	105	105	100	100	100	100	100	100	100	120	105	100	100	100	105
6	100	C	100	100	100	105	C	100	100	100	100	105	C	C	110	110	C	100	C	C	100	C	C	C
7	C	C	C	C	105	105	C	C	C	100	100	100	100	100	100	105	110	105	105	100	100	100	100	100
8	100	100	100	100	100	S	G	110	105	100	100	100	105	105	100	105	145	115	110	105	105	105	105	100
9	105	100	115	110	105	115	110	105	105	100	100	100	100	100	100	120	105	105	100	100	105	100	100	100
10	100	100	100	100	100	120	110	105	100	100	100	100	105	100	100	100	110	105	100	100	100	100	105	100
11	100	100	100	100	115	115	105	100	100	100	100	100	100	100	100	100	100	110	105	100	100	105	100	100
12	100	100	100	100	110	115	110	105	100	100	100	100	100	100	105	120	110	110	100	100	E	105	105	100
13	100	100	105	100	105	S	145	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
14	100	100	100	105	E	S	100	105	100	100	100	100	100	100	G	125	110	110	105	105	105	105	105	100
15	100	100	100	105	100	100	100	100	100	105	100	100	100	100	100	100	100	100	100	100	100	100	100	100
16	100	100	100	E	105	G	105	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
17	100	100	100	100	100	100	105	105	100	100	100	100	100	100	100	100	100	100	100	100	105	100	100	S
18	S	E	E	100	100	S	105	105	100	100	100	100	100	100	100	105	120	100	105	100	105	100	105	100
19	100	100	100	100	100	105	105	100	100	100	100	100	100	100	100	100	100	100	100	100	S	C	C	100
20	100	105	110	C	105	S	130	105	100	100	100	100	100	100	160	100	100	120	110	100	100	105	100	100
21	100	100	100	100	105	110	105	100	105	105	105	160	105	105	105	100	105	130	100	105	105	105	105	100
22	100	105	100	105	105	115	110	105	100	100	100	100	100	100	100	100	100	110	105	100	105	100	100	105
23	105	100	100	100	100	105	105	100	100	100	100	100	100	100	105	100	100	100	100	100	100	105	100	100
24	100	100	100	105	100	105	100	100	105	100	105	105	G	105	110	120	115	110	100	100	S	100	110	100
25	100	S	100	100	100	100	100	100	100	105	100	100	105	105	105	110	105	100	100	E	100	100	100	100
26	100	S	S	100	E	S	110	100	100	100	100	100	100	100	100	100	100	125	100	E	E	E	E	E
27	E	E	E	S	E	S	G	110	100	100	100	105	100	100	100	145	115	120	110	100	105	S	105	100
28	100	S	E	E	E	S	G	105	105	100	105	105	100	100	100	100	100	100	105	100	100	C	C	C
29	C	C	C	C	C	C	C	C	C	100	100	100	100	100	100	105	125	110	110	105	110	100	105	100
30	100	S	100	100	E	S	G	145	100	100	100	100	100	100	100	G	G	110	100	105	100	S	100	100
31	100	100	100	100	105	125	115	110	110	105	105	100	100	105	100	100	100	100	110	105	105	100	105	105
No.	26	22	25	25	24	18	23	29	29	31	31	31	29	30	30	30	29	31	30	28	27	25	27	27
Median	100	100	100	100	100	105	105	105	100	100	100	100	100	100	100	100	105	105	100	100	100	100	100	100

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

Aug. 1961

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		f3	f	f			h	Cz	Cz	C	C	l	l2	Cz	C	Cl	hl	Czl	l3	f2	f3	f3	f4	f3
2	f4	f3	f2	f2	f2	l3	l3	l2	l2	l	l	l	h	C	C	l	C	l	Czl	f2	f3	f2	f2	f3
3	f	f3	f2	f3	f3	l3	l3	l2	C3	l2	l2	l2	l2l	l2	l2	l2	l2	l2	l3	f3	f4	f3	f3	f3
4	f2	f3	f2	f2	f2		C2	l2	l2	C2	l2	C	h	C	l	l	C	l	l2	f2	f2	f2	f3	f2
5	f2	f3	f2	f2	f2	l	C	l	l	C	C	l2	l2	l2	l	l3	l2	l3	h2l2	f	f2	f3	f3	f
6	f2		f3	f	f2	l		l2	l2	l2	l	C			C2	C2		C2			f			
7					f2	l				l	l2	l2	l2	l2	l	l	C	C2	l4	f4	f3	f2	f2	f
8	f2	f2	f2	f2	f2			C	l2	l2	l	l2	l	l	l	l	h	C2l	l2l2	f2	f	f3	f4	f3
9	f3	f3	f2f2	f2f2	f2	l2	C3	l2	C3	C3	l3	l3	l3	l2	l2	hl	C3	C2	l3	f4	f3	f3	f4	f4
10	f3	f3	f3	f3	f2	C	C2	l2	C3	C2	l2	l	l	l	l	l2	C3	C3	l3	f3	f3	f3	f3	f3
11	f3	f3	f	f2	f	l	l3	C2	C3	l3	l2	l2	l2	l2	l2	l	xl	C3l2	l3l	f4	f2	f2	f3	f2
12	f2	f	f2	f3	f	l	C3	C3	C	l2	l2	l	l	l	l	hl	C	C2	l3	f3		f2	f2	f3
13	f3	f2	f	f	f		h2l	l2	l2	l	l2	l2	l2	l	l2	l2	l2	l3	l3	f3	f3	f2	f2	f2
14	f2	f2	f2	f			l2	l2	C2	l2	l2	l3	l2	l		h	C	C2	l4	f3	f3	f2	f3	f4
15	f4	f2	f2	f	f3	l2	l2	l2	l2	C2	l	l2	l3	l	l2	l2	l2	l	l2	f3	f3	f2	f3	f2
16	f	f3	f2		f		l	l2	l3	l2	l2	l2	l2	l	l	l2	l2	l2	l3	f3	f3	f3	f3	f2
17	f3	f3	f2	f	f3	l	l2	l2	l2	l2	l2	l	l	l2	l2	l2	l2	l2	l2	f2	f2	f2	f3	
18				f	f		l3	l2	l2	l3	l	l	l	l	l	l	Cl	l2	l2	f4	f3	f	f3	f3
19	f	f2	f2	f2	f2	l	C2	l2	l2	l2	l2	l	l2	l	l2	l	l2	l2	l2	f				f2
20	f2	f2	f		f2		h	l3	l3	l3	l2	l	l	l	hl	l2	l2	hl	C2l	f2	f3	f2	f2	f2
21	f2	f	f2	f	f2	l2	l3	l3	l	l	C	hl	l	l2	l	l	l	h2	l3	f2	f3	f3	f3	f2
22	f3	f	f2	f2	f	l3	l3	l2	l2	l2	l2	l2	l	l	l2	l2	l2	Cl	l2	f2	f3	f	f2	f3
23	f2	f2	f2	f2	f2	l2	l2	C2	l2	C	l	l	l2	l	C	l2	l	l2	l	f2	f2	f3	f3	f4
24	f3	f3	f2	f	f2	l2	l2	l3	l2	l	l	C		C	C	h	l	l	l	f		f	f2	f2
25	f		f	f2	f2	l2	l2	l	C	l2	l3	l2	l	l2	l	C	C2	l2	l		f	f	f2	f3
26	f2			f2			l	l3	l3	l2	l	l2	l2	l	l	l2	l	Cl	l2					
27								l	l	l2	l2	l	l2	l	l	hl	Cl	C2	l2	f4	f3		f3	f2
28	f							l3	C2	l2	l2	l	l	l2	l	l2	l3	l2	l3	f3	f3			
29										C2	l2	l	l2	l	l	l	h	l2	l2	f3	f2	f3	f2	f2
30	f2		f2	f				hl	C2	C	l	l	l	l	l			C2	l4	f	f3		f2	f2
31	f3	f4	f2	f2	f2	l	l3	C	C	l	C	l	l	l	l2	l2	l2	l	l2	f3	f3	f3	f2	f2
No.																								
Median																								

Types of Es

Sweep 1.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

K 12

IONOSPHERIC DATA

Aug. 1961 | 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	J360S	355	310	310	350	345	350	305	285	305	290	G	355	385	J305R	J310R	305	300	320	I335A	330R	I320A	I320F	I330A
2	310	J385F	F	F	U310S	295	I265A	255	300	350	310	J350S	G	430	310	325R	335	410	320	305R	255R	260	400	I400A
3	395V	A	310SI	330A	350S	450	A	A	A	A	A	A	A	A	A	A	A	A	A	A	370	395	355	355
4	I385A	355SI	350F	345	U390FI	330S	305	I305A	360V	300	355	S	S	350	320	360	300	310	310	330	355	345	U405SI	355RF
5	I360AI	370AI	350FS	U300SI	300A	300	300	255	S	G	A	A	A	305	J310R	340	320	I305A	305	320S	J340S	330	I350F	305
6	350	I390C	355	U330S	305SU	290SI	280C	285	300	285	255	345	I355CI	330CJ	310R	305	I320CJ	310RI	300C	I265C	245	I365C	I365CI	385C
7	C	C	I380CI	340CU	350SI	310SI	300CI	305C	I270C	A	A	A	A	A	A	305	305R	330	305	335	345	U355S	330	320
8	355	U355FI	350FI	340SU	315FL	330S	300	305	285	265	320R	300	S	355	325	320	J335R	325	350	300	290	U400F	I375AU	385F
9	U395S	F	SF	S	A	U350S	355	345	A	A	A	A	A	A	S	355	I320AI	305A	300	I300AU	305SI	350A	I320FI	310A
10	J350SI	360FSI	380AS	I360SU	365S	310S	320	295	I300A	300	315	350	345	400	345	355	I345A	A	U305R	315	I310A	375	I390FI	390A
11	I395FSU	400FU	370S	355	375SJ	405SI	395A	A	345	A	A	A	A	S	S	S	345	I325A	335	370	400	U405SU	405S	355
12	400	405	390S	355	385	380	305	A	S	A	A	A	S	S	S	G	350	325	300	325	355	405F	380	395F
13	400FU	350FI	350FS	335	U320S	305	300	305	300	285	350	305	A	400	A	A	330	310	350	330	I310R	305	405	345
14	360	400	I390FSI	355F	355	345	330	U280S	300	I315A	I345A	A	J390S	355	350	335	305	330	J305R	330	350	350	385	405
15	F	F	F	330	405S	355S	285S	275	J295R	J295R	305	350	A	350	350	345	J310R	340R	J330R	345	300	360	405R	375
16	385	390SJ	435FI	375SU	350F	S	295	U290S	A	I310AI	330AI	370A	355	U325S	350	310	A	A	A	A	A	360	I380F	350
17	U350S	355	310	J335S	355SU	325S	310	295	300	A	A	A	375	I355A	350SI	350A	A	A	A	A	U300R	350R	355	355
18	330	345	375	375	350	335	265	300	255	A	A	A	350	360	335	345	310	J330R	J310R	335	I340AJ	330S	J350SI	370F
19	355	400	380	365	335	305	295	295	I295A	310R	345	355	335	I350A	350	350	350	345	310RJ	310S	J285S	C	C	J400S
20	385	340	355	I335C	360	345	355	345S	350	A	410	A	360	360	310	325	310	305	305	320	350	400	375	400
21	410	390	400	445	400	405	I370A	300	300R	305	S	360	J345R	I350A	320	325	305	310	J305R	305	I360AI	370FU	U405FI	380F
22	I350FU	355F	F	F	J345SJ	335S	300	335	330	I290AI	300A	300	355	J345RJ	305R	310	305	305	310	300S	J285SJ	300R	355	400
23	I365FI	350S	360F	355	350	355	300	295	J255R	260	320	375	350	350	310	310	J300R	305	325	305SJ	295R	A	350	I370A
24	390FU	350S	300	I310SF	I310S	325	295	290	250	275	300	310	370	350	345	310	295	275	280	285SJ	300S	295	345	335S
25	355S	F	S	310S	U355S	385S	295	245S	J240R	250	I315A	350S	J330R	345	340	310	300	320	300R	J300R	J325R	270	355	375
26	360	395	I330S	305	J250S	305	290	I310A	250	285	330R	310R	J305R	320	335	J315R	J300R	315	305	U290R	295	U305S	365	345
27	325	350	340SJ	330SU	305SI	305S	275	280R	295	300	290R	310	310R	300	335	J295R	315	J310R	340	J300R	I270R	245	I370AU	355F
28	345	400	375	370	310	I300S	260	J250R	J240R	250	295	310	350	305S	315	J330R	300	300	290	265	J270S	C	C	C
29	C	C	C	C	C	C	C	C	C	250	300	300	J310R	310	300	J315R	300R	300	J285R	I270R	260	A	U350F	345
30	350	U390F	350FJ	350F	250	U350S	300	255	250	230	G	G	390H	350	310	305	305	300	300S	255SI	330S	385	400	410
31	430	360	325F	380F	425	410	310	J300R	270	G	305	325	345	345	350	320	305R	290	260	260	350	A	F	U355F
No.	28	25	25	27	29	29	29	27	25	21	21	18	20	26	25	27	28	27	28	28	30	26	28	30
Median	360	360	355	340	350	335	300	295	295	290	315	335	350	350	325	320	310	310	305	305	310	350	370	360

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. 1961 | 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	J 90S	90	85	90	55	100	100	85	60	90	25	G	55	60	J 85R	J 85R	55	95	85	I 95A	75R	I 80A	I 60F	I 85A
2	90	J 60F	F	F	u 85S	55	I 80A	55	95	95	85	J 60S	G	65	85	75R	70	135	90	95R	90R	85	95	I 100A
3	100V	A	90S	I 95A	100S	95	A	A	A	A	A	A	A	A	A	A	A	A	A	A	100	95	95	95
4	I 70A	135S	I 90F	105	u 60F	I 20S	140	I 70A	85V	60	50	S	S	50	80	85	45	75	85	75	135	70	u 90S	I 95F
5	I 95A	I 80A	I 70F	u 55S	I 75A	95	95	60	S	G	A	A	A	50	J 85R	105	75	I 90A	90	85S	J 105S	75	I 105F	85
6	95	I 110C	95	u 95S	85S	u 65S	I 85C	80	45	100	60	50	I 50C	I 60C	J 80R	90	I 80C	J 80R	I 50C	I 50C	60	I 110C	I 85C	I 100C
7	C	C	I 65C	I 80C	u 100S	I 100S	I 55C	I 50C	I 45C	A	A	A	A	A	A	50	60R	70	90	65	95	u 100S	90	80
8	95	u 95F	I 90F	I 85S	u 85F	I 100S	95	85	50	45	90R	85	S	90	80	85	J 65R	80	100	95	65	u 95F	I 90A	u 105F
9	u 60S	F	SF	S	A	u 100S	85	100	A	A	A	A	A	A	S	80	I 80A	I 80A	95	I 65A	u 90S	I 130A	I 110F	I 90A
10	J 90S	I 130F	I 95S	I 90S	u 100S	90S	80	55	I 90A	55	80	65	100	95	70	95	I 80A	A	u 95R	80	I 85A	120	I 95F	I 70A
11	I 90F	u 145F	u 125S	135	80S	J 100S	I 100A	A	105	A	A	A	A	S	S	S	55	I 80A	70	125	100	u 100S	u 90S	100
12	105	95	105S	95	105	75	90	A	S	A	A	A	S	S	S	G	65	120	50	120	100	90F	115	105F
13	90F	u 95F	L 95S	70	u 125S	85	95	90	50	40	50	90	A	90	A	A	70	85	145	115	I 70R	90	100	70
14	130	90	I 85S	L 95F	95	100	70	u 65S	95	I 70A	I 95A	A	J 70S	70	105	90	90	115	J 90R	75	95	100	90	140
15	F	F	F	65	95S	95S	60S	70	J 55R	J 55R	150	95	A	95	95	50	J 80R	105R	J 115R	105	90	140	145R	85
16	80	85S	J 75F	I 110S	u 50F	S	45	u 60S	A	I 90A	I 70A	I 80A	85	u 75S	55	85	A	A	A	A	A	95	I 105F	95
17	u 100S	95	90	J 110S	135S	u 85S	90	60	50	A	A	A	85	I 80A	60S	I 90A	A	A	A	A	u 55R	100R	100	100
18	65	70	75	75	95	65	90	100	50	A	A	A	95	95	65	100	135	J 70R	J 135R	85	I 70A	J 85S	J 95S	I 70F
19	100	100	115	90	110	100	95	55	I 60A	85R	80	100	65	I 95A	100	95	105	105	90R	J 80S	J 75S	C	C	J 100S
20	60	100	100	I 100C	95	100	115	70S	105	A	85	A	85	90	85	70	85	95	90	125	75	100	80	100
21	140	65	100	65	95	95	I 130A	55	50R	85	S	85	J 50R	I 90A	75	70	90	135	J 90R	90	I 60A	I 80F	u 90F	I 100F
22	L 95F	u 95F	F	F	J 75S	J 110S	55	65	120	I 60A	I 65A	85	95	J 60R	J 70R	95	85	90	135	70S	J 60S	J 50R	140	105
23	I 80F	L 100S	135F	140	95	90	95	65	J 55R	85	90	120	80	95	95	75	J 55R	95	120	90S	J 60R	A	140	I 125A
24	110	u 95F	95	I 90F	I 80S	75	50	65	45	100	80	85	75	95	75	90	90	100	85	95S	J 100S	105	95	90S
25	95S	F	S	95S	u 80S	70S	100	100S	J 70R	95	I 95A	95S	J 70R	100	85	85	85	125	50R	J 95R	J 120R	60	105	80
26	135	60	L 90S	55	J 55S	90	65	I 60A	80	60	75R	90R	J 85R	90	100	J 85R	J 80R	80	90	u 55R	70	u 70S	85	100
27	85	95	105S	J 75S	u 90S	I 90S	80	70R	50	60	70R	90	85R	75	65	J 60R	85	J 80R	85	J 55R	L 60R	65	I 100A	u 90F
28	100	100	80	75	85	I 80S	50	J 55R	J 30R	50	55	85	95	90R	125	J 70R	55	65	55	80	J 70S	C	C	C
29	C	C	C	C	C	C	C	C	C	95	85	65	J 85R	90	95	J 75R	55R	60	J 60R	I 75R	90	A	u 105F	75
30	70	u 105F	95F	J 105F	55	u 100S	70	95	45	40	G	G	120H	95	90	90	90	60	70S	90S	I 120S	105	95	90
31	75	90	70F	110F	120	95	95	J 55R	55	G	90	80	55	50	100	55	80R	55	85	85	100	A	F	u 90F
No.	28	25	25	27	29	29	29	27	25	21	21	18	20	26	25	27	28	27	28	28	30	26	28	30
Median	90	95	90	90	90	95	90	65	55	70	80	85	85	90	85	85	80	85	90	85	90	95	95	95

ypF2 — Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | 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	I5.2S	A	S	I4.4S	4.0	4.2S	5.2	6.3	9.0	7.1	6.1	5.8	6.6	7.4R	7.7	8.3	8.5	I7.7A	7.4	A	8.6	I7.9S	6.0	A
2	S	S	S	R	S	I5.6FS	5.6	5.7	6.0	I6.7A	7.1	I6.4C	I6.1A	I6.9C	8.8	8.5	I8.1C	I7.9S	I9.5S	10.6S	10.8S	I4.8S	I3.7A	I3.9A
3	4.1	L3.9S	4.2S	L3.6S	3.1	I2.5A	3.3	4.2S	I5.0A	6.1	A	A	R	A	5.5	A	A	A	A	I5.0A	5.1S	5.3S	5.4S	5.5S
4	FS	L5.4S	5.2	S	L3.9S	4.1	4.9	6.0	S	5.6	I5.4C	5.6	6.3R	7.1	7.3	7.8	8.0S	L7.3S	5.8	6.3S	L7.4S	I7.3S	5.8	I5.7A
5	5.7	5.1	F	5.0	L3.8	2.9	L4.6S	6.3H	5.8	6.2	6.1S	6.6	8.2	7.9	8.8	9.2S	I7.9A	I6.9A	7.2	8.1	L8.2S	7.7S	I6.4S	I6.2S
6	L6.0S	6.3S	5.6	5.5	6.1Z	S	3.9	5.7	8.1	I7.7S	5.4H	6.8R	6.9	7.4	7.9	I7.9A	8.4	L9.8S	I9.7S	I7.5S	5.8	5.6S	5.0	5.1
7	5.1	4.8	I4.9S	L4.8S	L4.3S	3.7	4.9	6.9S	7.1S	6.1	6.1	6.3	7.0	7.8	6.9	7.1	8.0S	8.5	8.6	L7.8S	7.5S	7.7S	S	S
8	S	S	6.0	5.9	I5.2S	5.1S	5.5	L7.6S	7.8	7.0	6.2	6.7	7.1	8.0	8.7	8.7	9.7S	9.7S	9.2	L9.8S	9.0	C	C	C
9	C	C	C	C	C	C	C	C	C	7.0R	A	6.3	6.9	7.5	8.2R	8.2	8.2	8.6	8.7	I7.7A	I7.1A	S	S	S
10	S	L5.2S	I4.8A	L4.6S	I4.4SH	I4.3S	4.6	7.1S	7.2	7.5	7.3	6.7	7.6	L8.3R	8.8	9.2	9.0	9.0S	8.6	A	A	L6.4S	S	FS
11	S	L6.4S	I5.8S	5.1S	FSH	I4.7S	5.4	9.2S	6.8	L7.8S	8.0	8.6	9.0	8.7	8.1	7.6	7.7	7.6S	L7.5S	I7.5A	L7.4S	L7.2S	S	S
12	S	S	S	6.5	5.6	5.2	6.2S	7.0	6.5	6.3	6.7	8.3	L7.8R	7.2	7.2	7.5	7.6	L7.6S	6.9	6.5	I6.3S	I6.2S	I6.3S	I6.3S
13	6.2	6.0	6.0S	6.0	5.7	4.7	5.0	7.1S	L8.2S	L7.5S	6.4H	6.8	7.2	8.1	8.4	L7.4S	7.6	8.2	I9.5S	I9.6S	L7.9S	6.4	6.0	6.0S
14	I6.2S	I6.2S	5.6	5.5	5.4	5.4	6.1S	8.8	8.4	7.6	7.8	7.4R	8.6	L9.7S	9.9	L9.8S	L9.9S	8.9	8.6	I8.4S	I7.7	7.1	I7.3S	S
15	S	S	S	6.4S	I5.5S	F	6.5	L7.7S	8.0	6.8H	6.6	7.8	9.0	L9.7S	9.4	9.7	I9.6S	9.4	9.1S	9.1S	8.9	6.9	L6.2S	I6.2S
16	S	S	S	S	6.5	5.8S	6.7	L7.0S	7.1	8.0	7.8	8.5	10.0	10.9	11.2	10.0	9.6S	9.2S	8.9	L8.2S	I7.9S	7.2S	S	S
17	S	A	S	S	FS	L6.1S	6.8	8.5	9.0	8.5	7.9	I8.1A	8.6	8.9	10.0	10.9	10.9	11.5	L12.2S	11.6S	I9.8S	L7.8S	S	S
18	S	FS	FS	S	S	S	6.8	8.1	7.8S	7.4S	8.5	8.0	8.2	9.3	10.8	10.0	I9.8S	9.5S	I9.6S	L9.2S	I8.7S	L8.5S	S	C
19	C	C	C	C	C	C	C	C	C	8.5	8.0	8.6	9.8	9.8	L10.2S	10.0	L10.2S	10.6	10.8	11.5S	I9.6S	I7.1S	I6.3SH	I6.4S
20	I6.3S	L6.4S	6.3	5.6	L4.9S	4.6	5.5	8.5	8.2	8.0	I7.7A	8.8	9.7	9.5	9.7	9.2	8.4	L7.6S	8.0S	L8.4S	I8.3S	6.7S	I6.2S	S
21	S	S	6.2S	5.7	5.6	I5.6S	5.3	7.7S	L7.6S	L6.6S	6.3	L7.2S	8.4	8.6	9.2	7.9	7.7	L7.4S	L8.1S	8.0	5.8S	5.7	S	S
22	S	S	S	5.6F	5.0	4.7	5.1	8.4	8.7	L7.6A	6.8	7.2S	7.9	8.9	9.4S	8.9	8.0S	8.2	9.2S	10.4	10.7S	I6.8S	5.7	I5.7S
23	5.5	5.7	5.6	5.2	F	4.9	5.3	8.7	8.8	6.3	6.3	6.6	8.2	9.6S	10.5S	10.4S	9.3S	8.6	9.6S	L10.0S	9.1S	I7.4S	6.0	I5.7S
24	5.8	L5.5S	L5.5S	5.0	4.5	4.3	4.9	I7.1S	7.7	7.0	I7.2S	7.6	7.7	9.2	10.7	11.3S	11.3S	L10.2S	9.1	L9.9S	8.9	I7.2S	5.4	L5.3S
25	5.8S	5.0	L4.8S	4.4	4.3	4.2	5.5	L9.8S	6.2	6.0	6.7	8.0	8.9	9.7S	L9.6S	L10.5S	L10.7S	L10.2S	L10.6S	L10.5S	8.9	I7.7S	I6.8S	I6.3S
26	I6.6S	6.2S	L6.4S	5.7	3.4	3.2	4.6	L7.6S	7.8	6.9	L7.6S	8.6	8.9	10.5S	10.6	L10.4S	9.0S	7.9	8.9	11.0	L9.4S	6.0S	I5.4S	5.7
27	5.8	5.7	5.4	4.9	5.0	4.9	5.4	L7.1S	7.6	8.1	6.7	7.2	8.0R	9.0	8.9	8.9	8.5	L8.1S	8.9	I12.2S	S	L3.7SH	4.7	4.9
28	4.3	L4.4S	4.0	L4.1S	3.6	L3.5S	4.8	L8.2S	L7.4S	6.4	6.4	6.3H	7.6	8.5	8.5	9.4	9.0	I9.2A	L10.1S	10.0S	I7.4A	I5.7A	S	FS
29	A	S	S	4.1	3.9	L4.0S	5.2	8.4	7.0	7.0	7.3	8.2	9.2	L10.0S	L10.6S	L11.1S	11.3	I9.5S	9.0	L9.5S	I7.2S	5.0	4.9	F
30	S	S	S	F	I4.2S	3.1	4.9	S	I7.7S	5.6	5.6H	6.5	8.4	L9.9S	10.3	L9.8S	L10.0S	L9.8S	10.8	L10.0S	L6.7S	5.8S	I6.1S	L6.3S
31	5.8	5.9S	6.3	5.1H	FS	F	S	F	I6.5A	6.5	7.1	8.0R	8.5	8.3	9.1	10.6	L9.7S	8.8	L7.8S	6.7	L4.6S	4.7S	I4.3A	I4.0A
No.	15	17	18	23	23	25	28	27	28	31	29	30	30	30	31	30	30	30	30	29	29	27	21	17
Median	5.8	5.7	5.6	5.1	4.5	4.6	5.2	7.6	7.6	7.0	6.8	7.2	8.2	8.8	9.1	9.2	9.0	8.7	9.0	9.2	7.9	6.8	6.0	L5.7
U.Q	6.2	6.2	6.0	5.7	5.5	5.2	5.6	8.4	8.2	7.6	7.6	8.1	8.9	9.7	10.2	10.0	9.8	9.5	9.6	10.2	9.0	7.4	6.2	L6.2
L.Q	5.2	5.0	4.9	4.6	3.9	3.8	4.9	6.9	6.9	6.3	6.2	6.6	7.2	7.9	8.2	8.2	8.0	7.9	8.1	7.8	7.2	5.7	5.2	5.2
Q.R	1.0	1.2	1.1	1.1	1.6	1.4	0.7	1.5	1.3	1.3	1.4	1.5	1.7	1.8	2.0	1.8	1.8	1.6	1.5	2.4	1.8	1.7	1.0	1.0

foF2

Sweep 1.0 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 1

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IONOSPHERIC DATA

Aug. 1961 | 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									4.2	4.4	4.7	A	A	I 4.8 A	5.0	4.5	A	A	A					
2									4.6 L	I 4.5 A	4.7	I 5.0 C	I 5.1 A	I 4.8 C	A	I 4.6 A	I 4.4 C	I 4.3 A	3.9 L					
3								3.6	I 3.9 A	A	A	A	A	A	A	A	A	A	A					
4								3.9	4.2	4.4	I 4.6 C	4.8 R	4.8	I 4.7 A	I 4.7 A	4.5	4.5	4.1						
5									L	4.6	4.7	A	A	A	A	A	A	A	A					
6								4.6 L	4.2			I 4.7 A	I 4.8 A	A	A	A	4.5	I 4.2 A	A					
7									4.2 L	I 4.5 L	4.7	4.9	4.8	I 5.0 A	I 4.9 A	4.8	4.6	4.3	L					
8								A	A	A	4.9	5.1	4.9	I 4.9 A	4.7	4.8	4.6	4.4	L					
9						C	C	C	C	A	A	4.8	5.1	5.0	5.1	5.0	4.8	I 4.4 A	A					
10								A	A	A	I 5.0 A	5.1	5.1	5.1	I 5.0 A	4.9	4.9	I 4.4 A	A					
11								4.2 L	I 4.4 A	4.9	A	5.4 H	I 5.4 A	5.3	A	A	4.9	4.5 L	A					
12								L	A	A	5.1 H	5.1	L	5.3	5.1	5.0	4.6	4.4 L						
13								A	L	4.9 L		L	5.3	5.3	5.2 H	5.3 L	I 5.2 A	A	4.1 L					
14								L	L	L	5.5 L	5.2 L	5.3	5.5	5.5 L	5.0	5.1	L	A					
15												A	A	5.6	I 5.4 A	5.1	I 5.1 A	A	L					
16									L	L	4.8 L	A	A	A	I 5.4 A	5.4	A	A	A					
17									A	A	I 5.1 A	I 5.7 A	5.8	5.1	I 5.4 L	5.2	I 5.2 A	I 4.7 A	L					
18									L	L	5.1	5.2 L	5.5	5.4	A	4.9	5.1 L	4.6 L	L					
19						C	C	C	C	A	A	L	L	I 5.4 A	I 5.3 A	5.3	A	A	L					
20										A	A	A	5.2	5.4	5.1	I 5.1 A	4.7 L	L						
21								L	L	L		I 5.2 A	5.0	5.2	5.0	5.0	4.7	I 4.4 A	A					
22								L	A	A	L	5.2 L	5.1	I 5.2 A	5.1	I 5.0 A	4.9 L	I 4.4 L	L					
23								L	L	4.5 L		L	5.0	5.1	5.0	4.7	4.6 L	L	A					
24										A	A	5.1	5.3	5.2	4.9	4.9	4.6	4.2 L						
25									L		L	5.1	I 4.9 A	5.0 H	5.0	I 4.7 A	4.6	L						
26									A	A	L	5.0	5.2	5.1	5.1	4.8	L	A	L					
27									L	L	4.8	L 4	5.1	4.9 L	4.9	4.8	A	L	L					
28									L	4.5 L	L		4.8	5.1	4.9	4.8	A	A	A					
29									A	L	I 4.7 L	4.9	5.0	5.0	5.0	4.7	4.5 L	4.2	A					
30												4.9	4.9	5.1	4.9	4.5	4.5	L						
31									A	A	A	L	I 4.9 A	I 5.0 A	4.9	4.7	I 4.4 L	L						
No.								4	7	9	14	19	24	27	25	27	23	15	2					
Median								4.0	4.2	4.5	4.8	5.1	5.1	5.1	5.0	4.9	4.6	4.4	4.0					

foF1

Sweep 1.0 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 2

IONOSPHERIC DATA

Aug. 1961 | 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	S	2.40	3.05	3.20	3.50	3.50^{R}	3.60	3.50	3.45	3.30	A	A	A	S				
2						S	A	2.25	2.70	3.00	3.20	C	A	C	A	3.50	^{I}3.10^{C}	2.70	2.10	S				
3						S	A	2.40	2.90	3.15	3.30	3.50	3.60	3.60	3.30	3.00	A	A	A	S				
4						S	2.05	2.35	2.70	3.10	^{I}3.35^{C}	3.60^{S}	R	R	3.60	3.40	^{I}3.05^{A}	^{I}2.45^{A}	A	S				
5						S	A	A	A	3.20	3.50	3.60	3.60	3.45	3.30	3.10	A	A	A	S				
6						S	S	2.40	2.65	3.20	3.40	3.70	3.80	3.75	3.70	3.60	3.20	A	A	S				
7						S	A	A	A	A	A	A	3.80	3.80	3.70	3.50	3.30	2.90	2.30	S				
8						S	S	2.60	3.00	3.20	A	A	A	A	A	A	R	A	A	A				
9						C	C	C	C	3.50	3.50	3.70^{R}	^{I}3.80^{R}	3.80^{R}	3.80	^{I}3.60^{R}	3.35	3.00	2.30	S				
10						S	A	2.50	3.00	3.30	3.20	A	A	A	A	3.70	3.50	3.10	2.40	A				
11						S	A	^{I}2.45^{A}	3.15	3.40	3.50^{R}	^{I}3.50^{R}	A	A	A	A	A	A	2.60	S				
12						S	S	2.60	3.05	3.10	^{I}3.30^{A}	3.50	A	A	A	3.70^{R}	3.30	3.00	2.40	S				
13						S	A	A	A	A	3.50	3.50	3.60	3.60	A	A	A	A	A	S				
14						S	S	2.60	3.10	3.40	3.45	3.70	3.70	R	A	A	^{I}3.40^{R}	3.00	2.40	S				
15						A	A	^{I}2.55^{A}	^{I}3.00^{A}	^{I}3.35^{A}	3.60	3.80	3.80	^{I}3.80^{A}	3.75	A	A	A	A	A				
16						S	1.80	2.60	3.10	3.50	3.55	A	A	A	A	A	3.40	3.00	2.30	S				
17						A	A	2.50	3.15	3.40	3.45	A	A	3.90	3.80^{R}	^{I}3.65^{R}	3.40	3.00	2.30	S				
18						S	A	2.30	2.90	A	A	A	A	A	A	A	A	A	A	S				
19						C	C	C	C	3.40	3.60	3.60	^{I}3.60^{A}	3.60	3.50	3.30	A	A	A	A				
20						S	S	2.40	2.90	3.30	3.35	3.40	3.50	A	A	A	3.30	2.90	2.30	S				
21						S	S	2.40	2.90	3.20	3.55	3.65	3.70	A	A	3.65^{R}	3.30	2.90	2.20	S				
22						S	S	2.20	2.90	3.10	A	A	A	A	A	A	A	2.80	2.15	S				
23						A	A	2.40	A	A	A	3.60	3.55	3.50	3.40	^{I}3.25^{A}	A	A	A	S				
24						S	S	A	A	A	A	A	A	3.70	^{I}3.55^{R}	3.40^{R}	3.15	2.75	2.10	S				
25						S	S	2.40^{H}	2.70	3.20	3.40	3.50	3.60	A	A	A	A	2.70	2.15	S				
26						S	1.80	2.60	2.80	3.10	3.15	A	A	A	A	A	A	A	A	S				
27						S	S	2.20	2.80	3.20	R	R	R	3.70^{R}	3.60^{R}	^{I}3.45^{R}	^{I}3.10^{A}	2.65	2.10	S				
28						S	S	2.20	2.70	2.90	^{I}3.30^{A}	3.50	^{I}3.45^{R}	3.40	A	A	A	A	A	S				
29						S	S	2.10	2.75	3.10	3.20	3.30	A	A	A	A	3.10	2.75	2.00	S				
30						S	S	2.30^{H}	2.65	A	A	A	A	A	A	3.30	3.10	^{I}2.50^{A}	S	S				
31						S	S	2.40^{H}	2.80	3.20	3.35	3.40	^{I}3.40^{R}	A	A	A	^{I}3.00^{A}	A	A	S				
No.							3	25	24	25	23	19	16	14	13	17	17	17	16					
Median							1.80	2.40	2.90	3.20	3.40	3.50	3.60	3.65	3.60	3.45	3.30	2.90	2.30					

foE

Sweep 1.0 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Aug. 1971 | 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	5.2	8.4	8.6	6.1	3.6	S	3.0	3.7	4.3	4.0	4.0	4.5	5.3	5.4	4.8	4.2	5.7	13.8	5.4	7.6	3.7	8.4	5.5	8.4
2	6.2	5.4	5.4	4.8	5.1	5.4	5.3	3.0	12.8	11.6	12.9	C	8.1	C	4.8	6.1	C	7.6	4.2	2.5	2.2	3.1	11.8	11.8
3	5.2	S	E	3.6	2.4	3.2	2.3	3.1	6.1	7.5	15.5	10.9	4.9	8.4	5.1	12.8	11.7	13.8	7.9	5.4	5.0	3.4	3.7	4.2
4	5.4	2.2	3.9	2.6	S	S	3.1	3.3	5.9	3.8	C	3.9	4.7	5.1	4.8	5.5	5.2	6.6	2.6	2.9	2.2	2.6	8.8	6.9S
5	3.3	3.7	2.6	1.8	2.1	2.6	3.0	3.9	3.8	5.0	3.9	5.4	6.3	8.4	13.2	5.7	13.9	12.3	6.8	3.7	3.4	2.9	5.2	S
6	5.3	2.1	1.9	2.1	1.9	3.2	S	G	5.9	5.1	5.4	5.3	5.2	6.5	7.1	16.2	12.0	11.7	9.2	6.6	4.9	5.2	3.1	S
7	1.6S	S	2.6	1.6	1.9	2.4	3.8	4.9	3.6	4.2	4.0	5.4	5.0	5.6	5.0	4.0	4.2	28G	3.5	4.8	4.7	2.4	5.4	S
8	3.3	S	2.6	2.5	2.3	2.2	2.1	4.4	4.5	5.2	10.6	3.8	4.8	5.5	8.6	3.8	G	7.3	2.5	2.6	2.6	C	C	C
9	C	C	C	C	C	C	C	C	C	6.2	6.0	4.1	4.1	4.1	4.4	G	3.8	5.0	6.5	14.0	6.5	5.2	5.2	5.1
10	5.2	S	5.4	3.5	2.9	1.8	2.1	6.0	5.5	8.2	8.5	6.2	5.2	5.3	8.6	5.2	7.1	11.1S	8.5	10.8	10.8	6.7M	5.8M	3.7
11	4.5	2.7	2.6	2.2	E	1.8	3.7	4.0	5.8	6.0	8.7	3.9	8.1	5.4	6.0	6.1	5.0	3.5	4.0	7.5S	8.4	5.1	4.2	5.3
12	5.1	4.8	2.4	2.5	3.0	3.7	2.8	3.9	5.4	7.0	4.5	4.1	4.9	4.7	4.0	4.3	G	3.8	3.4	2.6	2.8	3.4	S	S
13	S	3.4	1.8	E	2.5	3.1	3.4	4.5	4.7	4.7	5.4	6.6	5.2	4.4	3.9	5.4	10.8	6.2	5.4	5.1	2.6	2.4	2.3	5.1
14	6.3S	2.5	2.5	E	E	S	2.0	3.2	4.5	5.6	11.5	4.2	5.4	4.4	4.6	4.5	5.1	3.9	5.3	7.4	5.2	8.2	4.3	5.0
15	7.9	S	2.7	2.8	2.3	3.2	4.0	3.1	4.6	5.1	5.2	6.6	8.4	7.2	10.2	8.5	8.7	8.4	4.0	5.4	5.1	3.0	2.3	2.5
16	3.2	2.6	3.2	1.5	1.3	S	2.2	3.1	3.6	3.9	4.9	12.8	8.9	8.1	7.1	5.2	8.4	8.9	5.9	3.7	6.3	4.6	5.3	5.1
17	6.2S	9.3	6.2	5.0	2.2	5.1	3.3	4.0	5.1	8.6	12.8	7.4	7.2	G	G	6.4	7.2	10.5	3.5	4.2	2.2	2.4	3.7	8.4
18	8.3	4.3	3.8	2.4	6.2M	S	2.9	2.9	3.8	4.1	5.6	4.2	5.1	5.1	5.2	4.2	3.5	3.8	4.0	3.5	2.4	8.3	S	C
19	C	C	C	C	C	C	C	C	C	8.3	5.3	5.3	5.2	6.4	5.9	5.3	6.2	5.2	5.3	4.0	4.2	2.2	S	S
20	S	S	2.5	5.1	3.6	2.2	2.1	3.5	5.0	6.9	10.3	5.6	5.1	7.8M	4.4	9.1	3.7	3.7	3.3	2.1	2.2	3.1	2.1	3.8
21	8.4	2.3	2.6	2.1	3.0	2.1	3.1	3.3	3.7	8.3	5.0	5.7	4.7	6.6	3.7	5.9	4.1	8.5	5.0	3.9	3.9	5.0	3.7	2.9
22	2.9	2.4	1.5S	3.3	2.3	S	G	3.0	8.6	13.8	7.3	4.0	6.1	6.5	3.9	8.4	4.7	3.5	3.1	3.2	3.5	3.4	1.6S	5.2S
23	3.3	S	1.8	E	5.9	5.3	2.5	2.7	3.0	3.5	3.8	3.9	3.9	4.1	3.9	3.8	3.1	3.4	3.8	3.2	2.9	1.6S	1.8	1.7S
24	1.5S	S	E	E	E	S	S	5.2	5.8	5.4	5.4	5.2	4.3	3.5G	3.5G	G	3.4	3.0	2.4	S	S	S	S	3.5
25	5.3	3.7	2.4	2.4	2.4	3.6	S	G	3.2	5.1	5.5	5.2	9.8	3.9	3.6	5.5	5.4	G	2.3	S	S	S	S	S
26	S	S	E	E	E	S	G	2.5G	7.4	8.5	12.3	4.9	4.8	6.6	7.2	5.5	5.5	6.1	5.1	3.9	2.8	2.3	2.1	S
27	S	2.8	2.9	3.6	2.2	S	S	G	2.9	G	3.3G	3.4G	3.4G	G	3.7	3.8	4.9	3.6	3.5	4.7	5.1	12.3	2.6	2.4
28	2.5	1.4S	1.7	E	E	2.6	2.1	2.8	3.1	3.3	3.5	4.0	4.8	4.5	4.2	4.4	5.3	10.8	7.4	7.8	8.4	8.4	5.1	5.1
29	5.9M	4.1	3.7	3.2	2.1	2.6	1.8	4.3	4.4	4.8	4.2	4.1	5.5	5.8	4.7	3.9	3.7	4.2	4.3	2.6	3.6	3.2	2.3	5.1
30	3.7	5.5	5.3	3.6	3.8	1.8	2.0	2.7	3.4	5.5	5.3	3.7	3.7	3.6	3.8	3.1G	3.4	3.2	2.0	S	S	3.8	3.2	2.7
31	S	2.4	2.2	2.4	E	2.2	2.3	3.4	6.5	5.4	6.4	4.9	5.6	7.1	5.2	3.8	3.4	3.3	5.0	3.7	5.1	8.4	8.3	4.3
No.	24	20	29	29	28	20	25	29	29	31	30	30	31	30	31	31	30	31	31	28	28	28	25	22
Median	5.2	3.1	2.6	2.4	2.3	2.6	2.5	3.3	4.6	5.2	5.4	4.9	5.2	5.4	4.8	5.2	5.0	5.2	4.2	4.0	3.8	3.4	3.7	5.0
U.Q	6.0	4.6	3.8	3.6	3.2	3.4	3.2	4.0	5.8	7.5	8.7	5.6	6.1	6.6	6.0	6.1	7.1	8.9	5.4	6.0	5.1	5.2	5.4	5.2
L.Q	3.3	2.4	1.8	1.6	1.6	2.2	2.1	2.8	3.6	4.1	4.5	4.0	4.8	4.4	3.9	3.9	3.7	3.5	3.4	3.2	2.7	2.5	2.3	3.5
Q.R	2.7	2.2	2.0	2.0	1.6	1.2	1.1	1.2	2.2	3.4	4.2	1.6	1.3	2.2	2.1	2.2	3.4	5.4	2.0	2.8	2.4	2.7	3.1	1.7

foEs

Sweep 1.0 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | f_bE_s | 135° E Mean Time (GMT + 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	2.6	2.5	2.3	S	2.9	3.6	G	3.8	4.0	4.4	4.9	5.4	4.7	4.2	5.7	A	4.4	A	3.0	5.8	3.5	A
2	A	A	A	2.6	2.4	2.0	3.6	2.8	4.0	A	4.5	C	A	C	4.7	5.7	C	4.4	2.6	2.1	S	A	A	A
3	2.3	S		2.4	1.8	A	2.2	3.1	A	5.7	A	A	A	A	4.6	A	A	A	A	A	4.5	3.3	2.8	2.7
4	2.7	E	2.6	2.2	S	S	2.5	2.8	3.2	3.4	C	G	4.6	4.9	4.8	4.4	4.3	3.5	G	2.5	1.8	E	4.5	A
5	2.1	2.7	2.1	1.5	1.8	2.5	G	2.7	G	4.0	3.8	5.2	5.3	6.6	5.1	5.6	A	A	4.1	2.8	2.9	2.3	1.8	S
6	2.4	E	1.7	1.6	1.6	A	S		3.6	3.6	4.0	5.3	4.9	6.2	6.5	A	4.3	4.3	4.8	A	4.3	2.2	1.8	S
7	S	S	2.2	1.5	1.7	1.8	3.7	4.4	3.4	4.0	4.0	4.0	4.4	5.6	5.0	4.0	4.0	2.6^{G}	3.4	3.7	1.8	2.0	2.4	S
8	2.3	S	2.2	2.2	1.8	1.5	G	4.3	4.5	5.0	4.4	3.8	4.1	5.1	3.9	G		3.2	2.5	2.2	2.5	C	C	C
9	C	C	C	C	C	C	C	C	C	4.8	A	4.1	4.1	4.1	4.4		3.8	5.0	5.4	A	A	2.2	A	A
10	3.7	S	A	3.2	2.2	1.5	$E_{2.1}{}^{B}$	6.0	5.4	6.8	5.5	4.6	4.5	4.2	6.6	4.6	4.5	8.2	7.8	A	A	4.2	A	3.6
11	4.5	2.2	1.8	1.7		1.7	2.4	G	4.7	4.3	5.1	$E_{3.9}{}^{B}$	7.3	5.1	$E_{6.0}{}^{B}$	6.0	4.4	3.4	$E_{4.0}{}^{B}$	A	2.8	2.1	2.7	2.5
12	2.5	2.9	1.7	1.5	2.0	1.8	2.6	3.6	5.3	5.7	4.0	$E_{4.1}{}^{B}$	G	4.2	G	4.2		3.4	2.7	2.3	2.8	2.6	S	S
13	S	2.2	1.8		2.4	1.8	3.0	3.9	4.0	3.6	4.3	5.0	4.3	4.3	$E_{3.9}{}^{B}$	5.1	5.5	4.7	3.3	5.1	2.5	1.9	$E_{2.3}{}^{S}$	2.2
14	A	E	E			S	G	2.9	3.8	3.8	4.1	4.1	4.7	G	4.5	4.2	4.6	3.8	4.6	A	4.3	1.9	3.6	2.5
15	1.8	S	1.5	2.4	1.5	2.0	2.0	G	4.1	3.9	5.0	5.8	7.8	4.9	6.8	4.4	5.8	5.6	3.2	5.4	5.1	2.1	$E_{2.3}{}^{B}$	2.4
16	2.2	1.6	E	1.2	1.2	S	G	G	3.5	G	4.3	G	5.3	6.5	7.0	4.6	7.9	5.8	5.4	3.5	5.1	4.6	A	4.2
17	A	A	5.0	2.6	1.8	2.2	2.5	3.8	4.5	8.1	7.0	A	5.1			4.8	6.7	10.3	3.5	4.0	1.9	E	3.4	4.5
18	A	A	2.4	1.7	1.4	S	2.3	G	G	4.0	4.5	4.1	4.8	4.5	5.2	4.1	3.5	3.6	2.8	2.6	2.0	4.6	S	C
19	C	C	C	C	C	C	C	C	C	5.7	5.0	4.7	5.1	6.3	5.7	5.0	6.2	4.5	2.8	$E_{4.0}{}^{B}$	3.0	1.8	S	S
20	S	S	2.3	3.7	2.9	1.6	G	3.2	4.0	5.3	A	5.4	4.6	4.8	4.3	6.6	G	3.6	3.3	1.7	$E_{2.2}{}^{B}$	1.9	1.9	1.9
21	A	E	2.1	$E_{2.1}{}^{S}$	2.2	1.8	2.8	3.0	3.5	4.4	4.5	5.3	4.4	4.5	$E_{3.7}{}^{B}$	4.1	3.8	4.5	3.5	2.7	$^{H}2.3^{A}$	5.0	1.8	2.0
22	2.0	1.9	S	2.6	1.7	S		G	6.5	5.5	4.2	3.9	4.5	5.4	$E_{3.9}{}^{B}$	6.0	4.1	3.3	2.7	2.3	2.7	$E_{3.4}{}^{S}$	S	2.7
23	1.9	S	E		2.6	2.1	2.5	G	G	G	3.7	G	G	4.0	G	G	G	3.2	3.7	3.0	2.9	S	E	S
24	S	S				S	S	2.6	4.0	4.6	5.1	4.2	4.2	3.3^{G}	$E_{3.5}{}^{R}$		G	G	G	S	S	S	S	2.5
25	2.0	2.4	1.7	1.9	1.8	3.3	S		3.2	3.6	G	4.3	5.1	3.9	G	4.8	3.4		1.8	S	S	S	S	S
26	S	S				S		2.4^{G}	6.3	5.3	4.4	4.3	4.1	4.8	4.1	3.7	4.0	3.7	2.9	2.6	2.6	1.9	E	S
27	S	1.9	2.6	1.6	1.2	S	S		2.7		$E_{3.3}{}^{R}$	$E_{3.4}{}^{R}$	$E_{3.4}{}^{R}$		3.9	G	4.6	3.6	2.2	3.1	5.0	2.0	2.3	2.1
28	1.9	S	1.7			2.3	1.9	2.6	G	G	G	3.9	4.8	4.5	3.8	3.9	5.2	A	$E_{7.4}{}^{S}$	7.8	A	A	A	2.9
29	A	2.6	1.8	1.8	E	G	1.8	4.1	4.2	4.1	4.1	4.1	4.9	4.4	4.4	3.9	3.5	3.2	3.4	2.4	$E_{3.6}{}^{S}$	2.4	E	2.5
30	2.0	2.5	2.6	2.6	2.7	G	2.0	G	3.2	G	4.5	$E_{3.7}{}^{B}$	G	$E_{3.6}{}^{B}$	G	3.0^{G}	3.4	3.0	G	S	S	3.8	1.7	1.9
31	S	2.0	1.8	1.7		1.8	1.9	3.2	A	5.1	6.3	4.7	5.3	6.2	3.7	3.7	G	G	4.0	3.2	A	4.1	A	A
No.	22	19	25	23	22	20	23	26	29	30	30	30	31	28	29	29	28	30	29	27	26	26	24	21
Median	2.4	2.2	2.1	$E_{2.1}$	1.8	1.8	2.2	2.8	4.0	4.2	4.4	4.2	4.7	4.8	4.4	4.4	4.3	3.8	3.3	3.2	2.9	2.2	2.6	2.7

f_bE_s

Sweep 1.0 Mc to 20.0 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Aug. 1961 | 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	E1.50S	E1.60S	E1.60S	1.80	1.30	E1.65S	E1.60S	E1.60S	1.60	1.90	2.40	2.30	2.40	2.60	2.70	2.05	1.90	E1.60S	E1.50S	E1.60S	E1.60S	E1.60S	E1.70S	E1.60S
2	E1.65S	E1.60S	E1.60S	1.45	E1.70S	E1.50S	E1.60S	E1.55S	E1.80S	1.85	2.40	I2.20C	2.40	I2.40C	2.30	1.90	C	E1.80S	E1.80S	E1.50S	E1.80S	E1.55S	E1.60S	E1.70S
3	E1.55S	E1.60S	1.45	E	E	E1.60S	E1.60S	E1.70S	E1.65S	1.80	2.70	2.40	2.50	2.55	2.20	1.90	1.80	E1.50S	E1.55S	E1.55S	E1.70S	E1.60S	E1.60S	E1.60S
4	E1.60S	E1.60S	E1.70S	E	1.10	1.50	E1.60S	1.50	1.60	1.60	I2.05C	1.90	2.20	2.20	2.30	2.00	1.90	1.70	E1.50S	1.50	E1.50S	E1.80S	E1.60S	E1.60S
5	E1.60S	E1.60S	1.60	E	E	1.40	E1.60S	E1.50S	1.90	1.90	2.40	2.40	2.50	2.50	2.40	2.40	1.80	E1.55S	E1.60S	E1.60S	E1.70S	E1.60S	E1.65S	E1.70S
6	E1.70S	E1.60S	E	E	E	E1.70S	1.80	E1.60S	E1.60S	E1.60S	2.20	2.30	2.40	2.20	2.80	1.90	1.80	E1.60S	1.30	E1.65S	E1.65S	E1.50S	E1.70S	E1.95S
7	E1.60S	E1.80S	E	1.25	E	1.20	E1.60S	E1.50S	1.60	1.90	2.05	2.20	2.50	2.50	2.40	2.55	1.80	1.70	E1.60S	E1.40S	E1.50S	E1.70S	E1.70S	E1.70S
8	E1.55S	E1.70S	1.30	E	E	E1.40S	E1.70S	E1.50S	1.70	1.80	2.40	2.40	2.50	2.65	2.40	2.20	1.85	E1.65S	E1.50S	1.30	E1.40S	C	C	C
9	C	C	C	C	C	C	C	C	C	1.85	2.00	2.40	2.50	2.40	2.30	2.00	1.80	E1.50S	E1.50S	E1.70S	E1.60S	E1.60S	E1.80S	E1.60S
10	E1.50S	E1.40S	E1.65S	E	E	1.30	E1.60S	1.65	1.70	1.60	2.45	2.50	2.50	2.70	2.45	2.20	1.80	E1.70S	E1.60S	1.20	E1.60S	E1.70S	E1.70S	E1.60S
11	E1.70S	1.30	E1.60S	E	1.30	E1.60S	E1.50S	1.80	1.70	1.85	1.90	2.80	3.20	2.80	2.50	2.50	2.00	1.80	E1.50S	E1.80S	1.30	1.30	E1.65S	E1.60S
12	E1.65S	E1.65S	E	E	1.10	E1.70S	E1.70S	E1.50S	1.60	1.60	2.00	2.45	2.60	2.80	2.40	2.40	1.90	1.70	E1.50S	E1.60S	E1.60S	E1.65S	E1.80S	E1.70S
13	E1.70S	E1.70S	E1.70S	1.40	E	E1.50S	E1.60S	E1.60S	1.80	1.85	2.25	2.50	2.30	2.60	2.50	2.00	E1.60S	E1.70S	1.20	E1.50S	E1.50S	E1.70S	E1.60S	E1.60S
14	E1.70S	E1.70S	E1.60S	1.10	1.10	E1.40S	E1.60S	1.65	1.60	1.70	2.40	2.60	2.45	2.40	2.50	2.20	1.90	1.60	E1.60S	E1.70S	E1.60S	E1.40S	E1.50S	E1.60S
15	E1.70S	E1.80S	1.25	E	E	1.25	1.60	1.70	1.80	2.00	2.45	2.50	2.40	2.30	2.30	2.00	1.70	1.70	E1.60S	1.40	E1.70S	E	E1.60S	E1.60S
16	E1.50S	E1.50S	E	E	E	E1.60S	E1.50S	E1.50S	1.90	1.90	2.30	2.00	2.80	2.60	2.55	2.00	1.90	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S	E1.70S
17	E1.60S	1.15	E1.60S	E	E	1.30	E1.60S	E1.70S	1.80	1.90	2.00	1.90	2.30	2.40	2.50	2.60	2.00	1.70	E1.60S	E1.60S	E1.60S	E1.70S	E1.60S	E1.50S
18	E1.50S	E1.80S	E1.70S	1.10	E	1.30	1.50	E1.65S	1.70	1.60	2.30	2.60	3.40	2.60	2.55	1.95	2.00	E1.60S	E1.60S	E1.50S	E1.60S	E1.80S	E1.80S	C
19	C	C	C	C	C	C	C	C	C	1.80	2.40	2.30	2.70	2.55	2.40	1.90	1.70	1.70	E1.60S	1.30	E1.50S	E1.60S	E1.70S	E1.80S
20	E1.70S	E1.60S	1.10	E	E	1.30	E1.50S	1.40	1.70	2.00	2.00	2.20	2.50	2.20	2.45	2.05	1.80	E1.70S	E1.60S	E1.50S	E1.50S	E1.70S	E1.70S	E1.50S
21	E1.60S	E1.60S	1.10	E	E	E1.60S	E1.80S	1.65	1.70	1.80	2.00	2.50	2.50	2.30	1.75	1.95	1.70	1.60	E1.60S	1.40	1.40	E1.50S	E1.60S	1.25
22	E1.50S	E1.50S	E1.50S	E	E	E1.70S	1.80	1.70	1.70	1.80	2.40	2.20	2.40	2.50	2.20	1.80	1.75	1.60	E1.50S	1.40	E1.70S	E1.60S	E1.60S	E1.60S
23	E1.70S	E1.90S	1.20	1.70	E	1.20	1.60	1.65	1.60	1.80	2.20	2.20	2.20	2.45	2.00	1.85	1.80	E1.60S	1.30	E1.70S	E1.60S	E1.60S	E1.60S	E1.70S
24	E1.60S	E1.70S	1.10	E	1.10	E1.60S	E1.50S	1.50	1.60	1.80	E2.50C	2.40	2.15	2.00	2.20	1.90	1.50	E1.60S	1.20	E1.50S	E1.60S	E1.60S	E1.80S	E1.60S
25	E1.60S	E1.60S	1.20	E	E	E1.50S	E1.60S	E1.60S	1.60	1.85	2.40	2.30	2.45	2.15	2.00	1.70	1.70	1.60	1.30	E1.60S	E1.50S	E1.70S	E1.80S	E1.70S
26	E1.70S	E1.80S	1.20	1.05	1.40	1.30	1.50	1.50	1.60	1.60	1.80	2.20	2.25	2.50	1.90	1.70	1.50	E1.50S	1.25	E1.60S	E1.60S	E1.60S	E1.70S	E1.70S
27	E1.60S	E1.80S	1.30	E	E	1.30	E1.60S	1.50	1.60	1.85	2.20	2.40	2.40	2.50	2.00	1.80	1.75	E1.60S	1.20	1.30	E1.60S	E1.60S	E1.70S	E1.50S
28	E1.70S	E1.60S	1.30	1.20	1.65	1.30	E1.50S	E1.60S	1.60	1.60	1.90	1.95	2.45	2.40	1.90	1.80	1.50	1.20	E1.60S	E1.60S	E1.60S	E1.50S	E1.70S	E1.60S
29	E1.60S	1.15	1.20	E	1.10	1.30	E1.50S	E1.50S	1.60	1.90	2.00	2.40	2.40	2.40	2.00	1.85	1.60	E1.60S	E1.50S	1.15	E1.60S	E1.50S	E1.60S	1.20
30	E1.60S	E1.70S	1.10	E	E	E1.50S	E1.50S	E1.60S	1.55	1.75	2.20	2.40	2.40	2.20	2.00	1.90	1.70	E1.50S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S
31	E1.80S	E1.80S	E1.50S	1.00	1.05	1.20	1.55	1.50	1.60	2.20	2.40	2.55	2.75	2.40	2.40	2.00	1.80	E1.60S	E1.60S	E1.60S	E1.55S	E1.55S	E1.80S	E1.60S
No.	29	29	18	29	28	29	29	29	27	31	30	31	31	31	31	31	30	31	31	31	31	30	30	29
Median	E1.60	E1.60	1.20	E	E	E1.40	E1.60	E1.60	1.60	1.80	2.20	2.40	2.45	2.45	2.40	2.00	1.80	E1.60	E1.55	E1.55	E1.60	E1.60	E1.70	E1.60

f-min

Sweep 1.0 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

Aug. 1961 | 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	I 2.75 S	A	S	I 3.00 S	2.90	2.80 S	3.10	2.85	3.20	3.45	3.05	2.95	2.70	2.95 R	2.75	2.90	3.15	I 2.90 A	2.75	A	3.05	I 3.20 S	3.35	A
2	S	S	S	R	S	I 3.15 FS	3.55	3.45	3.15	I 3.10 A	3.00	I 2.70 C	I 2.50 A	I 2.45 C	3.00	2.95	I 2.80 C	I 2.45 S	I 2.80 S	2.90 S	3.60 S	I 3.30 S	I 2.60 A	I 2.70 A
3	2.70	I 2.65 S	2.95 S	I 3.05 S	2.90	I 2.60 A	2.75	2.85 S	I 2.85 A	2.80	A	A	R	A	2.65	A	A	A	A	I 3.10 A	2.75 S	2.70 S	2.80 S	2.75 S
4	F S	I 2.85 S	3.10	S	I 2.80 S	3.00	3.10	3.20	S	3.05	I 3.20 C	2.60	2.95 R	2.90	2.90	2.95	3.15 S	I 3.20 S	2.80	2.85 S	I 2.85 S	I 3.10 S	3.00	I 2.90 A
5	2.95	2.85	F	3.25	3.15	3.10	I 3.15 S	3.50 H	3.30	3.15	2.95 S	2.80	3.05	2.80	2.80	3.05 S	I 3.40 A	I 3.00 A	2.80	2.95	I 3.10 S	3.25	I 2.80 S	I 2.80 S
6	I 2.85 S	2.70 S	2.85	3.10	3.15 Z	S	2.85	2.80	3.30	I 3.70 S	3.35 H	3.10 R	3.05	3.00	2.90	I 2.90 A	3.10	U 3.05 S	I 3.20 S	I 3.20 S	2.95	3.00 S	2.75	2.75
7	2.75	2.75	I 2.80 S	I 3.05 S	U 3.00 S	2.90	3.20	3.35 S	3.35	3.45	3.30	2.95	3.00	3.10	2.75	2.85	2.85 S	3.05	3.15	I 3.10 S	2.80	2.85 S	S	S
8	S	S	2.85	3.00	I 2.85 S	3.15 S	3.10	I 3.15 S	3.45	3.45	3.05	2.85	2.85	2.90	2.85	2.65	2.90 S	2.80 S	2.95	U 3.15 S	3.10	C	C	C
9	C	C	C	C	C	C	C	C	C	3.35 R	A	3.15	2.70	2.80	2.80 R	2.95	2.95	3.00	3.20	I 3.30 A	I 2.75 A	S	S	S
10	S	I 2.95 S	I 3.00 A	I 2.95 S	I 2.95 SH	I 3.00 S	3.15	3.15 S	3.10	3.20	3.20	3.00	2.75	I 2.65 R	2.75	2.85	2.90	3.00 S	3.15	A	A	I 2.65 S	S	F S
11	S	I 2.85 S	I 3.00 S	3.00 S	F SH	I 2.80 S	2.90	3.25 S	3.40	I 3.15 S	3.05	2.75	2.70	2.75	2.75	2.85	3.05	3.05 S	I 3.05 S	I 3.00 A	I 2.80 S	U 2.80 S	S	S
12	S	S	S	3.05	2.70	2.75	I 3.25 S	3.30	3.25	3.00	2.75	2.95	U 2.70 R	2.90	2.95	2.95	3.05	I 3.15 S	3.10	2.95	I 2.90 S	I 2.80 S	I 2.70 S	I 2.80 S
13	2.75	2.70	2.85 S	2.85	3.00	2.85	3.10	3.25	I 3.40 S	I 3.40 S	3.20 H	2.90	2.85	2.80	3.10	I 2.75 S	2.80	2.85	I 3.05 S	I 3.10 S	I 3.10 S	2.95	2.75	2.75 S
14	I 2.80 S	I 2.90 S	2.85	2.75	2.80	2.95	I 3.35 S	3.30	3.45	3.30	3.10	2.90 R	2.65	U 2.70 S	2.75	I 2.90 S	I 2.85 S	3.00	2.90	I 3.05 S	I 2.90 S	2.70	I 2.70 S	S
15	S	S	S	3.00 S	I 2.85 S	F	3.25	I 3.40 S	I 3.25	3.15 H	3.15	2.80	2.80	I 2.75 S	2.80	2.85	I 2.90 S	3.00	2.95 S	3.00 S	3.00	2.95	I 2.65 S	I 2.65 S
16	S	S	S	S	2.95	3.10 S	3.45	I 3.45 S	3.25	3.30	3.10	2.70	2.75	2.75	2.85	2.90	2.85 S	3.00 S	3.00	I 3.00 S	I 3.10 S	2.95 S	S	S
17	S	A	S	S	F S	I 2.80 S	3.10	3.20	3.30	3.05	2.90	I 2.90 A	2.85	2.70	2.70	2.85	2.75	2.85	I 3.05 S	I 3.20 S	I 3.10 S	I 2.80 S	S	S
18	S	F S	F S	S	S	S	3.15	3.40	3.20 S	2.95 S	3.20	2.95	2.65	2.65	2.80	2.95	I 2.85 S	2.85 S	I 2.90 S	I 3.00 S	I 2.95 S	I 3.05 S	S	C
19	C	C	C	C	C	C	C	C	C	3.20	3.00	2.65	2.80	2.75	I 2.75 S	2.80	I 2.80 S	2.90	3.00	I 3.00 S	I 3.30 S	I 2.85 S	I 2.55 SH	I 2.60 S
20	I 2.75 S	I 2.85 S	3.10	3.05	I 2.85 S	2.85	3.00	3.40	3.30	3.05	I 2.80 A	2.75	2.90	2.90	3.00	3.15	3.25	I 3.05 S	3.10 S	I 3.05 S	I 3.05 S	2.95 S	I 2.75 S	S
21	S	S	2.75 S	2.60	2.70	I 2.75 S	2.75	3.30	I 3.40 S	I 3.40 S	3.00	I 2.80 S	3.00	3.00	3.10	3.15	3.20	I 3.10 S	I 3.10 S	3.30	3.20 S	2.70	S	S
22	S	S	S	3.05 F	2.80	2.95	3.10	3.45	3.45	I 3.40 A	3.10	2.95 S	2.90	2.90	3.00 S	3.10	2.90 S	3.00	2.95 S	3.10	3.35 S	I 3.30 S	2.60	I 2.80 S
23	2.85	2.90	2.90	3.10	F	3.05	3.05	3.35	3.60	3.40	3.05 S	2.80	2.75	2.80 S	2.85 S	3.00 S	3.00 S	2.90	2.95 S	I 3.10 S	3.20 S	I 3.15 S	2.80	I 2.80 S
24	2.90	I 2.85 S	I 2.95 S	3.00	2.90	3.10	3.10	I 3.40 S	3.40	3.35	I 3.10 S	3.20	2.75	2.65	2.90	3.00 S	3.05 S	I 3.15 S	3.10	I 3.05 S	3.20	I 3.25 S	2.85	I 2.70 S
25	2.90 S	2.80	I 2.90 S	3.00	2.85	2.80	3.15	I 3.80 S	3.60	3.35	3.00	2.95	2.85	2.90 S	I 2.80 S	I 2.85 S	I 2.95 S	I 2.75 S	I 2.90 S	I 3.05 S	3.25	I 3.10 S	I 2.90 S	I 2.75 S
26	I 2.80 S	2.70 S	I 2.75 S	3.45	3.05	2.90	3.30	I 3.30 S	3.70	3.25	I 3.10 S	3.05	2.75	2.90 S	2.90	I 3.00 S	3.10 S	2.95	2.95	3.25	I 3.40 S	I 3.20 S	I 2.80 S	2.80
27	2.85	2.85	3.00	2.95	3.00	3.25	3.40	I 3.55 S	3.30	3.45	3.25	3.00	2.95 R	2.70	3.10	3.10	3.00	I 2.90 S	2.75	I 3.15 S	S	I 2.55 SH	2.75	2.70
28	2.80	I 2.60 S	2.85	I 3.05 S	3.15	I 3.15 S	3.35	I 3.45 S	I 3.80 S	3.50	3.10	2.95 H	3.00	3.00	3.00	3.00	3.10	I 3.10 A	I 3.15 S	I 3.40 S	I 3.25 A	I 3.00 A	S	F S
29	A	S	S	2.90	2.75	I 2.75 S	3.25	3.60	3.60	3.30	3.20	3.10	2.85	I 2.90 S	I 2.80 S	U 2.85 S	3.00	I 3.15 S	3.10	U 3.15 S	I 3.25 S	3.05	3.00	F
30	S	S	S	F	I 3.40 S	2.75	3.15	S	I 3.90 S	3.75	3.25 H	2.70	2.70	I 2.85 S	2.95	I 3.05 S	I 3.05 S	I 3.05 S	3.20	I 3.30 S	I 3.30 S	2.60	I 2.70 S	I 2.80 S
31	2.60	2.70 S	3.20	2.45 H	F S	F	S	F	I 3.35 A	3.20	3.00	2.90 R	2.95	2.80	2.85	3.05	I 3.20 S	3.15	I 3.20 S	I 3.30 S	I 2.95 S	2.90 S	U 2.70 A	I 2.60 A
No.	15	17	18	23	23	25	28	27	28	31	29	30	30	30	31	30	30	30	30	29	29	29	21	17
Median	2.80	2.85	2.90	3.00	2.90	2.90	3.15	3.35	3.35	3.30	3.10	2.90	2.80	2.80	2.85	2.95	3.00	3.00	3.00	3.10	3.10	2.95	2.75	U 2.75

M(3000)F2

Sweep 1.0 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 7

53

IONOSPHERIC DATA

Aug. 1961 | 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									3.75	3.85	3.80	A	A	A	A	3.70	A	A	A					
2									3.50L	I 3.60A	A	I 3.40C	I 3.25A	C	A	A	C	I 3.40A	3.35L					
3								3.50	H 3.55A	A	A	A	A	A	A	A	A	A	A					
4								3.40	3.85	4.00	I 3.90C	3.95A	A	A	A	A	A	3.50						
5									L	3.65	3.80	A	A	A	A	A	A	A	A					
6								3.25L	3.55			A	A	A	A	A	A	A	A					
7									3.95L	L	3.65	3.75	3.80	I 3.75A	I 3.80A	3.55	3.50	3.50	L					
8								A	A	A	3.65	3.70	3.90	I 3.85A	3.80	3.65	3.50	3.40	L					
9						C	C	C	C	A	A	3.75	3.65	3.65	3.35	3.40	3.55	A	A					
10								A	A	A	A	3.60	3.70	3.70	A	A	A	A	A					
11								U 3.60L	I 3.70A	3.65	A	3.55H	A	A	A	A	3.45	3.40L	A					
12								L	A	A	3.90H	3.35	L	3.50	3.70	3.65	3.75	3.65L						
13								A	L	3.70L		L	3.75	3.60	3.70H	A	A	A	3.55L					
14								L	L	L	3.60L	3.75L	3.65	3.60	3.45L	3.75	3.35	L	A					
15												A	A	3.40	I 3.50A	3.55	I 3.40A	A	L					
16									L	L	4.15L	A	A	A	A	3.35	A	A	A					
17									A	A	I 3.65A	I 3.40A	3.40	3.95	I 3.50L	A	A	A	L					
18									L	L	3.70	3.85L	3.50	3.70	A	3.60	3.35L	3.50L	L					
19						C	C	C	C	A	A	L	A	A	A	A	A	A	L					
20										A	A	A	3.65	3.40	3.65	I 3.50A	3.55L	L						
21								L	L	L		I 3.45A	3.80	3.55	3.65	3.50	3.65	A	A					
22								L	A	A	L	3.65L	3.45	A	3.45	I 3.50A	3.35L	I 3.40L	L					
23								L	L	3.95L		L	3.75	3.55	3.60	3.70	3.55L	L	A					
24										A	A	3.75	3.55	3.45	3.50	3.45	3.45	3.60L						
25									L		L	3.60	I 3.80A	3.50H	3.60	I 3.55A	3.50	L						
26									A	A	L	3.60	3.50	A	3.40	3.55	L	A	L					
27									L	L	3.85	L H	3.55	3.60L	3.60	3.45	A	L	L					
28									L	4.00L	L		A	3.35	3.50	3.55	A	A	A					
29									A	L	I 3.85L	3.85	A	A	3.50	3.45	3.40L	3.60	A					
30												3.85	3.80	3.35	3.55	3.65	3.50	L						
31									A	A	A	L	H 3.60A	I 3.40A	3.45	3.50	I 3.45L	L						
No.								4	7	8	12	18	19	19	20	21	17	10	2					
Median								3.45	3.70	3.80	3.80	3.70	3.65	3.55	3.50	3.55	3.50	3.50	3.45					

M(3000)F1 Sweep 1.0 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 8

IONOSPHERIC DATA

Aug. 1961 | 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	250	245	300	405	340	365	340	295	A	300					
2									330	I 310 A	325	I 425 C	I 475 A	I 450 C	305	325	I 335 C	280	350					
3								625	I 535 A	A	A	A	A	A	450	A	A	A	A					
4								300	270	300	I 340 C	480	355	355	340	335	290	300						
5									260	300	355	380	325	360	350	295	A	A	335					
6								360	280			345	315	350	340	I 340 A	305	300	255					
7									255	I 275 C	300	360	345	305	350	355	345	295	275					
8								285	250	275	305	395	350	350	340	350	325	305	300					
9						C	C	C	C	275	I 310 A	325	405	375	350	325	310	305	275					
10								E 325 A	305	E 350 A	310	340	400	385	350	330	320	E 350 A	E 350 A					
11								260	280	280	305	355	360	350	355	365	325	310	290					
12								280	300	E 360 A	410	340	345	360	350	355	325	290						
13								280	260	285		350	380	370	305	370	360	335	290					
14								275	255	280	330	320	390	355	350	320	315	290	280					
15												380	385	350	345	330	330	300	290					
16									255	285	305	370	340	350	330	320	355	295	290					
17									255	A	E 380 A	A	340	340	345	330	320	E 390 A	280					
18									255	I 300 C	290	305	380	380	340	305	320	290	285					
19						C	C	C	C	290	290	370	340	340	340	340	340	305	290					
20										305	A	355	320	335	305	305	280	275						
21								265	260	270		365	340	330	305	300	300	300	290					
22								255	255	265	300	340	330	320	315	300	330	310	295					
23								260	240	250		350	380	330	320	290	290	300	280					
24										260	305	330	375	360	330	300	290	270						
25									240		270	340	345	320	325	310	300	290						
26									240	280	300	290	345	305	300	290	280	275	290					
27									270	250	260	340	330	300	295	300	290	290	300					
28									230	245	255		350	320	310	305	275	A	290					
29									240	285	290	305	325	300	325	310	285	280	260					
30												430	360	315	305	290	305	285						
31									A	280	355	320	315	360	340	290	275	265						
No.								11	24	23	22	28	30	30	31	30	29	25	22					
Median								280	260	280	305	350	350	350	340	320	310	295	290					

h'F2 | Sweep 10 Mc to 200 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 9

55

IONOSPHERIC DATA

Aug. 1961 | 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	I310A	I300A	280	320	300	295	275	260	225	225	210	A	A	A	A	255	A	A	A	A	260	275	240	A
2	A	A	A	305	275	240	250	220	265	I250A	I225A	I285C	I220A	C	A	A	C	I240A	250	290	220	I230A	I330A	I325A
3	340	300	275	280	265	I330A	275	250	I250A	A	A	A	A	A	A	A	A	A	A	A	E400A	350	350	340
4	310	290	260	300	300	270	260	225	210	190	I210C	195	A	A	A	A	A	250	240	285	270	250	E300A	A
5	285	305	285	240	240	E325A	250	230H	220	250	205	A	A	A	A	A	A	A	A	280	260	250	280	280
6	300	275	290	260	235	I285A	250	240	250	210	215H	I230A	I250A	A	A	A	A	I250A	I250A	I255A	300	260	280	310
7	300	305	300	270	255	295	295	260	240	210	250	210	230	I220A	I225A	250	255	245	I250A	260	250	275	300	250
8	260	250	300	250	285	265	250	A	A	A	250	215	210	I210A	200	230	240	245	245	250	245	C	C	C
9	C	C	C	C	C	C	C	C	C	A	A	220	230	235	255	250	255	A	A	A	A	270	A	I290A
10	E350A	250	A	335	335H	275	260	A	A	A	A	270	240	210	A	A	E300A	A	A	A	I280A	350	I405A	350
11	400	300	260	255	320H	305	290	250	A	E265A	A	200H	A	A	A	A	E280A	245	I270A	I310A	290	275	375	305
12	335	350	300	255	300	310	250	275	A	A	210H	E300B	240	230	230	240	230	250	245	260	285	290	305	295
13	270	305	300	280	260	260	270	I250A	I245A	225	200H	E300A	205	240	225H	A	A	A	260	260	235	235	300	305
14	I330A	290	295	290	290	260	255	235	250	230	215	200	250	230	230	230	I260A	245	A	A	290	290	340	310
15	310	290	245	260	290	310	245	230	240	220H	E290A	A	A	260	I220A	250	A	I270A	250	275	285	230	320	330
16	355	285	290	275	250	235	235	235	220	205	205	I245A	A	A	A	E275A	A	A	A	250	295	300	A	350
17	I320A	I310A	315	290	280	300	255	270	A	A	I230A	I250A	300	205	210	E300A	I250A	I265A	I270A	250	230	235	340	355
18	I320A	300A	300	250	250	255	255	235	225	220	240	200	255	240	I245A	245	240	250	245	255	250	290	245	C
19	C	C	C	C	C	C	C	C	C	A	A	E270A	A	A	A	A	A	A	250	260	235	220	300H	325
20	300	290	260	280	300	295	260	240	265	A	A	A	250	E280A	240	I235A	245	245	255	250	250	240	290	350
21	I330A	295	295	335	340	315	300	250	240	250	230	A	220	250	230	240	235	I250A	I255A	250	240	E410A	310	295
22	290	305	275	260	290	300	260	245	A	A	210	200	260	I245A	235	A	255	250	250	255	240	230	295	310
23	285	290	275	250	305	285	275	230	220	200	200	190	190	200	240	225	240	230	I250A	255	250	225	250	300
24	280	260	260	240	250	250	255	240	250	I225A	I215A	200	200	215	200	240	240	230	230	245	230	210	250	320
25	290	305	290	280	300	355	250	220	210	205	200	245	A	200H	220	I240A	220	230	240	240	235	225	255	305
26	290	305	250	205	240	270	250	250	A	A	270	E250A	205	I220A	230	240	255	I250A	260	250	225	205	300	300
27	300	280	290	270	260	240	250	240	220	210	205	200H	220	210	235	250	I255A	250	255	260	220	220H	350	350
28	315	330	300	260	255	270	250	235	220	200	190	205H	A	E300A	210	240	A	A	A	E275A	A	A	I335A	290
29	I325A	340	295	300	300	300	250	240	I235A	240	205	200	A	A	E260A	250	250	245	I260A	240	230	240	255	355
30	255	340	300	275	E250A	290	260	240	215	200	250H	195	195	250	230	230	230	240	245	230	210	380	330	305
31	340	325	245	275H	310	310	285	240	A	A	A	A	A	A	245	240	240	250	250	240	A	E350A	A	A
No.	27	28	27	29	29	28	29	27	21	19	23	20	19	18	20	19	18	22	23	25	27	27	27	26
Median	310	300	290	275	285	290	255	240	235	220	210	200	230	225	230	240	240	250	250	255	250	250	300	310

h'F | Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1961 | 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	100	105	105	105	105	S	130	125	130	125	125	125	120	110	115	145	105	105	105	115	110	115	110	115
2	105	100	105	110	115	120	110	120	110	105	105	C	105	C	140	125	C	115	115	125	100	120	110	110
3	110	S	E	110	110	125	130	135	125	120	115	115	140	130	130	110	110	105	105	100	100	100	100	120
4	105	100	100	110	S	S	130	125	120	130	C	145	130	125	125	105	120	115	125	105	100	120	105	100
5	105	100	110	105	100	100	120	120	120	120	130	115	110	105	110	105	105	105	105	100	100	120	110	S
6	110	110	110	110	110	110	S	G	115	120	120	135	145	135	130	120	115	105	105	105	105	105	105	S
7	120	S	100	115	115	110	105	105	105	105	105	110	120	125	125	135	130	100	125	115	110	110	105	S
8	105	S	105	105	105	105	130	120	105	105	105	110	105	105	105	105	G	105	100	100	100	C	C	C
9	C	C	C	C	C	C	C	C	C	125	125	150	150	150	150	G	150	125	125	120	110	110	110	110
10	110	S	110	105	105	105	105	120	115	110	110	110	105	105	120	140	130	125	120	110	105	105	105	100
11	100	100	100	100	E	130	120	130	120	120	110	120	105	105	105	105	105	110	130	120	120	120	120	110
12	110	110	110	105	110	110	140	120	110	105	110	110	110	110	110	140	G	140	130	125	115	115	S	S
13	S	105	105	E	110	110	110	110	110	110	110	105	110	110	110	105	110	100	100	100	105	105	100	110
14	120	110	105	E	E	S	140	130	120	115	110	125	115	160	110	145	145	140	125	120	120	120	120	115
15	115	S	110	110	110	110	110	115	110	110	110	110	110	110	110	110	115	105	105	105	100	105	100	100
16	105	110	110	100	100	S	140	140	140	125	120	130	110	110	110	140	130	125	120	120	110	105	105	105
17	115	100	110	135	100	120	115	130	120	110	110	110	110	G	G	135	130	125	125	120	105	105	105	110
18	105	100	100	105	110	S	120	130	120	110	110	110	110	110	110	110	110	105	105	105	100	105	S	C
19	C	C	C	C	C	C	C	C	C	110	110	110	110	110	110	110	110	105	105	105	100	100	S	S
20	S	S	100	110	110	115	125	120	110	110	110	110	110	105	105	105	140	130	125	130	105	110	120	110
21	110	110	110	110	110	125	120	120	120	110	115	110	115	110	110	135	140	125	125	125	115	110	110	110
22	105	105	S	100	100	S	G	120	110	110	110	110	110	110	110	105	105	130	120	115	100	100	S	110
23	110	S	100	E	110	110	125	140	110	110	110	125	120	110	110	110	110	105	105	100	125	S	105	S
24	S	S	E	E	E	S	S	115	110	110	110	110	110	110	110	G	145	140	125	S	S	S	S	110
25	110	110	110	110	110	110	S	G	130	125	120	120	115	110	110	110	105	G	110	S	S	S	S	S
26	S	S	E	E	E	S	G	120	110	110	110	110	110	105	105	105	100	100	100	100	100	100	100	S
27	S	110	105	105	105	S	S	G	110	G	110	110	110	G	170	160	130	145	130	120	120	100	100	105
28	105	S	105	E	E	130	125	120	115	120	110	120	110	110	110	105	135	130	125	120	120	110	110	110
29	110	105	110	110	105	125	130	120	125	120	120	120	110	110	110	110	150	135	120	115	110	110	110	110
30	110	100	105	105	110	120	145	150	115	105	110	110	110	110	110	105	140	115	120	S	S	110	110	110
31	S	100	100	100	E	135	130	130	120	120	110	110	110	110	110	110	105	105	120	110	115	110	110	110
No.	23	19	25	23	22	20	23	26	29	30	30	30	31	28	30	29	28	30	31	28	28	27	24	21
Median	110	105	105	105	110	110	125	120	115	110	110	110	110	110	110	110	120	115	120	115	105	110	110	110

h'Es | Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

Aug. 1961

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	f2	f2f	f2	f2f	f2		h2	c3	h	h2	h	h	c2	c2	c2	h,l	l3	l3	l3	c,l	f2f3	f3	f2	f3
2	f3	f3	f,f5	f2f3	f2f	l	l3	c2	c2	c3	c2		l2		h,l	h2		c3	c2	l2c	f	f2	f2	f3
3	f3			f5	f3	h3	l2	h2	h2	h2	c3	c3	h	h	h	c2	l3	l4	l4	l	f5	f5	f2	f,f2
4	f2	f2	f2	f2f2			c2	h2	h2	h		h	h	h	h2	l,h2	h2l	c2l	h,l2	l2	f	f	f2	f3
5	f2	f2	f2	f	f	l2	l2	l,l	l	c2	h	c2	c2	c2	c2	c3	l6	l3	l2	l4	f2	f,f	f2	
6	f2	f	f2	f2	f2	l3			c2	h	h	h2	h	h2	h2	h2	c2	l2	l3	l4	f4	f,f2	f2	
7	f		f3	f,f	f	l2	l2	l5	l2	l2	l	l	h	h2	h	h	h	l2	h4	h5	f2	f	f2	
8	f2		f2	f	f2	l3	h	h3	c2	c2	l	l	l	l2	l	l		l3	l2h	l2	f2			
9										h	h2	h	h	h	h		h	h3	h3l	h2l	f2f4	f2	f3	f3
10	f2		f4	f4	f2	l	l	h4	c3	c3l	c2	l2	l	l	c2l2	h	h2	h3	c2	l3	f3	f3	f3	f3
11	f3	f3	f	f2		l	l2	h,l	c2	h3	c2	h	l2	l2	l2	l2	l3	l2	h4	c5	f2f2	f,f2	f5	f3
12	f2	f3	f2	f	f2	l3	c2	h4	c3	c3	l	c	l	l	l	h		h2l	h2	c	f2	f2		
13		f2	f		f4	l2	l4	l5	l2	l	c	c2	c2	c	l	l2h2	l3	l3	l3	l3	f4	f	f	f2
14	f2	f2	f				h	h3	h2	c2	c	h	c	h	l	h,l	h	h2	h2	c2	f3	f2	f5	f2
15	f2		f2	f2	f2	l2	l2	l3	l3	l	c2	c2	c2	l2	c3	l	l3	l3	l3	l3	f2	f2	f5	f2
16	f2	f2	f,f	f	f2		c	h3l	h	h	h2	h,l2	l2	l3	l2	h,l	h3	h7	h5l	c3	f6	f5	f5	f5
17	f3	f2	f,f4	f,f2	f2	l2	l2	h2	h2	c3	c2	l3	l2			h	h3	h3	h4	c3	f2	f2	f3	f2f2
18	f2	f7	f2	f	f3f		l2	h3	h	l2	l2	l	l2	l	l2	l	l	l2	l4	l4	f2	f		
19										c2	c2	c2	l2	c3	c3	c3	l4	l2	l2	l4	f4	f2		
20			f	f3	f6	l	c	h3	c3	c3	c4	c3	c2	l2	l	l6	h,l	h,l	c3l	c	f4	f	f	f2
21	f2	f2	f2	f3	f4	l2	l2	c3	c2	c2	c2	c2	c	l3	l	h2	h	h3	c5	c4	f4	f3	f2	f2
22	f2	f2	f	f4	f2			c	c4	c3	l2	l	l2	l2	l	l3	l2	h,l	c4l	c2l2	f4	f4	f	f2
23	f2		f		f3	l2	l2	h	l2	l	l	c	c	c	c	l	l	l4	l6h	l5	f2f2	f	f	f
24	f							l2	l3	l3	l	l	l	l	l		h	h2l	c,l					f2
25	f2	f2	f2	f2	f4	l6			h	h	h	h	c2	l	l	l3	l2		l					
26								l	c2	c2	c2	l	l	l2	l	l2	l2	l3	l2	l2	f2	f	f2	
27		f	f4	f2	f2				l		l	l	l		h,l	h,l	h2l	h2l	c,l3	c3l2	f3f2	f3	f3	f
28	f2	f	f			l3	c	c3	c3	c2	l	h	h	c	l	l,h	h2l3	h3l4	h3l3	h,l	f f2	f2f2	f3	f2
29	f4	f4	f3	f2	f	l2	c	c4	h2	c2	h	h	l2	l	l3	l2	h	h2	c5	c4	f4	f2	f	f3
30	f2	f2	f4	f5	f5	l	h2	h2	h2	l	l2	l	l	l	l	l	h2l3	h2l2	c			f3	f2	f2
31		f2	f2	f		l2	c2	h3	h4	h	c2	c	c2	l2	l	l	l2	h2h2	h2l2	c2	f3	f5	f4	f5
No.																								
Median																								

Types of Es

Sweep 10 Mc to 20.0 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 12

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO Time in U.T.

Aug. 1961	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	mean	00-03	03-06	06-09	21-24	mean
1	5	6	6	(5)	6	0	0	0	(0)	0
2	6	5	5	-	5	0	0	0	-	0
3	5	5	5	-	5	0	0	0	-	0
4	5	5	5	-	5	0	0	0	-	0
5	6	6	5	-	6	0	0	0	-	0
6	5	7	5	-	6	1	1	1	-	1
7	5	5	4	-	5	0	0	0	-	0
8	5	5	-	-	5	0	0	-	-	0
9	6	5	6	(5)	5	0	0	0	(0)	0
10	5	5	5	-	5	0	0	0	-	0
11	5	5	5	(5)	5	0	0	0	(0)	0
12	5	5	6	-	5	0	1	0	-	0
13	5	5	5	-	5	0	1	0	-	0
14	5	5	5	-	5	0	0	0	-	0
15	5	5	5	(5)	5	1	1	1	(1)	1
16	8	7	8	(8)	8	1	1	1	(1)	1
17	11	13	22	-	14	2	1	1	-	1
18	17	15	12	(5)	15	1	1	1	(0)	1
19	5	-	-	-	(5)	0	-	-	-	(0)
20	5	5	-	-	5	0	0	-	-	0
21	-	-	-	-	-	-	-	-	-	-
22	5	5	5	-	5	0	0	0	-	0
23	5	5	5	-	5	0	0	0	-	0
24	6	6	6	-	6	0	0	0	-	0
25	6	6	6	-	6	0	0	0	-	0
26	-	5	4	-	4	-	0	0	-	0
27	5	5	4	-	5	0	0	0	-	0
28	5	-	-	-	(5)	0	-	-	-	(0)
29	8	5	5	-	6	0	0	0	-	0
30	5	5	5	9	5	0	0	0	1	0
31	6	5	4	-	6	1	0	0	-	1

Outstanding Occurrences

Aug. 1961	Start-time	Dura-tion	Type	Max. Int.		Max. Time	Remarks
				Inst.	Smd.		
13	0341.2	2.0	CD/4	>1000	200	-	off scale

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 1961	Whole Day Index	L. N. 06 12 18 / 12 18 24	W W V 00 06 12 18 / 06 12 18 24	S. F. 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	4o	3 5 4	4 4 5 4	5 3 4 4	5 4 5 (4)	N N N N			
2	3o	4 3 3	3 2 1 (2)	4 4 3 3	5 5 5 4	N U U U	22xx	---	
3	2+	4 4 3	(2 1 1 1)	2 3 3 3	3 3 3 4	U U U U	---	19xx	115γ
4	4-	4 5 (4)	2 3 3 3	5 3 3 4	4 4 5 4	N N N N			
5	4-	5 4 5	2 3 4 3	4 2 3 4	4 4 3 5	N N N N			
6	4+	- 4 5	3 5 (4 5)	4 (3) 4 5	4 4 (2) 5	N N N N			
7	5-	5 5 C	4 4 5 5	5 4 5 5	4 4 3 4	N N N N			
8	4o	5 5 4	5 4 4 (2)	5 3 4 3	4 4 4 5	N N N N			
9	5-	5 5 5	2 4 5 5	4 5 5 5	5 5 3 (4)	N N N N			
10	4o	5 4 4	5 3 3 2	5 5 (4) 4	5 5 5 5	N N N N			
11	3-	(2) 3 2	2 3 2 3	3 3 3 3	4 4 4 4	N N N N			
12	4o	- (4) -	3 4 5 5	3 3 4 (5)	4 4 4 4	N N N N			
13	5o	5 5 -	5 5 5 5	5 (5) 5 5	4 5 5 5	N N N N			
14	5o	5 5 (5)	5 5 5 5	5 5 5 4	5 5 4 5	N N N N			
(15)	5-	5 4 5	5 5 5 5	4 4 4 5	5 5 5 5	N N N N			
(16)	5-	4 5 5	4 5 5 5	5 (5) 5 4	5 4 5 5	N N N N			
(17)	5o	4 5 5	5 5 5 5	5 5 5 5	4 4 5 5	N N N N			
18	5o	5 5 5	4 5 5 5	5 5 5 5	5 4 5 4	N N N N			
19	4o	5 4 3	5 3 2 (4)	4 5 4 4	5 4 4 5	N N N N			
20	4o	5 4 4	5 4 4 3	4 4 3 5	5 3 3 4	N N N N			
21	5o	- 5 5	5 5 5 5	5 5 5 5	4 4 4 5	N N N N			
22	5-	4 5 5	5 5 5 5	5 4 4 4	4 4 4 4	N N N N			
23	4+	5 5 5	4 4 5 5	4 3 (4) 5	4 4 4 4	N N N N			
24	5-	5 5 (4)	- 5 5 5	5 3 4 4	5 4 4 5	N N N N			
25	4+	5 4 4	4 4 4 5	4 4 4 4	5 5 3 5	N N N N			
26	4+	4 4 4	5 4 5 5	3 4 4 4	4 3 (4) 5	N N N N			
27	4-	3 4 4	5 4 4 3	3 3 3 4	5 5 3 4	N N N N			
28	4o	5 4 4	4 4 4 5	3 3 (4) 4	5 3 3 4	N N N N			
29	4-	5 4 3	5 4 4 3	3 3 3 3	5 4 3 4	N N N N	1710	---	
30*	3-	4 3 2	4 2 2 1	2 3 3 2	4 4 3 3	N N N N	---	---	
31*	2o	3 2 2	1 1 1 2	3 3 (2) 2	4 3 3 4	U U U U	---	---	112γ

* = day of Special World Interval

( ) = Regular World Day

( ) = inaccurate

C = artificial accident

\- = impossible to evaluate

--- = continuing magnetic storm

Note: Estimation of propagation quality figures has been revised from July 1961 issue. See Symbols and Terminology.

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Aug. 1961	S W F									S E A			Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN	SH										
13		-		11'	-		03.46	13	S	1+					X	
31	-	13	3	12'	-		01.02	28	S	1+						

IONOSPHERIC DATA IN JAPAN FOR AUGUST 1961
電 波 観 測 報 告　第13巻 第8号

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