F — 142

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1960

Vol. 12 No. 10

(Including Provisional Data at Showa Base)

Issued in December 1960

Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1960

Vol. 12 No. 10 10

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

$(M\,3000)\,F2$ — 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 A flat E_s trace at or below the normal E layer minimum virtual height. Use in daytime only.

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

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

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

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

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

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

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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M : multiple peaks separated by relatively long period of quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

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

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

N = normal
U = unstable
W = disturbed

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

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

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

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

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

Circuits and Drop-out intensity

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

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

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

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

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

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

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly

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

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

Importances

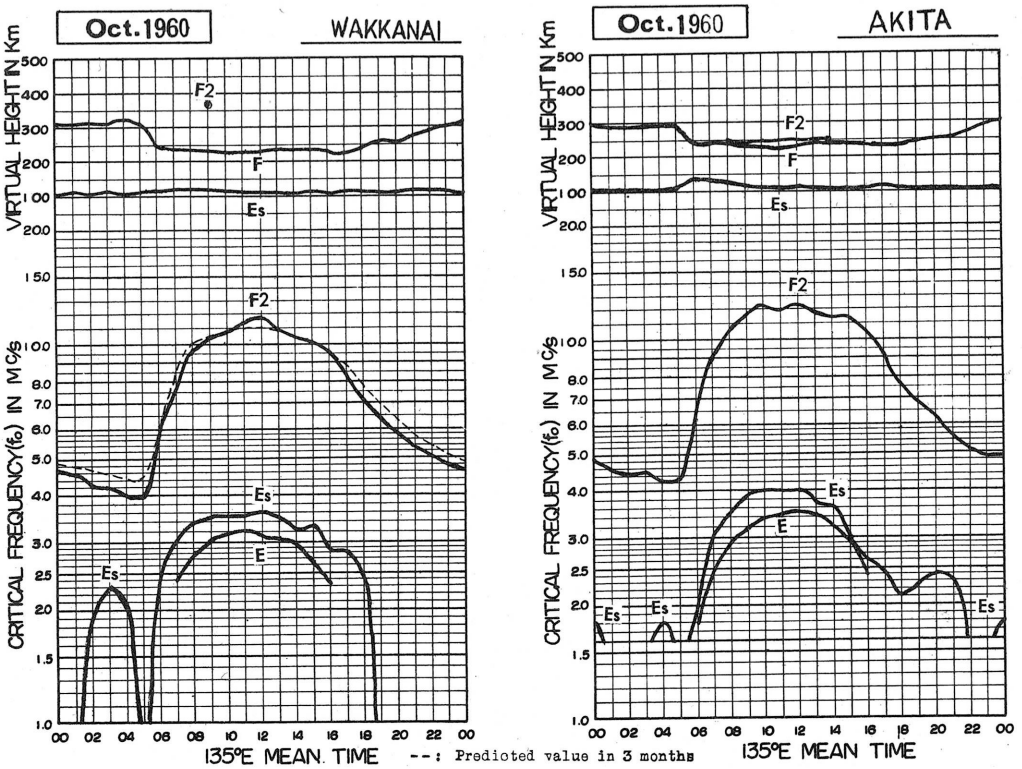
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1−	1	1+
2−	2	2+
3−	3	3+

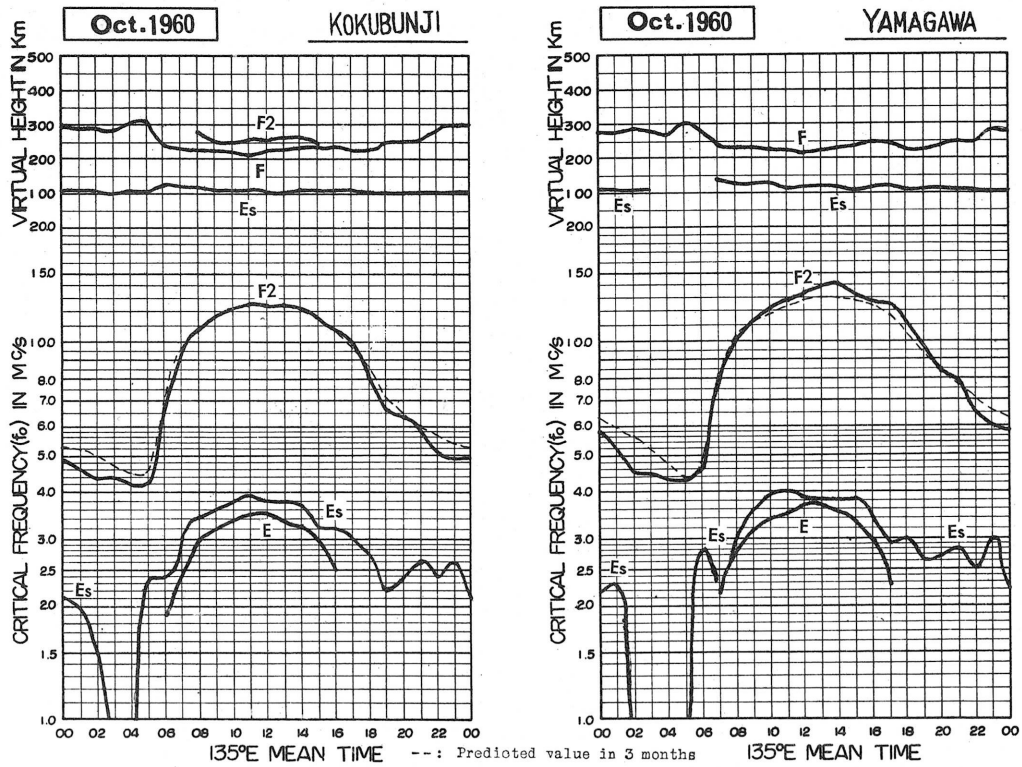
The data of sudden enhancement of atmospheric (SEA) observed on 28 kc are tabulated on each *Start-time, Duration and Importance.*

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

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.1	5.0	I4.6A	4.3	3.7	3.6	4.7	5.1	5.5	5.3	5.4	5.3	5.4	6.3	6.7	6.8	7.3	6.8	6.6	6.8	6.1	5.3	5.3	4.8
2	4.5	4.4	4.1	3.8	4.1	4.1	4.4	4.7	5.0	5.1	5.6	5.8	6.3	7.3	7.8	7.3	7.8	7.1	5.8	5.5	5.8	5.3	4.8	4.4
3	4.2	4.2	4.2	I4.2S	3.8	4.3	6.0	7.8	8.3	8.8	10.5	10.6	10.6	10.1	9.2	8.0	U8.9S	U9.5S	U8.0S	7.3	6.4	5.3	4.8	4.8
4	4.6	4.6	4.3	3.8	3.8	4.0	6.3	8.8	U10.5R	10.8	10.6	10.5	10.3	9.1	9.0	8.6	9.0	8.6	S	S	6.8	5.8	5.1	5.1
5	4.8	4.4	3.7	3.3	I3.2F	3.1	4.3	W	6.6	6.5	6.2	7.8	8.4	9.1	8.3	8.6	8.6	8.0	6.7	7.1	5.8	5.0	5.2	4.7
6	4.7	4.7	4.7	4.8	I4.9S	I4.5F	5.2	6.8	7.8	7.8	8.0	10.4	8.6	8.8	J8.8R	8.4	8.8	8.8	8.1	7.1	5.8	5.0	4.6	4.1
7	4.0	3.3	2.5	2.1	2.1	2.0	I2.6B	I3.3A	A	W	W	C	R	4.9	I5.1A	5.9	6.5	6.5	5.4	5.8	J6.3FS	4.1	I3.9FS	I3.5F
8	3.3	3.0	3.0	I2.9F	2.8F	3.0	5.6	6.8	U7.8R	8.1	8.8	8.6	9.3	9.2	8.0	8.7	8.6	7.8	6.2	5.4	5.3	4.5	4.5	4.2
9	4.1	3.8	3.7	3.4	3.3	2.8	5.3	7.8	7.3	8.3	8.6	8.9	U10.5R	9.8	9.3	9.5	9.3	7.6	6.5	6.4	5.1	5.0	4.3	FS
10	F	4.3	4.1F	4.0F	4.0F	4.0F	6.3	8.0	10.6	10.5	9.7	11.2	10.8	J10.8R	9.7	9.7	I9.1C	8.2	5.8	6.2	6.1	6.0	5.7	4.9
11	4.7	4.5	4.3	4.2	4.0	4.0	6.6	8.8	J10.8R	10.8	10.0	10.3	10.6	10.8	11.0	10.8	9.7	8.9	8.1	7.3	6.4	6.2	5.8	5.3
12	U5.6S	5.3	5.3	5.3	5.0	4.9	7.1	9.5	10.3	10.5	10.8	11.9	11.8	11.3	U10.8R	11.0	J11.3R	9.4	7.4	6.7	6.3	6.5	6.3	5.9
13	5.6	5.3	5.2	5.2	5.3	5.2	8.0	9.3	10.8	12.5	12.8	I12.4R	11.8	11.7	11.3	10.8	10.7	U8.8S	7.8	I7.7S	7.3	6.5	6.3	5.8
14	5.5	5.3	5.3	5.4	5.3	5.6	7.8	9.3	11.8	12.6	I12.6R	12.6	12.3	12.5	11.8	11.7	11.1	9.8	8.2	7.3	6.7	6.3	5.8	5.5
15	5.5	5.3	5.3	5.3	5.3	5.3	8.0	J10.0R	11.3	12.0	12.5	I12.7R	12.5	11.8	11.7	11.4	11.0	9.6	8.3	7.5	7.0	6.7	6.5	5.3
16	5.8	5.8	5.3	4.8	4.7	4.4	6.3	8.2	9.0	11.3	I12.9R	I12.9R	U13.0R	12.4	12.2	11.8	10.6	10.0	8.3	6.7	6.2	5.7	5.8	U6.3S
17	5.5	5.8	5.7	5.6	5.3	5.1	7.0	9.7	10.3	12.0	11.8	12.5	U12.8R	11.8	11.2	11.3	10.8	10.0	8.6	7.8	7.2	6.0	5.7	5.5
18	5.2	5.1	5.0	5.1	5.1	5.3	6.7	9.8	11.8	12.4	12.8	12.3	12.6	12.5	12.4	12.5	11.3	9.3	8.0	7.0	6.7	6.4	6.4	6.4
19	5.3	5.3	4.9	5.0	4.5	4.4	5.0	7.8	8.0H	10.3	10.5	11.5	11.8	11.8	11.1	J11.0R	10.5	9.4	7.0	5.8	5.6	5.0	4.5	I4.2A
20	4.0	4.1	3.8	3.6	3.5	3.7	5.8	U9.0S	9.8	12.3	12.8	12.1	11.8	11.1	11.8	10.6	S	I8.8S	I7.6S	6.7	5.8	5.1	4.5	4.5
21	4.3	4.3	4.3	4.2	4.2	4.1	5.8	9.1	9.8	12.5	12.8	I12.9R	12.5	12.0	11.7	10.8	10.0	8.3	7.1	6.3	5.8	S	S	S
22	4.5	F	F	F	F	5.0	5.9	7.8	J10.4R	12.0	12.8	12.7	11.8	11.3	U10.8R	U10.5R	10.3	8.8	7.5	5.5	5.2	4.8	4.5	I4.5A
23	4.5	4.6	I4.6A	4.4	4.6	4.3	5.6	C	C	C	C	C	C	C	C	C	C	8.0	6.8	5.9	5.8	5.0	5.3	5.2
24	5.2	5.5F	FS	F	F	5.0	6.3	8.5	9.7	12.0	12.0	11.1	12.3	11.1	10.5	10.0	I9.9S	8.3	6.7	5.8	5.3	4.8	4.9	4.9
25	5.1	5.6	4.0	4.2	4.3	4.0	5.8	7.1	10.1	10.5	11.5	R	R	R	12.0	12.0	11.3	9.8	7.2	6.5	6.7	6.0	5.9	5.8
26	5.2	4.8	4.1	3.4	2.9F	I3.4A	4.8	8.8	6.8	10.4	10.5	11.8	U12.8R	I12.7R	12.3	11.0	I10.1S	U8.5S	I7.8S	7.0	6.9	6.8	6.0	4.6
27	4.4	3.8	3.3F	3.3F	I3.6F	3.4	4.7	7.3	11.7	12.4	R	I12.5R	11.8	9.8	9.7	9.5	9.0	7.3	5.7	5.8	4.7	4.0	3.7	3.6
28	3.8	3.8	2.9	2.9	2.7	2.7	4.3	6.8	U8.3R	J10.7R	11.2	12.7	10.7	10.0	U9.8R	J11.2R	U8.8R	7.0	5.9	5.3	5.2	3.9	3.8	3.7
29	FS	F	F	3.5F	I3.4F	3.7	5.2	6.8	I11.0R	R	12.8	11.4	12.5	10.8	10.3	9.6	8.1	7.0	6.1	5.8	5.6	I5.3S	4.9	4.0
30	4.3	4.0	3.7	3.4	3.6	3.3	4.3	7.2	U7.9R	I9.2C	J11.0R	J11.2R	10.4	7.8H	I9.9R	8.8	U8.5R	5.3	5.6	5.2	4.8	4.2	4.3	4.2
31	4.1	4.0	3.8	4.0	4.0	I3.6F	I4.3A	6.8	9.0	9.3	10.6	10.3	11.0	9.8	9.5	9.6	I8.9S	6.4	5.7	5.4	5.1	U4.8S	4.8	3.9
No.	29	29	28	29	29	31	31	29	29	28	28	28	28	29	30	30	29	31	30	30	31	30	30	29
Median	4.7	4.6	4.2	4.2	4.0	4.0	5.8	7.8	9.8	10.6	10.9	11.4	11.8	10.8	10.4	10.2	9.7	8.3	7.0	6.4	5.8	5.3	5.0	4.8
UQ	5.2	5.3	5.0	4.9	4.8	4.8	6.3	9.0	10.7	12.0	12.7	12.5	12.4	11.8	11.7	11.0	10.6	9.6	8.0	7.1	6.7	6.0	5.7	5.3
LQ	4.2	4.0	3.8	3.4	3.4	3.4	4.7	6.8	7.8	9.3	9.8	10.4	10.4	9.2	9.2	8.6	8.7	7.3	6.1	5.8	5.3	4.8	4.5	4.2
QR	1.0	1.3	1.2	1.5	1.4	1.5	1.6	2.2	2.9	2.7	2.9	2.1	2.0	2.6	2.5	2.4	1.9	2.1	1.9	1.3	1.4	1.2	1.2	1.1

foF2

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

The Radio Research Laboratories, Japan.

W 1

IONOSPHERIC DATA

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

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

foF1

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

The Radio Research Laboratories, Japan.

W 2

IONOSPHERIC DATA

Oct. 196[illegible]

foE

135° E Mean Time (G.M.T. + 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	255	2.85	3.10	3.25	3.40	A	A	A	A	A	S						
2							S	240	2.65	2.95	3.05	3.20	3.20	3.25	3.00	2.75	240	S						
3								I 240 A	2.75	2.95	3.15	3.05	2.95	3.05	I 300 A	A	R	S						
4							S	A	2.80	3.15	3.20	3.30	3.30	3.20	3.00	2.75	245	S						
5								240	2.85	3.05	3.20	3.30	I 330 R	3.25	A	A	A	S						
6							S	245	2.80	3.10	3.25	3.20	I 320 A	I 3.15 A	2.90	2.65	I 2.40 S	S						
7								I 225 B	2.60	2.70	3.00	I 3.20 C	I 3.15 A	I 3.20 A	3.00	2.65	A	A						
8								255	2.90	3.05	3.25	3.30	3.20	R	R	A	2.15	S						
9								B	2.80	3.05	3.10	3.20	3.10	3.15	3.05	2.80	2.35	S						
10								250	2.90	3.10	3.20	3.10	2.75	I 2.85 A	3.15	2.80	C	S						
11								250	2.90	3.05	3.25	3.35	3.20	3.20	3.00	2.90	A	A						
12							S	260	2.90	3.10	3.25	3.30	3.30	I 3.15 A	3.10	2.70	S							
13							S	I 250 S	2.90	3.15	3.00	A	A	A	3.20	A	A							
14							A	230	2.85	3.20	3.25	3.20	A	A	A	A	A	A						
15							1.90	260	3.00	3.20	3.30	3.25	A	A	A	A	S							
16							S	250	2.90	3.15	3.15	3.10	I 3.05 A	I 3.10 A	2.90	2.60	S							
17							A	240	2.85	3.05	3.10	3.10	3.00	I 3.00 A	3.10	A	A							
18							S	A	2.70	2.95	3.00	A	A	A	A	A	S							
19							S	235	2.75	2.95	3.20	3.20	3.00	A	A	A	A							
20								S	2.65	2.85	3.00	A	A	A	2.90	2.45	A							
21							S	225	2.70	2.80	A	A	A	A	A	A	A							
22							S	230	2.70	2.90	3.10	2.90	I 2.85 A	3.00	3.00	2.60	2.00							
23								2.05	C	C	C	C	C	C	C	C	C							
24							S	260	A	A	A	A	A	A	2.90	A	S							
25								A	2.55	2.90	3.10	I 3.10 A	3.15	2.90	2.70	2.40	2.10							
26		S	S	E			A	A	A	A	2.95	3.05	3.00	A	A	A	S							
27							S	200	2.55	A	A	A	A	A	A	A	S							
28							S	A	A	A	A	I 3.05 A	I 2.85 A	2.90	2.70	A	S							
29							S	S	2.50	2.75	2.70	3.10 H	3.05	I 2.90 R	I 2.65 A	2.35	S							
30							.	A	A	C	C	2.90	3.00	I 2.75 A	2.75	2.45	S							
31								A	A	A	A	A	A	A	2.70	2.40	S							
No.							1	21	25	24	24	23	20	17	20	15	17							
Median							1.90	240	2.80	3.05	3.15	3.20	3.10	3.10	3.00	2.65	2.35							

foE

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

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	J2.8	J5.0	J3.5	J2.8	J2.8	2.6	3.1	3.5	3.8	J5.5	J4.3	3.5	4.3	J5.0	J3.5	J2.8	S	E	E	E	E	E	E
2	E	3.5	J3.8	3.2	1.8	3.5	2.4	2.5	3.4	3.4	3.5	G	3.3	G	2.6 G	G	G	S	E	J2.8	E	E	E	E
3	E	2.4	E	E	1.2	E	E	3.4 M	3.2	3.3	G	3.4	3.5	3.5	3.5	3.5	G	S	E	E	E	E	E	E
4	E	E	E	E	E	E	S	5.7	G	3.5	G	3.5	3.2 G	G	G	3.5	G	S	E	E	E	E	E	E
5	E	E	E	E	E	E	E	G	G	3.5	3.5	G	G	G	3.5	3.4	J2.8	S	E	E	E	E	E	E
6	E	E	E	E	E	E	S	G	3.4	4.2	3.7	G	3.5	3.5	G	G	S	S	J2.8	E	E	E	E	E
7	E	E	2.4	1.5	E	E	B	J4.3	J5.0	3.3	G		3.5	3.5	4.5	J5.0	4.2	3.7	3.0	E	E	E	E	E
8	E	E	E	1.7	2.4	E	2.4	3.1	4.0	3.6	3.5	G	G	G	G	3.5	G	S	E	E	E	E	E	E
9	E	2.4	E	E	E	3.0	J2.8	B	3.2	4.1	3.5	G	G	G	G	G	G	3.0	3.1	E	E	E	E	E
10	E	E	E	E	E	E	S	2.5	3.5	3.3	3.5	3.4	3.5	3.5	G	5.1	C	S	J2.8	J6.0	E	J3.8	E	E
11	J4.2	J3.7	J3.8	J2.8	J2.5	E	S	3.0	G	3.4	G	G	G	G	G	G	2.5	J2.6	J3.2	J3.5	J4.0	J2.8	J2.8	J2.3
12	E	E	2.0	2.0	1.8	E	S	G	3.4	3.5	4.2	4.4	4.0	4.0	4.0	3.5	3.5	E	E	E	E	E	E	E
13	E	2.2	E	E	2.4	E	S	S	3.4	G	3.5	4.3	J5.5	4.2	2.6 G	4.5	J3.5	J2.8	J2.8	J2.8	E	E	E	E
14	E	E	J2.8	J2.8	J3.3	J3.3	J2.8	G	G	G	4.4	6.4	J6.4	J6.8	J6.5	J5.8	J5.0	4.0	J4.3	J3.3	J2.8	J2.6	E	E
15	E	2.6	E	J3.5	J2.8	J2.5	G	4.5	G	3.5	G	4.3	5.1	3.5	J5.3	3.5	S	J2.8	J3.0	J5.0	J2.8	E	E	E
16	E	J2.5	J2.7	J4.0	J2.6	E	S	3.3	4.3	5.0	4.3	3.5	3.5	4.2	3.4	G	2.4	3.2	E	E	E	E	E	E
17	2.4	E	E	4.5	4.2	J2.8	2.7	2.5	3.4	3.5	4.0	4.2	J4.5	J5.0	3.5	4.2	J4.1	J3.5	3.3	E	J2.8	4.0	3.5	E
18	E	J3.5	E	J2.3	2.4	J2.5	S	J2.6	3.4	3.7	4.0	4.0	4.0	4.5 M	J3.8	3.5	S	E	3.0	J3.8	J2.8	3.0	E	E
19	E	E	E	J2.1	J2.3	E	2.0	3.5	3.4	3.8	4.3	4.8	J4.6	J5.0	J5.0	4.2	J3.3	J2.8	5.0	5.0	J2.8	E	6.0	4.5
20	J4.2	E	2.4	J2.3	E	E	E	S	3.5	2.5	3.5	4.3	4.0	3.5	3.5	3.1	3.4	J4.3	4.0	5.0	J2.8	E	E	E
21	J4.2	2.5	2.1	1.3	E	E	S	G	G	G	3.5	4.2	4.2	3.1	3.3	3.1	J3.3	E	E	E	E	J3.0	J2.8	J2.8
22	J2.6	3.5	J2.4	1.8	E	E	S	G	3.4	4.2	4.2	3.6	5.0	4.2	G	G	G	E	J2.8	3.0	E	J2.8	7.2	J8.8
23	3.5	J2.8	J5.0	3.3	J2.8	E	E	2.6	C	C	C	C	C	C	C	C	C	5.0	4.0	5.0	J3.0	E	E	J2.8
24	J2.8	J5.0 Y	6.0	J2.8	2.5	E	S	3.1	3.7	3.3	3.5	3.5	3.8	J3.4	3.4	J3.3	S	E	E	E	J2.7	2.1	2.6	E
25	J3.3	E	J2.0	2.4	E	E	E	3.1	3.2	4.2	G	3.3	G	G	G	G	G	J3.7	E	E	E	E	E	E
26	E	G	1.8	1.5	J2.3	3.7	3.2	2.5	2.8	4.5	G	3.4	3.1	J3.5	J2.5	2.7	S	E	E	E	E	E	E	E
27	E	2.0	J2.7	J2.3	J2.3	J2.4	2.5	3.1	J3.3	J3.3	3.5	3.5	4.0	3.5	3.5	3.3	S	4.2	2.3	E	J3.2	J2.8	J4.2	E
28	J2.8	2.4	J3.6	J2.5	1.8	2.0	2.8	J3.1	J3.8	3.0	J4.2	3.4	4.0	3.3	G	2.6	S	E	J2.8	E	2.6	E	E	E
29	E	E	E	J2.3	1.8	E	2.4	J4.3	4.4	3.3	G	G	G	G	3.2	G	S	E	E	E	E	2.6	E	J2.7
30	J2.5	E	E	2.4	J3.5	2.1	J2.8	J5.2	J4.2	C	C	4.0	G	5.0 Y	G	G	S	2.4	E	J2.5	E	E	E	E
31	E	E	E	2.1	J2.1	J2.8	J4.0	J4.3	2.5	4.5	3.5	3.5	J3.8	4.3	3.1	2.8	S	E	2.4	3.5	E	E	E	E
No.	31	31	31	31	31	31	19	28	30	29	29	29	30	30	30	30	19	23	31	31	31	31	31	31
Median	E	E	1.8	2.3	2.1	E	2.4	3.1	3.4	3.5	3.5	3.5	3.6	3.5	3.2	3.3	2.8	2.8	2.4	E	E	E	E	E
UQ	2.6	2.6	2.7	2.8	2.5	2.5	2.8	3.4	3.5	4.0	4.1	4.2	4.0	4.2	3.5	3.5	3.5	3.7	3.0	3.5	2.8	2.6	E	E
LQ	E	E	E	1.3	E	E	E	2.6	2.5	3.3	G	G	3.1	G	G	G	G	E	E	E	E	E	E	E
QR				1.5				0.8	0.6	0.7			0.5											

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		E	A	2.6	2.5	E	2.5	G	G	G	G	4.5	3.7	3.5	3.5	2.8	2.5	S						
2		E	2.9	2.4	E	2.9	2.4	G	G	G	G		3.0		2.4G			S		2.6				
3		E			E			2.5	G	G		G	G	G	3.2	2.8		S						
4							S	2.7		G		2.5	2.5G			2.5		S						
5										G	G				3.1	2.9	2.4	S						
6							S		G	G	G		3.4	3.5			S	S	E					
7			E	E			B	A	A	G			3.3	3.2	2.7	2.4	3.5	3.0	E					
8				E	E		2.4	G	G	G	G					3.0		S						
9		E				2.4	E	B	G	G	G							2.5	2.4					
10							S	G	G	G	G	G	G	3.4		5.0		S	2.4	3.4		2.5		
11	3.2	3.0	2.1	2.1	E		S	G		G							2.4	2.5	3.0	2.9	4.0	2.2	2.5	E
12			E	E	E		S		G	G	G	G	G	3.5	G	G	2.9							
13		E			E		S	S	G		G	4.0	4.6	3.6	2.5G	2.9	2.5	2.1	E	2.4				
14			E	E	E	2.5	2.5				G	4.5	5.4	5.5	4.5	2.8	3.0	3.0	4.0	2.6	2.8	2.5		
15		E		E	E	E		G		G		G	4.8	3.4	4.8	3.2	S	E	3.0	E	E			
16		E	E	2.5	2.2		S	G	G	G	G	G	3.5	3.6	2.6		G	2.4						
17	E			E	2.1	2.4	1.9	2.0	G	G	G	G	G	3.5	2.6	3.4	3.0	3.4	E		2.6	2.9	2.6	
18		E		E	E	E	S	2.5	2.1	G	G	3.7	3.7	4.4	3.5	2.7	S		E	2.5	2.4	2.5		
19				E	E		E	E	G	G	G	4.5	4.5	3.6	3.0	2.6	2.5	2.3	2.9	4.7	2.6		2.7	A
20	2.5		E	E				S	G	G	G	3.6	3.3	3.1	2.5	G	3.4	4.0	2.7	3.0	2.5			
21	E	E	E	E			S				3.4	3.5	3.5	3.1	3.1	2.8	3.0					3.0	2.5	E
22	E	E	E	E			S		G	G	G	G	3.6	G					E	2.4		2.5	2.6	A
23	E	2.5	A	2.7	E			G	C	C	C	C	C	C	C	C	C	3.0	2.7	2.5	2.5			2.5
24	E	E	E	E	E		S	G	2.6	3.2	3.2	3.2	3.3	3.1	2.2	2.6	S				E	E	2.4	
25	3.0		E	E				2.4	G	3.5		3.3						2.5						
26			G	G	E	A	2.6	2.5	2.6	3.6		2.5	2.6	2.9	2.7	2.6	S							
27		E	E	E	E	E	2.5	G	G	2.8	3.2	3.3	3.6	3.5	3.0	2.4	S	3.0	E		2.6	E	2.4	
28	E	E	E	E	E	E	2.4	2.4	2.7	2.9	3.0	3.1	3.1	2.4		2.6	S		E		E			
29				E	E		2.4	4.0	4.2	G					2.9		S					AS		E
30	2.4			E	2.5	E	E	5.0	4.0	C	C	G		2.9			S	2.2		E				
31				E	E	2.6	A	4.0	2.6	3.1	3.0	3.1	3.3	3.5	2.2	G	S		2.1	2.5				
No.	10	15	16	24	21	12	13	22	24	26	21	22	23	22	20	21	12	14	17	13	11	10	7	6
Median	E	E	E	E	E	E	2.4	G	G	G	G	G	3.3	3.4	G	2.7	2.7	2.5	2.1	2.5	2.5	2.5	2.5	E

foEs

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

The Radio Research Laboratories, Japan.

W 5

IONOSPHERIC DATA

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

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.60S	E1.60S	E1.60S	E1.40S	E	E1.60S	E1.70S	1.70	2.00	E2.50S	E2.50S	2.00	E2.50S	2.10	2.00	1.80	1.60	E2.10S	E1.80S	E1.80S	E1.80S	E1.60S	E1.60S	E1.60S
2	E1.60S	E1.40S	E	E	E	E1.50S	E1.60S	1.90	1.80	E2.50S	2.10	2.10	E2.50S	E2.50S	1.90	1.80	1.75	E2.10S	E1.60S	E1.60S	E1.80S	E2.50S	E1.60S	E1.80S
3	E1.80S	E1.60S	E1.40S	E1.60S	E	E1.60S	E1.80S	1.80	1.90	2.00	E2.40S	E2.50S	E2.50S	E2.40S	E2.45S	1.90	1.60	E1.60S	E1.60S	E1.60S	E1.80S	E1.60S	E1.80S	E1.60S
4	E1.60S	E1.60S	E	E	E	E1.60S	E2.00S	1.60	1.90	2.15	2.10	1.80	1.80	1.90	E2.45S	1.85	1.65	E2.00S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E2.00S
5	E1.60S	E1.60S	E1.40S	E1.30S	E1.60S	E1.60S	E2.40S	1.80	1.60	2.10	E2.40S	E2.50S	E2.50S	2.00	2.00	1.65	1.70	E1.80S	E1.90S	E1.60S	E1.90S	E1.60S	E1.60S	E1.60S
6	E1.65S	E1.40S	E1.20S	E	E	E1.60S	E2.00S	1.80	1.90	2.10	E2.40S	2.20	E2.50S	2.00	2.00	1.80	E2.40S	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.80S
7	E1.80S	E1.60S	E1.40S	E	E1.40S	E1.60S	B	2.40	2.10	2.10	2.50	I2.50C	2.50	2.50	1.90	1.90	1.65	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.80S	E1.80S
8	E1.60S	E1.60S	E1.60S	E	E	E1.60S	E1.60S	E2.45S	2.10	E2.50S	E2.50S	E2.50S	E2.50S	E2.50S	2.15	1.80	1.70	E1.80S	E1.60S	E1.80S	E1.60S	E1.80S	E1.60S	E1.60S
9	E1.60S	E1.60S	E	E	E	E1.50S	E1.80S	2.70	2.15	2.50	2.10	E2.50S	E2.50S	E2.50S	E2.50S	2.15	1.85	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
10	E1.60S	E1.40S	E	E	E	E1.60S	E2.40S	2.10	E2.50S	2.10	E2.45S	E2.50S	E2.50S	E2.50S	2.15	2.15	C	E1.80S	E1.60S	E1.60S	E1.80S	E1.60S	E1.80S	E1.80S
11	E1.60S	E1.50S	E	E	E	E1.60S	E2.45S	E2.20S	E2.50S	E2.50S	2.10	E2.50S	E2.50S	E2.50S	E2.50S	E2.60S	1.80	E1.60S	E1.80S	E1.85S	E1.80S	E1.60S	E1.60S	E1.60S
12	E1.60S	E1.60S	E	E	E	E1.60S	E2.10S	1.80	2.20	E2.50S	E2.40S	E2.50S	E2.50S	E2.50S	E2.50S	E2.45S	E1.70S	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
13	E1.60S	E1.60S	E	E	E	E1.60S	E2.10S	E2.60S	1.60	E2.50S	2.15	E2.50S	E2.50S	E2.50S	2.10	1.90	E2.00S	E1.60S	E1.60S	E1.60S	E2.20S	E1.60S	E1.60S	E1.85S
14	E1.60S	E1.60S	E	E	E	E1.60S	E1.80S	1.60	2.10	E2.50S	E2.50S	E2.50S	E2.50S	E2.50S	2.15	1.65	1.60	1.70	E1.80S	E1.60S	E1.60S	E1.60S	E1.80S	E1.80S
15	E1.60S	E1.60S	E1.60S	E	E	E1.60S	E1.70S	1.80	2.10	E2.50S	2.10	2.15	E2.50S	2.20	E2.50S	1.90	E2.40S	E1.60S	E2.50S	E1.60S	E1.60S	E1.60S	E1.80S	E1.60S
16	E1.60S	E1.60S	E1.60S	E	E	E1.60S	E1.80S	1.80	1.80	E2.50S	2.10	E2.50S	2.20	E2.50S	1.80	1.80	E1.80S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
17	E1.60S	E1.60S	E	E	E	E1.60S	E1.60S	1.60	1.60	2.10	2.00	E2.40S	E2.50S	E2.50S	1.80	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.80S
18	E1.60S	E1.60S	E	E	E	E1.60S	E1.80S	1.60	1.60	E2.50S	1.80	E2.50S	E2.50S	1.80	1.80	1.70	E2.20S	E1.60S	E1.60S	E1.60S	E1.60S	E1.80S	E1.70S	E1.60S
19	E2.20S	E1.40S	E1.40S	E	E	E1.60S	E1.60S	1.85	1.90	1.70	E2.50S	2.15	E2.50S	2.00	1.90	1.85	1.70	E1.60S	E1.60S	E1.60S	E1.60S	E1.80S	E1.60S	E1.80S
20	E1.60S	E1.60S	E	E	E1.60S	E1.60S	E1.80S	E2.50S	1.80	1.85	1.80	E2.45S	1.70	1.85	1.70	1.80	1.80	E1.85S	E1.60S	E1.60S	E1.70S	E1.80S	E1.80S	E1.80S
21	E1.60S	E1.60S	E1.60S	E	E	E1.60S	E1.80S	1.70	1.70	1.90	E2.50S	E2.50S	E2.50S	2.10	1.80	1.80	1.60	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
22	E1.60S	E1.40S	E	E	E	E1.60S	E1.80S	1.90	2.00	2.15	2.00	E2.50S	E2.50S	E2.50S	1.85	1.70	1.70	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S	E1.60S	E1.70S
23	E1.60S	E1.40S	E	E	E	E1.60S	E1.70S	E1.60S	C	C	C	C	C	C	C	C	C	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
24	E1.60S	E1.40S	E	E	E	E1.60S	E1.60S	1.65	1.90	1.90	1.80	2.15	1.80	1.80	1.60	1.70	E2.10S	E1.70S	E1.60S	E1.70S	E1.60S	E1.60S	E1.70S	E1.60S
25	E1.70S	E1.60S	E	E	E	E1.60S	E1.60S	1.60	1.70	1.90	1.90	1.80	1.90	1.60	1.80	1.70	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
26	E1.80S	E1.20S	E1.60S	E	E	E1.60S	E1.60S	1.60	1.70	E2.50S	1.80	1.85	1.70	1.70	1.60	1.70	E2.00S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S
27	E1.60S	E1.40S	E	E	E	E1.60S	E1.60S	1.70	1.80	1.90	2.10	2.00	2.00	2.10	1.80	1.70	E2.00S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
28	E1.60S	E1.40S	E	E	E	E1.60S	E1.60S	1.80	1.90	1.70	1.90	1.85	1.90	1.90	1.90	1.70	E2.10S	E1.60S	E1.60S	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
29	E1.60S	E1.40S	E1.60S	E	E	E1.60S	E1.60S	E2.40S	1.60	1.90	1.80	2.00	E2.50S	E2.50S	1.70	1.90	E2.00S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
30	E1.60S	E1.40S	E1.40S	E	E	E1.60S	E1.60S	E1.60S	1.70	C	E2.00C	1.80	1.70	1.90	2.15	2.00	E2.00S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S	E1.60S
31	E1.60S	E1.60S	E1.20S	E	E	E1.60S	E1.60S	E1.70S	1.70	1.70	E2.50S	1.70	1.65	1.60	1.65	2.10	E2.10S	E1.80S	E1.60S	E1.60S	E2.00S	E1.90S	E1.90S	E1.60S
No.	31	31	31	31	31	31	31	26	28	18	18	30	30	17	24	28	17	31	31	31	31	31	31	31
Median	E1.60	E1.60	E	E	E	E1.60	E1.80	1.80	1.90	1.85	2.05	E2.40	E2.50	1.90	1.90	1.80	1.70	E1.60	E1.60	E1.60	E1.60	E1.60	E1.60	E1.60

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.65	2.60	I2.65A	2.65	2.75	2.65	2.70	2.75	2.65	2.65	2.70	2.80	2.90	2.70	3.00	3.10	3.00	3.00	2.65	2.70	2.65	2.70	2.75	2.70
2	2.50	2.50	2.50	2.60	2.50	2.30	2.70	2.30	2.70	2.85	2.95	3.10	3.00	3.05	3.10	3.20	2.95	3.10	2.90	2.75	2.60	2.65	2.45	2.50
3	2.45	2.60	2.55	I2.60S	2.65	2.60	3.10	3.15	2.90	3.05	3.05	3.20	3.00	3.05	3.10	3.15	U3.15S	U3.00S	U3.05S	2.95	2.85	2.65	2.65	2.65
4	2.80	2.75	2.75	2.70	2.75	2.80	3.10	3.30	U3.25R	3.35	3.20	3.25	3.20	3.20	3.10	3.15	3.10	3.05	S	S	3.05	2.95	2.80	2.80
5	2.70	2.55	2.55	2.60	I2.40F	2.45	2.80	W	3.05	2.90	2.95	2.85	2.95	3.00	3.00	3.15	3.05	3.10	2.85	2.95	2.95	2.60	2.70	2.60
6	2.55	2.50	2.55	2.70	I2.70S	I2.80F	3.10	3.10	3.20	3.05	2.90	3.00	2.90	3.05	J2.75R	2.75	2.75	2.90	2.85	2.90	2.80	2.65	2.85	2.35
7	2.55	3.20	2.50	2.30	2.50	2.25	I2.80B	I3.20A	A	W	W	C	R	2.60	I2.60A	2.75	2.90	2.80	2.65	2.50	J2.50FS	2.45	I2.60FS	I2.60F
8	2.50	2.45	2.45	I2.60F	2.65F	3.05	3.40	3.25	U3.20R	3.20	3.20	3.15	3.05	3.05	3.30	3.10	3.25	2.95	2.95	2.95	3.00	2.70	2.75	2.60
9	2.70	2.75	2.85	2.70	2.80	2.80	3.20	3.00	3.30	3.00	3.20	3.05	U3.05R	3.05	3.00	3.00	3.15	3.05	3.10	3.15	2.70	2.70	2.65	FS
10	F	2.45	2.50F	2.50F	2.50F	2.65F	3.10	3.15	3.20	3.25	3.00	3.05	3.00	J3.05R	2.95	3.10	I3.20C	3.05	2.85	2.75	2.80	3.00	2.85	2.80
11	2.55	2.65	2.50	2.65	2.75	2.65	3.20	3.20	J3.30R	3.25	3.20	3.10	2.90	2.95	2.90	3.05	3.00	3.00	2.85	2.95	2.80	2.90	2.85	2.95
12	U2.65S	2.60	2.70	2.80	2.95	2.65	3.25	3.15	3.25	3.15	3.05	3.10	2.95	3.00	U3.05R	2.95	J3.20R	3.10	2.90	2.95	2.80	2.75	2.85	2.80
13	2.85	2.75	2.75	2.75	2.75	2.75	3.15	3.25	2.95	3.20	3.10	I3.10R	2.95	2.95	3.00	2.95	3.20	U3.05S	2.90	I2.80S	2.90	2.85	2.85	2.75
14	2.75	2.85	2.75	2.75	2.80	2.80	3.00	3.05	3.05	3.20	I3.10R	3.10	2.85	3.10	2.95	3.00	2.95	2.95	3.00	3.00	2.85	2.95	2.80	2.80
15	2.70	2.75	2.85	2.85	2.75	2.85	3.10	J3.20R	3.05	3.15	3.05	I3.00R	2.90	2.90	2.90	2.95	3.00	2.95	2.95	2.90	2.85	2.85	2.55	2.50
16	2.60	2.95	2.80	2.40	2.40	2.45	3.00	3.15	3.00	3.00	U3.10R	U3.05R	U3.05R	2.90	3.05	3.05	3.05	3.10	3.00	2.95	2.80	2.75	2.75	U2.70S
17	2.60	2.70	2.75	2.80	2.90	2.80	3.15	3.10	3.20	3.15	3.05	2.95	U3.10R	3.05	2.85	2.95	3.05	3.15	3.00	2.90	3.00	3.00	2.80	2.80
18	2.70	2.60	2.65	2.60	2.70	2.65	3.00	3.10	3.15	3.15	3.15	2.85	3.00	3.05	2.90	2.95	3.00	2.90	2.90	2.80	2.70	2.60	2.65	2.75
19	2.75	2.80	2.95	2.60	2.45	2.45	2.55	2.80	2.85H	3.00	3.00	3.05	3.05	3.05	3.05	J3.10R	3.10	3.10	3.05	2.95	2.90	2.90	2.95	I2.45A
20	2.60	2.70	2.65	2.80	2.65	2.75	3.15	U2.60S	3.15	3.10	3.15	3.15	3.05	2.95	3.05	3.00	S	I3.05S	I2.85S	3.00	2.95	2.95	2.80	2.65
21	2.60	2.60	2.65	2.60	2.80	2.85	3.10	3.25	3.15	3.10	3.15	I3.10R	3.10	3.15	3.10	3.20	3.10	3.20	3.10	2.95	3.00	S	S	S
22	2.65	F	F	F	F	2.70	3.20	3.20	J3.20R	3.25	3.15	3.20	3.05	3.20	U3.15R	U3.15R	3.10	3.30	3.05	2.95	2.95	2.90	2.80	I2.70A
23	2.60	2.65	I2.75A	2.75	2.85	2.85	3.05	C	C	C	C	C	C	C	C	C	C	3.15	3.15	3.05	3.05	3.10	2.75	2.90
24	2.85	2.75F	FS	F	F	2.90	3.20	3.30	3.10	3.30	3.25	3.05	3.15	3.15	3.25	3.20	I3.15S	3.25	3.05	2.95	3.20	2.90	2.85	2.65
25	2.75	2.75	2.50	2.45	2.50	2.55	3.00	3.25	3.10	3.05	2.95	R	R	R	3.05	3.15	3.20	2.90	2.80	2.65	2.65	2.65	2.65	2.60
26	2.60	2.50	2.45	2.45	2.60F	I2.50A	2.90	3.05	3.40	3.25	3.00	3.05	U3.15R	I3.15R	3.15	3.10	I3.05S	U2.85S	I3.10S	2.85	2.90	2.95	2.65	2.55
27	2.75	2.70	2.55F	2.75F	I2.70F	2.85	2.80	3.00	3.10	3.15	R	I3.15R	3.20	3.25	3.05	3.15	3.10	3.20	3.00	2.95	3.00	2.60	2.85	2.80
28	2.70	3.20	2.70	2.60	2.65	2.60	2.85	3.20	I3.15R	J3.00R	3.05	3.15	3.20	3.20	U3.05S	J3.20R	U3.30S	3.20	3.00	2.85	3.00	2.70	2.60	2.60
29	FS	F	F	2.45F	I2.60F	2.70	2.85	2.95	I3.00R	R	3.20	3.35	3.20	3.20	3.20	3.25	3.20	3.05	2.95	3.10	2.95	3.10	2.65	2.60
30	2.65	2.85	2.65	2.65	2.65	2.60	2.80	3.05	U3.05S	I3.15C	J3.25R	J3.25R	3.35	3.35H	I3.20R	3.30	U3.20R	2.85	3.05	2.90	3.00	2.65	2.65	2.60
31	2.65	2.60	2.65	2.75	2.50	I2.70F	I2.95A	3.10	3.15	3.05	3.25	3.15	3.25	3.05	3.15	3.20	I3.20S	3.20	3.05	3.00	3.05	U2.85S	2.90	3.00
No.	29	29	28	29	29	31	31	30	29	29	29	28	28	29	30	30	29	31	30	30	31	30	30	29
Median	2.65	2.70	2.65	2.65	2.65	2.70	3.05	3.10	3.15	3.15	3.10	3.10	3.05	3.05	3.05	3.10	3.10	3.10	3.00	2.95	2.90	2.80	2.75	2.65

The Radio Research Laboratories, Japan.

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

W 7

IONOSPHERIC DATA

(M3000)F1

135° E Mean Time (G.M.T. + 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

16

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	3.35	3.50	3.50	I 3.45 A	L	L	L									
2								L	3.70	3.60	3.25	3.50 L	L	L										
3									L	L	L	L												
4										L	L	L	L											
5								3.45	3.40	L		L	L	L										
6									L	L	L	L	L		L									
7									A	3.55	3.40	I 3.40 C	3.25	3.15 H I	3.10 A	L								
8											L	L												
9								L		L	L		L											
10												L												
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20															L									
21																								
22																								
23								C	C	C	C	C	C	C	C	C	C							
24																								
25												L												
26																								
27																								
28																								
29																								
30										C		L	L											
31																								
No.								1	3	3	3	3	1	1	1									
Median								3.45	3.40	3.55	3.40	U 3.45	3.25	3.15	U 3.10									

(M3000)F1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								400	415	470	415	440	L	L	L									
2								L	445	400	365	320	L	L										
3									L	275	L	L												
4										L	L	L	L											
5								W	335	335		L	L	L										
6									L	L	L	L	L		L									
7									A	W	W	C	R	485	A	L								
8											L	L												
9								L		295	240		L											
10												L					C							
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20															L									
21																								
22																								
23								C	C	C	C	C	C	C	C	C	C							
24																								
25												L												
26																								
27																								
28																								
29																								
30										C		L	L											
31																								
No.								2	3	6	4	2		1										
Median								400	415	370	390	380		485										

h'F2

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

The Radio Research Laboratories, Japan.

W 9

17

IONOSPHERIC DATA

Oct. 1960 | h'F | 135° E Mean Time (GMT + 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	305	315	I 330 A	335	340	360	310	285	260	245	250	I 240 A	245	215	260	250	260	260	285	290	290	285	285	260
2	340	325	380	380	335	385	315	265	235	230	275	250	215	240	240	250	240	245	250	295	325	310	305	280
3	380	305	290	310	290	325	260	250	235	220	225	235	225	220	240	210 H	250	240	225	245	250	280	290	310
4	290	270	255	270	295	295	240	240	240	225	215	200	215	225	210 H	235	240	225	240	245	250	250	260	290
5	300	305	320	390	420	360	290	245	225	250	240 H	215	250	230	235	245	240	240	230	260	240	260	295	290
6	320	320	305	285	280	310	250	240	245	260	220	215	220	255	250	250	250	225	240	250	265	340	260	400
7	290	240	440	550	445	600	I 385 B	I 310 A	I 260 A	255	260	I 250 C	270	250 H	I 290 A	285	295	290	300	335	350	305	300	370
8	350	395	380	360	340	265	240	225	240	230	220	205	230	230	220	245	230	235	240	240	270	290	290	320
9	300	280	290	300	260	I 310 A	250	250	245	245	220	220	215	240	240	245	240	225	250	240	265	300	320	345
10	315	320	315	300	320	310	260	235	245	230	230	200	225	240	235	I 230 A	I 230 C	225	230	I 270 A	260	280	260	275
11	I 310 A	350 A	350	320	320	320	240	235	240	230	230	210 H	215	240	240	250	240	230	250	260	I 270 A	280	290	275
12	310	290	310	270	250	285	225	240	235	230	225	235	240	240	235	240	245	220	220	250	265	270	265	275
13	270	285	270	280	255	285	235	215	220	230	220	220	I 230 A	240	240	245	240	220	250	260	260	260	260	265
14	295	285	310	310	295	300	240	220	230	235	235	250	I 240 A	I 245 A	245 A	245	245	235	I 250 A	260	260	265	280	290
15	305	300	300	300	280	285	240	235	230	240	225	230	250 A	235	I 245 A	250	240	235	250	250	260	255	315	370
16	340	290	250	380	375	350	240	230	235	240	250	230	235	230	225	245	235	245	235	235	250	290	300	310
17	310	300	260	265	265	260	235	230	225	215 H	230	230 H	250	240	240	240	240	250	235	250	255	265	300	260
18	270	310	290	315	280	300	240	240	230	230	225 H	230	235	260	250	240	235	225	245	260	290	310	290	265
19	285	300	300	310	350	360	300	255	250 H	245	245	250	250 A	250	245	240	240	225	250	I 260 A	270	260	250	I 355 A
20	370	310	300	290	335	305	250	235	220	245	210 H	235	235	235	245	230	225	245 A	260	260	250	260	265	300
21	335	350	335	295	250	255	240	225	240	225	240	235	235	240	245	250	240	220	240	250	250	270	285	255
22	300	330	310	310	285	260	240	220	240	240	240	245	240	245	230	240	240	215	245	240	250	265	300	I 325 A
23	350	340	I 335 A	320	280	250	225	240	C	C	C	C	C	C	C	C	C	230	250	260	260	250	270	285
24	290	290	300	300	265	260	235	240	220	235	220	210 H	240	240	240	245	220	215	235	250	250	265	320	290
25	335	260	335	360	345	330	235	220	240	240	235	240	240	235	240	245	225	240	270	290	290	280	310	335
26	345	300	360	410	485	I 390 A	265	250	240	250	240	220	240	245	240	230	240	215	240	260	280	250	260	320
27	285	310	280	370	315	275	300	250	240	230	240	240	240	235	235	240	240	225 A	250	255	270	305	290	300
28	330	245	370	370	375	350	295	240	240	235	240	225	240	235	220	240	215	215	225	290	240	305	340	350
29	345	315	275	325	320	340	260	I 280 A	I 255 A	250	240	220	210 H	240	235	240	225	220	245	250	300	I 260 As	300	300
30	360	260	300	315	400	365	295	I 270 A	250	I 250 C	E 260 C	240	230	215 H	245	230	220	210	265	265	260	280	290	320
31	320	310	325	285	350	400	I 320 A	275 A	240	240	215	220 H	230	230	240	235	220	210	250	260	250	250	260	250
No.	31	31	31	31	31	31	31	31	30	30	29	30	30	30	30	30	30	31	31	31	31	31	31	31
Median	310	305	310	310	320	310	250	240	240	240	230	230	235	240	240	240	240	225	245	260	260	270	290	300

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	110	110	110	110	120	140	135	125	120	120	110	110	110	105	105	105	S	E	E	E	E	E	E
2	E	120	110	110	110	125	125	120	120	120	125	G	110	G	105	G	G	S	E	140	E	E	E	E
3	E	110	E	E	110	E	E	105	120	120	G	115	110	110	115	120	G	S	E	E	E	E	E	E
4	E	E	E	E	E	E	S	105	G	125	G	105	100	G	G	110	G	S	E	E	E	E	E	E
5	E	E	E	E	E	E	E	G	G	120	115	G	G	G	110	100	100	S	E	E	E	E	E	E
6	E	E	E	E	E	E	S	G	115	115	115	G	115	105	G	G	S	S	120	E	E	E	E	E
7	E	E	100	150	E	E	B	120	115	100	G	C	110	110	135	125	125	100	105	E	E	E	E	E
8	E	E	E	130	125	E	140	125	125	125	125	G	G	G	G	115	G	S	E	E	E	E	E	E
9	E	110	E	E	E	110	115	B	140	125	120	G	G	G	G	G	G	120	115	E	E	E	E	E
10	E	E	E	E	E	E	S	140	125	135	115	115	110	110	G	130	C	S	110	110	E	110	E	E
11	105	105	100	105	115	E	S	140	G	120	G	G	G	G	G	G	110	110	105	105	105	105	105	105
12	E	E	110	110	105	E	S	G	140	140	120	115	120	110	125	120	115	E	E	E	E	E	E	E
13	E	105	E	E	100	E	S	S	120	G	110	110	105	110	705	105	105	110	110	105	E	E	E	E
14	E	E	105	100	100	100	100	G	G	G	110	110	110	110	105	105	100	100	100	100	100	100	E	E
15	E	105	E	105	105	105	G	110	G	125	G	115	115	110	105	110	S	110	105	105	105	E	E	E
16	E	110	110	105	105	E	S	125	125	120	110	110	110	110	G	160	160	105	E	E	E	E	E	E
17	100	E	E	105	105	105	105	105	125	115	115	115	110	105	110	105	105	105	115	E	110	110	110	E
18	E	110	E	110	105	105	S	105	120	110	110	110	110	105	105	110	S	E	120	100	100	100	E	E
19	E	E	E	110	105	E	150	125	125	120	120	110	110	105	105	105	105	105	100	100	100	E	110	105
20	110	E	105	110	E	E	E	S	140	120	115	110	110	105	105	120	105	125	125	120	100	E	E	E
21	105	110	105	105	E	E	S	G	G	G	105	110	110	110	110	110	110	E	E	E	E	110	110	110
22	110	105	105	110	E	E	S	G	135	120	120	110	105	115	G	G	G	E	120	115	E	115	110	105
23	105	105	100	100	105	E	E	120	C	C	C	C	C	C	C	C	C	110	105	105	110	E	E	110
24	110	110	110	110	100	E	S	150	110	115	105	110	105	105	105	100	S	E	E	E	100	100	110	E
25	105	E	105	105	E	E	E	120	125	120	G	110	G	G	G	G	G	120	E	E	E	E	E	E
26	E	G	160	140	120	110	120	115	120	110	G	105	105	100	105	115	S	E	E	E	E	E	E	E
27	E	115	115	115	115	115	120	125	120	110	110	115	110	110	110	110	S	105	110	E	110	110	110	E
28	110	110	105	105	110	125	115	115	110	110	105	110	110	105	G	110	S	E	120	E	115	E	E	E
29	E	E	E	150	160	E	125	120	115	100	G	G	G	G	110	G	S	E	E	E	E	105	E	110
30	105	E	E	115	115	120	125	110	110	C	C	115	G	105	G	G	S	115	E	110	E	E	E	E
31	E	E	E	105	105	110	105	105	105	100	105	100	100	100	100	140	S	E	110	105	E	E	E	E
No.	10	15	16	24	21	12	13	22	24	26	21	22	23	22	20	21	12	14	17	13	11	10	7	6
Median	105	110	105	110	105	110	120	120	120	120	115	110	110	110	105	110	105	110	110	105	105	110	110	110

h'Es Sweep 1.0 Mc to 20.7 Mc in 1 ~~sec~~ m'n in automatic operation.

The Radio Research Laboratories, Japan.

W 11

IONOSPHERIC DATA

Oct. 1960

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		fs2	fs4	fs4	fs3	fs	E	C	C	C	C,E	C	E	E2	E2	E2	E							
2		fs	fs6	fs6	fs2	fs4	C	C	C2	C	C		E		E					fs2				
3		fs			fs			E	C	C		C	C	C	E	E								
4								E2		C		E	E			E								
5										C	C				E	E	E							
6									C	C	C		E	E					fs					
7			fs	fs				C3	C	E			E	E	C,E	C2,E	C,E	E2	fs					
8				fs	fs2		fs	C	C	C	C					E								
9		fs				fs	fs		R	C	C							C	fs2					
10								C	C	C	C	C	C	E2		C			fs	fs4		fs2		
11	fs2	fs3	fs6	fs2	fs2			C		C			E	E	fs3	fs2	E	E	fs3	fs2	fs3	fs	fs	fs
12			fs	fs	fs				R	R	C	C	C	E	C	C	C							
13		fs2			fs				C		C	E	E2	E2	E	E2	E	fs	fs	fs				
14			fs2	fs2	fs2	fs	E				C	E	E	E2	E2	E2	E3	E2	fs2	fs2	fs	fs		
15		fs		fs2	fs2	fs		E		C		C	E	E	E2	E3		fs	fs	fs	fs			
16		fs2	fs	fs3	fs3			C	C	C	C	C	E	E2	E		C	fs						
17	fs			fs2	fs3	fs2	E	E	C	C	C	C	C	E2	E	E3	E3	fs3	fs		fs	fs3	fs	
18		fs		fs2	fs	fs2		E	C,E	C	C	E	E	E2	E2	E			fs	fs	fs2	fs		
19				fs3	fs		C	C	C	C	C	C	C2	E2	E2	E2	E2	fs	fs2	fs3	fs2		fs	fs2
20	fs2		fs	fs2					R	C	C	E	E	E	E	C	E	fs	fs	fs,fs	fs			
21	fs2	fs2	fs	fs							E	E	E	E	E2	E	E					fs	fs2	fs
22	fs2	fs2	fs2	fs					R	C	C	C	E2	C2					fs	fs		fs2	fs2	fs3
23	fs	fs3	fs6	fs3	fs2			C										fs2	fs2	fs	fs2			fs2
24	fs2	fs2	fs2	fs2	fs			R	E	E	E	E	E3	E2	E	E					fs	fs	fs	
25	fs2		fs3	fs				E	C	C		E						fs2						
26			C	C	fs4	fs3	E,C	E	E	E2		E	E	E	E	E								
27		fs	fs4	fs2	fs5	fs2	C	C	C	E	E	E	E2	E3	E	E		fs2	fs		fs2	fs	fs2	
28	fs	fs	fs3	fs2	fs	fs	fs2	E	E2	E	E2	E	E	E		E			fs		fs			
29				fs4	fs		C2	C2	C4	E,C					E							fs		fs
30	fs2			fs	fs4	fs2	fs2	E3	E2			C		E				fs		fs				
31				fs	fs	fs3	fs4	E3	E	E2	E	E	E2	E2	E	R			fs	fs				
No.																								
Median																								

Types of Es

Sweep 10 Mc to 20.7 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.3	5.1	5.1	4.6	4.5	4.3	5.5	6.2	6.9	6.9	7.5	7.5	7.9	I 9.2 C	9.8	9.7	8.1	7.9	7.9	7.4	6.3	6.6	5.8	5.4
2	4.9	I 5.0 F	5.1	4.6	4.3	4.1	4.5	5.0	5.1	5.8	6.0	6.7	6.6	7.5	8.3	8.0	8.0	7.8	6.5	6.0	5.8	5.5	5.1	4.6
3	I 4.5 A,S	4.5	4.3	4.1	4.3	4.3	6.9	9.7 S	10.7	11.8	13.1	12.0	11.7	10.6	9.9	8.8	9.4	10.0	U 9.8 R	7.1	6.3	5.8	5.5	5.0
4	5.1	4.6	4.5	4.2	4.3	4.3	6.9	9.5 R	U 11.3 R	11.7	11.8	11.0	9.9	10.5	9.4	9.2	9.7	10.3	8.9	8.6	7.5	5.2	5.0	4.9
5	4.9	4.5	4.3	3.8	3.5	3.4	4.5	G	6.9	C	C	C	11.6	11.8	9.9	9.7	9.9	9.2	8.0	6.9	6.5	5.1	5.2	5.1
6	5.1	5.1	5.1	5.2	4.9	4.9	6.6	8.9	9.6	10.1	11.6	12.1	12.6	9.7	9.1	10.3	12.4	11.1	8.0	6.8	6.5	6.3	6.0	4.6
7	4.9	4.9	3.3	3.0	3.0	2.5	G	G	G	G	G	G	G	5.7	5.5	6.8	7.4	7.0	6.0	6.3	6.1	5.7	4.6 F	4.5 Z
8	I 4.7 F	5.0 Z	3.8 F	3.5	3.0	3.5	6.6	6.9 H	7.9	7.9	8.7 R	10.6	10.9	11.0	10.0	8.5	9.4	8.1	6.1	5.7	5.0	4.8	4.6	4.1
9	4.4	4.0	3.9	3.6	3.6	3.2	6.4	8.9	12.0	10.0	12.2	10.5	11.0	11.0	10.4	10.1	9.6	8.2	7.0	6.0	5.1	4.7	4.8	4.6
10	4.7	4.5	4.2	4.3	4.2	4.4	6.1	10.0	11.4	12.1	12.0	10.5	12.4	10.8	10.8	10.3	10.0	9.0	6.9	6.4	6.2	6.4	6.1	5.3
11	4.9	4.6	4.5	4.5	4.5	4.5	7.0 S	10.1	11.4	11.0	10.3	10.5	11.5	11.3	11.3	11.6	10.9	9.5	8.1	7.8	6.5	6.0	6.0	5.5
12	5.3	5.2	5.2	5.4	5.2	4.5	6.9	9.1	10.7	10.8	11.6	11.8	12.3	12.1	12.0	U 11.6 R	11.5	10.1	7.6	7.1	6.9	6.8	6.9	6.1
13	5.7	5.6	5.5	5.3	5.5	5.0	7.0	9.9 R	11.1	12.4	12.6	12.4	13.3	12.3	12.4	12.0	11.0	10.0	I 8.6 A	8.0	7.5	6.6	6.3	6.2
14	5.8	5.5	5.5	5.5	5.5	5.5	7.8 S	U 10.1 R	11.9	12.5	12.7	12.9	12.8	12.3	12.7	12.5	12.5	11.5	8.7	7.1	7.0	7.0	6.3	5.9
15	5.7	5.8	5.8	5.7	5.7	5.6	J 8.4 R	U 10.3 R,S	10.8	11.9	12.6	12.8	13.0 H	12.5	12.0	11.9	11.9	11.0	9.1	7.5	6.9	6.4	6.0	5.9
16	6.0	6.0	5.8	4.5	4.5	4.5	7.0	9.7	11.0	11.7	13.3	13.9	14.1	14.0	12.7	12.8	12.6	11.1	8.6	6.9	6.1	5.8	5.5	5.5
17	5.5	5.6	5.9	5.6	5.1	4.5	6.6	U 10.7 R	12.0	11.4	12.0	12.0 H	12.9 H	13.0	12.3	12.0	11.8	10.7	8.6	8.0	7.0	6.5	5.8	5.5
18	5.4	5.4	5.5	5.4	5.4 F	5.4	7.3 S	U 9.7 R	12.0	12.3	12.8	13.0	12.7	12.8	13.3	12.5	11.8	9.6	8.3	7.7	7.2	6.3	6.5	6.6
19	6.2 S	I 5.6 A	5.4	5.5	5.2	5.1	6.0	10.9	11.5	13.0	13.9	13.2	12.8 H	12.8	12.9	11.6	10.5	9.6	7.6	6.5	5.9	5.4	4.8	4.5
20	4.5	4.5	4.5	4.4	4.2	4.3	6.9	U 10.0 R	10.6	11.6	12.4	11.6	12.1 H	13.0	12.6	12.0	10.8	9.6 R	7.6	7.6	6.5	5.4	4.9	4.6
21	4.6	4.4	4.5	4.5	4.5	4.0	6.1	9.1	10.9	11.8	12.6	13.1	12.9	12.6 H	12.9	11.5	10.6	9.1	7.1	6.3	5.9	5.4	5.0	4.6
22	4.1	4.1	4.2	4.1	4.1	4.1	5.6	9.1	10.2	12.0	12.6	12.5	12.7 R	11.8 H	11.9	11.6	10.7	8.9	7.0	6.5	5.5	4.9	4.5	4.3
23	4.5	4.6	4.5	4.5	4.5	4.1	5.8	9.2	11.0	11.6	12.1	12.0	11.9	11.3	10.8 H	10.3	10.8	9.2	7.0	5.8	5.4	5.0	5.0	4.9
24	4.5	4.8	I 4.9 F	4.8	I 5.0 F	4.5	6.2	U 8.6 R	10.1	10.6	11.3	11.5	12.0 H	12.5	11.5	10.9	10.1	8.6	6.7	5.9	5.5	4.9	4.6	4.6
25	4.6 S	4.6 S	4.5	I 4.2 F	I 4.2 F	3.9	5.9	8.8	10.4	11.4	11.6 H	13.5	14.6	14.4	13.3	12.6	12.5	9.1	7.5	7.1	7.0	7.0	5.5	6.0
26	5.9	C	C	C	C	C	6.9	7.1 S	10.6	U 11.4 R	12.4	13.0	12.8	13.8	13.5	12.8	10.8	10.5	9.7	9.4 S	7.3	7.1	5.6	5.0
27	5.2	4.5	4.5	4.4	4.1	4.1	5.1	7.6	11.9	13.5	14.0	13.7	13.6	12.2	10.4	9.8	10.0	I 9.4 R	6.3	5.3	5.1	4.4	4.6	4.0
28	3.6	4.5	2.9	2.8	3.0	2.8	4.4	9.2	9.9	9.9	12.6	13.0	11.9	10.6	10.5	11.5	11.7	7.0	5.9	5.5	6.4	4.8	4.2	4.0
29	4.0	4.0	3.9	3.4	3.4	3.5	5.2	8.3	9.8 R	13.5	14.9	13.1 R	11.5	11.5	10.5	9.5	9.0	7.8	6.6	6.4	5.9	6.5	4.9	4.4
30	4.5	4.3	4.0	4.0	3.8 R	3.5	4.6	8.7	12.1	11.8	12.8	13.6	12.5	10.0	10.0	11.4	9.5	7.1	I 6.0 A	5.9	5.6	5.3	4.6	4.3 F
31	4.5 F	4.5	4.2	4.5 F	4.1 F	4.3 F	5.0	8.2	12.0	11.1	11.1	12.0	10.6	11.6	11.5	10.6	9.0	7.3	5.7	5.9	5.5	4.6	4.5	4.4
No.	31	30	30	30	30	30	31	31	31	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31
Median	4.9	4.6	4.5	4.5	4.3	4.3	6.2	9.1	10.8	11.6	12.3	12.0	12.3	11.8	11.3	11.4	10.6	9.2	7.6	6.8	6.3	5.5	5.1	4.9
U.Q	5.4	5.2	5.2	5.2	5.1	4.5	6.9	9.9	11.5	12.0	12.7	13.0	12.8	12.6	12.6	12.0	11.7	10.1	8.6	7.5	6.9	6.5	6.0	5.5
L.Q	4.5	4.5	4.2	4.1	4.1	3.9	5.2	8.2	9.9	10.6	11.6	11.0	11.5	10.6	10.0	9.7	9.5	8.1	6.6	6.0	5.6	4.9	4.6	4.5
Q.R	0.9	0.7	1.0	1.1	1.0	0.6	1.7	1.7	1.6	1.4	1.1	2.0	1.3	2.0	2.6	2.3	2.2	2.0	2.0	1.5	1.3	1.6	1.4	1.0

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									4.5	4.8	4.6^{L}	L	L	L	L									
2							L	3.8^{L}	4.2	4.5	I 4.6^{L}	L	L	L	L									
3									L	L	A	L	L	L										
4									L	L	L	L	L	L	L	L								
5								5.4	5.2	C	C	C	L	L	L									
6									L	L	L^{H}	L	L	L		L								
7							2.9	3.6	4.0	4.1	4.5	4.6	4.7	I 5.3^{L}	5.1	L								
8										L	L	L	L	L	L									
9									L	L	L	L	L	L										
10										L		A	L											
11										A	L	L	L		L									
12											L		L											
13											L	L	L	L										
14											L	L	L		L									
15											L													
16												L		L										
17										L	L													
18											L	4.3^{L}		4.4^{L}										
19														A										
20													L	L										
21											L	L	L											
22																								
23																								
24											L	I 4.4^{L}	4.5^{L}	L										
25											L	L	L											
26											L	L	L											
27											L		L											
28											L		L	L										
29																								
30										L			L	L										
31									L		L	L		L										
No.							1	3	4	3	3	3	2	2	1									
Median							2.9	3.8	4.4	4.5	4.6	4.4	4.6	4.48	5.1									

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	255	305	320	R	A	A	C	A	A	A	A						
2							A	A	290	[310A	[330A	345	[350R	[340R	315	300	275	170						
3							180	245	290	320	330	345	345	345H	A	A	A	B						
4							B	250	300	A	A	A	355	345	320	295	255							
5							B	250	295	C	C	C	[355R	[340R	315	295	250	A						
6							180	255	[300A	[320A	[340R	345	[345R	[340R	315	290	A	A						
7							B	225	275	A	A	R	350	345	315	290	240							
8							195	250	300	325	335	345	350	A	A	295	240							
9							A	[250A	305	[315A	[335R	345	350	345	320	295	250	A						
10							B	250	300	[320A	335	[350A	[355A	[345A	320	300	240	B						
11							B	255	295	A	A	340	A	A	A	A	A	A						
12							195	260H	305	330	350	355	[355R	[350A	[320A	A	A							
13							185	255	305	325	350	A	A	A	330	310	250							
14							180	260	305	A	A	R	A	A	A	[310A	250	B						
15							A	275	310	345	355	355	R	A	A	A	A	A						
16							B	255	305	345	350	350	A	A	[320A	295	295							
17							B	245	305	[320R	[340A	350	360	350	335	300	250							
18								255	[295A	A	A	A	A	A	A	295	230	E						
19							A	245	295	325	345	A	A	A	A	A	A							
20							R	250	285	[320A	325	315	315	330	[310R	R	A							
21								230	290	R	R	A	R	R	A	A	A							
22							B	R H	[295A	310	335	340	350	350	320	285	220							
23								235	275	A	R	A	A	A	R	A	A							
24								255	300	310	340	340	A	A	A	A	220							
25								220	[280R	R	A	A	340	[330R	295	270	205							
26							A	A	A	A	A	A	A	R	A	A	A							
27								R	A	A	A	A	A	A	A	A	A							
28								A	A	A	A	A	A	A	300	[255A	175							
29								215	265	300	315	320	320	R	A	A	R							
30								R	270	A	A	A	A	A	[290A	[260A	A							
31								220	A	A	A	A	A	A	A	A	A							
No.							6	25	27	17	16	15	15	13	16	17	16	1						
Median							180	250	295	320	340	345	350	345	320	295	240	170						

foE

Sweep 160 Mc to 200 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 3

IONOSPHERIC DATA

Oct. 1980 | 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	2.2	E	E	E	E	2.1	2.3	3.6	4.3	ʃ4.3	4.0	ʃ5.5Y	4.0	C	ʃ3.6	ʃ4.3	ʃ2.9	ʃ2.7	ʃ2.9	ʃ3.0	ʃ2.9	ʃ2.8	E	E
2	E	E	ʃ2.4	2.4	2.0	E	2.9	2.9	3.5	3.1G	ʃ3.3G	G	3.7	G	G	G	G	2.4	E	E	2.3	ʃ1.9	ʃ3.1	ʃ3.1
3	ʃ3.8	ʃ2.3	ʃ2.4	2.2	E	E	G	G	3.4	3.8	4.5	4.0	4.0	4.2	ʃ3.8	3.5	ʃ2.6	2.8	ʃ3.3	ʃ3.5Y	ʃ3.8	ʃ2.4	E	E
4	E	E	E	E	E	E	2.1	3.4	3.1	ʃ4.4	ʃ5.0	ʃ3.8	G	G	G	G	G	2.1	E	E	2.2	ʃ1.9	ʃ2.0	E
5	E	E	E	E	E	E	G	3.2	G	C	C	C	G	G	G	G	G	2.1	E	E	E	E	E	E
6	E	E	E	E	E	E	G	2.7	3.0	3.1G	G	G	G	G	G	G	ʃ2.7	2.5	E	2.4	2.2	E	E	E
7	E	E	E	E	E	E	2.1	2.5	3.0	3.8	ʃ4.2	G	G	G	ʃ6.3	ʃ4.9	3.8	ʃ5.5	ʃ3.2	E	E	ʃ2.0	E	E
8	E	E	E	E	E	E	2.8	3.2	3.6	4.0	4.5	4.0	4.0	3.7	3.2	G	2.7	2.1	E	2.2	E	E	E	E
9	E	E	E	ʃ1.8	ʃ1.8	ʃ2.3	2.5	ʃ3.2	3.6	ʃ3.9	G	G	G	G	G	G	G	ʃ2.8	ʃ2.7	ʃ2.9	ʃ3.3	ʃ5.9Y	ʃ2.8	ʃ3.8
10	ʃ2.7	ʃ1.9	ʃ2.3	ʃ2.4	ʃ2.4	E	2.5	3.8	ʃ5.2Y	3.6	G	ʃ8.9	ʃ4.9Y	ʃ3.9	G	G	3.1	2.5	ʃ2.8	ʃ2.1	ʃ2.8	ʃ3.5	E	E
11	E	E	E	E	E	E	2.4	G	ʃ5.2	ʃ4.4	ʃ3.8	G	3.6	3.8	ʃ3.5	3.7	ʃ3.9	ʃ2.8	2.0	ʃ2.3	ʃ2.8	ʃ2.4	ʃ2.5	ʃ2.0
12	ʃ2.0	ʃ1.8	E	E	ʃ2.2	E	G	2.9	3.2	3.7	4.1	4.2	4.8	ʃ5.6Y	ʃ3.9	3.5	2.6	ʃ3.1	ʃ4.9Y	ʃ2.9	ʃ2.4	ʃ2.8	E	E
13	E	E	E	E	E	E	G	G	3.6	ʃ7.0	4.0	4.2	ʃ4.7	ʃ3.7	ʃ3.8	G	2.8	ʃ2.5	ʃ8.8	E	E	E	E	E
14	E	E	E	ʃ2.4	E	ʃ2.7	G	G	2.8G	ʃ3.7	4.0	G	4.1	ʃ5.8	ʃ3.8	ʃ3.1	G	G	E	E	E	2.2	ʃ2.3	ʃ2.0
15	ʃ2.4	E	E	E	2.2	2.0	ʃ2.4	G	3.5	3.7	3.8	4.2	4.1	ʃ4.1	3.6	ʃ3.4	ʃ3.3	ʃ2.4Y	E	ʃ1.8	ʃ3.7	2.0	ʃ3.0	ʃ2.3
16	ʃ2.4	E	E	E	E	E	G	3.4	3.9	5.0	ʃ5.6	4.2	ʃ7.4	3.5	ʃ3.8	G	G	G	E	E	E	E	E	E
17	E	E	E	E	2.0	E	G	G	G	3.9	3.8	3.9	G	G	G	3.7	3.2	G	E	E	ʃ4.3	ʃ3.0	2.1	E
18	E	E	E	2.0	E	2.1	E	G	ʃ3.2	4.1	4.1	4.0	3.8	ʃ3.8	ʃ3.7	2.8G	G	2.5	ʃ3.8	ʃ2.4	1.9	ʃ2.4	E	E
19	ʃ5.7Y	ʃ8.3	ʃ6.1	ʃ8.6	ʃ6.1	ʃ2.9	ʃ3.1	3.6	4.0	ʃ5.1	ʃ5.3	ʃ6.1	6.9	7.3	ʃ8.3	ʃ5.9	ʃ3.6	ʃ2.8	2.2	E	E	E	ʃ1.8	ʃ2.4
20	ʃ1.9	2.0	E	E	2.1	E	G	ʃ5.0	3.5	3.9	ʃ4.9	ʃ4.7	3.9	G	G	3.0	2.5	E	E	2.8	ʃ2.5	ʃ4.1	ʃ6.2	E
21	2.3	2.1	ʃ3.7	ʃ2.7	ʃ2.8	E	G	2.8	G	3.5	ʃ6.5Y	3.6	3.7	3.5	3.4	2.8	ʃ3.1	2.1	ʃ2.9	ʃ2.9	ʃ2.4	E	E	E
22	2.2	ʃ2.0	E	2.4	2.2	ʃ1.8	G	3.1	3.1	3.6	ʃ5.3	ʃ4.7	ʃ5.2	4.5	2.4G	G	G	E	E	2.3	ʃ2.8	ʃ2.8	ʃ1.8	E
23	ʃ3.0	2.1	2.0	E	2.0	E	E	G	3.6	3.6	3.6	ʃ4.1	ʃ5.1	ʃ5.2	3.9	ʃ3.8	2.4	1.9	E	ʃ6.2Y	ʃ3.7	ʃ2.5	E	E
24	E	E	E	E	E	E	E	3.1	3.6	3.8	3.9	3.6	4.0	ʃ4.0	ʃ4.3	ʃ2.9	2.5	ʃ2.3	ʃ2.1	E	ʃ2.9	ʃ2.4	E	2.1
25	ʃ2.9	E	ʃ2.8	E	E	E	2.0	ʃ4.9	3.7	5.0	ʃ4.3	3.6	G	3.8	2.9G	G	G	ʃ3.8	ʃ4.1	ʃ2.8	ʃ2.5	2.3	ʃ1.8	2.4
26	E	C	C	C	C	C	ʃ3.8	ʃ6.2	ʃ6.4	ʃ8.0	ʃ4.4	3.6	ʃ4.2	3.6	3.0	2.7	2.3	ʃ2.3	ʃ3.6	ʃ3.9	ʃ2.8	E	ʃ2.3Y	2.3
27	ʃ2.8	ʃ2.9	2.0	2.3	ʃ2.3Y	E	2.0	2.8	ʃ3.1	ʃ3.4	ʃ3.8	3.7	ʃ3.9	3.5	ʃ4.5	ʃ3.8	ʃ3.1	ʃ2.9	ʃ2.0	2.3	E	2.2	2.3	ʃ2.7
28	ʃ2.6	ʃ2.9	2.1	E	2.1	2.0	2.3	ʃ3.8	ʃ5.2	ʃ6.5	ʃ4.0	ʃ5.1	ʃ3.8	ʃ3.7	ʃ5.0	ʃ3.6	G	E	2.1	2.2	E	ʃ2.5	ʃ1.8	E
29	E	ʃ1.9	ʃ2.7	ʃ2.3	ʃ1.8	E	E	3.1	4.3	4.2	ʃ5.0	ʃ5.3	ʃ6.6	4.3	ʃ3.1	2.6	G	E	E	E	E	E	E	E
30	ʃ1.8	E	E	ʃ1.7	ʃ3.1	E	2.5	3.4	G	3.5	ʃ11.3	ʃ5.0	3.9	ʃ3.3	ʃ3.9	ʃ5.3	ʃ5.8	ʃ6.2	ʃ14.4	ʃ14.0Y	ʃ8.3	ʃ6.1	E	2.0
31	2.0	E	2.0	2.5	2.0	E	ʃ2.8	2.8	3.4	ʃ4.2	ʃ3.8	ʃ3.9	ʃ4.8	ʃ4.3	ʃ5.2Y	ʃ5.3	ʃ2.7	E	ʃ2.5	ʃ3.3	ʃ3.4	ʃ3.2	ʃ3.5	ʃ2.5
No.	3.1	30	30	30	30	30	3.1	3.1	3.1	30	30	30	3.1	30	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Median	1.8	E	E	E	1.8	E	2.0	3.1	3.5	3.9	4.0	4.0	4.0	3.7	3.6	2.9	2.6	2.4	2.1	2.3	2.4	2.3	E	E
U.Q	2.4	2.0	2.1	2.3	2.2	2.0	2.5	3.4	3.9	4.4	4.9	4.7	4.8	4.2	3.9	4.3	3.1	2.8	3.2	2.9	2.9	2.8	2.3	2.3
L.Q	E	E	E	E	E	E	E	G	3.1	3.6	3.8	3.6	3.6	G	G	G	G	G	E	E	E	E	E	E
Q.R									0.8	0.8	1.1	1.1	1.2											

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E					E	2.0	3.5	4.0	3.6	3.9	3.7	3.7	C	3.5	3.4	U2.9 B	2.5	2.7	3.0	2.4	E		
2			E	1.8	E		2.7	2.6	3.0	U3.1 B&E	U3.3 B&E		3.7					2.0			2.2	E	3.1	3.1
3	A S	2.0	2.0	E					3.2	3.3	4.4	3.9	3.8	4.0	3.7	3.4	2.6	U2.8 B	3.3	E	E	1.9		
4							1.9	2.8	3.1	2.9	3.6	3.8						1.9			1.7	E	E	
5								2.6		C	C	C						1.9						
6								2.6	U3.0 B E	3.1 B&E							2.6	2.0		E	E			
7							1.9	2.5	3.0	3.6	4.2				3.9	3.5	3.4	4.9	2.0			1.8		
8							2.4	3.1	3.4	3.9	4.4	4.0	4.0	3.5	U3.2 B		2.7	2.0		E				
9				1.7	E	E	2.1	2.7	3.2	3.6								2.4	2.4	1.8	3.0	E	E.	2.1
10	E	E	E	E	E		2.0	3.5	G	3.6		5.0	3.7	3.8			3.0	2.1	E	1.9	2.4	2.1		
11							2.0		4.0	4.4	3.6		U3.6 B	3.7	3.4	3.7	3.6	2.6	1.8	E	2.3	2.0	2.4	2.0
12	E	E			E			2.9	3.2	3.7	4.1	4.2	4.5	3.0	3.5	3.2	2.5	1.8	2.5	2.1	E	1.9		
13									3.2	6.3	4.0	4.1	3.9	3.6	3.0		2.8	1.8	A					
14				E		E			2.0 G	3.7	3.8		3.9	5.0	3.7	3.1						E	E	1.9
15	E				E	E	2.0		3.4	3.7	U3.8 B	3.9	4.0	3.8	3.5	3.1	3.0	1.8		E	3.3	E	E	1.8
16	1.8							3.9	3.8	5.0	5.4	3.6	7.0	3.5	3.5									
17										3.5	3.8	3.8				G	2.6				3.0	2.5	E	
18				E		E			3.1	4.0	4.0	3.7	3.6	3.5	3.5	2.5 G		1.7	3.5	2.0	1.8	2.0		
19	4.2	A	3.0	2.0	2.6	1.8	1.8	G	4.0	5.0	5.0	4.7	5.4	5.6	3.6	4.5	2.7	E	E				1.9	E
20	E	E			E			2.1	3.1	3.5	4.2	4.5	3.5			3.0	2.5			2.5	1.9	2.1	3.0	
21	E	E	2.8	E	1.8			2.5		3.4	3.5	3.5	3.5	3.5	3.4	2.8	2.6	E	E	1.9	E			
22	E	E		E	E	E		2.8	3.0	3.5	4.9	4.5	4.6	4.0	2.1 G					2.3	2.5	2.0	E	
23	2.4	E	E		E				3.4	3.6	3.6	E4.1 B	4.0	5.0	3.5	3.8	2.3	1.7		4.5	3.5	2.5		
24								2.9	3.3	3.3	3.5	3.0	3.5	4.0	3.2	2.9	2.4	1.9	2.0		2.6	2.0		E
25	E		2.0				E	4.0	3.5	5.0	4.0	3.5		3.5	2.7 G			3.5	3.0	E	2.1	E	E	1.9
26		C	C	C	C	C	3.4	4.6	3.8	5.2	4.0	3.5	3.6	3.3	3.0	2.7	2.2	2.2	3.1	3.9	E2.8 B		E	E
27	E	E	E	E	E		E	2.5	3.0	3.2	3.4	3.5	3.9	3.5	U4.5 B	3.0	2.3	1.9	1.8	E		E	E	E
28	E	E	E		E	E	E	2.5	3.0	3.8	3.7	3.6	3.4	3.6	2.7	2.8			E	E		E	E	
29		E	2.5	E	E			3.0	4.0	4.1	4.7	4.8	5.0	4.0	3.0	2.6								
30	E			E	2.5		2.4	3.1		3.4	6.8	3.5	3.4	3.2	3.1	4.1	5.4	4.7	A	3.0	3.0	2.2		E
31	E		E	E	E		2.4	2.5	3.0	3.4	3.5	3.5	3.8	3.5	3.4	3.8	2.1		2.5	3.0	2.9	3.3	2.0	1.7
No.	15	11	11	12	15	8	16	22	27	30	27	23	24	22	23	20	20	23	18	20	20	22	15	12
Median	E	E	E	E	E	E	2.0	2.8	3.2	3.6	3.9	3.8	3.8	3.6	3.4	3.1	2.6	2.0	2.4	1.9	2.4	1.9	E	1.8

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

The Radio Research Laboratories, Japan.

A 5

25

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	1.70	1.70	1.75	1.75	1.80	2.00	1.90C	1.85	1.70	1.65	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E	1.65	1.70	1.70	1.80	1.85	1.75	1.90	1.70	1.70	1.65	E	E	E	E	E	E	E
3	E	E	E	E	E	E	E	1.65	1.70	1.75	1.80	2.15	1.85	1.90	1.80	1.85	1.70	1.70	E	E	E	E	E	E
4	E	E	E	E	E	E	1.70	1.65	1.70	1.75	1.70	1.70	1.70	1.80	1.80	2.55	1.65	E	E	E	E	E	E	E
5	E	E	E	E	E	E	1.90	1.65	1.75	C	C	C	2.80	1.80	1.80	1.75	1.65	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E	1.65	1.75	1.90	2.50	1.80	1.90	1.85	1.70	1.70	E	E	E	E	E	E	E	E
7	E	E	E	E	E	E	1.65	1.70	1.75	1.80	1.75	2.00	1.80	1.80	1.75	1.80	1.70	E	E	E	E	E	E	E
8	E	E	E	E	E	E	1.65	1.70	1.75	1.95	2.00	2.05	1.90	2.00	1.75	1.80	1.70	E	E	E	E	E	E	E
9	E	E	E	E	E	E	E	1.70	1.85	1.80	1.80	1.80	2.05	2.00	2.00	1.70	1.80	1.65	E	E	E	E	E	E
10	E	E	E	E	E	E	1.70	1.70	1.90	2.00	2.00	2.00	2.00	1.95	1.70	1.80	1.70	1.65	E	E	E	E	E	E
11	E	E	E	E	E	E	1.70	1.70	1.80	1.80	2.50	2.00	2.05	1.90	1.90	2.80	1.75	1.65	E	E	E	E	E	E
12	E	E	E	E	E	E	E	1.70	1.80	1.80	1.80	1.80	1.80	1.70	1.80	2.00	1.75	1.65	E	E	E	E	E	E
13	E	E	E	E	E	E	1.65	1.70	1.75	2.05	1.90	2.50	2.00	2.00	1.95	1.70	1.70	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E	1.65	1.70	1.75	1.90	2.00	2.55	2.00	2.00	1.80	1.75	1.75	E	E	E	E	E	E
15	E	E	E	E	E	E	1.65	1.70	1.70	1.85	1.85	1.90	1.95	2.00	2.50	1.90	1.75	1.65	E	E	E	E	E	E
16	E	E	E	E	E	E	1.90	1.75	1.75	2.45	1.95	2.00	2.00	2.00	1.90	1.75	1.75	1.70	E	E	E	E	E	E
17	E	E	E	E	E	E	1.80	1.70	1.70	1.70	2.05	1.80	1.80	2.00	1.70	1.70	1.70	1.70	E	E	E	E	E	E
18	E	E	E	E	E	E	E	1.90	1.80	1.70	1.75	2.05	2.00	1.75	1.75	1.75	1.70	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	1.65	1.75	1.80	2.55	1.85	2.05	1.70	1.75	1.65	1.70	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	1.65	1.70	1.70	1.70	1.90	1.80	1.80	1.70	1.70	1.70	E	E	E	E	E	E	E
21	E	E	E	E	E	E	1.70	1.65	1.70	1.70	1.80	1.80	1.90	2.00	1.85	1.65	1.65	E	E	E	E	E	E	E
22	E	E	E	E	E	E	1.70	1.70	1.70	1.70	1.90	1.70	1.95	1.80	1.70	1.80	1.70	1.70	E	E	E	E	E	E
23	E	E	E	E	E	E	E	1.65	1.70	1.90	2.05	2.30	2.05	2.00	2.00	1.80	1.70	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	1.80	1.65	1.80	1.95	1.90	2.15	1.70	1.75	1.90	1.90	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	1.70	1.70	1.80	1.75	1.75	1.80	1.95	1.75	1.65	1.65	E	E	E	E	E	E	E
26	E	C	C	C	C	C	E	E	1.65	1.70	1.75	1.75	2.05	1.75	1.70	1.70	1.70	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	1.70	1.70	1.70	1.75	1.90	1.75	1.75	1.70	1.70	1.70	E	E	E	E	E	E	E
28	E	E	E	E	E	E	E	E	1.75	1.75	1.90	1.80	1.85	1.70	1.70	1.70	1.70	E	E	E	E	E	E	E
29	E	E	E	E	E	E	E	1.70	1.70	1.80	1.70	2.00	1.80	1.95	1.70	1.90	1.65	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	1.70	1.70	1.70	1.80	1.80	1.85	1.75	1.70	1.90	1.70	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	1.70	1.70	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.65	E	E	E	E	E	E	E
No.	31	30	30	30	30	30	31	31	31	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31
Median	E	E	E	E	E	E	E	1.70	1.70	1.80	1.80	1.90	1.90	1.90	1.75	1.70	1.70	E	E	E	E	E	E	E

f-min

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

IONOSPHERIC DATA

Oct. 1960 | (M3000)F2 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

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

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

The Radio Research Laboratories, Japan.

A 7

27

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									A	3.50	3.85^{L}	L	L	L	L									
2							L	3.25^{L}	3.40	3.75	I 3.70^{L}	L	L	L	L									
3									L	L	A	L	L	L										
4									L	L	L	L	L	L	L	L								
5								3.35	3.65	C	C	C	L	L	L									
6									L	L	L^{H}	L	L	L		L								
7							2.70	3.10	3.50	3.80	I 3.45^{A}	3.55	3.40	I 3.30^{L}	3.40	L								
8										L	L	L	L	L	L									
9									L	L	L	L	L	L										
10										L		A	L											
11										A	L	L	L		L									
12											L		L											
13											L	L	L	L										
14											L	L	L		L									
15											L													
16												L		L										
17										L	L													
18											L	4.15^{L}		4.00^{L}										
19														A										
20													L	L										
21											L	L	L											
22																								
23																								
24											L	I 4.20^{L}	4.10^{L}	L										
25											L	L	L											
26											L	L	L											
27											L		L											
28											L		L	L										
29																								
30										L			L	L										
31									L		L	L		L										
No.							1	3	3	3	3	3	2	2	1									
Median							2.70	3.25	3.50	3.75	U 3.70	4.15	3.75	U 3.65	3.40									

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									345	345	300	295L	260	I 260C	275									
2							395	445	460	375	300L	320	I 300L	I 285L	I 255L									
3									250	255	265	250	255	I 250L										
4									245	245	245	245	I 240L	250L	245L	250								
5								G	370	C	C	C	I 260L	245	245									
6									250	255	255	245	245	245		L								
7							G	G	G	G	G	G	G	I 470L	445	L								
8										245	I 250L	245	250	255	250L									
9									245	245	245	245	255	250L										
10										245		245	I 265L											
11										245	245	245	245L		L									
12											250L		I 260L											
13											255	250	255	245L										
14											245	250L	I 250L		L									
15											250													
16												L		255										
17										245	I 250L													
18											245	245		255										
19														255										
20													235H	245L										
21											245	245	250											
22																								
23																								
24											250	250	245H	255L										
25											250H	I 250L	255											
26											255	260	250L											
27											245		245											
28											255		250	I 245L										
29																								
30											245		245	245										
31									250		245	245		250										
No.							2	3	9	11	23	18	21	18	6	1								
Median							G	G	250	245	250	250	250	250	250	250								

h'F2

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

IONOSPHERIC DATA

Oct. 1960 | h'F | 135° E Mean Time (GMT + 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	320	265	250	270	310	260	280A	I 255A	245	215	205	205	I 230C	205	245	245	240	260	290A	240A	240	295	255
2	345	340	325	350	305	330	I 325A	255	250	220	205	205	245	245	245	245	245	245	240	255	340	245	A	A
3	AS	315	340A	295	305	325	255	245	240	245	I 205A	240	205	235	245	245	245	245	235	210	245	270A	255	290
4	255	250	250	290	300	295	245	235	235	210	215	200	200	205	225	230	245	245	245	245	225	225	255	290
5	275	295	345	390	440	350	295	245	220	C	C	C	220	220	230	245	245	235	230	245	245	240	290	290
6	305	310	300	295	295	295	245	245	240	205	205H	205	205	200	250	250	250	230	230	240	290	295	295	430
7	380	245	450	470	410	E 590 E	355	285	255	230	I 250A	245	245	250	250	250	265	I 265A	300	305	340	295	340	320
8	340	350	360	340	300	295	245	240	235	210	230	200	205	220	235	245	250	230	225	250	260	260	295	270
9	295	290	295	280	290	310	250	245	240	205	205	200	200	225	245	245	245	220	240	245	255A	300	295	350A
10	305	310	290	330	345	305	250	245	240	230	245	I 210A	205	245	245	245	245	240	220	260	290A	275	245	255
11	255	285	295	290	295	295	245	245	245	I 240A	215	220	200	245	245	250	245	245	240	260	245	290	290	285
12	290	290	295	270	250	245	245	240	245	235	240	245	I 250A	250	245	245	250	235	240	250	255	280	255	255
13	260	285	290	290	255	260	240	240	285	250	230	230	205	210	245	245H	245	245	I 245A	245	245	255	260	285
14	280	280	295	295	295	285	245	245	245	245	230	220	240	245	245	250	245	245	220	240	250	250	255	280
15	300	295	295	265	255	290	245	235	235	240	240	245	245H	245	245	245	250	245	230	240	I 245A	260	310	340
16	340	255	230	300	310	350	245	245	245	245	250	240	I 245A	235	245	245	245	240	220	240	250	255	280	340
17	325	295	255	255	245	250	245	245	240	220	215	210H	245H	250	245	245	245	240	235	245	250A	255A	250	250
18	280	290	280	295	280	295	245	245	245	245	230	210	245	210	250	245	245	240	250A	245	255	250A	290	260
19	A	A	A	340	340A	350	255	245	245	245	245	245	I 240AH	240A	245	245	245	245	235	240	245	245	270A	300
20	310	30	295	320	295	330	245	240	240	245	245	245	205	205	250	245	245	240	245	245	250	255	I 270A	290
21	295	305	I 345A	295	295	285	245	245	245	245	210	220	240	245H	245	240	240	240	235	245	245	245	255	245
22	270	305	295	295	290	290	245	240	240	245	245	245	245	240H	245	245	245	225	225	245	250	250	255	290
23	330A	290	280	275	250	260	245	245	245	240	240	240	245	245	235H	240	245	230	215	I 240A	I 260A	290A	260	265
24	260	290	285	260	260	260	245	270	245	240	230	220	205	245	240	245	240	220	220	245	255	255	290	290
25	280	255	290A	390	360	355	250	245	245	245	230	210	245	245	245	245	245	230	I 270A	280	285	245	260	305
26	300	C	C	C	C	C	235	245	255	245	245	240	235	245	245	245	245	245	275A	240	290A	245	250	290
27	290	255	275	295	305	295	255	245	245	240	205	245	235	245	245	245	240	235	205	250	260	260	280	345
28	340	255	270	390	370	355	285	245	245	240	240	235	230	230	245	245	230	205	240	295	245	265	330	310
29	300	340	I 290A	270	350	355	285	245	245	255	250	245	245	245	245	240	245	235	240	255	270	270	245	255
30	345	250	280	350	I 350A	340	280A	260	245	225	245	245	215	215	245	245	235A	A	A	280A	280A	255	280	290
31	305	290	320	320	260H	330	270	250	245	240	240	210	240	245	245	245	245	210	245	290A	285	I 250A	270	255
No.	29	29	29	30	30	29	31	31	31	30	30	30	31	31	31	31	31	30	30	31	31	31	30	30
Median	300	290	295	295	295	295	245	245	245	240	230	225	235	245	245	245	245	240	240	245	250	255	270	290

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

IONOSPHERIC DATA

Oct. 1960

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

R'Es

Sweep 160 Mc to 200 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Oct. 1960

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Akita

Lat. 39° 43.5′ N
Long. 140° 08.2′E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f					f	h2l	h2	c2	c	c	l c	l		l2	l2	l2	l2	f3	f4	f4	f2		
2			f	f2	f		c2	c	c	l2	l		h					h			f2	f	f4	f4
3	f5	f3	f3	f					h2	c	h2	h	h	c2	c	h l	l	h2	f3	f	f	f2		
4							h	h2	h	l2 c	l2	l						h			f	f	f	
5								h										h l						
6								h	l	l							l2	l2		f	f			
7							h	h	h	c	c2				h2 l	h2	h2	f2	f2			f2		
8							h2	h3	h2	h	h	h	c	l	l		h	h		f				
9				f2	f2	f2	l	l2	h	l								l2	f2	f2	f2	f2	f2	f2
10	f	f	f	f2	f2		h	h2	h	l		l2	l	c			h2	h2	f	f2	f2	f3		
11							h		c2	c2	l		l	l	l	l	l2	l2	f	f	f2	f2	f2	f
12	f	f			f			h	h	h	h2	h	h	l h2	h	h	h	f	f2	f	f	f2		
13									h	h2	h	c l	l	l	l	l	h	h	f2					
14				f		f			l	l h	l		l	l2	l	l						f	f	f
15	f				f	f	l		h	h	h	h	c	l	l	l	l2	l		f	f4	f	f	f2
16	f							h2	h2	c2	c4	c	l2	l2	l2									
17					f					h	c	c				h	h				f3	f3	f	
18				f		f			h	c2	c2	l	l	l	l2	l		c	f3	f2	f	f		
19	f2	f4	f3	f3	f3	f2	l	h	h2	c2	c2	l2	l2	l3	l3	l2	l2	f	f				f2	f2
20	f	f			f			l2	h	h l	c2	c2	c			h	l h			f2	f	f2	f2	
21	f2	f2	f3	f	f2			h2		c	l c	c	c	c	c	l	l2	f	f	f	f			
22	f2	f		f	f	f		h	h l	h2	h2	h2	h2	h2 l	l					f	f2	f2	f	
23	f3	f	f		f				c	c	h	l2	l2	l2	c	l2	l2	f		f3	f2	f		
24								h	h	c	c	l	l	l2	l2	l2	h	f2	f		f	f2		f
25	f2		f2				h	h2	c2	c3	c2	l		c	l			f2	f2	f2	f2	f	f2	f2
26							l2	l3	c2	c4	c2	c2	l2	c	l	l2	l2	f	f2	f2	f3		f	f
27	f	f2	f	f	f		h	h2 l	l	l2	l	l	c2	l2	l2	l2	l	f2	f	f		f	f	f
28	f	f	f		f	f	f	l2	c2	l2	c2	l	l	l2	l2	l2			f	f		f	f	
29		f	f2	f4	f2			h2	h2 l	h2	c2	c2	c2	c3	h	h			f	f		f	f	
30	f			f	f2		h2	h2		c2	l3	l2	l	l	l	l3	l2	f3	f2	f2	f2	f2		f
31	f		f	f2	f		f2	h	l	l2	l2	l2	l2	l	l	l2	l		f2	f3	f2	f3	f2	f
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.4	5.1	5.4	4.9^{s}	4.3	4.2	6.6	^{u}8.4^{s}	9.6	11.1	11.4^{R}	10.0	10.7	11.6	11.7	11.2	8.8	9.4^{s}	8.8^{s}	7.6	^{u}7.3^{R}	^{u}7.3^{s}	5.0	5.1
2	4.5	5.1^{s}	^{u}5.3^{s}	^{u}5.5^{s}	^{u}5.0^{s}	4.3	4.4	5.2^{s}	5.7	6.3	6.6	7.5	8.5	8.5	9.2	9.1	8.9	8.4	7.4	6.5	5.7	6.5	5.3	4.8
3	4.1	4.5	4.3	^{u}4.1^{s}	4.1	4.3	6.9	^{u}10.1^{s}	11.2	12.1	13.3	14.6^{R}	12.4	11.3	9.9	J10.4^{s}	9.8^{s}	11.0	J10.4^{s}	J7.6^{s}	7.0	6.5	5.6	5.0
4	5.3	4.7	I4.4^{s}	4.1	4.2^{s}	4.1	6.7	10.7	11.4	11.6	12.6	11.3	10.7	10.7	10.5	9.8	^{u}10.3^{s}	^{u}10.3^{s}	9.8^{s}	8.0^{s}	6.8	4.8	4.8	4.8
5	4.5	4.6	4.3	3.6	3.4^{s}	^{u}3.3^{s}	4.6^{s}	7.0	8.2	8.6	9.9	12.1	13.6	13.3	11.7	10.2^{s}	I10.8^{C}	J10.6^{s}	8.2^{s}	6.1	6.0	5.3	4.8	5.0
6	4.9	4.9	5.0	J5.1^{s}	I5.0^{s}	^{u}5.0^{s}	7.1	^{u}9.8^{s}	10.6	10.4	12.2	13.7	12.7	11.2	10.1^{H}	11.5	14.1^{s}	11.7	7.8	6.7	6.6	7.1	6.0	4.8^{H}
7	5.2	5.9^{s}	3.5	3.0^{H}	3.4	2.5^{s}	2.9	I3.6^{A}	G	G	G	A	A	5.8^{H}	5.9	7.0	7.8^{s}	6.8	5.9	6.2	5.9	6.1	5.1	4.5
8	4.2	I4.1^{F}	I3.9$^{s}_{F}$	I3.8^{F}	4.4	^{u}3.9^{s}	J9.8^{R}	8.6	10.0	8.9	9.5	12.2	13.3^{R}	13.2	^{u}14.5^{R}	11.7	10.6	9.6^{s}	7.0	5.7	5.5	5.4	4.7	4.9
9	4.3	3.9	3.8^{s}	3.7^{s}	3.3	3.3^{s}	6.1	9.7^{s}	12.7	11.0	12.1	11.5	11.5	11.5	11.3	10.9	9.6	9.5	7.2	6.1	6.2	5.2	5.1	4.9
10	5.0	4.7^{s}	4.9^{s}	4.3	4.4	I4.6^{s}	6.7	9.3	12.1	12.3	12.8	11.5	11.8	11.8	11.1	11.3	10.2	9.4	7.9	6.4	6.4	6.7	6.7	5.7
11	4.9	4.4	4.4	4.4^{s}	4.3^{s}	4.2	7.2	10.7	11.3	10.6	10.8	11.3	11.8	12.2	12.1	11.8	11.4	10.0	8.2^{s}	7.3^{s}	7.0	5.8	6.1	5.9
12	5.3	5.2	^{u}4.9^{s}	5.1	J5.0^{s}	4.1	6.8	^{u}9.5^{s}	10.2^{R}	11.4	11.2	12.3	11.9	12.4	12.7	12.5	11.5	^{u}10.2^{s}	8.6	7.2	7.6	^{u}7.3^{s}	7.1	5.9
13	5.8	5.6	5.4	5.4	5.3	^{u}4.4^{s}	7.2^{s}	9.5^{s}	11.6	12.2	12.4	13.2	13.4	13.2	13.3	12.1	11.0	J11.0^{s}	9.2	J8.0^{s}	7.2	6.6	6.5	6.2
14	6.0	5.6	5.5	5.5	4.9	5.3	I7.8^{s}	^{u}10.4^{s}	12.2	12.0	12.9	12.8	13.0	12.6	12.9^{H}	13.2	13.2	12.3	9.1	7.3	7.2	J7.3^{s}	6.5	6.1
15	5.7	5.7	5.6	5.6	5.4	5.5	^{u}8.3^{s}	^{u}9.4^{s}	^{u}10.8^{s}	11.7	12.8	12.7	13.1	13.3	13.1	12.4	12.5	11.9	9.9^{R}	8.1^{R}	7.0^{s}	6.5^{s}	5.9	5.7
16	5.7^{s}	6.1	^{u}5.9^{s}	4.2^{s}	4.2^{s}	4.1^{s}	7.7^{s}	^{u}9.7^{s}	11.0^{s}	12.6	13.2	14.0	14.4	J15.0^{R}	13.6	13.3	13.4	12.2	9.2	7.0	6.5	5.9	5.4	5.3
17	5.3	5.4	5.8	5.7	4.6	3.9	6.6	J10.1^{s}	12.6	11.6	11.3^{H}	12.9	12.8^{H}	13.5	13.6	12.8	12.3	10.8	8.7	7.6	7.0	6.4	5.7	5.5
18	5.4	5.0	5.2^{s}	5.0^{s}	^{u}5.0^{s}	I5.0^{s}	7.1^{s}	^{u}10.0^{s}	12.0	12.9	12.2	13.6	13.0	12.7	13.7	13.1	11.5	^{u}10.0^{s}	8.2	J7.9^{s}	7.3	6.3	6.5	6.7
19	6.3	5.4	J5.4^{s}	5.2	5.2	^{u}5.0^{s}	6.3	11.0	12.9	13.5	^{u}14.4^{R}	J14.5^{R}	13.2	14.0	14.3	12.7	10.9	9.7	8.3	6.9	6.1	5.2	4.8	4.6
20	4.5	4.6	4.4^{s}	4.4^{s}	4.3	4.4^{s}	7.1	I9.8^{s}	11.4	11.0	12.5	12.3	11.9	13.7	13.9	12.4	11.8	^{u}10.0^{s}	8.3	8.0	6.3	5.2	4.8	4.9
21	4.6	4.2	4.2^{s}	4.4	4.1	4.5^{s}	5.7	9.1	10.9	11.5	12.3	13.4	13.8	13.8	13.9	13.3	11.0	9.3	7.2	6.6	5.8	5.8	5.1	4.8
22	4.3	4.1	4.1	4.0	3.8	3.9	^{u}6.1^{C}	I8.9^{C}	11.1	^{u}11.1^{R}	11.5	13.3	13.3	12.4	13.1	12.2	J10.6^{s}	9.3	7.2	6.3	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	12.2	11.8	11.8	11.9	11.6	^{u}10.6^{s}	J10.2^{s}	10.1^{s}	8.0	5.3	4.6	4.6	4.8	4.7
24	4.2	4.3^{s}	4.2	^{u}4.4^{s}	4.4^{s}	4.2^{s}	6.0	9.1	10.0	10.6	11.2	11.9	12.3	12.6	13.0	11.7	J10.6^{s}	9.3^{s}	6.5	5.6	5.3	4.7	4.3^{s}	4.6^{s}
25	4.5	4.3^{s}	4.2	3.6	3.6	^{u}3.5^{s}	5.7	9.1	10.4^{s}	10.7	11.9	12.9	^{u}13.8^{s}	J14.2^{s}	J14.0^{s}	13.1	12.4	10.6^{s}	7.8	I7.6^{A}	7.2^{s}	^{u}7.4^{s}	5.3	5.7
26	6.1	5.7	^{u}4.0^{s}	^{u}4.0^{s}	3.6^{s}	^{u}6.5^{F}	^{u}7.4^{s}	^{u}7.3^{s}	10.3	^{u}14.3^{s}	13.9	12.2	12.2	J14.3^{s}	13.6	13.6	11.4	J10.7^{s}	^{u}10.0^{s}	I10.2^{R}	7.1	J8.2^{s}	5.8	5.5
27	5.5	I4.4^{A}	^{u}4.4^{s}	4.5^{s}	^{u}4.2^{s}	4.1	5.5^{s}	8.6^{s}	12.0	^{u}14.8^{s}	13.3	14.4^{s}	J14.1^{s}	13.9^{s}	11.6	10.5^{s}	10.9	^{u}10.0^{s}	J8.2^{s}	5.0	5.2	5.5	4.5	3.6^{H}
28	3.4	3.9	3.0	2.5	2.7	2.6^{s}	4.5^{s}	9.8	10.0^{s}	10.9	12.2	13.3	12.5	11.8	11.6	11.3	11.3	8.0	6.0	5.7	7.3^{s}	5.7	4.2	4.2
29	4.2	4.1	^{u}4.3^{s}	3.6	3.4	3.4	5.5	^{u}9.4^{s}	9.3	13.3	^{u}14.8^{s}	J14.9^{s}	11.8	11.6	11.6	J10.5^{s}	9.1	8.8^{s}	7.1^{s}	6.5	6.4	6.5	4.8	4.5
30	4.4	4.4^{s}	3.8	3.5^{s}	3.4	^{u}3.5^{s}	4.8^{s}	9.1	13.1	13.4	13.5	14.3^{s}	11.6	11.8	10.2^{s}	10.8	10.4	7.1	4.8	5.9	6.2^{s}	5.3	I4.8^{A}	^{u}4.1^{A}
31	4.2	4.2	3.9	4.0	3.8	3.8	5.0^{s}	9.1^{s}	12.0	13.0	11.8	12.5	11.2	12.1	12.2	J10.6^{R}	9.1	7.6^{s}	I6.2^{A}	5.4	5.4	4.7	4.0	I4.1^{A}
No.	30	30	30	30	30	30	30	30	30	30	31	30	30	31	31	31	31	31	31	31	30	30	30	30
Median	4.9	4.6	4.4	4.4	4.2	4.2	6.6	9.4	11.0	11.6	12.2	12.8	12.4	12.4	12.2	11.7	10.9	10.0	8.2	6.7	6.4	6.0	5.1	4.9
U. Q.	5.4	5.4	5.3	5.1	4.9	4.5	7.1	9.8	12.0	12.6	12.9	13.6	13.3	13.5	13.6	12.7	11.5	10.7	8.8	7.6	7.1	6.6	5.9	5.7
L. Q.	4.3	4.3	4.1	3.8	3.6	3.8	5.5	8.9	10.0	10.7	11.3	11.9	11.8	11.6	11.3	10.6	10.2	9.3	7.2	6.1	5.9	5.3	4.8	4.6
Q. R.	1.1	1.1	1.2	1.3	1.3	0.7	1.6	0.9	2.0	1.9	1.6	1.7	1.5	1.9	2.3	2.1	1.3	1.4	1.6	1.5	1.2	1.3	1.1	1.1

foF2

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

The Radio Research Laboratories, Japan.

K 1

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	A	A	L	A	L								
2							A	3.8	A	"5.3 L	5.1 L	4.9 L	"4.7 L	L	L									
3											L		L											
4										L	L	L	L	L										
5										L	L	L	L	L			C							
6										L	L	L	L	L		L								
7									4.2	4.4 S	5.0	A	A				A							
8									L		S	A	L	L	A	L								
9											L	L	L	L										
10										L	L	L	L	L	L		A							
11										L	L	L	L	L	L									
12										L	L	L		L										
13											L	L	L	L	L									
14											L	A	L	L										
15											L	S	L	S	L	L	L							
16										A	L	L	A	L										
17									L		L	L		"5.0 L										
18										L	L	L	L	L	C									
19										L	A	L		L										
20											L	L		L										
21											L	L	L											
22											L	L	L	L	L									
23										C	L	L												
24												L	L	L	L									
25												A	L	L										
26										A	L	L		A	A	A	A	A						
27												L												
28										L	A	L		L	L									
29										L														
30										L														
31																								
No.								1	1	2	2	1	1	1										
Median								3.8	4.2	"4.8	5.0	4.9	"4.7	"5.0										

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	u2.80s	3.20	3.20	I3.55A	I3.65A	I3.65A	3.55	I3.25A	u2.95R	2.65R	S						
2							A	u2.55s	I2.85A	I3.10A	3.40	u3.50s	u3.55s	3.35	3.30	3.10	2.50	1.90						
3							S	I2.45s	3.10	3.30	3.50	I3.60s	3.70	3.45	3.55	I3.05A	2.60	u1.85s						
4							u2.10s	I2.60A	3.10	I3.25A	u3.55s	u3.55s	3.65	3.65	3.25	3.00	u2.65s	1.55						
5							B	u2.45s	u3.10A	I3.30A	3.65	u3.70R	3.60	3.50	3.20R	u2.80s	I2.40C	2.00						
6							B	2.55s	3.20	3.40	u3.50R	3.55	u3.50R	3.30	3.25	3.00	u2.50s	B						
7							S	u2.35s	2.70	3.05	3.00	A	A	3.55	3.30	2.95	2.40	B						
8							2.10	2.50	3.00	3.25	3.35s	I3.50B	I3.50A	I3.25s	I3.05A	3.05	2.55	B						
9							A	A	A	3.35	3.40	I3.50B	3.55	3.50	3.35	3.05s	2.60	A						
10							I1.80B	2.60	3.05	3.35	3.25	A	A	3.50	3.50	3.10	2.40	B						
11							I1.90s	2.20	2.90	3.10	A	R	3.55	3.30	3.30	I3.00B	I2.60s	S						
12							I1.80B	I2.60s	u3.05s	3.30	3.60s	3.65	u3.70s	3.55	3.30	3.10	A	S						
13							S	I2.50s	3.05	3.35	3.60	u3.65s	3.55	3.65	3.45	3.15	u2.50s	S						
14							S	u2.60s	3.10	3.50	I3.50A	u3.65R	A	A	A	3.15	2.50	S						
15							2.00	2.50	3.20	3.00	3.60	3.65	3.60	3.35	3.10	I2.55A	A	A						
16							S	2.35	3.00	3.55	3.60	3.50	A	A	A	A	u2.50s	S						
17							B	2.50s	3.10	3.35	A	A	3.80	3.50	3.40	3.00	2.50	B						
18							I1.80s	u2.65s	A	A	A	R	3.55	3.50	I3.20s	2.85	A	A						
19							S	u2.35s	I2.90A	I3.25A	3.50	A	A	A	I3.10A	2.85	A	B						
20							B	2.50	A	I3.20A	3.40	3.35	3.30	3.20	3.00s	2.90	2.35	S						
21							B	2.40s	2.60	3.10	3.25	3.30	3.35	3.35	2.90	A	A	A						
22							C	C	2.85	3.00R	3.20	3.40	3.55	u3.35s	3.25	2.80	2.40	S						
23							C	C	C	C	3.20	3.05	A	A	A	2.75s	u2.40s	A						
24							S	u2.35s	2.95	3.15	3.15	I3.30A	A	3.25	3.15	2.75	2.35	S						
25							A	2.20s	2.60	2.90	A	A	3.30	I3.20A	3.05A	I2.70A	S	A						
26				S	S		S	I2.00s	2.40	I2.80A	3.05	I2.90A	A	A	A	A	A	A						
27							S	2.10s	I2.70A	I3.00A	I3.15A	I3.20A	u3.30A	u3.00A	A	A	S	A						
28							S	I2.15A	I2.55A	I2.90A	I3.10A	I3.30A	3.30	3.20	3.10	2.70	u2.25s	B						
29							A	u2.45s	2.70	3.05	3.25s	3.25	3.20	3.15	2.95	2.30	A	S						
30							A	S	2.90	2.90	3.05A	A	A	A	A	A	A	A						
31							B	S	A	A	AS	A	A	A	A	A	A	A						
No.							7	26	26	28	26	22	21	24	24	25	20	4						
Median							u1.90	u2.50	3.00	3.20	3.40	u3.50	3.55	3.35	3.25	2.95	2.50	1.90						

foE

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

The Radio Research Laboratories, Japan.

K 3

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	]2.0	S	2.0^{M}	E	E	S-	B	S	3.6	4.3	4.0	5.6	4.5^{s}	3.0^{q}	4.9	G	G	S	S	E	E	S	S	S
2	S	E	2.2	E	]2.5	2.5	]3.4	3.0	]4.5^{Y}	4.7	3.7	G	3.8	G	G	G	2.9	2.3	3.1	3.2	S	S	S	S
3	S	2.3	2.0^{M}	E	]2.2	]2.4^{s}	S	S	3.4	3.5	3.8	G	G	4.3	3.9	3.9	3.8	3.2	]2.4	S	]3.0	S	S	S
4	S	S	E	1.9^{s}	E	S	2.4	2.8	G	3.6	G	G	G	G	G	G	S	1.9	E	S	S	E	S	S
5	S	E	E	E	E	S	2.3	3.0	3.6	3.5	G	G	G	G	G	G	C	G	]3.2	S	S	S	S	S
6	E	E	E	E	1.3	S	B	G	2.9^{q}	G	3.3^{q}	3.2^{q}	2.9^{q}	G	G	G	G	B	]1.8^{s}	E	E	S	S	S
7	E	E	S	S	E	S	S	3.4	3.6	3.9	4.0	6.3	8.8	4.1	4.5	4.4	]5.4	]3.0	]2.8	]2.4	]1.7^{s}	S	1.6	S
8	E	E	E	E	E	S	3.6	3.3	3.7	G	G	5.6	3.9	3.6	3.6	G	]4.5	4.5	]5.4	]3.7	]2.4	E	S	S
9	S	S	E	E	1.4	S	2.8	]5.1^{Y}	4.2	G	G	G	G	G	G	G	3.3	]2.8	]5.4	]1.7^{s}	]2.4	S	]1.6	]2.4^{s}
10	]2.4	2.0^{M}	]3.0	2.0	1.4	S	2.4	3.4	3.6	G	3.6	4.0	3.8	3.2^{q}	G	3.4	4.5	2.2	]4.0	]2.9	]3.8	]5.8	]2.8	]3.8
11	]3.4	S	2.3	2.0	S	S	S	3.3	3.3	3.9	3.7	3.2^{q}	3.1^{q}	G	G	B	2.2^{q}	S	S	S	E	S	S	S
12	S	S	E	E	E	S	B	S	2.8^{q}	3.2^{q}	3.5^{q}	3.9	4.4	4.3	4.5	4.0	]3.8	]3.3	4.0	3.0	]2.7	S	S	]2.6
13	]2.4	E	E	E	S	S	S	S	3.4	3.9	4.0	4.0	G	G	G	G	S	S	S	E	]5.1	S	1.7	S
14	E	E	S	E	E	S	S	G	G	4.0	4.2	4.8	4.0	]4.8^{s}	4.0	3.9	G	]3.3^{s}	S	S	]3.0	]2.6	S	2.1^{s}
15	2.4	2.2	1.4	E	E	S	G	S	2.6^{q}	3.6	3.8	4.0	4.1	3.8	6.0	]5.2	]3.3	]4.2	S	E	S	E	]2.3	]1.8
16	S	S	]1.7	E	S	S	S	2.9	4.8	]5.1	]5.2	]5.4	9.3	4.0	4.4	4.4	2.3^{q}	S	E	S	S	S	E	S
17	S	S	S	E	E	E	B	S	3.8	3.8	3.7	3.9	G	3.7	3.8	4.1	3.6	]4.1	]2.8	2.1	E	S	]4.6	]4.3
18	]2.2	2.0	E	E	S	S	S	G	3.4	4.0	4.6	3.5^{q}	3.2^{q}	3.8	S	2.6^{q}	3.2	]2.6	S	]2.0	S	S	S	E
19	E	E	1.5	E	E	S	S	]3.3	]6.3	]5.4	5.2^{s}	]4.0	]8.4	4.2	4.5	G	]3.3	B	]2.4	]2.5	]2.5	2.8	S	2.1
20	S	2.4	]2.4^{s}	]1.4^{s}	]1.8	]2.6^{s}	B	2.9	]3.0	3.3	3.0^{q}	3.9	3.8	3.6	G	G	2.8	S	2.6^{M}	2.1^{M}	S	E	E	S
21	]7.0	2.1	1.8^{s}	E	]3.1	S	B	G	3.1	3.6	3.8	3.8	3.8	4.1	4.0	3.0	3.2	]4.0^{s}	]3.5	2.4	]1.8^{s}	u2.2^{s}	S	S
22	S	S	E	E	E	S	C	C	3.7	2.8^{q}	3.6	3.8	G	3.7	3.7	3.1	G	S	S	S	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	4.2	3.9	4.2	4.7	]3.5	3.5	2.8	]2.5	]2.4	]2.5	]2.3	]2.9	2.2	S
24	S	S	E	E	E	S	S	G	3.4	3.5	3.9	3.7	3.5	3.7	G	G	G	S	E	]1.8	E	S	]3.0	]3.0
25	S	]1.8	]3.3	]1.2	]2.2	E	]3.4	]3.8	]6.3	]5.5	]4.3	]8.3	G	3.8	3.5	]3.3	S	4.1	]4.6	]8.6	3.0	]4.1	]3.3	]3.0
26	]1.9	]2.5	E	S	S	E	S	]3.6	]4.3	5.0^{s}	4.4	]5.0^{s}	]5.9	]8.0	8.0^{M}	6.6^{M}	]7.1	]6.6	4.1^{M}	4.5	2.9	]6.5	]6.5	]2.5
27	]4.3	]5.2	]1.5	]1.7	]1.8	]2.4	S	2.5	]3.2	]4.6	]3.6	]3.8	3.9	]6.0	3.8	]3.3	]2.5	2.7	2.5	]3.2	E	]2.2	E	S
28	S	2.2	]2.7	E	E	S	]2.0	2.1	4.4	3.4	]6.5	3.9	3.0^{q}	2.7^{q}	G	G	G	B	E	E	S	]2.6	]2.4	2.8^{M}
29	2.0	]2.1	]3.3	]3.0	]3.4	]2.8	]2.3	2.4^{q}	3.3	3.7	4.3	]5.9	4.5	5.8	]5.4	]4.4	]2.4	S	2.1	2.1	S	S	S	]1.8
30	S	S	E	E	E	S	2.0	]3.1	3.2	3.6	]8.1	]7.3	]7.2	]5.3	]6.3	]5.0	]4.9	]3.0	]2.4	]2.0	2.5	2.7	]7.1	]4.4
31	]3.3	]1.9	]2.1	1.8	]1.8	B	B	S	]4.9	]4.9	6.0	]4.2	5.8^{M}	]7.3	]3.7	]5.4	]3.8	]2.9	]8.1	]5.8	7.1	]2.6	]4.4	]5.5
No.	16	20	27	28	25	8	11	22	30	30	31	31	31	31	30	30	27	20	24	24	21	15	16	15
Median	2.1	2.0	1.5	E	E	2.4	2.4	3.0	3.5	3.6	3.8	3.9	3.8	3.8	3.7	3.2	3.2	3.0	2.7	2.2	2.4	2.6	2.4	2.6
U.Q.	2.8	2.2	2.2	1.3	1.8	2.6	3.4	3.3	4.2	4.3	4.3	5.0	4.5	4.3	4.5	4.1	3.8	4.0	4.0	3.1	3.0	2.9	3.8	3.8
L.Q.	E	E	E	E	E	E	2.0	G	3.2	3.4	3.6	G	G	G	G	G	G	2.6	2.2	1.8	E	E	1.6	2.1
Q.R.							1.4		1.0	0.9	0.7							1.4	1.8	1.3			2.2	1.7

foEs

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

The Radio Research Laboratories, Japan.

K 4

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	S	E			S	B	S	G	4.0	3.7	5.2	4.5	3.0^{q}	4.4			S	S			S	S	S
2	S		1.8		2.2	1.9	3.4	2.8	4.3	3.5	3.7		3.8				2.9	2.3	2.3	2.9	S	S	S	S
3	S	1.7	1.6		2.0	1.9	S	S	3.3	3.5	3.8			4.3	3.9	3.6	3.5	3.1	2.0	S	2.1	S	S	S
4	S	S		1.5		S	2.4	2.5		3.5							S	1.9		S	S		S	S
5	S					S	1.9	2.6	3.2	3.5							C		1.8	S	S	S	S	S
6					1.2	S	B		2.3^{q}		^{E}3.3^{q}	3.0^{q}	2.9^{q}					B	1.8			S	S	S
7			S	S		S	S	A	3.1	3.4	3.7	A	A	4.1	4.5	4.4	5.3	2.4	2.8	2.3	^{E}1.7^{s}	S	1.5	S
8						S	G	2.8	3.4			5.4	3.8	3.6	3.4		4.1	4.1	4.1	2.4	2.1		S	S
9	S	S			1.3	S	2.2	3.5	4.2								3.1	1.9	3.8	^{E}1.7^{s}	2.0	S	E	2.0
10	2.1	E	1.9	1.2	1.3	S	2.4	3.3	3.2		3.6	3.7	^{E}3.8^{s}	3.0^{q}		3.3	4.5	2.2	3.2	2.3	2.6	3.6	2.6	2.9
11	2.6	S	1.7	2.0	S	S	S	^{u}3.0^{s}	3.2	3.9	3.6	^{E}3.2^{q}	3.1^{q}			B	^{E}2.2^{s}	S	S	S		S	S	S
12	S	S				S	B	S	2.8^{q}	^{u}2.4^{q}	3.0^{q}	3.9	4.3	4.2	4.2	3.7	3.6	3.3	2.5	2.4	1.9	S	S	1.9
13	2.2				S	S	S	S	3.2	3.8	3.8	3.9					S	S	S		2.7	S	^{E}1.7^{s}	S
14			S			S	S			3.9	4.0	4.6	3.9	3.8	3.6	^{u}2.9^{q}		2.4	S	S	2.8	2.2	S	2.1
15	1.9	E	1.2			S		S	2.3^{q}	3.5	3.8	^{E}4.0^{s}	4.1	3.8	3.9	4.2	3.1	3.1	S		S		2.0	E
16	S	S	1.7		S	S	S	2.6	3.5	5.1	4.6	4.9	6.2	3.7	4.3	3.1	2.1^{q}	S		S	S	S		S
17	S	S	S				B	S	G	3.7	3.6	3.9		3.7	G	4.0	3.6	3.7	2.8	2.0		S	1.9	2.4
18	2.0	E			S	S	S		3.4	3.3	4.1	^{E}3.5^{s}	3.0^{q}	3.8	S	2.1^{q}	2.6	2.2	S	1.8	S	S	S	
19			1.5			S	S	3.0	5.3	5.2	5.2	3.9	4.5	3.6	3.6		3.1	B	2.0	2.2	2.0	2.0	S	2.0
20	S	2.0	1.9	1.4	1.7	2.0	B	2.8	2.9	3.3	2.5^{q}	3.8	3.8	3.6			2.6	S	1.8	E	S			S
21	2.0	E	E		1.9	S	B		3.0	3.6	3.7	3.7	3.8	3.8	3.7	2.9	2.7	2.0	2.8	E	1.8	2.0	S	S
22	S	S				S	C	C	3.5	^{u}2.8^{A}	3.5	3.8		G	3.6	3.1		S	S	S	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	3.2	3.8	4.2	4.5	3.5	2.9	2.5	2.1	1.8	2.2	2.0	2.5	2.0	S
24	S	S				S	S		3.2	3.3	3.5	3.5	3.5	3.0				S		E		S	^{u}2.4^{A}	2.2
25	S	1.6	2.7	1.2	1.7		2.5	3.6	5.4	5.1	4.1	7.4		3.2	3.1	3.2	S	^{u}3.4^{A}	4.4	A	2.7	3.7	2.6	2.4
26	1.9	2.0		S	S		S	2.2	3.3	5.0	4.0	3.6	5.1	7.0	6.3	5.8	7.0	6.2	3.6	4.0	2.2	2.5	2.0	2.1
27	2.6	A	1.5	1.7	1.8	1.7	S	2.3	2.9	4.3	3.2	3.4	3.6	4.5	3.1	2.2	2.4	1.9	1.9	1.8		1.8		S
28	S	1.9	E			S	1.8	2.0	3.1	3.3	5.3	3.4	2.7^{q}	2.6^{q}				B			S	2.4	2.0	2.0
29	1.8	1.9	3.0	2.5	2.4	2.6	1.8	2.1^{q}	2.9	3.3	^{E}4.3^{s}	5.6	4.2	5.4	5.4	4.2	2.3	S	E	E	S	S	S	E
30	S	S				S	1.9	2.3	3.0	3.2	5.0	5.2	5.0	5.2	2.9	3.2	3.9	2.7	2.2	E	1.8	2.1	A	3.5
31	2.5	1.8	1.9	1.4	1.5	B	B	S	3.9	4.1	4.0	4.2	5.5	4.2	3.6	5.0	^{u}3.5^{A}	2.1	A	5.0	4.6	2.1	3.1	A
No.	11	12	15	8	11	5	10	17	28	26	26	25	23	24	19	18	21	19	20	19	15	11	13	14
Median	2.0	1.8	1.7	1.4	1.7	1.9	2.0	2.8	3.2	3.5	3.7	3.9	3.9	3.8	3.6	3.2	3.1	2.4	2.4	2.2	2.1	2.2	2.0	2.1

foEs

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.20	E 1.70 S	E 1.50 S	1.60	1.20	E 1.80 S	2.00	E 1.80 S	1.90	2.05	2.20	2.25	2.50	2.20	1.90	2.05	1.95	E 2.10 S	E 2.10 S	1.65	1.55	E 2.00 S	E 1.70 S	E 1.80 S
2	E 1.70 S	1.50	1.20	1.45	1.25	1.35	1.35	1.70	1.80	2.00	2.30	2.20	2.50	2.10	2.30	2.10	2.00	E 1.60 S	E 1.60 S	E 1.50 S	E 1.70 S	E 1.70 S	E 1.70 S	E 1.80 S
3	E 1.50 S	E 1.50 S	E 1.45 S	1.30	1.00	E 1.40 S	E 2.20 S	E 1.90 S	2.05	1.90	2.20	2.00	2.40	2.30	2.20	1.90	1.70	E 1.70 S	1.40	E 1.80 S	E 1.55 S	E 1.50 S	E 1.80 S	E 1.50 S
4	E 1.70 S	E 1.50 S	1.00	1.20	1.05	E 1.50 S	1.80	E 2.10 S	2.20	2.20	2.30	2.25	2.20	2.25	2.10	1.95	1.80	1.10	1.40	E 1.60 S	E 1.70 S	1.40	E 1.80 S	E 1.80 S
5	E 1.60 S	1.30	1.10	1.10	1.05	E 1.90 S	1.70	E 1.85 S	E 1.80 S	2.20	2.70	2.20	2.50	2.20	2.20	2.05	I 1.80 C E	1.80 S	1.40	E 1.80 S	E 1.90 S	E 1.70 S	E 1.60 S	E 1.80 S
6	1.30	1.30	1.30	1.20	1.00	E 1.60 S	1.75	1.90	2.15	2.30	2.20	2.50	2.20	2.10	2.10	1.90	2.10	1.85	E 1.40 S	1.40	1.30	E 1.40 S	E 1.90 S	E 1.80 S
7	1.20	1.30	E 1.80 S	E 1.50 S	1.30	E 1.90 S	E 2.20 S	1.70	2.20	2.10	2.60	2.80	2.60	2.70	2.40	2.10	1.80	1.50	E 1.65 S	1.30	E 1.40 S	E 1.80 S	1.20	E 1.80 S
8	1.40	1.20	E 1.40 S	1.20	1.10	E 2.00 S	1.40	1.60	2.10	2.15	2.15	3.60	2.20	E 3.20 S	2.20	2.00	1.40	1.80	1.10	1.70	1.40	1.65	E 1.70 S	E 1.70 S
9	E 2.00 S	E 2.55 S	1.05	1.10	1.05	1.50	1.60	1.80	1.85	2.20	2.20	2.40	2.70	2.30	2.10	2.20	1.95	1.40	E 1.80 S	E 1.40 S	E 1.50 S	E 1.65 S	E 1.50 S	E 1.50 S
10	E 1.70 S	1.20	E 1.20 S	1.05	1.10	E 1.50 S	1.80	E 1.90 S	2.05	2.45	2.55	2.70	2.20	2.20	2.40	2.00	1.80	1.75	1.50	1.45	1.75	E 1.95 S	E 1.45 S	1.45
11	1.20	E 1.30 S	1.35	1.05	E 1.60 S	E 1.60 S	E 2.10 S	1.90	2.10	2.35	2.70	2.70	2.50	2.15	2.10	4.20	1.85	E 1.95 S	E 1.80 S	E 1.70 S	1.40	E 1.80 S	E 2.00 S	E 1.80 S
12	E 1.80 S	E 1.80 S	1.35	1.20	1.10	E 1.50 S	1.90	E 2.70 S	2.10	2.20	2.60	2.95	3.00	2.70	2.45	2.70	2.10	E 2.00 S	E 1.80 S	E 1.80 S	1.40	E 1.70 S	E 1.90 S	E 1.80 S
13	E 1.45 S	1.20	1.20	1.05	E 1.50 S	E 1.40 S	E 2.10 S	E 2.60 S	1.95	2.30	2.50	2.95	2.65	2.55	2.55	2.30	1.90	E 1.90 S	E 1.90 S	1.40	E 1.80 S	E 1.70 S	1.40	E 1.80 S
14	1.70	1.20	E 1.50 S	1.20	1.30	E 1.50 S	E 1.95 S	1.90	2.10	2.10	2.35	2.90	2.00	2.45	2.30	2.10	1.95	E 2.00 S	E 1.80 S	E 1.45 S	E 1.50 S	1.35	E 1.70 S	E 1.50 S
15	E 1.60 S	E 1.70 S	1.10	1.10	1.10	E 1.70 S	1.60	1.90	1.95	1.95	2.55	2.90	2.65	2.05	2.25	2.05	1.85	1.60	E 1.90 S	1.50	E 1.75 S	1.50	1.30	E 1.40 S
16	E 1.70 S	E 1.90 S	1.15	1.35	E 1.75 S	E 1.60 S	E 1.80 S	1.85	1.95	2.80	2.80	2.30	2.35	2.20	2.10	1.85	1.60	E 1.90 S	1.40	E 1.50 S	E 1.80 S	E 1.80 S	1.30	E 1.80 S
17	E 1.90 S	E 1.90 S	E 1.70 S	1.00	1.10	1.30	1.60	1.75	1.90	2.25	2.10	2.45	2.90	2.50	2.10	2.00	1.80	1.70	E 1.60 S	E 1.50 S	1.60	E 1.60 S	E 1.70 S	E 1.70 S
18	1.50 S	1.20	1.10	1.05	E 1.50 S	E 1.90 S	E 1.80 S	2.00	1.95	2.10	2.20	2.65	2.10	2.00	E 5.60 S	1.80	1.65	E 1.80 S	E 1.80 S	E 1.50 S	E 1.80 S	E 1.80 S	E 1.90 S	1.45
19	1.40	1.40	E	1.10	1.15	E 1.90 S	E 1.80 S	E 1.80 S	1.90	2.05	2.40	2.10	2.20	2.20	2.00	2.05	1.50	1.80	E 1.80 S	1.45	1.40	1.30	E 1.40 S	E 1.50 S
20	E 1.50 S	E 1.60 S	1.05	1.00	1.10	E 1.50 S	1.80	1.90	1.40	2.00	2.10	2.05	2.10	2.20	2.00	1.80	1.80	E 2.00 S	1.50	E 1.50 S	E 1.80 S	1.20	1.50	E 1.70 S
21	E 1.40 S	1.50	1.10	1.00	1.00	E 1.50 S	1.90	E 1.95 S	1.80	1.80	2.20	2.20	2.45	2.30	2.10	1.90	1.80	1.60	1.60	E 1.80 S	E 1.70 S	E 1.70 S	E 1.80 S	E 1.80 S
22	E 1.80 S	E 1.50 S	1.10	1.00	1.20	E 1.80 S	E 2.00 C	C	2.00	2.15	2.00	2.05	2.40	2.20	2.20	1.90	2.00	E 1.90 S	E 1.80 S	E 1.70 S	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	2.05	2.30	2.20	2.20	2.25	2.05	1.70	1.70	1.65	1.30	E 1.70 S	1.15	E 1.70 S	E 1.85 S
24	E 1.70 S	E 1.50 S	1.25	1.05	1.05	E 1.75 S	E 1.70 S	E 2.05 S	1.80	2.00	2.10	2.20	2.25	2.15	2.05	2.15	2.00	1.85 S	1.30	1.60	1.50	E 1.90 S	1.40	1.40
25	E 1.80 S	E 1.50 S	1.05	1.00	1.05	1.25	1.30	1.75	1.65	1.95	2.00	2.25	2.25	2.10	1.90	1.90	E 2.20 S	1.50	1.35	E 1.90 S	1.30	E 1.70 S	1.50	E 1.70 S
26	E 1.55 S	E 1.50 S	1.20	E 1.80 S	E 1.55 S	1.50	E 1.60 S	E 1.80 S	1.80	2.05	2.10	2.90	2.40	2.30	2.10	2.10	2.00	2.15	1.40	1.40	1.60	1.75	E 1.85 S	E 1.60 S
27	E 1.90 S	1.45	1.10	E	E	E 1.70 S	E 1.80 S	E 1.80 S	1.90	1.90	2.10	1.90	2.25	2.10	I 2.00 C	1.85	1.75	1.55	1.55	1.70	1.40	E 1.65 S	1.50	E 1.70 S
28	E 1.80 S	E 1.85 S	E	1.00	1.10	E 1.70 S	E 1.70 S	1.45	1.65	2.00	2.20	2.10	2.20	2.05	1.90	1.85	E 1.80 S	1.70	1.30	1.20	E 1.90 S	E 1.40 S	1.30	E 1.70 S
29	1.20	E 1.60 S	1.30	1.40	1.10	E 1.45 S	E 1.40 S	E 1.80 S	1.95	2.00	2.25	2.10	2.05	2.20	1.95	2.00	1.65	E 2.05 S	1.75	1.60	E 1.90 S	E 1.90 S	E 1.85 S	1.65
30	E 1.85 S	E 1.90 S	1.60	1.05	1.15	E 1.70 S	1.50	E 2.00 S	2.00	2.10	1.95	2.25	2.20	2.20	1.95	1.85	1.55	1.50	1.30	1.65	1.20	1.55	1.40	1.40
31	E 1.75 S	1.35	1.35	E	1.00	E 1.60 S	E 1.90 S	E 2.50 S	1.85	1.65	2.10	2.10	2.00	2.05	2.15	1.80	2.20	1.80	1.75	1.80	E 1.80 S	1.60	1.50	E 1.80 S
No.	30	30	23	28	25	30	30	29	30	30	31	31	31	30	30	31	30	20	18	18	30	30	30	30
Median	E 1.65	E 1.50	1.10	1.10	1.10	E 1.60	E 1.80	E 1.90	1.95	2.10	2.20	2.25	2.25	2.20	2.10	2.00	1.80	E 1.70	1.40	1.45	E 1.60	E 1.70	E 1.65	1.70

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

Oct. 1960

(M3000)F2

135° E Mean Time (G.M.T.+ 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

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

The Radio Research Laboratories, Japan.

(M3000)F2

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

K 7

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L	A	A	L	A	L								
2							A	3.15	A	"3.00"	3.55"	3.65"	L	L	L									
3											L		L											
4										L	L	L	L	L										
5										L	L	L	L	L			C							
6										L	L	L	L	L		L								
7									3.35	3.65	3.20	A	A				A							
8									L		S	A	L	L	A	L								
9											L	L	L	L										
10										L	L	L	L	L	L		A							
11										L	L	L	L	L	L									
12										L	L	L		L										
13											L	L	L	L	L									
14											L	A	L	L										
15											L	S	L	S	L	L	L							
16										A	L	L	A	L										
17									L		L	L		"3.60"										
18										L	L	L	L	L	C									
19										L	A	L		L										
20											L	L		L										
21											L	L	L											
22											L	L	L	L	L									
23										C	L	L												
24												L	L	L	L									
25												A	L	L										
26										A	L	L		A	A	A	A	A						
27												L												
28										L	A	L		L	L									
29										L														
30										L														
31										L														
No.								1	1	2	2	1		1										
Median								3.15	3.35	"3.30	3.40	3.65		"3.60										

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Oct. 1960 | h'F2 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									z80[L]	z60	z50	z50	z75	z85	z60	z50								
2							405	380	415	430[A]	360	350	z80	z50	z60									
3											z60		z50											
4										z50	z50	z50	L	z30										
5										z50	z80	z55	z60	z55			C							
6										z50	z60	z50	z55	z50		300								
7									G	G	G	A	A				[E]z80[A]							
8									z50		z50	z50	z45	z55	z55	z45								
9											z45[H]	z45	L	z55										
10										z50	z55	z50	L	300	z80[A]		z50							
11										z40	z60	z60	z60	305	z60									
12										z50	z50	z55		z75										
13											z50	z55	z50	z55	z80									
14											z55	z50	z55	z55										
15											z55	z55	z90	z70	300	300	z75							
16										z50	z50	z60	[E]z80[A]	z55										
17									z50		z30[H]	z55		300										
18										z50	z45	z50	z60	z60	[E]300[C]									
19										z55	z55	z50		z60										
20											z30[H]	z40		z75										
21											z50	z55	z55											
22											z50	z55	z50	z55	z55									
23										C	z55	z50												
24												z55	z55	z80	z55									
25												z55	z60	z65										
26										z50	z55	z55		[E]z95[AE]	z50[AE]	z50[AE]	z60[AE]	[E]z95[A]						
27												z55												
28										z55	z50	z50		z50	z50									
29										z60														
30										z55														
31																								
No.							1	1	5	16	25	26	15	22	11	5	3	1						
Median							405	380	z80	z50	z50	z55	z55	z60	z60	z50	[E]z60	[E]z95						

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

The Radio Research Laboratories, Japan.

K 9

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	z75	335	300	z70	z80	300	z45	z45	z45	z50	z45	A	A	z35^{A}	I z30^{A}	z25	z45	z45	z50	z50	z45	z50	305	z85
2	305	355	360	345	350	315	I 330^{A}	z75	I z55^{A}	z20	z10	z05	z50	z25	z30	z30	z50	z40	z50	z70	325	z55	z50	300
3	z90	350	345	z75	320^{A}	320	z60	z45	z50	z35	z05	z50	z20	z50	z50	z50	z50	z45	z35	z05	z55	z45	z80	z55
4	z70	z55	z55	z85	300	z95	z45	z35	z20	z05	z30	z05	z00	z00	z25	z25	z50	z45	z30	z30	z10	z20	300	300
5	z90	z95	350	405	420	410	z50	z40	z25	z20	z10	z20	z05	z20	z20	z30	I z50^{C}	z35	z20	z30	z50	z50	z80	305
6	310	320	300	z90	z85	300	z40	z40	z30	z10	z05	z00	z05	z05	z30^{H}	z50	z50	z30	z10	z45	z85	z80	300	E 300^{S}
7	365	z50	450	z55^{H}	440	E 740^{S} E 400^{S}	I z80^{A}		z50	z50	z60	A	A	z50^{H}	z55^{A} E	z90^{A}	I z50^{A}	z45	300^{A}	320	320	z60	340	350
8	345	325	355	350	z60	310	z25	z10	z30	z05	z00	I z10^{A}	z05	z10	z10	z30	z55	z45	E z70^{A}	z55	z50	z55	330	z60
9	305	z75	z70	z55	z60	310	z50	z30	z50	z20	z00	z00	z40	z30	z35	z45	z45	z45	z50^{A}	z45	z50	z70	300	310
10	325	z85	300	310	305	310	z35	z30	z30	z30	z20	z25	z45	z25	z40	z45	I z50^{A}	z25	z50^{A}	z55	z80	300^{A}	z60^{A}	z55
11	z95	z95	305	300	300	300	z40	z40	z30	z30	z10	z05	z25	z30	z40	z50	z50	z30	z30	z55	z40	z95	z95	z90
12	z75	300	z95	z60	z45	z30	z30	z30	z30	z30	z20	z25	z45	z50	z55	z50	z45	z45	z40	z80	z60	z60	z60	z55
13	300	z55	z60	z70	z50	z95	z45	z30	z40	z30	z10	z10	z25	z20	z50	z50	z45	z45	z30	z45	z60^{A}	z55	z95	z75
14	z75	z90	z95	z85	z60	300	z45	z40	z45	z30	z30	A	z20	z30	z30^{H}	z45	z50	z40	z25	z50	300	z65	z55	z95
15	305	305	z95	z60	z50	z55	z40	z10	z30	z30	z25	I z25^{S}	z45	z25	z55	z55	z50	z45	z30	z50	z50	z55	330	350
16	320	z95	z45	z55	405	370	z30	z35	z45	I z45^{A}	z30	z40^{A}	I z40^{A}	z30	z50	z50	z50	z30	z10	z45	z50	z55	z90	330
17	350	325^{S}	z50	z45	z30	z60	z50	z40	z20	z05	z05	z05	z30^{H}	z05	z55	z50	z45	z35	z30	z50	z50	z45	z80	300^{A}
18	z95	z95	z90	z50	z95	305	z50	z40	z45	z30	z25	E z40^{S}	z00	z30	I z45^{C}	z50	z30	z10	z25	z55	z60	z55	300	z80
19	z40	z55	z95	330	z90	370	z50	z30	z30	E z45^{A}	I z30^{A}	z25	z30	z25	z50	z50	z30	z30	z25	z45	z40	z50	z55	300
20	300	305	300	325	300	350	z45	z20	z25	z25	z05	z25	z20	z05	z45	z40	z45	z05	z40	z45	z25	z45	z60	z90
21	300^{A}	300	305	z70	305	z55	z30	z30	z30	z30	z20	z30	z25	z45	z50	z45	z30	z20	z40	z50	z55	z55	z50	z50
22	z90	300	z95	z60	z50	330	U z50^{C}	I z30^{C}	z30	z40	z25	z05	z15	z05	z30	z40	z20	z10	z10	z40	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	z25	z10	z50	z50	z50	z45	z35	z20	z05	z25	z90	300	z80	z80
24	z55	z80	z75	z55	z35	z75	z30	z30	z25	z30	z25	z00	z05	z20	z40	z40	z30	z15	z10	z50	z45	z50	305	300
25	z55	z55	E 300^{A}	400	380	400	z65	z30	z50	z45	z45	A	z15	z20	z45	z30	z45	z25^{A} E	300^{A}	A	z95	z65	z80	350
26	305	z55	z55	355	470	405	z05	z25	z55	A	z30	z30	E z55^{A}	A	A	A	A	A	z55	E z50^{A}	z50	z55	z50	300
27	300	I z70^{A}	305	300	355	300	z75	z45	z50	z50	z30	z05	z30	z50	z30	z25	z45	z30	z05	z25	z75	z55	z80	310^{H}
28	z60	300	z40	355	360	400	z75	z45	z25	z10	I z40^{A}	z10	z30	z30	z25	z30	z25	z05	z40	z90	z50	z50	310	305
29	340	310	300^{A} E	310^{A}	E 410^{A} E	450^{A}	z90	z25	z30	z30	z50	E z50^{S}	z35	E z55^{A} E	z50^{A}	z30	z30	z40	z30	z50	z50	z55	z20	z70
30	335	z60	z45	375	390	350	z55	z50	z25	z10	E z50^{A} E	z50^{A}	z30	z40	z15	z20	z20	z55	z45	z80	z45	z50	I z65^{A} E	450^{A}
31	E 350^{A}	300	310	325	300	330	z75	z45	z45	z10	z30	z20	E z45^{S}	z45	z35	z30	z10^{A}	z10	A	E 410^{A} E	325^{A}	z50	E 345^{A}	I 305^{A}
No.	z9	30	z9	z9	z9	z8	z9	30	30	z8	30	z4	z7	z9	z9	z9	30	30	z8	z8	z9	30	z9	z9
Median	300	z95	z95	z85	300	310	z45	z35	z30	z30	z25	z10	z25	z30	z40	z45	z45	z30	z30	z50	z50	z55	z80	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. 1960 | h'Es | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	S	105	E	E	S	B	S	135	115	125	105	105	105	100	G	G	S	S	E	E	S	S	S
2	S	E	110	E	125	110	105	115	105	105	130	G	180	G	G	G	180	150	130	115	S	S	S	S
3	S	105	105	E	100	105	S	S	130	140	125	G	G	150	175	110	130	135	120	S	105	S	S	S
4	S	S	E	100	E	S	150	140	G	115	G	G	G	G	G	G	S	120	E	S	S	E	S	S
5	S	E	E	E	E	S	150	125	125	115	G	G	G	G	G	G	C	G	105	S	S	S	S	S
6	E	E	E	E	130	S	B	G	110	G	105	105	105	G	G	G	G	B	105	E	E	S	S	S
7	E	E	S	S	E	S	S	130	125	110	125	105	105	145	125	120	115	110	110	110	S	S	105	S
8	E	E	E	E	E	S	145	140	130	G	G	110	110	105	110	G	130	115	110	105	105	E	S	S
9	S	S	E	E	110	S	110	105	105	G	G	G	G	G	G	G	150	125	110	S	105	S	105	105
10	110	100	105	100	105	S	150	135	140	G	125	110	110	105	G	150	125	115	110	105	105	105	105	100
11	100	S	100	100	S	S	S	140	130	110	110	110	105	G	G	B	105	S	S	S	E	S	S	S
12	S	S	E	E	E	S	B	S	110	110	105	150	130	125	120	120	115	110	105	105	105	S	S	100
13	100	E	E	E	S	S	S	S	150	140	140	125	G	G	G	G	S	S	S	E	110	S	110	S
14	E	E	S	E	E	S	S	G	G	125	100	115	115	110	110	110	G	105	S	S	100	100	S	105
15	105	105	100	E	E	S	G	S	105	130	135	125	115	125	110	110	110	110	S	E	S	E	105	110
16	S	S	105	E	S	S	S	125	120	110	110	110	105	105	105	105	105	S	E	S	S	S	E	S
17	S	S	S	E	E	E	B	S	130	110	110	110	G	140	E 180 G	145	130	115	110	105	E	S	105	100
18	105	105	E	E	S	S	S	G	115	115	110	110	105	160	S	105	100	105	S	105	S	S	S	E
19	E	E	100	E	E	S	S	120	110	110	110	105	105	100	100	G	100	B	100	105	100	100	S	105
20	S	100	100	100	105	105	B	155	105	105	105	110	125	125	G	G	E 195 G	S	100	105	S	E	E	S
21	105	105	105	E	100	S	B	G	125	125	115	110	110	110	110	110	110	105	105	110	105	100	S	S
22	S	S	E	E	E	S	C	C	110	105	130	130	G	130	E 200 G	E 200 G	G	S	S	S	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	105	105	105	100	105	115	110	105	100	100	100	100	100	S
24	S	S	E	E	E	S	S	G	120	120	110	105	110	110	G	G	G	S	E	120	E	S	100	100
25	S	105	100	105	100	E	120	110	110	105	105	105	G	105	110	105	S	105	100	100	110	105	105	105
26	115	105	E	S	S	E	S	115	110	105	110	105	105	105	105	105	105	105	105	105	105	110	105	105
27	105	105	105	105	100	100	S	145	120	110	105	110	110	105	110	105	115	105	105	105	F	105	E	S
28	S	105	105	E	E	S	125	125	105	110	105	105	105	100	G	G	G	B	E	E	S	110	110	110
29	105	110	100	100	105	105	100	100	145	115	120	105	105	105	110	105	105	S	105	105	S	S	S	110
30	S	S	E	E	E	S	135	125	145	110	100	100	100	100	105	105	105	105	105	105	105	105	105	100
31	100	100	100	100	100	B	B	S	105	105	100	100	100	100	115	105	105	105	100	100	100	100	100	100
No.	11	12	15	8	11	5	10	17	28	26	27	26	23	24	17	17	20	19	20	18	14	11	13	14
Median	105	105	105	100	105	105	130	125	120	110	110	110	105	105	110	110	110	110	105	105	105	105	105	105

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

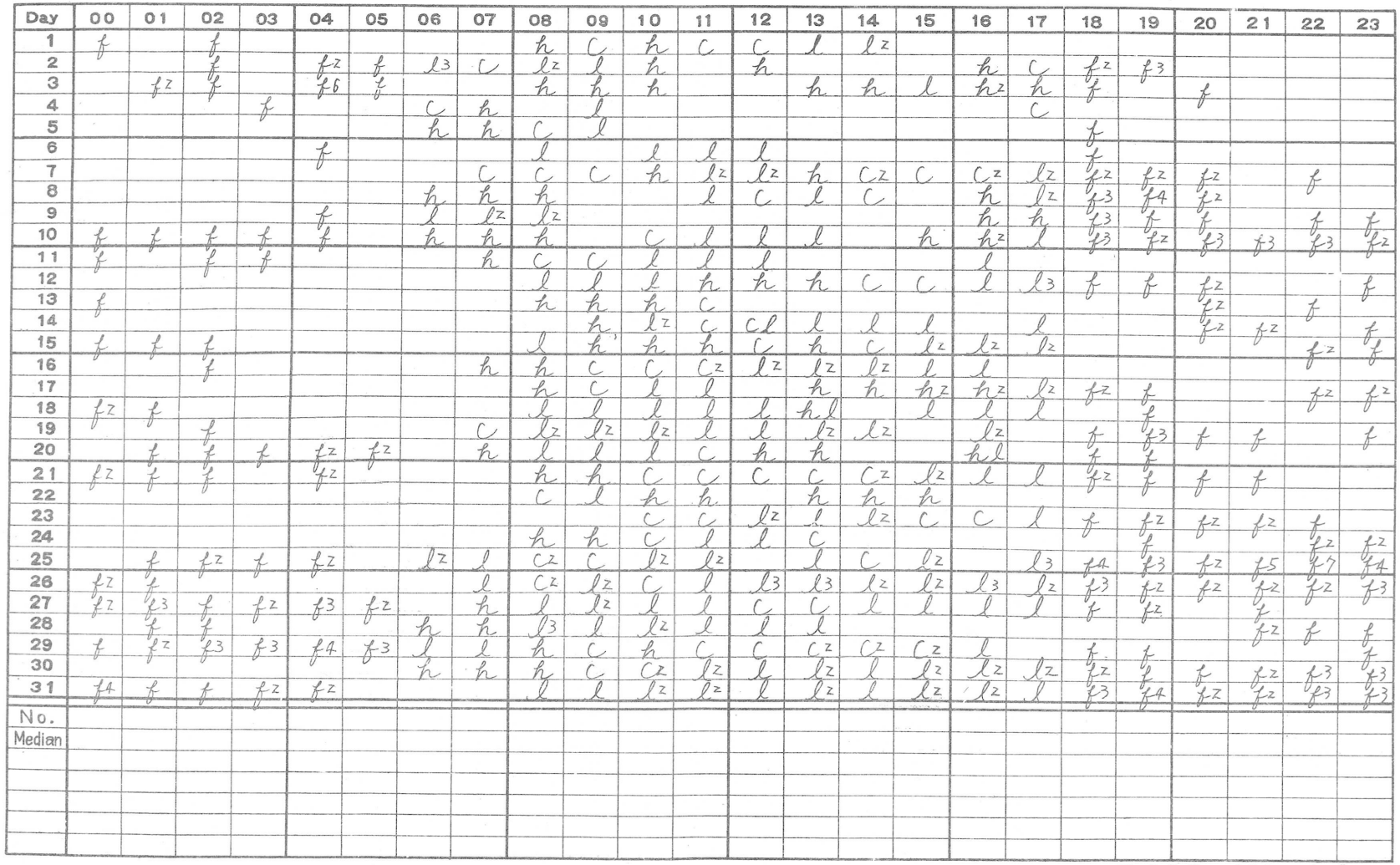
Oct. 1960

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E



Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f		f						h	C	h	C	C	l	l z									
2			f		f z	f	l 3	C	l z	l	h		h				h	C	f z	f 3				
3		f z	f		f 6	f			h	h	h			h	h	l	h z	h	f		f			
4				f			C	h		l								C						
5							h	h	C	l									f					
6					f				l		l	l	l						f					
7								C	C	C	h	l z	l z	h	C z	C	C z	l z	f z	f z	f z		f	
8							h	h	h			l	C	l	C		h	l z	f 3	f 4	f z			
9					f		l	l z	l z								h	h	f 3	f	f		f	f
10	f	f	f	f	f		h	h	h		C	l	l	l		h	h z	l	f 3	f z	f 3	f 3	f 3	f z
11	f		f	f				h	C	C	l	l	l				l							
12									l	l	l	h	h	h	C	C	l	l 3	f	f	f z			f
13	f								h	h	h	C									f z		f	
14										h	l z	C	C l	l	l	l		l			f z	f z		f
15	f	f	f						l	h	h	h	C	h	C	l z	l z	l z					f z	f
16			f					h	h	C	C	C z	l z	l z	l z	l	l						f z	f
17									h	C	l	l		h	h	h z	h z	l z	f z	f			f z	f z
18	f z	f							l	l	l	l	l	h l		l	l	l		f				
19			f					C	l z	l z	l z	l	l	l z	l z		l z		f	f 3	f	f		f
20		f	f	f	f z	f z		h	l	l	l	C	h	h			h l		f	f				
21	f z	f	f		f z				h	h	C	C	C	C	C z	l z	l	l	f z	f	f	f		
22									C	l	h	h		h	h	h								
23											C	C	l z	l	l z	C	C	l	f	f z	f z	f z	f	
24									h	h	C	l	l	C						f			f z	f z
25		f	f z	f	f z		l z	l	C z	C	l z	l z		l	C	l z		l 3	f 4	f 3	f z	f 5	f 7	f 4
26	f z	f						l	C z	l z	C	l	l 3	l 3	l z	l z	l 3	l z	f 3	f z	f z	f z	f z	f 3
27	f z	f 3	f	f z	f 3	f z		h	l	l z	l	l	C	C	l	l	l	l	f	f z		f		
28		f	f				h	h	l 3	l	l z	l	l	l								f z	f	f
29	f	f z	f 3	f 3	f 4	f 3	l	l	h	C	h	C	C	C z	C z	C z	l		f	f				f
30							h	h	h	C	C z	l z	l	l z	l	l z	l z	l z	f z	f	f	f z	f 3	f 3
31	f 4	f	f	f z	f z				l	l	l z	l z	l	l z	l	l z	l z	l	f 3	f 4	f z	f z	f 3	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. 1960 | hpF2 | 135° E Mean Time (G.M.T.+ 9h.) | **Kokubunji Tokyo** | Lat. 35° 42.4' N, Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	400	410	395	390^{s}	385	395	300	^{u}335^{s}	350	340	300^{R}	305	315	335	305	z95	z85	z95^{s}	350^{s}	310	340^{R}	^{u}320^{s}	420	400
2	455	455^{su}	460^{s}	^{u}500^{s}	^{u}470^{s}	395	400	385^{s}	A	G	370	355	305	320	330	300	300	300	305	335	425	330	335	400
3	400	405	405	^{u}400^{s}	380	400	335	^{u}300^{s}	300	305	315	300^{R}	305	310	305	J305^{s}	300^{s}	300	J300^{s}	Jz80^{s}	315	305	350	420
4	350	305	I350^{s}	390	400^{s}	355	z90	z85	z80	z95	300	300	315	305	305	305	^{u}305^{s}	^{u}300^{s}	z95^{s}	300^{s}	z80	330	365	360
5	360	375	430	495	535^{s}	^{u}455^{s}	350^{s}	z80	305	330	345	350	310	305	305	305^{s}	I300^{C}	J300^{s}	300^{s}	305	340	355	375	400
6	410	405	400	J355^{s}	I380^{s}	^{u}400^{s}	z95	^{u}z90^{s}	z90	305	350	305	315	345	395^{H}	390	305^{s}	300	355	350	400	350	385	500^{H}
7	455	z95^{s}	545	495^{H}	505	605^{s}	410	I z90^{A}	G	G	G	A	A	300^{H}	300	385	310^{s}	310	390	430	440	350	415	420
8	415	I440^{F}	I450^{F}	I430^{F}	330	^{u}345^{s}	J z55^{R}	z60	z75	z50	300	305	320^{R}	340	^{u}340^{R}	325	300	z80^{s}	310	330	310	325	395	350
9	375	380	370^{s}	340^{s}	400	360^{s}	z95	300^{s}	z70	300	330	300	350	320	330	305	305	300	300	345	310	395	395	400
10	395	355^{s}	400^{s}	405	410	I395^{s}	z85	z80	300	300	305	310	355	350	350	320	305	300	305	325	350	345	310	z90
11	355	355	390	360^{s}	360^{s}	355	z95	z80	z75	z95	310	335	335	350	335	340	305	300	305^{s}	355^{s}	305	380	355	360
12	380	385	^{u}390^{s}	350	J305^{s}	300	z90	^{u}300^{s}	300^{R}	305	330	345	350	350	335	325	310	^{u}300^{s}	305	350	330	^{u}330^{s}	320	350
13	390	350	350	355	305	^{u}390^{s}	300^{s}	z90^{s}	300	310	320	325	355	350	350	335	325	J310^{s}	305	J330^{s}	320	350	370	355
14	355	380	390	385	385	375	I300^{s}	^{u}300^{s}	z90	305	310	330	350	355	360^{H}	350	315	300	300	350	355	J335^{s}	345	355
15	395	385	360	350	340	350	^{u}300^{s}	^{u}z55^{s}	^{u}300^{s}	315	310	330	355	350	350	350	345	300	z95^{R}	350^{R}	380^{s}	390^{s}	435	450
16	420^{s}	380	^{u}325^{s}	420^{s}	495^{s}	475^{s}	310^{s}	^{u}270^{s}	300^{s}	305	330	355	355	J355^{R}	345	350	315	300	z95	330	330	350	400	410
17	415	400	305	305	300	390	310	J z95^{s}	300	300	305^{H}	335	380^{H}	355	335	325	305	300	305	330	320	305	355	365
18	355	385	355^{s}	340^{s}	^{u}355^{s}	I490^{s}	305^{s}	^{u}z95^{s}	z95	300	330	345	350	355	335	325	305	^{u}305^{s}	335	J335^{s}	350	350	395	355
19	320	355	J390^{s}	425	385	^{u}450^{s}	325	330	300	330	^{u}320^{R}	J330^{R}	350	350	330	305	300	300	300	300	300	305	315	350
20	395	380	380^{s}	420^{s}	400	405^{s}	300	I z70^{s}	z80	z70	305	300	350	335	310	305	300	^{u}300^{s}	300	305	300	325	355	395
21	380	360	400^{s}	350	395	300^{s}	305	z95	300	300	305	335	350	335	330	305	300	300	300	305	330	300	315	305
22	350	380	380	350	315	390	^{u}z95^{C}	I z75^{C}	z90	^{u}z90^{R}	300	325	305	305	305	300	J300^{s}	z95	300	300	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	300	300	300	305	300	^{u}z95^{s}	Jz95^{s}	350^{s}	z50	305	385	350	345	315
24	340	350^{s}	365	^{u}345^{s}	340^{s}	345^{s}	z95	z50	z55	z90	300	300	305	320	300	300	Jz75^{s}	z55^{s}	300	320	330	340	355^{s}	350^{s}
25	345	350^{s}	340	500	450	^{u}460^{s}	315	z60	300^{s}	350	305	305	^{u}325^{s}	J305^{s}	J305^{s}	300	300	z90^{s}	325	I360^{A}	350^{su}	345^{s}	400	430
26	365	390	^{u}390^{s}	^{u}405^{s}	550^{s}	^{u}550^{F}	^{u}305^{s}	^{u}350^{s}	355	^{u}z90^{s}	310	305	345	J330^{s}	310	z95	300	J330^{s}	^{u}320^{s}	I z70^{R}	375	J340^{s}	355	395
27	370	I350^{A}	^{u}390^{s}	420^{s}	^{u}450^{s}	395	355^{s}	z95^{s}	315	^{u}300^{s}	z95	300^{s}	J300^{s}	z95^{s}	z90	z85^{s}	z95	^{u}z80^{s}	Jz55^{s}	355	340	z95	360	450^{H}
28	755	345	320	520	550	445^{s}	350^{s}	z75	z55^{s}	300	315	300	305	300	300	300	300	z80	305	365	300^{s}	z90	395	380
29	395	400	^{u}305^{s}	400	450	480	330	^{u}z65^{s}	300	300	^{u}z90^{s}	J z90^{s}	z80	300	z80	J z70^{s}	z90	z80^{s}	z95^{s}	300	345	325	z75	350
30	405	355^{s}	390	470^{s}	475	425^{s}	345^{s}	300	z75	z65	z80	z75^{s}	z55	z80	z80^{s}	z95	z55	z85	325	315	z60^{s}	z70	I300^{A}	A
31	400	355	400	405	400	405	305^{s}	z95^{s}	z95	z50	300	z95	z85	300	z80	J z95^{R}	z70	z60^{s}	I300^{A}	I310^{A}	315	300	350	I335^{A}
No.	30	30	30	30	30	30	30	30	z8	z8	30	30	30	31	31	31	31	31	31	31	30	30	30	z9
Median	385	380	390	400	400	395	305	z90	300	300	310	305	320	330	310	305	300	300	300	330	330	330	355	365

hpF2

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	90	100	105^{S}	110	105	100	^{u}70^{S}	95	155	155^{R}	135	135	115	95	95	160	130^{S}	105^{S}	120	125^{R}	^{u}130^{S}	90	95
2	95	115^{S}	^{u}90^{S}	^{u}100^{S}	^{u}130^{S}	95	100	100^{S}	A	G	60	95	100	125	70	60	55	50	90	110	120	75	115	100
3	135	100	140	^{u}100^{S}	70	100	70	^{u}95^{S}	95	95	80	95^{R}	95	85	95	^{J}90^{S}	95^{S}	85	^{J}95^{S}	^{J}65^{S}	90	95	105	125
4	95	95	^{I}100^{S}	105	100^{S}	95	65	60	50	60	50	50	80	80	90	90	^{u}85^{S}	^{u}45^{S}	60^{S}	95^{S}	75	115	90	135
5	90	90	75	100	60^{S}	^{u}95^{S}	145^{S}	70	95	115	100	90	90	85	95	90^{S}	^{I}90^{C}	^{J}95^{S}	55^{S}	140	105	100	80	100
6	140	90	100	^{J}85^{S}	^{I}90^{S}	^{u}55^{S}	95	^{u}60^{S}	65	90	55	90	85	100	95^{H}	105	90^{S}	90	140	100	95	85	110	100^{H}
7	95	65^{S}	100	105^{H}	95	200^{S}	135	^{I}80^{A}	G	G	G	A	A	145^{H}	100	115	90^{S}	135	110	160	110	80	125	110
8	90	^{I}120^{F}	^{I}135^{F}	^{I}100^{F}	70	^{u}95^{S}	^{J}80^{R}	90	55	150	100	145	135^{R}	110	^{u}140^{R}	130	100	115^{S}	120	115	95	105	95	110
9	75	80	80^{S}	65^{S}	100	90^{S}	95	100^{S}	125	55	70	55	70	85	70	90	90	55	100	100	95	110	100	145
10	70	140^{S}	100^{S}	95	95	^{I}100^{S}	70	75	55	55	75	95	130	55	85	75	90	55	100	120	145	90	85	65
11	90	140	105	85^{S}	95^{S}	90	60	65	45	55	90	110	105	80	100	70	90	80	90^{S}	90^{S}	90	75	75	135
12	105	70	^{u}105^{S}	65	^{J}90^{S}	95	90	^{u}55^{S}	55^{R}	85	70	60	95	95	70	80	90	^{u}95^{S}	135	95	90	^{u}75^{S}	80	105
13	105	90	100	75	90	^{u}75^{S}	80^{S}	60^{S}	55	85	85	80	90	95	75	110	115	^{J}85^{S}	95	^{J}90^{S}	85	100	85	100
14	125	115	105	110	75	80	^{I}100^{S}	^{u}90^{S}	55	90	85	110	100	105	95^{H}	80	85	80	95	100	85	^{J}95^{S}	100	90
15	90	75	90	70	65	95	^{u}90^{S}	^{u}75^{S}	^{u}100^{S}	125	105	120	115	100	120	125	105	125	115^{R}	120^{R}	115^{S}	110^{S}	105	100
16	100^{S}	85	^{u}125^{S}	130^{S}	105^{S}	115^{S}	170^{S}	^{u}130^{S}	100^{S}	75	75	75	75	^{J}95^{R}	85	95	85	95	60	115	110	145	95	95
17	85	85	90	85	100	110	95	^{J}55^{S}	90	50	85^{H}	65	105^{H}	75	95	105	90	95	90	75	110	100	130	115
18	110	65	75^{S}	105^{S}	^{u}90^{S}	^{I}80^{S}	90^{S}	^{u}95^{S}	55	75	75	55	105	100	95	75	100	^{u}95^{S}	105	^{J}120^{S}	95	110	100	90
19	110	95	^{J}105^{S}	75	70	^{u}105^{S}	120	115	50	70	^{u}80^{R}	^{J}75^{R}	80	55	65	95	95	85	90	105	90	85	95	95
20	75	110	110^{S}	125^{S}	95	95^{S}	95	^{I}65^{S}	55	70	95	100	90	70	90	100	90	^{u}110^{S}	90	90	90	75	95	105
21	115	95	95^{S}	90	95	100^{S}	100	50	55	80	90	70	55	70	70	75	80	95	95	90	70	95	90	90
22	100	115	110	100	90	100	^{u}100^{C}	^{I}90^{C}	40	^{u}65^{R}	80	65	80	90	75	95	^{J}90^{S}	55	95	95	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	80	105	100	100	95	^{u}105^{S}	^{J}95^{S}	100^{S}	150	100	85	100	95	95
24	85	85^{S}	80	^{u}95^{S}	95^{S}	105^{S}	105	95	120	110	95	95	100	80	130	95	^{J}130^{S}	100^{S}	125	100	90	105	95^{S}	95^{S}
25	100	140^{S}	100	95	90	^{u}95^{S}	130	140	100^{S}	95	110	95	^{u}85^{S}	^{J}100^{S}	^{J}100^{S}	100	95	110^{S}	105	^{I}95^{A}	125^{S}	^{u}110^{S}	145	115
26	120	110	^{u}110^{S}	^{u}100^{S}	105^{S}	^{u}90^{F}	^{u}150^{S}	^{u}135^{S}	120	^{u}110^{S}	135	100	130	^{J}120^{S}	90	100	110	^{J}110^{S}	^{u}120^{S}	^{I}135^{R}	115	^{J}130^{S}	120	105
27	125	^{I}140^{A}	^{u}105^{S}	105^{S}	^{u}100^{S}	95	120^{S}	130^{S}	115	^{u}100^{S}	95	105^{S}	^{J}100^{S}	105^{S}	105	145^{S}	105	^{u}120^{S}	^{J}135^{S}	120	105	105	70	100^{H}
28	95	95	110	80	85	105^{S}	110^{S}	120	145^{S}	55	80	55	75	90	50	55	45	70	90	90	55^{S}	105	100	115
29	95	95	^{u}90^{S}	80	95	115	70	^{u}70^{S}	50	100	^{u}110^{S}	^{J}110^{S}	115	90	90	^{J}105^{S}	110	115^{S}	100^{S}	100	105	105	95	95
30	95	125^{S}	110	120^{S}	95	^{u}85^{S}	135^{S}	100	75	80	75	85^{S}	95	70	90^{S}	100	95	85	120	90	95^{S}	105	^{I}105^{A}	A
31	95	60	80	90	95	70	95^{S}	105^{S}	100	100	95	60	75	75	75	^{J}90^{R}	110	120^{S}	^{I}110^{A}	^{I}105^{A}	90	95	95	^{I}100^{A}
No.	30	30	30	30	30	30	30	30	28	28	30	30	30	31	31	31	31	31	31	31	30	30	30	29
Median	95	95	100	100	95	95	100	90	70	85	85	90	95	90	90	95	90	95	100	100	95	100	95	100

ypF2

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

The Radio Research Laboratories, Japan.

K 14

IONOSPHERIC DATA

Oct. 1960 | 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	J6.4S	5.6	5.5	5.5	5.0	4.4	4.9	7.3S	J9.9SH	13.8H	13.5SH	11.7	13.4	I14.7S	13.8	13.2H	11.1	I11.4S	10.7	9.5S	J7.8S	6.9S	J5.5SH	5.2S
2	4.8	4.5	4.4	4.5	4.4	I4.7S	4.7	5.3H	5.9H	6.2H	7.1H	8.5H	J10.1SH	J10.2SH	10.8H	10.3H	9.2	J10.1S	J10.5S	J10.2S	I8.1	8.7	6.7	5.4
3	5.2S	4.3	4.2	4.3	4.1	4.2	I5.9C	I9.0C	10.9	12.8	13.1	U14.8SH	14.7H	11.6	12.3	12.8	12.2	12.3S	J11.8S	11.1	8.7	J8.1S	6.3	5.9
4	5.4	5.2	4.5	4.4	4.0	4.1	4.8	8.8	11.9	12.8	11.5H	11.3	12.4H	12.7	12.5	12.1H	11.6	11.2S	I11.3S	I9.6S	6.6	5.4	5.2	5.1
5	4.9	4.9	4.5	4.0	3.9	4.0	4.0	8.7	9.4S	9.0	10.4H	13.1H	14.7SH	14.5SH	U14.1S	12.8	12.9	13.0	J10.7S	6.3S	5.7	6.2	5.7S	5.4
6	5.4	5.2	5.2	5.1	4.7	4.8	5.6	8.3	U9.6S	I11.3C	I12.8C	14.2H	13.3H	13.9	14.8S	S	S	J12.6S	J10.6S	9.6S	6.9	7.5	6.9	I6.5S
7	I6.4S	S	4.2	5.0	4.4	4.3	3.6	4.2	5.3	G	G	J8.1R	7.8	7.0	9.1H	8.1	9.4	8.5	8.3	7.0	5.9	6.7	6.0	5.9
8	F	FS	4.2	4.0	F	F	F	J7.8S	8.3	8.0	9.6H	13.6S	SH	SH	SH	S	S	14.3S	J13.0S	11.6	9.4	9.2	I8.2S	J8.0S
9	6.1	4.8	4.5	4.2	3.6	3.7	4.2	8.2	11.6	11.6	12.4H	12.2SH	13.0H	14.0	13.4H	12.8	11.4	10.9S	J10.2S	J8.4S	J7.9S	I7.4S	6.3S	6.3
10	6.3	5.9	5.3	4.5	4.6	4.7	5.7	8.6	11.1	12.7	13.2H	11.8H	12.6H	13.0H	13.2H	12.8	11.8	11.2	10.9	9.0	J8.6S	8.8	8.4	J7.6S
11	5.2	4.3	4.1	4.1	4.2	4.0	4.7	J9.7S	10.7	11.2	10.7	12.3H	13.1H	U14.1SH	13.7H	13.6	13.1	12.7	12.2S	J10.0S	8.7	J8.1S	7.0	6.7
12	6.1	5.8	5.3	5.4	4.9	4.3	4.5	7.8	10.2	10.9	11.3	12.4	12.9H	13.0H	13.7SH	13.4	12.3	12.4	11.3S	J10.4S	9.0	8.6	7.6S	7.1S
13	6.2	6.0	5.8	5.7	5.7	4.3	4.9	8.6	10.6	11.3	11.0	13.1H	U13.9SH	14.5H	14.7SH	SH	14.7S	U13.9S	13.2	J11.2S	S	S	S	S
14	8.8	7.6	6.6	6.0	5.8	4.8	5.6	9.2	10.8	11.2	11.7	12.8	13.2	13.5H	14.1H	15.5SH	I15.1S	14.3	13.0	11.3	S	S	9.1	I7.6S
15	6.4	5.7	5.5	5.6	5.8	4.9	5.0	8.2	10.1	11.6	12.5H	13.2H	14.0	15.0SH	U15.5SH	SH	S	S	14.1S	S	S	S	S	8.8
16	8.5	8.5	J8.1S	5.4	4.3	4.3	4.9	J7.8S	J10.1S	12.8	13.1H	13.6H	I15.1SH	I15.2SH	U15.1SH	U14.9SH	I15.0S	I14.5S	13.1	U9.5S	J8.7S	J8.1S	6.5	6.3
17	6.0	6.0S	I7.3C	S	5.1	3.3	4.0	8.7	J10.2S	11.7	11.7H	12.3H	12.9H	14.5SH	S	I15.1S	13.4	12.2	U11.2S	U9.3S	U9.1S	J8.4S	6.7	C
18	C	C	C	C	C	C	C	C	C	11.9	12.2	13.9SH	13.9	14.2H	I14.6SH	14.5	13.1	12.5	U11.2S	10.9	J9.6S	U9.3S	I7.8S	J8.0S
19	J7.7S	7.1S	6.2	5.6	5.1	4.5	5.3	J8.1S	12.8	12.6	S	S	S	S	S	S	U15.0S	13.3	U12.2S	J10.6S	8.8	J7.4S	6.4S	5.9
20	5.6	5.3	4.8	I4.6C	4.4	4.2	5.1	8.6	10.5	11.2	12.6H	U14.0S	13.9	U14.5SH	15.5SH	I15.0S	J14.0S	12.6	J12.4S	J10.6S	U9.4S	C	S	J6.8S
21	5.9	5.9	5.3	5.3	4.2	4.5	3.8	J7.5S	J9.7S	C	C	C	C	15.0SH	U15.1S	14.8S	14.1S	12.7	J11.0S	J8.0S	J7.5S	I7.0S	6.0	5.2
22	4.7S	4.3	4.1	4.3	4.3	3.9	4.3	8.3	J9.8S	10.9	11.7	U12.9SH	U13.9SH	SH	SH	14.3	12.7	J12.6S	U11.0S	J8.0S	I7.5S	6.0	U4.8S	4.2
23	4.3	4.5	4.4	4.4	3.8	3.0	4.0	S	11.0	11.2	11.6	12.9	13.6	13.3H	14.3H	13.2	11.9	11.6	10.8	J7.4S	5.4	5.2	5.2	5.1
24	5.1	4.5	4.4	4.5	4.9	3.9	3.9	J7.6S	9.5S	10.4S	11.3	12.5H	13.7SH	SH	SH	S	13.5SH	11.7S	I9.5S	7.0	6.2	6.4S	5.8	4.9
25	4.8S	4.2	3.6	3.3	3.5	3.5	3.8	J8.3S	8.5	10.6	12.3	13.1	12.4	14.6SH	SH	S	J13.8S	12.6S	11.1	J10.4S	I9.8S	I7.9S	5.6	5.7
26	J6.4S	5.6	4.3	4.3	4.0	S	S	5.3	I10.2S	S	11.6	10.9	11.9	13.5	J14.6S	13.2	11.2	11.0	12.3S	11.1	J8.1S	I8.2S	I7.1S	6.5
27	5.9	5.1	4.7	4.5	3.8	3.8	3.8	6.7	J11.5S	13.8	14.1	I14.7SH	J13.9SH	I14.4S	J14.1S	13.3	13.6S	13.3	J12.5S	S	S	S	S	J5.6S
28	5.3S	2.8H	2.7	2.7	2.7	2.7	3.0	J7.9S	9.4S	J9.7S	12.2H	13.9	13.8SH	13.9H	13.7	I13.9S	13.0	11.8S	9.5S	I11.0S	J12.5S	I10.3S	S	I6.6S
29	5.7	I6.2S	5.6	4.7S	4.1	J5.2S	S	S	S	S	S	SH	12.9H	13.1H	S	12.9	10.2	J10.1S	11.0	J8.6S	I8.6S	8.5	8.4	J6.1S
30	5.3	4.7	4.2	3.6	3.7	3.9	3.7	I7.1S	J12.2S	13.6S	I14.6S	13.1	12.5	13.9S	12.7	11.2	11.4	10.2	J8.6S	6.3S	J8.2S	S	J5.2S	A
31	A	4.6	4.3	3.7	C	C	C	C	11.9	I12.8C	13.7H	I12.5C	C	C	C	C	10.3	9.8S	8.2	6.6S	6.3	5.9	4.9	4.2
No.	28	28	30	29	28	27	26	27	29	28	28	28	27	26	23	23	28	30	31	29	27	25	26	28
Median	5.8	5.2	4.5	4.5	4.3	4.3	4.6	8.2	10.2	11.3	12.0	13.0	13.3	14.0	14.1	13.2	12.8	12.4	11.1	9.6	8.2	7.9	6.4	6.0
U.Q	6.4	5.9	5.5	5.4	4.9	4.5	5.0	8.6	11.0	12.8	13.0	13.8	13.9	14.5	14.7	14.5	13.7	12.7	12.3	10.8	9.0	8.6	7.1	6.8
L.Q	5.2	4.5	4.2	4.2	4.0	3.9	3.9	7.5	9.6	10.8	11.3	12.2	12.6	13.1	13.2	12.8	11.4	11.2	10.6	8.0	6.9	6.6	5.6	5.3
Q.R	1.2	1.4	1.3	1.2	0.9	0.6	1.1	1.1	1.4	2.0	1.7	1.6	1.3	1.4	1.5	1.7	2.3	1.5	1.7	2.8	2.1	2.0	1.5	1.5

foF2

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

The Radio Research Laboratories, Japan.

Y 1

47

IONOSPHERIC DATA

Oct.1960 | foF1 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1													L											
2																								
3							C	C							L									
4																								
5																								
6										C	C			L	L	L								
7								3.6	4.2	5.5	5.4	6.2	L											
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18							C	C	C															
19																								
20																								
21										C	C	C	C											
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31							C	C		C		C	C	C	C	C								
No.								1	1	1	1	1												
Median								3.6	4.2	5.5	5.4	6.2												

foF1

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

The Radio Research Laboratories, Japan.

Y 2

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							S	2.30	2.85	3.35	A	A	R	A	A	A	A	A	A					
2							S	2.20	2.70	3.10	3.40	3.50	3.60R	3.60	3.45	3.25	2.85	2.30	A					
3							C	C	2.80	3.20	I3.45C	3.55	3.65	I3.65R	3.60	3.35	3.10R	A	A					
4							S	2.10	2.80	3.15	3.50	3.70	3.80	3.80	3.60	3.40	3.00	2.40	S					
5							S	2.20	2.85	3.15	3.50	3.65	3.70	3.70	3.55H	3.35	2.90	2.40	S					
6							S	2.15	2.85	C	C	R	R	A	I3.40R	3.20	2.90	2.30H	S					
7							S	2.10	2.80	3.15	3.35	A	A	R	3.50	3.35	2.95	2.25	S					
8							S	2.40	3.00	3.30	3.40	3.50R	3.60	A	A	A	3.10	2.50	S					
9							S	2.30	2.90	A	A	A	A	I3.65R	3.50	3.15	3.00	2.30	S					
10							S	2.20	2.95	3.40	3.60	I3.65A	3.75	3.70	A	A	A	2.30	S					
11							S	2.25	2.80	I3.20A	3.40R	A	R	R	3.60	I3.40B	3.10	2.20	A					
12							S	2.30	2.90	3.30	3.55	I3.70R	3.80	3.85	3.65	3.40	A	A	S					
13							S	2.10	2.95	3.40	3.60	3.75	3.70	3.75	3.70	3.50	3.10	2.25	S					
14							S	2.20	3.00	3.50	3.65	3.80	3.75	3.70	3.50	3.40	3.10	2.25	S					
15							S	2.30H	3.10	3.50	3.70	3.80	I3.75R	I3.70R	3.70H	3.40	3.00	A	A					
16							S	2.15	2.95	3.45	3.65	A	A	A	A	A	A	A	S					
17							S	2.00R	I2.85A	3.30	A	A	A	3.75R	3.70R	3.35	2.95H	2.20H	S					
18							C	C	C	3.40	3.50	I3.70R	3.70	3.60	3.45	3.30H	3.00	2.30H	S					
19							S	2.10	2.90	3.30	A	A	R	I3.50R	3.40	3.10	I2.65A	2.25	S					
20							S	2.00	2.85	3.15	3.40	I3.50R	I3.50R	I3.50A	3.35R	3.15R	2.70	2.10	S					
21							S	2.20	2.70	C	C	C	C	3.50	3.30	A	A	A	S					
22							S	1.80	2.65	3.10	3.30	3.50	3.60	I3.50R	I3.30R	3.20	2.90	1.95	S					
23							S	2.30	2.80	3.10	3.30	3.40	3.40	A	A	A	A	1.90	A					
24							S	2.05	2.90	3.20	3.35	3.45	3.40	I3.40R	3.40	3.15	2.70	1.90	S					
25							S	B	2.45	3.00	3.20	A	A	A	3.35	3.15	2.60	2.10	S					
26							S	1.80	2.50	2.90	3.20	3.30	R	A	A	A	A	A	S					
27							S	1.95	2.70H	3.00	3.35	3.40	A	A	A	A	A	A	S					
28							S	2.00	2.50	2.80	3.15	3.40	A	A	A	A	A	A	S					
29							S	1.85	2.65	3.05	3.30	3.40	3.50	3.40	3.25	2.90	2.40	A	A					
30							S	2.10	I2.80A	I3.20A	A	A	A	A	A	A	A	A	S					
31							C	C	2.70	I3.10C	3.30	I3.50C	C	C	C	C	A	A	A					
No.								27	30	28	24	20	16	18	21	20	20	19						
Median								2.15	2.80	3.20	3.40	3.50	3.70	3.65	3.50	3.30	2.95	2.25						

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.2	2.3	2.1	2.2	E	E	S	G	3.2	G	4.2	4.2	G	4.5	J3.8	J3.8	J4.0	J4.3	3.0	J2.2	2.4	S	S	S
2	S	S	E	E	E	S	S	2.4	G	G	G	3.2G	4.1	3.9	3.1G	2.9G	G	G	J2.2	J2.3	2.4	S	S	S
3	J2.1	S	J2.5	1.4	3.1	J2.3	C	C	3.2	3.7	C	4.2	4.1	4.4	G	4.4	4.2	4.4	4.4	J2.9	S	S	2.4	S
4	S	S	E	E	E	E	S	2.5	3.3	3.6	3.7	G	G	G	G	G	3.4	3.4	S	S	S	S	S	S
5	S	2.1	E	E	E	E	S	G	3.2	G	3.7	G	G	G	G	G	G	2.9	2.2	2.7	S	S	S	S
6	S	S	E	E	1.1	E	S	2.3	G	C	C	3.4G	3.5G	3.8	G	G	G	2.5	2.0	J2.8	S	S	S	S
7	S	S	E	1.6	E	E	S	2.4	3.0	3.4	4.1	4.4	7.0	G	4.8	4.2	4.3	3.4	J3.1	J2.6	J4.2	J5.4	3.1	S
8	S	S	E	E	E	E	S	G	3.5	4.1	3.9	5.4	3.8	5.2	J5.0	3.9	G	3.1	3.1	J2.2	2.3	J2.3	S	S
9	S	S	E	E	E	E	S	2.7	3.2	J5.4	5.4	3.8	4.0	3.5G	3.8	G	G	J4.4	2.2	J4.6	3.7	2.2	S	2.8
10	J2.4	2.7	E	E	E	E	S	3.9	3.7	G	G	J5.4	G	G	5.4	4.3	3.5	2.2G	J5.0	J3.1	J4.6	3.0	J2.6	J3.0
11	J2.2	J2.3	2.1	E	E	E	S	2.7	3.1	3.7	G	3.9	G	G	G	B	G	G	3.9M	2.4	S	S	S	S
12	2.1	S	E	E	E	E	S	2.7	3.4	3.5	3.7	G	G	4.1	6.0	3.9	3.4	2.4	3.7	S	J2.1	3.4	S	S
13	S	S	E	E	E	E	S	G	3.2	4.0	4.0	G	G	4.1	4.6	G	G	2.5	2.2	E	S	S	S	S
14	E	E	E	E	E	E	S	G	G	5.3	4.3	4.8	4.2	5.3	4.2	3.3G	3.2	G	2.3	S	1.9	3.0	J2.3	2.3
15	2.1	2.5	J2.1	E	E	E	S	G	3.3	3.8	3.9	3.3G	G	G	G	G	G	3.4	3.7	S	S	S	S	2.4
16	J3.0	2.4	J2.3	E	E	E	S	G	G	G	4.0	6.1	5.5	3.8	J4.9	5.1	8.1	5.3	3.0	2.5	J2.3	J2.3	J2.2	S
17	S	E	C	J2.0	J1.9	E	S	G	3.2	3.2G	4.0	4.6	4.4	G	4.3	4.1	5.2	3.7	2.2	6.0M	J2.8	3.2	S	C
18	C	C	C	C	C	C	C	C	C	G	3.7	G	G	G	G	G	G	G	J2.4	S	S	S	S	S
19	S	2.4	2.4	3.2	E	E	S	2.5	3.2	3.8	6.1	9.1	G	G	G	3.0M	J3.8	G	S	3.0	J2.4	2.5	S	J3.1
20	C	3.7	J2.3	C	2.4	E	S	2.4	G	3.8	G	G	G	3.8	G	G	3.2	3.1	J4.7	S	S	C	S	S
21	S	S	E	3.0M	J2.6	J2.1	2.5	G	2.9	C	C	C	C	4.3	3.8	4.1	3.4	J3.2	3.2	2.4	J2.8	J2.3	J2.0	S
22	S	E	J2.3	E	E	E	S	G	2.8	3.3	3.6	3.7	3.9	G	G	2.7G	G	G	S	S	2.5	J2.1	S	5.4
23	J2.3	3.1	2.2	E	E	2.2	S	G	G	G	3.8	4.0	5.0	3.7	3.6	3.8	3.0	G	2.2	J2.6	J3.7	4.1M	J2.4	S
24	S	S	E	E	E	E	S	G	G	3.3	3.6	4.0	3.7	G	G	G	G	G	S	S	J2.7	S	2.0	2.4
25	S	S	J2.4	2.5	E	E	S	3.0	J4.7	4.0	J5.5	J5.4	J6.8	J5.3	3.8	4.2	3.2	2.2	J2.3	S	J2.3	2.4	J2.6	J2.3
26	S	J2.3	J2.3	E	E	E	S	3.7	9.0M	4.6	4.2	4.2	J6.0	J5.8	J5.4	J6.1	J5.9	2.7	3.1	J3.5	2.7	6.1	4.4M	3.9
27	J5.3	2.2	J2.2	2.2	1.5	E	S	2.2	3.0	3.7	4.1	4.1	3.9	3.9	4.0	4.0	4.0	J2.9	J2.5	S	S	5.7M	J3.9	J3.3
28	S	E	E	E	E	E	S	G	2.8	3.6	4.0	4.0	3.8	4.1	3.8	J4.2	4.8	J5.2	3.7M	J2.4	5.9M	J2.2	S	3.8M
29	3.4	J3.4	2.9	2.8	2.9	J2.3	J3.1	G	2.8	4.1	4.1	4.2	4.3	4.5	J5.3	4.5	J4.0	J3.5	J3.0	J2.7	4.0M	3.7	S	S
30	S	S	E	E	E	E	S	2.1	3.1	3.7	J5.1	9.4M	5.0	6.3	J5.6	5.2	3.3	2.1	J2.3	3.0	J3.6	J2.6	J3.0	5.5
31	5.5	4.7	J2.3	J2.3	C	C	C	C	2.9	C	3.5	C	C	C	C	C	J4.7	J3.9	J3.0	J2.2	S	S	S	S
No.	12	17	29	29	29	28	2	28	30	28	28	29	29	30	30	29	31	31	27	21	20	18	12	12
Median	2.2	2.3	E	E	E	E	2.8	G	3.1	3.6	4.0	4.0	3.8	3.8	3.8	3.8	3.3	2.9	3.0	2.6	2.7	2.8	2.5	3.0
U.Q	3.2	2.9	2.3	2.1	E	E		2.5	3.2	3.9	4.2	4.7	4.4	4.4	4.8	4.2	4.0	3.5	3.7	3.0	3.7	3.7	3.0	3.8
L.Q	2.1	E	E	E	E	E		G	2.8	G	3.6	G	G	G	G	G	G	G	2.2	2.4	2.4	2.3	2.2	2.4
Q.R	1.1								0.4		0.6								1.5	0.6	1.3	1.4	0.8	1.4

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Oct. 1960 | fbEs | 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	2.2	2.0	2.1	1.9			S		G		4.0	G		4.3	G	3.5	3.6	3.3	2.1	2.0	1.8	S	S	S
2	S	S				S	S	G				3.2G	4.1	G	3.1G	2.8G			G	1.9	E	S	S	S
3	E	S	1.8	E1.4B	1.8	1.9	C	C	G	3.7	C	4.2	G	4.4		4.3	4.1	4.1	3.6	2.6	S	S	1.8	S
4	S	S					S	G	G	G	G						G	3.3	S	S	S	S	S	S
5	S	1.8					S		G		G							2.9	2.2	2.6	S	S	S	S
6	S	S			E1.1B		S	G		C	C	E3.4R	E3.5R	E3.8B				G	G	2.7	S	S	S	S
7	S	S		E1.6B			S	G	G	G	3.7	4.4	4.7		4.7	4.2	4.3	3.4	2.9	2.6	3.5	4.0	2.4	S
8	S	S					S		G	3.8	G	5.3	G	5.0	4.4	3.9		G	2.7	1.9	1.9	2.2	S	S
9	S	S					S	G	2.7	3.7	G	G	4.0	3.3G	G			4.3	G	3.5	2.4	E	S	E
10	1.7	1.9					S	G	2.6			G			4.3	3.8	3.3	2.0G	4.6	2.9	4.4	1.9	2.3	2.8
11	1.7	2.2	1.9				S	G	G	G		G				B			2.3	E	S	S	S	S
12	1.8	S					S	G	G	G	G			G	5.4	3.8	3.3	G	G	S	E	3.1	S	S
13	S	S					S		G	4.0	G			G	4.5			G	G		S	S	S	S
14							S			G	4.3	4.7	4.2	4.8	G	3.3G	3.0		2.2	S	1.9	2.1	2.0	E
15	1.8	E	E				S		G	3.7	G	3.2G						2.8	3.0	S	S	S	S	2.0
16	2.5	2.2	E				S				3.8	3.9	4.0	G	4.4	4.4	4.7	3.2	1.7	1.8	2.1	2.2	2.1	S
17	S		C	1.8	1.8		S		G	3.0G	G	4.0	4.3		4.3	3.8	4.3	3.7	2.1	3.5	2.7	3.0	S	C
18	C	C	C	C	C	C	C	C	C		3.6								1.9	S	S	S	S	S
19	S	E	2.4	2.6			S	G	G	G	4.6	4.5				2.7G	3.2		S	2.5	1.8	2.0	S	2.4
20	C	2.8	2.1	C	1.8		S	G		3.0				G			G	2.9	4.1	S	S	C	S	S
21	S	S		1.7	2.4	E	G		G	C	C	C	C	E4.3B	3.8	4.0	3.2	G	A	2.2	2.4	1.8	E	S
22	S		E				S		2.5	G	G	G	G			2.7G			S	S	1.9	2.0	S	1.9
23	1.9	2.2	1.9			E	S				G	3.9	4.9	G	G	3.8	3.0		2.1	2.5	3.6	2.7	2.0	S
24	S	S					S			G	G	G	G						S	S	2.6	S	1.9	1.9
25	S	S	2.2	1.9			S	2.9	4.0	3.9	5.0	5.3	6.7	5.2	3.8	4.1	3.2	1.9	G	S	1.8	2.2	E	1.9
26	S	2.1	1.8				S	3.2	4.8	4.6	3.9	4.2	5.8	5.7	5.3	5.9	5.6	2.5	2.2	3.3	2.6	4.4	3.7	3.0
27	3.5	E	1.7	1.8	E1.5B		S	G	3.0	3.4	3.9	3.8	G	3.8	3.6	3.4	3.2	2.7	2.3	S	S	1.9	3.6	2.5
28	S						S		G	3.2	3.9	3.8	G	4.0	3.5	4.2	3.9	G	1.9	2.0	3.9	1.9	S	2.1
29	2.1	1.8	2.0	1.9	2.0	1.9	2.8		G	4.1	4.1	4.2	4.2	4.4	5.3	4.4	3.8	3.2	2.7	2.5	2.5	2.5	S	S
30	S	S					S	2.0	G	G	4.6	7.2	4.0	4.5	4.5	4.1	3.1	G	2.1	2.1	3.2	2.2	2.5	A
31	A	3.3	1.9	1.7	C	C	C	C	G	C	G	C	C	C	C	C	4.0	2.9	2.6	E2.2B	S	S	S	S
No.	11	13	14	10	7	4	2	14	23	21	24	23	18	18	19	20	20	23	27	20	20	18	12	12
Median	1.9	2.0	1.9	1.8	1.8	E	G	G	G	3.0	G	3.9	4.0	3.9	4.3	3.8	3.3	2.8	2.2	2.5	2.4	2.2	2.0	2.0

fbEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.70S	E1.80S	1.60	1.75	1.70	1.70	E1.70S	1.70	1.70	1.80	2.20	2.00	2.50	2.00	2.20	1.80	1.60	1.70	E1.60S	E1.70S	E1.70S	E1.70S	E1.75S	E1.70S
2	E1.70S	E1.80S	1.70	1.70	E	E1.75S	E1.60S	1.70	1.70	1.70	1.90	1.90	2.10	2.05	1.90	1.80	1.60	1.60	E1.60S	E1.80S	E1.70S	E1.70S	E1.70S	E1.70S
3	E1.80S	E1.80S	E	E	E	1.30	C	C	1.70	1.85	E1.20C	2.00	2.40	1.90	1.95	1.85	1.65	1.60	E1.80S	E1.60S	E1.70S	E1.70S	E1.65S	E1.75S
4	E1.75S	E1.70S	1.75	1.35	E	1.65	E1.60S	1.80	1.70	1.80	1.85	1.90	2.20	2.25	2.00	1.90	1.80	1.70	1.70	E1.70S	E1.50S	E1.70S	E1.80S	E1.70S
5	E1.70S	E1.70S	1.70	1.70	1.30	1.70	E1.70S	1.70	1.70	1.80	1.80	1.90	1.85	2.20	2.20	1.80	1.80	1.50	E1.60S	E1.70S	E1.80S	E1.70S	E1.70S	E1.60S
6	E1.80S	E1.75S	1.70	1.40	E	1.60	E1.70S	2.00	1.80	I1.75C	I1.90C	2.20	2.30	2.35	2.20	1.90	1.80	1.65	E1.60S	E1.40S	E1.70S	E1.70S	E1.80S	E1.80S
7	E1.70S	E1.70S	1.60	E	1.75	1.75	E1.80S	1.70	1.70	1.80	2.00	2.25	2.25	1.90	2.45	2.25	1.75	1.70	E1.60S	E1.60S	E1.60S	E1.70S	E1.60S	E1.80S
8	E1.80S	E1.60S	1.35	1.30	1.30	1.65	1.70	1.80	1.70	1.85	2.00	1.90	2.30	2.60	2.80	2.20	1.80	1.60	E1.70S	E1.60S	E1.60S	E1.60S	E1.80S	E1.70S
9	E1.60S	E1.70S	1.60	1.15	1.20	1.60	E1.60S	1.70	1.70	1.90	1.85	2.20	2.20	2.20	2.10	1.75	1.60	1.70	E1.70S	E1.50S	E1.70S	E1.80S	E1.70S	E1.70S
10	E1.60S	E1.70S	1.80	1.20	1.70	1.60	E1.50S	1.70	1.60	1.80	2.45	2.25	2.20	2.25	1.90	1.75	1.70	1.70	E1.70S	E1.70S	E1.70S	E1.70S	E1.70S	E1.70S
11	E1.60S	E1.60S	1.60	1.70	1.40	1.70	E1.80S	1.80	1.80	1.80	2.20	2.00	2.20	2.30	2.40	4.40	1.60	1.70	E1.50S	E1.70S	E1.70S	E1.70S	E1.85S	E1.85S
12	E1.70S	E1.90S	1.70	1.70	E	1.70	E1.60S	1.90	1.70	1.85	1.75	2.20	2.20	3.20	2.25	2.25	1.80	1.70	E1.60S	E1.70S	E1.60S	E1.80S	E1.70S	E1.70S
13	E1.70S	E1.70S	1.70	1.80	E	1.70	E1.70S	1.80	1.70	2.00	2.20	3.25	2.60	2.50	3.40	2.50	2.00	1.85	E1.70S	1.70	E1.75S	E1.70S	E1.80S	E1.60S
14	1.90	1.60	1.80	1.70	1.80	1.70	E1.70S	1.70	1.70	2.20	2.20	2.45	2.40	2.60	2.50	1.80	1.85	1.80	E1.85S	E1.70S	E1.60S	E1.60S	E1.80S	E1.70S
15	E1.70S	1.70	1.70	1.70	1.40	1.50	E1.70S	1.70	1.70	1.80	1.85	1.90	2.40	1.90	2.50	2.00	1.90	1.70	E1.70S	E1.90S	E1.70S	E1.70S	E1.80S	E1.70S
16	E1.70S	E1.60S	1.70	1.60	1.35	1.30	E1.70S	1.70	1.70	2.60	2.00	2.20	2.40	2.20	2.40	2.00	1.90	1.60	E1.60S	E1.60S	E1.60S	E1.70S	E1.60S	E1.60S
17	E2.00S	1.70	C	E	E	1.50	E1.70S	1.70	1.80	1.80	1.70	1.80	1.90	2.60	1.70	2.05	1.70	E1.80S	E1.60S	E1.80S	E1.60S	E1.60S	E1.80S	C
18	C	C	C	C	C	C	C	C	C	1.80	1.80	2.60	2.50	1.90	2.20	1.85	1.70	E1.60S	E1.50S	E1.70S	E1.70S	E1.70S	E1.80S	E1.80S
19	E1.70S	E1.60S	1.20	E	1.70	1.70	E1.70S	1.70	1.70	1.70	2.80	2.30	1.80	1.95	2.00	1.70	1.60	1.90	E1.80S	E1.70S	E1.70S	E1.80S	E1.80S	E1.60S
20	E4.70C	E1.70S	1.20	C	E	1.50	E1.80S	1.80	1.60	1.75	1.90	2.10	2.00	2.00	1.70	1.70	1.70	E1.60S	E1.70S	E1.60S	E1.60S	C	E1.70S	E1.70S
21	E1.60S	E1.80S	1.20	E	E	E1.70S	E1.75S	1.70	1.70	C	C	C	C	1.80	2.20	1.80	1.80	E1.60S	E1.60S	E1.80S	E1.70S	E1.70S	E1.80S	E1.70S
22	E1.70S	1.75	1.70	1.60	1.30	1.70	E1.60S	1.70	1.70	1.90	2.00	2.20	2.70	2.10	2.60	1.80	1.65	E1.80S	E1.70S	E1.80S	E1.70S	E1.70S	E1.80S	E1.60S
23	E1.75S	E1.90S	1.65	1.60	1.30	E1.80S	E1.70S	1.80	1.70	1.70	1.80	2.00	2.25	2.50	2.00	1.85	1.75	E1.60S	1.20	E1.70S	E1.75S	E1.80S	E1.70S	E1.80S
24	E1.80S	E1.85S	1.80	1.30	1.00	1.65	E1.70S	1.70	1.80	1.95	1.80	1.90	2.20	2.25	1.90	1.80	1.80	E1.70S	E1.80S	E1.70S	E1.60S	E1.80S	E1.70S	E1.70S
25	E1.80S	E1.80S	E	E	1.70	1.75	E1.70S	1.65	1.70	1.80	2.05	1.90	2.10	2.30	1.90	1.80	1.70	E1.60S	E1.60S	E1.70S	E1.70S	E1.80S	E1.60S	E1.70S
26	E1.80S	E1.70S	1.20	1.80	1.60	1.45	E1.70S	1.65	1.60	1.70	2.00	1.90	2.40	2.20	2.00	1.90	1.90	E1.70S	E1.75S	2.20	E1.80S	E1.60S	E1.80S	E1.80S
27	E1.70S	E1.75S	1.30	E	E	1.65	E1.70S	1.80	1.80	1.85	1.90	1.90	2.10	2.00	2.20	1.90	1.70	E1.60S	E1.70S	E1.75S	E1.80S	E1.80S	E1.90S	E1.80S
28	E1.90S	1.90	1.80	1.30	1.80	1.70	E1.70S	1.65	1.80	1.80	1.80	1.90	2.40	2.10	2.00	1.90	1.80	1.40	E1.70S	E1.60S	E1.60S	E1.70S	E1.75S	E1.85S
29	E1.80S	E1.65S	1.20	1.25	1.00	1.75	E1.60S	1.70	1.70	1.65	1.65	1.85	2.20	2.00	2.05	1.80	1.70	E1.60S	E1.65S	E1.70S	E1.80S	E1.60S	E1.80S	E1.60S
30	E1.80S	E1.60S	1.70	1.30	1.00	1.90	E1.70S	1.80	1.60	1.70	1.90	1.90	2.20	2.05	1.90	1.90	1.70	E1.70S	E1.70S	E1.60S	E1.50S	1.20	E1.75S	E1.60S
31	E1.60S	E1.50S	E	E	C	C	C	C	1.65	I1.75C	1.90	I1.90C	C	C	C	C	1.70	E1.70S	E1.70S	1.10	E1.70S	E1.80S	E1.70S	E1.80S
No.	30	30	29	29	29	27	28	28	30	30	29	30	29	30	30	30	31	29	31	31	31	30	31	30
Median	E1.70	E1.70	1.65	1.30	1.30	E1.70	E1.70	1.70	1.70	1.80	1.90	2.00	2.20	2.20	2.15	1.85	1.70	E1.70	E1.70	E1.70	E1.70	E1.70	E1.75	E1.70

f-min

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.90	2.60	2.60	2.90	3.00	2.80	2.95	3.25	2.95	3.25	3.25	3.00	2.85	2.95	3.00	3.05	3.00	3.00	3.15	3.10	3.20	2.95	2.40	2.80
2	2.70	2.85	2.40	2.60	2.75	2.85	3.00	2.90	2.85	2.80	3.00	2.95	2.90	2.75	3.00	3.20	3.20	3.20	3.05	3.05	2.90	2.90	3.15	2.55
3	2.50	2.40	2.50	2.65	2.70	2.60	2.85	3.25	3.15	3.15	3.00	3.10	3.20	3.00	3.00	3.00	3.10	3.20	3.20	3.25	3.35	2.85	2.65	2.80
4	2.80	3.00	2.85	2.85	2.65	2.75	2.90	3.35	3.30	3.35	3.40	3.00	3.00	3.05	3.00	3.05	3.15	3.20	3.20	3.30	3.20	2.80	2.70	2.75
5	2.70	2.90	2.55	2.30	2.30	2.40	2.40	3.10	3.35	3.10	2.85	2.90	2.95	2.90	2.90	3.00	3.10	3.25	3.25	2.90	2.65	2.75	2.65	2.60
6	2.60	2.60	2.70	2.80	2.70	2.80	2.85	3.40	3.15	3.20	3.10	3.10	2.90	2.75	2.70	S	S	3.00	2.85	2.90	2.75	2.60	2.55	2.55
7	2.50	S	2.05	3.10	2.15	1.90	2.00	1.95	2.20	G	G	2.10	3.10	3.05	2.90	2.60	3.00	3.00	2.95	3.05	2.35	2.55	2.70	2.75
8	F	FS	2.40	2.30	F	F	F	3.50	3.60	3.10	2.95	3.10	SH	SH	SH	S	S	3.20	3.15	3.20	3.00	2.95	3.00	3.05
9	3.05	2.75	2.60	2.80	2.65	2.90	3.00	3.40	3.25	3.10	3.30	3.00	2.95	2.95	2.90	3.00	3.05	3.10	3.25	2.90	2.65	2.95	2.60	2.75
10	2.75	2.75	2.85	2.55	2.60	2.65	3.10	3.35	3.25	3.15	3.25	3.05	2.95	2.85	2.90	3.00	3.10	3.05	3.20	3.00	2.70	2.90	3.00	3.30
11	2.85	2.75	2.65	2.80	2.85	2.85	2.85	3.40	3.40	3.40	3.10	2.90	2.80	2.90	2.80	2.95	2.90	3.00	3.10	3.00	2.80	2.95	2.70	2.85
12	2.80	2.75	2.75	2.85	3.05	3.10	2.90	3.35	3.20	3.25	3.05	3.00	2.95	2.85	2.95	2.95	2.95	3.00	2.95	2.85	2.90	3.00	2.95	3.00
13	2.85	3.00	2.85	3.05	3.25	2.90	2.90	3.35	3.40	3.15	2.95	3.00	2.90	2.80	2.90	SH	2.90	3.00	3.10	2.85	S	S	S	S
14	2.75	2.75	2.80	2.85	3.10	2.90	2.90	3.20	3.35	3.25	3.10	2.95	2.90	2.80	2.75	2.90	2.95	3.00	2.95	2.95	S	S	2.90	3.00
15	2.65	2.65	2.75	2.85	3.15	3.15	2.70	3.30	3.35	3.15	3.05	2.90	2.80	2.80	2.75	SH	S	S	3.05	S	S	S	S	2.60
16	2.60	2.80	3.00	3.00	2.40	2.40	2.85	3.40	3.10	3.10	3.00	2.85	2.85	2.80	2.80	2.90	2.95	3.05	3.05	3.05	2.85	2.65	2.70	2.60
17	2.55	2.80	3.00	S	3.55	2.65	2.75	3.35	3.15	3.20	3.10	3.00	2.85	2.85	SH	2.95	3.00	3.05	3.10	2.90	2.75	3.00	2.95	C
18	C	C	C	C	C	C	C	C	C	3.20	3.05	3.00	2.90	2.85	2.85	2.90	2.90	3.05	2.90	2.95	2.85	2.80	2.65	2.75
19	2.90	2.95	2.80	2.70	2.85	2.55	2.80	2.90	3.15	3.00	S	S	SH	SH	S	S	2.95	2.95	3.05	3.05	2.85	2.95	2.70	2.75
20	2.60	2.85	2.80	2.70	2.65	2.50	2.75	3.35	3.25	3.10	3.05	3.00	3.00	2.90	2.90	2.95	3.05	3.00	3.10	3.05	2.90	C	S	2.90
21	2.90	2.80	2.80	2.90	2.60	3.00	3.00	3.20	3.30	C	C	C	C	2.90	3.00	2.95	3.10	3.10	2.95	3.00	2.95	3.10	3.00	2.95
22	2.85	2.70	2.80	2.80	2.90	2.70	2.90	3.40	3.40	3.15	3.00	3.10	3.00	SH	SH	3.10	3.00	3.15	3.20	3.15	2.95	3.00	2.70	2.60
23	2.65	2.90	2.95	2.95	3.25	2.85	2.90	S	3.35	3.30	3.10	3.00	3.05	2.90	3.05	3.05	3.05	3.15	3.35	3.50	2.80	2.85	2.85	2.90
24	2.95	2.95	2.75	2.90	3.20	3.20	2.90	3.35	3.40	3.30	3.10	2.95	3.00	SH	SH	S	3.15	3.20	3.20	3.15	2.95	2.90	2.95	2.75
25	3.00	3.20	3.05	2.30	2.50	2.45	2.75	3.30	3.40	3.05	3.10	3.20	2.85	2.90	SH	S	3.10	3.00	3.00	2.90	3.05	3.10	2.70	2.60
26	2.65	2.90	2.70	2.45	2.15	S	S	3.30	2.85	S	3.30	3.00	2.95	2.90	3.10	3.10	2.95	2.90	3.05	3.25	2.95	3.00	3.00	2.85
27	2.90	2.95	2.65	2.75	2.65	2.70	2.80	3.05	3.10	3.25	3.20	3.20	3.05	3.10	3.00	3.10	3.15	3.25	3.20	S	S	S	S	2.70
28	3.10	2.90	2.95	2.45	2.50	2.45	2.75	3.30	3.30	3.20	2.95	3.20	3.10	3.05	3.10	3.10	3.15	3.20	3.25	3.25	3.20	3.05	S	2.65
29	2.65	2.90	2.75	3.15	2.30	2.20	S	S	S	S	S	S	3.15	3.00	S	3.00	3.25	3.10	3.20	3.10	2.90	2.95	3.35	2.70
30	2.90	2.80	3.00	2.40	2.55	2.60	2.70	3.00	3.30	3.35	3.25	3.30	3.05	3.10	3.25	3.15	3.20	3.10	3.30	2.70	3.10	S	2.60	A
31	A	2.75	2.80	2.55	C	C	C	C	3.30	3.30	3.25	3.20	C	C	C	C	3.20	3.30	3.25	3.05	2.90	3.15	3.15	2.90
No.	28	28	30	29	28	27	26	27	29	28	28	28	27	26	23	23	28	30	31	29	27	25	26	28
Median	2.80	2.80	2.80	2.80	2.70	2.70	2.85	3.30	3.30	3.20	3.10	3.00	2.95	2.90	2.90	3.00	3.05	3.10	3.10	3.05	2.90	2.95	2.70	2.75

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1													L											
2																								
3							C	C							L									
4																								
5																								
6										C	C			L	L	L								
7								2.95	3.20	3.05	3.45	3.25	L											
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18							C	C	C															
19																								
20																								
21										C	C	C	C											
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31							C	C		C		C	C	C	C	C								
No.								1	1	1	1	1												
Median								2.95	3.20	3.05	3.45	3.25												

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1													≥00											
2													↓											
3							C	C							≥00									
4																								
5																								
6										C	C			L	≥45	≥20								
7								800	590	G	G	540	295											
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18							C	C	C															
19																								
20																								
21										C	C	C	C											
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31							C	C		C		C	C	C	C	C								
No.								1	1	1	1	1	2		2	1								
Median								800	590	G	G	540	≥00		≥20	≥20								

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

Oct. 1960 | f'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	290	305	325	255	250	260	260	245	230H	220H	230H	230	240	250	225	235H	230	250	245	255	225	265	220H	290
2	270	365	355	325	295	260	280	255H	250H	240H	210H	225H	220H	220H	205H	220H	240	250	250	240	245	270	215	295
3	270	375	325	295	310	325	I300C	I250C	240	245	240	220H	230H	235	205	255	255	250	250	235	210	250	250	270
4	275	255	270	275	260	305	280	240	240	230	210H	200	200H	235	235	220H	245	250	240	220	205	250	285	290
5	295	275	350	410	410	375	305	250	220	230	220H	220H	205H	210H	230	235	250	250	215	225	245	275	255	305
6	315	320	305	285	265	290	250	230	230	I235C	I220C	205H	200H	210	240	250	250	235	230	230	240	320	300	285
7	310	275	445	270	460	525	420	295	250	245	245	255	260	240	260H	260	255	250	255	250E	370A	370	280	285
8	330	310	370	385	265	285	240	230	230	205	240H	260	200H	250H	240H	245	245	240	230	230	230	240	250	250
9	230	270	290	255	255	290	260	240	235	225	205H	210H	210H	225	205H	245	245	240	230	250	260	250	290	300
10	295	250	285	285	320	315	255	235	240	230	225H	210H	190H	230H	240H	250	250	250	250	245	290	260	255	240
11	240	300	335	310	270	285	285	240	230	225	225	210H	210H	200H	235H	255	250	250	240	225	250	235	280	280
12	280	290	250	260	240	250	260	230	235	240	220	225	230H	220H	270H	245	240	250	230	235	250	255	250	255
13	260	270	270	260	245	230	280	240	240	240	225	225H	205H	230H	250H	235H	250	250	235	225	240	240	245	255
14	260	270	265	255	250	260	270	235	235	240	240	245	240	250H	240H	230H	255	245	230	210	245	250	250	250
15	290	300	300	290	250	240	235	230	235	235	210H	205H	230	220H	240H	250H	250	250	230	220	225	250	270	305
16	305	270	240	240	340	355	270	230	240	240	230H	215H	205H	200H	245H	255H	270	250	225	210	255	250	290	305
17	345	310	I265C	230	220	300	300	250	235	235	215H	225H	220H	250H	255H	255	250	245	230	245	260	250	245	C
18	C	C	C	C	C	C	C	C	C	235	230	230H	240	225H	230H	250	245	250	230	250	245	250	250	290
19	250	250	285	325	260	305	300	240	245	240	255	250	210H	240H	225	245	250	230	230	240	230	250	250	300
20	I330C	300	270	I315C	305	310	295	230	230	230	210H	230	225	225H	240H	255	250	240	240	225	225	I235C	260	250
21	275	280	255	255	290	270	235	240	235	C	C	C	C	250H	245	250	240	240	210A	230	255	240	255	260
22	270	300	300	280	255	290	290	240	230	240	230	230H	220H	205H	210H	245	235	245	220	210	250	230	250	325
23	320	300	275	250	220	275	280	250	235	240	230	220	255	225H	235	250	240	240	220	220	320	300	290	280
24	275	280	270	275	245	250	285	235	230	230	230	220H	195H	205H	210H	240	220H	230	210	225	270	250	255	290
25	260	235	290	450	375	390	320	240	235	250	260	255	280	E280AH	250H	250	250	235	240	260	245	230	240	340
26	305	255	275	375	490	355	200	240	325	255	250	245	265	290	270	255	250	255	250	240	240	300	280	280
27	300	230	310	260	280	310	305	260	245	240	240	225H	220H	240	240	235	245	230	210	205	240	245	250	260
28	245	250H	290	350	E400B	400	320	255	230	230	235H	240	220H	235H	240	240	230	235	220	240	255	220	230	290
29	310	250	260	240	370	380	330	240	240	255	250	240H	230H	235H	270	240	250	245	240	225	250	260	225	250
30	250	270	250	350	365	350	310	260	240	230	250	240	230	255	250	240	240	225	205	290	255	240	275	A
31	A	350	260	310	C	C	C	C	240	I215C	210H	I205C	C	C	C	C	235	230	230	225	250	240	245	280
No.	29	30	30	30	28	29	29	29	30	30	30	30	29	29	30	30	31	31	31	31	30	31	31	29
Median	280	280	290	280	270	300	280	240	235	235	230	225	220	230	240	245	250	245	230	230	245	250	250	285

f'F

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

The Radio Research Laboratories, Japan.

Y 10

IONOSPHERIC DATA

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

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

h'Es

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

The Radio Research Laboratories, Japan.

Y 11

IONOSPHERIC DATA

Oct. 1960

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	⁓	⁓	⁓2	⁓					h3		l	l		l	l2	l3	l4	l3	l2	⁓2	⁓2			
2								h				l	h	hl	l2	l			l	⁓2	⁓2			
3	⁓4		⁓3	⁓	⁓2	⁓2			h2	h		h	h	h		h	h2	h2l4	l2	⁓3			⁓	
4								h2	h3	h2	h						h	h3						
5		⁓							h		h							h2	h5	⁓3				
6					⁓			C				l	l	l				A	h	⁓3				
7				⁓				h	h	h	h	l	l		h	h	h2	C2	C7	⁓8	⁓4	⁓4	⁓5	
8									h	h	h	h2	h	l	l	l		h3	h6	⁓	⁓	⁓2		
9								h2	l3	l2	l	l	l	l	C			h3	C	⁓3	⁓2	⁓		⁓2
10	⁓2	⁓2						h2	lh			l			l2	l2l	l2	l	l3	⁓3	⁓4	⁓3	⁓2	⁓4
11	⁓2	⁓	⁓					h	h	l2		l							l	⁓				
12	⁓							h	h	h	h			h	h2	h	l2	l2	l2		⁓	⁓4		
13									h	h	h			h	h			h	h					
14										l	h	h	h	h2	h	l	l		h		⁓	⁓2	⁓<	⁓
15	⁓	⁓	⁓						h	h	h	l						l3	l4					⁓
16	⁓3	⁓	⁓								h	l	l	l	l2	l2	l3	l4	l	⁓	⁓4	⁓	⁓4	
17				⁓4	⁓2				l3	l	l	l	l		h	h	h l	h4	h4	⁓3	⁓6	⁓2		
18											h								l2					
19		⁓	⁓4	⁓2				h2	h	h	l2	l2				l	l2h			⁓4	⁓	⁓		⁓3
20		⁓6	⁓3		⁓2			h		l				l			h	h4	h3					
21				⁓2	⁓6	⁓2	l		h2					h	h	l2	l3	l2	l7	⁓3	⁓3	⁓2	⁓	
22			⁓						l2	h	h	h	h			l2					⁓	⁓		⁓2
23	⁓	⁓	⁓			⁓					h	h	h2	l	l	l2	l3		l6	⁓6	⁓4	⁓2	⁓2	
24										h	hl	h	h								⁓3		⁓	⁓2
25			⁓2	⁓				h2	h3	h2	h3	l2	l3	l2	h	h2	h3	l3	l		⁓2	⁓3	⁓2	⁓2
26		⁓6	⁓2					C5	C3	h2	h	h	h3	l2	l3	l4	l3	l3	l2	⁓2	⁓3	⁓4	⁓6	⁓6
27	⁓4	⁓	⁓2	⁓4	⁓			h	h2	h l2	h	h	l l	l l	l	l	l3	l3	l3			⁓2	⁓3	⁓2
28									h3	h	h2	h	l	l	l2	l2	l3	l3	l	⁓2	⁓2	⁓		⁓2
29	⁓3	⁓2	⁓3	⁓2	⁓3	⁓3	l6		h2	h2	h l	h	h	h	h2	h3	C3	l4	l6	⁓7	⁓2	⁓2		
30								l	l3	l	l2	l4	l	l2	l2	l2	l2	l2	l2	⁓2	⁓8	⁓3	⁓3	⁓4
31	⁓3	⁓3	⁓2	⁓2					h		h						l2	l5	l7	⁓2				
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

Y 12

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

Oct. 1960	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	8	8	(8)	-	8	0	0	(0)	-	0
2	8	9	7	-	8	0	0	0	-	0
3	9	8	9	-	9	0	0	0	-	0
4	8	8	9	-	8	0	0	0	-	0
5	8	9	9	-	9	0	0	0	-	0
6	8	8	-	-	8	0	0	-	-	0
7	9	10	9	-	9	0	1	0	-	0
8	21	24	13	33	20	2	1	1	2	1
9	31	46	(45)	23	38	2	2	(2)	2	2
10	52	46	(40)	-	42	2	2	(2)	-	2
11	53	40	(44)	(8)	48	2	2	(1)	(0)	2
12	8	8	(9)	-	8	0	0	(0)	-	0
13	9	10	9	-	9	1	1	1	-	1
14	8	7	9	-	8	0	0	0	-	0
15	8	9	8	-	8	0	0	0	-	0
16	9	8	(7)	-	9	0	1	(0)	-	0
17	8	7	9	-	8	0	0	0	-	0
18	11	9	10	(9)	10	0	0	0	(0)	0
19	10	9	17	-	11	1	1	1	-	1
20	10	9	(11)	(18)	10	1	1	(1)	(1)	1
21	15	13	(9)	(16)	11	1	1	(0)	(0)	1
22	15	18	(18)	-	17	1	1	(1)	-	1
23	7	9	(10)	-	8	0	0	(0)	-	0
24	9	7	9	-	9	0	0	0	-	0
25	9	9	9	-	9	0	0	0	-	0
26	8	8	9	-	8	0	0	0	-	0
27	8	8	(9)	-	8	0	0	(0)	-	0
28	10	9	8	-	8	0	0	0	-	0
29	7	8	10	-	8	0	0	0	-	0
30	9	9	9	-	9	0	0	0	-	0
31	9	10	(10)	-	9	0	0	(0)	-	0

Outstanding Occurrences

Oct. 1960	Start-time	Dura-tion	Type	Max. Inst.	Int. Smd.	Max. Time	Remarks
7	0555.1	4	CD/4	800	70	0557.5	
20	0108.4	0.6	CD/4	850	180	-	
	0523.0	0.4	CD/4	1040	220	-	
	0616.9	0.5	CD/4	>1500	430	-	off scale
	0619.5	1.3	CD/4	600	110	-	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Oct. 1960	Whole Day Index	L. N. 06 12 18 / 12 18 24	W W V 00 06 12 18 / 06 12 18 24	S. F. 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	3-	2 3 (3)	3 (3) 3 3	3 1 2 3	2 (2) 3 2	N N U U			
2	3+	3 3 (3)	3 4 4 2	3 3 3 4	1 2 3 3	U U U U			
3	3+	3 (4 3)	2 (3) 3 2	4 2 2 2	2 (2 3) 2	U U U U			
4	3-	1 3 (3)	2 (3) 3 2	3 (3) 3 (2)	2 (2 3) 3	U N N U	0700	---	
5	3o	3 3 3	3 (3) 3 1	3 4 4 2	2 (2 3) 1	U U U U	2000	---	
6x	4-	3 (4 4)	1 (3) 4 5	3 4 4 4	1 2 4 4	U U W W	---	---	
7x	4-	4 (3 3)	5 (5 4) 3	4 3 4 3	2 (3) 4 3	W W W W	---	---	
8x	4-	4 (3 3)	(4 4 4) 2	3 4 (4 3)	2 3 3 2	U U U U	---	---	
9	4-	4 4 4	3 (4 4) 3	(4) 4 3 (3)	1 2 (3) 3	N N N N	---	---	
10	3+	4 3 3	4 (4 4) 3	- - (3 2)	2 2 3 2	N N N N	---	0600	254γ
11	2+	2 3 2	3 (3) 2 2	1 2 2 1	2 2 2 2	N N N N			
12	2o	2 1 (1)	3 (2) 1 2	1 2 (2) 2	2 2 3 2	N N N N			
13	3-	2 2 1	2 (2) 2 2	2 2 2 2	(3 3 3) 2	N N N N	2147	---	
14	1o	1 2 1	1 (1) 1 1	1 1 1 1	2 2 2 1	N N N N	---	1200	48γ
15	2o	2 3 2	1 (2) 1 2	2 1 1 2	2 2 1 3	N N N N			
16	2-	1 3 1	2 (2) 1 1	1 1 3 3	2 1 1 1	N N N N			
17	2+	3 2 2	1 (2) 1 1	2 (3 3 2)	1 1 3 2	N N N N			
[18]	2o	1 2 3	2 (3) 3 2	2 1 1 1	1 1 2 2	N N N N			
[19]	2o	2 3 C	2 (2 3) C	1 1 1 1	1 1 1 (2)	N N N N			
[20]	1+	1 2 1	1 (2) 2 1	1 1 1 1	1 2 2 2	N N N N			
21	2-	1 2 3	1 (2) 2 2	1 1 1 2	1 (1 3) 1	N N N N			
22	1+	1 2 1	1 (2) 1 1	2 1 1 3	1 (2 3) 2	N N N N			
23	1+	1 1 1	1 (2) 1 1	2 2 1 3	2 2 (3) 1	N N N N			
24	2-	1 3 (2)	1 (2) 1 1	2 2 (3) 1	2 2 2 2	N N N N	1452	---	
25	3-	2 3 4	1 (3) 4 5	1 1 2 3	2 (1) 1 2	N U U U	---	---	
26	3+	3 2 3	5 (4) 4 3	3 3 4 3	1 1 2 1	U U W W	---	---	
27	3o	1 3 2	(4 4) 4 3	3 4 3 1	1 3 4 3	U U U U	---	---	
28	3+	3 (2) 3	4 (4) 4 3	1 (2) 3 4	1 2 2 2	N U U U	---	---	
29	4-	2 2 2	4 4 4 3	4 4 4 (3)	1 1 3 2	U U U U	---	---	
30	3+	3 2 (2)	4 4 4 3	3 4 (3) 1	1 (2 3) 2	U U U U	---	---	
31	3o	2 2 2	3 3 3 3	3 (3) 4 2	2 (2 3) 3	U U N N	---	---	180γ

x = day of Special World Interval

[ ] = Regular World Day

( ) = inaccurate

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Oct. 1960	S W F								S E A			Correspondence		
	Drop-out Intensities (db)					Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag.
	WS	SF	HA	TO	LN										
11	-		25	37'		05.31	35	S	3	05.30	65	1		x	
23	15"	31		15	-	21.03	56	S	2+						
24		24			11	20.26	60	S	2-						
28	28"					21.21	78	S	3				x		

PROVISIONAL IONOSPHERIC DATA

Jun. 1960 | foF2 | 45° E Mean Time (G.M.T.+3h.) | **Showa Base** | Lat. 69° 00.4′ S, Long. 39° 35.4′ E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	3.4^{R}	B	B	B	B	B	B	B	B	B	B	7.5^{R}	8.4^{F}	B	B	B	B	B	B	B	3.9^{R}
2	4.0^{R}	3.6^{R}	B	U4.1^{F}	B	B	3.4^{F}	3.5^{F}	3.2^{F}	3.4^{F}	4.9^{F}	5.4^{F}	7.0^{F}	7.3^{F}	7.4^{F}	S	5.3^{F}	4.5^{F}	3.9^{R}	B	B	B	B	B
3	B	B	3.4^{R}	3.0^{R}	3.0^{R}	3.7^{F}	3.4^{F}	3.3^{F}	2.1^{F}	2.6^{F}	4.2^{F}	6.1^{F}	6.5^{F}	6.8^{F}	8.2^{F}	6.1^{F}	5.0^{F}	4.6^{F}	3.6^{F}	B	B	B	B	B
4	B	B	B	B	3.7^{F}	B	B	B	U5.6^{F}	B	3.5^{R}	B	B	4.3^{F}	5.2^{F}	5.7^{F}	5.8^{F}	5.3^{F}	4.0	B	B	B	B	3.7^{F}
5	F	F	U4.0^{F}	B	B	B	B	B	B	B	B	B	B	B	B	B	8.7^{R}	7.2^{R}	B	B	B	B	B	B
6	B	B	3.8^{R}	U4.1^{R}	B	B	B	B	B	4.1^{R}	B	B	5.1^{R}	7.4^{F}	8.3^{R}	B	9.5^{R}	8.9^{R}	7.1^{R}	B	B	B	B	B
7	B	B	B	2.9^{R}	B	B	B	B	B	4.6^{F}	B	B	6.1^{F}	B	8.5^{R}	9.7^{R}	8.1^{R}	6.7^{F}	5.5^{F}	4.0^{R}	B	B	B	2.5^{R}
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	7.9^{R}	7.7^{R}	8.9^{F}	8.0^{F}	4.9^{F}	3.1^{F}	2.7^{F}	B	B	B
9	B	B	B	B	B	B	B	B	B	B	B	B	5.3^{F}	8.0^{F}	8.1^{F}	8.1	7.7^{F}	7.3^{F}	7.1^{F}	B	B	B	B	B
10	B	B	B	B	B	B	B	3.7^{F}	3.7^{F}	4.0^{R}	4.1^{F}	6.1^{F}	7.3^{F}	7.9^{F}	8.0	6.6^{F}	5.6^{F}	4.9^{F}	4.8^{F}	B	B	B	B	4.2^{R}
11	U3.4^{F}	B	B	B	4.3^{R}	B	4.1^{R}	4.3^{F}	4.2^{F}	3.5^{F}	3.9^{F}	5.1^{F}	7.2^{F}	7.6^{F}	7.2^{F}	7.1^{F}	6.7^{F}	4.5^{F}	3.2^{F}	1.9^{F}	2.0^{F}	B	B	B
12	B	B	2.1^{R}	2.1^{R}	2.4^{R}	B	2.2^{R}	2.3^{R}	2.4^{F}	2.7^{F}	4.3^{F}	6.4^{F}	7.3^{F}	8.0^{F}	7.8^{F}	7.2^{F}	C	C	3.8	2.5^{R}	B	B	B	B
13	3.7^{R}	2.6^{R}	3.0^{R}	3.2^{F}	2.9^{F}	B	4.6^{R}	4.8^{F}	5.0^{F}	4.8^{F}	5.0^{F}	5.9^{F}	7.2^{R}	8.4^{F}	7.8^{F}	6.6^{F}	5.7^{F}	5.0^{F}	4.1^{F}	3.6^{F}	3.1^{F}	B	3.1^{R}	3.2^{R}
14	3.0^{R}	B	U3.7^{R}	B	R	F	5.1^{R}	4.3^{F}	4.6^{F}	4.1^{F}	4.5^{F}	6.4^{R}	7.5^{F}	8.1^{F}	9.1^{F}	8.6^{F}	9.0^{F}	B	B	B	B	B	3.0^{R}	B
15	B	B	F	R	B	R	4.7^{R}	F	4.6^{F}	4.1^{F}	5.1^{F}	4.4^{F}	B	B	7.6^{F}	6.2^{F}	7.6^{F}	B	6.6^{R}	2.5^{R}	B	B	B	B
16	B	B	B	3.9^{R}	B	4.0^{R}	B	B	B	4.4^{F}	B	5.4^{R}	7.3^{F}	8.1^{F}	7.5^{F}	5.3^{F}	4.2^{F}	3.9^{F}	4.0^{F}	2.5^{F}	B	B	B	B
17	B	2.9^{R}	2.4^{R}	B	B	B	4.2^{F}	4.3^{F}	4.4^{F}	4.2^{F}	4.5^{F}	6.6^{F}	6.0^{F}	7.9^{F}	8.8^{F}	5.7	3.8^{F}	5.0^{F}	3.5^{R}	2.8^{F}	2.1^{F}	B	B	B
18	2.6^{R}	B	B	B	B	B	B	B	R	U4.1^{R}	B	5.2^{F}	6.4^{F}	7.3^{F}	7.8^{F}	B	6.5^{F}	F	6.4^{F}	B	B	B	B	3.2^{R}
19	3.6^{F}	3.8^{F}	4.8^{F}	4.2^{F}	F	R	B	B	R	B	B	4.9^{F}	B	B	B	B	7.7^{F}	7.6^{F}	6.2^{F}	4.9^{R}	B	B	B	B
20	B	B	B	B	B	B	B	B	B	B	4.7^{F}	B	6.3^{F}	7.2^{F}	5.7^{F}	6.4^{F}	6.7^{F}	7.1^{F}	4.0^{F}	2.9^{F}	B	B	B	B
21	B	B	B	3.9^{R}	B	B	R	F	B	B	B	B	4.6^{R}	B	B	4.5^{F}	4.5^{F}	5.3^{R}	4.1^{R}	2.2^{R}	B	B	B	B
22	B	R	B	B	B	R	R	B	B	B	B	3.9^{F}	4.8^{F}	6.2^{F}	7.0^{F}	5.3^{F}	5.3^{F}	5.0^{F}	3.3^{F}	2.3^{F}	B	B	B	B
23	F	B	B	B	B	B	B	F	B	B	B	4.6^{F}	6.3^{F}	6.4^{F}	7.4^{F}	7.1	4.5^{F}	4.1^{R}	2.6^{R}	B	B	B	B	F
24	B	B	B	B	B	B	B	B	4.3^{R}	3.4^{F}	3.4^{F}	B	B	6.2^{R}	7.7^{F}	6.6	6.3^{F}	S	B	B	B	B	B	B
25	B	R	B	4.7^{R}	B	B	B	B	B	3.2^{F}	3.4^{F}	5.4^{F}	6.1^{R}	7.5^{F}	6.9^{R}	6.3^{F}	6.0^{F}	7.0^{F}	4.8^{F}	B	B	B	B	B
26	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	6.0^{R}	5.9^{F}	B	B	B	B	B	B	B
27	B	B	B	B	B	B	B	B	B	B	B	B	F	B	B	3.6^{F}	4.3^{F}	4.4^{F}	B	B	B	B	B	4.1^{R}
28	B	B	B	B	B	F	F	4.9^{F}	5.0^{F}	5.0^{F}	5.1^{F}	5.3^{F}	5.8^{F}	6.4^{F}	5.2^{F}	8.8^{R}	11.7^{F}	B	R	B	B	4.6^{F}	B	B
29	B	B	B	B	B	B	B	B	B	B	B	E	5.2^{F}	6.5^{F}	6.5^{F}	6.5^{F}	6.1^{F}	5.3^{F}	4.3^{F}	2.3^{F}	2.2^{F}	1.9^{F}	B	B
30	B	B	B	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B
31																								
No.	6	4	8	11	5	2	8	9	12	16	14	16	20	20	24	24	27	21	22	13	5	2	2	7
Median	3.5	3.2	3.6	3.9	3.0	3.8	4.2	4.3	4.4	4.1	4.4	5.4	6.3	7.4	7.6	6.6	6.1	5.3	4.1	2.5	2.2	3.2	3.0	3.7
U.Q	3.7	3.7	3.9	4.1	4.0		4.6	4.6	4.8	4.3	4.9	6.1	7.2	8.0	8.0	7.4	7.7	7.2	5.5	3.4	2.9			4.1
L.Q	3.0	2.8	2.7	3.0	2.6		3.0	3.4	3.4	3.4	3.9	5.0	5.6	6.4	7.1	5.8	5.3	4.6	3.8	2.3	2.0			3.2
Q.R	0.7	0.9	1.2	1.1	1.4		1.6	1.2	1.4	0.9	1.0	1.1	1.6	1.6	0.9	1.6	2.4	2.6	1.7	1.1	0.9			0.9

Observed by M. Ōse | foF2 | Sweep 1.0 Mc to 20.0 Mc in 20.0 sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA IN JAPAN FOR OCTOBER 1960
電 波 観 測 報 告　第12巻 第10号

1960年12月20日 印 刷
1960年12月30日 発 行

編集兼
発行人　糟谷績
東京都小金井市貫井北町4の573

発行所　郵政省電波研究所
東京都小金井市貫井北町4の573
電話 国分寺 1211—1214

印刷所　山内欧文社印刷株式会社
東京都豊島区日ノ出町2の228
電話 (971) 9341