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IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1961

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THE RADIO RESEARCH LABORATORIES

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KOKUBUNJI, TOKYO, JAPAN

F－154

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THE RADIO RESEARCH LABORATORIES

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

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

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

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

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

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

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

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

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

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

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

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

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

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

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

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

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

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

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

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

O Measurement refers to the ordinary component.

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceeding symbol on monthly tabulation sheets.

D *greater than.....*

E *less than.....*

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magnetoionic component.

c. Description of Standard Types of E_s

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

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

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

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

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

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

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

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

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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M : multiple peaks separated by relatively long period of quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

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

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

N=normal
U=unstable
W=disturbed

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

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

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

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

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

Circuits and Drop-out intensity

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

S F .....WNA-27 : 7.6550 Mc, WND-20 : 10.4925 Mc, WNC-93 : 13.7525 Mc, WMJ-30A2 : 20.8173 Mc (San Francisco)

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

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

M N .....DZM-28 : 14.5850 Mc (Manila)

L N .....GIJ-34 : 14.6702 Mc (London)

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

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly

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

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

Importances

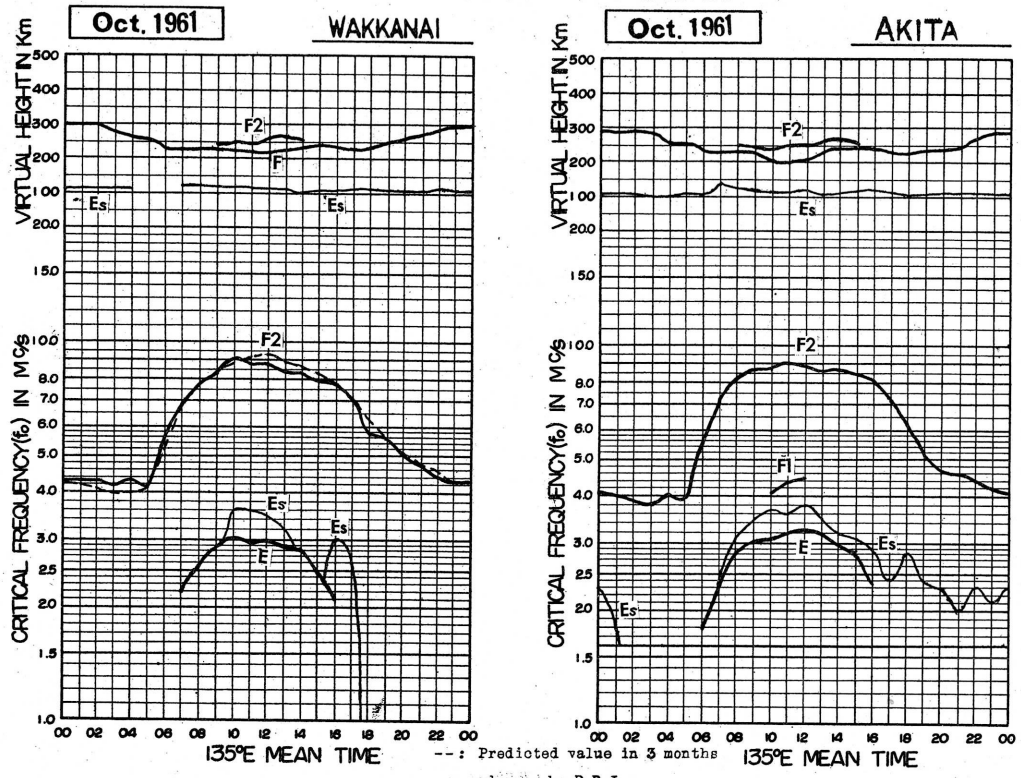
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out ;

1—	1	1+
2—	2	2+
3—	3	3+

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

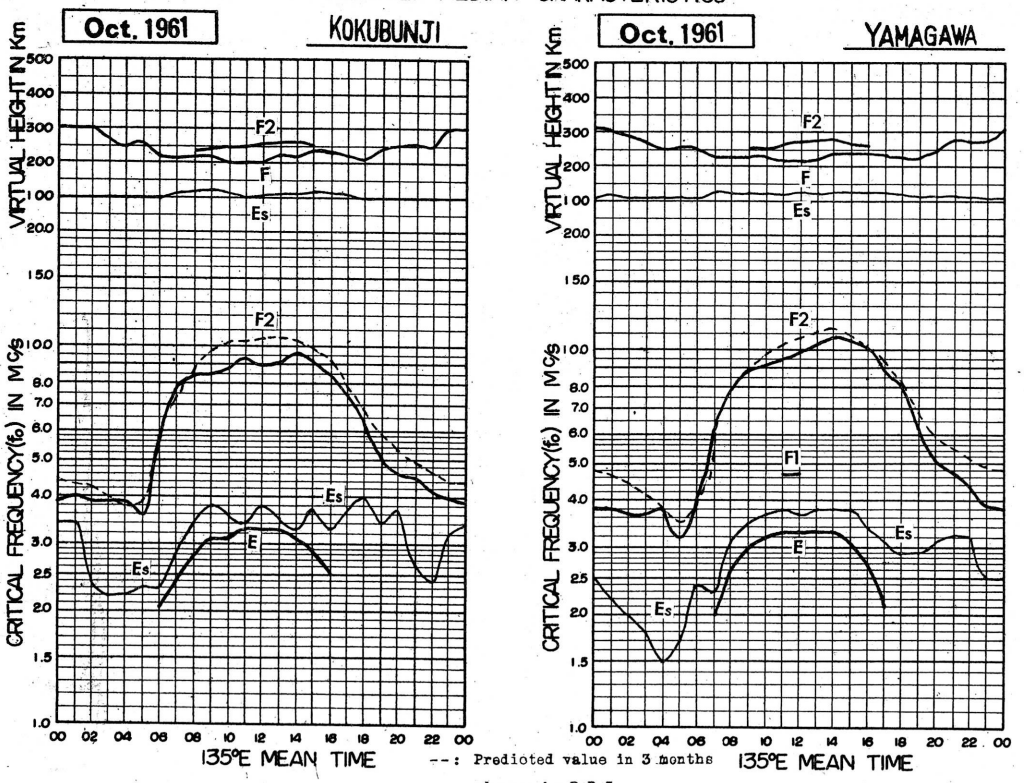
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.5	4.3	4.3	4.6	U4.3S	4.3	5.3	7.0	5.3H	7.7H	9.8	8.3	8.5	6.0	9.2	6.5	5.7	7.3	7.3	8.8	6.0	3.2	3.5	3.1
2	2.8	3.3	I3.4A	3.4	3.0	3.2	5.3	6.8	7.2H	8.0H	8.0H	9.0	9.0	7.2H	7.3H	7.5H	7.5	7.4	6.9	6.3	5.2	4.7	I4.2A	4.2
3	4.3	I4.2F	4.0F	4.0F	4.0F	3.6F	5.6	7.3	7.9H	7.9	I8.1C	I8.3C	8.4	8.0	7.4	7.6	7.3	7.8	7.0	6.0	4.8	4.2	4.2	4.4
4	4.0	4.0	3.7	4.0	3.8	4.0	6.2	6.4	7.3H	8.2H	8.8	8.7	8.2	8.1	7.8	7.6	7.7	8.2	7.0	6.3	5.6	4.6	4.6	4.3
5	4.3	4.3	4.3	4.3	4.2	4.2	5.5	6.8	7.9H	I8.2C	8.3	9.4	8.6	9.5	8.6	8.0	8.3	7.4	7.1	5.7	4.8	4.3	4.3	4.3
6	4.3	4.3	4.2	4.0	4.0	4.1	6.1	6.7	7.3	8.0	9.3	9.0	9.0	9.1	8.5	8.2	7.8	7.6	7.1	6.6	I5.0A	5.0	4.8	4.8
7	4.8	4.9	4.7	4.6	4.5	4.8	6.6	8.6	9.1	7.8	8.5	10.3	9.6	8.6	8.3	8.2	7.6	7.1	I5.8A	4.9	5.0	4.8	4.3	4.0
8	4.0	4.0	4.0	4.0	4.3	4.1	6.1	7.4	8.2	9.2Z	8.0	8.5	8.7	8.3	8.3H	7.9	7.7	8.1	6.7	6.8	6.6	4.9	3.8	3.7
9	4.0	4.0	4.1	4.0	4.0	4.3	6.0	7.6	7.9	9.3	8.8	9.5	8.8	8.3	8.5	7.6	7.2	7.5	6.6	5.8	5.3	4.5	4.4	4.6
10	4.8	4.5	4.7	4.4	U4.6S	4.1	6.1	7.2	8.0	9.4	10.3	8.6	9.3	8.5	8.3	7.7	8.3	7.1	6.4	5.8	5.0	4.5	4.3	4.3
11	4.1	4.0	4.0	4.1	4.3	4.1	5.8	7.4	8.5	8.7	8.8	8.6	8.3	8.0	7.7	7.9H	8.1	7.9	5.7	5.1	5.1	5.1	5.0	4.8
12	4.9	4.5	4.0	4.0	4.1	4.2	6.0	7.3	9.7	10.3H	10.4	9.6	8.0	8.9	8.5	8.3	8.6	8.6	6.6	6.7	5.3	4.6	4.5	4.5
13	4.3	4.3	4.3	4.3	4.8	4.1	5.2	7.8	10.3	11.2	12.2	10.0	10.1	9.0	8.6	8.1	8.3	7.5	6.3	6.3	5.4	4.8	4.3	4.0
14	3.6	I3.6A	3.8	3.7	3.6	3.6	5.6	7.3	9.5	10.6	9.1	8.4H	9.2H	9.4	8.4	8.3	8.0	7.2	5.8	5.7	5.2	4.7	4.4	4.2
15	4.1	4.3	4.3	4.5	4.3	3.8	5.3	9.3	9.1	9.1	9.3H	9.9	9.1H	8.5H	8.0	8.1	7.7	6.7	4.4	4.3	4.4	4.7	4.3	4.3
16	4.3	4.2	4.3	4.1	4.3	4.1	6.1	I6.9S	8.5	9.7H	9.5	8.8	8.5	8.9	7.6	8.1	8.1	I7.7S	6.2	5.6	5.3	5.0	4.6	4.5
17	4.5	4.5	4.3	4.3	4.4	4.1	5.4	U7.8S	7.6	8.4	9.1H	7.6	9.5H	8.4	8.3	7.9	8.3	U6.5S	5.8	4.9	4.9	U4.7S	U4.7S	4.8
18	4.8	5.0	5.1	5.0	5.3	4.6	5.3	6.7	7.3	7.8	9.2H	9.6	8.7	8.1	8.3H	8.0	7.6	7.1	6.3	6.0	5.6	5.3	4.8	4.2
19	4.0	3.8	4.0	4.2	4.3	3.8	4.9	7.0	8.1	8.6H	8.8	7.8	8.5	7.4	7.8	I8.4C	I8.1C	7.8	5.3	5.0	4.9	5.0	5.0	5.1
20	5.3F	5.3F	5.2F	5.2F	5.2F	4.8F	6.1	U7.3S	7.7	8.3	9.4H	9.5H	9.9	9.3	10.3	10.2	9.6	8.1	7.1	U7.3S	6.2	I6.0FS	6.5	6.3
21	5.5	5.5	5.3	5.3	5.5	5.8	6.8	9.6	10.0	9.5	9.5	9.1	9.5	9.0	8.3H	8.0	8.3	7.0	5.2	5.5	5.4	5.0	5.1	4.8
22	5.0	5.0	5.0	5.0	5.2	U5.5S	6.6	U7.3S	C	C	C	C	C	C	C	C	C	5.9	5.5	5.7	5.9	4.9	5.0	I5.2F
23	I5.1F	5.5F	F	F	FS	U4.3S	5.3	6.3	7.7H	8.6	9.3	8.1H	7.9	7.9H	7.6	8.0	6.7	5.3	5.1	5.3	4.9	5.1F	4.9	I5.1FS
24	5.0	4.5	4.8	4.6	4.8	U4.8S	4.3	6.6	7.0	6.8	8.7	9.0	9.2H	8.1H	7.8H	8.9	8.3	6.0	5.0	4.9	4.7	4.0	4.1	4.4
25	4.4	4.4	4.5	4.3	4.1	3.6	4.9	7.0	7.6	7.8	C	C	C	8.6	7.6	8.0	7.4	6.2	5.1	4.5	4.0	3.6	F	F
26	F	F	F	F	F	4.1F	4.6	6.5	7.6	8.3V	9.8	8.9	9.5	8.9	8.1	7.9	7.9	6.3	5.2	5.2	5.0	4.3	4.8	4.3F
27	3.8	3.8	3.4	3.6	3.6	3.6	4.4	6.0	9.2	8.9	10.1	8.0	8.2H	8.1	8.4H	8.5	8.6	8.2	4.9	I4.3C	I3.6C	3.6	3.5	4.1
28	4.8	4.3	4.4	4.7	U5.0S	I5.0S	I5.5S	6.0F	8.3H	8.2	9.2	9.1	9.0H	8.8	8.4	8.6	7.0	5.9	4.9F	4.6	4.0	U4.3F	3.7	3.3
29	2.8	I2.9F	3.6	3.2	3.3	I2.7F	2.5	3.8	4.1	4.4	I4.2A	4.5	5.0	5.0	5.3	5.3H	4.8	3.9	3.5	2.9	2.6	2.5	2.8	2.7F
30	2.6	2.6	2.5	2.3	2.1	1.8	3.5	5.5	6.3	7.8	7.3	7.6H	7.5	7.9	6.5	7.1	8.0	5.6	4.0	3.2	3.6	4.1	I3.5C	I2.9A
31	2.9	2.2	2.4	2.5	2.5	2.6	3.0	5.1	5.7H	6.6	7.8H	8.1	7.8	6.8	7.4	7.3	6.3	5.0	I3.5AS	I3.2A	3.0	3.2	3.0	3.0
No.	30	30	29	29	29	31	31	31	30	30	29	29	29	30	30	30	30	31	31	31	31	31	30	30
Median	4.3	4.3	4.3	4.2	4.3	4.1	5.5	7.0	7.9	8.3	9.1	8.8	8.7	8.4	8.3	8.0	7.8	7.2	5.8	5.6	5.0	4.7	4.4	4.3
U. Q	4.8	4.5	4.6	4.6	4.7	4.3	6.1	7.4	8.5	9.2	9.5	9.4	9.2	8.9	8.4	8.2	8.3	7.8	6.7	6.3	5.4	5.0	4.8	4.8
L Q	4.0	4.0	3.9	4.0	3.9	3.6	4.9	6.5	7.3	7.8	8.4	8.2	8.2	8.0	7.6	7.6	7.2	6.2	5.1	4.9	4.7	4.2	4.1	4.0
Q. R	0.8	0.5	0.7	0.6	0.8	0.7	1.2	0.9	1.2	1.4	1.1	1.2	1.0	0.9	0.8	0.6	1.1	1.6	1.6	1.4	0.7	0.8	0.7	0.8

foF2

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

The Radio Research Laboratories, Japan.

W 1

IONOSPHERIC DATA

Oct. 1961 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											4.5	U4.6 L	4.5	4.5	L	L								
2												L	L											
3										L	C	C	L	L	L	L								
4											L	L	L	L	L									
5										C		L	L	A	L									
6											A		L	L	A	A								
7												L	L											
8										L	L	L	A	L										
9										L	L	L	L	L										
10										L	L	L	L		L	L								
11										L	L	L	L	L										
12									L		L	L		L	L									
13										L	L	L												
14										L	L													
15												L												
16											L		L	L										
17										L														
18												L	A											
19											L	L	L		L	C	C							
20													L	L										
21										L		L												
22									C	C	C	C	C	C	C	C	C							
23											A		L											
24																								
25											C	C	C											
26											L	L	L											
27																								
28											L	L												
29								3.1	3.4	3.7	F3.8 A	4.0	4.0	3.9	3.9 H									
30										L	L		L	L										
31												L	A	A										
No.								1	1	1	2	2	2	2	1									
Median								3.1	3.4	3.7	U4.2	4.3	4.3	4.2	3.9									

foF1

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

The Radio Research Laboratories, Japan.

W 2

10

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							S	2.30	2.70	2.85	2.95	I3.05A	3.00	2.90	2.90	2.75	2.20	S						
2							S	2.10	2.60	2.90	3.00	2.90	2.80	2.95	2.95	I2.60A	2.10	S						
3							S	2.30H	2.70	3.00	I3.00C	I2.95C	I3.00A	A	A	A	A	S						
4							S	2.50	2.80	3.00	3.10	3.10	3.00	2.90	I2.80A	I2.65R	2.30	S						
5							S	2.35	2.70	I3.00C	3.10	3.00	2.95	I2.90A	2.90	A	A	S						
6							S	2.40	2.85	3.05	3.10	3.05	3.00	I2.95B	3.00	2.80	A	A						
7							S	2.30	2.75	3.00	3.05	3.00	A	A	A	A	A	S						
8							S	2.15	A	A	A	A	A	A	A	A	A	S						
9							2.00	2.30	2.85	3.00	3.05	A	A	A	A	A	2.55	S						
10							S	2.45	2.65	2.95	2.95	3.00	3.10	3.15	2.95	2.60	S	S						
11							S	2.25	2.80	2.90	I3.00A	3.20	3.20	3.05	I2.90A	2.50	2.05	S						
12							S	2.25	2.60	2.90	3.00	3.05	3.00	3.00	2.90	2.40	S	S						
13							S	2.20	2.75	2.90	2.95	3.00	3.00	3.00	2.95	2.65	S	S						
14							S	2.25	2.75	2.95	3.00	3.10	3.00	2.95	2.85	I2.45A	2.00	S						
15							S	2.45	2.85	2.90	3.00	3.05	3.00	I2.85A	2.90	2.45	S	S						
16								2.20	2.70	2.85	3.00	2.95	I3.00R	2.90	2.70	2.80	2.00	S						
17							S	2.15	2.60	2.95	2.90	I2.95A	A	A	A	2.40	S							
18							S	2.10	I2.60A	2.95	3.00	2.90	A	A	A	2.60	2.05							
19							S	2.15	2.60	2.90	A	A	A	A	A	C	C							
20							S	2.10	2.50	2.85	2.90	A	A	A	2.80	2.45	S							
21							S	2.15	2.50	2.75	2.90	2.90	I2.95A	3.00	2.60	2.30	S							
22							S	2.10	C	C	C	C	C	C	C	C	C							
23							S	I2.15A	2.55	2.70	2.90	A	A	A	2.80	2.50H	A							
24							S	S	2.50	2.70	2.95	2.80	I2.90A	I3.00A	2.70	2.30	S							
25							S	2.15	2.50	2.70	C	C	C	3.00	2.90	2.30	S							
26								2.00	2.40	2.65	2.75	I2.85A	I2.80A	2.65	2.60	A	A							
27								S	2.30	2.70	2.85	2.90	2.95	2.85	I2.50C	A	A	S						
28								S	B	2.70	2.70	2.80	2.80	2.70	2.70	2.40	S							
29								S	2.35	I2.45R	2.50	I2.50A	2.50	2.55	B	B	S							
30								2.05	2.30	2.60	2.65	2.70	2.70	2.75	2.60	2.40	S							
31								2.05	2.20	2.35	A	A	A	A	A	2.10	S							
No.							1	27	28	29	26	23	20	20	21	21	8							
Median							2.00	2.20	2.60	2.90	3.00	2.95	3.00	2.90	2.85	2.45	2.10							

foE

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

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	J3.3	2.0	E	2.4	G	G	G	2.6G	3.1	2.2G	G	G	G	G	S	E	E	E	E	E	E
2	E	J2.1	J3.3	J2.6	J2.3	E	S	2.8	G	G	G	J7.6	G	G	G	J4.6	J3.3	J4.5	J3.3	J4.0	J6.3	J6.3	J6.3	E
3	E	E	E	E	J2.2	E	S	G	G	G	C	C	J3.3	J3.4	J3.4	J3.6	J3.3	2.6	J3.2	E	E	E	E	E
4	E	E	E	E	J2.0	J2.3	S	G	G	G	3.8	3.6	3.5	G	3.3	G	G	S	E	E	E	E	E	E
5	E	E	E	1.6	1.6	E	S	G	3.5	C	4.0	3.8	3.5	J4.6	G	J8.3	J3.0	J3.0	2.5	J2.8	J3.0	J3.2	J5.3	E
6	J3.1	J3.0	J3.2	J2.8	J3.0	E	S	G	J4.3	J4.8	J5.5	J5.0	J4.3	4.0	J6.6	J8.3	J4.3	J3.6	J2.6	J3.3	J6.0	E	E	J4.3
7	E	2.7	J2.4	1.3	E	E	S	3.2	J6.3	J5.3	J4.3	J6.1	J5.0	J4.3	J5.6	J8.3	J5.0	S	J6.3	J4.3	E	J3.0	J4.4	J3.0
8	E	E	J2.0	1.4	J2.3	E	S	3.2	J7.0	J7.3	J6.3	3.4	J7.3	J4.3	3.0	J3.3	3.0	J3.0	E	E	E	E	E	E
9	E	E	E	E	J2.0	E	G	G	G	G	3.8	3.8	J4.3	3.8	3.6	J4.3	G	S	J3.0	J3.0	J3.3	J2.7	E	E
10	E	E	E	E	E	J2.0	S	G	G	G	3.4	J3.3	G	G	G	G	S	S	E	E	J3.0	J3.3	J3.0	E
11	E	E	E	E	E	E	S	G	G	4.1	3.2	3.0G	2.6G	G	J3.3	G	G	2.8	E	J3.0	E	E	E	E
12	E	E	E	E	E	E	S	3.0	G	G	G	G	G	G	G	G	J3.5	2.6	J3.3	J3.3	E	E	E	E
13	E	E	E	E	E	E	S	G	3.6	3.6	G	G	G	G	2.8G	G	2.3	S	E	E	J4.6	J5.1	J4.3	J3.3
14	J2.9	J5.0	E	E	E	E	S	G	G	3.5	3.8	G	G	3.5	3.0	2.6	G	S	J2.7	E	E	E	J3.0	E
15	E	E	E	E	E	E	S	G	3.5	G	G	3.7	3.8	3.3	G	G	2.3	S	E	J2.6	E	J4.5	E	J3.0
16	3.8	E	E	E	J2.0	E	E	2.8	G	G	3.9	G	G	G	G	3.8	3.0	J4.8	J5.0	J6.3	J2.8	J4.3	J4.3	J3.0
17	3.5	J2.6	E	1.5	E	E	S	G	3.1	G	3.3	4.2	J4.3	J4.0	3.8M	G	S	E	E	J5.0	J4.3	J3.3	E	2.6
18	2.6	J2.1	E	E	E	E	S	G	3.3	3.5	G	3.5	J5.6	J4.3	J4.3	G	G	E	E	J4.3	J3.1	J3.3	J2.8	J3.1
19	E	J2.6	E	J2.9	J3.0	J2.6	S	G	G	G	3.3	J3.6	J3.3	J4.3	J3.3	C	C	J3.1	E	J2.3	J6.3	J3.5	J3.3	J4.3
20	E	E	E	E	E	E	S	G	G	G	3.9	3.3	J4.3	3.3	G	G	S	E	E	J3.0	J6.3	J4.3	J2.5	J4.3
21	E	E	E	J2.6	E	E	S	G	G	G	G	G	J3.3	G	G	J3.0	S	E	J3.0	E	E	E	E	E
22	E	E	E	E	J2.3	E	S	G	C	C	C	C	C	C	C	C	C	J3.0	E	E	E	J2.0	J5.3	E
23	J3.5	J3.0	J2.8	E	J1.8	J2.6	J4.3	J3.0	G	J4.5	J5.0	J4.3	J4.0	3.0	G	G	J2.9	J5.1	J5.0	J2.4	J4.3	J2.3	J3.0	J3.0
24	E	J2.2	J2.0	E	E	E	S	S	G	G	3.4	J4.5	J4.3	3.3	G	G	S	E	E	E	E	E	E	E
25	E	J3.1	J5.0	J3.3	J3.2	J2.0	S	G	4.1	4.0	C	C	C	G	G	G	S	E	E	E	E	E	E	J2.3
26	E	J4.3	J3.0	E	E	E	E	2.7	3.0	3.5	3.8	5.8	J3.3	G	G	J3.4	J3.1	E	E	E	E	E	J3.5	E
27	E	J2.8	E	2.1	J2.1	J2.3	E	S	4.0	3.8	4.3	4.3	4.1	3.5	C	3.2	J3.1	J6.3	J3.0	C	C	E	E	E
28	E	E	E	E	E	E	E	S	B	G	3.5	3.3	J6.0	G	G	G	2.4	E	E	E	E	E	E	E
29	E	E	E	E	E	E	2.3	S	G	G	J5.5	J3.3	3.2	G	B	B	S	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	2.7	3.7	3.3	3.2	G	3.6	G	G	G	S	E	E	E	E	E	C	J5.3
31	J5.2	J2.3	E	E	E	J3.3	E	G	2.6	J3.3	J4.3	J3.6	J4.6	J4.8	J4.4	G	S	J3.1	J4.3	J5.3	2.8	E	E	E
No.	31	31	31	31	31	31	10	27	29	29	28	28	29	30	28	28	20	23	31	30	30	31	30	31
Median	E	E	E	E	E	E	E	G	G	G	3.6	3.6	3.5	3.2	G	G	3.0	2.6	E	E	E	E	E	E
U.Q	E	2.6	2.0	1.6	2.1	E	E	2.7	3.6	3.7	4.2	4.2	4.3	4.0	3.4	3.5	3.0	3.1	3.0	3.3	3.3	3.3	3.3	3.0
L.Q	E	E	E	E	E	E	E	G	G	G	2.9	3.0	2.4	G	G	G	G	E	E	E	E	E	E	E
Q.R											1.3	1.2	1.9											

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

f_bE_s

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

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 2.00 S	E	E 2.00 S	E	E	E 1.20 S	E 2.00 S	2.00	2.00	2.00	2.00	2.00	1.90	2.10	2.00	2.00	2.00	E 2.00 S	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S
2	E 1.90 S	E 1.80 S	E	E	E	E 1.50 S	E 1.90 S	1.90	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.95	E 1.90 S	E 1.70 S	E 1.90 S	E 1.90 S	E 1.90 S	E 1.80 S	E 2.00 S
3	E 1.80 S	E	E	E	E	E 1.70 S	E 2.00 S	1.80	2.00	2.05	I 2.05 C	I 2.00 C	2.00	2.00	2.00	1.95	2.00	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.95 S	E 2.00 S	E 1.90 S
4	E 2.00 S	E 1.90 S	E	E	E	E 1.50 S	E 2.00 S	1.85	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E 1.90 S	E 1.90 S	E 1.90 S	E 1.90 S	E 1.90 S	E 1.90 S	E 2.00 S
5	E 2.00 S	E 1.90 S	E	E	E	E 1.50 S	E 2.00 S	2.00	2.00	I 2.00 C	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S
6	E 1.90 S	E 1.80 S	E	E	E	E 2.00 S	E 2.00 S	2.00	2.00	2.00	2.00	2.00	2.00	3.00	2.00	2.00	2.00	E 1.80 S	E 1.80 S	E 1.90 S	E 1.80 S	E 1.90 S	E 2.00 S	E 1.90 S
7	E 2.00 S	E 1.50 S	E 1.80 S	E	E 1.20 S	E 1.50 S	E 2.00 S	2.00	2.00	2.00	2.00	2.05	2.00	2.00	1.80	1.90	1.90	E 2.00 S	E 1.90 S	E 1.80 S	E 1.80 S	E 1.80 S	E 1.90 S	E 1.80 S
8	E 2.00 S	E 1.80 S	E	E	E	E 1.60 S	E 2.00 S	1.90	2.00	1.90	2.00	2.05	2.00	2.00	2.00	2.00	1.90	E 1.80 S	E 2.00 S	E 1.85 S	E 1.80 S	E 1.90 S	E 1.60 S	E 1.90 S
9	E 2.00 S	E 1.80 S	E	E	E	E 1.70 S	1.85	1.90	2.00	1.90	2.05	2.10	2.00	2.00	2.00	1.85	1.80	E 1.80 S	E 2.00 S	E 1.95 S	E 1.80 S	E 2.00 S	E 2.00 S	E 2.00 S
10	E 2.00 S	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.80 S	E 2.00 S	2.00	2.00	1.90	2.00	2.00	2.30	2.00	2.00	1.90	E 2.20 S	E 1.85 S	E 1.85 S	E 2.00 S	E 1.90 S	E 1.85 S	E 2.00 S	E 2.00 S
11	E 2.00 S	E 1.80 S	E	E	E 1.60 S	E 1.60 S	E 2.00 S	2.00	2.00	2.00	2.00	2.00	2.00	2.05	2.00	2.00	1.95	E 1.90 S	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S
12	E 1.90 S	E	E 1.80 S	E	E	E 1.50 S	E 1.80 S	2.00	2.00	2.00	2.00	2.00	2.00	2.40	2.00	2.00	E 2.00 S	E 1.80 S	E 1.90 S	E 1.80 S	E 1.90 S	E 1.90 S	E 1.90 S	E 2.00 S
13	E 2.00 S	E 1.90 S	E 1.80 S	E	E 1.20 S	E 1.50 S	E 1.70 S	1.85	1.95	2.00	2.00	2.00	1.90	1.90	1.90	2.00	E 2.00 S	E 2.00 S	E 1.90 S	E 1.90 S	E 2.00 S	E 2.00 S	E 1.90 S	E 2.00 S
14	E 1.90 S	E 1.70 S	E 1.80 S	E 1.70 S	E	E 1.70 S	E 2.00 S	1.80	1.95	2.00	2.00	2.00	2.00	2.00	2.00	1.80	1.90	E 1.70 S	E 1.80 S	E 1.90 S	E 1.85 S	E 1.95 S	E 2.00 S	E 2.00 S
15	E 1.90 S	E 2.00 S	E	E	E	E 1.80 S	E 2.00 S	2.00	1.90	1.95	2.00	2.00	2.00	2.00	2.00	2.00	E 2.00 S	E 2.20 S	E 1.80 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.90 S
16	E 1.90 S	E 1.70 S	E	E	E	E 1.80 S	E 2.00 S	1.90	1.90	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.85	E 1.80 S	E 1.80 S	E 2.00 S	E 1.90 S	E 1.90 S	E 1.90 S	E 2.00 S
17	E 2.00 S	E 1.70 S	E 1.40 S	E	E	E 1.60 S	E 1.90 S	2.00	1.85	1.95	2.00	2.10	2.00	2.00	1.80	1.90	E 2.10 S	E 1.80 S	E 2.00 S	E 1.85 S	E 1.80 S	E 2.00 S	E 2.00 S	E 2.00 S
18	E 1.90 S	E	E 1.85 S	E	E	E 1.50 S	E 1.70 S	1.90	1.90	1.90	2.00	2.00	1.90	2.00	2.00	2.00	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.85 S	E 2.00 S	E 2.00 S	E 1.80 S
19	E 1.90 S	E 1.80 S	E 1.80 S	E 1.70 S	E 1.80 S	E 1.20 S	E 2.00 S	1.95	2.00	2.10	2.00	2.00	2.00	2.00	2.10	C	C	E 1.90 S	E 2.00 S	E 1.90 S	E 2.00 S	E 1.90 S	E 1.90 S	E 1.90 S
20	E 1.90 S	E 1.90 S	E	E	E	E 1.60 S	E 1.80 S	1.90	2.00	2.00	2.00	2.00	2.00	2.00	1.85	1.95	E 2.00 S	E 1.80 S	E 1.80 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.90 S	E 1.90 S
21	E 2.00 S	E	E	E	E	E 1.80 S	E 1.90 S	1.90	2.00	1.95	2.00	2.00	2.00	2.00	2.00	1.90	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.90 S	E 1.90 S
22	E 2.00 S	E 1.20 S	E 1.80 S	E 1.90 S	E	E 1.70 S	E 2.00 S	1.90	C	C	C	C	C	C	C	C	C	E 1.60 S	E 1.70 S	E 1.90 S	E 1.90 S	E 1.80 S	E 1.85 S	E 1.90 S
23	E 1.80 S	E 1.90 S	E	E 1.70 S	E	E 1.60 S	E 1.90 S	E 1.90 S	1.90	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.90	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.90 S	E 2.00 S
24	E 2.00 S	E	E 1.80 S	E	E	E 1.20 S	E 1.90 S	E 2.15 S	2.00	2.00	2.00	2.00	2.00	2.05	2.00	2.00	E 2.00 S	E 2.00 S	E 1.90 S	E 2.00 S	E 2.15 S	E 2.00 S	E 2.00 S	E 2.00 S
25	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E	E 1.80 S	E 1.80 S	E 2.00 S	2.00	2.15	C	C	C	2.00	2.00	1.90	E 2.00 S	E 2.00 S	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.90 S
26	E 2.00 S	E 1.90 S	E	E	E	E	E 1.90 S	1.80	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.90	E 1.90 S	E 1.90 S	E 2.00 S	E 2.10 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S
27	E 2.00 S	E	E 2.10 S	E	E	E 1.50 S	E 1.90 S	E 2.10 S	2.00	2.00	2.00	2.00	2.00	2.10	E 3.00 C	1.80	1.90	E 2.00 S	E 1.80 S	C	C	E 2.00 S	E 2.00 S	E 2.00 S
28	E 2.00 S	E 2.00 S	E 1.90 S	E 2.20 S	E 2.00 S	E 2.00 S	E 2.20 S	E 2.20 S	2.70	2.40	2.35	2.40	2.00	2.00	2.20	2.00	E 2.00 S	E 1.85	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.10 S	E 2.00 S
29	E 2.10 S	E 2.00 S	E 2.00 S	E 2.15 S	E 1.70 S	E 1.45 S	E 1.80 S	E 2.15 S	2.00	2.00	2.00	2.20	2.00	2.30	2.80	2.20	E 2.10 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.90 S	E 2.00 S	E 2.00 S
30	E 2.00 S	E	E	E	E	E	E 2.00 S	1.90	2.00	2.00	2.00	2.15	2.30	2.40	2.00	2.00	E 2.00 S	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 2.00 S	C	E 2.00 S
31	E 2.00 S	E 2.00 S	E	E	E	E 2.00 S	E 2.00 S	1.85	2.00	2.00	2.00	2.10	2.05	2.00	2.00	1.90	E 1.85 S	E 1.70	E 1.90 S	E 2.00 S	E 2.00 S	E 2.00 S	E 1.90 S	E 2.00 S
No.	31	31	16	23	24	31	31	26	30	30	29	29	29	30	29	29	29	31	31	30	30	31	30	31
Median	E 2.00	E 1.80	E	E	E	E 1.60	E 2.00	1.90	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E 2.00	E 1.90	E 1.90	E 2.00	E 2.00	E 2.00	E 2.00	E 2.00

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

M(3000)F2

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

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Oct. 1961 | M(3000)F1 | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											3.60	U 3.50 L	3.40	3.75	L	L								
2												L	L											
3										L	C	C	L	L	L	L								
4											L	L	L	L	L									
5										C		L	L	A	L									
6											A		L A	L	A	A								
7												L	L A											
8										L	L	L	A	L										
9										L	L	L	L	L										
10										L	L	L	L		L	L								
11										L A	L	L	L	L										
12									L		L	L		L	L									
13										L	L	L												
14										L	L													
15												L												
16											L		L	L										
17										L														
18												L	A											
19											L	L	L		L	C	C							
20													L	L										
21										L		L												
22									C	C	C	C	C	C	C	C	C							
23											A		L											
24																								
25											C	C	C											
26											L	L	L											
27																								
28											L	L												
29								2.85	3.05	3.25	I 3.35 A	3.30	3.30	3.35	3.25									
30										L	L		L	L										
31												L	A	A										
No.								1	1	1	2	2	2	2	1									
Median								2.85	3.05	3.25	U 3.3	3.40	3.35	3.55	3.25									

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											290	325	300	400	275	L								
2												L	L											
3										245	I255C	I260C	260	L	L	L								
4											L	245	L	L	L									
5										C		255	I260L	270	250									
6											250		255	265	I255A	I250A								
7												270	260											
8										250	245	260	260	245										
9										245	250	250	260	250										
10										255	245	245	I260L		L	L								
11										235	245	250	250L	L										
12									255		250	245		L	L									
13										250	260	235												
14										250	245													
15												245												
16											230		250	260										
17										230														
18												245	250											
19											240	240	255		250	C	C							
20													260	260										
21										240		245												
22									C	C	C	C	C	C	C	C	C							
23											250		240											
24																								
25											C	C	C											
26											260	235	255											
27																								
28											240	235												
29								460	500	400	I450A	445	390	400	330									
30										245	235		250	250										
31												240	245	250										
No.								1	2	11	17	19	18	10	5	1								
Median								460	380	245	250	245	260	260	255	U250								

h'F2 | Sweep 1.0 Mc to 18.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 9

17

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	275	275	260	250	250	245	245	235H	235H	225	230	260	240	250	235	260	300	280	250	235	450	320	350
2	370	365	I345A	300	300	260	240	240	235H	215H	230H	260	210	220H	215H	250H	250	235	I235A	I240A	I250A	260	I280A	280
3	305	310	290	275	275	260	215	235	230H	225	I215C	I200C	200	200	240	245	250	245	235	245	245	285	300	285
4	300	310	300	295	265	280	230	215	220H	235H	220	205	210	210	220	245	250	240	220	250	240	275	295	320
5	320	330	300	295	285	290	225	235	240H	I230C	235	230	220	I220A	240	I240A	245	235	235	240	275	295A	300	300
6	325	310	I325A	320	310	270	225	220	A	A	A	A	A	230	A	A	A	230	240	I240A	I250A	270	285	I300A
7	300	300	300	290	295	290	235	250	230H	I240A	225H	230	I225A	I220A	A	A	A	230	I245A	260	265	285	I290A	300
8	270	300	305	275	260	260	225	230	I230A	220	220	200	I215A	240	220H	245	250	240	225	260	225	225	250	300
9	320	305	270	260	290	270	230	230	235	240	225	215	210	215	250	250	240	240	235	250	250	270	285	300
10	290	275	300	260	250	250	240	230	240	240	235	205	220	245	220	250	255	230	230	240	250	295	285	270
11	275	310	300	270	260	250	220	235	235	I230A	215	215	200	270	250	245H	240	235	230	270	290	290	300	295
12	260	245	300	280	270	260	230	240	240	215H	220	220	220	210	240	245	245	225	I240A	I250A	245	255	280	290
13	300	325	305	280	265	275	220	240	250	240	225	220	225H	205H	250	250	245	230	250	240	I260A	260	260	275
14	275	I310A	310	310	310	290	235	220	240	245	220	220H	210H	250	245	250	245	230	230	260	255	255	295	285
15	305	305	290	260	240	250	230	245	245	235	225H	240	210H	240H	240	245	235	220	235	300	275	I260A	275	310
16	I300A	275	260	270	260	250	230	225	230	220H	215	220	200	215	240	250	235	I230A	I235A	I255A	260	255	305	310
17	305	300	275	260	250	240	215	220	220	225	225H	I215A	I240MH	I245A	240	245	230	215	230	I250A	I265A	275	270	I285A
18	300	280	255	250	235	220	215	225	230	230	225H	210	I215A	240	240H	245	240	230	240	I245A	250	I255A	265	I255A
19	260	310	300	285	260	275	230	230	225	230H	220	210	205	I225A	240	I250C	I235C	220	230	255	I265A	260	275	285
20	270	275	260	255	240	220	225	215	220	220	230H	215H	205	240	245	250	225	220	250	240	I250A	275	270	250
21	250	250	265	290	265	250	230	230	220	210	230	210	235	230	220H	235	235	215	260	250	250	250	260	280
22	300	290	305	295	280	260	210	220	C	C	C	C	C	C	C	C	C	220	255	255	240	230	260	275
23	315	290	280	270	250	240	240	240	235H	240	I245A	225H	215	210H	240	240	220	I230A	I245A	260	I270A	240	300	295
24	260	280	290	255	250	205	220	230	235	220	230	240	235H	225H	220H	250	220	220	240	250	250	245	290	300
25	310	315	305	260	270	260	225	225	225	230	C	C	C	240	245	240	225	210	215	235	270	270	280	285
26	300	320	315	280	260	250	245	235	225	220	230	220	200	230H	240	240	225	215	250	260	260	300	I310A	280
27	305	290	320	295	295	260	255	245	240	260	230	230	255H	245	235H	240	245	I225A	210	I250C	I285C	280	315	300
28	280	230	285	305	300	300	240	245	240H	230	235	225	205H	245	245	235	215	220	240	270	400	325	300	425
29	500	475	345	425	320	300	550	355	300	260	I255A	230	235	240	250H	250H	250	260	260	315	360	365	375	320
30	340	300	300	285	310	330	250	240	220	230	205	210H	240	240	225	235	240	210	240	260	320	205	I240C	I280C
31	300	410	300	250	235	200	265	210	220H	215H	210H	210	A	A	A	240	215	225	I255A	I290A	320	300	290	305
No.	31	31	31	31	31	31	31	31	29	29	28	28	27	29	27	28	28	31	31	31	31	31	31	31
Median	300	300	300	280	265	260	230	230	235	230	225	220	215	230	240	245	240	230	240	250	260	270	285	295

h'F

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

The Radio Research Laboratories, Japan.

W 10

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	110	110	E	110	G	G	G	105	105	105	G	G	G	G	S	E	E	E	E	E	E
2	E	135	125	110	110	E	S	120	G	G	G	110	G	G	G	115	140	115	110	120	115	130	115	E
3	E	E	E	E	105	E	S	G	G	G	C	C	110	105	105	105	105	140	120	E	E	E	E	E
4	E	E	E	E	105	105	S	G	G	G	120	120	120	G	105	G	G	S	E	E	E	E	E	E
5	E	E	E	110	110	E	S	G	125	C	120	115	110	105	G	105	110	125	125	120	115	115	110	E
6	105	105	105	105	105	E	S	G	120	115	115	110	110	115	115	115	110	110	110	115	115	E	E	110
7	E	110	110	106	E	E	S	130	115	110	115	110	105	105	105	110	110	S	115	115	E	110	110	115
8	E	E	110	110	110	E	S	115	110	110	110	110	105	110	110	110	110	110	E	E	E	E	E	E
9	E	E	E	E	110	E	G	G	G	G	115	110	110	110	110	105	G	S	115	110	115	110	E	E
10	E	E	E	E	E	110	S	G	G	G	115	110	G	G	G	G	S	S	E	E	115	110	115	E
11	E	E	E	E	E	E	S	G	G	120	110	115	115	G	115	G	G	125	E	120	E	E	E	E
12	E	E	E	E	E	E	S	140	G	G	G	G	G	G	G	G	120	120	110	110	E	E	E	E
13	E	E	E	E	E	E	S	G	125	125	G	G	G	G	105	G	155	S	E	E	115	115	115	110
14	110	110	E	E	E	E	S	G	G	125	120	G	G	120	120	120	G	S	120	E	E	E	110	E
15	E	E	E	E	E	E	S	G	140	G	G	120	120	115	G	G	160	S	E	125	E	115	E	110
16	110	E	E	E	110	E	E	150	G	G	110	G	G	G	G	140	135	120	115	110	110	110	110	110
17	110	110	E	120	E	E	S	G	125	G	115	110	110	110	105	G	S	E	E	115	110	110	E	110
18	110	110	E	E	E	E	S	G	105	120	G	115	105	110	110	G	G	E	E	110	105	105	115	110
19	E	110	E	110	105	105	S	G	G	G	105	105	105	105	105	C	C	115	E	100	120	125	115	110
20	E	E	E	E	E	E	S	G	G	G	120	110	105	105	G	G	S	E	E	115	110	110	110	110
21	E	E	E	105	E	E	S	G	G	G	G	G	110	G	G	110	S	E	105	E	E	E	E	E
22	E	E	E	E	105	E	S	G	C	C	C	C	C	C	C	C	C	115	E	E	E	110	125	E
23	115	105	105	E	105	105	105	115	G	115	110	110	105	110	G	G	105	105	105	105	110	105	110	110
24	E	105	105	E	E	E	S	S	G	G	115	110	110	110	G	G	S	E	E	E	E	E	E	E
25	E	110	110	110	110	110	S	G	125	125	C	C	C	G	G	G	S	E	E	E	E	E	E	115
26	E	110	105	E	E	E	E	145	125	120	115	110	105	G	G	110	110	E	E	E	E	E	130	E
27	E	110	E	105	105	105	E	S	145	140	125	125	125	120	C	140	110	125	105	C	C	E	E	E
28	E	E	E	E	E	E	E	S	B	G	120	120	105	G	G	G	145	E	E	E	E	E	E	E
29	E	E	E	E	E	E	125	S	G	G	110	110	115	G	B	B	S	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	140	125	120	120	G	115	G	G	G	S	E	E	E	E	E	C	110
31	110	110	E	E	E	110	E	G	115	110	110	110	105	105	105	G	S	110	115	110	110	E	E	E
No.	7	13	8	11	14	7	3	8	13	13	22	22	23	16	13	12	14	13	13	15	13	14	13	12
Median	110	110	110	110	110	105	110	135	125	120	115	110	110	110	105	110	110	115	115	115	115	110	115	110

h'Es

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

The Radio Research Laboratories, Japan.

W 11

IONOSPHERIC DATA

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

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

Types of Es

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I 4.2R	4.1	4.1	4.3R	3.8R	I 4.1R	5.5	7.3	6.1	9.0	10.8	10.3R	8.4	7.8	11.5	U 9.5R	6.0	6.8	8.8	9.2	5.1	I 3.4S	I 4.1§	3.6
2	3.4	3.4	3.5	3.6	3.2	3.1	5.6	7.1	7.5	8.2	8.6	8.9	8.0	8.4	8.5	7.9	8.1	7.7	7.2	6.6	5.5	4.9	I 4.5A	4.1R
3	I 4.1A	4.1	I 4.2R	4.1	4.0	3.5	5.9	7.1	8.2	8.6	8.3	8.6	8.2	8.2	8.6	7.7	8.1	8.6	8.0	5.0	4.0	3.9F	3.7R	4.1
4	4.1	3.7	3.7F	3.7F	3.7F	3.7	6.1	7.1	8.3	8.9	8.5	8.8	8.7	8.3	8.3	8.0	8.6	8.4	7.8	6.2	4.9	4.6R	4.6R	I 4.6R
5	4.5	4.4R	4.5	4.6	4.4R	4.2	6.6	7.2	8.2	8.9	9.5	9.0	9.9	9.6	8.8	9.1	9.6R	9.1	7.6	I 5.5A	4.0	3.9R	3.9	RF
6	RF	R	3.9F	I 4.0R§	4.0	4.1	5.6	6.9	7.6	9.1	8.6	8.6	10.1	9.8	9.4	8.8	I 8.4A	9.0	7.9	5.9	A	A	4.4	R
7	A	4.7F	4.6	I 4.5§	I 4.6R	4.5F	6.8	8.4	8.6	9.3	8.7	8.9R	9.5	9.8	9.1	8.6	8.8	8.0	6.6	I 5.4A	I 4.8A	I 4.6A	4.4	F
8	A	F	I 3.9A	I 3.9A	I 4.0F	4.1	6.5R	7.9	7.9	8.7	8.4	9.1	8.3	8.4	9.0	8.5	7.9	7.9	I 7.8R	6.7	7.3R	4.4	3.0	3.3
9	3.5	3.7	4.0	3.8	4.0	I 4.0§	5.6	I 7.6R	9.1	8.3	8.7	9.6	9.2	8.5	8.4	8.1	8.1	7.5	7.2	6.0	4.9	4.3	4.3	4.8S
10	4.6S	4.5S	4.4	4.6S	4.5	I 4.2R	6.0	7.2	8.4	9.4	10.0R	8.8	9.8	9.1	8.7	8.0	8.3	9.1	6.6	5.6	5.0	I 5.0§	4.1	3.8
11	3.6	3.5R	3.8R	3.8	3.9	3.6	5.4	7.6	8.6	9.7R	8.6	7.4	8.1	8.6	8.5	8.8	7.9	7.8	7.4	4.6	I 4.6A	I 4.6A	I 4.6§	4.6S
12	I 4.6R	4.4	3.7	4.0	3.9	4.1	5.9	9.0R	9.4R	10.1H	9.1	9.2	9.0	8.8	8.8	9.1	9.0	9.6R	7.8R	6.0	5.0	4.6S	4.0S	I 4.2§
13	4.3S	4.3S	4.2	4.5	4.5	4.3	6.4	8.1	I 9.5R	11.5	I 11.0R	10.9	11.1	9.7	8.9	9.0	8.5	8.1	6.8	6.2	5.2	4.9	I 4.4A	3.9
14	3.6	I 3.6A	3.8	3.6	3.5R	3.9	5.9	7.5	9.2	9.4	9.5	8.6H	9.6	9.6	9.4	8.2R	7.9	7.1	5.8	5.1	5.3	5.0	4.4R	4.2
15	4.2R	4.3R	4.2R	4.3R	4.1	3.5	5.4	7.7	U 10.1R	U 9.6R	9.3	10.8	10.4	9.1	8.9	7.9	8.4	7.2	5.5	4.3	I 4.6§	4.7	4.6	4.3S
16	4.2	3.9R	3.7	3.8S	4.3	3.6	I 5.2C	8.2	8.2	8.7	9.0	8.1	9.0	9.0	9.0	8.5	9.0	8.6R	6.3	5.5	5.3S	5.1	4.8	4.7R
17	4.6	4.5	4.3	4.2	4.5	4.4	5.3	7.1	7.9	8.1	7.9R	8.3	8.4	9.6	9.9	8.9	8.1	7.2	4.7	I 4.6R	I 4.8R	4.8	4.4	I 4.3A
18	I 4.4§	I 4.4§	4.4S	4.6	4.3R	3.6	4.9R	6.7	8.3R	7.7	8.0	9.6R	9.2	8.0H	8.6	8.9	7.2	6.3	6.3R	6.4	5.6	4.8	4.7	4.5
19	3.3	3.3	3.6	3.7	3.6	3.6	5.2	6.6	8.3R	8.2	8.3	U 10.2R	7.7	7.4H	7.8	8.5	9.2	8.0	5.3	4.4	4.3	4.4	4.6	I 4.4§
20	4.5	I 4.4§	4.1	RF	RF	4.4F	5.6	7.2	C	C	C	C	C	C	C	C	8.8	6.8	6.6	6.8	5.5	5.3	5.1F	5.1S
21	A	RF	A	RS	F	F	F	8.5	I 9.4R	8.6	I 9.2R§	9.7	8.4	8.2	9.0	7.8	8.2	7.1	I 4.9A	4.8	4.6	4.4R	4.6S	4.3S
22	4.2S	4.2	I 4.3§	RF	RF	RF	5.8F	I 8.4R	7.9	7.4	9.0	10.2R	8.6	8.7	8.5	8.3	7.5	6.3	5.4	5.3	5.4	4.6	4.3S	4.4
23	F	F	4.1F	4.4	4.0	4.0	5.5	7.3	8.2	9.3	7.8	8.6	9.4	7.9	8.3	8.6	8.8R	5.9	4.4	4.6	4.5	4.8S	RF	A
24	F	RF	F	F	4.5S	I 4.4§	4.7	6.1	7.6	7.1	8.2	U 9.9R	I 9.2C	9.1	8.7	I 9.2R	8.2	6.7	4.4	4.6	4.0	3.5	3.6S	3.5S
25	3.6S	I 3.7F	I 3.8F	3.8	4.0	3.1	4.9	6.8	8.6	7.8	8.8	U 10.2R	10.9	9.3R	9.1	7.6	8.3	7.1	4.6	4.4	3.1	3.6S	F	RF
26	F	F	RF	F	F	4.5	5.2	7.0	8.1	8.8	I 9.0R	11.0	10.5	9.5	9.5	9.0	7.7	6.6	4.5	4.6	4.2	3.8	3.6R	3.6
27	3.1	3.1	3.1	3.1	3.1	3.3R	4.6	7.0	9.1	10.1R	U 12.0R	8.5	7.5	9.1	8.6	10.6	8.8	I 7.2R	5.0	3.6	3.0	I 3.2R	I 3.4R	I 3.6A
28	3.5	4.0	I 3.1A	3.1	3.3	3.5	4.9	7.1R	9.6	8.7	U 9.5R	10.1	8.3	8.6	8.6	I 8.8C	7.9	5.6	4.0	4.3	3.3	F	R	3.5R
29	I 3.6R	I 3.4R	I 3.0S	I 3.1R	3.1R	3.0	I 2.8R	I 5.0§	5.8	I 5.3F	5.0	6.6	7.0F	6.6	6.8	6.6	5.6	4.5	3.6	3.0	2.6	2.3	2.5	2.6
30	2.6	2.6	2.7	2.6	2.3	2.0	3.8R	6.2	7.1	8.6	7.1	8.2	I 8.8§	8.6	7.9	7.4R	7.4	I 6.6R	3.7	3.3	3.2	4.6	I 2.8A	2.5
31	2.8	2.3	2.5	2.9	2.7	2.1	3.6	I 5.8R	7.0	6.7	7.9	8.2	7.3	U 8.3§	7.3	7.3	6.9	5.7	I 3.8A	3.1	3.0	3.5	3.2	3.3
No.	24	25	28	26	27	29	30	31	30	30	30	30	30	30	30	30	31	31	31	31	30	29	28	26
Median	4.1	4.0	3.9	3.8	4.0	3.9	5.5	7.2	8.2	8.7	8.7	9.0	8.9	8.6	8.7	8.5	8.2	7.2	6.3	5.1	4.7	4.6	4.4	4.2
U. Q	4.4	4.4	4.2	4.3	4.3	4.2	5.9	7.7	9.1	9.3	9.3	10.1	9.6	9.3	9.0	8.9	8.8	8.1	7.4	6.0	5.2	4.8	4.6	4.4
L. Q	3.5	3.4	3.6	3.6	3.5	3.5	4.9	6.9	7.9	8.2	8.3	8.6	8.3	8.3	8.5	7.9	7.9	6.6	4.6	4.4	4.0	3.8	3.6	3.6
Q. R	0.9	1.0	0.6	0.7	0.8	0.7	1.0	0.8	1.2	1.1	1.0	1.5	1.3	1.0	0.5	1.0	0.9	1.5	2.8	1.6	1.2	1.0	1.0	0.8

foF2

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

The Radio Research Laboratories, Japan.

A 1

21

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L^H	4.6^L	I4.4^L	L	L	L									
2									L^H	L^H	L^H	L	4.5^L	L	L	L								
3									L	A	L	A	4.5^L	I4.2^L	L									
4									L^H	L	S	L	A	A	L	A								
5											A	L	L	L	L	L								
6										L	A	L	A	A	L									
7										A	A	A	L	A	L	L								
8									L	L	I4.6^L	4.6^L	L^H	L	3.8^L									
9										L	L	L	L	L	L									
10										L	L	4.5^L	L^H	L^H	L									
11										L	L	L	L	L	L^H									
12									L	L	L	4.4	L^H											
13									L	L	L	L^H	L		L									
14										L	L	L	L	L	L									
15										L	A	4.5^L		L	L									
16											L	L	L	L	L									
17											L	4.4^L	A	L	L	L								
18										L	L	L	L	I4.0^L		L								
19										L	L	L	L	L	3.4									
20									C	C	C	C	C	C	C	C								
21									L	4.3^L		L	L	L	L									
22										L	L	L	L	L										
23									L	L	L	A	A	A										
24										L	L	L	C	L										
25											L	L	L	L	L									
26										A	L	A	A	A	L									
27									L		L	L		L	L									
28										L	L	L	I4.0^H	L										
29								3.1	3.5	3.9	I3.9^H	I4.3^L	I4.2^L	I4.1^L	L	L								
30									L	L	4.1^L	I4.1^L		L										
31									4.0		4.1^L	4.0^L	I4.8^L	A										
No.								1	2	2	5	9	5	3	2									
Median								3.1	3.8	4.1	4.1	4.4	U4.5	U4.1	3.6									

foF1 | Sweep 1.60 Mc to 2.00 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	A	A	A	R	325	310	295	A	A	B						
2							1.75	I245A	285	I310A	I320A	I325A	325	320	I305A	I285A	255	A						
3							A	240	290	A	A	A	A	330H	320	300	255	A						
4							R	245	290	I320A	I335S	345	A	A	A	A	A							
5							1.80	250	295	I310A	325	I320A	325	I320A	310	280	245							
6							1.80	250	I290A	A	A	345	I350A	345	I330A	A	A	A						
7							1.80	255	300	I310A	320	A	A	A	A	A	A	A						
8							R	240	295	315	325	335	I330A	I330A	310	295	240							
9							R	A	300	310	I330A	345	350	345	320	295	235							
10							R	245	290	305	310	I330A	A	A	A	A	245							
11							R	250	295	310	A	A	340	I320A	305	285	230							
12							R	245	295	310	320	320	325	325	300	285	250							
13							B	220	A	A	A	A	325	320	I295A	275	215							
14							A	250	285	305	310	320	I325A	A	A	A	A							
15								240	I285A	305	310A	I320A	335A	I325A	305	I265A	I210R							
16								255	275	305	A	A	A	320	305	270	235							
17								240	275	I300A	310A	A	A	325	305R	285	225							
18								240	280	305	A	A	A	A	A	A	A							
19								225R	A	A	A	I320A	325R	315	300	A	A	A						
20								225	C	225	C	C	C	C	C	C	A							
21							E	220	260	I290A	315	325	330	320	300	275	A	A						
22								230	A	A	A	A	A	310	300	A	A	A						
23								I220A	260	285	A	A	A	A	295	A	A							
24								215	I260A	290	A	A	C	A	A	A	A							
25								230	270	295	A	A	A	A	A	A	200							
26								220	I280A	300	A	A	A	A	A	A	A							
27							E	A	255	285	295	305	305	295	275	255	A							
28								205	255	290	305	305	305	290	270	I245C	205							
29								A	255	270	I285A	I290A	I295A	I295R	265	230	R							
30								210	I250A	280	300	305	I300A	I300A	285	255	A							
31								A	A	A	A	300	A	A	A	A	A							
No.							6	26	25	24	16	17	17	20	21	16	14							
Median							1.80	240	285	305	310	320	325	320	300	280	235							

foE'

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J2.3	E	E	E	J2.8	J2.9	J5.0	J3.8	J3.1	J3.6	3.3	G	G	G	G	J2.8	J2.3	G	E	E	E	S	E	J1.8
2	E	E	E	E	E	J1.8	G	J2.8	G	3.0G	J18.1Y	3.6	3.5	4.0	J5.0	3.7	3.6	J2.9	E	E	E	J6.0	J5.0	J4.0
3	J4.3	J3.3	J3.3	E	E	E	J2.2	G	3.1	J4.5	J4.3	J10.8	J5.1	G	G	3.2	3.2	2.3	J3.3	J2.8	J5.7Y	J6.0Y	J2.8	E
4	E	E	E	E	E	E	G	G	G	3.7	4.1S	3.6	4.5	J4.5	J4.1	J5.9	2.4	J2.7	J4.7	J2.8	J2.3	E	E	E
5	E	E	E	E	E	E	G	J2.8	3.5	4.2	J4.9	4.3	J4.3	J5.0	G	3.2	2.9	J4.6	J4.8	J6.4	E	J3.3	J3.0	J2.3
6	J2.8	J2.9	J3.1	J2.4	J1.7	E	G	G	3.5	J4.3	J5.2	J5.1	J6.1	J5.8	J4.9	J6.0	J8.3Y	J3.3	J2.8	J6.1Y	J6.2	J5.0Y	J2.8Y	J8.3Y
7	J6.3	J2.9	E	E	J1.9	J2.0	G	J4.0	J5.0	J6.0	J7.7	J12.9	J8.4	J8.5	J3.8	J3.5	J2.9	J2.8	J4.1	J5.8	J7.8	J6.1	J3.8	J3.3
8	J6.0	J2.5	J5.1	J4.9	J2.3	E	G	G	G	G	3.9	G	3.6	J3.6	G	G	G	2.4	J4.0	J2.8	J2.3	J2.0	J1.9	E
9	E	E	E	J2.4	E	E	G	2.9	3.4	3.5	3.5	G	G	G	G	G	J2.9	E	E	E	E	E	E	E
10	J1.9	E	E	E	E	E	G	G	3.6	3.4	3.7	3.4	3.4	J3.5	J3.3	3.5	3.3	2.3	J2.8	E	J2.1	E	E	E
11	J2.3	J2.8	J2.9	J2.3	J2.5	J2.3	G	G	3.3	G	3.6	3.5	3.7	J3.8	G	3.1	3.0	J2.7	J2.8	J4.8	J5.0	J4.3	J2.8	E
12	E	E	E	E	E	E	G	3.0	3.5	3.3	G	3.0G	3.1G	G	J3.3	3.5	3.1	E	J2.3	J2.2	J4.4	E	E	J1.7
13	E	E	E	E	E	E	G	J3.5	J3.8	J3.8	J3.3	3.6	3.6	G	J3.6	G	2.7	1.8	J1.7	E	E	E	J4.9	J3.3
14	J3.5	J5.9	J2.5	J2.3	J2.8	E	2.1	G	3.1	3.5	3.5	3.6	J4.3	3.5	3.5	J3.0	3.1	J2.6	J2.4	J2.0	E	J2.3	E	E
15	E	E	E	E	E	E	E	G	3.1	G	J7.8	3.6	3.9	J5.2	3.4	3.1	G	E	E	E	E	E	J1.7	E
16	J2.4	J1.8	J2.2	J2.5	J3.2	J2.9	C	3.1	3.7	3.9	4.2	3.7	3.7	G	G	G	2.8	2.0	E	J2.4	J2.8	J2.0	J2.3	J2.3
17	J2.8	J2.4	J2.3	E	E	E	E	2.6	3.5	J4.5	J6.0Y	J6.1	J4.2	G	G	G	2.6	E	J3.2	J2.5	J2.9	J2.4	J8.3Y	J6.0
18	J3.4	J2.4	E	J2.3	J1.8	E	E	2.9	3.5	3.9	J4.2	J4.1	3.5	3.4	3.5	J3.2	J2.4	J2.8	J2.8	J2.4	J1.8	E	J1.7	J2.3
19	J2.3	J2.9	J2.4	J1.9	J1.9	E	J2.4	G	J3.0	J3.2	J3.2	J3.5	J6.3Y	3.0G	3.2	J2.9	J4.2	J3.3	J3.2	E	E	J1.7	J2.5	J2.4
20	J5.6Y	J2.6	J2.9	3.2	E	E	E	G	C	C	C	C	C	C	C	C	3.2	J2.4	J2.3	J1.9	E	E	J1.7	J5.0Y
21	J5.0	J3.4	J4.0	J3.3	J2.8	J2.0	G	G	3.1	3.1	G	3.9	3.8	G	G	3.6	J4.0	J3.1	J8.3	J2.4	J2.8	E	E	E
22	E	E	E	E	E	E	E	G	G	3.6	3.6	3.5	3.8	3.7	3.7	J5.6	J5.1	J5.2	J5.0	J2.4	J2.3	J2.4	J3.4	2.5
23	J2.4	J1.8	E	J4.9	J2.6	E	E	2.9	3.0	3.5	J3.9	J4.4	J4.2	J5.0	J3.4	J3.8	J6.5	J3.2	E	E	E	E	J2.8	J5.6Y
24	J2.8	J2.5	J1.8	E	E	J2.4	J2.1	J2.1G	J2.9	3.3	3.4	3.8	C	J3.8	3.1	2.6	J2.4	J2.3	J2.3	E	J2.4	J2.0	J2.3	J2.1
25	E	E	J2.3	E	E	E	E	G	G	3.7	J4.0	J4.5	J3.5	3.4	3.0	J2.9	G	J1.7	J6.2	J6.0	J3.8	J2.9	J2.8	J2.3
26	J2.3	J2.4	J2.9	J1.9	E	E	E	3.0	J4.3	J7.0	J4.5	J7.1	J9.5	J8.6	J4.0	J3.8	J3.0	J1.7	J1.7	J2.8	J2.9	J2.8	J2.0	J2.0
27	J2.1	J2.3	J2.9	J3.8Y	J2.8	J1.9	1.9	J3.8	3.5	J4.4	3.7	J7.8	J5.1	G	3.2	3.1	J3.7	J3.5	J2.3	J2.3	J1.8	J2.4	J2.4	J4.1
28	E	J2.0	J2.3	J2.7	E	E	J6.1Y	2.7	3.1	3.5	3.2	G	G	2.9G	2.1G	C	3.0	J2.3	E	J2.0	E	E	E	E
29	E	E	S	E	2.1	J2.0	G	2.8	G	G	J3.4	3.0	3.0	G	G	G	G	E	J2.4	J1.7	J2.5	E	J2.3	J2.4
30	J2.1	E	E	E	E	E	E	G	J2.8Y	G	G	3.1	J5.0	J3.6	J2.9	G	J2.8	J2.8	J6.0	J2.9	J2.8	J2.4	J2.8	J1.7
31	E	J1.7	E	E	J1.8	J1.8	E	2.4	3.2	3.2	3.2	2.8G	3.2	J4.5	J4.5	J2.8	J2.8	J3.0	J5.0	J2.4	J3.0	J2.4	E	E
No.	31	31	30	31	31	31	30	31	30	30	30	30	29	30	30	29	31	31	31	31	31	30	31	31
Median	2.3	1.8	E	E	E	E	G	2.4	3.1	3.5	3.7	3.6	3.8	3.5	3.2	3.1	2.9	2.4	2.8	2.4	2.3	2.0	2.3	2.1
U.Q	2.8	2.6	2.9	2.4	2.3	1.9	1.9	2.9	3.5	3.9	4.3	4.4	4.8	4.5	3.6	3.6	3.3	3.0	4.1	2.8	2.9	2.8	2.8	3.3
L.Q	E	E	E	E	E	E	E	G	2.9	3.2	3.3	3.1	3.4	G	G	G	2.4	1.7	1.7	E	E	E	E	E
Q.R									0.6	0.7	1.0	1.3	1.4				0.9	1.3	1.4					

foEs

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

The Radio Research Laboratories, Japan.

A 4

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IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E				1.8	2.0	2.9	2.8	3.0	3.4	3.3					2.7	2.3					S		E
2						E		G		^{U}3.0^{B}	3.3	3.5	3.5	3.8^{I}	3.5	3.1	3.4	2.5				3.4	A	2.7
3	A	3.0	3.0				2.0		3.1	4.5	4.3	6.0	4.0			3.1	3.1	2.3	3.1	2.8	2.9	2.6	2.5	
4										3.7	^{E}4.1^{S}	G	4.5	4.4	3.8	5.3	2.4	2.2	3.8	2.1	2.3			
5								2.0	3.4	4.2	4.8	4.0	3.9	3.4		3.2	2.8	4.5	^{E}4.8^{B}	A		E	^{E}3.0^{B}	1.7
6	2.5	2.2	2.4	2.4	E				3.4	3.9	4.6	4.5	4.8	4.5	3.9	4.3	A	3.0	E	2.5	A	A	E	1.8
7	A	E			E	E		^{U}4.0^{B}	4.1	5.3	7.4	6.3	4.1	5.8	3.3	2.9	2.5	2.0	2.8	A	A	A	3.8	2.8
8	A	2.0	A	A	E						3.4		3.4	3.5				1.7	2.5	2.4	E	E	E	
9				E				2.8	3.2	3.4	3.5						2.2							
10	E								3.0	3.4	3.6	3.4	3.4	3.3	3.2	3.0	2.8	2.0	E		E			
11	E	2.0	2.0	E	E	E			3.2		3.4	3.5	3.5	3.6		3.0	2.8	2.5	2.7	3.0	A	A	E	
12								2.8	3.3	3.2		3.0^{G}	3.1^{G}		3.2	3.2	2.8		E	E	4.0			E
13								G	3.0	3.5	3.3	3.4	G		3.2		2.5	1.8	E				A	2.0
14	2.5	A	2.4	2.0	E		2.1		3.0	3.1	3.5	3.5	3.5	3.4	3.2	3.0	2.7	2.0	E	1.7		E		
15									3.0		4.7	3.6	3.5	3.4	3.2	3.0							E	
16	2.3	E	E	E	1.8	2.9	C	3.0	3.5	3.9	3.7	3.5	3.4				2.6	E		^{U}2.4^{B}	1.8	^{E}2.0^{B}	E	^{U}2.3^{B}
17	2.7	2.3	1.9					2.5	3.4	3.6	3.7	3.5	^{U}4.2^{B}				2.5		1.8	2.5	^{E}2.9^{B}	E	2.7	A
18	E	^{U}2.4^{B}		2.0	1.7			2.8	3.1	3.4	3.5	3.4	3.4	3.2	3.3	3.0	2.4	1.7	2.1	E	1.8		E	2.1
19	2.0	1.7	E	1.8	E		1.7		^{U}3.0^{B}	^{U}3.2^{B}	^{U}3.2^{B}	3.3	2.7	2.7^{G}	2.8	2.9	^{U}4.2^{B}	3.2	3.0			E	2.5	E
20	3.0	2.5	E	2.6					C	C	C	C	C	C	C	C	2.7	1.7	^{E}2.3^{B}	E			E	3.4
21	A	2.1	A	2.1	2.0	E			G	^{U}3.1^{B}		3.6	3.6			G	3.2	3.0	A	2.1	2.6			
22										3.5	3.5	^{U}3.5^{B}	3.7	3.5	3.5	4.7	4.6	2.7	2.5	2.0	1.8	E	3.1	2.3
23	2.2	E		E	E			2.9	2.9	3.5	3.9	4.3	4.1	4.1	2.4	2.6	5.1	3.1					2.0	A
24	E	E	E			E	E	1.8^{G}	2.8	3.2	2.0	3.4	C	3.2	3.0	2.5	2.1	1.7	2.1		E	1.9	E	E
25			E							3.5	4.0	3.4	3.4	3.3	2.9	2.6		E	E	3.0	2.4	2.8	2.2	E
26	E	E	E	E				2.7	4.0	5.5	4.2	7.1	5.5	5.0	3.0	3.0	3.0	1.7	E	2.7	2.7	2.5	E	E
27	E	E	1.8	2.0	E	E	E	2.8	3.1	^{U}4.4^{B}	3.6	3.5	3.4		3.0	3.0	2.9	3.4	2.3	2.1	^{U}1.8^{B}	^{U}2.4^{B}	2.4	A
28		E	A	2.0			E	2.4	2.9	3.1	3.2			2.7^{G}	2.0^{G}	C	2.7	E		E				
29					1.7	E		2.3			3.3	^{U}3.0^{B}	3.0						E	E	E		2.0	E
30	E								G			1.8	3.1	3.2	1.9		2.0	2.8	E	2.6	1.8	E	A	E
31		E			E	1.7		2.4	3.0	3.1	3.2	2.7^{G}	^{U}3.2^{B}	4.2	3.5	2.8	2.5	E	A	2.4	2.3	2.4		
No.	19	18	15	14	14	10	8	17	24	25	26	26	26	20	20	22	27	25	22	22	19	18	21	20
Median	2.2	1.8	1.9	2.0	E	E	1.7	2.7	3.0	3.5	3.5	3.5	3.5	3.4	3.2	3.0	2.7	2.0	2.1	2.4	2.3	^{E}2.2	2.0	1.9

fbEs

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	E	1.70	1.65	1.70	1.80	1.70	1.75	E	E	E	1.80	E	E	E	S	E	E
2	E	E	E	E	E	E	E	1.70	1.70	1.70	1.75	2.00S	2.00S	1.80	1.75	1.70	1.65	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E	1.70	1.70	1.70	1.80	1.80	1.90	1.75	2.00	1.70	E	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E	1.70	1.70	1.65	E3.50S	1.70	1.75	2.00	1.70	1.70	E	E	E	E	E	E	E	E
5	E	E	E	E	E	E	E	1.65	1.70	1.70	1.70	1.75	1.75	1.70	1.70	1.70	1.70	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E	E	1.65	1.70	1.70	1.70	1.75	2.00	1.70	1.70	E	E	E	E	E	E	E	E
7	E	E	E	E	E	E	1.65	1.65	1.70	1.70	1.75	1.80	1.80	1.75	1.80	1.70	1.70	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	E	1.70	1.70	1.80	1.70	1.65	2.00	1.70	1.70	1.70	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E	1.65	1.70	1.65	1.70	1.90	1.95	1.65	1.80	1.65	E	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	E	1.70	1.70	1.70	1.75	1.70	1.70	1.80	1.70	1.70	E	E	E	E	E	E	E
11	E	E	E	E	E	E	E	E	1.70	1.65	1.70	1.70	1.70	1.75	1.80	1.65	E	E	E	E	E	E	E	E
12	E	E	E	E	E	E	E	E	1.70	1.65	1.80	2.05	1.80	1.75	1.70	1.75	E	E	E	E	E	E	E	E
13	E	E	E	E	E	E	1.75	E	1.80	1.65	1.75	1.80	1.75	1.70	1.75	1.65	E	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E	1.65	E	1.85	1.70	1.70	1.70	1.70	1.70	1.70	1.70	E	E	E	E	E	E	E
15	E	E	E	E	E	E	E	E	E	1.95	1.70	1.65	1.65	1.75	1.65	E	E	E	E	E	E	E	E	E
16	E	E	E	E	E	E	C	E	1.70	1.70	1.70	1.80	1.65	1.70	1.80	1.65	1.65	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	E	E	1.75	1.75	1.70	1.90	1.75	1.75	1.70	1.70	E	E	E	E	E	E	E
18	E	E	E	E	E	E	E	E	1.70	1.70	1.75	1.70	1.70	1.65	1.65	1.65	E	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	E	1.70	1.65	1.70	1.70	1.70	2.00	1.70	1.70	1.70	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	E	C	C	C	C	C	C	C	C	1.65	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	1.65	1.65	1.70	1.70	1.65	1.75	1.70	1.65	1.70	E	E	E	E	E	E	E	E
22	E	E	E	E	E	E	E	1.70	1.65	1.70	1.70	1.80	1.75	1.75	1.65	1.65	E	E	E	E	E	E	E	E
23	E	E	E	E	E	E	E	1.70	1.70	1.75	1.70	1.70	1.75	1.75	1.65	1.65	E	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	1.70	1.65	1.65	1.70	1.70	1.65C	1.90	1.80	1.70	E	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	1.65	1.65	1.70	1.70	1.65	1.70	1.65	1.70	E	E	E	E	E	E	E	E	E
26	E	E	E	E	E	E	E	E	1.70	1.70	1.80	1.75	1.70	1.70	1.65	1.65	E	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	E	1.70	1.75	1.85	1.80	1.70	1.70	1.65	1.70	E	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	1.65	1.70	1.70	1.70	1.70	2.00	1.70	E	1.65C	E	E	E	E	E	E	E	E
29	E	E	S	E	E	E	E	1.65	1.70	1.65	1.95	1.95	1.75	1.90	1.70	E	E	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	E	1.70	1.65	1.70	1.65	1.70	1.70	1.65	1.65	E	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	1.65	1.65	1.70	1.70	1.70	1.75	1.80	1.70	1.70	E	E	E	E	E	E	E	E
No.	31	31	30	31	31	31	30	31	30	30	29	30	30	30	30	30	31	31	31	31	31	30	31	31
Median	E	E	E	E	E	E	E	E	1.70	1.70	1.70	1.70	1.75	1.75	1.70	1.70	E	E	E	E	E	E	E	E

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I280R	290	290	290R	315R	I300R	330	340	305	270	285	310R	280	300	310	U340R	320	260	300	315	330	I250S	I255Bs	260
2	240	250	270	290	290	305	335	355	335	345	325	330	310	335	330	330	350	340	320	320	310	295	I300A	310R
3	I280A	255	I275R	285	315	290	350	355	340	345	340	340	320	330	325	330	330	330	350	325	280	285F	300R	275
4	290	280	285F	295F	305F	315	365	350	355	355	350	330	330	335	325	325	340	325	325	340	300	295R	285R	I280R
5	280	285R	285	285	290R	290	350	350	345	340	335	320	315	325	320	320	330R	340	345	I325A	280	285R	290	RF
6	RF	R	280F	I295Bs	300	310	340	350	350	340	345	320	315	325	320	335	I340A	335	330	310	A	A	285	R
7	A	290F	275	I285Bs	I280R	295F	345	360	330	335	335	325R	320	320	320	325	330	340	335	I325A	I300A	I310A	320	F
8	A	F	I290A	I280A	I290F	310	350R	350	360	345	350	340	340	310	325	330	330	325	I320R	315	330R	340	285	270
9	275	285	290	290	290	I295Bs	345	I350R	345	330	330	325	330	320	320	325	335	335	320	340	320	315	285	275S
10	285S	280S	290	300S	315	I300R	340	350	335	340	330R	325	325	320	310	325	325	340	330	315	320	I310Bs	300	290
11	295	290R	290R	290	310	310	335	355	350	350R	345	325	310	310	310	330	330	350	340	330	I295A	I285A	I285Bs	285S
12	I300R	305	300	280	270	285	320	345R	330R	330H	335	330	315	320	305	320	310	325R	340R	300	320	305S	280S	I275Bs
13	280S	260S	275	285	290	290	340	350	I310R	325	I320R	320	325	310	320	320	340	340	320	320	320	300	I315A	295
14	285	I290A	270	280	275R	290	325	350	350	330	330	310H	320	315	325	330R	330	355	330	300	310	315	310R	290
15	280R	285R	290R	305R	315	295	335	340	U330R	U405R	335	315	325	325	330	330	330	350	330	290	I290Bs	300	305	300S
16	310	290R	285	290S	310	310	I330C	370	360	345	335	325	320	330	320	340	335	335R	330	305	305S	305	300	295R
17	300	295	290	300	315	320	350	360	340	360	340R	340	320	315	335	340	345	355	315	I305R	I310R	315	300	I300A
18	I305Bs	I295Bs	305S	310	330R	305	350R	365	360R	350	330	320R	335	325H	330	340	350	325	325R	330	320	305	315	325
19	295	255	280	310	335	310	340	365	350R	340	345	U350R	345	315H	325	330	350	340	335	320	290	300	290	I290Bs
20	300	I310Bs	300	RF	RF	300F	360	360	C	C	C	C	C	C	C	C	330	310	300	325	310	310	300F	340S
21	A	RF	A	RS	F	F	F	345	I340R	345	I330BH	340	340	325	325	360	345	350	I315A	300	310	310R	310S	285S
22	285S	290	L290Bs	RF	RF	RF	350F	I370R	365	350	320	340R	330	340	335	340	350	335	325	300	320	310	310S	295
23	F	F	290F	300	300	300	330	360	345	365	350	335	330	335	340	340	350R	340	320	315	295	310S	RF	A
24	F	RF	F	F	320S	I340Bs	345	345	365	355	320	U335R	I330C	320	325	I345R	345	360	320	325	330	310	285S	295S
25	285S	I290F	I300F	310	330	315	330	365	350	345	320	U315R	325	335R	340	340	360	360	330	320	325	295S	F	RF
26	F	F	RF	F	F	300	350	340	350	340	I325R	330	325	335	335	345	350	350	295	305	315	315	280R	335
27	310	295	265	295	290	305R	330	360	325	325R	U345R	360	335	335	320	335	350	I340R	335	330	300	I300R	I295R	I285A
28	295	330	I290A	275	295	275	310	355R	340	330	325	335	340	330	340	I345C	355	345	305	305	250	F	R	260R
29	I250R	I240R	I270S	I265R	310R	265	I250R	I255Bs	285	I295F	305	290	300F	320	320	345	330	315	310	305	310	260	270	275
30	270	275	270	290	280	305	335R	365	350	360	355	340	I340BH	355	350	340R	345	I350R	355	305	260	320	I315A	285
31	325	350	285	330	365	275	340	I365R	355	380	360	345	330	U325BH	345	355	355	350	I330A	295	275	310	295	275
No.	24	25	28	26	27	29	30	31	30	30	30	30	30	30	30	30	31	31	31	31	30	29	28	26
Median	285	290	290	290	305	300	340	355	345	345	335	330	325	325	325	335	340	340	325	315	310	305	300	290

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L H	3.75 L	I 3.90 L	L	L	L									
2									L H	L H	L H	L	3.85 L	L	L	L								
3									L	A	L	A	3.90 L	I 3.90 L	L									
4									L H	L	S	L	A	A	L	A								
5											A	L	L	L	L	L								
6										L	A	L	A	A	L									
7										A	A	A	L	A	L	L								
8									L	L	I 3.95 L	3.85 L	L H	L	4.00 L									
9										L	L	L	L	L	L									
10										L	L	4.05 L	L H	L H	L									
11										L	L	L	L	L	L H									
12									L	L	L	4.25	L H											
13									L	L	L	L H	L		L									
14										L	L	L	L	L	L									
15										L	A	3.85 L		L	L									
16											L	L	L	L	L									
17											L	4.00 L	A	L	L	L								
18										L	L	L	L	I 4.05 L		L								
19										L	L	L	L	L	4.20									
20									C	C	C	C	C	C	C	C								
21									L	4.05 L		L	L	L	L									
22										L	L	L	L	L										
23									L	L	L	A	A	A										
24										L	L	L	C	L										
25											L	L	L	L	L									
26										A	L	A	A	A	L									
27									L		L	L		L	L									
28										L	L	L	I 3.90 H	L										
29								2.95	3.45	3.40	I 3.85 L H	I 3.50 L	I 3.50 L	I 3.50 L	L	L								
30									L	L	4.05 L	I 4.30 L		L										
31									3.85		3.85 L	4.00 L	I 3.75 L	A										
No.								1	2	2	5	9	5	3	2									
Median								2.95	3.65	3.70	3.85	4.00	u 3.85	u 3.90	4.10									

M(3000)F1 Sweep 1.60 Mc to 2.00 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 8

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									290L	310	295	245	345	290	285									
2									250	245	245	255	250	280	270	255								
3									250	245	245	250	265	255	255L									
4									245	245	245	255	255	255	260	260A								
5											250	250	280	255	250	255								
6										250	245	270	260	260	260									
7										245	I 250 AI	270A	255	280	255	250L								
8									240	245	250	255	250	250	270									
9										245	250	265	255	250	260									
10										250	250	245	275	255L	250									
11										245	245	245	250	250	260L									
12									245	240H	245	255	250											
13									255	255	245	250	260		255L									
14										250	250	245H	270	270	255									
15										240	250	285		250	250									
16											245	240	250	250	260									
17											245	245	245	290	260	250								
18										245	245	275	250	245H		250								
19										245	255	250	245	245H	250									
20									C	C	C	C	C	C	C	C								
21									245	245		250	245	250	250									
22										225	250	250	245	260										
23									250	245	235	240	245	245										
24										245	245	245	I 255C	270										
25											255	250	255	250	250									
26										245	245	255A	245	245	250									
27									260		240	245		270	260L									
28										250	255	240	245	260										
29								600	345	340	305	345	310	300	295	255								
30									245	240	245	260		245										
31									255		245	245	245	245										
No.								1	13	24	29	30	27	28	22	7								
Median								600	250	245	245	250	250	255	260	255								

h'F2 | Sweep 160 Mc to 200 Mc in 20 sec in automatic operation.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	295	285	295	250	240	I 275 A	245	245	240	205	220	205	245	245	250	245	245	295	250	255	200	I 340 S	340	285
2	E 340 E	355	300	265	280	255	250	245	205 H	200 H	195 H	200	205	240	250	245	250	240	225	235	245	A	A	A
3	A	A	I 295 A	295	240	255	230	235	225	A	A	A	205	200	240	245	245	245	220	230 A	A	A	A	290
4	255	295	300	295	255	250	210	235	200	235	I 275 S	200	I 225 A	I 220 A	I 245 A	I 245 A	245	245	245	230	250 A	255	295	295
5	295	305	300	255	255	295	240	240	245	255	I 240 A	235	230	245	235	245	245	245	I 235 A	I 235 A	240	290	I 305 A	320
6	A	A	A	A	260	245	205	215	245	245	A	A	A	I 240 A	I 240 A	245	I 240 A	240	220	240	A	A	280	330
7	I 305 A	290	280	295	305	295	240	235	245	A	A	A	A	A	245	230	250	235	240	I 245 A	I 250 A	I 245 A	A	A
8	A	300	A	A	260	245	230	240	215	230	200	200	195 H	230	200	245	245	245	240	250	235	200	255	300
9	300	295	270	265	255	280	230	230	245	205	200	200	230	220	215	245	245	240	230	210	245	245	280	295
10	290	275	255	255	240	270	235	220	245	240	220	200	195 H	200 H	230	245	250	240	210	240	240	245	250	255
11	295	I 295 A	I 300 A	295	255	240	235	235	240	230	205	205	195	200	200 H	250	245	230	240	I 235 A	I 265 A	I 290 A	300	295
12	260	245	255	290	295	280	235	245	230	210	205	200	195 H	250	245	245	245	240	215	230	I 245 A	245	270	295
13	295	310	300	295	270	255	245	235	240	230	205	200 H	200	245	225	245	245	230	230	230	235	245	I 245 A	255 A
14	A	A	I 295 A	300 A	305	295	275	225	245	215	205	200	200	245	245	245	245	230	235	250	245	245	245	280
15	300	295	285	260	245	250	245	240	245	230	I 235 A	205	245	245	220	230 H	245	230	230	250	275	255	250	265
16	270 A	275	295	295	255	I 255 A	I 240 C	230	240	245	205	230	200	210	240	245	245	230	215	240 A	245	I 250 A	255	290 A
17	290 A	280 A	295	260	245	245	210	220	220	235	205	200	I 200 A	205	245	245	230	220	230	I 245 A	I 245 A	245	I 270 A	I 290 A
18	280	I 290 A	250	255	215	250	240	230	240	225	215	225	200	195	255	245	230	230	240 A	245	245	245	245	245
19	290 A	340 A	300	260	240	250	230	225	245	230	210	200	205	215	225	245	240	225	220	240	255	255	I 270 A	295
20	I 270 A	250	260	300 A	250	255	215	220	C	C	C	C	C	C	C	C	235	225	250 A	235	245	250	255	A
21	A	290 A	A	A	255	255	245	235	215	210	240 H	230	240	200	245	240	240	225	I 245 A	260 A	260	250	250	290
22	295	290	295	295	295	245	210	205	235	215	200	225	225	210	245	245	235	230 A	250	260	245	240	I 250 A	255 A
23	I 320 A	290	295	280	270	255	240	230	225	240	I 220 A	I 215 A	I 215 A	I 240 A	245	235	245	220	240	245	250	245	I 250 A	I 215 A
24	255	290	280	270	235	205	220	210	240	225	205	200	I 200 C	245	245	245	230	210	240 A	240	230	260 A	290	295
25	305	295	295	260	245	250	230	225	230	235	240	205	245	220	240	245	240	210	200	I 225 A	A	A	A	260
26	280	300	330	295	245	250	245	230	230	I 235 A	I 205 A	A	A	A	240	245	245	210	245	I 255 A	I 245 A	260 A	305	250
27	250	275	I 310 A	300 A	245	285	245	235	245	245	240	240	245	245	245	250	230	220	225	225 A	I 275 A	I 295 A	I 295 A	I 290 A
28	280	245	I 300 A	I 305 A	300	295	245	240	245	240	210	200	200 H	245	245	I 245 C	230	210	240	270	340	320 F	300	340
29	E 420 E	390	I 340 S	405	250	340	I 345 A	320	280	250	I 230 H	245	245	250	245	260	245	245	250	255	290	E 380 E	A	E 290 E
30	E 300 E	320	300	290	300	E 300 E	250	240	205	210	200	195	240	240	235 H	235	235	220	205	I 270 A	I 325 A	245	I 240 A	290
31	245	240	305	245	210	I 250 A	255	205	215	220	200	195	230	I 210 A	245	245	220	235	A	A	A	290	285	295
No.	23	28	28	28	31	30	31	31	30	28	27	26	27	28	30	30	31	31	30	30	27	26	26	28
Median	290	290	295	290	255	255	240	235	240	230	205	200	205	235	245	245	245	230	235	240	245	250	270	290

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

h'Es

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	fz				fz	fz	l2	l3	l2	l2	l2					l	l							f
2						fz		lh		l2	C	l2	h	cl	h	h2	h3	l3				f3	f3	fz
3	f3	f3	f3				l3		h2	h2	C2l2	l3	l2			h	h2	l2	f4	fz	fz	fz	fz	
4										h2	C	h	C2	C2	h2	C3	h2l	fz	fz	fz	f			
5								lh	h2	h2	C3	C2	C2	l2		h	h	h3	f3	fz		fz	fz	fz
6	fz	fz	fz	f	f				h2	C2	C3	C2l	C2	C2	h2	C2	l2	l3	f	fz	fz	fz	f	f
7	f4	f			f	f		h2	h2	C2	C3	C2	C2	l3	l2	l2	h2	l	fz	fz	fz	fz	fz	f3
8	fz	f3	fz	fz	f						h		l	l				f	f3	fz	f	f	f	
9				fz				h2	h2	h2	h						l							
10	f								h	h2	h	h	l	l2	l	h	h2	h2	f		f			
11	f	fz	f3	f	f	fz			h2		C2	C2	C	l2		h	h2l	h2	fz	fz	fz	fz	fz	
12								h2	h2	h		l	l		h	h	h2		f	f	f			f2
13								lh	C	l2	l	l	C		l2		h2	h2	f				f2	f2
14	fz	fz	f3	f3	f3		h2		h2	h	h2	C2	C2	l2	h2	l2	h2	fz	f	f		f2		
15									h2l		C3	h2	h2l2	h2	h2l	C2l							f	
16	fz	f	fz	fz	fz	f4		h3	h2	C3	l2	l2h	l2				h2	h		fz	fz	f	f	fz
17	f3	fz	fz					h	h2l	C2l	C2	C	C2				h2		f	fz	fz	f	fz	fz
18	fz	f3		fz	f			h2	h2	h2	C2l	l	C	l	h	h	l2	f	fz	f	f		f	fz
19	f	f	fz	fz	f		f		l2h	l2	l2	l2	l	l	l2	h2	l2	l3	fz			f	fz	f
20	f	fz	f	fz													h2l	f	f3	f			f	fz
21	fz	fz	f3	fz	fz	f			C	h2		h	h2			h2	l3	l3	fz	fz	fz			
22										h2	h2l	h	h2	h2	h2l	h3	l2	l	f	f	f	f	f3	fz
23	f	f		fz	fz			h2	h2	h2	C	C2	l2	l3	l3	l2	l3	l2					f	fz
24	f	fz	f			f	f	l	h	h2	lh	C2		l	l3	l2	l	f	fz		fz	fz	fz	fz
25			f							C2	h3	C2	l	l	l2	l2		f	f	f	fz	fz	f	f
26	fz	fz	f3	f				h2	C3	C2	C2	l3	l2	l4	l3	l2	l	f	f	f3	fz	fz	f	f
27	f3	fz	f3	fz	fz	fz	h	h2	h2	h2	h2	h2l2	h		h	h2	h3	fz	f	fz	fz	fz	f	f3
28		f	f3	f3			f	hl	h2	h2	h			l	l		h4	f		f				
29					h	h2		h			C2	h2	l						f	f	f		f2	f2
30	f								l			l	l2	l2	l		l	fz	f	f3	fz	f	f3	f
31		fz			f	h		h	C3	h2	C	l	l2	l2	l2	l3	l2	f	f3	fz	fz	fz		
No.																								
Median																								

Types of Es | Sweep 1.60 Mc to 20.0 Mc in 20 sec in automatic operation.

IONOSPHERIC DATA

Oct. 1961 | f_oF_2 | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N, Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.9	4.0	4.0	4.0	3.4	2.9	5.6	7.7	8.3	9.0	11.1	9.0	7.3	9.4	12.5	10.0	6.1	6.4	9.4	8.9	5.0	3.6	4.1	4.4
2	3.4	3.7	4.0	4.0	3.6	3.5	5.9	7.8	8.5	8.4	8.6	8.8	8.3	8.4	9.8	9.4	8.8	8.2	7.6	6.1	5.5	5.1	4.6	4.7
3	4.4	4.3	4.1	4.4	4.0	3.4	5.8	7.4	8.5	8.9	8.7	8.9	8.5	8.9	9.1	9.0	8.8	9.8	8.6	4.3	4.1	4.1	3.9	4.0
4	3.8	3.5	3.6	3.6	3.6	3.7	6.0	8.0	8.2	8.9	7.4	9.0	9.0	8.1	8.9	9.0	9.1	8.6	8.6	5.9	4.6	4.4	4.1	4.5
5	4.9	4.4	4.3	4.2	4.2	4.3	6.6	7.9	8.6	9.7	10.2	9.7	10.0	10.7	10.0	9.9	10.6	10.9	8.9	6.5	4.2	3.6	3.8	3.7
6	3.6	3.9	3.9	3.9	3.9	3.9	5.6	7.2	8.3	9.6	8.0	9.4	9.7	10.3	9.9	10.1	9.2	9.6	8.4	5.9	4.7	4.4	4.4	4.4
7	4.3	4.2	4.2	4.5	4.2	4.2	6.5	7.6	8.5	10.1	9.4	9.4	9.9	9.9	10.8	10.0	9.4	9.5	7.1	5.6	4.6	5.1	4.6	3.2
8	3.6	3.7	3.5	3.7	3.8	4.0	6.2	8.1	9.0	8.0	8.9	8.6	8.9	8.7	9.0	9.8	9.1	8.3	8.1	6.7	6.7	4.6	3.2	2.9
9	3.1	3.3	3.2	3.4	3.1	3.6	6.1	8.0	8.7	8.6	9.4	8.7	10.0	9.5	8.3	8.6	8.5	8.7	8.1	6.3	4.2	3.8	3.9	3.9
10	4.0	4.1	3.9	4.0	4.0	3.6	6.0	8.1	8.9	9.0	8.8	9.6	10.0	10.0	9.7	9.6	9.5	9.1	8.4	5.0	5.0	4.6	4.1	3.7
11	4.0	3.9	3.7	3.8	4.0	3.5	5.8	8.1	9.2	9.4	8.6	7.8	7.9	8.8	9.6	9.8	8.5	8.4	7.2	5.0	4.4	4.5	4.5	4.6
12	4.5	4.6	4.0	3.7	3.6	3.7	6.1	9.5	10.3	9.8	9.1	8.3	8.5	9.4	9.6	10.1	9.1	10.5	8.4	5.1	5.3	4.5	3.9	3.9
13	4.1	3.7	4.0	4.2	4.0	4.2	6.4	9.1	9.8	10.9	10.9	11.5	11.3	10.6	9.7	9.1	9.4	9.3	7.5	6.1	5.5	4.7	4.8	4.8
14	3.7	4.0	4.0	3.9	3.9	4.1	6.8	7.9	9.2	8.4	9.4	9.2	10.0	9.6	9.6	9.1	7.9	7.4	5.7	4.9	5.5	5.5	4.2	4.0
15	4.2	4.2	4.1	4.1	3.9	3.7	5.6	7.3	9.8	10.6	10.4	10.1	10.9	10.6	9.6	8.4	8.5	7.5	6.4	4.2	4.4	4.7	4.9	4.5
16	4.2	3.6	3.5	3.9	4.2	3.1	5.4	8.6	8.7	8.2	7.7	9.7	8.5	8.6	9.9	9.8	8.9	8.2	6.7	5.4	5.1	4.9	4.6	4.5
17	4.6	4.1	3.9	4.1	4.2	4.0	5.4	7.2	8.3	8.4	6.8	8.1	8.9	9.6	10.3	9.9	8.8	6.4	5.6	5.1	5.0	5.1	4.3	4.0
18	4.0	4.0	4.1	4.2	3.7	3.0	5.0	7.0	8.0	8.1	7.8	8.9	10.0	9.0	9.6	9.2	7.6	6.4	6.0	6.3	5.5	4.7	4.4	4.3
19	2.9	3.0	3.3	3.6	3.3	3.5	5.3	7.2	7.0	8.5	8.8	9.6	7.7	7.3	8.1	8.9	9.3	8.2	5.7	4.0	3.9	4.5	4.2	4.1
20	4.2	4.2	3.9	3.9	4.1	3.8	5.8	7.5	7.4	7.4	8.4	9.6	10.4	9.1	10.5	10.4	8.4	6.7	6.7	6.2	5.5	5.1	5.1	4.7
21	3.9	3.9	4.4	4.8	4.9	4.2	6.3	9.2	8.6	8.0	9.9	10.6	8.3	8.0	8.9	9.2	8.0	6.9	5.0	4.9	4.8	4.8	4.7	4.3
22	4.0	4.1	4.1	4.0	4.0	4.2	6.8	8.5	7.5	7.6	8.7	11.3	8.3	8.9	8.4	9.1	7.8	6.6	5.5	5.2	5.2	5.1	4.7	4.1
23	4.1	4.1	4.1	4.0	4.1	4.2	5.9	7.8	8.7	9.5	7.7	9.4	9.5	9.1	9.0	8.1	8.5	7.3	4.3	4.5	4.0	4.3	3.4	3.6
24	4.0	4.4	4.0	A	A	A	5.0	6.8	7.2	7.0	8.3	10.1	9.7	9.7	10.8	9.8	8.4	7.1	5.2	4.4	3.7	3.4	3.3	3.4
25	3.6	3.6	3.6	4.0	4.1	2.7	5.0	6.9	8.3	8.4	9.5	11.0	11.4	11.0	9.5	8.9	8.4	7.2	5.4	3.7	3.4	3.2	3.1	3.4
26	3.4	A	A	F	3.9	3.1	5.1	6.7	8.4	8.3	9.3	11.8	10.7	10.8	9.9	9.5	8.0	6.9	4.7	4.8	4.4	4.3	3.6	3.9
27	3.5	3.2	3.0	3.0	3.2	3.5	5.0	8.2	8.7	11.3	11.0	9.4	8.0	8.3	9.6	10.9	9.9	7.0	5.5	4.6	3.1	3.2	3.3	3.2
28	3.6	4.0	2.6	2.7	3.0	3.1	4.7	7.8	8.8	8.9	10.0	11.4	8.9	8.1	9.0	8.9	8.9	5.6	4.4	4.4	4.4	6.1	6.4	4.4
29	3.2	3.1	3.1	3.1	3.9	2.9	4.0	5.6	9.1	6.6	6.4	8.0	8.6	8.6	8.4	7.9	6.9	5.5	3.9	4.0	3.2	2.8	3.2	3.3
30	3.3	3.2	2.8	2.8	2.4	2.5	4.1	7.1	8.3	7.9	8.9	7.9	9.1	9.9	9.5	8.1	7.9	7.6	5.0	A	A	3.8	3.5	3.6
31	3.4	3.1	2.6	2.9	3.8	2.4	3.9	6.1	6.6	8.3	8.3	8.8	8.5	9.0	8.0	7.5	7.1	5.8	3.9	3.0	3.2	3.6	3.5	3.5
No.	31	30	30	29	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31
Median	3.9	4.0	3.9	3.9	3.9	3.6	5.8	7.8	8.5	8.5	8.8	9.4	9.0	9.1	9.6	9.2	8.5	7.5	6.4	5.0	4.6	4.5	4.1	4.0
U.Q.	4.2	4.1	4.1	4.1	4.1	4.0	6.1	8.1	8.9	9.5	9.5	10.1	10.0	9.9	9.9	9.9	9.1	8.7	8.1	6.1	5.2	4.9	4.6	4.4
L.Q.	3.5	3.6	3.5	3.6	3.6	3.1	5.0	7.2	8.3	8.1	8.3	8.8	8.5	8.6	9.0	8.9	8.0	6.7	5.2	4.4	4.1	3.8	3.5	3.6
Q.R.	1.7	0.5	0.6	0.5	0.5	0.9	1.1	0.9	0.6	1.4	1.2	1.3	1.5	1.3	0.9	1.0	1.1	2.0	2.9	1.7	1.1	1.1	1.1	0.8

f_oF_2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L	L	L	L	L								
2									L	L	L	L	LH	L	L	A	A	C						
3										L	L	L	L	L	L	C								
4									L		A	A	A	S	L	L	L							
5									L	L	L	L	L	L										
6										L		L	L	L		L								
7									L	A	A	A	L	LH	L	L								
8										L	L	L	L	L	L	L								
9										L	L	L	L	L	L									
10											L	L	L	L	L	L								
11										L	L	L	L	L	L									
12										L	L	L	L		L									
13											L	L	L		L									
14									L	L	L	L	L	L	L									
15										L	L	L	L		L									
16										L	L	L	L	L	L									
17										L		L	L	L	L	L								
18												L	L	L	L									
19										L	L	L	L	L	L									
20										L	L	L	L		L									
21										L	L		L		L	L								
22									L	L	L	L				A								
23										L				L	L									
24										L	L	L	L	L	L									
25										L		L			L									
26										A	A	L	L	L										
27											L					A								
28											L	L	L	L										
29								A		A	A	A	A	L	L	3.2 L								
30										L	U 4.3 L	L	L	L										
31										L	L	4.0 H	L	L	L									
No.											1	1				1								
Median											U 4.3	4.0				3.2								

foF1

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

The Radio Research Laboratories, Japan.

K 2

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	A	A	A	I 3.35 R	I 3.30 R	3.25 R	3.00	2.70	I 2.50 R	S						
2							S	I 2.50 S	2.85	I 3.15 R	3.30	3.40 R	I 3.40 R	3.30 A	3.35	3.10	I 2.60 A	C						
3							S	I 2.50 R	I 2.90 A	A	A	A	3.50	3.25	3.30	I 3.00 C	2.50 R	S						
4							U 2.05 S	I 2.50 R	2.90 H	3.25	3.25	3.30	I 3.30 R	I 3.55 A	3.30	3.10	I 2.65 R	2.20						
5							S	I 2.50 R	2.85	3.15	3.25	I 3.25 A	3.15	3.30	3.25	3.05	2.40 R	S						
6							B	I 2.40 R	2.80 A	3.10	3.30	I 3.45 A	3.50	3.40	3.25	3.10	I 2.55 R	A						
7							2.00	U 2.60 S	2.90	3.20	A	A	A	R	3.25	I 2.85 A	I 2.50 A	S						
8							S	I 2.50 A	3.05	3.30 R	3.30	I 3.30 R	I 3.40 B	3.40	3.20	3.00	2.60	S						
9							I 1.95 A	U 2.25 R	U 2.90 R	3.20	3.20	I 3.35 R	3.40	3.50	3.20	3.05	R	S						
10							A	I 2.50 R	2.80	3.10	3.20	I 3.35 R	I 3.30 R	3.30	3.20	2.85	2.50 R	S						
11							S	U 2.60 R	2.80	3.05	R	R	B	R	3.10	2.90	I 2.40 B	A						
12							U 2.00 S	I 2.40 B	2.85	3.10	3.10	I 3.10 A	3.25	3.25	3.15	3.00	R	A						
13							2.15 S	S	A	A	A	A	R	3.40	3.15	2.70	I 2.30 R	A						
14							A	S	2.75	3.10	3.10	3.15	I 3.10 A	I 3.20 A	3.10	2.90	S	S						
15							S	I 2.30 R	2.80	2.90	I 3.10 R	I 3.35 R	I 3.35 A	A	A	A	A	S						
16							S	S	2.75	3.10	3.25	3.25	I 3.30 R	3.25	3.05	2.75	S	S						
17							S	B	2.80	3.10 S	3.00	3.25	3.15	3.05	I 3.05 R	2.80	R	A						
18							S	I 2.30 S	I 2.90 A	3.15	3.15	A	A	A	A	A	A	S						
19							S	I 2.30 S	2.70	3.00	I 3.10 A	I 3.20 A	3.25	I 3.20 A	3.10	A	A	S						
20							S	I 2.35 R	2.60 A	2.90	A	A	A	A	A	A	B	S						
21							S	S	2.60	2.90 R	I 3.05 B	3.25	3.25	A	A	A	A	S						
22							S	I 2.45 R	3.00	3.00	3.15	3.30 R	3.25	3.25	3.10	A	S	A						
23							2.05 S	I 2.30 R	2.50	A	A	A	A	A	A	I 2.65 A	B	A						
24							S	A	A	A	I 3.00 A	A	A	A	R	A	A	S						
25							S	2.40	2.85	U 2.90 A	3.05	A	A	A	A	A	S	S						
26							2.15	S	A	3.05	A	R	A	A	2.90	A	S	S						
27							S	S	2.75	3.00	3.00	3.05	3.05	3.20	2.90	2.60	S	S						
28							A	S	2.55	3.00	3.00	3.00	3.15	I 3.05 A	3.00	2.50	U 2.20 R	S						
29							A	A	U 2.25 A	2.70 A	2.90	I 2.80 R	2.90	2.95	2.85	2.60	S	S						
30							S	A	A	A	I 3.10 A	I 3.15 R	I 3.20 R	3.05	A	A	A	A						
31							S	I 2.10 S	I 2.65 A	A	R	A	A	I 3.10 A	A	A	A	S						
No.							7	19	26	24	22	20	21	21	22	20	12	1						
Median							2.05	U 2.40	2.80	3.10	3.10	U 3.25	3.25	3.25	3.10	2.90	U 2.50	2.20						

foE

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

The Radio Research Laboratories, Japan.

K 3

35

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	2.0^{M}	E	2.2^{M}	2.3^{M}	J 3.7	J 3.5	J 5.0	J 4.7	J 3.6	3.1^{q}	3.9	G	G	G	2.2^{q}	2.3	E	E	S	S	E	S
2	S	2.2	2.5	J 3.5^{s}	J 4.0	3.2^{Y}	S	S	2.6	G	G	3.3^{q}	3.2^{q}	3.9	4.2	4.6	J 5.0	C	J 4.2^{s}	J 3.3	J 3.0	2.2^{M}	J 3.5	J 4.8
3	J 4.4	J 5.1^{s}	J 3.8	J 4.4^{s}	J 4.1	S	S	2.5	3.9	J 3.5	3.3	J 3.4	3.3^{q}	3.5	3.6	C	3.2	2.4	S	S	S	S	4.3^{M} J	3.4
4	4.6	2.1	J 3.7	J 3.8	2.2^{M}	S	S	G	3.3	4.3	J 5.3	J 4.7	J 6.0	4.0	G	3.7	3.3	G	S	E	S	S	2.4	J 4.7
5	J 4.5	S	S	3.5^{M}	2.1	S	S	G	2.6^{q}	3.8	4.0	4.3	3.6	3.8	3.7	3.8	J 4.2	4.3	J 3.3	J 3.4	J 8.2	J 4.0	4.4	3.2^{M}
6	J 3.4	3.8	J 2.4	1.9	1.9	2.3^{M}	B	G	3.2	4.1	4.8	4.4	4.0	4.1	J 4.4	3.8	3.1	J 6.0	J 3.1	3.2^{M}	3.5^{M}	2.4^{Y}	2.1^{M}	S
7	J 3.5	J 4.9	J 4.2	J 4.0	J 3.2^{s}	2.3	G	5.0^{s}	J 4.4	J 7.0	11.7	J 11.8	3.8	2.9^{q}	2.6^{q}	2.9	J 2.8^{Y}	S	S	J 3.0^{Y}	J 3.9	S	J 3.9	J 3.5
8	S	6.0^{M}	J 4.2^{s}	2.7	2.2	2.8	S	2.8^{s}	3.0	G	G	3.1^{q}	B	2.6^{q}	G	3.2	3.3	J 3.5	J 4.5	J 5.7	J 5.6	E	J 3.0	2.4
9	S	S	E	E	E	S	2.4	S	3.8	3.7	3.4	3.1^{q}	3.0^{q}	G	G	G	2.2^{q}	J 3.2	S	J 3.0	S	S	S	S
10	S	4.1^{M}	2.1	S	S	J 3.4	J 2.7	G	3.2	3.7^{s}	4.0	B	3.3^{q}	2.3^{q}	G	3.8	3.4	J 4.5	J 4.0	S	S	2.1	S	E
11	S	S	S	E	E	S	S	G	3.8	4.0	3.3^{q}	3.2^{q}	B	G	3.4	4.8	3.3	J 2.9^{Y}	J 2.8	J 2.3^{Y}	S	S	J 4.1	J 4.4
12	J 3.4	S	S	S	S	S	G	B	3.4	3.9	3.5	3.4	3.5	G	3.6	3.9	J 3.8	J 3.8	5.5^{M} J	4.1	2.9^{M}	2.1	J 3.0	S
13	2.4	2.0^{M}	S	E	E	S	G	S	J 3.0	J 3.3^{s}	4.4	3.4	3.1^{q}	G	2.5^{q}	2.9	G	2.2	S	E	S	S	S	S
14	S	S	J 2.3	2.3	4.2^{M}	3.9^{s}	3.4^{M}	S	3.3	3.5	3.3	3.5	3.4	3.4	4.1	J 3.9	J 3.5	J 2.7^{Y}	J 3.1	J 3.3	S	J 2.6	E	S
15	S	S	E	E	J 3.9	S	S	3.4	3.2	3.2	2.6^{q}	2.4^{q}	J 3.8	4.4	J 4.2	J 5.1^{Y}	J 2.4^{Y}	S	S	2.9^{M}	2.7^{Y}	S	S	S
16	S	S	S	S	S	S	S	S	3.6	3.5	G	2.7^{q}	2.7^{q}	2.4^{q}	G	2.9	S	S	S	S	S	S	E	S
17	S	S	E	2.2^{M}	J 3.3	2.3	S	3.3	3.3	3.6	3.9	3.9	3.9	3.5	3.3	G	3.1	7.0^{M}	J 8.3	J 7.0	J 5.3	2.4	S	J 3.4
18	J 3.0	J 3.3	4.0	2.1	E	2.2	2.0	S	J 4.0	4.5	4.4	4.6	4.0	3.5	3.6	3.7	J 3.0	3.4^{Y}	5.6^{M}	J 5.2	J 2.9	S	E	E
19	E	E	E	E	J 3.5	2.1	S	S	3.2	J 3.8	3.8	3.4	2.9^{q}	J 3.5	G	J 3.2	J 3.6	J 5.0^{s}	4.0	J 2.8^{Y}	2.6^{M}	S	E	2.4
20	4.1^{M}	J 3.0	3.8^{M}	J 3.0	2.3	2.1	S	G	4.0^{s}	4.3^{M}	J 3.4	3.3	3.9	3.9	3.5	2.8	3.7	S	2.2^{M}	2.7	4.0^{M}	3.9^{M}	S	3.6^{M}
21	2.2	4.0^{M}	4.0^{s}	J 4.7	4.2^{s}	J 3.3	S	J 3.1^{s}	G	G	B	3.9	3.9	3.7	3.2	J 3.2	3.6	J 4.0^{s}	4.6^{M}	J 4.2	5.5^{M}	S	E	E
22	S	E	E	E	S	S	S	G	3.5	3.9	3.7	2.5^{q}	4.1	J 4.6	4.0	J 4.0^{s}	2.1	J 8.4	J 4.9	J 7.6	J 5.4	S	E	J 3.2^{Y}
23	J 3.0	J 4.0^{s}	J 3.2	J 3.4^{s}	J 3.9	S	G	J 3.2	3.5	J 3.9	4.2	8.2^{M}	4.2	4.2^{s}	4.0	4.5^{M}	B	J 3.2	E	S	S	S	S	S
24	4.9^{M}	4.0^{M} J	3.4	J 5.2^{s}	4.8^{M}	3.3	2.3	4.0^{M}	4.0^{s}	3.9^{M}	J 4.2	4.0	J 3.8	4.0	2.5^{q}	J 3.0	J 4.0	7.3^{M}	6.0^{M} J	4.1	J 3.5	J 2.4	J 3.3	J 2.8
25	2.4	2.3^{M}	E	1.8	E	S	S	G	3.0	3.5	J 4.4^{s}	J 4.0^{s}	4.5^{s}	J 4.2^{s}	J 3.4	J 3.9^{s}	J 3.0	4.5^{s}	J 4.0	3.8^{M}	J 5.9	4.0^{M}	S	S
26	S	J 5.7	4.8^{M}	2.2	E	S	G	S	J 6.6	J 10.7	8.0^{M}	G	J 4.3	3.1	J 2.4^{q}	5.0^{s}	J 5.0^{s}	3.7^{M}	J 6.5	5.9^{M}	3.9	S	2.5^{M}	3.1^{M}
27	4.7	6.4^{M} J	3.0^{Y}	2.1	2.7^{M}	2.1	S	4.3^{s}	4.2	4.5	3.5	J 6.7	4.7^{s}	G	3.8	J 5.8^{s}	4.4^{s}	4.0	J 2.9	J 3.5	J 2.6	J 4.7	J 3.0	J 3.2
28	J 6.7	J 3.4^{Y}	S	J 3.9	J 3.9	J 4.2	J 3.3	S	3.1	J 3.8	3.5	3.5	G	3.2	3.2	2.9	G	2.3	S	S	S	S	S	S
29	S	S	S	S	S	2.4^{M}	3.6^{Y}	4.9^{M} J	5.3	J 6.1	7.2^{M}	8.2^{M}	12.0^{M}	4.0	G	G	S	S	S	J 3.4	J 2.8	3.4^{M}	2.4	E
30	S	E	E	S	E	E	S	J 2.9^{Y}	3.4	3.6^{M} J	3.3	G	G	G	J 3.9	J 7.7	4.6^{s}	J 5.8^{s}	J 4.7	J 6.1	J 7.2	4.1	J 4.0	3.8^{M}
31	2.2	1.9	E	E	J 1.8	S	S	G	4.8	3.0	G	J 3.7	3.5	3.3	3.0	J 3.4	J 3.5	2.0	S	J 4.7	J 2.4	4.0^{M}	E	E
No.	17	21	24	26	26	17	13	21	31	31	30	30	29	31	31	30	28	25	21	26	20	15	22	20
Median	3.4	3.4	2.4	2.2	2.2	2.3	2.3	2.8	3.4	3.8	3.6	3.4	3.8	3.5	3.3	3.7	3.3	3.7	4.0	3.4	3.7	2.6	2.4	3.2
U. R.	4.6	4.5	3.8	3.5	3.9	3.3	3.4	3.4	4.0	4.3	4.4	4.3	4.0	4.0	3.8	4.5	3.8	4.8	5.2	4.7	5.4	4.0	3.5	3.6
L. R.	2.4	2.0	E	E	E	2.2	G	G	3.2	3.5	3.3	3.3	G	G	G	2.9	2.9	2.6	3.0	2.9	2.8	2.2	E	E
Q. R.	2.2	2.5				1.1			0.8	0.8	1.1	1.0				1.6	0.9	2.2	2.2	1.8	2.6	1.8		

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	E		1.6	u 1.9 S	2.7	2.8	3.2	3.7	3.5	E 3.1 B	3.6				E 2.2 S	2.2			S	S		S
2	S	S	1.7	2.0	A	2.4	S	S	2.6 G			3.3 G E	3.2 B	3.8	4.1	4.5	5.0	C	2.7	2.3	2.3	E	3.0	4.1
3	1.9	2.3	2.3	3.4	AS	S	S	E 2.5 S	3.9	3.4	3.3	3.4	3.3 G	3.5	3.6	C	3.0	S	S	S	S	S	A	2.6
4	A	1.7	1.5	1.6	1.6	S	S		3.2	4.1	5.0	4.7	5.9	E 4.0 S		3.2	3.3		S		S	S	2.0	A
5	2.5	S	S	2.8	E	S	S		E 2.6 B	3.6	3.8	4.3	3.6	3.8	3.7i	3.8	4.1	3.5	E	3.2	A	1.9	A	1.8
6	2.4	2.7	1.5	E	E	E	B		3.2	3.8	4.8	4.2	4.0	3.8	4.3	3.8	3.0	u 5.9 S	2.6	2.3	2.6	2.0	E	S
7	2.0	2.5	2.8	1.8	2.4	2.0		u 4.0 S	4.2	7.0	A	A	3.8	E 2.9 B	2.6 G	2.9	2.7	S	S	E	2.3	S	E	2.5
8	S	A	A	2.6	1.7	2.0	S	2.8	2.8 G			E 3.1 B	B	2.6 G		3.1	3.0	2.6	2.3	5.1	2.0		2.6	2.2
9	S	S				S	2.4	S	3.3	3.3	3.3	E 3.1 B	2.9 G				E 2.2 B	3.0	S	2.4	S	S	S	S
10	S	2.9	2.0	S	S	2.3	2.6		3.1	3.6 S	3.8	B	E 3.3 B E	2.3 B		3.6	3.4	u 4.5 S	3.9	S	S	E 2.1 S	S	
11	S	S	S			S	S		3.6	3.9	E 3.3 B	E 3.2 B	B		3.2	4.4	3.1	2.6	1.9	E	S	S	1.9	2.5
12	E	S	S	S	S	S		B	3.3	3.6	3.5	3.4	3.5		3.5	3.5	3.7	3.5	4.5	2.8	2.5	1.8	2.5	S
13	E	E	S			S		S	3.0	3.3	3.4	3.4	E 3.1 B		2.2 G	2.9		2.0	S		S	S	S	S
14	S	S	2.1	2.0	A	A	2.7	S	3.2	3.5	3.3	3.5	3.4	3.4	4.1	3.8	S	2.3	2.6	2.0	S	2.5		S
15	S	S			S	S	S	2.8	3.0	3.1	E 2.6 B	E 2.4 B	3.6	4.0	4.0	3.0	2.4	S	S	1.9	2.3	S	S	S
16	S	S	S	S	S	S	S	S	3.5	3.4		2.7 G	E 2.7 S	2.4 G		2.9	S	S	S	S	S	S		S
17	S	S		E	2.0	E	S	2.9	3.2	3.4	u 3.9 C	3.9	3.7	3.5	3.3		2.8	3.5	A	A	1.9	1.8	S	2.5
18	1.8	2.6	3.0	1.6		1.9	2.0	S	3.9	u 4.5 C	4.4	4.3	3.8	3.3	3.6	3.3	2.7	2.7	4.8	3.9	2.6	S		
19					2.3	1.8	S	S	3.1	3.6	3.5	3.4	2.8 G	3.5		3.1	3.0	4.5	3.9	2.5	E	S		2.1
20	2.3	2.0	2.6	1.6	1.8	E	S		3.4	3.2	3.3	3.3	3.5	3.4	3.2	2.8	3.0	S	E	2.2	3.2	2.1	S	2.3
21	1.7	2.6	A	A	2.9	2.8	S	S			B	3.9	3.9	3.5	3.2	2.8	2.8	3.9	3.2	4.2	A	S		
22	S				S	S	S		3.3	3.4	3.5	E 2.5 B	4.0	3.5	G	4.9	E 2.1 S	3.8	2.6	2.8	u 4.0 A	S		E
23	E	2.5	2.2	2.9	1.9	S		2.8	3.0	3.2	4.1	4.5	3.9	3.3	3.1	3.9	B	2.6		S	S	S	S	S
24	A	2.1	2.8	A	A	A	E 2.3 S	3.2	3.4	3.3	3.5	3.6	3.5	3.4	2.5 G	2.9	3.5	A	3.5	2.6	2.9	2.2	2.1	2.6
25	1.8	E		E		S	S		3.0	3.4	u 3.9 S	3.9	4.3	4.0	2.9	3.0	2.7	3.7	2.0	2.8	A	A	S	S
26	S	A	A	1.6		S		S	3.5	A	A		3.9	3.0	2.4 G	2.9	3.4	3.0	A	A	2.6	S	2.5	2.9
27	2.5	A	2.2	1.9	1.9	1.8	S	4.3	3.9	4.0	3.2	4.2	4.7		3.7	5.5	4.4	2.6	S	2.5	1.9	A	2.5	2.3
28	A	1.9	S	1.9	A	A	2.3	S	2.8	3.1	3.4	3.4		3.1	3.2	2.9		2.0	S	S	S	S	S	S
29	S	S	S	S	S	S	A	A	3.5	5.6	A	7.4	A	3.2			S	S	S	2.1	1.9	E	1.9	
30	S			S			S	2.7	3.4	3.1	3.2				3.8	3.5	2.7	3.5	E	A	A	2.8	2.9	3.0
31	2.0	E			1.8	S	S		S	3.0		3.2	3.5	3.3	3.0	2.6	2.7	u 2.0 S	S	2.3	E	A		
No.	16	17	16	18	18	15	8	11	29	28	26	28	27	23	23	26	25	23	18	23	20	14	14	15
Median	2.0	2.5	2.2	1.9	2.0	2.0	2.5	2.8	3.2	3.4	3.5	3.4	3.6	3.4	3.2	3.2	3.0	3.0	2.6	2.5	2.6	E 2.1	2.5	2.5

f_bE_s

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

The Radio Research Laboratories, Japan.

K 5

37

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 1.30 SE 1.80 S	1.60	1.00		1.50	E 1.50 SE	1.70 SE	1.95 S	1.90	2.20	2.15	2.30	2.00	2.20	2.10	1.80	2.10	1.80	1.20	1.40	E 1.50 SE	1.60 S	1.30	E 1.65 S
2	E 1.50 SE	1.70 S	1.10	1.20	E 1.50 SE	1.70 SE	1.95 SE	2.60 S	1.95	2.30	2.10	2.35	2.30	2.30	2.40	2.00	2.30 I	1.80 C	E 1.50 SE	1.70 S	E 1.70 S	1.45	E 1.90 SE	1.50 S
3	E 1.50 SE	1.80 S	1.10	1.20	1.10	E 1.50 SE	2.00 S	2.00	1.80	2.10	2.20	2.10	2.20	2.20	2.20 I	2.00 C	1.90	E 1.95 SE	1.70 SE	1.60 S	E 1.85 SE	1.90 S	E 1.75 SE	1.85 S
4	E 1.50 S	1.45	1.20	E 1.50 S	E	E 1.80 SE	1.70 SE	1.90 S	1.95	2.30	2.40	2.40	2.90	2.50	2.00	1.95	1.90	1.90	E 1.70 S	1.40	E 1.70 S	E 1.70 SE	1.80 SE	1.85 S
5	E 1.85 SE	1.50 S	E 1.80 S	1.00	1.30	E 1.70 SE	1.85 S	1.95	1.90	2.00	2.10	2.00	2.10	2.50	2.05	1.95	1.85	E 1.70 SE	1.80 S	1.40	E 1.70 SE	1.80 SE	1.80 SE	1.50 S
6	E 1.70 SE	1.70 S	1.00	1.40	1.40	E 1.60 S	1.90	E 2.00 S	1.90	2.00	2.50	2.40	2.10	1.95	2.00	2.25	2.10	E 1.75 SE	1.70 SE	E 1.70 SE	1.70 SE	1.70 SE	1.80 SE	1.70 S
7	E 1.70 SE	1.50 S	E 1.60 S	1.40	1.50	E 1.70 S	1.85	2.25	2.00	2.15	2.20	2.40	2.95	2.20	2.20	1.95	1.75	E 2.10 SE	1.50 SE	1.80 S	E 1.70 SE	1.70 SE	1.95 SE	1.80 S
8	E 1.80 SE	1.70 SE	1.70 SE	1.50 S	E 1.60 SE	1.50 SE	2.00 SE	1.90 S	1.90	2.10	2.15	2.20	3.90	2.30	2.20	2.15	2.00	E 1.90 SE	1.80 SE	1.90 S	E 1.80 S	1.50	E 1.60 SE	1.80 S
9	E 1.50 SE	1.70 S	1.20	1.10	E	E 1.80 S	1.80	E 1.95 S	2.10	2.10	2.30	2.00	2.30	2.40	2.25	1.95	1.90	E 1.80 SE	1.50 SE	1.70 S	E 1.50 SE	1.80 SE	1.60 SE	1.60 S
10	E 1.70 SE	1.50 SE	1.50 SE	1.70 SE	1.50 SE	1.80 SE	1.70 SE	1.85 S	1.90	2.00	1.90	3.50	2.40	1.90	2.30	1.90	2.10	E 1.80 SE	1.75 SE	1.70 S	E 1.50 SE	1.70 SE	1.80 S	1.10
11	E 1.80 SE	1.80 SE	1.50 S	1.00	1.40	E 1.90 SE	1.90 S	2.20	2.30	2.20	2.20	2.20	3.50	2.30	2.10	2.10	2.60	E 1.50 SE	1.50 SE	1.70 S	E 1.75 SE	1.50 SE	1.60 SE	1.75 S
12	E 1.50 SE	1.50 SE	1.50 SE	1.60 S	E 1.50 SE	1.60 S	1.80	2.70	1.90	2.00	2.10	3.05	2.30	2.10	2.10	1.90	1.90	E 1.70 SE	2.50 SE	1.90 S	E 1.65 SE	1.70 SE	1.70 SE	1.85 S
13	E 1.60 SE	1.50 SE	1.50 S	1.30	1.20	E 1.50 SE	1.90 SE	2.80 SE	1.90 S	2.10	2.30	2.20	2.30	2.30	2.00	1.90	1.90	1.60	E 1.50 S	1.20	E 1.60 SE	1.50 SE	1.50 SE	1.45 S
14	E 1.70 SE	1.90 SE	1.60 S	1.10	E 1.50 SE	1.80 SE	1.80 SE	2.90 S	1.90	2.05	2.30	2.20	2.70	2.10	2.20	2.00	E 2.70 SE	1.90 SE	1.50 SE	1.90 S	E 1.65 SE	1.70 S	1.40	E 1.80 S
15	E 2.00 S	1.50 S	1.35	1.40	E 2.00 SE	1.90 SE	2.60 S	1.85	2.20	2.00	2.30	2.00	2.00	1.90	2.00	1.60	1.80	E 1.90 SE	1.80 SE	1.70 S	E 1.70 SE	1.90 SE	1.80 SE	2.00 S
16	E 1.70 SE	1.90 SE	1.50 SE	1.50 S	E 1.50 SE	1.50 SE	1.60 SE	2.50 S	1.90	2.10	2.10	2.30	2.15	2.00	2.10	1.95	E 2.50 SE	1.80 SE	1.50 S	1.60 S	E 1.50 SE	1.70 S	1.30	E 1.80 S
17	E 1.90 SE	1.50 S	1.30	1.40	1.10	E 1.70 SE	1.90 S	2.50	1.90	2.15	2.30	2.10	2.00	2.30	2.30	1.90	2.00	E 1.50 SE	1.90 S	1.95	E 1.70 SE	1.50 SE	1.60 SE	1.50 S
18	E 1.50 S	1.30 E	1.80 S	1.40	1.10	E 1.50 SE	1.70 SE	2.80 S	1.80	2.00	2.10	2.20	2.40	2.10	2.20	2.00	1.90	E 2.00 SE	1.85 SE	1.50 S	E 1.80 SE	1.50 S	1.40	1.40
19	1.40	1.40	1.10	1.30	1.35	E 1.50 SE	1.95 SE	2.60 S	1.75	1.90	2.20	2.15	2.20	1.95	1.80	1.90	1.95	E 2.50 SE	1.80 S	1.60 S	E 1.50 SE	1.95 S	1.40	1.40
20	E 1.60 S	1.30	1.40	E 1.50 S	E 1.60 SE	1.70 SE	1.90 S	2.00	1.90	1.95	2.00	1.95	1.90	1.90	1.90	1.90	2.70	E 1.70 SE	1.50 SE	1.60 S	E 1.50 SE	1.70 SE	1.70 SE	1.75 S
21	E 1.50 SE	1.80 SE	1.50 S	1.20	1.40	E 1.50 SE	1.70 SE	2.60 S	1.80	2.00	3.30	2.35	2.25	2.00	1.90	1.70	1.80	E 1.80 SE	1.60 SE	1.80 S	E 1.60 SE	1.80 S	1.40	1.40
22	E 2.40 S	1.20	1.50	1.00	E 1.50 SE	1.90 SE	1.95 S	1.80	2.20	2.10	2.10	2.10	1.90	2.00	1.80	1.90	E 1.90 SE	1.70 SE	1.65 S	1.60 S	E 1.50 SE	1.70 S	1.40	E 1.50 S
23	E 1.80 SE	1.70 SE	1.40 S	1.20	E	E 1.40 SE	1.60 S	1.90	1.95	1.90	1.90	1.90	2.10	1.80	1.80	1.70	2.50	1.60	1.70	E 1.90 SE	1.50 SE	1.70 S	E 1.70 SE	1.70 S
24	E 1.70 SE	1.60 S	1.40	1.40	1.40	1.50	E 1.80 S	1.70	1.80	1.80	1.80	1.50	1.90	1.80	1.90	1.70	1.90	E 1.60 SE	1.80 SE	1.90 SE	1.80 SE	1.60 S	1.45	E 1.60 S
25	E 1.60 SE	1.50 S	1.40	1.30	1.30	E 1.80 SE	1.70 S	1.80	1.80	1.80	1.90	2.00	1.80	1.90	1.90	1.70	E 1.80 SE	1.80 SE	1.80 SE	1.70 SE	1.70 SE	1.50 S	1.80 SE	1.50 S
26	E 1.50 SE	1.70 SE	1.50 S	1.20	1.10	E 1.50 S	1.20	E 2.80 S	1.80	2.00	2.20	2.30	2.40	2.20	1.80	1.80	E 1.90 S	1.40	E 1.80 SE	1.80 S	1.40	E 1.80 SE	1.60 SE	1.70 S
27	E 1.70 SE	1.80 S	1.00	1.00	1.40	E 1.50 SE	1.80 SE	1.95 S	1.95	2.20	2.60	2.20	1.90	2.00	2.00	1.80	E 2.60 SE	1.60 SE	1.95 SE	1.50 S	1.20	E 1.80 SE	1.75 SE	1.70 S
28	E 1.80 SE	1.80 SE	1.80 SE	1.50 S	1.00	E 1.80 SE	1.50 SE	2.50 S	1.90	2.10	1.95	2.10	2.00	2.00	2.20	1.90	2.00	E 1.70 SE	1.70 SE	1.70 S	E 1.70 SE	1.70 SE	1.70 SE	1.90 S
29	E 1.70 SE	1.50 S	1.90 S	S	E 1.90 SE	1.60 S	1.20	E 2.00 S	1.80	2.15	2.30	2.20	2.25	2.00	2.00	1.90	E 2.45 SE	2.20 SE	1.90 SE	1.80 S	E 1.70 SE	1.90 SE	1.80 S	1.40
30	E 1.95 S	1.30	1.20	E 1.70 S	1.50	1.10	E 1.80 SE	2.00 S	1.80	1.95	2.10	2.20	2.20	2.10	2.00	2.05	2.00	E 1.70 SE	1.70 SE	1.70 S	1.40 E	1.50 S	E 1.80 SE	1.70 S
31	E 1.60 S	1.40	1.40	1.00	E 1.50 S	S	E 1.75 SE	2.00 S	2.00	2.10	2.00	2.20	2.10	2.50	1.90	1.60	E 2.00 SE	1.80 SE	1.70 SE	1.70 S	E 1.80 SE	1.60 S	1.40	1.40
No.	31	31	16	22	20	30	31	31	31	31	31	31	31	31	31	31	26	31	31	31	31	31	31	31
Median	E 1.70	E 1.50	1.25	1.20	1.30	E 1.60	E 1.80	E 2.00	1.90	2.10	2.15	2.20	2.20	2.10	2.00	1.90	1.90	E 1.80	E 1.70	E 1.70	E 1.70	E 1.70	E 1.70	E 1.70

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

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

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

The Radio Research Laboratories, Japan.

M(3000)F2 | Sweep 1.0 Mc to 20.0 Mc in 20 min/sec in automatic operation.

K 7

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	L	L	L	L	L								
2									L	L	L	L	LH	L	L	A	A	C						
3										L	L	L	L	L	L	C								
4									L		A	A	A	S	L	L	L							
5									L	L	L	L	L	L										
6										L		L	L	L		L								
7									L	A	A	A	L	LH	L	L								
8										L	L	L	L	L	L	L								
9										L	L	L	L	L	L									
10											L	L	L	L	L	L								
11										L	L	L	L	L	L									
12										L	L	L	L		L									
13											L	L	L		L									
14									L	L	L	L	L	L	L									
15										L	L	L	L		L									
16										L	L	L	L	L	L									
17										L		L	L	L	L	L								
18												L	L	L	L									
19										L	L	L	L	L	L									
20										L	L	L	L		L									
21										L	L		L		L	L								
22									L	L	L	L				A								
23										L				L	L									
24										L	L	L	L	L	L									
25										L		L			L									
26										A	A	L	L	L										
27											L					A								
28											L	L	L	L										
29								A		A	A	A	A	L	L	4.05								
30										L	" 3.95	L	L	L										
31										L	L	4.45	L	L	L									
No.											1	1				1								
Median											" 3.95	4.45				4.05								

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									290	350H	250	215	350	310	260	245								
2									230	245	250	255	255	265	265	250	250	C						
3										245	250	250	255	260	260	C								
4									215		240	250	250A	250	275	250	250							
5									240	250	240	250	260	250										
6										240		260	280	260		250								
7									250	260A	A	A	260	260	260	255								
8										245	250	245	255	275	250	255								
9										245	250	255	255	255	260									
10											240	260	250	255	260	260								
11										230	240	245	255	255	275									
12										240	245	250	300		260									
13											250	260	250		250									
14									240	225	250	250	250	250	250									
15										245	240	250	250		250									
16										230	230	255	250	260	260									
17										225		275	260	260	255	230								
18												260	255	255	260									
19										250	250	250	225	260	260									
20										245	260	260	260		260									
21										230	250		260		250	250								
22									210	250	255	250				250								
23										225				260	250									
24										250	255	250	260	290	250									
25										225		255			250									
26										A	A	260	240	250										
27											240					E 250A								
28											250	250	240	240										
29								A		E 305A	A	E 305A	A	260	260	250								
30										225	250	250	260	250										
31										250	250	245	250H	250	240									
No.									7	23	23	26	26	23	24	12	2							
Median									240	245	250	250	255	260	260	250	250							

k'F2

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

The Radio Research Laboratories, Japan.

K 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	305	255	260	245	225	295	230	245	210	260A	205	200	260	245	230	245	230	275	250	250	200	300	350	255
2	310	355	280	285	I290A	300A	245	225	220	205	200	205	200H	240	250AI	250AI	I240A	I230C	225	220	245	245	E295A	E355A
3	300A	325	320AE	320AI	260As	255	205	205	245	200	205	200	195	200	225	I250C	240	225	200	200	290	255	I305A	345
4	L305A	300	300	295	285	250	210	225	205	245	I225AI	205AI	I230AI	230S	200	225	245	225	210	200	230	250	310	I315A
5	305	300	300	300A	255	300	210	205	205	205	205	205	200	240	245	240	250	205	205	205	L250A	295AI	310A	305
6	355A	320	295	255	250	240	205	205	210	240	210	205	210	245	255	210	225	E245A	205	205	250A	260	260	300
7	305	300	310A	300	320A	305	205	210	210	A	A	A	200	180H	210	205	230	210	205	210	290	250	205	E350A
8	305	I310AI	300AI	300A	255	260	205	210	210	205	200	205	215	200	200	240	240	240	225	E260A	210	200	E360A	350A
9	330	300	255	255	250	300	210	215	235	200	200	200	205	205	205	205	235	230	205	205	215	255	300	300
10	300	325	300	255	210	245A	220	210	210	225	205	200	205	210	200	245	245	245	205	200	230	250	250	275
11	300	300	300	255	220	255	210	225	240	220	200	200	200	200	225	250A	245	220	205	200	255	295	305	300A
12	260	250	245	290	300	295	235	245	220	205	200	200	200	245	245	250	240	220	225	240	250A	250	300A	300
13	295	295	300	255	250	255	245	215	225	225	205	200	200	225	220	220	240	225	215	210	225	245	250	250
14	280	300	325	300	I310AI	I300A	225	210	210	215	200	200	180	240	E250A	245	225	205	205	250A	255	245	220	300
15	300	300	255	250	E250S	275	225	205	225	225	225	200	200	250A	220	230	240	210	205	250	300A	255	245	250
16	245	250	295	265	225	250	200	210	225	200	200	190	190	210	215	230	230	225	205	245	245	250	250	255
17	250	250	250	260	250A	240	205	205	225	205	200	205	225	240	220	225	220	225	I235AI	I255A	250A	240	245	300A
18	295	310A	320A	245	205	300A	215	210	225	225	E250S	245	240	230	245	245	240	220	E300A	260A	230	245	250	225
19	250	300	295	250	260	255	225	210	210	200	200	200	190	200	210	245	240	230	230A	290A	295	255	245	300
20	300A	250A	310A	275	250	260	215	205	230	230	200	200	205	245	245	240	230	205	240	245	250A	250A	245	260A
21	260A	300AI	300AI	I280A	295A	310A	245	220	210	205	190	245	205	225	215	215	210	245	260AE	340AI	I290A	255	245	245
22	E345S	290	295	295	295	260	210	215	200	200	200	180	245	260A	250	I245A	210	250	245	260	E325A	250	245	240
23	260	E350A	310A	325	250	245	220	210	220	220	E250SE	250A	240	210	240	240	225	200	205	250	250	250	250	300
24	L280A	250A	310A	A	A	A	210	210	210	210	205	200	200	235	245	230	240	I225A	250A	250AE	300A	305	300AE	350A
25	305	300	275	250	225	260	240	205	210	220	240	210	E250A	240A	210	240	210	210	205	250AI	255AI	280A	300	300
26	300	I310AI	305A	260	205	300	210	210	225	I225AI	I205A	205	230S	200	210	230	225r	210	I260AI	I275A	250A	300	E300A	325A
27	E300A	A	310A	310	300	260	250	E250S	250A	240	200	245	240H	225	245	I250A	220	220	210	240	290	I310AE	340AE	360A
28	L270A	250	E350A	350A	I335AI	I340A	250A	225	225	220	205	205	200	200	245	240	205	200	225	275	350	305	260	295
29	350	400	360	I330S	255	I340S	A	A	260A	A	A	A	A	250A	205	200	240	240	250	250A	255	340	355	295
30	E340S	335	280	260	250	345	250	230	240	200	195	200	195	200	245	240	220	240	200	A	A	325A	250AE	370A
31	250A	250	240	260	205	I260S	230	205	I200S	195	190	160H	200	225	200	230	210	205	200	E350A	285	I305A	260	300
No.	29	29	30	29	30	30	30	29	31	29	27	28	29	31	30	31	31	30	30	27	28	31	27	26
Median	300	300	300	265	250	260	220	210	220	215	200	200	200	225	220	240	230	225	210	245	250	255	250	300

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	100	E	100	100	100	100	100	100	100	100	E200↑	Gt	Gt	Gt	110	155	E	E	S	S	E	S
2	S	105	100	100	100	100	S	S	105	Gt	Gt	100	100	145	130	115	105	C	100	100	100	105	100	100
3	100	100	100	100	100	S	S	100	120	100	100	100	100	145	155	C	115	115	S	S	S	S	100	100
4	100	100	100	100	100	S	S	Gt	130	110	100	100	100	105	Gt	125	110	Gt	S	E	S	S	100	100
5	100	S	S	100	100	S	S	Gt	105	115	110	100	105	120	150	140	110	110	105	100	100	100	100	100
6	100	100	100	100	100	100	B	Gt	145	110	105	105	110	110	105	110	120	100	100	100	100	100	100	S
7	100	100	100	100	100	100	Gt	110	105	100	100	100	100	100	105	105	110	S	S	100	100	S	100	100
8	S	100	100	100	100	100	S	110	100	Gt	Gt	100	B	100	Gt	155	120	115	110	100	105	E	100	100
9	S	S	E	E	E	S	145	S	140	150	115	100	105	Gt	Gt	Gt	110	105	S	100	S	S	S	S
10	S	100	100	S	S	100	100	G	150	115	110	B	100	100	Gt	140	125	110	105	S	S	105	S	E
11	S	S	S	E	E	S	S	Gt	105	100	105	100	B	Gt	155	115	115	110	110	105	S	S	100	100
12	100	S	S	S	S	S	Gt	B	110	105	110	115	125	Gt	150	120	110	105	100	100	100	100	100	S
13	100	100	S	E	E	S	Gt	S	110	105	100	105	100	Gt	100	E200↑	Gt	105	S	E	S	S	S	S
14	S	S	100	100	100	100	100	S	110	110	125	110	105	105	120	125	110	100	100	100	S	100	E	S
15	S	S	E	E	100	S	S	130	130	110	100	100	130	120	100	100	100	S	S	100	100	S	S	S
16	S	S	S	S	S	S	S	S	110	120	Gt	100	100	100	Gt	145	S	S	S	S	S	S	E	S
17	S	S	E	100	100	130	S	145	130	120	110	115	105	110	115	Gt	130	110	110	100	105	105	S	100
18	100	100	100	100	E	100	145	S	110	115	110	105	105	110	110	120	110	110	100	100	105	S	E	E
19	E	E	E	E	100	105	S	S	125	110	100	100	100	100	G	115	110	100	100	100	105	S	E	100
20	100	100	100	100	100	100	S	G	110	110	105	110	110	110	110	110	125	S	115	105	105	105	S	100
21	100	100	100	100	100	100	S	100	G	G	B	140	125	115	130	110	105	100	100	100	100	S	E	E
22	S	E	E	E	S	S	S	G	120	110	120	100	150	140	115	110	110	105	105	105	100	S	E	105
23	100	105	105	100	100	S	Gt	130	105	105	100	100	100	100	100	100	B	100	E	S	S	S	S	S
24	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	E	100	E	S	S	G	150	110	110	105	100	100	100	100	115	110	105	100	100	100	S	S
26	S	100	100	100	E	S	Gt	S	105	100	100	G	100	100	100	100	100	100	100	100	100	S	100	100
27	100	100	100	100	100	100	S	115	115	115	125	105	110	Gt	140	125	115	105	115	105	105	100	105	105
28	100	100	S	100	100	100	100	S	125	110	115	105	Gt	100	150	150	Gt	115	S	S	S	S	S	S
29	S	S	S	S	S	145	110	105	105	105	100	105	105	115	Gt	Gt	S	S	S	105	105	100	105	E
30	S	E	E	S	E	E	S	110	100	105	105	Gt	Gt	Gt	110	105	110	100	100	100	100	105	100	100
31	100	100	E	E	110	S	S	G	115	110	Gt	115	110	110	105	110	100	110	S	105	105	100	E	E
No.	16	18	16	18	19	16	8	12	30	28	26	28	26	24	23	25	26	24	19	23	20	14	14	15
Median	100	100	100	100	100	100	100	110	110	110	105	100	105	110	110	115	110	105	100	100	100	100	100	100

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

Oct. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			f_2		f_2	f	l_3	l_2	l_2	l_2	l_2	l	$h\,l$				l	h						
2		f	f_3	f_3	f_4	f_2			l			l	l	$h\,l$	h	C	l_2		f_3	f_2	f^2	f	f_3	f_5
3	f_2	f_3	f_3	f_3	f_3			l	$h\,l_2$	l	l	l_2	l	$h\,l$	h		C	l					f_3	f_4
4	f_4	f_2	f_2	f_2	f_2				h	C	C_2	C_2	l_2	l		h	C						f	f_3
5	f_3			f_3	f				l	$C\,l$	$C\,l$	l	$C\,l$	C	h	h	C_2	l_2	f_2	f_4	f_3	f_2	f_3	f_2
6	f_3	f_3	f_2	f	f	f			$h\,l$	$C\,l$	$C\,l$	l	$C\,l$	C	C	C	C	l_2	f_2	f	f_3	f	f	
7	f_2	f_3	f_3	f_2	f_3	f_2		C_2	C_2	C_2	C_2	l_2	l	l	l	l	l			f	f_2		f_2	f_3
8		f_2	f_2	f_2	f	f_2		l	l			l		l	l	h	C	l	f	f_3	f_2		f_3	f_2
9							h_2		h_2	$h\,l$	$C\,l$	l	l				l	l_2		f_2				
10		f_3	f			f_2	l		$h\,l$	C	C		l	l		h	h	l_2	f_2			f		
11									C_2	C	l	l			h	C	l_2	l	f	f			f_2	f_2
12	f_3								C_2	C	C	l	h		h	h_2	C_2	l_2	f_2	f_2	f_2	f	f_3	
13	f_2	f							l	l	l	l	l		l	h		l						
14			f_2	f_2	f_2	f_2	l_2		C	C	h	C	l	l	C_2	C	l	l	f	f_2		f_2		
15					f_2			h	h	C	l	l	$l\,h$	$C\,l$	f_3	f_3	l			f_2	f_2			
16									C_2	h		l	l	l		h								
17				f_2	f_2	f		h	h	h	C	C	C	C	C		h	l_3	f_3	f_3	f_2	f_2		f_3
18	f_2	f_3	f_3	f_2		f_2	C		l_2	C	C	l_2	l	l	l	h	l_2	l	f_3	f_3	f_2			
19					f_3	f			h	C	l	l_2	l	l		l	l_2	l_3	f_3	f_2	f_2			f
20	f_2	f_2	f_3	f_2	f_2	f			C	C_2	l	l	l	l	l	l	h		f	f_2	f_3	f_2		f_3
21	f	f_3	f_3	f_3	f_3	f_3		l_2				h	h	l	h	l	l	l_3	f_3	f_3	f_3			
22									C	C	h	l	$h\,l$	$h\,l$	$C_2\,f_2$	l_2	l	l_2	f_2	f_3	f_3			f
23	f	f_2	f_3	f_3	f_2			C	C_2	l	l_2	l_2	l_2	l_2	l_2	l_2		l						
24	f_3	f_2	f_3	f_3	f_3	f_3	l_3	l	l_2	l_2	l_2	l	l	l_2	l	l_2	l_2	l_2	f_2	f_2	f_2	f_2	f_3	f_3
25	f_2	f		f					h	C	C_2	l	l_2	l_2	l	l_2	C	l	f_2	f_2	f_3	f_2		
26		f_4	f_3	f_2					l_2	C_3	l_3		l_2	l_2	l	l_2	l_2	l_2	f_2	f_4	f_3		f	f_3
27	f_2	f_3	f_3	f_3	f_2	f_2		C_2	C_2	C_2	h	C_2	$C\,l$		h	h_2	l_2	l_2	f	f	f_2	f_3	f_3	f_2
28	f_3	f_2		f_2	f_3	f_2	l_2		C	C	C_2	C		l	$h\,l$	h		l						
29						f	l	l_2	C_2	C_2	C_3	C_3	C_2	C						f_2	f_2	f_2	f_2	
30								l_2	l_2	l	l_2				l_2	l_2	l_2	l_2	f	f_2	f_3	f_3	f_3	f_2
31	f_2	f			f				l_2	l		l	l	l	l_2	l	l	l		f_3	f_2	f_3		
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

K 12

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	375	325	350	305	290	310	u290 S	J295 S	290	500 H	330	255	400	390	300	255	280	J405 S	305	300	300	405	415	J315 S
2	420	440	350	I340 S	I335 A	350	295	265	255	260	255	305	285	305	u300 S	285 S	280	I260 C	255	270	300	305 S	J305 S	I345 A
3	355	J380 S	365	I325 S	I330 A	310	250	250 S	250	260	275	285	285	305	300	I285 C	285	u255 S	250	250	355	330	I355 A	355
4	I355 A	390	360	350	350	320	250	250	250	255	250	280	295 S	280	300	290	265	260	250	255	305	310	380 S	I390 A
5	390	365 Su	375 SI	375 S	330 SI	330 S	255	u255 R	250	280	275	300	305 S	305	300	300 S	300 R	255	250	265	I290 A	350	I400 A	360
6	395	355	355 S	330 S	350	305	250	I250 S	250	I255 S	255	305	J305 SJ	300 R	305	295	275	I265 S	255	250	300	320 S	345	370 S
7	365 S	350	I355 A	350	385	360 S	250	u250 S	280	u295 SL	280 AI	305 A	300	u325 S	305	J305 S	300	255	255	255	310	300	u295 S	350
8	360	I370 AI	360 AJ	345 S	350	u345 S	250	I250 S	245	275	255	280	280	300	305	300	275	I280	su280 S	295 S	255	235	A	355
9	370	350	345	345	315	355	260	245 S	250	255	280	295	295	300 S	300	300	280	290	J275 R	255	285	330	350	380
10	360	J355 S	355	u300 S	280	I315 S	250	J250 S	260	255	255	305	305	305	305	J305 S	275 S	280	J240 S	255	J305 SJ	300 S	300	355 S
11	355	355	355	345	J300 S	310	255	J295 S	255	250	250	J255 R	J325 R	325	I305 RJ	290 SU	255 R	255	I250 S	250	u350 S	350	365	350
12	340	I305 S	300	350	I350 S	350	J265 S	I260 R	J250 R	u250 S	275	300	325	325	I310 SJ	300 S	295	J280 RJ	255 R	285	J310 S	305	350	355 S
13	355	365	I375 S	355 SI	330 Su	310 S	265 SI	255 S	280	255	300	305	300	300	J305 S	295	290	255 S	280 S	280	290 U	305 S	295	305
14	350	355	385 S	355	I355 AI	350 A	250	J250 R	255	250	300	295	300	J300 R	290 SI	270 SJ	255 R	255	250	340	320	J290 S	300	355
15	365	u350 S	325	305	295	330	260	u250 S	265	270	265	300	295	300	280	275	255	280	250	310	350	I320 S	300	295
16	300	300	260	350	I265 S	345	250	250	250	250	250	J295 S	300	305	J300 SJ	275 S	255	260	255	305	305	305	305	310
17	300	310	330	330	305	300	250	I250 S	250	250	250	300	300	300	J295 R	u255 S	250	250	I275 AI	300 A	300	280	J300 S	335
18	345	350	u325 S	300	240	350	255	I250 SI	255 R	245	295	300	J300 S	300	J300 S	260	250	260	305	300	255	305	300	285
19	310	355	355	305	305	u315 S	260	I245 S	250	260	250	255 R	280	300	300	285	275	250	250	350	350	305	310	355
20	345	295	350	330	305	I310 S	250	J240 S	255	J260 S	290	305	300	305	315 S	J270 R	270	280	305	300	300 S	J305 S	u290 S	300
21	330	350	I350 AI	310 A	345 S	345	u275 S	u250 S	250	280	300 S	265	300	295	285	260 S	255	250	300	I300 AI	330 A	310	300	310
22	385	350	360	355	330 SU	325 S	250	J250 S	250	270	300	285	295	300	275	255	250	260	295	315	J345 S	300	300	290
23	325	u400 SI	360 F	350 S	305	300	260	J250 S	250	u250 S	280	300	255	295	285	290	260	245	260	300	340	300 S	300	355
24	I350 A	300	345	A	A	A	255	250	250	255	300	295	300	305	295	I270 S	250	I260 A	295	280	330	350	355	370
25	375	355	350	305	260	300	J270 S	250	255	275	290 S	300	300	290	300	260	J250 S	250 S	245	285	A	A	345 S	350
26	360	A	A	F	255	345	u260 Su	235 S	J255 RI	285 AI	300 S	300	295	285	290	u255 S	250	250	I300 AI	300 A	300	300 S	390	350
27	340	I350 A	325	360	350	350	I290 S	J265 S	305	255	290	J250 RU	315 SH	305	305	295	250	250	285	u280 S	350	I350 A	350	I350 A
28	I345 A	300	355 R	390	I395 AI	390 A	u290 SI	I260 S	280	255	300	270	255	300	255	265	250	250	280	330	405	SF	F	J350 S
29	I475 SJ	455 Su	450 SI	480 U	350 SI	320 SI	330 AI	380 A	u320 S	A	A	A	A	300	300	J260 R	250	280	u335 S	290	350	u400 S	405	355
30	395	420	335	J320 R	300	u350 S	290	u255 S	250	250	255	280	300	290 S	250 S	255	250	250	245	A	A	355	250	375 S
31	300	300	345	305	240	I295 S	300	245 SI	I275 S	255	J250 RJ	250 RU	315 SH	275	250	255	250	J280 S	250	350	330	I325 A	350	355
No.	31	30	30	29	30	30	31	31	31	30	30	30	30	31	31	31	31	31	31	30	29	29	29	31
Median	355	350	350	340	320	330	260	250	255	255	280	295	300	300	300	275	255	260	255	290	310	305	310	350

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

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

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

ypF2

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.1	4.4	4.4	3.8	3.4	3.0	C	C	C	C	13.6	7.4	5.9	13.1	12.3	8.3	7.0	6.2	11.0	10.8	5.2	4.5	4.1	4.6
2	3.7	3.6	4.3	4.0	3.2	2.5	3.4	7.5	8.6	9.9	8.0	8.1	9.8	10.3	10.9	10.7	10.6	9.7	8.3	7.3	6.3	6.0	5.5	5.0
3	4.3	4.3	4.3	4.4	4.1	3.9	4.1	6.9	7.4	9.4	8.9	8.2	8.9	9.1	9.4	9.5	10.2	11.1	10.2	7.4	5.4	4.6	4.7	4.4
4	4.2	3.9	3.8	3.7	3.8	3.5	4.2	6.9	7.7	8.2	8.9	9.4	9.5	9.6	10.4	9.9	9.7	10.2	9.6	7.5	5.1	4.7	4.7	4.7
5	4.7	4.5	4.4	4.5	3.8	4.0	4.3	6.7	8.3	10.3	10.9	10.6	9.9	10.6	12.0	11.9	12.8	13.1	11.1	7.8	4.7	4.0	4.0	4.0
6	3.9	4.0	3.9	4.0	4.0	3.1	3.8	7.0	8.0	9.4	8.2	9.2	C	C	C	C	11.6	10.8	10.3	7.5	5.7	4.8	4.4	4.4
7	4.2	4.2	4.1	4.2	4.1	4.0	4.6	7.1	8.8	9.4	10.3	10.2	10.2	10.9	12.1	11.7	11.5	11.1	10.3	8.1	5.8	5.2	5.0	3.6
8	3.5	3.6	4.2	3.8	3.6	3.4	4.0	6.5	7.5	9.7	9.6	9.1	9.9	10.0	11.0	11.5	11.8	11.5	10.6	7.8	6.4	5.7	3.2	2.9
9	3.2	3.4	3.5	3.6	3.0	2.8	3.9	6.0	8.6	10.0	9.6	8.9	10.7	12.0	10.7	10.2	9.8	10.0	10.1	7.4	4.2	4.5	4.7	4.2
10	4.0	4.1	3.9	3.8	4.0	3.5	3.8	6.9	7.9	9.2	8.9	10.4	C	C	C	C	C	C	C	C	C	C	C	C
11	3.7	3.8	3.7	3.7	4.0	3.2	3.8	6.9	7.7	9.6	9.6	7.9	8.1	9.2	10.8	11.1	10.5	10.4	8.5	6.7	5.2	5.8	5.2	5.4
12	4.7	4.7	4.3	3.7	3.6	3.6	4.2	8.3	10.6	10.5	10.0	8.0	8.9	10.0	11.1	11.6	11.0	10.4	8.9	6.8	5.0	5.1	4.2	3.7
13	3.9	3.8	3.7	3.9	4.0	4.0	3.9	7.6	9.2	10.0	10.8	11.6	11.0	10.5	11.2	9.8	9.7	10.1	9.1	6.9	5.6	5.2	4.8	4.3
14	4.2	4.0	4.0	4.1	3.9	3.9	4.8	7.0	7.9	9.1	10.1	10.5	10.4	11.1	11.7	10.0	9.9	8.2	7.7	5.5	5.6	5.7	4.8	3.6
15	3.7	3.9	4.0	3.7	3.7	3.2	3.6	6.6	10.6	10.1	11.0	10.8	12.5	12.0	12.8	11.5	10.2	8.7	C	C	4.8	4.9	4.7	4.7
16	4.1	3.2	3.1	3.4	3.7	2.7	3.3	6.1	7.8	8.4	9.1	9.5	9.2	9.9	10.3	10.6	10.2	9.3	8.6	6.2	4.8	5.0	5.5	4.4
17	4.0	3.5	3.2	3.5	4.0	3.2	3.5	6.2	7.5	8.1	7.5	7.7	9.4	10.7	10.8	10.6	9.2	7.5	6.5	5.5	4.6	4.3	4.2	3.5
18	3.3	3.4	3.3	3.7	3.7	2.6	3.2	6.4	C	C	C	9.1	10.4	10.5	10.8	11.3	9.6	7.6	8.2	6.3	5.1	4.9	4.5	3.7
19	3.1	3.0	3.0	3.2	3.2	3.2	3.9	6.5	8.3	6.9	8.8	9.7	8.1	8.9	9.4	9.6	8.6	8.8	8.5	4.4	4.3	4.4	4.5	4.3
20	4.2	4.3	3.6	3.6	4.0	3.3	3.7	6.4	7.4	8.1	9.2	9.0	9.7	11.0	10.0	11.6	9.6	8.2	7.3	6.4	5.5	5.1	5.0	4.3
21	3.8	3.7	3.6	3.6	4.0	3.7	4.2	7.5	8.3	8.2	8.3	10.6	11.0	9.3	10.5	10.6	8.8	7.6	6.5	4.7	5.2	5.0	4.6	4.2
22	3.8	3.8	3.6	3.5	3.6	3.7	3.7	6.3	6.8	7.5	8.5	10.5	9.7	9.0	9.2	10.6	9.8	7.8	8.2	5.0	4.8	4.5	4.2	3.8
23	3.3	3.4	3.7	3.9	4.4	3.8	3.9	6.7	7.6	7.8	8.5	10.0	11.9	11.0	10.4	10.8	10.6	9.1	7.7	4.3	4.1	4.3	3.6	3.6
24	3.5	3.9	3.7	3.8	5.0	2.3	2.8	5.9	6.4	7.0	8.7	9.4	9.9	10.2	12.1	11.9	10.4	8.3	7.3	4.6	3.6	3.5	3.5	3.5
25	3.6	3.6	3.6	4.1	4.0	2.3	3.0	6.0	7.0	8.8	10.1	10.5	11.9	13.1	13.0	12.2	10.5	8.9	7.7	3.6	3.3	3.3	3.4	3.3
26	3.2	3.2	3.5	3.8	3.9	2.4	3.4	5.7	6.2	7.7	9.7	11.4	11.7	11.7	10.8	10.8	10.6	8.5	7.0	5.5	5.4	4.6	4.1	3.5
27	3.8	2.6	2.7	3.0	3.0	3.1	3.1	7.0	7.8	12.5	9.4	8.2	8.8	9.5	11.0	11.4	10.5	8.0	7.7	6.3	4.5	3.8	3.8	3.8
28	3.3	3.8	3.3	2.8	2.7	2.9	3.1	6.1	7.5	8.3	10.5	11.5	11.0	9.0	9.4	11.3	12.4	8.7	6.2	5.7	S	S	S	S
29	S	S	3.5	3.4	3.6	R	A	5.9	12.0	6.7	7.8	10.0	11.4	11.4	9.7	9.0	8.5	8.2	7.6	5.0	3.6	3.6	3.7	3.7
30	3.8	4.0	3.6	3.5	3.5	2.4	F	6.1	9.0	8.4	8.9	9.9	8.5	10.0	11.1	9.9	8.4	8.4	7.6	3.6	2.9	4.4	S	A
31	F	F	3.0	3.1	4.0	1.8	1.8	4.6	6.1	7.5	9.0	8.6	8.8	9.9	11.1	8.5	7.9	7.3	5.2	3.6	4.2	4.2	4.3	3.8
No.	29	29	31	31	31	30	28	30	29	29	30	31	29	29	29	29	30	30	29	29	29	29	28	28
Median	3.8	3.8	3.7	3.7	3.8	3.2	3.8	6.5	7.8	8.8	9.2	9.5	9.9	10.3	10.8	10.7	10.2	8.8	8.2	6.3	5.1	4.7	4.4	3.9
U.Q	4.2	4.0	4.0	3.9	4.0	3.7	4.0	7.0	8.6	9.8	10.1	10.5	11.0	11.0	11.4	11.5	10.6	10.2	9.8	7.4	5.6	5.2	4.8	4.4
L.Q	3.5	3.4	3.5	3.5	3.6	2.7	3.4	6.1	7.4	8.0	8.7	8.6	8.9	9.5	10.4	9.9	9.6	8.2	7.0	5.0	4.2	4.4	4.0	3.6
Q.R	0.7	0.6	0.5	0.4	0.4	1.0	0.6	0.9	1.2	1.8	1.4	1.9	2.1	1.5	1.0	1.6	1.0	2.0	2.8	2.4	1.4	0.8	0.8	0.8

The Radio Research Laboratories, Japan.

foF2

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

Y 1

41

IONOSPHERIC DATA

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

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

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	C	R	A	3.35R	3.30	3.20	3.10	2.70	2.10	S					
2							S	2.00	I2.65A	3.10	3.20	3.25	A	R	3.30	3.15	2.90	2.20	S					
3							S	2.10	2.70	3.15	3.30	3.40R	3.50	I3.40R	3.20R	3.20	2.80	2.05	S					
4							S	2.25	2.85	3.10	3.30	3.45R	3.50	3.40	3.30	3.10	A	A	A					
5							S	2.10	2.70	3.10	3.35	3.40R	R	R	3.40R	3.30	2.90H	2.30	S					
6							S	A	2.80	A	A	R	C	C	C	C	2.85	2.30	S					
7							S	2.10	2.80	3.15	3.40	3.50	3.50	3.40	3.30	3.00	2.80	2.15	S					
8							A	2.00	2.80	3.20	3.40	3.50	3.50	3.45	3.40	3.20	2.90	2.20	A					
9							S	2.00	2.65	A	A	R	R	3.50	3.30	3.20	2.80	2.15	S					
10							S	A	2.75	3.10	3.25R	3.30R	C	C	C	C	C	C	C					
11							S	1.90	2.60	3.00	A	A	R	R	3.35	3.20	2.80	2.20	S					
12							S	1.80	2.75	3.10	3.30	3.40	I3.35R	I3.30R	I3.30R	3.20	2.85	I2.20A	S					
13							S	2.00	A	A	A	R	A	A	A	A	2.80	2.10	S					
14							S	1.90	I2.60A	3.05	3.25	3.30R	3.30	3.30	3.40R	3.15	I2.85A	A	S					
15							S	2.00	I2.65A	3.10	3.30	3.40	3.40	3.30	3.30H	3.10	2.75	2.10	C					
16							S	A	2.70	I2.95A	3.20	3.40	3.50	I3.40A	3.30	3.05	2.60	1.90	A					
17							A	2.15	2.60	3.00	3.20	I3.35R	I3.40R	3.40	3.25	3.00	2.70	1.90	S					
18							S	A	C	C	C	I3.25R	I3.30R	3.40	3.30	3.15	2.50	A	S					
19							S	1.90	2.60	3.00H	3.20	3.30R	I3.35R	3.30	3.25	3.10	2.50	1.70	S					
20							S	1.80	2.60	3.00	3.10	3.25H	3.30	3.30	3.35R	3.10	2.70	A	S					
21							S	1.90	I2.25A	2.70	I3.15R	3.30	3.30	3.30	3.15	A	A	2.00						
22							S	1.90	2.50	2.80	3.20	3.30	I3.30R	I3.30R	I3.20A	I2.95R	A	A						
23							S	2.00	2.50	I3.00A	A	C	A	A	A	3.00	2.60	S						
24							S	2.00	2.60H	2.90	3.15	3.15	A	A	R	A	A	A						
25							S	2.00	2.60	3.00	3.10	3.10	A	A	A	I2.95A	A	A						
26							S	A	A	2.90	3.20	3.20	3.10	I3.15A	3.20	A	A	A						
27							S	1.60	2.45	2.90	3.10	3.15	3.20	3.25	3.15	2.75	2.30	S						
28							S	1.80	2.40	2.80	I3.05A	3.15	3.20R	I3.20R	3.10	2.95	2.45	1.80						
29							S	S	2.15	2.60	2.95	3.10	3.20R	3.20	3.05	2.75	2.45	S						
30							S	A	A	2.75	3.00	3.15	3.25	3.20	3.15	I2.90A	2.70	2.00						
31							S	A	I2.30R	I2.80A	I3.00A	A	I3.25A	I3.30A	3.10	2.85	2.40	I1.90S						
No.								22	26	26	24	24	21	22	25	25	24	19						
Median								2.00	2.60	3.00	3.20	3.30	3.30	3.30	3.30	3.10	2.70	2.10						

foE

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

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	E	E	S	C	C	C	C	3.1[G]	3.8	2.9[G]	2.4[G]	G	J5.2	2.1[G]	2.4	S	J1.4[S]	S	J2.5	2.9	S
2	S	S	E	E	E	S	J2.4	G	2.8	3.0[G]	3.7	3.5	3.5	3.4[G]	3.6	3.5	3.6	J3.7	J2.9	J3.8	J3.1	S	S	S
3	J2.2	3.9	J5.2	J3.2	J3.8	3.1	3.2	2.1	3.3	3.8	3.7	3.6	3.7	G	G	3.8	3.4	2.7	S	C	C	S	J2.4	4.0[M]
4	J5.4	J1.8	J2.2	4.0[M]	J2.2	J1.5[S]	J2.3	G	3.0	3.5	3.7	4.9	4.1	4.3	J5.4	J4.8	J4.4	3.9	2.9	J5.3	J3.7	J1.6	S	S
5	S	S	J2.0	J5.1	J5.5	J2.1	2.9	2.3	2.4[G]	3.3	3.5	3.8	3.8	3.8	2.5[G]	3.7	3.5	2.9	J2.1	S	J2.1	3.8[M]	J5.1	J2.2
6	J1.9	J2.1	J1.9	J2.2	J1.8	1.7	J2.1	2.3	3.2	3.8	4.0	3.1[G]	C	C	C	C	3.2	3.1	2.4	J3.8	J2.5	J1.9[S]	S	S
7	J3.6	J4.0	2.1	J1.7	1.5	J2.0	J3.1	2.6	3.6	3.6	3.3[G]	3.4[G]	G	G	G	G	G	2.6	S	S	S	4.0[M]	3.2	J2.1
8	J2.4	2.1	J1.5	1.9	2.1	J2.3	J2.5	2.7	3.1	J3.2[G]	G	G	2.7[G]	4.5	G	3.7	4.5	3.7	J3.5	S	3.1	5.2	3.3	J2.6
9	S	S	E	1.2	2.9	E	S	2.5	3.8	3.4	3.4	3.3[G]	2.8[G]	G	G	3.6	3.4	2.8	1.7	J2.5	J3.7	S	S	S
10	S	S	S	E	1.1	J1.3[S]	S	2.2	3.0	3.4	4.1	4.0	C	C	C	C	C	C	C	C	C	C	C	C
11	2.0	J2.2	2.0	1.8	1.2	S	S	2.4	J4.2	4.3	3.4	3.8	3.3[G]	2.9[G]	3.8	4.1	3.1	3.3	J6.3	J8.3	6.5[M]	S	S	S
12	3.0	J2.3	S	E	E	S	S	J2.4	3.2	4.1	4.4	3.8	G	G	3.9	4.1	3.7	2.5	S	S	S	S	J3.2	3.0
13	2.9	J1.9	J2.4	J2.2	E	E	S	2.6	3.1	3.7	J4.0	G	J3.4	5.2	7.7	J3.7	1.9[G]	2.8	1.7	S	S	S	S	S
14	S	S	E	E	E	S	S	2.4	J4.5	3.6	3.6	3.8	4.7	3.8	5.3	3.8	3.1	J3.9	J2.4	J1.9	J1.8	S	J2.2	J2.5
15	J3.6	J3.1	J2.3	J1.8	1.5	J1.3[S]	S	1.8[G]	2.7	3.1	3.5	3.7	3.7	3.6	G	G	G	3.0	C	C	3.0	3.9	J5.2	S
16	J2.1	J1.5[S]	E	E	E	E	J2.1	2.4	2.8	3.2	2.9[G]	2.8[G]	2.9[G]	J3.6	3.6	3.8	3.1	2.1	1.8	S	S	S	S	S
17	S	S	E	J3.7	J3.7	3.0	3.0	3.0	J3.4	3.7	4.2	4.1	3.9	4.7	4.4	3.7	3.1	J3.6	1.9	J2.0	S	J2.2	2.3	D2.6[C]
18	S	2.9	J2.3	3.1	J4.3	1.9	2.0	2.2	C	C	C	3.8	3.8	3.8	3.7	J4.6	4.9	J3.4	J3.3	J2.6	J1.7[S]	J1.8	J1.8[S]	S
19	S	S	J1.8	1.3	J2.1	E	S	2.5	2.8	G	3.3	3.6	3.8	3.9	J4.5	4.0	3.4	2.9	2.1	S	J3.6	3.2	J2.2	S
20	S	S	J2.2	4.9[M]	E	E	J2.0	J2.2	3.1	3.5	3.7	3.6	3.7	3.6	4.2	3.7	3.7	J4.6	3.8	J2.7	J2.4	J2.2	J3.8	J2.1
21	J2.5	S	J2.0	2.1[M]	J2.4	S	S	J2.2	2.7	3.5	3.7	4.2	4.2	3.6	4.1	J4.9	5.8[M]	J8.4	J6.3	J5.1	J2.5	3.2	J2.3	J2.3
22	2.4	J2.1	J2.1	E	E	E	S	G	2.9	3.1	3.5	2.8[G]	G	4.7	4.3[M]	4.0	J5.4	J3.1	J3.7	5.9[M]	J3.7	J3.6	J5.3	J5.1
23	J1.9	S	J1.8	J1.5	E	E	2.0	2.3	3.4	3.8	3.7	C	J5.7	J4.3	3.8	3.2	3.3	3.0	J2.3	S	J1.8	S	S	S
24	2.1	3.9[M]	J3.4	J3.8	J2.1	S	J2.6	2.6	2.8	3.2	3.7	3.8	3.7	3.7	4.4	J4.2	3.1	3.9	J3.9	J3.4	J3.7	J3.6	J3.4	J3.6
25	3.2	J3.3	J2.4	J2.1	E	S	S	G	G	3.7	4.2	J5.4	J5.1	J4.3	J3.5	3.1	J3.7	J4.2	J4.2	J2.3	J3.2	J2.2	J2.2	J1.8
26	2.9[M]	J3.7	J1.7	E	J2.6	J2.0	S	2.1	3.1	3.9	J5.4	3.4	3.7	5.1	3.0[G]	J5.3	J4.8	J5.1	3.3[M]	3.2	J3.3	J4.3	3.8[M]	J2.5
27	J2.3	J2.1	2.2[M]	1.9[M]	J2.1	S	S	2.1	3.1	4.3	J7.4	J7.3	J5.9	7.1[M]	4.1	J5.2	J6.4	J3.3	J5.1	J2.5	J2.4	J3.3	3.2	J2.3
28	S	S	J3.2	J5.4	J1.8	J1.8	S	3.1[M]	2.6	3.4	J4.6	J5.1	3.6	3.7	3.3	G	3.1	3.2	1.6	S	S	3.2	S	S
29	S	J1.9	J1.6	E	1.3	1.8	5.1	3.0	5.3	3.8	4.8	4.7	5.3	4.6	J5.6	J5.3	G	2.0	S	J2.6	5.1	3.2	S	2.4
30	2.9[M]	J2.4	J1.7	1.2	J2.0	2.1	1.8	3.0	3.1	3.0	3.1	G	G	5.2[M]	6.2[M]	3.4	3.1	G	3.2	2.9[M]	3.0	J5.3	J3.7	5.1
31	J3.2	2.1	E	1.3	1.2	J1.7	J1.7[S]	1.9	3.1	3.1	3.1	3.1	3.8	3.4	G	2.7[G]	3.1	S	S	2.9	S	S	3.0[M]	J2.3
No.	19	19	28	31	31	22	16	30	29	29	30	30	29	29	29	29	30	29	23	19	21	20	20	17
Median	2.5	2.2	2.0	1.8	1.5	1.7	2.4	2.3	3.1	3.5	3.7	3.8	3.7	3.8	3.8	3.8	3.4	3.1	2.9	2.9	3.1	3.2	3.2	2.5
U Q	3.2	3.3	2.2	3.1	2.2	2.0	3.0	2.6	3.4	3.8	4.1	4.0	4.0	4.6	4.4	4.4	3.7	3.8	3.8	3.8	3.7	3.8	3.8	3.3
L Q	2.1	2.1	1.6	E	E	E	2.0	2.1	2.8	3.2	3.4	G	G	G	G	3.4	3.1	2.8	2.1	2.5	2.4	2.2	2.3	2.2
Q. R	1.1	1.2	0.6				1.0	0.5	0.6	0.6	0.7					1.0	0.6	1.0	1.7	1.3	1.3	1.6	1.5	1.1

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S			S	C	C	C	C	3.1[G]	3.8	2.9[G]	2.4[G]		G	2.0[G]	G	S	S	S	1.7	2.5	S
2	S	S				S	2.2		G	3.0[G]	3.6	G	E3.5[B]	E3.4[R]	G	3.5	3.3	3.3	2.6	E3.8[S]	3.0	S	S	S
3	2.1	2.0	2.0	1.7	3.3	1.6	2.5	G	3.3	3.6	G	G	G			3.8	3.3	2.6	S	C	C	S	2.0	2.4
4	2.0	1.8	1.9	3.1	1.4	S	2.0		G	G	3.7	4.6	4.0	4.3	4.5	4.3	4.1	3.9	2.0	A	1.9	1.6	S	S
5	S	S	1.9	2.6	2.6	2.0	2.5	G	2.0[G]	G	G	G	E3.8[B]	3.8	2.4[G]	3.6	3.5	2.9	1.9	S	1.7	1.9	E	E
6	E	1.8	1.6	1.7	1.8	1.7	1.9	2.2	3.2	3.5	3.9	E3.1[R]	C	C	C	C	3.2	3.0	E2.4[S]	3.3	1.9	S	S	S
7	2.0	A	2.0	1.2	E	E2.0[S]	2.1	2.5	3.2	3.5	3.3[G]	3.3[G]						G	S	S	S	2.3	2.2	2.0
8	2.0	E	1.4	1.2	2.0	1.7	2.0	G	G	2.5[G]			2.7[G]	4.4		G	G	3.0	3.4	S	E	2.0	2.2	2.3
9	S	S		1.2	A		S	E2.5[B]	G	G	G	E3.3[R]	E2.8[R]			3.6	3.2	2.8	1.6	2.4	2.1	S	S	S
10	S	S	S		1.1	S	S	2.1	G	G	4.0	3.9	C	C	C	C	C	C	C	C	C	C	C	C
11	2.0	2.0	2.0	1.6	1.1	S	S	2.4	3.6	E4.3[B]	G	G	E3.3[R]	2.8[G]	E3.8[B]	4.1	G	3.2	E1.3[S]	A	A	S	S	S
12	2.1	E	S			S	S	2.2	3.2	4.0	4.3	3.8			3.8	3.9	3.5	G	S	S	S	S	2.0	2.0
13	2.5	1.6	1.7	1.8			S	2.4	2.9	3.4	G		E3.4[B]	3.5	6.9	3.5	1.9[G]	2.4	1.7	S	S	S	S	S
14	S	S				S	S	2.4	4.0	3.6	3.5	3.8	4.5	E3.8[B]	5.2	E3.8[B]	G	G	1.8	1.6	E	S	E	2.4
15	2.8	2.6	1.9	1.6	1.4	S	S	1.8[G]	2.7	2.9	G	G	G	G				2.5	C	C	1.8	2.7	1.9	S
16	1.7	S					G	G	G	G	2.9[G]	2.8[G]	2.9[G]	E3.6[B]	G	3.7	3.0	G	1.7	S	S	S	S	S
17	S	S		2.2	1.7	2.2	2.1	2.6	3.1	3.6	4.2	3.9	E3.9[B]	4.5	4.4	3.4	G	2.7	E1.9[B]	1.7	S	1.9	E	1.6
18	S	E	2.1	1.6	1.9	1.7	1.9	G	C	C	C	3.8	3.8	3.7	3.7	3.8	4.2	3.3	3.2	E2.6[B]	S	E	E	S
19	S	S	1.5	1.2	1.6		S	G	G		G	G	E3.8[B]	3.9	3.9	3.7	3.3	2.8	2.0	S	A	2.5	2.0	S
20	S	S	1.8	A			1.8	2.2	E3.1[B]	G	3.6	3.5	G	G	4.0	3.5	3.3	3.3	2.6	2.6	2.2	1.7	3.5	2.0
21	1.9	S	1.5	1.7	1.7	S	S	1.6	G	3.5	G	4.2	4.2	G	3.9	4.1	4.0	A	5.9	A	2.3	2.9	E2.3[S]	2.0
22	2.0	E2.1[B]	1.7				S		G	G	G	2.8[G]		4.5	3.6	3.3	3.7	2.7	3.6	A	2.0	2.2	2.8	A
23	E	S	E	1.4			G	G	G	G	3.4	C	5.3	3.9	3.4	G	3.2	3.0	2.1	S	E1.8[S]	S	S	S
24	E	E	2.0	2.2	1.5	S	2.3	1.8	G	3.2	3.5	3.7	3.5	3.6	4.3	3.9	G	2.7	3.4	3.3	3.4	2.0	2.6	A
25	2.2	2.7	1.5	1.2		S	S			3.3	4.0	4.1	4.8	4.1	G	G	3.4	3.8	2.9	E	2.1	2.1	E	E1.8[S]
26	A	2.0	1.5		2.4	E	S	1.9	2.9	3.9	E5.2[B]	G	3.7	4.2	2.8[G]	4.0	3.1	2.7	2.3	2.2	2.6	2.6	3.0	1.9
27	2.2	1.9	E	1.4	1.7	S	S	G	2.9	3.5	7.4	6.7	5.7	6.9	4.0	5.2	6.4	A	3.4	1.9	E	2.3	2.2	2.0
28	S	S	2.6	A	1.5	E	S	1.2	G	3.3	3.5	4.8	G	G	3.3		3.1	3.2	1.6	S	S	A	S	S
29	S	1.9	E		1.3	A	A	2.7	4.3	3.7	4.6	4.5	4.5	4.6	5.4	3.7		2.0	S	2.3	A	2.1	S	1.8
30	1.9	2.2	1.6	E1.2[B]	1.7	E	1.7	3.0	2.9	1.4	G			3.8	4.1	G	2.4		2.1	2.5	2.5	A	A	A
31	1.9	1.9		1.3	E1.2[B]	1.4	S	G	2.0	G	G	G	3.6	E3.4[B]		2.7[G]	3.0	S	S	2.7	S	S	2.8	2.0
No.	19	17	22	22	21	11	15	25	27	27	28	27	22	25	22	25	27	28	21	17	20	19	19	17
Median	2.0	1.9	1.7	1.6	1.7	1.7	2.0	1.8	2.0	3.2	G	3.5	E3.5	E3.8	3.8	3.6	3.2	2.8	2.1	E2.6	2.1	2.1	2.2	2.0

foEs

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.70	E1.50	E1.80	1.10	E	E1.60	C	C	C	C	2.00	2.30	2.20	1.85	2.00	1.60	1.20	E1.75	E1.70	E1.70	E1.60	E1.40	1.10	E1.70
2	E1.40	E1.80	1.25	1.35	1.30	E1.60	E1.60	1.60	1.80	1.80	2.00	2.05	2.40	2.25	2.20	1.70	1.65	E1.60	E1.60	E1.60	E1.65	E1.60	E1.70	E1.60
3	E1.65	E1.60	1.10	E	E	E1.50	E1.50	1.30	1.40	1.85	2.25	2.05	2.00	2.00	2.20	1.85	1.50	E1.40	E1.60	C	C	E1.60	1.25	E1.60
4	E1.60	E1.45	E	E	E	E1.50	E1.45	E1.70	1.50	1.80	1.90	1.90	1.95	1.90	1.95	1.60	1.95	E1.50	1.40	E1.65	E1.60	E1.40	E2.10	E1.85
5	E1.60	E1.70	1.10	E	E	1.05	E1.70	E1.40	1.40	1.50	1.80	1.90	2.05	2.00	1.85	1.60	1.50	E1.70	E1.50	E1.50	1.30	E1.60	E1.80	E1.60
6	E1.70	E1.65	E	E	E	1.10	E1.60	1.35	E1.50	1.70	2.00	2.05	C	C	C	C	E1.60	E1.50	E1.50	E1.60	E1.70	E1.80	E2.10	E2.00
7	E1.60	E1.80	1.30	E	E	E	E1.50	1.40	1.60	2.00	2.20	2.05	2.20	2.30	2.00	2.05	E1.60	E1.60	E1.70	E1.60	E1.70	E1.50	1.20	E1.70
8	E1.70	E1.70	E	E	1.00	E	1.20	E1.60	1.35	1.60	2.00	2.10	2.00	2.20	2.00	2.00	E1.50	E1.40	1.10	E1.60	1.35	1.10	E1.50	E1.60
9	E2.00	E2.00	1.10	E	E	1.30	E1.50	1.40	1.65	2.15	1.80	2.00	2.20	2.20	1.95	1.60	1.60	1.40	1.30	1.30	E1.60	E1.60	E1.60	E1.40
10	E1.60	E1.60	E1.40	1.05	E	1.20	E1.50	1.50	1.20	1.60	2.00	2.00	C	C	C	C	C	C	C	C	C	C	C	C
11	E1.60	E1.80	1.10	E	E	E1.30	E1.70	E1.60	1.50	1.85	2.00	2.05	2.00	2.00	1.85	1.60	1.50	E1.50	1.30	E1.50	E1.45	E1.40	E1.50	E1.70
12	E1.50	E1.80	E1.45	E	E	E1.40	E1.50	E1.50	1.50	1.60	2.20	2.00	2.20	2.20	1.50	1.60	1.50	E1.50	E1.50	E1.60	E1.60	E1.60	E1.40	E1.70
13	E1.40	E1.50	1.10	E	E	1.30	E1.40	E1.50	1.50	1.50	1.90	2.20	2.05	1.90	1.70	1.45	1.40	E1.45	E1.40	E1.50	E1.50	E1.65	E1.90	E1.50
14	E1.50	E1.90	1.30	E	E	E1.40	E1.40	E1.60	1.40	1.70	2.00	2.00	2.50	2.00	2.00	1.90	1.50	1.30	E1.30	E	E1.50	E1.40	E1.60	E1.55
15	E1.50	1.30	E1.50	E	E	E1.40	E1.60	1.40	1.40	1.40	1.60	2.05	2.00	2.00	2.00	1.50	E1.50	E1.60	C	C	E1.60	E1.60	E1.60	E1.70
16	E1.45	E1.50	1.00	E	E	1.20	E1.45	1.40	1.40	1.60	1.95	2.00	2.20	2.00	2.00	1.60	1.30	1.40	1.15	E1.60	E1.50	E1.90	E1.90	E1.55
17	E1.45	E1.50	1.20	E	E	1.30	1.30	E1.50	1.40	1.60	1.70	2.20	2.05	2.30	1.95	1.50	1.60	E1.40	E1.70	E1.40	E1.90	E1.60	E1.50	E1.40
18	E1.50	E1.95	1.20	E	1.05	1.30	E1.60	E1.45	C	C	C	2.05	2.00	2.20	2.00	1.90	1.60	E1.50	E1.45	1.30	E1.60	E1.60	E1.60	E1.90
19	E1.90	E2.20	E	E	E	1.20	E1.60	E1.50	E1.50	1.50	1.90	1.90	2.00	2.20	1.80	1.80	1.50	E1.50	E1.30	E1.70	E1.45	E1.50	E1.50	E1.40
20	E1.60	E2.00	E	E	E	1.30	E1.50	E1.50	1.60	1.60	2.05	2.00	2.00	2.00	1.75	1.60	1.60	E1.50	E1.40	E1.60	E1.50	E1.40	E1.70	E1.50
21	E1.50	E1.90	1.20	E	E	E1.50	E1.40	E1.40	1.50	1.50	1.60	1.70	2.00	2.00	1.70	1.60	E1.60	E1.65	1.10	E1.50	E1.60	E1.60	E1.60	E1.70
22	E1.65	E1.70	1.40	1.00	1.20	1.30	E1.40	E1.60	1.50	1.55	1.90	2.00	2.00	2.10	1.70	1.60	E1.80	E1.60	E1.60	E1.60	E1.50	E1.60	E1.60	E1.60
23	1.20	E1.60	E1.65	E	1.20	1.30	E1.50	E1.60	E1.60	1.60	2.10	1.95C	2.00	2.10	1.80	1.70	1.40	E1.75	E1.60	E1.70	E1.70	E1.95	E1.50	E1.60
24	E1.70	E1.90	E1.60	1.15	E	E1.40	E1.60	1.30	1.65	1.50	1.30	1.80	2.20	2.20	1.80	2.00	1.60	E1.65	E1.90	E1.90	E1.80	E1.90	E1.55	E1.60
25	E1.70	E1.60	E	E	E	E1.40	E1.70	1.70	1.65	1.60	1.80	1.85	2.00	2.05	2.20	1.45	1.60	E1.50	E1.60	E1.50	E1.50	E1.50	E1.80	E1.50
26	E1.50	E1.60	1.10	1.30	E	1.30	1.30	1.20	E	2.00	1.60	2.10	2.10	2.20	1.70	1.45	E1.70	E1.50	E1.70	E1.50	E1.70	E1.40	E1.80	E1.50
27	E1.50	E1.55	E1.50	E	E	E1.60	E1.70	E1.50	1.50	1.60	1.95	2.00	1.90	2.25	2.00	1.95	1.60	E1.60	E1.50	E1.50	E1.50	E1.45	E1.80	E1.55
28	E2.00	E2.15	E1.60	E	E	E1.60	E1.50	1.10	1.40	1.50	1.60	1.60	1.60	2.00	2.00	1.85	E1.60	E1.50	E1.30	E1.50	E1.60	E1.60	E1.70	E1.50
29	E1.50	E1.60	1.30	E	E	1.10	E1.60	E1.50	E1.60	1.60	1.50	1.60	2.20	1.30	2.00	1.20	1.50	E1.70	E1.60	E1.70	E1.70	E1.50	E1.80	E1.70
30	E1.65	1.20	E	E	E	E1.70	1.40	1.30	1.30	1.50	1.50	1.70	1.60	1.75	2.00	1.60	1.60	1.10	E1.60	1.10	E1.60	E1.50	E1.80	E1.70
31	E1.45	E1.50	1.40	E	E	E	E1.60	1.20	1.40	1.60	1.50	1.60	2.20	2.05	2.00	1.60	1.60	2.20	E1.90	E1.60	E1.80	2.20	E1.80	E1.40
No.	31	31	23	31	31	17	30	30	27	29	30	31	29	29	29	29	24	30	29	28	29	30	30	30
Median	E1.60	E1.65	1.10	E	E	1.20	E1.50	E1.50	E1.50	1.60	1.90	2.00	2.00	2.05	2.00	1.60	1.50	E1.50	E1.50	E1.60	E1.60	E1.60	E1.60	E1.60

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.80	2.95	3.05	3.10	2.95	2.85	C	C	C	C	3.70	3.25	3.10	2.90	3.45	3.20	3.45	2.50	3.00	3.25	3.05	2.50	2.45	2.90
2	2.80	2.65	2.90	3.05	3.20	2.90	3.00	3.45	3.45	3.45	3.30	3.10	3.25	3.10	3.15	3.25	3.40	3.45	3.35	3.20	3.15	3.15	3.00	3.10
3	2.85	2.85	2.90	3.15	2.90	3.10	3.25	3.50	3.40	3.45	3.45	3.15	3.20	3.15	3.15	3.15	3.20	3.45	3.50	3.30	3.00	2.90	3.00	2.70
4	2.90	3.10	2.90	2.95	3.15	3.15	3.20	3.50	3.55	3.40	3.40	3.30	3.25	3.10	3.10	3.20	3.30	3.45	3.45	3.40	3.15	2.75	2.85	2.85
5	2.80	2.80	2.80	3.10	3.15	3.00	3.00	3.40	3.25	3.20	3.30	3.25	3.05	2.85	3.00	3.05	3.15	3.45	3.45	3.45	2.85	2.90	2.95	2.90
6	2.85	2.85	2.90	2.90	3.40	3.25	3.25	3.40	3.45	3.50	3.30	3.10	C	C	C	C	3.20	3.35	3.35	3.30	3.05	2.90	2.85	2.75
7	2.75	2.85	2.80	2.85	2.90	2.90	3.10	3.50	3.45	3.25	3.35	3.20	3.35	2.95	3.05	3.10	3.15	3.35	3.30	3.35	3.30	2.90	3.30	2.90
8	2.85	3.05	3.00	2.95	3.00	3.10	3.25	3.50	3.35	3.45	3.45	3.20	3.15	3.00	3.00	3.05	3.10	3.35	3.40	3.35	3.30	3.60	2.65	2.65
9	2.65	2.90	3.00	3.15	3.05	3.05	3.25	3.45	3.50	3.40	3.40	3.05	3.10	3.15	2.90	3.05	3.05	3.20	3.30	3.70	3.00	2.80	3.00	2.95
10	2.75	2.80	2.95	2.95	3.15	3.15	3.25	3.50	3.40	3.35	3.20	3.10	C	C	C	C	C	C	C	C	C	C	C	C
11	2.85	2.90	2.95	2.95	3.45	3.15	3.20	3.50	3.45	3.35	3.50	3.30	3.00	2.80	3.05	3.10	3.05	3.35	3.35	3.05	2.85	2.70	2.90	3.00
12	2.90	3.10	3.00	2.85	2.65	2.85	3.00	3.50	3.50	3.45	3.40	3.25	2.95	2.85	2.95	3.10	3.10	3.15	3.35	3.30	2.80	3.05	3.10	2.80
13	2.70	2.75	2.75	2.85	3.00	3.25	2.95	3.40	3.40	3.25	3.20	3.20	3.05	3.00	3.10	3.05	3.20	3.35	3.40	3.20	3.00	3.10	3.15	3.15
14	2.55	2.80	2.85	2.95	2.90	2.80	3.35	3.40	3.45	3.20	3.25	3.20	3.05	3.05	3.10	3.15	3.40	3.30	3.40	3.10	2.95	3.10	3.30	2.90
15	2.70	2.90	3.05	3.00	3.25	3.00	3.05	3.45	3.50	3.30	3.30	3.05	3.20	3.10	3.15	3.20	3.05	3.15	C	C	2.90	3.00	3.05	3.20
16	3.20	2.95	2.75	3.00	3.35	3.20	3.05	3.55	3.40	3.40	3.40	3.30	3.10	3.05	3.05	3.25	3.25	3.35	3.40	3.30	2.95	3.05	3.25	3.20
17	3.05	3.15	2.95	2.95	3.40	3.30	3.15	3.55	3.55	3.60	3.25	3.10	3.10	3.15	3.15	3.25	3.30	3.40	3.30	3.25	3.05	3.25	3.35	3.00
18	2.90	2.95	2.95	3.10	3.50	3.00	3.15	3.50	C	C	C	3.10	3.15	3.05	3.05	3.25	3.25	3.40	3.35	3.40	3.00	3.15	3.20	3.25
19	3.00	2.85	2.85	2.90	3.15	3.00	3.20	3.60	3.60	3.40	3.25	3.40	3.00	3.05	3.10	3.30	3.25	3.40	3.45	3.35	2.75	2.90	2.90	2.95
20	3.00	3.20	3.05	2.90	3.25	3.10	3.25	3.30	3.40	3.25	3.00	3.25	3.10	3.15	2.90	3.10	3.20	3.20	3.15	3.10	3.00	3.00	3.00	3.10
21	2.90	2.80	2.85	2.80	3.10	3.05	3.20	3.35	3.65	3.55	3.15	3.25	3.20	3.00	3.15	3.30	3.40	3.30	3.35	3.00	3.05	3.00	3.05	2.85
22	2.80	2.90	2.95	2.85	3.05	3.05	3.20	3.50	3.40	3.30	3.20	3.25	3.25	3.15	3.00	3.20	3.30	3.40	3.10	3.20	2.90	3.10	3.10	3.05
23	2.85	2.80	2.75	3.10	3.30	3.40	3.40	3.60	3.55	3.45	3.60	3.30	3.00	3.10	3.10	3.20	3.30	3.40	3.35	3.35	2.95	2.95	3.10	2.85
24	2.95	3.10	3.15	3.15	3.80	3.05	2.85	3.55	3.50	3.40	3.20	3.25	3.15	3.00	3.15	3.25	3.35	3.55	3.50	3.35	3.15	2.90	2.95	2.85
25	2.80	2.70	3.05	3.20	3.60	2.80	3.00	3.55	3.40	3.20	3.25	3.05	3.00	3.20	3.15	3.35	3.30	3.50	3.70	3.45	2.85	3.05	3.00	3.05
26	2.85	2.80	3.00	3.15	3.55	2.60	3.05	3.60	3.45	3.25	3.20	3.15	3.20	3.20	3.25	3.15	3.30	3.40	3.50	3.10	3.20	3.00	3.25	2.85
27	3.15	3.25	2.80	2.85	2.85	2.85	2.75	3.30	3.10	3.45	3.40	3.30	3.35	3.15	3.10	3.25	3.35	3.30	3.30	3.35	3.10	2.90	2.95	3.30
28	2.90	3.05	3.20	2.80	2.75	2.70	2.85	3.45	3.45	3.30	3.20	3.30	3.35	3.10	3.00	3.20	3.40	3.45	3.25	3.15	S	S	S	S
29	S	S	3.15	2.45	3.00	R	A	2.90	3.60	3.30	2.90	3.10	3.15	3.25	3.30	3.20	3.20	3.30	3.20	3.35	3.00	2.65	2.80	2.90
30	2.80	2.90	3.20	3.15	3.50	3.10	F	3.35	3.55	3.35	3.35	3.50	3.05	3.20	3.35	3.45	3.35	3.50	3.50	3.35	2.65	3.10	S	A
31	F	F	3.15	3.25	3.60	4.00	2.85	3.60	3.65	3.60	3.45	3.25	3.20	3.25	3.40	3.40	3.55	3.60	3.50	3.05	2.90	3.10	3.00	2.90
No.	29	29	31	31	31	30	28	30	29	29	30	31	29	29	29	29	30	30	29	29	29	29	28	28
Median	2.85	2.90	2.95	2.95	3.15	3.05	3.15	3.50	3.45	3.35	3.30	3.25	3.15	3.10	3.10	3.20	3.30	3.35	3.35	3.30	3.00	3.00	3.00	2.90

The Radio Research Laboratories, Japan.

M(3000)F2 | Sweep 10 Mc to 20.0 Mc in 30 min/sec in automatic operation.

Y 7

53

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	C	L	4.00	4.30	L	L	L								
2										L	L	L	4.00	L	L	L	L							
3										L	L	L^{H}	3.90^{L}	L	L^{H}	L								
4											L	A	L	L	L	A	A							
5											L	4.05^{E}	4.05^{E}	L^{H}	L	L	L							
6											L	4.05	C	C	C	C	L							
7										L	L	4.05^{E}	4.05^{E}	L	L	L								
8										L	L	3.95^{L}	3.95	L	L	L	L							
9											L	L	L	L	L	L								
10										L	L	L	C	C	C	C	C	C	C					
11											L	L			L	L								
12											L	L	L	L	L	L								
13										L	L	L	L	L	L	L								
14											L	L	L	L	A									
15										L	L	L	L	3.95^{L}	L	L			C					
16												3.80^{L}												
17												L	L	L	L	L								
18									C	C	C	L	L	L	L	L								
19												L			L									
20											L	L^{H}												
21												L	L^{H}	L^{H}										
22																								
23											L	C	A	3.60^{L}	L^{H}	L								
24											L	L	L	L	L									
25											L	L	L	L	L	L								
26										L	A	L	3.60^{L}	L										
27											A	A	A	A	L	A	A							
28											L	A	L	3.95^{L}										
29											L	A	L	A	A									
30										L	3.90	L	L	L	L									
31																								
No.											1	6	7	3										
Median											3.90	4.00	4.00	3.95										

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

The Radio Research Laboratories, Japan.

Y 8

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C	C	C	C	230	295	260	320	255	260								
2										250	230	290	290	290	290	275	255							
3										255	255	300	280	280	285	270								
4											260	275	260	270	290	260	260							
5											255	250	265	310	290	280	275							
6											250	270	C	C	C	C	265							
7										250	255	260	255	280	290	265								
8										260	245	270	260	300	295	280	270							
9											250	270	295	275	270	290								
10										250	260	C	C	C	C	C	C	C	C					
11											245	250			290	290								
12											255	250	305	310	290	280								
13										255	250	260	255	275	290	255								
14											255	260	285	290	280									
15										260	265	250	275	270	280	255			C					
16												270												
17												255	295	285	280	255								
18									C	C	C	270	265	295	290	260								
19												255			285									
20											275	250												
21												270	275	270										
22																								
23											240	270 C	255	295	275	275								
24											280	260	280	290	285									
25											260	275	305	275	275	255								
26										285	290	290	280	260										
27											270	290	260	305	290	260	250							
28											280	260	250	250										
29											300	285	275	275	250									
30										265	255	240	245	275	260									
31																								
No.										9	24	28	23	23	22	17	6							
Median										255	255	265	275	280	285	265	260							

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	315	290	250	240	220	E_{280}^{S}	C	C	C	C	210	195	195	255	250	240	235	265	275	250	210	295	420	270
2	270	355	270	240	250	E_{280}^{S}	300	240	235	230	220	200	205	255	240	240	245	240	235	250	260	250	250	250
3	340	310	300	255	E_{375}^{A}	240	255	230	235	225	215	210^{H}	210	200	190^{H}	250	240^{H}	245	230	I_{230}^{C}	I_{270}^{C}	285	275	340
4	250	265	305	E_{355}^{A}	250	250	270	225	230	220	220	A	235	240	270	I_{250}^{A}	I_{250}^{A}	250	235	A	230	280	300	300
5	300	300	300	270	290	285	260	225	230	240	225	205	200	200^{H}	250	245	250	245	225	210	205	290	305	280
6	295	300	295	285	235	250	250	230	240	230	215	205	C	C	C	C	240	245	230	230	225	250	295	305
7	320	I_{320}^{A}	300	275	255	310	260	225	225	240	220	200	200	240	235	230	240	245	230	215	230	275	245	290
8	345	305	255	265	300	255	245	225	230	225	230	205	205	E_{250}^{A}	245	245	250	245	235	225	225	220	E_{330}^{A}	E_{375}^{A}
9	355	300	260	250	I_{290}^{A}	290	245	225	240	230	220	210	215	205	235	240	255	250	235	210	240	280	275	260
10	310	290	270	255	250	245	250	235	235	235	235	205	C	C	C	C	C	C	C	C	C	C	C	C
11	325	300	300	280	240	235	250	230	240	255	230	210	210^{H}	205^{H}	245	260	245	245	255	I_{255}^{A}	I_{255}^{A}	270	275	270
12	295	270	220	255	255	305	275	235	240	240	E_{245}^{A}	210	230	230	250	255	250	240	225	220	240	255	255	300
13	355	320	325	300	240	245	255	240	240	225	225	210	225	205	I_{250}^{A}	235	230^{H}	245	235	225	235	260	250	250
14	305	320	290	290	270	300	245	220	235	230	225	210	260	240	I_{250}^{A}	250	245	235	230	225	265	245	235	315
15	320	340	255	255	240	255	250	245	240	235	235	230	220	205	230	240	230	240	C	C	245	290	270	255
16	250	250	295	260	240	230	250	230	230	210^{H}	200^{H}	210	210^{H}	240^{H}	220^{H}	255^{H}	250	230	230	220	260	260	245	245
17	270	250	255	310	250	260	250	230	230	235	240	225	220	E_{275}^{A}	I_{255}^{A}	240	240	235	230	240	250	245	225	250
18	295	305	305	275	245	290	280	230	C	C	C	220	220	220	230	E_{250}^{A}	250	245	240	230	240	240	250	240
19	280	305	300	290	260	255	250	230	230	230^{H}	215^{H}	230	205^{H}	200^{H}	250	255	240	240	235	205	I_{340}^{A}	300	270	255
20	285	255	270	A	240	245	255	230	240	225^{H}	230	225^{H}	225^{H}	230^{H}	260^{H}	250^{H}	255	245	245	250	250	255	E_{300}^{A}	250
21	290	290	290	290	280	255	240	220^{H}	230	240	230^{H}	E_{250}^{A}	240^{H}	210^{H}	270^{H}	250	250	I_{265}^{A}	250	I_{260}^{A}	285	260	280	290
22	310	320	295	290	270	255	225	210	230	220^{H}	205^{H}	205^{H}	200^{H}	E_{270}^{H}	225^{H}	250	245	230	250	A	265	265	270	I_{280}^{A}
23	260	330	340	280	250	235	240	225	230	220^{H}	225	C	A	220	240^{H}	240	250	240	220	215	275	290	245	305
24	310	290	275	305	210	205^{H}	E_{325}^{A}	230	230	230^{H}	230	220	200	230	I_{250}^{A}	260	240	235	235	240	E_{350}^{A}	290	330	A
25	340	360	275	250	215	250	280	230	225	230^{H}	250	250	275	255	210	240	250	235	210	210	305	300	285	290
26	I_{325}^{A}	330	350	260	240	270	255	210	230	240	I_{250}^{A}	205	235	I_{215}^{A}	220^{H}	250	250	240	225	245	255	295	270	305
27	255	255	320	300	300	290	305	250	245	250	A	A	A	I_{260}^{A}	270	A	A	230^{A}	250	220	240	305	285	255
28	305	280	260	A	330	350	290	230	230	225	245	I_{230}^{A}	230	220	205^{H}	245	245	225	220	210	290	I_{305}^{A}	305	250
29	325	400	290	355	285	I_{290}^{A}	I_{350}^{A}	330	240	245	E_{290}^{A}	I_{265}^{A}	I_{245}^{A}	I_{245}^{A}	I_{250}^{A}	255	240	230	230	230	I_{290}^{A}	350	330	300
30	310	305	250	255	235	250	E_{300}^{A}	250	235	220	200	205	200	240	260	240	235	230	210	240	E_{450}^{A}	I_{320}^{A}	A	A
31	305	275	275	255	225	205	I_{245}^{S}	220	225	230^{H}	200^{H}	195^{H}	190^{H}	200^{H}	245^{H}	225^{H}	240	230	220	E_{260}^{A}	280	275	300	275
No.	31	31	31	28	30	29	28	30	29	29	27	27	27	26	29	27	29	30	29	26	28	30	27	27
Median	305	300	290	270	250	255	250	230	230	230	225	210	215	225	245	245	245	240	230	230	250	280	275	275

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	E	E	S	C	C	C	C	110	105	105	105	G	105	100	130	S	S	S	110	110	S
2	S	S	E	E	E	S	110	G	150	115	120	125	115	110	160	145	135	120	120	110	110	S	S	S
3	110	110	110	110	110	110	110	105	135	130	130	140	150	G	G	150	140	125	S	C	C	S	110	105
4	110	110	105	105	105	S	105	G	145	130	130	125	125	120	120	120	110	110	110	105	105	100	S	S
5	S	S	105	110	110	110	110	115	110	150	145	140	130	140	105	155	145	130	100	S	115	110	110	105
6	105	105	100	100	105	105	105	105	140	130	125	105	C	C	C	C	155	130	125	110	115	S	S	S
7	105	110	110	105	110	105	110	140	130	120	110	110	G	G	G	G	G	140	S	S	S	105	110	105
8	105	105	100	100	105	110	105	150	150	105	G	G	105	140	G	180	140	135	130	S	130	125	110	110
9	S	S	E	105	105	E	S	125	130	115	110	110	105	G	G	150	135	125	125	115	115	S	S	S
10	S	S	S	E	105	S	S	105	155	145	130	125	C	C	C	C	C	C	C	C	C	C	C	C
11	105	110	105	105	105	S	S	140	130	120	110	105	110	105	155	140	155	130	125	120	115	S	S	S
12	125	110	S	E	E	S	S	140	130	130	125	130	G	G	155	140	130	125	S	S	S	S	105	110
13	105	105	105	105	E	E	S	130	120	110	110	G	105	105	105	100	105	130	130	S	S	S	S	S
14	S	S	E	E	E	S	S	145	105	135	135	130	125	130	140	130	120	110	110	110	110	S	110	105
15	100	105	110	105	105	S	S	130	115	110	145	130	125	130	G	G	G	125	C	C	110	105	105	S
16	110	S	E	E	E	E	105	150	135	110	100	110	110	105	140	125	125	130	105	S	S	S	S	S
17	S	S	E	105	105	105	105	140	105	130	130	130	135	125	130	135	130	125	130	120	S	120	110	110
18	S	110	105	105	105	105	105	105	C	C	C	130	130	130	130	120	115	115	115	110	S	110	S	S
19	S	S	110	110	110	E	S	135	135	G	145	140	135	135	130	130	120	120	125	S	120	115	115	S
20	S	S	105	105	E	E	105	140	130	130	125	130	130	140	150	150	145	125	120	120	120	115	110	110
21	110	S	105	110	105	S	S	110	120	120	150	135	125	130	180	140	130	130	120	120	110	110	105	105
22	100	100	105	E	E	E	S	G	150	130	130	110	G	130	105	140	110	120	115	110	110	110	110	110
23	110	S	110	105	E	E	105	145	125	110	125	C	110	110	105	155	135	125	120	S	100	S	S	S
24	115	125	110	105	105	S	105	105	150	140	135	125	120	120	150	115	115	110	110	110	110	105	105	105
25	105	105	105	105	E	S	S	G	G	140	125	120	110	110	110	105	110	110	110	100	110	105	105	105
26	105	105	105	E	105	105	S	125	115	125	120	140	120	110	105	105	120	115	120	110	105	105	105	105
27	105	105	105	105	105	S	S	140	145	135	130	125	120	125	130	120	120	120	120	120	120	110	110	110
28	S	S	110	110	110	110	S	110	150	130	105	125	140	135	140	G	150	130	130	S	S	110	S	S
29	S	190	160	E	130	130	130	130	130	130	130	135	130	125	120	125	G	130	S	115	110	110	S	110
30	110	110	110	110	105	110	145	145	140	140	145	G	G	125	125	120	120	G	115	110	110	110	105	105
31	110	105	E	130	125	110	S	125	120	110	125	120	125	125	G	120	145	S	S	115	S	S	110	110
No.	19	18	22	22	21	12	15	26	28	28	29	27	25	25	22	26	27	28	23	18	20	19	19	17
Median	105	110	105	105	105	110	105	130	130	130	125	125	125	125	130	130	130	125	120	110	110	110	110	105

k'Es

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

The Radio Research Laboratories, Japan.

Y 11

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IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											l	l2	l	l		l	l2	h		f		f	f2	
2							l2		h l2	l	h	h	l	l	h l	h	h	C3	C3	f3	f2			
3	f2	f2	f2	f3	f4	f3	l5	l	h2	h2	h	h l	h			h2	h	C2					f2	f2
4	f3	f3	f3	f9	f2	f	l2		h	h	h2	h2	h	h	C3	C2	l3	l3	l3	f3	f2	f		
5			f	f3	f3	f3	l4	l	l2	h	h	h	h	h	l	h l	h2 l	h2	l		f	f2	f2	f
6	f	f	f	f2	f2	f	l	l2	h l2	h l	h l	l					h	h3	C	f2	f	f		
7	f2	f4	f2	f3	f2	f	l2	C2 l	h	h	l	l						C2				f2	f2	f
8	f	f	f	f	f	f	l3	h3	h	l			l	h		h	h	h3	h5 l2		f	f2	f2	f3
9				f2	f3			C2	h	l	l	l	l			h	h	C	C	f3	f2			
10					f	f		l2	h l3	h l	h l	h l												
11	f	f	f2	f2	f			h	h2	h	l	l	l	l	h l	h l	h	C3	C2	f2	f3			
12	f	f						C	h2	C l2	h	h			h	h2	h2	l					f3	f2
13	f3	f	f2	f				h2	l	l	l		l	l2	l4	l3	l	h2	h					
14								h	l3	h l2	h	h	h	h	h2	h2	l	l2	l	f2	f		f	f3
15	f3	f4	f	f3	f3	f		l	l	l2	h	h	h	h				C3			f2	f3	f2	
16	f2	f					l2	h l	h2	l	l	l	l	l2	h l	C2 l2	C2 l	h	l					
17				f5	f2	f3	l2	C2 l2	l2 C2	h2	h	h	h	h	h	h	h2	C3	C	f		f2	f	f2
18		f	f	f2	f2	f	l	l				h	h	h	h	C2	C2	l3	l3	f	f	f	f	
19			f	f2	f2			C3	h2 l		h l	h	h l	h	h	h2	C2	C2	C2		f7	f2	f3	
20			f2	f3			l	h2	h2	h	h	h	h	h	h	h	h2	l4	l2	f2	f2	f	f2	f2
21	f2		f2	f4	f3			l	l	C l	h l	h	C l	h	h C	h l	h2 l3	C4	f3	f2	f4	f2	f2	f3
22	f	f2	f						h l	h	h	l		h l2	l	h	l2	l2	f2	f3	f2	f2	f2	f3
23	f		f	f			l	h	h	l	h2 l		l3	l2	l2	h l2	h2 l	C3	f		f			
24	f2	f f2	f2	f2	f		l2	l	h	h	h l2	h2	l	l	h l	l2 h	l h	l2	f3	f2	f3	f2	f4	f7
25	f3	f2	f2	f2						h	h2	C	l3	l2	l2	l2	l2	l5	f2	f	f2	f2	f	f
26	f2	f2	f2		f3	f		l	l2	C2	C2	h	C	l2	l	l2	l2	l2	f f	f2	f2	f2	f2	f2
27	f3	f	f	f2	f2			C	h2	h2	h4	h2	C2	C2	h	C3	C5	l3	f2	f	f	f2	f2	f2
28			f7	f5	f2	f		l h	h l2	h l2	l2 h	h4 l	h	h	h		h2	C2	f			f2		
29		f	f		f	f	l4	C4	C2	h2	h2	h	h2	h	h2	C l		h		f3	f2	f3		f2
30	f2	f8	f	f	f2	f	l	h l	h3 l2	h l	h l			h2	h	l	l2		f	f2	f2	f2	f4	f4
31	f2	f		f2	f	f	l	l	l2	l	l l	l	l	l		l	h2 l			f4			f2	f
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

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

Note 9th to 14th, 30th to 31st: No observations.

Outstanding Occurrences

Oct. 1961	Start-time	Dura-tion	Type	Max. Int.		Max. Time	Remarks
				Inst.	Smd.		
18	0456.2	0.8	SD/4	>1300	>940	-	off scale

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Oct. 1961	Whole Day Index	L. N. 06 12 / 12 18 / 18 24	W W V 00 06 / 06 12 / 12 18 / 18 24	S. F. 00 06 / 06 12 / 12 18 / 18 24	W W V H 00 06 / 06 12 / 12 18 / 18 24	Warning 00 06 / 06 12 / 12 18 / 18 24	Principal magnetic storms Start	End	ΔH
1*	2+	1 2 1	2 - - 1	3 3 3 4	4 4 4 5	W W W W	---	20xx	318γ
2	3o	4 4 4	1 - - 1	4 2 3 4	5 4 4 4	U N N N			
3	4-	5 4 5	1 - - 3	4 3 4 4	4 3 3 4	N N N N			
4	4+	5 4 4	4 - - 4	4 5 5 4	4 4 4 4	N N N N			
5	5-	5 5 5	5 - - 5	4 5 5 3	5 5 5 5	N N N N			
6	4o	5 (5) 5	4 - - 4	2 4 5 3	4 4 4 4	N N N N			
7	5-	5 5 5	5 - 5 5	3 3 4 5	5 4 4 4	N N N N			
8	4+	4 4 4	5 - 5 5	3 4 4 5	5 4 5 5	N N N N			
9	5-	5 - C	5 - 5 C	4 4 4 C	5 5 C C	N N N N			
10	4+	5 5 4	C - 5 5	3 3 4 5	5 5 5 4	N N N N			
11	4+	5 4 3	5 (5) 5 5	4 4 4 4	4 5 4 4	N N N N			
12	4-	3 3 (2)	5 - - 4	4 4 4 5	4 4 4 4	N N N N			
13	4+	4 5 C	5 - 5 4	4 4 3 4	5 4 4 4	N N N N			
14	4o	4 4 4	5 - - 5	3 3 4 4	5 4 3 4	N N N N			
15	5-	5 5 5	5 - 5 5	4 3 4 4	5 4 3 4	N N N N			
16	4+	5 5 4	5 - 5 5	3 3 4 4	5 4 3 4	N N N N			
(17)	4+	5 5 5	5 - 5 5	4 3 3 4	5 5 5 4	N N N N			
(18)	4+	5 5 5	4 - 5 5	3 4 4 4	5 5 5 5	N N N N			
(19)	5-	4 5 C	5 - 5 5	4 4 5 5	5 4 4 4	N N N N			
20	5-	4 5 4	(4) - 5 5	5 3 (5) 5	5 5 5 5	N N N N			
21	5-	5 (5) 5	5 - 5 5	3 3 4 5	5 5 4 5	N N N N			
22	5o	5 5 (5)	5 - 5 5	4 5 5 5	5 3 4 5	N N N N			
23	4+	4 4 4	5 - 5 5	3 3 4 5	5 4 4 5	N N N N			
24	4o	4 3 4	3 - - 4	4 5 4 4	5 3 3 4	N N N N			
25	4o	5 (4) 3	4 - - 3	4 4 5 4	5 4 4 5	N N N N			
26	4+	4 4 3	(4) - - 4	4 5 5 5	4 4 4 5	N N N N	1940	---	76γ
27	3+	4 3 2	4 - - 5	3 3 3 3	5 4 3 4	N N N N	---	---	
28	2+	3 2 1	4 - - 1	3 3 3 2	4 3 3 4	N N W W	0840	---	244γ
29*	2o	2 2 1	(1) - - 4	1 2 2 (3)	5 4 4 5	W U U U	---	21xx	
30*	3+	3 2 1	5 - - 3	5 4 3 4	5 (4) 3 4	U N N N			
31	3+	3 (2 2)	3 - - 4	4 4 3 4	5 4 4 4	N N N N			

* = day of Special World Interval

( ) = Regular World Day

\- = impossible to evaluate

( ) = inaccurate

C = artificial accident

--- = continuing magnetic storm

Note: Estimation of propagation quality figures has been revised from July 1961 issue. See Symbols and Terminology.

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Oct. 1961	S W F										S E A			Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN	SH										
3	5"	18	13				23.05	17	S	1+				x		

IONOSPHERIC DATA IN JAPAN FOR OCTOBBER 1961
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