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IONOSPHERIC DATA IN JAPAN

FOR JULY 1962

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THE RADIO RESEARCH LABORATORIES

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KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

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

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

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

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

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

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

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

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

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

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

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

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

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

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

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

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

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

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

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

O Measurement refers to the ordinary component.

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceeding symbol on monthly tabulation sheets.

D *greater than.....*

E *less than.....*

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magnetoionic component.

c. Description of Standard Types of E_s

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

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

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

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

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

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

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

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

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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M : multiple peaks separated by relatively long period of quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

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

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

N=normal
U=unstable
W=disturbed

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

Whole day radio quality indices are the averages of the 6-hourly indices of London, WWV and S. F.

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

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

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

Circuits and Drop-out intensity

W S .....WWV 20 Mc, 15 Mc and 10 Mc (Washington)

S F .....Various commercial circuits (San Francisco)

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

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

S H .....BPV 15 Mc and 10 Mc (Shanghai)

L N .....Various commercial circuit (London)

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

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly

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

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

Importances

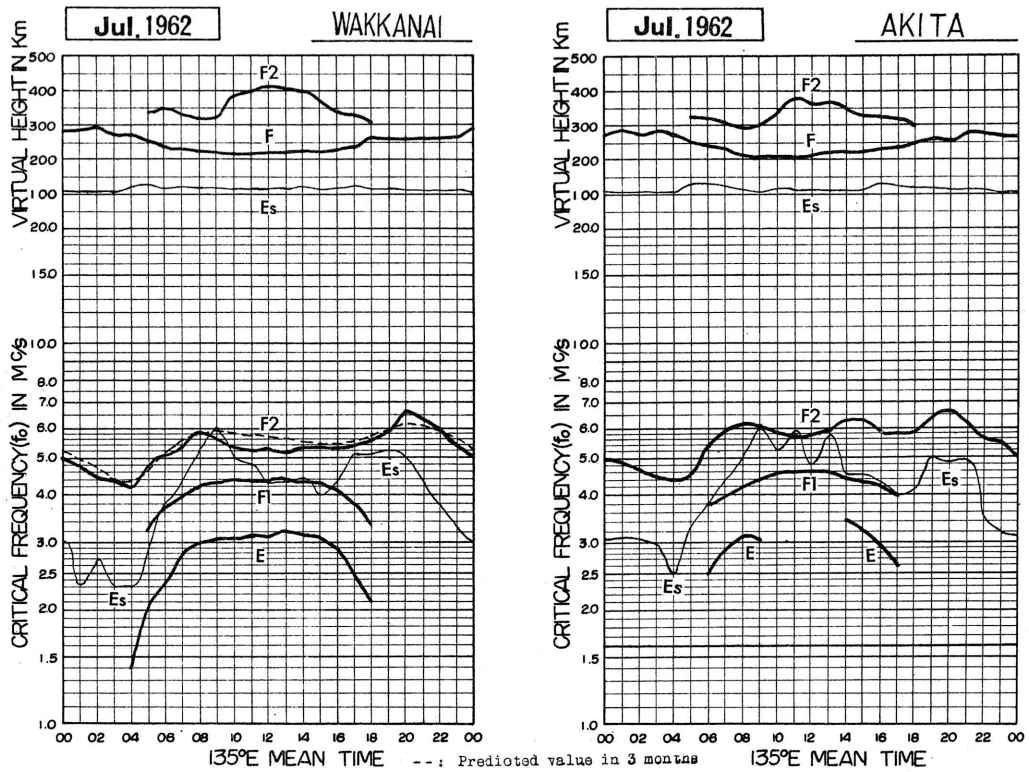
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1—	1	1+
2—	2	2+
3—	3	3+

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

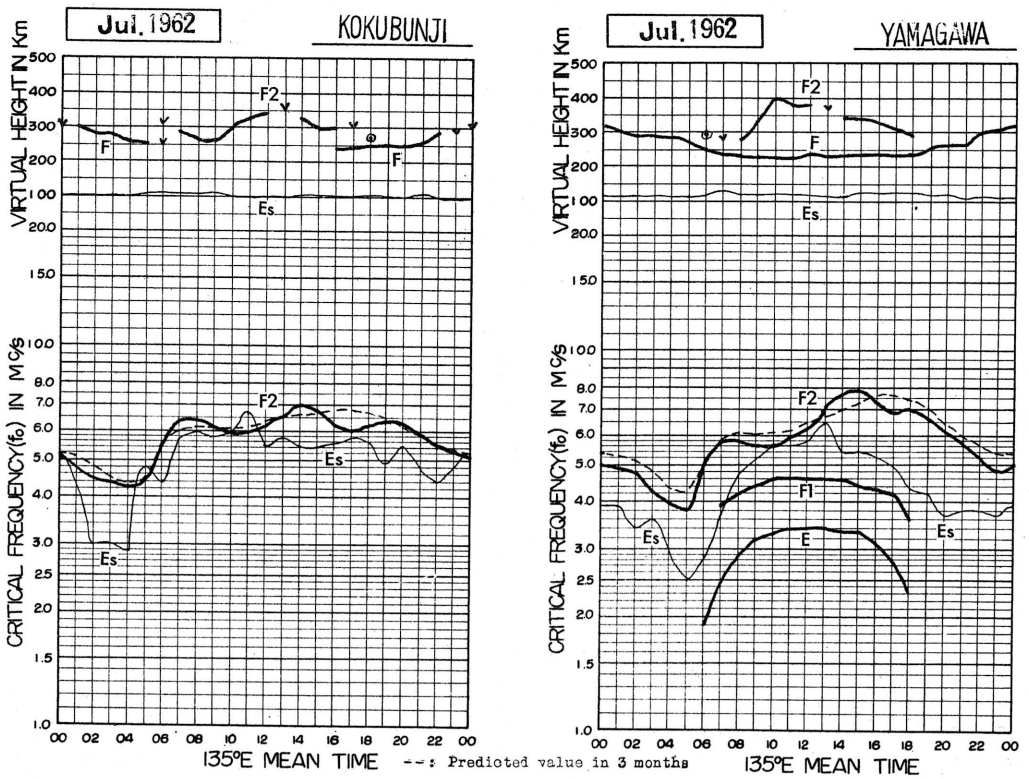
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA

Jul. 1962 | 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	6.0	5.9	5.7	4.5	4.8	4.4	A	A	A	A	A	A	A	A	5.3	5.0	4.9	5.2	5.3	5.9	7.0	$^{I}7.3^{S}$	$^{U}7.2^{S}$	5.2
2	5.0	5.0	4.5	$^{I}4.6^{SF}$	4.1	4.6	5.2	6.4	6.5	5.4	5.0	4.8	5.8	5.4	$^{I}5.3^{A}$	5.6	5.7	5.8	6.3	7.3	7.7	7.8	6.9	5.3
3	5.0	4.8	$^{I}4.5^{FS}$	$^{I}4.4^{FS}$	4.4	5.0	6.0	6.1	5.6	$^{I}5.6^{C}$	5.2	5.9	6.0	5.3	5.3	5.7	6.3	6.3	6.8	$^{I}7.5^{S}$	$^{I}7.4^{S}$	6.7	6.2	5.9
4	5.8	5.4	5.4	5.0	4.5	4.8	5.3	4.6	5.3	6.0	5.3	5.3	5.3	5.5	5.8	6.0	5.7	5.5	5.9	6.0	6.7	6.3	S	S
5	FS	5.8	$^{U}5.5^{F}$	$^{I}5.5^{F}$	5.5F	5.2F	$^{I}5.0^{A}$	$^{I}5.3^{A}$	5.6	$^{I}5.8^{A}$	5.1	$^{I}5.1^{A}$	$^{I}5.2^{A}$	$^{I}5.2^{A}$	$^{I}5.0^{A}$	5.1	5.6	5.1	5.1	5.0	5.3	$^{U}5.8^{S}$	5.6	5.3
6	5.0	4.8	5.0	4.6	4.0	4.8	4.8	5.1	5.3	$^{I}5.2^{A}$	5.1	5.0	$^{I}4.8^{A}$	$^{I}4.7^{A}$	4.5	5.1	5.6	5.2	5.2	5.8	5.6	$^{I}5.5^{A}$	S	A
7	A	A	FS	3.9	3.8	4.5	5.0	5.0	5.5	5.5	4.9	$^{I}4.9^{A}$	$^{I}5.0^{A}$	$^{I}5.0^{A}$	$^{I}4.9^{A}$	4.9	$^{I}4.8^{A}$	$^{I}5.2^{A}$	$^{I}5.5^{A}$	6.2	7.0	6.5	5.8	5.4
8	5.0	5.2	4.9	4.8	5.1	6.0	$^{U}7.3^{S}$	7.3	7.0	6.3	6.2	$^{I}5.9^{A}$	5.7	5.4	5.5	5.8	$^{I}5.8^{A}$	$^{I}5.6^{A}$	5.3	5.9	6.3	$^{I}5.8^{S}$	F	SF
9	FS	FS	FS	FS	A	4.7	5.6	A	A	A	5.4	5.6	4.8	5.3	5.3	5.3	5.0	4.9H	5.0	5.3	5.5F	FS	FS	F
10	FS	F	FS	F	F	SF	5.0F	6.3	6.1	A	A	A	5.2	5.5	5.3	5.0	5.0	$^{I}5.2^{A}$	5.3	$^{I}5.6^{A}$	6.0	6.2	SF	A
11	SF	SF	SF	SF	SF	5.0	5.5	6.3	6.0	5.3	5.2	5.8	5.8	5.5	5.5	5.3	5.6	$^{I}5.5^{A}$	5.5	6.0	$^{U}6.3^{S}$	6.5	5.9	5.8
12	$^{I}5.4^{S}$	FS	FS	SF	F	4.8	$^{I}4.7^{A}$	4.8	A	A	A	A	5.1	$^{I}4.6^{A}$	$^{I}4.6^{A}$	4.8	5.0	5.2	$^{I}5.5^{S}$	$^{I}5.5^{A}$	5.6	5.6	5.6	5.3F
13	FS	SF	SF	SF	SF	$^{I}4.8^{F}$	$^{I}4.7^{A}$	$^{I}4.6^{A}$	4.7	5.9	A	A	A	5.1	5.0	4.8	$^{I}4.9^{A}$	$^{I}5.0^{A}$	5.0	5.2	6.2F	SF	SF	SF
14	FS	F	4.2F	$^{I}3.8^{A}$	FS	A	S	$^{I}5.7^{A}$	$^{I}6.0^{A}$	6.3	$^{I}5.4^{A}$	5.2	A	A	A	$^{I}5.5^{A}$	5.3	5.4	A	A	S	S	6.0	5.6
15	5.5F	$^{I}5.0^{SF}$	5.1F	4.5	$^{U}4.5^{S}$	5.1	5.5	5.4	5.2	$^{I}5.0^{R}$	$^{U}5.1^{R}$	4.9	5.0	$^{I}5.0^{A}$	$^{I}5.0^{A}$	5.1	$^{I}5.1^{A}$	$^{I}5.5^{A}$	A	$^{I}5.9^{A}$	6.4	6.5	$^{U}6.0^{S}$	$^{U}6.3^{S}$
16	$^{U}5.2^{S}$	SF	SF	SF	SF	6.0	$^{I}6.4^{A}$	$^{I}6.8^{A}$	$^{I}6.9^{A}$	$^{I}6.3^{A}$	5.7	5.7	5.9	5.8	5.5	5.5	5.6	5.7	6.1	6.9	$^{I}7.3^{S}$	$^{I}7.4^{S}$	7.3	$^{I}5.6^{A}$
17	5.0	$^{U}4.4^{SF}$	4.1F	$^{I}4.1^{SF}$	$^{I}5.3^{SF}$	5.6F	5.5FH	5.8	$^{U}6.7^{R}$	5.6	5.3	$^{U}5.2^{R}$	6.2	6.0	5.0	6.0	5.3	$^{I}5.6^{A}$	$^{I}5.8^{A}$	$^{U}6.4^{S}$	$^{I}7.1^{S}$	$^{U}7.3^{S}$	$^{I}6.5^{FS}$	5.5
18	SF	SF	F	F	F	4.6	5.9	5.6	6.3	$^{I}5.7^{A}$	$^{I}6.0^{A}$	5.4	5.3	5.8	5.8	6.0	5.7	$^{I}5.7^{S}$	5.8	$^{U}6.6^{S}$	$^{I}7.3^{S}$	$^{I}7.3^{S}$	$^{U}7.0^{S}$	$^{U}6.3^{S}$
19	5.2	5.3	4.9	$^{U}4.3^{S}$	4.3F	5.3	$^{U}6.5^{S}$	8.1	8.7	$^{U}6.0^{R}$	W	6.1	5.3	$^{I}5.6^{R}$	$^{I}5.4^{R}$	5.4	5.7	5.9	5.8	6.1	$^{U}7.3^{S}$	S	S	S
20	SF	FS	SF	5.0	4.6	5.4	6.5	7.5	7.5	5.8	5.3	5.0	5.3	$^{I}5.2^{A}$	5.4	6.0	6.1	5.9	6.4	$^{I}6.7^{S}$	$^{I}7.0^{S}$	6.9	$^{U}6.5^{S}$	SF
21	SF	SF	SF	FS	FS	$^{I}4.6^{A}$	5.1	5.6	5.8	6.2	5.8	$^{I}5.3^{R}$	6.2	5.9	6.2	6.5	7.1	$^{I}5.6^{A}$	$^{I}5.4^{A}$	5.9	$^{U}6.7^{S}$	$^{U}6.3^{S}$	6.7	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	$^{I}6.2^{A}$	5.8	$^{U}6.6^{S}$	6.3	SF	SF
24	SF	SF	SF	SF	$^{U}4.0^{S}$	3.8	4.4	$^{I}5.3^{A}$	6.9	7.1	6.2	5.4	5.0	5.1	5.9	$^{I}5.5^{A}$	5.8	$^{I}5.6^{A}$	5.8	6.0	$^{I}6.6^{S}$	$^{I}6.0^{S}$	$^{I}5.9^{SF}$	$^{I}5.9^{A}$
25	5.0	FS	FS	FS	SF	5.0	5.3F	5.1	$^{I}4.9^{R}$	5.0	$^{I}5.0^{A}$	4.9	5.3	5.2	6.5	6.7	5.3	5.4	5.3	4.8	5.8	5.8	5.3	5.3
26	$^{U}4.7^{S}$	FS	FS	SF	SF	4.0	4.0	A	A	A	A	A	A	A	4.8	4.3	4.8	5.0	6.1	$^{U}6.3^{S}$	7.0	7.3	6.3	5.8
27	5.5	$^{I}4.8^{SF}$	4.3	3.9	3.6	4.0	4.0	4.1H	$^{I}4.4^{R}$	5.1	4.7	$^{I}4.9^{A}$	5.0	5.1	4.6	4.6	4.4H	4.8	4.8	5.4	$^{U}6.5^{S}$	$^{U}6.3^{S}$	5.3	4.5
28	4.3	4.0	3.9	3.6	3.3	4.1	4.6	$^{I}4.4^{R}$	4.2	4.8	5.3	5.2	5.3	4.7	4.8	$^{I}4.7^{A}$	$^{I}4.7^{A}$	5.3	5.7	6.7	6.4	5.8	4.8	3.9
29	3.7	3.7	3.6	3.6	3.3	3.7	4.9	4.9	A	R	R	4.4	5.0	5.1	5.0	5.1	5.1	5.3	5.4	5.0	4.5	4.6	$^{I}4.4^{SF}$	$^{U}4.3^{S}$
30	3.7	3.9F	$^{U}3.5^{SF}$	$^{I}3.6^{FS}$	$^{I}3.5^{FS}$	4.1	4.0	5.0	5.1	$^{I}5.3^{A}$	$^{I}5.3^{A}$	5.5	$^{I}5.1^{A}$	5.1	5.3	5.1	5.2	5.4	6.0	6.3	6.0	5.4	4.8	4.3
31	4.3	3.9	3.9	3.9	3.8	4.2H	5.0	5.5	6.1	6.4	5.3	$^{I}5.2^{R}$	5.4	6.3	5.6	5.7	5.7	5.7	4.6	5.5	A	A	AS	A
No.	18	15	16	18	18	27	27	26	24	23	22	24	25	26	28	29	29	29	29	29	28	25	21	19
Median	5.0	4.8	4.5	4.4	4.2	4.8	5.1	5.4	5.9	5.7	5.3	5.2	5.3	5.2	5.3	5.3	5.3	5.4	5.5	5.9	6.6	6.3	6.0	5.4
U.Q	5.4	5.3	5.0	4.6	4.6	5.1	5.6	6.3	6.6	6.2	5.4	5.6	5.8	5.5	5.5	5.8	5.7	5.6	6.0	6.4	7.0	7.1	6.6	5.8
L.Q	4.7	4.0	4.0	3.9	3.8	4.2	4.7	5.0	5.2	5.3	5.1	5.0	5.0	5.1	5.0	5.0	5.0	5.2	5.3	5.5	6.0	5.8	5.4	5.2
Q.R	0.7	1.3	1.0	0.7	0.8	0.9	0.9	1.3	1.4	0.9	0.3	0.6	0.8	0.4	0.5	0.8	0.7	0.4	0.7	0.9	1.0	1.3	1.2	0.6

foF2

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

The Radio Research Laboratories, Japan.

W 1

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IONOSPHERIC DATA

Jul. 1962 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						3.5	A	A	A	A	A	A	A	A	A	A	$^{U}4.2^{L}$	A	A					
2						3.3	3.6	$^{I}3.9^{A}$	4.3	$^{I}4.4^{A}$	4.3	$^{U}4.6^{L}$	4.6	4.5	A	A	A	$^{I}3.9^{A}$	$^{I}3.5^{A}$					
3						3.5	3.9	4.1	4.3	$^{I}4.4^{L}$	4.5	4.6	4.5	4.5	4.5	4.3	4.1	$^{I}3.9^{A}$	3.5					
4						3.2	3.9	4.2	4.3	$^{I}4.2^{A}$	4.3	$^{I}4.4^{A}$	4.5	4.4	4.4	4.3	4.1	3.9	A					
5						3.3	A	A	A	A	4.4	A	A	A	A	A	A	$^{I}3.9^{A}$						
6						A	A	A	A	A	A	4.3	$^{I}4.3^{A}$	$^{I}4.3^{A}$	4.3	$^{I}4.3^{A}$	$^{I}4.0^{A}$	$^{I}3.8^{A}$	3.4					
7					2.5	A	A	A	A	A	A	A	A	A	A	4.3	A	A	A					
8						3.5	3.9^{H}	4.0	A	A	$^{I}4.5^{A}$	$^{I}4.5^{A}$	4.5	4.6	4.4	4.2	A	A	A					
9							A	A	A	A	A	4.5	4.4	4.3	4.3	4.3	4.1							
10							4.3	$^{I}4.0^{A}$	A	A	A	A	A	4.4	$^{I}4.4^{A}$	A	A	A	L					
11						2.9	A	A	A	$^{I}4.4^{A}$	$^{I}4.4^{A}$	$^{I}4.5^{A}$	$^{I}4.5^{A}$	4.4	$^{I}4.3^{A}$	4.3	4.2	A	A					
12						3.2	$^{I}3.7^{A}$	3.9	A	A	A	A	A	A	4.2	4.1	4.2	A	A					
13						A	A	A	4.3	4.3	A	A	A	A	A	A	A	A	A					
14						A	A	A	A	A	$^{I}4.4^{A}$	A	A	A	A	A	4.2	3.9	A					
15					2.3	3.1	$^{I}3.6^{A}$	4.1	$^{I}4.3^{A}$	$^{I}4.3^{A}$	$^{U}4.3^{R}$	4.4	4.4	$^{I}4.4^{A}$	$^{I}4.3^{A}$	4.3	A	A	A					
16							A	A	A	A	A	4.7	4.5	4.5	A	A	A	A	A					
17								$^{I}4.2^{A}$	4.3	4.4	4.6	4.6	4.5	4.4	4.5	4.3	4.1	A	A					
18							3.9	4.1	A	A	A	A	4.5	4.5	4.5	4.4^{H}	4.1	3.9						
19						3.6	3.7	$^{I}4.2^{A}$	$^{I}4.3^{A}$	4.3	4.5	4.5	4.3	$^{U}4.4^{R}$	$^{I}4.6^{A}$	4.4	$^{I}4.1^{A}$	$^{I}3.8^{A}$	A					
20						3.3	3.8	4.0	4.2	4.3	$^{I}4.4^{A}$	$^{I}4.5^{A}$	4.6	$^{I}4.4^{A}$	$^{I}4.3^{A}$	4.3	4.1	A	A					
21							3.7	4.0	4.3	4.3	4.4	$^{I}4.4^{R}$	4.4	4.5	4.4	4.3	4.0	A	A					
22					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
23					C	C	C	C	C	C	C	C	C	C	C	C	C	C	A					
24						3.2	3.7	$^{I}4.0^{A}$	$^{I}4.2^{A}$	4.3	4.3	4.5	4.6	4.6^{H}	4.4	A	A	A	L					
25						3.0	3.6	3.9	$^{I}4.2^{R}$	4.3	$^{I}4.4^{A}$	4.4^{H}	4.4^{H}	4.3	4.2	4.1	4.0	A						
26						3.1^{H}	3.5	A	A	A	A	A	A	A	A	4.0	3.9	A	A					
27							3.3		4.0	$^{I}4.2^{A}$	$^{I}4.3^{A}$	$^{I}4.3^{A}$	4.3	4.3	4.3	4.1		3.7	3.3					
28							3.4	3.8	4.0	4.2	4.3	$^{U}4.3^{R}$	4.3	4.3	4.2	$^{I}4.0^{A}$	$^{I}3.8^{A}$	3.6	$^{I}3.3^{A}$					
29						3.0	$^{I}3.5^{A}$	$^{I}3.8^{A}$	$^{I}4.0^{A}$	4.0	$^{I}4.1^{R}$	4.2	4.2	4.2	4.3	4.1	4.0^{H}	3.6	3.1					
30								$^{I}3.8^{A}$	$^{I}4.0^{A}$	$^{I}4.2^{A}$	$^{I}4.3^{A}$	4.3	$^{I}4.2^{A}$	4.3	4.2	4.2	$^{I}4.0^{A}$	3.7	3.2					
31								4.0	4.1	4.2	4.3	4.4	4.3	4.3	4.2^{H}	4.1	3.8^{H}	3.7	A					
No.					2	15	17	18	16	17	19	20	21	22	21	21	19	13	7					
Median					2.4	3.2	3.7	4.0	4.2	4.3	4.4	4.4	4.4	4.4	4.3	4.3	4.1	3.8	3.3					

foF1

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

The Radio Research Laboratories, Japan.

W 2

IONOSPHERIC DATA

Jul. 1962 | foE | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					A	2.05	2.50	2.85	3.00	3.05	3.15	3.15	3.10	2.95	2.95	2.80	2.70	2.50	2.10	S				
2					S	2.15	2.45	2.80	3.00	3.05	3.15	3.05	2.95	3.50	3.35	3.10	I 2.95 A	2.50	2.10	S				
3					S	2.05	2.45	2.90	3.00	3.10	3.15	3.15	2.95	A	A	A	2.95	2.60	2.10	S				
4					1.40	2.15	2.50	2.90	3.00	3.05	3.10	2.90	A	A	A	3.20	3.00	A	A	A				
5					1.30	2.05	2.50	2.85	3.05	3.20	3.20	3.15	3.00	3.00	A	A	A	2.80	2.20	S				
6					1.40	2.15	2.30	2.80	3.00	3.05	3.15	3.15	3.05	3.60	3.25	3.10	2.95	2.60	2.05	S				
7					1.20	2.05	2.40	2.90	3.05	3.25	3.25	3.20	3.10	3.00	A	A	A	2.80	2.10	S				
8					I 1.35 S	2.05	2.55	2.80	3.00	3.10	I 3.15 B	3.15	3.10	3.00	A	A	A	A	A	S				
9					A	A	2.40	2.90	3.05	3.20	3.15	3.25	3.20	3.10	I 2.90 B	3.15	2.90	2.55	2.10	B				
10					S	2.10	2.60	2.85	3.00	3.15	3.25	3.15	3.25	3.10	3.30	3.15	I 2.90 A	2.55	S	S				
11					A	2.00	2.35	2.80	3.00	3.10	3.20	3.25	3.25	3.30	3.10	3.15	2.90	2.55	S	S				
12					A	A	2.50	2.90	3.00	3.05	3.05	3.00	I 3.20 A	3.40	3.20	3.10	2.95	2.45	S	S				
13					1.50	I 2.05 S	2.35	2.80	2.95	3.10	3.10	3.00	3.10	A	A	A	3.00	2.60	S	S				
14					A	2.05	2.40	2.85	2.85	3.15	3.10	I 3.15 A	3.15	I 3.20 A	I 3.15 A	3.15	2.85	2.50	2.05	S				
15					E	1.95	2.30	2.65	3.00	3.05	3.00	I 3.10 A	I 3.20 A	3.30	3.25	3.15	2.90	2.50	S	S				
16					A	1.90	2.30	2.90	2.95	3.00	2.95	2.95	I 3.15 A	3.50	3.30	3.20	2.90	2.60	2.05	S				
17					A	2.00	2.25	2.80	2.95	3.20	3.25	3.30	3.10	I 3.15 A	3.20	3.25	2.95	A	A	S				
18					1.40	2.05	2.50	2.90	3.15	3.20	3.10	3.10	3.05	2.95	I 2.95 A	I 3.00 A	2.90	2.50	S	S				
19					A	1.95	2.30	2.85	2.95	3.20	3.15	3.20	3.05	3.25	3.15	I 2.95 A	2.90	2.50	S	S				
20					A	2.00	2.35	2.65	2.90	3.05	A	A	B	3.00	2.95	3.15	3.00	2.65	2.05	S				
21					E	I 1.75 S	2.30	2.70	2.90	3.00	3.00	I 3.00 A	I 3.10 A	3.35	I 3.10 S	3.15	2.85	2.60	2.05	S				
22					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
23					C	C	C	C	C	C	C	C	C	C	C	C	C	C	S	S				
24					E	1.90	2.30	2.80	2.90	2.85	3.10	3.25	3.50	3.30	I 3.00 A	A	A	A	A	S				
25					1.15	1.95	2.30	2.70	3.00	3.05	3.10	3.10	3.00	3.25	I 3.15 A	3.00	2.75	2.40	S					
26						I 1.70 S	2.20	2.70	2.90	3.00	I 3.00 A	2.95	3.10	3.05	3.15	3.05	2.75	2.65	S					
27						A	2.35	2.65	2.90	2.95	2.95	3.00	3.00	3.00	3.15	3.05	2.70	2.30	S					
28						S	S	2.45	2.80	I 2.80 A	2.95	A	A	R	A	A	A	A	S					
29						S	2.15	2.35	2.65	2.90	3.05	3.05	3.20	I 3.10 A	3.10	I 2.85 A	I 2.70 A	2.35	S	S				
30						S	2.30	2.65	2.90	3.00	3.05	I 2.95 A	2.85	A	A	A	A	2.40	S					
31						S	2.25	I 2.60 A	2.80	2.90	3.15	3.15	3.15	3.25	3.00	I 2.95 A	2.65	2.30	A	S				
No.					8	22	28	29	29	29	28	27	26	24	21	21	23	24	11					
Median					1.40	2.05	2.35	2.80	3.00	3.05	3.10	3.15	3.10	3.20	3.15	3.10	2.90	2.50	2.10					

foE

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

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

Jul. 1962 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	J 3.0	J 3.3	J 2.3	3.3	5.5	J 9.6	J 8.0	J 9.6	J 8.4	6.6	6.3	J 5.4	J 4.9	J 4.8	G	J 4.3	J 5.1	J 5.1	J 6.5	J 3.0	E	E
2	E	E	E	E	S	2.5	3.3	J 4.3	3.9	J 6.3	4.3	J 4.3	3.8	G	J 6.0	4.8	J 4.3	J 5.5	J 5.0	J 3.0	J 4.3	J 2.3	J 6.3	J 5.3
3	J 3.5	J 2.3	J 4.3	E	S	2.3	3.6	J 4.5	4.0	C	3.7	4.0	J 4.3	J 4.5	3.9	3.4	3.3	J 4.3	3.1	S	3.0	E	J 2.3	E
4	E	E	E	E	G	G	G	3.6	3.7	J 5.0	3.8	5.0 M	J 4.5	J 4.3	4.0	G	2.6 G	J 3.5	J 4.3	J 4.3	J 3.6	J 4.0	J 3.4	J 5.0
5	2.8	J 2.3	J 2.0	J 2.3	G	2.8	J 6.8	J 7.3	J 8.3	J 7.0	J 6.1	J 2.0	J 6.3	J 6.2	J 10.0	J 5.0	4.8 M	J 5.0	3.7	J 4.3	2.8	E	E	E
6	E	J 2.5	J 4.3	J 3.0	G	3.5	4.0	J 5.1	J 5.2	J 2.0	J 6.5	J 4.5	J 8.0	J 7.0	4.8	J 5.0	J 4.3	3.8	3.6	J 3.3	J 3.3	J 7.3	J 10.5	J 6.1
7	J 6.3	J 5.2	J 2.3	J 2.4	2.3	3.8	J 5.3	J 6.3	J 5.8	J 6.1	J 6.1	J 7.9	J 12.3	J 8.5	J 8.3	4.2 M	4.5	J 5.3	J 6.6	J 5.8	J 5.3	J 5.1	J 3.1	E
8	E	J 2.1	E	E	S	G	3.7	J 5.0	7.2	J 6.8	4.5	J 9.3	4.3	3.8	4.0	4.0	J 9.0	J 9.3	J 8.0	J 3.3	J 5.0	J 3.3	J 3.1	J 7.3
9	J 11.0	J 5.3	J 5.3	J 7.3	J 5.1	3.1	J 5.2	J 6.3	J 8.1	5.8	J 6.3	3.8	4.3	3.7	3.5	3.5	3.8	3.3	J 4.3	3.7	J 5.0	J 3.3	J 3.0	J 4.3
10	2.4	E	J 2.3	J 3.0	S	G	G	4.1	5.3	J 10.3	J 10.6	D	J 6.3	J 5.1	J 5.2	J 6.6	J 6.3	J 6.3	J 4.0	J 7.5	J 6.3	J 4.3	J 4.3	J 7.3
11	J 6.3	J 3.8	J 5.0	J 3.1	J 2.3	3.0	J 5.3	4.0	J 5.6	J 4.5	J 4.6	J 4.8	5.0	G	J 4.4	3.8	3.7	J 6.0	J 9.5	J 7.0	J 6.3	J 6.3	J 4.3	J 6.1
12	J 7.3	6.0	J 4.3	J 5.3	J 5.3	J 3.0	J 5.1	J 6.1	J 11.3	J 7.3	J 5.3	J 8.0	J 12.0	4.7	4.5	3.8	J 5.0	J 4.8	J 8.1	J 6.0	J 6.3	J 4.3	E	E
13	J 3.0	E	E	E	G	J 4.0	J 6.3	J 6.1	J 8.0	4.0	J 5.4	J 6.3	J 12.0	J 5.5	J 4.3	J 8.3	J 5.0	J 8.3	J 7.3	J 7.4	J 3.0	J 4.3	J 4.3	J 3.3
14	E	J 5.0	J 4.3	J 5.6	2.9	J 6.3	J 5.1	J 7.3	J 7.3	J 7.3	J 5.4	J 5.3	J 5.3	J 4.6	J 6.6	J 10.3	J 5.2	3.8	J 9.3	J 12.3	J 8.3	J 6.3	J 6.3	J 7.3
15	J 4.3	J 3.3	J 3.5	E	1.6	3.1	4.0	J 4.3	4.5	J 4.6	4.0	4.8 M	3.7	J 5.4	J 11.0	J 12.1	J 10.3	J 12.0	J 5.1	J 7.1	J 4.6	E	J 3.3	J 5.0
16	J 4.5	J 4.3	J 2.2	J 3.1	J 2.3	2.9	J 7.3	J 11.3	J 9.3	J 11.3	J 4.4	J 4.3	J 4.5	4.1	4.6	J 4.6	J 4.6	J 5.1	J 5.1	J 4.1	J 5.1	J 5.0	J 4.0	J 5.5
17	J 4.6	J 5.0	J 3.0	J 2.3	J 4.3	J 4.5	J 6.3	J 4.6	3.8	4.1	4.0	4.3	4.0	J 4.5	3.9	G	J 4.7	J 6.5	J 6.3	J 5.0	J 6.0	J 5.1	J 3.7	J 2.3
18	J 2.3	E	E	E	G	G	3.3	3.6	J 5.8	J 7.0	J 12.1	J 9.1	J 4.1	3.7	3.9	J 3.4	G	3.7	J 4.3	J 3.3	E	J 2.3	J 4.3	J 5.3
19	J 2.8	J 3.6	J 3.5	J 2.3	J 2.0	3.1	3.2	J 4.3	J 7.0	J 6.3	3.9	J 4.3	J 4.3	3.9	4.5	J 6.5	J 7.3	J 6.3	J 6.7	J 6.3	J 6.3	J 9.0	J 2.5	J 2.4
20	J 3.1	J 3.1	J 3.3	J 2.5	J 3.1	2.8	3.5	4.0	3.8	3.6	J 5.0	J 5.0	3.3	J 6.3	4.8	3.8	4.0	J 6.3	J 11.0	J 13.3	J 7.3	J 3.3	J 6.3	E
21	E	E	J 2.8	J 2.4	J 3.0	J 4.3	3.0	3.3	3.5	3.8	3.7	3.8	4.0 M	G	S	G	3.5	J 5.3	J 5.3	J 4.3	J 3.3	J 4.3	J 5.0	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	J 2.3	J 6.3	J 6.3	J 4.3	J 8.3	E
24	E	E	1.5	J 2.0	1.5	2.2	3.6	J 6.3	J 5.3	3.9	3.5	G	3.2 G	G	J 5.0	J 5.5	J 5.5	J 8.0	J 3.3	J 6.3	J 10.5	J 7.3	J 6.4	J 7.0
25	J 3.3	J 4.0	1.7	1.5	G	2.4	J 4.3	3.7	4.1	J 4.3	J 11.0	3.7	3.5	3.8	3.3	G	3.2	J 4.3	3.3	2.8	J 5.0	J 2.4	E	J 2.4
26	J 3.3	J 1.7	J 2.4	E	E	2.3	J 5.0	J 4.4	J 11.6	J 12.0	J 12.3	J 8.1	J 9.6	9.0	4.9	G	3.6	6.0	J 5.0	J 6.3	J 3.3	J 6.4	J 2.3	E
27	J 3.3	J 3.6	J 3.6	J 2.6	J 3.2	J 3.0	G	G	3.8	4.4	J 5.0	J 9.3	J 4.0	J 4.3	G	G	G	3.6	J 3.3	J 2.3	J 3.3	J 5.2	J 5.3	J 3.0
28	E	J 3.1	J 2.8	J 2.5	J 3.1	3.1	2.6	3.2	3.4	J 7.0	3.6	4.0	3.5	G	3.2	J 5.0	J 5.4	J 7.3	J 5.1	J 6.4	J 5.1	J 4.3	J 3.0	J 3.0
29	J 5.2	J 2.1	J 2.7	E	J 2.6	2.7	3.8	J 5.0	J 4.3	J 4.3	4.0	3.6	G	3.3	G	J 3.3	3.6	J 3.3	G	S	E	J 3.3	J 6.1	J 4.3
30	J 3.1	E	J 2.5	J 2.3	J 2.3	2.9	3.3	3.8	J 4.5	J 5.3	J 6.0	3.7	J 5.0	3.6	3.8	J 4.3	J 4.5	3.3	3.0	J 5.3	J 3.1	J 3.3	E	E
31	E	E	E	J 2.0	E	2.3	3.0	J 4.0	J 4.6	J 4.3	3.6	J 4.4	G	G	3.5	3.5	G	3.0	J 5.3	3.8	J 6.5	J 7.4	J 5.0	J 6.0
No.	29	29	29	29	25	29	29	29	29	28	29	29	29	29	28	29	29	29	30	28	30	30	30	29
Median	3.0	2.3	2.7	2.3	2.3	2.9	3.8	4.4	5.3	6.0	5.0	4.8	4.3	4.3	4.4	4.0	4.3	5.1	5.1	5.2	5.0	4.3	3.8	3.3
U.Q	4.4	3.9	3.6	3.0	3.0	3.1	5.2	6.2	7.6	7.2	6.2	8.0	6.3	5.4	5.0	5.0	5.1	6.3	6.7	6.4	6.3	5.2	5.3	5.8
L.Q	E	E	1.6	E	G	2.3	3.3	3.9	4.0	4.3	4.0	4.0	3.8	3.4	3.8	3.4	3.4	3.8	3.7	3.8	3.3	3.3	2.5	E
Q.R			2.0			0.8	1.9	2.3	3.6	2.9	2.2	4.0	2.5	2.0	1.2	1.6	1.7	2.5	3.0	2.6	3.0	1.9	2.8	

foEs

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

The Radio Research Laboratories, Japan.

W 4

IONOSPHERIC DATA

Jul. 1962 | f_bEs | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			E	E	2.0	3.1	A	A	A	A	A	A	A	A	4.6	4.3		4.1	4.1	3.2	5.0	E		
2					S	G	G	4.2	G	4.7	G	G	G		A	3.0	4.2	4.5	3.5	2.7	4.0	E	E	4.3
3	E	E	E		S	G	3.5	3.8	G	C	G	G	G	4.3	3.8	3.3	G	4.1	3.1	S	3.0		E	
4								G	G	4.8	G	4.3	4.4	3.8	3.6		G	3.0	3.5	4.0	2.9	4.0	2.8	E
5	E	E	E	E		G	A	A	5.0	A	4.0	A	A	A	A	4.3	4.8	4.1	3.2	4.2	2.5			
6		E	E	E		3.2	4.0	4.5	4.5	A	A	G	A	A	G	4.2	4.0	3.8	3.1	G	E	A	4.3	A
7	A	A	E	E	G	3.8	4.6	4.3	4.9	5.0	4.5	A	A	A	A	3.6	A	A	A	5.0	4.6	E	E	
8		E			S		G	G	4.2	4.8	4.5	A	4.2	G	3.8	3.7	A	A	3.9	3.0	3.8	E	E	E
9	E	E	4.0	E	A	2.1	4.9	A	A	A	4.6	G	G	G	G	G	G	G	3.2	3.3	E	E	E	E
10	E		E	E	S			4.1	5.0	A	A	A	4.8	G	4.6	4.5	4.7	A	3.2	A	E	3.2	3.1	A
11	4.7	E	E	E	2.0	G	4.9	4.0	4.9	4.3	4.7	4.5	4.8		4.4	G	G	A	4.0	2.3	4.6	3.0	3.0	E
12	4.5	4.0	E	3.2	2.8	2.3	A	3.7	A	A	A	A	4.6	A	A	G	G	4.8	3.5	A	4.4	E		
13	E					4.0	A	A	G	4.0	A	A	A	4.8	4.3	4.4	A	A	4.1	A	E	E	E	E
14		E	E	A	2.4	A	4.8	A	A	4.3	A	5.0	A	A	A	A	G	G	A	A	5.0	2.5	E	E
15	E	2.3	E		G	2.9	3.8	G	4.3	A	4.0	3.6	E3.7R	A	A	3.5	A	A	4.0	A	E		E	2.9
16	3.0	E	E	E	1.6	G	A	A	A	A	4.4	4.0	4.0	G	4.5	4.5	4.5	4.8	4.9	4.1	5.0	3.1	3.2	A
17	3.5	E	E	E	2.1	4.1	3.4	4.2	3.5	G	G	G	G	4.1	G		G	A	A	4.6	4.0	4.2	3.2	E
18	E						G	G	4.9	A	A	4.7	G	G	3.7	3.3		3.2	3.3	3.0		E	3.1	E
19	E	E	2.5	E	1.6	3.0	G	4.1	6.1	G	G	G	3.7	A	4.3	3.7	4.3	4.1	4.0	2.1	E	E	E	E
20	E	E	E	E	2.0	G	G	3.9	G	G	4.3	4.5	E3.3R	A	4.5	G	G	4.5	5.7	4.4	4.5	E	3.1	
21			E	E	2.0	A	G	G	G	G	G	3.8	3.6		S		G	A	A	4.0	3.0	E	E	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	4.3	4.8	E	3.1	
24			E	E	G	G	3.2	A	4.3	G	G		3.1		3.6	A	5.0	A	2.7	4.7	E	4.6	3.5	A
25	3.0	3.7	E	E		G	3.0	G	A	G	A	G	G	3.8	3.3		G	4.2	3.1	2.3	E	E		E
26	E	E	E			G	G	A	A	G	A	A	A	A	4.3		G	4.1	3.2	4.8	E	E	E	
27	E	E	E	E	E	2.3			G	4.3	4.3	A	G	G				G	G	E	2.8	4.2	3.0	E
28		E	E	E	E	2.7	G	G	G	3.2	G	4.0	3.3		3.2	A	A	3.2	3 5	4.1	4.2	4.0	E	E
29	3.0	E	E		2.3	2.5	3.5	4.3	A	3.5	G	G		3.3		3.2	3.0	G		S		E	3.2	E
30	E		E	E	E	G	G	3.8	4.2	A	A	G	A	3.3	3.2	3.3	4.0	G	G	4.2	E	E		
31				E		G	G	3.0	G	G	G	G			G	3.2		G	3.8	G	A	A	A	A
No.																								
Median																								

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

Jul. 1962 | f-min | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E2.00s	E1.80s	E	E	E	1.50	2.00	2.00	2.00	2.10	2.00	2.20	2.00	2.10	2.00	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E1.80s	E2.00s	E2.00s
2	E2.00s	E1.75s	E1.50s	E1.90s	E1.90s	E2.00s	2.00	2.00	2.00	2.10	2.20	2.00	2.15	2.50	2.20	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s
3	E2.00s	E1.70s	E1.50s	E1.50s	E1.80s	1.90	2.00	2.00	2.00	x2.05c	2.30	2.20	2.40	2.50	2.35	2.30	2.00	2.00	2.00	E2.20s	E2.00s	E2.00s	E2.00s	E2.00s
4	E2.00s	E1.60s	E1.60s	E	E	1.60	2.00	2.00	2.30	2.00	2.15	2.20	2.00	2.40	2.00	2.00	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s
5	E2.00s	E	E	E	E	1.50	2.00	x2.00	2.00	2.00	2.00	2.00	2.00	2.20	2.00	2.05	2.30	2.00	1.85	E2.00s	E2.00s	E2.20s	E2.00s	E2.00s
6	E2.00s	E1.50s	E	E	E	E2.00s	2.00	2.00	2.00	2.00	2.15	2.30	2.10	2.10	2.00	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E1.90s
7	E2.00s	E	E	E	E	1.35	2.00	2.00	2.00	2.10	2.00	2.15	2.00	2.70	2.60	2.30	2.00	2.00	E1.90s	E2.00s	E2.00s	E1.85s	E2.00s	E2.00s
8	E2.00s	E1.50s	E	E	E1.70s	1.80	2.00	2.00	2.10	2.10	3.30	2.30	2.15	2.20	2.35	2.00	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s
9	E2.00s	E	E	E	E	1.80	2.00	2.00	2.15	2.05	2.05	2.50	2.50	2.10	3.00	2.45	2.10	2.00	2.00	2.40	E2.00s	E2.00s	E2.00s	E1.85s
10	E1.90s	E1.60s	E	E	E1.50s	1.70	2.00	2.20	2.10	2.20	2.40	2.05	2.00	2.30	2.10	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E1.85s
11	E1.85s	E	E	E	E	1.60	1.80	2.00	2.00	2.05	2.00	2.05	2.05	2.50	2.00	2.40	2.40	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s
12	E2.00s	E1.25s	E	E	E	1.60	1.90	2.00	2.00	2.15	2.20	2.40	2.40	2.50	2.40	2.15	2.20	2.00	E2.00s	E2.00s	E1.80s	E2.00s	E2.00s	E2.00s
13	E1.90s	E2.00s	E1.90s	E1.50s	E	E2.00s	2.00	2.00	2.00	2.20	2.20	2.40	2.20	3.00	2.15	2.00	2.05	2.00	E2.00s	E2.00s	E1.80s	E1.85s	E2.00s	E1.80s
14	E1.80s	E	E	E	E	1.60	2.00	2.00	2.00	2.05	2.00	2.10	2.70	2.25	2.00	2.05	2.00	2.00	E2.00s	E2.00s	E1.80s	E1.90s	E2.00s	E1.90s
15	E1.90s	E1.50s	E	E	E	1.50	2.00	2.00	2.00	2.00	2.25	2.70	2.15	2.00	2.20	2.00	2.00	2.00	E2.00s	E1.85s	E1.80s	E2.00s	E2.00s	E1.85s
16	E1.90s	E	E	E	E	1.50	2.00	2.00	2.00	2.00	2.40	2.50	2.60	2.35	2.00	2.00	2.05	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E1.80s
17	E2.00s	E	E	E	E	1.60	2.00	2.00	2.00	2.00	2.60	2.05	2.15	2.20	2.20	2.00	2.10	1.90	E1.85s	E1.80s	E1.90s	E2.00s	E2.00s	E2.00s
18	E1.70s	E1.20s	E1.40s	E	E	1.80	2.00	2.00	2.00	2.40	2.05	2.00	2.20	2.50	2.15	2.00	2.00	1.85	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E1.90s
19	E1.90s	E	E	E	E	1.50	2.00	2.00	2.00	2.00	2.00	2.50	2.15	2.50	2.50	2.15	2.00	2.00	E2.00s	E1.80s	E1.90s	E2.00s	E2.00s	E1.90s
20	E1.90s	E1.50s	E	E	E	1.60	2.00	2.00	2.00	2.50	2.20	2.00	3.00	2.40	2.15	2.00	2.00	2.00	E2.00s	E2.00s	E1.90s	E1.90s	E2.00s	E2.00s
21	E1.90s	E1.90s	E	E	E	E1.95s	2.00	2.00	2.00	2.00	2.00	2.50	2.00	2.20	E3.40s	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E1.90s	E2.00s	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E1.90s	E1.90s	E1.50s	E1.80s	E1.90s	E1.80s
24	E1.95s	E1.80s	E	E	E	1.50	2.00	2.00	2.00	2.30	2.30	2.10	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E1.85s	E1.60s	E1.90s	E2.00s	E1.90s
25	E1.90s	E	E	E	E	1.60	1.85	2.00	2.00	2.00	2.10	2.00	2.15	2.30	2.20	2.00	2.00	2.00	E2.00s	E1.90s	E1.90s	E2.00s	E2.00s	E2.00s
26	E1.80s	E	E	E	E	E1.70s	2.00	2.00	2.00	2.30	2.00	2.20	2.20	2.00	2.00	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s
27	E2.00s	E	E	E	E	E1.20s	2.00	2.00	2.05	2.00	2.15	2.05	2.00	2.10	2.10	2.10	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s
28	E2.20s	E1.80s	E1.70s	E	E	E2.00s	E2.10s	2.10	2.15	2.15	2.40	2.20	2.00	2.00	2.00	2.00	2.00	2.00	E2.00s	E2.00s	E2.00s	E2.20s	E2.00s	E1.85s
29	E2.00s	E1.70s	E	E2.00s	E	E2.00s	E2.00s	2.00	2.00	2.30	2.00	2.10	2.20	2.10	2.00	2.00	2.00	2.00	E2.10s	E2.00s	E2.00s	E2.00s	E2.00s	E1.90s
30	E2.00s	E1.60s	E	E	E	E2.00s	2.00	2.05	2.00	2.00	2.05	2.90	2.10	2.00	2.00	2.00	2.00	2.00	E2.00s	E1.80s	E1.90s	E2.00s	E2.00s	E2.00s
31	E2.00s	E1.20s	E2.00s	E	E1.60s	E2.00s	2.00	2.00	2.00	2.00	2.15	2.20	2.00	2.20	2.00	2.00	2.00	2.00	2.00	E1.90s	E2.00s	E2.00s	E2.00s	E2.00s
No.	29	29	22	25	24	20	28	29	29	29	29	29	29	29	28	29	29	29	29	30	30	30	30	29
Median	E2.00	E1.50	E	E	E	1.60	2.00	2.00	2.00	2.05	2.15	2.20	2.15	2.20	2.10	2.00	2.00	2.00	E2.00	E2.00	E2.00	E2.00	E2.00	E2.00

f-min

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

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

Jul. 1962 | 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	2.85	3.05	3.00	3.05	3.15	2.80	A	A	A	A	A	A	A	A	3.20	2.85	2.90	3.15	3.00	2.90	2.85	I3.00S	U3.05S	3.10
2	3.00	2.95	2.85	I2.95SF	2.95	3.05	2.90	3.15	3.40	3.10	3.20	2.90	2.95	3.00	2.90	3.05	3.00	2.95	2.90	2.90	3.00	3.10	3.20	2.85
3	2.80	2.90	I2.90FS	I3.00FS	3.10	3.00	3.15	3.35	3.40	I3.25C	2.90	2.95	3.10	3.00	3.00	3.00	3.00	3.00	3.00	I3.05S	3.10	3.00	3.05	2.95
4	2.95	3.00	2.85	2.80	2.90	3.15	3.00	2.65	3.00	3.15	3.00	3.05	2.85	2.90	2.95	3.15	3.15	3.05	3.20	3.05	3.00	2.90	S	S
5	FS	2.95	U2.95F	I2.95F	3.00F	2.90F	I2.60A	I2.70A	2.85	I3.05A	2.75	I2.80A	I2.90A	I2.95A	I2.80A	2.80	3.05	2.95	3.10	3.00	3.00	U2.95S	2.90	2.90
6	2.85	2.90	3.00	3.05	2.90	3.15	2.95	2.90	2.85	I2.85A	I2.60A	2.40	I2.40A	I2.35A	2.35	2.90	3.00	3.10	3.10	3.25	3.00	I2.95A	S	A
7	A	A	FS	3.10	2.90	2.80	3.00	2.70	3.05	3.20	2.70	I2.70A	I2.70A	I2.70A	I2.75A	2.80	I2.70A	I2.90A	I2.95A	2.95	3.00	3.10	2.95	3.05
8	3.00	3.05	3.05	3.10	2.90	2.85	U2.80S	2.90	3.15	3.05	2.95	I3.10A	3.00	2.85	3.00	3.10	I3.05A	I3.15A	3.00	3.10	3.15	I2.90S	F	SF
9	FS	FS	FS	FS	A	3.20	3.05	A	A	A	2.95	3.20	2.40	3.00	3.00	3.00	3.00	2.85H	3.10	3.20	3.25F	FS	FS	F
10	FS	F	FS	F	F	SF	2.65F	3.50	3.15	A	A	A	2.90	3.00	3.15	3.25	I2.95A	I2.85A	3.10	I3.10A	3.00	2.90	SF	A
11	SF	SF	SF	SF	SF	3.10	2.90	3.05	3.05	3.15	2.85	2.95	2.80	2.75	2.90	2.85	3.00	I3.10A	3.15	3.00	U3.00S	2.95	2.90	3.00
12	I2.95S	FS	FS	SF	F	3.15	I2.80A	2.85	A	A	A	A	3.15	I2.35A	I2.30A	2.75	3.00	3.05	I3.10S	I3.00A	3.00	2.95	3.00	3.00F
13	FS	SF	SF	SF	SF	I2.95F	I3.00A	I2.70A	2.15	3.25	A	A	A	2.95	2.90	2.90	I2.85A	I2.95A	3.10	I3.00A	2.75F	SF	SF	SF
14	FS	F	2.85F	I2.75A	FS	A	S	I3.20A	I3.20A	3.50	I3.20A	3.10	A	A	A	I3.10A	3.05	3.10	A	A	S	S	3.05	3.05
15	3.05F	I2.90SF	2.80F	2.95	U2.85S	3.00	2.75	2.85	2.90	I3.00R	U2.95R	2.65	2.50	I2.65A	I2.45A	2.30	I2.45A	I2.90A	3.20	I3.00A	2.90	2.85	U2.95S	U3.05S
16	U2.90S	SF	SF	SF	SF	3.15	I3.00A	I3.00A	I3.20A	I3.15A	3.35	2.70	3.05	3.05	2.95	2.95	3.05	3.00	3.00	2.90	I2.95S	I3.05S	3.15	I3.15A
17	2.85	I2.90SF	2.85F	I3.05SF	I3.30SF	3.35F	2.70FH	3.00	U3.45R	3.15	2.75	U3.00R	3.05	3.10	2.50	3.10	3.20	I3.05A	I3.10A	U2.95S	I2.90S	U3.05S	I3.05FS	3.20
18	SF	SF	F	F	F	2.95	3.25	3.20	3.25	I3.15A	I3.20A	3.20	2.90	2.90	3.00	3.00	3.20	I3.15S	3.15	U2.90S	I3.00S	I3.05S	U3.05S	U3.15S
19	3.20	2.95	3.00	U2.85S	2.80F	3.00	U2.85S	3.00	3.65	U3.35R	W	3.10	2.85	I3.10R	I2.95R	2.85	3.10	3.10	3.40	2.95	U2.90S	S	S	S
20	SF	FS	SF	2.95	3.00	3.00	2.85	3.00	3.25	3.30	3.10	2.45	2.90	I2.70A	2.70	3.00	3.10	2.95	3.10	I3.00S	I3.00S	3.05	U2.90S	SF
21	SF	SF	SF	FS	FS	I2.95A	2.95	3.05	3.10	3.25	2.95	I2.90R	2.95	3.00	2.95	2.90	3.25	I3.30A	I3.10A	3.00	U3.00S	U3.00S	3.30	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I3.15A	3.00	U3.05S	3.15	SF	SF
24	SF	SF	SF	SF	U3.25S	3.05	2.95	I2.75A	3.35	3.30	3.15	3.05	2.45	2.90	3.05	I3.00A	3.20	I3.20A	3.05	3.00	I3.00S	I2.95S	I3.00SF	I2.95A
25	2.90	FS	FS	FS	SF	3.20	3.00F	3.35	I2.70R	2.65	I2.75A	2.30	2.80	2.65	2.90	3.15	3.10	3.30	3.20	2.85	2.85	2.95	2.95	2.85
26	U2.70S	FS	FS	SF	SF	3.00	2.90	A	A	A	A	A	A	A	2.90	2.55	2.55	2.50	2.80	U2.70S	2.75	2.85	2.80	2.85
27	3.05	I2.85SF	2.95	2.85	2.95	3.15	2.95	3.45H	I2.75R	3.25	2.75	I2.80A	2.85	2.90	2.80	3.00	3.15H	3.00	3.15	2.95	U2.90S	U2.85S	3.00	2.90
28	2.80	2.80	2.85	2.80	2.95	2.85	3.35	I2.85R	2.40	2.95	3.15	3.10	3.15	2.70	2.90	I2.95A	I2.90A	3.10	3.00	3.15	3.15	3.10	3.20	3.00
29	2.95	2.95	3.00	3.15	3.05	2.95	3.25	3.20	A	R	R	2.45	2.85	2.95	2.60	3.00	3.35	3.15	3.30	3.25	2.95	3.00	I3.05SF	U2.95S
30	3.10	3.00F	U2.95SF	I3.00FS	I3.20FS	3.35	3.50	3.20	3.10	I3.30A	I3.20A	3.20	I2.95A	2.85	3.05	3.05	3.20	3.30	3.15	3.15	3.10	3.10	3.15	2.90
31	3.00	2.90	3.10	3.05	3.25	2.95H	3.20	3.15	3.50	3.60	3.45	I3.25R	2.95	3.15	3.25	3.20	3.35	3.45	2.85	3.10	A	A	AS	A
No.	18	15	16	18	18	27	27	26	24	23	23	24	25	26	28	29	29	29	29	29	28	25	21	19
Median	2.95	2.95	2.95	3.00	3.00	3.00	2.95	3.00	3.10	3.15	2.95	2.95	2.90	2.90	2.90	3.00	3.05	3.05	3.10	3.00	3.00	3.00	3.05	3.00

M(3000)F2 | Sweep 10 Mc to 180 Mc in 1 min sec in automatic operation.

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Jul. 1962 | M(3000)F1 | 135° E Mean Time (G.M.T. + 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	A	A	A	A	A	A	A	U 3.55 L	A	A					
2						3.50	3.80	I 3.75 A	3.75	I 4.15 A	4.25	U 3.70 L	3.70	3.55	A	A	A	A	A					
3						3.35	I 3.65	I 3.75 A	3.85	I 3.95 C	3.85	3.90	3.65	I 3.80 A	3.80	3.70	3.60	I 3.60 A	A					
4						3.60	3.40	3.70	3.95	I 4.05 A	4.25	I 4.05 A	I 3.75 A	3.85	3.85	3.75	3.70	3.70	A					
5						3.65	A	A	A	A	3.85	A	A	A	A	A	A	I 3.50 A						
6						A	A	A	A	A	A	3.95	I 3.90 A	I 3.90 A	3.85	I 3.60 A	I 3.60 A	I 3.55 A	I 3.65 A					
7					3.20	A	A	A	A	A	A	A	A	A	A	3.70	A	A	A					
8						3.35	3.55 H	3.85	I 3.80 A	I 3.80 A	A	A	A	3.75	3.85	3.80	A	A	A					
9							A	A	A	A	A	3.80	4.00	4.00	3.70	3.65	3.65							
10							3.65	I 3.75 A	A	A	A	A	A	3.80	I 3.75 A	A	A	A	L					
11						3.85	A	A	A	I 4.15 A	I 4.15 A	I 4.05 A	I 3.90 A	3.80	I 3.75 A	3.75	3.75	A	A					
12						3.45	A	A	A	A	A	A	A	A	I 3.65 A	3.90	3.35	A	A					
13						A	A	A	3.75	A	A	A	A	A	A	A	A	A	A					
14						A	A	A	A	A	A	A	A	A	A	A	3.55	3.65	A					
15					3.25	I 3.45 A	I 3.55 A	3.65	I 3.65 A	I 3.80 A	I 3.95 A	3.85	3.90	A	A	A	A	A	A					
16							A	A	A	A	A	3.85	3.75	3.80	A	A	A	A	A					
17								I 3.55 A	I 3.75 A	4.05	3.95	3.95	4.00	3.95	3.80	3.75	3.90	A	A					
18							3.75	3.75	A	A	A	A	3.90	3.80	3.60	3.65 H	3.70	I 3.60 A						
19						3.35	3.75	I 3.70 A	I 3.70 A	4.30	4.00	3.85	4.10	I 3.90 R	I 3.90 A	3.85	A	A	A					
20						3.50	3.55	I 3.75 A	3.65	4.00	I 4.05 A	I 3.90 A	I 3.85 R	I 3.75 A	I 3.70 A	3.55	3.50	A	A					
21							3.65	3.75	3.75	3.70	4.10	3.90	3.85	3.80	3.80	3.65	3.75	A	A					
22					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
23					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
24						3.45	A	A	A	3.80	4.00	4.05	3.85	3.70 H	3.65	A	A	A	L					
25						3.55	3.40	3.60	I 3.90 A	3.95	I 4.00 A	4.30 H	3.95 H	I 4.00 A	3.60	3.65	3.85	A						
26						3.15 H	4.00	A	A	A	A	A	A	A	A	4.25	3.60	A	A					
27							4.00		3.75	I 3.75 A	I 3.70 A	I 3.80 A	3.75	3.75	3.70	3.85		3.50	3.60					
28							3.75	3.90	4.00	4.15	3.55	I 3.65 A	3.90	3.95	3.80	A	A	A	I 3.45 A					
29						A	I 3.40 A	I 3.60	I 3.90 A	4.20	I 3.95 R	4.00	4.05	3.90	3.65	3.85	3.75 H	3.60	3.75					
30								A	A	A	A	4.05	I 4.05 A	3.70	3.90	3.60	I 3.65 A	3.50	3.65					
31								3.70	3.90	3.85	3.95	3.90	4.20	3.55	3.85 H	3.90	3.85 H	3.80	A					
No.					2	13	15	15	15	16	16	19	20	21	20	19	17	10	5					
Median					3.20	3.45	3.65	3.75	3.75	4.00	4.00	3.90	3.90	3.80	3.80	3.75	3.65	3.60	3.65					

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

The Radio Research Laboratories, Japan.

W 8

IONOSPHERIC DATA

Jul. 1962 | 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						385	A	A	A	A	A	A	A	A	350	430	390^{L}	330	A					
2						360	360	305	265	370	370	^{U}425^{L}	375	370	^{I}400^{A}	360	365	350	310					
3						350	290	260	300	^{I}310^{C}	420	375	340	395	400	365	325	320	285					
4						300	350	475	370	320	375	375	425	405	370	320	330	340	290					
5						330	^{I}405^{A}	A	A	A	455	^{I}445^{A}	^{I}435^{A}	^{I}385^{A}	^{I}435^{A}	430	345	365						
6						325	375	415	400	^{I}400^{A}	^{I}415^{A}	430	^{I}500^{A}	^{I}575^{A}	645	415	350	320	320					
7					370	400	^{I}395^{A}	420	360	^{I}420^{A}	465	^{I}465^{A}	^{I}460^{A}	^{I}460^{A}	^{I}455^{A}	430	A	A	A					
8						345	340	285	305	320	355	^{I}360^{A}	360	420	380	340	^{I}320^{A}	^{I}305^{A}	330					
9							370	A	A	A	400	335	565	390	375	375	390							
10							460	270	300	A	A	A	^{I}405^{A}	380	360	350	^{I}355^{A}	^{I}340^{A}	305					
11						270	^{I}365^{A}	325	350	350	425	375	410	440	400	415	350	A	A					
12						300	^{I}330^{A}	405	A	A	A	A	375	^{I}645^{A}	^{I}615^{A}	450	385	^{I}355^{A}	320					
13						A	A	A	715	305	A	A	A	^{I}370^{A}	425	430	^{I}410^{A}	^{I}365^{A}	A					
14						^{I}380^{A}	270	^{I}335^{A}	^{I}315^{A}	280	^{I}350^{A}	400	A	A	A	355	340	330	A					
15					335	315	385	375	390	^{I}385^{R}	400	475	520	^{I}485^{A}	^{I}530^{A}	580	^{I}540^{A}	^{I}390^{A}	290					
16							^{I}280^{A}	^{I}295^{A}	^{I}285^{A}	^{I}300^{A}	310	445	355	360	395	390	350	^{I}330^{A}	A					
17								365	260	330	460	400	350	340	510	305	315	^{I}325^{A}	A					
18							285	295	295	^{I}305^{A}	^{I}310^{A}	340	400	400	365	355	310	310						
19						335	335	310	^{I}255^{A}	280	W	305	425	^{I}360^{R}	320	405	340	310	270					
20						325	340	290	270	310	360	530	415	^{I}460^{A}	460	350	320	360	A					
21							350	345	330	300	385	^{I}400^{R}	345	360	330	325	280	^{I}270^{A}	A					
22					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
23					C	C	C	C	C	C	C	C	C	C	C	C	C	C	A					
24						400	360	^{I}415^{A}	290	280	310	375	560	420	360	^{I}380^{A}	305	^{I}300^{A}	290					
25						300	330	310	^{I}460^{R}	470	^{I}460^{A}	610	430	460	345	305	350	295						
26						360	425	A	A	A	A	A	A	A	440	555	470	465	330					
27							375		^{I}450^{R}	335	465	^{I}460^{A}	435	410	460	400		370	310					
28							270	^{I}435^{R}	600	415	360	370	360	475	415	^{I}415^{A}	410	320	330					
29						390	290	340	A	R	R	600	440	405	490	370	305	315	275					
30								340	360	^{I}325^{A}	^{I}350^{A}	345	^{I}400^{A}	425	360	375	320	305	280					
31								330	260	265	300	^{I}345^{R}	400	320	310	320	285	270	A					
No.					2	18	24	23	23	22	23	24	25	26	28	29	27	26	15					
Median					350	340	350	335	315	320	385	400	410	405	400	375	345	330	305					

h'F2

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

The Radio Research Laboratories, Japan.

W 9

IONOSPHERIC DATA

Jul. 1962 | 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	300	260	270	255	275	A	A	A	A	A	A	A	A	A	A	A	225	A	A	A	300A	250	240	240
2	285	280	300	260	260	260	230	I240A	235	I215A	200	230	230	225	A	A	A	A	A	275	I270A	260	240	I260A
3	300	290	310	275	270	250	A	A	230	I225C	205	215	250	I210A	225	215	260	I245A	I255A	265	I250A	240	250	265
4	280	260	275	250	270	245	255	230	220	I220A	200	I210A	I230A	210	230	240	225	225	A	A	A	I275A	I290A	260
5	270	280	260	280	275	255	A	A	A	A	230	A	A	A	A	A	A	I250A	I260A	I275A	285	270	270	285
6	285	290	280	260	245	I280A	A	A	A	A	A	225	I235A	I240A	250	I250A	I235A	I240A	I245A	265	260	I290A	A	A
7	A	I280A	260	260	325	A	A	A	A	A	A	A	A	A	A	225	A	A	A	A	A	250	260	260
8	280	265	235	250	270	250	250H	215	I220A	I220A	A	A	A	220	230	230	A	A	A	A	I265A	285	300	260
9	315	290	I300A	285	I275A	270	A	A	A	A	A	230	225	225	220	250	250	240H	I240A	I250A	230	270	290	290
10	290	275	270	265	270	240	235	I245A	A	A	A	A	A	235	I235A	A	A	A	A	A	265	I295A	A	A
11	A	325	305	310	300H	250	A	A	A	I210A	I215A	I205A	I215A	260	I230A	225	235	I245A	I260A	270	I265A	I260A	I280A	275
12	I280A	I295A	270	I265A	I260A	255	A	A	A	A	A	A	A	A	I260A	250	240	I245A	I260A	I260A	I280A	300	270	275
13	260	270	295	300	265	A	A	A	245	A	A	A	A	A	A	A	A	A	A	A	305	310	285	260
14	285	295	300	I320A	370	A	A	A	A	A	A	A	A	A	A	A	230	225	A	A	A	260	250	265
15	260	280	295	275	305	I270A	I255A	240	I235A	I225A	I205A	225	230	A	A	A	A	A	A	A	270	265	260	I270A
16	A	300	285	285	275	250	A	A	A	A	A	205	225	230	A	A	A	A	A	A	A	A	A	A
17	A	300	320	305	295	I255A	I230AH	I215A	I235A	205	210	200	220	235	235	200	235	A	A	A	A	I250A	I250A	245
18	260	300	290	290	280	250	245	240	A	A	A	A	220	215	235	220H	220	I245A	I275A	I270A	260	250	I255A	255
19	265	275	295A	260	290	265A	245	I240A	I230A	210	225	235	210	I210A	I210A	220	A	A	A	280	265	260	275	240
20	280	280	290	275	285	260	260	I245A	230	210	I210A	I200A	I210A	I225A	I240A	250	250	A	A	A	A	250	I260A	250
21	255	325	310	300	295A	I285A	245	245	230	225	200	I200A	210	225	215	225	200	I240A	I260A	I265A	I270A	270	250	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	I260A	245	I235A	245
24	310	300	260	270	230	240	A	A	A	225	220	220	215	205H	230	A	A	A	250	I265A	260	I275A	I280A	I270A
25	I290A	I305A	300	295	320	265	270A	260	I220A	220	I210A	190H	200	I215A	230	250	220	I265A	I255A	280	280	280	275	290
26	310	265	280	280	270	270H	215	I220A	I225A	225	A	A	A	A	A	210	270	A	A	A	300	260	300	275
27	250	310	305	310	305	265	215	235H	250	I245A	I245A	I230A	235	225	220	220	235H	230	260	300	280	I270A	I260A	275
28	300	325	310	320	300	305A	230	225	215	185	225	I220A	200	200	210	A	A	A	A	A	A	A	250	285
29	I320A	315	300	270	320	I290A	I270A	I255A	I235A	205	225	215	200	210	210	210	220H	230	235	250	240	300	I285A	290
30	310	275	300	300	250	245	245	A	A	A	A	200	I210A	215	220	230	I235A	235	260	I255A	255	260	250	280
31	285	280	280	275	250	240H	240	220	230	225	200	225	190	260	220H	200	210H	240	I250A	260	A	A	A	A
No.	25	29	29	29	29	25	17	16	16	17	16	19	20	21	20	19	18	15	14	16	22	27	26	25
Median	285	290	295	275	275	255	245	240	230	220	210	215	220	225	230	225	235	U240	U260	265	265	265	260	265

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

Jul. 1962 | h'Es | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N, Long. 141° 41.1' E

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

Jul. 1962

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			f	f2	l	c	c	c2	c2	c2	c	c	c2	c	c	c		h	c3	f3	f2			
2						h	c	c2	c	c2	c	c	c		c	c.l	c.l	c2	c2	c	f3	f	f2	f3
3	f2	f	f2			h	c	c2	c		c	c	c	l	l2	l	c	c2	c		f2		f	
4								h	c	c	c	c	l	l	c.l		l	l	l2	l	f	f2	f2	f
5	f	f	f	f		c	c2	c2	c2	c2	c	c2	c	c2	l	l2	l	c2	c	c2	f			
6		f	f	f		c	c	c2	c2	c2	c2	c	c2	c2	c	c	c	c	c2	c	f2	f3	f3	f6
7	f3	f6	f	f	c	c3	c2	c2	c2	c	c2	c2	c4	c2	l2	l	c.l	c2	c4	c3	f3	f2	f	
8		f					c	c	c2	c2	c	c3	c	c	c.l	l	c2.l2	c2.l	c2.l	l2	f2.f	f	f	f
9	f3	f	f6	f2	l3	h.l	h	c3	c3	c	c	c	c	c	c	h	h	h	c	c	f	f2	f	f2
10	f		f	f				h	c	c2	c2	c2	c	c	c2	c2	c2.l	c3	c2	c2	f.f	f2	f2	f3
11	f6	f6	f3	f2	l	c	c2	c	c2	c	c	c	c		c	h	c	c3	c2	c2	f2	f2	f2	f
12	f3	f5	f3	f4	l2	l	c4	c2	c2	c2	c	c2	l2	c	c	c	c	c2	c2	c	f5	f2		
13	f					h	c4	c2	c2	c	c	c2	c2	l	l	l	c2	c2	c2	c2	f	f2	f2	f2
14		f	f2	f4.f	c2.l	c5	c3	c3	c2	c2	c3	l2	c2	l2	c.l2	c2	c	c	c3	c3	f5	f3	f2	f2
15	f	f2	f		c	c	c3	h	c2	c	c	l	l	c	c2	c	c	c2	c2	c2	f		f	f2
16	f2	f2	f	f2	l	c	c2	c2	c2	c2	c	c	l2	h	h	h	c	c2	c2	c2	f3	f2	f2	f4
17	f3	f2	f	f	c2.l	c2	c2	l.c	c	c	c	c	c	l	c		h	c.l	c3.l	c	f2	f2	f	f2
18	f						h	h	c2	c2	c2	c2	c	c	l	l		c	c2	c2		f	f2	f2
19	f2	f2	f2	f	l	c	c	c2	c2	c	c	c	c	c	c	c.l	c	c2	c2	c2	f2	f2	f	f
20	f	f2	f	f2	l	c	c2	c	c	c	l	l	l	c	c	h	c	c2	c2	c2	f2	f2	f2	
21			f2	f2	c	c4	c	c	c	c	c	l	l				h	c	c	c2	f2	f2	f2	
22																								
23																			c2	c2	f3	f2	f2	
24			f	f	h	h	c2	c3	c2	c	c		l		l	l2	l2	l3	l2	c3	f2	f2	f2	f6
25	f3	f6	f	f		c	l.c	c	c	c2	c2	c	c	h	l		h	c	c2	f2	f2	f		f
26	f	f	f			c	h	c2	c3	l.c	l2	c2	c2	c3	c2		c	h2	c2	f2	f	f2	f	
27	f	f2	f2	f3	f2	l			c	c	c	c2	c	c				c	c2	f	f2	f2	f2	f
28		f2	f	f	f	c	c	c	c	l	c	l	l		c.l	l2	l2	l	c2	f2	f5	f2	f	f
29	f3	f	f		f2	c	c2	c2	c	c	c	c		l		l	c.l	c				f2	f3	f2
30	f2		f	f	f	c	c	c	c	c2	c2	c	c2	l	c.l	l	l2	c	c	f4	f	f2		
31				f		c	c	l	c	c	c	c			c	l		h	l2	c.l	f3	f2	f3	f5
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

Jul. 1962 | 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	A	A	F	F	F	5.3^{R}	6.0	5.6	A	A	A	5.6	I 5.8^{R}	I 5.8^{A}	A	A	A	J 5.2^{R}	5.6	6.5	7.1^{F}	F	F	F
2	5.0^{S}	4.7	4.5	I 4.3^{R,F}	4.1	4.6	5.5	7.4	7.2	I 6.7^{A}	I 5.9^{R}	I 5.6^{R}	5.7	5.9	I 5.8^{R}	I 6.0^{A}	I 6.2^{A}	7.2	7.3	8.1	8.3	7.4^{H}	I 7.2^{R,S}	6.1^{F}
3	R^{F}	F	R	R^{F}	R^{F}	4.7^{R}	6.4	6.5	6.0	I 6.0^{A}	I 5.6^{A}	I 5.7^{A}	6.4	U 5.8^{R}	5.9	6.0	6.8	7.7	8.4^{R}	8.1	7.2	6.4^{R,S}	R^{F}	F
4	F	5.6	5.6	I 4.9^{R,F}	4.8^{R}	I 5.1^{R}	J 5.3^{R}	I 5.6^{R}	5.6	A	A	A	A	6.2	6.8	7.2	6.4	6.0	6.4	6.2	6.3	6.2	5.9	R^{F}
5	R^{F}	R^{F}	A	R^{F}	I 5.6^{F}	R	A	A	A	I 6.2^{A}	5.6^{R}	A	A	A	A	R	5.6	5.3	5.4^{R}	5.4	A	F	5.6	I 5.3^{F}
6	I 5.0^{F}	I 5.1^{R,F}	5.1^{R}	I 4.6^{R,F}	I 4.4^{F}	4.4	A	A	A	A	A	A	R	A	R	I 5.6^{R}	5.9	6.0	6.0	5.6^{R}	5.5	I 5.4^{R,S}	5.1	F
7	A	A	F	R^{F}	R^{F}	4.5	5.4	5.7	I 5.7^{A}	5.7	A	A	5.6	A	A	A	A	A	A	I 6.8^{R}	R^{F}	F	F	F
8	R^{F}	5.1^{S}	5.0	4.6	4.5	5.3	6.7	I 7.6^{R,F}	6.6	I 6.1^{A}	6.4	I 6.4^{A}	6.8	6.3	I 6.6^{A}	6.7	6.0	5.8	6.1	I 6.5^{A}	6.5	F	F	5.3^{R}
9	A	A	A	R^{F}	A	I 4.6^{A}	I 4.8^{A}	I 5.5^{A}	6.7^{H}	A	A	A	R	A	5.7	5.8	5.2	5.6	5.1	U 5.6^{R}	5.2	5.0	4.9	4.9^{S}
10	4.7	4.7^{S}	4.7	I 4.8^{R}	4.4	I 4.8^{R}	I 5.6^{R}	6.6	6.3	5.6	I 5.8^{R}	I 5.8^{A}	I 5.8^{A}	5.8	5.9	5.6	5.4	5.5	5.9	6.1	C	C	C	C
11	C	C	C	C	C	C	C	C	C	R	A	6.1	5.8	5.9	6.3	6.6	6.5	I 6.1^{A}	I 5.6^{A}	5.9^{R}	A	F^{S}	F	5.9^{F}
12	A	R^{F}	R^{F}	R^{F}	I 4.6^{A}	I 4.7^{A}	5.1	5.9	5.4^{R}	5.8	A	A	A	A	R^{S}	A	C	C	C	C	C	5.6	5.4^{F}	F
13	F^{S}	F	F	F	F	4.6	5.4	J 5.3^{R}	6.1	A	A	A	A	A	5.7^{S}	5.6	5.1	I 5.2^{R}	5.6	I 5.8^{A}	6.1	A	F	A
14	R	F	R	F	R^{F}	A	A	I 6.0^{A}	I 6.0^{A}	A	A	A	R	A	6.0	I 5.8^{A}	5.6^{S}	5.5	5.6	6.9	I 7.4^{R}	6.9^{S}	I 6.6^{R,F}	I 5.6^{R,F}
15	F^{S}	F	A	F	F	4.9^{S}	5.4	6.3	I 6.0^{A}	A	R^{S}	5.7	5.6	I 5.6^{A}	5.9	6.3	5.7	5.6	5.9	5.9	6.6	6.8	6.4	5.5
16	5.0	R^{F}	F	R^{F}	F	5.3^{F}	6.1^{F}	6.3	6.7	7.2	A	A	6.1	6.4	6.3	5.7	5.9	A	A	7.5	I 8.0^{E,S}	F^{S}	F	R^{F}
17	R	A	R^{F}	F	F	R^{F}	6.0^{F}	7.0^{R}	6.9	6.0^{R}	5.9	6.1	6.5	I 7.0^{A}	7.5	6.4	I 5.8^{A}	5.5	6.0	6.5	R^{S}	R^{S}	F	A
18	F	4.3	4.1	F	F	4.7	6.7	I 6.3^{A}	I 6.0^{A}	6.6	5.8^{F}	I 5.6^{A}	I 5.6^{A}	6.1	6.5	6.9	6.6	6.5	5.8	6.9^{S}	8.0^{S}	7.6^{S}	6.2	I 5.7^{F}
19	I 5.4^{F}	I 5.1^{F}	I 4.7^{F}	4.4^{F}	4.3^{F}	4.9^{F}	6.6^{S}	8.5^{V}	I 9.9^{R,E}	I 8.0^{R}	6.2	6.9	I 6.1^{A}	I 6.2^{A}	6.3	6.4	6.3	5.9	6.8	I 7.2^{A}	R^{S}	F	F	F
20	F	F	F	F	F	A	6.3^{F}	7.8^{F}	7.7^{F}	6.7	5.9	5.3	5.9	5.6	6.0	6.5	6.6	I 6.8^{C}	I 6.8^{A}	6.9	7.5	I 7.1^{F}	F	F
21	R^{F}	R^{F}	R^{F}	F	F	R^{S}	5.3	6.4	7.2^{S}	6.7	5.4	5.7	6.7	7.3	7.1	7.6	6.8	6.1	5.8	6.9	6.8	F	F	F
22	F	F	F	F	F	F	5.6	6.9^{H}	9.5^{R}	7.1^{F}	I 5.6^{A}	5.6	6.0	I 6.9^{A}	7.1	6.9	5.9	5.7	5.5	6.0	F	F	F	F
23	F	F	F	F	F	F	6.0	I 7.1^{F}	6.4^{F}	6.7	5.4	5.8	6.9	6.9	6.6	6.2	5.8	5.9	6.7	7.0	I 6.5^{R,S}	I 6.1^{F}	I 5.5^{F}	I 5.0^{R,F}
24	F	F	F	4.4^{F}	I 4.2^{F}	3.9	4.5	5.5	7.6	7.1^{R}	6.7	5.4^{R}	5.6	5.8	6.5	6.3	I 5.8^{A}	I 5.6^{A}	5.5	5.9	6.2	I 5.6^{R,E}	F	F
25	F	F	R^{F}	F	F	4.6^{F}	5.3	6.0	5.5^{H}	5.9	U 5.5^{R}	5.1	5.5	6.6	7.2	7.1	6.3	6.0	5.2	I 5.4^{A}	I 5.7^{A}	5.9	5.7	I 5.6^{R,F}
26	I 5.2^{E,S}	5.1^{F}	5.1^{F}	I 4.8^{F}	4.6^{F}	4.0	I 4.3^{R}	4.2	A	A	R	C	C	C	C	C	C	C	6.3	7.1	7.6	7.6^{V}	6.7	7.0
27	6.3^{F}	R^{F}	F	F	4.7^{R}	4.5	4.5	U 4.4^{R}	5.0	I 5.2^{A}	5.9	J 5.6^{R}	6.2	5.5	5.5	I 5.2^{C}	5.2	C	A	5.8	6.6	6.2	5.4	F
28	F	I 4.6^{F}	I 4.5^{F}	F	F	4.4	I 4.4^{A}	5.0	5.3	I 5.1^{R}	6.0	6.4	6.2	5.5	J 5.1^{R}	5.2^{H}	5.3	5.6	6.1	7.0	6.8	F	R^{F}	F
29	F	F	3.7	3.4	3.5	3.8	4.9	I 4.7^{A}	5.0	A	R^{S}	A	5.5	5.6	6.5	6.8	7.0	5.7	I 5.4^{R}	5.4	4.7	I 4.4^{A}	F^{S}	F
30	I 4.2^{F}	F	F	F	I 3.6^{F}	4.0	4.2^{R}	5.0	5.3	5.4	5.4	R	A	A	6.4	6.1	6.5	6.3	6.0	6.4	6.3	5.3	4.9	4.6
31	I 4.5^{F}	4.1^{F}	I 4.0^{F}	3.7	3.6^{F}	4.1	I 4.8^{R}	6.1	6.6	5.5	G	5.4	I 5.6^{R}	6.4	8.1	6.5	6.6	5.0^{R}	I 5.2^{A}	5.9	5.7	I 4.8^{R,E}	I 4.3^{F}	4.0^{S}
No.	9	10	11	10	14	23	27	28	26	21	18	19	22	22	25	26	27	26	27	30	23	18	15	13
Median	5.0	4.9	4.7	4.5	4.4	4.6	5.4	6.0	6.2	6.1	5.8	5.7	5.8	6.0	6.3	6.3	5.9	5.8	5.9	6.5	6.6	6.2	5.6	5.5
U.Q.	5.3	5.1	5.1	4.8	4.6	4.9	6.0	6.8	6.9	6.7	6.0	6.1	6.2	6.4	6.7	6.7	6.5	6.1	6.3	6.9	7.4	6.9	6.4	5.8
L.Q.	4.6	4.6	4.1	4.3	4.1	4.4	4.8	5.5	5.5	5.6	5.6	5.6	5.6	5.8	5.9	5.8	5.6	5.6	5.5	5.9	6.1	5.4	5.1	5.0
Q.R.	0.7	0.5	1.0	0.5	0.5	0.5	1.2	1.3	1.4	1.1	0.4	0.5	0.6	0.6	0.8	0.9	0.9	0.5	0.8	1.0	1.3	1.5	1.3	0.8

foF2

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

The Radio Research Laboratories, Japan.

A 1

12

IONOSPHERIC DATA

Jul. 1962 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	3.8	4.0	A	A	A	A	A	A	A	A	A	4.0^{H}	A					
2						3.3^{L}	3.7^{H}	I4.0^{A}	A	A	A	4.6^{R}	4.6^{R}	R	A	A	A	A	A					
3						A	A	A	A	A	A	A	4.5	4.5^{R}	4.5	4.3	4.2	4.0	A					
4						L	3.8^{L}	4.1	A	A	A	A	A	R	R	A	4.3^{H}	4.0	L					
5						A	A	A	A	A	A	A	A	A	A	4.3^{R}	4.2^{L}	3.9	L					
6							A	A	A	A	A	A	A	4.6	R	A	R	A	3.5^{L}					
7						3.2	A	A	A	A	A	A	R	A	A	A	A	A	A					
8						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
9									A	A	A	A	R	A	I4.5$^{R}_{S}$	I4.4^{A}	4.1	4.0	L					
10						L	I3.9$^{L}_{H}$	4.0^{H}	I4.3^{A}	4.5^{R}	R	A	A	I4.5$^{R}_{S}$	I4.4^{R}	4.4	I4.2^{A}	A	A					
11						C	C	C	C	A	A	A	A	R	I4.4^{A}	I4.3^{R}	4.3^{R}	I4.0^{A}	A					
12						A	I4.0^{R}	I4.0^{R}	A	A	A	A	A	A	A	A	C	C	C					
13							A	4.1	A	A	A	A	A	A	A	4.3	I4.2^{R}	R	L					
14						A	A	A	A	A	A	A	4.6^{R}	A	A	A	4.1	A	A					
15						L	3.5	A	A	A	I4.4^{A}	I4.5^{A}	R	A	A	4.1	4.2^{H}	3.9^{L}	L					
16						L	L	4.2	4.5^{H}	4.5^{H}	A	A	A	4.6	4.6	4.5	A	A	A					
17							A	A	4.2	A	A	R	4.6	A	A	A	A	4.0	L					
18						L	L	A	A	A	A	A	A	A	4.5	4.4	R	L	A					
19						L	A	A	A	I4.6^{A}	4.7	I4.6^{A}	I4.6^{A}	I4.6^{A}	4.4	4.2	I4.2^{A}	4.0	3.6^{L}					
20							A	A	4.3	4.5	4.5^{H}	4.7	4.6	4.6	4.5	4.3	A	C	A					
21							3.9^{L}	4.0	4.2^{L}	I4.5^{A}	4.6	4.7	4.6^{H}	I4.4^{A}	4.6	4.4	I4.1^{A}	A	A					
22						L	I3.8^{L}	4.1	4.2^{H}	4.5^{H}	I4.6^{A}	I4.4^{A}	4.7^{H}	A	A	A	4.2	L	L					
23							A	A	A	I4.4^{A}	4.6	I4.6^{A}	4.6	I4.6^{A}	I4.5^{A}	I4.3^{A}	4.3	4.0^{L}	L					
24							3.6	4.1^{H}	I4.2^{A}	I4.4^{A}	4.5	4.6	4.6^{H}	A	A	A	A	A	A					
25							3.6^{L}	3.8	4.3	4.3	4.6^{H}	4.6	I4.6^{A}	I4.4^{A}	I4.3^{A}	4.3	I4.1^{A}	L						
26						L	3.5	3.9	I4.0^{A}	4.3	4.4	C	C	C	C	C	C	C	A					
27						L	L	4.0^{L}	4.3^{R}	A	A	A	A	A	4.3	I4.2^{C}	4.0	C	A					
28							A	I3.9^{A}	4.1	4.4^{H}	4.3	I4.3^{A}	4.5	4.3	4.3	4.2^{L}	4.1^{L}	I3.8^{A}	3.2^{L}					
29							3.5	I3.8^{A}	4.0	I4.2^{A}	4.6	I4.4^{A}	4.4^{H}	4.6	4.3	4.1	I4.0^{L}	3.7	L					
30							A	4.0	4.1^{L}	4.3	4.2	4.2^{R}	A	A	A	4.3	I3.9^{R}	3.7	A					
31							L	4.0^{L}	4.2	4.3	4.6	4.5	4.4^{R}	I4.5^{R}	I4.3^{A}	I4.2^{A}	I4.1^{A}	I3.9^{A}	A					
No.						2	12	17	14	14	13	13	14	12	15	19	19	14	3					
Median						3.2	3.8	4.0	4.2	4.4	4.6	4.6	4.6	4.6	4.4	4.3	4.2	4.0	3.5					

foF1

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

The Radio Research Laboratories, Japan.

A 2

IONOSPHERIC DATA

Jul. 1962 | foE | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	A	A	A	R	R	B	B	B	A	A	A	B					
2						B	A	A	A	A	R	A	R	R	3.40	I3.10R	2.90	2.65	A					
3						2.00	A	A	A	A	A	A	B	R	R	R	R	A	A					
4						B	I2.60A	2.85	3.05	A	A	A	A	A	A	A	3.05	I2.75A	R					
5						A	I2.55A	I2.85A	3.10	A	A	A	A	A	A	A	A	R	A					
6						A	A	A	A	A	A	B	A	R	B	R	R	A	A					
7						A	A	2.80	3.05	3.20	3.35	3.50	A	A	A	A	A	A	A					
8						A	A	A	3.20	A	A	A	A	A	A	A	A	A	A					
9						A	A	2.80	3.10	3.25	A	R	A	R	A	A	A	A	A					
10						B	I2.50R	2.95	A	R	A	A	A	A	I3.40A	3.20	2.95	2.60	A					
11						C	C	C	C	B	A	A	B	B	R	A	A	A	A					
12						A	A	A	A	A	B	R	R	3.45	3.35	A	C	C	C					
13						A	A	A	A	A	A	A	A	A	A	R	2.85	2.60R	B					
14						A	A	A	A	A	A	A	A	A	R	I3.10R	I2.90A	2.55	A					
15						E	A	A	A	A	A	A	A	I3.45RI	3.30A	3.10	A	A	A					
16						B	2.30	2.85	A	A	A	A	A	A	A	R	A	A	B					
17						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
18						A	A	I2.90A	I3.15A	A	A	A	A	A	A	3.25	I3.00A	2.55	A					
19						A	2.50	A	A	A	A	A	A	A	A	I3.25R	3.05	2.65	A					
20						B	A	A	A	A	A	A	A	A	3.40	I3.30A	A	C	A					
21						A	A	A	A	A	A	A	A	A	A	I3.25A	3.00	I2.60A	A					
22						A	A	A	A	A	A	A	R	A	A	A	A	A	A					
23						A	A	A	A	A	A	A	A	A	A	A	2.95	A	A					
24						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
25						B	A	A	A	A	R	A	A	A	A	A	A	A	A					
26						B	2.35	A	A	A	A	C	C	C	C	C	C	C	A					
27						B	A	A	A	A	A	A	A	A	A	C	A	C	A					
28						B	A	A	3.00	A	A	A	A	A	A	3.15	A	A	A					
29						B	A	A	A	3.05	A	A	A	A	A	3.05	A	A	A					
30						B	A	A	2.95	3.05	A	A	A	A	A	A	A	2.45	A					
31						B	A	A	R	3.05	R	R	R	A	A	A	A	A	A					
No.						2	6	7	8	5	1	1		2	5	10	9	9						
Median						E	"2.50	2.85	3.10	3.05	3.35	3.50		"3.45	3.40	"3.20	2.95	2.60						

foE

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

The Radio Research Laboratories, Japan.

A 3

IONOSPHERIC DATA

Jul. 1962 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J7.6	J7.7	J5.9	E	E	2.6	3.4	J4.0	J7.7	J14.3	J5.8	J4.9	4.7	J5.4Y	6.7	J7.8	J14.4Y	J3.5	J4.1	J3.3	J6.4	J5.1	J3.5	J3.2
2	J1.9	J2.3	E	J3.1	J2.8	2.3	3.2	J4.8Y	J4.5	J5.9	4.6	4.1	4.2	4.4	4.5	J5.9	J6.3	J6.3	J5.3	J4.6	J4.3	J3.5	J2.8	J6.0
3	J3.5	J3.8	J4.9	J4.9Y	J3.1	J3.5	J5.1	J4.2	J4.5	J7.3	J5.5	J5.9	4.2	4.3	G	G	G	3.2	J5.0	J3.0	J6.4	J2.4	J7.8Y	J2.9
4	E	J2.7	J2.2	J2.2	J3.5	J3.1	3.2	J4.3	J5.8	J7.0	J11.5Y	J8.3	J8.2	4.5	3.7	J6.1	3.7	3.2	3.2	J5.0	J2.8	J3.1	J4.0	J3.6
5	J6.1	J3.5	J7.0	J5.3	J2.2	J3.8	J5.0	J7.8	J6.0	J7.6	J5.3	J7.8	J6.4	J7.4	J5.1	3.8	J5.2	G	J3.4	J4.2	J5.2	J3.6	J2.5	J2.6
6	E	J1.9	J3.3	J3.5	J2.8	J3.5	J7.3Y	J10.7Y	J12.2	J12.6	J14.9	J7.0	4.5	J7.4	4.2	4.7	4.1	J3.9	2.7	2.5	J2.4	S	J3.3	J3.8
7	J6.0	J7.9	J3.3	J3.3	J2.4	J3.4	J5.0	J5.0	J7.6	J4.8	J7.4	J7.5	4.3	J6.2	J8.3	J8.3	J6.5	J7.6	J8.6	J11.7	J7.4	J3.8	J4.3	J3.4
8	J2.9	J2.1	E	J2.3	J2.3	J3.3	J7.7	J7.0	J5.4	J14.6	4.4	J4.8	J6.1	J7.9	J11.0	J6.6	J5.3	J6.9	J3.5	J8.1	J4.0	J3.8	J7.7	J6.0
9	J7.3	J6.1	J7.3	J3.5	J7.1	J7.1	J6.0	J8.6	J6.6	8.3	J8.5	J7.7	4.1	J5.5	4.2	J4.3	3.9	3.1	J2.5	B	J2.3	J5.1	J2.9	J2.5
10	J2.5Y	2.4	J1.9	E	E	B	G	3.2	J5.4	G	4.0	J6.0	J7.2	3.8	4.2	4.4	J4.8	J4.6	J5.3	J5.6	C	C	C	C
11	C	C	C	C	C	C	C	C	C	J5.6	J6.1	4.5	J5.0	4.0	4.8	J7.5Y	J4.3	J7.5	J11.0	J6.0	J12.0	J4.9Y	J6.0	J6.2
12	J7.3	J3.1	J6.1	J2.9	J5.5	J5.0	3.6	4.0	J5.1	J5.5	J10.0	J7.7	J5.0	J6.3	4.2	J7.6	C	C	C	C	C	E	J2.4	J2.4
13	J2.8	J2.3	J3.6	J3.3	J2.5	J2.9	J5.1	J7.0	J7.3	D20.0D	J14.3	J12.0Y	J12.0	J8.5	J4.8	G	4.1	4.1	J3.2	J6.0	J4.1	J7.3	J3.8	J7.5
14	J7.2	J3.8	J2.5	J2.8	J7.0	J8.4	J7.5	J6.9	J8.1	J7.1	J7.9	J7.0	3.8	J8.3	J7.5	J8.0	J8.5	J5.3Y	J3.8	J5.4	J4.9	J4.9	J5.8	J3.2
15	J2.3	J3.3	J6.1	J3.2	J2.9	J3.3	J5.2	J5.9	J8.1	J11.8Y	4.3	J4.5	4.2	J8.1	J7.8Y	G	3.7	3.1	J6.6Y	E	J2.9	J3.1	E	E
16	E	E	E	E	E	2.0	G	G	3.2	4.1	J6.3	J8.1	J6.3	4.2	4.0	3.5	4.2	J7.3	J7.5	J6.3	J6.3	J6.5	J5.1	J3.2
17	J5.5	J5.1	J4.5	J3.1	J4.1	J4.4	J5.3	J5.0	4.0	J5.9	4.9	4.3	J7.1Y	J7.0	J8.2	J7.8	J7.0	J3.8	J3.6	J6.0	J5.1	J7.4	J3.5	J6.1
18	J2.9	J3.0	J3.1	J2.9	J2.2	2.7	3.2	J7.3	J11.7	J8.2	J7.8	J8.8	J6.4	J5.1	3.7	G	J5.0	J4.4	J5.7	J7.6	J4.0	J4.6	J2.9	J8.3Y
19	E	J1.9	J2.3	J3.0	J2.5	J2.9	J5.0	J7.3	J6.0	J17.5	J5.3Y	J6.0	J5.9	J8.4	3.7	4.2	J5.9	J6.1	J3.4	J10.9Y	J8.3	J6.0	J3.2	J2.4
20	J3.8	J3.3	J2.8	J3.3	J5.1	J7.5	J7.0	J4.9	J5.9	4.0	J5.1	J5.3	4.3	3.8	G	4.5	J5.3	C	J7.8	J4.5	J6.1	J2.9	J6.0Y	J5.5
21	J3.2	J6.0	J4.5	J6.3	J2.9	J3.0	J3.3	3.2	3.7	J7.3	3.9	4.1	4.0	J5.0	4.0	4.0	J4.6	J5.1	J4.7	J4.0	J6.3Y	J7.6	J4.1	J3.9
22	J7.3	J2.4	J3.6	J3.0	E	J3.3	3.0	3.7	3.9	4.1	J6.3	J5.9Y	4.0	J8.3	J8.7	J6.0	J4.1	J3.4	J4.5	J6.0	J8.0	J7.3	J5.1	J6.1
23	J6.0	J3.1	J3.1	J4.2	J3.6	2.6	J4.2	J4.8	J5.0	J4.6	J4.3	J7.5	J6.0	J7.3	J8.8	J6.1	3.2	3.1	J3.4	J3.2	J8.2	J6.0	J3.1	J6.0
24	J2.5	J2.9	J2.6	J2.0	J2.3	J3.8	J3.3	3.3	J5.0	J12.1	4.1	3.5	3.7	J6.0	J8.1	J8.0	J8.5	J7.3	J4.1	J7.5	J7.8	J6.5	J3.5	J6.1
25	J3.2	J3.1	J5.5	J3.3	J2.9	2.2	3.0	3.2	3.6	3.5	G	3.8	4.5	J4.6	J4.5	4.2	J4.3	J3.0	J3.2	J7.0	J8.5	J5.8	J3.1	J3.0
26	J2.4	J3.1	J2.3	J2.0	J2.0	G	G	J3.5	4.2	J6.0	3.9	C	C	C	C	C	C	C	J5.7	J3.9	J3.1	J6.0Y	J5.9	J3.1
27	J7.7	J7.0	J7.0	J3.3	J2.3	J2.2	2.9	3.3	3.8	J4.9	J5.0	J5.1	J5.5	J5.9	4.0	C	J3.0	C	J5.8	J7.1	J3.1	J2.8	J2.5	J2.3
28	J3.0	J3.3	J2.5	J2.4	J2.4	J3.3	J4.0	J4.4	G	3.4	3.8	J7.8	J5.2	J5.1	J5.7	G	J3.5	J3.9	J3.1	J3.8	J3.8	J5.2	J7.4	J3.2
29	J2.3	J2.0	J2.0	J2.6	J2.1	B	3.2	J4.3	J4.0	J5.1	J5.2	4.6	3.6	3.7	J4.4	G	3.7	J2.9	J2.5	J1.9	J3.4	J7.0	J3.3	J1.8
30	J3.5	J3.3	J2.9	J2.5	J3.3	J3.3	J4.6	3.6	3.2	J7.2Y	3.9	4.2	J7.2	J7.1	J5.1	4.2	3.4	J4.0	J3.8	J3.8	J2.6	J3.3	J3.8	J2.6
31	J1.8	E	E	E	J1.8	J3.2	3.0	3.1	3.2	G	G	3.6	G	4.3	4.2	J6.5	J5.0	J5.0	J7.5	J2.8	J2.3	J2.9	J3.3	J2.5
No.	30	30	30	30	30	28	30	30	30	31	31	30	30	30	30	29	29	27	30	29	29	29	30	30
Median	3.1	3.1	3.1	3.0	2.5	3.3	3.8	4.4	5.0	6.0	5.2	5.9	4.8	5.7	4.5	4.5	4.3	4.0	4.1	5.0	4.9	4.9	3.5	3.2
U.Q	6.0	3.8	4.9	3.3	3.3	3.6	5.1	6.9	6.6	8.3	7.4	7.7	6.3	7.4	7.5	7.0	5.6	6.1	5.7	6.6	6.9	6.2	5.1	6.0
L.Q	2.3	2.3	2.3	2.3	2.2	2.6	3.2	3.5	3.9	4.6	4.1	4.5	4.2	4.4	4.0	3.6	3.7	3.2	3.4	3.6	3.1	3.2	3.1	2.6
Q.R	3.7	1.5	2.6	1.0	1.1	1.0	1.9	3.4	2.7	3.7	3.3	3.2	2.1	3.0	3.5	3.4	1.9	2.9	2.3	3.0	3.8	3.0	2.0	3.4

foEs

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

The Radio Research Laboratories, Japan.

A 4

IONOSPHERIC DATA

Jul. 1962 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	z.z			z.4	3.0	3.9	A	A	A	$^{u}4.9^{R}$	$^{E}4.7^{R}$	A	A	A	A	z.7	4.0	3.z	5.4	3.0	3.0	1.8
2	1.8	1.7		1.9	E	z.z	3.0	$^{u}4.8^{R}$	$^{u}4.5^{R}$	A	$^{E}4.6^{R}$	4.0	4.1	$^{E}4.4^{R}$	$^{u}4.5^{R}$	A	A	6.3	5.3	4.6	$^{E}4.3^{R}$	3.3	z.8	1.9
3	E	3.0	3.0	1.8	E	3.5	5.1	$^{E}4.z^{R}$	4.5	A	A	A	3.9	3.8				3.0	5.0	z.3	5.1	z.0	z.5	z.5
4		E	E	E	z.1	z.5	3.z	4.0	5.3	A	A	A	A	$^{E}4.5^{R}$	3.7	5.8	3.5	z.9	z.9	$^{u}5.0^{R}$	z.5	$^{E}3.1^{R}$	3.5	3.4
5	4.8	$^{E}3.5^{R}$	A	3.5	1.8	$^{E}3.8^{R}$	A	A	A	A	5.1	A	A	A	A	3.7	3.7		$^{u}3.4^{R}$	4.0	A	3.0	z.0	E
6		E	1.9	z.5	E	3.5	A	A	A	A	A	A	$^{E}4.5^{R}$	3.9	$^{E}4.z^{R}$	$^{E}4.7^{R}$	$^{E}4.1^{R}$	$^{E}3.9^{R}$	z.4	z.5	1.9	S	z.8	z.8
7	A	A	1.8	E	1.8	z.4	4.9	$^{u}5.0^{R}$	A	$^{u}4.8^{R}$	A	A	4.1	A	A	A	A	A	A	4.5	5.3	z.8	4.0	1.9
8	z.0	E		E	E	3.1	5.z	5.0	5.3	A	$^{u}4.4^{R}$	A	5.0	5.5	A	5.5	5.0	5.5	3.5	A	3.z	3.3	5.1	4.0
9	A	A	A	z.6	A	A	A	A	6.3	A	A	A	4.1	A	3.9	$^{E}4.3^{R}$	3.3	3.0	z.3	B	1.9	z.1	1.8	E
10	E	E	E			B		$^{u}3.z^{R}$	5.z		$^{E}4.0^{R}$	A	A	3.8	$^{E}4.z^{R}$	4.0	4.6	$^{u}4.6^{R}$	5.1	$^{E}5.6^{R}$	C	C	C	C
11	C	C	C	C	C	C	C	C	C	5.0	A	$^{E}4.5^{R}$	5.0	$^{E}4.0^{R}$	4.8	3.9	3.9	A	A	z.3	A	1.8	4.z	3.4
12	A	E	z.6	z.3	A	A	3.5	3.6	4.9	5.1	A	A	A	A	$^{E}4.z^{R}$	A	C	C	C	C	C		E	1.8
13	1.7	E	z.9	1.8	1.8	z.6	4.4	3.4	5.3	A	A	A	A	A	4.8		3.9	$^{E}4.1^{R}$	$^{u}3.z^{R}$	A	4.0	A	z.7	A
14	1.9	z.3	E	1.7	z.0	A	A	A	A	A	A	A	$^{u}3.8^{R}$	A	5.z	A	3.z	5.z	3.3	$^{E}5.4^{R}$	$^{E}4.9^{R}$	4.6	4.0	E
15	E	E	A	E	E	z.8	z.8	4.9	A	A	$^{E}4.3^{R}$	$^{E}4.5^{R}$	$^{E}4.z^{R}$	A	4.8		3.3	z.9	z.3		$^{u}z.9^{R}$	1.8		
16						1.9			3.z	3.8	A	A	5.3	3.8	3.8	3.5	4.z	A	A	6.0	5.4	1.8	1.8	3.0
17	E	A	z.6	z.0	z.4	3.1	5.1	$^{E}5.0^{R}$	3.5	5.z	4.9	$^{E}4.3^{R}$	3.8	A	7.0	4.6	A	3.7	$^{E}3.6^{R}$	5.3	4.8	z.0	z.1	A
18	z.0	z.1	z.0	1.9	z.0	z.4	3.1	A	A	5.4	5.z	A	A	4.8	3.5		3.4	3.8	4.3	5.5	E	E	1.9	E
19		E	E	1.8	z.0	z.6	4.9	5.6	5.4	7.0	3.9	5.7	A	A	3.7	3.7	5.5	3.9	3.1	A	1.8	4.z	z.7	z.0
20	z.9	z.0	E	z.0	3.5	A	5.5	4.7	3.9	3.5	3.7	3.9	3.8	3.8		3.5	5.0	C	A	3.6	1.9	E	z.1	1.8
21	z.0	3.0	1.7	1.8	z.5	$^{E}3.0^{R}$	3.3	3.z	3.3	5.7	3.8	4.0	3.9	4.9	3.7	3.9	4.6	$^{u}5.1^{R}$	3.8	z.1	z.8	4.3	z.z	E
22	z.7	E	E	1.8		z.5	z.8	3.0	3.5	3.4	4.8	4.7	4.0	A	5.3	4.7	3.5	3.z	3.z	z.7	z.1	5.3	z.7	1.9
23	1.9	1.8	z.5	z.5	E	z.4	4.1	4.4	4.6	$^{u}4.6^{R}$	4.0	5.4	4.0	4.7	5.0	4.7	3.1	z.9	z.8	z.z	z.0	4.0	1.9	1.8
24	E	1.7	E	E	E	3.3	3.z	3.1	4.8	5.5	3.7	3.5	3.7	5.1	5.9	5.3	A	A	3.9	5.0	3.0	3.0	E	1.9
25	z.9	E	3.z	z.1	z.1	z.1	z.9	3.0	3.4	3.4		3.8	4.5	4.5	4.5	3.7	4.z	3.0	z.7	A	A	4.1	z.0	E
26	1.7	z.0	E	E	E			3.3	A	3.6	3.6	C	C	C	C	C	C	C	5.6	3.9	z.5	z.0	5.5	z.5
27	5.1	4.z	z.7	1.8	E	1.8	z.5	3.z	3.8	A	4.8	$^{E}5.1^{R}$	4.6	5.5	3.7	C	3.0	C	A	3.5	z.1	E	E	E
28	E	1.7	E	E	E	$^{u}3.3^{R}$	A	4.3		3.4	3.7	5.6	4.0	3.5	3.6		3.4	3.9	z.4	1.9	1.9	1.9	z.5	E
29	E	1.7	1.7	E	E	B	3.0	A	3.6	A	3.6	A	3.6	3.7	4.0		3.5	z.9	z.z	E	1.9	A	z.5	E
30	z.1	1.9	E	1.8	z.7	3.z	3.3	3.4	3.z	3.5	3.5	4.0	A	A	5.3	4.0	$^{E}3.4^{R}$	3.4	3.8	3.0	z.z	E	z.0	z.0
31	E				E	z.3	z.7	3.0	3.z			$^{u}3.6^{R}$		$^{E}4.3^{R}$	$^{E}4.z^{R}$	5.8	$^{u}5.0^{R}$	4.6	A	E	E	z.1	E	E
No.																								
Median																								

foEs

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

The Radio Research Laboratories, Japan.

A 5

IONOSPHERIC DATA

Jul. 1962 | f-min | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	1.80	1.70	1.80	1.95	2.00	2.00	2.20	3.45	3.45	3.20	2.05	2.05	1.80	2.00	1.70	1.70	1.65	1.65	1.65
2	1.70	1.65	E	1.70	1.70	1.80	1.80	1.85	1.75	2.00	2.00	2.15	3.15	3.15	2.05	2.00	1.75	1.80	1.75	1.80	1.80	1.75	1.70	1.70
3	1.70	1.65	1.70	1.70	1.70	1.70	1.75	1.90	1.90	2.00	2.00	2.45	3.45	2.05	1.95	2.05	2.00	1.85	1.70	1.70	1.70	1.65	E	1.70
4	E	E	E	1.70	E	1.95	2.00	1.75	1.90	1.70	2.00	2.10	3.00	3.00	2.60	2.05	2.00	1.75	1.70	1.65	E	E	1.70	1.70
5	E	1.70	1.70	1.70	E	1.75	1.75	1.90	1.85	2.00	2.00	2.05	2.05	2.70	1.90	2.00	2.00	1.80	1.75	1.75	1.70	1.65	E	E
6	E	E	1.70	1.70	1.70	1.75	2.00	1.90	1.90	2.00	1.90	3.30	3.10	2.05	3.50	2.00	1.75	1.95	1.85	1.70	1.70	E250 S	E	1.70
7	1.75	1.65	1.70	1.70	1.70	1.70	1.80	1.80	1.95	1.80	2.60	2.05	2.05	3.00	2.05	2.45	2.00	1.75	1.70	1.75	1.70	1.65	1.70	1.70
8	1.65	1.70	E	1.70	1.70	1.70	1.70	1.90	1.85	1.95	2.05	2.00	2.55	2.05	2.55	2.00	1.75	1.80	1.70	1.70	1.70	1.75	1.75	1.70
9	1.70	1.70	1.70	1.70	1.70	1.70	1.80	2.00	1.80	2.00	1.90	2.05	2.10	2.05	3.05	2.00	2.05	1.85	1.75	3.20	1.70	1.75	1.70	1.70
10	E	1.70	1.70	1.70	1.80	2.00	1.85	2.05	2.00	2.45	2.45	2.00	2.45	2.45	2.30	1.75	1.80	2.00	1.70	1.70	C	C	C	C
11	C	C	C	C	C	C	C	C	C	3.45	2.00	2.50	3.20	3.45	2.00	2.25	2.20	2.00	1.80	1.70	1.70	1.70	E	1.70
12	E	E	1.70	E	1.65	1.70	1.75	1.75	1.75	1.90	3.25	2.00	2.60	2.00	2.60	1.80	I 2.00 C	C	C	C	C	1.70	E	E
13	E	E	1.70	E	E	1.70	1.70	1.80	1.75	2.00	2.40	2.70	2.60	2.05	2.00	2.10	1.95	2.00	1.95	1.90	E	E	E	E
14	1.70	E	1.70	E	1.70	1.70	1.75	1.90	1.70	1.90	2.50	1.95	2.00	2.00	1.90	2.00	1.75	1.75	1.75	1.70	E	1.65	E	1.65
15	E	E	E	E	E	E	1.65	1.70	1.75	1.75	2.00	1.70	1.80	1.80	2.00	1.90	1.90	1.70	1.70	1.70	1.65	E	E	E
16	E	E	E	E	E	1.70	1.70	1.80	1.80	1.80	1.95	2.00	2.00	1.95	2.30	1.75	1.70	1.70	1.75	1.80	1.70	E	1.70	1.75
17	1.70	1.70	1.70	1.70	1.65	1.75	1.80	2.00	1.75	1.80	2.10	2.30	2.10	2.00	2.00	1.90	1.75	1.80	1.70	1.75	1.65	1.65	1.70	1.65
18	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.90	1.70	2.00	1.80	2.00	1.95	2.60	2.00	1.70	1.70	1.75	1.70	1.70	E	E	E	E
19	E	E	E	E	E	1.65	1.65	1.75	1.80	1.75	1.80	2.00	2.00	1.95	1.80	1.75	1.75	1.70	1.70	1.65	E	E	E	E
20	E	E	E	E	E	1.70	1.70	1.75	1.75	1.75	2.00	1.85	2.10	2.00	1.80	1.75	1.70	I 1.70 C	1.75	1.70	1.70	1.75	E	1.70
21	1.70	1.65	E	E	1.70	1.65	1.70	1.75	1.85	1.80	2.00	1.85	2.00	2.00	2.05	1.85	1.80	1.80	1.70	1.70	1.65	1.65	E	E
22	1.70	E	E	1.70	E	1.65	1.70	1.70	1.70	1.75	1.95	1.85	1.85	1.75	1.75	1.75	1.70	1.70	1.75	1.70	1.70	1.70	1.70	1.65
23	1.70	1.65	1.70	1.70	E	1.70	1.70	1.70	1.75	1.80	1.80	1.75	2.05	2.00	1.80	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.65	1.70
24	E	E	E	E	E	1.65	1.70	1.80	1.75	1.85	1.95	1.85	1.85	1.80	1.80	1.80	1.75	1.70	1.70	1.70	1.65	1.70	1.70	E
25	1.70	1.70	E	1.65	1.65	1.65	1.70	1.70	1.80	1.90	2.00	2.20	1.95	1.90	1.80	1.80	1.80	1.75	1.70	1.70	1.70	1.65	E	E
26	E	1.70	E	E	1.75	1.75	1.75	1.80	1.75	1.75	1.95	C	C	C	C	C	C	C	1.70	1.75	1.75	1.70	1.70	1.70
27	1.65	1.70	1.65	1.65	1.70	1.65	1.70	1.70	1.80	1.90	2.00	2.05	2.00	2.05	2.00	I 1.85 C	1.80	I 1.75 C	1.70	1.70	1.70	E	1.70	E
28	E	E	E	E	E	1.70	1.75	1.80	1.80	1.95	2.00	2.05	2.15	2.15	2.05	2.00	1.75	1.80	1.70	1.70	1.70	1.70	1.70	E
29	1.65	E	E	E	E	1.80	1.70	1.85	1.85	1.80	1.95	2.10	2.10	2.00	2.15	2.00	1.75	1.80	1.70	1.70	1.70	1.70	1.70	1.70
30	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.95	1.80	1.80	2.05	2.05	1.95	2.00	2.05	1.90	1.70	1.80	1.70	1.70	1.70	1.65	1.70	1.70
31	E	1.70	E	E	1.70	1.70	1.80	2.00	1.90	1.95	1.95	2.05	1.95	2.00	2.00	1.80	1.80	1.80	1.75	1.75	1.75	1.80	1.70	1.70
No.	30	30	30	30	30	30	30	30	30	31	31	30	30	30	30	30	30	29	30	30	29	29	30	30
Median	E	1.65	E	1.65	1.65	1.70	1.70	1.80	1.80	1.90	2.00	2.05	2.10	2.00	2.00	1.90	1.80	1.80	1.70	1.70	1.70	1.65	1.70	1.70

f-min

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

The Radio Research Laboratories, Japan.

A 6

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IONOSPHERIC DATA

Jul. 1962 | 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	A	A	F	F	F	3.00^{R}	3.20	3.00	A	A	A	2.90	I2.90^{R}	I3.00^{A}	A	A	A	J2.85^{R}	3.00	3.10	2.90^{F}	F	F	F
2	2.85^{S}	3.00	2.80	I2.80$^{R}_{S}$	2.85	2.90	2.90	3.15	3.35	I3.55^{A}	I3.00^{R}	I2.75^{R}	2.75	2.90	I3.10^{R}	I3.00^{A}	I2.90^{A}	3.00	2.95	3.00	3.20	2.90^{H}	I3.00$^{R}_{S}$	2.90^{F}
3	R^{F}	F	R	R^{F}	R^{F}	2.90^{R}	3.15	3.25	3.50	I3.25^{A}	I3.25^{A}	3.35	3.00	U2.85^{R}	3.05	2.85	3.00	2.95	3.10^{R}	3.10	3.15	3.00$^{R}_{S}$	R^{F}	F
4	F	2.95	2.90	I2.80$^{R}_{S}$	2.85^{R}	I3.05^{R}	J2.95^{R}	I3.15^{R}	3.10	A	A	A	A	2.85	2.95	3.10	3.15	3.00	3.05	3.05	2.95	2.90	2.90	R^{F}
5	R^{F}	R^{F}	A	R^{F}	I3.20^{F}	R	A	A	A	I2.80^{A}	2.75^{R}	A	A	A	A	R	3.00	2.85	3.00^{R}	3.25	A	F	3.00	I2.90^{F}
6	I2.80^{F}	I2.80$^{R}_{S}$	2.85^{R}	I3.20$^{R}_{S}$	I3.30^{F}	3.25	A	A	A	A	A	A	R	A	R	I2.80^{R}	3.00	3.05	3.10	3.15^{R}	2.85	I2.75$^{R}_{S}$	2.80	F
7	A	A	F	R^{F}	R^{F}	2.80	2.70	2.70	I2.80^{A}	2.85	A	A	2.95	A	A	A	A	A	A	I3.20^{R}	R^{F}	F	F	F
8	R^{F}	2.95^{S}	3.00	3.10	2.90	2.80	2.85	I3.25$^{R}_{F}$	3.20	I3.05^{A}	3.00	I2.90^{A}	3.10	2.90	I3.00^{A}	3.10	3.10	I2.95^{A}	3.15	I3.10^{A}	3.05	F	F	2.75^{R}
9	A	A	A	R^{F}	A	I3.10^{A}	I3.10^{A}	I2.90^{A}	3.10^{H}	A	A	A	R	A	2.75	3.05	2.95	3.05	2.90	U3.10^{R}	3.05	2.95	2.90	2.90^{S}
10	2.90	2.85^{S}	2.95	I2.95^{R}	3.00	I3.00^{R}	I3.15^{R}	3.25	3.25	3.10	I2.80^{R}	I3.10^{A}	I2.95^{A}	2.95	3.05	3.00	3.00	3.10	3.10	I3.15^{A}	C	C	C	C
11	C	C	C	C	C	C	C	C	C	R	A	3.05	2.70	2.65	2.90	3.10	3.20	I3.20^{A}	I3.15^{A}	3.00^{R}	A	F^{S}	F	2.95^{F}
12	A	R^{F}	R^{F}	R^{F}	I2.95^{A}	I2.90^{A}	2.80	3.00	3.00^{R}	3.00	A	A	A	A	R^{S}	A	C	C	C	C	C	2.90	2.90^{F}	F
13	F^{S}	F	F	F	F	3.10	3.00	J2.85^{R}	3.40	A	A	A	A	A	2.80^{S}	2.90	2.85	I2.95^{R}	3.05	I3.10^{A}	3.00	A	F	A
14	R	F	R	F	R^{F}	A	A	I3.25^{A}	I3.30^{A}	A	A	A	R	A	3.10	I3.25^{A}	3.10^{S}	2.95	2.90	3.00	I3.10^{R}	3.05^{S}	I3.00$^{R}_{F}$	I3.25$^{R}_{F}$
15	F^{S}	F	A	F	F	2.90^{S}	2.65	3.05	I3.35^{A}	A	R^{S}	A	2.90	I2.90^{A}	3.05	3.30	3.20	2.90	3.05	2.95	2.80	2.95	3.00	2.90
16	2.85	R^{F}	F	R^{F}	F	3.00^{F}	3.30^{F}	3.20	3.10	3.40	A	A	2.95	2.90	3.05	2.80	2.95	A	A	2.95	I3.10$^{E}_{S}$	F^{S}	F	R^{F}
17	R	A	R^{F}	F	F	R^{F}	3.05^{F}	3.40^{R}	3.35	3.15^{R}	2.80	3.15	2.90	I3.05^{A}	3.20	3.25	I3.00^{A}	3.20	3.05	2.90	R^{S}	R^{S}	F	A
18	F	2.90	2.90	F	F	3.00	3.50	I3.35^{A}	I3.05^{A}	3.35	3.00^{F}	I2.95^{A}	I2.65^{A}	2.85	2.85	3.05	3.10	3.35	3.00	2.85^{S}	3.00^{S}	3.25^{S}	3.10	I3.00^{F}
19	I2.95^{F}	I2.90^{F}	I3.00^{F}	2.90^{F}	2.90^{F}	2.75^{F}	2.90^{S}	3.15^{V}	I3.15$^{R}_{S}$	I3.40^{R}	2.70	3.30	I3.30^{A}	I3.15^{A}	3.05	3.00	3.20	3.05	3.00	I3.15^{A}	R^{S}	F	3.25^{S}	3.10
20	F	F	F	F	F	A	2.90^{F}	3.10^{F}	3.15^{F}	3.40	3.60	I2.60^{R}	3.00	2.65	2.85	3.00	2.95	I3.10^{C}	I3.10^{A}	2.95	3.00	I3.00^{F}	F	F
21	R^{F}	R^{F}	R^{F}	F	F	R^{S}	3.15	3.00	3.45^{S}	3.10	3.20	I2.75^{R}	2.90	3.15	3.05	3.25	3.10	3.25	3.10	3.00	3.15	F	F	F
22	F	F	F	F	F	F	2.90	2.85^{H}	3.20^{R}	3.30^{F}	I3.00^{A}	2.60	2.80	I3.10^{A}	3.20	3.25	3.15	3.10	3.10	3.00	F	F	F	F
23	F	F	F	F	F	F	3.00	I3.35^{F}	3.25^{F}	3.45	2.90	2.80	3.10	3.25	3.30	3.10	3.15	3.05	3.20	3.20	I3.25$^{R}_{S}$	I3.10^{F}	I3.15^{F}	I3.05$^{R}_{F}$
24	F	F	F	3.25^{F}	I3.30^{F}	3.00	2.70	2.80	3.20	3.25	3.20	3.20^{R}	3.10	2.80	I3.10^{A}	3.20	I3.15^{A}	I3.20^{A}	3.10	2.95	3.05	I3.00$^{R}_{S}$	F	F
25	F	F	R^{F}	F	F	3.05^{F}	2.95	3.45	2.80^{H}	3.10	U3.15^{R}	2.85	2.60	2.90	3.00	3.15	3.35	3.20	3.15	I3.10^{A}	I2.90^{A}	2.90	2.85	I2.90$^{R}_{S}$
26	I2.80$^{E}_{S}$	2.70^{F}	2.95^{F}	I2.90^{F}	2.90^{F}	2.95	I2.65^{R}	2.25	A	A	R	C	C	C	C	C	C	C	2.60	2.65	2.80	2.80^{V}	2.70	2.95
27	3.15^{F}	R^{F}	F	F	3.05^{R}	3.20	3.15	U2.40^{R}	2.95	I2.95^{A}	3.05	J2.80^{R}	2.95	2.75	3.00	I3.00^{C}	3.10	C	A	2.95	2.90	3.10	2.95	F
28	F	I2.80^{F}	I2.80^{F}	F	F	3.10	I2.90^{A}	3.10	3.15	I2.95^{R}	2.95	3.10	3.10	2.95	J3.00^{R}	2.80^{H}	2.85	2.95	3.00	3.15	3.20	F	R^{F}	F
29	F	F	3.15	2.95	3.15	3.10	3.20	I3.35^{A}	3.20	A	R^{S}	A	2.95	2.70	3.00	3.00	3.20	3.25	I3.20^{R}	3.20	3.00	I3.00^{A}	F^{S}	F
30	I3.05^{F}	F	F	F	I3.15^{F}	3.20	3.15^{R}	3.15	3.10	3.15	3.20	R	A	A	3.00	3.10	3.05	3.30	3.30	3.20	3.20	3.20	2.90	3.05
31	I3.10^{F}	3.10^{F}	I3.10^{F}	3.15	3.00^{F}	3.25	I3.05^{R}	3.45	3.60	3.30	G	2.80	I2.85^{R}	2.95	3.30	3.25	3.40	3.30^{R}	I3.15^{A}	3.30	3.20	I3.10$^{R}_{S}$	I3.10^{F}	3.10^{S}
No.	9	10	11	10	14	23	27	28	26	21	18	18	22	22	25	26	27	26	27	30	23	18	15	13
Median	2.90	2.90	2.90	2.95	3.00	3.00	3.00	3.15	3.20	3.15	3.00	2.90	2.95	2.90	3.05	3.10	3.10	3.05	3.10	3.10	3.00	3.00	2.95	2.95

M(3000)F2 Sweep 1.60 Mc to 20.0 Mc in 20 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

A 7

IONOSPHERIC DATA

Jul. 1962 | M(3000)F1 | 135° E Mean Time (G.M.T. + 9h.) | **Akita** | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	350	A	A	A	A	A	A	A	A	A	A	350^{H}	A					
2						340^{L}	380^{H}	360^{A}	A	A	A	405^{R}	385^{R}	R	A	A	A	A	A					
3						A	A	A	A	A	A	A	400	380^{R}	380	370	355	330	A					
4						L	350^{L}	A	A	A	A	A	A	R	R	A	350^{H}	350	L					
5						A	A	A	A	A	A	A	A	A	A	375^{R}	350^{L}	360	L					
6							A	A	A	A	A	A	A	395	R	A	R	A	340^{L}					
7						320	A	A	A	A	A	A	R	A	A	A	A	A	A					
8						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
9									A	A	A	A	R	A	I360^{R_S}	I345^{A}	360	340	L					
10						L	I360^{L_H}	370^{H}	I355^{A}	385^{R}	R	A	A	I390^{R_S}	I390^{R}	I360^{A}	A	A	A					
11						C	C	C	C	A	A	A	A	R	I370^{A}	I365^{R}	385^{R}	I340^{A}	A					
12						A	I340^{R}	I340^{R}	A	A	A	A	A	A	A	A	C	C	C					
13							A	370	A	A	A	A	A	A	A	360	I350^{R}	R	L					
14						A	A	A	A	A	A	A	370^{R}	A	A	A	360	A	A					
15						L	360	A	A	A	I410^{A}	I370^{A}	R	A	A	395	350^{H}	350^{L}	L					
16						L	L	365	380^{H}	395^{H}	A	A	A	365	365	345	A	A	A					
17							A	A	385	A	A	R	430	A	A	A	A	I370^{A}	L					
18						L	L	A	A	A	A	A	A	A	370	365	R	L	A					
19						L	A	A	A	I370^{A}	395	I400^{A}	I380^{A}	I375^{A}	395	385	I360^{A}	I350^{A}	340^{L}					
20							A	A	370	400	400^{H}	390	400	375	380	355	A	C	A					
21							345^{L}	380	365^{L}	I385^{L}	380	375	415^{H}	I380^{A}	370	365	I385^{A}	A	A					
22						L	I360^{L}	350	370^{H}	390^{H}	I410^{A}	I420^{A}	365^{H}	A	A	A	380	L	L					
23							A	A	A	A	385	I380^{A}	375	I375^{A}	I370^{A}	I375^{A}	330	340^{L}	L					
24							I340^{A}	360^{H}	I370^{A}	I395^{A}	375	380	390^{H}	A	A	A	A	A	A					
25							355	370	360	395	370^{H}	410	I410^{A}	I400^{A}	I375^{A}	375	I365^{A}	L						
26						L	345	360	I390^{A}	370	425	C	C	C	C	C	C	C	A					
27						L	L	375^{L}	360^{R}	A	A	A	A	A	355	I385^{C}	380	C	A					
28							A	I370^{A}	410	400^{H}	435	I410^{A}	275	400	390	370^{L}	345^{L}	I355^{A}	360^{L}					
29							360	I375^{A}	I380^{A}	I380^{A}	350	I400^{A}	395^{H}	375	I390^{A}	415	I375^{L}	360	L					
30							A	360	390^{L}	400	430	415^{R}	A	A	A	I370^{A}	R	A	A					
31							L	360^{L}	370	420	385	395	415^{R}	R	A	A	A	A	A					
No.						2	12	15	14	13	13	13	14	11	14	18	16	12	3					
Median						3.30	3.50	3.65	3.70	3.95	3.95	4.00	3.90	3.80	3.70	3.70	3.60	3.50	3.40					

M(3000)F1 Sweep 1.60 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 8

IONOSPHERIC DATA

Jul. 1962 | 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						285	295	330	A	A	A	395 A	355	I 370 A	A	A	A	I 370 R	325					
2						350	345	290	280	I 295 A	I 390 R	I 420 R	I 375 R	I 360 R	R	A	A	I 330 A	320					
3						A	295	305	280	I 320 A	I 330 A	I 370 A	350	395	350	390	345	310	280					
4						295	345	305	A	A	A	A	A	I 390 A	350 R	310	300	325	290					
5						A	A	A	A	A	A	A	A	A	A	R	345	I 370 R	330					
6							A	A	A	A	A	A	R	A	R	I 400 R	345	345	300					
7						395	A	A	A	A	A	A	385	A	A	A	A	A	A					
8						345	340	315	295	I 335 A	350	I 380 A	330	I 360 A	I 360 A	I 315 A	I 320 A	I 320 A	295					
9									A	A	A	A	R	A	I 400 R S	345	375	310	330					
10						255	295	300	300	I 350 R	I 350 R	I 340 A	I 340 A	370 R	350 A	355	355	I 360 A	I 305 A					
11						C	C	C	C	295	I 345 A	345	I 400 A	400 R	355	310	305	I 345 A	I 315 A					
12						I 335 A	400	345	I 360 A	390	A	A	A	A	A	A	C	C	C					
13							320 A	I 325 A	295	A	A	A	A	A	A	380	370	I 345 R	310					
14						A	A	A	A	A	A	A	R	A	340	I 350 A	325	I 315 A	310					
15						305	395	305	I 295 A	A	R S	A	385	I 385 A	355	305	305	340	295					
16						280	255	295	345	260	A	A	A	370	340	395	355	A	A					
17							I 300 A	275	295	345	365	315	355	A	A	295	I 330 A	305	325					
18						320	255	A	A	295	I 330 A	I 380 A	I 445 A	385	370	340	305	280	305					
19						355	330	310	255	250 A	405	295	I 305 A	I 330 A	345	330	320	320	305					
20							I 320 A	295	290	270	265	I 465 R	365	445	395	345	345	I 300 C	A					
21							320	310	260	I 340 A	320	I 405 R	375	315	340	290	295	I 270 A	295					
22						340	315 L	345	280	285	I 360 A	455	405	I 350 A	305	300	300	295	295					
23							340	280	295	295	395	I 400 A	335	300	300	325	335	330	280					
24							445	390	300	280	325	305 R	350	400	I 335 A	305	A	A	295					
25							305	295	420	300	310	410	490	360	330	315	290	295						
26						330	405	605	A	A	R	C	C	C	C	C	C	C	A					
27						280	280 L	500 L	380 R	I 390 A	345	I 385 A	355	I 390 A	360	I 365 C	345	C	A					
28							I 330 A	345	345	I 400 R	360	I 340 A	345	345	395	350	395	350	300					
29							300	I 310 A	345	A	R S	A	385	410	335	305	295	295	270					
30							275	305	345	345	340	R	A	A	A	335	305	285	260					
31							I 370 L	275	255	295	G	400	I 400 R	350	295	I 295 A	280	I 275 A	A					
No.						14	25	24	21	20	18	18	21	21	21	24	25	25	23					
Median						325	320	310	295	300	345	380	365	370	350	330	325	320	300					

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

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

Jul. 1962 | h'F | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	270	255	295	255	245	A	A	A	A	A	A	A	A	A	A	240	I255 A	290	I290 A	290 A	250	245
2	295	285	295	305	305	250	245 H	I230 A	A	A	A	200	220	A	A	A	A	A	A	290	255 A	290 A	255	255
3	270	I295 A	295	290	245	A	A	A	A	A	A	A	230	230	225	220	240	245	I250 A	255	I250 A	260	260 A	270 A
4	255	275	260	285	290 A	255	I250 A	A	A	A	A	A	A	A	225	I240 A	245 H	240	245	I250 A	250	I290 A	I300 A	290 A
5	A	A	A	A	280	A	A	A	A	A	A	A	A	A	A	220	I225 A	240	245	270 A	I290 A	I305 A	280	280
6	295	295	270	250 A	280	260 A	A	A	A	A	A	A	A	205	A	A	A	A	245	245	290	295 S	I305 A	A
7	A	A	280	305	320 A	290	A	A	A	A	A	A	200	A	A	A	A	A	A	290	275	I290 A	I305 A	255
8	270	255	245	245	295	265 A	I260 A	A	A	A	A	A	A	A	A	A	A	A	A	A	250	285 A	A	A
9	A	A	A	A	280	A	A	A	A	A	A	A	220 A	I220 A	240 A	I240 A	230	240	245	255	240	250	290	290
10	260	290	275	245	255	245	225 H	240	I230 A	210	A	A	A	220	215	A	A	A	A	A	C	C	C	C
11	C	C	C	C	C	C	C	C	C	A	A	A	A	A	I225 A	240 A	I245 A	I240 A	I265 A	260	I260 A	255	I270 A	280
12	I275 A	295	295 A	240	A	A	A	A	A	A	A	A	A	A	A	A	C	C	C	C	C	270	275	245
13	245	280	I295 A	295 A	290	270 A	I245 A	240	A	A	A	A	A	A	A	220	I240 A	A	A	A	295 A	I290 A	305 A	I295 A
14	295	I290 A	295	310	A	A	A	A	A	A	A	A	220	A	A	A	240	A	A	A	I270 A	I280 A	I270 A	240
15	250	300 F	I300 A	320	290	I260 A	240	A	A	A	I205 A	I205 A	A	A	A	230	210	225	240 A	255	290 A	280	245	245
16	270	295	280 F	280	290	245	240	230	195 H	205	A	A	A	230	235	225	A	A	A	A	A	235	245	I305 A
17	255	I290 A	I300 A	295	255	255	A	A	220	A	A	A	195	A	A	A	A	I235 A	I265 A	I285 A	290 A	230	255	I255 A
18	270	295	295	290 A	280	255	245	A	A	A	A	A	A	A	205	230	245	A	A	A	255	240	240	245
19	280	255	255	295	295 A	A	A	A	A	I235 A	210	I200 A	A	A	210	210	A	A	A	A	250	I285 A	I290 A	295
20	I285 A	300 A	280 F	255	A	A	A	A	A	205	200	205	200	205	220	255	A	C	A	280 A	250	275	250	240
21	250	I290 A	285	285	255	I250 A	I245 A	230	240	I215 A	215	220	195 H	I220 A	245	I225 A	I205 A	A	A	255	250	I295 A	290 F	245
22	I275 A	290	255	255	295	255	245	240	240 A	205	I200 A	I200 A	I215 A H	A	A	A	235	260	255	275	255	I265 A	I290 A	250
23	245	240	I290 A	I305 A	300	255	A	A	A	A	230	I230 A	230	A	A	A	225	240	I250 A	245	255	I250 A	240	250 A
24	280	300	285	245	225	I245 A	I245 A	245 H	I205 A	I205 A	240	220	200	A	A	A	A	A	I245 A	I275 A	250	I280 A	290	290 A
25	I295 A	305	I295 A	305 A	300	260	255	230	230	215	205	205	I210 A	I205 A	I220 A	225	I235 A	I245 A	280	I270 A	I280 A	I290 A	300	270
26	290	315	270	285	270	250	255	I245 A	I215 A	235	200	C	C	C	C	C	C	C	A	325 A	295	290	I300 A	280 A
27	A	A	A	295	260	250	245	220	A	A	A	A	A	A	235	I225 C	235	C	A	290 A	280	255	265	280
28	300	305	310	290	255	A	A	A	200	200 H	195	I210 A	225	195	205	225	240	I255 A	250	245	240	290	280 A	290
29	295	290	255	290	260	245	A	A	A	A	220	I200 A	195 H	220	I220 A	205	I225 A	250	245	245	245	I270 A	I305 A	300
30	290	285	280	255	I260 A	A	A	245	205	200	195	215	A	A	A	I235 A	R	A	A	250 A	245	245	290 A	280
31	295	270	245	280	290	255	235	240	240	200	205	205	195	A	A	A	A	A	A	235	235	245	255	280
No.	24	25	27	28	27	21	16	12	11	12	13	13	15	10	14	17	16	13	15	23	28	30	29	28
Median	275	290	280	290	280	255	245	240	220	205	205	205	210	220	220	225	235	240	250	260	255	280	280	275

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | h'Es | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	100	100	E	E	145	135	120	110	110	110	110	115	110	110	105	105	105	130	115	120	120	110	110
2	110	110	E	105	105	140	130	115	110	110	120	120	145	145	145	140	130	125	120	110	110	120	110	105
3	105	105	105	100	105	135	125	125	120	110	110	110	110	110	G	G	G	125	110	105	105	105	125	110
4	E	105	105	100	105	145	140	140	120	110	120	105	105	105	105	105	135	140	140	120	135	110	110	105
5	105	105	105	105	100	145	140	125	125	120	125	110	115	110	110	110	105	G	130	125	120	120	110	110
6	E	105	105	100	135	145	135	120	110	110	105	110	110	130	135	130	125	110	120	115	110	S	105	110
7	105	105	105	105	115	140	135	125	115	120	110	115	120	110	105	105	105	130	105	120	115	125	110	105
8	105	105	E	105	105	120	110	115	120	105	110	105	105	105	125	105	105	105	100	100	100	120	105	105
9	105	105	105	105	105	105	145	130	130	115	110	110	110	110	105	105	105	110	105	B	120	115	110	110
10	140	110	110	E	E	B	G	145	125	G	110	105	105	110	145	135	130	130	120	115	C	C	C	C
11	C	C	C	C	C	C	C	C	C	120	115	115	110	125	115	110	110	120	110	110	105	115	110	105
12	105	105	105	105	105	105	145	145	115	110	110	110	125	120	135	120	C	C	C	C	C	E	105	105
13	105	100	105	105	105	110	110	120	110	110	110	110	105	105	105	G	145	135	125	115	115	120	115	105
14	105	105	105	100	105	110	115	110	110	105	105	105	110	140	135	130	140	130	130	115	115	110	110	110
15	105	105	105	105	135	120	115	120	115	110	115	115	125	125	130	G	130	130	110	E	110	110	E	E
16	E	E	E	E	E	140	G	G	115	105	105	105	105	105	110	145	140	125	115	110	105	105	105	110
17	105	100	100	100	105	120	115	115	115	115	115	115	120	110	105	110	110	105	140	130	120	115	110	110
18	105	105	105	100	105	145	145	135	130	120	110	105	105	105	125	G	140	135	130	115	105	105	105	130
19	E	105	105	105	105	140	125	120	115	105	135	105	110	110	125	145	140	130	120	115	110	110	115	105
20	105	105	110	105	110	125	120	120	110	110	110	110	110	120	G	145	135	C	115	110	110	110	115	110
21	110	110	110	105	105	115	120	130	130	105	120	110	115	110	115	145	130	135	130	115	120	120	105	105
22	105	105	100	100	E	120	135	145	120	120	115	110	155	105	105	105	145	145	130	115	120	110	110	110
23	105	105	105	105	110	145	135	130	125	120	120	110	110	105	105	105	160	130	120	120	120	110	110	105
24	110	105	105	105	105	120	130	125	115	105	105	105	110	110	105	115	110	110	110	115	110	105	105	115
25	105	105	105	105	110	145	135	135	135	130	G	130	110	110	110	110	105	105	115	110	110	110	105	105
26	105	105	105	105	105	G	G	140	115	115	115	C	C	C	C	C	C	C	110	110	110	115	105	105
27	105	110	105	105	105	130	145	135	120	115	115	110	110	110	115	C	115	C	120	115	105	110	115	105
28	105	110	115	130	145	125	120	115	G	110	130	105	110	110	105	G	105	140	110	105	105	105	115	105
29	110	105	105	105	105	B	130	120	115	115	120	110	110	110	105	G	145	110	105	125	105	105	105	125
30	105	105	105	105	110	135	125	130	140	125	120	110	110	105	105	105	145	135	130	120	110	105	105	105
31	105	E	E	E	105	125	120	125	125	G	G	130	G	115	115	115	120	115	115	110	125	115	130	125
No.	26	28	26	26	26	27	27	29	29	29	29	30	29	30	28	23	28	26	30	28	29	28	29	29
Median	105	105	105	105	105	130	130	125	115	110	115	110	110	110	110	110	130	125	120	115	110	110	110	105

h'Es

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

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Jul. 1962

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f3	f3	fz			hz	hz	hz	c3	c3	c	c	c	c	cz	cz	cz	lz	h3	f3	f3	f3	fz	fz
2	f	fz		f	fz	hz	h	cz	cz	c	h	h	h	h	h	h	hz	hz	cz	fz	fz	f3	fz	fz
3	fz	f3	f4	fz	fz	h3	hz	hz	h	cz	c	cz	c	c				h	lz	fz	f4	fz	fz	fz
4		fz	f	f	fz	hz	h	h	hz	cz	hz	cz	lz	l	l	lz	h	h	h3	f4	f3	f3	f3	f3
5	f3	f4	f3	fz	fz	hz	hz	hz	h	h3	h	c	c	cz	cz	cz	l		hz	fz	f5	f3	f3	f
6		f	fz	fz	fz	h3	h3	h4	c4	c	cz	c	l	h	h	h	hz	c	c	fz	fz		f3	fz
7	f3	f3	f3	fz	fz	hz	h3	hz	cz	h	cz	cz	h	l	l3	l3	l	h3lz	l5	fz	fz	fz	f3	fz
8	fz	fz		f	f	c3	c3	c	hz	cz	c	c	l	lz	hzlz	lz	l3	lz	lz	fz	fz	fz	fz	f3
9	fz	f3	f3	fz	fz	l3	hz	hz	hz	cz	cz	cz	c	c	l	c	c	lz	lh		f	fz	fz	fz
10	f	f	f						h	h	c	c	cz	c	hl	h	hz	h4	c	f3				
11										h	c	c	c	h	c	c	l	cz	cz	fz	fz	fz	f4	f4
12	f3	fz	fz	fz	f4	l3	hz	hz	cz	cz	c4	c3	h	hz	h	cz							fz	fz
13	fz	fz	f4	fz	fz	lz	cz	hz	c3	cz	cz	c	cz	cz	cz		h	h	hz	fz	f7	fz	fz	fz
14	fz	fz	fz	fz	fz	c4	c4	c3	c3	c4	cz	c	c	hz	h	h3	h	h	h3	fz	f7	f4	f6	fz
15	fz	f	f3	fz	fz	c3	cz	h3	c3	cz	c	c	h	h3	h		h	h	cz		fz	fz		
16						h			c	cz	cz	cz	c	l	c	h	h4	hz	c5	f3	f3	fz	fz	fz
17	fz	f4	f3	fz	f3	c3	cz	c	c	cz	c	cz	h	cz	c3	cz	cz	l	hzl	fz	f3	f	fz	f4
18	f3	fz	f	fz	f	hzl	hz	hz	hz	h	c	c3	cz	cz	h		h	h4	h4	f3	fz	f	fz	f
19		f	f	fz	f3	hz	h4	hz	cz	c3	h	c3	cz	c3	h	hz	hz	hz	c3	f4	f3	f4	f3	fz
20	fz	fz	f	fz	f4	h3	c3	hz	cz	cz	cz	c	c	h		h	hz		c3	f4	f3	fz	f3	f3
21	f3	fz	fz	fz	fz	c7	cz	hz	h	c3	hz	cz	cz	cz	c	h	hz	hz	h3l	f3	f3	f5	fz	f
22	f	fz	fz	fz		c3	hz	hz	hz	h	cz	cz	h	c3	lz	lz	hl	h3	hzl	f3	fz	f6	fz	f3
23	f4	fz	f3	f3	fz	h4l	h4	hz	hz	hz	hz	c3	cz	lz	lz	lz	h	hz	c3	f4	f3	f4	fz	fz
24	f	fz	fz	f	f	h6	hz	hz	cz	lz	l	l	c	cz	c3	c3	c4	cz	c3	f3	f3	fz	fz	fz
25	fz	fz	f5	f4	f3	hz	hz	hz	hz	h		h	c	cz	c3	cz	l3	l3	c3	fz	f3	f4	fz	fz
26	fz	fz	fz	fz	f			h	cz	c	c								l4	f5	f3	fz	f3	f3
27	f5	f4	f4	fz	fz	h	hz	h3	hz	cz	cz	cz	cz	c	c		c		c3	f3	f3	fz	fz	fz
28	f	fz	fz	fz	f	h3	cz	cz		c	h	cz	c	c	cz		lz	hz	cz	fz	fz	fz	f6	fz
29	fz	fz	fz	fz	fz		h4	c3	cz	cz	h	cz	cz	c	c		hz	lz	lz	f	f	fz	fz	f
30	fz	fz	fz	fz	fz	hz	hz	hz	h	h	h	c	cz	c3	cz	lz	h	h3	h3	f5	fz	fz	fz	fz
31	f				f	hz	hz	h	h			h		c	cz	c3	cz	lz	lz	f	f	fz	f	fz
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Jul. 1962 | foF2 | 135° E Mean Time (G.M.T. + 9h.) | **Kokubunji Tokyo** | Lat. 35° 42.4' N, Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J 5.9R	6.1	6.6	5.8	5.3	6.1	6.8	5.6	A	A	u 6.1S	A	A	A	S	I 6.0A	I 5.9A	I 6.0A	I 6.2A	I 6.9S	6.6	u 6.2S	u 6.1S	J 6.5R
2	J 4.8S	I 4.8S	u 4.3S	4.3	4.3	4.4	u 6.4R	u 7.0Su	6.4R	I 6.6R	I 6.5A	A	S	u 6.1R	6.3	A	A	A	7.6	I 7.7S	I 7.2S	u 5.9S	6.1	I 6.0A
3	I 5.6A	5.6	I 5.4A	J 5.4R	4.7	4.4	5.6R	J 6.8R	6.6R	I 5.8A	A	S	S	I 6.4S	I 6.2S	I 6.5S	I 7.2A	I 8.1A	u 9.6R	J 8.3S	u 6.8S	5.9	5.7	u 5.2S
4	u 5.4R	J 5.8R	4.8	4.8	J 4.4F	I 4.6S	6.1	6.3	I 6.0R	u 6.2R	S	S	I 6.1S	6.6	7.3	I 7.5R	6.8	u 6.3R	J 6.4R	6.1R	6.1	5.6	J 5.8R	5.6
5	J 5.1S	5.5	I 5.6F	I 5.0S	J 5.0Su	u 5.1S	5.2	A	A	A	S	I 6.0S	S	S	u 6.0R	I 5.8S	I 6.3S	5.8	5.7	5.5	A	A	A	I 5.0S
6	I 4.8S	5.0	5.1	4.0	3.9	A	A	A	A	S	A	5.9	5.5	A	A	u 6.1S	6.4	7.1	6.7	5.7	5.4	5.4	J 5.1R	5.3
7	u 5.0S	4.8	u 4.5F	I 4.4A	4.3	I 4.2A	5.4	u 6.4R	6.3	A	A	A	A	A	A	5.8	5.7	6.2	6.4	7.4	I 6.0A	I 5.4A	5.1S	6.0
8	J 5.4R	4.9	4.8	4.3	4.3	4.6	I 6.3A	7.1S	6.4	u 5.9R	I 5.9A	I 6.4A	u 6.6R	7.5Su	I 7.5R	7.5R	S	A	A	6.6	u 6.4S	6.3S	A	A
9	A	A	4.4	4.4	4.4	A	S	A	A	A	A	A	A	A	u 6.1R	6.0	I 6.0S	I 5.2S	u 5.6S	I 5.4B	5.3	I 4.3A	I 4.3S	I 4.6S
10	I 4.6S	4.6S	4.5	4.3	4.2	4.4	u 6.0Su	6.3S	u 5.9R	S	A	A	6.2R	A	A	I 5.3A	I 6.0R	J 5.1S	I 6.2A	I 6.4A	6.1	5.6	I 5.4A	A
11	A	I 5.2S	4.5	4.4	4.6	I 4.8S	J 5.4R	6.0S	6.2	I 6.6Su	6.0R	A	A	S	I 7.0S	J 8.2R	I 7.0A	I 6.2A	6.2	u 5.6S	I 6.3A	J 5.8S	6.0	5.6
12	5.3	5.0	5.0	4.8	I 4.4A	I 4.6A	I 4.8S	I 6.4S	I 5.7A	S	u 6.2R	S	S	S	S	I 6.3A	u 6.2S	u 6.6R	u 5.6R	5.6	u 5.5S	u 5.5S	5.4	I 5.0S
13	I 4.4Su	4.2S	J 4.5Su	u 4.4F	4.2	4.5R	5.5	I 5.6Au	6.0R	I 5.6S	I 5.5A	I 5.4A	5.9	u 6.2R	6.1	I 6.0R	I 5.5S	I 5.7A	u 6.4Ru	u 6.2R	6.2	A	S	u 5.3S
14	I 4.1Su	5.1S	4.5	J 4.1Su	u 4.1S	SH	A	A	A	J 6.0A	A	A	6.4	u 5.5R	6.4	5.9	5.8	5.8	5.7	7.3	7.3	6.3	6.0	J 5.4F
15	I 5.6A	4.0	A	A	I 4.0A	4.1	5.6V	6.4	6.4	I 5.8A	I 5.1A	I 5.6A	6.0	6.0	6.8	6.8	6.4R	6.0	5.7	6.1	7.0	7.0R	6.4R	J 5.5R
16	J 5.2R	4.7	u 5.0S	4.8F	4.4	4.9	6.1	5.9	7.0	7.1	I 5.2R	5.5S	J 5.6R	I 7.2R	I 6.8A	5.8	6.3	7.4	J 7.4S	J 8.0R	J 7.7S	J 6.5S	5.9	I 5.7F
17	I 5.4A	5.2	J 5.0F	4.6F	4.7	4.9	6.1	7.4	7.0	5.7	I 6.2S	6.4R	6.6R	u 7.3R	J 8.7R	7.0	6.4	5.7	5.7	6.1	I 6.8S	J 6.8S	5.3	5.8
18	I 5.2A	J 4.6R	I 4.2S	I 4.1S	4.2	5.0	6.4	I 6.5R	I 6.6A	A	A	S	I 5.8A	I 6.3A	7.1	7.8	J 7.8R	I 6.8A	6.1	I 6.8R	I 7.6S	6.5	5.6	I 5.0A
19	I 4.8A	4.4	J 4.0Fu	u 4.0F	u 4.0Su	4.2Fu	6.3R	I 8.2R	J 9.8R	J 8.7Ru	u 7.0R	I 6.4R	7.4R	u 6.6R	u 7.1R	7.2R	u 6.6R	J 6.3R	7.1	u 7.6R	6.1	6.0	5.6	5.9
20	J 5.6R	J 5.6R	J 5.6R	5.5	I 4.4F	I 4.5S	5.5	J 7.8R	J 8.5R	J 7.0R	I 5.7S	I 6.2S	I 6.1Su	6.3R	6.1R	6.9R	7.1	7.3	u 6.5S	6.6	J 6.8S	6.4	6.0	4.4
21	I 4.5Su	4.4Su	u 4.5S	I 4.4C	4.4	3.4H	5.5	7.0	6.7	I 6.2Ru	u 6.1R	I 6.2S	u 6.8R	I 7.8S	8.4R	J 8.4R	I 6.8A	I 6.3A	I 6.6A	u 7.4S	7.1	J 6.4S	5.3	I 5.2S
22	J 5.4R	I 5.2S	J 3.9S	3.8	J 3.8R	4.7	5.4	I 6.9R	8.5	7.5	I 5.7Su	5.8R	u 6.0R	7.2R	7.4	7.5	u 5.9R	5.5R	6.1	6.9	6.8R	5.9	5.2	5.4
23	I 5.6F	4.5	I 4.2A	J 3.8S	3.1	I 3.8A	I 5.9S	7.1	8.0	6.4	5.9	I 6.0A	I 6.8A	7.6	8.0	7.0R	u 5.9R	5.9R	7.3	I 6.4R	J 5.2S	J 5.1R	I 5.0Au	u 4.4S
24	I 4.4A	I 4.4A	4.0	I 4.1A	I 3.4A	I 3.7A	I 4.8A	I 5.7R	7.0	7.0	6.9	5.8S	S	S	I 6.9S	I 7.0R	6.3S	I 5.8A	I 5.8A	I 6.4C	6.5	I 5.4A	u 5.0S	J 4.5S
25	F	F	4.5	I 4.2F	4.0	4.4	J 4.8R	6.3S	6.1	u 6.4Ru	u 5.6R	S	S	u 7.3S	I 7.4S	I 7.4A	7.2	5.9	5.3	5.5	u 5.5S	J 5.2S	5.4	5.1
26	I 5.0S	5.0	5.0	4.8	4.4	4.3	I 4.8S	u 5.4S	I 5.1S	S	A	A	S	5.3R	S	C	C	S	6.1	J 6.5S	7.0S	I 6.4R	u 6.9R	J 6.6R
27	6.2	4.6	4.6	4.4	4.6	u 4.9S	5.1	5.4	I 5.4S	I 5.5S	I 5.6Su	6.2S	I 6.2A	6.4R	6.3	5.9	5.5	5.1	5.4	u 5.6R	6.0	I 5.9A	5.6	I 5.5S
28	J 5.0SI	I 4.6S	I 4.5F	u 4.5Su	4.3S	C	C	C	C	S	S	S	I 6.7S	6.9	I 6.0S	5.9	5.6	5.4S	6.4	I 6.9S	I 6.2S	A	A	S
29	S	4.2	4.2S	3.4	3.4	4.3	S	S	S	S	S	S	I 6.2S	I 6.2SI	I 7.7S	I 8.3S	I 8.1S	6.2	5.2	5.3	S	S	S	S
30	u 3.9S	3.4	3.6	I 3.2S	3.1	3.6S	S	S	I 5.5A	I 6.0S	I 5.6A	I 5.8S	I 5.8A	u 5.9S	I 7.3R	I 7.5S	u 7.7S	u 6.8R	I 6.1A	u 6.0S	J 6.1R	J 5.3S	J 4.9SI	I 4.6S
31	u 4.4S	4.1	4.1	I 3.9S	I 3.5A	I 4.2S	I 5.1A	J 6.8R	6.6R	S	S	u 6.0R	I 6.6R	J 7.0R	I 8.0S	7.9R	A	A	5.8	6.3	5.2S	I 4.0S	I 4.0S	u 4.0S
No.	27	29	30	30	31	27	25	24	24	19	18	16	20	22	25	29	27	27	30	31	29	27	26	27
Median	u 5.1	4.8	4.5	4.4	4.3	4.4	5.5	6.4	6.4	u 6.2	u 5.9	u 6.0	u 6.2	u 6.5	u 7.0	6.9	u 6.3	6.0	6.2	6.4	6.3	5.9	5.5	5.3
U.Q.	5.4	5.2	5.0	4.6	4.4	4.8	6.1	7.0	7.0	7.0	6.2	6.2	6.6	7.2	7.4	7.5	7.0	6.6	6.5	6.9	6.9	6.4	6.0	5.7
L.Q.	4.6	4.4	4.2	4.1	4.0	4.2	5.2	6.0	6.0	5.8	5.6	5.8	6.0	6.2	6.2	6.0	5.9	5.7	5.7	5.7	6.0	5.4	5.1	5.0
Q.R.	0.8	0.8	0.8	0.5	0.4	0.6	0.9	1.0	1.0	1.2	0.6	0.4	0.6	1.0	1.2	1.5	1.1	0.9	0.8	1.2	0.9	1.0	0.9	0.7

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

Jul. 1962 | 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	AS	A	A	A	S	A	A	A	A					
2							S	A	A	B	A	A	S	S	S	A	A	A	A					
3							A	A	A	A	A	S	S	S	S	S	A	A	S					
4							L	A	S	S	S	S	S	A	S	S	S	S	S					
5							A	A	A	A	S	S	S	S	AS	S	S	S	A					
6						A	A	A	A	S	A	4.6	A	A	A	AS	A	A	A					
7							A	A	A	A	A	A	A	A	A	A	L	A	A					
8							A	A	A	S	A	A	A	A	S	A	S	A	A					
9							S	A	A	A	A	A	A	A	A	S	S	S	S					
10						A	S	S	S	S	A	A	A	A	A	A	S	A	A					
11						S	S	S	A	S	A	A	A	S	S	A	A	A	S					
12						A	S	S	A	S	A	S	S	S	S	A	A	A	S					
13						A	L	A	A	S	A	A	S	A	S	S	S	A	S					
14							A	A	A	A	A	A	A	A	AS	4.4	4.2	L	A					
15							3.7	A	A	A	A	A	4.6	U 4.8 S	4.8 L	R	4.4 L	A	A					
16								A	U 4.5 L	L	A	S	A	A	A	S	S	4.0 H	A					
17						S		A	S	S	S	S	S	S	S	4.6	S	A	A					
18								R	A	A	A	S	A	A	S	A	B	A	A					
19							A	A	A	A	A	S	L	S	S	S	S	S						
20						A	A	S	S	S	S	S	S	S	S	S	4.3							
21							L	A	A	S	S	S	S	S	AS	A	A	A	A					
22								A	A	L	S	S	S	AS	A	S	S	S	L					
23						A	S		A	A	A	A	A	A	A	S	S	AS						
24								A	A	S	S	S	S	S	S	A	A	A	A					
25								L	A	A	S	S	S	S	S	A	S	L	L					
26							S	S	S	S	A	A	S	S	S	C	C	A	S					
27							A	S	S	S	S	S	A	A	S	S	S	A	S					
28						C	C	C	C	S	S	S	S	S	S	S	S	S						
29								S	S	S	S	S	S	S	S	S	S	S	S					
30							S	S	A	S	A	S	A	A	S	S	A	A	A					
31							A	A	S	S	S	S	S	S	S	A	A	A						
No.							1		1			1	1	1	1	2	3	1						
Median							3.7		U 4.5			4.6	4.6	U 4.8	4.8	4.5	4.3	4.0						

foF1

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

The Radio Research Laboratories, Japan.

K 2

IONOSPHERIC DATA

Jul. 1962 | 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	S	A	A	S	S	S	S	A	S	S	S	A	S					
2						S	S	S	S	B	S	S	S	S	S	S	S	S	S					
3						S	A	S	A	S	S	S	S	S	S	S	S	S	S					
4						S	S	A	S	S	S	S	S	S	S	S	S	S	S					
5						S	A	A	A	S	S	S	S	S	S	S	S	S	S					
6						S	S	A	S	S	S	S	S	S	B	S	S	S	S					
7						A	S	I 2.75 A	I 3.10 A	A	A	S	S	S	A	A	S	S	B					
8						S	A	A	A	S	S	S	S	A	S	A	S	S						
9						S	S	A	S	A	A	A	A	S	A	S	S	S	S					
10						S	S	S	S	S	S	S	A	S	A	A	S	S	S					
11						S	S	S	S	S	A	S	S	S	S	A	A	S	S					
12						S	S	S	S	S	S	S	S	S	S	A	A	S	S					
13						S	S	A	S	S	S	A	S	S	S	S	S	S	S					
14						S	A	S	S	S	A	A	A	B	B	3.40 B	3.10 B	2.50	A					
15						S	I 2.45 A	I 2.70 A	I 3.00 A	A	B	A	B	I 3.60 B	I 3.40 B	U 3.20 B	I 3.00 B	A	A					
16						B	A	A	A	S	S	S	S	A	A	S	S	2.60	S					
17						S	S	S	S	S	S	S	S	S	S	B	S	S	S					
18						S	B	S	A	B	S	S	S	S	S	A	B	S	A					
19						S	S	A	A	A	B	S	S	S	S	S	S	S	S					
20						S	S	S	S	S	S	S	S	S	S	S	S	S	S					
21						S	S	A	A	S	S	S	S	S	A	S	A	S	S					
22						S	S	A	S	S	S	S	S	S	S	S	S	S	S					
23						S	A	U 2.70	S	A	S	B	A	A	S	S	S	U 2.50	S					
24						S	A	A	A	S	S	S	S	S	S	S	S	S	S					
25						S	S	S	S	A	S	S	S	S	S	S	S	S	S					
26						S	S	S	S	S	S	S	S	S	S	C	C	S	S					
27						S	S	S	S	S	S	S	S	S	S	S	S	S	S					
28						C	C	C	C	S	S	S	S	S	S	S	S	S	S					
29						S	S	S	S	S	S	S	S	S	S	S	S	S	S					
30						S	S	S	S	S	S	S	S	S	S	S	B	A	S					
31						S	A	S	S	S	S	S	S	S	S	S	S	S	S					
No.							1	3	2					1	1	2	2	3						
Median							U 2.45	U 2.70	U 3.05					U 3.60	U 3.40	U 3.30	U 3.05	2.50						

foE

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

The Radio Research Laboratories, Japan.

K 3

IONOSPHERIC DATA

Jun. 1962 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.8	2.8	2.4	2.9Y	E	S	5.0M	5.6	8.4Y	6.8	4.4S	7.4Y	7.3M	6.5Y	5.5	6.2M	5.8M	5.6M	7.3M	S	J 3.9	4.9M	3.3S	5.5M
2	3.0Y	4.4S	3.3M	D 2.3S	4.4M	S	S	4.4S	4.7	B	6.7	6.0M	S	S	S	8.4Y	9.4Y	9.2M	5.5M	6.7	5.6M	4.5M	5.5M	6.5M
3	6.1M	4.4M	6.0M	3.5	2.9	S	4.4Y	5.9M	5.8M	5.8	6.4	S	4.8	5.5Y	S	4.4	11.8Y	7.3M	S	S	3.2	4.2	5.2M	5.4
4	3.4	5.5	2.4	2.1	S	S	S	5.8	S	S	5.5	S	S	5.3	S	S	S	S	S	5.0	S	4.4M	4.4	5.5M
5	5.0M	5.5M	4.5	4.8	3.5Y	3.0	5.2Y	6.0M	8.4	10.1	5.4Y	5.5Y	S	5.5S	4.4S	S	S	S	4.7Y	3.8S	5.8S	5.9M	5.8M	3.1
6	S	2.7Y	2.9	3.8	3.4	6.0M	5.4	8.7M	9.8Y	5.6S	9.0M	4.4S	4.5S	6.6	6.2	6.0M	4.3S	J 5.7	5.5	5.0M	3.6	3.2	3.2	3.5
7	5.4	6.1 J 5.4	7.6M	5.9M	4.9	4.0	5.7M	6.0M	7.4M	J 5.5	5.4	10.0M	5.7M	5.9	4.1S	4.0	5.6M	6.6M	8.8M	4.6	5.5M	6.0M
8	4.9 J 3.2	2.5	3.0	2.3	3.8	7.0M	7.2M	9.4M	4.8S	5.8	8.5Y	5.4	8.5Y	4.4	4.5	5.5Y	9.0Y	7.0M	S	S	3.9S	5.6M	7.0M
9	6.1M	5.8M	3.5	J 5.4	4.6	6.3	S	5.7	8.7M	7.7M	7.5	9.9M	13.5Y	8.4M	4.8S	3.7	4.5S	4.4	S	B	J 4.8	4.4S	4.4	S
10	S	S	E	3.1	2.8	4.8S	S	S	S	S	6.0M	11.2M	5.6M	12.7Y	6.0M	5.8M	4.3	5.9M	5.9M	9.0M	6.0M	5.9	5.6M	5.4M
11	5.4Y	S	4.5M	4.7M	3.4M	S	S	S	4.4	5.8M	5.0M	8.6M	5.5M	S	S	5.4Y	9.0M	7.8M	4.1Y	4.8	6.9M	S	S	5.6
12	S	S	E	E	6.8M	6.0M	4.4S	5.6	6.9Y	S	5.4	5.9M	5.7M	S	S	6.2M	5.8M	5.8M	S	4.0M	S	S	4.0M	3.9M
13	S	4.5M	3.9M	3.0M	4.8M	4.7M	3.4S	5.6M	5.3Y	5.4M	9.1M	5.5M	S	5.5Y	S	S	3.9S	7.3M	5.3M	S	S	5.9M	S	3.9M
14	S	3.4M J 2.5	S	S	S	S	7.3M	14.8M	13.4M	6.3M	6.9M	8.8M	J 5.0	4.5	4.4	3.9	J 5.2	4.2	3.8Y	5.4M	5.4M	J 4.8	4.0M	J 4.2
15	7.4M	5.8M J 6.0	J 8.1	12.0M	J 6.9Y	3.9M	4.3	4.4	9.6M	6.0M	7.8M	B	4.5	9.0M	3.9	B	4.4	6.3M	4.0M	S	S	S	S
16	S	S	S	E	2.7M	B	4.1	5.5	4.4	S	4.2	S	5.7Y	5.5M	6.4M	4.2	S	3.5	5.4M	6.0M	5.9M	6.0M	5.4M	J 4.9S
17	6.2	E	E	E	E	S	2.8	4.4Y	S	S	S	S	S	S	S	B	S	5.6Y	5.2M	4.0M	S	5.5M	J 5.4	6.0M
18	5.6M	4.4M	3.6M	S	E	3.0Y	3.8Y	5.8M	7.3M	7.3M	7.3M	S	9.5M	6.2M	S	4.4Y	B	6.6Y	5.8M	3.9	6.2M	3.3M	4.4	5.4M
19	5.4Y	4.5M	E	E	2.4M	S	4.3Y	5.5M	8.0M	5.9M	6.4M	S	4.4	S	S	S	S	S	2.8	4.0Y	3.0M	4.4M	J 4.7	3.4
20	S	3.6	3.1M	2.8	2.8M	4.3	3.3	4.2Y	S	S	S	S	S	S	S	S	3.5	3.3	S	S	5.5M	S	3.3M	S
21	4.4M	2.4M	3.4M	C	2.6M	3.0S	4.4	5.8	4.7M	S	S	S	S	S	J 5.0Y	6.5M	J 11.3	9.5M	6.9	5.8M	5.7Y	6.0Y	3.1	3.6
22	J 3.9	4.4M	3.2	2.7	E	S	3.2	7.4Y	J 4.8Y	S	S	S	S	6.0	5.4	S	S	S	S	4.4	S	5.8M	4.0	5.5M
23	3.8S	4.4	5.6M	7.0M	5.6	5.0	5.0	3.7	5.9M	5.5	4.9	7.4M	7.0M	7.0M	4.7S	S	S	3.9	S	S	4.0M	5.9M	7.3M	4.4M
24	5.1S	4.4	E	4.1M	4.5	4.4	6.0M	5.7M	4.4Y	4.4S	S	S	S	S	5.5Y	5.0M	5.4M	8.4M	7.0M	C	3.1M	6.1M	4.4	4.4M
25	5.2M	3.0	4.8	E	E	S	S	S	4.4	4.7	S	S	5.4S	S	6.4M	9.2Y	S	S	S	S	S	3.1	3.0M	S
26	5.3Y	3.0M	E	2.9	J 4.2Y	S	S	S	S	S	5.3M	5.5	4.8Y	4.2Y	S	C	C	4.0Y	S	S	S	S	S	S
27	J 3.4	2.0	2.9M	S	E	S	4.4	S	S	S	4.4S	S	8.3Y	5.5	S	S	S	J 4.9Y	S	S	3.9Y	6.2M	4.8M	4.7M
28	S	4.6S	E	E	S	C	C	C	C	S	S	S	S	S	S	S	S	S	S	S	J 5.3	5.9M	J 6.5	J 3.8
29	S	J 3.3	3.0M	3.8	S	S	S	S	S	S	S	S	J 5.0	S	S	S	S	S	S	S	S	S	S	S
30	S	E	S	S	E	S	J 5.4	S	J 6.0	5.0S	5.4Y	S	5.5M	5.7	S	5.0M	5.5	5.7M	6.0M	5.3Y	S	S	4.1Y	4.0Y
31	S	S	S	2.9M	J 3.8Y	S	6.0M	5.4M	S	S	S	4.2	S	S	6.0Y	5.7M	8.6M	8.6M	S	4.8M	S	3.4	S	S
No.	20	26	28	25	27	14	22	23	22	17	22	16	19	19	16	19	17	24	18	18	19	24	25	24
Median	5.2	4.4	3.0	3.0	2.9	4.8	4.4	5.7	6.0	5.8	5.9	6.7	5.5	5.7	5.5	5.4	5.5	5.7	5.6M	4.9M	5.4M	4.8M	4.4M	4.8M
U.Q.	5.5	4.5	4.2	4.4	4.5	6.0	5.4	5.9	8.4	7.5	6.9	8.6	7.0	7.0	6.1	6.2	8.8	7.6	6.3	5.8	5.9	5.9	5.5	5.5
L.Q.	3.8	3.0	E	E	E	3.8	3.9	5.4	4.7	5.2	5.3	5.5	5.0	5.5	4.8	4.4	4.3	4.3	5.2	4.0	3.9	4.3	4.0	3.9
Q.R.	1.7	1.5				2.2	1.5	0.5	3.7	2.3	1.6	3.1	2.0	1.5	1.3	1.8	4.5	3.3	1.1	1.8	2.0	1.6	1.5	1.6

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | fbEs | 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	2.8	1.9	1.8	E		S	4.3	4.8	A	A	E 4.4^{S}	A	A	A	S	A	A	A	A	S	2.9	4.5	S	2.8
2	2.2	4.0	2.6	2.3	2.0	S	S	4.4	4.7	B	A	A	S	S	S	A	A	A	5.5	S	S	u 4.5^{S}	4.8	A
3	A	2.5	A	2.5	E	S	u 4.4^{S}	5.2	5.1	A	A	S	S	S	S	S	A	A	S	S	E 3.2^{S}	3.5	3.8	4.6
4	E 3.4^{S}	2.8	2.4	E	S	S	S	5.1	S	S	S	S	S	5.1	S	S	S	S	S	4.5	S	3.8	4.4	4.4
5	4.5	2.9	2.7	S	2.4	u 3.0^{S}	4.5	A	A	A	S	S	S	S	E 4.4^{S}	S	S	S	4.4	3.5	A	A	A	2.9
6	S	E	E	2.2	2.1	A	A	A	A	S	A	u 4.2^{S}	4.5	A	A	u 5.7^{S}	4.2	5.5	4.8	4.2	2.2	2.5	E	2.0
7	4.5	2.2	2.3	A	2.6	A	u 4.0^{S}	4.5	5.0	A	A	A	A	A	A	5.2	E 4.1^{S}	E 4.0^{S}	4.4	5.1	A	A	3.9	5.4
8	3.2	2.5	E	2.0	E	2.5	A	6.3	4.4	E 4.8^{S}	A	A	5.0	6.2	E 4.4^{S}	4.5	S	A	A	S	S	3.5	A	A
9	A	A	2.3	2.4	2.9	A	S	A	A	A	A	A	A	A	u 4.4^{S}	E 3.7^{S}	S	S	S	B	3.6	A	S	S
10	S	S		2.3	E	3.8	S	S	S	S	A	A	5.1	A	A	A	E 4.3^{S}	4.9	A	A	4.5	4.5	A	A
11	A	S	E	3.2	2.5	S	S	S	4.4	S	E 5.0^{S}	A	A	S	S	5.1	A	A	E 4.1^{S}	4.5	A	S	S	4.5
12	S	S			A	A	S	S	A	S	5.0	S	S	S	S	A	5.5	5.3	S	E 4.0^{S}	S	S	2.9	3.5
13	S	S	2.6	2.5	3.0	3.8	u 3.3^{S}	A	4.8	S	A	A	S	5.5	S	S	S	A	S	S	S	A	S	E 3.9^{S}
14	S	S	2.1	S	S	S	A	A	A	A	A	A	5.0	4.4	E 4.4^{S}	3.8	3.9	3.6	u 3.8^{S}	5.0	4.0	3.2	3.1	3.9
15	A	2.6	A	A	A	3.1	2.8	4.3	4.4	A	A	A	B	4.4	4.6	E 3.9^{R}	B	4.4	3.5	3.5	S	S	S	S
16	S	S	S		E	B	3.5	5.2	3.6	S	E 4.2^{S}	S	5.4	5.1	A	E 4.2^{S}	S	3.3	4.6	6.0	5.1	5.0	2.8	3.0
17	A					S	E 2.8^{S}	4.4	S	S	S	S	S	S	S	B	S	4.5	3.5	3.7	S	3.5	4.3	4.9
18	A	2.8	S	S		2.9	3.5	R	A	A	A	S	A	A	S	4.3	B	A	5.4	3.8	S	3.2	3.5	A
19	A	3.2			E	S	4.2	4.7	5.0	5.8	6.1	S	4.3	S	S	S	S	S	2.8	3.5	2.8	3.0	4.2	2.9
20	S	2.5	2.0	1.8	1.8	u 4.0^{S}	E 3.3^{S}	E 4.2^{S}	S	S	S	S	S	S	S	S	3.5	E 3.3^{S}	S	S	3.7	S	3.3	S
21	u 4.4^{S}	E	2.5	C	E	S	S	5.5	4.7	S	S	S	S	S	E 5.0^{S}	5.5	A	A	A	4.6	2.3	3.4	2.0	2.9
22	3.5	3.7	2.1	2.1		S	3.2	4.5	4.5	S	S	S	S	E 6.0^{S}	5.0	S	S	S	S	4.2	S	3.9	2.2	4.5
23	2.3	2.1	A	2.5	1.9	A	S	3.7	4.3	5.1	4.7	A	A	6.1	4.7	S	S	E 3.9^{S}	S	S	3.5	4.4	A	2.9
24	A	A		A	A	A	A	4.5	4.4	E 4.4^{S}	S	S	S	S	S	4.5	5.0	A	A	C	2.0	A	2.1	E
25	3.2	1.9	2.4			S	S	S	4.3	4.6	S	S	S	S	S	A	S	S	S	S	S	2.9	E	S
26	S	2.1		2.1	E	S	S	S	S	S	A	A	S	E 4.2^{S}	S	C	C	3.3^{S}	S	S	S	S	S	S
27	3.0	2.0	E	S		S	4.3	S	S	S	S	S	A	5.0	S	S	S	4.6	S	S	3.6	A	4.4	S
28	S	S			S	C	C	C	C	S	S	S	S	S	S	S	S	S	S	S	E	A	A	S
29	S	2.7	2.9	E	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
30	S		S	S		S	S	S	A	S	A	S	A	u 5.1^{S}	S	S	5.5	4.6	A	3.0	S	S	E	E
31	S	S	S	S	A	S	A	4.5	S	S	S	E 4.2^{S}	S	S	S	5.2	A	A	S	4.2	S	3.1	S	S
No.																								
Median																								

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

The Radio Research Laboratories, Japan.

K 5

3.1

IONOSPHERIC DATA

Jul. 1962 | f-min | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.95 S E1.80 S E1.60 S 1.50	1.70 E2.30 S E2.70 S 2.45	2.50 E3.50 S E3.60 S E3.95	E3.60 S E3.40 S E3.90 S E3.50	E2.70 S E2.50 S E2.60 S E3.60	E1.90 S E2.00 S E1.80 S E1.80
2	E1.90 S E1.70 S E1.80 S E1.90	E1.85 S E2.00 S E2.95 S E2.90	E3.20 S 5.10 E3.70 S E3.80	S E5.50 S E5.00 S E3.50	E3.40 S E3.40 S E2.50 S 3.70	E2.90 S E2.50 S E2.40 S E2.40
3	E2.40 S E1.90 S E1.90 S 1.80	1.70 E1.50 S E2.20 S E2.50	E2.00 S E3.50 S E3.85 S	E3.80 S E3.50 S S E3.95 S	E3.90 S E3.50 S E3.50 S E2.40	E2.80 S E2.95 S E2.00 S E1.80
4	E1.70 S E1.80 S 1.80 1.50	E1.60 S E2.30 S E2.80 S E2.60	E4.50 S E5.20 S E3.70 S	S S E3.80 S E5.25 S E4.70 S	E5.20 S E4.90 S E3.50 S E1.85	E2.00 S E1.90 S E1.90 S E2.20
5	E2.30 S E2.00 S 1.75 E1.80 S E1.85 S E1.95	1.70 E2.70 S	2.50 E3.50 S E3.50 S E3.50	S E4.30 S E3.90 S S	S E4.50 S E2.10 S E2.50	E1.90 S E2.50 S E1.90 S E2.30
6	E2.00 S E1.80 S 1.50 1.70	E1.60 S E2.00 S E2.00 S E2.40	E2.70 S E3.60 S E3.60 S E3.80	E3.95 S E3.80 S 3.50 E3.45 S	E3.10 S E2.50 S E2.30 S E1.80	E1.90 S E1.90 S E1.90 S E1.80
7	E2.10 S E1.80 S 1.80 E1.90 S	1.70 E1.60 S E1.90 S E2.20 S	2.50 E3.30 S 3.50 E3.70 S	E3.50 S E3.50 S E3.30 S E3.10 S	E3.40 S E2.70 S 2.20 E1.80 S	E1.80 S E1.80 S E1.90 S E1.80 S
8	E1.80 S E1.70 S E1.80 S 1.80	1.70 E1.90 S 2.10 E2.40 S	E2.20 S E3.50 S E3.70 S E3.50 S	E3.95 S E3.50 S E3.80 S E3.20 S	E3.10 S E3.50 S E2.60 S E2.95 S	E3.10 S E2.50 S E2.00 S E2.40 S
9	E1.90 S 1.85 1.90 1.50	1.60 E2.40 S E2.40 S 2.40	E2.60 S 3.50 2.80 3.50	3.50 E3.60 S E3.40 S E2.70 S	E3.30 S E3.20 S E4.80 S B	E2.10 S E2.20 S E2.80 S S
10	S E2.00 S 1.20 E1.90 S E1.90 S E2.10 S	E3.60 S E4.10 S	E4.40 S S E3.70 S E3.80 S	E3.60 S E3.95 S E2.60 S E3.10 S	E3.50 S E3.05 S E2.90 S E2.20 S	E2.10 S E1.90 S E2.30 S E1.90 S
11	E2.50 S E1.80 S E1.90 S 1.80	1.60 S E4.50 S E4.50 S	E3.55 S E3.80 S E3.50 S E3.50 S	E3.50 S S S E3.10 S	E3.10 S E2.95 S E2.60 S E2.30 S	E2.50 S E3.50 S E1.80 S E1.95 S
12	E1.60 S E1.90 S 1.60 1.70	E1.95 S E2.60 S E2.60 S E3.10 S	E3.30 S S E3.85 S E4.10 S	E3.70 S S S E3.10 S	E3.50 S E3.50 S E3.95 S E2.40 S	E1.80 S E2.80 S E2.20 S E2.50 S
13	E1.95 S E2.50 S E1.80 S 1.85	1.90 E2.30 S E2.80 S E2.30 S	E3.50 S E3.80 S E3.50 S E2.70 S	E4.75 S E3.50 S E5.10 S E4.40 S	E3.40 S E2.70 S E3.20 S E1.80 S	E1.80 S E2.20 S E1.80 S E2.30 S
14	E3.30 S E2.50 S E1.80 S E1.80 S	E1.80 S E1.90 S E2.40 S E3.10 S	E3.50 S E3.80 S 3.20 3.20	3.10 3.70 3.50 2.40	2.60 2.20 E1.90 S E1.90 S	E1.80 S E1.80 S E1.90 S E1.80 S
15	E2.00 S E1.90 S 1.80 E1.70 S	E1.70 S E1.70 1.60 E2.20 S	2.60 2.60 3.50 3.50	4.40 3.35 3.55 2.60	3.50 E2.10 S 1.90 E2.10 S	E1.80 S E2.00 S E2.10 S E1.70 S
16	E1.90 S E1.95 S E1.70 S 1.50	1.80 1.60 E2.10 S 2.40	2.60 E4.60 S E3.10 S E5.10 S	E3.80 S E3.20 S E2.70 S E3.65 S	E4.50 S 2.20 E2.30 S E2.10 S	E2.20 S E2.40 S E2.20 S E1.90 S
17	E1.95 S 1.70 1.80 1.60	1.80 E2.10 S E2.40 S E2.50 S	E4.20 S E4.80 S S E5.20 S	E5.90 S E5.10 S E5.50 S 3.80	E4.50 S E3.50 S E2.90 S E2.00 S	E1.90 S E2.00 S E2.00 S E1.90 S
18	E1.80 S E2.05 S E1.80 S E2.00 S	1.50 E2.00 S 2.50 E3.10 S	E2.20 S 3.50 E3.80 S S	E3.60 S E3.70 S E4.60 S 2.95	4.50 E2.70 S 1.70 E2.20 S	E2.00 S E1.95 S E2.00 S E1.95 S
19	E1.70 S E1.55 S 1.70 1.40	1.50 E2.50 S E2.90 S E2.20 S	E2.50 S 3.40 3.65 E5.10 S	E3.70 S E6.10 S E4.80 S E5.20 S	E5.00 S E4.90 S E2.25 S E2.40 S	E1.90 S E2.20 S E1.80 S E1.90 S
20	E2.60 S E1.80 S E1.80 S 1.70	1.50 E2.05 S E2.50 S E2.90 S	E4.40 S E4.70 S S S	S E4.80 S E5.10 S E5.40 S	E3.25 S E2.55 S E3.30 S E2.10 S	E2.50 S E2.10 S E1.80 S E1.80 S
21	E2.00 S E1.95 S E1.80 S C	1.70 E1.90 S E2.20 S E2.20 S	E2.50 S E4.85 S E5.10 S S	E5.30 S S E3.30 S E3.50 S	E2.70 S E2.70 S E2.50 S 2.30	E2.00 S E2.10 S E1.60 S E1.70 S
22	E1.90 S 1.80 E1.80 S 1.70	1.60 E1.80 S E2.30 S E2.20 S	E2.20 S E3.70 S S E4.60 S	E5.20 S E3.60 S E2.60 S E4.50 S	E4.40 S E3.60 S E2.50 S E2.20 S	E2.40 S E2.30 S E2.00 S E1.90 S
23	E2.10 S E1.55 S 1.60 1.60	1.70 E1.65 S 2.25 2.25	E2.60 S E3.25 S E3.78 S 3.95	3.45 2.80 E3.60 S E4.50 S	E4.25 S 2.20 E2.30 S E2.60 S	E1.80 S E1.70 S E1.80 S E1.60 S
24	E1.95 S E1.60 S 1.80 1.60	1.50 E2.10 S 2.05 2.00	E2.65 S E3.65 S E4.60 S E5.10 S	S S E3.40 S E3.10 S	E3.00 S E2.90 S E2.30 S C	E1.80 S E2.00 S E1.80 S E2.00 S
25	E2.10 S E1.60 S E1.90 S 1.50	1.50 E1.95 S E2.20 S E3.70 S	E3.50 S E3.20 S E4.50 S S	E3.75 S E5.30 S E3.60 S E3.40 S	E4.40 S E3.10 S E2.20 S E2.00 S	E2.20 S E1.90 S E1.90 S E2.30 S
26	E2.20 S E1.90 S 1.70 1.80	1.70 E1.90 S S E4.10 S	S S E3.80 S E3.50 S	E3.55 S E3.55 S S C	C E2.20 S E3.50 S E3.10 S	E3.00 S E3.80 S E3.10 S E1.90 S
27	E2.40 S E1.70 S E1.80 S E1.60 S	1.60 E1.60 S E3.70 S E4.40 S	S S E3.70 S E5.15 S	E3.90 S E3.80 S E4.80 S E4.50 S	E4.50 S E2.20 S E3.60 S E3.70 S	E2.40 S E2.10 S E2.40 S E2.40 S
28	E2.90 S E2.60 S 1.70 1.85	E2.00 S C C C	C S S S	E5.35 S E5.15 S S E5.05 S	E4.60 S E4.45 S E3.00 S E4.10 S	E3.80 S E3.50 S E2.25 S E3.05 S
29	S 1.95 E2.80 S E2.60 S	E2.65 S E2.10 S E2.70 S S	S S S S	E3.55 S S S E5.20 S	E4.25 S E3.55 S E4.45 S E4.60 S	S E2.80 S S S
30	E2.25 S 1.65 E1.90 S S	1.25 E2.40 S E2.95 S S	E3.70 S E3.50 S E3.55 S S	E3.70 S E3.60 S E4.80 S E3.60 S	3.45 3.00 E2.50 S E2.00 S	E1.80 S E1.60 S E2.10 S E2.20 S
31	E2.50 S E1.90 S E1.70 S E2.30 S	E2.00 S E2.40 S 2.00 E2.50 S	E4.00 S S S E3.45 S	E5.05 S E4.90 S E3.80 S E3.50 S	E3.10 S E3.50 S E2.20 S E2.30 S	E2.80 S E2.10 S S E2.80 S
No.	29	31	31	19	22	29	29	28	27	24	25	22	26	26	25	29	29	31	31	29	30	31	29	29
Median	E2.00	E1.80	E1.80	1.60	1.60	E2.00	E2.40	E2.50	E2.65	E3.55	E3.70	E3.80	E3.70	E3.70	E3.80	E3.50	E3.50	E3.00	E2.50	E2.30	E2.00	E2.10	E2.00	E1.90

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | M(3000)F2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J z.90R	z.90	3.20	3.05	3.00	3.15	3.15	3.05	A	A	u3.30S	A	A	A	S	I3.00A	I z.90A	I z.90A	I3.00A	I3.10S	3.15	u z.90S	u3.00S	J3.25R
2	J z.90S	I z.80S	u z.80S	z.75	z.75	3.00	u3.25R	u3.45S	u3.40R	R	A	A	S	u z.95R	z.85	A	A	A	3.15	S	S	u z.90S	z.95	I3.00A
3	I3.10A	3.05	I z.80A	J z.95R	3.20	z.90	3.20R	J3.35R	3.65R	I3.20A	A	S	S	I3.10S	I3.00S	I z.85S	A	A	u3.15R	J3.35S	u3.20S	z.90	z.80	u z.95S
4	u z.85R	J3.10R	3.15	z.95	J z.85F	I z.85S	3.25	3.30	I3.35R	u3.15R	S	S	I z.70S	z.85	z.90	I3.05R	3.05	u z.85R	J3.30R	3.15R	3.10	3.05	J3.10R	3.05
5	J z.55S	z.60	I z.75F	I z.80S	J3.40Su	3.00S	z.95	A	A	A	S	S	S	S	u z.85F	I z.80S	I z.90S	z.90	3.35	3.30	A	A	A	S
6	S	z.90	3.15	3.00	z.90	A	A	A	A	S	A	z.80	z.70	A	A	u z.80S	3.00	3.10	3.30	3.35	z.75	z.70	J z.75R	z.80
7	u z.80F	z.90	u z.80F	I z.75A	z.75	I z.70A	z.80	u3.10R	3.35	A	A	A	A	A	A	z.95	z.95	3.10	3.15	3.30	I3.40A	I z.85A	z.90S	3.00
8	J z.75R	z.80	z.95	3.05	z.95	z.95	I3.20A	3.50S	3.30	u3.10R	I z.70A	I z.90A	u3.05R	z.95S	I3.00S	3.20R	S	A	A	3.00	u3.00S	3.15S	A	A
9	A	A	3.15	3.00	3.00	A	S	A	A	A	A	A	A	A	u z.90R	3.00	I3.00S	S	u3.00S	I3.10B	3.25	I3.00A	S	S
10	I z.85S	z.85S	3.15	z.95	z.90	3.00	u3.35S	u3.20S	u3.25R	S	A	A	3.10R	A	A	I z.90A	I3.05R	A	I3.20A	I3.10A	3.15	3.00	I3.10A	A
11	A	I z.95R	z.90	z.95	z.90	I z.95S	J z.85R	z.80S	3.25	I3.40Su	z.95R	A	A	S	I3.00S	J3.00R	I3.15A	I3.10A	3.05	u3.10S	I3.05A	J3.00S	3.00	z.90
12	z.80	z.80	z.90	3.10	I z.60A	A	S	I3.10S	A	S	u3.05R	S	S	S	S	I z.90A	u3.10S	u3.15R	u3.20R	3.05	u z.90S	u3.00S	z.80	S
13	I3.00Su	u z.85S	J z.90A	u z.85F	z.80	3.00R	3.30	I3.20A	u3.30R	S	A	I z.75A	z.85	u z.90R	3.00	I z.75R	I z.95S	I z.90A	u3.15R	u3.15R	3.05	A	S	u z.70S
14	I z.90S	u z.80S	z.85	J z.80S	u z.90S	SH	A	A	A	A	A	A	3.15	u z.85R	3.00	3.15	3.10	3.20	z.90	3.00	3.15	3.00	z.85	J3.10R
15	I z.90A	z.75	A	A	I z.80A	z.80	3.00A	3.15	3.45	I3.10A	I z.90A	I z.85A	3.00	z.85	3.05	3.35	3.15R	3.35	3.10	z.95	z.95	3.00R	3.10R	J z.95R
16	J3.10R	z.80	u z.80S	z.95F	z.95	3.05	3.15	3.20	3.30	3.50	I3.30R	z.80	J z.85R	I z.90R	I3.00A	z.80	3.00	3.25	J3.25S	J3.05R	J3.25S	J3.10S	3.05	I3.05F
17	I z.90A	z.95	J z.80S	3.00F	3.10	z.95	3.10	3.35	3.30	z.90	I z.90S	3.00R	z.90	u3.00R	I3.10R	3.25	3.30	3.15	3.00	3.05	I3.00S	J z.95S	3.20	3.15
18	I3.00A	J3.00R	I z.90S	I z.85S	3.05	3.20	3.45	I3.40R	I z.90A	A	A	S	I z.80A	I z.80A	z.95	z.95	J3.20R	I3.20A	3.15	I3.15R	I3.30	3.25	3.10	I3.00A
19	I z.90A	3.10	J3.15R	u z.90F	u z.90S	I z.70F	u3.00R	I z.95R	J3.25R	J3.10R	u3.15R	I3.05R	3.10R	u z.90R	u3.10R	3.05R	u3.05R	J3.05R	3.25	u3.55R	z.95	3.00	z.85	z.85
20	J z.85R	J z.85R	J z.90R	3.05	I3.00F	I3.00S	z.75	J3.10R	J3.50R	J3.15R	I3.10S	I z.90S	I z.80S	u z.85R	z.80R	z.90R	3.10	3.25	u3.10S	z.90	J3.10S	3.00	3.20	z.95
21	I z.85S	u z.85S	u z.85S	I3.00C	z.95	z.90	z.80	3.45	3.25	I3.20R	u3.00R	I z.85S	u z.80S	I3.15S	3.10R	J3.20R	I3.10A	I3.00A	I3.10A	u3.25S	3.25	J3.10S	z.80	I z.80S
22	J z.80R	I z.95R	J3.10S	z.90	J z.75R	3.00	z.80	I3.00R	3.35	3.30	I3.15S	u z.85R	u z.80R	z.95R	3.25	3.35	u3.20R	3.00R	3.10	3.20	3.20R	z.90	z.85	3.10
23	I3.05F	3.15	I z.80A	J z.65S	z.60	I z.90A	I z.90S	3.40	3.50	3.15	3.20	I z.80A	I3.10A	3.00	3.05	3.30R	u3.05R	3.05R	3.30	I3.40A	J3.15S	J z.90R	I z.90A	u z.90S
24	I3.00A	I z.95A	z.90	I3.15A	I3.15A	I z.85A	I z.80A	I3.10R	3.20	3.15	3.30	z.90S	S	S	I3.00S	I3.20R	3.15S	I3.00A	I3.15A	I3.10S	3.35	I3.05A	u z.95S	J z.85S
25	F	F	3.05	I3.00F	z.85	3.20	J3.15R	3.15S	3.30	u3.15R	u3.10R	S	S	u z.90S	I z.95S	I3.05A	3.35	3.20	3.20	3.10	u3.05S	J z.85S	z.80	z.85
26	I z.90S	z.80	z.90	3.10	3.00	3.05	I3.00S	u3.15S	I3.05S	S	A	A	S	3.00R	S	C	C	S	z.80	J z.90S	z.85S	I z.85S	u z.75R	J z.90R
27	3.10	z.85	z.85	3.00	3.05	u3.25S	z.95	3.15	S	S	S	u3.05S	I z.90A	z.80R	z.90	3.05	3.00	3.00	3.00	u3.25R	z.95	I z.90A	3.05	S
28	J z.80S	S	F	u z.80S	u z.90S	C	C	C	C	S	S	S	S	3.15	I3.05S	3.05	3.05	3.30S	3.10	I3.30S	I3.30S	A	A	S
29	S	3.10	3.20S	z.85	3.10	3.30	S	S	S	S	S	S	I3.10S	I3.00S	I3.05S	I3.25S	I3.30	3.30	3.10	3.20	S	S	S	S
30	u3.05S	3.05	3.00	I z.90S	z.90	3.30F	S	S	I3.05A	I3.10S	I3.20A	I3.00S	I z.80A	u z.85S	I z.90R	I3.00S	u3.25S	u3.30R	I3.35A	u3.20S	J3.10R	J3.05S	J z.90S	I z.90S
31	u z.75S	3.15	z.95	I z.95S	I3.00A	S	A	J3.40R	3.50R	S	S	u3.00S	I3.05R	J3.00R	I3.05S	3.15R	A	A	3.35	3.35	3.30S	I3.15S	I3.00S	u z.95S
No.	26	28	29	30	31	25	23	24	22	15	15	15	19	22	25	29	26	24	30	30	28	27	25	23
Median	u z.90	z.90	z.90	z.95	z.90	3.00	3.00	3.20	3.30	u3.15	u3.10	u z.90	u z.90	u z.90	u3.00	3.05	u3.10	3.10	3.15	3.15	3.10	3.00	z.95	z.95

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

Jul. 1962

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	AS	A	A	A	S	A	A	A	A					
2							S	A	A	B	A	A	S	S	S	A	A	A	A					
3							A	A	A	A	A	S	S	S	S	S	A	A	S					
4							L	A	S	S	S	S	S	A	S	S	S	S	S					
5							A	A	A	A	S	S	S	S	AS	S	S	S	A					
6						A	A	A	A	S	A	3.25	A	A	A	AS	A	A	A					
7							A	A	A	A	A	A	A	A	A	A	L	A	A					
8							A	A	A	S	A	A	A	A	S	A	S	A	A					
9							S	A	A	A	A	A	A	A	A	S	S	S	S					
10						A	S	S	S	S	A	A	A	A	A	A	S	A	A					
11						S	S	S	A	S	A	A	A	S	S	A	A	A	S					
12						A	S	S	A	S	A	S	S	S	S	A	A	A	S					
13						A	L	A	A	S	A	A	S	A	S	S	S	A	S					
14							A	A	A	A	A	A	A	A	AS	3.65	3.35	L	A					
15							3.50	A	A	A	A	A	B	"3.30	L	R	3.65	A	A					
16								A	"3.50	L	A	S	A	A	A	S	S	3.45	A					
17						S		A	S	S	S	S	S	S	S	3.70	S	A	A					
18								R	A	A	A	S	A	A	S	A	B	A	A					
19							A	A	A	A	A	S	L	S	S	S	S	S						
20						A	A	S	S	S	S	S	S	S	S	S	3.45							
21							L	A	A	S	S	S	S	S	AS	A	A	A	A					
22								A	A	L	S	S	S	AS	A	S	S	S	L					
23						A	S		A	A	A	A	A	A	A	S	S	AS						
24								A	A	S	S	S	S	S	S	A	A	A	A					
25								L	A	A	S	S	S	S	S	A	S	L	L					
26							S	S	S	S	A	A	S	S	S	C	C	A	S					
27							A	S	S	S	S	S	A	A	S	S	S	A	S					
28						C	C	C	C	S	S	S	S	S	S	S	S	S						
29								S	S	S	S	S	S	S	S	S	S	S	S					
30							S	S	A	S	A	S	A	A	S	S	A	A	A					
31							A	A	S	S	S	S	S	S	S	A	A	A						
No.							1		1			1		1		2	3	1						
Median							3.50		"3.50			3.25		"3.30		3.70	3.45	3.45						

M(3000)F1

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Jul. 1962 | 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								E310A	A	A	E290S	A	A	A	S	A	A	A	A					
2							E255S	255	245	E250B	A	A	S	E355S	345S	A	A	A	E300A					
3							E290A	E250A	245	A	A	S	S	S	S	S	A	A	260					
4							260	290A	E260S	E300S	S	S	S	360	345	305	300	E350S	260					
5							E305A	A	A	A	S	S	S	S	330	S	S	E340S	Z50A					
6						A	A	A	A	S	A	390	415	A	A	E410S	310	E300A	260					
7							E345A	300A	260	A	A	A	A	A	A	E350A	355	300	290					
8							A	E280A	280	E330S	A	A	345	E340A	300	295	S	A	A					
9							S	A	A	A	A	A	A	A	355	340	S	S	E320S					
10						310A	255	260	280	S	A	A	345	A	A	A	E305S	E340A	A					
11						S	E390S	E340S	280	S	E355S	A	A	S	S	295	A	A	E285S					
12						A	S	S	A	S	345	S	S	S	S	A	E305A	E300A	E300S					
13						E320A	280	A	260	S	A	A	380	E360A	345	345	S	A	E290S					
14							A	A	A	A	A	A	310	355	320	315	345	295	320					
15							320	300	260	A	A	A	345	375	325	275	295	260	260					
16								E310S	290	255	E300S	E410S	E400A	340A	A	E380S	320	280	275					
17						E255S		260	265	E370S	S	315	E360S	345	295	300	290	E305A	300					
18								R	A	A	A	S	A	A	345	325	295	A	E320A					
19							E310A	305	260	300A	E340A	310	300	E390S	310	310	E300S	310						
20						355A	E310A	295	245	260	S	S	S	360	E355S	355	305							
21							305	250A	290	260	320	S	355	S	295	275	A	A	A					
22								305	260	260	S	375	E355S	355	290	275	E295S	350	300					
23						A	S		245	300	300S	A	A	310A	E300A	280	305	315						
24								360	295	295	285	E360S	S	S	S	300	300A	A	A					
25								295	280	300	345	S	S	E340S	S	A	260	300	250					
26							S	300S	S	S	A	A	S	370	S	C	C	310	355					
27							E330A	E300S	S	S	S	325	A	360	E350S	310	305S	E350A	E300S					
28						C	C	C	C	S	S	S	305	305	S	360	310	300						
29								S	S	S	S	S	S	S	S	295	250	260	315					
30							S	S	A	S	A	S	A	E355S	340	S	280	255	A					
31							A	E250A	250	S	S	E350S	305	315	S	275	A	A						
No.						4	13	16	19	9	7	5	10	16	15	19	18	14	13					
Median						E315	E305	290	260	260	300	325	345	E355	325	300	300	E300	275					

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

Jul. 1962 | 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	E310S	Z90	Z45	Z25	Z65	Z65	EZ60A	A	A	A	AS	A	A	A	S	A	A	A	A	EZ55S	Z45A	E340A	Z60	Z45
2	Z60	E310S	305	310	300A	300	IZ60S	A	A	B	A	A	S	S	S	A	A	A	A	S	IZ35S	310A	E340A	A
3	A	Z70	IZ60A	Z55	Z30	Z25	A	A	A	A	A	S	S	S	S	S	A	A	IZ30S	Z15	Z45	300A	345	E340A
4	E340S	300A	Z45	Z55	Z65	Z65	Z25	A	S	S	S	S	S	A	S	S	S	S	S	Z80A	Z55	E300A	E300A	E300A
5	E390A	310A	350A	I305S	Z45	300A	A	A	A	A	S	S	S	S	AS	S	S	S	IZ60A	Z50A	A	A	A	305
6	305	Z75	Z40	Z60	Z60	A	A	A	A	S	A	E305A	A	A	A	A	AS	A	A	Z50A	310A	Z95	305	300A
7	E400A	300A	305	I305A	305	A	A	A	A	A	A	A	A	A	A	A	E300S	A	A	EZ50A	IZ45A	I320A	E360A	E320A
8	E300A	Z95	Z50	Z55	Z55	Z95	A	A	A	S	A	A	A	A	S	A	S	A	A	EZ60S	EZ50S	Z50A	A	A
9	A	A	Z55	Z60	Z55	A	S	A	A	A	A	A	A	A	A	S	S	S	S	B	Z70A	IZ50A	I310S	IZ90S
10	IZ95S	300	Z50	Z60	Z55	A	S	S	S	S	A	A	A	A	A	A	IZ50S	A	A	A	EZ60A	E310A	A	A
11	A	Z55	Z60	E340A	300A	S	S	S	A	S	A	A	A	S	S	A	A	A	S	E300A	A	E300S	Z60	E310A
12	300	Z90	Z55	Z10	A	A	S	S	A	S	A	S	S	S	S	A	A	A	S	E305S	Z55	Z65	300A	E300A
13	300	310	300A	305	E340A	A	EZ50S	A	A	S	A	A	S	A	S	S	S	A	S	Z45	Z45	A	320	E350S
14	E300S	310	300	300	Z55	Z55H	A	A	A	A	A	A	A	A	IZ50S	Z25	EZ95A	EZ90A	IZ65A	300A	Z50A	Z60A	Z90A	EZ90A
15	A	E330A	A	A	I330A	E390A	Z25	A	A	A	A	A	B	E300A	A	R	Z45	IZ40A	IZ30A	Z70A	Z55	Z55	Z45	Z55
16	Z55	300	300	Z95	Z85	Z55	Z50A	IZ45A	Z25	EZ80S	A	S	A	A	A	IZ30S	IZ30S	Z45H	IZ50A	EZ90A	EZ50A	E305A	Z50A	Z60
17	I300A	Z55	Z95	Z90	Z45	IZ40S	EZ55S	IZ50A	IZ50S	S	S	S	S	S	S	Z05	S	A	A	Z95	Z45	Z60A	EZ60A	EZ90A
18	IZ85A	Z90A	I310S	310	Z55	Z55	Z45	R	A	A	A	S	A	A	S	A	B	A	A	EZ90A	IZ50S	Z45	Z60	IZ50A
19	IZ80A	Z80A	Z50	Z85	300	EZ90S	A	A	A	A	A	S	EZ90A	S	S	S	S	S	Z50A	Z45	Z50	300A	E350A	300A
20	305	305	Z80	Z45	Z55	A	A	S	S	S	S	S	S	S	S	S	Z45	Z60	Z75	Z55	Z80A	Z60	Z55	Z55
21	E355S	Z95	320A	IZ70S	Z50	Z10H	Z60	A	A	S	S	S	S	S	AS	A	A	A	A	EZ60A	Z45	Z50A	Z75	E350A
22	305	E350A	Z50A	300A	310	Z55	E310A	A	A	Z00	S	S	S	AS	A	S	S	IZ20S	Z50	Z50A	Z45	E310A	310	310A
23	Z55	Z50A	I330A	340A	390	I300A	IZ75S	Z60	IZ50A	A	A	A	A	A	A	S	S	AS	Z55	Z15	Z50A	E350A	A	300A
24	I305A	I300A	Z90	IZ50A	IZ45A	A	A	A	A	S	S	S	S	S	S	A	A	A	A	C	Z10	IZ60A	320	Z60
25	E310A	300	300	Z55	300	Z50	Z10	E310S	A	A	S	S	S	S	S	A	S	Z45	Z45	Z50	Z55	305	310	310
26	IZ80S	310	Z60	Z60	Z55	Z55	S	S	S	S	A	A	S	S	S	C	C	A	IZ55S	E300S	E300S	E300S	305	Z55
27	Z50	305	300	300	Z45	Z45	IZ55A	S	S	S	S	S	A	A	S	S	S	A	S	EZ95S	E300A	A	E310A	S
28	300	I315S	300	Z95	E300S	C	C	C	C	S	S	S	S	S	S	S	S	S	Z95	Z55	IZ50A	A	A	S
29	S	305	Z80	325	Z95	Z50	Z30	S	S	S	S	S	S	S	S	S	S	S	S	300	IZ50S	Z50	S	S
30	Z75	Z55	Z60	IZ65S	Z55	Z55	S	S	A	S	A	S	A	A	S	S	IZ60A	IZ55A	IZ50A	Z50A	Z55	Z05	Z80	Z55
31	E300S	Z50	Z55	IZ80S	I305A	Z55	A	A	S	S	S	S	S	S	S	A	A	A	EZ55S	Z45A	EZ55S	305	IZ85S	305
No.	20	27	30	29	28	19	11	3	3	2		1	1	1	1	3	5	6	13	18	25	19	20	18
Median	E300	300	Z80	Z80	Z60	Z55	EZ50	UZ50	UZ50	EZ40		E305	EZ90	E300	UZ50	Z25	UZ45	UZ45	UZ50	Z50	Z50	Z60	Z90	EZ90

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | h'Es | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

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

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

Jul. 1962

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	fz	f	f			lz	lz	lz	lz	l	lz	l	lz	l	l	lz	lz	lz		fz	fz	fz	fz
2	fz	f3	fz	f	fz		l		l		l	l				lz	lz	lz	lz	fz	fz	fz	fz	fz
3	fz	fz	fz	f	f		l	lz	l	l	l		l	l		l	lz	lz			f	f	fz	f3
4	fz	f	fz	f				lz			l			l						f3		fz	fz	fz
5	f3	f3	f3	fz	fz	l	l	lz	lz	lz	l	l		l	l				l	fz	fz	fz	fz	f
6		f	f	fz	f3	lz	lz	lz	lz	l	lz	l	l	l	l	lz	l	l	lz	fz	fz	fz	f	fz
7	f3	fz	fz	f4	f3	l3	l	lz	fz	l3	lz	l	l	lz	l	l	l	C	lz	fz	fz	f3	fz	f3
8	f3	fz	fz	fz	f	lz	l3	lz	l2l	l	l	l2	l	l	l	l	l	lz	lz			fz	f3	f3
9	fz	f4	fz	f3	f3	lz		l	lz	lz	l	l2	l2 l2	l2	l	l	l	l			f	f	f	
10				fz	fz	lz					l	l	lz	l	l	lz	l	l	lz	f3	f3	f3	f4	f3
11	fz		fz	f3	f3				l	l	l	l	lz			l	l	lz	l	fz	fz			f3
12					f4	lz	lz	lz	l		l	l	l			lz	l	l		f			fz	fz
13		f	f	f	f3	lz	l	lz	l	l	l	l		l			l	lz	lz			f3		f3
14		f	f				lz	lz	lz	l	l	l	l	h	C	h	Cz	C	lz	f3	fz	f3	f3	f3
15	f4	f3	f3	f3	f3	l3	l	l	l	l	l	lz		C	l	C		l	lz	f				
16					f		l	lz	l		l		l	l	l	l		Cz	lz	fz	fz	fz	fz	fz
17	fz						l	l										l	l	fz		fz	fz	fz
18	f	fz	fz			h	l	lz	lz	l	l		l	l		lz		lz	lz	fz	f	fz	fz	f
19	f	fz			f		l	lz	l	l	l		l						l	fz	f	f	fz	f
20		fz	fz	fz	fz	l	l	l									l	l			f		f	
21	f	f	f3		f	l	l	lz	l						hl	l	lz	lz	lz	fz	fz	fz	fz	f3
22	fz	f3	fz	f			l	lz	l					l	l					fz		f2	f2	f3
23	fz	fz	f3	f3	f3	lz	lz	C	lz	l	l	l	l	l	l			C			fz	f3	f3	fz
24	fz	f3		f	fz	lz	l3	l	l	l					l	l	lz	lz	lz		f	f	fz	fz
25	f	fz	fz						l	l			l		lz	lz						fz	fz	
26	fz	fz		fz	f						l	l	l	l				l						
27	f	f	fz				l				l		l	l				l			f	fz	fz	f
28		f																			f	fz	f3	fz
29		fz	f	f									l											
30							lz		l	l	l		l	l		l	l	l	l	fz			f	f
31				fz	f		l	lz				l			lz	l	lz	lz		fz		fz		
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

K 12

IONOSPHERIC DATA

Jul. 1962 | 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	T355R	350	300	305	345	300	305	A	A	A	S	A	A	A	S	A	A	A	A	I310S	300	U355S	U330S	T290R
2	T350S	I340S	U355S	360	355	345	U295R	U260S	G	R	A	A	S	S	350	A	A	A	300	S	S	U345S	345	I320A
3	I310A	320	I340A	T320R	285	350	300R	T255R	245R	A	A	S	S	S	I340S	I360S	A	A	U305R	T275S	U295S	320	350	A
4	S	T300R	290	330	T355R	I345S	295	300	I265R	S	S	S	S	360	345	I315R	305	U355R	T295R	305R	300	310	T305R	305
5	A	390	I390R	I375S	T280	U310S	A	A	A	A	S	S	S	S	S	S	I355S	350	255	265	A	A	A	S
6	S	350	290	320	320	A	A	A	A	S	A	400	S	A	A	A	330	305	295	270	355	360	T380R	360
7	A	355	U355R	I365A	360	A	G	U310R	260	A	A	A	A	A	A	A	355	300	300	260	I265S	I360A	360S	320
8	T355R	350	310	300	305	340	A	A	295	S	A	I365A	U345R	350S	I335R	305R	S	A	A	305	U305S	295S	A	A
9	A	A	305	310	305	A	S	A	A	A	A	A	A	A	G	S	S	S	S	B	290	I310A	S	S
10	I350S	350S	305	310	320	A	U260S	U295S	U300R	S	A	A	A	A	A	A	I310R	A	I300A	I300A	300	310	A	A
11	A	I340S	345	350	350	I310S	T395R	355S	295	S	A	A	A	S	I350S	T310R	A	A	300	U305S	I310A	T305S	315	350
12	380	355	345	300	A	A	S	S	A	S	A	S	S	S	S	A	U305S	U300R	U300R	S	U345S	U330S	350	S
13	I320S	U385S	T350S	U355F	350	A	290	A	U290R	S	A	A	G	A	345	I355R	I330S	I345A	U295R	U300R	305	A	S	U355S
14	I350S	U370S	355	T355S	U320S	SH	A	A	A	A	A	A	310	A	330	315	345	300	350	325	300	305	345	T305F
15	I330A	365	A	A	I380A	A	345	305	260	A	A	A	345	375	345	295	300R	260	305	325	325	325R	290R	T315R
16	T305R	355	U385S	350F	350	300	300	A	295	255	R	S	A	I335R	I330A	390	345	300	T300S	T305R	T295S	T305S	310	I315F
17	I345A	325	T355F	345F	300	320	300	290	285	S	I350S	320	S	U350R	I320R	300	290	305	315	305	I305S	T305S	290	A
18	A	T320R	I330S	I350S	310	295	250	R	A	A	A	S	A	A	350	350	T305R	I290A	A	I330R	I280S	290	300	I310A
19	I345A	305	T305S	U350F	U350S	I370F	U340R	I340R	T300R	T310R	A	R	305R	S	U310R	310R	U310R	T310R	300	U255R	325	310	310	355
20	T350R	T355R	T330R	300	I310F	I340S	355	T300R	T250R	T300R	S	S	S	U360R	S	355R	310	300	U300S	325	T305S	310	290	340
21	I350S	U350S	U365S	I320C	320	335H	355	255	300	I280R	S	S	U360R	I320S	300R	T300R	I300A	I325A	I310A	U290S	295	T300S	355	I355S
22	T355R	I325R	T295S	345	T380R	310	350	I330R	285	265	S	S	I355S	355R	300	275	U300R	350R	305	300	300R	350	355	310
23	I320R	300	I350A	T355S	400	I350F	I350S	295	255	305	A	A	I325A	330	305	295R	U305R	315R	290	I255R	T300S	A	A	U345S
24	I330A	I350A	340	I300A	I290A	A	A	R	300	305	300	S	S	S	I330S	I300R	300S	A	I305A	I300S	255	I330A	U355S	T310S
25	F	F	320	I335F	350	295	T300R	300S	285	U300R	S	S	S	U350S	I335S	I310A	270	305	300	305	U305S	T350S	365	355
26	I355S	375	350	300	310	300	S	U300S	S	S	A	A	S	G	S	C	C	S	380	T340S	360S	I350R	U355R	T330R
27	300	350	355	340	300	U295S	A	300	S	S	S	U330S	I360A	390R	350	320	305	A	305	U300R	335	I350A	330	S
28	T385S	S	F	U330S	U330S	C	C	C	C	S	S	S	S	310	S	S	310	300S	305	I290S	I275S	A	A	S
29	S	305	S	345	300	275	S	S	S	S	S	S	S	S	I320S	I295S	I285S	275	325	S	S	S	S	S
30	U295S	300	325	I350S	345	285	S	S	I300A	I330S	A	S	A	A	I370R	I340S	U295S	U280R	I280A	U295S	T310R	T300S	T310S	I330S
31	U355S	300	305	I340S	I350A	S	A	T255R	250R	S	S	S	I330R	T315R	I315S	300R	A	A	260	255	290S	I310S	I320S	U310S
No.	22	28	28	30	30	20	17	17	19	9	2	4	9	13	21	21	23	20	27	27	28	26	23	21
Median	U350	350	340	340	325	310	300	300	285	300	U325	U350	U345	350	U335	310	305	300	300	300	300	310	330	320

hpF2 | Sweep 1.0 Mc to 20.0 Mc in 20 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

K 13

45

IONOSPHERIC DATA

Jul. 1962 | ypF2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J 60R	55	50	90	70	60	55	A	A	A	S	A	A	A	S	A	A	A	A	I 70S	95	u 90S	u 70S	J 55R
2	J 90S	I 90S	u 85S	95	85	55	u 50R	u 50S	G	R	A	A	S	S	95	A	A	A	50	S	S	u 70S	55	I 80A
3	I 85A	45	I 90A	J 75R	65	95	50R	J 65R	50R	A	A	S	S	S	I 50S	I 85S	A	A	u 60R	J 30S	u 100S	90	75	A
4	S	J 65R	65	115	J 90F	I 100S	50	45	I 60R	S	S	S	S	85	70	I 80R	90	u 90R	J 60R	50R	55	85	J 90R	85
5	A	105	I 80F	I 65S	J 30S	u 85S	A	A	A	A	S	S	S	S	S	S	I 90S	90	60	80	A	A	A	S
6	S	95	70	80	80	A	A	A	A	S	A	50	S	A	A	A	65	90	50	75	100	105	J 65R	95
7	A	90	u 90F	I 90A	95	A	G	u 85R	85	A	A	A	A	A	A	A	50	65	55	80	I 65A	I 55A	45S	75
8	J 90R	95	90	95	95	65	A	A	50	S	A	I 60A	u 35R	55S	I 60R	50R	S	A	A	90	u 90S	60S	A	A
9	A	A	90	95	95	A	S	A	A	A	A	A	A	A	G	S	S	S	S	B	55	I 90A	S	S
10	I 85S	105S	85	95	125	A	u 85S	u 55S	u 55R	S	A	A	A	A	A	A	I 85R	A	I 55A	I 60A	55	80	A	A
11	A	I 60S	60	45	95	I 110S	J 100R	140S	50	S	A	A	A	S	I 80S	J 100R	A	A	95	u 55S	I 55A	J 95S	80	65
12	75	90	100	95	A	A	S	S	A	S	A	S	S	S	S	A	u 50S	u 55LR	u 55R	S	u 60S	u 70S	95	S
13	I 80S	u 60S	J 55S	u 90F	55	A	45	A	u 55R	S	A	A	G	A	55	I 90R	I 75S	I 70A	u 60R	u 50R	80	A	S	u 90S
14	I 55S	u 70S	90	J 50S	u 80S	SH	A	A	A	A	A	A	40	A	70	80	20	60	65	80	55	95	95	J 90S
15	I 90A	85	A	A	I 105A	A	55V	55	50	A	A	A	50	70	55	30	55R	45	60	70	105	80R	65R	J 85R
16	J 90R	95	u 70S	55F	55	90	95	A	50	50	R	S	A	I 60R	I 70A	55	50	60	J 65S	J 95R	J 55S	J 50S	85	I 85F
17	I 65A	70	J 100F	55F	95	80	50	55	35	S	I 70S	80R	S	u 50R	I 75R	45	55	55	80	85	I 90S	J 90S	65	A
18	A	J 75R	I 90S	I 85S	85	55	55	R	A	A	A	S	A	A	65	55	J 50R	I 50A	A	I 55R	I 65S	60	55	I 75A
19	I 85A	90	J 90F	u 95F	u 95S	I 80F	u 65R	I 60R	J 45R	J 85R	A	R	90R	S	u 85R	85R	u 90R	J 95R	50	u 70R	80	85	105	90
20	J 90R	J 60R	J 75R	95	I 90F	I 65S	90	J 95R	J 50R	J 95R	S	S	S	u 90R	S	90R	85	45	u 55S	80	J 85S	85	55	70
21	I 90SU	95SU	u 75S	I 125C	120	75H	95	50	55	I 45R	S	S	u 85R	I 55R	105R	J 55R	I 80A	I 110A	I 80A	u 55S	45	J 50S	90	I 90S
22	J 90R	I 75FR	J 60S	60	J 70R	85	95	I 80R	35	70	S	S	I 50S	50R	45	30	u 55R	55LR	90	55	90R	65	90	80
23	I 50F	55	I 100A	J 100S	95	I 65A	I 80S	15	55	60	A	A	I 75A	65	95	50R	u 60R	80R	65	I 50R	J 90S	A	A	u 105S
24	I 70A	I 60A	65	I 75A	I 60A	A	A	R	55	90	50	S	S	S	I 70S	I 50R	60S	A	I 60A	I 90C	65	I 70A	u 50S	J 95S
25	F	F	75	I 95F	95	65	J 50R	50S	40	u 55R	S	S	S	u 85S	I 60S	I 80A	55	50	60	75	u 90S	J 55S	80	90
26	I 75S	70	95	90	90	95	S	u 55S	S	S	A	A	S	G	S	C	C	S	65	J 60S	85S	I 80R	u 110R	J 75R
27	60	95	90	55	95	u 60S	A	55	S	S	S	u 65	I 65A	65R	95	70	100	A	90	u 55R	70	I 75A	55	S
28	J 60S	S	F	u 70S	u 75S	C	C	C	C	S	S	S	S	65	S	S	80	70S	65	I 60S	I 75S	A	A	S
29	S	65	S	55	50	65S	S	S	S	S	S	S	S	S	I 65S	I 65S	I 80S	70	25	S	S	S	S	S
30	u 60S	50	35	I 50S	55	70S	S	S	I 70A	I 50S	A	S	A	A	I 60R	I 60S	u 55S	u 70R	I 50A	u 50S	J 80R	J 95S	J 85S	I 80S
31	u 100S	95	90	I 85S	I 90A	S	A	J 60R	50R	S	S	S	I 70R	J 80R	I 80S	95R	A	A	85	55	55S	I 65S	I 80S	u 95S
No.	22	28	28	30	30	20	17	17	19	9	2	4	9	13	21	21	23	20	27	27	28	26	23	21
Median	u 80	75	85	90	90	70	55	55	50	60	u 60	u 60	u 65	65	u 70	65	60	70	60	60	80	80	80	85

ypF2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | foF2 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I5.6S	5.7	I5.1S	V4.5S	I4.6S	I5.0S	5.3	5.2	A	A	A	A	A	6.1	6.1	6.1	I6.3A	I7.0A	V7.8S	I7.5A	I7.0S	6.4	6.1	I6.0S
2	I5.5S	I5.0S	I4.4S	I4.4S	I4.2S	S	5.9H	5.8	5.9	6.1	G	I5.3A	I5.3A	6.3S	6.3S	V7.8S	8.2	I8.4S	I8.3A	A	A	A	A	S
3	A	S	S	FS	I5.5S	I5.0S	5.3	I6.6S	I5.8A	I5.5A	A	A	A	A	I7.4A	V8.0S	9.4S	I10.8S	I10.1S	I9.0S	A	S	S	S
4	S	I5.8S	V6.1S	V5.1S	I5.1S	5.0	I6.4S	5.5	5.6	5.7	I5.6A	5.3S	6.2	V7.5S	8.0	I8.1A	8.3	I8.0S	I7.8S	V7.6S	I6.6S	I5.9S	I5.1A	4.4S
5	A	A	A	A	I4.5A	4.4S	I5.3S	5.8H	5.8	V6.5S	I6.6A	I6.4A	I6.0A	V6.4S	V7.5S	7.5	7.8S	6.2S	I7.4S	6.2S	5.0	I4.9S	S	S
6	S	S	A	I4.0S	V3.5S	3.3S	V4.8S	I5.4A	5.8	I6.1A	6.3	5.6	5.6	I6.0A	I6.2A	V6.9S	7.3	V7.9S	7.2S	5.6	I5.2S	V5.2S	V5.1S	V5.1S
7	V5.3S	V4.9S	V5.0S	4.5S	S	S	5.5	A	A	5.7	I6.4A	5.7	I5.3A	I5.6A	I6.0A	6.3S	I6.6C	6.8S	8.1	6.7S	A	A	S	A
8	A	A	S	V4.5S	I3.6S	I3.6S	4.8	5.9	5.4	5.2	I5.5A	I6.6C	7.5	V8.7S	9.1	7.7	7.2S	V7.5S	9.2S	I9.2S	V8.1S	I6.5S	5.3	S
9	S	S	A	A	A	V3.9S	4.3	5.7	V6.4S	6.1	6.4	I6.4A	I6.1A	A	A	C	V8.1S	I7.7A	6.4	5.8	5.4	4.3	V4.1S	3.8
10	I4.2S	V4.3S	V3.9S	V3.8S	I4.0S	4.0S	4.6	I5.2C	5.4	5.6	6.1	6.8	6.2	5.8	6.6	6.2	I6.4C	6.5S	6.8	6.7	I6.9A	I5.9S	I5.2A	I4.6A
11	I4.7A	V5.1S	S	A	C	C	C	C	C	5.4	5.4	A	A	I6.6A	V8.2C	I7.9A	7.2	I6.9A	I6.5C	6.7	I7.2S	I5.6S	V5.2S	S
12	S	S	I5.6S	V4.6S	I3.2S	3.3S	4.5	5.6	6.2S	5.7	5.7	A	A	A	6.3S	6.9	7.2	I5.8S	5.2SH	5.0	6.1S	5.9	V5.3S	I4.8S
13	S	C	C	C	C	C	C	5.9	6.1	I5.8C	5.6	6.1	6.4	7.1	7.1	I6.9S	6.3	V6.4S	6.8	V6.4S	6.0S	I5.2S	5.0S	I5.3S
14	S	S	S	I4.2S	4.1	3.9	5.0	6.1	5.2H	5.3	5.3	6.0	6.6	6.2	6.2	6.1	5.8	6.1	I6.8S	I6.6S	I7.4S	I6.3S	I5.6S	S
15	S	S	S	S	I4.0S	3.8	5.5S	I6.5S	5.1	G	5.4	6.0	6.6	7.0	V7.7C	I7.2S	6.6	6.1	V5.1S	5.8	S	S	S	5.6
16	I5.5S	5.1	I5.0S	S	S	S	5.5S	V5.9S	V7.1S	I6.3A	5.5	5.6	6.2	7.0	V7.7S	8.6	9.0	8.8S	S	S	S	5.7	A	S
17	4.2S	S	S	S	I4.2S	I4.4S	I5.4SH	I6.2SH	I5.9S	I5.6S	5.9S	I6.2S	I6.7C	V8.4S	V8.6S	8.1	7.2S	5.8	S	S	S	S	5.0	I4.9S
18	V4.9S	S	A	S	S	4.3S	5.0	5.8S	I5.5A	5.6	I5.6A	I5.7A	5.9	7.2	V8.4S	V9.7S	V10.0S	9.2S	8.7S	I8.1S	A	S	S	A
19	A	S	V4.1S	I3.9S	I3.7S	3.6	4.8	V6.2S	V8.4S	7.0	6.5	6.2	I6.9A	V8.2S	I9.6S	8.8	V8.0S	V8.0S	S	S	S	I6.3S	I5.8S	5.5
20	V5.4S	S	S	S	V5.6S	V4.5S	V5.1S	V7.6S	I5.6S	5.4	G	5.9	I6.1S	V7.1S	I7.7S	8.6	I9.4S	I8.4S	I7.0S	S	S	S	I5.6S	I4.8S
21	4.7	S	S	4.9	V4.5S	V4.7S	5.5	V6.0S	6.2S	5.2	I5.8C	I6.4A	V7.5S	9.2S	V9.8S	V8.3S	7.0S	I8.2S	S	S	S	I5.2S	I4.2S	V4.0S
22	I3.8S	I3.9S	V3.6S	I3.4S	I3.6S	3.5S	V4.5S	A	A	S	A	I5.9A	V6.6C	V7.4S	I7.5S	5.8	5.7	5.6	S	S	S	V5.1S	V5.1S	S
23	S	S	V4.5S	V3.8S	I3.8S	3.7	4.9	V6.4S	I6.3A	5.9	I5.6A	6.5	7.7	I9.1A	9.0	7.9	I7.4A	A	I8.4S	I6.6A	A	A	A	S
24	A	A	4.2S	S	A	V3.1S	4.7	5.6	6.0	6.7	6.2	5.8	6.2S	7.3	8.3	7.9S	5.9	6.0	7.0	C	C	C	S	S
25	S	V4.3S	S	S	A	V3.9S	4.5	V6.3S	5.5	5.2	4.8	5.6	6.0	6.6C	I7.7A	8.2	V7.5S	7.0	I6.6S	I6.1S	5.9	I6.0S	5.8	I5.6S
26	I5.2S	4.8S	V5.1S	I5.2S	I4.2S	3.8S	5.9	5.7	5.4V	V5.2S	5.5	6.3S	I6.8C	V7.5S	V7.1S	7.0	6.1	6.8S	I6.9S	9.0	I8.9S	S	S	6.8S
27	I6.6S	I5.7S	I5.0S	I5.1S	I5.0S	V3.8S	5.0	I5.8S	5.3	5.6	V5.4S	6.1S	I7.0A	I8.3A	8.9	I9.3S	V7.7S	5.8	I5.4S	I6.1S	I6.2S	6.1S	5.7	S
28	S	S	V5.1S	C	C	C	C	5.0	V5.5S	5.5	5.4	I6.6C	V7.3S	V7.7S	V8.3S	8.7S	8.7S	9.1S	S	S	S	I4.1S	V3.3S	A
29	A	V4.5S	S	A	I3.6S	I3.3S	3.7	I4.6SH	5.0S	5.1	I5.3A	5.9	5.9	6.3	V7.6S	8.5	V7.8S	6.9	V5.2S	5.6	V5.1S	S	S	I4.0S
30	V3.8S	I3.6S	3.5	3.3	V3.9S	3.3S	I4.0S	5.5	6.0S	V5.2S	I5.0A	5.3	I5.7A	A	V7.9S	9.2S	V10.0S	S	S	S	5.6	A	A	S
31	S	S	I4.1S	I3.5S	I3.8S	I3.1A	I4.8S	5.8S	I5.5A	I5.3A	5.2S	6.1	6.9	I7.5A	8.6	9.0S	6.7	V6.6S	7.9	6.3	V3.7S	3.7S	I3.8S	V3.7S
No.	14	13	16	17	22	25	28	28	27	29	28	27	27	27	30	30	31	29	24	21	17	19	19	16
Median	U5.0	4.9	4.8	4.3	U4.0	3.8	5.0	5.8	5.8	5.6	5.6	6.0	6.2	7.1	7.7	7.9	7.3	6.9	7.0	6.6	6.1	U5.7	5.2	U4.8
U.Q	5.5	5.4	5.1	4.6	4.5	4.4	5.4	6.2	6.2	6.0	6.0	6.4	6.9	7.7	8.4	8.6	8.2	8.1	8.0	7.6	7.1	6.1	5.6	5.6
L.Q	4.2	4.3	4.1	3.8	3.6	3.4	4.6	5.6	5.4	5.2	5.4	5.7	6.0	6.3	7.1	6.9	6.6	6.2	6.6	6.0	5.3	5.1	5.0	4.2
Q.R	1.3	1.1	1.0	0.8	0.9	1.0	0.8	0.6	0.8	0.8	0.6	0.7	0.9	1.4	1.3	1.7	1.6	1.9	1.4	1.6	1.8	1.0	0.6	1.4

foF2

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

The Radio Research Laboratories, Japan.

Y 1

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IONOSPHERIC DATA

Jul. 1962 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								A	A	A	A	A	A	A	A	A	A	I 4.4 A	A					
2								3.9 L	3.7	4.3	4.7 H	I 4.6 A	I 4.7 A	I 4.6 A	I 4.5 A	A	A	A	A					
3									A	A	A	A	A	A	I 4.6 A	4.6	A	A	A					
4									I 4.3 L	4.5	A	A	A	A	A	A	A	4.2	4.2 L					
5									4.2	I 4.4 A	A	A	A	A	A	A	4.4	4.2	3.6					
6								A	A	I 4.4 A	I 4.5 A	4.6 C	I 4.5 A	A	A	A	4.3	A	3.6					
7							L	A	A	A	A	A	4.8	A	A	A	A	A	A					
8								L	L		I 4.5 A	I 4.6 A	I 4.8 A	A	A	A	A	4.3	3.8 L					
9								3.9	I 4.2 A	I 4.4 A	A	A	A	A	A	C	A	A	L					
10								C	4.3	5.0	I 4.5 A	A	A	A	4.5	4.4	I 4.3 C	4.1	3.7					
11							C	C	C	4.4	C	A	A	A	A	A	A	A	A					
12								A	4.4	A	A	A	A	A	A	A	4.3	A						
13							C·	L	4.3	I 4.6 C	4.6	A	I 4.6 C	4.6	I 4.6 C	4.5	4.4	4.1	3.6					
14							L	L		4.4	4.7	4.6	4.6	4.6	4.6	4.6	4.5	A	A	A				
15							L	A	A	4.5 C	I 4.6 C	4.7	I 4.7 C	I 4.6 C	4.7	A	A	4.3	A					
16								3.9	4.2	I 4.5 A	I 4.8 A	4.7	I 4.6 C	4.7	4.7	I 4.5 C	4.4 H	4.2	3.7					
17									4.5	5.2	I 4.6 C	4.8	4.8	4.6	4.6 H	4.6	4.4	4.2	A	L				
18									A	4.7	A	A	A	A	A	A	A	I 4.2 A	A					
19								L	A	4.5	A	A	A	4.7 C	I 4.6 C	4.4	4.5	4.2	3.4					
20							L	3.8	4.1	4.2 H	5.0 H	4.5	I 4.7 C	I 4.6 C	4.6	4.5	4.3	4.1	L					
21							L	3.8	4.1	I 4.4 A	I 4.5 C	I 4.7 A	I 4.6 C	I 4.6 A	I 4.5 A	A	L	4.3	A					
22								A	A	A	A	A	A	4.6	4.5	4.6	4.5 H	4.1	L					
23								L	I 4.1 A	I 4.3 A	A	A	A	A	A	A	A	A	A					
24								L	4.2	I 4.4 A	4.7	I 4.6 C	I 4.5 C	I 4.5 C	4.6 C	4.4	I 4.3 A	4.2	A					
25								L	L	L	4.5	I 4.6 A	I 4.5 A	I 4.5 A	I 4.4 A	4.4	4.3	A	A					
26								L	3.9	4.4	I 4.4 A	I 4.5 A	A	I 4.6 C	4.6	I 4.3 A	4.3	I 4.0 A	I 3.6 C					
27								L	L	4.3	4.6	4.5	A	A	A	A	A	A	A					
28							C		L	4.3 H	I 4.4 C	I 4.5 C	A	I 4.5 C	4.6	4.4	4.3	4.1 H	3.6					
29									4.2	4.2	I 4.4 A	I 4.5 A	I 4.4 C	I 4.4 C	I 4.5 A	I 4.3 A	4.2	3.9	3.3 L					
30								L	I 4.0 C	4.2	A	A	A	A	C	4.3 C	4.2	4.1	3.5 L					
31								A	A	I 4.4 A	I 4.5 A	A	A	A	A	A	A	I 4.0 A	I 3.4 A					
No.								5	16	24	18	15	14	15	17	15	17	20	13					
Median								3.9	4.2	4.4	U 4.6	U 4.6	U 4.6	U 4.6	4.6	4.4	4.3	4.2	3.6					

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | foE | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							S	2.40	2.90	A	A	A	A	A	A	A	A	A	A					
2							I 1.80 A	2.45	2.95	3.15	A	3.80	C	C	C	I 3.40 C	3.10	2.70	A					
3							2.15	2.50	2.90	3.20	3.40	3.50	3.50	3.40	A	A	A	A	A					
4							2.10 H	2.60	2.90	3.20	A	A	C	C	3.50	I 3.40 C	I 3.15 A	2.80	A					
5							1.75	2.60	2.90	3.25	3.40	3.50	3.40	I 3.35 C	I 3.25 C	3.05	A	A	A					
6						S	1.90	2.50	2.90	3.20	3.40	A	A	A	A	A	A	1.70	A					
7							S	2.40	2.80	3.20	I 3.30 C	I 3.30 C	3.40	A	A	A	A	A	A					
8							A	2.70	3.10	3.20	I 3.40 C	3.30	A	A	A	A	A	2.80	2.40					
9							A	2.60	2.90	3.30	3.40	I 3.50 C	I 3.50 C	C	I 3.30 C	I 3.05 C	I 2.70 A	I 2.60 A	2.30					
10							1.80	C	A	A	A	A	A	A	A	A	I 3.10 C	I 2.75 A	2.35					
11							C	C	C	3.30	I 3.30 C	I 3.60 A	C	C	C	I 3.35 C	3.20	2.70	2.30					
12							2.00	A	A	3.00	A	C	C	C	I 3.55 C	3.40	3.15	2.75	2.30					
13							C	2.30	3.00	I 3.20 C	3.35	I 3.40 A	A	A	A	A	3.10	2.80	2.40					
14							I 1.65 S	2.30	2.85	3.20	3.30	I 3.40 A	3.70	3.65	3.60	I 3.35 C	3.20 C	2.90	2.20	1.50				
15							A	2.40	2.80	3.15	3.40	A	C	3.70	3.60	3.50	3.10	2.85 H	2.40					
16							A	A	A	A	A	A	C	C	C	3.30 C	3.10	2.80	2.30					
17							2.10 H	2.50	C	C	C	3.40	A	A	C	C	3.10	2.95	2.40					
18							S	2.40	3.00	3.30	3.40	3.45	3.40	A	A	A	A	2.80	2.35					
19							A	I 2.65 A	A	A	A	A	A	A	A	C	C	2.70	2.20					
20							A	2.70	A	A	A	A	A	C	C	I 3.35 C	3.15	2.80	2.50					
21							S	2.40	2.90	A	C	A	A	A	A	A	A	2.80	2.30					
22							A	A	A	A	3.30	A	A	A	C	I 3.35 C	3.20	2.80	A					
23							A	A	A	A	A	A	A	A	A	A	A	2.85	2.30					
24							S	A	A	A	A	A	C	A	A	3.30	3.00	2.40	2.20					
25							A	2.50 H	2.90 H	3.20 H	C	C	C	C	3.35 C	3.25	3.10	2.75	1.90					
26							A	A	2.85	3.10	3.30	3.30	I 3.30 A	3.30	3.40	3.40	A	A	A					
27							A	2.30	2.70	3.05	3.25	3.40 C	3.50	3.50	3.30	A	A	A	2.30					
28							C	2.40	A	A	A	C	A	3.40	I 3.20 C	3.10	3.00	2.65	2.20					
29							S	A	2.75	3.10	3.25	3.35 C	I 3.35 C	I 3.30 C	3.20 C	3.00	2.90	2.70	2.25					
30							S	2.40	2.80	3.05	3.20	3.35	I 3.30 C	I 3.20 C	A	A	A	A	A					
31							A	A	A	A	A	A	A	A	C	3.20	3.00	2.70	S					
No.							9	21	19	19	16	15	10	9	11	17	18	24	20	1				
Median							1.90	2.45	2.90	3.20	3.30	3.40	3.40	3.40	3.35	3.35	3.10	2.80	2.30	1.50				

foE

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

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Jul. 1962 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.6	3.9	5.6	2.6	2.2	3.3	4.4	5.8	11.0	13.3	17.2	17.4	11.4	11.4	5.4	6.3	8.9	9.3M	6.3	8.6	5.2	3.8	2.4	4.0
2	2.4	4.2	2.4	3.7	3.9M	3.1M	2.9	3.0	3.7	4.8	4.5	5.5	5.6	5.2	4.7	4.3	4.9	8.2	8.9	10.5	10.1	11.0	8.6	5.3
3	5.9	5.1M	5.4	3.9	2.4	S	5.0	5.4	6.0	9.1	9.4	8.5	11.7	7.2	10.8	3.8	5.7	8.0	9.0M	5.4	8.6	3.8	4.0	2.3
4	2.6	5.8M	4.5M	4.4	2.3	1.9	2.7	3.3	4.1	4.3	6.7	5.4	4.8	4.6	4.8	8.4	7.8	3.6	3.3	4.2	3.5	4.9	8.4	6.8
5	5.4	4.4	6.2	5.2	5.9	3.8	4.3	5.1	5.1	6.6	8.6	8.3	9.3M	8.6	6.1	8.4	11.4	2.8	2.5	2.3	1.9	3.7	3.7	1.8
6	4.4	2.5	5.1	8.6	5.1	1.9	3.7	7.0	4.9	6.5	8.8	5.0	5.5	10.9	11.6	6.1	4.2	5.6	3.0	4.6	S	5.1	4.3	3.1
7	4.3	4.2	3.4	3.4	3.8	2.3	2.1	8.5	14.5	5.2	10.9	6.7	6.1	7.0	9.4M	4.5	5.6	6.2	5.3	5.1	5.3	4.3	2.9	5.1
8	6.5	5.2	8.5	5.2	2.5	2.5	1.9	G	4.0	5.2	8.4	5.4	5.5	3.8	5.5	7.4	6.9	3.3	3.0	2.9	3.2	2.6	3.0	3.7
9	4.9M	4.8M	8.3	6.3	5.4	4.4	5.1	3.0	4.6	5.4	5.6	8.6	7.6	7.4	9.9	C	7.4	11.0M	G	B	S	1.8S	2.9	S
10	4.5	S	1.9	3.6	2.2	S	G	C	4.8	5.3	5.2	9.3	6.8	6.8	4.2	4.5	C	5.0	3.1	4.3	8.4	5.9	5.4	6.2M
11	5.2	5.2	2.6	5.6	C	C	C	C	C	3.9	4.2	12.0M	11.2	8.1	6.5	8.5	7.8	9.3M	6.1M	4.7	2.4	5.3	5.2	5.2
12	5.4	5.3	5.1	3.4M	2.5	6.6	3.0	5.3	5.3	6.6	6.4	5.6	10.5	8.3	8.0	5.4	4.6	12.8	5.1	4.2	S	5.3	S	3.7
13	2.9	C	C	C	C	C	C	3.6	5.1	C	6.0M	5.3	4.5	3.8	3.6	3.5	G	2.7G	2.5	2.5	5.3	5.2	2.4	S
14	2.3	2.4	2.3	2.9	S	3.1	2.4	3.8	3.6	3.8	4.9	4.2	4.4	3.6G	4.5	5.1	5.5	4.9	5.4	5.3	5.4	3.6	3.9	3.7
15	3.6	2.4	2.3	3.6	2.1	6.0	2.8	6.4	5.2	3.3	3.6	3.8	C	4.3	4.2	5.4	5.0	5.1	9.1M	4.3	5.9	2.4	2.7	2.5
16	3.2	5.7M	3.1	S	S	2.4	4.7	4.2	5.2	11.0M	6.2	5.6	3.4G	3.4G	3.1G	2.9G	2.7G	3.2	2.6	2.0	2.1	2.0	5.3	2.6
17	2.1	3.9M	2.1	2.3	3.2	S	1.6G	2.4G	2.8G	3.4	4.0	G	3.9	4.9	3.2G	G	2.6G	3.8	4.3	2.5	2.9	3.6	3.0	2.8
18	3.1M	4.8M	5.3	3.9	2.8	2.5	3.6	4.3	10.0	5.4	6.5	8.6	9.3M	7.8	7.2	5.8	6.1	10.7	12.7	7.0M	9.3M	5.7M	4.4	10.7
19	5.4	3.1	S	1.1	3.0	2.8	2.8	3.8	11.6	6.0M	5.1	5.0	9.2M	4.5	5.0	3.7	3.4	3.1	2.6	S	S	S	S	S
20	S	2.7	S	5.3	3.6	2.5	2.5	2.6G	3.1	3.3	3.6	4.4	4.8	4.3	3.9	4.4	3.8	3.1	2.9	2.5	3.6	2.2	S	S
21	S	2.0	S	2.1	1.5	2.4	2.3	3.2	3.6	4.8	C	1.1	4.7	9.3	5.4	8.2	4.5	3.7	5.3	2.6	2.4	2.5	2.6	S
22	3.0	2.2	2.1	3.7	2.5	2.3	5.0	8.2	12.5	8.4	5.6	8.4	6.1M	4.4	G	4.0	3.5	3.3	3.4	2.9	5.1	5.2	4.9M	5.1
23	3.7	5.3	4.0	2.5	3.1	S	3.2	4.0	6.4	5.4	6.8M	6.8M	6.4	12.7	6.2	6.8M	9.3M	6.4	7.1M	14.1	8.1	6.0M	5.9M	3.1M
24	10.8	5.3	3.0	3.3	5.1	2.2	2.0	3.0	5.2	5.2	5.4	4.6	3.9	3.4	4.1	5.4	5.5	5.0	6.0	C	C	C	2.6	2.8
25	3.9	2.5	5.3	E	4.1	2.2	5.4	3.2	3.4	3.6	4.4	4.6	4.7	6.1	8.3	3.6	3.4	5.4	6.5	5.2	5.8	2.2	2.2	S
26	S	S	E	3.2	2.8	3.5	2.6	3.7	3.6	3.8	5.5	8.4	4.9	4.7	6.2	5.5	5.3	8.1	3.8	3.2	3.7	5.4	3.5	2.6
27	2.2	S	3.4	3.7	5.4	2.4	2.7	2.6	3.1	4.1	4.2	4.3	8.2	12.3M	7.0	5.4	7.4	6.2M	5.1	5.0	2.4	S	S	2.4
28	2.5	3.8	3.5	C	C	C	C	2.7	3.1	3.2	4.0	C	5.2	4.1	4.4	5.1	4.0	3.1	3.0	3.2	2.9	3.3	5.3	3.8
29	4.1	3.1	5.1	5.7	3.8	2.5	1.9S	2.6	2.7G	3.6	5.4	5.6	3.7	5.0	5.2	5.7	3.2	3.2	2.4	2.5	2.6	3.2	3.7	3.2
30	S	2.2	E	S	2.3	E	1.9	2.9	3.9	3.9	5.2	4.7	6.5	6.5	3.7	3.8	3.6	3.1	2.6	3.3	S	5.2	5.1	4.1
31	4.2M	3.2	2.5	3.3	3.2	3.7	4.4	5.2	8.3	6.0	6.0	5.4	6.0M	12.5	7.0M	6.0	14.1	5.4	6.2	4.4	2.6	3.9	S	S
No.	27	27	27	27	26	24	28	29	30	30	30	30	30	31	31	30	30	31	31	28	25	28	26	24
Median	3.9	3.9	3.4	3.6	3.0	2.5	2.8	3.7	4.8	5.2	5.6	5.6	5.8	6.5	5.4	5.4	5.2	5.0	4.3	4.2	3.7	3.8	3.8	3.7
U.Q	5.2	5.2	5.3	5.2	3.9	3.4	4.4	5.2	6.0	6.0	6.7	8.4	8.2	8.6	7.0	6.1	7.4	8.0	6.2	5.2	5.8	5.2	5.2	5.1
L.Q	2.9	2.5	2.3	2.9	2.4	2.3	2.2	3.0	3.6	3.8	4.5	4.7	4.7	4.4	4.2	4.0	3.6	3.2	2.9	2.8	2.6	2.9	2.9	2.7
Q.R	2.3	2.7	3.0	2.3	1.5	1.1	2.2	2.2	2.4	2.2	2.2	3.7	3.5	4.2	2.8	2.1	3.8	4.8	3.3	2.4	3.2	2.3	2.3	2.4

foEs

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

The Radio Research Laboratories, Japan.

Y 4

IONOSPHERIC DATA

Jul. 1962 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.7	1.9	4.1	1.2	1.7	2.6	A	4.4	A	A	A	A	A	5.2	5.0	5.0	A	A	E 6.3 S	A	A	2.3	1.9	A
2	1.8	A	1.8	2.0	1.7	E	G	G	3.3	3.9	4.2	A	A	5.1	4.6	4.3	4.8	A	A	A	A	A	A	A
3	A	4.0	A	E	1.5	S	2.8	4.5	A	A	A	A	A	A	A	3.7	5.7	6.8	7.5	5.4	A	E 3.8 S	4.0	2.0
4	2.2	2.2	2.6	2.5	1.8	E	2.5	3.2	4.0	4.2	A	4.8	4.8	4.6	4.8	A	6.3	3.4	3.0	3.4	2.8	A	A	1.9
5	A	A	A	A	2.9	2.0	3.8	4.9	3.7	5.7	A	A	A	4.8	4.9	5.6	3.4	G	2.5	2.3	1.9	2.8	A	E
6	A	1.8	A	1.8	2.1	1.8	3.3	A	4.6	A	5.4	4.1	4.0	A	A	5.7	4.0	4.0	2.5	4.5	S	4.4	4.1	2.7
7	4.1	3.4	2.7	2.4	1.3	E	G	A	A	4.6	A	4.7	4.3	A	A	4.5	5.4	6.0	4.8	4.3	A	A	2.5	A
8	A	A	2.6	2.5	1.5	1.5	G		G	4.0	A	4.8	5.1	7.8	5.3	6.6	5.8	3.1	2.7	2.8	3.0	2.4	3.0	A
9	3.8	2.4	A	A	A	3.0	G	G	4.4	5.4	5.5	A	A	A	A	C	6.5	A		B	S	S	2.5	S
10	1.5	S	1.7	1.9	1.7	S		C	3.9	4.6	4.7	5.2	4.7	4.8	3.8	3.8	C	3.6	A	4.2	A	2.9	A	A
11	A	2.2	1.9	A	C	C	C	C	C	3.9	4.2	A	A	A	6.4	A	6.6	A	5.0	4.5	1.6	A	4.2	A
12	A	A	A	2.1	1.4	2.8	1.9	3.8	3.4	4.3	5.2	A	A	A	5.3	5.3	4.1	4.7	3.6	2.3	S	4.9	S	2.9
13	2.1	C	C	C	C	C	C	3.5	3.5	C	4.3	4.7	4.1	E 3.8 C	3.6	E 3.5 C		2.6 G	2.5	2.0	5.2	A	2.0	S
14	2.0	E	2.2	2.0	S	E	2.3	3.3	3.5	3.6	G	4.0	4.2	3.5 G	4.1	4.2	4.2	4.5	5.3	4.8	A	E 3.6 S	A	A
15	A	E	2.1	2.6	E	2.4	2.7	A	4.9	G	G	E 3.8 C	C	E 4.3 C	4.2	4.6	4.5	3.7	4.5	3.0	A	E	1.9	2.0
16	2.3	2.2	1.8	S	S	1.8	4.4	3.4	3.9	A	5.1	4.3	E 3.4 C	E 3.4 C	E 3.1 C	2.8 G	2.7 G	3.2	G	1.9	E	2.0	A	2.2
17	E	2.0	E	2.0	2.2	S	1.6 G	2.4 G	2.7 G	2.8	4.0		E 3.9 C	4.1	E 3.2 C		2.5 G	3.1	4.0	2.2	2.0	2.2	2.9	A
18	2.4	A	A	A	2.4	1.4	2.6	3.8	A	4.2	A	A	5.0	5.0	E 7.2 S	5.8	4.6	8.3	7.9	A	A	4.1	A	A
19	A	2.0	S	1.1	2.0	2.2	2.3	3.5	5.4	4.2	4.7	4.8	A	4.2	3.9	3.7	3.4	3.1	G	S	S	S	S	S
20	S	E	S	A	2.6	1.8	2.0	G	G	3.3	3.6	4.1	4.2	4.3	3.9	4.2	3.7	G	G	2.2	2.3	1.9	S	S
21	S	1.9	S	1.9	E 1.5 S	E	2.3	3.2	3.5	4.6	C	A	4.2	8.1	4.6	5.5	3.7	3.3	A	2.3	A	A	A	S
22	A	2.1	2.0	2.5	1.9	1.9	3.8	A	A	5.2	A	A	5.1	4.3		3.9	3.3	3.2	3.1	2.8	3.2	2.6	2.4	2.6
23	A	1.9	E	1.7	2.2	S	2.6	3.0	A	4.4	A	5.1	6.0	A	4.5	4.7	A	A	A	A	A	A	A	A
24	A	A	1.9	2.3	A	2.0	G	G	G	4.4	4.1	3.9	3.9	E 3.4 C	3.9	3.9	4.7	3.5	4.6	C	C	C	2.6	2.2
25	1.9	1.9	2.0		A	2.0	2.3	3.2	3.3	3.5	3.9	4.6	4.6	6.1	A	G	3.4	5.3	A	A	4.2	2.2	1.8	S
26	S	S		2.6	2.3	2.0	1.9	2.7	3.3	3.7	5.0	4.5	4.7	4.0	4.0	5.1	4.0	A	2.5	2.0	3.7	A	2.5	2.5
27	2.0	S	2.4	A	2.8	E	2.4	G	3.1	3.8	4.1	4.0	A	A	6.9	4.4	5.7	4.1	A	A	2.1	S	S	E
28	E	2.0	2.0	C	C	C	C	G	3.0	G	3.9	C	4.6	3.7	4.3	3.7	3.9	3.0	2.6	2.6	2.2	2.6	2.4	A
29	A	2.3	A	A	2.5	2.1	S	2.6	2.5 G	3.6	A	5.3	E 3.7 C	4.0	5.2	5.5	G	G	G	2.0	E	A	A	2.0
30	S	E		S	E		G	G	3.5	3.4	A	4.5	A	A	E 3.7 C	3.6	3.6	3.0	2.5	A	S	A	A	A
31	A	2.5	2.5	2.0	2.3	A	3.1	4.1	A	A	4.7	4.6	4.8	A	4.9	4.3	4.6	A	5.8	3.3	2.2	2.7	S	S
No.																								
Median																								

foEs

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

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Jul. 1962 | 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	E	E1.60	E	E	E	E1.60	1.80	1.70	1.90	2.20	2.30	2.30	2.30	2.20	2.20	1.90	1.65	1.90	E1.60	E1.60	E1.70	E1.60	E1.70
2	E1.60	E1.70	E1.60	E1.70	E	1.10	E1.60	E1.50	1.60	1.80	2.20	2.20	2.25	2.30	2.40	2.20	1.60	1.50	1.30	E1.60	E1.80	E1.70	E1.60	E1.70
3	E1.60	E1.70	1.20	E1.70	1.10	E1.50	E1.70	1.60	1.70	2.00	2.20	2.25	2.45	2.20	2.20	2.20	2.00	2.00	E1.60	E1.50	E1.70	E1.70	E1.60	E1.60
4	E1.60	E1.60	E1.50	E	E	1.10	1.10	E1.70	1.60	1.95	2.00	2.25	2.20	2.25	2.20	2.20	1.90	1.60	E1.50	E1.60	1.30	E1.60	E1.60	E1.70
5	E1.70	E1.70	1.20	E	E	E1.70	1.30	1.70	1.85	1.95	2.00	2.20	2.20	2.40	2.40	2.30	1.95	1.80	E1.60	E1.40	E1.60	E1.50	E.80	E1.70
6	E1.40	E1.60	E1.70	E	E	E1.70	1.30	E1.60	1.70	1.80	2.40	2.40	2.40	2.40	2.50	2.20	2.00	1.60	E1.40	E1.60	E1.80	E1.70	E1.60	E1.70
7	E1.70	E1.70	E1.50	E	E	E1.40	E1.80	1.60	2.00	2.00	2.25	2.50	2.40	2.30	2.20	2.25	2.20	1.90	1.70	E1.70	E1.80	E1.65	E1.60	E1.80
8	E1.70	E1.60	E	E	E	1.20	1.25	1.60	1.80	1.90	2.30	2.40	2.45	2.40	2.40	2.40	1.90	1.70	E1.70	E1.60	E1.70	E1.90	E1.70	E1.80
9	E1.70	E1.80	E	E	E	1.30	E1.50	1.60	1.90	1.80	2.00	2.35	2.30	2.40	2.20	I2.25C	1.95	1.80	E1.80	2.30	E1.60	E1.40	E1.60	E1.80
10	E1.40	E1.60	E	E	E	E1.50	1.20	I1.40C	2.00	2.30	2.05	2.40	2.45	2.30	2.20	2.30	E4.30C	1.90	E1.50	1.30	E1.90	E1.70	E1.60	E1.60
11	1.20	E1.90	1.20	E	C	C	C	C	C	2.25	2.00	E3.50C	E2.60C	E2.40C	E2.50C	E2.75C	E2.40C	E2.20C	E2.00C	E1.35C	1.30	E1.60	E1.60	E1.70
12	E1.70	E1.60	E1.40	E	E	1.30	1.40	2.00	2.20	E2.40C	2.80	2.80	2.40	E4.20C	2.45	2.50	2.20	1.90	E1.50	E1.50	1.30	E1.40	E.80	E1.70
13	E1.60	C	C	C	C	C	C	1.60	2.00	I1.90C	2.00	2.50	2.20	2.30	2.70	2.20	2.20	1.80	E1.60	E1.70	E1.80	E1.60	E1.60	E1.90
14	E1.50	E1.80	1.20	E1.60	E1.70	1.30	E1.60	E1.60	1.70	1.90	2.20	2.40	2.20	2.25	2.20	2.20	2.20	2.20	1.70	E1.40	E1.70	E1.60	E1.80	E1.80
15	E1.80	E1.70	1.30	E	E1.90	E1.80	E1.60	E1.70	1.80	2.20	2.20	2.30	E4.80C	2.35	2.40	2.20	1.90	1.80	E1.60	E1.40	E1.70	E1.70	E1.80	E1.80
16	E1.80	E1.80	1.20	E1.70	E1.40	1.20	E1.60	1.40	1.70	2.20	2.25	2.20	2.20	2.20	2.25	2.25	1.95	1.70	E1.70	E1.70	E1.80	E1.90	E1.60	E1.50
17	E1.70	E1.90	E1.80	E	1.20	E1.40	1.20	E1.80	1.80	2.10	1.95	2.20	2.40	2.30	2.20	2.25	1.80	1.60	E1.80	E1.60	E1.75	E1.70	E1.90	E2.00
18	E1.70	E1.70	E1.60	E1.80	E	1.30	E1.50	1.40	1.75	1.80	2.00	2.30	2.40	2.00	2.30	2.25	1.70	1.90	E1.60	E1.70	E1.60	E1.80	E1.75	E1.50
19	E1.70	E1.80	E1.75	E	E	E1.40	1.25	1.30	1.85	2.00	2.20	2.20	2.30	2.25	2.30	2.25	1.90	1.80	E1.50	2.00	E1.50	E2.00	E2.50	E2.00
20	E1.90	E2.00	E1.70	E1.80	E	E1.40	E1.80	E1.50	1.90	1.80	2.20	2.00	2.00	2.20	2.20	2.30	2.00	1.80	E1.80	E1.60	E1.60	E1.70	E1.70	E2.50
21	E1.70	E1.50	E1.80	E	E	E1.50	E1.70	1.30	1.75	1.90	I2.20C	2.50	2.25	2.30	2.20	2.50	2.00	1.90	1.80	E1.70	E1.60	E1.70	E1.60	E1.80
22	E1.90	E1.80	E1.70	1.20	E	E1.70	E1.60	1.30	1.90	1.85	2.10	1.90	2.20	2.00	2.05	2.20	2.00	2.00	E1.80	E1.70	E1.80	E1.70	E1.60	E1.60
23	E1.50	E1.60	E1.30	1.20	1.10	E1.90	E1.60	E1.60	1.80	1.90	2.00	2.30	2.30	2.20	2.20	2.20	1.85	E1.60	E1.60	E1.60	E1.90	E1.60	E1.50	E1.60
24	E1.80	E1.70	E1.30	E	1.10	E1.90	E1.70	E1.60	1.80	2.25	2.20	2.20	2.20	2.20	2.40	2.00	1.80	1.50	E1.90C	C	C	C	E1.60	E1.60
25	E1.60	E1.60	1.30	1.10	E	1.20	1.30	E1.60	1.70	1.90	2.20	2.40	2.50	2.30	2.20	2.00	1.90	1.80	E1.60	E1.70	E1.60	E1.60	E1.70	E1.90
26	E1.70	E2.00	1.30	E	E	1.20	E1.50	E1.60	1.50	2.00	2.00	2.00	2.20	2.20	2.20	2.00	1.75	2.20	E1.50	E1.50	E1.60	E1.70	E1.60	E1.70
27	E1.80	E2.00	E1.70	E1.70	E	E1.80	1.20	1.20	E1.70	1.90	2.20	2.20	2.25	2.20	2.00	1.95	1.90	E1.55	E1.40	E1.55	E1.60	E2.30	E1.85	E1.70
28	E1.90	E1.80	E1.75	C	C	C	C	E1.60	1.60	2.00	2.20	I2.20C	2.05	2.10	2.20	2.20	1.80	E1.60	E1.60	E1.70	E1.70	E1.60	E1.90	E1.70
29	E1.60	E1.80	E1.40	E1.70	E	E1.80	E1.80	E1.55	E1.60	1.80	1.90	2.20	2.20	2.30	2.30	2.00	2.00	1.90	E1.60	E1.65	E1.60	E1.70	E1.90	E1.70
30	E1.80	1.20	1.10	E1.80	E	E	E1.50	E1.60	1.70	1.80	2.25	2.30	2.00	2.25	2.30	2.05	2.00	2.00	E1.40	E1.70	E2.10	E1.90	E1.60	E1.70
31	E1.70	E1.75	E1.70	E	E	E1.90	E1.70	E1.50	1.75	1.80	1.80	2.00	2.20	2.20	2.20	1.90	1.85	1.70	E1.90	E1.90	E.80	E1.70	E1.95	E2.10
No.	31	30	30	20	25	28	28	30	30	30	31	30	29	29	30	30	29	30	31	30	30	30	31	31
Median	E1.70	E1.70	E1.40	E	E	E1.40	E1.55	E1.60	1.75	1.90	2.20	2.30	2.25	2.25	2.20	2.20	1.90	1.80	E1.60	E1.60	E1.70	E1.70	E1.60	E1.70

f-min

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

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

Jul. 1962 | M(3000)F2 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I 2.80 U	3.05	I 3.25 U	2.90 U	I 3.10 U	I 3.25 U	3.60	3.25	A	A	A	A	A	2.70	2.80	2.80	I 2.80 A	I 2.90 A	V 2.95 U	I 3.00 A	I 3.00 U	2.95	2.80 U	I 2.80 U
2	I 2.90 U	I 2.95 U	I 2.85 U	I 2.80 U	I 3.00 U	S	3.40 H	3.15	3.40	3.45	G	I 2.85 A	I 2.60 A	1.90 U	2.75 U	V 2.80 U	2.80	I 3.00 U	I 3.10 A	A	A	A	A	S
3	A	S	S	F S	I 3.10 U	I 3.00 U	3.30	I 3.60 U	A	A	A	A	A	A	I 2.75 A	V 2.65 U	2.80 U	I 3.05 U	I 3.10 U	I 3.10 U	A	S	S	S
4	S	I 3.10 U	V 3.10 U	V 3.00 U	I 3.10 U	3.20	I 3.50 U	3.50	3.20	3.25	I 2.80 A	2.45 U	2.70	V 2.70 U	2.80	I 2.70 A	3.10	I 3.00 U	I 3.00 U	V 3.10 U	I 3.20 U	I 3.00 U	I 2.90 A	2.80 U
5	A	A	A	A	I 2.95 A	2.95 U	I 3.10 U	3.30 H	3.00	V 2.90 U	I 3.00 A	I 2.95 A	I 2.80 A	V 2.75 U	V 2.95 U	2.80	2.90 U	2.95 U	I 3.10 U	3.25 U	3.00	I 2.90 U	S	S
6	S	S	A	I 3.10 U	V 3.15 U	3.10 U	V 3.20 U	I 3.25 A	2.95	I 2.75 A	2.85	2.65	2.70	I 2.65 A	I 2.75 A	V 2.85 U	2.80	V 3.05 U	3.20 U	3.30	I 2.90 U	V 2.90 U	V 2.75 U	V 2.75 U
7	V 2.85 U	V 2.90 U	V 2.85 U	2.95 U	S	S	3.25	A	A	2.80	I 3.10 A	3.00	I 2.40 A	I 2.70 A	A	2.85 U	I 3.10 C	3.00 U	3.35 U	3.50 U	A	A	S	A
8	A	A	S	V 3.35 U	I 3.10 U	I 3.15 U	3.20	3.50	3.40	3.10	I 2.85 A	I 2.80 C	2.75	V 2.90 U	3.00	2.90	2.85 U	V 2.70 U	2.95 U	I 3.20 U	V 3.20 U	I 3.15 U	2.80	S
9	S	S	A	A	A	V 3.10 U	2.90	3.10	V 3.45 U	2.80	3.05	I 2.95 A	I 2.80 A	A	A	C	V 2.95 U	I 3.05 A	3.15	3.10	3.45	2.90	V 2.95 U	2.90
10	I 2.85 U	V 2.90 U	V 3.10 U	V 3.25 U	I 3.10 U	3.35 U	3.50	I 3.25 C	2.95	2.70	2.95	3.10	3.10	2.80	3.05	2.95	I 3.05 C	I 3.00 U	3.10	3.00	I 3.00 A	I 3.25 U	I 2.85 A	I 2.95 A
11	I 3.10 A	V 2.95 U	S	A	C	C	C	C	C	3.25	2.75	A	A	A	V 2.95 C	I 2.85 A	2.95	I 3.05 A	I 3.00 C	3.15	I 3.15	I 3.00 U	V 2.90 U	S
12	S	S	I 3.25 U	V 3.50 U	I 2.65 U	2.85 U	3.05	3.05	3.05 U	3.20	2.80	A	A	A	2.85	3.05	3.20	I 3.10 U	3.10 H	3.00	3.05 U	2.85	V 3.00 U	I 2.80 U
13	S	C	C	C	C	C	C	3.20	3.40	I 3.05 C	2.90	2.85	2.85	2.85	2.95	I 2.70 U	2.95 U	V 2.95 U	3.25	V 3.25 U	3.05 U	I 3.10 U	2.90 U	I 3.00 U
14	S	S	S	I 2.85 U	2.95	3.10	3.20	3.60	3.10 H	3.20	2.55	3.00	3.05	3.20	2.90	2.95	2.95	3.00	I 3.10 U	I 3.05 U	I 3.05 U	I 3.15 U	I 2.90 U	S
15	S	S	S	S	I 3.05 U	3.15	3.20	I 3.30 U	A	G	2.65	2.90	2.85	2.85	V 3.05 C	I 3.25 U	3.35	3.10	V 2.95 U	2.90	S	S	S	3.00
16	I 2.75 U	2.85	I 2.80 U	S	S	S	3.25 U	V 3.05 U	V 3.50 U	I 3.20 A	2.90	2.65	2.65	2.75	V 2.65 U	2.80	3.00	3.15 U	S	S	S	3.15	A	S
17	2.60 U	S	S	S	I 2.95 U	I 3.10 U	I 3.30 H	I 3.40 U	I 3.55 U	I 3.00 U	3.00 U	I 2.95 U	I 2.65 C	V 2.90 U	V 2.90 U	2.95	3.00 U	3.15	S	S	S	S	3.00	I 3.00 U
18	V 2.75 U	S	A	S	S	3.05 U	3.45	3.70 U	I 3.10 A	2.90	I 3.05 A	I 2.85 A	2.70	2.75	V 2.65 U	V 2.90 U	V 3.00 U	3.05 U	3.00 U	I 3.10 U	A	S	S	A
19	A	S	V 2.90 U	I 2.80 U	I 2.85 U	2.95	3.00	V 3.05 U	V 3.30 U	3.15	3.05	2.90	I 2.90 A	V 2.70 U	I 3.00 U	2.90	V 2.80 U	V 2.90 U	S	S	S	I 3.00 U	I 3.10 U	2.75
20	V 2.80 U	S	S	S	V 3.20 U	V 2.90 U	V 3.15 U	I 3.45 U	I 3.80 U	3.65	G	2.95	I 2.70 U	V 2.70 U	I 2.65 U	2.70	I 2.85 U	I 3.10 U	I 3.10 U	S	S	S	I 3.05 U	I 2.95 U
21	2.75	S	S	3.00	I 2.80 U	I 3.05 U	3.35	I 3.30 U	3.50 U	2.75	I 2.60 C	I 2.65 A	I 2.80 U	2.85 U	V 3.05 U	V 2.95 U	2.65 U	I 3.05 U	S	S	S	I 3.45 U	I 3.20 U	V 3.00 U
22	I 2.90 U	I 2.80 U	V 2.95 U	I 3.00 U	I 2.90 U	3.05 U	V 3.10 U	A	A	S	A	I 2.80 A	V 2.90 C	V 3.00 U	I 3.20 U	2.85	2.90	2.80	S	S	S	V 2.85 U	V 2.85 U	S
23	S	S	V 3.10 U	V 3.15 U	V 2.75 U	2.95	3.25 U	V 3.15 U	I 3.30 A	3.30	I 2.90 A	2.75	2.75	I 2.90 A	3.20	2.95	I 2.90 A	A	I 3.15 U	I 3.15 A	A	A	A	S
24	A	A	3.10 U	S	A	V 3.15 U	3.40	3.10	3.15	3.15	3.00	2.85	2.80	2.75	3.00	3.25 U	C	2.85	3.15	C	C	C	S	S
25	S	V 3.00 U	S	S	A	V 3.10 U	3.35 U	V 3.50 U	3.65	3.15	3.00	2.90	2.90	2.90 C	I 2.95 A	3.05	V 3.15 U	3.15	I 3.15 U	I 3.20 U	2.90	I 2.80 U	2.80	I 2.80 U
26	I 2.80 U	2.85 U	V 2.80 U	I 3.20 U	I 2.80 U	2.95 U	3.55	3.55	3.35 H	V 2.95 U	3.10	3.05 U	V 2.95 C	V 3.20 U	V 3.00 U	3.00	2.60	2.55 U	I 2.80 U	2.75	I 2.85 U	S	S	2.90 U
27	I 3.05 U	I 2.90 U	V 2.70 U	I 2.85 U	I 3.20 U	V 3.00 U	3.35	I 3.40 U	3.40	3.25	V 2.85 U	2.95 U	I 2.60 A	I 2.75 A	2.85	I 3.10 U	V 3.25 U	3.40	I 3.05 U	I 3.10 U	I 3.05 U	2.90 U	2.75 U	S
28	S	S	V 2.75 U	C	C	C	C	3.60	V 2.90 U	2.90	2.50	I 2.90 C	V 2.90 U	V 2.95 U	V 2.75 U	2.80	2.85 U	2.85 U	S	S	S	I 2.85 U	2.50 U	A
29	A	V 2.90 U	S	A	V 3.15 U	I 3.30 U	3.35	I 3.10 H	3.00 U	2.80	I 2.80 A	2.45	2.90	2.75	V 2.95 U	3.00	V 3.15 U	3.30	V 2.95 U	3.20	V 3.00 U	S	S	I 3.00 U
30	V 3.15 U	I 3.00 U	3.05	3.05	V 3.05 U	I 3.20 U	I 3.20 U	3.30	3.50 U	V 3.50 U	I 3.00 A	3.00	I 2.80 A	A	V 2.80 U	2.90 U	V 3.20 U	S	S	S	3.10	A	A	S
31	S	S	I 3.20 U	I 2.95 U	I 3.00 U	I 3.00 A	I 3.55 U	3.45 U	I 3.40 A	I 3.25 A	2.65 U	3.25	2.90	I 3.00 A	3.00	3.35 U	3.10	V 3.25 U	3.60	2.90	V 2.90 U	2.95 U	I 2.90 U	V 2.95 U
No.	14	13	16	17	22	25	28	28	25	28	28	27	27	26	29	30	31	29	24	21	17	19	19	16
Median	V 2.80	2.90	3.00	3.00	V 3.00	3.10	3.30	3.30	3.35	3.10	2.90	2.90	2.80	2.85	2.95	2.90	2.95	3.05	3.10	3.10	3.05	V 2.95	2.90	V 2.90

M(3000)F2

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

The Radio Research Laboratories, Japan.

Y 7

IONOSPHERIC DATA

Jul. 1962 | 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								A	A	A	A	A	A	A	A	A	A	A	A					
2								3.80L	4.25	4.15	3.65H	I3.85A	I3.70A	A	A	A	A	A	A					
3									A	A	A	A	A	A	I3.75A	3.50	A	A	A					
4									L	A	A	A	A	A	A	A	A	3.55	3.35L					
5									3.55	A	A	A	A	A	A	A	3.65	3.55	3.55					
6								A	A	A	I3.70A	3.80C	I3.90A	A	A	A	3.60	A	3.55					
7							L	A	A	A	A	A	3.70	A	A	A	A	A	A					
8								L	L		A	A	A	A	A	A	A	3.50	3.40L					
9								3.50	A	A	A	A	A	A	A	C	A	A	L					
10								C	3.70	A	I3.90A	A	A	A	3.90	3.85	I3.70C	A	3.50					
11							C	C	C	3.75	C	A	A	A	A	A	A	A	A					
12								A	3.50	A	A	A	A	A	A	A	3.50	A						
13							C	L	3.70	C	A	A	I3.70C	3.75	C	3.55	3.80	3.65	3.70					
14							L	L		3.85	3.85	3.55	3.90	3.90	3.75	3.50	A	A	A	A				
15							L	A	A	4.00C	I3.85C	3.60	I3.65C	I3.65C	3.60	A	A	3.50	A					
16								3.70	3.80	A	I3.90A	3.80	I3.90C	3.65	3.70	I3.75C	3.50H	3.50	3.55					
17									3.70	3.35	I4.10C	3.95	3.75	4.10	3.75H	3.85	3.65	3.70	A	L				
18									A	3.60	A	A	A	A	A	A	A	I3.55A	A					
19								L	A	A	A	A	A	3.60C	I3.70C	3.85	3.60	3.55	3.85					
20							L	3.70	3.80	4.00H	3.65H	4.00	I3.65C	I3.75C	3.70	3.35	3.55	3.55	L					
21							L	3.70	3.70	I3.80A	I3.95C	A	I3.80C	A	A	A	L	3.30	A					
22								A	A	A	A	A	A	3.75	3.75	3.60	3.55H	3.55	L					
23								L	I3.60A	I3.80A	A	A	A	A	A	A	A	A	A					
24								L	3.55	I3.65A	3.45	I3.80C	I3.80C	I3.75C	3.70C	3.60	A	3.35	A					
25								L	L	L	3.75	I3.75A	I3.80A	A	A	3.60	3.50	A	A					
26								L	3.70	3.70	I4.00A	I3.95A	A	I3.95C	3.35	I3.75A	A	A	I3.15C					
27								L	L	3.70	3.65	3.95	A	A	A	A	A	A	A					
28							C		L	3.55H	I3.75C	I3.90C	A	I3.65C	A	3.65	3.60	3.45H	3.40					
29									3.40	3.60	I3.65A	I3.60A	I3.65C	I3.80C	I3.70A	I3.70A	3.50	3.55	3.85L					
30								L	I3.65C	3.90	A	A	A	A	C	3.95C	3.55	3.45	3.65					
31								A	A	A	I3.75A	A	A	A	A	A	A	I3.65A	I3.75A					
No.								5	14	15	16	13	13	12	12	15	14	17	13					
Median								3.70	3.70	3.75	U3.75	3.80	U3.80	U3.75	3.70	3.65	3.60	3.55	3.55					

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | 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								E280A	A	A	A	A	A	425	400	400	I385A	I340A	330					
2								290	260	280	G	I420A	I490A	375	405	345	325	A	A					
3									A	A	A	A	A	A	I365A	375	340	305	290					
4									300	310	I455A	545	430	370	345	A	340	305	285					
5									350	375	I340A	I360A	I410A	400	350	350	330	305	295					
6								A	355	I400A	400	450	455	I430A	I410A	380	340	300	290					
7							295	A	A	405	I315A	375	A	I440A	A	375	335	350	265					
8								250	295		I405A	390	355	360	310	350	350	380	300					
9								330	270	E400A	340	I370A	I400A	A	A	C	330	A	290					
10								C	380	450	370	330	340	435	350	355	340	335	300					
11							C	C	C	335	425	A	A	A	335	I355A	E370A	I300A	315					
12								270	345	320	405	A	A	A	395	340	300	290						
13							C	300	275	I350C	400	400	390	350	330	340	350	330	280					
14							260	250		320	520	350	345	330	370	355	380	340	310	300				
15							300	I275A	E340A	G	455	395	370	370	315	300	290	305	370					
16								305	255	I270A	I440A	475	440	375	390	350	300	290	280					
17									280	I340B	375	350	425	310	310	310	300	325	335	280				
18									I250A	385	A	A	440	375	E450B	330	300	E350A	E350A					
19								325	270	305	350	370	360	360	310	305	330	340	290					
20							300	255	245	255	G	375	405	390	400	355	300	260	290					
21							275	280	255	430	I430C	I360A	360	E375A	300	295	355	315	I280A					
22								I270A	I260A	325	I370A	I400A	375	330	300	315	360	395	285					
23								290	I260A	305	I390A	390	370	I365A	280	325	I325A	A	A					
24								300	310	305	355	410	395	335	310	280	320	355	305					
25								260	255	330	385	395	380	400	I335A	305	300	300	I290A					
26								240	275H	345	350	345	330	305	335	340	400	E490A	390					
27								250	280	300	400	355	A	I410A	350	295	290	285	I320A					
28							C		350	355	470	I360C	340	310	345	335	305	305	275					
29									375	400	I425A	505	390	395	335	305	295	290	285					
30								280	260	305	I400A	395	I385A	I390A	355	330	275	265	270					
31								270	I275A	I335A	455	325	350	I325A	305	270	310	290	250					
No.							5	20	25	27	28	26	25	27	28	29	30	26	27	2				
Median							295	E280	275	335	400	380	385	E375	340	340	330	305	290	290				

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

Jul. 1962 | 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	340	275	270	260	275	255	230A	A	A	A	A	A	A	A	A	A	A	A	A	A	300A	275	300	I320A
2	255	I300A	305	320	300	285	240H	220	205	220	225H	I230A	I245A	I250A	I245A	A	A	A	A	A	A	A	A	A
3	A	350	I270A	250	250	250	270	250	A	A	A	A	A	A	I230A	240	A	A	A	265	I310A	290	330	270
4	250	325	290	300	300	250	240	245	E270A	A	A	A	A	A	A	A	A	250	245	255	250	I250A	I295A	290
5	A	A	A	A	300	250	E375A	AH	260	A	A	A	A	A	A	A	230	230	220	245	240	310	I330A	350
6	I360A	275	I300A	270	300	285	290	A	A	A	I235A	240	220	A	A	A	E280A	I245A	240	270	260	E390A	E395A	350
7	350	325	300	305	305	270	250	A	A	A	A	A	250	A	A	A	A	A	A	230	I260A	I335A	390	A
8	A	A	300	250	250	255	240	220	225	265	A	A	A	A	A	A	A	240	250	255	230	250	300	I350A
9	370	350	A	A	A	350	250	245	A	A	A	A	A	A	A	C	A	A	230	255	235	250	305	310
10	325	300	290	275	260	240	230	I215C	250	E330A	I225A	A	A	A	220	225	I215C	E250A	250A	E270A	I265A	240	A	I295A
11	I320A	290	270	I320A	C	C	C	C	C	240	250	A	A	A	A	A	A	A	A	290	250	I300A	E355A	A
12	A	I320A	I280A	240	250	360	250	I250A	240	A	A	A	A	A	A	A	I255A	A	AH	255	260	E350A	270	310
13	340	C	C	C	C	C	C	250	225	I205C	I230A	I200A	220	240	200	270	210	240	240	250	E350A	A	270	275
14	260	290	315	305	300	270	240	E250A	210H	210	200	225	240	205	250	270	A	A	A	A	I290A	270	A	I295A
15	I275A	260	305	340	295	300	260	A	A	200	200	250	I250C	I240C	260	A	A	250	I270A	305	I275A	225	290	285
16	300	305	300	295	255	290	275	250	250	I255A	I210A	240	250	225	230	230	250H	240	230	250	240	245	I280A	380
17	350	300	325	300	300	250	250H	240H	230	205	200	195	205	205	250H	210	200	210	I265A	250	245	240	290	I280A
18	320	I305A	A	A	275	260	240	235	I245A	250	A	A	A	A	A	A	A	I250A	I250A	I260A	I260A	250	A	A
19	A	305	290	305	315	310	260	E290A	A	E275A	A	A	I215A	260	200	240	220	240	210	250	255	250	250	300
20	305	345	280	I280A	255	280	250	230	235	200H	200H	220	E275A	275	240	E320A	250	240	235	260	270	250	250	300
21	320	310	285	285	255	310	245	255	250	I235A	I205C	A	260	I225A	I225A	I240A	245	270	A	255	240A	A	A	300
22	I330A	350	290	350	305	305	300	A	A	A	A	A	A	250	230	245	200H	240	I250A	255	250	300	300	305
23	I315A	305	245	290	340	300	250	245	I240A	A	A	A	A	A	A	A	A	A	A	A	I265A	I270A	I270A	I260A
24	I300A	I300A	250	270	I285A	300	250	230	230	I250A	270	200	240	230	250	255	I250A	250	A	C	C	C	330	305
25	350	285	310	290	I290A	275	250	255	245	225	240	A	I235A	A	A	235	230	A	A	A	305	300	290	305
26	290	325	305	270	305	305	250	235	225	240	I215A	I220A	I210A	200	290	I250A	I250A	I255A	260	290	300	I275A	260	305
27	250	260	350	I340A	290	250	260	250	235	245	250	210	A	A	A	A	A	A	I250A	I255A	255	260	305	325
28	300	300	330	C	C	C	C	235	205	205H	245	I225C	I220A	225	E320A	220	E250A	225H	255	250	205	260	390	I360A
29	I355A	320	A	A	290	250	210	205H	210	245	I235A	I250A	C	245	I230A	A	240	210	225	260	245	I290A	I300A	310
30	290	300	285	300	290	255	220	240	250	205	A	A	A	A	240	215	250	225	240	245A	240	I275A	A	A
31	A	300	250	275	305	I315A	250	A	A	A	I210A	I230A	A	A	A	A	A	I245A	I225A	230	265	E330A	300	300
No.	25	28	26	25	27	28	27	21	20	18	18	14	14	14	16	14	15	19	20	24	28	24	23	26
Median	320	300	290	290	290	280	250	240	235	230	225	225	240	235	235	240	240	240	240	255	260	265	300	305

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jul. 1962 | 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	120	110	110	110	130	120	110	120	115	110	110	105	105	110	110	110	105	105	105	100	100	100	105	120
2	120	120	120	110	110	115	120	140	130	130	150	140	135	140	140	145	135	130	125	120	115	110	110	110
3	110	115	110	120	130	S	130	140	125	120	120	115	110	110	110	110	110	105	105	105	100	100	130	100
4	120	110	110	110	110	115	150	140	135	130	130	135	150	135	130	130	130	160	140	130	130	130	120	120
5	110	105	110	110	110	110	130	130	135	125	120	115	115	125	120	110	110	115	110	150	130	135	125	130
6	120	110	115	110	110	145	130	130	130	120	120	120	110	105	105	105	135	120	105	110	S	100	100	105
7	110	110	110	105	120	125	175	125	120	115	110	110	115	110	105	155	105	105	105	105	140	100	105	120
8	120	110	110	110	120	120	120	G	150	130	125	110	130	105	130	130	130	140	145	130	125	125	120	110
9	110	110	110	110	110	105	110	155	140	130	125	120	115	125	110	C	105	105	G	B	S	S	125	S
10	125	S	110	110	110	S	G	C	110	110	110	110	110	110	105	105	C	105	130	120	120	110	120	115
11	110	110	105	105	C	C	C	C	C	140	140	120	125	125	130	125	130	125	120	110	110	100	120	120
12	125	120	105	110	110	105	110	105	110	110	130	125	125	125	120	120	135	120	120	120	S	120	S	110
13	130	C	C	C	C	C	C	110	120	C	110	110	110	110	115	110	G	110	150	150	125	125	120	S
14	105	110	105	110	S	125	125	110	110	120	115	150	145	110	140	140	130	135	125	120	120	120	110	110
15	110	115	110	105	105	105	130	125	115	140	135	110	C	140	140	135	135	135	130	120	115	115	110	110
16	110	110	110	S	S	110	105	110	110	105	105	105	110	105	110	105	105	140	130	100	100	110	110	120
17	120	110	105	105	105	S	105	105	110	110	135	G	105	105	105	G	105	140	125	125	105	100	100	105
18	110	110	105	100	100	100	135	130	125	125	120	110	110	110	110	110	110	135	130	125	120	120	100	120
19	115	125	S	120	105	105	115	115	110	110	110	110	110	110	105	150	140	140	130	S	S	S	S	S
20	S	125	S	110	110	110	110	110	160	110	110	110	105	150	160	140	140	140	140	125	120	120	S	S
21	S	120	S	115	135	130	130	125	115	110	C	105	110	110	110	105	105	145	130	125	120	120	120	S
22	120	120	110	110	120	125	120	110	110	110	110	110	105	105	G	145	150	145	130	125	120	120	120	115
23	115	110	110	110	110	S	110	110	130	125	110	115	110	105	110	105	105	130	125	120	120	115	120	125
24	115	120	110	110	110	120	150	150	110	110	110	105	145	110	110	125	125	125	120	C	C	C	120	120
25	110	110	115	E	110	110	105	155	150	155	145	135	140	130	125	140	140	125	115	110	105	100	100	S
26	S	S	E	105	100	105	105	135	140	140	125	125	120	120	125	135	120	110	110	110	110	110	105	105
27	105	S	105	110	105	105	105	140	140	130	130	135	120	115	115	115	110	110	130	130	130	S	S	130
28	130	125	125	C	C	C	C	145	110	115	110	C	125	140	130	125	120	125	125	105	105	110	105	115
29	120	120	110	110	110	105	S	110	110	145	130	130	135	130	130	135	130	135	155	140	125	110	110	120
30	S	105	E	S	105	E	140	130	130	125	120	125	110	110	115	115	110	120	125	130	S	120	120	110
31	110	105	105	105	125	105	110	110	110	110	110	110	140	130	130	135	125	135	125	120	110	110	S	S
No.	27	27	25	26	26	23	26	28	30	30	30	29	30	31	30	29	29	31	30	28	25	27	26	24
Median	115	110	110	110	110	110	120	125	120	120	120	115	115	110	115	125	125	125	125	120	120	110	115	115

h'Es

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

The Radio Research Laboratories, Japan.

Y 11

IONOSPHERIC DATA

Jul. 1962 | 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_3	f_2	f_2	f_2	f	f_5f	C_3	C_2	C_3	l_4	l_3	l_4	l_4	l_2	l_2	l_3	l_3	l_4	l_4	f_4	f_5	f_2	f_2	f_3
2	f_2	f_3	f_2	f_2	f_2	f_2	lC_2	h_2	h	h	hl	h_2	h_2	h	h_2	h	h	h_3l	C_4l_2	f_5f	f_2	f_3	f_2	f_3
3	f_3	f_2	f_3	f	f		C_3	h	h_4	h_3	C_2	C_2	C_3	C_3	l_4	l	l_2	l_6	l_3	f_4	f_4	f_4	f_4	f_2
4	ff_2	f	f_2	f_2	f_2	f	h_3	h_3	h_3	h_2	h_2l	h_l	h_l	h_l	h	h_2l	h_3l_2	h_l	h_2l	f_3f_2	ff_3	ff	f_2	f_2
5	f_3	f_3	f_3	f_4	f_2	f	h_3	h_2	h_2	h_2	h_2	h_2	C_3	h	h	C_3	l	l	l_2	ff_2	f	ff	f_2	f
6	f_3	f_2	f_3	f_2	f_2	h	h_3	h_3	h	h_3	C_2	l	l	l_3	l_3	l_3	h_2l_2	h_l	l_2	f_4		f_2	f_3	f_5
7	f_4	ff_3	f_2	f_3	f_2	f	h	C_2	C_4	C	C_3	C_2	C_2	l_2	l	h_l	l_4	l_5	l_3C	f_3	f_4	f_3	f_2	f_3
8	f_2	f_3	f_2	f_3	f_2	f	l		h	h	h_2	C	h_2l	l_2	h_l	h_l^3	h_2l	h_l	h_2	f_4	f_3	f_2	f_3	f_3
9	f_3	f_3	f_2	f_4	f_3	f_3	l_2	h	h	h_3	h	h_2	h_2	h_2	C_4		l_2	l_3				f	ff_2	
10	f_2		f	f_2	f_2				l_2	l_2	l_2	l_2	l_2	l_2	l	l_2		l_2	h_2l	f_4f	f_5	f_2	f_4	f_5
11	f_3	f_2	f_2	f_3						h	h	h_3l	h_4	h	h_2	h_2	h	h_2	C_2	f_3	f_3	f_3	ff_2	ff_2
12	f_2f_2	f_2f_3	f_2	f_2	f_2	f_4	l_h	l_2	l	C_2	h_l	h	h_2	h_2	h_2	h	h	h_2	C_3	f_3		f_4		f_2
13	f							C_3	C		C	l	l	l	l	l		l	h	ff	f_4	f_4	f_2	
14	f_2	f_2	f_2	f		f	C	C_3	C_2	C	C	h_l	h_l	l	h	h_2	h_2	h	h_3	C	f	f_5	f_2	f_3
15	f_3	f_2	f_2	f_4	f	f_2	l_2	h_2	C_2	h	h	l		h	h	h	h_2	h_2	h_2	f_2	f_2	f	f_2	f
16	f_2	f_2	f_2			f	l_3	l_2	l_2	l	l_2	l	l	l	l	l	l_2	h_l	C_l	f_2	f	f	f_2	f_2
17	f	f	f	f	f_2		l	l	l	l	h_l		l	l	l		l	h	C_2	f	f_2	f_2	f_2	f_2
18	f_2	f_3	f_3	f_3	f_2	f_3	h_2l	h_2	h_4	h_2	h_2	C_2	C_2	l_2	l_3	l_2	l_2	h_2	h_3	f_4	f_2	f_2f_2	f_2	f_3
19	f	f		f	f	f_2	l_3	l_3	l_2	l_2	l	l	l_2	l	l	h_l	h_l	h_2l	C_l					
20		f_2		f_2	f_3	f	l_2	l_2	h_l	l	l	l	l_2	h	h	h	h	h	h	f	f_2	f		
21		f		f	f	f	h_3	C_2	C_2	l_2		l_2	l	l_3	l_2	l_3	l_2	h	C_2	f_3	f_2	f_2	f_2	
22	f_2	f	f_3	f	f_2	f	l_2	l_3	l_2	l_3	C_2	l	l_2	l		h	h	h	C_2l	f_f	f_2	f_2	f_2	f
23	f_3	f_2	f_2	f_2	f_3		l_3	l_3	h_3l_2	h_2C_2	C_2	C_2	C_2	l_3	l_2	l_2	l_2	h_5l_2	C_4l	f_3	f_2	f_2f_3	f_2f	f_2
24	f	f_3	f_2	f_2	f_3	f	h	h_l_2	l_2	l_2	l	l_h	h_l	l	l	h	h_2	h_2	C_3				f_2	f_2
25	f_2	f	f_2		f_3	f_2	l_2	h_2l	h	h_l	h	h	h	h_3	h_3	h	h	C_4	C_4	f_2	f_4	f_2	f	
26				f_2	f_3	f_2	l_2	h_2l_3	h_l	h_l_2	h_2l	h	l	h	h	h_2	l_2	l_4	l_3	f	f_3	f_2	f_2	f_2
27	f		f_2	f_5	f_4	f_2	l_2	h_2l	h	h	h	h	h_3	h_3	h_2	l_2	l_3	l_2	h_3	f_4	f			f
28	f_2	f_2	f_2					h_l	l_2	l	l_2		h_l	h	h_2	h	h_2	h	C_2	f_3	f	f_2	f_2	f_2
29	f_2	f_2	f_3	f_4	f_3	f_2	l	l_2	l	h_2l	h_2	h_2	h	h_2	h_2h	h_C	h	h_2	h	h	f	f_3	f_3	f
30		f_2			f		h	h_2	h	h	h	h	C_3	C_3	l	l	l_2	l_2	l_2	f_3		f_2	f	f_2
31	f_3	f_2	f_3	f_2	ff_2	f_3	l_3	l_2	l_3	l_3	l_2	l	h_l	h_2l	h	h_2	h	h_2	C_2	f_2	f_2	f_3		
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

Y 12

58

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

Jul. 1962	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	mean	00-03	03-06	06-09	21-24	mean
1	6	6	6	6	6	0	0	1	0	0
2	6	6	6	-	6	0	0	0	-	0
3	-	-	-	-	-	-	-	-	-	-
4	6	6	-	-	6	0	0	-	-	0
5	(6)	(7)	-	(8)	6	(0)	(0)	-	(1)	0
6	6	(6)	6	-	6	0	(0)	0	-	0
7	6	6	6	-	6	0	0	0	-	0
8	-	-	-	6	-	-	-	-	0	-
9	6	5	(5)	(6)	6	0	0	(0)	(0)	0
10	(6)	(6)	-	-	6	(0)	(0)	-	-	0
11	-	-	-	-	-	-	-	-	-	-
12	6	6	-	6	6	0	0	-	0	0
13	6	6	6	6	6	0	0	0	0	0
14	6	6	6	6	6	0	0	0	0	0
15	6	6	6	-	6	0	0	0	-	0
16	5	6	6	6	5	0	0	0	0	0
17	6	6	6	5	6	0	0	0	0	0
18	5	5	5	5	5	0	0	0	0	0
19	5	5	5	-	5	0	0	0	-	0
20	(5)	5	5	-	5	(0)	0	0	-	0
21	-	6	6	(6)	6	-	0	0	(0)	0
22	6	6	6	5	6	0	0	0	0	0
23	5	5	6	6	5	0	0	0	0	0
24	6	6	6	(6)	6	0	0	0	(0)	0
25	6	6	6	-	6	0	0	0	-	0
26	6	6	6	5	6	0	0	0	0	0
27	5	6	6	6	5	0	0	0	0	0
28	6	6	6	-	6	0	0	0	-	0
29	6	5	5	6	5	0	0	0	0	0
30	6	6	6	6	6	0	0	0	0	0
31	6	6	6	-	6	0	0	0	-	0

Note No observations during the following periods:

3rd	all day	12th	1930-0000 ; 0500-1000
4th	1930-0030 ; 0500-1000	16th	1930-0000
6th	0300-0500	20th	1930-0200
7th	1930-0000	21st	1930-0200
8th	all day	29th	1930-0000
11th	all day		

No outstanding occurrence.

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Jul. 1962	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+	4 3 3	2 2 3 4	3 4 3 4	4 4 4 4	U U N N			
2	4o	3 4 3	4 4 4 5	4 5 4 4	4 5 5 4	N N N N			
3	4+	5 4 4	4 4 4 4	4 5 5 4	4 4 4 3	N N N N			
4	4-	4 4 4	4 3 3 2	3 4 4 4	4 5 4 4	N N N N			
5	3o	3 3 3	2 2 2 2	4 5 4 4	4 5 4 4	N U U U			
6	3+	3 4 3	3 2 2 3	4 4 3 4	4 4 4 (3)	U U N N			
7	4o	4 4 4	2 3 4 4	4 5 5 4	4 5 4 4	N N N N			
8	4-	3 4 4	4 3 3 3	4 5 5 4	4 4 4 4	N N N N			
9	4-	3 3 3	3 4 3 4	4 4 4 4	4 2 2 3	N U N N			
10	4o	4 5 4	4 5 4 5	4 3 3 4	3 4 4 3	N N N N			
11	4-	4 4 4	4 (3 3 2)	4 (5 4) 4	(3 4 4 3)	N N N N			
12	3+	3 3 4	(2 2 2 3)	4 (4) 4 4	(4 5 4 3)	N N N N			
13	3+	5 4 4	(3 2 2 2)	4 4 3 4	(4 4 4 4)	N N N N			
14	3+	3 3 3	(3 3 3 3)	4 5 4 4	(4 5 4 4)	N N N N			
15	3+	4 (3) 3	(3 3 4 4)	4 3 3 4	(3 3 4 3)	N N N N			
16	4o	4 4 4	(4 4 4 4)	4 4 4 4	(3 4 4 3)	N N N N			
(17)	4+	4 4 4	(4 4 4 5)	5 5 4 4	(4 4 4 4)	N N N N			
(18)	4+	4 4 3	(5) 4 4 4	4 5 5 5	(4 5 4 4)	N N N N			
(19)	4o	5 4 4	4 (3) 4 5	5 3 4 4	(4) 5 5 4	N N N N			
20	3+	3 3 3	4 3 3 4	5 4 (3 3)	4 4 4 4	N N N N			
21	4-	4 4 4	4 4 (4) 4	3 3 3 4	4 4 3 (3)	N N N N			
22	4-	4 4 (4)	4 4 4 3	3 3 4 (4)	3 4 4 4	N N N N			
23	4-	4 4 (3)	3 3 3 4	4 3 4 4	4 4 4 4	N N N N			
24	3+	3 3 (3)	4 4 3 2	4 4 4 4	4 5 4 4	N N N N			
25	3-	2 2 (3)	2 2 3 2	4 3 4 3	4 4 4 4	N N N N			
26*	2+	3 2 (3)	2 2 2 2	3 2 3 3	4 5 4 4	U W W W	01xx	---	168γ
27*	2+	2 2 (2)	2 2 2 2	2 2 3 3	4 (4) 4 5	U U U U	---	---	
28	2+	2 2 (2)	2 2 2 2	3 2 3 3	4 (4) 4 4	U U U U	---	18xx	
29	3-	2 2 (2)	2 2 2 2	3 4 4 3	3 3 4 4	U N N N			
30	3o	4 (3 3)	3 3 3 3	3 3 3 3	4 4 4 5	N N N N			
31	4-	4 (4 3)	3 4 4 3	3 4 4 4	4 4 3 4	N N N N	15.3	---	108γ

* = day of Special World Interval

( ) = Regular World Day

- = impossible to evaluate

( ) = inaccurate

C = artificial accident

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Jul. 1962	S W F									S E A			Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN	SH										
	None															

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