F — 141

IONOSPHERIC DATA IN JAPAN

FOR SEPTEMBER 1960

Vol. 12 No. 9

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THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

$(M3000)F2$ — 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 A flat E_s trace at or below the normal E layer minimum virtual height. Use in daytime only.

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

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

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

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

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

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

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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M: multiple peaks separated by relatively long period of quietness

F: multiple peaks separated by relatively short period of quietness

E: sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

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

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

N=normal
U=unstable
W=disturbed

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

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

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

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

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

Circuits and Drop-out intensity

WS.....WWV 20 Mc, 15 Mc and 10 Mc (Washington)

SF.....WMA-25: 5.0775 Mc, WMA-47: 7.485 Mc, WMF-27A2: 7.712 3 Mc WMH-30A2: 10.3873 Mc, WMH-53A2: 13.7773 Mc and WMJ-30A2: 20.8173 Mc (San Francisco)

HA.....WWVH 15 Mc and 10 Mc (Hawaii)

TO.....JJY 15 Mc and 10 Mc (Tokyo)

LN.....GIJ-27: 7.6975 Mc, GIJ-30: 10.9075 Mc, GBJ-34: 14.798 Mc and GIJ-38: 18.4375 Mc (London)

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

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly

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

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

Importances

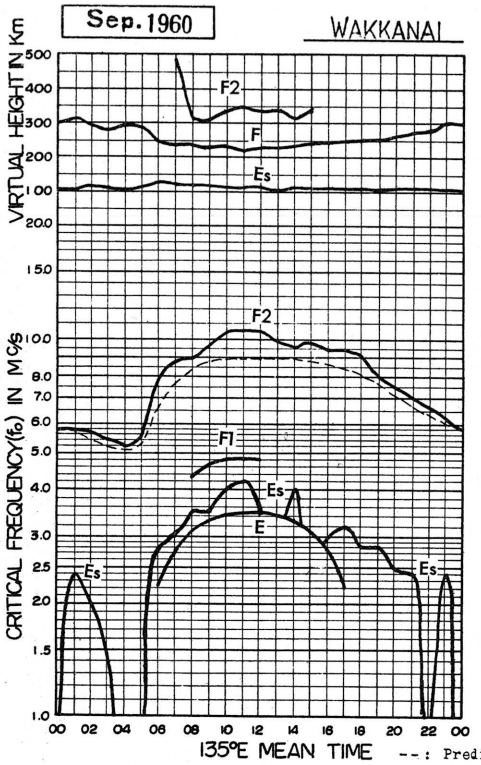
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

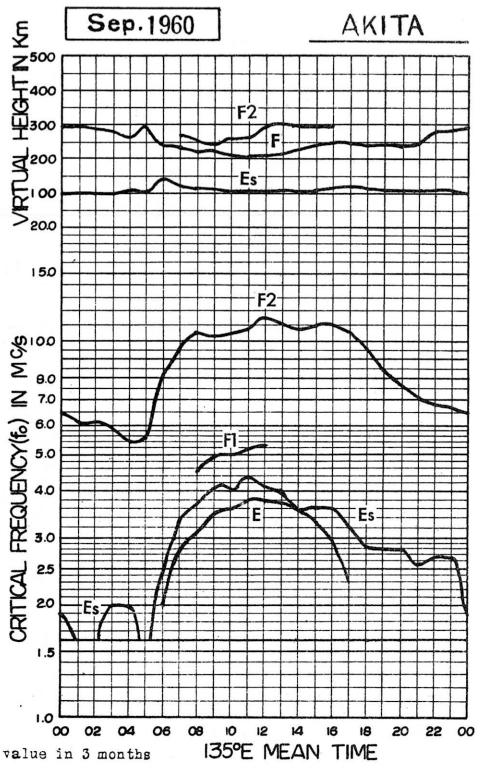
1−	1	1+
2−	2	2+
3−	3	3+

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

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

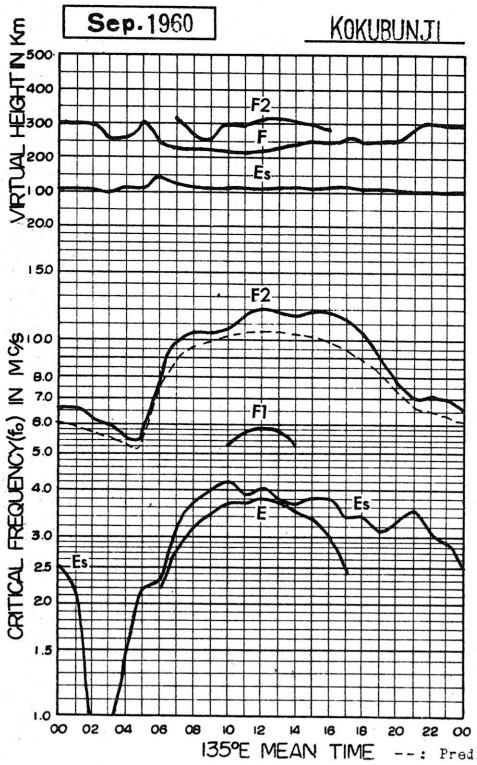
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

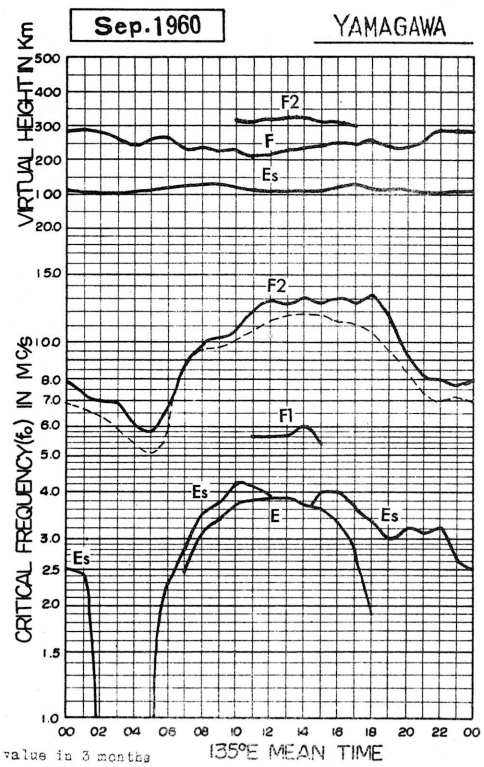




--: Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





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

IONOSPHERIC DATA

Sep.1960 | foF2 | 135° E Mean Time (G.M.T.+ 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.8	4.6	4.8	U4.8S	U3.8C	U4.2C	5.6	7.0	I7.5R	8.0	8.5	7.9	6.8	6.8	7.0	7.2	7.1	7.5	7.4	U8.0S	6.8	U6.3S	I6.2F	I6.0F
2	5.5F	5.3	5.0	4.9	4.3	5.0	6.4	7.6	I8.2R	7.5	7.7	7.7	7.8	I7.6R	7.7	7.8	8.0	8.0	8.2	U7.5S	7.3	I8.8S	6.3	5.8
3	5.3	5.3	5.3	I5.2S	I4.7S	U4.3R	5.4	6.1	6.8	I6.6R	R	B	R	6.8	6.7	6.8	6.8	7.4	U8.5S	6.8	6.8	6.0	5.4	5.3
4	I5.7FS	4.8	5.2F	3.6	2.6F	3.4	4.2	4.5	5.6	5.9	I5.9R	5.8	I6.6R	6.8	7.2	6.8	7.3	7.4	9.1	7.9	I8.2S	7.0	5.8	6.3
5	4.9	5.4	5.6	3.9	3.4	3.2	W	W	4.6	4.8	W	W	W	W	4.7	5.0	5.0F	4.6	4.3	6.0	S	FS	F	A
6	A	A	A	F	3.0F	3.5F	4.4F	4.6	A	W	W	R	W	4.8	5.0	5.1	5.0H	5.6	5.5	5.5	5.0	I4.7A	4.1	4.3
7	I4.2S	U4.3SF	I3.8S	I3.3F	3.0F	4.2	5.5	7.7	7.9	7.7	U7.8R	7.0	7.5	7.6	7.2	7.1	7.1	7.3	7.7	I7.8A	U7.8S	7.1	6.6	5.6
8	I5.5FS	5.6	5.4	4.7	4.3	I4.4A	6.0	7.6	8.3	C	C	C	C	C	C	8.0	7.8	U7.8R	S	S	S	S	S	I6.1S
9	U5.8S	U5.7S	5.8	5.3	4.9	5.2	6.2	6.7	U6.8R	6.8	U7.0R	I7.5R	7.9	8.1	8.0	I7.9S	7.8	7.7	7.2	7.5	7.6	7.3	6.7	6.0
10	5.8	5.6	5.6	5.3	4.9	4.8	6.5	7.1	7.0	7.8	7.4	7.5	7.7	7.7	7.8	7.6	7.8	7.8	I7.8C	7.8	7.4	7.0	6.7	6.2
11	5.8	5.3	5.0	4.9	4.7	5.0	7.3	7.6H	7.8	8.3	I8.0R	8.7H	9.0	8.8	8.8	9.1	8.0	7.8	7.4	7.3	7.4	7.3	7.1	6.6
12	6.3	6.3	6.0	5.7	5.5	6.0	7.9	8.3	9.0	J8.8R	9.1	9.3	9.8	10.0	9.1	9.6	9.0	8.9	8.4	U8.3S	7.8	7.6	7.4	6.2
13	5.7	5.5	5.5	5.3	5.4	6.5	8.0	8.9	8.3	8.2	8.1	8.6	8.7	9.1	9.2	9.5	9.2	9.3	U8.8S	7.7	7.7	7.6	7.2	6.8
14	5.6	5.9	5.4	5.3	5.1	5.8	7.8	8.1	8.6	8.6	8.4	8.3	8.6	9.1	8.5	8.3	8.5	9.3	9.6	8.3	7.4	6.2	5.7	5.8
15	5.7	5.5	5.5	5.3	4.9	5.3	6.6	7.6	8.5	9.3	8.7	8.5	9.0	8.9	8.9	8.7	8.8	8.5	7.9	7.9	7.4	7.0	6.6	6.8
16	6.3	6.3	6.2	6.2	5.9	6.0	8.9	9.1	9.2	9.9	10.0H	10.5	10.8H	10.0	10.3	10.3	9.9	10.5	10.2	8.5	8.4	8.0	7.1	7.3
17	7.3	7.0	6.6	6.5	6.5	7.5	9.0	9.7	9.8	10.6	10.5	10.7	11.0	10.8	10.5	10.1	10.1	10.3	10.0	U8.7S	8.2	7.6	7.5	U7.0S
18	7.0	6.6	6.8	6.6	6.2	7.0	8.6	10.5	10.6	12.2	11.5	11.1	10.6	11.9	10.8	11.1	10.9	10.8	10.2	8.8	8.3	7.6	7.9	7.6
19	U7.0S	6.5	6.5	6.5	6.3	6.7	9.3	11.0	11.0	11.1	11.3H	11.3	11.3H	12.0H	11.5	11.2	11.0	11.3	U10.7S	I9.1S	8.4	7.5	7.1	7.0
20	7.1	U7.1S	6.9	6.7	6.3	I7.1C	9.0	10.0	11.4	11.4	11.9	C	C	C	C	11.0	11.3	10.8	10.5	U8.8S	U8.5S	7.3	7.2	7.3
21	7.2	6.9	6.8	6.8	6.5	6.9	9.7	10.7	11.4	11.8	10.8H	10.8H	11.3H	11.6H	11.0H	11.0	10.8	10.6	10.7	9.5	8.3	7.6	6.8	6.8
22	6.8	6.5	6.2	6.2	5.8	6.5	U9.8S	11.5H	10.9	11.3H	11.3	11.1	12.1	11.6	10.8	10.8	10.5	U10.8R	I10.1S	8.3	7.3	I6.2S	5.9	5.6
23	5.7	5.8	5.5	5.5	5.6	5.8	I8.5R	9.7	U10.8R	J10.8R	I10.8R	R	R	R	10.7	I10.9R	U10.3R	9.6	U9.3S	S	S	S	6.7	6.1
24	F	F	F	F	F	F	8.5	U10.7R	I10.6R	U11.3R	11.4	11.2	11.8	11.3	12.2	12.0	11.1	10.5	9.8	9.6	8.8	7.5	7.1	6.4
25	6.3	5.9	5.7	5.4	5.7	6.3	9.7	11.7	I10.9R	J10.3R	I11.8R	U12.5R	12.1	11.8	11.3	11.2	11.0	J10.8S	9.5	U8.3S	U7.4S	7.0	6.5	6.3
26	6.3	6.2	6.0	5.8	5.2	5.3	8.0	10.3	11.7	11.6	U12.5R	12.0	11.1	11.6	11.6	11.2	J10.8R	U11.0R	I10.1S	8.6	7.0	6.1	6.2	6.0
27	5.6	5.6	5.5	5.3	5.4	5.8	U8.1S	10.3	11.2	11.6	11.7	12.5	11.1	11.1	11.6	12.3	11.5	U10.6S	9.3	I8.0S	7.3	7.1	6.6	5.9
28	5.8	5.8	6.0	5.9	5.8	5.6	U9.5S	9.6	11.5	12.5	12.5	11.5	10.7	10.7	10.8	10.3	11.3	10.8	10.2	U9.3S	I7.8S	6.3	6.0	6.3
29	6.2	5.7	5.8	5.8	5.4	5.5	7.9	U10.3R	10.7	11.1	11.8	12.7	I12.5R	11.1	11.3	11.0	11.3	10.3	9.0	I8.0S	7.0	6.1	6.1	5.8
30	5.8	5.3	5.8	5.5	4.9	4.7	6.6	8.3	U8.8R	9.5	11.0	10.8	11.2	9.8	9.9	10.0	9.7	9.6	8.5	7.3	5.8	5.7	5.5	5.3
31																								
No.	28	28	28	28	29	29	29	29	29	28	26	24	24	26	28	30	30	30	29	28	27	27	28	29
Median	5.8	5.7	5.6	5.4	5.2	5.5	7.9	8.9	9.0	9.7	10.6	10.6	10.6	9.9	9.6	9.8	9.4	9.4	9.1	8.0	7.4	7.0	6.6	6.2
U.Q	6.3	6.3	6.1	6.0	5.8	6.4	9.0	10.3	10.9	11.3	11.5	11.2	11.2	11.3	10.9	11.0	10.9	10.6	10.1	8.6	8.2	7.5	7.1	6.8
L.Q	5.6	5.4	5.4	5.0	4.5	4.6	6.3	7.6	7.8	7.9	8.1	8.1	8.2	7.7	7.8	7.8	7.8	7.8	7.8	7.6	7.3	6.2	6.0	5.8
Q.R	0.7	0.9	0.7	1.0	1.3	1.8	2.7	2.7	3.1	3.4	3.4	3.1	3.0	3.6	3.1	3.2	3.1	2.8	2.3	1.0	0.9	1.3	1.1	1.0

foF2

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

The Radio Research Laboratories, Japan.

W 1

6

IONOSPHERIC DATA

Sep. 1960 | foF1 | 135° E Mean Time (G.M.T.+ 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	4.6	A	L	L	L	L	4.8	L	A	L						
2								L	A	L	A	L	A	L	L	L								
3							L	L	L	4.8	L	B	L	L	L	L	L	L						
4							L	L	4.3	4.7	4.8	I 5.0 L	I 5.0 L	L	L	L	L	L						
5							3.3	3.8	4.2	4.2	4.5	4.5	4.5	4.5	4.4	4.3	4.1							
6							A	3.7	I 4.2 A	4.3	4.5	4.6	4.7	U 4.6 LH	I 4.6 L	4.5								
7								L	L	L	5.1	LH	L	L	L	L	L							
8									L	L	L	L	L	L	L	L								
9								L	4.6	5.0	I 5.2 LH	5.3	I 5.4 L	L	L									
10							L	L	L	L	L	L	L		L	L								
11									L	L	L		LH	L	L	L								
12									L	L	L	L	LH	L	L	L								
13								L		L	L	L	L	L	L	L								
14									L	L	L	L	L	L	L	L								
15									L	L	A	A	A	A	A	A								
16										L		L		L	L	L								
17													L	L		L								
18															L	L	L							
19																								
20												C	C	C	C									
21																								
22												L		L	L	L								
23																								
24																								
25										L	L													
26											L			L										
27																								
28													L	L										
29														L										
30																								
31																								
No.							1	2	5	5	5	4	4	2	3	2	1							
Median							3.3	3.8	4.3-	4.7	4.8	4.8	4.8	4.6	4.6	4.4	4.1							

foF1

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

The Radio Research Laboratories, Japan.

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10

IONOSPHERIC DATA

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

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

foE

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

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	2.3	2.5	E	E	G	G	4.8	J7.0	J8.3	5.8	J4.8	D3.5C	D3.7C	D3.3C	J4.6	3.5	4.2M	J5.3	3.5M	J2.8	J3.3	J2.5
2	J2.8	J2.6	J2.8	J5.0	J4.3	J2.8	J2.8	J4.3	J5.8	4.7	J6.5	5.2M	5.4	8.0	J6.0	J5.2	J5.8	J4.9	J5.0	3.5	J3.3	J2.8	J2.8	J2.6
3	E	2.6	2.4	E	E	J2.3	2.9	3.5	3.5	G	B	B	B	G	4.4	G	G	3.3	J2.8	J2.8	J2.4	E	2.5	2.6
4	J2.8	J2.8	J2.4	2.1	J2.1	2.3	3.5	3.5	G	4.0	6.3	G	B	G	G	4.5	J3.5	3.2	J3.1	J2.3	E	E	E	E
5	E	J4.3	2.1	J2.8	J2.8	2.8	3.1	3.2	G	G	G	4.0	G	G	3.5	3.5	G	G	E	E	E	3.5	J4.0	J6.8
6	J5.3	J4.1	J3.5	J4.0	1.8	J2.8	J3.8	4.0	J4.6	3.5	4.0	4.1	G	G	4.7	G	3.3	J4.7	2.1	J4.0	J2.8	J6.2	E	2.5
7	E	J2.8	E	J2.0	2.0	2.3	3.8	J5.1	J4.3	3.5	J4.0	J5.2	6.5	J4.9	J5.3	G	G	3.6	J3.8	J10.8	E	J4.3	J2.8	J4.2
8	J4.3	J2.8	J2.8	J3.5	J3.0	J4.3	J4.0	3.5	3.5	J4.2	J4.2	J4.3	G	4.0	J5.0	G	G	G	J2.8	J3.5	J4.2	J3.3	J2.8	J3.5
9	E	J2.0	2.4	2.4	1.5	2.4	3.5	G	3.5	G	G	G	G	G	3.8	J6.5	J3.8	7.3	J3.3	3.7	J5.0	E	J2.7	J2.8
10	J3.5	J2.3	E	2.5	2.6	J2.8	J2.8	3.5	4.0	G	J5.0	4.3	4.0	4.0	J5.0	J4.2	J3.3	2.9	C	J4.0	J2.8	J2.8	E	2.7
11	E	E	E	E	E	E	2.7	3.5	3.5	4.6	G	G	G	G	G	G	G	3.0	2.6	J3.2	J2.8	J2.7	J5.0	J4.3
12	6.1	J4.6	J4.0	3.1	E	E	2.5	3.4	G	G	G	4.0	G	3.1G	4.2	4.1	J5.1	3.5	J5.2	J3.3	2.7	2.4	E	E
13	E	2.4	2.4	J2.3	2.2	2.4	2.5	G	3.5	G	4.6	4.2	4.3	J4.3	4.5	3.5	3.5	3.4	J3.5	E	E	E	E	E
14	E	E	E	E	J2.8	E	2.9	3.7	G	4.2	G	4.3	J5.0	G	J5.1	4.2	G	2.5	2.2	3.5M	E	J2.5	J2.1	J2.4
15	J2.8	E	E	E	E	E	3.1	4.6	G	J5.0	6.6	7.0M	7.1	7.0M	8.2M	J5.3	J4.8	J4.6	J5.0	J2.8	J4.6	3.5M	J3.5	E
16	J2.8	3.5M	2.7	1.5	2.4	J2.3	2.7	3.5	J5.5	G	G	G	G	5.2M	4.9	G	G	J2.8	J2.8	J2.8	2.5	E	E	E
17	E	E	E	E	E	E	2.0G	G	G	G	G	G	G	G	5.2M	G	3.3	G	E	E	J2.5	E	E	J2.7
18	E	E	E	E	E	E	S	G	G	G	J4.8	G	G	3.0G	3.5G	G	S	S	S	E	E	E	E	E
19	E	2.4	1.4	1.4	E	E	2.9	G	G	G	G	G	G	3.4G	2.5G	2.9G	3.0	J3.3	2.6	E	E	E	E	E
20	E	E	E	E	E	C	G	G	G	G	G	C	C	C	C	G	G	2.9	E	E	E	E	E	E
21	E	E	E	E	E	E	S	G	3.5	G	G	3.8	4.0	G	J4.2	G	G	S	E	E	E	E	E	E
22	E	E	E	E	E	E	G	G	G	G	4.4	4.3	4.5	G	3.8	G	3.4	2.5	E	E	3.0	J3.8	3.2	E
23	E	E	2.5	E	E	E	S	G	4.0	4.3	J6.6	4.2	3.8	3.9	G	G	3.6	J4.3	J5.1	3.2	E	E	E	E
24	E	E	E	E	E	E	S	G	3.7	4.5	4.2	J5.0	3.5	4.0	G	3.2	G	3.1	4.8M	J2.8	3.5M	E	3.5	J3.5
25	J5.0	J2.8	J2.5	E	J3.0	J3.5	2.6	3.0	3.5	7.5	6.0	5.0	4.0	3.8	G	G	S	2.9	E	J2.8	J4.2	J3.3	3.2	J2.6
26	J2.8	2.5	E	E	E	E	G	G	3.5	5.0	J5.0	4.3	G	3.5	3.5	G	G	S	3.6M	E	J5.0	3.5	E	E
27	E	3.5	J2.0	2.4	J2.0	J2.7	J3.5	J3.3	4.0	4.9	3.5	G	G	G	G	G	3.1	S	E	E	2.4	E	E	E
28	E	E	1.8	E	E	E	S	G	G	3.5	3.7	4.0	3.5	G	3.5	G	G	S	E	E	E	J3.8	J2.8	J2.4
29	E	J2.5	2.1	J2.3	J2.1	J2.5	S	G	G	3.5	4.0	4.0	4.5	4.3	G	G	3.0	S	3.1	J2.8	3.5M	J3.5	J2.8	J2.8
30	3.2	2.1	J2.3	J3.5	2.0	E	S	3.0	4.0	J5.0	4.1	5.0	3.8	4.5	J8.0	3.5	J3.3	5.0	E	E	E	E	E	E
31																								
No.	30	30	30	30	30	29	23	30	30	30	29	28	27	28	28	29	28	24	28	30	30	30	30	30
Median	E	2.4	2.0	1.4	E	E	2.8	3.0	3.5	3.5	4.0	4.2	3.5	G	4.0	G	3.0	3.2	2.8	2.8	2.5	2.4	E	2.4
U.Q	2.8	2.8	2.4	2.5	2.2	2.6	3.5	3.5	4.0	4.6	5.0	4.6	4.5	4.2	5.0	3.8	3.5	4.0	3.7	3.5	3.5	3.5	2.8	2.7
L.Q	E	E	E	E	E	E	2.5	G	G	G	G	G	G	G	G	G	G	2.8	E	E	E	E	E	E
Q.R							1.0											1.2						

foEs

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

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			E	E					4.5	7.0	4.5	4.0	4.4	E3.5 C	E3.7 C	E3.3 C	4.5	2.9	4.0	4.5	3.0	E	E	E
2	E	E	2.4	E	E	2.4	2.5	G	5.6	4.5	5.6	4.5	5.1	4.5	4.6	4.5	4.5	4.1	4.6	3.0	2.2	2.4	2.4	E
3		E	E			2.2	2.5	3.0	3.4		B	B	B		4.3			2.1 G	2.6	2.4	E		E	E
4	2.4	E	E	E	E	E	G	3.0		G	4.5		B			3.5	3.5	G	2.6	2.2				
5		3.5	E	E	E	E	2.4	G				3.6			2.6	G						E	E	A
6	A	A	A	E	E	2.4	3.5	G	A	3.4	G	3.6			4.3		G	4.1	E	4.0	2.7	A		E
7		E		E	E	E	3.5	3.3	3.5	3.5	3.6	3.6	3.7	3.9	5.0			3.4	E	A		2.8	E	3.4
8	E	2.2	E	2.2	3.0	A	3.5	2.4	3.5	3.6	4.0	4.0		3.9	3.6				E	3.0	E	E	2.1	E
9		E	E	2.4	E	E	G		G						3.5	A	3.5	6.0	3.0	3.0	4.5		E	E
10	E	E		E	E	2.6	2.6	3.0	G		3.8	3.9	3.8	3.8	3.7	3.4	3.0	2.6		2.6	2.4	2.6		E
11							G	G	G	G								2.5	E	2.8	2.4	E	4.5	3.1
12	3.7	4.2	3.8	2.5			G	G				3.8		3.0 G	3.1 G	2.7	2.4	3.0	4.6	3.2	E	E		
13		E	E	E	E	E	G		G		G	G	G	3.9	3.9	3.4	2.4 G	G	3.3					
14					E		G	G		G		G	3.8		4.5	3.4		G	G	3.4		E	E	E
15	2.5						G	4.2		4.8	6.5	6.7	7.0	6.2	7.6	6.2	4.7	3.0	4.5	2.6	3.0	3.0	2.4	
16	E	2.4	E	E	E	E	G	G	4.5					4.5	4.4			2.5	2.5	2.5	2.4			
17							G								4.5		G				E			E
18							S				3.0			2.9 G	2.5 G		S	S	S					
19		E	E	E			G							3.0 G	2.4 G	2.4 G	G	2.4	E					
20						C						C	C	C	C			G						
21							S		G			3.7	3.7		3.5			S						
22											G	G	G		G		3.0	G			2.5	3.2	2.7	
23			E				S		G	G	6.0	3.4	3.7	3.6			G	4.0	2.6	E				
24							S		G	G	G	4.7	G	3.5		3.0		G	4.5	2.5	E		2.4	2.6
25	4.5	2.5	E		E	2.5	2.3	G	G	5.7	3.5	3.7	3.6	2.5			S	2.4		2.5	2.6	3.1	2.5	2.5
26	2.5	E							G	4.0	3.6	3.9		2.8	2.8			S	3.1		2.5	2.5		
27		2.6	E	E	E	E	2.7	2.7	3.1	3.5	G						2.5	S			E			
28			E				S			G	G	3.7	2.9		G			S				2.8	2.5	E
29		E	E	E	E	E	S			G	G	G	3.5	3.4			2.7	S	E	E	2.9	3.0	2.4	E
30	2.4	E	E	E	E		S	G	G	4.5	G	4.7	G	4.5	4.4	2.9	2.5	2.6						
31																								
No.	11	18	18	16	15	14	19	16	18	17	19	20	15	17	22	13	16	21	19	18	18	16	15	16
Median	2.4	E	E	E	E	E	G	G	G	3.5	3.5	3.7	3.7	3.6	3.7	3.4	2.6	2.5	2.6	2.7	2.4	2.6	2.4	E

f_bE_s

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

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 1.80 S	E 1.60 S	E	E	E 1.60 S	E 2.10 S	1.80	1.85	E 2.45 S	E 2.45 S	E 2.50 S	E 2.45 S	E 3.00 S	E 2.50 S	E 2.45 C	E 2.50 S	1.70	1.80	E 1.70 S	E 1.80 S	E 1.60 S	E 1.70 S	E 1.60 S	E 1.60 S
2	E 1.80 S	E 1.60 S	E 1.60 S	E	E 1.60 S	E 1.70 S	1.70	1.80	E 2.40 S	E 2.45 S	E 2.45 S	E 2.50 S	4.50	E 2.50 S	E 2.45 S	E 2.45 S	1.80	1.70	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.70 S	E 1.60 S
3	E 1.80 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	1.70	1.80	2.10	2.20	4.70	B	4.70	2.40	2.10	E 2.60 S	2.00	1.75	E 1.70 S	E 1.60 S	E 1.60 S	E 1.80 S	E 1.70 S	E 1.60 S
4	E 1.70 S	E 1.60 S	E 1.60 S	E	E 1.40 S	E 1.60 S	E 1.70 S	1.85	1.85	1.65	2.60	E 2.50 S	4.50	2.10	2.15	1.85	1.70	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
5	E 1.80 S	E 1.30 S	E	E	E	E 1.60 S	1.60	1.60	1.80	1.90	2.15	2.15	2.00	E 2.45 S	1.80	1.85	1.70	1.75	E 1.80 S	E 1.70 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
6	E 1.60 S	E 1.60 S	E 1.30 S	E	E	E 1.60 S	1.80	E 2.50 S	E 2.40 S	E 2.50 S	E 2.50 S	E 2.40 S	E 2.40 S	E 2.45 S	1.80	1.95	1.85	1.85	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.85 S
7	E 1.80 S	E 1.60 S	E 1.35 S	E	E	E 1.60 S	1.80	1.90	2.10	E 2.45 S	E 2.40 S	E 2.50 S	E 2.45 S	1.90	1.85	2.00	1.90	1.80	E 1.60 S	E 1.60 S	E 1.65 S	E 1.60 S	E 1.80 S	E 1.60 S
8	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.40 S	E 1.60 S	1.70	1.70	1.70	2.10	E 2.45 S	E 2.50 S	E 2.50 S	1.70	E 2.50 S	E 2.60 S	1.80	1.70	E 1.70 S	E 1.70 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.70 S
9	E 1.70 S	E 1.60 S	E 1.60 S	E 1.40 S	E 1.40 S	E 1.60 S	1.80	1.80	E 2.45 S	E 2.40 S	2.15	2.20	1.80	2.05	2.00	1.80	1.70	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
10	E 1.60 S	E 1.40 S	E 1.60 S	E 1.20 S	E 1.40 S	E 1.60 S	E 1.60 S	1.65	1.70	1.70	E 2.50 S	E 2.50 S	2.00	2.00	2.00	1.85	1.70	1.70	C	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
11	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	2.00	1.70	2.00	2.00	2.15	E 2.50 S	2.00	2.00	1.70	1.80	1.60	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.80 S	E 1.60 S	E 1.60 S
12	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	1.65	1.80	2.00	2.00	1.80	2.00	2.00	2.00	1.80	1.60	1.70	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
13	E 1.60 S	E 1.60 S	E 1.60 S	E	E	E 1.60 S	1.60	1.70	1.85	1.70	2.00	2.00	2.00	1.80	E 2.45 S	1.90	1.60	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
14	E 1.60 S	E 1.60 S	E 1.60 S	E	E 1.40 S	E 1.60 S	1.60	1.80	1.90	2.00	2.00	2.10	2.00	2.00	2.05	1.70	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
15	E 1.70 S	E 1.60 S	E 1.60 S	E	E 1.60 S	E 1.60 S	1.70	E 2.50 S	E 2.50 S	E 2.50 S	E 4.40 C	E 3.00 S	E 3.00 S	E 2.70 S	E 2.50 S	1.80	1.80	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
16	E 1.60 S	E 1.60 S	E	E	E	E 1.60 S	E 1.80 S	E 2.40 S	E 2.50 S	2.00	E 2.80 S	E 2.60 S	E 2.60 S	E 2.50 S	E 2.60 S	E 2.40 S	2.00	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.80 S	E 1.80 S	E 1.60 S
17	E 1.60 S	E 1.60 S	E 1.60 S	E	E	E 1.60 S	1.60	2.00	2.00	E 2.50 S	E 2.50 S	E 2.50 S	E 2.50 S	E 2.50 S	2.00	2.10	1.80	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 2.40 S	E 1.60 S
18	E 1.60 S	E 1.60 S	E 1.10 S	E	E	E 1.60 S	E 2.40 S	2.00	E 2.40 S	E 2.40 S	E 2.50 S	E 2.50 S	E 2.40 S	E 2.50 S	2.00	E 2.40 S	E 2.80 S	E 2.40 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.70 S	E 1.60 S
19	E 2.00 S	E 1.60 S	E 1.20 S	E	E 1.60 S	E 1.60 S	1.80	1.70	E 2.50 S	2.00	2.00	E 2.45 S	E 2.50 S	E 2.50 S	2.00	1.80	1.75	1.70	E 1.70 S	E 1.80 S	E 1.60 S	E 1.80 S	E 1.60 S	E 1.60 S
20	E 1.80 S	E 1.60 S	E	E	E	C	1.60	E 2.40 S	E 2.40 S	E 2.45 S	E 2.60 S	C	C	C	C	1.70	1.85	E 1.80 S	E 1.60 S	E 2.50 S	E 1.90 S	E 1.60 S	E 1.60 S	E 1.80 S
21	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 2.60 S	1.70	E 2.45 S	1.70	E 2.40 S	E 2.45 S	E 2.60 S	1.70	E 2.45 S	E 2.40 S	1.70	E 2.20 S	E 1.65 S	E 1.90 S	E 2.40 S	E 2.40 S	E 2.40 S	E 2.40 S
22	E 2.40 S	E 1.60 S	E 1.60 S	E 1.60 S	E	E 1.60 S	E 2.00 S	1.70	2.10	E 2.45 S	E 2.45 S	E 2.50 S	E 2.45 S	E 2.40 S	E 2.40 S	1.60	1.70	E 1.90 S	E 1.80 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.65 S	E 1.60 S
23	E 1.80 S	E 1.60 S	E	E	E 1.40 S	E 1.60 S	E 2.50 S	1.85	E 2.40 S	E 2.50 S	E 2.50 S	E 2.50 S	E 2.45 S	E 2.50 S	E 2.50 S	2.10	1.70	E 1.75 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.80 S	E 2.40 S	E 2.40 S
24	E 1.60 S	E 1.60 S	E	E	E	E 1.60 S	E 2.30 S	1.70	E 2.40 S	E 2.40 S	2.05	E 2.50 S	E 2.60 S	E 2.60 S	E 2.50 S	E 2.45 S	2.00	E 1.80 S	E 1.80 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.80 S
25	E 1.60 S	E 1.20 S	E 1.30 S	E	E	E 1.60 S	E 1.60 S	1.85	E 2.45 S	E 2.50 S	E 2.60 S	E 2.60 S	E 2.50 S	1.80	E 2.50 S	E 2.60 S	E 2.60 S	E 1.70 S	E 1.80 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.80 S
26	E 1.80 S	E 1.20 S	E	E	E	E 1.60 S	E 1.80 S	1.75	E 2.40 S	E 2.50 S	E 2.50 S	E 2.50 S	E 2.50 S	E 2.50 S	2.00	E 2.60 S	E 2.50 S	E 2.40 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.70 S	E 1.60 S
27	E 2.40 S	E 1.40 S	E 1.60 S	E	E	E 1.60 S	E 1.60 S	1.70	1.90	E 2.40 S	2.15	E 2.40 S	2.10	E 2.40 S	E 2.40 S	1.80	1.70	E 1.70 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
28	E 1.60 S	E 1.60 S	E 1.20 S	E	E	E 1.60 S	E 2.15 S	1.60	1.90	2.10	E 2.50 S	E 2.50 S	2.15	E 2.50 S	E 2.50 S	E 2.45 S	1.80	E 2.10 S	E 1.60 S	E 1.60 S	E 1.70 S	E 1.60 S	E 1.60 S	E 1.60 S
29	E 1.70 S	E 1.60 S	E 1.40 S	E	E	E 1.50 S	E 2.10 S	1.85	1.90	1.95	2.15	E 2.50 S	2.15	E 2.50 S	2.00	2.00	1.70	E 2.10 S	E 1.80 S	E 1.60 S	E 1.60 S	E 1.90 S	E 1.60 S	E 1.60 S
30	E 1.60 S	E 1.40 S	E 1.40 S	E	E	E 1.60 S	E 2.00 S	1.80	2.15	E 2.50 S	E 2.45 S	2.10	2.10	E 2.50 S	2.20	1.80	1.60	1.60	E 1.70 S	E 1.60 S	E 1.70 S	E 1.70 S	E 1.80 S	E 1.60 S
31																								
No.	30	30	30	30	30	29	19	26	16	30	30	29	29	29	16	18	27	19	29	30	30	30	30	30
Median	E 1.65	E 1.60	E 1.40	E	E	E 1.60	1.70	1.80	1.90	E 2.40	E 2.45	E 2.50	E 2.45	E 2.45	2.00	1.80	1.70	1.70	E 1.60	E 1.60	E 1.60	E 1.60	E 1.60	E 1.60

f-min

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

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

Sep. 1960 | (M3000)F2 | 135° E Mean Time (G.M.T.+ 9h.) | **Wakkanai** | Lat. 45° 23.6' N | Long. 141° 41.1' E

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

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

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

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

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

16

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	A	A	LA	L	LA	L	C	LC	A	L						
2								L	A	LA	A	LA	AB	LA	LA	LA								
3							L	L	L	3.65	LB	B	LB	LC	L	L	L	L						
4							L	L	3.50	3.55	I 3.55 A	I 3.60 L	I 3.50 L	L	L	L	LA	L						
5							3.10	3.55	3.40	3.60	3.45	3.55	3.35	3.40	3.30	3.35	3.25							
6							A	3.45	I 3.40 A	3.65	3.45	3.85	3.45	U 3.50 LH	I 3.35 L	3.35								
7								L	L	L	3.55	LH	L	L	LA	L	L							
8									L	L	L	L	L	L	L	L								
9								L	3.25	3.35	I 3.45 LH	3.55	I 3.40 L	L	L									
10							L	L	L	L	L	L	L		L	L								
11									L	L	L		LH	L	L	L								
12									L	L	L	L	LH	L	L	L								
13								L		L	L	L	L	L	L	L								
14									L	L	L	L	L	L	L	L								
15									L	LA	A	A	A	A	A	A								
16										L		L		L	L	L								
17													L	L		L								
18															L	L	L							
19																								
20												C	C	C	C									
21																								
22												L		L	L	L								
23																								
24																								
25										LA	L													
26											L			L										
27																								
28													L	L										
29														L										
30																								
31																								
No.							1	2	4	5	5	4	4	2	2	2	1							
Median							3.10	3.50	3.40	3.60	3.45	U 3.60	3.40	U 3.45	U 3.30	3.35	3.25							

(M3000)F1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Sep. 1960 | h'F2 | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							335	285	295	I 290 A	285	325	I 310 L	I 335 L	320	I 305 L	A	L						
2								L	A	260	I 270 A	I 285 L	300 L	I 300 L	310	L								
3							L	L	320	345	L	B	L	I 350 L	L	L	L	L						
4							L	I 315 L	390	405	340	I 345 L	I 340 L	I 340 L	310	L	L	L						
5							W	W	365	350	W	W	W	W	680	L 40	365							
6							470	495	A	W	W	R	W	I 540 L	I 530 L	445								
7								L	270	I 290 L	300	I 360 L	350	335	I 305 L	L	L							
8									L	L	L	310	L	L	L	L								
9								I 305 L	300	335	375	350	330	330	L									
10							L	L	L	335	L	L	L		L	L								
11									L	L	L		L	L	L	L								
12									L	250	L	L	L	L	L	L								
13								L		L	L	I 345 L	L	L	L	L								
14									L	L	L	L	L	365	L	L								
15									L	290	A	A	A	A	A	A								
16										265		L		L	L	L								
17													L	L		L								
18															L	L	L							
19																								
20												C	C	C	C									
21																								
22												L		L	L	L								
23																								
24																								
25										L	L													
26											L			L										
27																								
28													L	L										
29														L										
30																								
31																								
No.							3	5	6	12	7	8	7	9	6	3	1							
Median							470	495	310	310	340	345	340	340	315	445	365							

h'F2 | Sweep 10 Mc to 20.7 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 9

17

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	310	300	285	275	275	285	240	220	A	A	A	220	260	C	C	C	A	260	I255 A	I250 A	I260 A	270	300	270
2	300	300	305	260	260	250	245	235	A	A	A	A	B	A	A	A	A	A	A	A	285	260	260	305
3	305	325	300	255	235	285	260	255	220	E240 C	B	B	B	C	280	255	260	285	255	250	260	270	285	350
4	305	320	270	260	315	310	265	260	235	220	I230 A	235	I230 B	245	225	265	I255 A	270	270	300	260	225	310	275
5	375	I340 A	240	310	370	375	300	250	235	235	240	220	250	240	260	250	250	260	365	370	310	300	300	A
6	A	A	A	470	385	460	I305 A	270	I250 A	225	235	215	225	225 H	I230 A	250	260 H	I340 A	280	I285 A	315	I300 A	315	310
7	310	310	260	300	305	260	I255 A	250	250	210	210	180 H	215	235	I240 A	245	240	280 A	270	I260 A	250	280	270	I320 A
8	340	325	300	270	350 A	I280 A	260	240	225	235	215	220	220	240	230	240	240	250	250	I255 A	275	285	260	300
9	295	330	295	265	345	310	260	250	250	225	210 H	215	230	225	220	I250 A	I250 A	I260 A	275 A	I275 A	I270 A	260	260	270
10	300	310	285	270	300	360	260	245	225	220	215	210	210	220	240	240	250	255	I260 C	275	280	285	270	280
11	280	285	340	350	340	320	250	250	230	235	215	210 H	180 H	230	250	235	240	250	255	285	285	270	A	A
12	A	A	A	330 A	330	310	240	240	210	215	210	215	210 H	245	245	270	260	265	I265 A	I280 A	270	270	250	260
13	285	315	315	280	285	270	245	240	240	220	225	215	235	235	260	240	250	250	I240 A	260	270	275	270	250
14	280	310	280	270	280	280	250	250	240	245	240	230	225	205	250	250	240	275	250	250	250	260	300	320
15	325	320	305	280	275	310	260	I250 A	250	A	A	A	A	A	A	A	A	255	I265 A	265	285	I280 A	285	300
16	300	310	310	305	270	260	230	235	245	235	230 H	215	240 H	245	260	260	250	260	250	245	260	260	260	300
17	300	305	315	285	265	260	230	225	240	245	230	240	245	250	250	240	250	260	250	240	250	260	275	300
18	305	310	280	260	270	260	230	230	220	250	235	230	245	250	250	250	240	250	240	250	270	260	280	275
19	280	270	300	300	310	280	240	240	240	240	230 H	245	240 H	245 H	250	245	245	250	250	240	250	250	270	285
20	300	280	265	260	260	I265 C	230	230	230	240	245	C	C	C	C	245	240	245	250	250	250	250	260	285
21	285	280	285	280	280	270	235	235	230	220 H	230 H	215 H	215 H	220 H	240 H	250	245	245	250	250	250	250	280	315
22	310	280	305	280	275	285	245	245 H	240	220 H	235	240	250	240	240	245	245	240	240	225	260	I260 A	300	300
23	330	320	320	300	310	280	245	240	250	245	I245 A	225	235	240	240	240	250	I250 A	260	265	250	245	260	285
24	300	320	310	300	285	280	240	235	240	235	230	240 A	220	235	240	225	235	245	I265 A	270	250	235	265	270
25	I285 A	300	280	325	335	285	230	240	230	I235 A	205	210 H	235	220	225	250	240	245	235	250	265	270 A	285	300
26	300	270	260	255	245	280	240	235	245	240	220	245	215	215	245	245	245	255	235	225	250	270	275	270
27	280	315	280	280	285	270	240	235	240	220	210	215	235	240	240	250	245	240	225	260	250	255	250	260
28	285	280	285	275	250	280	240	225	240	240	220	240	220	215	250	245	245	240	230	245	245	265	310	300
29	280	280	275	260	270	270	220	230	235	235	230	230	220	225	215	235	245	230	235	250	265	270	280	285
30	310	280	300	275	335	310	250	235	240	250 A	245	I230 A	240	250 A	260	230	245	240	230	240	250	280	280	320
31																								
No.	28	28	28	30	30	30	30	30	28	27	26	26	26	25	26	27	27	28	28	28	30	30	28	28
Median	300	310	285	285	285	280	245	240	240	235	230	220	230	235	240	245	245	250	250	250	260	270	275	300

h'F

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

The Radio Research Laboratories, Japan

W 10

18

IONOSPHERIC DATA

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

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

h'Es

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

The Radio Research Laboratories, Japan.

W 11

61

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Sep. 1960

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			f	f					c	c3	c	e	e	e	e	e	e	e	f2	f4	f2	f	f	f
2	f2	f2	f3	f2	f2	f	e	c	c2	c	c2	e	c	e	e2	e	e2	e3	e3	f3	f2	f	f	f
3		f	f			e	e	e2	e						c			c.e	e2	f3	f		f	f
4	f2	f2	f	f	f	f	c	e		c	c					c.e	e2	c	e4	f3				
5		f4	f	f2	f4	f2	e2	c				e			e	c						f3	f2	f2
6	f6	f5	f4	f4	f	f2	c3	c	e	e	c	e			c		h	c2	f	f4	f2	f2		f
7		f2		f	f	f	c	c2	e	e	e	e	e	e2	e2			c3	f2	f2		f4	f	f4
8	f2	f3	f2	f3	f6	f4	e2	e	c.e	e	e	e		e	e				f	f2	f3	f2	f	f2
9		f	f	f3	f	f	c		c						e2	e3	e4	e	f	f4	f4		f2	f2
10	f2	f		f	f	f4	e2	e	c.e		e	e	e	e	e	e2	e2	e		f3	f3	f2		f
11							c	c	h	c				e	h.e	h.e	e.c	e.c	f.f	f2	f	f		
12	f5	f5	f4	f4			c	c				e												
13		f	f	f2	f	f	h		h		c	c	c	e	e	e	h.e	c	f3			f3	f	f
14					f		c	c		c		c	e		e	e2		c	c	f3				
15	f						c	c		c	c	c3	c	c3	c2	c2	e	e3	e3	f4	f3	f2	f2	
16	f	f2	f	f	f	f	h	c	e					e	e2			e2	f2	f2	f			
17							e								e		c				f			f
18											e			e	e									
19		f	f	f			c							e	e	e	e	e	f					
20																		c						
21									c			e	e		e									
22											c	c	c		c		r	c			f	f4	f	
23			f						c	c	e	e	e	e	e		h	c3	f4	f				
24									c	c	c	c2	c	e2		e		c	f2	f2	f		f	f2
25	f3	f5	f		f4	f	e	c	c	c	e	e	e	e				e		f	f2	f2	f	f
26	f	f							c	e	e	e		e	e				f2		f	f2		
27		f4	f	f	f	f	e2	e2	e2	e	c						e				f2			
28			f							c	c	e	e		h							f4	f2	f2
29		f	f	f2	f	f				c	c	c	e	e			e		f	f	f	f2	f2	f2
30	f2	f2	f	f3	f			h	c	c	c	c	c	c	e2	e	e	e						
31																								
No.																								
Median																								

The Radio Research Laboratories, Japan.

Types of Es

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

W 17

IONOSPHERIC DATA

Sep. 1960 | foF2 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.0	4.9	5.0	4.4	3.9	4.1	6.5	7.8	8.0	8.0	8.0	8.0	7.8	7.4	8.0	8.1	7.7	8.1	8.1	8.1	6.9	6.4	F	F
2	F	F	F	5.4^{F}	5.1^{F}	5.1	5.9	8.0	8.7	7.5	7.3	8.8	9.5^{R}	9.1	8.6	8.5	8.6	8.5	8.9	8.6	7.7	7.3	6.7	6.5
3	6.1	5.7	5.9	6.1	4.1	4.0	5.6^{H}	7.3	7.6^{R}	7.4	7.0	[7.2^{R}	8.1	7.8	7.5	7.7	7.9	8.0	9.1	7.6	6.1	6.0	5.9	5.8
4	6.1	5.5	5.7	5.9	3.8	3.5	4.3	5.5	6.5	6.0$^{V}_{H}$	[6.4^{R}	7.2	7.4	7.9	7.8	7.4	8.0	8.9	9.6	8.7	8.6	8.1	6.5	6.9
5	6.2	6.5	6.8	4.5	4.5	3.8	4.7	5.5	5.1	G	G	G	A	A	A	5.2	5.4	5.1	4.8	5.4	5.8	5.8	5.4	4.9
6	F	A	A	A	F	C	F	5.0	C	C	C	C	C	C	C	C	C	6.4	6.9	6.4	5.0	4.6	[4.4$^{R}_{S}$	4.7
7	[4.4^{C}	[4.2^{C}	4.3^{F}	3.9	3.6	[4.7^{F}	6.0	7.8^{V}	7.7^{H}	7.6	7.5	7.9	8.6	8.3^{R}	8.1	7.8	7.9	8.2	8.4	8.1	[7.6$^{R}_{S}$	F	F	F
8	C	F	F	5.6^{F}	4.4	4.4	6.5	8.4	8.4	9.5	10.0	9.8	[9.9^{C}	10.2	10.3	9.1	8.1	8.7	8.9	[7.8^{C}	[7.4^{C}	7.1	[7.2^{C}	[7.1^{C}
9	6.6	6.1	6.1	6.0	5.1	5.6	7.5	8.8^{H}	8.0	8.3	9.0^{S}	9.9	9.6	9.2	9.1	9.1	8.6	8.3	8.1	8.3	[7.8^{S}	7.0	6.8^{F}	6.6^{F}
10	6.5	6.0	6.2	6.1	5.7	5.3	7.6	9.2	10.2^{R}	9.1	9.3	8.9	U8.3^{R}	8.6	U8.3^{R}	8.0	8.1	8.6	8.8	8.1	7.5	7.1^{S}	7.4	7.0
11	6.8	6.3	5.6	5.5	5.3	5.3	7.7	9.1	9.3	9.1	U8.8^{R}	9.1^{H}	10.1	9.9	9.6	9.6	9.1	7.6	7.5	7.5	7.4	7.5	7.1^{S}	7.3
12	7.0	7.0	6.7	6.4	6.0	6.2	8.7	9.0	9.0^{V}	9.2	9.8	10.9	11.5	11.0	10.8	10.6	11.0	10.4	9.6	8.5	8.5	8.0	7.9	6.8
13	6.2	6.0	5.7	6.0	5.3	6.5	10.3^{S}	10.2	10.6	9.6	9.8	10.0	10.6	10.5	10.3	10.1^{H}	9.8	9.6	9.1	7.6	7.6	7.5	7.5	7.1
14	6.7	6.3	6.5	6.0	5.3	5.9	9.1	10.0	10.0	10.0	10.3	10.3	10.8	11.0	10.5^{H}	9.9	10.3	9.9^{S}	10.8^{S}	9.1	7.0	6.4	6.5	6.5
15	6.5	6.3	6.1	5.8	5.5	5.5	8.0	9.1	10.4	10.0	[9.6^{C}	9.6^{H}	9.9	10.7	U9.9^{R}	9.6	9.6	9.6	9.1	8.3^{S}	7.6^{S}	7.1^{F}	6.9	7.1^{S}
16	6.9	6.8	6.6^{F}	6.5	6.1	6.4	8.8	9.9	10.0	10.3	10.4^{H}	10.9	11.6	11.1	10.9	11.2	11.0	11.0	10.6^{S}	[9.7$^{R}_{S}$	8.6	8.0	8.3	8.0
17	8.1	8.0	7.5	7.3	7.2	7.6	9.5^{S}	9.6^{S}	10.7	10.9	11.0	11.0^{H}	11.6	U11.3^{R}	11.1	10.9^{H}	10.5	10.8	U11.3^{R}	10.4	8.6	8.4	8.0	7.8
18	7.6	7.5	7.2	7.5	6.4	7.1	9.1	10.1	10.7	11.6	11.8	11.1^{H}	11.0	12.0	12.2	11.9	11.7	11.5	11.0	9.6^{S}	8.5	8.6	8.6	8.2
19	7.5	7.2	6.6	6.6	6.4	6.8	9.1	11.6	11.6	10.8	11.0^{H}	11.6^{H}	12.2^{H}	12.0	12.4	12.1	12.0	12.1	11.8	9.4^{S}	8.3	7.9	7.8	7.6
20	7.6	7.7	7.1	6.8	6.5	6.6	8.9	10.2	11.8	11.8	11.4	12.2	12.6	12.3^{H}	12.2	12.0	11.6	12.0	11.0	[9.4^{S}	8.5	8.0	7.6	7.4
21	7.2	7.1	7.1	6.6	6.5	6.8	[9.7^{R}	11.4	11.6	11.5	11.1	11.5	12.1	12.4	12.1	12.3	11.8	11.6	11.2^{S}	10.5	8.6	7.5	6.9	7.0
22	6.9	7.0	6.5	6.5	5.9	6.5	9.7	11.5	12.0	11.6	10.8^{H}	11.8	12.6	U13.2^{R}	12.4	11.6^{H}	11.6^{R}	11.8^{R}	11.2^{R}	9.6^{S}	7.1	6.0	6.0	5.9
23	5.8	5.9	5.8	5.7	5.6	6.2	9.7^{S}	10.6	11.4	11.2	10.8^{H}	11.7	11.4	12.2	12.2	12.4	[11.6^{C}	10.8	10.0	9.1^{S}	9.1^{S}	7.8	6.5	6.0
24	5.8	6.0	6.0	6.0	6.0	6.5	8.7	9.9	10.9	11.7	11.2^{H}	11.1	12.6	12.8	12.8	12.8	12.6	12.1	10.9	10.9	[9.3^{S}	8.6	7.2	7.1^{S}
25	6.9	6.6	6.2	5.8	6.0	6.6	10.6^{R}	11.6	11.6	10.5	12.2	13.0	13.5	13.0	12.4	12.2	12.2	12.0	10.1	8.5	7.6	7.0	6.6	6.6
26	6.4	6.1	6.0	5.9	5.1	5.1	8.5	11.1	11.5	12.0	12.5	12.0	12.3	12.4^{H}	12.8	12.1	12.1	11.8	11.1	9.1^{S}	6.6	6.0	6.0	6.0
27	5.8	5.5	5.6	5.4	5.2	5.3	8.2	10.1	11.9	11.0	11.8	12.2	11.6	11.3	12.5	13.1	12.8	11.1	9.6^{R}	8.3	7.6	6.9	6.6	6.4
28	6.1	6.0	5.9	5.9	5.8	5.3	8.2	10.9	10.3	11.3	12.0	12.0	12.2	10.9	11.1	11.5	11.8	12.6	10.9	9.0	7.5	6.5	6.4	6.6
29	6.2	5.9	6.0	5.9	5.4	5.5	7.5	10.1	11.0	10.8	11.0	12.0	12.9	13.4	11.8	12.0	12.2	12.0	U10.0^{S}	8.4	7.5	6.7	6.5	6.2
30	6.0	5.5	5.5	5.7	4.9	5.0	7.4	U9.6^{R}	10.5	10.2	12.0	12.0	11.7	10.5	10.8	11.6	11.0	10.6	9.5	7.0	5.5	5.5	5.5	5.4
31																								
No.	27	27	27	29	29	29	29	30	29	29	29	29	28	28	28	29	29	30	30	30	30	29	28	28
Median	6.5	6.1	6.1	5.9	5.4	5.5	8.2	9.8	10.4	10.2	10.4	10.9	11.4	11.0	10.8	10.9	11.0	10.5	9.6	8.5	7.6	7.1	6.8	6.7
U.Q	6.9	7.0	6.6	6.4	6.0	6.5	9.1	10.2	11.4	11.2	11.3	11.9	12.2	12.4	12.2	12.0	11.8	11.8	10.9	9.4	8.5	8.0	7.4	7.1
L.Q	6.1	5.9	5.7	5.6	5.0	5.0	7.0	8.4	8.6	8.7	8.9	9.0	9.8	9.6	9.4	8.8	8.4	8.5	8.9	8.1	7.1	6.4	6.4	6.1
Q.R	0.8	1.1	0.9	0.8	1.0	1.5	2.1	1.8	2.8	2.5	2.4	2.9	2.4	2.8	2.8	3.2	3.4	3.3	2.0	1.3	1.4	1.6	1.0	1.0

foF2

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

The Radio Research Laboratories, Japan.

A 1

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IONOSPHERIC DATA

Sep. 1960 | foF1 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	4.5L	5.0	5.0H	[5.2L	5.0	L	L	L	L	L						
2								L	L	L	A	A	5.3L	A	L	A	L							
3							L	L	4.5L	5.0L	L	B	B	L	4.9	L	L	L						
4								4.2	4.6H	4.6	[5.2L	[5.1L	6.0H	5.0L	[4.7L	L	L	L						
5							[3.4A	4.0	4.3	4.5	4.8	4.6	[4.6A	[4.6A	[4.5A	4.5	4.5	L						
6							3.5	3.9	C	C	C	C	C	C	C	C	C	L						
7								A	L	5.0L	[5.3L	5.5L	[5.3L	5.0L	L	L								
8								L	L	L	L	L	L	L	L	L		L						
9								A	L	L	L	5.6L	L	L	A	A								
10								L	5.1L	L	L	L	A	L	L	L	L	L						
11									L	L	L H	L	5.6	L	L	L	L							
12									L	L	L	L	L H	L	L	L	L							
13									L	L	L	L	L	L	L									
14										L	L	L	L	L	L	L	L							
15									A	A	C	A	L	L	L	A	L							
16										L	L	L	L		A	L								
17									L	L	L	L	L	L	L									
18									L	L	4.5	L	L	L	L	L								
19											L	L	L	L	L	L								
20									L	L	L	L	L	L	L	L								
21									L	L	L	L	L	L	L	L								
22									L	L	L	L	L	L										
23									L	L	L	L	L	L	L	L								
24									L	L	L	L	L	L	L									
25											L	L	L	L	L	L								
26										L	L	4.5		L	L	L								
27										L	L	L	L	L	L	L								
28										L		L	L	L	L									
29									L	L	L	L	L	L	L	L								
30										L	L	L	L	A	L									
31																								
No.							2	3	5	5	5	6	6	3	3	1	1							
Median							U3.4	4.0	4.5	5.0	5.0	5.2	5.3	5.0	U4.7	4.5	4.5							

foF1

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	2.80	3.05	3.25	3.35	R	A	A	A	A	A	2.40						
2							A	A	3.10	I 3.30 A	3.50	3.50	B	A	A	A	A	A	A					
3							2.30	2.90	3.20	3.55	B	B	B	B	3.90	I 3.60 B	I 3.15 R	2.70	A					
4							R	2.90	I 3.25 R	3.50	I 3.65 B	I 3.80 R	I 3.75 R	I 3.70 A	3.70	3.45	I 3.05 A	I 2.40 A						
5							A	2.65	A	A	R	A	A	A	A	A	A	I 2.40 R						
6							A	A	C	C	C	C	C	C	C	C	C	A						
7							2.00	2.55	A	A	R	A	A	A	R	3.40	3.00	B						
8							A	2.90	3.15	I 3.45 A	A	A	A	A	A	A	A	A						
9							2.05	2.65	A	A	R	3.80	A	A	A	A	A	A						
10							I 2.20 R	2.80	3.25	3.50	A	A	A	A	A	A	A	A						
11							2.20	2.90	3.30 H	3.60	3.70	I 3.85 A	3.90	3.75	3.55	I 3.25 R	3.00	2.35 H						
12							R	2.80	I 3.10 A	A	A	A	A	I 3.85 A	I 3.70 R	3.45	I 2.55 A	2.30						
13							2.10	2.90	3.30	3.50	3.60	A	A	A	3.60	3.35	2.95	2.30						
14							2.05	2.95	3.30	I 3.60 B	A	A	A	A	3.50	I 3.30 R	3.00	2.40						
15							2.05	2.85	3.20	A	C	A	A	A	A	A	A	A						
16							2.10	A	A	A	A	A	A	A	A	I 3.35 R	3.00	A						
17							2.00	2.85	3.25	A	A	3.90	3.95	3.90	R	R	2.95	2.25						
18							2.05	2.80	3.20	I 3.50 A	3.85	I 3.90 R	4.00	3.85	3.65	3.45	2.90	2.05						
19							2.00	3.00	3.45	3.60	I 3.85 A	3.90	I 3.90 A	A	A	3.30	2.80	A						
20							2.00	2.75	3.30	3.55	3.70	3.75	I 3.75 R	I 3.75 R	3.55	3.35	2.95	2.00						
21							1.95	2.80	3.15	3.55	3.70	R	R	B	R	3.20	2.85	2.15						
22							2.00	2.85	3.15	3.50	3.60	3.80	3.80	3.80	3.55	3.20	I 2.80 A	1.95						
23							1.95	2.65	3.05	3.45	I 3.50 R	I 3.60 A	I 3.60 R	3.60	3.50	3.15	C	A						
24							2.00	2.70	3.05	3.35	A	R	R	R	3.45	I 3.20 R	2.70	A						
25							A	A	A	3.35	A	A	3.70	3.60	3.50	3.15	2.75	2.00						
26							2.00	2.75	3.05	3.45	A	A	A	3.65	3.40	I 3.20 B	2.95	1.90						
27							1.80	2.70	A	A	3.55	I 3.60 R	3.60	3.55	I 3.35 R	3.00	2.60	2.00						
28							1.75	2.60	3.05	3.25	I 3.50 R	3.55	3.55	3.55	3.30	3.05	2.60	A						
29							R	2.65	3.05	3.25	I 3.45 A	I 3.55 R	3.55	I 3.45 A	A	A	A	A						
30							A	2.60	3.00	3.25	I 3.45 A	3.55	3.55	A	A	A	A	A						
31																								
No.							20	26	23	21	15	14	13	13	15	19	19	16						
Median							2.00	2.80	3.15	3.50	3.60	3.80	3.75	3.70	3.55	3.30	2.95	2.30						

foE

Sweep 1.60 Mc to 2.00 Mc in 2.0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 3

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J6.5Y	J3.3	2.2	J2.8	2.2	J1.9	2.5	3.3	3.6	4.1	4.0	J5.6	J7.6	J8.5	4.1	5.2	3.2	2.6	J4.5	J5.3	E	E	J6.0Y	J6.1
2	2.1	J2.4	J2.4	J1.9	J2.8	J2.4	J4.3	J3.4	4.1	J5.5	J5.5	J7.3	4.5	J9.4	J11.8	J5.9	J5.8	J3.6	J2.8	3.5	J2.8	J2.4	J2.3	2.1
3	E	E	E	2.3	E	E	G	G	3.5	G	B	B	B	B	G	B	G	3.2	J3.0	J3.0	J4.6	J3.2	J1.8	J1.9
4	2.0	E	E	E	2.0	E	2.5	G	4.0	4.2	J4.9	J5.6	4.4	4.5	G	4.5	3.6	3.1	J3.9	J4.0	J3.3	2.5	2.0	E
5	2.0	E	J2.4	J2.8	J3.5	J2.3	J4.3	3.9	J4.5	4.9	G	J5.0	5.9	J5.8	J6.8	J6.0	J5.8	G	E	E	E	E	J2.5	J6.3Y
6	J3.3	J4.9	J5.8	J4.9	J4.5	D3.2C	J3.1	J4.4	C	C	C	C	C	C	C	C	C	J5.3	J6.0	J5.0	J2.2	J1.8	J3.1	J4.8
7	J4.8	D3.2C	J2.4	J3.3	J2.9	J3.5	2.6	J5.0	J4.3	J9.3	G	J6.3	J4.5	3.9	G	G	4.1	J6.2	J2.8	E	J16.5Y	J6.0	J3.9	C
8	C	J2.3	2.1	2.2	E	2.3	2.5	G	3.5	J5.1	J5.1	J4.9	4.3	4.0	4.1	J4.0	J4.0	2.6	J2.4	J3.9	C	J2.8	C	J3.7
9	J3.0	E	E	E	E	E	2.7	J4.6	J4.8	4.3	G	G	4.1	J5.3	J5.6	J6.9	J4.0	2.8	J4.5	J2.8	J5.9Y	J5.1	J5.8Y	J4.6Y
10	J2.4	J2.4	J1.9	J2.3	E	2.3	G	3.5	J4.6	4.4	J4.9	J5.7	J6.0	J4.7	J6.6	J5.1	J3.3	2.6	J2.9	J3.3	J6.0	J2.8	J3.5	J2.3
11	E	E	E	E	E	E	G	3.8	4.4	4.3	4.0	3.9	G	G	G	G	3.7	J3.9	J3.4	J3.4	E	E	2.1	E
12	J1.9	E	E	E	J2.8Y	J2.4	3.1	3.5	3.8	4.0	4.3	4.3	4.0	4.4	G	3.9	J4.3	3.5	E	E	J3.3	J3.3	J3.1	J3.1
13	J2.4	2.2	J1.8	J2.1	J2.8	J2.8	G	3.1	3.6	4.3	4.5	5.2	4.5	4.6	G	4.5	J5.4	J5.1	J7.4	J4.9	J3.3	2.0	E	E
14	E	E	E	E	J2.4	E	2.4	3.6	4.1	J5.4	5.8	4.6	4.4	4.0	G	G	G	G	J3.2	J2.3	J2.6	E	E	J4.9Y
15	J3.8	2.3	E	J2.3	J2.3	J2.3	2.2	3.6	J6.0	J8.6	C	J5.4	4.5	4.1	J6.3	J5.5	J5.1	J3.3	J2.8Y	J2.8	J2.8	E	J8.8	J2.8
16	J3.0	J3.8	J3.1	J2.8	J2.3	E	G	J3.7	4.2	3.9	4.0	5.1	J7.1	J7.0	J6.3	G	2.9q	J2.9	J3.8	J2.8	J2.4	2.1	E	E
17	E	E	E	E	E	E	2.4	J5.1	3.7	4.4	4.3	G	G	G	G	G	G	G	E	E	2.3	E	E	E
18	E	E	E	E	E	E	G	G	G	J3.7	G	G	G	G	G	G	G	2.5	2.2	E	E	E	E	E
19	E	E	E	E	E	E	G	G	4.0	4.1	J3.8	3.5q	3.4q	J3.7	J3.5	J3.3q	J2.7q	3.6	J2.8	E	E	E	E	E
20	E	E	E	E	E	E	2.5	3.1	G	4.1	4.0	4.0	4.0	G	G	3.6	3.6	J3.8	E	J1.9	J2.9	J1.9	J2.3	E
21	E	E	2.2	E	E	E	G	G	3.6	G	G	G	G	B	G	G	3.5	J4.0	J3.0	J1.8	E	J2.8	J2.3	E
22	E	E	2.0	2.1	J1.9	2.0	2.2	G	3.5	3.7	4.1	4.1	4.1	4.0	4.5	4.0	3.2	2.4	2.2	J2.3Y	E	J1.9	J2.8	2.0
23	E	2.1	E	J2.3	2.0	E	2.2	3.1	3.5	3.6	3.9	4.0	G	G	4.6	G	C	J5.3	J3.0	J2.4	J7.8	J2.9	E	E
24	E	E	E	E	J2.3	E	G	3.5	3.4	3.9	J4.0	G	G	G	G	G	G	2.9	E	J2.7	2.0	E	J2.6	J3.9
25	J2.4	E	E	2.2	2.2	J2.3	J6.3	J3.7	3.5	J5.2	J5.9	J7.5Y	4.1	J3.8	G	G	G	2.2	J1.9	J2.9	J3.0	J4.9	J2.9	J5.0
26	2.5	J1.8	2.0	E	E	E	2.6	3.0	3.6	3.8	J5.0	J4.5	J6.6	2.8q	J3.7	B	J2.9q	2.6	J2.9	J4.3	J5.1Y	J5.0	J5.8	J3.8
27	E	E	E	E	E	E	G	3.4	J5.2	J4.5	3.8	G	4.1	G	G	G	3.1	2.2	J2.3	J2.4	2.2	2.1	2.2	E
28	E	E	E	E	J1.9	E	2.4	3.0	3.3	3.5	G	4.0	G	G	J3.7	3.7	3.6	J3.4	J2.9	J4.3	E	J2.9	J2.9	J3.8Y
29	E	2.0	2.0	2.2	J1.8	2.2	G	2.9	G	4.0	3.6	G	3.1q	J2.9q	J3.6	3.6	J4.4	J5.2	J2.8	J2.3	J2.8	J2.9	J2.8	J4.9
30	J3.6	J2.9	J1.9	J2.8	J3.7	J2.4	J2.7	J2.8	J4.3	3.9	J4.8	4.3	4.1	J5.0	J3.9	J4.2	J4.8	J5.0Y	J2.9	J3.4	J2.8	2.1	2.2	J2.3
31																								
No.	29	30	30	30	30	30	30	30	29	29	27	28	28	27	29	27	28	30	30	30	29	30	29	29
Median	1.9	E	E	2.0	2.0	E	2.4	3.4	3.7	4.1	4.0	4.3	4.1	4.0	3.5	3.6	3.6	3.2	2.8	2.8	2.8	2.1	2.3	2.3
U.Q	2.8	2.3	2.1	2.3	2.4	2.3	2.6	3.7	4.3	4.7	4.9	5.3	4.5	4.7	4.6	4.6	4.2	3.9	3.2	3.5	3.3	2.9	3.1	4.2
L.Q	E	E	E	E	E	E	G	2.8	3.5	3.8	3.6	G	G	G	G	G	2.8	2.6	2.2	1.9	E	E	E	E
Q.R									0.8	0.9	1.3						1.4	1.3	1.0	1.6				

foEs

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

The Radio Research Laboratories, Japan.

A 4

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.3	1.7	E	E	E	E	2.5	3.3	3.6	3.9	4.0	4.9	4.0	4.3	3.9	4.5	3.2	2.6	4.0	3.5			4.5	2.3
2	E	E	2.0	E	1.9	1.8	2.5	3.3	3.9	4.0	5.2	6.5	4.5	5.1	4.5	5.0	3.4	2.9	2.0	1.8	2.5	1.9	2.1	E
3				E					3.5		B	B	B	B		B		3.1	2.2	2.5	3.8	2.9	E	E
4	E				E		2.4		3.5	4.0	4.6	4.9	4.3	4.0		3.9	3.6	2.6	3.9	3.6	3.3	E	E	
5	E		E	2.8	3.5	1.8	3.9	3.0	3.5	4.2		4.3	A	A	A	4.0	3.2						2.1	2.0
6	2.0	A	A	A	3.1	C	2.6	3.2	C	C	C	C	C	C	C	C	C	3.0	3.1	1.8	E	E	2.5	3.2
7	C	C	E	2.1	E	E	2.5	4.7	4.0	4.5		4.6	4.1	3.9			3.6	6.0	2.7		4.4	E	3.1	C
8	C	E	E	E		E	2.4		3.5	5.0	4.4	4.5	4.3	4.0	4.0	4.0	3.1	2.5	$^{U}2.3^{B}$	3.9	C	2.8	C	2.5
9	2.0						2.5	4.5	4.5	3.7			4.1	5.3	5.1	5.5	3.8	2.8	4.0	2.5	3.5	1.8	4.3	E
10	1.8	E	E	E		E		3.3	4.3	4.3	$^{U}4.9^{B}$	5.0	5.1	4.5	4.4	4.5	3.1	$^{U}2.6^{B}$	2.6	3.3	5.0	E	3.0	E
11								3.3	3.6	4.0	4.0	$^{U}3.9^{B}$					3.4	3.5	2.5	2.6			E	
12	E				E	E	2.4	3.0	3.8	4.0	3.9	4.1	4.0	4.0		3.9	4.0	3.3			3.3	3.0	2.8	2.4
13	E	E	E	E	2.5	E		3.0	3.5	4.2	4.4	4.9	4.5	$^{E}4.6^{B}$		4.4	5.1	4.8	$^{U}7.4^{B}$	4.3	2.9	E		
14					E		2.3	3.5	4.0	5.3	4.3	4.5	4.2	4.0					3.0	E	2.2			E
15	E	E		E	E	E	2.2	3.1	5.8	6.8	C	5.4	4.5	4.1	5.5	5.4	5.0	3.0	E	1.8	1.7		6.0	E
16	E	2.5	2.5	E	2.0			3.0	3.6	3.9	4.0	4.1	5.4	5.0	6.1		28^{q}	2.8	2.5	2.0	E	E		
17							2.4	2.1	3.5	3.8	4.0										E			
18										3.7								2.5	E					
19									3.6	3.8	3.8	3.5^{q}	3.4^{q}	$^{U}3.7^{B}$	$^{U}3.5^{B}$	3.0^{q}	2.5^{q}	2.5	2.0					
20							2.5	3.1		3.8	3.9	4.0	4.0			3.5	3.6	3.7		E	2.5	E	E	
21			E						3.5					B			3.3	3.9	1.9	E		2.0	E	
22			E	E	E	E	$^{U}2.2^{B}$		3.4	3.7	4.0	4.1	4.1	4.0	4.5	3.9	3.0	$^{U}2.4^{B}$	E	E		E	E	E
23		E		1.7	E		2.2	3.1	3.5	$^{U}3.6^{B}$	3.9	4.0			3.6		C	2.5	2.0	1.8	E	1.8		
24					E			3.0	3.4	3.9	3.9							2.9		2.0	E		1.8	3.0
25	E			E	E	2.0	3.3	3.1	3.4	5.0	5.3	4.0	3.3	3.0				2.1	E	1.8	E	2.0	E	2.0
26	E	E	E				2.1	3.0	3.5	3.7	4.4	4.0	4.9	2.8^{q}	3.0	B	2.1^{q}	2.4	1.9	1.8	E	2.4	2.3	1.9
27								3.3	3.5	3.7	3.7		3.8				3.0	G	E	2.1	E	E	E	
28					E		2.3	3.0	3.2	3.5		4.0			3.5	3.4	3.2	2.5	2.8	2.5		E	2.1	E
29	E	E	E	E	E	E		2.8		3.8	3.6		3.1^{q}	2.4^{q}	3.5	3.3	3.3	2.3	E	E	2.0	E	2.7	5.9
30	2.0	2.1	E	E	1.9	1.7	1.9	2.1	2.8	3.8	4.0	4.0	4.0	4.5	3.5	3.4	3.8	1.9	1.7	2.0	2.0	2.0	E	E
31																								
No.	15	12	14	16	18	13	19	23	26	27	21	21	21	18	15	16	22	27	25	24	21	21	22	18
Median	E	E	E	E	E	E	2.4	3.1	3.5	3.9	4.0	4.1	4.1	4.0	4.0	4.0	3.3	2.6	2.2	2.0	2.0	E	2.1	E

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

The Radio Research Laboratories, Japan.

A 5

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	1.65	1.70	1.90	1.70	1.90	2.05	2.00	1.90	1.95	1.95	1.65	1.65	E	E	E	E	E	E
2	E	E	E	E	E	E	1.65	1.70	1.75	1.75	2.00	3.30	3.90	2.00	1.90	2.50	1.70	1.80	E	E	E	E	E	E
3	E	E	E	E	E	E	E	1.65	2.00	2.00	4.50	6.00	5.50	4.90	3.10	3.90	2.00	1.75	E	E	E	E	E	E
4	E	E	E	E	E	E	1.65	1.70	1.70	2.00	3.95	2.95	3.15	2.20	1.90	1.70	1.70	1.70	E	E	E	E	E	E
5	E	E	E	E	E	E	E	E	1.75	1.75	1.95	2.00	2.00	2.70	1.90	1.70	1.70	1.70	E	E	E	E	E	E
6	E	E	E	E	E	E	E	1.75	C	C	C	C	C	C	C	C	C	1.75	E	E	E	E	E	E
7	E	E	E	E	E	E	1.65	1.70	1.80	1.95	2.05	2.15	2.00	2.05	2.05	1.80	1.80	2.30	E	E	E	E	E	E
8	E	E	E	E	E	E	1.65	1.70	1.90	1.90	2.00	E 3.30 C	3.45	2.80	2.05	2.70	2.00	1.75	E	E	C	E	C	E
9	E	E	E	E	E	E	1.70	1.80	2.00	1.90	1.80	2.05	2.80	2.05	2.00	1.80	1.75	1.65	E	E	E	E	E	E
10	E	E	E	E	E	E	1.65	1.75	1.70	1.75	2.00	2.50	2.70	2.05	2.00	1.90	1.75	1.65	1.70	E	E	E	E	E
11	E	E	E	E	E	E	1.65	1.70	1.75	1.80	2.00	2.50	2.80	1.90	2.00	1.70	1.65	E	E	E	E	E	E	E
12	E	E	E	E	E	E	1.65	1.65	1.70	1.85	1.80	2.05	3.00	1.90	2.05	1.75	1.70	1.65	E	E	E	E	E	E
13	E	E	E	E	E	E	E	1.65	1.65	1.95	2.00	2.00	3.55	2.00	1.80	2.00	1.70	E	E	E	E	E	E	E
14	E	E	E	E	E	E	1.65	1.70	1.75	3.65	2.05	3.00	2.70	2.75	2.00	2.00	1.70	E	E	E	E	E	E	E
15	E	E	E	E	E	E	1.65	1.70	2.00	2.00	I 2.55 C	2.65	2.65	2.65	2.00	1.80	1.80	E	E	E	E	E	E	E
16	E	E	E	E	E	E	1.65	1.65	1.70	2.00	2.95	2.70	2.75	3.00	1.90	2.00	1.65	1.65	E	E	E	E	E	E
17	E	E	E	E	E	E	E	1.65	1.95	2.05	2.50	3.05	3.00	2.70	3.00	1.90	1.70	1.65	E	E	E	E	E	E
18	E	E	E	E	E	E	1.70	1.65	1.65	2.00	2.90	2.55	2.30	2.25	1.90	1.70	1.70	1.65	E	E	E	E	E	E
19	E	E	E	E	E	E	1.70	1.70	1.70	1.80	1.95	2.30	2.00	2.00	1.80	1.65	1.70	1.70	E	E	E	E	E	E
20	E	E	E	E	E	E	E	1.65	1.70	1.75	1.75	2.50	2.40	3.00	1.95	1.75	1.75	1.65	E	E	E	E	E	E
21	E	E	E	E	E	E	1.65	1.70	1.70	2.00	1.95	2.45	2.00	4.05	1.80	1.75	1.65	1.65	E	E	E	E	E	E
22	E	E	E	E	E	E	1.70	1.70	1.75	2.00	1.80	2.00	2.00	3.20	1.90	1.80	1.70	1.70	E	E	E	E	E	E
23	E	E	E	E	E	E	1.65	1.65	1.70	2.00	2.00	2.00	2.00	1.80	1.80	1.70	I 1.65 C	E	E	E	E	E	E	E
24	E	E	E	E	E	E	1.65	1.70	1.70	1.80	1.70	1.90	1.90	1.75	2.05	1.90	1.70	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	1.65	1.75	1.75	1.80	2.00	1.85	1.70	1.65	1.70	1.65	1.65	E	E	E	E	E	E
26	E	E	E	E	E	E	E	1.65	1.75	1.80	1.80	2.20	2.00	1.70	1.75	3.50	1.65	1.65	E	E	E	E	E	E
27	E	E	E	E	E	E	E	E	E	1.80	1.80	2.05	1.80	1.90	1.75	1.70	1.65	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	1.65	1.70	1.70	1.80	1.90	1.75	1.85	1.70	1.70	E	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	E	1.65	1.75	1.75	1.85	1.80	1.70	1.65	1.75	E	E	E	E	E	E	E	E
30	E	E	E	E	E	E	1.65	E	1.65	1.80	2.05	1.85	2.00	1.90	1.70	E	1.65	E	E	E	E	E	E	E
31																								
No.	30	30	30	30	30	30	30	30	29	29	29	28	29	29	29	29	29	30	30	30	29	30	29	30
Median	E	E	E	E	E	E	1.65	1.70	1.70	1.85	2.00	2.20	2.30	2.05	1.90	1.80	1.70	1.65	E	E	E	E	E	E

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Sep. 1960 | (M3000)F2 | 135° E Mean Time (G.M.T.+ 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	265	265	280	280	255	270	325	315	325	290	330	310	315	285	300	310	320	320	325	310	305	290	F	F
2	F	F	F	300F	300F	310	320	325	335	330	290	300	310R	310	305	320	315	310	315	320	300	290	285	270
3	265	260	260	310	320	275	305H	305	300R	310	285	I300R	300	310	300	305	305	295	310	315	280	255	260	245
4	265	255	275	310	290	265	300	280	310	265V	I300R	310	290	300	310	300	300	295	285	275	290	295	250	260
5	255	255	275	255	265	230	220	275	305	G	G	G	A	A	A	275	295	275	230	235	245	250	290	265
6	F	A	A	A	F	C	F	260	C	C	C	C	C	C	C	C	C	290	320	295	280	265	I255S	260
7	I265C	I280C	270F	265	280	I290F	315	310V	305H	320	300	295	295	305R	315	310	310	315	310	305	I300S	F	F	F
8	C	F	F	280F	260	270	330	320	310	310	300	300	I280C	290	300	300	310	310	310	I295C	I275C	255	I270C	I280C
9	I275	255	270	260	255	260	285	300H	310	300	305S	295	305	290	290	300	310	300	300	290	I295S	275	275F	275F
10	275	260	275	275	275	250	305	315	320R	315	300	300	U300R	305	U300R	305	305	300	300	300	280	285S	280	270
11	290	270	255	240	250	250	305	310	320	315	U315R	280H	290	295	280	305	320	315	290	280	270	270	270S	270
12	265	270	270	265	250	260	330	325	300V	295	275	285	285	275	285	280	290	295	300	270	280	280	290	275
13	260	255	255	270	265	280	315S	325	310	315	295	280	275	275	280	285H	290	305	295	270	275	270	270	280
14	270	255	275	280	265	285	320	315	300	290	290	275	270	270	275H	270	285	290S	305S	325	255	250	260	255
15	260	260	265	265	275	265	320	310	310	290	I295C	280H	285	285	U290R	290	295	300	300	290S	290S	285F	270	275S
16	275	265	265F	270	280	270	315	325	320	310	270H	275	280	280	270	280	280	290	295S	I295S	285	265	270	270
17	275	280	265	270	275	300	320S	315S	315	305	295	270H	275	U275R	280	280H	280	280	U300R	305	280	270	265	270
18	270	265	275	295	275	285	330	335	310	295	295	270H	275	265	275	275	280	290	285	295S	260	265	275	285
19	275	280	260	275	265	270	310	325	320	305	280H	275H	280H	275	275	280	280	295	315	305S	280	270	270	275
20	280	285	285	280	275	290	325	325	315	300	285	280	280	270H	280	285	285	295	300	I305S	280	280	280	290
21	280	270	270	280	270	280	I320R	330	325	310	300	280	275	275	280	270	285	295	300S	310	305	280	265	260
22	260	270	265	265	260	270	320	320	320	300	285H	280	280	U285R	285	285H	290R	300R	310R	295S	300	265	270	255
23	255	255	260	260	260	280	330S	330	320	310	275H	290	275	280	285	290	I300C	295	300	285S	295S	295	270	270
24	260	260	260	265	250	270	320	325	315	320	295H	280	275	280	275	280	295	300	285	290	I300S	290	280	280S
25	270	275	260	250	260	275	320R	325	320	290	300	290	290	290	285	290	305	310	315	305	305	285	290	280
26	280	285	285	295	290	280	325	335	310	315	305	290	285	285H	290	290	300	310	315	320S	315	270	275	285
27	280	270	285	280	275	285	340	330	330	310	305	300	295	285	285	295	310	315	310R	290	300	285	295	285
28	280	280	270	275	295	275	325	340	320	305	305	300	295	290	290	295	305	325	320	320	305	280	275	275
29	290	275	275	290	280	275	330	320	335	315	300	295	300	310	295	300	310	325	U320S	305	305	290	280	290
30	280	275	260	290	290	260	310	U335R	330	315	315	315	305	350	290	310	310	320	320	320	270	280	275	260
31																								
No.	27	27	27	29	29	29	29	30	29	29	29	29	28	28	28	29	29	30	30	30	30	29	28	28
Median	270	270	270	275	275	275	320	320	315	310	295	290	285	285	285	290	300	300	305	300	290	280	270	270

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	3.60L	3.55	3.75H	[3.65L	3.85	L	L	L	L	L						
2								L	L	L	A	A	3.50L	A	L	A	L							
3							L	L	3.85L	3.65L	L	B	B	L	3.65	L	L	L						
4								3.40	3.50H	3.95	[3.55L	[3.70L	3.55H	3.65L	[3.70L	L	L	L						
5							[2.90A	3.30	3.55	[3.50A	3.60	[3.80A	[3.70A	[3.55A	[3.40A	3.40	3.25	L						
6							3.10	3.35	C	C	C	C	C	C	C	C	C	L						
7								A	L	[3.80L	3.70L	3.50L	[3.65L	3.70L	L	L								
8								L	L	L	L	L	L	L	L	L		L						
9								A	L	L	L	3.65	L	L	A	A								
10								L	3.70L	L	L	L	A	L	L	L	L	L						
11									L	L	L H	L	3.60	L	L	L	L							
12									L	L	L	L	L H	L	L	L	L							
13									L	L	L	L	L	L	L									
14										L	L	L	L	L	L	L	L							
15									A	A	C	A	L	L	L	A	L							
16										L	L	L	L		A	L								
17									L	L	L	L	L	L	L									
18									L	L	4.20	L	L	L	L	L								
19											L	L	L	L	L	L								
20									L	L	L	L	L	L	L	L								
21									L	L	L	L	L	L	L	L								
22									L	L	L	L	L	L										
23									L	L	L	L	L	L	L	L								
24									L	L	L	L	L	L	L									
25											L	L	L	L	L	L								
26										L	L	4.55		L	L	L								
27										L	L	L	L	L	L	L								
28										L		L	L	L	L									
29									L	L	L	L	L	L	L	L								
30										L	L	L	L	A	L									
31																								
No.							2	3	5	5	5	6	6	3	3	1	1							
Median							U3.00	3.35	3.60	3.65	3.70	U3.70	3.60	3.65	U3.65	3.40	3.25							

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

The Radio Research Laboratories, Japan.

A 8

IONOSPHERIC DATA

Sep.1960 | h'F2 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	270	340	275	305	305	I330L	305	290	270	280L						
2								255	255	255	I320A	310	300	300	295	290	260							
3							300H	335	255	305	385	345	320	345	315	325	300	300L						
4								370	330	295H	300L	310	395	300	I290L	I295L	300	280						
5							I530A	400	355	G	G	G	A	A	A	440	390	L						
6							440	470	C	C	C	C	C	C	C	C	C	L						
7								270	250	290	310L	345	305	295	295	300L								
8								250L	245	295	285	300	300L	300	295	I290L		280L						
9								265	295	300	300	320	300	305	295A	295A								
10								I250L	255	270	I290L	290L	295	300L	L	L	300L	L						
11									250L	I250L	255	255H	315	300L	I325L	I285L	255							
12									L	I250L	295	305	305	I320L	305	300L	290							
13									250	245	I265L	I330L	I300L	305L	I305L									
14										I280L	I280L	I315L	335L	300L	255H	I310L	L							
15									270	I260A	I250C	255H	I300L	310	300L	295	L							
16										245	L H	L	310L		300	I300L								
17									250L	245	I250L	245H	I305L	290L	I290L									
18									250L	I245L	245	250H	L	L	L	L								
19											245H	245H	250H	L	L	L								
20									245L	245	245	I250L	I250L	250H	I295L	L								
21									245	245	245	245	250L	I275L	300L	310L								
22									245	245	230H	I260L	I300L	I295L										
23									245	245	245H	260	245L	L	L	L								
24									250	245	230H	250	I250L	250	L									
25											280	250L	I250L	250	I250L	L								
26										245	I250L	245		245H	I280L	L								
27										240	250L	245	250L	250	300L	260								
28										I245L		250L	250L	250L	L									
29									245	245	245L	250L	245L	270L	245	255								
30										245	250	250	250L	245	245L									
31																								
No.							3	9	20	27	27	28	26	24	21	16	8	4						
Median							440	270	250	245	255	260	300	300	295	295	295	280						

h'F2

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

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I320A	305	295	250	255	300	250	240	210	225	205	I210A	205	245	215	I215A	235	245	245	250	240	250	I280A	300
2	295	290	290	245	250	245	235	245	240	235	A	A	A	A	A	A	245	250	250	245	255	255	255	295
3	300	335	295	245	210	295	255	245	240	235	B	B	B	B	245	250	250	290	255	245	I250A	I300A	300	345
4	305	310	290	250	250	300	270	250	225H	245	I235A	I220A	245H	220	245	255	255	250	295	295	275	245	290	300
5	295	310	250	I290A	I340A	395	I330A	260	240	I230A	245	I230A	I245A	A	A	A	250	255	245	350	310	310	290	310
6	310A	A	A	A	A	I395A	295	260A	C	C	C	C	C	C	C	C	C	A	265	245	255	270	I305A	I325A
7	I300A	I295A	280	305A	300	295	245	I240A	205	I220A	200	I210A	200	220	240	235	250	I260A	250	245	I250A	295	280A	I300C
8	I325C	310	295	245	260	300	240	245	215	I240A	220	200	215	240	240	240A	245	245	240	280A	I300C	I320A	I300C	290
9	280	330	290	270	280	300	250	A	A	220	205	205	205	I220A	I220A	I235A	250	255	255	260	260	250	I280A	290
10	290	305	295	295	290	345	250	220	240	225	I220A	I215A	I235A	240A	230A	I240A	240	250	250	270A	I285A	255	290A	290
11	260	295	310	345	345	335	255	245	245	225	205H	205	200	200	225	245	245	245	255	290	270	290	295	300
12	305	295	290	295	345	305	245	230	225	205	200	195	195H	240	210	245	255	245	245	250	265	265	275A	255
13	295	310	305	295	300	295	255	245	225	220	205	I220A	245	I240A	245	210H	270	260	I280A	290A	290A	295	275	260
14	255	310	290	255	260	280	250	245	245	I245A	240	240	220	205	205	245	245	255	250	230	240	245	295	305
15	305	300	295	290	275	300	250	245	I250A	I230A	I210C	I240A	210	210	I220A	I250A	I260A	250	250	245	245	255	I280A	295
16	300	305	305	295	295	280	245	235	245	220	220	205	I225A	260	I250A	245	245	250	250	245	245	245	270	290
17	295	290	295	295	260	245	230	210	215	215	220	205	205	210	225	245H	245	250	250	245	240	245	255	295
18	295	295	290	255	255	260	230	235	230	240	205	205	205	210	245	245	250	250	250	245	245	255	280	250
19	260	285	285	295	295	295	225	240	230	220	215	200	205	225	240	245	250	250	245	235	245	245	290	290
20	295	275	250	255	260	255	220	225	210	215	210	200	205	215	245	250	250	255	245	245	255	245	280	275
21	275	290	290	260	270	290	235	245	225	215	205	210	200	230	235	245	245	245	245	245	245	245	275	300
22	300	295	295	280	265	295	240	245	220	220	200	200	210	245	245	245H	245	250	245	210	220	245	290	300
23	305	305	300	300	305	295	240	235	225	220	205	210	230	210	245	245	I245C	245	245	255	245	240	245	255
24	295	305	300	280	295	295	230	240	230	220	205	195	200	225	245	245	250	250	245	260	230	245	240	I270A
25	290	270	290	305	305	290	240	230	225	235	I245A	205	245	220	205	235	250	250	225	240	245	260	260	290A
26	295	260	285	245	245	290	245	245	220	205	220	195	245	205	210	245	250	245	240	240	210	I270A	295A	290
27	255	285	280	260	260	255	245	240	240	230	210	205	200	200	210	245	245	245	230	245	235	250	260	255
28	255	295	290	290	245	255	245	240	220	220	245	230A	230	220	210	245	250	245	235	230	240	245	290A	295
29	255	250	295	255	255	270	210	235	215	225	225	215	205	240	220	245	245	240	235	240	255	250	I270A	I270A
30	295	290	305	285	255	305A	220	240	245	225	240	205	230	I220A	205	250	245	245	220	240	245	290A	295	300
31																								
No.	30	29	29	29	29	30	30	29	28	29	27	27	27	26	27	27	29	29	30	30	30	30	30	30
Median	295	295	290	280	265	295	245	240	225	225	210	205	210	220	230	245	250	250	245	245	245	250	280	290

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

h'Es

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

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Sep. 1960

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

32

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	f2	f2	f2	f	f	h2	h2	h2	c2	c	c2	l	l2	l	c2	c2	h	l2	f2			f3	f3
2	f	f2	f2	f2	f2	f2	l	l2	c	l	c	c2	c	l2	l2	l	l2	l	l2	f2	f2	f2	f2	f2
3				f					h									h	hl	f2	f3	f4	f	f
4	f				f		h		h	c	c	c	c	l		h	h2l	hl	f6	f4	f4	f2	f	
5	f		f2	f3	f3	f2	l3	c2	c2	l2		l	l2	l2	l3	l2	hl2						f2	f2
6	f4	f5	f3	f4	f3	f2	l2	l2										c2	f2	f	f	f	f	f3
7	f2	f2	f	f2	f2	f2	c2	c3	c3	l2		l2	l	l			h2	c2	f2		f2	f3	f2	
8		f2	f	f		f	hl		h	c2	c2	l	l	l	l	l2	l	l	h2	f2		f		f2
9	f						h	c2	c2	l			l	l2	l3	l3	l3	l2	f3	f3	f2	f2	f3	f2
10	f2	f	f	f		f		h	c2	c2	c2	l	l2	l2	l2	l3	l	l3	f3	f3	f2	f2	f2	f
11								h	c	c	c	l					h2	c2	f2	f2			f	
12	f				f	f2	h	c	c	l2	l	l	l	l2		h	l4	c2			f3	f3	f2	f3
13	f2	f	f2	f2	f5	f		hl	h	c2	c	c	l2	c2		h2	h2	h3	f2	f3	f3	f2		
14					f		h	h2	h2	c2	l	c	c	c					f3	f	f2			f
15	f	f		f2	f	f	h	h	c2	c3		l2	c	l	l2	l2	l3	l2	f	f2	f2		f3	f2
16	f2	f2	f4	f2	f3			l	h	l	l	l	l2	l2	l3		l	l2	f2	f2	f2	f		
17							h	l	c	l	l										f			
18										l								c	f					
19									h	c	l	l	l	l	l3	l2	l2	l	f2					
20							h	h		h	c	c	c			h	h2	c2		f	f2	f2	f2	
21			f						c								h	c2	f2	f		f2	f2	
22			f	f2	f2	f	h2		h	h	c	h	h	c	c	c	c	h2	f	f		f	f2	f
23		f		f3	f		h	h2	h	h	c	c			h			l2	f3	f2	f2	f3		
24					f2			h	h	c	l							c2		f3	f		f2	f3
25	f2			f	f	f3	l2	l2	lh	c2	l2	c·l	l	l				h	f	f2	f2	f2	f2	f2
26	f2	f	f				h	h	c	c	c2	l2	l2	l	l2		l	h2	f2	f3	f	f2	f2	f2
27								hl	l2	l2	hl		h				hl	h	f	f2	f	f	f	
28					f		h	h	h2	h		h			h	h2	h3	c3	f3	f3		f2	f2	f
29		f	f	f2	f2	f		h		c2	c		l	l	c	cl	c3	l2	f	f	f	f	f2	f2
30	f2	f2	f	f	f2	f2	l2	l	lh	h	c	c	c	c2	l	l2	l2	l	f	f	f	f	f	f2
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Sep. 1960 | foF2 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35°42.4' N | Long. 139°29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.0	5.0	4.9	4.2	3.9	4.0	7.1	6.9	6.8	7.2	8.0	7.9	8.2	9.1	u 9.2 S	9.3	8.9	8.7	8.7	J 8.3 S	6.9	6.5	6.4 S	6.2
2	6.1	6.4 S	6.0	5.9	5.3	4.9	6.4	7.7	8.0	7.8	7.9	10.1 R	10.8 R	10.5	J 10.4 S	J 10.3 S	9.3	9.2	9.3	u 9.1 S	7.5	7.4 S	6.8	6.3
3	6.5 S	6.0	6.4	6.4	3.9	3.8	5.9	J 8.2 S	8.0	7.4	7.6	I 9.0 B	J 9.7 R	8.6	J 8.1 R	8.1	8.8	8.5	9.8	7.9 S	5.7	5.7	5.8	5.7
4	6.0	5.6	5.7	6.0	4.8	3.5	4.2	6.4	6.5	6.0	7.2	J 8.1 R	8.5	8.0	8.5	7.9	8.4	9.8	9.4	8.9	9.0	I 8.1 S	7.3 S	7.4 S
5	7.2	6.7	7.5 S	5.0	5.1	5.2	4.8	5.7	5.4	G	G	A	G	I 5.0 S	I 5.2 A	I 5.4 A	5.5	5.2	4.6	5.5	6.0	5.7	5.7	I 5.2 A
6	I 4.9 A	3.7	u 3.7 S	3.9	I 4.0 A	4.0	I 4.4 A	5.1 S	5.1	A	R	R	6.0	6.2	6.2	6.6	6.8	6.8	u 8.5 R	7.3 S	I 5.6 A	4.5	4.5	4.5
7	4.4	4.4	4.1	3.5	3.6 S	4.0	6.1	7.7	7.4	7.2	8.0	9.4	10.3	10.6	9.5	8.8	8.7	9.0	8.9	u 8.3 S	7.9	6.8	J 7.3 S	6.7
8	5.9	6.2	6.0	6.0	4.3	4.3 F	7.2 S	8.6	8.8	9.3	10.3	10.5	10.8	11.3	11.5	10.3	9.4	9.6	10.0 S	u 8.9 S	I 7.2 S	7.3	7.9	u 7.6 S
9	7.3	6.6	6.8	6.4	5.7	6.0	8.8	9.6	9.1	J 10.8 R	11.3	11.6	11.0	10.4 S	u 10.3 R	10.2	9.8	9.3	9.6	9.0	7.7 S	6.8	6.7	7.0
10	I 6.4 S	6.2	6.2	6.1	6.0	5.2	7.3	11.1	J 10.5 S	9.2	9.8	u 10.0 S	9.5	9.2	9.2	8.4	8.4	9.1	9.6	8.4	u 7.2 S	7.1	7.2 S	u 7.0 S
11	7.2 S	6.7	6.0	5.8	5.5 S	5.6	8.3	u 10.0 S	J 10.0 S	9.2	9.5	10.1	11.0	10.6	10.6	10.7	9.2	7.9	7.7	7.7	7.7	u 7.4 S	7.4	u 7.4 S
12	I 7.2 S	7.2	6.9	6.4	6.0	6.1	9.1	u 9.9 S	9.1	8.7	10.4	12.2	12.4	11.8	11.9	11.8	11.8	11.4	10.0	9.2	9.5	9.0	J 8.3 S	7.7 S
13	6.7	6.6	6.0	6.3	5.5	6.3 S	u 9.8 S	11.3	10.5	10.2 R	J 10.3 R	10.6	11.0	11.5	10.9	10.7	10.8	10.2 R	10.0 S	u 7.8 S	I 7.7 A	I 7.7 A	7.3 S	7.6 S
14	u 7.5 S	6.5	6.6 S	6.0	5.3	5.8	9.5 S	10.7 S	9.9	10.5 R	11.3	11.4	11.8	12.2	11.9	11.7	11.7	11.2	u 11.3 S	9.6	6.5 H	7.0	7.4	7.4
15	u 7.3 S	7.4	6.9	6.5 H	6.1	5.9	8.3	9.6	10.5	10.1	9.9	10.8	11.3	11.8	11.2	10.6	10.6 S	10.6	u 10.1 S	8.8	8.3	u 7.0 S	7.1	J 7.3 S
16	7.4	7.2	6.9	6.1	6.0	6.1	8.6	10.6	10.4	10.2	10.3	11.9	12.3	12.2	11.9	12.2	11.9	11.4	11.4	I 10.4 S	9.0	I 9.1 S	9.4	8.9
17	9.3 S	9.2 S	8.1	7.6	7.9	7.8	9.4 S	J 10.3 S	10.5	11.3	11.2	11.9	12.1	11.8	11.7	11.8	11.3	11.3	12.1	I 10.6 S	8.8	I 8.9 S	9.1	8.9 S
18	u 8.7 S	8.6 S	8.1	u 7.8 S	6.6	7.1	9.8	J 10.4 S	9.8	11.2	11.8	11.6	11.9	12.6	13.1	12.7	12.6	11.9	11.1	J 10.4 S	8.9	I 9.1 S	9.3	8.9
19	8.1	7.8	7.0	6.8	6.2	6.6 S	I 9.7 S	11.1	11.6	10.9	10.6	12.3	12.6	12.5	13.0	13.0	12.8	12.8	12.2	u 9.9 S	8.3	I 8.6 S	8.6	8.8
20	J 8.4 S	u 8.4 S	I 7.9 S	7.2	6.6	6.6	9.0	10.8	11.5	11.2	11.2	12.4	12.9	13.1	13.1	13.0	12.6	12.7 S	11.7 R	9.3 S	8.8 S	8.7 S	u 8.6 S	7.9 R
21	u 7.8 S	7.8 S	7.4 S	6.7	6.2	6.6	9.2 S	12.0	11.6	10.9	11.2	12.4	12.9	13.2	13.3	13.0	12.8	12.8 S	12.5 S	10.9 R	J 8.8 S	8.1 S	u 7.9 S	u 7.8 S
22	7.6 S	u 7.6 S	6.7	6.3	6.1	6.4	u 9.6 S	11.5	12.5	11.2	10.8	11.8	13.1	13.6	13.4	12.6	12.4	12.8	11.7	u 9.9 S	7.4	u 6.7 S	6.5	6.5
23	6.4	6.5	6.4 S	6.1	6.0	6.7	10.3	11.1 S	11.0	10.7	11.2	12.1	12.5	13.2	13.1	13.2	12.9	11.8	J 11.1 S	9.9 S	9.3	J 7.9 S	6.5	u 6.6 S
24	6.0	5.8	5.6	u 5.2 S	5.2	5.3	8.9	9.7 S	10.9	12.1	11.0	11.3	12.6	13.4	13.4	13.6	13.2	12.8	11.9	11.5	u 9.5 S	8.8	7.9 S	7.2
25	7.2 S	6.8	6.2	5.7	5.8 S	u 6.4 S	u 9.6 S	10.8	11.6	11.3	12.4	14.0	J 14.4 S	J 14.7 R	J 14.3 R	u 13.7 S	13.5	13.0	11.7	8.9	J 7.9 S	7.0	7.0	6.8
26	6.5	6.1	6.1	5.9	5.0	u 5.1 S	8.3	11.2	11.5	12.2	11.6	12.3	13.6	13.7	13.7	13.7	13.4	13.0	11.6	8.8	6.7	6.2	6.1 S	6.5 S
27	6.0	5.8	5.6	5.5 S	5.2	u 5.1 S	J 8.0 S	10.1	11.3	11.7	12.1	12.1	12.3	12.6	13.3	u 14.3 S	13.5	11.9	I 10.6 S	8.3	8.0	6.7	6.5	6.9
28	6.5	6.0	5.9	5.7	5.7	4.6	J 8.2 S	J 11.3 S	10.9	10.4	11.9	12.4	13.0	11.8	11.5	12.4	12.9	13.6	11.8	9.0	7.6 S	6.6	6.9	6.9
29	6.5	6.0	5.8	5.7	5.3 S	5.1 S	7.7	9.1	10.8	10.4	11.1	12.2	13.3	13.6	13.1	12.9	13.3	13.3	J 11.1 R	8.6	u 7.9 S	7.0 R	6.4	6.2
30	6.0	5.7	5.4	5.9	5.1	u 5.1 S	7.9 S	9.3 S	10.5	10.9	12.1	12.4	12.0	11.6	11.5	13.1	12.3	11.0	I 9.6 S	6.6	5.6	5.7	5.6	5.6
31																								
No.	30	30	30	30	30	30	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	30	30
Median	6.6	6.5	6.2	6.0	5.5	5.4	8.3	10.0	10.5	10.4	10.8	11.7	12.0	11.8	11.6	11.8	11.8	11.2	10.4	8.9	7.8	7.0	7.2	7.0
U. Q.	7.4	7.2	6.9	6.4	6.0	6.4	9.4	11.1	11.0	11.2	11.3	12.2	12.6	13.1	13.1	13.0	12.8	12.8	11.7	9.9	8.8	8.1	7.9	7.6
L. Q.	6.0	6.0	5.8	5.7	5.1	4.9	7.2	8.6	8.8	9.0	9.6	10.3	10.8	10.5	10.3	10.2	9.2	9.2	9.6	8.3	7.2	6.7	6.5	6.5
Q. R.	1.4	1.2	1.1	0.7	0.9	1.5	2.2	2.5	2.2	2.2	1.7	1.9	1.8	2.6	2.8	2.8	3.6	3.6	2.1	1.6	1.6	1.4	1.4	1.1

foF2

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

The Radio Research Laboratories, Japan.

K 1

IONOSPHERIC DATA

Sep. 1960 | foF1 | 135° E Mean Time (G.M.T.+ 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	A	"5.7L	L	"5.3L	A	4.9L	L	A							
2									L	L	L	A	B	A	A	A	L	A	A					
3								L	L	L	B	B	B	L	L	B	L							
4								4.3	4.4L	A	"5.4L	L	5.3L	L	4.8L	"4.9L	A	A	A					
5							3.4	4.0	4.4	4.5	4.9	A	4.8	4.8S	A	A	A	L	L					
6							A	4.1	4.3	A	R	R	S	"5.0S	"4.7S	S	A	A	A					
7								L	A	A	L	"5.3L	"5.5L	"5.4L	L	L	L	A						
8									L	L	L	L	"5.8L	"5.7L	L	A								
9									A	L	"5.7L	"5.4L	5.6L	L	A	A	A							
10								L		L	L	L	L	"5.8L	"5.8L	L	L							
11										A	L	L	5.9L	L	"5.3L	"5.0L								
12									L	L	"5.7L	6.0L	"5.9L	L	5.9	L	A							
13										S	6.4L	L	6.3L	L	L	L	L							
14										L	L	L	"6.2L	"6.1L	L	"5.5L	L							
15									L	L	A	L	"5.9L	6.0L	L	L	A							
16										A	L	6.0L	L	"5.8L	L	"5.8L	L							
17									L	L	L	L	"6.2L	"6.0L	"6.0L	L								
18										L	L	L	L	6.3L	L	L								
19										L	L	L	L	L	L	L								
20											L	L	L	L	L	L	L							
21										S	L	L	L	L	L	L								
22									S	L	L	L	L	L	L									
23											L	L	L	L	L									
24										S		S	L	S	S	S								
25										L	L	L	"5.0L	L	L	L								
26										L	L	L	L	L	L	L								
27										L	L	L	"6.6L	L	L	L								
28										L	L	L	L	L	L	L	L							
29									S	L	LH	L	L	S	L		L							
30											L	L	"5.9L											
31																								
No.							1	3	3	1	6	4	15	10	7	4								
Median							3.4	4.1	4.4	4.5	"5.3	"5.7	"5.9	"5.8	"5.3	"5.2								

foF1

Sweep 10 Mc to 200 Mc in 26 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

K

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	$I_{2.10}^{A}$	2.70	3.10	3.40	3.50^{R}	3.50	$I_{3.60}^{R}$	3.35	$I_{3.30}^{A}$	$I_{3.10}^{A}$	A	B	B					
2						S	2.30	2.85	3.30	3.50	3.55^{R}	R	B	A	A	A	A	A	B					
3						S	2.55	2.85	$I_{3.30}^{R}$	$I_{3.70}^{R}$	B	B	B	A	$I_{3.80}^{S}$	$I_{3.50}^{B}$	$I_{3.10}^{R}$	2.50	B					
4						S	2.10	2.85	3.30	3.55	B	R	B	$I_{3.70}^{R}$	3.65	3.55	3.15	2.50	B					
5						A	A	A	A	A	A	3.75	$I_{3.85}^{A}$	3.75^{R}	3.55	3.35	2.90	2.60	B					
6						A	A	$I_{2.40}^{A}$	$U_{2.95}^{A}$	$U_{2.95}^{A}$	A	A	A	A	3.55	3.45	3.05	2.40	B					
7						S	S	2.55	2.70	A	A	A	A	S	$U_{3.55}^{S}$	3.40	3.10	2.40	S					
8						S	$I_{2.30}^{A}$	3.05	3.35	$I_{3.40}^{R}$	$I_{3.55}^{A}$	A	R	A	3.55	A	A	A	A					
9						B	2.50	2.75	3.10	3.30	$U_{3.35}^{A}$	A	A	S	A	A	A	A	B					
10						S	$I_{2.20}^{B}$	2.85	3.25	$U_{3.35}^{A}$	$I_{3.75}^{A}$	A	A	A	A	A	A	2.40	B					
11						S	$I_{2.20}^{A}$	2.80	3.30	3.60	$I_{3.70}^{S}$	3.80^{S}	$I_{3.90}^{S}$	3.80^{S}	$I_{3.65}^{A}$	3.45	3.00	2.30	B					
12						A	S	$I_{2.75}^{S}$	3.00	3.40	3.50	A	A	A	3.75	$I_{3.50}^{A}$	2.90	2.40	S					
13						S	A	2.85	3.25	3.45	$I_{3.90}^{S}$	$U_{4.00}^{S}$	$I_{4.00}^{S}$	$I_{3.90}^{A}$	$I_{3.70}^{S}$	3.50	3.15^{S}	2.40	B					
14						S	2.30	$I_{2.80}^{S}$	3.25	3.60	3.80	3.70	A	A	A	$I_{3.45}^{A}$	3.05	2.50	S					
15						$U_{1.55}^{S}$	$U_{2.25}^{S}$	2.75	3.20	3.60	B	A	S	A	A	A	A	A	B					
16							2.20	$I_{2.90}^{S}$	A	A	A	R	A	A	A	$I_{3.40}^{A}$	3.05	A	S					
17						$I_{1.70}^{S}$	2.20	$I_{2.80}^{S}$	3.15	3.45	A	A	A	R	A	A	A	2.30	S					
18						$U_{1.75}^{S}$	2.30	2.80	3.35	3.70	3.85	$I_{3.90}^{R}$	3.85^{S}	$I_{3.90}^{A}$	3.65	3.40	3.00	$I_{2.15}^{S}$	B					
19						$U_{1.70}^{S}$	$I_{2.20}^{B}$	2.85	3.40	3.70	3.95	A	A	A	A	S	A	A						
20							1.95	$U_{2.80}^{S}$	3.30	3.60	3.90	$I_{3.85}^{S}$	3.90	3.75	3.60	3.50	3.05	2.30						
21							S	2.75	3.30	3.35	3.75	$I_{3.75}^{S}$	3.90	3.65	3.50	$U_{3.25}^{S}$	3.00	$I_{2.50}^{A}$	A					
22							S	$I_{2.65}^{A}$	3.15	3.55	3.70	3.75	3.90	3.70^{S}	3.65	3.30	$I_{2.80}^{A}$	$U_{2.25}^{S}$						
23							B	2.80	3.05	3.30	3.50	$U_{3.40}^{R}$	$I_{3.60}^{R}$	$U_{3.80}^{R}$	3.50	3.20	2.90	2.15						
24							2.30	$I_{2.60}^{A}$	$I_{3.00}^{A}$	$I_{3.30}^{S}$	$I_{3.50}^{A}$	3.70	3.70	3.60^{S}	3.55	3.30	2.80	1.95^{S}						
25							A	A	A	A	$I_{3.70}^{A}$	$U_{3.70}^{R}$	3.80	$I_{3.65}^{S}$	3.55	3.30	2.85	S						
26							$U_{2.15}^{S}$	$I_{2.70}^{S}$	3.30	3.50	3.70	$I_{3.75}^{A}$	3.65	3.55	3.55	$I_{3.30}^{B}$	3.00^{S}	2.10						
27							B	2.60	3.10	3.45	A	A	3.70	3.75	3.40	3.25	2.70	2.10						
28							S	$I_{2.60}^{A}$	3.10	3.25	3.55^{R}	3.70^{S}	$U_{3.85}^{S}$	3.55	3.35	3.10	2.75	A						
29							S	$I_{2.60}^{S}$	3.05	3.35	$I_{3.40}^{A}$	3.70	$I_{3.75}^{A}$	$I_{3.50}^{S}$	3.25	3.20^{S}	$I_{2.80}^{A}$	S						
30							S	S	3.00	3.40	3.60	$I_{3.65}^{A}$	3.60	3.35	A	A	A	A						
31																								
No.						4	17	27	27	26	21	16	16	17	21	22	21	19						
Median						$U_{1.70}$	2.20	2.80	3.20	3.45	3.70	$U_{3.70}$	3.80	3.70	3.55	3.40	3.00	2.40						

foE

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

The Radio Research Laboratories, Japan.

K 3

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	[7]8.6	4.0	[7]3.9	2.3[M]	[7]1.8	[7]3.1	2.4	3.2	3.9	5.0	4.5	4.2	4.3	[7]6.9	3.6	4.2[S]	[7]5.3	3.2	[7]4.7	[7]4.3	[7]3.4	S	2.4	[7]9.0
2	[7]8.0	[7]3.4	[7]3.1	[7]4.5	[7]1.9	[7]4.9	G	3.2	4.2	4.2	4.3	5.8[MS]	B	[7]8.2	[7]8.8	[7]8.2	4.7	[7]6.7	6.8	[7]5.4	[7]3.0	[7]3.7	2.5[M]	S
3	S	S	E	E	E	S	G	3.2	G	G	B	B	B	[7]4.9	S	B	G	3.3	3.2	2.2	[7]2.9	[7]5.0	[7]5.4	2.4
4	[7]2.5	2.1[M]	E	E	S	S	G	3.3	3.7	6.1	B	G	B	G	G	[7]5.2	[7]6.9	[7]4.7	[7]4.8	8.9	[7]7.4	[7]5.0	3.4	[7]8.8
5	[7]5.0	[7]3.4	2.5	[7]5.0	[7]4.9	[7]3.3	[7]4.9	6.1	[7]4.7	3.8	3.8	4.8	4.0	4.2	[7]6.2	[7]5.4	[7]4.9	2.9	B	[7]4.1	[7]5.7	S	[7]4.2	[7]5.8
6	[7]5.3	[7]3.4	3.7	[7]9.4	7.0	4.4	[7]5.0	[7]3.7	4.0	[7]5.0	4.5	3.9	4.3	3.5	G	3.8	5.4	[7]8.2	6.3	5.1[M]	[7]8.5	3.0	3.5	3.2
7	3.3	[7]3.1	2.8	E	[7]1.9	2.2	4.9	[7]3.9	4.6	5.6	[7]5.0	4.0	4.0	G	4.5	4.3	3.9	5.1	[7]3.4	[7]5.4	[7]4.9	[7]3.3	4.8	[7]2.9
8	[7]4.0	[7]2.2	1.8	1.8	[7]1.8[S]	2.1[M]	2.4	2.4[G]	2.9[G]	4.0	[7]5.2	4.9	G	4.2	4.5	[7]5.2	4.4	[7]4.2	2.5	[7]3.9	[7]3.8[S]	[7]4.8	[7]3.2	S
9	[7]2.6	S	S	E	E	B	G	3.3	[7]5.4[S]	[7]5.4	4.1	3.7	4.0	3.6[G]	[7]6.1	[7]5.4	[7]6.4	2.5	2.3	[7]8.4	[7]9.0	[7]4.9	[7]3.8	[7]2.8
10	[7]1.8[S]	[7]1.9	E	S	E	S	B	3.1	4.0	4.3	3.9	4.8	4.0	4.1	4.1	3.5	3.0	2.6	2.6	[7]2.9	5.0	6.0	[7]2.7	2.3
11	S	S	S	S	S	S	2.3	3.5	4.3	[7]6.9	3.6[G]	3.0[G]	G	5.0	3.9	3.9	[7]4.4	3.0	[7]2.4	E	[7]2.8	S	[7]3.0	S
12	[7]2.1	E	E	E	E	[7]2.3	2.1[G]	2.9	3.8	4.8	4.3	4.4	4.5	4.0	4.1	4.4[M]	4.8[S]	3.4	[7]2.9	[7]2.8	[7]2.6	S	[7]3.3	[7]2.6
13	[7]2.5	[7]3.3	2.4	[7]2.7[S]	[7]2.6	[7]2.8	[7]2.9	3.3	3.7	3.8	6.2	G	G	G	G	G	3.8	3.8	5.7	[7]5.3	[7]12.9	[7]11.7	[7]3.2	2.5
14	S	E	[7]2.8	3.6	3.0	2.1	G	S	4.4	4.4	[7]4.8	[7]5.7	4.9	4.1	3.9	3.6	2.5[G]	G	[7]3.2	[7]3.3	[7]5.1	[7]5.1	[7]1.9	S
15	E	S	S	E	1.5	G	G	3.5	4.0	5.7[M]	[7]8.0[Y]	4.5	4.1	4.1	4.6	4.8	4.6	4.5	B	[7]2.3	[7]4.2	4.6	3.1	[7]3.2
16	3.0	2.3[M]	E	E	E	E	2.6	3.1	3.7	5.7	4.5	3.7[G]	4.3[S]	4.1	3.7	[7]3.6	2.5[G]	[7]3.7	[7]4.7	[7]4.0	3.1[M]	2.5[M]	2.1[M]	[7]4.4[S]
17	S	S	[7]1.6	1.9[M]	E	2.1[S]	G	3.4	3.5	4.2	4.5[S]	4.1	4.0[S]	G	3.9	3.5	3.9	3.3	S	S	E	E	E	S
18	S	S	E	E	E	G	2.5	3.1	3.7	4.0	3.5[G]	3.2[G]	G	4.2	3.8	2.4[G]	G	S	B	2.5	S	[7]4.8	[7]2.2	S
19	S	E	S	E	E	S	B	G	G	G	G	4.9	4.3	4.3	3.6	3.1[G]	3.9	[7]3.3	4.2	[7]2.5	2.2[M]	S	[7]2.3	E
20	S	S	E	E	S	E	2.5	3.0	3.5	G	G	G	G	G	G	G	G	[7]3.7	3.4	2.7	[7]2.4	3.0	S	E
21	S	E	E	E	E	E	S	3.5	G	G	4.4	3.7[G]	G	G	G	G	G	3.8	3.9	3.8	2.3	2.1	S	2.1
22	E	E	E	1.8	1.6	2.3	S	2.4	3.6	3.9	3.9	4.2	4.3	4.2	4.0	3.9	3.2	[7]3.9	4.8	[7]2.9	E	S	S	[7]3.0
23	E	E	S	E	1.5	S	B	G	3.6	4.3	4.5	3.6	G	G	G	4.4	[7]5.2	[7]6.5	[7]5.3	[7]6.9[S]	[7]4.9	S	[7]6.3	[7]2.9
24	S	S	E	E	2.3	S	G	2.9	3.3	3.8	3.6	G	G	G	G	G	G	3.6	B	[7]4.5	S	S	E	2.9
25	S	[7]3.4	3.3	1.5	1.9	2.7	[7]5.7	[7]5.3	3.6	3.8	3.9	G	G	2.9[G]	G	G	G	S	[7]3.4	[7]2.2	[7]2.0[S]	2.7[MS]	[7]3.4	3.3
26	E	S	E	S	E	S	G	S	G	G	3.3[G]	3.9	G	G	G	B	G	2.8	2.1	2.8[M]	[7]3.2[S]	[7]4.2[S]	[7]5.0	[7]2.9
27	[7]3.3	S	1.4	1.9[M]	1.4	S	2.5	2.9	3.7	4.0	4.5	4.3	2.9[G]	G	G	G	3.0	2.8	[7]2.2	[7]2.5	3.7	[7]2.9	2.3	S
28	2.3[M]	S	E	E	1.5[M]	E	S	3.1	3.6	G	G	G	G	G	G	4.3	3.9	3.5	2.4	E	[7]2.5	E	S	E
29	[7]2.3	3.0	[7]2.4	[7]2.6	E	S	G	S	3.6	3.9	3.7	3.8	3.7[G]	G	G	G	3.1	2.0	E	[7]3.1	[7]3.4	[7]2.9	[7]2.6	2.1
30	S	S	E	E	E	S	S	S	G	4.0	4.0	[7]4.0	4.3	4.2	4.0	3.9	3.5	3.0	[7]2.4	[7]2.8	[7]2.3	2.2[S]	S	[U]2.5[Y]
31																								
No.	19	18	25	27	27	18	23	26	30	30	28	29	27	30	29	28	30	28	25	29	28	22	25	23
Median	2.5	2.2	E	E	1.5	2.2	2.3	3.2	3.7	4.0	4.2	3.9	4.0	3.8	3.7	3.8	3.8	3.4	3.4	3.1	3.3	3.5	3.1	2.9
U. Q.	4.0	3.4	2.6	2.3	1.9	2.8	2.6	3.5	4.0	5.0	4.5	4.4	4.3	4.2	4.1	4.4	4.7	4.0	4.8	4.8	5.0	4.9	3.6	3.2
L. Q.	1.8	E	E	E	E	G	G	2.9	3.5	3.8	3.6	G	G	G	G	G	G	3.0	2.4	2.5	2.4	2.7	2.3	2.3
Q. R.	2.2							0.6	0.5	1.2	0.9								2.4	2.3	2.6	2.2	1.3	0.9

foEs

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

The Radio Research Laboratories, Japan.

K 4

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.9	3.6	2.5	E	E	1.9	2.4	3.0	3.6	4.9	4.1	4.0	4.2	5.7	3.6	3.7	5.3	3.2	4.2	4.1	2.2	S	2.4	3.9
2	5.0	2.7	2.1	2.8	1.7	E		3.2	4.0	3.9	4.2	5.5	B	5.3	8.3	5.3	3.9	6.1	6.6	4.0	2.2	3.1	2.1	S
3	S	S				S		3.2			B	B	B	4.9	S	B		3.0	3.0	2.1	1.9	3.7	4.4	1.8
4	2.2	1.7			S	S		3.1	3.7	5.0	B		B			4.0	5.1	4.1	3.9	E	5.4	4.5	2.0	6.2
5	3.4	2.6	1.7	3.9	3.1	2.3	2.6	3.6	3.9	3.6	3.8	A	4.0	4.0	A	A	4.7	2.8	B	4.0	5.0	S	3.8	A
6	A	3.3	2.3	2.2	A	3.4	A	3.2	3.5	3.7	4.2	E 3.9 S	E 4.3 S	E 3.5 S		3.7	5.0	5.8	6.1	4.1	A	2.4	2.6	2.4
7	2.8	2.2	2.4		1.7	1.9	4.0	3.4	4.5	5.3	4.7	3.9	E 4.0 S		U 4.5 S	4.2	3.8	5.1	3.1	4.9	3.4	2.1	2.5	2.5
8	3.1	1.9	E	1.8	E	S	2.3	2.4 T	2.5 T	E 4.0 S	4.7	4.5		4.2	4.5	5.1	4.3	3.2	2.4	3.5	2.6	2.4	2.6	S
9	1.8	S	S			B		3.3	5.4 S	5.1	4.1	E 3.7 S	E 4.0 S	E 3.6 S	5.9	5.3	6.4	2.5	2.1	4.2	3.8	2.6	2.5	2.2
10	1.5	1.8		S		S	B	3.1	3.9	4.2	U 3.8 S	U 4.8 S	U 4.0 S	E 4.1 S	4.0	3.4	U 3.0 S	2.6	2.2	2.6	2.9	3.6	1.7	2.0
11	S	S	S	S	S	S	2.3	3.4	4.1	5.4	E 3.6 S	3.0 T		4.6	3.7	3.8	4.2	2.9	2.1		2.2	S	2.1	S
12	1.9					1.7	U 2.0 T	2.8	3.8	4.4	4.2	4.4	4.5	E 4.0 S	4.1	4.2	U 4.8 S	3.4	2.8	2.5	2.3	S	2.3	2.2
13	2.0	2.5	2.0	1.7	2.2	2.3	2.5	3.0	3.7	3.8	5.7						3.5	2.6	4.3	3.9	A	A	1.9	2.1
14	S		1.9	2.5	2.0	1.7		S	4.0	4.4	4.7	5.2	4.9	4.1	U 3.9 S	3.5	2.5 T		2.1	1.9	3.0	3.6	1.9	S
15		S	S		1.5			3.1	3.8	5.3	6.8	4.5	U 4.1 S	U 4.1 S	4.6	4.3	4.5	3.5	B	2.0	2.2	4.3	2.5	U 3.2 S
16	2.6	1.7					2.5	3.0	3.6	5.3	4.4	U 3.5 A	4.2	4.1	3.7	3.6	2.5 T	3.2	3.3	2.1	2.3	1.9	E	E
17	S	S	1.4	E		S		3.1	3.5	3.9	U 4.5 S	U 4.1 S	E 4.0 S		3.8	3.5	3.8	2.8	S	S				S
18	S	S					2.5	E 3.1 S	3.6	4.0	3.5 T	E 3.2 T		4.1	3.0 T	2.4 T		S	B	2.0	S	2.7	1.9	S
19	S		S			S	B					4.6	4.3	4.2	3.6	3.1 T	3.9	2.8	2.7	2.1	1.9	S	2.1	
20	S	S			S		2.5	3.0	3.4									2.6	2.1	1.8	2.0	2.3	S	
21	S						S	3.5			4.2	E 3.7 S						2.3	2.5	3.5	1.7	1.8	S	2.1
22				1.1	1.0	1.8	S	E 2.4 S	3.2	3.9	3.9	4.2	4.2	4.1	4.0	3.7	3.2	3.8	4.5	2.0		S	S	1.8
23			S		1.5	S	B		3.5	4.2	4.5	E 3.6 R				3.4	3.5	4.8	3.5	4.8	2.7	S	3.2	2.0
24	S	S			1.6	S		2.8	3.3	3.6	E 3.6 S							2.5	B	2.7	S	S		2.1
25	S	2.5	1.8	E 1.5 S	1.6	2.1	2.3	3.6	2.9	3.7	3.8			2.8 T				S	2.3	1.7	1.9	2.0	1.9	2.3
26		S		S		S		S			3.3 G	3.9				B		2.8	2.0	2.2	2.1	2.0	2.2	2.4
27	2.7	S	1.4	1.4	1.3	S	2.5	2.9	3.5	3.8	4.2	4.1	2.9 T				2.9	2.5	1.8	2.1	2.4	2.2	2.1	S
28	1.7	S			E		S	2.9	G							3.3	3.1	2.2	1.8		1.9		S	
29	1.8	1.5	1.7	1.7		S		S	3.2	3.6	E 3.7 S	G	E 3.7 T				2.8	E 2.0 S		2.2	2.6	2.5	2.1	1.8
30	S	S				S	S	S		4.0	3.7	3.8	4.2	4.2	3.5	3.5	2.7	2.3	2.1	1.7	1.9	1.9	S	2.2
31																								
No.	15	12	12	12	15	10	13	24	25	24	25	23	15	18	17	21	23	27	24	27	26	20	23	20
Median	2.6	2.4	1.8	1.7	1.6	1.9	2.5	3.1	3.6	4.0	4.2	4.0	4.1	4.1	4.0	3.7	3.8	2.8	2.6	2.2	2.3	2.4	2.1	2.2

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

The Radio Research Laboratories, Japan.

K 5

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IONOSPHERIC DATA

Sep. 1960 | f-min | 135° E Mean Time (G.M.T.+ 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.50 S1.50	1.50	1.40	1.20	E1.70 S	1.90	2.00	2.25	2.25	2.40	2.60	2.90	2.55	2.30	2.10	2.20	2.25	2.10	E1.80 S	E1.50 S	E1.60 S	E1.50 S	E1.30 S
2	E1.60 S	1.20	E1.50 S	1.20	E1.30 S	1.40	2.00	2.10	2.70	2.30	2.65	2.90	5.65	3.45	2.90	2.80	2.15	1.75	1.95	E1.70 S	E1.80 S	E1.70 S	E1.80 S	E1.85 S
3	E1.60 S1.80 S	1.30	1.30	1.20	E1.80 S	2.25	2.00	2.60	2.30	5.20	B	7.50	3.00	2.50	6.10	2.80	1.85	1.70	E1.70 S	1.50	E1.60 S	E1.50 S	E1.45 S
4	E1.60 S1.50 S	1.20	1.15	E1.80 S	E1.70 S	1.70	1.80	2.15	2.20	4.45	2.90	4.30	2.60	2.25	2.10	1.90	1.70	1.90	E1.60 S	E1.90 S	E1.50 S	E1.40 S	E1.85 S
5	E1.60 S1.50 S	E1.40 S	1.10	1.10	1.15	E1.90 S	1.80	1.95	2.15	2.75	2.60	3.10	2.80	2.10	2.20	1.90	1.85	1.95	1.20	E1.70 S	E1.40 S	E1.50 S	E1.50 S
6	E1.70 S1.70 S	E1.50 S	1.40	1.30	1.55	1.80	2.10	2.20	2.20	2.25	2.70	3.20	2.55	2.55	2.30	2.15	1.95	2.20	1.90	1.65	1.40	1.45	1.70
7	1.50	1.25	1.80	1.50	1.00	1.50	E2.15 S	2.20	2.30	2.30	2.30	2.50	3.00	2.95	2.50	2.50	2.20	1.90	E1.95 S	E1.50 S	E1.70 S	E1.50 S	E1.60 S	E1.60 S
8	E1.80 S	1.20	1.10	1.00	E1.30 S	1.50	E1.80 S	1.90	2.00	2.20	2.20	2.30	3.55	3.10	2.80	2.70	2.10	1.90	1.50	1.20	1.45	E1.60 S	E1.50 S	E1.80 S
9	1.20	E1.60 S	E1.90 S	1.10	1.40	1.50	2.00	2.00	2.10	2.25	2.60	2.80	3.10	3.30	2.60	2.50	2.20	1.70	1.70	1.20	1.40	1.60	1.20	1.40
10	E1.30 S1.60 S	1.20	E1.80 S	1.20	E1.90 S	2.30	2.20	2.10	2.55	2.80	2.80	3.60	2.90	2.20	2.00	2.00	1.90	1.50	1.40	1.40	E1.80 S	E1.70 S	E1.70 S
11	E1.70 S1.90 S	E1.30 S	E1.45 S	E1.80 S	E1.75 S	1.95	1.85	2.15	2.45	2.60	2.40	2.50	2.50	2.50	2.10	2.10	1.40	1.85	1.50	1.45	E1.30 S	E1.80 S	E1.90 S
12	E1.30 S1.35	1.20	1.20	1.45	E1.40 S	1.80	1.95	1.90	2.30	2.55	2.40	2.20	2.80	1.90	2.15	1.90	E1.85 S	E1.45 S	E1.70 S	E1.70 S	E1.40 S	E1.50 S	E1.40 S
13	1.35	1.35	E1.50 S	1.05	E1.30 S	1.50	E1.80 S	1.90	2.10	2.20	2.65	2.60	2.20	2.55	2.50	2.20	2.10	2.15	1.60	1.35	1.75	1.75	1.80	E1.90 S
14	E1.75 S1.55	E1.70 S	E	1.10	E1.65 S	E1.80 S	E3.60 S	1.95	2.60	2.50	2.80	3.10	2.55	2.60	2.40	2.20	1.80	E1.50 S	E1.50 S	E1.40 S	E1.70 S	E1.50 S	E1.70 S
15	1.30	E1.90 S	E1.55 S	1.10	1.00	1.40	E1.90 S	1.90	1.95	2.40	4.00	3.60	3.10	3.30	2.50	2.10	2.20	1.70	1.95	1.60	E1.50 S	1.50	E1.70 S	E1.55 S
16	1.40	E1.45 S	1.20	1.30	1.45	1.10	1.80	2.15	2.20	2.70	2.70	2.95	2.90	2.55	2.20	2.20	1.70	1.80	E1.40 S	E1.60 S	E1.40 S	E1.40 S	E1.40 S	E1.60 S
17	E1.50 S1.70 S	1.10	1.10	1.30	E1.60 S	1.60	E1.90 S	2.10	2.20	2.80	2.90	3.15	2.70	2.55	2.10	2.00	1.70	E1.65 S	E1.40 S	1.40	1.45	1.30	E1.80 S
18	E1.60 S1.50 S	1.05	1.05	1.00	E1.40 S	1.95	2.10	2.20	2.20	2.70	2.70	2.40	2.10	2.00	1.95	1.60	E2.50 S	1.60	E1.60 S	E1.60 S	E1.40 S	E1.60 S	E1.70 S
19	E1.65 S1.15	E1.70 S	1.05	1.10	1.45	2.40	1.80	2.10	2.20	2.50	2.65	2.45	2.20	2.20	2.10	1.95	1.85	1.50	E1.70 S	E1.45 S	E1.80 S	E1.55 S	1.20
20	E1.40 S1.50 S	1.10	1.10	E1.60 S	E1.30 S	E1.55 S	1.85	1.85	2.15	3.00	2.90	2.80	2.35	2.75	2.20	2.15	2.00	1.90	1.30	1.40	E1.80 S	E1.80 S	1.55
21	E1.90 S	1.45	1.05	1.10	1.10	1.40	E2.20 S	1.85	2.15	2.15	E2.80 S	2.15	E2.90 S	2.25	2.15	2.10	1.55	E2.10 S	1.45	1.55	1.60	1.65	E2.10 S	E1.90 S
22	1.50	1.55 S	1.15	E	E	E1.70 S	E2.30 S	1.95	1.90	2.30	2.25	2.30	2.80	2.50	2.20	2.10	1.95	2.10	1.45	E1.50 S	1.20	E1.50 S	E1.70 S	1.25
23	1.20	1.45	E1.60 S	1.10	1.00	E1.30 S	2.10	1.80	1.90	2.15	2.50	2.50	2.40	3.10	2.30	2.20	2.00	1.90	E1.90 S	E1.40 S	E1.80 S	E1.50 S	E1.70 S	1.40
24	E1.45 S	E1.60 S	1.00	1.10	E1.50 S	E1.45 S	2.15	1.80	1.90	1.90	2.40	2.50	2.20	2.70	2.20	2.05	2.05	1.70	1.60	E1.65 S	E1.75 S	E2.00 S	1.40	E1.65 S
25	E1.90 S	E1.50 S	E1.70 S	1.05	E1.40 S	E1.50 S	1.60	1.80	2.10	2.40	2.20	2.50	2.20	2.20	2.15	2.10	E2.20 S	1.45	1.20	E1.40 S	E1.70 S	1.25	E1.60 S
26	1.30	E1.60 S	1.30	E1.30 S	1.20	E1.50 S	1.70	E2.80 S	2.10	2.20	2.25	2.30	2.30	2.20	2.00	3.70	2.20	1.70	E1.70 S	E1.80 S	E1.55 S	E1.55 S	E1.40 S	E1.40 S
27	E1.70 S	E1.60 S	1.10	1.20	1.20	E1.40 S	1.85	2.10	1.80	2.10	2.20	2.20	2.20	2.30	2.30	2.10	2.20	E1.80 S	1.50	1.30	1.40	1.40	E1.60 S	E1.60 S
28	E1.40 S	E1.60 S	1.20	1.20	1.10	1.45	E2.20 S	1.90	2.00	2.15	2.35	2.45	2.35	2.05	2.15	1.85	1.75	1.75	1.45	1.40	1.65	1.50	E1.90 S	1.55
29	1.40	1.25	E	1.05	1.00	E1.85 S	E1.95 S	E2.70 S	2.00	2.15	2.40	2.55	2.25	2.10	1.85	1.95	2.15	1.80	1.80	1.60	E1.80 S	1.45	E1.85 S	1.40
30	E1.75 S	E1.80 S	E1.75 S	1.05	1.40	E1.85 S	E2.10 S	E3.00 S	2.40	2.10	2.10	2.05	2.20	2.10	2.05	1.95	1.70	1.70	E1.80 S	E1.60 S	E1.60 S	E1.70 S	E1.80 S	E1.40 S
31																								
No.	30	30	18	27	22	30	22	26	30	30	29	30	29	30	30	30	30	26	25	30	30	30	30	30
Median	E1.50	E1.50	1.20	1.10	1.15	E1.50	1.80	1.90	2.10	2.20	2.50	2.60	2.80	2.55	2.30	2.10	2.10	1.80	1.60	E1.50	E1.50	E1.50	E1.60	E1.60

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Sep. 1960 | (M3000)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	z.50	z.60	z.65	z.80	z.60	z.55	3.10	3.20	3.20	z.90	z.85	z.90	z.85	z.95	^{u}z.95^{s}	3.10	3.05	3.10	3.10	^{J}3.00^{s}	z.90	z.60	z.65^{s}	z.40
2	z.60	z.65^{s}	z.65	z.90	3.00	3.05	3.15	3.15	3.25	3.15	z.80	z.80^{R}	z.90^{R}	z.85	^{J}z.80^{s}	^{J}z.90^{s}	z.90	z.95	3.00	^{u}3.05^{s}	z.85	z.70^{s}	z.65	z.60
3	z.55^{s}	z.40	z.70	3.10	3.05	z.60	z.90	^{J}z.95^{s}	3.25	z.95	z.75	^{I}z.90^{B}	^{J}z.85^{R}	z.95	^{J}z.90^{R}	z.85	z.95	z.80	z.85	3.05^{s}	z.90	z.45	z.45	z.40
4	z.50	z.50	z.60	3.05	3.10	z.45	z.65	z.85	3.20	z.95	z.90	^{J}z.95^{R}	3.15	z.90	3.10	z.95	z.95	z.95	z.70	z.70	z.70	^{I}z.70^{s}	z.45^{s}	z.40^{s}
5	z.50	z.40	z.65^{s}	z.60	z.40	z.60	z.30	z.80	z.65	G	G	A	G	^{I}z.10^{s}	^{I}z.10^{A}	^{I}z.40^{A}	z.70	z.70	z.40	z.25	z.35	z.35	z.55	^{I}z.50^{A}
6	^{I}z.65^{A}	z.20	^{u}z.40^{s}	z.30	^{I}z.40^{A}	z.30	^{I}z.40^{A}	z.40^{s}	z.45	A	R	R	z.75	3.05	3.05	3.05	z.90	z.75	^{u}z.90^{R}	z.95^{s}	^{I}z.80^{A}	z.50	z.50	z.55
7	z.55	z.55	z.55	z.55	z.65^{s}	z.75	3.05	3.15	z.95	z.95	z.75	z.85	z.80	3.00	z.90	z.95	3.00	3.00	3.05	^{u}z.80^{s}	z.80	z.75	^{J}z.65^{s}	z.80
8	z.35	z.55	z.65	3.05	z.45	z.50^{F}	3.00^{s}	3.15	3.10	z.85	z.85	z.75	z.70	z.80	z.85	z.85	z.75	z.85	3.00^{s}	^{u}z.90^{s}	^{I}z.70^{s}	z.60	z.65	^{u}z.65^{s}
9	z.65	z.50	z.65	z.65	z.45	z.50	3.10	z.90	z.85	^{J}z.80^{R}	z.85	z.85	z.90	z.70^{s}	^{u}z.65^{s}	z.75	z.90	z.90	z.90	3.00	z.85^{s}	z.65	z.55	z.70
10	^{I}z.60^{s}	z.45	z.55	z.60	z.50	z.40	z.90	3.05	^{J}3.05^{s}	z.85	z.85	^{u}z.80^{s}	z.95	z.85	z.90	z.85	z.85	z.85	3.00	3.00	^{u}z.80^{s}	z.70	z.75^{s}	^{u}z.75^{s}
11	z.65^{s}	z.70	z.50	z.40	z.45^{s}	z.45	z.90	^{u}3.20^{s}	^{J}3.10^{s}	3.00	z.85	z.70	z.75	z.65	z.75	z.90	z.95	z.95	z.75	z.70	z.75	^{u}z.70^{s}	z.55	^{u}z.60^{s}
12	^{I}z.60^{s}	z.65	z.65	z.65	z.40	z.45	3.05	^{u}3.05^{s}	3.30	z.65	z.70	z.70	z.70	z.65	z.60	z.65	z.80	z.90	z.85	z.75	z.85	z.70	^{J}z.65^{s}	z.70^{s}
13	z.55	z.45	z.50	z.70	z.60	z.75^{s}	^{u}3.05^{s}	3.20	3.05	z.75^{R}	z.75^{R}	z.75	z.65	z.60	z.65	z.65	z.70	z.75^{R}	z.80^{s}	^{u}z.70^{s}	^{I}z.60^{A}	^{I}z.50^{A}	z.75^{s}	z.65^{s}
14	^{u}z.65^{s}	z.40	z.75^{s}	z.80	z.70	z.85	3.05^{s}	3.00^{s}	z.95	z.75^{R}	z.65	z.60	z.65	z.60	z.70	z.75	z.80	z.85	^{u}3.10^{s}	3.00	z.50^{A}	z.40	z.60	z.60
15	^{u}z.60^{s}	z.55	z.60	z.65^{M}	z.65	z.60	3.05	3.20	3.05	z.80	z.65	z.75	z.75	z.70	z.80	z.75	z.75^{s}	z.75	^{u}z.95^{s}	z.85	z.80	^{u}z.55^{s}	z.50	^{J}z.60^{s}
16	z.70	z.65	z.70	z.65	z.65	z.65	3.15	3.20	z.90	z.85	z.65	z.70	z.60	z.65	z.65	z.70	z.80	z.80	z.95	^{I}z.90^{s}	z.75	^{I}z.60^{s}	z.65	z.55
17	z.70^{s}	z.80^{s}	z.65	z.65	z.65	z.80	3.20^{s}	^{J}3.20^{s}	z.95	z.85	z.75	z.70	z.65	z.65	z.65	z.70	z.75	z.75	3.00	^{I}3.00^{s}	z.85	^{I}z.60^{s}	z.60	z.60^{s}
18	^{u}z.65^{s}	z.65^{s}	z.70	^{u}z.95^{s}	z.70	z.80	3.25	^{J}3.15^{s}	3.05	3.00	z.80	z.60	z.55	z.55	z.65	z.60	z.70	z.80	z.90	^{J}z.70^{s}	z.60	^{I}z.60^{s}	z.70	z.75
19	z.75	z.70	z.60	z.65	z.60	z.65^{s}	^{I}3.10^{s}	3.15	3.10	3.05	z.75	z.75	z.70	z.65	z.60	z.75	z.80	z.90	3.05	^{u}z.95^{s}	z.65	^{I}z.65^{s}	z.75	z.75
20	^{J}z.75^{s}	^{u}z.80^{s}	^{I}z.85^{s}	z.80	z.75	z.70	3.10	3.15	3.05	z.95	z.70	z.65	z.55	z.60	z.65	z.65	z.70	z.90^{s}	3.05^{R}	z.95^{s}	z.60^{s}	z.55^{s}	^{u}z.65^{s}	z.55^{R}
21	^{u}z.50^{s}	z.60^{s}	z.75^{s}	z.70	z.75	z.75	3.15^{s}	3.15	3.10	z.85	z.75	z.65	z.65	z.60	z.65	z.70	z.75	z.80^{s}	z.90^{s}	3.05^{R}	^{J}z.75^{s}	z.50^{s}	^{u}z.60^{s}	^{u}z.55^{s}
22	z.50^{s}	^{u}z.60^{s}	z.60	z.55	z.60	z.55	^{u}3.25^{s}	3.15	3.10	3.05	z.70	z.70	z.70	z.70	z.85	z.85	z.80	z.90	3.00	^{u}z.95^{s}	3.00	^{u}z.50^{s}	z.55	z.60
23	z.60	z.60	z.60^{s}	z.50	z.50	z.70	3.10	3.25^{s}	3.00	z.90	z.75	z.65	z.70	z.75	z.75	z.80	z.85	z.70	^{J}z.90^{s}	z.75^{s}	z.90	^{J}z.65^{s}	z.60	^{u}z.60^{s}
24	z.55	z.60	z.55	^{u}z.75^{s}	z.55	z.75	3.35	3.20^{s}	3.20	3.05	z.80	z.65	z.65	z.75	z.65	z.80	z.75	z.80	z.80	z.85	^{u}z.95^{s}	z.70	z.80^{s}	z.60
25	z.80^{s}	z.65	z.70	z.55	z.45^{s}	^{u}z.70^{s}	^{u}3.15^{s}	3.05	3.20	3.00	z.70	z.85	^{J}z.75^{s}	^{J}z.80^{R}	^{J}z.80^{R}	^{u}z.80^{s}	z.95	3.00	3.15	3.00	^{J}z.80^{s}	z.65	z.75	z.80
26	z.80	z.75	z.80	z.85	z.75	^{u}z.65^{s}	3.15	3.20	3.25	3.05	z.95	z.75	z.90	z.75	z.80	z.90	z.90	3.10	3.10	3.10	z.85	z.60	z.65^{s}	z.65^{s}
27	z.80	z.65	z.85	z.90^{s}	z.75	^{u}z.85^{s}	^{J}3.15^{s}	3.15	3.20	3.10	3.00	z.80	z.75	z.70	z.80	^{u}z.90^{s}	z.95	3.05^{s}	^{I}3.00^{s}	3.00	z.90	z.75	z.60	z.80
28	z.75	z.80	z.75	z.65	z.95	z.60	^{J}3.05^{s}	^{J}3.25^{s}	3.30	z.80	z.85	z.80	z.85	z.85	z.80	z.90	z.95	3.10	3.25	3.00	z.65^{s}	z.60	z.60	z.75
29	z.75	z.70	z.70	z.75	z.65^{s}	z.75^{s}	3.10	3.10	3.15	3.00	z.95	z.85	z.85	z.95	z.85	z.90	3.00	3.10	^{J}3.00^{R}	z.90	^{u}z.90^{s}	3.10^{R}	z.65	z.85
30	z.70	z.70	z.55	z.85	3.15	^{u}z.50^{s}	3.05^{s}	3.20^{s}	3.25	3.05	3.00	3.05	z.90	z.95	z.80	3.05	3.10	3.20	^{I}3.10^{s}	3.00	z.65	z.70	z.65	z.65
31																								
No.	30	30	30	30	30	30	30	30	30	29	29	28	30	30	30	30	30	30	30	30	30	30	30	30
Median	z.60	z.60	z.65	z.70	z.65	z.65	3.10	3.15	3.10	z.95	z.80	z.75	z.75	z.70	z.80	z.80	z.85	z.90	3.00	z.95	z.80	z.60	z.65	z.60

(M3000)F2 Sweep 1.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Sep. 1960 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	A	"3.50L	L	"3.55L	A	3.45L	L	A							
2									L	L	L	A	B	A	A	A	L	A	A					
3								L	L	L	B	B	B	L	L	B	L							
4								3.35	3.65L	A	"3.35L	L	3.50L	L	3.70L	"3.45L	A	A	A					
5							2.80	3.25	3.30	3.55	3.25	A	3.55	3.30S	A	A	A	L	L					
6							A	3.15	3.45	A	R	R	S	"3.60S	"3.60S	S	A	A	A					
7								L	A	A	L	"3.55L	"3.45L	"3.50L	L	L	L	A						
8									L	L	L	L	"3.30L	L	L	A								
9									A	L	"3.65L	"3.50L	3.40L	L	A	A	A							
10								L		L	L	L	L	"3.30L	"3.45L	L	L							
11										A	L	L	3.35L	L	"3.55L	"3.60L								
12									L	L	"3.50L	3.35L	"3.40L	L	3.40	L	A							
13										S	AS	L	3.35L	L	L	L	L							
14										L	L	L	"3.50L	"3.40L	L	"3.35L	L							
15									L	L	A	L	"3.55L	3.35L	L	L	A							
16										A	L	3.50L	L	"3.35L	L	"3.45L	L							
17									L	L	L	L	"3.40L	"3.35L	"3.35L	L								
18										L	L	L	L	3.15L	L	L								
19										L	L	L	L	L	L	L								
20											L	L	L	L	L	L	L							
21										S	L	L	L	L	L	L								
22									S	L	L	L	L	L	L									
23											L	L	L	L	L									
24										S		S	L	S	S	S								
25										L	L	L	"3.70L	L	L	L								
26										L	L	L	L	L	L	L								
27										L	L	L	"3.35L	L	L	L								
28										L	L	L	L	L	L	L	L							
29									S	L	LH	L	L	S	L		L							
30											L	L	"3.60L											
31																								
No.							1	3	3	1	5	4	15	9	7	4								
Median							2.80	3.25	3.45	3.55	"3.50	"3.50	"3.45	"3.35	"3.45	"3.45								

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Sep. 1960 | h'F2 | 135° E Mean Time (G.M.T. + 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									290	310	330	300	340	305	300	290	260							
2									255	260	300	320	300	300	E340A	295	295	E300A	E300A					
3								290	250	280	310	B	E340B	320	330	E350B	300							
4								350	290	330A	350	320	305	325	300	305	310A	285	305A					
5							505	450	420	G	G	A	G	S	A	A	E400S	L	400L					
6							A	470	480	A	R	R	410	335	295	320	290	E375A	300					
7								265	270	300	345	325	305	300	305	300	285	270A						
8									255	300	300	300	335	330	305	290								
9									275	300	300	300	305	305	340	300	300							
10								275		255	330	280	300	330	330	L	280L							
11										255	280	300L	330	330	320	305								
12									230	260	330	345	325	300	350	305	300							
13										250	310	325	355	320	325	330	300							
14										260	300L	305	330	335	325	345	300							
15									260	270L	E330A	320	310	335	280	290	275							
16										250	255	330	310	320	305	325	270							
17									255	255	255	300	310	330	315	300								
18										250	260	300	310	300	310	300								
19										250	300L	300	300	305	305	295								
20											310	295	310	345	315	310	295							
21										250	300L	305	325	345	305	305								
22									250	240	250	270	300	300	290									
23											260	260	305	300	275									
24										250		300	310	300	305	300								
25										250	260L	290L	260	270	260	255								
26										250	240	300	275	255	300	290								
27										255	250	255	305	270	305	285								
28										250	300	300	295	275	300	300	275							
29									250	250	255	290	300	300	260		260							
30											255	250	300											
31																								
No.							1	6	14	26	27	27	29	28	27	23	16	4	4					
Median							505	320	260	255	300	300	310	310	305	300	290	E290	E300					

h'F2

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

The Radio Research Laboratories, Japan.

K 9

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E420A	350A	310	255	280	340	255	230	235	I230A	240	220	230	I250A	210	210	I250A	260	255A	260A	250A	255	300A	E390A
2	E390A	310A	300	290A	245	250	250	240	250	230	230	A	B	A	I255A	I255A	250	I255A	I260A	255	250	300A	275	305
3	325	350	295	245	220	310	255	250	250	230	B	B	B	E290S	255	I260B	275	275	270	230	240	E400A	E420A	360
4	340	330	305	245	255	345	275	250	250	I250A	260	255	245	235	235	255	I255A	I260A	I290A	280	300A	320A	300	E450A
5	350A	340	290	E360A	360A	350A	E350A	E300A	255	250	270A	I245A	250	260	A	A	I260A	280A	330	E460A	E490A	300	360A	I360A
6	I350A	E590A	405A	440A	A	E510A	A	275	245	230	230	E275S	I240S	250	225	225	A	A	A	270	I290A	335	355	350
7	335	305	300	310	325	305	285	230	I225A	I220A	255	200	230	240	250	250	260A	I260A	250A	E300A	280A	260	300	290
8	400A	305	290	250	310	310	250	235	225	I215S	250A	230	220	245	245	I260A	260	260A	250	250A	290A	320A	310A	295
9	290A	305	300	260	250	320	250	250	A	E290A	210	210	230	220	I230A	I250A	I240A	255	260	260A	270A	260	315	280
10	270	320	300	305	290	360	250	230	250	220	200	245	225	230	230	230	245	260	255	260	260A	320A	300	295
11	285	275	305	355	350	350S	255	235	235	I230A	205	205	210	245	235	245	250	250	275	275	275	290	305	305
12	305	300	280	295	330	345	235	235	220	210	205	250	245	245	230	250A	I230A	260A	250A	260A	260A	260	260A	260A
13	300A	325A	330	295	280	290	245	245	230	225	245	210	250	255	E300S	245	250	260	255	280	I310A	A	280	300
14	270	315	300	260	280	285	250	250	250	245	245	255	255	230	220	245	250	255	250	230	250H	350A	300	305
15	300	300	280	250H	260	295	250	250	230	245	A	230	225	240	250	250	I250A	255A	250	255	255	E345A	325	340
16	305	295	295	260	280	290	245	240	230	I225A	240	225	220	225	250	250	250	260	260A	250A	250A	290	300	295
17	295	275	275	275	260	230	235	235	230	220	U225S	215	245S	230	245	245	250	255	260	240	245	250	290	300
18	300	295	280	255	250	255	235	230	230	225	225	240	250	230	245	250	250	255	250	260	245	300A	300	255
19	275	275	285	275	275	300	245	235	230	230	225	240	250	250	230	250	255	260	250	240	250	295	295	295
20	290	275	255	245	255	260	235	230	240	230	210	205	250	255	230	250	250	260	250	230	260	270	270	275
21	300	280	280	255	255	280	245	245	235	230	210	205	200	220	235	250	260	250	245	250	230	250	300	310
22	310	300	265	270	260	300	245	235	245	220	220	210	220	245	250	245	250	255	250A	225	210	290	300	300
23	305	305	300	280	300	280	235	240	245	230	230	220	230	210	250	255	255	250A	255	E280A	250	225	300A	300
24	295	305	295	255	300	300	245	230	230	210	210	205	210	210	250	245	255	250	250	285	230	250	250	300
25	300	300	300	300	350	285	225	235	230	225	220	220	220	E250S	230	220	250	250	230	225	250	250	280	295
26	290	280	260	250	230	295	245	245	225	210	225	205	205	205	240	250	250	250	230	225	230	290	305	300A
27	300A	300	260	250	255	255	230	250	225	220	225	225	225	220	245	245	250	245	230	245	250	275	300	275
28	265	270	260	275	245	235	250	245	225	210	210	225	245	240	230	250	250	250	225	230	250	255	300	265
29	255	295	300	260	245	300	210	235	230	205	210	205	230	I225S	245	240	245	250	225	230	250	270	275	280
30	295	285	305	275	245	320	245	230	240	240	240	225	210	250A	240	250A	250	245	230	210	255	300	305	305
31																								
No.	28	29	30	29	29	29	28	29	29	29	28	27	28	27	28	29	29	29	29	27	29	27	29	28
Median	300	300	295	260	260	300	245	235	230	225	225	220	230	240	240	250	250	255	250	250	250	290	300	300

h'F

Sweep 10 Mc to 20 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

K 10

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	105	105	105	110	100	150	130	120	115	115	120	115	110	125	110	105	125	110	110	110	S	110	110
2	105	105	105	100	105	100	G	125	115	110	110	110	B	110	105	105	105	105	105	105	105	100	100	S
3	S	S	E	E	E	S	G	150	G	G	B	B	B	100	S	B	G	140	125	120	110	110	110	100
4	110	100	E	E	S	S	G	140	140	110	B	G	B	G	G	130	130	125	115	110	110	105	110	100
5	105	105	115	120	115	115	115	110	115	115	115	145	110	150	135	130	130	E 245 G	B	110	110	S	105	105
6	105	100	115	120	115	115	110	110	110	115	110	110	115	120	G	145	120	110	110	105	110	120	105	105
7	105	105	105	E	105	105	115	115	110	110	105	105	110	G	115	115	130	115	115	110	105	110	110	105
8	105	100	100	100	S	110	105	105	105	115	110	110	G	115	110	110	105	105	110	105	105	105	105	S
9	105	S	S	E	E	B	G	140	110	110	110	110	105	110	105	105	110	110	110	110	110	105	105	105
10	105	100	E	S	E	S	B	145	115	115	110	110	110	105	105	105	110	155	130	115	110	110	110	110
11	S	S	S	S	S	S	155	125	125	110	110	105	G	115	110	150	130	120	120	E	105	S	100	S
12	105	E	E	E	E	105	105	140	110	110	110	105	130	105	180	105	130	125	110	105	105	S	105	105
13	105	105	100	100	100	100	150	145	145	135	130	G	G	G	G	G	145	145	115	110	110	110	125	105
14	S	E	110	130	100	100	G	S	125	115	110	110	110	105	110	110	110	G	105	105	105	100	105	S
15	E	S	S	E	105	G	G	120	110	115	110	110	115	110	110	105	105	105	B	105	105	105	105	100
16	100	105	E	E	E	E	155	155	160	110	110	110	105	105	105	105	105	100	100	100	100	100	100	105
17	S	S	110	100	E	125	G	160	125	105	110	115	115	G	110	110	150	150	S	S	E	E	E	S
18	S	S	E	E	E	G	160	E 195 G	140	105	105	105	G	105	100	105	G	S	B	115	S	105	105	S
19	S	E	S	E	E	S	B	G	G	G	G	105	105	105	105	105	105	100	100	100	100	S	105	E
20	S	S	E	E	S	E	155	165	160	G	G	G	G	G	G	G	G	140	120	110	105	110	S	E
21	S	E	E	E	E	E	S	125	G	G	120	115	G	G	G	G	G	125	125	110	110	100	S	115
22	E	E	E	110	110	105	S	105	125	130	135	130	130	120	115	110	110	115	110	105	E	S	S	120
23	E	E	S	E	115	S	B	G	125	115	110	115	G	G	G	130	125	115	105	105	105	S	105	105
24	S	S	E	E	105	S	G	120	110	115	115	G	G	G	G	G	G	130	B	105	S	S	E	105
25	S	105	105	110	105	105	105	105	105	105	110	G	G	105	G	G	G	S	115	110	110	115	105	105
26	E	S	E	S	E	S	G	S	G	G	105	105	G	G	G	B	G	125	120	115	110	110	105	100
27	105	S	100	100	110	S	145	150	125	110	100	100	100	G	G	G	155	120	105	105	100	100	100	S
28	100	S	E	E	115	E	S	120	120	G	G	G	G	G	G	145	125	115	120	E	105	E	S	E
29	105	105	100	100	E	S	G	S	125	125	115	115	105	G	G	G	125	120	E	105	105	105	105	105
30	S	S	E	E	E	S	S	S	G	130	105	100	110	110	110	110	110	105	105	105	105	105	S	105
31																								
No.	15	12	12	12	14	12	13	23	25	24	25	23	16	18	17	21	23	26	24	27	26	20	23	20
Median	105	105	105	100	110	105	145	125	120	115	110	110	110	110	110	110	120	120	110	105	105	105	105	105

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

Sep. 1960

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f3	f3	f3	fz	f	l	h	h	C	C	C	C	C	C	h	l	lz	l	lz	f3	fz		f	f3
2	f3	f3	fz	fz	f	l		C	C	C	C	C		lz	l3	l	l	l3	l3	f3	f	fz	fz	
3								h						l				h	h	f	f	f4	f3	f
4	f	f						h	h	C						h	hz	Cz	lz	fz	f3	f3	fz	f3
5	f3	fz	f	fz	f3	lz	lz	lz	l	l	l	h	l	h	h	hz	h	h		f4	f4		f3	f3
6	f4	f3	f3	fz	f3	l4	lz	lz	C	C	l	l	l	l		h	C	h3	l3	f3	f4	f	f3	f4
7	f3	fz	f		f	l	lz	C	C	lz	l	l	l		C	C	h	Cz	lz	f3	f3	f	fz	f
8	fz	fz	f	fz	f	l	l	l	l	C	C	l		l	C	l	lz	lz	lz	f3	f3	fz	fz	
9	f							h	Cz	C	C	l	l	l	l	lz	lz	l	l	f3	f3	fz	fz	fz
10	f	f						h	C	C	l	l	l	l	l	l	l	h	h	fz	fz	fz	f	fz
11							h	C	C	Cz	l	l		C	l	h	hz	Cz	lz		fz		f	
12	f					l	l	h	C	Cz	C	C	hl	l	h	lz	hz	Cz	lz	fz	fz		fz	fz
13	fz	f3	f3	fz	f3	lz	hl	h	h	h	h						h	h	lz	fz	fz	fz	f	f
14			fz	f fz	fz	l			C	C	C	C	l	l	l	l	l		l	f	fz	f3	f	
15					f			C	C	C	l	l	C	l	l	lz	lz	l3		fz	fz	f3	f	fz
16	fz	fz					C	h	hl	l	lz	l	l	l	l	l	l	lz	l3	fz	fz	fz	f	f
17			f	f		l		hl	C	C	l	l	l		l	l	hl	h						
18							h	h	h	l	l	l	l	l	l	l				f		fz	f	
19												l	lz	l	l	l	lz	lz	fz	f	f		f	
20							h	h	h									h	f	f	f4	fz		
21								C			C	l						l	l	f3	f	f		f
22				f	f	f		l	h	h	h	h	h	h	h	C	lz	C	f4	f			f	fz
23					f				h	C	C	C				h	C	C3	f3	f fz	f3		fz	fz
24					f			l	l	C	C							C		f				f
25		fz	f	f	f	f	l	l	l	lz	l			l					f	f	f	f	fz	fz
26											l	l						C	f	f	f	f	fz	fz
27	fz		f	f	f		h	h	hz	C	lz	l	l				h	Cz	f	fz	f	fz	fz	fz
28	f				f			l	C								h	l	f		fz	fz	fz	
29	fz	fz	fz	fz					h	h	l	C	l			h	h	h		f	fz	fz	f	f
30										h	C	lz	C	C	l	lz	l	l	f	f	f	f		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. 1960 | hpF2 | 135° E Mean Time (G.M.T.+ 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	445	400	380	345	360	400	300	285	300	340	355	350	355	330	"340^{S}	305	310	300	305	J320^{S}	340	380	380^{S}	440
2	400	400^{S}	390	330	320	305	300	300	295	300	340	350^{R}	345^{R}	335	J350^{S}	J330^{S}	320	315	310	"305^{S}	330	380^{S}	390	400
3	405^{S}	440	360	300	300	400	305	J315^{S}	285	315	360	I345^{B}	J350^{R}	335	J355^{R}	355	335	345	330	305^{S}	330	450	445	455
4	405	425	400	305	305	440	400	355	290	335	355	J350^{R}	310	340	305	330	335	320	375	370	370	I400^{S}	440^{S}	A
5	415	450	390^{S}	395	450	440	505	350	G	G	G	A	G	S	A	A	A	365	450	500	A	450	405	I380^{A}
6	I360^{A}	A	"490^{S}	505	I500^{A}	505	I500^{A}	G	G	A	R	R	S	350	295	320	325	A	"325^{R}	320^{S}	I370^{A}	420	425	415
7	405	400	375	420	400^{S}	365	310	290	320	315	360	350	350	325	345	340	310	310	305	"335^{S}	335	350	J385^{S}	350
8	455	400	390	305	440	405^{F}	300^{S}	300	300	350	335	350	375	360	350	335	355	345	305^{S}	"325^{S}	I380^{S}	400	400	"390^{S}
9	390	425	400	365	410	430	305	310	350	J345^{R}	350	345	350	355^{S}	"390^{R}	355	335	330	330	320	345^{S}	385	400	360
10	I380^{S}	400	400	400	400	455	310	320	J300^{S}	330	350	"350^{S}	345	355	350	355	350	340	305	330	"355^{S}	390	395^{S}	"360^{S}
11	390^{S}	380	405	455	450^{S}	450	315	"300^{S}	J300^{S}	305	355	380	370	400	355	350	320	315	355	390	355	"400^{S}	405	"400^{S}
12	I400^{S}	400	390	395	440	445	300	"300^{S}	275	380	390	370	375	400	400	395	355	335	330	350	355	360	J390^{S}	375^{S}
13	400	405	420	370	380	355^{S}	"300^{S}	300	300	345^{R}	J355^{R}	360	400	390	380	375	350	345^{R}	350^{S}	"380^{S}	I400^{A}	I420^{A}	390^{S}	400^{S}
14	"395^{S}	450	370^{S}	350	385	355	285^{S}	300^{S}	320	355^{R}	380	400	400	395	395	390	350	345	"305^{S}	300	415^{H}	445	400	405
15	"400^{S}	400	380	395^{H}	385	400	300	295	305	340	400	375	365	385	355	375	350^{S}	350	"310^{S}	335	350	"400^{S}	405	J405^{S}
16	380	395	380	380	400	395	300	300	300	320	380	395	400	400	400	390	350	350	335	I330^{S}	355	I405^{S}	390	405
17	400^{S}	355^{S}	400	400	390	350	290^{S}	J290^{S}	310	335	355	385	390	400	395	375	355	355	330	I310^{S}	340	I400^{S}	400	400^{S}
18	"400^{S}	400^{S}	390	"320^{S}	355	350	295	J300^{S}	300	310	360	400	405	425	400	400	365	355	350	J355^{S}	400	I400^{S}	390	355
19	380	395	400	395	400	390^{S}	I300^{S}	300	305	305	355	375	370	400	400	375	355	350	310	J320^{S}	390	I400^{S}	380	380
20	J380^{S}	"350^{S}	I350^{S}	350	355	370	300	300	305	300	380	365	400	400	385	370	350	325^{S}	300^{R}	310^{S}	400^{S}	400^{S}	"395^{S}	400^{R}
21	"420^{S}	395^{S}	360^{S}	365	355	395	280^{S}	295	280	300	355	370	385	390	385	375	355	335^{S}	320^{S}	300^{R}	J370^{S}	400^{S}	"400^{S}	"430^{S}
22	430^{S}	"390^{S}	395	400	400	405	"295^{S}	295	300	305	365	385	390	380	355	355	350	325	300	"315^{S}	300	"405^{S}	400	400
23	400	400	400^{S}	405	405	360	300	290^{S}	305	305	350	390	395	380	370	350	345	325	J330^{S}	345^{S}	335	J380^{S}	380	"390^{S}
24	400	400	400	"350^{S}	405	365	280	290^{S}	300	300	350	380	380	370	370	355	350	340	315	350	"310^{S}	330	320^{S}	405
25	375^{S}	400	385	405	450^{S}	"375^{S}	"280^{S}	295	295	310	355	360	J375^{S}	J360^{R}	J360^{R}	"355^{S}	335	310	300	305	J340^{S}	350	365	360
26	355	355	350	345	360	"385^{S}	300	295	295	305	330	355	350	370	360	350	330	305	300	300	305	395	390^{S}	380^{S}
27	350	390	350	335^{S}	355	"335^{S}	J300^{S}	300	295	300	310	350	360	390	360	"350^{S}	320	305	I305^{S}	305	330	355	395	350
28	345	350	395	360	320	380	J300^{S}	J285^{S}	300	330	325	345	320	345	350	340	325	295	270	295	395	400	400	355
29	350	370	370	355	375^{S}	370^{S}	260	295	280	245	310	340	345	340	330	325	315	280	J295^{R}	300	"330^{S}	300^{R}	350	335
30	350	385	425	345	300	"425^{S}	275^{S}	265^{S}	275	305	310	305	345	335	350	305	300	300	I300^{S}	300	380	365	385	380
31																								
No.	30	29	30	30	30	30	30	29	28	28	28	28	28	29	29	29	29	29	30	30	29	30	30	29
Median	400	400	390	365	390	390	300	300	300	310	355	360	370	370	360	355	345	330	310	320	355	400	395	390

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

Sep. 1960 | ypF2 | 135° E Mean Time (G.M.T. + 9h.) | **Kokubunji Tokyo** | Lat. 35° 42.4' N, Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	105	115	110	130	100	95	75	50	105	95	95	90	105	u 80 s	90	85	60	85	J 80 s	155	125	115 s	105
2	100	95 s	105	90	85	100	90	60	55	95	150	95 R	95 R	110	J 95 s	J 80 s	90	85	90	u 90 s	115	115 s	110	95
3	130 s	110	100	95	100	95	100	J 130 s	95	130	95	I 70 B	J 95 R	60	J 50 R	75	75	110	115	90 s	65	100	105	140
4	95	85	100	90	125	110	110	90	60	160	95	J 70 R	80	90	90	75	75	85	85	125	125	I 100 s	155 s	A
5	90	110	105 s	100	105	155	90	95	G	G	G	A	G	S	A	A	A	125	150	140	A	150	95	I 105 A
6	I 110 A	A	u 105 s	95	I 90 A	100	I 100 A	G	G	A	R	R	S	70	105	85	175	A	u 150 R	105 s	I 105 A	105	120	85
7	100	130	125	105	100 s	135	115	90	130	130	95	95	100	80	105	90	90	85	95	u 115 s	110	140	J 105 s	95
8	110	145	105	90	60	100 F	100 s	80	95	80	95	100	80	90	75	115	140	95	95 s	u 120 s	I 100 s	105	105	u 105 s
9	105	125	95	90	185	120	95	135	95	J 90 R	100	105	95	100 s	u 105 R	125	95	80	115	80	105 s	115	105	140
10	I 115 s	150	105	100	145	110	135	75	J 100 s	115	80	u 80 s	100	90	95	95	100	95	80	70	u 90 s	105	65 s	u 100 s
11	105 s	115	145	140	105 s	145	80	u 90 s	J 95 s	95	90	115	115	95	100	80	80	120	125	95	130	u 85 s	130	u 95 s
12	I 100 s	100	115	100	105	145	95	u 95 s	75	115	95	95	110	100	135	105	110	100	100	105	130	135	J 105 s	120 s
13	105	90	85	125	115	110 s	u 95 s	50	95	130 R	J 120 R	125	120	150	100	125	125	155 R	140 s	u 120 s	I 105 A	I 130 A	110 s	120 s
14	u 135 s	110	80 s	145	110	100	150 s	145 s	115	140 R	105	100	105	100	100	95	105	100	u 90 s	85	190 H	145	95	95
15	u 100 s	120	115	100 H	115	100	90	60	95	115	95	105	115	75	100	120	110 s	135	u 90 s	110	100	u 100 s	140	J 90 s
16	90	110	115	115	145	105	90	60	100	110	120	105	95	95	100	110	105	100	75	I 100 s	130	I 90 s	105	100
17	80 s	90 s	100	95	115	105	45 s	J 70 s	90	95	75	95	90	85	100	105	95	100	75	I 90 s	110	I 100 s	100	105 s
18	u 105 s	80 s	105	u 85 s	140	130	55	J 80 s	105	90	105	100	125	120	100	105	130	100	95	J 140 s	100	I 100 s	60	100
19	75	105	100	100	95	105 s	I 80 s	80	90	100	140	85	105	90	95	95	120	100	90	u 115 s	110	I 100 s	115	75
20	J 75 s	u 95 s	I 110 s	135	140	130	85	95	90	125	110	135	100	100	115	125	125	120 s	100 R	135 s	150 s	135 s	u 155 s	140 R
21	u 130 s	105 s	95 s	135	100	100	65 s	75	100	150	120	130	115	115	115	125	120	110 s	125 s	110 R	J 90 s	155 s	u 115 s	u 115 s
22	105 s	u 90 s	115	135	125	120	u 105 s	80	80	90	130	95	100	100	90	95	100	105	105	u 90 s	100	u 150 s	105	100
23	100	100	110 s	140	100	95	55	55 s	95	115	130	100	100	85	80	105	100	110	J 115 s	125 s	95	J 115 s	120 s	u 105 s
24	100	95	105	u 100 s	95	80	65	75 s	95	95	95	120	120	105	125	105	100	105	130	95	u 145 s	115	120 s	95
25	75 s	95	80	95	95 s	u 80 s	u 120 s	105	70	90	90	90	J 85 s	J 90 R	J 90 R	u 95 s	80	95	70	105	J 115 s	100	135	95
26	100	100	95	105	135	u 110 s	60	55	55	90	70	100	95	90	95	95	75	95	95	85	140	100	95 s	110 s
27	95	105	95	110 s	90	u 70 s	J 90 s	55	65	60	90	95	90	100	95	u 55 s	100	95	I 90 s	90	75	140	100	100
28	110	95	100	95	80	110	J 90 s	J 65 s	55	120	110	105	130	100	100	90	85	85	95	145	105 s	95	95	130
29	100	80	115	125	75 s	95 s	140	105	100	155	100	95	105	90	100	100	85	80	J 120 R	135	u 100 s	100 R	100	110
30	105	95	85	80	95	u 95 s	150 s	105 s	80	90	90	90	75	95	95	80	95	60	I 95 s	105	115	90	100	105
31																								
No.	30	29	30	30	30	30	30	29	28	28	28	28	28	29	29	29	29	29	30	30	29	30	30	29
Median	100	100	105	100	105	105	90	80	95	110	95	100	100	95	100	95	100	100	95	105	110	105	105	105

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Sep. 1960

foF2

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	5.1	F	4.6	4.4	4.0	5.3	6.8	6.4	6.5	7.8^{H}	9.8	10.0^{S}	10.6	11.2	12.0	^{U}12.1^{S}	10.5	^{S}10.0^{S}	10.2	9.0	S	S	S
2	6.6	6.0	6.2	6.1	5.3	4.1	5.2	8.7	7.7	^{U}7.5^{S}	8.4^{H}	10.4	11.8	12.1	13.7	S	S^{H}	S^{H}	^{U}13.3^{S}	S	S	S	S	S
3	S	S	S	S	^{U}6.5^{SH}	6.4^{S}	^{E}6.7^{S}	^{S}7.6^{S}	8.8	7.6	8.3	10.2	11.5	10.1	9.5	9.3	10.6	10.0^{S}	9.9	^{S}9.5^{S}	6.6	5.8	^{U}6.1^{S}	6.0
4	6.1	6.2	5.9	6.2	4.3	3.0	4.2	^{S}8.0^{S}	7.1	7.0^{H}	8.1	9.7^{S}	^{U}10.3^{R}	10.4	9.2	9.3	10.1^{H}	10.8	9.2	10.6	9.2	7.3^{S}	^{E}7.3^{S}	^{E}7.4^{S}
5	^{S}7.6^{S}	6.3	6.2	5.3	4.9	F	4.2^{H}	5.8	5.1^{H}	4.7	^{S}5.6^{R}	5.6	6.1	6.3	6.3	6.2	6.5	6.4	5.3	5.9	6.7	5.2	5.2	^{E}4.9^{A}
6	^{S}5.1^{A}	^{E}4.2^{A}	3.7	3.5	3.7	A	A	A	A	A	A	6.0	6.6	6.4	6.9	6.7	8.1	8.6	^{S}10.1^{S}	^{S}9.5^{S}	^{E}6.3^{S}	^{E}5.6^{A}	^{E}5.4^{A}	4.9
7	4.5	4.4	4.0	3.5	3.2	3.4	4.8	7.3	6.8^{V}	6.9^{H}	8.3	10.2	11.7	12.2^{S}	^{S}12.5^{S}	^{U}12.0^{SH}	^{U}11.2^{SH}	11.0	10.6	^{U}9.4^{S}	8.7	S	S	S
8	^{E}8.6^{S}	^{S}8.0^{S}	^{S}7.8^{S}	7.0	5.2	4.8	5.7	8.3	9.1	9.6^{H}	10.3^{H}	12.1	13.7^{S}	S	S	S	^{U}13.3^{S}	12.8	13.2	11.7	^{U}9.2^{S}	^{E}9.2^{S}	^{E}9.1^{S}	S
9	S	S	6.6	6.8	^{U}6.3^{S}	5.8	^{E}7.4^{S}	9.3^{S}	10.8^{H}	12.5	12.9	13.3	13.0	12.8	12.2	11.9	12.4	12.6	^{S}12.2^{S}	^{U}11.5^{S}	^{U}9.3^{S}	^{S}8.1^{S}	^{S}7.7^{S}	^{E}7.8^{S}
10	^{S}7.6^{S}	7.2^{S}	7.6^{S}	^{S}7.5^{S}	6.5	5.8	6.7	11.3	^{S}10.1^{S}	9.0^{H}	10.0^{H}	11.5	11.1	10.7	10.5	10.0	10.1	10.8^{H}	10.5	^{E}9.5^{S}	8.1	^{S}7.7^{S}	^{E}7.4^{S}	7.1^{S}
11	C	C	C	C	C	C	C	10.4	10.0	8.9	9.5	11.7	12.2	12.4	13.0	11.6	11.0^{H}	^{U}10.1^{S}	^{S}10.3^{S}	10.7	^{E}10.0^{S}	8.9	8.7	8.9
12	8.3	^{S}7.9^{S}	7.6	7.0	6.6	6.3	^{E}7.7^{S}	8.9	9.2	9.2	10.7	12.6	11.7	12.2	12.9	13.6	14.1	13.9	13.4	S	S	S	^{E}10.2^{S}	^{E}9.5^{S}
13	8.4	7.1^{S}	^{E}6.6^{S}	6.3	6.0	5.4	7.0	9.0	10.3	10.1	9.7^{S}	10.5	11.9	12.6	12.3	12.2	12.6	12.5	12.5	^{U}11.9^{S}	^{E}10.9^{S}	9.0	8.7	^{S}8.4^{S}
14	8.4	^{E}7.6^{S}	^{E}7.4^{S}	^{S}7.4^{S}	6.3	6.1	^{U}7.2^{S}	^{S}9.4^{S}	^{S}9.7^{S}	10.3	11.4^{H}	12.3	12.8	13.4	14.0^{S}	14.3	^{E}14.8^{S}	^{U}14.6^{S}	^{U}13.8^{S}	^{S}12.6^{S}	S	S	S	S
15	^{S}10.3^{S}	9.3^{S}	8.6	7.7	7.0	6.4	7.2^{S}	^{U}9.4^{S}	^{S}10.1^{S}	11.2	11.2^{H}	11.8	12.6	12.7	12.8	11.5	11.8^{H}	12.1	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	10.4	11.2^{H}	12.4	13.6	14.6	14.2	13.9^{S}	^{E}14.0^{S}	13.4^{H}	13.2	12.9^{S}	S	S	S	S
17	S	S	S	S	10.5^{S}	9.3	8.8	10.6	11.3^{S}	11.2	12.1	13.0	12.9	12.8	13.0	12.7	12.7	13.1	13.3	^{E}12.1^{S}	11.0	11.2^{SH}	11.7^{S}	S
18	S	^{S}10.5^{S}	^{E}9.2^{S}	^{S}8.1^{S}	6.7	6.0	7.0^{S}	8.2^{S}	^{S}10.1^{S}	10.7	11.1^{H}	12.2	12.9	13.7	14.7	14.8	14.6	13.6	13.5	^{U}13.2^{S}	S	S	S	^{S}10.7^{S}
19	^{S}10.0^{S}	9.2^{S}	8.8	^{S}7.9^{S}	6.7	6.4	^{S}7.7^{S}	9.3^{S}	11.5	10.3	10.9^{H}	12.5	13.0	13.3	13.7	13.6	13.7^{H}	13.6	13.1	^{E}11.9^{S}	S	S	S	S
20	^{S}10.1^{S}	^{U}9.8^{S}	^{E}9.6^{S}	^{E}9.5^{S}	7.1^{S}	5.8	7.0^{S}	^{S}9.8^{S}	11.6	11.3	12.1^{H}	12.8^{H}	14.3	15.0^{S}	14.9^{S}	S	S	S	13.9^{S}	^{U}13.5^{S}	S	S	S	S
21	S	S	S	9.2^{S}	7.7^{S}	6.6	7.4^{S}	11.0^{S}	11.0	10.4	11.4^{H}	13.1	14.3	^{E}15.2^{S}	^{S}15.8^{S}	S	S	S	^{S}13.8^{S}	12.8	S	S	S	S
22	S	S	S	S	S	^{S}7.7^{S}	8.3	11.1	12.4	10.8^{H}	10.8	12.3	14.0^{S}	14.3^{H}	14.4^{H}	14.0^{H}	^{S}14.1^{S}	^{U}13.9^{S}	13.6	12.2^{S}	^{S}9.4^{S}	S	S	S
23	S	^{E}9.4^{S}	^{S}8.6^{S}	7.1	6.4	6.2	7.9	10.3	10.8	10.3	10.0^{H}	11.8	13.2	13.9	14.6^{H}	^{E}15.0^{S}	^{E}15.1^{S}	S	S	^{E}13.1^{S}	13.1	S	S	S
24	8.8	^{S}8.5^{S}	7.0	6.4	5.8	5.2	6.0	8.8	11.1	10.3^{H}	10.7	11.7	13.4	14.4	15.1^{S}	15.4	S	S	S	S	^{E}12.7^{S}	^{E}10.0^{S}	^{S}8.2^{S}	6.9
25	7.1	7.0^{S}	6.5^{S}	6.0	5.6	6.1	6.1	8.9	10.6	11.1	12.6^{H}	14.2	^{U}15.0^{S}	S	S^{H}	S	S	S	S	^{S}13.7^{S}	S	S	S	9.3^{S}
26	9.3^{S}	^{S}8.7^{S}	S	7.2	6.1	4.9	5.8	9.2	11.6	12.3^{H}	10.9^{H}	12.6	13.4	^{E}14.9^{S}	S	S	S	S	^{E}14.2^{S}	^{S}11.9^{S}	9.4	8.7	^{S}8.3^{S}	^{S}8.0^{S}
27	^{S}8.2^{S}	^{S}8.2^{S}	^{S}7.7^{S}	7.1	5.3	4.8	5.5	8.7	11.3	12.3	11.6	12.1	13.2	14.1^{S}	S	S	^{S}15.6^{S}	14.9^{S}	14.1^{S}	12.3^{S}	10.0	^{S}8.0^{S}	7.7^{S}	^{S}7.9^{S}
28	7.4	6.7	5.9	6.1	5.7	3.9	5.1	S	11.1	10.5	11.1^{H}	12.5^{H}	13.3^{S}	13.4	12.6	13.3^{S}	^{S}14.7^{S}	S	C	C	C	C	C	^{U}7.7^{S}
29	^{E}7.2^{C}	6.4^{S}	C	C	C	C	C	8.7	^{S}10.5^{S}	10.7	10.6	12.5^{H}	13.7^{H}	13.3^{H}	^{U}14.1^{H}	^{U}14.8^{SH}	^{E}14.7^{S}	^{E}14.7^{S}	14.0^{S}	11.8	^{E}10.2^{S}	9.5	^{S}8.3^{S}	6.8^{S}
30	^{S}6.6^{S}	6.0	5.7	6.1	5.7	4.4	5.2	9.2	^{S}9.8^{S}	9.3	12.0	13.5^{S}	12.2	12.6	13.6	14.4^{H}	14.0	13.1	^{E}11.6^{S}	^{U}9.3^{S}	7.3	6.6	6.3	6.4
31																								
No.	20	23	21	24	26	25	26	27	28	29	29	30	30	28	26	23	24	22	25	25	19	15	16	17
Median	7.9	7.2	7.0	6.9	6.0	5.8	6.7	9.0	10.2	10.3	10.8	12.2	12.9	12.8	13.0	12.7	13.0	12.7	13.2	11.9	9.3	8.1	8.0	7.7
U.Q	8.7	8.7	8.2	7.4	6.6	6.4	7.4	9.8	11.1	11.0	11.4	12.6	13.4	14.0	14.2	14.3	14.4	13.6	13.7	12.7	10.2	9.2	8.7	8.6
L.Q	6.8	6.2	6.0	6.1	5.3	4.6	5.3	8.3	9.2	9.0	9.6	10.5	11.7	12.2	12.2	11.5	11.1	10.8	10.4	9.8	8.1	6.6	6.8	6.6
Q.R	1.9	2.5	2.2	1.3	1.3	1.8	2.1	1.5	1.9	2.0	1.8	2.1	1.7	1.8	2.0	2.8	3.3	2.8	3.3	2.9	2.1	2.6	1.9	2.0

The Radio Research Laboratories, Japan.

foF2

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

Y 1

IONOSPHERIC DATA

Sep. 1960 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37 7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												5.3^{L}	^{I}5.6^{L}	^{I}5.6^{L}	5.5^{L}	5.2	A	L						
2												A	5.7^{L}	5.6^{L}	5.9^{L}	A								
3											L	B	B	5.3^{L}	L	5.4^{L}	L							
4												L	^{I}5.8^{A}	5.6^{H}	^{I}5.5^{A}	A								
5										4.4	4.9	4.9	5.1	4.9^{R}	A	4.9	4.6	L^{H}						
6										^{I}4.4^{A}	A	4.8	5.1	5.1	5.0		A	A						
7											L	L	L	L	6.0^{L}									
8												6.3^{L}	5.9	6.0^{L}	6.0^{L}	L	L	L						
9										L	L	A	L	L	L	L^{H}	L^{H}	L						
10												L	L	L	L	L	L							
11							C					L	L	6.5^{L}	5.5^{H}	L								
12										L	L	^{I}5.9^{L}		L	L	6.0^{L}	L							
13												L	L^{H}	L	L	L	L							
14												L	L	L	6.7^{L}	^{I}6.4^{L}	L							
15												6.1^{L}	L		6.1^{L}									
16							C	C	C			L	L	6.4^{L}	L^{H}	L^{H}	L							
17											L	L	L	L	L	L	L							
18												L	L	L	6.8^{L}	L	L							
19												L^{H}	L	L	L	L								
20													L	L	L	L	L							
21												L	L	L^{H}	L	L	L							
22												L	L											
23												L	L	L										
24												L^{H}	L	L	L	L	L							
25												L	L	L		L^{H}								
26												L	L	L	L	L								
27												L	L^{H}	L	L	L								
28													L		L	L								
29							C																	
30														L^{H}	L									
31																								
No.										2	1	6	6	9	10	5	1							
Median										4.4	4.9	5.6	5.6	5.6	6.0	5.4	4.6							

foF1

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

The Radio Research Laboratories, Japan.

Y 2

IONOSPHERIC DATA

Sep. 1960 | foE | 135° E Mean Time (GMT + 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							B	2.40^{H}	2.90	3.30	3.50	3.70^{R}	3.75	3.70	3.65	3.50	3.15	2.90	2.00					
2							B	2.35	3.00	3.35	3.50	I 3.65^{R}	I 3.85^{B}	3.80	3.60	A	A	3.10	A					
3							B	2.70	3.20^{H}	3.50	B	B	B	B	I 3.95^{R}	I 3.80^{B}	3.40	3.10	A					
4							B	2.40	3.10	3.40	I 3.75^{B}	I 3.95^{R}	I 3.90^{B}	A	A	A	A	2.90	2.00					
5							B	I 2.30^{A}	3.00	3.30	3.60	3.70	3.65	I 3.75^{R}	3.70	3.45	3.20	2.70	1.80					
6							S	2.25	2.70	3.10	A	A	R	R	3.70	3.65	3.40	2.85	1.90					
7							S	2.30	I 2.80^{A}	3.35	R	B	R	A	3.75	3.70	3.35	2.90	1.90					
8							S	2.55	3.10	3.40	3.55	3.70	3.90	I 3.85^{R}	I 3.80^{R}	3.50	3.40	2.90	1.90					
9							A	2.50	3.10	3.40	A	A	A	A	A	3.85	3.50	3.10	A					
10							S	2.60	3.10	3.35	A	A	A	A	A	A	I 3.35^{A}	2.80	1.80					
11							C	2.50	3.20	3.55	3.70	A	A	3.90	3.80	I 3.65^{A}	3.30	2.80	S					
12							B	2.50^{H}	2.95	3.30	3.45	A	A	R	R	3.80	3.40	2.95	2.05					
13							S	2.50	3.15	3.45	3.60	3.80^{R}	I 3.85^{R}	I 3.90^{R}	3.80^{R}	3.75	3.40	2.90	2.10^{H}					
14							B	2.35	3.10	3.50	3.70	3.90	3.90^{R}	3.85	I 3.70^{A}	I 3.70^{A}	A	A	A					
15							S	2.50	3.20	3.45	I 3.65^{B}	3.75	A	A	A	A	A	A	C					
16							C	C	C	3.50	I 3.70^{A}	I 3.85^{A}	A	A	A	A	A	A	A					
17							A	A	3.20	I 3.50^{A}	I 3.70^{A}	3.80	I 4.00^{R}	4.00	3.90^{R}	3.80	3.40	2.80	2.00					
18							S	2.45^{R}	3.20^{H}	3.50	I 3.80^{A}	I 4.00^{R}	I 4.05^{R}	4.10	4.00	3.70	I 3.30^{A}	2.75	A					
19							B	2.50^{R}	3.20	3.60	3.80	I 3.90^{A}	I 4.05^{R}	4.00	4.10^{H}	3.80	3.30^{H}	A	A					
20							B	2.45	3.20	3.60	3.90	4.10	4.00	4.10	4.00	3.60	3.40	2.85	S					
21							B	2.50	3.10	3.35	3.75^{H}	I 3.85^{R}	I 4.00^{R}	I 3.95^{R}	I 3.80^{R}	3.50^{H}	3.20^{H}	2.80^{H}	S					
22							S	2.30	3.20	3.45	3.70	3.80	I 4.00^{RH}	4.00	3.80	I 3.50^{A}	3.15	2.65	S					
23							S	2.45	3.10	3.35	3.60	3.60	3.75^{R}	I 3.75^{R}	3.75	3.60	3.15	2.70	S					
24							B	2.30	3.00	3.30	I 3.60^{R}	I 3.80^{R}	I 3.80^{R}	3.90	3.70^{R}	3.50	3.10^{H}	2.70	S					
25							S	2.20	3.05	3.40	3.70	3.70	3.80	3.80	I 3.65^{R}	3.45	3.10	2.70	S					
26							B	A	A	A	I 3.70^{C}	R	R	R	I 3.65^{R}	I 3.50^{B}	3.25	2.70	1.80					
27							S	2.60	3.00	3.35	3.60	3.70	I 3.70^{A}	3.70	3.55	3.30	3.10	2.65	S					
28							S	2.30	2.90	3.30	A	A	A	I 3.70^{R}	3.60	3.40	3.10	2.45	C					
29							C	2.50	3.00	3.30	3.45	3.50	I 3.55^{R}	3.60^{R}	I 3.60^{A}	A	A	2.50	S					
30							S	2.30	3.00	3.35	3.55	3.70	3.70	I 3.75^{A}	I 3.50^{R}	3.20	2.90	A	S					
31																								
No.								27	28	29	24	21	19	20	24	24	24	25	11					
Median								2.45	3.10	3.40	3.70	3.80	3.85	3.85	3.70	3.60	3.30	2.80	1.90					

foE

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

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Sep. 1960 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.9	6.0	3.0	6.4^{M}	3.8	^{J}2.2	2.7	3.7	4.0	4.7	^{J}5.4	^{J}5.7	4.8	5.1	7.5	4.4	5.0	3.2	6.4	^{J}4.3	^{J}3.9	^{J}3.1	S	3.1
2	S	S	S	E	E	S	2.0	3.5	4.3	4.1	4.9	10.6	5.0	5.2	4.2	6.1	9.1^{M}	G	^{J}2.8	2.1	S	^{J}2.4	S	S
3	S	S	S	^{J}2.6	E	S	B	G	G	4.2	B	B	B	4.8	G	B	3.8	3.7	3.8	^{J}3.0	S	S	3.0	S
4	^{J}2.3	3.2	2.2	E	E	S	B	3.0	3.7	4.0	4.6	4.5	7.6	6.0	6.8	7.0	3.7	5.0	5.2	^{J}3.9	S	^{J}2.3	S	S
5	^{J}4.2	^{J}5.1	^{J}2.9	3.7	9.2	6.1^{M}	^{J}5.2	3.6	4.1	4.1	3.8	5.0	3.9	4.3	5.6	4.2	6.0	3.2	3.8	3.7	6.0	^{J}4.3	5.3	5.2
6	^{J}5.1	4.3	^{J}3.1	^{J}2.1	3.2	5.2	5.7	10.0	^{J}6.3	10.4	10.5	4.3	G	G	G	4.3	6.3	6.0	^{J}6.3	^{J}4.9	^{J}5.4	^{J}8.6	6.9	^{J}3.3
7	2.5	S	S	E	1.4	S	1.8	3.0	3.4	3.3^{G}	G	B	G	4.1	4.3	G	3.8	4.4	^{J}4.0	2.2	3.2	2.9	3.2	2.2
8	^{J}2.8	S	^{J}3.0	^{J}3.3	2.1	S	S	4.4	3.8	3.7	3.8	4.0	G	G	G	4.7	G	G	G	S	3.1	3.2	S	^{J}2.4
9	2.4	S	^{J}2.0	^{J}2.1	2.2	S	2.2	2.9	3.4	3.7	4.2	7.0	4.9	^{J}5.3	^{J}5.1	4.4	G	3.8	2.9	^{J}4.0	6.0	6.5	^{J}4.3	3.1
10	^{J}2.4	2.3	E	E	E	S	2.3	G	G	3.7	4.6	4.0	4.9	^{J}5.5	3.9	3.8	4.0	3.3	^{J}5.2	6.0	^{J}5.3	4.4	4.2	2.2
11	C	C	C	C	C	C	C	3.0	4.0	4.8	4.9	4.1	4.3	3.7^{G}	3.5^{G}	3.8	4.7	4.3	^{J}4.1	2.5	^{J}2.2	^{J}2.3	^{J}2.3	S
12	S	S	E	E	E	E	B	G	3.6	3.9	4.3	4.1	^{J}5.2	G	G	G	G	4.2	2.8	2.7	^{J}3.4	S	S	S
13	S	S	E	^{J}2.1	1.3	^{J}1.9	S	2.7	3.5	4.6	4.7	4.4	G	G	G	5.4	G	G	G	S	^{J}3.0	4.0	4.8^{M}	^{J}2.1
14	^{J}2.1	3.0	2.1	E	3.3	^{J}2.1	1.9	2.7	3.5	4.3	4.6	4.4	4.2	4.7	4.7	6.1	5.8	^{J}4.8	^{J}3.9	^{J}4.2	^{J}3.5	3.1	4.0	^{J}3.6
15	^{J}2.3	S	E	E	1.4	3.0	S	2.8	3.7	3.9	B	4.3	4.5	6.2	^{J}8.1	4.1	^{J}4.9	5.4	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	3.7	4.3	4.0	4.8	^{J}5.3	5.3	^{J}4.9	5.4	5.2	^{J}3.0	^{J}2.4	S	^{J}2.3	S	S
17	S	E	E	^{J}2.5	^{J}3.0	^{J}2.5	^{J}3.1	2.8	G	3.7	3.9	G	G	G	G	4.6	3.9	3.6	G	S	S	S	S	S
18	S	E	E	E	E	E	S	2.9	3.5	3.8	4.0	G	4.2	3.9^{G}	3.8^{G}	3.6^{G}	3.3	3.4	3.5	^{J}3.1	2.5	4.2	3.2	S
19	S	E	E	E	E	E	B	3.0	G	3.8	4.1	4.1	G	G	3.3^{G}	3.7^{G}	G	3.7	5.2	4.0	^{J}2.2	S	S	3.8^{M}
20	S	S	E	E	E	E	B	G	G	G	G	4.3	G	4.5	G	G	3.9	4.3	4.6	2.3	^{J}2.7	3.7	3.0	2.6
21	2.1	S	E	E	E	E	B	G	3.6	3.7	G	G	G	G	G	G	3.5	3.4	2.9	^{J}5.0	3.9	2.9	2.3	^{J}1.9
22	S	S	S	E	E	E	S	G	G	3.7	4.2	4.0	G	G	4.0	4.5	5.0	^{J}4.5	^{J}4.5	2.8	^{J}2.7	S	^{J}2.4	^{J}2.3
23	S	S	E	E	1.9	1.8	S	2.8	3.3	3.8	3.7	4.7	G	G	G	G	G	G	S	^{J}2.3	^{J}2.4	^{J}3.8	2.9	S
24	^{J}5.3	^{J}5.0	^{J}2.5	2.4	2.2	E	B	G	3.3	3.8	G	G	G	G	G	G	G	3.0	3.0	2.4	S	S	S	S
25	S	S	E	E	E	E	S	G	3.5	4.2	G	3.8	G	G	G	G	4.1	G	2.1	^{J}2.3	S	S	S	S
26	S	E	E	E	E	E	B	2.5	3.8	4.5	C	G	G	G	G	B	4.0	3.7	3.3	S	S	S	2.9	^{J}2.4
27	3.0	2.4	2.2	E	E	E	S	G	3.3	3.8	4.2	4.0	3.9	3.9	3.7	G	G	3.2	2.3	^{J}2.2	^{J}2.5	^{J}1.9	S	S
28	S	S	E	E	E	E	S	2.8	3.2	G	3.6	4.6	4.0	3.5^{G}	3.1^{G}	3.8	4.0	3.5	C	C	C	C	C	S
29	C	^{J}2.2	C	C	C	C	C	2.8	3.5	3.7	4.1	3.8	3.4^{G}	3.4^{G}	4.5	^{J}5.7	6.8	3.5	^{J}2.3	S	S	S	S	S
30	S	S	E	E	E	E	S	G	3.3	4.4	5.0	4.8	4.7	4.0	3.1^{G}	3.9	4.2	2.8	3.3	4.0^{M}	3.2	^{J}2.4	S	2.8
31																								
No.	13	13	23	27	27	20	9	29	29	30	27	28	29	30	30	28	30	30	27	23	19	19	15	15
Median	2.5	2.4	E	E	E	E	2.3	2.8	3.5	3.8	4.2	4.1	3.9	G	G	4.0	4.0	3.6	3.3	3.0	3.2	3.1	3.2	2.6
U.Q	4.6	4.6	2.2	2.1	2.2	2.2	4.2	3.0	3.8	4.2	4.6	4.6	4.8	4.8	4.5	4.6	5.0	4.3	4.5	4.0	3.9	4.2	4.3	3.3
L.Q	2.3	E	E	E	E	E	2.0	G	3.2	3.7	3.7	3.9	G	G	G	G	G	3.2	2.8	2.3	2.5	2.4	2.9	2.2
Q.R	2.3						2.2		0.6	0.5	0.9	0.7						1.1	1.7	1.7	1.4	1.8	1.4	1.1

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.8	S	1.9	3.5	2.4	E	2.5	3.6	3.7	4.6	4.8	5.0	4.6	5.0	4.7	4.4	4.9	G	5.3	2.5	3.5	E	S	2.0
2	S	S	S			S	G	3.4	4.2	4.0	4.7	9.4	4.9	5.0	G	5.3	4.3		G	E	S	E	S	S
3	S	S	S	2.3		S	B			4.2	B	B	B	4.8		B	G	3.7	3.8	2.6	S	S	2.3	S
4	1.8	1.8	E			S	B	3.0	3.5	3.8	E4.6B	E4.5B	6.3	4.5	5.6	6.2	G	3.2	4.4	3.8	S	1.9	S	S
5	3.4	2.2	2.5	3.5	3.6	1.7	2.0	3.4	3.5	3.7	G	4.4	E3.9B	4.3	4.9	4.0	G	G	2.7	1.7	5.0	3.3	2.2	A
6	A	A	2.7	1.8	1.9	A	A	A	A	A	A	E4.3B				4.2	5.3	4.6	6.3	4.3	A	A	A	3.0
7	1.8	S	S		1.4	S	G	3.0	3.3	3.2G		B		G	4.3		3.7	4.2	4.0	2.0	2.8	2.2	2.1	1.9
8	2.2	S	1.9	3.3	1.7	S	S	3.7	3.8	G	G	G				4.5				S	2.5	2.2	S	1.8
9	E	S	1.4	1.9	1.8	S	G	G	G	G	4.1	6.2	4.7	5.0	4.8	4.3		G	2.9	2.1	E6.0S	4.8	3.2	2.1
10	1.9	E				S	G			3.6	4.3	E4.0B	E4.9B	4.4	G	G	4.0	G	4.4	4.6	2.5	4.0	3.3	1.9
11	C	C	C	C	C	C	C	2.9	3.7	4.7	4.7	G	G	3.7G	3.4G	G	4.3	4.0	3.6	E	1.8	2.1	2.0	S
12	S	S					B		3.6	G	4.3	4.1	5.2					3.7	2.7	2.5	2.7	S	S	S
13	S	S		1.8	E1.3B	E	S	G	3.5	4.4	4.7	G				4.8				S	2.5	3.3	3.4	S
14	1.7	2.3	E		1.8	E	1.8	G	3.5	4.3	4.5	4.4	E4.2B	4.6	4.6	4.8	4.1	3.9	3.6	4.2	3.3	2.6	3.3	1.9
15	1.9	S			E1.4B	1.8	S	G	G	3.9	B	E4.3B	4.5	5.0	5.6	G	-3.8	G	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	G	4.3	E4.0B	4.7	4.6	4.7	4.3	4.6	3.6	G	E	S	2.0	S	S
17	S			1.6	2.2	2.2	2.8	G		G	G					4.6	3.9	3.5		S	S	S	S	S
18	S						S	G	3.4	G	G		G	3.9G	3.7G	3.6G	G	G	3.4	2.7	E	3.6	2.6	S
19	S						B	G		G	G	G			3.3G	3.7G		3.4	2.5	3.1	2.1	S	S	E
20	S	S					B					G		4.5			G	4.2	4.6	1.8	2.3	2.5	2.3	1.9
21	E	S					B		G	G							G	3.4	2.9	3.4	2.6	2.6	E	E
22	S	S	S				S			G	4.1	E4.0B			G	4.4	4.9	4.5	4.5	2.5	2.6	S	E	2.0
23	S	S			1.9	1.8	S	G	G	G	G	4.6							S	1.9	2.0	1.9	1.9	S
24	3.3	2.6	1.9	1.7	1.8		B		G	3.7								G	2.6	E	S	S	S	S
25	S	S					S		G	4.0		3.5					4.0		2.0	E	S	S	S	S
26	S						B	G	3.6	3.9	C					B	3.7	3.2	3.3	S	S	S	1.8	2.0
27	2.2	E	1.9				S		G	3.7	4.1	E4.0B	E3.9B	G	G			G	G	1.9	1.8	E	S	S
28	S	S					S	G	G		G	G	G	G	3.1G	3.7	3.8	3.3	C	C	C	C	C	S
29	C	1.9	C	C	C	C	C	G	G	3.7	G	G	3.4G	3.4G	G	4.4	3.9	2.4	1.9	S	S	S	S	S
30	S	S					S		G	4.3	4.7	4.6	4.2	4.0	3.1G	G	2.5	G	G	3.2	2.1	2.1	S	2.4
31																								
No.	13	8	9	9	12	8	9	19	23	28	21	20	15	18	18	20	22	25	24	23	18	19	15	14
Median	1.9	2.0	1.9	1.9	1.8	1.8	1.8	G	3.4	3.7	4.1	E4.0	4.2	4.4	G	4.3	3.8	3.3	3.1	2.5	2.5	2.2	2.3	2.0

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Sep.1960 | f-min | 135° E Mean Time (G.M.T. + 9h.)

Yamagawa Lat. 31° 12.5' N Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.70	E1.75	1.15	1.00	E	E1.70	1.50	1.70	1.70	1.70	2.20	2.05	2.05	2.10	2.20	1.90	1.70	1.70	E1.70	E1.70	E1.60	E1.80	E1.80	E1.80
2	E1.80	E2.00	E1.70	1.60	1.30	E1.60	1.60	1.75	1.80	1.85	2.10	2.40	4.25	2.20	2.25	2.35	2.00	1.80	1.60	E1.70	E1.70	E1.70	E1.70	E1.70
3	E1.80	E1.80	E1.80	1.10	1.05	E1.70	1.90	1.80	2.10	1.85	4.50	3.00	7.50	4.35	2.20	4.45	1.90	1.80	1.15	E1.60	E2.00	E1.70	E1.60	E1.70
4	E1.70	E1.60	1.70	1.20	1.70	E1.80	1.70	1.60	1.80	2.20	4.10	3.50	4.00	2.30	2.50	2.20	2.00	1.80	E1.60	E1.70	E1.70	E1.70	E1.80	E1.70
5	E1.60	E1.80	1.00	1.00	1.00	E1.60	1.70	1.60	1.80	2.00	2.00	2.40	2.55	2.80	2.05	2.00	1.85	1.65	1.60	E1.60	E1.75	E1.70	E1.80	E1.70
6	E1.70	E1.90	1.70	1.70	1.20	E1.60	1.60	1.80	1.70	1.80	2.20	2.20	2.30	2.50	1.90	2.05	1.90	1.85	E1.50	1.70	E1.70	E1.65	E1.70	E1.50
7	E1.70	E1.80	E1.70	1.25	E	E1.85	E1.50	1.70	1.80	1.80	2.40	4.40	2.80	2.40	2.00	1.90	1.70	1.70	E1.70	E1.60	E1.70	E1.50	E1.70	E1.65
8	E1.70	E1.70	1.20	1.20	E	E1.60	1.70	1.80	1.80	1.90	2.10	2.50	2.50	2.50	2.20	1.90	1.90	1.80	E1.75	E1.70	E1.75	E1.70	E1.70	E1.70
9	E1.75	E1.70	1.20	E	E	E1.70	E1.60	1.65	1.80	1.80	1.90	2.10	2.50	2.20	2.50	2.50	1.90	E1.75	E1.60	E1.70	E1.65	E1.70	E1.60	E1.60
10	E1.60	E1.80	1.20	1.70	1.80	E1.70	1.70	1.70	1.80	1.90	2.25	2.45	2.50	2.50	2.60	2.20	1.90	1.70	E1.70	E1.80	E1.60	E1.70	E1.55	E1.70
11	C	C	C	C	C	C	C	1.90	1.80	2.20	2.20	2.50	2.30	2.25	2.30	2.10	1.85	1.70	E1.70	E1.70	E1.70	E1.70	E1.70	E1.90
12	E1.80	E1.70	1.70	1.60	1.70	1.80	1.75	1.60	1.80	1.80	2.05	2.25	2.25	2.55	2.10	1.80	1.80	1.80	E1.70	E1.70	E1.80	E1.65	E1.70	E1.90
13	E1.60	E1.60	1.30	1.25	E	E1.60	E1.80	1.70	1.90	1.60	1.70	2.40	2.50	2.20	2.10	1.90	1.70	1.70	E1.70	E1.75	E1.70	E1.70	E1.80	E1.80
14	E1.60	E1.70	1.65	1.80	1.25	E1.60	1.60	1.80	1.85	2.00	2.10	2.30	3.30	2.50	2.30	2.05	1.65	1.60	1.10	E1.65	E1.70	E1.70	E1.70	E1.70
15	E1.70	E1.70	1.25	1.20	E	E1.70	1.70	1.80	1.60	1.90	4.50	2.45	2.55	3.20	2.25	2.50	1.90	1.65	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	2.50	2.50	2.55	2.70	3.00	2.40	2.20	1.80	1.60	E	E1.70	E1.80	E1.70	E1.75	E1.60
17	E1.80	1.70	1.20	E	E	1.70	1.60	1.80	1.85	2.30	2.40	2.40	2.50	3.20	3.20	2.50	2.20	1.80	1.60	E1.70	E1.70	E1.80	E1.70	E1.70
18	E1.80	1.70	1.60	E	1.00	1.70	1.80	1.70	1.80	1.85	2.30	2.60	2.45	2.60	2.50	2.05	1.80	1.60	1.60	1.80	E1.70	E1.60	E1.70	E1.90
19	1.70	1.80	1.60	1.60	E	1.70	1.70	1.80	1.80	2.10	2.40	2.40	2.30	2.40	2.50	2.00	1.85	1.90	E	E1.70	E1.60	E1.80	E1.80	E1.85
20	E1.80	E1.80	1.30	1.30	E	1.60	1.70	1.80	1.80	1.90	2.45	2.10	2.20	2.10	1.95	1.80	1.60	1.80	E1.80	E1.60	E1.70	E1.70	E1.70	E1.70
21	E1.60	E1.50	1.70	1.70	1.35	1.30	1.70	1.70	1.90	1.90	2.40	2.60	2.45	2.30	2.45	2.20	1.80	1.70	E1.60	1.10	E1.65	E1.65	E1.80	E1.80
22	E1.90	E1.70	E1.80	1.00	E	1.60	E1.70	1.70	1.85	1.95	1.90	2.25	2.60	2.25	2.20	1.90	1.80	1.60	E1.65	E1.70	E1.60	E1.70	E1.80	E1.70
23	E1.70	E1.70	1.70	1.70	1.30	1.10	E1.70	1.80	1.80	1.90	2.20	2.50	2.20	2.20	2.20	1.90	1.85	1.65	2.00	E1.60	E1.70	E1.60	E1.70	E1.70
24	E1.70	E1.60	1.60	1.60	E	1.60	1.60	1.75	1.65	1.80	1.90	2.00	2.00	2.60	1.80	1.70	1.70	1.70	E1.70	E1.70	E1.75	E1.80	E1.60	E1.70
25	E1.70	E1.70	1.80	1.20	1.30	1.70	E1.70	1.80	1.85	1.90	2.20	2.30	2.30	2.25	2.20	1.85	1.75	1.70	E1.60	E1.70	E1.70	E1.80	E1.80	E1.70
26	E1.80	1.70	1.70	1.70	E	1.65	1.60	1.80	1.85	1.90	E4.10 C	2.20	2.20	2.40	2.20	4.30	2.00	1.80	E1.70	E1.80	E1.70	E1.80	E1.60	E1.70
27	E1.70	E1.60	1.60	1.30	1.60	1.70	E1.60	1.75	1.60	1.75	2.00	2.10	2.30	2.25	2.10	1.90	1.80	1.50	E1.60	E1.70	E1.60	E1.60	E1.75	E1.70
28	E1.70	E1.60	1.70	E	E	1.60	E1.70	1.70	1.70	1.85	1.90	2.10	2.55	2.00	2.00	1.75	1.60	1.75	C	C	C	C	C	E1.75
29	C	E1.70	C	C	C	C	C	1.90	1.70	1.70	1.90	2.20	2.50	2.20	1.90	1.80	1.65	1.20	E	E1.80	E1.75	E1.70	E1.80	E1.60
30	E1.75	E1.80	1.80	1.60	E	1.80	E1.65	1.80	1.70	1.80	1.80	2.00	2.25	2.25	1.90	1.80	1.55	1.60	E1.70	E1.70	E1.60	E1.65	E1.70	E1.75
31																								
No.	27	28	23	27	27	20	26	29	29	30	29	30	30	30	30	30	30	29	28	28	28	28	28	29
Median	E1.70	E1.70	1.60	1.25	E	1.60	E1.70	1.75	1.80	1.90	2.20	2.40	2.50	2.35	2.20	2.00	1.80	1.70	E1.60	E1.70	E1.70	E1.70	E1.70	E1.70

f-min

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

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

Sep. 1960 | (M3000)F2 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	2.75	F	2.85	2.95	2.85	3.10	3.70	3.30	3.15	2.85H	3.00	2.95S	2.95	3.00	3.10	U3.05S	3.15	J3.10S	3.25	2.90	S	S	S
2	2.75	2.75	2.80	3.10	3.10	3.00	3.10	3.45	3.50	U3.00S	2.85H	2.90	2.90	2.90	2.90	S	SH	SH	U3.00S	S	S	S	S	S
3	S	S	S	S	U2.90SH	2.65S	I2.85S	J3.30S	3.35	3.20	2.80	2.85	3.00	3.05	3.00	2.90	3.00	3.10	3.00S	J3.20S	2.85	2.40	U2.50S	2.45
4	2.50	2.70	2.70	3.00	3.15	2.25	2.75	J3.30S	3.25	3.10H	2.85	3.00S	U3.05R	3.10	3.05	3.05	2.95H	3.05	2.85	2.90	2.95	2.40S	I2.55S	I2.50S
5	J2.70S	2.70	2.75	3.05	2.50	F	2.25H	2.55	2.90H	1.85	J2.15R	2.50	G	2.60	2.55	2.60	2.75	3.00	2.65	2.55	2.85	2.50	2.40	I2.60A
6	J2.90A	I2.60A	2.50	2.40	2.60	A	A	A	A	A	A	2.70	2.95	3.00	3.05	3.05	3.00	2.95	J3.05S	J3.25S	S	I2.50A	I2.55A	2.55
7	2.60	2.80	2.75	2.80	2.80	2.65	3.00	3.05	J3.30V	3.25H	2.75	2.75	2.80	2.80S	J2.80S	U2.85SH	U2.90SH	2.95S	3.10	U3.05S	2.80S	S	S	S
8	I2.50S	J2.55S	J2.55S	3.10	2.55	2.60	2.90	3.40	3.25	3.15H	2.95H	2.75	2.80S	S	S	S	U2.70S	2.80	2.95	3.00	U2.85S	I2.50S	I2.60S	S
9	S	S	2.60	2.80	U2.55S	2.60	I3.00S	2.95	2.95H	3.00	2.90	2.95	2.75	2.75	2.70	2.70	2.80	2.95	J3.00S	U3.05S	U2.90S	J2.75S	J2.60S	I2.80S
10	J2.85S	2.65S	2.70S	J3.00S	2.85	2.50	2.65	3.45	J3.40S	3.15H	2.95H	2.95	2.90	2.80	2.85	2.80	2.80	2.95H	3.05	I3.00S	2.90	J2.75S	I2.70S	2.60S
11	C	C	C	C	C	C	C	3.35	3.30	3.05	2.85	2.80	2.75	2.70	2.85	2.75	2.90H	U2.80S	J2.75S	2.90	I2.80S	2.65	2.65	2.75
12	2.80	J2.80S	2.80	2.70	2.60	2.50	I3.00S	3.50	3.30	2.90	2.80	2.85	2.70	2.60	2.65	2.75S	2.85	2.90	2.85	S	S	S	I2.70S	I2.80S
13	2.75	2.70S	I2.50S	2.75	2.65	2.85	3.05	3.20	3.20	3.00	2.85S	2.70	2.65	2.70	2.70	2.65	2.70	2.80	2.80	U2.85S	I2.85S	2.65	2.60	J2.65S
14	2.80	I2.70S	I2.75S	J2.95S	2.85	2.95	U3.20S	J3.25S	3.15S	2.95	2.70H	2.70	2.65	2.70	2.65S	2.75	I2.75S	U2.90S	U2.90S	J2.95S	S	S	S	S
15	J2.65S	2.70S	2.60	2.75	2.80	2.90S	2.95S	U3.20S	J3.00S	2.90	2.85H	2.80S	2.75	2.75	2.85	2.75	2.75H	2.90	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	2.90	2.75H	2.65	2.65	2.80	2.70	2.70S	I2.70S	2.85H	2.85	2.90S	S	S	S	S
17	S	S	S	S	2.80S	2.80	2.95	3.10	3.10S	2.95	2.80	2.80	2.70	2.70	2.70	2.70	2.70	2.80	2.95	I2.95S	2.85	I2.55SH	2.55S	S
18	S	J2.80S	I2.80S	U2.95S	2.95	2.95	3.10S	3.20	J3.10S	3.10	2.70H	2.60	2.65	2.60	2.65	2.65S	2.75	2.70S	2.80	U2.75S	S	S	S	J2.75S
19	J2.70S	2.80S	2.60	J2.90S	2.85	2.70	J3.00S	3.20S	3.20	3.00	2.75H	2.80	2.70	2.75	2.75	2.75S	2.80H	2.85	2.90	I2.90S	S	S	S	S
20	J2.85S	U2.80S	I2.90S	I3.00S	3.20S	2.85	2.90S	J3.20S	3.20	2.95	2.80H	2.65H	2.70	2.65S	2.65	S	S	S	2.90	U2.90S	S	S	S	S
21	S	S	S	2.80S	2.80S	3.05	3.05S	3.30S	3.25	2.90	2.75H	2.70	2.65	I2.70S	J2.65S	S	S	S	J3.00S	3.00	S	S	S	S
22	S	S	S	S	S	J2.70S	2.75	3.10	3.20	3.05H	2.70	2.70	2.70S	2.75H	2.75H	2.80H	J2.75S	U2.95S	3.15	3.05S	J2.85S	S	S	S
23	S	I2.50S	J2.50S	2.80	2.65	2.70	3.05	3.30	3.25	3.25	2.65H	2.65	2.70	2.75	2.70H	I2.80SH	I2.85S	S	S	I2.90S	2.90	S	S	S
24	2.50	J2.60S	2.65	2.85	2.65	2.85	3.10	3.30	3.25	3.20H	2.85	2.70	2.70	2.70	2.75S	2.75	S	S	S	S	I2.90S	I2.80S	J2.75S	2.50
25	2.60	2.85S	2.80S	2.65	2.55	2.85	3.00	3.25	3.10	2.90	2.80H	2.85	U2.75S	S	SH	S	S	S	S	U3.10S	S	S	S	2.80S
26	2.65S	J2.70S	S	2.90	2.95	2.85	2.95	3.25	3.20	3.20H	2.90H	2.80	2.75	I2.70S	S	S	S	S	I3.00S	J3.05S	2.85	2.65	J2.70S	J2.75S
27	J2.85S	J2.70S	J3.00S	3.10	2.95	2.95	2.90	3.20	3.20	3.10	3.10	2.75	2.80	2.75S	S	S	J2.85S	2.90S	3.00S	2.95S	2.95	I2.55S	2.60S	J2.80S
28	2.85	2.75	2.75	2.90	3.15	3.15	2.70	S	3.25	3.30	2.95H	2.85H	2.85	2.85	2.80	2.85	J2.95S	S	C	C	C	C	C	U2.85S
29	I2.95C	2.75S	C	C	C	C	C	3.25	J3.20S	3.20	2.85	2.90H	3.00H	2.85H	U2.85SH	U2.85SH	I2.95S	I3.05S	3.15S	3.00	I2.95S	2.85	J3.05S	2.85
30	J2.65S	2.75	2.70	2.90	3.10	2.65	2.75	3.35	J3.35S	3.15	3.00	3.15S	2.95	2.85	2.95	2.95H	3.00	3.15	I3.20S	U3.15S	2.80	2.75	2.70	2.85
31																								
No.	20	23	21	24	26	25	26	27	28	29	29	30	30	28	26	23	24	22	25	25	18	15	16	17
Median	2.70	2.70	2.70	2.90	2.80	2.85	3.00	3.25	3.20	3.05	2.85	2.80	2.75	2.75	2.75	2.75	2.80	2.90	3.00	3.00	2.85	2.65	2.60	2.75

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

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

Sep. 1960 | (M3000)F1 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

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

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Sep. 1960 | h'F2 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												310	320	310	300	290	270	255						
2												350	310	305	325	290								
3											345	E 350 B	310	290	325	310	300							
4												300	300	310	300	310								
5										870	I 575 R	505	G	450	455	450	360	300						
6										A	A	430	360	300	280		310	300						
7											I 345 L	340	300	300	320									
8												350	330	330	310	290	290	300						
9										290	280	290	I 300 L	300	340	350	320	290						
10												320	I 315 L	335	310	330	340							
11							C					320	325	350	330	300								
12										300	280	300		350	360	340	320							
13												L	350	335	300	315	315							
14												300	350	300	350	345	325							
15												305	I 340 L		330									
16							C	C	C			330	I 350 L	350	340	340	310							
17											300	300	L	350	350	I 340 L	330							
18												I 340 L	I 345 L	375	345	330	300							
19												300	I 325 L	330	350	300								
20													L	340	340	345	300							
21												330	I 340 L	350	330	330	300							
22												I 315 L	I 330 L											
23												350	L	310										
24												300	290	320	305	300	295							
25												300	310	310		300								
26												290	300	330	300	295								
27												L	300	305	300	300								
28													300		305	300								
29							C							300	275									
30																								
31																								
No.										3	6	23	24	26	26	23	16	5						
Median										300	320	315	320	325	325	310	310	300						

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

Sep.1960 | h'F | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	350	300	300	340	295	300	280	230	240	250	275H	I250A	255	E290A	260	250	I255A	240	265	250	250	250	270	295
2	295	300	295	250	230	250	255	245	240	220	250H	I255A	270	E290A	210	I220A	260H	250H	255	245	225	210	255	270
3	285	300	280	230	190H	250	290	240	240	245	245	B	B	260	250	270	250	280	290	235	230	290	345	350
4	350	310	300	245	220	400	295	265	245	240H	270	260	I265A	260H	I270A	I295A	250H	250	280	285	250	245	300	335
5	320	310	300	290	400	305	335H	300	250H	265	255	250	260	250	I290A	250	255	230H	305	340	340	360	350	A
6	A	A	400	395	330	A	A	A	A	A	A	275	220	240	225	245	A	A	290	250	A	A	A	350
7	320	295	280	265	300	300	290	240	225	210H	200	200	205	205	240	235H	250H	275	250	240	260	255	300	290
8	340	300	280	250	255	330	270	240	240	225H	205H	205	205	205	220	250	230	240	255	230	250	255	290	280
9	290	290	300	275	285	315	260	230	220H	215	230	A	225	250	250	230H	225H	255	270	240	E295S	290	300	290
10	270	300	290	255	270	340	290	245	230	215H	220H	220	250	230	220	225	245	250H	250	270	250	300	305	300
11	C	C	C	C	C	C	C	240	235	240	250	220	225	225	200H	250	255H	250	270	260	250	250	300	295
12	290	285	275	270	305	335	250	215	225	220	220	200	270	240	230	240	245	280	250	240	270	230	240	290
13	280	300	300	290	250	260	250	235	230	230	240	210	220H	240	230	275	250	245	260	250	250	260	305	290
14	280	305	300	250	240	250	255	240	240	235	225H	225	215	230	250	260	250	270	255	240	250	280	300	305
15	295	275	260	245	250	260	255	240	235	230	220H	210	210	270	E300A	235	245H	250	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	220	230H	200	220	240	250H	250H	250	250H	260	250	230	280	255	255
17	275	255	250	265	260	235	245	240	245	230	230	200	220	220	220	250	250	260	260	250	240	240H	290	290
18	290	280	270	225	230	255	250	230	240	240	220H	215	210	230	240	260	250	250	270	270	240	295	300	280
19	260	270	270	265	250	295	260	235	240	235	210H	210H	215	225	245	240	245H	260	250	250	245	270	290	270
20	275	280	260	250	220	250	275	235	240	230	230H	210H	210	215	245	240	260	265	255	240	240	260	260	275
21	275	270	250	250	245	235	255	250	240	225	205H	210	205	200H	240	245	245	255	245	250	245	255	275	285
22	295	260	245	240	245	235	270	245	240	220H	230	205	215	205H	245H	250H	275	275	255	240	220	245	285	290
23	285	270	285	275	290	265	250	235	240	235	220H	235	205	220	235H	240H	250	250	250	250	240	200	250	270
24	305	300	300	270	270	260	250	240	235	220H	225	200H	200	240	240	245	240	250	250	240	230	220	245	270
25	320	290	270	270	330	255	230	235	230	240	205H	205	220	245	230H	220H	255	250	245	230	235	230	240	270
26	280	270	260	240	220	255	280	240	240	225H	220H	205	240	230	220	250	260	255	240	225	220	255	255	275
27	275	275	255	230	245	250	270	240	240	240	225	210	205H	210	235	245	250	250	245	225	225	245	290	275
28	260	255	270	265	225	225	300	240	230	235	210H	205H	225	225	240	240	260	255	C	C	C	C	C	255
29	I250C	260	C	C	C	C	C	230	235	230	220	210H	205H	210H	225H	250H	255	245	235	225	230	245	240	250
30	280	290	300	265	235	290	300	240	230	240	250	250	235	220H	230	240H	245	250	230	230	240	290	300	300
31																								
No.	27	27	27	27	27	26	26	28	28	29	29	28	29	28	29	30	29	29	28	28	26	27	27	28
Median	285	290	280	265	250	260	265	240	240	230	225	210	220	230	240	245	250	250	255	240	240	255	290	290

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	110	105	105	105	110	120	130	130	125	120	120	125	125	120	130	120	140	120	110	110	110	S	110
2	S	S	S	E	E	S	130	125	120	125	120	115	120	115	120	110	105	G	105	125	S	105	S	S
3	S	S	S	130	E	S	B	G	G	130	B	B	B	130	G	B	150	130	100	100	S	S	115	S
4	110	105	105	E	E	S	B	140	130	135	125	125	110	110	110	110	170	140	120	110	S	105	S	S
5	135	130	125	120	115	115	125	120	130	130	145	125	130	150	140	145	130	140	125	115	110	110	105	105
6	100	100	105	110	120	120	120	120	115	115	110	110	G	G	G	140	120	120	110	110	110	110	110	110
7	110	S	S	E	105	S	130	125	120	110	G	B	G	110	130	G	145	130	120	115	110	110	110	110
8	110	S	105	105	105	S	S	130	130	130	125	125	G	G	G	120	G	G	G	S	110	105	S	105
9	105	S	100	100	100	S	105	140	130	140	105	110	110	110	110	130	G	170	150	120	105	105	105	105
10	105	100	E	E	E	S	110	G	G	130	110	110	110	110	115	110	115	160	130	120	120	110	110	100
11	C	C	C	C	C	C	C	130	130	125	120	110	110	110	105	105	140	130	120	100	100	100	100	S
12	S	S	E	E	E	E	B	G	130	130	115	110	110	G	G	G	G	140	130	120	115	S	S	S
13	S	S	E	105	105	105	S	155	135	130	130	130	G	G	G	140	G	G	G	S	100	100	100	100
14	100	100	105	E	125	120	135	130	130	130	125	125	130	120	105	110	105	110	100	110	105	105	100	100
15	100	S	E	E	105	120	S	130	130	130	B	120	115	115	110	120	115	110	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	140	115	110	110	110	110	110	105	105	100	105	S	110	S	S
17	S	E	E	110	110	110	110	110	G	115	110	G	G	G	G	150	155	180	G	S	S	S	S	S
18	S	E	E	E	E	E	S	150	150	145	110	G	110	110	110	105	105	140	130	125	110	100	100	S
19	S	E	E	E	E	E	B	150	G	140	130	110	G	G	110	110	G	105	100	100	100	S	S	105
20	S	S	E	E	E	E	B	G	G	G	G	140	G	130	G	G	165	135	130	120	105	100	100	100
21	100	S	E	E	E	E	B	G	130	130	G	G	G	G	G	G	160	140	130	120	110	100	100	115
22	S	S	S	E	E	E	S	G	G	145	140	140	G	G	140	145	140	130	120	115	110	S	105	100
23	S	S	E	E	110	110	S	150	150	130	140	120	G	G	G	G	G	G	S	100	100	110	110	S
24	110	105	100	100	100	E	B	G	130	125	G	G	G	G	G	G	G	150	130	120	S	S	S	S
25	S	S	E	E	E	E	S	G	150	130	G	110	G	G	G	G	175	G	130	120	S	S	S	S
26	S	E	E	E	E	E	B	120	120	115	C	G	G	G	G	B	150	130	125	S	S	S	115	110
27	110	110	105	E	E	E	S	G	140	130	130	130	130	130	140	G	G	135	130	110	105	110	S	S
28	S	S	E	E	E	E	S	145	130	G	110	110	105	105	105	150	130	130	C	C	C	C	C	S
29	C	100	C	C	C	C	C	150	140	135	130	140	105	110	105	100	100	100	100	S	S	S	S	S
30	S	S	E	E	E	E	S	G	135	130	130	125	120	110	105	105	105	105	110	105	105	100	S	105
31																								
No.	13	9	9	9	12	8	9	19	23	28	22	23	16	18	18	20	22	25	24	23	19	19	15	15
Median	110	105	105	105	105	110	120	130	130	130	120	120	110	110	110	115	130	130	120	115	110	105	105	105

h'Es

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

The Radio Research Laboratories, Japan.

Y11

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IONOSPHERIC DATA

Sep. 1960

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f3	f2	f3	f3	f4	f2	h3	h2	h2	h2	h2	h2	h	h	h2	h	h2	h	c4	f4	f4	f2		f2
2							h2	h2	h2	h	h	h3	h	h	h	l2	l2		l3	f		f2		
3				f5						h				h			h	h l	l4 h3	f3			f3	
4	f	f2	f					h2	h2	h	h	h	c2	l	l3	l4	h l	h2	c5	f8		f		
5	f3	f3	f6	f6	f5	f2	h3	l2	h2	h	h	h	h	h	h2	h	h	h	c3	f2	f3	f5	f5	f5
6	f4	f2	f2	f	f2	f6	h4	h3	c5	h3	l2	l				h	h4	h4	c3	f4	f5	f2	f4	f7
7	f2				f		h	h2	l2	l				l	h		h	h2	c3	f2	f5	f2	f2	f2
8	f4		f3	f5	f			c3	h2	h	h l	h				h2					f5	f4		f2
9	f2		f2	f2	f2		l	h	h2	h	l	l3	l2	l	l2	h		h	h3 l2	f f3	f6	f4	f4	f3
10	f2	f2					l			h	l	l	l3	l	l	l	l2	h2	c6	f3	f2	f4	f2	f
11								c2	h2	h2	h2	l	l	l	l	l	h	h4 l	h4 l	f	f2	f2	f	
12									h2	h2	h	l	l3					h2	c3	f4	f2			
13				f2	f	f2		h	h	h	h	h				h2					f3	f5	f3	f2
14	f	f2	f		f	f2	h	h	h	h	h	h	h	h	l	l2	l2	l3 l2	l3	f4 f4	f4	f3	f3	f2
15	f2				f2	f		h2	h2	h		h	l	l2	l2	l	l2	l2						
16										h	l	l	l2	l	l	l	l3	l3	l2	f		f		
17				f2	f5	f5	l3	l		l	l					h	h	h						
18								h2	h	h	l		l	l	l	l	l2	h	h4 l	f2	f2	f2	f	
19								h		h	h	l			l	l2		l2	l4	f4	f2			f
20												h		h			h	h3	h6 l	f	f3	f2	f3	f
21	f								h2	h							h	h2	h3	f5	f2	f2	f	f
22										h	h	h			h	h l	h3	h3	c5	f2	f3		f	f2
23					f2	f		h	h	h	h	h								f3	f	f2	f	
24	f4	f3	f2	f	f				h	h								h2	h3	f				
25									h	h		l					h2		h3	f				
26								l2	l2	l2							h	h2	c4				f2	f2
27	f3	f2	f2						h	h	h2 l	h l	l l	h	h			h2 l	c2	f	f	f		
28								h	h		l	l	l	l	l	h l2	h2 l	h3						
29		f2						h2	h	h	h	h l	l	l	l	l2	l2	l2	l h					
30									h	h	h	h2	h	l	l2	l2 c	l3 h	l2	l3	f4	f2	f2		f
31																								
No.																								
Median																								

Types of Es

Sweep 1.0 Mc to 200 Mc in 30 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.

Sept. 1960	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	22	22	22	-	22	1	1	1	-	1
2	21	26	12	17	21	1	1	1	2	1
3	39	22	13	-	26	1	2	1	-	1
4	12	9	10	(10)	10	0	0	0	(0)	0
5	12	10	8	-	10	0	0	0	-	0
6	9	9	(9)	-	9	0	0	(0)	-	0
7	10	8	7	(9)	8	0	0	0	(0)	0
8	10	9	9	-	9	0	0	0	-	0
9	8	7	8	-	8	0	0	0	-	0
10	7	9	9	-	8	0	0	0	-	0
11	12	10	11	(14)	11	0	0	0	(0)	0
12	15	12	12	25	13	1	1	0	2	1
13	22	19	27	26	23	2	2	2	2	2
14	33	23	23	-	26	2	1	1	-	2
15	10	8	7	-	8	0	0	0	-	0
16	7	6	6	-	7	0	0	1	-	0
17	10	10	8	-	9	1	1	0	-	1
18	9	11	(10)	-	10	0	0	(0)	-	0
19	9	8	8	-	8	1	0	0	-	0
20	8	8	8	-	8	0	0	0	-	0
21	9	8	(8)	-	8	0	0	(0)	-	0
22	8	12	13	-	11	0	1	1	-	1
23	9	9	9	-	9	1	1	0	-	1
24	9	9	(9)	(7)	9	0	1	(1)	(0)	1
25	8	9	16	(7)	10	1	1	2	(0)	1
26	7	8	12	(7)	9	0	1	0	(0)	0
27	7	7	7	(6)	7	0	0	0	(0)	0
28	7	8	7	(8)	7	0	0	0	(0)	0
29	8	8	(8)	-	8	0	0	(0)	-	0
30	8	7	8	-	7	0	0	0	-	0

Outstanding Occurrences

Sept. 1960	Start-time	Dura-tion	Type	Max. Inst.	Int. Smd.	Max. Time	Remarks
1	2039.5	2.4	CD/8	>1400	420	-	off scale
1	2057	4.5	CD/4	>1400	90	-	off scale
2	0611.5	0.3	ECD/4	2000	440	-	
3	0103	33	CD/8	>7000	>1000	-	off scale
4	0007.7	~ 1	CD/5	1670	360	0008.3	1st part
		~20		-	30	-	2nd part
18	2030.2	1.0	CD/4	>1500	440	-	off scale

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Sep. 1960	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	2o	1 3 1	3 2 1 1	3 (3) 3 1	1 2 3 2	N N N N			
2	2+	1 4 4	(1) 2 2 (1)	2 2 2 3	3 (1) 2 2	N N N N	1158	---	
3	4-	3 4 4	2 4 4 4	3 2 3 3	3 3 3 3	U U U U	---	1900	79γ
4*	4-	3 (3 3)	4 4 4 5	3 4 4 5	2 2 2 1	U U W W	0231	---	
5*	4o	(4 4 4)	5 4 4 5	4 3 3 4	3 3 2 3	W W W W	---	1800	271γ
6*	4o	2 4 3	5 5 5 5	3 (2) 3 3	3 4 4 3	W U U U			
7	3+	2 3 -	4 2 2 4	2 2 3 2	2 1 3 3	N N N N			
8	3-	1 (2) -	2 2 2 2	3 (2) 3 2	(2 1) 1 2	N N N N			
9	2+	1 (2) -	2 2 2 2	3 (1 2) 2	2 1 2 2	N N N N			
10	3o	2 2 -	2 2 2 2	3 2 2 2	1 1 1 2	N N N N			
11	2o	3 2 -	2 2 1 1	2 3 2 1	2 1 2 1	N N N N			
12	2-	1 2 -	2 2 2 1	1 1 2 3	2 1 2 1	N N N N			
13	2-	1 2 -	2 2 1 1	3 1 1 2	1 1 2 1	N N N N			
14	2o	2 2 2	1 1 2 1	3 3 2 2	1 1 3 1	N N N N			
15	2-	1 1 2	1 1 1 2	3 1 2 2	(2 1) 1 2	N N N N			
16	1o	1 1 (1)	1 1 1 1	1 1 1 (1)	(1) 1 1 1	N N N N			
17	1o	1 1 1	1 1 1 1	1 1 1 1	1 1 1 1	N N N N			
18	1o	1 1 2	1 1 1 1	1 1 1 1	1 2 1 1	N N N N			
19	1o	1 1 2	1 1 1 1	1 1 1 1	(2) 1 1 1	N N N N			
[20]	1o	1 1 (1)	1 1 1 1	1 1 1 (1)	1 1 1 1	N N N N			
[21]	1o	1 1 1	1 1 1 1	1 (1) 1 1	1 1 1 1	N N N N			
[22]	2+	2 4 2	1 1 2 1	1 3 3 2	1 1 2 3	N N N N	1405	---	
23	2o	2 3 4	1 1 1 1	2 2 2 2	1 1 (2 2)	N N N N	---	1500	70γ
24	2-	2 2 2	1 2 1 1	2 1 1 2	1 1 2 1	N N N N			
25	1+	1 1 -	2 2 1 1	2 1 1 2	2 2 (3) 3	N N N N			
26	2-	2 2 2	1 2 2 1	2 1 1 2	2 1 2 2	N N N N			
27	2o	2 3 2	1 1 1 3	2 1 2 2	2 1 1 1	N N N N			
28	3+	2 2 2	3 2 2 2	2 4 4 2	2 3 2 3	N N N N			
29	2-	1 2 2	2 2 2 1	2 2 1 1	2 2 2 2	N N N N			
30	2+	2 3 3	2 2 2 3	1 1 1 3	(1) 3 3 3	N N N N			

* = day of Special World Interval
( )= inaccurate
[ ] = Regular World Day
--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Sept. 1960	S W F									S E A			Correspondence		
	Drop-out Intensities (db)					Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN										
2		20			17	02.45	30	S	1+	02.40	55	1		x	
2		30				03.20	70	Slow	2						
2										14.35	60	2	x		
2										16.55	90	2			
2		-			>40	18.40		S	3+	18.30	120	3+	x		
2	-									22.00	36	2			
2	20"	58			14	23.00	30	S	3+	23.00	45	1	x	x	
3	13"	>41	-	-	25	01.06	80	S	3+				x	x	
4	-	58	18	13'	12	00.12	70	S	3+					x	
4					39	11.00	27	S	3+						
5		18		13	11	02.08	24	S	1+						
5		18		-		03.00	28	S	1+						
7		34		12'		23.13	14	S	2+	23.10	26	2	x		
15	20"	28	11	10'		00.41	31	Slow	2						
19			10	5'	20	07.05	15	Slow	1+				x		
20	18"	10		18	6	03.30	14	Slow	2					x	

IONOSPHERIC DATA IN JAPAN FOR SEPTEMBER 1960
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