F — 137

IONOSPHERIC DATA IN JAPAN

FOR MAY 1960

Vol. 12 No. 5

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Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°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 A flat E_s trace at or below the normal E layer minimum virtual height. Use in daytime only.

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

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

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

r An E_s trace which is non-blanketing over part or all of its frequency range showing an increase in virtual height at the high frequency end similar to group retardation. This is distinguished at present from true group retardation (a blanketing 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. 0234x)

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

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

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

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

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

The data of short wave fade-out (SWF) are 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 .....WMA-25: 5.0775 Mc, WMA-47: 7.485 Mc, WMF-27A2: 7.712 3 Mc WMH-30A2: 10.3873 Mc, WMH-53A2: 13.7773 Mc and WMJ-30A2: 20.8173 Mc (San Francisco)

H A.....WWVH 15 Mc and 10 Mc (Hawaii)

T O.....JJY 15 Mc and 10 Mc (Tokyo)

L N.....GIJ-27: 7.6975 Mc, GIJ-30: 10.9075 Mc, GBJ-34: 14.798 Mc and GIJ-38: 18.4375 Mc (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 and 20 Mc for WWV, WWVH and JJY are marked; 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

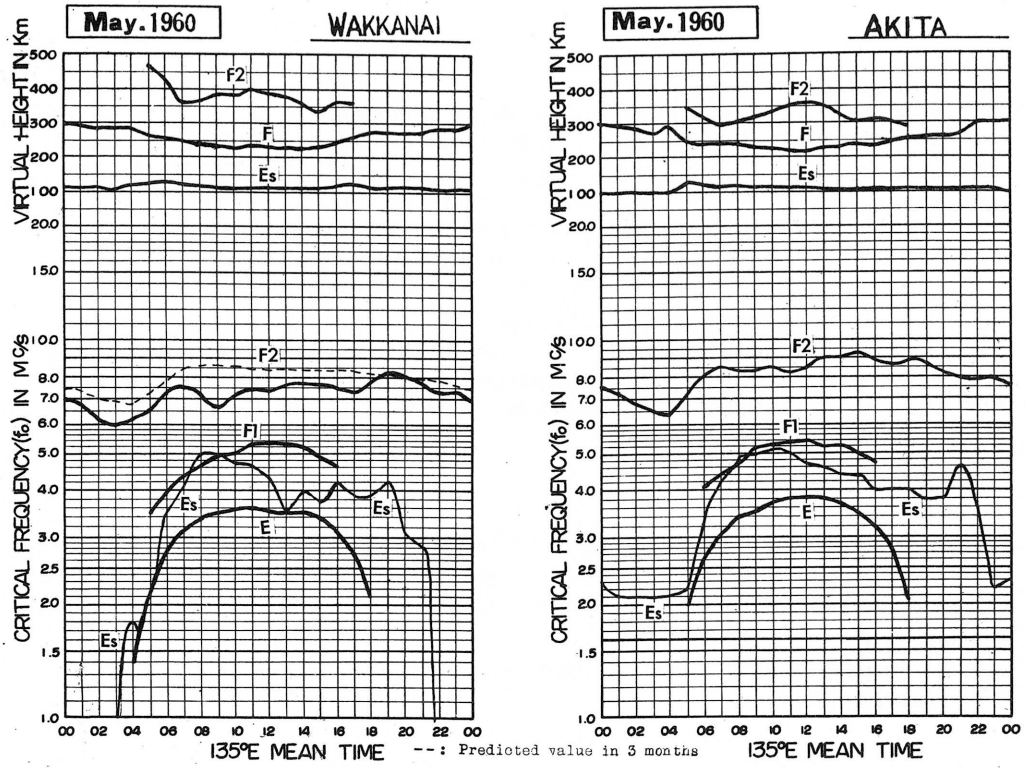
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1−	1	1+
2−	2	2+
3−	3	3+

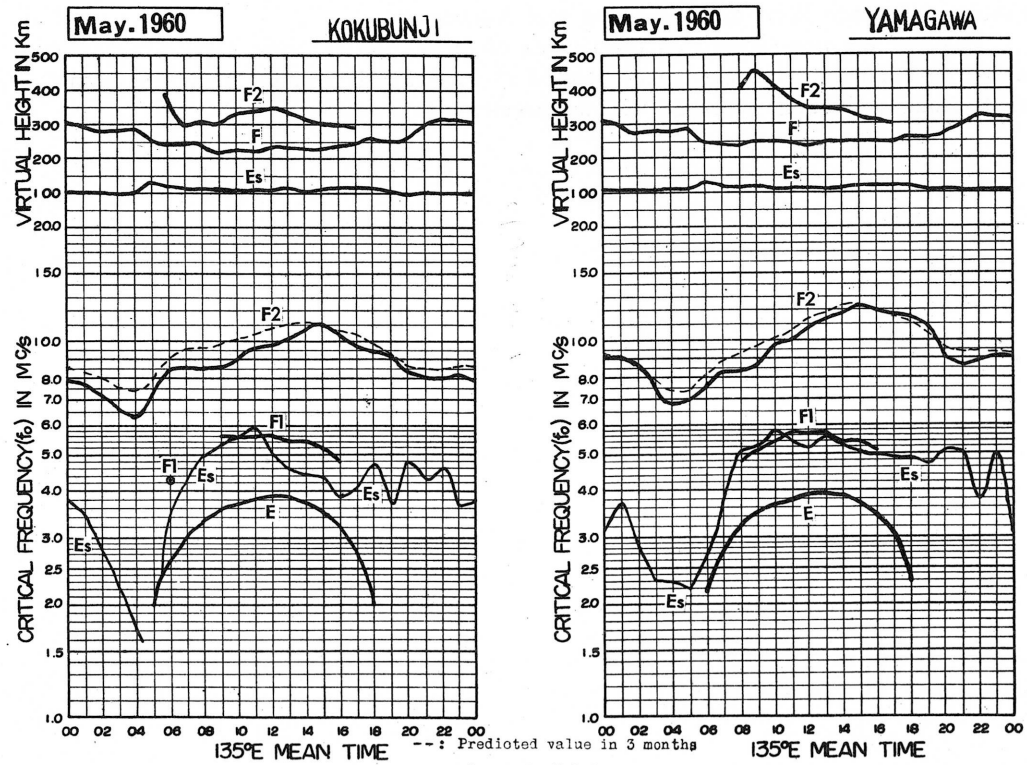
The data of sudden enhancement of atmospheric (SEA) observed on 28 kc are tabulated on each *Start-time, Duration and Importance.*

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



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA

May. 1960 | 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	U 4.5 SH	3.6	2.P	I 2.2 F	F	W	W	W	W	4.8	W	R	A	W	5.4	5.3	5.3	5.6	6.1	6.0	7.3	7.2	7.0	6.5
2	6.3	5.8	5.7	5.3	4.8	4.P	5.3	5.5	6.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	7.7	8.3	8.5	8.7	8.1	8.2	8.3	U 8.8 S	8.3	8.3	7.8	7.4
5	7.0	6.8	6.7	6.5	6.2	6.6	6.8	7.1 H	7.4	6.P	7.6	8.3	8.3	8.7	P.4	8.8	P.0	8.7	8.5	8.6	8.1	7.8	7.2	6.8
6	6.6	6.7	6.5	6.3	6.1	6.5	8.0	P.6	P.0	8.7	8.8	8.8	P.0	P.3	8.8	8.3	P.3	P.1	P.0	P.8	P.3	I 8.4 S	7.6	7.3
7	7.0	7.5	7.3	6.3	5.7	5.4	I 5.6 A	6.0	6.0	I 5.8 R	5.8	5.8 H	6.3	6.2	6.5	6.P	7.2	7.3	7.0	7.4	7.0	7.3	6.5	6.5
8	U 6.3 S	I 5.8 FS	I 5.3 F	U 4.7 S	4.8	5.P	7.8	7.8	8.1	6.8 H	7.0 H	7.8	P.1	P.4	P.1	8.P	8.8	P.1	P.7	P.5	P.8	7.0	I 7.3 S	7.1
9	7.3	6.8	4.3	I 4.4 S	3.P	4.P	5.3	6.3	5.P	5.7	A	A	A	W	5.3	I 5.8 A	5.7	6.2	6.6	6.4	7.0	7.1	6.7	6.5
10	6.3	5.3	5.3	5.0	4.1	4.1	4.7	4.7	4.P	5.0	W	W	W	W	5.5	5.7	5.8	5.P	I 6.1 S	6.3	6.3	6.6	6.6	6.2
11	6.0	5.8	5.3	4.6	4.3	4.8	5.3	5.7	I 5.5 A	I 5.5 A	I 5.4 A	5.5	W	5.5	5.P	6.0	6.1	6.7	6.3	7.4	5.P	6.0	5.3	5.0
12	5.3	5.3	5.3	4.1	4.P H	5.2	5.2	I 5.3 A	I 5.5 A	5.6	W	5.5	5.6	5.6	6.0	6.2	6.3	6.7	6.P	6.P	7.0	I 6.P F	6.8	7.0
13	6.2	6.3	6.1	5.3	5.3	5.P	6.8	7.1	7.3	I 7.6 C	7.6	8.3	P.0	8.8	P.2	I P.2 B	P.0	P.3 H	8.7	U 8.5 S	7.8	7.P	7.8	7.6
14	7.3	7.0	7.0	7.1	8.0	8.7	8.2	8.7	8.8	P.0	P.3	10.1	10.0	10.2	10.3	10.3	P.8	10.3	P.3	P.8	8.P	8.1	I 8.2 S	U 8.2 S
15	U 7.8 S	U 8.0 S	7.5	6.P	7.4	8.1	P.0	10.1	10.7	10.3 H	10.6	10.6	10.6	10.8	10.0	P.2	P.0	P.1	8.P	P.5	P.3	P.0	S	S
16	S	U 8.5 S	7.3	6.P	6.7	7.6	8.2	8.0	8.0	7.3	7.2	6.8	7.0	7.6	7.7	7.3	7.5	7.3	7.3	7.7	7.6	8.0	7.3	7.3
17	7.0	6.6	5.8	6.0	6.4	6.7 H	7.2	7.5	7.6	I 6.6 R	I 6.5 A	6.2	I 6.4 A	6.6	6.7	6.8	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	6.2	6.0	6.4	6.0	6.5	6.6	6.8	7.2	6.7	7.1	I 7.3 A	7.3	7.0	7.2	7.1	7.0
19	6.8	6.4	6.1	5.7	5.P	6.7	7.3	6.1	6.4	C	C	C	C	C	C	C	A	7.3	I 7.3 A	I 7.4 A	7.4	7.3	6.P	6.5
20	FS	F	F	F	6.7	7.8	8.6	8.6	8.4	8.8	P.5	P.3	8.8	8.P	8.P	8.5	U 8.5 R	8.8	8.P	8.8	S	S	S	7.3
21	7.3	7.0	6.8	6.3	6.5	7.1	7.6	8.0	7.8	7.8	7.8	7.4	7.3	7.8	8.1	8.0	8.1	8.5	P.0	8.6	I 8.0 S	7.5	7.6	7.4
22	7.4	6.8	7.0	7.0	6.8	7.5	8.5	P.0	8.2	7.3	7.3	7.4	7.4	7.4	7.8	8.1	A	A	A	8.4	I 8.8 A	I 8.8 A	J 8.8 S	J 8.0 S
23	7.5	7.3	6.P	6.8	7.1	J 8.5 S	P.0	P.1	8.7	7.7	7.5	7.2	8.0	7.8	7.7	7.P	7.5	7.7	8.3	P.0	I 8.8 S	I 8.0 S	U 7.6 S	7.5
24	7.3	6.6	6.1	6.3	6.5	7.2	7.4	7.8	I 6.6 A	I 6.5 A	6.6	6.3	6.7	6.5	7.0	7.6	7.8	7.3	7.3	6.7	8.0	7.5	U 7.6 S	8.1
25	7.5	7.3	6.8	5.8	5.8	6.3	6.5	6.1	I 5.6 A	5.7	5.8	6.3	5.P	5.8	5.P	I 5.8 A	6.1	6.4	6.2	I 6.5 A	7.3	7.6	7.3	7.5
26	6.5	6.7	6.0	5.5	5.2	5.6	5.5	5.8	6.6	6.3	6.0	6.5	7.0	6.8	6.5	7.4	7.4	7.1	7.8	8.2	8.5	8.0	7.3	7.3
27	7.2	6.8	6.5	6.3	6.5	8.0	8.5	8.3	7.P	7.8	8.8	8.5	P.6	I 10.0 A	P.7	10.3	8.8	8.4	I 8.2 S	8.3	8.P	I 8.7 S	I 8.2 S	U 7.8 S
28	7.5	7.3	7.1	6.8	6.3	7.8	7.7	8.1	7.7	I 7.2 A	7.8	7.6	7.P	7.4	7.7	7.6	7.7	8.0	8.3	P.0	I P.2 S	I 8.8 S	S	S
29	S	S	S	7.7	8.3	8.8	8.P	7.8	C	C	C	C	C	C	C	C	C	7.P	8.1	8.3	8.3	I 8.5 S	8.3	7.5
30	7.0	6.8	6.4	5.8	6.3	6.1	5.2	5.2	I 4.P A	5.1	5.5	W	5.P	6.5	6.P	7.5	6.8	7.1	I 7.4 A	A	A	S	S	U 6.8 S
31	6.4	U 6.3 S	5.8	5.3	5.8	6.3	6.1	I 5.8 A	5.6	5.3	5.5	W	5.2	W	5.2	I 5.3 A	5.3	5.8	5.8	6.1	6.8	7.0	7.0	7.1
No.	25	26	26	27	27	27	27	27	27	26	22	21	23	23	27	27	25	27	27	27	26	26	24	26
Median	7.0	6.8	6.2	6.0	6.2	6.6	7.3	7.5	7.3	6.7	7.2	7.4	7.4	7.6	7.7	7.6	7.5	7.3	7.8	8.3	8.0	7.7	7.3	7.3
U.Q	7.3	7.0	6.P	6.8	6.7	7.8	8.2	8.3	8.1	7.7	7.8	8.4	P.0	8.P	8.P	8.7	8.8	8.7	8.7	8.8	8.8	8.3	7.7	7.5
L.Q	6.3	6.3	5.7	5.3	5.2	5.6	5.5	5.8	5.P	5.7	6.0	6.2	6.4	6.5	6.0	6.2	6.2	6.7	6.P	6.P	7.3	7.2	7.0	6.8
Q.R	1.0	1.3	1.2	1.5	1.5	2.2	2.7	2.5	2.2	2.0	1.8	2.2	2.6	2.4	2.P	2.5	2.6	2.0	1.8	1.P	1.5	1.1	0.7	0.7

foF2

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

The Radio Research Laboratories, Japan.

W 1

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IONOSPHERIC DATA

May. 1960 | 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						2.8	3.2	4.0^{H}	4.1	4.3	4.7^{H}	U4.8^{R}	I4.8^{A}	4.7	4.7	I4.8^{L}	L	L						
2							3.8	4.4	4.7	C	C	C	C	C	C	C	C	C						
3							C	C	C	C	C	C	C	C	C	C	C	C						
4							C	C	C	C	C	C	L	L	L	L		L						
5							L	I4.6^{L}	4.6	I5.0^{L}	5.4	5.3	L	L	L	L								
6								L	L	L	L	L	L	5.3	I5.2^{L}	I5.1^{L}	L	L						
7						4.1	A	L	L	5.2	4.8		5.3	5.1	5.3	A	A	A						
8								L	L			I5.5^{L}	I5.4^{A}	I5.2^{L}	5.3	L	L	L						
9							4.0	4.3	I4.5^{A}	A	A	A	A	4.9	4.9	I4.9^{A}	I4.6^{L}	L						
10						3.3	I3.8^{A}	4.1	I4.5^{A}	4.7	4.8	4.8	4.9	4.8	4.9	4.8	4.6	L						
11						3.5	3.9	4.2	A	A	A	4.9	5.0	5.0	5.0	5.0	4.6	A						
12							4.3	A	A	A	4.9	5.0	5.1	5.1	A	A	A	L						
13							L	4.8	5.3	I5.4^{C}	I5.6^{L}	5.6	5.6	5.6	5.3	B	L							
14								L	L	L	I5.6^{L}	5.5	I5.6^{LH}	5.9	I5.5^{L}	L	L	L						
15								L	L		I5.4^{L}	I5.6^{L}	I5.6^{L}	5.3		L		L						
16							L	L	5.0	5.2	5.2	I5.3^{L}	5.2	5.3	5.3	L	L	L						
17							4.5	4.6	I4.8^{A}	I4.8^{A}	I4.9^{A}	I5.0^{A}	I5.1^{A}	I5.2^{C}	5.1	5.0	C	C						
18							C	C	4.7	4.8	5.0	5.3	5.1	5.3^{H}	5.0	4.9	A							
19							A	A	A	C	C	C	C	C	C	C	A	A						
20								A	A	A	A	A	5.7	5.5	5.3	5.1	L							
21								5.0	5.1	I5.5^{A}	5.4	I5.4^{L}	5.5	5.4	5.2	I4.9^{L}	4.6	L						
22								L	A	5.3	5.3	5.3	5.4	I5.3^{L}	5.2	A	A	A						
23							A	I4.6^{A}	A	A	L	5.4	5.3	5.1	5.3	5.0	L							
24							4.5	A	A	A	I5.0^{A}	5.3	5.3	5.3	5.0	4.8	4.7	A						
25					L	3.6	4.1	4.3	A	A	A	4.8	5.0	5.0	4.9	I4.9^{A}	4.7	L						
26							A	4.3	4.7	I5.0^{L}	I5.0^{L}	I5.3^{L}	5.3	5.3	5.3	4.9	L	L	L					
27							L	I4.9^{L}	5.3	5.7	5.3	5.5	5.5	I5.4^{A}	I5.5^{A}	I5.0^{L}	4.6	L						
28							L	A	I5.0^{A}	I5.5^{A}	I5.4^{A}	I5.6^{A}	5.5	I5.4^{L}	5.3	L	L	L						
29								L	C	C	C	C	C	C	C	C	C	L	L					
30						3.5	4.1	I4.3^{A}	I4.6^{A}	4.7	5.0	5.0	5.1	I5.4^{L}	5.2	5.1	L	L						
31						3.5	A	A	A	I4.7^{A}	4.8	4.9	4.9	4.9	4.7	A	A							
No.						7	10	14	14	15	19	22	23	25	23	15	7							
Median						3.5	4.0	4.4	4.7	5.0	5.0	5.3	5.3	5.3	5.2	4.9	4.6							

The Radio Research Laboratories, Japan.

foF1

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

IONOSPHERIC DATA

May. 1960 | 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						2.00	2.55	2.80	3.00	3.25	3.45	3.35	3.00	2.95	I2.80A	I3.00A	2.80	I2.40A	2.05					
2					A	2.00	2.60	2.90	3.20	C	C	C	C	C	C	C	C	C	C					
3					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
4					C	C	C	C	C	C	C	C	3.45	3.55	3.50	3.00	2.70	2.65	2.05					
5					1.15	2.20	2.60	3.05	3.30	3.40	3.60	3.60	3.55	3.50	3.45	3.45	3.10	2.55	1.90					
6					A	1.95	2.65	3.05	3.30	3.40	3.50	3.60	3.55	3.45	3.50	3.45	3.10	2.65	2.00					
7						2.10	2.70	3.05	3.35	3.50	3.55	3.60	3.55	3.40	3.35	3.40	3.05	2.65	S					
8						2.10	2.70	3.10	3.35	3.45	3.50	3.55	3.55	3.50	A	A	A	A	A					
9						A	2.65	3.05	3.40	3.50	3.60	3.60	3.65	3.45	3.50	I3.35A	3.10	2.90	A	A				
10					1.60	2.10	2.70	3.05	3.40	3.50	3.60	3.70	3.75	3.60	3.50	3.30	3.10	2.60	2.10					
11					1.55	2.20	2.75	3.15	3.40	3.50	3.45	3.45	I3.50A	I3.60A	3.50	3.40	3.10	2.65	2.00					
12					I1.40A	2.20	2.75	3.30	3.40	3.50	3.60	3.75	3.90	3.70	3.60	I3.45A	I3.25A	2.75	2.30					
13					1.50	2.25	2.85	3.20	3.50	I3.60C	3.70	3.75	3.65	3.55	A	B	B	3.00	2.40					
14						2.35	2.80	3.15	3.50	3.60	3.60	3.75	A	R	R	3.35	3.15	I2.75A	2.30	S				
15						2.20	2.90	3.25	3.50	3.60	3.95	I4.10A	3.55	B	R	B	3.35	2.85	A					
16						2.30	2.85	3.25	3.45	3.60	3.75	3.65	3.55	I3.50A	3.50	I3.35R	I3.10A	2.70	2.10					
17						2.30	2.75	3.10	3.45	3.55	3.70	3.70	3.50	I3.35C	3.50	3.40	C	C	C					
18						C	C	C	3.35	3.45	3.60	3.70	3.65	3.55	I3.45A	3.40	3.10	2.70	2.10					
19					1.40	2.40	2.75	3.05	3.40	C	C	C	C	C	C	C	3.10	2.70	2.10					
20						2.35	2.80	3.15	3.40	3.55	3.55	3.60	3.40	3.35	I3.40A	I3.40A	I3.20A	2.85	2.15					
21					A	2.10	2.90	3.20	3.40	3.60	3.60	3.60	3.50	3.80	3.65	3.40	3.20	2.70	A					
22					A	2.10	2.75	3.15	3.35	3.45	3.60	3.50	A	A	A	A	A	A	A					
23					1.50	2.10	2.65	3.10	3.35	3.40	3.55	3.50	3.45	I3.40A	3.50	3.45	3.15	2.80	2.10					
24					1.40	2.15	2.90	3.20	3.40	3.50	3.50	3.50	3.50	3.50	A	A	A	A	A					
25					A	2.30	2.70	3.00	3.25	3.45	3.50	3.50	3.45	3.40	3.60	3.45	3.10	I2.50A	I2.15A					
26					1.60H	2.25	2.80	3.15	3.40	3.50	3.50	3.60	3.50	3.50	3.50	3.45	3.20	2.80	2.35					
27					1.40	2.50	2.90	3.20	3.45	3.60	3.70	3.60	3.60	A	A	A	3.25	2.80	2.25					
28					1.50	2.35	2.90	3.20	3.45	3.50	3.60	3.55	3.50	A	A	A	3.20	2.85	2.35					
29					S	2.50	2.90	3.25	C	C	C	C	C	C	C	C	C	A	A					
30					1.35	2.40	2.85	3.20	3.40	3.60	3.65	3.70	3.50	3.55	3.60	3.40	3.20	2.60	2.35					
31					1.40	2.45	2.85	3.15	3.45	3.50	3.60	3.75	3.60	3.50	3.40	3.15	3.25	2.90	2.30					
No.					13	27	28	28	28	26	26	26	25	22	19	20	23	24	20					
Median					1.40	2.20	2.75	3.15	3.40	3.50	3.60	3.60	3.55	3.50	3.50	3.40	3.10	2.70	2.10					

foE

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

The Radio Research Laboratories, Japan.

W 3

11

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

May. 1960

foEs

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	2.0	1.5	1.8	G	G	G	4.3	G	G	G	7.1	3.5	4.5	3.7	G	3.1	G	2.2	E	E	E	E
2	E	E	E	E	2.0	G	3.1	5.0	3.5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	G	G	4.5	3.5	3.2	3.1	3.2	J4.2	J4.0	E	E	E
5	E	E	E	E	G	G	3.0	3.5	G	4.3	G	G	G	G	G	G	5.0	5.0	3.5	2.5	E	3.5	E	E
6	E	E	E	E	1.5	G	3.5	3.P	3.8	4.0	4.2	G	G	G	G	G	3.8	3.4	2.7	J3.0	J3.2	J2.8	E	E
7	E	E	E	E	1.5	3.1	5.8	4.2	5.5	4.P	6.0	6.4	6.4	5.0	4.5	5.7	5.5	4.0	3.8	J4.0	J6.0	5.0	J2.8	E
8	E	1.8	J2.8	J3.5	2.4	G	3.5	3.5	4.3	5.0	J6.5	5.0	J7.4	J5.3	7.1	J4.5	J4.0	4.2	J2.8	E	E	E	2.0	J3.7
9	2.0	J3.7	J3.3	4.2	2.3	J3.5	3.3	3.6	4.6	5.2	7.3	8.2	7.0	G	4.P	5.5	5.0	3.6	J3.2	J2.8	E	E	E	E
10	E	1.8	J2.0	1.8	2.4	3.1	J6.0	3.6	5.0	4.2	G	G	G	G	G	G	3.5	3.8	2.P	J3.5	J2.8	E	J2.8	E
11	E	E	E	E	G	G	3.5	4.5	7.1	5.8	J P.P	4.3	5.3	5.8	G	4.2	4.5	6.0	J5.3	J3.0	J5.3	E	E	E
12	E	E	E	E	1.P	G	3.5	J6.P	J7.3	J6.8	J.6.3	4.2	4.2	4.2	5.2	5.8	7.0	G	3.1	6.1	J6.5	4.3	4.2	E
13	E	E	E	E	G	J6.0	3.2	G	G	C	4.2	4.2	4.2	4.0	4.6	B	B	3.3	4.5	4.4	J3.0	J5.3	J2.8	E
14	2.1	3.0	E	1.7	1.8	G	3.4	3.8	4.5	5.1	4.8	6.2	4.0	G	G	G	G	3.5	G	S	1.P	J2.8	3.0	E
15	J2.4	2.0	1.P	1.8	1.8	1.PG	G	G	4.1	5.1	G	J4.8	4.5	B	G	B	G	2.BG	3.4	J2.8	J3.5	E	E	E
16	E	E	E	J1.8	1.4	G	G	5.0	4.5	4.6	5.0	5.0	4.3	4.8	G	G	3.5	3.2	J5.0	2.4	4.0	2.0	E	E
17	2.0	2.0	1.7	J2.1	J2.4	3.0	3.4	4.2	5.2	5.8	J.6.3	5.3	J6.7	C	5.0	G	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	4.3	4.6	4.1	4.P	4.3	G	4.0	G	5.1	4.6	J7.1	5.8	2.6	J2.8	E	J4.3
19	4.6	1.8	E	1.3	G	3.5	4.5	5.0	J6.3	C	C	C	C	C	C	C	J P.0	J6.7	J14.8	J13.6	6.0	3.5	3.1	J2.8
20	6.0	3.4	J3.7	J3.5	J2.3	G	G	J5.3	J6.3	5.8	7.3	J6.3	4.8	4.7	3.8	4.0	4.2	4.4	4.5	J4.1	2.6	3.0	J2.3	E
21	J2.5	E	2.0	E	J2.3	G	G	4.0	4.P	6.3	4.6	G	4.1	G	G	4.1	4.4	4.8	J4.8	4.5	J6.3	2.1	J2.8	J2.8
22	E	E	E	2.4	J2.3	G	3.4	3.8	8.3	5.2	G	4.6	J4.8	4.2	J6.5	7.0	J11.8	J14.4	J14.3	J11.3	J13.8	J11.0	3.0	E
23	E	E	E	E	G	G	J6.0	4.8	5.0	5.3	4.6	4.6	4.7	J5.0	G	G	4.2	4.5	J5.3	5.0	E	E	E	E
24	E	E	J1.P	J2.3	G	2.8	3.5	6.0	J6.3	J7.5	J5.5	4.7	G	G	3.6	3.6	J4.3	5.0	J4.5	J3.3	E	2.4	E	E
25	E	1.7	J2.8	J6.3	J5.3	3.3	3.5	4.0	5.5	5.0	4.5	G	G	G	4.1	6.8	4.6	3.1	3.1	J8.3	2.P	E	E	E
26	E	E	E	E	2.5	5.0	4.0	4.0	4.5	5.0	5.5	4.5	4.7	G	G	G	3.5	4.0	3.5	5.3	J2.8	3.5	2.4	E
27	E	E	E	E	1.8	G	3.5	3.5	5.0	5.0	6.1	G	G	J14.8	J6.8	4.6	G	3.5	7.0	J4.3	J3.0	3.8	E	E
28	E	E	2.1	E	G	G	3.5	6.7M	5.3	J8.0	J6.3	6.6	4.3	J4.8	4.5	4.5	J 3.3	3.4	4.0	J4.8	J 5.8	J 3.5	J 2.5	E
29	J2.8	E	E	E	S	G	3.5	4.5	C	C	C	C	C	C	C	C	C	3.8	3.0	J4.7	6.3	6.2	3.5	E
30	2.4	E	E	E	G	G	G	4.4	J5.8	4.6	4.6	5.0	4.6	4.0	4.4	G	G	4.3	J8.0	J8.8	J8.3	3.2	J4.8	8.0
31	6.2	3.5	J3.8	J3.8	J5.8	3.5	5.5	6.4	5.3	4.3	G	G	4.7	G	G	5.0	J5.3	4.5	4.6	2.7	5.0M	J2.8	E	2.3
No.	28	28	28	28	27	28	28	28	28	25	26	26	27	25	27	27	26	28	28	27	28	28	28	28
Median	E	E	E	E	1.8	G	3.5	4.1	5.0	5.0	4.7	4.6	4.3	3.5	4.0	3.7	4.2	3.P	3.P	4.2	3.1	2.8	E	E
U Q	2.2	1.8	2.0	2.2	2.3	3.1	3.5	5.0	5.6	5.6	6.3	5.0	4.8	4.8	4.6	4.8	5.0	4.6	5.2	5.3	5.P	3.5	2.8	E
L Q	E	E	E	E	G	G	3.0	3.6	4.3	4.6	4.1	G	G	G	G	G	3.3	3.4	3.1	3.0	2.2	E	E	E
a R							0.5	1.4	1.3	1.0	2.2						1.7	1.2	2.1	2.3	3.7			

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | 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				G		-		A	G	3.9	3.3		2.6		E				
2					1.6		G	2.4	2.6[G]	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C			G	G	G	G	G	2.5	2.5			
5							G	G		G							4.4	3.7	3.0	E		2.5		
6					1.4		G	G	G	G	G						G	G	2.5	3.0	3.1	2.6		
7					E	3.1	A	G	4.5	4.7	4.6	G	G	G	G	5.4	4.8	3.5	3.7	3.6	4.6	3.0	2.6	
8		E	2.5	3.0	E		G	G	G	4.6	4.7	4.6	6.5	4.6	3.9	4.0	3.2	3.2	2.4				E	3.1
9	E	3.4	2.5	E	E	3.1	G	G	4.6	4.8	A	A	A		G	A	2.8	2.4	2.7	2.1				
10		E	E	E	G	2.7	4.0	G	4.6	G							G	G	G	3.3	2.4		2.4	
11							G	4.0	A	A	A	3.5	3.7	4.0		G	4.5	6.2	5.2	3.1	5.1			
12					1.5		G	A	A	5.0	G	E 4.2 B	G	G	5.0	5.5	5.5		G	6.0	5.5	2.4	3.5	
13						G	G				G	G	G	G	3.7	B	B	G	3.1	3.5	3.0	2.9	2.6	
14	E	2.1		E	E		G	G	4.5	4.8	G	G	3.8					2.9		S	E	2.2	E	
15	E	E	E	E	E	1.8[G]			G	5.0		4.8	4.4	B		B		2.2[G]	2.8	2.5	2.9			
16				E	E			2.6	4.4	4.5	4.9	4.6	G	3.7			3.2	G	3.0	E	3.1	E		
17	E	E	E	E	E	G	G	G	4.7	A	A	5.5	A		4.7		C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	G	4.6	G	4.6	G		3.6		4.6	4.0	A	3.6	E	E		E
19	3.5	E		E		G	4.1	4.6	5.5	C	C	C	C	C	C	C	A	6.5	A	A	4.6	3.0	E	2.5
20	3.0	2.5	2.6	3.1	E			4.7	6.2	5.5	6.0	7.5	4.6	4.4	3.6	3.5	3.4	2.5[G]	G	4.0	2.5	E	E	
21	E		E		1.6			G	4.7	5.0	4.5		G			G	4.4	3.5	4.0	4.0	A	E	E	E
22				E	1.6		G	G	7.0	4.6		G	3.9	4.0	4.5	4.8	A	A	A	E	A	A	2.1	
23							6.0	4.5	4.8	5.0	4.5	4.5	4.5	4.4			4.1	2.6[G]	4.5	3.0				
24			E	E		G	G	4.6	A	A	5.0	4.5			3.5	3.6	3.2	4.5	4.0	3.0		E		
25		E	2.5	E	2.0	G	3.5	G	A	4.8	E 4.9 A				G	A	G	3.0	3.0	A	E			
26					G	4.1	4.0	3.9	4.5	4.6	G	G	G				G	3.6	3.1	4.6	2.4	E	E	
27					G		G	G	4.6	4.8	4.6			A	6.5	3.8		G	A	3.0	2.5	3.0		
28			E				3.3	6.3	5.0	A	6.0	5.5	G	3.9	4.4	3.5	2.6	G	3.6	4.5	A	3.5	E	
29	E				S		G	G	C	C	C	C	C	C	C	C		3.4	2.9	4.6	3.1	3.0	2.5	
30	E							4.4	A	4.4	4.5	4.8	4.5	G	G			4.0	A	A	A	E	3.1	E
31	3.5	E	3.6	E	5.0	3.2	5.1	A	5.0	E 4.7 A			4.5			A	5.0	4.5	3.6	2.4	4.6	2.4		E
No.	10	10	12	14	19	11	22	25	26	24	18	18	20	13	16	15	21	27	26	26	22	19	14	6
Median	E	E	E	E	E	G	G	G	4.6	4.8	4.6	4.6	3.8	3.9	3.6	3.8	3.4	3.0	3.1	3.2	3.1	2.4	E	E

f_bE_s

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

The Radio Research Laboratories, Japan.

W 5

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

May. 1960

f-min

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.60s	E1.60s	E	E	E	E1.60s	1.80	1.90	2.00	E2.50	E2.45s	E2.50s	2.00	E2.50s	E2.40s	1.80	1.75	1.70	1.70	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
2	E1.60s	E1.20s	E1.40s	E	E	E1.60s	1.80	1.80	2.00	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	E2.40s	E2.45s	E2.40s	2.00	1.90	1.80	E1.90s	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
5	E1.80s	E1.40s	E	E1.40s	E	E1.60s	1.75	1.85	1.90	E2.45s	2.00	E2.50s	E2.40s	E2.50s	2.00	2.00	1.90	1.70	E1.80s	E1.60s	E1.80s	E1.80s	E1.60s	E1.60s
6	E1.60s	E1.40s	E	E	E	E1.60s	1.70	1.70	1.80	E2.45s	2.10	E2.50s	E2.45s	E2.50s	E2.40s	2.10	1.90	1.80	E1.70s	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
7	E1.70s	E1.40s	E1.40s	E	E	E1.60s	1.85	1.90	1.90	E2.45s	E2.40s	1.80	2.00	E2.45s	E2.40s	2.00	1.70	1.70	E1.80s	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
8	E1.60s	E1.20s	E	E	E	1.60	1.85	1.70	2.00	E2.45s	E2.40s	E2.45s	E2.50s	E2.50s	1.90	E2.45s	1.80	1.80	1.70	E1.80s	E1.70s	E1.60s	E1.60s	E1.60s
9	E1.60s	E1.20s	E	E	E	E1.60s	1.80	1.70	1.80	E2.45s	E2.50s	E2.40s	E3.00s	E2.50s	2.15	E2.40s	1.80	1.80	1.70	E1.70s	E1.70s	E1.70s	E1.80s	E1.80s
10	E1.60s	E1.50s	E	E	E	1.60	1.80	1.80	1.80	2.10	2.10	2.00	E2.45s	E2.50s	2.10	2.00	1.80	2.00	E1.90s	E1.65s	E1.60s	E1.60s	E1.60s	E1.60s
11	E1.70s	E1.40s	E1.40s	E1.20s	E	1.60	1.80	1.90	2.10	E2.45s	E2.45s	E2.50s	E2.45s	E2.45s	E2.50s	2.10	1.90	2.10	E1.70s	E1.60s	E1.60s	E1.60s	E1.60s	E1.70s
12	E1.80s	E1.30s	E	E1.40s	E	1.60	1.70	2.05	1.95	E2.50s	E2.60s	E2.50s	E2.40s	E2.20s	E2.45s	E2.40s	E2.50s	1.80	1.90	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
13	E1.60s	E1.40s	E	E	E	E1.60s	1.80	1.90	E2.45s	C	E2.50s	E2.50s	E2.60s	E2.50s	E2.45s	B	3.70	E2.45s	1.90	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
14	E1.60s	E1.60s	E1.20s	E	E	1.60	1.80	1.90	2.00	E2.50s	E2.50s	E2.50s	E2.50s	E2.50s	E2.45s	1.80	1.90	1.60	1.70	E1.70s	E1.60s	E1.60s	E1.60s	E1.70s
15	E1.60s	E1.40s	E	E	E	1.60	1.80	1.90	2.15	E2.50s	E2.60s	E2.60s	E2.50s	4.60	2.50	3.70	E2.50s	1.80	1.60	E1.70s	E1.60s	E1.80s	E1.60s	E1.80s
16	E1.60s	E1.60s	E1.40	E	E	E1.60s	1.80	1.95	E2.40s	2.10	E2.40s	E2.45s	2.10	E2.40s	E2.50s	E2.50s	1.80	1.65	1.60	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
17	E1.80s	E1.20s	E	E	E	E1.60s	1.80	1.85	1.80	1.90	2.00	2.00	2.00	E2.50c	2.00	1.80	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	2.00	1.80	1.95	E2.50s	2.00	E2.50s	1.80	1.80	1.70	1.60	E2.00s	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
19	E1.60s	E1.30s	E	E	E	E1.60s	1.70	1.80	1.90	C	C	C	C	C	C	C	1.80	1.70	1.70	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
20	E1.60s	E1.20s	E1.40s	E	E	E1.60s	1.60	1.70	E2.40s	2.00	E2.60s	1.90	E2.50s	E2.50s	E2.40s	2.00	1.85	1.70	1.60	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
21	E1.60s	E1.60s	E	E	E	E1.60s	1.80	1.75	2.00	1.90	E2.50s	E2.50s	1.90	2.00	2.00	1.80	1.80	1.70	1.60	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
22	E1.60s	E1.60s	E1.20s	E	E	1.60	1.60	1.85	1.80	1.80	2.00	1.90	E2.50s	E2.50s	2.00	1.80	1.80	1.70	1.70	E1.70s	E1.60s	E1.60s	E1.60s	E1.70s
23	E1.60s	E1.60s	E1.60s	E	E1.20s	1.60	1.70	1.70	2.00	E2.50s	2.00	E2.50s	E2.50s	1.90	2.00	2.00	1.70	1.80	1.65	E1.60s	E1.60s	E1.60s	E1.80s	E1.80s
24	E1.60s	E1.40s	E1.30s	E	E1.30s	E1.60s	1.70	1.80	1.80	1.80	1.90	2.00	E2.50s	2.00	E2.50s	1.90	1.80	1.70	1.60	E1.60s	E1.60s	E1.60s	E1.70s	E1.60s
25	E1.70s	E1.20s	E	E	E1.20s	E1.60s	1.60	1.90	E2.50s	E2.45s	E2.50s	E2.50s	3.00	1.90	E2.80s	1.70	2.10	1.70	1.60	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
26	E1.60s	E1.90s	E1.20s	E	E	E1.60s	1.70	1.85	E2.40s	2.00	E2.45s	E2.50s	E2.40s	E2.40s	2.00	2.00	2.00	1.80	1.75	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
27	E1.80s	E1.30s	E	E	E	1.60	1.90	1.85	1.75	2.00	2.10	E2.50s	E2.50s	E2.50s	E2.50s	E2.60s	2.00	1.80	1.65	E1.60s	E1.60s	E1.60s	E1.60s	E1.80s
28	E1.60s	E1.40s	E	E	E1.40s	1.60	1.75	1.80	1.85	2.00	E2.50s	E2.45s	E2.50s	E2.50s	E2.50s	1.80	1.80	1.75	1.60	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
29	E1.60s	E1.20s	E	E	E1.60s	E1.60s	1.70	1.80	C	C	C	C	C	C	C	C	C	1.70	1.70	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
30	E1.60s	E1.60s	E1.20s	E	E	E1.60s	1.70	1.70	E2.50s	E2.50s	E2.50s	E2.45s	E2.50s	E2.50s	E2.40s	1.90	1.80	1.60	1.60	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
31	E1.60s	E	E	E	E	E1.60s	1.65	1.70	2.00	E2.50s	E2.60s	2.00	E2.45s	2.00	2.00	2.00	1.80	1.70	1.60	E1.60s	E1.60s	E1.60s	E1.60s	E1.60s
No.	28	28	28	28	28	28	28	28	22	25	26	26	27	27	27	22	25	27	23	28	28	28	28	28
Median	E1.60	E1.40	E	E	E	E1.60	1.80	1.80	1.90	E2.45	E2.45	E2.50	E2.45	E2.50	E2.40	2.00	1.80	1.70	E1.70	E1.60	E1.60	E1.60	E1.60	E1.60

f-min

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

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

May. 1960 | (M3000)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	U2.20SF	2.40	2.40	I2.40F	F	W	W	W	W	2.20	W	R	A	W	2.60	2.85	2.55	2.70	2.75	2.65	2.55	2.60	2.60	2.65
2	2.65	2.65	2.80	2.75	2.55	2.80	3.00	2.90	2.80	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	2.70	2.90	2.90	3.00	3.00	3.00	2.95	U2.80S	2.85	2.90	2.65	2.70
5	2.60	2.55	2.70	2.80	2.85	2.95	2.65	2.55H	2.40	2.75	2.75	2.90	2.90	2.80	2.85	2.95	2.95	3.05	2.90	2.80	2.85	2.70	2.75	2.65
6	2.55	2.60	2.65	2.80	2.85	2.75	2.80	2.85	2.95	2.80	2.80	2.80	2.75	2.85	2.90	2.80	2.85	2.85	2.90	2.80	2.80	I2.70S	2.50	2.55
7	2.55	2.50	2.55	2.55	2.65	2.40	I2.65A	2.50	2.50	I2.75R	2.65	2.95H	2.40	2.60	2.45	2.60	2.65	2.80	2.80	2.85	2.65	2.75	2.55	2.40
8	U2.40S	I2.50Fs	I2.60F	U2.55S	2.80	3.00	2.90	2.80	3.00	2.90H	2.80H	2.60	2.75	2.75	2.85	2.85	2.70	2.75	2.50	2.80	2.70	2.40	I2.60S	2.50
9	2.60	2.60	2.40	I2.45S	2.55	2.60	2.25	2.45	2.40	2.40	A	A	A	W	2.25	I2.65A	2.65	2.75	2.85	2.75	2.70	2.55	2.55	2.50
10	2.85	2.65	2.85	2.80	2.85	2.45	2.30	2.20	2.25	2.10	W	W	W	W	2.30	2.65	2.80	2.75	I2.80S	2.85	2.80	2.55	2.50	2.55
11	2.50	2.60	2.65	2.60	2.40	2.35	2.45	2.50	I2.50A	I2.45A	I2.35A	2.40	W	2.35	2.45	2.60	2.45	2.70	2.55	2.85	2.65	2.55	2.70	2.40
12	2.65	2.65	2.65	2.90	2.45H	2.55	2.40	I2.40A	I2.45A	2.50	W	2.45	2.20B	2.25	2.50	2.60	2.70	2.85	2.65	2.85	2.50	I2.50F	2.65	2.55
13	2.50	2.55	2.70	2.65	2.65	2.90	2.85	2.75	2.70	I2.70C	2.80	2.70	2.75	2.85	2.80	I2.80C	2.75	2.90H	2.95	U2.75S	2.70	2.55	2.55	2.65
14	2.60	2.55	2.50	2.55	2.75	2.85	2.95	2.95	2.85	2.85	2.60	2.65	2.65	2.60	2.65	2.70	2.75	2.80	2.80	2.85	2.75	2.60	I2.55S	U2.50S
15	U2.55S	U2.65S	2.80	2.65	2.70	2.95	2.75	2.70	2.70	2.60H	2.70	2.70	2.65	2.85	2.75	2.80	2.75	2.85	2.90	2.80	2.80	2.70	S	S
16	S	U2.80S	2.70	2.70	2.55	2.55	2.80	2.65	2.70	2.70	2.70	2.55	2.75	2.75	2.85	2.80	2.95	2.90	2.85	2.80	2.75	2.65	2.75	2.70
17	2.60	2.65	2.70	2.50	2.50	2.30H	2.40	2.65	2.75	I2.60R	I2.50A	2.60	I2.55A	2.65	2.60	2.80	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	2.70	2.70	2.60	2.50	2.65	2.65	2.80	2.90	2.90	2.85	I2.90A	2.85	2.60	2.65	2.65	2.70
19	2.65	2.60	2.75	2.70	2.65	2.85	2.70	2.80	2.55	C	C	C	C	C	C	C	A	2.85	I2.80A	I2.70A	2.60	2.75	2.80	2.60
20	FS	F	F	F	2.85	2.90	2.85	2.80	2.75	2.80	2.90	2.90	2.80	2.80	2.80	2.85	U2.95R	3.00	3.00	3.05	S	S	S	2.70
21	2.60	2.70	2.80	2.75	2.65	2.90	2.75	2.80	2.80	2.75	2.85	2.85	2.65	2.80	2.95	2.95	3.00	2.90	2.90	2.85	I2.80S	2.75	2.70	2.70
22	2.65	2.60	2.65	2.75	2.85	2.85	2.90	3.00	2.70	2.75	2.75	2.75	2.70	2.70	2.75	2.95	A	A	A	2.90	I2.70A	I2.70A	I2.85S	I2.80S
23	2.75	2.70	2.65	2.55	2.70	I2.75S	2.70	2.75	2.85	2.75	2.75	2.65	2.75	2.80	2.75	2.85	2.80	2.80	2.80	2.80	I2.75S	I2.80S	U2.75S	2.65
24	2.70	2.60	2.55	2.55	2.60	2.65	2.55	2.75	I2.85A	I2.70A	2.75	2.50	2.55	2.45	2.60	2.55	2.75	2.75	2.90	2.60	2.65	2.60	U2.55S	2.85
25	2.65	2.55	2.55	2.45	2.50	2.50	2.45	2.45	I2.55A	2.45	2.50	2.70	2.55	2.55	2.75	I2.70A	2.60	2.80	2.80	I2.70A	2.55	2.65	2.70	2.70
26	2.55	2.55	2.60	2.65	2.70	2.70	2.60	2.60	2.95	2.85	2.85	2.45	2.75	2.80	2.60	2.85	2.85	2.80	2.75	2.85	2.90	2.80	2.70	2.55
27	2.55	2.60	2.60	2.65	2.65	2.80	2.80	3.00	2.80	2.70	2.75	2.65	2.60	I2.65A	2.65	2.70	3.00	3.00	I2.90S	2.85	2.75	I2.75S	I2.70S	U2.70S
28	2.65	2.65	2.60	2.60	2.65	2.70	3.00	2.85	3.10	I2.80A	3.00	2.85	2.80	2.80	2.85	2.85	2.85	2.85	2.85	2.80	I2.80S	I2.80S	S	S
29	S	S	S	2.75	2.90	3.00	2.95	2.80	C	C	C	C	C	C	C	C	C	2.70	2.85	2.70	2.75	I2.70S	2.75	2.65
30	2.50	2.55	2.40	2.50	2.50	2.55	2.60	2.65	I2.80A	2.20	2.45	W	2.45	2.65	2.75	2.95	2.85	2.75	I2.80A	A	A	S	S	U2.65S
31	2.60	U2.55	2.75	2.70	2.60	2.55	2.70	I2.55A	2.55	2.30	2.45	W	2.25	W	2.20	I2.50A	2.60	2.65	2.70	2.70	2.60	2.55	2.55	2.55
No.	25	26	26	27	27	28	28	28	28	26	25	24	25	27	27	27	25	27	27	27	26	26	24	26
Median	2.60	2.60	2.65	2.65	2.65	2.70	2.70	2.70	2.70	2.70	2.70	2.65	2.65	2.65	2.75	2.80	2.80	2.80	2.85	2.80	2.70	2.70	2.65	2.65

(M3000)F2 Sweep 1.0 Mc to 20.7 Mc in 1 min sec in automatic operation.

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

May. 1960

(M3000)F1

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						2.65	2.85	3.35^{H}	3.40	3.40	3.20^{H}	3.35^{R}	I 3.35^{A}	3.45	3.30	I 3.10^{L}	L	L						
2							3.40	3.30	3.30	C	C	C	C	C	C	C	C	C						
3							C	C	C	C	C	C	C	C	C	C	C	C						
4							C	C	C	C	C	C	L	L	L	L		L						
5							L	I 3.25^{L}	3.50	I 3.45^{L}	3.40	3.40	L	L	L	L								
6								L	L	L	L	L	L	3.30	I 3.30^{L}	I 3.25^{L}	L	L						
7						3.05	A	L	L	A	A		3.30	3.30	3.00	A	A	A						
8								L	L			I 3.40^{L}	I 3.45^{A}	I 3.45^{L}	3.40	L	L	L						
9							3.10	3.00	A	A	A	A	A	3.30	3.25	A	L	L						
10						2.95	I 3.20^{A}	3.50	I 3.50^{A}	3.60	3.75	3.75	3.45	3.55	3.25	3.15	3.10	L						
11						3.00	3.35	A	A	A	A	3.70	3.60	3.40	3.25	3.10	A	A						
12							2.90	A	A	A	3.65	3.40	3.25	3.40	A	A	A	L						
13							L	3.25	3.20	I 3.30^{L}	I 3.35^{L}	3.40	3.35	3.40	3.30	B	L							
14								L	L	L	I 3.25^{L}	3.45	I 3.40^{LH}	3.30	I 3.30^{L}	L	L	L						
15								L	L		I 3.55^{L}	I 3.45^{L}	I 3.40^{L}	3.40		L		L						
16							L	L	3.10	I 3.30^{A}	I 3.30^{A}	I 3.30^{L}	3.45	3.35	3.30	L	L	L						
17							2.95	3.15	I 3.40^{A}	A	A	A	A	C	A	3.00	C	C						
18							C	C	3.40	I 3.30^{A}	3.40	3.30	3.50	3.20^{H}	3.30	3.20	A							
19							A	A	A	C	C	C	C	C	C	C	A	A						
20								A	A	A	A	A	3.40	3.35	3.25	3.35	L							
21								3.25	I 3.25^{A}	I 3.25^{A}	3.25	I 3.30^{L}	3.35	3.30	3.35	I 3.35^{L}	A	L						
22								L	A	3.40	3.40	3.30	3.35	I 3.35^{L}	3.40	A	A	A						
23							A	A	A	A	L	3.45	3.20	3.35	3.15	3.05	L							
24							3.15	A	A	A	I 3.30^{A}	3.20	3.30	3.20	3.25	3.20	3.20	A						
25					L	3.25	I 3.35^{A}	3.45	A	A	A	3.40	3.25	3.25	3.30	I 3.25^{A}	3.20	L						
26							A	A	A	L	L	L	3.40	3.30	3.20	3.20	L	L	L					
27							L	I 3.30^{L}	3.40	3.35	I 3.50^{A}	3.25	3.25	I 3.35^{A}	I 3.35^{A}	I 3.30^{L}	3.50	L						
28						L	L	A	A	A	A	A	3.35	I 3.25^{L}	3.40	L	L	L						
29								L	C	C	C	C	C	C	C	C	C	L	L					
30						3.20	3.20	I 3.30^{A}	I 3.50^{A}	I 3.65^{A}	I 3.50^{A}	I 3.40^{A}	3.20	I 3.20^{L}	3.35	3.30	L	L						
31						A	A	A	A	I 3.60^{A}	3.70	3.55	3.50	3.45	3.40	A	A							
No.						6	10	11	11	11	15	19	22	24	22	14	4							
Median						3.00	3.20	3.30	3.40	U 3.40	3.40	3.40	3.35	3.35	3.30	3.20	3.20							

(M3000)F1

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

The Radio Research Laboratories, Japan.

W 8

IONOSPHERIC DATA

May. 1960 | 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						W	W	W	W	660	W	R	A	W	500	I 515 L	L	L						
2							320	370	390	C	C	C	C	C	C	C	C	C						
3							C	C	C	C	C	C	C	C	C	C	C	C						
4							C	C	C	C	C	C	L	I 340 L	I 320 L	L		L						
5							L	I 340 LH	300	I 345 L	360	320	I 310 L	I 340 L	310	L								
6								265	290	I 300 L	325	I 325 L	340	310	310	I 330 L	L	L						
7						470	I 450 A	I 460 L	470	I 420 R	420		520	450	465	420	370	A						
8								L	315			400 L	350	320	315	L	L	L						
9							550	445	500	560	A	A	A	W	600	I 465 A	I 415 L	360 L						
10						525	560	650	640	720	W	W	W	W	610	455	385	L						
11						485	505	485	I 515 A	I 560 A	I 620 A	595	W	610	515	450	490	I 390 A						
12							535	I 550 A	I 550 A	555	W	590	685	640	500	A	A	L						
13							L	350	385	I 360 L	I 375 L	375	350	350	330	I 330 B	310							
14								L	I 315 L	320	I 350 L	335	I 340 L	350	I 340 L	L	L	L						
15								L	295		300	350	315	320		L		L						
16							310	360	360	370	380	I 400 L	360	370	360	L	L	L						
17							445	360	360	I 380 A	I 430 A	465	I 475 A	435	435	380	C	C						
18							C	C	410	470	440	500	415	430	355	345	A							
19							I 340 A	345	I 435 A	C	C	C	C	C	C	C	A	A						
20								A	A	A	A	I 330 A	340	330	330	330	L							
21								340	340	320	350	340	400	360	340	I 330 L	310	300						
22								275	I 310 A	360	365	360	390	380	360	325	A	A						
23							A	315	310	310	I 360 L	425	360	330	355	325	I 325 L							
24							365	350	I 365 A	I 410 A	390	500	430	500	410	390	350	A						
25					L	400	410	460	I 520 A	520	520	420	500	500	420	I 410 A	425	I 345 L						
26							420	430	340	I 355 L	I 390 L	I 430 L	395	390	450	340	L	L	L					
27							L	280	340	375	360	375	350	I 350 A	I 330 A	I 310 L	280	L						
28						L	380	350	290	I 345 A	325	360	360	I 355 L	360	I 340 L	340	L						
29								L	C	C	C	C	C	C	C	C	C	L	L					
30						385	435	465	I 560 A	665	575	W	525	I 420 L	400	335	L	L						
31						370	I 420 A	I 465 A	I 520 A	595	550	W	660	W	680	I 535 A	I 460 A	420						
No.						7	16	23	27	23	23	23	24	27	26	20	12	5						
Median						470	430	360	365	380	390	400	390	380	360	340	360	360						

h'F2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

May. 1960 | h'F | 135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	410	435	420	520	475	420	335	265H	250	245	250H	240	I245A	230	250	250	240	260	280	300	310	285	290	290
2	280	290	270	260	310	285	260	250	220	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	220	220	240	235	245	245	265	275	290	250	270	275
5	300	295	290	260	265	260	245	250	225	225	215	220	205	220	230	250	280A	270	260	240	250	270	260	280
6	300	305	275	250	260	245	250	250	235	225	225	220	215	215	250	240	250	260	265	260	265A	270	275	310
7	340	320	300	295	320	295	I270A	240	A	A	A	250	260	265	265	A	A	A	A	A	A	275A	320A	350
8	360	315	270A	I295A	295	250	245	240	260	270A	260H	260	I260A	270A	225	260	250	255	290	260	250	240	320	325A
9	300	340A	390A	325	350	345A	290	A	A	A	A	A	A	230	265	A	A	A	285	285	270	310	310	300
10	315	290	270	270	310	325	I270A	250	I250A	230	210	210	225	230	225	245	250	290	270	300A	295	305	315	310
11	310	275	260	260	345	275	280	A	A	A	A	220	220	220	230	280	A	A	A	280A	I300A	300	285	350
12	320	300	295	240	290	290	315	A	A	A	230	275B	250	270	A	A	A	260	275	I290A	I305A	320	I300A	300
13	305	305	270	280	320	285	255	235	235	I250C	235	230	225	230	230	I235B	270	270H	275	270A	280A	305	305	300
14	300	340	310	300	295	245	240	245	260	280A	240	250	210H	240	230	230	235	260	260	250	245	280	300	295
15	300	280	260	270	270	255	240	240	240	I260A	240	270A	250	250B	260B	230	250	250	265	270	280	270	290	315
16	300	250	250	270	275	260	255	260	285	I255A	I245A	I235A	230	220	225	235	250	250	275A	270	295	275	270	290
17	300	285	345	325	310	270H	275	270A	I270A	A	A	A	A	C	A	250	C	C	C	C	C	C	C	C
18	C	C	C	C	C	C	C	C	245	I240A	220	260A	230	225H	230	240	A	A	A	A	270	290	295	300
19	I300A	290	270	270	290	270	I275A	I295A	A	C	C	C	C	C	C	C	A	A	A	A	A	275A	270	290A
20	I330A	325	330A	I300A	280	260	245	A	A	A	A	A	250	250	230	230	250	280	275	I265A	265	270	260	285
21	300	290	275	250	260	245	230	250	I260A	I250A	245	220	225	230	220	245	I260A	A	A	A	I270A	250	295A	290
22	285	295	280	260	260	240	240	240	I235A	I230A	215	220	220	245	260A	A	A	A	A	250	I260A	I365A	260	245
23	255	270	290	290	285	260	I250A	A	A	A	A	240	260	260	240	235	A	A	A	275A	260	250	260	280
24	285	295	305	300	285	250	250	A	A	A	A	260A	250	235	230	250	250	A	A	A	285	290	320	275
25	275	305	315	290	320	290	I250A	250	A	A	A	240	235	245	260	I255A	260	255	290A	I275A	310	280	290	270
26	320	295	280	310	320	I290A	I265A	A	A	A	225	225	220	225	235	235	250	I250A	290	I280A	270A	260	280	295
27	295	285	295	300	260	250	255	230	A	A	A	220	250	I230A	I235A	230	240	280	I280A	270	I270A	I270A	260	280
28	290	295	300	295	275	260	250	I260A	A	A	A	A	220	225	260	235	245	260	295	A	A	A	250	290
29	300	295	275	260	260	240	250	245	C	C	C	C	C	C	C	C	C	270	275	I300A	305A	300A	275	270
30	310	310	340	340	315	275	260	I265A	I235A	I230A	I240A	I245A	275A	240	240	245	240	A	A	A	A	340	315	290
31	I310A	280	I350B	310	A	A	A	A	A	I225A	210	225	260A	225	250	A	A	A	A	300	I320A	310	300	310
No.	28	28	28	28	27	27	27	20	15	14	16	22	25	26	25	22	18	17	18	21	24	27	28	28
Median	300	295	290	290	290	260	255	250	245	U240	230	240	230	230	235	240	250	260	275	275	275	275	290	290

h'F

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

The Radio Research Laboratories, Japan.

W 10

IONOSPHERIC DATA

May. 1960 | h'Es | 135° E Mean Time (G.M.T.+ 9h.) | **Wakkanai** | Lat. 45° 23.6' N | Long. 141° 41.1' E

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

h'Es

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

The Radio Research Laboratories, Japan.

W 11

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

May. 1960

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			f	f	f				C				c3	c	l	l		l		f				
2					r		c	l.c	h l															
3																								
4															c	c	c	h	c	f	f5			
5							h	c		c							c	c2	c3	f		f3		
6					l		c	c	c	c	c						h	h	c	f	f3	f		
7					f	c	c4	c	c	c	c	l	l.c	c	c	c3	c2	h2	c2	f4	f6	f6	f2	
8		f2	f2	f7	f		l	h	c	c	c2	c	c2	c	l	l	l2	l3	l				f	f5
9	f	f4	f4	f6	f4	l3 c	c	c	c	c	c	c4	c2		h	h2 l	c l	c l	l	l				
10		f	f	f	c	c	c3	c	c	c							h	c	c	f	f		f2	
11							c	c	c3	c3	c2	c	l	l		h	h2	c2	c3	f2	f5			
12					r		c	c2	c3	c2	c	c	c	c	c3	l3	l2		c	f5	f2	f4		
13						l	h				c	c	c	c	l			h	c	f3	f3	f3	f2	
14	f	f4		f	f		c	c	c	c	c	c	l					l			f	f2	f	
15	f2	f	f	f	f	l			c	c		l	c					l	l.c	f	f.f			
16				f	f			l.c	c	c	c	c	c	l			l	c	c2	f	f4	f		
17	f	f	f	f	f2	l	c	c	c	c3	c3	c2	c2		h									f3
18									c	c	c	c	c		l		c	c3	c4	f5	f	f2		f
19	f3	f2		f		c	c	c2	c2								c2	c4	c4	f3	f3	f2	f2	
20	f2	f3	f3	f3	f			c	c2	c	c2	c2	c	c	l	l	l	c l	c l	f4	f	f2	f	f2
21	f2		f		l			h	c	c	c		c			c	c	c	l2	f4	f4	f	f3	
22				f	l		h	h	c4	c		c	l	l	l2	l2	c3 l3	c2 l2	l4	f2	f3	f3	f2	
23							c	c	c	c	c	c	c	l2			h	c l	c2	f2				
24			f	f		c	h	c	c2	c	c	c			l	l	l	l3	l5	f3		f		
25		f	f6	f3	f2	c	h	c	c	c	c				h	c2	c	l	l	c4	f2			
26					c	c	c	c	c	c	c	c	c				h	c	c	f2	f2	f2	f2	
27					h		c	h	c	c2	c			l2	l2	l		c	c2	f3	f2	f2		
28			f				c	c2	c	c2	c2	c	c	l	l	l	l	h	c	f3	f2	f4	f3	
29	f4						c	c2										l	l2	f4	f3	f2	f2	
30	f							h	c2	c	c	c	c	c	c			c	c4	f3	f2	f	f3	f2
31	f2	f	f2	f4	c5	c	c2	c3	c3	c			c			c2	c2	c	c2	f2	f6	f2		f
No.																								
Median																								

Types of Es

Sweep 1.0 Mc to 20.1 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

May. 1960 | 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	5.3F	5.0F	4.5F	2.5F	2.7	4.0	G	G	G	G	G	G	G	G	5.6R	5.5	5.4	5.8	6.1	6.3	6.9	7.1	7.1	7.0
2	6.9	6.5	6.1	5.7	5.4	6.7	7.1	7.6	8.4	10.1	9.8	C	C	C	C	C	C	C	C	C	C	7.8	C	C
3	7.8	7.1	6.8	6.3	6.2F	7.5	8.7	9.6	9.4	9.3H	10.3	10.8	U11.3R	11.6	11.8	11.1	10.7	11.0	10.4	9.6	8.7	8.8	I8.8R S	8.7
4	8.7	8.1	7.7	7.6	7.4	8.1	8.6	7.6	7.9	8.8	10.1	10.0	11.0	11.0	11.0	10.5	10.1	9.2	9.5	9.6	8.8	8.6	8.2	7.8
5	7.6	7.4	7.6	7.0	6.4	6.8	8.0	9.1	8.5	8.3	9.0	10.5	10.6	10.6	10.6	10.7	9.5	9.6	9.3	9.3	8.5	7.9	7.5	7.4
6	7.2	7.0	7.2	7.0	5.6	6.6	8.8	9.4	8.6	8.9	9.5	9.8	10.3	10.6	10.9	10.2	10.0	9.9	10.0	10.1	9.7S	8.5	7.7S	7.9
7	7.6	7.9	7.6	6.8	6.1	6.0	7.1	7.3	I6.1A	6.7	7.0	7.0	7.0	6.6	7.5	7.9	7.7	8.1	8.3	J8.3A	7.6F	6.6F	6.4F	6.5
8	6.6F	6.9F	I6.9F	6.0F	I5.6F	6.1	7.6F	8.6	8.5	8.5	8.8H	9.7	10.6	J11.3R	11.2	10.2	10.0	10.5	10.5	11.3	10.0	8.1	8.0	8.5
9	8.1	7.9	6.4	5.4	I4.6A	5.6	6.4	7.3	I7.0F	5.6F	5.7	6.0	I5.8B	5.8	5.8	6.1	6.5	6.8	7.1	6.8	6.8S	6.9S	6.9	7.0
10	6.6	6.2	6.2	5.6F	4.9	4.4	4.9	5.1	I5.2A	G	5.4	5.3	5.4	5.5	6.0	6.2	6.5	6.4	6.7	6.4	6.5	6.9	7.0	6.8
11	6.4	6.4	5.9	5.2	5.1	5.0	5.5	6.1	5.9	I5.4A	I5.4A	I5.6A	6.0	6.0	6.5	6.9	I6.6A	I7.4A	6.8	7.1	I6.5A	6.1	6.0	5.4
12	5.5	5.6	5.5	5.1	5.4	6.9F	J7.2F	5.6	5.7	6.1	I6.2A	6.7H	6.4	6.7	7.4	7.5	7.5	7.9	8.2	8.5	7.4S	A	AF	F
13	6.5F	6.1F	I5.8F	I5.4F	5.4	6.2	8.4	8.5	8.5	9.0	9.5	10.4	11.0	11.1	11.1	I11.0B	10.4	10.0	9.7	9.1	8.0	8.1	8.2	8.2F
14	7.7	7.5	7.3	7.5	7.9	8.7	8.7	9.2	8.9	9.3	9.7	10.9	U11.3R	11.8	12.0	12.0	11.3	11.5	10.7	10.3	9.1	8.6	8.9	8.5
15	8.3	8.4	8.0	7.3	7.2	8.0	9.3	9.9	10.5	10.7	11.1	11.6	11.5	12.1	11.9	10.7	10.1	9.9	9.9	10.2	10.0	9.1	9.0	9.0
16	9.1	9.6	8.3	7.3	7.3	7.9	8.6	9.2	9.1	8.9	8.7	9.3	9.6	9.5	9.5	9.6	8.6	8.4	8.4	8.7	8.2	8.1	8.0	7.8
17	7.4	7.1	6.1	6.2	6.5	6.8	7.5	8.5	C	C	C	A	I7.3A	7.6	I7.8A	7.6	I7.4A	I7.0A	7.1	I7.0A	7.0F	7.4	7.5	7.4
18	7.1	7.3	6.7	6.4	6.4	7.3	8.3	8.1	7.3	6.8	7.0	7.1	7.5	7.8	8.2	7.9	8.0	7.7	8.5	7.6	7.2F	7.4F	7.3	7.0F
19	7.1F	I6.7F	6.2	5.9	5.8F	6.8	8.0	8.1	7.2	7.2	7.5	7.4	7.6	I8.2A	8.6	8.8	8.0	8.1	8.8	I8.0A	A F	A	F	F
20	6.8	6.4	I6.4F	6.5F	6.6	7.5	8.1	8.9	9.5	10.3	U10.6R	10.3	10.6	10.8	J11.1R	10.5	10.1	10.3	10.8	9.9	7.8	8.0	8.0	7.9
21	7.5	7.4	7.0	6.6	6.6	7.3	8.0	9.2	9.1	8.6	8.5	8.6H	8.6	9.5	9.7	10.0	9.8	9.8	9.1	9.1	8.4	7.6	7.7	J8.0F
22	I7.8F	I7.5F	7.3	7.1	7.1	8.0F	8.5	9.1	8.3	8.3	9.0	8.9	9.3	9.4	U9.5R	9.3	9.5	8.9	9.0	8.9	8.8	8.5	8.0F	F
23	F	F	F	F	F	7.8E	8.7	8.9	8.9	8.1	8.5	8.2	8.9	9.3	9.4	9.0	8.6	8.6	9.0	9.4S	8.1S	I8.6F	I8.4F	8.0F
24	7.8	7.1	6.6F	6.5	6.3F	7.6	8.6	8.3	7.8	7.3	7.9	8.1	7.9	7.8	8.7	9.3	9.7	8.7	7.9	6.9	8.0S	7.7S	7.7S	8.3S
25	7.6	7.6	7.3S	6.6	5.9	6.6F	6.8	6.2	6.0	6.3	6.5	I6.8A	6.8	6.6	6.7	6.7	6.6	7.0	6.9	7.1	7.1	I7.4A	7.1	7.1S
26	6.5	6.4	6.1	6.0	5.6F	5.9	I6.1A	7.0	6.9H	6.8	I5.9A	6.5	7.3	7.1	7.1	7.7	7.1	7.5	7.7	8.7	8.7	7.7S	7.6S	7.6
27	7.7S	7.4S	7.1F	6.7F	7.1F	8.2F	9.6	10.1	9.5	9.4	9.3	10.1	11.1	11.3	11.3	11.6	10.3	9.3	8.9	8.7	8.8	8.6	8.5F	8.6S
28	8.3	7.7	7.6S	7.4	7.6	8.5	8.5	8.5H	7.8	7.6	7.9	7.8	8.5	8.6	8.6	8.9	9.0	9.3	I9.3A	9.1F	I9.4F	9.2F	I9.2F	I9.1F
29	I9.1F	8.6F	8.2F	8.0F	8.4F	8.9	9.4	8.9	8.6	10.3	9.9	U10.1R	9.5R	U11.5R	12.2	10.6	9.8	9.5	9.5	I9.4R	9.1	8.8	8.6	8.5F
30	7.8F	7.7F	I7.4F	I6.9F	7.0F	U8.2R	6.8	6.0	I6.0A	I6.0A	I6.2A	I7.0A	7.4	8.5	8.6	8.5	8.4	8.0	8.6	8.6	8.2	7.8S	8.6	8.4
31	7.7	7.7	6.2	6.0	6.7	7.6	7.1	A	A	A	A	5.4	5.5	5.5	5.5	5.4	5.5	6.1	6.2	6.4	6.7	6.9	6.7F	7.0F
No.	30	30	30	30	30	31	31	30	29	29	29	29	30	30	30	30	30	30	30	30	29	29	28	27
Median	7.6	7.3	6.8	6.5	6.4	7.3	8.1	8.5	8.3	8.3	8.5	8.2	8.6	9.0	9.0	9.3	8.8	8.6	8.8	8.7	8.2	8.0	7.8	7.9
U.Q	7.8	7.7	7.4	7.0	7.1	8.0	8.7	7.1	8.9	9.2	9.6	10.1	10.6	11.0	11.1	10.5	10.0	9.8	7.5	9.4	8.8	8.6	8.4	8.5
L.Q	6.8	6.5	6.2	5.9	5.6	6.2	7.1	7.3	6.5	6.5	6.4	6.8	7.0	6.7	7.4	7.6	7.4	7.5	7.7	7.1	7.2	7.4	7.4	7.0
Q.R	1.0	1.2	1.2	1.1	1.5	1.8	1.6	1.8	2.4	2.7	3.2	3.3	3.6	4.3	3.7	2.9	2.6	2.3	1.8	2.3	1.6	1.2	1.0	1.5

The Radio Research Laboratories, Japan.

foF2

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

A 1

21

IONOSPHERIC DATA

May. 1960 | 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							3.6	4.1	4.4	4.4	4.6	4.7H	4.6R	4.7R	I4.6A	4.7L	I4.5L	L						
2								L	L	L	5.5L	C	C	C	C	C	C							
3								L	L	L	L	L	I5.6L	I5.4L	L	L	L	A						
4								L	L	L	5.5	L	L	L	LH	L	LH							
5								L	A	L	L	L	L	A	L	L	L							
6							L	L	L	L	L	L	L	L	L	L	L	L						
7							4.5	A	A	A	I5.4A	I5.4A	I5.4A	I5.2L	5.1L	5.1L	4.7L	L						
8								L	L	A	L	5.8	I5.6L	I5.4L	L	L	L	L						
9							A	4.4	I4.5A	5.0	I5.0R	5.1	I5.1B	5.1	5.1	4.8	4.7L	L	A					
10						L	3.9	4.3	I4.5A	4.7	4.8	4.9	5.0R	5.0	5.1	5.0	4.6L	L	L					
11						L	4.0	I4.4A	4.8	A	A	A	I5.1R	5.1	5.3H	5.2L	A	A	A					
12							L	4.6	4.6	5.1	I5.0A	I5.2B	5.4	5.3	I5.3H	I4.9H	4.7H	L						
13							L	A	L	A	L	L	5.8L	I5.6L	5.2L	B	A	L						
14								L	L	L	L	L	L	I5.4L	I5.2H	I5.2L	L	L						
15								L	L	L	L	L	L	L	L	L	L	L						
16							L	L	5.0L	I5.4L	I5.6L	L	L	L	5.1L	A	L							
17							4.2	4.6	C	C	C	A	A	A	A	A	A	A	A					
18						L	A	A	5.0	5.2	5.2	5.4	5.3H	5.2	I5.0A	I4.8L	A	A						
19							A	A	A	A	5.2	A	A	A	A	5.0	A	A	A					
20									A	A	A	A	A	I5.2A	L	A	L	A						
21								L	L	L	A	A	5.3	5.4	5.3L	5.1L	L	L						
22								L	L	5.3	I5.4A	5.3L	I5.5L	I5.4A	I5.2A	5.0L	L							
23						L		A	A	A	5.6L	I5.4L	5.4L	I5.2A	I5.2A	L	A	A	A					
24							L	A	A	5.2	I5.2A	5.3	I5.4A	5.4	5.2	4.9	A	L	L					
25						I3.4A	4.3	A	A	A	A	A	A	5.2	I5.1A	I5.0A	4.7	L	L					
26							A	A	L	A	A	I5.3A	5.2	5.2	5.2	5.0	4.7L	L	L					
27							L	L	L	L	LH	5.8L	5.5	I5.6L	5.3L	L	A	L						
28							L	A	A	A	A	A	I5.6A	I5.7A	5.6L	L	A	A						
29						L	L	L	A	L	L	5.6	I5.6L	I5.6R	5.6H	L	L	L	L					
30						L	L	4.6	I4.9A	A	A	A	A	A	A	A	L	A						
31						A	A	A	A	A	A	I4.8A	5.0	5.1H	I4.8R	4.6	4.5	I4.4A	L					
No.						1	6	7	8	8	13	14	19	22	20	15	8	1						
Median						U3.4	4.1	4.4	4.7	5.2	5.2	5.3	5.4	U5.2	5.2	5.0	4.7	U4.4						

foF1

Sweep 1.60 Mc to 2.00 Mc in 20 min sec in automatic operation.

The Radio Research Laboratories, Japan.

A 2

IONOSPHERIC DATA

May. 1960 | foE | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						E	2.45^{H}	2.90	3.05	3.40	3.45	R	R	A	A	A	3.00	2.55	1.80					
2						B	2.55	2.95	3.20	3.55	3.80	C	C	C	C	C	C	C	C					
3						B	2.50	3.05	3.40	3.50	3.60	3.65	I 3.70^{R}	I 3.60^{B}	3.55	3.50	3.15	2.60	B					
4						1.90	2.60	3.05	3.30	3.55	3.70	I 3.80^{B}	I 3.80^{B}	3.85	3.55	3.40	3.10	A	2.05					
5						B	I 2.60^{R}	3.05	3.40	3.55	3.65	I 3.65^{B}	I 3.70^{B}	I 3.75^{A}	3.80	3.50	3.15	2.60	A					
6						R	2.55	3.05	3.35	3.50	3.60	R	R	A	3.50	A	R	A	A					
7						1.90	2.65	3.05	3.40	3.55	I 3.70^{R}	I 3.80^{R}	3.85	3.90	3.60	3.45	3.10	2.70	B					
8						A	2.55	3.00	3.30	3.50	3.55	A	A	A	A	R	I 3.15^{A}	2.70	A					
9						R	2.55	3.05	3.35	3.60	3.80	I 3.80^{R}	3.75	I 3.70^{R}	3.70	3.45	3.20	2.95	2.10					
10						1.95	2.70	3.00	3.40	3.60	3.65	3.80	B	R	R	3.45	3.05	2.70	A					
11						1.95	2.65	3.05	3.40	3.55	R	A	A	3.80	3.75	3.55	3.20	2.60	A					
12						R	2.70	I 2.95^{A}	I 3.50^{A}	A	A	A	3.95	I 3.80^{R}	3.70	3.55	3.40	2.75	2.05					
13						2.15	2.70	3.20	3.45	3.60	3.80	R	A	A	A	B	B	A	A					
14						R	2.60	3.05^{H}	3.50	A	A	A	A	A	A	A	I 3.15^{A}	2.80	1.95					
15						2.05	2.70	3.10	3.50	R	R	R	A	B	A	R	A	R	A					
16						A	2.60^{H}	I 3.10^{A}	3.50	I 3.70^{R}	3.85	3.75	I 3.75^{R}	A	A	A	A	A	A					
17						R	2.70	3.10	C	C	C	R	R	R	A	A	A	A	A					
18						1.85	2.60	3.05	3.40	3.60	3.70	I 3.70^{R}	R	A	A	R	3.20	A	A					
19						2.00	2.70	I 3.10^{A}	3.35	I 3.55^{A}	3.60	3.65	A	A	A	3.50	3.20	2.75	2.00					
20						1.95	2.75	3.10	3.55	3.65	3.70	R	A	A	A	A	A	A	A					
21						2.00	A	A	I 3.40^{A}	I 3.60^{A}	3.75	I 3.80^{A}	3.80	3.65	3.65	3.50	3.20	A	B					
22						I 2.10^{R}	2.60	3.05	3.45	I 3.55^{R}	3.55	3.70	B	A	A	3.45	3.15	2.75	A					
23						A	2.65	3.05	3.35	3.55	R	B	B	B	B	A	A	2.80	2.00					
24						2.00	2.65	3.10	3.45	I 3.55^{R}	3.60	B	B	A	A	A	A	A	A					
25						1.75	2.60	2.95	3.30	3.50	B	B	B	B	I 3.70^{B}	3.55	A	A	2.20					
26						A	2.65	3.00	3.45	3.70	3.75	I 3.80^{B}	3.90	I 3.80^{B}	3.70	3.45	3.30	2.85	A					
27						2.10	2.70	3.15	3.50	3.60	I 3.75^{R}	I 3.90^{R}	4.00	I 4.00^{R}	R	A	A	A	A					
28						2.10	2.80	3.20	3.45	3.75	3.80	R	R	A	A	A	A	A	2.15					
29						2.10	2.75	3.20	3.55	3.65	I 3.80^{B}	A	A	A	R	A	A	A	A					
30						2.05	2.85	3.10	3.50	3.65	3.80	3.90	I 3.85^{A}	I 3.75^{R}	3.55	3.45	I 3.20^{A}	2.80	A					
31						2.00	2.80	3.10	3.50	3.60	3.75	3.90	I 3.90^{R}	3.85	I 3.70^{R}	3.50	I 3.30^{R}	2.95	2.25					
No.						19	30	30	30	27	24	15	12	12	13	15	18	16	10					
Median						2.00	2.65	3.05	3.40	3.55	3.70	U 3.80	U 3.80	U 3.80	3.70	3.50	3.20	2.75	2.05					

foE

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

The Radio Research Laboratories, Japan.

A 3

23

IONOSPHERIC DATA

May. 1960 | 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	E	E	E	E	E	2.1	G	3.1	3.5	J4.4	4.1	G	G	4.6	J6.3	3.6	3.7	3.6	J3.2	J2.8	2.2	J2.6	E	J1.7
2	E	E	E	E	E	2.1	3.0	G	3.9	3.9	G	C	C	C	C	C	C	C	C	C	C	J1.9	C	C
3	E	E	E	E	E	2.2	3.0	3.5	3.9	3.9	4.0	4.2	G	B	G	4.0	J4.9	J5.0	J6.0	J3.7	J2.5	J2.4	J3.2	J1.7
4	J4.0	J2.1	E	E	E	G	G	3.5	4.3	J5.8Y	4.0	B	4.7	J5.0	4.2	4.4	3.5	J3.5	2.5	J2.7	J1.9	J6.0Y	J4.0	J1.7
5	E	E	E	E	J8.3Y	2.3	G	3.4	4.6	4.4	4.1	4.3	B	J8.1	J5.5	G	3.6	3.9	J8.1	J6.0	J6.0	J2.5	J1.8	2.1
6	E	E	2.2	2.1	E	G	3.1	3.4	4.1	4.7	J8.3Y	4.0	4.0	4.0	4.3	J4.7	G	2.6	J2.3	J3.8	J2.3	J4.5	J2.4	J1.9
7	E	2.1	E	E	E	2.4	3.1	J5.0	J7.3	J5.7	5.2	J5.3	J8.9	J8.4	4.2	4.2	3.5	3.9	J3.5	J8.7	J2.4	J6.1	J2.5	J4.3
8	J4.3	J1.8	E	J2.3	J2.3	J2.8	G	3.6	4.8	J5.6	J5.0	J7.8	J4.8	J6.7	J3.8	G	J3.9	3.1	J3.4	E	J2.8	2.1	E	E
9	J5.0	J1.8	E	J4.3	J4.9	J3.8	J5.8	3.7	J4.8	4.8	4.5	4.6	5.2	4.6	4.1	4.9	3.9	J4.0	J3.9	J3.5	J6.3	4.3	J2.4	J2.2
10	J2.5	2.1	2.1	2.1	2.0	2.2	3.5	4.0	J6.0	4.2	4.5	J8.9Y	4.0	G	G	G	3.5	3.4	J4.8	J7.9	J3.8	J6.0	J4.3	J2.1
11	2.3	E	J1.9	J2.1	E	G	G	4.5	J6.2	J5.4	J7.8	J7.8	4.4	4.1	4.0	4.4	J6.9	J9.8	J5.1	J5.8	J13.8	J13.8	J6.5	2.2
12	2.2	J2.8	J1.8	J3.0	J4.5	2.4	3.5	J7.2	J5.0	J4.7	J7.8	J3.8	4.3	G	G	G	G	G	3.1	J2.8	J4.3	J8.5	J8.3	J2.8
13	2.3	E	E	2.2	J2.3	G	2.9	J5.0	J7.3	J5.4	4.7	J5.5	J4.8	4.1	4.4	B	J6.5	3.9	4.2	J4.5	J18.0Y	J9.4	J3.9	J4.6
14	E	J3.5	2.1	2.2	E	G	3.5	4.2	J4.5	J4.5	4.4	4.7Y	J7.8	J5.1	4.1	4.0	J3.4	G	2.6	E	2.1	E	J1.8	J5.0
15	J3.8	J3.3	J2.4	2.0	2.2	G	G	3.6	3.9	G	G	G	3.9	B	4.0	3.5	3.5	G	J3.3	J2.8	J2.0	J3.1	J4.1	J1.9
16	E	E	2.3	J3.1	J2.4	J2.3	3.1	3.8	4.2	J5.0	J5.9	4.1	4.6	J4.7	J4.9Y	J6.0	J5.7	J4.1	J3.5	J3.8	J6.1	J3.4	J3.0	J2.0
17	2.2	E	E	E	E	G	3.6	J4.6	C	C	C	J6.8	J6.7	J6.0	J13.3	J14.0	J11.2	J9.7	J9.8	J7.3	J7.8	J3.8	J2.8	2.1
18	2.2	J3.0	J1.8	J3.4	2.2	3.0	4.0	J5.3	4.7	4.5	4.5	4.2	4.0	4.0	J7.6	J11.6Y	J9.3	J7.4	J3.4	J3.5	J18.0	J11.8	J8.3	J6.0
19	J6.0	J4.6	J3.4	J2.8	J2.3	2.7	J5.8	J7.1	J7.0	J7.0	J5.4	J3.8	J11.9	J9.5	J7.8	4.9	J5.8	J5.3	J5.0	J14.3	D20.0D	J14.0Y	J4.2	J6.3
20	J6.3	J2.4	J5.3	J2.8	2.1	G	3.8	4.9	J6.3	J6.5	J7.1	J9.0	J6.3	J8.6	J5.0	J6.1	J4.3	J4.8	J8.8	J4.4	J3.8	J3.2	J4.8	J3.2
21	J2.8	2.1	J2.1	E	2.2	2.5	J3.4	J3.3	4.2	5.0	J6.3	6.8	J5.3	5.0	4.6	4.5	J4.0	J4.8	J3.8	J3.8	J3.3	J6.0	J6.2	J4.7
22	J3.9	J2.4	2.1	J1.8	2.1	G	J4.3	3.9	J4.4	4.8	J6.4	J5.1	4.4	J7.5	J12.0	4.2	4.0	J4.1	J4.4	J8.5	J8.3	J11.8Y	J8.4	J8.3
23	J6.1	J2.8	J2.4	J5.0	J4.9	3.3	J4.3	J7.4	J6.5	J5.9	4.7	4.2	4.4	J5.5	J5.9	J3.7	J6.1	J5.9	J4.9	J6.5	J6.3	J5.0	J2.3	2.2
24	2.3	J2.0	J2.3	2.3	E	G	J4.1	J5.5	J6.4	J4.9	J6.4	4.0	J8.9	J4.6	J4.0	J5.1	J6.5	J4.9	J4.0	J5.2	J3.0	2.5	2.3	2.0
25	2.3	2.1	2.2	2.2	J6.0	J5.2	3.8	J4.6	J5.2	J5.1	J5.6	J10.3	J10.7Y	4.4	J5.5	J5.0	3.4	J3.2	G	J2.8	J5.3	J8.5	J2.0	2.2
26	J4.4	E	J3.3	E	J13.6	J4.4	J7.1	J6.5	J5.2	J5.2	J6.6	J5.0	J5.8	4.3	4.4	3.7	3.8	J4.8	2.3	2.0	J3.7	E	J3.6	2.2
27	J2.2	J1.8	E	2.0	E	G	3.2	3.9	3.9	4.2	4.6	4.3	G	G	G	3.7	J6.0	3.8	J4.2	J5.0	J3.6	J6.0	J7.5	J5.2
28	E	E	J2.0	E	J3.2	2.6	3.4	J5.3	J5.8	J5.7	J7.0	J6.6	J5.8	J6.8	J5.1	J4.7	J6.1	J15.9	D20.0D	J16.0	J7.8	J6.0	J7.1	J6.0
29	J3.6	J2.9	J4.0	J2.8	J1.8	2.7	J4.5	4.6	J7.2	J5.0	4.5	J5.3	4.4	4.1	G	J5.9	J3.9	J3.7	J4.3	J8.2	J3.5	J4.6	J10.8Y	J6.0
30	J2.4	J3.3	J2.3	2.0	2.3	G	G	4.0	J5.9	J6.0	J7.8	J9.0	J7.4	J5.4	J7.8	J5.1	J5.4	J5.5	J4.4	J2.3	J3.6	J4.1	J4.0	J5.3
31	J5.0	J3.6	2.3	E	2.1	J4.3	J6.8	J7.8	J8.5	J8.5	J5.4	J4.9	4.1	G	G	G	3.9	J4.4	J3.5	J3.8	J5.0	J6.2	J3.4	J1.8
No.	31	31	31	31	31	31	31	31	30	30	30	29	29	28	30	29	30	30	30	30	30	31	30	30
Median	2.3	2.1	2.1	2.1	2.1	2.2	3.4	4.2	4.9	5.0	5.1	5.0	4.7	4.6	4.4	4.4	4.0	4.0	4.0	3.8	3.8	4.6	3.7	2.2
UQ	4.0	2.8	2.3	2.8	2.4	2.7	4.1	5.3	6.3	5.7	6.4	7.3	6.5	6.4	5.5	5.0	6.0	5.0	4.9	6.0	6.3	6.2	6.2	5.0
LQ	E	E	E	E	E	E	2.9	3.6	4.2	4.5	4.5	4.2	4.0	4.1	4.0	3.6	3.5	3.5	3.3	2.8	2.8	2.6	2.4	2.0
QR							1.2	1.7	2.1	1.7	1.9	3.1	2.5	2.3	1.5	1.4	2.5	1.5	1.6	3.2	3.5	3.6	3.8	3.0

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | 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						2.1		3.1	3.5	4.0	4.1			4.5	5.1	3.5	3.1	3.5	3.0	2.7	E	2.5		E
2						2.0	2.8		3.8	3.9		C	C	C	C	C	C	C	C	C	C	E	C	C
3						2.2	G	3.5	3.8	U3.9B	4.0	4.2		B		4.0	4.1	5.0	6.0	2.0	1.9	1.9	3.1	E
4	3.0	2.1						3.5	4.0	G	4.0	B	4.7	4.9	4.1	3.5	3.5	3.1	2.4	2.5	1.8	2.3	2.3	E
5					E	2.0		3.4	4.6	4.3	4.1	4.3	B	7.0	4.8		3.6	3.5	3.0	5.3	4.0	2.5	E	E
6			E	E			2.8	3.4	3.9	4.7	G	4.0	U4.0B	4.0	4.2	4.1		U2.6B	2.1	3.5	2.1	2.4	2.0	E
7		E				2.3	3.0	4.9	A	5.7	5.2	5.2	5.2	5.1	4.2	4.2	3.5	3.5	3.3	8.0	E	E	2.5	3.3
8	3.5	E		E	E	G		3.5	4.7	5.5	4.3	4.3	4.6	4.0	3.8		3.8	3.0	2.9		E	E		
9	2.5	E		4.0	A	3.4	5.4	3.5	4.6	4.6	4.4	4.4	4.9	4.5	G	3.9	3.7	3.7	3.9	3.2	6.0	3.5	E	E
10	E	E	E	E	E	2.2	3.2	3.9	A	4.2	4.5	G	U4.0B				3.5	2.9	2.5	2.2	3.8	2.8	2.5	1.7
11	E		E	E				4.4	3.8	A	A	A	4.2	4.1	U4.0B	4.0	A	A	U5.1B	5.5	A	2.6	3.9	E
12	E	E	E	E	4.1	2.0	3.4	4.4	4.4	4.1	A	E3.8B	4.3						2.9	2.5	4.2	A	E	E
13	E			E	E		G	4.7	5.5	5.4	4.7	5.5	4.8	4.1	4.3	B	6.2	3.5	4.0	4.3	4.5	3.1	E	2.8
14		2.3	E	E			3.0	3.9	4.5	4.4	4.4	4.6	5.8	5.1	4.0	3.6	3.3		2.5		E		E	E
15	2.9	2.1	2.2	E	E			3.5	3.8				U3.9B	B	E4.0B	E3.5B	3.5		3.0	2.5	1.8	2.7	E	E
16			E	2.0	1.8	2.3	3.0	3.7	4.2	4.1	5.2	4.1	4.6	4.7	4.0	5.1	3.5	4.0	3.4	3.5	3.0	2.3	E	E
17	E						3.6	4.1	C	C	C	A	5.5	5.3	A	7.1	A	A	6.2	A	5.5	E	2.6	E
18	E	E	E	2.0	E	3.0	4.0	4.9	4.5	4.5	4.5	4.2	4.0	4.0	6.0	4.0	7.3	5.6	3.1	3.0	3.0	5.4	6.0	2.5
19	3.8	3.8	3.0	2.5	1.8	2.4	5.5	6.0	6.0	5.1	5.0	6.9	6.8	A	5.9	4.9	5.2	5.2	4.2	A	2.0	A	3.0	2.1
20	E	2.0	2.9	E	E		3.5	4.6	6.0	6.2	6.8	7.0	5.9	7.2	4.5	5.0	4.3	4.6	7.7	2.9	3.4	2.5	2.5	2.1
21	2.0	E	E		E	2.3	3.3	3.3	4.0	4.7	5.6	5.7	5.2	4.9	4.6	4.4	3.8	3.0	2.7	3.7	3.1	5.4	3.0	4.0
22	3.5	1.7	E	E	E		G	3.4	4.0	4.8	5.8	4.7	4.4	7.3	8.9	4.0	3.9	4.1	4.4	7.0	5.0	3.0	3.5	5.0
23	3.3	E	E	1.8	2.5	2.1	3.4	7.0	6.4	5.7	4.7	4.2	4.3	5.4	5.2	G	5.9	5.8	4.9	6.0	2.5	E	E	E
24	E	E	E	E			3.5	4.9	5.7	4.5	5.5	U4.1B	6.5	4.5	4.0	4.0	5.0	3.8	3.3	4.5	3.0	E	E	E
25	E	E	E	E	E	5.0	3.7	4.6	5.0	5.1	U5.6B	A	6.6	4.4	5.5	5.0	3.4	3.2		2.8	5.3	A	E	E
26	E		E		E	4.1	A	6.2	4.4	5.2	A	U5.0B	5.0	4.1	4.0	3.7	G	3.4	2.3	E	1.9		2.0	E
27	1.8	E		E			G	G	G	4.0	4.4	4.3				U3.7B	5.2	3.2	3.7	2.4	2.0	3.5	3.0	E
28			E		E	G	G	5.1	5.3	5.3	7.0	6.6	5.7	6.1	4.7	4.5	5.7	6.3	A	5.5	5.0	E	E	E
29	E	E	E	E	E	2.7	G	4.5	7.0	5.0	4.5	5.1	4.4	U4.1B		4.7	3.9	3.6	3.1	A	3.1	3.0	3.5	E
30	E	2.4	E	E	E			3.5	A	A	A	A	6.0	U6.4B	7.8	5.0	4.4	4.1	3.5	2.2	3.5	E4.1S	E4.0S	5.0
31	3.0	3.3	E		1.8	4.0	5.8	A	A	A	A	U4.9B	4.1				3.6	4.4	2.8	3.3	4.5	1.8	E	E
No.	22	20	20	20	20	19	24	30	30	29	28	27	26	24	24	24	28	27	29	28	30	28	27	29
Median	E	E	E	E	E	2.3	3.2	4.0	4.6	4.7	4.8	4.7	4.8	4.8	4.4	4.0	3.8	3.7	3.3	3.4	3.0	2.5	2.0	E

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960

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	E	1.70	1.70	2.00	2.50	3.00	3.30	3.05	3.30	2.00	1.95	1.75	1.65	1.70	E	E	E	E	E
2	E	E	E	E	E	1.70	1.65	1.70	1.70	1.80	2.70	C	C	C	C	C	C	C	C	E	C	E	C	C
3	E	E	E	E	E	1.75	1.75	1.80	1.80	3.05	2.80	3.45	2.65	4.00	2.00	2.40	1.90	2.00	1.70	E	E	E	E	E
4	E	E	E	E	E	E	1.70	1.75	1.80	2.00	3.05	4.10	4.00	2.50	2.60	1.75	1.70	1.70	E	E	E	E	E	E
5	E	E	E	E	E	1.75	1.75	1.75	2.00	2.05	3.00	3.75	4.20	3.50	2.70	2.20	2.00	1.75	1.65	E	E	E	E	E
6	E	E	E	E	E	E	1.70	1.70	1.95	1.80	3.05	3.00	1.95	2.80	2.30	2.50	1.65	1.65	E	E	E	E	E	E
7	E	E	E	E	E	E	1.70	1.80	1.70	1.75	2.10	2.90	2.80	2.20	2.40	1.80	1.75	1.65	1.75	E	E	E	E	E
8	E	E	E	E	E	E	1.70	1.70	1.90	2.00	2.45	2.80	3.25	3.00	2.40	2.70	1.80	1.65	E	E	E	E	E	E
9	E	E	E	E	E	E	1.65	1.75	2.00	2.00	2.30	2.20	3.00	2.70	1.90	1.75	1.75	1.90	1.70	E	E	E	E	E
10	E	E	E	E	E	1.70	1.70	1.70	1.75	1.95	1.70	2.80	3.80	3.00	3.00	2.55	1.75	1.70	E	E	E	E	E	E
11	E	E	E	E	E	1.70	1.75	1.70	1.80	2.00	2.00	3.55	3.50	3.05	3.05	1.75	1.95	1.75	1.65	E	E	E	E	E
12	E	E	E	E	E	1.65	1.70	1.90	1.95	2.30	3.00	2.50	2.90	2.00	2.50	1.90	1.95	1.75	1.75	E	E	E	E	E
13	E	E	E	E	E	1.70	1.70	1.75	1.90	3.55	2.50	3.00	3.50	3.50	3.05	B	3.80	2.70	1.65	1.65	E	E	E	E
14	E	E	E	E	E	E	1.65	1.70	1.85	1.95	3.45	2.50	2.75	3.50	2.70	1.95	1.75	1.70	1.65	E	E	E	E	E
15	E	E	E	E	E	1.70	1.65	1.75	1.75	1.90	2.00	2.95	3.00	5.40	3.00	3.00	2.95	1.70	1.70	E	E	E	E	E
16	E	E	E	E	E	1.65	1.75	1.75	1.80	1.95	1.80	1.90	2.05	2.00	2.00	2.80	1.75	1.70	1.65	E	E	E	E	E
17	E	E	E	E	E	E	1.65	1.70	C	C	C	1.80	1.80	1.70	1.70	1.70	1.70	1.70	E	E	E	E	E	E
18	E	E	E	E	E	1.65	1.75	1.70	1.75	2.95	2.40	2.90	3.50	1.90	1.95	1.75	2.00	1.70	1.65	E	E	E	E	E
19	E	E	E	E	E	1.70	1.65	1.70	1.90	1.75	2.45	2.00	2.75	2.95	2.70	1.80	1.75	1.70	1.65	E	E	E	E	E
20	E	E	E	E	E	E	1.70	1.70	1.80	2.00	3.00	2.50	3.45	3.00	2.60	1.95	1.75	1.65	E	E	E	E	E	E
21	E	E	E	E	E	1.65	1.70	1.70	1.90	2.45	2.50	2.75	2.05	2.90	2.00	1.75	1.80	1.65	1.70	E	E	E	E	E
22	E	E	E	E	E	1.65	1.70	1.70	1.75	1.75	2.00	3.00	3.90	2.50	2.75	1.80	1.85	1.75	1.65	E	E	E	E	E
23	E	E	E	E	E	E	1.70	1.80	1.75	1.95	2.00	3.45	3.55	3.45	3.00	1.80	1.75	1.70	E	E	E	E	E	E
24	E	E	E	E	E	1.70	1.70	1.75	1.80	1.90	2.70	3.80	3.70	2.05	3.00	1.80	1.80	1.70	E	E	E	E	E	E
25	E	E	E	E	E	1.70	E	1.75	1.80	1.80	3.70	3.75	3.95	3.95	3.90	1.90	1.80	1.70	1.70	E	E	E	E	E
26	E	E	E	E	E	E	E	1.75	1.80	1.80	3.50	3.90	1.90	3.90	2.10	1.80	1.75	1.75	1.80	E	E	E	E	E
27	E	E	E	E	E	E	1.75	1.70	1.80	1.80	3.40	3.80	3.45	2.80	2.60	1.80	1.75	1.75	1.70	E	E	E	E	E
28	E	E	E	E	E	1.70	1.70	1.70	1.80	1.80	2.00	1.90	2.95	3.45	3.10	2.70	1.80	1.70	E	E	E	E	E	E
29	E	E	E	E	E	1.75	1.70	1.75	1.80	2.90	4.00	2.80	3.40	3.25	1.70	1.80	1.70	1.70	1.70	E	E	E	E	E
30	E	E	E	E	E	1.65	1.70	1.70	1.70	2.00	2.55	2.75	2.15	2.75	2.70	1.90	1.75	1.75	1.65	E	E	E	E	E
31	E	E	E	E	E	1.65	1.70	1.70	1.75	1.75	1.90	2.05	2.20	1.95	1.95	1.90	1.90	1.70	1.65	E	E	E	E	E
No.	31	31	31	31	31	31	31	31	30	30	30	30	30	30	30	30	30	30	30	30	30	31	30	30
Median	E	E	E	E	E	1.65	1.70	1.70	1.80	1.95	2.50	2.90	3.00	3.00	2.60	1.85	1.75	1.70	1.65	E	E	E	E	E

f-min

Sweep 1.60 Mc to 2.00 Mc in 20 m/s sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | (M3000)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	2.25F	2.15F	2.45F	2.10F	2.20	2.50	G	G	G	G	G	G	G	G	2.55R	2.70	2.80	2.75	2.85	2.75	2.60	2.70	2.70	2.60
2	2.70	2.75	2.80	2.80	2.80	3.25	3.25	3.20	3.05	2.95	3.00	C	C	C	C	C	C	C	C	C	C	2.60	C	C
3	2.80	2.80	2.80	2.75	2.60F	2.95	3.10	3.15	3.10	2.85H	2.85	2.85	U2.90R	2.85	2.95	2.95	2.90	3.00	3.05	3.00	2.75	2.75	I2.70S	2.70
4	2.85	2.85	2.80	2.85	2.85	2.85	3.00	2.90	2.95	2.75	2.90	2.80	2.80	2.80	2.90	3.05	3.10	3.05	3.05	3.00	2.85	2.80	2.80	2.70
5	2.70	2.65	2.85	3.00	2.90	2.90	3.05	3.20	2.95	2.85	2.80	2.85	2.85	2.85	2.90	3.10	3.00	3.10	3.00	3.10	3.00	2.70	2.70	2.70
6	2.70	2.70	2.90	3.00	2.75	3.00	3.20	3.10	2.95	2.75	2.85	2.80	2.80	2.80	2.90	2.95	2.90	2.95	2.95	2.95	2.95S	2.70	2.60S	2.55
7	2.50	2.60	2.70	2.80	2.60	2.60	2.95	3.30	I3.20A	3.00	2.65	3.00	2.80	2.70	2.60	2.80	2.75	2.85	2.95	J2.95A	2.85F	2.65F	2.50F	2.40F
8	2.35F	2.50F	I2.70F	2.70F	I2.60F	3.00	3.15F	3.10	2.95	3.00	2.80H	2.80	2.80	J2.85R	2.95	2.90	2.75	2.85	2.65	3.00	2.90	2.60	2.45	2.65
9	2.70	2.55	2.70	2.70	I2.55A	2.50	2.30	2.50	I2.50F	2.25F	2.20	2.40	I2.50B	2.45	2.45	2.75	2.80	2.90	3.05	2.80	2.50S	2.50S	2.55	2.65
10	2.55	2.75	2.65	2.70F	2.85	2.45	2.50	2.40	I2.20A	G	2.10	2.10	2.15	2.05	2.55	2.75	2.95	2.90	3.00	2.80	2.65	2.50	2.65	2.65
11	2.55	2.70	2.60	2.50	2.45	2.30	2.50	2.50	2.50	I2.20A	I2.15A	I2.30A	2.45	2.45	2.65	2.80	I2.55A	I2.85A	2.70	2.80	I2.70A	2.55	2.65	2.40
12	2.55	2.65	2.70	2.55	2.65	3.05F	I2.65F	2.40	2.30	2.35	I2.50A	2.55H	2.70	2.60	2.70	2.80	2.80	2.80	3.00	3.00	2.85S	A	A F	F
13	2.60F	2.50F	I2.60F	I2.60F	2.60	2.75	3.05	2.75	2.70	2.70	2.75	2.70	2.75	2.75	2.80	I2.80B	2.85	2.90	3.00	3.05	2.75	2.60	2.60	2.70F
14	2.60	2.55	2.55	2.70	2.80	3.10	2.95	3.15	2.95	2.65	2.55	2.70	U2.65R	2.70	2.70	2.75	2.80	2.90	2.90	2.80	2.75	2.70	2.60	2.60
15	2.70	2.80	2.90	2.85	2.80	2.80	2.95	2.80	2.75	2.70	2.70	2.75	2.70	2.80	2.90	2.80	2.90	2.90	2.85	2.90	2.90	2.75	2.65	2.60
16	2.65	3.00	2.90	2.70	2.70	2.80	2.75	2.80	2.75	2.75	2.75	2.80	2.80	2.75	2.90	3.00	3.05	2.95	2.95	2.95	2.85	2.75	2.70	2.70
17	2.70	2.70	2.40	2.45	2.60	2.50	2.45	2.60	C	C	C	A	I2.70A	2.80	I2.80A	2.85	I2.95A	I2.85A	2.90	I2.90A	2.60F	2.60	2.60	2.55
18	2.65	2.65	2.70	2.45	2.50	2.60	2.80	2.85	2.70	2.70	2.80	2.70	2.80	2.95	2.95	2.90	3.00	2.85	2.95	3.00	2.80F	2.70F	2.75	2.65F
19	2.70F	I2.70F	2.75	2.65	2.60F	2.75	2.80	2.90	2.65	2.80	2.85	2.70	2.70	I2.85A	2.90	2.95	2.95	2.95	3.00	I3.00A	A F	A	F	F
20	2.65	2.75	I2.70F	2.80F	3.05	3.05	3.00	2.80	2.75	2.90	U2.90R	2.85	2.75	2.80	J2.80R	2.85	2.90	2.90	3.05	3.20	2.70	2.70	2.75	2.75
21	2.80	2.75	2.80	2.90	2.80	3.10	2.90	3.05	3.00	2.90	2.80	2.75H	2.80	2.75	2.90	2.90	2.95	3.00	3.00	2.95	2.80	2.80	2.70	J2.75F
22	I2.70F	I2.80F	2.75	2.85	2.90	3.10F	3.05	3.05	2.80	2.75	2.90	2.90	2.80	2.85	U2.80R	2.95	3.05	2.90	3.00	2.80	2.85	2.85	2.80F	F
23	F	F	F	F	F	3.00E	3.00	2.90	3.00	2.80	2.80	2.80	2.75	2.75	2.80	2.90	2.90	2.90	2.90	2.90P	2.80S	I2.60F	I2.75F	2.80F
24	2.80	2.50	2.60F	2.65	2.60F	2.60	2.90	2.80	2.85	2.75	2.70	2.70	2.75	2.60	2.70	2.70	2.90	3.05	3.00	2.50	2.70S	2.60S	2.55S	2.80S
25	2.70	2.65	2.75S	2.75	2.45	2.40F	2.55	2.50	2.35	2.60	2.55	I2.75A	I2.80A	2.75	2.90	2.85	2.90	2.90	2.90	2.85	2.65	I2.65A	2.70	2.75S
26	2.55	2.60	2.55	2.55	2.65F	2.70	I2.80A	2.70	2.75H	3.10	I2.60A	2.50	2.75	2.80	2.75	2.85	3.30	2.95	2.75	2.80	2.85	2.70S	2.50S	2.60
27	2.65S	2.70S	2.70F	2.60F	2.70F	2.90F	3.00	3.00	2.75	2.90	2.45	2.60	2.65	2.75	2.75	2.85	3.00	3.00	3.00	2.85	2.75	2.70	2.60F	2.70S
28	2.70	2.75	2.65S	2.55	2.75	3.00	2.95	2.85H	3.20	3.10	2.95	2.80	2.95	2.80	2.80	2.90	2.80	2.90	I2.70A	2.95R	I2.75F	2.75F	I2.70F	I2.70F
29	I2.75F	2.80F	2.80F	2.85F	2.85F	2.95	3.10	3.05	2.80	2.80	2.70	U2.70R	2.45RU	2.55R	2.80	2.80	2.95	2.85	2.90	I2.80R	2.75	2.85	2.80	2.80F
30	2.55F	2.60F	I2.55F	I2.45F	2.50F	U2.75R	3.10	2.75	A	A	A	I2.75A	2.85	2.95	3.05	2.95	3.05	3.00	3.00	2.95	2.80	2.65S	2.75	2.85
31	2.70	3.10	2.70	2.70	2.55	2.65	2.70	A	A	A	A	2.35	2.40	2.50	2.55	2.50	2.60	2.80	2.90	2.85	2.70	2.60	2.60F	2.65F
No.	30	30	30	30	30	31	31	30	28	28	28	29	30	30	30	30	30	30	30	30	29	29	28	27
Median	2.70	2.70	2.70	2.70	2.65	2.80	2.95	2.90	2.80	2.75	2.75	2.75	2.75	2.75	2.80	2.85	2.90	2.90	2.95	2.90	2.75	2.70	2.70	2.70

(M3000)F2 Sweep 1.60 Mc to 20.0 Mc in 20 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

A 7

27

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

May. 1960

(M3000)F1

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							2.85	3.25	3.35	3.45	3.60	3.60R	3.90R	3.70R	I3.70A	3.40L	I3.35L	L						
2								L	L	L	3.60	C	C	C	C	C	C							
3								L	L	L	L	L	I3.55L	I3.70L	L	L	L	A						
4								L	L	L	3.45	L	L	L	H L	L	H L							
5								L	A	L	L	L	L	A	L	L	L							
6							L	L	L	L	L	L	L	L	L	L	L	L						
7							3.35	A	A	A	I3.30A	3.40A	I3.50A	3.60L	3.50L	3.35L	3.30L	L						
8								L	L	A	L	3.55	I3.50L	I3.50L	L	L	L	L						
9							A	3.30	I3.60A	A	R	3.55	I3.55R	3.55	3.50	3.55	3.25L	L	A					
10						L	3.10	3.45	I3.65A	3.90	3.80	4.05	3.80R	3.70	3.50	3.40	3.45L	L	L					
11						L	3.30	I3.25A	3.35	A	A	A	I3.75R	3.75	3.40H	3.25L	A	A	A					
12							L	A	3.45	3.40	I3.50A	3.60B	3.55	3.60	I3.55H	I3.80H	3.85H	L						
13							L	A	L	A	L	L	3.45L	I3.40L	3.55L	B	A	L						
14								L	L	L	L	L	L	I3.55L	I3.60H	I3.60L	L	L						
15								L	L	L	L	L	L	L	L	L	L	L						
16							L	L	3.50L	I3.45L	I3.30L	L	L	L	3.70L	A	L							
17							3.15	3.25	C	C	C	A	A	A	A	A	A	A	A					
18						L	A	A	3.40	3.40	3.50	3.60	3.55H	3.60	I3.55A	3.65L	A	A						
19							A	A	A	A	A	A	A	A	A	A	A	A	A					
20									A	A	A	A	A	I3.60A	L	A	L	A						
21								L	L	L	A	A	A	L	3.40L	3.50L	L	L						
22								L	L	3.60	I3.45A	3.75L	I3.45L	I3.45A	I3.45A	3.60L	L							
23						L		A	A	A	3.40	I3.50L	3.50L	I3.45A	I3.40A	L	A	A	A					
24							L	A	A	3.45	I3.40A	3.40	I3.40A	3.35	3.45	3.50	A	L	L					
25						I3.10A	3.15	A	A	A	A	A	A	A	3.40	I3.40A	I3.45A	3.50	L					
26							A	A	L	A	A	A	I3.55A	3.55	3.45	3.40	3.40L	L	L					
27							L	L	L	L	L	H 3.35	3.45	I3.40L	3.45L	L	A	L						
28							L	A	A	A	A	A	I3.50A	I3.35A	3.30L	L	A	A						
29						L	L	L	A	L	L	A	I3.40L	I3.40R	3.60H	L	L	L	L					
30						L	L	3.35	I3.40A	A	A	A	A	A	A	A	L	A						
31						A	A	A	A	A	A	I3.65A	3.65	3.55H	I3.70B	3.80	3.40	I3.35	L					
No.							1	6	6	8	7	11	12	18	21	20	14	8	1					
Median							U3.10	3.15	3.30	3.40	3.45	3.45	3.60	U3.50	U3.55	3.50	3.50	3.40	U3.35					

(M3000)F1

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

IONOSPHERIC DATA

May. 1960 | 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							G	G	G	G	G	G	G	G	I530A	445	I395L	350L						
2								295	295L	280	290	C	C	C	C	C	C							
3								255	I250L	250H	I280L	I300L	300	305	295	290	285	270	255					
4								I290L	305	335	320	I300L	310	I300L	295	270	275							
5								260L	255	260L	300	330	310	315A	300	270	260L							
6							260	250	250	I280L	300L	310	320	315	305	300	295	260						
7							320	250	I290A	375	410	345	385	I460L	405	340	360	L						
8								L	L	295	I295H	350	330L	310	300	290	I305L	L						
9							I420A	425	345F	550	605	525	I525B	530	530	420	360	330	A					
10						L	480	530	I630A	G	700	695	695	695	495	450	350	330L	295L					
11						500	455	410	490	I675A	I670A	I630A	545	545	455	390	I375A	I340A	A					
12							I320L	500	550	525	I470A	445H	420	455	380L	370L	345	L						
13							290L	270	I310L	290	I335L	355	345	315	310	I320B	315	290L						
14								255	270L	I305L	I340L	340	I345L	345	325	300	305	290						
15								L	255	260L	295L	335	300L	330	300	300L	I290L	290						
16							L	320	305	I330L	345	340	345	345	305	295	I290L							
17							405	370	C	C	C	A	445	395	A	A	A	A	A					
18						350L	300	335	395	420	405	425	395	355	345	345	I310A	I300A						
19							340	330A	I355A	380	360	I380A	I390A	I365A	330	310	305	300	280					
20									295A	305	305	320A	345	310A	300	305	I300L	295						
21								290	295L	265	340A	I340A	355	350	320	305	295	290						
22								255L	255L	355	305	325	345	345A	I320A	305	300							
23						285		I290A	295A	I340A	345	I350L	350	350	330	310	330	310	I290A					
24							280L	330	330	385	385	360	I370A	405	360	340	310	280	280					
25						I370A	390	450	500	460	460	I430A	I405A	410	370	355	350	340	L					
26							I345A	I325A	310H	310	I510A	500	395	400	390	360	320	300	L					
27							260	280	I310L	290L	I370L	370	345	325	340	295	290	I275L						
28							L	270H	270	280	I320A	I350A	340	350	345	320	330	310						
29						L	I250L	265L	I320A	300L	305	350	I440L	365	305	300	315	300	290L					
30						300L	260	400	A	A	A	A	395	345	I330A	310	300	295						
31						345	A	A	A	A	A	600	565	545	500	510	490	375	310					
No.						6	17	27	27	28	28	28	30	30	29	29	27	22	7					
Median						350	320	295	305	320	340	350	360	350	330	300	310	300	290					

h'F2

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

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

May. 1960

h'F

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	395	410	350	345	505	395	345	255	245	I245A	260	240H	240	I230A	I230A	245	255	I290A	295	295	300	300	280	300
2	295	270	255	250	275	250	245	210	210	200	210	C	C	C	C	C	C	C	C	C	C	295	C	C
3	270	250	265	260	320	250	240	230	225	205	200	215	200	220	210	245	255	A	A	245	245	265	300A	295
4	280A	270	275	275	290	265	245	245	245	220	200	200	245	255A	225H	235	225H	250	255	250	250	255	290A	290
5	295	295	260	245	245	245	245	240	I245A	240	205	225	220	I245A	I245A	245	230	250	245	260	255	255	255	295
6	295	300	270	245	245	255	245	245	210	255	200	220	220	240	220	245A	240	245	255	255	255	250	295	320
7	345	305	290	250	295	255	245	I250A	I245A	I235A	I230A	I240A	I250A	I240A	230	255	230	I255A	280	I260A	245	245	I310A	I345A
8	I350A	310	250	240	295	250	230	225	270	I260A	230	215	210	210	225	245	245	245	290A	245	255	245	340	295
9	320	345	295	I320A	I285A	355A	I310A	260	I250A	I245A	240	240	I250A	260	230	240	250	I270A	I270A	280	A	A	325	300
10	315	265	295	245	250	300	300	290	I265A	225	250A	200	205	230	210	235	245	245	255A	250	I300A	340A	305	300
11	305	290	295	255	350	295	255	I255A	245	A	A	A	210	220	255	255	A	A	A	I315A	I325A	330	340A	340
12	340	300	295	305	I340A	260	250	I225A	I235A	270	I240A	I225B	225	225	220H	230H	240H	230	270	250	A	A	300	310
13	310	300	260	275	310	285	250	A	A	A	245A	I255A	255	225	245	B	A	260	275	260	300A	320A	310	310
14	295	345	305	300	280	245	245	245	I240A	235	215	245A	I245A	I230A	215H	245	230	255	260	245	245	260	295	300
15	310	290	260	255	260	250	240	240	240	210	200	200	210	I225B	I245B	245	245	250	255	260	255	265	295	300
16	295	255	245	260	300	245	250	250	245	225	I240A	200	260	255	230	I250A	240	275A	260A	260	280A	280A	265	270
17	295	295	345	320	295	295	I275A	A	C	C	C	A	A	A	A	A	A	A	A	A	A	300	310	310
18	300	305	295	345	345	I280A	A	A	A	A	A	210	205H	220	I230A	245	A	A	275	245	290A	I300A	I310A	340A
19	330A	300A	300A	305A	295	250	A	A	A	A	A	A	A	A	A	A	A	A	A	I260A	I255A	I275A	295A	295
20	295	295	I300A	295	260	245	245	255	A	A	A	A	A	I220A	A	A	A	I255A	270A	240	I255A	305	295	295
21	295	290	260	250	285	250	245	245	245	I245A	A	A	A	A	A	260A	245	245	245	250	255	I270A	300A	310A
22	305	265	255	255	265	245	250	245	230	255	I250A	240A	210	A	A	230	250	260A	260	I270A	300A	280A	300A	300A
23	300A	265	280	300	310A	250	245	A	A	A	A	205	200	A	A	230	A	A	A	A	280	250	250	285
24	280	270	300	295	305	250	250	A	A	260	I240A	220	I225A	250	220	220	A	A	A	A	A	275	320	280
25	285	280	290	270	340	A	A	A	A	A	A	A	A	250	I250A	I245A	225	250	250	275	A	A	270	280
26	305	300	310	290	330	A	A	A	A	A	A	A	I210A	220	225	250	230	270	250	275	260	280	305	300
27	300	285	285	290	300	250	240	225	220	200	200H	210	205	200	240	245	I230A	240	270	260	265	I265A	310A	290
28	285	300	300	300	295	245	230	I250A	A	A	A	A	I230A	A	A	A	A	A	A	A	I260A	260	275	290
29	280	295	280	260	255	230	240	260	A	A	220	I210A	230A	235	210H	I210A	250	I245A	I270A	I295A	280A	290A	300A	280
30	305	340A	330	340	345	270	245	250	A	A	A	A	A	A	A	A	A	I260A	295	255	290A	I330A	I325A	310A
31	340A	255	295	270	335	A	A	A	A	A	A	A	225	245H	220H	245	245	I255A	255	295A	I290A	295	310	300
No.	31	31	31	31	31	28	26	22	18	18	19	20	24	23	22	24	20	22	23	26	25	28	30	30
Median	300	295	290	275	295	250	245	245	245	240	230	220	220	230	230	245	240	250	260	260	260	275	300	300

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | f'Es | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

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

f'Es

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

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

May. 1960

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						h		h	h	cz	c			l	l	l	h	hz	c3	f3	f	f3		f
2						h	h		h	h												f		
3						h	h	h	h	h	h	h				h	hz	cz	c3	fz	fz	fz	fz	f
4	fz	fz						hl	hz	lh	h		c	c	c	c	h	l	hl	fz	fz	fz	fz	fz	fz
5					f	h		h	c	c	c	c		l	c		h	cz	lz	fz	fz	f3	fz	fz	f
6			f	f			h	h	c	c	l	c	c	l	c	lz		lz	l	f3	fz	fz	fz	fz
7		f				hz	h	hz	c3	hz	h	c	cz	h	h	h	h	hz	cz	f3	fz	f3	f3	f3
8	f3	fz		fz	fz	l		h	hz	cz	c	l	l	l	l		lz	hl	l3		fz	f		
9	f5	fz		fz	f5	c4	hz	hz	cz	c	c	c	c	h	h	h	h	hz	c3	f3	f4	f5	fz	fz
10	f3	fz	f	f	f	h	hz	hz	cz	c	cz	lc	c				h	c	lz	f3	f3	f3	f3	fz
11	f		f	f				cz	c	cz	cz	lz	l	c	h	h	c4	cz	lz	f3	f3	f3	f3	f
12	f	f	fz	fz	f3	c	hz	cz	c	l	lz	l	h						c	f3	f4	f3	f3	fz
13	f			f	f		h	cz	cz	cz	c	c	l	l	l		c	l	czl	f3	fz	fz	fz	fz
14		fz	f	f			h	cz	cz	l	l	l	lz	l	l	l	lz		hz		f		f	f
15	fz	fz	f3	f	f			h	h				l		l	l	l		lz	fz	f	fz	fz	f
16			f	fz	f	l	h	hl	h	c	cz	c	c	cz	l	lz	lz	lz	lz	f3	fz	fz	fz	f
17	f						hz	hz				c	hz	h	lz	lz	l4	l4	l3	f4	f3	fz	f3	f3
18	f	fz	fz	fz	f	hz	hz	h3	hz	c	cz	c	c	c	lz	clh	cz	cz	cz	f4	fz	fz	f3	f3
19	f3	f3	f3	f3	fz	hz	h3	c3	c3	cz	cz	cz	cz	lz	lz	hz	hz	c3	c3	fz	fz	fz	f4	fz
20	fz	fz	f3	f	f		hz	cz	c3	cz	cz	c3	lz	l3	lz	lz	lz	hzlz	czlz	f5	fz	fz	fz	fz
21	fz	f	fz		f	hz	l3	lh	cl	czl	cz	cz	c	c	c	c	cz	lz	cz	f6	f4	f3	f3	f3
22	f4	fz	f	fz	f		c	h	h	c	c3	c	c	l3	lz	c	h	cz	lz	f4	f3	fz	fz	f3
23	f3	fz	fz	fz	f3	hl	cz	c4	cz	cz	c	c	c	cz	cz	l	hzl	cz	c3	fz	f3	fz	f	f
24	f	fz	fz	f			cz	hz	cz	c	cz	h	c3	l	l	l	lz	lz	lz	f5	f3	fz	fz	f
25	fz	f	f	f	fz	cz	h3	hz	cz	cz	cz	cz	cz	h	h	hz	l	lz		f4	f3	f4	fz	fz
26	f		fz		f3	l	h4	c3	hz	c	cz	c	c	c	h	h	h	cz	l	f	f4		fz	f
27	fz	fz		f			h	h	h	h	c	h				l	l3	lzh	hz	fz	f5	f3	f3	fz
28			f		f	h	h	cz	cz	cz	cz	cz	cz	lz	lz	lz	hzl	hl	cz	fz	f3	fz	f3	fz
29	f4	f4	fz	fz	f	hz	h	hz	c3	c	c	c	l	l		l	lz	lz	lz	f4	f4	f3	fz	fz
30	fz	f3	f3	f	f			h	hz	cz	cz	cz	cz	c	c4	cz	cz	cz	lz	fz	f3	f3	f3	f4
31	f3	f4	f		h	c3	c3	c3	c4	c3	cz	cz	c				h	hz	cz	fz	f3	fz	fz	fz
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | 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	5.8	5.0	4.7	3.4F	7.8F	4.1	3.5	E4.2A	G	A	A	A	A	5.7	6.1	6.1	6.2	6.0	6.6	6.9	6.8	u7.2s	7.2s	7.1
2	7.2	7.1	6.6	6.0	5.4	5.9	6.7	7.9	9.0	10.3s	11.0	11.4	11.6	12.1	13.0	12.2	11.7	10.3s	9.4	8.5	I7.7s	I7.8s	J8.0s	I7.8s
3	J7.9s	7.6	6.9	6.4	6.2	7.4s	9.1	9.2	9.2	9.3	J10.3s	11.3	12.5	12.6	12.8	12.4	11.9	11.9	11.2	10.2s	u8.9s	9.2s	J9.1s	9.0
4	9.2s	I8.6s	u7.6s	J8.0s	7.5s	J8.4s	9.7	9.7	9.4	10.4	11.4	11.8	12.9	12.8	12.7	12.1	11.1	10.5s	10.4s	u9.7s	8.8s	9.1s	u8.7s	I8.4s
5	J8.2s	8.0	8.0s	7.2	6.3	7.3	8.3	8.6	8.4	9.0	9.7	11.4	11.8	12.0	12.2	11.7	I10.8A	I10.5A	10.1s	I10.1s	8.5	7.7	7.9s	u7.6s
6	u7.9s	u7.7s	7.7s	6.7	5.6	6.7	9.0	9.4	8.7	9.1	J9.9s	10.9	11.2	11.9	11.5	11.3	11.0	10.8	J10.8s	10.4	9.8	u8.1s	u8.0s	I8.1s
7	I7.6s	u8.0s	8.0s	6.9V H	6.0	6.6	7.6	8.0Z	I6.8A	I7.4A	8.1	J8.3R	7.6	6.9	7.8	8.6	8.0	9.2	9.3	u9.1s	u7.7s	6.4	6.6	6.5F
8	6.6	6.6	6.9	6.0	5.1	5.9	7.2	8.2	8.3	9.0	10.0R	10.7	11.3	11.8	12.3	11.3	10.4	11.4	11.6	12.4	9.6s	I9.0s	8.6s	I9.2s
9	8.6	8.0	7.3	5.9	5.3H	I6.4A	7.8	8.6F	7.2F	6.3V	I6.4A	6.5	7.2R	6.6	6.7	7.0	7.5	8.1	8.2	7.3	6.7	6.8s	7.2	7.2
10	6.8s	6.9	6.2	5.8	5.3	4.9	4.9	J5.3A	J5.3s	I5.4A	I5.5A	I5.4s	5.7s	5.9	6.4	6.7	7.2	7.1	7.2	6.6	7.0	7.3s	7.7s	7.4s
11	6.8	6.8	6.1	5.6	5.5	5.3	5.6	6.3	I6.2A	I5.7A	I5.8A	6.0s	6.4	6.7	7.5	7.5	I7.1A	8.0	I7.8A	7.0	6.4	6.6	6.5	5.8
12	u5.6F	6.2	6.1	5.1F	5.1F	6.5	8.1	8.3H	I8.6A	9.2	9.1	9.3	9.0	8.9	9.2	9.2	9.3	9.0	9.2	9.2	7.6	6.2	I6.6A	7.3F
13	6.9F	6.6	6.3	5.4	5.3	6.0	8.6	9.0	8.9	9.0	9.9s	11.3	12.2	12.7	12.6	12.4	11.2	J10.7R	u10.4s	9.6	u8.4s	u8.2s	I8.8A	8.9
14	8.6	8.1s	7.9s	8.2R	8.3	8.7	9.3	9.6	8.7	9.3	10.2	11.4	12.4	13.0	13.4	13.3	12.4	12.1	11.4	10.9	10.0	9.5s	9.2	u9.1s
15	9.5	8.8	J8.3s	7.4	7.2	8.2	9.7	9.2	10.2	10.9	11.4	12.2	12.2	12.5	12.8	12.0	11.2	10.9	J10.7s	10.8s	9.9s	u9.9s	9.6s	9.4
16	9.7	u10.0s	8.2	J7.7R	7.4	J8.1s	9.0H	9.9s	10.7	10.4	10.3	11.2	11.4	11.0	11.5	11.4	10.0	9.7	9.4	10.1	I8.8s	J8.3s	J8.0s	8.4
17	J8.3s	u7.8s	6.5	6.6	6.9	7.3	7.8	u8.6s	8.8	8.2R	6.9	7.6	7.9	9.1	9.3	8.7	8.3	7.8	7.6	7.2s	7.3	7.2s	7.3	7.6
18	7.6	7.6	6.6	6.4	6.4	7.0F	9.6	9.9s	9.0	8.2F	8.6	9.0s	9.8	10.1R	I10.0A	9.7	9.4	9.1	9.4	8.9	8.8	8.0s	8.2s	I7.6s
19	7.7s	7.5	I6.8A	6.6	6.1	6.9	8.4H	9.4s	J9.0R	J8.3s	8.7	9.3	9.7	10.5	10.8	10.8	10.1	9.6	u10.2s	8.8	7.6	I7.7A	I7.2A	I6.5A
20	6.3	6.5F	6.4	6.5	6.8	7.2	7.4	8.5	10.0	10.9	I10.3R	10.4	11.4	12.1	12.4	11.8	11.6	11.9	12.5s	J9.8s	7.7	7.8s	8.6	7.8
21	7.8	u7.4F	7.2	6.8	6.7	7.3	9.0	9.6	9.4	8.3	8.3	9.6	9.0	10.0	11.0	11.5	11.4	10.8s	9.8	9.1	8.4	8.3	8.2	8.3R
22	u8.1s	7.9	7.6	7.2F	6.9F	8.6	8.5	8.5	8.0H	8.8	9.9	9.8	I10.3A	10.8	11.0	11.0	u10.5R	9.7R	9.6	9.9s	9.8s	J8.8s	8.2	8.4
23	u8.6s	8.1	7.6F	7.4F	7.5F	8.3	9.1	8.7	I8.1A	I8.0A	8.9	8.8	9.2	10.0	10.7	10.5	10.4s	A	A	A	A	I8.3A	8.5F	8.3
24	8.0R	7.4F	7.2	6.6	6.3	7.3	9.0	8.4	9.1	8.2	9.1	9.5V	9.4	9.8R	10.4	J11.0s	10.7	9.6	8.0	7.4s	8.1	I8.0s	I7.8s	8.5
25	J8.2s	J8.1s	7.9	7.5s	6.6	6.2	7.2	u6.7s	6.3	7.0	7.4	7.4	7.7	7.3	7.5	7.8s	7.3	7.2	7.5	7.7	7.3	7.4	7.3	6.9
26	6.4	6.4	6.1	6.0	5.8	5.8	6.4	I6.9A	7.2	6.2	u6.3R	6.4	7.3	7.6	7.5	8.0	8.6	7.8	I8.0A	8.9	u8.1s	7.9	7.7	7.7
27	7.5s	7.7	7.4	6.9	7.0	8.0	9.6s	9.2	8.9	9.3	9.0	10.4s	11.3	12.1	12.0	12.2	11.0	10.4	9.4	9.0	8.4	8.4	8.8s	9.0s
28	J8.9s	8.4	8.0	7.9	8.0	u8.7s	u9.5s	8.9	8.2	8.2	8.2	9.0	9.2	9.5	9.7	10.0	10.3	A	A	9.7	I9.4s	8.7F	I10.2R	10.1F
29	u9.8F	J10.1F	9.2	8.8	J8.7F	8.6	9.1s	9.4	8.4	10.2s	10.6	u10.4R	J10.4R	12.0	13.5	12.0	J10.7R	10.7	J10.5s	10.1s	9.9s	9.2	u9.1s	8.9F
30	9.0R	8.8	8.0	7.6F	J8.6F	J9.9R	9.0	7.7	7.3H	6.7	I7.0A	8.0	8.4	9.9	10.2R	9.7	9.6	9.9s	u9.9s	9.0	J8.5s	I8.1s	u8.9s	I8.7s
31	I8.2s	I8.8s	6.2H	6.5	6.4	8.4	7.9	6.6	6.4	I6.2A	I5.8A	I5.7A	5.9s	5.7	I5.8s	5.8	5.9	6.3	6.5	6.3	6.5	6.8	6.7Z	6.9
No.	31	31	31	31	31	31	31	31	31	30	30	30	30	31	31	31	31	29	29	30	30	31	31	31
Median	7.9	7.7	7.2	6.6	6.4	7.3	8.5	8.6	8.6	8.6	9.0	9.6	9.8	10.1	10.8	11.0	10.4	9.7	9.4	9.1	8.4	8.0	8.0	8.1
U. Q.	8.6	8.1	7.9	7.4	7.2	8.3	9.1	9.4	9.0	9.3	10.2	11.2	11.4	12.1	12.4	12.0	11.1	10.8	10.4	10.1	8.9	8.7	8.8	8.9
L. Q.	6.9	6.9	6.4	6.0	5.5	6.2	7.4	7.9	7.3	7.4	7.4	8.0	7.9	7.6	7.8	8.6	8.3	8.0	8.0	7.7	7.6	7.3	7.3	7.3
Q. R.	1.7	1.2	1.5	1.4	1.7	2.1	1.7	1.5	1.7	1.9	2.8	3.2	3.5	4.5	4.6	3.4	2.8	2.8	2.4	2.4	1.3	1.4	1.5	1.6

foF2

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

The Radio Research Laboratories, Japan.

K 1

IONOSPHERIC DATA

May. 1960 | 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									4.5	A	A	A	I 4.8 A	I 4.9 A	4.8	4.5	4.5 L							
2									L	5.6 L	L	L	5.7 L	A	A	A	L							
3										L	U 6.5 L	5.2 L	U 5.6 L	5.6	5.5		L							
4									L	L	5.6 L	5.9 L	5.7 L	5.5 L	5.4	L								
5										5.7 L	U 6.1 L	L	L	5.5	4.8 L		A	A						
6										U 5.7 S	S	6.1 L	5.6	5.2 L	S	5.0 L	L							
7									A	A	5.6 S	5.5	5.4 L	U 5.3 L	5.4	5.1 L	L	L						
8									U 5.6 L	U 6.6 L	L	5.7 L	5.7 L	5.3 L	A	A	A		A					
9						A	4.6 L	U 5.3 S	A	A	A	5.1 S H	U 5.2 S	A	5.3	5.3 L	U 4.8 L	A						
10							3.9	A	S	A	A	5.0	5.1 S	U 5.1 S	5.1	4.9 S	4.8 L	L						
11						3.2 L	4.1	A	A	A	A	A	U 5.2 S H	5.3 S	5.3	U 5.2 L	A	A	A					
12									A	5.5	5.6	5.6 L	5.6 L	5.7	5.6 L	5.5	5.1 L	L						
13								L		L	L	A	6.1 L	5.6	5.8 L	B	L	A						
14								L		L	5.7 L	A	L	6.0 L	5.5 L	5.3 L	L							
15									U 6.1 L	U 6.0 L	5.6 L	6.0 L	5.8 L	5.8 L	B	L	L							
16								L	L	L	5.8 L	5.9	5.5 L	L	5.5	L								
17							4.5 L	4.9 S	5.2	5.1 L	5.5 S	5.7 S	5.4 S	S	5.3 L	5.2 L	4.9 L	L						
18								A	A	5.6 L	5.4 L	A	5.6	A	A	L	L							
19								L	A	A	A	L	A	5.5	5.5	A	L							
20									A	A	A	A	A	A	A	A	A	A						
21									L	U 4.9 L	5.9 L	A	A	A	A	L	A							
22										5.5 L	5.5 L	A	A	A	5.3 L	5.1 L	L	A	A					
23								A	A	A	A	A	A	5.4 L	5.3 L	A	A	A	A					
24							A	L	A	A	A	L	A	A	A	A	A	L						
25						L	4.8 S	S	A	U 5.0 S	5.0	A	A	A	A	S	L	L	L					
26						U 3.6 L	A	A	A	A	A	U 5.3 S	AS	5.1 S	L	5.2 S	5.0 H	A	A					
27									S	L	S	5.5 L	5.6	5.3 L	U 5.5 L	5.3	L	L						
28						A	A		L	A	A	A	L	A	5.4 L	L	A	A	A					
29										A	L	A	5.8 L	5.8	U 5.3 L	5.3 L	U 4.6 L	L						
30								L		A	A	A	A	5.7	A	S	A	L						
31							4.1 L	U 4.7 L	A	A	A	A	A	5.0	5.2 S	4.8 S	4.6	4.3	A					
No.						2	6	3	4	11	13	13	18	20	20	14	8	1						
Median						U 3.4	4.3	U 4.9	U 5.4	5.6	5.6	5.6	5.6	5.4	5.4	5.2	4.8	4.3						

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

May. 1960 | 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				1.40	u1.60R	2.00	u2.15S	2.70	3.20	3.55	I3.50A	A	A	A	3.55	3.40	2.90	2.55	1.75					
2						I1.85S	u2.60S	u2.90S	3.35	3.50	u3.65A	3.75	A	A	A	A	A	u2.40S	1.90					
3						u1.85S	I2.50S	2.60	3.50	3.60	I3.70A	I3.80A	I3.90R	I3.70A	I3.80S	3.50	3.15	2.80	A					
4						1.75	2.55S	u3.05S	3.35	3.60R	3.65	3.85	u4.00S	3.80	3.65	3.55	3.15S	I2.60S	2.05					
5						1.80	I2.50S	I3.00S	3.45	u3.60A	A	A	A	A	A	3.70	I3.30A	A	A					
6						1.85S	2.45	I3.00A	3.40	3.65	A	A	A	A	A	3.30	I3.10A	u3.00A	A					
7						I1.85B	u2.60B	2.95	3.55	3.60	I3.70A	I3.90S	I3.90R	3.85S	3.70	3.55	3.20	I2.80A	1.95					
8						B	2.55	u3.05S	3.30	3.60	A	A	A	u3.85S	A	A	A	A	S					
9				B	B	1.85A	2.60	3.10	3.50A	3.65	3.80	3.70R	I3.90R	u4.00R	3.65	3.55	3.30	u2.95S	B					
10						B	2.60	I3.05A	3.30	3.65	I3.70A	A	A	A	3.70	3.50	3.20	2.50	B					
11						I2.10B	2.65	3.00	3.35S	3.55	3.60	A	A	A	A	3.70	3.30	2.60	S					
12						I1.95B	u2.55A	I3.20A	A	A	A	A	4.05S	I3.95R	I3.80B	3.65	3.50	2.85	A					
13						R	2.70	3.35A	3.50	A	A	A	4.05	A	A	B	B	A	B					
14						2.05R	2.60	3.25	I3.50A	A	A	A	A	A	S	A	3.20	I2.75S	S					
15						u2.05R	I2.70S	3.15	3.50	3.60A	R	A	A	B	B	B	u3.25S	I2.85A	I2.35B					
16						A	2.60	3.15	I3.50A	I3.65A	A	A	A	A	A	S	3.30	A	A					
17						I2.00B	2.60	u3.20S	3.50	I3.70A	3.85	3.80	I3.85R	u3.75R	I3.75B	3.60R	3.30	2.65S	u2.05A					
18						I2.20A	2.55	3.00	3.20	3.60	3.70	A	A	I3.85A	I3.65A	3.45	3.10	A	B					
19						2.05	2.55	3.00	3.20	A	A	A	I3.70A	3.90	3.70	3.60	3.25	2.70	A					
20						2.20	2.65	I3.05A	3.35	3.65	B	A	A	A	A	A	A	A	A					
21						2.20	2.50	A	A	3.60	I3.80A	A	A	A	A	u3.65A	A	A	A					
22						2.10R	2.60	3.10	3.30S	I3.50R	3.60A	A	A	I3.80A	I3.70A	3.55	3.15	2.50A	A					
23						1.85	2.55	3.05	3.35	I3.60A	3.70	A	A	A	A	3.65	3.35	2.70S	S					
24						B	2.60	3.10	3.35	I3.60A	A	A	A	A	A	A	A	2.55	A					
25						B	2.50	u3.00S	3.15	3.40	I3.50B	3.70	I3.75B	3.90	I3.80S	3.55	3.15	A	B					
26						A	2.55	3.00	3.30	3.60	I3.65A	I3.80R	3.80	I3.65B	I3.50A	3.60S	I3.20S	A	S					
27						2.15	2.60	3.05	u3.20S	3.50	I3.70A	I3.80A	3.85	3.85	I3.70R	I3.30A	I3.20A	2.95	2.15					
28						u2.05R	2.70	3.10	3.50	3.60	3.75	A	A	A	A	A	A	2.95	u1.85A					
29						B	2.70	3.15	3.60	3.65	A	A	A	A	A	3.65R	3.35	A	B					
30						B	2.70	3.15	3.40R	3.65R	I3.80S	I4.00A	u3.85S	I3.85A	3.55	I3.50S	3.10	A	S					
31						2.20	2.65	3.10	u3.50A	3.65	I3.80A	I3.90A	I3.85A	3.70	3.55	3.40S	3.40	2.90	A					
No.				1	1	22	31	30	29	27	19	11	13	15	16	22	24	20	8					
Median				1.40	u1.60	2.00	2.60	3.05	3.35	3.60	u3.70	u3.80	u3.85	u3.85	u3.70	3.55	3.20	2.70	2.00					

foE

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

The Radio Research Laboratories, Japan.

K 3

IONOSPHERIC DATA

May. 1960

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	S	S	1.5	G	G	G	2.6	4.2^{s}	4.0	6.1	J8.0^{s}	11.8	J6.9	J5.5	G	G	3.5	3.3	J3.9	J3.8	3.1^{s}	J2.2	J3.1	J1.6^{s}
2	J1.8	E	E	E	E	S	G	S	3.9	4.7^{s}	J5.0^{s}	4.8^{s}	5.0^{s}	J5.7	D5.8^{s}	J5.3	3.2	2.8	G	S	S	J1.9	S	S
3	S	S	E	E	E	G	S	3.2^{s}	4.1	3.8	J4.9	3.9	G	4.5	G	4.0	4.1	4.0	J5.4	3.9^{s}	J8.9^{s}	J3.4	J3.2	S
4	J3.3	E	J2.2	E	E	G	G	3.4	4.4	4.2	4.6	4.4	4.5	4.4	G	G	3.3	S	2.8	S	J4.1	J3.0	J3.4	J3.0
5	J1.6^{s}	J5.0	J1.9	E	1.7	G	G	D3.1^{s}	4.0	4.1	J5.4	J5.6	4.7	J4.9	4.9	J8.1	J13.6	12.4	D7.0^{c}	J4.4^{s}	J8.2	J5.6	J4.2	J3.2
6	J1.7^{s}	J1.8	J1.8	E	1.4	G	3.4	J4.2^{s}	5.0^{s}	J5.0	5.0	3.9	4.2	4.2	3.9	J4.2	3.8	J4.2	6.6	J3.0	S	J3.7	44^{M}	29^{M}
7	3.5^{M}	S	S	E	E	B	3.4	4.4	J8.1	J7.8	5.9	G	G	4.4	G	3.9	G	J4.3^{s}	J3.1	J2.6	J6.3^{s}	43^{s}	J4.6	4.2
8	J5.0	J5.0	J4.4^{s}	J2.2	J2.0	B	G	3.8	J5.0	J5.4	J5.8	7.3^{s}	J5.1	3.9	J5.7	J7.8	J9.2	J4.8	4.8	5.6	3.0	2.3	J3.1	J4.4
9	3.4^{s}	J5.5^{s}	J3.3	2.2	1.9	J6.1	3.3	3.6	7.4	7.3^{s}	J9.2	4.3	G	D5.0^{s}	4.2	4.5	J7.1	5.7	J4.9	3.0	2.2^{s}	J2.3	J5.2	J5.6
10	2.3^{s}	2.9	1.8	J2.2	1.6	2.2	3.0	J4.9	4.9	7.2	4.8^{s}	4.5	D4.0^{s}	4.1	3.4^{G}	3.6	3.6	4.0	3.7	J3.2	J2.5	4.3^{s}	J2.6	J3.8
11	J2.1	S	E	E	E	B	2.9	5.0^{s}	J7.1	6.7	8.7	8.5	4.0	4.2	4.5	4.6	J9.7	8.5^{Y}	J9.3	J8.3	J5.1	J2.7	J2.3	2.5
12	7.0	J7.7	J8.1	1.7	1.7	B	J5.4	5.7	J14.3	4.6	J5.0	J5.1	4.3	G	B	4.7	G	G	J3.5	5.9	4.9	J11.8	J7.9	J4.9
13	J4.8	J2.2	2.6	J3.4	2.2	G	J4.4	4.0	J6.1	J8.7	J5.5	J6.3	G	4.8	4.9	B	5.2	J7.1	J5.3	4.8	J4.8	J8.4	J9.0	6.9
14	J3.4	E	J3.8	E	1.7	G	3.3	3.9	5.0	J5.8^{s}	J5.3	J6.8	J5.8	4.1	3.6^{G}	J4.1	G	3.1^{s}	2.5	2.5	J5.3	J3.3	J2.4	J2.2
15	J5.0	J1.7^{s}	J1.8	J1.5^{B}	E	G	G	3.6	4.2	4.4	4.2	4.3	4.2^{s}	B	B	B	G	3.4	2.4	J2.2	J2.1	S	E	5.9
16	J2.6	2.1	J4.9	J4.7	4.0	J2.8	3.4	J4.2^{s}	4.9	3.9	4.5	4.6	4.5	4.2	4.5	4.3^{s}	4.0	4.1	J5.9	J6.3	6.2	6.0	J8.3	J3.3
17	J3.4	3.3	J2.0^{B}	J2.3	E	3.0	J3.4	3.9	4.2	4.0	4.4	G	G	4.4	4.5	4.4	3.7	3.1	2.4	2.3^{s}	S	J2.2	J7.8	J3.3
18	J5.4	J9.8	3.4	J2.2	J3.9	2.5	5.4	7.9	J11.1	G	J5.1	J8.0	4.9	J5.4	J16.1	4.3^{s}	J5.0^{s}	4.9	J4.2	J5.6	J5.7	J3.6	J4.9	J4.9
19	J6.3	J3.7	8.0	J6.0	J4.7	G	J4.9	6.4	7.3	J8.8	J6.7	5.5^{s}	J5.3	4.7	5.0	4.6	3.6	4.0	J4.3	J3.1	2.9	J8.0	9.4	J12.3
20	J4.8	3.8	J3.6	J3.4	2.6	G	3.8	6.7	J8.2	J8.8	J6.7	J7.1	8.8	J7.9	J7.4	8.5	J9.6	4.5^{s}	J4.7^{s}	J5.1	J5.8	J5.1	6.8	J6.5
21	J5.0	J2.7	J3.5	J3.5	J3.0	2.4	G	4.1^{s}	J4.3^{s}	4.5	J5.8	J7.2	J8.0	J7.9	J5.3	J4.9^{s}	J4.4	J4.1^{s}	J5.3	3.0	J2.8	3.8	J4.2	J3.0
22	J5.1	J4.9	J4.1	J2.3	J2.9	G	3.1	3.9	4.9	4.4	5.0	J8.0	12.3	J7.0	4.5^{s}	4.7^{s}	3.6	J5.3	J5.0	J3.0	J5.3	J11.9	J6.9	J3.4
23	3.4	5.9	4.2^{s}	J8.4	J4.9	3.8	J5.1	J6.2	J7.9	J8.4	J6.8	8.6	J6.5	4.1	J5.6	J6.3	8.5	15.0	J17.4	J16.5	J17.5	9.4	J5.2	J8.6
24	J5.0	J5.3	J2.8	J2.2	J1.9	B	J5.0	J5.4	J9.9	J8.9	J7.3	J5.3	J11.2	J6.9	J9.0	J13.0	4.6	G	J3.8	5.6	2.4	J2.6	J2.6	S
25	J5.2	S	1.5	B	E	B	J5.4	4.8^{s}	J5.7	4.7^{s}	4.0	7.4	J6.3	J6.2	6.0	4.5	3.9	2.8	2.4	J2.3	J3.9	J6.8	6.0	J2.9
26	S	4.8	E	J3.7	J1.4^{B}	3.3	J5.1	7.5	J5.9	J5.3	5.8^{M}	4.5	J5.6	4.1	3.9^{su}	4.3^{s}	5.0	8.9^{M}	J9.1	S	4.0	S	S	J3.6
27	J1.8	J1.8	E	J2.4	E	G	3.0	3.7	D4.0^{s}	4.0^{s}	S	D4.4^{s}	D4.2^{s}	G	G	3.7	J3.4^{s}	3.3	2.9	J4.2	J2.5	J4.8	J3.4	J5.8
28	J5.8	J5.1	4.3	3.9	J2.5	J4.6	J4.9	J5.6	J5.1	8.4	J6.7	J8.6	J5.3	J9.0	J6.2	J6.3	7.4	J14.3	10.2	J7.6	4.8^{s}	J6.6	J5.6	J6.4
29	J5.6	J2.0	3.5	J3.2	J3.1	B	3.5	4.4	J4.7^{s}	J6.7	5.9	J6.6	J5.6	4.8^{s}	3.7	3.4^{G}	G	3.0	J5.2	J3.6^{s}	J4.8^{s}	J5.0	J5.1	J5.4
30	4.0	J6.8	J3.5	J2.2	1.4	B	3.2	4.1	"4.2^{s}	J6.7	J7.4	6.2	J6.4	5.6^{M}	J7.2	4.4^{s}	8.8^{M}	J5.3	J5.4	J3.3	J5.9	3.6	J3.9	J3.3
31	2.1^{M}	J2.4	E	E	J1.8	J2.3	4.0	4.5	J6.2	J6.8	J5.9	J6.8	J5.2	4.5	G	G	G	3.7	J3.7	J2.2	3.0	J5.0	J5.6	J3.5
No.	28	26	30	30	31	22	30	29	30	31	30	30	29	30	29	29	31	30	31	28	28	29	29	28
Median	3.8	3.5	2.7	2.2	1.7	G	3.4	4.2	5.0	5.4	5.6	5.9	5.1	4.6	4.5	4.4	3.9	4.1	4.7	3.7	4.8	4.3	4.6	3.7
U. Q.	5.0	5.1	3.8	3.4	2.6	2.8	4.9	5.5	7.3	7.3	6.7	7.3	6.4	5.6	5.8	5.1	7.1	5.3	5.4	5.6	5.8	6.3	6.4	5.7
L. Q.	2.4	2.4	1.5	E	E	G	2.9	3.9	4.3	4.4	5.0	4.5	4.2	4.2	G	4.0	3.3	3.3	3.1	3.0	3.0	2.8	3.2	3.1
Q. R	2.6	2.7	2.3				2.0	1.6	3.0	2.9	1.7	2.8	2.2	1.4		1.1	3.8	2.0	2.3	2.6	2.8	3.5	3.2	2.6

foEs

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

The Radio Research Laboratories, Japan.

K 4

IONOSPHERIC DATA

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

May. 1960 | foEs | 135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	E				2.4	A	3.8	A	A	A	A	5.1			3.4	3.2	2.5	3.4	2.2	1.6	u 2.8 A	S
2	1.5					S		S	3.7	4.4	u 4.5 s	4.4	u 4.5 s	5.6	5.6	5.3	3.1	2.2 G		S	S	1.7	S	S
3	S	S					S	G	3.9	3.8 s	4.3	E 3.9 s		4.5		4.0	3.8	3.3	u 5.0 s	3.4	u 6.5 s	2.1	2.1	S
4	2.3		E					3.4	4.1	4.2	4.3	4.4	4.3	4.3			2.5 G	S	2.3	S	2.5	2.5	2.7	2.6
5	1.4	2.8	1.7		1.6			D 3.1 s	3.9	4.1	5.1	5.3	4.5	4.4	4.1	5.0	A	A	3.9	4.0 s	u 4.5 s	2.9	3.0	2.8
6	E	1.6	1.7		1.4		2.8	3.8	4.6 s	4.4	E 5.0 s	E 3.9 s	4.1	4.0	3.8	3.4	3.6	4.2	5.9	2.4	S	2.0	4.4	2.7
7	3.2	S	S			B	3.0	4.0	A	A	5.0			4.3		3.9		3.5 s	2.9	2.5	u 3.1 A	3.5	2.8	2.9
8	3.1	2.2	2.7	2.1	1.9	B		3.5	4.6	5.1	5.8	4.4	4.7	u 3.5 A	5.6	6.3	8.6 s	4.5	4.7	4.2	2.7	2.3	2.6	3.4
9	1.8	4.5	2.3	2.0	1.9	A	3.2	3.3	5.3 s	5.4	A	4.3		D 5.0 s	4.1	3.7	3.7	5.2	4.9	2.3	2.0	2.0	4.1	4.6
10	E	2.0	1.7	1.9	1.4	2.2	3.0	4.9	u 4.5 A	A	A	4.4	u 4.0 s	4.1	3.4 G	3.2	3.5	3.7	3.4	2.8	2.2	2.6	2.2	3.2
11	2.0	S				B	2.8	u 5.0 s	A	A	A	5.5	u 4.0 s	4.2	4.2	4.3	A	6.9	A	4.4	2.6	u 2.6 s	2.3	2.2
12	u 3.2 s	5.3	4.3	E	1.7	B	3.5	4.5	A	4.4	4.2	5.0	4.3		B	4.1			3.4	u 4.3 A	2.3	3.8	A	2.2
13	2.2	1.9	2.0	2.1	2.0		4.1	3.7	4.2	4.6	5.4	6.0		4.5	4.6	B	5.0	6.4	4.6	3.8	2.1	3.1	A	3.8
14	2.2		2.2		1.5		3.3	3.7	4.6 s	4.2	4.7	6.6	5.3	4.0	E 3.6 s	3.7		3.1	2.3	2.5	3.0	2.9	2.2	2.1
15	1.8	1.7	1.6	E				3.5	3.9	4.2 s	4.2	4.2	4.2	B	B	B		3.0	u 2.3 s	2.2	1.7	S		1.8
16	1.6	E	3.8	2.7	3.0	2.6	3.2	4.2	4.5	3.8	4.2	4.2	4.4	4.1	4.4	u 4.2 s	3.9	3.9	5.6	5.3	3.1	3.5	5.3	2.9
17	2.6	1.9	1.6	1.9		2.8	3.4	u 3.9 s	3.9	3.9	4.4			4.3	4.4	4.2	3.6	3.1	2.4	2.0	S	1.9	4.8	2.6
18	3.5	2.9	2.1	1.8	2.5	2.2	3.7	u 7.8 s	7.0		4.5	7.5	4.6	5.3	A	4.3	3.7	4.3 s	3.9	4.5	2.4	2.2	3.1	4.0
19	3.9	3.5	A	4.3	2.4		4.5	4.6	5.6	u 7.4 s	6.6	5.0	5.2	4.3	4.8	u 4.5 s	3.5	3.7	3.9	3.0	2.4	A	A	A
20	2.7	1.8	2.5	2.5	1.8		3.2	5.1	8.0	7.6	6.4	7.0	6.2	5.8	6.0	8.0	8.2	4.5 s	4.2	5.0	4.5	3.5	5.0	4.7
21	2.8	2.2	2.7	2.5	2.6	1.8		u 3.9 s	4.2	4.1	4.5	7.0	6.3	5.6	5.1	4.9	4.4	3.7	3.5	2.2	2.6	3.0	3.9	2.8
22	3.0	4.5	3.8	1.7	2.4		2.9	3.7	4.6	4.1	4.4	7.6	A	6.3	u 4.5 s	4.4 s	3.6	5.3	4.8	2.9	3.5	6.3	4.8	2.5
23	2.2	4.4	2.6	5.2	2.8	2.5	4.7	5.9	A	A	6.5	8.5	6.3	4.1	4.5	5.2	8.0	A	A	A	A	A	u 4.2 A	4.5
24	2.3	4.1	2.3	1.8	1.5	B	5.0	4.6	6.5	5.5	6.4	4.5	5.4	5.8	8.9	7.6	4.2		3.8	5.4	2.3	2.5	2.0	S
25	2.2	S	E 1.5 s	B		B	3.5	E 4.7 s	5.5	4.4	4.0	6.9	6.2	5.8	6.0	E 4.5 s	3.7	2.8	2.3	2.1	3.9	4.4	3.2	2.9
26	S	2.7		2.8	B	2.8	5.0	A	5.7	5.0	5.4	4.5	5.2	4.0	3.9 s	4.2	3.4	6.0	A	S	3.9	S	S	3.0
27	1.8	1.8		E			3.0	3.5	D 4.0 s	4.0	S	D 4.4 s	D 4.2 s			3.7	3.3	3.2	2.9	2.9	2.3	4.8	2.8	3.0
28	3.9	3.5	2.0	2.6	2.1	4.5	4.6	5.1	4.5	6.1	5.9	6.0	5.3	8.0	4.8	4.6	6.3	A	A	7.6	u 4.8 s	4.8	1.8	3.6
29	3.5	E	2.2	2.1	2.5	B	3.5	4.3 s	4.7	6.7	4.5	5.6	4.5	4.7 s	u 3.7 s	3.4 G		3.0	4.5	3.4	2.8	2.7	u 4.3 A	3.1
30	3.4	4.8	3.1	2.0	E 1.4 R	B	3.0	4.1	3.8	5.9	A	6.1	6.0	5.3	7.0	E 4.4 s	8.4	u 5.0 s	3.5	2.1	5.7	1.9	3.6	3.2
31	1.9	u 2.4 s			1.7	G	3.7	4.3 s	5.5 s	A	A	A	5.2	4.3				3.1	3.5	2.1	1.7	4.2	3.9	2.9
No.	28	23	24	20	20	10	24	28	30	30	30	28	25	28	23	24	25	28	30	28	28	29	28	27
Median	2.2	2.4	2.2	2.0	1.9	2.6	3.4	4.2	4.6	4.8	5.0	5.4	5.2	4.4	4.5	4.2	3.7	3.8	3.9	3.2	2.6	2.9	3.4	2.9

foEs

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

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

May. 1960 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.50S	E1.50S	E1.25S	1.25	1.30	1.60	E1.90S	1.90	2.25	E2.60S	2.30	E3.10S	2.50	E3.10S	2.40	2.40	2.20	2.15	1.40	E1.60S	E	E1.40S	E1.45S	E1.30S
2	E1.30S	1.35	1.10	1.20	1.20	E1.90S	2.00	1.90	2.40	2.40	2.30	2.30	3.10	2.65	2.30	2.20	2.20	1.70	1.50	E1.80S	E1.50S	1.20	E1.80S	E2.00S
3	E1.90S	E1.80S	1.20	1.20	1.20	1.50	E2.70S	1.80	2.30	2.60	2.40	2.60	E3.00S	2.30	2.55	2.25	E2.55S	E2.30S	E1.60S	E1.60S	E1.40S	E1.50S	E1.90S	E1.80S
4	1.20	1.40	1.40	1.20	1.40	1.50	1.70	E2.50S	2.30	2.45	2.50	2.70	2.60	2.30	2.10	2.25	2.00	E2.50S	1.70	E1.70S	E1.70S	E1.40S	E1.40S	E1.50S
5	1.20	1.25	1.50	1.35	1.20	1.50	E2.10S	E2.20S	2.50	2.60	2.50	2.70	3.30	2.80	2.45	2.40	2.20	1.95	E1.60S	E1.60S	E1.60S	E1.60S	1.40	E1.50S
6	E1.40S	1.20	1.25	1.20	1.10	1.50	1.80	2.10S	2.20	2.40	2.70	2.50	E3.50S	E3.30S	E3.00S	2.55	2.15	2.00	1.95	1.60	E2.00S	1.25	E1.80S	E1.80S
7	E2.00S	E1.50S	E1.90S	1.20	1.15	2.10	2.60	2.00	2.40	2.20	2.60	E3.00S	2.70	2.55	2.60	2.20	2.00	E2.00S	E1.50S	1.35	E1.60S	1.40	E1.40S	E1.45S
8	1.40	1.35	1.20	1.25	1.20	2.10	1.70	2.00	2.30	2.35	2.65	2.50	2.90	2.70	2.70	2.10	2.25	E2.30S	E2.10S	1.60	E1.75S	E1.80S	E1.80S	1.20
9	1.40	E1.50S	1.35	1.35	1.20	1.60	1.90	2.00	2.20	2.30	2.50	2.80	3.50	2.90	2.50	2.20	2.00	E2.45S	2.00	E1.60S	E1.60S	1.30	E1.80S	E1.60S
10	E1.40S	1.45	1.20	1.30	1.30	1.90	2.00S	2.00	2.20	2.45	2.50	E3.05S	3.50	3.45	2.70	2.20	2.25	2.00	2.10	1.80	1.45	E1.80S	1.65	E1.70S
11	1.30	E1.90S	1.20	1.30	1.35	2.10	2.10	2.60	E3.10S	2.70	2.70	3.10	3.30	2.55	3.15	2.50	2.60	1.80	E1.75S	1.40	E1.70S	E1.95S	E1.60S	E1.50S
12	1.70	E1.80S	1.45	1.15	1.30	1.95	2.10	2.80	2.25	2.50	2.40	2.60	2.95	2.80	4.00	2.50	2.40	2.00	1.65	1.35	1.40	1.20	E1.70S	1.40
13	1.40	1.20	1.35	1.20	1.30	1.80	2.25	2.10	2.40	2.20	2.80	2.45	3.10	2.80	2.50	10.40	4.50	E2.60S	2.20	1.70	1.70	1.80	1.65	1.40
14	1.45	1.30	1.35	1.40	1.20	1.75	2.10	2.20	2.30	2.25	2.40	2.65	2.65	2.95	2.60	2.10	1.90	1.70	E2.15S	E1.55S	E1.40S	E1.50S	1.20	1.40
15	1.25	E1.30S	1.25	1.30	1.20	1.60	2.25	1.95	2.20	2.20	2.50	3.45	2.60	4.80	5.20	4.05	2.95	E1.85S	E2.10S	1.30	1.40	E1.80S	1.45	1.35
16	1.40	1.45	1.20	1.20	1.10	E1.95S	2.00	2.20	2.20	2.50	2.75	2.25	2.80	2.45	3.00	2.50	2.35	1.80	1.40	1.40	1.20	E1.50S	E1.80S	E1.70S
17	E1.80S	1.30	1.30	1.30	1.40	2.25	2.00	1.80	2.25	2.30	2.70	2.95	2.85	3.15	3.85	2.95	2.50	E2.20S	1.80	E1.50S	E1.80S	1.40S	E1.60S	1.45
18	1.10	1.20	1.20	1.20	1.20	1.80	1.60	E2.50S	2.25	2.30	2.20	3.10	3.60	3.15	2.50	2.10	2.15	1.95	1.85	E1.50S	1.45	1.50	1.40	1.50
19	1.45	1.90	1.25	1.30	1.20	1.60	1.85	2.20	2.15	2.40	2.30	2.50	2.50	2.50	2.50	2.40	2.20	1.90	1.40	1.40	E1.60S	E1.45S	1.30	E1.70S
20	1.20	1.20	1.20	1.20	1.20	1.80	1.95	2.10	2.20	2.20	3.75	3.60	3.00	2.40	2.10	2.20	2.10	1.90	1.60	1.60	1.50	1.20	E1.80S	1.30
21	1.20	1.20	1.25	1.20	1.35	1.35	1.90	2.10	2.20	2.10	2.30	2.30	E3.60S	2.70	2.40	2.00	2.00	E2.20S	1.80	1.20	E1.60S	1.35	1.70S	E1.60S
22	1.20	1.20	1.30	1.20	1.30	1.80	1.70	2.10	2.45	2.50	2.60	3.30	2.50	3.50	2.70	2.30	2.20	2.20	1.50	E1.60S	E1.60S	1.30	1.20	1.30
23	1.45	1.35	1.25	1.10	1.30	1.60	1.80	2.20	2.25	2.50	2.50	2.35	2.50	2.70	2.60	2.80	2.40	1.90	E1.80S	E1.90S	E1.80S	1.45	1.20	1.25
24	1.20	1.10	1.20	1.30	1.20	2.05	E2.00S	2.30	2.20	2.40	2.70	2.60	E3.00S	3.60	2.80	2.40	2.60	1.90	1.60	E1.80S	1.30	E1.80S	E 60S	E1.80S
25	E2.00S	E1.95S	1.20	1.95	1.30	2.20	2.00	E2.20S	2.10	2.10	3.60	2.90	4.60	2.90	E3.80S	2.45	2.60	2.00	2.00	E1.50S	E1.50S	E1.50S	1.50S	1.45
26	E1.50S	E1.45S	1.30	1.10	1.25	1.50	1.90	2.10	2.50	2.50	2.60	2.50	3.20	3.60	3.20S	2.10	2.30	E2.20S	E1.80S	E1.80S	1.20	E1.95S	E1.60S	1.25
27	1.30	1.20	1.15	1.10	1.30	1.70	2.10	2.10	2.65	2.65	2.95	E3.00S	3.00	2.80	2.70	2.20	2.20	2.10	1.70	1.40	1.30	E1.60S	1.30	E1.50S
28	1.10	1.15	1.20	1.20	1.30	1.90	2.00	2.10	2.25	2.40	2.50	2.50	3.60	2.60	2.40	2.15	2.40	2.00	1.50	1.30	1.30	1.30	E1.70S	1.25
29	1.20	1.30	1.20	1.20	1.40	2.40	2.00	2.15	2.20	2.60	2.60	3.70	3.55	2.45	2.50	2.35	2.20	1.25	2.00	E1.80S	1.45	1.25	1.40	E1.25S
30	1.10	1.15	1.25	1.25	1.20	2.25	1.95	2.10	2.30	2.35	2.60	2.80	3.00	2.70	2.50	2.50	2.40	E2.20S	E2.10S	E1.85S	E1.40S	1.45	E1.70S	E1.70S
31	E1.70S	1.45	1.20	1.40	1.15	1.80	1.90	2.20	2.10	2.35	2.45	2.60	2.60	2.45	2.20	2.25	2.30	1.65	1.80	E1.90S	E1.50S	E1.60S	E1.95S	E1.80S
No.	21	23	30	31	31	29	29	27	30	30	31	27	29	29	29	31	30	21	24	31	31	31	31	31
Median	1.25	E1.30	E1.25	1.20	1.20	1.80	E2.00	2.10	2.25	2.40	2.60	2.60	E3.00	2.70	2.55	2.30	2.20	1.90	1.70	E1.60	E1.50	E1.45	E1.60	E1.50

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

May. 1960

(M3000)F2

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.35	2.30	2.40	2.00F	2.05F	2.65	2.75	A	G	A	A	A	A	2.25	2.60	2.60	2.90	2.80	2.80	2.85	2.50	u2.65s	2.65s	2.65
2	2.70	2.80	2.85	3.00	2.80	3.05	3.15	2.95	2.80	2.80s	3.00	2.95	2.90	2.80	2.95	2.95	3.00	2.85s	3.00	2.85	I2.80s	I2.70s	J2.65s	I2.75s
3	J2.70s	2.90	2.90	2.75	2.60	3.05s	3.30	3.15	2.95	2.80	J2.75s	2.70	2.90	2.95	2.90	2.90	2.95	3.05	3.15	2.95s	u2.80s	2.70s	J2.65s	2.80
4	2.95s	I2.80s	u2.90s	J2.85s	2.65s	J2.75s	3.00	3.20	2.70	2.70	2.80	2.75	2.95	2.90	3.00	3.00	3.00	2.95s	3.10s	u3.10s	2.90s	2.75s	u2.85s	I2.65s
5	J2.60s	2.75	2.85s	3.05	2.85	2.90	3.15	3.25	2.80	2.90	2.80	2.80	2.90	2.80	2.85	3.05	I2.80A	I2.90A	2.90s	I3.05s	2.85	2.60	u2.65s	2.70s
6	u2.65s	u2.75s	3.00s	2.90	2.85	2.95	3.20	3.10	3.00	2.85	J2.80s	2.65	2.80	2.85	2.90	2.95	2.95	2.85	J2.80s	2.90	3.00	u2.60s	u2.60s	I2.50s
7	I2.60s	u2.65s	2.80s	2.90M	2.55	2.75	2.95	3.00Z	I2.80A	I2.55As	2.85	J2.80R	2.75	2.75	2.60	2.80	2.55	2.80	2.90	u3.05s	u3.05s	2.50	2.30	2.45F
8	2.40	2.50	2.85	2.85	2.55	2.90	3.00	3.15	2.90	2.65	2.70R	2.70	2.75	2.90	2.90	2.95	2.60	2.65	2.70	3.05	2.60s	I2.55s	I2.50s	I2.60s
9	2.60	2.50	2.75	2.35	2.55H	I2.40A	2.30	2.35F	2.35F	2.30V	I2.75A	2.40	2.50R	2.55	2.70	2.75	2.80	2.95	2.95	2.85	2.55	2.45s	2.50	2.65
10	2.65s	2.75	2.60	2.60	2.70	2.65	2.40	J2.40A	I2.40As	I2.20A	I2.10A	I2.35s	2.55s	2.30	2.55	2.75	2.80	2.90	3.05	2.75	2.55	2.45s	2.60s	2.55s
11	2.50	2.65	2.50	2.50	2.40	2.45	2.40	2.60	I2.65A	I2.40A	I2.35A	2.35s	2.40	2.60	2.70	2.80	I2.60A	2.75	I2.55A	2.60	2.50	2.45	2.55	2.40
12	u2.35F	2.25	2.45	2.55F	2.75F	2.90	3.05	2.65H	I2.60A	2.70	2.65	2.65	2.65	2.70	2.70	2.70	2.80	2.90	3.00	3.05	2.65	2.40	I2.50A	2.45F
13	2.55F	2.55	2.70	2.60	2.50	2.70	3.00	3.00	2.80	2.80	2.65s	2.65	2.70	2.75	2.80	2.80	2.80	J2.90R	u2.90s	2.90	u2.80s	u2.60s	I2.55A	2.60
14	2.65	2.65s	2.55s	2.60R	2.75	3.00	3.25	3.15	2.75	2.65	2.60	2.55	2.65	2.70	2.75	2.80	2.80	2.80	2.90	2.85	2.70	2.65s	2.60	u2.65s
15	2.65	2.85	J2.80s	2.85	2.70	2.80	3.00	3.05	2.65	2.65	2.70	2.70	2.70	2.75	2.80	2.85	2.85	2.85	J2.80s	2.85s	2.85	u2.75s	2.65s	2.55
16	2.60	u2.90s	3.00	J2.75R	2.65	J2.65s	2.65H	2.75s	2.70	2.80	2.60	2.75	2.80	2.75	2.80	3.00	2.80	2.90	2.80	2.75	I2.90s	J2.55s	J2.75s	2.65
17	J2.65s	u2.75s	2.45	2.40	2.60	2.45	2.30	u2.50s	2.65	2.65R	2.35	2.50	2.60	2.80	2.90	3.00	2.95	2.95	2.90	2.80s	2.60	2.45s	2.45	2.50
18	2.65	2.80	2.70	2.50	2.50	2.55F	2.80	2.90s	2.90	2.65F	2.65	2.65s	2.70	2.80R	I2.90A	2.95	2.90	2.85	2.95	2.80	2.75	2.75s	2.65s	I2.65s
19	2.65s	2.80	I2.95A	2.65	2.65	2.80	2.65H	3.00s	J2.90R	I2.70s	2.65	2.70	2.70	2.75	2.85	2.90	2.90	2.90	u2.95s	3.05	2.65	I2.60A	I2.65A	I2.65A
20	2.65	2.60F	2.65	2.80	2.80	3.05	3.10	2.80	2.60	2.90	I2.70R	2.60	2.65	2.80	2.80	2.85	2.85	2.95	2.70s	J3.25s	2.60	2.55s	2.75	2.70
21	2.70	u2.70F	2.70	2.80	2.80	2.85	3.00	3.15	3.10	3.00	2.55	2.80	2.65	2.70	2.75	2.95	3.05	2.95s	2.95	3.00	2.65	2.65	2.65	2.65R
22	u2.65s	2.65	2.75	2.80F	2.60F	3.05	3.20	3.15	2.70H	2.65	2.75	2.65	I2.70A	2.70	2.80	2.85	u2.85s	2.90R	2.80	2.85s	2.85s	J2.70s	2.70	2.60
23	u2.75s	2.70	2.80F	2.70F	2.70F	3.15	3.10	3.00	I2.90A	I2.80A	2.70	2.65	2.60	2.70	2.70	2.75	2.80s	A	A	A	A	I2.55A	2.70F	2.60
24	2.65R	2.70F	2.65	2.65	2.55	2.55	2.80	2.55	2.75	2.60	2.55	2.60V	2.65	2.55R	2.60	J2.65s	2.80	3.00	2.75	2.50s	2.60	I2.60s	I2.50s	2.65
25	J2.55s	J2.60s	2.70	2.65s	2.60	2.30	2.50	u2.40s	2.30	2.45	2.55	2.60	2.75	2.60	2.80	2.85s	2.85	2.80	2.80	2.70	2.50	2.60	2.65	2.60
26	2.55	2.50	2.45	2.60	2.75	2.60	2.70	I2.90A	2.95	2.95	u2.30R	2.30	2.60	2.65	2.80	2.75	2.95	2.80	I2.70A	2.80	u2.85s	2.65	2.60	2.50
27	2.65s	2.75	2.70	2.60	2.70	2.75	3.00s	2.95	3.05	2.80	2.35	2.50s	2.55	2.65	2.80	2.85	2.90	2.90	2.90	2.75	2.65	2.65	2.65s	2.55s
28	J2.60s	2.60	2.65	2.55	2.80	u3.00s	u3.05s	3.15	2.80	2.90	2.80	2.90	2.70	2.75	2.80	2.75	2.75	A	A	2.80	I2.60s	2.50F	I2.55R	2.65F
29	u2.55F	J2.75F	2.75	2.60	J2.65F	2.90	2.85s	3.10	2.85	2.65s	2.60u	2.55R	J2.30R	2.40	2.80	2.85R	J2.70R	2.70	J2.75s	2.75s	2.75s	2.60	u2.55s	2.55F
30	2.55R	2.50	2.50	2.30F	J2.45F	J2.80R	3.00	2.90	2.90H	I2.95A	I2.80A	2.90	2.75	2.80	2.85R	2.90	I2.80A	2.85s	u2.95s	2.90	J2.65s	I2.50s	u2.60s	I2.65s
31	I2.60s	I2.90s	2.40H	2.60	2.50	2.60	2.65	2.55	I2.50A	I2.60A	I2.40A	I2.25A	2.40s	2.35	I2.35s	2.40	2.55	2.70	2.75	2.70	2.50	2.45	2.45Z	2.50
No.	31	31	31	31	31	31	31	30	31	30	30	30	30	31	31	31	31	29	29	30	30	31	31	31
Median	2.65	2.70	2.70	2.65	2.65	2.80	3.00	3.00	2.80	2.70	2.65	2.65	2.70	2.75	2.80	2.85	2.80	2.90	2.90	2.85	2.65	2.60	2.60	2.60

(M3000)F2

Sweep 1.0 Mc to 20.0 Mc in 2' min sec in automatic operation.

The Radio Research Laboratories, Japan.

K 7

IONOSPHERIC DATA

May. 1960 | (M3000)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									3.35	A	A	A	I3.80A	I3.70A	3.75	3.60	3.55L							
2									L	3.40L	L	L	3.35L	A	A	A	L							
3										L	u3.35L	3.45L	u3.50L	3.55	3.60		L							
4									L	L	3.55L	3.55L	3.50L	3.45L	3.55	L								
5										3.35L	u3.45L	L	L	3.65	3.95L		A	A						
6										u3.55S	S	3.30L	3.40	3.65L	S	3.80L	L							
7									A	A	3.55S	3.45	3.45L	u3.40L	3.50	3.35L	L	L						
8									u3.40L	u3.30L	L	3.50L	3.50L	3.60L	A	A	A		A					
9						A	3.05L	u3.00S	A	A	A	3.65H	u3.60S	A	3.40	3.40L	u3.35L	A						
10							3.15	A	S	A	A	3.80	3.75S	u3.60S	3.55	3.60S	3.35L	L						
11						2.95L	3.20	A	A	A	A	A	u3.65H	3.55S	3.55	u3.75L	A	A	A					
12									A	3.35	3.40	3.20L	3.45L	3.50	3.40L	3.30	3.45L	L						
13								L		L	L	A	3.30L	3.55	3.30L	B	L	A						
14								L		L	3.45L	A	L	3.20L	3.40L	3.55L	L							
15									u3.50L	u3.35L	3.55L	3.35L	3.45L	3.30L	B	L	L							
16								L	L	L	3.45L	3.40	3.45L	L	3.45	L								
17							3.10L	3.05S	3.40	3.75L	3.65S	3.50S	3.55S	S	3.40L	3.45L	3.50L	L						
18								A	A	3.40L	3.50L	A	3.40	A	A	L	L							
19								L	A	A	A	L	A	3.40	3.45	A	L							
20									A	A	A	A	A	A	A	A	A	A						
21									L	u3.90L	3.25L	A	A	A	A	L	A							
22										3.45L	3.45L	A	A	A	A	3.50L	L	A	A					
23								A	A	A	A	A	A	3.30L	3.40L	A	A	A	A					
24							A	L	A	A	A	L	A	A	A	A	A	L						
25						L	3.15S	S	A	u3.65S	3.80	A	A	A	A	S	L	L	L					
26						u3.05L	A	A	A	A	A	A	AS	3.55S	L	A	3.40H	A	A					
27									S	L	S	S	3.40	3.50L	S	3.45	L	L						
28						A	A		L	A	A	A	L	A	3.50L	L	A	A	A					
29										A	L	A	3.20L	3.10	u3.55L	3.40L	L	L						
30								L		A	A	A	A	A	A	S	A	L						
31							A	A	A	A	A	A	A	3.80	3.45S	3.35S	3.45	3.25	A					
No.						2	5	7	4	11	13	11	18	19	18	13	7	1						
Median						u3.00	3.15	u3.00	u3.40	3.40	3.45	3.45	3.45	3.55	3.50	3.45	3.45	3.25						

(M3000)F1 Sweep 1.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May, 1960 | 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									G	A	A	A	I585A	590	455	350	305							
2									z60	305	300	300	300	300	300	z75	z60							
3										z50	310	310	305	300	300		z70							
4									z90L	300L	300	300	305	300	300	z60								
5										300	310A	370	z80	300	300		A	A						
6										300	305	315	330	300	300	300	z75							
7									A	A	340	350	350	350L	405	340	320L	300						
8									305	355	330	305	305	305	300	z80A	E400A		300A					
9						A	400	410S	430	E490A	A	490	420	440	395	355	350	305						
10							500	530	A	A	A	S	470	550	450	390	340	300						
11						405	490	405	A	A	A	E555A	505	450	380	330	A	E400A	A					
12									A	355	365	355	330	355	350	350	310	z75						
13								z50		L	350	330	330	310	320	E360B	z90	z90						
14								z50		300L	330	350	350	340	320	300	z90							
15									300	305	300	325	310	330	305	z85	z70							
16								300	305	z60	300	330	320	300	305	z90								
17							445	375	365	370	500	460	395	360	325	305	305	z80						
18								300A	305	355	350	E390A	335	310	A	z95	300							
19								z75	310	E380S	350A	345	345	320	300	300	300							
20									E380A	320A	300A	350	320	310	310	300	320A	z75						
21									z60	z60	355	320	360	340	320	300	z90							
22										355	340	E370A	A	350	315	310	z85	z75	E260A					
23								z75	A	A	355	E450A	390	355	345	325	E340A	A	A					
24							z70	L	350A	355	380	355	350	360	E400A	E350A	305	z90						
25						400L	395	E450S	520A	440	430	E480A	380	E400A	360	330	310	300	300					
26						380	360	A	330	340	550	540	410	390	380	360	320	E345A	A					
27									z80	z90	330	390	360	350	325	305	z75	z75						
28						A	z60		z70	305	310	330	355	E380A	350	330	320	A	A					
29										325	z95	350	440	440	310	z90	300	300						
30								305		E400A	A	350	355	340	300	320	E350A	300						
31							335	365	E500A	A	A	A	A	475	S	520	455	390	310					
No.						3	9	12	15	21	25	23	29	29	28	27	24	14	4					
Median						400	395	300	305	305	330	345	350	340	320	305	300	z95	300					

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

The Radio Research Laboratories, Japan.

K 9

IONOSPHERIC DATA

May. 1960 | 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	355	405	350	445	545	325	350	I795A	z50	A	A	A	I750A	I745A	z05	z10	z45	z55	z95	z95A	305	z95	300	z95
2	z95	z55	z55	z30	z50	z35	z20	z10	z05	z35	E750S	E720A	u755A	A	A	I730A	z10	z35	z45	z40	z55	z80	310	300
3	z85	z50	z50	z55	300	z30	z75	z15	z10	z00	z10	z00	z10	z30	z10	z55	z50	z50	z50A	z50	E350A	z80	z95	z85
4	z60	z55	z50	z70	z75	z60	z30	z15	z45	z20	z05	z05	z00	z10	z10	z25	z25	z25	z50	z45	z55	z80A	z80	300
5	z95	305	z55	z30	z40	z55	z40	z20	z20	z10	z55	I720A	z45	z30	z05	z50	A	A	z50	z45S	z55A	z80A	310	305
6	300	z90	z50	z05	z25	z55	z30	z30	z50A	z15	I745S	z10	z05	z25	z15	z05	z50	E770A	E775A	z50	z50	z30	E345A	E350A
7	E360A	305	z85	z20H	z70	z70	z55	z30	A	A	E755A	z30	z45	z50	z30	z50	z30	z60	z60	z45	z50A	320A	380A	380
8	360A	330	z90	z45	z60	z50	z25	z25	z50S	z50A	E305A	z45	z45	z10	A	A	A	E760A	I750A	z45A	z60	z90	330A	310A
9	300A	E380A	z80A	z75	z55H	I720A	z60	z50	A	A	A	195H	z50	I750A	z30	z30	z50	I760A	z80A	z50	z70	335	380A	360A
10	300	z80	z90	z75	z40	z80	z65	I760A	A	A	I730A	z30	z05	z20	z30	z25	z45	E770A	z60A	z70	300	340A	320A	310A
11	325	300	z75	300	330	305	z60	A	A	A	I730A	I730A	z00H	z25	z30	E770A	A	A	A	E350A	z95	330A	305	350
12	E445S	E505A	E390A	z75	z90	z55	z50	z50H	I745A	z40	z20	E300A	z20	z05	z10	z30	z50	z45	z55A	z45A	z50A	E350A	I785A	345A
13	320A	305	z60	z75	320	z75	z60	z30	z50A	z55	E790A	I740A	z05	z25	z50	B	E750A	I750A	z60A	z55	z50	300A	I720A	320A
14	300	z95	325	z95	z55	z25	z45	z30	z30	z20	z60A	I750A	E300A	z05	z40	z45	z30	z50	z50	z50	z55A	z90A	300	z95
15	z80	z60	z50	z50	z75	z50	z30	z25	z10	z05	z00	z05	z25	z60B	I740B	z30	z35	z30	z55	z45	z50	z60	z75	z95
16	z95	z50	z50	z80	300	z30	z30H	z45	z50A	z05	z10	z05	E750A	z20	z45	u700S	z45H	z55	E780A	E790A	z50A	300A	E340A	300A
17	305	z90	320	350	z95	300	z80	z80S	z45	z10	z00	z05	z00	z30	z50A	z50	z50	z40	z60	z60	z90	310	E400A	350A
18	345A	300	z70	320	325	z60	z50	I760A	I750A	z15	z45	I730A	z30	I720A	I710A	z00	z40	z55A	z50A	z45A	z50	z70	z95	310A
19	305A	z80A	I310A	345A	z80	z50	z70H	z55	A	A	I795A	E300A	I305A	z45	z50A	I750A	z30	z60	z55	z40	z50	I310A	I790A	I790A
20	310	z90	z95	z95	z60	z45	z35	z70A	A	A	A	I725A	I745A	I740A	A	A	A	I710A	z55	z10	300A	310A	E310A	310A
21	300A	z80	z80A	z70	z80	z45	z30	z20	z30	z05	z45	A	A	A	A	E300A	I745A	z60	z55	z50	z70	305	330A	305
22	325	320A	z95	z75	z95	z50	z40	z50	z60H	z25	z45	A	A	A	E795A	z50A	z50	A	A	z60	z60A	E340A	320A	
23	z95	345	z80	E370A	300	z50	z45	A	A	A	A	A	A	z50S	z50	A	A	A	A	A	A	350A	350A	
24	330	310A	300	z95	305	z60	I750A	z60	I760A	I755A	I755A	E300A	I750A	A	A	A	A	z50	z60	E360A	305	305	330	300
25	z95	300	z80	z90	325	z95	z50	S	A	z30	z05	I745A	A	A	A	E750S	z55	z50	z60	z60	E350A	E350A	310A	325A
26	300	345A	305	325	z90	E305A	A	A	A	A	I740A	E360A	I750S	z50	E300A	E300A	z50	I750A	I780A	z80	E790A	z80	305	E350A
27	320	300	z80	z95	300	z50	z45	z50	I745S	z10	I730S	I710S	z40S	z30	I740S	z40	z40	z45	z65	z55A	z60	E350A	305	350A
28	320A	330	310	320A	z90	I750A	I750A	z55	z50	A	A	A	A	A	z50	E780A	A	A	A	E330A	E300A	E400A	270	300A
29	340A	z75	z55	z80	z50	z30	z50	z60	E270A	A	z40	I750A	z50	E795A	z30	z50	z40	z55	z60A	z70A	z80A	z80A	320A	350A
30	325A	E370A	350A	370	350	z75	z45	z55	z45H	A	A	A	A	E310A	A	I730S	I725A	z50	z80A	z55	E350A	310	320	300
31	320	z55	z25H	300	340	z80	E330A	330S	A	A	A	A	I740A	z30	z50	z45	z50	z55	I775A	z95	305	E380A	E380A	340
No.	29	28	30	30	31	30	29	27	20	18	20	19	23	23	22	21	23	23	25	26	25	24	26	29
Median	305	300	z80	z80	z90	z55	z45	z50	z45	z20	z35	z25	z40	z30	z30	z30	z45	z50	z60	z50	z60	300	310	310

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | f'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	S	S	120	G	G	G	130	115	110	105	100	100	100	100	G	G	150	120	110	105	105	105	100	100
2	100	E	E	E	E	S	G	S	110	105	105	105	100	100	100	100	100	100	G	S	S	100	S	S
3	S	S	E	E	E	G	S	105	115	135	105	110	G	115	G	155	135	120	105	105	100	105	100	S
4	100	E	100	E	E	G	G	130	110	115	110	120	120	120	G	G	100	S	120	S	105	105	100	100
5	100	100	100	E	105	G	G	110	115	110	100	100	105	105	105	125	110	105	100	100	100	100	100	100
6	100	100	100	E	115	G	110	110	105	105	105	110	105	110	110	105	105	120	105	105	S	100	105	105
7	105	S	S	E	E	B	145	125	110	105	105	G	G	135	G	140	G	100	115	110	105	100	100	100
8	100	100	100	100	100	B	G	115	105	105	100	105	100	105	100	100	100	100	100	100	100	100	100	100
9	100	100	100	115	150	110	115	130	105	105	100	115	G	145	145	135	125	115	110	105	105	100	100	100
10	100	100	100	100	100	100	130	110	105	100	100	105	105	100	100	105	130	105	105	100	100	100	100	100
11	100	S	E	E	E	B	145	110	100	100	100	100	105	105	105	130	105	105	100	100	100	100	100	100
12	100	100	100	100	100	B	105	105	100	100	100	100	140	G	B	110	G	G	110	105	100	100	100	100
13	100	100	105	120	100	G	105	105	105	105	100	100	G	105	100	B	100	100	105	100	100	100	100	100
14	100	E	100	E	100	G	120	105	100	100	100	100	100	100	100	100	G	135	130	105	100	100	100	100
15	100	100	100	B	E	G	G	130	115	110	105	105	105	B	B	B	G	100	110	95	100	S	E	100
16	105	100	100	95	95	95	125	110	105	100	100	100	105	105	105	105	130	120	100	100	100	100	100	100
17	100	100	100	100	E	135	120	125	110	100	120	G	G	145	140	135	140	125	125	110	S	100	100	100
18	125	120	100	100	100	125	105	105	100	G	100	100	105	100	100	140	110	100	100	100	100	100	100	100
19	100	100	100	100	100	G	115	105	100	100	100	100	100	110	110	110	125	110	105	100	100	100	100	100
20	100	100	100	100	100	G	110	105	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
21	100	100	100	100	100	100	G	100	100	120	100	100	105	100	105	110	115	115	110	105	105	105	105	105
22	105	105	100	100	100	G	145	130	125	130	125	115	110	110	125	115	120	115	110	110	105	105	105	100
23	100	100	105	100	100	130	120	115	115	110	105	105	105	125	110	140	130	120	110	105	105	105	110	105
24	105	105	100	105	105	B	130	120	110	110	110	110	110	110	110	105	105	G	100	100	100	100	100	S
25	115	S	110	B	E	B	125	120	125	125	130	120	130	130	130	130	120	125	110	115	110	105	110	110
26	S	105	E	105	B	130	125	120	120	115	120	120	125	125	125	145	130	115	110	S	105	S	S	105
27	110	105	E	110	E	G	125	120	115	125	S	110	130	G	G	110	105	155	130	120	105	110	105	115
28	110	110	105	105	110	130	130	125	120	115	110	110	110	110	140	115	115	120	120	115	110	110	110	105
29	105	105	100	100	100	B	125	125	110	110	110	110	110	105	105	105	G	110	105	110	110	105	105	105
30	105	105	105	105	105	B	150	135	145	110	110	110	110	120	110	110	110	110	110	110	100	105	100	100
31	105	105	E	E	105	150	130	130	115	110	110	110	110	110	G	G	G	130	120	110	115	110	110	105
No.	28	23	24	19	20	10	24	30	31	30	30	29	26	28	23	26	25	28	30	28	28	29	28	28
Median	100	100	100	100	100	130	125	115	110	110	105	105	105	110	105	110	115	115	110	105	100	100	100	100

f'Es

Sweep 4.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

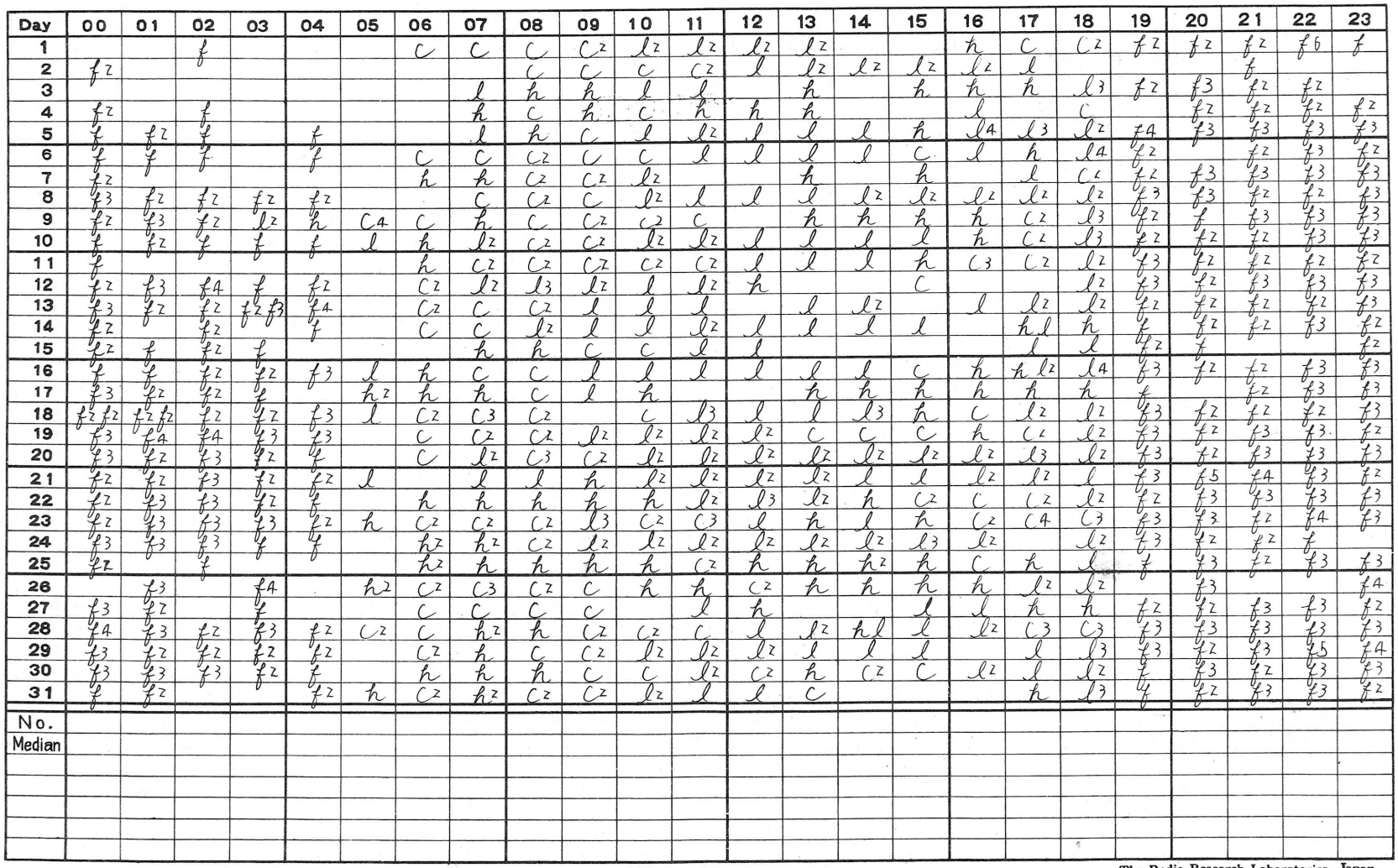
May. 1959

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E



Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			f				C	C	C	Cz	lz	lz	lz	lz			h	C	Cz	fz	fz	fz	f6	f
2	fz								C	C	C	Cz	l	lz	lz	lz	lz	l				f		
3								l	h	h	l	l		h		h	h	h	l3	fz	f3	fz	fz	
4	fz		f					h	C	h	C	h	h	h			l		C		fz	fz	fz	fz
5	f	fz	f		f			l	h	C	l	lz	l	l	l	h	l4	l3	lz	f4	f3	f3	f3	f3
6	f	f	f		f		C	C	Cz	C	C	l	l	l	l	C	l	h	l4	fz		fz	f3	fz
7	fz						h	h	Cz	Cz	lz			h		h		l	C	fz	f3	f3	f3	f3
8	f3	fz	fz	fz	fz			C	Cz	C	lz	l	l	l	lz	lz	lz	lz	lz	f3	f3	fz	fz	f3
9	fz	f3	fz	lz	h	C4	C	h	C	Cz	Cz	C		h	h	h	h	Cz	l3	fz	f	f3	f3	f3
10	f	fz	f	f	f	l	h	lz	Cz	Cz	lz	lz	l	l	l	l	h	C	l3	fz	fz	fz	f3	f3
11	f						h	Cz	Cz	Cz	Cz	Cz	l	l	l	h	C3	Cz	lz	f3	fz	fz	fz	fz
12	fz	f3	f4	f	fz		Cz	lz	l3	lz	l	lz	h			C			lz	f3	fz	f3	f3	f3
13	f3	fz	fz	fz f3	f4		Cz	C	Cz	l	l	l		l	lz		l	lz	lz	fz	fz	fz	fz	f3
14	fz		fz		f		C	C	lz	l	l	lz	l	l	l	l		h l	h	f	fz	fz	f3	fz
15	fz	f	fz	f				h	h	C	C	l	l					l	l	fz	f			fz
16	f	f	fz	fz	f3	l	h	C	C	l	l	l	l	l	l	C	h	h lz	l4	f3	fz	fz	f3	f3
17	f3	fz	fz	f		hz	h	h	C	l	h			h	h	h	h	h	h	f		fz	f3	f3
18	fz fz	fz fz	fz	fz	f3	l	Cz	C3	Cz		C	l3	l	l	l3	h	C	lz	lz	f3	fz	fz	fz	f3
19	f3	f4	f4	f3	f3		C	Cz	Cz	lz	lz	lz	lz	C	C	C	h	Cz	lz	f3	fz	f3	f3	fz
20	f3	fz	f3	fz	f		C	lz	C3	Cz	lz	lz	lz	lz	lz	lz	lz	l3	lz	f3	fz	f3	f3	f3
21	fz	fz	f3	fz	fz	l		l	l	h	lz	lz	lz	lz	l	l	lz	lz	l	f3	f5	f4	f3	fz
22	fz	f3	f3	fz	f		h	h	h	h	h	lz	l3	lz	h	Cz	C	Cz	lz	fz	f3	f3	f3	f3
23	fz	f3	f3	f3	fz	h	Cz	Cz	Cz	l3	Cz	C3	l	h	l	h	Cz	C4	C3	f3	f3	fz	f4	f3
24	f3	f3	f3	f	f		hz	hz	Cz	lz	lz	lz	lz	lz	lz	l3	lz		lz	f3	fz	fz	f	
25	fz		f				hz	h	h	h	h	Cz	h	h	hz	h	C	h	l	f	f3	fz	f3	f3
26		f3		f4		h2	Cz	C3	Cz	C	h	h	Cz	h	h	h	h	lz	lz		f3			f4
27	f3	fz		f			C	C	C	C		l	h			l	l	h	h	fz	fz	f3	f3	fz
28	f4	f3	fz	f3	fz	Cz	C	hz	h	Cz	Cz	C	l	lz	hl	l	lz	C3	C3	f3	f3	f3	f3	f3
29	f3	fz	fz	fz	fz		Cz	h	C	Cz	lz	lz	lz	l	l	l		l	l3	f3	fz	f3	f5	f4
30	f3	f3	f3	fz	f		h	h	h	C	C	lz	Cz	h	Cz	C	lz	l	lz	f	f3	fz	f3	f3
31	f	fz			fz	h	Cz	hz	Cz	Cz	lz	l	l	C				h	l3	f	fz	f3	f3	fz
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.

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

May. 1960

foF2

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	480	505	450	595^{F}	590^{F}	380	350	A	G	A	A	A	A	A	G	380	340	350	355	345	425	u390^{s}	380^{s}	400
2	390	335	345	305	350	305	300	305	350	350^{s}	330	340	345	350	335	325	310	330^{s}	305	330	I350^{s}	I380^{s}	J400^{s}	I390^{s}
3	J380^{s}	345	330	355	400	300^{s}	280	300	310	350	J375^{s}	355	350	340	350	345	330	320	300	305^{s}	u350^{s}	390^{s}	J380^{s}	375
4	345^{s}	I350^{s}	u355^{s}	J355^{s}	390^{s}	J370^{s}	305	290	355	380	355	355	350	350	330	315	320	305^{s}	305^{s}	u300^{s}	350^{s}	380^{s}	u350^{s}	I395^{s}
5	J400^{s}	390	350^{s}	300	350	305	295	290	345	340	355	355	355	340	350	300	A	A	320^{s}	I305^{s}	335	390	395^{s}	u390^{s}
6	u395^{s}	u385^{s}	315^{s}	310	350	345	285	300	305	355	J355^{s}	395	375	355	345	345	340	345	J350^{s}	340	320	u400^{s}	u410^{s}	I430^{s}
7	I420^{s}	u395^{s}	365^{s}	330^{H}	410	360	320	310^{R}	A	AS	355	J360^{R}	360	380	405	355	400	350	330	u310^{s}	u305^{s}	445	450	450^{F}
8	450	410	345	335	410	330	300	295	345	390	390^{R}	355	355	350	345	330	400	365	390	305	400^{s}	I410^{s}	445^{s}	I400^{s}
9	400	445	350	450	440^{H}	I445^{A}	470	490^{F}	455^{F}	A	A	G	420^{R}	440	400	390	370	345	325	335	400	440^{s}	420	400
10	400^{s}	380	390	390	360	380	G	A	AS	A	A	S	G	G	G	390	355	330	310	350	400	430^{s}	400^{s}	400^{s}
11	415	385	395	405	450	440	I470^{G}	405	A	A	A	A	G	G	395	355	A	A	I355^{A}	380	405	430	400	450
12	u455^{F}	A	430	400^{F}	355^{F}	320	305	380^{H}	I400^{A}	385	390	380	380	380	385	375	355	345	320	305	350	450	I425^{A}	445^{F}
13	400^{F}	405	350	400	430	365	310	310	345	360	400^{s}	390	380	365	365	I350^{B}	355	J330^{R}	u330^{s}	330	u375^{s}	u400^{s}	I425^{A}	400
14	395	400^{s}	415^{s}	400^{R}	355	305	290	300	350	380	390	405	400	395	375	355	350	360	330	350	375	390^{s}	400	u390^{s}
15	385	350	J350^{s}	330	375	345	305	305	380	375	385	385	370	375	355	350	340	330	J345^{s}	335^{s}	350^{s}	u380^{s}	395^{s}	405
16	400	u345^{s}	300	J360^{R}	380	J395^{s}	380^{H}	360^{s}	365	350	390	370	355	355	350	320	350	325	345	355	I345^{s}	J400^{s}	J385^{s}	395
17	J400^{s}	u380^{s}	440	450	400	440	495	u415^{s}	400	390^{R}	I400^{G}	I430^{G}	400	385	350	335	330	320	330	350^{s}	390	425^{s}	450	430
18	400	365	380	410	410	400^{F}	350	345^{s}	335	380^{F}	390	395^{s}	380	350^{R}	I330^{A}	330	340	335	310	350	350	365^{s}	380^{s}	I390^{s}
19	390^{s}	350	I400^{A}	380	380	350	385^{H}	305^{s}	J350^{R}	I390^{s}	390	385	385	350	335	335	335	340	u315^{s}	305	360	I400^{A}	I400^{A}	I400^{A}
20	400	395^{F}	370	355	350	295	280	350	400	355	I365^{R}	400	395	395	355	350	350	315	300^{s}	J290^{s}	400	405^{s}	370	380
21	390	u355^{F}	355	355	355	345	320	295	300	300	400	350	395	390	355	330	320	320^{s}	310	335	390	405	400	400^{R}
22	u400^{s}	390	365	355^{F}	390^{F}	305	300	300	380^{H}	400	380	395	I395^{A}	395	355	355	u345^{R}	315^{R}	360	350^{s}	345^{s}	J400^{s}	395	405
23	u380^{s}	390	355^{F}	400^{F}	380^{F}	300	300	305	I345^{A}	I395^{A}	395	I400^{A}	405	400	375	375	355^{s}	A	A	A	A	I410^{A}	395^{F}	400
24	400^{R}	390^{F}	380	395	400	405	350	400	370	400	410	400^{V}	385	400^{R}	420	J400^{s}	350	320	375	420^{s}	400	I405^{s}	I450^{s}	395
25	J400^{s}	J400^{s}	385	395^{s}	405	470	430	A	A	450	430	I410^{A}	380	410	370	350^{s}	350	355	355	355	410	400	390	400
26	400	445	430	405	360	400	380	I345^{A}	340	345	G	G	410	400	395	390	350	350	I390^{A}	370	u350^{s}	390	400	430
27	395^{s}	380	390	400	395	370	315^{s}	310	305	350	450	380^{s}	410	400	375	350	330	330	330	355	395	400	400^{s}	410^{s}
28	J400^{s}	400	405	405	355	u305^{s}	u305^{s}	300	350	335	375	350	390	I380^{A}	390	370	370	A	A	350	I400^{s}	450^{F}	I400^{R}	385^{F}
29	u400^{F}	J355^{F}	350	400	J355^{F}	330	335^{s}	300	350	380^{s}	380	u405^{R}	J500^{R}	475	355	350	J355^{R}	360	J355^{s}	355^{s}	365^{s}	400	u405^{s}	405^{F}
30	405^{R}	430	425	490^{F}	J455^{F}	J350^{R}	305	330	330^{H}	A	A	355	375	370	340^{R}	350	A	340^{s}	u320^{s}	335	J385^{s}	I425^{s}	u405^{s}	I380^{s}
31	I400^{s}	I335^{s}	415^{H}	395	415	400	390	400	I450^{A}	A	A	A	A	G	S	G	G	400	355	380	400	445	445^{R}	410
No.	31	30	31	31	31	31	30	28	26	24	24	25	27	27	28	30	27	27	29	30	30	31	31	31
Median	400	390	370	395	390	350	310	310	350	380	390	385	380	380	355	350	350	335	330	340	375	400	400	400

The Radio Research Laboratories, Japan.

foF2

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

K 13

IONOSPHERIC DATA

May. 1960 | 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	120	100	145	110F	115F	120	145	A	G	A	A	A	A	A	G	215	115	240	130	120	160	u 135s	125s	100
2	105	110	115	105	105	100	95	140	135	100s	75	105	95	105	70	115	90	125s	100	120	I 100s	I 140s	J 110s	I 100s
3	J 115s	100	110	110	100	95s	105	85	135	150	J 70s	90	95	90	100	105	120	105	65	100s	u 105s	105s	J 105s	80
4	55s	I 125s	u 90s	J 90s	110s	J 130s	100	95	150	165	140	100	100	100	75	120	125	140s	100s	u 100s	95s	115s	u 100s	I 110s
5	J 105s	110	100s	105	105	140	100	90	145	110	135	90	135	65	95	95	A	A	125s	I 95s	115	115	100s	u 115s
6	u 100s	u 110s	85s	100	100	85	110	95	145	105	J 95s	95	75	95	90	85	105	115	J 105s	105	125	u 130s	u 115s	I 100s
7	I 100s	u 105s	85s	85V	135	165	120	140Z	A	AS	140	J 135R	125	110	100	95	150	100	110	u 95s	u 90s	105	145	100F
8	145	130	110	115	135	120	110	95	105	120	110R	105	130	90	95	115	145	135	105	100	100s	I 130s	110s	I 120s
9	145	105	145	195	110H	I 195A	180	110F	150F	A	A	G	Z 80R	105	90	110	115	110	120	155	155	145s	135	100
10	100s	115	115	105	140	170	G	A	AS	A	A	S	G	G	G	90	140	125	95	145	150	120s	135s	110s
11	135	110	110	130	145	105	I 100G	90	A	A	A	A	G	G	110	140	A	A	I 140A	125	90	165	150	105
12	u 140F	A	135	105F	100F	125	100	165H	I 180A	105	140	130	120	165	165	130	155	105	80	90	100	135	I 140A	150F
13	145F	140	100	145	105	130	120	140	150	140	100s	110	110	115	95	I 95B	100	J 110R	u 110s	115	u 130s	u 145s	I 120A	145
14	115	65s	135s	110R	135	125	95	95	130	170	150	145	105	100	120	95	130	135	115	100	130	105s	105	u 105s
15	105	100	J 95s	125	130	155	125	135	165	160	100	100	120	80	110	105	110	130	J 105s	120s	105s	u 115s	105s	100
16	95	u 105s	95	J 140R	120	J 115s	155H	140s	130	145	115	95	100	110	110	115	115	120	140	145	I 105s	J 105s	J 115s	110
17	J 110s	u 120s	115	150	150	155	105	u 140s	135	Z 10R	I 110G	I 110G	110	75	100	105	75	90	125	100s	140	130s	100	120
18	95	90	120	125	120	195F	125	150s	120	115F	130	115s	120	140R	I 95A	130	115	120	140	150	135	125s	165s	I 130s
19	110s	130	I 140A	120	110	140	110H	95s	J 95R	I 100s	105	115	115	100	110	105	115	105	u 135s	100	155	I 130A	I 95A	I 100A
20	100	100F	125	100	105	110	150	145	120	95	I 105R	115	110	90	95	115	105	130	85s	J 95s	115	130s	130	120
21	105	u 140F	140	100	95	145	115	100	100	95	155	140	105	110	100	100	85	130s	135	100	110	95	120	95R
22	u 105s	120	115	100F	110F	100	100	95	170H	105	115	110	I 110A	105	100	120	u 110R	135R	135	145s	110s	J 100s	100	105
23	u 100s	115	130F	120F	130F	95	100	150	I 150A	I 150A	105	I 100A	130	85	110	120	125s	A	A	A	A	I 130A	105F	105
24	120R	110F	120	110	115	145	135	155	115	155	120	100V	110	195R	130	J 90s	95	90	125	145s	155	I 115s	I 130s	105
25	J 135s	J 135s	115	100s	100	130	120	A	A	100	160	I 90A	115	95	130	145s	145	140	135	135	140	145	105	105
26	105	150	135	100	135	95	115	I 100A	105	105	G	G	140	105	60	75	80	150	I 110A	130	u 105s	115	100	160
27	100s	105	115	105	105	125	90s	135	95	155	155	115s	135	100	120	95	110	120	115	145	110	145	100s	135s
28	J 90s	100	90	145	100	u 105s	u 125s	95	110	120	125	145	100	I 110A	90	120	110	A	A	130	I 130s	145F	I 100R	110F
29	u 120F	J 90F	95	145	J 155F	170	100s	100	130	125s	175	u 150R	J 150R	105	100	105	J 140R	130	J 140s	100s	130s	140	u 100s	100F
30	130R	160	125	110F	J 115F	J 115R	150	115	150H	A	A	90	120	90	105R	90	A	105s	u 85s	95	J 115s	I 120s	u 90s	I 120s
31	I 100s	I 100s	80H	110	120	105	160	155	I 80A	A	A	A	A	G	S	G	G	60	145	115	145	150	105Z	140
No.	31	30	31	31	31	31	30	28	26	25	24	25	27	27	28	30	27	27	29	30	30	31	31	31
Median	105	110	115	110	115	125	110	110	130	120	120	110	115	100	100	105	115	120	115	115	115	130	105	105

ypF2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | 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	6.4^{S}	5.7	4.4	4.0	4.0	4.0	3.2	5.6	$_{I}$6.4^{A}	$_{I}$5.4^{A}	6.3	6.7	7.8^{RH}	7.6	7.8^{H}	9.2^{SH}	8.6^{H}	7.8^{H}	8.5	9.0	$_{J}$7.4^{S}	$_{J}$8.1^{S}	8.2	$_{J}$7.9^{S}
2	7.8	$_{J}$8.3^{S}	$_{J}$8.0^{S}	7.4	6.9	5.4	5.9	7.4	9.1^{H}	10.0	10.8^{H}	12.0	13.6	13.7	$_{U}$14.8^{S}	14.6^{H}	14.7^{S}	$_{J}$14.8^{SH}	13.2	11.2^{S}	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	10.2^{H}	11.5^{H}	12.8^{H}	13.5	13.2^{H}	13.6^{H}	14.0^{H}	13.2	13.0	12.2^{S}	$_{J}$10.6^{S}	$_{J}$10.3^{S}	$_{J}$10.4^{S}	10.7
4	$_{I}$10.6^{S}	$_{I}$10.2^{S}	$_{I}$9.3^{S}	8.4	8.5	$_{J}$7.8^{S}	9.0	$_{J}$10.0^{S}	$_{J}$9.8^{S}	10.5	10.9	12.2	$_{I}$13.7^{C}	$_{I}$14.2^{CH}	$_{U}$14.8^{SH}	$_{I}$14.2^{SH}	13.6^{H}	13.3	12.6	11.3	$_{J}$9.8^{S}	$_{U}$9.6^{S}	$_{I}$9.7^{S}	$_{J}$10.3^{S}
5	$_{J}$10.0^{S}	$_{J}$10.5^{S}	$_{J}$10.0^{S}	8.9	$_{J}$7.4^{S}	$_{U}$7.3^{S}	8.3^{S}	$_{J}$8.1^{R}	8.1	9.0^{H}	10.7^{H}	11.8^{H}	13.3	13.7^{S}	13.3	13.1	12.5^{H}	12.3^{SH}	12.8	$_{U}$12.1^{S}	9.2^{S}	$_{J}$8.7^{S}	$_{J}$8.8^{S}	9.4
6	9.1	9.1	$_{U}$9.3^{S}	8.6	6.6	6.7	$_{J}$7.8^{S}	8.4	9.1	9.3	10.2	10.8	12.4	13.7	13.3	12.8	12.6^{H}	12.6^{H}	13.1	12.6	$_{I}$10.4^{S}	$_{I}$9.3^{A}	9.7	9.2
7	$_{I}$9.3^{S}	$_{I}$9.5^{S}	$_{J}$10.0^{S}	$_{J}$7.9^{SH}	6.2	5.4	7.0	$_{J}$7.7^{S}	6.6	$_{I}$8.0^{C}	$_{I}$10.6^{A}	12.1	10.0	9.3	9.7^{S}	10.8^{H}	11.1^{H}	11.4^{SH}	12.0	11.4	8.4	$_{I}$7.2^{S}	$_{J}$7.7^{S}	8.3
8	8.4	$_{J}$8.4^{S}	8.7	$_{J}$7.8^{S}	6.0	6.0	6.5	7.7^{S}	7.5	8.6	10.5^{H}	11.8^{H}	12.9	13.3	13.6	13.7	12.8^{H}	13.7^{S}	13.7	13.5	9.4	$_{J}$10.1^{S}	$_{J}$10.2^{S}	$_{J}$10.1^{S}
9	$_{J}$9.8^{S}	9.2	$_{I}$9.3^{S}	6.5^{SH}	6.4	5.4	6.8^{H}	$_{U}$9.4^{S}	$_{J}$10.1^{S}	10.2	10.6^{V}	$_{J}$9.9^{S}	10.2^{V}	9.1	9.0	9.2^{S}	9.4	9.8	$_{J}$10.0^{S}	9.3^{S}	$_{J}$7.7^{S}	$_{J}$8.2^{S}	8.7	8.4
10	9.1^{S}	$_{I}$8.8^{S}	7.2^{S}	6.6	5.9	5.3	6.1	$_{J}$8.0^{R}	8.6^{S}	8.5	$_{U}$7.7^{R}	$_{J}$8.5^{R}	8.4^{R}	8.2^{R}	8.5	9.2	$_{U}$9.7^{S}	$_{U}$9.4^{S}	8.4	$_{J}$8.4^{S}	8.3	8.3	$_{J}$8.4^{S}	$_{J}$8.4^{S}
11	$_{J}$7.7^{S}	$_{I}$7.7^{S}	6.9	6.5	6.3	6.4^{S}	6.5	6.7	6.2	6.1	6.3	7.1	8.3^{R}	9.0	9.0	8.8	$_{I}$7.8^{A}	$_{I}$8.6^{S}	$_{J}$9.9^{S}	$_{J}$8.2^{S}	8.0	$_{U}$7.2^{S}	6.7	$_{U}$7.0^{S}
12	6.3	6.5	6.4	5.6	5.1	4.8	6.1	7.4	8.3	9.7^{H}	10.0	10.6^{H}	11.4^{H}	11.5^{H}	11.6^{H}	12.0^{H}	11.8^{H}	11.5^{H}	12.6	12.3	8.9	$_{I}$7.9^{S}	$_{I}$7.6^{A}	F
13	S	F	$_{J}$8.4^{S}	6.6	F	F	7.0	8.4	9.1	9.5	10.6^{H}	$_{I}$11.8^{A}	$_{I}$13.0^{A}	$_{I}$13.9^{A}	14.3	$_{I}$13.8^{R}	12.7^{H}	12.1^{H}	11.8	11.2^{S}	$_{J}$9.9^{S}	$_{U}$9.4^{S}	9.3^{S}	$_{U}$9.6^{S}
14	10.6	11.5^{S}	$_{J}$10.4^{S}	$_{J}$10.2^{S}	$_{J}$9.5^{S}	9.3	$_{J}$10.5^{S}	9.4^{S}	9.1	8.9^{H}	9.9^{H}	11.4	13.1	$_{U}$14.2^{S}	15.1^{S}	15.1	$_{U}$14.0^{SH}	13.3^{H}	13.7	12.8	11.6^{S}	$_{I}$10.9^{S}	10.5	11.3^{S}
15	$_{I}$11.5^{S}	11.7	10.6	9.0	8.3	8.2	9.2	$_{U}$9.3^{S}	9.4	10.5	11.4	12.5	13.3	13.6	14.0	14.2	13.6^{H}	13.0	12.5	11.9	11.1	11.5	$_{I}$11.4^{S}	$_{J}$10.8^{S}
16	11.0	$_{I}$11.0^{S}	10.6	$_{J}$8.0^{S}	6.8	7.0	8.6	$_{J}$10.1^{S}	11.0	10.2	$_{I}$10.6^{C}	11.7	12.6	C	C	C	C	C	11.2	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	8.5^{H}	8.2^{H}	7.8	9.1	10.3	10.6	10.5	$_{J}$10.3^{S}	$_{J}$9.7^{S}	9.2^{H}	$_{U}$9.5^{S}	8.5	$_{J}$7.6^{S}	$_{J}$7.6^{S}	$_{I}$7.3^{S}
18	7.3^{S}	$_{J}$7.5^{S}	6.9	6.6	6.7	7.1^{S}	8.7	9.1	8.8	9.4^{H}	10.0^{S}	11.1	12.2	12.3	11.3	12.0	12.1^{H}	11.7	11.7^{S}	$_{U}$11.7^{S}	$_{U}$11.0^{S}	$_{U}$9.3^{S}	$_{I}$9.1^{S}	8.8
19	$_{J}$8.0^{S}	$_{J}$7.3^{S}	6.5	6.4	6.4	6.6	$_{J}$7.4^{S}	9.0	$_{I}$9.1^{C}	$_{I}$9.0^{C}	$_{I}$9.4^{A}	C	C	C	C	C	C	12.1	12.3	10.8	$_{U}$8.1^{S}	$_{J}$7.9^{S}	$_{I}$7.8^{A}	S
20	S	S	S	F	S	F	6.1	7.0	8.5	9.4^{S}	$_{I}$9.4^{S}	10.0	11.3	11.9	12.5	12.7	12.9	13.2	$_{J}$12.3^{S}	10.5	$_{I}$7.9^{S}	7.3^{S}	F^{S}	S
21	S	F	S	S	6.8^{S}	$_{I}$7.4^{S}	8.5^{F}	9.3	9.2	8.1	8.5^{H}	8.9^{H}	10.1	10.8	11.8	12.9	12.6	11.9	11.1	10.6	$_{I}$9.8^{S}	9.4^{S}	9.8	$_{I}$9.9^{S}
22	$_{J}$10.0^{S}	$_{I}$9.6^{S}	$_{J}$8.4^{S}	$_{J}$7.4^{S}	7.0	7.8	9.0	8.0	8.2	8.7	9.6^{SH}	10.3	10.8	11.6	12.4	12.2	12.1^{H}	11.6	11.5^{S}	$_{J}$11.9^{S}	10.4	8.7	8.6	8.7
23	8.4	8.4	$_{J}$8.4^{S}	$_{J}$7.8^{S}	$_{J}$7.3^{S}	$_{J}$7.4^{S}	$_{J}$7.6^{S}	8.5	8.4	8.5^{H}	9.2^{H}	10.0	10.6	11.3	12.1	12.3	12.1	11.9	11.6	$_{U}$11.6^{S}	8.3^{S}	$_{J}$8.0^{S}	8.3	F
24	S	$_{U}$9.7^{S}	F	S	$_{I}$7.2^{S}	$_{J}$7.5^{S}	F	8.3	9.1	A	A	10.5	10.9	11.2	11.6	12.5	11.8	10.5^{H}	9.8^{S}	C	C	C	C	8.5
25	8.4	$_{J}$8.2^{S}	$_{J}$7.7^{S}	6.6	6.2	6.2	$_{U}$7.1^{S}	6.4	$_{I}$6.6^{A}	7.3^{S}	$_{J}$7.9^{R}	8.9	$_{I}$8.7^{C}	8.4	8.3	8.3	7.8^{H}	8.2^{H}	8.4	9.1^{S}	8.6	8.0	$_{J}$7.6^{S}	S
26	F	S	$_{I}$6.4^{F}	$_{I}$6.1^{F}	6.1	5.9^{F}	8.4	8.3	5.9	5.6	$_{I}$6.1^{A}	6.5	8.1	9.2^{S}	9.8	10.2	10.8^{S}	$_{J}$10.3^{S}	10.1	10.6^{S}	$_{I}$10.1^{S}	$_{U}$9.5^{S}	9.0	$_{U}$9.6^{S}
27	9.2	$_{U}$9.3^{S}	8.8	7.7	$_{U}$7.3^{S}	7.1^{S}	$_{J}$7.7^{S}	7.5	7.9^{H}	8.3^{H}	8.2^{H}	9.1	10.5	11.7	11.9	12.0	11.7	10.8^{H}	$_{J}$10.1^{S}	8.9	8.9	9.1	9.2	9.2
28	9.3^{S}	9.4^{S}	8.7	8.3	$_{J}$7.8^{S}	8.4^{S}	$_{I}$9.2^{S}	8.8	8.3	8.3	8.8	9.5^{S}	10.3	11.2	11.8	12.4	12.0	11.5	11.0	$_{J}$10.0^{S}	S	S	10.4	$_{I}$10.2^{S}
29	F	S	S	F	F	F	9.0	$_{I}$9.4^{S}	8.4	9.6^{H}	10.6^{H}	9.4	$_{I}$10.0^{A}	11.2	12.3^{H}	11.9	10.6	10.6	10.7	10.9	$_{J}$10.2^{S}	$_{U}$9.4^{S}	8.9	8.9
30	8.8	8.9	8.7	$_{J}$7.6^{S}	$_{J}$7.8^{S}	8.6	$_{J}$9.7^{S}	8.7	7.7	$_{I}$8.3^{A}	$_{I}$8.4^{A}	9.1^{H}	10.2^{H}	11.2^{H}	$_{I}$11.4^{C}	11.6	11.8^{H}	12.1^{H}	11.7^{S}	$_{J}$10.3^{S}	$_{J}$9.8^{S}	S	10.6	11.0^{S}
31	$_{I}$10.8^{S}	11.1^{S}	9.2^{S}	$_{J}$8.2^{S}	$_{I}$8.8^{F}	F^{S}	$_{U}$11.2^{S}	12.0	S^{H}	6.2	6.2	$_{I}$6.0^{A}	6.1	6.0	6.1	6.2	6.5	6.6	6.9	6.5	$_{J}$6.5^{S}	6.8	6.9	7.2^{S}
No.	23	24	25	25	26	25	28	29	28	29	30	30	30	29	29	29	29	30	31	29	27	26	27	24
Median	9.1	9.2	8.7	7.6	6.8	7.0	7.8	8.4	8.4	8.7	9.8	10.2	10.7	11.3	11.8	12.2	12.0	11.6	11.6	10.9	9.2	8.7	8.9	9.2
U.Q	10.0	10.0	9.3	8.2	7.4	7.6	9.0	9.3	9.1	9.6	10.6	11.7	12.8	13.6	13.4	13.4	12.8	12.6	12.6	11.9	10.2	9.4	9.8	10.2
L.Q	8.0	8.2	7.0	6.6	6.2	5.6	6.6	7.6	7.8	8.2	8.2	8.9	10.0	9.2	9.8	10.4	10.4	10.3	10.0	9.4	8.3	7.9	7.8	8.4
Q.R	2.0	1.8	2.3	1.6	1.2	2.0	2.4	1.7	1.3	1.4	2.4	2.8	2.8	4.4	3.6	3.0	2.4	2.3	2.6	2.5	1.9	1.5	2.0	1.8

foF2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | 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	I4.4A	I4.6A	5.1	5.3		5.4										
2												5.8	5.5	A	A									
3							C	C	C	C														
4												6.2	5.7H											
5													5.8	5.7	A	A								
6												L	I6.0A	5.7	5.5L	5.4L								
7												5.4	5.6	5.8	5.9									
8													A	A	A	A								
9										L	6.3	I5.7L	5.6	5.7	5.5	5.5	5.0							
10								L	I5.1A	5.3	5.5	5.8H	I5.7A	6.0	5.7	5.4	5.2							
11							L	I4.4A	4.8	5.2	5.6	5.5	5.5	I5.7A	5.7	5.4	I5.3A	A	A					
12																								
13												A	A	A	A	B								
14												6.1	6.3	6.1	5.6	5.5								
15											A	L	L	5.8	L	L								
16											C	5.6	5.7	C	C	C	C	C						
17							C	C	C			5.8	5.5H	5.4	5.4	A	A							
18											L	5.8	5.5	I5.5A	5.2	5.7								
19									C	C	A	C	C	C	C	C	C							
20											A	A	A	5.7	A	A	A							
21													5.8	A	A	5.3	A							
22												A	I5.5L	A	5.4	L								
23												5.6H	I5.7L	5.6	5.4	5.4	5.3	4.7	L					
24										A	A	A	A	6.0	5.4	5.2	A							
25							L		I4.8A	5.0	5.3	A	I5.3C	A	5.3	5.4								
26											I5.4A	5.3	5.3	I5.5A	I5.5A	5.3	5.0	L						
27												6.1	I5.9A	A	A	A	L							
28											L	L	5.9	5.8H	L	L	L	L						
29												L	A	I5.8A	5.4	5.6	L	L						
30															C	LH								
31								4.1	4.7	5.1	A	I5.1A	5.1	I5.1A	5.1	5.0	4.8	4.8	4.5L					
No.								3	5	5	6	15	20	18	15	13	6	2	1					
Median								4.2	4.8	5.1	5.4	5.7	5.6	5.7	5.4	5.4	5.1	4.8	4.5					

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

May. 1960 | 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							1.95	2.65^{H}	3.10	3.40	3.50	R	R	A	A	3.45^{H}	3.30	2.90	2.30					
2							B	2.70	3.30	3.60	3.80	400	I3.90^{A}	A	A	A	A	A	2.30	S				
3							C	C	C	C	3.70	3.65^{R}	B	B	I3.85^{R}	3.70	3.50	3.10	2.40					
4							2.00	2.80	3.20^{R}	A	A	R	A	A	3.70	3.35	I3.15^{A}	3.00	2.50^{H}					
5							A	A	3.20	3.50	3.80	3.80^{R}	R	R	R	3.80	3.60	3.10	240					
6							1.95	2.70	3.25	3.50	3.65	3.80	3.80	A	R	R	R	A	A					
7							2.15	2.70	3.20^{R}	I3.45^{C}	3.65	R	R	B	I3.80^{R}	I3.70^{R}	3.40	3.00	2.30					
8							2.10	2.80	3.30	3.60	3.75	3.80^{R}	3.90	3.80	A	A	A	A	A					
9							1.75	2.70	3.20	3.40	3.70	A	R	R	3.90^{R}	3.70^{R}	3.40	3.30	2.60					
10							2.10	280	3.25	3.60	3.70	A	A	A	A	A	A	3.10	2.35					
11							2.00	2.85	3.20	3.50	3.60	I3.65^{R}	A	A	A	3.80^{R}	3.50	3.10	2.20					
12							2.20	2.80	A	A	A	A	A	A	A	3.70	I3.50^{R}	3.25	2.40					
13							A	3.10	3.30	3.60	3.85	A	A	A	A	B	B	B	2.75					
14							A	A	A	A	A	A	A	A	A	A	A	3.15	A					
15							2.15	3.10	3.25	3.60	3.70	I3.80^{R}	3.80	B	B	A	A	A	A					
16							2.20	2.90	I3.25^{R}	3.50	I3.65^{C}	3.80	A	C	C	C	C	C	2.40					
17							C	C	C	3.50	3.70	3.65	A	A	3.90	3.65	3.35	2.95	2.15					
18							2.00	2.80	3.20	3.40	3.50	I3.65^{A}	3.80	I3.80^{A}	3.85^{R}	3.70	3.45	3.10	2.20					
19							2.20	2.70^{H}	I3.15^{C}	I3.35^{C}	3.40	C	C	C	C	C	C	2.80	B					
20							2.20	2.80	3.30	3.50	3.60	A	A	A	A	A	A	A	A					
21							A	A	3.20	3.50	A	A	4.00	4.00	3.90	A	A	A	A					
22							2.30^{H}	2.80	3.20	3.60	3.65	3.70	A	A	A	A	3.35	3.10	2.20					
23							1.90	2.70	3.20	3.35	3.60	R	A	B	I3.95^{B}	3.80	3.45	3.15	2.30					
24							2.20	2.85	3.30	3.55	3.65	3.85	3.85^{R}	A	A	A	A	A	A					
25							2.15	2.80	3.30	3.40	3.55	R	C	3.90	I3.90^{B}	3.70	A	A	A					
26							2.20	2.80	3.20	3.50	A	A	A	R	A	A	B	3.10	2.30					
27							2.10	2.90	3.30	3.50	3.70	3.80	4.00	3.90	A	A	A	3.10^{H}	2.60					
28							2.20	2.80	3.25	3.50	3.60	A	A	R	R	R	3.50	3.15	2.30					
29							2.30	2.90	3.35	3.60	3.75	3.70	A	A	A	A	3.50	3.10	2.70					
30							A	3.00	3.30^{H}	3.60	3.75	I3.80^{R}	3.90^{R}	3.90	I3.80^{C}	3.70	3.40	2.90	2.20					
31							2.25^{H}	2.80	3.20^{R}	3.50	3.70^{R}	3.90	3.85	A	A	A	3.45	A	R					
No.							23	26	27	27	26	16	10	6	10	13	16	20	21					
Median							2.15	2.80	3.25	3.50	3.70	3.80	3.90	3.90	3.90	3.70	3.45	3.10	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

May. 1960 | 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	J2.1	J2.9	1.9	1.7	E	E	2.4	4.0	J6.9	D14.3[S]	4.4	4.9	4.6	7.0	5.3	G	G	3.3	3.5	3.6	J5.1	3.2	2.2	J1.8
2	J2.2	J2.6	J2.1	E	J2.3	E	G	G	G	4.0	5.4	5.0	5.2	6.8	5.3	4.0	5.0	J5.6	G	G	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	G	J10.8	4.5	4.4	6.1	6.3	6.0	7.3	11.8	8.7	10.9	J8.4	J5.1	4.5
4	4.2	3.8	3.7	J2.7	J2.8	2.8	G	3.0	3.9	J5.4	4.6	4.8	4.9	4.1	4.4	8.7	4.1	3.6	4.0	J4.1	2.0	J2.3	2.2	J5.1
5	S	J2.4	E	J2.3	E	2.0	J4.0	3.0	G	3.8	4.1	4.2	4.2	5.2	6.1	5.5	5.6	J7.8	4.0	J7.6	J8.6	3.7	E	3.0
6	3.9	2.5	2.4	1.6	E	E	G	3.6	4.1	6.0	6.2	5.1	7.1	4.3	4.3	4.8	5.3	5.5	J5.1	6.2	13.0[M]	11.8[M]	6.8[M]	3.9
7	2.6	2.9	S	E	2.7	E	2.5	3.8	5.0	C	J3.2	5.1	5.1	5.0	G	4.6	4.4	3.4	3.5	3.8	J4.6	J5.5	J2.9	J5.0
8	J5.1	4.0	3.7	2.2	J2.3	2.2	2.2	3.2	J5.2	5.8	5.5	5.5	6.7	J6.8	J8.4	7.1	6.3	J6.4	5.7	5.3	3.8	J3.1	2.1	J3.1
9	J3.1	3.7	3.7	2.2	5.7	J4.3	2.9	J4.6	3.5	3.7	3.9	4.1	4.7	4.5	4.8	4.9	4.7	4.8	4.9	J4.7	J5.4	J1.9	J2.4	J3.8
10	J5.4	J5.1	J2.0	2.2	E	E	2.3	3.3	5.5	5.1	5.3	4.5	6.6	5.4	J4.8	4.5	5.0	4.7	J4.9	J5.4	5.4	J2.1	3.1	J2.5
11	J5.4	3.2	J3.0	J3.0	J2.6	S	2.8	4.6	5.0	5.0	J5.6	5.1	J5.5	J8.5	J8.5	4.8	8.4	8.7	D9.1[S]	7.4	J5.4	J3.2	J3.2	J2.2
12	2.1	S	S	1.5	E	E	G	G	4.5	J5.1	6.0	J5.4	J5.5	3.8	4.0	3.4[G]	G	3.5	5.3	9.1	5.0	4.0	J1.0	5.4
13	11.9	J8.4	J2.8	J2.9	5.5	4.5	6.8	4.9	5.6	9.6	9.3	J14.6	17.5	D	J10.8	B	B	4.1	5.2	J5.8	J3.3	6.0	J8.4	6.0
14	J2.3	4.5	5.4	J5.5	J4.8	3.9	J4.3	3.5	3.8	J5.0	5.0	4.3	J8.5	5.7	5.0	5.8	4.3	3.8	4.5	3.2	2.6	J5.4	S	J5.2
15	3.8	4.7	J2.3	1.3	2.2	2.2	2.4	G	3.9	5.0	6.9	4.6	5.5	5.1	5.0	5.2	6.5	5.6	3.8	J8.5	6.0	4.5	6.1	S
16	2.3	5.4	J5.3	4.9	J2.2	E	2.5	3.5	4.1	5.0	C	5.4	5.4	C	C	C	C	C	3.2	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	4.5	5.0	4.6	4.1	4.9	4.6	8.7	J8.5	J8.2	J3.5	2.2	J1.8	J2.4	J2.7	J2.3
18	S	J2.1	1.5	E	E	1.4	2.8	3.4	D9.0[S]	4.5	4.9	J6.0	4.9	9.1	4.3	4.7	7.3	6.9	6.0	4.5	J5.2	J8.2	6.0	J5.0
19	J2.5	2.4	J3.9	4.5	J4.6	2.2	J4.8	5.4	C	C	J11.6	C	C	C	C	C	C	6.0	4.7	3.7	3.7	5.9	J1.1	6.0
20	J5.4	J8.5	J2.6	J2.3	J2.2	J2.3	2.7	4.4	6.0	11.4	J9.2	J11.2	12.3	J6.2	J7.8	7.9	J6.4	J5.6	J5.4	J5.4	J2.9	J3.6	9.2	6.2
21	6.0	J3.0	J2.6	J3.4	J6.3	5.2	J5.5	J3.4	4.3	8.6	5.6	9.1	5.1	8.4	J6.9	J11.1	10.5	J8.4	11.7	J8.3	J4.6	6.0	3.9	J5.0
22	6.0	4.1	J5.2	J3.8	J2.6	S	2.8	4.2	6.0	8.9	6.4	J10.8	4.2	5.6	6.2	5.8	4.1	J5.0	5.5	J4.2	S	J3.1	J3.3	J4.0
23	J2.4	J2.9	J2.8	J2.2	3.0	2.2	G	3.4	J7.1	J8.3	7.3	4.1	3.8	4.9	4.7	4.8	3.7	3.4	3.0	2.6	5.4	5.9	J5.3	5.9
24	6.0	J5.2	5.8	J5.6	J6.5	J8.5	4.1	J8.0	J8.6	J12.4	J11.7	J8.1	J8.2	6.2	J6.2	6.9	8.6	J4.7	8.5	C	C	C	C	S
25	J2.1	J2.4	E	E	E	E	2.3	3.7	J2.5	4.3	6.1	6.0	C	5.3	4.9	6.0	J8.4	J8.3	6.0	6.0	J2.4	J5.1	J3.7	J8.3
26	J2.3	J1.8	J2.9	1.1	E	3.0	3.8	J5.1	J6.2	6.8	8.8	6.0	5.5	6.8	J12.9	5.0	6.0	4.3	6.1	5.8	J1.0	J8.5	J4.7	2.4
27	J2.8	J2.5	J2.4	4.4	J3.3	J2.4	2.1[G]	G	3.7	4.0	J5.4	6.3	6.4	5.6	J5.7	9.0	3.9	3.9	J5.5	2.6	J5.7	6.3	2.9	3.3
28	5.3	4.6	J3.5	6.1	4.6	J5.2	3.1	J6.2	6.2	8.1	J5.5	4.9	4.5	G	4.5	4.8	4.5	3.8	3.6	4.6	J5.2	5.5	3.8	J3.9
29	J2.9	J5.4	J3.7	J3.7	E	G	2.7	J8.4	J12.7	7.0	J6.4	J6.5	J12.0	J6.0	J5.4	3.8	3.4[G]	3.7	4.6	J5.3	J5.9	5.0	J2.7	J5.2
30	4.5	J5.0	4.4	J5.2	1.5	J3.5	2.8	6.7	7.1	J12.8	J11.3	14.6	4.3	4.5	C	4.2	4.7	5.1	J4.6	J2.7	J3.0	3.1	J0.3	J5.0
31	3.0	J3.7	J4.3	J3.0	3.0	J2.3	G	3.2	4.6	4.9	6.0	6.8	4.9	6.1	J5.5	J5.4	3.8	J4.0	3.5	J3.0	J2.3	5.0	J5.1	J5.5
No.	27	28	27	29	29	27	29	29	28	28	30	30	29	29	28	28	28	30	31	29	27	28	27	27
Median	3.1	3.7	2.9	2.3	2.3	2.2	2.7	3.6	5.1	5.2	5.8	5.4	5.2	5.6	5.3	5.1	5.0	4.9	4.9	4.7	5.1	5.0	3.8	5.0
U.Q	5.4	4.8	3.9	4.1	4.0	3.5	3.4	4.8	6.6	8.4	7.3	6.8	6.6	6.8	6.2	6.6	6.4	6.4	5.7	6.1	5.7	6.0	6.1	5.4
L.Q	2.3	2.6	2.3	1.6	E	E	G	3.2	4.0	4.7	5.0	4.8	4.6	4.7	4.6	4.6	4.1	3.8	3.6	3.4	3.0	3.2	2.7	3.1
Q.R	3.1	2.2	1.6	2.5				1.6	2.6	3.7	2.3	2.0	2.0	2.1	1.6	2.0	2.3	2.6	2.1	2.7	2.7	2.8	3.4	2.3

foEs

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

The Radio Research Laboratories, Japan.

Y 4

IONOSPHERIC DATA

May. 1960 | f_bE_s | 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	1.8	S	S	S			G	3.6	A	A	4.1	4.7	4.5	4.8	4.0			G	3.3	3.5	5.0	2.6	1.9	E
2	1.9	2.4	1.8		1.8					4.0	5.1	4.9	5.1	E6.8S	5.3	3.9	4.3	5.4			C	C	C	C
3	C	C	C	C	C	C	C	C	C	C		10.6	E4.5B	E4.4B	6.1	6.2	4.4	6.4	10.3	6.5	7.6	7.5	3.4	2.6
4	2.6	2.2	2.5	1.8	2.3	2.3		2.5	3.9	4.7	E4.6B	4.6	4.7	E4.1C	4.4	4.7	4.0	2.7	4.0	4.0	1.8	2.1	1.7	3.4
5	S	1.8		2.1		1.5	3.9	G		3.8	4.1	G	G	5.1	5.8	5.3	4.9	7.7	3.8	4.4	5.3	1.8		2.0
6	2.0	1.8	1.7	1.4				3.6	3.9	5.6	E6.2B	4.9	6.5	G	G	4.6	5.1	4.7	4.3	6.2	7.2	A	5.0	3.1
7	1.8	2.2	S		2.6		G	3.8	4.6	C	A	5.0	5.0	4.6		4.4	4.3	3.4	3.5	3.1	4.1	4.1	2.2	1.9
8	2.2	E	2.1	2.2	1.4	1.8	1.8	G	4.8	5.6	5.3	5.4	6.3	6.8	6.5	6.5	E6.3B	6.3	4.1	3.2	E3.8B	2.5	E2.1B	2.6
9	2.0	3.2	2.6	1.7	4)1.8A	3.9	2.4	4.5	3.5	G	G	G	4.7	4.5	4.5	4.8	4.6	4.7	4.8	4.6	4.1	1.8	2.3	3.4
10	3.8	5.1	1.9	1.5			G	3.3	5.5	4.8	5.0	4.4	6.3	4.8	4.7	G	4.6	4.6	4.7	5.1	3.8	1.7	2.6	2.0
11	2.1	2.4	2.0	2.5	2.4	S	2.6	4.6	4.4	4.2	5.0	4.8	4.8	6.4	4.6	4.8	A	A	3.8	A	2.6	3.0	2.9	1.9
12	1.9	S	S	E1.5S					3.8	4.6	5.1	4.8	4.6	G	E4.0B	3.4G		G	3.5	6.2	3.8	2.3	A	4.0
13	5.0	4.5	2.2	2.1	4.0	3.3	6.4	4.0	5.6	8.6	8.0	A	A	A	10.5	B	B	4.0	5.2	5.6	3.0	5.1	4.2	4.4
14	2.2	3.4	3.4	3.4	4.3	3.7	3.9	3.4	G	4.0	4.2	4.3	5.5	4.7	4.7	4.6	G	3.4	3.3	2.8	2.1	2.7	S	4.8
15	2.8	3.0	2.1	E1.3B	1.8	1.8	G		G	4.5	6.3	4.5	5.2	5.0	E5.0B	5.0	4.7	3.5	E3.8B	6.9	4.8	2.5	2.4	S
16	1.9	2.6	2.3	3.0	1.8		G	3.5	4.0	4.5	C	5.3	5.2	C	C	C	C	C	E3.2B	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	4.4	4.2	G	G	4.4	4.4	8.0	5.8	7.5	G	2.1	E	2.0	2.6	2.0
18	S	2.0	E1.5S			1.4	2.7	G	6.3	G	4.7	5.0	4.5	7.8	G	4.5	7.0	5.0	4.7	3.3	5.2	2.2	5.2	2.2
19	1.9	E	3.1	3.4	2.2	1.9	4.7	E5.4B	C	C	A	C	C	C	C	C	C	6.0	4.6	3.1	3.1	E	3.2	4.0
20	4.5	4.8	2.2	1.8	1.4	1.8	2.5	4.2	4.8	8.0	A	9.6	7.8	5.5	7.2	6.4	6.2	5.3	4.3	4.5	E2.9B	2.1	1.8	4.3
21	2.6	2.0	1.8	2.9	2.4	4.1	5.3	3.3	4.0	7.3	4.1	5.0	4.7	7.6	E6.9B	4.9	5.2	7.6	4.9	7.4	4.1	4.2	2.6	3.0
22	4.7	2.3	4.2	3.4	2.2	S	2.7	4.2	6.0	8.4	6.3	8.4	G	5.4	4.8	4.6	4.1	4.7	4.8	4.2	S	3.0	E3.3S	3.5
23	1.9	2.6	2.6	1.7	2.0	1.9		3.3	6.8	8.0	E7.3S	G	G	4.9	E4.7B	4.7	G	G	3.0	2.2	2.7	2.8	3.8	4.6
24	4.2	3.2	4.6	4.7	A	6.5	3.5	8.0	8.1	A	A	8.1	8.0	5.3	5.2	4.7	4.9	4.4	6.4	C	C	C	C	S
25	1.8	1.8					G	3.6	A	4.2	5.1	5.2	C	E5.3B	4.9	5.2	5.1	4.0	3.2	4.2	E2.4B	3.1	2.4	A
26	E	1.8	2.5	1.1		2.2	3.6	5.0	5.4	4.5	A	4.4	4.6	6.7	5.8	4.2	4.8	4.3	5.9	5.7	7.8	2.4	3.9	E
27	2.4	2.5	1.9	2.7	3.3	1.9	1.9		G	G	4.9	5.1	6.4	5.3	5.7	8.3	G	3.8	5.4	2.5	E5.7B	5.8	2.3	1.8
28	4.4	4.3	3.1	4.7	2.3	3.5	G	E6.2B	E6.2B	6.9	4.8	4.5	4.5		4.5	4.5	4.5	3.8	E3.6B	2.8	4.0	4.2	3.5	4)3.1A
29	2.1	5.0	3.4	2.6			G	A	4.0	5.1	5.9	5.6	A	5.9	5.0	E3.8B	3.3G	G	4.4	4.6	5.7	3.4	2.1	3.4
30	2.6	3.8	2.2	2.2	1.4	3.3	2.6	E6.7B	6.8	A	A	7.8	4.3	4.4	C	4.2	4.6	5.0	4.3	2.5	2.8	2.4	7.9	4.9
31	2.9	2.2	2.6	1.8	1.8	1.6		G	4.3	4.9	5.3	A	4.5	5.4	4.6	4.6	3.8	3.6	3.2	2.4	1.8	3.7	2.2	3.6
No.	27	27	24	24	20	18	23	22	25	28	27	30	29	26	25	27	25	30	30	28	26	28	25	27
Median	2.2	2.4	2.2	2.2	2.2	2.0	2.5	3.6	4.6	4.8	5.1	5.0	4.7	5.0	4.7	4.7	4.6	4.5	4.2	4.3	3.8	2.6	2.6	3.1

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

51

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

May. 1960

f-min

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.50s	E1.70s	1.35	1.00	E	1.15	1.60	1.70	1.80	1.90	1.90	2.20	2.00	2.20	1.90	1.90	1.80	1.60	1.70	1.60	E1.70s	E1.50s	E1.70s	E1.60s
2	1.10	E1.60s	1.30	1.05	E	1.70	2.05	1.90	1.65	2.00	1.90	2.50	2.40	2.40	2.20	2.05	2.00	1.65	1.70	1.70	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	2.20	2.20	3.80	4.10	2.40	3.30	1.80	1.80	1.65	1.50	E1.70s	E1.55s	E1.60s	E1.60s
4	E1.70s	E1.60s	1.15	E	1.70	1.20	1.60	1.50	1.85	1.95	2.40	2.30	3.20	2.60	2.55	2.20	1.85	1.60	1.65	E1.60s	E1.60s	E1.60s	E1.50s	E1.60s
5	E1.60s	E1.70s	1.60	E	1.70	1.20	1.60	1.70	1.75	2.20	2.40	2.50	2.50	3.30	2.30	2.20	1.90	2.00	1.60	1.30	E1.60s	E1.60s	E1.70s	E1.60s
6	E1.60s	E1.70s	E	E	1.50	1.40	1.60	1.80	1.80	1.90	2.20	2.30	2.20	2.30	2.40	2.40	1.80	1.80	1.50	1.00	1.20	E1.60s	E1.70s	E1.60s
7	E1.70s	E1.80s	E1.70s	1.20	E	1.70	1.70	1.80	1.80	3/1.80C	2.00	2.40	2.40	4.20	2.80	2.50	1.90	1.60	E1.60s	1.40	1.10	E1.50s	E1.50s	E1.60s
8	E1.70s	E1.70s	1.05	1.00	E	1.20	1.35	1.70	1.60	2.20	2.00	2.40	2.50	2.20	2.40	1.90	2.10	1.80	1.20	1.10	E1.40s	E1.70s	E1.60s	E1.70s
9	E1.70s	1.25	1.60	E	E	1.10	1.50	1.70	1.80	2.05	2.20	2.30	2.50	2.20	2.20	2.20	1.90	2.20	1.80	1.60	E1.70s	E1.70s	E1.70s	E1.70s
10	E1.70s	1.40	1.20	E	1.30	1.40	1.70	1.80	1.90	2.00	2.00	2.20	2.40	2.60	2.60	2.10	2.20	2.05	E1.60s	E1.60s	E1.60s	E1.60s	E1.70s	E1.60s
11	E1.75s	E1.70s	E1.60s	1.10	1.50	E1.70s	E1.60s	1.70	1.80	2.05	2.25	2.30	2.40	3.60	3.50	2.70	2.25	1.85	E1.60s	E1.60s	E1.70s	E1.70s	E1.60s	1.80s
12	E1.70s	E1.60s	E1.70s	E	1.70	1.60	1.70	1.70	1.70	2.20	2.70	2.30	2.40	2.60	2.40	2.50	2.05	1.80	1.70	1.65	E1.60s	E1.40s	E1.70s	E1.60s
13	E1.60s	E1.60s	1.10	1.00	1.05	1.20	1.70	2.05	2.00	2.40	2.40	2.30	2.50	3.30	2.40	10.20	5.10	3.60	1.90	1.60	E1.60s	E1.70s	E1.60s	E1.70s
14	E1.60s	E1.80s	E	1.10	1.20	1.20	1.70	1.70	1.90	1.90	2.55	2.35	2.50	3.40	2.60	2.00	1.90	1.80	E1.70s	1.50	E1.70s	E1.70s	E1.70s	E1.60s
15	E1.50s	E1.70s	1.20	1.00	1.00	1.20	1.70	1.70	1.90	2.30	2.05	2.25	2.60	3.90	4.30	3.70	2.90	1.90	1.65	1.70	E1.65s	E1.70s	E1.70s	E1.70s
16	E1.80s	E1.70s	1.10	E	1.10	1.30	1.80	1.80	2.00	2.00	3/2.25C	2.20	2.30	C	C	C	C	C	1.70	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	1.85	2.20	2.20	1.90	1.80	2.25	1.90	1.80	1.60	1.60	E1.60s	E1.60s	E1.50s	E1.50s	E1.70s
18	E1.70s	E1.60s	1.10	E	E	1.10	1.60	1.60	1.60	1.10	2.00	2.40	2.65	2.20	2.20	1.90	2.25	1.80	1.60	E1.60s	E1.60s	E1.70s	E1.65s	E1.60s
19	E1.70s	E1.80s	1.00	1.10	E	1.30	1.80	1.80	3/1.85C	3/2.05C	2.40	C	C	C	C	C	C	2.00	1.80	1.35	E1.70s	E1.70s	E1.65s	E1.50s
20	E1.70s	E1.70s	E	E	E	1.65	1.60	1.80	1.80	1.85	1.80	2.20	2.60	2.35	2.50	2.05	1.80	1.60	E1.50s	1.65	E1.60s	E1.80s	E1.70s	E1.60s
21	E1.70s	1.10	1.20	E	E	1.20	1.40	1.70	1.80	1.90	2.00	2.20	2.30	2.60	2.55	2.05	1.80	1.70	1.60	1.70	E1.60s	E1.70s	E1.70s	E1.80s
22	E1.70s	E1.60s	E1.50s	E	1.00	E1.90s	1.80	1.70	1.80	2.00	2.00	2.50	2.25	3.40	2.65	1.90	1.90	1.70	E1.70s	1.35	E1.70s	E1.70s	E1.80s	E1.70s
23	E1.60s	E1.60s	E	E	E	1.40	1.60	1.60	1.80	1.90	2.20	2.50	2.40	4.30	4.10	1.85	1.85	1.70	1.70	1.70	E1.60s	E1.70s	E1.70s	E1.70s
24	E1.70s	E1.70s	1.10	E	E	1.20	1.75	1.85	1.95	2.05	2.20	2.40	2.50	2.50	2.40	1.95	1.80	1.80	1.50	C	C	C	C	E1.70s
25	E1.55s	E1.70s	1.40	1.20	1.10	1.70	1.70	1.70	1.70	1.80	1.85	3.90	C	2.25	4.20	2.25	1.90	1.80	1.60	1.65	E1.50s	E1.70s	E1.65s	E1.70s
26	E1.70s	E1.60s	E	E	1.00	E	1.60	1.65	1.70	1.90	2.40	2.60	3.40	2.50	2.20	2.40	2.00	1.80	1.70	1.70	E1.70s	E1.70s	E1.65s	E1.70s
27	E1.50s	E1.70s	E	E	E	E	1.70	1.80	1.90	1.90	2.60	2.60	2.60	2.45	2.40	2.00	1.90	1.75	E1.60s	E1.70s	E1.70s	E1.70s	E1.70s	E1.70s
28	E1.70s	1.30	1.10	E	E	E	1.80	1.80	1.80	1.90	1.90	2.30	2.60	2.50	2.30	2.10	2.00	1.80	1.70	E1.65s	E1.70s	E1.70s	E1.65s	E1.60s
29	E1.70s	E1.80s	E1.80s	1.10	1.10	1.20	1.70	1.80	1.80	1.90	2.00	2.30	2.45	2.20	2.45	2.85	1.90	1.90	1.80	1.50	E1.70s	E1.60s	E1.70s	E1.70s
30	E1.70s	E1.60s	E	E	E	E	1.65	1.80	1.70	1.80	2.20	2.60	2.70	2.20	3/2.40C	2.60	2.10	1.90	E1.70s	1.40	E1.70s	E1.70s	E1.70s	E1.80s
31	E1.70s	E1.60s	E	E	E	E	1.70	1.80	1.70	1.70	1.90	2.30	2.35	2.50	1.90	1.90	1.90	1.80	E1.70s	1.75	1.00	E1.70s	E1.70s	E1.70s
No.	29	29	24	29	29	27	29	29	29	30	31	30	29	29	29	29	29	30	27	27	28	28	28	29
Median	E1.70	E1.70	1.10	E	E	1.20	1.70	1.70	1.80	1.90	2.20	2.30	2.50	2.50	2.40	2.10	1.90	1.80	1.65	E1.60	E1.60	E1.70	E1.70	E1.70

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

May. 1960 | (M3000)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	2.40^{S}	2.25	2.15	2.10	2.15	2.75	2.60	2.35	I2.85^{A}	I2.15^{A}	2.55	2.55	2.40^{H}	2.65	2.55^{H}	2.75^{SH}	2.85^{H}	2.80^{H}	2.95	3.10	J2.35^{S}	J2.65^{S}	2.70	J2.65^{S}
2	2.60	J2.85^{S}	J3.00^{S}	2.95	3.00	2.80	2.95	3.00	2.95^{H}	2.80	2.80^{H}	2.85	2.95	2.95	U2.95^{S}	2.85^{H}	2.85^{S}	J2.90^{SH}	2.95	2.95^{S}	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	2.75^{H}	2.70^{H}	2.75^{H}	2.80	2.80^{H}	2.80^{H}	2.85^{H}	2.90	3.00	2.90^{S}	J2.80^{S}	J2.65^{S}	I2.65	2.85
4	I2.85^{S}	I2.85^{S}	I2.80^{S}	2.75	2.85	J2.75^{S}	2.95	J3.10^{S}	J3.00^{S}	2.80	2.55	2.65	I2.85^{C}	I2.90^{H}	U2.90^{H}	I2.90^{H}	2.90^{H}	2.95	3.10	3.00	J2.90^{S}	U2.85^{S}	I2.70^{S}	J2.65^{S}
5	J2.70^{S}	I2.80^{S}	J3.05^{S}	3.10	J2.90^{S}	U2.90^{S}	3.30^{S}	J3.25^{R}	3.00	2.60^{H}	2.80^{H}	2.75^{H}	2.90	2.95^{S}	2.85	2.90	2.90^{H}	2.85^{SH}	3.05	U3.05^{S}	2.95^{S}	J2.55^{S}	J2.55^{S}	2.75
6	2.65	2.75	U2.90^{S}	3.20	2.85	2.95	J3.10^{S}	3.10	3.10	2.80	2.75	2.65	2.75	2.90	2.90	2.85	2.85^{H}	2.85^{H}	2.95	3.10	I2.90^{S}	I2.55^{A}	2.60	2.60
7	I2.60^{S}	I2.60^{S}	J2.90^{S}	J3.30^{SH}	2.65	2.45	3.05	J3.15^{S}	3.20	I2.75^{C}	I2.80^{A}	3.00	3.00	2.70	2.60^{V}	2.70^{H}	2.60^{H}	2.75^{SH}	2.85	3.15	2.85	I2.40^{S}	J2.45^{S}	2.45
8	2.50	J2.40^{S}	2.85	J3.35^{S}	2.60	2.65	3.15	3.10^{S}	2.95	2.70	2.65^{H}	2.75^{H}	2.80	2.85	2.85	2.85	2.60^{H}	2.80^{V}	2.75	3.05	2.45	J2.50^{S}	J2.55^{S}	J2.50^{S}
9	J2.60^{S}	2.50	I2.80^{S}	2.45^{SH}	2.80	2.35	2.10^{H}	U2.55^{S}	J2.90^{S}	2.55	2.65^{V}	J2.45^{S}	2.75^{V}	2.90	2.90	2.85^{S}	2.95	2.95	J3.05^{S}	3.00^{S}	J2.60^{S}	J2.45^{S}	2.55	2.65
10	2.60^{S}	I2.85^{S}	2.75^{S}	2.85	2.75	2.60	2.70	J2.75^{R}	2.60^{S}	2.55	U2.50^{R}	J3.25^{R}	2.55^{R}	2.55^{R}	2.65	2.80	U2.95^{S}	U3.00^{S}	3.00	J2.85^{S}	2.60	2.55	J2.55^{S}	J2.65^{S}
11	J2.60^{S}	I2.60^{S}	2.65	2.55	2.50	2.55^{S}	2.65	2.75	2.75	2.50	2.35	2.50	2.60^{R}	2.90	2.80	2.85	I2.50^{A}	I2.60^{S}	J2.75^{S}	J2.60^{S}	2.60	U2.55^{S}	2.55	U2.45^{S}
12	2.45	2.55	2.80	2.75	2.55	2.70	3.05	3.15	2.75	2.65^{H}	2.70	2.60^{H}	2.65^{H}	2.70^{H}	2.70^{H}	2.65^{H}	2.75^{H}	2.70^{H}	2.90	3.05	3.00	I2.50^{S}	I2.45^{A}	F
13	S	F	J2.75^{S}	2.90	F	F	3.00	3.00	3.05	2.50	2.50^{H}	I2.60^{A}	I2.75^{A}	I2.75^{A}	2.70	I2.75^{R}	2.65^{H}	2.75^{H}	2.80	2.80^{S}	I2.75^{S}	U2.40^{S}	2.50^{S}	U2.55^{S}
14	2.65	2.70^{S}	J2.70^{S}	J2.75^{S}	J2.90^{S}	2.95	J3.10^{S}	3.15^{S}	3.00	3.00^{H}	2.50^{H}	2.45	2.65	U2.65^{S}	2.75^{S}	2.85	U2.80^{SH}	2.70^{H}	2.80	2.90	2.65^{S}	I2.55^{S}	2.50	U2.55^{S}
15	I2.75^{S}	3.30	3.00	2.95	2.75	2.75	3.00	U2.95^{S}	2.65	2.65	2.55	2.65	2.70	2.75	2.75	2.85	2.85^{H}	2.80	2.90	2.90	2.75	2.60	I2.60^{S}	J2.55^{S}
16	2.70	I2.80^{S}	3.10	J3.15^{S}	2.55	2.65	2.70	J2.90^{S}	2.95	2.55	I2.60^{C}	2.60	2.80	C	C	C	C	C	2.85	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	2.75^{H}	2.70^{H}	2.55	2.60	2.80	2.90	2.80	J2.90^{S}	J2.90^{S}	2.85^{H}	U2.75^{S}	2.80	J2.55^{S}	J2.55^{S}	I2.50^{S}
18	2.50^{S}	J2.70^{S}	2.65	2.50	2.45	2.65^{S}	3.10	3.25	2.50	2.60^{H}	2.55^{S}	2.70	2.80	2.95	2.75	2.85	2.85^{H}	2.90	2.85^{S}	U2.90^{S}	U2.90^{S}	U2.75^{S}	I2.70^{S}	2.70
19	J2.70^{S}	J2.65^{S}	2.65	2.65	2.75	2.75	J2.85^{S}	2.75	I2.90^{C}	I2.55^{C}	I2.50^{A}	C	C	C	C	C	C	2.85	2.95	2.95	U2.70^{S}	J2.65^{S}	I2.70^{A}	S
20	S	S	S	F	S	F	3.10	2.90	2.85	2.85^{H}	I2.50^{S}	2.45	2.60	2.70	2.75	2.80	2.80	2.95	J3.00^{S}	3.15	I2.75^{S}	2.50^{S}	F^{S}	S
21	S	F	S	S	2.80^{S}	I2.85^{S}	3.05^{F}	3.15	3.35	3.00	2.70^{H}	2.75^{H}	2.60	2.70	2.75	2.95	3.00	3.00	2.90	2.85^{S}	I2.75^{S}	2.70^{S}	2.60	I2.65^{S}
22	2.85^{S}	I2.85^{S}	J2.60^{S}	J2.75^{S}	2.85	2.75	3.30	3.10	2.85	A	2.70^{SH}	2.75	2.65	2.70	2.80	2.80	2.85^{H}	2.80	2.80^{S}	J2.95^{S}	3.10	2.70	2.65	2.65
23	2.65	2.70	J2.95^{S}	J2.90^{S}	J2.85^{S}	J3.10^{S}	J3.15^{S}	3.00	2.95	2.70^{H}	2.55^{H}	2.60	2.60	2.60	2.75	2.85	2.85	2.90	2.95	U3.10^{S}	2.60^{S}	J2.65^{S}	2.65	F
24	S	U3.00^{S}	F	S	I2.70^{S}	J2.70^{S}	F	A	2.80	A	A	2.70	2.70	2.55	2.65	2.90	2.90	2.80^{H}	2.70^{S}	C	C	C	C	2.65
25	2.65	J2.70^{S}	J2.85^{S}	2.65	2.50	2.50	U2.70^{S}	2.70	I2.45^{A}	2.60^{H}	J2.55^{R}	2.75	I2.75^{C}	2.65	2.80	2.85	2.75^{H}	2.75^{H}	2.70	2.85^{S}	2.75	2.70	J2.85^{S}	S
26	F	S	I2.60^{F}	I2.60^{F}	2.75	2.60^{F}	3.05	3.40	A	3.00	I2.50^{A}	2.40	2.55	2.75^{S}	2.70	2.75	2.85^{S}	J2.80^{S}	2.80	2.75^{S}	I2.80^{S}	U2.80^{S}	2.60	U2.55^{S}
27	2.50	U2.70^{S}	2.75	2.70	U2.65^{S}	2.95^{S}	J3.15^{S}	3.05	2.90^{H}	3.00^{H}	2.60^{H}	2.45	2.45	2.75	2.75	2.85	2.95	2.75^{H}	J2.95^{S}	2.80	2.70	2.60	2.65	2.60
28	2.60^{S}	2.70^{S}	2.70	2.70	J2.70^{S}	2.95^{S}	J3.15^{S}	3.10	3.10	2.95	2.90	2.75^{S}	2.70	2.70	2.75	2.85	2.85	2.85	2.80	J2.85^{S}	S	S	2.80	I2.80^{S}
29	F	S	S	F	F	F	3.00	I3.15^{S}	3.05	2.65^{H}	2.75^{H}	2.45	I2.25^{A}	2.30	2.85^{S}	2.90	2.70	2.70	2.70	2.70	J2.85^{S}	U2.70^{S}	2.60	2.60
30	2.55	2.60	2.60	J2.50^{S}	J2.50^{S}	2.45	J3.10^{S}	3.10	3.30	I2.60^{A}	I2.70^{A}	2.85^{H}	2.65^{H}	2.80^{H}	I2.80^{C}	2.85	2.85^{H}	2.90^{H}	3.00^{S}	J2.85^{S}	J2.80^{S}	S	2.60	2.65^{S}
31	I2.60^{S}	2.90^{S}	3.05^{S}	J2.60^{S}	I2.70^{F}	F^{S}	U2.65^{S}	2.85	S^{H}	2.60	2.40	I2.35^{A}	2.40	2.40	2.50	2.60	2.70	2.70	2.80	2.80	J2.60^{S}	2.55	2.60	2.50^{S}
No.	23	24	25	25	26	25	28	28	27	28	30	30	30	29	29	29	29	30	31	29	27	26	27	24
Median	2.60	2.70	2.80	2.75	2.70	2.75	3.05	3.10	2.95	2.65	2.60	2.60	2.70	2.75	2.75	2.85	2.85	2.85	2.90	2.90	2.75	2.60	2.60	2.60

(M3000)F2 Sweep 1.0 Mc to 20.0 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | (M3000)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								2.70	I 3.40 A	I 3.65 A	3.65	3.20		3.40										
2												3.45	A	A	A									
3							C	C	C	C														
4												3.40	3.60 H											
5													3.50	A	A	A								
6												L	A	3.35	3.50 L	3.60 L								
7												A	3.55	3.50	3.20									
8													A	A	A	A								
9										L	3.15	I 3.40 L	3.40	3.35	3.35	3.30	3.60							
10								L	A	A	3.35	3.40 H	I 3.35 A	3.15	3.35	3.45	3.45							
11							L	I 3.20 A	3.40	3.45	3.30	3.45	3.50	I 3.40 A	3.35	3.40	A	A	A					
12																								
13												A	A	A	A	B								
14												3.45	3.20	3.25	3.40	3.40								
15											A	L	L	A	L	L								
16											C	A	3.40	C	C	C	C	C						
17							C	C	C			3.45	3.65 H	3.50	3.50	A	A							
18											L	3.30	3.50	I 3.40 A	3.65	3.35								
19									C	C	A	C	C	C	C	C	C							
20											A	A	A	A	A	A	A							
21													3.45	A	A	A	A							
22												A	I 3.60 L	A	3.50	A								
23												3.70 H	I 3.35 L	3.25	3.25	3.20	3.30	3.60	L					
24										A	A	A	A	3.05	A	A	A							
25							L		I 3.25 A	3.25	A	A	C	A	A	A								
26											I 3.35 A	3.60	3.50	A	A	3.40	A	L						
27												A	A	A	A	A	L							
28											L	L	3.45	3.45 H	L	L	L	L						
29												L	A	A	3.35	3.40	L	L						
30															C	L H								
31								3.60	A	A	A	I 3.60 A	3.75	I 3.60 A	3.40	3.70	3.50	3.15	3.35 L					
No.								3	3	3	5	12	16	13	12	10	4	2	1					
Median								3.20	3.40	3.45	3.35	3.45	3.50	3.40	3.40	3.40	3.50	3.40	3.35					

(M3000)F1 Sweep 1.0 Mc to 20.0 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | 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								525	I 410 A	I 680 A	470	475		420										
2												335	310	300	300									
3							C	C	C	C														
4												355	310											
5													325	305	300	300								
6												290	350	320	305	305								
7												295	305	355	360									
8													310	310	325	320								
9										350	350	330	340	335	340	345	310							
10								325	325	345	415	440	400	400	380	340	310							
11							340	360	400	495	530	455	400	355	350	340	I 320 A	A	290					
12																								
13												A	A	I 380 A	355	350								
14												395	375	350	340	315								
15											340	340	350	345	350	330								
16											C	350	335	C	C	C	C	C						
17							C	C	C			425	400	350	325	350	305							
18											345	355	330	325	310	320								
19									C	C	A	C	C	C	C	C	C							
20											A	A	390	350	340	330	320							
21													375	350	350	310	290							
22												A	330	345	335	315								
23												375	355	375	350	320	310	300	270					
24										A	A	400	350	390	360	310	290							
25							310		I 470 A	420	400	375	I 350 C	375	350	355								
26											I 505 A	515	410	355	355	330	310	300						
27												400	390	350	335	330	290							
28											300	320	355	350	350	310	310	300						
29												405	I 510 A	480	300	305	320	280						
30															C	325								
31								300	400 H	520	520	I 530 A	540	545	500	455	415	400	345					
No.							2	4	5	6	10	21	25	25	24	23	13	5	3					
Median							325	340	400	460	410	375	350	350	345	325	310	300	290					

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

May. 1960 | 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	380	420	395	455	445	320	375	I_{315}^{A}	I_{280}^{A}	I_{265}^{A}	245	315	275^{H}	280	230^{H}	220^{H}	240^{H}	240^{H}	290	260	E_{390}^{A}	305	290	295
2	320	290	255	240	230	250	245	240	240^{H}	230	280^{H}	255	A	A	A	205^{H}	255	I_{265}^{AH}	250	240	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	230^{H}	I_{240}^{AH}	250^{H}	280	A^{H}	A^{H}	250^{H}	300	E_{305}^{A}	280	E_{320}^{A}	E_{350}^{A}	320	300
4	290	270	270	290	280	280	240	230	250	250	250	240	240^{H}	255^{H}	240^{H}	260^{H}	250^{H}	250	255	250	250	265	270	310
5	300	290	250	240	230	250	245	235	230	210^{H}	200^{H}	220^{H}	240	A	A	A	A^{H}	A^{H}	275	250	270	250	305	315
6	310	290	270	230	250	250	245	240	245	275	310	250	A	240	245	260	A^{H}	A^{H}	290	270	E_{305}^{A}	A	350	350
7	330	330	280	205^{H}	300	355	250	225	245	I_{265}^{C}	I_{250}^{A}	I_{255}^{A}	260	230	250	I_{260}^{AH}	270^{H}	250^{H}	260	255	250	375	355	340
8	340	325	290	240	250	305	245	245	250	295	E_{290}^{AH}	I_{265}^{AH}	A	A	A	A	A^{H}	A	A	250	320	305	330	300
9	315	350	280	245^{H}	245^{A}	I_{345}^{A}	280^{H}	300	245	235	230	270	260	245	250	280	E_{290}^{S}	E_{300}^{A}	E_{280}^{A}	260	320	310	330	330
10	330	305	270	255	250	270	260	250	A	E_{300}^{A}	300	215^{H}	A	275	250	270	E_{275}^{A}	A	E_{275}^{A}	295	320	295	325	290
11	315	305	270	340	345	330	290	A	E_{300}^{A}	240	300	260	250	I_{255}^{A}	255	E_{290}^{A}	A	A	A	A	295	340	345	315
12	345	330	280	270	260	260	270	245	245	255^{H}	270	250^{H}	230^{H}	205^{H}	205^{H}	250^{H}	245^{H}	250^{H}	E_{280}^{A}	275	240	280	A	350
13	365	310	290	260	E_{370}^{A}	350	I_{290}^{A}	255	280	A	A^{H}	A	A	A	A	B	B^{H}	260^{H}	E_{290}^{A}	280	270	350	355	350
14	320	305	300	310	275	270	250	240	225	220^{H}	230^{H}	230	E_{300}^{A}	250	250	265	250^{H}	240^{H}	260	270	250	280	305	345
15	300	290	250	240	275	275	250	230	230	260	I_{255}^{A}	230	E_{300}^{A}	270	E_{300}^{A}	A	E_{275}^{AH}	250	E_{280}^{A}	290	290	290	290	300
16	300	275	250	240	315	320	250	250	250	250	I_{260}^{C}	A	A	C	C	C	C	C	275	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	250^{H}	220^{H}	225	205^{H}	230	260	A	A	E_{320}^{A}	250^{H}	280	255	295	320	340
18	330	300	275	300	315	310	255	240	E_{350}^{A}	200^{H}	250	270	245	I_{260}^{A}	245	250	A^{H}	E_{290}^{A}	285	260	260	250	330	300
19	280	290	310	345	300	280	290	290	C	C	A	C	C	C	C	C	C	E_{300}^{A}	E_{280}^{A}	250	255	305	275	350
20	E_{350}^{A}	E_{355}^{A}	270	255	250	250	250	270	305	A	A	A	A	A	A	A	A	E_{300}^{A}	270	250	270	300	310	305
21	300	300	275	295	305	305	270	245	230	I_{270}^{A}	205^{H}	275^{H}	240	A	A	A	A	E_{295}^{A}	265	300	290	305	305	305
22	305	270	305	290	280	290	240	240	E_{300}^{A}	A	A^{H}	A	220	A	250	I_{255}^{A}	250^{H}	E_{280}^{A}	E_{295}^{A}	275	250	275	335	330
23	300	305	275	260	260	250	240	240	E_{330}^{A}	A^{H}	A^{H}	200^{H}	240	275	330	310	270	240	250	250	230	315	345	330
24	340	265	330	390	I_{375}^{A}	I_{365}^{A}	250	A	A	A	A	A	A	A	I_{240}^{A}	I_{250}^{A}	I_{245}^{A}	A^{H}	E_{305}^{A}	C	C	C	C	300
25	275	300	255	255	310	340	260	260	I_{300}^{A}	275	I_{260}^{A}	A	C	A	A	A	E_{300}^{AH}	260^{H}	270	295	280	305	290	I_{350}^{A}
26	290	305	340	295	290	325	280	255	I_{265}^{A}	I_{235}^{A}	I_{260}^{A}	225	255	A	A	245	I_{265}^{A}	270	E_{295}^{A}	E_{295}^{A}	E_{340}^{A}	255	300	300
27	330	300	280	300	305	270	240	235	225^{H}	230^{H}	250^{H}	E_{300}^{A}	A	A	A	A	240	250^{H}	E_{280}^{A}	260	330^{A}	350	300	305
28	350	335	305	325	300	290	235	280	E_{285}^{A}	I_{290}^{A}	255	230	220	200^{H}	260	255	260	250	260	260	300	300	295	300
29	300	280	275	280	255	255	250	I_{260}^{A}	250	I_{265}^{AH}	A^{H}	290	A	A	I_{265}^{A}	250	240	250	E_{300}^{A}	290	295	290	290	335
30	340	350	320	350	345	310	245	E_{285}^{A}	A	A	A	I_{280}^{AH}	210^{H}	210^{H}	I_{215}^{C}	220^{H}	I_{260}^{AH}	A^{H}	275	255	280	290	360	310
31	300	275	230	290	250	290	260	250	A	A	A	A	A	A	I_{250}^{A}	I_{250}^{A}	240	250	255	290	290	360	340	350
No.	28	28	29	29	28	29	29	26	19	21	21	22	16	16	18	18	16	16	17	27	24	26	27	29
Median	315	300	275	280	280	290	250	245	245	250	250	250	240	250	250	250	250	250	265	260	275	300	320	315

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

May. 1960 | 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	115	110	130	135	E	E	140	130	115	115	130	145	150	105	105	G	G	155	135	120	120	110	110	110
2	110	105	105	E	105	E	G	G	G	130	120	120	110	110	110	105	105	105	G	G	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	G	110	120	140	145	140	145	130	120	120	115	110	110	110
4	105	105	105	105	105	105	G	110	145	105	105	130	110	110	125	105	110	110	130	120	110	110	105	105
5	S	105	E	100	E	110	105	105	G	140	130	130	140	150	140	135	130	125	125	120	110	110	E	105
6	105	105	100	105	E	E	G	125	130	120	115	115	110	105	150	145	135	130	100	125	115	110	110	105
7	110	105	S	E	110	E	145	135	135	C	115	130	135	140	G	155	150	155	130	120	110	110	110	105
8	105	110	105	105	105	105	105	130	120	115	110	115	110	110	105	130	105	120	120	100	100	100	100	100
9	105	105	105	130	125	120	130	120	125	120	120	105	155	155	145	140	135	130	120	110	105	105	100	105
10	105	105	100	100	E	E	155	125	115	110	110	105	105	105	105	105	125	125	120	115	110	110	105	105
11	105	105	105	100	100	S	130	125	120	120	110	110	110	110	110	150	130	125	115	105	100	100	105	100
12	100	S	S	105	E	E	G	G	105	105	105	105	105	105	105	110	G	150	120	110	105	105	105	105
13	105	105	105	100	100	100	120	120	110	110	110	105	105	105	105	B	B	140	125	120	115	110	110	105
14	100	105	100	105	105	105	110	110	130	110	110	110	105	105	110	100	105	140	105	120	110	110	S	110
15	110	105	100	100	100	105	140	G	130	125	110	120	110	110	110	110	110	105	105	120	110	110	110	S
16	100	105	105	100	105	E	150	130	130	130	C	115	110	C	C	C	C	C	125	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	120	125	120	105	105	135	125	125	115	120	120	115	105	105	105
18	S	115	105	E	E	125	120	130	115	130	120	105	120	110	150	135	120	110	110	110	105	105	105	105
19	105	105	105	100	105	105	130	125	C	C	110	C	C	C	C	C	C	110	110	110	105	125	105	105
20	105	100	100	100	100	125	130	125	115	110	110	105	105	105	105	100	100	100	100	100	100	110	120	120
21	110	105	105	105	105	105	105	105	125	115	105	110	130	120	115	105	105	110	105	105	110	105	105	105
22	105	100	100	100	100	S	140	130	130	120	120	110	105	110	110	110	120	110	110	110	S	100	100	100
23	100	100	100	100	115	120	G	125	110	110	115	130	105	130	130	160	130	130	115	110	105	100	100	105
24	120	110	105	105	100	105	130	130	120	120	110	110	110	105	105	100	100	105	120	C	C	C	C	S
25	105	105	E	E	E	E	150	130	110	130	120	130	C	125	125	115	110	110	110	105	110	110	110	105
26	110	105	100	105	E	140	130	125	120	110	110	110	110	120	105	155	140	120	110	110	105	105	105	105
27	100	105	105	105	100	100	105	G	130	125	110	110	110	110	110	105	105	140	125	125	110	105	105	105
28	105	105	105	105	105	100	125	115	110	105	110	105	105	G	175	145	140	130	115	110	105	100	100	100
29	100	100	100	100	E	G	140	125	120	110	110	105	105	105	105	110	110	130	120	110	110	105	105	105
30	105	110	105	105	105	100	105	130	120	120	110	110	130	125	C	125	110	110	105	105	105	100	100	100
31	100	100	100	100	100	100	G	150	130	130	125	120	120	105	105	105	150	105	125	105	100	105	105	105
No.	27	28	25	25	20	18	23	25	26	28	29	30	29	28	27	27	26	30	30	28	27	28	26	27
Median	105	105	105	105	105	105	130	125	120	120	110	110	110	110	110	115	120	120	120	110	110	105	105	105

h'Es

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

The Radio Research Laboratories, Japan.

Y 11

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IONOSPHERIC DATA

May. 1960

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	f3	f7	f3	f3			h2	h	h4	h4	h	h	hl	l2	l			h	h3	f7	f8	f9	f5	f
2	f5	f4	f4		f3					h	h2	h2	l2	l5	l2	l	l2	l7						
3												C4	h	h	h2	h2	h2	h4	C5	f4	f3	f3	f3	f4
4	f2	f5	f4	f2	f4	f2		l2h	h	l2	l	h	l	l	h	C2	l2	l2	h3	f2	f2	f2	f	f3
5		f2		f2		f	l3	l2		h	h	h	h	h	h2	h2	h2	h3	C3	f4	f2	f2		f2
6	f2	f2	f	f2				h	h2l2	h4	h3	C2	C3	l	hl	hl	h3l	h2l4	l3	f7f	f2	f2	f3	f4
7	f2	f2			f6		h2	h3	h3		h3	h	h	h		h	h	h	h3	f5	f6	f5	f6	f3
8	f3	f2	f2	f2	f2	f2	l	hl2	h2	h3	h3	h2	C2	C2	l2h2	h3l5	l3	h3l2	C2l4	f3	f5	f2	f	f5
9	f2	f2f4	f5	f3	f7	f6	C4	h2	h	h	h	l	h	h	h	h	h2	h2	C2	f4	f4	f2	f2	f7
10	f3	f5	f2	f			h2	h2	h5	h2	C	l	l2	l2	l	l2h	hl2	h3	C4	f3	f4	f2	f5	f2
11	f2	f4	f2	f2	f2		h3	h	h2	h	h2	h	l	l2	l	h	h4	h4	C2	f5	f4	f5	f3	f
12	f			f					l2	l2	l2	l	l	l	l	l		h	C3	f4	f4	f4	f4	f6
13	f3	f4	f3	f6	f4	f2	l4l3	h2	C2	h5	C3	l5	l5	l4	l3			h	C3	f3	f9	f3	f3	f3
14	f3	f5	f3f3	f3	f4	f5	l4	l	hl2	l	l	l	l2	l	l	l2	l2	h	l3	f f5	f f	f2f2		f5
15	f3	f4	f4	f	f	f	h2		h2	h	h3	h	l2	C	C	l	l2	l2	l4	f4f3	f2f5	f3	f3	
16	f2	f2	f3	f3	f		h2	hl	hl	hl		h2	l						h3					
17										h2	h	h	l	l	h	h2	h3	h3	C2	f2	f2	f5	f5	f4
18		f2	f			f2	C2	h	h4	h	h2	l2	h2	l3	h	h	h2	h3	C4	f5	f5	f4	f4	f3
19	f2	f2	f6	f4	f2f	f2	h5	h3			h3							C6	C3	f4	f5	f2f3	f2	f4
20	f6	f3	f3	f2	f2	f	h2	h2	h2	C3	C2	l5	l3	l3	l3	l4	l4	l3	l3	f4	f4	f2	f2	f6
21	f2	f2	f2	f2	f3	f6	l7	l3	h2l2	h3	l	l2	h	h3	h2	l	l2	l3	l3	l3	f4	f4	f5	f3
22	f5	f4	f3	f	f3		C2	h2	h3	h2	h2	h2	l	l2	l2	l	h2	C2	C4	f3		f5	f7	f8
23	f2	f3	f3	f2	f2f	f2		h	h3	h4	h3	hl	l	h	h	h2	h	h2	C4	f3	f3f2	f4	f3	f2f4
24	f3	f3	f4	f3	f4	f4	h3	h5	h5	h3	C5	C2	C3	l2	l3	l2	l2	l3	h5l4					
25	f2	f					h2	h	h7	h	h2	h2		h	h	h2	l2	l2	l3	f2	f4	f4	f4	f4
26	f2	f	f5	f3		f3	C3	h2	h4	C2	l3	l	lh	h2	l2	hl	h2	h2	C4	f4	f5	f4	f4	f2
27	f6	f3	f2	f4	f4	f2	l		h	h	C2	C	C2	C2	l2	l3	l	h2	h5	f2	f9	f5	f5	f2
28	f6	f4	f7	f7	f6	f3	h2	h6	h3	C5	C2	l	l		h	h	h	h2	C2	f6	f5	f4	f5	f5
29	f2	f4	f2	f2			h	h2	h2	h3	h4	C2	l4	l2	l2	l	l	h	h2	f3	f9	f4	f3	f6
30	f4	f3	f4	f4	f2	f3	l2	h5	h2	h5	h6	C3	h	h		h	h	C3	C3	C4	f7	f3	f4	f5
31	f5	f4	f4	f2	f2	f2		h	h2	h3	h2	h3	h	l2	l	l	hl	l2h	h2l3	f3	f5	f4	f6	f3

No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

May 1960	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	11	9	(8)	-	9	1	1	0	-	1
2	10	10	9	-	10	1	1	1	-	1
3	15	11	11	8	12	1	1	2	1	1
4	8	8	8	10	8	0	0	0	1	0
5	10	7	6	-	8	1	0	1	-	1
6	10	10	8	8	9	1	0	0	0	0
7	8	10	9	-	9	0	0	0	-	0
8	7	7	(6)	-	7	1	1	1	0	1
9	7	7	8	-	7	0	0	1	-	0
10	-	-	-	-	(5)	0	0	0	-	0
11	-	-	-	-	(7)	0	0	0	-	0
12	7	7	(7)	-	7	0	1	0	-	0
13	10	22	100	-	44	0	1	2	-	1
14	15	15	17	-	16	2	2	2	1	2
15	13	15	-	-	14	-	0	1	1	1
16	8	8	7	(7)	8	0	0	0	0	0
17	9	9	8	-	8	0	0	0	0	0
18	9	7	7	-	8	0	0	0	1	0
19	10	15	20	-	15	1	2	2	1	2
20	(21)	17	30	22	23	1	1	2	2	1
21	27	27	32	16	27	2	2	2	1	2
22	13	14	(17)	-	15	1	2	1	-	1
23	18	14	16	-	16	1	0	1	0	1
24	7	9	-	35	8	0	0	0	2	0
25	130	283	96	41	136	2	2	2	2	2
26	23	17	15	115	24	1	1	1	2	1
27	120	59	64	67	90	2	2	2	2	2
28	62	49	34	14	53	2	2	2	1	2
29	17	15	12	-	15	1	1	1	-	1
30	9	10	9	-	9	1	1	1	1	1
31	16	19	(18)	-	18	1	1	-	-	1

Outstanding Occurrences

May 1960	Start-time	Dura-tion	Type	Max. Int.		Max. Time	Remarks
				Inst.	Smd.		
3	0723.0	0.5	ECD/4	500	140	-	
6	0727.2	0.5	ECD/4	380	60	-	
7	0049.0	1.3	CD/4	160	60	0049.6	
7	0052.3	0.4	ECD/4	>1000	360	-	off scale
8	0813.8	1.3	CD/4	>1300	400	-	off scale
10	0211.9	0.8	CD/4	250	90	-	
13	0517.2	~ 23	CD/9	1160	90	0524.8	first part
		~100		750	200	0552.6	plus part
15	0652.8	2.7	F/3	1000	-	0653.7	
15	2308.6	2.5	CD/4	720	30	2309.0	
15	2318.5	3.5	CD/4	520	30	2320.8	
18	2040.4	1.6	CD/4	380	50	2041.7	
18	2102.6	0.9	CD/4	410	70	2103.1	
19	0203.7	0.6	ECD/4	>1000	90	-	off scale
20	0914.1	3.6	F/3	710	-	0915.8	
26	09		CD/8				interrupted by sunset
30	2041.0	2.5	CD/4	>1300	240	-	off scale
30	2241.1	4.1	F/3	>1300	-	2241.9	off scale
31	0514.3	1.2	CD/4	510	60	0514.7	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

May '1960	Whole Day Index	L. N. 00 06 12 18 / 06 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	Δ H
1*	4-	- 3 3 S / - 2 2 2	5 S 5 5 / 4 S 2 3	(4) 3 3 3 / 2 3 3 2	3 2 2 1 / 1 1 1 2	W W U U / U U N N	---	2000	380γ
2	3+	- 2 2 2 / - 1 1 (1)	4 S 2 3 / 3 2 2 1	2 3 3 2 / 2 (3) 1 C	1 1 1 2 / 2 1 1 2	U U N N / N N N N			
3	2-	- 1 1 (1) / - 1 1 1	3 2 2 1 / 3 2 2 1	2 (3) 1 C / 2 - 1 1	2 1 1 2 / 2 1 1 2	N N N N / N N N N			
4	1+	- 1 1 1 / - 1 1 2	3 2 2 1 / 3 2 3 1	2 - 1 1 / 1 1 1 (1)	2 1 1 2 / 2 1 2 1	N N N N / N N N N			
5	2-	- 1 1 2 / - 2 2 -	3 2 3 1 / 2 2 3 4	1 1 1 (1) / 1 - - 4	2 1 2 1 / 2 2 1 2	N N N N / N N N N	2000	---	98γ
6	3o	- 2 2 - / - 2 3 3	2 2 3 4 / 5 S 5 4	4 3 (3) 3 / 3 (4 4) 4	2 2 2 2 / 2 2 4 4	U U U U / U U U U			
7*	4-	- 2 3 3 / - (4 3) C	5 S 5 5 / (4) S 5 4	3 (4 4) 4 / 4 (3 3) 3	3 3 3 3 / U U U U	---	1800	149γ	
8*	4o	- (4 3) C / - 2 2 3	(4) S 5 4 / 4 S 5 4	4 (3 3) 3 / 3 (3 3) 3	2 2 2 2 / U U U U	U U U U / U U U U			
9*	4-	- 2 2 3 / - S 2 2	4 S 5 4 / 3 S 3 3	3 (3 3) 3 / 2 (3 3) 2	2 2 1 2 / 2 2 1 2	U U U U / N N N N	0421	---	
10	3o	- 2 2 C / - S 1 1	(4) S 3 3 / 3 S 1 1	3 (3 3) 3 / 3 (3 3) 3	2 2 2 2 / 2 2 1 2	U U U U / W W U U			
11	3+	- 2 3 (3) / - 1 2 (2)	2 S 4 4 / 1 1 1 1	3 (3) - 4 / 1 1 2 3	3 2 3 1 / 3 2 2 2	U U U U / N N N N	0434	1700	122γ
12	3-	- 1 2 1 / - 1 1 (1)	4 2 3 1 / 2 2 2 3	4 4 3 3 / 2 2 (2) 2	2 1 2 3 / 1 2 1 2	U U U U / N N N N			
13	3-	- 2 2 S / - 1 1 1	2 1 3 2 / 3 2 2 1	3 3 (3) 2 / 1 2 1 1	3 3 1 2 / 2 1 1 1	U U U U / N N N N			
14	3o	- S 2 2 / - 1 1 -	3 3 3 3 / 3 2 1 2	3 2 2 2 / 1 1 1 (1)	2 2 1 2 / 2 1 1 1	U U U U / N N N N			
15	2-	- S 1 1 / - 1 1 (1)	3 1 2 1 / 2 2 1 2	3 3 1 1 / 1 1 1 1	2 2 1 2 / 1 1 1 2	W W U U / N N N N			
16	2-	- 2 2 (2) / - 1 1 (1)	1 1 1 1 / 2 2 1 1	1 1 2 3 / 1 1 1 1	3 2 2 2 / 1 1 1 1	N N N N / N N N N	1120	---	
[17]	2o	- 1 1 (1) / - 1 1 -	2 2 2 3 / 3 2 1 2	2 2 (2) 2 / 1 1 1 (1)	1 2 1 2 / 2 1 1 1	N N N N / N N N N	---	1500	93γ
[18]	1+	- 1 1 - / - 1 1 (1)	3 2 1 2 / 2 2 1 1	1 1 1 (1) / 1 1 1 1	2 1 1 1 / 1 1 1 2	N N N N / N N N N			
[19]	1o	- 1 1 (1) / - 1 1 1	2 2 1 1 / 1 (1) 1 1	1 1 1 1 / 1 1 1 1	1 1 1 2 / 1 1 1 1	N N N N / N N N N			
20	1o	- 1 1 1 / - 1 1 1	1 (1) 1 1 / 1 (2) 1 1	1 1 1 1 / 2 1 2 2	1 1 1 1 / 1 1 1 1	N N N N / N N N N			
21	1+	- 1 1 1 / - 1 1 1	1 (2) 1 1 / 2 1 1 1	2 1 2 2 / 3 1 2 1	1 1 1 1 / 1 (1 1) 1	N N N N / U U U U			
22	1+	- 1 1 1 / - 1 2 2	2 1 1 1 / (1) C C C	3 1 2 1 / 1 1 2 2	1 (1 1) 1 / (1 2 1 1)	U U U U / U N N N			
23	1+	- 1 2 2 / - 1 2 -	(1) C C C / C C C C	1 1 2 2 / 2 2 3 4	(1 2 1 1) / (2 1 1 2)	U N N N / N U U U			
24	3-	- 1 2 - / - 2 3 -	C C C C / C C C C	2 2 3 4 / 3 2 2 3	(2 1 1 2) / (2 2 2 2)	N U U U / U U U U			
25	3o	- 2 3 - / - 1 2 (2)	C C C C / C C - 2	3 2 2 3 / 3 2 (2) 3	(2 2 2 2) / 2 1 1 1	U U U U / U U N N			
26	3-	- 1 2 (2) / - 1 1 1	C C - 2 / 3 2 2 2	3 2 (2) 3 / 3 3 3 3	2 1 1 1 / 1 1 1 1	U U N N / N N N N			
27	2+	- 1 1 1 / - 1 1 1	3 2 2 2 / 3 2 1 1	3 3 3 3 / 3 2 2 2	1 1 1 1 / 1 1 1 1	N N N N / N N N N			
28	2-	- 1 1 1 / - 3 3 3	3 2 1 1 / 3 3 3 4	3 2 2 2 / 3 2 - (4)	1 1 1 1 / 2 1 1 1	N N N N / U U U U	2019	---	
29	3+	- 3 3 3 / - 2 2 -	3 3 3 4 / 5 S 5 5	3 2 - (4) / 3 (3) 3 3	2 1 1 1 / 2 3 3 2	U U U U / U U U U	---	---	
30	4-	- 2 2 - / - 2 2 2	5 S 5 5 / 5 (3) 4 3	3 (3) 3 3 / 3 2 3 3	2 3 3 2 / 2 2 2 1	U U U U / U U U U	---	1700	93γ
31	3+								

* = day of Special World Interval

[ ] = Regular World Day

( ) = inaccurate

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

May 1960	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										
9		35	-		-	23.29	22	S	2+				X		
11		34	8	12'	23	21.02	55	S	2+						
13			22	33'		05.14	58	S	3+	05.18	70	3+	X	X	
25			10	30'	18	02.24	24	S	3	02.34	45	1		X	

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