F — 153

IONOSPHERIC DATA IN JAPAN

FOR SEPTEMBER 1961

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THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

F—153

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

$(M3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$(M3000)F1$ — 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

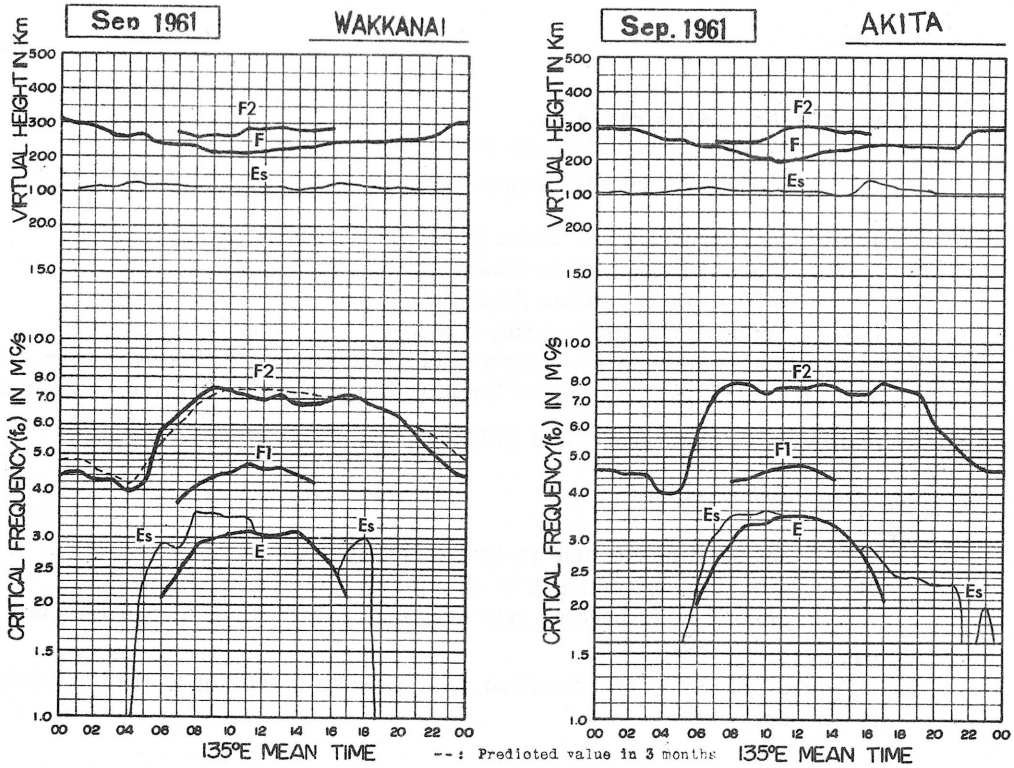
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1—	1	1+
2—	2	2+
3—	3	3+

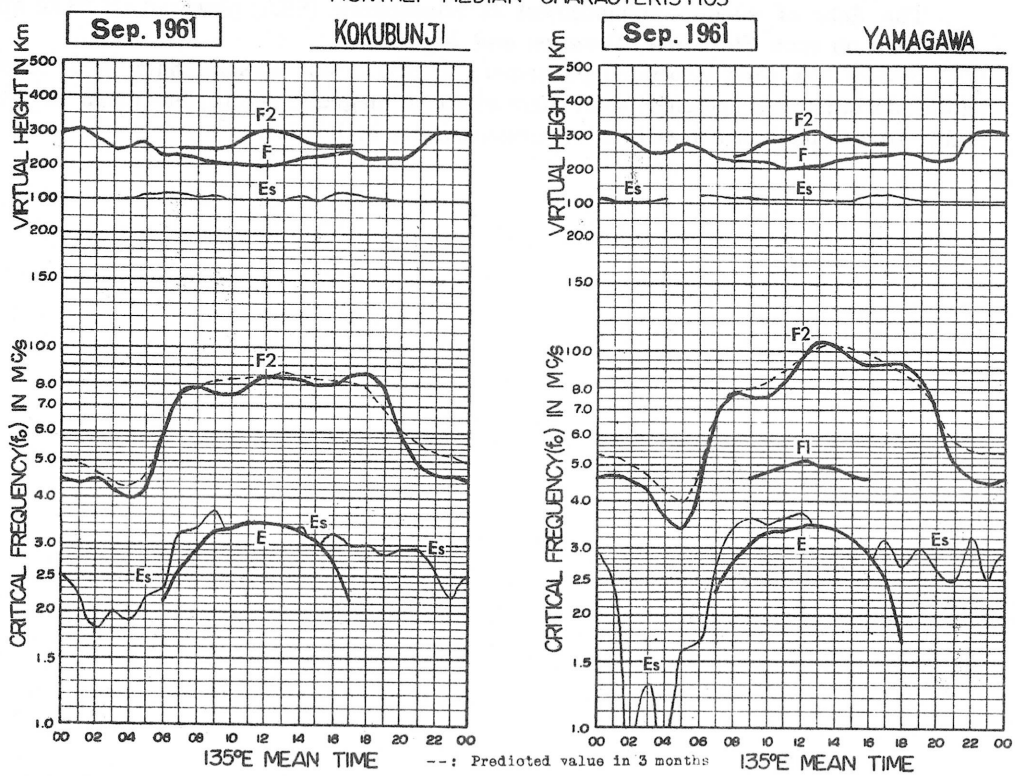
The data of sudden enhancement of atmospheric (SEA) observed on 28 kc are tabulated on each *Start-time, Duration and Importance.*

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



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.6	4.7	4.4	4.0F	I3.4F	3.8F	I4.3R	5.2	5.0	W	I5.0A	I5.0R	5.0	5.3	5.3	5.6	5.3	5.3	5.6	5.5	6.1	5.6	5.3	4.3F
2	4.3F	U4.3F	F	F	F	3.0	W	4.9	5.0	6.3	5.6	5.3	6.4	6.2	6.5	6.1	6.3	6.1	6.0	6.0	6.2	6.4	5.6	4.7
3	4.6	4.3	4.3	4.1	3.7	4.2	6.3	6.1	5.8	6.0	6.3	5.9	6.3	6.1	6.0	6.3	6.3	A	A	S	6.4F	5.3F	4.2	4.0
4	4.0	3.8	4.0	3.8	3.5	3.8	6.0	5.6	I6.3A	I6.5A	6.6	I6.5A	7.0	I7.2A	6.4	I6.0A	5.8	6.3	I6.2A	7.1	U7.3S	6.2	5.0	4.6
5	4.7	4.7	4.8F	4.5F	4.3F	4.7	6.5	6.3	7.0	6.7	6.7	6.6	6.0	6.6	6.9	6.7	6.2	5.8	6.2	6.8	6.4	6.4	5.4	4.6
6	4.5	4.5	4.3	4.6	I4.4F	4.8	5.1	6.0	7.5	8.6	7.4	6.6	6.6	6.5	6.0	6.7	6.5	6.6	6.7	6.5	6.4	6.1	5.6	5.1
7	5.1	5.0	4.7	4.4	4.0	4.8	6.2	6.5H	6.6	7.5	7.4	7.0	7.0	7.0	6.4	6.4	6.3	5.7	6.2	7.2	7.4	6.8	5.0	4.9
8	5.0	4.7	4.8	4.6	4.5	5.0	7.0	6.6	7.1	I7.3C	7.1	7.2	7.4	7.2	6.5	6.7	6.8	7.2	8.2	8.4	7.8	6.7	5.8	5.3
9	5.3	5.3	5.1	5.0	4.8	4.5	6.1	7.6	8.3	8.6	6.6	6.8	7.0	7.0	7.0	7.0	6.7	6.5	7.8	8.7	8.3	7.5	5.7	5.4
10	5.5	5.6	5.4	5.3	5.0	5.2	7.1	8.3	C	C	C	C	C	C	7.4	7.8	7.9	7.8	7.4	7.3	7.9	7.4	5.0	4.3
11	4.3	4.3	4.3	4.3	4.2	4.4	6.3	8.0	8.8	8.0	7.6	6.7H	7.1	7.5	6.8	6.8	7.3	8.8	7.7	7.1	7.1	6.6	5.8	4.8
12	4.7	4.8	4.7	4.6	4.8	4.6	6.4	8.8	8.3	8.1	8.0	7.3	7.6	7.3	7.5	7.7	7.7	7.4	8.6	7.8	6.8	6.8	5.6	5.4
13	5.6	5.6	5.4	4.8	4.0	3.9	5.6	7.7	9.4	10.3H	8.0	7.2	7.4	8.4	7.7	7.4	7.6	7.5	7.5	6.6	6.2	5.7	5.4	5.0
14	4.7	4.6	4.3	4.1	3.8	4.1	6.7	7.7	7.9	7.8	8.0	7.3	7.8	8.0	7.7	7.3	8.0	7.6	7.5	7.4	8.1	6.0	5.3	4.7
15	4.8	5.0	5.5	4.1	2.6	3.8	6.1	7.1	9.5	8.9	10.0	9.5	9.2	8.0	7.7	7.1	7.4	7.1	7.9	7.4	7.2	6.0	5.1	5.0
16	4.7	4.6	4.3	4.3	3.8	4.1	5.8	7.5	7.4H	7.7	8.1	8.0	8.0	7.1	7.1	7.5	7.7	8.4	8.7	7.4	6.0	5.3	4.5	4.1
17	4.3	U4.3S	4.1	4.3	3.6	3.6	5.9	6.4	7.0	8.2	8.3	9.3	8.1	7.6	8.3	8.1	8.0	7.9	I8.0A	I7.5S	6.8	5.6	4.9	I4.4A
18	4.3	U4.6F	I4.3F	4.3F	4.2	I4.2S	5.2	5.6	6.7	I6.8A	6.8	7.5	7.0	7.1	6.9	7.4	7.3	U7.6S	6.8	6.1	5.4	5.1	4.6	4.3
19	4.0	4.0	4.0	4.3	4.4	4.9	6.0	6.6	8.1	7.0	6.9	7.6	8.4	8.3	8.1	8.0	7.1	7.4	7.0	6.1	6.5	5.6	4.5	4.4
20	4.3	4.5	4.5	4.6	4.4	4.9	6.3	7.9	8.6	8.7	8.3	7.2	6.7	7.9	7.4	6.9	7.2	7.7	7.1	7.2	6.8	5.1	5.1	5.0
21	5.0	4.6	4.6	4.6	3.7	3.8	4.6	5.6	6.0	5.6	5.8	6.7	6.8	6.6	6.4	6.3	6.6	6.6	I6.4A	6.0	5.4	4.1	3.7	4.0
22	3.9	4.0	4.1	4.1	4.0	3.6	5.6	6.9	6.8	7.4	6.6	6.6	7.3	7.2	7.1	6.6	6.5	6.8	7.0	6.5	6.4	4.5	4.1	4.1
23	4.0	4.1	4.0	4.0	4.1	4.2	6.1V	7.1	6.6H	7.5	6.3	6.7	7.9	7.5	6.5	7.1	7.5	8.3	8.0	6.8	6.1	5.7	4.3	4.0
24	4.0	3.7	3.7	3.8	4.0	4.2	5.8	6.4H	C	C	C	C	C	C	C	C	C	8.3	7.2	6.4	6.0	5.3	5.5	4.5
25	4.4	3.9	4.0	3.6	3.5	3.1	3.3H	4.4	R	A	W	4.6	5.1	4.6	5.0	5.0	5.2	4.7	4.4	4.9	4.7	4.5	3.3	3.3
26	3.4	3.8	4.2	4.0F	3.3F	I3.9F	5.5	6.0	6.3	7.1	6.5	7.6	6.3	6.4	5.9	6.5	7.0	5.9	5.6	5.3	4.6	4.3	3.3	3.3
27	3.4	3.3	3.3	3.3	3.1	3.1	4.4	5.3	7.5	8.6	7.5	7.1	6.9	7.6	7.0	7.1	6.8	8.0	6.3	5.8	4.6	4.0	4.0	I3.7A
28	I3.8A	3.8	3.3	2.6	2.7	3.0	5.6	6.3	7.6	7.5	84	8.6	7.0	7.4	7.1	7.0	7.0	7.2	6.5	6.1	4.3	4.1	4.3	4.3
29	4.0	4.0	3.8	3.9	3.6	3.6	5.2	5.3	6.8	7.3	7.8	7.4	7.3	8.2	6.9	6.5H	6.7	6.7	6.5	5.6	5.5	5.5	5.4	5.0
30	5.1	5.2	4.7	4.6	4.7	4.7	5.5	6.7	6.3	7.5	7.6	8.0	7.9	7.1	7.1	8.2	7.3	7.6	6.1	5.1	4.8	4.6	4.8	4.6
31																								
No.	30	30	29	29	29	30	29	30	27	26	27	28	28	28	29	29	29	29	29	29	30	30	30	30
Median	4.4	4.5	4.3	4.3	4.0	4.2	5.9	6.4	7.0	7.5	7.4	7.2	7.0	7.2	6.9	6.9	7.0	7.2	7.0	6.6	6.4	5.6	5.0	4.6
U.Q	4.8	4.7	4.7	4.6	4.4	4.7	6.3	7.5	8.1	8.2	8.0	7.6	7.7	7.6	7.4	7.4	7.4	7.8	7.8	7.4	7.1	6.4	5.4	5.0
L.Q	4.0	4.0	4.0	4.0	3.6	3.8	5.4	5.6	6.3	7.0	6.6	6.6	6.6	6.6	6.4	6.4	6.4	6.4	6.2	6.0	5.5	5.1	4.5	4.1
Q.R	0.8	0.7	0.7	0.6	0.8	0.9	0.9	1.9	1.8	1.2	1.4	1.0	1.1	1.0	1.0	1.0	1.0	1.4	1.6	1.4	1.6	1.3	0.9	0.9

foF2

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

The Radio Research Laboratories, Japan.

W 1

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Sep. 1961

foF1

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							3.7	3.7	4.0	4.2	A	R	A	I 4.4 A	4.4	4.1	L							
2							I 3.2 A	3.9	4.1	4.3	4.5	4.7	4.4	4.6 H	4.4	4.2	L							
3								L	L	I 4.3 A	4.5	4.7	4.6	I 4.4 A	I 4.2 A	4.2 H	L	A						
4									A	A	A	A	A	A	A	A	A							
5							2.5	I 3.4 L	4.2	4.4	4.5	4.8	4.6	4.6	4.7	I 4.2 L	L							
6								L	4.3	4.5	4.6 H	4.6	4.7	4.7	I 4.4 L	4.3	L	L						
7									L	4.4	4.7	I 4.8 L	4.8	4.6	L	A								
8									L	C	4.6	4.8	4.9	5.0	L	L	L	L						
9								L	4.3	4.6	I 4.6 A	I 4.8 L	I 4.9 L	4.9	4.6	I 4.2 L								
10									C	C	C	C	C	C	L	4.3	L							
11								L	4.3	4.6	4.6	I 4.6 L L	I 4.6 L	I 4.7 L		L								
12								L	L	4.5	4.6	L	L	L	L	L								
13								L	L	4.6	4.6 H	L	L	L	L	L	L							
14								L	L	L	4.8 L	L	L	L	L	L	L							
15									L	L	L	L	L	4.5	L	L								
16								L		4.7	I 4.4 L	4.8	I 4.8 L		L	L	L							
17									A	L	I 4.6 A	I 4.8 L	A	L	L	L	A							
18									4.1	A	A	L	L	L	L	L	L							
19									4.2	4.4	I 4.5 L H	I 4.7 L	4.9	4.7 H	L	L								
20								L	L	4.4	I 4.5 L	L	L	L	L	L								
21							L	3.8	4.1	4.2	4.3	4.5	I 4.3 L H	I 4.3 L	L	L								
22								L	L	4.2	I 4.2 L	I 4.2 L U	4.2 L	L	L									
23										4.3	L	L	L	L	L	L								
24									C	C	C	C	C	C	C	C	C							
25								3.6	4.0	I 4.1 A	4.0	4.2	4.2	U 4.2 L	4.1	L								
26									L	4.2	4.3	4.3	4.4	4.2	L	L								
27									I 4.0 L	4.3	4.3	4.1	L	L	L	L								
28									L	A	L	L	L	L	L									
29										L	I 4.3 L	L	L	L	L									
30										L	L	L	L	L	L	L								
31																								
No.							3	5	11	19	21	16	14	14	7	7								
Median							3.2	3.7	4.1	4.4	4.5	4.7	4.6	4.6	4.4	4.2								

foF1

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

The Radio Research Laboratories, Japan.

W 2

10

IONOSPHERIC DATA

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

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	2.10	2.50	2.90	3.05	3.10	3.05	3.00	2.95	3.00	3.00	2.85	2.10	S					
2						1.35	2.15	2.40	2.70	I 2.75 A	I 3.05 A	3.35	3.45	3.35	3.20	I 3.00 R	2.70	2.10						
3						S	2.15	2.60	2.90	3.00	3.00	3.00	I 3.00 A	I 3.10 A	I 3.20 A	3.05	2.65	2.10						
4						S	S	2.70	2.85	3.05	3.05	3.15	3.00	A	A	A	A	S	S					
5						S	1.90	2.50	2.90	3.00	3.00	I 3.20 A	3.00	3.00	I 3.10 A	3.00	2.60	2.10						
6						S	S	2.70	I 3.00 A	3.05	3.20	3.40	3.35	3.30	3.00	2.90	2.60	2.10	S					
7						S	2.15	2.45	2.90	3.00	3.00	3.15	3.05	3.00	A	A	A	2.15	S					
8						S	2.15	2.50	2.95	I 3.00 C	3.00	3.00	3.40	I 3.30 A	3.25	3.00	2.80	2.10	S					
9						S	S	2.85	3.05	3.00	2.90	A	A	A	3.15	3.00	2.70	2.10	S					
10							2.10	2.20	C	C	C	C	C	C	3.30	A	2.80	A	A					
11						S	2.35	2.85	2.90	I 3.10 A	A	A	R	2.90	2.90	2.95	2.60	2.00	S					
12						S	S	2.40	2.90	3.00	3.10	A	A	A	3.20	3.05	2.65	2.10	S					
13						S	S	2.50	2.90	3.00	A	A	R	3.40	3.20	2.90	2.70	2.00	S					
14						S	S	2.30	2.65	3.00	3.30	3.10	I 3.35 A	3.30	3.15	3.00	2.55	2.05	S					
15						S	2.00	2.45	2.90	3.00	I 3.00 B	I 3.25 A	3.45	I 3.25 A	I 3.05 A	2.90	2.50	2.10	S					
16							I 2.10 A	2.50	I 2.75 A	I 3.05 A	3.10	3.15	3.15	3.25	3.10	3.00	2.60	S	S					
17						S	S	2.50	3.00	3.05	3.10	3.15	3.00	2.95	3.30	3.00	2.60	S						
18							S	A	A	A	A	A	R	A	A	3.00	2.50	S						
19						S	S	2.35	2.60	2.95	3.00	3.00	3.20	3.20	3.00	2.90	2.45	S						
20						S	I 1.80 S	2.10	I 2.50 A	3.00	3.10	3.25	3.20	3.05	3.15	2.90	2.40	S						
21							S	2.40	2.70	2.95	3.05	3.05	3.00	3.05	2.95	2.80	2.35	S						
22						S	A	A	A	A	I 3.10 A	I 3.10 A	3.15	3.05	I 3.00 A	2.80	2.30	S	S					
23							S	2.30	2.75	I 2.95 A	3.05	3.15	3.10	3.00	I 2.95 A	2.65	2.20	S						
24							S	2.35	C	C	C	C	C	C	C	C	C	S						
25							S	2.20	2.70	2.85	3.00	2.95	2.95	2.95	2.90	2.70	2.10	S						
26							S	2.25	2.70	2.95	I 3.10 A	3.05	3.00	2.90	2.90	2.70	2.25	S						
27						S	S	2.25	2.55	I 2.80 A	I 3.00 R	3.05	2.90	2.95	2.90	2.70	2.25	S						
28							S	2.30	2.55	2.95	2.95	A	A	A	A	A	A	S						
29							2.00	2.30	2.85	3.00	2.95	3.00	3.00	3.00	3.00	2.75	2.30	S						
30							S	2.35	2.90	3.00	3.00	3.00	A	R	R	R	2.30	S						
31																								
No.						1	12	28	26	26	25	22	21	22	24	24	26	13						
Median						1.35	2.10	2.40	2.90	3.00	3.05	3.10	3.05	3.05	3.10	2.90	2.60	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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	2.5	2.9	3.5	3.8	4.1	J5.7	3.8	J4.3	J4.6	G	G	3.5	J4.5	J3.6	E	J3.6	E	E	2.6
2	E	2.5	E	E	1.8	2.2	J3.3	3.3	3.3	J4.4	J3.3	G	2.9G	G	3.9	G	3.5	J5.8	E	E	3.0M	E	J2.3	E
3	E	E	E	E	E	S	2.6	3.2	3.9	J5.6	3.9	3.9	J4.3	J10.4	J5.6	G	G	J8.5	D	J8.4	J5.0	J3.3	E	J3.3
4	E	J2.1	J2.3	J2.3	J2.4	S	S	3.4	J11.3	J11.9	J7.3	J6.5	J6.9	J12.3	J6.0	J7.0	J6.0	S	J6.8	J6.3	J7.0	J2.8	E	E
5	E	E	E	E	1.6	S	G	3.1	3.7	G	J4.3	3.3	G	G	3.3	2.5G	G	G	E	E	E	E	E	E
6	E	E	E	E	E	S	S	G	J4.6	3.4	G	G	G	G	G	G	G	G	S	E	E	E	E	J3.0
7	E	E	E	E	J2.6	S	G	3.1	3.6	3.8	3.6	G	G	3.6	J6.0	J6.0	J3.2	G	S	J5.1	J3.2	2.8	E	E
8	E	E	E	E	E	S	G	3.1	J3.3	C	J4.6	J4.3	G	J3.6	2.6G	G	2.3G	G	S	E	E	E	J2.3	E
9	J2.5	J2.0	2.2	J2.1	E	S	S	G	G	3.8	J5.6	J5.1	4.0	4.0	2.3G	G	G	2.8	S	E	E	E	E	E
10	E	E	E	E	E	E	G	2.7	C	C	C	C	C	C	2.7G	J3.0	J3.3	J2.8	J3.0	J3.0	2.2	E	E	E
11	E	E	E	E	E	S	G	G	G	3.3	3.9	3.5	G	G	G	G	3.7	3.5	J3.3	E	E	E	E	E
12	J2.5	J2.3	E	E	E	S	2.9	G	3.5	G	J4.3	J4.8	3.9	4.0	G	4.1	3.5	J4.3	J3.0	J3.3	J2.3	E	J4.3	J2.6
13	E	E	E	E	2.0	J3.0	J3.0	3.6	J5.5	3.5	J3.4	J5.1	G	G	G	G	G	2.8	J3.3	E	E	E	E	E
14	E	E	E	E	E	J2.3	S	3.2	3.8	G	3.0G	3.3	3.5	3.1G	G	G	3.0	2.7	S	E	E	E	E	E
15	E	E	E	E	1.7	J2.3	J3.3	J4.8	3.5	3.8	B	3.8	G	J4.3	J4.3	3.0	G	G	S	J2.3	E	E	E	E
16	E	E	E	J2.3	E	J3.0	J3.3	G	J4.3	J3.3	G	G	G	G	G	G	G	S	S	J3.3	J6.3	J5.3	J4.3	J5.0
17	2.7	J2.5	J2.4	J2.3	E	2.4	J4.3	3.5	J5.3	4.0	J5.3	4.4	J6.3	J5.6	G	G	4.3	J4.3	J12.5	J6.3	J6.3	J5.3	J4.3	J5.0
18	J4.0	5.0	J2.4	J4.1	J3.3	J3.1	J3.6	J4.3	J5.6	J7.0	J6.3	4.3	G	J4.3	J4.3	G	J5.8	J3.0	J5.3	J2.6	E	E	E	E
19	E	E	E	E	E	S	S	2.6	G	G	G	G	4.1	G	G	G	G	2.9	J3.0	E	E	J4.0	J4.3	J3.3
20	E	E	E	E	E	S	2.4	2.7	J3.5	G	G	G	G	G	G	G	G	2.2	J2.3	J3.0	J3.5	2.5	E	E
21	J2.5	J2.8	J2.4	J2.4	1.6	J2.0	S	G	G	G	G	G	G	G	G	G	G	2.3	J6.3	J5.1	J4.3	J2.5	J3.0	E
22	E	E	E	E	E	J2.3	J3.0	2.5	2.9	J4.2	J3.4	J3.3	G	G	J3.2	2.3G	G	S	S	E	E	E	E	E
23	E	J2.0	E	E	E	E	S	G	G	J3.2	G	G	G	G	2.6G	G	G	2.6	J3.1	E	E	E	E	E
24	E	E	E	E	E	J2.1	S	G	C	C	C	C	C	C	C	C	C	J4.3	J3.0	J2.6	E	J2.6	E	2.4
25	E	E	E	E	1.8	J3.0	2.9	J3.0	3.3	J5.0	3.4	G	G	G	G	G	G	2.2	2.0	J3.0	J2.2	J2.2	E	J2.2
26	E	E	J2.0	E	J2.3	J3.0	J2.6	J4.0	J4.3	3.4	J3.3	G	2.3G	G	G	G	G	S	J2.3	E	J2.3	E	E	E
27	E	J2.6	J3.0	J2.8	E	S	S	2.8	3.3	J3.3	G	G	G	G	G	G	G	S	E	E	E	J3.0	J3.2	J4.5
28	J5.3	J5.3	J3.0	J3.4	J2.3	J2.3	S	2.5	3.2	J5.0	3.9	3.4	J3.3	J4.0	J3.5	J4.4	J3.5	2.1	E	E	E	J2.4	2.5	E
29	E	E	E	E	E	E	G	G	G	G	G	4.0	3.9	3.8	G	G	G	2.9	3.0	E	J4.3	E	E	2.4
30	E	J3.2	J2.0	E	E	E	S	G	G	3.8	3.6	3.8	3.3	G	G	G	G	S	E	E	E	E	E	E
31																								
No.	30	30	30	30	30	18	19	30	28	27	27	28	28	28	29	29	29	24	22	30	30	30	30	30
Median	E	E	E	E	E	2.3	2.9	2.8	3.5	3.5	3.4	3.4	G	G	G	G	G	2.8	3.0	E	E	E	E	E
U.Q	E	2.3	2.0	2.1	1.8	3.0	3.2	3.3	4.1	4.2	4.3	4.2	3.9	4.0	3.4	G	3.5	3.9	3.6	3.2	3.5	2.6	2.3	2.6
L.Q	E	E	E	E	E	2.1	G	G	G	G	G	G	G	G	G	G	G	2.2	2.0	E	E	E	E	E
Q.R						0.9												1.7	1.6					

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						G	G	3.2	3.8	4.0	A	A	4.3	4.3			G	4.1	3.6		3.6			E
2		E			E 1.8 A	G	A	G	G	3.3	3.5		2.9		G		G	3.1			E		E	
3						S	G	G	G	5.5	G	G	3.9	4.4	4.3			A	A	3.1	E	E		E
4		E	E	E	E	S	S	G	A	A	6.1	A	4.6	A	4.5	A	4.8	S	A	3.1	4.2	E		
5					E	S		G	G		4.1	E 3.3 A			3.0	G								
6						S	S		3.1	G									S					E
7					E	S		G	G	G	G			G	4.2	4.3	3.1		S	4.1	E	E		
8						S		G	G	C	4.4	4.2		3.6	G		2.3		S				E	
9	E	E	E	E		S	S			G	5.3	4.3	3.8	3.6	G			G	S					
10								G	C	C	C	C	C	C	G	3.0	G	2.5	2.4	2.8	E			
11						S				3.3	3.7	3.5					G	G	G					
12	E	E				S	G		G		G	4.3	3.9	3.5		G	G	G	3.1	3.1	2.3		2.8	E
13					E	2.6	2.3	3.4	G	G	3.3	4.2						G	3.0					
14						G	S	G	G		3.0	2.9	3.5	3.0			G	G	S					
15					E	G	G	G	G	G	B	3.8		3.8	3.3	G			S	E				
16				E		E	2.3		3.3	3.2								S	S	E	E	2.9	E	E
17	E	E	E	E		G	4.0	G	4.9	G	5.2	4.3	4.7	5.6			4.3	4.1	A	4.6	4.0	4.1	3.1	A
18	3.0	2.7	E	4.1	2.5	A	E 3.6 A	3.0	3.2	A	4.7	4.0		4.2	4.0		5.7	G	E	E				
19						S	S	G					4.1					G	E			E	2.6	2.3
20						S	G	G	3.5									G	E	2.5	3.2	E		
21	E	E	E	E	E	E	S											G	A	3.1	E	E	E	
22						G	2.4	2.5	2.9	3.4	3.3	3.2			3.1	G		S	S					
23		E					S			3.2					E 2.6 A			G	E					
24						E	S		C	C	C	C	C	C	C	C	C	G	E	E		E		E
25					E	E	G	G	G	A	G							G	E	E	E	E		E
26			E		E	E	2.3	3.1	G	G	3.3		G					S	E		E			
27		E	E	E		S	S	G	G	3.2								S				E	E	A
28	A	E	E	E	E	E	S	G	G	4.3	G	3.4	3.3	3.4	3.0	3.6	3.0	G				E	E	
29												G	G	3.8				G	E		E			E
30		E	E				S			G	G	G	3.3					S						
31																								
No.	6	11	9	8	10	14	12	20	21	20	19	17	13	13	13	8	12	19	17	13	14	12	9	11
Median	E	E	E	E	E	G	2.3	G	G	3.2	3.3	3.8	3.8	3.8	3.0	G	G	G	G	3.1	E	E	E	E

f_bEs

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

The Radio Research Laboratories, Japan.

W 5

13

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E2.00s	E1.90s	E2.00s	E	E	E1.20s	1.90	2.00	2.10	2.25	2.50	2.30	2.50	2.40	2.35	2.10	2.00	1.95	E1.80s	E2.00s	E2.10s	E2.00s	E1.85s	E2.00s
2	E2.00s	E1.90s	E	E	E	E	1.90	2.00	2.00	2.05	2.20	2.50	2.20	2.35	2.20	2.00	1.95	1.90	E1.90s	E1.90s	E2.00s	E2.10s	E2.00s	E2.00s
3	E2.00s	E	E	E	E	E1.70s	1.90	2.00	2.05	2.20	2.20	2.20	2.50	2.30	2.05	2.15	2.00	1.85	E2.00s	E1.90s	E1.80s	E1.90s	E2.00s	E2.10s
4	E1.90s	E1.85s	E	E	E	E1.70s	E2.30s	1.95	2.10	2.10	2.30	2.50	2.05	2.00	2.05	2.00	2.00	E2.20s	E2.00s	E2.00s	E1.90s	E2.00s	E2.10s	E2.00s
5	E1.95s	E1.60s	E1.80s	E	E	E1.60s	1.80	1.95	2.00	2.30	2.35	3.00	2.40	2.15	2.10	1.80	2.15	2.00	E2.00s	E2.30s	E1.80s	E2.20s	E2.00s	E2.10s
6	E2.15s	E2.00s	E2.10s	E2.00s	E	E1.70s	E2.30s	2.00	2.00	2.40	2.15	2.45	2.50	2.60	2.30	2.10	2.10	1.95	E1.90s	E2.00s	E2.00s	E2.00s	E1.80s	E1.90s
7	E2.20s	E	E1.60s	E	E	E1.80s	1.90	2.00	2.00	2.15	2.15	2.20	2.00	2.10	2.50	2.00	2.00	1.95	E2.00s	E1.95s	E1.90s	E2.00s	E1.95s	E2.00s
8	E1.90s	E1.85s	E2.00s	E	E1.20s	E1.60s	2.00	1.90	2.00	I2.25C	2.50	2.40	2.15	2.10	2.10	2.15	1.90	1.90	E2.00s	E1.90s	E2.10s	E2.00s	E1.80s	E2.10s
9	E2.00s	E1.50s	E	E	E1.90s	E1.80s	E2.30s	2.00	2.10	2.30	2.20	2.20	2.10	2.00	1.90	2.05	2.00	1.90	E2.00s	E2.00s	E2.10s	E2.00s	E2.00s	E2.10s
10	E2.10s	E	E1.50s	E	E	E	1.90	1.90	C	C	C	C	C	C	2.10	2.00	1.80	1.80	E1.70s	E1.90s	E2.00s	E2.00s	E2.00s	E2.20s
11	E1.90s	E1.80s	E	E	E	E1.80s	2.00	2.00	2.10	2.20	2.25	2.15	2.05	2.10	2.10	2.10	2.00	1.85	E2.00s	E2.00s	E2.00s	E2.00s	E2.10s	E2.00s
12	E2.00s	E	E2.00s	E	E	E1.80s	E1.95s	1.90	2.20	2.10	2.30	2.35	2.30	2.15	2.00	2.00	2.05	2.00	E1.80s	E1.80s	E2.00s	E2.00s	E2.00s	E2.00s
13	E1.90s	E1.90s	E	E2.00s	E	E1.50s	E2.00s	2.00	2.10	2.30	2.15	2.25	2.10	2.40	2.30	2.20	2.00	1.90	E1.90s	E1.95s	E2.00s	E1.80s	E2.00s	E1.90s
14	E2.00s	E2.00s	E2.20s	E	E	E1.50s	E2.00s	2.00	2.10	2.15	2.40	2.40	2.25	2.30	2.15	2.30	2.00	2.00	E2.10s	E2.00s	E2.15s	E2.10s	E2.00s	E2.10s
15	E2.00s	E2.00s	E2.00s	E1.60s	E	E1.50s	1.90	2.00	2.15	2.15	4.30	2.00	2.10	2.30	2.00	2.00	2.00	1.95	E2.00s	E2.00s	E2.15s	E1.90s	E1.90s	E2.00s
16	E1.90s	E1.80s	E2.00s	E	E1.90s	E	2.00	2.00	2.00	2.00	2.10	2.30	2.10	2.10	2.30	2.10	2.00	E2.10s	E2.10s	E1.80s	E1.90s	E1.90s	E1.90s	E2.00s
17	E2.00s	E2.00s	E1.90s	E2.00s	E2.10s	E1.50s	E2.00s	2.00	2.20	2.20	2.10	2.30	2.10	2.40	2.00	2.00	2.00	E1.90s	E2.00s	E1.90s	E2.00s	E2.00s	E2.00s	E1.90s
18	E1.80s	E	E	E	E	E1.20s	E2.00s	2.00	2.20	2.00	2.10	2.10	2.10	2.00	2.10	2.10	1.95	E2.00s	E2.00s	E1.90s	E2.00s	E1.95s	E2.00s	E2.00s
19	E2.00s	E2.00s	E	E	E	E1.60s	E2.10s	1.95	2.30	2.00	2.15	2.50	2.00	2.15	1.90	1.90	1.90	E1.90s	E1.80s	E1.90s	E2.00s	E1.90s	E1.90s	E1.85s
20	E1.90s	E1.90s	E	E1.20s	E	E1.50s	E1.80s	1.90	2.00	2.00	2.00	2.15	2.00	2.00	2.00	1.90	1.90	E1.80s	E1.80s	E1.90s	E1.90s	E2.00s	E1.90s	E1.90s
21	E1.80s	E	E	E	E	E	E2.10s	1.90	2.00	2.00	2.10	2.10	2.00	2.10	2.00	1.90	2.00	E1.80s	E1.80s	E2.00s	E1.90s	E1.80s	E2.00s	E2.00s
22	E1.90s	E	E	E	E	E1.60s	E1.60s	1.90	2.00	2.00	2.00	2.00	2.00	2.00	1.85	1.90	1.90	E2.00s	E2.00s	E1.90s	E2.00s	E1.90s	E2.00s	E2.00s
23	E2.00s	E	E2.00s	E	E	E2.00s	E2.00s	1.90	2.00	2.00	2.20	1.90	2.00	2.00	1.85	2.00	1.90	E2.00s	E2.00s	E1.90s	E2.00s	E1.90s	E1.90s	E1.90s
24	E1.90s	E1.60s	E	E	E	E	E2.00s	2.00	C	C	C	C	C	C	C	C	C	E1.80s	E2.00s	E1.60s	E2.00s	E1.80s	E1.80s	E2.00s
25	E1.70s	E1.80s	E	E	E	E	E1.90s	1.90	1.90	2.00	2.00	2.00	2.10	2.00	1.90	1.80	1.85	E1.80s	E1.90s	E1.90s	E1.90s	E1.80s	E1.90s	E2.00s
26	E2.00s	E1.70s	E	E2.00s	E1.60s	E1.20s	E1.90s	1.90	1.90	1.95	2.10	1.95	1.90	2.20	2.00	1.90	1.90	E1.90s	E1.70s	E2.00s	E2.00s	E1.90s	E2.00s	E1.80s
27	E1.90s	E	E	E	E	E1.80s	E2.00s	1.85	1.90	2.00	2.00	2.00	2.20	2.00	2.00	2.00	1.90	E2.00s	E1.80s	E2.00s	E1.90s	E1.80s	E1.90s	E1.90s
28	E1.90s	E	E	E	E	E	E2.00s	E2.00s	1.90	1.90	2.00	2.00	2.00	1.90	2.00	1.85	1.90	E1.80s	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s	E2.00s
29	E2.00s	E	E1.20s	E	E	E1.20s	1.90	1.90	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E1.80s	E2.00s	E2.00s	E2.00s	E2.00s	E1.90s	E2.00s
30	E2.00s	E	E	E2.00s	E	E1.50s	E2.00s	1.90	2.00	2.00	2.10	2.05	2.00	2.00	2.00	2.00	2.00	E1.95s	E2.00s	E2.00s	E1.90s	E1.90s	E1.90s	E2.00s
31																								
No.	30	30	17	23	25	30	30	30	28	28	28	28	28	28	29	29	29	30	30	30	30	30	30	30
Median	E2.00	E1.65	E	E	E	E1.50	E2.00	2.00	2.00	2.10	2.15	2.20	2.10	2.10	2.00	2.00	2.00	E1.90	E2.00	E1.95	E2.00	E2.00	E2.00	E2.00

f-min

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

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.75	3.00	2.90	2.95F	I2.75F	3.00F	I3.20R	3.25	2.95	W	I2.70A	I2.75R	2.80	3.00	3.00	3.25	3.25	3.00	3.15	2.80	3.00	2.90	3.00	2.80F
2	2.65F	U2.80F	F	F	F	3.10	W	2.90	2.90	3.25	3.40	3.00	3.15	3.05	3.15	3.15	3.20	3.25	3.20	2.90	2.95	2.95	3.05	2.90
3	2.85	2.80	2.90	2.85	2.90	3.10	3.35	3.55	3.30	3.15	3.50	3.15	3.00	3.15	3.10	3.15	3.10	A	A	S	3.20F	3.05F	2.85	2.75
4	2.70	2.90	2.90	2.95	3.10	3.15	3.25	3.25	I3.25A	I3.15A	3.20	I3.05A	3.15	I3.15A	3.35	I3.20A	3.25	3.15	I3.05A	2.90	U3.15S	3.20	3.00	2.85
5	2.90	2.95	2.90F	2.90F	2.75F	3.05	3.30	3.40	3.45	3.35	3.30	3.20	3.20	3.20	3.20	3.20	3.25	3.20	3.05	3.10	2.95	3.15	3.15	2.95
6	2.70	2.70	2.80	3.05	I3.10F	3.30	3.20	3.05	3.25	3.10	3.35	3.20	3.35	3.10	3.15	3.10	3.25	3.20	3.20	3.10	2.95	3.00	2.90	2.75
7	2.80	3.00	3.00	2.95	2.95	3.15	3.55	3.40M	3.20	3.35	3.20	2.95	3.05	3.15	3.30	3.20	3.15	3.15	2.95	2.85	3.05	3.25	2.85	2.75
8	2.85	2.90	2.75	2.90	2.90	3.15	3.45	3.35	3.25	I3.35C	3.30	3.15	3.20	3.10	3.25	3.00	3.10	3.15	2.95	3.05	3.05	3.15	2.95	2.85
9	2.85	2.90	2.95	3.00	3.05	3.15	3.25	3.20	3.35	3.50	3.55	2.95	3.00	3.15	3.05	3.05	3.05	3.05	2.95	3.05	3.05	3.25	3.00	2.85
10	2.75	2.80	2.80	2.85	2.90	2.90	3.10	3.20	C	C	C	C	C	C	3.10	3.20	3.15	3.20	3.00	2.90	3.05	3.25	3.00	2.75
11	2.75	2.65	2.75	2.75	2.85	3.00	3.15	3.35	3.40	3.40	3.15	3.20M	2.95	3.20	3.25	3.20	3.05	3.20	3.15	2.90	2.95	3.15	3.15	2.75
12	2.75	2.70	2.70	2.70	2.90	2.60	3.10	3.25	3.10	3.10	3.25	3.05	3.15	3.00	3.15	3.15	3.10	3.00	3.15	3.20	2.95	3.10	2.90	2.75
13	2.80	2.80	2.80	3.15	2.95	2.95	3.05	3.15	3.20	3.10H	3.40	3.20	3.00	3.15	3.20	3.25	3.20	3.20	3.15	3.05	2.95	3.00	3.00	2.85
14	2.90	2.85	2.80	2.95	2.90	2.75	3.30	3.35	3.35	3.10	3.30	3.00	3.10	3.15	3.15	3.20	3.10	3.10	3.05	3.00	3.10	3.10	2.85	2.55
15	2.50	2.60	3.20	3.65	2.75	3.10	3.15	3.25	3.15	3.05	3.10	3.10	3.20	3.35	3.20	3.20	3.10	3.10	3.05	3.10	3.00	3.15	2.85	2.80
16	2.75	2.80	2.85	2.95	3.05	2.95	3.30	3.30	3.35H	3.30	3.00	3.30	3.15	3.00	3.20	3.20	3.10	3.20	3.20	3.25	3.10	3.00	2.95	2.80
17	2.75	U2.65S	2.80	3.00	3.35	2.90	3.20	3.35	3.15	3.20	3.15	3.05	3.25	3.05	3.00	3.10	3.25	3.05	I3.10A	I3.05S	2.95	2.90	2.90	I2.80A
18	2.75	U2.60F	I2.70F	2.80F	2.85	I3.00S	3.20	3.40	3.30	I3.25A	3.20	3.35	3.30	3.25	3.05	3.25	3.25	U3.20S	3.25	3.15	3.15	3.00	2.85	2.95
19	2.80	2.75	2.75	2.75	2.95	3.05	3.40	3.30	3.50	3.35	2.95	3.15	3.10	3.25	3.20	3.40	3.25	3.25	3.15	3.10	3.10	3.15	3.10	2.85
20	2.90	2.70	2.70	2.85	2.95	2.80	3.15	3.30	3.15	3.30	3.25	3.35	3.15	3.15	3.20	3.20	3.10	3.25	3.10	3.15	3.15	2.85	2.65	2.85
21	2.80	3.05	2.65	2.85	2.90	3.00	3.05	3.20	3.05	3.40	3.15	3.30	3.25	3.20	3.50	3.35	3.35	3.40	I3.20A	3.05	3.25	3.15	2.90	2.85
22	2.80	2.85	2.80	3.05	3.15	3.10	3.55	3.25	3.40	3.40	3.50	3.20	3.25	3.25	3.30	3.10	3.25	3.35	3.15	3.20	3.30	3.30	2.85	2.90
23	2.80	3.05	2.90	2.90	3.00	3.05	3.40V	3.45	3.35H	3.50	3.60	3.20	3.25	3.45	3.35	3.30	3.20	3.20	3.25	3.40	3.15	3.35	3.20	2.95
24	2.90	3.05	2.90	2.95	3.10	3.10	3.60	3.65H	C	C	C	C	C	C	C	C	C	3.30	3.35	3.15	3.00	2.90	3.00	2.90
25	2.75	2.55	2.70	2.70	2.70	2.90	2.75H	2.90	R	A	W	2.45	2.90	2.60	2.95	3.15	3.25	3.15	2.85	3.05	3.00	2.90	3.05	2.65
26	2.60	2.80	2.85	2.95F	2.85F	I2.95F	3.45	3.45	3.35	3.25	2.95	3.30	3.25	3.45	3.15	3.25	3.35	3.40	3.20	3.15	3.00	3.10	2.80	2.80
27	2.75	2.75	2.75	2.80	2.90	2.95	3.30	3.20	3.35	3.30	3.40	3.25	3.20	3.30	3.30	3.20	3.15	3.30	3.35	3.15	2.75	2.90	2.50	I2.75A
28	I2.85A	2.95	3.20	3.10	3.00	2.85	3.45	3.35	3.20	3.25	3.25	3.40	3.30	3.25	3.20	3.30	3.30	3.40	3.40	3.30	3.35	2.75	2.80	3.00
29	2.95	2.95	3.10	3.05	3.10	3.10	3.45	3.55	3.40	3.40	3.35	3.40	3.30	3.30	3.50	3.35H	3.45	3.25	3.15	3.25	2.90	3.05	2.95	2.85
30	2.90	2.95	3.00	2.85	2.85	3.00	3.30	3.45	3.35	3.30	3.40	3.40	3.35	3.15	3.20	3.25	3.30	3.30	3.45	3.15	3.00	2.85	2.90	2.85
31																								
No.	30	30	29	29	29	30	30	30	27	27	28	28	28	28	29	29	29	29	29	29	30	30	30	30
Median	2.80	2.80	2.80	2.95	2.90	3.00	3.30	3.30	3.30	3.30	3.25	3.20	3.20	3.15	3.20	3.20	3.20	3.20	3.15	3.10	3.00	3.10	2.90	2.85

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

The Radio Research Laboratories, Japan.

W 7

15

IONOSPHERIC DATA

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

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							3.45	3.50	A	A	A	R	A	A	3.50	3.65	L							
2							A	3.35	3.75	3.70	3.60	3.75	3.85	3.50^{H}	3.60	3.70	L							
3								L	L	I 3.90^{A}	3.60	3.85	3.75	I 3.70^{A}	I 3.65^{A}	3.60^{H}	L	A						
4									A	A	A	A	A	A	A	A	A							
5							4.25	I 4.00^{L}	3.80	3.85	3.80	3.75	3.75	3.70	3.40	I 3.65^{L}	L							
6								L	3.55	3.75	3.90^{H}	3.90	3.80	3.65	I 3.70^{L}	3.60	L	L						
7									L	3.85	3.80	I 3.60^{L}	3.75	3.75	LA	A								
8									L	C	A	3.60	3.45	3.60	L	L	L	L						
9								L	3.75	3.75	I 3.95^{A} I	3.90^{L}	I 3.60^{L}	3.55	3.55	I 3.60^{L}								
10									C	C	C	C	C	C	L	3.60	L							
11								L	3.75	3.75	4.00	I 3.95^{L}	I 3.90^{L}	I 3.60^{L}		L								
12								L	L	4.00	3.90	L	LA	L	L	L								
13								L	L	3.85	3.70^{H}	L	L	L	L	L	L							
14								L	L	L	3.75^{L}	L	L	L	L	L	L							
15									L	L	B	L	L	3.80	L	L								
16								L		3.80	I 3.85^{L}	3.95	I 3.80^{L}		L	L	L							
17									A	L	I 3.70^{A}	I 3.75^{L}	A	LA	L	L	A							
18									3.80	A	A	L	L	L	LA	L	L							
19									3.70	3.90	I 3.90^{LH}	I 3.75^{L}	I 3.55^{A}	3.45^{H}	L	L								
20								L	L	3.85	I 3.90^{L}	L	L	L	L	L								
21							L	3.65	3.55	3.85	4.00	3.65	I 3.70^{LH}	I 3.70^{L}	L	L								
22								L	L	4.05	I 4.00^{L}	I 4.10^{L}	U 4.05^{L}	L	L	L								
23										3.95	L	L	L	L	L	L								
24									C	C	C	C	C	C	C	C	C							
25								3.35	3.55	I 3.60^{A}	3.75	3.90	3.55	U 3.55^{L}	3.65	L	L							
26									L	3.80	3.95	3.95	3.85	3.80	L	L	L							
27									I 3.70^{L}	3.80	3.95	4.40	L	L	L	L								
28									L	A	L	L	L	L	L									
29										L	I 3.85^{L}	L	L	LA	L									
30										L	L	L	L	L	L	L								
31																								
No.							2	5	10	18	20	16	14	13	7	7								
Median							3.85	3.50	3.70	3.85	3.90	3.90	3.75	3.65	3.60	3.60								

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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							R	310	370	W	A	R	450	375	350	310	L							
2							W	390	420	295	300	380	320	325	310	310	290							
3								250	285	I 285 A	280	330	325	310	315	305	I 300 L	A						
4									I 285 A	I 295 A	I 310 A	I 320 A	305	I 305 A	280	I 295 A	300							
5							240	I 275 L	270	270	280	315	295	315	305	I 275 L	L							
6								L	280	275	260	300	310	320	I 310 L	315	L	L						
7									L	260	290	320 L	315	295	275	280								
8									275	I 270 C	260	300	290	310	L	L	L	L						
9								L	250	250	260	I 300 L	I 310 L	325	310	I 290 L								
10									C	C	C	C	C	C	L	280	275							
11								L	260	250	265	260 L	I 300 L	295		L								
12								260	250	270	265	I 255 L	I 290 L	I 300 L	295	L								
13								275	260	250	250	275	I 280 L	285	285	L	L							
14								L	260	270	265	I 270 L	300	290	285	L	L							
15									280	280	285	290	280	250	L	L								
16								250		270	I 265 L	275	295		L	L	L							
17									260	280	280	300	275	310	295	I 280 L	260							
18									250	I 265 A	295	290	275	260	I 275 L	265	L							
19									260	255	I 260 LH	295	300	270	280	260								
20								L	255	265	265	270	270	300	275	L								
21							L	290	320	285	290	305	290	285	260	L								
22								L	L	265	260	295	275	280	260									
23										245	250	I 275 L	280	260	L	L								
24									C	C	C	C	C	C	C	C	C							
25								380	R	A	W	540	400	U 450 L	375	L	L							
26									L	300	285	280	280	265	L	L	L							
27									260	260	250	265	I 265 L	I 270 L	265	L								
28									L	260	265	260	255	285	L									
29										260	270	260	280	275	250									
30										265	260	270	260	L	L	L								
31																								
No.							2	9	19	27	27	27	28	26	20	12	5							
Median							W	275	260	270	265	290	290	295	285	285	290							

h'F2

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

The Radio Research Laboratories, Japan.

W 9

17

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Sep. 1961 | h'F | 135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	310	270	290	240	320	285	250	250	A	A	A	A	I 225 A	I 235 A	240	235	260	I 270 A	I 260 A	300	I 280 A	275	260	285
2	330	300	305	270	I 280 A	260	I 260 A	255	240	220	205	205	200	250 H	250	225	250	I 255 A	250	260	270	270	255	285
3	310	300	290	260	255	270	250	240	215	I 230 A	230	200	235	I 235 A	I 240 A	220 H	250	A	A	A	230	250	275	315
4	315	315	290	290	270	265	250	245	A	A	A	A	A	A	A	A	A	250	I 265 A	I 270 A	I 255 A	245	255	285
5	290	260	260	270	300	265	230	245	220	220	230	210	230	205	210	240	225	250	265	260	250	260	245	290
6	320	325	320	275	225	225	245	240	245	220	215 H	190	225	225	220	225	240	260	250	250	280	270	255	325
7	315	265	275	250	295	260	230	235 H	235	220	210	230	200	235	A	A	A	245	270	I 280 A	260	250	240	305
8	290	295	300	240	260	250	245	230	220	I 220 C	I 215 A	I 210 A	210	230	230	230	240	255	260	245	250	240	250	275
9	305	295	295	260	250	250	240	245	245	215	I 215 A	I 220 A	230	210	215	250	250	260	265	250	255	235	250	275
10	300	290	295	290	280	260	245	225	C	C	C	C	C	C	225	235	250	255	250	280	265	235	245	310
11	305	335	305	285	260	280	260	245	240	215	210	230	230	205	245	245	265	260	240	250	265	250	245	290
12	320	310	305	290	280	310	265	250	240	210	235	I 220 A	I 230 A	240	250	260	260	250	I 250 A	I 260 A	270	255	270 A	335
13	300	290	250	250	255	300 A	245	250	250	230	200 H	I 220 A	220	210	235	235	245	250	I 240 A	250	260	270	270	280
14	290	310	300	270	270	300	245	250	240	230	215	205	220	215	225	245	250	240	250	260	250	250	275	350
15	350	315	250	215	370	285	245	250	215	210	I 215 B	230	220	240	230	230	250	250	250	250	260	245	280	300
16	300	295	300	295	250	275	245	235	260 H	220	245	210	230	230	215	230	255	260	240	235	250	300	280	270
17	335	320	320	285	250	290	I 265 A	250	I 235 A	230	I 230 A	I 250 A	I 245 A	I 255 A	240	240	A	A	A	A	A	A	I 285 A	I 320 A
18	I 330 A	340 A	315	I 310 A	310	I 285 A	I 265 A	250	215	A	A	A	225	I 215 A	I 225 A	235	I 250 A	250	235	250	250	270	270	275
19	305	345	320	300	250	230	245	240	230	215	205 H	210	I 215 A	230	240	220	245	250	235	235	255	255	260	300
20	300	300	300	270	260	260	230	250	245	215	215	210	200	215	245	245	250	250	245	255	I 245 A	275	295	300
21	300	300	315	275	275	295	260	250	245	220	205	235	185 H	235	240	220	260	245	I 240 A	I 250 A	240	245	340	300
22	310	300	280	255	245	250	235	220	220	200	215	200	205	220	240	225	250	250	245	245	240	225	300	300
23	305	280	295	290	260	270	225	245	220 H	200	210	200	185	245	225	210	250	250	240	230	250	245	245	290
24	290	290	280	265	250	265	225	225 H	C	C	C	C	C	C	C	C	C	250	225	260	265	285	270	300
25	300	375	300	320	315	300	295 H	250	250	I 250 A	250	220	240	250	240	260	255	270	250	270	290	290	245	340
26	335	300	285	270	300	300	245	240	250	205	225	215	215	240	220	240	250	230	250	250	300	250	310	310
27	320	335	325	310	260	275	250	240	235	250	215	190	225	215	240	260	250	240	220	250	300	310	365	I 350 A
28	I 325 A	300	285	300	315	320	260	240	250	I 245 A	230	225	210	230	220	250	250	240	230	245	220	325	300	290
29	300	280	260	255	250	260	225	220	240	235	235	235	210	I 230 A	250	235 H	245	250	240	240	270	275	270	295
30	295	270	260	300	270	270	230	245	240	250	240	230	230	210	195	260	250	240	220	245	255	275	290	290
31																								
No.	30	30	30	30	30	30	30	30	26	25	25	25	27	27	27	27	26	28	28	28	29	29	30	30
Median	305	300	295	270	265	270	245	245	240	220	215	215	220	230	235	235	250	250	250	250	255	255	270	300

The Radio Research Laboratories, Japan.

h'F

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

W 10

IONOSPHERIC DATA

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

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

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

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

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

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.7F	F	F	RF	C	C	C	C	C	I5.2A	6.0R	6.5	6.5	6.5	6.8R	6.8	5.9	6.0	6.7	I6.8E	6.8F	I6.5R	5.5	5.6R
2	5.3	5.0	4.8F	5.0	4.0F	I3.8F	4.2	5.5	6.9	6.3	6.5	5.9	6.4	6.9	6.9	7.0	6.8	6.6	6.5	6.3R	6.2	6.0	5.4R	5.1
3	C	C	C	C	C	C	C	C	C	6.2	6.5	6.5	6.1H	6.5	6.9	6.7	7.4	7.9	8.1	8.8R	A	A	3.9F	3.9
4	3.9	3.8F	3.6F	4.0F	3.8F	3.9	5.0	6.7	6.9	6.6	I7.0A	7.1	7.1	7.3	7.1	6.8	6.3	6.0	6.6	RF	RF	F	RF	F
5	F	4.6F	4.2	4.2F	4.2	4.1	5.6H	6.9	6.5	7.2	7.5	6.9	6.4H	6.8	7.6	7.3	6.4	6.0	6.1	I7.1E	I7.1E	6.6	5.1R	I4.6E
6	I4.6E	4.4F	4.5R	4.5	4.1R	4.3	5.8	6.1	7.1	9.5	7.3	7.2	7.0	7.1	6.7	6.9	7.0	7.2	7.5	6.8	6.1R	5.4F	5.5	5.6
7	5.4	5.3	5.0S	4.7R	4.2	4.5	6.2S	6.7	7.8	7.3	7.4	7.6	7.3	7.6	7.1	6.6	6.1	6.0	6.6	7.6	I7.0E	I6.1F	I5.6F	5.1
8	5.0	4.8F	4.6	4.6R	4.5	4.8	6.5	6.6H	I7.5C	7.8	7.0	7.6	7.9	7.9	7.8	7.3	7.5	7.3	8.3	9.2	7.9	6.4	5.6	5.0
9	5.1	5.1	5.0	5.1	4.1	4.2	6.5	8.5	8.2	8.0	I6.9E	7.1	7.6	7.4	7.0	7.6	7.4	7.1	8.6	9.1	7.9R	6.7	5.1	5.2
10	5.0	5.3R	5.4	5.5	5.9	5.2	7.1	J10.1R	8.1	8.1	C	C	C	C	C	8.1	7.7	8.5	8.7	I7.8R	U7.5R	U7.4R	4.8	4.2R
11	4.1R	4.3	4.1	4.3	4.2	4.6	6.8	8.7	9.6R	8.6	7.0	7.0	7.5	7.7	7.9	7.5	7.4	8.6	9.0	U7.8R	7.2	6.9	5.4	4.8
12	4.6	4.6	4.6	4.6	4.6	4.4	7.0R	I8.7R	9.1	9.6R	7.3	8.2	7.4	8.0	8.4	8.5	7.9	7.9	9.0	9.0	7.0	6.1	5.3	5.3R
13	U5.2R	5.2R	5.3	5.5	3.8R	3.9	6.6	8.8	I10.7R	11.3R	8.9	9.3	9.0	9.5	9.2	8.3	7.3	7.5	7.6	6.6	6.1	5.5	5.1	5.0
14	5.1	4.9R	4.6	4.6	4.4	4.2	7.0	7.9	8.4	9.0	8.4	8.0	8.4	8.4	8.4	8.0	7.4	8.6	8.8	8.1	I7.4C	5.6	5.3	5.2
15	5.1	4.9	5.6	J5.2R	2.4	I3.5R	6.3	8.3	9.7	9.4	10.5	10.9	10.3	9.5	7.0	7.9	8.0	8.4	7.9	I8.1R	6.8	5.4	4.9	5.0
16	4.9	5.0	4.5	4.5	4.6	4.3	6.4	7.5S	8.0	8.7	8.7	9.6	7.6	8.0	7.7	7.4	8.2	9.1	U9.7R	8.8	5.9	4.4	4.4	I4.2C
17	I4.2C	I4.2C	4.0	4.4	3.6	3.4	6.1	6.8	8.5	9.3	8.6	9.4	8.9	8.8	8.8	9.1	8.7	8.3	9.1	8.4	6.0	5.5	4.9	RF
18	RF	F	F	RF	RF	4.1F	6.0	I7.7A	U7.3R	7.0	6.9H	7.7	8.4	7.6	6.9	7.5	7.8	I8.0A	8.4	6.9	6.1	4.6	4.7F	4.6E
19	I4.2E	3.8	I4.0F	4.1	4.0	I4.8R	5.9	7.4R	8.9	8.0	7.4	7.9	8.2	9.1	9.0	8.5	8.4	8.0	7.6	6.5	6.0	5.6	4.6	4.6
20	4.6	4.6R	4.6R	4.5	4.2F	4.3	6.6	8.0	8.6	8.8	8.1	7.6	7.5	7.4	7.9	7.8	7.3	8.6	7.6R	U7.9R	5.9	5.0	5.2	5.0
21	5.0	4.9	4.7	I4.6A	3.9	I4.0E	5.3	U7.7R	8.0	7.7	6.6	6.7	8.1	8.7R	7.7	6.8	6.8	6.7	6.8	6.1	I5.4R	I4.2R	3.7R	I3.8E
22	I3.8F	3.6	4.0	4.1	3.6	3.5	5.6	8.0	7.1	7.3	6.8H	6.3	7.0	8.3	7.8	6.7	7.6	7.9	8.0	I7.8R	6.0	4.1R	3.3	3.5
23	3.6	3.6	3.6	3.6	3.7	3.9	6.2	I7.1R	6.5	7.2	6.8	6.9	7.5	8.1	7.3	6.7	8.1	8.9	9.1	7.8	6.2	4.9	3.6	3.8
24	3.9	3.7	3.5S	3.7	3.7	4.3S	6.1	6.4	7.0R	7.0	7.2	7.1	8.1	7.8R	7.6	7.6	9.0	9.3R	8.1	6.5	5.6	5.1	5.0	4.0
25	4.5	3.9	4.2	3.5	3.3	3.1	3.4	4.4	4.5V	G	R	5.2	5.6	6.0	6.0	6.3	6.1	5.7	6.3	A	A	A	3.3	A
26	A	A	F	F	F	I3.5E	5.1	6.2	7.6	7.5	7.6	7.9	7.6	6.9	7.5	7.3	7.3	7.4	6.4	5.9	4.8	4.1	3.9R	3.6
27	3.4	3.4	3.4	3.6	3.3	3.3	5.1	6.1	7.5	10.1	7.7	6.6	8.0	8.5	7.3	7.6	8.3	8.6	7.1	4.6	I4.0E	I4.0A	4.0	I4.0A
28	3.9	C	C	C	2.6	2.7	5.1	7.3	J9.9R	9.4	8.7	8.1	8.7	7.5	7.2	7.6	7.7	7.9	6.4	5.3	I3.9R	3.6	I3.8E	4.2
29	3.9	3.9	3.6	3.6	3.1	3.3	5.5	I6.8C	7.9	7.7	8.1	8.6	8.0	8.0	8.0	7.0	7.0	8.1	I7.6R	5.6	4.6	4.6	5.0R	4.6
30	I4.8C	5.1R	4.7	I4.6C	4.6R	4.9	5.8	6.6	U7.3R	7.1	8.4	9.3	9.3	8.1	7.8	8.0	7.6	7.7	7.5R	4.8	A	A	4.2	4.4R
31																								
No.	26	25	25	25	26	28	28	28	28	30	28	29	29	29	29	30	30	30	30	28	26	26	29	27
Median	4.6	4.6	4.5	4.5	4.0	4.1	6.0	7.2	7.8	7.8	7.4	7.6	7.6	7.8	7.6	7.4	7.4	7.9	7.6	7.4	6.1	5.4	4.9	4.6
U.Q	5.0	5.0	4.8	4.6	4.2	4.4	6.5	8.0	8.6	9.0	8.2	8.2	8.3	8.4	7.9	7.9	7.9	8.5	8.6	8.1	7.0	6.1	5.3	5.1
L.Q	3.9	3.8	4.0	4.0	3.6	3.5	5.4	6.6	7.1	7.1	6.9	6.8	7.0	7.2	7.0	6.8	7.0	7.1	6.7	6.4	5.9	4.6	4.0	4.0
Q.R	1.1	1.2	0.8	0.6	0.6	0.9	1.1	1.4	1.5	1.9	1.3	1.4	1.3	1.2	0.9	1.1	0.9	1.4	1.9	1.7	1.1	1.5	1.3	1.1

foF2

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

The Radio Research Laboratories, Japan.

A 1

21

IONOSPHERIC DATA

Sep. 1961 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	A	4.6	4.7	4.7	4.6L	I4.5L	4.5L	L	L						
2							L	I4.0A	4.2	I4.4L	4.7	4.8L	4.9	4.6L	4.4	4.5L	4.0L							
3							C	C	C	4.6H	4.6L	4.7	4.6	4.7H	4.6L	4.5L	4.1L							
4								L	L	4.6L	I4.6A	4.8L	4.9H	4.7L	4.6H	4.2L	L							
5								L	L	I4.6L	4.6L	4.7L	I4.8L	4.8L	4.5L	4.3	A							
6									4.5L	4.4	I4.4A	4.8L	5.0L	4.7	I4.6S	4.4	I4.2L							
7								L	4.5	4.6L	4.7L	I4.8L	5.0L	4.9L	4.6L	4.5L								
8									I4.4C	4.6L	4.6L	5.0L	4.8L	4.9L	4.8L	4.6L	3.8L	L						
9								L	L	4.3L	I4.8L	I5.0L	5.0L	A	A	4.5L	L	L						
10									L	L	C	C	C	C	C	L	L							
11								L	4.3L	4.5L	I4.6L	I4.8L	5.0L	5.1L	I4.6L	I4.2L	A							
12								L	4.1L	4.4	4.6L	I4.6L	I4.8L	5.0L	I4.7L	L	L							
13								L	L	I4.4L	4.6H	I4.7H	I5.0L	5.0L	4.6L	L								
14									L	I4.6L	4.7L	I4.8H	I4.9L	5.0L	4.6L	L	L							
15								L	L	I4.6L	5.0L	5.0L	4.8L	I4.8L	L	L	L							
16								L	L H	L	5.0L	4.5L	I4.7L	I4.8L	L	L	L	L						
17									L	5.0L	4.6L	4.7	I4.2L	5.0L	4.5L	4.5L	L							
18								A	A	I4.6L	4.5L	4.7L	4.5L	4.6L	L	L								
19									L	L	4.5L	4.8L	4.6L	4.7L	4.5L	4.1L	L							
20									4.5L	I4.4H	4.5L	4.6L	4.6L	4.5L	4.5L	L								
21								L	4.2L	I4.4L	4.5L	4.5L	4.6	I4.4H	4.5L	I4.0L	L							
22								L	L	4.2	I4.5L	4.5L	4.6	4.5	4.3L	L	L							
23									L	I4.3L	4.6L	4.5L	I4.6L	I4.6L	L	L	L							
24									L	4.3L	4.5L	I4.4L	I4.4L	4.6L	4.6L	L	L							
25								3.6L	I4.0L	4.0	4.1	4.5	4.4H	4.4	4.3L	I3.8L	L							
26									L	4.5	I4.5A	4.7L	L H	L	L	L								
27									L	4.2L	4.5H	4.3	I4.4L	L	L	L								
28									L	L	L	L	L	I4.5A	I4.4L	4.0L								
29										L	4.5L	4.5L	4.6L	4.5L	L	L								
30											L	L	L H	L	L									
31																								
No.								2	9	23	27	27	26	25	20	15	4							
Median								U3.8	4.3	4.4	4.6	4.7	4.7	4.7	4.6	4.4	4.0							

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	3.20	I 3.30 A	3.55	I 3.50 R	3.45	I 3.40 R	3.05	2.70	R						
2							2.05	2.60	I 2.90 A	I 3.10 A	R	A	A	3.45	I 3.30 A	3.05	2.80	2.25						
3							C	C	C	3.15	I 3.40 A	I 3.45 A	3.50	3.50	3.30	3.05	2.80	2.40 R						
4							A	2.70	I 3.00 A	3.30	3.40	I 3.50 A	3.55	A	A	A	A	I 2.30 A						
5							2.05	2.60	3.00	A	A	A	A	A	A	A	A	A						
6							E	2.55	3.00	A	A	A	3.55	3.50	3.30 S	3.05	2.80	2.50 A						
7							I 2.15 A	2.80	I 3.10 A	I 3.30 A	A	A	A	A	3.35	3.10	2.95	A						
8							I 2.20 A	I 2.80 A	C	A	A	A	A	A	I 3.40 A	A	A	A						
9							I 2.05 R S	2.80	3.20	3.40	A	A	A	A	A	A	A	A						
10							A	2.75	3.15	I 3.40 A	C	C	C	C	C	3.15 H	2.75	2.20						
11							2.40	3.00	3.20 R	I 3.40 R	3.45	I 3.50 R	3.50	3.50	3.40	3.15	2.95	2.05						
12							A	2.70 A	3.05	I 3.30 A	I 3.45 A	I 3.45 A	I 3.50 A	3.50	3.35	3.05	2.70	A						
13							A	2.65	I 3.10 A	I 3.30 A	3.50	3.55	3.50	3.45	3.30	3.10	2.65	2.05						
14							A	2.70 R	3.05	A	A	3.55	3.65	3.50	3.35	3.00	2.75	2.05						
15							2.00	A	A	3.40	B	A	A	3.55	3.40	3.05	2.75	I 2.70 R						
16							A	A	3.05	3.40	3.50	3.60	U 3.55 R	3.50	3.30	3.05	2.70	A						
17							A	2.75	3.15	3.40	3.50	I 3.55 A	3.55	3.45	3.35	3.05	2.70	1.90						
18							A	A	A	A	A	A	3.55	A	A	A	2.55	A						
19							R	2.45	A	A	A	3.35	3.50	3.45	3.25	3.00	2.55	A						
20							A	I 2.60 A	3.00	U 3.30 A	3.35	3.45	U 3.45 R	3.40	3.20	2.95	2.65	A						
21							1.85	2.55	2.90	I 3.10 A	3.25	I 3.35 R	U 3.45 R	3.35	3.15	2.95	2.55	1.85						
22							A	A	2.95	A	A	A	A	A	A	A	2.55	R						
23							R	2.55	2.95	3.15	3.25	I 3.30 R	3.35 R	3.25	3.10 R	2.90	2.55	A						
24							R	A	A	A	3.25	3.40 R	3.45	3.25	3.15	2.90	A	A						
25							1.80	2.45	I 2.85 A	I 3.10 A	I 3.25 A	I 3.40 A	I 3.40 A	3.20	3.05	2.95	I 2.45 R	A						
26							A	A	A	A	A	3.30	3.25	3.16	3.05	2.80	2.45	R						
27							A	2.35	I 2.80 A	3.05	I 3.10 A	I 3.15 A	I 3.20 A	3.20	3.10	2.85	2.45	R						
28								A	A	A	3.15 A	A	A	A	3.00	I 2.85 A	2.40	A						
29							E	I 2.60 C	I 2.90 A	3.10	3.20	I 3.25 A	I 3.30 A	3.30	3.10	2.90	2.55	E						
30							B	2.55	2.95	3.20 R	A	A	A	3.15	3.00 R	2.75	2.50	A						
31																								
No.							11	21	21	20	16	18	20	21	24	24	25	12						
Median							2.05	2.60	3.00	3.30	3.30	U 3.45	3.50	3.45	3.30	3.00	2.65	2.10						

foE

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

The Radio Research Laboratories, Japan.

A 3

23

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J 2.4	J 3.4	J 2.3	J 2.9	C	C	C	C	C	J 7.3	J 3.8	G	G	4.0	G	G	3.0	G	J 2.8	J 4.0	J 2.8	E	E	J 2.1
2	E	E	J 2.2	E	E	E	2.5	J 5.9	J 12.3Y	3.5	G	J 3.7	J 4.5	4.0	3.6	3.5	3.2	3.1	J 3.0	J 4.0	E	J 2.3	E	E
3	C	C	C	C	C	C	C	C	C	3.5	J 6.0	3.6	G	G	G	G	G	J 4.3	J 4.6	J 3.9	J 8.3	J 8.2Y	J 6.1	J 3.9
4	J 1.9	E	E	J 2.1	E	J 2.3	2.8	G	3.5	3.5	J 8.8	J 3.8	4.0	4.1	J 5.0Y	3.5	2.9	J 3.8	J 3.8	J 2.4	J 6.2Y	J 6.1	J 3.4	J 6.1
5	J 1.8	J 3.5	J 1.9	E	E	E	2.3	3.1	3.5	3.5	3.6	3.6	J 4.4	J 4.3	J 5.2	J 4.0	J 4.0	J 2.9	J 5.2	J 5.0	J 2.4	E	J 2.4	J 2.3
6	J 1.8	E	J 1.9	E	E	E	2.3	J 3.0	G	J 6.0	J 6.0	4.1	G	G	G	G	3.1	2.8	E	E	E	J 2.2	E	E
7	E	E	S	E	E	E	2.7	3.5	3.6	3.6	J 3.6	J 4.8	J 4.3	J 4.2	G	G	3.5	3.1	2.0	J 2.3	J 3.5	J 4.9Y	E	E
8	E	E	E	E	E	E	G	3.0	C	3.5	3.5	3.5	J 3.5	J 4.2	3.8	J 3.3	J 2.9	J 2.6	J 2.1	J 2.4	J 2.0	E	E	J 2.5
9	E	J 1.7	J 2.6	E	J 2.8	J 2.3	2.9	3.5	3.6	G	J 4.3	J 3.4	J 6.0	J 5.9	J 5.3	J 3.2	J 2.9	3.1	J 2.3	J 2.1	E	E	E	E
10	E	E	E	E	E	E	2.1	G	G	J 4.0	C	C	C	C	C	G	3.0	2.6	E	J 4.1	E	J 2.3	E	E
11	E	E	E	E	E	E	2.9	2.7G	G	3.6	G	G	3.0G	2.7G	2.3G	3.6	J 4.2Y	J 3.9	J 3.1	J 2.3	J 2.4	E	E	J 2.0
12	E	E	E	E	E	E	2.4	3.8	4.3	3.6	3.5	3.5	3.6	3.9	G	G	3.3	2.5	J 3.3	J 3.5	J 2.3Y	J 2.3	J 3.4	J 2.8
13	J 2.9	E	E	E	E	J 2.0	J 3.8	3.4	3.7	3.4	G	G	3.3G	2.6G	2.9G	G	3.1	J 3.8	J 2.9	J 7.6Y	J 3.0	E	E	E
14	E	J 2.3	E	E	E	J 2.3	J 2.9	2.9	3.8	3.5	3.9	G	G	G	G	G	3.7	2.8	J 2.8	J 2.2	C	E	E	E
15	E	E	E	E	J 2.2Y	J 2.3	2.2	J 3.4	3.4	G	3.9	J 4.1	J 3.8	G	G	G	G	G	J 2.1	E	J 2.4	J 2.8	J 2.7	J 2.2
16	E	E	J 2.4	E	J 2.5	J 1.8	2.4	J 3.7	G	G	G	G	G	G	G	G	G	J 2.4	E	E	E	J 1.9	E	C
17	C	C	J 1.7	E	E	E	2.2	3.0	3.8	3.6	3.6	3.6	3.6	3.7	G	G	3.0	3.1	J 4.4	J 5.0	J 5.0	J 5.0	E	E
18	J 2.8	E	E	E	J 2.3	J 1.9	J 4.3	J 8.0	J 6.0	J 3.9	3.8	J 4.3	G	J 4.0	J 3.8	J 3.2	G	J 11.8	J 8.3	J 2.8	E	J 2.3	J 2.5	E
19	J 2.5	E	E	J 1.8	J 2.2	J 4.0	G	3.4	3.4	3.7	3.5	G	G	G	G	G	3.1	2.8	E	E	E	J 2.3	E	J 2.8Y
20	J 1.9	J 1.9	J 2.0	J 2.6	J 5.0	J 3.0	J 3.8	J 3.1	G	3.6	G	G	G	G	G	3.2	4.2	2.4	J 2.4	E	J 2.3	J 5.0Y	J 2.5	J 2.3
21	J 1.9	J 4.8Y	J 6.0Y	J 5.9	J 2.3	J 2.8	G	2.7	G	2.7G	G	G	G	G	G	G	2.7	2.3	J 3.5	J 5.0	J 6.1Y	J 5.0	J 1.7	J 2.4
22	J 2.3	J 2.4	J 2.0	E	E	E	2.2	2.6	G	3.5	J 3.7	J 5.3	J 4.0	3.5	J 3.4	J 3.4	2.7	G	J 1.8	E	E	E	E	E
23	E	E	E	E	E	E	G	3.0	G	G	G	G	G	2.3G	J 2.3G	J 2.0G	J 2.3G	J 2.3	J 2.3	J 1.8Y	J 2.9	E	E	E
24	E	J 1.8	E	E	E	E	G	2.8	3.5	3.5	G	G	G	G	G	3.2	J 2.6	2.4	J 2.4	J 2.3	J 2.3	J 2.3	J 1.9	E
25	E	E	E	E	E	E	2.2	3.5	3.8	3.4	J 3.8	3.7	3.5	G	G	3.9	G	J 4.2	J 4.2	J 6.3	J 5.9	J 2.8	J 3.7	J 8.6
26	J 5.9	J 3.5	J 2.3	J 1.7	E	J 2.4	J 3.4	J 6.0	3.6	3.8	J 5.1	G	J 3.0G	G	G	G	G	G	E	E	J 2.3	J 2.2	E	E
27	E	E	J 1.8	J 2.8	E	E	2.1	2.8	J 3.3	G	J 3.3	3.2	3.3	G	G	G	G	G	E	J 2.8	J 2.3	J 4.5	J 5.0	J 5.0
28	E	C	C	C	E	E	2.0	J 3.6	J 3.9	J 4.6	J 4.3	4.0	J 4.8	J 4.3	G	3.5	3.5	J 2.4	J 2.5	J 2.8	J 2.3	J 2.2	J 1.8	E
29	E	E	E	J 2.5	J 1.8	E	G	C	3.6	3.6	3.6	3.8	J 4.0	G	G	G	G	1.9	E	E	J 2.0	J 2.8	J 6.0Y	J 2.5
30	C	J 2.4	J 2.4	C	J 2.0	J 1.8	G	2.8	G	G	3.6	3.8	3.5	3.0G	G	G	G	2.4	J 1.9	J 2.3	J 4.9	J 5.0Y	J 2.8	J 3.5
31																								
No.	27	27	27	27	28	28	28	27	27	30	29	29	29	29	29	30	30	30	30	30	29	30	30	29
Median	E	E	E	E	E	E	2.2	3.1	3.5	3.5	3.6	3.5	3.3	G	G	G	2.9	2.6	2.4	2.4	2.3	2.3	E	2.0
U. Q	1.9	2.3	2.2	1.8	2.1	2.3	2.8	3.5	3.8	3.6	3.9	3.8	4.0	4.0	3.2	3.3	3.2	3.1	3.3	4.0	3.2	4.5	2.7	2.6
L Q	E	E	E	E	E	E	G	2.8	G	3.4	G	G	G	G	G	G	G	2.3	1.8	E	E	E	E	E
Q. R								0.7		0.2								0.8	1.5					

foEs

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.1	1.8	E	E	C	C	C	C	C	A	3.7			3.8			3.0		2.8	2.8	E 2.8 B			E
2			E				2.5	5.0	3.8	3.3		3.5	4.0	3.6	3.5	2.6	3.1	2.6	2.9	4.0		E		
3	C	C	C	C	C	C	C	C	C	3.4	4.4	3.5						3.0	4.6	E 3.9 B	A	A	1.7	3.0
4	E			E		1.8	2.4		3.3	3.4	A	3.6	4.0	4.0	3.6	3.3	2.8	3.0	3.3	E 2.4 B	3.0	5.3	1.9	2.5
5	E	3.1	E				2.2	3.0	3.4	3.5	3.6	3.6	4.1	4.3	4.2	3.2	3.8	2.2	4.1	4.0	2.2		2.4	2.1
6	E		E 1.9 B				2.3	2.0		4.1	5.0	3.6					3.0	2.6				E		
7							2.4	3.4	3.6	3.5	3.6	4.4	4.0	3.9			3.4	2.7	1.7	E	E	E		
8								3.0	C	3.5	3.5	U 3.5 B	U 3.5 B	4.0	3.4	3.3	2.9	2.5	2.0	2.0	1.8			E
9		E	E		E	1.9	2.8	3.0	3.4		4.1	U 3.4 B	4.0	5.5	5.1	3.2	2.9	3.0	2.3	U 2.1 B				
10							2.1			4.0	C	C	C	C	C		3.0	2.5		4.0		U 2.3 B		
11							G	2.6 G		3.6			3.0 G	2.5 G	2.3 G	3.5	4.0	3.9	2.9	E	E			E
12							2.4	2.8	3.5	3.4	3.5	3.5	3.6	3.9			3.2	2.5	3.0	E	2.2	2.0	E 3.4 B	2.8
13	E					2.0	2.5	3.0	3.7	3.4			3.0 G	2.5 G	2.1 G		3.0	2.7	2.5	5.0	2.9			
14		1.9				2.0	2.8	2.8	3.3	3.5	3.7						3.5	2.7	2.2	E	C			
15					E	E 2.3 B	2.1	2.8	3.1		U 3.9 B	4.0	3.8						E		1.7	1.7	U 2.7 B	E
16			E		2.0	1.8	2.3	3.0										2.1				1.7		
17	C	C	E				2.2	3.0	3.5	3.6	3.6	3.6	3.4	3.7			3.0	3.0	4.0	E	2.8	4.2		
18	E				E	E	4.2	A	4.5	3.7	3.7	4.0		4.0	3.7	3.1		A	5.6	E		E	E	
19	1.9			E	E	E 4.0 B		2.8	3.3	3.7	3.4						2.9	2.7				2.3		E
20	E	E	E	2.0	3.0	2.0	2.9	2.7		3.4						3.2	4.1	2.4	E		E	2.5	E	E
21	E	4.0	4.0	A	2.1	E		2.7		U 2.7 B 4							2.7	2.0	E	1.9	3.2	1.8	E	E
22	E	E	E				1.9	2.5		3.3	3.5	4.0	4.0	3.5	3.3	3.1	2.7		E					
23								2.7						2.3 G	2.2 G	2.0 G	2.2 G	U 2.3 B	2.0	E	1.8			
24		E						2.7	3.5	3.5						3.0	2.6	2.0	1.7	2.3	E	U 2.3 B	E	
25							1.9	3.3	3.1	3.1	3.6	3.5	3.5			3.5		4.1	2.5	A	A	A	2.2	A
26	A	A	E	E		2.0	3.1	5.0	3.4	U 3.8 B	4.7		3.0 G								E	E		
27			E	2.6			2.0	2.5	2.9		3.3	U 3.7 B	3.3							2.3	E	A	E	A
28		C	C	C			1.8	2.8	3.9	5.0	4.1	3.9	4.4	E 4.3 B		2.9	3.4	2.0	2.5	2.8	2.0	E	E	
29				2.4	E			C	3.6	3.5	3.6	3.8	4.0					1.9			1.9	2.0	3.0	2.1
30	C	E 2.4 B	2.2	C	E	E		2.8			3.5	3.8	3.4	3.0 G				2.3	E	E	A	A	E	E
31																								
No.	11	9	12	8	9	10	21	25	18	24	21	18	18	15	10	13	21	25	23	20	20	21	13	15
Median	E	1.8	E	2.0	E	1.8	2.3	2.8	3.4	3.5	3.6	3.6	3.7	3.8	3.4	3.2	3.0	2.6	2.5	2.0	2.0	2.0	E	E

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

The Radio Research Laboratories, Japan.

A 5

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	C	C	C	C	C	1.85	2.00	2.00	2.05	1.80	1.80	1.70	1.70	1.70	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	1.70	1.70	1.70	2.00	1.80	2.00	1.95	1.65	1.70	1.70	E	E	E	E	E	E
3	C	C	C	C	C	C	C	C	C	1.70	1.70	1.70	1.90	1.80	1.85	1.75	E	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E	1.65	1.75	1.80	1.80	2.05	2.00	2.00	1.80	1.75	1.70	1.95	1.70	E	E	E	E	E
5	E	E	E	E	E	E	E	1.70	1.70	1.70	1.75	2.00	1.75	2.00	1.75	1.80	E	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E	1.65	1.65	1.75	2.00	E 2.45 S	2.05	2.00	E 2.55 S	E	E	E	E	E	E	E	E	E
7	E	E 3.00 S	E	E	E	E	E	1.85	1.90	1.80	1.65	1.95	1.80	1.75	2.00	1.85	1.70	1.65	E	E	E	E	E	E
8	E	E	E	E	E	E	E	1.80	I 1.80 C	1.90	1.80	2.00	2.00	1.90	1.80	1.70	E	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E	E	1.75	2.00	1.75	2.00	2.00	1.75	1.70	1.65	E	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	E	1.75	1.80	C	C	C	C	C	1.70	1.65	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	1.65	1.65	1.75	2.00	1.75	2.00	1.75	1.70	1.65	1.80	1.65	E	E	E	E	E	E
12	E	E	E	E	E	E	E	1.65	1.75	1.80	2.00	1.65	2.05	1.70	1.90	1.75	E	E	E	E	E	E	E	E
13	E	E	E	E	E	E	1.70	E	1.70	1.75	1.90	1.70	1.65	1.70	E	E	E	1.65	E	E	E	E	E	E
14	E	E	E	E	E	E	1.65	1.65	1.70	2.00	2.00	2.00	2.00	1.80	1.75	1.75	1.65	E	E	E	C	E	E	E
15	E	E	E	E	E	E	E	E	1.70	1.85	3.50	2.00	2.00	1.70	2.00	1.75	1.70	1.65	E	E	E	E	E	E
16	E	E	E	E	E	E	E	E	1.70	1.95	2.00	2.00	2.20	1.70	2.00	1.75	1.70	E	E	E	E	E	E	C
17	C	C	E	E	E	E	E	E	1.75	1.70	1.85	1.85	2.05	1.70	1.70	1.65	1.70	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	1.70	1.70	1.70	1.80	2.00	2.05	1.95	1.65	1.70	1.70	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	1.65	E	1.65	1.80	1.70	1.95	1.75	1.70	1.70	1.70	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	1.70	1.70	1.70	1.80	1.70	1.75	1.70	1.70	1.65	1.65	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	1.65	1.75	1.75	1.70	1.85	2.00	1.70	1.65	1.80	E	E	E	E	E	E	E	E
22	E	E	E	E	E	E	E	1.70	1.70	1.75	1.70	1.75	2.00	1.75	1.65	1.65	E	1.70	E	E	E	E	E	E
23	E	E	E	E	E	E	E	1.70	1.70	1.75	1.70	2.00	1.95	1.80	1.70	1.65	1.65	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	1.70	1.70	1.90	2.00	1.95	1.70	1.90	1.70	2.00	1.70	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	1.75	1.70	2.00	1.95	1.80	2.00	2.05	2.00	1.80	2.05	E	E	E	E	E	E	E
26	E	E	E	E	E	E	E	1.70	E	1.75	1.70	1.80	1.90	1.65	1.70	1.70	E	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	E	E	1.70	1.80	1.90	1.95	1.95	1.70	1.70	E	E	E	E	E	E	E	E
28	E	C	C	C	E	E	E	E	1.70	1.65	1.70	1.95	1.70	2.00	1.95	1.65	E	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	C	2.00	1.70	1.95	1.80	1.90	1.70	1.65	1.70	E	E	E	E	E	E	E	E
30	C	E	E	C	E	E	1.80	1.75	1.70	1.65	1.75	1.80	1.95	1.70	1.70	1.70	1.70	E	E	E	E	E	E	E
31																								
No.	27	26	28	27	28	28	28	27	28	30	29	28	29	29	28	30	30	30	30	30	29	30	30	29
Median	E	E	E	E	E	E	E	1.65	1.70	1.75	1.80	1.90	2.00	1.75	1.70	1.70	1.65	E	E	E	E	E	E	E

f-min

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.80F	F	F	R F	C	C	C	C	C	I2.80A	2.90R	3.00	3.10	3.15	3.10R	3.30	3.20	3.05	3.00	I2.90E	3.00F	I3.05R	2.80	2.90R
2	2.85	2.80	2.80F	2.95	3.00F	I2.85F	2.90	2.80	3.15	3.35	3.10	2.75	2.90	3.20	3.15	3.20	3.35	3.20	3.30	3.00R	2.95	2.85	2.95R	2.80
3	C	C	C	C	C	C	C	C	C	3.30	3.40	3.35	2.95H	3.10	3.20	3.15	3.15	3.10	3.10	3.20R	A	A	2.75F	2.65
4	2.70	2.95F	2.85F	2.80F	2.90F	3.10	2.95	3.40	3.30	3.20	I3.15A	3.15	3.05	3.25	3.20	3.30	3.25	3.20	3.20	R F	R F	F	R F	F
5	F	2.85F	2.90	3.00F	3.00	3.10	3.40H	3.30	3.35	3.30	3.20	3.30	2.90H	3.10	3.20	3.30	3.30	3.30	3.05	I3.00E	I3.15E	3.20	2.90R	I2.85E
6	I2.75E	2.75F	2.70R	2.90	2.80R	3.05	3.30	3.10	3.00	3.30	3.35	3.20	3.00	3.10	3.20	3.10	3.25	3.30	3.25	3.10	3.10R	2.85F	2.70	2.80
7	2.80	2.90	3.00S	3.00R	3.00	3.10	3.45S	3.45	3.45	3.45	3.30	3.20	3.10	3.15	3.30	3.20	3.30	3.15	3.05	3.15	I3.10E	I3.00F	I2.90F	3.00
8	2.85	2.80F	2.85	3.05R	3.00	3.00	3.25	3.50H	I3.40C	3.45	3.10	3.10	3.15	3.20	3.15	3.20	3.20	3.10	3.05	3.20	3.25	3.10	2.90	2.90
9	2.85	2.90	2.90	3.10	2.90	2.90	3.30	3.20	3.35	3.40	I3.30E	3.10	3.10	3.10	3.00	3.05	3.25	3.05	3.00	3.10	3.20R	3.10	3.10	2.80
10	2.80	2.80R	2.80	2.80	3.00	2.80	3.10	J3.25R	3.20	3.35	C	C	C	C	C	3.10	3.15	3.10	3.10	I3.05R	U3.10R	U3.30R	3.05	2.75R
11	2.75R	2.60	2.75	2.80	2.85	3.00	3.25	3.35	3.35R	3.45	3.15	3.15	3.25	3.10	3.20	3.10	3.10	3.05	3.25	U3.10R	3.00	3.10	3.00	2.80
12	2.75	2.85	2.85	2.90	2.75	2.65	3.10R	I3.20R	3.20	3.35R	3.10	3.15	3.00	3.00	3.20	3.10	3.15	2.95	3.10	3.20	3.20	3.10	2.65	2.65R
13	U2.70R	2.75R	3.00	3.40	2.90R	2.80	3.35	3.05	I3.10R	3.20R	3.05	3.15	3.00	3.10	3.25	3.20	3.25	3.30	3.15	3.15	3.10	3.00	2.95	2.80
14	2.80	2.85R	2.90	2.85	2.90	2.90	3.35	3.50	3.35	3.40	3.30	3.15	3.15	3.10	3.35	3.30	3.05	3.10	3.15	3.10	I3.15C	2.95	2.80	2.80
15	2.75	2.65	3.00	J3.45R	2.50	I2.80R	3.20	3.15	3.30	3.10	3.00	3.10	3.05	3.25	3.00	3.25	3.10	3.10	3.20	I3.15R	3.20	3.10	2.90	2.90
16	2.80	2.80	2.80	2.95	2.95	2.85	3.45	3.35S	3.50	3.30	3.20	3.35	3.30	3.25	3.25	3.20	3.15	3.20	U3.30R	3.40	3.40	2.80	2.80	I2.70C
17	I2.70C	I2.80C	2.80	3.10	2.95	2.85	3.30	3.50	3.40	3.25	3.20	3.35	3.05	3.20	3.00	3.15	3.25	3.15	3.20	3.30	3.10	2.80	2.95	R F
18	R F	F	F	R F	R F	2.80F	3.05	I3.35A	U3.55R	3.50	2.95H	3.10	3.20	3.30	3.40	3.20	3.25	I3.30A	3.40	3.20	3.25	3.00	2.80F	2.90E
19	I2.90E	2.75	I2.70F	2.75	2.90	I2.95R	3.50	3.40R	3.45	3.40	3.25	3.10	3.10	3.20	3.25	3.35	3.35	3.30	3.35	3.15	3.05	3.25	2.75	2.85
20	2.75	2.95R	2.75R	2.90	2.90F	2.85	3.30	3.25	3.30	3.45	3.40	3.25	3.20	3.20	3.15	3.40	3.20	3.25	3.25R	U3.20R	3.05	2.80	2.75	2.85
21	2.80	2.75	2.75	I3.00A	2.90	I2.90E	3.00	U3.40R	3.25	3.40	3.35	2.95	3.30	3.30R	3.40	3.25	3.45	3.45	3.40	3.30	I3.15R	I2.85R	2.90R	I2.85E
22	I2.85F	2.95	2.80	3.00	3.25	3.00	3.35	3.50	3.65	3.50	3.20H	3.25	3.25	3.25	3.25	3.40	3.25	3.25	3.20	I3.35R	3.35	2.95R	2.65	2.80
23	2.85	2.80	2.85	2.80	3.00	3.10	3.55	I3.60R	3.35	3.60	3.40	3.35	2.95	3.25	3.35	3.15	3.20	3.35	3.30	3.40	3.40	3.15	2.85	2.90
24	2.90	3.05	2.95S	3.00	3.00	3.00S	3.65	3.60	3.55R	3.50	3.35	3.20	3.20	3.15R	3.20	3.10	3.20	3.35R	3.35	3.20	2.90	2.85	2.80	3.05
25	2.80	2.55	2.65	2.75	2.60	2.70	3.05	2.90	3.10V	G	R	2.60	2.90	3.10	3.10	3.35	3.25	3.20	3.20	A	A	A	2.80	A
26	A	A	F	F	F	I3.15E	3.45	3.40	3.40	3.35	3.35	3.20	3.40	3.20	3.30	3.30	3.35	3.45	3.30	3.30	3.00	3.10	2.90R	2.90
27	2.70	2.75	2.80	2.65	2.90	3.00	3.50	3.35	3.20	3.45	3.50	3.00	3.15	3.20	3.25	3.25	3.40	3.35	3.45	3.05	I2.80E	I2.75A	2.60	I2.65A
28	2.75	C	C	C	2.75	2.65	3.25	3.35	J3.30R	3.40	3.40	3.10	3.35	3.20	3.30	3.35	3.40	3.40	3.45	3.40	I3.00R	2.80	I2.75E	2.95
29	2.90	3.00	3.00	3.20	3.00	3.00	3.30	I3.60C	3.10	3.40	3.35	3.35	3.40	3.25	3.25	3.30	3.30	3.30	I3.40R	3.40	3.10	3.00	2.90R	2.90
30	I2.85C	2.95R	3.00	I2.85C	2.90R	2.95	3.45	3.50	U3.40R	3.20	3.40	3.25	3.35	3.25	3.10	3.20	3.25	3.25	3.40R	3.15	A	A	2.70	2.80R
31																								
No.	26	25	25	25	26	28	28	28	28	30	28	29	29	29	29	30	30	30	30	28	26	26	29	27
Median	2.80	2.80	2.85	2.95	2.90	2.90	3.30	3.35	3.35	3.40	3.30	3.15	3.10	3.20	3.20	3.20	3.25	3.20	3.20	3.20	3.10	3.00	2.80	2.85

M(3000)F2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Sep. 1961 | M(3000)F1 | 135° E Mean Time (G.M.T. + 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	A	3.55	3.70	3.60	3.75 L	I 3.80 L	3.75 L	L	L						
2							L	I 3.40 A	3.60	I 3.65 L	3.60	3.70 L	3.45	3.50 L	3.85	3.40 L	3.60 L							
3							C	C	C	3.75 H	I 3.65 L	3.75	4.10	3.85 H	3.75 L	3.60 L	3.55 L							
4								L	L	3.65 L	I 3.80 A	3.75 L	3.50 H	3.70 L	3.70 H	3.65 L	L							
5								L	L	I 3.90 L	3.80 L	3.75 L	I 3.70 L	3.55 L	I 3.60 A	3.65	A							
6									3.75 L	4.10	I 4.00 A	3.65 L	3.60 L	3.70	I 3.60 S	3.50	I 3.50 L							
7								L	3.80	3.80 L	3.85 L	I 3.75 L	3.60 L	3.55 L	3.60 L	3.60 L								
8									I 3.80 C	3.80 L	3.95 L	3.70 L	3.75 L	3.65 L	3.55	3.50 L	3.70 L	L						
9								L	L	4.00 L	I 4.00 L	I 3.75 L	3.60 L	A	A	3.55 L	L	L						
10									L	L	C	C	C	C	C	L	L							
11								L	3.95 L	3.95 L	I 3.95 L	I 3.75 L	3.60 L	3.50 L	I 3.70 L	I 3.80 L	A							
12								L	3.90 L	4.05	4.05 L	I 3.95 L	I 3.80 L	3.45 L	I 3.60 L	L	L							
13								L	L	I 4.00 L	4.05 L	I 3.95 H	I 3.70 L	3.55 L	3.70 L	L								
14									L	I 3.85 L	3.85 L	I 3.80 H	I 3.70 L	3.50 L	3.70 L	L	L							
15								L	L	I 3.90 L	3.60 L	3.55 L	3.75 L	I 3.80 L	L	L	L							
16								L	L H	L	3.80 L	4.00 L	I 3.90 L	I 3.85 L	L	L	L	L						
17									L	3.60 L	4.00 L	3.95	I 4.35 L	3.60 L	3.75 L	3.75 L	L							
18								A	A	I 4.00 L	4.00 L	3.85 L	3.80 L	3.75 L	L	L								
19									L	L	4.00	3.60 L	3.90 L	3.70 L	3.70 L	3.80 L	L							
20									3.70 L	I 3.80 H	3.85 L	3.90 L	3.90 L	3.75 L	3.55 L	L								
21								L	3.65 L	I 3.80 L	3.85 L	3.90 L	3.70	I 3.85 H	3.70 L	I 3.80 L	L							
22								L	L	4.25	I 4.00 L	3.95 L	3.75	3.60	3.70 L	L	L							
23									L	I 3.85 L	3.75 L	3.80 L	I 3.70 L	I 3.55 L	L	L	L							
24									L	3.95 L	3.95 L	I 4.15 L	I 3.95 L	3.75 L	3.70 L	L	L							
25								A	I 3.60 L	3.65	4.10	3.70	3.50 H	3.45	3.50 L	I 3.80 L	L							
26									L	3.75	I 3.80 A	3.70 L	L H	L	L	L								
27									L	3.70 L	3.90 H	4.30	I 3.80 L	L	L	L								
28									L	L	L	L	L	3.90 A	I 3.70 L	3.65 L								
29										L	3.80 L	3.75 L	3.75 L	3.70 L	L	L								
30											L	L	L H	L	L									
31																								
No.								1	9	23	27	27	26	25	20	15	4							
Median								U 3.40	3.75	3.85	3.85	3.75	3.70	3.70	3.70	3.65	3.60							

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

The Radio Research Laboratories, Japan.

A 8

28

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	I360A	350	350	335	305	295	295	280L	295L						
2							I360L	I370A	300	295	345	380L	375	305	305	300	285							
3							C	C	C	285	295	295	305	305	330	305	300							
4								265	255	320	I310A	310	315	300	300	295	255							
5								255	250	255	295	295	295H	345	300	290	255							
6									300L	270	255	305	340	310	310	305	290							
7								250	250	265	275	295	330	300	295	295								
8									I250C	255	270L	305	300	300	300	300	280	260L						
9								265	245	250	250	320L	305	330	300A	305	290	295L						
10									250	260	C	C	C	C	C	280L	290							
11								255	250	250	270L	295	300	335	295	295	295							
12								245	255	255	250	280L	275	315	290	295	255							
13								260L	255	250	250	290	310L	300	280	255								
14									255	250	280	300L	290	300	280	270	280							
15								255	255	255	295	295	255	280	245	290	290							
16								250	250	260	285	255	270L	290	280	260L	295	255						
17									260	285	255	280	305	290	295	290	255							
18								I255A	240	245	270	290	290	280	255	295								
19									260	245	280	300	295	295	290	260	260							
20									270	250	255	270	300	300	300	255								
21								255	260	250	280	290H	300	265	255	255	250							
22								250	235	255	255H	270	300	285	260	255	280							
23									240	250	265	295	260H	290	275	275	270L							
24									245	245	255	255	280	280	290	295	255							
25								390	L	G	A	460	395	325	315	280	260							
26									260	255	270	295	255	275	285	280								
27									260L	255	245	250	300	280	255	285								
28									255	245	255	255	275	270	250	260								
29										260	260	260	260	295	265	255								
30											260	280	270	255	290									
31																								
No.							1	14	25	29	28	29	29	29	29	29	21	9						
Median							U360	255	255	255	270	295	300	300	290	290	280	280						

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	230A	255	250	C	C	C	C	C	A	230	205	205	240	240	230	245	245	280	280A	I250A	245	255	295
2	270	290	300	255	245	295	255	I250A	I215A	200	200	200	245A	250	235	245	250	255	250	I250A	255	270	250	295
3	C	C	C	C	C	C	C	C	C	205H	I205A	210	205	200H	200	245	245	255	270	255	A	A	290A	I290A
4	300	295	300	280	265	260	245	245	240	205	I200A	200	I230A	230	200H	235	220	260	260	I250A	A	A	290A	I280A
5	295	I290A	295	295	280	250	225	245	230	230	205	205	I215A	I215A	I235A	220	I230A	250	290A	295A	245	230	280A	295A
6	295	305	I300A	265	255	265	250	245	225	220A	I200A	195	220	210	205	230	245	250	245	240	245	295	300	290
7	290	275	250S	245	255	255	245	245	245	220	215	I220A	205	210	235	230	245	250	255	245	270	240	245	260
8	285	295	295	245	245	245	245	240	I210C	205	200	200	200	205	240	235	245	245	255	245	215	245	250	255
9	295	275	275	250	205	290A	245	245	240	210	205	200	235	A	A	245	250	270	280	245	235	235	235	280
10	295	295	295	290	250	250	240	245	205	240A	C	C	C	C	C	245	245	250	250	255A	245	245	295	290
11	305	330	300	295	295	260	250	245	230	215	210	210	210	205	245	245	I250A	265	295	245	295	295	230	290
12	295	295	290	270	290	305	250	230	220	205	210	200	200	220A	250	240	245	245	250	230	230	240	I340A	350A
13	300	290	245	225	245	290	245	240	230	205	195H	195H	205	205	240	245	245	255	245	I250A	260A	245	275	275
14	295	295	295	270	260	295	245	245	230	240	225	200H	240	220	245	240	I245A	250	245	230	I240C	240	295	300
15	315	300	245	215	E340E	I305A	245	245	240	205	245	205	235	235	230	245	245	250	245	245	210	240	I285A	295
16	295	285	260	280	260A	255	245	230	235H	220	200	205	220	245	235	245	240	245	245	230	200	250	290	I310C
17	C	C	295	255	245	295	245	245	240	210	205	200	245	245	225	245	245	250	250	245	240A	265A	250	295
18	300	330	305	295	290	295	A	A	A	210	200	210	220	I210A	245	220	250	I260A	I250A	240	245	245	295	265
19	255A	320	320	305	245	I240A	235	245	230	210	200	200	205	215	220	240	245	250	235	240	240	240	290	300
20	310	295	300	290	I290A	295A	250	240	220	200H	205	210	205	210	220	245	285	255	245	240	235	290A	295	295
21	300	I305A	A	A	265A	290	250	245	245	220	200	220	200	230H	240	245	230	245	245	245	255A	245	290	295
22	305	300	295	255	245	255	250	240	235	200	200	205	205	240	245	215	245	245	245	240	210	235	290	300
23	295	295	290	295	265	255	220	240	210	245	200	200	200	245	235	205	250	250	245	215	225	220	270	295
24	285	265	290	290	255	250	210	240	225	205	205	200	200	215	220	230	250	245	220	245	255	280A	300	225
25	295	350	310	305	340	315	295	I270A	240	240	205	200	205	245	250	I245A	245	I250A	245	A	A	A	A	A
26	A	A	300	280	245	I280A	245	255A	240	220	I200A	200	195H	235	245	245	245	245	235	230	245	255	270	280
27	300	305	300	I295A	265	245	245	245	240	210	205H	195	200	210	245	245	255	245	210	250A	295	I300A	305	I305A
28	295	C	C	C	E300E	E330E	245	245	I245A	I235A	I230A	210	I230A	I210A	230	235	255	245	220	225	I240A	300	340	265
29	250	270	255	I250A	240	265	220	I240C	245	210	205	220	225	205	210	240	245	250	220	210	250	295	290A	295
30	I295C	I275A	290	I295C	295	250	245	245	240	240	205	245	200H	235	200	250	245	250	215	230	I270A	I295A	305	295
31																								
No.	27	26	27	27	26	27	27	27	27	29	29	29	29	28	28	30	30	30	30	29	27	27	29	29
Median	295	295	295	280	260	265	245	245	235	210	205	200	205	220	235	240	245	250	245	245	245	245	290	295

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

h'Es | Sweep 160 Mc to 200 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 11

31

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f	f3	f2	f						cz	c			c			h		f4	f2	f2			f
2			f				h2	c4	cz	cz		l	l2	h	h l	l h	h2 l2	h3	f3	f2		f		
3										h	cz	cz						h2	f2	f3	f2	f2	f2	f3
4	f			f		f2	l2		h	h	c3	l	c	cz	l	l	l	h2	f3	f2	f2	f2	f	f2
5	f2	f3	f				h	h2	h2	l2	l	l	l2	l2	l2	l2	l2	l2h	f3	f2	f2		f2	f2
6	f		f2				h	l		l2	l2	l2					h2	h2				f		
7							h2	h2	h2	h	h	c2	l2	l			h2	h2	f	f	f2	f		
8								h2		l	l	l2	l2	l2	l2	l3h	l3h	l2h	l2	f	f2			f2
9		f2	f2		f	f2	h2	h2	h		c2	l	l2	l3	l3	l2	l2	h2 l3	f	f2				
10							c2			l2							h2	h		f2		f		
11							c	l		h			l	l2	l	h l2	h	h2	f3	f	f2			f
12							c2	h2	h2	h	h	c	l	h2			h2	h2	f2	f	f	f2	f2	f2
13	f					f	c3	h2	c3	h2			l	l	l		h2 l	c3	f3	f2	f2			
14		f				f2	c3	c2	c2	l2	l						h2	h2	f2	f				
15					f2	f3	h2	c2	c2		c	l2	l						f		f	f2	f	f
16			f		f2	h	l2	c2										l				f		
17			f				h2	h2	h2	h	h	l	l	h			h	h2	f3	f	f2	f2		
18	f2				f	f	l2	l4	c2	c2	c2	l2		l2	c2	l2		l3	f2	f		f	f	
19	f2			f	f2	f3		c2	c2	c3	l						h2	h3				f		f
20	f	f2	f2	f2	f3	f2	l2	l3		h2						h	h3	h2	f		f	f	f	f2
21	f	f2	f3	f3	f2	f2		h l		l2							h	h	f	f2	f	f2	f	f2
22	f2	f2	f2				l2	l2		l	l2	l2	l2	l2	l2	l3	h l		f					
23								h						l	l	l	l2	l2	f	f	f			
24		f2						c2	c2	l2						h	l	l	f	f2	f	f3	f	
25							h	h2	c2	h	c	h	h			h2		h4	f3	f2	f5	f3	f2	f3
26	f2	f3	f	f2		f2	h3	c4	c3	c2	l2		l2								f	f2		
27			f	f3			c2	h2	l2		l2	l2	l2							f2	f	f2	f2	f2
28							c2	c4	c4	c2	c2	c2	c3	l2		h	h2	h2	f	f2	f2	f	f	
29				f3	f2				h l	h2	h	h2	c2					h2			f2	f2	f2	f2
30		f2	f2		f2	f2		h2			h	c2	l	l				h2	f	f	f2	f2	f2	f2
31																								
No.																								
Median																								

Types of Es | Sweep 160 Mc to 200 Mc in 20 sec in automatic operation.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I 4.4A	4.6SF	I 4.2A	u 3.9S	3.8F	3.3	5.9	6.0R	I 6.4A	6.5H	7.4	7.9R	7.6R	7.2	7.6	6.8	6.5	7.0	7.5R	I 8.2S	u 7.0R	I 5.8S	I 5.6SF	J 5.6F
2	5.4	5.0	I 4.7S	4.9	4.1	3.9	5.0	5.7	7.6	J 6.0S	7.2	7.6	6.8	7.2	7.5R	8.3	7.1	7.0	C	C	C	C	J 5.4S	5.4
3	J 5.0S	5.1	5.1	u 5.1S	4.5	u 5.0S	5.5	6.4	6.5	6.6	7.1	7.0	6.3	6.8R	7.6R	7.6R	8.3	9.0	I 9.4R	u 9.3R	J 7.5S	3.4	I 3.4A	I 3.8A
4	I 3.7A	3.7	3.6	3.8	3.6	3.4	4.9	J 7.8R	7.6	7.1	I 7.2A	6.9	J 7.7RI	7.8A	8.1RJ	8.0R	6.7	6.5	7.1	7.4F	I 5.9A	S	A	A
5	A	4.2	J 4.9F	4.2	I 4.0F	4.3	6.0	7.2	7.2	6.9	J 7.6R	7.6	7.5	7.2	7.6	7.5	7.0	6.3	6.4	7.4	I 7.8A	J 5.7SI	4.6SI	4.6S
6	u 4.6S	4.4S	4.3	4.0	4.3	4.3	6.4	7.1	7.3	8.0	7.3R	7.8	J 8.0R	7.4	7.2	7.3	J 7.7R	7.8	u 7.6R	7.0	u 5.8S	5.1	5.0	I 5.3S
7	u 5.0SJ	5.0SI	4.9S	4.9S	4.5	I 4.4S	5.9	7.1	8.4	7.4	7.4	8.1	8.2R	8.3	J 8.0R	7.1	J 6.2R	6.8	J 7.7RI	7.8S	I 6.4A	I 5.1A	I 4.6AI	4.6S
8	I 5.2SU	5.2S	5.1	J 5.1S	4.6	4.4	6.4	7.3R	8.4	7.0	7.1	8.2	8.5	8.3R	8.7	8.5	J 8.1R	J 8.2R	8.8	9.2S	J 8.0S	5.6SU	5.7SJ	5.1S
9	I 5.0SI	5.0SI	5.2SJ	5.3S	3.9	4.1S	6.4	8.6	J 9.6R	7.0V	7.1	J 7.5R	8.5R	8.5	J 7.6R	7.8	8.4	J 8.4R	J 9.0R	9.4R	7.0	6.0	4.9	4.9
10	u 5.0SI	5.0SJ	5.1SJ	5.1S	u 4.4SJ	5.0SJ	7.3SU	9.1R	J 7.8R	7.7	8.0R	8.3	7.6	8.6	9.1	8.6	7.4	8.7	u 9.5SJ	8.4R	7.1	6.6	4.6	4.4
11	4.5	4.4SU	4.4SI	4.4S	4.6	4.6S	7.0H	9.2	9.2	7.7	7.2	7.5	7.9R	J 7.9R	8.3	8.6	7.4	8.4	u 9.1R	8.1	7.1	6.4	5.4	5.1
12	4.8	4.9	u 4.6S	4.6	4.4	4.3S	7.1S	8.8	u 9.4S	8.4	7.4	8.7	8.4	J 8.2R	9.7	8.9	8.5	J 8.3R	J 9.0R	9.3	I 8.4R	5.0	4.6	4.8
13	J 4.4S	4.6	u 4.9SU	4.0S	3.1	u 3.8S	6.4R	8.5	I 10.1S	9.3	9.7	u 10.0S	11.2	11.4	11.0	9.6S	7.6	7.6S	7.6	7.7	5.9	5.6	5.2	5.4
14	u 5.2S	5.0	u 4.8SI	4.7SU	4.6S	4.5	6.8	8.1S	8.0R	8.9	8.2	9.1S	9.3	8.8	9.2	7.7	7.2	9.1	J 9.4SJ	8.3R	6.1	5.2	5.5	5.6
15	5.1	5.0	5.4	5.3	u 3.7SI	3.8A	6.6	I 8.6S	9.7S	9.7S	10.0	10.2R	11.0	10.7	J 8.3R	8.1	9.0	J 9.6SU	9.3S	8.1	6.5	5.3	5.0	5.0
16	u 5.0SU	4.6SI	4.6SI	4.5SU	4.6S	4.3	6.6	8.7	7.6	9.4	9.2	8.3	8.6	8.5	8.8	8.5	8.6	I 9.7C	9.6	I 9.7S	I 5.6C	3.8	4.2	4.1
17	3.9	4.0	4.1	u 4.5S	3.5	3.4	6.0	J 7.9S	8.4	10.0	J 9.8S	8.1	9.3	9.9	9.4	10.0	9.2	8.8	10.1	U 9.0S	5.2	5.1	5.1	4.7
18	4.5	4.5	4.6	4.6	4.3	4.2	6.5	J 8.2R	7.9	7.2	7.2	8.5	9.1	8.4	8.3	7.7	7.9	8.7	8.8	u 7.5S	5.5	4.8	4.8	4.6
19	4.3	4.1F	4.1	4.2S	4.1	I 4.2S	6.9	u 7.5S	7.9	9.0	8.1	8.6	8.6	9.5S	9.6S	8.9	9.3	8.9	J 7.7S	7.1	6.0	4.6	4.4	4.6
20	4.5	4.4SU	4.4S	4.2S	4.0	u 4.3S	6.4	8.7	8.5	8.5	8.0	8.0	8.2	7.9	8.3	8.1	8.0	8.5	9.0	J 8.0S	5.4	J 5.1S	5.0S	5.4
21	5.3	5.3	I 5.0S	5.0S	4.0	I 4.5A	6.2	9.1	9.0	8.0	7.6	7.1	7.7	9.3	8.9	7.7	7.6	7.1	7.1	7.1	5.6	I 4.2A	4.1	4.1
22	4.2	4.0	3.9	4.1	3.3	3.5	5.7	8.4	J 7.6R	6.7	6.8	7.0	6.9	8.4	8.5	8.2	8.2	8.9	8.6	8.5	5.4	3.4	3.2	3.4
23	3.5	3.4	u 3.6S	3.5	3.7	3.8	6.4S	6.3	7.4	7.0	7.0	7.5	7.6	8.5	8.9	8.0	8.3	8.8	9.2	9.4	6.0	3.9	3.5	3.5
24	3.9	3.5	3.5	3.5	3.5	3.7	5.8	7.1	7.6	7.0	6.8	7.4	8.4	9.1	8.3	8.3	9.7	J 9.5S	9.4	J 7.7S	5.2	4.4	4.6	4.4
25	4.2	3.6	3.4	3.5	3.2	3.0	3.8	J 4.0S	J 6.0SI	5.0A	J 5.4S	6.5	7.1	7.6	6.7	7.7	7.0	J 6.5S	7.7	5.1	4.3	3.3	3.4	3.1
26	3.1	3.1	3.1	3.5	2.9	u 2.4S	4.9	J 7.5S	9.4S	9.9	8.1	8.0	8.6	9.2	8.7	8.4	8.4	8.0	7.3	6.4	4.6	4.0	3.9	3.8
27	3.5	3.6	3.5	3.4	3.4	3.6	5.2R	6.6	8.7	8.9	7.6	7.4	8.8	9.4	9.0	J 8.0S	8.9	I 9.1CJ	8.4R	3.6	3.7	4.0S	3.9	3.9
28	3.9	3.9	4.4	2.8	2.5	2.9S	5.5S	J 7.6SJ	9.9S	10.8	8.3	8.6	9.6	9.0	8.3	8.1	7.9	8.6	7.2	u 4.5S	3.9	3.9	3.8F	J 4.1S
29	4.1	4.0	4.0	3.9S	I 3.0A	3.1	5.4S	7.4	7.9	7.4	7.7	8.3	8.5	7.1	8.0	7.9	7.5	8.6	J 7.7S	5.6	3.9	4.2	J 4.4S	4.3S
30	4.4	4.6	4.6	4.4	J 4.4SI	4.8HF	5.5	6.7	J 7.6R	7.2	8.8	10.0	10.8	J 10.3R	9.0	8.0	8.2	8.5	8.4	4.6	4.0	3.9	3.7	3.9
31																								
No.	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	29	29
Median	4.5	4.4	4.5	4.3	4.0	4.2	6.1	7.6	7.9	7.6	7.5	8.0	8.4	8.4	8.3	8.0	8.0	8.5	8.6	7.8	5.9	4.9	4.6	4.6
U. D.	5.0	5.0	4.9	4.9	4.4	4.4	6.5	8.6	9.0	8.9	8.1	8.5	8.8	9.2	9.0	8.5	8.4	8.9	9.2	8.8	7.0	5.4	5.0	5.1
L. D.	4.0	4.0	4.0	3.9	3.5	3.4	5.5	7.1	7.6	7.0	7.2	7.5	7.6	7.8	8.0	7.7	7.4	7.6	7.6	7.0	5.2	4.0	3.9	4.0
D. R	1.0	1.0	0.9	1.0	0.9	1.0	1.0	1.5	1.4	1.9	0.9	1.0	1.2	1.4	1.0	0.8	1.0	1.3	1.6	1.8	1.8	1.4	1.1	1.1

foF2

Sweep 1.0 Mc to 21.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

K 1

33

IONOSPHERIC DATA

Sep. 1961 | foF1 | 135° E Mean Time (G.M.T. + 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A		A	A	4.8	L	4.7	4.7L	L	L	4.2L							
2							L	L	4.3L	L	L	4.8H	L	L	L	4.4	L	L						
3								L	L	4.3L	LH	L	4.9L	4.5L	4.6L	"4.5L	L	L						
4								3.9L	L	A	A	A	S	A	L	L	L	L						
5									L	L	L	L	L	L	"4.6L	L	L							
6								L	L	4.6L	L	L	A	S	L	L	L							
7									L	L	L	L	S	L	L	L	A	A						
8									L	L	"5.1L	L	L	L	A	L	L	L						
9									L	L	AS	A	L	L	S	A	A	A						
10								L	L	"5.4L	L	L	L	5.2L	L	4.5L	L	L						
11									L	L	LH	L	L	L	L	"4.6L	L	L						
12								L	L	L	L	L	L	L	"5.2L	L	L							
13									L	L	L	L	"5.0L	L	L	L								
14									L	L	L	L	L	L	L	L								
15									L	L	L	L	L	LH	L	L	L							
16										L	L	L	L	L	L	L	L							
17									A	L	L	LH	LH	LH	L	L	L							
18										A	L	L	L	L	L	L								
19							A		A	S	S	S	S	S	4.4L	S	L							
20								L	L	L	L	L	L	L	L	L	L							
21								L	L	L	L	L	L	L	L	L								
22									L	L	L	L	L	L	L	L	L							
23									L	L	L	L	L	L	L	L	L							
24									L	L	L	L	L	L	L	L	L							
25								L	4.2L	A	4.6	4.6	"4.7L	L	L	L	L							
26								L	A	L	L	L	L	LH	L	L								
27									L	L	"4.3L	L	L	L	L	L	L							
28								L	L	L	L	L	LH	L	L	L								
29										L	L	L	L	L	L	L								
30									L	L	L	L	S	L	L	L								
31																								
No.								1	2	3	4	2	4	3	4	4	1							
Median								3.9	4.2	4.6	"4.7	4.7	"4.8	4.7	"4.6	"4.5	4.2							

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	R	I 2.50 R	2.80	3.10	3.40 R	A	B	A	I 3.30 A	3.20 R	I 2.80 S	I 2.30 R	S					
2						S	2.05 R	2.70	A	A	A	A	R	R	U 3.45 R	3.20	2.95	2.30	C					
3						S	I 2.15 B	I 2.60 A	I 3.00 A	3.25	3.30 R	I 3.45 R	I 3.40 R	I 3.30 R	U 3.25 R	3.10	2.90	I 2.35 R	S					
4						S	I 2.20 R	I 2.60 R	I 3.00 A	3.30	3.25	A	A	A	A	A	U 2.85 R	2.30 R	S					
5						S	R	I 2.60 R	2.90	A	A	A	A	R	A	A	R	B	B					
6						1.40	2.00	I 2.80 B	I 3.10 R	R	A	A	A	A	A	3.05 R	A	A	B					
7						S	U 2.20 S	2.70	3.05	3.30	A	R	A	R	R	3.20	I 2.90 A	I 2.30 R	S					
8						S	2.20 S	A	A	A	R	3.80 R	R	A	A	3.20	A	A	S					
9						S	B	I 2.60 R	I 3.00 A	3.25	A	A	A	A	A	A	A	A	A					
10						S	I 2.30 R	I 2.75 S	R	R	R	A	R	3.70	I 3.50 R	3.25	2.75 R	I 2.30 R	B					
11						S	U 2.60 R	I 2.95 R	U 3.30 R	3.40 R	R	B	R	A	R	3.20	I 2.80 S	I 2.15 S	A					
12						S	1.85	I 2.60 S	I 3.05 R	I 3.35 R	I 3.50 R	I 3.60 R	B	R	3.35	3.10	I 2.90 S	2.10	S					
13						S	S	S	A	A	A	A	B	R	B	I 3.20 A	2.60 R	S	S					
14						S	A	B	2.95	I 3.30 A	3.50 R	I 3.65 R	I 3.60 R	3.55	I 3.35 R	3.15	I 2.70 R	2.45	S					
15						S	S	A	I 3.05 S	3.20 R	I 3.40 B	I 3.60 R	I 3.70 B	3.70 R	3.40	I 3.10 A	I 2.70 S	S	A					
16						S	2.20	I 2.70 S	3.15	3.30	3.50	3.45 R	I 3.60 B	R	A	3.30	I 2.85 A	C	B					
17							A	I 2.70 B	3.00	3.25	3.25	I 3.45 A	3.70 S	3.40	3.45	3.05	2.75	I 2.15 S	B					
18							A	S	A	A	A	A	A	R	I 3.35 R	3.10	I 2.60 R	I 2.00 A	B					
19						S	A	A	A	A	3.30 R	3.45 R	3.60 S	3.40 R	3.25	2.95	I 2.60 R	I 2.00 A	S					
20						S	A	A	A	3.30	3.35	3.40	3.20	3.45	3.20	2.80	I 2.45 B	A	B					
21							2.10	U 2.40 R	3.00	3.20	3.55	I 3.30 R	3.30	3.35 R	3.10	3.00	2.50	B	S					
22						S	A	2.30 S	2.80	R	A	A	R	I 3.30 A	I 3.20 A	2.95	A	A	S					
23							U 1.90 R	I 2.50 R	A	A	3.20	3.35	I 3.30 A	I 3.25 R	3.25 R	3.00	R	A	S					
24							S	I 2.20 B	I 2.65 A	I 2.85 A	I 3.35 R	3.40	3.50	3.40 R	3.25	3.15	2.65	S	S					
25							I 2.00 R	2.40	3.00	3.00	3.05	I 3.30 A	3.35	3.25	3.30	3.10	2.50	A	S					
26							A	A	A	A	I 3.30 R	3.40	I 3.20 R	3.30	3.05	2.85	2.30	U 2.10 R	B					
27							1.90 S	A	A	A	I 3.10 R	I 3.25 A	3.30 R	I 3.30 B	3.25 R	2.95	L 2.45 R	C	S					
28							2.20	I 2.40 A	2.80	3.00	3.05	A	A	A	3.20	2.80	2.50 R	S						
29							U 2.00 S	I 2.70 S	3.20	3.20	I 3.30 R	I 3.35 R	3.40	3.30 R	3.20	3.00	2.60	2.00	S					
30							U 2.20 R	I 2.50 S	3.00	3.20	A	A	A	A	R	2.90	2.55 R	U 2.05 S						
31																								
No.						1	17	21	20	18	18	16	14	15	20	27	24	15						
Median						1.40	U 2.15	U 2.60	3.00	3.25	3.30	U 3.40	3.40	3.35	3.25	3.10	U 2.70	U 2.15						

foE

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

The Radio Research Laboratories, Japan.

K 3

35

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.1M	4.6M J 5.4	J 3.3	J 3.2	S	5.3M	3.4	6.7M	4.5	G	3.7	B	4.0	3.9	G	S	J 3.5	J 2.5	J 2.8	2.0	J 4.8	3.5M J 2.9		
2	2.1M	3.3M	E	E	1.9	S	J 2.8	3.2	3.2	4.1	J 5.0	3.5G	3.3G	2.8G	3.9	3.7	3.4	3.0	C	C	C	C	J 3.0	S
3	J 3.1	2.2	2.3M	2.0M	1.8M	2.1	B	3.0	3.3	3.5	3.9	G	3.2G	3.0G	G	G	3.2	3.3	3.0	S	2.4	J 2.9Y	3.6S J 5.4	
4	J 5.2	J 3.0	J 2.5Y	2.5M	2.0M	2.1	2.2	3.2	3.2	4.7	8.2M	J 5.3S	4.7S	8.7M J 5.0		3.4	G	3.2	J 3.0	3.6S	5.7M	5.7M	5.9S J 6.8	
5	J 5.6	J 3.4	J 4.3	J 7.0	J 2.5	S	2.3	J 4.4S	3.7	4.0	4.7	4.3	4.2	G	3.4	3.5	J 3.5	4.8	J 3.5	J 2.7	J 7.9Y	J 4.6Y	J 4.5	2.8M
6	S	S	E	2.0	E	G	2.3	3.0	G	3.2G	J 5.4SG	5.2	J 6.8	7.8	4.3M	2.8G	J 3.3Y	3.9	B	E	S	J 2.3	J 2.3	S
7	S	E	S	S	E	S	G	J 3.9	4.2	4.0	4.0	3.5G	4.5	3.3G	2.8G	2.4G	J 4.8	4.0	J 5.0	S	J 5.7	J 6.9	J 7.8	S
8	S	S	E	S	E	S	2.3	3.4	3.3	4.3	3.4G	3.5G	3.5G	3.9	4.6	2.7G	4.0	3.9	J 3.3S	2.3	2.5	2.1	S	S
9	S	S	S	2.1	2.1	S	B	G	3.2	3.5	4.6	6.2S	3.9	5.0	4.3	J 5.3	J 5.1	4.4	4.0	2.8	2.5	2.3Y	E	E
10	E	S	E	E	S	S	3.0	S	2.7G	3.1G	2.9G	4.5	3.4G	3.1G	3.1G	4.0	3.7	G	B	E	3.1	J 3.7	J 3.2S	2.1
11	2.1	J 2.9	J 2.3	2.4	1.8	2.5	G	3.0	3.1G	3.1G	G	B	3.5G	4.0	3.7	2.2G	3.2	3.7S J 3.2		5.4	2.3	2.5	2.1	E
12	E	S	S	2.1	2.1M	S	2.4	S	3.3	G	3.0G	3.3G	B	G	3.7	3.3	S	2.9	J 3.5	3.9M	2.9M	2.8	J 3.5	2.2
13	2.2	S	1.9	E	1.9M	2.3M J 3.1		4.7S	4.6S J 4.2		4.5	3.9S	B	2.7G	B	3.1	3.2	J 2.8Y	J 2.6	J 3.3	J 5.5	J 3.4	J 3.2 J 3.0	
14	J 3.0	E	E	E	S	S	J 3.4	J 3.6	3.8	4.5	G	G	3.2G	G	2.8G	3.3	2.2G	3.8	3.4	J 3.0S	J 3.8	J 2.7Y	S	2.3
15	S	S	S	2.1	2.3	4.9M	S	J 3.6S	G	G	B	3.3G	B	G	3.7	3.2	S	2.7	J 2.5	J 2.4	E	E	J 2.4	2.5
16	2.1	S	S	S	E	S	G	3.0S	3.1	G	G	3.1G	B	3.2G	4.3M	2.7G	3.6M	C	2.3	S	C	2.3	J 3.9	J 4.0
17	J 2.7	S	1.8	E	2.1	2.0	2.3	3.4	4.8	3.8	4.6M	4.1	G	G	3.8	3.2	3.2	2.5	J 1.8	J 6.3	J 4.6	J 4.7	J 4.0	E
18	E	2.2	2.2	2.0	1.5	2.8	J 3.0	J 4.0	4.1	J 5.7	4.1	3.8	3.7	3.4G	3.3G	G	3.5	2.4	2.6MJ	6.8	J 3.0	J 5.3	E	S
19	S	2.2M	E	2.3	J 3.2	J 3.7	7.2M J	4.0	J 5.3	4.1	3.1G	G	G	G	G	G	G	2.4	S	J 2.0	S	S	2.4	S
20	S	S	E	E	S	J 3.4	J 3.2	J 3.0	3.3	G	G	G	G	G	2.8G	G	B	2.5	J 2.5	J 2.1	E	E	E	E
21	3.7M	E	S	J 2.2	J 3.5	4.8SJ	3.5	G	G	G	G	G	G	3.6	3.3	3.2	G	2.5	J 2.3	J 1.7S	J 2.9	J 6.8	2.5M	E
22	S	E	E	E	E	2.1	J 2.4	S	3.1	G	3.7	4.5	3.2G	3.3G	J 3.5	2.4G	J 3.4	3.3	2.4	S	E	E	E	E
23	S	E	1.8	E	E	S	G	G	3.3	J 3.6	2.7G	2.8G	J 4.0	3.2G	2.9G	G	2.1G	2.4	3.2	2.3	2.5	S	J 2.1	2.1
24	J 2.0	S	E	S	1.6	S	1.9	3.1	3.2	3.4	2.9G	3.0G	3.2G	2.5G	G	G	G	G	J 3.0	J 3.4	2.7M	J 3.5	2.2	2.7
25	J 3.1	2.3	1.8	E	E	S	G	3.1	3.5	4.6	3.6	4.4	G	3.7	G	G	3.1	J 4.3S	2.2	3.0M	2.5M	J 3.4	2.6M	S
26	E	E	E	E	S	2.0S	J 3.1	J 3.4	J 5.0S	J 3.4	2.7G	G	3.1G	2.8G	3.2G	G	G	G	B	S	J 3.8	J 3.5	J 3.3	S
27	J 2.7	E	2.0M	2.4M	E	2.2	2.0	3.4S	J 2.8	4.0M	2.5G	J 3.8	2.9G	B	3.5	G	G	C	S	2.4	J 3.1	2.1	E	E
28	S	S	E	1.9	1.9	S	G	J 3.3	3.3	4.0	4.7	4.6	3.6	3.5	2.8G	G	3.0	J 3.4	4.0	J 3.4	J 4.9	J 3.1	2.3	J 3.9
29	J 3.0	2.5	3.6M	J 4.0	3.4	2.2S	2.4	3.2	3.8	3.3	2.6G	3.0G	2.7G	2.5G	2.6G	2.2G	2.8	2.2	S	S	S	2.4M	2.4M	1.8
30	2.3M	2.3M	2.2M	2.5	2.1	S	G	S	2.5G	4.2	3.7	4.2	4.4	3.6	3.3	G	G	G	S	J 2.4	2.4M J	2.5	J 2.8	E
31																								
No.	20	18	24	26	26	15	27	26	30	30	29	29	25	29	29	30	26	28	22	23	25	27	28	22
Median	2.5	2.2	1.8	2.0	1.9	2.2	2.3	3.2	3.3	3.7	G	G	G	G	3.3	G	3.2	3.0	3.0	2.8	2.9	2.9	2.6	2.2
U.Q.	3.1	2.9	2.2	2.4	2.1	3.4	3.1	3.6	3.8	4.2	4.6	4.4	4.0	3.6	3.8	3.2	3.5	3.8	3.4	3.4	4.2	4.6	3.5	2.9
L.Q.	2.0	E	E	E	E	2.1	G	3.0	3.1	G	3.0	3.5	3.2	3.2	3.2	G	G	2.4	2.5	2.3	2.4	2.3	2.2	E
Q.R	1.1					1.3		0.6	0.7		1.6	0.9	0.8	0.4	0.6			1.4	0.9	1.1	1.8	2.3	1.3	

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	3.9	A	1.7	1.4	S	4.8	2.7	A	4.4		3.7	B	3.7	3.7		S	3.3	2.4	2.4	2.0	3.5	2.7	2.3
2	1.9	2.8			E	S	2.5	3.2	3.1	4.1	4.4	3.5	E 3.3R	E 2.8R	3.9	3.5	3.3	2.8	C	C	C	C	E	S
3	2.2	E	E	E	E	2.1	B	3.0	3.3	3.5	3.8		E 3.2R	E 3.0R			3.0	3.2	2.5	S	1.9	2.3	A	A
4	A	E	1.6	1.8	E	S	E 2.2R	2.8	3.2	4.6	A	5.3	U 4.6S	A	4.8	3.3		3.2	2.7	2.0	A	U 4.4S	A	A
5	A	2.6	2.4	1.8	2.0	S	2.3	2.9	3.4	3.9	4.7	4.1	4.1		3.4	3.5	3.2	4.1	2.6	2.6	A	1.9	2.4	2.5
6	S	S		E			2.2	3.0		E 3.2R	4.3	4.1	5.9	3.5	3.6	2.8†	3.3	3.5	B		S	E	E	S
7	S		S	S		S		3.9	3.9	3.9	4.0	E 3.5R	E 4.5R	E 3.3R	E 2.8R	2.4†	4.6	3.4	3.1	S	A	A	A	S
8	S	S		S		S	E 2.3S	3.4	3.3	4.0	E 3.4R	3.5†	E 3.5R	3.9	4.5	2.7†	3.3	3.1	2.5	2.2	2.5	E	S	S
9	S	S	S	E	E	S	B		E 3.2R	3.5	E 4.6S	6.1	3.8	4.7	E 4.3S	5.0	4.8	4.1	3.4	2.5	2.0	1.9		
10		S			S	S	G	S	E 2.7R	3.1†	E 2.9R	4.4	E 3.4R	3.1†	E 3.1R	3.7	3.2		B		2.2	2.7	2.5	1.9
11	1.9	2.6	1.4	2.4	E	2.2		3.0	3.1†	3.1†		B	E 3.5R	4.0	3.6	E 2.2R	2.9	2.6	2.9	4.5	E	2.5	E	
12		S	S	E	E	S	U 2.4R	S	3.2		E 3.0R	E 3.3R	B		3.7	3.3	S	2.8	2.5	2.5	2.0	1.9	3.0	1.9
13	2.2	S	E		E	S	2.7	2.8	4.1	4.0	4.2	3.9S	B	E 2.7R	B	E 3.1R	3.0	2.7	2.3	E	2.8	2.3	2.0	2.0
14	2.6				S	S	2.1	3.5	3.8	4.0			E 3.2R		U 2.4A	3.3	E 2.2R	3.0	2.7	S	2.6	2.1	S	E 2.3S
15	S	S	S	E 2.1S	E 2.2S	A	S	S			B	E 3.3R	B		3.7	3.2	S	2.5	1.9	E			1.9	E
16	1.9	S	S	S		S		S	3.1†			3.1†	B	E 3.2R	4.1	2.7†	2.9	C	B	S	C	1.9	2.3	3.0
17	E	S	E		E	S	2.3	3.0	4.6	3.8	4.4	4.1			3.7	3.1	3.1	2.5	1.8	4.0	2.4	3.3	2.5	
18		E	1.7	1.9	1.2	E	2.5	4.0	4.0	5.6S	4.0	E 3.8R	3.7	E 3.4R	E 3.3R		3.0	2.3	B	4.0	E	4.0		S
19	S	E		1.9	1.5	2.0	6.4	3.9	4.4	E 3.9AE	3.1R							2.3	S	1.8	S	S	E	S
20	S	S			S	E 3.2S	2.5	2.9	2.8						2.8†		B	2.5	B	E				
21	2.5		S	1.9	2.7	A	E 1.9A							3.6	3.2	3.1		2.5	2.0	E	1.9	A	E	
22	S					1.8	2.4	S	3.1		3.6	4.0	E 3.2R	3.3	3.4	2.4†	2.8	2.6	2.2	S				
23	S		E			S			3.1	3.5	2.7†	2.8†	4.0	E 3.2R	2.9†		E 2.1R	2.4	2.1	2.1	2.0	S	1.9	E
24	E	S		S	E	S	E 1.9S	3.0	3.2	3.4	E 2.9R	3.0†	3.0†	E 2.5S					U 2.8A	2.7	2.3	2.0	1.8	1.9
25	3.0	E	E			S		3.0	3.1	A	3.6	4.0		3.6			2.8	U 3.3S	S	2.5	E	2.5	2.1	S
26					S	E	3.1	2.9	4.5	3.2	2.7†		E 3.1R	2.7†	3.2				B	S	1.8	2.1	2.7	S
27	2.3		E	1.5		2.0	1.8†	2.7	2.8	3.3	2.5†	3.8	2.9†	B	3.4			C	S	E	2.4	E		
28	S	S		E	E	S		3.2	3.3	4.0	4.7	4.1	3.6	3.5	2.8†		2.7	2.9	3.5	2.7	2.2	1.9	E	2.6
29	2.5	2.0	2.6	3.0	A	2.2	2.4	2.9	3.7	3.3	E 2.6R	E 3.0R	2.7†	E 2.5R	2.5†	2.2†	2.8	2.2	S	S	S	E	E	E
30	E	E	E	1.8	E	S		S	2.5†	4.2	3.6	4.1	U 4.4S	3.6	2.5†				S	1.9	E	E	E	
31																								
No.	16	11	13	15	17	10	20	21	27	24	22	23	19	21	24	18	19	24	18	20	22	24	23	13
Median	2.2	E	E	1.8	E	2.0	2.4	3.0	3.2	E 3.9	3.6	3.8	E 3.5	3.3	3.4	3.1	3.0	2.8	2.5	2.3	2.1	2.1	2.0	2.0

foEs

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

The Radio Research Laboratories, Japan.

K 5

37

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.70 SE1.60 SE1.50 S1.45	1.10 E1.50 S	1.80	2.10	1.95	2.40	2.50	2.90	4.10	2.60	2.60	2.10	E3.10 S	1.90	E1.70 SE1.70 S	1.45	E1.50 SE1.70 SE1.60 S							
2	1.45 E1.70 S	1.40	1.10	1.40 E1.80 S	1.60	2.00	2.00	2.20	2.40	3.10	2.90	2.60	2.40	2.10	2.20	1.90	C	C	C	C	E1.80 SE1.50 S			
3	E1.60 SE1.40 S	1.20	E1.60 S	1.10 E1.90 S	2.60	E2.30 S	2.20	2.20	2.10	2.40	2.60	2.40	2.30	2.20	2.60	1.90	E1.70 SE1.60 SE1.80 SE1.80 SE1.70 SE1.70 S							
4	E1.80 S	1.10	1.10	1.50	1.00 E1.40 SE1.80 S	2.05	2.20	2.55	2.50	2.20	2.65	2.65	2.40	2.05	2.20	1.90	E1.85 SE1.70 SE1.75 SE1.95 SE1.70 SE1.50 S							
5	E1.50 S	1.45	1.20	1.10	1.45 E1.70 S	1.85	1.90	2.70	2.70	2.30	2.60	2.40	2.50	2.40	2.20	1.90	2.60	1.80	E1.50 SE1.95 SE1.50 SE1.70 SE1.95 S					
6	E1.80 SE1.80 S	1.20	1.40	1.20	1.00	1.70	2.60	2.10	2.45	2.60	2.40	2.50	2.40	2.20	1.80	1.90	E1.80 S	1.90	1.30	E1.70 SE1.85 S	1.40	E1.50 S		
7	E1.50 S	1.10	E1.80 SE1.90 S	1.40 E1.95 S	1.85	1.95	2.00	2.20	2.80	2.80	2.20	2.40	2.40	2.00	2.65	2.00	E1.90 SE1.80 SE1.90 SE1.30 SE1.95 SE1.80 S							
8	E2.00 SE1.60 S	1.30	E1.70 S	1.50 E1.65 SE2.00 S	2.75	2.25	2.20	2.85	2.90	2.80	2.80	2.40	2.20	2.50	1.70	E1.70 SE1.80 SE1.50 SE1.70 SE1.90 SE1.80 S								
9	E1.70 SE1.90 SE1.70 S	1.40	1.00 E1.90 S	2.50	2.00	1.95	2.20	2.40	2.90	2.80	2.20	2.10	2.20	2.50	1.90	1.70	1.70 E1.70 SE1.70 S	1.50	1.80					
10	1.50 E1.90 S	1.50	1.30	E1.50 SE1.90 SE2.15 SE2.95 S	2.20	2.40	2.60	2.70	2.60	2.50	2.85	2.20	2.00	2.00	1.70	1.60 E1.90 SE1.70 SE1.70 SE1.80 S								
11	E1.70 SE1.70 S	1.00	1.20	1.20 E1.70 S	1.95	2.00	2.00	2.20	2.90	4.30	3.25	2.95	1.95	2.00	E2.80 SE2.00 S	1.50 E1.60 S	1.50 E1.85 S	1.40	1.40					
12	1.40 E1.80 SE1.60 S	1.40	1.00 E1.90 S	1.70 E2.80 S	2.00	2.80	2.70	2.85	4.20	2.75	2.20	2.20	E2.90 S	1.80	E1.70 SE1.60 SE1.50 SE1.50 SE1.80 SE1.85 S								
13	E1.50 SE1.80 S	1.40	1.50	1.40 E1.50 SE1.80 SE1.90 S	1.90	2.05	2.80	2.30	3.95	2.00	3.50	2.20	1.95	E2.00 SE1.80 SE1.65 SE1.90 SE1.75 SE1.50 SE1.80 S								
14	E2.10 S	1.20	1.50	1.40 E1.85 SE1.80 SE2.00 S	2.70	2.20	2.40	2.20	3.25	3.05	3.10	2.00	1.80	1.90	1.80 E2.35 SE1.90 SE1.80 SE1.80 SE1.95 SE1.90 S								
15	E1.70 SE2.00 SE1.95 SE2.00 SE1.50 SE2.25 SE2.70 SE2.50 S				2.30	2.80	3.80	2.95	3.90	2.80	2.30	2.10	E2.90 SE1.80 SE1.70 S	1.40	1.40	1.50 E1.75 S								
16	E1.70 SE1.70 SE1.90 SE1.90 S				1.50 E1.80 S	1.90	E2.70 S	2.00	2.20	2.80	2.80	3.80	2.15	2.20	1.90	1.90	C	1.75	E1.90 SI1.65 CE1.70 SE1.80 SE1.65 S					
17	1.40 E1.90 S	1.40	E	1.40 E1.80 SE1.70 S	2.70	2.75	2.05	2.20	2.70	2.90	2.20	2.25	1.95	1.90	1.70	1.45	E1.80 SE1.85 SE1.60 SE1.85 S	1.30						
18	1.30	1.40	1.20	1.15	E	E1.50 SE1.80 S	1.90	1.90	2.25	2.15	2.30	2.45	2.45	2.20	2.00	2.60	E1.70 S	1.70 E1.50 SE1.50 SE1.50 S	1.20	E1.80 S					
19	E1.80 SE1.50 S	1.30	1.50	1.10 E1.70 SE1.80 SE1.90 S	E1.95 S	2.10	2.05	2.30	2.40	2.20	2.25	2.10	1.90	1.80	E1.70 S	1.60 E1.90 SE1.80 S	1.65	E1.90 S						
20	E1.90 SE1.80 S	1.30	1.30	E1.60 SE1.80 S	1.90	2.00	1.90	2.50	2.65	2.40	2.40	2.70	2.00	2.20	2.40	1.75	1.30	1.45	1.40	1.45	1.40	1.45		
21	E1.60 S	1.10	E1.70 S	1.00	1.40	1.50	1.50	1.80	1.80	2.15	2.80	2.30	2.20	2.20	2.40	2.00	2.00	1.80	E1.50 SE1.40 SE1.50 SE1.50 SE1.50 S	1.40				
22	E1.50 S	1.40	1.30	1.40	1.00 E1.65 S	1.60	2.00	1.95	2.20	2.20	1.95	2.20	2.30	1.90	1.90	1.80	1.75	E1.75 SE1.70 S	1.10	1.40	1.45	1.65		
23	E1.70 S	1.45	E1.40 S	1.30	1.20 E1.50 S	1.50	1.85	2.00	2.00	1.90	2.40	2.20	1.90	1.90	2.00	1.60	1.50	E1.70 SE1.50 SE1.50 SE1.60 SE1.75 S	1.40					
24	E1.60 SE1.90 S	1.40	E1.65 S	1.10 E1.60 SE1.80 S	2.45	1.85	2.30	1.90	2.40	1.90	2.20	1.90	2.00	2.10	1.70	E1.60 SE1.60 SE1.70 SE1.50 SE1.50 SE1.45 S								
25	E1.70 SE1.50 S	1.10	E	1.50 E1.90 S	1.90	1.90	2.00	2.10	2.35	2.40	2.25	2.25	2.20	2.10	1.90	E1.70 SE1.50 SE1.50 SE1.70 SE1.80 SE1.70 SE1.90 S								
26	1.40	1.40	E	1.40 E1.60 SE1.60 SE1.65 SE1.90 S	1.90	2.30	2.30	2.20	2.20	2.10	1.95	2.20	1.90	E1.90 S	1.40 E1.85 SE1.60 SE1.75 SE1.70 SE1.95 S								
27	E1.60 S	1.40	1.40	1.20	1.00 E1.80 SE1.60 SE2.30 S	2.10	2.00	2.20	2.20	2.30	3.40	2.20	2.00	2.20 I1.80 CE1.70 SE1.70 SE1.80 SE1.80 S	1.40	1.50								
28	E1.70 SE1.50 S	1.30	1.40	1.40 E1.70 SE1.95 SE1.80 S	1.90	2.00	2.10	2.60	2.70	2.15	2.20	1.95	2.10 E1.90 SE1.75 SE1.80 SE1.80 SE1.50 SE1.50 SE1.70 S												
29	E1.80 SE1.70 SE1.50 SE1.60 SE1.50 SE1.70 SE1.75 SE2.50 S				2.30	2.30	2.10	2.20	2.00	2.30	2.00	1.85	1.80	1.80 E1.80 SE1.60 S	1.50 E1.50 S	1.20								
30	1.40 E1.50 S	1.20	1.00	1.20 E1.50 SE1.90 SE2.80 S	1.90	2.45	2.75	2.30	2.70	2.20	2.25	2.20	2.00	1.85	E1.80 SE1.50 SE1.70 SE1.70 SE1.80 S	1.40								
31																								
No.	30	30	21	23	24	30	30	22	30	30	30	30	30	30	30	30	26	25	29	29	29	29	30	30
Median	E1.65	E1.55	1.30	1.30	1.20	E1.70	E1.80	2.00	2.00	2.20	2.40	2.40	2.60	2.40	2.20	2.10	2.00	1.80	E1.70	E1.60	E1.70	E1.70	E1.70	E1.70

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

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

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

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

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

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

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							z60[A]		A	z80[H]	305	z95	305	310	300	z95	305							
2							300	330	z50	z55	310	z95	355	305	310	z75	z60	z60						
3								z50	z60	z55	300	z50	340	325[H]	300	300	z85	z65						
4								z50	z50	z75	A	310	300	A	310	z60	z60	z60						
5									245	300	z75	z80	310	305	z75	z75	z50							
6								z45	z55	z60	300	305	310[A]	310	z90	z90	z60							
7									z50	z60	z80	310	300	300	z90	z85	300	z60						
8									z50	z55	310	310	300	310	305	z75	z85	z60						
9									z45	z50	z90	355	315	z90	300	320	z75	z75						
10								z25	z45	310	z60	310	300	310	z85	z65	z60	z70						
11									z40	z50	z60	z80	305	305	z95	z60	z75	z60						
12								z50	z50	z45	z90	z90	315	305	z90	z85	z55							
13									z45	z50	z55	300	z95	z85	z60	z50								
14									z50	z40	z55	300	z80	z95	z60	z50								
15									z55	z55	300	300	z75	z70	z60	305	z75							
16										z60	z50	z50	z85	z80	z70	z90	z60							
17									z60	z55	z45	325	325	z75	300	z60	z50							
18										z60[A]	z55	z95	z90	z60	z60	z60								
19							E z90[A]		z50	z45	z90	z95	z75	300	z75	z80	z50							
20								z45	z50	z50	z50	z50	z90	300	z85	z55	z55							
21								z55	z50	z50	z50	z60	315	z85	z55	z50								
22									z25	z50	z60	z60	310	305	z60	z60	z55							
23									z45	z50	z55	z60	z65	300	z60	z50	z60							
24									z40	z45	z50	300	310	z65	z75	z60	z60							
25								350	305	A	S	350	325	z65	300	z75	z50							
26								z55	z50	z50	z50	z60	z85	z65	z90	z50								
27									z50	z45	z45	300	300	z75	z60	z55	z50	C						
28								z50	z50	z40	z30	z60	z75	z60	z60	z55								
29										z50	z60	z60	z50	z55	z60	z55								
30									z40	z30	300	z85	z65	z55	z50	z55								
31																								
No.							3	11	z6	z9	z8	30	30	z9	30	30	22	8						
Median							E z90	z50	z50	z50	z60	z95	300	z95	z80	z60	z60	z60						

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

The Radio Research Laboratories, Japan.

K 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I 310 A E 360 A	I 300 A	275	275	275	310	I 250 A	245	A	A	205	200	225	205	240	205	235	270 A	255	245	245	E 300 A	310	300
2	260	295 A	300	300	250	255	250 A	245	215	235	285	190	E 250 R	E 295 R	255 A	245	245	240	C	C	C	C	285	300
3	305	290	275	250	250	240	210	205	200	200	195 H	240	200	200	205	220	250	260 A	250	225	200	260 A	I 315 A	I 305 A
4	I 305 A	310	300	250	245	275	225	205	205	I 260 A	A	A	S	A	E 250 A	220	210	250 A	250	225	I 250 A	E 405 S	A	A
5	I 295 A	330 A	300	280	300	255	240	225	220	200	250 A	260 A	210	225	200	245	240	260 A	255 A	260	I 250 A	205	E 300 A	300
6	310	300	280	255	260	250	245	230	210	200	245	220	I 210 A	240	205	220	240	255	225	210	225	275	310	275
7	245	260	250	250	245	250	210	250	245	205	220	220	E 290 S	210	205	230	I 230 A	I 250 A	250 A	225	I 250 A	I 300 A	I 310 A	255
8	E 295 S	280	260	250	225	245	210	230	210	210	200	200	220	220	I 220 A	240	210	E 250 A	245	240	205	245	260	260
9	285	295	275	210	260	300	245	245	240	200	I 210 A S	I 230 A	E 260 A	250 A	S	A	A	A	255	225	205	235	250	270
10	295	300	265	255	250	300	245	225	195	200	210	235	240	200	230	220	225	255	245	205	240	245	255 A	285
11	300	330 A	295	310	260	270	235 H	245	205	200	200 H	205	210	220	220	230	225	245	245	E 250 A	225	245	300	255
12	290	300	260	250	300	310	245	210	220	205	200	200	230	200	220	225	240	250	255	245	200	225	E 355 A	345
13	330	300	250	200	255	260	245	210	245	205	210	205	240	245	205	225	230	245	225	245	240 A	255	300	300
14	300	260	255	250	300	260	245	240	225	225	200	200	200	205	225	220	245	260	240	225	225	275	305	310
15	355	300	255	245	E 300 SI	290 A	245	245	200	225	260	200	200	190 H	225	225	245	250	225	225	210	250	300	300
16	295	260	255	275	235	250	220	230	220	200	200	200	205	210	245	210	245	I 240 C	225	215	I 200 C	260	340	E 355 A
17	325	310	280	245	240	E 290 S	225	225	I 220 A	225	225 A	200 H	160 H	160	225	225	220	245	240	225	240 A	E 350 A	300	250
18	260	300	300	260	250	300	245	240	240	I 230 A	205	200	210	225	220	225	240	250	225	E 250 A	225	E 350 A	255	260
19	255	305	305	300	255	255 I	230 A	245	I 220 A	E 230 A	200	200	215	205	200	210	245	245	210	230	210	230	300	305
20	295	305	295	265	255 E	330 A	250	235	210	200	205	200	200	200	210	240	245	250	240	210	205	250	255	300
21	305	285	290	250	300 A	I 265 A	225	225	205	200	190	200	200	210	210	205	240	240	225	220	205	I 260 A	300	300
22	295	290	260	245	220	255	225	245	210	205	200	230	200	200	240 A	210	225	245	225	205	200	200	300	305
23	305	305	260	265	255	250	220	215	205	200	200	190	E 245 A	200	245	220	220	245	225	215	200	240	305	260
24	255	255	280	265	255	255	200	210	210	200	200	180	190	200	230	230	245	240	210	205	250	300 A	325	245
25	E 330 A	305	345	300	355	355	295	270 A	240	I 230 A	205	210	200	215	235	245	240	270 A	225	250 A	205	E 345 A	305	E 300 S
26	310	310	280	250	210	310	E 250 A	245	I 240 A	205	200	200	180	160 H	205	225	245	225	210	205	225	300 A	310 A	305
27	E 350 A	285	300	280	270	255	225	230	225	200	200	200	200	200	240	235	240	I 230 C	200	210	E 350 A	325	300	305
28	280	280	220	205	305	320	225	240	225	E 245 A	E 240 A	E 245 A	190 H	205	210	225	225	215	220 A	E 250 A	275	300 A	300	320 A
29	300 A	255	300 A	E 250 A	I 385 A	300 A	200	225	245	205	200	200	195	200	205	215	235	225	205	205	205	295	300	255
30	260	250	250	255	300	295	205	215	225	230	205	205	E 245 S	225	205	205	225	235	205	200	250	305	305	300
31																								
No.	28	29	30	30	29	28	29	30	29	27	28	28	24	28	28	29	29	28	29	26	28	24	28	28
Median	295	300	280	250	255	260	230	230	220	205	200	200	200	205	220	225	240	245	225	225	225	260	300	300

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	100	100	100	100	S	115	115	105	105	G	100	B	105	105	G	S	115	110	105	100	100	100	100
2	100	100	E	E	100	S	125	105	105	100	100	100	100	100	135	130	120	110	C	C	C	C	100	S
3	100	105	100	100	100	105	B	125	120	120	110	G	105	105	G	G	150	110	110	S	100	105	100	100
4	100	100	100	100	100	100	100	120	105	105	100	100	100	100	100	105	G	120	110	105	105	105	105	100
5	105	100	100	100	100	S	130	100	110	105	100	100	100	G	105	100	100	100	100	105	110	110	100	100
6	S	S	E	100	E	G	150	110	G	100	100	100	100	100	100	100	125	100	B	E	S	105	110	S
7	S	E	S	S	E	S	G	110	110	110	110	105	100	100	100	100	110	110	110	S	110	100	105	S
8	S	S	E	S	E	S	155	135	105	105	105	100	100	100	100	100	100	100	140	100	100	100	S	S
9	S	S	S	105	100	S	B	G	110	120	100	100	100	100	100	100	100	100	100	100	100	100	E	E
10	E	S	E	E	S	S	150	S	105	100	100	100	100	100	105	110	110	G	B	E	105	100	105	100
11	100	100	100	100	105	110	G	115	105	100	G	B	100	105	150	100	145	115	110	105	100	100	100	E
12	E	S	S	110	110	S	120	S	130	G	105	105	B	G	115	155	S	115	110	105	100	100	100	100
13	100	S	115	E	115	115	110	105	100	100	100	100	B	100	B	105	125	115	110	110	100	100	100	100
14	100	E	E	E	S	S	110	100	105	100	G	G	100	G	100	E 165 G	100	115	110	110	100	105	S	135
15	S	S	S	115	110	110	S	110	G	G	B	105	B	G	160	105	S	140	110	105	E	E	100	100
16	100	S	S	S	E	S	G	115	110	G	G	105	B	100	100	100	100	C	100	S	C	100	100	100
17	100	S	100	E	115	110	115	120	105	115	105	100	G	G	155	140	140	130	110	100	100	100	100	E
18	E	110	105	110	105	110	110	105	105	105	105	105	105	100	105	G	120	120	115	110	110	100	E	S
19	S	100	E	105	110	110	100	100	100	100	105	G	G	G	G	G	G	130	S	110	S	S	105	S
20	S	S	E	E	S	100	100	100	100	G	G	G	G	G	105	G	B	130	115	105	E	E	E	E
21	100	E	S	100	100	100	105	G	G	G	G	G	G	E 175 G	150	140	G	115	110	105	105	100	105	E
22	S	E	E	E	E	115	105	S	110	G	100	100	100	100	100	100	100	100	100	S	E	E	E	E
23	S	E	100	E	E	S	G	G	105	100	100	100	100	100	100	G	100	100	100	100	100	S	100	105
24	105	S	E	S	110	S	115	115	110	105	105	105	100	100	G	G	G	G	100	100	105	100	100	100
25	100	100	120	E	E	S	G	110	110	105	105	105	G	120	G	G	125	110	105	100	105	100	105	S
26	E	E	E	E	S	110	105	105	100	105	100	G	100	100	E 175 G	G	G	G	B	S	105	105	100	S
27	100	E	105	105	E	105	105	110	105	100	100	100	100	B	E 185 G	G	G	C	S	105	100	105	E	E
28	S	S	E	100	100	S	G	105	105	105	100	100	100	100	105	G	120	105	100	105	100	105	100	100
29	100	100	100	100	100	105	150	145	120	135	100	100	100	100	100	100	140	120	S	S	S	105	100	115
30	115	100	100	100	100	S	G	S	105	105	105	100	100	100	100	G	G	G	S	105	105	100	100	E
31																								
No.	16	11	13	16	18	14	20	23	27	24	23	23	20	21	23	17	19	24	22	21	22	24	23	14
Median	100	100	100	100	100	110	110	110	105	105	100	100	100	100	105	100	120	115	110	105	100	100	100	100

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

Sep. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f3	f3	f3	fz	fz		Cz	Cl	Cz	C		l		l	l			Cz	l3	f3	f	f3	f3	f
2	f	f			f		C	C	l	lz	lz	l	l	l	hl	hl	Cl	C					f	
3	fz	f	f	f	f	l		h	hl	hl	C		l	l			h	C	lz		f	fz	f3	fz
4	fz	fz	fz	fz	f	l	l	C	l	Cz	Cz	lz	l	l3	lz	l		C	lz	f	f3	fz	fz	f3
5	f3	fz	f	fz	fz		C	C	C	l	l	lz	l		l	l	lz	lz	lz	f	fz	f	fz	fz
6				f			h	l		l	lz	l	l	l	lz	l	lzh	lz				f	f	
7								Cz	C	C	l	l	l	l	l	l	lz	Cz	lz		f2	fz	f	
8							h	h	l	lz	l	l	l	l	l	l	lz	lz	lzC	f	z	f		
9				f	f				l	h	l	l	l	lz	l	lz	lz	lz	lz	fz	f	f		
10							h		l	l	l	lz	l	l	l	C	Cz				f	fz	fz	f
11	f	fz	fz	fz	fz	lz		C	l	l			l	l	hl	l	h	C	l	f3	f	f	f	
12				f	fz		C		h		l	l			cl	hl		C	lz	f3	f	f	f3	f
13	f3		f		f	l	lz	l	lz	lz	lz	l		l		lz	h	l	l	f	f	fz	fz	f3
14	f						lz	l	C	l			l		l	h	l	C	l	f	f	f		f
15				f	fz	l3		l				l			h	h		h	l	f			f	
16	f							l	l			l		l	lz	l	l3		l			f	f3	f3
17	fz		f		f	f	lz	l	Cz	Cl	Cz	l			h	h	h	h	l	f3	fz	f3	fz	
18		fz	f3	f	fz	fz	lz	Cz	lz	lz	lz	l	l	lz	l		l	l	l	f3	f	f3		
19		f		fz	f3		lz	lz	lz	lz	C							l		f3				
20						l3	lz	l	l						l			h	l	f			f	
21	f3			f3	f3	fz	l							hl	h	h		l	l3	f	f	fz	f	
22						lz	l		C		lz	lz	l	lz	lz	l	lz	lz	l					
23			f						lz	lz	l	l	lz	l	l		l	lz	l	f	f		f	f
24	f				f		l	l	l	l	l	l	l	l				l	lz	f				
25	f3	fz	f					Cz	C	Cz	Cz	lz		h			h	lz	l	fz	fz	fz	fz	fz
26						f	lz	lz	lz	l	l		l	l	hl						f	fz	f	
27	fz		f	fz		fz	l	l	l	l	l	l	l		hl						f3	fz	fz	
28				f	fz			lz	C	Cz	Cz	lz	lz	lz	l		C	hz	fz	f	fz	fz		
29	fz	fz	f3	fz	f3	f	h	h	h	hl	l	l	l	l	l	l	h	C		f3	f	f	fz	f3
30	f	f	f3	fz	fz				l	Cz	l	l	lz	l	l					fz	f	fz	fz	f
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

K 12

IONOSPHERIC DATA

Sep. 1961 | hpF2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I370A	A	I350A	u350S	355F	375	260	300R	I300A	350H	305	305R	305R	315	310	300	310	310	305R	I300S	u300R	I345S	I350S	I345F
2	350	355	I370S	305	310	350	305	350	255	J290S	310	300	375	330	315R	300	300	300	C	C	C	C	J355S	375
3	J400S	350	355Su	320S	320	u300S	255	260	295	255	305	255	345	345R	305R	305R	300	300	I290R	u260R	J230S	300	I365A	I375A
4	I380A	390	380	310	300	360	295	J265R	260	300	I290A	325	J310R	A	335R	J300R	300	300	295	300	FI310A	S	A	A
5	A	365	J385F	350	I350F	330	280	250	250	330	J295R	300	310	315	295	300	300	300	325	320	I320A	J275S	I350S	350S
6	u355S	375S	355	350	350	310	265	255	255	305	345R	325	J315R	345	305	305	J295R	295	u280R	300	u275S	365	400	I355S
7	u350S	J345S	I320S	320S	310	I300S	250	275	250	295	300	345	310R	315	J300R	295	J305R	300	J295R	S	A	A	A	S
8	S	u350S	330	J305S	300	310	270	260R	255	265	345	325	330	335R	330	300	J305R	J300R	300	300S	J255S	320S	u320S	J350S
9	I350S	I350S	I325S	J260S	375	355S	285	275	J250R	260V	300	J365R	345R	340	J310R	350	300	J305R	J300R	280R	260	300	355	335
10	u385S	I360S	J345S	J330S	u295S	J355S	J295S	u250R	J255R	335	300R	330	305	335	300	300	305	305	u295S	J285R	295	295	345	360
11	355	380Su	375SI	370S	350	320S	275H	260	250	255	300	305	345R	J310R	315	300	300	325	u275R	275	260	295	360	335
12	380	385	u335S	350	380	380S	280S	255	u260S	250	310	310	345	J340R	305	300	290	J300R	J310R	300	I260R	335	395	400
13	J380S	355	u300Su	265S	350	u350S	300R	265	I290S	300	325	u350S	310	315	300	270S	280	285S	295	300	300	315	355	360
14	u345S	350	u350SI	315Su	305S	350	260	255S	255R	270	300	320S	305	305	300	295	310	300	J285S	J300R	280	375	385	380
15	405	390	315	300	u320SI	350A	285	I290S	300S	295S	345	345R	305	305	J305R	330	305	J300S	u295S	295	280	325	385	350
16	u355SU	350SI	I330SI	325Su	305S	335	265	250	255	295	280	330	305	305	300	305	305	I300C	280	I255SI	240C	380	400	380
17	400	400	350	u310S	300	360	280	J295S	300	300	J275S	345	340	320	350	300	295	300	300	u280S	320	400	355	350
18	350	375	365	335	350	390	285	J265R	250	270	300	305	305	300	300	300	300	300	285	u290S	295	355	350	330
19	345	395F	390	350S	345	I325SI	I250A	u255S	255	250	305	300	300	320S	295S	300	280	270	J250S	260	280	340	375	345
20	355	365Su	355S	350S	345	u355S	280	245	260	260	255	305	305	310	305	300	295	300	260	J290S	350	J320S	340S	380
21	355	360	I350S	300S	340	I345A	280	285	280	295	260	285	345	300	300	255	265	260	300	280	255	I330A	375	375
22	355	350	345	315	300	310	255	250	J245R	250	300	280	345	330	295	295	300	270	280	255	250	310	350	365
23	355	350	u350S	335	315	300	250S	255	250	295	310	295	300	310	300	300	300	295	275	255	245	355	365	350
24	325	310	350	330	335	330	250	255	250	250	255	320	350	300	300	300	300	J270S	305	J250S	305	365	400	305
25	350	445	420	395	445	370	345	G	J350S	A	S	350	350	300	305	300	275	J300S	270	300	275	355	355	350
26	380	380	355	315	300	U350S	295	J295S	260S	265	255	300	305	300	305	290	295	275	255	255	280	350	355	380
27	380	355	370	355	335	305	260R	255	255	250	255	325	330	305	300	J300S	300	I260C	J250R	300	400	400S	355	400
28	355	350	260	305	360	390S	275SJ	270S	J290S	265	255	300	305	300	300	295	280	250	250	u280S	350	385	355F	J355S
29	340	350	345	280SI	340A	330	245S	250	255	255	295	300	285	300	305	280	285	255	J250S	255	330	365	J360S	310S
30	310	320	310	345	J370SI	395SF	250	290	J255R	250	305	305	300	J295R	285	295	295	290	250	285	320	385	385	380
31																								
No.	28	29	30	30	30	30	30	29	30	29	29	30	30	29	30	30	30	30	29	28	28	27	28	28
Median	355	355	350	320	340	350	275	260	255	270	300	310	310	310	300	300	300	300	285	285	280	345	355	355

hpF2

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I 80A	A	I 100A	u 100S	100F	120	90	85R	I 60A	155H	90	90R	90R	75	85	55	85	95	90R	I 70S	u 95R	I 100S	I 95S	I 105F
2	95	140	I 80S	95	90	95	90	90	50	J 100S	80	55	70	70	80R	45	75	95	C	C	C	C	J 90S	80
3	J 95S	95	90S	u 80S	105	u 55S	55	65	55	50	90	90	80	50B	55R	85R	55	95	I 80R	u 60R	J 25S	100	I 90A	I 80A
4	I 70A	105	80	85	100	135	80	J 45R	45	95	I 80A	125	J 70R	A	65R	J 55R	55	55	55	90F	I 105A	S	A	A
5	A	90	J 110F	100	I 100F	120	65	50	60	40	J 55R	55	95	60	60	55	55	95	85	75	I 80A	J 70S	I 80S	I 85S
6	u 90S	80S	90	100	90	80	60	50	50	90	100R	70	J 80R	60	85	85	J 55R	55	u 65R	95	u 80S	95	110	I 100S
7	u 100S	J 65S	I 80S	85S	95	I 80S	75	70	50	55	60	60	85R	80	J 60R	60	J 85R	85	J 55R	S	A	A	A	S
8	S	u 95S	65	J 90S	95	90	80	85R	45	90	50	70	70	70R	65	95	J 85R	J 95R	60	50S	J 90S	75S	u 75S	J 95S
9	I 100S	I 100S	I 80S	J 60S	115	135S	70	35	J 50R	85V	90	J 80R	55R	105	J 85R	55	95	J 90R	J 75R	45R	55	95	95	70
10	u 110S	I 90S	J 60S	J 110S	u 60S	J 90S	J 55S	u 50R	J 50R	60	95R	70	55	70	55	60	85	90	u 55S	J 65R	55	70	100	85
11	95	75S	u 75S	I 70S	65	85S	80H	60	50	50	100	85	55R	J 85R	80	45	95	80	u 45R	45	55	100	95	80
12	75	105	u 60S	90	115	75S	65S	90	u 50S	55	105	80	95	J 70R	85	95	65	J 55R	J 80R	60	I 60R	75	70	65
13	J 75S	95	u 70S	u 90S	105	u 95S	65R	80	I 50S	80	70	u 95S	85	80	60	80S	70	60S	60	60	75	95	90	95
14	u 70S	95	u 95S	I 80S	u 90S	90	50	50S	50R	60	95	60S	80	75	55	60	95	85	J 70S	J 55R	80	85	70	75
15	100	105	80	55	u 125S	I 100A	75	I 65S	55S	55S	60	55R	85	85	J 90R	65	85	J 55S	u 50S	60	70	70	110	95
16	u 90S	u 95S	I 70S	I 70S	u 90S	110	80	50	95	60	65	110	90	85	60	85	90	I 70C	65	I 60S	I 60C	120	100	115
17	95	100	55	u 95S	95	100	70	J 55S	55	50	J 70S	95	105	80	95	95	55	95	90	u 50S	130	100	100	100
18	95	85	85	110	85	110	60	J 80R	50	50	85	75	55	95	50	55	95	50	65	u 105S	55	95	90	75
19	55	60F	100	95S	100	I 75S	I 50A	u 70S	70	70	90	85	100	80S	100S	100	70	80	J 95S	95	95	60	50	60
20	70	85S	u 90S	80S	70	u 90S	85	100	65	60	90	90	75	95	50	55	55	90	80	J 55S	95	J 75S	105S	70
21	90	95	I 80S	95S	105	I 60A	70	40	65	65	85	105	55	45	45	50	65	80	95	65	45	I 115A	120	75
22	140	95	60	75	100	85	50	50	J 45R	45	50	60	60	75	55	60	55	75	65	45	55	145	100	125
23	95	105	u 95S	70	85	95	55S	50	50	50	90	55	65	75	50	100	55	60	70	45	55	145	85	70
24	80	90	95	75	110	70	75	50	45	55	95	75	60	55	70	95	55	J 50S	50	J 50S	95	85	95	90
25	65	105	85	50	60	85	60	G	J 50S	A	S	90	145	55	75	45	80	J 60S	75	90	125	100	90	155
26	75	75	95	130	100	u 90S	80	J 55S	75S	80	90	80	75	55	45	20	50	75	90	55	55	100	95	75
27	115	95	75	95	65	95	45R	50	75	60	50	120	75	90	55	J 55S	50	I 45C	J 55R	150	100	95S	95	105
28	90	95	55	140	90	105S	80S	J 40S	J 60S	55	65	55	85	95	55	55	65	50	50	u 125S	95	65	95F	J 90S
29	105	95	110	35S	I 80A	70	55S	55	50	55	55	55	60	95	90	65	40	75	J 60S	55	115	85	J 85S	80S
30	85	85	95	100	J 75S	I 90SF	85	100	J 50R	95	50	55	50	J 50R	70	55	50	45	55	20	75	65	80	70
31																								
No.	28	29	30	30	30	30	30	29	30	29	29	30	30	29	30	30	30	30	29	28	28	27	28	28
Median	90	95	80	90	95	90	70	55	50	60	85	80	75	75	60	60	65	75	65	60	80	95	95	80

ypF2

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

The Radio Research Laboratories, Japan.

K 14

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.2	4.0	4.1	3.7	3.5	3.3	4.4	6.9	6.5	7.6	8.7	10.6	10.3	11.2	12.0	12.1	11.5	11.0	11.2	12.2	10.2	5.4	5.0	F
2	5.6	6.0	5.2	4.6	3.6	2.5	4.0	5.4	7.1	6.9	6.9	8.5	8.8	8.7	9.8	10.2	9.5	8.0	7.1	7.2	6.5	5.0	5.3	5.3
3	5.2	5.1	4.8	5.0	4.3	3.4	4.6	6.7	6.2	6.7	7.2	7.5	7.1	6.8	7.7	8.7	9.3	10.5	11.3	10.6	7.5	4.3	3.1	3.5
4	3.5	3.4	3.4	4.1	3.5	2.3	3.8	7.0	7.4	7.2	6.6	7.0	7.3	9.7	9.9	9.1	8.8	8.6	8.5	8.3	6.3	5.9	A	A
5	S	5.2	4.9	4.7	3.7	3.8	4.8	6.1	7.1	7.1	7.9	8.0	7.8	7.8	8.1	8.0	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	7.5	7.1	8.3	10.0	9.2	8.6	8.6	8.9	8.6	8.2	8.1	7.0	5.4	5.0	4.9
7	5.0	5.1	5.2	5.1	4.3	3.9	4.8	8.3	7.7	7.0	7.2	7.6	8.9	9.1	8.7	8.1	8.3	9.0	9.2	8.1	6.7	5.3	A	S
8	A	S	5.0	5.2	3.4	3.0	4.6	6.9	7.0	7.8	7.6	8.6	10.0	10.5	10.2	9.5	9.4	9.1	9.2	9.2	8.8	6.4	5.4	5.2
9	5.0	5.1	5.2	4.3	4.1	4.1	4.8	8.6	8.3	7.0	6.6	7.5	10.1	11.7	11.4	9.5	9.9	10.0	9.7	9.1	7.7	5.1	5.3	4.5
10	4.6	4.7	4.7	4.6	4.2	4.4	5.3	9.1	6.7	7.1	8.2	9.7	10.1	9.2	9.7	8.8	8.4	9.2	10.1	10.2	9.4	6.0	5.0	5.0
11	4.8	4.6	4.6	4.4	4.5	4.6	6.1	8.3	8.2	7.2	7.3	8.2	8.9	10.0	9.3	9.0	7.8	8.1	10.0	10.6	7.9	5.5	5.2	5.1
12	5.1	5.0	5.2	5.2	4.4	4.3	4.7	4.9	9.3	7.1	7.6	10.1	10.3	10.9	10.8	10.2	10.6	8.7	9.1	11.4	9.0	6.3	4.0	4.2
13	4.7	5.4	5.6	4.1	2.8	2.8	4.2	7.8	8.9	8.1	9.7	11.7	12.9	14.1	13.3	10.4	8.9	8.0	8.3	7.9	7.5	6.0	5.2	5.2
14	5.0	4.9	4.9	4.6	4.6	3.9	4.8	7.5	8.5	7.9	8.3	9.4	9.6	10.6	10.2	8.6	7.8	9.8	10.4	8.5	5.9	5.1	5.4	5.4
15	5.0	5.4	5.5	4.9	3.5	2.7	4.2	7.6	9.9	9.6	9.0	9.6	11.3	12.6	11.0	10.2	10.0	10.4	10.4	8.0	6.0	5.7	S	S
16	5.9	5.6	5.6	5.2	4.3	3.7	4.5	7.2	8.4	8.8	7.3	8.2	10.0	11.0	10.7	9.3	9.6	10.6	11.2	11.0	7.9	5.5	4.6	4.5
17	4.3	4.0	4.3	4.4	C	C	C	C	C	10.0	8.2	7.2	9.5	11.5	10.4	9.8	9.6	10.5	10.3	8.9	6.8	4.5	4.6	4.8
18	5.1	5.0	5.0	4.5	4.5	4.1	4.6	7.6	8.5	7.0	7.7	8.8	9.8	9.6	9.3	8.6	8.4	8.2	9.1	9.5	8.4	5.1	5.3	5.3
19	5.2	4.9	4.4	4.3	4.4	3.8	4.4	6.1	7.8	9.0	8.9	9.3	10.3	11.3	10.4	11.0	11.4	10.6	9.9	9.2	7.1	4.8	4.5	4.6
20	4.5	4.3	4.2	4.0	3.8	3.6	4.3	6.9	7.7	8.4	8.6	8.4	9.3	9.2	10.0	10.0	9.9	9.4	9.4	7.8	7.1	6.4	5.8	5.6
21	5.5	5.3	5.2	4.8	4.4	4.2	5.2	7.5	8.1	8.8	9.4	7.7	8.7	10.9	11.5	8.9	7.7	7.2	7.8	8.5	7.0	4.5	4.7	4.6
22	4.5	4.5	4.3	4.2	3.7	3.1	3.9	6.0	8.1	7.7	6.8	7.2	7.8	9.1	9.8	9.6	9.0	8.7	9.0	8.2	8.1	4.6	3.2	3.4
23	3.6	3.5	3.7	3.4	3.5	3.2	4.1	6.2	7.0	7.3	6.7	7.1	7.9	9.0	10.0	9.7	8.5	9.5	10.3	9.8	8.2	3.1	3.2	3.4
24	3.5	3.4	3.5	3.6	3.3	3.2	4.1	6.9	7.0	7.1	6.2	6.8	9.1	9.4	9.1	8.9	8.8	9.8	10.3	8.6	5.2	3.8	4.0	4.3
25	4.2	3.7	3.5	4.0	3.1	3.2	3.6	5.7	S	6.3	6.6	8.5	10.7	10.5	9.3	9.9	9.1	8.4	8.2	5.6	5.2	3.5	3.5	3.7
26	3.4	3.4	3.5	3.4	2.5	2.1	3.3	6.7	8.4	8.1	7.9	8.6	9.5	11.6	11.2	10.1	9.4	10.1	8.9	7.2	6.0	3.2	3.5	3.4
27	3.4	3.4	3.4	3.4	3.6	3.2	3.8	7.1	9.3	6.7	7.0	9.2	10.3	10.4	11.3	11.1	11.6	11.1	10.2	5.3	4.5	4.3	4.5	4.2
28	4.5	4.7	3.7	2.9	2.4	2.6	3.5	6.7	9.9	10.0	8.3	9.2	11.8	12.9	11.4	10.7	9.9	9.1	7.8	5.1	4.2	4.1	4.1	4.2
29	4.3	4.0	3.8	3.4	3.1	2.9	3.7	6.8	7.5	7.9	7.7	7.3	8.9	9.1	10.1	10.0	9.4	9.4	9.0	6.6	4.3	3.3	3.6	3.7
30	3.7	3.9	3.8	3.8	3.8	3.8	4.3	6.3	7.7	7.9	7.7	9.4	10.8	11.6	11.1	9.8	9.3	9.9	12.2	6.7	3.9	3.6	3.8	3.8
31																								
No.	27	28	29	29	28	28	28	28	27	30	30	30	30	30	30	30	29	29	29	29	29	29	26	25
Median	4.6	4.7	4.6	4.3	3.7	3.4	4.4	6.9	7.8	7.6	7.6	8.4	9.7	10.4	10.2	9.6	9.3	9.4	9.4	8.5	7.0	5.0	4.6	4.5
UQ	5.1	5.1	5.2	4.7	4.3	3.9	4.8	7.6	8.5	8.1	8.3	9.3	10.3	11.3	11.1	10.2	9.9	10.2	10.4	9.6	8.0	5.5	5.2	5.2
LQ	4.2	4.0	3.8	3.8	3.4	3.0	4.0	6.5	7.1	7.1	7.0	7.5	8.9	9.2	9.3	8.9	8.6	8.6	8.7	7.5	6.0	4.7	3.8	3.8
QR	0.9	1.1	1.4	0.9	0.9	0.9	0.8	1.1	1.4	1.0	1.3	1.8	1.4	2.1	1.8	1.3	1.3	1.6	1.7	2.1	2.0	1.8	1.4	1.4

foF2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	A	A	A	5.0	I 5.1 A	A	A	A	L						
2									L H	4.5 L	5.0	4.8	I 4.9 C	5.1	4.8	4.8 L	4.5 L	A						
3										L	I 4.8 L	4.8 L	L	5.0 L	5.0	4.6	I 4.6 L	I 4.2 L						
4									L		L	L	L H	4.8 H	4.9	I 4.7 L	4.4 L	L						
5										L	5.0 L	5.0 L	5.2 L	4.9	4.9	A	C	C	C					
6							C	C	C	4.6 L	I 4.9 L	5.2	5.0 R	A	A	A	A	A						
7									A	A	I 5.0 L	L	I 5.3 L	5.3	R	B	I 4.6 L	4.1 L						
8										4.6 L	5.2 L	4.6	5.1	I 5.1 H	5.1	4.8 L	4.6 L	L						
9										L	L	5.6 L	5.0	5.1	I 5.1 A	I 4.9 A	4.7	A						
10										L	I 5.3 L	5.2 L	I 5.2 L	5.5	5.0	I 4.9 L	5.0 L	L						
11									L	4.5 L	L	L H	5.3 L	I 5.3 L	5.2 L	4.6	A	L	A					
12									A	L		5.1	I 5.2 H	I 5.0 L	5.2 H	I 5.1 L	L							
13										4.4 L	5.4 L	I 5.2 H	5.2	I 5.1 L	5.0 L	I 4.8 L	L							
14									L	L	L	5.0 L	L	I 5.2 L	5.1	L	L	L						
15										A	L	I 5.2 L	I 5.5 L	5.2	I 5.0 L	L	L							
16										4.7	4.8 L	L H	5.4 L	5.3	I 5.1 L	L	L	L						
17							C	C	C	4.7 L	4.9 L	L	5.1 L	L H	L	L	L	L						
18										L	L	L	L	I 5.0 L	5.0	4.8 L	L							
19									L	L	L	5.0 L	I 5.2 L	5.0	4.9 L	I 4.7 L	L	L						
20										4.6	I 4.8 L	L	I 5.0 L	I 4.9 L	5.0 H	I 4.9 L	L							
21									A	L	I 4.7 L	L	I 5.1 L	5.0	4.7	4.6 L	L							
22										L	4.6 L	L	I 5.1 L	L 4.9 L	4.8	4.5	4.4 L							
23										L	I 4.6 L	L	5.0	4.7	I 4.7 L	4.6 L	L	L						
24										L	4.6 L	L H	4.5	L H	4.5 H	4.6	L							
25										A	L	A	L	L	L H	L	C							
26										A	L	L	L	5.0	4.7 L	L H	L							
27										L	I 4.5 L	L	L H	L H	I 4.9 L	L	L							
28										L	C	5.2	L	L H	I 4.7 L	L	3.5							
29											I 4.6 L	4.6 L	L H	L	4.7 L	4.5 L	L							
30										L	L	4.7 L	I 4.8 L	L	4.8 H	L	L							
31																								
No.										8	17	15	21	22	25	17	9	2						
Median										4.6	4.8	5.0	5.1	5.0	4.9	4.7	4.6	4.2						

foF1

Sweep 1.0 Mc to 20.0 Mc in ~~30~~ 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 2

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							S	2.30	2.75	3.10	I 3.20 A	3.40	I 3.50 R	A	A	A	A	A	A					
2							S	2.30	2.50	A	A	A	C	R	R	A	3.15	2.70	A					
3							S	2.30	2.95	3.20	I 3.30 R	R	A	A	A	A	A	2.65	1.90					
4							S	2.40	2.90	3.15	3.40	I 3.50 R	I 3.50 A	I 3.50 A	I 3.60 A	3.30	3.00	2.50	2.00					
5							S	2.00	2.65	3.15 R	3.30	A	A	A	A	A	C	C	C					
6							C	C	C	3.05	A	A	A	A	A	A	A	A	A					
7							S	2.30 H	2.90	A	A	A	R	R	R	B	3.20 R	2.70	1.80					
8							S	2.50	I 2.95 A	A	A	A	A	A	A	A	R	2.75	A					
9							S	2.30	2.90	3.15	A	A	R	A	A	A	A	A	A					
10							S	2.50	2.90	3.40	I 3.45 A	R	A	R	I 3.60 R	3.45 R	3.15	2.70 H	1.70					
11							S	2.30	2.70	I 3.10 A	3.50	A	R	I 3.60 R	I 3.50 R	3.50 R	3.20	2.70	1.60					
12							S	A	A	A	A	A	R	R	A	3.40	3.00	2.50	1.65					
13							S	2.05	2.90	3.10	R	A	A	I 3.50 R	I 3.45 A	3.30	A	A	A					
14							S	2.10	2.70	3.10	3.20	R	A	R	3.50	3.40	3.15	2.70 H	A					
15							S	1.80	2.60	3.00	B	A	A	A	3.65	3.35	I 2.95 C	2.50	S					
16							S	I 2.30 C	I 2.95 A	A	A	3.65 R	3.70 R	3.65 R	3.50	3.40	3.20 R	2.75	1.70					
17							C	C	C	3.20	3.50	I 3.60 R	I 3.65 R	3.60	3.65 R	3.35 R	3.05	2.45	S					
18							S	2.00	2.60	A	A	A	A	R	I 3.40 R	3.25	3.00	2.50	1.65					
19							A	A	2.80	3.00	I 3.35 A	3.50 R	3.60	3.60 R	3.50	3.15	2.95	2.50	S					
20							S	2.30	2.90	A	A	3.40	I 3.50 A	3.55 R	3.40	3.20	2.90	2.45	1.40					
21							S	2.30	A	3.10	3.20	3.30	3.40 R	I 3.40 R	3.40	3.20	2.90	2.40	S					
22							S	A	A	A	3.30	R	R	R	3.30	3.20	2.80	2.40	S					
23							S	2.10	2.65	3.10	3.30	I 3.30 R	I 3.35 R	3.30	I 3.25 A	3.20	2.90	2.25	S					
24							S	2.00	2.45	I 3.00 A	3.30	3.35	3.40 R	I 3.40 R	3.30	3.15	2.80 H	2.30	S					
25							S	2.10	2.60	3.00	3.10 R	3.10	3.40	3.40 R	3.30	3.15	I 2.85 C	2.20	S					
26							S	2.20	A	A	3.25	I 3.30 A	A	R	3.20 R	3.10	2.70	2.30	S					
27							S	A	A	I 3.00 A	3.20	3.30 R	3.40 R	I 3.40 R	I 3.40 R	3.20	2.80	2.30	S					
28							S	2.10	2.70	3.05	I 3.30 C	3.30 R	A	R	R	3.10	2.80	2.20	S					
29							S	2.20	3.05	3.05	3.30	I 3.30 R	3.35 R	I 3.30	3.25 R	I 3.15 A	2.85	2.30	S					
30							S	2.30	2.70	3.05 H	3.25	3.30	3.25	I 3.30 A	3.30	3.20	2.80	2.35	S					
31																								
No.								24	23	21	19	15	13	14	20	22	23	25	9					
Median								2.30	2.75	3.10	3.30	3.30	3.40	3.45	3.40	3.20	2.95	2.50	1.70					

foE

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

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Sep. 1961

foEs

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.6	3.7	4.2	2.8	3.6	2.6	S	6.1	6.0	5.8	5.8	5.2	4.3	6.6	5.0	11.1	5.7	2.9	4.9	4.8	8.5	5.3	4.2	4.8
2	3.3	2.4	S	2.3	2.1	S	1.8	3.6	3.1	3.8	4.2	3.6	C	3.3	4.0	4.5	4.1	3.9	3.7	2.5	2.5	2.3	S	2.4
3	2.4	S	E	E	E	1.7	2.0	2.6	3.6	3.8	3.5	3.4	3.9	3.6	3.5	3.5	3.4	3.2	2.5	1.8	S	S	2.5	2.4
4	2.4	1.7	S	E	E	S	G	2.7	3.2	3.5	G	3.8	4.3	3.6	3.6	3.7	G	3.1	4.3	5.9	4.8	5.2	8.4	5.4
5	5.1	5.8	2.4	3.8	4.0	3.0	G	2.5	3.6	4.0	4.0	4.8	5.4	4.9	4.0	5.4	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	3.6	4.4	5.1	4.3	8.8	5.5	5.0	5.5	6.4	4.1	4.6	3.0	2.5	S	2.3
7	S	S	E	E	E	S	G	2.8	4.3	4.4	3.7	3.9	3.3	3.2	3.1	B	3.0	3.1	2.6	2.9	2.3	S	6.5	2.6
8	6.1	2.6	2.3	3.4	E	S	G	G	3.0	3.3	3.9	3.6	3.8	4.0	4.2	3.5	3.0	3.2	2.8	3.9	2.6	2.3	S	S
9	S	S	S	E	E	S	1.8	2.7	3.1	3.3	3.5	3.8	G	3.8	8.0	7.4	4.6	6.1	4.0	3.0	S	2.0	S	S
10	S	S	E	E	E	S	G	2.0	3.1	3.0	3.5	3.4	5.2	4.1	3.9	3.6	3.6	3.6	2.6	1.5	S	S	2.9	S
11	S	E	E	1.4	E	E	G	2.7	3.2	3.7	3.3	3.6	2.9	2.9	2.6	4.1	5.5	5.2	9.0	3.4	4.5	9.5	3.8	S
12	2.7	2.1	S	1.5	2.1	1.5	1.7	3.1	5.1	5.1	3.6	3.6	3.4	3.0	3.6	G	3.3	3.6	2.9	1.8	1.6	1.9	S	2.4
13	2.5	S	E	E	1.2	E	1.7	2.5	2.5	3.1	3.2	3.5	4.3	G	5.0	G	3.5	3.2	3.8	2.4	2.9	5.2	2.8	2.2
14	2.4	S	E	E	E	S	1.7	3.0	3.6	3.7	3.4	3.5	3.7	3.3	3.0	3.7	G	2.9	2.1	3.7	S	2.2	3.7	2.2
15	3.1	S	S	E	1.4	1.5	2.3	4.4	4.1	5.1	5.0	5.5	7.2	4.1	3.5	3.1	2.9	2.9	2.1	S	2.2	S	2.2	2.1
16	S	S	S	E	S	C	S	C	3.0	9.2	3.7	3.2	G	3.2	2.7	2.6	3.8	5.3	5.0	5.0	3.0	S	2.0	S
17	S	1.9	E	E	C	C	C	C	C	3.1	G	G	G	G	4.0	3.6	3.4	3.1	2.9	2.6	5.1	5.2	5.1	5.4
18	3.7	3.3	E	1.5	1.4	1.4	2.0	6.1	3.1	4.7	8.7	6.1	11.0	3.3	3.1	G	G	3.0	2.4	3.0	2.6	5.1	5.3	3.9
19	S	2.3	2.0	E	1.8	3.7	3.8	3.3	3.5	4.3	3.5	G	G	3.1	2.6	G	G	2.8	2.0	S	S	S	S	S
20	S	S	S	E	E	S	S	2.1	2.9	3.3	5.1	3.2	4.1	2.9	2.5	G	G	2.6	2.0	S	S	S	S	S
21	2.0	2.6	2.4	2.1	E	S	S	1.9	5.9	5.3	G	G	G	G	G	G	G	2.9	2.1	1.7	1.5	S	2.2	2.0
22	3.4	3.4	E	2.4	1.9	S	1.7	2.8	4.8	3.4	3.0	3.2	3.2	3.4	2.6	G	G	2.6	2.1	1.7	1.5	1.6	S	S
23	S	S	E	E	E	E	S	G	2.9	G	2.9	G	2.7	3.5	3.6	G	3.1	3.0	3.1	5.7	5.0	1.9	S	S
24	S	S	E	1.3	1.4	S	S	2.6	2.9	3.1	2.9	2.9	G	G	G	G	G	2.7	2.2	1.8	2.2	1.7	S	3.0
25	2.5	2.1	2.7	1.3	E	S	S	2.9	3.8	5.0	5.3	6.2	3.7	3.7	G	3.7	C	6.4	6.2	3.5	3.7	4.2	3.2	S
26	S	S	S	2.3	1.9	1.8	2.0	2.0	6.2	4.8	3.1	3.7	4.0	2.7	G	G	2.1	2.8	1.9	S	S	2.9	1.9	S
27	S	S	1.8	1.6	E	S	S	3.9	2.7	4.1	3.1	2.9	2.8	G	2.7	G	3.1	2.9	2.4	S	1.6	2.4	S	S
28	S	S	E	1.1	2.3	S	S	2.3	4.7	3.5	C	3.8	3.9	3.4	2.8	2.6	G	3.9	3.6	S	2.6	3.6	5.0	3.8
29	3.8	5.5	2.3	2.4	E	S	S	2.9	3.3	3.1	3.1	3.1	2.9	3.0	2.8	3.3	2.2	2.6	2.1	1.5	S	S	1.5	3.7
30	2.1	2.4	2.4	2.2	2.0	1.7	S	2.7	3.5	3.3	4.0	4.1	4.3	4.0	G	1.9	G	G	S	S	S	S	S	S
31																								
No.	16	15	21	29	27	12	17	27	28	30	29	30	29	30	30	29	28	29	28	22	20	19	17	16
Median	2.9	2.4	E	1.3	E	1.6	1.7	2.7	3.4	3.6	3.5	3.6	3.7	G	G	G	G	3.1	2.7	3.0	2.6	2.5	3.2	2.5
U.Q	3.6	3.4	2.4	2.2	1.9	2.2	2.0	3.1	4.2	4.4	4.1	3.9	4.3	3.8	3.7	3.7	3.6	3.8	3.9	3.9	4.1	5.2	5.0	3.8
L.Q	2.4	2.1	E	E	E	E	G	2.3	3.0	3.3	G	G	G	G	G	G	G	2.8	2.1	1.8	2.2	2.0	2.2	2.2
Q.R	1.2	1.3						0.8	1.2	1.1								1.0	1.8	2.1	1.9	3.2	2.8	1.6

The Radio Research Laboratories, Japan.

foEs

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

IONOSPHERIC DATA

Sep. 1961 | 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	2.5	A	3.2	2.4	2.3	1.9	S	$E_{6.1}^{S}$	A	5.5	5.7	5.0	$E_{4.3}^{B}$	$E_{6.6}^{B}$	5.0	10.1	5.5	G	4.7	4.4	7.6	A	3.8	2.6
2	$E_{3.3}^{S}$	$E_{2.4}^{B}$	S	2.1	1.8	S	G	3.5	G	3.6	4.1	G	C	$E_{3.3}^{R}$	G	3.9	4.1	3.8	3.5	2.2	2.2	2.0	S	E
3	E	S				S	1.8	G	3.5	G	$E_{3.5}^{B}$	$E_{3.4}^{R}$	$E_{3.9}^{B}$	$E_{3.6}^{B}$	$E_{3.5}^{B}$	G	3.4	3.2	2.4	1.7	S	S	E	1.9
4	2.1	S	S			S		G	G	3.4		G	3.9	G	G	3.7		G	3.7	5.7	4.2	2.3	A	A
5	A	2.7	1.8	1.6	1.9	E		G	3.5	3.9	4.0	4.1	4.3	4.4	G	4.9	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	3.6	4.0	4.2	4.2	6.3	$E_{5.5}^{B}$	5.0	5.5	6.0	4.0	4.0	1.7	E	S	E
7	S	S				S		G	4.3	4.3	G	$E_{3.9}^{B}$	$E_{3.3}^{R}$	$E_{3.2}^{R}$	$E_{3.1}^{R}$	B	28^{G}	G	2.5	2.7	E	S	A	2.5
8	3.4	1.8	1.8	1.7		S			G	G	3.8	$E_{3.6}^{B}$	$E_{3.8}^{B}$	$E_{4.0}^{B}$	4.1	G	$E_{3.0}^{R}$	2.6	2.6	3.8	2.6	1.7	S	S
9	S	S	S			S	G	G	G	G	$E_{3.5}^{B}$	$E_{3.8}^{B}$		$E_{3.8}^{B}$	7.1	7.0	4.5	5.9	$E_{4.0}^{B}$	3.0	S	1.9	S	S
10	S	S				S		1.9^{G}	G	3.0^{G}	G	$E_{3.4}^{R}$	4.9	4.1	3.9	G	G	3.5	2.5	S	S	S	2.5	S
11	S			1.3				G	G	3.7	3.3^{G}	$E_{3.6}^{B}$	2.9^{G}	$E_{2.9}^{R}$	$E_{2.6}^{R}$	4.0	4.3	3.3	4.5	A	3.7	2.2	2.6	S
12	2.3	2.0	S	1.5	1.9	S	G	2.9	4.6	4.1	G	$E_{3.6}^{B}$	$E_{3.4}^{R}$	$E_{3.0}^{R}$	$E_{3.6}^{B}$		G	3.5	2.7	1.7	S	1.6	S	E
13	1.8	S			$E_{1.2}^{B}$		1.6	G	2.5^{G}	2.7	$E_{3.2}^{R}$	$E_{3.5}^{B}$	4.1		4.3		3.4	2.9	3.6	2.1	E	1.7	2.1	1.8
14	2.1	S				S	G	2.8	3.4	3.6	$E_{3.4}^{B}$	$E_{3.5}^{B}$	$E_{3.7}^{B}$	$E_{3.3}^{R}$	3.0^{G}	G		G	G	2.3	S	E	1.8	1.7
15	1.8	S	S		1.4	$E_{1.5}^{S}$	2.3	4.0	4.0	4.6	4.5	4.1	4.7	$E_{4.1}^{B}$	3.5^{G}	3.1^{G}	$E_{2.9}^{S}$	2.8	G	S	2.0	S	2.2	2.0
16	S	S	S		S	C	S	C	G	G	3.7	3.2^{G}		3.1^{G}	2.7^{G}	2.6^{G}	G	G	2.5	2.0	A	S	$E_{2.0}^{S}$	S
17	S	E			C	C	C	C	C	3.1^{G}					4.0	$E_{3.6}^{B}$	3.3	A	2.6	2.4	A	3.7	A	A
18	$E_{3.7}^{S}$	2.7		1.5	1.3	1.4	1.8	5.1	G	4.6	3.8	4.1	4.2	$E_{3.3}^{R}$	3.1^{G}			G	2.4	1.6	E	1.8	2.6	2.4
19	S	1.9	1.8		1.3	1.8	2.4	3.0	2.1	3.6	$E_{3.5}^{B}$		4.2	3.1^{G}	2.6^{G}			G	1.9	S	S	S	S	S
20	S	S	S			S	S	2.0^{G}	2.8^{G}	G	4.1	3.2^{G}	3.9	2.8^{G}	2.4^{G}			G	1.9	S	S	S	S	S
21	E	2.1	2.2	1.7		S	S	1.8^{G}	4.9	2.8								2.8	2.0	S	S	S	1.7	E
22	1.9	2.3		1.2	1.5	S	S	2.6	4.1	G	2.9^{G}	$E_{3.2}^{R}$	$E_{3.2}^{R}$	$E_{3.4}^{R}$	2.6^{G}			G	2.1	S	S	S	S	S
23	S	S					S		2.3		2.5^{G}		2.7^{G}	G	G		3.1	A	2.7	5.6	A	$E_{1.9}^{S}$	S	S
24	S	S		1.3	$E_{1.4}^{S}$	S	S	2.5	G	G	2.9^{G}	$E_{2.9}^{B}$						G	2.2	1.7	1.8	S	S	2.2
25	2.2	E	2.3	1.2		S	S	2.7	3.6	4.7	4.0	5.7	$E_{3.7}^{B}$	$E_{3.7}^{B}$		G	C	3.1	4.8	3.3	3.4	1.9	2.4	S
26	S	S	S	2.1	1.7	1.7	1.7	1.8^{G}	6.0	4.4	3.1^{G}	3.6	3.9	2.7^{G}			2.0^{G}	G	1.8	S	S	2.0	1.9	S
27	S	S	1.6	1.6		S	S	3.7	G	4.0	2.9^{G}	2.7^{G}	2.8^{G}		2.7^{G}		3.1	G	2.0	S	S	E	S	S
28	S	S		1.1	1.3	S	S	G	3.7	3.4	C	3.8	3.9	$E_{3.4}^{R}$	2.8^{G}	2.5^{G}		$E_{3.9}^{S}$	2.4	S	1.7	2.5	A	1.8
29	1.7	2.6	1.7	2.1		S	S	G	G	G	3.1^{G}	$E_{3.1}^{R}$	2.9^{G}	$E_{3.0}^{R}$	2.8^{G}	G	2.1^{G}	G	1.8	S	S	S	S	2.4
30	E	2.1	1.8	1.5	2.0	S	S	G	3.4	G	4.0	4.1	4.3	$E_{4.0}^{B}$		1.9^{G}			S	S	S	S	S	S
31																								
No.	14	12	9	16	13	6	10	24	28	29	26	24	22	12	20	17	18	27	27	18	16	17	16	16
Median	2.0	2.1	1.8	1.6	1.5	$E_{1.6}$	1.6	G	2.6^{G}	3.4	$E_{3.5}$	$E_{3.6}$	$E_{3.9}$	$E_{3.0}$	G	G	3.1	2.6	2.5	2.6	2.4	1.9	2.4	2.0

foEs

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

The Radio Research Laboratories, Japan.

Y 5

51

IONOSPHERIC DATA

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

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.60S	E1.50S	E1.70S	E	1.00	E1.60S	1.65	E1.55S	1.60	1.85	2.30	2.60	2.60	2.50	3.40	2.00	1.75	1.60	E1.70S	E1.70S	E1.50S	E1.70S	1.40	E1.50S
2	E1.50S	E1.50S	E1.80S	1.20	1.00	E1.40S	1.50	E1.50S	1.60	1.60	2.55	2.50	I2.50C	2.50	2.25	1.85	1.85	E1.70S	E1.65S	E1.65S	E1.50S	E1.60S	E1.80S	E1.80S
3	E1.80S	E1.90S	1.30	1.10	1.80	E1.60S	1.50	1.25	1.60	1.80	2.40	2.60	2.45	2.40	2.30	2.30	1.75	1.50	E1.50S	E1.60S	E1.65S	E1.65S	E1.80S	E1.50S
4	1.10	E1.50S	E1.60S	1.20	1.05	E1.40S	1.65	1.60	1.80	1.90	1.90	2.40	2.50	2.35	2.40	1.90	1.75	1.55	E1.50S	E1.60S	E1.70S	E1.50S	E1.60S	E1.50S
5	E1.60S	E1.60S	1.20	E	E	E1.60S	1.70	E1.60S	1.60	1.80	2.45	2.30	2.55	2.50	2.40	1.85	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	1.70	2.05	2.45	2.50	2.20	1.85	1.70	1.65	E1.50S	1.20	E1.60S	E1.60S	E1.70S	E1.80S	E1.70S
7	E1.60S	E1.80S	1.30	1.40	1.70	E1.70S	1.60	1.60	1.65	2.05	2.00	2.50	2.65	2.40	2.70	5.30	2.00	1.90	1.65	1.25	E1.70S	E1.55S	E1.70S	E1.50S
8	E1.60S	E1.45S	1.50	E	1.40	E1.60S	1.70	1.55	1.60	1.85	2.20	2.50	2.60	2.50	2.40	2.00	1.60	1.50	1.20	E1.60S	E1.60S	E1.60S	E1.60S	E1.80S
9	E1.70S	E1.60S	E1.60S	1.10	1.10	E1.50S	E1.50S	1.40	1.50	1.80	2.00	2.50	2.40	2.50	2.40	2.50	2.00	1.55	1.60	1.20	E1.40S	E1.70S	E1.65S	E1.60S
10	E1.90S	E1.90S	1.10	E	E	E1.40S	1.60	1.40	1.60	1.70	1.90	2.45	2.50	2.50	2.45	1.90	1.60	E1.40S	E1.60S	E1.55S	E1.50S	E1.60S	E1.60S	E1.70S
11	E1.60S	1.10	1.20	1.00	1.00	1.30	1.90	1.60	1.70	2.30	2.20	2.45	2.20	2.20	2.00	2.00	1.75	E1.60S	E1.50S	E1.50S	E1.60S	E1.50S	E1.60S	E1.80S
12	E1.90S	E1.60S	E1.50S	E	E	1.30	E1.40S	E1.50S	1.60	1.90	1.90	2.50	2.60	2.60	2.00	1.80	1.75	1.40	E1.40S	1.30	E1.50S	E1.40S	E1.80S	E1.50S
13	E1.70S	E2.00S	1.70	1.10	E	1.10	E1.40S	1.60	1.60	1.60	2.00	1.95	2.45	2.55	2.05	1.85	1.75	1.50	1.20	1.00	E1.40S	E1.60S	E1.50S	E1.60S
14	E1.40S	E2.10S	1.65	1.20	1.05	E1.50S	E1.50S	E1.50S	1.60	1.90	1.90	2.40	2.45	2.50	2.20	2.00	1.60	E1.60S	1.30	E1.50S	E1.70S	E1.40S	E1.50S	E1.60S
15	E1.65S	E1.60S	E1.70S	1.20	1.15	1.10	1.30	1.50	1.60	1.70	3.65	2.60	2.45	2.10	1.95	2.00	1.85	1.60	E1.50S	E1.50S	E1.50S	E1.70S	E1.60S	E1.70S
16	E1.60S	E1.60S	E1.60S	E	E1.50S	C	1.60	I1.65C	1.65	1.60	2.60	2.50	2.40	2.45	2.10	1.80	1.60	E1.60S	1.35	E1.60S	E1.65S	E1.60S	E1.50S	E1.80S
17	E1.80S	E1.75S	1.30	E	C	C	C	C	C	1.65	1.80	2.00	1.80	2.00	2.50	1.80	1.85	E1.60S	E1.50S	E1.60S	E1.60S	E1.60S	E1.50S	E1.65S
18	E1.50S	E1.60S	1.30	1.00	E	1.15	1.30	1.60	1.60	1.85	1.75	2.30	2.45	2.40	2.20	2.20	1.75	1.60	E1.65S	1.10	E1.50S	E1.70S	E1.40S	E1.45S
19	E1.80S	E1.60S	E1.60S	1.60	1.20	E1.40S	1.25	1.50	1.60	1.80	2.00	2.00	2.00	2.30	1.90	1.60	1.60	E1.60S	E1.70S	E1.50S	E1.50S	E1.60S	E1.70S	E1.70S
20	E1.60S	E1.60S	E1.50S	E	E	E1.50S	E1.70S	1.50	1.60	1.65	2.20	2.20	1.95	1.85	1.70	2.20	1.60	E1.55S	1.30	E1.50S	E1.55S	E1.70S	E1.50S	E1.70S
21	E1.50S	1.25	1.00	E	1.30	E1.50S	E1.65S	E1.50S	1.60	1.60	1.85	2.20	2.00	2.60	2.40	2.35	1.80	E1.50S	E1.60S	E1.60S	E1.60S	E1.70S	E1.60S	E1.70S
22	E1.75S	E1.50S	1.30	E	E	E1.60S	E1.50S	E1.55S	1.50	1.60	1.80	1.90	2.25	2.35	2.15	1.60	1.75	E1.60S	E1.50S	E1.60S	E1.40S	E1.60S	E1.60S	E1.70S
23	E1.55S	E1.60S	1.70	1.50	E	1.25	1.20	E1.60S	1.50	1.30	1.90	1.85	I1.95	1.80	1.90	2.20	1.55	E1.60S	E1.50S	E1.50S	E1.60S	E1.70S	E1.80S	E1.70S
24	E1.60S	E1.90S	1.15	E	E	E1.50S	E1.60S	E1.60S	1.70	1.70	2.00	1.80	1.90	2.00	1.90	1.90	1.50	E1.50S	E1.50S	1.30	E1.60S	E1.60S	E1.85S	E1.40S
25	E1.50S	E1.65S	1.00	E	1.00	E1.50S	E1.60S	E	1.50	1.60	1.70	2.00	2.20	2.15	2.20	1.90	E4.50C	1.40	1.30	E1.55S	E1.50S	E1.50S	E1.55S	E1.50S
26	E1.70S	E1.60S	E1.40S	E	E	1.30	E1.60S	E1.55S	1.60	2.20	2.00	1.90	2.40	2.30	1.90	1.80	1.50	E1.60S	E1.60S	E1.50S	E1.80S	E1.60S	E1.60S	E1.80S
27	E1.90S	E1.70S	1.35	E	E	E1.50S	E1.50S	1.20	1.50	1.55	1.95	2.35	2.40	2.50	2.00	1.85	1.60	E1.60S	E1.60S	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
28	E1.60S	E1.50S	1.30	E	E	E1.50S	E1.50S	E1.50S	1.60	1.70	I2.00C	2.60	2.15	2.50	2.30	1.80	1.60	E1.60S	E1.40S	E1.55S	E1.65S	1.20	E1.55S	E1.60S
29	E1.40S	E1.50S	1.30	1.10	1.10	E1.60S	E1.60S	E1.60S	1.90	2.00	2.20	1.85	2.20	2.00	1.65	1.80	1.40	1.20	E1.55S	E1.40S	E1.60S	E1.60S	E1.70S	E1.40S
30	E1.30S	E1.50S	1.10	E	E	E1.60S	E1.60S	E1.50S	1.60	E2.20C	1.80	1.80	2.00	2.20	1.85	1.60	1.75	E1.50S	E1.60S	E1.60S	E1.55S	E1.60S	E1.55S	E1.50S
31																								
No.	29	29	19	29	27	27	28	21	28	29	30	30	30	30	30	30	28	29	29	29	29	29	29	29
Median	E1.60	E1.60	1.30	E	1.00	E1.50	E1.60	E1.50	1.60	1.70	2.00	2.40	2.40	2.40	2.20	1.90	1.75	E1.60	E1.50	E1.55	E1.60	E1.60	E1.60	E1.60

f-min

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

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.75	2.80	2.80	2.95	3.15	2.80	3.15	3.45	3.10	3.05	2.95	3.10	2.80	3.00	3.00	2.95	2.90	2.80	3.00	3.30	3.45	3.05	2.70	F
2	2.85	2.75	2.80	3.05	3.35	2.80	3.10	3.10	3.25	3.25	2.90	3.20	3.00	3.00	3.00	3.15	3.25	3.40	3.30	3.30	3.40	2.90	2.65	2.85
3	2.80	2.80	2.80	3.10	3.25	3.10	3.35	3.45	3.60	3.20	3.15	3.20	3.00	3.05	3.00	3.00	2.90	3.05	3.25	3.40	3.55	3.25	3.75	3.65
4	2.95	2.80	2.75	3.10	3.95	2.60	3.30	3.45	3.40	3.60	3.25	3.15	2.80	3.10	3.10	3.10	3.25	3.25	3.25	3.35	3.10	3.00	A	A
5	S	2.90	3.20	3.25	2.95	3.15	3.35	3.45	3.50	3.40	3.30	3.25	3.00	3.10	3.10	3.30	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	3.35	3.05	2.90	3.05	3.10	3.05	3.00	3.00	3.25	3.25	3.20	3.25	2.90	2.60	2.75
7	2.80	2.70	3.00	3.25	3.20	3.05	3.15	3.40	3.45	3.30	3.30	2.90	2.90	3.00	3.10	3.00	3.00	3.10	3.35	3.45	3.25	2.80	A	S
8	A	S	3.10	3.30	3.80	2.75	3.30	3.50	3.40	3.60	3.05	2.80	2.85	2.85	2.95	3.00	3.10	3.10	3.20	3.25	3.40	3.20	2.95	3.00
9	2.75	2.90	3.10	2.90	2.90	2.95	3.15	3.50	3.60	3.45	3.15	2.60	2.70	2.90	2.80	2.90	3.00	3.20	3.20	3.20	3.40	2.95	2.85	2.90
10	2.75	2.80	2.85	3.05	2.75	2.80	3.10	3.65	3.50	3.10	2.95	2.95	2.80	3.00	3.05	3.15	3.00	3.00	3.10	3.20	3.40	2.90	2.80	2.80
11	2.85	2.80	2.60	2.80	2.95	3.05	3.15	3.60	3.55	3.45	3.10	3.15	2.90	3.00	3.00	3.10	2.90	3.00	3.10	3.40	3.30	3.25	2.80	2.85
12	2.80	2.80	2.95	3.15	2.75	2.65	2.90	3.30	3.60	3.40	2.80	3.05	2.95	2.90	3.00	3.05	3.10	3.20	2.90	3.30	3.60	3.40	2.65	2.70
13	2.60	2.85	3.05	3.35	2.95	3.05	3.05	3.30	3.45	3.00	2.90	2.85	3.00	3.05	3.15	3.10	3.10	3.15	3.20	3.25	3.20	2.90	2.90	2.90
14	2.90	2.90	2.85	2.95	3.05	2.90	3.15	3.45	3.55	3.40	3.05	3.20	2.95	3.00	3.20	3.10	3.00	3.00	3.30	3.30	3.40	2.80	2.65	2.70
15	2.60	2.75	2.95	3.10	3.15	2.80	2.95	3.20	3.20	3.30	3.00	2.90	2.90	3.10	3.00	2.90	3.00	3.25	3.45	3.35	3.05	2.80	S	S
16	2.90	2.90	3.00	3.10	2.95	3.05	3.20	3.45	3.50	3.50	3.15	2.90	3.10	3.05	3.15	3.00	3.00	3.10	3.20	3.40	3.20	2.95	2.65	2.65
17	2.80	2.75	2.80	3.10	C	C	C	C	C	3.50	3.40	2.85	2.85	2.95	3.00	3.05	3.05	3.00	3.30	3.20	3.15	2.85	2.75	2.70
18	2.75	2.90	2.90	2.95	3.00	3.05	3.05	3.30	3.55	3.40	3.10	3.00	3.05	3.20	3.20	3.15	3.20	3.20	3.20	3.15	3.40	2.85	2.85	2.85
19	3.00	2.90	2.75	2.75	3.25	3.15	3.20	3.60	3.35	3.35	3.15	2.85	3.00	3.10	3.10	3.10	3.20	3.30	3.30	3.30	3.30	2.80	2.80	2.85
20	2.75	2.90	2.85	3.00	3.00	3.05	3.25	3.45	3.35	3.45	3.20	3.05	3.00	3.00	3.00	2.90	3.15	3.20	3.25	3.20	3.00	2.90	2.80	2.75
21	2.80	2.70	2.90	3.00	2.95	2.90	3.25	3.35	3.25	3.20	3.40	3.05	2.85	3.05	3.20	3.40	3.50	3.35	3.20	3.30	3.30	2.90	2.90	2.80
22	2.80	2.90	2.90	3.10	3.30	3.25	3.15	3.30	3.40	3.40	3.40	3.35	2.95	3.05	3.15	3.15	3.25	3.25	3.40	3.30	3.45	3.45	2.90	2.75
23	2.65	2.85	3.10	3.25	3.10	3.25	3.15	3.45	3.50	3.40	3.20	3.10	3.10	3.00	3.10	3.05	3.25	3.20	3.15	3.30	3.65	3.40	2.85	2.80
24	2.90	2.95	3.00	3.20	3.25	3.05	3.05	3.50	3.70	3.55	3.70	2.80	3.10	3.05	3.10	3.05	3.20	3.25	3.40	3.50	3.60	2.80	2.60	2.90
25	2.95	2.60	2.50	2.85	2.40	2.75	2.90	3.20	S	3.25	3.15	2.65	3.10	3.10	3.00	3.05	3.25	3.35	3.40	3.40	3.45	2.55	2.75	3.10
26	2.55	2.75	2.85	3.25	3.25	2.85	3.05	3.40	3.45	3.35	3.30	3.05	2.95	3.10	3.20	3.05	3.15	3.40	3.50	3.50	3.60	3.00	2.75	2.75
27	2.65	2.75	2.80	2.75	3.05	3.25	2.95	3.45	3.60	3.70	3.10	3.05	3.10	2.90	3.10	3.00	3.25	3.30	3.55	3.40	2.85	2.70	2.80	2.65
28	2.80	3.20	3.10	3.10	2.65	2.85	2.95	3.30	3.45	3.45	3.30	2.90	3.10	3.15	3.05	3.10	3.25	3.45	3.50	3.50	2.75	2.80	2.90	2.90
29	3.00	3.10	3.20	3.25	3.20	2.85	3.15	3.55	3.60	3.50	3.40	3.05	3.05	2.95	3.05	3.05	3.25	3.30	3.45	3.40	3.25	2.65	2.80	2.85
30	2.90	2.90	2.90	2.95	2.75	2.95	3.20	3.45	3.40	3.50	3.05	3.10	3.05	3.05	3.15	2.90	3.10	3.15	3.45	3.65	3.10	2.80	2.75	2.80
31																								
No.	27	28	29	29	28	28	28	28	27	30	30	30	30	30	30	30	29	29	29	29	29	29	26	25
Median	2.80	2.90	2.90	3.10	3.05	2.95	3.15	3.45	3.45	3.40	3.15	3.05	3.00	3.05	3.10	3.05	3.10	3.20	3.25	3.30	3.35	2.90	2.80	2.80

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

The Radio Research Laboratories, Japan.

Y 7

IONOSPHERIC DATA

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

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

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

The Radio Research Laboratories, Japan.

Y 8

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	310	305	290	295	300	300	E 340 A	290	290						
2									280	285	365	290	I 310 C	325	325	290	280	260						
3										290	280	290	320	325	340	310	310	280						
4									240		260	345	350 C	310	290	300	275	270						
5										260	285	290	310	305	310	290	C	C	C					
6							C	C	C	260	270	350	305	300	320	310	290	275						
7									245	250	285	345	340	315	E 350 R	320	300	285						
8										255	320	290	325	310	310	310	290	275						
9										245	I 290 C	420	340	310	305	320	300	285						
10										250	330	330	300	325	300	290	320	290						
11									240	250	300	305	335	305	320	300	280	290	285					
12									240	250		300	300	300	305	300	280							
13										250	330	295	300	285	275	275	270							
14									240	250	300	280	310	305	280	290	300	285						
15										250	275	285	330	290	300	290	310							
16										250	250	325 C	315	290	290	290	290	285						
17							C	C	C	250	240	255	340	310	290	290	280	275						
18										245	325	270	305	290	290	290	275							
19									275	260	290	280	305	300	290	290	275	255						
20										260	275	265	305	305	310	290	280							
21									240	290	255	295	300	305	280	260	250							
22										255	250	285	310	305	285	280	275							
23										255	265 H	290	290	325	290	275	270	265						
24										260	235	280	300	300	290	295	275							
25										275	330	340	290	285	290	285	255							
26										260	255	290	295	295	280	275	270							
27										235	260	310	285	310	280	290	260							
28										245	I 270 C	340	300	280	280	285	255							
29											260	275	290	285	290	285	270							
30										255	280 C	300	290	290	275	290	285							
31																								
No.									8	28	29	30	30	30	29	29	29	15	1					
Median									240	255	280	290	305	305	290	290	280	280	285					

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	330	A	355	300	275	325	260	E290A	A	A	A	A	E250S	A	A	A	A	240	260	250	255	I240A	360	340
2	350	300	290	260	240	290	270	270	240H	220	225	190	I225C	240	240	250	A	A	250	240	235	250	340	300
3	310	300	295	250	235	235	255	235	230	210	205	210	240	210	235	230	245	245	250	230	210	215	340	375
4	315	315	325	250	200	350	265	235	225	205H	225	225	205H	200H	240	240	220	240	250	255	275	275	A	I340A
5	I350A	290	255	250	310	260	250	230	235	230	225	220	230	240	230	A	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	220	220	200	225	A	A	A	A	A	255	255	225	245	340	330
7	305	300	260	245	240	250	260	245	I240A	I240A	215	200	200	205	I220R	I220B	250	240	255	240	225	240	I310A	290
8	355	290	280	240	200	280	250	230	230	210	205	195	260	225H	235	230	230	240	260	255	240	215	280	275
9	295	295	270	205	255	285	260	240	230	205	205	210	205	245	A	A	A	A	260	245	210	230	275	270
10	305	310	290	260	255H	290	275	235	230	200	200	195	I220A	240	230	215	240	260	255	240	235	205	305	305
11	280	260H	310	300	260	265	260	240	235	210	200	190H	200	235	230	230	I255A	255	I260A	230A	240	240	320	290
12	310	300	270	245	295	325	280	250	I230A	225	205	200	205H	220	215H	240	240	255	275	240	210	205	350	340
13	340	290	235	230	255	255	260	245	230	210	200	215H	210	205	250	240	240	240	260	240	240	240	270	290
14	300	315	290	285	240	245	280	235	230	225	250	200	225	225	240	230	240	250	250	240	205	255	320	320
15	355	290	255	240	240	315	280	270	250	I230A	E255B	205	250	E250B	205	250	250	255	245	220	240	260	290	300
16	270	285	265	240	240	I240C	260	I240C	240	225	205	195H	215	200	220	230	245	250	250	240	210A	220	305	320
17	300	320	290	240	C	C	C	C	C	240	225	200	190	200H	245	235	240	245A	250	240	A	E345A	A	A
18	E485S	310	275	290	255	275	280	250	235	I225A	220	210	220	225	240	225	235	225H	250	240	225	225H	300	320
19	280	295	325	320	240	250	250	225	225	225	205	225	205	220	220	225	245	240	240	230	210	210H	295	300
20	300	290	300	265	240	270	260	235	230	220	225	200	200	205	205H	240	240	245	240	235	240	250	255	300
21	300	305	290	260	255	275	260	240	I235A	220	205	220	240	225	230	240	230	240	250	240	210	230	290	290
22	305	300	275	240	240	250	250	230	250	205	210	200	200	205	225	240	230	240	240	230	220	205	290	330
23	310	320	260	250	245	235	250	230	230	220	220	205	200	200	235	240	235	240A	240	255	210A	225	300	305
24	300	290	255	255	245	250	255	235	230H	220	215	195H	190	190H	200H	240	245	250	240	220	210	290	355	320
25	285	310	400	290	390	320	290	265	250	I260A	245	I230A	205	235	225H	255	I240C	255	255	240	255	305	360	270
26	335	330	285	250	270	E350A	280	245	260	I235A	225	200	205	190	205	200H	240	250	240	225	220	270	300	340
27	350	325	300	300	275	245	285	250	230	235	200	200	190H	200H	240	240	245	240	225	205	240	320	300	325
28	300	240	245	225	320	325	280	230	255	240	I225C	200	205	200H	240	235	230	250	230	210	245	335	I300A	295
29	275	290	260	250	240	300	260	225	230	240	225	210	200H	210	205	235	240	245	235	225	215	E300S	325	330
30	290	305	255	280	350	290	240	230	240	240	230	225	E260A	260	220H	225	235	240	240	205	235	300	305	310
31																								
No.	28	28	29	29	28	27	28	27	27	29	28	29	28	27	27	26	25	26	29	29	28	27	27	28
Median	305	300	280	250	250	275	260	235	230	225	220	200	205	210	230	235	240	245	250	240	225	240	305	310

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	110	110	110	110	120	S	125	115	110	110	110	115	110	110	110	110	110	105	105	110	105	105	115
2	100	100	S	110	110	S	140	130	115	105	105	105	C	105	150	105	130	130	115	110	100	110	S	105
3	105	S	E	E	E	S	130	140	130	130	130	110	110	110	105	105	150	130	130	105	S	S	110	110
4	110	S	S	E	E	S	G	155	130	130	G	125	110	110	110	125	G	130	135	120	110	125	110	120
5	110	110	105	105	100	120	G	120	120	125	120	110	110	110	105	135	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	110	110	110	105	100	100	100	130	125	120	125	115	110	S	110
7	S	S	E	E	E	S	G	130	120	120	110	110	105	105	105	B	105	135	130	115	110	S	110	110
8	110	110	100	100	E	S	G	G	110	110	110	115	110	110	110	110	110	105	130	100	100	100	S	S
9	S	S	S	E	E	S	150	145	140	130	110	115	G	115	110	110	110	105	105	105	S	105	S	S
10	S	S	E	E	E	S	G	115	140	110	110	110	105	155	155	165	150	130	120	S	S	S	110	S
11	S	E	E	110	E	E	G	120	115	110	110	105	105	105	105	140	130	130	120	120	115	110	110	S
12	110	100	S	110	110	S	120	110	110	110	110	115	110	110	110	G	155	130	120	120	S	110	S	105
13	100	S	E	E	130	E	130	125	110	110	110	110	110	G	105	G	105	105	135	100	125	125	110	110
14	105	S	E	E	E	S	130	120	120	120	125	115	110	105	105	150	G	150	105	120	S	120	115	115
15	110	S	S	E	130	125	120	115	115	110	110	110	110	110	110	110	105	155	140	S	105	S	100	100
16	S	S	S	E	S	C	S	C	110	105	120	110	G	110	110	105	150	130	110	110	105	S	105	S
17	S	100	E	E	C	C	C	C	C	110	G	G	G	G	155	155	140	125	110	110	100	105	105	100
18	100	105	E	110	110	110	120	115	120	110	110	105	110	105	105	G	G	145	125	120	120	110	115	110
19	S	100	120	E	125	120	110	110	110	110	110	G	G	105	105	G	G	150	125	S	S	S	S	S
20	S	S	S	E	E	S	S	110	110	110	105	105	100	105	105	G	G	150	115	S	S	S	S	S
21	105	105	105	105	E	S	S	110	105	105	G	G	G	G	G	G	G	140	130	S	S	S	110	105
22	110	105	E	105	110	S	S	110	110	110	110	110	105	105	105	G	G	145	125	S	S	S	S	S
23	S	S	E	E	E	E	S	G	105	G	105	G	105	140	105	G	140	125	115	110	105	100	S	S
24	S	S	E	105	105	S	S	130	120	110	110	110	G	G	G	G	G	130	115	110	110	S	S	110
25	110	110	110	110	E	S	S	125	125	120	120	110	130	135	G	130	C	130	120	110	110	110	110	S
26	S	S	S	100	100	100	105	115	110	110	110	110	110	110	G	G	105	135	130	S	S	120	110	S
27	S	S	115	110	E	S	S	110	110	105	105	105	105	G	105	G	160	140	125	S	S	120	S	S
28	S	S	E	105	105	S	S	150	125	130	C	120	110	120	110	110	G	130	120	S	110	110	105	110
29	110	105	105	105	E	S	S	145	140	145	110	105	105	100	100	100	100	150	100	S	S	S	S	110
30	110	105	105	105	100	S	S	140	130	130	125	125	120	105	G	105	G	G	S	S	S	S	S	S
31																								
No.	16	13	9	16	13	6	10	25	28	29	26	26	23	25	25	18	18	28	28	18	16	17	16	16
Median	110	105	105	105	110	120	125	120	115	110	110	110	110	110	105	110	130	130	120	110	110	110	110	110

h'Es

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

The Radio Research Laboratories, Japan.

Y 11

IONOSPHERIC DATA

Sep. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f3	f6	f5	f3	f5	f		h3	h4	C2	l	C2	C	l3	l2	l4	l3	l2	l2	f5	f3f2	f3	f5	ff2
2	f2	f3		f4	f3		h	h2	h2	l3	l2	l		l	h l	l2	h	h3	C6l2	f	f	f3		f
3	f					f	C l	h2	C l2	h	h	l	l	l	l	l	h l2	C2l2	C2l	f			f	f4
4	f2	f						h	h	h		h	l	l	l	h		h	h4	f2	f5	ff3	f2	ff
5	f3	f4	f3	f2	f	ff		C	h2	h	h	l	l	l	l	h l2								
6										C	l	l2	l2	l3	l3	l3	h3l2	h5l3	h2l2	ff3	f	f		f
7								C2	C2	h l	l	l	l	l	l		l	h2	C2	f7	f		f2	f2
8	f2	f	f2	f					l	l	l2	l	l	l	l2	l	l	l3h	C l2	f4	f3	f		
9							C	h	h	h	l	l		l	l2	l2	l	l5	l2	f6		f		
10								l2	h l	l	l	l	l2	h l	h l	h l2	h l2	h4l	C2	f			f3	
11				f				C	C	l	l	l	l	l	l	h l	h2	h2	C3	f3	f3	f2	f3	
12	f2	f		f3	f	f	C	l3	l2	l2	l	l	l	l	l		h	h2	C5	f	f	f		f
13	f				f		C	C2	l2	l	l	l	l		l2		l2	l4	C l4	f2	f f3	f	f2	f2
14	f2						C	C3	C	h	h	l l	l	l	l	h l		h	l	f2		f	f2	f
15	f3				f	f f	C2	C3	C2	C3	C	l	l2	l	l	l	l	h2	h2		f2		f	f
16									l2	l l	l	l		l	l	l	h	h	C3	f2	f2		f	
17		f								l					h	h	h	h3	C5	f2	f3	f2	f2	f3
18	f3	f3		f	f	f	C	C5	C	l2	l	l2	C l	l	l			h	C2	f2	f	f2	f2	f
19		f	f		f	f	l5	l4	l2	l2	l			l	l			h	C2					
20								l2	l3	l2	l2	l2	l2	l	l			h	C					
21	f	f2	f2	f				l2	l3	l2								h2	C2	f	f		f	f
22	f2	f3		f	f4		l	l3	l2	l	l	l	l	l	l			h	C2	f	f	f		
23									l2		l		l	h	l		h	C4	C5	f3	f3	f		
24				f	f			C2	h2	l	l	l						h2	C3	f	f	f		f2
25	f4	f	f3	f2				h3	h2	h3	C2	C2	h	h		h		h3	C4	f2	f3	f3	f3	
26				f2	f	f	l	l	l3	l2	l	l2	l2	l			l	h	C			f	f	
27			f2	f2				l3	l2	l2	l2	l	l		l		h l	h3	C3		f	f		
28				f	f2			h l	C2	h		C	l	l	l	l		h3	C		f2	f2	f2	f
29	f	f2	f2	f3				h3	h	h	l	l	l	l2	l	l4	l	h2l	l	f			f	f2
30	f	f3	f2	f2	f2	f		C	h2	h	h	h	h	l2		l								
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

Y 12

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

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

Outstanding Occurrences

Sep. 1961	Start-time	Dura-tion	Type	Max. Int.		Max. Time	Remarks
				Inst.	Smd.		
2	0603.0	0.8	CD/4	>1000	130	-	off scale
	0750.5	1.2	SD/4	>900	>500	-	off scale
28	2212.4	7	CD/4	~590	~110	2215.8	
	2220	9	CD/8	~350	~120	2224.4	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Sep. 1961	Whole Day Index	L. N. 06 12 18 / 12 18 24	W W V 00 06 12 18 / 06 12 18 24	S. F. 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	2+	3 3 2	2 2 2 2	2 3 3 3	4 4 3 4	U U U U	---	---	112γ
2	2+	2 3 2	2 2 1 2	3 2 3 3	4 4 3 4	U U U U	---	18xx	
3	3-	3 4 3	2 2 2 3	2 3 3 3	5 4 4 5	U U N N			
4	3+	3 4 4	3 3 4 4	2 3 3 3	5 3 2 4	N N N N			
5	3o	3 4 2	3 2 2 2	3 4 4 3	5 3 4 4	N N N N			
6	3+	3 4 -	1 3 4 5	3 3 4 3	4 3 3 3	N N N N			
7	4o	4 4 -	5 3 3 4	4 4 4 4	4 3 4 5	N N N N			
8	4o	4 4 -	4 4 4 3	4 4 5 4	5 5 4 5	N N N N			
9	4+	5 4 -	4 4 5 5	3 4 5 4	5 5 4 5	N N N N			
10	4-	3 4 -	5 4 4 3	4 (4) 4 3	5 5 3 3	N N N N			
11	4+	4 4 5	3 4 4 5	4 (5) 5 5	4 5 4 4	N N N N			
12	4-	4 4 4	4 3 (3 3)	5 4 3 4	5 5 (5) 5	N N N N			
13	4o	4 4 4	3 4 4 4	4 4 (4 4)	4 (4) 3 4	N N N N	1554	---	
14	3+	4 (3 3)	5 3 2 4	4 3 3 3	5 4 5 5	N N N N	---	---	76γ
15	4-	4 5 5	3 2 2 3	4 3 4 4	5 4 3 5	N N N N	---	16xx	
16	4-	(4) C C	3 C C C	4 (4) C C	5 (5) C C	N N N N			
17	4o	4 5 4	4 2 2 4	5 5 5 5	4 4 4 5	N N N N			
18	4+	4 (4) 5	5 (4) 4 4	5 4 5 4	5 3 4 5	N N N N			
(19)	5-	(5) 5 5	5 5 5 5	3 4 5 (5)	5 (4 3) 4	N N N N			
(20)	4o	4 - 3	5 3 3 4	4 4 5 5	5 4 4 5	N N N N			
(21)	4o	5 (4 4)	4 3 3 5	4 4 4 3	5 3 3 5	N N N N			
22	4+	5 4 5	5 4 5 4	3 4 4 5	4 4 4 4	N N N N			
23	4+	5 5 5	3 4 4 5	4 4 4 4	4 4 5 5	N N N N	23.2	---	
24*	3+	5 4 3	5 3 2 2	3 3 3 2	4 3 3 3	N N N N	---	---	113γ
25*	3-	4 4 3	1 1 (2) 3	3 3 4 3	4 2 4 5	U U U U	---	10xx	
26*	3-	3 3 2	3 2 2 3	3 3 3 4	4 3 3 4	U U U U			
27	3-	3 2 3	3 2 2 3	3 3 3 3	4 2 3 4	U N N N			
28	3+	4 4 3	1 (2) 3 5	3 4 4 3	4 (3) 2 4	N N N N			
29*	3o	3 3 2	3 (3 3 2)	3 4 4 3	4 4 4 4	N N N N			
30*	3-	3 3 3	(2 2 2) 2	3 3 3 4	5 5 4 5	U U U U	1847	---	318γ

* = day of Special World Interval

[ ] = Regular World Day

\- = impossible to evaluate

( ) = inacculate

C = artificial accident

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Sep. 1961	S W F										S E A			Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN	SH										
15	27	29	-	14'			00.35	50	S	3					X	
25		-	26	7'			03.07	23	S	3-						
28	17"	33	27	16'			22.14	41	S	2+	22.15	45	1	X	X	

Errata

for

July 1961	S W F					
	Drop-out Intensities (db)					
	WS	SF	HA	TO	LN	SH
21		17	15	12'		12

read

July 1961	S W F					
	Drop-out Intensities (db)					
	WS	SF	HA	TO	LN	SH
21		17	15	12	12	

IONOSPHERIC DATA IN JAPAN FOR SEPTEMBER 1961
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発行人　糟　谷　績
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印刷所　山内欧文社印刷株式会社
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電　話　(971) 9341