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IONOSPHERIC DATA IN JAPAN

FOR JUNE 1961

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THE RADIO RESEARCH LABORATORIES

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KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°03.2′E.	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Koganei-machi, Kitatama-gun, Tokyo-to
Yamagawa	31°12.5′N.	130°37.7′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

f_0F2, f_0F1, f_0E — The ordinary-wave critical frequency for the $F2$, $F1$ and E layers respectively.

f_0E_s — The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.

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

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

(M 3000)$F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

(M 3000)$F1$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.

$h'F2$ — The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.

$h'F$ — The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e. g., at night, and with the current $h'F1$ when $F1$ stratification is present.

$h'E_s$ The lowest virtual height of the trace used to give the f_0E_s.

$hpF2$ The virtual height of the $F2$ layer measured on the ordinary-wave branch at a frequency equal to 0.834 f_0F2.

$ypF2$ The semi-thickness of the $F2$ layer deduced from a parabolic fit to the "nose" of the electron density distribution with height and based on the observed $h'f$ trace. (The difference between $hpF2$ and the virtual height at 0.969 f_0F2).

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

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

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

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

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

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

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

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

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

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

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

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

O Measurement refers to the ordinary component.

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceeding symbol on monthly tabulation sheets.

D *greater than.....*

E *less than.....*

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magnetoionic component.

c. Description of Standard Types of E_s

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

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

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

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

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

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

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

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

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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M: multiple peaks separated by relatively long period of quietness

F: multiple peaks separated by relatively short period of quietness

E: sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

The tabulated circuits contain London (Commercial circuit), WWV (frequencies 10, 15, 20 Mc broadcast from Washington, D.C.), San Francisco (commercial circuit) and WWVH (frequencies 10, 15 Mc broadcast from Hawaii), which are received at Hiraiso Radio Wave Observatory near Tokyo.

Warnings of radio propagation broadcast from JJY station are expressed in three grades:

N=normal
U=unstable
W=disturbed

The letter W expresses disturbed condition expected to be during the following 12 hours after issue. The letter U and N means also unstable or normal conditions, respectively.

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

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

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

The data of short wave fade-out (SWF) are preparated from the field intensity records on following circuits received at Hiraiso. Characteristics of the phenomenon are classified as follows.

Circuits and Drop-out intensity

W S .....WWV 20 Mc, 15 Mc and 10 Mc (Washington)
S F .....WNA-27: 7.6550 Mc, WND-20: 10.4925 Mc, WNC-93: 13.7525 Mc, 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)
M N .....DZM-28: 14.5850 Mc (Manila)
L N .....GIJ-34: 14.6702 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

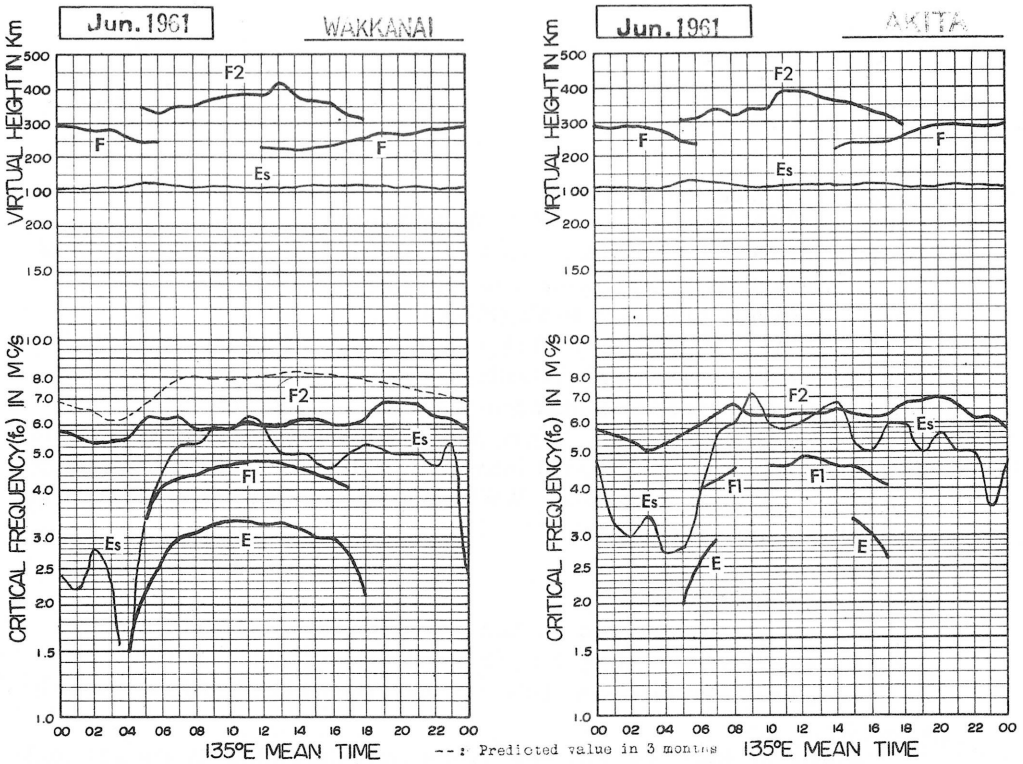
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

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.*

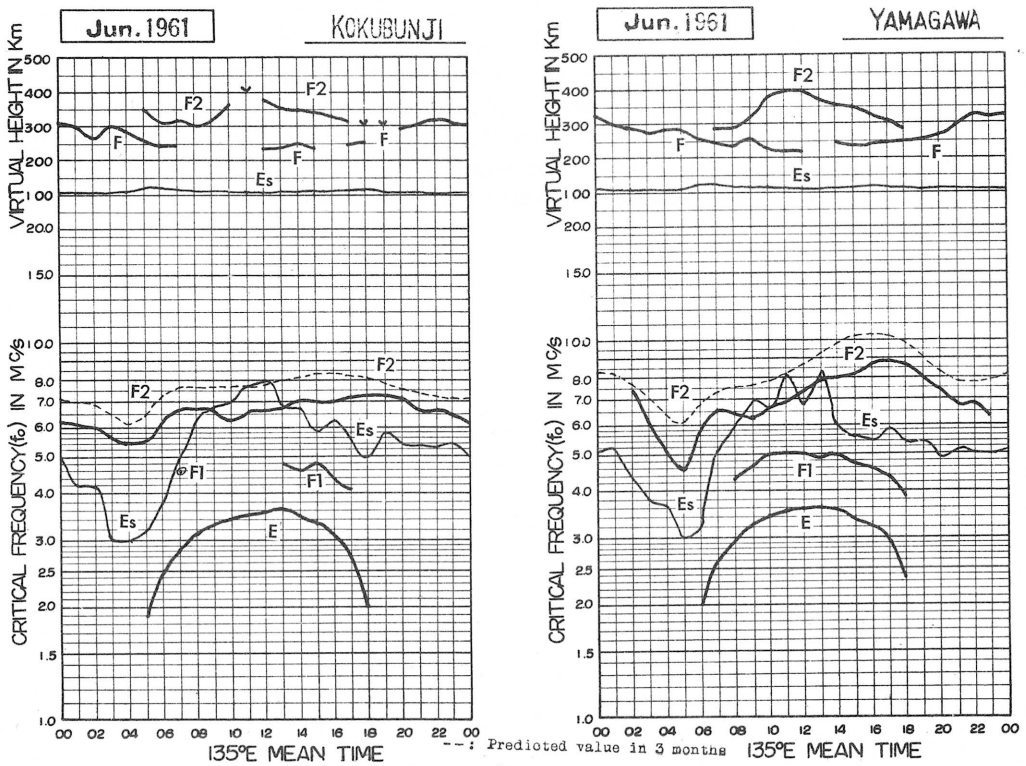
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

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

Jun. 1961 | foF2 | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.6	5.0	F	F	FH	A	A	A	A	4.6	A	A	A	A	$I5.0^{A}$	$I5.0^{A}$	5.1	5.2	$I5.1^{A}$	$I5.6^{A}$	$I6.3^{A}$	$I5.8^{F}$	$I5.7^{F}$	5.4^{F}
2	5.4^{F}	6.0^{F}	4.2^{F}	4.0^{F}	3.6^{F}	4.3	$I4.8^{A}$	5.0	A	A	A	A	$I4.7^{R}$	$I5.0^{A}$	$I4.8^{R}$	4.7	4.5^{H}	4.6	5.0	$I5.5^{A}$	6.3	6.7	5.9	5.3
3	5.0	4.8	4.3	$I4.4^{F}$	4.3^{F}	5.3^{F}	5.3	5.1	5.1	$I5.0^{R}$	5.0	5.0	5.5	5.2	5.0	5.0	5.0	5.1	5.6	6.3	6.5	6.3	5.6^{F}	5.5^{F}
4	5.3	5.2	5.0	4.6^{F}	4.3	5.0	5.2	5.4^{H}	5.8	6.3	5.9	5.9	5.5	5.2	5.4	5.5	5.5	5.7	5.6	6.0	7.0	5.6^{F}	F	F
5	F	5.0^{F}	$I4.2^{F}$	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A	5.7	5.8	$I6.2^{A}$	6.0	5.8	5.7
6	5.6	5.1	4.6^{F}	$I4.3^{F}$	4.2^{F}	5.0^{H}	5.3	A	A	A	$I5.6^{A}$	A	A	A	5.3	5.7	5.8	$I5.2^{A}$	5.3	6.3	6.9	6.3	$I5.9^{FS}$	5.6^{F}
7	5.2	5.3	4.5	4.0	4.0	4.3	5.0	$I4.8^{A}$	5.0	A	A	A	A	5.0	5.0	5.3	5.3	5.2	5.3	$I5.5^{A}$	5.9	$I6.2^{A}$	6.0^{F}	F
8	F	F	F	F	5.0^{F}	5.1^{FH}	5.0	A	A	A	A	A	A	5.0	5.3	5.5	5.1	$I5.3^{A}$	A	A	A	$U5.8^{S}$	$I5.7^{F}$	5.5^{F}
9	5.6^{F}	5.6^{F}	$I4.7^{F}$	$I4.5^{F}$	4.5^{F}	4.9^{F}	5.1	5.1	5.3	5.4	A	A	A	A	A	5.3	5.4	5.8	6.1	6.4	$I6.8^{S}$	6.3	6.2	$I5.6^{F}$
10	5.5^{F}	5.3^{F}	5.6^{F}	5.1^{F}	5.3^{F}	5.6	6.1	6.5	$U7.4^{R}$	$I6.8^{A}$	$I6.8^{A}$	$I6.1^{A}$	6.0	6.0	6.2	6.4	5.8	5.8	6.0	7.3	$I8.1^{S}$	$U8.6^{S}$	8.3	6.5
11	5.7	5.6	5.3	5.3^{F}	5.5^{F}	6.6^{F}	7.9	8.6	6.8	5.3	5.5	6.1	6.2	6.8	7.0	6.5	$I6.4^{A}$	A	A	A	$I7.1^{FS}$	$I7.3^{FS}$	$I7.3^{FS}$	7.2
12	6.5	6.1^{F}	5.8^{F}	5.6^{F}	6.0^{F}	6.5	7.6^{H}	7.1	5.9	5.5^{F}	5.8	6.5	6.5	6.4	6.6	6.5	$I6.5^{A}$	6.8	$I7.0^{A}$	7.4	S	S	A	S
13	S	6.6^{F}	$I6.3^{F}$	6.3^{F}	6.2^{F}	6.8	6.3	$I5.9^{A}$	$I5.6^{A}$	A	A	A	A	5.2	5.3	$I5.3^{A}$	5.3	5.5	$I6.2^{A}$	$I6.9^{A}$	$U7.8^{S}$	F	F	F
14	5.1^{F}	5.3^{F}	5.0	4.8	4.9^{F}	5.5^{FH}	6.3^{F}	6.0	5.3	A	A	A	5.5	5.3^{H}	5.3	5.5	5.9	5.5	6.0	7.1	$I7.5^{S}$	$I7.2^{S}$	6.3^{F}	6.2^{F}
15	5.8	5.8	5.4^{F}	5.4^{F}	5.5^{F}	5.8	5.3	6.4	7.6	6.4	$I6.3^{A}$	6.4	5.7	6.0	6.2	6.3	6.0	6.6	7.3	$I8.0^{S}$	8.2	7.4	7.0	6.9
16	6.6	6.3	6.1^{F}	5.6	5.9^{F}	6.5^{F}	7.0	$I7.6^{A}$	$I7.4^{A}$	$I6.4^{A}$	6.0	$I5.7^{A}$	$I5.5$	5.6	6.1	6.2	A	A	A	A	A	8.0^{F}	$I7.4^{F}$	6.4^{F}
17	6.4^{F}	6.3^{F}	6.3^{F}	6.5^{F}	6.2^{F}	6.4^{F}	6.5	7.1	$I7.3$	6.7	$I6.5^{R}$	6.3	6.6	$I6.8^{R}$	6.7	6.8	6.9	7.0	7.0^{H}	8.0	$U8.2^{S}$	8.0	A	A
18	A	SF	F	F	F	7.8^{F}	7.5	6.5	5.8	A	A	A	A	6.7	6.8	$I6.7^{A}$	$I6.8^{A}$	$I6.6^{A}$	6.6	$I7.1^{A}$	7.7	$I7.9^{FS}$	7.8	7.5
19	7.0	6.6	6.4	6.4	5.9	6.3	6.8	6.4	$I6.8^{A}$	5.8	5.9	5.9	6.0	6.7	6.4	6.3	6.3	6.6	6.4	7.1	8.0	7.9	$I7.5^{S}$	$I7.3^{S}$
20	$U7.1^{S}$	$U7.3^{S}$	$I6.9^{F}$	6.5	7.0^{F}	7.3^{F}	8.2	8.4	8.3^{H}	8.3	7.9	$I7.6^{A}$	$I7.5^{A}$	$I7.6^{A}$	7.8	$I7.4^{A}$	7.0	$I6.9^{A}$	6.7	$I7.4^{A}$	8.0	$U8.0^{S}$	8.1	F
21	F	F	6.5	6.3	6.0	6.8^{H}	7.2	7.1	7.1	7.1	$I6.9^{A}$	$I6.9^{A}$	7.0	$U7.0^{R}$	7.3	6.8	6.0	6.0	6.0^{H}	6.8	$I7.9^{S}$	7.8	$I7.9^{S}$	$I7.8^{S}$
22	7.6	7.4	6.1	5.6^{F}	5.5^{F}	$I6.8^{A}$	7.3	$I7.7^{A}$	7.9	5.8	A	A	A	A	7.3	7.4	7.1	7.4	7.3^{H}	7.3	$U7.5^{S}$	7.5	$U7.0^{S}$	6.8
23	7.0	6.1	5.4	5.1^{F}	$I4.9^{A}$	$I5.8^{A}$	$I6.0^{A}$	6.3	5.5	5.6	$I5.4^{A}$	$I5.6^{A}$	5.3	A	A	A	A	5.8	6.0	6.1	6.8	7.3	6.3	6.0
24	F	F	F	F	5.7^{F}	6.8^{F}	6.0	5.4^{H}	A	A	R	$I6.6^{A}$	6.6	$I6.2^{R}$	6.6	6.5	7.0	6.5	7.0	6.7	6.8	6.4	$I6.6^{F}$	6.3
25	6.0	5.9	5.7	5.4	5.6	6.3^{H}	$I6.2^{R}$	6.3	6.5	5.8	$I6.8^{R}$	7.1	$I6.7^{C}$	6.8	7.0	7.5	7.3	7.4	8.0	8.7	$U8.1^{S}$	7.6	7.2	7.0
26	6.3	5.9^{F}	6.9^{F}	5.8^{F}	6.0^{HF}	$I7.0^{SH}$	6.8	6.4	5.7	5.8	4.6	5.8	6.0	6.0	A	A	A	6.5	$I6.4^{A}$	$I6.5^{A}$	$I6.8^{A}$	6.7	6.3	$U6.3^{S}$
27	5.9	5.5	5.4^{F}	5.4^{F}	5.6	6.4	7.6	8.5	7.4	6.2	6.2	6.2	$J6.3^{R}$	$J6.6^{R}$	6.8	6.7	7.9	7.6	8.4	7.7	6.3	$I7.0^{S}$	6.6	6.8
28	6.7	A	F	F	5.0^{F}	5.3	5.4	5.3	5.2	5.2	5.5	$I5.4^{R}$	5.6	5.3	5.1	5.3	5.7	6.6	7.2	7.3	6.3	6.0	6.0	5.9
29	5.7	5.3	5.5	5.2	4.6	5.6	5.5^{H}	5.3	5.6	6.0	A	A	R	5.3	5.3	5.2	6.0	6.8	6.4	6.2	5.3	5.2	$I5.3^{A}$	5.3
30	$U4.9^{S}$	4.8	$I4.2^{F}$	$I3.6^{F}$	A	A	R	$I5.0^{A}$	5.3	$I5.1^{A}$	4.9	A	R	A	5.1	5.0	$I4.8^{A}$	5.0	5.4	5.8	6.2	6.5	6.3	6.0
31																								
No.	24	25	25	24	26	27	27	26	24	21	18	17	19	23	26	27	26	27	27	27	27	28	26	24
Median	5.8	5.6	5.4	5.4	5.5	6.3	6.2	6.4	5.8	5.8	5.9	6.1	6.0	6.0	6.2	6.2	6.0	6.0	6.2	6.9	6.9	6.8	6.3	6.2
U.Q	6.6	6.2	6.1	5.7	5.9	6.8	7.2	7.1	7.4	6.4	6.5	6.4	6.6	6.7	6.8	6.7	6.6	6.8	7.0	7.3	7.9	7.7	7.3	6.8
L.Q	5.4	5.2	4.6	4.6	4.6	5.3	5.3	5.3	5.5	5.4	5.5	5.8	5.5	5.2	5.3	5.3	5.3	5.3	5.6	6.1	6.3	6.2	5.9	5.6
Q.R	1.2	1.0	1.5	1.1	1.3	1.5	1.9	1.8	1.9	1.0	1.0	0.6	1.1	1.5	1.5	1.4	1.3	1.5	1.4	1.2	1.6	1.5	1.4	1.2

foF2

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

The Radio Research Laboratories, Japan.

W 1

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Jun. 1961

foF1

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						A	A	A	A	A	A	A	A	A	A	A	4.0	$^{I}3.7^{A}$	A					
2						3.2	$^{I}3.5^{A}$	3.9	A	A	A	A	$^{I}4.3^{R}$	$^{I}4.4^{A}$	$^{I}4.4^{A}$	4.3		3.8	3.3					
3					2.5	3.3	$^{I}3.7^{A}$	$^{I}3.9^{A}$	4.1	4.3	4.3	$^{I}4.3^{R}$	4.4	4.3	4.3	4.3	4.1	A						
4						3.5	$^{I}3.9^{A}$	4.2	4.3	4.3	4.5	4.5	4.5	$^{I}4.6$	$^{I}4.4$	4.2	$^{I}4.2^{A}$	A						
5						C	C	C	C	A	A	A	A	A	A	A	A	A	A					
6							A	A	A	A	A	A	A	A	A	A	A	A						
7						3.4	3.5	A	A	A	A	A	A	A	A	4.2	4.2	3.8						
8							A	A	A	A	A	A	A	A	4.3	A	A	A						
9							A	A	A	4.2	A	A	A	A	A	A	4.3	A						
10						4.0	$^{I}4.2^{A}$	A	A	A	$^{I}4.6^{A}$	$^{I}4.7^{A}$	4.8	4.6	4.6	4.3	$^{I}4.2^{A}$	A						
11						3.7	4.2	$^{I}4.3^{A}$	4.4	$^{I}4.6^{A}$	4.8	4.6	4.8	$^{I}4.7^{B}$	A	A	A	A						
12								$^{I}4.3^{A}$	$^{I}4.5^{A}$	$^{I}4.7^{A}$	4.7	A	A	A	4.7	A	A	A						
13							A	A	A	A	A	A	A	A	A	A	A	A	A					
14							$^{I}4.0^{A}$	A	A	A	A	A	4.7		4.7	$^{I}4.5^{A}$	4.3	$^{I}4.2^{A}$	3.7					
15							4.1	4.3	A	A	A	4.8	$^{I}4.9^{A}$	4.9	4.7	4.6	$^{H}4.7$	4.3	3.8					
16						A	A	A	A	A	A	A	A	$^{I}5.0$	$^{I}4.8^{A}$	4.7	A	A	A					
17						A	4.8	A	A	4.9	$^{I}5.0^{A}$	5.0	5.0	$^{I}5.0^{A}$	5.0	4.8	4.8	4.2						
18							A	A	A	A	A	A	A	A	A	A	A	A	A					
19						3.8	4.1	$^{I}4.3^{A}$	$^{I}4.6^{A}$	$^{I}4.9^{A}$	5.0	4.9	5.0	5.0	5.0	4.9	4.6	4.4						
20							A	A	A	5.0	5.1	A	A	A	A	A	A	A						
21							4.2	$^{I}4.6^{A}$	4.8	4.9	A	A	A	A	$^{I}4.9^{A}$	$^{U}5.0^{L}$	4.8	4.2						
22							A	A	A	A	A	A	A	A	A	4.7	A	A						
23							A	$^{I}4.2^{A}$	A	A	$^{I}4.9^{A}$	$^{I}5.0^{A}$	A	A	A	A	A	4.1						
24							4.1		A	A	A	A	A	$^{I}5.0^{B}$	$^{I}4.8^{A}$	4.7	4.4	4.1	L					
25								A	L	A	A	4.9	$^{I}4.9^{C}$	4.9	4.8	A	A	A	A					
26							4.1	4.3	A	A	A	4.6	4.7	$^{I}4.7^{B}$	A	A	A	A	A					
27							4.1	4.3	4.4	$^{I}4.6^{A}$	$^{I}4.7^{A}$	4.9	4.9	4.8	$^{I}4.6^{A}$	4.4	$^{I}4.4^{A}$	4.0	A					
28						3.4	3.9	A	A	4.5	$^{I}4.6^{A}$	$^{I}4.6^{R}$	4.6	$^{I}4.6^{A}$	4.6	4.5	4.2	4.0	3.6					
29						3.0		4.1	$^{I}4.2^{A}$	A	A	A	B	4.6	$^{I}4.5^{A}$	4.3	4.3	4.1						
30								A	A	A	A	A	4.5	$^{I}4.4^{A}$	$^{I}4.3^{A}$	$^{I}4.3^{A}$	A	A	A					
31																								
No.					1	9	15	12	8	11	11	12	14	16	18	17	15	13	4					
Median					2.5	3.4	4.1	$^{U}4.3$	4.4	4.6	4.7	4.8	4.8	$^{U}4.7$	4.6	4.5	4.3	4.1	3.6					

foF1

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

The Radio Research Laboratories, Japan.

W 2

10

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						2.00	2.40	2.80	3.00	I 3.10 A	3.20	A	A	A	I 3.00 A	I 3.05 A	2.95	2.40	S					
2					1.25	2.15	2.55	2.85	3.00	3.10	3.10	3.15	3.10	3.15	3.00	3.15	3.00	2.60	2.00					
3					1.50	2.05	2.50	2.90	3.00	3.15	3.20	3.15	3.15	3.20	3.05	3.05	3.10	2.50	2.05					
4					1.40	2.15	2.40	2.70	3.00	3.15	3.15	3.15	3.10	3.00	I 3.10 A	3.10	2.95	2.50	2.10					
5					C	C	C	C	C	3.15	3.20	3.15	3.20	3.05	2.90	2.45	I 2.40 A	I 2.35 A	2.05					
6						2.05	2.55	3.00	3.10	3.20	3.25	3.05	3.05	I 3.00 S	A	A	A	A	A					
7						A	2.55	2.90	3.05	3.15	3.35	3.30	3.20	I 3.20 S	3.05	2.90	3.00	I 2.65 A	2.15	S				
8						2.10	2.65	3.00	3.10	3.20	3.25	3.25	3.05	3.00	3.30	3.20	3.00	2.60	2.10					
9					1.35	I 2.10 A	2.60	2.80	2.90	3.20	3.25	3.15	3.25	3.15	3.05	I 2.95 A	2.95	2.75	S					
10						2.30	2.60	2.90	3.15	3.25	I 3.30 B	3.40	3.00	3.35	3.30	3.20	3.05	I 2.60 A	S					
11					1.45	2.20	2.55	2.80	3.10	3.25	3.25	3.35	3.60	I 3.60 B	A	A	A	A	A					
12					S	2.00	2.70	3.00	3.10	I 3.20 S	3.25	3.30	3.10	I 3.20 A	I 3.15 S	3.25	I 3.05 A	2.65	2.10					
13					S	2.10	2.60	2.90	3.10	3.25	3.20	3.40	3.25	I 3.05 B	3.10	I 3.00 A	2.95	I 2.80 A	2.10					
14					1.50	2.30	2.65	3.00	3.20	3.30	3.30	3.30	3.30	3.35	3.35	2.95	2.95	2.80	2.15	S				
15					I 1.55 S	2.00	2.65	3.00	3.20	3.30	3.40	3.50	3.35	I 3.45 A	3.35	3.00	3.20	2.80	2.20	S				
16					A	2.25	2.75	3.00	3.10	3.00	I 3.20 S	3.25	3.15	3.00	I 3.05 A	I 3.15 A	3.00	2.70	2.15	S				
17					2.00	2.20	2.70	3.00	3.15	3.30	3.35	3.25	3.00	I 3.10 S	I 3.20 S	I 3.20 A	I 3.15 A	2.90	2.30	S				
18					S	S	2.75	3.00	3.30	3.50	3.50	3.65	3.50	I 3.30 S	I 3.05 S	I 3.05 A	I 2.95 S	2.80	A					
19					S	2.20	2.65	3.00	3.15	3.40	3.50	3.55	3.65	3.55	3.30	I 3.00 A	I 2.95 A	2.90	A					
20						A	2.80	3.05	3.25	I 3.40 B	3.60	3.60	3.50	I 3.50 B	3.20	3.10	3.00	2.60	A	S				
21						A	2.75	3.10	3.25	3.40	I 3.35 B	I 3.40 A	3.25	3.40	3.25	3.00	3.20	2.95	2.25	S				
22					S	2.20	2.85	3.00	3.20	3.35	3.50	3.50	3.40	A	A	R	3.10	2.85	S					
23						A	A	I 2.90 S	3.15	I 3.30 A	3.45	3.70	3.60	B	B	B	3.00	2.75	S	S				
24						S	2.80	3.10	3.25	I 3.50 B	3.50	B	A	B	A	3.00	3.00	2.80	2.40	S				
25					S	S	2.75	3.00	3.25	I 3.30 B	I 3.35 B	I 3.45 B	I 3.50 C	3.50	3.55	3.25	3.00	2.60	S	S				
26					S	S	2.70	3.00	3.10	3.15	A	B	B	I 3.60 B	I 3.45 R	3.30	3.05	2.65	S	S				
27					S	S	2.60	3.00	3.05	3.10	3.05	3.25	3.30	3.40	3.45	3.05	3.00	2.80	S	S				
28						S	2.60	2.95	3.10	3.30	3.40	3.50	3.40	I 3.30 A	3.30	2.90	I 2.90 A	2.70	S	S				
29					S	S	2.70	3.00	3.10	3.30	3.30	I 3.50 B	I 3.40 B	3.50	I 3.40 B	3.25	2.95	2.65	S	S				
30					S	S	2.55	2.90	3.00	3.10	I 3.20 B	3.00	A	A	A	3.20	3.00	2.60	S					
31																								
No.					8	17	28	29	29	30	29	27	26	25	24	26	28	28	14					
Median					1.50	2.15	2.65	3.00	3.10	3.25	3.30	3.30	3.25	3.30	3.20	3.05	3.00	2.70	2.10					

foE

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	6.3	5.3	4.3	3.3	5.1	8.0	10.0	10.3	7.0	7.0	8.3	8.0	7.3	6.5	8.3	3.5	5.3	6.5	11.0	8.0	5.1	5.3	3.5
2	2.9	E	E	E	2.0	2.8	6.1	4.5	5.7	5.0	4.3	5.2	3.8	4.3	4.0	G	G	3.1	5.3	5.2	3.1	3.3	E	E
3	E	E	E	E	G	2.8	4.6	5.1	6.3	4.0	4.0	3.8	4.3	4.0	3.8	3.5	4.2	4.3	7.3	4.5	2.5	3.3	6.3	6.3
4	4.3	E	3.0	E	G	3.0	7.5	3.3	4.3	G	4.0	4.6	4.3	4.9	8.1	3.5	4.4	5.0	4.3	3.5	5.3	5.0	6.2	4.3
5	4.3	4.0	2.3	C	C	C	C	C	C	5.5	7.2	8.0	7.4	6.4	6.3	6.5	6.2	8.8	4.3	4.6	7.0	6.0	6.4	5.3
6	E	E	E	E	E	G	4.0	6.2	10.7	6.5	6.2	7.2	6.5	5.6	5.1	5.3	4.6	6.5	4.3	5.3	5.3	3.5	5.3	5.3
7	E	2.1	2.0	1.8	E	2.2	3.6	4.3	5.0	11.3	5.3	5.5	7.0	6.0	5.0	3.5	G	3.1	6.6	6.0	4.9	7.5	E	2.3
8	E	E	E	E	E	G	4.3	7.0	7.6	11.3	6.3	7.3	8.2	4.5	4.2	5.5	3.6	6.4	7.4	11.3	8.0	7.0	5.3	2.4
9	E	2.3	2.9	2.3	G	2.3	3.7	7.0	4.3	3.8	10.0	11.0	10.3	7.5	9.6	4.5	3.6	5.0	5.3	6.3	8.0	5.3	5.3	2.6
10	2.3	2.1	4.3	2.3	2.5	3.3	6.2	5.3	5.3	7.3	11.8	7.0	3.8	4.3	4.3	4.3	5.3	5.4	7.3	3.3	3.3	3.3	3.3	5.0
11	5.0	E	E	E	G	3.0	4.6	6.0	5.3	4.7	G	G	4.3	B	6.3	4.8	11.2	12.3	8.1	7.0	7.0	6.3	2.3	E
12	E	E	E	E	S	G	3.4	4.3	5.3	6.1	5.3	6.8	6.0	6.3	4.4	7.5	11.8	5.1	9.0	5.0	4.5	7.3	8.3	6.3
13	7.0	4.8	7.3	2.3	5.3	4.0	5.3	7.0	6.6	10.1	8.3	11.0	6.3	4.8	4.8	6.3	5.0	4.6	7.3	11.3	6.3	5.0	6.3	E
14	E	E	E	E	G	3.1	3.8	5.3	5.3	6.5	7.6	6.3	4.3	4.2	G	4.6	G	4.5	5.0	6.3	5.0	2.8	E	E
15	E	E	2.8	1.6	S	G	G	4.3	5.3	5.5	6.8	5.3	7.1	5.3	3.8	3.6	G	3.5	3.1	5.6	4.9	2.8	E	E
16	E	E	4.3	3.4	5.0	5.2	6.5	10.0	11.2	8.3	7.1	6.3	6.3	4.3	5.3	4.5	7.3	9.0	9.5	7.7	8.0	5.1	6.3	3.5
17	2.3	3.3	E	3.3	G	5.3	4.8	7.0	8.7	6.0	5.3	6.4	5.1	5.0	5.5	6.0	4.7	G	3.0	5.0	3.5	7.3	8.0	6.3
18	8.0	6.3	4.8	3.3	S	S	4.6	7.5	12.8	10.0	7.0	12.0Y	12.8	6.7	6.3	9.3	7.1	8.0	5.3	11.0	7.0	5.0	3.3	7.1
19	2.6	3.1	3.5	3.0	S	5.0	3.3	7.0	10.3	7.0	5.1	4.0	G	G	5.0Y	4.3	4.6	3.4	4.0	3.4	6.3	6.3	5.0	E
20	E	E	8.3	9.3	5.3	6.2	7.0	7.0	5.4	4.4	5.3	9.0	12.3	7.3	8.0	7.3	5.3	8.3	8.0	7.5	6.5	6.4	6.3	5.6
21	6.3	4.3	3.6	3.0	E	3.3	4.3	6.3	G	G	12.0	7.3	6.5	7.0	6.0	5.3	4.3	G	3.5	4.6	E	E	E	E
22	E	E	2.3	4.6	3.8	8.8	6.2	7.8	4.8	5.6	12.5	7.0	13.0	6.8	4.3	7.0	4.7	6.4	S	4.2	E	S	E	2.1
23	5.3	3.0	6.3	12.0	5.3	7.3	9.3	4.2	5.0	6.6	4.6	5.6	6.1	5.4	9.0	7.3	11.6	3.4	5.0	3.3	2.8	3.3	2.5	3.0
24	6.3	4.3	5.3	2.8	E	S	G	4.8	8.0	6.1	5.0M	7.2	6.0	B	5.1	G	G	G	3.0	4.0	4.9	4.0	6.0	4.3
25	7.0	5.0	E	3.3	S	S	G	4.6	4.2	5.8	4.3	5.6	C	4.0	G	5.0	6.3	7.8	8.5	4.3	E	E	3.0	E
26	7.3	8.3	5.3	5.3	S	3.3	3.2	4.3	5.5	5.3	5.0	B	B	B	7.0	11.5	9.0	5.5	7.9	7.0	9.3	5.3	3.3	5.0
27	2.5	2.3	2.9	3.3	S	3.8	G	4.2	4.0	6.3	6.3	5.0	4.2	G	5.0	G	4.3	3.9	3.6	6.3	E	2.8	3.3	2.3
28	6.3	8.3	E	E	4.8	3.0	3.8	5.3	5.0	4.3	4.7	4.0	4.0	5.1	4.0	4.0	4.1	G	2.8	2.7	3.3	3.3	3.2	3.3
29	E	E	E	E	S	S	3.4	3.5	4.6	5.0	9.3	6.6	7.3Y	G	4.9	G	G	3.9	5.0	3.3	5.0	3.6	6.8	5.3
30	4.3	5.0	4.6	3.0	4.5	6.0	3.6	9.0	5.3	5.8	4.3	5.3	4.5	7.0	5.8	4.7	5.7	10.0	4.4	4.3	2.5	E	4.3	3.3
31																								
No.	30	30	30	29	21	25	29	29	29	30	30	29	28	27	30	30	30	30	29	30	30	29	30	30
Median	2.4	2.2	2.8	2.3	G	3.3	4.3	5.3	5.3	5.9	5.8	6.4	6.2	5.0	5.0	4.8	4.6	5.0	5.3	5.1	5.0	5.0	4.6	5.3
U Q	5.3	4.3	4.7	3.3	4.2	5.2	6.2	7.0	7.8	7.0	7.2	7.3	7.4	6.7	6.3	6.5	6.2	6.5	7.4	7.0	7.0	6.3	6.3	5.3
L Q	E	E	E	E	G	2.8	3.4	4.3	5.0	5.0	4.7	5.3	4.3	4.3	4.3	3.6	3.6	3.4	4.2	4.0	3.1	3.3	2.5	E
Q R						2.4	2.8	2.7	2.8	2.0	2.5	2.0	3.1	2.4	2.0	2.9	2.6	3.1	3.2	3.0	3.9	3.0	3.8	

foEs

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

The Radio Research Laboratories, Japan.

W 4

12

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		4.4	3.9	3.0	E	A	A	A	A	4.3	A	A	A	A	A	A	G	4.0	A	A	A	4.0	4.0	2.7
2	E				G	G	A	G	A	A	A	A	A	A	A			G	G	A	E	E		
3						G	4.0	4.1	G	G	G	E 3.8 R	G	G	G	G	G	4.1	3.9	3.9	E	E,	E	E
4	E		E			G	4.2	G	G		G	G	G	4.5	4.5	G	4.4	4.8	3.3	2.9	4.2	E	4.0	3.0
5	E	3.0	E	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A	4.1	4.3	A	5.0	4.1	4.0
6							3.9	A	A	A	A	A	A	A	4.5	5.0	4.4	A	3.8	5.0	4.9	3.3	4.1	E
7		E	E	E		2.3	3.3	A	4.2	A	A	A	A	4.6	4.4	G		2.9	4.9	A	4.4	A		E
8							4.1	A	A	A	A	A	A	4.4	4.0	4.7	4.6	A	A	A	A	4.7	E	E
9		E	E	E		2.3	E 3.7 A	4.9	E 4.3 A	G	A	A	A	A	A	4.3	G	4.6	4.2	4.7	2.7	2.9	3.0	E
10	E	E	E	E	E	G	4.8	4.5	4.3	A	A	A	G	E 4.3 A	4.3	4.2	4.8	4.8	4.3	2.9	3.2	24	E	3.0
11	E					G	3.8	5.8	4.2	4.7			4.3	B	5.3	4.4	A	A	A	A	4.5	4.3	E	
12					S		G	4.3	4.9	4.5	4.3	5.9	4.9	5.3	4.2	5.6	A	4.3	A	4.2	4.3	4.3	A	4.4
13	A	4.0	E	E	4.0	4.0	5.0	A	A	A	A	A	A	4.8	E 4.8 A	A	4.8	4.2	A	5.0	4.9	4.3	4.3	
14						G	E 3.8 A	5.0	5.0	A	A	A	G	G		4.6		4.3	G	4.3	3.2	E		
15			E	E	S			4.0	5.0	4.2	A	4.2	5.2	4.0	3.8	G		G	G	A	3.2	E		
16			E	E	2.6	4.0	5.8	A	A	A	5.0	A	A	G	4.8	4.4	A	A	A	A	A	4.3	4.0	2.3
17	E	E		E		4.2	G	6.0	A	4.8	5.0	4.3	4.5	A	4.9	4.2	3.4		G	G	3.2	5.0	A	A
18	A	4.4	4.0	E	S	S	4.6	5.0	A	A	A	A	A	5.0	5.5	A	4.8	A	4.4	A	4.3	3.0	3.1	E
19	E	E	E	E	S	G	G	5.8	A	5.2	G	E 4.0 R			4.7	3.7	3.8	G	3.8	3.2	5.8	5.0	2.9	
20			6.0	4.0	4.0	4.4	7.0	4.7	4.5	4.3	4.8	A	A	A	6.4	A	5.3	A	5.8	A	A	4.1	E	3.2
21	3.2	E	E	E		2.5	3.7	4.7			A	A	6.2	5.1	5.1	4.3	G		G	3.9				
22			E	E	3.2	A	E 6.2 A	A	4.8	5.0	A	A	A	A	E 4.3 A	4.3	4.5	5.8	S	4.0		S		E
23	4.1	2.8	4.5	4.0	E	A	A	E 4.2 A	5.0	4.8	A	A	5.0	A	A	A	A	G	4.0	3.1	E	E	2.2	E
24	2.3	E	E	E		S		4.7	A	A	5.0	A	4.9	B	5.0				G	3.8	4.2	2.6	E	4.0
25	E	4.0		E	S	S		4.8	G	4.5	5.0	4.2	C	G		4.5	5.2	4.2	4.5	G			E	
26	E	4.0	2.6	4.0	S	G	G	4.0	4.9	4.8	4.7	B	B	B	A	A	A	4.2	A	A	A	E	E	E
27	E	E	E	E	S	3.1		4.0	G	5.2	4.8	4.7	4.1		5.0		4.3	3.9	3.6	3.0		E	3.0	E
28	4.8	E			E	24	G	4.2	5.0	4.3	4.7	A	G	5.0	G	G	3.1		G	2.6	E	2.7	3.2	3.2
29					S	S	G	G	4.5	5.0	A	A	B		4.5			3.9	4.5	2.7	3.1	E	A	3.2
30	4.2	E	3.0	2.7	A	A	A	A	4.8	A	4.3	A	3.5	A	5.0	4.5	A	4.3	4.0	4.3	E		E	E
31																								
No.	17	17	19	19	10	21	24	29	28	28	29	28	26	24	28	26	24	26	29	30	26	26	24	22
Median	E	E	E	E	E	24	3.9	4.8	5.0	5.1	A	A	5.7	5.0	E 4.8	4.4	4.7	4.3	4.1	4.3	4.2	3.0	3.0	E

f_bEs

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

The Radio Research Laboratories, Japan.

W 5

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Jun. 1961 | f-min | 135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 2.10^S	E	E	E	E	1.40	2.00	2.20	2.20	2.40	2.20	3.00	2.30	2.30	2.40	2.10	2.10	1.95	E 2.00^S	E 2.10^S	E 2.00^S	E 2.00^S	E 1.70^S	E 1.80^S
2	E 1.90^S	E	E 2.00^S	E	E	2.00	2.00	2.15	2.30	2.15	2.30	2.10	2.40	2.50	2.30	2.30	2.40	2.10	1.85	E 2.15^S	E 2.00^S	E 1.90^S	E 1.90^S	E 2.10^S
3	E 2.00^S	E	E	E	E	1.30	1.85	2.15	2.10	2.30	2.30	2.30	2.10	2.50	2.30	2.20	2.30	2.00	2.00	E 2.10^S	E 2.10^S	E 2.10^S	E 2.00^S	E 2.00^S
4	E 1.90^S	E 2.00^S	E	E	E	2.00	2.00	2.20	2.50	2.20	2.20	2.30	2.30	2.30	2.40	2.30	2.30	2.20	2.00	E 2.00^S	E 2.00^S	E 1.90^S	E 1.90^S	E 2.00^S
5	E 1.90^S	E	E	C	C	C	C	C	C	2.20	2.30	2.25	2.30	2.40	2.40	2.40	2.10	2.10	2.00	E 1.95^S	E 2.00^S	E 2.00^S	E 2.00^S	E 1.90^S
6	E 2.10^S	E	E	E	E 2.20^S	1.95	2.00	2.40	2.50	2.40	2.30	2.35	2.50	E 3.00^S	2.35	2.50	2.10	1.90	1.80	E 1.80^S	E 2.10^S	E 2.00^S	E 2.00^S	E 2.00^S
7	E 1.70^S	E	E	E	E	1.40	1.90	2.00	2.15	2.40	2.50	2.40	2.40	E 3.20^S	2.10	2.20	2.30	2.00	2.00	E 1.70^S	E 2.20^S	E 2.00^S	E 2.00^S	E 1.70^S
8	E 2.00^S	E	E	E	E 2.00^S	1.50	2.10	2.25	2.20	2.20	2.40	2.50	2.60	2.40	2.60	2.30	2.00	2.00	1.90	E 1.80^S	E 1.90^S	E 2.00^S	E 2.00^S	E 2.00^S
9	E 2.00^S	E	E	E	E	E 1.50^S	2.00	2.20	2.40	2.30	2.40	2.20	2.80	2.50	2.50	2.40	2.30	2.20	E 2.30^S	E 2.00^S	E 2.00^S	E 2.00^S	E 2.00^S	E 2.00^S
10	E 2.00^S	E	E	E	E	1.95	2.00	2.30	2.30	2.40	4.00	2.30	2.30	3.00	2.50	2.15	2.50	2.10	E 2.00^S	E 2.20^S	E 2.10^S	E 2.00^S	E 2.00^S	E 2.00^S
11	E 2.00^S	E	E	E	E	1.60	2.00	2.40	2.15	2.80	2.40	2.60	3.00	4.90	3.00	2.30	2.20	2.00	2.00	E 2.10^S	E 1.90^S	E 2.00^S	E 2.00^S	E 2.00^S
12	E 1.80^S	E	E	E	E 2.10^S	1.40	2.00	2.15	2.30	E 3.25^S	2.40	2.25	2.30	3.00	E 3.30^S	2.50	2.60	2.00	2.00	E 1.90^S	E 2.00^S	E 1.80^S	E 2.00^S	E 1.80^S
13	E 1.90^S	E	E	E	E 2.60^S	1.80	2.10	2.25	2.05	2.30	2.60	2.85	2.30	3.20	2.20	2.50	2.20	2.00	2.00	E 1.90^S	E 2.00^S	E 2.00^S	E 1.80^S	E 1.90^S
14	E 1.50^S	E	E	E 2.00^S	E	1.30	2.00	2.10	2.20	2.40	2.40	2.30	2.50	2.60	2.40	2.10	2.30	2.00	1.90	E 1.90^S	E 2.00^S	E 2.10^S	E 2.10^S	E 2.00^S
15	E 2.00^S	E 2.10^S	E	E	E 2.20^S	1.30	2.05	2.10	2.10	2.30	2.70	2.30	2.30	2.30	2.15	2.30	2.30	2.20	1.90	E 2.15^S	E 2.00^S	E 2.00^S	E 2.00^S	E 2.00^S
16	E 2.00^S	E 2.20^S	E	E	E	1.30	2.00	2.20	2.15	2.20	E 3.30	2.50	2.30	2.35	2.40	2.20	2.15	2.30	1.90	E 1.80^S	E 1.90^S	E 1.90^S	E 1.80^S	E 1.80^S
17	E 1.90^S	E	E 1.20^S	E	E	1.40	1.90	2.10	2.20	2.20	2.35	2.20	2.25	E 3.30^S	E 3.20^S	2.20	2.20	2.15	2.00	E 2.10^S	E 2.10^S	E 2.10^S	E 2.10^S	E 2.00^S
18	E 2.10^S	E 2.00^S	E 1.20^S	E 2.00^S	E 2.10^S	E 2.40^S	2.30	2.30	2.50	3.00	3.00	2.25	2.35	E 3.50^S	E 3.10^S	2.95	E 3.00^S	2.25	2.10	E 2.20^S	E 1.80^S	E 2.00^S	E 2.00^S	E 2.00^S
19	E 2.00^S	E	E 2.10^S	E 2.20^S	E 2.20^S	2.00	2.20	2.20	2.20	2.90	2.40	3.00	2.40	2.70	2.35	2.50	2.10	2.30	2.10	E 2.10^S	E 2.15^S	E 2.00^S	E 2.10^S	E 2.20^S
20	E 2.00^S	E 2.15^S	E 2.15^S	E 2.10^S	E 2.10^S	2.10	2.10	2.25	2.30	3.60	2.50	3.00	2.50	3.70	2.50	2.20	2.30	2.30	2.10	E 2.10^S	E 2.20^S	E 2.10^S	E 2.10^S	E 2.10^S
21	E 2.10^S	E 2.15^S	E	E 1.50^S	E 2.50^S	1.80	2.20	2.20	2.20	2.30	2.40	3.00	2.50	2.50	2.40	2.40	2.20	2.20	E 2.10^S	E 2.10^S	E 2.20^S	E 2.10^S	E 2.10^S	E 2.20^S
22	E 2.10^S	E 2.10^S	E 2.10^S	E 2.10^S	E 2.10^S	2.10	2.15	2.15	2.35	2.30	2.90	3.00	3.00	3.00	2.50	2.40	2.25	2.20	E 2.50^S	E 2.10^S	E 2.20^S	E 4.70^S	E 2.20^S	E 2.00^S
23	E 2.10^S	E 2.00^S	E 2.00^S	E 2.10^S	E 2.10^S	2.10	2.10	E 3.00^S	2.50	3.00	2.50	2.50	2.50	3.80	3.50	3.25	2.40	2.20	E 2.20^S	E 2.00^S	E 2.20^S	E 2.10^S	E 2.00^S	E 2.10^S
24	E 2.00^S	E	E	E 2.00^S	E 2.20^S	E 2.30^S	2.30	2.30	2.70	3.50	2.40	3.50	3.00	5.00	3.00	2.40	2.40	2.30	2.00	E 2.10^S	E 2.20^S	E 2.00^S	E 1.90^S	E 2.05^S
25	E 2.00^S	E	E 2.10^S	E 2.10^S	E 2.30^S	E 2.30^S	2.15	2.50	2.30	3.50	3.50	3.35	I 4.05^C	2.20	2.50	2.20	2.25	2.30	E 2.20^S	E 2.10^S	E 2.20^S	E 2.20^S	E 1.50^S	E 2.10^S
26	E 2.10^S	E 2.10^S	E 2.00^S	E 2.10^S	E 2.20^S	E 2.20^S	2.50	2.30	2.40	2.75	3.00	4.00	4.10	4.80	3.80	3.00	2.40	2.20	E 2.20^S	E 2.00^S	E 2.20^S	E 2.10^S	E 2.10^S	E 2.10^S
27	E 2.00^S	E 2.00^S	E 2.00^S	E 2.00^S	E 2.30^S	E 2.15^S	2.10	2.20	2.20	2.20	2.50	2.25	2.40	2.30	2.70	2.15	2.30	2.25	E 2.15^S	E 2.10^S	E 2.30^S	E 2.20^S	E 2.10^S	E 2.10^S
28	E 2.00^S	E 1.60^S	E 2.20^S	E 2.00^S	E 2.10^S	E 2.00^S	2.20	2.20	2.20	2.25	2.80	2.50	2.20	3.00	2.40	2.25	2.30	2.00	E 2.00^S	E 2.00^S	E 2.10^S	E 2.00^S	E 2.10^S	E 2.10^S
29	E 2.10^S	E 2.10^S	E 2.00^S	E 2.20^S	E 2.70^S	E 2.20^S	2.15	2.30	2.30	2.50	2.50	3.50	5.00	2.80	3.50	2.40	2.20	2.20	E 2.20^S	E 2.20^S	E 2.20^S	E 2.10^S	E 2.00^S	E 2.20^S
30	E 1.90^S	E	E 2.00^S	E 2.10^S	E 2.20^S	E 2.10	2.30	2.50	2.40	2.30	3.25	2.70	2.90	2.50	3.00	2.10	2.30	2.15	E 2.05^S	E 2.10^S	E 2.00^S	E 2.10^S	E 1.90^S	E 2.00^S
31																								
No.	30	18	17	15	30	21	29	29	29	28	29	30	30	26	27	30	29	30	21	30	30	30	30	30
Median	E 2.00	E	E	E	E 2.10	1.60	2.10	2.20	2.30	2.30	2.40	2.50	2.40	2.55	2.40	2.30	2.30	2.15	2.00	E 2.10	E 2.10	E 2.00	E 2.00	E 2.00

f-min

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

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

Jun. 1961 | M(3000)F2 | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.90	I2.70^{A}	F	F	FH	A	A	A	A	2.60	A	A	A	A	I2.80^{A}	I2.85^{A}	3.00	3.10	I2.90^{A}	I2.90^{A}	I2.90^{A}	I2.75^{F}	I2.85^{F}	2.80^{F}
2	2.80^{F}	3.20^{F}	2.75^{F}	2.85^{F}	2.60^{F}	2.60	I2.80^{A}	2.80	A	A	A	A	I2.45^{R}	I2.50^{A}	I2.55^{R}	2.75	3.20^{H}	2.85	2.95	I2.70^{A}	2.85	2.90	2.90	2.85
3	2.80	2.75	2.70	I2.65^{F}	2.80^{H}	2.80^{F}	2.85	3.15	2.90	I2.75	2.65	2.40	2.95	2.80	2.80	2.85	2.85	3.00	3.00	2.90	3.00	3.00	2.85^{F}	2.80^{F}
4	2.95	3.05	3.00	2.90^{F}	3.00	2.95	2.95	2.80^{H}	3.00	3.00	3.10	3.00	3.20	2.80	3.00	2.95	3.10	3.10	3.05	3.05	3.15	2.95^{F}	F	F
5	F	3.15^{F}	I3.20^{F}	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A	3.05	3.10	I3.00^{A}	2.75	2.90	3.00
6	3.20	3.15	3.10^{F}	I2.85^{F}	3.05^{F}	3.20^{H}	3.00	A	A	A	I2.90^{A}	A	A	A	2.80	3.00	3.10	I3.00^{A}	2.85	3.00	3.05	3.00	I2.85^{Fs}	3.05^{F}
7	2.90	2.95	3.00	3.00	2.95	2.35	3.10	I2.95^{A}	2.85	A	A	A	A	3.40	2.60	2.85	2.90	3.10	3.05	I2.95^{A}	2.75	I2.85^{A}	2.70^{F}	F
8	F	F	F	F	3.10^{F}	2.80^{FH}	3.00	A	A	A	A	A	A	2.80	2.85	3.00	2.80	I3.00^{A}	A	A	A	U2.80^{S}	I2.90^{F}	2.85^{F}
9	2.90^{F}	2.85^{F}	I3.20^{F}	I3.00^{F}	2.70^{F}	3.05^{F}	3.10	2.75	2.85	2.80	A	A	A	A	A	2.85	2.80	3.10	3.10	2.90	I3.00^{S}	3.00	3.05	I2.90^{F}
10	2.90^{F}	2.85^{F}	2.90^{F}	3.10^{F}	2.90^{F}	3.10	2.85	2.90	U3.00^{R}	I3.05	I3.10^{A}	I3.10^{A}	2.90	3.15	3.00	3.15	2.95	3.10	2.95	2.80	I2.85^{S}	U2.80^{S}	3.15	2.95
11	2.85	3.00	2.85	2.80^{F}	2.90^{F}	2.90^{F}	2.95	3.25	3.30	3.35	2.70	3.10	2.85	2.95	3.15	3.10	I3.05^{A}	A	A	A	I2.95^{Fs}	I2.90^{Fs}	I2.90^{Fs}	3.05
12	3.05	3.00^{F}	2.95^{F}	3.05^{F}	2.85^{F}	2.85	3.25^{H}	3.30	3.20	2.95^{F}	2.95	2.90	2.95	2.95	3.00	2.90	I2.90^{A}	3.05	I2.90^{A}	2.90	S	S	A	S
13	S	2.90^{F}	I2.80^{F}	2.80^{F}	2.90^{F}	3.00	2.90	I2.95^{A}	I2.80^{A}	A	A	A	A	2.55	2.85	I2.90^{A}	2.85	2.95	I2.90^{A}	I3.25^{A}	U2.95^{S}	F	F	F
14	2.90^{F}	2.85^{F}	2.85^{F}	2.90	3.00^{F}	2.85^{FH}	2.95^{F}	3.00	2.90	A	A	A	2.90	3.25^{H}	2.90	2.95	3.05	2.85	2.85	2.90	I3.00^{S}	I2.90^{S}	2.85^{F}	2.85^{F}
15	2.95	2.85	2.95^{F}	2.95^{F}	2.95^{F}	3.45	2.65	2.90	3.20	3.15	I2.95^{A}	3.15	2.90	2.80	2.90	2.95	2.80	2.85	2.80	I2.90^{S}	3.05	2.85	2.70	2.75
16	2.90	2.75	2.75^{F}	2.70	2.90^{F}	2.75^{F}	2.70^{F}	I3.00^{A}	I2.95^{A}	I2.70^{A}	2.85	I2.80^{A}	I2.65	2.80	2.90	2.95	A	A	A	A	A	2.80^{F}	I2.75^{F}	2.80^{F}
17	2.80^{F}	2.70^{F}	2.70^{F}	2.75^{F}	2.60^{F}	2.95^{F}	2.80	3.25	I3.30^{A}	3.15	I3.00^{R}	2.95	2.85	I2.90^{R}	2.85	2.85	2.90	2.95	2.90^{H}	2.90	U2.95^{S}	2.80	A	A
18	A	SF	F	F	F	2.80^{F}	3.30	3.20	2.45	A	A	A	A	2.80	3.00	I3.00^{A}	3.05	I2.95^{A}	3.05	I2.90^{A}	2.70	I2.90^{Fs}	2.70	2.80
19	2.75	2.75	2.80	2.85	2.70	2.85	3.00	2.80	I3.00^{A}	3.10	2.65	2.60	2.75	2.80	2.80	2.75	2.85	2.90	2.85	2.70	2.75	2.90	I2.80^{S}	I2.75^{S}
20	U2.70^{S}	U2.75	I2.80^{F}	2.90	2.85^{F}	2.95	2.90	2.75	2.80^{H}	3.20	2.95	I3.00^{A}	I2.85^{A}	I2.80	2.85	I3.00^{A}	3.00	I2.85^{A}	2.75	I2.85^{A}	2.90	U2.70^{S}	2.90	F
21	F	F	2.90	3.00	3.00	2.80^{H}	2.70	3.15	2.80	2.85	I2.75^{A}	I2.65^{A}	2.40	U2.55^{R}	2.85	2.85	2.90	2.95	2.85^{H}	2.60	I2.80^{S}	2.65	I2.55^{S}	I2.70^{S}
22	2.75	2.85	2.80	2.65^{F}	2.65^{F}	I2.60^{A}	2.80	I2.90^{A}	3.30	2.60	A	A	A	A	2.90	2.90	2.85	2.95	2.80^{H}	2.90	U2.75^{S}	2.75	U2.55^{S}	2.65
23	2.70	2.80	2.80	2.95^{F}	I2.75^{A}	I2.80^{A}	I2.85^{A}	2.90	2.50	2.70	I2.65^{A}	I2.70^{A}	2.60	A	A	A	A	2.90	3.00	2.80	2.80	2.85	3.00	2.85
24	F	F	F	F	3.10^{F}	3.30^{H}	3.15	2.65^{H}	A	A	R	I2.80^{A}	2.90	I2.70^{R}	2.90	2.90	2.90	3.10	3.05	2.90	2.90	2.80	I2.75^{F}	2.85
25	2.85	2.70	2.90	3.00	3.20	3.15^{H}	I3.40^{R}	2.80	2.80	3.25	I3.00^{R}	2.85	I3.00^{C}	2.65	2.85	3.00	2.90	2.85	2.90	3.05	U2.95^{S}	2.90	2.80	2.75
26	2.85	2.70^{F}	2.80^{F}	2.85^{F}	2.70^{FH}	I2.85^{SH}	2.80	3.10	2.90	2.80	3.25	2.80	2.80	2.70	A	A	A	3.00	I3.00^{A}	I3.10^{A}	I2.90^{A}	2.95	2.95	U2.75^{S}
27	2.80	2.90	2.80^{F}	2.85^{F}	2.90	2.80	2.95	3.00	3.10	3.20	2.90	2.90	2.85	U2.75^{R}	2.80	2.80	3.05	3.05	3.10	3.30	2.70	I2.85^{S}	2.80	2.80
28	2.75	A	F	F	2.80^{F}	3.10	2.95	2.95	I2.80^{A}	2.75	2.95	I2.70^{R}	3.05	3.00	2.50	2.85	2.85	3.05	3.05	3.20	3.00	2.75	2.85	2.75
29	2.90	2.90	3.10	3.15	3.00	3.20	2.90^{H}	2.85	3.00	2.75	A	A	R	2.75	2.45	2.30	2.70	3.05	3.10	3.25	2.90	2.70	I2.85^{A}	2.85
30	U2.90^{S}	2.90	I2.95^{F}	I3.00^{F}	A	A	R	I2.80^{A}	3.05	I2.75^{A}	2.65	A	R	A	A	2.60	I2.70^{A}	2.85	3.05	3.10	2.90	2.85	2.85	2.90
31																								
No.	24	25	25	24	26	27	27	26	24	21	18	17	19	23	25	27	26	27	27	27	27	28	26	24
Median	2.90	2.85	2.85	2.90	2.90	2.85	2.95	2.90	2.90	2.95	2.90	2.85	2.85	2.80	2.85	2.90	2.90	3.00	2.95	2.90	2.90	2.85	2.85	2.80

M(3000)F2 | Sweep 1.0 Mc to 18.0 Mc in 1 min/~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Jun. 1961

M(3000)F1

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	A	A	A	A	A	A	A	3.55	A	A					
2						3.40	I 3.60 A	3.75	A	A	A	A	I 3.80 R	I 3.70 A	I 3.80 A	3.60		3.35	3.50					
3					3.20	3.35	A	A	3.80	3.60	3.95	I 4.00 R	3.85	3.75	3.75	3.70	3.65	A						
4						3.35	I 3.35	3.60	3.70	3.95	3.85	3.90	3.85	I 3.70 A	I 3.65 A	3.80	A	A						
5						C	C	C	C	A	A	A	A	A	A	A	A	A	A					
6							A	A	A	A	A	A	A	A	A	A	A	A						
7						3.30	A	A	A	A	A	A	A	A	A	3.65	3.55	3.45						
8							A	A	A	A	A	A	A	A	A	A	A	A						
9							A	A	A	4.05	A	A	A	A	A	A	3.50	A						
10						3.60	A	A	A	A	A	A	3.55	I 3.65 A	I 3.75 A	A	A	A						
11						3.50	I 3.65 A	A	A	A	3.95	3.90	I 3.70	B	A	A	A	A						
12								I 3.70 A	I 3.70 A	I 3.95 A	3.85	A	A	A	A	A	A	A						
13							A	A	A	A	A	A	A	A	A	A	A	A						
14							I 3.50 A	A	A	A	A	A	4.00		3.60	I 3.70 A	3.50	A	3.35					
15							3.65	A	A	A	A	4.00	I 3.75 A	3.70	3.85	3.65	3.40	3.30	3.30					
16						A	A	A	A	A	A	A	A	3.75	A	A	A	A	A					
17						A	3.35	A	A	A	I 4.00 A	3.90	A	A	A	A	3.35	3.60						
18							A	A	A	A	A	A	A	A	A	A	A	A	A					
19						3.25	3.60	I 3.70	I 3.85 A	I 3.85 A	3.80	I 3.70 B	3.60	3.60	I 3.60 A	3.45	3.80	3.35						
20							A	A	A	I 3.70 A	A	A	A	A	A	A	A	A						
21							A	A	3.55	3.70	A	A	A	A	A	A	3.65	3.50						
22							A	A	A	A	A	A	A	A	A	A	A	A						
23							A	A	A	A	A	A	A	A	A	A	A	3.45						
24							3.60	A	A	A	A	A	A	B	A	3.50	3.65	3.70	L					
25								A	L	A	A	A	I 3.70 C	3.65	3.55	A	A	A	A					
26							3.65	A	A	A	A	3.95	3.95	B	A	A	A	A	A					
27							3.45	I 3.65 A	3.90	A	A	A	3.50	3.85	I 3.65 A	3.65	A	A	A					
28						3.45	3.60	A	A	A	A	R	3.70	I 3.70 A	3.70	3.70	3.60	3.50	3.45					
29						3.65		3.65	I 3.90 A	A	A	A	B	3.50	I 3.75 A	3.60	3.50	A						
30								A	A	A	A	A	3.85	I 3.70 A	I 3.60 A	A	A	A	A					
31																								
No.					1	9	11	6	7	7	6	7	13	12	12	11	12	9	4					
Median					3.20	3.40	3.60	U 3.70	3.80	3.85	3.90	3.90	3.75	3.70	3.70	3.65	3.55	3.45	3.40					

M(3000)F1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1961 | h'F2 | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	490	A	A	A	A	A	A	370	315	A					
2						450	I 400 A	400	A	A	A	A	I 570 R	I 495 A	I 505 A	460		400	320					
3					370	360	380	350	400	I 440 R	470	520	390	440	450	410	390	360						
4						355	I 360 A	420 H	360	340	340	360	340	450	390	370	340	375						
5						C	C	C	C	A	A	A	A	A	A	A	A	A	315					
6							350	A	A	A	A	A	A	A	435	375	325	A						
7						580	335	I 375 A	410	A	A	A	A	530	450	400	355	330						
8							360	A	A	A	A	A	A	445	405	370	A	A						
9							330	I 400 A	430	435	A	A	A	A	A	415	450	325						
10						310	I 325 A	330	310	I 300 A	I 310 A	I 325 A	390	330	350	315	365	330						
11						310	310	275	280	320	485	345	390	350	320	305	A	A						
12								255	I 290 A	I 355 A	400	I 370 A	350	370	350	I 370 A	I 360 A	310						
13							A	A	A	A	A	A	A	510	420	I 400 A	420	360	A					
14							310	I 340 A	I 355 A	A	A	A	420		400	400	335	390	320					
15							440	360	280	330	I 370 A	330	410	415	385	360	410	350	320					
16						365	A	A	A	A	400	I 435 A	I 505 A	485	390	370	A	A	A					
17						300	380	I 310 A	I 295 A	310	325	385	380	I 350 A	370	350	350	295						
18							260	290	540	A	A	A	A	350	350	I 340 A	325	I 350 A	310					
19						350	310	I 350 A	I 340 A	I 410 A	470	450	435	410	370	410	365	330						
20							I 370 A	I 310 A	295 H	285	335	A	A	A	A	A	310	A						
21							325	290	350	360	I 375 A	I 405 A	I 435 A	420	350	370 L	370	350						
22							I 310 A	I 320 A	285	490	A	A	A	A	350	340	345	A						
23							I 360 A	350	520	460	I 485 A	I 460 A	510	A	A	A	A	360						
24							310		I 390 A	I 380 A	360	I 380 A	360	420	365	360	325	310	310					
25								360	I 345 L	320	350	365	I 330 C	385	370	320	340	305	305					
26							285	290	385	415	570	430	415	440	A	A	A	330	A					
27							310	345	280	310	I 370 A	390	375	380	355	360	305	290	275					
28						325	360	390	I 435 A	460	395	I 465 R	370	415	530	445	400	320	300					
29						290		400	380	370	A	A	B	465	520	550	410	310						
30								A	A	I 435 A	475	A	R	A	A	505	I 430 A	410	320					
31																								
No.					1	11	22	22	22	21	18	16	18	21	23	25	23	23	10					
Median					370	350	330	350	350	370	380	390	390	420	385	370	360	330	310					

h'F2

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

The Radio Research Laboratories, Japan.

W 9

17

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	285	I320A	I325A	320A	325H	A	A	A	A	A	A	A	A	A	A	A	270	A	A	A	A	I300A	I290A	320
2	320	255	275	280	300	270	I260A	250	A	A	A	A	I235A	I250A	I225A	230	230H	270	270	I275A	285	275	260	290
3	300	300	265	310	310	260	I260A	I250A	235	250	220	I240A	235	235	230	230	250	A	A	A	255	260	295	290
4	300	270	275	260	260	275	I260A	240	225	220	210	230	220	I230A	I245A	240	A	A	A	275	I260A	275V	I340A	320A
5	305	270A	265	C	C	C	C	C	C	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
6	265	250	255	290	315	230H	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	270
7	275	295	295	280	275	255	A	A	A	A	A	A	A	A	A	235	230	230	A	A	A	I290A	300	265
8	300	275	300	300	250	225H	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	285	300
9	300	260	240	300	275	250	A	A	A	225	A	A	A	A	A	A	235	A	A	A	265A	260A	270	290
10	300	310	300	270	265	250	A	A	A	A	A	A	225	I225	I225A	A	A	A	A	285A	I270A	265	240	265A
11	275	270	290	300	270	250	I245A	A	A	A	210	230	I250A	B	A	A	A	A	A	A	A	A	260	260
12	255	260	260	265	270	230	260H	I240A	I225A	I220A	250	A	A	A	A	A	A	A	A	A	A	A	A	A
13	A	A	270	290	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	270
14	285	290	285	300	260	265H	I260A	A	A	A	A	A	220	240H	250	I240A	240	I250A	260	I265A	I265A	265	260	280
15	275	290	280	270	260	245	250	A	A	A	A	200	I220A	220	220	230	250H	260	250	I270A	I265A	260	275	295
16	290	300	320	295	305	A	A	A	A	A	A	A	A	245	A	A	A	A	A	A	A	I260A	280	
17	290	310	310	295	270	I270A	260	A	A	A	I210A	220	A	A	A	A	230	240	240H	280	I265A	I270A	I270A	I275A
18	A	A	A	290	270	240	I240A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	I300A	I285A	275
19	270	305	305	290	285	270	250	A	A	A	215	I235A	250	235	I225A	230	225	250	A	A	A	A	260	290
20	300	300	I285A	I275A	I270A	A	A	A	A	I230A	A	A	A	A	A	A	A	A	A	A	A	A	300	I260A
21	I260A	260	290	270	260	250H	I250A	I245A	230	235	A	A	A	A	A	A	260	240	305H	I300A	295	310	320	290
22	295	260	275	330	A	A	A	A	A	A	A	A	A	A	A	A	I250A	I255A	255H	I275A	290	I290S	285	310
23	I300A	295	I315A	I305A	A	A	A	A	A	A	A	A	A	A	A	A	A	250	I270A	I275A	285	270	260	305
24	310	315	305	280	290	240H	240	AH	A	A	A	A	A	A	A	240	240	250	250	I255A	I265	305	300	I290A
25	310	I315A	290	290	260	240H	250H	A	210	A	A	A	I240C	260	230	A	A	A	A	260	250	260	290	275
26	270	I320A	320	I335A	315H	270H	250	A	A	A	A	240	230	B	A	A	A	A	A	A	A	270	275	290
27	295	310	320	320	300	275	240	I230A	220	A	A	A	260	215	I225A	235	A	A	A	A	275	280	I290A	300
28	I300A	295	275F	265	310	250	260	A	A	A	A	A	240	I230A	225	210	230	230	250	250	250	310	I300A	I300A
29	290	295	270	275	E340S	240	250H	250	I230A	A	A	A	B	220	I225A	215	230	I250A	I255A	250	I280A	315	A	A
30	A	300	I275A	370	A	A	A	A	A	A	A	A	210	I230A	I250A	I250A	A	A	A	A	275	290	285	290
31																								
No.	27	28	29	29	24	22	17	7	7	6	6	7	13	13	12	12	14	12	10	13	17	21	25	27
Median	295	295	285	290	270	250	250	U245	225	230	210	230	235	230	U225	235	240	250	255	U275	265	275	285	290

h'F

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

The Radio Research Laboratories, Japan.

W 10

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	130	120	125	135	125	120	120	115	120	110	105	105	110	105	105	130	120	115	120	115	120	115	110
2	110	E	E	E	145	135	125	120	115	110	110	110	115	115	115	G	G	140	120	115	120	120	E	E
3	E	E	E	E	G	140	120	120	115	120	115	120	120	120	115	150	130	125	115	120	120	110	115	115
4	110	E	105	E	G	130	125	125	120	G	120	115	110	115	115	115	130	125	120	120	115	110	110	110
5	110	105	110	C	C	C	C	C	C	115	110	110	110	105	105	105	105	105	120	120	115	115	115	110
6	E	E	E	E	E	G	135	120	115	110	110	110	105	105	110	105	105	105	120	115	115	115	115	110
7	E	105	105	105	E	120	135	125	120	115	120	115	115	115	115	115	G	115	120	120	115	115	E	120
8	E	E	E	E	E	G	125	120	115	115	110	110	110	120	135	125	125	120	115	115	115	115	120	110
9	E	110	110	105	G	115	120	115	115	125	110	110	110	110	110	110	125	120	120	115	120	115	115	110
10	105	105	110	105	125	140	125	125	120	115	115	110	115	120	115	140	130	125	115	125	115	120	110	110
11	110	E	E	E	G	130	120	115	120	115	G	G	140	B	130	130	120	115	110	115	120	115	110	E
12	E	E	E	E	S	G	145	130	120	120	120	110	110	110	120	120	110	120	115	110	110	110	110	110
13	110	125	130	110	110	125	120	115	110	110	110	110	110	115	115	110	110	110	115	110	115	115	115	E
14	E	E	E	E	G	130	125	120	120	115	110	110	115	120	G	110	G	120	120	115	115	115	E	E
15	E	E	105	110	S	G	G	125	115	115	115	115	110	110	115	120	G	135	125	115	115	115	E	E
16	E	E	110	120	110	140	115	110	110	110	110	115	110	110	105	125	130	120	115	115	110	110	110	110
17	110	110	E	110	G	130	135	115	110	110	110	110	110	115	110	110	110	G	140	115	115	115	110	110
18	105	105	105	105	S	S	130	115	115	115	115	110	110	110	110	115	110	105	120	120	120	120	110	110
19	105	105	110	130	S	130	140	120	115	115	115	120	G	G	115	110	115	125	120	125	120	120	110	E
20	E	E	110	105	110	110	115	120	115	125	110	115	110	110	110	110	110	105	105	120	120	115	110	105
21	110	115	105	105	E	110	130	125	G	G	110	105	110	110	110	120	125	G	130	125	E	E	E	E
22	E	E	130	125	130	120	125	115	120	120	115	115	110	110	110	125	120	115	S	125	E	S	E	120
23	110	110	110F	115	105	110	110	120	115	115	115	125	125	125	120	115	115	130	120	125	120	115	110	110
24	110	105	110	110	E	S	G	125	120	115	115	110	110	B	110	G	G	G	125	115	115	120	115	115
25	110	110	E	105	S	S	G	125	120	115	115	110	C	120	G	135	115	115	115	110	E	E	110	E
26	110	105	105	105	S	130	135	120	110	110	120	B	B	B	135	125	120	120	115	115	115	115	110	110
27	115	115	110	110	S	125	G	120	115	110	105	110	115	G	125	G	135	125	120	120	E	125	115	120
28	110	110	E	E	110	105	130	120	120	125	120	125	120	120	125	120	110	G	125	120	115	115	115	115
29	E	E	E	E	S	S	150	140	125	125	116	115	125	G	150	G	G	130	120	120	115	125	120	110
30	110	105	105	110	125	125	125	115	115	115	115	105	105	105	110	130	120	115	115	115	115	E	110	110
31																								
No.	17	17	19	19	10	21	25	29	28	28	29	28	27	24	28	26	24	26	29	30	26	26	24	22
Median	110	110	110	110	120	125	125	120	115	115	115	110	110	110	115	120	120	120	120	120	115	115	110	110

h'Es

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

The Radio Research Laboratories, Japan.

W 11

IONOSPHERIC DATA

Jun. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

20

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		f5	f4	f2	f	C4	C2	C3	C	S	C2	l2	l	l2	l3	l2	C	C2	C2	f2	f4	f3	f6	f2
2	f2				C	C	C3	C	C2	C2	C	C2	C	C	C			h	C2	f2	f	f		
3						h	C2	C2	C	C	C	C	C	C	C	h	h	C2	C3	f2	f	f2	f2	f2
4	f		f2			C	C3	C	C		C	C	C	C	l	C	C	C2	C2	f2	f4	f2	f4	f2
5	f2	f5	f							C3	C2	C2	C2	C2	C3	C2	l3	l2	C2	f2	f2	f2	f3	f4
6							C	C2	C2	C2	C2	C2	C2	C3	l	l2	l	l3	C2l2	f4	f3	f2	f2	f2
7		f2	f	f		l	h	C	C2	C	C	C2	C2	C2	C	C		l	C2	C3	f2	f3		f
8							C	C3	C3	C2	C	C2	C2	C	h	C2	C2	C3	C3	f5	f4	f2	f2	f
9		f	f	f		l	C	C2	C	C	C3	C2	C2	C2	C2	l	C	C2	C2	f3	f3	f2	f2	f
10	f	f	f.f	f	f	C	C	C	C	C2	C2	C2	C	C	C	h	C	C2.l	C2	f	f	f5	f2	f2
11	f					C	C	C2	C	C			h		C l	C l	C.l	C2.l	l3	f3	f2	f2	f	
12							h	h	C2	C	C	C2	C2	C3	C	C3	l2	C	C4	f2	f3	f3	f4	f4
13	f5	f2f2	f.f	f	C2	C2	C2	C2	C2	C3	C2	C2	C2	C	C	l2	C2	l2	C4	f2	f2	f3		
14						h	C	C2	C2	C3	C2	C2	C	C		C		C	C	C2	f2	f		
15			f2	f				C	C	C2	C2	C	C2	l	l	C		C	C	C2	f3	f2		
16			f2	f	l	h	C5	C2	C2	C2	C	C2	l2	C	l2	C l	h2	C2	C4	C4	f5	f3	f2	f2
17	f	f2		f		h3	h2	C2	C4	C	C	C	l	C	C	l	l		C	C3	f2	f2	f5	f3
18	f2	f3	f3	f			C	C2	C2	C2	C3	C2	C2	C	C2	C.l2	C2	C3	C.l	f2	f3	f2	f2	f
19	f	f2	f2	f		C	h	C2	C2	C2	C	C			C	l	l	C	l2	f	f6	f3	f2	
20			f4	f2	f2	l2	C2	C2	C	C	C	C2	C2	C2	C2	C3	C2	C3	l4	C5	f4	f2	f2	f2
21	f2	f	f2	f		l	C	C2			l2	l2	C2	C2	C2	C	C		C	C2				
22			f	f	C2	C2	C2	C2	C	C2	C2	C2	C2	l	l	C	C	C2		f2				f
23	f3	f2	f	f2	f	l2	l2	C	C2	l	C	C	C	C	C2	C2	C2	C	C	C2	f2	f2	f2	f
24	f2	f2	f2	f2				C	C2	C2	C	C	l		l				C	C2	f2	f.f	f2	f3
25	f2	f2		f				C	C	C	C	C		C		C	C2	C2	C2	C			f2	
26	f2	f2	f2	f3		C	C	C	C	C	l				h2	C2	C2	C2	C3	C3	f4	f2	f	f2
27	f2	f	f2	f		C		C	C	C2	C2	C	C		C		h	C	C2	C		f	f2	f
28	f3	f3			f2	l	C	C	C	C	C	C	C	l	C	C	l		C	C	f2	f2	f2	f2
29							h	h	C	C	C2	C	C		h			h	C	C	f2	f	f3	f2
30	f3	f2	f	f2	C2	C2	C	C2	C2	C2	C	C2	l	l2	l	h	C2	C2	C2	f2	f		f2	f2
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

Jun. 1961 | foF2 | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I53F	4.9	5.0	I48F	4.4	4.7	C	C	A	A	A	R	A	5.9	5.6	5.6	5.9	5.8	I55A	6.0	6.3	6.1	F	F
2	5.0F	I55F	I40F	3.9	4.1	4.6	5.5	6.0	A	A	A	A	A	A	A	A	5.1	I50R	5.3	5.6	6.3	I60R	I57F	I54F
3	5.0	4.6	4.6	4.8	4.4	I48F	5.4	A	A	A	A	A	5.7	5.6	5.6	5.6	5.1	I52A	5.7	6.5	I66R	I62F	I54F	5.1F
4	F	F	5.4F	3.9F	4.0F	4.5	I53A	I64A	6.8	6.4	6.3	5.9	6.1	5.7	I58A	I58C	I60C	6.0	6.3	6.4	6.7	F	F	F
5	F	F	F	R	4.2F	4.9	4.6	5.1	A	A	A	A	A	A	I56A	5.4	5.9	I56A	I57A	6.0	A	F	A	F
6	F	I49F	4.3F	I47F	4.3F	4.5	5.0	4.9	A	A	A	I58A	I56A	6.0	I60A	6.3	6.0	5.7	6.1	6.6	6.7	64F	5.8F	F
7	A	F	F	A	A	4.1	4.6	4.6	A	A	A	5.6R	5.6	I54A	5.3	5.9	6.2	5.1	5.6	5.6	6.0	F	F	F
8	5.2F	5.5	5.0F	I54F	I56R	5.0	5.4	5.7	I60A	A	A	A	A	A	A	A	I54A	A	A	A	5.8	5.9F	I58F	F
9	F	5.3F	F	F	I50F	5.6H	5.2	I50A	6.0R	5.6	5.4R	A	A	I53A	5.3	5.9	6.1	6.1	6.1	6.5	A	F	F	F
10	F	F	C	F	I53F	5.3	5.7	7.0	8.5	7.6	7.0	6.3	6.4	6.9	6.5	I64A	6.3	I64A	6.4	7.5	8.6S	FS	A	A
11	F	F	F	F	5.8F	6.9	7.0	6.9F	I68A	I63A	5.7	5.9	6.3	I70A	I70A	7.2	I65A	5.9	5.8	6.4	F	F	F	F
12	F	F	F	F	F	6.5	6.6	7.5	5.7	5.3	I58A	6.4	I70A	7.2	I74A	7.4	7.2	7.6	7.4	F	A	A	A	F
13	F	F	F	F	F	6.8F	7.0	6.0	I62A	I62A	6.7	I62A	5.7	6.0	I60A	6.0	6.0	I63A	6.9	8.0	A	F	F	F
14	F	5.8F	A	F	F	5.2F	6.5	I72A	I74A	6.7V	A	A	A	6.1	5.9	6.2	6.2	I67A	I72A	I72A	A	F	FS	F
15	F	F	C	C	C	C	C	C	C	C	C	C	6.2	6.5	6.9	6.7	6.8	7.5	8.3R	8.5R	7.8	6.8	I66F	F
16	F	F	F	F	F	6.3F	7.6	I83A	7.4	A	A	5.9	I59A	6.3	6.6	7.1	6.7	I64A	I63A	I65A	F	F	F	A
17	F	F	F	F	F	I62F	6.6	I76A	7.0	I73A	7.2R	I68A	6.7	7.2	6.5	6.8	7.4	7.8	7.4R	7.8R	8.0	A	A	A
18	RF	F	F	F	RF	R	6.8F	6.5	7.0	I70A	I78A	I82A	I77A	8.2	7.8	7.4	I74A	7.1	7.4	8.0	A	F	F	A
19	F	F	F	F	I64F	6.5	7.3R	7.0	I70A	A	A	6.5	6.4	7.0	7.1	7.1	6.8	6.8	7.2	7.9	8.6	7.0	F	F
20	F	RF	A	A	F	6.3F	7.0	8.0	8.7	A	A	8.0	7.8	8.5	I87A	I80A	7.1	6.8	6.7	7.9	I80R	8.1R	F	F
21	6.4F	I64F	6.8F	6.3F	5.9F	6.0H	6.8H	8.0	7.8	I77A	A	A	7.4	8.0	7.9	7.5	7.4	6.4	6.0	I68R	8.0	7.7	7.9	8.1
22	7.4	I77R	6.5	I58R	C	C	8.1F	C	C	6.6	7.0	I73A	7.4	8.7	88R	8.7	7.9	7.9	7.6	8.0	7.7	7.8	7.7R	7.4
23	7.4	7.3	6.8	5.7	5.5H	5.3	6.0F	J58A	6.0	5.7	6.1	6.1	I60R	I63A	7.1	6.1	6.1	5.9R	6.4	6.6	7.1	I70F	I68R	I66F
24	5.9	5.7	5.4	5.6F	I57R	6.3	5.9	5.8	6.8	6.8	6.9	7.3	7.6	7.2	7.2	7.9	8.1	8.2	7.5	7.5	7.0	6.9	7.0S	F
25	F	F	A	F	F	6.0F	6.0H	6.5H	6.6H	6.1	7.5	U73R	7.3	7.5	7.5	8.0	8.1	8.7	9.1	I90§	I82R	7.7S	F	F
26	6.9	6.3	5.9	5.9	I61F	7.0	7.1	6.5	A	A	A	6.1	I66A	6.4	6.1	A	A	6.6	I68A	6.9	7.0	F	F	F
27	F	F	5.4F	5.6F	I58F	6.4F	7.4	9.0	7.1	5.8	5.9	6.4	6.9	7.5	7.9	7.8	I76A	8.0	I83R	7.1	6.9	7.4	7.4	7.1
28	7.0	6.3R	F	F	5.6F	5.8F	6.0	6.1	6.6	I61A	5.6	5.7R	5.7	U59R	5.5	5.5	6.1	7.1	U81R	7.4	5.6	5.4R	5.7	5.8
29	5.7	5.6	5.4	4.6	4.6	5.2	5.4	5.0W	6.0	6.0R	A	A	C	I56C	5.4	5.7	6.4	I74R	7.8	6.0	I48A	4.9	5.0	5.4
30	4.7	R	F	I38F	3.6F	I44A	4.8	5.3	A	A	I50A	G	G	R	I52A	I51R	5.1	I53A	5.9	I62R	6.2	F	F	6.3F
31																								
No.	12	14	13	14	19	27	28	26	20	17	15	20	23	26	28	27	29	29	29	28	22	16	12	9
Median	5.8	5.6	5.4	5.1	5.3	5.6	6.0	6.4	6.8	6.3	6.3	6.3	6.4	6.4	6.5	6.4	6.3	6.4	6.7	6.8	7.0	6.8	6.2	6.3
U. Q	7.0	6.3	6.2	5.7	5.8	6.3	7.0	7.2	7.2	6.9	7.0	7.3	7.3	7.2	7.3	7.4	7.3	7.4	7.4	7.8	8.0	7.6	7.2	7.2
L. Q	5.1	5.3	4.8	4.6	4.3	4.8	5.4	5.7	6.1	5.9	5.7	5.8	5.8	5.9	5.6	5.8	6.0	5.8	6.0	6.4	6.3	6.0	5.7	5.4
Q. R	1.9	1.0	1.4	1.1	1.5	1.5	1.6	1.5	1.1	1.0	1.3	1.5	1.5	1.3	1.7	1.6	1.3	1.6	1.4	1.4	1.7	1.6	1.5	1.8

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

foF2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1961 | foF1 | 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						3.1	C	C	A	A	A	R	A	R	I 4.6 R	4.3	A	L	A					
2						I 3.1 A	3.6	A	A	A	A	A	A	A	A	A	A	3.9	A					
3						3.0	A	A	A	A	A	A	R	I 4.4 B	4.4	4.3	A	A	A					
4							A	A	A	I 4.4 A	I 4.5 A	4.5 R	A	B	A	C	C	A	A					
5						L	I 3.9 A	4.1	A	A	A	A	A	A	A	A	A	A	A					
6							3.8	A	A	A	A	A	A	R	A	A	A	4.0 L	L					
7						L	A	A	A	A	A	4.5	A	A	4.4	4.2	I 4.0 A	I 4.0 L	A					
8							3.8	I 4.0 A	A	A	A	A	A	A	A	A	A	A	A					
9							4.0	I 4.2 A	4.1	4.3	R	A	A	A	A	4.4	4.2	A	A					
10							4.2 L	I 4.2 A	I 4.4 A	A	A	A	A	A	A	A	4.2 L	A	A					
11						A	A	L	A	A	4.6	A	A	A	A	A	A	L	A					
12							L	I 4.1 A	4.5	A	A	A	A	A	I 4.7 A	4.4 R	4.3	4.1	A					
13						A	A	A	A	A	A	A	A	A	A	A	4.3	A	A					
14							4.3 L	A	A	A	A	A	A	A	A	A	4.2	A						
15							C	C	C	C	C	C	A	A	A	4.6 L	4.6	4.1	A					
16							4.1	I 4.3 A	A	A	A	A	A	A	A	A	4.5 H	I 4.1 A						
17						A	A	A	A	A	A	A	A	A	A	A	4.6	A	L					
18								A	4.8 L	A	A	A	A	A	A	A	A	A	L					
19						L	A	A	A	A	A	4.9	4.9	I 5.0 A	4.8	4.8	I 4.6 A	4.7 L	L					
20							C	A	A	A	A	L	I 5.0 A	5.0	A	A	A	A	A					
21						L	L	A	A	A	A	A	A	A	4.9	I 4.9 A	I 4.6 A	A	A					
22							A	C	C	A	A	A	5.0	I 4.9 A	A	A	A	A	A					
23							I 4.0 L	I 4.3 A	I 4.6 A	I 4.6 R	I 4.7 R	I 4.8 R	4.9	A	A	4.6 L	4.5	A	A					
24							L	L	4.6	A	A	A	A	5.0	4.7	4.6	4.5 L	4.3	A					
25									I 4.6 A	5.0	4.9	A	A	A	A	A	A	A	A					
26						L	I 4.1 A	A	A	A	A	I 4.7 B	I 4.6 A	A	A	A	A	4.2 L	A					
27						3.4 L	3.8 L	A	A	L	A	A	A	4.7	4.6	4.6	A	A						
28						A	L	A	A	A	I 4.6 A	I 4.6 A	I 4.7 B	I 4.8 B	I 4.6 L	4.6	4.2	4.1	3.5					
29							L	A	A	A	A	A	C	C	C	C	A	A	L					
30						A	I 4.3 A	4.0	A	A	A	4.5	4.5	I 4.5 A	I 4.5 A	4.3	I 4.2 A	I 4.0 A	A					
31																								
No.						4	12	8	7	4	5	7	7	8	10	13	15	11	1					
Median						3.1	4.0	U 4.2	4.6	4.5	U 4.6	4.6	4.9	U 4.8	4.6	4.6	4.3	4.1	3.5					

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

foF1

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

The Radio Research Laboratories, Japan.

A 2

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						R	C	C	B	R	R	A	A	R	R	3.15	|3.10R	2.55	R					
2						R	2.55	|2.90R	R	R	R	A	B	B	A	A	A	R	R					
3						R	2.60R	|2.95R	R	R	B	B	R	B	B	R	R	R	B					
4						B	R	R	R	R	B	B	A	B	B	C	C	2.50	B					
5						2.00	2.55	2.80	R	R	R	B	B	R	A	B	R	2.55	R					
6						B	|2.60R	B	R	R	B	B	A	A	A	B	A	A	A					
7						A	R	2.95	|3.10R	R	B	B	B	B	B	R	A	R	R					
8						2.05	R	R	R	R	B	B	B	B	B	R	R	A	A					
9						A	2.50	R	R	B	B	B	R	R	R	R	A	A	A					
10						R	R	3.00	R	R	R	R	R	R	R	R	2.95	|2.60R	R					
11						2.05	|2.50R	2.95	R	R	R	R	B	B	B	R	3.05	2.65	2.05					
12						2.05	|2.60R	2.95	R	R	R	B	B	B	B	R	R	2.75	R					
13						2.00	R	R	R	B	R	R	R	B	R	A	A	A	A					
14						1.95	2.55	3.05	R	R	R	R	R	R	R	R	R	A	A					
15						C	C	C	C	C	C	C	R	R	R	A	A	A	A					
16						R	R	R	R	R	B	B	A	A	B	3.40	3.15	|2.75R	R					
17						R	|2.60R	3.05	R	R	R	R	R	R	R	A	R	R	A					
18						R	R	R	|3.40R	|3.60R	R	R	R	R	R	R	R	A	A					
19						R	2.75	3.10	R	R	R	R	R	R	R	R	A	A	A					
20						A	R	3.05	R	R	R	R	R	R	R	R	R	R	A					
21						A	|2.75R	R	R	R	R	R	R	R	R	|3.40R	3.10	2.80	2.05					
22							2.60	C	C	R	R	R	R	R	R	3.35	3.05	2.85	2.20					
23						B	R	R	R	B	R	B	R	R	3.60	|3.30R	3.00	|2.60R	R					
24						A	|2.70R	|3.10R	|3.35R	R	R	B	R	B	R	R	R	A	A					
25						A	A	A	R	R	R	R	B	R	R	3.45	R	R	R					
26						B	2.55	|2.85R	R	R	R	R	B	R	R	R	R	R	R					
27						2.00	R	R	R	R	R	R	R	R	3.55	|3.30R	2.95	2.55	R					
28						A	A	2.95	R	R	R	R	B	R	R	R	R	A	B					
29						B	2.50	R	R	C	C	C	C	C	C	C	R	R	R					
30						B	2.55	R	R	R	R	B	B	B	A	R	R	R	R					
31																								
No.						7	16	14	3	1					2	7	8	11	3					
Median						2.00	2.60	2.95	U3.35	U3.60					3.60	3.35	3.05	2.60	2.05					

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

foE

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

The Radio Research Laboratories, Japan.

A 3

23

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1961

foEs

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	1.8	2.3	2.4	2.1	2.8	C	C	8.0	6.5	5.2	4.2	6.2	G	G	G	4.3	6.1	7.5	6.0	7.2	8.4	7.8	7.7
2	4.8	2.5	3.3	3.3	4.8	3.4	3.6	6.0	6.8	7.5	5.7	5.0Y	5.3	7.3	11.8	11.5	4.5	3.6	5.0	4.0	8.3Y	5.0	3.5	2.1
3	E	2.1	2.1	E	E	G	6.3	9.3	10.5	5.8	8.5	5.9	4.2	4.2	B	B	5.0	5.9	5.4	6.1	5.0	5.5	2.8	2.8
4	4.8	E	2.4	2.5	2.2	2.9	5.0	6.7	4.8	5.3	4.5	3.6	4.7	B	5.1	C	C	6.1	5.9	7.9Y	3.2	5.0	2.8	2.3
5	3.2	3.4	4.8Y	5.6	2.6	2.5	3.9	4.9	6.5	7.1	5.8	7.4	7.0	6.1	6.3	5.3	6.0	5.8	7.9	5.3	7.3	8.5	9.8	5.5
6	5.5	6.4	5.9	3.7	4.5	B	3.5	4.5	9.9	7.6	8.5	7.0	5.6	4.3	6.6	5.3	4.3	3.7	2.9	4.0	6.9	6.0	4.8	3.9
7	7.8	3.8	7.5	7.6	6.5	3.5	4.7	4.5	5.9	5.8	6.8	B	4.8	6.5	4.2	4.6	4.9	3.3	6.1	5.9	7.8	5.9	5.8	8.0
8	6.0	5.6	4.9	4.3	3.5	G	3.0	4.9	6.9	5.9	7.4	7.3	13.9	7.2	8.1	7.0	5.8	7.2	8.5	8.3	5.0	3.7	6.0	2.5
9	7.3	3.0	2.8	4.6	2.8	2.3	G	12.5Y	G	B	4.5	6.9	5.4	7.0	4.8	4.8	5.1	7.8	6.1	3.4	6.4	5.8	5.1	3.8
10	3.7	2.8	C	2.9	1.8	3.9	4.1	5.6	5.6	4.6	5.7	5.7	6.1	5.9	6.1	12.4	4.6	8.4	6.3	5.1	5.3	8.3Y	8.7	8.6
11	5.7	5.2	3.4	3.8	5.1	4.6	5.8	4.1	6.4	7.2	4.5	5.4	5.0	8.7	10.8	7.7	14.1Y	3.9	5.2	4.1	6.9	8.3	6.0	2.8
12	3.8	2.7	E	E	2.0	2.4	3.0	4.3	4.3	6.3	7.3	4.6	6.3	6.0	17.3	4.4	G	3.6	10.4	4.6	17.5	8.6	8.3	6.0
13	3.7	3.2	2.3	5.5	2.8	3.6	5.2	4.9	7.3	7.1	6.3	7.9	7.4	6.5	10.2	7.9	3.8	9.6	7.3	6.7	17.3Y	6.1	2.8	5.2
14	5.0	6.0	8.3	3.4	5.5	G	3.1	7.8	8.6	4.9	5.4	8.2	12.8	8.2	5.0	5.4	3.7	6.7	6.5	12.7	8.4	2.9	5.0	2.3
15	5.0	1.9	C	C	C	C	C	C	C	C	C	C	7.3	6.9	5.8	4.9	5.8	4.1	5.9	2.8	5.0	5.3	4.9	2.8
16	2.3	2.9	6.1	2.8	E	4.7	4.0	16.8	5.0	5.3	6.0	5.6	5.7	9.3	6.3	4.6	G	5.9	10.4	11.8	12.0Y	3.0	6.0	10.2
17	5.8	3.6	3.6	2.9	1.9	3.9	5.2	7.9	6.0	7.6	13.5	11.8	7.8	6.3	5.9	6.1	8.1	8.3	5.8	5.8	4.3	8.3Y	8.3Y	11.8Y
18	6.0	5.1	4.9	5.0	3.7	2.6	4.3	6.1	5.2	7.6	9.1	10.4	8.4	8.4Y	7.6	5.8	8.4	6.3	4.6	5.3	8.3	8.3	6.1	8.3
19	3.6	8.3	2.3	3.1	E	3.8	4.6	5.4	8.5	11.8	5.8	4.5	4.6	5.4	4.9	5.8	5.1	3.8	2.8	2.3	2.3	2.4	5.6	6.1
20	5.2	6.1	10.6	8.3	6.1	3.8	3.8	8.5Y	11.3	11.5	17.4	4.5	6.1	5.3	11.3	10.8	4.8	5.7	5.2	3.3	6.2	5.9	6.2	4.9Y
21	5.3	2.0	2.7	4.5	3.0	3.0	G	5.9	4.8	10.5	9.2	13.1	8.3	8.2	4.1	6.1	5.8	6.5	6.6	17.3	2.9	2.6	2.1	3.0
22	2.7	4.0	3.7	5.8	C	C	7.3	C	C	7.8	8.1	12.0	4.2	6.7	7.2	5.8	12.0Y	7.4	6.3	5.0	3.1	3.8	2.2	2.4
23	5.9	2.2	E	3.4	2.3	2.5	3.6	7.3	5.2	4.2	4.4	4.6	5.6	7.4	8.5	4.1	3.9	7.4	4.2	1.9	3.5	3.6	3.8	2.8
24	2.3	1.8	2.4	2.2	2.8	2.8	3.0	4.2	5.1	6.5	6.0	7.3	6.9	5.0	3.7	G	3.7	6.0	5.2	3.5	6.0	3.8	2.9	7.9
25	6.0	6.0	8.1	5.4	2.8	2.2	4.2	4.2	5.0	7.4	4.9	8.4	8.0	10.8	8.3	10.4	7.4	11.3	7.3	8.3	2.4	2.2	4.0	3.6
26	4.9	2.3	2.3	2.1	2.3	2.4	4.0	5.4	7.5	10.0	16.8	4.4	14.8	7.4	14.9	8.5	5.6	5.4	8.1	3.0	4.8	5.0	2.8	3.7
27	5.2	5.2	2.2	2.8	2.8	G	3.2	5.5	5.5	4.5	4.7	6.0	6.8	4.3	G	4.2	7.5	12.8	7.2	5.0	4.9	2.4	2.6	E
28	3.0	3.5	6.0	5.1	2.3	5.2	3.4	6.9	7.4	8.7Y	5.1	5.0	4.1	4.2	G	G	G	3.7	3.0	3.2	2.6	2.2	2.5	E
29	1.9	4.4	E	2.2	2.1	G	3.1	5.2	5.7	5.9	7.4	5.2	C	C	C	C	4.5	4.5	3.1	4.8	5.2	4.3	5.1	1.8
30	2.7	2.7	2.3	2.1	1.9	5.7	3.8	5.8	5.4	13.3	6.0	4.0	4.3	4.3	6.4	4.2	6.9	8.6	5.9	12.7	7.4	2.4	4.8Y	2.8
31																								
No.	30	30	28	29	28	27	28	27	28	28	29	28	29	28	28	27	29	30	30	30	30	30	30	30
Median	4.8	3.3	3.0	3.4	2.7	2.8	3.8	5.6	6.0	7.2	6.0	5.8	6.1	6.5	6.8	5.4	5.0	6.0	6.0	5.0	5.6	5.0	5.0	3.6
L.Q	5.7	5.2	5.4	5.0	3.6	3.8	4.6	7.3	7.4	8.2	8.3	7.6	7.6	7.4	8.4	7.9	7.2	7.4	7.3	6.7	7.4	6.1	6.0	6.1
L.Q	2.7	2.3	2.3	2.4	2.0	2.3	3.2	4.9	5.2	5.8	5.2	4.6	4.9	5.2	4.8	4.4	4.1	4.1	5.2	3.5	4.3	3.0	2.8	2.5
Q.R	3.0	2.9	3.1	2.6	1.6	1.5	1.4	2.4	2.2	2.4	3.1	3.0	2.7	2.2	3.6	3.5	3.1	3.3	2.1	3.2	3.1	3.1	3.2	3.6

The Radio Research Laboratories, Japan.

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

foEs

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

A

IONOSPHERIC DATA

Jun. 1961 | f_bEs | 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	1.7	E	2.2	C	C	A	A	A	E4.2 B	A				4.3	3.5	A	5.3	3.4	5.0	5.0	2.0
2	3.0	2.0	1.8	2.0	2.4	3.3	3.5	5.1	A	A	A	A	A	A	A	A	4.1	3.5	4.8	U4.0 B	2.8	2.0	E	E
3		E	E				5.0	A	A	A	A	A	4.0	E4.2 B	B	B	4.8	A	5.3	5.3	4.1	3.6	1.8	1.9
4	E		E	1.8	E	2.1	A	A	4.7	5.1	E4.5 B	E3.6 B	E4.7 B	B	A	C	C	5.8	5.9	3.7	2.8	2.0	2.5	1.8
5	2.0	E	E	2.5	1.8	2.1	3.9	4.0	A	A	A	A	A	A	A	5.2	5.0	A	A	2.8	A	3.0	A	4.0
6	4.5	3.8	2.1	3.1	3.5	B	3.3	4.4	A	A	A	A	A	4.1	A	5.3	4.3	3.0	2.9	4.0	5.5	5.0	4.0	3.5
7	A	2.5	3.3	A	A	2.1	4.0	4.5	A	A	A	B	4.8	A	3.8	4.0	E4.9 R	3.3	4.3	5.0	5.0	E	2.6	2.0
8	2.5	4.0	2.0	3.1	2.5		3.0	4.5	A	A	A	A	A	A	A	A	A	A	A	A	5.0	2.5	2.0	E
9	4.0	E	E	2.0	1.9	2.1		A		B	4.4	A	A	A	4.8	3.5	3.7	4.0	3.6	U3.4 B	A	4.5	3.5	1.8
10	3.0	2.5	C	2.0	E	3.8	4.1	5.3	U5.6 B	U4.6 B	5.7	4.9	6.0	5.3	5.5	A	3.6	A	6.0	3.8	4.5	5.0	A	A
11	4.5	2.1	2.0	2.2	4.0	4.6	5.2	4.1	A	A	4.1	5.4	5.0	A	A	5.8	A	U3.9 B	3.5	U4.1 B	4.1	3.5	3.5	E
12	2.1	E			E	2.2	2.9	4.2	4.1	4.9	A	U4.6 B	A	5.9	A	4.0		3.5	4.4	3.9	A	A	A	4.2
13	2.5	3.0	2.3	E	E	3.5	4.7	4.6	A	A	5.7	A	4.9	5.0	A	5.4	3.5	A	6.0	6.5	A	5.3	E	3.5
14	4.0	4.5	A	1.8	3.4		3.0	A	A	4.8	A	A	A	5.5	5.0	5.2	3.7	A	A	A	A	2.9	5.0	E
15	4.0	1.7	C	C	C	C	C	C	C	C	C	C	5.0	5.0	5.0	3.6	3.5	3.0	4.0	2.0	3.4	2.3	4.1	E
16	E	E	1.9	1.8		2.7	3.9	A	5.0	A	A	5.3	A	5.4	6.3	U4.6 B		A	A	A	1.8	1.9	5.3	A
17	E	3.5	3.5	1.9	E	3.5	U5.2 B	A	5.3	A	5.3	A	5.5	5.4	4.9	4.8	4.0	6.5	3.0	3.5	E4.3 B	A	A	A
18	3.3	4.0	3.7	2.9	2.0	2.4	3.0	5.1	4.4	A	A	A	A	5.2	7.4	5.1	A	4.4	2.6	2.2	A	E	5.4	A
19	2.0	E	E	2.0		3.4	4.4	5.0	A	A	A	4.0	4.3	5.3	3.9	4.2	4.9	3.0	2.5	E	2.0	U2.4 B	4.0	5.0
20	4.8	5.1	A	A	E	2.7	3.3	5.8	8.0	A	A	4.3	5.4	4.9	A	A	4.4	5.4	4.4	3.0	5.2	4.3	4.6	1.7
21	3.5	E	E	2.5	2.2	3.0		4.8	4.6	A	A	A	6.0	7.3	4.0	5.4	5.6	4.8	5.3	2.6	2.9	1.8	E	3.0
22	E	2.5	1.9	2.9	C	C	6.2	C	C	5.0	5.7	A	4.0	5.5	6.3	4.7	6.6	7.0	3.8	4.8	2.4	3.5	1.7	2.0
23	5.3	E		1.8	2.0	2.3	3.1	A	5.0	4.2	4.3	4.5	4.6	A	5.0	4.1	3.6	5.3	U4.2 B	1.9	3.2	2.0	3.4	2.0
24	E	E	E	E	E2.8 B	2.5	2.8	4.0	4.2	6.1	5.7	6.0	5.4	4.5	U3.7 B		3.6	4.0	4.8	2.8	5.0	E3.8 B	2.5	4.0
25	4.0	4.6	A	2.9	1.8	2.1	3.5	4.0	E5.0 B	4.4	4.6	6.0	5.3	5.5	5.4	5.6	5.4	7.7	5.6	4.8	E	E	3.7	3.5
26	3.0	E	2.0	E	E	2.2	4.0	U5.4 B	A	A	A	E4.4 B	A	4.8	5.0	A	A	3.5	A	2.8	2.9	2.8	2.2	2.8
27	1.8	4.2	E	2.7	U2.8 B		3.1	5.5	5.0	4.5	E4.7 B	5.6	6.6	4.0		3.8	A	6.8	7.0	U5.0 B	4.9	E2.4 B	2.1	
28	1.9	2.5	5.0	1.7	E	4.5	3.4	5.7	6.0	A	4.7	4.9	U4.1 B	U4.2 B				3.4	U3.0 B	2.9	2.0	E	2.0	
29	E	1.8		1.7	E		3.1	4.7	5.1	5.6	A	A	C	C	C	C	E4.5 R	U4.5 B	2.7	3.9	A	4.0	4.6	E
30	E	E	E	E	U1.9 B	A	3.8	3.6	A	A	A	3.9	4.0	E4.3 B	A	3.9	4.6	A.	5.4	3.4	4.0	2.0	E	2.0
31																								
No.	28	29	25	27	25	22	26	27	27	28	29	28	29	27	25	24	25	30	30	30	29	29	30	28
Median	2.8	2.0	1.9	2.0	1.9	2.6	3.6	5.1	8.0	A	A	6.0	5.5	5.4	6.3	5.2	E4.5	5.0	4.8	3.8	4.1	2.8	3.5	2.0

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

f_bEs

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

The Radio Research Laboratories, Japan.

A 5

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1961 | f-min | 135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	1.65	C	C	3.30	1.95	2.00	3.00	3.00	3.25	3.05	2.00	2.00	1.70	1.70	E	E	E	E	E
2	E	E	E	E	E	1.65	1.70	1.65	1.90	2.05	2.05	3.30	3.70	3.10	2.70	1.95	1.75	1.70	1.70	E	E	E	E	E
3	E	E	E	E	E	1.65	1.75	1.80	1.75	2.00	3.50	3.40	2.00	3.60	3.95	1.95	2.00	1.95	1.75	E	E	E	E	E
4	E	E	E	E	E	1.75	1.70	1.90	1.75	2.00	3.55	3.40	2.90	5.20	3.80	[4.65C	[3.00C	1.70	1.75	E	E	E	E	E
5	E	E	E	E	E	1.70	1.70	1.70	1.90	2.05	2.05	3.60	3.45	1.90	2.95	3.30	1.75	1.95	1.70	E	E	E	E	E
6	E	E	E	E	E	2.00	1.70	3.05	1.80	2.00	3.50	3.55	2.95	2.90	2.60	3.50	1.80	1.65	1.70	E	E	E	E	E
7	E	E	E	E	E	E	1.70	1.70	1.90	2.00	3.45	4.00	3.50	4.00	3.45	2.00	2.00	1.80	1.70	E	E	E	E	E
8	E	E	E	E	E	1.70	1.70	1.80	1.80	2.00	3.70	3.60	3.45	3.55	3.50	2.50	2.00	1.65	1.70	E	E	E	E	E
9	E	E	E	E	E	E	1.70	1.70	1.80	4.00	3.55	4.05	2.00	2.00	1.80	1.80	1.70	1.70	1.70	E	E	E	E	E
10	E	E	E	E	E	1.65	1.75	1.70	2.00	2.05	2.00	2.60	2.55	2.45	2.00	2.00	1.80	1.70	1.70	E	E	E	E	E
11	E	E	E	E	E	1.65	1.70	1.70	2.00	2.00	2.00	2.00	4.05	3.70	3.40	2.60	2.00	1.90	1.70	E	E	E	E	E
12	E	E	E	E	E	1.70	1.70	1.80	1.70	2.00	2.00	3.55	3.60	3.60	3.50	2.00	2.00	1.70	1.70	1.70	E	E	E	E
13	E	E	E	E	E	1.65	1.70	1.75	1.80	3.45	1.90	1.95	2.00	3.40	2.00	1.95	1.75	E	E	E	E	E	E	E
14	E	E	E	E	E	1.65	1.65	1.70	1.75	1.70	2.00	1.70	1.80	1.95	2.05	1.80	1.95	1.70	1.70	E	E	E	E	E
15	E	E	C	C	C	C	C	C	C	C	C	C	1.95	2.00	2.00	2.00	1.75	1.65	E	E	E	E	E	E
16	E	E	E	E	E	E	1.65	1.70	1.95	2.05	3.55	3.60	3.20	2.95	3.90	2.00	1.90	1.75	1.70	E	E	E	E	E
17	E	E	E	E	E	1.65	1.65	1.90	2.00	1.85	1.95	1.90	1.95	2.00	1.80	1.80	1.85	1.70	1.65	E	E	E	E	E
18	E	E	E	E	E	1.65	1.70	1.75	1.75	2.00	2.00	2.00	2.00	1.95	2.00	1.90	1.80	1.65	E	E	E	E	E	E
19	E	E	E	E	E	1.65	1.70	1.70	1.80	1.70	1.90	2.00	2.00	2.00	1.95	2.00	2.50	1.65	E	E	E	E	E	E
20	E	E	E	E	E	E	1.75	1.75	1.80	1.95	2.00	2.00	2.60	2.55	2.00	1.90	1.70	1.65	1.70	1.70	E	E	E	E
21	E	E	E	E	E	E	1.80	1.90	1.75	2.00	1.90	3.45	2.00	2.00	2.10	1.80	1.70	1.70	E	E	E	E	E	E
22	E	E	E	E	C	C	1.75	C	C	2.00	1.95	2.00	2.00	3.00	2.00	2.05	1.70	1.75	E	E	E	E	E	E
23	E	E	E	E	E	1.75	1.70	1.75	2.40	3.50	1.80	3.70	1.85	2.05	2.60	1.80	1.70	1.75	1.65	E	E	E	E	E
24	E	E	E	E	E	1.65	1.65	1.70	1.80	1.95	2.00	3.60	2.60	3.60	2.60	2.00	1.95	1.70	E	E	E	E	E	E
25	E	E	E	E	E	E	1.65	1.75	1.80	1.80	1.90	2.00	3.40	2.00	1.95	1.90	1.70	1.65	1.65	E	E	E	E	E
26	E	E	E	E	E	1.70	1.70	1.70	1.75	1.95	2.25	2.00	3.25	2.05	1.75	2.00	1.80	1.65	1.70	E	E	E	E	E
27	E	E	E	E	E	E	1.65	1.75	2.05	1.95	2.00	2.65	2.95	2.30	2.00	1.75	1.90	1.70	1.65	E	E	E	E	E
28	E	E	E	E	E	1.65	1.70	1.85	1.85	1.75	1.75	2.00	3.85	1.95	2.00	1.95	1.80	1.75	2.00	E	E	E	E	E
29	E	E	E	E	E	1.90	1.70	1.90	1.85	E3.60C	E3.90C	E4.20C	C	C	E4.90C	E5.20C	2.00	1.80	1.65	1.70	E	E	E	E
30	E	E	E	E	E	1.70	1.80	1.90	2.00	2.00	1.95	3.50	3.50	3.40	2.70	1.95	1.95	1.65	1.65	E	E	E	E	E
31																								
No.	30	30	29	29	28	28	28	27	28	28	28	28	30	30	29.	29	30	30	30	30	30	30	30	30
Median	E	E	E	E	E	1.65	1.70	1.75	1.80	2.00	2.00	3.15	2.75	2.70	2.10	2.00	1.80	1.70	1.70	E	E	E	E	E

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

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. 1961 | M(3000)F2 | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I 2.70F	2.70	2.70	I 2.70F	2.65	2.70	C	C	A	A	A	R	A	2.85	2.95	3.00	3.10	3.00	I 3.00A	3.05	2.80	2.85	F	F
2	2.65F	I 3.10F	I 2.90F	2.60	2.75	2.75	3.00	3.15	A	A	A	A	A	A	A	A	3.00	I 2.90R	2.90	2.85	2.80	I 2.90R	I 2.85F	I 2.85F
3	2.70	2.80	2.85	2.75	2.75	I 2.90F	2.80	A	A	A	A	A	2.75	2.80	2.80	3.05	2.80	I 2.85A	2.90	3.00	I 3.10R	I 3.00F	I 2.75F	2.60F
4	F	F	3.10F	2.85F	2.85F	2.90	I 2.75A	I 3.10A	3.10	2.90	2.95	2.75	2.85	2.90	I 3.00A	I 2.95C	I 3.10C	I 3.20A	3.05	3.00	3.05	F	F	F
5	F	F	F	R	3.00F	3.20	2.85	3.10	A	A	A	A	A	A	I 2.85A	I 2.85A	3.05	I 2.90A	I 3.00A	3.00	A	F	A	F
6	F	I 3.00F	3.00F	I 3.00F	3.30F	3.15	3.05	2.90	A	A	A	I 2.95A	I 2.95A	2.95	I 2.90A	3.05	3.10	3.00	3.10	3.10	2.85	2.85F	2.90F	F
7	A	F	F	A	A	2.70	2.85	I 2.70A	A	A	A	2.55R	2.90	I 2.90A	2.85	2.95	3.25	2.90	3.10	2.90	2.80	F	F	F
8	2.75F	2.90	2.70F	I 3.00F	I 3.35R	3.25F	3.15	2.90	I 2.70A	A	A	A	A	A	A	A	A	A	A	A	2.80	2.75F	I 2.80F	F
9	F	2.85F	F	F	I 3.15F	3.20H	3.10	I 2.70A	3.20R	2.75	2.80R	A	A	I 2.60A	2.75	3.00	2.95	3.10	3.25	2.95	A	F	F	F
10	F	F	C	F	I 3.20F	3.25	2.85	2.85	3.20	3.05	3.15	3.20	2.90	3.10	3.20	I 3.05A	3.00	I 2.90A	2.60	2.95	2.90S	FS	A	A
11	F	F	F	F	2.90F	3.20	3.30	2.90F	I 3.60A	I 3.40A	3.20	2.75	2.85	I 3.10A	I 3.00A	3.00	I 3.05A	2.95	3.00	3.00	F	F	F	F
12	F	F	F	F	F	3.35	3.30	3.40	3.50	3.15A	I 2.75A	2.80	I 2.95A	2.80	I 2.95A	2.90	2.95	2.95	3.00	F	A	A	A	F
13	F	F	F	F	F	2.90F	3.10	2.85	A	A	3.20	I 2.95A	2.70	2.95	I 2.90A	2.90	2.85	I 2.80A	2.85	3.10	A	F	F	F
14	F	2.65F	A	F	F	3.00F	2.85	I 3.05A	I 3.40A	3.20V	A	A	A	2.90	2.75	2.90	2.90	I 3.10A	I 3.10A	I 3.10A	A	F	FS	F
15	F	F	C	C	C	C	C	C	C	C	C	C	2.80	2.85	2.85	2.90	2.70	2.95	3.00R	3.10R	3.10	2.80	I 2.80F	F
16	F	F	F	F	F	2.80F	2.95	I 3.00A	3.00	A	A	2.75	I 2.65A	2.70	2.80	3.05	3.15	I 3.00A	I 3.00A	I 2.85A	F	F	F	A
17	F	F	F	F	F	I 2.85F	3.10	I 3.20A	3.05	I 3.20A	3.20R	I 2.95A	2.85	3.05	2.80	2.85	3.00	3.10	3.00R	2.95R	3.00	A	A	A
18	RF	F	F	F	RF	R	3.20F	2.90	3.20	I 3.00A	I 2.95A	I 3.00A	I 2.80A	2.90	I 3.00A	2.85	I 3.00A	3.00	2.90	3.00	A	F	F	A
19	F	F	F	F	I 2.80F	2.80	2.95R	3.20	I 3.00A	A	A	2.80	2.75	2.85	2.95	2.90	2.90	2.80	2.90	2.90	2.95	2.90	F	A
20	F	RF	A	A	F	3.00F	3.00	2.90	2.85	A	A	2.80	2.80	2.90	I 2.95A	I 3.10A	3.10	2.95	2.80	2.85	I 2.75R	2.65RS	F	F
21	2.65F	I 2.80F	2.85F	3.10F	3.20F	2.75H	2.80H	2.90	2.70	I 2.90A	A	A	2.55	2.65	2.90	2.90	3.10	3.00	2.70	I 2.70R	2.65	2.55	2.65	2.75
22	2.70	I 2.90R	2.80	I 2.60RF	C	C	2.75F	C	C	3.25	2.75	I 2.90A	2.55	2.90	2.95R	3.00	3.00	2.90	2.80	2.90	2.75	2.70	2.85R	2.55
23	2.70	2.70	3.00R	2.65	2.85H	2.60	2.85F	I 2.70A	2.70	2.50	2.65	2.70	I 2.90R	I 2.70A	3.05	3.00	2.95	2.95R	3.00	2.95	3.00	I 2.70F	I 2.80FR	I 2.90F
24	2.70	2.75	2.75	2.85F	I 3.00R	3.40	3.20	2.60	2.75	3.00	2.75	2.90	2.80	2.80	2.80	2.80	3.00	3.05	3.05	3.05	2.75	2.70	2.80S	F
25	F	F	A	F	F	3.50F	3.10H	3.20H	2.75H	2.70	2.95	U 3.05R	2.75	2.80	2.80	2.90	2.95	2.90	3.05	I 3.10RS	I 3.00R	2.85S	F	F
26	2.90	2.75	2.70	2.75	I 2.80F	2.85	3.20	3.30	A	A	A	2.70	I 2.80A	2.80	2.85	A	A	2.90	I 3.10A	3.10	3.00	F	F	F
27	F	F	2.70F	2.70F	I 2.80F	2.85F	2.85	3.20	3.65	3.05	2.75	2.80	I 2.80A	3.00	2.95	3.05	I 3.00A	3.05	I 3.05R	3.00	2.80	2.90	2.90	2.75
28	2.85	3.10R	F	F	2.80F	3.00F	2.95	I 3.00A	3.10	I 3.05A	2.80	2.90R	2.95	U 3.05R	2.75	2.65	2.90	3.05	U 3.25R	3.40	2.70	2.65R	2.70	2.75
29	2.80	2.90	3.05	2.95	3.10	2.90	2.95	I 2.85A	3.05	2.95R	A	A	C	I 2.60C	2.30	2.55	2.70	I 2.95R	3.25	3.55	I 2.70A	2.70	2.80	2.95
30	2.90	R	F	I 2.80F	2.60F	I 2.80A	2.95	2.85	A	A	I 2.60A	G	G	R	I 2.60A	I 2.70R	2.90	I 2.90A	3.10	I 3.00R	2.90	F	F	2.90F
31																								
No.	12	14	13	14	19	27	28	26	19	16	15	20	23	26	28	27	28	29	29	28	22	16	12	9
Median	2.70	2.80	2.85	2.80	2.85	2.90	2.95	2.90	3.05	3.00	2.80	2.80	2.80	2.90	2.90	2.90	3.00	2.95	3.00	3.00	2.80	2.80	2.80	2.75

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

M(3000)F2

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

The Radio Research Laboratories, Japan.

A 7

27

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1961 | M(3000)F1 | 135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						320	C	C	A	A	A	R	A	R	I 4.25 R	360	A	L	A					
2						A	A	A	A	A	A	A	A	A	A	A	A	340	A					
3						340	A	A	A	A	A	A	R	I 380 B	380	340	A	A	A					
4							A	A	A	I 3.75 A	I 395 A	420 R	A	B	A	C	C	A	A					
5						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
6							350	A	A	A	A	A	A	R	A	A	A	350 L	L					
7						L	A	A	A	A	A	385	A	A	370	A	A	L	A					
8							350	A	A	A	A	A	A	A	A	355	A	A	A					
9							350	I 360 A	390	380	R	A	A	A	A	A	360	A	A					
10							A	A	A	A	A	A	A	A	A	A	360 L	A	A					
11						A	A	L	A	A	410	A	A	A	A	A	A	L	A					
12							L	I 385 A	400	A	A	A	A	A	A	355 R	350	345	A					
13						A	A	A	A	A	A	A	A	A	A	A	360	A	A					
14							340 L	A	A	A	A	A	A	A	A	A	360	A						
15							C	C	C	C	C	C	A	A	A	370 L	350	345	A					
16							I 345 A	I 350 A	A	A	A	A	A	A	A	A	360 H	A						
17						A	A	A	A	A	A	A	A	A	A	A	340	A	L					
18								A	360 L	A	A	A	A	A	A	A	A	A	L					
19						L	A	A	A	A	A	375	385	I 350 A	380	350	I 340 A	340 L	L					
20							L	A	A	A	A	L	I 385 A	A	A	A	A	A	A					
21						L	L	A	A	A	A	A	A	A	365	I 350 A	I 340 A	A	A					
22							A	C	C	A	A	A	365	I 365 A	A	A	A	A	A					
23							I 350 L	A	A	R	I 380 B	R	A	A	A	365 L	335	A	A					
24							L	L	355	A	A	A	A	340	370	350	340 L	I 350 A	A					
25									I 390 A	340	I 370 A	A	A	A	A	A	A	A	A					
26						L	I 345 A	A	A	A	A	I 390 B	I 390 A	A	A	A	A	340 L	A					
27						340 L	365 L	A	A	L	A	A	A	365	380	350	A	A						
28						A	L	A	A	A	A	A	I 390 B	I 380 B	I 370 L	360	365	350	A					
29							L	A	A	A	A	A	C	C	C	C	A	A	L					
30						A	I 310 A	360	A	A	A	390	385	I 390 A	I 360 A	355	A	A	A					
31																								
No.						3	9	4	5	3	4	5	6	7	9	12	13	8						
Median						340	U 350	U 360	390	375	U 390	390	U 385	U 365	370	355	350	345						

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1961 | h'F2 | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						400	C	C	A	A	A	R	A	B	340 B	385	340	305	A					
2						395	325	320A	A	A	A	A	A	A	A	A	355	365	A					
3						345	A	A	A	A	A	A	425	I 375 B	395 B	350	A	A	A					
4							A	A	330	345	340 B	405	395	B	A	C	I 325 C	I 295 A	A					
5						280	410	345	A	A	A	A	A	A	I 395 A	I 380 A	345	A	A					
6							320	A	A	A	A	A	A	370	I 375 A	345	330	350	295					
7						440 L	390 A	A	A	A	A	B	395	I 410 A	420	360	300	I 330 L	305					
8							310	360	A	A	A	A	A	A	A	A	A	A	A					
9							305	I 460 A	330	B	B	A	A	I 510 A	425	370	355	300	285					
10							375	365	295	305	310	325	I 400 A	345	310	I 335 A	350	I 340 A	I 320 A					
11						280	275	280	I 260 A	I 305 A	345	430 A	400	I 345 A	I 345 A	340	I 345 A	I 330 L	290					
12							255	255	260	A	A	395	I 355 A	I 350 A	I 340 A	345	330	305	295					
13						290	280	355	A	A	345	I 390 A	440	375	I 390 A	I 395 A	370	A	A					
14							350	I 300 A	I 300 A	315	A	A	A	400	425	375	360	A						
15							C	C	C	C	C	C	400	395	375	355	395	340	290					
16							345	I 305 A	300	A	A	440	I 440 A	445	I 360 A	345	310	I 310 A						
17						305	I 295 A	I 305 A	345	I 300 A	305	I 350 A	395	350	345	380	315	I 305 A	295					
18								350	310	I 345 A	A	A	A	350	I 345 A	385	I 340 A	295	300 L					
19						345	295	295	I 320 A	A	A	395	400	395	350	360	360	350	305					
20							255	305	A	A	A	350	390	345	I 325 A	I 300 A	295	340	340					
21						300 L	280 L	345	320	I 350 A	A	A	A	I 385 A	330	350	325	310	A					
22							A	C	C	305	410	I 350 A	430	340	340	320	I 310 A	I 310 A	295					
23							380	I 385 A	445	I 485 B	450	445	I 380 A	I 390 A	345	345	370	I 345 A	300					
24							290 L	390 L	395	I 350 A	I 375 A	I 385 A	360	390	355	355	310	300	280 A					
25									355 H	440	345	I 350 A	390	360	360	345	310	I 310 A	295					
26						285	275	I 310 A	A	A	A	430	I 385 A	395	395	A	A	350	A					
27						345	295	285	245	I 320 L	445	400	I 370 A	350	305	305	A	A						
28						300 A	295	I 335 A	I 315 A	I 350 A	410	I 425 B	390 B	350	I 415 L	450	385	325	265					
29							I 310 L	I 380 A	340	A	A	A	C	I 490 C	580	I 465 C	I 390 R	310	250					
30						A	380	395	A	A	A	G	G	A	I 500 A	450	I 430 A	I 370 A	A					
31																								
No.						13	23	22	17	13	11	17	20	24	27	26	26	24	17					
Median						305	305	340	320	H 345	345	395	395	380	360	355	340	320	295					

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

h'F2

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

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1961

h'F

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	255	295	300	290	345	295	C	C	A	A	I240A	A	A	205	200	245	A	A	A	A	300A	I290A	I295A	290
2	I330A	255	295	355A	340A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	290	255	290	295
3	295	305	305	310	315	255	A	A	A	A	A	A	210	I220B	235	B	A	A	A	A	290A	I260A	285	345
4	295	255	250	245	290	245	A	A	A	I230A	I220A	200	A	B	A	C	C	A	A	280	260	315	310	295
5	320	260	245	245	245	245	A	A	A	A	A	A	A	A	A	A	A	A	A	275	I245A	A	A	A
6	A	A	280A	I290A	I260A	240	255	A	A	A	A	A	A	A	A	A	A	245	I275A	280	I280A	I290A	A	A
7	A	280A	A	A	A	260	A	A	A	A	A	220	A	A	220	A	A	250	I260A	I295A	I295A	305	290A	260
8	300A	320A	330	290A	210	245	245	A	A	A	A	A	A	A	A	A	A	A	A	A	A	330A	275	290
9	I295A	290	260	300A	310	250	245	I245A	210	240B	A	A	A	A	A	240	240	A	A	290A	A	A	A	255
10	I300A	305	I295C	245	255	255	I250A	I245A	I245A	A	A	A	A	A	A	A	220	A	A	290	300A	A	A	A
11	I300A	280	280	295	I300A	A	A	A	A	A	200	A	A	A	A	A	A	I250A	I255A	I275A	290A	300A	260A	240
12	285	290	290	280	245	245	240	I235A	240	A	A	A	A	A	A	A	240	I245A	I255A	275	A	A	A	I320A
13	315A	300A	300	290	280	A	A	A	A	A	A	A	A	A	A	A	250	A	A	A	A	I275A	280	A
14	A	A	A	270	I260A	250	240	A	A	A	A	A	A	A	A	A	240	I265A	I280A	A	A	A	A	255
15	I275A	280	C	C	C	C	C	C	C	C	C	C	A	A	A	225	250	245	I280A	240	250	290A	I300A	290
16	275	280	305	295	300	290	I250A	I250A	A	A	A	A	A	A	A	A	245H	A	A	270A	285	335	I280A	I260A
17	305	I310A	I300A	290	295	I265A	A	A	A	A	A	A	A	A	A	A	A	A	250	285	I280A	280	I295A	I290A
18	I290A	I300A	300A	270	245	245	235	I215A	A	A	A	225	230	I230A	220	A	A	245	250	295	250	I250A	A	A
19	260	300	295	290	280	A	A	A	A	A	A	225	I225A	A	A	A	A	A	A	295	I295A	340A	305	230
20	A	A	I250A	I260A	250	245	235	A	A	A	A	A	A	A	240	I250A	I250A	A	A	A	315	325	305	295A
21	340A	295	260	260	240	240A	245	A	A	A	A	A	210	I230A	A	A	A	A	A	290A	290	325	290	340
22	295	290	255	A	C	C	A	C	C	A	A	A	A	A	A	250	240	A	A	285	295	290	320A	285
23	I320A	295	255	290	330	255	240	A	A	245	A	A	A	I220A	205	210	255	I250A	I270A	245	I275A	I310A	290	I290A
24	295	295	300	290	I270A	250	240	I240A	A	A	A	A	A	A	A	A	A	A	A	245A	245	245	I275A	I280A
25	I300A	I290A	I300A	260A	260	245	245	255	I225A	I240A	I235A	A	I230A	A	A	A	A	A	A	260	260	290A	300	310
26	290A	290	295A	295	300	250	A	A	A	A	A	I220B	A	230	200	245	A	A	A	A	A	295	290	295
27	305	I300A	315	330A	I290A	260	250	A	A	I235A	A	A	I210B	I220B	I220B	210	250	240	I245A	245	255	295	315	295
28	295	250A	I255A	260	295	I270A	I240A	A	A	A	A	A	C	C	C	C	A	A	245	245	I320A	I360A	I330A	270
29	295	275	250	290	260	250	245	A	A	A	A	A	230	I215A	I240A	I245A	A	A	A	285	I300A	305	270	290
30	250	260	280	280	350	A	A	245	A	A	A	220												
31																								
No.	26	27	27	27	27	23	16	8	4	5	4	6	7	8	9	9	11	9	11	21	24	24	22	24
Median	295	290	295	290	280	250	245	U245	U230	U240	U230	220	225	U220	220	245	245	245	U255	280	290	295	290	290

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

h'F

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

IONOSPHERIC DATA

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

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

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

h'Es

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

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jun. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		f2	f2	f2	f	h2			c	c	c	l	l				h	h2	c2	f2	f3	f3	f2	f2
2	f3	f2	f2	f3	f3	h2	h2	h2	h2	c3	c	l	l	l2	l	l2	l	h	c2	f3	f2	f4	f3	f
3		f	f				h2	c4	c2	c	c	c2	c	c			h	h2	h2	f2	f3	f3	f2	f2
4	f		f	f	f	h	h2	c2	c	c	c	c	l		c			h2	c2	f3	f2	f2	f3	f2
5	f2	f2	f2	f2	f	h	h2	h	h2	c2	c	c4	c2	c2	l	h2	h2	c2	c2	f2	f2	f2	f3	f4
6	f3	f3	f2	f2	f3		h	h	c2	c2	c2	c2	l	l	l	l2	l2	l2h	h2l	f2	f3	f3	f4	f4
7	f2	f2	f4	f2	f3	l2	h2	h2	h2	h	c2		c	c	h	c	l2	c	h2	f2	f2	f2	f2	f2
8	f2	f3	f3	f2	f2		h	h2	h3	h2	c	c2	c2	c2	h	h2	h2	h2l2	h3l2	f4	f4	f2	f2	f2
9	f3	f2	f2	f2	f2	l		h2			h	c2	c2	c3	c2	c2	l3	l3	l2	f3	f2	f2	f2	f2
10	f3	f2		f2	f	h3	h2	h2	h	h	c	c	c2	c	c2	c3	h2	h3	h4	f2	f3	f5	f3	f4
11	f3	f2	f2	f2	f3	h2	h2	h2	c2	c2	c	h	h	h2	h2	h2	h2	h	c2	f2	f2	f3	f2	f2
12	f2	f2			f	h	h	h	h	h2	c2	c	c	h2	h2	h		h	c2	f3	f3	f4	f4	f3
13	f2	f4	f3	f2	f	h2	c2	h2	c3	c2	c2	c3	c2	c	c3	l2	l2	c3l2	c4l2	f4	f	f3	f2	f3
14	f2	f3	f2	f2	f3		h	c4	c2	c	c2	c2	c2	c2	c	c2	c	c2l2	l6	f4	f2	f3	f3	f2
15	f3	f2											c2	c2	c2	l	l	l2	l2	f2	f3	f2	f3	f
16	f	f	f2	f2		h	h2	c2	h2	c2	c2	h	l	l2	c2	c2		h2	c2	f5	f2	f2	f2	f2
17	f2	f3	f3	f2	f2	h3	h2	c4	c2	c3	c2	c2	c2	c	c	l	c2	c3	l3	f3	f	f	f	f
18	f	f2	f3	f2	f2	h2	h	h3	h2	c2	c2	c2	c2	h2	c3	c2	c3	l3	l2	f2	f2	f	f2	f2
19	f2	f	f2	f2		h2	h2	h2	c2	c4	c2	c	h	c	c	c2	l2	l2	l2	f2	f2	f	f3	f3
20	f3	f2	f3	f3	f2	l2	h2	c2	h2	c2	c2	h	c	h	c2	c3	c2	c2	l2	f2	f5	f3	f4	f
21	f2	f	f	f2	f2	l2		c2	c	c2	c2	c2	c2	c3	c	h2	h2	h2	c3l	f2	f3	f2	f	f3
22	f2	f2	f2	f2			h2			h2	h2	c2	c	h2	h2	h	h3	h2	c3	f3	f3	f2	f	f2
23	f3	f		f2	f2	h2	h	h2	h	h	h	h	h	h2	h2	h	h2	c2	c2	f	f2	f2	f2	f2
24	f	f	f	f	f2	l2	h	h2	h2	c3	c2	c2	c	c	c		c2	l2	l3	f3	f3	f3	f2	f3
25	f2	f2	f2	f2	f2	l2	l2	l	c2	c2	c	c3	c2	c2	h2	h2	h2	h3	c3	f2	f	f	f2	f3
26	f2	f2	f	f	f	l h2	h2	h3	c2	c2	c2	c2	c2	h	h2	h2	h2	h2	c2	f2	f3	f2	f2	f2
27	f2	f3	f2	f4	f2		h	c2	c2	c	c	c2	c3	h		h	h2	h3	c3	f2	f2	f4	f2	
28	f2	f2	f3	f2	f2	l2	h2 l2	c3	c2	c2	h	c	c	c			h2	l2	l2	f	f	f	f3	
29	f	f2		f	f		h	h	h	h	c2	h					h	h	h2	f	f2	f2	f3	f
30	f2	f2	f2	f	f	h2	h2	h	c	c2	c2	c	c	c	l2	h	h	c3	c2	f2	f3	f2	f2	f2
31																								
No.																								
Median																								

Note: Parameters reduced to lower frequency range are affected by defects of the ionosonde since the middle of April, 1961.

Types of Es

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

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Jun. 1961 | foF2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.4	5.0	J 5.0F	5.1	4.5	4.8	6.2	6.2	I 5.7A	I 5.3S	I 5.2A	I 5.4A	I 6.0A	6.8	7.0	6.7	6.6	6.2	I 6.2A	6.4	6.1	I 6.3A	6.3	6.5
2	5.4	5.7	4.5	4.0	4.9	5.7	6.3	6.3	I 5.4A	I 5.0A	I 5.2A	A	A	A	A	A	A	A	I 5.8A	6.5	6.8	I 6.8S	6.0	u 5.0S
3	F	A	I 4.8S	J 4.2S	J 4.4S	4.4	J 5.2R	5.5	A	A	A	A	A	6.1	6.1	I 6.1A	I 5.8A	5.9	6.2	6.6	7.1	6.0	I 6.0A	5.7
4	F	F	I 6.0FI	4.3A	3.9	4.1	5.4	I 6.9A	I 6.8A	AS	A	A	7.0	6.1	6.6	6.7	6.2	6.3	6.7	6.5	I 6.2A	I 6.2A	F	A
5	I 5.8FI	5.5FI	6.2SI	5.4A	I 4.6A	4.6	4.6	I 5.2A	I 5.3A	A	A	A	A	A	A	A	A	J 6.0S	5.9	6.5	6.0	6.0	5.6	5.0F
6	5.2F	A	F	SF	u 4.0F	5.2	5.0	A	A	A	A	A	5.9	I 6.3A	7.0	6.9	I 7.0C	7.1	7.8	I 6.6A	6.7	6.1	6.0F	5.0
7	4.6F	4.4F	5.1S	S	A	4.2	4.8	A	A	A	A	I 5.5A	I 5.5A	I 5.5A	I 5.7A	I 6.2A	I 5.9A	5.7S	5.8	5.8	5.8	5.8FI	I 6.3A	I 6.3A
8	5.6	I 5.0A	A	SF	SF	5.1S	5.5	I 5.8S	I 6.2A	6.7	I 6.2A	G	u 6.1RJ	6.0S	6.1	6.6	I 6.2AI	5.9A	6.0	I 6.0AJ	5.8S	u 5.5F	5.9	5.6
9	5.2SI	5.2AI	u 5.0FI	5.0AI	u 4.6S	J 5.4S	6.1	I 6.1A	6.5	I 6.2AI	6.2AI	6.0S	I 5.5AI	5.7A	A	A	7.2	6.6	6.8	6.2	5.9SJ	5.7S	5.5SI	6.0F
10	I 5.9FJ	5.8RI	5.6AI	u 5.5S	5.0	u 5.0S	5.7	6.8	7.9	7.2	J 6.3R	6.6R	6.9	I 7.0A	I 6.6A	6.6	6.6	6.8	6.9	8.0	8.4	u 7.5S	A	A
11	F	F	u 6.5F	7.0Z	6.5	7.1	I 7.4AI	7.0A	6.0H	7.0	6.0H	6.2	6.6	7.3	J 7.5S	7.4	I 7.0A	6.8R	6.6	6.6	7.3	I 7.2S	7.1	6.0
12	5.3S	5.4	J 5.7SI	5.7AI	u 5.1SI	6.4AJ	6.4RJ	6.4R	5.6	I 5.7A	A	A	A	7.9	I 8.4A	8.6	8.4	8.5	I 8.6R	9.2	8.0	6.4ZI	6.5AI	6.5F
13	6.0F	6.0FI	6.0FI	5.6F	u 6.0F	6.5	6.9	6.7	7.4VI	6.9A	A	A	A	A	I 6.3AI	6.7A	7.0	7.2	8.0	9.1	7.9	I 6.4AI	5.7FI	6.2F
14	u 6.0FU	6.0FI	5.6F	5.5F	5.1F	5.0FI	6.6RI	7.9R	9.1R	A	A	A	A	A	A	A	I 7.4A	8.4	8.3	I 7.8AI	7.9AI	7.0A	S	A
15	I 6.2A	6.1F	6.0	6.0	5.0	5.6	6.3	I 7.1R	8.9	8.3	I 7.5A	6.7	A	A	A	A	I 8.5A	9.2	I 9.1A	8.9	8.5	6.6	7.1	7.0
16	I 6.5S	6.1	5.8S	5.9S	J 6.6F	6.6	7.9	9.4	8.1V	7.4	I 5.8CI	6.2A	I 6.5A	6.7	7.6	8.1R	7.0R	7.3	I 6.3A	6.4	I 6.6A	I 7.0SFI	7.4F	6.9
17	6.1	5.8	I 5.8F	5.8FU	5.6F	5.9F	J 7.8R	7.6	7.3R	A	A	I 6.8A	7.1SU	7.4R	7.2	J 7.3R	J 8.1RI	8.1A	7.3S	7.7S	7.2	I 6.7SI	7.1F	6.9F
18	I 6.7FI	6.8F	6.6	6.4	6.6	5.1	6.2	6.5	7.1	8.1	I 8.1A	A	A	A	8.7	8.3	I 7.9RJ	8.2RI	8.2AU	7.8R	8.3	7.6	F	F
19	F	7.5	I 6.0FI	6.3FI	6.8F	6.9	7.9R	7.2	A	A	S	6.7	A	A	A	A	A	A	u 7.7SI	8.6S	8.4	7.1SU	6.9S	7.0
20	I 6.8SI	7.2SI	7.5FI	7.1FI	6.1F	5.4	6.5	J 7.9S	8.7	8.5	I 8.1AI	8.4AI	I 8.3AI	9.0A	9.4	8.2	7.3	u 7.2S	7.3	8.1R	8.3	u 7.9SJ	7.8FI	I 8.0F
21	J 8.3FI	8.8F	8.7	J 8.0R	4.9	5.6	6.1H	7.8	I 8.2AI	8.2A	8.4	I 8.0AI	I 8.6A	9.0	9.2	8.2	8.5	6.9	6.2	6.6	7.7	I 8.0S	8.1	J 8.0S
22	7.5	7.8	I 6.6S	5.7	5.8	u 5.9S	8.8	J 10.4R	A	A	7.4	8.4	8.5	10.6	10.1	9.1	8.3	8.2	8.5	I 8.4SI	7.8SI	8.2SJ	8.4S	7.4
23	u 7.1SU	7.7S	7.0SU	6.0SI	5.6SU	5.0S	6.0	I 5.8AI	6.0SI	5.6A	6.5R	6.4	6.5	J 6.0R	7.6	6.9	I 6.6A	6.6	6.8	I 7.0R	7.2	6.7	7.0	J 7.6S
24	I 7.0SJ	6.3SI	5.6A	5.6	J 5.9S	6.0	5.4	6.0S	7.3	7.1	7.2	J 7.4RJ	J 8.1S	8.4	I 8.6A	9.0	9.6	9.4	8.4	7.4	7.3	7.9SU	8.1R	7.6
25	J 7.0SJ	7.0FU	6.5FU	5.7FI	5.8F	6.7	5.9	6.6	6.6	J 6.2RI	7.3A	7.5	7.7	8.0	7.8	8.3R	8.6	10.0	10.0	9.1	8.7	I 8.7S	8.2RJ	7.8R
26	6.9	6.4FI	6.4FJ	6.2SI	6.2SU	6.6S	8.2	A	A	A	S	6.6	I 6.4A	6.5	6.7	7.1SI	6.6S	6.3	7.4	7.7S	7.1	6.5	6.5SJ	6.9F
27	J 7.8FI	6.6FSU	6.2SI	5.9S	J 6.0S	6.6	J 8.4S	7.6	I 6.4AI	6.4AI	6.0AI	6.2A	7.2	8.4	8.6	7.9	J 8.0RI	8.4AI	8.6AU	7.4S	6.6	J 7.6SJ	7.9SU	7.4F
28	7.4	6.5	6.6	u 5.8FI	6.0FI	6.2FI	6.4AI	7.3A	7.5	A	A	A	6.6	6.5	6.2	I 6.2A	6.7	8.2	8.4	7.3	5.4	J 5.8SU	5.8FI	6.1A
29	I 6.5A	6.5	I 4.9SI	4.8S	4.7	5.3	5.6	I 5.8S	5.7SI	5.6SI	5.3AI	5.4R	I 5.4RI	5.6SU	5.8S	6.6	6.9	I 9.0A	8.5R	4.9	4.8	4.9	4.9S	5.3
30	4.8	4.7SU	4.2S	4.2	3.9	J 4.0S	5.3	I 5.2AI	5.0A	5.4	A	A	G	I 5.3AI	5.6RU	5.6S	5.7	I 5.8A	6.1	6.3	5.9	6.2FU	7.0SI	6.4A
31																								
No.	26	26	28	27	28	30	30	27	24	19	17	19	21	23	24	24	27	28	30	30	30	30	26	26
Median	6.2	6.1	u 6.0	5.7	5.4	5.5	6.2	6.7	6.7	6.7	u 6.3	6.6	6.6	6.7	7.1	7.0	7.0	7.2	7.3	7.2	7.2	6.6	6.7	6.5
U.D.	7.0	6.8	6.5	6.0	6.0	6.4	6.9	7.6	7.7	7.4	7.4	7.4	7.4	8.0	8.5	8.2	8.1	8.3	8.4	8.0	7.9	7.5	7.4	7.4
L.D.	5.4	5.5	5.4	5.1	4.6	5.0	5.5	6.0	5.8	5.6	5.9	6.0	6.0	6.0	6.2	6.6	6.6	6.3	6.2	6.5	6.1	6.1	6.0	6.0
D.R.	1.6	1.3	1.1	0.9	1.4	1.4	1.4	1.6	1.9	1.8	1.5	1.4	1.4	2.0	2.3	1.6	1.5	2.0	2.2	1.5	1.8	1.4	1.4	1.4

foF2

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

The Radio Research Laboratories, Japan.

K 1

IONOSPHERIC DATA

Jun. 1961 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	4.5	A	A	A	4.6^{S}	A	4.5^{S}	4.2^{L}	A	A					
2						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
3							3.7^{L}	S	A	A	A	A	A	L	^{U}4.5^{L}	A	A	A	A					
4							L	A	A	A	A	A	A	A	4.5	A	A	A	A					
5							A	A	A	A	A	A	A	A	A	A	A	L	L					
6								A	A	A	A	A	A	A	AS	S	L	A	A					
7						3.1	A	A	A	A	A	A	A	A	A	A	A	3.8^{L}						
8								4.6	A	S	A	^{U}5.2^{S}	4.8	^{U}5.0^{S}	S	A	A	A	A					
9								A	S	A	A	S	A	A	A	A	A	3.9^{L}	L					
10							L	L	A	S	5.1^{S}	A	A	A	A	4.8	4.5	^{U}4.1^{L}	A					
11							A	A	A	A	A	4.9^{H}	A	A	A	A	A	A	A					
12							L	L	A	A	A	A	A	A	A	^{U}4.8^{L}	A	A						
13							L	^{U}4.6^{L}	A	A	A	A	A	A	A	A	A	4.1	A					
14						3.9^{L}	L	A	A	A	A	A	A	A	A	A	A	A	A					
15							L	^{U}4.6^{L}	L	A	A	A	A	A	A	A	A	A	A					
16							^{U}4.4^{L}	4.3	A	S	C	A	A	A	A	R	S	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	L					
18							L	L	A	A	A	A	A	A	5.1	A	A	A	A					
19							A	A	A	A	S	A	A	A	A	A	A	A	A					
20							L	S	A	A	A	A	A	A	A	A	A	L						
21								^{U}4.9^{L}	A	A	S	A	A	A	4.9	A	4.5$^{S}_{H}$	A	A					
22							L	A	A	A	A	AS	S	A	A	^{U}4.9^{L}	A	L						
23							4.0^{L}	A	^{U}4.6^{S}	A	A	R	S	4.8	A	A	A	A	A					
24						A		AS	4.6	A	A	A	A	A	A	5.0^{R}	A	L	L					
25									^{U}4.8^{R}	^{U}5.0^{R}	A	A	A	R	4.9	A	A	4.2^{L}	A					
26							L	A	A	A	A	A	A	AS	A	A	AS	^{U}4.4^{L}	L					
27							3.7^{L}	S	A	A	A	A	A	^{U}5.0^{R}	L	A	A	A	A					
28							A	A	A	A	A	A	A	A	4.6	A	A	A	L					
29							L	S	A	S	A	4.6	R	4.6	4.7	4.4	^{U}4.4^{S}	A						
30							A	A	A	A	A	A	4.7	A	4.6	4.5	4.3	A	A					
31																								
No.						2	4	5	3	2	1	3	2	5	8	7	5	6						
Median						3.5	3.8	^{U}4.6	^{U}4.6	^{U}4.8	5.1	4.9	4.8	4.8	4.6	4.8	4.4	4.1						

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1961 | foE | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	I2.55B	S	S	A	A	A	A	A	A	A	3.15	R	A					
2						1.85	2.40	2.80	I3.00A	3.30	A	A	A	A	A	A	A	A	A					
3						1.90	2.50	2.65S	3.05	3.25S	3.35	3.35	A	A	A	A	A	2.65	1.85					
4						A	2.30	2.85	A	A	A	A	B	A	I3.30A	3.30	3.00R	I2.60A	A					
5						1.70S	2.50	U2.75R	3.10	3.25	I3.30A	3.35R	A	A	3.40	3.30	3.00	I2.50A	A					
6						2.20S	2.55	2.85	3.10	3.30	I3.30A	A	A	A	A	A	A	A	A					
7						1.70S	2.35	2.85	3.15	3.25	3.35	3.40R	I3.40A	A	A	A	A	A	A					
8						U2.10R	I2.40R	I2.80R	I3.10A	3.30	3.50R	I3.55A	I3.45A	I3.40A	3.50A	3.50A	3.00R	A	A					
9						A	I2.40R	I2.90S	3.05	I3.20A	3.30	R	R	A	A	A	A	B	A					
10						R	2.50	I2.85R	3.20	I3.30R	3.50	I3.55B	I3.60A	3.35	3.45R	3.25	2.90	I2.40B	1.80					
11						I1.70A	U2.50R	I2.80B	3.00	3.30	3.50	3.60	3.65R	3.50	3.45	3.30	3.15	2.60R	U2.00A					
12						A	S	I3.00S	S	A	R	A	A	3.65R	3.55	I3.30B	3.15A	2.80	A					
13						1.70	I2.40A	I2.80A	3.10	3.25	A	A	A	A	A	A	I3.10A	I2.65A	I2.05A					
14						1.95	I2.50R	3.10	R	C	C	C	A	A	A	A	S	S	S					
15						2.00R	2.50R	I2.80S	3.30	3.55	I3.60A	3.50	I3.60A	3.50	A	A	A	A	S					
16						A	I2.50A	U2.95A	A	S	C	B	S	S	B	A	I3.20S	I2.70S	S					
17						S	I2.70S	I3.00S	I3.30R	3.55	S	A	B	B	A	A	A	I2.85S	S					
18						B	S	S	I3.40B	A	A	A	A	A	B	A	S	A	S					
19						S	I2.55S	I3.10S	3.30	I3.50A	I3.80A	I3.85A	A	A	A	A	A	S	S					
20						S	I2.40B	I2.90B	A	A	I3.70A	I3.80A	I3.85A	3.80	A	A	A	A	A					
21						B	A	U3.05R	I3.40A	3.30	I3.60A	A	A	A	A	3.40	I3.10S	2.85	U2.25A					
22						A	2.60	I3.00A	3.30	3.55	3.60R	I3.70A	I3.70R	I3.65B	3.60	3.40	3.15	U2.75S	A					
23						2.20SI	2.50RI	2.85A	3.20	3.55	U3.50R	A	A	I3.70B	3.70S	3.45	3.10	A	S					
24						A	B	I2.95AU	3.25SI	3.50A	A	A	A	A	A	A	B	A	A					
25						S	B	B	A	3.30	I3.50A	A	A	3.75	3.65	3.55	3.00	I2.70R	A					
26						2.10R	2.70	I2.85A	3.10R	3.20	A	R	R	U3.65R	3.55R	3.40R	I3.15R	I2.65A	R					
27						A	2.45R	2.90	3.05	3.20	3.40R	A	A	I3.70A	I3.50A	I3.20S	3.10	I2.70SI	2.10A					
28						A	A	A	3.20	3.50	I3.50A	A	A	3.55	3.15	A	S	A	A					
29						I1.80S	2.40R	I2.90S	I3.20A	3.45	3.55	I3.60R	3.65	3.60R	3.50	3.35	3.00R	2.60S	B					
30						I1.80S	2.50	I2.80A	2.95	3.20	I3.30RU	3.20R	A	A	A	3.40A	I3.20A	I2.70A	A					
31																								
No.						14	24	26	23	23	19	12	8	13	13	14	17	16	6					
Median						1.90	2.50	U2.85	3.15	3.30	U3.50	U3.55	U3.60	3.65	3.50	3.40	3.10	U2.70	U2.00					

foE

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

The Radio Research Laboratories, Japan.

K 3

35

IONOSPHERIC DATA

Jun. 1961 | foEs | 135° E Mean Time (G.M.T. + 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	2.5M	S	3.8	3.9	4.8	14.1Y	3.9	4.8	5.2S	7.5	4.4	6.9Y	3.8	3.6	4.9S	11.8Y	7.5	9.2	7.5	6.0M	8.6
2	4.9	5.4	2.5	2.1	2.1M	3.1	4.0	5.4	6.3S	5.7	4.9M	5.8S	8.0	13.0	11.8	8.2	8.5	8.2	5.9M	6.4	8.6	4.5S	5.5	5.8
3	5.0	5.8	3.9	2.9	3.8	3.0	3.1	4.0	7.2	11.4M	9.1S	9.5	6.3	4.8M	4.0	11.6	4.9	5.0	6.2	5.6	4.8	6.6	8.0	3.9
4	5.2	6.6	6.8	5.1	3.7	2.8Y	6.2	7.1	10.9	9.0S	10.1M	9.8	5.7	5.9M	4.2	5.1	5.5	5.8	11.5Y	11.5	9.5	6.8	4.9	7.3
5	5.4	4.4	6.8	8.3	6.7	S	3.8	4.8	4.9	4.9S	6.9	11.2M	13.4M	6.9	7.5	10.8Y	12.6	4.3	2.3	4.0	5.3M	6.0	5.2	4.4
6	5.1	6.2	5.2S	2.2M	3.3	G	3.5	6.0	5.8	9.4S	9.0	11.5	5.8M	11.5Y	6.2Y	4.6S	4.7S	4.2	4.1	6.6M	4.2	5.0	5.0	6.4
7	5.6	3.8	3.2	2.3	6.3	2.0	3.9	5.0	7.0	6.8M	7.8	6.8	9.1	5.2S	6.3	8.2	5.9M	4.3	3.3	4.7	5.5	5.8	8.8	6.3
8	5.0	4.9	6.2	5.4S	1.7	G	3.6	5.0S	8.5	4.7	7.1Y	4.8	4.1	5.9M	4.4	4.9	6.5	6.4	5.0	6.9M	7.6	5.5	4.2	5.6
9	6.5	8.4	3.9	5.8	3.5	4.2	3.7	8.5	4.6	7.9	8.0	4.8	7.8M	7.1M	9.1M	11.5Y	8.9M	3.2	2.8	7.0	5.1	3.6	5.3	4.0
10	5.3	3.3Y	5.4	4.2	3.0	3.6	3.9	3.9	6.0	4.4S	4.2	6.3M	11.5Y	8.1M	7.0	4.0	3.1	5.0	5.8	8.2	5.7	5.1	8.7	7.2
11	6.2	5.3	4.2	3.7	2.2	3.8	8.3	8.8M	5.2	6.2	4.5	3.7	9.0Y	12.4M	11.5	5.6	8.2M	5.5	4.9M	3.6	5.4	6.3	5.4	8.2
12	6.7	2.8Y	5.4	6.7	5.3Y	6.3Y	S	S	4.9	6.2M	6.9	9.9	11.1M	6.2	12.9	B	6.1	7.8	4.0	4.0	2.9	8.9	6.4M	4.6
13	3.4	2.9	E	E	E	3.3	4.8	4.0	8.5	8.9M	15.5	11.6	16.3	11.6Y	7.0M	11.9	7.0	4.0	5.4	6.1	6.4	12.7	5.4	3.3
14	4.9	4.9	5.3	3.5	E	3.0	3.5	5.8M	6.0M	13.4Y	9.8Y	9.7	8.6M	11.0M	8.4M	8.8M	7.4	5.7S	6.0M	10.0M	11.3	8.7	5.4	8.3
15	7.8	3.8S	5.4	1.8	E	G	3.5	4.0	4.9	6.8	7.0M	6.2M	9.1	10.8M	12.8	15.3	9.4	6.0	9.4M	5.6	5.4	5.6	5.8	4.6M
16	4.7M	9.3	7.7C	6.2	2.0	1.9	3.3	3.5	4.4	4.5M	C	8.3	7.2M	5.4	6.3M	3.7	S	8.4	9.6	4.8	9.3M	7.6Y	5.4	2.9
17	5.0	4.0	3.5M	2.3M	S	S	8.6	6.6	8.5M	14.2	11.2	11.4	8.0	10.3	6.6	5.4	4.9	8.9	3.8	4.9	3.1M	S	3.9	3.0
18	4.0	3.5	E	E	S	B	S	S	6.7	11.4	8.8	8.3	13.0	11.6	4.3	5.8	6.0	7.9Y	8.3	6.0	6.3	12.5	8.3	6.4
19	8.0	S	4.2	2.6	3.1	3.9	5.4	7.4	10.2	11.0M	4.6	7.6	9.5S	14.3M	17.7M	18.5M	13.9	8.8M	5.9S	6.6M	4.7	4.2	2.9S	2.1M
20	4.3	4.0	5.9	3.0	1.6	2.9Y	3.1	4.1	6.2	11.0	11.6	9.1S	12.5	13.2	11.5	8.5	6.6S	4.1M	4.1	6.1	6.7	4.0	7.1	5.3
21	5.0	4.1	2.1	E	2.5M	3.2	3.8M	3.8	8.1Y	13.7	4.9	11.7Y	12.5	6.7	4.5	5.4	S	4.2	3.6	3.8	3.1	3.7	3.9	2.6
22	6.1	2.3M	3.8S	5.0S	4.1	2.4	4.2	5.2	9.0	9.1	7.0M	6.6Y	4.5	6.9	7.9	4.5	4.8	4.9	4.0M	5.4	3.4	3.3	3.3	2.8
23	5.0	5.3	2.1	2.2M	3.0	3.0	3.1	5.9	3.7	5.2S	6.1M	4.7	4.6	B	8.6	5.9S	9.0M	7.0	5.0	4.2	4.3	3.9	5.0	5.5M
24	4.9	2.4	6.2S	4.0	5.6	5.3	B	4.8S	4.2	6.2S	6.0M	7.8	9.5	5.2	7.8Y	4.0	5.3	4.0M	3.3	3.5	7.1M	4.3	3.2	4.2
25	4.0	8.0	4.2	3.5	4.2	4.0	3.4	3.7	5.6Y	4.5	7.6	4.6	7.0Y	4.5	4.7	7.2	7.8	5.4Y	6.6	9.2	4.9	2.4	2.0	7.8
26	5.8	7.0	4.2	2.2	1.6	4.1	3.3	9.8M	8.6	14.2	5.9S	6.2	8.6	4.9	5.9	8.2	5.0S	4.3	3.1	2.3	6.8	5.6	3.6	4.3
27	4.7	5.5S	4.2	2.8Y	3.2	3.8M	3.2	4.3	8.7	6.7	5.9M	9.3	5.2	4.2	4.5	8.1Y	7.5	10.0M	16.9	6.0	5.0	5.3	5.7	4.0
28	2.4	4.1	6.3	3.9	6.0	3.8	8.0Y	9.0	6.3	8.0M	11.3	8.6	5.6Y	7.9	5.4Y	7.1M	6.5	6.8	4.6	6.3	3.4	3.2	3.3	6.9
29	9.0	3.5	3.6	4.0S	E	S	3.0	3.8	5.4	4.4	5.8	3.2C	4.0	3.8	4.0	4.0	4.0	12.2	4.1	3.0	3.5	4.3	4.2	5.6
30	2.2	2.5Y	2.0M	2.0	E	4.3	4.0	4.7M	7.9	6.0	12.7	4.6	4.1	4.5	4.0	3.6	4.0	5.7S	5.6	5.0	8.3	2.8	6.4	8.3
31																								
No.	29	28	29	30	27	26	27	28	30	30	29	30	30	29	30	29	28	30	30	30	30	29	30	30
Median	5.0	4.2	4.2	3.0	3.0	3.2	3.8	4.9	6.3	6.8	7.0	7.7	8.0	6.9	6.8	5.9	6.3	5.6	5.0	5.8	5.4	5.3	5.3	5.4
U.Q.	6.0	5.6	5.6	4.2	4.1	3.9	4.2	6.3	8.5	11.0	9.4	9.7	9.5	11.2	8.6	8.6	8.0	7.8	6.2	6.6	7.1	6.7	6.0	6.9
L.Q.	4.7	3.5	3.4	2.2	1.6	2.8	3.3	4.0	5.2	5.2	5.8	5.2	5.7	5.0	4.5	4.6	4.9	4.3	4.0	4.2	4.3	4.0	3.9	4.0
Q.R.	1.3	2.1	2.2	2.0	2.5	1.1	0.9	2.3	3.3	5.8	3.6	4.5	3.8	6.2	4.1	4.0	3.1	3.5	2.2	2.4	2.8	2.7	2.1	2.9

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1961 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N, Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	S	S	3.5	3.9	4.3	A	3.9	A	A	A	3.9	u 5.2 s	3.5	3.4	4.9	A	4.8	5.3	A	5.0	3.6
2	3.5	3.9	2.0	1.6	E	2.9	3.9	5.0	A	A	A	A	A	A	A	A	A	A	A	6.1	2.4	4.1	4.8	3.8
3	2.5	A	3.0	1.6	2.3	2.5	2.8	E 4.0 s	A	A	A	A	A	u 4.1 s	3.7	A	A	4.9	5.9	5.5	4.3	5.3	A	2.3
4	2.7	2.4	2.6	A	2.5	2.2	3.5	A	A	5.2	A	A	5.6	5.5	4.0	4.9	4.4	4.1	5.2	2.3	A	A	2.5	A
5	4.5	2.0	4.3	A	A	S	3.5	A	A	A	A	A	A	A	A	A	A	3.5	2.3	3.2	3.8	3.8	2.8	2.4
6	3.2	A	2.6	E	2.5		3.4	A	A	A	A	A	5.5	A	5.9 s u 4.4 s		3.7	3.9	3.6	A	3.6	3.6	3.3	3.1
7	2.1	2.3	2.9	1.9	A	2.0	3.8	A	A	A	A	A	A	A	A	A.	A	2.9	3.0	4.4	2.2	3.4	A	A
8	3.7	A	A	4.5	1.6		2.8	3.6	A	4.3	A	4.1	4.0	4.1	4.3	4.7	A	A	4.6	A	3.5	3.2	3.9	4.6
9	u 3.9 s	A	1.8	A	2.9	3.5	3.4	A	E 4.6 s	A	A	4.1	A	A	A	A	6.5	2.9	2.6	5.7	3.5	3.1	3.4	2.5
10	4.1	1.9	A	2.8	2.2	2.6	3.5	3.9	5.8	E 4.4 s	4.1	6.3	5.4	A	A	3.6	3.1	2.9	4.5	4.4	3.8	4.2	A	A
11	3.9	2.2	2.7	2.8	1.4	3.4	A	A	4.8	5.9	4.5	3.7	5.3	6.4	6.9	4.7	A	5.4	3.6	2.7	2.0	A	2.7	3.4
12	3.9	E	3.0	A	2.8	A	S	S	4.9	A	A	A	A	6.0	A	B	6.1	5.2	3.2	2.2	2.5	4.1	A	3.5
13	2.3	2.2				2.7	3.8	3.7	6.7	A	A	A	A	A	A	A	5.9	3.4 s	5.0	6.0	4.1	A	3.1	2.6
14	3.9	3.9	4.5	3.2		2.8	3.5	E 5.8 R E	6.0 R	A	A	A	A	A	A	A	A	u 5.5 s	4.2	A	A	A	u 5.0 s	A
15	A	2.1	1.7	1.2			3.0	3.9	4.3	6.1	A	5.5	A	A	A	A	A	5.3	A	4.0	3.9	5.3	3.9	4.4
16	4.1	3.5	3.1	2.8	1.5	1.9	2.8	3.1	4.4	E 4.5 s	C	A	A	u 5.4 s	6.1	E 3.7 R	S	4.3	A	4.2	A	4.1	3.6	2.2
17	2.9	2.0	2.8	1.9	S	S	5.2	6.2	6.2	A	A	A	6.3	5.2	5.1	5.2	4.8	A	3.0	4.9	2.8	S	3.6	2.3
18	E	2.3			S	B	S	S	5.9	7.2	A	A	A	A	4.2	5.2	4.9	5.0	A	4.5	6.3	3.5	3.0	4.4
19	4.0	S	E	2.5	2.6	3.6	5.2	5.5	A	A	S	5.9	A	A	A	A	A	A	4.7	5.8	4.0	3.7	E	1.9 s
20	3.6	3.5	3.8	2.3	1.6	2.8	3.0	4.1	5.2	5.5	A	A	A	A	7.5	6.8	5.7	3.8	3.1	5.5	5.2	3.8	4.1	u 3.8 A
21	4.6	2.1	1.9		E	2.8	3.5	3.6	A	A	4.8	A	A	6.2	3.7	4.9	S	4.1	3.5	3.0	2.6	2.1	3.0	2.3
22	2.7	1.7	2.3	4.8	2.7	2.4	4.0	5.2	A	A	6.1	u 6.4 s E	4.5 s	6.7	6.6	4.1	4.8	3.8	3.1	4.8	2.6	2.5	2.5	2.6
23	3.9	3.0	E	E	2.2	2.9 s	3.0	A	3.7	A	5.6	4.3	E 4.6 s	B	5.4	5.8	A	6.0	4.4	4.2	3.4	3.1	3.1	4.8
24	4.9	1.8	A	3.3	5.3	4.4	B	E 4.8 s	4.1	6.1	5.7	7.0	7.7	5.2	A	3.9	5.2	3.2	2.9	2.7	7.0	3.5	2.9	2.6
25	2.6	3.9	E	2.8	3.3	3.1	3.1	3.7	3.9	4.1	A	E 4.6 R	5.3	E 4.5 R	4.1	5.2	6.0	3.1	5.1	6.9	2.7	1.9	E	3.5
26	4.3	4.2	3.8	1.5	1.4	2.4	3.0	A	A	A	5.5	5.6	A	E 4.9 s	5.9	6.3	E 5.0 s	4.0	3.0	2.2	5.3	2.3	1.9	2.0
27	2.6	4.0	3.5	1.5	2.3	3.6 s	3.0	E 4.3 s	A	A	A	A	5.1	4.1	4.2	6.8	7.2	A	A	5.1	2.5	4.8	3.1	E
28	1.9	2.2	E	2.0	4.0	2.8	A	A	5.4	A	A	A	5.3	5.4	4.0	A	4.8	4.5	3.5	3.4	2.9	2.5	1.9	A
29	A	2.0	2.3	E		S	2.8	u 3.8 s	5.3	S	A	E 3.2 R	E 4.0 R	3.8	4.0	3.9	E 4.0 s	A	3.6	2.3	2.9	3.9	3.4	4.9
30	E	2.5	E	1.8		3.2	3.7	A	A	4.9	A	A	3.9	A	3.7	3.5	3.7	A	5.2	4.9	3.7	1.7	5.4	A
31																								
No.	29	28	27	26	22	23	27	27	30	29	28	30	30	29	30	29	28	30	30	30	30	29	30	30
Median	3.7	2.4	2.7	2.4	2.4	2.8	3.5	5.0	6.4	A	A	A	A	6.4	6.0	5.2	6.0	4.7	4.3	4.6	3.6	3.8	3.4	3.5

foEs

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

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

Jun. 1961 | f-min | 135° E Mean Time (G.M.T. + 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E2.00 S	E1.75 S	E1.95 S	E2.00 S	E1.75 S	E2.00 S	2.50	E3.00 S	E3.00 S	2.10	2.00	3.20	2.20	2.20	1.85	2.00	2.00	1.90	1.50	1.45	E1.50 S	1.25	1.45	1.75
2	1.50	E1.50 S	E1.60 S	1.45	E1.60 S	1.45	1.50	1.90	2.70	2.15	2.30	2.25	2.40	2.50	2.50	1.95	2.25	1.95	1.50	1.45	1.45	E1.60 S	1.35	1.45
3	1.45	E1.45 S	1.45	1.35	1.45	1.50	1.50	1.85	2.05	2.10	2.15	2.20	2.20	1.90	2.20	2.25	2.20	2.10	1.40	1.55	E1.75 S	E1.85 S	E1.75 S	E1.95 C
4	1.35	1.45	E1.50 S	1.50	1.45	1.30	1.80	2.30	1.90	2.20	2.40	2.85	3.30	2.40	2.30	2.20	1.80	2.05	1.70	E1.50 S	1.45	1.35	1.45	E1.50 S
5	E1.75 S	1.20	E1.45 S	1.35	1.20	1.20	1.45	1.80	2.10	2.35	2.15	2.15	2.50	2.30	2.10	2.20	2.20	2.50	1.50	E1.50 S	1.35	1.50	E1.50 S	1.25
6	E1.50 S	1.35	E1.50 S	1.35	1.10	1.50	1.80	2.60	2.25	2.15	2.50	2.40	2.60	E3.00 S	2.60	2.10	1.70	1.80	1.85	E1.75 S	1.45	E1.50	1.45	1.45
7	1.30	1.25	E1.55 S	1.05	1.10	1.45	1.80	2.55	1.80	2.50	2.40	2.40	2.50	2.90	2.40	2.10	E2.80 S	2.00	1.70	E1.50 S	1.45	1.25	E1.60 S	1.40
8	1.35	1.35	1.20	1.05	1.20	E1.60 S	1.80	2.00	1.80	2.10	2.10	3.10	3.50	2.85	2.10	2.25	2.70	E1.70 S	1.35	1.45	1.45	E1.50 S	E1.50 S	1.35
9	1.35	E1.50 S	1.20	1.10	1.35	1.40	1.50	E2.40 S	1.90	2.00	2.30	2.20	2.20	2.30	2.10	2.00	1.85	2.65	E1.50 S	1.30	E1.55 S	E1.60 S	E1.75 S	E1.50 S
10	E1.75 S	E1.70 S	E1.60 S	1.15	1.05	1.85	1.80	2.30	2.10	2.50	2.50	3.60	2.80	2.80	2.10	1.90	2.60	2.65	1.65	1.35	1.30	E1.75 S	1.30	E1.50 S
11	1.30	1.20	E1.50 S	1.10	1.20	E1.50 S	1.50	2.70	1.80	2.40	3.10	2.50	2.40	2.00	2.00	2.10	2.45	1.80	1.60	E1.50 S	1.35	E1.35 S	1.45	1.45
12	1.20	1.20	1.10	1.10	1.10	2.00	E3.45 S	E4.30 S	E3.45 S	2.50	2.10	2.80	2.40	2.45	2.20	3.90	2.80	2.60	1.80	E1.50 S	E1.60 S	E1.50 S	1.45	1.45
13	1.35	1.35	1.10	1.20	1.20	1.40	1.75	2.20	1.80	2.15	2.10	2.40	2.80	2.75	2.80	2.10	2.20	1.70	1.50	1.60	1.30	1.35	1.40	E1.50 S
14	E1.70 S	1.80	1.45	1.45	1.20	1.60	2.10	2.20	2.20	E3.60 C	3.40	E4.95 C	2.50	3.10	2.10	2.10	E2.70 S	E1.90 S	E1.85 S	1.20	1.45	E1.50 S	E1.60 S	E1.50 S
15	E1.50 S	1.35	1.20	1.00	1.10	1.50	1.80	2.50	1.75	2.00	2.00	2.50	2.70	2.50	2.20	2.20	E2.45 S	E1.70 S	E1.90 S	E1.70 S	E1.50 S	1.45	E1.80 S	E1.70 S
16	E1.60 S	E1.50 S	1.25	1.10	1.00	E1.55 S	1.60	1.80	2.80	E3.20 S	C	3.60	E3.70 S	E4.10 S	3.95	3.45	E4.50 S	E3.10 S	E2.40 S	E2.00 S	E2.10 S	E2.00 S	E1.85 S	E1.85 S
17	E2.00 S	E1.80 S	E1.65 S	E1.60 S	E1.60 S	E2.10 S	E2.10 S	E3.10 S	2.40	2.20	E3.70 S	2.95	3.80	3.70	3.40	2.50	2.85	E3.00 S	E2.20 S	E1.80 S	E1.95 S	E2.10 S	E2.00 S	E2.00 S
18	E1.95 S	E1.85 S	1.50	1.40	E1.90 S	1.85	E2.20 S	E3.30 S	3.50	3.30	3.00	3.60	3.45	3.50	2.95	2.95	E3.25 S	2.25	E2.20 S	E1.90 S	E2.70 S	E1.95 S	E1.95 S	E1.95 S
19	E1.80 S	E1.50 S	1.10	E1.70 S	E1.70 S	E2.40 S	E2.85 S	E2.95 S	2.50	2.40	2.70	2.90	E3.50 S	3.10	2.80	2.00	E2.60 S	E2.00 S	E2.50 S	E2.00 S	E1.80 S	E1.70 S	E1.50 S	E1.80 S
20	E1.90 S	E1.90 S	1.20	1.30	1.30	E1.80 S	2.80	2.90	2.10	1.80	2.40	2.50	2.70	2.60	2.50	2.25	E2.00 S	E1.85 S	1.55	E1.80 S	E1.80 S	1.60	E1.80 S	1.70
21	E1.60 S	E1.75 S	1.65	1.65	1.60	1.85	1.85	2.10	2.45	2.40	2.60	2.80	2.40	2.85	3.10	2.50	E2.60 S	1.70	1.70	1.20	1.15	E1.70 S	E1.50 S	E1.60 S
22	E1.30 S	E1.40 S	E1.50 S	1.30	1.35	1.60	1.80	2.70	2.00	2.90	2.90	3.60	2.80	3.70	2.65	2.20	2.70	2.50	2.00	E1.70 S	E1.85 S	1.50 S	E1.50 S	E1.60 S
23	E1.85 S	E1.50 S	E1.80 S	1.10	E1.50 S	E1.90 S	1.85	E2.60 S	2.10	2.50	2.80	3.80	3.60	4.10	2.40	2.80	2.80	E2.35 S	E1.90 S	E1.50 S	1.60	E1.50 S	1.30	1.45
24	E1.50 S	E1.60 S	1.40	1.20	E1.50 S	E1.70 S	2.80	E2.70 S	E2.70 S	2.80	3.10	3.60	3.60	3.55	2.80	2.10	2.70	2.40	1.70	E1.50 S	E1.75 S	E1.75 S	E1.65 S	E1.85 S
25	E1.85 S	1.40	E1.50 S	1.25	1.40	E1.95 S	2.65	2.80	2.30	2.55	2.70	3.50	2.60	2.95	2.75	2.60	2.70	1.95	E1.90 S	1.40	E1.45 S	E1.50 S	1.40	E1.85 S
26	E1.80 S	1.50	1.30	1.45	1.25	1.40	2.20	2.70	2.20	2.30	2.50	2.80	3.10	2.90	2.60	2.85	2.60	2.60	1.95	E1.60 S	E1.95 S	1.20	E1.65 S	1.45
27	E1.50 S	E1.65 S	E1.50 S	E1.45 S	1.30	E1.60 S	1.85	2.10	2.10	2.10	2.80	2.65	3.10	2.60	2.10	2.15	1.90	2.00	E1.80 S	1.40	1.50	E1.50 S	E1.50 S	1.30
28	1.45	E1.60 S	E1.50 S	1.25	1.20	1.30	1.70	1.60	2.05	2.20	2.55	3.00	2.30	2.45	2.00	2.10	E1.95 S	E1.80 S	E1.90 S	1.45	E1.70 S	E1.50 S	E1.65 S	E1.60 S
29	E1.75 S	E1.60 S	E1.95 S	1.30	1.45	E1.80 S	1.90	E2.80 S	2.30	2.45	2.50	2.60	2.80	2.70	2.50	2.30	2.70	E1.90 S	2.40	1.40	E1.50 S	E1.85 S	E1.75 S	E1.65 S
30	E1.50 S	E1.60 S	E1.50 S	1.30	1.30	E1.95 S	1.50	E1.90 S	2.00	2.00	2.40	2.70	3.30	2.70	3.10	2.70	2.60	E2.00 S	1.70	1.40	E1.75 S	E1.60 S	E1.85 S	E1.50 S
31																								
No.	30	30	30	26	23	18	26	21	27	28	28	29	28	28	30	30	24	25	20	30	30	30	30	30
Median	E1.50	E1.50	E1.50	1.30	1.20	E1.50	1.80	2.20	2.10	2.25	2.50	2.80	2.70	2.70	2.45	2.20	E2.45	1.95	1.70	E1.50	E1.50	E1.50	E1.50	E1.50

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

Jun. 1961 | M(3000)F2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.80	C	C	C	C	C	C	C	A	S	I 2.80A	I 2.60A	I 2.60A	2.90	2.85	3.00	3.15	2.90	I 3.00A	2.80	2.60	I 2.55A	2.60	2.75
2	2.40	2.65	2.65	2.40	2.65	2.80	3.00	2.85	I 2.50A	I 2.40A	I 2.50A	A	A	A	A	A	A	A	I 2.90A	2.75	2.65	I 2.80S	2.80	U 2.40S
3	F	A	S	J 2.85S	J 2.75S	2.95	J 2.85R	2.90	A	A	A	A	A	2.75	2.90	I 2.80A	I 2.80A	2.90	I 2.90A	2.90	2.85	2.70	I 2.75A	2.80
4	F	F	I 2.90F	I 2.70A	2.55	2.80	2.95	I 3.00A	I 3.00A	AS	A	A	2.85	2.95	2.90	2.95	2.90	2.90	3.15	3.05	I 2.80A	I 2.70A	F	A
5	I 2.85F	I 2.80F	I 2.95SA	I 3.05A	I 2.95A	3.05	2.70	I 2.90A	I 2.80A	A	A	A	A	A	A	A	A	J 2.75S	2.90	2.90	2.50	2.75	2.55	2.80F
6	2.60F	A	F	SF	U 2.55F	3.30	3.10	A	A	A	A	A	2.80	I 2.70A	2.75	2.80	I 2.85C	2.95	3.05	I 3.00A	3.00	2.75	2.75F	2.80
7	2.80F	2.75F	3.25S	S	A	2.60	2.45	A	A	A	A	I 2.60A	I 2.70A	I 2.70A	I 2.80A	I 3.00A	I 3.00A	2.95S	2.95	2.95	2.60	I 2.60F	I 2.80A	I 2.70A
8	2.85	I 2.75A	A	SF	SF	3.45S	2.95	I 2.90S	I 2.80A	2.95	I 2.70A	G	U 2.65R	I 2.75S	2.80	2.95	I 2.90A	I 2.90A	2.90	I 2.75A	J 2.65SU	2.55F	2.70	2.75
9	2.85S	I 2.70A	U 3.00F	I 2.80AU	U 2.80S	3.05S	2.95	I 2.90A	2.95	I 2.80A	I 2.80A	I 2.55S	I 2.60A	I 2.70A	A	A	2.80	3.00	2.80	2.85	2.75SJ	2.65S	2.70SI	2.60F
10	I 2.75FJ	2.60R	I 2.80A	U 3.00S	3.00	U 3.05S	2.85	2.95	3.15	2.90	J 2.85R	I 2.70A	2.90	I 2.85A	I 3.00A	2.75	2.85	2.95	2.75	2.75	2.95	U 3.20S	A	A
11	F	F	U 2.85F	2.70F	2.80	3.10	I 3.20A	I 3.20A	2.85H	3.15	2.85H	2.75	2.90	2.85	J 3.05S	2.95	I 3.00A	2.60R	2.85	2.85	2.75	I 2.90S	2.80	2.85
12	2.65S	2.75	J 2.65S	I 2.70A	U 3.15S	I 3.40A	R	R	C	A	A	A	A	2.80	I 2.70A	2.80	2.75	2.80	I 2.90R	3.05	3.30	2.75F	I 2.60F	I 2.65F
13	2.80F	2.65F	I 2.70F	I 2.75F	U 2.80F	3.05	3.00	2.95	2.95V	I 3.00A	A	A	A	A	I 2.70AI	2.75A	2.75	2.80	2.75	3.00	3.15	I 2.90A	I 2.70F	I 2.75F
14	U 2.80F	U 2.65FI	2.90F	2.75F	2.75F	2.50FI	2.80R	I 3.05R	3.30R	A	A	A	A	A	A	A	A	2.85	3.00	I 3.15A	I 3.30A	I 2.70A	S	A
15	I 2.65A	2.75F	2.85	3.00	2.80	2.95	3.00	I 2.80R	3.05	3.15	I 3.00A	2.85	A	A	A	A	A	2.85	I 3.00A	3.10	2.80	2.55	2.50	2.60
16	I 2.60S	2.75	2.60S	2.55S	J 2.60F	2.75	2.80	3.10	2.90V	2.95	I 2.10CI	2.75A	I 2.70A	2.65	2.65	2.85R	2.85R	2.90	I 2.90A	2.80	A	FS	F	2.80
17	2.60	2.65	I 2.60F	2.75FU	U 2.85F	J 2.10R	3.00	3.15R	A	A	I 2.80A	A	2.85SU	2.75R	2.75	J 2.85R	J 2.85RI	I 3.00A	3.10S	2.90S	2.90	I 2.75S	I 2.65F	I 2.50F
18	I 2.60FI	2.80F	2.90	2.80	3.05	3.80	2.85	2.80	2.85	2.95	A	A	A	A	2.75	2.75	I 2.80R	J 2.65R	I 2.90AU	2.80R	2.85	2.80	F	F
19	F	2.90	I 2.70FI	I 2.70F	I 2.90F	2.75	3.15R	2.95	A	A	S	2.80	A	A	A	A	A	A	U 3.00S	I 2.90S	3.00	2.70SU	2.75S	2.70
20	I 2.90S	I 3.05S	I 3.00FI	I 3.00F	I 3.00F	3.00	2.90	J 3.05S	2.85	3.05	I 2.70A	I 2.65A	I 2.75A	I 2.85A	2.85	2.90	2.90	U 3.05S	2.90	2.95R	2.80	U 2.85S	J 2.80FI	I 2.70F
21	J 2.70SI	I 2.90F	3.05	J 3.25R	3.10	3.35	2.75H	2.95	I 2.80A	I 2.60A	2.70	I 2.45A	I 2.45A	2.60	2.70	2.70	3.05	3.10	2.80	2.70	2.60	I 2.60S	2.70	J 2.75S
22	2.65	2.90	I 2.95S	2.65	2.55	U 2.70S	2.85	J 2.90R	A	A	2.55	2.70	2.60	2.85	2.85	2.85	2.90	2.70	2.80	I 2.80SI	I 2.70SI	I 2.55S	J 2.65S	2.55
23	U 2.70SU	2.70S	2.70SU	3.15SI	I 2.90SU	2.75S	3.00	I 2.80A	I 2.70SI	I 2.60A	2.75R	2.55	2.60	J 2.65R	2.95	2.90	I 2.90A	2.90	2.95	I 3.00R	3.05	2.75	2.60	J 2.65S
24	I 2.70SJ	I 2.75SI	I 2.70A	2.70	J 2.90S	3.15	3.15	2.75S	2.90	2.95	2.75	I 2.60R	I 2.65A	2.70	I 2.70A	2.75	2.80	3.05	2.85	2.95	I 2.70A	2.65SU	2.45R	2.65
25	J 2.70S	J 2.55FU	2.70FU	U 2.80FI	I 3.00F	3.30	3.15	3.05	2.85	J 2.90RI	2.80A	2.65	2.60	2.85	2.70	2.80R	2.80	2.80	3.00	3.00	2.75	I 2.80S	2.70RJ	2.55R
26	2.70	2.65FI	I 2.70F	J 2.75SI	I 2.70SU	2.70S	2.90	A	A	A	S	2.80	I 2.80A	2.80	2.80	2.95S	I 2.85S	3.00	2.85	3.00S	3.00	2.75	2.60SJ	2.75S
27	J 2.70F	I 2.70SU	U 2.60S	I 2.70S	J 2.60S	3.00	J 3.10S	3.05	I 2.95A	I 2.85AI	2.60A	I 2.65A	2.75	2.85	3.00	2.75	I 2.80A	I 2.95A	I 3.10AU	2.95S	2.90	J 2.75S	J 2.75SU	2.80F
28	2.90	2.80	3.05	U 2.75FI	I 2.75FI	2.95F	I 2.80A	I 2.95A	3.20	A	A	A	2.90	2.90	2.85	I 2.80A	2.80	3.05	3.20	3.15	2.70	J 2.60SU	2.70FI	2.65A
29	I 2.80A	2.90	I 2.80S	I 2.60S	2.80	2.85	3.15	I 3.20S	2.80S	S	A	R	R	S	G	2.70	2.70	I 2.85A	3.40R	3.25	2.55	2.45	2.80S	2.85
30	2.85	2.55SU	2.85S	2.85	2.55	I 2.60S	2.80	I 2.70A	I 2.35A	2.60	A	A	G	I 2.50AI	I 2.70RU	2.65S	2.80	I 2.85A	2.95	3.00	2.70	I 2.60FU	2.60SI	I 2.85A
31																								
No.	26	25	26	26	27	29	28	25	22	16	15	18	20	22	24	24	25	28	30	30	29	29	25	26
Median	2.70	2.75U	2.80U	2.75	2.80	2.95	2.95	2.95	2.90	2.90	U 2.75	U 2.65	2.70	2.80	2.80	2.80	2.85	2.90	2.90	2.95	2.80	2.70	2.70	2.70

M(3000)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. 1961 | M(3000)F1 | 135° E Mean Time (G.M.T. + 9h.) | **Kokubunji Tokyo** | Lat. 35° 42.4' N, Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	3.55	A	A	A	3.45^{S}	A	3.35^{S}	3.55^{L}	A	A					
2						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
3							3.50^{L}	S	A	A	A	A	A	L	^{U}3.35^{L}	A	A	A	A					
4							L	A	A	A	A	A	A	A	3.75	A	A	A	A					
5							A	A	A	A	A	A	A	A	A	A	A	L	L					
6								A	A	A	A	A	A	A	AS	S	L	A	A					
7						2.95	A	A	A	A	A	A	A	A	A	A	A	3.40^{L}						
8								3.05	A	S	A	^{U}2.90^{S}	3.55	^{U}3.30^{S}	S	A	A	A	A					
9								A	S	A	A	S	A	A	A	A	A	3.50^{L}	L					
10							L	L	A	S	3.35^{S}	A	A	A	A	3.40	3.35	^{U}3.40^{L}	A					
11							A	A	A	A	A	3.85^{H}	A	A	A	A	A	A	A					
12							L	L	A	A	A	A	A	A	A	^{U}3.35^{L}	A	A						
13							L	^{U}3.45^{L}	A	A	A	A	A	A	A	A	A	3.40	A					
14						3.05^{L}	L	A	A	A	A	A	A	A	A	A	A	A	A					
15							L	^{U}3.50^{L}	L	A	A	A	A	A	A	A	A	A	A					
16							^{U}3.20^{L}	3.50	A	S	C	A	A	A	A	R	S	A	A					
17							A	A	A	A	A	A	A	A	A	A	A	A	L					
18							L	L	A	A	A	A	A	A	3.45	A	A	A	A					
19							A	A	A	A	S	A	A	A	A	A	A	A	A					
20							L	S	A	A	A	A	A	A	A	A	A	L						
21								^{U}3.45^{L}	A	A	S	A	A	A	3.55	A	3.55$^{S}_{H}$	A	A					
22							L	A	A	A	A	AS	S	A	A	^{U}3.45^{L}	A	L						
23							3.45^{L}	A	^{U}3.05^{S}	A	A	R	S	3.80	A	A	A	A	A					
24						A		AS	3.50	A	A	A	A	A	A	3.40^{R}	A	L	L					
25									^{U}3.55^{R} ^{U}3.40^{R}	A	A	A	A	R	3.45	A	A	3.35^{L}	A					
26							L	A	A	A	A	A	A	AS	A	A	AS	^{U}3.65^{L}	L					
27							3.65^{L}	S	A	A	A	A	A	^{U}3.20^{R}	L	A	A	A	A					
28							A	A	A	A	A	A	A	A	3.70	A	A	A	L					
29							L	S	A	S	A	3.95	R	3.65	3.45	3.45	A	A						
30							A	A	A	A	A	A	3.65	A	3.65	3.60	3.20	A	A					
31																								
No.						2	4	5	3	2	1	3	2	5	8	7	4	6						
Median						3.00	3.50	^{U}3.45	^{U}3.50	^{U}3.50	3.35	2.90	3.60	3.45	3.50	3.40	3.45	3.40						

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

IONOSPHERIC DATA

Jun. 1961 | h'F2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						355	325	375	A	S	A	A	A	350	330	310	300	305	A					
2						375	300	E350A	A	A	A	A	A	A	A	A	A	A	A					
3							360	E350S	A	A	A	A	A	355L	355	A	A	E350A	E450A					
4							350	A	A	340	A	A	350	E350A	350	335	340	310	E295A					
5							410	A	A	A	A	A	A	A	A	A	A	320	300					
6								A	A	A	A	A	E405A	A	E380A	350	345	305	280					
7						400	450A	A	A	A	A	A	A	A	A	A	A	320						
8								S	A	350	A	G	430	445	400	310	A	A	E340A					
9								A	E350S	A	A	S	A	A	A	A	E395A	300	260					
10							355	325	290	E300S	370	E390A	350	A	A	360	355	310	330					
11							A	A	E320AH	300	305H	400	375	360	360A	300A	A	E440A	300A					
12							235	285	E295S	A	A	A	A	355A	A	345	E350A	320						
13							290	320	E360A	A	A	A	A	A	A	A	E370A	350	320					
14						445	290	E310R	E290R	A	A	A	A	A	A	A	A	E300S	280A					
15							300	345	300	300A	A	350	A	A	A	A	A	310	A					
16							355	300	305	325	C	A	A	S	400	340	300	300	A					
17							285	325	290A	A	A	A	E380A	380A	375	375	350	A	275					
18							340	350	E355A	E350A	A	A	A	A	345	300	335	330	A					
19							275	300A	A	A	S	410A	A	A	A	A	A	A	310A					
20							300	305	310A	300	A	A	A	A	340	350A	E340A	310						
21								330	A	A	365	A	A	380	350	355	300	300	300					
22							315	295	A	A	E440A	370S	395	325	310	330	305	315						
23							310	A	S	A	400A	E400S	400	400	345	355	A	E390A	325					
24						290		360	345	350A	390A	A	E450A	355	A	340	310	285	275					
25									380	365	A	E400A	390	345	375	340	350A	310	280A					
26							305	A	A	A	E350AE350A		A	350	E400A	360A	S	345	300					
27							280	260	A	A	A	A	385	370	305	E380A	E350A	A	A					
28							A	A	300A	A	A	A	350	355	385	A	360	300	255					
29							260	350	E395A	S	A	R	R	S	S	400	400	A						
30							350	A	A	E450A	A	A	G	A	R	440S	385	A	E350A					
31																								
No.						5	22	16	10	9	6	9	11	15	15	19	15	20	16					
Median						355	310	320	300	325	370	E400	385	355	350	345	340	310	E300					

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. 1961 | h'F | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	z55	315	300	z60	315	I320A	A	A	A	z60	A	A	A	z40	I255A	z45	z55	A	A	E320A	E420A	I330A	E405A	320A
2	E390A	E350A	300	355	300	E340A	A	A	A	A	A	A	A	A	A	A	A	A	A	E450A	305	E360A	E350A	E390A
3	305	I330A	350A	z90	305	z60	z45	S	A	A	A	A	A	z50	z45	A	A	A	A	E345A	E290A	E395A	I310A	310A
4	370A	z70	z60	I310A	345	z50	E300A	A	A	A	A	A	A	A	z40	A	A	A	A	z55	A	A	350A	I305A
5	E350A	z95	E345A	I280A	I260A	z80	A	A	A	A	I250A	A	A	A	A	A	A	z50A	z50	z60	310A	305	350A	300
6	E350A	I265A	z60F	z45	300	z55	z60	A	A	A	A	A	A	A	AS	z95A	E270A	I250A	I255A	I255A	z70A	E340A	310A	305
7	z90A	340A	z50A	z50	I260A	z85	A	A	A	A	A	A	A	A	A	A	A	z45	z90	E305A	310	350A	A	A
8	E340A	A	A	E300A	z50	z45	z50	z50	I250A	E260S	I330A	E310A	z20	z50	E350A	A	A	A	A	A	E320A	360A	370A	E380A
9	E320A	I300A	z65	I330A	310A	z60	z55	A	S	I240A	I220A	z50	A	A	A	A	A	z40	z50	E370A	z80	310A	350A	310A
10	E380A	305	I320A	z60	z55	z50	E290A	E300S	A	S	z50	I260A	I250A	A	A	z35	z35	z50	I270A	305A	z80	z60A	I320A	I350A
11	350A	z95	z90	305	z60	z60	A	A	A	I190A	I250A	z00H	A	A	A	A	A	A	A	z80	z90	I295A	z80	z90
12	350A	300	345	I335A	z60	I240A	z35	E280S	A	A	A	A	A	A	A	z50B	A	A	z90A	z50	z25	E350A	I360A	360A
13	305	300	305	z60	z85	z50	E295A	z50A	A	A	A	A	A	A	A	A	A	z45	A	E290A	z50A	I285A	310A	z95
14	E350A	E360A	E350A	330A	z60	z55	E290A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E355S	A
15	A	z95	z60	z55	z50	z60	z50	z50	z60A	A	A	A	A	A	A	z60A	z90	E410A	350A	350A
16	325	350A	355	325	305	z60	z50	z10	I255A	S	C	I215A	I230A	A	A	R	I230S	A	I250A	E305A	A	E340A	E355A	z75
17	340A	320	310	300	300	z60	I265A	A	A	A	A	A	A	A	A	A	A	A	z55	E290A	z50	z55	330	330
18	E345S	300	z55	z55	z55	z05	z45	z60	A	A	A	A	A	A	z55	A	A	A	A	E300A	E325A	305	340A	355A
19	305	z60	z60	300F	300	z90A	A	A	A	A	S	A	A	A	A	A	A	A	A	E300A	z70A	305A	300	320
20	330A	z95	z60A	z50	z50	z40	z20	z50	A	A	A	A	A	A	A	A	A	E300A	z80	E310A	E340A	300A	310A	350A
21	E355A	300	z55	z30	z45	z50	z50H	z50	A	A	E350S	A	A	A	z20	I250A	z00H	A	A	E310A	325	330	310	300
22	300A	z85	z50	E405A	350A	z80	E300A	A	A	A	A	AS	I230S	A	A	z50A	A	E290A	E300A	E290A	300A	330A	300	350
23	E340A	340A	z55	z45	z60	E300S	z45	I245A	z55	A	A	z60A	I250S	z05	A	A	A	A	A	300A	z90A	305	340	350A
24	E340A	300	I320A	340A	E350A	I245A	z40	I250S	z50A	A	A	A	A	A	A	z40	I260A	z50A	z50A	z45	E505A	340A	310	300
25	320A	310A	z75	300	300A	z50	z40	z55	z40	z45	I200A	I230A	I250A	I250R	z50	I245A	I250A	z50A	I255A	E310A	z60	z60	z50	E300A
26	E350A	E350A	E350A	300	z90	z60	z50A	A	A	A	A	A	A	AS	A	A	AS	z50A	z80	z55	E300A	300A	320	310A
27	300	350A	E350S	305	350A	z80	z50	S	A	A	A	A	I230A	z50	z60A	A	A	A	A	E300A	300	E350A	305	300
28	z55	300	z55	300	E350A	300A	I255A	A	A	A	A	A	I245A	I240A	230	I250A	A	A	E250A	E250A	325	350A	350	I330A
29	I280A	z60	z60	z85	z55	z45	z50	z50	I250A	I245S	I245A	z25	I225R	z45	z50	z45	A	A	z40	z20	355A	E445A	E390A	E350A
30	z55	325	z90	305	300	E350A	I280A	I250A	I240A	A	A	A	z45	I245A	z45	z20	E295A	A	A	E300A	E350A	310	E360A	I280A
31																								
No.	17	26	25	29	28	27	19	12	8	5	7	7	10	9	10	11	6	9	14	28	20	20	23	25
Median	305	300	265	300	290	260	250	250	u250	u245	u250	230	u240	245	250	245	240	250	255	E300	290	305	320	310

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1961 | h'Es | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	105	S	120	120	115	105	110	110	110	105	105	105	105	145	120	105	105	105	105	105	105
2	105	105	105	105	105	145	120	115	110	110	110	105	105	105	105	105	105	105	105	105	105	105	105	105
3	105	105	105	105	105	145	140	120	110	110	105	105	105	105	105	105	125	115	105	105	110	105	105	105
4	105	105	105	105	105	150	110	110	105	110	105	105	105	105	105	130	125	110	110	105	105	105	110	105
5	105	105	105	100	105	S	140	120	110	110	105	105	105	105	125	110	110	110	110	105	105	110	105	105
6	105	105	105	105	105	G	135	115	110	105	105	105	105	105	105	100	100	100	105	105	100	105	110	105
7	105	105	105	105	105	150	130	120	110	110	105	105	105	105	110	105	105	105	115	110	105	110	105	105
8	105	105	100	100	100	G	130	115	110	120	110	110	110	105	130	130	125	120	110	110	110	110	105	105
9	105	105	105	100	105	100	135	115	110	110	105	115	105	105	105	105	105	120	110	105	110	105	115	110
10	105	105	100	100	100	130	110	115	115	110	110	110	105	105	115	145	150	115	110	110	115	115	110	110
11	110	110	105	105	105	125	110	110	110	110	125	155	140	110	110	120	115	115	110	110	105	105	105	105
12	105	105	105	105	105	110	S	S	115	110	110	110	105	140	120	B	120	115	110	110	105	105	105	105
13	105	105	E	E	E	115	110	110	105	105	105	105	105	105	105	105	105	120	115	105	105	105	115	110
14	105	105	105	105	E	135	150	130	110	110	110	110	110	105	105	105	105	105	105	105	105	105	110	110
15	105	105	105	105	E	G	150	130	110	115	110	105	105	105	105	105	105	105	100	100	100	100	105	100
16	100	105	105	105	130	130	110	110	105	110	C	125	120	110	110	115	S	110	105	105	105	105	105	105
17	105	105	105	105	S	S	115	110	110	110	110	105	110	110	105	105	120	110	110	105	105	S	105	105
18	105	105	E	E	S	B	S	S	110	110	110	110	110	110	110	105	110	105	105	100	105	105	105	110
19	110	S	110	105	105	130	125	115	115	110	130	110	110	105	105	105	105	105	105	105	100	100	100	100
20	105	105	105	100	105	110	140	130	110	115	110	110	105	105	105	105	105	105	100	100	100	100	115	110
21	110	105	105	E	105	105	105	140	110	105	110	110	105	105	105	110	S	115	115	115	105	110	105	105
22	105	105	105	105	110	150	125	110	110	105	110	110	150	120	110	130	120	115	115	105	110	110	110	105
23	105	105	105	105	100	110	110	105	145	115	125	140	115	B	130	115	110	110	110	105	100	100	110	105
24	105	105	105	100	105	105	B	110	110	110	110	105	105	110	105	105	105	105	105	105	105	100	105	130
25	105	105	105	105	105	105	110	105	105	105	105	105	105	145	140	120	115	115	105	110	105	105	120	105
26	105	105	105	105	120	120	120	110	105	105	105	105	105	140	135	125	120	110	115	105	105	105	105	110
27	105	105	105	105	105	115	115	110	105	105	105	105	105	115	155	125	125	110	115	110	110	105	105	110
28	105	105	105	105	105	105	105	115	110	110	105	105	110	105	105	105	105	105	115	130	100	100	105	135
29	115	105	105	105	E	S	150	145	125	120	130	105	150	175	145	130	110	110	110	110	110	110	105	110
30	105	105	105	105	E	110	110	105	105	110	105	105	110	110	105	150	110	110	105	105	105	110	110	105
31																								
No.	29	28	27	27	22	23	27	28	30	30	29	30	30	29	30	29	28	30	30	30	30	29	30	30
Median	105	105	105	105	105	120	120	115	110	110	110	105	105	105	105	105	110	110	110	105	105	105	105	105

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. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				f		l3	l	l	l2	l	l2	l	l	l	l2	l	h	C2	l3	f3	f3	f3	f3	f3
2	f4	f3	f2	f	f	h2	C3	C	l2	C2	l2	l	l2	l2	l2	l2	l3	l2	l2	f3	f2	f3	f4	f2
3	f2	f2	f3	f	f2	C	h	C2	C2	C2	C2	l2	l2	l	l	l2	h2l2	C2	C4	f3	f3	f3	f3	f3
4	f3	f2	f3	f4	f3	h	C2	C3	l2	l2	l2	l2	l2	l2	l	h2	h2	l2	l3	f3	f3	f4	f2	f4
5	f4	f2	f3	f3	f3		h2	C2	C2	C2	l2	C2	l2	l2	h2l	C3	C3	l2	l2	f3	f3	f3	f3	f2
6	f3	f3	f3	f2	f2		h2	C2	C2	C2	l2	l2	l2	l2	l2	l2	l2	l3	l2	f4	f3	f3	f3	f3
7	f3	f2	f3	f2	f3	h	h2	C2	C2	C2	C2	C	l2	l	l2	l2	l2	l	l2	f3	f2	f3	f3	f4
8	f3	f3	f3	f3	f		h	C2	l2	C	C	l	l	l	h l	h	h2	h2l	C3l2	f4	f3	f3	f3	f3
9	f3	f3	f2	f3	f3	l3	h	C2	C2	l	C2	C	C2	l2	l2	l2	l2	h	l2	f4	f2	f3	f3	f2
10	f3	f2	f3	f3	f2	h	C2	C2	C	C	C	l	l	C3	C2	h	h	l	C2	f3	f2	f3	f3	f3
11	f4	f2	f2	f3	f2	l2	C4	l2	C2	C2	C	h	h	C2	C2	C2	C2	C2	C3	f2	f2	f5	f2	f3
12	f3	f2	f2	f2	f2	l2			l2	l2	C	l2	l2	h2	C2		C2	C2	l2	f2	f	f3	f3	f5
13	f3	f3				C	l2	C2	C3	C2	l2	l2	l2	l2	l2	l3	l2	C l	l3	f3	f4	f3 f2	f2 f	f2
14	f3	f3	f3	f3		h	h	h	C2	l	l	l	l2	l2	l2	l2	l2	l2	l2	f3	f3	f3	f3	f3
15	f3	f3	f2	f2			h	h	C2	C2	l	C2	l2	l2	l2	l2	l2	l2	l3	f2	f2	f3	f3	f2
16	f2	f3	f2	f3	f	h	l	C	l2	l		h2l2	l	l	l	l		l2	l2	f2	f2	f2	f3	f2
17	f3	f3	f2	f2			l2	l2	C2	C2	l2	l2	l2	l	l2	l2	l2	l2	l2	f2	f2		f2	f
18	f	f2							l2	l3	l2	l2	l2	l2	l	l	l2	l2	l3	f2	f3	f2	f3	f3
19	f3		f	f2	f2	h2	h2	l3	C3	l2	h	l2	l2	l3	l4	l2	l3	l2	l2	f2	f3	f2	f	f
20	f3	f	f3	f2	f	l	h	h	l2	l	l2	l2	l2	C2	l2	l2	l2	l2	l2	f2	f3	f2	f2 f2	f4
21	f4	f2	f		f	l2	l2	h	l2	l2	l	l2	l2	l2	l	C2		C2	C2 l	f2 f	f2	f2	f4	f2
22	f2	f	f2	f2	f3	h2	C2	l2	C3	C2	C2	l2	h	h2	C2	h	C2	C2	l2	f3	f3	f3	f2	f2
23	f3	f2	f	f	f2	C	C	l3	h	C	C	h	l		h2	C	C2	C3	l3	f2	f2	f2	f2 f2	f3
24	f3	f2	f3	f3	f3	l2		l	C	l	l	l2	l2	l	l2	l	l2	l2	l2	f2	f2	f3	f3	f f2
25	f3	f3	f2	f3	f3	l2	l2	l2	l2	C	l	l	l	h	h	C	C2	C	l2	f3	f2	f2	f	f3
26	f3	f2	f3	f2	f2	C	C	l2	C2	C3	l3	C	C2	h	h	h2	C2	l2	C l	f2	f4	f3	f2	f3
27	f3	f3	f3	f2	f5	l2	C	C	C2	C2	C2	l2	l	l	h l	h2	h2	C3	l2	f4	f2	f3	f3	f3
28	f2	f3	f2	f2	f3	l2	l2	l2	C2	C2	l2	l2	l2	C2	C2	l2	C2	l3	C2l2	f f3	f3	f2	f2	f3 f
29	f3	f2	f2	f2			h	h	h l3	h2	h2	l	h	h	h	h	C	C3	l2	f2	f3	f3	f3	f3
30	f	f2	f	f2		l2	C2	l2	C2	C2	l2	l	l	l	l	h l	l	l2	l4	f4	f3	f2	f3	f3
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. 1961 | hpF2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	340	C	C	C	C	C	C	C	A	S	A	A	A	355	350	310	300	320	I 305 A	350	A	I 330 A	405	390
2	440	390	385	490	385 S	355	305	355	A	A	A	A	A	A	A	A	A	A	I 335 A	A	390	I 360 S	355	u 440 S
3	F	A	S	J 345 S	J 350 S	305	J 365 R	S	A	A	A	A	A	405	355	A	A	350	I 340 A	350	345	A	I 360 A	395
4	F	F	I 320 F I	360 A	400	330	350	I 330 A	I 310 A	AS	A	A	355	A	350	345	350	345	300	305	I 365 A	I 385 A	F	A
5	I 355 F I	355 F I	330 A S	I 305 A	I 305 A	305	G	A	A	A	A	A	A	A	A	A	A	J 390 S	345	330	390	365	405	350 F
6	390 F	A	F	SF	u 400 F	285	305	A	A	A	A	A	A	A	A	A	I 350 C	345	305	I 305 A	305	370	375 F	360
7	350 F	355 F	295 S	S	A	400	455	A	A	A	A	A	A	A	A	A	A	330 S	320	320	400	400 F	I 355 A	I 375 A
8	350	A	A	SF	SF	260 S	305	I 375 S	I 370 A	350	A	G	G	S	S	350	A	A	345	I 350 A	J 365 S	u 405 F	400	A
9	350 S I	360 A	u 315 F I	370 A	u 385 S	J 300 S	320	I 340 A	A	A	A	S	A	A	A	A	A	310	345	A	385 S	J 390 S	400 S I	390 F
10	I 400 F	J 390 R I	375 A	u 335 S	305	u 305 S	360	345	305	330	G	A	355	I 350 A	I 345 A	360	355	350	350	360	345	u 305 S	A	A
11	F	F	u 350 F	390 E	350	300	I 300 A	I 300 A	350 H	A	380 H	400	375	360	A	320	I 350 A	S	350	350	360	I 335 S	350	355
12	380 S	355	J 405 S I	380 A	u 300 S	A	R	R	C	A	A	A	A	385	I 400 A	380	380	365	I 340 R	305	285	400 E I	400 E I	400 F
13	360 F	395 F I	395 F I	375 F	u 390 F	305	320	345	A	A	A	A	A	A	A	A	A	355	355	310	300	I 330 A I	390 F I	380 F
14	u 375 F	u 400 F I	355 F	355 F	365 F	450 F I	350 R I	330 R	295 R	A	A	A	A	A	A	A	A	350	305	A	A	A	S	A
15	I 390 A	355 F	350	300	345	335	310	I 360 R	315	310	I 330 A	355	A	A	A	A	A	350	I 320 A	310	355	420	485	400
16	I 395 S	375	400 S	400 S	J 405 F	355	390	305	365 V	325	C	A	A	400	400	350 R	315 R	310	I 330 A	350	A	FS	F	355
17	405	400	I 380 F	365 F	u 355 F	345 F	J 300 R	330	A	A	A	I 380 A	A	A	365	J 375 R	J 355 R I	315 A	305 S	320 S	330	I 360 S I	325 F	425 F
18	I 400 F I	370 F	320	355	300	210	G	355	350	A	A	A	A	A	365	335	I 360 R	J 360 R	I 335 A u	355 R	345	355	F	F
19	F	330	I 385 F I	375 F I	355 F	350	300 R	310	A	A	S	A	A	A	A	A	A	A	u 350 S	I 350 S	350	400 S u	400 S	420
20	I 370 S I	320 S I	345 F I	330 F	I 320 F	315	350	J 330 S	355	325	I 420 A	A	A	I 385 A	350	365	355	u 350 S	365	355 R	380	u 360 S	J 395 F I	410 F
21	J 405 E I	370 F	330	J 285 R	300	285	380 H	350	I 390 A	I 405 A	395	I 470 A	I 445 A	405	390	395	305	310	380	400	425	I 405 S	400	J 400 S
22	400	355	I 340 S	A	420	u 405 S	395	J 350 R	A	A	450	400	410	350	350	355	350	355	355	I 350 S I	390 S I	425 S	J 400 S	445
23	u 400 S	u 400 S	390 S u	305 S	I 320 S u	385 S	340	I 375 A	S	A	A	S	400	G	350	355	I 350 A	A	350	I 310 R	315	380	405	J 400 S
24	I 480 S	J 385 S I	390 A	380	J 370 S	295	290	AS	355	A	400	I 430 R	I 410 A	395	I 380 A	380	360	305	335	310	I 390 A	405 S u	430 R	395
25	J 355 S	J 415 F u	380 F u	355 F	I 320 F	285	300	305	390	G	I 370 A	405	400	355	400	355 R	375	355	310	320	360	I 365 S	360 R	J 440 R
26	400	400 F I	400 F	J 390 S	I 395 S u	405 S	345	A	A	A	S	350	I 370 A	355	I 355 A	A	I 360 S	350	350	330 S	335	375	405 S	J 360 E
27	J 385 F I	385 F u	415 S I	400 S	J 405 S	320	J 305 S	300	I 320 A	A	A	A	400	355	330	A	I 350 A I	330 A I	310 A u	320 S	355	J 400 S	J 365 S u	395 F
28	345	355	320	u 390 F I	I 380 F I	330 F I	400 A I	340 A	305	A	A	A	350	355	385	I 385 A	385	325	300	300	365	J 400 S u	400 F I	390 A
29	I 360 A	345	I 340 S I	365 S	345	330	300	S	A	S	A	R	R	S	G	405	405	I 340 A	255 R	285	410	450	405 S I	350 A
30	350	400 S u	350 S	375	395	I 400 S	350	A	A	A	A	A	G	A	R	G	385	I 355 A	A	315	400	420 F u	400 S I	365 A
31																								
No.	26	24	26	25	27	28	26	20	14	6	7	8	11	14	17	18	20	25	29	27	27	27	25	25
Median	380	370	u 350	u 365	355	330	330	340	350	330	395	400	400	360	355	355	355	350	335	320	360	385	400	395

hpF2

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

Jun. 1961 | ypF2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	70	C	C	C	C	C	C	C	A	S	A	A	A	60	95	90	90	85	I 95A	100	A	I 95A	90	105
2	145	105	110	110	115	95	95	90	A	A	A	A	A	A	A	A	A	A	I 95A	A	105	I 95S	95	U 105S
3	F	A	S	J 100S	J 95S	100	J 85R	S	A	A	A	A	A	85	50	A	A	100	I 85A	95	100	A	I 130A	100
4	F	F	I 110FI	95A	105	130	95	I 90A	I 90A	AS	A	A	100	A	65	60	60	100	50	140	I 80A	I 100A	F	A
5	I 135FI	100FI	95SI	90A	I 90A	90	G	A	A	A	A	A	A	A	A	A	A	J 105S	100	125	105	130	100	145F
6	105F	A	F	SF	U 100F	65	100	A	A	A	A	A	A	A	A	140	I 100C	100	100	I 150A	100	85	110F	135
7	100F	95F	100S	S	A	95	100	A	A	A	A	A	A	A	A	A	A	75S	125	80	100	100FI	75AI	120A
8	100	A	A	SF	SF	45S	90	I 50SI	105A	70	A	G	G	S	S	50	A	A	100	I 130A	J 85SU	110F	95	A
9	95SI	120AU	80FI	100A	U 110S	J 95S	95	I 80A	A	A	A	S	A	A	A	A	A	100	145	A	105SJ	105S	95SI	105F
10	I 95FJ	105RI	100AU	70S	95	U 90S	60	60	95	85	G	A	95	I 55AI	65A	135	95	90	105	145	100	U 85S	A	A
11	F	F	U 95F	105ZF	105	70	I 80AI	120A	115H	A	115H	95	50	90	A	95	I 65A	S	100	95	85	I 110S	100	90
12	115S	115	J 90SI	100AU	U 95S	A	R	R	C	A	A	A	A	70	I 95A	120	115	130	I 80R	90	65	100ZI	100AI	100F
13	95F	110FI	100FI	120FU	U 105F	140	125	100	A	A	A	A	A	A	A	A	A	95	140	95	95	I 80AI	105FI	90F
14	U 80FU	95FI	55F	95F	125F	95FI	80RI	90R	50R	A	A	A	A	A	A	A	A	95	135	A	A	A	S	A
15	I 100A	95F	95	90	100	70	95	I 90R	80	85	I 90A	90	A	A	A	A	A	100	I 80A	80	135	80	140	145
16	I 110S	75	105S	100S	J 90F	140	105	90	75V	70	C	A	A	115	95	70R	130R	95	I 75A	90	A	FS	F	90
17	60	95	I 90F	85FU	U 55F	65FJ	50R	125	A	A	A	I 70A	A	A	90	J 55RJ	70RI	80A	50S	75S	75	I 90SI	90F	100F
18	I 80FI	80F	85	65	95	45	G	90	100	A	A	A	A	A	100	110	I 80RJ	90RI	70AU	100R	95	80	F	F
19	F	90	I 85FI	80FI	I 70F	95	55R	85	A	A	S	A	A	A	A	A	A	A	U 90SI	100S	90	145SU	95S	120
20	I 110SI	70SI	100FI	120FI	I 110F	175	105	J 100S	90	80	I 105A	A	A	I 85A	95	100	140	U 60S	120	95R	115	U 95SJ	90FI	120F
21	J 100SI	70F	65	J 110R	145	80	125H	95	I 60AI	120A	105	I 160A	I 120A	100	110	110	95	85	75	100	125	I 130S	110	J 85S
22	145	90	I 110S	A	125	U 140S	105	J 95R	A	A	100	95	95	80	95	95	95	140	125	I 110SI	80SI	90SJ	95S	100
23	U 90SU	90S	110SU	90S	I 125SU	70S	65	I 70A	S	A	A	S	95	G	55	70	I 100A	A	95	I 90R	65	115	105	J 95S
24	I 120SJ	110SI	100A	115	J 75S	100	110	AS	85	A	85	I 120R	I 100A	100	I 100A	115	90	90	115	135	I 115A	145SU	125R	105
25	J 40SJ	130FU	115FU	135FI	I 110F	30	95	90	60	G	I 70A	100	105	140	90	95R	105	135	135	85	130	I 100S	130RJ	105R
26	140	105FI	100FJ	65SI	100SU	85S	60	A	A	A	S	100	I 90A	95	I 80A	A	I 100S	55	105	115S	100	90	95SJ	90S
27	J 70FI	110SU	130SI	100SJ	95S	80	J 80S	95	I 70A	A	A	A	65	90	70	A	I 100AI	100AI	90AU	85S	90	J 95SJ	100SU	95F
28	100	100	75U	105FI	I 110FI	110FI	80AI	90A	85	A	A	A	90	80	70	I 100A	70	75	90	95	125	J 90SU	90FI	100A
29	I 105A	105	I 90SI	I ~0S	100	115	95	S	A	S	A	R	R	S	G	90	90	I 90A	65R	70	135	100	90SI	90A
30	95	105SU	95S	80	110	I 120S	105	A	A	A	A	A	G	A	R	G	70	I 70A	A	90	100	125FU	105SI	100A
31																								
No.	26	24	26	25	27	28	26	20	14	6	7	8	11	14	17	18	20	25	29	27	27	27	25	25
Median	100	100	U 100	U 100	100	95	95	90	85	80	100	100	95	90	90	95	95	95	95	95	100	100	100	100

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

The Radio Research Laboratories, Japan.

K 14

IONOSPHERIC DATA

Jun. 1961 | foF2 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	F	F	4.6^{S}	I5.0^{F}	J7.5^{S}	6.9	6.1	5.5	I5.6^{A}	I6.0^{A}	7.0	8.8	10.2^{S}	9.5^{S}	7.2	6.7	6.6^{H}	6.2^{S}	6.4^{S}	6.5	S	A
2	A	J6.6^{S}	S	F	F	5.7^{F}	7.4^{S}	I6.8^{A}	I6.2^{A}	6.0^{F}	5.9	I6.1^{A}	6.5	I7.2^{A}	J7.6^{S}	7.0	6.6	6.6	7.1^{S}	6.5	6.7^{S}	I6.8^{S}	J6.8^{S}	I6.4^{S}
3	I6.3^{S}	FS	A	I6.2^{S}	6.1	I6.0^{S}	6.2^{S}	I5.7^{A}	I5.7^{A}	5.2	I5.9^{A}	I6.1^{A}	I6.6^{A}	6.9	7.1^{S}	7.0	6.7	A	A	A	A	J7.0^{S}	S	S
4	A	S	S	I4.5^{A}	2.9	A	A	A	A	A	6.6	7.4^{S}	8.5	8.8	8.4	7.2	6.6	7.2^{S}	7.2^{S}	6.5	5.7	S	Fs	Fs
5	S	F	S	I5.4^{S}	2.3	2.6^{F}	4.9	6.0^{H}	A	A	A	A	5.3	I5.9^{A}	7.1	6.8	6.4	I6.2^{A}	6.2	6.4	I6.2^{C}	5.8	I5.6^{S}	I5.7^{S}
6	F^{S}	F	I5.5^{F}	F	A	3.5	4.9	6.1	I6.6^{A}	6.3	6.2	5.8	I6.1^{A}	I6.7^{A}	7.1	7.2	8.6^{S}	J10.0^{S}	I9.4^{S}	I7.9^{S}	6.1^{S}	5.4^{S}	S	A
7	F^{S}	A	F	S	3.1	F	I4.8^{A}	5.6	A	A	A	A	A	A	A	5.8	6.2	J6.5^{S}	6.0	6.0	5.8	6.0	6.1^{S}	6.0
8	S	FS	Fs	F	5.7	4.2^{S}	4.6^{S}	5.2	6.8	7.2	7.7^{S}	6.8	I7.5^{A}	8.3	7.6	7.3	J7.8^{S}	7.1	J7.8^{S}	6.0	5.6	5.8^{H}	I5.9^{S}	S
9	S	S	F	F	3.6^{F}	4.5	5.8	6.3^{H}	5.8^{H}	6.4	6.4	5.7	6.5	I6.9^{A}	7.7	8.8	8.2	J8.1^{S}	J7.7^{S}	6.4	I5.9^{A}	I5.9^{A}	A	Fs
10	F^{S}	S	F	F	F	4.2	5.4	I6.1^{A}	6.4^{S}	6.3	6.5	7.5	7.4	I6.9^{C}	I7.2^{A}	J7.7^{S}	J7.8^{S}	I8.1^{C}	J8.5^{S}	I8.8^{C}	9.4^{S}	6.5^{S}	S	S
11	S	FS	F	F	F	6.5^{H}	5.8^{SH}	I5.9^{C}	5.7	6.0	I6.9^{A}	I7.2^{A}	I7.6^{A}	I8.1^{A}	8.5	8.6	8.8	8.8	8.8	J8.1^{S}	I8.3^{C}	A	S	S
12	S	S	J5.0^{S}	F	F	F	5.8	6.0	5.5	5.9	C	C	C	C	9.6	9.6	9.2	J10.0^{S}	11.1^{S}	10.9^{S}	I7.5^{S}	5.3^{S}	A	F
13	FS	F	F	F	F	F	5.2	6.6^{S}	7.0	6.8	6.0	7.0	7.2^{R}	I7.6^{A}	I8.1^{A}	8.4	9.2	J9.6^{S}	J10.1^{S}	J10.1^{S}	9.4^{S}	I6.5^{S}	5.5	5.6
14	F	FS	F	F	F	F	F	8.3	8.4^{F}	I6.9^{A}	A	A	A	A	7.2	8.3	J9.6^{S}	J9.9^{S}	9.0	S	A	A	A	S
15	S	FS	F^{S}	6.7	F	F	5.6	6.5	7.2^{S}	7.9	A	A	A	A	A	9.1	10.6	11.0	10.4^{S}	9.2	I7.5^{S}	I7.0^{S}	S	S
16	S	S	FS	FS	S	I6.7^{S}	I7.7^{S}	8.8	9.3	I6.6^{FH}	6.8	7.1	7.6	8.0^{F}	9.3	9.0	9.0	8.2	J7.4^{S}	6.7	6.9	S	S	J6.4^{S}
17	S	S	S	6.5^{S}	F	S	8.3	8.0^{S}	7.9	6.6	6.8	A	A	I7.3^{A}	8.0	I8.9^{A}	J9.8^{S}	9.4	I9.8^{A}	8.9	I8.2^{A}	I7.9^{A}	J7.9^{S}	J7.4^{S}
18	7.2^{S}	J7.3^{S}	J8.2^{S}	6.2	5.1^{S}	I4.8^{S}	5.9	6.9^{H}	J7.6^{S}	8.4	8.0	7.6	8.8	8.7	I9.4^{A}	9.1	9.2^{S}	9.5^{S}	9.2^{S}	8.9	8.5	J7.5^{S}	S	S
19	FS	F	S	5.9^{S}	I6.0^{F}	F	6.8	J7.7^{SH}	6.5	A	C	A	I7.1^{A}	I8.1^{A}	I8.7^{A}	I9.0^{A}	9.1	8.5	9.6^{S}	I9.6^{S}	I8.6^{A}	J8.0^{S}	J7.8^{S}	I8.1^{S}
20	7.6^{S}	J8.1^{S}	9.1^{S}	4.5	4.8	4.6^{S}	5.8	7.8^{S}	8.4	6.2	7.1	7.3	8.5	9.2	I8.9^{A}	9.0	8.8	8.8	8.7^{SH}	8.8	9.2^{S}	8.6^{S}	C	C
21	C	C	C	C	C	C	5.6	J7.7^{S}	C	C	8.7	8.5	9.5^{S}	10.0	10.4	10.6	10.3	8.9	J7.7^{SH}	J7.4^{S}	8.1^{S}	8.0^{S}	8.5	8.6^{S}
22	I8.2^{S}	I8.0^{F}	J7.5^{S}	I6.7^{S}	6.2	6.0^{S}	J8.1^{S}	J9.6^{S}	6.3	7.3^{S}	I7.6^{A}	8.2^{S}	8.6	10.9	10.9	9.1	10.5^{S}	10.6^{S}	11.0^{S}	L9.4^{S}	J8.4^{S}	J8.5^{S}	9.2^{S}	I8.5^{S}
23	8.6	8.9^{S}	8.7	6.7	J5.2^{S}	4.5	6.0^{H}	5.9	6.4^{S}	5.9	6.5	6.2	6.9	J7.9^{R}	7.2	7.9^{S}	7.0	7.3^{S}	7.5^{S}	J8.0^{S}	J8.0^{S}	I7.1^{S}	I6.8^{S}	S
24	S	S	S	I7.4^{S}	6.6	F	5.5	6.2^{S}	7.0	6.9	7.3	J7.1^{R}	8.2	9.3	9.2	9.7	10.5	I9.7^{A}	J9.8^{S}	8.6	J7.4^{S}	J7.5^{S}	J8.0^{S}	8.5
25	FS	F	J8.2^{S}	FS	J8.1^{S}	7.1^{S}	6.0	6.1	6.5^{H}	6.8	6.8	6.9	7.8	8.5	8.7	9.1	9.6	10.2	I10.8^{C}	9.3^{S}	I7.9^{A}	I8.0^{S}	I8.3^{S}	J7.9^{S}
26	J8.0^{S}	7.1^{S}	F	I6.1^{S}	F	Fs	6.4	J9.6^{S}	5.9	5.5	6.3	6.9	6.8	7.5	7.9	8.1	8.4	9.1	L9.2^{S}	8.5	J7.9^{S}	6.2^{S}	6.0^{S}	J5.5^{S}
27	FS	FS	F	F	F	F	I6.9^{S}	6.6^{H}	6.1	6.1	I6.2^{A}	6.8	8.1	9.2	8.3	8.2	8.8	L9.5^{S}	9.0	8.4	I7.8^{A}	I7.5^{S}	7.9^{F}	S
28	S	FS	S	I6.6^{S}	5.6	F	6.0^{H}	7.4	8.6	8.0	6.7	I6.8^{A}	I7.5^{A}	8.2	7.8	8.3	9.1^{S}	9.9^{S}	J10.0^{S}	J7.7^{S}	6.1	I6.0^{S}	6.2^{S}	6.1^{S}
29	6.1^{S}	I5.8^{S}	J5.4^{S}	J5.1^{S}	I4.7^{A}	4.4^{S}	6.1^{S}	I6.7^{A}	7.0^{S}	6.1	R	5.7	5.7	5.9	6.3	7.2	7.7^{S}	9.1	8.3^{S}	5.2	I4.5^{A}	J5.2^{S}	5.3	J5.3^{S}
30	J5.3^{S}	J4.9^{S}	J5.1^{S}	I4.2^{R}	4.1	4.0	4.9	I4.8^{A}	5.5	5.1	I5.5^{A}	I5.6^{A}	I6.2^{A}	6.6^{R}	6.3	6.1	I6.3^{A}	I6.8^{A}	I7.1^{A}	I6.7^{A}	S	A	S	S
31																								
No.	8	8	9	15	17	17	28	29	26	25	23	23	25	26	28	30	30	29	29	28	27	25	16	14
Median	7.4	7.2	7.5	6.2	5.1	4.6	5.8	6.6	6.5	6.3	6.6	6.9	7.4	8.0	8.0	8.4	8.8	8.9	8.8	8.0	7.5	6.8	6.8	6.4
U Q	8.1	8.0	8.4	6.7	6.0	6.0	6.6	7.7	7.2	6.9	7.1	7.3	8.2	8.8	9.0	9.1	9.2	9.8	9.8	8.9	8.3	7.7	8.0	8.1
L Q	6.2	6.2	5.2	5.1	3.8	4.2	5.4	6.0	6.1	6.0	6.2	6.1	6.6	6.9	7.2	7.2	7.2	7.2	7.4	6.5	6.1	6.0	6.0	5.7
Q R	1.9	1.8	3.2	1.6	2.2	1.8	1.2	1.7	1.1	0.9	0.9	1.2	1.6	1.9	1.8	1.9	2.0	2.6	2.4	2.4	2.2	1.7	2.0	2.4

foF2

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

The Radio Research Laboratories, Japan.

Y 1

IONOSPHERIC DATA

Jun. 1961 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									43		I48A	I47A	I48A	48	48	46	45	A						
2								A	A	46L	48	I47A	47	A	A	A	44L	A	L					
3									A	A	A	A	A	48	A	45	A	A	A					
4								A	A	A	52L	I48A	I47A	47	45	47	44	A	A					
5									A	A	I46A	I46A	46	I46A	45R	45	I44A	A	A					
6								A	A	A	A	A	A	A	A	A	44R	A	A					
7								38	A	A	A	A	A	A	A	A	43	41	L					
8									45	47A	I46A	47	A	A	47	46	45	42	I38L					
9										A	A	A	48	A	A	46	44	42	A					
10								A	A	A	A	47	A	C	A	49L	45	C	A					
11								C	A	A	A	A	A	A	A	A	A	I44A	40					
12										A	C	C	C	C	A	A	A	A	A					
13								A	38L	A	52	48	49	A	A	A	45	I44A	A					
14									A	A	A	A	A	A	I49A	I46A	46	I43A	39L					
15								A	A	A	A	A	A	A	A	A	47H	I44A	U40L					
16								L	42		52	I54A	I52A	I50A	51	48H	46	U45L	U39L					
17							L	L	A	A	A	A	A	A	A	A	A	A	A					
18									47	50	I49A	I55A	52	A	I52A	I50A	I49A	46	A					
19									A	A	A	A	A	A	A	A	A	A	A					
20									A	49	A	A	A	A	I50A	L	48	46H						
21									A	C	51	55	A	A	52	51	50L	I46L						
22										50L	A	A	51	55	A	A	U51L	L	L					
23									45	46	49	I50A	51	A	51	A	48H	46	L					
24									A	48	50	52H	52R	A	A	A	A	A	A					
25										L	52	53	50	I51A	I49A	49	46	45	C					
26										47	48	I50A	51	49	50	I48A	46	44	L					
27									43	48	A	A	A	49H	50	I51A	46	I43A	L					
28								L	43	47	55	I50A	A	A	A	A	A	A	A					
29									A	I45A	A	R	A	I49A	48	47	A	42	A					
30									A	A	A	A	I47A	48	A	46	A	A	A	A				
31																								
No.								1	8	11	14	15	14	11	14	16	21	16	5					
Median								38	43	47	50	U50	50	49	50	47	46	44	U39					

foF1

Sweep 10 Mc to 200 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 2

IONOSPHERIC DATA

Jun. 1961 | foE | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							2.00	2.70	2.90	3.30^{S}	A	A	A	A	A	A	A	A	I 2.30^{A}					
2							2.00	2.50	A	A	A	A	A	A	A	A	A	A	2.30					
3							2.10	2.50	2.90	3.20	3.30	3.40	I 3.40^{A}	3.50^{R}	I 3.45^{R}	3.40	3.20^{R}	2.80	2.30					
4							S	2.60	3.00	3.10	3.35	3.40	A	A	R	A	A	A	A					
5							2.00	2.60	2.90	3.10	3.30	I 3.45^{A}	I 3.50^{R}	3.50^{R}	I 3.55^{R}	3.40	3.15	2.75	2.20					
6							2.00	2.70^{H}	3.10	3.25	3.35	3.40	A	A	A	A	A	A	A					
7							2.00	2.50	2.95	3.25	3.45	3.60	3.50	3.50	3.40	3.35	3.10	2.80	2.70					
8							1.90	2.55	3.00	3.15	3.45	3.50	I 3.60^{R}	A	A	A	A	A	2.20	S				
9							2.05	2.65	3.05	3.30	I 3.40^{A}	3.45	I 3.50^{A}	3.50	3.60	3.30	3.00	2.80	1.90					
10						S	1.90	2.60	2.95	3.00	3.35	3.45	R^{H}	C	I 3.65^{R}	I 3.50^{R}	3.25	I 2.80^{C}	2.20					
11							1.80	I 2.45^{R}	2.90	3.30	3.50	3.50	3.55	A	R	R	3.30	2.95	2.50					
12							2.20	2.60	3.10	I 3.20^{A}	C	C	C	C	R	3.60	3.40	3.10	2.30					
13							2.00	2.70	3.20	3.25	3.45	3.40	3.60	A	A	A	A	2.95	2.10					
14							A	A	A	A	A	A	A	A	R	3.50^{R}	3.35	3.05	2.50					
15							1.85	2.80	I 3.20^{A}	I 3.50^{A}	3.55	3.70	3.70	3.75	3.60	3.40	3.40	I 3.05^{A}	2.50					
16							2.20	A	A	A	3.60	3.55	3.65	A	A	A	A	A	2.55					
17							A	2.75	3.40	3.65	3.80	3.85	3.90	3.80	3.55	A	A	A	A					
18							2.40^{H}	2.70	3.20	3.50	3.70	3.75	3.85	A	A	A	A	A	A					
19							A	2.70	3.20	3.60	3.70	3.75	3.80	3.85	3.60	3.35	A	A	A					
20							2.10^{H}	2.80	3.10	3.25	3.60	A	A	A	A	A	A	A	2.10	S				
21							2.10^{C}	2.80	A	C	3.60	3.80	3.80	3.80	A	A	I 3.40^{R}	3.05^{H}	2.60					
22							2.20	2.85	3.20	3.45	3.50	3.80	3.85^{R}	3.85^{R}	3.75^{R}	3.60	3.30	3.10	2.60	1.80				
23							2.00	2.70	3.10	3.40	3.65	3.65	3.70	3.65^{R}	I 3.65^{R}	3.60	3.30	3.00	2.35					
24							A	2.60	3.10	3.40	3.40	3.80	A	A	A	A	A	A	A					
25							A	A	A	A	A	A	R	R	A	I 3.50^{R}	3.30	3.05	I 2.40^{C}					
26							A	R	3.00	3.40	3.40	3.55	3.55	I 3.65^{R}	I 3.60^{R}	3.40^{R}	3.30	3.00	2.50	1.70				
27							1.80	2.50	2.90	3.30	3.50	3.50	3.50	I 3.55^{A}	3.80	I 3.50^{R}	3.30	3.00	2.50					
28							S	2.70	3.10	3.35	3.50	3.60	3.60	3.50	3.40	3.30	A	A	A					
29							A	2.60	3.05	3.20	3.40^{R}	3.60	I 3.70^{R}	3.80^{R}	3.70^{R}	3.45	3.25	2.85^{A}	2.25					
30						1.60	2.10	2.50	3.00^{A}	3.15	3.30	3.40	3.45	A	A	A	A	3.00	2.50	1.60				
31																								
No.						1	21	26	25	25	25	24	20	14	14	16	16	18	23	3				
Median						1.60	2.00	2.60	3.05	3.30	3.45	3.55	3.60	3.65	3.60	3.40	3.30	3.00	2.35	1.70				

foE

Sweep 1.0 Mc to 20.0 Mc in 3.0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Jun. 1961

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	5.3	2.3	1.5	2.1	1.6	S	2.8	5.4	6.0	8.6	11.1	8.5	5.4	8.4	5.5	5.9	5.4	6.3	3.4	3.0	3.1	5.1	5.3	10.8
2	8.4	9.0S	8.6	3.8	2.3	2.6	2.9	7.7	16.8	9.3M	5.9	7.9M	5.5	8.5	5.4	5.4	5.4	6.7	2.8	2.9	3.1	2.6	2.0	5.3
3	5.2	5.2	6.3	2.9	3.0	2.3	2.6	8.7	8.5	7.0	12.5	9.1M	9.1M	G	4.6	4.2	5.5	9.2	10.3	13.7	8.2	8.4	8.4	6.1S
4	9.2M	6.4	5.8	8.2	5.2	13.7	12.3M	D11.4S	13.7	12.6	8.7	12.4M	7.0	5.6	G	3.6	5.6	7.4	9.1	5.4	3.2	5.4	2.9	6.4
5	5.8M	5.3	5.4	5.0	2.9	S	3.2	5.1	8.5	8.1M	7.0M	8.1	6.2	7.8	4.3	4.3	5.4	6.5	7.3	5.9	C	4.8	5.0	3.6
6	3.7	3.3	2.5	5.4	8.0M	5.4	3.3	5.3	8.7	6.4	5.4	6.7	7.0	9.1M	6.7	8.4S	4.0	6.4	8.4	5.4	8.5	5.8	D11.4S	6.0M
7	3.0	5.4	5.3	2.7	3.9	S	4.8	3.8	7.0	8.7	8.4	9.5	15.6M	10.2	6.9	12.7	6.9	3.6	G	2.4	10.2	7.6S	2.1	3.1
8	3.6	4.2M	4.5	2.9	2.2	2.2	3.7	5.4	3.8	5.1	4.5	4.0	8.4	13.9	5.6	6.2	3.8	3.4	G	2.2	7.8S	5.0S	4.9	5.3
9	5.0	9.0S	3.9	3.3	2.4	S	3.4	3.2	4.8	5.5	6.4	8.0	5.0	8.2	8.4	3.9	4.3	4.9	4.4	5.2S	3.4	8.7	5.9M	6.1S
10	5.4	5.2	5.4	3.8	3.0	2.4	3.3	7.9	12.5	10.8	5.6	4.1	6.4	C	8.5	5.1	3.9	C	5.1	C	5.2	4.3	5.0	3.8
11	4.2	5.4	3.9	5.1	5.6	9.2M	6.6	C	5.1	6.4	10.7	12.6	13.2	8.4	5.8	5.3	6.4	8.6	G	3.4	C	10.7	5.4	5.2
12	4.6	5.8	E	E	1.3	3.1	2.9	4.4	5.5	5.4	C	C	C	C	6.0	6.0	6.3	8.3	7.9	6.0M	5.2	5.1	8.5	3.3
13	5.2	4.2	3.8	3.4	2.5	2.0	3.9	5.3	5.4	10.5	5.4	4.1	5.2	14.3	18.1M	10.2	5.2	5.2	5.7	3.8	2.8	3.9	5.1	2.7
14	3.9	5.2	5.3	5.4	4.5	3.9	5.2	D9.0S	6.0	8.4	7.6	8.8	6.8	11.0	10.5	5.0	4.3	6.2	3.9	6.1M	7.8	6.5	12.8	13.7
15	6.0M	5.2	8.4	5.4	3.9	3.4	2.4	4.8	6.3	6.1	11.0	15.3	10.1	9.4	16.2M	10.6	4.4	5.5	5.4	6.4	5.4	5.1	6.1	8.5
16	2.8	4.5	2.8	1.5	3.8	2.6	2.3	3.1	4.3	5.4	5.0	10.8	11.5	10.8	4.5	3.9	3.5	3.1	3.1	3.3	3.2	3.2	7.9	13.2
17	5.2	3.7	3.0	3.3	4.0	3.0	3.8	3.9	6.0	6.2	6.6	10.2	12.8	11.6	14.9	17.2	9.4	8.4	13.8	8.3	12.7	6.3	3.1	12.8
18	2.3	2.1	2.1	2.1	3.6	2.3	G	4.9	5.4	8.0	5.6	8.8	6.3	12.1	10.4	6.2	12.7	5.3	9.3M	10.1S	15.4	5.4	2.9	6.0
19	5.4	D9.0S	5.8	2.2	E	3.4	3.8	4.3	8.6	14.5	7.1	16.4M	9.5	15.5	11.5	18.7	11.9	7.0	5.6	6.4	D9.2S	5.0	4.8	3.5
20	2.4	2.2	E	E	4.9	3.9	2.4	3.7	10.6	8.5	6.2	7.1	6.8	5.8	13.7M	5.4	5.4	3.2	2.9	2.3	1.7S	2.1	C	C
21	C	5.3	3.7	4.3	3.2	2.4	G	5.4	5.9	C	8.6	5.3	8.5	6.2	4.1	3.8	3.9	3.8	3.4	4.1	4.4	3.9	5.2	8.6
22	5.1	3.7	3.0	2.3	2.1	2.2	2.7	3.4	5.0	6.5	16.2	6.9	5.4	5.1	5.3	8.5	8.4	5.1	2.9	2.3	1.8	2.3	3.7	5.0
23	4.2	2.6	3.6	4.1	1.5	2.5	2.2	2.9	4.4	8.7	4.9	8.4	7.2	9.6	5.4	5.5	3.9	5.9	5.3	D9.0S	3.8	3.1	2.2	4.3M
24	5.1	6.1	8.2	8.4	3.9	3.0	3.2	5.2	5.9	4.4	5.3	4.6	4.9	7.0	8.3	6.4	6.4	13.5	6.0	D9.1S	4.6	5.2	3.1	2.2
25	2.2	2.9	5.4	5.5	D9.1S	5.5	4.6	5.3	9.2M	5.9	4.9	8.3	4.9	7.4	7.3	12.0	3.6	3.8	C	2.9	12.3M	5.1	5.3	3.6
26	5.2	2.7	4.4	5.4	3.8	3.0	3.2	4.3	3.3	5.4	4.2	5.6	3.8	G	4.1	12.0	8.4	4.4	2.7	4.9	2.1	2.1	S	3.7
27	3.9	6.1	3.1	4.9	5.4	2.9	3.2	3.3	3.5	4.9	7.7	6.7	6.0	4.5	4.6	5.3	4.4	5.4	3.0	3.7	8.5	5.3	5.0	6.4
28	5.8	2.7	5.2	3.8	2.5	3.6	2.5	3.2	5.3	8.4	12.5	14.7	14.8	8.5	8.2	5.7	10.3	7.0	6.1	6.0	4.2	5.1	5.1	5.6
29	5.6	5.5	4.4	5.1	6.1	3.2	3.6	7.6	4.7	5.0	5.0	4.3	5.2	5.5	G	5.4	4.8	12.1	10.7	8.7	8.5	5.5	3.9	5.5
30	8.6	8.3	5.1	8.2	6.6	2.1	5.0	8.3	13.2	8.5	8.5	5.9	10.1	5.3	5.9	5.1	8.4	10.7	8.4	8.5	6.4	7.9	8.2	3.1
31																								
No.	29	30	30	30	30	26	30	29	30	29	29	29	29	28	30	30	30	29	29	29	28	30	28	29
Median	5.1	5.2	4.4	3.8	3.7	3.0	3.2	5.1	6.0	7.0	6.6	8.1	6.8	8.4	6.0	5.6	5.4	5.9	5.3	5.4	4.9	5.1	5.0	5.0
U.Q	5.5	5.8	5.4	5.4	4.9	3.6	3.8	6.5	8.6	8.6	8.6	9.8	9.8	10.9	8.5	8.5	6.9	8.4	8.2	7.4	8.5	5.5	6.0	6.0
L.Q	3.8	3.3	3.0	2.7	2.4	2.3	2.6	3.8	5.0	5.4	5.4	5.8	5.4	5.7	4.6	5.1	4.3	4.4	3.0	3.2	3.2	3.9	3.4	3.4
Q.R	1.7	2.5	2.4	2.7	2.5	1.3	1.2	2.7	3.6	3.2	3.2	4.0	4.4	5.2	3.9	3.4	2.6	4.0	5.2	4.2	5.3	1.6	2.6	2.6

IONOSPHERIC DATA

Jun. 1961 | f_bE_s | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.5	2.1	1.5	1.6	1.5	S	G	5.1	3.3	4.1	A	A	4.8	4.0	4.1	4.2	4.2	4.0	3.3	2.5	2.5	3.5	A	A
2	A	2.9	2.2	2.6	1.8	1.9	2.5	A	A	4.0	4.4	A	4.2	A	4.6	4.6	3.5	4.1	G	2.0	2.2	2.6	E2.0^{S}	3.5
3	4.2	4.3	A	2.0	1.8	1.7	G	A	A	4.3	A	A	A		4.6	3.9	5.3	A	A	A	A	3.0	E	4.4
4	A	3.8	4.6	A	2.1	A	A	A	A	A	4.4	5.0	5.5	4.6		G	G	4.2	3.5	2.0	2.0	2.0	2.5	2.8
5	2.1	2.9	3.0	3.7	1.8	S	3.2	4.1	A	A	A	A	G	A	4.2	4.1	5.3	A	4.9	5.2	C	4.0	3.1	2.2
6	3.5	2.6	2.0	2.1	A	1.9	3.0	4.7	A	5.1	4.9	5.1	A	A	5.2	4.7	3.6	4.8	6.8	4.4	5.2	3.1	2.2	A
7	2.4	A	4.1	1.7	2.0	S	A	3.3	A	A	A	A	A	A	A	4.5	3.5	3.5		1.9	4.5	S	E	2.6
8	E3.6^{S}	1.7	2.7	2.1	2.2	2.0	3.7	3.6	G	4.3	E4.5^{B}	4.0	A	5.3	4.2	3.8	3.8	3.4		E2.2^{B}	S	E	3.5	A
9	4.4	3.6	3.3	2.8	1.8	S	3.4	G	4.0	5.0	5.7	5.2	4.1	A	6.4	3.9	4.2	4.0	E4.4^{S}	3.4	2.0	A	A	2.3
10	1.9	2.2	3.6	E3.8^{S}	2.4	2.0	2.9	A	5.0	5.0	4.8	3.9	6.1	C	A	4.7	3.9	C	4.1	C	4.6	2.6	4.1	2.6
11	4.1	4.1	3.0	3.5	3.3	3.4	4.5	C	4.6	5.4	A	A	A	A	5.5	5.1	5.5	7.6		2.4	C	5.1	4.1	E
12	A	2.3			1.3	1.9	G	4.3	4.6	4.5	C	C	C	C	5.6	6.0	6.3	5.9	E7.9^{S}	4.0	4.9	4.4	A	2.5
13	3.5	2.8	2.2	1.9	1.8	1.7	3.6	5.0	3.4	4.9	4.2	E4.1^{S}	4.6	A	A	7.7	4.4	4.5	5.7	2.4	2.5	3.7	2.2	1.9
14	3.1	4.0	3.8	2.5	2.3	2.3	4.7	5.6	5.1	A	A	A	A	A	5.0	5.0	4.1	5.4	3.0	E6.1^{S}	A	A	A	2.0
15	2.0	2.4	2.3	3.5	2.9	1.7	G	3.7	6.3	5.4	A	A	A	A	A	6.9	3.3	4.8	3.2	5.1	3.7	4.4	4.8	E
16	2.2	2.5	1.7	E1.5^{S}	1.5	E	G	G	G	3.8	4.1	5.5	6.1	5.7	4.4	G	G	G	G	3.3	2.5	2.7	4.4	2.3
17	4.1	2.2	2.5	2.0	2.5	2.1	3.0	3.5	4.8	6.0	5.4	A	A	A	6.8	A	A	8.2	A	5.2	A	A	2.6	2.5
18	1.9	2.1	E	1.8	2.5	2.0		3.5	3.9	4.3	5.3	5.7	5.0	5.3	A	5.2	8.2	3.7	5.3	8.0	3.8	3.5	2.5	4.7
19	5.0	5.3	1.9	1.3		2.6	G	3.9	4.6	A	A	A	A	A	A	A	5.1	7.4	4.5	4.0	A	5.0	4.0	3.2
20	2.2	E			2.9	3.2	G	G	7.4	4.3	5.1	5.5	5.3	5.1	A	4.6	3.9	3.1	2.8	G	E	2.1	C	C
21	C	A	3.1	3.9	3.0	E2.4^{C}		4.0	5.3	C	4.6	5.1	5.2	5.8	4.1	G	3.9	3.6	3.3	4.0	4.1	1.9	4.5	1.7
22	4.1	2.2	2.2	1.8	1.6	1.8	2.5	G	4.7	4.2	A	6.2	4.2	5.1	5.1	5.7	4.9	4.0	G	2.2	1.7	2.0	3.0	A
23	2.1	1.8	1.9	1.6	E	1.7	1.7	G	3.4	3.9	4.6	5.9	4.7	5.4	5.0	4.8	3.6	3.6	3.0	4.6	2.7	2.1	1.8	4.1
24	A	3.7	3.9	4.5	2.4	2.2	3.1	4.7	5.4	4.1	4.1	4.1	G	5.3	5.5	6.4	5.6	A	4.3	5.4	4.0	3.2	2.4	1.7
25	E	2.1	1.7	2.8	1.6	3.5	2.4	3.4	4.9	4.3	G	4.6	4.9	8.2	6.4	4.4	G	3.6	C	2.4	A	3.6	2.6	2.5
26	2.7	E	1.6	1.9	1.8	2.2	2.3	3.5	G	G	4.1	5.2	G		4.0	6.4	4.0	3.8	G	4.6	1.7	E	S	2.3
27	1.7	1.8	1.6	1.7	E	1.7	2.6	3.2	G	4.2	A	6.0	5.7	4.4	4.6	5.2	4.4	4.5	G	3.5	2.1	2.2	2.9	4.1
28	3.1	1.9	3.6	3.0	1.9	2.7	G	G	3.9	4.2	4.5	A	A	6.2	5.4	4.9	8.3	5.1	5.3	5.6	3.9	A	2.0	E4.7^{A}
29	A	2.6	1.6	2.1	A	2.1	2.6	A	4.6	4.5	4.8	B	5.2	5.1		4.3	4.5	3.4	E7.5^{S}	3.8	A	4.5	2.8	2.7
30	A	1.8	S	3.7	3.1	1.9	E3.7^{A}	A	4.2	4.0	A	A	A	4.2	4.8	4.3	A	A	A	A	2.6	A	A	2.1
31																								
No.	28	30	27	27	29	25	27	29	30	29	29	28	29	26	28	30	30	29	23	28	27	29	28	28
Median	3.5	2.4	2.3	2.1	2.0	2.0	2.6	3.9	4.6	4.3	5.1	6.0	5.5	6.0	5.3	4.7	4.2	4.2	3.5	3.9	3.8	3.5	3.0	2.6

f_bE_s

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

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Jun. 1961 | f-min | 135° E Mean Time (G.M.T. + 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.50	E1.70	1.20	1.20	E	E1.60	1.50	E1.70	1.70	2.20	2.40	2.20	2.40	2.20	1.90	1.90	1.80	E1.60	E1.60	E1.70	E1.70	E1.70	E1.80	E1.60
2	E1.60	E1.60	1.40	1.10	E	E1.60	E1.60	E1.60	1.60	1.80	1.90	1.80	1.90	1.95	2.00	1.80	1.75	E1.60	1.40	E1.65	1.30	E1.80	E1.70	E1.65
3	E1.70	E1.60	1.20	E	E	1.30	E1.60	E1.50	1.60	1.75	1.80	1.90	2.00	2.00	1.95	1.80	1.70	E1.60	E1.60	E1.60	E1.70	E1.60	E1.75	E1.60
4	E1.70	E1.70	1.75	E	E	1.25	E1.70	E1.65	E1.70	1.80	2.00	2.10	2.25	2.25	2.40	2.00	1.85	1.70	E1.60	1.25	E1.60	E1.80	E1.70	E1.60
5	E1.70	E1.70	E1.70	E	E	E1.60	E1.60	1.60	1.60	1.95	2.05	1.90	2.20	2.30	2.20	2.00	1.80	1.80	E1.70	1.30	I 1.30 C	1.20	E1.60	E1.70
6	E1.70	E1.60	E	E	E	1.40	1.70	1.75	1.70	1.75	1.90	2.10	2.25	2.20	2.40	2.00	E2.00	1.70	E1.60	1.60	E1.60	E1.80	E1.60	E1.70
7	E1.50	E1.80	E1.70	1.20	E	E1.80	1.60	1.70	1.70	1.80	2.40	2.30	2.30	2.30	2.05	2.00	1.80	1.85	1.70	E1.60	E1.40	E1.60	E1.70	E1.70
8	E1.60	E1.60	E	E	E	E1.40	1.45	1.60	1.80	1.90	2.00	2.30	2.30	2.20	2.30	2.00	1.80	1.60	E1.70	1.30	E1.80	E1.60	E1.75	E1.75
9	E1.60	E1.75	E1.60	E	E	E1.50	1.80	1.70	1.70	1.85	1.90	2.50	2.20	2.00	1.90	2.30	1.80	1.60	E1.60	1.40	E1.70	E1.60	E1.70	E1.70
10	E1.60	E1.70	E	E	E	E1.70	E1.70	E1.70	1.90	1.85	2.20	2.00	2.30	I 2.20 C	2.20	2.05	1.75	C	E1.70	C	E1.60	E1.60	E1.70	E1.70
11	E1.70	E1.70	E1.65	E	E	1.10	1.60	I 1.70 C	1.60	1.85	2.00	2.00	2.35	2.20	1.90	2.00	1.85	1.60	1.70	E1.70	C	E1.60	E1.70	E2.00
12	E1.50	E1.60	1.20	E	E	1.20	1.70	E1.70	1.60	2.20	C	C	C	C	2.20	2.20	2.25	1.60	E1.70	E1.60	E1.70	E1.60	E1.70	E1.70
13	E1.60	E1.55	E	E	E	1.30	1.70	E1.70	1.80	1.80	1.90	2.05	2.40	2.05	2.25	1.95	2.20	1.70	E1.60	E1.60	E1.60	E1.70	E1.60	E1.70
14	E1.60	E1.70	1.25	E	E	E1.60	E1.60	E1.60	1.90	1.80	2.50	2.35	1.85	2.40	2.05	2.20	1.90	1.75	E1.60	E1.50	E1.60	1.30	E1.80	E1.60
15	E1.50	E1.80	1.20	E	E	1.20	1.20	E1.60	1.60	1.90	2.20	2.20	2.75	2.30	2.20	1.85	1.70	1.60	E1.65	1.20	E1.70	1.10	E1.60	E1.70
16	E1.70	E1.80	E1.65	1.10	E	1.40	1.40	1.40	1.70	1.80	1.90	2.00	2.40	2.30	2.60	2.00	1.70	1.85	E1.60	1.30	E1.50	E1.60	E1.60	E1.70
17	E1.70	E1.70	E	E	E	1.20	1.50	E1.60	1.60	1.85	2.20	2.00	2.20	2.00	2.30	2.30	2.00	1.80	E1.50	1.40	E1.70	E1.65	E1.60	E1.60
18	E1.50	E1.60	E1.60	E1.60	E	1.10	E1.60	1.60	1.80	2.20	1.95	2.35	2.25	2.45	2.30	2.30	1.90	1.70	E1.60	1.35	E1.60	E1.60	E1.70	E1.60
19	E1.50	E1.60	E	E	E	1.30	1.50	1.60	1.70	1.80	E2.50 C	2.20	2.20	2.05	1.90	1.85	1.75	1.70	E1.60	1.60	E1.70	E1.70	E1.60	E1.60
20	E1.60	E1.70	1.40	1.20	E	1.25	1.50	E1.60	E2.00	1.60	1.85	2.05	2.45	2.55	1.85	1.70	1.80	E1.65	E1.50	E1.60	1.40	E1.70	C	C
21	C	E1.70 C	1.30	1.20	1.50	1.60	1.60	E1.70	1.90	I 2.30 C	2.00	2.40	2.40	2.25	2.20	1.90	1.70	E1.55	E1.50	1.30	1.15	E1.65	E1.60	E1.50
22	E1.70	1.40	E	E	E	E1.45	1.60	1.60	1.65	1.60	1.90	1.80	1.80	2.00	2.05	1.95	1.65	1.65	E1.60	E1.50	E1.40	E1.60	E1.65	E1.60
23	E1.55	E	E	E	E	E1.50	1.10	1.40	1.55	1.60	1.90	2.20	2.50	2.30	2.20	1.70	1.70	E1.60	1.40	1.30	E1.60	E1.60	E1.50	E1.50
24	E1.60	E	E	E	E	1.00	E1.60	E1.60	E1.60	1.90	2.00	2.20	2.20	2.20	2.05	2.20	1.80	1.80	1.60	E1.45	1.30	E1.60	1.30	E1.60
25	E1.50	E1.55	1.20	E	E	1.20	1.50	1.50	1.60	1.75	1.80	2.30	2.00	2.15	1.80	1.95	E1.60	E1.70	C	E1.60	E1.50	E1.40	E1.70	E1.60
26	E	E1.50	E	E	E	E1.50	1.50	1.60	E1.60	1.90	1.95	2.20	2.50	2.50	2.00	2.00	1.65	E1.60	E1.60	1.60	E1.50	E1.70	E1.60	E1.60
27	E1.50	E1.50	E	E	1.10	E	1.50	E1.70	1.60	2.20	2.20	2.20	2.00	2.05	2.00	1.85	1.75	E1.60	1.20	1.50	E1.60	E1.70	E1.50	E1.60
28	E1.50	E1.50	E	E	E	E1.50	E1.75	1.75	1.65	1.70	1.90	1.90	1.95	2.00	1.85	1.90	1.80	1.60	1.20	1.25	E1.70	E1.60	E1.70	E1.60
29	E1.50	E1.60	E	E	E	E1.20	1.60	E1.50	E1.60	E1.60	E1.80	1.90	2.20	1.90	2.00	E1.60	E1.60	E1.60	E1.60	1.50	E1.40	E1.40	E1.60	E1.60
30	E1.50	E1.20	E	E	E	E	1.50	E1.40	E1.60	1.65	2.20	2.60	2.40	2.40	2.20	1.90	1.90	1.70	E1.50	E1.40	E1.60	E1.60	E1.60	E1.50
31																								
No.	29	30	24	29	30	18	27	23	28	30	28	29	29	29	30	30	29	27	29	16	29	30	29	29
Median	E1.60	E1.60	E	E	E	1.20	E1.60	E1.60	1.60	1.80	2.00	2.20	2.25	2.20	2.05	2.00	1.80	1.60	E1.60	1.30	E1.60	E1.60	E1.65	E1.60

f-min

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

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

Jun. 1961 | M(3000)F2 | 135° E Mean Time (G.M.T. + 9h.) | **Yamagawa** | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	F	F	2.75	2.75	3.45	3.30	3.15	3.00	2.70	2.55	2.70	2.85	3.05	3.25	3.20	3.20	3.05	3.00	2.85	2.95	S	A
2	A	2.75	S	F	F	3.00	3.25	3.35	3.00	2.80	2.80	2.80	2.80	2.80	3.00	3.05	3.05	3.05	3.05	3.10	2.80	2.80	2.95	2.80
3	2.75	FS	A	2.80	2.90	3.05	3.35	3.50	3.20	3.10	2.85	2.90	2.85	2.95	2.95	2.90	2.85	A	A	A	A	3.05	S	S
4	A	S	S	3.00	2.75	A	A	A	A	A	2.75	2.90	2.80	3.00	3.10	3.00	3.05	3.15	3.20	3.25	2.85	S	FS	FS
5	S	F	S	3.60	2.80	2.80	3.00	3.15	A	A	A	A	2.55	2.75	2.95	3.00	2.95	2.90	3.05	3.15	3.00	2.95	2.75	3.00
6	FS	F	3.20	F	A	3.15	3.25	3.50	3.20	3.30	3.10	2.90	2.70	2.80	2.80	2.65	2.85	3.00	3.20	3.30	3.05	2.85	S	A
7	FS	A	F	S	2.70	F	3.00	3.60	A	A	A	A	A	A	A	2.95	2.90	2.95	3.20	3.05	2.75	2.65	2.80	2.75
8	S	FS	FS	F	3.10	3.55	3.10	3.15	3.10	2.90	2.85	2.90	2.85	3.00	2.95	2.80	3.10	2.95	3.10	3.00	2.70	2.65	2.70	S
9	S	S	F	F	2.95	3.10	3.20	3.20	3.20	3.20	3.25	2.95	2.70	A	2.85	3.00	3.15	3.20	3.20	3.15	2.80	2.80	A	FS
10	FS	S	F	F	F	3.10	3.25	3.20	3.00	2.95	2.95	2.95	3.00	2.75	2.80	2.65	2.80	2.90	2.75	2.80	3.05	2.75	S	S
11	S	FS	F	F	F	3.25	3.15	3.25	3.15	2.70	2.90	2.90	2.90	2.80	2.75	2.85	2.85	2.85	2.95	3.10	3.10	A	S	S
12	S	S	3.00	F	F	F	3.80	3.50	3.60	3.00	C	C	C	C	2.70	2.75	2.70	2.80	3.00	3.25	3.45	2.70	A	F
13	FS	F	F	F	F	F	3.10	3.10	3.35	3.20	2.70	3.05	2.90	2.70	2.60	2.75	2.70	2.75	2.70	3.05	3.10	3.00	2.75	2.85
14	F	FS	F	F	F	F	F	3.35	3.10	3.25	A	A	A	A	2.75	2.65	2.90	3.10	3.20	S	A	A	A	S
15	S	FS	FS	3.05	F	F	3.30	3.15	3.10	3.45	A	A	A	A	A	2.65	2.85	3.05	3.10	3.05	2.90	2.90	S	S
16	S	S	FS	FS	S	2.85	2.80	3.00	3.20	3.00	2.80	2.70	2.60	2.60	2.75	2.85	3.00	3.05	3.05	2.85	2.75	S	S	3.00
17	S	S	S	2.90	F	S	3.15	3.15	3.35	3.30	2.85	A	A	2.70	2.65	2.70	2.80	2.85	3.00	3.15	2.95	2.80	2.70	2.60
18	2.70	2.95	3.20	3.35	2.75	2.90	3.20	3.15	3.20	3.10	3.10	2.55	2.60	2.60	2.70	2.65	2.85	2.95	2.85	2.80	2.95	2.70	S	S
19	FS	F	S	3.15	2.90	F	3.05	3.20	3.20	A	C	A	2.80	2.75	2.75	2.70	2.80	2.65	2.80	2.90	2.85	2.75	2.65	2.70
20	2.80	3.00	3.40	2.90	2.90	2.70	3.00	3.20	3.45	3.40	2.95	2.75	2.60	2.70	2.70	2.60	2.70	2.75	2.65	2.75	2.90	3.10	C	C
21	C	C	C	C	C	C	2.80	3.10	C	C	2.50	2.35	2.45	2.65	2.70	2.90	2.95	2.95	2.75	2.65	2.70	2.70	2.60	2.65
22	2.80	2.90	2.85	2.70	2.65	2.65	2.85	3.45	3.15	2.95	2.75	2.80	2.50	2.75	2.90	2.60	2.70	2.75	2.80	2.95	2.65	2.55	2.60	2.45
23	2.60	2.70	2.90	3.15	2.55	2.75	2.85	3.05	3.05	2.60	2.65	2.70	2.65	2.85	2.85	3.05	3.00	2.95	2.70	2.75	2.95	2.75	2.75	S
24	S	S	S	3.00	2.95	F	3.25	2.80	3.00	3.05	2.90	2.50	2.45	2.65	2.65	2.75	2.90	2.85	2.95	3.05	2.70	2.70	2.65	2.75
25	FS	F	2.85	FS	3.10	3.25	3.35	3.15	2.70	2.95	3.05	2.55	2.60	A	2.70	2.70	2.85	2.85	3.05	3.10	2.90	2.65	2.75	2.80
26	2.65	2.75	F	2.85	F	FS	3.15	3.40	3.35	2.75	2.80	2.80	2.70	2.70	2.65	2.80	2.75	2.85	3.05	2.95	3.20	2.65	2.75	2.65
27	FS	FS	F	F	F	F	3.30	3.30	2.95	3.20	2.80	2.60	2.70	2.95	2.75	2.65	2.75	2.90	2.90	2.90	2.90	2.75	2.55	S
28	S	FS	S	3.20	2.90	F	3.05	3.10	3.05	3.30	2.80	2.90	2.90	2.85	2.85	2.85	2.80	2.95	3.30	3.40	2.70	2.65	2.75	2.75
29	2.60	2.85	2.90	2.90	3.00	2.95	3.25	3.25	3.20	3.05	B	B	2.45	2.45	2.50	2.70	2.85	3.00	3.60	3.05	2.50	2.60	2.55	2.85
30	2.75	3.05	2.95	2.80	2.85	3.00	3.30	3.00	2.75	2.55	2.70	2.60	2.50	2.75	2.70	2.75	2.85	3.00	3.15	3.15	S	A	S	S
31																								
No.	8	8	9	15	17	17	28	29	26	25	23	22	25	24	28	30	30	29	29	28	27	25	16	14
Median	2.70	2.90	2.95	3.00	2.90	3.00	3.20	3.20	3.15	3.05	2.80	2.80	2.70	2.75	2.75	2.75	2.85	2.95	3.05	3.05	2.90	2.75	2.70	2.80

M(3000)F2 Sweep 1.0 Mc to 20.0 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1961 | M(3000)F1 | 135° E Mean Time (G.M.T. + 9h.) | **Yamagawa** | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									3.50		I 3.20 A	I 3.50 A	I 3.70 A	3.75	3.55	A	A	A						
2								A	A	3.55 L	I 3.80 A	I 3.80 A	3.65	A	A	A	3.65 L	A	L					
3									A	A	A	A	A	3.45	A	420	A							
4								A	A	A	3.35 L	I 3.80 A	A	A	3.95	3.50	3.65	A	A					
5									A	A	I 3.70 A	I 3.80 A	4.00	I 3.85 A	3.75 R	3.60	A	A	A					
6								A	A	A	A	A	A	A	A	A	3.50 R	A	A					
7								3.70	A	A	A	A	A	A	A	A	3.65	3.50	L					
8									3.40	3.40 A	I 3.70 A	3.65	A	A	3.65	3.50	3.55	3.75	I 3.40 L					
9										A	A	A	3.75	A	A	3.60	A	A	A					
10								A	A	A	A	4.05	A	C	A	A	3.65	C	A					
11								C	A	A	A	A	A	A	A	A	A	I 3.50 A	3.40					
12										A	C	C	C	C	A	A	A	A	A					
13								A	4.05 L	A	3.85	S	A	A	A	A	A	A	A					
14									A	A	A	A	A	A	A	I 3.55 A	3.50	I 3.55 A	3.70 L					
15								A	A	A	A	A	A	A	A	A	3.40 H	I 3.45 A	U 3.00 L					
16								L	4.05		3.85	A	A	I 3.70 A	3.30	3.70 H	3.65	U 3.40 L	U 3.45 L					
17							L	L	A	A	A	A	A	A	A	A	A	A	A					
18									3.65	3.60	I 3.95 A	I 3.35 A	A	A	A	A	I 3.45 A	3.30	A					
19									A	A	A	A	A	A	A	A	A	A	A					
20									A	3.80	A	A	A	A	A	L	3.50	3.50 H						
21									A	C	3.60	A	A	A	3.50	3.50	3.40 L	I 3.55 L						
22										3.60 L	A	A	3.45	A	A	A	A	L	L					
23									3.40	3.70	3.30	I 3.55 A	3.40	A	A	A	3.60 H	3.45	L					
24									A	3.65	3.70	3.75 H	3.65 R	A	A	A	A	A	A					
25										L	3.50	3.45	A	I 3.65 A	I 3.65 A	3.30	3.50	3.40	C					
26										3.75	3.95	I 3.75 A	3.70	3.90	3.50	A	3.55	3.35	L					
27									3.95	3.80	A	A	A	3.55 H	3.60	A	A	A	L					
28								L	3.70	3.55	3.25	I 3.55 A	A	A	A	A	A	A	A					
29									A	A	A	B	A	I 3.60 A	3.45	A	A	3.35	A					
30									A	A	A	A	I 3.80 A	3.80	A	A	A	A	A	A				
31																								
No.								1	8	10	14	12	9	9	10	9	15	13	5					
Median								3.70	3.70	3.60	3.70	U 3.70	3.70	3.70	3.60	3.55	3.55	3.45	U 3.40					

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

The Radio Research Laboratories, Japan.

Y 8

IONOSPHERIC DATA

Jun. 1961 | h'F2 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									305		I 460 A	I 470 A	395	345	300	280	290	280						
2								A	A	375	415	I 410 A	400	I 370 A	330	335	330	310	295					
3									A	E 300 A	I 400 A	I 390 A	I 360 A	355	340	345	355							
4								A	A	A	390	360	345	310	305	335	330	295	275					
5									A	A	A	A	490	I 420 A	345	335	A	A	E 325 A					
6								270	I 290 A	295	330	385	I 445 A	I 400 A	360	390	335	290	270					
7								260	A	A	A	A	A	A	A	390	355	330	280					
8									320	350	350	345	I 370 A	330	340	340	320	330	270					
9										295	325	565	415	I 390 A	370	320	290	295	265					
10								I 300 A	E 300 A	315	350	340	320	C	A	355	330	I 330 C	325					
11									340	E 430 A	I 375 A	I 355 A	A	A	350	320	340	E 380 A	290					
12										310	C	C	C	C	360	350	370	340	305					
13								305	255	320	470	350	365	A	A	E 420 A	350	330	300					
14									280	A	A	A	A	A	380	360	320	290	260					
15								280	340	270	A	A	A	A	A	390	325	290	275					
16								290	280		395	440	400	410	350	325	305	305	290					
17							290	255	275	310	380	A	A	I 425 A	400	A	A	370	I 330 A					
18									290	310	300	420	400	375	A	340	E 400 A	310	305					
19									275	A	A	A	A	A	A	A	335	405	335					
20									275	280	350	385	355	355	I 365 A	370	325	330						
21									300	C	350	455	430	360	360	325	310	295						
22										320	I 375 A	360	390	340	305	350	350	310	300					
23									310	445	440	I 410 A	430	355	360	I 345 A	330	340	305					
24								310	310	325	330	455	425	365	355	355	310	A	290					
25										340	330	440	390	I 380 A	370	A	340	310	I 270 C					
26										440	400	390	410	390	390	350	350	320	285					
27									290	305	A	450	385	320	340	380	350	315	290					
28								290	285	280	410	I 345 A	I 345 A	345	355	345	E 405 A	290	250					
29									290	320	A	E 510 B	520	510	460	375	355	305	290					
30									400	470	I 455 A	I 490 A	I 470 A	400	410	400	I 390 A	I 350 A	I 345 A	I 300 A				
31																								
No.							1	9	19	21	22	22	23	22	24	26	26	26	25	1				
Median							290	290	290	315	380	400	400	370	360	350	330	310	290	U 300				

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

Jun. 1961 | h'F | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	350	300	310	275	290	310	270	275	240	250	A	A	I230A	210	250	A	A	A	260H	280	300	300	I330A	I330A
2	I380A	310	290	345	310	270	250	I255A	I255A	250	I240A	I240A	250	A	A	I245A	240	I250A	235	265	290	300	255	345
3	350	355	I335A	275	290	260	260	I260A	I260A	I235A	A	A	A	255	I200A	190	A	A	A	A	I335A	255	285	320
4	I350A	300	270	I250A	350	A	A	A	A	A	265	I220A	A	A	200	240	235	I245A	I255A	255	250	300	325	310
5	300	295	245	240	I330A	310	280	AH	A	A	I250A	I240A	205	I230A	250	280	A	A	A	E300A	C	305	330	305
6	330	310	260	245	I235A	255	255	A	A	A	A	A	A	A	A	A	245	A	A	255	I300A	320	310	I340A
7	310	I315A	300F	250	375	310	I270A	250	A	A	A	A	A	A	A	A	250	260	255	250	I290A	320	300	300
8	350	300	300	280	245	240	E300A	270	260	A	I230A	230	A	A	250	245	245	235	240	240	305	320H	370	I330A
9	350	250	320	260	290	270	295	230H	I220AH	A	A	A	220	A	A	250	I230A	I220A	I240A	250	255	I330A	I310A	320
10	305	300	350	290F	270	265	255	A	A	A	I270A	200	A	C	A	I250A	250	C	A	C	255	240	345	305
11	320	320	280	300	290	260	AH	C	A	A	A	A	A	A	A	A	A	A	225	280	I240C	300	305	200
12	335A	305	255	250	260	245	220	250	250	A	C	C	C	C	A	A	A	A	A	240	225	E400A	I370A	350
13	345	350	330	300	255	220	275	A	210	I275A	210	S	A	A	A	A	A	A	A	255	230	260	290	305
14	340	350	350	320	305	295	E330A	255	A	A	A	A	A	A	A	I255A	275	I260A	230	I260A	I260A	A	A	320
15	305	305	300	275	285	255	240	A	A	A	A	A	A	A	A	A	260H	I250A	250	250	260	330	360	350
16	320	310	320	290	285	300	260	245	205	205H	220	A	A	A	E290A	210H	240	230	240	290	270	290	310	300
17	320	300	310	300	300	300	275	240	A	A	A	A	A	A	A	A	A	A	A	255	I290A	I320A	305	325
18	315	295	245	235	300	290	255	250H	245	250	I200A	I220A	A	A	A	A	I250A	255	A	A	265	330	330	380
19	350	260	275	245	275	325	250	260H	A	A	A	A	A	A	A	A	A	A	A	280	I305	340	355	330
20	300	270	230	210	350	350	250	255	I245A	235	I265A	A	A	A	I250A	300	240	220H	240H	265	260	250	C	C
21	C	A	305	250	250	285	250	E290A	A	C	250	A	A	A	225	210	250	245	250H	320	320	300	350	310
22	310	305	270	305	330	340	260	245	260	250	A	A	220	A	A	A	A	E295A	250	255	280	305	345	I375A
23	340	300	275	230	225	305	255H	245	250	230	E325A	A	E290A	A	A	A	210H	250	255	300	255	280	300	350
24	A	350	290	290	260	245	250	A	A	240	205	190H	220	A	A	A	A	A	A	270	300	330	325	300
25	295	295	270	265	245	230	240	240	E310AH	260	205	255	I230A	I235A	I240A	E300A	220	245	I255C	250	I270A	340	310	275
26	325	295	300	290	295	290	250	250	235	215	225	I220A	225	200	240	I245A	250	285	230	290	240	250	300	310
27	325	320	290	305	300	255	240	240H	210	225	A	A	A	275H	270	A	A	I240	245	270	255	290	325	300
28	305	270	280	255	270	340	255H	240	250	250	250	A	A	A	A	A	A	A	A	250	305	A	345	E370A
29	A	290	270	255	I265A	300	250	A	A	A	A	B	A	A	260	E350A	A	260	I250A	255A	A	E440A	380	275
30	I275A	285	I275S	365A	355A	290	I250A	A	A	A	A	A	I220A	220	A	E300A	A	A	A	A	270	A	A	350
31																								
No.	27	29	30	30	30	29	26	19	15	14	14	9	9	7	11	12	16	16	18	25	28	25	27	28
Median	325	300	290	275	290	290	255	250	245	255	235	220	220	230	250	245	245	250	250	255	270	300	325	320

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jun. 1961 | h'Es | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	105	110	105	105	S	130	120	120	120	110	105	110	105	105	100	100	100	105	105	100	105	105	105
2	110	105	100	105	105	100	130	120	110	105	105	105	105	105	105	105	105	105	135	110	105	105	105	105
3	105	105	105	105	100	105	140	125	120	120	110	110	105	G	185	150	140	130	120	115	105	110	110	110
4	105	105	105	105	135	100	115	115	110	110	120	105	110	110	G	110	110	130	120	110	110	110	120	110
5	105	105	105	105	105	S	140	120	110	115	115	105	125	120	135	140	120	125	120	110	C	105	105	110
6	105	100	100	105	110	115	145	130	120	110	110	105	105	105	105	105	105	105	100	100	110	110	105	115
7	115	105	105	105	105	S	140	140	125	120	120	110	110	110	115	120	120	130	G	125	110	S	105	110
8	110	105	100	100	100	105	125	110	130	120	125	125	110	110	110	110	105	110	G	130	S	110	110	110
9	105	105	100	100	100	S	140	140	115	120	115	110	105	115	120	120	120	120	110	105	105	110	125	115
10	120	110	105	100	100	130	125	120	110	110	110	120	130	C	130	130	150	C	115	C	115	110	110	110
11	105	105	105	105	110	110	115	C	120	120	110	110	105	130	130	130	125	120	G	120	C	120	105	110
12	110	110	E	E	105	105	140	130	120	115	C	C	C	C	135	130	130	120	110	110	105	105	120	120
13	105	105	105	100	105	125	120	110	125	110	115	120	110	105	105	105	120	120	110	110	100	115	110	105
14	110	105	105	100	105	105	105	105	105	105	110	110	110	110	120	140	140	120	125	120	115	120	110	120
15	120	120	105	105	105	105	155	135	125	125	120	110	110	115	110	110	150	135	140	125	115	100	100	110
16	105	115	130	120	110	135	110	145	110	130	130	110	110	105	110	110	105	105	130	105	110	100	115	105
17	110	105	105	105	105	105	105	130	125	120	120	115	110	110	110	105	105	105	105	105	110	115	100	100
18	100	100	100	100	110	110	G	120	130	120	120	110	110	110	105	105	105	105	105	105	105	100	100	115
19	110	110	105	105	E	105	105	135	130	120	120	110	120	110	110	110	110	110	105	105	100	100	100	100
20	100	100	E	E	105	110	155	150	120	115	115	105	110	110	105	105	105	105	115	105	S	100	C	C
21	C	120	110	110	110	110	G	135	115	C	110	110	110	105	105	105	150	140	130	125	120	125	115	115
22	105	105	105	110	140	105	140	150	130	125	115	130	135	140	135	130	130	130	145	130	125	115	130	110
23	110	105	105	105	105	100	105	145	130	120	125	110	120	115	140	125	130	130	110	105	100	130	105	110
24	105	105	105	100	100	100	110	125	120	125	115	125	105	135	120	130	125	115	120	115	115	120	120	110
25	110	110	110	105	105	110	110	110	110	110	145	130	140	130	130	130	150	130	C	120	110	105	110	110
26	135	130	115	105	105	105	110	120	135	125	120	110	120	G	150	120	125	130	130	120	120	115	S	110
27	110	120	130	105	125	125	120	120	130	130	110	110	110	110	145	130	130	130	130	115	120	120	120	110
28	105	105	105	100	100	105	130	125	120	120	115	110	110	110	110	110	130	105	100	100	100	120	125	120
29	120	115	110	110	110	110	105	125	125	125	120	130	180	135	G	125	120	110	110	130	120	120	110	115
30	110	110	105	105	105	135	125	120	115	115	110	110	110	110	105	105	125	115	115	115	110	110	110	110
31																								
No.	29	30	28	28	29	26	28	29	30	29	29	29	29	26	28	30	30	29	26	29	26	29	28	29
Median	110	105	105	105	105	105	125	125	120	120	115	110	110	110	110	115	120	120	115	110	110	110	110	110

h'Es

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

The Radio Research Laboratories, Japan.

Y 11

IONOSPHERIC DATA

Jun. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f_4	f_2	f_2	f_2	f_2		h	h_7	h	h	l_2	l	l	l	l	l_2	l_2	l_2	l_3	f_2	f_2	f_4	f_3	f_3
2	f_2	f_4	f_2	f_3	f	f	h_2	h_5	l_4	l	l_2	l_4	l	l_4	l_2	l	l_2	l_2	$h_3 l_2$	f_2	f_3	f_2	f	$f_2 f_2$
3	f_3	f_4	f_7	f_4	f_2	f_2	C	h_4	h_3	h_2	h_3	h_2	l_2		h	h	h_3	h_4	C_4	f_2	f_3	f_2	f_2	f_7
4	f_3	f_4	f_5	f_4	$f_3 f$	f_3	$h_2 l$	h_7	h_4	h_3	h_2	C_3	l_2	l_2		l	$l_2 h$	$h_2 l$	$h_2 l_2$	f_3	f_2	f_3	f_2	f_3
5	f_3	f_5	f_4	f_7	f_3		h_4	h_3	h_2	h_4	h	l_2	h	h_2	h	h	h_2	h_3	C_4	f_5		f_3	f_3	f_2
6	f_6	f_3	f_2	$f_2 f_2$	$f_3 f_2$	f_3	h_3	h_3	h_5	h_2	h_2	C_2	l_2	l_3	l_2	l_2	l_2	l_3	l_4	f_3	$f f_3$	$f f_4$	f_2	f_2
7	f_4	f_2	f_3	f_2	f_3		C_3	h_2	$h_4 l$	h_3	h_2	h_3	C_4	h_3	h_2	h_2	h_2	h_2		f	f_3	f	f	f_3
8	f_3	f_2	f_6	f_2	f_2	f_2	C_4	h_2	h	h_2	h	h	h_2	l_2	l	l	l	l_2		$h l$	f	f_2	f_4	f_4
9	f_3	f_3	f_5	f_3	f_3		h_5	h_2	h_2	h_2	$h_2 l$	h_2	l	h_2	h_2	h_2	h_2	h_2	C_3	f_2	f_4	f_4	f_4	f_2
10	$f_2 f_2$	f_3	f_3	f_3	f_3	$c l$	C_3	h_4	h_3	h_2	h_2	h	h_2		h	h_2	h		C_4		f_5	f_2	f_6	f_4
11	f_4	f_6	f_4	f_5	f_6	f_3	C_3		h	h_2	h_2	h_3	C_5	$h_3 l$	h_3	$h_2 l$	h_4	h_2		f_4		f_2	f_2	f
12	f_3	f_4			f_2	f_2	$h_2 l$	$h_2 l$	$h_3 l$	l_2					h_2	h_2	h_3	h_5	C_2	f_3	f_3	f_4	f_2	f_2
13	f_5	f_6	f_3	f_4	f_2	f	C_6	C_3	h	C_3	h	h	h_2	l_5	l_3	l_3	$h l_2$	h_2	C_4	f_2	f_2	f_4	$f_2 f_2$	f_2
14	f_3	f_4	f_4	f_2	f_3	f_4	l_5	l_4	l_2	l_2	l_3	l_2	l_3	l_3	$h h$	h_2	h	h_2	h_3	f_4	f_2	f_8	f_3	f_2
15	f_6	$f f_3$	f_4	f_6	f_4	f_3	$h l$	$h_2 l$	$h_2 l_2$	$h_2 l$	h_5	h_3	h_2	h_2	h_4	h_3	$h l$	$h_2 l_2$	$h_3 l_2$	$f_2 f_4$	$f_3 f_3$	f_5	f_3	$f f_5$
16	f_3	f_2	f	f	f_2	f	l_2	$h l_2$	l_2	$h l$	h	C_2	C_2	l_2	l	l	l_2	l_2	$h_2 l_2$	f_2	$f_2 f_4$	f_3	$f_2 f_2$	f_3
17	f_5	f_2	f_3	f_3	f_4	f_2	l_5	$h_2 l_2$	$h_4 l_2$	h_3	h_2	h_4	h_3	h_3	C_4	l_4	l_6	l_4	l_8	f_4	$f_2 f_7$	$f f_3$	f_2	f_2
18	f_2	f	f	f	$f_3 f$	f_2		h_3	h_2	h_2	h_2	h_2	h_2	l_2	l_2	l_3	l_4	l_2	l_3	f_3	f_4	f_3	f_3	$f_4 f_2$
19	f_5	f_3	f_4	f_3		f_4	l_3	h_2	h_2	h_5	h_2	h_4	h_3	h_4	h_4	h_4	l_2	l_4	l_5	f_3	f_3	f_3	f_2	f_5
20	f_3	f			f_3	f_4	h	h_2	h_2	h	h_2	l	l	l_2	l_4	l_2	l_2	l_2	$h_2 l$	l_2	f	f_2		
21		f_2	f_2	f_3	f_3	f_3		h	l_2		h_2	h	C_2	C_2	l	l	h	h	$h_2 l_3$	$f_3 f_3$	$f_2 f_4$	$f_2 f_2$	f_4	f_2
22	f_4	f_5	f_6	f_3	$f f_2$	$f f$	h_2	$h l$	h_2	h_2	h_5	h_3	h	h	h_2	h_3	h_3	h_2	h	C_2	f	f_4	f_4	f_8
23	f_4	f_2	f_4	f_3	f	f_2	l	h	h	h	h_2	h_2	h_2	h_3	h	h_2	h	h_2	C_3	f_3	f_5	$f_2 f_3$	f_2	f_4
24	f_5	f_5	f_4	f_4	f_4	f_3	l_3	h_3	h_4	h_2	h	h	l	$h l_2$	$h l_3$	$h_2 l_2$	$h_3 l$	$h_3 l_2$	$h_2 l_2$	$f_4 f_2$	$f_4 f_2$	$f_4 f_2$	f_6	f_2
25	f_2	f_4	f_2	f_4	f_2	f_2	l_2	l_2	l_3	l	$h l$	$h_2 l$	h	h_2	$h_3 l$	$h_3 l$	$h l$	h		f_2	f_3	f_3	f_2	f_2
26	$f_2 f_2$	f_2	f_2	f_2	f_2	f_3	l_2	$h_2 l_2$	$h l_2$	h_2	h	C_2	h		h	h_3	h_2	h	h	C_3	f	f		f_3
27	f_2	f_2	$f_2 f$	f_2	f_2	f	C_3	h_4	h	h_2	h_2	C_2	C_2	l	h	h_3	$h l_2$	h_3	$h l_2$	$f_2 f$	$f_2 f$	$f_2 f_2$	$f_4 f_2$	f_4
28	f_4	f_3	f_4	f_3	f_2	f_3	C	h_2	h_2	h_2	h_2	h_2	h_4	h_3	h_3	h_2	$h_3 l_4$	l_4	l_5	f_4	f_4	$f f_2$	$f_2 f$	f_4
29	f_4	f_2	f_2	f_2	f_4	f_3	f_3	$l h_3$	h	h	C	h	h	h		h	C	C_2	C_2	$f_2 f$	f_4	f_2	f_3	f
30	f_2	f_2	f_4	f_4	f_3	h	C_3	C_4	C_2	C	C_2	C_3	C_2	l_2	l_2	l_2	$h_2 l$	C_3	C_2	C_2	f_2	f_2	f_2	f_3
31																								
No.																								
Median																								

Types of Es

Sweep 1.0 Mc to 200 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 1961	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	mean	00-03	03-06	06-09	21-24	mean
1	9	9	9	(7)	9	0	0	0	(0)	0
2	6	9	9	8	9	0	0	0	0	0
3	8	8	10	9	8	0	0	0	0	0
4	8	8	9	7	8	0	0	0	0	0
5	(5)	(7)	-	8	6	(0)	(0)	-	0	0
6	(9)	-	-	(9)	9	(0)	-	-	(0)	0
7	-	(11)	-	-	(10)	-	(0)	-	-	(0)
8	(8)	(8)	-	7	8	(0)	(0)	-	0	0
9	(9)	(8)	(6)	9	7	(0)	(0)	(0)	0	0
10	(9)	6	6	7	7	(0)	0	0	0	0
11	7	(6)	(6)	7	7	0	(0)	(0)	0	0
12	(7)	-	-	7	7	(0)	-	-	0	0
13	8	(9)	(9)	-	8	0	(0)	(0)	-	0
14	-	-	-	-	(8)	-	-	-	-	(0)
15	(9)	(10)	(9)	11	9	(0)	(0)	(0)	1	0
16	9	11	6	10	9	1	1	1	1	1
17	8	7	7	7	7	1	1	1	0	1
18	8	6	6	9	7	0	0	1	1	0
19	8	9	10	8	9	1	1	1	1	1
20	9	9	11	14	9	1	1	2	1	1
21	9	10	9	8	11	1	1	1	1	1
22	9	10	15	12	10	1	1	1	1	1
23	35	50	40	14	34	2	2	2	1	2
24	(10)	8	5	13	10	(1)	1	1	1	1
25	15	15	7	7	13	1	1	1	0	1
26	8	6	6	6	7	0	0	0	0	0
27	6	6	6	7	6	0	0	0	0	0
28	6	7	7	-	7	0	0	0	-	0
29	5	6	6	-	6	0	0	0	-	0
30	(6)	(6)	6	6	6	(0)	(0)	0	-	0

Outstanding Occurrences

June 1961	Start-time	Dura-tion	Type	Max. Int.		Max. Time	Remarks
				Inst.	Smd.		
13	0121.7	1.4	CD/4	560	130	0122.1	
	0442.3	1.3	CD/4	>830	40	0442.9	off scale
14	0933.2	2.5	CD/4	>1600	150	0934.0	off scale
16	0456.2	3.5	CD/4	780	100	0458.8	
17	0200.8	1.4	CD/4	460	200	0201.4	
	0455.0	3	CD/8	>950	370	-	off scale
	0717.8	0.6	CD/4	>820	340	-	off scale
	0719.0	0.5	CD/4	>820	340	-	off scale

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

June 1961	Whole Day Index	L. N. 06 12 18 12 18 24	W W V 00 06 12 18 06 12 18 24	S. F. 00 06 12 18 06 12 18 24	W W V H 00 06 12 18 06 12 18 24	Warning 00 06 12 18 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	3-	2 1 2	3 1 4 (3)	3 3 3 3	1 3 3 2	U U U U	---	---	94γ
2	3o	2 2 2	(3 3) 3 4	3 3 3 3	2 3 3 2	U U W W	---	22xx	
3	3o	2 2 2	2 2 2 3	3 3 3 2	1 2 2 1	U U N N			
4	2+	1 1 (1)	4 2 2 2	3 2 2 3	1 2 3 2	N N N N			
5	2o	3 1 1	3 2 1 1	3 3 2 2	2 2 1 2	N N N N			
6	2o	1 1 1	2 2 2 4	2 1 1 3	1 2 2 2	N N N N			
7	3o	2 1 -	(2 3) 4 3	3 2 3 3	1 1 2 2	N N U U			
8	3-	2 1 2	3 3 3 3	1 3 2 3	1 1 1 (1)	U U U U			
9	1+	1 1 1	3 1 1 1	3 1 1 1	1 1 2 (2)	U U N N			
10	1+	1 1 1	1 1 1 1	3 2 2 2	2 1 1 1	N N N N			
11	1+	1 C C	1 1 1 1	3 2 2 1	2 1 2 2	N N N N			
12	2o	1 1 1	2 3 2 2	2 1 2 3	2 1 1 1	N N N N			
13	2-	1 1 1	2 2 1 1	3 2 2 2	1 1 1 1	N N N N			
14	1+	2 2 2	1 1 2 1	1 1 1 1	2 1 1 C	N N N N	2332	---	
15	2-	1 2 2	1 2 2 2	2 1 1 1	1 1 1 (1)	N N N N	---	---	52γ
16	2-	2 2 2	2 2 1 1	2 2 1 1	1 2 1 1	N N N N	---	03xx	
17	2-	1 2 (1)	3 1 1 1	2 2 2 1	1 1 1 1	N N N N			
18	1+	1 1 (1)	1 1 1 1	3 2 2 1	1 2 1 2	N N N N			
19	2o	1 1 2	3 2 1 1	2 2 2 2	2 1 2 1	N N N N			
[20]	1+	1 1 2	2 1 1 1	3 2 1 1	2 2 2 2	N N N N	1617	---	
[21]	3o	1 2 2	4 4 2 4	2 2 2 3	2 2 2 2	N N U U	---	---	126γ
[22]	4-	1 2 3	5 5 5 5	3 2 2 3	1 2 2 1	U U U U	---	---	
23	2+	1 2 3	4 1 2 1	3 2 2 1	1 2 2 1	U U N N	---	05xx	
24	2-	3 2 3	2 2 1 1	1 1 1 1	1 1 2 2	N N N N			
25	2+	3 1 2	1 2 2 2	3 1 2 3	1 1 1 1	N N N N			
26	2+	1 3 2	2 3 2 2	2 2 1 2	1 2 (3 3)	N N N N			
27	2+	1 1 1	1 2 (3 3)	3 2 3 3	1 1 2 2	N N N N			
28	2-	2 2 2	1 1 2 1	1 1 2 2	1 2 2 3	N N N N			
29	3o	2 3 3	2 4 3 3	3 3 3 3	2 2 3 2	N U U U			
30	2+	1 1 3	3 1 1 1	4 3 3 3	2 1 (3 1)	U U U N			

* = day of Special World Interval

[ ] = Regular World Day

\- = impossible to evaluate

( ) = inacculate

C = artificial accident

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

June 1961	S W F								S E A			Correspondence		
	Drop-out Intensities (db)					Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	mag.
	WS	SF	HA	TO	LN										
	None														

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編集兼発行人　糟　谷　　績
東京都小金井市貫井北町4の573

発行所　郵政省電波研究所
東京都小金井市貫井北町4の573
電話 国分寺 1211—1214

印刷所　山内欧文社印刷株式会社
東京都豊島区日ノ出町2の228
電話 (971) 9341