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IONOSPHERIC DATA IN JAPAN

FOR APRIL 1960

Vol. 12 No. 4

(Including Provisional Data at Showa Base)

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Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

$(M\,3000)F2$ — 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

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

S F .....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)

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

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

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

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

Start-times and Durations

Types

S : sudden drop-out and gradual recoverly

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

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

Importances

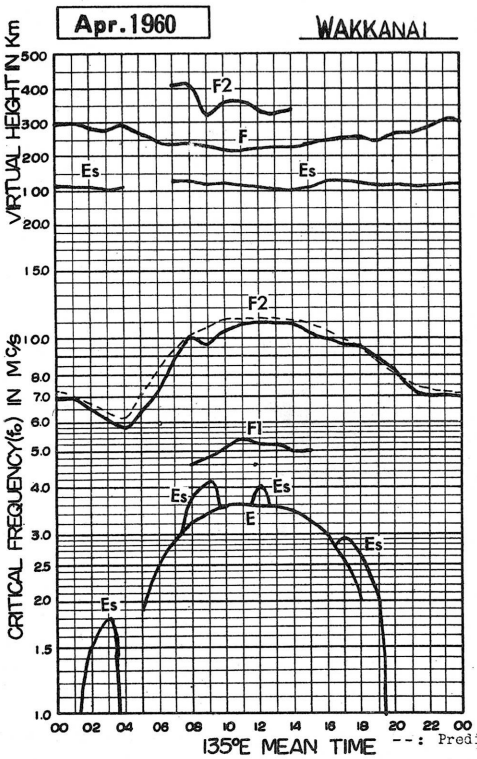
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

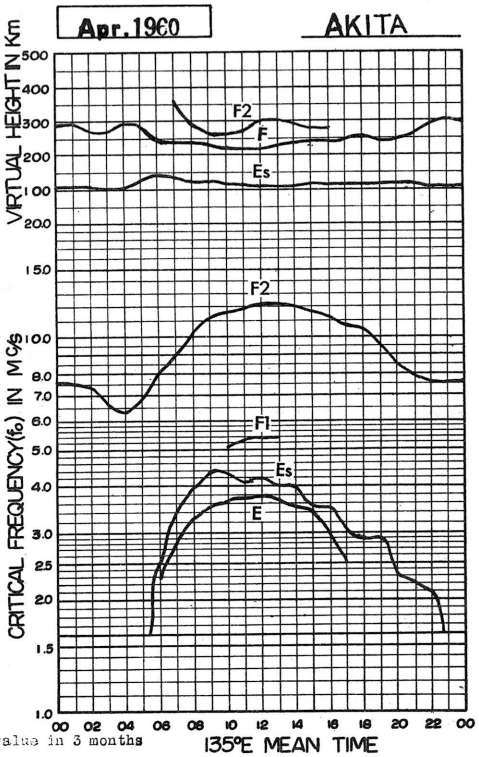
1—	1	1+
2—	2	2+
3—	3	3+

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

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

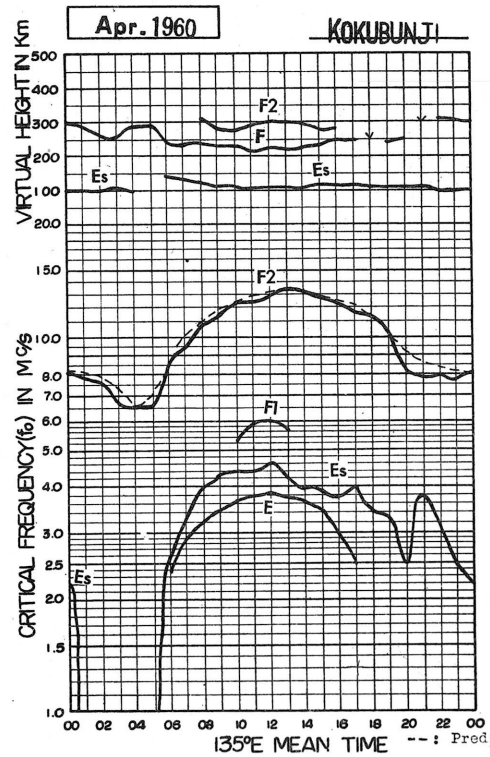
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

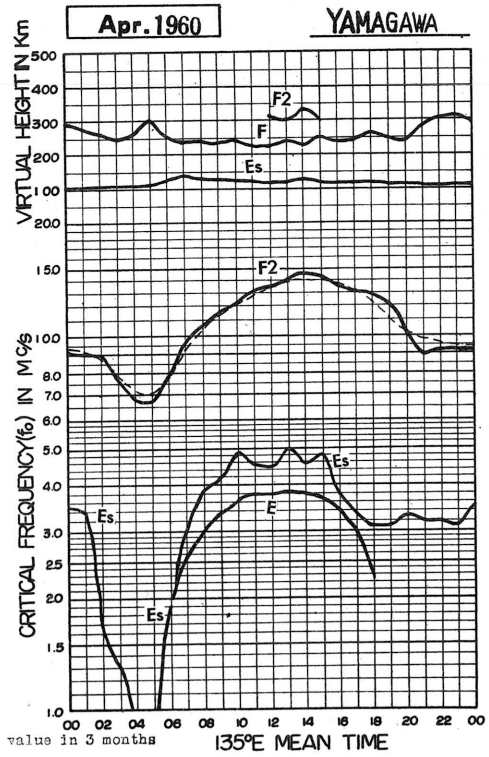




--: Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





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

IONOSPHERIC DATA

Apr. 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	I 7.2 S	4.8	4.0	4.0	3.8	4.3	5.8	5.7	5.2	5.5	W	W	W	6.1	W	6.2	7.5	6.6	6.0	6.0	7.2	7.0	5.9	I 4.9 S
2	4.3	2.4 F	I 2.7 F	2.4 F	2.8 F	W	W	W	W	W	W	W	W	W	W	5.0	5.4 H	5.7	5.8	5.6	5.8	6.0	5.8	5.4
3	5.3	5.2	4.3	3.3	2.8 F	3.2	4.7	6.2	5.9	6.7	7.1	7.5	7.8	10.3	9.5	9.9	9.8	9.7	8.0	5.8	6.0	5.7	5.3	5.0
4	4.8	4.7	4.6	4.3	3.8	4.5	7.5	9.3	12.0	12.5	12.4	11.9	12.0	11.3 H	11.3	11.2	10.3	10.3	9.8	8.1	7.8	6.8	6.8	7.0
5	6.7	6.7	6.3	5.8	5.3	6.3 F	5.7	5.9	7.3	8.0	9.4	I 10.8 B	I 10.8 R	10.8	9.9	10.6	10.8	9.8	9.3	7.1	6.5	6.5	6.6	6.5
6	6.5	5.7	5.3	5.3	5.8	6.1	7.7	8.5	10.5	10.3	10.6	11.8	12.5	11.3	10.6	10.1	9.8	9.1	9.3	U 8.3 S	U 7.7 S	7.3	6.8	6.6
7	6.3	6.2	6.0	5.7	5.1	5.8	7.2	8.9	11.0	11.5	11.8	11.7	12.0	11.3	11.8	11.8	11.4	10.4	10.6	8.8	7.5	7.3	I 7.2 S	U 7.2 S
8	7.2	7.0	6.4	5.8	5.3	5.9	5.8 H	9.3	9.3	9.7	10.5	10.5	11.0	11.2	11.3	11.4	10.9	9.5	9.8	8.0	U 7.5 S	U 7.3 S	U 7.1 S	I 7.6 S
9	U 7.6 S	7.3	6.7	6.5	6.5	7.3	9.3	11.1	11.3	11.9	11.9	12.1	12.4	12.4	12.5	12.3	11.3	11.3	11.1	I 9.4 S	S	S	S	S
10	7.1	7.0	7.1	7.1	6.0	6.7	8.5	10.4	11.8	12.4	12.0	11.7	12.0	12.0	11.7	10.3	10.5	10.5	U 10.6 S	10.3	9.4	U 8.0 S	C	C
11	C	C	C	C	C	C	C	C	C	8.0	7.8 H	8.4	8.8	8.9	8.4	8.3	9.2	9.3	8.5	8.5	7.3	6.8	6.5	I 6.6 S
12	I 6.5 S	6.6	6.3	6.1	5.8	6.8	7.4	8.8	9.3	9.5	9.7	9.6	10.2	10.4	9.0	9.2	9.3	8.8	8.7	I 8.2 S	I 7.8 S	7.3	7.1	5.8
13	5.5	I 5.6 S	5.7 F	F	F	F	7.5	8.8	10.3	11.2	10.6	11.0 H	10.8 H	10.9	10.3	10.3	9.6	10.5	10.5	10.4	U 9.3 S	6.8	6.5	6.3
14	Fs	Fs	F	6.2	6.8	7.0	9.0	10.7	11.8	12.3	12.8	12.6	12.8	12.8	13.0	12.5	11.8	11.3	10.6	9.3	8.5	8.0	7.6	7.4
15	I 7.6 S	I 7.6 S	7.7	7.3	6.8	7.5	9.0	10.4	11.0	12.1	11.5	11.8	11.7	12.2	11.8	11.0	11.5	U 11.0 S	10.0	8.8	U 8.1 S	U 8.0 S	I 7.4 Fs
16	7.7	I 7.4 S	7.0	6.6	5.8	6.1	5.6	5.3	5.7	6.2	6.2	6.3	6.7	7.2	7.5	7.5	7.6	7.3	7.3	7.0	6.7	6.7	6.3	6.0
17	6.3	5.3	5.2	5.0	4.9	5.4	6.4	6.9	7.1	7.1	7.3	7.8	8.1	8.0	8.3	8.4	8.6	8.8	7.8	U 7.8 S	6.7	7.0	7.0	6.9
18	6.7	6.7	6.3	5.7	5.5	6.9	8.8	9.8	10.3	9.3	9.7	9.8	10.3	9.7	10.7	10.6	10.1	9.5	9.5	9.1	8.1	7.4	7.3	I 7.4 S
19	7.7	8.2	U 8.1 S	6.5	6.2	6.9	8.4	10.2	11.1	11.5	11.5	11.2	11.4	11.7	11.8	11.5	11.2	10.1	9.1	9.0	8.5	S	Fs	Fs
20	F	F	U 8.0 S	7.7	7.4	7.8	9.1	10.1	10.8	11.3	11.8	11.6	12.0	11.8	12.0	12.1	11.5	11.0	11.4	10.0	I 8.6 S	8.3	I 8.0 S	8.1
21	U 7.7 S	7.9	7.8	7.3	7.0	8.3	9.3	10.3	11.5	11.7	11.5	11.8	11.8	11.8	12.0	11.7	11.3	11.2	11.3	10.3	8.5	8.0	I 8.0 S	8.1
22	8.1	7.7	7.8	7.4	7.0	8.0	9.1	10.2	11.3	11.1	11.5	11.6	12.3	U 12.8 R	U 12.8 R	11.9	11.4	10.9	10.3	10.0	U 9.8 S	9.1	8.8	I 8.1 S
23	U 7.8 S	7.3	7.4	6.8	7.0	7.7	10.1	11.4	12.1	12.3	12.5	12.3	12.1	12.0	11.8	11.5	11.4	10.8	10.5	9.8	8.7	8.7	I 8.1 S	U 7.8 S
24	U 8.0 S	U 7.8 S	U 7.8 S	7.0	7.0	7.9	9.3	10.5	9.8	11.7	10.3	11.2	11.6	12.0	12.3	11.8	10.1	9.0	8.3	8.3	8.5	8.1	6.6	6.2
25	6.1	6.2	6.4	5.7	5.7	5.5	7.0 H	7.5	7.9	7.6	9.5	10.0	10.6	10.8	J 11.3 R	9.5	8.9	9.5	10.0	8.8	U 8.9 S	7.5	I 7.8 S	7.8
26	7.2	7.0	6.5	6.5	6.2	6.3	5.9	5.6	5.9	6.3	6.7	7.3	8.0	9.3	8.7	8.4	8.9	8.9	9.0	9.0	U 8.3 S	7.8	7.3	7.1
27	7.0	6.8	6.5	6.3	6.5	7.1	6.5	6.8	8.2	9.1	9.4	8.6	9.5	9.8	9.8	9.8	9.5	9.8	10.0	9.5	I 9.0 S	7.3	7.3	I 7.5 S
28	U 7.7 S	7.5	6.8	6.5	6.3	5.8	6.2	5.8	6.7	7.0 H	7.7	7.3	9.1	9.8	8.5	9.5	8.3	7.6	7.8	9.4	U 8.3 S	7.6	7.2	7.0
29	6.8	7.0	6.7	6.1	5.8	5.7	5.1	5.3	7.0	7.7	8.3	8.7	9.0	10.2	10.2	8.9	9.3	8.8	10.1	9.4	U 8.5 S	7.5	7.0	6.8
30	6.7	7.3	6.8	6.8	6.2	6.5	6.6	6.7	7.0	7.7	7.3	7.1	7.3	6.8	7.3	7.8	8.2	7.5	8.1	8.1	7.3	U 7.4 S	I 7.3 S	6.2
31																								
No.	27	27	28	28	28	27	28	28	28	29	28	28	28	29	28	30	30	30	30	30	29	28	27	27
Median	7.0	7.0	6.5	6.2	5.8	6.5	7.4	8.8	10.0	9.7	10.4	10.9	10.9	10.9	11.0	10.3	10.0	9.6	9.6	8.9	8.3	7.3	7.1	7.0
UQ	7.7	7.4	7.2	6.8	6.5	7.3	9.0	10.2	11.2	11.7	11.6	11.8	12.0	11.9	11.8	11.5	11.3	10.5	10.5	9.5	8.6	8.0	7.6	7.5
LQ	6.3	5.7	5.8	5.7	5.3	5.7	6.0	6.3	7.0	7.6	8.0	8.5	9.1	9.8	9.2	8.9	8.9	8.8	8.3	8.1	7.3	7.8	6.6	6.2
Q.R	1.4	1.7	1.4	1.1	1.2	1.6	3.0	3.9	4.2	4.1	3.6	3.3	2.9	2.1	2.6	2.6	2.4	1.7	2.2	1.4	1.3	1.0	1.0	1.3

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

Apr. 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								5.0	4.6	4.8H	4.6	5.3	5.0	I5.1L	5.0H		L							
2							3.0	3.6	3.7	4.0	U4.2R	4.4	4.4	4.5	4.5	L								
3										4.8	5.1L	5.1	5.2	I5.3L	L		L							
4															L	L								
5									L	L	L	B	B	B										
6									L	L	L	L	L			L								
7											L	L	L	L	L	L								
8								L		L		L	L	L		L								
9											L	L	L	L										
10										L	L	L	L		L									
11								C	C	L		5.5	L	L	L	L								
12										5.2L	I5.4L	5.5	L	L	L	L								
13									L	L	L			L		L								
14														L	L		L							
15										L			L											
16								L	I4.6A	I4.7A	5.1	5.3	5.5	I5.3L	I5.5L	L								
17								4.5	4.7	I5.5A	5.3	5.4	5.3	L	L	L								
18											L	L	L	L	L									
19												L		L	L	L								
20												L	L	L	L									
21											L	L	L	L	L									
22													L	L	L									
23													L	L	L									
24									L	L	L	L	LH	L	L									
25								L		L		L	L	L	L									
26							L	4.5	4.7	L	L	L	L	L		L								
27									L	L	L	L	L	L	L	L								
28											5.5	5.7	5.5	5.4	I5.3L	L								
29							L	A		L		L	L											
30								A	A	A	A	A	I5.0A	5.1H	5.0	5.0	L	L						
31																								
No.							1	4	5	6	7	8	7	6	5	1								
Median							3.0	4.5	4.6	4.8	5.1	5.4	5.2	U5.2	5.0	5.0								

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							2.05	2.65	3.00	3.10	3.50	3.55	3.50	3.50	3.35	3.15	2.80	2.15						
2						2.20	2.60	2.65H	2.90	3.20	3.30	3.45	3.50	3.50	3.50	3.20	2.60	2.45	2.00					
3						1.85	2.40	2.85	3.10	3.25	3.45	3.50	3.55	3.40	3.25	3.30	2.80	A	S					
4							2.20	2.85	3.25	3.45	3.60	3.45	I3.50R	I3.55R	3.50	3.35	2.90	2.25						
5							2.20	2.90	3.10	3.30	3.50	B	B	B	R	3.40	A	A						
6							2.25	2.75	3.10	3.25	3.20	3.15	3.55	3.55	I3.40A	3.25	2.90	A						
7						1.60	2.35	2.85	3.20	3.35	3.45	3.50	I3.50A	I3.50A	3.40	3.20	2.85	2.30	S					
8						1.70	2.20	2.80	3.15	3.45	3.50	3.55	3.60	3.50	3.45	3.10	2.75	2.35	S					
9						1.80	2.45	2.80	3.20	3.50	3.55	I3.60R	3.65	3.55	3.50	3.20	2.80	2.25	S					
10						S	2.35	2.90	3.25	3.50	3.55	3.45	3.60	3.55	3.40	3.25	2.95	2.45	S					
11						C	C	C	C	3.50	3.55	3.60	3.50	3.50	3.50	3.20	2.85	2.35	2.00					
12							2.30	2.90	3.25	3.45	3.55	3.60	3.75	3.55	3.40	3.10	2.85	2.55	1.75					
13						1.60	2.40	2.95	3.30	3.45	3.55	3.75	3.70	3.55	I3.50R	3.40	3.00	2.55						
14						1.80	2.45	2.95	3.30	3.45	3.55	3.50	A	A	R	3.45	3.00	2.60	S					
15						1.90	2.65	3.05	3.35	3.50	3.65	3.65	A	A	A	3.50	A	A	A					
16						2.00	2.50H	3.10	3.35	3.55	3.70	3.65	3.50	3.50	3.50	3.40	3.00	2.60	S					
17						1.90	2.40	3.00	3.30	3.50	3.60	3.55	I3.50A	I3.60A	3.50	3.25	3.00	2.60	S					
18						1.90	2.50	3.00	3.30	3.50	3.60	3.75	3.55	I3.50A	I3.50R	I3.30A	3.05	2.45	S					
19						1.85	2.55	3.05	3.35	3.50	3.70	3.70	A	A	R	3.30	A	A	A						
20						1.80	I2.55S	3.05	3.35	3.50	S	S	A	A	3.50	3.45	3.05	2.60	S					
21						2.00	2.65	3.10	3.35	I3.45S	I3.50S	3.60	3.75	3.65	3.50	3.30	3.05	2.60	S					
22						2.10H	2.70	3.10	3.35	3.50	3.55	I3.60A	I3.80A	I3.70A	I3.55A	3.45	3.10	I3.60S	S					
23						1.90	2.60	3.15	3.30	3.50	3.60	3.30	A	A	R	3.40	3.00	2.60	S					
24						2.00	2.50	3.00	3.30	3.40	3.50	3.75	3.55	3.65	3.50	3.30	3.00	2.55	2.10					
25						1.90	2.55H	3.00	3.30	3.45	3.60	I3.80S	3.70	3.75	I3.50A	3.30	3.10	2.65	S					
26						I1.80A	2.50	2.90	3.25	3.50	3.50	3.50	A	R	A	A	I3.00A	2.60	S					
27						2.00	2.60	2.95	3.25	3.55	3.60	3.70	3.55	3.55	3.40	3.30	3.10	2.60	1.95					
28					1.30	I1.75S	2.55	3.00	3.25	3.35	3.55	I3.70R	3.55	3.50	3.50	3.40	3.00	2.55	2.00					
29						1.75	2.50	2.95	3.30	3.50	3.50	R	B	B	B	3.50	3.20	2.70	2.05					
30						2.10	2.55	2.85	3.15	3.40	3.50	3.60	3.60	3.50	3.40	3.20	2.80	2.60	2.05					
31																								
No.					1	23	29	29	29	30	29	27	22	22	23	29	27	25	8					
Median					1.30	1.90	2.60	2.95	3.25	3.45	3.55	3.60	3.55	3.55	3.50	3.30	3.00	2.55	2.00					

foE

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

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	1.8	E	E	E	2.6	3.5	G	3.5	G	G	G	G	G	G	G	G	S	E	E	E	E	E
2	E	2.2	1.5	1.7	1.2	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
3	2.0	J2.8	2.4	2.7	1.8	G	G	G	G	G	4.0	G	G	G	G	2.5G	G	3.0	S	E	E	E	2.4	E
4	2.5	J2.3	1.7	J2.0	E	2.1	G	G	3.8	4.1	G	G	G	G	3.1G	G	3.5	3.2	J2.8	E	2.3	E	J3.1	J2.8
5	J5.0	E	J1.8	J1.7	J2.3	E	G	J4.8	4.1	G	G	B	B	B	G	G	4.2	J2.8	E	E	E	E	E	E
6	E	J1.8	J1.7	J1.8	E	E	G	G	G	G	G	3.5	3.0G	3.0G	4.0	3.2G	G	J2.8	J3.3	J2.8	E	E	E	E
7	E	E	E	E	E	G	G	G	G	G	G	3.1G	4.2	4.2	3.5	G	G	G	S	E	E	E	E	E
8	E	E	E	E	E	G	G	G	3.5	G	G	G	G	G	G	G	G	2.6	S	E	E	E	E	E
9	E	E	J1.7	E	E	G	G	G	G	G	G	G	G	G	G	G	G	G	S	E	E	E	E	E
10	E	E	E	E	J2.5	S	G	G	G	G	G	G	G	G	G	G	G	G	2.1	2.0	E	E	C	C
11	C	C	C	C	C	C	C	C	C	5.0	4.1	4.0	4.5	G	G	G	G	G	G	E	E	E	E	J2.8
12	E	E	2.2	J2.2	2.4	E	G	G	G	G	G	G	G	G	G	3.5	3.3	G	2.6	J4.2	J2.5	J2.8	J2.8	E
13	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	3.4	J3.1	E	E	E	2.1	E
14	J2.8	2.1	E	2.1	1.7	2.0	G	G	4.0	4.2	4.2	4.2	4.0	J4.8	G	G	G	G	2.5	E	E	J5.3	J6.8	J3.7
15	E	J4.3	4.3	J2.1	2.5	G	3.1	3.4	5.0	4.4	4.3	5.0	J5.8	J5.5	4.0	G	J4.8	J4.5	2.8	J2.8	J2.8	J2.6	J2.5	J2.6
16	E	E	E	J2.0	E	G	G	3.5	5.0	5.0	4.2	G	G	G	2.6G	G	G	3.4	2.6	J3.8	E	E	E	E
17	E	E	E	E	E	G	G	3.4	4.0	5.1	G	5.0	J4.8	4.0	2.5G	G	3.5	3.5	4.0	J3.8	J4.5	J3.5	J2.8	2.1
18	E	2.0	2.0	J2.0	E	G	G	4.5	5.0	5.5	4.6	J5.8	J6.1	4.3	G	3.5	G	G	2.6	E	2.2	J2.3	3.5	J3.8
19	4.5	J2.8	J2.8	J3.3	J2.4	G	G	5.0	5.5	5.3	6.0	4.6	7.2	4.0	G	3.1G	J5.5	4.2	2.6	J3.6	J2.8	J2.8	J2.6	E
20	E	E	E	J1.8	E	G	S	G	G	4.4	S	S	5.0	4.2	G	4.2	5.0	4.0	J3.3	E	E	E	E	E
21	E	E	E	E	E	G	G	G	G	S	S	S	G	G	3.3G	G	G	3.5	3.0	J2.8	E	E	E	E
22	E	E	E	E	E	G	G	5.0	4.5	5.2	D6.0 S	4.0	D5.8 S	D5.5 S	D5.5 S	3.5	4.2	4.3	4.1	J3.3	J2.8	E	E	E
23	E	J1.8	E	J1.8	1.2	G	G	3.5	4.7	4.8	4.5	G	4.0	D5.0 S	G	3.6	3.4	G	S	J2.5	E	E	E	E
24	E	E	E	J2.0	E	G	G	G	G	G	G	G	G	G	G	G	G	G	G	J3.0	2.0	E	E	E
25	E	J4.8	2.0	1.6	J1.8	G	G	3.5	3.8	4.1	4.3	5.1	4.1	G	4.5	4.2	4.0	3.2	S	2.0	J3.3	E	E	J3.0
26	2.1	2.4	E	3.5	J2.4	2.2	2.8	3.5	4.2	4.4	G	4.5	4.0	G	3.5	4.2	4.0	3.2	S	2.1	J2.8	E	E	E
27	E	E	E	E	E	G	3.0	3.5	3.9	5.7	4.1	G	G	G	G	G	3.5	3.2	G	2.0	J2.8	4.0	J6.5	3.5
28	E	J2.8	J3.5	J2.1	G	2.7	3.1	G	G	G	G	G	4.2	G	G	G	J5.0	3.8	G	E	E	E	E	E
29	2.3	1.8	J3.3	J3.0	2.4	2.2	3.5	5.5	4.5	G	G	G	4.4	B	B	G	4.2	3.5	4.8	4.4	J5.0	3.5	J2.4	J4.9
30	3.5	E	J5.2	J6.3	J3.5	3.2	4.3	J6.3	J6.3	J6.0	J6.0	5.2	6.0	4.2	G	G	G	G	G	2.1	2.0	E	S	E
31																								
No.	29	29	29	29	29	28	28	29	29	29	28	27	29	28	29	30	30	30	22	30	30	30	28	29
Median	E	E	1.5	1.8	E	G	G	G	3.8	4.1	G	G	4.0	G	G	G	G	2.9	2.6	2.0	E	E	E	E
UQ	2.0	2.2	2.1	2.1	2.4	G	G	3.5	4.5	5.0	4.2	4.5	4.7	4.2	G	G	4.0	3.5	3.1	2.8	2.8	2.3	2.6	2.7
LQ	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	E	G	E	E	E	E	E
QR																								

The Radio Research Laboratories, Japan.

foEs

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

W 4

IONOSPHERIC DATA

Apr. 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				2.6	3.0		G									S					
2		E	E	E	E																			
3	E	E	2.6	E	E						G					2.4G		2.4	S				E	
4	E	E	E	E		E			G	G					2.2G		G	G	2.5		E		2.4	E
5	2.5		E	E	E			G	G			B	B	B			3.0	2.5						
6		E	E	E								G	2.2G	2.8G	3.5	2.4G		2.6	2.4	2.5				
7												2.2G	3.7	3.6	2.6				S					
8									G									G	S					
9			E																S					
10					E	S													G	E			C	C
11	C	C	C	C	C	C	C	C	C	G	G	G	G											E
12			E	E	E											G	G		G	2.5	E	2.4	E	
13																		G	2.7				E	
14	E	E		E	E	G			G	G	G	G	3.8	3.7					G			5.0	2.5	3.0
15		E	E	E	E		G	G	G	G	G	4.6	3.7	4.5	3.6		4.5	2.7	2.0	2.5	2.7	2.5	2.4	E
16				E				G	4.8	4.8	G				2.5G			G	2.4	2.2				
17								G	G	4.8		4.6	3.8	3.7	2.4G		2.6	G	4.0	3.0	4.1	3.0	2.5	E
18		E	E	E				G	4.8	5.2	G	5.0	5.0	3.8		3.4			2.5		E	E	E	2.4
19	4.0	2.6	E	3.2	E			4.8	5.5	5.1	5.8	4.5	4.6	3.8		2.5G	4.5	3.0	2.4	3.5	2.5	2.5	2.5	
20				E			S			G	S	S	4.4	3.7		G	G	3.8	3.0					
21										S	S	S			2.8G			G	G	2.6				
22								4.0	4.4	5.3	4.6	3.7	3.5	3.7	3.7	2.7	2.4G	G	4.0	3.0	2.5			
23		E		E	E			G	G	G	4.3		4.0	3.5		3.0	G		S	2.5				
24				E																2.6	E			
25		E	E	E	E			G	G	G	G	4.7	G		3.6	G	G	G	S	E	2.5			E
26	E	E		E	E	2.1	G	G	G	G		G	3.8		3.5	3.4	3.0	2.5	S	E	2.6			
27							G	G	G	G	G						G	G		E	2.5	3.5	6.5	2.7
28		E	2.6	E		G	G						G				G	G						
29	E	E	3.0	2.6	E	G	G	5.0	G				E44B	B			G	G	4.7	4.0	4.0	2.5	E	3.1
30	E		E	E	3.0	3.0	4.2	6.2	5.5	6.0	5.5	5.1	5.2	G						E	E			
31																								
No.	8	13	15	19	13	6	7	14	16	16	12	12	15	11	10	10	14	18	15	16	13	8	11	9
Median	E	E	E	E	E	G	G	G	G	G	G	4.1	3.8	3.7	G	G	G	G	2.4	2.5	2.5	2.5	2.4	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

Apr. 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	E1.80S	E1.30S	E	E1.30S	E1.30S	E1.60S	1.70	1.80	1.80	E2.45S	E2.40S	E2.40S	E2.70S	E2.40S	E2.45S	1.80	1.80	1.80	E2.10S	E1.60S	E1.60S	E1.70S	E1.60S	E2.10S
2	E1.80S	E1.60S	E1.10S	E	E	E1.40S	1.80	1.80	1.70	2.00	E2.45S	E2.45S	E2.40S	2.10	E2.45S	E2.40S	2.00	1.80	1.70	E1.60S	E1.80S	E1.60S	E1.65S	E1.60S
3	E1.60S	E1.10S	E	E	E	1.60	1.70	1.80	1.70	1.80	2.00	1.80	2.10	E2.40S	1.80	1.70	1.65	1.60	E1.80S	E1.60S	E1.60S	E1.70S	E1.60S	E1.70S
4	E1.60S	E1.60S	E	E	E	E1.40S	1.75	2.10	E2.50S	2.60	2.50	2.70	2.50	2.45	2.40	1.80	2.00	1.80	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
5	E1.70S	E1.50S	E	E	E	E1.60S	1.75	1.80	1.80	1.80	E2.40S	I3.40B	6.80	4.80	3.00	2.70	1.70	1.75	E1.70S	E1.80S	E1.60S	E1.65S	E1.60S	E1.60S
6	E1.60S	E1.10S	E	E	E1.60S	E1.50S	1.75	1.80	1.80	E2.40S	1.80	E2.50S	1.85	2.00	1.80	1.80	1.80	E1.75S	E1.70S	E1.60S	E1.70S	E1.60S	E1.60S	E1.70S
7	E1.80S	E1.60S	E	E1.20S	E	E1.50S	1.70	1.80	1.80	1.85	2.00	2.20	E2.45S	E2.40S	1.75	E2.40S	1.80	1.70	E1.70S	E1.80S	E1.60S	E1.60S	E1.60S	E1.70S
8	E1.70S	E1.60S	E	E	E	E1.60S	1.70	1.70	1.80	E2.40S	E2.40S	E2.50S	E2.50S	2.00	1.80	1.75	2.00	1.60	E1.80S	E1.60S	E1.60S	E1.80S	E1.80S	E1.60S
9	E1.60S	E1.60S	E	E	E	E1.60S	1.70	1.70	1.85	E2.50S	2.00	E2.50S	E2.40S	E2.50S	E2.50S	1.80	1.80	1.80	E1.80S	E1.60S	E1.80S	E1.80S	E1.70S	E1.60S
10	E1.70S	E1.55S	E1.40S	E	E	E1.60S	1.70	1.70	2.00	1.80	E2.50S	E2.40S	1.85	E2.50S	E2.50S	1.80	1.80	1.80	E1.60S	E1.60S	E1.60S	E1.60S	C	C
11	C	C	C	C	C	C	C	C	C	1.80	2.10	E2.50S	1.80	E2.50S	1.80	2.00	2.00	1.70	1.70	E1.65S	E1.60S	E1.60S	E2.00S	E1.60S
12	E1.80S	E1.60S	E1.40S	E	E	E1.60S	1.75	1.75	1.85	1.80	2.00	E2.50S	E2.50S	E2.50S	E2.50S	1.80	1.70	1.80	E1.60S	E2.50S	E1.60S	E1.60S	E1.60S	E1.60S
13	E1.60S	E1.60S	E1.40S	E	E	E1.50S	1.75	1.70	1.80	1.85	1.80	E2.50S	E2.50S	1.80	1.75	1.75	1.80	1.70	E1.60S	E1.60S	E1.70S	E1.80S	E1.60S	E1.60S
14	E1.60S	E	E1.40S	E	E	E1.60S	1.70	1.70	1.70	1.80	E2.60S	E2.60S	E2.50S	E2.50S	2.00	1.75	1.70	1.70	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
15	E1.80S	E1.40S	E	E	E	E1.60S	1.70	1.80	1.80	1.80	E2.50S	E2.50S	1.80	1.70	1.75	E2.45S	2.00	1.75	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
16	E1.60S	E1.40S	E	E	E	E1.60S	1.70	1.70	1.85	1.80	E2.40S	E2.50S	E2.40S	E2.40S	1.80	E2.40S	1.75	1.70	E1.70S	E1.60S	E1.60S	E1.70S	E1.70S	E1.60S
17	E1.70S	E1.40S	E1.30S	E	E	E1.60S	1.70	1.70	1.80	1.80	1.80	1.80	2.10	E2.50S	1.85	1.85	1.80	1.60	E1.60S	E1.60S	E1.60S	E1.60S	E1.80S	E1.60S
18	E1.70S	E1.50S	E1.20S	E	E1.20S	E1.60S	1.70	1.70	1.80	2.00	1.85	E2.50S	1.85	E2.50S	1.85	1.70	1.85	1.85	E1.75S	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
19	E1.60S	E1.60S	E1.40S	E	E	E1.60S	1.70	1.80	1.70	1.80	E2.45S	1.85	E2.40S	1.80	2.10	1.70	1.70	1.70	1.70	E2.50S	E1.70S	E1.70S	E2.50S	E1.80S
20	E1.70S	E1.30S	E1.40S	E	E	E1.60S	E2.70S	E2.50S	E2.70S	E3.00S	E1.20S	E3.70S	E2.60S	E2.50S	2.05	E2.60S	E2.60S	E2.10S	E2.60S	E1.70S	E1.60S	E1.70S	E1.60S	E1.70S
21	E1.70S	E1.60S	E	E	E	E1.60S	E2.40S	E2.60S	E2.60S	E3.70S	E3.80S	E2.50S	E2.40S	E2.50S	2.00	1.80	1.85	E2.40S	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
22	E1.60S	E1.60S	E1.40S	E	E	E1.60S	1.75	1.75	1.80	1.80	2.10	E2.50S	E2.50S	E2.50S	E2.50S	2.10	1.70	E2.60S	E1.80S	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
23	E1.70S	E1.60S	E1.60S	E	E	E1.60S	1.70	1.80	1.85	E2.45S	E2.45S	E2.60S	E3.00S	E2.50S	2.20	1.85	2.00	1.70	E2.10S	E1.60S	E1.80S	E1.80S	E1.70S	E1.70S
24	E1.70S	E1.40S	E1.40S	E	E1.40S	E1.60S	1.70	1.75	1.70	2.00	E2.50S	E2.50S	E2.50S	E2.50S	2.00	1.80	1.80	1.75	1.70	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
25	E1.80S	E1.40S	E1.30S	E	E	E1.60S	1.70	1.80	2.00	2.00	E2.50S	E4.00S	E2.80S	E2.50S	E2.50S	E2.50S	1.80	2.00	E2.30S	E1.60S	E1.65S	E1.60S	E1.60S	E1.60S
26	E1.80S	E1.40S	E1.10S	E1.40S	E	E1.60S	1.70	1.80	1.85	E2.45S	E2.60S	E2.20S	E2.40S	E2.50S	2.00	E2.50S	1.80	1.80	E2.10S	E1.60S	E1.60S	E1.60S	E1.60S	E1.60S
27	E1.70S	E1.60S	E	E	E	E1.60S	1.70	1.80	2.00	E2.40S	2.10	E2.50S	E2.50S	E2.50S	E2.60S	1.80	2.00	1.80	1.75	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
28	E1.80S	E1.60S	E1.40S	E1.30S	E	E1.60S	1.70	1.85	E2.50S	E2.60S	E2.60S	3.00	2.50	E2.50S	E2.50S	E2.45S	2.00	1.80	E1.70S	E1.60S	E1.60S	E1.80S	E1.60S	E2.00S
29	E1.60S	E1.20S	E	E	E	E1.60S	1.70	1.80	2.00	1.80	2.10	E2.50S	3.60	4.80	4.60	2.50	2.00	1.70	E1.80S	E1.60S	E1.60S	E1.70S	E1.60S	E1.60S
30	E1.60S	E1.20S	E	E	E	E1.60S	1.75	1.80	1.80	1.80	E2.50S	E2.50S	2.10	E2.50S	E2.30S	2.10	1.80	1.70	1.80	E1.60S	E1.60S	E1.60S	S	E1.60S
31																								
No.	29	29	29	25	25	28	27	27	25	20	30	30	30	30	20	22	29	26	30	30	30	30	28	29
Median	E1.70	1.55	E1.10	E	E	E1.60	1.70	1.80	1.85	1.80	E2.40	2.50	E2.50	E2.50	1.85	1.80	1.90	1.75	E1.70	E1.60	E1.60	E1.60	E1.60	E1.60

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Apr. 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	I2.85S	2.85	2.50	2.30	2.45	2.50	3.00	2.80	2.30	2.70	W	W	W	3.05	W	3.10	2.65	2.55	2.35	2.20	2.40	2.30	2.20	I2.45S
2	2.30	2.50F	I2.40F	2.50F	2.50F	W	W	W	W	W	W	W	W	W	W	2.85	2.85H	2.80	2.95	2.65	2.60	2.65	2.65	2.75
3	2.85	2.60	2.65	2.80	2.70F	2.90	2.85	2.80	3.00	3.15	3.00	2.85	2.85	2.75	2.80	2.85	2.75	2.95	3.10	2.75	2.60	2.60	2.65	2.60
4	2.55	2.55	2.65	2.65	2.55	2.75	3.10	2.80	2.95	3.05	3.00	2.95	2.90	2.85H	2.85	3.00	2.90	2.95	2.85	2.85	2.85	2.80	2.65	2.65
5	2.70	2.60	2.55	2.65	2.55	2.60F	2.75	2.65	2.85	3.05	2.85	I3.00B	I2.85R	2.95	2.80	2.85	2.85	2.95	3.05	2.90	2.60	2.60	2.55	2.50
6	2.60	2.50	2.60	2.50	2.60	2.80	2.90	2.95	2.85	2.80	2.80	2.90	2.85	2.85	2.90	3.00	2.90	2.95	2.90	U2.85S	U2.80S	2.70	2.70	2.55
7	2.60	2.65	2.75	2.80	2.55	2.95	3.00	2.90	2.90	2.95	3.05	2.90	2.85	2.85	2.80	2.90	2.80	3.10	3.00	3.05	2.65	2.75	I2.70S	U2.70S
8	2.65	2.60	2.50	2.50	2.50	2.60	2.75H	3.00	3.05	2.90	2.95	2.90	2.80	2.85	2.85	2.85	3.00	2.95	2.90	2.85	U2.70S	U2.60S	U2.55S	I2.65S
9	U2.70S	2.75	2.65	2.50	2.45	2.60	3.05	3.00	3.00	2.90	2.90	2.85	2.80	2.80	2.90	2.90	2.85	2.85	2.95	I2.90S	S	S	S	S
10	2.75	2.70	2.75	2.80	2.65	2.65	2.90	2.90	2.90	3.00	3.00	2.85	2.85	2.85	2.80	2.90	2.85	2.85	U2.85S	2.90	2.90	U2.85S	C	C
11	C	C	C	C	C	C	C	C	C	2.75	2.55H	2.80	2.80	2.85	2.95	2.90	2.90	2.90	2.95	2.90	2.85	2.55	2.55	I2.55S
12	I2.60S	2.65	2.60	2.70	2.60	2.90	2.95	2.80	2.70	2.75	2.80	2.70	2.75	2.85	2.75	2.75	2.85	2.85	2.90	I2.80S	I2.80S	2.85	2.90	2.60
13	2.65	I2.60S	2.65F	F	F	F	3.10	2.90	2.90	2.95	2.90	2.70H	2.75H	2.75	2.70	2.80	2.75	2.75	2.85	2.80	U2.95S	2.75	2.60	2.55
14	FS	FS	F	2.65	2.90	2.85	3.05	2.80	2.90	2.85	2.85	2.75	2.75	2.85	2.90	2.80	2.90	2.90	2.90	2.85	2.90	2.85	2.65	2.55
15	I2.65S	I2.65S	2.70	2.70	2.55	2.65	2.80	2.80	2.80	2.90	2.85	2.75	2.75	2.70	2.70	2.70	2.70	2.80	U2.80S	2.85	2.80	U2.65S	U2.70S	I2.60FS
16	2.65	I2.65FS	2.55	2.60	2.55	2.80	2.60	2.65	2.50	2.50	2.55	2.45	2.60	2.65	2.80	2.95	2.95	2.95	2.90	2.85	2.55	2.60	2.45	2.35
17	2.45	2.25	2.50	2.65	2.30	2.55	2.65	2.60	2.70	2.60	2.55	2.60	2.85	2.60	2.90	2.90	2.90	3.00	2.95	U2.90S	2.45	2.55	2.55	2.60
18	2.55	2.50	2.60	2.55	2.50	2.70	2.95	2.95	2.90	2.75	2.80	2.60	2.70	2.75	2.70	2.85	2.75	2.85	2.85	2.85	2.75	2.60	2.55	I2.65S
19	2.60	2.70	U2.70S	2.75	2.60	2.55	2.95	2.85	2.90	2.95	2.85	2.65	2.65	2.75	2.80	2.80	2.85	2.90	2.80	2.80	2.85	S	Fs	Fs
20	F	F	U2.75S	2.75	2.85	2.95	2.85	2.95	2.95	2.85	2.90	2.65	2.75	2.70	2.75	2.80	2.80	2.75	2.80	2.90	I2.80S	2.75	I2.65S	2.70
21	U2.65S	2.65	2.65	2.75	2.80	2.95	3.00	2.90	2.95	2.80	2.80	2.75	2.75	2.70	2.75	2.75	2.85	2.85	2.90	3.05	2.75	2.65	I2.60S	2.70
22	2.60	2.60	2.55	2.65	2.70	2.85	2.95	2.85	2.85	2.80	2.80	2.65	2.70	U2.80R	U2.80R	2.75	2.80	2.80	2.70	2.80	U2.85S	2.75	2.80	I2.70S
23	U2.60S	2.65	2.60	2.65	2.60	2.70	2.75	2.80	2.90	2.85	2.75	2.75	2.70	2.75	2.70	2.80	2.80	2.85	2.85	2.95	2.80	2.80	I2.85S	U2.70S
24	U2.60S	U2.55S	U2.60S	2.60	2.50	2.70	2.90	2.85	2.75	2.80	2.60	2.55	2.60	2.65	2.70	2.85	2.55	2.85	2.90	2.85	2.70	2.95	2.60	2.50
25	2.35	2.35	2.55	2.55	2.65	2.55	2.75H	2.85	2.85	2.80	2.70	2.70	2.80	2.75	J2.85R	2.85	2.90	2.85	2.90	2.80	U2.75S	2.65	I2.55S	2.50
26	2.55	2.55	2.50	2.50	2.45	2.60	2.70	2.80	3.00	2.70	2.85	2.80	2.75	2.90	2.85	2.85	2.85	2.95	2.90	2.90	U2.75S	2.60	2.65	2.55
27	2.65	2.50	2.60	2.65	2.60	2.95	2.80	2.95	2.95	2.90	2.85	2.80	2.75	2.85	2.80	2.85	2.80	2.80	2.80	2.85	I2.90S	2.95	2.60	I2.60S
28	U2.60S	2.55	2.60	2.60	2.70	2.70	2.90	2.60	3.15	2.60H	2.40	2.50	2.60	2.70	2.80	2.85	3.00	2.70	2.50	2.65	U2.60S	2.65	2.50	2.50
29	2.35	2.55	2.60	2.50	2.60	2.55	2.85	2.55	3.05	3.00	3.00	3.00	3.00	2.85	2.95	2.95	2.85	2.75	2.75	2.90	U2.85S	2.75	2.60	2.55
30	2.45	2.55	2.65	2.65	2.80	2.95	2.90	2.85	2.65	2.75	2.70	2.70	2.55	2.35	2.55	2.55	2.80	2.65	2.85	2.85	2.60	U2.60S	I2.60S	2.50
31																								
No.	27	27	28	28	28	28	29	29	29	30	30	30	30	30	30	30	30	30	30	30	29	28	27	27
Median	2.60	2.60	2.60	2.65	2.60	2.70	2.90	2.85	2.90	2.80	2.80	2.75	2.75	2.80	2.80	2.85	2.85	2.85	2.90	2.85	2.75	2.65	2.60	2.55

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

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Apr. 1960 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								3.05	3.25	3.15H	3.20	3.60	3.35	I3.20L	3.10H		L							
2							2.75	3.25	3.35	3.50	U3.35R	3.60	3.60	3.50	3.35	L								
3										3.35	3.35L	3.45	3.45	I3.35L	L		L							
4															L	L								
5									L	L	L	B	B	B										
6									L	L	L	L	L			L								
7											L	L	L	L	L	L								
8								L		L		L	L	L		L								
9											L	L	L	L										
10										L	L	L	L		L									
11							C	C	C	L		3.25	L	L	L	L								
12										3.25L	I3.40L	3.35	L	L	L	L								
13									L	L	L			L		L								
14														L	L		L							
15										L			L											
16								L	I3.35A	I3.25A	3.20	3.20	3.25	I3.35L	I3.25L	L								
17								3.15	3.20	I3.25A	3.40	3.35	3.40	L	L	L								
18											L	L	L	L	L									
19												L		L	L	L								
20												L	L	L	L									
21											L	L	L	L	L									
22													L	L	L									
23													L	L	L									
24									L	L	L	L	LH	L	L									
25								L		L		L	L	L										
26							L	3.15	3.25	L	L	L	L	L		L								
27									L	L	L	L	L	L	L	L								
28											3.15	3.20	3.05	3.25	I3.30L	L								
29							L	A				L	L											
30								A	A	A	A	A	I3.50A	⊕3.35H	3.00	3.05								
31																								
No.							1	4	5	6	7	8	7	6	5	1								
Median							2.75	3.15	3.25	3.25	3.35	3.35	3.40	U3.30	3.25	3.05								

(M3000)F1 Sweep 1.0 Mc to 20.7 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 8

IONOSPHERIC DATA

Apr. 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								420	620	460	W	W	W	I 425 L	W		L							
2							W	W	W	W	W	W	W	W	W	L								
3										300	320	320	335	285	I 300 L		2P0							
4															285	L								
5									L	L	L	I 270 B	I 270 B	265										
6									L	L	L	L	I 270 L			L								
7											L	L	260 L	L	L	L								
8								275		300		L	L	L		L								
9											L	L	L	L										
10										260	270	260	L		L									
11								C	C	335		365	L	L	L	L								
12										320	2P0	335	L	L	L	L								
13									280	I 270 L	260			L		L								
14										L				L	L		L							
15								I 500 L	500	470	475	485	450	I 400 L	I 350 L	L								
16								400	360	I 460 A	450	420	340	L	L	L								
17											L	360	L	L	L									
18												L		L	L	L								
19												L	L	L	L	L								
20											L	L	L	L	L									
21											L	L	L	V L	L									
22													L	L	L									
23													L	L	L									
24									L	L	L	350 L	360	340	2P5									
25								L		L		L	L	L	L									
26							L	3P0	350	I 320 L	I 350 L	I 350 L	350	310		L								
27									L	I 2P0 L	I 270 L	I 300 L	I 320 L	310	2P5 L	2P0								
28											475	470	370	325	I 340 L	L								
29							L	A	L			L	300 L											
30								A	415	360	370	3P5	425	520	425	375	335	L						
31																								
No.							1	6	7	13	12	15	14	10	9	2	2							
Median								410	445	320	360	362	365	330	340	330	335							

h'F2

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

The Radio Research Laboratories, Japan.

W 9

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Apr. 1960

h'F

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	220	300	405	320	360	2P0	270	260	240H	275	220	230	250	250H	255	260	2P0	3P0	405	350	360	410	505
2	385	420F	470F	510	420	W	430	2P0	2P0	275	285	235	230	230	235	240	255H	2P0	275	2P0	310	300	300	285
3	265	270	320	2P0	325	320	270	250	225	230	225	225	215	225	215	250	240	245	240	260	255	300	300	285
4	310	310	275	270	270	2P0	240	230	240	250	240	235	225	220H	220	250	245	245	240	235	255	250	320	310
5	300	2P5	300	300	315	310	255	250	250	235	215	B	B	B	260	245	250	245	245	230	260	285	310	320
6	300	340	335	350	2P5	260	245	240	240	235	220	210	215	240	235	240	245	245	245	245	250	260	280	305
7	300	2P5	270	235	250	260	245	245	240	230	225	235	215	225	230	250	240	250	245	230	250	270	285	300
8	300	310	315	335	350	2P0	250	230	230	220	235	205	220	220	240	250	245	245	250	235	265	280	320	300
9	275	270	270	290	320	260	240	240	230	230	230	225	235	230	240	240	240	260	245	235	260	255	270	265
10	285	2P0	280	260	230	270	245	245	245	230	220	215	220	225	230	240	245	245	260	250	250	245	C	C
11	C	C	C	C	C	C	C	C	C	250	235H	235	230	230	225	250	250	260	245	255	245	275	315	315
12	320	2P5	275	270	300	280	245	240	245	230	230	220	250	215	235	245	250	245	260	250	270	265	250	265
13	310	335	2P0	265	325	280	250	245	235	230	230	225H	230H	220	230	240	260	260	265	250	225	235	275	285
14	340	310	2P0	275	250	260	245	240	240	240	235	230	220H	220	240	245	245	255	245	235	250	I270A	2P5	345A
15	300	2P0	275	260	265	275	240	235	240	235	225	240A	220	240A	245	245	I260A	250	245	235	270	285	285	310
16	285	270	2P0	260	235	280	285	270	I260A	I240A	250	240	235	230	235	250	250	260	260	270	2P0	2P5	335	380
17	3P5	370	335	285	325	2P5	260	265	260	I245A	230	I235A	250	245	230	245	260	260	260A	270	I300A	325	330	2P5
18	300	300	280	285	350	270	245	255	255	275	235	I245A	I260A	230	240	245	245	250	255	250	250	270	315	335
19	I330A	300	270	275A	285	250	250	I260A	A	A	A	235A	250A	225	230	240	I260A	250	245	275A	270	260	2P0	285F
20	2P0F	310F	275	250	255	235	240	240	235	240	230	220	240	230	235	260	260	260	245	240	240	260	280	2P5
21	285	2P0	260	260	265	245	225	240	240	235	225	210	225	225	235	240	245	250	260	245	230	260	2P0	300
22	300	305	285	260	250	245	240	245	250	I245A	255	220	225	220	240	245	260	260	260	270	270	250	260	265
23	270	2P5	2P5	285	2P0	250	245	240	245	260	245	235	230	230	230	240	250	260	250	250	250	260	265	2P5
24	2P0	2P0	285	280	335	255	245	230	235	240	225	225	210H	250	250	245	250	255	265	270	2P5	250	250	310
25	350	370	300	250	315	270	260H	250	250	250	240	270	250	235	245	250	265	260	240	250	2P5	260	2P0	315
26	310	300	300	305	335	285	260	265	260	250	220	225	210	230	240	240	250	255	270	270	275	255	270	300
27	300	325	300	2P0	2P0	260	240	250	250	230	245	225	235	220	225	225	260	260	260	250	260	260A	I320A	350
28	320	320	330A	310	280	265	260	240	225	210H	240	250	275	260	245	250	250H	2P0	305	285	280	280	270	320
29	355	320	I340A	320	335	320	345	I265A	260	235	230	215	I250A	270	260	255	260	260	260A	250A	280A	270	310	320A
30	350	305	2P5	310	270A	2P5A	320	A	A	A	A	A	I230A	235H	250	230	235	250	280	270	265	2P5	I285S	335
31																								
No.	29	29	29	29	29	29	29	28	27	28	28	28	29	29	30	30	30	30	30	30	30	30	29	29
Median	300	300	290	285	295	270	245	245	245	240	230	225	230	230	235	245	250	255	260	250	265	270	290	305

h'F

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

The Radio Research Laboratories, Japan.

W 10

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	125	E	E	E	125	120	G	115	G	G	G	G	G	G	G	G	S	E	E	E	E	E
2	E	185	145	130	170	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E
3	135	135	125	125	135	G	G	G	G	G	125	G	G	G	G	105	G	100	S	E	E	E	115	E
4	115	110	105	110	E	105	G	G	130	120	G	G	G	G	110	G	135	125	120	E	120	E	115	115
5	110	E	110	110	105	E	G	115	135	G	G.	B	B	B	G	G	100	100	E	E	E	E	E	E
6	E	105	105	105	E	E	G	G	G	G	G	115	110	105	105	105	G	100	100	100	E	E	E	E
7	E	E	E	E	E	G	G	G	G	G	G	110	110	105	105	G	G	G	S	E	E	E	E	E
8	E	E	E	E	E	G	G	G	160	G	G	G	G	G	G	G	G	100	S	E	E	E	E	E
9	E	E	110	E	E	G	G	G	G	G	G	G	G	G	G	G	G	G	S	E	E	E	E	E
10	E	E	E	E	115	S	G	G	G	G	G	G	G	G	G	G	G	G	125	120	E	E	C	C
11	C	C	C	C	C	C	C	C	C	120	125	120	120	G	G	G	G	G	G	E	E	E	E	115
12	E	E	105	100	100	E	G	G	G	G	G	G	G	G	G	120	125	G	130	115	120	125	125	E
13	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	130	120	E	E	E	115	E
14	110	120	E	105	110	105	G	G	145	130	125	115	110	110	G	G	G	G	140	E	E	120	120	120
15	E	110	110	105	110	G	150	150	120	130	130	120	115	110	120	G	110	110	110	120	120	115	115	115
16	E	E	E	105	E	G	G	135	125	120	120	G	G	G	105	G	G	130	125	120	E	E	E	E
17	E	E	E	E	E	G	G	140	135	120	G	110	110	105	105	G	140	135	120	120	120	115	115	110
18	E	100	100	100	E	G	G	130	120	120	120	110	110	105	G	100	G	G	130	E	120	115	115	110
19	115	105	105	105	100	G	G	130	125	120	120	115	110	105	G	105	100	105	135	125	120	115	110	E
20	E	E	E	100	E	G	S	G	G	125	S	S	110	110	G	155	135	130	125	E	E	E	E	E
21	E	E	E	E	E	G	G	G	G	S	S	S	G	G	105	G	G	130	125	120	E	E	E	E
22	E	E	E	E	E	G	G	130	130	115	110	110	110	110	105	105	135	135	125	120	115	E	E	E
23	E	110	E	100	105	G	G	135	120	120	120	G	110	105	G	105	135	G	S	100	E	E	E	E
24	E	E	E	100	E	G	G	G	G	G	G	G	G	G	G	G	G	G	G	130	125	E	E	E
25	E	115	110	105	105	G	G	140	135	135	125	120	120	G	115	120	140	145	S	130	120	E	E	115
26	110	110	E	105	110	135	140	135	130	120	G	115	110	G	110	110	105	115	S	120	120	E	E	E
27	E	E	E	E	E	G	145	140	135	120	140	G	G	G	G	G	130	125	G	125	120	115	115	115
28	E	145	125	130	G	125	120	G	G	G	G	G	125	G	G	G	120	130	G	E	E	E	E	E
29	135	130	125	120	135	150	135	130	125	G	G	G	110	B	B	G	155	160	125	120	115	115	150	120
30	115	E	135	130	130	130	130	120	120	115	115	120	120	120	G	G	G	G	G	125	120	E	S	E
31																								
No.	8	13	15	18	13	6	7	14	16	16	12	12	16	11	10	10	14	18	15	16	13	8	11	9
Median	115	110	110	105	110	130	135	130	130	120	120	115	110	105	105	105	130	130	125	120	120	115	115	115

$h'Es$

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

The Radio Research Laboratories, Japan.

W 11

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Apr. 1960

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

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

Types of Es

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

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

Apr. 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	8.9	8.6	4.1^{H}	4.1	4.5	4.8^{V}	7.3	7.2^{H}	7.3^{H}	8.2	G	6.6	6.5	7.8	G	8.1	8.2	8.0	6.9	8.0	9.1	9.2	8.5	6.9
2	6.4	5.0	4.6	3.2	2.6	3.0	G	G	G	A	A	G	A	5.5	5.6	5.9	6.3	6.4	6.9	6.7	6.4	6.6	6.6	6.1^{S}
3	5.9	5.7	5.1	4.3	4.2	3.7^{F}	5.3	6.2	7.1	7.6	7.6	8.1	8.2	10.4	10.0	10.0	9.0	10.0	8.0	5.3	5.4	5.9	5.5	5.4
4	5.4	5.1	5.1	4.6	4.0	4.1	6.9	8.5	10.9	12.7	13.3	13.0	12.9	12.6	11.9	11.9	11.2	10.7	10.5	8.5	7.9	7.9	7.6	7.6
5	7.4	I 7.6^{F}	7.5^{F}	6.8^{F}	6.4^{F}	6.5^{F}	6.9	8.1	10.3^{H}	12.3	12.5	13.0	12.8	12.3	12.0	11.7	11.8	11.3	9.7^{S}	7.0	6.5	6.7	6.7	6.9
6	7.1^{S}	6.2	5.7	5.6	6.1	6.2	7.6	9.7	11.2	12.5	12.1	12.6	13.2	13.3^{S}	C	C	10.5	10.0	9.9	9.6	7.7	7.5	7.8	7.7
7	7.2	7.0	6.9	6.6	5.5	5.7	7.3	9.7	11.6	12.7	12.7	12.2	12.3	13.1	12.5	12.2	12.3	11.7	11.1	9.3	7.7	7.7	7.6^{S}	7.7^{S}
8	7.8	7.6	7.2	6.6	6.2	6.4	7.0	9.0	10.1	9.3	11.4	12.3	12.1	12.3	12.7	12.6	12.5	10.6	9.5	8.5	7.5	7.6	7.5	7.9
9	8.0	7.6	7.2	6.6	6.6	7.0	9.0	10.8	11.6	11.9	12.5	12.8	13.0	13.5	13.8	13.3	12.8	12.5	12.3	9.8^{S}	8.5	8.1	8.4	8.3
10	8.1	7.9	7.8	7.0	6.7	6.8	9.0	11.6	13.4	13.1	12.7	12.6	12.7	13.0	12.6	12.0^{H}	11.6	12.1	12.0	11.3	9.6	7.9	7.6	7.6
11	7.5^{F}	7.7	8.3	6.0	5.0	5.9	8.4	10.2	12.1	11.2	12.1	11.3	12.3	12.3	11.3	10.3	10.4	11.1	10.5^{S}	8.8	7.2^{S}	6.7	6.9^{F}	7.0
12	6.9	7.0	6.6^{F}	6.1	5.8	6.3	7.8	9.0	10.3	11.1	12.0	11.3	11.5	11.8	11.1	10.8	10.7	10.4	9.9	9.7^{S}	8.5	7.5	7.1	6.6
13	6.5	I 6.2^{C}	6.6	6.0	5.5^{F}	5.7^{F}	8.0^{F}	10.4	11.4	11.5	11.2	12.2	12.3^{H}	12.3	12.0	11.6	10.8	11.6	11.8	11.4	8.9	6.2	6.2	6.3
14	6.3	6.3	6.1	6.0	5.9	6.8	9.2	10.2	11.2	12.6	13.0	13.7	13.9	14.4^{H}	14.7	14.3^{H}	13.3	12.2	11.5	U 9.7^{S}	8.8	8.0	7.7	7.6
15	8.1	8.2	8.2	7.6	7.0	7.5	9.1	11.3	12.5	13.2	12.5	12.4	12.7	12.8	12.9	12.4	12.1	12.5	11.8^{S}	11.1^{S}	8.4	8.3	8.9^{S}	8.5
16	8.6	8.0	7.9	7.4	7.0	7.5	8.1	6.8	6.2	6.7	7.5	U 8.6^{R}	9.1	9.5	9.8	9.1	8.6	8.4	8.5	8.1	7.2	7.2	7.0	J 6.5^{R}
17	6.2	I 6.2$^{R}_{S}$	6.0	6.0	5.9	6.5	8.3	8.3^{H}	9.3	10.5	9.6	10.0	11.1	11.5	10.8	10.3	10.4	9.7	9.0	8.0	7.1	7.3^{S}	7.1	7.4^{S}
18	7.4^{S}	7.1^{S}	6.8	6.3	5.8	6.6	8.7	9.1	10.3	9.3	10.8^{H}	11.0	11.0^{H}	11.7^{H}	11.3^{H}	12.1	I 11.2^{C}	10.3	10.5	9.9	8.1	8.0	8.0	8.1
19	8.2^{F}	8.5	8.3	6.9	6.0	6.7	8.9	10.4	11.2	12.3	11.9	12.3	12.7	13.0	13.3	12.7	12.2	10.7	10.3^{S}	9.4^{S}	9.0	9.0	9.0	9.0^{S}
20	8.9	9.2^{F}	9.1^{F}	8.0^{F}	7.6^{F}	8.2	9.6^{S}	10.7	11.1	11.0	11.7^{H}	12.2^{H}	12.5^{H}	13.0	13.2^{H}	13.2^{H}	12.8	12.1	11.7	10.0^{F}	8.7	9.1	9.2	9.1
21	8.9	8.6	8.6	8.1	7.3	7.8	8.9	10.6	11.6	11.6	11.1	11.7^{H}	12.9	13.0	13.3	12.6	12.6	12.4	12.2	10.5	8.8^{S}	9.1	9.0	8.9
22	8.8	8.3	8.1	7.9	6.9	7.5	9.6	10.9	11.1	11.2	12.0^{H}	12.8^{H}	13.6	13.9	13.8	13.2	12.5	11.7	11.0	10.8	10.1^{F}	9.5^{F}	8.8	8.6
23	8.4	8.0	7.5	7.4	7.2	7.9	9.6	11.5	11.9	12.3	12.8	12.9^{H}	13.3	13.4	13.4	12.9	12.6	11.7	11.7	10.1	8.6	8.5	8.3	8.5
24	8.5	8.4	8.1	7.5	7.1	8.3	9.8	10.4	10.3	11.8	12.0	12.0^{H}	12.7	13.5	13.9	13.4	11.5	10.8	10.1	9.6	8.6	8.6	6.5	6.5
25	6.5	6.1	6.8	6.1	5.5	6.3	7.6	8.8^{V}	9.1	7.9	U 10.3$^{R}_{H}$ J 10.9^{R}	U 11.4^{R}	10.8^{H}	12.0	11.3	9.6	9.8	11.0	9.6	8.6	8.6	8.8	8.6	
26	8.3	8.1	7.7	7.5	7.0	6.8	6.4^{H}	6.5^{H}	7.0	6.9	7.8	8.3	9.6	10.5	11.0	9.7	9.9	10.3	10.6	10.0	8.6	8.1	7.9	7.9
27	8.0	7.6	7.3^{F}	7.2^{F}	I 7.0^{F}	7.3	7.2	7.9	9.2	9.3	9.4	10.2	10.7	11.6	11.4	11.1	11.1	11.6	11.8	U 10.7^{R}	8.6	8.0	7.8	7.8
28	8.0^{F}	8.0^{F}	8.0^{F}	8.0^{F}	7.3^{F}	7.3	7.5	7.2	9.0	7.9	8.4	9.1	10.2	11.6	10.5	10.4	10.5	8.2	8.9	U 9.7^{R}	8.5	7.7^{H}	8.4	8.0
29	7.5	8.0	7.5	6.9	7.0	7.7	7.6	7.2	9.7	9.4^{V}	9.6	9.7	9.9	10.9	11.3	10.5	9.6	9.0	10.8	10.3^{S}	8.2	7.6	7.2^{S}	7.1^{S}
30	7.2^{S}	7.4^{S}	7.5^{S}	7.3	6.6	7.1^{S}	8.2	8.0^{H}	I 7.2^{A}	7.8	7.9	7.4	7.1	6.5	7.2	7.9	7.9	8.0	8.2	8.5	7.5	7.6	7.5	6.6
31																								
No.	30	30	30	30	30	30	30	30	30	29	29	30	29	30	29	29	30	30	30	30	30	30	30	30
Median	7.6	7.6	7.4	6.7	6.3	6.8	8.0	9.0	10.3	11.2	11.7	11.8	12.3	12.3	12.0	11.7	11.2	10.7	10.5	9.6	8.5	7.9	7.6	7.6
U.Q	8.3	8.0	8.0	7.4	7.0	7.5	9.0	10.4	11.4	12.3	12.5	12.6	12.8	13.0	13.2	12.6	12.3	11.7	11.7	10.1	8.7	8.5	8.4	8.3
L.Q	6.9	6.3	6.6	6.0	5.5	6.2	7.3	7.9	9.1	9.0	9.5	9.7	10.4	10.9	10.9	10.3	9.9	9.8	9.5	8.5	7.5	7.5	7.1	6.9
Q.R	1.4	1.7	1.4	1.4	1.5	1.3	1.7	2.5	2.3	3.3	3.0	2.9	2.4	2.1	2.3	2.3	2.4	1.9	2.2	1.6	1.2	1.0	1.3	1.4

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L H	5.4 V	5.6 H	I 5.6 L H	I 5.8 L	5.3									
2							3.0	3.6	4.0	A	A	4.7 H	I 5.0 A	5.0	L	L	L							
3									L	L	I 5.1 L	5.1	5.4 L	I 5.3 L	L	L	L	3.2						
4									L	L H	L	A	A	L		L								
5										L	L	B	B	B	B	L								
6								L	L	L	L	L	L	S	C	C								
7										L	L	L	L	L	L	L								
8											L	L	L	L	L	L								
9									L	L	L	L	L	L	L	L	L							
10									L	L	L	L	4.6	L										
11									L	L	L	L	L	L	L	L	L							
12								L	L	L	L	L	L	L	L									
13										L	L	L	L	L	L	L	L							
14										L	A	L	L		L									
15									L	L	L	L	L	L	L	L	L							
16								4.7 L	5.0	5.1	5.4	5.5	I 5.6 L	5.7 L	L	L								
17									A	L	L	A	L	L	L	L	L							
18								L								L								
19										L	A	L	A	A	L	A	L							
20								L	L					L										
21										L	L	L	L	L	L H	L	L							
22													L	L	L	L								
23											L	L	L	L	L	L	L							
24										L	L	L	L	L	L	L								
25													L		A									
26								4.4	A	A	L	L	5.1 L	L	L	L								
27								L	L	L	L	L	6.5 L H	I 5.4 L H	L	L	L							
28									L	L H	5.0	I 5.8 L	5.6 L	L	L	L								
29								L	A	A	L	L	A	L	L	L	L	L						
30								L	A	A	4.9 R	5.0	I 5.1 A	5.0	4.8	4.9 L	4.7	L						
31																								
No.							1	3	2	1	5	6	9	6	2	1	1	1						
Median							3.0	4.4	4.5	5.1	5.1	5.3	5.4	5.4	5.0	4.9	4.7	3.2						

foF1

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

The Radio Research Laboratories, Japan.

A 2

IONOSPHERIC DATA

Apr. 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							2.05	I 2.70A	I 3.10A	A	R S	A	I 3.75R	I 3.65R	I 3.50A	3.25	2.85	2.30						
2							I 1.90A	2.55H	2.85	3.35	3.45	3.55	I 3.50R	3.45	I 3.30A	I 3.20A	3.00	2.50	A					
3							2.10	2.70	3.05	3.40	3.50	3.55	3.65	I 3.55R	3.45	3.30	2.90	R						
4							2.05	2.75	3.30	I 3.55B	3.85	B	A	A	A	3.35	I 2.90R	2.45						
5							2.00	2.75	3.20	3.50	3.65	B	B	B	B	A	R	2.50	1.90					
6							2.05	2.70	3.20	3.50	3.60	R	S	S	C	C	2.95	A						
7							2.30	2.90	3.25	3.60H	3.60	I 3.65A	3.75	3.70	I 3.55A	3.40	I 3.00A	A	A					
8						B	1.90	2.85	3.25	3.45	3.60	3.75	I 3.80R	3.70	3.45	A	A	A	E					
9							2.30	2.90	3.20	3.50	I 3.65R	I 3.85R	3.90	3.85	3.70	I 3.45A	I 3.00A	2.45	A					
10							2.20	2.85	3.30	3.55	3.65	3.75	I 3.75R	I 3.70R	3.55	3.25	3.05	2.45						
11							I 2.10R	2.95	3.25	3.50	3.75	3.80	3.85	3.70	3.40	3.30	3.00	I 2.50A	B					
12							2.40	2.80	3.35	3.55	3.70	3.75	I 3.80R	3.70	3.55	3.30	2.95	A						
13							2.20	2.90	3.25	3.55	3.45	I 3.70R	I 3.85R	I 3.80R	3.70	3.60	I 3.10R	2.55						
14						B	2.35	2.95	3.35	3.55	3.60	3.70	A	A	A	3.55	3.05	A						
15							2.20	3.05	3.40	3.75	3.80	I 3.85A	I 3.85A	A	A	3.70	3.20	2.60	A					
16							2.30	3.00	3.65	3.70	3.80	A	A	3.70	I 3.60A	3.50	3.10	2.60	A					
17							2.50	2.95	3.45	3.60	3.80	3.80	A	A	A	A	3.10	A	B					
18						B	2.20	3.00	3.40	3.55	3.70	3.80	3.80	3.70	3.55	3.45	I 3.10C	A	A					
19							2.45	3.05	3.45	3.65	3.80	3.90	R	A	A	A	3.20	2.70	1.80					
20						B	2.30	3.05	3.40	3.55	3.55	3.65	3.70	A	A	A	3.15	2.65	A					
21						B	2.50	3.05	3.30	3.50	I 3.75S	4.00	3.90	3.80	3.70	3.50	3.20	2.80	A					
22							2.45	3.05	3.40	3.55	A	A	A	A	A	A	A	A	A					
23						E	2.55	3.10	3.45	3.55	3.70	I 3.80A	R	A	R	I 3.55A	3.20	2.50	A					
24						E	2.55	3.00	3.50	3.55	R	R	3.75	3.70	3.55	A	A	A	A					
25						B	2.50	3.05	I 3.40A	3.60	A	A	R	A	3.80	3.55	3.15	A	A					
26						B	2.45	2.90	3.15	3.50	I 3.60A	3.75	R	A	A	3.45	I 3.00A	2.60	A					
27							2.40	2.95	3.40	3.55	I 3.60R	I 3.65R	I 3.70B	3.65	I 3.50R	3.45	A	A	A					
28						B	2.40	2.80	3.30	3.55	3.60	I 3.70B	I 3.80B	I 3.80B	I 3.65R	I 3.35R	2.95	2.55	1.90					
29						B	2.50	3.00	3.25	3.50	3.70	3.80	B	B	B	B	3.30	2.75	B					
30						B	2.30	2.85	3.25	3.55	3.55	3.60	3.60	3.55	3.50	3.20	2.90	2.50	B					
31																								
No.						2	30	30	30	29	26	22	18	17	18	21	25	18	4					
Median						E	2.30	2.90	3.30	3.55	3.65	3.75	U 3.80	3.70	3.55	3.45	3.00	2.50	1.85					

foE

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

The Radio Research Laboratories, Japan.

A 3

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	2.1	E	E	E	2.7	3.5	4.0	3.9	G	3.9	G	G	4.0	G	G	G	E	E	E	E	E	E
2	E	E	E	2.1	E	E	2.4	G	3.5	4.5	J4.5	3.8	J4.7	J4.3	J5.9	J3.4	2.5G	G	J2.0	J2.2	E	2.0	J2.4	E
3	E	E	E	E	E	E	J6.0	2.9	4.2	4.2	G	G	G	G	3.9	G	G	G	B	J3.8	J3.3	2.3	2.1	E
4	E	E	E	E	E	E	G	G	G	4.0	4.4	5.2	J7.0	4.5	J5.8	3.7	G	G	J3.7	J3.1	J2.3	J6.1	2.2	C
5	E	E	E	E	E	E	G	G	G	4.4	5.7	B	B	B	B	3.9	G	G	G	J3.1	J3.3	J3.0	J2.2	E
6	E	2.2	2.4	2.2	E	E	G	G	3.5	3.8	G	G	S	S	C	C	J3.0	J3.0	J3.5	J2.9	J2.3	J1.8	E	E
7	E	J1.8	E	E	2.2	E	G	G	3.7	G	3.8	4.0	G	G	J3.5	3.8	3.8	J2.9	J2.5	J3.0	2.1	E	E	J2.2
8	E	E	E	E	E	B	G	3.2	3.9	4.0	4.0	G	G	3.5G	G	J3.9	J5.3	3.1	2.7	J1.8	J2.3	J2.0	2.2	E
9	E	E	2.1	2.2	J1.8	E	G	G	G	3.7	G	G	G	4.1	G	4.1	J3.2	G	2.4	2.2	2.3	2.2	E	E
10	E	E	E	E	E	E	2.5	3.2	3.5	G	4.4	G	G	G	G	4.0	4.0	J5.1	J4.5	J2.9	J1.8	E	E	E
11	E	E	E	E	E	E	2.7	3.7	4.0	4.8	4.2	4.1	G	3.9	4.1	3.5	G	J2.6	2.3	J2.7	J2.1	2.3	2.3	E
12	E	J3.0	E	E	E	E	G	3.4	3.8	5.0	4.0	4.0	G	4.6	4.4	4.6	J4.3	3.1	1.9	J3.7	E	J1.7	E	E
13	2.3	C	E	E	E	E	G	3.9	4.0	4.5	J5.1	G	G	G	G	G	G	J4.0	J2.9	2.3	E	E	E	J2.2
14	2.0	2.3	1.9	2.3	2.3	B	2.7	3.3	3.7	4.0	J4.9	4.2	J4.4	4.0	4.0	G	G	J2.8	J2.8	J5.0	J2.7	E	E	J2.3
15	E	E	J2.8	E	E	J2.8	G	3.5	4.2	4.7	4.4	4.1	4.1	4.7	J5.0	G	3.6	2.9	J2.5	J2.5	2.3	J3.5	J3.5	J2.5
16	J2.8	J3.0	E	J2.2	J1.8	E	2.5	3.7	4.3	4.8	4.4	4.1	4.0	G	4.0	G	3.8	2.8	3.1	J2.9	J2.3	E	J2.5	E
17	E	E	E	E	E	E	3.0	3.9	J6.1	J5.7	J4.9	J6.3	J4.9	J7.0	4.2	J4.6	4.8	J4.3	J4.5	J2.3	J3.2	J5.3	J3.5	J5.0
18	J3.0	2.2	J2.1	J2.2	E	B	G	3.5	J5.4	4.8	4.5	4.7	J5.8	4.9	4.0	G	C	3.5	J6.4	J4.0	J3.8	E	E	2.1
19	2.2	J4.1	J2.9	J1.9	J1.7	J1.9	3.0	4.0	4.5	J6.2	J7.2	J5.8	J6.8	J6.2	J4.3	J8.1	4.0	J6.1	J5.5	J5.2	J8.3	J5.0	J3.0	E
20	J2.4	2.2	E	E	E	B	2.5	G	4.4	J5.3	J4.9	J4.9	4.9	4.5	J4.8	J4.3	4.0	J5.5	J5.7	J6.7	J8.3	E	2.2	2.2
21	E	E	E	E	E	G	G	G	3.9	3.9	S	4.2	4.1	4.2	G	G	3.5	3.9	J12.2Y	J7.8	J6.5	J2.5	E	E
22	E	E	E	E	E	G	2.7	J4.5	J6.4	J5.5	4.3S	G	J5.3	J4.3	J7.0	J11.3	J5.1	J5.9	J5.0	J13.9Y	J13.7Y	J10.8Y	E	E
23	E	E	E	E	E	1.8	3.0	J4.4	4.7	4.7	4.3	4.0	4.3	4.0	G	3.7	4.2	3.0	2.4	J4.4	J4.9	J5.0	J2.4	E
24	E	E	E	E	E	2.0	G	G	4.0	4.0	G	G	G	G	G	3.5	J3.8	7.2	J6.4	J3.8	2.0	J2.4	E	E
25	E	E	E	E	E	G	G	3.8	J5.0	4.4	5.0	4.9	4.5	4.7	5.0	4.3	J6.0	J7.6	J8.3	J10.9Y	J4.0Y	2.4	J5.0	E
26	2.1	E	E	E	E	G	2.7	3.6	J5.9	5.3	3.9	4.2	4.2	4.0	3.7	G	3.5	G	J4.0	J2.3	J3.8	J2.4	E	E
27	J2.0	2.3	E	E	E	2.9	3.0	3.7	4.3	4.0	G	G	B	G	G	G	3.6	J5.2	J6.3	J2.3	E	J1.8	J2.5	J1.7
28	J4.0	J2.8	J4.2	J2.3	E	2.7	J6.4	3.5	G	4.0	4.1	4.6	B	B	G	G	G	3.3	G	E	E	E	E	J3.5
29	J2.4	J1.9	E	J2.3	E	B	3.1	4.1	J20.0P	J5.2	4.2	4.8	J9.0	B	B	B	G	G	2.0	J2.8	J2.5	J2.4	2.4	J2.5
30	E	J2.8	J3.5	J4.9	J8.2	J7.0	J4.3	4.4	J6.9	J8.3	4.6	6.3	4.9	4.0	G	G	G	G	2.3	J2.3	J2.0	J3.8	E	E
31																								
No.	30	29	30	30	30	25	30	30	30	30	29	29	26	26	27	28	29	30	29	30	30	30	30	29
Median	E	E	E	E	E	E	2.5	3.5	4.0	4.4	4.3	4.1	4.2	4.0	4.0	3.5	3.5	3.0	2.9	2.9	2.3	2.2	2.1	E
U.Q	2.1	2.2	2.1	2.2	E	1.8	3.0	3.8	4.7	5.0	4.8	4.8	4.9	4.5	4.7	4.0	4.0	4.3	5.2	4.0	3.8	3.0	2.4	2.2
L.Q	E	E	E	E	E	E	E	E	3.7	4.0	3.8	G	G	G	G	G	G	G	2.3	2.3	2.0	E	E	E
Q R									1.0	1.0	1.0								2.9	1.7	1.8			

foEs

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

The Radio Research Laboratories, Japan.

A

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			E				G	2.9	3.4	3.7		3.9			3.6									
2				E			2.0		3.3	A	A	G	A	4.1	4.0	3.4	2.3[B]		G	E		E	2.2	
3							2.0	G	G	4.0					3.7				B	2.5	1.7	E	E	
4										3.9	4.4	5.2	5.2	4.4	4.8	3.5			3.0	1.7	E	3.0	E	C
5										4.1	G	B	B	B	B	3.8				E	E	E	E	
6		E	E	E					G	3.8			S	S	C	C	2.1	2.5	2.3	2.0	2.0	E		
7		E			E				3.6		G	4.0			3.5	2.8	3.2	2.9	2.5	2.0	E			E
8						B		G	3.9	3.8	4.0			3.5[G]		3.6	3.2	2.8	2.7	E	2.0	E	E	
9			E	E	E					G				3.4		G	G		G	E	E	E		
10							G	3.2	G		4.0					3.8	G	4.7	4.1	2.0	E			
11							2.5	3.5	3.8	3.9	4.1	4.0		3.9	3.8	G		2.7	G	E	E	E	E	
12		E						3.4	3.7	3.9	4.9	4.0		4.1	4.1	4.4	3.9	2.8	1.9	E		E		
13	E							3.0	3.5	4.0	4.6							3.0	2.5	E				E
14	E	E	E	E	E	B	G	G	3.7	4.0	5.0	4.2	4.1	4.0	4.0			2.7	2.7	2.6	1.7			2.0
15			E			E		3.4	4.1	4.6	4.3	[U]4.1[B]	4.1	4.2	4.4		G	2.1	2.6	2.1	E	2.0	E	E
16	E	2.2		E	E		G	G	G	4.3	4.4	4.0	[U]4.0[B]		[E]4.0[S]		3.3	1.8	2.5	2.7	E		E	
17							2.8	3.7	5.8	5.1	4.9	6.3	4.7	5.5	G	4.2	2.7	4.0	2.5	2.0	2.5	4.7	2.5	E
18	2.5	E	E	E		B		3.5	5.3	4.7	4.1	4.7	5.0	4.6	4.0		C	3.0	6.1	4.0	2.0			E
19	E	2.5	3.0	E	E	1.8	3.0	3.9	4.5	5.9	7.1	5.4	6.7	[U]6.2[B]	4.3	6.3	G	3.5	5.4	2.0	1.9	E	E	
20	E	E				B	G		G	5.0	4.9	4.7	4.9	4.0	4.6	3.9	3.7	5.5	5.0	5.5	5.5		E	E
21									3.6	3.9	S	G	4.1	4.0			3.5	3.8	5.0	E	E	E		
22							G	4.0	4.8	5.0	[E]4.3[S]		4.5	[U]4.3[B]	4.9	4.0	4.0	4.5	3.5	2.2	2.6	1.7		
23						1.8	G	3.4	4.7	4.7	4.3	[U]4.0[B]	4.3	4.0		3.7	3.7	3.0	[U]2.4[B]	4.0	2.8	2.5	2.1	
24						1.8			3.8	4.0						3.5	3.4	4.0	4.8	3.8	E	1.8		
25								3.5	4.8	4.2	5.0	4.7	[E]4.5[B]	4.4	[U]5.0[B]	4.0	5.6	7.4	4.4	3.4	2.0	2.0	2.6	
26	E						2.7	3.5	5.3	5.3	3.9	4.2	4.2	4.0	3.7		3.5		3.6	E	3.8	E		
27	E	E				E	2.7	3.4	3.9	3.8			B				3.5	5.0	6.2	1.7		E	E	E
28	3.2	2.5	3.8	E		2.2	4.7	3.2		3.8	4.0	[E]4.6[B]	B	B				3.3						3.5
29	1.8	E		E		B	2.9	3.6	9.3	5.2	4.2	[U]4.8[B]	8.5	B	B	B			1.9	2.0	2.1	E	1.8	2.5
30		E	1.8	1.9	E	4.5	4.0	4.0	A	5.2	4.4	4.3	[E]4.9[B]	4.0					2.3	2.2	2.0	3.8		
31																								
No.	10	12	9	10	6	7	17	21	26	28	23	19	15	18	17	16	19	21	26	28	24	21	15	10
Median	E	E	E	E	E	1.8	2.0	3.4	3.8	4.0	4.3	4.2	4.5	4.0	4.0	3.8	3.3	3.0	2.6	2.0	1.8	E	E	E

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Apr. 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	2.00	E 2.70^{S}	3.00	3.00	2.00	2.05	2.00	1.70	1.70	E	E	E	E	E	E
2	E	E	E	E	E	E	E	1.70	1.70	2.00	2.10	2.20	2.10	2.10	2.10	2.20	1.75	1.80	E	E	E	E	E	E
3	E	E	E	E	E	E	1.75	1.75	1.75	1.75	1.95	2.05	2.00	2.55	2.00	3.00	1.75	1.70	1.70	E	E	E	E	E
4	E	E	E	E	E	E	1.65	2.00	2.65	3.70	3.10	3.90	3.70	3.50	3.00	2.45	2.05	1.65	E	E	E	E	E	E 3.60^{C}
5	E	E	E	E	E	E	1.70	1.70	1.75	1.80	1.80	10.80	9.10	5.80	5.10	2.70	2.00	1.75	E	E	E	E	E	E
6	E	E	E	E	E	E	1.80	1.80	1.75	1.80	2.70	3.00	E 4.40^{S}	E 5.00^{S}	C	C	1.70	1.70	E	E	E	E	E	E
7	E	E	E	E	E	E	1.70	1.70	1.70	1.80	2.00	2.50	3.00	2.00	1.80	1.70	E	E	E	E	E	E	E	E
8	E	E	E	E	E	1.75	1.70	1.70	1.75	1.80	1.95	1.75	1.90	2.05	2.00	1.70	E	1.70	E	E	E	E	E	E
9	E	E	E	E	E	E	E	1.65	1.90	2.10	2.80	3.50	2.95	2.50	1.90	2.10	E	1.75	E	E	E	E	E	E
10	E	E	E	E	E	E	1.70	1.70	1.80	2.65	3.45	3.00	2.60	2.40	2.30	2.05	1.70	1.70	E	E	E	E	E	E
11	E	E	E	E	E	E	E	1.70	1.70	1.90	1.80	2.70	1.90	2.75	1.90	1.80	1.75	1.70	1.65	E	E	E	E	E
12	E	E	E	E	E	E	1.65	1.70	1.75	1.75	2.70	2.50	2.00	2.70	2.05	1.90	1.70	1.70	E	E	E	E	E	E
13	E	C	E	E	E	E	1.65	1.65	1.75	1.95	2.10	3.40	2.10	2.10	2.05	1.80	1.80	1.75	E	E	E	E	E	E
14	E	E	E	E	E	1.70	1.70	1.70	1.80	3.00	2.00	2.55	3.00	3.05	2.90	2.00	1.75	1.65	1.65	E	E	E	E	E
15	E	E	E	E	E	E	E	1.70	1.75	1.95	2.00	2.70	2.30	2.10	2.20	1.80	1.75	E	E	E	E	E	E	E
16	E	E	E	E	E	E	1.70	1.80	1.90	2.05	2.85	2.10	3.25	2.45	2.00	1.70	1.65	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	1.65	1.65	1.80	2.00	2.20	2.00	1.90	1.90	1.90	1.75	1.70	1.70	E	E	E	E	E
18	E	E	E	E	E	1.90	1.70	1.70	1.70	1.75	2.95	1.90	2.15	2.45	2.05	2.00	E 1.70^{C}	1.70	E	E	E	E	E	E
19	E	E	E	E	E	E	1.70	1.95	2.00	1.95	2.00	2.00	3.40	2.70	2.10	2.45	2.60	1.90	1.70	E	E	E	E	E
20	E	E	E	E	E	1.65	1.75	1.70	1.80	2.60	2.55	2.60	2.95	2.05	2.05	1.70	1.70	1.70	1.65	E	E	E	E	E
21	E	E	E	E	E	1.70	1.70	1.70	1.70	2.15	E 4.00^{S}	2.00	2.80	1.90	2.00	1.90	1.75	1.65	E	E	E	E	E	E
22	E	E	E	E	E	E	1.65	1.75	1.80	2.15	3.50	3.40	2.75	2.90	2.00	2.00	1.75	1.65	E	E	E	E	E	E
23	E	E	E	E	E	E	1.70	1.75	1.70	3.00	2.95	2.85	3.00	2.00	2.90	2.60	1.75	E	1.70	E	E	E	E	E
24	E	E	E	E	E	E	1.70	1.65	1.75	2.55	2.05	3.00	2.20	2.80	2.00	1.80	1.70	E	E	E	E	E	E	E
25	E	E	E	E	E	1.75	1.65	1.70	1.70	2.00	3.25	3.10	2.90	2.00	1.75	1.70	1.70	1.65	E	E	E	E	E	E
26	E	E	E	E	E	1.80	1.70	1.70	1.75	1.75	2.00	1.75	2.60	3.10	2.55	1.95	1.75	1.75	E	E	E	E	E	E
27	E	E	E	E	E	E	1.65	1.70	1.70	1.80	3.05	2.95	4.30	2.45	1.70	1.70	1.70	1.65	E	E	E	E	E	E
28	E	E	E	E	E	1.70	E	1.65	1.75	1.80	2.55	4.40	4.00	4.00	2.05	2.50	1.70	1.70	1.65	E	E	E	E	E
29	E	E	E	E	E	1.90	1.70	1.65	1.70	2.00	1.90	2.80	4.50	5.50	5.10	4.10	1.90	1.75	1.80	E	E	E	E	E
30	E	E	E	E	E	1.70	1.70	1.75	1.80	2.00	2.70	2.55	3.30	3.00	2.50	2.05	1.95	1.70	1.65	E	E	E	E	E
31																								
No.	30	29	30	30	30	30	30	30	30	30	28	30	29	29	29	29	30	30	30	30	30	30	30	29
Median	E	E	E	E	E	E	1.70	1.70	1.75	2.00	2.30	2.70	2.90	2.45	2.05	2.00	1.75	1.70	E	E	E	E	E	E

f-min

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

The Radio Research Laboratories, Japan.

A 6

IONOSPHERIC DATA

Apr. 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	2.80	3.35	2.25H	2.20	2.60	2.40V	3.25	2.80H	2.70H	2.90	G	2.20	2.70	2.80	G	2.95	2.70	2.80	2.35	2.15	2.40	2.40	2.20	2.15
2	2.35	1.95	2.00	2.15	2.00	2.25	G	G	G	A	A	G	A	2.50	2.85	2.90	3.05	2.95	3.10	2.95	2.70	2.60	2.65	2.70S
3	2.70	3.00	2.90	2.70	2.60	2.70F	3.20	3.40	3.40	3.10	3.15	3.10	2.80	2.90	2.90	2.90	2.80	3.00	3.10	2.70	2.50	2.65	2.60	2.60
4	2.60	2.75	2.90	3.00	2.70	2.70	3.10	3.10	2.90	3.00	3.05	3.00	3.00	3.00	2.90	3.00	3.00	3.00	3.10	3.05	2.85	2.80	2.80	2.80
5	2.65 I	2.70F	2.85F	2.60F	2.65F	2.60F	2.90	2.95	2.90H	3.05	3.05	3.00	2.95	2.85	2.85	2.85	2.95	3.10	3.20S	3.00	2.55	2.60	2.65	2.70
6	2.85S	2.70	2.50	2.40	2.60	2.75	3.05	3.10	2.95	3.10	3.00	2.85	2.90	2.95S	C	C	3.05	3.05	3.05	3.05	2.90	2.70	2.80	2.85
7	2.70	2.65	2.80	3.00	2.65	2.70	3.10	3.05	3.00	3.10	3.05	2.95	2.80	2.90	2.90	2.85	2.90	3.00	3.10	3.00	2.75	2.70	2.65S	2.70S
8	2.70	2.65	2.60	2.45	2.40	2.40	3.20	2.85	3.10	3.00	2.90	2.95	2.85	2.85	2.90	3.00	3.10	3.00	3.10	3.00	2.65	2.65	2.55	2.75
9	2.85	2.95	2.95	2.60	2.55	2.65	3.00	3.15	3.10	2.90	2.95	2.80	2.80	2.80	2.85	2.85	2.90	2.95	3.20	3.05S	2.70	2.85	2.75	2.80
10	2.80	2.80	2.90	2.85	2.80	2.60	2.80	3.05	3.05	3.10	3.00	2.85	2.80	2.85	2.85	2.90H	2.80	2.95	3.10	3.10	3.05	2.85	2.65	2.55
11	2.40F	2.70	2.95	2.85	2.60	2.50	2.90	2.95	3.00	2.60	2.90	2.75	2.80	2.85	2.90	2.85	2.95	3.05	3.15S	3.05	2.95S	2.55	2.55F	2.60
12	2.60	2.70	2.80F	2.60	2.60	2.65	3.30	2.95	2.90	2.90	2.85	2.80	2.80	2.80	2.75	2.80	2.90	2.90	3.00	3.00S	2.85	2.80	2.80	2.75
13	2.65 I	2.55C	2.70	2.85	2.50F	2.60F	3.00F	3.10	3.00	2.95	2.85	2.85	2.80H	2.85	2.80	2.80	2.70	2.80	2.90	3.10	3.15	2.55	2.60	2.65
14	2.65	2.70	2.65	2.55	2.70	2.85	3.10	3.00	2.85	2.90	2.80	2.85	2.80	2.80H	2.85	2.85H	2.90	2.95	2.95 U	3.00S	2.90	2.85	2.70	2.55
15	2.75	2.85	2.95	3.00	2.75	2.65	2.90	2.90	3.05	3.00	2.90	2.75	2.75	2.75	2.75	2.80	2.65	2.90	2.95S	3.05S	2.80	2.50	2.60S	2.60
16	2.80	2.75	2.75	2.60	2.60	2.65	2.70	2.70	2.40	2.55	2.70	U2.80R	2.65	2.80	2.90	2.90	3.00	3.00	3.00	2.95	2.75	2.65	2.55	J2.50R
17	2.35 I	2.40R	2.35	2.50	2.40	2.40	2.55	2.75H	2.70	2.60	2.60	2.60	2.80	2.85	2.85	2.90	2.90	3.10	3.00	2.90	2.70	2.60S	2.55	2.45S
18	2.70S	2.70S	2.75	2.60	2.40	2.60	3.15	3.05	2.95	3.00	2.80H	2.80	2.70H	2.85H	2.70H	2.90	1 2.90C	2.90	3.00	2.95	2.85	2.60	2.60	2.65
19	2.65F	2.80	2.90	3.15	2.50	2.65	3.05	3.00	3.00	2.85	2.85	2.75	2.75	2.70	2.80	2.85	2.95	2.85	2.90S	2.90S	2.75	2.70	2.70	2.65S
20	2.70	2.80F	2.85F	3.00F	2.80F	2.95	3.10S	3.10	3.00	2.85	2.90H	2.80H	2.75H	2.75	2.75H	2.80H	2.90	2.90	3.05	3.00F	2.70	2.70	2.80	2.85
21	2.80	2.80	2.90	2.95	3.00	3.15	3.15	3.05	3.05	2.95	2.70	2.70H	2.75	2.80	2.80	2.80	2.80	2.95	3.10	3.00	2.70S	2.70	2.70	2.70
22	2.75	2.70	2.75	3.00	2.75	2.80	3.00	3.00	3.00	2.80	2.70H	2.80H	2.80	2.80	2.80	2.85	2.85	2.90	2.90	2.95	2.90F	2.80F	2.75	2.80
23	2.80	2.80	2.70	2.70	2.65	2.60	2.90	3.00	2.90	2.80	2.80	2.75H	2.80	2.75	2.80	2.80	2.90	2.90	3.10	2.95	2.80	2.80	2.70	2.70
24	2.70	2.80	2.90	2.80	2.60	2.70	3.00	3.00	2.90	2.80	2.80	2.60H	2.70	2.65	2.75	2.80	2.90	2.85	2.90	2.90	2.90	3.00	2.65	2.55
25	2.45	2.40	2.65	2.95	2.50	2.75	2.90	2.85V	3.10	2.90	U2.75R	U2.75R	U2.85R	2.80H	2.90	3.05	3.00	2.85	2.90	2.90	2.70	2.70	2.55	2.70
26	2.65	2.70	2.60	2.65	2.60	2.70	2.70H	2.70H	3.05	3.05	3.10	2.90	3.00	2.90	3.05	3.00	2.95	3.00	3.00	2.95	2.95	2.70	2.70	2.65
27	2.75	2.65	2.75F	2.70F	I2.75F	2.75	3.10	3.00	2.95	3.10	2.75	2.90	2.80	2.90	3.00	3.00	2.90	3.00	3.05	U3.15R	2.90	2.80	2.65	2.60
28	2.65F	2.65F	2.65F	2.85F	2.80F	2.75	2.95	3.00	3.10	2.60	2.75	2.95	2.55	2.85	2.90	2.85	3.05	2.95	2.75	U2.75R	2.80	2.40H	2.60	2.60
29	2.55	2.60	2.60	2.55	2.45	2.70	2.85	3.10	I3.10A	3.10V	3.05	3.05	3.00	2.95	3.00	2.95	2.95	2.85	2.90	2.90S	2.80	2.80	2.60S	2.70S
30	2.60S	2.60S	2.80S	2.85	2.85	2.80S	2.90	2.50H	I2.75A	2.80	2.80	2.60	2.70	2.35	2.40	2.65	2.65	2.85	2.80	2.85	2.65	2.50	2.60	2.55
31																								
No.	30	30	30	30	30	30	30	30	30	29	29	30	29	30	29	29	30	30	30	30	30	30	30	30
Median	2.70	2.70	2.75	2.70	2.60	2.70	3.00	3.00	3.00	2.90	2.85	2.80	2.80	2.80	2.85	2.85	2.90	2.95	3.00	3.00	2.80	2.70	2.65	2.65

(M3000)F2

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

The Radio Research Laboratories, Japan.

A 7

27

IONOSPHERIC DATA

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

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L H	3.60 V	3.50 H	I 3.40 L H	I 3.30 L	3.45									
2							2.40	3.35	3.50	A	A	3.70 H	I 3.65 A	3.55	L	L	L							
3									L	L	I 3.80 L	3.75	3.70 L	I 3.60 L	L	L	L	3.80						
4									L	L H	L	A	A	L		L								
5										L	L	B	B	B	B	L								
6								L	L	L	L	L	L	S	C	C								
7										L	L	L	L	L	L	L								
8											L	L	L	L	L	L								
9									L	L	L	L	L	L	L	L	L							
10									L	L	L	L	4.35	L										
11									L	L	L	L	L	L	L	L	L							
12								L	L	L	L	L	L	L	L									
13										L	L	L	L	L	L	L	L							
14										L	A	L	L		L									
15									L	L	L	L	L	L	L	L	L							
16								3.20 L	3.40	3.60	3.60	3.40	I 3.50 L	3.50 L	L	L								
17									A	L	L	A	L	L	L	L	L							
18								L								L								
19										L	A	L	A	A	L	A	L							
20								L	L					L										
21										L	L	L	L	L	L H	L	L							
22													L	L	L	L								
23											L	L	L	L	L	L	L							
24										L	L	L	L	L	L	L								
25													L		A									
26								3.45	A	A	L	L	4.00 L	L	L	L								
27								L	L	L	L	L	3.30 L H	I 3.60 L H	L	L	L							
28									L	L H	3.70	I 3.45 L	3.30 L	L	L	L								
29								L	A	A	L	L	A	L	L	L	L	L						
30								L	A	A	3.75 R	3.65	I 3.65 A	3.80	3.55	3.30 L	3.40	L						
31																								
No.							1	3	2	1	5	6	9	6	2	1	1	1						
Median							2.40	3.35	3.45	3.60	3.70	3.60	3.65	3.60	3.50	3.30	3.40	3.80						

(M3000)F1

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

The Radio Research Laboratories, Japan.

A

IONOSPHERIC DATA

Apr. 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										340	G	610	I 495L	385	G									
2							G	G	G	A	A	G	A	520	L	L	L							
3									270	310	300	305	350	310	295L	295	300L	250						
4									250	260	255	255	255	255L		260L								
5										270	255	B	B	B	B	L								
6								L	L	265	250	I 250L	270	270S	C	C								
7										250L	250L	255L	I 280L	295	L	L								
8											L	250L	I 250L	295L	295L	275L								
9									250L	L	260L	255L	L	L	L	260L	260L							
10									250	245	245	250	245	I 255L										
11									270L	I 255L	260L	L	L	L	L	L	L							
12								L	L	295	260	I 260L	I 285L	260L	L									
13										I 250L	240L	I 275L	I 280H	295L	I 300L	L	L							
14										255	255	I 260L	255L		L									
15									255	255L	255L	I 260L	275L	300L	L	L	L							
16								370	505	450	410	350	I 355L	345	300	295L								
17									355	I 325L	I 390H	I 370A	310L	300	280L	L	L							
18								L								I 285L								
19										L	275	320L	330	320	310	280	275							
20								I 250L	250					L										
21										250	245	I 270H	325	320L	300	L	L							
22													290L	305	295L	260								
23											I 260L	260H	I 300L	I 295L	295L	I 295L	280							
24										I 285L	260L	I 320H	310L	330L	295L	260								
25													300		290									
26								360	295A	335	I 290L	I 315L	300	260	290L	L								
27								L	300L	I 260L	I 280L	310L	345	300L	280	280	280L							
28									295	I 330L	295	295	395	345	295	280L								
29								295	I 295A	260	I 265L	I 270L	I 300A	300	290L	I 285L	L	L						
30								L H	I 380A	360	355	400	400	520	490	375	390	300L						
31																								
No.							1	5	15	21	24	24	24	23	17	14	6	2						
Median							G	360	285	265	260	270	300	300	295	280	280	275						

h'F2

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

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	285	205	270H	440	340	350	235	245	245H	240H	210	240H	205H	240	245	245	250	270	340	390	345	325	355	400
2	300	350	450	445	505	440	390A	295	250	A	A	225H	I240A	220	245	245	240	255	260	245	280	295	310	270
3	270	250	250	260	310	325	255	230	240	220	210	205	200	205	215	245	245	245	240	250A	310	300	295	295
4	295	285	265	245	290	300	245	245	240	230H	250A	I245A	I240A	225	255A	240	245	245	245	240	255	290A	280	300C
5	305	295F	290	295	275	300	245	245	245H	240	210	B	B	B	B	245	250	240	230	230	290	320	300	300
6	270	280	320	350	300	250	230	230	230	235	215	210	220S	I210S	C	C	245	245	245	245	245	255	290	270
7	295	295	280	240	250	295	245	245	245	225	225	220	220	205	200	230	240	245	235	230	230	275	280	295
8	295	300	310	325	350	320	230	240	225	220	205	210	205	225	245	245	245	245	250	245	245	300	310	300
9	270	255	250	300	335	290	235	245	225	225	220	220	210	225	220	235	240	250	240	215	245	275	275	270
10	270	275	260	240	260	295	240	240	230	240	220	210	200	205	245	240H	245	255A	245A	240	245	220	295	310
11	345	295	245	215	315	305	245	245	245	240	225	210	220	235	230	225	245	250	240	240	230	270	320	310
12	310	295	250	275	300	290	225	230	240	240	240	220	220	240	240	255A	245	245	250	240	250	225	245	270
13	300	I315C	290	255	295	295	245	245	245	225	235	220	230	210	225	245	250	255	260	230	205	210	300	310
14	300	305	290	275	270	250	230	240	230	220	I245A	220	205	220H	210	230H	245	245	245	235	235	245	290	320A
15	295	270	255	245	255	295	245	240	245	240	230	220	210	230	245	245	245	245	240	230	220	320	330	290
16	280	280	270	270	255	280	270	255	250	245	240	215	200	220	I225S	245	245	245	245	245	245	275	310	350
17	355	350	340	350	325	305	250	250H	I265A	280	270	I240A	240A	I235A	225	240	250	250	240	245	270	I310A	340	340
18	295	280	280	270	330	290	240	240	260	250A	240H	245A	250H	250A	245H	235	I245C	250	I255A	255A	230	260	305	300
19	300	295	255A	235	295	270	245	245	245	I255A	I245A	A	A	A	230	I245A	250	250	I260A	250	250	260	280	280
20	290	275	270	230	245	250	230	240	240	245	245A	245H	250H	200	I245H	240H	250	255A	255A	255A	I260A	275	295	290
21	270	270	255	245	245	245	245	245	245	220	205	200	205	205	220H	240	240	260	260	240	245	260	270	295
22	280	290	270	250	225	245	235	245	245	250	245S H	220H	230A	245	255A	240	250	250A	255	255	255	250	245	270
23	270	270	285	280	295	255	245	245	250	250	240	205	200	235	240	220	250	245	255	245	250	260	260	295
24	295	285	270	260	300	260	245	245	245	220	215	205	240	240	250	245	245	255	280A	270A	255	245	235	300
25	345	310	310	245	315	295	250	245	260	245	I245A	245	I245B	245H	I250A	250	270A	I280A	260	255	260	290	320A	295
26	295	295	295	270	295	260	250	245	I240A	I230A	225	210	200	205	220	220	245	250	255	250	250	250	255	295
27	295	310	295	295	255F	240	245	245	245	215	205	245	205H	200H	240	245	245	270	255	245	245	245	295	310
28	345A	330	345	270	250	250	I255A	245	225	230H	215	I260B	225	245	245	245	245	250	290	295	250	275H	340	345A
29	310	315	295	295	330	310	250	250	I245A	I240A	220	I220A	A	B	B	260	245	260	255	240	240	235	280	305
30	300	305	270	270	250	I260A	270	I260A	A	A	240A	245	I220A	205	225	245	245	250	280	255	245	340A	300	305
31																								
No.	30	30	30	30	30	30	30	30	29	28	29	28	27	27	27	29	30	30	30	30	30	30	30	30
Median	295	295	275	270	295	290	245	245	245	240	225	220	220	225	240	245	245	250	255	245	250	265	295	300

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

h'Es

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

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Apr. 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			b				h	h	C	dz		l			l									
2				b			C		C	h2	C	h	C	C	dz	l	l		dz	b		b	b2	
3							eh	h	h	C					C					b2	b2	b	b	
4										h	C	C	d2	l	dz	C			b3	b3	b	b3	b	
5										h	h					hl				b3	b3	b4	b	
6		b	b	b					h	h							l	dz	b	b	b2	b		
7		b			b				h		h	l			dz	dz	dz	b3	dz	b2	b			b
8								h	h	h	h			l		l	C2l	h2	h2	b2	b2	b2	b	
9			b	b	b					h				l		l	l		lh	b	b	b		
10							h	h	h		C					h	C	C4	b3	b4	b2			
11							h	h2	C2	h	h	h		C	C	h		l	h	b	b	b	b	
12		b3						h2	h	C	C	h		C	C	C2	C2	C2	b	b2		b		
13	b							C	C	C	C2							h2	b3	b				b
14	b	b	b	b	b		h	h	h	C	C	C	l	l	l			dz	b3	b2	b2			b2
15			b			b		h	h	h	C	l	l	l	l		h	l	l2	b	b	b3	b5	b2
16	b2	b2		b	b		h	h2	h	C2	C2	l	l		l		C2	l	h2l	b2	b		b2	
17							h	h2	C2	h2	h	C2	l	l2	l	l2	lh	l3	h2	b3	b2	b4	b5	b5
18	b2	b	b	b				h	h2	C	C	C	C	C	C			C2	l3	b3	b2			b
19	b	b2	b3	b	b2	b	h	h2	h2	l2	C2	C2	C3	l2	l2	l3	h	h	h3	b4	b3	b3	b3	
20	b2	b					h		h	C2	C	C	C	C	l2	l2h	h2	C2	l2	b4	b2		b	b
21									C	C		h	h	h			h	h3l	C3	b3	b3	b2		
22							h	h2	h3	C2	l		l	l2	C2l	Cl	C2l2	C3l2	C2l	b2	b2	b		
23						h	h	C	C2	C2	C	C	C	l		l	C2	h2	C2	b2	b2	b3	b2	
24						h			h							l	l2	l2	l2	b2	b	b2		
25								h	C2l	h	Cl	Cl	C	Cl	C	Cl	C2l2	C3l2	C2l2	b2	b	b4	b2	
26	b						h	h2	C2	C2	l	C	C	l	l		l		l2	b	b2	b		
27	b	b				b	h	h	h2	h							l	l2	l6	b2		b	b	b
28	b4	b3	b4	b2		h2	C3	C		h	C	C						h2						b2
29	b2	b2		b			h	h2	C	h2	h	h	C2						h	b2	b3	b4	b2	b3
30		b2	b3	b4	b3	h3	h2	h2	h2	C2	C	C	C	C					h	b2	b2	b4		
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

A

IONOSPHERIC DATA

Apr. 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	S	6.8F	4.1	4.0	4.6s	4.2	J8.0s	7.9s	8.9	9.5	u6.2s	7.4s	J7.3s	8.9	6.5	10.2s	8.7	J8.5s	6.8	I7.3s	u9.1s	u9.3s	J9.0s	u7.4s
2	6.9s	6.0	5.9	4.0	2.9	5.1	I3.9s	u3.5s	4.0	S	S	A	J6.1s	I6.2A	6.4	6.6	7.0	7.1	I7.6s	I7.2s	6.1s	u6.4s	u6.5s	6.5
3	5.9	6.1s	4.8	4.3	4.0	3.9	6.3R	6.8	7.7	7.9	8.5	9.1	9.1	10.9	I10.4C	9.9	9.0	9.7	8.5	5.1	5.1	5.5	6.0Z	5.5s
4	5.7	5.7	5.6	4.9	4.0	4.1	6.4s	8.6	11.1	12.8	13.8	13.6	13.5	13.4	12.5	12.4	12.0	11.3	u10.3s	8.9	I7.8s	I8.0s	8.0	I7.8s
5	u7.9s	7.4	I7.8s	6.6	6.6	6.6	7.2s	9.0	11.5	13.8	14.1	13.6	13.2	13.4	13.5	13.0	12.7	12.7	9.9s	6.9	6.8	6.7	6.8W	6.7s
6	C	C	C	C	C	C	C	C	C	C	13.5	12.8	13.5	14.0	13.4	12.3	11.4	10.9	10.9s	I9.8s	I7.9s	I7.8s	J8.1s	8.4
7	I7.8s	J7.9s	7.4s	6.7	5.8	5.8	u7.7s	9.4	11.6	13.0	13.1	11.9	12.8	13.6	13.2	12.8	12.5	12.0	11.1	9.0s	7.4	u7.5s	I8.0s	J7.9s
8	I8.0s	7.9	7.4s	6.8	6.5	6.5	8.0	8.1	11.0	9.7	11.2	13.4	12.9	13.1	13.5	13.7	13.6	11.8	9.6	8.6	u7.0s	7.2s	u7.2s	J7.7s
9	J8.2s	8.4	7.3	6.5	6.6	6.9	8.9	10.2	10.8	11.6	12.4	13.2	13.2	14.1R	14.1	J14.2R	13.9R	13.2	13.0	I10.0s	u7.9s	u8.2s	8.6	8.6
10	J8.6R	8.5	7.9R	6.9	6.7	6.6	9.2	11.8	13.1	12.8	12.3	13.1	13.2	13.4	13.6	12.9	12.3	13.2	13.0	11.7	9.1s	u7.7s	I7.7s	I7.6s
11	u7.3s	u7.7s	8.2	6.0	4.9	5.5	C	C	C	12.1	13.6	12.2	13.6	14.0	13.9	12.0	12.0	12.5	11.7	9.2	6.7	6.4s	6.8	6.8s
12	6.8	7.1	7.0	6.2H	6.1	6.2	u8.5s	8.9	10.6	11.5	12.8	13.0	12.6	13.0	12.8	12.3	12.1	11.6	11.4	10.4R	8.3	8.0	7.2	u7.3R
13	6.8	u6.2Ru	6.4R	6.1	5.3	5.4	8.2	11.2	11.1	11.3	11.6	12.8	13.5	13.5	13.3	12.6	11.6	12.5	13.0	12.2	u7.1s	6.3	6.3s	6.6
14	6.5	6.6	6.5	5.9	6.1	6.4	8.8	9.7	11.0R	12.4	13.4	14.1	14.8	J14.2s	J15.5s	J15.1s	14.3	13.7	12.9	10.9	9.3	8.8	I8.2s	8.1
15	u8.6s	9.0	8.6	8.0	7.3	7.3	8.9	11.7	12.8	12.8	12.5	12.8	13.1	13.0	13.4	13.1	12.5	13.1	12.6	J11.2s	7.6	7.1s	J8.2R	J8.6R
16	8.9	I8.4R	8.0s	7.2	T7.1Z	7.4	8.8	9.4	8.9	9.2	10.8	11.8	12.2	12.6	12.5	11.6	10.4s	9.8	9.7s	8.5	7.3	7.3s	7.4s	6.9
17	I6.4s	6.2	6.1	6.5	6.6	7.4s	9.4s	10.0	11.0	12.4	12.3	12.1	12.9	13.6	13.3	12.4	11.8	10.9	10.0	I8.5s	7.7s	7.4	7.4	I7.8s
18	8.0	7.7RI	7.5s	6.8	6.2	6.4	9.4s	9.1	9.8	9.6	11.7	12.1	11.4	12.5	12.5	13.0	I12.2A	11.2	11.6	J10.2s	8.1s	J8.3s	u8.4s	J8.9s
19	8.9s	9.2	u8.7s	6.6	6.2	6.7	9.1	10.5	10.9	12.0	12.5	12.8	13.3	13.9	14.2	13.9	12.4	11.6	11.0su	9.7s	9.4s	9.8s	u9.7s	9.8s
20	u9.8s	9.5s	9.3F	8.2	7.1	7.9	u9.9s	11.1	11.2	10.8	11.6	12.6	13.2	13.8	14.1	14.0	14.1s	13.1	12.3	10.3s	I9.2s	9.9	I9.7s	I10.0s
21	u9.9su	10.2sD	10.2R	J9.8R	8.2	8.0	9.1	10.5s	11.4	11.0	11.4	12.2	13.5	13.9	13.7	13.5	u13.1A	13.2	12.4	I10.6s	u9.8s	I10.4s	11.3	J10.7s
22	J10.7s	9.7	9.6	8.9	7.0	7.1	9.1	11.2	10.9	11.3	12.3	13.3	J14.5R	J14.4R	J14.6s	14.0	13.4	12.6s	12.0s	11.4s	I10.2s	J8.7s	J8.9R	u9.1s
23	J9.0s	8.8	J7.8s	7.4s	7.4	8.0	10.1	J11.0s	11.6	12.3	13.0	13.6	14.2	14.1R	u14.3R	13.9s	13.7	J13.0R	12.6	10.7	J8.2s	8.5	8.9s	8.9
24	J9.0s	9.0	8.8	7.6	7.1	7.6	9.7s	J10.5s	J10.4R	11.4	12.9	12.9	13.6	13.9s	J14.7s	13.9	12.3	11.9	11.7	10.8	9.2	J8.0s	6.7	6.6
25	6.6	6.3	7.1	6.1	5.7	6.4	8.6	J9.8s	8.9	8.2	10.9	12.6	12.3	11.4	12.9	12.8	10.4	10.1	11.4	9.9	u8.1s	8.7s	I8.6s	8.8
26	8.3	8.3	J7.9s	u7.8s	7.4	7.6s	7.5s	7.4	8.4	8.1	9.2	10.1	11.2	11.2	11.7	10.9	11.1	11.1	11.4	I10.4s	8.3	J8.1s	J8.5sU	8.0s
27	J8.6s	8.2	7.6s	7.3	7.0	8.0s	7.8	8.9	9.4	9.4	10.3	12.2	12.5	12.8	12.8	12.7	12.9	13.0	13.3	11.3	8.8s	9.1	u8.7s	u8.7s
28	8.7	8.5	8.3Z	8.0F	7.8s	8.2	8.4s	8.6	9.1	8.8	10.0	11.4	11.1	12.8	12.3	12.0	12.6	u10.0s	9.8su	9.9s	I8.4s	u7.3s	8.5	8.2
29	I8.2s	J8.7s	8.5	J7.7s	7.6	9.0	u9.6s	8.7H	11.1	12.1	11.5	11.4	10.7	11.8	12.7	10.9	10.1	9.9s	11.4	11.1	u8.2s	u7.7su	u7.3s	7.4s
30	u7.1s	7.2	u7.3s	6.5	I6.2A	6.4	8.4	9.0	8.9H	7.8	7.8	7.7	8.0	7.0	7.2	8.0	7.7	8.3	7.6	u7.8s	7.2	J7.2su	u7.3s	6.7
31																								
No.	28	29	29	29	29	29	28	28	28	28	29	29	30	30	30	30	30	30	30	30	30	30	30	30
Median	8.1	7.9	7.6	6.7	6.6	6.6	8.7	9.4	10.9	11.4	12.3	12.6	13.0	13.4	13.3	12.8	12.2	11.7	11.4	10.0	8.1	7.9	8.0	7.8
U.Q.	8.8	8.8	8.4	7.6	7.1	7.6	9.2	10.5	11.2	12.4	13.0	13.2	13.5	13.9	13.9	13.7	12.9	13.0	12.4	10.8	9.1	8.7	8.6	8.7
L.Q.	6.8	6.7	6.8	6.1	5.8	6.0	7.9	8.6	9.0	9.4	10.8	11.8	11.4	12.5	12.5	12.0	11.1	10.1	9.9	8.6	7.3	7.2	7.2	6.9
Q.R.	2.0	2.1	1.6	1.5	1.3	1.6	1.3	1.9	2.2	3.0	2.2	1.4	2.1	1.4	1.4	1.7	1.8	2.9	2.5	2.2	1.8	1.5	1.4	1.8

foF2

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

The Radio Research Laboratories, Japan.

K

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Apr. 1960

foF1

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L		u 6.3 S	6.0		L	L								
2							S	S		I 4.3 S	I 4.8 S	I 5.0 A	5.0	A	5.2 L									
3									L	5.0 L	5.3 L	5.1 L	L	A	C	L	L							
4											L	L	S	L		L								
5										L		B	B	B	B	L								
6							C	C	C	C	L	L	L	L	L									
7											L	S	L	L	L	L								
8										L	L	L	L	L	S		A							
9											L	L	L	L	L	L								
10										L		L	L	L	L		L							
11							C	C	C		L	L	L	L	L	L								
12										L	L	L	L		L	L								
13												L	L	L	L	L								
14										L	L	L	L	L	L	L								
15											L	L	L	I 6.2 L	6.4 L	L	L							
16									L	5.7 L	5.8	L	L	L	L	L								
17									L	L	L	A	6.2 L	A	A	L								
18										L	L	L	L	6.1 L	L	L	A	A	A					
19											L	A	L	A	A	L								
20											L	L	L	A	5.7 L	L			A					
21											L	L	u 6.4 L	5.2 L	L	L	A	A	A					
22										L	L	L	5.7 L	A	L	L	A							
23											L	6.4 L	6.3 L	L	L	L			A					
24										L	L	6.2 L	5.9 L	v 5.9 L	L		L	A						
25										u 6.3 L	6.3 L	L	L	L	L	L								
26									u 5.1 L		L	L	L	L										
27										L	L	6.0 L	I 5.2 S	u 5.4 S	S	S	L							
28									L		A	A	u 7.3 L	5.7 L	L	L								
29									L	L	A	u 5.6 L	I 6.0 L	L	A	A								
30									A	4.S	4.9	A	A	5.1 S	4.7	5.0	4.8	L						
31																								
No.									1	4	5	7	10	7	4	1	1							
Median									u 5.1	u 5.4	5.3	6.0	6.0	5.7	5.4	5.0	4.8							

foF1

Sweep 1.0 Mc to 20.0 Mc in 2f min sec in automatic operation.

The Radio Research Laboratories, Japan.

K

IONOSPHERIC DATA

Apr. 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			I 2.05 S	3.00	3.20	3.35	3.45	S	B	U 3.60 S	3.65	3.40	I 2.90 S	I 2.20 S	S					
2		U 1.90 S	U 1.30 R	1.75	E	I 1.70 S	S	I 2.30 S	3.05	3.35	I 3.60 S	I 3.50 A	A	A	A	3.00	3.05 S	S	S					
3						1.75	2.35	2.60	3.00	3.40	I 3.40 S	3.40	S	A	I 3.45 C U 3.55 S		2.70	U 2.35 S	S					
4							S	S	S	B	I 3.70 S	B	S	U 3.65 A	I 3.45 A	I 3.20 A	I 2.80 A	I 2.20 A	S					
5							S	U 2.75 S	3.20	3.45	3.65 S	B	B	B	B	B	I 2.90 S	I 2.50 S	S					
6							C	C	C	C	I 3.65 A	3.75	I 3.80 A	3.70	I 3.55 A	I 3.30 A	3.05 S	S	S					
7							U 2.10 S	2.70	3.20	I 3.40 A	3.60	A	A	A	S	A	A	S	S					
8							U 2.20 S	I 2.70 S	3.30	U 3.50 A	3.60	3.80 S	I 3.90 A	3.80 S	A	A	A	A	S					
9							2.05	U 2.80 S	3.20	3.45 R	3.60	I 3.75 A	3.90	A	A	A	3.05	S	S					
10							I 2.10 S	2.80 S	3.20	3.30	I 3.60 S	I 3.80 B	I 3.75 S	I 3.70 A	3.65 S	3.45	3.15	A	A					
11							C	C	C	3.55	I 3.70 A	I 3.80 A	A	A	I 3.40 A	I 3.00 A	2.50 A	I 2.35 A	B					
12							2.25	2.70 S	I 3.25 S	3.25	3.75	A	B	3.90	3.65	3.30	2.80	A	A					
13						B	S	2.80	3.25	3.35	R	R	A	A	I 3.80 R	I 3.50 A	U 3.00 S	2.55	A					
14						B	I 2.30 S	3.00	3.20	3.45	I 3.60 A	A	A	A	A	A	A	A	B					
15							A	S	A	3.20	A	A	A	A	A	3.20	3.25	2.70	B					
16						B	2.20	I 3.05 A	3.50	A	A	A	S	A	A	3.55	I 3.15 A	2.70	S					
17						S	2.50	3.05	U 3.50 A	3.65	3.70	A	A	A	A	A	A	A	S					
18						B	2.50	U 2.75 S	3.30	3.60	3.80	3.90 S	U 3.80 R	I 3.85 A	3.75	I 3.50 A	3.00	A	S					
19						B	2.50	3.00	3.40	3.60	U 3.75 A	A	A	A	A	A	3.40	2.80	B					
20						B	2.45	3.00	3.40	U 3.65 R	I 3.70 A	A	A	A	A	I 3.60 S	3.25	2.55	B					
21						B	2.55	I 3.00 A	3.40	I 3.60 A	3.75	I 3.80 A	A	A	A	I 3.70 S A	A	A	S					
22						B	2.50	3.00	3.30	3.60	3.60	A	A	A	A	I 3.40 A	I 3.00 A	A	S					
23						B	2.45	U 3.00 S	3.40	3.60	A	A	S	A	A	A	A	2.70	S					
24						1.95	2.50	3.05	I 3.40 A	3.70	3.60 S	A	A	3.90	I 3.70 A	3.55	A	A	S					
25						B	I 2.40 B	A	A	A	A	A	A	I 3.70 S	I 3.70 S	U 3.65 S	U 3.25 A	A	S					
26						S	2.40 S	I 2.90 A	I 3.25 A	I 3.50 A	A	A	3.85	A	A	A	A	A	B					
27						I 1.60 S	2.55 S	I 3.00 S	3.35	3.40 S	3.80	U 4.00 S	I 4.00 S	I 4.00 S	3.70	U 3.60 S	3.20	A	S					
28						B	U 2.50 S	I 3.00 A	3.25	U 3.55 A	3.80	I 3.80 B	I 3.90 A	I 3.80 A	3.70	3.30	3.00	U 2.50 S	S					
29						S	2.30	2.95	3.35	3.60	3.70	3.90 S	BS	B	B	B	3.50	2.80	2.25					
30						B	U 2.50 S	I 2.85 A	3.25	3.60	3.70	3.60	3.70 S	U 3.55 S	3.55	3.30	U 2.90 A	U 2.20 S	B					
31																								
No.		1	1	1	1	4	23	25	25	26	24	13	9	12	14	20	22	14	1					
Median		U 1.90	U 1.30	1.75	E	U 1.65	2.40	2.95	3.25	3.50	3.70	U 3.80	U 3.85	U 3.75	U 3.65	U 3.50	3.00	U 2.50	2.25					

foE

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Apr. 1960

foEs

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	E	z.0	B	E	E	S	G	4.0	4.0^{s}	3.7	G	B	G	G	G	S	S	S	S	S	E	E	E
2	E	G	G	z.5	1.8	S	S	S	3.7	3.5	4.0	J5.8	4.6	J6.3	4.4	3.5^{s}	G	S	S	S	1.9^{s}	E	E	z.1
3	Jz.5	Jz.1	1.4	E	E	G	G	3.1^{s}	G	4.1	3.9	4.1	J5.z	5.9	C	G	S	G	z.3	E	S	E	J3.9	Jz.5
4	E	J1.8	3.5^{s}	J3.8	B	B	S	S	S	B	4.3	4.7^{s}	4.8	4.6	4.1	4.4	4.0	z.4	Jz.7^{s}	E	z.z	S	3.1^{s}	3.8
5	z.4	J1.8^{s}	E	E	E	E	S	G	3.8	4.0	4.3^{s}	B	B	B	B	B	S	S	S	J1.8	Jz.0	Jz.8	5.z	Jz.5
6	C	C	C	C	C	C	C	C	C	C	3.8	G	J4.0	4.4	3.9^{s}	3.8	G	S	S	E	J3.1	J3.8	Jz.z	E
7	Jz.0	J1.9	J1.6	J1.4^{B}	1.z	E	G	3.1	3.8	3.9	4.0	4.1^{s}	4.0	4.1^{s}	2.9^{q}	3.9	3.4	S	J5.3^{s}	6.0	Jz.5	1.5^{s}	E	S
8	E	E	E	E	E	E	G	3.z	3.6	4.0	3.9	G	4.0^{s}	3.2^{q}	4.6^{s}	J8.1^{s}	J6.7	3.4	Jz.5	J4.1	z.5	S	Jz.0	E
9	E	E	E	E	E	E	z.7^{s}	3.1	3.6	3.8	4.6	3.8	G	3.8	3.8	3.6	z.8^{q}	S	1.5^{q}	Jz.6	E	E	E	E
10	S	E	E	E	E	S	S	3.3^{s}	3.6	3.9	G	B	G	4.z	G	4.z	3.7	J4.0	Jz.5	Jz.5	z.3	E	S	S
11	S	S	E	E	E	C	C	C	C	4.6	4.4	4.1	4.4	3.8	4.0	3.6	4.3	z.8	B	z.z	z.z	Jz.1	E	Jz.9
12	E	E	E	E	z.3	E	G	3.z	3.7	4.0	G	4.0^{s}	B	4.8	4.0	J4.z	3.9	J5.4	3.3	z.3	3.3	z.1	3.4	E
13	E	B	E	E	E	B	S	3.4	4.0	4.1	G	G	4.1	4.5	4.4	3.4	3.5	4.0	J5.4	D 7.0^{s}	z.4^{s}	E	E	E
14	E	E	E	E	E	B	B	G	3.7	4.3	4.5	J5.0^{s}	J6.6	4.5^{s}	3.9	3.7	J4.4	J5.4	J4.9	J4.8	J5.7^{s}	6.0	3.8	J3.8
15	3.z	Jz.6	E	E	J5.0^{s}	4.1	3.0	J3.3	4.8^{s}	4.6	5.0^{s}	J5.3	4.3	3.9	3.9	G	G	3.0	3.4	3.0	E	3.9	Jz.8	Jz.6
16	4.0	B	E	E	E	B	z.7	3.6	4.7	4.0	4.z	4.4	3.7^{q}	4.z	3.8	3.0^{q}	J4.6	3.8	J3.7	Jz.9	S	S	E	E
17	S	E	E	E	1.6	G	G	3.7	J5.0	J5.3	4.4	J6.7	J6.7	J11.6	J9.1	6.9^{s}	J4.8	J5.7	4.9	J6.7^{s}	D5.4^{s}	Jz.1	J4.9	J3.7
18	J5.7	J4.6	4.7	Jz.7	3.z	B	G	U3.7^{s}	4.5	4.6	J5.5	J5.3	J5.9	4.6	3.9	4.0	J17.9	J11.6	J10.6	6.z	12.z^{s}	J11.0^{s}	Jz.z	Jz.5
19	z.5	z.6	z.0	E	E	B	z.8	3.8	4.7	4.7	J5.9	J6.7	J5.9	J7.z	D6.8^{s}	4.1	4.4	4.1	3.5	J6.7	D 7.1^{s}	J5.4	4.3	Jz.6
20	Jz.8	z.8	z.4	Jz.1	B	Jz.6	G	3.z	3.7	J5.9	5.0^{s}	J7.0	4.6	J12.4	4.6^{s}	G	G	4.5	J8.9^{s}	J3.8	9.1	J6.4^{s}	J3.z	Jz.9
21	Jz.5	Jz.4	E	E	E	B	G	J4.9^{s}	4.0	J5.4	4.5	4.4^{s}	D4.0^{s}	4.0	4.1	4.4^{s}	J14.6	J9.9	9.4	J8.3	J13.z	J8.8	4.6	J4.9
22	S	E	E	E	B	3.z	3.1	3.9	J5.6	J5.9	5.7^{s}	4.5	4.7	J6.6	J5.4^{s}	J12.9	J9.1	4.4^{s}	J3.4	Jz.6	J6.7	J11.2^{s}	J4.z	E
23	S	E	E	E	E	B	z.7	3.4^{s}	4.z	4.3	J5.1^{s}	4.4	D3.7^{s}	4.3	J4.8^{s}	4.8^{s}	3.8	J4.6	J9.4	J5.z	J7.8	J6.2^{s}	J5.4	3.6
24	S	E	E	E	E	G	G	G	3.6	3.9	3.9	4.0	D3.7^{s}	G	3.7	3.9	J7.3	J9.7	z.4	Jz.3	4.z^{s}	J4.9	J5.3	1.5^{s}
25	S	E	E	E	E	B	B	3.0	4.0	J5.z	J5.6	4.7^{s}	4.3	4.1	4.1	3.8^{s}	3.7^{s}	4.1^{s}	D5.0^{s}	Jz.z	J8.7^{s}	5.3	Jz.3	S
26	Jz.4	J3.z	J6.4	J3.7	J3.4	S	z.8	3.5	J4.z	J7.8^{s}	J5.5^{s}	4.0	G	3.9	4.4^{s}	3.9	3.5	J3.z	J3.z	J3.3	z.3	S	J5.z	z.5
27	J1.9^{s}	E	E	E	E	S	z.9	3.5	4.1^{s}	J6.9	S	G	S	3.7^{q}	U3.z^{q}	4.0	J3.8	J4.3	J5.4^{s}	J7.7^{s}	Jz.4	S	S	Jz.4
28	z.z	J3.z	J5.6	J6.4	5.6	J3.0	3.1^{s}	3.0	3.8	D4.9^{s}	J6.0	J9.8	J8.3^{s}	4.z	G	3.8	G	G	S	S	1.8	Jz.6	Jz.3	J3.z
29	J3.7	Jz.0	Jz.5	J1.9	E	S	z.5	3.5	4.z	J4.0	J13.1	4.5	4.9^{s}	B	J6.z^{s}	6.z	4.3	G	z.z^{q}	J4.3^{s}	Jz.5	J7.8^{s}	4.6^{s}	J3.8
30	2.0^{M}	Jz.8	z.7	J6.0	J8.9	J4.8	J5.4	J8.4	J7.7	6.9	4.6	J8.z	J10.7	4.5	G	G	3.z	3.9^{s}	z.6	z.4^{s}	S	Jz.4	D1.5^{s}	S
31																								
No.	z1	z6	z9	z8	z6	14	z0	z6	z7	z8	z9	z8	z3	z8	z8	z9	z7	z4	z4	z7	z6	z5	z7	z6
Median	z.z	E	E	E	E	E	z.6	3.3	4.0	4.3	4.4	4.4	4.6	4.z	4.0	3.9	3.8	4.0	3.4	3.3	z.5	3.8	3.1	z.5
U.Q.	z.6	z.6	z.z	z.0	1.8	3.0	z.8	3.6	4.5	5.z	5.3	5.3	5.9	4.7	4.5	4.3	4.6	5.0	5.4	6.z	5.7	6.3	4.6	3.z
L.Q.	E	E	E	E	E	E	E	3.1	3.7	4.0	3.9	4.0	4.0	3.9	3.8	3.4	3.z	3.1	z.6	z.4	z.z	E	E	E
Q.R.								0.5	0.8	1.z	1.4	1.3	1.9	0.8	0.7	0.9	1.4	1.9	z.8	3.8	3.5			

The Radio Research Laboratories, Japan.

foEs

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

K 4

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S		2.0	B			S		3.4	4.0	3.7		B				S	S	S	S	S			
2				G	1.5	S	S	S	3.4	E 3.5 S	S	A	4.1	A	4.2	3.5		S	S	S	1.7			2.0
3	2.4	1.9	1.3					2.9		4.0	3.7	4.1 S	5.0	5.8	C		S		2.0		S		E	2.1
4		1.6	2.2	2.5	B	B	S	S	S	B	u 4.3 S	4.4	u 4.8 S	4.6	E 4.1 S	4.2	3.9	2.3	2.3		1.9	S	1.8	1.9
5	1.5	1.8					S		3.4	3.7	4.0	B	B	B	B	B	S	S	S	1.6	1.8	3.6	2.7	1.9
6	C	C	C	C	C	C	C	C	C	C	3.8		E 4.0 S	4.2	E 3.9 S	3.6		S	S		2.5	3.4	2.1	
7	2.0	1.9	1.4	E	1.2			3.1	3.6	3.9	4.0	u 4.1 S	4.0	u 4.1 S	E 2.9 S	3.7	3.3	S	u 4.8 A	5.3	2.2	1.5		S
8								3.1	3.5	u 4.0 S	3.9		4.0	3.2 Q	E 4.6 S	4.0	6.4	3.2	2.5	2.3	1.8	S	1.9	
9							2.6	3.1	3.4	3.6	4.2	E 3.8 S		E 3.8 S	3.8	3.4	u 2.6 A	S	E 1.5 S	1.9				
10	S					S	S	3.1	3.6	G		B		4.2		4.0	3.6	3.4	2.4	2.0	E		S	S
11	S	S				C	C	C	C	4.0	4.2	4.1	4.3	3.8	4.0	3.6	3.9	2.5	B	E	E	1.8		2.6
12					E			3.2	3.6	3.9		u 4.0 S	B	4.7	4.0	4.2	3.8	4.0	2.0	2.2	2.4	2.1	2.4	
13		B				B	S	3.1	3.8	4.0			u 4.1 S	4.4	4.1	u 3.4 Q	3.5	3.8	4.3	5.9 S	E			
14						B	B		3.6	4.3	4.2	E 5.0 S	5.4	4.4	E 3.9 S	3.2	4.4	4.0	3.6	2.9 S	3.4	3.6	2.9	2.8
15	2.8	1.9			1.5	2.3	2.9	u 3.2 S	4.8	4.2 S	4.8 S	u 4.6 S	4.2	E 3.9 R	3.9			2.9	3.1	2.8		3.4	2.7	2.2
16	2.7	B				B	2.6	3.1	4.2	4.0	u 4.2 S	4.3	E 3.7 S	4.2	3.8	u 2.8 A	3.6	3.2	3.3	2.4	S	S		
17	S				1.5			3.3	5.0	4.2	4.3	6.3	5.2	9.8	8.0	4.5	u 4.0 S	4.8	u 4.4 A	4.1	1.9	2.0	3.7	u 3.1 A
18	2.6	u 4.2 A	3.6	2.6	2.3	B		3.5	4.1	u 4.3 S	5.3	5.3	5.5	4.6	u 3.9 S	4.0	A	6.1	10.6	4.8	5.5	4.8	2.1	2.5
19	2.3	1.8	2.0			B	2.7	3.5	4.5 S	4.5	5.5	6.2	5.6	7.0	6.5	4.1	u 4.2 S	4.0	3.4	6.7	2.5	3.9	2.5	2.2
20	2.4	2.4	2.2	1.9	B	1.9		u 3.2 S	3.7	4.5	4.5	5.2	4.5	7.0	u 4.4 S			3.9	8.4	3.7	4.5	3.4	3.0	2.9
21	2.2	1.9				B		4.0	3.9	5.3	4.5	4.3	D 4.0 S	4.0	E 4.1 S	u 4.4 S	8.1	6.3	8.1	7.8	6.5	u 5.1 S	3.2	4.2
22	S				B	2.8	3.0	3.7	4.2	u 5.5 S	5.4	4.5	4.7	6.4	u 5.2 S	5.0	6.2	3.7	2.7	2.6	4.5	3.6	2.0	
23	S					B	2.7	3.3	4.1	4.3 S	u 5.1 S	4.3	D 3.7 S	4.2	4.8	4.5	3.7	3.5	8.0	1.6	2.3	5.1	5.0	2.6
24	S								3.6	3.8	u 3.9 S	3.9	D 3.7 S		3.7	3.7	5.6	6.1	2.3	2.6	3.5	4.0	4.8	1.5
25	S					B	B	2.9	3.7	4.8	5.4	u 4.6 S	u 4.3 S	4.1	u 4.1 S	u 3.8 S	3.7	4.0	u 5.0 S	5.1	5.9	4.5	2.1	S
26	2.1	2.8	4.4	E	2.0	S	2.8	3.3	4.0	5.7	5.3	3.9		u 3.9 S	u 4.2 S	3.7	3.2	2.7	2.1	2.5	2.1	S	2.1	2.2 S
27	1.9					S	G	3.4	3.8	4.5	S		S	E 3.7 A	u 3.2 A	E 4.0 S	3.7	3.9	u 5.4 S	5.1 S	2.1	S	S	1.9
28	E	2.0	3.9	3.3	3.6	2.5	3.1	3.0	3.7	D 4.9 S	5.9	9.8	6.4	4.1		3.8			S	S	1.7	2.4	2.2	2.5
29	3.2	2.0	2.1	1.6		S	2.5	3.4	4.1	3.7	5.6	4.4	u 4.8 S	B	6.1	6.2	4.3		2.1 Q	3.7 S	2.5	6.6	3.9	3.5
30	1.8	2.0	2.1	6.0	A	4.8	4.0	5.2	7.3	5.5 S	4.1	5.9 S	5.3	4.1			3.2	2.5	2.5	E	S	1.5	u 1.3 S	S
31																								
No.	14	13	11	9	9	5	11	22	26	28	25	22	20	26	21	23	22	21	24	24	24	19	21	18
Median	2.2	1.9	2.1	1.9	1.5	2.5	2.7	3.2	3.8	4.1	4.3	4.4	4.6	4.2	4.0	3.8	3.8	3.8	3.2	2.7	2.2	3.6	2.4	2.4

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

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

Apr. 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	E2.00 S	1.30	1.20	1.25	1.10	1.35	E2.40 S	1.90	2.00	2.10	2.50	2.60	3.10	2.50	2.10	2.20	E3.00 S	E2.20 S	E1.80 S	E1.80 S	E1.40 S	1.50	1.40	1.30
2	E1.80 S	1.20	1.00	1.40	E	E1.40 S	S	E2.80 S	1.90	2.10	2.75	2.60	2.30	2.20	2.50	2.20	2.35	E2.70 S	E2.00 S	E1.90 S	1.40	1.05	1.30	1.40
3	1.40	1.10	1.10	1.20	1.40	1.00	1.95	1.80	2.00	2.20	2.70	2.40	2.20	2.20	I2.25 C	3.25	2.10	2.15	E1.70 S	1.40	E1.70 S	1.70	1.40	1.60
4	1.30	1.10	1.20	1.05	1.40	1.70	E2.20 S	E2.80 S	E3.60 S	4.40	3.10	4.00	E4.00 S	3.00	E3.40 S	2.10	2.20	1.70	E1.65 S	1.20	E1.70 S	E1.80 S	1.10	1.30
5	1.10	1.30	1.00	1.05	1.10	1.40	E2.00 S	1.65	1.80	2.10	2.50	7.55	7.90	7.15	5.65	4.10	E3.80 S	E2.20 S	E1.80 S	1.30	1.30	1.70	1.40	1.30
6	C	C	C	C	C	C	C	C	C	C	2.35	2.20	2.70	2.50	2.20	1.90	2.20	E3.70 S	E1.80 S	1.30	1.30	1.50	1.35	1.30
7	1.50	1.10	1.00	1.20	E	1.40	1.80	1.80	2.00	2.20	2.20	2.20	2.10	E3.00 S	2.50	2.30	2.40	E2.20 S	E1.80 S	E1.80 S	1.40	1.10	1.40	E1.80 S
8	1.30	1.40	1.40	1.10	1.40	1.40	1.70	1.80	2.10	2.10	2.20	2.70	2.30	2.60	2.10	2.00	1.70	1.90	E1.70 S	E1.70 S	E1.50 S	E1.70 S	1.40	1.40
9	1.30	1.40	1.10	1.00	1.10	1.30	1.70	E2.30 S	2.20	2.30	2.60	2.50	2.60	2.40	2.50	2.10	2.35	1.95	1.10	1.50	1.40	1.40	1.40	1.40
10	E1.80 S	1.30	1.10	1.00	E	E1.40 S	E2.30 S	2.00	2.00	2.40	2.80	4.80	2.90	2.70	2.20	2.10	2.40	2.00	1.60	1.20	E1.80 S	1.30	E1.60 S	E1.95 S
11	E1.80 S	E1.90 S	1.10	1.00	E	E1.60 C	C	C	C	2.15	2.40	2.50	2.60	2.20	2.50	2.40	2.00	1.80	1.80	1.10	1.40	1.10	1.40	E1.60 S
12	1.30	1.20	1.10	E	1.40	1.10	1.60	1.90	1.90	2.10	2.45	E3.65 S	4.20	3.60	2.45	1.90	2.20	1.90	1.60	E1.60 S	1.20	1.40	1.40	1.90
13	1.40	1.95	1.80	1.30	1.20	1.20	E2.40 S	1.90	2.15	2.30	2.40	2.80	3.40	2.90	2.60	2.30	1.60	2.10	1.50	E1.70 S	E1.60 S	1.20	1.30	1.25
14	1.60	1.15	1.00	1.30	1.10	1.30	2.45	1.90	2.15	2.25	2.50	2.80	2.60	2.50	2.90	2.10	1.80	1.70	1.60	E1.70 S	1.60	1.60	1.40	1.30
15	1.30	1.20	1.40	1.30	1.20	1.30	1.30	E1.90 S	2.00	2.40	2.50	2.60	2.50	2.50	2.60	2.50	2.50	2.00	2.05	1.40	1.70	1.50	1.50	1.50
16	1.70	2.10	1.60	1.60	1.50	1.90	1.90	2.00	2.10	2.15	2.70	2.30	3.00	2.75	2.20	2.20	2.10	2.00	E1.60 S	E1.70 S	E1.60 S	E1.70 S	1.40	1.30
17	E1.80 S	1.10	1.10	1.20	1.20	1.15	2.10	2.00	2.10	2.50	2.30	2.25	E2.70 S	2.50	2.10	2.10	1.80	1.60	E1.80 S	E1.60 S	1.20	1.15	1.20	1.40
18	1.45	1.25	1.60	1.15	1.10	1.80	1.60	1.80	2.45	2.10	2.80	2.30	2.80	2.30	2.50	2.80	2.05	E2.00 S	E1.80 S	E1.90 S	1.40	1.40	1.50	1.20
19	1.40	1.30	1.10	1.20	1.20	1.90	1.90	2.10	2.20	2.10	2.70	3.15	E3.20 S	3.20	E3.60 S	3.00	2.30	1.95	1.90	1.50	E1.80 S	1.70	1.30	1.30
20	1.40	1.20	1.30	1.30	2.00	1.70	1.80	2.10	2.15	2.80	2.40	2.50	3.00	2.65	2.50	1.95	2.20	1.90	1.75	1.80	1.20	1.20	1.30	1.40
21	1.50	1.30	1.10	1.20	1.30	1.30	2.00	E2.30 S	2.10	2.20	2.40	E3.00 S	2.60	2.70	2.60	2.20	2.00	1.85	E1.40 S	1.40	1.40	E1.40 S	1.30	1.30
22	E1.70 S	1.20	1.20	1.20	1.50	1.90	1.90	1.90	2.10	2.20	2.75	2.95	3.10	2.85	2.40	2.20	E2.35 S	E2.00 S	E2.00 S	1.20	1.50	E1.80 S	1.40	1.50
23	E2.00 S	1.40	1.50	1.25	1.80	1.80	1.70	1.90	2.10	2.45	2.10	2.90	3.10	2.70	2.50	2.20	2.20	2.20	E2.00 S	E1.20 S	E1.50 S	1.20	1.20	1.40
24	E1.80 S	1.30	1.20	1.30	1.40	1.50	2.00	2.10	2.10	2.50	2.50	2.60	2.70	2.90	2.40	2.20	2.20	E1.80 S	E1.70 S	1.20	E1.60 S	E1.70 S	1.40	1.20
25	E1.70 S	1.30	1.40	1.35	1.30	1.90	2.20	1.90	2.20	2.50	3.10	3.40	3.00	2.90	2.40	E3.00 S	2.40	2.20	E1.90 S	E1.60 S	E1.70 S	E1.70 S	1.30	E1.40 S
26	1.20	1.40	1.35	1.30	1.30	E1.80 S	E1.90 S	E2.20 S	2.20	2.20	2.60	2.80	2.40	2.40	2.40	2.20	2.10	E1.80 S	1.90	E1.60 S	E1.85 S	E1.70 S	E1.60 S	E1.90 S
27	E1.30 S	1.20	1.20	1.30	1.30	E1.60 S	2.10	E2.60 S	2.10	2.60	2.90	2.70	3.20	2.80	2.30	2.30	2.40	E1.80 S	E2.00 S	E1.70 S	E1.60 S	E1.60 S	E1.60 S	1.20
28	E1.60 S	1.25	1.30	1.20	1.20	1.40	2.00	1.95	2.20	2.35	2.80	4.15	3.20	2.80	2.75	2.10	1.90	E2.00 S	E2.00 S	E1.60 S	1.20	1.40	E1.70 S	1.20
29	1.40	1.20	1.20	1.45	1.20	E1.95 S	1.90	2.10	2.20	2.50	2.50	2.95	E4.50 S	4.90	4.75	4.10	2.20	1.95	E1.45 S	1.20	1.40	E1.90 S	E1.60 S	1.20
30	E1.45 S	1.25	1.30	1.20	1.25	1.95	2.00	E2.20 S	2.15	2.30	2.20	2.30	2.50	E2.90 S	2.50	2.10	2.10	E1.70 S	1.75	E1.90 S	E1.30 S	1.20	E1.20 S	E1.60 S
31																								
No.	18	28	29	28	25	25	22	21	27	29	30	28	27	28	28	29	27	22	30	30	18	21	25	24
Median	1.40	1.25	1.20	1.20	1.30	1.40	1.90	1.90	2.10	2.25	2.50	2.65	2.70	2.70	2.50	2.20	2.20	1.90	E1.80	E1.60	1.40	E1.40	1.40	1.30

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	z.95F	z.30	z.15	z.45S	z.70	J3.00S	3.05S	z.80	z.60	u3.10S	z.35S	Jz.25S	z.70	z.80	z.85S	z.75	Jz.70S	z.30	I3.30S	u2.40S	u2.40S	J2.45S	u2.30S
2	z.45S	z.15	z.15	z.40	1.85	7.30	I2.50S	u2.90S	3.50	S	S	A	J2.45S	I2.60A	z.85	z.90	3.00	z.95	I3.00S	I3.10S	z.65S	u2.55S	u2.60S	z.65
3	z.70	z.90S	z.80	z.60	z.60	z.55	3.30R	3.35	3.15	3.05	z.95	z.95	z.75	z.85	I2.95C	z.85	z.80	z.90	3.05	z.85	z.55	z.60	z.60R	z.60
4	z.60	z.65	z.70	z.85	z.60	z.45	z.95S	3.00	z.95	z.95	3.05	3.00	z.90	z.90	z.90	3.00	3.00	3.00	u3.10S	z.90	I2.85S	I2.80S	z.75	I2.75
5	u2.75S	z.75	I2.80S	z.60	z.60	z.50	z.90S	3.00	z.85	z.95	3.10	3.00	z.85	z.85	z.80	z.90	z.90	3.05	3.15S	z.85	z.60	z.65	z.65	u2.70
6	C	C	C	C	C	C	C	C	C	C	3.10	3.15	z.95	z.85	3.00	3.00	3.00	3.05	3.10S	I3.05S	I2.90S	I2.70S	J2.70S	z.85
7	I2.75S	J2.65S	z.80S	3.00	z.60	z.60	u3.10S	z.95	z.90	3.10	3.00	z.85	z.80	z.85	z.90	z.80	z.95	3.10	3.05	3.00S	z.75S	u2.65S	I2.70S	J2.70S
8	I2.70S	z.70	z.60S	z.40	z.35	z.45	3.15	3.05	3.25	3.00	z.75	z.90	z.80	z.80	z.80	z.90	3.10	3.15	3.00	z.90	u2.75S	z.65S	u2.65S	J2.60S
9	J2.80S	z.85	3.00	z.45	z.45	z.60	3.25	3.15	z.95	3.00	z.85	z.85	z.75	z.75R	z.85	J2.95R	z.95R	z.95	3.15	I3.05S	u2.75S	u2.70S	z.75	z.80
10	J2.70R	z.85	z.90R	z.75	z.75	z.55	3.00	3.15	3.15	3.00	z.85	z.90	z.85	z.85	z.85	z.80	z.85	3.00	3.15	3.15	3.20S	u2.75S	I2.60S	I2.55S
11	u2.55S	u2.75S	z.95	z.70	z.45	z.35	C	C	C	z.80	3.00	z.80	z.80	z.85	z.95	z.85	z.90	z.95	3.15	3.05	z.75	z.50S	z.60	u2.75R
12	z.55	z.70	z.90	z.55H	z.60	z.55	u3.20S	z.95	3.00	z.85	z.90	z.85	z.80	z.80	z.75	z.75	z.90	z.95	3.00	3.10R	z.90	z.90	z.60	u2.75R
13	z.55	u2.50R	u2.60R	z.95	z.45	z.40	3.05	3.20	3.10	3.00	z.80	z.65	z.90	z.80	z.80	z.80	z.75	z.80	3.05	3.20	u3.25S	z.45	z.50S	z.50
14	z.60	z.70	z.75	z.55	z.70	z.85	3.10	3.10	z.90R	z.75	z.85	z.75	z.85	J2.95S	J2.85S	J2.85S	z.80	z.90	z.95	3.05	z.80	z.75	I2.60S	z.50
15	u2.60S	z.90	z.90	z.95	z.75	z.50	z.70	3.00	3.00	3.05	z.80	z.75	z.80	z.70	z.75	z.80	z.70	z.95	z.95	J3.20S	z.70	z.65S	J2.65R	J2.65R
16	z.65	I2.80R	z.75S	z.65	z.70Z	z.55	z.90	z.75	z.60	z.55	z.50	z.65	z.70	z.70	z.75	z.95	z.90S	z.95	3.00S	z.95	z.80	z.60S	z.55S	z.45
17	I2.30S	z.25	z.30	z.50	z.35	z.30S	z.75S	z.90	z.55	z.75	z.75	z.70	z.65	z.80	z.80	z.80	z.90	z.85	3.00	I2.90S	z.75S	z.45	z.55	I2.60S
18	z.75	z.75R	I2.70S	z.55	z.20	z.50	3.10S	z.95	z.95	3.00	z.80	z.80	z.65	z.70	z.75	z.85	I2.90A	z.85	z.95	J3.05S	z.65S	J2.60S	u2.60S	J2.65S
19	z.65S	z.95	u3.00S	z.80	z.45	z.55	3.00	z.95	z.85	z.85	z.90	z.65	z.70	z.75	z.80	z.90	z.90	z.90	3.00S	u2.90S	z.65S	z.65S	u2.80S	z.75S
20	u2.75S	z.75S	z.90F	z.95	z.70	z.80	u3.15S	3.05	3.10	z.75	z.70	z.65	z.70	z.70	z.75	z.80	z.85S	z.90	z.95	z.85S	I2.60S	z.50	I2.80S	I2.90S
21	u2.90S	u2.85S	I2.95R	J3.05R	z.85	z.90	3.20	3.00S	3.00	z.85	z.70	z.60	z.75	z.75	z.75	z.80	u2.95A	z.90	3.05	I2.90S	u2.65S	I2.70S	z.80	J2.70S
22	J2.90S	z.80	z.90	3.00	z.60	z.75	3.00	3.05	z.95	z.65	z.60	z.70	J2.75R	J2.80R	J2.80S	z.80	z.85	z.85S	3.00S	3.00S	I2.85S	J3.00S	J2.70R	u2.65S
23	J2.90S	z.85	J2.80S	z.70S	z.60	z.60	z.95	J3.00S	z.85	z.75	z.80	z.80	z.80	z.85R	u2.80R	z.75S	z.90	J2.90R	3.00	3.00	J2.90S	z.65	z.70S	z.65
24	J2.65S	z.85	z.95	z.70	z.55	z.75	z.90S	J3.05S	J2.90R	z.90	z.80	z.65	z.70	z.65S	J2.80S	z.80	z.75	z.80	z.90	z.85	3.05	J2.75S	z.65	z.50
25	z.40	z.25	z.55	z.90	z.50	z.65	z.95	J3.15S	z.95	z.95	z.60	z.85	z.85	z.80	z.85	3.05	z.95	z.80	z.95	z.95	u2.70S	z.65S	I2.60S	z.70
26	z.65	z.65	J2.50S	u2.75S	z.50	z.75S	3.05S	z.95	3.00	3.00	3.05	z.90	3.05	z.85	3.00	z.95	z.95	z.95	3.00	I3.00S	3.00	J2.60S	J2.65S	u2.65S
27	J2.70S	z.65	z.75S	z.75	z.60	z.85S	3.05	z.95	3.10	z.75	z.65	z.80	z.90	z.90	z.90	z.90	z.95	3.00	3.15	3.25	z.85S	z.75	u2.70S	u2.65S
28	z.70	z.70	z.65Z	z.75F	z.70S	z.90	3.00S	3.15	z.95	z.75	z.70	z.60	z.50	z.75	z.90	z.85	3.00	u2.85S	z.70S	u2.80S	I2.90S	u2.45S	z.45	z.55
29	I2.55S	J2.50S	z.75	J2.60S	z.50	z.65	u2.90S	z.90H	3.00	3.00	3.05	3.05	z.80	z.90	3.05	3.05	z.90	z.75S	z.90	3.05	u2.95S	u2.60S	u2.60S	z.55S
30	u2.60S	z.60	u3.05S	z.55	I2.80A	z.95	z.95	3.00	2.45H	z.50	z.55	z.60	z.60	z.35	z.75	z.50	z.60	z.90	z.75	u2.85S	z.70	J2.50S	u2.60S	z.50
31																								
No.	28	29	29	29	29	29	28	28	28	28	29	29	30	30	30	30	30	30	30	30	30	30	30	30
Median	2.65	2.75	2.80	2.70	2.60	2.60	3.00	3.00	2.95	2.90	2.80	2.80	2.80	2.80	2.80	2.85	2.90	2.90	3.00	3.00	2.75	2.65	2.60	2.65

(M3000)F2

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

The Radio Research Laboratories, Japan.

K

IONOSPHERIC DATA

Apr. 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		"2.85^{S}	3.15		L	L								
2							S	S		I3.60^{S}	I3.55^{S}	I3.40^{A}	3.00	A	3.45^{L}									
3									L	3.80^{L}	3.60^{L}	3.65^{L}	L	A	C	L	L							
4											L	L	S	L		L								
5										L		B	B	B	B	L								
6							C	C	C	C	L	L	L	L	L									
7											L	S	L	L	L	L								
8										L	L	L	L	L	S		A							
9											L	L	L	L	L	L								
10										L		L	L	L	L		L							
11							C	C	C		L	L	L	L	L	L								
12										L	L	L	L		L	L								
13												L	L	L	L	L								
14										L	L	L	L	L	L	L								
15											L	L	L	I3.50^{L}	3.40^{L}	L	L							
16									L	3.35^{L}	3.35	L	L	L	L	L								
17									L	L	L	A	3.40^{L}	A	A	L								
18										L	L	L	L	3.30^{L}	L	L	A	A	A					
19											L	A	L	A	A	L								
20											L	L	L	A	3.50^{L}	L			A					
21											L	L	"3.30^{L}	3.65^{L}	L	L	A	A	A					
22										L	L	L	3.50^{L}	A	L	L	A							
23											L	3.45^{L}	3.30^{L}	L	L	L			A					
24										L	L	3.50^{L}	3.40^{L}	"3.20^{L}	L		L	A						
25										"3.50^{L}	3.35^{L}	L	L	L	L	L								
26									"3.60^{L}		L	L	L	L										
27										L	L	3.65^{L}	I3.70^{S}	"3.50^{S}	S	S	L							
28									L		A	A	"3.15^{L}	3.40^{L}	L	L								
29									L	L	A	"3.75^{L}	I3.50^{L}	L	A	A								
30									A	AS	3.65	A	A	3.70^{S}	3.50	3.25	3.35	L						
31																								
No.									1	4	5	7	10	7	4	1	1							
Median									"3.60	"3.55	3.55	"3.50	"3.35	3.50	3.50	3.25	3.35							

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

The Radio Research Laboratories, Japan.

K

IONOSPHERIC DATA

Apr. 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									305	z80		540	I 470 S		L	300								
2							S	S		S	S	A	S	I 445 A	350									
3									z55	z80	310	305	350	300	I z90 C	305	z80							
4											z85	z75	z60	z60		z65								
5										z60		z60	E 300 B	z95	z65	z70								
6							C	C	C	C	z75	z55	z75	z60	z60									
7											z55	S	305	z80	z75	z60								
8										z55	z55	z80	z55	305	z95		z55 A							
9											z70	z60	z60	300	z95	z80								
10										z50		z55	z55	z70	z55		z80							
11							C	C	C		z60	z80	z75	z60	z80	z60								
12										z75	z60	z70	z95		300	z80								
13												z75	z55	z95	z80	z95								
14										z55	z65	z90	300	z80	z80	z75								
15											z60	z90	300	z80	310	z70	300							
16									325	360	345	305	310	310	300	z80								
17									320	300	z80	305	345	E 345 EA	310 A	300								
18										z55	z95	z90 L	310	350 A	300	305	A	E z80 A	E 360 A					
19											z80	300	305	310 A	300 A	300								
20											I z80 L	340 L	300	340 A	310	300			E 300 A					
21											z65 L	310	335	300	z70 L	300	E 300 A	E z80 A	z60					
22										300	305	305	305	300 A	305	z80	z90							
23											z60	305	320	z95	300	300			E z90 A					
24										z65 L	z60	305	330	350	300		z80	E 300 A						
25										300	350	z75	z70	z60	300	z60								
26									310		300	300	z75	310										
27										z80	z65	z95	z75	z75	z80	z75	z70							
28									z60		310	E 400 A	400	315	z80	300								
29									z95	z55	z55	z70	310	305	z75	z60								
30									E 440 A	400	400	400	400	470	500	400	380	300						
31																								
No.									7	16	25	27	29	27	27	24	8	4	4					
Median									305	z80	z75	z90	300	300	z95	z80	z80	E z90	E z95					

The Radio Research Laboratories, Japan.

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

K 9

IONOSPHERIC DATA

Apr. 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	300	z05	350A	455	345	z55	z55	z50	z50	z50	z50	z50	E300B	z50	z50	z50	z50	z60	310	400	355	330	350	380
2	300	430	405	400	560	350	S	S	z50	I250S	I245S	I240A	E300A	I215A	z40	z35	z50	z45	z55	z50	z60	305	300	z90
3	z70	z50	z50	z80	350	E350S	z50	z45	z05	z10	z10	z05	A	A	I210C	z50	z40	z55	z40	z45	310	310	350	320
4	300	z70	z60	z55	300	310	z50	z50	z50	z50	z30	z30	I250S	z40	E255S	z30	z50	z50	z45	z40	z55	z90	z90	z95
5	300	300	z60	z70	300	345	z20	z30	z40	z30	z50	B	B	B	B	z40	z50	z50	z10	z30	z80	330	310A	310
6	C	C	C	C	C	C	C	C	C	C	z10	z10	I220S	z15	z20	z40	z30	z55	z45	z40	z45	300A	300	z55
7	z95	z80	z50	z10	z30	z95	z45	z40	z35	z30	z10	I210S	z30	z30	z25	z30	z40	z45	E250A	E255A	z45	z45	305	305
8	300	300	305	305	355	320	z45	z20	z30	z10	z05	z30	z10	z45	I235S	z50A	I240A	z45	z45	z30	z50	305	305	310
9	z55	z55	z30	z80	350	z95	z10	z30	z30	z30	z30	z10	z10	z30	z30	z30	z45	z45	z45	z05	z45	300	z80	z55
10	z60	z55	z50	z15	z55	305	z30	z30	z30	z15	z25	E245B	z10	z10	z00	z30	z45	z50	z50	z30	z20	z30	z90	330
11	345	300	z30	195	z55	E330C	C	C	C	z45	z30	z30	z10	z05	z20	z45	z45A	z45	z35	z20	z10	310	305	I305A
12	305	z75	z30	z25H	z95	305	z30	z30	z30	z30	z20	z05	z25	z45	z20	z30	z50	z50A	z50	z35	z40A	z30	300	z80
13	310	330	z90	z50	z50	310	z50	z30	z30	z25	z25	z05	z30	z35	z40	z30	z55	z70A	z50A	z45A	z00	z45	310	315
14	305	z90	z75	z50	z70	z50	z30	z40	z30	z30	z10	I220S	E280A	z40	z30	z30	z50A	z50	z40	z30	z50A	z80A	310A	330A
15	300A	z60	z50	z30	z50	305	z30	z40	z50A	z45	E245A	z30	z40	z05	z25	z30	z50	z50	z45	z30	z10	E355A	330A	310
16	300A	z80	z70	z50	z60	300	z50	z50	z55A	z30	z20	z05	I210S	z05	z30	z20	z50	z45	z45	z45	z50	z90	305	335
17	380	355	350	300	335	300	z50	z30	E270A	z20	z30	I230A	235	A	A	z55A	z60A	z60A	z50A	z60A	z50	305	350A	310A
18	305A	310A	305A	z80A	350A	300	z35	z10	z45	z10	z55A	z55A	z50A	I215A	z55	z45	A	A	A	z50A	E300A	E350A	330	310A
19	300	z60	z50	z05	300	z80	z30	z45	z45	z50	E250A	I240A	I220A	A	A	z20	z55	z50	z45	E310A	z80A	300A	z95A	z95
20	z95	z95	z55	z50	z30	z55	z40	z35	z30	z45	z45	z10S	z50	I250A	z45S	z45	z45	z50	I250A	z50A	E310A	350A	300A	z95A
21	z70A	z60	z50	z80	z10	z45	z30	z30	z40	z50	z15	z10	z30	z05	I220S	z20	A	A	A	E305A	E350A	E300A	z80A	305A
22	z60	z75	z60	z30	z30	z55	z30	z45	z40	E250S	z45S	z25	z45	A	E250S	E255A	I245A	z50	z50	z50	z50A	z55A	z60	z80
23	z80	z50	z60	z55	z95	z80	z45	z35	z30	z45	E250S	z10	E250S	z05	z55	z35	z50	z55	I230A	z25	z45	E330A	E340A	305
24	z75	z60	z50	z30	z95	z60	z25	z25	z25	z25	z20	z10	z05	z35	z45	z50	E265A	I250A	z55	z50	z50A	z55A	E350A	310
25	350	360	305	z30	300	z80	z50	z25	z25	z50	E295A	z50	U245S	z20	z50	z30	z40	z55	E250S	z50A	E350A	320A	310	z80
26	300	300	E350A	z60	300	z60	z50	z50	z50	z50A	z55	z10	z10	z05	z55	z35	z45	z50	z50	z50	z25	z60	z90	305
27	300	300	z75	z70	z60	z50	z50	z30	z45	z05	E245S	z05	I200S	z00S	z10	I230S	z35	z55	z50S	z10	z45	z60	z90	305
28	300	300	320A	300A	z90A	z50	z30	z25	z35	E255S	A	A	E300A	z35	z50	z45	z30	z30	z30	z90	z30	z95	350	330
29	325	325	z80	300	310	z95	z45	z30H	z50A	z45	I250A	z25	E255S	E280B	A	A	z60	z45	z75	z30	z20	E405A	330A	E350A
30	305	305	z50	E450A	I290AE	z95A	z50	z60	A	AS	z15	A	A	z10	z10	z30	z50	z55	z80	z50	z50	330	300	300
31																								
No.	29	29	28	28	29	27	27	27	26	26	24	26	21	24	24	28	27	28	28	27	26	26	28	29
Median	300	z90	z60	z55	z95	z95	z45	z30	z40	z30	z30	z15	z25	z20	z30	z30	z50	z50	E250	z45	z50	E300	305	305

h'F

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

The Radio Research Laboratories, Japan.

K

IONOSPHERIC DATA

Apr. 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	S	E	120	B	E	E	S	G	130	115	130	G	B	G	G	G	S	S	S	S	S	E	E	E
2	E	G	G	170	150	S	S	S	140	140	130	110	110	105	115	130	G	S	S	S	110	E	E	110
3	110	105	110	E	E	G	G	140	G	130	130	110	105	110	C	G	S	G	115	E	S	E	115	120
4	E	120	115	110	B	B	S	S	S	B	140	130	120	120	110	110	115	110	110	E	110	S	110	110
5	100	105	E	E	E	E	S	G	150	130	115	B	B	B	B	B	S	S	S	115	110	110	105	110
6	C	C	C	C	C	C	C	C	C	C	100	G	105	125	100	100	G	S	S	E	100	100	100	E
7	160	100	100	B	105	E	G	150	140	110	140	105	105	105	110	105	110	S	105	105	105	105	E	S
8	E	E	E	E	E	E	G	110	140	125	130	G	100	105	105	105	100	110	100	115	100	S	100	E
9	E	E	E	E	E	E	150	145	140	145	110	110	G	105	105	105	105	S	100	105	E	E	E	E
10	S	E	E	E	E	S	S	145	135	130	G	B	G	110	G	130	110	110	105	105	105	E	S	S
11	S	S	E	E	E	C	C	C	C	110	110	110	105	105	110	110	105	105	B	110	105	110	E	105
12	E	E	E	E	100	E	G	140	105	115	G	110	B	110	120	110	110	105	110	105	110	100	100	E
13	E	B	E	E	E	B	S	125	110	110	G	G	100	100	115	100	150	115	105	105	110	E	E	E
14	E	E	E	E	E	B	B	G	140	110	110	105	100	105	115	100	100	100	100	100	100	100	100	100
15	100	100	E	E	105	100	100	100	105	110	105	100	100	100	105	G	G	145	110	105	E	100	100	100
16	100	B	E	E	E	B	150	110	120	110	110	100	100	110	110	100	100	130	110	105	S	S	E	E
17	S	E	E	E	100	G	G	145	110	110	105	100	100	100	100	100	140	120	110	105	105	105	100	100
18	100	100	100	100	100	B	G	135	125	115	110	105	105	125	150	140	105	105	100	100	100	105	100	100
19	100	100	100	E	E	B	160	140	125	125	105	100	100	100	100	105	145	130	110	105	105	105	100	100
20	100	100	100	100	B	100	G	145	145	105	105	105	110	100	105	G	G	115	105	105	105	105	105	105
21	100	100	E	E	E	B	G	110	105	100	105	105	105	105	110	125	105	105	100	100	105	105	105	100
22	S	E	E	E	B	150	150	130	110	110	105	110	110	100	105	105	105	110	105	100	105	105	100	E
23	S	E	E	E	E	B	150	120	115	110	105	110	110	105	100	105	110	130	110	110	100	100	100	100
24	S	E	E	E	E	G	G	G	140	130	110	110	115	G	105	110	100	100	105	100	100	100	100	110
25	S	E	E	E	E	B	B	105	125	100	100	100	100	125	100	125	110	105	100	100	100	100	100	S
26	100	100	100	105	100	S	120	110	115	100	105	105	G	110	105	105	100	100	105	105	105	S	105	100
27	100	E	E	E	E	S	145	120	110	105	S	G	S	100	100	125	120	100	100	100	100	S	S	105
28	110	100	100	100	100	105	115	105	130	110	105	100	105	110	G	135	G	G	S	S	105	105	150	115
29	105	105	105	105	E	S	145	135	125	120	110	120	110	B	155	200	200	G	105	105	100	100	100	100
30	105	105	100	105	100	135	130	120	110	110	125	105	105	115	G	G	110	135	110	110	S	105	110	S
31																								
No.	14	13	11	8	9	5	11	22	26	28	26	23	23	26	24	24	22	21	24	24	24	19	21	18
Median	100	100	100	105	100	105	145	130	125	110	110	105	105	105	105	110	110	110	105	105	105	105	100	100

h'Es

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

Apr. 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						h	c	h													
2				h	hz				h	h	h	c	l	l	l	h					f			f
3	f3	fz	f					h		h	h	c	l	lz					l				fz	fz
4		f	f	fz							h	h	l	c	l	l	l	l	l		f		fz	fz
5	f	f							h	h	c									f	f	f3	f3	f
6											l		l	h	l	l					fz	fz	fz	
7	f	f	fz	f	f			h	h	l	h	l	l	l	l	l	l		lz	f3	fz	f		
8								c	h	h	h		l	l	l	lz	lz	l	lz	f fz	f		f	
9							c	h	h	h	c	l		l	l	l	l		l	f				
10								h	h	h				l		h	c	l	lz	fz	f			
11										c	c	l	l	l	l	l	cz	lz		f	f	fz		fz
12					fz			h	l	c		l		c	h	c	c	lz	lz	fz	fz	f	fz	
13								h	c	c			l	l	c l	l	hl	c	lz	fz	f			
14									h	c	l	l	l	l	l	l	lz	lz	lz	fz	fz	fz	f3	f3
15	f3	f			f	fz	lz	l	l	c	l	l	l	l	l			h	l	fz		fz	fz	f
16	fz						h	l	h	l	l	l	l	l	l	l	lz	h	lz	fz				
17					f			h	c	c	c	lz	lz	l3	l3	lz	lz h	hz lz	l3 lz	fz	fz	fz	f3	f6
18	fz	f3	f3	f3	f3			h	h	c	c	c	cz	h	h	h	c3	l3	l3	f4	f3	f3	f	f3
19	fz	f	f				h	h	h	h	c	lz	lz	lz	lz	l	h	hz	lz	f3	fz	fz	fz	fz
20	fz	fz	fz	f		l		h	h	c	l	lz	l	l3	l			c	lz	f3	f3	fz	fz	fz
21	f	f						l	c	lz	c	l	l	l	l	h	lz	lz	l3	f3	fz	fz	fz	fz
22						hz	h	h	c	c	c	l	l	lz	c	l	lz	lz	lz	fz	fz	fz	fz	
23							h	c	h	c	l	l	l	l	lz	lz	l	h	l3	f	fz	f3	f3	fz
24									hl	h	h	l	l		l	c	lz	l3	lz	fz	f4	fz	f3	f
25								lz	hl	l	l	l	l	h	l	c	c	l	lz	f3	f3	f3	f	
26	fz	fz	f3	fz	fz		h	l	l	lz	lz	l		l	lz	l	l	lz	l	fz	f		f	f
27	f						c	h	c	c				l	l	h	c	lz	lz	fz	fz			fz
28	f	fz	f3	f4	f3	l	c	l	h	cz	cz	lz	lz	l		h					f	f3	f	fz
29	fz	fz	fz	fz			h	h	hz	h	cz	h	l		h	h	h		l	f	fz	f3	f3	f5
30	f	fz	fz	f5	f4	hz	hz	h	cz	c	h	cz	cz	c			c	h	l	f		fz	f	
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

K

IONOSPHERIC DATA

Apr. 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	S	305F	490	550	430S	355	J305S	315S	355	375	u280S	G	I470Q	355	355	350S	360	J390S	460	I510S	u455S	u450S	J455S	u505S
2	450S	550	550	450	610	495	I455S	u315S	S	S	S	A	S	A	350	335	310	305	I370S	I300S	380S	u405S	u400S	380
3	355	330S	335	395	405	400	z80R	z55	305	310	350	350	355	350	I340C	355	350	335	310	330	410	400	405Z	400S
4	400	385	350	345	400	400	320S	305	320	320	325	330	350	335	345	335	310	310	u305S	310	I350S	I370S	355	I360S
5	u360S	390	I355S	400	405	435	310S	320	350	325	300	335	355	355	355	350	345	305	300S	330	395	400	400	u355S
6	C	C	C	C	C	C	C	C	C	C	310	z95	340	350	320	325	320	310	305S	I305S	I330S	I365S	J390S	350
7	I375S	J390S	350S	300	390	395	u300S	325	340	305	310	350	355	355	350	355	340	305	305	340S	355	u395S	I395S	J400S
8	I390S	390	400S	445	455	445	z90	300	z85	305	360	345	355	355	355	335	305	305	305	310	u390S	400S	u400S	J400S
9	J355S	330	305	415	450	395	z95	300	310	310	345	350	365	380R	355	J345R	345R	330	300	I300S	u355S	u385S	355	355
10	J355R	350	335R	355	360	405	325	300	300	310	305	345	350	355	355	355	350	325	300	300	z95S	u355S	I400S	I430S
11	u405S	u390S	325	350	440	450	C	C	C	350	310	350	355	350	340	350	345	330	300	300	350	410S	400	400S
12	400	380	325	400H	395	400	u285S	330	325	350	345	345	355	355	355	355	345	330	325	305R	345	330	400	u355R
13	400	u405R	u400R	330	400	440	310	300	J300	300	355	380	355	355	360	355	355	350	305	z90	u285S	430	430S	430
14	400	395	355	400	380	345	300	300	335R	355	350	360	355	J345S	J305S	J350S	350	345	305	305	350	355	I400S	405
15	u390S	345	335	310	360	405	350	315	315	310	345	350	355	380	390	355	380	345	330	J295S	355	400S	J400R	J400R
16	395	I355R	385S	400	380Z	400	z75	355	395	405	405	385	355	380	355	345	325S	325	305S	305	350	400S	400S	445
17	I490S	500	475	405	455	450S	335S	320	400	355	350	380	395	360	355	345	330	335	310	I340S	355S	440	405	I395S
18	375	355R	I350S	395	445	405	300S	310	305	305	350	350	385	390	355	355	I340A	345	I320A	J305S	380S	J410S	u430S	J395S
19	390S	345	u315S	330	405	400	320	310	350	350	345	390	375	390	345	350	345	335	310S	u345S	390S	395S	u380S	390S
20	u380S	355S	345F	330	350	350	u295S	300	300	350	380	400	385	385	365	360	355S	330	325	330S	I395S	420	I370S	I350S
21	u350S	u350S	I330R	J300R	335	330	z95	320S	315	335	355	390	390	365	365	355	u345A	335	305	I370S	u390S	I370S	355	J375S
22	J345S	360	345	310	395	350	325	305	315	370	395	385	J365R	J355R	J360S	355	350	355S	335S	325S	I340S	J330S	J385R	u385S
23	J350S	345	J355S	385S	400	400	305	J305S	345	355	350	360	375	355R	u355R	355S	345	J330R	325	310	J330S	395S	395S	400
24	J355S	355	350	355	400	355	320S	J300S	J320R	375	355	390	395	400S	J355S	360	350	355	345	350	305	J355S	395	430
25	455	490	400	330	405	390	320	J290S	305	305	400	350	350	355	355	310	310	355	330	305	u380S	395S	I400S	390
26	400	390	J410S	u355S	415	355S	300S	305	330	305	305	330	330	355	325	335	335	320	315	I310S	310	J400S	J390S	u400S
27	J380S	395	355S	375	390	335S	305	310	300	370	390	350	350	345	345	345	330	320	300	z75	350S	355	u365S	u400S
28	390	390	390Z	390F	380S	305	305S	300	320	360	370	A	445	360	335	350	305	u335S	380S	u355S	I325S	u445S	450	405
29	I430S	J430S	355	J405S	445	390	u335S	345H	335	305	305	305	350	350	310	330	330	355S	350	300	u315S	A	u395S	405S
30	u400S	405	u305S	A	I350A	300	330	320	445H	430	405	410	425	495	500	430	405	335	355	u330S	355	J430S	u400S	405
31																								
No.	28	29	29	28	29	29	28	28	27	28	29	27	29	29	30	30	30	30	30	30	30	29	30	30
Median	390	385	350	380	400	400	305	310	320	340	350	350	355	355	355	350	345	330	310	310	350	400	400	400

hpF2

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

Apr. 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	S	100F	105	105	115s	140	J90s	95s	100	145	u115s	G	I170q	140	145	100s	125	J105s	190	I105s	u120s	u100s	J95s	u105s
2	140s	100	115	100	140	105	I130s	u90s	S	S	S	A	S	A	95	110	85	100	I110s	I100s	115s	u105s	105s	115
3	140	115s	115	105	130	110	75R	100	90	100	50	90	100	105	I125c	100	100	110	90	80	100	100	140z	100s
4	100	115	80	105	105	110	115s	95	110	80	75	70	80	95	85	70	90	90	u90s	95	I95s	I75s	140	I100s
5	u95s	60	I95s	105	100	70	135s	85	95	80	95	65	90	95	95	105	85	90	100s	105	95	100	95	u140s
6	C	C	C	C	C	C	C	C	C	C	80	85	80	80	85	80	90	95	100s	I90s	I100s	I90s	J60s	90
7	I80s	J105s	85s	100	105	100	u100s	75	65	90	85	95	95	85	90	95	70	90	90	65s	100	u100s	I100s	J90s
8	I100s	105	95s	130	135	100	105	95	70	95	95	95	100	100	90	90	95	80	95	100	u60s	100s	u95s	J100s
9	J85s	80	95	135	100	100	95	85	90	90	75	90	95	70R	85	J65R	100R	85	95	I95s	u140s	u100s	135	109
10	J135R	80	110R	100	95	100	75	80	85	100	115	100	95	95	90	100	85	75	80	85	65s	u105s	I100s	I100s
11	u105s	u105s	115	150	110	100	C	C	C	80	90	105	95	100	100	100	95	70	135	100	105	100s	90	100s
12	100	115	120	105H	105	125	u105s	80	75	95	75	100	90	95	100	90	95	80	75	90R	90	115	105	u100R
13	95	u130Ru	95R	100	145	160	90	55	100	100	90	75	90	90	100	95	100	95	95	65	u95s	120	110s	75
14	90	100	100	100	115	100	90	50	105R	90	100	85	90	J55s	J135s	J80s	95	100	100	95	95	95	I100s	95
15	u105s	100	80	130	135	140	135	80	80	95	100	110	95	80	105	95	100	85	100	J60s	135	100s	J105R	J95R
16	105	I90R	105s	100	120z	105	170	135	105	140	185	150	125	120	130	105	80s	115	95s	100	105	100s	105s	140
17	I110s	140	120	135	140	150s	110s	90	145	135	135	125	95	95	100	100	100	110	95	I100s	100s	120	105	I100s
18	80	100RI	140s	110	110	100	55s	95	100	100	100	100	115	65	140	95	I105A	95	I95A	J85s	130s	J125s	u130s	J100s
19	105s	55	u95s	165	140	135	80	130	95	100	100	90	105	65	100	95	100	100	90s	u100s	100s	100s	u105s	95s
20	u110s	100s	60F	115	135	145	u100s	95	80	105	115	95	100	100	90	95	90s	80	125	115s	I110s	130	I75s	I60s
21	u55s	u95s	I80R	J95R	110	115	85	125s	90	120	130	105	105	90	100	100	u95A	75	95	I120s	u105s	I100s	100	J80s
22	J60s	95	85	90	110	145	85	95	130	125	105	100	J85R	J95R	J90s	100	100	100s	65s	120s	I135s	J75s	J105R	u70s
23	J85s	105	J100s	110s	110	105	100	J90s	100	140	100	95	80	100Ru	95R	130s	100	J115R	115	90	J100s	100	105s	105
24	J105s	90	100	130	100	100	90s	J95s	J125R	120	100	105	90	95s	J95s	95	105	125	100	95	90	J140s	115	80
25	135	120	130	125	140	145	115	J105s	135	100	115	105	95	100	90	105	90	130	75	100	u115s	100s	I105s	110
26	100	105	J135s	u110s	135	130s	100s	135	70	145	95	80	70	90	80	110	65	105	85	I105s	135	J100s	J105s	u100s
27	J75s	95	100s	120	115	110s	100	95	95	120	105	100	100	100	100	100	95	85	75	80	105s	95	u95s	100s
28	95	105	95z	110F	120s	140	95s	95	125	230	130	A	110	105	100	130	105	u120s	120s	u100s	I100s	u110s	100	130
29	I100s	J100s	110	J100s	105	105	u70s	100H	95	150	95	95	80	95	85	70	105	140s	80	100	u130s	A	u150s	140s
30	u105s	105	u105s	A	I105A	100	120	135	Z05H	160	150	90	120	110	150	125	135	110	100	u100s	140	J120s	u105s	145
31																								
No.	28	29	29	28	29	29	28	28	27	28	29	27	29	29	30	30	30	30	30	30	30	29	30	30
Median	100	100	100	110	115	110	100	95	95	100	100	95	95	95	100	100	95	100	95	100	100	100	105	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

Apr. 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	S	S	F	F	F S	F	F S	J 10.1	12.7	11.8 S	12.5	10.0	12.5	12.3	9.2 H	13.3 H	U 12.5 S	U 9.5 S	7.4	9.2	I 10.2 S	11.1 S	11.4	J 10.1 S
2	9.1	J 7.9 SH	8.6	S	I 9.5 S	9.1	F	5.5	S	I 5.4 C	5.2	6.4	8.0 F	7.2	7.9	8.7	9.2	9.1	9.0	J 9.7 S	6.9	6.6	7.0 S	I 7.3 S
3	J 7.4 S	6.3	I 5.4 A	J 4.4 S	4.4	4.2	5.2	8.0	8.5	9.4 S	11.9 H	12.4 H	11.4 H	12.3 H	12.6 H	10.4 H	10.5 H	11.0	J 10.0 S	8.2	6.5 S	6.8 S	6.3 S	6.3 S
4	6.8 S	7.5	7.0	5.6	4.5	4.4	4.7	8.3	11.5	12.4	12.5	12.9 H	13.4	13.8 S	13.4	12.7	12.3	11.6	10.8 S	10.6	U 9.5 S	9.2 S	9.4 S	I 9.3 S
5	I 9.5 S	9.3	9.2 S	I 8.2 S	6.9	7.0 S	I 8.0 C	I 9.1 C	I 11.1 C	14.1	U 14.4 S	13.2 H	13.5 H	14.9 H	14.8 H	14.1	14.3	13.2	11.2	J 10.0 S	9.0	8.9	9.2 S	9.0
6	9.2 S	I 9.1 S	6.9 S	6.5	6.5 S	6.8	7.1 S	9.8 S	11.9 S	13.5 H	13.8	13.5 S	14.8 H	14.5	14.1 H	13.6	12.4	U 12.5 S	12.2	11.4	U 9.9 S	S	S	J 10.4 S
7	9.3	9.3 S	U 9.5 S	J 8.0 S	6.7	5.9	U 6.2 S	9.3 S	11.4	13.5	12.0	12.3 H	13.1	14.2	14.0 S	14.0	13.7 S	12.7	11.8	11.0	9.1	8.6	9.1	I 9.4 S
8	I 10.0 S	J 10.0 S	9.0	7.4 S	7.0 S	7.1 S	J 8.2 S	8.4	10.8 S	J 10.1 S	11.8 SH	14.1 H	14.1	13.9 H	14.6 SH	14.9	14.1	12.3	11.6	11.2	8.8	J 8.4 S	J 8.4 S	J 8.2 S
9	8.7	9.2	8.4	6.3	6.1	6.4	I 7.4 S	9.1	10.5	11.8	12.4	13.2	14.5 H	U 14.7 SH	I 15.7 H	I 15.5 S	15.2	U 13.9 S	13.6	12.6	9.2	U 9.3 S	I 9.3 S	U 9.3 S
10	I 9.4 S	9.1	9.0	7.0	6.1	6.0	6.9 S	10.9	12.2	11.8	11.5	13.1 H	13.6	13.8 S	14.4	14.4	14.0	14.3	U 14.0 R	13.2	I 9.9 S	8.5	8.6	J 8.5 S
11	J 8.2 S	8.8	9.1	6.8 SH	5.2	4.9	J 6.4 S	J 9.8 S	10.8	12.1	12.8	12.4	14.0 H	U 15.1 S	I 15.2 S	14.4	14.0 H	U 14.6 S	R	11.6	8.9	I 8.1 S	J 8.3 S	J 8.3 S
12	8.8	8.9	9.3	J 7.6 S	6.7	5.9	7.4 S	I 9.4 S	10.5 S	12.2	13.5	14.4 H	14.2 H	15.2 SH	U 15.7 SH	15.0	14.7 S	14.4 S	I 14.0 R	13.0	J 10.8 S	I 9.2 C	J 8.0 S	J 8.3 S
13	J 7.7 S	J 7.8 S	S	S	5.9	5.6	I 7.2 S	J 10.2 S	10.5	I 11.2 C	I 12.3 C	13.7 H	U 14.9 SH	U 14.9 SH	14.7 SH	U 14.7 SH	U 14.3 SH	15.0 SH	I 14.4 R	12.4	J 8.4 S	I 7.7 S	I 7.4 S	J 7.5 S
14	J 8.2 S	8.7 S	J 8.8 S	6.7	6.4	6.0	U 7.1 S	9.3 S	10.8	12.3	13.0	14.3 H	15.6 SH	S H	S H	S H	S H	S	S	S	J 8.1 S	I 7.6 S	I 6.6 S	I 6.5 S
15	11.3	I 11.7 S	U 11.5 S	9.3	J 7.8 S	6.7	J 7.9 S	11.0	12.3	11.4	11.7	12.7 H	13.3 H	13.9	14.1 H	14.5 SH	13.8 S	14.1 S	13.2	12.4	9.2	8.9	9.4 S	I 10.0 S
16	J 10.1 S	I 9.7 S	9.3	8.3	J 7.8 S	7.6	8.6	10.5	12.0	12.5	13.4 H	14.1	I 15.2 CH	U 15.7 SH	S H	S H	S	S	U 13.8 S	12.5	I 10.9 S	I 10.0 S	U 9.6 S	I 9.2 S
17	J 8.4 S	J 8.1 S	I 7.2 S	U 7.3 S	I 7.3 S	I 7.8 S	U 9.5 S	11.2 S	12.4	14.1 S	14.1 H	14.1 H	U 15.1 SH	S H	S H	S	13.5	12.6	U 11.8 S	11.1 S	I 10.0 S	8.5 S	8.8	8.8
18	9.3 S	J 8.2 S	J 7.7 S	7.4 S	6.6	6.7	9.1	I 9.4 S	9.0	10.4	11.9	13.1 H	12.8 H	13.5 H	U 14.5 SH	14.1	13.3	12.9	12.9	J 12.3 S	10.5	I 9.4 S	I 9.9 S	J 10.5 S
19	U 11.5 S	11.6 S	I 10.2 S	I 7.8 S	U 6.3 S	6.5	8.0	9.6	10.6	11.6	12.1	12.7 H	13.9 H	U 15.1 SH	15.0 SH	14.0 H	13.5 SH	13.3	12.8	11.7	I 10.7 S	I 10.6 S	10.7 S	I 10.7 S
20	10.8	10.9 S	10.7	J 10.1 S	7.8	6.6	8.4	10.2	J 9.9 S	J 9.9 S	11.2 H	12.1 H	13.4 H	14.4 H	14.6 H	15.2 SH	15.1 SH	14.4 S	13.6	J 12.1 S	J 11.8 S	S	S	S
21	S	S	J 12.9 S	11.3 S	7.7	6.2	I 7.2 S	9.1	10.1	10.6	11.3	13.3 H	U 14.7 S	14.8 S	U 14.7 S	15.1 S	14.3 S	J 14.1 S	13.0	J 12.5 S	I 12.2 S	J 12.4 S	S	S
22	S	S	S	S	8.3	I 7.4 S	8.5 F	J 9.9 S	10.3	11.0	12.3	13.0 H	14.5 H	14.9 H	I 15.0 SH	U 14.8 S	14.1 SH	13.7 S	I 13.9 S	13.2 S	11.8 S	J 9.8 S	9.0	S
23	S	11.5	J 11.0 S	9.5 S	8.9	8.7	I 9.8 S	10.5	11.7	12.4	13.0	14.0 SH	15.3 H	I 16.0 H	I 15.8 SH	I 15.5 SH	I 15.3 SH	14.8 S	I 14.2 S	12.6 R	11.0 S	I 10.6 S	10.8	I 11.6 S
24	I 11.4 S	I 10.9 S	10.2 S	S	I 7.4 S	J 7.3 S	8.5	J 9.7 S	J 10.1 S	11.0	13.1 H	13.1 H	12.7 H	13.8 SH	14.9 H	14.5 SH	13.5 H	13.0	13.0	12.6	I 10.4 S	J 7.4 S	6.6	6.5
25	6.7	6.4	6.4	U 7.0 S	5.3	5.5	J 7.6 S	8.8	7.9	8.5	11.1 H	14.0 S	12.8 H	12.0 H	14.2 H	14.6 H	12.6	12.0	12.9	J 12.1 S	J 10.0 S	9.5 S	I 9.4 S	9.3 S
26	S	8.6	8.4	J 7.4 S	I 7.3 S	J 7.7 S	8.8	J 9.8 S	10.7	J 10.2 S	I 10.4 C	11.9 H	13.7 H	13.2	I 13.6 C	U 14.0 S	13.5	13.6 S	13.2	12.7	S	S	S	S
27	S	S	8.4	J 7.8 S	I 7.4 S	6.9 S	8.9	J 9.8 S	J 9.8 S	10.4 H	11.5	13.1 H	14.2 H	14.2 H	14.8 H	I 14.4 SH	15.2 SH	15.4 S	S	13.4	I 10.4 S	S	S	I 10.3 S
28	I 10.3 S	I 9.8 S	9.2	J 8.1 S	J 7.3 S	6.9	J 7.4 S	8.1	9.1	9.8 S	9.8 H	11.7 H	12.1 H	13.2 H	13.3 H	13.8 SH	13.4 H	11.9	11.3	11.6	J 10.2 S	U 9.3 SH	I 9.6 S	10.2
29	I 10.1 S	I 10.4 S	J 10.6 S	9.0	9.0	U 9.5 S	10.2	10.0	11.2	12.5	14.3	14.0 S	13.1	13.5 H	U 14.8 RH	13.9 H	12.1 H	12.2 H	12.4	R	9.2	8.4	J 8.2 S	I 7.8 A
30	7.7 S	J 7.6 S	7.8	7.7	6.2 H	5.0 H	6.8	J 9.7 S	10.6	11.5	12.0 H	12.2	11.7	U 11.5 S	I 10.8 S	10.0	J 10.1 S	9.5	8.3	9.3	8.5	I 7.5 S	J 7.7 S	I 7.1 S
31																								
No.	24	26	27	25	29	29	28	30	29	30	30	30	30	28	27	27	28	28	27	28	29	26	25	26
Median	9.2	9.1	9.0	7.6	6.9	6.7	7.8	9.7	10.7	11.6	12.2	13.1	13.6	14.0	14.6	14.4	13.6	13.1	12.9	12.1	10.0	9.0	9.1	9.2
U.Q	10.1	10.0	10.2	8.2	7.8	7.4	8.6	10.1	11.6	12.4	13.0	14.0	14.5	14.9	14.9	14.8	14.3	14.2	13.6	12.6	10.8	9.8	9.6	10.2
L.Q	8.2	8.1	7.8	6.9	6.2	5.9	7.1	9.1	10.1	10.4	11.5	12.4	12.8	13.4	13.6	13.8	12.6	12.1	11.3	11.0	9.0	8.4	8.1	8.2
Q.R	1.9	1.9	2.4	1.3	1.6	1.5	1.5	1.0	1.5	2.0	1.5	1.6	1.7	1.5	1.3	1.0	1.7	2.1	2.3	1.6	1.8	1.4	1.5	2.0

foF2

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

The Radio Research Laboratories, Japan.

Y 1

IONOSPHERIC DATA

Apr. 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																								
2								3.6	4.1	I4.4C	4.9	5.1	5.4	5.7	L	L	L							
3																								
4													L	L										
5							C	C	C															
6																								
7													L	L		L	L							
8																								
9																								
10															L	LH	L							
11														6.4L	5.9L	L								
12																								
13										C	C													
14																								
15																								
16																								
17																								
18															L									
19																								
20																								
21														L	L	L.								
22																								
23																								
24																								
25																								
26											C		L	L	C	L								
27																								
28																								
29																								
30													I5.3A	5.5	I5.0A	4.9	4.9	L	L					
31																								
No.								1	1	1	1	1	2	3	2	1	1							
Median								3.6	4.1	4.4	4.9	5.1	5.4	5.7	5.4	4.9	4.9							

foF1

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

IONOSPHERIC DATA

Apr. 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	2.30H	3.00	3.30	I3.50C	3.70R	3.70R	I3.70A	3.80	3.60	3.30	3.00	B	S				
2							S	2.00	2.80	I3.30C	3.55	3.70R	3.70	3.75	3.70	3.65	3.50	2.80	2.20					
3							1.80	2.50H	3.00	3.40	3.50	3.70	3.70	I3.70R	3.50	3.60	I3.10A	2.80	A					
4							S	2.40	3.15H	3.60	3.70	3.90	4.00R	4.00	3.80	3.50	3.10	2.50	S					
5							C	C	I3.10C	3.40	I3.65N	B	B	B	B	B	3.60	3.00	2.20					
6							S	2.50H	3.10	3.40	3.55	3.60	I3.80A	4.00	3.80	I3.60A	I3.35A	3.00	2.20					
7							A	2.50H	3.10	3.40	3.60	3.65	I3.70A	3.80	I3.75A	3.60	3.40	2.90	2.00					
8							S	2.40	3.10	3.30	3.60	A	A	A	R	3.65	3.40	3.00	2.30					
9							S	2.70	3.10	3.35	3.50	3.60	3.60	A	R	B	I3.50A	3.05	2.20					
10							S	2.40	3.10	3.40	3.60	3.75R	3.70	3.90R	3.90	3.70	3.40	3.00	2.10					
11							S	2.60	3.10	3.45	3.60	3.80	3.80	3.80R	3.65	3.50	3.35	2.90	2.30					
12							S	2.60	3.10	3.40	3.65	I3.80R	I3.85R	I3.90R	3.80	3.70	3.40	2.90	2.20					
13							A	2.50	3.20	I3.35C	I3.50C	3.65	I3.65A	I3.75R	I3.85R	3.60	3.40	3.00	2.20					
14							A	2.50H	3.10	3.45R	3.70	3.90	I3.90B	B	3.80	A	A	A	A	S				
15							2.00	I2.55A	I3.10A	A	A	A	A	A	A	R	3.35	2.80	B					
16							S	2.50	3.20R	3.60	3.75	I3.80B	I4.00A	I4.00A	3.90	I3.70B	3.50	2.90	2.40					
17							2.00	2.60	3.20	3.40	3.70R	3.80	3.80	3.90R	R	A	A	A	A					
18							S	2.60	3.20	3.50	3.65	I3.80R	3.90	3.90R	3.95	3.80	3.55	3.10	2.30					
19							S	2.65	3.25	3.50	3.75	3.85	4.00	4.00R	3.90	3.80R	3.40	3.10	2.35					
20							A	2.60	I3.10B	3.50	3.70	3.80	I3.90R	I4.00R	3.90	3.70	3.50	3.00	2.30					
21							2.00	2.70	3.20	3.50	3.70	3.80	3.80	3.80	4.05	3.80	3.50	3.00	1.90					
22							A	B	3.10	3.50	3.70	3.70	I3.75A	3.80R	3.90	3.80	3.50	3.10	2.30					
23							2.00	2.80H	3.25	B	R	I3.70R	A	A	A	R	R	3.10	2.25					
24							1.95	2.75H	3.25H	3.50	3.80	I3.80A	3.90	I3.90R	3.80R	A	A	A	A					
25							1.90	2.40	3.10	3.50	R	B	B	B	4.00	3.85	3.60	3.10	2.40					
26							1.80	I2.70H	3.20	3.40	I3.65C	3.80	A	A	C	A	3.40	3.10	I2.10A					
27							S	2.70H	3.15	3.40	I3.75B	A	A	3.80	I3.95R	3.70R	3.40	3.00	2.05					
28							S	2.60	3.10	R	A	B	A	A	R	3.60	3.30	2.95	2.30H					
29							2.10	2.80	3.20	3.50	3.65	B	B	B	B	B	3.60	3.10	2.30					
30							S	2.80	3.20	3.40	3.65	3.75R	3.75	I3.60A	3.50	3.55	3.30	3.00	2.35					
31																								
No.							9	28	30	27	26	23	21	20	21	21	26	27	23					
Median							2.00	2.60	3.10	3.40	3.65	3.80	3.80	3.85	3.80	3.65	3.40	3.00	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

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	1.2	s1.9	1.1	E	S	3.0	3.3	3.8	5.2	6.4	s7.8	6.2	3.3G	Gr	G	G	B	G	S	S	S	S
2	S	S	E	2.3	1.9	3.0	2.6	2.6	3.3	C	3.9	4.6	4.5	5.0	Gr	G	G	3.4	3.3	2.8	s3.5	3.2	5.5	3.1
3	s6.2	s5.3	6.2	s3.0	s2.7	s2.6	2.0	2.9	4.1	Gr	4.5	4.2	4.0	4.1	4.0	4.0	s5.4	3.8	5.5	5.4	S	S	S	S
4	S	s2.5	1.4	E	E	2.2	s2.0	Gr	Gr	5.3	4.4	4.3	5.0	5.1	5.1	8.5	4.4	5.0	4.0	3.1	S	S	S	S
5	s3.4	4.0	s3.2	3.6	E	E	C	C	C	3.7	4.2	B	B	B	5.6	5.8	Gr	Gr	2.5	2.4	s2.4	s3.0	s2.5	s1.8
6	1.4	8.6	s3.3	1.2	1.3	s2.7	S	Gr	3.3	4.1	4.5	6.1	4.5	5.5	4.7	9.1	s5.4	2.5G	2.5	s3.4	4.5	s3.1	s2.2	s3.1
7	s3.1	s2.2	s2.5	s2.3	s2.6	s3.3	s2.4	3.0	3.6	4.2	4.3	4.6	4.5	4.4	4.7	4.8	4.0	3.8	2.5	S	s1.9	S	S	S
8	2.2	S	E	1.3	E	E	Gr	2.6	3.4	3.8	4.0	4.2	4.5	6.2	4.8	5.0	3.1G	3.4	3.1	s3.4	s5.4	S	S	S
9	S	S	E	E	E	E	Gr	Gr	Gr	3.8	4.2	4.3	4.2	4.3	5.0	5.2	5.0	Gr	3.8	6.1	s3.4	4.4	S	S
10	S	S	E	E	E	E	Gr	2.7	3.4	3.9	4.0	4.1	5.5	5.3	4.2	3.9	3.5	3.7	3.2	2.5	4.2	s2.3	1.9	S
11	S	S	E	E	E	E	1.9	2.9	3.5	4.1	5.0	4.5	4.3	5.3	4.5	4.8	3.8	3.1	Gr	2.3	3.3	s2.6	S	2.4
12	S	S	E	E	E	E	Gr	2.9	3.5	4.3	5.4	4.4	4.3	Gr	4.1	Gr	Gr	Gr	3.0	2.2	s2.5	C	S	s2.3
13	s2.5	s2.4	E	E	E	E	1.9	Gr	Gr	C	C	4.3	4.0	4.4	Gr	Gr	3.9	3.8	3.5	s3.7	s6.1	3.2	S	S
14	S	S	E	E	E	E	2.1	2.8	4.4	4.8	5.2	5.2	4.9	4.7	4.5	5.2	s5.5	4.5	s5.2	3.1	s3.0	2.3	s3.1	s2.3
15	S	s5.4	s3.4	s3.9	s2.4	s2.1	Gr	2.6	3.3	3.7	s6.3	s4.3	s4.3	s6.3	s5.3	3.6G	Gr	3.1	3.1	2.0	S	s4.6	4.3	s2.2
16	S	S	s2.1	2.1	s2.2	E	Gr	3.2	5.2	4.5	4.0	6.1	4.2	6.1	5.5	9.2	3.8	s3.0	2.2G	2.6	3.8	s2.9	S	6.2
17	S	S	E	1.3	s2.2	E	2.2	3.2	4.4	3.9	4.8	4.1	4.0	Gr	4.7	6.6	s6.4	s5.2	s5.4	s3.5	s2.4	s2.6	6.0	S
18	S	s2.0	s1.9	E	E	E	Gr	3.7	s5.4	4.8	5.0	4.4	Gr	6.0	5.6	5.3	6.8	s6.6	6.4	s5.4	s3.0	s5.1	s8.4	S
19	s2.2	S	E	1.1	E	E	Gr	3.0	4.9	5.4	5.7	s6.4	5.7	6.0	5.4	6.0	Gr	Gr	2.8	s4.4	s3.7	s3.2	2.3	3.9
20	s5.4	s5.4	s5.1	s5.3	3.2	s2.6	1.9	3.2	s5.6	6.5	5.1	6.9	Gr	Gr	Gr	Gr	Gr	3.2	Gr	S	S	3.0	s2.6	s5.4
21	s5.1	s5.3	s5.0	s3.2	E	E	Gr	3.1	8.3	6.5	s5.7	5.0	8.1	8.3	6.8	6.3	3.7	3.1	2.4	1.9	S	s3.6	s3.3	9.0
22	s5.3	6.9	3.9	s3.2	s2.5	2.3	2.4	3.7	s7.1	6.0	5.1	6.0	6.0	5.9	4.5	5.4	Gr	Gr	3.0	s3.7	2.6	D7.0S	D6.0S	s6.2
23	s8.5	5.2	s3.0	s3.4	s3.2	2.1	Gr	3.2	4.8	6.1	5.2	5.7	4.5	4.4	4.1	s8.8	7.1	9.2	9.1	s4.9	2.4	2.4	s6.4	s3.7
24	s3.6	s2.1	E	E	E	E	Gr	Gr	3.6	3.9	Gr	4.0	Gr	Gr	Gr	s5.3	4.0	11.7	s5.5	s2.7	s2.8	5.3	s3.2	s2.7
25	s2.3	S	E	E	2.1	E	Gr	Gr	3.5	4.2	4.6	6.0	8.5	4.7	4.8	4.2	4.3	Gr	Gr	s3.3	4.5	s3.1	s2.7	s5.0
26	s4.5	2.9	2.1	E	E	E	Gr	3.2	4.0	4.9	C	4.8	4.7	5.1	C	4.0	Gr	s5.1	4.6	2.3	s2.2	s2.3	s2.4	s2.0
27	3.1	s2.4	1.8	E	E	s2.5	s2.2	3.5	5.0	4.2	5.3	3.8	4.1	Gr	4.3	4.0	4.1	6.0	s6.1	5.4	s2.4	S	S	2.5
28	3.3	3.7	s2.8	1.5	E	E	2.4	3.2	3.9	4.5	4.1	B	4.3	4.3	Gr	Gr	Gr	s5.3	5.0	E	S	S	s2.3	s3.6
29	8.9	2.1	E	s3.1	s2.9	s2.7	2.9	4.0	4.5	6.0	s8.3	5.7	5.3	B	B	B	Gr	Gr	2.7	s4.0	6.8	D8.9S	s4.8	8.4M
30	s5.3	s3.2	3.1	3.2	s2.6	2.2	2.3	3.4	9.1	7.1	5.8	5.9	s8.4	s10.4	s6.4	Gr	Gr	Gr	2.9	2.9	6.9	s4.0	S	2.3
31																								
No.	18	18	30	30	30	30	27	29	29	28	28	28	29	28	28	29	30	30	29	28	23	22	18	20
Median	3.5	3.4	1.6	1.3	E	E	1.9	3.0	3.9	4.2	4.9	4.6	4.5	5.0	4.6	4.8	3.8	3.3	3.1	3.1	3.3	3.2	3.2	3.1
U.Q	5.3	5.3	3.1	3.1	2.4	2.3	2.2	3.2	5.0	5.4	5.2	6.0	5.4	6.0	5.2	5.9	4.4	5.0	5.1	3.8	4.5	4.4	5.5	5.2
L.Q	2.5	2.4	E	E	E	E	Gr	2.6	3.4	3.9	4.2	4.3	4.2	4.3	4.0	Gr	Gr	Gr	2.5	2.4	2.4	2.6	2.4	2.3
Q.R	2.8	2.9						0.6	1.6	1.5	1.0	1.7	1.2	1.7	1.2				2.6	1.4	2.1	1.8	3.1	2.9

The Radio Research Laboratories, Japan.

foEs

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

Y 1

IONOSPHERIC DATA

Apr. 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	S	S	$E_{1.2}{}^{B}$	1.7	1.1		S	G	G	G	4.8	$E_{6.4}{}^{B}$	7.4	4.7	3.2^{G}				B		S	S	S	S
2	S	S		1.8	1.8	E	G	G	3.2	C	G	4.4	G	4.6				3.3	3.3	2.5	1.8	2.1	4.7	2.7
3	1.9	3.1	A	2.6	2.5	1.8	G	G	3.8		4.4	4.1	G	G	G	G	G	2.7	4.6	S	S	S	S	S
4	S	1.9	1.3			1.8	G			5.2	G	G	4.8	4.9	4.9	8.2	4.3	3.5	3.4	2.5	S	S	S	S
5	3.2	2.6	2.2	2.3			C	C	C	G	$E_{4.2}{}^{S}$	B	B	B	5.6	5.7			G	2.2	2.0	2.6	2.4	E
6	$E_{1.4}{}^{S}$	7.8	3.2	1.2	1.2	2.3	S		G	3.9	4.3	4.5	4.5	5.2	4.6	5.0	4.4	2.2^{G}	G	3.3	4.2	2.8	E	2.9
7	2.9	1.8	2.3	2.0	2.6	$E_{3.3}{}^{A}$	2.0	G	G	4.0	4.2	4.5	4.1	4.3	4.3	4.5	4.0	3.4	G	S	1.7	S	S	S
8	2.0	S		1.2				G	3.4	3.8	3.9	G	4.4	4.9	4.6	4.6	3.0^{G}	3.3	3.1	3.2	4.1	S	S	S
9	S	S								3.8	4.1	4.2	4.1	4.3	G	5.2	3.8		3.7	$E_{6.1}{}^{B}$	3.3	2.7	S	S
10	S	S						G	G	3.9	G	G	5.5	4.9	G	G	G	3.6	$E_{3.2}{}^{B}$	1.9	3.4	2.0	1.9	S
11	S	S					G	G	G	G	4.9	4.4	$E_{4.3}{}^{B}$	4.6	4.1	4.1	3.2	2.5		1.8	2.5	2.1	S	1.8
12	S	S						G	3.4	4.1	5.4	4.4	4.2		G				3.0	2.0	2.4	C	S	S
13	E	1.7					G			C	C	4.3	G	4.4			G	3.8	3.3	$U_{3.5}{}^{A}$	5.0	2.2	S	S
14	S	S					G	G	4.2	4.6	4.9	5.0	4.8	4.5	4.2	4.0	3.7	G	3.8	G	2.8	1.9	3.1	1.9
15	S	$E_{5.4}{}^{B}$	2.7	3.2	2.0	E		G	G	$E_{3.7}{}^{B}$	5.2	4.2	G	5.3	4.2	3.5^{G}		G	2.8	1.8	S	3.2	3.9	E
16	S	S	1.8	2.0	1.8			G	G	4.1	G	5.2	$E_{4.2}{}^{B}$	4.8	G	4.6	G	2.3	2.0^{G}	1.9	2.0	2.3	S	4.3
17	S	S		1.3	E		G	G	4.3	G	4.4	G	G		4.6	5.5	6.1	4.9	4.8	3.0	2.1	2.2	4.1	S
18	S	E	1.7					G	5.3	4.6	4.4	4.4		5.9	5.3	5.1	5.8	5.3	$E_{6.4}{}^{S}$	5.1	2.5	4.3	5.2	S
19	2.0	S		1.1				G	G	4.8	5.4	5.2	5.6	5.7	5.0	5.8			G	4.0	2.0	2.5	S	3.2
20	3.1	4.1	4.8	4.4	3.2	2.2	G	G	5.2	6.1	4.7	6.3						G		S	S	2.8	2.0	4.7
21	3.5	3.1	3.3	2.2				G	7.4	5.6	5.7	4.8	5.9	4.7	5.3	4.5	3.7	G	G	1.8	S	2.3	2.9	7.4
22	2.2	4.5	3.3	2.6	2.3	2.1	G	3.6	6.8	5.9	4.9	5.0	5.2	5.1	4.4	5.2			2.9	3.7	1.8	4.5	5.2	2.0
23	7.2	3.2	2.7	3.0	2.7	1.9		3.2	4.7	5.9	5.0	5.1	4.3	G	G	5.1	5.4	9.0	$E_{9.1}{}^{S}$	4.3	E	E	6.3	3.5
24	3.4	E							G	G		G				5.3	3.8	5.0	5.2	2.4	2.6	2.0	$E_{3.2}{}^{B}$	2.3
25	1.8	S			1.8				G	4.1	4.4	5.6	6.3	4.4	4.5	4.1	4.2			3.1	$E_{4.5}{}^{S}$	2.5	2.6	3.2
26	3.0	$U_{2.5}{}^{A}$	1.8					3.1	3.9	4.6	C	4.5	4.6	4.8	C	G		4.0	3.3	2.0	2.0	2.0	E	1.8
27	1.8	2.2	1.5			2.2	G	3.4	5.0	4.2	5.1	$E_{3.8}{}^{B}$	$E_{4.1}{}^{B}$		G	G	G	4.1	4.8	4.4	2.3	S	S	1.9
28	2.6	E	1.9	$E_{1.5}{}^{B}$			G	G	3.8	4.3	$E_{4.1}{}^{B}$	B	4.3	4.3				5.3	4.1		S	S	2.2	$U_{3.5}{}^{A}$
29	6.6	E		3.0	2.8	2.6	2.8	3.9	4.4	5.3	5.6	5.2	5.3	B	B	B			G	3.9	6.5	5.0	$U_{4.8}{}^{A}$	A
30	4.8	2.7	2.6	2.5	2.4	1.3	G	3.4	6.6	4.7	5.0	5.4	7.5	4.3	6.3				2.9	2.8	6.5	2.6	S	S
31																								
No.	18	17	17	18	14	11	14	23	26	27	27	27	26	23	23	22	18	21	23	24	22	22	16	18
Median	2.8	2.5	2.3	2.1	2.2	1.9	G	G	3.6	4.1	4.4	4.4	4.4	4.7	4.3	4.6	3.8	3.4	3.1	2.6	2.4	2.4	3.0	2.8

fbEs

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

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Apr. 1960

f-min

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.60s	E1.50s	1.00	E	E	1.25	E1.70s	1.60	1.60	1.60	E3.80c	2.20	3.20	2.40	2.00	1.90	1.60	E1.70s	3.40	1.60	E1.65s	E1.70s	E1.50s	E1.70s
2	E1.70s	E1.70s	E	E	E	E1.70s	E1.60s	1.40	1.45	I1.85c	2.00	2.00	2.45	1.90	2.30	1.90	1.80	E1.60s	1.80	E1.70s	E1.60s	E1.70s	E1.60s	E1.60s
3	E1.70s	E1.65s	E	E	E	1.10	E1.70s	1.65	1.65	1.80	1.90	1.90	1.90	2.20	1.90	3.25	1.80	1.70	1.70	E1.60s	E1.60s	E1.80s	E1.70s	E1.60s
4	E1.60s	E1.60s	1.15	E	1.00	1.40	E1.50s	1.70	2.20	2.40	2.60	2.70	3.50	2.60	2.40	2.30	1.90	1.80	E1.60s	E1.50s	E1.70s	E1.60s	E1.80s	E1.50s
5	E1.55s	E1.60s	E	1.05	E	1.20	C	C	I1.80c	2.00	1.70	8.35	8.30	7.60	4.60	4.20	2.40	1.85	E1.70s	E1.60s	E1.50s	E1.70s	E1.60s	E1.75s
6	1.10	E1.70s	1.20	E	E	1.10	1.80	1.70	1.70	1.80	2.20	2.20	2.35	2.10	2.00	2.10	1.90	1.80	1.30	E1.75s	E1.60s	E1.70s	E1.70s	E1.60s
7	E1.60s	E1.60s	1.20	1.10	1.00	1.20	E1.70s	1.80	1.80	1.80	1.90	2.00	2.40	2.50	2.40	2.00	2.60	1.60	1.70	E1.70s	E1.60s	E1.40s	E1.70s	E1.70s
8	E1.65s	E1.70s	1.20	1.00	1.65	E	1.60	1.65	1.70	1.80	1.80	1.90	1.90	2.30	2.10	1.80	1.80	1.50	1.30	E1.65s	E1.60s	E1.60s	E1.80s	E1.60s
9	E1.60s	E1.70s	E	E	1.15	1.20	1.60	1.70	1.80	2.20	2.20	2.40	2.20	2.40	2.40	2.10	1.90	1.70	1.60	E1.60s	E1.70s	E1.70s	E1.80s	E1.70s
10	E1.60s	E1.60s	1.20	1.05	1.00	1.20	1.70	1.70	1.80	1.80	2.05	2.10	2.40	2.10	2.40	1.70	1.90	E1.60s	1.70	E1.65s	E1.60s	E1.60s	E1.65s	E1.80s
11	E1.60s	E1.70s	1.60	1.15	1.20	1.50	1.60	1.60	1.60	2.20	2.00	2.30	2.20	2.30	2.40	1.90	1.90	1.60	1.65	E1.70s	E1.60s	E1.50s	E1.80s	E1.65s
12	E1.60s	E1.50s	1.30	1.20	1.10	1.30	1.80	1.60	1.70	1.60	1.70	2.40	2.40	2.00	2.20	1.90	1.80	1.75	1.50	E1.60s	E1.60s	C	E1.70s	E1.70s
13	E1.40s	E	1.30	1.10	1.10	1.10	1.40	1.60	1.70	I2.05c	I2.20c	2.40	2.45	2.40	2.20	1.90	1.80	1.50	1.60	E1.50s	E1.60s	E1.60s	E1.40s	E1.60s
14	E1.80s	E1.60s	1.15	1.10	1.15	1.60	E1.60s	1.70	1.60	2.10	2.05	2.25	2.60	2.20	2.20	2.00	1.65	1.55	E1.65s	E1.70s	E1.60s	E1.60s	E1.80s	E1.70s
15	E1.70s	E1.80s	1.10	1.10	1.00	E1.60s	1.70	1.70	1.90	1.90	2.50	2.20	2.40	2.45	2.30	1.95	1.80	1.60	1.60	E1.50s	E1.70s	E1.60s	E1.80s	E1.75s
16	E1.60s	E1.60s	1.20	1.10	1.00	1.55	1.70	1.60	1.70	1.80	2.25	2.30	2.10	2.40	2.05	1.80	1.80	E1.60s	1.50	1.10	E1.70s	E1.70s	E1.70s	E1.60s
17	E1.70s	E1.70s	1.80	E	1.10	1.70	1.50	1.60	1.70	1.90	2.55	2.40	2.25	2.55	2.30	2.00	1.70	1.70	1.60	E1.60s	E1.60s	E1.70s	E1.70s	E1.70s
18	E1.60s	E1.70s	E	1.75	1.10	1.60	1.60	1.65	1.60	1.90	1.90	2.00	2.30	2.20	2.00	2.00	1.60	1.70	E1.70s	E1.65s	E1.70s	E1.70s	E1.70s	E1.70s
19	E1.70s	E1.70s	1.10	E	1.10	1.70	1.80	1.60	1.60	1.80	1.90	2.20	2.40	2.20	2.60	2.00	1.90	E1.60s	1.80	E1.50s	E1.60s	E1.55s	E1.60s	E1.60s
20	E1.65s	E1.70s	1.20	1.50	1.70	1.70	E1.60s	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.40	2.10	1.90	1.80	1.70	E1.70s	E1.70s	E1.70s	E1.70s	E1.60s
21	E1.70s	E1.60s	E	1.00	1.80	1.40	E1.60s	1.60	1.70	2.00	2.20	2.30	2.10	2.30	2.20	2.00	1.90	1.80	1.80	E1.50s	E1.70s	E1.70s	E1.70s	E1.60s
22	E1.70s	1.20	1.00	E	E	E1.60s	1.65	1.60	1.70	1.90	2.55	1.90	2.60	2.40	2.00	2.00	1.85	1.80	1.70	E1.60s	E1.60s	E1.65s	E1.70s	E1.60s
23	E1.60s	E1.70s	E	1.10	1.45	1.40	1.70	1.70	1.65	1.90	2.00	2.05	2.40	2.20	2.30	1.90	1.90	1.80	1.80	1.50	E1.70s	E1.60s	E1.60s	E1.65s
24	E1.70s	E1.80s	1.70	1.80	1.10	1.80	1.80	1.70	1.70	1.80	1.80	1.90	2.00	1.90	1.90	1.90	2.05	1.70	1.70	E1.70s	E1.75s	E1.70s	E1.75s	E1.60s
25	E1.60s	E1.75s	1.20	1.70	E	1.60	1.50	1.60	1.75	2.00	2.50	3.30	2.70	2.50	2.50	2.50	1.90	1.80	1.70	1.20	E1.55s	E1.60s	E1.60s	E1.65s
26	E1.60s	E1.70s	1.10	1.60	1.55	1.60	1.70	1.70	1.80	1.90	I1.90c	2.40	2.40	2.50	I2.55c	2.50	1.90	E1.70s	1.70	E1.60s	E1.50s	E1.60s	E1.70s	E1.70s
27	E1.65s	E1.50s	1.30	1.70	1.70	1.10	E1.60s	1.70	1.80	1.90	2.20	2.00	2.20	1.90	2.40	2.25	1.90	1.60	E1.50s	E1.70s	E1.80s	E1.70s	E1.60s	E1.60s
28	E1.70s	1.40	E1.70s	E	1.80	1.30	E1.80s	1.60	1.80	1.85	2.40	4.80	3.75	3.40	2.60	2.00	1.90	1.70	1.65	1.90	E1.70s	E1.60s	E1.70s	E1.60s
29	E1.70s	1.30	1.20	1.10	E	1.20	1.65	1.80	1.70	1.65	1.90	4.00	4.40	5.25	5.30	4.40	2.20	1.80	1.80	1.65	E1.70s	E1.60s	E1.70s	E1.60s
30	E1.60s	1.40	1.50	1.10	1.20	1.10	1.65	1.90	1.90	1.90	2.45	2.25	2.40	2.40	2.10	2.00	1.90	1.85	1.70	1.75	E1.70s	E1.60s	E1.80s	E1.70s
31																								
No.	30	30	29	30	30	27	25	29	30	30	29	30	30	30	30	30	30	30	30	30	30	29	30	30
Median	E1.60	E1.60	1.20	1.10	1.10	1.30	1.60	1.65	1.70	1.90	2.05	2.20	2.40	2.35	2.30	2.00	1.90	1.70	E1.70	E1.60	E1.60	E1.60	E1.70	E1.60

f-min

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

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

Apr. 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	S	S	F	F	F^S	F	F^S	$^V2.70^S$	3.15	2.65^S	3.10	2.45	2.65	2.75	2.60^H	2.60^H	$^U2.75^S$	$^U2.85^S$	2.25	2.10	$^I2.40^S$	2.45^S	2.55	$^V2.35^S$
2	2.25	$^V2.10^{SH}$	2.30	S	$^I2.05^S$	2.70	F	2.20	S	$^I2.00^C$	1.85	2.40	2.80^F	2.80	2.70	2.70	2.95	3.05	2.95	$^V3.10^S$	2.95	2.55	2.55^S	$^I2.65^S$
3	$^V3.00^S$	3.00	$^I3.10^A$	$^V2.70^S$	2.60	2.65	3.10	3.45	3.30	2.95^S	3.00^H	3.05^H	2.80^H	2.75^H	2.95^H	2.60^H	2.70^H	2.80	$^V3.00^S$	2.90	2.95	2.65	2.60^S	2.55
4	2.70^S	2.95	3.15	2.70	2.65	2.60	2.75	3.05	3.15	3.05	2.90	2.90^H	2.90	2.90^S	2.90	2.85	2.85	3.00	2.95^H	2.90	$^U2.85^S$	2.70^S	2.55^S	$^I2.70^S$
5	$^I2.75^S$	2.90	3.10^S	$^I2.80^S$	2.55	2.55^S	$^I2.60^C$	$^I2.75^C$	$^I2.90^C$	3.05	$^U3.10^S$	2.85^H	2.75^H	2.75^H	2.80^H	2.80	2.90	2.95	2.95	$^V2.80^S$	2.65	2.65	2.70^S	2.75
6	2.85^S	$^I3.05^S$	2.60^S	2.45	2.50	2.55	2.60^S	2.95^S	2.95^S	3.05^H	3.05	2.85^S	2.80^H	2.85	2.80^H	2.85	2.80	$^V2.85^S$	2.95	3.00	$^V2.90^S$	S	S	$^V2.90^S$
7	2.90	2.75^S	$^U2.95^S$	$^V2.80^S$	2.55	2.65	$^U2.75^S$	3.00^S	2.95	3.20	2.95	2.85^H	2.75	2.80	2.80^S	2.80	2.85^S	2.95	2.90	2.95	3.25	2.50	2.60	$^I2.70^S$
8	$^I2.80^S$	$^V2.90^S$	2.85	2.50^S	2.40^S	2.55^S	$^V2.65^S$	2.95	3.15^S	$^V2.80^S$	2.70^{SH}	2.90^H	2.85	2.75^H	2.80^{SH}	2.75	2.90	2.95	2.85	2.95	2.65	$^V2.50^S$	$^V2.60^S$	$^V2.60^S$
9	2.75	2.95^S	3.20	2.90	2.55	2.65	$^V3.00^S$	3.00	3.05	3.05	2.85	2.75	2.80^H	$^U2.75^{SH}$	$^I2.80^{SH}$	$^I2.80^S$	2.80	$^U2.90^S$	2.90	3.00	2.55	$^U2.60^S$	$^I2.65^S$	$^U2.70^S$
10	$^I2.80^S$	2.90	3.05	2.90	2.70	2.75	2.75^S	3.20	3.15	3.15	2.75	2.75^H	2.80	2.75^S	2.75	2.80	2.80	2.95	$^V3.00^R$	3.15	$^I2.85^S$	2.60	2.55	$^V2.60^S$
11	$^V2.55^S$	2.65	2.95	2.55^{SH}	2.50	2.40	$^V2.70^S$	$^V3.15^S$	2.90	2.95	2.75	2.65	2.70^H	$^U2.75^S$	$^I2.80^S$	2.85	2.75^H	$^U2.90^S$	R	3.10	2.80	$^V2.45^S$	$^V2.60^S$	$^V2.60^S$
12	2.65	2.75	3.00	$^V2.75^S$	2.85	2.55	2.75^S	$^V3.20^S$	2.85^S	2.85	2.80	2.80^H	2.75^H	2.75^{SH}	$^V2.70^S$	2.75	2.85^S	2.85^S	$^I3.00^R$	2.95	$^V2.85^S$	$^I2.70^C$	$^V2.50^S$	$^V2.70^S$
13	$^V2.60^S$	$^V2.60^S$	S	S	2.65	2.50	$^I2.90^S$	$^V3.25^S$	3.05	$^I2.85^C$	$^I2.75^C$	2.75^H	$^U2.80^{SH}$	$^U2.80^{SH}$	2.75^{SH}	$^U2.75^{SH}$	$^U2.70^{SH}$	2.75^{SH}	$^I2.95^R$	3.05	$^V2.65^S$	$^I2.50^S$	$^I2.45^S$	$^V2.50^S$
14	$^V2.70^S$	2.85^S	$^V2.85^S$	2.65	2.65	2.80	$^U2.90^S$	3.00^S	2.80	2.90	2.85	2.75^H	2.80^{SH}	S^H	S^H	S^H	S^H	S	S	S	$^V2.70^S$	$^I2.60^S$	$^I2.50^S$	$^I2.55^S$
15	2.70	$^I2.90^S$	$^U3.05^S$	3.10	$^V2.90^S$	2.60	$^V2.65^S$	3.00	3.10	2.90	2.75	2.85^H	2.75^H	2.75	2.70^H	2.75^{SH}	2.75^S	2.85^S	2.90	2.90	2.65	2.40	2.55^S	$^I2.70^S$
16	$^V2.80^S$	$^I2.80^S$	2.70	2.65	$^V2.60^S$	2.60	2.70	2.85	2.90	2.90	2.80^H	2.80	$^I2.80^H$	$^U2.75^{SH}$	S^H	S^H	S	S	$^U2.90^S$	2.95	$^I2.90^S$	$^I2.65^S$	$^U2.60^S$	$^I2.60^S$
17	$^V2.85^S$	$^V2.30^S$	$^I2.35^S$	$^U2.50^S$	$^I2.40^S$	$^I2.25^S$	$^U2.55^S$	2.75^S	2.70^S	2.85^S	3.10^H	2.75^H	$^U2.75^{SH}$	S^H	S^H	S	2.80	2.85	$^U2.90^S$	2.80^S	$^I2.75^S$	2.60^S	2.60	2.70
18	2.85^S	$^V2.90^S$	$^V2.75^S$	2.70^S	2.50	2.40	3.05	$^I3.35^S$	3.15	2.85	2.75	2.85^H	2.75^H	2.70^H	$^U2.70^S$	2.75	2.80	2.80	2.90	$^V2.95^S$	2.75	$^I2.65^S$	$^I2.50^S$	$^V2.60^S$
19	$^U2.80^S$	2.90^S	$^I3.20^S$	$^I2.85^S$	$^U2.65^S$	2.55	2.90	3.05	2.90	2.95	2.80	2.75^H	2.65^H	$^U2.80^{SH}$	2.80^{SH}	2.75^H	2.80^{SH}	2.80	2.90	2.90	$^I3.00^S$	$^I2.60^S$	2.70^S	$^I2.75^S$
20	2.80	2.95^S	3.00	$^V3.10^S$	3.05	2.85	3.15	3.35	$^V3.20^S$	$^V2.95^S$	2.75^H	2.65^H	2.70^H	2.70^H	2.75^H	2.75^{SH}	2.85^{SH}	$^I2.85^S$	2.85	$^V2.75^S$	$^V2.70^S$	S	S	S
21	S	S	$^V3.20^S$	3.10^S	3.10	2.95	$^I3.00^S$	3.15	3.00	2.85	2.60	2.70^H	$^U2.80^S$	2.75^S	$^U2.80^S$	2.80^S	2.85^S	$^V2.85^S$	2.90	$^V2.75^S$	$^I2.65^S$	$^V2.60^S$	S	S
22	S	S	S	S	2.80	$^I2.70^S$	2.80^F	$^V3.20^S$	3.00	2.85	2.70	2.75^H	2.70^H	2.75^H	$^I2.70^{SH}$	$^U2.70^S$	2.70^{SH}	2.70^{SH}	$^I2.80^{SH}$	2.95^S	2.95^S	$^V2.65^S$	2.60	S
23	S	3.10	$^V2.90^S$	2.75^S	2.70	2.75	$^I2.85^S$	2.90	2.90	2.90	2.75	2.70^{SH}	2.75^H	$^I2.75^{SH}$	$^I2.75^{SH}$	$^I2.75^{SH}$	$^I2.80^{SH}$	2.85^S	$^I2.90^S$	2.95^R	2.55^S	$^I2.55^S$	2.55	$^I2.70^S$
24	$^I2.80^S$	$^I2.85^S$	2.90^S	S	$^I2.70^S$	$^V2.65^S$	2.80	3.05^S	$^V2.80^S$	2.65	2.85^H	2.80^H	2.60^H	2.55^{SH}	2.70^H	2.65^{SH}	2.70^H	2.70	2.85	2.95	$^I3.05^S$	$^V2.80^S$	2.55	2.50
25	2.40	2.40	2.65	$^U3.10^S$	2.55	2.55	$^V3.05^S$	3.25	3.10	2.70	2.55^H	3.00^S	2.90^H	2.75^H	2.80^H	2.95^H	2.75	2.75	2.85	$^V2.90^S$	$^V2.70^S$	3.10^S	$^I2.70^S$	2.70^S
26	S	2.70	2.75	$^V2.65^S$	$^I2.60^S$	$^V2.85^S$	3.20	$^V3.15^S$	3.20	$^V3.15^S$	$^I2.85^C$	2.85^H	2.90^S	2.85	$^I2.80^C$	$^U2.85^S$	2.85	2.95^S	2.95	3.10	S	S	S	S
27	S	S	2.70	$^V2.70^S$	$^I2.70^S$	2.80^S	3.15	$^V3.15^S$	$^V3.05^S$	2.80^H	2.70	2.75^H	2.85^H	2.80^H	2.80^H	$^I2.80^{SH}$	2.85^S	3.00^S	S	3.15	$^I2.60^S$	S	S	$^I2.55^S$
28	$^I2.70^S$	$^I2.70^S$	2.75	$^V2.75^S$	$^V2.80^S$	2.75	$^V3.10^S$	3.20	2.85	3.30	2.80^H	2.60^H	2.65^H	2.75^H	2.80^H	2.80^{SH}	2.90^H	2.85	2.65	2.70	$^V3.00^S$	$^U2.45^{SH}$	$^I2.45^S$	2.55
29	$^I2.60^S$	$^V2.65^S$	$^V2.75^S$	2.50	3.15	$^U2.65^S$	2.80	3.20	2.70	2.85	2.95	2.95^S	2.85	2.85^H	$^U2.85^{SH}$	2.95^H	2.75^H	2.75^H	2.75	R	2.95	2.60	$^V2.60^S$	$^I2.60^A$
30	2.55^S	$^V2.60^S$	2.85	3.10	3.00^H	2.70^H	2.80	$^V3.00^S$	3.00	2.75	2.75^H	2.60	2.50	$^V2.30^S$	$^I2.35^S$	2.40	$^V2.60^S$	2.75	2.65	2.80	2.75	$^I2.45^S$	$^V2.60^S$	$^I2.55^S$
31																								
No.	24	26	27	25	29	29	28	30	29	30	30	30	30	28	27	27	28	28	27	28	29	26	25	26
Median	2.75	2.85	2.90	2.75	2.65	2.65	2.80	3.05	3.00	2.90	2.80	2.75	2.80	2.75	2.80	2.75	2.80	2.85	2.90	2.95	2.75	2.60	2.60	2.60

(M3000)F2

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

The Radio Research Laboratories, Japan.

Y 7

IONOSPHERIC DATA

Apr. 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																								
2								2.90	3.20	I3.60	3.45	3.65	3.60	3.35	L	L	L							
3																								
4													L	L										
5							C	C	C															
6																								
7													L	L		L	L							
8																								
9																								
10															L	L H	L							
11														3.60 L	3.65 L	L								
12																								
13										C	C													
14																								
15																								
16																								
17																								
18															L									
19																								
20																								
21														L	L	L								
22																								
23																								
24																								
25																								
26											C		L	L	C	L								
27																								
28																								
29																								
30													I3.45 A	3.35	I3.50 A	3.55	3.35	L	L					
31																								
No.								1	1	1	1	1	2	3	2	1	1							
Median								2.90	3.20	3.60	3.45	3.65	3.50	3.35	3.60	3.55	3.35							

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

IONOSPHERIC DATA

Apr. 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																								
2								580	380	I745C	890	505	350	360	350	290	300							
3																								
4													300	300										
5							C	C	C															
6																								
7													300	300		300	280							
8																								
9																								
10															330	300	300							
11														300	300	300								
12																								
13										C	C													
14																								
15																								
16																								
17																								
18															305									
19																								
20																								
21														305	340	330								
22																								
23																								
24																								
25																								
26											C		315	300	I295C	300								
27																								
28																								
29																								
30													350	375	490	400	325	305	305					
31																								
No.								1	1	1	1	1	5	7	7	7	4	1	1					
Median								580	380	745	890	505	315	300	330	300	300	305	305					

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	220	250	440	350	250	350	250	240	255	250	E335A	E305A	250	225H	250H	250	255	300	375	390	325	330	345
2	330	270H	370	300	540	320	300	350	290	I255C	235	250	220	250	230	225	245	250	265	250	235	310	E390A	300
3	250	250	A	305	340	320	270	245	235	210	210H	205H	200H	220H	205H	230H	245H	250	250	240	255	255	290	340
4	300	265	240	200	270	300	300	250	250	255	240	200H	250	250	265	305	250	250	250	255	250	270	290	295
5	295	280	255	255	280	300	I285C	I260C	I245C	240	250	BH	BH	BH	BH	295	250	250	240	250	275	300	295	290
6	275	310	310	300	320	300	285	245	240	240H	240	230	210H	280	250H	270	250	245	255	250	275	265	275	290
7	280	280	250	225	270	345	290	250	250	245	225	240H	225	245	240	250	250	250	250	245	230	270	300	300
8	285	260	255	295	350	330	255	230	225	220	230H	225H	230	255H	225H	250	260	245	255	250	275	295	305	320
9	295	255	245	240	305	300	250	235	240	230	230	240	210H	225H	220H	290	250	250	265	250	250	300	280	280
10	275	270	250	210	255	280	270	245	230	235	210	215H	265	250	220H	205H	240	255	260	245	225	250	300	320
11	340	290	250	190H	250	355	280	240	245	240	250	245	250H	245	220	230	245H	255	250	230	240	295	310	320
12	300	275	250	230	250	270	275	245	235	240	270	225H	225H	220H	240H	225	245	250	260	250	240	I245C	255	300
13	300	305	300	245	230	320	270	240	235	I230C	I220C	220H	225H	245H	230H	205H	250H	260H	255	240A	E290A	280	330	340
14	300	270	245	225	260	250	250	245	250	255	250	250H	240H	240H	235H	245H	240H	245	260	250	230	245	320	320
15	295	310	250	240	245	270	255	250	245	235	250	205H	235H	E295A	230H	200H	260	255	250	240	225	340	355	305
16	290	270	280	275	260	260	270	240	240	250	230H	275	230H	250H	210H	250H	250	245	250	240	240	280	300	350
17	355	350	350	320	305	350	270	250	255	240	250H	220H	225H	235H	255H	E290A	280	260	260	255	255	290	350	300
18	275	255	270	270	280	350	250	230	255	250	245	220H	230H	AH	E295A	280	280	290	290	260	245	305	370	310
19	290	250	225	205	250	305	250	240	240	250	270	AH	E280AH	E310AH	260H	I255AH	225H	245	255	250	255	300	300	310
20	295	290	280	250	245	255	250	245	240	260	245H	AH	240H	245H	210H	225H	225H	245	250	230	260	290	290	300
21	290	265	250	225	200	245	240	245	300	255	260	240H	E320A	260	E300A	255	240	240	250	250	260	295	300	350
22	295	280	260	230	225	270	255	245	285	280	260	260H	280H	285H	225H	300	240H	250	260	255	245	250	350	350
23	355	250	250	260	300	285	250	245	250	280	250	255H	215H	210H	230H	285H	AH	300	300	250	230	275	355	305
24	280	255	265	245	250	300	250	240	230	230	225H	205H	240H	240H	235H	E290AH	250H	300	290	260	240	205	325	355
25	370	355	305	250	260	345	250	240	230	240	245H	285	AH	245H	250H	235H	245	250	260	250	E295A	295	305	325
26	315	310A	280	270	300	295	240	250	245	240	I235C	230H	235	250	I245C	245	250	270	255	250	240	235	280	295
27	300	295	280	250	255	280	250	250	250	230H	260	235H	245H	220H	240H	250H	245H	290	255	240	225	300	305	320
28	300	290	290	255	250	250	240	235	250	245	230H	250H	230H	240H	250H	245H	240H	250	300	295	240	260H	340	325A
29	355	325	290	290	300	280	250	250	270	E270A	E300A	E330A	275	275H	BH	250H	240H	240H	280	240	285	340	340A	A
30	380	340	290	250	240H	230H	255	250	260	275	270H	I220A	I250A	240	I260A	225	240	245	270	280	E350A	290	320	300
31																								
No.	30	30	29	30	30	30	30	30	30	29	29	25	25	26	26	28	29	30	30	30	27	30	29	29
Median	295	280	260	250	260	300	255	245	245	240	245	230	230	245	230	250	245	250	260	250	245	290	305	310

h'F

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

IONOSPHERIC DATA

Apr. 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	S	S	130	115	115	E	S	145	150	140	120	110	105	105	100	G	G	G	B	G	S	S	S	S
2	S	S	E	155	150	145	145	145	140	C	145	130	130	130	G	G	G	150	135	125	120	120	115	110
3	110	105	105	105	105	110	160	150	130	G	125	130	140	130	130	130	110	120	105	110	S	S	S	S
4	S	100	105	E	E	105	105	G	G	130	130	145	130	130	125	110	110	110	110	110	S	S	S	S
5	100	100	105	105	E	E	C	C	C	150	150	B	B	B	125	125	G	G	125	110	110	105	105	105
6	105	105	105	110	110	105	S	G	140	110	105	105	105	125	130	100	100	100	130	100	115	110	105	105
7	105	105	105	105	105	105	105	150	150	130	125	120	105	125	105	120	125	125	120	S	110	S	S	S
8	105	S	E	105	E	E	G	150	140	140	125	105	105	105	120	125	105	150	130	110	100	S	S	S
9	S	S	E	E	E	E	G	G	G	130	125	120	115	110	110	115	110	G	130	110	105	105	S	S
10	S	S	E	E	E	E	G	155	145	130	130	125	120	130	150	150	155	125	120	115	105	110	105	S
11	S	S	E	E	E	E	145	145	145	130	125	125	130	115	120	115	105	105	G	125	110	115	S	115
12	S	S	E	E	E	E	G	150	140	130	120	125	125	G	140	G	G	G	140	115	110	C	S	110
13	105	105	E	E	E	E	110	G	G	C	C	110	105	125	G	G	160	140	130	120	115	110	S	S
14	S	S	E	E	E	E	105	150	120	125	120	120	120	125	125	105	105	105	105	105	105	105	105	105
15	S	100	105	100	105	105	G	110	110	105	105	105	105	105	105	105	G	125	115	110	S	105	105	105
16	S	S	100	100	105	E	G	155	105	130	130	130	100	105	120	120	120	100	100	125	110	110	S	105
17	S	S	E	105	120	E	150	150	130	150	125	135	130	G	130	100	105	100	100	100	100	100	110	S
18	S	105	105	E	E	E	G	145	110	130	130	130	G	125	125	125	120	120	115	110	110	110	105	S
19	105	S	E	105	E	E	G	155	120	120	120	115	120	120	125	120	G	G	140	120	110	105	105	105
20	105	100	100	100	100	105	110	150	120	115	125	120	G	G	G	G	G	135	G	S	S	120	110	105
21	105	105	110	105	E	E	G	140	110	110	110	110	130	120	135	140	145	130	120	110	S	105	105	105
22	105	105	100	100	100	105	105	140	120	120	120	110	105	120	130	125	G	G	125	115	110	105	105	105
23	105	105	105	100	105	105	G	140	125	120	120	110	105	105	105	140	130	120	110	105	110	105	100	100
24	100	100	E	E	E	E	G	G	150	145	G	105	G	G	G	105	105	105	110	110	110	105	105	105
25	105	S	E	E	100	E	G	G	150	135	135	125	125	135	130	140	130	G	G	110	105	105	105	105
26	105	105	105	E	E	E	G	145	130	125	C	125	115	110	C	110	G	115	115	110	105	105	105	105
27	105	100	105	E	E	105	110	145	130	130	125	105	105	G	170	170	145	110	110	105	105	S	S	100
28	100	110	100	100	E	E	145	145	130	130	105	B	115	115	G	G	G	130	130	E	S	S	105	105
29	105	110	E	105	105	105	130	130	125	120	120	130	140	B	B	B	G	G	150	120	110	110	110	105
30	105	105	105	105	110	135	155	145	130	125	120	120	110	115	115	G	G	G	150	125	115	110	S	120
31																								
No.	18	18	17	18	14	12	14	23	26	27	27	28	26	23	23	22	18	21	26	26	23	22	18	20
Median	105	105	105	105	105	105	120	145	130	130	125	120	115	120	125	120	115	120	120	110	110	105	105	105

h'Es

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

The Radio Research Laboratories, Japan.

Y 11

IONOSPHERIC DATA

Apr. 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			Es2	Es2	Es			h	h	h	h3	C2	C3	l2	l									
2				Es2	Es2	Es2	h	h2	h2		h	h	h	h				h	h	Es4	Es	Es6	Es6	Es4
3	Es3	Es5	Es7	Es6	Es6	Es2	h	h2	h3		h	h	h	h	h	h	l	l2	l2	Es3				
4		Es	Es			Es2	l			h	h	h	h	h	h	C3	h2	h2	C3	Es3				
5	Es5	Es7	Es5	Es3						h	h				h	h2			h2	Es3	Es2	Es8	Es5	Es
6	Es	Es5	Es6	Es2	Es2	Es4			h	C	C	C2	l2	h	h	l3	l3	l2	h2l	Es6	Es3Es5	Es5Es4	Es2	Es5
7	Es5	Es4	Es4	Es5	Es8	Es8	l4	h	h	h	h	h	l	h	l	h2	h	h2	C2		Es			
8	Es2			Es				h	h2	h	h	l	l	l2	h2l2	h l	l2	h l3	h2l2	Es6	Es4			
9										h	h	h	h	l	l	h2l2	l2		h2	Es4	Es5	Es3		
10								h2	h	h	h	h	h2	h	h	h	h l	h l	C3	Es3	Es2	Es2	Es	
11							h	h	h2	h	h4	h	h	h	h	h2	l	l2		Es	Es7	Es4		Es2
12								h2	h2	h	h3	h	h		h				h2	Es3	Es3			Es2
13	Es2	Es2					l2					C	l	h l			h2l2	h3	h2l2	Es6Es2	Es2Es6	Es2Es		
14							l	h2	h2	h2	h2	h2	h l	h l	h l	l	l	l2	l4	l2	Es3	Es3	Es4	Es2
15		Es4	Es3	Es3	Es2	Es		l2	l	l	l3	l2	l	l3	l	l2		h2l	C2	Es		Es3	Es3	Es
16			Es2	Es	Es			h2	l h2	h	h	h2l	l2	l	h l	h l3	h	l2	l	Es Es	Es2	Es2		Es2
17				Es	Es		h2	h2	h3	h	h	h	h		h	l4	l6	l5	l3	Es4	Es2	Es3	Es3	
18		Es2	Es					h2	l h2	h2	h	h		h3	h	h3	h5	h4	C6	Es3	Es7	Es3	Es3	
19	Es2			Es3				h	l h	h2	h3	h3	h2	h3	h	h2			h2	Es2	Es3	Es6	Es2	Es3
20	Es3	Es2	Es3	Es2	Es2	Es2	l	h	h4l2	h3	h	h2						h				Es4	Es5	Es7
21	Es4	Es6	Es2	Es2				h2	C3	C3	C2	C2	h h2	h	h2	h2	h	h	C	Es		Es4	Es6	Es4
22	Es6	Es4	Es4	Es4	Es3	Es2	l2	h2l3	h6	h5	h2	h2	l2	h2	h	h3			C2	Es5	Es4	Es4	Es3	Es3
23	Es4	Es4	Es6	Es8	Es6	Es2		h	h3	h2l3	h2	C2	l	l	l	h2	h3	h7	C2	Es5	Es2	Es2	Es4	Es5
24	Es4	Es							h	h		l				l2	l	l3	l2	Es2	Es2	Es2	Es5	Es3
25	Es3				Es				h2l	h l	h l	h2l	h2l	h l	h	h	h			Es4	Es3	Es4	Es4	Es3
26	Es4	Es4	Es					h	h3	h		h	l	l2		l		C2	l2h2	Es2	Es3	Es3	Es2	Es2
27	Es	Es2	Es			Es5	Es	h2	h4	h	h l2	l	l		h	h	h l	C5	C3l	Es4	Es2			Es
28	Es2	Es Es2	Es	Es2			h2	h2l	h2l	h2l	l		l	l				h3	h3				Es4	Es8
29	Es4	Es		Es8	Es8	Es4	h2	h2	h3	h2	h3	h	h						h	h5	Es4	Es3	Es8	Es4
30	Es5	Es4	Es6	Es4	Es4	Es2	h	h	h5	h2	h2	h2	h3	l h	h3				h2	Es6	Es2	Es5		Es2
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

Y 12

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

Apr. 1960	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	65	51	44	-	54	2	1	1	-	1
2	12	12	14	16	13	1	1	1	1	1
3	17	20	(11)	19	16	1	1	1	2	1
4	13	18	(12)	(8)	16	1	1	1	(1)	1
5	9	14	6	(8)	10	1	1	1	0	1
6	7	7	(6)	-	7	0	0	0	-	0
7	8	7	7	-	7	0	0	0	-	0
8	7	7	(8)	-	7	0	0	0	-	0
9	9	7	7	-	8	0	0	0	-	0
10	6	7	6	-	6	0	0	0	-	0
11	8	7	8	-	8	0	0	0	-	0
12	9	7	(8)	-	8	0	0	0	-	0
13	8	6	5	-	7	0	0	0	-	0
14	6	7	7	-	7	0	0	0	-	0
15	7	7	7	-	7	0	0	0	-	0
16	7	7	8	-	7	0	0	0	-	0
17	7	6	6	-	6	0	0	0	-	0
18	(7)	7	(6)	-	7	0	0	0	-	0
19	6	6	7	-	6	0	0	0	-	0
20	7	7	(7)	-	7	0	0	0	-	0
21	10	11	9	-	10	2	2	0	-	1
22	10	10	8	-	9	0	0	0	-	0
23	9	7	7	22	8	0	0	0	2	0
24	19	14	13	53	17	1	1	2	2	1
25	122	13	9	-	49	2	1	1	-	2
26	9	8	9	-	9	0	0	0	-	0
27	8	7	8	-	8	0	0	0	-	0
28	13	7	9	-	10	1	0	0	-	0
29	10	(11)	(27)	-	16	1	2	1	-	1
30	8	5	(6)	-	6	0	0	0	-	0

Outstanding Occurrences

Apr. 1960	Start-time	Dura-tion	Type	Max. Inst.	Int. Smd.	Max. Time	Remarks
2	0359.5	0.8	CD/4	990	130	-	
	0654.5	7	F/3	1000	-	0656.2	
3	0305.1	10	CD/8	1320	150	0308.4	
4	0214	6	F/3	950	-	0217.1	
	0222.8	2	CD/4	>1200	450	~0223.5	off scale
5	0124	60	CA/1	-	140	-	
	0156.3	1.3	CD/4	880	400	0157.0	
9	0123.0	1.3	CD/4	500	-	-	
	0124.5	1.5	CD/8	>1300	>700	-	off scale
	0127.4	0.7	CD/4	330	30	-	
	0128.4	0.8	CD/4	>1300	700	-	off scale
	0815.5	1.2	CD/4	>1100	190	~0816.0	off scale
	0817.0	1.5	CD/4	290	60	0817.6	
23	2011.1	0.8	CD/4	740	420	-	off scale
24	0322.0	2.2	CD/4	890	270	0322.5	
29	0346	140	CA/1	-	220	-	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO — Time in U.T.

Apr. 1960	Whole Day Index	L. N. 00-06	L. N. 06-12	L. N. 12-18	L. N. 18-24	W W V 00-06	W W V 06-12	W W V 12-18	W W V 18-24	S. F. 00-06	S. F. 06-12	S. F. 12-18	S. F. 18-24	W W V H 00-06	W W V H 06-12	W W V H 12-18	W W V H 18-24	Warning 00-06	Warning 06-12	Warning 12-18	Warning 18-24	Principal magnetic storms Start	End	ΔH
1*	4o	-	3	2	3	5	5	5	5	4	(4	4)	4	2	3	3	4	W	W	U	W		1630	319γ
2*	4o	-	3	(4)	3	5	5	5	5	4	-	2	2	3	2	2	2	W	W	U	U	2313	---	
3*	3+	-	3	3	3	5	(4	4)	4	3	(2)	1	3	3	2	3	2	U	U	U	U	---	---	
4	3o	-	2	2	2	4	4	3	4	2	2	1	2	2	1	1	2	U	U	U	U	---	---	
5	3+	-	2	3	3	4	4	3	4	4	3	-	(2)	3	3	1	3	U	U	U	U	---	2300	167γ
6	3o	-	2	2	2	4	3	3	3	1	(2)	3	2	2	1	1	1	U	N	N	N			
7	2o	-	2	2	2	2	2	1	3	1	1	2	-	3	1	1	2	N	N	N	N			
8	2o	-	2	2	1	3	2	1	(1)	2	2	2	3	1	1	1	2	N	N	N	N			
9	1+	-	2	1	1	1	1	1	1	3	1	1	2	2	1	1	1	N	N	N	N			
10	3-	-	2	(2)	2	2	2	2	3	3	1	1	4	2	1	1	1	N	N	N	N			
11	3-	-	1	2	2	4	S	2	3	3	1	3	2	3	2	2	2	U	U	U	U			
12	3o	-	2	(3)	1	4	2	2	2	3	2	3	2	3	3	2	2	U	N	N	N			
13	3-	-	2	3	1	2	2	2	2	2	2	3	3	2	1	1	2	N	N	N	N			
14	1+	-	2	1	1	1	1	1	1	3	1	1	2	3	2	1	1	N	N	N	N			
15	2o	-	2	1	2	1	2	2	1	2	1	2	3	3	1	2	1	N	N	N	N			
16	3-	-	2	3	2	1	2	2	4	2	1	2	4	2	1	1	2	N	N	N	N			
17	3o	-	2	3	3	3	3	2	3	3	2	2	2	1	2	1	2	U	U	U	U			
18	2o	-	2	1	3	2	2	2	3	1	1	(1	2)	2	1	1	3	N	N	N	N			
[19]	2-	-	1	C	C	(4)	1	1	1	2	(1)	2	(2)	1	(2)	1	1	N	N	N	N			
[20]	1+	-	1	1	-	1	1	1	1	2	(2)	2	2	1	(1)	1	1	N	N	N	N			
[21]	1+	-	1	1	-	1	1	1	1	2	1	2	2	1	1	1	1	N	N	N	N			
22	1+	-	2	2	-	1	(2)	1	1	1	1	2	2	(1)	1	1	1	N	N	N	N			
23	1+	-	1	1	2	1	1	1	1	3	1	2	2	(2	2	2)	2	N	N	N	N	1800	---	
24	4-	-	2	3	4	4	(4)	3	5	2	2	3	3	2	2	2	2	U	U	U	U	---	---	
25	4o	-	2	3	-	5	(5)	5	5	3	3	3	4	2	1	1	1	U	U	U	U	---	---	
26	3+	-	2	1	1	5	(5)	5	4	3	3	3	3	1	1	1	1	U	U	N	N	---	1800	168γ
27	3-	-	1	1	C	(4)	2	(3)	C	3	3	3	C	(1)	1	1	C	N	N	N	N	2000	---	
28	3o	-	2	(3)	-	(3)	3	4	3	3	3	3	3	2	1	1	2	U	U	U	U	---	---	152γ
29*	3+	-	2	2	3	4	(3)	4	(4)	3	4	3	3	3	1	2	C	U	U	U	U	---	---	
30*	4o	-	3	4	(4)	4	S	5	5	3	3	4	4	1	2	4	5	W	W	W	W	0132	---	380γ

* = day of Special World Interval [ ] = Regular World Day

( ) = inaccurate --- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Apr. 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										
1										08.54	75	3+	x	x	
2										05.25	53	2			
2										08.45	55	1	x	x	
3		32	16	27'	-	03.06	19	S	3	03.10	25	1	x	x	
3		26	31	39'	-	05.27	28	S	3	05.25	60	1+			
4										02.15	55	1		x	
5	13"	>64	14	21'	17	01.40	157	Slow	3+	01.40	90	2			
10		25	22			00.43	25	S	2+						
28	14"	17	17		-	01.25	40	Slow	1+				x		

PROVISIONAL IONOSPHERIC DATA

Feb. 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	C	C	C	C	6.0F	C	7.7F	8.0F	C	6.9F	6.9F	7.5F	7.8F	8.6F	8.9	9.4	9.2	9.2	7.8F	6.2F	5.5F	5.0F	5.3F	5.0F
2	5.1F	5.0F	5.7F	5.8F	6.1F	C	V7.5F	F	V7.3F	7.6F	7.8F	8.2	8.0	7.6	7.7	7.5	7.6	8.0	7.0	6.3F	F	F	F	V4.8F
3	V4.8F	F	F	A	4.8F	4.7F	V4.7F	F	5.4F	5.6	6.3F	5.9F	5.7	6.0	6.5F	6.1	C	6.4F	J5.1F	A	3.6F	A	4.7F	A
4	C	C	B	4.7F	C	C	C	C	F	C	5.8	R	B	5.4F	B	5.4F	5.8F	6.1F	6.2F	6.3F	5.7F	4.1F	F	B
5	A	3.5F	B	4.5F	5.2F	5.4F	5.1F	5.4F	5.7F	5.7F	6.4F	6.3	6.0	6.3	6.5	6.7	7.0F	6.0F	4.9F	F	4.5F	5.1F	4.6F	4.6F
6	4.6F	4.2F	A	4.6F	4.0F	5.5F	F	4.5F	B	B	B	B	R	R	R	5.3F	5.3F	5.7F	5.5F	5.0F	3.3F	4.1F	4.6F	5.0F
7	4.3F	4.2F	D5.0F	4.5F	F	D5.3F	D5.6F	5.4F	6.4F	6.1F	6.6F	Z6.8F	6.3F	6.9F	6.6F	6.5F	5.9F	6.1F	6.0F	5.8F	5.9F	6.0F	5.9F	5.5F
8	D4.6F	D4.3F	D4.4F	D5.0F	D5.6F	6.4F	D7.6F	8.6F	9.0F	9.3	9.7	9.6	9.2F	9.2F	7.8F	7.7F	8.2F	7.9F	6.7F	6.3F	D4.5F	D4.4F	D4.4F	D4.7F
9	D4.3F	D4.2F	F	5.0F	F	5.5F	B	5.8F	6.3F	7.0F	7.5F	7.2F	7.2	7.2	S	7.1	7.2	7.0	6.4F	6.3	6.6	6.5	6.5	6.3F
10	6.2F	5.6F	5.1F	F	D5.1F	5.6F	5.9F	6.9F	7.2F	6.8F	7.1F	D7.1F	7.7F	7.9F	7.5F	7.4	7.6	7.5	6.8	6.7	6.3	6.1	5.9F	5.6F
11	5.2	5.4	D4.0F	D4.6F	5.2F	5.9F	D6.4F	7.9F	8.4	8.8F	9.0F	8.7	8.7	8.6	8.0	7.4	7.3	6.8	6.8	6.6	6.2	4.6F	A	D4.3F
12	B	4.4F	D4.9F	D5.0F	D4.0F	4.7F	F	5.8F	6.6F	6.9F	6.7	6.9	7.2	7.3	7.2	7.4	7.0F	6.8	6.6	6.3	6.3	5.8	5.8F	5.6F
13	5.6F	5.3F	5.7F	5.5F	5.9F	6.5F	8.0F	8.8F	9.0	9.5	10.0F	11.0F	10.7	C	C	C	C	C	C	C	C	C	C	B
14	F	5.0F	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	4.9F	5.3F	4.8F	F	B
15	B	B	F	D4.4F	D4.9F	D5.0F	5.1F	6.4F	6.2F	6.5F	6.7	6.7	6.7	6.6	6.2	6.2F	6.0F	5.8F	5.0F	4.8F	3.7F	3.8F	B	B
16	3.7F	3.6F	3.7	D4.1F	4.8F	B	B	5.1F	5.3F	4.8F	5.2F	5.8F	5.4F	5.9F	6.5F	6.3F	5.9F	5.7F	5.8F	5.5F	4.3F	4.4F	3.9F	4.1F
17	B	F	B	D4.6F	B	D4.5F	5.1F	6.0F	6.0F	6.7F	6.8F	B	B	6.4F	6.0F	5.9F	6.1F	6.2F	5.6F	5.4F	5.1F	B	B	B
18	B	B	B	F	B	3.7F	B	B	B	B	B	B	5.0F	D5.1F	5.8F	6.0F	6.4F	6.3S	5.3F	4.8F	4.3F	F	B	B
19	3.9F	D3.9F	3.5F	4.2F	D4.1F	D4.0F	F	5.2F	5.3F	6.1F	6.2F	6.3F	6.6F	6.8F	7.4F	8.1	8.2	7.8F	6.9F	5.6F	4.5F	S	F	B
20	B	D3.9F	D4.0F	B	4.1F	B	5.1F	F	B	F	5.2	S	5.8F	6.2	7.1F	7.4F	7.4F	6.3F	6.3	5.1F	D4.0F	S	3.8F	F
21	B	F	B	B	F	D4.7F	B	4.8F	F	D5.3F	B	B	6.7F	C	C	C	C	7.5	6.5F	4.9	D3.9F	S	3.4F	B
22	2.4	D3.4F	D3.5F	F	B	F	5.5F	7.0F	D7.6F	8.2F	8.4F	8.5F	7.8	7.9	7.7	7.7	7.8	7.4	7.3	6.9	6.5F	6.4	5.8	B
23	B	D4.5F	D4.9F	F	5.2F	F	D5.8F	6.8F	6.9F	7.3F	7.8F	8.0F	D7.0F	D7.1F	7.6F	7.1F	7.1F	7.0	7.0	7.1F	D5.2F	V2.9F	4.0F	4.0F
24	3.6F	B	F	D3.0F	D3.8F	4.6F	5.7F	6.2F	7.0F	D7.5F	D7.5F	S	7.5F	7.2F	S	6.8F	6.6F	6.2F	6.0	5.9	5.8	5.9	5.6F	5.4F
25	4.5F	F	D3.1F	D3.4F	F	D5.9F	7.7F	C	7.6F	8.2F	8.6F	9.3F	9.3	8.9	8.3	8.2F	8.3F	8.0F	7.3S	6.7	6.6	6.7F	6.1F	5.0F
26	F	F	4.6F	D4.8F	5.8F	7.0F	7.7F	8.6F	9.3	9.6	10.0	9.7	9.5	9.1	8.8	8.1	8.2	7.5	7.1	7.3	7.0	7.0F	6.4F	V6.0F
27	F	F	D3.1F	F	F	D5.3F	5.4F	F	6.4F	B	B	5.7F	5.5F	6.6F	6.9	7.2F	8.2	8.0	8.0F	7.0F	F	F	F	F
28	V4.6F	F	V6.4F	B	5.1F	5.5F	6.2F	6.7F	7.3F	7.7F	8.2F	8.1F	8.2F	8.1F	7.8F	7.6F	7.3F	6.9F	6.7F	6.6F	6.4F	6.0F	6.0F	5.8F
29	5.4F	F	F	F	B	F	D5.1F	D6.0F	D6.3F	B	5.3F	5.6F	5.6F	6.0F	6.4F	S	7.0	7.1	7.1F	7.5	6.7F	F	B	B
30																								
31																								
No.	14	10	16	17	13	14	17	20	21	21	24	20	24	23	22	25	25	27	27	26	22	18	17	14
Median	4.6	4.7	D4.5	D4.6	5.2	5.5	5.9	6.3	6.9	7.0	7.0	7.4	7.2	7.2	7.3	7.2	7.2	6.9	6.6	6.3	5.8	5.4	5.6	5.2
U.Q	5.2	5.3			5.8	D5.9	7.7	7.4	7.6	8.2	8.3	8.6	8.1	8.1	7.8	7.6	8.0	7.5	7.0	6.7	6.4	6.1	6.0	5.6
L.Q	3.9	4.2			4.8	4.7	5.1	5.4	6.1	6.3	6.4	6.3	5.9	6.3	6.5	6.2	6.2	6.2	5.8	5.4	4.5	4.4	4.3	4.8
Q.R	1.3	1.1			1.0	D1.2	2.6	2.0	1.5	1.9	1.9	2.3	2.2	1.8	1.3	1.4	1.8	1.3	1.2	1.3	1.9	1.7	1.7	0.8

Observed by M. Ōse

foF2

Sweep 1 Mc to 20 Mc in 20 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

PROVISIONAL IONOSPHERIC DATA

Mar. 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	F	F	F	F	F	B	B	B	5.4^{R}	5.2	^{D}5.3^{F}	6.1^{F}	6.8^{F}	6.7^{S}	7.4	7.3^{F}	6.7	6.1^{S}	^{D}4.0^{F}	B	B	B
2	B	B	B	F	F	B	B	B	B	B	B	4.7^{F}	B	B	5.7^{R}	5.3	6.2	6.4	6.2	6.1	^{U}4.9^{F}	B	B	B
3	F	B	B	B	3.9^{F}	B	B	B	B	B	B	B	B	^{U}5.0^{F}	4.9^{F}	5.0^{F}	5.8	^{U}5.5^{R}	5.6^{F}	^{D}5.2^{F}	4.1^{F}	B	B	B
4	B	B	F	B	^{U}4.0^{F}	3.8^{F}	^{U}5.1^{F}	F	B	5.1^{F}	5.1^{F}	5.8^{F}	5.7^{R}	5.8	6.2	7.0	7.9	8.1	^{U}4.9^{F}	4.0^{F}	B	B	B	B
5	2.6^{R}	B	B	B	B	B	4.4^{F}	B	B	B	B	B	5.0^{F}	5.4^{R}	5.2^{F}	5.3^{F}	5.7^{F}	6.0^{F}	5.5^{F}	5.7^{F}	^{D}5.0^{F}	^{D}3.5^{F}	B	F
6	^{U}3.9^{F}	B	B	B	F	F	F	F	B	5.1^{F}	6.2^{F}	^{D}5.8^{F}	6.1^{F}	6.3^{F}	6.4^{F}	6.6^{F}	6.4^{F}	6.5^{F}	6.6^{F}	6.4^{F}	^{U}4.9^{F}	4.4^{F}	B	B
7	B	3.7^{F}	^{U}4.8^{F}	F	4.7^{F}	F	6.0^{F}	6.8^{F}	7.4^{F}	8.3^{F}	8.4^{F}	8.4	8.1	7.6	7.2	6.8	6.8	6.4	6.4	6.2	6.3	6.1^{F}	5.0^{F}	4.8^{F}
8	F	3.6^{F}	3.5^{F}	F	F	4.6^{F}	7.4^{F}	8.3^{F}	8.7^{F}	^{D}9.0^{F}	10.1^{R}	F	6.6^{F}	^{D}7.2^{F}	7.3^{F}	8.1^{F}	7.9^{F}	9.0^{R}	S	6.3^{F}	F	F	^{U}3.5^{F}	F
9	B	F	F	F	F	5.3^{F}	F	F	6.5^{F}	^{D}5.8^{F}	^{D}5.6^{F}	^{D}5.8^{F}	^{D}6.1^{F}	6.6^{F}	7.3^{F}	7.3^{F}	7.5^{F}	7.1^{S}	6.5^{F}	7.3^{F}	^{U}7.1^{F}	^{D}4.6^{F}	^{U}3.5^{F}	^{U}3.3^{F}
10	F	F	F	F	F	F	5.4^{F}	6.3^{F}	7.0^{F}	7.0^{F}	7.5^{F}	7.2^{F}	^{D}7.4^{F}	F	7.9^{R}	6.8^{F}	6.7^{F}	6.6^{F}	6.8^{F}	8.5^{F}	B	B	B	B
11	B	B	F	F	F	B	^{U}4.2^{F}	^{D}5.0^{F}	F	B	5.8^{F}	B	^{D}5.6^{F}	^{D}5.9^{F}	6.3^{F}	7.4^{R}	B	6.5^{R}	6.0^{F}	5.0^{F}	B	B	B	B
12	B	F	F	B	B	B	B	5.3^{F}	6.9^{F}	6.9^{F}	7.0^{F}	7.5^{F}	7.5^{F}	7.7^{F}	7.6^{F}	7.4	7.3	7.5	7.5	7.0	5.7^{F}	5.0^{F}	4.4^{F}	B
13	B	B	B	3.8^{F}	B	4.8^{F}	5.3^{R}	5.7^{F}	6.7^{F}	7.2^{F}	7.2^{F}	7.9^{F}	8.5^{F}	8.4^{F}	8.1^{F}	7.7	7.4	6.9	6.6	6.5	6.0	4.6^{F}	3.3^{F}	B
14	B	B	^{U}3.9^{R}	3.6^{F}	4.9^{F}	4.0^{F}	4.6	B	6.4^{F}	7.3^{F}	8.5^{F}	8.9^{F}	9.1^{F}	9.6^{F}	9.3^{F}	10.0^{F}	9.7	7.9^{F}	7.0^{F}	6.8^{F}	6.7^{F}	6.9	6.6	6.0^{F}
15	F	5.0^{F}	4.1^{F}	3.2^{F}	3.4^{F}	3.2^{F}	4.0^{F}	5.0^{F}	6.0	6.9	7.6	8.2	8.3	8.2	8.6	9.0	9.0	8.9	8.3^{F}	8.9	F	F	F	F
16	F	F	F	F	F	B	B	B	B	B	B	B	B	4.2	B	4.8^{F}	5.0^{F}	5.0^{F}	4.6^{F}	4.4^{F}	B	B	F	F
17	B	F	B	B	B	F	4.4^{F}	B	4.3^{R}	4.9^{F}	5.3	5.4	6.0	6.3^{F}	6.4	6.2^{F}	6.9^{F}	7.6^{F}	7.0	6.0^{F}	4.2	B	B	B
18	B	B	F	3.8^{F}	B	3.7^{R}	4.4^{F}	5.2^{R}	4.7	B	B	6.1^{F}	6.4^{F}	6.8^{F}	7.1	7.8	8.0	8.0	7.9	7.7	6.5	5.2^{F}	3.9^{F}	2.9
19	2.7	2.3^{F}	B	F	B	5.7^{F}	^{D}5.7^{F}	6.2^{F}	7.0^{F}	7.5^{F}	8.4	8.5	9.2	9.4	10.0	9.3	C	10.5	9.4^{F}	6.3^{F}	7.1^{F}	6.3^{F}	F	B
20	4.6^{F}	B	B	B	4.0^{F}	F	5.8^{F}	6.6^{F}	7.0^{F}	7.7^{F}	8.0^{F}	8.4^{F}	8.0^{F}	8.0^{F}	7.8^{F}	7.7	7.9	7.7	7.9	7.5	6.8^{F}	5.6^{F}	4.7^{F}	4.3^{F}
21	3.6^{F}	3.3^{F}	3.5^{R}	B	5.3^{F}	5.2^{F}	6.1^{F}	7.0^{F}	6.7^{F}	5.6^{F}	6.0^{F}	B	B	8.4^{R}	9.3^{F}	9.1^{F}	9.8^{F}	10.5	9.0^{F}	^{D}7.8^{F}	6.2^{F}	5.2^{F}	5.0^{F}	4.1^{F}
22	2.9^{F}	C	C	C	C	C	C	C	C	7.4^{F}	8.0^{F}	9.5^{F}	10.0^{F}	11.0	11.3	11.5	10.5	9.9	9.3	8.5	7.7	6.3^{F}	5.2^{F}	3.9^{F}
23	3.1^{F}	2.8^{F}	4.0^{F}	B	4.8^{R}	5.0^{F}	5.3^{F}	6.0^{F}	7.1^{F}	8.3^{F}	9.5	9.9	10.6	11.4	11.0	10.7	10.5	10.1	9.4^{F}	8.9^{F}	7.1^{F}	6.4^{F}	6.0^{F}	5.0^{F}
24	3.4^{F}	B	B	5.7^{F}	5.7^{F}	B	5.3^{F}	6.0	6.2^{F}	7.1^{F}	7.4^{F}	7.5^{F}	8.1	9.1	9.0	8.9	8.8	8.3	7.9	6.7	F	B	B	B
25	B	B	4.0^{F}	^{D}4.4^{F}	4.4^{F}	^{D}4.2^{F}	3.9^{F}	4.0^{F}	5.1^{F}	6.3	6.6	6.9	7.3	8.2	8.3	8.3	8.2	8.0	8.0	7.6	7.0	6.0	4.3	3.1
26	2.2	B	3.3^{F}	4.0^{R}	5.0^{F}	5.3^{F}	5.8^{F}	6.2^{F}	7.0^{F}	7.5^{F}	7.9^{F}	7.9^{F}	8.3^{F}	8.9	10.0	8.4	9.0	9.1	8.3	7.1	6.2	6.0	5.2	3.9^{F}
27	3.3^{F}	2.8^{F}	B	B	F	F	4.1^{F}	4.8^{F}	5.2^{R}	5.8^{F}	7.0^{F}	8.0^{F}	8.9^{F}	10.4	10.7	10.7	11.0	11.1	9.5^{F}	9.4^{F}	7.4^{F}	6.4^{F}	5.1^{F}	4.5^{F}
28	3.8^{F}	3.6^{F}	3.2^{F}	3.2^{F}	3.1^{F}	2.5^{F}	3.3^{R}	4.3	5.2^{F}	6.7^{F}	7.6	8.3	9.1	10.0	C	C	12.0	12.3	10.7	7.1^{F}	B	4.2^{F}	B	5.0^{F}
29	B	B	F	F	F	F	B	F	F	B	5.5^{F}	5.4^{R}	B	6.4^{R}	6.2^{R}	6.7^{F}	7.7^{F}	7.1^{F}	6.4^{F}	6.7^{F}	5.1^{F}	3.9^{F}	3.2^{F}	1.9^{F}
30	B	B	B	B	B	B	4.1^{R}	4.9^{F}	5.2^{F}	5.8^{R}	6.2^{F}	6.5^{F}	6.3	6.4	7.6	7.3	7.0	7.5^{F}	7.6^{F}	6.3^{F}	B	B	B	B
31	B	F	F	B	B	B	B	B	B	B	B	B	B	B	B	B	6.4^{R}	B	B	B	B	B	B	F
No.	11	8	9	8	12	12	21	17	20	21	24	22	21	26	28	29	29	30	29	29	19	16	15	13
Median	3.3	3.4	3.9	3.8	4.6	4.7	5.1	6.0	6.6	7.0	7.3	7.7	8.1	7.8	7.6	7.4	7.7	7.6	7.0	6.7	6.3	5.8	4.7	4.1
UQ	3.8	3.6	4.0	^{D}4.2	5.0	5.2	5.8	6.4	7.0	7.5	8.0	8.4	9.0	9.1	9.2	9.0	9.0	9.0	8.3	7.4	7.1	6.3	5.2	4.9
LQ	2.7	3.0	3.4	3.4	4.0	3.8	4.2	5.0	5.2	5.8	6.1	6.1	6.4	6.3	6.4	6.7	6.8	6.6	6.4	6.1	5.1	4.8	3.5	3.2
QR	1.1	0.6	0.6	^{D}0.8	1.0	1.4	1.6	1.4	1.8	1.7	1.9	2.3	2.6	2.8	2.8	2.3	2.2	2.4	1.9	1.3	2.0	1.5	1.7	1.7

The Radio Research Laboratories, Japan.

Observed by M. Ōse

foF2

Sweep 1 Mc to 20 Mc in 20 min/sec in automatic operation.

IONOSPHERIC DATA IN JAPAN FOR APRIL 1960
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