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IONOSPHERIC DATA IN JAPAN

FOR SEPTEMBER 1957

Vol. 9 No. 9



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Prepared by

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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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	} The ordinary-wave critical frequency for the $F2$, $F1$ and E layers respectively.
f_0F1	
f_0E	
f_0E_s	The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
f_bE_s	The ordinary wave frequency at which the highest blanketing E_s layer becomes effectively transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.
f -min	That frequency below which no echoes are observed.
(M 3000) $F2$	The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.
(M 3000) $F1$	The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.
$h'F2$	The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.
$h'F$	The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.

$h'E_s$	The lowest virtual height of the trace used to give the f_0E_s .
$hpF2$	The virtual height of the $F2$ layer measured on the ordinary-wave branch at a frequency equal to $0.834 f_0F2$.
$ypF2$	The semi-thickness of the $F2$ layer deduced from a parabolic fit to the "nose" of the electron density distribution with height and based on the observed $h'f$ trace. (The difference between $hpF2$ and the virtual height at $0.969 f_0F2$).

a. Descriptive Symbols

	Used following the numerical value on monthly tabulation sheets.
A	Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example E_s .
B	Measurement influenced by, or impossible because of, absorption in the vicinity of f -min.
C	Measurement influenced by, or impossible because of, any non-ionospheric reason.
D	Measurement influenced by, or impossible because of, the upper limit of the normal 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	Forced 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 preceding symbol on monthly tabulation sheets.

D	<i>greater than.....</i>
E	<i>less than.....</i>
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 thick 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*, at 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_s 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 6x4 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 can 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

4=poor (disturbed)

2=normal

5=very poor (very disturbed)

3=rather poor (unstable)

The tabulated circuits contain 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 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 prepared from the field intensities of 5 circuits received at Hiraiso, and are given in the tabulated form.

Start-time

Duration

Importance

Degrees of SWF are classified in 5 grades as follows:

1- =slight

1=small

2=moderate

3=great
3+=very great

Types

- S-SWF: sudden drop-out and gradual recovery
- Slow S-SWF: slow drop-out taking 5 to 15 minutes and gradual recovery
- G-SWF: gradual disturbance; fade irregular in both drop out and recovery

Circuits

- WS WWV 20, 15 and 10 Mc (Washington, D.C.)
- HA WWVH 15 and 10 Mc (Hawaii)
- TO JJY 15 and 10 Mc (Tokyo)
- SF WNA-27 7.6550 Mc; WND-20 10.4925 Mc
WNC-93 13.7525 Mc; WNC-37 17.4200 Mc (San Francisco)
- LN GIJ-37 14.6702 Mc (London)
- MN DZM-28 14.5850 Mc (Manila)

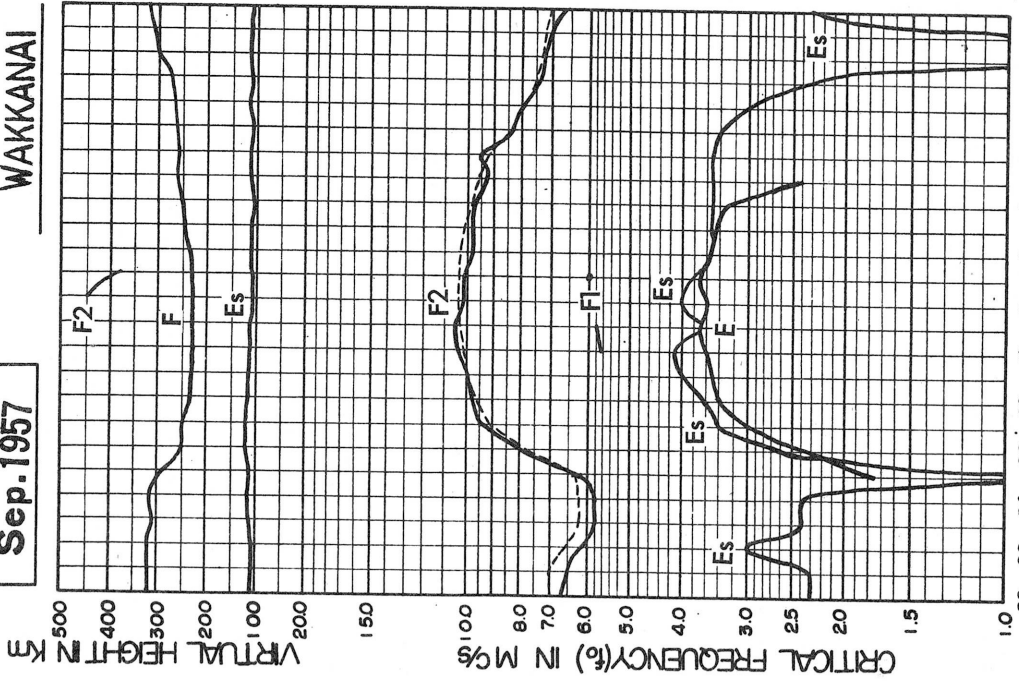
The data of sudden enhancement of atmospherics (SEA) observed on 28 kc are tabulated on each start-time, duration and importance.

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

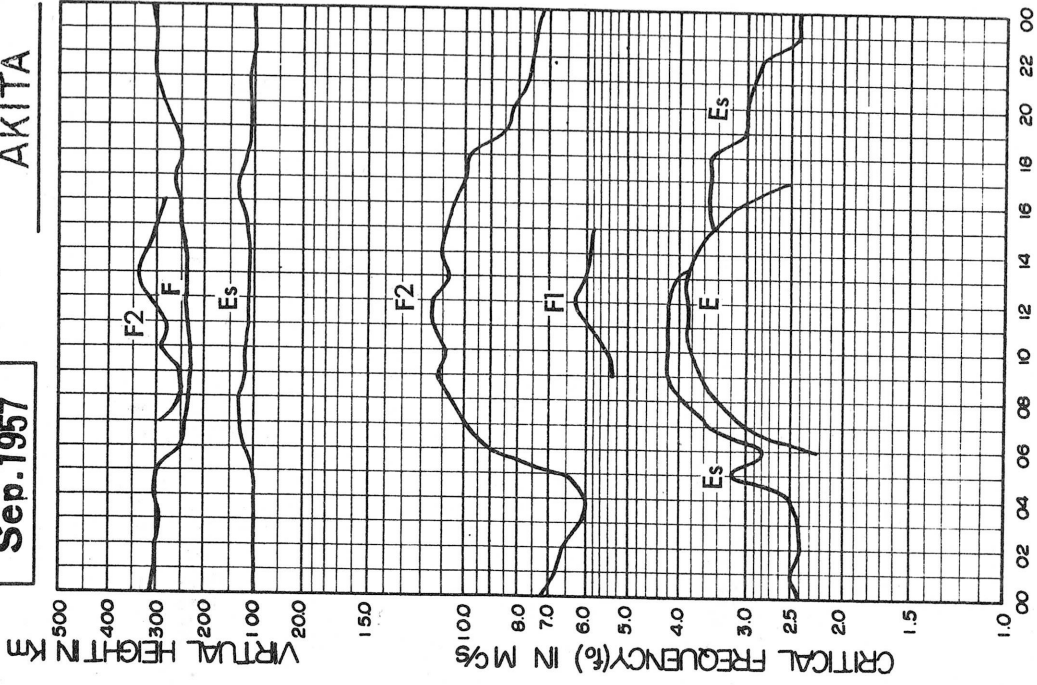
Sep. 1957

WAKKANAI

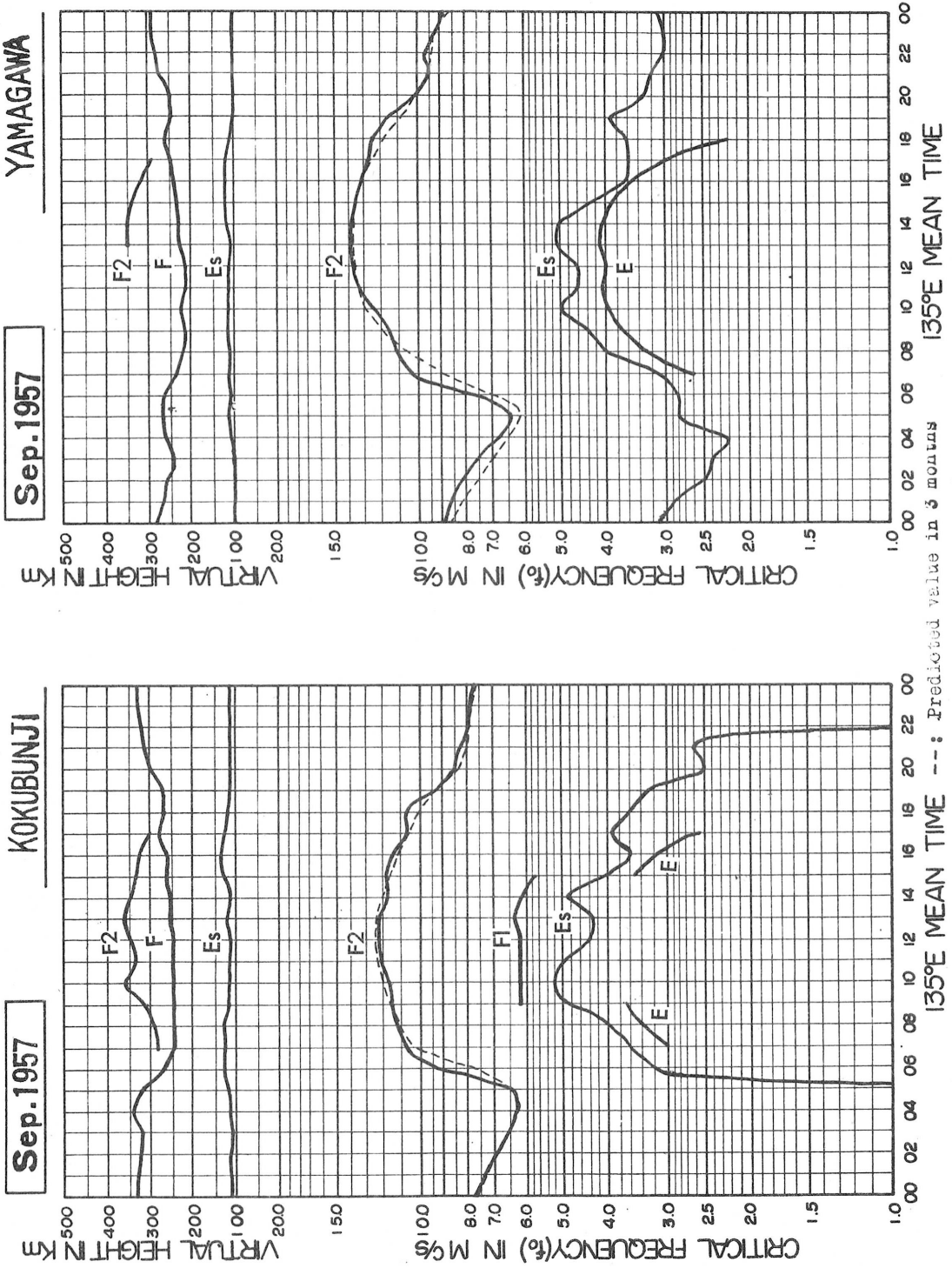


Sep. 1957

AKITA



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



135°E MEAN TIME --: Predicted value in 3 months

advance by R.R.I.

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time (GMT.+ 9h.)

Sep. 1957

foF2

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	7.0	6.5	7.2	6.5	6.0	6.3	7.4	9.5	8.7	8.8	8.9	9.8	10.8	10.3	9.3	10.0	9.7	9.3	9.8	9.4 ^S	8.3	7.1	7.1	5.7
2	7.1	6.8	6.8	6.6	6.8	7.1	8.5	9.0	9.2	10.3	11.1	10.8	10.5	10.7	10.6	10.0	10.5	10.0	10.5	9.6 ^S	8.0	6.2	6.3	5.7
3	5.2	4.6F	4.5	4.8F	4.5	5.0A	7.1	7.6	7.6	7.2F	6.3B	R	6.7	6.7	6.6H	7.2	7.5	7.0	7.4	7.6	7.1S	6.2F	5.3F	5.4F
4	3.5	3.0F	3.3F	3.5F	4.0F	4.5	7.8	8.5H	7.0	10.2	9.9	10.5	8.7	8.2	8.3	8.7	8.6	8.9	8.5	8.3S	8.1S	7.9S	7.4S	7.3
5	6.8	6.5F	4.3F	3.7F	3.5F	4.1C	4.7H	6.4H	7.0	6.7	8.2	11.1	9.0	9.1	7.7	7.8	8.1	7.3	6.3	6.4	6.2	6.1	5.6	5.3F
6	5.2	5.1F	4.8F	4.6F	4.9F	5.3F	8.0	9.1	9.0	8.1	8.0	9.0	9.0	8.6	9.8	10.5	9.3	9.3	9.3A	9.0	8.0	7.2A	6.8A	6.4A
7	6.1F	6.1F	5.7F	5.0	4.6F	4.5	5.5	5.3	6.6	8.1	8.7	8.3	9.3	9.1	9.1	8.8	8.6	8.3	8.5	8.6	8.2S	7.5	7.0	6.7
8	6.6	6.1	6.0	5.9	5.8	6.2	7.5	8.4	9.1	9.1	9.1	9.1	9.8	9.5	9.3	8.6	8.8	8.7	9.5	9.3	8.1	7.8S	7.3	7.3
9	7.3	6.9	6.7	6.4	6.6	7.2	8.9	10.0	11.3	11.5	10.6	10.6	10.5H	10.2	10.6	10.3	10.3	10.5	10.3	9.1	S	S	S	7.0
10	6.6	6.4	6.0	5.8	5.7	6.1	8.1	8.7	8.4	8.6H	8.5	8.3	8.6	9.0	9.3	8.9	8.7	9.0	8.5	8.2	8.1	7.8	7.4	7.2
11	6.7	6.3	6.2	5.7	5.7	6.2	8.2	9.3	8.8	9.3	9.5	10.0	10.1	10.1	9.9	9.8H	9.5	9.1	8.3	8.3	8.1S	7.7A	7.3S	7.2
12	7.0	7.0	6.4	6.5	6.4F	7.1	9.0	10.0	9.8	10.4	10.4	10.0	10.0	10.1	9.5	9.0	9.0	9.1	8.9S	9.0S	S	S	S	7.8
13	7.1	6.7	7.0	6.6	6.5	7.3	9.5	10.8	11.3	11.3	10.8	12.1	11.8	11.8	10.9	12.4	10.5	10.3	9.5	9.0	F	F	F	F
14	F	F	3.5F	3.0	3.8	7.6	12.5F	13.5	12.8	12.2	11.3	10.8	10.7	10.0	10.0	9.8	9.8	9.8	10.0	10.5	9.3	8.2S	7.3	7.0
15	6.5	5.7	5.6	5.3	4.8	4.8	6.0	6.2	6.5	6.8	7.2	7.4H	7.8	7.6R	7.8	7.7H	7.8	7.8	7.6	7.3	7.0	6.7	6.5	6.5
16	6.5	6.6	6.5	6.1	5.6	5.8	7.8	10.4	10.0	10.0	9.8H	9.3	9.7	10.0	9.6	9.0	9.0	8.9	8.3	7.3	7.0	7.5	7.4S	7.4
17	7.0	7.0	6.7	6.4	6.2	6.8	7.2	11.0	11.5	10.9	10.4	10.3	10.3	9.8	9.8	9.5	9.2	9.3	9.8	8.0	8.0S	7.9S	7.4	7.2S
18	7.5	6.6	6.5	6.2	6.1	6.4	7.4	8.2	9.4	10.0	10.0	10.5	10.1	10.1	9.9	9.8	9.8	9.1	8.6	7.8	7.6S	7.5	7.2	7.0
19	6.6	6.5	6.4	6.4	6.1	6.6	9.1	10.0	11.5	11.1	11.3	11.3H	11.3	11.2	10.9	10.3	10.3	10.3	10.0	9.5	9.3	8.4	8.0	7.3S
20	7.3	7.2	7.1	7.0	7.1	7.9	10.3	11.0	11.8	12.1	12.3	12.5	12.1	11.7	11.5	11.5	11.1	11.2	10.8	9.2	8.7	8.0	8.3S	8.3
21	7.7	7.3	7.0	6.5	6.6	7.5	10.3	12.5	12.5	12.8	12.5	12.1	12.3	11.9	11.6	11.1	11.3	11.0	10.4	9.3	9.2	7.3	5.9	5.6
22	6.8	4.5C	4.0C	3.5	3.4	3.7	5.2H	C	C	C	C	C	C	C	C	C	C	6.8	6.7	5.9	6.0	5.8	5.7	5.1
23	4.7	3.6	3.6	4.0	4.2	3.8	5.4	7.5	9.0	9.5H	10.7	9.6	9.8	9.3	9.5	9.0H	9.6	10.7	11.0	7.3	7.3	7.0	6.8S	5.0F
24	5.3F	4.5F	5.0F	5.0F	5.3F	5.4	7.0	8.5	8.1	8.3	7.9	7.4	7.2	7.1	6.7H	7.1	7.5	7.8	7.5	7.6	7.2	7.0	6.5	6.0
25	5.9	5.8	5.2F	4.8F	4.9F	5.2F	7.5	9.5	10.5	10.5	10.4	10.8	11.3	11.5	11.2	10.6	11.0	10.3	9.5	8.1	7.5	7.1	6.5	6.4
26	6.3	6.5	6.6	5.9	6.0	6.5	8.8	11.2	12.8	12.8	12.4	12.4	12.5	12.5	12.0	11.9	12.0	11.5	10.5	9.1	8.2	7.3	7.0	7.0
27	6.7	6.5	6.7	6.5	6.3	7.0	9.7	11.1	12.5	13.0	12.5	13.0	13.0	12.8	12.3	11.5	11.1	10.6	9.3	8.3	7.8	7.7S	7.5	7.2
28	6.8	6.2	5.9	5.8	6.0	6.5	9.0	10.6	11.6	12.1	12.3	12.5	12.4	12.1	12.0	11.7	11.6	12.0	10.8	8.3	7.5	7.3	7.5S	7.3
29	7.5	7.0	6.6	6.5	6.4	6.3	9.0	11.5	12.8	12.6	12.7	12.6	12.7	12.5	12.8	12.2	11.7	12.2	11.8	9.2	7.5	7.2	7.5	6.9
30	6.0	4.1	3.9	4.3	3.5	3.2	4.2	4.7	5.9	7.8	9.0	10.3	9.8	9.8	9.8H	10.8	11.5	10.5	8.3	7.9	7.7	7.8S	7.5	7.5
31																								
No.	29	29	30	30	30	30	30	29	29	29	28	29	29	29	29	29	29	30	30	30	27	27	27	29
Median	6.7	6.5	6.1	5.8	5.8	6.2	8.0	9.5	9.8	10.2	10.4	10.5	10.1	9.8	9.8	9.8	9.7	9.3	9.5	8.3	8.0	7.3	7.2	7.0
U.Q.	7.0	6.8	6.7	6.5	6.3	7.0	9.0	10.9	11.6	11.8	11.3	11.7	11.6	11.6	11.0	11.0	11.0	10.5	10.3	9.2	8.2	7.8	7.4	7.3
L.Q.	6.0	5.4	4.8	4.8	4.6	5.0	7.1	8.3	8.6	8.4	8.8	9.4	9.2	9.1	9.3	8.8	8.8	8.9	8.3	7.8	7.3	7.0	6.5	6.2
G.R.	1.0	1.4	1.9	1.7	1.7	2.0	1.9	2.6	3.0	3.4	2.5	2.3	2.4	2.5	1.7	2.2	2.2	1.6	2.0	1.4	0.9	0.8	0.9	1.1

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 2.67 Mc in 1 min in automatic operation.

foF2

W 1

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakanai

135° E Mean Time (GMT.+ 9h.)

foF1

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L		L	L	L	L	L	L	L								
2										L	LH	A	A	LH	L	L								
3									6.5	I 6.3 ^L	I 5.7 ^B	I 5.2 ^M	5.5	5.9 ^M	I 5.6 ^M	L	LH							
4									LH	C	5.8	5.6	L	LH	5.7	L								
5									5.4	I 5.6	I 5.6 ^L	6.0	I 5.0 ^M	I 6.0 ^L	I 5.6 ^L	L	L							
6										L	L	A	A	LH	L	L								
7										L	L	L	L	L	L	L								
8										L	L	L	L	L	L	L								
9										L	L	LH	L	LH	L	L								
10										L	L	5.6	L	L	L	L								
11										L	L	L	L	L	L	L								
12										L	L	L	L	L	L	L								
13										L	L	L	L	L	L	L								
14												L	L	L	L	L								
15												L	L	L	L	L								
16									5.0	L	L	6.5	L	6.0 ^L	L	L								
17										L	L	L	L	L	L	L								
18										L	L	L	L	LH	L	L								
19										L	LH	C	LH	L	L	L								
20										L	L	L	L	L	L	L								
21										L	L	L	L	L	L	L								
22										C	C	C	C	C	C	C								
23										C	C	C	L	LH	LH	L								
24										L	L	5.4	5.8	5.8	5.9	5.7	L							
25										L	LH	L	L	L	L	L								
26												L	L	L	L	L								
27												L	L	L	L	L								
28												L	L	L	L	L								
29												L	L	L	L	L								
30												L	L	L	L	L								
31												L	L	L	L	L								
No.								1	4	3	5	5	3	6	4									
Median								4.1	5.2	5.6	5.7	5.8	5.5	6.0	5.6									

Sweep 1.0 Mc to 2.07 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

W 2

foF1

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (GMT.+9h.)

foE

Sen. 1957

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	3.05	3.40	3.55	3.70	R	3.70	3.55	3.55	3.50	3.20	2.60	A					
2							2.60 ^M	3.00	3.45	3.55	A	A	A	A	3.50	4.35 ^R	3.10	2.50						
3							2.40	3.25	3.50	3.45	B	R	R	R	3.60 ^S	3.40	3.05	2.30						
4						A	2.45	3.15	3.45	C	3.80	R	R	3.90	4.36 ^R	3.50	3.15	2.50						
5						C	2.50	3.25	3.10	A	A	R	3.85	R	3.55	3.45	2.95	2.35						
6						1.75	2.45	3.20	3.35	3.50	3.55	C	A	A	3.95	3.60	3.10	2.45						
7						1.60	2.20	2.90	3.25	A	A	A	A	A	3.55	A	A	2.50						
8						4.55 ^R	2.35	3.00	3.20	A	A	A	A	R	A	R	3.50	3.05	A	A				
9							2.45 ^M	2.95	3.20	3.45	R	R	R	3.80	3.65	3.50	3.00	2.40						
10							2.30	3.00	3.40	3.50	3.60	A	A	A	A	3.10	2.90	2.35	A					
11							2.50	3.10	3.45	3.50	3.55 ^R	R	B	B	3.80	3.70	3.20	2.40						
12							2.25	3.00	3.40 ^M	3.55	3.55	3.50	3.50	3.80	3.55	R	3.10	A						
13						S	2.35	3.20 ^B	3.45	3.55	3.60	R	A	4.36 ^R	3.50 ^M	3.45	3.00	2.30						
14						2.00	2.70	3.00	3.45	3.50	3.60	3.70	C	R	3.50	3.50	2.95	2.55						
15						1.80	2.35	3.20	3.15	3.50	3.55	3.50	3.50	B	A	3.25	A	2.40						
16							A	A	A	A	3.85	3.85	A	A	A	A	3.00	A						
17							A	2.90	3.35	A	A	3.90	3.90	3.75	A	R	3.10	2.20						
18							2.05	3.00	3.45	3.60	3.55	R	R	R	4.35 ^R	3.40	3.05	2.35						
19							2.35	3.10	3.50	3.55	3.60	3.20	E	R	3.95	3.60	2.90	2.50						
20							2.25	3.00	3.10	3.50	3.75	3.85	3.85	3.85 ^M	3.65	3.40 ^M	3.00	A						
21							2.40	3.20	3.50	3.65	3.85 ^R	3.85 ^R	4.00	3.90	3.75	3.50	3.00	A						
22							1.65 ^B	2.25	C	C	C	C	C	C	C	C	C	2.10						
23							B	2.15	2.70	3.10	3.50	3.70	3.55	3.60	3.70	3.55	3.05	2.80	1.95					
24						1.80	2.40	3.25 ^M	3.40	A	3.45	3.65	4.36 ^R	3.65	3.50	3.20	2.75	1.95						
25							A	2.90	3.30	3.50	3.75	3.95	3.80	A	3.60	3.25	2.95	A						
26							2.35	2.90	3.35	3.55 ^M	3.70	3.75	3.85	3.50	3.75	3.20	2.65	2.05						
27							A	3.25 ^M	3.40	3.50	3.55	3.70	A	A	3.50 ^M	A	2.75	A						
28							2.30	3.20	3.35 ^M	3.50 ^M	3.50	3.40	3.50 ^M	A	A	A	2.70	A	A					
29							A	2.90	3.20	3.45	3.50	3.55	3.75	A	A	A	2.70	A	A					
30							2.35	2.70	A	3.50	3.55	3.60	3.60	3.50	3.50	3.15	A	A						
31																								
No.						7	2.5	2.8	2.7	2.2	2.2	1.6	1.4	1.2	2.2	2.2	2.6	2.0						
Median						1.75	2.35	3.00	3.40	3.50	3.60	3.70	3.60	3.70	3.55	3.45	3.00	2.40						

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

The Radio Research Laboratories, Japan.

foE

W 3

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (GMT.+9h.)

foEs

Sep. 1957

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	5.1M	4.1M	3.5M	E	E	E	3.9	4.7	4.7	4.8	4.4	5.3M	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
2	4.1M	5.0M	3.6M	2.5M	5.0M	2.0M	3.5	5.0M	4.8	4.8	5.3M	7.7M	4.0	4.0	4.0	4.0	4.0	4.0M	4.0M	5.1M	3.0M	3.5M	4.8M	3.1M	
3	3.5M	2.6M	4.6M	5.9M	6.0M	6.6M	3.5	5.3M	4.1	5.2M	4.1	5.2M	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
4	E	1.7	2.5M	2.4M	2.5M	3.5M	3.5	4.1	3.7	C	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
5	E	E	2.5M	1.7	E	C	3.5	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
6	5.8M	3.5M	4.2M	2.4M	2.4M	2.3	3.5	3.6	6.0M	5.5M	8.2M	7.3M	4.2M	4.2M	4.2M	4.1	8.0M	11.8M	11.5M	8.0M	6.0M	12.8M	12.8M	10.5M	
7	5.8M	2.3M	5.7	5.5M	4.0M	3.5M	3.1	3.4	4.5	7.2M	6.0M	8.0M	6.5M	6.5M	4.7M	5.1M	4.7M	3.5	6.5M	6.2M	5.5M	6.0M	3.5M	E	
8	3.5M	2.3M	3.5M	E	3.5M	E	3.4	4.2	5.7M	6.2M	7.5M	8.0M	6.5M	6.5M	4.7M	3.5	3.5	3.5	3.5M	2.5M	2.5M	4.5M	3.0M	E	
9	E	E	2.5M	E	3.0M	E	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
10	E	E	2.3M	1.3	E	E	2.8	3.9	4.1	4.1	4.0	4.1M	4.1M	5.9M	4.5M	4.5	4.5	4.5	4.5	3.0M	3.0M	4.5	4.5	4.5	4.5
11	E	2.4M	3.5M	2.4M	E	E	3.2	4.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
12	3.0M	2.6M	4.5M	3.5M	3.5M	E	3.4	3.5	3.5	4.4	4.2	5.7M	6.2M	6.2M	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
13	2.5M	2.3M	3.0M	3.5M	E	S	3.5M	B	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
14	2.5M	2.9M	3.9M	3.5M	2.4M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
15	2.4M	2.9M	2.6M	2.5M	1.3	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
16	E	3.0M	E	1.2	3.5M	3.0M	3.5M	5.5M	5.3M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M	4.4M
17	5.0M	3.5M	3.5M	E	E	E	3.5	3.5	3.9	5.3M	4.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
18	3.5M	3.5M	3.5M	3.3M	3.3M	E	2.5	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
19	E	E	2.3M	2.3M	3.0M	2.5M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
20	E	2.3M	E	E	E	2.3M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
21	E	E	E	E	E	E	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
22	E	E	C	3.5M	E	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
23	E	2.3M	E	E	1.2	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
24	3.0M	3.0M	2.5M	1.7	2.4M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
25	2.2	E	E	2.4M	2.6M	2.7M	2.5	5.7M	3.5	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
26	E	E	E	2.4M	E	E	2.7	3.0M	5.7M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M	4.0M
27	E	2.5M	3.5M	E	E	E	3.5M	3.5	3.9	4.4	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
28	3.0M	4.0M	7.3M	5.9M	5.3M	E	3.5	3.6	4.3	5.5M	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
29	E	E	3.3M	2.4M	2.3M	3.5M	3.1	3.5	3.7	3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
30	3.5M	E	E	2.4M	2.2M	E	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
31																									
No.	30	29	29	29	30	28	30	28	29	28	29	29	29	29	29	29	29	29	30	29	30	30	30	30	30
Median	2.3M	2.3M	3.0M	2.4M	2.4M	E	2.6	3.4	3.6	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	
U.Q.	3.5	3.0	3.6	3.5	3.3	2.4	3.5	3.5	4.2	4.4	4.6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	
L.Q.	E	E	E	1.2	E	E	4.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
Q.R.				2.3			0.7																		

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

W 4

foEs

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

fbEs

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.8	2.9	E	E	E	E	E	E	4.5	4.5	4.5	4.6	4.6	4.6	G	G	G	G	4.8	4.5	E	E	3.5	2.7
2	3.2	3.7	2.5	E	E	E	E	E	4.6	4.0	6.5	5.8	5.8	4.0	G	G	G	G	3.8	E	E	2.1	2.5	3.5
3	E	E	2.5	2.6	E	A	4.5	E	E	B	E	E	E	E	G	G	G	G	4.5	E	E	E	E	E
4	E	E	E	E	E	E	E	4.0	E	E	E	E	E	E	G	G	G	G	4.5	4.0	E	E	E	E
5	E	E	E	E	E	E	E	E	3.8	4.0 ^B	E	E	E	E	G	G	G	G	4.5	E	E	E	E	E
6	4.3	2.4	2.1	E	E	E	E	E	4.9	E	7.9	6.2	6.2	E	E	E	E	7.7	A	E	2.2	A	A	A
7	2.1	E	E	2.7	E	E	2.8	3.3	4.2	4.8	5.0	4.5	4.9	4.6	G	G	G	4.0	3.5	5.2	2.0	4.3	2.5	E
8	E	E	E	E	E	E	E	E	4.1	4.4	4.7	5.0	G	G	G	G	G	G	G	E	E	E	E	E
9	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	G	G	G	G	E	E	2.9	2.5	E
10	E	E	E	E	E	E	E	3.9	E	E	4.1	E	4.2 ^B	4.0	G	G	G	G	G	2.1	E	E	E	E
11	E	E	E	E	E	E	E	E	4.0	4.2	4.2	E	B	B	G	G	G	3.8	3.7	3.4	2.1	2.0	A	4.7
12	E	E	2.9	E	E	E	3.0	3.2	E	4.4	4.2	5.0	5.0	E	G	G	G	E	2.6	4.2	2.0	E	E	E
13	E	E	2.0	E	E	S	E	B	E	E	E	E	E	E	G	G	G	G	G	E	E	E	E	2.6
14	E	E	2.5	E	E	E	E	E	E	E	E	E	E	E	G	G	G	G	E	C	4.3	2.0	3.5	3.3
15	E	E	E	E	E	E	E	E	E	E	E	E	E	B	G	G	G	G	E	3.8	2.6	E	3.5	E
16	E	E	E	E	E	E	3.4	4.6	3.8	3.8	E	E	E	E	G	G	G	G	E	2.8	2.6	3.0	4.0	2.5
17	3.9	E	E	E	E	E	E	E	E	4.4	4.0	E	E	E	G	G	G	G	E	E	2.1	2.8	2.3	E
18	E	E	E	2.2	E	E	E	E	E	E	E	E	E	E	G	G	G	G	E	E	E	E	E	E
19	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	E	4.4	4.1	E	E	E	E	G	G	G	G	E	E	E	E	E	E
21	E	E	E	E	E	E	E	E	E	E	E	E	4.5	E	G	G	G	G	E	E	E	2.0	E	E
22	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
24	2.0	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	2.2	E	E	E
26	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	E	4.3	4.2	E	E	E	E	E	E	E	E	E	E	E	E	E	E
28	2.1	3.1	4.5	2.4	E	E	E	E	4.3	4.3	4.4	E	E	E	E	E	E	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
31																								
No.	30	29	29	29	30	28	30	28	29	28	29	29	26	27	29	29	29	30	29	30	30	30	30	30
Median	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 2.0 Mc in min in automatic operation.

fbEs

W 5

Lat. 45° 23.6' N
Long. 141° 41.1' E

IONOSPHERIC DATA

Wakanai

135° E Mean Time (GMT.+9h.)

f-min

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.60	1.30	1.10	1.25	1.10	1.60	1.80	1.85	1.85	2.00	2.05	2.50	2.50	2.05	2.00	1.85	2.00	1.80	1.60	1.80	1.60	1.60	1.70	1.60
2	1.60	1.50	E	1.20	1.10	1.50	1.70	1.85	2.05	2.10	2.10	2.05	2.05	2.15	2.50	2.00	1.80	1.70	1.60	1.60	1.60	E	E	1.65
3	E	1.25	E	E	E	1.60	1.80	1.85	2.00	2.00	4.50	2.65	2.50	2.25	2.15	1.85	1.80	1.80	1.85	1.60	1.55	E	E	E
4	1.60	E	E	E	E	1.60	1.80	1.85	2.10	C	2.50	2.50	1.85	1.80	2.00	1.90	1.75	1.80	1.60	1.60	1.70	E	E	1.55
5	E	1.50	1.20	E	E	C	1.70	1.75	1.80	2.10	2.50	2.40	2.10	2.00	2.00	1.80	1.75	1.80	2.00	1.60	1.60	1.60	1.60	1.55
6	E	1.50	E	E	E	1.60	1.85	1.75	1.80	2.00	2.00	2.50	2.00	2.45	2.05	2.05	2.00	1.85	1.60	1.55	1.55	E	E	1.55
7	E	1.50	1.25	1.25	1.15	1.50	1.80	2.05	2.00	2.05	2.70	2.75	2.90	2.50	2.05	1.85	1.85	1.95	1.80	1.60	1.75	1.60	1.60	1.70
8	E	1.50	1.30	E	E	1.40	1.80	1.80	2.00	2.10	3.00	3.50	2.50	2.00	1.80	1.90	1.75	1.60	1.60	1.75	1.70	1.60	1.60	1.60
9	1.60	1.25	E	E	E	1.50	1.70	1.85	1.85	2.35	2.00	2.60	2.00	2.20	1.80	1.80	1.85	1.80	1.60	1.60	1.60	1.60	1.60	1.70
10	E	1.50	E	E	E	1.50	1.80	1.90	1.80	2.00	2.10	2.00	2.50	2.00	2.00	1.80	1.80	1.75	1.60	1.55	1.55	1.60	1.60	1.55
11	1.55	E	E	E	E	1.65	1.80	1.80	1.80	2.00	2.60	2.60	4.75	4.70	2.50	2.10	1.80	1.80	1.50	1.60	1.50	1.55	1.55	1.55
12	E	1.50	E	E	E	1.50	1.80	1.70	1.80	2.00	2.00	2.00	2.10	2.00	2.45	2.00	1.85	1.70	1.60	1.60	1.60	1.60	1.60	1.50
13	1.60	1.25	E	E	E	1.65	1.75	4.00	2.05	2.00	2.05	2.40	2.60	2.45	2.40	1.95	1.95	1.60	1.85	E	1.50	1.90	E	1.50
14	E	1.50	1.20	E	E	1.50	1.80	1.80	2.00	2.00	2.15	2.50	C	2.40	2.00	2.00	2.00	2.00	C	1.60	1.55	1.70	E	1.50
15	E	1.50	E	E	E	1.60	1.80	1.85	2.00	2.05	2.00	2.05	2.00	4.90	2.05	2.05	1.80	1.65	1.60	1.60	1.60	1.60	1.60	1.70
16	1.60	E	E	E	E	1.50	1.85	2.00	2.00	2.40	2.10	2.10	2.05	2.50	2.90	2.05	1.85	1.70	1.60	1.60	1.60	1.60	1.60	1.60
17	1.60	E	E	E	E	1.60	1.80	2.00	2.15	2.55	2.45	2.45	2.40	2.35	2.45	2.00	1.75	1.70	1.70	1.60	1.60	1.60	1.70	1.60
18	1.60	E	E	E	E	1.60	1.85	2.00	2.45	2.50	2.20	2.10	2.05	2.00	1.85	1.90	1.85	1.80	1.65	1.60	1.65	1.65	1.70	1.65
19	1.60	1.35	E	E	E	1.60	1.80	2.10	2.00	2.30	2.10	2.20	2.15	2.00	2.10	1.80	1.75	1.80	1.80	1.80	1.60	1.60	1.60	1.65
20	1.60	1.40	1.10	1.10	1.15	1.50	1.80	2.10	1.85	2.40	2.00	2.10	2.30	2.60	2.50	2.00	1.85	1.75	1.60	1.80	1.70	1.60	1.60	1.60
21	1.60	1.25	1.20	1.20	1.65	1.50	1.80	1.80	2.50	2.40	2.60	2.40	2.40	2.15	2.50	1.90	1.85	1.80	1.75	1.60	1.60	1.60	1.60	1.60
22	1.60	C	C	E	1.40	1.50	1.70	C	C	C	C	C	C	C	C	C	1.90	1.90	1.70	1.60	1.60	1.60	1.60	1.60
23	1.60	1.10	1.05	1.10	E	1.70	1.80	1.80	2.00	2.00	2.05	1.95	2.00	2.50	1.80	2.00	1.80	1.80	1.60	1.60	1.60	1.60	1.80	1.80
24	1.60	1.25	E	E	E	1.30	1.80	2.00	1.80	2.00	2.10	2.40	2.50	2.10	2.05	1.80	1.80	1.85	1.60	1.65	1.60	1.60	1.60	1.60
25	1.60	1.35	1.10	E	E	1.50	2.00	1.80	1.85	2.00	2.05	2.50	2.05	2.00	1.75	1.80	1.60	1.60	1.60	1.60	1.70	1.70	1.60	1.60
26	1.60	1.30	1.10	E	E	1.50	1.85	2.00	2.00	2.10	2.10	2.00	2.05	2.00	2.00	2.00	2.00	1.75	1.60	1.60	1.60	1.60	1.60	1.60
27	1.60	1.25	E	E	E	1.50	1.80	2.00	2.00	2.15	2.50	2.30	2.15	2.50	2.40	2.00	1.85	1.80	1.65	1.60	1.60	1.60	1.60	1.75
28	1.60	1.25	E	E	E	1.60	1.85	2.00	2.00	2.40	2.45	2.20	2.40	2.00	2.00	2.00	1.85	1.80	1.60	1.70	1.65	1.60	1.60	1.60
29	1.60	1.40	1.10	1.10	E	1.40	1.60	1.85	2.00	2.10	2.00	2.50	2.10	2.10	2.00	2.00	1.80	1.80	1.60	1.65	1.60	1.60	1.70	1.80
30	1.60	1.40	1.05	E	E	1.50	2.00	1.80	2.00	2.00	2.00	2.10	2.60	1.85	2.10	1.80	1.80	1.70	1.60	1.70	1.60	1.60	1.60	1.95
31																								
No.	30	29	29	29	30	29	30	29	29	28	29	28	29	29	29	29	29	30	29	30	30	30	30	30
Median	1.60	1.25	E	E	E	1.50	1.80	1.85	2.00	2.05	2.10	2.40	2.15	2.15	2.05	1.95	1.85	1.80	1.60	1.60	1.60	1.60	1.60	1.60

Sweep 1.5 Mc to 2.67 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

f-min

W 6

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

135° E Mean Time (GMT.+ 9h.)

(M3000)F2

Sep. 1957

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	245	245	250	255 ^F	245 ^F	250 ^F	285	305	285	285	275	265	275	280	270	275	275	280	275	280 ^c	280	255	245	250
2	255	250	260	260	245	280	295	300	290	280	285	275	270	270	275	265	275	270	280	280 ^s	265	240	240	230
3	220	220 ^F	210	235 ^F	230	260 ^A	280	290	290 ^F	275 ^B	245 ^B	R	240	230	255 ^H	255	240	260	250	285	250 ^s	230 ^F	220 ^F	220 ^F
4	220	215 ^F	215 ^F	225 ^F	225 ^F	290	290	280 ^H	290	295	275	290	285	280	290	290	285	285	295	285	285	270 ^s	260 ^s	260
5	250	225 ^F	215	220 ^F	230 ^F	230 ^F	260 ^F	275 ^H	245	240	255	260	255	255	285	285	280	285	285	265	240	245	250	250 ^F
6	235	240 ^F	240 ^F	250 ^F	270 ^F	310 ^F	300	330	315	310	285	290	285	285	280	285	290	290	290 ^A	280	275	260 ^A	250 ^A	235 ^A
7	230 ^F	230 ^F	245 ^F	220	235 ^F	245	285	300	285	310	310	290	295	285	295	285	295	310	290	285	270 ^s	260	260	255
8	255	255	250	260	260	285	295	300	305	310	285	285	285	285	285	280	290	285	285	280	290	275 ^s	265	255
9	260	265	260	255	260	280	305	300	310	295	295	285	275 ^H	280	275	270	280	280	280	285	280	275 ^s	265	255
10	270	255	255	245	250	265	295	300	295	255 ^H	290	265	275	270	280	280	290	295	285	280	290	275 ^s	265	255
11	260	255	260	255	245	265	315	310	290	290	270	270	275	275	265	270 ^H	290	295	285	275	270 ^s	260 ^s	265	265
12	255	255	255	255	250 ^F	280	310	295	290	285	275	275	270	270	280	275	275	275	285	285	270 ^s	260 ^s	265	265
13	265	255	260	260	265	265	305	305	300	290	270	260	255	245	230	250	255	270	285	285	270 ^s	260 ^s	265	265
14	F	F	230 ^F	215	245	270	290 ^F	295	290	270	260	260	250 ^c	250	250	255	270	270	265	270	270	255 ^s	230	230
15	245	220	220	215	230	235	275	270	265	275	290	260 ^H	260	265 ^H	270	260 ^H	290	280	275	250	250	245	245	245
16	245	245	245	250	235	245	310	305	295	290	285 ^H	270	265	270	275	270	280	280	270	275	260	285	260 ^s	265
17	260	260	255	250 ^F	290	270	310	300	300	300	265	270	270	265	270	270	280	280	270	275	270 ^s	260 ^s	250	240 ^s
18	255	240	240	230	230	240	280	270	270	280	270	275	270	270	270	265	265	280	230	265	260 ^s	265	245	245
19	245	240	240	255	240	255	310	305	295	290	280	270 ^H	265	260	265	255	265	280	270	275	275	270	270 ^s	260 ^s
20	250	250	255	255	265	280	300	300	290	285	275	275	270	260	260	260	265	270	275	275	265	265	270 ^s	270
21	255	265	260	245	245	265	295	305	290	280	270	265	260	255	260	260	265	270	270	265	260	265	270	270
22	260	240 ^F	235 ^F	230	210	225	235 ^H	C	C	C	C	C	C	C	C	C	C	260	275	250	235	240	210	210
23	210	200	205	210	240	270	260	265	285	C	270	260	260	260	245	220 ^H	245	250	270	235	240	270	260 ^s	220 ^F
24	240	210 ^F	220 ^H	230 ^H	220 ^F	220	245	260	250	260	245	250	250	240	285 ^H	285	270	285	280	265	250	245	240	235
25	235	240	240 ^H	235 ^F	225 ^F	225 ^F	300	275	285	280	275	270	270	270	275	275	285	280	285	270	265	255	240	235
26	240	245	245	255	245	265	295	295	305	300	290	265	265	270	265	270	275	285	285	275	270	260	245	245
27	240	240	240	255	250	260	290	295	295	300	290	290	275	280	275	270	280	285	290	280	270	260	245	245
28	270	245	240	240	250	295	300	300	300	295	280	290	275	270	270	275	275	285	285	280	280	275	240	225
29	270	260	255	255	260	255	280	295	315	295	290	275	270	270	270	260	265	280	290	275	265	240	225	225
30	225	200	205	210	215	210	210	210	210	300	270	270	280	285	265 ^H	270	280	280	275	265	260	250 ^s	255	255
31																								
No.	29	29	30	30	30	30	29	29	29	28	29	28	29	29	29	29	29	30	30	30	27	27	27	29
Median	250	245	240	250	245	260	290	300	290	290	275	270	270	270	270	270	275	280	280	275	265	260	260	250

Sweep 1.0 Mc to 2.0 Mc in automatic operation.

(M3000)F2

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time (GMT.+ 9h.)

(M3000)F1

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	L	L	L	L	L	L								
2									L	L ^H	A	A	A	L ^H	L	L								
3								325	L ^H	I 300 ^L	I 350 ^B	I 355 ^H	340	310	I 310 ^H	L	L ^H							
4						L			L ^H	C	345	355	L	L ^H	L	L								
5								315	I 315 ^L	I 310 ^L	315	I 320 ^H	I 305 ^L	I 300 ^L	L	L								
6									L	A	A	A	A	L ^H	L	L								
7									L	L	L	L	L	L	L	L								
8										L	L	L ^H	L	L	L	L								
9									L	L	L	L	L	395 ^H	L	L								
10								L	L	L	340	L	L	L	L	L								
11									L	L	L	L	L	L	L	L								
12									L	L	L	L	L	L	L	L								
13										L	L	L	L	L	L	L								
14										L	L	L	L	L	L	L								
15									L	L	L	L	L	L	L	L								
16									L	L	L	325	L	L	L	L								
17										L	L	L	L	L	L	L								
18										L	L	L	L	L ^H	L	L								
19										L	L	L ^H	C	L ^H	L	L								
20										L	L	L	L	L	L	L								
21										L	L	L	L	L	L	L								
22									C	C	C	C	C	C	C	C								
23									L	L	L	L	L	L	L ^H	L								
24								L	L	320	330	325 ^H	310	315	L	L								
25									L	L ^H	L	L	L	L	L	L								
26																								
27																								
28																								
29																								
30																								
31																								
No.								1	4	3	5	5	3	6	4									
Median								3.00	3.20	3.15	3.40	3.25	3.20	3.30	3.10									

The Radio Research Laboratories, Japan.

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

(M3000)F1

W 8

IONOSPHERIC DATA

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time (GMT.+ 9h.)

R'F2

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L		L	L	L	L	L	L	L								
2										L	L	A	A	L	L	L								
3									R	520 ^L 480 ^B	L	450	580	510 ^U	L	L								
4								L	L	C	335	320	L	L	L	L	L							
5								470	420 ^L 440 ^B	360	365 ^L 410 ^L	440 ^L	L	L	L	L								
6									L	A	A	A	L	L	L	L								
7									L	L	L	L	L	L	L	L								
8									L	L	L	L	L	L	L	L								
9									L	L	L	LH	320	L	L	L								
10								L	LH	340	L	L	L	L	L	L								
11									L	L	L	L	L	L	L	L								
12									L	L	L	L	L	L	L	L								
13									L	L	L	L	L	355	420 ^L	L								
14									L	L	L	L	L	L	L	L								
15								L	420	L	L	L	L	L	L	L								
16									L	L	355	L	L	350 ^L	L	L								
17										L	L	L	L	L	L	L								
18										L	L	L	L	L	L	L								
19										L	LH	L	L	L	L	L								
20									L	L	L	L	L	L	L	L								
21										L	L	L	L	L	L	L								
22									L	C	C	C	C	C	C	C								
23										L	L	L	L	L	L	L								
24									L	L	380	470	460	480	460	L								
25									L	L	L	L	L	L	L	L								
26													L	L	L	L								
27													L	L	L	L								
28												L	L	L	L	L								
29												L	L	L	L	L								
30													L	L	L	L								
31																								
No.								1	3	3	5	4	3	6	4									
Median								700	470	480	440	360	450	380	420									

Sweep 1.0 Mc to 2.67 Mc in _____ min in automatic operation.

The Radio Research Laboratories, Japan.

W 9

R'F2

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakanai

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

R'F

Sep. 1957

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	350A	350A	315	265	310	300	260	245	230	240A	235	220	251A	260	235	230	250	250	260	245	250	240	270A	335A	
2	335A	320A	335	290	270A	275	255	250	250	235A	200A	A	230A	230A	250	250	260	280A	235A	275A	240	270A	400A	400	
3	390	410	450A	400A	350	285A	270A	250	245	235A	250B	250A	245	270A	240A	250	270A	290A	315	315	310	390	400A	400	
4	450	425	425	450	340	270	265	250	245A	225C	230	230	220	230A	235	270A	260A	270	260A	265	270	270	265	300	
5	295	370	410	450	420	350C	270	260	250	230	265	250	265A	265	260	270	270	270	315	265	300	290	305	320	
6	345A	300A	400A	310	330	250	245	250	225	250A	220	250A	240A	225A	250	260	260A	265A	255A	250	250A	250A	A	A	A
7	390A	350	360	425A	350	330	270	255	255A	270A	250A	245	260A	255	230	250	250	255	270A	270	300A	280A	275	300	
8	300	285	310	290	280	270	250	250	260	250	260A	260A	225	235	230A	235	250	255	270	250	250	270	275	290	
9	275	285	275	260	270	260	230	235	230	215	210	200A	225	220A	235	240	240	250	250	260	240	270A	270A	290	
10	265	260	255	295	300	290	260	250A	250	225	215	230	225	230	235	240	245	260	250	260	255	260	260	275	
11	280	285	280	280	310	270	235	245	230	225	225	280	240	260	265	255A	255	260A	260	270	260	270A	285A	280	
12	295	300	320A	305	300	275	250	240	230	230	220	250A	255A	240	240	245	260	260A	270A	260	270	270	260	270	
13	260	290	300	290	290	270	240	245	235	225	225	230	230	235	250	250	250	280	410	445	330	280A	200A	400F	
14	320	510	320A	430	335	270	240	240	240	230	220	230C	230C	215	230	240	250	280	275C	275C	270	270A	321A	340	
15	305	365	380	375	340	350	280	260	230	210	215	270A	225	260B	250	250A	280	240	278A	285A	290	335A	340	340	
16	315	310	290	275	320	340	255	250	235	220	220A	230	240	235	260	250	240	250	260	275	270A	335A	320	295	
17	300A	300	290	290C	290	275	240	240	245	240	225	225	230	240	250	250	270	270	260	260	270	275A	300	335	
18	320	315	320	345A	350	340	265	250	240	245	230	225	230	235	240	240	250	240	250	260	280	270	280	300	
19	330	300	300	310	305	315	240	240	240	230	230	225A	240C	240C	250	240	260	260	265	265	255	260	260	280	
20	330	300	290	290	290	280	235	230	235	240	225	225	225	235	240	250	255	255	250	250	245	260	290	270	
21	280	290	275	305	300	290	240	245	230	240	240	230	230	235	240	240	265	255	245	245	295	310	450	410	
22	300	310C	380C	450	500	400	315A	C	C	C	C	C	C	C	C	C	C	340	270	325	340	340	325	370	
23	420	510	525	440	320	280	260	260	250	230A	230	235	250A	240A	240A	255A	270	265	250	275	310	300	255	430	
24	350A	430	370	350	370	410	315	270	250	240	260	225A	235	250	245	260	270	270	250	275	290	310	340	390	
25	370	320	215	350	370	350	270	255	240	230A	210	245	230	230	240	235A	250	250	250	270	270	260	280	320	
26	320	300	275	260	290	300	240	245	235	230	230	230	230	235	250	250	250	255	245	245	250	255	310	310	
27	320	335	340	290	255	295	240	230	240	240	235	230	235	235	240	250	250	250	240	260	260	275	265	270	
28	280	350A	370A	370A	310	270A	240	240	240	235	235	230	230	230	240	250	250	250	230	250	265	290	290	270	
29	290	275	290	275	300	290	240	240	240	225	230	220	220	240	240	250	260	275	230	235	250	300	350	355	
30	445	530	525	450	515	520	340	275	250	260	245	230	235	240	245A	245	260	250	250	305	310	310	300	300	
31																									
No.	30	30	30	30	29	29	29	29	29	29	29	28	29	29	29	29	29	29	30	30	30	29	29	29	
Median	320	320	320	305	315	290	250	240	235	240	230	230	235	235	240	250	255	260	265	265	270	275	300	310	

Sweep 1.0 Mc to 2.0 Mc in _____ min _____ sec in automatic operation.

R'F

The Radio Research Laboratories, Japan.

W 10

Lat. 45° 23.6' N
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

Sep. 1957

f'Es

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

Sweep 1.0 Mc to 2.07 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

W 11

f'Es

IONOSPHERIC DATA

Lat. 46° 28.6' N
Long. 141° 41.1' E

Wakkanai

135° E Mean Time (GMT.+ 9h.)

Types of Es

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	f4	f4	f4																						
2	f3	f2	f4	f4	f2	f3																	f5	f3	
3	f2	f4	f3	f4	f3	f3																			
4		f4	f2	f3	f3																				
5			f4	f3	f3																				
6	f7	f5	f4	f4	f3	f3																			
7	f4	f3	f2	f3	f2	f2																			
8	f4	f4	f2	f3	f3	f3																			
9			f4	f3	f3																				
10			f4	f3	f3																				
11		f4	f4	f4	f4																				
12	f4	f2	f2	f2	f2																				
13	f4	f4	f5	f4	f4																				
14	f4	f3	f4	f4	f4																				
15	f4	f2	f2	f2	f2																				
16	f4	f4	f4	f4	f2																				
17	f3	f2	f4	f2	f2																				
18	f2	f2	f4	f2	f2																				
19			f4	f4	f4																				
20			f4	f4	f4																				
21																									
22				f2																					
23		f4																							
24	f4	f3	f2	f2	f2																				
25	f4		f4	f4	f4																				
26			f4	f4	f4																				
27	f4	f3	f2	f3	f3																				
28	f2	f3	f6	f3	f3																				
29			f4	f4	f4																				
30	f4																								
31																									
No.																									
Median																									

The Radio Research Laboratories, Japan.

Sweep 1.0 Mc to 20.7 Mc in _____ min _____ sec in automatic operation.

Types of Es

W 12

Lat. 39° 43.5' N
Long. 140° 08.3' E

A k i t a

IONOSPHERIC DATA

135° E Mean Time (GMT.+9h.)

foF2

Sep. 1957

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	7.4	7.0	7.0	6.6	6.1	6.9	8.5	10.7	10.5	9.1 ^H	10.1	10.5	11.5	11.0	10.1	11.1	11.2	11.0	10.6	A	7.5	7.6	7.7 ^A		
2	7.9	7.6	7.6	7.0	6.6	7.0	9.0	10.5	11.1	11.3	11.7	11.6	11.6	11.9	12.0	11.5	11.7	11.0	11.5	10.0	7.1	6.8	6.9	6.5	
3	6.1	5.7	5.3	5.6	5.3	5.4	7.7	9.2	8.1	9.5	8.7 ^R	7.4	9.4	8.9	8.8	9.3	9.0	8.5	9.0	9.1	8.1	7.1	6.9	7.1	
4	6.1	5.2 ^F	5.0 ^F	4.6 ^F	5.4 ^F	6.3	8.9	10.0	10.8	11.1 ^H	10.7	11.4	10.6	10.6	9.5	9.0	10.0	9.6	8.9	7.5	7.5	7.4 ^A	7.5	7.6	
5	7.4	6.0	4.9	4.6	4.3 ^F	4.1	5.3	8.6	8.7	9.0	9.4	11.6	10.1	10.7	9.5	9.4	9.6	8.9	6.5	6.9	6.1	6.0	6.0	5.9	
6	5.6	5.3	5.0	4.9 ^F	4.7 ^F	6.0	8.5	9.4	8.5	8.5	8.8	9.9	10.4 ^A	9.6	9.4	11.0	10.4	9.5	4.5	8.5	8.1	7.1	7.1	6.8	
7	6.9	6.7	6.3	5.4	4.9	6.2	6.5 ^V	9.1	9.7	8.8 ^C	9.1	9.7	9.7	10.7	9.6	10.1	9.2	9.2	9.0	8.3	8.1	7.5	7.2	6.9	
8	6.9	6.6	6.4	6.2	6.0	6.1	7.7	9.1	9.4	9.5	10.7	10.4	10.8	10.5	10.0	9.8	9.5	9.9	9.9	8.2	7.4	7.7	7.7	7.7	
9	7.9	7.5	6.9	6.9	6.5	6.9	9.2	9.8	11.5	11.2	10.9	10.9 ^H	11.2	11.2	11.5	11.6	11.0	11.0	10.4	9.7	8.2	8.3	7.6	7.5	
10	7.5	7.0	6.5	5.7	5.7	6.5	9.4	10.6	11.4	11.5	11.1	11.5	11.3	11.3	11.1	10.4	10.1	10.0	9.8	8.8	8.4	7.8	8.0	7.1	
11	7.0	6.7	6.5	6.1	5.9	6.4	8.7	9.6	9.4	9.1	10.4	11.0	11.0	10.5	10.8	10.6	10.8	9.9	9.1	8.4	8.5	8.2	7.9	8.2	
12	7.2	7.5	7.0	7.2	6.8	7.6	9.9	10.0	9.9	10.8	10.4	10.8 ^C	10.8	10.8	10.5	10.0	9.4	9.7	10.0	9.1	8.8	9.0	8.6 ^R	8.7	
13	7.3	7.1	7.1	6.9	6.7	7.1	9.8	10.4	10.5	11.5	11.6	12.3	12.4	12.3	11.4	12.1 ^C	12.0	10.2 ^C	10.1	R	R ^F	R ^F	R ^F	R ^F	
14	R ^F	A	6.1 ^F	A	7.0 ^F	11.1 ^F	14.0	R ^F	C	9.7	8.7	8.1	8.1	8.1	8.6	9.4	9.7	9.6	9.6	9.7	8.5	8.2	7.7	7.6	
15	7.8	7.2	7.1	6.5	6.2	5.7	6.9	7.0	7.0	7.9	8.4	8.0	8.7	8.1	8.4	8.0 ^H	8.5	8.1	7.7	7.1	7.1	6.9 ^R	6.9	7.0	
16	7.0	7.0	6.7	6.3	6.0	6.0	8.5	C	C	C	C	C	C	C	C	C	C	C	8.4	7.5	7.1	7.7	7.5	7.8	
17	7.5	7.5	7.1	7.0	6.7	6.9	9.0	10.6	10.7	10.3	10.3	10.8	10.7	10.5	10.4	9.8	9.8	9.5	9.6	8.1	8.2	8.0 ^R	8.0	7.3	
18	7.6	6.8	6.7	7.0	6.5	7.1	9.0	10.1	11.0	11.6	11.6	12.0	11.6	C	C	10.5 ^H	10.1	9.6	8.9 ^R	8.2	7.9	7.7	7.2	7.0	
19	6.7	6.8	6.7	6.6	6.4	6.6	10.2	10.1	11.1	11.9	11.6	12.0	11.9	12.1 ^H	12.0 ^H	11.2	10.9	11.3	10.4	10.0	9.3	8.4	8.0	7.6	
20	7.5	6.8	6.7	7.5	7.3	7.6	9.8	10.1	11.5	12.4	13.0	13.0	12.4	12.2 ^H	12.1 ^C	12.1 ^H	12.1	11.7	11.1	9.6	9.0	9.1	9.2	8.6 ^R	
21	8.3	7.7	7.2	6.7	6.7	7.5	10.4	12.2	12.2	12.2	12.2	12.3	12.2	11.9 ^H	11.5 ^H	11.5	11.5	11.5	10.7	9.7	9.5	8.6	7.4	6.6	
22	8.1	5.0 ^H	4.4	4.0	3.6	4.3	5.6	5.9	6.0	5.9	6.3	6.7	6.9	7.6	7.5	7.3	7.5	7.4	7.6	6.0	6.2	6.4	6.3	5.7	
23	5.5	4.6	4.3	4.6	4.9	4.7	9.4	10.6	12.0	12.2	11.2	11.2	11.5	11.8 ^H	11.1 ^H	10.0	10.5	11.3	11.2	7.6	8.2	8.2	8.2	5.4 ^H	
24	6.5	5.9	6.0	6.0	5.8	6.1	7.7	9.8	9.0 ^H	8.8	8.8	8.4	7.4	7.2	7.1	6.9	7.2 ^R	7.2	7.3	7.0	7.1	7.1	6.8	6.1	
25	6.4	6.6	6.5	5.4 ^H	5.7	5.5	8.6	11.2	12.1	12.4 ^C	12.4	12.7	13.0 ^H	12.8	12.2	12.0	12.0	11.6	9.7	8.1	7.7	7.4	6.9	6.7	
26	6.9	6.9	7.0	6.2	6.0	6.4	9.6	12.2	12.7	12.6	13.0	12.9	13.0 ^H	13.5	12.9	12.3 ^H	12.2	12.1	11.0	8.5	8.1	8.0	7.1	7.4	
27	7.2	7.0	6.9	6.9	6.9	6.9	9.6	12.0	13.4	13.6 ^C	13.9	13.6	13.8	13.8	13.2	12.2	11.9	11.5	9.8	8.7	8.2	7.9	8.1	8.1	
28	7.5	6.8	6.4	6.1	6.4	6.8	9.9	12.2	12.2	12.6 ^C	12.3	13.0	13.1	13.1	12.7	12.2	12.0	12.0	10.7	7.7	7.6	8.2	8.2	8.3	
29	7.6	7.4	6.6	6.6	6.5	6.5	9.2	12.3	12.7	13.0	12.9	13.5	13.0	13.0 ^H	13.0 ^H	13.1	12.4	12.2	12.0	9.1	7.5	7.6	7.5	7.1	
30	6.6	5.1	4.6	5.2	4.4	3.8 ^H	5.4 ^H	6.6	8.0	10.4	11.6	12.4 ^H	11.0	10.6	11.4 ^H	11.2	11.5	11.3	9.7	8.0	8.9	9.0	8.4 ^R	8.1	
31																									
No.	29	29	30	29	30	30	28	28	28	29	29	29	29	28	28	29	29	29	30	28	28	29	29	29	29
Median	7.2	6.8	6.6	6.2	6.0	6.5	9.0	10.0	10.6	11.1	10.9	11.3	11.3	10.8	11.0	10.8	10.5	10.0	9.8	8.4	8.1	7.7	7.5	7.4	
U.Q.	7.6	7.3	7.0	6.9	6.6	6.9	9.6	10.9	11.5	12.1	12.2	12.4	12.3	12.2	12.0	11.8	11.8	11.4	10.6	9.3	8.4	8.2	8.0	7.8	
L.Q.	6.6	6.0	6.0	5.4	5.4	5.7	7.7	9.3	8.8	9.1	9.2	10.2	10.2	10.0	9.4	9.6	9.6	9.5	9.0	7.6	7.5	7.2	7.0	6.8	
Q.R.	1.0	1.3	1.0	1.5	1.2	1.2	1.9	1.6	2.7	3.0	3.0	2.2	2.1	2.2	2.6	2.2	2.2	1.9	1.6	1.7	0.9	1.0	1.0	1.0	

The Radio Research Laboratories, Japan.

Sweep 0.85 Mc to 22.0 Mc in 2 min in automatic operation.

foF2

A 1

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time (GM.T.+9h.)

foF1

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	L	L	63 ^L	64 ^H	63 ^L	63 ^L	L							
2								A	L	L	L	L ^H	63 ^L	58 ^L	L	L	L							
3									L	B	62	65	57	58 ^L	60 ^L	60 ^L	L	L						
4								L	L ^H	48	50	60	60	55 ^L	60 ^H	54	L	L						
5								L	A	L	58	61 ^L	64	60	60 ^H	60 ^L	L	L						
6									48	52 ^L	55	56 ^A	55	55	54 ^L									
7									L	A	A	A	A	A	L	55	L	A						
8									L	L	L	L	L	L ^H	L	L	L							
9									L	L	L ^L	L	L	L	L	L	L							
10									L	L	A	A	L	L	L	L	L							
11									L	L	L	L ^H	L	L	L	L	L							
12									L	A	L	C	L	64	L	L	L							
13									L	L	L	L ^H	65 ^H	65	60	L	L							
14								L	A	62 ^A	60	60	65 ^L	64	64	60 ^L	L							
15						L	L	50	55	54	58 ^L	60 ^L	61 ^H	61 ^H	57	A	L							
16								C	C	C	C	C	C	C	C	C	C	C						
17									43	L	L	L	63	C	C	L	L							
18									L	L	L	58 ^L	C	C	C	L	L							
19									L	L	L	L	B	L	L	L	L							
20									L	L	L	L	L	L	C	L	L							
21									L	L	L	L	L	L	L	L	L							
22								L	48 ^L	51	53	55	55	58	47	56 ^L	L	L						
23								L	L	48	52 ^L	56 ^H	64	63 ^L	56 ^L	L	L							
24								L	L	56	57 ^H	55	59	56 ^H	56	L	A							
25								L	L	C	49	L	L	L	L	L	L							
26									L	C	L	L	L	L	L	L	L							
27									L	C	L	L	L	L	L	L	L							
28									L	L	L	L	L	L	L	L	L							
29									L	L	L	L	L	L	L	L	L							
30									L	L	L	L	A	60	L	L	L							
31																								
No.								3	3	7	10	10	13	14	12	6								
Median								4.8	5.1	5.3	5.4	5.9	6.3	6.0	5.9	5.8								

Sweep 0.55 Mc to 22.0 Mc in 2 min in automatic operation.

The Radio Research Laboratories, Japan.

foF1

A 2

Lat. 39° 48.5' N
Long. 140° 08.3' E

IONOSPHERIC DATA

Akita

135° E Mean Time (GM.T. + 9h.)

foE

Sep. 1957

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	250	310	350	375	385	395	380	A	A	A	A	A						
2							A	A	A	A	A	390	A	A	A	390	350	330	260					
3							240	305	310	A	B	R	A	A	A	A	310	250						
4						A	240	310	350	380	390	390	375	370	370	355	320	255						
5							210	280	300	A	A	380	380	390	400	350	310	250						
6							225	300	325	350	375	365	A	A	A	A	375	330	260					
7							A	290	320	360	370 ^B	370	A	A	A	A	A	A	A					
8							240	295	330	A	A	400	400	395 ^A	390	365	320	A	A					
9							230	300	320	370	365	370	390	395	375	350	310	250						
10							225	300	340	365	380	385	395	A	A	A	A	255						
11							250	305	350	350	350	350	B	B	R	R	360	330	250					
12							A	300	350	360	380	C	A	A	390	380	330	A						
13							225	335	350	355	380	390	R	A	380	A	A	C						
14							200	300	350	375	395	390 ^A	390	390	375	350	305	250						
15						145	225 ^L	300	315	360	380	A	A	B	350	305	A	A						
16							A	C	C	C	C	C	C	C	C	C	C	C						
17							220	300	350	R	A	A	A	A	R	B	360	340	245					
18							225	300	350	380	370	A	A	C	C	C	350	310	215					
19							220	320	345	370 ^R	370	R	B	4400 ^R	395 ^R	365 ^R	305	R						
20							220	310	350	375	400	400	R	R	C	350	320	200						
21							240	315	370	370	395	390	385	380	400	375	345	215						
22						R	220	275 ^A	335	375	395	400 ^B	425	400	A	A	315	A						
23							290	340	370	R	R	R	400	395	370	350	300	200						
24							A	275	330	350	375	370	380	390 ^R	380	340	295	B						
25							A	320	345	365 ^C	390	390 ^R	385	380	360	350	300	215						
26							215	300	340	355	380	R	R	R	350	350	295							
27							225	305	350	365 ^C	380	375	380 ^A	380	360	350	300	200						
28							300	300	330	365 ^C	370	375	370	A	A	340	A	A						
29							190	290	330	350	350	R	R	380	360 ^R	350	300	A						
30							A	260	320	350	360 ^A	375	A	A	355	330	280	A						
31																								
No.	1	22	28	28	28	28	24	23	19	14	13	18	23	23	16									
Median	145	225	300	340	365	380	385	385	385	385	390	375	350	310	250									

Sweep 0.25 Mc to 2.2 Mc in 2 min in automatic operation.

The Radio Research Laboratories, Japan.

A 3

foE

Lat. 39° 43.5' N
Long. 140° 08.2' E

IONOSPHERIC DATA

Akita

135° E Mean Time (GMT.+ 9h.)

Sep. 1957

foEs

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	3.0 ^M	3.5 ^M	2.9 ^M	2.5 ^M	2.5 ^M	2.2 ^M	G	4.0	5.8 ^M	5.8 ^M	6.2 ^M	6.5 ^M	4.5 ^M	4.2 ^M	5.2 ^M	5.5 ^M	8.0 ^M	7.5 ^M	10.5 ^M	11.0 ^M	13.1 ^M	6.6 ^M	7.0 ^M	8.0 ^M	
2	12.0 ^M	6.5 ^M	3.7 ^M	5.0 ^M	7.5 ^M	7.1 ^M	5.3 ^M	7.5	4.5 ^M	5.2 ^M	5.3 ^M	4.4 ^M	6.1 ^M	4.4 ^M	5.0 ^M	G	G	4.4 ^M	3.5 ^M	3.7 ^M	5.6 ^M	7.5 ^M	4.5 ^M	3.5 ^M	
3	3.4 ^M	2.5 ^M	3.1 ^M	2.1 ^M	2.7 ^M	2.3 ^M	4.2 ^M	5.0 ^M	6.5 ^M	3.8	B	7.5 ^M	4.0 ^M	4.0	4.6 ^M	4.4 ^M	3.3	4.0 ^M	3.0	E	E	E	E	E	
4	E	E	2.2 ^M	1.2 ^M	2.5 ^M	2.8 ^M	2.8 ^M	3.5	G	G	G	G	G	4.1	G	G	3.8	3.5	4.7 ^M	E	4.7 ^M	8.0 ^M	4.0 ^M	4.6 ^M	
5	3.5 ^M	3.5 ^M	2.5 ^M	2.5 ^M	3.0 ^M	3.8 ^M	5.8 ^M	5.8 ^M	7.0 ^M	5.3 ^M	5.3 ^M	4.4 ^M	G	G	G	G	3.8	3.1	3.4 ^M	3.5 ^M	E	E	E	E	
6	2.1 ^M	6.0 ^M	4.2 ^M	4.5 ^M	3.3 ^M	4.5 ^M	3.5	3.5	6.7 ^M	4.0	4.4	4.4	1.1 ^M	4.5 ^M	5.0 ^M	4.6	5.2 ^M	7.5 ^M	4.7 ^M	6.0 ^M	3.5 ^M	4.5 ^M	3.2 ^M	2.5 ^M	
7	3.0 ^M	2.5 ^M	2.2 ^M	2.3 ^M	4.5 ^M	4.5 ^M	4.7 ^M	4.7 ^M	4.5	5.5 ^M	6.5 ^M	10.4 ^M	9.4 ^M	10.0 ^M	4.5 ^M	4.0 ^M	3.9 ^M	4.0 ^M	3.2	3.7 ^M	6.8 ^M	7.0 ^M	7.0 ^M	3.7 ^M	
8	4.0 ^M	3.4 ^M	3.5 ^M	3.5 ^M	3.5 ^M	3.5 ^M	3.4 ^M	G	3.6	4.5 ^M	4.0 ^M	4.0 ^M	4.3 ^M	4.5 ^M	G	4.1 ^M	3.9 ^M	6.9 ^M	4.5 ^M	4.2 ^M	E	2.2 ^M	E	3.3 ^M	
9	2.5 ^M	2.1 ^M	2.1 ^M	2.5 ^M	2.5 ^M	2.1 ^M	2.5	3.3	3.5	G	G	G	G	G	G	G	G	3.1	3.5	4.8 ^M	4.0 ^M	3.5 ^M	3.9 ^M	3.7 ^M	
10	3.0 ^M	3.3 ^M	3.0 ^M	2.9 ^M	3.3 ^M	2.0 ^M	3.0	3.9	4.0	4.5	6.7 ^M	7.9 ^M	4.5 ^M	3.9 ^M	5.3 ^M	5.5 ^M	4.4 ^M	4.4 ^M	3.0	3.7 ^M	3.7 ^M	3.2 ^M	3.2 ^M	E	
11	2.5 ^M	3.0 ^M	2.2 ^M	2.2 ^M	2.9 ^M	2.2 ^M	G	G	G	4.0	4.1	4.2	B	B	G	G	3.5	4.8 ^M	4.5 ^M	4.6 ^M	3.1 ^M	5.0 ^M	2.5 ^M	2.4 ^M	
12	12.0 ^M	6.7 ^M	6.5 ^M	8.0 ^M	6.5 ^M	3.5 ^M	4.4 ^M	3.9 ^M	4.1 ^M	6.0 ^M	G	C	4.2 ^M	4.4 ^M	G	6.5 ^M	4.1 ^M	4.5 ^M	6.2	8.0 ^M	9.0 ^M	5.8 ^M	4.2 ^M	3.0 ^M	
13	2.2 ^M	2.1 ^M	2.5	3.5	2.5	2.6	G	G	4.2	4.2	4.2	4.5	4.7 ^M	4.5 ^M	G	4.4 ^M	3.7 ^M	C	E	E	2.2 ^M	2.5 ^M	2.0 ^M	3.2 ^M	
14	3.6 ^M	6.5 ^M	5.5 ^M	6.3 ^M	4.2 ^M	4.9 ^M	2.7	5.0	7.5 ^M	10.6 ^M	5.3 ^M	4.4 ^M	4.1	G	G	G	G	3.2	3.5	3.5 ^M	2.8 ^M	5.7 ^M	3.1 ^M	4.9 ^M	
15	3.4 ^M	4.6 ^M	6.0 ^M	3.5 ^M	3.0 ^M	2.2 ^M	2.9	3.5	4.0	4.2	4.1	5.3 ^M	5.0 ^M	B	4.6 ^M	5.4 ^M	6.6 ^M	6.0 ^M	4.7 ^M	5.6 ^M	4.1 ^M	4.5 ^M	4.4 ^M	2.7 ^M	
16	2.5 ^M	4.0 ^M	3.9 ^M	2.0 ^M	2.1 ^M	2.5 ^M	3.5 ^M	C	C	C	C	C	C	C	C	C	C	C	C	1.7 ^M	E	E	E	3.5 ^M	2.5 ^M
17	4.1 ^M	2.1 ^M	2.2 ^M	2.3 ^M	2.4 ^M	2.2 ^M	3.5	3.2	G	G	6.4 ^M	4.0 ^M	5.2 ^M	G	B	G	G	5.3 ^M	3.6 ^M	4.8 ^M	3.1 ^M	3.5 ^M	3.5 ^M	2.1 ^M	
18	2.7 ^M	2.7 ^M	E	E	2.2 ^M	2.8 ^M	G	G	3.8	4.2	4.1	4.8 ^M	4.0 ^M	C	C	G	G	G	3.4 ^M	3.0 ^M	2.5 ^M	E	E	E	
19	2.0 ^M	2.0 ^M	2.0 ^M	2.1 ^M	2.1 ^M	2.0 ^M	2.6	G	3.9	3.8	G	G	B	B	B	G	3.5	G	3.0 ^M	2.2 ^M	E	E	2.1 ^M	E	
20	E	E	E	2.7 ^M	E	2.0 ^M	G	4.0 ^M	G	G	4.5	G	4.5 ^M	G	C	G	4.0 ^M	G	2.4	3.0 ^M	2.7 ^M	3.0 ^M	2.7 ^M	E	
21	E	E	E	E	E	E	G	3.5	G	G	G	G	G	G	G	G	4.0 ^M	G	3.5	E	E	E	E	E	
22	E	E	2.7 ^M	2.5 ^M	2.3 ^M	G	G	3.6 ^M	3.9	4.8 ^M	4.6 ^M	B	4.5	4.5	4.8 ^M	4.4 ^M	3.3	3.7 ^M	3.7 ^M	3.0 ^M	3.5 ^M	2.5 ^M	2.5 ^M	2.2 ^M	
23	2.1 ^M	2.2 ^M	E	E	2.2 ^M	3.9 ^M	3.2 ^M	G	G	G	G	G	G	G	G	G	3.3	2.4	E	E	E	E	E	E	
24	2.7 ^M	4.0 ^M	3.5 ^M	3.5 ^M	2.7 ^M	3.7 ^M	3.7 ^M	4.4 ^M	4.1	4.2	4.4	4.8 ^M	G	G	G	4.3	6.2 ^M	3.6 ^M	3.0 ^M	2.4 ^M	3.2 ^M	E	E	E	
25	E	E	E	2.5 ^M	E	E	G	G	3.8	C	4.3	G	G	G	G	G	G	3.5	3.1 ^M	3.0 ^M	3.0 ^M	E	E	E	
26	E	E	2.0 ^M	2.0 ^M	2.1 ^M	2.0 ^M	G	3.5	3.5	5.2 ^M	4.2	4.2	4.2	5.2 ^M	4.3	G	3.6	6.0 ^M	E	2.2 ^M	E	E	E	E	
27	E	2.2 ^M	2.1 ^M	2.1 ^M	E	2.0 ^M	G	3.5	4.2	4.2	4.8 ^M	G	G	G	G	G	G	3.5	3.5	6.9 ^M	3.0 ^M	5.7 ^M	3.0 ^M	2.3 ^M	
28	2.0 ^M	2.0 ^M	2.2 ^M	2.1 ^M	1.2	3.5 ^M	3.1 ^M	G	4.1	C	4.1	G	3.9	4.7 ^M	4.5 ^M	4.0 ^M	5.0 ^M	3.5 ^M	E	E	E	E	E	E	
29	2.2 ^M	2.9 ^M	3.0 ^M	3.9 ^M	3.0 ^M	2.1 ^M	2.4	3.0	3.9	3.8	G	G	G	G	G	G	3.5	3.5 ^M	4.2 ^M	3.7 ^M	4.5 ^M	3.1 ^M	3.7 ^M	E	
30	E	E	E	2.7 ^M	E	E	2.7 ^M	3.1	G	3.7	3.7	G	6.5 ^M	4.6 ^M	3.8	3.5	3.2	2.5	2.4 ^M	2.5 ^M	2.4 ^M	4.7 ^M	3.3 ^M	2.7 ^M	
31																									
No.	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.9	2.6	2.8	2.7	2.7	2.5	2.5	2.9	2.9	2.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Median	2.4	2.5	2.4	2.4	2.5	3.2	2.8	3.5	3.9	4.2	4.2	4.2	4.2	4.0	G	G	3.5	3.5	3.0	3.0	3.0	2.9	2.8	2.4	
U.Q.	3.4	3.5	3.5	3.5	3.0	3.5	4.0	4.5	5.2	5.0	4.8	4.8	4.8	4.5	4.6	4.4	4.0	4.6	4.2	4.8	4.0	5.0	3.5	3.2	
L.Q.	E	2.0	2.0	2.1	2.1	2.0	G	G	3.7	3.8	G	G	G	G	G	G	G	3.0	3.0	2.2	E	E	E	E	
Q.R.		1.5	1.5	1.4	0.9	1.5		1.5	1.5	1.2								1.6	1.2	2.6					

Sweep 0.85 Mc to 2.20 Mc in 2 min in automatic operation.

foEs

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

A k i t a

135° E Mean Time (G.M.T.+9h.)

Sep. 1957

f_oE_s

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.6	A	E	E	E	5.4	G	G	5.0	5.0	5.6	5.5	4.5	4.1	4.1	4.5	5.5	4.0	8.6	A	5.5	3.0	A	
2	5.5	6.0	3.2	2.1	5.5	5.4	4.5	7.0	3.9	4.4	5.0	G	4.5	4.2	G	G	G	G	2.4	2.9	E	6.1	1.8	1.8
3	2.1	1.3	1.5	E	E	E	3.4	4.6	4.0	G	B	5.5	4.0	G	4.0	G	G	3.3	2.3	E	E	E	E	E
4	E	E	1.4	1.0	1.7	G	G	G	G	G	G	G	G	G	G	G	G	G	4.0	E	4.0	A	2.6	2.0
5	2.6	1.7	1.7	1.6	1.3	1.7	2.9	4.0	6.5	4.5	4.2	G	G	G	G	G	G	G	2.6	2.5	E	E	E	E
6	E	A	1.7	2.5	2.0	2.4	3.3	G	6.0	4.0	4.0	G	A	G	4.2	G	4.0	4.0	4.0	5.6	2.6	2.0	E	E
7	1.7	1.3	1.3	1.2	2.5	1.7	4.0	4.0	4.4	5.4	6.4	9.0	5.5	7.6	4.0	3.8	G	3.4	2.8	2.4	2.1	4.0	3.0	2.0
8	1.8	1.9	1.8	1.8	1.3	1.5	G	G	G	G	B	B	4.3	4.0	G	G	G	5.5	3.5	4.0	E	E	E	2.2
9	1.5	E	E	1.3	1.6	1.6	G	G	G	G	G	G	G	G	G	G	G	G	1.9	4.0	2.0	2.5	2.5	1.7
10	E	1.3	1.3	E	E	1.4	G	G	4.0	G	6.4	7.5	4.5	B	4.5	4.6	3.5	G	2.1	3.1	2.5	1.8	E	E
11	1.7	E	E	1.0	E	1.4	G	G	G	G	4.0	4.2	B	B	G	G	G	4.0	2.9	2.6	2.0	3.0	E	E
12	5.4	A	A	5.5	4.2	2.0	A	3.9	4.0	5.5	G	C	B	B	G	G	4.0	3.0	2.1	3.5	2.1	1.8	2.4	1.7
13	E	E	E	1.6	E	1.4	G	G	G	4.1	B	4.5	4.5	4.0	G	3.5	G	C	E	E	E	E	E	2.0
14	2.5	A	5.5	A	2.8	3.0	G	4.2	6.0	9.0	4.8	4.2	4.3	G	G	G	G	3.2	2.5	2.5	1.7	A	E	2.5
15	2.8	2.6	5.6	2.3	1.7	E	2.9	G	4.0	4.0	G	4.5	4.3	B	4.1	4.8	3.5	5.0	3.1	2.2	A	1.9	2.4	1.6
16	E	1.3	1.8	E	E	E	G	C	C	C	C	C	C	C	C	C	C	C	C	C	E	E	2.5	1.7
17	2.0	1.7	1.4	E	E	1.4	G	G	G	G	5.6	4.0	4.6	G	B	G	G	4.5	2.9	2.6	E	E	2.1	E
18	E	1.2	E	E	1.1	E	G	G	G	B	4.5	G	C	C	C	G	G	G	1.6	E	E	E	E	E
19	E	1.1	E	E	E	E	G	G	G	G	G	B	B	B	B	G	G	G	1.8	E	E	E	E	E
20	E	E	E	E	E	E	G	G	G	G	G	G	4.5	B	C	B	G	G	1.8	2.0	2.1	1.6	E	E
21	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	1.8	E	E	E	E	E
22	E	E	1.4	1.7	1.6	G	G	G	3.9	G	4.5	B	G	4.3	4.3	G	G	G	2.2	2.0	2.6	1.8	1.6	1.8
23	1.5	1.5	E	E	1.3	3.0	2.5	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	1.9	1.7
24	1.7	3.4	2.4	2.5	1.7	2.7	3.0	3.7	4.2	4.0	4.4	4.7	G	G	G	3.9	6.0	2.9	2.0	E	2.2	E	E	E
25	E	E	E	E	E	E	2.4	G	G	C	G	G	G	G	G	G	G	G	2.5	2.3	1.8	E	E	E
26	E	E	E	E	E	E	G	G	G	3.9	4.1	4.2	4.2	4.5	4.3	G	G	G	4.2	E	E	E	E	E
27	E	1.2	E	E	E	E	G	G	4.5	C	4.2	4.5	4.3	G	G	G	G	G	1.9	1.9	2.0	3.5	1.8	E
28	E	1.2	E	E	E	E	G	G	4.0	C	4.1	G	B	4.2	4.0	G	3.5	2.3	1.8	E	E	E	E	E
29	E	E	2.0	2.0	1.1	1.4	G	G	G	3.9	G	B	B	G	B	G	G	G	2.0	E	1.9	1.8	E	E
30	E	E	E	1.9	1.9	E	G	G	G	G	3.7	G	6.5	4.0	G	G	G	G	E	1.6	1.6	3.5	2.3	1.9
31																								
No.	30	30	30	30	30	30	30	29	29	25	26	24	23	23	24	28	29	28	30	30	30	30	30	30
Median	E	1.2	1.3	1.0	1.1	E	G	G	G	G	4.0	G	4.3	G	G	G	G	2.4	2.1	2.0	1.8	1.7	E	E

Sweep 0.85 Mc to 2.24 Mc in 2 min in automatic operation.

The Radio Research Laboratories, Japan.

f_oE_s

A 5

Lat. 39° 43.5' N
Long. 140° 08.3' E

A k i t a

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

f-min

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	1.70	1.60	1.70	1.95	1.80	2.50	2.60	2.50	2.60	2.10	2.30	1.90	1.75	E	E	E	E	E	E
2	1.30	E	E	E	E	E	E	1.90	2.00	2.00	2.30	2.50	2.50	1.95	2.10	2.00	1.80	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E	1.80	2.00	2.10	5.90	2.90	2.50	2.40	2.05	2.00	1.80	1.80	E	E	E	E	E	E
4	1.50	1.00	E	E	E	E	E	1.80	1.90	2.00	2.05	2.50	2.40	2.00	2.00	1.95	1.80	1.70	E	E	E	E	E	E
5	E	E	E	E	E	E	E	1.60	1.90	2.50	2.55	2.40	2.50	2.05	2.00	1.90	1.60	1.60	E	E	E	E	E	E
6	E	E	E	E	E	E	E	1.95	1.90	2.30	2.30	2.70	2.10	2.50	2.00	1.85	1.80	1.80	E	E	E	E	E	E
7	E	E	E	E	E	E	E	1.60	2.00	2.00	4.00	2.90	2.70	2.05	2.05	1.90	1.80	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	E	2.00	1.95	2.10	2.90	2.80	2.50	2.50	1.80	1.60	E	E	1.80	E	E	E	E
9	1.50	E	E	E	E	E	E	1.80	1.80	1.90	1.95	2.05	2.90	2.30	2.00	1.90	1.80	1.70	E	E	E	E	E	E
10	E	E	E	E	E	E	E	1.75	2.20	1.90	2.30	2.50	2.40	2.90	2.00	1.95	1.70	1.80	1.60	1.60	E	E	E	E
11	E	E	E	E	E	E	E	1.80	1.85	1.80	2.00	2.40	2.80	5.50	5.40	3.20	2.00	1.80	E	E	E	E	E	E
12	1.40	E	E	E	E	E	E	1.80	1.80	1.90	1.80	1.95	2.00	2.00	2.40	1.80	1.80	1.55	E	E	E	E	E	E
13	E	E	E	E	E	E	E	1.55	2.95	1.80	1.90	2.50	2.90	2.50	2.00	1.90	1.90	1.85	2.00	1.80	E	E	E	E
14	1.30	E	E	E	E	E	E	1.80	2.40	2.30	1.95	2.70	3.00	2.00	2.00	2.00	1.80	1.80	E	E	E	E	E	E
15	E	E	E	E	E	E	E	1.60	1.55	1.90	2.40	2.00	2.40	2.45	5.60	2.55	2.05	1.80	E	E	E	E	E	E
16	E	E	E	E	E	E	E	E	C	C	C	C	C	C	C	C	C	C	E	E	E	E	E	E
17	E	E	E	E	E	E	E	1.55	1.90	2.40	2.50	2.50	2.50	2.50	4.10	2.50	2.10	1.90	E	E	E	E	E	E
18	1.50	E	E	E	E	E	E	E	2.20	2.50	2.55	2.50	2.40	2.05	C	2.00	2.40	1.70	E	E	E	E	E	E
19	E	E	E	E	E	E	E	1.80	2.35	2.00	2.40	2.50	2.50	5.50	2.80	3.10	1.80	1.75	1.60	E	E	E	E	E
20	1.50	E	E	E	E	E	E	1.60	1.90	1.90	2.50	2.50	2.50	3.00	2.70	2.50	1.80	E	E	E	E	E	E	E
21	1.50	1.20	E	E	E	E	E	1.80	1.90	2.50	1.90	2.55	2.50	2.50	2.00	2.50	1.95	1.80	1.70	E	E	E	E	E
22	E	E	E	E	E	E	E	1.60	1.55	1.70	2.50	2.50	4.50	2.50	2.10	2.55	1.90	1.80	E	E	E	E	E	E
23	1.50	E	E	E	E	E	E	E	1.90	2.05	2.40	2.50	1.90	2.00	1.90	1.70	1.70	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	1.70	1.90	1.80	1.90	2.05	2.50	2.00	2.05	1.90	1.90	2.00	E	E	E	E	E	E
25	1.50	E	E	E	E	E	E	1.90	1.90	2.10	2.40	3.00	2.05	1.90	1.85	1.80	1.80	1.95	E	E	E	E	E	E
26	E	E	E	E	E	E	E	E	1.60	1.80	2.05	2.05	1.95	1.90	1.80	2.50	2.05	1.90	E	E	E	E	E	E
27	1.40	1.20	E	E	E	E	E	1.80	2.05	2.30	2.50	2.05	2.50	2.05	2.00	2.00	2.00	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	1.60	1.90	2.00	2.00	2.40	2.40	2.00	2.50	1.80	1.80	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	1.20	1.60	1.60	1.90	2.00	2.70	2.40	2.10	2.05	1.90	1.80	E	E	E	E	E	E
30	1.40	1.30	E	E	E	E	E	1.80	2.00	1.70	1.90	1.95	2.50	1.90	2.00	1.90	1.60	E	E	E	E	E	E	E
31																								
No.	30	30	30	30	30	30	30	29	29	29	29	29	29	28	28	29	29	29	30	30	30	30	30	30
Median	E	E	E	E	E	E	E	1.60	1.85	1.90	2.10	2.50	2.50	2.00	2.05	1.90	1.80	1.55	E	E	E	E	E	E

Note : Lowest limit of observable frequency is 1.50 Mc/s due to radio interference except from 00.00 to 05.00

Sweep 0.85 Mc to 2.20 Mc in 2 min in automatic operation.

The Radio Research Laboratories, Japan. **A 6**

IONOSPHERIC DATA

Lat. 39° 43.6' N
Long. 140° 08.2' E

Akita

135° E Mean Time (GM.T.+ 9h.)

Sep. 1957

(M3000)F2

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	250	250	250	260	240	245	245	300	300	280 ^H	280	265	280	270	255	270	275	270	285	A	255	250	250	250 ^A
2	245	260	265	270	260	265	300	305	290	290	280	270	265	275	270	265	275	275	290	295	265	235	230	230
3	225	230	220	225	230	260	285	295	310	275	260 ^K	255	260	265	260	265	270	260	260	275	260	215	210	225
4	215	215 ^F	215 ^F	220 ^F	230	240	275	285	260	290 ^H	280	280	285	285	280	280	290	300	305	280	270	260 ^A	260	265
5	260	235	215	220	230 ^F	235	255	280	275	275	235	265	260	260	250	275	280	305	275	260	255	255	250	260
6	260	225	240	235 ^F	255 ^F	265	320	335	335	330	280	280	290 ^A	290	270	280	290	295	295	290	280	265	240	225
7	225	240	235	240	225	245	305	290 ^V	305	300 ^C	315	305	280	290	285	290	305	300	300	300	280	270	270	260
8	260	255	250	255	255	275	310	305	310	295	285	280	260	285	280	280	285	290	285	305	290	260	260	260
9	265	265	260	275	275	275	315	305	305	300	290	280 ^H	285	275	270	275	280	275	295	305	290	275	270	275
10	265	270	275	265	245	260	300	305	295	300	285	275	275	275	275	275	285	290	295	275	285	275	280	270
11	255	265	270	260	240	265	320	315	320	295	270	280	265	265	275	275	280	290	295	275	270	265	265	270
12	245	275	265	250	255	275	320	315	290	295	280	270 ^C	270	260	275	280	275	285	290	285	270	270	285 ^K	275
13	260	265	270	260	270	270	310	310	295	280	270	260	260	250	280	245 ^C	255	250 ^C	250	R	R ^F	R ^F	R ^F	R ^F
14	R ^F	A	A ^F	A	250 ^F	285 ^F	315	R ^F	C	250	245	235	235	235	245	255	260	260	270	270	250	240	245	245
15	255	235	230	235	225	240	285	280	260	265	275	260	275	260	275	260 ^H	280	295	285	265	250 ^K	245	230	245
16	255	255	260	255	250	245	275	C	C	C	C	C	C	C	C	C	C	C	290	265	265	250	260	265
17	265	260	260	260	265	275	310	310	305	295	275	270	270	270	265	265	275	285	280	285	255	265 ^F	265	260
18	260	250	240	230	235	240	290	300	280	275	280	275	270	C	C	270 ^H	280	290	280 ^K	270	265	260	265	260
19	240	250	245	250	250	255	315	305	300	285	270	275	260	255 ^H	260 ^H	260 ^H	260	275	280	275	265	260	265	265
20	255	250	250	255	270	270	315	305	295	285	275	275	275	260 ^H	260 ^C	265 ^H	270	290	290	285	265	260	265	280 ^K
21	290	260	265	255	255	265	310	310	300	295	270	270	260	250 ^H	260 ^H	260	260	270	280	275	255	250	215	210
22	280	210 ^H	225	200	195	210	230	230	225	205	210	230	225	230	245	250	255	260	280	245	245	240	230	230
23	230	200	210	215	230	255	300	275	265	265	275 ^H	260	255	250 ^H	250 ^H	240	240	255	260	265	235	240	265	220 ^H
24	235	220	220	230	230	230	260	295	260 ^H	245	250	245	240	240	255	245	270 ^K	285	285	260	270	255	230	220
25	235	240	255	225 ^H	235	255	295	305	295	290 ^C	280	285	280 ^H	275	280	265	280	290	290	270	270	255	230	220
26	235	245	270	270	255	250	290	310	300	300	285	270	260 ^H	260	270	270 ^H	280	280	290	295	270	260	255	245
27	250	245	245	260	260	265	300	300	285	285 ^C	285	280	275	275	270	270	280	305	300	280	290	295	285	285
28	270	265	240	235	245	250	305	315	310	290 ^C	275	280	300	275 ^H	265	270	275	290	290	270	250	255	270	285
29	270	260	255	265	265	260	300	315	300	285	270	265	270	270 ^H	270 ^H	270	275	280	290	285	240	250	245	240
30	230	200	195	210	205	195 ^H	210 ^H	250	290	270	285	265 ^H	270	270	265 ^H	270	270	270	280	250	260	265	260 ^K	260
31																								
No.	29	29	29	29	30	30	28	28	28	29	29	29	29	28	28	29	29	29	29	28	28	29	29	29
Median	255	250	250	250	250	260	300	305	295	285	275	270	270	270	270	270	275	285	290	275	270	260	260	260

Sweep 0.85 Mc to 2.20 Mc in 2 min sec in automatic operation.

The Radio Research Laboratories, Japan.

A 7

(M3000)F2

Lat. 39° 43.5' N
Long. 140° 08.2' E

IONOSPHERIC DATA

Akita

135° E Mean Time (GMT.+ 9h.)

Sep. 1957 (M3000)F1

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	L	L	335 ^H	330 ^H	330 ^L	330 ^L	L	A						
2								A	L	L	L	L	340 ^H	345 ^L	L	L	L	L						
3									L	L	B	315	310	335 ^L	330 ^L	325	L	L						
4								L	L	380	380	335	350	350 ^L	345 ^H	345	L	L						
5								L	A	L	310	310	315	310 ^H	310 ^L	L	L							
6								360	L	A	A	A	360 ^H	360 ^L	345	335 ^L	L							
7									L	A	A	A	A	L	L	345	L	A						
8									L	L	L	L	L	L	L	L	L							
9									L	L	L	L	L	L	L	L	L							
10									L	L	A	A	L	L	L	L	L							
11									L	A	L	L	L	L	340	L	L							
12									L	A	L	L	L	330	L	L	L							
13									L	L	L	L	L	325 ^H	325 ^L	310	L							
14								L	A	310 ^A	300	335	310 ^L	310	305	315 ^L	L							
15								L	L	350	335	330	330 ^H	340 ^H	350	A	L							
16								C	C	C	C	C	C	C	C	C	C	C						
17								390	L	L	L	L	350	L	L	L	L							
18								L	L	L	L	345 ^L	C	C	C	L	L							
19									L	L	L	L	B	L	L	L	L							
20									L	L	L	L	L	L	C	L	L							
21									L	L	L	L	L	L	L	L	L							
22								L	280 ^L	295	340	345	345	335	405 ^L	L	L							
23								L	L	395	390	390	340	340 ^L	350 ^L	L	L							
24								L	L	340	315 ^H	335	320	350 ^H	325	L	A							
25								L	L	L	C	400	L	L	L	L	L							
26									L	L	L	L	L	L	L	L	L							
27									L	C	L	L	L	L	L	L	L							
28									C	L	L	L	L	L	L	L	L							
29									L	L	L	L	L	L	L	L	L							
30									L	L	L	L	L	L	L	L	L							
31										L	L	L	A	365	L	L	L							
No.								3	3	7	10	10	13	14	12	6								
Median								305	325	350	360	335	335	340	335	330								

Sweep 0.85 Mc to 2.2 Mc in 2 min in automatic operation.

The Radio Research Laboratories, Japan.

A 8

(M3000)F1

Lat. 39° 48.5' N
Long. 140° 08.2' E

A k i t a

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

R'F2

Sep. 1957

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								250		260 ^H	310	340 ^L	345	L	370	340	L	270						
2								280	L	260	L	L	290	340	320	300	300	290						
3										L	350 ^B	440	405	355	360	350	L	270						
4							310 ^L	L	L	250 ^H	300	340	340	300	340	345	300							
5								340 ^L	A	290	470	300	440	395	395	300	290							
6										245	320	260 ^H	300 ^A	285	320	320								
7								300 ^H	250	270 ^A	280	265 ^A	250 ^H	340 ^A	260	305	L							
8									250	260	295	L	L	300	305	300	L	A						
9									250	250	250	250 ^H	300	L	L	300	285	L						
10									280	280	300	310	295	280	285	290	290							
11									240	240	295	280	L	L	345	290	280							
12									L	285	275	C	L	350	L	L	L							
13									L	L	L	L	355	355	400	L	L							
14								L	A	395 ^A	440	510	480	530	455	390 ^L	L							
15					400 ^L	320	355	C	400	395	360	380	370	400	360	290 ^H	L							
16								C	C	C	C	C	C	C	C	C	C	C						
17									240	250	285	315	330	C	C	L	L							
18									250	250	290	290	C	C	C	L	L							
19									250	250	260	270	255	260	L	L	280							
20									230	L	L	260	250	L	L	L	L							
21									250	L	L	L	260	265 ^H	L	L	L							
22								L	550	725	700	580	570	470	440	430	L							
23								270 ^L	250 ^L	250	265 ^H	265	335	280 ^H	300 ^H	295	L							
24								300	335 ^H	410	400	440	500	490	450	L	A							
25								250	240	250 ^C	250	250	250 ^H	255	250	L	L							
26									240	240	L	L	L	L	L	L	L							
27									L	C	250	250	L	L	260	L	L							
28										C	240	250	250	250 ^H	250	L	L							
29										250	240	250	250	250 ^H	250	L	L							
30										240	250	250 ^H	250	340	290 ^H	L	L							
31										240	250	250 ^H	250	340	290 ^H	L	L							
No.	1	2	8	12	23	24	23	22	21	22	15	7	3											
Median	400	315	290	250	250	290	280	315	340	320	300	290	270											

Sweep 0.85 Mc to 2.20 Mc in 2 min in automatic operation.

R'F2

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

A k i t a

135° E Mean Time (GM.T.+ 9h.)

Sep. 1957

f'F

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	315 ^A	310	270	300	300	250	245	245	A	A	A	240	220 ^H	250	260	A	A	A	A	A	A	340	A
2	A	A	300	280 ^A	A	A	250	A	230	240	250	200 ^H	250	240	250	250	250	250	250	260	280 ^A	A	350	385
3	390 ^A	360	395	395	265	300	250	300	250	240	240 ^B	A	255	240	250	245	250	260	300	280	280	300	400	400
4	395	370	355	360	320	255	255	240	230 ^H	240	225	275	240	240	225 ^H	245	260	260	250	240	300	310 ^A	290	330
5	295	345	440	440	380	350	285	260 ^A	A	250 ^A	245	250	250	250	250 ^H	250	250	255	265	290	290	295	300	300
6	300	345	345	370	350	300	250	240	250	235	230	245	230 ^A	250	240	255	275	250	260	300 ^A	255	290	330	380
7	390	360	345	360	390 ^A	355	290	240	250	240 ^A	A	A	A	A	245	250	250	260	250	260	260	300	300	300
8	300	300	300	290	300	290	250	250	240	230	230	200 ^H	230	240	230	245	250	255	260	260	250	250	300	305
9	295	280	260	275	260	260	245	245	240	230	220	215	210	210	230	250	250	250	250	250	255	290	300	260
10	295	260	255	245 ^H	320	320	245	250	245	245	250 ^A	250 ^A	220	240	250	250	250	250	250	280	285	255	250	250
11	300	290	265	285	305	300	230	240	235	205	205	210 ^H	B	B	245	245	250	250	245	290	275	290	270	270
12	A	310 ^A	310 ^A	A	A	280	240	240	220	245	250	250 ^C	250 ^A	240	250	250	250	255	250	275	240	245	270	255
13	250	290	290	290	290	290	245	240	240	240	245	230 ^H	250 ^H	245	240	250	255	240 ^C	350	345	315	360 ^F	230 ^F	220 ^F
14	315 ^F	A	A	A	340	275	255	245	250 ^A	A	250	240	230	210	240	245	250	240	240	240	250	340	245	350
15	320	350 ^A	350 ^A	340	355	390	295	250	240	220	240	240	220	245 ^B	240	240 ^A	250	260 ^A	270	275	290 ^A	300	355	340
16	300	300	300	270	300	350	260	C	C	C	C	C	C	C	C	C	C	C	C	250	250	300	320	305
17	300	300	280	290	295	275	245	240	235	210	230 ^A	250	240	245	250	250	250	270	270	260	280	290	305	320
18	310	290	310	300	350	350	255	240	235	250	240 ^H	230	C	C	C	250	250	250	260	260	290	260	280	295
19	330	300	310	300	300	330	245	245	240	230	220	225	230 ^B	230	250	245	250	260	250	275	260	250	295	290
20	305	300	300	290	275	260	240	240	230	230	230	225	230	245	245 ^C	250	245	260	250	250	255	270	295	280
21	260	260	260	290	300	300	245	240	245	240	240 ^H	230	240 ^H	240	240	240	250	260	250	265	300	300	400	445
22	275	240 ^H	380	400 ^A	540	440	350	260	260	270	260	250	250	250	250	270	270	280	265	300	350	350	315	330
23	380	480	500	400	295	370 ^A	260	250	240	210	220	240 ^H	250	250	250	250	275	260	250	240	310	300	290	250 ^H
24	375	390 ^A	360	375	340	380	300	295	290	250	240 ^H	255	245	220 ^H	230	230	250	275	260	250	240	300	290	250
25	350	300	260	245 ^H	355	340	260	245	220	220 ^C	200	240	210	240	240	240	250	250	240	250	270	295	305	300
26	305	300	275	250	295	310	250	245	240	210	210	210	220	240	250	245	255	255	245	245	250	255	295	305
27	315	320	300	290	255	270	240	240	245	245 ^C	245	245	240	240	245	250	250	250	240	260	260	290	280	260
28	250	290	300	345	310	315	245	245	240	240 ^C	235	240	230	240	240	245	255	260	240	205	290	300	300	290
29	260	250	290	300	250	295	250	245	240	220	210	210	210	240	245	230	250	250	275	210	285	330	345	320
30	400	505	510	450	540	550	260	260	240	220	225	225	230 ^A	240	250	250	250	255	240	270	325	320 ^A	290	300
31																								
No.	28	28	29	28	28	29	28	28	28	26	27	26	26	26	28	29	27	28	29	29	29	28	30	29
Median	305	300	300	295	300	300	250	245	240	235	240	240	240	240	245	250	250	260	250	260	285	300	300	300

Sweep 0.85 Mc to 22.0 Mc in 2 min in automatic operation.

f'F

The Radio Research Laboratories, Japan.

A 10

IONOSPHERIC DATA

Lat. 39° 48.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time (GMT.+9h.)

Sep. 1957

f_oF₂

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

Sweep 0.85 Mc to 22.0 Mc in 2 min in automatic operation.

The Radio Research Laboratories, Japan.

f_oF₂

A 11

IONOSPHERIC DATA

Lat. 39° 43.5' N
Long. 140° 08.2' E

Akita

135° E Mean Time (GMT.+ 9h.)

Types of Es

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	f2	f3	f2	f2	f	l	C	C	C	C	C	C	C	C	l	l2	C	C2	f2	f2	f2	f3	f2	f4	
2	f5	f4	f2	f2	f3	f4	f5	C3	C	l	l2	C	l2	l	l	C	h	C	f2	f2	f3	f2	f2	f2	
3	f5	f2	f1	f1	f	f	C	C	C2	C	C	C	C	C	C	C	h	C	f	f	f5	f6	f4	f3	
4	f2	f	f1	f5	f7	C	C	C	C	l2	l	l	l	l	l	h	h	f3	f2	f2	f5	f6	f4	f3	
5	f2	f	f2	f3	f2	f	C2	C2	C3	l2	l	l	l2	l	l	C	h	f2	f2	f2	f3	f2	f4	f3	
6	f	f3	f3	f3	f3	f2	C	C	C2	C	C	C	l2	l	l	C	C	C2	f3	f2	f3	f2	f2	f2	
7	f2	f	f2	f2	f2	f2	l	C2	C2	C	C	C	l	l2	l2	l2	l2	l2	C2	f2	f2	f2	f2	f2	
8	f2	f3	f4	f3	f3	f	l	h	C	C	l	l	l	l	l	l	l	l2	l2	f2	f3	f2	f2	f2	
9	f2	f2	f2	f2	f4	f	h	h	h	h	l	l	l	l	l	l	l	C	f	f3	f3	f3	f2	f2	
10	f	f	f2	f2	f	f	C	C2	C	C	C2	C3	C	l	l2	l2	l	h	f2	f2	f4	f2	f	f	
11	f3	f2	f2	f2	f2	f	C	C	C	C	h	C	l	l	h	h	h	C3	f4	f3	f2	f2	f	f	
12	f3	f4	f8	f8	f2	f	C	C	C	C	h	C	l	l	h	h	C2	l2	f2	f2	f4	f2	f	f	
13	f2	f2	f2	f3	f2	f	C	C	C	h	h	C	C	C	l	l	l	h	f2	f2	f2	f2	f	f	
14	f3	f4	f7	f7	f6	f4	C	C	C2	C3	C	l	C	C	l	l	l	h	f2	f3	f	f2	f	f3	
15	f3	f4	f3	f4	f3	f	C	C	C	C	C	l	l	l	C	C2	l2	l3	f4	f3	f2	f2	f3	f	
16	f	f	f3	f2	f2	f2	l	h	h	C	C	C	C2	l	l	l	h	f	f	f5	f2	f2	f	f	
17	f2	f2	f2	f3	f2	f	l	h	h	C	C	l	l	l	l	h	h	f2	f4	f5	f2	f2	f	f	
18	f	f	f	f	f	f	h	h	h	h	C	l	l	l	l	h	h	h	f2	f2	f	f	f	f	
19	f	f	f	f	f	f	h	h	h	h	h	h	l	l	l	h	h	h	f2	f2	f	f	f	f	
20	f	f	f	f	f	f	h	h	h	h	h	h	C	l	l	h	h	h	f2	f2	f	f	f	f	
21	f	f	f6	f6	f3	f	h	h	h	h	h	h	h	h	l	l	C	h	f2	f2	f2	f	f	f	
22	f	f	f	f6	f6	f3	f	l	C	h	h	h	h	h	l	l	h	h	f2	f2	f2	f	f	f	
23	f	f	f	f	f6	f3	l	C	C	h	h	h	h	h	l	l	h	C	h	f2	f2	f	f	f	
24	f2	f6	f6	f5	f6	f3	l2	C	C	h	h	C	h	h	h	h	C2	C	f	f	f	f	f	f	
25	f	f	f	f	f	f	l	h	h	h	h	h	h	h	l	l	h	h	f2	f2	f	f	f	f	
26	f	f	f	f	f	f	l	h	h	h	h	h	h	h	l	l	h	h	f4	f2	f2	f	f	f	
27	f	f	f	f	f	f	l	h	h	h	h	C	l	l	C	l	C	C	f4	f2	f2	f2	f	f	
28	f	f	f	f	f	f	l	h	h	h	C	C	C	l	l	l	l2	l	f3	f2	f2	f	f	f	
29	f	f	f	f4	f	f	h	h	C	h	h	h	l	l	l	l	C	l	f3	f	f2	f	f	f	
30	f	f	f	f6	f6	f	l	h	h	h	h	h	l	l2	h	h	h	C	f	f	f	f5	f2	f	
31																									
No.																									
Median																									

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GM.T.+ 9h.)

Sep. 1957

foF2

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	8.4 ^S	7.9	7.5	7.0	6.4	6.9 ^C	9.2	11.1	11.1	9.2	10.6	11.2	11.7	11.6	10.8	11.9	12.6	12.3	11.5	9.3	7.6 ^S	7.8	7.8	8.3	
2	8.1	8.6	7.8 ^F	7.0	6.5	6.7	8.8	10.1	11.7	11.5	11.7	12.0	13.1	13.5	14.1	13.6	13.3	12.4	12.9	10.0	6.5	6.8	6.7	6.7	
3	6.4	6.1	5.7	6.0	6.0	6.3	8.0	10.1	10.6 ^V	9.4 ^R	9.0	10.8	10.8	10.3 ^R	10.0	10.6	10.1	10.1	9.5	10.3 ^K	8.4	7.4 ^S	7.9	7.9	
4	7.3 ^S	6.6	6.4 ^{FS}	6.0 ^F	6.4 ^S	6.9	8.8 ^F	11.1	11.4	12.5	11.9 ^H	12.3	11.6	11.6	11.0 ^V	10.5 ^H	10.8	10.4	9.1	8.7	7.9	7.6 ^S	7.8 ^S	7.9	
5	7.7	6.7	5.2 ^S	5.1	4.5 ^S	4.5	6.2	10.1	10.4 ^R	10.1	10.7 ^Z	12.4	11.8	12.3	11.4	11.3	11.3	10.0	7.0	6.8	6.3	6.2	6.3	6.1	
6	6.2	6.0	5.8	5.6 ^C	5.3	6.2	9.5	8.7	8.8	8.8	9.6	10.9	11.9	11.3	10.1 ^H	10.8 ^H	11.0	10.5 ^S	9.8	9.4	7.7	7.3	7.4	7.1	
7	6.8	7.0	6.8	5.8	5.4	5.4	7.3	8.8	8.2 ^Z	9.9	10.7	11.3	11.6	11.8	11.3	10.9	10.7	10.3	10.0	8.7	8.1	7.6	8.0	7.6	
8	7.1	7.0	6.7	6.5	6.5	6.5	8.2	9.7	10.0	9.7 ^R	10.9 ^K	11.7	11.8	11.4	11.0	10.8	11.0	10.6	10.8	9.7	7.7	7.5 ^S	7.9 ^S	8.3	
9	8.1	7.7	7.5	7.2	6.3	6.3	8.8 ^R	10.2	11.2	11.2	11.0 ^H	11.3	12.0	12.4	12.9	13.0	12.2	11.9	11.6	10.8 ^S	8.8	8.8	7.9	8.3	
10	8.1 ^S	7.6	6.7	5.7 ^H	5.8	6.3	10.2	11.7	12.7	13.1	12.7	12.5	13.3	12.8 ^H	12.5	12.2	11.7	11.2	10.9	9.5 ^S	8.7	9.0	8.7	7.7	
11	7.3	7.0	6.7	6.4	6.0 ^S	6.4	9.4	9.8	9.8	9.9 ^H	11.3	12.2	11.8 ^H	12.0 ^H	11.6	11.9	11.3	10.7	10.0 ^S	8.4	8.5	8.5 ^S	8.2	8.1	
12	7.5	7.6	7.2 ^S	7.3	7.0	7.1	9.9 ^S	10.4	10.6	10.7 ^H	11.5	11.5	11.3	13.3	13.8	12.4	10.2	10.4 ^F	10.5	9.8 ^S	9.0	9.1	9.5	8.4	
13	7.9	7.8	7.5	7.3	7.0	7.2	9.9	10.6	10.9	11.5	12.3 ^H	13.2	13.3	13.8	12.4	13.4	13.3	9.7	11.0	14.1 ^K	R	R	F	F	
14	F	F	F	7.2 ^F	F	R	F	12.9 ^R	13.1 ^R	14.0	10.1 ^N	8.2	7.4	B	7.5	7.9	8.9	9.1	9.6	9.6 ^{RS}	9.3 ^S	8.7	8.3	7.7	7.8
15	8.0	7.6	7.7 ^S	7.3 ^R	7.0	6.4	7.1	7.6	7.9	8.5	9.4	9.7	9.8	9.3 ^H	9.0	8.9	9.2	9.0	8.7	7.6	7.2	7.4	7.2 ^S	7.4	
16	7.9	7.5	7.0	6.7	6.3	6.1	9.0	11.4	10.3	9.3	10.4 ^H	11.2	11.5	11.3	10.8 ^H	10.3 ^H	10.3	10.2	9.2	7.5	7.6	8.3 ^S	8.3	8.5	
17	8.1 ^S	8.0	7.7	7.5	7.2	7.5	9.4	11.0	10.7	10.2	10.9 ^H	11.5	11.8	11.5	10.8 ^H	10.6 ^H	10.6	10.0	10.0 ^S	9.0	8.6	9.1	9.2	8.6	
18	8.4 ^S	7.7	7.4	7.4	7.0	7.6	10.2	11.9	12.1	12.1	13.1	13.4 ^H	13.1	12.3	12.6 ^H	11.9 ^H	11.3	10.7 ^S	10.1 ^S	8.8	8.5 ^S	8.5	7.6	7.6	
19	7.1	7.2	7.1	6.9	6.9	7.6	10.2	10.8	11.1	11.9 ^H	12.1	12.6	12.4	12.4	12.6 ^H	12.0 ^H	11.6 ^H	11.8	11.3	10.3 ^S	9.7 ^S	8.7 ^S	8.5	8.5	
20	8.1	8.0	7.9 ^S	7.8	7.7	7.6	10.1 ^R	11.0	11.6	12.8 ^H	13.4	13.5 ^H	13.5 ^H	13.1 ^H	13.0 ^H	13.3 ^H	13.3 ^H	12.8	12.3	10.2	9.7	11.1 ^S	F	11.3	
21	9.6 ^S	8.3	7.8	7.3	6.8	7.6	10.3	12.6	12.6	12.4	12.5 ^H	13.3 ^H	12.8 ^H	12.3 ^H	12.2 ^H	12.2 ^H	11.7 ^H	11.9	11.9	10.2 ^S	10.4 ^F	F	8.1 ^F	8.1 ^F	
22	9.3 ^Z	5.4	4.9	4.3	3.8	4.4	5.8	6.2	6.8	7.4 ^C	7.7	8.5 ^R	8.4	8.4	8.6	8.3	8.2	8.2	8.4	6.3	6.8	6.7	6.5	6.6	
23	6.1	5.1	4.9	5.0	5.1	4.9 ^H	7.5	10.0	11.6	12.9	13.3	12.3	13.0 ^H	13.7 ^H	12.0 ^H	11.3 ^H	11.2	11.9	11.4	9.0	8.8	8.8	9.0	7.0	
24	6.7	6.9	7.0	6.6	6.3	6.1	6.4	8.3	12.3	12.1	12.2 ^H	11.2	8.9	7.9	7.4	7.4	7.6	7.6	7.8	7.0	7.2	7.0	6.8	6.2	
25	6.7	6.9	7.0	5.8	6.1	6.2	9.1	12.9	13.7	13.4	13.4	13.8	14.2	14.1	13.8 ^H	13.3	12.7	12.3	10.9 ^S	8.2 ^S	8.0 ^{RS}	7.3	7.1	7.1 ^S	
26	6.9	7.0	6.9	6.4 ^C	5.9	6.3	9.9 ^{RS}	12.9	12.9	13.1	13.3	13.0	14.0 ^H	14.5 ^K	14.3 ^H	13.4	13.0	12.6	11.3 ^S	9.1 ^S	8.5	8.7	8.1 ^S	7.5	
27	7.6	7.3	7.1	7.1	7.3	7.5 ^C	10.5 ^C	12.1	13.4	14.2	14.2 ^R	14.9	15.0	15.0 ^R	14.6	13.8	13.0	12.7	11.6	9.5	9.1 ^S	9.1 ^S	9.6 ^S	9.1	
28	8.7 ^S	7.6	6.8	6.3	6.8	7.3	11.1	13.3	12.8	12.8	12.9 ^H	14.0 ^H	14.1	14.0 ^H	13.8 ^H	13.3 ^H	13.0	12.7	11.7	8.8 ^S	8.6	9.0	9.4	9.5	
29	8.1	7.7	6.9	6.6	6.3	6.5	9.3	13.0	13.3	13.3	13.8 ^H	13.8 ^H	13.1	13.6 ^H	13.7 ^H	13.8	13.1	12.6	12.2	9.2	7.6	8.2	8.1	7.6	
30	7.0	5.4	4.9	5.3	4.6	4.0 ^H	6.4	9.0	11.0	12.4	13.2	13.3	12.5 ^H	11.7 ^H	12.6	12.8	11.8 ^H	11.8	10.9	9.3	9.7 ^S	S	10.0 ^S	8.5	
31																									
No.	2.9	2.9	2.9	3.0	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.0	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.8	2.7	2.9	
Median	7.7	7.3	6.9	6.6	6.3	6.4	6.4	6.3	6.4	6.4	6.4	6.4	6.3	6.4	6.4	6.4	6.4	6.3	6.4	6.3	6.5	6.3	6.2	6.4	
U. Q.	8.1	7.7	7.5	7.2	6.8	7.2	10.1	12.1	12.6	12.7	12.9	13.3	13.3	13.5	12.9	13.3	12.7	12.3	11.5	9.8	8.8	8.9	8.7	8.4	
L. Q.	7.0	6.7	6.5	5.8	5.7	6.2	8.2	9.8	10.4	9.9	10.6	11.2	11.6	11.3	10.8	10.6	10.6	10.0	9.7	8.7	7.6	7.4	7.4	7.2	
Q. R.	1.1	1.0	1.0	1.4	1.0	1.9	2.3	2.2	2.2	2.2	2.3	2.1	1.7	2.2	2.1	2.7	2.1	2.3	1.8	1.1	1.2	1.5	1.3	1.2	

Sweep 2.0 Mc to 20.0 Mc in 2.0 sec

foF2

The Radio Research Laboratories, Japan.

K 1

IONOSPHERIC DATA

Lat. 36° 42.4' N
Long. 139° 29.8' E
Kokubunji Tokyo

foF1

Sep. 1957

135° E Mean Time (GMT.+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																								
2										A	59 ^L	67 ^L	62 ^L	64 ^L	67 ^L	L	L	A						
3							A		L	66 ^L	62 ^B	59 ^L	60 ^L	60 ^L	60 ^L	59 ^L	58 ^L							
4									L	58 ^L	53 ^L	63 ^L	67 ^L	63 ^L	A		L	L	A					
5							A		A	L	61 ^L	62 ^L	67 ^L	63 ^L	62 ^L	L	L							
6									L	L	64 ^L	59 ^L	60 ^L	60 ^L	60 ^L	51 ^L	L							
7							L		A	A	L	63 ^L	66 ^L	62 ^L	L	L	L							
8									L	L	63 ^L	L	L	L	L	L	L							
9									L	L	L	L	L	L	L	L	L							
10									L	L	L	L	L	L	L	L	L							
11									L	L	L	L	L	L	L	L	L							
12									L	L	L	L	L	L	L	L	L							
13									L	L	L	L	L	L	L	L	L							
14									L	L	L	L	L	L	L	L	L							
15									L	L	L	L	L	L	L	L	L							
16									L	L	L	L	L	L	L	L	L							
17									L	L	L	L	L	L	L	L	L							
18									L	L	L	L	L	L	L	L	L							
19									L	L	L	L	L	L	L	L	L							
20									L	L	L	L	L	L	L	L	L							
21									L	L	L	L	L	L	L	L	L							
22									L	L	L	L	L	L	L	L	L							
23									L	L	L	L	L	L	L	L	L							
24									L	L	L	L	L	L	L	L	L							
25									L	L	L	L	L	L	L	L	L							
26									L	L	L	L	L	L	L	L	L							
27									L	L	L	L	L	L	L	L	L							
28									L	L	L	L	L	L	L	L	L							
29									L	L	L	L	L	L	L	L	L							
30									L	L	L	L	L	L	L	L	L							
31									L	L	L	L	L	L	L	L	L							
No.																								
Median																								

foF1

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (GMT.+9h.)

f_oE

Sep. 1957

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	3.10	3.50 ^R	R	B	B	B	B	A	A	3.30	2.60	A					
2							A	A	A	A	A	A	R	A	B	R	3.10 ^A	2.65 ^A	B					
3							B	3.00	3.30 ^R	A	B	B	B	B	A	R	3.10 ^R	B						
4							B	2.95 ^B	B	B	B	B	B	B	B	B	3.25	2.80 ^M	B					
5						2.05	2.35 ^B	2.90	B	B	B	R	A	B	B	B	3.15 ^R	B	A					
6							A	A	B	B	B	B	B	B	R	R	3.40 ^B	2.75						
7							B	A	B	B	B	B	B	A	B	R	B	A	B					
8							B	B	B	B	B	B	B	B	B	R	3.25 ^R	A	A					
9							A	3.00 ^B	R	B	B	B	B	B	B	B	3.25 ^B	2.50						
10							B	3.05	B	B	B	B	B	B	A	B	B	B						
11							2.60 ^R	2.90	B	B	B	B	B	B	B	B	3.25 ^R	B						
12							B	3.00 ^R	3.35	B	B	B	B	B	B	R	3.35 ^B	2.55						
13							B	B	B	B	B	B	B	B	B	B	3.15 ^R	2.40						
14							B	2.90	R	B	B	B	B	B	B	B	3.15	2.55 ^A						
15							R	2.90 ^R	R	B	B	B	B	B	B	A	A	E						
16							B	3.00 ^R	3.40 ^R	3.70 ^B	B	B	B	B	B	B	3.20	2.55						
17							B	3.00 ^R	B	B	B	B	B	B	B	B	3.30	B						
18							B	3.10 ^B	B	B	B	B	B	B	A	A	A	A						
19							2.70	3.15 ^B	R	B	B	B	B	B	B	R	3.00 ^R	B						
20							B	3.10	3.55	3.85	B	B	B	B	B	B	A	A						
21							B	2.90 ^R	B	B	B	B	B	B	B	B	3.00 ^A	B						
22							B	3.00	3.50 ^R	C	B	B	B	B	B	B	3.65	3.20 ^R	B					
23							A	A	3.25 ^R	B	B	C	B	B	B	B	3.05 ^R	B						
24								B	B	3.85 ^R	B	B	B	B	R	3.50	2.95	B						
25							A	3.00 ^B	3.40	B	B	B	B	B	B	B	3.05	A						
26								2.80 ^B	3.35 ^R	B	B	B	B	B	B	B	3.00 ^B	B						
27								3.05 ^B	B	B	C	B	B	B	B	R	3.00	B						
28								3.15	3.45 ^A	3.70	B	B	A	A	A	3.55 ^A	3.10	2.20						
29							B	2.80 ^B	3.30	B	B	B	B	B	B	B	3.30	3.00	A					
30							2.45 ^A	2.70	3.25	3.40	R	A	A	A	B	B	2.70	2.10						
31																								
No.	1	4	23	12	4	1										4	25	12						
Median	2.05	2.50	3.00	3.40	3.70	3.85										3.50	3.15	2.55						

Sweep 2.0 Mc to 20.0 Mc in 2.0 sec ^{max} in automatic operation.

The Radio Research Laboratories, Japan.

K 3

f_oE

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (GM.T.+9h.)

foEs

Sep. 1957

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	2.3 ^M	E	E	2.8	3.9	6.6 ^M	8.5 ^M	5.2	6.0	6.0	10.4 ^M	10.2 ^M	7.9 ^M	4.2	6.7 ^M	3.5 ^M	7.6 ^M	5.2 ^M	9.9 ^M	10.3 ^S	10.6 ^M
2	3.8 ^M	6.1 ^M	8.7 ^M	3.9 ^M	3.6 ^M	3.5 ^M	4.0	5.0 ^M	6.0 ^M	4.3	6.5 ^M	4.5 ^M	3.8 ^G	3.8 ^G	B	3.0 ^G	3.8 ^M	5.6	B	E	3.0 ^M	3.2 ^M	3.6 ^M	7.5 ^M
3	7.2 ^M	3.9 ^M	3.8 ^M	3.9 ^M	2.2 ^M	E	3.9	4.0	3.6	5.9 ^M	B	B	5.9	4.5 ^M	7.0 ^M	4.4	5.4	4.4 ^{MS}	7.0 ^M	4.4 ^{MS}	E	E	E	E
4	E	E	E	E	2.4 ^M	2.5 ^M	2.8	4.0	B	B	B	B	B	B	B	3.9	3.9	3.9	4.0	3.3	2.3	3.5 ^M	3.7	5.8 ^M
5	5.5 ^{MS}	3.9 ^M	S	2.0 ^M	E	2.7	4.2	5.7	7.6	7.3 ^M	4.6 ^S	3.9 ^G	4.0	B	B	B	2.9 ^G	3.4	C	C	C	S	E	E
6	E	E	S	C	3.0 ^M	4.2 ^M	4.0 ^M	3.8	4.3 ^M	B	B	B	B	B	3.5 ^G	B	B	3.6	3.8 ^M	3.2 ^M	2.5 ^{MS}	B	E	E
7	2.2 ^M	E	E	E	E	3.5 ^M	3.6	5.9 ^M	9.1 ^M	5.7 ^M	B	9.4 ^M	B	4.2	3.7 ^G	3.7 ^G	B	4.2 ^M	3.3	3.9 ^M	3.9 ^M	7.5 ^M	5.9 ^M	5.5 ^M
8	5.4 ^M	5.7 ^M	3.1 ^M	3.0 ^M	E	E	B	B	B	B	B	B	3.8 ^G	3.5 ^G	B	B	2.4 ^G	3.9 ^M	4.1 ^M	4.2 ^{MS}	E	E	E	E
9	3.1 ^M	2.4 ^M	E	E	E	E	3.0	3.3	G	B	B	B	B	B	B	B	3.7	3.3	6.6 ^M	3.6 ^M	3.5 ^M	E	3.5 ^M	2.9 ^M
10	E	E	E	E	E	E	2.5	3.8	4.5	4.6	6.1	5.4 ^M	B	B	B	B	5.9 ^M	9.1 ^M	6.0 ^M	11.6 ^M	5.9 ^M	6.0 ^M	3.3 ^M	3.0 ^M
11	E	E	E	E	E	E	E	3.2	4.5	B	B	B	B	B	B	B	3.6	3.0	3.5 ^M	4.2 ^{MS}	4.0 ^M	4.2 ^{MS}	4.7 ^{MS}	2.3 ^M
12	E	E	E	4.3 ^{MS}	4.0 ^{MS}	E	E	4.8 ^{MS}	5.8 ^M	4.4	5.3 ^M	B	B	B	B	G	B	3.1	E	3.0 ^M	9.5 ^M	8.9 ^M	5.5 ^M	3.9 ^M
13	3.0 ^M	2.5 ^M	2.1 ^M	2.5 ^M	2.5 ^M	3.0 ^M	B	B	4.1	4.7	4.4	4.6	B	B	4.0	4.0	G	G	E	E	E	E	E	E
14	3.0 ^M	4.6 ^M	5.8 ^M	7.1 ^M	3.5 ^{MS}	3.9 ^M	5.7 ^M	5.3 ^M	10.2 ^M	8.7 ^M	5.5	6.6 ^M	B	B	B	B	G	B	3.2 ^M	4.3 ^M	3.1 ^M	3.6 ^M	E	2.7 ^M
15	2.7 ^{MS}	2.8	2.2 ^{MS}	E	2.1 ^M	4.4 ^M	4.4 ^M	3.3	3.7	4.5	B	G	B	B	B	4.2	4.8 ^M	3.9 ^M	3.7 ^M	6.8 ^M	6.7 ^M	5.7 ^M	3.0 ^M	3.6 ^M
16	2.1 ^M	E	E	E	E	E	2.7	2.5 ^G	4.0	5.2	5.6 ^M	B	B	B	B	B	G	3.0	E	E	E	E	E	2.2 ^M
17	2.5 ^M	3.8 ^M	3.0 ^M	2.8 ^M	2.3 ^M	E	B	G	B	B	4.4 ^M	4.3 ^M	B	B	5.3 ^M	5.0 ^M	3.8	2.9	4.3 ^S	6.0 ^M	4.8 ^{MS}	3.7 ^M	E	2.2 ^M
18	E	E	E	E	E	E	E	B	B	B	B	B	4.7	4.4	5.8 ^M	5.0 ^M	5.0 ^M	6.7 ^M	9.1 ^{MS}	2.7 ^M	E	E	E	E
19	E	E	E	E	E	E	E	G	G	B	B	B	B	B	B	4.0	G	B	E	E	E	E	E	E
20	E	E	E	E	E	E	E	B	G	4.3	B	B	B	4.8	B	B	2.8	6.1 ^M	4.1 ^M	3.9 ^M	3.0 ^M	E	E	E
21	E	E	E	E	E	E	E	3.1	B	B	B	B	B	B	B	B	3.2	B	E	E	E	E	E	E
22	E	E	E	3.3 ^M	3.0	E	B	3.5	G	C	B	B	4.8	4.2	B	3.9	3.6	5.1 ^M	4.1 ^M	E	4.3 ^{MS}	3.5 ^M	2.1 ^M	E
23	E	E	C	C	C	C	C	C	G	B	B	C	B	B	B	4.5	4.3	4.1 ^M	2.7 ^M	E	E	E	E	3.1 ^M
24	3.7 ^M	3.9 ^M	4.6 ^{MS}	4.2 ^M	2.9 ^M	3.0 ^M	4.3 ^M	4.2 ^{MS}	3.9	B	4.7	B	B	B	G	4.5	4.3	4.8 ^M	3.4 ^M	3.7 ^M	3.0 ^M	2.2 ^{MS}	F	E
25	E	E	E	E	E	E	2.5	3.3	3.7	B	B	B	B	B	B	B	3.2	3.0	3.8 ^M	3.0 ^M	3.0 ^M	3.0	F	8.8 ^M
26	3.3 ^M	E	E	E	E	E	B	B	3.7	B	B	B	B	B	B	B	3.6	3.9 ^M	3.8 ^M	3.9 ^M	2.5 ^M	2.2 ^M	E	E
27	E	E	E	E	E	E	C	C	4.3	5.1	6.0 ^M	4.3	4.6	B	B	G	G	2.7	E	3.9 ^M	2.5 ^M	3.7 ^M	E	E
28	3.5	2.7 ^M	2.2 ^{MS}	2.9 ^M	2.2 ^{MS}	2.1 ^M	E	3.4	3.8	5.5	4.3	B	4.2	5.8 ^M	5.5 ^M	4.0 ^M	3.6 ^M	7.3 ^M	5.5 ^M	2.2 ^Y	2.3 ^M	E	2.5 ^M	E
29	E	E	E	E	E	4.5 ^M	B	B	3.6	B	B	B	B	B	B	G	3.3	2.7	E	3.1 ^M	E	3.1 ^M	2.8 ^M	2.9 ^M
30	E	E	E	E	2.5	2.5 ^M	2.5	3.6	5.3 ^M	4.4	G	5.5 ^M	4.1 ^M	B	B	B	G	2.6	E	E	E	E	E	E
31																								
No.	3.0	3.0	2.7	2.6	2.9	2.8	1.9	2.3	2.4	1.6	1.3	1.0	1.0	1.0	1.0	1.6	2.7	2.7	2.8	2.9	2.9	2.8	3.0	3.0
Median	E	E	E	E	E	E	3.2	3.6	4.0	4.9	5.2	5.0 ^M	4.4	4.3	4.9 ^M	4.0	3.6	3.9 ^M	3.6 ^M	3.3 ^M	2.5	2.6	E	E
U. Q.	3.1	2.8	2.2	3.0	2.5	3.0	4.0	4.2	5.6	5.8	5.8	6.0	4.8	4.8	5.8	4.3	3.9	4.8	4.2	4.2	4.0	3.7	3.3	3.1
L. Q.	E	E	E	E	E	E	2.5	3.2	3.6	4.4	4.4	4.3	4.0	4.2	4.0	G	G	3.0	E	E	E	E	E	E
Q. R.							1.5	1.0	2.0	1.4	1.4	1.7	0.8	0.6	1.8		1.8							

Sweep 20 Mc to 20.0 Mc in 2.0 sec in automatic operation.

The Radio Research Laboratories, Japan.

K 4

foEs

IONOSPHERIC DATA

Lat. 36° 42.4' N
Long. 139° 28.8' E

Kokubunji Tokyo

135° E Mean Time (GMT.+9h.)

f_oE_s

Sep. 1957

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	2.8 ^B	3.7	5.8	8.1	5.1	5.5	5.2	5.2	5.1	5.1	G	6.4	2.9	6.9	4.1	5.2	5.3	7.1
2	2.9	2.4	A	3.6	2.7	2.5	4.5 ^B	4.1	4.5	4.5	5.8	4.5	B	B	B	B	3.7	3.2	B	E	2.4	2.6	2.3	5.4
3	4.5 ^S	2.7	2.6	2.7	2.0	E	3.6	4.0	4.1	5.2	B	B	4.6 ^B	4.6 ^B	4.3	4.3	4.3	4.7 ^S	4.7 ^S	E	E	E	E	E
4	E	E	E	E	E	E	1.9	4.0	B	B	B	B	B	B	4.5	3.9	3.8	3.8	5.4	2.3	E	2.2	2.4	3.7
5	3.7	3.2	S	E	E	G	3.5	5.0	6.7	5.3	4.9 ^S	B	4.5 ^B	B	B	B	B	3.4	C	C	S	E	E	
6	E	E	S	C	E	E	3.3	3.8	4.3	B	B	B	B	B	B	B	B	3.6	2.6	2.5	E	B	E	E
7	E	E	E	B	E	E	2.1	3.5	3.7	6.5	5.7	B	4.7 ^B	B	B	B	B	3.8	3.1	3.2	1.9	2.8	4.8	3.7
8	3.4	2.8	E	2.6	E	E	E	B	B	B	B	B	B	B	B	B	G	3.3	3.4	3.3	E	E	E	E
9	E	E	E	E	E	E	3.0	3.3	G	B	B	B	B	B	B	B	3.6	2.8	6.1	2.9	2.6	E	E	2.1
10	E	E	E	E	E	E	E	3.5	4.2	4.5	6.1	5.2	B	B	4.3	B	5.3	7.2	5.0	4.5 ^S	3.5	3.1	2.3	E
11	E	E	E	E	E	E	E	G	3.2	B	B	B	B	B	B	B	3.6	3.0	2.7	2.8	3.4	3.1 ^S	3.0	E
12	E	E	E	3.6	E	E	2.5	4.2	5.3	4.4	4.6	B	B	B	B	G	B	3.1	E	2.3	3.0	3.0	2.7	E
13	E	2.2	E	E	E	E	B	B	4.1	4.7	4.5 ^B	4.7 ^B	B	B	B	4.1 ^B	G	G	E	E	E	E	E	E
14	E	A	4.2 ^S	3.4	2.2	E	4.2	4.3	4.8	4.1	4.7	6.5 ^B	B	B	B	4.3 ^B	4.0	3.2	3.0	4.6	4.1	2.7	E	2.1
15	E	E	2.1	E	2.0	3.0	3.7	3.2	B	4.5 ^B	B	G	B	B	B	B	4.0	3.2	3.0	4.6	4.1	2.7	E	2.1
16	E	E	E	E	E	E	2.9 ^B	G	3.9	5.1	4.8	B	B	B	B	B	B	G	2.9	E	E	E	E	E
17	E	2.1	E	2.2	E	E	E	B	B	B	B	B	B	B	5.3	B	3.8	2.9	4.7 ^S	3.6	4.2	E	E	E
18	E	E	E	E	E	E	E	B	B	4.7 ^B	4.7 ^B	B	4.7	4.6 ^B	4.9	4.8	4.3	5.6	5.0	E	E	E	E	E
19	E	E	E	E	E	E	E	G	B	B	B	B	B	B	4.1	B	4.1	B	E	E	E	E	E	E
20	E	E	E	E	E	E	E	B	G	4.5 ^B	B	B	B	B	B	B	B	4.4	3.2	3.0	2.4	E	E	E
21	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	B	3.4 ^B	B	E	E	E	E	E
22	E	E	E	E	2.3	E	B	3.3	G	C	B	B	B	B	B	4.1	3.7 ^B	4.2	3.5	E	3.6	2.6	2.2 ^B	E
23	E	E	C	C	C	C	C	C	G	B	B	B	B	B	B	B	3.5	3.5	2.2	E	E	E	E	E
24	3.1	2.8	3.7	3.1	2.2	2.4	3.6	4.1 ^S	3.8	B	4.7	B	B	4.6 ^S	S	4.3	4.0	3.8	2.3	2.9	2.3	E	E	E
25	E	E	E	E	E	E	2.5	3.1	3.7	B	B	B	B	B	B	B	3.2	2.7	3.2	2.2	E	E	E	3.2
26	2.7	E	E	E	E	E	B	B	3.6	B	B	B	B	B	B	B	3.7 ^B	2.7	2.3	2.8	E	E	E	E
27	E	E	E	E	E	E	C	3.3	4.3	5.0	6.0	4.2 ^S	4.7 ^S	B	B	B	G	2.8 ^B	E	E	E	E	E	E
28	2.7	2.1	E	2.0	E	E	E	3.3	3.8	5.1	4.3	B	5.0 ^B	5.3	4.2	3.7	3.3	5.2	3.7	E	E	E	E	E
29	E	E	E	E	E	E	A	B	3.6	B	B	B	B	B	B	B	3.3	2.8 ^B	E	E	E	E	E	E
30	E	E	E	E	E	E	E	2.5	4.1	4.3	G	5.1	4.3 ^B	B	B	3.8	G	2.6	E	E	E	E	E	E
31																								
No.	30	30	27	26	29	28	18	23	23	16	13	9	7	6	7	14	25	27	28	29	28	30	30	30
Median	E	E	E	E	E	E	2.8	3.3	4.1	4.7	4.7	5.1	4.7	4.6	4.9	4.1	3.5	3.3	2.8	2.3	E	E	E	E

Sweep 2.0 Mc to 20.0 Mc in 20 ^{min} sec in automatic operation.

f_oE_s

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

Lat. $35^{\circ}42.4' N$
Long. $139^{\circ}29.3' E$

Kokubunji Tokyo

135° E Mean Time (GMT.+ 9h.)

Sep. 1957

f-min

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E	2.80	E	E	2.30	E	2.60	2.30	2.50	3.65	4.00	4.20	4.50	3.80	3.55	3.20	2.75	2.20	E	E	E	E	2.20	E	
2	E	E	E	E	E	E	2.25	2.30	2.90	3.45	3.60	3.60	3.60	3.05	5.10	2.70	2.00	E	2.00	E	E	E	E	E	
3	E	E	E	E	E	E	2.50	2.30	2.80	3.70	3.80	4.90	4.70	3.60	3.50	2.80	2.40	2.70	E	E	E	E	E	E	
4	E	E	E	2.20 ^S	2.00	E	2.20	3.20	4.10	4.20	4.80	5.10	6.60	5.20	4.10	3.75	2.90	2.30	E	E	E	E	E	E	
5	E	E	E	E	E	E	2.20	2.10	3.10	3.90	3.65	3.60	3.55	4.80	4.30	3.70	2.70	2.60	C	C	E	E	E	E	
6	E	E	E	E	E	E	2.20	3.20	3.30	4.25	5.10	5.40	4.40	4.80	3.20	4.10	3.65	2.40	E	E	E	2.20	E	E	
7	E	E	E	E	E	E	2.80	3.30	3.80	4.20	4.80	4.30	5.00	4.00	4.30	3.10	3.40	2.10	2.30	E	E	E	E	E	
8	E	E	E	E	E	E	2.80	3.85	4.15	4.70	5.60	5.50	3.55	3.10	4.60	4.20	E	E	E	E	E	E	E	E	
9	E	E	E	E	E	E	E	3.00	2.70	4.55	4.80	4.80	4.80	5.00	4.50	4.30	3.20	E	E	E	E	2.20	E	E	
10	E	E	E	E	E	E	2.30	2.30	3.55	4.05	4.10	4.10	5.10	4.40	3.50	4.20	3.50	2.65	E	E	E	E	E	E	
11	E	E	E	E	E	E	2.20	2.20	3.80	4.10	5.05	5.20	6.20	6.90	5.05	4.10	2.55	2.60	2.20	E	E	E	E	E	
12	E	E	E	E	E	E	2.20	2.30	2.60	3.70	4.10	3.75	5.00	5.00	4.65	2.40	3.50	2.20	2.10	E	E	E	E	E	
13	E	E	E	E	E	E	2.80	4.30	3.60	4.05	4.10	4.15	5.10	4.30	3.60	3.70	2.60	2.10	E	2.10	E	E	E	E	
14	E	E	E	E	E	E	2.05	2.10	3.05	3.80	4.00	4.10	B	4.70	4.25	4.05	2.60	3.00	E	E	E	E	E	E	
15	E	E	E	E	E	E	E	3.00	2.85	3.80	4.60	3.80	4.90	5.65	4.70	3.50	2.55	E	E	E	E	E	E	E	
16	E	E	E	E	E	E	2.40	2.20	3.15	3.75	4.20	4.05	4.40	4.70	4.90	4.30	2.80	2.30	2.00	E	E	E	E	E	
17	E	E	E	E	E	E	2.60	2.85	4.10	4.20	4.75	4.85	4.50	4.80	4.80	4.05	2.65	2.60	E	E	E	E	E	E	
18	E	E	E	E	E	E	2.55	3.60	4.50	4.10	4.10	4.50	3.60	3.70	3.50	2.90	2.60	2.25	E	2.00	E	E	E	E	
19	E	E	E	E	E	E	2.45	3.80	2.80	4.50	4.70	4.70	7.00	5.50	5.20	3.10	2.60	3.10	2.15	E	E	E	E	E	
20	2.10	E	E	E	E	E	2.80	2.60	2.80	3.25	4.60	4.80	4.90	4.30	4.75	4.10	2.40	2.10	E	2.05	E	2.10	2.20	E	
21	E	E	E	E	2.20	E	2.60	2.50	4.25	4.50	5.30	5.15	4.70	5.10	4.80	4.10	2.55	2.60	2.20	E	E	E	E	E	
22	E	E	2.05	E	E	E	2.80	2.40	2.85	5.00 ^C	5.10	5.00	4.10	3.25	4.55	3.30	2.60	2.55	2.20	E	E	E	E	E	
23	E	2.00	C	C	C	C	C	C	2.60	4.60	5.10	5.35 ^C	5.00	4.80	4.70	4.10	2.55	2.10	E	2.20	2.00	E	E	E	
24	E	E	E	E	E	E	2.10	3.05	3.50	4.05	3.10	4.60	4.30	4.10	2.70	3.10	2.60	2.10	E	E	2.20	E	E	E	
25	E	2.00	E	E	E	E	E	E	3.05	2.70	4.00	4.80	4.50	4.30	4.50	4.05	2.30	E	E	E	E	E	E	E	
26	E	E	E	E	C	E	2.30	3.15	2.60	4.20	4.70 ^S	4.80	4.70	4.80 ^S	4.20	4.05	3.00	2.20	E	E	E	E	E	E	
27	E	E	E	E	E	C	C	3.05	3.70	4.00	4.00 ^C	4.00	4.05	5.00	4.70	2.85	2.70	2.10	2.10	E	E	E	E	E	
28	E	E	E	E	E	E	2.30	2.60	2.30	3.25	3.85	4.20	3.60	2.90	3.20	2.60	2.10	E	E	E	E	E	E	E	
29	E	E	E	E	E	E	2.30	3.10	2.40	4.60	4.10	4.50	4.40	4.20	4.20	2.80	2.55	E	E	E	E	E	E	E	
30	E	E	E	E	E	E	2.10	2.20	2.40	3.30	3.50	3.00	3.50	4.20	3.95	3.55	2.10	E	E	E	E	E	E	E	
31																									
No.	30	30	29	27	29	2.8	2.8	2.9	3.0	3.0	3.0	3.0	2.9	3.0	3.0	3.0	3.0	3.0	2.9	2.9	2.9	3.0	3.0	3.0	3.0
Median	E	E	E	E	E	E	2.30	2.85	3.00	4.05	4.60	4.65	4.50	4.55	4.40	3.70	2.60	2.20	E	E	E	E	E	E	E

f-min

Sweep 2.0 Mc to 24.0 Mc in 2.0 sec in automatic operation.

The Radio Research Laboratories, Japan.

K 6

Lat. 36° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

Sep. 1957

(M3000)F2

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	2.45	2.50	2.70	2.45	2.40	2.30	2.85	2.95	3.00	2.75	2.70	2.65	2.55	2.60	2.50	2.55	2.70	2.75	2.95	3.00	2.60	2.40	2.40	2.60
2	2.60	2.50	2.70	2.70	2.50	2.60	2.95	2.85	2.85	2.70	2.60	2.50	2.60	2.60	2.65	2.60	2.55	2.65	2.80	2.90	2.45	2.35	2.35	2.25
3	2.25	2.30	2.20	2.20	2.50	2.70	2.85	2.90	2.90	2.35	2.60	2.40	2.45	2.50	2.60	2.55	2.65	2.65	2.65	2.90	2.55	2.30	2.15	2.20
4	2.20	2.25	2.30	2.30	2.25	2.40	2.75	2.70	2.65	2.80	2.60	2.60	2.60	2.60	2.60	2.70	2.85	2.90	2.85	2.65	2.55	2.55	2.55	2.50
5	2.60	2.20	2.05	2.15	2.25	2.20	2.55	2.75	2.70	2.65	2.15	2.45	2.40	2.45	2.45	2.55	2.65	2.90	2.90	C	C	2.40	2.50	2.45
6	2.40	2.45	2.35	2.35	2.35	2.65	3.25	3.30	3.35	2.90	2.80	2.85	2.75	2.85	2.70	2.65	2.75	2.85	2.80	2.85	2.75	2.50	2.40	2.25
7	2.20	2.40	2.35	2.25	2.25	2.30	3.00	3.20	3.00	3.05	2.80	2.85	2.75	2.75	2.70	2.70	2.85	2.85	2.95	2.85	2.70	2.55	2.65	2.75
8	2.60	2.45	2.60	2.60	2.50	2.60	3.10	3.05	3.00	2.85	2.70	2.75	2.80	2.70	2.65	2.65	2.80	2.85	3.00	2.70	2.70	2.50	2.40	2.55
9	2.70	2.75	2.65	2.80	2.80	2.60	3.00	3.05	3.05	2.85	2.75	2.65	2.65	2.65	2.70	2.70	2.85	2.85	2.65	2.85	2.60	2.60	2.55	2.75
10	2.60	2.75	2.80	2.80	2.40	2.45	3.05	3.00	2.90	2.80	2.75	2.65	2.65	2.65	2.65	2.65	2.75	2.75	2.85	2.80	2.55	2.70	2.85	2.75
11	2.55	2.60	2.65	2.65	2.45	2.50	3.25	3.25	3.15	2.80	2.65	2.70	2.55	2.65	2.60	2.70	2.75	2.80	2.80	2.60	2.60	2.60	2.60	2.80
12	2.55	2.75	2.70	2.55	2.50	2.70	3.35	3.05	3.00	2.80	2.65	2.60	2.65	2.65	2.65	2.65	2.75	2.70	2.90	2.75	2.65	2.70	2.80	2.80
13	2.65	2.70	2.65	2.60	2.60	2.70	3.15	3.10	2.95	2.70	2.65	2.55	2.45	2.40	2.25	2.40	2.55	2.25	2.30	2.25	R	R	F	F
14	F	F	F	F	F	R	R	R	R	2.45	2.35	2.25	B	2.15	2.25	2.45	2.50	2.60	2.60	2.60	2.50	2.40	2.35	2.20
15	2.35	2.35	2.35	2.35	2.30	2.35	2.70	2.80	2.70	2.55	2.65	2.70	2.65	2.60	2.60	2.70	2.70	2.80	2.80	2.65	2.35	2.45	2.35	2.40
16	2.55	2.70	2.50	2.50	2.55	2.40	3.00	3.15	3.10	2.90	2.65	2.65	2.65	2.60	2.50	2.55	2.70	2.80	2.70	2.55	2.35	2.55	2.45	2.60
17	2.85	2.70	2.75	2.80	2.70	2.80	3.20	3.10	3.10	2.75	2.70	2.65	2.60	2.60	2.60	2.65	2.65	2.80	2.75	2.65	2.45	2.45	2.55	2.50
18	2.55	2.45	2.30	2.45	2.30	2.30	2.95	2.95	2.90	2.70	2.65	2.65	2.60	2.50	2.45	2.40	2.55	2.55	2.70	2.65	2.45	2.55	2.70	2.65
19	2.45	2.45	2.45	2.45	2.50	2.55	3.05	3.15	2.90	2.85	2.70	2.60	2.50	2.50	2.55	2.55	2.70	2.65	2.75	2.65	2.45	2.70	2.75	2.65
20	2.60	2.50	2.55	2.55	2.70	2.85	2.75	3.10	2.80	2.75	2.70	2.60	2.50	2.50	2.50	2.55	2.60	2.65	2.70	2.65	2.45	2.50	2.55	2.50
21	2.85	2.80	2.70	2.10	2.45	2.65	2.95	3.00	2.90	2.70	2.55	2.55	2.55	2.45	2.45	2.45	2.50	2.50	2.75	2.75	2.40	2.45	F	2.00
22	2.70	2.70	2.20	2.05	1.90	2.15	2.15	2.25	2.25	2.25	2.25	2.35	2.45	2.45	2.50	2.55	2.55	2.65	2.75	2.30	2.30	2.30	2.30	2.30
23	2.25	2.05	C	C	C	C	C	C	2.75	2.65	2.60	2.50	2.50	2.50	2.40	2.40	2.25	2.45	2.55	2.45	2.30	2.40	2.50	2.65
24	2.20	2.20	2.25	2.20	2.25	2.25	2.75	2.70	2.65	2.30	2.20	2.10	2.45	2.40	2.55	2.70	2.75	2.85	2.75	2.65	2.45	2.40	2.30	2.25
25	2.30	2.30	2.55	2.30	2.20	2.40	2.85	2.95	3.00	2.85	2.70	2.60	2.65	2.55	2.55	2.60	2.70	2.75	2.85	2.70	2.50	2.50	2.35	2.45
26	2.30	2.45	2.60	2.60	2.45	2.40	3.00	3.10	2.95	2.80	2.70	2.60	2.55	2.55	2.55	2.55	2.65	2.75	2.75	2.65	2.55	2.55	2.50	2.50
27	2.45	2.40	2.40	2.50	2.60	2.60	2.85	2.90	2.80	2.80	2.80	2.85	2.60	2.60	2.60	2.60	2.65	2.75	2.85	2.70	2.65	2.65	2.70	2.85
28	2.70	2.75	2.35	2.25	2.35	2.50	2.95	3.15	3.05	2.85	2.70	2.65	2.55	2.60	2.55	2.55	2.60	2.75	2.80	2.50	2.40	2.50	2.65	2.85
29	2.80	2.85	2.75	2.60	2.60	2.60	3.00	3.10	2.95	2.85	2.70	2.60	2.50	2.50	2.55	2.55	2.65	2.75	2.80	2.80	2.35	2.40	2.40	2.40
30	2.20	1.90	1.80	2.00	1.90	1.90	2.05	2.60	2.75	2.60	2.65	2.55	2.55	2.45	2.45	2.65	2.55	2.70	2.85	2.45	2.45	S	2.70	2.50
31																								
No.	29	29	28	29	28	29	29	30	30	30	30	29	30	30	30	30	30	29	29	29	28	27	27	29
Median	2.55	2.45	2.50	2.45	2.50	2.95	3.00	2.90	2.80	2.65	2.60	2.60	2.55	2.60	2.55	2.60	2.65	2.75	2.80	2.65	2.50	2.50	2.50	2.50

Sweep 2.0 Mc to 2.0 Mc in 20 sec

The Radio Research Laboratories, Japan.

K 7

(M3000)F2

in automatic operation.

IONOSPHERIC DATA

Lat. $35^{\circ}42.4'N$
Long. $139^{\circ}29.3'E$

Kokubunji Tokyo

135° E Mean Time (GMT.+9h.)

(M3000)F1

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1										A 3.40 ^L	2.45 ^L	3.40 ^L	3.25 ^L	3.20 ^L	3.30 ^L	L	L	A							
2										L A	L	3.30 ^L	3.15 ^L	3.30 ^L	3.30 ^L	L	L								
3								A	L 3.20 ^L	3.30 ^L	3.40 ^L	3.15 ^L	3.30 ^L	A											
4									3.40 ^L	3.55 ^L	3.80 ^L	3.40 ^L	3.40 ^L	3.30 ^L	3.40 ^L	L	L	L	A						
5								A	A L	3.25 ^L	3.05 ^L	3.15 ^L	3.00 ^L	3.15 ^L	L	L	L								
6									L	3.45 ^L	L	L	L	L	L	L	L								
7								L	A	L	L	L	L	L	L	L	L								
8									L	3.45 ^L	L	L	L	L	L	L	L								
9									L	L	L	L	L	L	L	L	L								
10										L	L	L	L	L	L	L	L								
11										L	L	L	L	L	L	L	L								
12										L	L	L	L	L	L	L	L								
13										L	L	L	L	L	L	L	L								
14										3.10 ^L	3.25 ^L	A	B	3.30 ^L	3.20 ^L	3.15 ^L	L								
15								L	L	3.25 ^L	3.20 ^L	3.25 ^L	3.15 ^L	B	L	3.30 ^L	L	L							
16									L	L	L	L	L	L	L	L	L								
17									L	L	L	L	L	L	L	L	L								
18									L	L	L	L	L	L	L	L	L								
19										L	L	L	L	L	L	L	L								
20																									
21												L	L	L	L	L	L								
22										3.55 ^L	3.10 ^L	3.20 ^L	3.25 ^L	3.10 ^L	3.35 ^L	3.05 ^L	L								
23										L	3.15 ^L	2.90 ^L	3.30 ^L	3.25 ^L	3.10 ^L										
24																									
25																									
26																									
27												L	L	L	L	L	L								
28																									
29																									
30																									
31																									
No.									1	2	5	8	9	11	11	4									
Median									3.70	3.50	3.20	3.25	3.25	3.30	3.25	3.20	3.30								

Sweep 2.0 Mc to 20.0 Mc in $\frac{\text{mean}}{2.0}$ sec in automatic operation.

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.8' E

Kokubunji Tokyo

135° E Mean Time (GMT.+ 9h.)

R'F2

Sep. 1957

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										390 ^A	335	335 ^H	335	365	380 ^H	350	325	300							
2										270	280	285 ^H	355	370	335	340	350								
3								280	270	420	360 ^B	450	395	380	380										
4									305	310	280		345	350	330 ^L		305	275	285						
5								280	345 ^A	320 ^L	510	340	430	420	390	350	330								
6									240 ^H			335	300 ^H	330	300 ^H	300	290								
7								260	305 ^A	280		310	325	345	325	310	300								
8									265			350	300	350	300	320									
9									270	260 ^H			350	320	325	340									
10													350	280 ^H											
11												320		360	365	320									
12									260 ^H	260 ^H					350										
13												350	400	395	450	400									
14										450	495	560	B		550	430	370								
15								340	370 ^L	380	380	370	395	300 ^H	385 ^L	370	330 ^L	300							
16									250				355	380	270 ^H										
17									250	250 ^H							310								
18									265									300							
19													350												
20															280 ^H										
21												280 ^H													
22									520	505 ^C	555	495	455	470	430		385								
23																									
24										300 ^H	405	425	445	445	440										
25																									
26																									
27												320	320	325	320										
28																		280							
29																									
30																									
31																									
No.																									
Median																									

Sweep 2.0 Mc to 20.0 Mc in 2.0 sec ^{max} in automatic operation.

The Radio Research Laboratories, Japan.

K 9

R'F2

Lat. 35° 42.4' N
Long. 139° 28.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (GM.T.+9h.)

Sep. 1957

R'F

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	330	350	345	285	355	350	250	255	255	295 ^A	255 ^A	270 ^A	270	275 ^A	270 ^A	300 ^A	260	290 ^A	275	310 ^A	345 ^A	400 ^A	410 ^A	385 ^A
2	325	320	320	300	300	300	270	250	255	250	250 ^A	230	250	240	255 ^B	255	255	270	295	235	250	395	375	455 ^A
3	505 ^B	410	450	455	305	310	275	270 ^A	260	260	255 ^B	255	300 ^A	265	275 ^A	255	290 ^A	270 ^A	330 ^A	300 ^A	280	310	405	410
4	400	355	350	390	340	300	270	260	250	250	250	280 ^H	260 ^H	290	260	250 ^H	275	275	285 ^A	270	280	300	330	355
5	330 ^A	455	500	460	400	405	290	235 ^A	230 ^A	270 ^A	270	265 ^B	255	280	270	270	295 ^B	280	C	C	C	350	340	330
6	330	350	360	350 ^C	380	345	255	240	240	215	270	260 ^H	250	260	270	255	255	275	265	275	250	300	360	395
7	405	350	350	330	390	370	300	A	A	A	260 ^H	260 ^H	260	255	250	265 ^B	260	280 ^A	275	280	310	350	330	330
8	345	345	305	320	320	320	270	270	250	250	285	280	275	250	250	270	275	270	270	260	250	300	340	320
9	300	300	300	270	250	300	250	250	250	240	250	250	255	270	250	265	255	270	290 ^A	265	265	300	300	300
10	320	280	260	250	350	355	260	250	255	255	270	270	255	245	255	260	300	305	280 ^A	300 ^A	300 ^A	295	270	260
11	310	310	295	305	345	320	240	245	240	230	255	250	265 ^B	280 ^B	280	260	270	270	255	280 ^A	310	305	310	280
12	300	300	300	345	350	300	250	230	250	230	220	250	280	250	270	250 ^H	260	270	280	300	310	305	295	260
13	295	305	300	300	300	300	250	255	250	250	250	230	280	250	255	270	270	290	380	340	355	350	250	250
14	360	385 ^A	460 ^A	450	350	290	270	270 ^A	270 ^A	255	255	300 ^A	B	250	245	255	260	300	300	305	300	315	310	365
15	355	345	380	340	370	395	315	255	250	250	260	245	260	255	255	270	260	280	280	330 ^A	380	350	350	360
16	330	305	300	305	330	360	280	255	250	255	250	250	230	260	250	265 ^H	260	270	255	260	340	330	325	315
17	305	310	300	305	300	300	245	245	235	230	250	250	250	260 ^H	270 ^H	260 ^H	270	280	305	300	305	320	320	330
18	325	310	350	350	370	360	265	250	250	255	250	230	250	250	230	280 ^H	260	265	300	280	300	300	300	300
19	330	330	330	325	330	325	250	250	245	250	250	245	260 ^H	270 ^H	275 ^B	260 ^H	270	290	275	300	280	270	300	320
20	310	330	325	305	295	275	250	250	245	250	250	250	250	260	250	255 ^H	260 ^H	290 ^A	270	270	290	300	305	300
21	280	270	300	300	330	310	250	250	250	250	255	250	230	255	255	260 ^H	260	290	275	270	330	305	410	490
22	300	255 ^E	400	520	595	430	360	290	260	305	280 ^B	270	270 ^B	255	260	270	270	310	300	285	405	355	345	340
23	375	500	C	C	C	C	C	C	250	250	250	250	250	250	270	255 ^H	285	280	260	250	325	320	300	270
24	420 ^A	405 ^A	420 ^A	400 ^A	370	400 ^A	300	275	260	270	270	260	250	255	295	295	280 ^A	290	295	280	305	320	350	360
25	395	350	300	295	400	370	270	255	250	250	250	250	240	250	250	255	270	265	250	255	300	300	340	350
26	365	330	290	280 ^C	300	350	265	250	250	240	250	250	240	270	255 ^H	255	255	260	250	265	290	300	300	340
27	350	350	310	305	300	270 ^C	255 ^C	250	250	255	280 ^C	230	250	255	260	250	260	270	250	255	280	280	270	270
28	275	295	340	390	360	320	250	250	240	250	230	250	250	280 ^H	255 ^H	235 ^H	270	280 ^A	255	240 ^A	310	320	310	280
29	260	270	280	280	285	325	255	250	245	245	245	245	250	250	250	250	265	295	245	245	330	355	350	335
30	410	555	565	475	550	660	300	250	255	245	250	255	250	250	250	260	250 ^H	265	275	270	350	310	295	290
31																								
No.	30	30	29	29	29	29	28	28	29	29	30	30	29	30	30	30	30	30	29	29	29	30	30	30
Median	330	325	320	345	325	265	250	250	250	250	250	250	250	255	255	260	260	280	275	275	300	310	320	330

Sweep 2.0 Mc to 2.0 Mc in 2.0 sec in automatic operation.

R'F

The Radio Research Laboratories, Japan.

K 10

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+9h.)

f_oF₂

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E	E	105	E	E	155	135	120	125	125	120	120	120	120	110	110	150	125	140	115	115	105	110	115	
2	110	110	105	105	110	110	110	110	120	110	110	110	110	110	110	110	105	130	B	E	110	110	110	110	
3	110	110	110	105	105	E	140	140	130	120	B	B	120	120	110	130	140	120	120	E	E	E	E	E	
4	E	E	E	E	140	130	120	120	B	B	B	B	B	B	155	170	160	145	130	C	C	110	110	105	
5	105	105	S	105	E	135	125	125	115	110	115	110	110	B	B	B	110	130	C	C	S	S	E	E	
6	E	E	S	C	110	105	110	130	120	B	B	B	B	B	110	B	B	130	125	120	115	B	E	E	
7	115	E	E	B	E	130	130	130	125	125	B	115	B	125	B	105	B	105	105	100	125	115	115	110	
8	110	105	105	100	E	E	B	B	B	B	B	B	105	105	B	B	105	105	115	E	E	E	E	E	
9	115	105	E	E	E	E	145	155	G	B	B	B	B	B	B	B	150	140	120	115	110	E	110	105	
10	E	E	E	E	E	E	150	140	135	130	120	115	B	B	115	B	155	140	120	120	110	110	110	120	
11	E	115	E	E	E	E	G	150	B	B	B	B	B	B	B	B	150	120	120	110	105	105	105	110	
12	E	E	E	105	105	E	140	120	120	120	120	B	B	B	B	G	B	130	E	120	115	110	110	110	
13	110	110	110	105	105	105	B	B	135	125	130	120	B	B	120	130	G	G	E	E	E	E	E	E	
14	150	125	120	120	125	130	120	120	120	120	120	115	B	B	B	B	G	B	125	120	115	110	E	110	
15	110	105	140	E	140	110	120	130	130	120	B	G	B	B	B	130	120	120	120	115	110	110	120	110	
16	110	E	E	E	E	E	190 ^B	105	130	115	110	B	B	B	B	B	G	150	E	E	E	E	E	110	
17	105	105	105	105	105	E	B	G	B	B	B	B	B	B	115	B	145	145	120	110	110	110	115	E	
18	E	E	E	E	E	E	B	B	B	130	125	B	120	120	115	110	110	110	110	110	E	E	E	105	
19	E	E	E	E	E	E	G	B	G	B	B	B	B	B	B	130	G	B	E	E	E	E	E	E	
20	E	E	E	E	E	E	B	G	G	125	B	B	B	120	B	B	105	105	105	100	105	E	E	E	
21	E	E	E	E	E	E	B	140	B	B	B	B	B	B	B	B	125	B	E	E	E	E	E	E	
22	E	E	E	130	130	E	B	145	G	C	B	B	105	105	B	150	145	130	130	E	115	110	105	E	
23	E	E	C	C	C	C	C	C	C	C	C	C	B	B	B	B	140	120	120	E	E	E	E	150	
24	135	140	125	120	120	125	120	130	140	B	B	B	B	160	G	140	130	125	120	115	110	110	E	E	
25	E	E	E	E	E	E	150	140	130	B	B	B	B	B	B	B	150	100	125	115	110	120	E	110	
26	105	E	E	C	E	E	B	B	150	B	B	B	B	B	B	B	150	130	120	110	110	110	E	E	
27	E	E	E	E	E	C	C	145	130	130	120	120	110	B	B	G	G	135	E	110	E	120	E	E	
28	105	105	100	100	110	105	E	150	145	120	130	B	110	105	120	120	120	120	115	120	110	E	105	E	
29	E	E	E	110	E	105	B	140	B	B	B	B	B	B	B	G	135	125	E	115	E	110	110	105	
30	E	E	E	E	130	130	130	125	125	120	G	110	110	B	B	155	G	130	E	E	E	E	E	E	
31																									
No.	14	12	9	13	13	12	15	21	19	16	12	9	10	10	9	13	21	26	20	21	17	16	13	14	
Median	110	110	110	105	110	120	130	130	130	120	120	115	110	120	115	130	140	130	120	115	110	110	110	110	

Sweep 2.0 Mc to 20.0 Mc in 2.0 sec ^{min} in automatic operation.

The Radio Research Laboratories, Japan.

f_oF₂

K 11

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+ 9h.)

Sep. 1957

Types of Es

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	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
2	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
3	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
4	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
5	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
6	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
7	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
8	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
9	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
10	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
11	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
12	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
13	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
14	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
15	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
16	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
17	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
18	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
19	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
20	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
21	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
22	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
23	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
24	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
25	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
26	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
27	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
28	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
29	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
30	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
31	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz	fz
No.																								
Median																								

Sweep 2.0 Mc to 20.0 Mc in 20 sec

The Radio Research Laboratories, Japan.

Types of Es

K 12

in automatic operation.

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (GMT.+9h.)

h_pF₂

Sep. 1957

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	4.50	4.40	4.50	3.70	4.60	4.95	3.45	3.30	3.25	3.60	3.90	4.00	4.05	4.05	4.50	4.20	3.95	3.60	3.45	3.30	4.20	4.60	4.80	4.30
2	4.05	4.40	4.00	3.75	4.30	4.05	3.35	3.40	3.45	3.50	3.95	4.15	4.10	4.20	4.05	4.05	4.20	3.95	3.65	3.40	4.45	5.00	4.95	5.30
3	5.30	5.05	5.55	5.45	4.25	4.20	3.55	3.40	3.35	4.90	4.60	4.65	4.50	4.45	4.10	4.20	3.90	4.00	4.00	3.55	4.20	5.00	5.65	5.50
4	5.50	5.45	5.65	5.25	5.75	4.50	3.55	3.65	4.00	3.50	3.95	4.00	3.90	4.05	4.00	3.80	4.50	3.45	3.40	3.90	4.00	4.30	4.45	4.45
5	3.95	5.45	6.10	5.70	5.45	5.20	4.50	3.65	3.95	3.90	3.55	4.00	4.70	4.55	4.50	4.25	4.00	3.50	C	C	C	4.75	4.50	4.50
6	4.50	4.60	4.70	4.70	4.95	4.00	2.85	2.75	3.65	3.55	3.80	3.80	3.90	3.85	3.95	4.20	3.70	3.45	3.55	3.60	3.80	4.25	4.80	5.30
7	5.50	4.60	4.80	5.00	5.45	4.75	3.30	2.95	3.15	3.30	3.55	3.55	3.75	3.95	3.95	3.90	3.60	3.50	3.40	3.55	3.80	4.25	4.05	4.00
8	4.20	4.30	4.05	4.00	4.25	4.00	3.20	3.10	3.15	3.55	3.90	4.00	3.60	4.00	4.00	4.00	3.60	3.55	3.45	3.20	3.90	4.20	4.50	4.20
9	3.90	3.70	4.00	3.65	3.80	4.00	3.40	3.15	3.05	3.50	3.90	3.90	4.00	4.00	4.00	4.00	3.90	3.70	3.50	3.50	4.00	4.00	4.30	3.85
10	4.05	3.80	3.75	4.90	4.65	4.55	3.10	3.20	3.40	3.50	3.60	4.00	4.00	4.00	4.00	4.00	3.90	3.60	3.50	3.65	4.10	3.80	3.50	3.95
11	4.20	4.00	4.00	4.05	4.45	4.20	2.80	2.90	3.05	3.70	4.00	4.00	4.00	4.00	4.05	3.95	3.75	3.65	3.50	4.00	4.05	4.00	4.00	3.60
12	4.30	3.90	3.90	4.00	4.20	3.95	2.80	3.05	3.30	3.50	3.95	4.00	4.00	4.45	4.00	4.00	3.85	3.85	3.55	3.80	4.00	4.00	3.80	3.60
13	4.05	4.00	4.00	4.00	4.00	3.95	3.10	3.15	3.45	3.95	4.00	4.25	4.55	4.70	5.00	4.70	4.20	4.00	4.00	4.10	R	R	F	F
14	F	F	F	6.00	F	RF	3.60	3.60	3.90	4.45	4.00	A	B	B	5.40	4.50	4.35	4.45	4.05	4.10	4.30	4.55	4.60	5.10
15	4.85	4.75	4.94	4.60	5.00	4.90	3.85	3.75	4.00	4.05	4.00	3.95	4.15	4.15	4.20	4.00	3.95	3.75	3.75	3.70	4.75	4.55	4.75	4.70
16	4.30	3.90	4.30	4.35	4.30	4.70	3.30	3.00	3.00	3.50	4.00	4.05	4.00	4.10	4.30	4.20	3.95	3.70	3.60	4.10	4.60	4.45	4.40	4.05
17	3.95	4.00	4.00	4.00	3.95	3.55	2.95	3.00	3.05	3.70	3.90	4.00	4.10	4.20	4.10	4.45	3.95	3.65	3.75	3.85	4.50	4.50	4.30	4.45
18	4.10	4.30	4.85	4.60	5.00	4.95	3.25	3.45	3.50	3.95	4.05	4.05	4.05	4.40	4.25	4.05	3.90	3.70	3.80	4.00	4.10	3.95	3.95	4.00
19	4.75	4.50	4.35	4.30	4.30	4.05	3.10	3.00	3.40	3.50	3.90	4.05	4.25	4.45	4.45	4.25	4.10	3.95	3.80	3.90	3.95	4.25	4.25	4.30
20	4.10	4.50	4.25	4.00	3.75	3.85	3.25	3.05	3.50	3.80	3.90	4.20	4.30	4.40	4.45	4.25	4.05	3.95	3.85	3.90	4.35	5	F	4.00
21	3.55	3.90	4.00	4.05	4.50	4.00	3.20	3.20	3.50	3.75	4.35	4.25	4.25	4.50	4.55	4.40	4.30	4.00	3.80	3.80	4.80	4.60	F	6.50
22	3.95	5.40	5.50	6.25	6.90	5.80	5.65	5.20	5.25	5.20	G	4.95	4.60	4.80	4.50	4.20	4.30	4.00	3.90	4.90	5.00	4.90	4.95	4.90
23	5.10	6.30	C	C	C	C	C	C	5.55	3.90	4.05	4.30	4.58	4.35	4.60	4.95	5.00	4.50	4.15	4.50	5.00	4.75	4.40	4.00
24	5.50	5.45	5.75	5.30	5.50	5.20	4.00	3.70	4.00	5.00	5.05	4.60	4.60	4.70	4.50	3.75	3.90	3.55	3.80	3.95	4.05	4.40	4.95	5.25
25	5.20	4.75	4.05	4.95	5.30	4.90	3.50	3.20	3.25	3.50	3.90	4.05	4.10	4.20	4.10	4.00	3.95	3.55	3.45	3.75	4.35	4.20	4.70	4.45
26	4.85	4.50	4.00	4.00	4.50	4.60	3.30	3.05	3.25	3.50	3.80	4.10	4.25	4.55	4.20	4.10	4.00	3.60	3.55	3.85	4.25	4.10	4.20	4.50
27	4.50	4.55	4.50	4.40	4.05	3.95	3.50	3.40	3.60	3.70	3.85	4.10	4.05	4.25	4.10	4.05	4.00	3.55	3.50	3.90	4.05	4.00	3.90	3.50
28	3.70	3.95	4.55	5.05	4.80	4.30	3.20	3.10	3.05	3.50	3.80	4.00	4.20	4.20	4.25	4.10	3.95	4.20	3.50	4.20	4.55	4.25	4.00	3.55
29	3.55	3.55	3.80	4.00	4.05	4.00	3.25	3.05	3.25	3.55	3.95	4.05	4.10	4.35	4.35	4.20	4.00	4.00	3.45	3.50	4.40	4.55	4.60	4.70
30	5.45	7.00	7.05	6.25	6.90	7.60	6.95	4.00	3.55	4.05	4.20	4.05	4.10	4.60	4.20	4.00	4.05	3.80	3.80	4.45	4.50	4.05	4.00	4.10
31																								
No.	29	29	28	29	28	28	29	29	30	30	29	29	29	29	30	30	30	30	29	29	28	27	27	29
Median	4.30	4.50	4.30	4.40	4.50	4.25	3.30	3.20	3.40	3.65	3.95	4.05	4.10	4.25	4.20	4.05	3.95	3.70	3.60	3.90	4.20	4.30	4.40	4.30

Sweep 2.0 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

h_pF₂

K 13

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (GMT.+9h.)

YPF2

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	120 ^S	110	105	130	140	155 ^C	120	120	95	120 ^A	110	145	120	120	130	130	105	110	130	95	100	125 ^S	130	110 ^A
2	110	115	110 ^F	130	145	165	100	115	85	145	115	145 ^H	115	85	105	125	125	130	125	105	150	110	145	135
3	130	140	145	155	155	175	130	125	110 ^V	100 ^K	100 ^K	85	140	105 ^K	140	145	120	120	100 ^{RS}	170	105 ^S	145	150	
4	140 ^S	150	135 ^{FS}	105 ^F	165 ^S	140	145 ^F	125	105	125	130	100	120	95	120 ^V	125	95	125	120	125	150	100 ^S	140 ^S	125
5	105	155 ^A	150 ^S	130	145 ^S	180	400	145	110 ^K	115	160 ^E	160	135	135	145	130	100	125 ^S	C	C	C	120	115	125
6	145	100	110	120 ^C	85	110	75	145	75	85 ^H	135	95	100 ^H	125	130 ^H	125 ^H	105	110 ^S	120	140	115	115	115	120
7	110	95	120	170	145	175	85	100	120 ^A	85	105 ^H	110	140	85	115	110	90	105	105	120	115	115	145	100
8	90	110	105 ^V	110	125	110	105	90	100	110 ^R	110 ^R	90	140	110	100	130	140	105	115	130	165	125	125	130
9	130	120	105	135	150	115	75	85	115	115	110 ^H	130	110	130	125	100	115	130	130	105	150	150	140	130
10	130 ^S	140	145	160 ^H	135	135	95 ^K	110	110	110	135	105	105	105	110 ^H	120	140	130	145	140	125	145	100	125
11	100	100	100	145	110 ^S	125	90	110	95	130 ^H	125	110	160 ^H	130	145	110	125	135	140 ^S	170	145	165	110	125
12	120	135	110 ^S	105	120	85	75	135	100	110 ^H	135 ^H	135 ^H	155 ^H	110 ^H	125	110 ^H	115	115	115	115	110	110	120	150
13	125	110	130	110	105	105	85	85	95	105	130 ^H	135	135	135	170	130	160	150	150	150 ^R	R	R	F	F
14	F	F	210 ^F	F	R	R	F	140 ^R	125 ^R	155 ^R	105	A	B	B	100	170	135	150	135	140 ^S	170	145	120	
15	115	130	155 ^S	110 ^R	100	150	130	115	115	115	95	115	95	115 ^H	120	100	125	100	115	135	125	135	100 ^S	105
16	125	115	110	115	120	125	75	75	100	150	100 ^H	115 ^H	125	130 ^H	125 ^H	120 ^H	105	110	150	135	120	110 ^S	120	105
17	95 ^S	105	100	100	105	120	105	80	95	130 ^H	115 ^H	120 ^H	130 ^H	125 ^H	140 ^H	120 ^H	125	105	100	125	150	150	120	130
18	115 ^S	125	125	120	110	125	105	175	125	115	150 ^H	100 ^H	120 ^H	110 ^H	125 ^H	125 ^H	130	115 ^S	130	155	160	115 ^S	80	140
19	130	110	110	130	130	115	95	95	120	100 ^H	115 ^H	150 ^H	135	150 ^H	120 ^H	125 ^H	140 ^H	125	130	110 ^S	105 ^S	140	130	120
20	135	120	115 ^S	100	100	120	75 ^K	100	120	120 ^H	115 ^H	120 ^H	130 ^H	135 ^H	140 ^H	135 ^H	140 ^H	115	115	105	105	S	F	100
21	95 ^S	135	110	150	105	105	105	105	105	200	125 ^H	125 ^H	135 ^H	140 ^H	140 ^H	135 ^H	145 ^H	130	115	100 ^S	130	100 ^F	F	170
22	130 ^R	165	160	145	120	125	190	150 ^H	180	130 ^C	130 ^C	140	100 ^{RM}	110	110	180	120	150	115	160	150	120	155	160
23	145	130	C	C	C	C	C	C	175	130	125	140 ^C	100	115 ^H	140 ^H	90 ^{RM}	200	155	140	155	165	175	145	130
24	150	145	165	160	165	130	115	190	155	250 ^H	230	255	190	180	120	175	130	170	120	135	145	170	130	125
25	125	135	145	150	130	115	150	110	95	120	115 ^H	130	130	125 ^H	130 ^H	130	105	140	120 ^S	125	140	110 ^S	130	110 ^S
26	120	140	110	140 ^C	130	140	95 ^S	95	100	140	120	140	125 ^H	120 ^H	140 ^H	120	120	145	105	165	130	140	145	90
27	90	115	135	120	135	145	115	100	90	90 ^R	100 ^C	155	145	100 ^R	130	115	105	130	120	125	120	115	100 ^S	115
28	135	105	150	130	120	115	130	90	95	105	120 ^H	110 ^H	130 ^H	110 ^H	125 ^H	140 ^H	105	135	130	130 ^S	145	130	110	105
29	105	100	120	140	105	105	100	95	100	100	105 ^H	110 ^H	120 ^H	120 ^H	125 ^H	110	125	125	110	125	125	145	135	110
30	120	155	140	140	110	115	225 ^H	240	195 ^H	195 ^H	130 ^H	135 ^H	160 ^H	170 ^H	170 ^H	120	135 ^H	125	90	160	100 ^S	100	140	140
31																								
No.	29	29	28	29	28	28	29	29	30	30	29	29	29	29	30	30	30	30	29	28	27	27	27	29
Median	120	120	120	130	120	125	105	110	100	120	115	125	130	125	125	125	125	125	125	120	140	120	125	125

Sweep 2.0 Mc to 20.0 Mc in 2.0 sec in automatic operation.

YPF2

The Radio Research Laboratories, Japan.

K 14

IONOSPHERIC DATA

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+ 9h.)

foF2

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	120 ^H	117	117	134	144	138 ^C	127	120 ^S	113 ^S	110 ^S	105 ^S	95 ^S
2	2.6 ^S	2.6 ^S	2.9 ^H	7.7 ^H	7.0	6.4	7.2	10.3	11.6	11.1	11.4	12.6 ^H	14.1 ^{SH}	15.1 ^S	15.5 ^S	15.4 ^S	15.0 ^{SH}	14.8 ^S	15.0 ^S	12.5 ^S	7.9 ^J	7.4 ^H	7.4 ^S	7.7 ^S
3	7.1 ^H	6.6	6.2	6.2	6.5	6.0 ^H	7.9	10.9	11.6	10.0 ^H	9.4 ^R	9.7	12.0	11.3	11.1 ^H	11.5 ^H	11.4 ^H	11.2	11.8 ^{SH}	11.4	8.7 ^J	9.4 ^H	9.2 ^S	9.3 ^S
4	8.9 ^S	6.8	6.9	7.0	6.7	7.5	F	10.7	12.4	13.5	12.4	12.8 ^H	14.1	14.4 ^{SH}	12.9 ^J	12.4 ^H	11.3 ^H	11.0	11.2	11.0	8.7 ^J	9.2 ^S	9.1	9.6 ^H
5	8.3 ^J	5.8 ^C	5.6 ^F	5.6 ^C	5.0	5.0 ^F	5.2	10.4 ^H	9.6	9.2	8.9 ^H	12.2 ^H	13.1	13.4	14.0	13.8 ^H	13.1 ^H	11.6	10.2	9.0	7.1 ^S	6.8	6.9	6.9 ^H
6	6.9	7.0	6.9	6.7	5.9	6.0	7.7 ^S	8.8	8.5	8.9	10.3 ^H	13.0 ^H	13.5 ^{SH}	12.8 ^H	12.6	12.1 ^H	12.1 ^H	12.0	12.0 ^C	11.6	11.5	11.5	11.5	11.5
7	8.1 ^S	8.6 ^S	8.0 ^S	6.4 ^H	6.2	6.0 ^H	6.4	8.7	9.9	9.9	12.1 ^H	13.2 ^H	13.2 ^H	14.1	14.5	14.4	14.7	14.5	13.3	12.9	11.5	11.5	11.5	11.5
8	8.6	9.1	8.4	7.5 ^S	7.2	6.5	7.4 ^S	10.1 ^S	10.5	10.5	11.1 ^H	12.5 ^H	12.9 ^H	12.6	12.6 ^H	12.4	12.4	12.5	12.3	11.4	9.6	9.3	9.8	9.7 ^S
9	10.4	9.1	8.7	7.7	6.4	5.9	7.3 ^S	10.6 ^S	10.6	10.6	10.9 ^H	12.1 ^H	12.7	13.9	14.2	14.5	14.7	14.5	14.4	13.6	11.1	10.2	11.4	9.2 ^S
10	9.2 ^S	9.0	7.7	6.4 ^H	6.0	6.1	7.5 ^S	11.3	12.9	13.1	12.8 ^H	13.5 ^H	14.9	14.6 ^{SH}	14.6	15.0	15.8 ^S	14.5	14.5	13.6	11.2	10.2	11.4	10.6 ^S
11	9.1 ^S	7.7	8.2	7.9	6.6 ^H	6.1 ^H	8.0	9.8 ^S	9.8	10.2	11.6 ^H	12.6 ^H	13.6 ^H	14.0 ^{SH}	13.9 ^H	13.8 ^H	13.6 ^H	13.5 ^H	13.1	11.4	10.1	10.2	9.7 ^{SH}	10.0 ^S
12	9.7 ^S	9.5 ^S	9.0	7.8 ^{SH}	7.3 ^{SH}	7.1	8.5	9.7 ^S	10.5	10.5	11.0 ^H	12.5 ^H	13.3	13.0 ^H	12.9 ^H	12.9 ^H	13.2	12.0	12.0	11.5	10.4	10.1	10.5	9.2 ^S
13	9.1 ^S	8.7	8.0	7.5 ^S	6.8	6.6	7.8	9.9	10.9	11.6 ^H	12.5 ^H	13.2 ^H	14.0 ^{SH}	15.2 ^{SH}	14.1 ^H	14.5	15.0	11.9 ^H	13.0 ^H	14.8 ^S	S	S	11.7 ^S	11.7 ^S
14	12.0 ^S	8.6 ^S	9.3 ^S	9.5 ^S	9.5 ^S	9.7 ^S	10.6	F	13.7 ^S	14.8 ^{SH}	14.8 ^{SH}	13.7 ^H	13.6 ^H	12.5 ^H	11.5	11.7	10.5	10.2	10.2	10.3	9.4 ^S	9.3 ^S	8.8	7.8 ^S
15	8.1	8.4	7.5 ^S	7.5 ^S	7.2	6.3	6.8	8.3 ^H	8.5 ^H	8.9	9.7 ^H	10.0 ^H	10.8	11.0	10.8	10.4	10.5	10.5	10.4	10.4	9.8 ^S	8.4 ^S	8.6 ^S	8.4 ^S
16	8.6	8.4	7.7 ^H	6.8	6.1	5.6	6.5	9.9 ^S	10.5	9.2	10.1	12.0 ^H	12.9 ^H	12.4 ^H	12.3	12.0	12.0 ^H	12.0 ^H	11.2	11.4	10.6	11.2	S	11.7 ^S
17	12.0 ^S	11.7 ^S	11.2 ^S	9.6 ^S	8.2	6.9	8.4	10.6	9.5	10.0	11.4 ^H	12.1 ^H	13.1	12.9	12.5	12.0	11.9	11.7	11.8	11.6	11.7	12.2	12.4	11.8 ^C
18	S	S	S	F	8.4	8.2	9.5	12.0	12.0	12.4 ^H	13.6 ^H	14.1 ^H	14.2 ^{SH}	14.1 ^{SH}	14.3 ^{SH}	14.1 ^{SH}	14.0 ^{SH}	13.6	C	C	C	C	C	10.4 ^C
19	9.9 ^C	C	C	C	8.2 ^C	8.4 ^C	8.7	10.2	10.9	11.8 ^H	12.4	13.3	13.8 ^{SH}	13.9 ^{SH}	14.1	14.0	13.5	13.4	13.6	12.8	11.8	11.8	12.1 ^S	11.6 ^S
20	11.6 ^S	11.0 ^S	10.5 ^S	9.7 ^S	7.9	7.3	8.1	9.2	11.1	12.1 ^H	13.0 ^H	13.5 ^H	13.9	13.6 ^H	13.5	13.8 ^{SH}	13.5 ^H	12.7	12.8	12.6	S	S	12.7 ^S	12.8 ^S
21	12.3 ^S	S	10.9 ^S	9.5 ^S	7.4 ^S	7.1 ^S	8.2	11.6	12.5	11.5	12.5 ^H	13.7 ^H	13.7 ^H	13.5 ^H	13.1 ^H	13.8 ^H	12.5 ^H	12.8 ^{SH}	13.3	12.5	12.7	S	S	S
22	S	F	F	7.1 ^S	5.6	5.6	5.5	8.4 ^H	8.9	9.4 ^{SH}	12.3 ^H	12.5 ^H	12.2	11.9	11.4	10.9	10.2	10.2	10.2	9.4	8.9 ^S	9.0	8.4	8.6
23	7.8 ^S	6.1	5.5 ^W	5.7	5.5 ^H	4.9 ^H	6.1	9.1 ^S	12.1	13.3 ^H	13.3 ^H	13.3 ^H	13.6 ^H	14.8 ^H	13.7 ^{SH}	12.4 ^H	12.5 ^H	13.2	12.5	11.4	10.4 ^S	9.7 ^S	10.0	9.3 ^S
24	7.7 ^H	7.8 ^C	7.4 ^S	6.9 ^H	6.8	6.7	7.7 ^S	12.2 ^S	14.4	14.5	15.7 ^{SH}	15.4 ^H	14.8 ^H	14.8 ^H	14.0 ^H	12.4	11.1	10.5	10.6	9.9	8.3	8.4	8.4	8.0
25	7.8 ^S	7.9	7.6	6.7	6.2	6.4	7.7 ^S	10.6 ^C	12.9 ^C	12.5	12.5 ^H	13.5 ^H	14.4 ^H	14.8 ^H	14.7 ^H	14.6 ^H	13.7	13.3 ^H	12.4	11.0	9.9 ^H	9.7	9.4 ^S	9.3 ^S
26	8.6	9.0	9.2 ^S	8.5	6.4	5.9	7.3	11.6	13.3	12.3	12.5 ^H	12.7 ^H	13.7 ^H	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	7.7	6.8	8.3	11.7	13.8 ^S	13.8 ^S	14.0	14.8 ^H	15.4 ^H	15.5 ^H	15.8 ^{SH}	16.2	15.6 ^{SH}	14.8 ^S	14.4 ^S	13.5 ^S	12.7 ^S	S	S	F.S
28	F.S	S	9.5 ^{SW}	6.9	7.0	7.0	9.0	12.5	13.2	12.8	13.2	14.7 ^H	15.3 ^{SH}	15.3 ^{SH}	15.5 ^{SH}	15.5 ^{SH}	15.0 ^{SH}	14.6 ^S	S	S	S	S	S	13.8
29	12.7 ^S	11.5 ^S	9.8 ^S	7.9 ^S	6.6	5.6 ^H	6.8	11.8 ^S	12.7	12.3	12.4	14.4 ^{SH}	14.7	14.6 ^{SH}	15.1 ^{SH}	15.0 ^{SH}	13.6	13.9	11.3	9.2	9.5	10.0	9.1 ^S	9.1 ^S
30	7.8 ^H	6.0 ^H	C	C	C	C	C	7.3	8.8	11.7	13.0	14.6 ^H	13.1 ^{SH}	13.1 ^{SH}	14.0 ^{SH}	14.2	12.5	12.1	12.3	11.6	10.6	11.0	11.0 ^S	9.5 ^S
31																								
No.	25	23	24	25	28	28	27	28	29	29	29	29	30	29	29	29	29	29	28	27	25	22	24	27
Median	8.7	8.6	8.1	7.5	6.8	6.4	7.7	10.4	11.1	11.6	12.4	13.2	13.6	13.9	13.9	13.8	13.1	12.7	12.6	11.5	10.1	9.5	9.6	9.3
U.O.	10.2	9.1	9.3	7.9	7.4	7.0	8.3	11.4	12.8	12.6	13.0	13.6	14.1	14.7	14.4	14.5	14.6	13.7	13.4	12.6	11.4	10.2	10.8	10.6
L.O.	8.0	7.0	7.4	6.7	6.2	6.0	6.8	9.4	9.7	10.0	11.0	12.5	12.9	12.7	12.6	12.2	12.0	11.6	11.0	8.8	8.8	9.0	8.8	8.6
Q.R.	2.2	2.1	1.9	1.2	1.2	1.0	1.5	2.0	3.1	2.6	2.0	1.1	1.2	2.0	1.8	2.3	2.6	2.1	1.8	1.6	2.6	1.2	2.0	2.0

foF2

Sweep 1.0 Mc to 20.0 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

Y 1

IONOSPHERIC DATA

Lat. 31° 12.6' N
 Long. 130° 37.7' E

Yamagawa

foF1

Sep. 1957

135° E Mean Time (GMT.+ 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							C	C	C	C	C	C		A	L	L	L	L							
2														L ^H	L	6.7	6.5	L	L						
3												6.3	6.6 ^L	L											
4											L	6.5	6.5			6.0									
5											A	7.0	6.5	6.5											
6										4.7				L	A	L	L	L							
7														L	A	L ^H	L	L							
8														L	L	L	L	L							
9										L		6.8		L ^H	L	6.2	6.2	L	L						
10									L					L	L	6.2	6.2	L	L						
11															L	6.3 ^L									
12																									
13																6.5	L	L							
14															6.5	L	L	L							
15														6.5 ^H	L	L ^H	L	A							
16											L				6.6										
17																									
18																									
19																									
20																									
21																									
22																									
23												1.9													
24																									
25																									
26																									
27																	C	C	C						
28																									
29																									
30																									
31																									
No.																									
Median																									

Sweep 1.0 Mc to 20.0 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

foF1

Y 2

Lat. 31° 12.6' N
Long. 130° 37.7 E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time (GMT.+9h.)

foE

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	C	C	C	4.10 ^R	4.10 ^R	4.10 ^R	4.00	3.65	3.20						
2						S	2.70	3.30	C	C	3.95 ^R	4.00 ^R	4.00 ^R	3.95	4.00 ^A	4.00 ^A	3.50	3.10	A					
3						S	2.65	3.35	C	3.60	3.85 ^B	3.95 ^S	3.90	A	A	A	3.45	A	A					
4						S	2.50	3.10	3.90	4.10	4.05	4.05	4.05	4.20 ^R	4.10	3.75	3.50	3.05	2.25 ^R					
5						S	2.60	3.10	3.70	3.75	A	A	A	A	4.10	R ^H	3.45	2.95	R					
6						S	A	3.30	3.70	C	S	S	4.00	4.15	4.15	4.00 ^R	3.60	3.25	A					
7						S	2.55	3.25	3.70	3.90 ^R	R	R	R	R	4.00	3.85	3.60	3.10	2.25					
8						S	2.80	A	A	R	R	R	4.25	4.20	4.05	3.90	3.70	3.10	2.20					
9						S	A	3.35	3.75	3.95	4.10	4.15	4.15	4.10	4.10	3.95	3.40	3.00	2.10					
10						S	2.80	3.30	C	C	C	C	A	A	A	R	3.50	2.90	S					
11						S	2.75	3.35	3.60	3.75	R	R	B	B	4.35	4.10	3.75	3.10	S					
12						S	2.65	3.35	3.65	3.95	C	C	C	A	R	4.00	3.65	3.10	A	S				
13						S	3.00	3.35	3.80	3.95	4.10	4.00	4.00	4.00	R	3.95	C	3.00	2.25 ^F	S				
14						S	2.50	3.25	3.60	3.90	4.00	4.00	4.00	4.00	3.90	3.95	R	3.60	3.35	2.00				
15						S	2.55	3.20	A	A	S	S	4.05	4.00	4.05	3.90	3.55	2.75	S					
16						S	2.55	3.20	3.60	3.85	4.00	4.05	4.05	4.15	4.10	3.80	3.50	3.00	2.10					
17						S	2.60	3.35	C	R	R	R	R	R	B	4.05	3.55	3.10	R					
18						S	2.80	3.35	C	R	R	R	R	R	B	4.05	A	A	A	C				
19						S	2.80	3.35	3.90	4.00	4.10	4.10	4.35	4.30	4.30	3.90	C	3.15	S					
20						S	2.70	3.35	3.75	4.10	4.20	4.20	4.30	A	A	A	3.55	2.95	A					
21						S	2.70	3.60	3.90	4.15	4.30	4.30	4.30	4.30	4.35	3.90	3.50	A	A					
22						S	2.45	3.10	3.65	3.75	4.05	4.05	4.20	4.20	4.20	4.00	3.50	3.00	S					
23						S	2.50	3.30	3.70	4.00	4.05	4.05	4.00	4.20	4.00	3.75	3.30	2.80	S					
24						S	2.65	3.05	3.70	3.95	4.00	4.00	4.00	4.00	4.00	3.85	3.45	2.80	A					
25						S	2.55	3.25	3.65	3.95	4.00	4.00	4.00	4.00	3.90	C	C	C	C					
26						S	2.50	3.40	3.80	4.00	4.05	3.90	3.90	A	A	A	3.50	2.80	S					
27						S	2.60	3.30	3.80	4.00	3.95	4.05	4.05	4.00	4.00	3.75	3.50	R	A					
28						S	2.65	3.15	3.55	C	4.15	4.00	4.10	4.10	3.90	3.80	3.40	2.45	A					
29						C	C	3.05	3.55	3.80	3.95	4.10	4.00	4.00	3.90	3.70	3.20	2.70	A					
30																								
31																								
No.							3	26	28	24	23	20	24	21	23	22	26	25	8					
Median							1.45	2.60	3.30	3.70	3.95	4.05	4.00	4.10	4.05	3.90	3.50	3.00	2.20					

Sweep 1.0 Mc to 2.0 Mc in / min in automatic operation.

foE

The Radio Research Laboratories, Japan.

Y 3

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time (GMT.+9h.)

foEs

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	G	G	G	G
2	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M	3.1 ^M
3	3.5 ^M	2.7 ^M	2.5	2.1 ^M	2.6 ^M	2.7 ^M	3.6	4.3	8.3	7.1	6.3	9.5 ^M	4.7	5.1	6.6	5.7	G	3.9 ^M	5.9 ^M	3.9 ^M	4.0 ^M	2.5 ^M	3.0 ^M	3.0 ^M
4	S	S	2.2 ^M	S	1.5	2.6	4.2 ^M	3.5	7.5	8.1	5.7 ^M	10.5	4.7	5.5	6.3	4.8	G	5.3	3.9	3.9 ^M	5.9 ^M	5.9 ^M	7.5 ^M	5.7 ^M
5	C	C	4.2 ^M	C	2.1 ^M	3.0 ^M	3.5 ^M	4.5	5.0	5.0	6.0	8.2 ^M	6.2	4.9	4.9	G	3.6	3.3	3.2	2.8 ^M	3.2 ^M	2.5 ^M	3.7 ^M	3.1 ^M
6	3.1 ^M	S	2.3 ^M	2.5 ^M	S	3.4 ^M	2.9 ^M	5.6 ^M	5.8 ^M	G	G	5.3	G	G	4.5	4.5	4.6	3.9	5.7 ^M	4.9 ^M	4.3 ^M	3.7 ^M	2.7 ^M	S
7	3.2 ^M	3.8 ^M	3.3 ^M	3.0 ^M	S	2.2	2.0	5.6 ^M	7.6	7.6	5.0	4.4	5.2	6.2	7.8	4.7	G	4.4	4.1	5.3	5.6 ^M	5.7 ^M	3.9 ^M	4.9 ^M
8	5.9 ^M	3.7 ^M	2.7 ^M	S	2.4 ^M	S	3.0 ^M	G	4.4	4.0	G	G	G	G	G	G	G	3.4	3.3	3.6	2.5 ^M	S	2.3 ^M	S
9	S	S	S	S	1.1	S	2.8 ^M	5.8 ^M	4.0	4.1	5.8 ^M	4.5	4.4	7.5 ^M	4.3	G	G	3.6	7.5	3.6	3.1 ^M	2.5 ^M	3.0 ^M	S
10	2.3 ^M	2.9 ^M	2.2 ^M	S	S	S	3.0 ^M	3.0	4.2	4.4	6.2	G	5.1	6.8 ^M	5.4 ^M	G	G	3.6	7.3	8.0	2.5 ^M	2.5 ^M	3.0 ^M	2.7 ^M
11	5.2	3.7 ^M	2.6 ^M	2.1 ^M	S	2.6 ^M	S	G	3.6 ^M	C	4.2	4.3	B	B	4.7	4.5	4.9	3.5	8.5	5.7 ^M	4.1 ^M	2.8 ^M	3.1 ^M	4.3 ^M
12	3.9 ^M	3.2 ^M	2.5	2.2 ^M	1.3	S	S	4.3	4.8	5.2	5.1	7.1	6.0	4.8	5.7 ^M	5.9 ^M	4.1	3.6	9.5 ^M	2.5	2.3 ^M	3.3 ^M	5.9 ^M	3.2 ^M
13	3.0 ^M	2.3 ^M	E	2.1 ^M	E	S	2.4 ^M	G	3.7	4.8	4.7	4.7	4.6	5.4	4.3	G	G	G	3.7	2.6	2.4 ^M	3.2 ^M	2.7 ^M	2.5
14	3.1 ^M	5.3 ^M	4.2 ^M	4.5	4.3 ^M	5.7 ^M	5.3 ^M	6.2	10.8 ^M	5.7	7.5 ^M	9.2	4.5	6.3 ^M	6.9 ^M	G	G	G	2.6	2.5 ^M	2.6 ^M	7.1 ^M	3.0 ^M	2.3 ^M
15	2.8 ^M	S	2.5 ^M	3.0 ^M	2.5 ^M	S	2.7 ^M	2.6	3.7 ^M	4.5	5.4 ^M	G	5.0 ^M	B	4.5	5.5	4.1	7.6	5.3	2.9 ^M	3.3 ^M	2.7 ^M	4.3 ^M	2.9 ^M
16	S	S	3.1 ^M	S	2.4 ^M	S	3.7 ^M	G	3.5	4.1	4.3	4.6	4.8	5.9 ^M	6.3	5.2	G	3.9	2.8	5.7 ^M	4.6 ^M	C	2.7 ^M	2.1 ^M
17	S	S	S	2.3 ^M	2.6	S	2.3 ^M	G	G	G	G	G	G	5.9 ^M	B	G	4.4	4.4	4.0	4.2	3.4 ^M	3.2 ^M	2.8 ^M	2.5 ^M
18	2.5 ^M	2.5 ^M	2.4 ^M	S	S	2.4 ^M	3.7 ^M	G	3.6 ^M	4.0	4.4	4.5	5.0	6.0	6.0	5.5	6.1	7.5	8.0	4.2	C	2.4	3.2 ^M	C
19	C	C	C	C	C	S	S	G	3.6 ^M	4.0	G	G	B	4.9	4.5	G	G	3.3 ^M	3.0	C	4.3 ^M	3.2 ^M	2.1 ^M	2.5 ^M
20	S	E	S	E	E	S	2.5 ^M	G	G	5.7 ^M	4.3	G	G	5.9 ^M	5.3	4.1	3.6	3.5 ^M	3.0	C	4.3 ^M	3.2 ^M	2.1 ^M	2.5 ^M
21	S	E	E	E	E	S	S	G	G	G	G	G	4.5	G	G	4.4	3.7	3.3	3.0	2.5 ^M	S	S	S	S
22	S	E	3.0 ^M	3.1 ^M	2.2 ^M	2.9 ^M	S	3.6 ^M	5.7 ^M	4.5	5.6 ^M	5.0	4.5	4.6	G	4.4	3.7	3.3	4.8	5.8 ^M	5.9 ^M	5.9 ^M	2.3 ^M	S
23	S	3.0 ^M	2.1 ^M	S	2.5 ^M	2.8 ^M	2.5	3.1	5.0	4.0	6.2 ^M	G	4.3	G	5.6 ^M	G	G	3.5	2.5	6.4 ^M	2.4 ^M	4.0 ^M	2.5 ^M	3.7 ^M
24	2.5 ^M	S	S	3.2 ^M	4.1	4.3 ^M	6.5	4.4	4.6	5.4	6.5	5.0	4.7	5.2	12.2 ^M	4.9	G	5.3	7.3 ^M	5.8 ^M	3.0 ^M	3.8 ^M	3.5 ^M	2.8 ^M
25	2.7 ^M	E	E	2.8 ^M	1.2	S	S	G	C	5.9 ^M	5.0	5.4	4.6	5.0	G	G	G	3.7 ^M	3.6	S	S	2.3 ^M	3.7 ^M	4.1 ^M
26	S	2.5 ^M	S	E	E	S	2.8 ^M	3.1 ^M	3.5	4.0	4.2	4.4	4.4	C	4.2	C	C	C	C	C	C	C	C	C
27	C	C	C	C	3.4 ^M	E	2.5 ^M	3.1 ^M	4.1 ^M	5.0	5.2	6.1	5.1	5.1	5.3	4.8	G	3.0 ^M	3.3	3.6 ^M	S	S	S	3.2 ^M
28	S	3.2 ^M	S	S	E	S	1.4	S	3.9	4.3	4.8	4.3	4.4	4.7	4.0	4.0	4.0	3.6	3.9	3.7 ^M	4.7 ^M	3.2 ^M	3.1 ^M	2.3 ^M
29	S	3.1 ^M	S	S	S	S	S	5.9 ^M	3.9 ^M	4.4	4.8	4.8	G	5.0	G	G	4.6	3.5	3.5 ^M	5.5 ^M	3.3 ^M	3.9 ^M	3.6 ^M	2.6 ^M
30	3.2 ^M	3.0 ^M	C	C	C	C	C	C	3.6	G	4.8	4.2	G	4.5	5.7 ^M	G	3.7	3.4	3.0 ^M	2.5 ^M	2.4 ^M	S	2.3 ^M	S
31																								
No.	15	19	19	18	21	12	21	28	28	28	29	29	28	27	29	29	29	29	28	25	25	23	26	21
Median	3.1 ^M	2.9 ^M	2.5 ^M	2.4 ^M	2.2	2.8 ^M	2.8 ^M	3.1	4.0	4.4	5.0	4.6	4.6	5.1	5.0	4.3	3.6	3.6	3.6	3.9 ^M	3.3 ^M	3.2 ^M	3.0 ^M	3.0 ^M
U.Q.	3.5	3.2	3.1	3.1	2.6	3.6	4.4	5.2	5.3	5.9	5.8	5.0	6.0	6.0	6.0	4.8	4.5	4.2	4.9	5.4	4.3	3.9	3.6	3.5
L.Q.	2.7	E	2.2	2.1	E	2.4	2.4	3.6	4.0	4.2	G	4.4	4.7	4.3	G	G	G	3.4	3.0	2.8	2.7	2.5	2.7	2.5
Q.R.	0.8		0.9	1.0		1.2	1.2	1.6	1.3	1.7		0.6	1.3	1.7				0.8	1.9	2.6	1.6	1.4	0.9	1.0

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

foEs

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time (GMT.+ 9h.)

fbEs

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	6.0	8.4	5.1	4.3	G	A	2.7	2.7	3.0	S	S	2.2
2	2.0	E	4.2	2.7	2.3	S	2.1	G	^u 3.8 ^c	4.4	5.5	6.7	8.3	4.5	4.4	4.1	G	G	2.4	2.5	1.8	2.1	S	S
3	1.8	1.8	1.7	1.3	1.9	1.7	^u 3.9 ^b	4.2	7.7	6.2	5.1	4.6	4.5	4.6	4.5	4.5	G	3.8	4.6	3.0	2.9	2.0	2.4	S
4	S	C	E	E	^u 1.8 ^s	S	3.1	3.5	4.9	8.0	4.5	4.3	4.4	4.5	^u 6.4 ^b	4.8	5.5	4.1	2.9	3.2	4.1	A	4.5	4.5
5	C	C	2.7	C	1.2	^u 3.9 ^c	2.3	3.3	4.9	4.9	6.0	7.5	5.0	4.3	G	G	G	3.3	2.8	2.4	2.7	S	2.1	1.8
6	1.8	E	1.3	E	E	2.1	2.0	2.9	G	G	^u 4.4 ^s	G	G	G	4.5	4.5	4.6	3.8	2.9	3.5	2.5	A	1.7	S
7	1.6	A	2.0	1.9	S	2.0	1.9	3.3	A	6.1	4.9	4.8	5.1	^u 6.3 ^b	8.4	4.5	G	^u 4.5 ^b	4.0	4.5	3.5	2.7	2.6	2.5
8	2.7	2.0	E	E	E	S	1.8	G	G	4.0	G	G	G	G	G	G	G	3.4	3.2	3.4	S	S	S	S
9	S	E	E	E	1.1	S	G	4.1	3.8	4.1	4.2	4.4	4.4	^u 4.5 ^s	4.3	G	G	A	4.6	1.9	1.7	S	1.7	S
10	S	1.7	E	E	E	E	G	G	4.0	4.3	5.4	G	4.9	5.2	4.3	G	G	3.6	3.8	S	1.7	S	2.0	S
11	2.0	1.9	1.4	1.3	E	S	S	G	G	C	4.2	4.3	B	B	4.7	4.5	4.8	3.5	^u 9.7 ^s	4.4	2.8	S	S	3.6
12	^u 3.9 ^b	2.2	1.9	1.7	^u 1.7 ^s	E	S	4.0	4.7	5.1	4.8	4.5	5.2	4.4	4.5	G	4.1	3.4	3.1	2.4	S	2.1	2.0	1.8
13	1.7	E	E	E	E	S	S	G	^u 3.9 ^b	4.6	4.7	4.6	4.6	4.5	4.9	4.1	G	G	G	G	S	2.4	1.9	2.3
14	2.2	4.9	3.5	4.2	3.5	3.2	4.3	5.5	7.8	5.5	5.3	5.1	^u 4.6 ^b	4.5	4.9	G	G	3.5	2.4	S	S	5.4	S	S
15	S	S	S	E	E	S	1.8	G	G	4.1	4.6	G	G	B	4.5	4.3	4.1	^u 8.0 ^b	4.7	2.2	2.5	2.0	A	2.1
16	S	E	1.9	E	E	S	1.8	G	^u 4.4 ^c	4.1	4.3	4.5	4.6	4.6	6.0	4.2	G	A	2.5	5.2	S	C	1.9	S
17	S	E	E	C	E	S	S	G	G	G	G	G	G	4.4	B	G	4.4	4.4	2.8	2.9	2.0	S	1.7	1.9
18	S	1.6	1.7	1.2	E	E	G	G	^u 3.8 ^c	^u 4.1 ^b	4.4	4.5	4.7	5.8	5.8	5.2	5.6	5.6	C	C	C	1.9	1.9	C
19	C	C	C	C	S	C	S	G	3.5	^u 4.1 ^b	G	G	B	4.8	^u 4.6 ^b	G	G	G	2.7	C	3.4	S	S	S
20	S	E	E	E	E	S	S	G	G	3.9	G	G	G	4.5	4.4	^u 4.3 ^b	G	G	G	1.7	S	S	S	S
21	S	E	E	E	E	S	S	G	G	G	G	G	4.5	G	G	4.2	^u 3.9 ^b	3.1	4.1	3.3	3.9	4.3	S	S
22	S	E	1.2	1.1	1.3	2.0	S	G	4.1	4.1	4.2	G	4.5	G	G	G	G	3.4	2.4	4.2	S	2.1	S	2.6
23	S	E	E	E	1.3	2.6	2.2	2.8	4.9	3.9	4.1	G	4.3	G	4.3	G	G	3.2	2.2	3.0	S	S	S	S
24	S	E	E	1.4	4.1	2.9	2.3	4.2	A	4.8	5.2	4.3	4.6	4.5	4.4	4.7	5.0	6.4	6.7	2.9	2.2	2.9	1.9	2.2
25	1.8	E	E	E	^u 1.2 ^s	S	S	G	C	4.0	4.4	4.6	4.6	4.7	G	G	G	3.2	^u 3.8 ^c	S	S	S	2.7	2.7
26	S	1.9	S	E	E	S	S	G	^u 3.8 ^c	4.0	4.2	4.3	4.3	C	^u 4.2 ^b	C	C	C	C	C	C	C	C	C
27	C	C	C	C	E	E	S	G	^u 3.8 ^c	4.6	5.0	4.8	4.6	4.6	4.4	4.6	G	G	2.9	2.4	S	S	S	1.8
28	S	E	E	E	E	S	S	G	3.5	4.2	4.3	4.3	^u 4.5 ^b	4.5	4.5	4.0	3.9	^u 3.8 ^c	^u 4.1 ^b	2.5	S	2.0	2.0	S
29	S	E	E	E	E	S	S	G	3.4	4.1	4.6	4.6	G	4.9	G	G	4.6	4.6	3.4	1.9	2.5	2.1	2.6	2.4
30	2.0	1.5	C	C	C	C	C	C	3.4	G	^u 4.1 ^b	^u 4.4 ^s	G	4.4	G	G	^u 3.8 ^c	^u 3.8 ^c	2.3	S	S	S	S	S
31																								
No.	11	24	23	24	26	13	15	28	28	28	29	29	28	27	29	29	29	29	28	22	16	15	18	14
Median	2.0	E	E	E	E	2.0	2.0	G	3.8	4.1	4.4	4.4	4.5	4.5	4.4	4.1	G	3.5	2.9	2.9	2.6	2.4	2.0	2.2

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

fbEs

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Yamagawa
 Lat. 31° 12.6' N
 Long. 130° 31.7' E

135° E Mean Time (GMT.+9h.)

f - min

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	C	C	C	2.65	2.60	2.40	2.00	1.80	1.60	1.70 ^S	E	1.70 ^S	E	1.70 ^S	E	1.70 ^S
2	E	1.35	1.05	1.05	1.00	E	1.40 ^S	E	1.70 ^S	1.60	1.90	1.80	2.20	2.20	2.50	2.20	1.75	E	E	1.70 ^S	E	E	E	1.70 ^S	E
3	E	1.05	1.00	1.00	1.00	1.05	E	1.70 ^S	1.65	1.90	E	4.60 ^B	2.70	2.40	2.20	1.85	1.60	2.20	E	E	E	E	E	1.70 ^S	E
4	E	1.70 ^S	E	1.70 ^S	1.05	1.10	E	1.60	1.95	3.30	2.20	2.55	2.20	2.20	2.20	2.20	1.65	E	1.70 ^S	E	E	E	E	E	E
5	E	1.40	1.05	1.00	1.00	1.00	E	1.45	1.55	3.10	2.40	2.25	2.25	2.40	2.05	2.05	1.70	E	E	E	E	E	E	E	E
6	E	1.25	1.05	1.00	1.00	1.15	1.00	E	1.80 ^S	2.20	3.40	2.80	3.05	2.60	2.70	2.65	1.80	1.65	1.55	E	E	E	E	E	E
7	E	1.55	1.35	1.05	1.05	1.35	E	1.75 ^S	2.05	2.20	3.10	3.20	3.25	2.60	2.75	2.70	1.65	1.65	1.70	E	1.70 ^S	E	E	E	E
8	E	1.65	1.25	1.30	1.30	1.40	E	1.70 ^S	1.65	1.80	2.70	2.70	2.55	1.30	2.20	1.90	1.90	1.70	E	1.70 ^S	E	1.70 ^S	E	E	E
9	E	1.65	1.15	1.10	1.00	E	1.35	E	1.60 ^S	1.90	2.00	2.65	2.70	2.20	2.00	1.90	1.60	E	1.70 ^S	E	E	E	E	E	E
10	E	1.75	1.00	1.10	1.00	1.05	1.00	E	1.75 ^S	1.75	1.80	2.20	2.20	2.60	2.60	1.95	1.70	1.10	1.70	E	1.70 ^S	E	E	E	E
11	E	1.00	E	1.00	1.00	1.00	E	1.70 ^S	1.55	1.70 ^C	2.30	2.40	5.10	4.80	4.10	3.20	2.00	1.70	E	1.70 ^S	E	1.70 ^S	E	E	E
12	E	E	E	1.00	1.05	1.15	E	1.70 ^S	1.65	1.95	2.05	2.20	2.50	2.60	2.70	2.20	1.65	E	1.10	E	1.70 ^S	E	E	E	E
13	E	E	1.05	1.05	1.05	1.55	E	1.70 ^S	1.55	1.80	2.20	2.20	3.15	2.20	2.00	1.95	1.75	E	E	1.65	E	1.70 ^S	E	E	E
14	E	1.65	1.00	1.05	1.05	1.15	E	1.65	1.70	1.70	1.80	2.00	4.20	2.55	1.95	2.20	1.70	2.20	1.15	E	1.70 ^S	E	1.70 ^S	E	E
15	E	1.75	1.75	1.05	1.10	1.05	E	1.40	1.65	2.00	1.95	2.20	3.40	5.00	3.00	1.90	1.75	E	E	1.65	E	E	E	E	E
16	E	1.05	1.00	1.05	1.05	1.05	E	1.70 ^S	1.65	2.20	1.80	1.90	1.95	2.40	2.30	1.75	E	E	1.70 ^S	E	1.70 ^S	E	1.70 ^S	E	E
17	E	1.70	1.10	1.05	1.70 ^C	1.05	E	1.15	1.60	1.95	1.90	2.20	2.00	2.70	4.50	2.70	1.90	1.65	E	1.05	E	E	E	E	E
18	E	1.70	1.05	1.05	E	1.70 ^S	E	1.70 ^S	2.00	2.45	2.20	1.90	2.40	2.20	1.70	1.95	2.20	E	C	C	E	E	E	E	E
19	C	C	C	C	C	C	C	1.80	1.70	1.70	2.20	2.20	4.80	2.70	3.20	2.30	1.90	2.05	1.70	3.80	E	1.70 ^S	E	1.70 ^S	E
20	E	1.80	1.00	1.25	1.05	1.05	E	1.35	1.70 ^S	1.90	2.00	2.20	2.70	4.10	2.20	2.65	1.60	1.65	E	1.70 ^S	E	1.70 ^S	E	1.70 ^S	E
21	E	1.20	E	E	1.05	1.00	E	1.75	1.75	2.00	2.40	2.20	2.40	2.30	2.80	2.20	1.90	1.65	E	E	1.70 ^S	E	1.70 ^S	E	E
22	E	1.70	1.00	E	E	E	E	1.20	1.70 ^S	2.20	2.20	2.80	2.30	2.40	2.20	2.20	1.95	1.90	1.65	1.70	E	E	E	E	
23	E	1.70	1.05	1.05	1.10	E	1.40	1.70 ^S	1.55	1.90	1.85	2.20	2.40	2.20	1.55	1.50	1.60	E	1.70 ^S	E	E	E	E	E	E
24	E	1.20	1.00	1.00	1.00	1.00	E	1.00	1.60	1.85	1.70	2.20	2.50	2.20	2.40	1.90	1.30	1.65	E	1.70 ^S	E	E	E	E	E
25	E	1.00	E	1.05	1.05	1.05	E	1.25	1.80	1.60	2.20	3.05	2.20	2.30	1.90	1.70	1.65	1.10	1.70	1.75	E	1.70 ^S	E	1.70 ^S	E
26	E	1.70	1.30	1.25	1.00	1.05	E	1.70	1.60	1.55	2.20	1.60	1.60	2.40	2.20	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	1.60	1.75	2.45	2.70	2.70	2.65	2.70	2.45	1.30	1.10	1.70	1.70	1.75	E	E	E	E
28	E	1.10	1.05	1.00	1.00	1.05	E	1.15	1.65	1.90	2.20	2.55	2.20	2.60	2.20	1.90	1.65	1.65	E	1.70 ^S	E	E	E	E	E
29	E	1.25	1.05	E	1.30	1.35	E	1.65	1.60	1.70	2.20	2.60	1.65	2.20	1.90	1.55	E	1.15	E	1.70	E	1.70 ^S	E	E	E
30	E	1.35	C	C	C	C	C	C	1.60	1.65	1.85	1.85	2.70	2.00	1.85	1.60	1.30	1.10	1.70	1.75	E	1.75	E	E	E
31																									
No.	27	22	23	25	26	27	28	20	24	29	28	28	26	27	25	28	29	25	1.8	28	28	29	29	29	28
Median	E	1.05	1.05	1.00	1.05	1.135	1.70	1.60	1.70	1.90	2.20	2.30	2.40	2.30	2.20	2.00	1.70	1.10	E	1.70	1.65	E	E	E	E

Sweep 1.0 Mc to 20.0 Mc in 1 min in automatic operation.

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+ 9h.)

Sep. 1957

(M3000)F2

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	2.70 ^N	2.65	2.60	2.70	2.90	2.90 ^C	3.00	2.85 ^S	2.60 ^S	2.65	2.75	2.65 ^S
2	2.70 ^S	2.95 ^S	2.90 ^S	2.90 ^N	2.75	2.80	2.90 ^S	3.20	3.30	3.00	2.80	2.70 ^C	2.70 ^N	2.70 ^N	2.75	2.75	2.85 ^S	3.00 ^S	2.80 ^S	2.85 ^S	2.55	2.45 ^S	2.50	2.35 ^S
3	2.40 ^N	2.45	2.38 ^S	2.30	2.55	2.55 ^N	2.45	3.20	3.25	2.50 ^N	2.95 ^N	2.55	2.70	2.75	2.70 ^N	2.70 ^N	2.70 ^N	2.75	2.80 ^S	3.05	2.35 ^S	2.35 ^S	2.30 ^S	2.35 ^S
4	2.45 ^S	2.25	2.35	2.50	2.55	2.55	F	3.00	3.10	2.95	2.90	2.70 ^N	2.90	2.80 ^N	2.90 ^N	2.95	2.85 ^S	2.85 ^S	3.10	2.95	2.65	2.65	2.65	2.70 ^S
5	2.55 ^C	2.35	2.10 ^F	2.20 ^F	2.45	2.25 ^F	2.20	3.15	3.15	2.75 ^N	2.30	2.50	2.55	2.55	2.60	2.60 ^N	2.80 ^N	2.85	2.80	2.80	2.70 ^S	2.60	2.60	2.65 ^S
6	2.60	2.60	2.60	2.70	2.65	2.80	3.35	3.50	3.30	3.15	2.85 ^N	2.90 ^N	2.95 ^N	2.85 ^N	2.85 ^N	2.80 ^N	2.85 ^N	2.85 ^N	3.20	3.20	2.90 ^S	2.40	2.40	2.45
7	2.35 ^S	2.60	2.75	2.40 ^N	2.45	2.40 ^N	2.60	3.25	3.10	2.90	2.95 ^N	2.90 ^N	2.90 ^N	2.90 ^N	2.80	2.80	2.85 ^S	2.85 ^S	3.05	2.95	2.80 ^S	2.65	2.65	2.65 ^S
8	2.75	2.65	2.75	2.95	2.80	2.80	2.90	3.25	3.35	3.15	2.90	2.80	2.80	2.80	2.80	2.85	2.85	2.95	3.05	2.95	2.85 ^S	2.60 ^S	2.55	2.60 ^S
9	2.90	3.00	3.00	3.00	2.85	2.85	2.95	3.30	3.40	3.10	3.00 ^N	2.80 ^N	2.75	2.75	2.75	2.75	2.80 ^N	2.80 ^N	2.95	2.95	2.90	2.65	2.70	2.65
10	2.65	2.90	3.00	2.70 ^N	2.65	2.55	2.85	3.25	3.20	3.00	2.85 ^N	2.75 ^N	2.75 ^N	2.75 ^N	2.70	2.70	2.80 ^N	2.85 ^N	2.85 ^N	2.85	2.85	2.70 ^S	2.90	2.80 ^S
11	2.70	2.75	2.70	2.45	2.80 ^N	2.75 ^N	3.05	3.40	3.25	2.90 ^C	2.85 ^N	2.75 ^N	2.75 ^N	2.70 ^N	2.70 ^N	2.70	2.75 ^N	2.85 ^N	3.05	2.95 ^S	2.70 ^S	2.60 ^S	2.60 ^S	2.65 ^S
12	2.85 ^S	2.85	3.00	2.95	2.80 ^N	2.85	3.15	3.30	3.15	3.15	2.75 ^N	2.80 ^N	2.70 ^N	2.70 ^N	2.70 ^N	2.65 ^N	2.70 ^N	2.85 ^N	2.95	2.90	2.80 ^S	2.75	2.85	2.70 ^S
13	2.80 ^C	2.90	2.90	2.80	2.80	2.85	3.00	3.35	3.20	3.05	2.80 ^N	2.70 ^N	2.60 ^N	2.50 ^N	2.45 ^N	2.50	2.60	2.45 ^N	2.80 ^S	2.85	S	S	2.35 ^S	2.50 ^S
14	2.50 ^S	2.35 ^S	2.35 ^S	2.55 ^S	2.65 ^S	2.75 ^S	3.05	F	2.90 ^S	2.85 ^N	2.80 ^N	2.70 ^N	2.55 ^N	2.50 ^N	2.45 ^N	2.40 ^N	2.65	2.80	2.85	2.75	2.65	2.60	2.60	2.35 ^S
15	2.40	2.55	2.55 ^S	2.65 ^S	2.65 ^S	2.55	2.65	3.20	3.15	2.75 ^N	2.70 ^N	2.75 ^N	2.70 ^N	2.70 ^N	2.70	2.70	2.75	2.85	2.90	2.85	2.45 ^S	2.40 ^S	2.50	2.50
16	2.75	2.70	2.70	2.80	2.70	2.40	2.75	3.35	3.40	3.20	2.80	2.75 ^N	2.75 ^N	2.75 ^N	2.60 ^N	2.60	2.60 ^N	2.75 ^N	2.85 ^N	2.95	2.60 ^S	C	S	2.60 ^S
17	2.60 ^S	2.75	2.85 ^S	2.80 ^S	2.80	2.80	2.90	3.10	3.30	2.90	2.75 ^N	2.55 ^N	2.65 ^N	2.65 ^N	2.60 ^N	2.60 ^N	2.65	2.65	2.70	2.80	2.50	2.55	C	2.60 ^S
18	S	S	C	C	2.30	2.45	2.80	3.00	3.00	2.80 ^N	2.70 ^N	2.70 ^N	2.60 ^N	2.60 ^N	2.60 ^N	2.50 ^N	2.60 ^N	2.65	2.75	2.90	3.25	2.65	C	2.80 ^S
19	2.50 ^C	2.80	2.95	3.00	2.90	2.90	3.10	3.40	3.20	3.10 ^N	2.90 ^N	2.80 ^N	2.75 ^N	2.65 ^N	2.65 ^N	2.65 ^N	2.75 ^N	2.75 ^N	2.90	3.00	3.25	2.65	C	2.80 ^S
20	2.85 ^S	2.80	2.95	3.00	2.95	2.95	3.20	3.20	3.15	3.00 ^N	2.85 ^N	2.80 ^N	2.70 ^N	2.70 ^N	2.65 ^N	2.60 ^N	2.70 ^N	2.75 ^N	2.90	2.90	S	S	2.85 ^S	2.80 ^S
21	3.05 ^S	S	2.45 ^S	3.05 ^S	2.75	2.90	2.95	3.30	3.30	2.95	2.80 ^N	2.75 ^N	2.75 ^N	2.65 ^N	2.65 ^N	2.60 ^N	2.65 ^N	2.70 ^N	2.85	2.80	2.90	S	S	S
22	S	F	F	2.40 ^S	2.05	2.15	2.15	2.75 ^N	2.90	2.60 ^N	2.70 ^N	2.75 ^N	2.60 ^N	2.55 ^N	2.60 ^N	2.60 ^N	2.65 ^N	2.70 ^N	2.75	2.80	2.80	2.55	2.65	2.60
23	2.50 ^S	2.25	2.10 ^N	2.35	2.50 ^N	2.70	2.80	2.85	3.15	2.80	2.80	2.75	2.65 ^N	2.65 ^N	2.60 ^N	2.45 ^N	2.50 ^N	2.65 ^N	2.75	2.75	2.65	2.55	2.65	2.60
24	2.40 ^N	2.55 ^C	2.60	2.35 ^N	2.50	2.50	2.55	3.15	3.05	3.05	2.90 ^N	2.80 ^N	2.80 ^N	2.70 ^N	2.60 ^N	2.45 ^N	2.50 ^N	2.65	2.75	2.65	2.40	2.55	2.80	2.85
25	2.50 ^S	2.80	2.90	2.70	2.70	2.65	2.85	3.20	3.25	3.10	2.90	2.75 ^N	2.85 ^N	2.75 ^N	2.75 ^N	2.80 ^N	2.80 ^N	3.00 ^N	3.00	3.00	2.75	2.65	2.65	2.55
26	2.65	2.75	2.30 ^S	3.05	2.90	2.75	3.00	3.40	3.40	3.15	3.05 ^N	2.80 ^N	2.80 ^N	2.75 ^N	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	3.00	2.80	2.85	3.10	3.15	3.05	2.95	2.95 ^N	2.80 ^N	2.75 ^N	2.75 ^N	2.80 ^N	2.85 ^N	2.85 ^N	2.95	3.05	2.75	S	S	FS
28	FS	S	2.60 ^N	2.55	2.65	2.80	2.80	3.40	3.35	3.05	2.90	2.80 ^N	2.80 ^N	2.80 ^N	2.75 ^N	2.70 ^N	2.75 ^N	2.80 ^N	2.85	2.85	S	S	S	3.10
29	3.00 ^S	3.00	3.00 ^S	3.00 ^S	3.00	2.90 ^N	2.70	3.35	3.25	3.20	2.80 ^N	2.85 ^N	2.75 ^N	2.75 ^N	2.75 ^N	2.70 ^N	2.75 ^N	2.80 ^N	2.85	2.85	2.40	2.55	2.75	2.75
30	2.50 ^N	2.10 ^N	C	C	C	C	C	2.75	3.10	2.85 ^N	2.85 ^N	2.75 ^N	2.75 ^N	2.65 ^N	2.75 ^N	2.80 ^N	2.80 ^N	2.75	2.85	2.85	2.65	2.85	3.05	2.75
31																								
No.	25	23	24	25	28	28	27	28	29	29	29	29	30	29	29	29	29	29	28	27	25	22	24	27
Median	2.60	2.70	2.75	2.70	2.70	2.75	2.90	3.20	3.20	3.00	2.85	2.75	2.75	2.70	2.70	2.70	2.75	2.80	2.90	2.90	2.70	2.60	2.65	2.65

The Radio Research Laboratories, Japan.

Y 7

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

(M3000)F2

IONOSPHERIC DATA

Lat. 31° 12.5' N
 Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+9h.)

(M3000) F1

Sep. 1957

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							C	C	C	C	C	C	A	L	L	L	L	L						
3												3.45	3.15 ^L	L ^H	3.20	3.25								
4											L		3.25	L		3.50								
5												A	3.30	3.15	3.15									
6										4.10				L	L									
7													A	A	L	L	L							
8													L	L	L ^H	L	L							
9													3.50	L ^H	L	3.55	L							
10														L	L	3.40	L							
11															L	3.40 ^L								
12																								
13																3.05	L							
14															3.25	L	L							
15													3.40 ^H	L	L	L	L	A						
16												L		A										
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																C	C	C						
27																								
28																								
29																								
30																								
31																								
No.													1	4	2	3	4	2						
Median												3.45	3.30	3.30	3.20	3.30	3.50							

The Radio Research Laboratories, Japan.

Y 8

Sweep 1.0 Mc to 2.0 Mc in 1 min in automatic operation.

(M3000) F1

IONOSPHERIC DATA

Lat. 31° 12.5' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+9h.)

R'F2

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	C	C	C	355	370	355	320	275							
2												400	370	340	345	350		270						
3											250	325	325	350		300								
4								270				370	375	385	355									
5										230					300									
6														330	355	325	300							
7														305	325	300	L							
8										245			350	340	340	305	290							
9									L					345	325	325	265							
10															340									
11																								
12																								
13																								
14															390	L	350							
15												L ^H	350	350	350	350	325	340						
16														355										
17																								
18																								
19																								
20																								
21																								
22								350																
23																								
24																								
25																								
26																C	C	C						
27																								
28																								
29																								
30								C	C	245														
31																								
No.							1	1	1	2	1	2	4	7	10	9	8	5						
Median							350	270	245	240	250	385	360	350	350	345	375	290						

Sweep 1.0 Mc to 2.0 Mc in 1 min sec in automatic operation.

R'F2

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+9h.)

Sep. 1957

f'F

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	C	C	C	26 ^{AM}	24 ^{AM}	26 ^{AM}	23 ^{AM}	24 ^{AM}	25 ^{AM}	25 ^{AM}	24 ^{AM}	24 ^{AM}	25 ^{AM}	26 ^{AM}	27 ^{AM}	30 ^{AM}
2	300 ^H	270 ^H	280 ^H	280 ^H	250	240	270	245	240	240	250	245	220 ^{AM}	220 ^{AM}	240	240	245 ^H	240	270	220	270	245 ^H	245	300	345
3	350 ^H	330	370 ^H	380	290	280	260	250	250	250	250	230	235	240	265 ^{AM}	250 ^H	245 ^H	250	300 ^H	250	275	245	370	360	360
4	330 ^C	280 ^C	255	300 ^C	265	300 ^C	280 ^H	250	240	290	230	205 ^H	205	250 ^H	260 ^{AM}	250	250 ^H	260	250	250	285	300 ^{AM}	350	320	320
5	355 ^C	395	480	410 ^C	290	435	310 ^H	265	270	270	255	255	250	245	245	250 ^H	245 ^H	250	245	250	250	290	300	290	290
6	395	395	375	295	295	295	230	215	200	200	210 ^H	210 ^H	210 ^H	245 ^H	240	245 ^H	255 ^H	255	270	250	240	305 ^H	335 ^H	340	340
7	355	305 ^A	275	255 ^H	330	330 ^M	290	240	225 ^{AM}	A	240 ^H	240 ^H	240 ^H	250 ^H	250 ^H	250	250	250	250	250	250	275	290	300	300
8	280	290	250	250	250	250	270	245	230	225	235	230	220	210	205	205 ^H	245	250	255	250	225	255	300	295	295
9	270	250	250	240 ^H	210	255	275	240	230	225	220 ^H	210 ^H	220	220 ^H	225 ^H	230 ^H	240	250 ^A	260	240	230	245	255	290	290
10	275	250	230	200 ^H	300	310	280	240	235	220	250	220 ^H	240	245 ^H	220	240	240	250	265	240	230	240	230	225	225
11	275	290	270	250	240	275 ^H	245	220	225	200	200 ^H	200 ^H	245 ^H	245 ^H	240 ^H	240 ^H	245 ^H	250 ^H	305 ^A	245	250	250	280	295	295
12	290	275	250	250	250	250	255	210	230	235	225	200 ^H	250 ^H	240 ^H	240 ^H	240 ^H	245 ^H	250 ^H	255	250	245	270	270	250	250
13	265	250	250	245	250	255	250	240	240	230	240 ^H	240 ^H	215 ^H	215 ^H	230 ^H	240 ^H	245	250	310	265	375	280	200	240	240
14	300	350	370	320	305	255	270	260	290	245 ^H	250 ^H	225 ^{AM}	225 ^{AM}	230 ^H	250	240	250	270	260	250	250	230	285	300	300
15	350	300	300	300	295	280	295	255	240 ^H	220	230 ^H	220	200 ^H	200 ^H	250	230	210	250	270 ^A	260	245	250	300	315	315
16	295	250	270	250	260	330	290	240	225	235	220	205	225	240 ^H	240 ^A	250 ^H	250 ^H	260 ^H	260	290	270	285	290	290	290
17	290	270	255	250	250	250	280	240	220	225	205 ^H	210 ^H	220 ^H	240 ^H	250 ^H	250 ^H	250 ^H	280 ^H	280 ^H	290	270	285	290	290	290
18	290	270	325	290	300	305	290	240	230	240 ^H	245	240 ^H	240 ^H	240 ^H	255 ^H	270 ^{AM}	280 ^H	290 ^{AM}	C	C	C	265	270	290	290
19	290 ^C	C	C	C	290	270 ^C	250	205	215	205 ^H	200 ^H	210 ^H	210 ^H	220 ^H	220 ^H	220 ^H	230 ^H	235 ^H	245 ^H	250	240	285	250	250	250
20	250	260	250	225	210	240	240	205	210	205 ^H	210 ^H	215 ^H	215 ^H	225 ^H	205 ^H	220 ^H	240 ^H	245	250	250	250	245	250	250	250
21	240	240	240	235	245	250	225	225	220	215	200	230 ^H	205 ^H	220 ^H	225 ^H	220 ^H	240 ^H	250 ^H	250 ^H	260	270	275	275	290	290
22	280	200	280	300	390	415	S	250 ^H	270	230 ^H	225 ^H	225 ^H	225 ^H	220 ^H	220 ^H	230 ^H	240 ^H	240 ^H	250	260	270	275	275	290	290
23	270	395	450	300	245	240 ^H	290	245	240	220	205	200 ^H	210	220 ^H	230	225 ^H	245 ^H	245	250	250	245	270	265	250	250
24	230 ^H	365	260	255	365	350	300	245	225 ^A	220	230 ^H	215 ^H	205 ^H	210 ^H	220 ^H	230 ^H	230 ^H	275	280	285	240	285	280	255	295
25	310	255	215	230	265	290	280	225	215 ^C	200	200	200 ^H	205 ^H	225 ^H	210 ^H	225 ^H	230 ^H	240 ^H	240	225	240	240	280	280	280
26	250	260	220	245	215	250	270	225	220	210	205	195 ^H	195 ^H	200	205 ^H	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	240	205	270	225	225	220	225	220 ^H	220 ^H	215 ^H	230 ^H	240 ^H	240 ^H	240 ^H	240	245	230	225	245	240	230
28	240 ^F	220	250	290	300	270	260	220	210	210	205 ^H	200 ^H	190 ^H	180 ^H	230 ^H	230 ^H	230 ^H	240 ^H	245	230	230	270	250	240	240
29	225	220	220	200	220	240 ^H	290	225	215	215	220 ^H	210 ^H	205 ^H	230 ^H	220 ^H	235 ^H	245 ^H	250 ^H	240	240	210	230 ^H	320	300	270
30	320 ^H	430 ^H	C	C	C	C	C	C	220	205 ^H	210 ^H	220 ^H	220 ^H	205 ^H	220 ^H	220 ^H	235	225	250	250	270	275	250	240	240
31																									
No.	28	27	26	26	28	28	27	28	29	28	29	29	30	30	30	29	29	29	27	28	28	29	29	29	29
Median	290	270	260	250	260	270	270	240	225	220	225	215	220	230	230	240	245	250	255	250	250	275	280	280	290

Sweep i.o. Mc to 2.0.0 Mc in — min — sec in automatic operation.

f'F

IONOSPHERIC DATA

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+9h.)

f_oF₂

Sep. 1957

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	100	100	100	100	100	100	100	100	105	120	110	110	105	100	100	100	100	100	100	100	105	100	100	100
3	100	100	100	105	100	100	125	125	110	110	110	110	110	105	100	100	100	100	100	100	100	100	100	105
4	S	S	100	S	125	105	105	105	100	110	125	100	100	135	125	130	135	140	125	115	105	100	100	100
5	C	C	100	C	100	120	110	110	105	110	105	100	100	105	125	125	145	100	100	100	100	100	100	100
6	100	S	100	105	S	100	100	100	130	100	145	145	140	150	150	140	125	105	105	105	100	100	100	S
7	105	100	100	105	S	125	135	105	120	120	120	125	120	110	115	140	140	120	110	100	100	100	100	100
8	100	100	100	S	100	S	100	100	100	100	100	100	100	100	100	100	100	150	120	105	100	S	100	S
9	S	S	S	100	130	S	100	100	125	130	120	130	130	115	130	130	130	150	120	100	105	100	100	S
10	100	100	100	S	S	100	130	125	125	120	110	100	100	100	100	100	145	120	100	S	105	100	100	100
11	100	100	100	100	S	100	S	100	100	C	120	120	B	B	150	145	130	120	105	100	100	100	100	100
12	100	100	100	100	105	S	S	110	110	110	105	105	100	110	105	125	140	100	100	120	100	105	105	100
13	100	100	E	100	E	S	105	105	140	120	120	120	130	100	130	130	130	100	100	100	100	100	100	140
14	135	125	120	115	115	135	110	110	105	105	105	110	120	110	105	105	105	140	120	100	100	100	100	100
15	100	S	100	100	100	S	100	125	105	110	105	100	110	B	130	100	120	105	110	105	100	100	100	100
16	S	S	100	S	105	S	105	105	150	125	120	120	115	100	125	100	100	140	150	120	110	C	105	110
17	S	S	S	100	100	S	115	105	100	100	100	100	100	100	105	100	150	130	120	110	105	100	100	100
18	100	100	100	100	S	S	100	100	135	150	130	130	120	105	115	115	110	110	110	C	C	105	105	C
19	C	C	C	C	S	C	S	130	130	E ₁₄₀₀	100	100	B	110	120	100	100	100	120	C	C	100	95	100
20	S	E	S	E	E	S	110	100	100	120	140	100	100	100	100	100	100	100	100	100	100	100	S	S
21	S	E	E	E	E	S	S	100	100	100	100	100	E ₁₅₀₀	100	100	100	120	100	100	100	100	100	100	S
22	S	E	100	100	120	S	S	100	100	120	120	110	110	100	100	100	100	125	115	100	100	100	100	100
23	S	120	110	S	125	110	110	110	105	115	100	100	120	100	100	100	100	120	110	100	100	S	100	100
24	100	S	S	100	115	110	115	110	110	110	105	105	100	115	100	120	115	105	100	100	100	100	100	100
25	95	E	E	100	145	S	S	100	C	120	115	100	110	105	100	100	100	100	105	S	S	100	100	100
26	S	100	S	E	E	S	100	100	120	120	120	110	110	C	110	C	C	C	C	C	C	C	C	C
27	C	C	C	C	100	E	100	100	110	105	105	100	110	105	105	100	100	95	120	100	S	S	S	100
28	S	95	S	S	E	S	130	120	125	120	115	120	120	105	120	120	110	140	100	100	100	100	100	100
29	S	100	S	S	S	S	S	100	100	120	110	110	100	100	100	100	120	100	100	95	100	100	100	100
30	100	100	C	C	C	C	C	C	130	100	135	E ₁₄₀₀	100	100	100	100	140	125	95	95	100	S	100	S
31																								
No.	15	14	16	15	16	11	21	18	25	23	24	20	21	23	24	18	14	28	28	25	25	24	26	21
Median	100	100	100	100	105	110	105	110	110	110	115	110	110	105	115	120	120	120	120	110	100	100	100	100

Sweep 1.0 Mc to 2.0 Mc in $\frac{\text{min}}{\text{sec}}$ in automatic operation.

f_oF₂

The Radio Research Laboratories, Japan.

Y 11

IONOSPHERIC DATA

Lat. 31° 12.6' N
Long. 130° 37.7' E

Yamagawa

135° E Mean Time (GMT.+9h.)

Types of Es

Sep. 1957

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	f4		f4	f4f	f6	f	h4		hR	h	C4	C2h3	C3	C2	h2	h	h2	h2	C4	f6	f5	f	f2	f4	
3	f4	f2	f2	f	f	f	C5L	h3h	C5	C3	C	C	C	h2	h4	h2	h2	h3h	h2	h4	h4	h	f5f3	f4	
4			f		f3	f2	C6	C3	C3	C3	hR	C	C	h	h2	h2	h2	C3	h2	h7	h5	h4	f3	f6	
5	f		f5		f6f2	f7	C4L	C3	C3	C	C3	h3	h2	h	h	h	h	h2	h2	h3f	h3	f2	f		
6	f2f3	f3	f2	f	f6	f6	h2	h3	h	C3	h	h	h	C2	h	h	h	h2	h4	h4	h3	h3	h		
7	f2	f	f		f	f4	h	hC3	h2	h2			h	C2	C2	h	h	h	C4	h4	h7	h6	h4	f2	
8							h	h4	h2	h	hR	h	h	hR	h	h	h	h	C4	h4	h7	h	h2		
9							hR	hR	h2	C	C3	h	h2	h2	h	h	h	h	C4	h5	h4	h2	h2		
10	f	f2	f				hR	hR	h2	h	h	h	h2	h2	h	h	h	h2	h4	h4	h4	h2	h2	f	
11	f2	f2	f			f			h2h	h	h	h	h	h	h	h	h	h2	C3	h4	h4	h2	h	f3	
12	f5	f	f2	f			h	C3	C3	C3	C2	C	C3	h	C	h	h	h2	hC3	C4h3	h	h2	h	f2	
13	f2	f	f				h	h	h2	h2	h	h	h	hR	h	h	h	h	h	h	h	h2	h	h6f	
14	f4f	f4	f7	f7	f7	f7	C7	C6	C3	C4	C3	C2	C	C2	h2	h	h	h	h3h	h2	h	h6	h	f	
15	f		f	f			hC	h	h	h	h2	h	h	h	h	h	h	h	C7	h6	h6	h3	h6	f6	
16			f2	f			hR	hR	h	h	h	h	h	hR	h2	h3	h	h2	h2h	h8	h8	h2	h2	f	
17	f	f2	f2	f2			C	h	h	h	h	h	h	h	C2	h3	h	h	C3	h8	h2	h3	h3	f	
18							hR	h2	h2	h	h	h	h	C	C	h	h	h	h	h	h4	h2	h	f	
19							h	h	h	hR	h	h	h	h	h	h	h	h	C3	h	h2	h2	h	f	
20							h			hR	h	h	h	h	h	h	h	h	h	h	h	h	h	f	
21										hR	C	h	h	h	h	h	h	h	h	h	h5	h4	h4	f4	
22			f6f5	f6f2	f3	f4	C3	hR	hR	C	C	h	C	h	h	C	C	h2	h4	h6	h5	h4	h	f	
23			f	f	f6	f4	C3	C3	C4	C	hC	C	h	h	h	C	h	h2	C4	h3	h2	h	h	f	
24	f			f6f4	f6	f7	C4	C4	C2	C2	C3	C	C	h	hR	h	C3	C4	C7	h4	h4	h2	h2	f	
25	f3			f			h	h	hR	hR	hR	hC	C	h	h	h	h	hR2	C3	h3	h4	h6	h2	f4	
26							h	h3C2	h2	h	C	C	C	h	C	h	h	hR2	C3	h	h	h	h	f	
27							h	h	C2	C	C2	C2	C	h	h	h	h	h2h4	hR2	h5	h2	h2	h4	f	
28							C	h	h	C	C	C	C	hR2	C	C	C2	C3	h2	h3	h3	h3	h2	f	
29							h	h	hR2	C	C	C	C	h2	h	h	h	hR2	h4	h3	h3	h3	h2	f	
30	f2						h	h	h2	h	h	h	h	h2	h	h	h	hR2	h4	h2	h2	h	h	f	
31																									
No.																									
Median																									

Sweep 1.0 Mc to 2.0 Mc in _____ min in automatic operation.

Types of Es

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

Sep. 1957	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	198	170	136	31	187	1	1	1	2	1
2	65	105	72	33	68	3	3	3	2	3
3	27	20	21	-	25	2	1	1	1	2
4	16	15	13	-	15	1	1	1	-	1
5	12	12	-	-	12	0	0	-	1	0
6	31	24	20	35	24	2	2	2	2	2
7	37	31	41	36	36	2	2	2	(2)	2
8	40	49	32	54	41	2	1	1	1	2
9	60	46	56	38	54	1	1	1	1	1
10	41	59	68	42	50	1	1	1	1	1
11	74	749	194	38	271	2	2	2	1	2
12	52	61	53	38	51	2	2	1	1	2
13	40	41	87	-	48	0	2	2	-	1
14	31	34	35	37	33	2	1	1	1	1
15	27	28	24	23	29	1	2	1	2	1
16	28	27	23	-	25	1	2	1	0	2
17	17	16	20	-	17	1	2	1	1	1
18	31	(46)	42	244	37	1	1	1	1	1
19	211	226	171	148	213	1	1	1	1	1
20	172	115	101	-	134	1	1	2	1	1
21	23	26	-	(104)	24	1	(0)	-	(2)	1
22	164	123	(77)	-	131	2	(3)	(1)	-	2
23	58	102	96	(68)	84	2	2	2	2	2
24	-	(32)	38	-	(44)	-	-	1	-	(1)
25	23	21	27	14	24	1	1	0	0	1
26	15	17	21	224	17	1	0	0	2	0
27	126	78	29	-	114	2	2	1	-	2
28	14	16	19	14	16	0	0	0	1	0
29	18	25	20	13	19	1	1	1	0	1
30	16	17	16	14	16	1	1	0	0	0

Outstanding Occurrences

Sep. 1957	Start- time	Dura- tion	Type	Max.	Int.	Max. Time	Remarks
				Inst.	Smd.		
2	0040*	2m30s*	CA/8	730	160	0041	
3	0035*	15m*	CD/8	430	41	0038	
	0110	23m	SD/1	57	41	0121	
	0154	1m30s	SD/8	1010	375	-	
5	2034	3m	CD/8	630	90	2036	
7	0415	1m	SA/8	1100	195	-	
	0814	5m30s	CA/8	1040	180	0818	
8	0809	3m	CD/8	500	90	0809-30s	
	2245-30s	3m	CD/8	1070	92	2246-30s	
11	0302 x	11m	} CD/9	840	360	0305	first part plus part
	0331 x	91m				2200	
	0739 x	27m*	CD/8	630	420*	0742	
12	0708	6m	CD/8	1880	460	0708-30s	first part second part
	2151-40s	2m	CD/8	1820	>520?	0711-?	
				2500	910	2152-?	
15	2041	2m	CD/8	750	270	2042-?	
17	0332*	1m*	CD/8	750	230	-	cluster
	0439-30s	2m	CD/8	320	120	0440-30s	
	0607*	2m	CD/3	650	<120	0608*	
	0616*	1m30s	CD/3	530	<120	-	
	0639*	30s	CD/4	360	66	-	
	0641*	1m	CD/8	1320	145	-	
26	0244-30s	3m20s	CD/3	250	41	0244-40s	small cluster

* = inaccurate

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Sep. 1957	Whole Day Index	W W V				S. F.				W W V H				Warning				Principal magnetic storms		
		00	06	12	18	00	06	12	18	00	06	12	18	00	06	12	18	Start	End	Δ H
		06	12	18	24	06	12	18	24	06	12	18	24	06	12	18	24			
[1]	3o	3	(4)	2	1	3	4	3	2	1	1	1	1	U	U	U	U	---	1800	115γ
2*	4-	(3)	3	5	3	3	4	4	4	3	2	4	2	U	U	W	W	0314	---	200γ
3*	4o	3	4	4	3	4	4	5	4	1	3	3	(2)	W	W	W	W	---	---	---
4*	4-	3	3	3	4	4	3	3	5	1	2	4	2	W	U	W	W	1300	---	280γ
5	4-	3	4	4	3	4	(4)	4	4	1	1	4	(2)	W	W	W	U	---	---	---
6	3+	3	3	4	(3)	3	4	4	3	1	1	2	(3)	U	N	N	N	---	2400	---
7	3-	(2)	3	3	1	3	2	3	3	1	1	3	(2)	N	N	N	N	---	---	---
8	1+	1	1	1	1	2	(2)	2	2	1	1	1	(2)	N	N	N	N	---	---	---
9	2+	1	2	3	3	2	(2)	3	2	3	4	2	(3)	N	N	N	N	---	---	---
10	2o	3	2	3	3	2	1	2	1	2	4	3	(2)	N	N	N	N	---	---	---
11	2-	1	1	1	1	3	2	2	2	3	3	1	(1)	N	N	N	N	---	---	---
12*	2o	1	1	1	3	2	(3)	3	2	2	3	1	(3)	N	N	U	U	---	---	---
13*	3+	2	3	4	3	3	3	(4)	-4	2	5	5	(3)	U	W	W	W	0046	---	520γ
14*	3o	3	(2)	3	1	(3)	4	4	3	3	4	4	3	U	U	U	U	---	1600	---
15	2+	3	3	1	1	3	2	(2)	3	2	3	4	3	U	N	N	N	---	---	---
16	2+	2	3	1	1	2	(3)	3	3	2	3	2	2	N	N	N	N	---	---	---
17	2-	1	1	1	1	2	(2)	2	3	4	2	2	(3)	N	N	N	N	---	---	---
18	2-	1	1	2	2	2	(2)	2	2	3	2	2	3	N	N	N	N	---	---	---
19	2-	1	1	1	2	3	2	2	2	3	2	1	1	N	N	N	N	---	---	---
20	2-	2	1	1	2	2	1	2	3	2	2	1	2	N	N	N	N	---	---	---
21	3+	2	2	4	4	3	(2)	4	4	3	2	5	4	N	N	W	W	1005	---	200γ
22	4-	3	4	4	(4)	3	3	4	3	2	2	4	3	W	U	U	U	1344	---	180γ
[23]	3+	3	4	3	3	3	4	3	3	2	1	1	(3)	U	W	W	W	0233	---	195γ
[24]	3-	3	3	3	2	4	2	2	2	2	3	5	1	U	U	N	N	---	2400	---
25	2+	2	2	2	2	2	3	3	2	1	1	1	3	N	N	N	N	---	---	---
26	2o	3	2	1	3	2	1	2	3	2	3	1	2	N	N	N	N	---	---	---
27	3-	3	3	2	3	2	2	3	3	2	2	1	3	N	N	N	N	---	---	---
28	2+	2	1	2	3	2	2	2	3	2	3	2	1	N	N	N	N	---	---	---
29	3o	2	1	4	4	3	2	3	3	1	1	4	2	N	N	N	N	0016	---	330γ
[30]	2+	3	4	2	1	(3)	2	2	(2)	1	1	2	1	U	U	N	N	---	---	---

* = day of Special World Interval

[] = Regular World Day

() = inaccurate

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

Sep. 1957	HIRAISO				Time in U.T.				Correspondence		
	S W F		S E A		Start-time	Dura- tion	Circuits	Imp.	Flare	Solar noise	Mag.
	Start-time	Dura- tion	Imp.	Type							
1	02.04	27	3	S	02.04	27	WA SF HA TO MN	3		X	
	09.50	30	2	S	09.50	30	WA SF HA TO MN	2	X	X	
2	20.00	28	2	S	20.00	28	WA SF HA TO MN	2	X	X	
3	04.07	46	2	Slow	04.07	46	SF HA TO MN	2	X	X	
	00.43	68	3	S	00.43	68	SF HA TO MN	3			
	08.00	26	3	S	08.00	26	SF HA TO MN	3			
	10.21	43	2	S	10.21	43	SF HA TO MN	2	X	X	
5	00.00	30	2	Slow	00.00	30	TO MN	2	X	X	
	03.16	30	1	Slow	03.16	30	TO MN	1	X	X	
	20.53	84	3	Slow	20.53	84	SF HA TO MN	3	X	X	
6	08.47	26	1	S	08.47	26	SF HA TO MN	1	X	X	
	18.40	20	2	S	18.40	20	SF HA TO MN	2	X	X	
7	08.15	23	3	S	08.15	23	SF HA TO MN	3			
	14.40	15	1	S	14.40	15	SF HA TO MN	1	X	X	
	18.40	15	2	S	18.40	15	SF HA TO MN	2	X	X	
11	02.44	100	2	Slow	02.44	100	SF HA TO MN	2			
	18.31	70	3	S	18.31	70	WA SF HA TO MN	3			
12	07.09	20	2	S	07.09	20	WA SF HA TO MN	2	X	X	
	15.15	15	3	S	15.15	15	WA SF HA TO MN	3	X	X	
	21.47	42	3	S	21.47	42	WA SF HA TO MN	3	X	X	
13	02.52	92	2	G	02.52	92	SF HA TO MN	2			
	08.15	40	2	G	08.15	40	SF HA TO MN	2			
14	02.28	43	3	S	02.28	43	SF HA TO MN	3	X	X	X
15	03.24	76	3+	S	03.24	76	SF HA TO MN	3+	X	X	

IONOSPHERIC DATA IN JAPAN FOR SEPTEMBER 1957

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