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IONOSPHERIC DATA IN JAPAN

FOR JUNE 1960

Vol. 12 No. 6

(Including Provisional Data at Showa Base)

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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. 0234*x*)

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

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

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

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

activity

M: multiple peaks separated by relatively long period of quietness

F: multiple peaks separated by relatively short period of quietness

E: sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

1=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

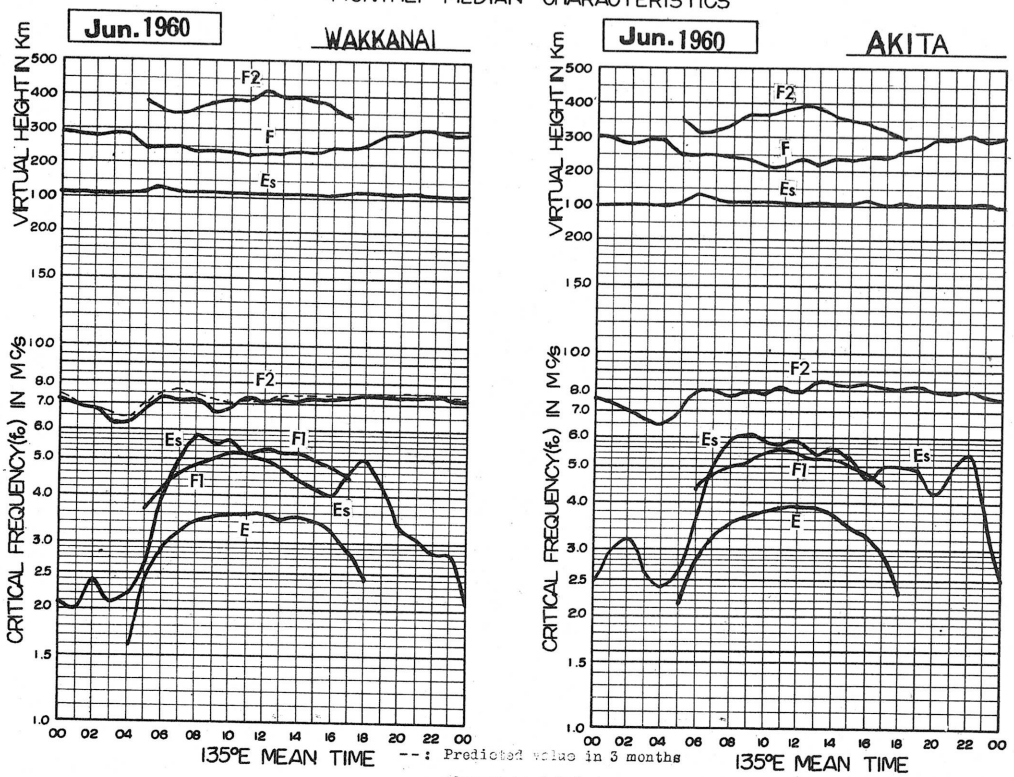
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

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.*

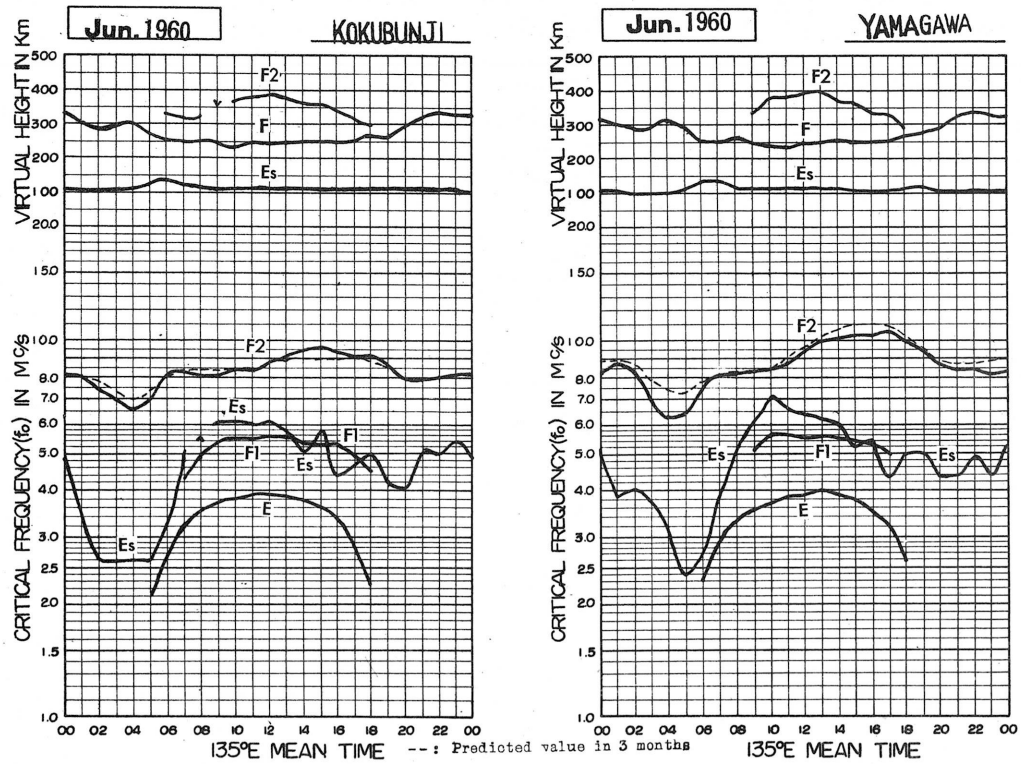
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Jun. 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	6.8	6.8	6.5	6.3	6.5	7.3	8.0	8.0	7.9	8.4	8.5	8.6	8.9	8.8	8.3	8.3	8.3	8.8	8.0	9.3	8.4	I 9.0 S	S	S
2	S	7.3	7.0	5.7	5.5	6.3	6.7	7.1	7.1	7.3	7.5	7.3	7.7	7.3	7.3	7.6	7.8	7.8	8.0	8.0	8.3	I 8.4 S	8.5	I 8.1 S
3	U 7.8 S	I 7.6 S	7.1	7.1	7.3	8.1	I 8.6 A	7.8	I 7.2 A	6.8	6.9	7.0	7.3	7.3	7.3	7.1	7.3	I 7.5 A	7.4	I 7.4 A	I 7.5 A	I 7.8 S	I 8.2 S	8.2
4	7.8	7.5	7.5	6.6	6.8	7.5	7.6	8.3	7.5	6.5 Z	6.7	7.5	7.3	7.8	8.3	8.3	9.2	8.8	8.5	7.6	7.0	7.1	7.3	7.2
5	7.5	6.1	6.0	5.3	4.8	5.7	6.3	5.9	I 5.6 A	I 5.6 A	A	A	A	A	6.7	I 6.2 A	6.0	I 5.8 A	I 5.9 A	6.0	6.4	6.8	6.4	6.7
6	6.2	5.5	5.2	5.0	5.2	6.5	A	C	C	5.3	I 5.1 A	W	5.3	W	5.5	5.7	5.7	5.8	I 5.8 A	5.7	5.9	6.5	6.5	6.5
7	6.8	6.7	6.2	4.9	5.1	5.3	6.2	6.5	I 6.6 A	6.6	6.3	6.2	6.3	6.1	6.6	6.8	7.3	7.3	7.2	7.1	7.6	7.4	I 7.5 S	7.4
8	7.0	7.1	6.8	6.1	6.1	6.0	6.5	6.0	6.0	I 5.7 A	5.7	6.0	6.2	6.3	6.6	6.8	7.3	6.8	6.3	6.3	6.7	7.3	7.4	7.3
9	7.0	6.4	6.0	6.3	6.2	7.3	8.9	10.4	9.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	8.3	U 8.8 R	8.8	8.3	8.0	8.0	7.7	8.2	S	S	S	S
14	S	S	7.7	7.5	7.5	I 9.1 C	10.0	9.8	8.0	7.5	8.3	8.1	7.9	7.9	7.9	8.0	7.7	6.8	7.6	7.5	I 7.8 S	8.5	I 8.6 S	U 7.4 S
15	I 7.8 S	U 7.3 S	I 7.1 S	5.9	5.8	6.2	6.5	6.5	6.1	6.3	5.9	5.5	I 5.5 B	5.5	5.8	6.2	6.1	5.8	5.9	6.5	6.8	7.3	I 7.3 S	7.0
16	7.2	U 7.8 S	7.5	6.8	6.3	6.1	6.6	6.0	W	5.7	5.3	W	W	5.5	5.6	6.0	5.9	6.0	6.1	6.2	6.5	7.0	7.3	7.3
17	7.6	7.3	7.1	6.5	6.8	7.8	8.1	7.5	I 6.7 A	6.3	6.5	6.8	6.5	6.6	6.7	6.4	6.5	I 6.6 A	I 6.6 A	7.0	I 7.6 A	S	Fs	F
18	I 8.3 S	U 7.8 S	7.2	6.8	6.8	7.5	8.3	8.2	7.4	7.6	8.3	8.3	8.4	7.8	7.8	8.0	7.7	I 7.5 A	7.8	7.7	I 8.1 S	S	S	S
19	U 8.0 S	I 7.5 Fs	7.5	6.6	6.2	6.2	I 6.6 R	6.7	A	A	A	A	5.8	I 5.8 A	I 6.2 A	6.3	6.7	6.7	I 6.6 A	6.5	6.7	I 7.4 Fs	7.6	U 7.7 S
20	5.8	5.3	5.5	5.0 F	5.3	6.5	7.0	7.2	6.5	5.8	I 5.8 R	5.3	5.8	6.0	I 6.1 A	I 6.4 A	6.7	6.7	6.8	7.4	I 7.4 S	I 7.4 S	7.3	7.2
21	6.8	6.7	6.7	U 6.2 F	I 6.4 F	7.2	I 7.9 R	8.0	7.5	7.1	I 6.6 A	I 6.5 A	6.5	7.3	7.3	7.3	7.7	7.9	8.5	8.5	I 8.2 S	I 7.6 S	7.4	7.2
22	7.1	6.8	6.5	6.1	6.5	7.3	9.1	10.0	9.3	8.7	8.5	7.7	7.2	7.8	8.6	8.3	8.2	8.7	8.6	9.1	AS	S	S	I 7.2 S
23	7.3	7.0	6.8	6.5	6.8	I 8.2 R	9.3	8.9	7.7	7.3	6.7	6.4	6.5	6.3	6.8	6.5	6.9	7.1	7.8	8.5	U 8.2 S	U 7.8 S	I 7.5 S	6.8
24	6.8	6.6	6.6	6.5	6.7	9.0	9.5	I 8.5 R	I 7.8 R	U 7.8 S	6.8	7.0	7.2	7.3	7.0	7.4	7.3	U 7.7 R	8.3	I 8.7 A	S	S	S	S
25	U 8.0 S	U 7.5 S	6.8	6.6	6.3	6.3	7.1	6.8	7.5	7.8	7.1	7.3	7.4	7.8	7.5	7.3	7.3	7.3	7.4	7.8	U 8.0 S	I 7.9 S	I 7.8 S	7.3
26	7.0	7.1	6.8	6.6	6.5	7.0	8.0	U 7.3 R	I 6.9 R	I 6.4 A	I 6.9 A	7.8	I 6.6 A	7.0	I 7.0 A	7.3	7.6	I 7.7 C	7.8	7.9	7.4	7.5	U 7.4 S	7.3
27	7.3	6.8	6.4	6.1	6.3	6.8	7.3	6.4	6.6	6.5	7.7	7.9	8.4	7.3	9.0	U 9.5 R	9.5	J 9.3 S	7.7	7.3	6.8	I 7.4 S	I 7.0 S	7.5
28	6.6	6.1	5.9	5.3 F	5.5	6.1	7.1	I 6.6 A	A	A	A	A	A	A	I 5.7 A	6.0	5.8	U 6.2 S	6.4	6.5	7.1	U 7.5 S	7.3	I 7.5 S
29	7.2	7.1	6.2	5.7	U 5.3 S	5.5	6.5	6.7	7.3	8.0	7.6	I 7.6 R	7.9	7.9	8.0	8.5	8.3	8.5	7.4	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	7.3	7.3	7.0	I 7.7 C	7.3	7.6	7.1	6.3	6.3	6.3	7.0	I 7.6 S	7.7	8.0
31																								
No.	23	24	25	25	25	25	24	24	21	22	22	20	23	23	26	26	26	26	26	25	22	20	19	20
Median	7.2	7.0	6.8	6.3	6.3	6.8	7.4	7.2	7.3	6.7	6.8	7.3	7.2	7.3	7.2	7.3	7.3	7.3	7.4	7.4	7.4	7.4	7.4	7.3
U.Q	7.8	7.4	7.1	6.6	6.8	7.5	8.4	8.2	7.8	7.6	7.6	7.8	7.9	7.8	7.9	8.0	7.8	7.9	7.8	8.1	8.0	7.8	7.7	7.5
L.Q	6.8	6.6	6.2	5.7	5.5	6.2	6.6	6.6	6.6	6.3	6.3	6.4	6.3	6.3	6.6	6.4	6.7	6.6	6.4	6.5	6.8	7.3	7.3	7.2
Q.R	1.0	0.8	0.9	0.9	1.3	1.3	1.8	1.6	1.2	1.3	1.3	1.4	1.6	1.5	1.3	1.6	1.1	1.3	1.4	1.6	1.2	0.5	0.4	0.3

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

Jun. 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								L	L	5.1	5.5	5.6	5.5	5.4	5.4	5.2	L	L						
2						3.8	4.3	I 4.6 A	4.9	5.2	5.3	5.4	5.4	5.3	I 5.3 L	5.2	L	L						
3							A	A	A	A	A	A	A	5.3	5.2	5.0	A	A						
4								4.8	I 5.0 L	I 5.1 L	5.3	5.3	I 5.3 A	I 5.2 A	5.1	4.9	4.8	L	L					
5						3.5	4.1	A	A	A	A	A	A	A	I 5.0 A	I 4.8 A	4.6	A						
6						A	A	C	C	A	I 4.9 A	4.9	5.0	4.9	4.8	I 4.7 A	A	A	A					
7							I 4.4 L	4.9	A	A	I 5.5 A	5.3	5.3	I 5.4 L	5.2	5.3	4.8	L	L					
8						3.7	A	A	A	I 5.0 A	5.1	5.2	5.2	5.2	5.2	5.1	4.6	A						
9						L	A	L	5.1	C	C	C	C	C	C	C	C	C	C					
10						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
11						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
12						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
13						C	C	C	C	C	C	C	5.6	5.6	I 5.4 LH	L	L	L	L					
14					L	C	L	L	I 5.2 L	5.3	5.1	5.3	5.5	5.3	5.4	I 5.2 L	L	L	L					
15						3.5	4.2	I 4.5 A	4.8	4.9	5.0	5.1	I 5.0 B	5.0	5.0	4.9	I 4.7 L	I 4.6 A	L					
16						4.3	4.4	I 4.6 A	4.8	4.8	4.9	5.0	5.0	5.0	5.0	4.8	4.8	4.5						
17						L	4.5	I 4.6 A	I 4.8 A	5.0	5.1	5.1	5.2	5.1	I 5.2 A	5.2	4.8	A	A					
18						L	L	4.7	A	A	5.1	5.7 H	5.3	5.2	5.2	5.0	A	A	A					
19						3.6	4.0	A	A	A	A	A	A	A	I 5.0 A	I 4.8 A	4.7	4.4	A					
20						3.8	4.2	4.5	4.7	I 4.8 L	5.1	5.0	5.0	I 5.0 A	I 5.1 A	I 4.8 A	4.6	L	A					
21						3.8	I 4.2 L	4.7	I 4.6 A	A	A	A	5.2	5.2	4.9	I 5.0 L	A	A	A					
22						L	L	L	I 4.8 A	5.3	I 5.2 A	I 5.2 A	I 5.3 A	5.3	5.2	5.0	L	L						
23						L	4.1	4.5	4.8	I 5.0 A	I 5.0 A	5.1 H	5.2	5.1	5.0	5.0	4.6	A	A					
24						L	A	A	A	5.0	5.5	5.2	5.3	5.2	5.1	5.0 H	I 4.6 L	I 4.3 L						
25						3.6	4.4	I 4.7 A	I 4.9 A	I 5.0 A	I 5.2 C	5.0	I 5.2 A	5.2	4.9	I 4.9 L	L	L						
26						I 3.6 A	A	A	L	A	A	A	A	A	A	A	4.8	C						
27						L	4.2	I 5.0 A	5.0	I 5.1 A	I 5.2 A	5.3	I 5.2 A	I 5.2 A	A	A	4.9	L						
28							A	A	A	A	A	A	A	A	I 5.0 A	4.9	4.8	I 4.6 A	L					
29						3.8	4.7	I 4.6 A	5.0	5.4	I 5.3 L	I 5.4 A	5.3	5.4	5.3	5.0	A	L	A					
30						C	C	C	C	C	5.5	5.4	5.4	I 5.4 C	5.5	5.1	L	L						
31																								
No.						11	13	13	14	15	19	19	21	22	24	23	14	5						
Median						3.7	4.2	U 4.6	4.8	5.0	5.2	5.2	5.3	5.2	5.2	5.0	4.8	U 4.5						

foF1

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

The Radio Research Laboratories, Japan.

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10

IONOSPHERIC DATA

Jun. 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					1.60	2.40	2.85	3.15	3.45	3.55	3.70	3.70	3.50	3.45	I3.45A	I3.40A	I3.10A	2.85	I2.45B	1.85				
2					1.50	2.35	3.00	3.20	3.35	3.45	3.50	3.65	3.55	3.50	3.50	3.30	3.20	2.80	2.30					
3					A	2.55	2.95	3.20	3.40	3.55	3.55	3.55	A	A	A	A	A	A	2.10					
4					S	2.45	2.95	3.15	3.45	3.55	3.70	3.85	3.70	3.60	3.55	3.45	3.30	2.90	2.35					
5					A	2.40	2.95	3.25	3.50	3.60	3.70	3.70	3.60	3.50	I3.50A	I3.40A	3.20	2.85	2.45					
6					1.30	2.20	2.80	I3.10C	I3.30C	3.60	3.60	3.65	3.50	3.50	3.60	3.50	I3.40A	2.80	2.30					
7					A	2.45	2.90	3.25	3.50	3.55	3.55	3.50	3.50	A	A	A	A	3.00	2.50	S				
8					1.65	2.55	3.00	3.40	3.60	3.70	3.75	3.60	3.70	3.55	3.70	3.50	3.35	3.10	2.50					
9					1.75	2.50	3.05	3.35	3.50	C	C	C	C	C	C	C	C	C	C					
10					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
11					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
12					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
13					C	C	C	C	C	C	C	C	3.75	3.65	3.60	3.35	I3.30A	3.05	2.45	S				
14					A	I2.35C	3.00	3.25	3.40	3.60	3.80	3.80	3.70	3.60	3.55	3.50	3.20	2.55	I2.40A	S				
15					1.50	2.10	2.85	3.30	3.45	3.60	3.75	3.75	I3.75B	3.70	3.70	3.45	I3.20A	A	A					
16					1.65	2.30	2.90	3.30	3.45	3.50	3.50	3.55	3.50	A	A	A	3.30	2.85	2.35					
17					A	A	I3.00A	3.25	3.40	3.50	3.60	I3.50A	3.50	A	A	A	A	A	A	A				
18					I1.60S	2.40	2.90	3.25	3.50	3.65	3.70	3.65	3.65	3.65	3.55	A	A	A	2.25	S				
19					A	2.50	2.9	3.15	3.40	3.50	3.60	3.60	3.60	3.50	A	A	A	2.90	2.50	S				
20					A	2.30	2.70	3.00	3.25	3.45	3.45	3.55	3.50	3.50	A	A	A	2.80	2.35					
21					A	2.45	2.80	3.15	3.40	3.55	3.50	3.50	3.40	I3.40A	3.60	3.50	3.25	2.80	2.35					
22					1.65	2.35	2.75	3.10	3.40	3.50	3.55	3.60	3.50	3.50	3.50	3.35	I3.05A	2.80	2.30					
23					A	2.35	2.75	3.10	3.30	3.50	3.50	3.50	3.60	3.50	3.50	3.30	3.25	2.80	2.40	S				
24					1.65	2.40	2.75	3.15	3.35	3.40	3.30	I3.40A	I3.50A	3.65	3.50	3.50	3.40	A	A					
25					1.60	2.35H	2.90	3.20	3.40	3.55	I3.65C	3.55	3.55	I3.45A	I3.40A	I3.30A	I3.15A	A	A					
26					1.50	2.35	2.95	3.20	3.35	3.55	3.60	3.60	3.50	3.45	B	A	A	C	2.55	S				
27					A	A	A	A	3.55	3.70	3.70	3.75	3.75	3.60	I3.70B	3.50	3.25	2.95	A					
28					1.70	2.45	2.90	3.50	3.60	3.70	3.70	3.70	3.65	A	A	A	3.30	2.85	2.40					
29					1.65	2.35	2.95	3.35	3.45	3.60	3.65	I3.75B	3.70	I3.65A	I3.70A	3.45	I2.85A	I2.95A	2.65					
30					C	C	C	C	C	C	3.70	3.75	3.60	C	A	A	A	A	A	A				
31																								
No.					14	23	24	24	25	24	25	25	25	20	17	16	18	18	20	1				
Median					1.60	2.40	2.90	3.20	3.40	3.55	3.60	3.60	3.60	3.50	3.55	3.45	3.25	2.85	2.40	1.85				

foE

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

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	G	G	3.4	3.9	4.8	5.5	5.8	5.7	5.8	4.1	4.0	3.6	4.0	3.5	B	2.6	E	E	E	E
2	E	E	E	1.8	1.9	3.0	4.0	5.0	5.0	5.3	4.7	G	G	G	G	G	G	4.0	3.8	4.6	J6.6	3.9	4.9	E
3	E	E	E	J2.3	J3.3	J5.1	J8.3	6.3	7.5	5.5	5.5	6.0	J5.5	4.5	3.8	4.0	9.3	9.1	6.5	7.5M	J8.3	J5.3	J2.8	E
4	2.1	J2.0	J2.0	E	S	G	G	G	4.8	4.6	5.0	G	6.0	J6.8	G	G	G	G	G	2.0	3.0M	J6.0	5.2	5.8
5	J2.8	J2.8	3.0	1.8	2.3	J2.8	4.5	4.5	J8.2	6.5	5.3	J8.7	10.2	J9.9	J7.3	6.0	3.9	J7.3	J10.0	7.3	J5.8	J3.0	J5.3	3.1
6	J3.0	E	E	2.0	2.2	4.8	J8.1	C	C	7.1	6.8	4.2	4.2	4.2	4.4	5.3	J6.2	J5.8	J5.6	J4.3	J3.1	J2.8	E	E
7	E	2.4	E	J2.8	J2.2	G	G	G	J6.5	5.3	J6.8	5.0	G	4.1	5.2	4.0	4.0	5.0	3.5	2.6	E	J4.3	J4.8	J6.5
8	J9.0	E	4.5	J2.5	2.4	G	5.0	5.3	5.3	J6.3	6.5	6.0	G	G	G	7.2	G	J4.6	4.0	4.0	4.9M	J2.8	E	J4.5
9	3.0	J2.0	J2.1	E	3.5	3.4	5.0	5.0	J5.8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	3.5	G	G	3.1	J2.8	J2.8	J2.6	E
14	E	E	2.7	2.1	2.3	C	3.5	4.0	4.2	4.6	5.1	G	4.5	4.8	5.1	5.1	3.5	3.8	2.9	4.0	J2.8	E	5.3M	E
15	E	E	E	E	1.9	2.6	3.8	5.0	8.1	5.0	G	4.8	B	G	4.5	4.6	4.1	J6.3	J4.3	J4.3	J2.8	J2.8	E	2.4
16	2.0	E	E	E	G	G	4.2	J7.3	5.6	J6.0	G	4.6	5.3	4.3	5.3	4.0	4.1	5.2	J4.8	J6.8	4.7	E	J2.9	J3.3
17	J2.8	J2.8	J2.8	J2.3	J2.3	2.6	3.5	J6.2	J6.8	5.3	5.0	J5.0	4.5	5.0	J5.8	J4.2	J4.3	J6.8	J7.6	J4.2	11.0	J4.3	J6.2	J2.5
18	J2.5	J2.8	J2.4	J2.2	S	G	3.5	5.0	J6.6	J7.3	5.2	G	G	G	G	4.4	J10.8	J9.3	J5.3	J6.3	E	J3.6	J4.0	J4.2
19	4.2	J4.3	J2.8	2.6	J2.8	J2.7	4.0	J6.5	7.0M	J6.7	11.0	9.3	6.5M	J7.3	J6.0	J5.3	J4.7	3.5	J8.3	J5.2	J4.5	J4.3	E	2.5
20	E	J2.4	J2.8	J3.0	2.0	J2.8	4.2	4.3	5.8	4.2	4.3	5.3	4.7	5.3	J11.0	J7.3	7.0	3.5	J5.3	J5.0	J3.8	J6.2	J8.0	6.0
21	J3.7	J2.3	J2.8	J2.3	2.0	3.5	3.1	4.1	5.2	5.8	J7.0	J8.0	J5.0	J5.3	G	5.3	5.3	J7.0	5.3	3.8	J3.3	J3.8	2.9M	E
22	E	E	E	E	G	3.0	3.5	4.4	7.0	5.0	J6.3	J6.3	J7.2	J5.3	4.4	G	3.5	3.5	J5.0	5.0	J10.3	J5.1	E	J6.0
23	J4.0	J2.8	J2.5	J2.3	2.4	G	4.0	4.0	4.5	5.1	6.0	G	G	G	G	G	4.2	4.5	J5.3	J3.3	3.6	J2.3	E	E
24	E	E	E	E	G	G	J5.0	5.2	J7.5	4.5	4.5	4.8	5.0	G	G	G	G	J4.3	4.3	J10.8	7.2M	J8.0	J2.8	J6.0
25	2.9M	J2.3	J2.8	J2.3	G	G	4.1	J5.3	6.7	J6.2	D4.1C	5.3	J6.0	J5.1	3.8	J4.2	3.5	J5.3	J2.8	J3.8	J2.4	E	J2.8	J2.8
26	E	E	J2.8	1.2	J4.3	J5.0	J4.8	5.1	4.5	J6.5	J9.9	5.5	J7.3	7.0	J6.5	J5.3	J4.0	C	6.5	J6.6	J5.0	5.7	J5.2	J4.3
27	J6.1	J4.3	5.0M	J5.0	J5.0	J3.5	4.0M	5.5	5.0	5.8	J6.5	5.1	5.7	J5.8	6.0	J5.8	5.0	4.2	J3.8	J4.3	E	3.1M	3.5M	J2.8
28	E	3.0M	J4.2	J2.0	J3.8	J4.8	J6.0	J8.3	J8.3	J7.3	J8.5	J10.3	11.3	10.8	J6.8	3.7	G	J6.3	5.0	3.8	J2.6	E	E	J3.0
29	J2.7	E	E	24M	G	G	3.5	J7.3	J5.3	G	G	5.2M	4.5	J5.1	9.5	J5.3	J6.5	J4.8	J5.5	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	6.5	5.0	5.2	C	4.4	4.1	3.7	3.5M	J3.8	3.5M	J2.8	J2.8	E	J2.5
31																								
No.	25	25	25	25	23	24	25	24	24	24	24	25	25	25	26	26	26	25	25	25	25	25	25	25
Median	2.1	2.0	2.4	2.1	2.2	2.6	4.0	5.0	5.8	5.5	5.6	5.1	5.0	4.8	4.4	4.2	4.0	4.6	5.0	4.3	3.3	3.1	2.8	2.8
U.Q	3.0	2.8	2.8	2.4	2.8	3.4	4.9	5.8	7.0	6.4	6.6	6.0	6.0	5.6	6.0	5.3	5.0	6.3	5.6	5.8	5.4	4.7	5.0	4.4
L.Q	E	E	E	E	G	G	3.5	4.2	5.0	5.0	4.8	4.4	G	G	G	3.6	3.5	3.5	3.8	3.6	2.7	2.6	E	E
Q.R							1.4	1.4	2.0	1.4	1.8	1.6				1.7	1.5	2.8	1.6	2.2	2.7	2.1		

foEs

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

The Radio Research Laboratories, Japan.

W 4

IONOSPHERIC DATA

Jun. 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							G	G	4.4	4.6	4.6	4.7	4.6	G	3.6	3.5	3.3	G	B	2.6				
2				E	G	G	4.0	4.9	4.6	4.9	4.5							G	3.5	4.5	6.0	3.5	3.0	
3				E	1.6	4.1	A	5.8	A	5.0	5.2	5.5	5.5	3.8	3.6	3.5	5.5	A	6.3	A	A	4.5	E	
4	E	E	E		S				4.6	4.6	5.0		5.5	6.0						E	2.4	6.0	4.0	3.5
5	2.5	E	E	E	1.7	G	4.0	4.5	A	A	A	A	A	A	5.7	A	G	A	A	3.5	5.0	2.5	5.0	E
6	2.6			E	G	4.0	A	C	C	4.9	A	G	G	G	G	4.8	4.6	2.4	A	2.5	2.9	E		
7		E		E	E				A	5.2	5.6	G		3.7	4.4	3.5	3.6	G	3.4	2.5		4.2	2.5	4.6
8	3.1		E	E	1.4		4.4	4.6	5.1	A	G	G				G		4.5	3.2	3.1	4.6	2.6		E
9	E	E	E		G	G	4.5	4.5	5.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C					3.4			2.9	2.6	2.5	E	
14			E	E	1.8	C	G	G	G	G	5.1		G	G	5.0	5.0	G	3.5	2.5	3.5	2.4		5.3	
15					G	G	3.5	4.7	G	G		G			G	G	3.6	4.5	2.6	4.0	2.5	E		E
16	E						G	4.7	G	G		G	4.6	4.0	4.5	3.6	G	4.0	4.5	5.0	E		E	2.4
17	E	E	E	E	1.9	2.4	3.4	6.0	A	4.9	4.5	4.9	4.5	4.7	5.8	3.8	4.0	A	A	3.5	A	2.5	2.5	E
18	E	E	E	E	S		G	4.2	6.0	5.9	4.8					4.4	7.0	A	5.0	6.0		2.5	E	2.9
19	3.4	3.0	2.4	E	2.0	G	G	6.0	A	A	A	A	5.2	A	A	4.8	4.0	G	A	5.0	4.5	E		E
20		E	E	2.9	1.7	G	3.6	4.1	4.3	4.2	4.2	4.6	4.5	5.0	A	A	3.6	G	4.8	5.2	2.6	5.5	4.6	E
21	E	E	E	E	1.8	G	G	G	5.0	5.5	A	A	G	4.8		4.7	5.5	6.0	3.6	3.0	2.6	2.5	E	
22						G	G	4.1	5.2	4.5	5.5	5.5	6.5	5.0	G		3.4	G	4.5	3.0	A	2.5		A
23	3.3	E	E	E	1.6		3.5	3.5	4.4	4.9	5.4						G	4.3	4.5	2.9	2.4	E		
24							4.4	4.7	A	G	G	4.4	4.5					4.2	4.0	A	A	A	E	5.0
25	2.5	E	E	E			3.7	4.5	5.9	6.0	E4.1 C	G	5.5	4.1	3.5	3.6	3.4	3.0	2.6	2.6	E		E	2.5
26			E	E	3.9	4.6	4.2	4.5	4.5	A	A	5.0	A	5.1	A	5.2	3.8	C	5.5	6.0	4.8	4.6	2.7	3.0
27	3.1	3.5	3.5	3.1	2.6	2.9	3.3	4.6	4.6	5.5	6.4	5.0	5.5	5.5	6.0	5.7	G	G	3.1	3.4		2.5	3.0	2.6
28		E	2.5	E	3.0	4.2	4.2	A	A	A	A	A	A	A	A	3.6		5.5	G	2.6	E			E
29	E			E			G	5.5	G			5.2	G	4.2	4.5	4.5	6.0	4.5	5.5	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	5.0	4.7	4.7	C	4.4	3.8	3.5	3.0	3.1	2.4	2.0	2.4		2.5
31																								
No.	14	13	15	18	17	14	23	22	24	23	22	20	19	18	18	20	21	23	23	25	21	20	16	17
Median	E	E	E	E	1.7	G	3.5	4.6	5.0	4.9	5.2	4.8	4.7	4.8	4.5	4.1	3.6	4.0	4.5	3.4	2.6	2.5	2.5	2.5

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

Jun. 1960 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.60S	E1.60S	E	E	E	E1.60S	1.70	1.80	2.00	2.00	1.95	2.00	1.85	E2.60S	2.20	1.70	1.80	1.70	4.60	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
2	E1.60S	E1.20S	E1.20S	E	E	E1.60S	1.90	1.90	1.95	1.80	2.00	2.00	2.10	2.00	1.90	1.90	1.60	1.70	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
3	E1.60S	E1.60S	E	E	E	E1.60S	1.70	1.90	1.80	1.85	E2.40S	2.00	E2.40S	E2.40S	E2.40S	E2.40S	1.95	1.70	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
4	E1.60S	E1.40S	E	E	E1.60S	E1.60S	1.60	1.70	2.00	1.80	E2.50S	2.00	E2.45S	E2.50S	2.00	1.80	1.85	1.80	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
5	E1.60S	E1.40S	E	E	E	E1.60S	1.65	1.70	1.80	1.90	2.00	E2.50S	2.00	E2.50S	2.00	2.00	2.10	1.75	1.70	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
6	E1.60S	E1.60S	E1.60S	E	E	E1.60S	1.70	C	C	E2.50S	2.10	E2.40S	E2.40S	E2.45S	E2.45S	E2.60S	1.70	1.70	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
7	E1.60S	E1.30S	E	E	E	E1.60S	1.60	1.70	E2.45S	1.80	E2.40S	1.90	E2.50S	E3.00S	1.90	1.90	1.70	1.70	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
8	E1.60S	E1.40S	E	E	E	E1.60S	1.60	1.90	1.75	E2.40S	E2.40S	2.10	E2.60S	E2.50S	E2.50S	2.00	1.60	E2.50S	1.70	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
9	E1.60S	E1.30S	E	E	E	E1.60S	1.70	1.70	2.00	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	E2.45S	E2.50S	E2.50S	2.00	1.80	2.00	1.60	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
14	E1.60S	E1.60S	E	E	E	C	1.70	2.00	1.70	2.10	E2.50S	E2.50S	E2.50S	2.10	1.80	1.80	1.80	1.75	1.90	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S
15	E2.50S	E1.80S	E1.40S	E	E1.40S	E1.60S	1.65	1.70	E2.45S	E2.45S	2.10	E2.45S	B	E2.60S	E2.50S	E2.45S	1.95	1.90	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
16	E1.80S	E1.60S	E1.60S	E	E1.60S	E1.60S	1.60	1.80	1.70	1.80	1.90	2.00	2.90	E2.40S	1.75	1.90	1.80	1.70	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
17	E1.60S	E1.60S	E	E	E	E1.60S	1.80	1.80	2.00	2.00	E2.60S	E2.60S	E2.50S	1.85	1.70	1.70	1.80	1.60	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
18	E1.60S	E1.20S	E	E	E1.60S	E1.60S	1.60	1.65	1.60	1.80	2.00	2.00	1.90	2.00	E2.50S	1.90	1.60	1.70	1.65	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
19	E1.60S	E1.60S	E1.60S	E	E	E1.60S	1.60	1.60	1.90	2.00	E2.45S	E2.45S	E2.40S	E2.40S	1.80	2.00	2.00	1.70	1.70	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S
20	E1.60S	E1.20S	E	E	E	E1.60S	1.60	1.60	1.80	1.85	2.00	2.80	2.45	E2.50S	2.00	2.00	1.65	1.70	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
21	E1.60S	E1.20S	E	E	E	E1.60S	1.70	1.70	1.80	E2.45S	1.90	E2.45S	E2.50S	E2.60S	1.90	E2.50S	1.60	1.65	1.65	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
22	E1.60S	E1.60S	E	E	E1.10S	E1.60S	1.60	1.70	1.90	1.90	E2.50S	E2.50S	E2.40S	E2.50S	2.00	1.80	1.80	1.70	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
23	E1.60S	E1.60S	E1.60S	E	E1.20S	E1.60S	1.70	1.65	1.90	1.85	E2.50S	E2.50S	E2.50S	2.10	2.00	1.90	1.70	1.70	1.65	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
24	E1.60S	E1.60S	E1.20S	E	E	E1.60S	1.60	1.70	1.90	1.90	E2.60S	E2.50S	E2.40S	E2.45S	E2.45S	1.90	1.70	1.60	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
25	E1.60S	E1.40S	E	E	E1.30S	E1.60S	1.60	E2.45S	1.90	E2.45S	E2.45S	E2.60S	E2.50S	E2.45S	2.10	1.90	1.85	1.75	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
26	E1.60S	E1.50S	E	E	E	E1.60S	1.80	1.70	1.90	1.90	2.10	E2.50S	E2.70S	E2.45S	3.50	1.90	E2.50S	I.65C	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
27	E1.60S	E1.20S	E	E	E	E1.60S	1.85	1.85	E2.50S	E2.40S	E2.50S	E2.50S	E2.50S	E2.50S	3.90	2.40	2.00	1.70	1.70	E1.60S	E1.90S	E1.60S	E1.60S	E1.60S
28	E1.60S	E1.20S	E	E	E1.30S	E1.60S	1.85	2.50	2.60	E2.40S	E2.50S	E2.50S	3.00	E2.45S	E2.50S	E2.40S	2.20	1.70	1.75	E1.70S	E1.60S	E1.70S	E1.70S	E1.60S
29	E1.60S	E1.30S	E1.40S	E	E1.10S	E1.60S	1.90	2.15	1.90	2.10	E2.45S	4.50	E2.50S	E2.50S	E2.50S	2.00	1.90	1.90	1.70	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	E2.50S	E2.70S	E2.70S	C	E2.50S	E2.50S	2.00	1.90	1.70	E1.70S	E1.70S	E1.60S	E1.60S	E1.60S
31																								
No.	25	25	17	25	16	24	25	23	21	17	25	25	26	25	16	20	25	25	26	25	25	25	25	25
Median	E1.60	E1.40	E	E	E	E1.60	1.70	1.70	1.90	1.90	E2.40	E2.50	E2.50	E2.45	2.00	1.90	1.80	1.70	1.60	E1.60	E1.60	E1.60	E1.60	E1.60

f-min

Sweep 2.0 Mc to 20.7 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 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	2.55	2.60	2.60	2.65	2.70	2.75	2.85	2.90	2.90	2.75	2.85	2.70	2.70	2.65	2.75	2.80	2.80	2.90	2.65	2.65	2.75	$I_{2.60}^{S}$	S	S
2	S	2.70	2.70	2.65	2.60	2.55	2.50	2.70	2.65	2.75	2.80	2.75	2.85	2.80	2.75	2.85	2.90	2.90	2.90	2.75	2.65	$I_{2.70}^{S}$	2.75	$I_{2.70}^{S}$
3	$U_{2.55}^{S}$	$I_{2.65}^{S}$	2.65	2.70	2.55	2.50	$I_{2.80}^{A}$	2.70	$I_{2.65}^{A}$	2.70	2.70	2.75	2.70	2.75	2.80	2.90	2.80	$I_{2.90}^{A}$	2.90	$I_{2.75}^{A}$	$I_{2.65}^{A}$	$I_{2.60}^{S}$	$I_{2.60}^{S}$	2.45
4	2.55	2.65	2.75	2.75	2.70	2.90	2.70	2.80	2.55	2.60^{2}	2.55	2.65	2.60	2.50	2.70	2.60	2.55	2.75	2.70	2.75	2.55	2.80	2.50	2.50
5	2.75	2.60	2.75	2.75	2.50	2.50	2.60	2.55	$I_{2.45}^{A}$	$I_{2.40}^{A}$	A	A	A	A	2.60	$I_{2.60}^{A}$	2.65	$I_{2.70}^{A}$	$I_{2.70}^{A}$	2.70	2.50	2.55	2.50	2.55
6	2.60	2.75	2.40	2.50	2.35	2.50	A	C	C	2.35	$I_{2.20}^{A}$	W	2.40	W	2.35	2.65	2.60	2.70	$I_{2.90}^{A}$	2.80	2.60	2.45	$I_{2.40}^{A}$	2.45
7	2.55	2.85	2.90	2.55	2.70	2.80	2.60	2.55	$I_{2.70}^{A}$	2.75	2.65	2.65	2.55	2.55	2.60	2.70	2.75	2.80	2.90	2.75	2.70	2.50	$I_{2.60}^{S}$	2.65
8	2.55	2.65	2.65	2.55	2.55	2.45	2.55	2.45	2.55	$I_{2.50}^{A}$	2.40	2.50	2.45	2.50	2.50	2.55	2.75	2.80	2.70	2.70	2.55	2.55	2.70	2.60
9	2.65	2.65	2.55	2.75	2.75	2.55	2.65	2.70	2.75	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	2.70	$U_{2.65}^{R}$	2.75	2.75	2.75	2.70	2.80	2.75	S	S	S	S
14	S	S	2.60	2.60	2.60	$I_{2.70}^{C}$	2.55	2.80	2.80	2.65	2.75	2.70	2.55	2.70	2.70	2.70	2.80	2.65	2.70	2.80	$I_{2.65}^{S}$	2.70	$I_{2.75}^{S}$	$U_{2.60}^{S}$
15	$I_{2.55}^{S}$	$U_{2.55}^{S}$	$I_{2.90}^{S}$	2.85	2.70	2.70	2.45	2.45	2.50	2.55	2.60	2.35	$I_{2.50}^{B}$	2.35	2.50	2.65	2.80	2.70	2.70	2.60	2.65	2.50	$I_{2.50}^{S}$	2.50
16	2.50	$U_{2.65}^{S}$	2.65	2.75	2.80	2.40	2.60	2.60	W	2.60	2.30	W	W	2.10	2.55	2.60	2.70	2.75	2.80	2.70	2.55	2.55	2.55	2.65
17	2.65	2.55	2.75	2.70	2.65	2.70	2.85	2.65	$I_{2.75}^{A}$	2.50	2.55	2.65	2.45	2.65	2.85	2.70	2.75	$I_{2.75}^{A}$	$I_{2.75}^{A}$	2.75	$I_{2.60}^{A}$	S	F	F
18	$I_{2.75}^{S}$	$U_{2.70}^{S}$	2.80	2.80	2.70	2.75	2.75	2.80	2.70	2.55	2.65	2.75	2.85	2.85	2.70	2.90	2.90	$I_{2.90}^{A}$	2.85	2.75	$I_{2.75}^{S}$	S	S	S
19	$U_{2.70}^{S}$	$I_{2.60}^{S}$	2.70	2.75	2.60	2.60	$I_{2.60}^{R}$	2.75	A	A	A	A	2.50	$I_{2.40}^{A}$	$I_{2.60}^{A}$	2.70	2.75	2.75	$I_{2.75}^{A}$	2.65	2.60	$I_{2.55}^{F}$	2.60	$U_{2.75}^{S}$
20	2.75	2.70	2.60	2.60^{F}	2.60	2.60	2.70	2.55	2.60	2.60	$I_{2.50}^{R}$	2.30	2.55	2.50	$I_{2.60}^{A}$	$I_{2.65}^{A}$	2.80	2.80	2.80	2.75	$I_{2.80}^{S}$	$I_{2.60}^{S}$	2.65	2.65
21	2.65	2.70	2.70	$U_{2.65}^{F}$	$I_{2.60}^{F}$	2.55	$I_{2.70}^{R}$	2.70	2.80	2.85	$I_{2.80}^{A}$	$I_{2.65}^{A}$	2.50	2.75	2.70	2.45	2.75	2.80	2.85	2.80	$I_{2.85}^{S}$	$I_{2.60}^{S}$	2.65	2.60
22	2.60	2.65	2.55	2.50	2.45	2.60	2.70	2.80	2.90	2.95	3.15	2.85	2.50	2.70	2.80	2.95	2.80	2.85	2.85	2.75	As	S	S	$I_{2.70}^{S}$
23	2.65	2.65	2.80	2.75	2.55	$I_{2.70}^{R}$	2.90	2.95	2.70	2.80	2.80	2.75	2.65	2.55	2.85	2.75	2.80	2.75	2.80	2.90	$U_{2.80}^{S}$	$U_{2.65}^{S}$	$I_{2.75}^{S}$	2.65
24	2.65	2.60	2.60	2.60	2.55	2.80	2.90	$I_{2.80}^{R}$	$I_{3.00}^{R}$	$U_{3.10}^{S}$	2.85	2.85	2.65	2.90	2.70	2.75	2.80	$U_{2.75}^{R}$	2.90	$I_{2.80}^{A}$	S	S	S	S
25	$U_{2.75}^{S}$	$U_{2.65}^{S}$	2.60	2.60	2.60	2.60	2.75	2.70	2.85	3.00	2.75	2.95	2.70	2.95	2.85	2.80	2.80	2.80	2.75	2.80	$U_{2.85}^{S}$	$I_{2.80}^{S}$	$U_{2.75}^{S}$	2.60
26	2.60	2.60	2.65	2.60	2.65	2.60	2.80	$U_{3.15}^{R}$	$I_{3.00}^{R}$	$I_{2.55}^{R}$	$I_{2.60}^{A}$	2.95	$I_{2.60}^{A}$	2.65	$I_{2.70}^{A}$	2.65	2.65	$I_{2.75}^{C}$	2.80	2.70	2.75	2.65	$U_{2.70}^{S}$	2.65
27	2.60	2.80	2.60	2.70	2.75	2.65	3.00	2.80	2.95	2.60	2.80	2.65	2.85	2.20	2.50	$U_{2.55}^{R}$	2.75	$U_{2.85}^{S}$	2.95	2.80	2.70	$I_{2.55}^{S}$	$I_{2.60}^{S}$	2.65
28	2.75	2.85	2.70	2.65^{F}	2.60	2.45	2.70	$I_{2.65}^{A}$	A	A	A	A	A	A	$I_{2.40}^{A}$	2.60	2.60	$U_{2.75}^{S}$	2.65	2.65	2.65	$U_{2.55}^{S}$	2.45	$I_{2.55}^{S}$
29	2.65	2.70	2.70	2.60	$U_{2.50}^{S}$	2.60	2.55	2.70	2.65	2.90	2.70	$I_{2.60}^{R}$	2.75	2.65	2.70	2.85	2.75	3.00	2.75	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	2.60	2.70	2.45	$I_{2.75}^{C}$	2.70	2.90	2.95	2.80	2.85	2.70	2.50	$I_{2.55}^{S}$	2.85	2.65
31																								
No.	23	24	25	25	25	25	24	24	22	22	22	22	24	24	26	26	26	26	26	25	22	20	19	20
Median	2.65	2.65	2.65	2.65	2.60	2.60	2.70	2.70	2.70	2.60	2.70	2.70	2.60	2.65	2.70	2.70	2.75	2.80	2.80	2.75	2.65	2.60	2.60	2.60

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

The Radio Research Laboratories, Japan.

W 7

15

IONOSPHERIC DATA

Jun. 1960 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	A	A	A	A	3.35	3.15	3.15	L	L						
2						3.05	I3.15A	A	A	A	3.25	3.50	3.45	3.30	I3.35L	3.25	L	L						
3							A	A	A	A	A	A	A	3.40	3.30	3.25	A	A						
4								3.30	I3.40L	I3.40L	I3.55A	3.20	I3.20A	I3.20A	3.55	3.30	3.15	L	L					
5						3.20	A	A	A	A	A	A	A	A	I3.20A	I3.15A	3.25	A						
6						A	A	C	C	A	I3.60A	3.65	3.50	3.45	3.25	A	A	A	A					
7							I3.25L	3.20	A	A	I3.20A	3.70	3.45	I3.35L	3.30	3.20	3.25	L	L					
8						3.25	A	A	A	A	3.55	3.50	3.60	3.35	3.25	3.25	3.35	A						
9						L	A	LA	A	C	C	C	C	C	C	C	C	C						
10						C	C	C	C	C	C	C	C	C	C	C	C	C						
11						C	C	C	C	C	C	C	C	C	C	C	C	C						
12						C	C	C	C	C	C	C	C	C	C	C	C	C						
13						C	C	C	C	C	C	C	3.40	3.20	I3.25LH	L	L	L	L					
14					L	C	L	L	I3.40L	3.40	I3.55A	3.45	3.25	3.60	I3.25A	I3.25L	L	L	L					
15						3.30	I3.30A	I3.45A	3.60	3.55	3.60	3.55	I3.50B	3.80	3.40	3.20	I3.25L	I3.20A	L					
16						3.00	3.10	I3.20A	3.25	3.75	3.85	3.50	I3.55A	3.60	3.20	3.35	3.15	I3.30A						
17						L	3.10	A	A	A	3.40	I3.55A	3.50	I3.45A	I3.35A	3.25	3.15	A	A					
18						L	L	3.30	A	A	A	3.35H	3.45	3.45	3.35	A	A	A	A					
19						3.15	3.25	A	A	A	A	A	A	A	A	A	A	3.25	A					
20						3.20	A	A	A	I3.30L	3.20	I3.60A	3.70	A	A	A	3.25	L	A					
21						A	I3.30L	3.30	I3.50A	A	A	A	3.25	I3.40A	3.45	LA	A	A	A					
22						L	L	LA	I3.35A	3.35	I3.55A	A	A	A	3.25	3.15	L	L						
23						L	A	3.45	A	A	A	3.65H	3.30	3.35	3.40	3.20	3.25	A	A					
24						L	A	A	A	3.60	3.70	3.75	3.25	3.45	3.35	3.40H	I3.35L	I3.30L						
25						3.40	A	A	A	A	I3.50C	3.70	I3.65A	3.35	3.65	I3.25L	L	L						
26						A	A	A	L	A	A	A	A	A	A	A	3.35	C						
27						L	3.40	I3.30A	A	A	A	A	A	A	A	A	3.10	L						
28							A	A	A	A	A	A	A	A	I3.30A	3.35	3.35	I3.15A	L					
29						3.20	3.05	I3.30A	3.20	3.50	I3.55L	I3.50A	3.75	3.45	3.40	A	A	LA	A					
30						C	C	C	C	C	I3.55A	A	A	C	3.30	3.30	L	L						
31																								
No.						9	9	9	7	8	15	15	17	18	22	17	13	5						
Median						3.20	3.25	3.30	3.40	3.45	U3.55	3.55	3.45	3.40	3.30	3.25	3.25	U3.25						

(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

Jun. 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								L	L	340	340	370	370	345	360	340	L	300						
2						400	420	370	390	370	360	390	350	345	I350L	340	L	L						
3							A	A	A	370	405	375	400	385	360	330	A	A						
4								340	I335L	I435L	450	390	415	435	390	395	370	320	L					
5						440	400	445	A	A	A	A	A	A	450	I435A	420	A						
6						420	A	C	C	600	I705A	W	620	W	605	475	470	415	A					
7							I385L	420	I415A	400	450	450	470	I480L	460	410	360	L	L					
8						450	415	485	470	I535A	570	510	500	500	465	420	350	L						
9						L	L	285	330	C	C	C	C	C	C	C	C	C	C					
10						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
11						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
12						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
13						C	C	C	C	C	C	C	400	375	I355L	I350L	L	L	L					
14						C	L	310	I330L	385	360	380	390	375	390	370	L	L	L					
15						355	450	435	475	470	470	625	I575B	610	535	425	I380L	I400A	L					
16						470	410	435	W	485	650	W	W	750	525	450	440	390						
17						L	335	I340A	I400A	470	450	425	520	440	I400A	420	375	A	A					
18						L	L	320	I290A	I340A	350	385	350	345	370	330	A	A	A					
19						380	410	A	A	A	A	A	535	I540A	I450A	425	370	350	A					
20						385	350	375	410	I425L	I505R	630	520	485	I450A	I435A	365	340	325					
21						370	I350L	350	350	350	I385A	I415A	490	375	370	I385L	I360A	I355A	300					
22						I350L	310	285	I290A	320	285	340	I375A	390	345	330	340	300						
23						290	295	295	355	340	395	405	435	460	370	385	360	360	305					
24						L	280	250	I290A	300	370	365	410	365	380	365	360	I320L						
25						350	340	315	I360A	325	370	330	380	335	345	350	335	320						
26						370	295	305	L	A	A	340	I375A	410	I400A	400	370	I340C						
27						I310L	310	385	340	425	360	390	355	560	415	365	325	L						
28							325	I380A	A	A	A	A	A	A	I560A	460	450	395	360						
29						420	425	I400A	380	375	I360L	335	395	380	395	335	I350A	310	A					
30						C	C	C	C	C	430	390	480	I390C	410	340	L	L						
31																								
No.						15	18	21	18	20	21	22	24	24	26	26	19	15	14					
Median						380	350	350	360	380	395	390	410	400	400	390	365	340	315					

h'F2

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	295	290	270	285	265	245	240	235	I250A	I250A	I250A	I245A	I245A	235	220	230	235	240	I285B	290	285	295	275	270
2	280	275	240	285	320	300	I280A	A	A	A	250A	235	225	230	235	230	240	285	A	A	A	A	300A	275
3	295	275	280	275	285	A	A	A	A	A	A	A	A	220	220	225	I260A	I270A	A	A	A	A	270	275
4	300	300	260	245	265	245	250	225	I260A	I250A	I240A	275	I270A	I260A	230	235	245	250	260	270	290	I300A	I310A	I320A
5	290	280	270	250	305	275	A	A	A	A	A	A	A	A	A	A	250	A	A	A	A	330A	I310A	310
6	300	280	270	325	310	A	A	C	C	A	I230A	230	230	230	270	A	A	A	A	295	I310A	320	335	320
7	310	260	260	290	265	240	240	240	I250A	I260A	I250A	220	235	220	260	240	250	250	I270A	290	270	I310A	305	I305A
8	345A	300	290	275	305	270	A	A	A	A	225	230	240	230	240	230	250	I260A	250A	A	A	A	300	285
9	285	270	280	290	270	250	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	210	220	220H	235	240	240	250	275A	285	295	290	290
14	285	265	285	295	300	I240C	250	260	250	240	I230A	220	240	235	I245A	I255A	240	250	260	I285A	305	290	I300A	290
15	315	295	220	220	265	260	I270A	I260A	240	230	225	220	I230B	225	250	270	250	I270A	260	I280A	300	290	300	315
16	315	290	260	290	290	245	300	I270A	240	230	210	225	I240A	230	300A	235	290	I260A	I275A	I280A	290	305	325	315
17	300	295	285	250	270	250	250	I255A	I235A	I225A	I235A	I235A	250	I235A	I240A	250	260	A	A	A	A	315	330	280
18	290	290	270	285	270	250	250	265A	A	A	A	210H	230	225	220	I230A	A	A	A	A	275	300	275	I290A
19	I295A	I310A	295	260	300	275	285	A	A	A	A	A	A	A	A	A	A	250	A	A	A	310	300	270
20	230	315	330	I320A	280	240	A	A	A	I250A	260	I235A	230	A	A	A	250A	250	A	A	A	A	A	285
21	295	300	290	260	290	I260A	255	245	I225A	A	A	A	225	I230A	250	A	A	A	A	A	A	325	270	300
22	285	290	295	300	285	260	240	I250A	I250A	250A	I240A	A	A	A	260	230	245	250	A	A	A	260A	255	I305A
23	I310A	300	275	265	270	255	I245A	240	A	A	A	200H	220	225	215	245	260	A	A	A	255	270	255	280
24	300	295	305	310	280	250	I245A	I235A	I225A	210	210	215	285	220	220	210H	225	I245A	A	A	A	A	250	I260A
25	295A	290	290	295	300	260	A	A	A	A	I240C	215	I230A	240	210	240	240	235	240	290	260	270	260	290A
26	305	305	295	300	A	A	A	A	A	A	A	A	A	A	A	A	255	I260C	A	A	A	A	320	A
27	A	A	A	A	A	270	250	I250A	A	A	A	A	A	A	A	A	260	240	260	290	285	315	310A	275
28	275	275	300	315	370	445	A	A	A	A	A	A	A	A	I245A	230	250	I255A	270	300	285	295	320	300
29	280	280	270	300	280	250	260	I245A	240	220	250	I230A	235	230	I230A	I240A	I245A	A	A	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	A	A	A	C	260	250	265	235	270	295	310	315	300	290
31																								
No.	24	24	24	24	23	22	16	14	11	11	15	16	18	18	21	19	22	19	12	12	14	19	24	24
Median	295	290	280	290	285	250	250	U250	U240	240	240	230	230	230	240	235	250	250	260	290	285	300	300	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

Jun. 1969 | 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	E	E	G	G	130	125	115	115	110	110	110	110	105	105	110	140	B	125	E	E	E	E
2	E	E	E	125	135	130	125	120	120	115	120	G	G	G	G	G	G	130	120	115	115	110	110	E
3	E	E	E	125	110	130	120	115	115	115	110	110	105	110	105	105	105	105	120	115	115	115	110	E
4	110	105	115	E	S	G	G	G	120	120	125	G	115	110	G	G	G	G	G	120	115	115	110	105
5	105	105	105	100	100	105	125	125	115	115	110	110	110	110	110	105	160	125	120	120	120	115	115	105
6	100	E	E	125	130	125	120	C	C	115	110	120	120	115	140	125	120	120	115	115	115	115	E	E
7	E	105	E	100	110	G	G	G	120	115	110	110	G	115	110	110	110	130	130	125	E	110	105	110
8	105	E	105	105	105	G	125	125	115	115	110	110	G	G	G	110	G	120	120	120	115	110	E	110
9	110	105	105	E	105	125	120	120	115	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	110	G	G	125	115	115	115	E
14	E	E	110	110	110	C	140	135	130	120	120	G	115	120	115	115	115	110	115	120	115	E	115	E
15	E	E	E	E	150	145	125	120	115	120	G	120	B	G	120	115	110	115	115	120	115	115	E	110
16	110	E	E	E	G	G	135	115	115	110	G	110	110	110	105	110	125	120	115	115	115	E	105	105
17	105	105	100	105	105	105	120	125	110	110	110	110	110	105	105	105	110	105	105	105	115	120	115	110
18	105	105	105	105	S	G	140	125	115	115	115	G	G	G	G	105	105	115	120	125	E	115	115	105
19	105	105	100	100	100	105	130	120	120	115	110	110	110	110	105	105	105	135	120	120	110	115	E	110
20	E	105	105	105	110	105	125	115	115	120	120	110	115	110	110	105	110	120	125	120	115	115	110	110
21	110	105	105	110	120	135	140	140	125	115	110	110	110	110	G	130	120	115	120	115	115	110	110	E
22	E	E	E	E	G	130	120	120	115	115	110	110	110	110	115	G	110	125	115	110	110	110	E	105
23	115	110	110	110	115	G	120	120	120	110	110	G	G	G	G	G	140	120	120	120	115	110	E	E
24	E	E	E	E	G	G	120	115	110	110	110	110	110	G	G	G	G	115	110	115	115	115	105	105
25	105	105	105	105	G	G	130	120	110	110	115	115	110	110	110	105	105	105	100	120	100	E	110	110
26	E	E	105	135	125	120	125	120	125	110	110	110	110	110	110	110	110	C	120	120	120	110	110	110
27	110	110	110	105	105	105	105	125	125	115	110	115	115	110	115	115	115	115	110	120	E	115	110	110
28	E	105	110	140	125	120	120	115	115	110	110	110	110	105	105	110	G	120	120	115	120	E	E	110
29	110	E	E	110	G	G	130	115	120	G	G	115	115	110	110	115	110	115	120	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	110	110	110	C	105	105	105	105	100	105	100	120	E	115
31																								
No.	14	13	15	18	17	14	23	22	24	23	22	20	19	18	18	20	21	23	23	25	21	20	16	17
Median	110	105	105	110	110	120	125	120	115	115	110	110	110	110	110	110	110	120	120	120	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

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IONOSPHERIC DATA

Jun. 1960

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	C	C	C	C	C	l	l	l	h		C2				
2				f	h	c	C	C	C	C	C							C	C4	f4	f4	f4	f4	
3				f	l	h2	C3	C	C2	C	C	C2	l2	l	l	l	l3	l4	C3	f4	f6	f3	f	
4	f	f	f						C	C	C		C	C						f	f	f4	f2	f2
5	f2	f6	f3	f	l	l	C	C	C2	C	C2	C2	C2	C2	l2	l2	h	C3	C4	f2	f4	f2	f4	f
6	f2			f	C	C	C4			C	C2	C	C	C	h	C	C3 l	C2 l	C3	f3	f4	f		
7		f		f2	l				C	C2	C2	C		l	l	l	l	C	C	C		f4	f2	f3
8	f2		f2	f	l		C	C	C2	C	C	C				C		C	C	f2	f2	f2		f2
9	f	f	f		l	C	C2	C	C															
10																								
11																								
12																								
13																	l			C2	f4	f2	f2	
14			f	f	l		h	h	h	C	C		C	C	C	C	C	C2	l	C2	f4		f4	
15					C	h	C	C	C	C		C			C	C	l	l2	l	f3	f2	f2		f
16	f						h	C3	C	C		C	C	l	l	l	C	C2	C3	f4	f2		f2	f2
17	f	f2	f2	f	l	l	l	C	C3	C	C	l	C	l	l2	l	l2	l6	l4	l2	f3 f2	f2 f	f4	f2
18	f2	f	f	f			h	C	C	C3	C2					l	l2	C3 l2	C3	C2 l		f	f	f3
19	f2	f3	f2	f	l	l	C	C3	C3	C2	C3	C2	C3	C3	l2	l3	l3	h	C5	C4	f5	f		f
20		f3	f3	f4	l	l	C	C	C	C	C	C	C	C2	l3	l2	l	C	C	f4	f2	f5	f6	f2
21	f	f2	f2	f2	l	h	h	h	C2	C3	C2	C2	C	l		C	C3	C3	C	f	f2	f2	f2	
22						C	C	C	C2	C2	C2	C	C2	C	C		l	C	C4	f2	f4	f2		f2
23	f3	f2	f	f	l		C	C	C	C	C2						h	C	C2	C2	f4	f2		
24							C2	C	C3	C	C	l	l					l3	l3	f4	f3	f4	f2	f4
25	f2	f2	f2	f			C	C	C2	C2	C	C	C2	l	l	l2	l	l2	l	f	f2		f2	f
26			f	f	C3	C3	C	C	C	C2	C2	C2	C2	C2	C	l3	l2		C4	C3	f6	f3	f2	f2
27	f2	f2	f3	f6	l3	l2	l	C l	C	C2	C	C	C	C2	C	C2	C	C	l3	f2		f2	f2	f2
28		f2	f3	f	C3	C6	C3	C	C2	C3	C2	C2	C	l	l2	l		C2	C	f	f			f
29	f			f			h	C3	C			C	C	l	l2	C2	l3	l	C4					
30											C	C	C		l	l	l	l	l2	l2	f2	f		f
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

Jun. 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	6.9F	7.0	6.9	6.4	6.5	7.1	7.7	7.5	8.0	8.6	8.8	8.7	9.3	9.5	8.8	I9.0A	9.1	9.1	8.9	9.5	U9.6R	U9.3R	9.6	9.5
2	9.1	8.6	8.2	6.6	6.1	6.8	7.6	8.0	8.2	I8.9C	9.1	8.6	9.0	8.6	8.5	8.4	8.5	8.7	8.6	8.5	8.4	8.6	9.1	9.0
3	8.6F	8.5	F	F	F	F	9.3	9.0	A	A	A	A	9.1	I8.9A	8.7	8.5	8.5	8.2	7.9	I8.0A	8.2	F	F	F
4	F	F	6.9F	6.6	6.5	7.1	8.4H	8.9	U8.4R	8.0	7.8	8.3	9.0	9.6	U10.8R	10.1	U10.8R	U10.5R	9.5	8.6	7.6	7.0	I7.2A	I7.4F
5	I7.6F	I7.2F	6.8F	6.3F	5.9F	6.9	7.1F	I6.4A	I5.9A	6.2	5.7	I5.8A	5.8	6.8	6.8	6.6	6.2	I6.2A	6.1	6.2	6.4	I6.8A	7.0F	I6.6F
6	I6.4F	6.0F	5.9F	5.4F	I5.2F	6.2	7.3	7.6	I6.9A	A	A	A	A	A	5.6	6.1	6.2	6.2	6.1	6.0	6.5	6.5	6.4	6.7
7	6.9	7.1	6.3	4.6	4.7	5.6	7.2	7.3	I7.4C	7.7	7.5	7.1	I7.4A	7.3	7.3	8.1	8.2	I8.6C	8.1	7.8	8.0	7.9	I8.0F	8.0
8	7.6F	7.6F	7.4F	I7.2F	7.0F	6.4	7.2	6.7	I6.4A	6.2	6.3	7.2	7.6	7.8	7.7	7.6	7.9	8.0	I6.9A	6.4	7.3	7.7	8.1	7.5
9	7.7	6.7	6.6	6.5	6.4	7.1	9.0	10.5	9.1	8.9	8.1	8.3	7.9	7.7	8.0	I7.6A	I8.1A	C	C	C	C	F	F	F
10	F	F	7.0F	6.6F	6.4	7.0	8.3	8.1	U8.3R	8.2	8.2	9.1	9.1	9.1	9.1	U9.3R	9.3	9.1	9.2	I9.6RS	9.0	U8.4R	9.0	8.9F
11	8.9	8.3	7.5	7.1	7.2	8.9	9.7	9.0	8.4	8.6	8.9	8.7	9.0	8.5	8.7	9.3	9.2	8.9	8.6	8.3	8.5	8.2	8.0	8.1
12	7.9	8.0	7.9	7.5	7.9F	8.3	8.5	9.0	9.5	I9.4A	9.0	8.8	9.4	10.0	9.6	9.0	8.9	9.1	9.4	9.0	8.6	8.5	9.1	9.2F
13	F	F	F	8.6	8.7F	I9.0F	9.5F	9.4	9.8	9.6V	9.6	8.9	9.4	9.5	9.7	9.3	9.0	8.9	8.5	8.4	I8.6RS	9.0	9.3	9.0
14	9.0	8.8	8.2	7.8	7.6	9.1H	9.6	10.5	9.9	8.9	9.0	9.9	9.3	9.4	9.5	9.4	8.9	7.9	8.1	8.4	8.0	8.5	8.6F	8.0
15	8.0F	7.9	8.5	7.2H	6.1F	6.5	6.8	7.0	7.0	6.6	C	A	I5.8B	6.1	J6.5R	6.6	6.4	6.3	6.5	6.8	6.9	7.4F	7.3F	7.1F
16	7.2F	F	F	F	5.9	5.7	6.7F	6.5	I6.1A	U6.0R	5.7	I5.6R	5.9	6.0	6.1	U6.3R	6.5	A	A	I6.1A	I6.8A	7.3	7.3	7.5
17	7.5	7.4	7.2	F	F	7.8	8.0F	8.1	7.4	6.8H	7.0	7.3	7.5	I7.8A	8.1	I7.6A	7.0	6.9	7.0	7.6	8.5	8.0F	8.0F	F
18	F	9.7F	I8.4F	7.3F	7.3F	7.8F	8.7	8.6	7.7	7.6	9.1	9.6	9.4	9.2	I8.7A	9.1	9.2	8.3	8.0	9.0	8.9	8.8	I8.8F	8.6F
19	8.0F	7.5F	7.1	7.1	6.6F	6.8	7.4	7.5	5.9	6.0	I6.1A	I6.4A	6.7	A	A	7.1	8.1	U7.6R	7.1	6.7	7.2	7.9F	I7.7F	7.5F
20	7.3	6.3	6.2	6.0	5.9	6.9	8.0	8.5	7.3	A	A	R	I6.8A	6.7	7.0	7.4	7.5	7.6	7.9	8.2	7.9	7.4	A	F
21	F	7.0F	6.6F	I6.4F	6.5	6.7F	8.3	8.7	8.4	7.8	6.7	7.3	7.6	8.3	8.4	8.2	8.6	8.4	9.1	I9.0A	I8.0A	I7.8F	7.9	I7.6F
22	7.3	7.3	7.0	I6.8F	I6.8F	7.9	10.3	9.9	9.8	9.0	U8.4R	7.5	7.6	8.1	9.4	9.3	8.9	9.6	9.8	9.6	9.1	8.0	7.7	8.0
23	F	F	F	7.3F	7.3F	8.0	8.9	8.6	I8.2A	7.5	7.5	7.3	7.5	I7.6A	8.1	7.9	7.5	7.5	8.5	U9.4R	9.0R	7.7	8.2	7.6
24	7.0	6.9	7.0	7.0	6.9	8.4	9.5	8.6	8.1	7.2	7.1	7.1	7.4	7.9	7.7	8.0	8.2	7.8	8.5	9.1	9.1	A	F	F
25	8.0F	F	F	F	6.8F	6.6	7.0	8.0	7.4	8.1	7.7	7.6	8.0	8.7	8.0	8.3	7.9	8.0	8.5	8.5	8.5	8.2	7.8	7.4
26	7.3	7.1	7.4	7.0	7.0F	7.0F	U8.3R	6.6	I6.1A	6.1	7.6	8.3	7.9	7.7	A	A	9.0	8.7	8.6	8.1	7.6	I7.5A	8.0	7.9F
27	7.5	I7.2F	6.8F	6.5	6.4F	7.4	6.6	6.8	7.2	I7.1A	I7.5A	8.3	8.7	I8.6A	10.2	U11.3R	J11.8R	9.3	8.0	7.0	7.1	7.5	I7.6R	7.7
28	7.1	6.6	6.3	5.5	5.3F	5.8F	7.6	7.4	7.0	A	A	6.0	6.5	5.9	6.1	6.6	6.7	7.0	6.6	6.6	7.5	7.6S	7.6	7.8
29	8.0	7.9	6.8	6.3	5.9	5.8	6.8	7.2	8.0	I8.0A	7.9	8.1	U8.3A	8.5	I9.0A	9.8	9.1	9.1	7.9	7.9	U7.4S	8.0	7.8FS	I8.0F
30	7.8F	7.6F	7.6	7.4	7.1F	7.3	7.3	6.9	7.3	8.1	U8.5R	8.1	8.3	8.8	8.5	I8.4C	I7.9A	I7.4A	6.9	I6.6A	7.1	7.9	8.0	7.7
31																								
No.	24	24	25	26	28	29	30	30	29	26	25	26	29	28	28	29	30	28	28	29	29	27	26	25
Median	7.6	7.4	7.0	6.7	6.5	7.0	8.0	8.0	7.7	7.9	7.8	8.1	7.9	8.4	8.4	8.3	8.4	8.2	8.1	8.2	8.0	7.9	8.0	7.8
U.Q	8.0	8.0	7.6	7.2	7.0	7.8	8.9	8.9	8.4	8.6	8.8	8.7	9.0	9.0	9.0	9.3	9.0	9.0	8.6	9.0	8.6	8.4	8.6	8.4
L.Q	7.2	7.0	6.7	6.4	6.0	6.6	7.2	7.2	7.0	6.8	7.0	7.2	7.4	7.6	7.5	7.5	7.5	7.6	7.0	6.8	7.2	7.5	7.6	7.5
Q.R	0.8	1.0	0.9	0.8	1.0	1.2	1.7	1.7	1.4	1.8	1.8	1.5	1.6	1.4	1.5	1.8	1.5	1.4	1.6	2.2	1.4	0.9	1.0	0.9

foF2

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

The Radio Research Laboratories, Japan.

A 1

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IONOSPHERIC DATA

Jun. 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								L	L	I5.2L	5.5L	5.6	5.5	I5.6L	A	A	L	L						
2						L	4.4L	I4.9A	I5.0A	I5.1C	5.2L	5.3L	I5.4L	I5.4L	5.1	L	A	A	A					
3							A	A	A	A	A	A	A	A	5.0	I5.0A	4.6L	A	A					
4								4.6L	I5.1L	I5.2L	5.5L	5.2	5.5	5.2	5.1	5.0H	4.8	L						
5						L	I4.0A	I4.4A	I4.6A	4.8	A	A	I5.0A	5.0	5.0	5.0	4.7	A	A					
6						3.9L	4.2	A	A	A	A	A	A	A	5.0	4.8	4.8	4.4	A					
7							I4.4L	4.9	I5.2C	5.4	5.4L	A	A	A	I5.4A	5.1	5.0	C						
8						L	4.5	A	A	A	5.3	5.5	5.4	5.4	5.2	5.3	4.9L	A	A					
9							L	A	A	I5.7A	6.0	5.5	5.5	5.3	I5.2A	A	A	C	C					
10							A	A	L	A	L	5.4	5.6	5.5L	A	A	I5.1L	4.5L						
11							L	L	L	5.5	5.5	5.7L	I5.6A	5.6	5.3	5.1L	5.0L	L	L					
12								L	A	A	I5.5L	I5.6L	5.7	5.4	5.4	5.5	A	A	A					
13								A	A	L	I5.8A	6.1L	5.7	5.6	5.4L	5.5L	L	L	L					
14							L	5.0L	5.0L	I5.4L	5.7L	5.5L	5.5L	5.7L	5.4	I5.2L	A	L	A					
15							L	I4.6A	A	A	C	A	I5.2B	I5.1R	I5.1R	5.0	I4.8L	4.5	A					
16						L	4.4	I4.6L	I4.8A	I5.0A	5.1	5.0	5.1	5.0	4.9	5.0	A	A	A					
17							L	L	A	L H	5.1	I5.2A	5.3	A	A	A	5.0L	I4.6L	L					
18								A	A	A	A	I5.5A	5.4	5.2H	I5.2A	5.0	A	A	L					
19						L	A	A	A	A	A	A	A	A	A	A	4.6	A	A					
20							L	4.6	A	A	A	A	A	5.1	I5.0A	I4.8A	A	L	A					
21							4.0L	4.7L	I4.8A	I5.0A	5.1L	5.2	I5.2A	5.3L	I5.4A	I5.1A	4.8H	A	A					
22						L	L	A	L	A	A	L	5.2L	5.2	5.1	5.0L	4.7H	L	A					
23							L	A	A	A	A	A	A	I5.2A	5.2H	4.9	L	A	A					
24							L	L	L	I5.0L	5.2H	I5.6A	4.8	5.1	A	A	L	L	L					
25							L	L	L	I5.1A	5.1L	6.0	5.3	I5.2L	5.3	I5.0B	L	L	L					
26						A	4.0	L	A	5.0	5.0	5.1	5.2	A	A	A	A	A	A					
27						L	L	L	A	A	A	A	A	A	A	I5.1A	4.8L	A	L					
28							A	A	A	A	A	4.9	I5.1A	5.1	I5.0R	4.9	4.9	4.5L	A					
29						L	4.5	I4.7L	5.1	A	A	B	A	A	A	5.2	I5.0L	I4.4L	3.0					
30							I4.2L	4.7	I4.9H	5.1	I5.4L	I5.6A	I5.6A	I5.6B	I5.1A	C	A	A	A					
31																								
No.						1	10	11	9	14	17	19	22	22	22	21	16	6	1					
Median						3.9	4.3	4.7	U5.0	U5.1	5.4	5.5	5.4	5.2	5.2	5.0	4.8	4.5	3.0					

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 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						2.15	2.75	3.15	3.50	3.75	3.90	3.90	A	A	A	A	R	3.00	[2.60B					
2						2.20	3.00	3.25	3.55	[3.70C	3.75	3.80	R	R	R	[3.50A	3.20	2.95	2.05					
3							2.80	3.10	3.55	3.70	3.75	A	A	A	A	A	3.45	2.85	2.15					
4						2.05	[2.80A	3.15	3.50	3.65	[3.80R	[3.80B	B	B	B	3.55	3.40	2.95	A					
5						A	2.70	3.15	3.50	3.70	[3.80R	[3.80R	A	A	R	A	3.35	2.80	2.15					
6						R	2.75	3.20	3.55	3.75	3.80	A	A	A	R	R	3.15	2.85	2.35					
7						2.15	2.75	3.25	[3.45C	A	A	A	A	A	A	A	3.35	[2.95C	2.40					
8						R	2.80	3.30	3.65	3.85	3.90	R	A	3.95	R	A	A	[3.10A	2.35					
9						2.05	2.90	3.25	3.55	3.80	B	B	B	B	B	A	A	C	C					
10						2.35	2.95	3.40	3.55	3.75	3.80	[3.90A	3.95	3.85	A	A	A	A	A					
11						2.35	2.90	[3.25A	3.55	3.80	3.95	4.00	A	A	A	A	A	A	A					
12						2.25	2.80	3.20	3.70	R	A	3.95	[4.00R	[4.00B	[3.90R	R	A	A	A					
13						2.35	2.85	3.25	3.55	3.85	3.90	3.95	[3.90R	A	A	A	A	A	A					
14						2.45H	2.80	3.25	3.55	[3.75A	[3.85A	3.90	[3.95R	3.95	R	A	A	A	A					
15						A	A	3.20	3.55	[3.70A	[3.80C	[3.90R	[3.90B	[3.90R	3.80	3.50	3.25	A	A					
16						A	2.85	3.30	3.55	A	A	A	B	A	R	3.60	3.40	2.90	2.30					
17						1.95	2.75	3.10	3.45	3.70	R	A	A	A	R	A	3.30	2.80	A					
18						A	2.85	3.20	3.50	3.70	[3.80R	3.90	A	R	A	3.55	3.15	A	A					
19						A	2.80	3.10	3.45	3.70	3.70	3.85	A	A	A	A	A	A	A					
20						2.05	2.70	3.05	3.30	R	A	B	R	[3.90R	[3.70R	3.50	3.30	2.80	2.20					
21						A	2.65	3.10	3.55	3.60	3.65	B	B	B	R	3.50	3.20	2.95	A					
22						R	2.75H	3.05	3.50	[3.60A	[3.70R	3.75	[3.70B	[3.55R	[3.50A	3.30	A	A	2.10					
23						A	A	3.05	3.40	3.55	3.55	A	A	A	A	A	3.20	2.85	2.25					
24						2.00	2.65	[2.95A	3.20	3.50	A	A	A	A	A	A	A	3.00	A					
25						A	A	3.10	3.50	3.75	[3.75A	3.75	3.95	A	A	A	A	A	2.15					
26						A	2.85	3.15	3.45	3.55	3.90	3.95	3.95	A	A	A	A	A	A					
27						2.05	2.90	3.20	3.50	[3.70A	3.85	3.90	3.95	3.90	[3.80B	3.65	3.15	A	A					
28						A	2.75	3.50	3.80	3.95	3.95	R	B	A	A	A	3.30	2.95	[2.35A					
29						2.05	[2.80R	3.25	3.50	3.75	3.85	B	B	R	A	3.60	3.30	2.95	[2.30A					
30						A	2.85	3.15	3.40	3.70	[3.85B	[3.90R	3.90	B	A	C	A	A	A					
31																								
No.						15	27	30	30	26	23	17	10	8	5	10	16	16	14					
Median						2.15	2.80	3.20	3.50	3.70	3.80	3.90	[3.95	[3.90	[3.80	3.50	3.30	2.95	2.30					

foE

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

IONOSPHERIC DATA

Jun. 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	1.8	1.8	2.3	E	E	G	3.5	4.4	5.0	4.4	5.4	5.4	6.5	6.3	5.9	4.1	3.8	4.5	6.8	4.4	4.3	3.1	1.8	2.0
2	E	E	E	E	3.2	2.7	3.9	5.1	6.4	C	4.5	G	4.2	G	G	3.8	4.9	5.9	7.4	7.4	6.4	5.0	4.2	6.1
3	3.8	3.9	6.6	5.0	5.8	5.0	6.1	6.0	9.0	D 20.0	13.8	15.9	7.8	15.8	D 20.0	8.3	4.0	5.8	8.0	D 20.0	8.3	8.8	6.4	4.5
4	2.3	1.8	E	2.1	E	G	G	4.6	4.3	4.0	4.7	4.5	4.7	B	B	G	G	G	2.5	1.8	1.7	3.7	7.5	7.3
5	8.5	7.6	4.3	2.9	4.8	2.9	5.8	7.3	6.0	4.5	5.5	14.8	6.5Y	4.6	4.1	3.8	3.7	7.1	6.2	4.9	7.7	12.2	6.6	8.3
6	E	2.1	4.8	3.4	3.5	2.5	4.8	6.5	10.1	10.5	8.5	6.6	7.3	5.9	G	G	3.9	3.8	3.9	4.1	3.8	3.2	2.8	4.9
7	1.8	2.0	E	1.8	2.1	2.5	3.4	7.5	C	4.5	5.0	8.3	8.8	6.8	6.8	4.9	6.0	C	3.1	2.8	4.1	2.3	5.9Y	3.7
8	3.1	5.0	4.5	4.9	2.8	3.8	4.2	5.8	7.3	6.1	4.5	7.2	5.6	4.9	4.8	5.6	5.6	6.2	16.2	5.0	6.1	4.9	3.8	2.8
9	2.0	3.8	2.9	E	E	2.5	3.9	7.0	7.1	6.8	5.8	5.5	5.1	4.8	5.8	8.1	9.0	C	C	C	C	6.3	6.1	3.0
10	2.3	2.3	2.3	2.3	E	G	4.5	6.1	6.6	6.6	5.9	4.6	4.5	5.3	7.5	10.5	3.8	4.9	5.8	7.3	2.9	4.9	6.0	6.3
11	3.6	2.1	2.1	2.3	E	G	G	4.3	4.9	4.9	5.4	4.8	10.2	4.8	7.3	4.8	4.1	3.3	3.6	3.6	4.0	2.4	4.3	2.4
12	1.9	3.5	2.3	2.4	E	G	3.5	6.0	6.3	9.0	4.4	G	G	B	G	G	5.5	8.7	6.3	5.2	3.7	3.7	6.4	2.8
13	3.5	2.4	4.9	2.2	E	G	4.1	8.8	10.1	5.3	5.9	6.0	5.1	6.2	5.3	5.3	7.4	3.5	2.6	2.3	3.5	3.9	4.5	1.8
14	2.5	E	2.1	1.8	1.7	2.7	3.5	4.5	4.5	4.9	5.0	4.8	4.6	5.0	4.6	4.5	4.8	5.0	5.6	6.0	4.2	6.4	6.2	4.9
15	3.5	1.9	2.0	1.9	2.2	3.3	3.0	4.3	6.6	6.2	C	12.3	B	5.1	4.4	6.1	4.6	4.3	5.0	2.7	2.2	6.3	2.3	4.9Y
16	2.0	6.1	3.6	3.0	2.8	2.8	3.6	5.0	11.8	8.8	7.2	4.1	4.6	4.3	4.8	5.2	7.3	8.5	8.9	9.0	7.9	2.8	2.7	1.9
17	6.0	4.3	3.0	3.8	11.8	2.3	G	4.0	5.2	5.6	5.0	5.6	5.9	9.7	8.0	15.7Y	4.2	5.0	3.0	2.0	2.3	6.0	5.3	4.9
18	6.3	3.6	4.0	2.8	3.1	2.9	3.6	6.3	6.7	7.9	7.5	7.7	11.5Y	4.0	11.3	4.5	5.9	6.1	6.1	2.4	3.6	8.6	8.5	5.7
19	7.9	5.8	4.3	3.8	3.9	3.0	7.0	8.0	5.3	5.5	6.3	7.5	5.9	8.8	9.9	5.8	6.4	7.1	6.8	8.8	9.0	8.6	9.3	2.3
20	3.8	2.1	1.8	E	1.8	G	G	G	4.7	10.4	13.2	6.7	14.2	5.1	6.9	6.5	6.2	4.4	4.3	6.1	7.8	3.8	8.4	8.3Y
21	9.4	12.7Y	9.4	6.5	6.5	5.9	3.8	4.3	5.5	5.1	4.9	4.0	5.4	4.6	4.2	6.8	3.9	5.5	10.9	11.9	10.9	4.9	6.0	3.2
22	2.0	2.0	E	E	E	2.5	3.9	4.5	5.5	6.8	6.1	5.5	5.2	5.3	6.2	4.5	4.0	3.0	3.6	9.7	2.2	E	4.0	4.4
23	3.8	4.4	5.0	4.9	2.4	3.2	4.4	4.9	12.4	9.8	9.7	7.8	6.6	11.9	3.9	3.6	4.2	5.9	5.2	5.9	8.5	2.8	4.9	2.0
24	2.5	E	3.5	2.0	E	2.6	3.4	4.5	4.4	5.5	4.5	5.8	7.2	6.9	5.5	5.9	4.5	3.6	3.0	3.0	8.2	9.5	4.9	6.2
25	2.2	3.2	2.4	2.8	3.8	9.8	3.8	4.3	5.5	6.0	6.0	8.6	4.7	5.9	3.9	5.0	5.0	4.0	2.9	4.3	12.3	6.0	1.8	E
26	1.8	2.9	6.1	3.4	2.0	4.1	4.9	4.9	10.1	4.4	G	5.0	4.9	6.4	8.8	9.5	8.3	6.0	5.0	3.8	6.1	8.4	8.3	4.9
27	3.5	4.9	4.9	3.6	4.9	G	3.4	4.2	5.6	7.3	7.4	7.5	5.5	9.8	8.3	7.4	3.8	4.2	3.1	4.8	2.4	4.9	8.3	3.1
28	2.0	2.9	2.8	3.2	2.4	5.3	5.2	7.3	7.1	13.6	8.6	4.6	5.8	4.4	4.3	3.9	G	G	3.8	5.1	3.2	3.2	4.8	E
29	2.3	3.1	3.3	3.2	3.7	2.9	3.5	6.3	4.5	11.0	6.8	5.2	7.8	5.7	10.1	G	G	G	2.9	2.1	E	3.3	5.6	4.6
30	5.8	4.0	3.9	3.4	2.3	2.8	3.2	3.8	5.1	4.6	5.5	6.0	5.9	4.8	4.7	C	9.3	8.3	8.3	8.6	6.7	4.8	3.2	E
31																								
No.	30	30	30	30	30	30	30	30	29	29	29	30	29	28	29	29	30	28	29	29	29	30	30	30
Median	2.5	3.0	3.2	2.6	2.4	2.7	3.7	5.0	6.0	6.1	5.8	5.7	5.8	5.3	5.5	5.2	4.6	5.0	5.0	4.9	4.2	4.9	5.4	4.0
U.Q	3.8	4.3	4.5	3.4	3.7	3.7	4.4	6.3	7.2	8.4	7.3	7.5	7.2	6.6	8.2	7.4	6.0	6.0	6.8	7.3	7.8	6.3	6.4	4.9
L.Q	2.0	2.0	2.1	1.9	E	G	3.4	4.3	5.0	4.9	5.0	4.8	4.8	4.8	4.2	3.9	3.9	3.7	3.1	2.9	3.0	3.2	4.0	2.3
Q.R	1.8	2.3	2.4	1.5			1.0	2.0	2.2	3.5	2.3	2.7	2.4	1.8	4.0	3.5	2.1	2.3	3.7	4.4	4.8	3.1	2.4	2.6

foEs

Sweep 1.60 Mc to 20.0 Mc in 2.0 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

A 4

IONOSPHERIC DATA

Jun. 1960 | f_bE_s | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.6' 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				3.1	3.7	4.6	4.3	4.5	5.0	5.2	5.1	5.6	A	3.8	3.5	U6.8B	4.1	4.0	2.9	2.1	E
2					2.3	2.5	3.8	4.9	6.0	C	4.4		4.2			3.8	U4.9B	5.8	7.0	5.8	5.5	1.8	3.0	3.8
3	3.2	2.0	2.2	3.9	4.3	2.6	5.5	5.5	A	A	A	A	6.2	A	4.0	5.0	3.8	5.5	6.0	A	2.0	3.3	4.5	2.0
4	E	E		E				4.3	3.9	U4.0B	U4.7B	4.5	4.7	B	B				2.5	1.7	E	3.5	A	4.0
5	5.5	4.6	4.0	2.5	3.5	2.4	5.5	A	A	4.2	5.5	A	5.5	4.6	4.1	3.6	3.7	A	5.8	U4.9B	5.5	A	5.1	E
6		E	4.0	2.0	E	2.4	3.5	5.9	A	A	A	A	A	A			3.7	3.6	3.8	4.0	3.0	E	E	E
7	E	E		E	1.7	2.4	3.4	4.1	C	4.5	4.4	6.1	A	6.2	5.9	4.3	4.7	C	3.0	2.7	3.8	E	2.5	E
8	2.9	1.8	3.8	2.3	1.8	3.5	4.0	5.5	A	6.0	4.4	5.0	5.1	4.4	4.5	4.8	3.8	6.2	A	2.3	2.6	E	2.8	1.7
9	E	E	E			2.5	3.8	5.3	6.2	6.5	5.2	4.9	5.1	4.6	5.4	A	A	C	C	C	C	4.2	5.5	2.2
10	E	E	E	E			4.4	5.6	5.0	6.3	5.5	4.5	U4.5B	5.1	6.6	8.5	3.8	3.5	3.9	6.3	2.7	4.0	2.0	4.0
11	1.9	E	E	E				4.0	4.6	4.7	5.0	4.8	6.1	4.5	4.1	4.4	4.1	3.1	3.1	2.5	4.0	2.2	2.5	2.0
12	E	2.1	E	1.9			3.1	4.7	5.9	A	4.4						5.2	6.6	4.1	4.0	3.4	3.1	3.4	E
13	2.1	E	E	E			3.9	7.0	8.4	5.2	5.8	5.1	4.8	5.3	5.1	4.0	4.9	3.3	2.6	2.1	3.0	2.8	2.0	E
14	E		E	E	1.7	2.6	3.3	4.3	4.5	4.4	4.9	U4.8B	4.6	5.0	U4.6B	4.4	4.8	3.5	3.3	5.8	U4.2B	4.1	5.1	2.5
15	1.8	E	E	E	E	2.8	U3.0B	U4.3B	5.1	5.1	C	A	B	4.4	4.4	4.0	4.5	4.3	4.9	1.9	E	5.0	1.8	E
16	E	E	2.0	2.9	E	2.4	3.0	4.5	A	5.6	4.6	4.1	4.4	4.2	4.3	4.8	6.0	A	A	A	A	2.0	E	E
17	E	3.5	2.4	2.9	4.8	1.8		4.0	5.0	5.0	5.0	U5.6B	5.3	A	6.1	A	3.8	4.5	2.8	1.8	2.3	5.4	4.0	2.5
18	E	2.1	2.4	E	2.0	2.5	3.1	5.8	5.2	6.4	7.3	6.4	4.6	E4.0B	A	4.5	5.8	5.5	3.1	U2.4B	E3.6B	4.0	4.5	3.0
19	3.0	2.9	4.0	2.5	2.8	2.5	6.5	7.0	5.0	5.5	A	A	5.4	A	A	5.0	4.4	7.0	5.6	5.9	2.0	2.0	4.3	1.7
20	E	E	E		1.7				4.7	5.5	A	6.7	A	4.5	5.5	5.0	5.5	3.9	4.3	3.6	3.9	2.7	A	4.8
21	1.8	4.3	2.0	2.8	4.0	3.0	3.4	4.0	5.3	5.1	4.8	4.0	U5.4B	E4.6B	5.0	E6.8B	3.5	5.0	6.6	A	A	3.5	4.3	1.7
22	E	E				2.5	3.5	4.4	4.8	5.7	6.1	5.2	4.7	4.4	4.6	4.3	3.8	3.0	3.5	8.0	E		E	E
23	E	1.7	5.0	4.0	2.1	2.3	3.5	4.8	A	7.0	7.2	7.0	5.6	A	U3.9B	U3.6B	4.0	4.7	5.0	4.5	7.5	2.0	E	1.9
24	E		E	E		2.3	3.1	3.7	4.4	4.1	4.0	5.2	4.0	4.0	5.2	5.0	4.4	4.9	3.0	2.9	5.8	A	3.7	5.1
25	E	2.1	E	E	2.5	5.5	3.1	4.0	5.0	5.4	4.8	5.5	U4.7B	5.0	3.9	4.0	4.1	4.0	2.6	U4.3B	5.5	3.5	E	
26	E	E	3.5	1.9	E	4.1	3.9	4.6	A	4.1		4.9	4.9	6.4	A	A	7.5	5.7	3.7	3.0	5.1	6.0	5.5	2.0
27	2.0	3.0	3.0	2.6	3.1		3.2	4.2	5.5	A	A	A	5.3	A	7.6	7.3	3.7	4.2	2.5	2.4	E	4.3	A	1.9
28	1.7	1.7	2.0	2.8	E	4.5	4.5	6.2	5.7	A	A	4.4	5.4	4.4	4.2	3.9			U3.8B	3.4	3.1	2.9	2.0	
29	1.7	1.9	2.0	E	1.8	1.8	3.0	5.2	4.3	A	E4.8B	E5.2B	7.0	U5.7B	A				2.7	1.7		2.5	5.0	4.0
30	4.3	2.8	3.2	2.8	1.8	2.6	G	3.5	5.1	4.1	5.1	6.0	U5.9B	E4.8B	E4.7B	C	A	A	5.2	A	5.5	2.9	2.0	
31																								
No.	28	27	26	25	21	22	26	29	29	29	27	28	28	27	26	24	27	25	29	29	28	29	30	27
Median	E	1.7	2.0	1.9	1.8	2.5	3.4	4.6	5.2	5.5	5.1	5.2	5.2	5.0	5.0	4.6	4.4	4.5	3.8	4.0	E3.7	3.1	3.2	1.9

f_bE_s

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

The Radio Research Laboratories, Japan.

A 5

25

IONOSPHERIC DATA

Jun. 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	1.75	1.75	1.75	2.05	2.10	1.95	1.70	1.85	1.75	1.75	1.70	500	E	E	E	E	E
2	E	E	E	E	E	1.70	1.70	1.70	1.75	[2.20C	2.65	2.65	2.90	2.00	1.75	1.75	1.75	1.70	E	E	E	E	E	E
3	E	E	E	E	E	E	1.70	1.75	1.95	1.75	3.05	1.95	2.75	1.70	1.70	1.75	1.70	1.70	1.65	1.70	E	E	E	E
4	E	E	E	E	E	E	1.65	1.75	1.75	1.85	1.80	3.90	4.00	4.20	4.00	2.95	1.80	1.70	1.70	E	E	E	E	E
5	E	E	E	E	E	E	1.70	1.70	2.00	1.95	2.70	3.00	3.60	3.55	3.05	1.90	1.80	1.70	1.70	E	E	E	E	E
6	E	E	E	E	E	1.70	1.65	1.70	1.90	3.05	3.05	3.70	2.00	1.80	2.95	1.95	1.75	1.65	1.65	E	E	E	E	E
7	E	E	E	E	E	1.65	1.70	1.75	[1.75C	1.75	2.00	3.55	3.40	3.00	1.75	1.90	1.70	[1.70C	1.70	E	E	E	E	E
8	E	E	E	E	E	1.70	1.70	1.75	1.75	3.40	1.80	2.90	3.70	3.25	2.60	2.00	1.70	2.60	1.65	E	E	E	E	E
9	E	E	E	E	E	1.70	1.70	1.75	1.75	2.60	3.95	3.95	4.00	3.95	3.90	3.30	1.70	C	C	C	C	E	E	E
10	E	E	E	E	E	1.70	1.75	1.75	1.90	2.50	2.70	3.25	3.30	2.65	3.50	2.60	1.90	1.80	1.65	E	E	E	E	E
11	E	E	E	E	E	1.70	1.70	1.75	1.80	1.90	3.00	3.05	3.00	2.95	2.70	1.75	1.70	1.75	E	E	E	E	E	E
12	E	E	E	E	E	1.70	1.65	1.70	1.70	1.95	2.70	3.40	3.45	4.15	2.90	3.00	2.60	1.70	1.70	E	E	E	E	E
13	E	E	E	E	E	1.65	1.70	1.80	1.75	2.75	3.40	3.20	2.70	3.55	3.70	2.85	1.75	1.75	1.70	E	E	E	E	E
14	E	E	E	E	E	1.70	1.70	1.70	1.75	1.80	3.30	2.70	3.40	2.45	2.50	2.05	2.50	1.70	1.65	E	E	E	E	E
15	E	E	E	E	E	1.65	1.70	1.85	2.45	1.80	[2.75C	2.75	B	2.80	2.70	2.00	2.30	1.70	1.65	E	E	E	E	E
16	E	E	E	E	E	E	1.65	1.70	1.70	1.80	2.00	2.00	4.00	3.05	2.75	1.70	1.75	1.70	1.70	E	E	E	E	E
17	E	E	E	E	E	E	1.70	1.70	1.80	1.90	2.05	3.60	2.00	3.05	2.45	1.75	1.70	1.70	1.70	E	E	E	E	E
18	E	E	E	E	E	E	1.65	1.75	1.70	1.75	1.90	2.60	2.45	2.70	2.00	1.75	1.70	1.70	1.65	1.65	1.70	E	E	E
19	E	E	E	E	E	E	1.70	1.75	1.70	1.80	2.70	2.00	3.50	3.60	2.00	1.80	1.70	1.65	1.65	1.65	E	E	E	E
20	E	E	E	E	E	1.65	1.70	1.70	1.75	2.00	3.05	3.90	3.00	2.90	2.75	1.75	1.70	1.70	1.70	E	E	E	E	E
21	E	E	E	E	E	E	1.65	1.70	1.70	1.90	2.05	3.75	3.95	4.00	1.70	1.80	1.70	1.75	1.70	E	E	E	E	E
22	E	E	E	E	E	1.65	1.70	1.75	1.75	1.70	2.00	3.05	4.00	2.70	1.85	2.00	1.75	1.65	E	E	E	E	E	E
23	E	E	E	E	E	1.65	1.65	1.70	1.75	1.90	1.80	1.90	2.70	1.95	1.80	1.80	1.70	1.70	1.70	E	E	E	E	E
24	E	E	E	E	E	1.65	1.70	1.70	1.75	1.80	1.80	1.95	1.90	1.75	2.80	1.90	1.70	1.65	1.65	E	E	E	E	E
25	E	E	E	E	E	1.65	1.70	1.70	1.70	1.80	1.80	2.55	2.20	1.95	1.95	1.75	1.75	1.70	1.65	E	E	E	E	E
26	E	E	E	E	E	1.65	1.95	1.80	1.75	1.70	2.70	3.10	2.80	2.05	3.70	1.75	1.70	2.80	E	E	E	E	E	E
27	E	E	E	E	E	1.70	1.70	1.65	1.70	2.50	3.05	2.70	2.95	2.00	4.05	2.65	1.70	1.70	1.70	E	E	E	E	E
28	E	E	E	E	E	E	1.65	2.70	3.05	2.05	2.90	2.80	4.05	3.55	3.55	2.90	2.00	1.75	1.65	E	E	E	E	E
29	E	E	E	E	E	1.70	1.65	1.70	1.70	2.00	2.70	4.45	3.95	2.70	2.70	1.70	1.75	1.70	1.70	E	E	E	E	E
30	E	E	E	E	E	E	1.70	1.75	1.75	2.00	3.95	2.65	2.45	4.20	2.90	[2.30C	1.80	1.70	E	E	E	E	E	E
31																								
No.	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	29	30	30	30
Median	E	E	E	E	E	1.65	1.70	1.75	1.75	1.90	2.70	2.95	3.15	2.85	2.70	1.90	1.75	1.70	1.65	E	E	E	E	E

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 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	2.65F	2.70	2.80	2.80	2.75	3.10	3.00	3.10	2.90	2.90	2.70	2.65	2.70	2.75	2.70	I 2.80A	2.85	2.95	2.75	2.75	U 2.70R	U 2.60R	2.60	2.70
2	2.70	2.70	2.80	2.70	2.50	2.50	2.75	2.75	2.70	I 2.80C	3.10	2.90	2.90	2.90	3.05	3.00	3.00	3.05	3.00	2.85	2.75	2.70	2.70	2.70
3	2.70F	2.85	F	F	F	F	2.80	2.90	A	A	A	A	2.85	I 2.90A	3.00	2.95	2.95	3.10	3.00	I 2.90A	2.70	F	F	F
4	F	F	2.85F	2.90	2.75	2.80	2.75H	2.90	U 2.90R	2.75	2.55	2.75	2.55	2.60	U 2.65R	2.60	U 2.50R	U 2.70R	2.65	2.80	2.65	2.45	I 2.55A	I 2.65F
5	I 2.70F	I 2.70F	2.80F	2.60F	2.55F	2.60	2.65F	I 2.60A	I 2.40A	2.60	I 2.30A	I 2.40A	2.20	2.50	2.60	2.80	2.75	I 2.75A	I 2.80A	2.85	2.50	I 2.50A	2.40F	I 2.50F
6	I 2.60F	2.55F	2.55F	2.60F	I 2.50F	2.50	2.60	2.65	I 2.75A	A	A	A	A	A	2.30	2.60	2.75	2.85	2.90	2.75	2.60	2.50	2.40	2.50
7	2.60	2.90	3.00	2.90	2.75	2.70	2.90	2.95	I 2.85C	2.90	2.95	2.75	I 2.75A	2.85	2.70	2.90	2.90	I 3.00C	2.95	2.85	2.70	2.55	I 2.55F	2.70
8	2.50F	2.60F	2.55F	I 2.60F	2.70F	2.45	2.70	2.70	I 2.55A	I 2.30A	2.20	2.70	2.80	2.80	2.75	2.75	2.80	3.05	I 2.80A	2.60	2.55	2.45	2.70	2.70
9	2.80	2.60	2.70	2.60	2.75	2.60	2.80	2.80	2.80	2.80	2.70	2.70	2.60	2.60	2.70	I 2.55A	I 2.65A	C	C	C	C	F	F	F
10	F	F	2.60F	2.60F	2.75	2.70	2.90	2.70	U 2.90R	2.80	2.70	2.80	2.75	2.75	2.70	U 2.90R	2.80	2.85	2.90	I 2.90S	2.90	U 2.75R	2.65	2.75F
11	2.70	2.70	2.80	2.70	2.60	2.75	3.00	2.80	2.75	2.70	2.70	2.75	2.80	2.65	2.75	2.80	2.85	2.90	2.90	2.85	2.80	2.70	2.65	2.65
12	2.60	2.65	2.80	2.80	2.80F	3.00	2.60	2.75	2.70	I 2.80A	2.70	2.55	2.60	2.70	2.80	2.75	2.75	2.85	2.90	2.90	2.75	2.60	2.55	2.60F
13	F	F	F	2.75	2.90F	I 2.80F	2.80F	2.75	2.75	2.75V	2.70	2.55	2.60	2.60	2.70	2.70	2.80	2.85	2.95	2.70	I 2.65S	2.65	2.65	2.65
14	2.70	2.75	2.70	2.65	2.50	2.50H	2.70	2.85	2.95	2.80	2.60	2.80	2.70	2.65	2.75	2.85	2.90	2.90	2.80	2.80	2.65	2.70	2.70F	2.60
15	2.50F	2.70	2.90	3.00H	2.70F	2.60	2.55	2.55	2.65	2.50	C	A	I 2.35B	2.50	J 2.80R	2.70	2.70	2.80	2.75	2.70	2.60	2.50F	2.60F	2.60F
16	2.50F	F	F	F	2.55	2.70	2.70F	2.75	I 2.60A	U 2.65R	2.30	I 2.30R	2.25	2.40	2.60	U 2.70R	2.85	A	A	I 2.70A	I 2.60A	2.50	2.60	2.70
17	2.70	2.80	2.80	F	F	3.00	2.75F	3.20	2.90	2.55H	2.65	2.60	2.65	I 2.80A	2.85	I 2.90A	3.00	2.85	2.85	2.70	2.80	2.80F	2.70F	F
18	F	2.95F	I 3.00F	2.80F	2.70F	2.75F	2.85	3.00	3.00	2.50	2.70	2.80	2.75	2.80	I 2.80A	2.90	2.95	3.00	3.00	2.80	2.85	2.60	I 2.80F	2.80F
19	2.75F	2.85F	2.60	2.90	2.55F	2.40	2.50	3.00	2.45	2.50	I 2.60A	I 2.55A	2.75	A	A	2.75	3.00	U 3.05R	3.00	2.80	2.70	2.75F	I 2.70F	2.50F
20	2.85	2.60	2.70	2.80	2.55	2.60	2.65	3.00	2.55	A	A	R	I 2.60A	2.70	2.70	2.85	2.90	2.90	2.90	3.05	2.85	2.60	A	F
21	F	2.85F	2.85F	I 2.70F	2.70	2.60F	2.70	3.05	3.00	3.00	2.95	2.80	2.80	2.75	2.85	2.80	2.90	2.85	3.00	I 3.00A	I 2.80A	I 2.70F	2.70	I 2.70F
22	2.75	2.70	2.70	I 2.60F	I 2.65F	2.65	2.70	3.05	3.15	2.80	U 3.35R	2.65	2.90	2.70	2.85	2.80	2.80	2.80	3.00	3.05	3.05	2.75	2.65	2.70
23	F	F	F	2.70F	2.75F	3.00	3.05	2.85	I 2.90A	I 2.75A	I 2.80A	I 2.75A	2.80	I 2.90A	2.80	2.85	2.95	2.80	2.90	U 3.00R	2.90R	2.70	2.75	2.80
24	2.70	2.65	2.65	2.60	2.65	2.90	3.15	3.10	3.15	3.10	3.25	2.85	2.65	2.90	3.00	2.85	3.00	2.85	2.80	2.80	2.85	A	F	F
25	2.90F	F	F	F	2.75F	2.75	2.65	3.00	2.85	2.95	3.00	2.80	2.75	2.95	2.90	2.95	2.90	2.90	2.95	2.95	2.95	2.80	2.70	2.70
26	2.65	2.55	2.60	2.70	2.70F	2.70F	U 3.05R	3.00	I 3.00A	2.25	2.70	2.85	2.80	2.60	A	A	2.80	2.90	3.00	2.90	2.90	I 2.65A	2.75	2.80F
27	2.80	I 2.75F	2.75F	2.50	2.75F	3.10	2.80	2.80	3.05	I 2.75A	I 2.80A	2.85	2.60	I 2.30A	2.40	U 2.65R	J 2.90R	3.10	3.05	2.85	2.60	2.65	I 2.70A	2.80
28	2.90	2.75	2.90	2.70	2.65F	2.45F	2.80	2.75	3.00	A	A	2.40	2.80	2.35	2.55	2.75	2.70	2.80	2.80	2.75	2.60	2.60S	2.50	2.50
29	2.65	2.80	2.95	2.70	2.55	2.60	2.55	2.75	2.85	I 2.70A	2.70	2.65	U 2.80A	2.75	I 2.75A	2.85	2.80	2.75	2.90	2.80	U 2.90S	2.45	2.55S	I 2.60F
30	2.70F	2.60F	2.75	2.80	2.70F	2.60	2.70	2.40	2.40	2.45	U 2.85R	2.70	2.70	2.75	2.80	I 2.90C	I 3.00A	I 3.00A	2.95	I 2.70A	2.50	2.50	2.65	2.75
31																								
No.	24	24	25	26	28	29	30	30	29	26	25	26	29	28	28	29	30	28	28	29	29	27	26	25
Median	2.70	2.70	2.80	2.70	2.70	2.70	2.75	2.80	2.85	2.75	2.70	2.70	2.75	2.70	2.75	2.80	2.85	2.90	2.90	2.80	2.70	2.65	2.65	2.70

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1960 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	I 350L	355L	345	A	L	A	A	L	L						
2						L	325L	A	A	C	365L	375L	I 355L	I 355L	370	L	A	A	A					
3							A	A	A	A	A	A	A	A	375	I 360A	370L	A	A					
4								375L	I 375L	I 380L	I 350L	365	340	350	365	345H	330	L						
5						L	A	A	A	370	A	A	I 365A	360	350	345	330	A	A					
6						285L	315	A	A	A	A	A	A	A	360	365	335	330	A					
7							I 340L	350	I 350C	345	350L	A	A	A	A	340	I 340A	C						
8						L	320	A	A	A	380	I 345A	I 350A	360	350	325	330L	A	A					
9							L	A	A	A	370	340	I 340A	355	A	A	A	C	C					
10							A	A	L	A	L	370	355	I 340A	A	A	I 350L	355L						
11							L	L	L	345	340	340L	I 350A	340	360	340L	345L	L	L					
12								L	A	A	I 360L	I 360L	350	355	355	330	A	A	A					
13								A	A	L	I 340A	330L	340	I 340A	I 345L	330L	L	L	L					
14							L	355L	360L	I 350L	350L	I 360A	360L	I 345A	340	L	A	L	A					
15							L	I 340A	A	A	C	A	I 360B	I 390R	I 360R	360	I 345L	A	A					
16						L	325	L	A	A	335	390	360	375	A	A	A	A	A					
17							L	L	A	L H	A	A	A	A	A	A	335L	I 335L	L					
18								A	A	A	A	A	360	365H	I 360A	355	A	A	L					
19						L	A	A	A	A	A	A	A	A	A	A	345	A	A					
20							L	345	A	A	A	A	A	355	I 360A	I 355A	A	L	A					
21							375L	365L	I 370A	I 370A	I 375A	365	I 360A	I 360B H	I 330A	I 340A	335H	A	A					
22						L	L	A	L	A	A	L	345L	370	340	340L	340H	L	A					
23							L	A	A	A	A	A	A	I 360A	355H	350	L	A	A					
24							L	L	L	I 385L	390H	I 345A	440	390	A	A	L	L	L					
25							L	L	L	I 350A	I 340A	330	I 370A	I 360L	360	I 345B H	L	L	L					
26						A	I 360A	L	A	340	355	I 350A	A	A	A	A	A	A	A					
27						L	L	L	A	A	A	A	A	A	A	I 335A	355L	A	L					
28							A	A	A	A	A	390	I 365A	390	I 360R	360	340	325L	A					
29						L	335	I 345L	345	A	A	B	A	A	A	350	I 340L	I 355L	385					
30							I 340L	340	I 355A	355	I 350L	I 350A	I 340A	I 335B	I 330A	C	A	A	A					
31																								
No.						1	9	8	6	11	16	17	19	21	19	19	16	5	1					
Median						285	335	350	U 360	U 350	350	350	U 355	360	360	345	340	335	385					

(M3000)F1 Sweep 1.60 Mc to 20.0 Mc in 20 min/sec in automatic operation.

IONOSPHERIC DATA

Jun. 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								300	345	345	355	380	370	350	370	I 350A	320L	300						
2						390L	350	345	345A	I 340C	300	310	345	305	315	310	300	300	I 300A					
3							300A	320	A	A	A	A	345	I 330A	300	345	305	295	305A					
4								290	255	375	400	385	400	370	350	350	355	335						
5						355	380A	I 420A	I 495A	460	A	A	I 570A	475	445	395	400	A	A					
6						410	390	405	A	A	A	A	A	A	600	455	405	365	295					
7							320	350	I 380C	375	340	425	I 400A	390	430	350	345	I 300C						
8						L	375	400A	I 455A	I 485A	610	405	400	395	395	395	350	325	A					
9							300L	295A	295A	345	395	370	415	445	395	I 405A	I 400A	C	C					
10							295	I 325A	330	345	I 375L	350	360	345	355	370A	345	310						
11							280	265	350	370	350	385	370	400	390	350	325	330	295					
12								I 320L	310	I 330A	I 340L	I 375L	395	350	350	355	345	345	295					
13								A	I 310A	I 320L	345	405	390	395	355	350	345	340	L					
14							L	300	295	305	395	345	350	395	345	340	305	330	315					
15							I 375L	415	420	450	I 450C	I 520A	I 580B	500	420	420	435	345	355					
16						345	400	355	I 430A	I 465A	600	I 620B	605	545	490	450	A	A	A					
17							295	295	350	475	440	435	410	I 380A	355	I 345A	345	350	300L					
18								295	300	I 390A	I 370A	325	360	345	I 355A	320	305	305	295					
19						L	A	A	500	500	I 460A	I 470A	420	A	A	400	320	I 310A	A					
20							310	295	310	605	A	A	I 425A	415	410	355	350	310	300					
21							345	280	305	345	345	400	370	395	350	I 350A	345	320	305A					
22						355	300L	250	280	345	290	I 350L	345	395	345	345	345	305	290					
23							275	295	I 315A	I 345A	I 370A	I 395A	370	I 355A	360	345	345	355	300					
24							270	295	255	295	305	360	345	350	345	350	310	335	I 305L					
25							I 305L	310	345L	345	315	395	395	345	350	340	305L	325	295					
26						320	255	I 320L	I 600A	600	395	355	360	420A	A	A	A	325	295					
27						295	I 310L	360L	300	I 370A	I 405A	I 370A	400	I 410A	445	355	310	255	295					
28							345	I 365A	340	A	A	550	410	570	445	405	405	360	320					
29						L	405	I 380L	350	I 365A	I 390A	I 380B	I 380A	390	I 365A	330	345	310	265					
30							I 355L	470	470	450	340	400	400	395	360	I 340C	A	A	A					
31																								
No.						7	23	28	28	27	25	26	29	28	28	29	27	26	19					
Median						355	310	320	340	370	370	385	395	395	360	350	345	325	300					

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

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	300	270	265	295	250	245	245	I250A	240	230	I230A	A	A	A	A	270	250	I295A	290	295A	305	305	275
2	285	280	245	245	345	290	A	A	A	C	I275A	205	210	205	240	245	A	A	A	I285A	I300A	295	305	300
3	310A	285	280A	I300A	I280A	255	A	A	A	A	A	A	A	A	215	I245A	245	A	A	A	290A	270A	I300A	295
4	300	290	250	255	290	245	245H	I260A	235	210	I210A	245A	I240A	240	235	210H	245	250	290	250	245	I310A	I345A	355A
5	I260A	I320A	300A	295	I295A	290	A	A	A	250A	A	A	A	A	240	250	250	A	A	A	A	A	A	310
6	265	295	I310A	310	345	275	260A	A	A	A	A	A	A	A	230	240	245	255A	A	A	310A	300	345	345
7	305	255	235	245	300	255	245	250	I240C	240	220	A	A	A	A	250	I265A	I255C	255	265	305	295	305	285
8	340A	305	340A	300	290	I325A	I270A	A	A	A	210	I220A	I240A	220	250A	I230A	240	A	A	295	340A	345	305	295
9	265	250	295	295	295	255	250A	A	A	A	A	A	A	245A	A	A	A	C	C	C	C	A	A	300
10	300	290	245	295	290	260	I250A	I245A	A	A	A	215	245	A	A	A	245	250	295	310A	255	295A	300	310A
11	295	295	260	260	295	255	250	245	I250A	245A	I250A	250A	I230A	245	245	I245A	255	245	255A	260	295A	295	300	295
12	305	310	290	295	260	245	245	A	A	A	205	205	205	205	245	245	A	A	A	275	290	305A	340A	345
13	320	255	245	250	285	245	250	A	A	A	A	A	240A	I200A	I225A	245	I245A	245	245	255	310A	300	295	295
14	295	290	290	295	305	245	245	250	255A	245	I220A	I230A	240A	I250A	I255A	I245A	I245A	230	A	A	330A	310A	I295A	300
15	340	295	250	205	250	260A	250	A	A	A	C	A	B	230	245	235	I250A	I255A	I275A	300	295	I300A	300	315
16	320	305	275	255	280	245	255	A	A	A	I220A	205	245A	245	A	A	A	A	A	A	I320A	330A	305	295
17	290	300A	280	295A	I270A	260	220	A	A	A	A	A	A	A	A	A	245	I245A	255	285	295	I300A	310A	340A
18	310	275	260	295	295	240H	250	A	A	A	A	A	245	230B	I240A	I230A	A	A	250A	275	295	305A	310A	295
19	295	295A	I300A	270	345A	280	A	A	A	A	A	A	A	A	A	A	A	A	A	A	280	295	I300A	295
20	255	295	295	275	300	250	250	245	A	A	A	A	A	I220A	I220A	I240A	A	A	I260A	270	280A	310A	A	A
21	295	I300A	280	340A	I310A	255	245	250	I245A	I210A	I235A	210	I245A	I245B	I260A	I270A	245H	A	A	A	I250A	I290A	I295A	300
22	295	290	295	305	300	270	255	A	A	A	A	A	I200A	205	I245A	255A	245	245	I260A	I255A	245	250	295	300
23	300	295	I290A	310A	295	250	245	A	A	A	A	A	A	I220A	200H	240	270	A	A	260	I285A	255	260	260
24	295	300	305	325	295	250	245	245	I215A	230	195	I235A	195	205	A	A	A	245	255A	255	295A	I280A	305A	I280A
25	260	300	265	295	295A	I265A	245	I245A	I240A	I240A	I230A	I225A	I210A	I220A	230	195H	I235A	I245A	260	285A	I260A	290A	260	295
26	305	325	340A	300	310	I280A	I245A	A	A	215	255	I245A	I235A	A	A	A	A	A	A	295	A	A	A	295
27	295	295A	305A	295	295A	265	235	A	A	A	A	A	A	A	A	A	245	I245A	245	255	275	I340A	I305A	270
28	255	270	260	310A	310	A	A	A	A	A	A	220	I240A	205	215	230	250	250	I270A	I290A	320A	310A	340A	300
29	305	260	245	295	300	270	250	I250A	245A	A	A	B	A	A	A	220	245	245	245	280	255	310	I335A	340A
30	I300A	320A	320A	300	300	250	255	250	I250A	245	I240A	A	A	B	A	C	A	A	A	A	A	345	300	260
31																								
No.	30	30	30	30	30	29	25	12	10	11	14	14	16	18	18	20	20	16	16	21	26	27	26	29
Median	300	295	280	295	295	255	250	250	U245	240	U220	220	U240	220	240	240	245	245	260	275	295	300	305	295

h'F

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

The Radio Research Laboratories, Japan.

A 10

30

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	100	100	E	E	G	145	125	110	120	110	105	100	100	100	100	110	135	125	110	105	105	105	100
2	E	E	E	E	130	145	130	120	115	C	110	G	110	G	G	100	135	115	110	105	105	105	105	105
3	100	100	105	100	100	100	130	125	115	110	105	105	100	100	100	105	145	120	110	105	105	105	105	105
4	100	100	E	100	E	G	G	125	120	120	130	115	145	B	B	G	G	G	110	110	110	105	105	105
5	105	100	100	100	100	100	120	115	110	120	110	105	105	105	120	105	145	120	110	105	110	105	105	105
6	E	100	100	100	100	145	120	110	105	110	110	110	105	100	G	G	140	125	110	110	105	105	105	100
7	100	100	E	100	195	155	145	120	C	110	105	100	100	100	100	130	115	C	125	110	105	105	105	105
8	100	100	100	100	100	145	140	115	110	110	115	105	105	110	110	105	105	120	110	110	110	105	105	100
9	100	100	100	E	E	145	135	110	110	110	105	110	105	110	105	115	105	C	C	C	C	105	105	105
10	135	100	100	100	E	G	115	110	110	110	105	110	110	105	105	100	100	100	100	100	100	105	105	105
11	105	100	100	100	E	G	G	120	110	110	110	105	105	105	105	100	105	100	100	100	100	100	100	100
12	100	100	100	100	E	G	145	115	110	105	105	G	G	B	G	G	100	100	100	100	100	100	105	105
13	105	110	105	105	E	G	130	110	105	110	110	105	105	105	105	105	105	105	105	105	110	105	105	105
14	105	E	105	105	105	150	145	130	125	120	110	110	110	110	105	105	105	105	105	105	105	110	105	105
15	105	100	100	100	100	100	100	140	125	120	C	110	B	110	115	110	110	105	105	105	100	110	105	105
16	100	105	100	100	100	100	145	130	110	105	105	105	110	110	130	125	110	110	110	105	105	105	105	105
17	100	100	100	100	100	100	G	120	110	110	105	105	105	105	105	100	115	105	110	105	105	105	105	105
18	105	100	100	100	100	105	145	125	125	115	105	110	105	125	105	120	110	105	105	105	110	110	115	105
19	100	100	100	100	100	100	125	115	110	110	110	105	105	105	105	105	100	100	110	105	110	110	105	105
20	100	100	100	E	105	G	G	G	120	110	105	110	110	110	110	115	110	110	120	110	105	110	105	105
21	105	105	100	100	105	105	145	135	110	110	115	120	110	150	145	125	145	120	105	110	110	105	105	100
22	100	100	E	E	E	140	125	110	115	110	105	105	110	110	105	105	105	105	110	105	105	E	105	105
23	100	105	105	105	105	105	105	110	105	105	105	105	105	100	105	105	140	115	110	110	110	105	105	105
24	100	E	105	105	E	140	120	110	105	110	105	105	105	100	100	100	100	110	105	105	105	105	105	105
25	100	100	100	100	100	100	105	120	110	105	105	105	105	105	105	100	105	100	130	110	105	105	100	E
26	100	100	100	100	145	120	125	115	110	135	G	130	125	125	105	100	100	100	100	100	110	105	105	105
27	105	105	105	105	105	G	145	130	120	110	110	110	110	105	110	105	110	105	105	105	105	105	115	100
28	100	100	100	100	100	120	125	115	110	110	105	110	105	110	105	105	G	G	115	105	110	110	105	E
29	105	100	100	100	105	105	145	115	115	105	110	105	105	110	105	G	G	G	135	110	E	110	110	100
30	100	100	100	100	100	100	150	130	110	115	110	105	105	105	100	C	100	100	100	100	100	110	100	E
31																								
No.	28	27	26	25	21	22	26	29	29	29	28	28	28	27	26	25	27	25	29	29	29	29	30	27
Median	100	100	100	100	100	105	130	120	110	110	110	105	105	105	105	105	110	105	110	105	105	105	105	105

h'Es

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1960

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f2	f2	f				h2	h	c2	h	c	c	l	l2	l2	l3	c	h2	h	f2	f2	f4	f2	f
2					f2	h	h2	c2	c2		c		c			l	h2	c2	c3	f3	f4	f2	f2	f3
3	f5	f2	f2	f3	f3	f2	f3	h2	c2	c4	c2	c2	d2	l2	l2	l2	h	c2	c3	f3	f2	f2	f3	f2
4	f2	f		f				h2	h	h	h	c	h						l2	f	f	f4	f3	f4
5	f4	f3	f5	f3	f4	l	c3	c3	c3	h	c2	c2	l	l	c	l	h	h2	c3	f3	f4	f6	f5	f3
6		f2	f2	f2	f	h	h2	c3	c4	c2	c2	c	l	l			h	h2	c2	f3	f4	f2	f	f2
7	f	f		f	f2	h	h2	c2		c	c	d2	d2	d2	d2	hl	c2		h2	f2	f3	f2	f2	f2
8	f3	f2	f4	f2	f2	h2	h	c3	c2	c3	c	c	l	c	c	c2	l	c2l	c3	f3	f2	f3	f4	f3
9	f	f	f2			h	h2	c3	c3	c2	c	c	c	c	c	c2l	l3					f3	f3	f3
10	f	f2	f2	f2			c2	c2	c2	c3	c2	c	c	c2	d2	d2	l	d2	l3	f3	f2	f4	f2	f2
11	f2	f2	f	f2				h2	c2	c	c	c	d2	l	l	d2	d2	d2	d2	f2	f5	f2	f3	f2
12	f	f2	f2	f2			h	c2	c2	c2	l						l	l3	l3	f3	f2	f2	f2	f2
13	f2	f	f2	f			h2	c4	c3	c	c2	c	c2	l	d2	l	d2	d2	d2	f	f2	f2	f2	f2
14	f2		f2	f	f	h	h2	f3	f2	h	c	c	c	c	c	l	d2	d2	d2	f3	f3	f2	f3	f2
15	f2	f2	f	f	f	l	d2h	f2	f2	c0		c2		c	c	c	c2	d2	d2	f2	f	f3	f2	f2
16	f2	f2	f2	f2	f	lh	h	f2	c4	c2	c	l	c	l	h	h	c3	c4	c5	f4	f4	f4	f2	f
17	f	f3	f3	f3	f2	lh		f2	c2	c	c	c	c2	l3	c3	d2	c	c2	c2	f2	f3	f5	f4	f4
18	f2	f4	f3	f2	f2	l	hl	f3	f2	c3	c2	c2	l	h	c3	f2	c2	l3	l2	f	f2	f2	f3	f3
19	f2	f3	f4	f3	f2	lh	f3	c3	c2	c2	c	c3	c2	l3	l2	l2	d2	l3	c3l	f4	f2	f2	f4	f2
20	f2	f	f2		f				c2	c2	c2	c2	c2	c	c2	c	c2	c2	f2	f3	f2	f3	f4	f5
21	f2	f3	f2	f4	f5	l4	f2	f2	c2	c	c	f	c	f	f	f2	f	c2	l2	f5	f3	f4	f3	f2
22	f	f				f2	f3	c2	c2	c2l	c2	c	c	c	l2	c2	l2	l2h	c3l2	f3	f		f	f2
23	f2	f2	f4	f3	f3	l2	l2	c3	c3	c3	c3	l2	l2	l3	l	l2	f	c3	c3	f3	f4	f3	f2	f3
24	f2		f2	f		f2	f2	c2	c3	c	c	l2	l	l	l2	l3	l2	c	l2	f2	f4	f3	f4	f4
25	f	f3	f2	f2	f3	l3	l2h	f2	c2	c2	l	c2	c	l2	l2	l2	l2	l2	f2l	f3	f5	f3	f2	
26	f	f2	f3	f2	f	c2	c	c2	c3	f		f	f	fl	l2	l2	l3	l2	l3	f2	f3	f4	f4	f3
27	f2	f5	f5	f5	f4		f	f2l	f2	c3	c2	c2	c	c2	c	c2	c	l2	l2	f3	f	f3	f5	f2
28	f	f2	f2	f4	f	c2l	f3	c2	c2	c2	c2	c	c	c	l	l			c2	f2	f2	f3	f3	
29	f2	f2	f2	f2	f3	l	f	c2	c2	c2	c2	c	c2	c	l2				f	f		f2	f3	f3
30	f3	f4	f5	f2	f2	l3	f	f	c2	c	c	c	c3	c	l		l3	l3	l3	f3	f3	f2	f2	
31																								
No.																								
Median																								

The Radio Research Laboratories, Japan.

Types of Es

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

A 12

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Jun. 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	6.9	7.0	I 7.0 A	6.8	6.5	6.8	7.0	7.4	7.8	8.5	8.5	9.0	9.3	u 9.6 s	9.1	9.7	9.6	9.8	10.0 R	9.7	J 9.4 F	J 9.0 F	u 9.5 s	10.1
2	u 10.0 s	8.5 R	J 8.5 R	7.4	6.7	7.2	J 8.5 R	9.1	9.4	9.8	9.8	9.8	10.2	10.4	9.8 s	u 10.0 s	9.3	9.2	9.2	8.6	I 8.9 A	8.8 F	u 9.3 F	I 9.4 F
3	u 9.3 F	I 9.2 F	J 9.3 F	u 9.0 F	I 8.7 F	9.1 F	9.0	9.6	10.0	9.7	10.1	10.4	10.8	11.1	10.1	10.2 s	9.8	9.2	8.6	8.2	7.9 s	I 7.9 A	I 8.3 F	I 8.4 F
4	J 8.4 s	7.7	7.6 F	7.0 F	6.4	6.7	8.3	8.8	9.5	8.7	8.4	9.1	10.0	11.0	11.6	11.0	11.5	11.0	I 10.8 s	9.8 s	8.3	I 7.4 s	7.3	8.0
5	8.4	8.3	6.7 F	6.6 R	6.5	7.0	J 8.3 s	8.0	A	A	A	6.4	6.4	7.0	7.2	7.4 s	6.7	6.7	6.5	6.8	6.4 s	u 6.9 s	6.9	6.9
6	7.1	6.5	5.9	5.6 F	5.6 F	6.0	7.4	7.9	J 7.6 R	A	A	I 5.6 A	u 5.8 s	6.2	6.0	6.4	6.8	6.6	6.5	6.6	6.5	6.4 s	6.4 s	6.7
7	6.9	7.4 s	6.6	4.4	4.2	5.5	7.7	I 8.0 C	7.9	8.2	8.5	8.4	8.2	8.3	8.2	9.0	9.3	9.7	9.3	7.9	8.0	8.3 R	J 8.3 s	8.2
8	J 8.0 s	7.8	7.3 s	J 7.7 R	7.4 F	6.8 F	7.5	7.6	I 7.2 A	I 7.0 A	u 6.9 A	8.1	8.9	u 8.9 A	I 8.7 A	8.3	8.4	9.0	7.5	J 6.4 s	u 7.4 s	J 8.2 s	8.1	J 7.6 s
9	u 7.5 s	u 7.3 s	6.8	6.4	6.6	7.3	8.8	9.5	9.0	8.9	9.5	9.3	I 9.2 A	8.8	9.0	8.6 s	9.1	10.5	10.7	u 9.4 s	7.7	u 7.5 R	9.0 F	u 9.2 F
10	u 9.0 s	J 8.4 F	7.4 F	6.8	6.5	7.1	8.4	8.2	8.5	8.6	9.1	9.6	9.7	10.3	J 10.2 R	10.6	10.6	J 10.6 s	10.2	10.0	9.3 s	I 9.0 s	9.2 F	9.5 F
11	J 9.5 s	8.8	8.2	7.4	7.3	8.3	9.7	8.5	8.4	8.8	9.2	9.5	9.7	9.4	9.6	10.2	10.2	J 10.4 s	10.2 s	u 8.5 s	8.8	u 8.0 s	8.4	8.6
12	8.6	8.3	8.0	7.5	7.6	I 7.8 R	7.9 s	9.0	9.6	9.2	9.1	I 9.2 A	10.0	10.8	10.7	u 10.2 R	10.3	10.1	u 10.1 s	9.8	8.4	J 8.7 s	9.4	J 9.7 s
13	u 10.0 F	11.2	8.9 F	8.7 Z	8.4 F	7.4 F	8.7	9.5	10.0	9.8 Z	9.5	9.4	9.8	9.9	10.1 s	9.9	9.8	9.6	8.9	8.9 s	8.9	9.1	9.6 s	9.3
14	9.4 s	9.4	8.4	7.9	7.7	8.9	9.7	10.5 s	10.5	9.5	9.5	10.4	10.2	J 10.4 s	10.6	10.1	9.6 R	I 9.1 A	8.7	8.6	u 8.5 s	8.2 s	8.8 F	8.6
15	J 8.1 s	8.6	8.3 Z	7.3	6.4	6.6	6.3	7.1	7.6	7.6	6.8	I 6.4 A	I 6.5 A	6.8	7.1	I 7.0 A	u 6.9 s	I 7.0 A	7.0	6.9	7.0	7.1	7.1 F	7.1
16	6.8	7.5 F	u 8.5 R	6.2 Z	4.8 F	5.4	7.0	A	A	A	A	I 6.0 A s	6.3 s	6.4	6.5	6.5	7.1	6.6	6.3	I 6.3 A	I 6.8 A	7.2 s	7.4	7.6
17	7.8	J 7.9 s	7.2	6.9	6.5	7.0 R	7.8	8.6	8.4	7.9	7.7	8.2	8.5	I 9.2 A	9.5	9.4	7.8	7.2	7.7	8.1	8.5 s	I 8.2 s	8.3	8.6 F
18	8.4 F	10.0 F	9.1	7.8 F	7.8 F	8.0	8.9	8.6	I 7.8 A	I 8.4 A	9.5	10.3	9.9 s	I 10.1 A	I 9.9 A	u 9.9 s	I 10.0 C	9.2	9.2	9.6 s	9.4	9.6	9.8 s	9.6 s
19	9.1	J 8.1 F	6.9 F	7.0	6.4 F	6.9	8.0 s	7.2	6.2	6.5	7.3	7.9	8.3	I 8.8 A	9.0	8.6	9.3	A	A	A	I 7.6 A	7.2 F	7.7 F	I 7.1 A
20	7.8	6.4 F	6.4 F	6.2	5.9	6.4	8.2	9.3	7.7	8.1	8.1	7.7	6.9	7.4	7.9	8.1	8.3	8.5	9.0	8.8	u 7.9 s	7.0	7.2 F	J 8.0 F
21	J 7.8 F	7.4 F	J 6.8 F	6.0 F	6.0	6.4	8.3	9.3	8.6	7.3 s	7.2	8.0	8.6	9.2	9.5	9.5	9.5	9.2	u 10.3 s	9.4 s	7.4	7.3 s	J 7.8 F	I 7.6 F
22	u 7.7 F	u 7.1 R	7.0	6.6	u 7.2 F	7.7	10.1	u 10.3 s	9.1	u 8.7 s	9.0	8.3	8.3	8.7	10.1	10.5	9.9 s	10.4	11.4	u 10.2 s	8.6	J 8.0 s	J 8.0 s	7.9 F
23	J 8.3 s	I 8.4 F	7.8 F	J 8.0 R	J 8.0 R	8.4	8.5	8.3	8.3	7.6	8.5	8.2	8.8	9.0	9.4	9.4	8.1	8.3	9.3 s	10.1 s	9.2	I 7.4 A	J 8.1 s	8.0
24	7.4	7.1	7.1	7.2	7.2 s	8.1	8.6	8.6	8.5	I 8.0 A	I 7.6 A	7.5 s	7.6	8.6	8.8	J 8.9 s	9.0	8.6	8.9	I 9.3 s	u 9.5 s	8.4 Z	8.8 Z F	I 9.0 F
25	9.1 F	8.0 R	7.7	7.6 F	6.9	6.6	7.0	8.3	7.8	7.7	8.2	8.0 R	8.5	9.7	9.8	9.8	9.4	9.4	J 9.4 s	J 9.9 s	8.9 s	I 8.6 s	8.0	8.0 F
26	u 7.3 s	I 7.0 F	7.2 F	7.9 F	7.1	J 7.1 R	8.2 H	7.2	J 6.5 s	6.5 s	7.3	8.8	8.4	8.3	I 9.1 R	9.8	10.2	9.9	J 10.3 s	8.7	7.3	7.2 s	7.8 F	8.0 F
27	7.5	6.9	6.9	6.9	6.6	6.8	6.7	7.2	7.3	7.6	7.8	8.4	9.1	10.0	10.7	12.2	11.8	10.6	8.1	7.1	7.3	7.2	7.5 s	7.6 s
28	J 6.8 s	6.9	6.6	5.5	5.0	5.5 H	7.5	7.6	7.5	I 6.2 A	I 6.4 A	I 6.4 A	6.7	6.5	I 6.5 A	7.3	7.9	7.7	7.0	6.8	7.3	I 7.8 s	u 8.2 s	8.2
29	8.7	I 8.7 s	J 7.7 s	6.4	5.9	6.0	6.7	7.6	7.8	8.2	8.2	I 8.6 s	8.7 s	9.1	9.6	10.6	10.3	10.2	J 9.4 s	8.2	8.0	I 8.0 s	7.8	8.1
30	8.2	I 8.6 F	8.2 F	8.0	7.6	7.3	7.9	7.8	7.8	8.5	9.7	8.8	u 9.1 s	9.1 s	9.9	9.3	u 8.9 s	8.4	7.5	7.1	7.4	8.3	C	C
31																								
No.	30	30	30	30	30	30	30	29	28	27	27	30	30	30	30	30	30	29	29	29	30	30	29	29
Median	8.2	8.0	7.4	7.0	6.6	7.0	8.2	8.3	8.1	8.2	8.5	8.4	8.8	9.1	9.5	9.6	9.4	9.2	9.2	8.6	8.0	8.0	8.1	8.1
u. a.	9.0	8.6	8.2	7.7	7.4	7.7	8.6	9.2	9.0	8.8	9.5	9.3	9.7	10.0	10.1	10.2	10.0	10.2	10.2	9.6	8.9	8.4	8.9	9.1
L. a.	7.5	7.1	6.9	6.4	6.4	6.6	7.4	7.6	7.6	7.6	7.6	7.9	8.2	8.3	8.7	8.6	8.3	8.4	7.6	7.1	7.4	7.2	7.6	7.6
a. R.	1.5	1.5	1.3	1.3	1.0	1.1	1.2	1.6	1.4	1.2	1.9	1.4	1.5	1.7	1.4	1.6	1.7	1.8	2.6	2.5	1.5	1.2	1.3	1.5

The Radio Research Laboratories, Japan.

foF2

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

IONOSPHERIC DATA

Jun. 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								A	u5.3L	L	A	5.6	5.8	5.3	5.4L	5.2S	5.2L	u5.0L	A					
2						A	A	A	5.5L	A	A	5.5L	5.7L	A	L	A	A	A	A	A				
3								A	A	5.9L	A	A	A	A	5.4L	5.4	4.8							
4							L	L	A	5.8L	5.6L	5.5	5.6	A	5.4L	A	5.2	L	L					
5							L	A	A	A	A	5.3	5.7S	5.1	A	5.2	4.3	u4.5L	A					
6							4.6	A	A	A	A	A	A	u5.2S	u5.1S	4.8S	4.8	u4.6L	L					
7							C	5.4	A	5.6L	5.6L	5.4L	5.5S	5.5L	5.9L	u5.0L	L							
8							u4.2L	u5.0L	A	A	A	A	A	A	A	A	L	A	A					
9							L	A	A	A	A	A	A	A	5.2	AS	A	L	A					
10								A	L	A	5.6L	A	5.7	5.6	5.7L	5.4	L	A	A					
11								L	u5.6L	A	A	6.2L	u6.4L	u5.7L	A	A	A	A	A					
12								A	A	A	A	A	A	5.5	5.5	A	u5.4L	A	A					
13								L	A	A	A	5.7L	A	5.9L	A	A	A	A	A					
14							L	u5.3L	A	A	L	5.6	A	A	A	5.3L	A	A	A					
15							A	4.8	S	A	A	A	A	u5.4S	5.2	A	A	A	A					
16							A	A	A	A	A	A	A	A	A	5.0S	u5.2S	A	A					
17								5.1L	u5.3S	5.3	5.4S	A	A	A	5.3L	5.3	5.1L	u4.8L	L					
18									A	A	A	A	A	A	A	A	C	A	A					
19							A	A	A	A	A	A	A	A	A	A	4.9L	A	A					
20							3.5L	4.1L	4.2L	A	5.4S	5.2L	A	u5.3S	A	A	A	u4.5L	L					
21							u4.2L	A	A	A	5.3	5.2	A	5.2	5.2	5.1	A	A						
22							A	A	A	A	A	5.6L	5.4	S	5.1S	A	A	A	A					
23							L	L	L	5.6L	5.3L	5.4L	5.5	5.2H	5.2	A	u4.8L	A	A					
24									A	A	A	A	5.6L	A	A	A	4.2L	A	L					
25							A	4.7L	A	A	A	5.3S	A	A	u5.2L	A	4.9	4.3	L					
26						A			A	5.1	A	A	A	5.3	B	5.2L	4.8L	u4.4L						
27								4.8	A	A	A	A	A	A	A	A	A	L	A					
28							4.4L	L	A	A	A	A	A	A	A	5.3S	4.9L	4.2L	L					
29							L	A	A	u5.4L	u5.9L	A	A	A	u5.5S	u5.5L	4.9L	L						
30							u4.5L	5.2L	AS	A	5.5L	5.8	u5.7S	A	A	A	A	L						
31																								
No.							6	8	6	6	9	14	11	13	15	13	16	8						
Median							u4.3	4.9	u5.4	5.5	5.5	5.6	5.6	5.3	5.3	5.3	4.9	u4.5						

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

Jun. 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						z.20	z.75	3.20	3.55	3.70	I3.85A	3.90	I4.05A	4.00S	3.65S	I3.35A	3.40R	z.85	B					
2						z.10	z.80	3.20	3.40	3.65	3.90	u3.80A	I3.70A	I3.50A	I3.50A	I3.25A	I3.20A	z.95	S					
3						u2.10A	z.75	3.15	3.60	3.65	u3.80A	I3.65S	I3.60A	A	S	A	3.30	z.75	Iz.10A					
4						B	z.80E	3.10	3.45	3.70	I3.70S	I3.70B	I3.90S	I4.00S	I3.80S	3.60	3.40	A	B					
5						B	z.70	3.25S	3.50	3.65	3.80	3.95S	A	A	A	A	3.45	z.75	A					
6						u2.20R	u2.80A	3.10	3.65	u3.70S	3.90	A	A	A	I3.80A	I3.60A	A	A	A					
7						I2.30B	z.95	I3.25C	3.60	3.60	I3.55A	S	A	A	3.90	3.60	3.40	3.00	Iz.25A					
8						z.50R	z.85	3.20	3.60	3.70	B	A	B	A	I3.90A	I3.35A	A	A	A					
9						I2.15B	z.70	3.20	3.50	A	B	B	u3.95S	I3.95S	u4.35S	4.05	A	A	A					
10						z.15	I2.80A	3.30S	3.55	3.60	I3.80A	I3.90S	I3.95A	A	A	I3.80A	I3.65A	A	A					
11						z.30	z.90	3.20	3.50	I3.75A	A	B	A	A	A	A	A	A	A					
12						B	z.80	3.20	3.60	A	A	A	A	A	A	A	A	A	A					
13						z.10	z.95	3.20	3.60	3.80	3.95	4.00	I3.90A	A	A	A	A	A	A					
14						z.40	z.70	3.20	3.50S	I3.80A	3.95	4.00	u4.00S	A	A	A	A	A	A					
15						A	I2.75A	3.25	I3.50A	3.70	3.95	u3.90S	I3.95B	3.95S	3.80	3.50	3.20	z.65	B					
16						A	z.60	3.20	3.55	3.65	I3.70A	I3.70A	A	A	A	A	3.40	z.80	z.15					
17						B	I2.65R	I3.30A	3.60	3.70	A	A	3.75	I3.70A	3.70	3.60	3.35	z.85	A					
18						I2.10B	z.65	3.30	3.55	3.70	3.70	3.80	I3.90A	u3.85A	u3.80A	3.65	C	A	A					
19						A	z.50	3.10	3.50	3.70	3.80	A	A	A	A	A	A	A	A					
20						z.10	I2.60A	3.15	3.50	3.70	3.80	u3.95S	u4.00S	3.90	3.70	3.45	3.20	z.80	z.20					
21						A	A	I3.10A	3.50	3.65	A	A	S	3.80S	u3.80S	3.50	3.40	A	A					
22						B	z.60	3.05	3.40	3.65	3.70A	I3.70A	3.75S	3.60	I3.40A	A	A	A	A					
23						A	z.65	3.05	3.25	3.50	A	A	u3.90S	I3.75S	I3.70S	A	A	z.70	A					
24						A	z.65	A	A	A	A	A	A	A	A	A	A	z.80	z.20					
25						B	z.50	I3.00A	I3.40A	3.60	3.80	u3.85S	A	A	A	A	A	A	z.25					
26						B	I2.65B	z.95	3.40	3.80	u3.80A	I4.05S	3.90	I3.90S	I3.80B	3.65	3.35	Iz.80S	z.40					
27						A	z.75	3.20	3.60	3.85	3.95	I4.05A	3.90	A	B	3.60	A	A	A					
28						B	z.70	I3.35S	3.90	I3.95A	u4.05A	3.95	A	A	A	A	A	3.00	z.25					
29					B	R	z.75	3.15	3.50	3.90	A	B	A	A	3.85	3.65	u3.30S	I3.00S	B					
30						A	I2.70R	3.20	3.40	3.65	3.85	u3.90S	S	B	A	A	A	A	z.30					
31																								
No.						13	29	29	29	27	21	18	16	17	16	16	14	14	9					
Median						z.15	z.70	3.20	3.50	3.70	3.80	u3.90	u3.90	u3.90	u3.80	3.60	3.40	z.80	z.25					

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

Jun. 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	5.1	8.0	8.4	6.0	7.9	4.3	4.0	5.3	4.2	4.4s	6.3	4.7	4.1	G	4.5	3.8	G	3.6	5.1	9.4s	6.0M	6.4	12.8	5.4
2	4.2	3.4	3.3	3.4	4.9	4.8	6.3	5.4	4.0	6.2	6.1	4.8	4.4	6.3	4.5s	17.8	8.3M	8.4	8.3	6.5	13.0M	6.0M	7.3	6.9
3	8.7	8.8	7.9	6.7	7.2	3.1	3.7	5.5	7.0	5.8	6.3	8.6	8.2	6.4	3.7q	3.7	G	7.9	5.3	5.6	P 6.3s	8.9	7.4	9.0
4	4.9	E	7.4	3.6	7.6	B	G	4.4	4.9	6.0	u 4.4s	4.7s	4.2	5.2	4.8	7.0M	4.2	3.3	4.2	3.2	3.8	4.3	6.3	5.4s
5	5.7	7.7	3.2	7.4	4.2	2.5	4.7	6.5	11.1	8.6	7.2	4.3	5.1	5.3	5.1	3.8	G	3.6	4.7	4.2	4.5	6.8	7.8	5.4
6	6.0	5.7	7.6	1.7	7.3	G	3.1	5.3	7.2	11.5	13.4	8.4	9.4	4.5	3.8	3.6s	3.7	3.9	3.4	5.2M	5.9	5.4	4.0	3.3
7	3.7	E	7.3	B	E	B	G	C	4.8	5.6	4.5	4.5	4.4	5.6	4.5	4.7	4.0	3.2	3.4	2.5	4.7	7.6	7.3	5.2
8	5.4	4.4	E	4.9	7.4	3.4	3.5	4.1	7.0	7.2	6.9	8.4	6.5	9.1	9.0M	6.8	3.8M	4.2	4.4	11.6	8.4	8.3	4.0	3.3
9	3.0	E	2.2	2.3	3.8M	B	G	6.5	7.3	7.7	7.7	6.8	9.7	8.7	G	5.7	9.3	4.5	5.0	4.1	2.1	12.9	4.9	8.2
10	5.3	3.1	2.1	2.8	3.1	G	4.9	6.2	10.2	12.5	5.2s	5.8	4.6s	4.4	4.9	4.5	4.4s	5.4	5.2	4.2	3.9s	3.2	8.4	5.2
11	5.4	5.1	1.9	1.6	1.8	G	3.3	4.0	4.8	5.9	5.9	4.5	6.8	10.9Y	7.2	10.0M	6.4	5.9	4.9	5.9	4.7	3.3	4.4	4.1
12	3.2	2.0	2.4	2.4M	2.0M	B	3.6	6.4	7.9	6.8	7.8	13.3	6.4	4.8	4.8	5.9	4.4	5.5M	5.0	4.1	3.1	2.1	2.3M	5.1
13	4.9M	6.9	4.3	6.0	4.6	2.6	4.0	4.8	7.7	5.3	8.5	5.7	5.7M	6.0	9.3	8.3	6.9	6.0	8.6	5.7	4.7	2.4	3.4	3.3
14	2.7M	2.8	2.6M	2.4	1.8	G	3.7	5.0	5.5	6.1	6.0	5.3	5.9M	6.9	5.5	4.4s	7.3	10.1M	6.1M	3.0	3.5	6.9	8.2	6.0
15	5.1	4.9	2.3	2.6	1.9	3.7	4.4	4.5	4.9M	5.8	6.5	7.1	6.3	5.4	5.2	11.7M	9.0	8.4	9.3	5.6	2.6M	2.2	6.0	3.0
16	2.9	2.5	2.9	1.9	3.6	3.1	5.9	9.4M	11.6	8.7	6.8M	5.2	6.3	8.6	5.8	4.1	5.0	6.1	6.5	9.2M	12.8	8.2	5.0	5.5
17	E	8.9	2.5	2.6	2.9	B	2.6q	3.5	u 4.8s	4.7	4.6	6.6	6.3	12.0	4.4	3.7	3.6	3.7	3.6	3.5	5.4	4.0M	5.4	4.9
18	5.1	5.9	2.4	2.4M	2.4	B	3.4	4.7	8.2	12.8	6.3	10.6	10.5	11.6	9.8	11.0	C	7.8	6.1	3.0	4.0	2.8	4.2	2.8
19	2.8	3.0	5.0	4.4	3.7	2.4	5.5	5.4	5.3	7.3	6.2	6.0	8.8	11.9	7.6	9.2	8.7	13.0	9.9	8.7	12.1	7.0M	5.3	9.1
20	8.0Y	2.4	2.4	2.5	1.6	G	2.8	3.0	G	5.7	4.9	4.7	6.1M	4.7	6.7	5.6M	5.4M	4.0	2.9	5.7M	2.8	5.2	4.8	6.3
21	7.3	4.4M	5.0	2.6	2.9	3.4	3.2	5.8	5.6	7.5	5.1s	8.6	u 5.2s	4.6	4.6	4.4	7.3	5.4	3.9	4.9	7.4	7.0	3.4	8.2
22	3.3	1.8	1.6R	E	2.5	B	4.8	8.0	7.8	9.1	6.5	6.2	4.1s	4.8s	4.6	6.2	9.1	6.2	7.2	4.2	4.2	5.0	2.4	4.6
23	2.4	5.4	2.8	2.0	3.0	2.6	G	3.9	4.7	4.7	4.6	4.0	G	G	4.0	6.6	4.4	4.7	8.9M	4.0	3.1	7.7	4.0	3.0
24	2.3	E	E	3.2	2.6	3.1	4.9	5.1s	7.4	11.4	12.4	9.9	4.4	7.0	8.1	7.4M	3.8M	5.5M	2.8	2.9	3.9	6.1	5.2	5.5
25	4.2	2.2M	2.6	5.9	3.1M	2.4	3.4	4.1	4.9	7.4	6.2	4.6	6.0	10.2	7.3	6.0	5.1	5.0	2.5	4.4	5.3	5.0	5.5	7.2
26	4.9	6.2	2.2	E	E	5.6	3.4	8.0	5.5	4.3	5.0	8.7	8.2	4.6	B	3.0q	2.5q	2.5q	G	2.3	3.3	5.8	7.3	7.6
27	11.9	3.5	4.9	3.8	3.2M	2.1	3.3	4.5	5.0	5.9	5.8	9.5Y	7.4	5.6	7.4M	6.6	8.0	4.7	5.0	4.0	3.0	2.5M	5.1	5.7
28	5.2M	4.6	3.7	2.8	1.8	B	3.4	4.6	8.6	9.5	11.4	10.8	6.3	5.1	8.5	4.1	3.4	2.9q	G	2.6	2.0	2.7	2.4M	3.2M
29	4.7	3.0	3.0	2.1	B	G	G	6.0	5.5s	G	5.7	8.3M	10.5M	11.3M	G	5.8	G	S	3.2	S	3.6	3.6M	2.7M	4.4
30	4.8	6.3	4.4M	4.3	3.9	2.4	G	3.6	P 5.5s	6.3	5.1	4.6	5.7M	6.3	5.6s	6.5	6.5	3.9M	3.2	2.2	2.4	2.0	C	C
31																								
No.	30	30	30	29	29	22	30	29	29	30	30	30	30	30	29	30	29	29	30	29	30	30	29	29
Median	4.9	3.4	2.6	2.6	2.6	2.6	3.4	5.1	P 5.5	6.2	6.2	6.1	6.2	5.8	5.1	5.8	4.4	4.7	5.0	4.2	4.1	5.1	5.0	5.4
U. Q.	5.4	5.7	3.7	4.0	3.6	3.4	4.4	6.1	7.8	8.6	6.9	8.6	7.4	8.7	7.4	7.0	7.3	6.0	6.1	5.8	5.9	6.9	6.8	6.6
L. Q.	3.2	2.4	2.3	2.2	2.0	G	2.8	4.2	4.8	5.7	5.1	4.7	4.6	4.8	4.5	4.1	3.6	3.8	3.4	3.1	3.1	2.8	3.7	3.7
Q. R.	2.2	3.3	1.4	1.8	1.6		1.6	1.9	3.0	2.9	1.8	3.9	2.8	3.9	2.9	2.9	3.7	2.2	2.7	2.7	2.8	4.1	3.1	2.9

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

Jun. 1960

f_bE_s

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	3.5	4.9	A	4.0	2.5	3.6	3.5	4.5	3.7	u 4.4 s	5.5	4.6	E 4.1 R		4.2	3.8		u 3.5 A	4.9	4.0	2.2	4.6	7.6	2.2
2	2.0	2.5	2.0	2.7	3.5	3.7	6.3	5.4	3.9	5.9	5.9	4.6	4.4	6.2	E 4.5 s	8.0	7.5	8.4	8.1	6.3	A	3.9	4.0	5.5
3	6.8	5.3	4.8	5.1	E	3.1	3.4	5.0	5.5	5.2	5.9	7.9	5.3	5.6	E 3.7 s	3.7		3.9	3.6	4.3	3.6	A	3.0	4.7
4	2.0		2.2	3.0	2.3	B		3.6	4.9	5.3	u 4.4 s	u 4.5 s	4.2	5.2	4.6 s	6.6	3.8	2.9	2.5	2.2	3.7	4.0	5.2	4.8
5	4.1	2.7	2.1	2.0	3.4	2.5	4.0	6.4	A	A	A	4.2	4.7	4.4	5.1	3.8		3.5	4.4	3.7	4.2	5.2	5.0	4.0
6	4.9	2.1	2.1	1.6	1.9		2.9	5.3	7.2 s	A	A	A	5.6	4.4	E 3.8 s	u 3.6 s	3.6	3.3	2.9	4.4	3.6	4.8	2.2	2.3
7	2.8		2.1	B		B		C	4.2	5.3	4.1	4.4	4.2	4.6	4.5	4.7	3.7	3.1	3.0	2.2	2.5	2.2	2.1	3.4
8	3.7	2.9		3.9	1.9	3.1	3.2	4.0	A	A	6.3	6.9	6.2	7.7	A	5.8	3.7	4.2	2.7	5.0	6.4	5.9	2.7	2.6
9	2.1		1.8	2.0	3.0	B		5.3	7.0	6.8	6.4	6.7	A	7.4		5.3	7.7	3.8	4.1	3.6	1.9	2.3	1.8	2.2
10	3.5	1.9	1.7	1.2	2.0		4.4	6.1	5.4	6.2	4.6	5.7	E 4.6 s	u 4.4 s	u 4.9 s	4.5	4.3	5.3	5.2	2.6	3.8	E 3.2 s	6.6	3.3
11	2.2	2.2	1.7	1.5	1.7		3.6	3.6	4.7	5.8	5.8	4.5	6.1	5.3	7.2	8.6	5.0	4.8	4.5	u 5.9 s	4.3	2.3	3.0	3.0
12	2.2	1.9	2.0	2.0	1.9	B	3.5	5.3	7.4	6.8	7.9	A	6.4	4.8	4.8	5.9	4.3	3.2	3.6	2.4	2.4	2.1	E	2.7
13	u 4.4 A	5.3	2.9	u 4.4 A	3.5	2.4	3.2	4.1	7.3	5.3	8.5	5.3	5.5	5.4	u 9.0 s	7.6	5.5	5.3	7.5	5.3	u 4.0 s	2.4	2.1	2.5
14	E	2.2	1.7	1.9	1.4		3.6	4.2	5.3	5.5	5.8	4.7	5.6	6.7	5.5	4.4	6.5	A	5.9	2.7	3.4	3.9	2.5	3.2
15	2.4	3.8	2.0	2.5	1.7	3.7	4.2	4.5	u 4.4 s	5.8	6.0	A	A	u 4.8 s	4.2	A	5.2	A	4.5	3.5	2.2	2.2	3.9	2.1
16	2.0	2.0	2.1	1.7	3.0	2.4	4.5	A	A	A	A	u 3.0 s	5.8	5.8	5.5	3.9	4.4	6.0	5.7	A	A	2.2	3.1	2.0
17		1.4	1.8	2.2	2.1	B	E 2.6 s	3.5	u 4.5 s	4.7	u 4.6 s	6.6	6.1	A	4.3	3.7	3.6	3.4	3.1	3.4	4.4	2.7	3.9	3.9
18	2.8	4.3	2.0	1.5	1.9	B	3.0	4.2	A	A	6.0	7.1	8.7	A	A	8.8	C	6.8	6.0	2.6	3.0	1.9	2.3	2.2
19	2.3	2.0	3.9	3.2	3.1	2.4	5.5	4.6	5.2	6.0	6.1	5.3	6.0	A	7.0	6.0	4.2	A	A	A	A	2.2	2.2	A
20	E	2.2	1.9	1.7	1.6		2.8	3.0		5.3	4.5	u 4.5 s	5.7	u 4.5 s	6.4	5.3	5.2	3.4	2.8	3.2	2.5	2.3	3.0	4.6
21	3.6	2.5	1.7	1.5	2.2	2.6	2.9	5.1	5.4	6.0	4.2	4.3	5.2	4.2	u 4.4 s	4.3	7.2	5.2	3.9	4.6	5.0	4.9	2.6	3.9
22	1.9	1.7	E		2.4	B	4.5	6.9	7.6	7.6	6.3	4.6	4.1	E 4.8 s	4.1	5.3	5.5	5.9	6.9	3.5	3.1	2.6	1.9	2.7
23	1.9	1.9	E	1.4	2.5	2.5		3.9	4.5	4.5	4.1	u 4.0 s			4.0	6.3	4.3	4.5 s	8.5 s	3.9	2.2	A	2.2	2.2
24	2.3			2.5	2.5	2.8	3.9	3.9	7.3	A	A	6.6	4.4	6.1	7.9	6.0	3.4	5.4 s	2.7	2.7	3.4	4.9	u 4.0 A	4.6
25	2.2	1.8	2.2	4.2	2.2	2.4	3.4	4.1	4.8	7.2	5.3	u 4.5 s	5.7	5.5	u 4.2 s	6.0	4.4	3.3	G	4.4	5.1	4.0	4.2	5.4
26	3.0	5.0	E			5.5	3.4	6.0	5.4	4.0	5.0	7.6	7.0	4.5	B	3.0 G	E 2.5 G	2.5 G		2.3	3.1	2.7	6.3	6.4
27	3.3	2.2	2.8	2.3	2.0	2.1	3.0	4.3	4.5	5.7	5.4	5.8	6.6	5.4	7.4	5.5	5.0	3.0	4.5	2.2	2.0	E	4.1	4.4
28	3.0	3.0	2.5	2.3	1.8	B	3.1	4.3	5.7	A	A	A	5.5	5.1	A	4.1	3.4	u 2.8 A		2.3	2.0	2.7	E	3.2
29	2.6	2.2	2.8	2.1	B			5.9	u 5.3 s		5.3		7.8	6.2		4.5		S	3.1	S	3.5	3.0	2.0	3.9
30	3.8	3.9	3.5	2.8	3.0	2.3		3.6	5.5	6.2	5.1	u 4.5 s	u 5.3 s	6.2	u 5.5 s	6.3	5.5	3.3	2.6	2.2	2.0	2.0	C	C
31																								
No.	29	26	28	27	27	16	24	29	29	29	30	30	29	28	27	30	25	29	28	29	30	29	29	29
Median	2.6	2.2	2.0	2.2	2.2	2.6	3.4	4.5	5.4	6.0	5.8	5.3	5.6	5.4	4.9	5.3	4.4	4.2	4.2	3.5	3.5	2.7	3.0	3.3

f_bE_s

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

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

Jun. 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	E1.85S	1.30	1.20	1.30	1.20	1.60	1.60	2.10	2.20	2.30	2.85	3.00	2.40	2.20	2.20	2.20	2.50	1.95	3.95	E1.70S	E1.50S	1.35	E1.60S	1.40
2	E1.60S	1.10	1.25	1.20	1.95	1.95	2.20	2.15	2.30	2.30	2.65	2.80	2.65	2.60	2.30	2.20	2.20	2.00	E1.80S	E1.90S	1.25	E1.90S	1.45	1.30
3	1.20	1.35	1.60	1.30	1.45	1.80	2.00	2.10	2.35	2.30	2.60	E3.20S	2.80	2.60	E3.15S	2.30	2.10	2.00	1.70	E1.70S	E1.50S	1.25	1.20	E1.70S
4	1.25	1.20	1.20	1.20	1.40	2.20	1.95	1.90	2.10	2.20	3.10	3.75	3.05	E4.20S	2.80	2.35	2.20	2.10	1.95	E1.50S	E1.45S	E1.95S	1.80	1.50
5	E1.95S	1.30	1.10	1.35	1.20	1.95	2.00	2.15	2.20	2.20	2.50	3.20	3.35	3.30	3.30	2.45	2.50	2.30	1.70	2.40	1.45	1.20	1.20	1.30
6	1.30	1.50	1.20	1.20	1.15	1.95	2.20	2.20	3.00	2.90	2.50	3.15	2.60	2.95	3.10	2.90	2.20	2.00	E1.90S	E1.85S	E1.70S	1.15	E1.45S	E1.30S
7	E1.45S	1.30	1.25	2.00	1.50	2.25	2.05	I2.25C	2.40	2.45	3.10	2.80	3.50	2.60	2.30	2.30	2.50	2.20	2.00	E1.80S	E1.50S	1.25	1.20	1.40
8	1.25	1.60	1.30	1.20	1.20	2.20	1.95	2.10	2.50	2.70	3.90	2.40	3.90	3.40	3.00	2.70	2.40	2.60	2.05	1.80	1.80	1.70	1.60	1.40
9	1.60	1.30	1.50	E1.80S	1.20	E2.60S	1.85	2.10	2.50	2.70	4.00	4.10	3.40	3.90	3.50	2.60	2.50	2.20	1.60	1.60	1.70	1.80	1.20	1.50
10	1.60	1.20	1.15	1.10	1.25	1.80	1.90	2.15	2.20	2.40	2.60	3.00	3.45	3.65	2.60	2.80	2.30	2.20	1.90S	E1.60S	E1.50S	E2.00S	1.40	E1.40S
11	E1.40S	1.25	1.20	1.15	1.20	1.80	2.10	2.20	2.50	2.80	2.80	4.10	3.35	3.50	2.60	2.40	2.60	1.90	E1.90S	1.30	E1.60S	1.20	1.30	1.30
12	1.20	E1.60S	1.10	1.30	1.20	2.25	1.85	2.20	2.60	2.60	E3.70S	3.00	3.60	3.10	3.25	2.90	2.50	2.10	E1.70S	E1.65S	E1.50S	E1.50S	E1.70S	E1.40S
13	E1.50S	E1.30S	1.20	1.60	1.20	2.00	2.00	2.10	2.20	3.25	2.75	3.35	3.10	2.80	2.90	2.30	2.25	2.25	1.80	E1.70S	E1.40S	1.20	1.20	1.20
14	1.40	E1.50S	1.20	1.15	1.15	1.95	1.80	2.00	2.40	2.10	2.70	2.80	2.90	2.60	2.70	2.10	2.20	E2.00S	E1.80S	E1.70S	1.30	E1.60S	E1.65S	1.50
15	1.20	1.20	1.50	1.30	1.25	1.80	2.00	1.90	2.60	2.80	2.60	2.80	4.80	2.70	2.65	2.40	2.70	2.25	1.95	E1.70S	E1.60S	1.20	E1.80S	1.75
16	E1.40S	E1.45S	1.45	1.10	1.40	1.50	1.80	2.10	2.10	2.20	2.60	3.20	3.80	2.50	2.30	2.00	2.10	2.05	1.65	E1.60S	E1.70S	E1.50S	1.20	E1.60S
17	1.40	1.20	1.10	1.20	E1.90S	2.25	2.15	2.20	2.40	2.15	2.50	2.80	2.60	3.55	2.30	2.20	2.20	2.00	1.80	E1.60S	E1.65S	1.45	1.50	1.30
18	1.20	1.25	1.20	1.20	1.10	2.20	1.60	1.60	2.25	2.40	2.40	2.80	2.80	2.60	2.45	2.60	C	2.20	1.60	E1.70S	E1.70S	1.45	1.40	E1.90S
19	E1.60S	1.30	1.45	1.20	1.25	1.80	2.20	2.00	2.25	2.20	2.50	2.50	2.80	2.40	2.70	2.20	2.10	1.80	1.50	1.40	E1.50S	E1.60S	1.35	1.60
20	1.45	1.35	1.25	1.20	1.20	1.95	1.65	2.20	2.25	2.50	2.60	2.95	2.60	2.35	2.50	2.30	2.05	E2.15S	1.70	E1.50S	E1.60S	E1.30S	1.40	E1.90S
21	E1.60S	1.10	1.15	1.25	1.10	1.70	1.80	1.70	1.90	2.20	2.40	2.40	2.50	2.40	2.55	2.20	2.20	1.95	E1.70S	E1.60S	E1.80S	E1.80S	1.20	1.20
22	1.20	1.25	1.60	1.20	1.30	2.20	1.90	1.90	2.00	2.20	2.70	2.70	2.70	2.80	2.15	E2.80S	2.20	E1.90S	1.40	E1.40S	E1.60S	E1.40S	1.45	1.30
23	1.50	1.60	1.20	1.30	1.25	1.70	1.80	2.00	2.10	2.35	2.70	2.50	2.55	2.90	2.55	2.40	2.20	1.75	1.70	E1.50S	1.10	1.25	E1.60S	1.45
24	E1.60S	1.45	1.30	1.25	1.15	1.90	1.80	1.80	2.10	2.20	2.20	2.65	3.00	3.00	E2.80S	2.10	2.20	2.15	1.80	E1.70S	E1.80S	E1.65S	1.30	1.30
25	1.20	1.70	1.50	1.50	1.40	2.05	1.80	E1.70S	2.20	2.50	2.55	3.00	2.80	2.25	2.20	2.15	2.00	2.10	1.90	E1.90S	E1.95S	E1.60S	1.45	1.70
26	E1.60S	1.60	1.95	1.60	1.50	2.20	2.60	2.20	2.30	2.50	2.60	3.20	3.00	2.80	6.10	2.70	2.15	2.20	2.00	1.80	E1.45S	E2.00S	E1.70S	E1.80S
27	1.45	E1.70S	1.50	1.50	1.70	1.80	2.20	2.10	2.50	2.40	2.85	3.70	2.90	3.15	4.90	2.85	2.60	2.20	1.90	E1.70S	E1.55S	E1.60S	E1.95S	E1.60S
28	E1.45S	E1.65S	1.60	1.60	1.60	2.40	1.90	2.95	2.80	3.10	2.90	2.80	3.95	2.95	2.70	2.70	2.30	2.20	1.95	E2.15S	E1.60S	E1.90S	E1.90S	E1.70S
29	E1.90S	E1.90S	1.60	1.60	1.60	2.05	2.15	2.10	2.15	2.80	2.95	5.10	2.80	3.50	3.10	2.80	2.50	2.20	2.20	E2.00S	E1.85S	E1.70S	E1.70S	E1.60S
30	E1.95S	E1.80S	1.60	1.60	1.60	1.80	2.10	2.10	2.40	2.50	2.45	2.90	2.95	4.40	2.80	2.30	2.20	2.15	1.95	E1.50S	E1.95S	1.70	C	C
31																								
No.	16	23	30	29	29	29	30	30	30	30	29	29	30	29	28	29	29	29	28	30	30	30	19	21
Median	1.30	1.30	1.25	1.25	1.25	1.95	1.95	2.10	2.30	2.40	2.60	2.95	2.90	2.80	2.70	2.35	2.20	2.10	1.80	E1.70S	E1.60S	E1.60S	1.35	E1.40S

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

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

Jun. 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	z.55	z.50	I z.70A	z.65	z.75	z.95	3.05	z.80	z.80	z.70	z.70	z.55	z.55	u z.65s	z.60	z.65	z.60	z.75	z.80R	z.70	J z.65F	J z.50F	u z.60s	z.65
2	u z.60s	z.60R	J z.60R	z.60	z.45	z.40	J z.45R	z.55	z.65	z.80	z.75	z.75	z.75	z.80	z.85s	u z.80s	z.90	z.85	z.95	z.75	I z.60A	z.65F	u z.50F	I z.60F
3	u z.60F	I z.70R	J z.80F	u z.45F	I z.60F	z.75F	z.90	z.95	z.70	z.60	z.75	z.70	z.70	z.90	z.70	z.75s	z.85	3.05	z.90	z.80	z.50s	I z.50A	F	AF
4	J z.60s	z.75	z.75F	z.80F	z.80	z.65	z.65	z.60	z.95	z.60	z.50	z.45	z.45	z.55	z.60	z.55	z.45	z.70	I z.60s	z.70s	z.70	I z.35s	z.35	z.65
5	z.55	z.75	z.55F	z.55R	z.60	z.40	J z.50s	z.60	A	A	A	z.35	z.35	z.40	z.60	z.70s	z.70	z.70	z.65	z.65	z.50s	u z.35s	z.40	z.40
6	z.45	z.65	z.55	z.65F	z.50F	z.35	z.45	z.70	R	A	A	I z.20A	I z.35A	z.45	z.35	z.50	z.80	z.75	z.75	z.75	z.55	z.35s	z.35s	z.40
7	z.50	z.85s	3.20	z.55	z.50	z.75	z.80	I z.90C	z.75	z.75	z.75	z.65	z.70	z.65	z.70	z.75	z.80	z.90	z.90	z.75	z.50	z.50R	J z.55s	z.45
8	J z.50s	z.55	z.50s	J z.50R	z.60F	z.35F	z.55	z.75	I z.50A	I z.45A	u z.50A	z.55	z.65	u z.70A	A	z.60	z.55	z.80	z.95	J z.50s	u z.40s	J z.45s	z.60	J z.50s
9	u z.55s	u z.60s	z.65	z.55	z.60	z.75	z.75	z.55	z.80	z.55	z.50	z.55	I z.60A	z.50	z.60	z.45s	z.55	z.65	z.80	u z.80s	z.50	u z.75R	z.35F	u z.70F
10	u z.45s	J z.40F	z.60F	z.55	z.65	z.75	z.85	z.90	z.60	z.65	z.65	z.70	z.60	z.70	J z.55R	z.65	z.75	J z.65s	z.85	z.90	z.70s	I z.65s	z.60F	z.60F
11	J z.75s	z.70	z.70	z.55	z.55	z.25	3.10	z.80	z.65	z.50	z.60	z.55	z.60	z.55	z.55	z.65	z.65	J z.75s	z.85s	u z.80s	z.65	u z.50s	z.55	z.55
12	z.55	z.65	z.75	z.70	z.80	I z.90R	z.75s	z.80	z.70	z.70	z.55z	z.50	z.50	z.50	z.60	u z.55R	z.60	z.70	u z.85s	z.85	z.55	J z.55s	z.55	z.60s
13	u z.60F	z.95	z.95F	z.65z	z.75F	z.70F	z.75	z.80	z.70	z.55z	z.50	z.50	z.45	z.45	z.55s	z.65	z.65	z.80	z.70	z.60s	z.55	z.50	z.70s	z.60
14	z.65s	z.65	z.75	z.50	z.45	z.60	z.70	z.75s	z.75	z.85	z.50	z.60	z.55	J z.60s	z.65	z.65	z.70R	I z.70A	z.70	z.70	u z.65s	z.55s	z.60F	z.65
15	J z.35s	z.65	z.65z	z.85	z.65	z.60	z.60	z.45	z.65	z.65	A	A	A	z.45	z.70	I z.70A	u z.60s	I z.65A	z.75	z.75	z.45	z.50	z.40F	z.55
16	z.40	z.55F	u 3.05R	3.05z	z.50F	z.65	z.70	A	A	A	A	I z.30As	z.35s	z.60	z.45	z.60	z.70	z.70	z.70	I z.60A	I z.50A	z.50s	z.45	z.60
17	z.70	J z.75s	z.70	z.75	z.70	z.85R	z.80	z.70	I z.55A	I z.30A	z.55	z.70	z.55	I z.55A	z.75	z.80	z.60	z.70	z.75	z.70	z.70C	I z.60s	z.65	z.55F
18	z.75F	z.85F	3.10	z.60F	z.70F	z.65	z.80	3.05	z.40	z.60	z.75	z.70	z.70s	I z.65A	I z.70A	u z.75s	I z.70C	z.70	z.70	z.70	z.65	z.60	z.55s	z.60s
19	z.65	I z.75F	z.60F	z.70	z.45F	z.45	z.60s	z.90	z.85	z.75	z.75	z.75	z.65	I z.70A	z.75	z.80	z.90	A	A	A	I z.60A	z.50F	z.60F	I z.55A
20	z.70	z.65F	z.65F	z.65	z.55	z.60	z.65	z.90	z.90	z.70s	z.65	z.70	z.70	z.70	z.65	z.65	z.90	z.80	z.80	z.85	u z.80s	z.45s	z.50F	J z.50F
21	J z.55F	z.60F	J z.80F	z.65F	z.55	z.80	z.80	z.90	z.95	u z.45s	z.90	z.75	z.70	z.50	z.65	z.70	z.75	z.90	z.80	u 3.15s	z.60	J z.50s	J z.60s	z.50F
22	u z.60F	u z.60R	z.70	z.55	u z.50F	z.50	z.85	u 3.10s	3.00	z.50	z.75	z.65	z.70	z.70	z.65	z.85	z.75	z.75	I z.70A	z.90s	u z.85s	z.85z	z.55z	I z.45F
23	J z.65s	I z.75F	z.75F	J z.75R	J z.90R	3.10	z.95	z.90	3.00	I 3.00A	I z.65A	z.80s	z.65	z.70	z.85	J z.80s	z.85	z.80	z.70	I z.80s	u z.80s	I z.80s	z.65	z.60F
24	z.55	z.65	z.55	z.50	z.65s	z.80	3.20	z.90	3.00	z.75	z.70	z.75R	z.65	z.80	z.75	z.75	z.80	z.95	J z.85s	J z.75s	z.80s	I z.80s	z.60F	z.70F
25	z.65F	z.65R	z.60	z.65F	z.70	z.90	z.70	z.80	3.00	z.75	z.70	z.75	z.80	z.65	I z.65R	z.60	z.75	z.75	J z.70s	z.85	z.60	z.50s	z.60F	z.70F
26	u z.60s	I z.50F	z.50F	z.65F	z.70	J z.85R	z.85H	z.80	J z.75s	z.50s	z.50	z.70	z.80	z.65	z.50	z.70	z.80	z.85	z.85	z.80	z.50	z.50	z.70s	z.75s
27	z.65	z.70	z.65	z.75	z.75	z.95	3.15	z.80	z.90	z.75	z.70	z.75	z.35	z.50	z.30	z.70	z.75	z.85	z.85	z.65	z.50	I z.55s	u z.45s	z.45
28	J z.80s	z.60	z.90	z.55	z.50	z.20H	z.70	z.75	z.90	I z.60A	I z.50A	I z.55A	z.65	z.50	I z.70A	z.60	z.70	z.75	J z.85s	z.70	z.60	I z.65s	z.45	z.45
29	z.65	I z.85s	J z.85s	z.65	z.55	z.65	z.55	z.75	z.70	z.60	z.55	I z.80s	z.70s	z.60	z.60	z.70	z.70	z.75	z.85	z.80	z.40	z.50	C	C
30	z.60	I z.50F	z.70F	z.65	z.75	z.55	z.65	z.55	z.30	z.35	z.70	z.60	u z.65s	z.70s	z.75	z.90	u z.80s	z.95	z.80	z.55				
31																								
No.	30	30	30	30	30	30	30	29	27	27	26	29	29	30	29	30	30	29	29	29	30	30	28	28
Median	z.60	z.65	z.70	z.65	z.60	z.70	z.75	z.80	z.75	z.60	z.65	z.65	z.65	z.60	z.65	z.70	z.70	z.75	z.80	z.75	z.60	z.50	z.55	z.60

(M3000)F2

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

The Radio Research Laboratories, Japan.

K 7

IONOSPHERIC DATA

Jun. 1960 | (M3C00)F1 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A	u3.40L	L	A	3.40	3.30	3.40	3.50L	3.35S	3.75L	u3.70L	A					
2						A	A	A	3.75L	A	A	3.45L	3.35L	A	L	A	A	A	A	A				
3								A	A	3.40L	A	A	A	A	3.40L	3.50	3.55							
4							L	L	A	3.30L	3.40L	3.75	3.75	A	L	A	3.10	L	L					
5							L	A	A	A	A	3.55	3.60S	3.50	A	3.75	3.75	u3.30L	A					
6							3.05	A	A	A	A	A	A	u3.45S	u3.50S	3.50S	3.35	u3.25L	L					
7								C	3.50	A	3.40L	3.40L	3.70L	3.45S	3.30L	3.70L	u3.40L	L						
8							u3.35L	u3.40L	A	A	A	A	A	A	A	A	L	A	A					
9							L	A	A	A	A	A	A	A	3.45	AS	A	L	A					
10								A	L	A	3.40L	A	3.35	3.40	A	3.35	L	A	A					
11								L	u3.30L	A	A	3.75L	A	A	A	A	A	A	A					
12								A	A	A	A	A	A	3.30	3.75	A	u3.15L	A	A					
13								L	A	A	A	3.35L	A	A	A	A	A	A	A					
14							L	u3.40L	A	A	A	3.20	A	A	A	3.40L	A	A	A					
15							A	A	S	A	A	A	A	u3.35S	3.45	A	A	A	A					
16							A	A	A	A	A	A	A	A	A	3.40S	u3.45S	A	A					
17								3.35L	S	3.30	2.45S	A	A	A	3.75L	3.35	3.35L	L	L					
18									A	A	A	A	A	A	A	A	C	A	A					
19							A	A	A	A	A	A	A	A	A	A	3.15L	A	A					
20							3.70L	3.70L	4.05L	A	3.35S	3.45L	A	u3.55S	A	A	A	u3.35L	L					
21							u3.55L	A	A	A	3.60	3.45	A	3.45	3.75	3.75	A	A						
22							A	A	A	A	A	3.40L	3.60	S	3.55S	A	A	A	A					
23							L	L	L	3.75L	3.60L	3.35L	3.30	3.65H	3.45	A	A	A	A					
24									A	A	A	A	3.30L	A	A	A	3.80L	A	L					
25							A	3.45L	A	A	A	3.40S	A	A	u3.75L	A	3.30	3.50	L					
26						A			A	3.55	A	A	A	3.65	B	3.75L	3.35L	L						
27								3.35	A	A	A	A	A	A	A	A	A	L	A					
28							3.20L	L	A	A	A	A	A	A	A	3.75S	3.75L	3.35L	L					
29							L	A	A	u3.50L	A	A	A	A	u3.75S	u3.75L	3.40L	L						
30							u3.55L	3.15L	AS	A	3.45L	3.25	u3.35S	A	A	A	A	L						
31																								
No.							6	7	5	6	8	14	10	11	13	13	15	6						
Median							u3.45	3.40	3.40	3.35	3.40	3.40	3.35	3.45	3.40	3.35	3.35	u3.30						

(M3000)F1 Sweep 4.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

IONOSPHERIC DATA

Jun. 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								300	350	335	355	390	390	355	380	355	350	320	305					
2						400	400	330	355	370	320	340	340	340	320	E350A	E350A	E400A	E360A	340A				
3								255	300	330	350	355	350	310	335	325	305							
4							295L	L	290	380	410	410	405	375	355	355	380	310	300					
5							355	405	A	A	A	530	530	480	470	380	380	355	E360A					
6							410	355	E455A	A	A	A	A	500	545	460	380	355	300L					
7								C	330	355	355	390	380	390	380	370	375	305						
8							350	340	A	A	E500A	E415A	380	E405A	A	E395A	380	305	260					
9							305	295	E345A	E375A	E375A	E410A	A	E475A	390	430	E425A	350	300					
10								320	350	350A	355	355	385	355	360	355	325	320	300A					
11								260	355	390A	370	380	390	375	E395A	E400A	330A	310A	290					
12								300	E345A	350A	E455A	A	400A	380	355	355	355	330A	300					
13								310	350A	320	E460A	380	400	390	E450A	E380A	320A	300	E380A					
14							310	305	300	300	400	370	355	360A	355	345	345A	A	E350A					
15							310	425	380	380	E450A	A	A	500	410	A	410A	A	E350A					
16							345A	A	A	A	A	AS	E545A	E460A	500	430	375	A	E420A					
17								325	345	390	435	440	410	A	355	330	350	350	310					
18									A	A	395	355	E400A	A	A	E400A	C	E350A	E340A					
19							375	300A	E460A	E450A	390	375	380	A	360A	355A	E320A	A	A					
20							290	300	275	355	370	325	405	415	E390A	370	335	330	300					
21							325	295	300	E360A	395	375	375	355	355	350	E350A	325						
22							300	275	E345A	E470A	325	370	390	405	365	345	355	320A	E310A					
23							260	315	310	420	370	380	370	365	355	330	345	350	E400A					
24									E330A	A	A	E390A	395	360	E400A	355	310	305	305					
25							260A	330	300	E445A	355	390	360	350	340	325	325	325	280					
26						325			E395A	450	405	E420A	380A	390	385	370	340	310						
27								350	300A	360	355	375	450A	400	470	355	305	295	270					
28							370	355	330A	A	A	A	430	465	A	405	355	350	305					
29							375L	370	345	395	445	A	E440A	380	395	350	345	305						
30							335	405	455	460	350	400	380	395	355	330	340A	310						
31																								
No.						2	18	24	20	19	20	20	24	24	23	25	26	23	14	1				
Median						360	330	320	330	E360	370	380	390	380	360	355	345	320	300	340				

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

Jun. 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	3.55A	E3.90A	I3.55A	3.50A	3.00	z60	z50	Iz70A	z50	Iz45A	Iz45A	z50	z30	Ez60S	z60	z55	z50	z60	Iz65A	3.00A	z95	E3.50A	3.95A	3.05
2	3.00	z85	z70	z80	3.55	A	A	A	z45	Iz50A	Iz40A	z50	z45	Iz40A	S	A	A	A	A	A	A	3.30A	3.50A	E3.60A
3	E4.00A	E3.90A	3.00A	E3.95A	z95	z60	z50	Iz50A	A	Ez80A	A	A	A	Iz45A	z70	z30	z45	z70A	z70A	z80A	z95A	I3.50A	3.40A	E3.50A
4	3.00	z90	z80	3.00A		z45	z55	z50	Iz60A	Ez30A	z40	z50	z45	Iz40A	E3.00A	Iz55A	z50	z60	z65	z50	z70A	E3.80A	E4.10A	3.20A
5	3.60A	z90	3.05	3.00	3.40	z90	z60	A	A	A	A	z30	z60A	z45	Iz50A	z45	z50	z55	Iz95A	3.05A	E3.70A	E4.20A	E4.50A	E3.95A
6	3.95A	3.05	3.05	3.15	3.30	z90	z60	A	A	A	A	A	A	z55	z50	Ez50S	z45	z50	z50A	E3.40A	3.30A	E4.40A	3.75	3.60
7	3.50	z70	z50	z60	3.35	z80	z50	Iz50C	z10	Iz55A	z30	z20	z25	z50	z60A	z50	z50	z50	z70	z60	3.20	3.25	3.10	3.50A
8	3.60A	3.45	3.20	3.50A	z90	3.20	z80	z55	A	A	A	A	A	A	A	A	z55	A	A	E4.00A	E4.75A	E4.10A	3.05	3.30
9	3.00	3.00	3.00	3.10	E3.25A	z80	z50	A	A	A	A	A	A	A	z55	I3.00S	I3.00A	Ez95A	A	z55	z95	4.00	3.55	3.35
10	3.30	3.10	z95	3.00	z95	z75	3.00	Iz90A	E3.00A	Iz50A	z50	Iz60A	z55	z45	E3.00S	z55	z70	A	A	z70	z95A	E3.00S	E4.05A	3.30A
11	z95	z95	z90	z80	3.10	z80	z50	z45	Ez90A	Iz60A	Iz50A	z20	Iz40A	E3.65A	A	A	A	A	A	E3.00A	3.20A	z95	3.45A	3.50A
12	3.30	3.10	z90	z80	z75	z45	z55	Iz80A	A	A	A	A	A	z60	z45	A	E3.00A	A	A	z70	z70	3.20A	3.10	3.30A
13	E3.50A	3.00A	z50	3.30A	z90	z45	z65	z50	A	A	A	E3.00A	A	Ez75A	A	A	A	A	A	E3.30A	E3.50A	3.50	3.00	3.05
14	3.00	3.00A	z90	3.15	3.20	z60	z55	z50	A	A	A	E3.00A	A	A	Iz60A	z55	A	A	A	z80A	3.10A	E3.50A	3.20	3.20A
15	E3.80A	3.30A	z70	z60	z55	E3.00A	A	A	z50S	A	A	A	A	E3.00S	z50	A	A	A	A	3.00A	3.10	3.30	E3.90A	3.20
16	3.50	3.10	z55	z40	E3.60A	z55	A	A	A	A	A	Izz5S	A	A	A	z50	z50	A	A	A	A	E3.50A	3.60A	3.00
17	z95	z60	z90	z80	z95	z70	z45	z30	Iz60S	E3.00A	z50S	A	A	A	z55	z50	z35	z55	3.00	3.00A	3.00A	3.10A	3.40A	E3.50A
18	3.45A	3.00A	z50	z90	3.00	z60	z55	z60	Iz60A	Iz40A	A	A	A	A	A	A	C	A	A	z80	z80	z95	3.05	3.20A
19	3.00	z80A	E3.45A	3.00A	E3.50A	z95	A	A	A	A	A	A	A	A	A	A	3.00A	A	A	A	A	3.55A	z90	I3.40A
20	z90	z95	3.10	z90	3.00	z50	z50	z30	z20	Iz40A	z55A	z50	Iz55A	z55S	A	A	Iz60A	z45	Ez80A	z60	z55	3.30	3.60A	E4.00A
21	3.45A	3.00A	z70	3.00	3.20	z70	z55	A	A	A	z10	z45	Iz60A	z50A	z70A	E3.00A	Iz60A	Iz60A	z95	z60A	E3.50A	E4.00A	3.60A	E3.50A
22	3.45	3.00	z90	3.25	3.45	z75	A	A	A	Iz30A	Iz40A	z50	z05	Iz20S	z25	A	A	A	A	z50A	z60A	3.05	3.00	3.70A
23	3.10	3.00	z80	z90	z90	z50	z25	z50A	Ez90A	z50	z05	z45S	z25	z10H	z40	Iz50A	E3.00A	A	A	z80A	z40	I3.40A	3.10	z90
24	3.05	z10	3.20	3.50	3.00	z60	z50	z60	A	A	A	A	z60A	A	A	A	z45	Iz55A	z75	z75	z80	3.05A	E3.50A	E3.55A
25	z80	3.00	3.00	E3.20A	z75	z75	Iz50A	E3.00A	A	A	A	z50	Iz50A	Iz55A	z55	Iz40A	E3.00A	z50	z55	Ez90A	E3.00A	E3.00A	E3.30A	E3.90A
26	3.50	E4.00A	3.40	3.25	3.00	Iz85A	z50H	E3.50A	Iz60A	z40	A	A	A	z45	Iz45B	z30	z50	z60	z55	z70	z60	3.55A	E4.05A	E3.85A
27	3.30	3.00A	3.20A	z80	z80	z70	z60	Ez95A	Iz50A	Iz65A	A	A	A	A	A	A	A	z50	Iz55A	z60	3.05	3.20	3.50A	E3.30A
28	z70	3.45A	z95	3.05	3.55	z95H	z60	E3.15A	A	A	A	A	A	Iz50A	Iz40A	z50	z55	z50	z75	z85	3.20	3.20A	3.45	3.75
29	3.20	z70	z70	3.00	3.25	z70	z55	Iz60A	Iz50A	z10	E3.50A	A	A	Iz60A	z45	z65	z45	z50	z55	z60	3.20A	3.00	3.30	E3.90A
30	3.60A	E3.50A	3.40	3.00	3.00	z70	z50	z50	AS	A	E3.90A	z45	Ez95S	A	A	A	A	z50	z60	z80	3.30	3.45A	C	C
31																								
No.	27	26	29	28	27	28	25	17	11	12	11	14	13	16	17	16	18	16	15	22	22	22	23	19
Median	3.30	3.00	z90	3.00	3.00	z70	z55	z50	U z50	U z50	z40	z50	z45	z50	z50	z50	z50	z50	z65	z70	z95	3.20	3.40	3.30

h'F

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

The Radio Research Laboratories, Japan.

K 10

IONOSPHERIC DATA

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

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

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

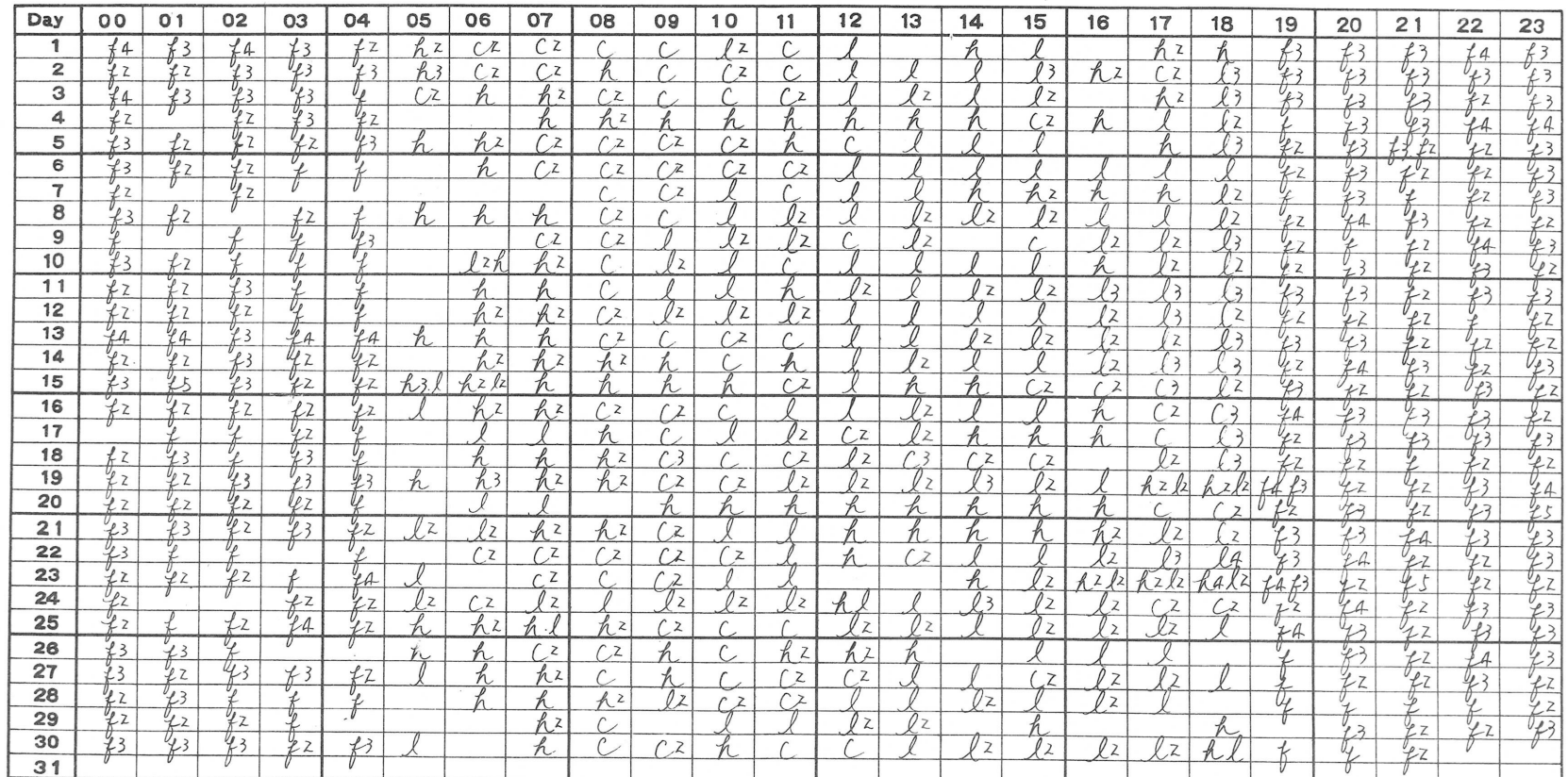
Jun. 1960

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	f4	f3	f4	f3	fz	hz	cz	cz	C	C	lz	C	l		h	l		hz	h	f3	f3	f3	f4	f3
2	fz	fz	f3	f3	f3	h3	Cz	Cz	h	C	Cz	C	l	l	l	l3	hz	Cz	l3	f3	f3	f3	f3	f3
3	f4	f3	f3	f3	f	Cz	h	hz	Cz	C	C	Cz	l	lz	l	lz		hz	l3	f3	f3	f3	fz	f3
4	fz		fz	f3	fz			h	hz	h	h	h	h	h	h	Cz	h	l	lz	f	f3	f3	f4	f4
5	f3	fz	fz	fz	f3	h	hz	Cz	Cz	Cz	Cz	h	C	l	l	l		h	l3	fz	f3	f3 fz	fz	f3
6	f3	fz	fz	f	f		h	Cz	Cz	Cz	Cz	Cz	l	l	l	l	l	l	l	fz	f3	fz	fz	f3
7	fz		fz						C	Cz	f	C	l	l	h	hz	h	h	l2	f	f3	f	fz	f3
8	f3	fz		fz	f	h	h	h	Cz	C	l	lz	l	lz	lz	lz	l	l	l2	fz	f4	f3	fz	fz
9	f		f	f	f3			Cz	Cz	l	lz	lz	C	lz		C	lz	lz	l3	fz	f	fz	f4	f3
10	f3	fz	f	f	f		lzh	hz	C	lz	l	C	l	l	l	l	h	lz	l2	fz	f3	fz	f3	fz
11	fz	fz	f3	f	f		h	h	C	l	l	h	lz	l	lz	lz	l3	l3	l3	f3	f3	fz	f3	f3
12	fz	fz	fz	f	f		hz	hz	Cz	lz	lz	lz	l	l	l	l	l2	l3	l2	fz	f2	fz	f	fz
13	f4	f4	f3	f4	f4	h	h	h	Cz	C	Cz	C	l	l	lz	lz	l2	l2	l3	f3	f3	fz	fz	fz
14	fz	fz	f3	fz	fz		hz	hz	hz	h	C	h	l	lz	l	l	l2	l3	l3	fz	f4	f3	fz	f3
15	f3	f5	f3	fz	fz	h3l	hzlz	h	h	h	h	Cz	l	h	h	Cz	Cz	C3	l2	f3	fz	fz	f3	fz
16	fz	fz	fz	f2	fz	l	hz	hz	Cz	Cz	C	l	l	lz	l	l	h	Cz	C3	f4	f3	f3	f3	fz
17		fz	f	f2	f		l	l	h	C	l	lz	Cz	lz	h	h	h	C	C3	fz	f3	f3	f3	f3
18	fz	f3	f	f3	f		h	h	hz	C3	C	Cz	lz	C3	Cz	Cz		lz	l3	fz	f	f	f	fz
19	fz	fz	f3	f3	f3	h	h3	hz	hz	Cz	Cz	lz	lz	lz	l3	lz	l	hzlz	hzlz	fa f3	fz	fz	f3	f4
20	fz	fz	fz	fz	f		l	l		h	h	h	h	h	h	h	h	C	Cz	f2	f3	fz	f3	f5
21	f3	f3	fz	f3	fz	lz	lz	hz	hz	Cz	l	l	h	h	h	h	hz	lz	lz	f3	f3	f4	f3	f3
22	f3	f	f		f		Cz	Cz	Cz	Cz	Cz	l	h	Cz	l	l	lz	l3	la	f3	f4	fz	f	f3
23	fz	fz	fz	f	fa	l		cz	C	Cz	l	l			h	lz	hzlz	hzlz	halz	fa f3	fz	f5	fz	fz
24	fz			fz	fz	lz	cz	lz	l	lz	lz	lz	hl	l	l3	lz	lz	Cz	Cz	f2	f4	fz	f3	f3
25	fz	f	fz	f4	fz	h	hz	h.l	hz	Cz	C	C	lz	lz	l	lz	lz	lz	l	f4	f3	fz	f3	f3
26	f3	f3	f			h	h	Cz	Cz	h	C	hz	hz	h		l	l	l		f	f3	fz	f4	f3
27	f3	fz	f3	f3	fz	l	h	hz	C	h	C	Cz	Cz	l	l	cz	lz	lz	l	f	fz	fz	f3	fz
28	fz	f3	f	f	f		h	h	hz	lz	cz	Cz	l	l	lz	l	lz	l		f	f	f	f	fz
29	fz	fz	fz	f				hz	C		f	l	lz	lz		h			h	f	f	fz	fz	f3
30	f3	f3	f3	fz	f3	l		h	C	Cz	h	C	C	l	lz	lz	lz	lz	hl	f	f	fz		
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

K 12

IONOSPHERIC DATA

Jun. 1960 | hpF2 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	400	440	I390A	390	360	305	300	350	360	380	380	410	410	u390s	400	400	395	380	355R	380	J380F	J450F	u400s	400
2	u380s	395R	J400R	400	445	450	J445R	400	395	355	365	360	375	355	360s	u360s	350	A	A	355	I390A	400F	u410F	I400F
3	u400F	I375F	J350F	u455F	I405F	355F	345	310	380	390	390	380	395	340	380	355s	350	330	330	345	410s	I425A	F	AF
4	J400s	375	365F	355F	355	355	350	395	330	405	445	450	450	405	400	405	450	400	I390s	375s	370	I450s	455	400
5	445	360	400F	405R	400	455	J410s	425	A	A	A	G	G	490	425	400s	400	395	395	395	440s	u455s	470	455
6	450	390	405	395F	420F	455	445	395	R	A	A	A	A	G	G	G	380	375	360	355	400	460s	455s	450
7	420	350s	295	400	430	355	345	I345C	380	385	370	400	400	400	400	390	355	350	335	360	440	420R	J405s	435
8	J445s	415	420s	J445R	400F	450F	400	360	I440A	I480A	G	G	400	A	A	410	420	355	325	J435s	u475s	J470s	390	J410s
9	u395s	u405s	395	425	410	360	355	415	350	415	420	425	I410A	A	400	455s	I435A	390	345	u345s	435	u490R	480F	u420F
10	u445s	J450F	405F	405	395	350	345	340	395	390	395	390	405	395	J400R	395	355	J385s	355	350	380s	I400s	445F	400F
11	J380s	390	380	400	405	350	300	345	395	440	400	400	400	400	410	A	385	J355s	340s	u350s	395	u425s	425	440
12	440	400	380	365	355	I330R	350s	375	355	355	A	I445A	450	425	400	u400R	400	375	u350s	340	405	J400s	405	J400s
13	u400F	330	330F	380Z	350F	350F	355	355	380	400Z	A	420	440	430	I400A	400	390	360	I360A	395s	410	450	390s	390
14	395s	390	360	410	430	395	395	355s	355	350	445	400	400	J405s	395	390	380R	I400A	385	380	u395s	430s	410F	400
15	J455s	395	385Z	345	365	390	400	450	400	400	A	A	A	G	G	I370A	u410s	I400A	385	375	430	410	450F	405
16	445	405F	u310R	300Z	445F	395	390	A	A	A	A	AS	A	A	A	G	380	A	A	A	A	440s	455	400
17	395	J375s	375	350	375	340R	350	375	355	400	430	450	445	I420A	390	355	365	380	365	390	375s	I400s	400	410F
18	445F	360F	305	400F	400F	395	350	320	I380A	I480A	440	395	A	A	A	A	C	385	380	375s	370	400	405s	400s
19	390	I395F	405F	390	425F	430	400s	435	A	A	A	395	400	A	390	380	355	A	A	A	I415A	355F	395F	I410A
20	380	395F	400F	385	400	395	390	340	340	390	390	350	405	415	395	395	355	360	355	340	u345s	445	450F	J455F
21	J400F	400F	J355F	400F	400	350	355	350	340	A	400	400	400	390	395	395	385	375	u350s	305s	400	440s	J455F	I440F
22	u430F	u390R	380	440	u440F	430	350	u300s	330	A	350	395	400	445	400	380	400s	355	355	u300s	350	J405s	J400s	450F
23	J400s	I390F	370F	J380R	J350R	300	320	350	335	440	395	400	400	395	390	355	375	385	A	335s	300	I380A	J390s	370
24	400	400	405	415	390s	355	300	320	A	I330A	I390A	S	400	390	A	J360s	355	355	395	I355s	u345s	350Z	445FZ	I395F
25	400F	400R	400	390F	385	330	375	355	315	A	380	400R	400	375	375	355	355	355	J345s	J345s	355s	I370s	400	410F
26	u410s	I425F	400F	400F	390	J350R	380H	A	A	450s	430	A	A	400	I415R	400	370	380	J355s	350	390	450s	405F	400F
27	400	385	400	365	355	310	300	365	350	390	400	395	490	445	500	400	360	335	350	355	430	420	395s	365s
28	J345s	400	350	400	450	530H	400	380	350	A	A	A	A	G	A	405	390	355	350	J350s	440	I430s	u450s	455
29	390	I350s	J345s	380	405	395	410	A	355	400	450	I380s	A	405	425	390	385	355	J350s	380	400	I395s	445	450
30	445	I430F	395F	385	380	400	375	430	495	500	380	405	u400s	395s	390	355	u355s	350	345	400	450	445	C	C
31																								
No.	30	30	30	30	30	30	30	27	24	22	21	22	22	22	23	26	29	27	26	28	29	30	28	28
Median	400	395	380	400	400	360	355	355	355	400	395	400	400	400	400	390	380	375	355	355	400	425	410	410

The Radio Research Laboratories, Japan.

hpF2 | Sweep 4.0 Mc to 26.0 Mc in 20 ~~min~~ sec in automatic operation.

K 13

45

IONOSPHERIC DATA

Jun. 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	105	110	I 80A	105	130	145	105	145	95	120	120	140	120	u 100S	105	105	105	120	140R	115	J 75F	J 55F	u 95S	85
2	u 115S	150R	J 105R	145	135	150	J 150R	155	105	140	140	140	120	95	125S	u 120S	95	A	A	140	I 110A	85F	u 135F	I 95F
3	u 95F	I 70F	J 50F	u 140F	I 120F	90F	100	195	120	105	95	125	85	105	115	120S	110	110	110	110	135S	I 120A	F	AF
4	J 100S	105	125F	125F	100	150	145	155	115	150	150	145	145	140	105	145	100	105	I 150S	130S	125	I 130S	155	100
5	100	135	150F	145R	105	145	J 180S	120	A	A	A	G	G	110	105	135S	95	105	100	200	155S	u 150S	120	145
6	100	115	185	100F	85F	140	110	105	R	A	A	A	A	G	G	G	70	80	125	145	145	140S	140S	145
7	135	95S	65	160	120	100	105	I 165C	100	95	110	100	100	95	100	100	100	105	75	140	110	125R	J 105S	110
8	J 100S	125	130S	J 60R	145F	150F	145	135	I 125A	I 135A	G	G	100	A	A	95	130	100	105	J 90S	u 115S	J 150S	120	J 120S
9	u 130S	u 120S	100	80	120	165	145	130	125	135	125	80	I 120A	A	100	140S	I 130A	120	110	u 155S	135	u 150R	150F	u 145F
10	u 155S	J 150F	145F	95	85	145	80	130	150	155	105	100	100	100	J 100R	105	140	J 110S	100	105	120S	I 95S	100F	85F
11	J 70S	105	115	150	105	90	90	115	110	115	150	150	105	145	125	A	110	J 130S	115S	u 150S	110	u 135S	120	70
12	110	100	115	130	100	I 100R	145S	120	140	135	A	I 120A	130	165	120	u 110R	105	105	u 90S	110	145	J 105S	140	J 100S
13	u 100F	70	110F	75Z	100F	150F	145	130	115	190Z	A	135	150	160	I 120A	100	110	120	I 130A	110S	140	140	105S	105
14	100S	105	95	140	120	145	105	100S	135	140	105	105	150	J 140S	105	105	115R	I 100A	110	120	u 100S	120S	135F	95
15	J 140S	100	115Z	110	130	170	150	145	105	155	A	A	A	G	G	I 160A	u 135S	I 125A	110	120	125	140	140F	135
16	125	95F	u 95R	100Z	100F	200	160	A	A	A	A	AS	A	A	A	G	115	A	A	A	A	110S	140	100
17	100	J 120S	120	105	80	110R	105	120	95	100	115	145	110	I 120A	110	135	135	120	130	105	120S	I 130S	105	100F
18	100F	95F	75	100F	100F	105	145	85	I 115A	I 140A	110	100	A	A	A	A	C	110	110	120S	130	100	95S	95S
19	110	I 110F	140F	105	170F	120	100S	120	A	A	A	110	100	A	115	105	50	A	A	A	I 140A	190F	105F	I 90A
20	125	140F	100F	115	145	155	155	105	160	110	105	150	140	85	110	105	100	125	140	115	u 130S	125	145F	J 90F
21	J 105F	105F	J 100F	100F	100	145	140	95	105	A	115	95	95	105	100	105	110	120	u 130S	90S	120	110S	J 140F	I 155F
22	u 115F	u 110R	110	105	u 105F	125	70	u 95S	100	A	110	100	90	115	105	115	150S	95	100	u 95S	105	J 150S	J 100S	145F
23	J 100S	I 110F	85F	J 115R	J 80R	95	130	65	80	155	100	105	105	100	110	100	115	115	A	110S	100	I 120A	J 110S	125
24	105	100	140	130	110S	145	100	130	A	I 105A	I 140A	S	100	110	A	J 90S	90	100	105	I 120S	u 95S	60Z	I 100FZ	110F
25	100F	135R	145	110F	115	120	145	100	130	A	135	100R	105	80	90	140	140	140	J 100S	J 105S	115S	I 135S	120	110F
26	u 85S	I 120F	135F	95F	105	J 95R	65H	A	A	95S	120	A	A	125	I 95R	120	125	125	J 190S	125	155	140S	95F	100F
27	100	105	100	125	95	135	105	130	95	105	100	100	115	150	145	95	130	110	105	140	125	125	120S	125S
28	J 100S	95	75	100	100	120H	100	115	95	A	A	A	A	G	A	100	105	95	105	135	110	I 120S	u 145S	110
29	105	I 110S	J 105S	100	95	105	140	A	120	110	100	I 70S	A	105	75	105	115	135	J 90S	125	145	I 120S	155	100
30	100	I 115F	100F	115	100	140	125	125	120	105	120	95	u 95S	90S	105	90	u 105S	55	110	200	145	120	C	C
31																								
No.	30	30	30	30	30	30	30	27	24	22	21	22	22	22	23	26	29	27	26	28	29	30	28	28
Median	100	110	110	110	105	140	130	120	115	130	115	105	105	110	105	105	110	110	110	120	125	125	120	100

ypF2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 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	U7.0S	J7.3S	7.4S	I6.6S	6.0	5.8F	6.4	U7.3S	8.0	8.2	7.7	8.7	9.5	9.4	9.4	9.8S	10.3	10.6	10.3	I9.4S	I9.0A	9.0	A	S
2	S	S	8.7	7.9	6.4	6.3	U7.2H	9.2	9.3S	9.2S	9.7	10.1	11.0	11.0	11.1	10.8	11.2	J11.2S	U9.8S	U9.6S	9.4S	9.2	U9.5S	I9.2S
3	9.1	8.4	8.4F	Fs	U7.5S	8.3	8.7	9.1	J9.7H	10.5H	10.2H	11.2	I11.2A	11.3	11.8	11.7	11.2H	10.9H	J10.0S	C	C	C	F	S
4	S	S	S	S	5.3F	F	6.6	7.9	8.7H	8.5	8.5	9.1	10.5	11.6	11.6	11.6	11.7	11.9	11.3	11.4S	9.1	J8.2S	I8.0S	I8.2F
5	J7.5S	6.3	S	F	F	F	6.8	8.8	I9.5S	I9.6A	I8.9A	I8.9R	8.8	8.5	9.2S	9.9S	8.7	8.3S	J8.1S	8.5	J7.4S	7.2S	U7.3S	I7.3A
6	F	F	I7.4S	I6.9S	6.2	6.2	8.0	9.3H	I9.0A	7.4	I5.8A	6.1R	6.5	7.0	6.6R	6.9	8.3	8.5	7.5S	I7.4S	I7.1S	J7.6S	J7.9S	J8.0S
7	8.3	8.7	J7.3S	5.3	5.2	4.9	6.6	7.8	8.1	J8.1A	8.6	8.8	9.1	9.1	9.1	9.3S	10.1	10.7H	J10.0S	8.5	8.2S	8.5	8.8	8.8
8	8.8	8.5	9.0	8.0	7.5	6.6	U7.4S	J8.0H	I7.9A	8.1	8.5	9.3	J10.0R	9.9	9.6	9.4S	9.5	10.4	J9.7S	J7.7S	J7.8S	J7.9S	F	F
9	J8.2S	8.0F	I7.3F	6.8	I6.7F	6.7	7.6	8.2	8.5	8.5H	8.8	9.6	10.3	10.0	11.1	12.0	12.2S	12.8	10.9S	U9.8S	9.0	9.1	9.2S	9.0
10	F	Fs	Fs	Fs	6.0F	I6.5F	J7.6S	8.5	8.0H	I8.7A	I9.4A	9.9	10.6	10.8	10.8	11.3	11.9	12.4	11.7	10.9	I10.2S	I9.9S	J10.3S	J10.6S
11	I11.1S	I10.8S	I9.4S	S	S	8.9F	8.4	8.6	8.6	9.2	9.4	9.9	10.5	10.5	10.7	10.6	11.5	11.8	11.0	U9.4S	9.1	8.6	U9.3S	I9.3S
12	9.1S	8.8	8.1F	J7.4S	6.7	6.7	8.3	9.7	I9.9C	8.7	8.8H	9.3	10.3	10.8	11.4	11.5	11.9	11.6	11.0	J10.0S	9.2S	U9.2S	I9.6S	J9.8S
13	J10.2S	10.3	U9.3S	8.2	C	C	C	C	C	C	C	I9.4C	9.9	10.4	10.8	11.2	I11.0A	10.2	J9.9S	9.2S	9.0	9.3	U9.2S	S
14	S	I9.5S	8.1F	F	F	S	U9.5S	10.7	10.3	9.1H	10.3H	10.2	10.8	10.9	11.2	11.1	11.4H	11.1H	J9.7S	I9.8S	I9.4S	9.0	9.1	I8.7S
15	F	S	F	I7.0F	6.0	I5.8F	6.4	7.2S	8.1	8.3	7.1	6.6	I7.2R	7.2	7.5	7.2	7.3R	J7.8S	8.2	6.9	6.8	J7.2S	7.6S	I7.4S
16	J7.6S	I8.2F	8.9	6.8	5.7	F H	6.4	8.3	8.3H	8.6H	7.5	I7.2A	I7.7A	7.9	7.8	8.0	7.7	7.1	7.1	6.5	I6.8A	I7.3A	J7.6S	7.9S
17	8.6	8.8	J8.2S	7.2S	6.6	6.1	J7.5S	7.5S	7.9	8.4	8.4H	9.0	10.0S	10.2	10.5	10.0S	9.0	8.8H	9.3H	9.1	8.5	8.7	9.2S	9.2
18	9.3S	I9.3S	8.9	7.0	7.1	J7.2S	I7.8C	7.6	6.9	8.0	9.1	9.7	9.8	10.4	10.3	10.5	10.0S	I10.1S	U10.0S	J9.9S	J9.9S	C	C	C
19	C	C	C	C	C	F	I7.3F	7.6R	C	C	9.4	U9.8R	I10.2A	10.7	11.0	10.3	10.8	10.6H	9.0H	8.3	7.5S	I7.3A	S	S
20	C	8.1S	A	S	F	F	S	8.1F	7.2F	8.5FH	9.1	8.5	9.0	9.7S	9.8	9.8	9.4	9.8	9.2	9.9	8.4	I8.1S	8.2	8.4
21	F	S	A	6.2	6.0F	5.8F	7.2	8.5	8.7H	A	I7.5A	8.2	8.9	9.2	J10.1S	J10.1S	10.0	10.6	10.4	9.4	I8.0A	7.2S	J7.2S	J7.6S
22	F	S	I7.2S	6.6	6.3	F	7.8	8.2	8.8	8.3	7.6	8.3	I8.5A	I9.1A	9.8	11.3	11.8	13.1	14.4S	11.3	8.4	7.8	J8.2S	8.2
23	8.3	U8.7S	J8.5S	J8.5S	8.5	I7.5S	I7.4A	J7.3R	8.2	7.8H	8.7	9.5	9.9	10.1	10.5	10.5	9.6	10.0S	11.2S	U11.7S	10.6S	J6.8S	J7.5S	8.2
24	Fs	9.2S	8.7	8.7	J8.5S	I7.3S	8.0	8.5H	8.9H	8.1H	8.0H	8.2	8.6	9.4	9.6	9.9	9.9S	9.2S	J9.5S	I9.9S	I9.8S	I9.0S	9.1	F
25	Fs	Fs	S	F	F	7.3	7.4S	8.2	9.2	8.1	8.1	8.5S	9.2	10.3	11.3	11.3	11.1	10.4	11.7S	U11.9S	I10.0S	8.8	9.1	S
26	S	S	Fs	F	S	F	F	7.6H	7.4S	6.9	7.8	8.8	9.1	8.7	9.5	10.4	10.5	10.5	10.4	U9.3S	9.2	8.3	7.7E	F
27	Fs	Fs	7.0	6.4	5.7	5.6	6.9	6.9	J7.8R	8.3	8.1H	8.1H	9.1	10.6	10.6	12.4	13.1	12.2	I9.7A	8.1	8.1	J8.0S	8.4	8.3
28	J8.1S	S	7.2S	5.9F	5.5	4.8F	I7.5C	I9.2C	7.0	G	6.8	7.5	U7.4R	7.8R	J8.3A	9.1	J9.8S	9.3S	8.9	8.9	8.6	I9.8S	S	S
29	Fs	Fs	J11.4S	7.3	F	C	6.6	7.1H	7.9H	I7.1A	7.7	8.3	8.8	8.9	I9.4C	10.2	J10.0S	10.9	10.2S	I9.0C	8.4	J7.9S	I7.7S	I7.6S
30	S	F	F	8.2	6.7	6.5	J7.4S	8.0H	U7.8S	8.7	10.0	8.6	8.3	U9.6R	10.4	10.1	9.0	9.1	9.0H	I8.4C	8.7	8.6	8.6	8.2
31																								
No.	14	16	20	20	21	20	27	29	28	27	29	30	30	30	30	30	30	30	30	29	29	28	24	20
Median	8.4	8.8	8.3	7.0	6.3	6.5	7.4	8.2	8.2	8.4	8.5	8.8	9.4	10.0	10.3	10.4	10.2	10.6	10.0	9.4	8.7	8.4	8.5	8.2
U.Q	9.1	9.2	8.9	8.0	6.9	7.2	7.8	8.7	9.0	8.7	9.2	9.6	10.3	10.6	11.0	11.3	11.4	11.2	10.9	9.9	9.3	9.0	9.2	9.1
L.Q	8.1	8.2	7.4	6.6	5.8	5.8	6.8	7.6	7.9	8.1	7.7	8.3	8.8	9.1	9.4	9.8	9.5	9.3	9.2	8.4	8.0	7.7	7.7	8.0
Q.R	1.0	1.0	1.5	1.4	1.1	1.4	1.0	1.1	1.1	0.6	1.5	1.3	1.5	1.5	1.6	1.5	1.9	1.9	1.7	1.5	1.3	1.3	1.5	1.1

foF2

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

The Radio Research Laboratories, Japan.

Y 1

47

IONOSPHERIC DATA

Jun. 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										A	A	5.6	I 5.8 A	5.9	5.2	A	L	L	B					
2										A	A	A	A	5.8	5.5	I 5.6 A	5.2							
3												I 6.0 A	I 5.7 A	5.9	5.3 H	5.5				C				
4											5.8 L	5.8 L	5.6	5.6	5.6	I 5.6 L	A	4.8 L						
5										A	A	A	5.4	5.3	5.3	I 5.3 A	A	A	L					
6											A	5.2	5.3	5.3	5.1	5.1	5.0	4.9						
7										A	A	A	A	5.7	5.7	5.8	5.3							
8										A	A	I 5.6 A	I 5.5 A	A	A	5.8	5.5	5.2	L					
9												6.1	A	A	A	5.4	A	A						
10										A	A	A	A	5.8	I 5.8 A	I 5.6 A	I 5.3 A	5.3						
11										A	5.8	5.9	A	A	5.9	5.9 H	5.4	A						
12									C			5.6	5.9	I 5.7 A	I 5.6 A	5.6	5.7	5.2	L					
13						C	C	C	C	C	C	C	A	A	A	A	A							
14												L	5.7	5.6	I 6.3 A	5.8								
15									5.3	5.1	5.3	A	I 5.3 A	I 5.2 A	I 5.4 A	5.4	5.6	A						
16											5.7	I 5.8 A	A	A	5.5	5.4	I 5.2 A	I 5.1 A						
17										5.0		5.8	5.3	6.1	5.3	5.3	A							
18							C					5.6	5.8	A	I 5.5 A	5.4	5.3							
19									C	C	A	A	A	A	5.5	A	A							
20											A	A	A	I 5.4 A	5.3	5.0 H	5.2	4.7	4.1 L					
21										A	A	I 5.5 A	5.4	I 5.6 A	5.2 H	5.1 H	I 5.2 A	4.8	L					
22										4.7	A	A	A	A	A	5.1	5.2	A						
23											5.7	5.4	5.5	5.4	5.5	5.3	5.0	5.0	A					
24												5.4	5.5	5.2	5.4 H	4.9	5.2	5.2						
25												A	5.6	5.4	A	A	A							
26											A	5.7	A	5.4	5.6	5.0	5.3	5.0	L					
27									L	L			I 5.5 A	I 5.6 A	5.4	A	A	A						
28						C	C	C		5.6	5.6	5.5	5.6	I 5.6 A	I 5.6 A	I 5.5 A	I 5.3 A	4.8 L						
29						C					5.6	I 6.0 R	5.5	I 5.6 A	I 5.5 C	5.5	5.4	5.0 L		C				
30									5.5	5.5	5.5	I 5.5 L	I 5.6 A	5.8	5.6 L	5.6	L							
31																								
No.									2	5	8	18	19	22	25	25	18	13	1					
Median									5.4	5.1	5.7	5.6	5.5	5.6	5.5	5.4	5.3	5.0	4.1					

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

Jun. 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							2.20	2.95	3.30	3.55	3.70	4.10	3.90	3.90	3.90	3.60	A	A	$_{I}2.80^{B}$	B				
2							2.45	2.95	3.25	3.40	3.60	$_{I}3.80^{A}$	3.80	3.70	A	A	A	A	2.70					
3							2.30	3.00	3.20	3.40	3.70	3.70^{R}	A	A	A	A	A	A	A	C				
4						S	2.40^{R}	2.90	3.30	3.50	3.70^{R}	R	R	R	3.85	3.80	3.50	3.10	2.50					
5							2.10	3.00	3.30	3.60	3.70^{R}	$_{I}3.80^{R}$	R	R	R	A	A	A	A					
6							A	3.00	3.40	3.50	3.75	3.85^{R}	R	B	A	A	A	A	A					
7							2.10	3.00	3.30	3.55	3.65^{R}	3.60	A	A	A	3.85	3.60	3.20^{R}	2.50					
8							2.30	3.00	3.40	3.70	3.90	$_{I}4.00^{A}$	$_{I}3.95^{B}$	A	A	A	A	3.45	2.60					
9							2.30	3.00	3.40	3.65	3.85	B	B	A	4.00	A	A	A	A					
10							2.50	3.10	3.50	3.60	3.80^{R}	3.90^{R}	A	A	A	3.90	A	A	A					
11							A	3.00	3.40	3.70	3.90	4.00	B	A	A	A	A	A	A					
12						S	2.70	3.20	$_{I}3.50^{B}$	3.50	$_{I}3.75^{A}$	3.80	$_{I}3.80^{A}$	A	A	A	A	A	2.80					
13						C	C	C	C	C	C	$_{I}4.00^{C}$	4.10	$_{I}3.90^{A}$	A	A	A	A	A					
14							2.20	3.15	3.35^{R}	3.60	3.90	4.05	4.10	4.00	$_{I}3.85^{R}$	3.90	3.60	3.20	2.60	S				
15							A	2.90	3.40	3.60	3.80^{R}	4.05^{R}	B	R	$_{I}4.05^{R}$	3.80^{R}	3.60	3.20	2.70					
16							2.10	3.00	3.40	3.65	3.70	3.80	$_{I}3.80^{B}$	$_{I}3.85^{R}$	A	A	A	3.25	2.70					
17							2.25	2.80	3.25	A	A	A	A	A	$_{I}3.90^{A}$	3.60	3.50	3.05	2.60	B				
18							C	3.00	3.30^{R}	3.50	3.70	3.70	3.80	4.00^{R}	3.90	3.70	3.50	3.10	2.50					
19							2.30	2.90	C	C	3.80	3.85	3.90	A	A	A	A	3.50	2.65	S				
20							A	A	A	3.50	3.70	3.85	3.85	$_{I}3.85^{R}$	$_{I}3.85^{R}$	3.70	3.45	3.10	2.60	B				
21							A	A	A	A	A	A	R	4.10	$_{I}3.95^{R}$	$_{I}3.70^{R}$	3.50	3.20	2.60	S				
22							A	2.90	3.35	3.45	3.80	3.90	3.90	A	A	A	A	A	A					
23							A	2.65	3.10	3.25	3.60	A	A	A	A	A	A	R	2.60	S				
24							2.25	A	A	A	R	R	R	R	$_{I}3.80^{R}$	$_{I}3.65^{R}$	$_{I}3.50^{R}$	3.20	2.65	1.70				
25							A	2.90	3.30	3.50	3.70	3.80	A	A	A	A	3.35	3.15	$_{I}2.50^{A}$	A				
26							2.50	3.00	3.30	3.50	3.70	3.75	R	A	B	3.80	3.35	3.15	2.70	A				
27							2.30	2.90	3.30	3.65	400	R	4.10	4.00	$_{I}3.85^{B}$	3.75^{R}	A	A	A					
28						C	C	$_{I}3.05^{C}$	3.60	3.70	$_{I}3.85^{A}$	4.00	$_{I}4.15^{B}$	4.10	$_{I}3.80^{B}$	A	A	A	A					
29						C	$_{I}2.25^{A}$	2.95	3.30	3.45	$_{I}3.65^{A}$	B	R	A	C	A	A	A	2.75	C				
30							2.40	3.00	3.30	3.60^{R}	3.75	3.90	4.00^{R}	$_{I}4.00^{B}$	$_{I}4.00^{A}$	$_{I}3.80^{A}$	$_{I}3.35^{A}$	$_{I}3.05^{A}$	2.75					
31																								
No.							19	26	25	25	26	22	14	11	13	14	12	15	20	1				
Median							2.30	3.00	3.30	3.55	3.70	3.85	3.90	4.00	3.90	3.80	3.50	3.20	2.60	1.70				

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

Jun. 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	J2.4	J2.8	J4.8	J2.5	2.1	E	Gr	3.8	6.0	5.8	6.1	J5.6	6.5	6.1	6.0	4.8	J4.2	J4.1	J8.6	J8.5	12.1	J3.2	9.1	J8.5
2	9.3	J5.3	J2.4	J2.9	3.4	5.9	5.3	7.1	12.1	9.1	13.3	J14.5	8.5	J5.6	J8.0	J6.5	5.0	7.3	4.5	J5.4	J4.9	6.0	J8.7	J8.5
3	6.0	5.2	J5.3	J8.5	J5.3	3.2	3.1	4.8	5.0	J8.5	J8.5	9.2	16.2	6.2	J5.5	J5.2	J5.5	J6.3	6.0	C	C	C	J2.5	6.0
4	J5.2	J3.6	J2.5	J3.8	J3.1	Gr	2.7	3.3	4.7	5.7	5.2	6.0	4.5	Gr	Gr	4.7	5.4	4.0	4.9	J4.5	S	1.8	J2.9	J4.4
5	8.4	6.8	6.3	J3.9	J3.9	J3.9	3.0	9.0	10.0	J12.5	10.5	J7.9	6.0	Gr	Gr	5.6	J6.4	J8.4	5.0	J3.2	J5.4	J5.4	6.0	J8.5
6	J8.4	J6.0	J5.4	J5.4	4.5	J3.2	J2.4	3.7	10.9	5.2	J8.6	5.2	5.2	4.8	4.0	4.6	J4.6	J4.6	J6.5	J6.2	J5.2	6.1	J5.2	3.1
7	2.9	2.9	J2.1	J2.5	J1.7	J1.8	2.4	4.0	5.0	J12.0	J11.0	J8.6	J7.2	5.6	5.7	3.9	5.3	J7.6	6.0	5.3	3.9	J5.4	6.7	5.2
8	J2.7	3.0	J7.9	J3.3	3.1	E	Gr	Gr	J8.0	6.4	J8.7	J7.5	J12.0	J9.1	J9.6	5.4	4.5	4.0	3.1	J2.5	3.5	J5.1	J8.4	J4.8
9	J3.1	3.8	J3.9	J3.7	J3.2	J2.1	Gr	3.9	7.5	8.0	10.0	8.2	J7.9	9.1	6.1	4.5	9.3	6.5	4.5	3.9	J4.5	J2.0	J2.8	J2.1
10	J5.2	J6.3	J8.4	J5.4	J5.4	2.4	2.7	8.4	J11.0	9.3	J13.6	J13.5	J13.8	7.0	J11.5	6.2	12.1	J8.5	J6.0	J6.4	J4.8	J2.4	J4.9	J5.4
11	6.0	J5.4	J2.3	4.0	J5.0	J4.2	J2.3	4.4	8.3	6.9	6.0	J8.5	J8.5	J8.4	4.3	4.0	J4.6	6.0	6.1	J5.5	J4.7	J4.5	J3.7	J4.3
12	J2.8	J2.8	J3.7	3.1	J2.4	Gr	3.2	J8.4	C	J11.1	7.1	J5.4	5.4	J7.3	J8.6	J5.4	4.0	J4.3	J3.1	J3.0	J2.8	J2.0	S	J2.7
13	J2.4	J2.4	6.0	J4.6	C	C	C	C	C	C	C	C	6.2	J7.7	J9.7	J10.2	J11.6	J6.4	J6.3	J4.7	J2.6	J3.2	J3.7	6.1
14	J5.1	2.5	J2.9	1.3	1.4	J2.1	3.3	3.9	4.7	5.6	5.2	4.9	5.2	5.3	J10.5	4.3	4.0	Gr	3.0	3.0	J5.4	J5.4	J3.7	J3.2
15	J3.8	J5.4	J2.1	J3.4	J5.5	J5.5	J3.3	6.5	4.6	5.5	4.3	5.5	J5.6	5.6	6.0	5.3	J6.0	J6.1	J6.0	J5.0	J4.0	J5.4	J5.4	J8.4
16	J8.4	J2.5	S	1.3	1.5	2.1	2.4	3.5	4.3	J6.5	J6.4	J8.5	J12.5	J11.6	J8.4	J4.8	J5.2	J6.0	J4.7	J5.2	J8.6	J11.0	J5.5	J5.0
17	J2.1	2.3	E	E	2.1	E	2.5	3.5	4.2	5.2	4.7	4.6	4.1	4.2	4.1	Gr	5.1	4.2	3.1	6.1	J4.2	J1.9	S	3.8
18	2.4	S	J3.2	J5.0	J2.6	2.1	C	3.7	5.2	4.3	4.5	5.2	6.4	5.6	9.9	8.4	3.9	9.3	12.1	J8.4	8.6	C	C	C
19	C	C	C	C	C	J2.8	2.8	7.1	C	C	12.3	13.0	J13.1	17.0	9.9	J11.7	6.8	J6.9	3.5	2.5	5.3	J8.5	J5.4	6.0
20	C	J5.5	J8.5	6.0	9.2	J8.5	4.8	J5.5	5.2	4.5	8.8	J10.2	J8.5	5.7	5.4	4.6	3.9	4.1	4.5	6.0	J5.3	6.0	3.8	5.1
21	6.0	8.6	8.6	J5.5	J2.3	2.4	J3.5	J5.1	4.5	J6.8	7.5	6.4	5.2	J7.2	Gr	Gr	7.4	3.5	3.5	3.2	9.3	5.3	6.0	J3.9
22	J5.4	4.5	2.3	J2.9	J4.6	J3.7	6.2	J5.8	7.1	4.5	J8.3	J7.9	J11.4	J12.4	J6.3	J5.4	9.2	J6.3	J8.4	6.5	J4.0	J2.6	J2.1	S
23	S	2.4	3.7	6.2	6.0	5.1	J8.5	6.3	J6.3	4.1	4.0	4.2	4.0	4.1	4.0	J3.9	J4.6	4.0	J5.0	3.8	4.0	6.0	J5.2	3.8
24	6.0	2.4	J4.6	J3.9	3.0	J2.3	Gr	3.1	3.8	J7.1	5.3	6.1	4.9	5.4	7.0	4.6	4.0	2.8[9]	3.7	J3.3	J2.7	J4.8	3.1	3.1
25	6.8	9.1	J8.3	J5.6	J8.4	3.3	2.5	3.7	5.5	6.0	7.1	J6.7	J5.5	J10.7	12.1	J8.4	6.3	3.9	J5.8	6.0	J8.4	3.1	J3.2	J3.8
26	J5.3	J3.7	4.2	J2.9	E	E	2.8	3.3	4.3	8.6	8.6	4.8	J5.6	5.4	B	Gr	Gr	3.1[9]	J3.1	2.4	J2.1	J2.1	6.0	6.0
27	5.7	J5.2	J5.1	E	J3.3	J2.8	2.7	3.3	4.6	5.0	6.1	7.5	J6.4	8.2	5.2	7.4	8.7	13.4	D	8.1	J4.2	4.3	J5.4	J2.1
28	3.1	4.5	4.7	4.6	2.7	C	C	C	5.4	4.8	5.0	6.1	6.5	J10.9	11.4	9.2	J8.0	3.4	J3.7	5.0	J2.4	J2.6	J2.3	J3.9
29	5.4	4.0	J2.4	2.1	E	C	J2.5	3.3	4.7	J11.3	4.8	B	J5.4	J10.6	C	9.2	J5.5	3.8	3.5	C	J3.8	3.2	J3.2	2.2
30	4.2	J3.7	3.5	4.0	2.7	J2.5	2.2[G]	3.4	4.2	Gr	5.2	5.8	8.3	B	4.8	5.3	6.0	J3.7	J5.2	C	2.5	3.7	J2.3	3.8
31																								
No.	27	28	28	29	28	27	27	28	27	28	29	28	30	29	28	30	30	30	30	27	28	28	27	28
Median	5.2	3.9	4.0	3.8	3.2	2.4	2.7	3.9	5.2	6.2	7.1	6.6	6.4	6.2	6.0	5.2	5.4	4.4	5.0	5.0	4.4	4.4	4.9	4.4
U.Q	6.0	5.4	5.7	5.2	4.8	3.7	3.3	6.0	7.5	8.6	8.8	8.5	8.5	9.1	9.6	6.5	7.4	6.5	6.1	6.1	5.4	5.4	6.0	6.0
L.Q	2.9	2.8	2.4	2.7	2.2	1.8	2.4	3.4	4.6	5.1	5.2	5.4	5.4	5.4	4.6	4.5	4.6	3.9	3.5	3.2	3.6	2.6	3.1	3.5
Q.R	3.1	2.6	3.3	2.5	2.6	1.9	0.9	2.6	2.9	3.5	3.6	3.1	3.1	3.7	5.0	2.0	2.8	2.6	2.6	2.9	1.8	2.8	2.9	2.5

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

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Jun. 1969

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	1.9	2.0	1.2	E			3.8	5.7	5.5	5.7	5.4	6.3	5.6	4.7	E4.8B	4.7	4.0	8.1	A	A	1.8	A	4.9
2	5.2	2.5	2.1	E2.9B	2.2	4.1	4.5	5.6	8.5	7.2	7.4	8.0	5.8	4.9	4.8	6.1	3.7	4.5	3.8	4.5	3.3	4.5	5.1	4.6
3	5.0	4.0	2.7	4.3	3.5	2.0	3.0	4.7	4.0	5.7	5.6	7.1	A	4.3	4.6	4.3	4.5	4.0	3.6	C	C	C1	1.7	4.7
4	4.3	1.7	1.8	2.8	2.0		G	G	4.7	5.6	5.2	5.5	4.5			4.7	5.2	3.9	4.0	3.9	S	1.8	2.6	4.3
5	2.4	2.6	5.3	2.7	3.4	2.7	G	4.5	A	A	A	A	4.7			5.6	5.8	5.2	3.2	3.1	4.6	5.1	4.6	A
6	4.6	4.3	5.4	5.1	4.3	3.0	G	3.7	A	5.1	A	4.6	4.8	4.6	E4.0B	4.5	3.7	4.4	6.0	A	4.7	4.0	2.2	2.0
7	2.0	1.9	1.8	2.0	1.6	1.7	G	3.7	4.6	A	7.8	8.0	5.8	5.0	5.0	3.7	5.0	7.0	5.1	4.3	E3.9B	4.3	5.3	2.5
8	1.9	2.0	5.2	2.6	2.8				A	6.3	8.0	7.3	8.4	8.3	5.7	4.5	4.5	3.8	3.1	2.5	3.3	3.5	4.6	2.4
9	2.2	2.3	2.4	3.7	2.7	1.7		3.9	6.6	7.1	8.2	5.5	E7.9B	7.3	E6.1B	4.5	7.4	5.3	3.9	2.3	4.2	1.7	E2.8B	2.0
10	4.3	4.2	5.1	3.3	4.8	1.8	G	6.3	5.5	A	A	8.0	7.9	5.7	7.7	5.7	7.8	4.3	5.1	5.6	3.8	E2.4B	4.0	3.4
11	5.2	1.9	1.7	2.3	4.3	3.1	G	4.3	7.3	6.6	5.3	5.7	8.2	8.4	E4.3B	E4.0B	E4.6B	5.9	4.5	E5.5B	4.1	3.7	3.4	2.6
12	E2.8B	2.4	2.7	2.2	1.8		3.2	7.3	C	5.0	5.2	4.3	4.6	E7.3B	6.9	5.4	E4.0B	4.1	1.9	2.4	2.4	E	S	2.3
13	2.0	E	3.7	3.3	C	C	C	C	C	C	C	C	E6.2B	7.5	9.6	10.0	A	6.1	6.3	4.5	1.9	2.5	2.1	2.3
14	1.9	E	1.7	1.1	E	G	G	3.7	4.5	5.4	4.9	4.7	5.2	5.1	7.6	4.3	3.9		CT	3.0	E	4.4	E3.7S	2.7
15	3.2	2.2	E	2.2	4.8	3.1	E3.3B	5.5	4.4	4.8	G	5.4	E5.6B	5.6	5.8	4.8	5.3	6.1	E6.6S	4.6	4.0	3.3	2.6	2.6
16	5.0	1.8	S	E1.3B	1.3	E	G	3.4	4.1	4.9	5.0	A	A	6.0	4.7	4.3	5.2	5.4	4.1	4.1	4.4	A	1.9	3.2
17	1.8	E			1.8		G	3.4	4.2	4.5	4.3	4.5	G	E4.2B	E4.1B		5.0	4.1	3.0	3.6	E4.2B	E1.9B	S	2.2
18	1.9	S	2.6	3.7	2.0	E	C	G	5.0	3.9	4.4	5.0	5.6	5.4	9.5	5.2	E3.9B	A	5.3	4.4	7.9	C	C	C
19	C	C	C	C	C	2.1	G	6.7	C	C	7.8	6.4	A	8.0	5.1	5.6	5.2	4.4	3.4	2.4	4.9	A	4.3	4.5
20	C	3.2	A	4.6	4.4	4.0	3.4	3.1	4.0	4.2	7.0	7.6	5.4	5.6	4.7	4.2	G	3.9	3.5	3.6	5.3	A	3.3	3.9
21	2.2	3.6	A	2.0	2.0	2.0	3.2	4.5	4.2	A	A	5.8	4.6	E7.2B			7.2	G	3.5	2.7	A	3.9	4.2	E3.7B
22	5.0	4.5	2.1	2.7	3.5	3.2	4.9	5.8	6.6	4.5	7.2	7.4	A	A	5.8	4.5	4.7	6.3	7.6	5.0	3.8	2.4	1.9	S
23	S	1.8	3.6	2.0	2.7	4.0	A	A	6.3	3.9	CT	G	G	E4.1B	G	E3.9B	4.3	3.9	5.0	3.8	3.8	4.2	4.1	S
24	5.1	E	4.1	3.8	2.4	1.8		G	G	6.5	4.4	4.8	4.9	5.1	G	4.4	3.9	2.5G	3.4	E3.3B	1.9	2.0	2.2	2.1
25	4.9	4.8	5.4	4.5	5.2	2.6	2.5	3.7	4.8	5.5	5.3	6.4	4.6	4.9	8.1	7.7	5.4	3.8	5.5	2.7	5.1	2.0	2.9	3.2
26	4.7	1.9	2.9	2.4			G	G	3.9	6.3	7.3	4.8	5.4	4.5	B			2.6G	1.9	CT	2.0	1.8	2.0	4.3
27	2.1	1.9	1.8		2.2	2.0	G	G	4.4	4.8	5.7	5.1	5.6	7.2	5.2	7.4	6.6	5.8	A	3.3	4.0	3.4	5.0	S
28	1.9	4.1	4.5	3.6	2.4	C	C	C	4.7	4.2	4.5	5.2	5.5	5.7	A	5.9	E8.0B	G	3.7	3.9	2.2	2.3	1.8	2.5
29	2.4	1.9	E	E		C	G	G	3.6	A	4.8	B	5.0	8.5	C	4.6	4.9	G	2.2	C	2.9	2.7	3.1	S
30	2.8	2.8	2.5	1.5	2.2	1.9	1.9G	G	3.9		4.4	5.3	7.4	B	4.7	4.6	3.9	G	2.5	C	S	2.6	2.2	2.9
31																								
No.	26	28	27	26	26	21	22	27	27	27	29	28	27	25	24	26	28	29	29	26	26	28	26	24
Median	E2.8	2.1	2.7	2.6	2.4	2.0	G	3.7	4.7	5.5	5.6	5.5	5.5	5.6	5.0	4.6	4.8	4.1	3.8	3.8	4.0	3.0	3.0	2.8

foEs

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

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Jun. 1960 | f-min | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 1.70	E 1.70	1.05	E	1.00	E 1.70	1.75	1.80	1.80	2.20	1.80	2.50	2.60	2.20	2.40	2.25	2.05	1.70	5.35	1.80	E 1.70	E 1.70	E 1.70	E 1.70
2	E 1.80	E 1.70	E 1.70	1.25	E	1.00	1.70	1.90	1.70	1.80	1.90	1.90	2.45	2.05	2.40	1.90	1.80	1.50	1.10	E 1.50	E 1.70	E 1.80	E 1.70	E 1.60
3	E 1.60	E 1.70	1.35	E	E	1.20	1.70	1.85	1.75	1.80	2.00	2.00	2.50	2.25	2.20	2.25	1.90	E 1.60	E 1.70	C	C	C	E 1.60	E 1.60
4	E 1.60	E 1.60	E	E	E	1.30	1.65	1.80	1.60	1.90	1.70	2.00	2.25	2.50	2.40	2.40	1.90	1.90	1.60	1.65	E 1.70	1.10	E 1.50	E 1.75
5	E 1.70	E 1.60	1.10	E	1.00	1.10	1.80	1.80	1.90	1.85	2.20	2.00	2.20	2.60	2.20	1.90	1.80	E 1.60	E 1.50	E 1.50	E 1.70	E 1.70	E 1.80	E 1.70
6	E 1.65	E 1.70	1.40	E	E	E	1.60	1.80	1.90	1.90	2.30	2.30	2.20	3.80	3.20	3.30	1.50	1.90	1.60	1.50	E 1.70	E 1.60	E 1.60	E 1.70
7	E 1.70	E 1.70	1.10	E	E	E	1.80	1.85	1.90	1.85	2.45	1.90	3.55	3.40	2.35	2.40	1.90	1.60	1.75	1.60	E 1.60	E 1.60	E 1.60	E 1.60
8	1.20	E 1.70	1.20	E	E	1.75	1.80	1.70	2.05	2.20	2.40	3.40	4.00	3.90	2.50	2.40	1.90	2.50	1.65	1.65	1.20	E 1.70	E 1.60	E 1.60
9	E 1.60	E 1.70	1.20	E	E	1.10	1.60	1.80	1.90	2.30	2.60	3.90	4.30	3.00	3.90	2.50	2.20	1.85	E 1.70	E 1.60	E 1.70	E 1.60	E 1.70	E 1.70
10	E 1.70	E 1.70	E 1.60	1.00	E	1.20	1.90	1.90	1.80	2.05	2.60	2.60	3.25	2.40	2.60	3.20	2.00	2.10	1.70	1.50	E 1.60	E 1.70	E 1.70	E 1.70
11	E 1.70	E 1.70	E	E	E	1.05	1.50	1.70	1.80	2.40	2.20	3.40	4.10	2.60	3.20	2.30	2.30	1.70	E 1.60	E 1.60	E 1.70	E 1.60	E 1.70	E 1.70
12	E 1.80	E 1.70	E	E	E	2.00	1.70	1.90	I 1.90 C	1.90	2.00	2.00	3.35	2.60	3.25	3.30	2.80	1.90	1.60	1.60	E 1.70	E 1.70	E 1.70	1.15
13	E 1.60	E 1.70	1.15	E	C	C	C	C	C	C	C	I 2.20 C	2.50	2.30	2.50	2.20	1.90	1.90	1.60	1.30	1.00	1.20	E 1.65	E 1.60
14	E 1.70	E 1.70	E	E	1.00	1.40	1.60	1.70	1.60	1.80	2.00	2.25	2.40	2.40	2.30	2.30	1.90	1.70	E 1.70	E 1.70	E 1.60	E 1.60	E 1.70	E 1.70
15	E 1.60	E 1.50	1.70	1.00	1.20	1.20	1.65	1.90	1.90	1.80	2.05	2.30	5.20	2.60	2.40	2.20	2.25	1.90	1.80	1.60	E 1.60	E 1.70	E 1.60	E 1.70
16	E 1.70	E 1.60	E 1.70	E	E	1.70	1.70	1.80	1.80	2.10	1.90	2.40	4.20	2.30	2.20	1.90	2.20	1.80	1.70	1.70	E 1.70	E 1.70	E 1.70	E 1.70
17	E 1.60	E 1.70	1.70	1.30	E	1.70	1.60	1.90	1.90	1.85	2.30	2.30	2.20	2.40	2.30	1.90	1.80	1.90	1.50	1.75	1.20	E 1.80	E 1.70	E 1.80
18	E 1.80	E 1.70	1.60	E	1.20	1.50	I 1.60 C	1.70	1.80	1.90	2.60	2.55	2.20	2.80	2.50	2.20	2.20	1.70	1.50	1.60	1.60	C	C	C
19	C	C	C	C	C	1.30	1.70	1.60	C	C	2.45	2.20	2.20	2.00	2.40	2.20	2.10	1.75	E 1.60	1.70	E 1.70	E 1.70	E 1.60	E 1.70
20	I 1.60 C	1.10	E	E	E	1.20	1.60	1.60	1.70	1.80	2.20	2.40	2.20	2.55	2.20	2.30	1.85	1.65	1.80	1.60	E 1.60	E 1.65	E 1.60	E 1.70
21	E 1.70	E 1.60	1.15	E	1.10	1.70	1.55	1.75	1.80	1.90	2.05	2.20	2.20	2.20	2.20	2.20	1.80	2.10	1.60	1.65	E 1.80	E 1.70	E 1.75	E 1.60
22	E 1.70	E 1.60	1.70	E	E	1.60	1.60	1.65	1.60	1.80	2.20	2.40	2.60	2.40	2.25	2.20	1.90	1.90	1.50	E 1.70	E 1.70	E 1.70	E 1.70	E 1.80
23	E 1.80	1.50	E 1.60	1.10	E	E	1.60	2.05	1.90	1.80	2.00	2.30	2.40	2.40	2.45	2.10	1.80	1.70	1.40	E 1.70	E 1.70	E 1.70	E 1.70	E 1.70
24	E 1.70	E 1.60	1.20	E	E	E	1.80	1.70	1.80	1.80	1.90	2.60	2.25	2.40	2.20	2.20	1.85	1.70	E 1.80	E 1.60	E 1.70	E 1.70	E 1.70	E 1.70
25	E 1.70	E 1.80	E	E	E	E	1.70	1.80	1.80	1.70	1.90	2.05	2.00	1.95	2.00	2.00	1.85	1.65	E 1.60	1.60	E 1.60	E 1.70	E 1.60	E 1.70
26	E 1.80	E 1.80	E 1.80	1.10	1.10	1.60	1.90	1.70	1.75	1.85	2.45	2.50	2.40	2.45	4.40	2.20	1.90	1.70	1.70	1.60	E 1.60	E 1.70	E 1.70	E 1.60
27	E 1.60	E 1.70	1.20	1.00	E	1.00	1.60	1.80	2.20	1.90	2.50	2.45	2.65	2.50	4.20	2.60	1.90	1.90	1.70	1.30	E 1.70	E 1.70	E 1.60	E 1.70
28	E 1.70	E 1.80	E 1.90	E	E	E 2.10 C	C	I 1.95 C	2.40	1.90	2.25	2.35	4.40	2.45	4.00	2.45	2.20	1.80	1.60	1.70	E 1.70	E 1.70	E 1.70	E 1.70
29	E 1.60	E 1.70	E 1.60	1.10	1.10	I 1.95 C	1.70	1.80	1.70	1.90	2.00	5.00	3.40	2.50	C	2.25	2.00	1.80	1.50	C	1.70	E 1.80	E 1.80	E 1.70
30	E 1.70	E 1.70	E 1.80	E	E	1.70	1.40	1.65	1.70	1.95	1.90	2.30	3.30	4.70	2.50	2.00	1.95	1.65	1.70	C	E 1.80	E 1.70	E 1.70	E 1.70
31																								
No.	29	29	21	29	28	27	28	29	28	28	29	30	30	30	29	30	30	30	26	24	29	28	29	29
Median	E 1.70	E 1.70	1.15	E	E	1.20	1.70	1.80	1.80	1.90	2.20	2.30	2.50	2.45	2.40	2.20	1.90	1.80	1.60	1.60	E 1.70	E 1.70	E 1.70	E 1.70

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Jun. 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	U2.55S	J2.65S	2.80S	I2.80S	2.75	2.75F	3.05	U3.00S	3.05	2.80	2.55	2.50	2.70	2.55	2.60	2.55S	2.60	2.85	2.90	I2.70S	I2.60A	2.35	A	S
2	S	S	2.70	2.85	2.65	2.45	U2.35SH	2.55	2.65	2.60S	2.70	2.60	2.75	2.85	2.90	2.90	2.90	J2.65S	U2.75S	U2.80S	2.70	2.60	U2.65S	I2.70S
3	2.75	2.70	2.80F	F S	U2.70S	2.90	3.15	2.90	J2.65SH	2.80H	2.60H	2.70	I2.70A	2.70	2.70	2.80	2.85H	2.85SH	J2.85S	C	C	C	F	S
4	S	S	S	S	2.75F	F	2.90	3.05	3.05H	2.95	2.40	2.35	2.50	2.60	2.55	2.55	2.50	2.60	2.60	2.80	2.70	J2.35S	I2.45S	I3.00F
5	J3.05S	2.70	S	F	F	F	2.55	2.65	I2.50S	I2.50A	I2.60A	I2.40R	2.50	2.25	2.55S	2.85S	2.85	2.75S	J2.60S	2.80	J2.55S	2.35S	J2.35S	I2.45A
6	F	F	I2.55S	I2.60S	2.60	2.50	2.55	2.80SH	I2.90A	2.85	I3.05A	2.35R	2.50	2.65	2.60R	2.60	2.85	2.90	2.85S	I2.90S	I2.60S	J2.35S	J2.40S	I2.40S
7	2.60	3.00	J3.40S	2.65	2.45	2.50	2.80	3.10	2.85	J2.60A	2.55	2.65	2.70	2.70	2.75	2.60S	2.80	2.90H	J2.95S	2.85	2.45	2.60	2.55	2.55
8	2.55	2.60	2.75	2.75	2.75	2.60	U2.70S	J3.15RH	I2.40A	2.45	A	2.60	J2.70R	2.65	2.65	2.55S	2.65	2.90	J3.00S	J2.70S	I2.60S	J2.55S	F	F
9	J2.55S	2.80F	I2.70F	2.55	I2.65F	2.85	2.85	2.95	2.80	2.70H	2.45	2.55	2.65	2.50	2.50	2.65	2.70S	2.90	2.85S	U2.75S	2.55	2.55	2.60S	2.60
10	F	FS	F S	FS	3.00F	F	J2.75S	3.05	2.65H	I2.55A	I2.50A	2.45	2.55	2.60	2.55	2.65	2.70	2.80	2.80S	2.90	I2.80S	I2.70S	J2.50S	J2.65S
11	I2.80S	I2.85S	I2.80S	S	S	2.80F	3.00	2.90	2.70	2.50	2.65	2.55	2.50	2.55	2.65	2.65	2.70	2.90	2.90	U2.80S	2.55	2.45S	U2.50S	I2.60S
12	2.65S	2.65	2.95F	J2.90S	2.75	2.85	2.80	3.10	I2.95C	2.60	2.50H	2.40	2.50	2.50	2.65	2.65	2.70	2.75	2.85	J2.90S	2.60	U2.45S	I2.50S	I2.65S
13	J2.75S	2.95	U2.95S	2.95	C	C	C	C	C	C	C'	I2.50C	2.45	2.45	2.55	2.65	I2.70A	2.80	J2.70S	2.75S	2.60	2.50	I2.60S	S
14	S	I2.85S	2.75F	F	F	S	U2.80S	2.90	3.05	2.45H	2.55H	2.55	2.60	2.60	2.60	2.65	2.70H	2.80H	J2.75SH	I2.75S	I2.75S	2.55	2.65	I2.60S
15	F	S	F	I3.00F	2.75	I2.85F	2.90	2.50S	2.60	2.75	2.85	2.35	I2.60R	2.65	2.65	2.65	2.60R	J2.80S	2.90	2.85	2.50	J2.55S	2.55S	I2.40S
16	J2.40S	I2.75F	3.10	2.70	2.40	FH	2.85	3.25	2.95H	2.80H	2.40	I2.50A	I2.50A	2.60	2.70	2.75	2.75	3.00	2.85	2.70	I2.60A	I2.50A	J2.50S	2.55S
17	2.70	2.85	J2.95S	2.90S	2.65	2.60	J2.95S	3.00S	2.70	2.80	2.50H	2.40	2.55S	2.60	2.75	2.85S	2.70	2.65H	2.90SH	2.80	2.60	2.55	2.65S	2.65
18	2.75S	I2.90S	3.05	2.65	2.70	J2.80S	I2.90C	2.95	3.60	2.55	2.60	2.65	2.60	2.70	2.60	2.80	2.85S	I2.85S	U2.80S	U2.75S	J2.80S	C	C	C
19	C	C	C	C	C	F	I2.70F	A	C	C	2.65	U2.70R	I2.70A	2.80	2.80	2.80	2.90	2.95H	3.00H	2.80	2.65S	I2.50A	S	S
20	C	2.95S	A	S	F	F	S	3.00F	2.95F	2.75FH	2.75	2.65	2.70	2.70S	2.80	2.85	2.80	2.90	2.95S	2.95	3.00	I2.70S	2.55	2.60
21	F	S	A	2.75	2.65F	2.60F	2.85	3.05	3.00H	A	I2.60A	2.60	2.60	2.65	J2.75S	J2.80S	2.80	2.85	2.90	3.05	I2.75A	2.55S	J2.50S	J2.55S
22	F	S	2.75	2.60	2.55	F	3.20	3.05	3.10	3.00	A	2.75	I2.65A	I2.60A	2.75	2.70	2.70	2.85	3.15S	3.20	2.85	2.55	J2.60S	2.60
23	2.60	U2.70S	J2.75S	J2.95S	3.00	I3.05A	I3.20A	J3.05R	2.95	2.70H	2.50	2.65	2.75	2.70	2.70	2.85	2.75	2.65S	2.80S	U3.10S	3.20S	J2.70S	J2.60S	2.45S
24	F S	2.80S	2.65	2.65	J3.00S	2.90	2.90	3.05H	3.10H	2.80	2.65	2.75	2.60	2.55	2.75	2.70	2.85S	2.70S	U2.75SH	I2.80S	I2.75S	I2.60S	2.65	F
25	F S	F S	S	F	F	2.85	2.70S	2.60	3.20	2.80	2.85	2.65	2.55	2.60	2.80	2.90	2.75	2.65	2.80SH	U2.90S	J3.00S	2.75	2.65	S
26	S	S	F S	F	S	F	F	3.00H	2.95S	2.50	2.70	2.55	2.75	2.45	2.50	2.55	2.65	2.65	2.80	U2.75S	2.75	2.70	2.55F	F
27	F S	F S	2.65	2.80	3.00	3.05	3.05	3.10	J2.90R	3.05	2.80H	2.50H	2.35	2.45	2.25	2.55	2.75	3.00	I2.80A	2.65S	2.60	I2.50S	2.65	2.65
28	J2.75S	S	2.90S	2.70F	2.45	2.35F	I2.85C	I3.30C	3.30	G	2.35	2.70	U2.55R	2.70R	J2.60A	2.75	J2.80S	2.75S	2.60	2.60	2.60	I2.55S	S	S
29	F S	F S	J3.15S	2.95	F	C	2.90	2.85H	2.85H	I2.75A	2.60	2.65	2.65	A	I2.60C	2.60	J2.65S	2.70	2.95S	I2.75C	2.80	J2.70S	I2.55S	I2.55S
30	S	F	F	3.05	2.65	J2.55S	J2.55S	2.65H	U2.25S	2.25	2.65	2.75	2.55	U2.60R	2.80	2.85	2.90	2.90	2.90H	I2.60C	2.45	2.60	2.55	2.60
31																								
No.	14	16	20	20	21	19	27	28	28	27	27	30	30	29	30	30	30	30	30	29	29	28	24	20
Median	2.70	2.80	2.80	2.80	2.70	2.80	2.85	3.00	2.90	2.70	2.60	2.60	2.60	2.60	2.65	2.70	2.75	2.80	2.85	2.80	2.60	2.55	2.55	2.60

(M3000)F2

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

The Radio Research Laboratories, Japan.

Y 7

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IONOSPHERIC DATA

Jun. 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										A	A	A	A	A	3.60	A	L	L	B					
2										A	A	A	A	3.40	3.35	I 3.40 A	3.40							
3												A	A	3.45	3.65 H	3.35				C				
4											A	A	3.60	3.45	3.40	I 3.20 L	A	3.40 L						
5										A	A	A	3.50	3.65	3.40	A	A	A	L					
6											A	3.75	3.50	3.60	3.55	3.50	3.45	3.35						
7										A	A	A	A	3.35	3.35	3.20	A							
8										A	A	A	A	A	A	3.15	3.25	3.25	L					
9												3.30	A	A	A	3.50	A	A						
10										A	A	A	A	A	A	A	A	3.35						
11										A	A	A	A	A	3.40	3.20 H	3.25	A						
12									C			3.75	3.35	A	A	A	3.20	3.45	L					
13						C	C	C	C	C	C	C	A	A	A	A	A							
14												L	A	3.25	I 3.10 A	3.20								
15									3.10	A	3.45	A	A	A	A	3.15	A	A						
16											3.25	I 3.50 A	A	A	3.40	3.35	I 3.25 A	A						
17										3.80		3.35	3.85	3.15	3.65	3.40	A							
18							C					3.30	A	A	A	A	3.40							
19									C	C	A	A	A	A	A	A	A							
20											A	A	A	A	I 3.25 A	3.60 H	3.40	3.40	3.65 L					
21										A	A	A	3.45	I 3.30 A	3.65 H	3.60 H	I 3.25 A	3.40	L					
22										3.80	A	A	A	A	A	3.50	3.20	A						
23											3.20	3.60	3.45	3.45	3.35	3.45	3.50	3.20	A					
24												3.55	3.40	A	3.50 H	3.75	3.35	3.30						
25												A	3.25	3.70	A	A	A							
26											A	3.15	A	3.55	3.10	3.60	3.25	3.25	L					
27									L	L			I 3.55 A	I 3.40 A	A	A	A	A						
28						C	C	C		3.20	3.40	A	A	I 3.30 A	A	A	A	3.40 L						
29						C					3.40	I 3.05 R	3.65	I 3.60 A	I 3.55 C	3.20	A	3.35 E		C				
30									3.15	3.20	3.50	A	A	3.25	3.25 L	3.25	L							
31																								
No.									2	4	6	10	11	16	18	20	13	12	1					
Median									3.10	3.50	3.40	3.40	3.50	3.40	3.40	3.40	3.25	3.35	3.65					

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Jun. 1960

h'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										330	I370 A	405	365	400	365	375	355	305	325					
2										A	350	380	340	340	325	305	310			C				
3												350	I350 A	350	330	320								
4											400	425	400	365	375	380	395	325						
5										A	I395 A	I430 A	400	490	400	355	340	330	325					
6											A	550	485	450	450	450	350	340						
7										A	A	A	365	385	375	390	345							
8										410	I430 A	400	I370 A	400	370	395	390	330	285					
9												395	390	410	400	355	350	325						
10										A	A	A	400	370	380	370	355	320						
11										390	350	380	410	405	380	370	340	305						
12									C			360	400	400	360	355	340	320	290					
13						C	C	C	C	C	C	I400 C	400	410	I395 A	I370 A	I350 A							
14												390	380	360	375	370								
15									390	340	350	530	450	440	430	425	430	355						
16											450	I480 A	I470 A	425	400	390	330	330						
17										330		435	390	400	345	330	305							
18							C					350	395	350	I360 A	330	320							
19									C	C	A	345	I360 A	350	335	350	325							
20											360	I375 A	405	360	350	325	345	305	280					
21										A	I430 A	395	380	400	350	340	345	330	285					
22										290	A	A	A	A	390	355	345	330						
23											360	380	355	350	360	330	340	345	310					
24												370	365	385	355	340	330	335						
25												A	350	380	350	305	320							
26											A	400	350	410	405	360	350	340	290					
27									300	300			460	415	490	390	335	280						
28						C	C	C		G	510	365	450	390	I405 A	370	I335 A	305						
29						C					435	390	400	I400 A	I400 C	370	350	330		C				
30									470	500	360	325	I430 A	400	350	340	305							
31																								
No.									3	9	14	25	29	29	30	30	28	20	8					
Median									390	340	380	390	395	400	375	360	340	330	290					

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

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IONOSPHERIC DATA

Jun. 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	330	300	275	250	270	280	250	250	305	A	A	A	A	A	255	A	E300A	300	B	A	A	350	I350A	340
2	300	295	275	275	320	410	E400AH	350	A	A	A	A	A	A	A	A	240	270	270	280	290	340	350	310
3	330	E310A	280	330	310	255	250	260	245H	AH	AH	A	A	205	230H	250	250H	250H	260	C	C	C	340	330
4	340	280	275	250	255	300	245	240	275H	E300A	I245A	I230A	210	210	230	I260A	I270A	260	305	270	230	335	350	325
5	265	260	I370A	350	310	345	260	280	A	A	A	A	250	200	250	A	A	A	270	300	320	E425A	410	A
6	350	310	365	350	400	350	280	275H	I330A	325	I280A	240	270	240	255	265	240	290	A	A	E350A	390	355	355
7	335	280	225	300	350	320	255	250	260	A	A	A	I275A	270	275	230	A	AH	E290A	275	350	350	370	330
8	325	320	325	290	310	310	260	240H	I290A	A	A	A	A	A	A	250	270	250	250	275	330	350	400	320
9	320	290	290	360	305	265	255	255	E330A	AH	A	A	A	A	A	250	A	A	275	260	325	310	315	310
10	380	350	300	280	305	290	255	300	AH	A	A	A	A	A	A	A	A	285	E290A	290	290	290	340	330
11	310	270	250	295	300	280	230	265	A	A	A	A	A	A	240	240H	310	A	E280A	280	295	350	350	320
12	310	300	290	255	280	255	250	E290A	C	260	290H	195	250	A	A	I250A	250	255	250	260	280	305	300	320
13	300	270	250	250	C	C	C	C	C	C	C	C	A	A	A	A	A	E340A	E320	290	295	320	300	370
14	300	270	275	300	310	330	255	250	260	270H	250H	245	I285A	I310A	I290A	225	245H	240H	250H	290	285	330	I340S	310
15	400	275	210	250	I270A	295	260	400	300	I275A	240	A	B	A	A	320	A	A	A	E300A	355	390	340	380
16	450	300	250	220	315	330H	255	255	250H	290H	300	I260A	A	A	260	250	A	A	E300A	A	A	I335A	320	350
17	300	270	255	250	280	300	255	245	250	250	225H	225	200	255	230	230	I255A	I270AH	240H	285	E320A	330	300	305
18	295	260	245	340	305	275	I250C	235	I245A	225	245	I230A	A	A	A	A	245	A	E310A	300	A	C	C	C
19	C	C	C	C	C	340	250	A	C	C	A	A	A	A	A	A	A	AH	250H	290	E310A	I350A	370	400
20	I310C	260	I290A	305	I320A	375	280	250	240	230H	A	A	A	I250A	250	240H	260	270	265	275	275	I325A	350	355
21	300	305	I325A	295	300	305	260	270	255H	A	A	A	250	I255A	225H	225H	I250A	245	260	265	I220A	E340A	390	360
22	395	320	275	330	370	330	255	290	300	250	A	A	A	A	A	260	A	A	E280A	245	250	325	310	325
23	320	300	325	285	260	250	A	A	I290A	200H	220	210	230	230	240	250	250	255	A	E275A	240	275	370	340
24	350	300	350	330	255	250	240	240H	225H	I245AH	225H	250	I225A	I250A	225H	255	245	235	265H	285	260	270	290	310
25	375	310	320	300	320	295	250	250	260	A	A	A	250	250	A	A	A	270	I270AH	265	260	250	305	320
26	350	310	325	300	250	255	240	235H	255	A	A	300	I260A	240	250	240	240	250	250	260	275	275	315	350
27	350	305	300	260	250	260	260	245	250	A	AH	300H	I235A	I245A	A	A	A	A	A	295	320	360	350	275
28	290	300	305	350	360	410	I340C	I255C	270	250	245	I225A	I240A	I275A	A	A	A	245	275	300	305	305	305	350
29	305	260	240	235	320	I295C	255	250H	255H	I280A	250	I245B	250	I250A	I265C	250	I270A	230	250	I270C	290	280	350	340
30	355	360	305	255	255	310	255	240H	240	255	240	I285A	I290A	250	270	255	250	250	250H	I265C	305	325	300	310
31																								
No.	29	28	29	29	28	29	27	26	22	14	13	14	16	17	17	20	17	19	18	25	24	26	29	28
Median	325	300	290	295	305	300	255	250	260	250	245	240	250	250	250	250	250	255	260	275	290	330	340	330

h'F

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

The Radio Research Laboratories, Japan.

Y 10

IONOSPHERIC DATA

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

h'Es

Sweep 1.0 Mc to 200 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 11

57

IONOSPHERIC DATA

Jun. 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	fE2	fE	fE2	fE2	fE			h'2	h'5	h'2	h'2	h'2	C3	C2	C2	h'	l2	l2	h'	C6	fE2	fE4	fE3fE5	fE3
2	fE3	fE2	fE3	fE5	fE4	fE5	h'2	h'4	h'3	h'3	C2	l3	C3	C2	l2	l4	l2	l2	h'2l4	fE2fE3	fE3fE3	fE3	fE3	fE4
3	fE3	fE5	fE4	fE5	fE3	fE fE	h'2	h'3	h'2	h'3	h'3	C2	l5	l2	l2	l2	l2	l3	l3			fE3	fE5	
4	fE3	fE2	fE2	fE4	fE2		h'2	h'	h'3	h'2	h'	h'3	h'			h'	h'3	h'4	C4l2	fE2fE2		fE2	fE3	fE7
5	fE5	fE4	fE4	fE5	fE5	fE3	h'2	h'3	h'8	h'3	C3	C2	h'			l2	l3	l3	l3	fE2fE4	fE2fE6	fE3fE	fE5	fE4
6	fE3	fE5	fE4	fE4	fE4	fE4	l2	h'	h'4	h'2	h'3	h'	h'2	h'	l	l	l2	l2	l6	fE5	fE6	fE3	fE2	fE3
7	fE2	fE2	fE2	fE3	fE	fE	h'	h'2	h'2	h'4	h'2	C2	l3	l h'	h'l	l	h'2	h'4l2	h'2	fE3	fE2fE4	fE3	fE4	fE3
8	fE3	fE3	fE3	fE4	fE2				h'4	h'3	h'3	l2	C2	l3	l2	l	h'l	h'	h'2	fE4	fE5	fE3	fE3	fE3
9	fE3	fE2	fE2	fE4	fE3	fE		h'2	h'5	h'3	h'3	h'2	l2	l2	C2	l	l3	l2	l4	fE2	fE5	fE2	fE6	fE
10	fE3	fE4	fE4	fE3	fE4	fE2	h'	h'4	h'4	h'4	h'5	h'3	l2	l2	l2	C2	l2	l2	l3	fE2	fE2	fE3	fE5	fE2
11	fE3	fE3	fE2	fE3	fE5	fE3	l	h'2	h'5	h'3	h'2	C2	C4	l3	l	l	l2	l5	l3	fE4	fE4	fE5	fE3	fE3
12	fE5	fE3	fE2	fE	fE		h'	h'3		h'3	l2	C	l	l2	l3	l	l	l2	l	fE3	fE4	fE		fE4
13	fE2	fE2	fE3	fE4									h'2	C2	l3	l3	l6	l4	l7	fE4	fE2	fE5	fE2	fE3
14	fE2	fE2	fE2	fE2	fE	l	h'3	h'2	h'2	h'2	h'	h'	h'2	h'	h'3	h'	h'		h'2l3	h'2l	fE2fE2	fE2fE2	fE3	fE5
15	fE6	fE3	fE	fE3	fE3	fE4	l3	h'3	h'2	h'2	h'	h'	h'	h'	h'3	h'	h'2	h'3	C4	fE2	fE4	fE3	fE4	fE2
16	fE3	fE2		fE	fE2	fE	h'2	h'2	h'2	h'2	h'2	h'3	h'2	h'2	l2	l2	l2	h'3l2	h'3l2	fE3	fE3	fE2	fE2	fE4
17	fE2	fE2			fE		h'l	h'	h'2	l	l	l	l	l	l		h'3	h'2	h'2	C2	fE4fE2	fE2		fE2
18	fE2		fE4	fE5	fE2	fE		h'2	h'4	h'	h'	h'2	h'2	h'2	h'2	h'2	h'	h'3	h'3	fE2	fE3			
19						fE2	h'2	h'4			C2	C2	C5	l3	l2	l3	l2	h'2l4	h'2l3	C2	fE3	fE5	fE3	fE3
20		fE4	fE3	fE2	fE3	fE4	l4	l2	l2	h'	h'3	h'2	h'2	h'	h'2	h'	h'	h'	h'2	C5	fE3	fE3	fE3	fE4
21	fE3	fE2	fE4	fE2	fE2	fE	l3	l3	l4h'2	h'4l	h'2l	fE4l	h'	h'3			h'2	h'	h'3	C3	fE4	fE3	fE3	fE6
22	fE3	fE6	fE	fE	fE2	fE4	l3	h'4	h'4	h'2	C4	C3	C4	l5	l3	l2	l3	l4	h'3l4	fE5	fE5	fE5	fE2	
23		fE2	fE4	fE3	fE7	fE7	l3	C3	C4	C	h'	l	l	l	l	l	l2	h'l3	h'2l2	h'5l2	fE7	fE3	fE3	fE2
24	fE3	fE2	fE3	fE4	fE4	fE		l2	l2	l2	h'	h'	h'	h'	h'2	h'	h'	l2	h'3	C5	fE2	fE2	fE2	fE2
25	fE4	fE3	fE3	fE3	fE3	fE4	l2	h'2	h'3	h'2	h'3	h'3	l2	l2	l3	l3	h'3	h'2	l4	h'l4	fE3fE3	fE2	fE4	fE2
26	fE2	fE2	fE3	fE4			h'	h'	h'2	h'3	C3	C	C2	l				l2	l2	h'l2	fE fE	fE2	fE2	fE3
27	fE3	fE2	fE2		fE4	fE4	h'2	h'	h'	h'2	h'2	h'2	h'2	h'3	h'	C2	l4	l2	l5	fE3	fE3	fE4	fE3	fE2
28	fE2	fE3	fE6	fE5	fE4				h'2	h'	l	h'2	h'2	C2	C3	l3	l3	l2	l3	fE4	fE3	fE3	fE2	fE3
29	fE2	fE3	fE2	fE			l	h'	h'	C4	l2		h'	l4		l2	l3	l2	l3		fE3	fE6	fE5	fE2
30	fE4	fE5	fE5	fE2	fE2	fE2	l	h'	h'		h'	h'2	h'3		l	l2	l2	l4	l2		fE2	fE4	fE5	fE6
31																								
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.

Y 12

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

June 1960	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	11	10	10	(10)	11	0	0	1	0	0
2	9	9	9	(4)	9	0	0	0	0	0
3	5	6	6	-	5	0	0	0	-	0
4	6	7	8	-	7	0	0	0	-	0
5	11	13	(11)	-	12	0	0	-	-	0
6	10	9	(9)	-	10	0	0	-	-	0
7	7	7	6	23	7	0	0	0	2	0
8	10	10	11	-	12	0	0	1	-	1
9	7	7	7	-	7	0	0	1	-	0
10	-	-	-	-	-	-	-	-	-	-
11	(24)	25	21	-	23	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	-	-
14	8	8	(10)	(8)	9	0	0	0	0	0
15	8	8	8	-	8	0	0	0	-	0
16	8	8	(7)	(8)	8	0	0	0	-	0
17	8	9	9	(7)	9	0	0	0	0	0
18	8	8	8	(7)	8	0	0	0	0	0
19	8	9	8	(8)	8	0	0	0	0	0
20	8	9	8	-	8	0	0	-	0	0
21	8	7	7	(8)	7	0	0	0	0	0
22	8	7	7	-	8	0	0	0	-	0
23	8	9	9	-	8	0	0	0	-	0
24	9	9	8	-	9	0	0	0	-	0
25	7	7	8	-	8	0	0	0	-	0
26	(8)	11	25	(13)	15	-	1	1	1	1
27	13	27	14	-	18	1	1	0	-	1
28	8	8	11	(9)	9	0	1	1	-	1
29	28	16	12	(8)	19	1	1	1	1	1
30	10	13	14	-	12	0	0	1	-	1

Outstanding Occurrences

June 1960	Start-time	Dura-tion	Type	Max. Inst.	Int. Smd.	Max. Time	Remarks
1	0648.0	2.0	CD/8	>1600	640	<0648.5	off scale
1	0836.7	>55	CD/9	900	210	0844.7	
6	1956.9	0.5	ECD/4	>900	140	-	off scale
6	2143.5	0.5	ECD/4	>1000	100	-	off scale
20	0131.8	1.5	CD/4	>900	≳ 500	<0132.3	off scale
20	0515.9	4.5	F/3	760	-	0516.9	
23	0329.3	≳ 0.8	CD/4	360	70	0329.8	
23	0331.2	1	CD/4	360	60	0331.6	
26	0435.0	5.5	CD/5	520	70	0436.4	
26	0752	3.5	CD/5	>1200	90	0753.5	off scale first part
		10		-	10	-	plus part
26	2351.7	0.8	ECD/4	670	170	-	
27	0005	50	CA/1	-	30	-	
27	0425	16	CD/8	190	70	0431.0	
27	0445	60	CD/8	370	70	0502.4	
29	0139.2	1.7	CD/9	>1000	60	0139.6	off scale first part
	0138	25		-	110	-	plus part
29	≲ 0214	~ 5	CD/4	260	60	0216.7	
	0221.8	6.5	CD/8	380	160	0223.7	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

June 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	ΔH
1	3+	- 3 3 3 / 4 (4) 3 3	3 3 2 2 / 1 2 2 2	2 1 1 2 / 2 1 1 1	U U U U / U U U U				
2	2-	- 1 1 1 / 3 (2) 1 2	1 1 2 2 / 2 1 1 1	2 1 1 1 / U U U U					
3	1+	- 1 1 (1) / 1 1 1 1	3 1 1 1 / 2 1 1 1	U U U U /					
4*	3o	- 2 2 3 / 1 2 3 4	3 3 3 4 / 2 2 1 1	U U U U /	0250	---			
5*	4-	- 4 3 (4) / (4 4 4 4)	4 3 (3) 4 / 1 2 3 3	W W U U /	---	1900	159γ		
6*	3+	- 3 3 (4) / C 3 4 3	3 3 3 4 / 3 2 4 3	U U U U /					
7	3-	- 1 1 3 / 2 2 3 3	3 2 (2) 4 / 2 2 3 2	U U N N /					
8	3-	- 1 2 1 / 3 3 3 3	4 2 3 4 / 2 2 3 3	N N N N /					
9	3-	- 2 1 1 / 4 2 3 3	4 2 3 3 / 3 3 2 2	N N N N /					
10	1o	- 1 1 1 / 2 1 1 1	3 2 2 (1) / 3 2 2 2	N N N N /					
11	1+	- 1 2 1 / 1 1 1 1	2 1 2 1 / 2 2 1 2	N N N N /					
12	1o	- 2 1 1 / 1 1 1 1	1 1 1 2 / 1 1 1 1	N N N N /					
13	1o	- 2 1 1 / 1 1 1 1	1 1 2 1 / 2 2 1 1	N N N N /					
[14]	2+	- 1 1 1 / 2 3 2 3	3 2 3 3 / 1 1 2 1	N N N N /					
[15]	3+	- 2 2 (4) / 4 3 3 4	3 2 2 3 / 3 3 2 2	N N N N /					
[16]	2+	- 2 1 1 / 2 2 2 2	3 2 2 (2) / 2 2 2 2	N N N N /					
17	1o	- 1 1 1 / 1 1 1 1	1 1 2 1 / 1 1 1 1	N N N N /					
18	2o	- 1 1 (3) / 1 1 1 3	2 2 2 3 / 2 1 1 2	N N N N /					
19	3-	- 1 3 (3) / 3 3 3 3	3 2 3 3 / 2 3 2 3	N N N N /					
20	3o	- 2 2 2 / 4 3 2 1	4 3 3 3 / 3 3 2 2	N N N N /					
21	3o	- 3 3 (3) / 2 3 3 3	3 2 3 3 / 2 2 2 1	N U U U /					
22	3o	- 2 2 2 / 4 4 3 1	4 3 3 2 / 1 2 2 2	U U N N /					
23	2o	- 1 2 1 / 1 2 2 2	3 2 3 2 / 2 2 2 2	N N N N /					
24	2-	- 1 1 2 / 1 1 1 1	3 3 2 2 / 1 1 1 1	N N N N /					
25	2o	- 1 2 2 / 1 1 2 2	3 2 2 3 / 1 (2 2) 1	N N N N /					
26	3o	- 3 2 (3) / 3 2 3 3	3 2 2 3 / (2 2 2 2)	N N N N /					
27	3-	- 1 2 3 / 3 3 3 3	3 3 3 3 / 3 2 2 2	U U U U /	0145	---			
28	3o	- 1 1 4 / 4 3 4 3	3 2 3 3 / 2 1 1 2	U U U U /	---	1600	106γ		
29	3o	- 1 1 2 / 4 3 4 3	4 3 3 4 / 3 2 3 1	U U U W /	1938	---			
30	3+	- 1 2 2 / 4 4 4 3	4 4 3 2 / 4 4 3 2	W W W W /	---	---	146γ		

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

June 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										
1			12" 10		19	08.35	40	Slow	3	08.35	123	3	x	x	
8				10'		07.41	28	Slow	1+	07.43	55	2	x		
13			14' 8		20	07.35	13	S	3-	07.37	70	2+	x	x	
14	-	-	-	15	7	00.04	20	Slow	2-					x	
14	9"	12	22	17	10	22.20	27	Slow	1				x		
15	10"	-	10' 14			02.53	31	S	1					x	
16	6"	8			11	02.29	35	Slow	1+	02.34	40	1			
20	16"	18		18		01.28	13	S	2				x	x	x
25		16	8	7		20.44	15	S	2				x	x	
26			21	25		04.34	25	S	3-					x	
27	-	17	15	24	-	04.19	29	S	2-					x	
27	-	-	18		-	04.57	15	S	2					x	
27		25	10	-		21.39	120	S	2-				x	x	
30		24	19'	15		03.14	40	S	2						

PROVISIONAL IONOSPHERIC DATA

Showa Base

Lat. 69° 00.4′ S
Long. 39° 35.4′ E

Apr. 1960 | foF2 | 45° E Mean Time (G.M.T.+3h.)

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	U3.8R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
2	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
3	B	B	B	B	F	B	B	B	B	B	B	B	B	B	5.2	5.2	4.9	5.6F	5.3F	4.3F	3.0	B	B	B
4	3.2R	F	3.3F	U4.3F	3.6F	4.4F	3.7F	5.3F	5.0F	6.0F	6.9F	7.4F	9.0F	8.4	8.4	8.4	7.5	7.5F	6.1	4.4F	3.8F	B	3.7R	B
5	B	B	F	4.6F	4.8F	B	4.6F	4.6F	B	B	B	7.0F	6.4F	7.1F	8.0F	8.6	8.6	8.6	6.7	B	3.4R	B	B	B
6	B	B	B	4.3R	B	3.6F	3.8F	4.0F	5.4	B	B	7.2R	7.7F	8.2F	8.3	8.9	9.4	9.5	8.9	7.9F	5.4F	3.2F	B	B
7	B	B	F	F	B	B	B	B	B	4.7R	5.4	6.3F	6.6F	7.5F	7.8F	7.5F	8.0F	7.0F	6.9	4.3F	B	F	B	B
8	B	B	B	B	B	B	B	B	B	5.3F	5.1F	6.0	6.3F	6.2	6.2F	6.8	7.0F	6.3	5.6	5.0F	B	B	B	C
9	B	B	B	B	B	3.9F	4.3F	B	B	5.9R	B	7.6R	7.2R	7.1R	8.0	7.4	7.6F	7.4F	7.4F	5.8	5.1	3.7F	2.6	B
10	B	B	4.1R	3.1R	B	B	4.8R	3.3F	6.4R	B	B	6.0	7.1F	7.9	8.3F	8.0	10.3	10.6	11.6F	6.3F	U3.4F	5.7F	5.1F	B
11	F	B	4.4F	B	5.1F	3.1F	B	B	4.7F	4.2R	B	7.2	6.8F	6.9F	7.3F	6.4S	6.5F	6.1	5.1	3.9F	2.4	B	B	B
12	B	B	3.8R	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	7.1	5.4	B	B	B	B
13	B	B	B	B	B	3.6R	B	B	B	B	B	B	B	6.5F	6.9F	C	6.3	6.6F	6.2F	6.0F	5.6F	U3.1F	2.1	3.7
14	B	B	F	B	B	B	B	5.4R	5.3F	B	7.3F	B	9.6R	10.3R	10.3R	11.2R	B	B	9.9R	8.2	4.6R	B	B	B
15	B	B	B	B	B	B	B	5.0F	B	B	5.5R	6.2F	6.4R	6.1	6.7	7.8	7.9F	8.5F	6.9F	6.3F	4.8F	3.0	2.3R	2.6R
16	B	U4.4R	B	B	B	B	4.7R	4.7R	5.4R	6.1F	7.0R	7.6R	8.4R	B	10.3R	10.4	11.6	9.5F	S	F	F	B	F	B
17	B	B	3.5F	B	B	4.9R	B	B	B	B	6.0R	B	6.3R	6.4	7.5	7.9R	8.0R	7.5	7.4	5.0R	3.6F	B	B	B
18	B	B	B	3.7F	B	B	B	C	C	C	B	B	B	6.3	6.4R	7.8R	7.4F	7.4F	6.9F	6.5F	3.5R	B	B	3.0R
19	B	B	B	B	B	B	B	5.9R	5.6R	6.3F	7.6F	8.4F	8.6	9.2	9.7	9.9	7.3	8.7	7.0	5.5	4.2	3.1	2.2R	1.9R
20	B	1.8R	2.0R	2.0R	2.1R	2.1R	B	B	4.2R	6.1F	8.4F	9.9R	10.5R	10.8R	11.3	11.1	12.0R	10.7	9.6	7.3F	4.6F	3.2	2.6R	B
21	B	B	B	1.7R	2.1R	2.0R	2.3	3.0F	4.7F	7.0	9.0	10.1	11.4	11.5	12.4	11.6	11.6	11.0	9.0	8.0	8.1	5.3	3.8	2.6
22	2.1R	2.3	B	B	4.5R	F	F	6.2F	6.0F	5.4F	B	8.4F	10.3R	11.5R	10.6R	11.1R	11.0R	11.3	9.2	8.1	7.3F	6.1F	4.8F	3.5F
23	2.7	2.6R	B	B	F	B	F	F	8.3F	7.5F	7.6F	8.4F	9.4	10.2R	11.6R	11.3R	11.2	10.7R	8.8	6.8	5.2	4.6	3.6	3.8R
24	B	B	5.5F	6.6F	B	B	B	B	B	B	B	B	B	6.7	7.0R	7.3	7.3F	4.6F	B	B	B	B	B	B
25	F	B	B	4.6R	F	B	4.1R	B	B	B	B	B	B	B	5.9F	6.7F	7.1	7.0	3.3F	B	B	B	B	B
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	6.6R	6.3	5.3	3.5	B	B	B	B	B
27	B	B	B	B	B	B	B	3.1R	B	B	B	B	5.9R	5.9R	6.9R	7.8R	7.6	7.6F	6.2F	4.6	B	B	B	B
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	5.2R	4.6F	B	B	B	B	B	B	B
29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
31																								
No.	4	4	7	9	6	8	8	11	11	11	11	15	18	20	23	24	24	23	23	20	17	10	10	7
Median	3.0	2.4	3.8	4.3	4.0	3.6	4.2	4.7	5.4	6.0	7.0	7.4	7.4	7.3	8.0	7.8	7.8	7.5	6.9	5.9	4.6	3.4	3.1	3.0
U.Q	3.5	3.5	4.4	4.6	4.8	4.2	4.6	5.4	6.0	6.3	7.6	8.4	9.4	9.7	10.3	10.2	9.8	9.5	8.9	7.0	5.4	5.3	3.8	3.7
L.Q	2.4	2.0	3.3	3.6	3.1	3.6	3.8	3.3	4.7	5.2	5.5	6.3	6.4	6.4	6.9	7.0	7.0	6.6	6.1	4.8	3.4	3.1	2.3	2.6
Q.R	1.1	1.5	1.1	2.0	2.7	1.6	0.8	2.1	1.3	1.1	2.1	2.1	3.0	2.3	3.4	3.2	2.8	2.9	2.8	2.2	2.0	2.2	1.5	1.1

The Radio Research Laboratories, Japan.

Observed by M. Ose

foF2

Sweep 1 Mc to 20 Mc in 20 min/sec in automatic operation.

IONOSPHERIC DATA IN JAPAN FOR JUNE 1960
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