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IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 1961

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(Including Provisional Data at Showa Base)

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Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

IONOSPHERIC DATA IN JAPAN

FOR FEBRUARY 1961

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

$(M3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$(M3000)F1$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.

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

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

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

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

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

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

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

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

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

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

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

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

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

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

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

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

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

O Measurement refers to the ordinary component.

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceeding symbol on monthly tabulation sheets.

D *greater than.....*

E *less than.....*

I Missing value has been replaced by an interpolated value.

J Ordinary component characteristic deduced from the extraordinary component.

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

U Uncertain or doubtful numerical value.

Z Measurement deduced from the third magnetoionic component.

c. Description of Standard Types of E_s

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

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

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

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

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

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

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

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

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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M : multiple peaks separated by relatively long period of quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous : The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

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

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

N=normal
U=unstable
W=disturbed

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

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

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

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

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

Circuits and Drop-out intensity

W S .....WWV 20 Mc, 15 Mc and 10 Mc (Washington)
S F .....WNA-27 : 7.6550 Mc, WND-20 : 10.4925 Mc, WNC-93 : 13.7525 Mc, WMJ-30A2 : 20.8173 Mc (San Francisco)
H A .....WWVH 15 Mc and 10 Mc (Hawaii)
T O .....JJY 15 Mc and 10 Mc (Tokyo)
M N .....DZM-28 : 14.5850 Mc (Manila)
L N .....GIJ-34 : 14.6702 Mc (London)

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

Start-times and Durations

Types

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

Importances

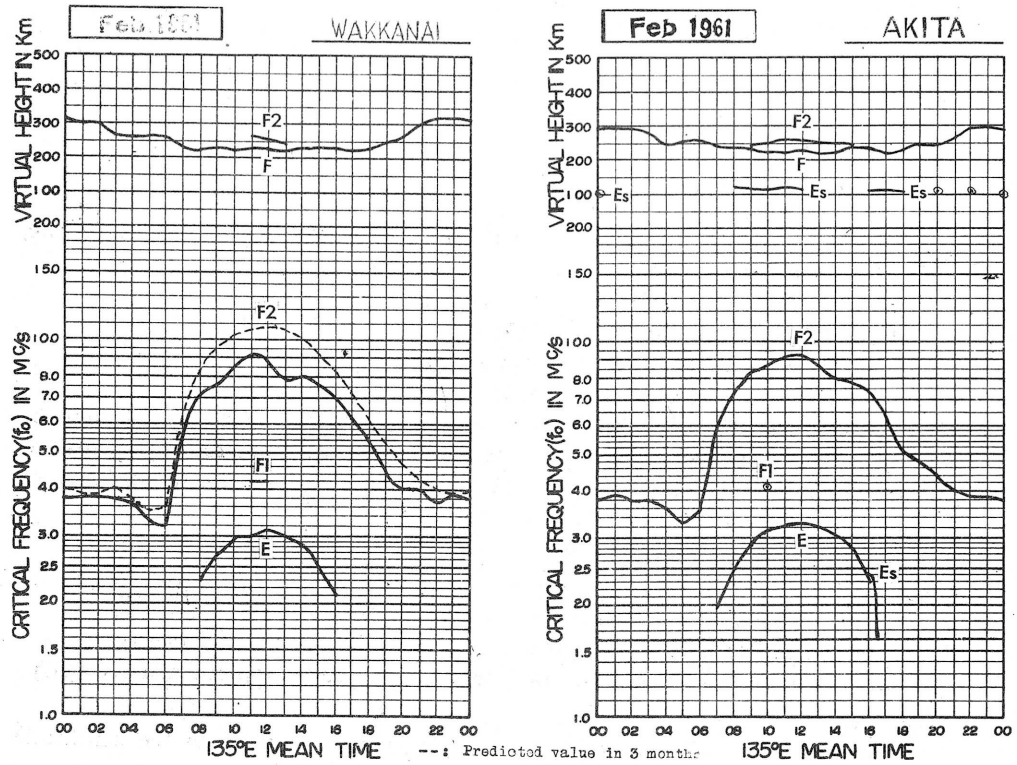
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out ;

1—	1	1+
2—	2	2+
3—	3	3+

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

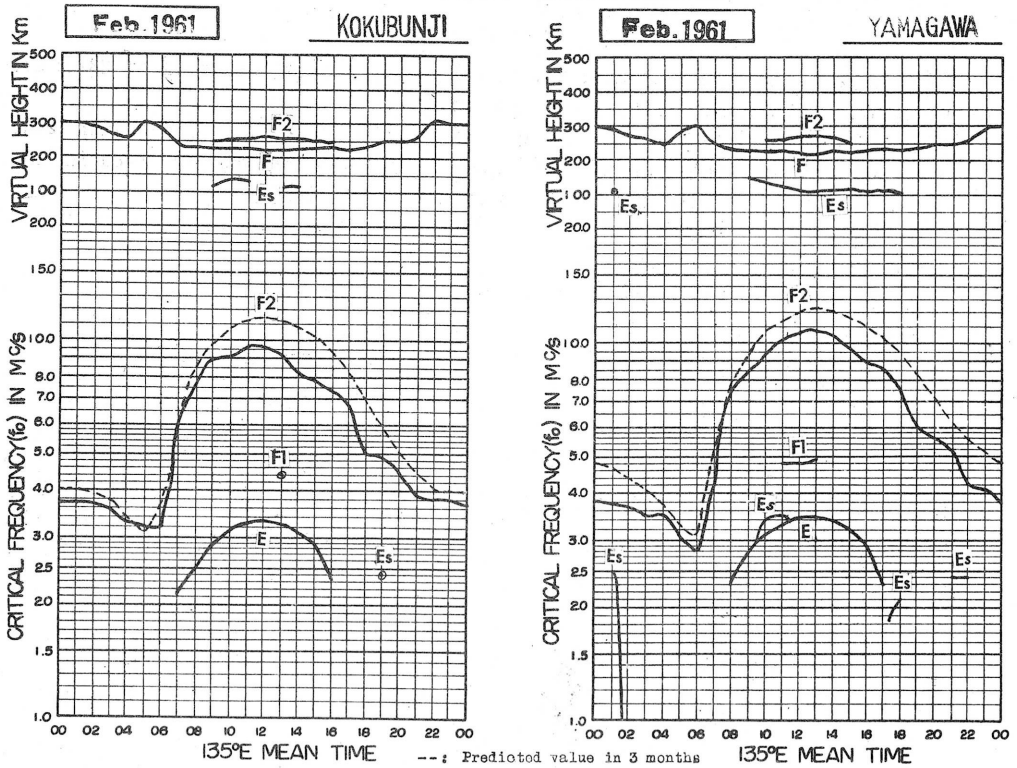
Besides, the time associated phenomena of SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record) are given in this table from interchange messages or measurements at Hiraiso.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



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

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Feb. 1961 | foF2 | 135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	F	5.7 F	I 5.3 S	I 5.4 S	J 6.3 S	8.6	9.6	10.0	8.7	8.0	7.5	8.0	6.6	6.1	5.7	5.3	5.0	5.1	5.1	4.8	5.0
2	4.9	4.7	4.7	4.7	4.8	4.6	I 4.4 FS	5.7	8.4	8.8	8.6	10.0	8.9 H	7.5	8.0	7.3	6.4	6.0	4.5	4.7	3.1	3.6	3.5	3.5
3	3.6	3.8	3.8	3.8	3.8	U 3.9 S	3.4	5.3	8.0	8.0	8.5	10.0	9.0	8.6 H	8.3	7.6	5.9	5.3	5.3	3.7	3.0	3.5	3.3	3.6
4	3.5	3.5	3.7	4.9	2.3	2.4	2.5	5.1	8.0	C	C	C	C	C	C	C	C	C	C	4.4	U 4.0 S	3.9	3.7	4.2
5	3.6	3.3	3.1	3.1	3.5	2.8	3.0	5.3	6.1 HF	7.0 H	7.4	9.6	12.1	9.0 F	7.1 F	7.3	7.8	8.0	6.9	5.6	4.8	3.8	3.6	3.8
6	3.4 F	3.3 F	F	F	FS	I 4.5 F	3.0	U 6.2 S	U 7.1 S	9.0 H	9.4	9.5	8.8	8.3	7.9	8.0	7.0	6.1	6.0	5.5	5.7	4.9	5.0	4.3
7	4.1	3.7	3.8	4.0	4.5	3.3	U 2.3 S	4.6	7.9	9.2	11.3	10.2	10.0	9.5	9.0	8.7	7.3	6.3	5.4	4.5	3.0	3.3	3.4	3.5
8	3.6	3.8	3.7	2.6	2.5	2.5	2.2	5.1	7.0	7.8	8.0	9.2	8.8	9.0	9.3	8.7	7.1	6.0	6.0	5.9	5.0	4.3	3.8	4.0
9	4.0	3.6	3.7	4.0	3.9	3.0	2.7	5.3	6.3 V	7.8	10.2	9.2	9.0	7.8	9.3	8.6	6.4	5.8	5.4	5.0	3.8	3.5	3.7	4.0
10	3.8	4.0	3.8	3.7	3.7	3.2	2.6	5.9	7.3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	7.6	7.0 V	9.7	8.3	7.8	8.6	7.7	6.8	4.9	4.0	4.3	4.1	4.0	4.1	4.0
12	4.3	4.5	4.0	3.5	3.2	3.3	3.4	6.3	7.1	6.9	8.8 H	7.6	7.9	7.7	7.6 H	7.1	6.6	5.6	5.6	3.9	2.6	2.8	3.1	3.3
13	3.4	3.6	3.6	3.6	3.8	3.5	3.2	5.0 H	6.5	7.0 H	6.9	8.7	8.3	7.0	7.4	8.1	6.4	5.8	3.9	3.0	3.3	3.6	3.7	4.0
14	3.8	3.0	2.6	2.3	U 2.3 S	2.5	I 2.6 S	4.3	5.6	7.5	9.2	9.6	8.2	8.0	7.6	6.9	6.3	5.4	5.4	4.5	3.3	3.3	3.3	3.3
15	3.2	3.3 F	3.3 F	I 3.4 F	I 3.5 F	3.3	3.3	5.6	7.0	7.6	8.5	10.5	9.5	7.8	7.5	7.6	U 7.1 S	6.6	5.3	4.6	4.5	4.0	3.5	3.3
16	3.6	3.5	3.7	3.6	3.7	3.3	3.4	5.6	7.7	7.6	8.7	9.3	9.1 H	8.4	8.5	8.0	6.8	6.0	4.5	4.1	4.0	4.2	3.9	3.7
17	3.5	3.8	3.3	3.3	3.2	3.2	2.9	4.4	6.0	6.4	7.5	8.9	8.6	7.6	7.7	7.0	6.1	6.3	5.5	4.0	3.0	2.8	3.0	3.1
18	3.2	3.3	3.0	3.0	2.7	2.8	2.5	3.6	4.4	5.3	6.3	6.3 H	7.5	7.0	6.3	6.7	6.6	6.3	6.0 F	3.8 F	3.3 F	3.6 F	I 3.7 F	3.9 F
19	I 3.8 F	I 3.6 F	3.7	3.7	I 3.6 F	3.3 F	3.0	3.9	4.4	6.0	6.8	7.0	7.8	7.7	7.4	6.8	6.7	5.6	4.3	3.8	3.8	3.6	4.0	3.7
20	4.2 F	I 4.4 F	4.6 F	6.0 F2	4.0 F	U 3.6 S F	3.8 F	5.4	6.0	7.0	8.2 H	8.7	8.9	7.0	7.6 H	7.4	7.3	5.8	5.0	3.4	3.3	3.5	3.6	3.6
21	3.5	3.6	3.1	3.1	3.1	3.3	3.2	5.3	7.4	7.3 H	6.9	9.0	8.1	7.6	7.6	7.3	7.1	6.5	5.0	4.5	3.8	4.0	4.0	3.8
22	U 3.8 S	4.0	3.9	3.8	3.3	2.9	3.1	5.1	6.0	6.7 H	8.0	7.4	7.3	7.6	8.3 H	7.6	7.3	6.3	5.0	F	F	F	3.3 F	3.3 F
23	I 3.8 F	4.0 F	U 4.4 3F	U 4.4 2F	Fs	Fs	sF	6.4	7.3	7.9	9.3	9.4	8.9 H	7.8	8.1 H	7.7	7.5	6.6	5.5	4.7	4.8	4.4	4.0	4.0
24	4.0	3.8	3.9	4.0	3.8	3.5	3.8	6.0	7.6	8.8	8.3	8.9	9.3	8.4	8.1	7.5	7.6	7.2	6.3	5.9	5.0	4.0	4.1	4.1
25	4.3	4.6	4.4	F	F	F	F	U 7.0 S	8.5	7.9	8.5	I 8.8 C	9.0	8.2	7.3	6.7	7.2	7.5	5.3	4.3	4.0	4.0	4.0	4.1
26	4.0	4.2	4.0	3.8	3.8	4.0	4.7	6.5	C	C	C	C	C	C	C	C	C	6.8	5.0	4.9	4.3	4.0	4.1	4.1
27	4.1	4.2	4.0	4.0	4.1	3.9	4.3	6.4	7.2	8.2	8.6	9.6	9.7 H	8.2 H	8.3	8.0	7.4	7.0	6.2	5.4	4.3	4.3	4.1	4.0
28	4.3	4.4	4.3	4.5	4.2	4.1	U 5.2 S	7.2	8.2	8.1	8.7	I 10.2 S	9.3	8.7	9.5	9.2	8.8	7.4	6.1	4.5	4.8	5.0	5.0	5.1
29																								
30																								
31																								
No.	26	26	25	24	24	25	25	27	26	25	25	25	25	25	25	25	25	26	26	26	26	26	27	27
Median	3.8	3.8	3.8	3.8	3.7	3.3	3.2	5.4	7.2	7.6	8.5	9.2	8.9	7.8	8.0	7.6	7.0	6.2	5.4	4.5	4.0	4.0	3.7	3.9
U.Q	4.1	4.2	4.0	4.0	4.0	3.9	3.8	6.3	7.9	8.2	9.0	9.6	9.2	8.4	8.4	8.0	7.3	6.6	6.0	5.0	4.8	4.2	4.1	4.1
L.Q	3.5	3.5	3.4	3.4	3.2	3.0	2.6	5.1	6.1	7.0	7.4	8.7	8.2	7.6	7.6	7.0	6.4	5.8	5.0	4.0	3.3	3.5	3.5	3.5
Q.R	0.6	0.7	0.6	0.6	0.8	0.9	1.2	1.2	1.8	1.2	1.6	0.9	1.0	0.8	0.8	1.0	0.9	0.8	1.0	1.0	1.5	0.7	0.6	0.6

foF2

Sweep 1.0 Mc to 17.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 1

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4										C	C	C	C	C	C	C	C							
5																								
6																								
7																								
8																								
9																								
10										C	C	C	C	C	C	C	C							
11								C	C						L									
12																								
13													L	L										
14										3.5	U42 L	4.2	4.0	U40 L	3.6									
15																								
16																								
17										3.8														
18								2.8	3.4	3.6	3.8	I42 L	4.2	4.1	L									
19										LH	U41 L		U41 L	U40 L										
20												U44 L	L	L										
21											L	U40 L	U42 L	L										
22											4.1	4.2 L	I42 L											
23													L	L										
24													L											
25																								
26									C	C	C	C	C	C	C	C	C							
27																								
28																								
29																								
30																								
31																								
No.								1	1	3	4	5	5	3	1									
Median								2.8	3.4	3.6	U41	U42	U42	U40	3.6									

foF1

Sweep 1.0 Mc to 17.1 Mc in 1 min sec in automatic operation.

The Radio Research Laboratories, Japan.

W 2

10

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	225	S	S	S	S	S	2.60	I 2.30 S	S	S						
2								S	S	S	S	S	S	S	S	S	S							
3								S	S	I 2.70 S	I 3.00 S	I 3.00 S	3.00	I 3.00 S	I 2.90 S	2.55	S							
4								A	B	C	C	C	C	C	C	C	C							
5									220	2.40	2.75	3.00	3.05	2.95	2.60	2.50	S	S						
6								S	A	A	I 2.95 A	3.05	3.05	3.00	2.95	2.40	S	S						
7								S	A	2.80	2.95	3.10	3.10	3.00	2.90	2.50	S	S						
8								S	2.10	2.70	3.00	3.00	3.05	2.95	2.70	2.50	S	S						
9								S	2.15	2.70	2.90	I 3.00 A	3.10	3.00	I 2.80 A	2.40	2.10							
10								S	2.30	C	C	C	C	C	C	C	C							
11								C	C	2.60	2.95	3.00	3.00	3.00	2.85 H	2.80	S	S						
12								S	2.20	2.60	2.95	3.00	3.00	3.00	2.80	2.50	S							
13								S	2.25	2.70	2.95	3.10	3.10	3.05	2.90	2.50	S	S						
14	E	E	E					S	2.15	2.50	2.70	2.90	3.00	3.00	2.80	2.40	S	S						
15								S	2.25	2.60	2.90	2.95	3.00	3.00	2.80	2.55	S	S						
16							S	S	I 2.30 A	2.70	3.00	3.05	3.10	3.05	2.85	2.65	2.05	S						
17								S	A	2.65	2.90	3.00	3.00	3.00	2.85	2.50	2.00							
18								S	A	I 2.50 A	2.70	2.85	2.90	2.85	2.70	2.50	2.05	S						
19								S	2.20	2.60	2.95	3.00	3.00	3.00	2.80	2.40	S	S						
20								S	2.30	2.65	3.00	3.00	3.10	3.00	2.90	2.60	S	S						
21								S	2.50	2.65	3.00	3.00	3.10	3.00	2.90	2.50	S	S						
22								2.15	2.50	2.60	3.00	2.70	3.10	3.00	2.80	2.50	2.15	S						
23								S	2.45	I 2.70 A	I 2.85 A	I 3.00 B	3.10	3.10	2.90	2.80	S	S						
24								S	2.50	2.85	3.00	3.15	3.10	3.05	I 2.90 R	2.80	A	A						
25								S	2.30	2.65	2.85	I 3.10 C	3.20	I 3.15 S	3.00	2.85	S	S						
26								S	C	C	C	C	C	C	C	C	C	S						
27							S	S	2.55	2.85	3.05	3.30	3.25	3.15	3.05	2.90	2.30	S						
28								2.15	2.60	3.00	3.10	3.25	3.30	3.20	3.15	2.90	S	S						
29																								
30																								
31																								
No.	1	1	1					2	19	22	23	23	23	23	24	24	6							
Median	E	E	E					2.15	2.30	2.65	2.95	3.00	3.10	3.00	2.85	2.50	2.10							

foE

Sweep 4.0 Mc to 17.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 3

11

IONOSPHERIC DATA

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

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

foEs

Sweep 1.0 Mc to 17.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 4

12

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S		S	S	S	S	S		S	S	S						
2						E	E	S	S	S	S	S	S	S	S	S	S					E		
3								S	S	S	S	S		S	S	G	S							
4					E		E	2.6	B	C	C	C	C	C	C	C	C	C	C	E	E	E	E	
5						E		G							G		S	S				E	E	E
6	E							S	3.0	2.9	3.2	G	G				S	S						
7								G	2.6						G		S	S						
8								S			G						S	S						
9								S		G		3.7			29									
10			E		E			S		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C				G				G	S	E					
12								G	G			G					S							
13								S									S	S						
14				E		E	E	S		G	G			24G			S	S						
15								S									S	S		E				
16							S	S	2.4									S						
17								S	4.2									3.0	4.1					
18								S	2.3	2.5								S			E	E		
19								G									S	S						
20		E						S			23G	23G					S	S						
21								S									S	S						
22																		S						
23								S		4.4	3.0	B					S	S						
24				E				S							E 2.6 R	G	2.4	2.3	E	E				
25								S		G				S			S	S						
26								S	C	C	C	C	C	C	C	C	C	S						
27							S	S							24G			S						
28					E											G	S	S						
29																								
30																								
31																								
No.	1	1	1	2	3	3	3	5	6	6	5	4	2	1	4	3	2	2	3	3	2	4	2	1
Median	E	E	E	E	E	E	E	G	2.5	G	G	G	G	G	G	G	G	2.7	E	E	E	E	E	E

foEs

Sweep 1.0 Mc to 17.0 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 5

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.85 S	E	E	E	E	E1.20 S	E1.50 S	E1.90 S	2.00	E3.00 S	E3.00 S	E3.15 S	E3.10 S	E3.00 S	2.00	E2.60 S	E2.05 S	E1.70 S	E2.00 S	E2.00 S	E1.90 S	E2.10 S	E1.80 S	E2.00 S
2	E1.70 S	E	E1.90 S	E	E	E	E1.80 S	E1.80 S	E2.50 S	E3.00 S	E3.10 S	E3.30 S	E3.10 S	E3.10 S	E3.25 S	E3.00 S	E2.30 S	E2.00 S	E2.00 S	E1.80 S	E1.90 S	E1.90 S	E1.90 S	E2.00 S
3	E2.00 S	E1.90 S	E	E	E	E	E1.60 S	E1.70 S	E2.30 S	E3.00 S	E3.10 S	E3.10 S	2.40	E3.20 S	E3.00 S	2.00	E2.00 S	E1.90 S	E2.00 S	E1.80 S	E1.90 S	E1.95 S	E1.90 S	E1.60 S
4	E1.85 S	E	E	E	E	E	E1.80 S	E1.80 S	2.50	C	C	C	C	C	C	C	C	C	C	E2.00 S	E1.90 S	E1.60 S	E1.90 S	E2.00 S
5	E1.90 S	E	E1.80 S	E	E	E	E1.80 S	E1.80 S	2.00	2.00	2.00	2.10	2.00	2.10	2.00	2.00	E2.00 S	E1.60 S	E2.00 S	E2.00 S	E2.00 S	E1.90 S	E1.80 S	E1.80 S
6	E1.80 S	E2.00 S	E	E	E	E1.50 S	E1.60 S	E1.95 S	1.90	1.85	1.90	1.90	1.90	2.00	2.00	2.00	E2.10 S	E1.50 S	E1.90 S	E2.00 S	E2.00 S	E2.00 S	E1.80 S	E1.90 S
7	E2.00 S	E	E	E2.00 S	E	E	E1.60 S	E1.90 S	2.00	2.00	2.00	2.00	2.00	2.00	2.10	2.00	E2.10 S	E1.70 S	E2.00 S	E1.90 S	E2.00 S	E1.70 S	E1.90 S	E1.90 S
8	E1.90 S	E1.90 S	E	E	E	E	E2.00 S	E1.60 S	1.90	2.00	1.90	2.10	2.00	2.10	2.00	2.00	E2.20 S	E2.00 S	E1.80 S	E1.85 S	E2.00 S	E1.70 S	E1.70 S	E1.60 S
9	E1.50 S	E1.80 S	E1.60 S	E	E	E	E1.50 S	E1.80 S	2.00	2.00	2.00	1.90	2.00	2.00	2.00	1.80	1.95	E1.90 S	E1.90 S	E1.90 S	E2.00 S	E1.80 S	E2.00 S	E2.00 S
10	E2.00 S	E	E	E	E	E	E1.80 S	E1.90 S	1.70	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	1.80	2.00	2.00	2.00	2.00	2.00	2.00	E2.00 S	E1.90 S	E1.80 S	E1.90 S	E1.90 S	E2.00 S	E2.00 S	E2.00 S
12	E1.90 S	E	E	E	E	E	E1.50 S	E1.90 S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E2.10 S	E2.00 S	E1.90 S	E2.00 S	E2.00 S	E1.90 S	E1.90 S	E1.80 S
13	E1.90 S	E1.80 S	E	E2.00 S	E	E1.50 S	E2.20 S	E2.00 S	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E2.20 S	E1.80 S	E1.90 S	E2.00 S	E1.90 S	E2.00 S	E2.00 S	E1.90 S
14	E1.70 S	E	E	E	E	E1.20 S	E1.80 S	E2.00 S	2.00	2.00	2.00	2.00	2.00	2.00	1.85	2.00	E2.10 S	E1.90 S	E1.90 S	E1.80 S	E1.80 S	E1.80 S	E2.00 S	E2.00 S
15	E1.80 S	E	E1.20 S	E	E	E	E	E2.00 S	1.95	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E2.10 S	E1.70 S	E1.80 S	E1.90 S	E1.90 S	E1.90 S	E2.00 S	E2.00 S
16	E2.00 S	E	E	E	E	E	E1.50 S	E2.00 S	1.95	2.00	2.00	2.00	2.00	2.00	2.00	1.80	2.00	E1.80 S	E1.60 S	E1.90 S	E2.00 S	E2.00 S	E1.80 S	E2.00 S
17	E1.90 S	E1.95 S	E	E	E	E	E1.90 S	E2.00 S	1.85	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.95	E1.80 S	E1.90 S	E1.90 S	E2.00 S	E1.90 S	E2.00 S	E1.90 S
18	E1.90 S	E1.80 S	E2.00 S	E	E	E	E1.90 S	E1.90 S	1.90	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.95	E1.80 S	E1.90 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S	E1.90 S
19	E1.80 S	E	E	E	E	E	E1.90 S	E1.90 S	2.00	2.00	2.00	2.00	2.00	2.00	2.05	2.00	1.80	E2.20 S	E1.80 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S	E1.90 S
20	E1.90 S	E	E1.20 S	E1.50 S	E	E1.40 S	E1.50 S	E1.90 S	2.00	2.00	2.00	2.00	2.20	2.00	2.00	2.00	E2.30 S	E2.00 S	E1.90 S	E2.00 S	E2.00 S	E2.00 S	E1.90 S	E2.00 S
21	E2.00 S	E1.70 S	E2.00 S	E	E	E1.40 S	E2.00 S	E2.05 S	2.00	2.00	2.00	2.00	2.10	2.00	2.00	2.00	E2.15 S	E1.90 S	E1.90 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S
22	E2.00 S	E2.00 S	E1.50 S	E	E	E1.90 S	E1.60 S	2.00	2.00	2.00	2.00	2.00	2.00	2.10	2.00	2.00	2.00	E2.00 S	E2.00 S	E1.90 S	E1.90 S	E2.00 S	E2.00 S	E2.00 S
23	E1.80 S	E1.20 S	E	E1.80 S	E	E1.20 S	E2.00 S	E2.00 S	2.00	2.00	2.00	2.10	2.30	2.10	2.00	2.10	E2.30 S	E1.90 S	E1.80 S	E2.00 S	E1.90 S	E2.00 S	E2.00 S	E2.00 S
24	E2.00 S	E1.90 S	E1.20 S	E	E2.00 S	E1.20 S	E1.60 S	E2.10 S	2.00	2.00	2.00	E2.40 S	2.05	2.00	1.85	2.00	2.00	E1.85 S	E1.70 S	E2.00 S	E1.90 S	E2.00 S	E1.60 S	E2.00 S
25	E2.00 S	E	E1.20 S	E	E	E1.20 S	E2.00 S	E2.00 S	2.00	2.00	2.00	E2.30 C	2.00	E3.80 S	2.30	2.00	E2.40 S	E2.10 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S
26	E2.00 S	E1.90 S	E2.00 S	E	E	E1.50 S	E1.80 S	E2.10 S	C	C	C	C	C	C	C	C	C	E2.00 S	E1.80 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S	E1.90 S
27	E2.00 S	E2.00 S	E1.70 S	E	E	E1.20 S	E1.50 S	E2.20 S	2.00	2.00	2.00	2.00	2.00	2.00	1.85	2.00	2.00	E1.90 S	E2.00 S	E2.00 S	E2.00 S	E1.90 S	E2.00 S	E1.90 S
28	E2.00 S	E2.00 S	E2.00 S	E	E	E1.20 S	E1.80 S	2.00	2.00	2.00	2.10	2.00	2.10	2.00	2.30	2.00	E2.30 S	E2.00 S	E1.90 S	E2.30 S	E2.00 S	E2.00 S	E2.00 S	E2.00 S
29																								
30																								
31																								
No.	27	27	14	23	26	14	27	27	24	22	22	21	23	21	23	23	25	26	26	27	27	27	27	27
Median	E1.90	E1.70	E	E	E	E	E1.80	E1.95	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	E2.10	E1.90	E1.90	E2.00	E2.00	E2.00	E2.00	E2.00

f-min

Sweep 1.0 Mc to 17.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	F	2.80F	I3.10S	I3.00S	I3.00S	3.50	3.35	3.40	3.60	3.30	3.35	3.45	3.50	3.40	3.20	3.05	3.00	3.00	3.15	2.80	2.90
2	2.85	2.85	3.00	3.00	2.90	2.90	I3.10FS	3.50	3.65	3.45	3.35	3.30	3.35H	3.35	3.40	3.40	3.45	3.35	3.25	3.60	2.90	2.95	3.15	2.85
3	2.80	2.90	2.85	3.10	3.05	U3.10S	3.35	3.40	3.35	3.50	3.40	3.35	3.30	3.15H	3.45	3.30	3.45	2.85	3.25	3.25	2.65	2.75	2.75	2.80
4	2.65	2.70	2.90	3.55	2.85	2.90	3.10	3.30	3.30	C	C	C	C	C	C	C	C	C	C	3.20	U3.00S	2.90	2.75	2.95
5	2.80	2.70	2.60	2.75	3.15	2.70	2.65	2.95	2.50MF	2.85H	3.15	2.70	3.30	3.40H	3.25F	3.10	3.15	3.15	2.95	3.20	3.00	2.95	2.85	2.95
6	2.80F	2.75F	F	F	FS	I2.85F	3.05	U3.25S	U3.25S	3.15H	3.25	3.40	3.45	3.35	3.30	3.20	3.30	3.30	3.00	3.10	3.10	2.90	3.10	3.00
7	2.85	2.55	2.70	2.90	3.30	3.65	U3.40S	3.35	3.25	3.20	3.35	3.45	3.30	3.40	3.35	3.45	3.35	3.40	3.30	3.40	2.75	2.75	2.75	2.75
8	2.80	2.95	3.20	3.40	3.20	3.15	3.10	3.55	3.55	3.45	3.25	3.35	3.15	3.15	3.25	3.40	3.40	3.20	3.10	3.35	3.20	3.25	2.90	2.60
9	2.75	2.95	2.90	3.00	3.35	3.00	3.05	3.45	3.25V	3.20	3.30	3.30	3.45	3.25	3.33	3.50	3.45	3.15	3.20	3.30	3.15	2.85	2.75	2.85
10	2.70	2.75	2.90	3.00	3.10	3.15	3.10	3.40	3.40	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	3.70	3.25V	3.20	3.25	3.35	3.50	3.45	3.55	3.40	3.00	3.25	2.95	2.85	2.80	2.85
12	2.85	3.10	3.15	3.15	3.05	2.80	3.20	3.55	3.45	3.40	3.30H	3.25	3.40	3.40	3.30H	3.40	3.45	3.25	3.50	3.35	3.35	2.90	2.90	2.80
13	2.90	2.85	3.00	2.85	3.10	3.15	3.45	3.25H	3.55	3.30H	3.35	3.45	3.40	3.45	3.30	3.60	3.60	3.30	3.35	2.80	2.55	2.65	2.55	2.85
14	2.95	3.05	2.80	2.60	U2.60S	2.90	I2.95S	3.25	3.30	3.10	3.15	3.45	3.30	3.50	3.35	3.40	3.65	3.35	3.25	3.40	3.20	2.80	2.95	2.80
15	2.85	2.75F	2.90FI	2.90FI	2.95F	3.05	3.10	3.40	3.55	3.30	3.20	3.25	3.30	3.45	3.35	3.45	U3.40S	3.35	3.40	3.20	3.25	3.10	3.15	2.90
16	2.85	2.85	3.05	2.90	3.05	3.35	3.25	3.60	3.50	3.35	3.20	3.25	3.25H	3.25	3.35	3.30	3.30	3.30	3.30	2.95	2.60	2.95	2.90	2.75
17	2.75	2.95	2.70	2.75	2.70	2.75	2.95	3.20	3.05	3.30	3.20	3.35	3.55	3.40	3.45	3.55	3.45	3.50	3.35	3.35	2.85	2.80	2.75	2.70
18	2.75	2.80	2.75	2.75	2.70	2.80	2.90	2.50	2.50	2.85	2.80	2.80H	3.10	3.20	3.50	3.55	3.40	3.15	3.15	3.15	2.90F	2.80F	I2.75F	2.70F
19	I2.70F	I2.80F	2.85	3.15	I2.75F	2.65F	2.85	3.25	3.20	3.35	3.40	3.30	3.30	3.40	3.50	3.55	3.50	3.50	3.30	3.15	3.15	3.05	2.90	2.80
20	2.75F	I2.85F	3.05F	3.05FR	3.05F	U2.90F	3.05F	3.50	3.45	3.00	3.35H	3.35	3.40	3.50	3.35H	3.30	3.40	3.45	3.40	3.10	3.10	2.85	2.80	2.70
21	2.75	3.00	2.75	2.90	2.85	2.80	2.85	3.30	3.35	3.40H	3.35	3.25	3.35	3.40	3.40	3.25	3.30	3.40	3.00	3.00	3.05	2.85	2.90	2.75
22	U2.95S	2.90	3.05	3.30	2.95	2.70	3.00	3.35	3.20	3.35H	3.20	3.25	3.20	3.25	3.35H	3.40	3.40	3.50	3.25	F	F	F	2.80F	2.85F
23	I2.85F	2.80F	U2.90FI	2.85FI	FS	FS	SF	3.50	3.30	3.15	3.30	3.30	3.40H	3.50	3.35H	3.15	3.40	3.35	3.30	2.95	3.00	3.20	2.90	2.85
24	2.90	2.90	2.80	2.85	3.05	3.00	3.10	3.35	3.40	3.30	3.30	3.35	3.45	3.35	3.45	3.25	3.25	3.30	3.25	3.15	3.20	3.05	2.90	2.90
25	2.80	3.05	3.00	F	F	F	F	U3.30S	3.55	3.30	3.40	I3.30C	3.35	3.40	3.40	3.50	3.35	3.35	3.40	3.05	2.90	2.95	2.90	2.95
26	2.95	2.90	3.00	2.90	2.95	2.85	3.30	3.55	C	C	C	C	C	C	C	C	C	3.45	3.10	3.10	3.00	2.90	2.85	2.95
27	2.95	2.85	2.80	2.90	2.95	2.95	3.35	3.50	3.40	3.30	3.25	3.25	3.30H	3.25H	3.30	3.30	3.30	3.35	3.20	3.35	2.95	2.90	2.80	2.85
28	2.70	2.95	2.90	3.10	3.00	3.00	U3.25S	3.40	3.30	3.30	3.15	I3.25S	3.30	3.20	3.15	3.25	3.40	3.30	3.20	3.10	2.65	2.70	2.80	2.85
29																								
30																								
31																								
No.	26	26	25	24	24	25	25	27	26	25	25	25	25	25	25	25	25	26	26	26	26	26	27	27
Median	2.80	2.85	2.90	2.90	3.00	2.95	3.10	3.35	3.35	3.30	3.30	3.30	3.30	3.35	3.35	3.40	3.40	3.35	3.25	3.20	3.00	2.90	2.85	2.85

M(3000)F2 Sweep 1.0 Mc to 17.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 7

15

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4										C	C	C	C	C	C	C								
5																								
6																								
7																								
8																								
9																								
10										C	C	C	C	C	C	C								
11									C						L									
12																								
13													L	L										
14										3.70	U 3.80 L	3.70	4.00	U 3.85 L	4.00									
15																								
16																								
17										3.70														
18								3.05	3.30	3.40	3.55	I 3.65 L	3.45	3.65	L									
19										LH	U 3.90 L		U 3.90 L	U 3.85 L										
20												U 3.75 L	L	L										
21											L	U 4.00 L	U 3.70 L	L										
22											3.85	4.10 L	I 4.00 L											
23													L	L										
24													L											
25																								
26									C	C	C	C	C	C	C	C								
27																								
28																								
29																								
30																								
31																								
No.								1	1	3	4	5	5	3	1									
Median								3.05	3.30	3.70	U 3.80	U 3.75	U 3.90	U 3.85	4.00									

M(3000)F1 | Sweep 1.0 Mc to 17.0 Mc in 1 ~~sec~~ min in automatic operation.

The Radio Research Laboratories, Japan.

W 8

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4										C	C	C	C	C	C	C								
5																								
6																								
7																								
8																								
9																								
10										C	C	C	C	C	C	C								
11									C						245									
12																								
13													245	235										
14										285	265	250	250	245	250									
15																								
16																								
17										270														
18								475	470	390	320	340H	305	275	L									
19										285	260		270	255										
20												270	255	240										
21											L	265	255	255										
22											265	260	I 265 L											
23													250	245 L										
24													260											
25																								
26									C	C	C	C	C	C	C	C								
27																								
28																								
29																								
30																								
31																								
No.								1	1	4	4	5	9	7	2									
Median								475	470	285	265	265	255	245	250									

h'F2

Sweep 1.0 Mc to 17.0 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 9

17

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Feb. 1961

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	300	290	275	260	230	250	230	240	235	230	225H	210H	205H	240H	230	220	230	260	250	270	260	275	290
2	275	275	290	260	275	280	260	220	220	235	230	235H	225H	225	250	240	225	235	230	225	300	290	275	315
3	330	305	270	255	250	260	245	220	225	225	220H	230H	230	215H	240	230	215	220	225	230	360	330	360	315
4	345	300	300	220	270	330	315	240	230	C	C	C	C	C	C	C	C	C	C	250	280	300	335	290
5	305	335	380	320	255	380	320	280	265H	260H	245H	230H	235	240	225	250	250	225	255	250	250	270	335	295
6	335	325	310	260	225	250	265	220	220	220H	230	245	215H	215H	225H	240	225	230	255	250	260	250	260	260
7	300	350	325	305	240	205	265	220	235	230	215H	230H	215H	210H	235	235	225	215	245	220	270	335	330	335
8	310	285	240	230	255	270	E300S	225	225	225	210H	235	230	240	230	245	220	230	250	240	255	260	275	325
9	310	305	305	260	225	265	260	220	220	225	225H	230	220	230H	245	235	220	225	250	225	250	310	330	310
10	325	305	310	260	250	230	300	230	225	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	230H	210H	240	245	225H	245	235	230	210	260	260	270	310	315	320
12	305	255	230	245	240	260	265	230	220	230	225H	225	235H	210H	230H	230	225	220	230	235	240	330	310	320
13	315	300	270	300	260	250	235	220	220	225	210H	235H	225	220	230H	235	220	210	225	325	375	360	385	315
14	270	260	310	385	U380S	320	T320S	255	245H	230	260	230	220	240	220	230	225	230	240	230	270	300	300	300
15	285	310	300	300	260	250	235	235	225	200H	230	210H	230H	225H	230	230	230	225	220	250	250	250	260	300
16	300	300	275	270	260	220	255	225	225	215	230	240	235H	230	240	230	220	210	240	290	350	290	285	325
17	305	280	310	300	280	320	300	250	280A	235	240H	240H	220H	220	230	225	220	235	260	230	320	360	350	360
18	340	325	350	285	370	350	350	300	275	250	250	245	250	250	240	250	240	250	235	250	310	310	350	300
19	340	300	305	260	310	340	315	275	240	215H	215	250H	210	210	225H	240	230	225	235	265	265	295	290	310
20	320	300	270	250	240	300	260	235	225H	200H	230H	220	240	220	215H	230H	235	220	230	250	285	310	320	330
21	350	280	325	295	295	305	315	255	250	240H	210	200	200	240	230H	225H	230	225	225	250	260	300	310	335
22	300	330	265	250	280	350	280	255	240	240H	220	240H	215	230H	230H	240	240	220	240	255	280	325	325	335
23	315	300	280	300	280	260	250	235	240	250A	240H	225H	230	240	210H	235	230	225	210	270	265	250	280	300
24	305	310	310	300	275	250	260	235	220H	230	225H	230H	230	240H	225H	230	240	235	220	250	240	265	300	300
25	310	260	260	250	255	265	260	235	230	205H	235	I245C	245H	240H	215	230H	245	235	215	260	280	295	300	300
26	285	285	280	270	285	285	245	220	C	C	C	C	C	C	C	C	C	220	220	250	250	300	300	300
27	300	300	315	280	260	250	235	220	225	210H	225H	235H	230H	220H	210H	235H	235	220	230	230	265	285	310	315
28	320	290	300	255	270	250	245	230	225	240	215H	245	230H	220H	220H	240H	240	230	220	250	325	315	320	315
29																								
30																								
31																								
No.	27	27	27	27	27	27	26	27	26	25	25	25	25	25	25	25	25	26	26	27	27	27	27	27
Median	310	300	300	270	260	265	260	230	225	230	225	235	230	225	230	235	230	225	230	250	270	300	310	315

h'F

Sweep 1.0 Mc to 17.0 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 10

18

IONOSPHERIC DATA

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

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

h'Es

Sweep 1.0 Mc to 17.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 11

19

IONOSPHERIC DATA

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

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

Types of Es

Sweep 1.0 Mc to 17.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R	S	C	3.5	I 3.7R	3.6	3.6	5.7R	7.1	9.1	U 9.7R	9.0	7.4	6.9	7.4	6.9	6.0	5.3	5.1	J 5.0R	R	R	R	R
2	R	RF	RF	R	RF	R	4.0F	6.6	7.0	9.0	8.9	I 9.6R	8.6	7.6	I 7.5C	7.3	6.6	6.3	J 5.4R	3.5	3.8R	3.4	3.4	3.2
3	3.4	3.3R	3.5	3.8R	I 3.5R	I 3.6R	I 4.0S	6.1	7.3	I 8.8R	9.0	9.0	U 9.7R	8.5	7.2	7.5H	6.5	J 5.3R	I 4.4C	I 4.2S	3.8	RS	S	RS
4	RS	RS	RS	C	I 3.0R	2.4	2.3	6.5	7.9	8.7R	8.9	U 8.5S	8.9	8.2	7.6	7.2	6.6	6.1	4.8R	5.1	I 4.4R	3.7R	3.7R	3.5
5	I 4.0R	3.9	3.5	I 3.9R	3.9R	I 2.6R	I 3.1S	5.1	8.2R	12.6	I 9.6R	11.5	13.9	10.7	7.6	7.0	8.2	R	RF	R	R	R	3.5F	I 3.5F
6	3.5F	3.4	3.5	I 3.2F	2.9F	2.7	2.4	5.6	8.7RH	8.3	I 8.7RH	10.4R	I 10.6R	9.3R	8.2	7.5	7.1	6.1	J 5.5R	J 5.4R	J 5.4R	R	R	R
7	I 3.8R	3.7F	3.8F	I 4.4F	I 4.3R	3.1	I 3.5S	5.2	U 6.8R	10.4R	12.2R	11.0	9.6H	I 10.1R	9.7R	8.6	7.4	6.4	5.8	J 5.1S	R	S	I 3.8RS	3.9
8	I 3.8RS	4.3S	4.0	4.0	2.6	2.8	3.1	5.5	7.0	7.9	I 9.2R	9.0	9.3	8.9	8.8	9.1	7.5	6.3	J 6.4R	6.7	R	R	R	3.9
9	3.7	I 4.0R	I 4.1S	I 4.4R	3.2	2.5	2.6S	5.8	6.9	7.1	8.8R	U 9.8R	9.5R	8.5	8.3	8.9	7.0	6.0	4.8S	5.5	I 4.4R	3.1	I 3.7R	I 4.0R
10	3.7	I 4.0R	U 4.0R	4.1R	3.5	3.1	2.9	I 5.4R	8.6	I 8.8R	7.6	8.5	8.3	8.1	8.1V	7.8	7.6	5.3	4.3R	R	R	R	3.9	I 3.8R
11	I 3.6R	3.6	3.8	R	R	3.6R	I 4.6S	6.0	6.9	7.6	6.9H	8.5	I 9.1R	8.8	8.4R	7.6	7.0	5.6	4.1	R	RS	RS	S	S
12	RS	4.9	4.3	3.7	3.4	3.4R	I 4.3S	6.2	7.5	7.2	8.0	8.6	8.6	8.5	7.3	7.6	7.4	5.9	I 5.0R	J 5.3R	2.9	S	S	S
13	3.4	I 3.4RS	I 3.4RS	3.5S	I 3.6RS	3.2S	I 3.5R	5.7	6.2	6.8	7.9	8.9	9.0	8.4	7.6	8.0	7.4	5.5	4.7R	I 4.0R	RS	RS	RS	RS
14	RS	RS	3.5S	I 2.8E	I 2.8RS	I 2.6RS	2.8	5.7	8.0	9.1	10.8	12.4R	I 10.0R	8.4S	8.5	7.9	7.1	6.5	J 5.1R	5.6S	I 4.0RS	3.3S	3.0	3.4
15	I 3.5RF	I 3.6S	I 3.5RS	3.6S	3.6S	3.3	3.6S	5.7	6.6	8.1	8.6	11.0	9.8R	8.9	8.4	8.0	7.4	6.6	5.6	4.8	I 4.4S	3.9S	3.5	3.5
16	3.5	3.4	3.5S	3.8S	3.8S	3.2	3.3	6.0	7.1	8.3	8.7	10.4	9.3	8.8	8.9	8.8	7.3	6.0	4.3	4.1S	I 4.3RS	4.6	I 4.2RS	3.9S
17	3.8S	3.8S	3.6	3.6	3.8	3.5	3.5S	5.8	8.3	U 9.2R	11.3	10.0R	10.5	8.0	7.6	7.0	6.9	5.9	6.0	4.8	U 3.5S	3.5	I 3.5AS	3.3S
18	I 3.7ES	I 3.7ES	3.4	3.4	3.0	3.4	3.0	4.0S	5.5	6.9	8.2	7.5	8.3	9.2	7.4	7.2	7.0	6.9	7.2	4.6	3.1	3.6	I 3.4RS	3.9
19	3.7	3.8	3.9	4.1	3.1	3.0	2.8	5.6	6.3H	7.0	8.6	8.8	7.9	8.7	8.3	7.9	7.1	6.5	4.5	A	A	3.4	3.4	3.4
20	3.4	3.7	4.0	3.6	3.1F	I 3.3F	3.9F	6.0	7.4	7.6	8.4	9.5	9.1	9.6	7.1	7.8	7.3	6.0	4.8	4.2	3.6	3.9F	4.0F	4.0F
21	4.3F	4.4	3.5	3.9	3.6	3.5	3.5	5.7	7.7	9.4	8.5	7.1H	9.6	9.1	8.5	7.4	7.5	6.8	5.1	4.5	4.5	4.1	4.1R	4.0
22	4.4	4.5	4.3	4.1	3.5	3.5	3.5	6.4	7.2	8.2	9.6	10.1	8.6	8.5	8.2	8.9	7.6	7.1	5.0	4.5	4.8	4.1	4.5	4.3
23	4.8	4.8F	F	F	4.5F	4.3F	4.0	5.8	7.5	9.2	9.3	10.4	9.7R	8.3	7.3	7.0	8.5	7.6	5.8	4.6	5.0	4.8	4.1	3.9
24	3.9	3.9	3.9	4.0	3.9	3.3	3.6	6.0	9.0	8.2	8.8	9.0	9.0	9.0	8.5	7.9	8.4	7.5	6.8	5.8	5.3	4.2	4.2	4.3
25	4.4	4.5	4.4	4.3	4.1	3.6	3.9	6.9	8.7	8.1	7.6H	8.6	9.2	8.7	7.7	7.1	6.8	7.4	6.5	4.5	4.1	4.1	4.4	4.3
26	4.0	4.1	3.9	3.7	3.7	3.8	4.3	6.9	8.1	7.4	9.1	9.0	9.1	8.2	8.0	8.6	8.0	6.9	5.6	4.6	4.9	4.2	4.5	4.5
27	4.4	4.3	4.3	4.3	4.3	4.1	4.5	6.5	7.8	8.4	8.7	9.2	9.7R	9.0	8.0	8.0	8.1	7.9	5.9	5.3	4.7	4.4	4.2S	4.3
28	4.3S	4.5	4.5	4.5	3.9	3.9	4.4	7.2	9.0	8.7	8.9	9.5	9.9	8.5	9.0	9.9	9.0	7.1	6.0	4.8	4.3	4.6	4.6S	4.7S
29																								
30																								
31																								
No.	23	24	24	24	26	27	28	28	28	28	28	28	28	28	28	28	28	27	27	24	20	18	21	22
Median	3.8	3.9	3.8	3.8	3.6	3.3	3.5	5.8	7.4	8.3	8.8	9.1	9.2	8.6	8.0	7.8	7.4	6.3	5.1	4.8	4.4	4.0	3.9	3.9
U. Q	4.3	4.4	4.0	4.1	3.9	3.6	4.0	6.3	8.2	9.0	9.2	10.2	9.7	9.0	8.4	8.3	7.6	6.9	5.9	5.3	4.8	4.2	4.2	4.3
L. Q	3.5	3.6	3.5	3.6	3.1	3.0	3.0	5.6	7.0	7.6	8.4	8.7	8.8	8.4	7.6	7.2	7.0	5.9	4.8	4.5	3.8	3.5	3.5	3.5
Q. R	0.8	0.8	0.5	0.5	0.8	0.6	1.0	0.7	1.2	1.4	0.8	1.5	0.9	0.6	0.8	1.1	0.6	1.0	1.1	0.8	1.0	0.7	0.7	0.8

foF2

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

The Radio Research Laboratories, Japan.

A 1

21

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	4.2	4.0									
2											L	L	L	4.4	C									
3											L	L	L	L										
4											L	S	L	L	L									
5											L	L												
6												L	L	L										
7										L	L	L	I 4.4 L	L	L									
8										L	L	L	L	L										
9											L	L H	L	L	L									
10											L	4.4	L	L	L									
11											L H	L	L			L								
12												L	L	L	3.5	L								
13											L	L	L	L	L									
14										L	A	A	L	A S	L	L	L							
15										I 3.6 L	3.7	L	L	L	L									
16										L	3.7	L	L	L N	L									
17										L	4.2	I 4.3 L	I 4.5 L	I 4.4 L	L									
18										4.1	4.0	I 4.3 L	L	L	L									
19										L	L	L	L	L	4.0	3.5 H								
20										L	L	L H	L	L	L	L								
21												L	L	L	L	L								
22										L	L	L	L	L	L	L	L							
23									3.1	I 3.7 L	I 4.2 L	4.1	L	L	L	L	L							
24										L	L	L	L	L	L	L	L							
25										L	L	L H	L	L H	L	L								
26										L	L	L H	L H	L	L	L								
27										L H	4.4	L	L	L	L	L								
28										L	L	L	L H	L	L	4.0								
29																								
30																								
31																								
No.									1	3	6	4	2	3	3	2								
Median									3.1	4.37	4.1	4.43	4.44	4.4	4.0	3.8								

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	230	280	305	325	330	315	[300R	275	A							
2								A	A	300	310	325	335	[330R	[310C	[280R	230							
3								B	250	300	[310R	[320R	320	310	310	290	225							
4								A	240	A	A	S	320	325	305	280	225							
5								B	[235A	280	300	315	320	310	300	275	215							
6								R	245	285	305	320	330	325	305	[280R	A							
7								R	235	[280A	310	325	340	340	315	285	R							
8								B	A	A	A	325	325	315	300	265	A							
9								B	245	290	300	305	325	315	305	280	A							
10								R	[240S	295	305	315	325	315	305	285	A							
11								B	245	290	305	315	325	320	305	280	R	B						
12								B	245	295	305	315	320	310	305	275	A							
13								B	245	[285R	[310A	[320A	[325A	[315R	[300A	280	240							
14								R	245	290	305	315	320	A S	A	275	225							
15									240	280	295	310	320	320	305	280	[225A	B						
16								1.80	245	[275A	305	320	325	325	305	270	225							
17								R	245	275	305	320	330	[320A	305	280	235							
18								B	235	[270A	295	305	310	305	300	260	205	B						
19								1.90	245	[280R	[305A	315	320	315	300	275	R	A						
20								A	235	280	310	320	325	315	310	[290R	A							
21								A	245	285	310	320	325	320	315	290	240	B						
22								1.95	260	295	310	[320A	[325A	320	310	[280R	230	B						
23								R	[250A	280	310	[320B	325	[315A	305	[280R	R	A						
24								R	255	290	310	320	320	315	305	290	250	B						
25								1.90	255	295	310	325	350	340	320	300	[240A	B						
26								2.00	255	290	315	325	350	340	320	290	240	B						
27								1.95	255	300	310	320	340	345	315	290	250	B						
28								2.05	270H	300	315	320	335	325	315	300	250	B						
29																								
30																								
31																								
No.								7	26	26	26	27	28	27	27	28	17							
Median								1.95	245	290	310	320	325	320	305	280	230							

foE

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

IONOSPHERIC DATA

Feb. 1981 | 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	S	C	E	E	E	E	G	G	G	G	G	G	G	G	G	2.7	ʃ2.3	E	E	E	E	E	E
2	E	E	E	E	E	E	E	ʃ2.8	2.7	2.5G	G	G	G	G	C	G	2.6	ʃ4.5	E	E	E	E	E	E
3	E	E	E	E	E	E	S	G	G	G	G	G	G	G	G	G	G	E	C	S	E	S	S	E
4	E	E	E	C	E	E	E	ʃ3.0	2.6	ʃ10.7Y	ʃ3.7	S	4.0	4.1	4.4	3.7	G	E	E	ʃ2.8	ʃ2.0	ʃ2.0Y	E	E
5	E	ʃ2.4	E	E	E	E	S	G	2.7	G	3.1	G	3.8	G	G	G	G	E	E	E	2.2	2.2	E	E
6	E	E	E	E	E	E	E	G	G	3.5	3.5	3.7	3.6	G	G	3.1	ʃ2.9	E	E	E	ʃ2.0	ʃ2.4	E	E
7	E	E	E	2.2	E	ʃ1.8	S	2.1	3.5	ʃ5.6	G	G	2.8G	G	G	G	G	E	ʃ1.9	ʃ2.4	ʃ2.7	S	ʃ2.0	E
8	E	E	E	E	E	E	E	G	2.5	3.5	3.4	3.2G	G	G	G	G	ʃ2.8	ʃ2.3	E	E	E	E	E	E
9	E	E	S	E	E	E	E	G	G	G	3.4	3.6	G	G	G	G	ʃ2.8	3.7	ʃ2.6	E	E	E	E	E
10	E	E	E	E	E	E	E	G	S	G	G	G	G	3.1G	G	G	2.6	E	ʃ2.4	E	E	ʃ1.9	2.1	E
11	E	E	E	E	E	E	S	G	G	3.1	G	G	G	4.1	3.6	G	G	G	E	E	E	E	S	S
12	E	E	E	E	E	E	S	G	2.7	G	3.6	3.9	G	G	G	G	ʃ2.8	ʃ2.8	ʃ2.2	E	E	S	S	S
13	E	E	E	E	E	E	E	G	G	G	3.6	3.6	3.5	G	3.0	G	ʃ2.8	ʃ2.3	E	E	E	E	E	E
14	E	E	E	E	E	ʃ1.8	E	G	G	G	ʃ6.5	ʃ6.1	3.6	ʃ5.9S	ʃ2.9	G	G	E	E	E	E	E	E	E
15	E	S	E	E	E	E	E	E	G	G	G	G	3.5	2.6G	G	G	2.4	G	E	E	S	E	ʃ2.3	E
16	E	E	E	E	E	E	E	G	3.2	3.9	3.5	3.5	G	G	G	G	G	E	E	E	ʃ2.5	E	ʃ2.3	ʃ1.8
17	E	2.2	2.2	2.0	2.1	2.1	E	G	G	G	G	G	3.1G	ʃ3.2	G	G	G	G	E	2.1	ʃ2.0	ʃ1.7	ʃ3.1	E
18	E	E	2.2	E	E	E	E	2.1	3.2	ʃ3.2	G	G	G	3.2	G	2.9	2.4	ʃ1.8	2.3	E	ʃ2.2	2.1	ʃ2.4	E
19	ʃ1.9	ʃ1.7	ʃ1.9	2.1	ʃ1.8	2.3	E	G	G	2.6G	ʃ3.3	G	G	G	G	G	2.6	1.9	ʃ3.9	ʃ5.8	ʃ4.4	ʃ2.9	ʃ2.6	2.2
20	2.1	E	E	E	E	E	E	ʃ2.2	G	G	G	G	G	G	G	G	2.5	ʃ5.6	2.2	E	2.3	E	ʃ2.1	2.3
21	ʃ2.5	ʃ3.5	2.4	ʃ1.8	E	E	E	2.5	G	G	G	2.6G	G	G	G	G	G	G	ʃ1.8	2.1	E	E	E	ʃ1.8
22	ʃ2.7	2.5	2.0	ʃ2.0	ʃ2.2	2.1	E	2.4	G	2.4G	G	3.5	3.5	G	G	2.7G	G	G	E	2.2	E	E	E	2.1
23	2.2	ʃ1.8	ʃ1.8	ʃ1.8	2.2	E	E	G	2.7	G	G	B	G	3.6	G	G	G	2.4	E	E	E	E	E	2.0
24	2.0	ʃ1.8	E	E	E	E	E	G	G	G	G	G	G	G	2.2G	2.6G	2.6	G	2.2	E	E	E	E	2.0
25	2.3	ʃ1.8	2.1	E	E	E	E	G	2.1G	G	G	G	G	G	G	G	2.5	G	E	E	E	E	E	E
26	ʃ1.8	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	ʃ1.8	E
27	ʃ2.1	E	E	E	E	E	E	G	G	G	G	3.7	G	G	G	G	G	G	E	E	E	E	E	E
28	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	ʃ2.8	2.2
29																								
30																								
31																								
No.	28	26	26	27	28	28	23	28	28	28	28	26	28	28	27	28	28	28	27	27	27	25	25	26
Median	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	2.4	G	E	E	E	E	E	E
U.Q	2.0	1.8	1.8	E	E	E	E	2.1	2.7	2.8	3.4	3.5	3.3	2.8	G	G	2.6	2.3	2.2	E	2.0	1.8	2.2	1.8
L.Q	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	E
Q.R																								

foEs

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

IONOSPHERIC DATA

Feb. 1981 | 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		S	C														2.4	E						
2								1.9	2.5	2.1G					C		2.5	2.3						
3							S												C	S		S	S	
4				C				2.3	2.0	3.2	3.5	S	3.9	3.8	3.5	3.4				E	E	E		
5		E					S		2.7		2.5		3.5								E	E		
6										3.2	3.3	3.7	E			2.8	2.5				E	E		
7				E		E	S	1.9	2.5	3.0			2.2G						E	E	2.0	S	E	
8									2.4	2.8	3.0	2.5G					2.4	2.3						
9			S								3.3	3.4					2.4	2.0	E					
10									S					2.5G			2.4		2.0			E	E	
11							S			3.0				4.0	3.6								S	S
12							S		2.7		2.6	3.8					2.1	E	E			S	S	S
13											3.1	3.3	3.4		3.0		2.0	E						
14						E					6.1	5.1	3.4	4.7 S U	2.9 B									
15		S											2.5	2.5G			2.4				S		E	
16									G	3.0	2.4	3.5									E		E	E
17		E	E	E	E	E							2.0G	U 3.2 B						E	E	E	A S	
18			E					2.0	G	2.9				3.2		2.9	2.4	1.8	E		2.2	E	2.0	
19	E	E	E	E	E	E				2.5G	3.2						2.6	1.7	3.5	A	A	2.0	E	E
20	E							2.0									2.5	2.0	E		E		E	E
21	E	2.1	E	E				1.9				2.5G							E	E				E
22	1.8	E	E	E	E	E		2.4	2.4G		3.4	3.5				U 2.7 E G				E				E
23	E	E	E	E	E				2.5			B		3.6				2.0						E
24	E	E													2.1G	2.6G	2.0		E					E
25	E	E	E						2.1G								2.5							
26	E																						E	
27	E			2.5		2.5						3.7												
28																							E	E
29																								
30																								
31																								
No.	9	8	7	7	4	6		7	11	9	11	10	8	8	5	5	14	10	9	5	9	7	10	8
Median	E	E	E	E	E	E		2.0	2.5	3.0	3.2	3.5	3.0	3.4	3.0	2.8	2.4	1.9	E	E	E	E	E	E

foEs

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

The Radio Research Laboratories, Japan.

A 5

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	S	C	E	E	E	E	1.80	1.80	1.80	2.00	2.00	2.00	1.85	1.95	1.80	1.65	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	1.95	2.00	2.50	2.50	2.50	2.50	I 2.10 C	2.00	1.90	E	E	E	E	E	E	E
3	E	E	E	E	E	E	S	1.70	1.85	2.00	2.00	2.00	2.00	1.70	2.00	1.90	1.70	E	C	S	E	E 2.05 S	S	E
4	E	E	E	C	E	E	E	E	1.65	2.00	2.05	E 5.00 S	2.50	2.00	2.00	2.00	1.70	E	E	E	E	E	E	E
5	E	E	E	E	E	E	S	2.00	1.65	1.70	2.00	1.90	2.00	1.95	1.85	1.65	1.75	E	E	E	E	E	E	E
6	E	E	E	E	E	E	E	1.65	1.65	1.65	1.70	I 1.65 E	1.70	2.00	1.80	1.80	1.65	1.70	E	E	E	E	E	E
7	E	E	E	E	E	E	S	E	1.70	1.70	1.80	2.00	1.75	1.95	2.00	1.70	1.65	E	E	E	E	S	E	E
8	E	E	E	E	E	E	E	1.75	1.85	1.70	1.90	1.65	1.90	2.00	1.85	1.90	1.65	E	E	E	E	E	E	E
9	E	E	S	E	E	E	E	1.80	1.65	1.70	2.00	1.80	2.00	1.90	1.85	2.00	E	E	E	E	E	E	E	E
10	E	E	E	E	E	E	E	1.65	E 3.40 S	2.05	1.75	1.95	2.00	1.80	1.70	1.70	1.70	1.80	E	E	E	E	E	E
11	E	E	E	E	E	E	S	1.75	1.65	1.70	1.70	1.85	2.00	2.00	1.95	1.85	1.85	1.90	E	E	E	E	S	S
12	E	E	E	E	E	E	S	1.95	1.70	2.00	2.00	1.90	1.90	2.00	1.95	1.95	E	E	E	E	E	S	S	S
13	E	E	E	E	E	E	E	1.80	1.70	1.80	1.90	1.90	2.00	2.05	1.90	1.85	1.80	E	E	E	E	E	E	E
14	E	E	E	E	E	E	E	1.65	1.70	1.75	1.80	1.90	2.00	2.00 S	1.80	1.65	1.70	E	E	E	E	E	E	E
15	E	S	E	E	E	E	E	E	1.80	1.65	1.80	1.90	1.70	1.70	1.95	2.00	1.70	1.70	E	E	E	E	E	E
16	E	E	E	E	E	E	E	1.70	1.70	1.65	1.70	1.70	1.70	1.80	1.70	1.70	1.65	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	E	1.65	1.65	1.90	1.70	1.70	1.65	1.80	1.70	1.70	1.65	E	E	E	E	E	E
18	E	E	E	E	E	E	E	1.70	1.65	1.70	1.70	1.80	1.90	1.85	1.75	1.75	1.65	1.70	E	E	E	E	E	E
19	E	E	E	E	E	E	E	1.65	1.70	1.70	1.80	1.85	2.00	1.90	1.90	1.70	1.70	E	E	E	E	E	E	E
20	E	E	E	E	E	E	E	1.65	1.80	1.75	1.80	2.05	2.05	1.90	1.80	1.80	1.70	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	1.65	1.70	1.70	1.80	1.70	2.00	1.95	1.95	1.80	1.75	1.80	E	E	E	E	E	E
22	E	E	E	E	E	E	E	1.75	1.95	1.85	1.90	1.75	1.80	1.80	1.80	1.95	1.80	1.90	E	E	E	E	E	E
23	E	E	E	E	E	E	E	1.70	1.75	1.90	1.70	3.55	1.80	1.80	2.05	2.00	1.80	1.65	E	E	E	E	E	E
24	E	E	E	E	E	E	E	1.75	1.80	1.75	1.95	2.00	2.00	2.00	1.65	1.75	1.65	2.00	E	E	E	E	E	E
25	E	E	E	E	E	E	E	1.70	1.65	1.75	1.80	1.85	2.00	2.00	2.05	1.80	1.70	1.70	E	E	E	E	E	E
26	E	E	E	E	E	E	E	1.70	1.75	1.75	1.70	2.00	2.00	1.75	1.75	1.90	1.70	1.80	E	E	E	E	E	E
27	E	E	E	E	E	E	E	1.70	1.70	1.75	1.80	1.95	1.75	1.70	1.90	1.70	1.75	1.85	E	E	E	E	E	E
28	E	E	E	E	E	E	E	1.70	1.70	1.65	1.70	1.75	1.90	1.75	1.80	1.70	1.75	1.90	E	E	E	E	E	E
29																								
30																								
31																								
No.	28	26	26	27	28	28	23	28	27	28	28	27	28	28	28	28	28	28	27	27	28	25	25	26
Median	E	E	E	E	E	E	E	1.70	1.70	1.75	1.80	1.90	2.00	1.90	1.90	1.80	1.70	1.65	E	E	E	E	E	E

f-min

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R	S	C	280	I 300 R	280	310	335 R	340	355	U 330 R	345	335	350	330	345	335	325	315	J 315 R	R	R	R	R
2	R	R F	R F	R	R F	R	310 F	350	355	335	330	I 340 R	340	340	I 335 C	345	345	335	J 350 R	300	320 R	300	300	290
3	275	270 R	295	290 R	I 290 R	I 305 R	I 320 S	345	360	I 335 R	335	335	U 320 R	340	350	345 H	340	J 325 R	I 320 L	I 315 S	290	R S	S	R S
4	R S	R S	R S	C	I 315 R	255	275	340	330	340 R	320	U 355 S	320	350	340	335	335	330	300 R	315	I 300 R	300 R	285 R	260
5	I 270 R	255	260	I 260 R	300 R	I 300 R	I 260 S	290	315 R	340	I 320 R	290	325	335	340	310	315	R	R F	R	R	R	290 F	I 290 F
6	290 F	300	270	I 295 F	260 F	285	295	340	345 R H	345	I 350 R H	320 R	I 330 R	335 R	325	335	340	340	J 315 R	J 300 R	J 295 R	R	R	R
7	I 280 R	265 F	270 F	I 280 F	I 320 R	325	I 330 S	335	U 320 R	320 R	330 R	330	325 H	I 330 R	340 R	345	340	330	315	J 340 S	R S	S	I 280 R S	270
8	I 280 R S	300 S	305	330	310	275	330	330	350	340	I 340 R	315	325	325	320	340	340	335	J 320 R	315	R	R	R	290
9	275	I 280 R	I 285 S	I 315 R	345	275	275 S	350	360	350	335 R	U 325 R	330 R	335	340	335	340	335	310 S	330	I 310 R	295	I 275 R	I 270 R
10	270	I 275 R	U 290 R	305 R	315	295	310	I 320 R	350	I 350 R	345	330	345	350	320 V	340	370	325	295 R	R	R	R	285	I 290 R
11	I 290 R	290	300	R	R	310 R	I 320 S	360	350	340	310 H	320	I 330 R	340	355 R	355	355	340	300	R	R S	R S	S	S
12	R S	300	325	300	305	305 R	I 310 S	355	360	340	355	320	340	355	350	345	330	355	I 320 R	J 310 R	310	S	S	S
13	275	I 290 R S	I 295 R S	295 S	I 305 R S	285 S	I 305 R	360	350	370	355	335	330	355	355	350	355	345	310 R	I 310 R	R S	R S	R S	R S
14	R S	R S	280 S	I 260 L	I 260 R S	I 270 R S	290	335	340	335	330	335 R	I 345 R	325 S	355	345	340	350	J 320 R	325 S	I 310 R S	305 S	275	270
15	I 275 R	I 285 S	I 290 R S	285 S	310 S	330	320 S	350	335	350	315	315	330 R	335	345	345	350	360	325	320	I 320 S	310 S	280	290
16	290	300	290 S	275 S	300 S	310	290	350	350	350	335	335	330	335	335	340	355	350	310	305 S	I 280 R S	300	I 305 R S	285 S
17	295 S	285 S	280	290	280	280	300 S	320	335	U 335 R	345	340 R	340	355	355	345	360	335	340	340	U 310 S	270	I 260 R S	265 S
18	I 270 L	I 280 L	270	270	235	270	270	290 S	290	275	320	300	315	345	340	350	330	330	335	330	290	300	I 260 R S	300
19	275	275	265	295	290	255	255	350	320 H	330	345	340	350	335	340	345	350	355	320	A	A	300	270	255
20	270	280	325	315	290 F	I 280 F	300 F	345	350	350	340	335	340	345	355	355	355	355	330	335	305	290 F	280 F	280 F
21	280 F	300	290	270	280	280	290	330	340	350	350	320 H	330	345	340	340	340	330	310	300	290	290	295 R	275
22	275	285	305	300	290	305	290	340	350	340	320	330	340	330	330	335	340	350	320	305	300	295	280	285
23	280	290 F	F	F	290 F	290 F	315	330	340	340	325	325	340 R	345	345	325	340	355	345	295	290	310	300	280
24	275	275	265	290	295	285	300	330	345	345	335	330	325	335	340	340	335	335	325	310	310	310	290	285
25	285	295	305	305	295	285	290	345	345	345	340 H	340	335	345	350	350	325	330	340	295	300	295	280	300
26	290	290	300	300	290	290	315	350	370	340	350	335	330	345	335	340	340	335	335	295	300	290	280	295
27	290	280	270	280	300	290	310	350	340	340	335	330	340 R	345	330	330	330	340	320	310	305	280	275 S	280
28	275 S	290	295	310	310	280	295	345	350	335	330	325	335	310	310	330	335	340	330	300	260	275	280 S	280 S
29																								
30																								
31																								
No.	23	24	24	24	26	27	28	28	28	28	28	28	28	28	28	28	28	27	27	24	20	18	21	22
Median	275	285	290	290	300	285	300	340	345	340	335	330	330	340	340	340	340	335	320	310	300	300	280	280

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

The Radio Research Laboratories, Japan.

A 7

27

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	4.10	3.90									
2											L	L	L	3.90	C									
3											L	L	L	L										
4											L	S	L	L	L									
5											L	L												
6												L	L	L										
7										L	L	L	I 4.20 L	L	L									
8										L	L	L	L	L										
9											L	L H	L	L	L									
10											L	3.90	L	L	L									
11											L H	L	L			L								
12												L	L	L	4.30	L								
13											L	L	L	L	L									
14										L	A	A	L	A S	L	L	L							
15										I 4.15 L	4.30	L	L	L	L									
16										L	4.30	L	L	L H	L									
17										L	3.85	I 3.80 L	I 3.85 L	I 4.00 L	L									
18										3.45	3.80	I 3.70 L	L	L	L									
19										L	L	L	L	L	4.20	4.00 H								
20										L	L	L H	L	L	L	L								
21												L	L	L	L	L								
22										L	L	L	L	L	L	L	L							
23									4.20	I 4.00 L	I 3.85 L	4.15	L	L	L	L	L							
24										L	L	L	L	L	L	L	L							
25										L	L	L H	L	L H	L	L								
26										L	L	L H	L H	L	L	L								
27										L H	4.00	L	L	L	L	L								
28										L	L	L	L H	L	L	3.80								
29																								
30																								
31																								
No.									1	3	6	4	2	3	3	2								
Median									4.20	" 4.00	3.90	" 3.85	" 4.00	4.00	4.20	3.90								

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

The Radio Research Laboratories, Japan.

A 8

28

IONOSPHERIC DATA

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

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

h'F2 | Sweep 1.60 Mc to 20.0 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 9

29

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	I 290 S	I 290 C	295	295	255	280	240	240	245	235	230	205	200	200	245	245	245	245	245	255	245	250	280
2	265	275	280	280	275	300	250	230	210 H	245	235	225	200	210	I 240 C	240 H	245	245	205	245	245	260	255	280
3	305	295	270	255	250	290	I 250 S	245	225	245	210	200	235	245	240	225 H	245	220	I 240 C	I 240 S	270	340 S	I 315 S	295
4	300	310	300	I 265 C	240	E 340 E	E 310 E	245	240	245	240	I 245 S	240	240	210	245	245	245	245	250	240	250	280	330
5	300	340	330	340	245	250	I 330 S	265	245	250	245	230	240	235	225	245	245	245	230	245	240	260	255	290
6	285	295	300	255	250	E 280 E	E 290 E	240	245	245	225 H	245	235	205	235	240	240	230	240	260	270	230	240	255
7	290	350	345	305	205	245	I 230 S	235	240	240	245	220	210	240	245	240	240	220	235	245	260 A	I 300 S	300	290
8	290	275	240	220	235	E 290 E	280	230	230	210	235	235	240	240	245	245	235	220	245	245	220	255	270	270
9	335	305	I 290 S	245	200	240	255	245	225	245	210	200 H	210	245	240	245	235	220	240	245	210	255	300	295
10	290	305	290	255	245	260	255	245	245	245	210	230	230	225	245	245	240	205	250 A	245	245	245	270	260
11	260	295	295	280	245	245	I 250 S	230	200 H	225	200 H	210	245	245	245	230	230	215	235	255	245	270	I 295 S	I 300 S
12	300	250	225	245	245	290	I 275 S	225	225	220	240	230	240	240	200	240	210	210	245	230	205	S	S	S
13	255	305	285	290	250	250	245	225	235	240	240	205	240	235	220	240	230	205	240	250	340	350	350	300
14	245	245	300	355	E 390 E	300	280	245	245	235	I 220 A	I 230 A	230	I 210 S A	205	245	215	225	240	230	220	255	310	315
15	295 F	I 290 S	290	290	255	245	245	230	210 H	205	195	225	215	210	230	245	230	220	220	230	I 240 S	245	300	285
16	290	290	295	290	250	240	265	240	230	240	200	245	220	220 H	240	245	235	210	220	280	300	260	255	255
17	290	300	290	300	290	290	280	260	245	240	200	225	230	220	215	230	235	220	230	220	245	300	I 310 S A	350
18	305	285	295	315	350	330	300	255	220 H	230	225	215	235	250	215	245	245	245	230	205	I 255 A	290	I 315 A	255
19	300	300	315	260	290	345	E 300 E	255	245	210	200	245	210	205	200	210 H	245	220	A	A	A	A	300	325
20	305	295	245	250	250	295	255	240	240	205	240	205 H	210	210	220	205	245	220	205	225	265	290	280	305
21	295	280 A	285	300	300	310	275	240	245	240	245	205	205	200	240	240	245	210	205	240	255	255	270	300
22	300	260	240	245	250	245	295	245	245	245	205	210	245	205	205	225	235	240	205	245	245	255	295	295
23	295	270	260	290	295	250	285	220	205	245	220	210	245	215	210	225	205	230	210	245	275	245	250	290
24	295	295	300	280	245	255	260	245	245	235	235	245	230	230	240	215	235	245	240	245	240	245	270	295
25	290	255	245	245	245	255	270	245	240	235	230	200 H	225	210 H	210	205	245	245	210	230	250	275	290	255
26	260	285	255	275	290	290	245	245	245	210	230	205 H	220 H	235	215	245	245	230	210	245	245	270	295	265
27	290	290	295	290	250	I 255	245	245	245	210 H	220	235	225	210	220	215	215 H	245	205	245	245	260	305	300
28	295	290	255	245	245	275	255	245	245	235	215	220	205 H	245	240	210	245	220	230	240	290	300	300	300
29																								
30																								
31																								
No.	28	28	28	28	27	25	25	28	28	28	28	28	28	28	28	28	28	28	27	27	27	26	27	27
Median	290	290	290	280	250	255	255	245	240	240	225	225	230	220	220	240	240	220	230	245	245	260	295	295

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Feb. 1961 | f'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	S	C	E	E	E	E	G	G	G	G	G	G	G	G	G	110	110	E	E	E	E	E	E
2	E	E	E	E	E	E	E	105	105	105	G	G	G	G	C	G	140	110	E	E	E	E	E	E
3	E	E	E	E	E	E	S	G	G	G	G	G	G	G	G	G	G	E	C	S	E	S	S	E
4	E	E	E	C	E	E	E	105	105	100	105	S	145	140	140	130	G	E	E	105	105	105	E	E
5	E	105	E	E	E	E	S	G	105	G	105	G	145	G	G	G	G	E	E	E	105	105	E	E
6	E	E	E	E	E	E	E	G	G	145	145	140	145	G	G	130	115	E	E	E	100	100	E	E
7	E	E	E	100	E	105	S	150	145	110	G	G	100	G	G	G	G	E	105	105	105	S	105	E
8	E	E	E	E	E	E	E	G	120	105	105	105	G	G	G	G	100	100	E	E	E	E	E	E
9	E	E	S	E	E	E	E	G	G	G	130	145	G	G	G	G	100	105	105	E	E	E	E	E
10	E	E	E	E	E	E	E	G	S	G	G	G	G	100	G	G	115	E	105	E	E	105	105	E
11	E	E	E	E	E	E	S	G	G	150	G	G	G	145	140	G	G	G	E	E	E	E	S	S
12	E	E	E	E	E	E	S	G	155	G	105	145	G	G	G	G	100	100	100	E	E	S	S	S
13	E	E	E	E	E	E	E	G	G	G	110	105	110	G	105	G	105	105	E	E	E	E	E	E
14	E	E	E	E	E	105	E	G	G	G	110	110	130	110	110	G	G	E	E	E	E	E	E	E
15	E	S	E	E	E	E	E	E	G	G	G	G	105	105	G	G	110	G	E	E	S	E	105	E
16	E	E	E	E	E	E	E	G	130	110	105	165	G	G	G	G	G	E	E	E	105	E	105	105
17	E	105	100	100	100	100	E	G	G	G	G	G	100	100	G	G	G	G	E	105	105	105	105	E
18	E	E	100	E	E	E	E	155	135	105	G	G	G	145	G	130	130	110	105	E	105	105	105	E
19	100	100	105	105	105	105	E	G	G	110	105	G	G	G	G	G	120	110	105	110	105	105	105	105
20	105	E	E	E	E	E	E	110	G	G	G	G	G	G	G	G	115	110	105	E	105	E	105	105
21	105	100	105	110	E	E	E	115	G	G	G	105	G	G	G	G	G	G	105	105	E	E	E	140
22	105	105	105	105	105	105	E	160	G	105	G	100	100	G	G	100	G	G	E	105	E	E	E	105
23	100	100	100	100	100	E	E	G	110	G	G	B	G	100	G	G	G	110	E	E	E	E	E	105
24	100	100	E	E	E	E	E	G	G	G	G	G	G	G	100	100	100	G	100	E	E	E	E	100
25	100	100	100	E	E	E	E	G	105	G	G	G	G	G	G	G	110	G	E	E	E	E	E	E
26	105	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	105	E
27	100	E	E	E	E	E	E	G	G	G	G	155	G	G	G	G	G	G	E	E	E	E	E	E
28	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E	E	105	100
29																								
30																								
31																								
No.	9	8	7	6	4	5		7	10	10	10	10	9	8	5	5	14	10	9	6	9	7	10	8
Median	100	100	100	100	100	105		105	115	110	105	120	110	110	110	130	110	110	105	105	105	105	105	105

f'Es | Sweep 1.60 Mc to 20.0 Mc in 20 min/sec in automatic operation.

IONOSPHERIC DATA

Feb. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

32

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																	dz	f						
2								l	l	l							h	fz						
3																								
4								dz	l	dz	l		h	h	h	h				fz	f	f		
5		f							l		l		h								f	f		
6										h	h	h2l	h2			h	l				f	f		
7				fz		f		h	h	l			l						f	f	fz		f	
8									l	l	l	l					l	f						
9											h	h					dz	f	f					
10														l			l		fz			f	f	
11										h				h	h2									
12									h		l2h	h					l	f	f					
13											l	l	l		l		l	f						
14						f					c2	c2	h	l	l									
15													l	l			l						f	
16									h	dz	l	h									fz		fz	f
17		f	f	f	f	f							l	dz						f	fz	f	fz	
18			f					h	h	l				h		h2	h2	l	f		fz	f	f	
19	f	f	fz	fz	fz	fz				l	l						c	l	f4	f3	f3	f3	f3	f
20	f							l									dz	dz	f		f		f	f
21	f	fz	f	f				l				l							f	f				f
22	fz	f	f	f	f	f		h		l		l	l			l				f				f
23	f	f	f	f	f				l					l				dz						f
24	f	f													l	l2	l		f					f
25	f	f	f						l								l							
26	f																						f	
27	f											h												
28																							E	E
29																								
30																								
31																								
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Feb. 1961 | 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	J 3.3 S	J 3.4 S	3.2	3.2	J 3.2 S	I 3.2 S	J 3.3 S	U 5.7 S	J 7.4 R	7.1	8.8	9.6	8.2	7.1	6.6	7.4	6.6	5.7	4.8	5.3	4.8	4.8	4.5	4.2
2	4.0	4.0	4.0 S	3.8 S	3.5	I 3.4 S	3.6	I 6.3 S	7.6	7.8	9.1	9.5	8.8	8.2	7.1	7.2	7.6	6.3	5.7	4.1	4.4	3.6	3.2	3.2
3	U 3.5 S	3.6	3.7 S	3.7 S	3.0	J 2.9 S	3.5 S	J 6.5 S	7.6	J 7.8 S	10.6	9.5	8.7	8.7	7.8	7.2	6.7 R	6.2	3.9	4.2	4.4	3.9	4.3	4.4
4	4.0	U 3.8 S	4.0	5.1	2.4	I 2.2 S	J 2.4 S	J 6.3 S	J 7.7 S	9.4	9.4 R	10.8	I 10.0 R	9.2	7.8	6.9	6.8	6.2	4.9	4.7	4.5	3.5	3.3	3.4
5	I 3.5 S	3.6	3.7 S	3.7	3.4	U 3.6 S	2.6	5.6	11.7	11.5	10.9	12.3	J 13.8 R	11.7	8.2	6.8	7.9	9.1	6.9	5.7	5.9	4.4	4.5	4.4
6	4.7	4.6	4.6	4.5	3.6	U 4.2 S	J 4.3 S	5.9	9.4	9.2	8.8	9.9	11.8	10.0	8.8	7.6	7.2	6.7	4.9	5.3	5.2	5.1	4.1	I 3.4 A
7	3.6	3.6	3.6	J 3.9 S	I 3.5 A	2.5	I 2.6 S	U 5.2 S	U 7.4 S	9.9 S	12.0	10.8	10.1	10.6	9.9	9.1	7.6	6.4	5.2	5.2	4.4	3.5	3.7 S	3.7 S
8	3.7	4.1	3.9 S	3.0	2.3	2.4	U 2.7 R	J 5.6 S	8.1	8.7	9.2	10.1	9.5	9.5	8.6	9.2	8.1	7.2	6.3	6.1	5.3	3.9	3.8	U 3.9 S
9	3.4	3.7	3.7	4.1	2.7	I 2.2 S	J 2.5 S	J 5.7 S	7.8	7.9	9.0	J 10.4 R	9.9	9.2	8.3	8.2	7.4	6.4	4.9	5.2	4.9	3.5	J 3.5 S	3.8
10	3.7 S	3.9	3.8	3.9	3.0	3.0	2.8	J 5.3 S	8.0	9.6	10.3	9.3	8.4	7.8	7.8	8.0	U 7.4 S	6.5	4.4	4.6	4.6	4.4	3.2	3.1
11	3.2	3.5	3.4	3.7	4.2	2.9	3.0	5.8	6.8	7.5	8.3 S	8.2	9.9	9.6	7.8	7.6	6.9 R	5.9	4.4	4.2	4.6	4.2	4.1	U 4.0 S
12	4.2	4.6	4.5	3.3	3.0	3.1	3.5	5.6	6.7	7.6	8.3	7.1	8.8	7.6 S	7.5	7.6	6.8	6.2	4.3	4.7	4.1	2.3	2.6	2.8
13	3.0	3.1	3.2	3.0	2.9 S	2.7	3.0	J 5.5 S	6.5	7.6	7.7	9.4	9.3	9.1	7.3 V	J 8.4 R	7.5	5.6	4.7	4.6	U 4.0 S	4.4 S	U 4.5 S	4.8
14	5.2	5.1	5.0 S	3.6	J 2.8 R	J 2.6 S	J 2.7 S	7.0	10.3	9.4	9.6	12.1	11.9	8.8	8.5	7.9	7.9	6.8	5.0	5.5	4.4	3.1	A	C
15	C	3.4	3.4 S	3.4	3.4	3.2	3.0	5.6	7.2	9.1	9.0	J 10.6 R	J 10.4 R	9.6	9.4	8.9	7.4	6.3	5.6	5.0	4.0	3.4	J 3.0 S	J 3.4 S
16	3.4	U 3.5 S	I 3.2 S	3.4	J 3.5 S	3.2	3.1	5.9	7.5	9.2	8.8	9.8	C	C	C	C	C	J 6.2 R	4.5	4.3	4.6	4.7 S	4.2	4.2
17	3.8	3.7	3.7 S	3.9	4.0	3.6	3.6	I 6.0 S	9.5	12.1	9.6	J 10.1 R	10.4 R	9.5	7.4	7.7	6.7	6.6	5.2	4.9	4.4	U 3.6 S	I 3.3 A	3.5 S
18	3.7	4.0	3.5 S	I 3.4 S	3.2	3.2	3.0	5.0 S	6.4	7.3 H	J 10.8 R	I 9.6 C	J 9.6 S	J 10.7 R	8.6	7.4	7.4	U 8.0 S	I 7.7 S	5.6	3.0	3.1	3.2	U 3.6 S
19	3.4	3.5	J 3.4 S	J 3.8 S	J 3.1 S	I 3.0 S	I 3.2 S	U 6.6 S	7.3 S	7.7 S	8.6	10.8	9.2	8.4	8.0	8.1 S	J 8.0 R	J 6.8 R	4.9	4.0 S	3.8	3.4	3.2	3.1
20	U 3.4 S	3.3	J 3.8 S	3.0	2.8	U 3.0 S	2.9	U 6.0 S	7.3	U 7.8 S	7.9	9.6	9.8	10.1 S	8.8	7.6	U 7.1 S	I 7.0 S	5.0	3.7	3.4	3.5	3.7	3.4
21	3.7	3.8	3.6	3.5	3.4	3.5 S	3.7	7.3 S	6.9	9.8	9.4	8.5	9.1	9.6	8.9	8.4	7.6	7.0	4.8	4.6	4.5	4.2	4.1	I 3.8 C
22	I 3.9 C	4.0 S	3.9	3.2	3.0	3.2	3.4	J 6.5 S	8.1	J 8.1 S	J 10.1 S	11.3	10.3	8.6	8.4	9.0	8.8	6.9	5.2	4.4	4.5	3.9	U 3.7 S	3.9
23	U 4.1 S	4.1	3.8	3.8 S	3.7	3.7	3.8 S	7.3 S I	7.2 S	J 9.5 S	9.0	10.1	J 10.6 R	9.2	8.0	6.8	7.4	8.5	5.7	4.7	4.6	5.0	4.3	3.9
24	J 3.6 S	3.6	3.6 S	J 3.6 S	3.5	3.4	3.4	I 6.0 S	8.3	8.8	8.4	8.7	9.0	9.2	8.9	8.4	7.6	7.1	6.7	5.7	5.0	4.3	C	C
25	C	C	C	C	C	C	C	C	C	9.1	J 8.3 S	8.4	9.2	8.9	8.2	7.8	7.0	6.8	6.9	5.1	4.2	4.1	4.1	4.2
26	3.7	3.7	3.7	3.5	3.4	3.6 S	4.0	7.2 S	7.9	8.4	8.4	9.0	9.2	9.1	8.0	8.9	8.3	7.4	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	U 9.2 R	8.4	I 8.7 R	9.0	9.1	7.6	8.3	8.2	7.9	6.2	5.2 S	4.9	4.1	4.1	4.1
28	4.0 S	J 4.0 S	4.4	4.2	3.6 S	I 3.2 S	3.9	7.1 S	8.5	9.8 S	9.8 S	9.6 S	9.9	9.5	9.2	U 9.4 S	9.0 S	7.4	5.9	5.2	4.4	4.5	4.6	U 4.3 S
29																								
30																								
31																								
No.	25	26	26	26	26	26	26	26	26	28	28	28	27	27	27	27	27	28	27	27	27	27	25	25
Median	3.7	3.7	3.7	3.6	3.3	3.2	3.2	6.0	7.6	9.0	9.0	9.6	9.6	9.2	8.2	7.9	7.4	6.8	5.0	4.9	4.5	3.9	3.8	3.8
U Q	4.0	4.0	3.9	3.9	3.5	3.4	3.6	6.5	8.1	9.4	9.7	10.5	10.3	9.6	8.8	8.4	7.9	7.2	5.9	5.3	4.8	4.4	4.2	4.2
L Q	3.4	3.5	3.5	3.4	3.0	2.9	2.8	5.6	7.2	7.8	8.4	9.2	9.0	8.7	7.8	7.4	7.0	6.2	4.8	4.4	4.2	3.5	3.2	3.4
Q R	0.6	0.5	0.4	0.5	0.5	0.5	0.8	0.9	0.9	1.6	1.3	1.3	1.3	0.9	1.0	1.0	0.9	1.0	1.1	0.9	0.6	0.9	1.0	0.8

foF2

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

The Radio Research Laboratories, Japan.

K 1

33

IONOSPHERIC DATA

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

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

foF1

Sweep 1.0 Mc to 20.0 Mc in 2.0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

K 2

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							S	S	C	2.80	3.15^{R}	I3.25^{B}	3.30	3.30^{R}	A	A	S	S						
2							S	S	Iz.50^{A}	3.00	I3.15^{B}	U3.30^{R}	3.45^{R}	I3.30^{B}	I3.00^{B}	2.80	B	B						
3							S	S	Iz.55^{A}	U3.00^{R}	3.25	3.25^{R}	I3.30^{R}	3.25^{R}	I3.20^{R}	3.30	2.35^{R}	S						
4							S	S	2.30	2.90	3.20	U3.45^{R}	I3.50^{B}	I3.40^{R}	U3.25^{R}	2.95	B	S						
5							S	S	Iz.40^{B}	Iz.90^{A}	3.15	3.25	3.25	3.25	U3.15^{R}	U2.80^{R}	Iz.30^{S}	B						
6							S	S	2.55	2.90	3.10	3.25	I3.20^{R}	3.25^{S}	I3.10^{S}	2.85	Iz.40^{S}	S						
7							S	S	2.55	2.75	I3.00^{A}	U3.10^{A}	I3.30^{A}	3.35	3.20	2.80	S	S						
8							B	S	2.50	2.90	3.05	3.30	I3.20^{R}	U3.15^{R}	3.00	I2.80^{S}	2.30^{R}	B						
9							S	2.30	2.45	2.90	3.10^{R}	B	B	I3.20^{B}	3.05	2.90	S	S						
10							S	S	2.35	2.95	3.15	R	B	3.30	I3.20^{S}	U2.80^{S}	S	S						
11							S	2.05	2.35	2.90	3.10	3.30	I3.40^{A}	3.40	I3.10^{R}	2.85	S	S						
12							S	I2.20^{S}	2.40	2.85	3.15	I3.20^{R}	U3.20^{R}	3.20	3.05^{R}	2.60	I2.30^{R}	S						
13							S	2.10	2.55^{S}	2.85^{S}	3.20	B	B	3.35	I3.05^{R}	I2.85^{R}	B	S						
14							S	U2.15^{S}	2.50	I2.90^{A}	3.15^{R}	I3.10^{B}	3.20	3.15	I3.00^{A}	I2.80^{A}	A	S						
15							S	S	B	B	U3.10^{R}	3.15^{R}	I3.30^{B}	I3.10^{A}	U2.95^{A}	A	S	S						
16							S	2.15^{S}	U2.40^{S}	2.90	3.00	3.35	C	C	C	C	C	S						
17							S	S	Iz.40^{A}	2.85	3.20	I3.25^{B}	B	B	B	B	S	S						
18							B	S	A	A	Iz.95^{R}	R	B	B	B	B	B	S						
19							S	S	2.55	Iz.75^{B}	3.20^{R}	A	S	A	I3.10^{S}	I2.90^{R}	Iz.40^{B}	B						
20							B	S	A	A	U3.10^{R}	3.35	I3.25^{B}	I3.15^{S}	3.10	2.90	S	S						
21							S	S	2.55	Iz.95^{S}	I3.10^{A}	3.20^{R}	I3.20^{R}	3.20	I3.15^{R}	2.95^{S}	B	S						
22							S	U2.20^{S}	2.50^{R}	2.90	I3.20^{R}	B	S	B	I3.10^{S}	2.95	S	S						
23							S	I2.05^{S}	Iz.50^{B}	U2.95^{R}	I3.05^{A}	I3.20^{B}	3.10	I3.20^{R}	3.25	Iz.95^{A}	B	B						
24							S	U2.25^{S}	2.55	2.95	3.20	U3.15^{S}	I3.30^{R}	I3.20^{R}	U3.20^{R}	3.00^{S}	Iz.60^{S}	S						
25							C	C	C	2.90	3.15	3.45	3.50	3.50	A	A	S	S						
26							B	S	2.70	3.00	3.20	I3.40^{S}	3.40	3.45	3.25	2.95	B	S						
27							C	C	C	B	B	I3.40^{B}	3.40	3.40	I3.20^{S}	3.00	S	B						
28							S	S	2.70	3.00	3.10	A	A	A	A	A	S	S						
29																								
30																								
31																								
No.								9	22	24	27	21	19	22	22	21	7							
Median								U2.15	2.50	2.90	3.15	U3.25	U3.30	3.25	U3.10	2.90	U2.35							

foE

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

The Radio Research Laboratories, Japan.

K 3

35

IONOSPHERIC DATA

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	E	S	S	S	S	C	3.2	3.5	B	G	G	3.1	Z.9	S	S	S	S	S	S	S	S
2	S	S	E	E	E	S	S	S	J 3.3	G	B	G	G	B	B	G	3.0	J 3.2	Z.3	J 3.4	S	S	S	S
3	S	S	E	E	E	S	S	S	Z.5	G	G	G	G	3.6	G	G	G	Z.0^{S}	S	E	S	Z.1^{M}	S	S
4	Z.Z^{M}	S	E	E	E	S	S	S	G	G	3.6	4.0	4.1	3.7	3.7	3.7	B	S	S	J Z.6^{S}	S	J 1.7^{S}	S	S
5	S	E	E	E	Z.1^{M}	S	S	S	Z.8	3.1	3.4	3.5	3.5	G	G	G	S	B	S	S	S	J 3.4	Z.1^{M}	Z.Z^{M}
6	Z.Z	E	E	E	E	S	S	S	G	3.2	3.7	4.4	Z.4^{q}	G	3.0^{q}	Z.6^{q}	S	Z.Z	S	J 3.4	S	J Z.6	J 4.1	J 3.4
7	S	S	E	E	J 3.9	J Z.7	S	S	Z.9	3.4	4.9^{M}	3.7	3.6^{s}	G	G	G	S	S	Z.1^{M}	J Z.3	J 4.9	J 3.9	J 3.9	Z.3
8	S	E	E	E	E	S	B	Z.Z	G	Z.6^{q}	G	G	Z.5^{q}	G	G	S	G	B	S	S	S	S	S	S
9	S	E	E	E	E	S	S	G	Z.9	G	G	B	B	B	G	G	D Z.1^{s}	J Z.8^{s}	S	S	S	S	S	S
10	S	S	E	E	S	S	1.9	S	G	G	G	G	B	G	3.8	Z.5^{q}	3.0	S	E	S	J Z.1	S	S	J Z.3
11	S	S	E	E	E	S	S	G	G	G	G	3.8	J 3.1^{q}	G	G	G	S	S	S	S	S	Z.Z^{M}	S	S
12	S	S	S	E	E	S	S	S	G	3.1	3.6	G	Z.9^{q}	Z.5^{q}	G	3.3	G	S	S	S	S	S	S	E
13	S	S	S	E	S	S	S	G	G	G	G	B	B	G	G	B	B	S	S	S	S	S	S	S
14	S	E	E	E	E	Z.0^{M}	S	G	G	Z.9	G	G	J 10.3	J 7.4	3.6	J 4.0	J 3.3	Z.1	S	S	S	S	4.0^{M}	C
15	C	E	E	E	E	E	S	S	B	B	G	3.6	B	3.4	3.2	3.0	S	S	S	J Z.4	S	S	S	S
16	S	S	S	E	E	S	S	G	G	G	G	G	C	C	C	C	C	S	S	Z.8	S	S	E	J 3.8
17	S	J 3.2	Z.Z	E	S	S	Z.Z	S	Z.9	G	G	B	B	B	B	3.0	S	S	S	E	S	S	J 3.2	J Z.Z
18	S	S	E	Z.0^{M}	E	S	B	S	Z.5	3.4	G	Z.8^{q}	B	B	3.3	B	B	S	S	S	S	S	S	S
19	S	S	S	E	S	S	S	S	G	B	G	J 4.0	G	3.4	G	G	B	B	S	S	S	S	J 3.4	S
20	S	S	E	E	S	S	B	S	Z.9	3.2	G	G	B	S	G	G	S	S	S	S	S	E	S	S
21	S	Z.3^{M}	E	Z.0^{M}	E	S	S	S	G	S	J 3.4	G	G	G	G	G	B	S	S	S	S	S	S	C
22	C	S	E	E	E	Z.Z^{M}	S	G	G	G	G	B	S	B	S	G	S	S	S	S	E	E	S	S
23	S	S	J 1.6	E	E	S	S	S	G	G	3.2^{s}	B	G	G	G	3.1	3.0	J 3.6	4.6	Z.Z	J 3.8	S	S	S
24	S	S	E	E	E	E	S	G	G	G	G	3.7	G	G	G	G	S	S	S	S	S	S	C	C
25	C	C	C	C	C	C	C	C	C	G	G	G	G	G	3.4	3.0	S	S	S	S	S	S	S	S
26	S	S	S	E	E	S	B	S	G	G	G	G	G	G	G	G	B	S	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	B	B	B	G	3.7	G	G	S	B	S	S	S	S	S	S
28	S	S	E	E	S	S	S	S	3.2	3.7	3.9	4.1^{M}	3.6	3.4	3.3	D 3.1^{s}	S	S	S	S	Z.1	S	S	J 3.9^{s}
29																								
30																								
31																								
No.	2	8	20	26	19	5	2	8	24	24	26	21	19	21	24	24	8	6	4	9	5	8	7	8
Median	Z.Z	E	E	E	E	Z.0	Z.0	G	G	G	G	G	G	G	G	G	D Z.6	Z.5	Z.Z	Z.4	Z.1	Z.Z	3.4	Z.3
U.Q.		E	E	E	E	Z.4		G	Z.8	3.2	3.4	3.8	3.5	3.4	3.2	3.0	3.0	3.2	3.4	3.1	4.4	3.0	4.0	3.6
L.Q.		E	E	E	E	E		G	G	G	G	G	G	G	G	G	G	Z.1	E	E	E	E	Z.1	Z.2
Q.R																		1.1					1.9	1.4

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S		S	S	S	S	C	3.2	3.5	B			3.0	2.8	S	S	S	S	S	S	S	S
2	S	S				S	S	S	3.0		B			B	B		2.9	2.5	2.3	2.8	S	S	S	S
3	S	S				S	S	S	2.5					3.6				1.9	S		S	E	S	S
4	E	S				S	S	S			3.5	4.0	3.8	3.7	3.5	3.5	B	S	S	E	S	E	S	S
5	S				E	S	S	S	2.8	3.1	3.4	3.4	3.5				S	B	S	S	S	3.4	1.7	1.9
6	2.1					S	S	S		3.2	3.7	4.1	E 2.4R		E 3.0S	2.6G	S	E 2.2S	S	2.3	S	2.5	2.4	A
7	S	S			A	E	S	S	2.9	3.1	U 4.9S	3.5	U 3.6S				S	S	E	1.8	2.1	2.5	2.5	2.1
8	S					S	B	E 2.2S		2.4G			2.5G			S		B	S	S	S	S	S	S
9	S					S	S		G			B	B	B			D 2.1S	1.9	S	S	S	S	S	S
10	S	S			S	S	1.9	S					B		3.7	2.5G	E 2.7S	S		S	1.9	S	S	2.0
11	S	S				S	S					3.8	E 3.1G				S	S	S	S	S	E	S	S
12	S	S	S			S	S	S		3.1	3.6		2.7G	2.5G		3.2		S	S	S	S	S	S	
13	S	S	S		S	S	S					B	B			B	B	S	S	S	S	S	S	S
14	S					E	S			E 2.7G			10.3	6.6	3.6	3.7	3.0	2.1	S	S	S	S	A	C
15	C						S	S	B	B		3.6	B	3.4	3.2	3.0	S	S	S	2.4Y	S	S	S	S
16	S	S	S			S	S						C	C	C	C	C	S	S	E	S	S		3.4
17	S	2.3	2.2		S	S	1.9	S	2.9			B	B	B	B	3.0	S	S	S		S	S	A	E
18	S	S		1.9		S	B	S	2.5	3.0		E 2.8R	B	B	3.3	B	B	S	S	S	S	S	S	S
19	S	S	S		S	S	S	S		B		3.8		3.4			B	B	S	S	S	S	2.4	S
20	S	S			S	S	B	S	2.6	3.1			B	S			S	S	S	S	S		S	S
21	S	E		E		S	S	S		S	3.4						B	S	S	S	S	S	S	C
22	C	S				U 1.9S	S					B	S	B	S		S	S	S	S			S	S
23	S	S	1.6			S	S	S			3.2	B				3.1	3.0	3.6	4.3	E 2.2S	3.4	S	S	S
24	S	S					S					3.7					S	S	S	S	S	S	C	C
25	C	C	C	C	C	C	C	C	C						3.4	3.0	S	S	S	S	S	S	S	S
26	S	S	S			S	B	S									B	S	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	B	B	B		3.7			S	B	S	S	S	S	S	S
28	S	S			S	S	S	S	2.9	3.4	3.7	3.6	3.6	3.4	3.3	D 3.1S	S	S	S	S	E	S	S	U 3.3S
29																								
30																								
31																								
No.	2	2	2	2	2	3	2	1	9	10	9	10	9	8	9	11	4	6	3	7	4	6	6	7
Median	E	E	1.9	E		E	1.9	E 2.2	2.8	3.1	3.5	3.6	3.5	3.5	3.3	3.0	3.0	E 2.2	2.3	E 2.2	2.0	E	2.4	2.1

foEs

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

The Radio Research Laboratories, Japan.

K 5

37

IONOSPHERIC DATA

Feb. 1961 | f-min | 135° E Mean Time (G.M.T. + 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E2.00 SE1.90 SE1.85 S1.80	E1.60 S	S	E2.00 SE2.45	E2.60	2.20	2.75	3.70	2.75	2.40	2.60	2.30	E2.50 SE2.50 SE1.90 SE1.70	E2.00 SE1.80 SE1.70 SE1.70										
2	E1.80 SE1.60 S1.40 1.45	1.40	E1.95 SE1.95 SE2.70 S	1.80	2.50	3.45	3.15	2.60	3.40	3.50	2.40	2.55	1.45	E1.70 SE1.85 SE1.80 SE1.90 SE2.20 SE2.50										
3	E2.20 SE1.80 S1.40 1.50	1.45	E1.90 SE1.75 SE2.50	2.15	2.20	2.35	2.45	2.30	2.60	2.30	2.35	1.85	E1.65 SE1.85 S1.70	E1.80 SE1.80 SE1.95 SE1.70										
4	E2.00 SE1.95 S1.50 1.70	1.50	S	E1.80 SE2.70 S	1.80	2.45	2.30	2.85	3.60	2.75	2.80	2.20	2.60	E1.90 SE1.80 SE1.60 SE1.90 SE1.60 SE1.85 SE1.85										
5	E2.10 S1.30 1.40 1.50	1.60	E1.90 SE1.70 SE2.70 S	2.45	2.20	2.10	2.30	1.95	2.10	2.30	2.10	E2.60	1.95	E1.65 SE1.70 SE1.85 SE1.70 SE1.50 SE1.70 S										
6	E1.45 S1.50 1.30 1.20	1.40	E1.70 SE1.80 SE2.70 S	1.80	2.00	2.30	2.10	1.90	2.30	2.35	2.40	E2.60 SE1.95 SE1.70 SE1.70 SE1.70 SE1.80 SE1.60 SE1.80 S										
7	E2.00 SE1.80 S1.45 1.45	E1.70 SE1.50 S	S	E2.80 S	1.80	2.05	2.45	2.45	2.85	2.20	2.30	2.00	E2.40 SE1.85 S1.50 E1.70 SE1.45 S1.30 E1.40 SE1.70 S											
8	E1.45 S1.30 1.40 1.45	1.45	E1.50 S1.45 E1.95 S	1.85	1.90	2.15	2.30	2.10	2.25	2.30	E3.00 S	1.90	2.35	E1.70 SE1.60 SE2.00 SE1.80 SE1.70 SE1.85 S										
9	E1.85 S1.40 1.50 1.40	1.45	S	E1.85 S1.85	1.70	2.40	2.35	3.65	3.60	3.45	2.50	2.30	E1.80 SE1.85 SE1.80 SE1.70 SE1.85 SE1.70 SE1.70 SE1.80 S											
10	E1.70 SE1.65 S1.50 1.20	E1.45 SE1.60 S1.15	E2.30 S	1.90	2.25	1.90	2.60	4.30	2.80	2.30	2.10	E2.70 SE2.30 S1.50 E1.80 SE1.70 SE1.85 SE2.00 SE1.70 S											
11	E1.60 SE1.50 S1.40 1.45	1.40	E1.85 SE1.50 S	1.40	1.80	2.40	2.10	2.10	2.10	2.30	2.30	2.25	E2.70 SE2.10 SE1.80 SE1.60 SE1.50 SE1.70 SE1.80 SE1.60 S											
12	E1.80 SE1.60 SE1.65 S1.30	1.60	E1.70 SE1.40 SE2.40 S	1.80	2.15	2.80	2.60	2.40	2.00	2.65	2.30	1.85	E2.00 SE1.80 SE1.80 SE1.65 SE1.65 SE1.50 S1.40											
13	E1.60 SE1.65 SE1.60 S1.50	E1.80 SE1.80 SE1.50 SE1.80 S	2.10	2.45	2.30	3.65	3.65	2.35	2.80	3.90	2.45	E2.45 SE1.65 SE1.70 SE1.70 SE2.00 SE1.80 S1.75 S											
14	E1.45 S1.50 1.40 1.40	1.40	E1.50 SE1.45 SE1.75 S	1.70	1.95	2.35	3.60	2.50	2.20	2.30	2.25	1.95	E1.85 SE1.80 SE1.60 SE1.60 SE2.00 SE1.95 S C											
15	C 1.40 1.45 1.30	1.45	1.50	E1.70 SE1.90 S	2.40	2.80	2.80	2.90	3.60	3.05	2.60	2.20	E2.50 SE2.30 SE1.95 SE1.85 SE1.90 SE1.90 SE2.10 SE1.50 S											
16	E1.80 SE1.80 SE1.95 S1.45	1.60	E2.00 SE2.10 S	1.40	2.00	2.30	2.30	2.40	C	C	C	C	C	E2.40 SE1.70 SE2.30 SE1.80 SE1.80 SE1.40 SE1.85 S											
17	E1.70 SE1.70 SE1.70 S1.40	E1.95 SE2.30 SE1.70 SE2.60 S	1.80	2.25	2.20	3.45	3.50	3.80	3.40	2.80	E2.70 SE2.20 SE1.70 S1.45	E1.70 SE1.85 SE1.55 SE1.50 S												
18	E1.85 SE1.60 S1.40 1.45	1.45	E1.50 S1.60 E2.50 S	1.95	2.10	2.10	2.30	3.60	3.60	3.05	2.90	2.45	E2.30 SE1.95 SE1.70 SE1.85 SE1.90 SE1.90 SE2.00 S											
19	E2.00 SE1.60 SE1.50 S1.40	E1.80 S	S	E2.50 S	2.20	3.00	2.65	2.30	2.40	E2.85 S	2.30	2.30	2.40	2.30	E1.80 SE1.80 SE1.60 SE1.80 SE1.85 SE1.90 S											
20	E1.85 SE1.80 S1.50 1.40	E2.00 SE2.10 S	1.80	E2.40 S	1.90	2.55	2.70	3.20	3.45	E3.50 S	2.65	2.25	E2.50 SE2.50 SE1.90 SE1.80 SE1.80 SE1.40 SE1.80 SE1.80 S											
21	E1.80 S1.40 1.30 1.40	1.40	E1.90 SE1.70 SE2.60 S	1.90	2.30	2.20	2.60	2.60	2.40	2.30	2.30	2.70	E2.20 SE1.80 SE1.80 SE1.80 SE1.90 SE1.70 S C											
22	C E2.00 S1.50 1.40	1.50	E1.80 SE1.80 SE2.00 S	2.25	2.15	2.80	3.55	E3.60 S	3.40	E3.40 S	2.25	E2.45 SE2.20 SE1.80 SE1.80 S	1.40	1.40	E1.80 SE1.90 S										
23	E2.10 SE1.90 S1.30 1.50	1.60	E2.20 SE1.70 SE2.90 S	2.10	2.80	2.75	3.50	2.75	2.80	2.10	2.55	2.35	2.40	E2.30 SE1.85 SE2.40 S	E1.95 SE1.95 SE1.90 S										
24	E1.80 SE1.80 S1.70 1.40	1.45	1.45	E1.85 S1.80	2.10	2.70	2.55	2.50	2.80	2.75	2.85	2.30	E2.60 SE2.20 SE1.80 SE1.80 SE1.80 SE1.70 S C C											
25	C C C C	C	C	C	C	1.70	2.45	2.45	2.70	2.50	2.50	2.45	E2.70 SE2.35 SE1.80 SE1.90 SE1.90 SE1.95 SE1.90 SE1.95 S											
26	E1.70 SE1.90 SE1.70 S1.40	1.40	E1.70 S1.90 E2.40 S	2.00	2.60	2.70	2.60	2.80	2.80	2.45	2.20	2.75	E2.80 S	C	C	C	C	C	C	C				
27	C C C C	C	C	C	C	C	C	C	3.40	3.80	3.80	2.35	2.30	E2.95 S	2.30	E2.80 S	2.50	E1.95 SE1.80 SE1.95 SE1.80 S						
28	E1.95 SE1.95 S1.50 1.40	E2.40 S	S	E2.50 SE2.80 S	2.00	2.50	2.10	2.45	2.60	2.40	2.55	2.20	E2.60 SE2.45 SE1.80 SE2.00 SE1.70 SE2.00 SE1.80 SE1.65 S											
29																								
30																								
31																								
No.	24	26	19	26	19	21	24	26	25	28	28	28	26	25	25	26	27	28	27	27	27	27	26	24
Median	E1.80	E1.65	1.40	1.40	1.45	E1.80	E1.70	E2.40	1.90	2.30	2.35	2.60	2.70	2.50	2.50	2.30	E2.50	E2.25	E1.80	E1.80	E1.80	E1.80	E1.80	E1.80

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J2.75S	J2.95S	2.85	2.85	J2.85S	I2.75S	J3.05S	U3.30S	J3.50R	3.25	3.30	3.45	3.40	3.40	3.20	3.25	3.35	3.30	2.95	3.00	3.15	2.85	3.05	2.90
2	2.90	2.75	2.75S	2.90S	2.85	I2.70S	2.80	I3.40S	3.45	3.35	3.30	3.25	3.25	3.30	3.25	3.20	3.40	3.30	3.35	2.95	3.15	2.95	2.80	2.80
3	U2.70S	2.80	2.85S	2.95S	2.90	J2.80S	2.85S	J3.35S	3.55	J3.20S	3.30	3.45	3.25	3.45	3.35	3.20	3.30R	3.25	3.25	2.90	2.95	2.70	2.80	2.95
4	2.75	U2.75S	2.75	3.45	3.70	I3.00S	J2.70S	J3.30S	J3.40S	3.40	3.20R	3.15	I3.20R	3.15	3.30	3.05	3.25	3.20	3.10	2.95	3.15	2.90	2.80	2.60
5	I2.60S	2.65	2.65S	2.70	2.80	U2.90S	2.70	2.85	3.45	3.15	3.05	2.95	J3.20R	3.25	3.30	3.10	3.05	3.20	3.10	2.80	3.05	2.95	2.90	2.80
6	2.90	2.85	2.80	2.95	2.80	U2.85S	J3.00S	3.25	3.40	3.35	3.30	3.05	3.20	3.15	3.20	3.30	3.30	3.30	3.05	3.10	2.85	3.10	3.10	I2.70A
7	2.65	2.65	2.55	J2.80S	I3.30A	2.80	I3.20S	U3.20S	U3.25S	3.15S	3.35	3.25	3.15	3.15	3.15	3.30	3.35	3.15	3.25	3.15	3.20	2.70	2.70S	2.70S
8	2.70	3.00	3.15S	3.30	3.05	2.70	U2.95R	J3.25S	3.20	3.35	3.30	3.25	3.15	3.35	3.05	3.25	3.30	3.20	3.00	3.10	3.40	3.05	2.85	U3.00S
9	2.60	2.70	2.75	3.15	3.30	I3.10S	J2.80S	J3.15S	3.35	3.30	3.25	J3.15R	3.25	3.25	3.35	3.15	3.35	3.15	3.25	3.00	3.25	2.85	J2.70S	2.65
10	2.70S	2.80	2.90	3.10	3.00	2.85	2.85	J3.20S	3.25	3.35	3.60	3.25	3.20	3.35	3.20	3.25	U3.25S	3.40	3.15	3.05	3.15	3.20	2.80	2.90
11	2.80	2.70	2.80	2.95	3.25	3.10	3.00	3.30	3.40	3.35	3.40S	3.05	3.25	3.35	3.35	3.40	3.30R	3.35	3.20	2.95	2.90	2.90	2.70	U2.75S
12	2.85	3.15	3.35	3.05	3.00	2.90	2.85	3.30	3.25	3.20	3.35	3.25	3.30	3.05S	3.20	3.40	3.40	3.35	3.00	3.15	3.55	2.85	2.70	2.70
13	2.70	2.85	2.95	3.00	3.10S	2.95	3.10	J3.45S	3.40	3.40	3.25	3.20	3.35	3.30	3.30	3.40	3.50	3.40	3.15	3.10	U2.60S	2.65S	U2.50S	2.70
14	3.00	3.15	2.85S	2.65	J2.45R	J2.50S	J2.95S	3.35	3.50	3.20	3.15	3.30	3.30	3.30	3.30	3.40	3.40	3.40	3.05	3.10	3.40	3.00	A	C
15	C	2.75	2.85S	2.70	2.95	3.40	2.85	3.25	3.35	3.40	3.25	J3.30R	J3.25R	3.25	3.30	3.35	3.35	3.35	3.20	3.35	3.45	2.95	J2.80S	J2.80S
16	2.80	U2.80S	I2.80S	2.80	J2.85S	2.90	2.85	3.40	3.35	3.30	3.20	3.15	C	C	C	C	C	J3.25R	3.10	2.80	2.85	2.95S	3.05	3.00
17	2.70	2.60	2.70S	2.55	2.95	2.75	2.75	I3.00S	3.15	3.40	3.45	J3.05R	3.20R	3.45	3.35	3.40	3.40	3.45	3.10	3.25	3.25	U2.85S	I2.70A	2.55S
18	2.70	3.05	2.85S	I2.60S	2.50	2.70	2.85	3.00S	3.30	2.60U	J3.25R	I3.10C	J3.15S	J3.25R	3.45	3.35	3.25	U3.20S	I3.30S	3.40	3.05	2.75	2.55	U2.80S
19	2.95	2.60	J2.70S	J3.05S	J2.90S	I2.55S	I2.65S	U3.25S	3.50S	3.40S	3.10	3.40	3.25	3.10	3.25	3.20S	J3.40R	J3.50R	3.35	3.00S	2.95	2.95	2.70	2.60
20	U2.80S	2.85	J3.15S	3.00	2.75	U2.65S	2.95	U3.20S	3.50	U3.45S	3.15	3.25	3.25	3.15S	3.50	3.40	U3.40S	I3.30S	3.30	3.00	2.75	2.75	2.70	2.70
21	2.70	2.90	2.80	2.70	2.65	2.60S	2.85	3.40S	3.05	3.25	3.50	3.40	3.10	3.25	3.20	3.45	3.30	3.35	3.15	3.00	3.00	3.05	2.95	I2.90C
22	I2.80C	2.80S	3.10	3.00	2.75	2.90	2.80	J3.35S	3.35	J3.20S	J3.25S	3.20	3.40	3.15	3.30	3.20	3.50	3.35	3.35	2.85	3.05	2.85	U2.90S	2.80
23	U2.75S	3.05	2.90	2.85S	2.70	2.95	2.90S	2.75S	I3.30S	J3.40S	3.20	3.15	J3.30R	3.35	3.40	3.40	3.10	3.40	3.25	3.00	3.00	3.20	3.25	2.80
24	J2.80S	2.75	2.80S	J2.80S	2.85	2.85	2.90	I3.25S	3.30	3.40	3.30	3.25	3.20	3.25	3.25	3.25	3.30	3.30	3.05	3.15	3.20	3.00	C	C
25	C	C	C	C	C	C	C	C	C	3.30	J3.25S	3.30	3.20	3.25	3.30	3.20	3.20	3.20	3.20	3.25	2.90	2.90	2.95	3.05
26	2.95	2.85	2.80	2.75	2.75	2.80S	3.00	2.35S	3.45	3.45	3.25	3.25	3.25	3.30	3.25	3.20	3.40	3.35	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	U3.35R	3.35	I3.20R	3.15	3.30	3.15	3.15	3.30	3.30	3.15	3.10S	3.10	2.85	2.75	2.70
28	2.75S	J3.05S	3.05	3.20	3.20S	I2.70S	2.90	3.25S	3.30	3.15S	3.15S	3.25S	3.10	3.15	3.05	U3.20S	3.20S	3.25	3.05	3.00	2.90	2.65	2.70	U2.80S
29																								
30																								
31																								
No.	25	26	26	26	26	26	26	26	26	28	28	28	27	27	27	27	27	28	27	27	27	27	25	25
Median	2.75	2.80	2.80	2.90	2.90	2.80	2.85	3.25	3.35	3.35	3.25	3.25	3.25	3.25	3.25	3.25	3.30	3.30	3.15	3.00	3.05	2.90	2.80	2.80

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

The Radio Research Laboratories, Japan.

K 7

IONOSPHERIC DATA

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

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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	3.90 L	4.10 L	L									
2										L	L	L	L	L										
3										L	LH	L	L	L										
4											L		L	" 3.80 L	3.80 L									
5											L	L	L		L									
6											L	3.30 S	L	L	L									
7										L	A	L	L	L	L									
8											L	L	L	" 3.80 L	L	S								
9											L	L	L	L										
10										L	L	L		L	L									
11											L		L	L		L								
12									L		L		L	L	L	L								
13										L	L	L	L	" 3.85 L	L									
14										L	L		A	A	L									
15									L	" 4.00 L	L	L	L	L	L									
16										L	LH	L	C	C	C	C	C							
17											L	L	3.95 L	L	L	L								
18										L	L	L	L	L										
19										L	L	" 3.85 L	L	L										
20										L	L	LH	L	L	L									
21											L	L	L	L	L		L							
22											L	3.85 L	L	L	L	L								
23										L	L	L	L	L	L	L								
24										L	L	L	L	L	L		L							
25							C	C	C	L	L	L	L	L	L	L								
26										L	LH	L	4.15 L	" 3.70 L	L	L	L							
27							C	C	C	L	L	L	3.80 L	L	L	L	L							
28										L	L	L	L	L	L	L	L							
29																								
30																								
31																								
No.										1		3	4	5	1									
Median										" 4.00		3.85	3.90	" 3.80	3.80									

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Feb. 1961 | 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											z50	z55	z55	z55	z50									
2										z40	z55	z55	z70	z55										
3										z45	z55	z45	z60	z55										
4											z55		z70	z75	z60									
5											z75	z95	z55		z50									
6											z50	300	z70	z55	z50									
7										z55	z50	z45	z60	z75	z55									
8											z40	z55	z55	z60	z55	z55								
9											z75	z60	z55	z60										
10										z50	z25	z70		z55	z55									
11											z50		z80	z45		z40								
12									z25		z60		z60	z50	z60	z60								
13										z55	z60	z70	z50	z60	z50									
14										z50	z60		E300^A	z70	z55									
15									z45	z50	z50	z75	z60	z60	z55									
16										z50	z60	z60	C	C	C	C	C							
17											z40	z50	z50	z45	z50	z40								
18										z50^H	z90	z50	z75	z55										
19										z50	z60	z55	z50	z35										
20										z45	z55	z55	z55	z70	z50									
21											z50	z45	z60	z55	z50		z35							
22											z55	z65	z55	z60	z55	z55								
23										z50	z55	z60	z60	z50	z50	z45								
24										z45	z50	z55	z65	z70	z55		z50							
25							C	C	C	z50	z55	z75	z75	z50	z55	z50								
26										z50	z75	z60	z55	z55	z60	z50	z50							
27							C	C	C	z55	z50	z55	z75	z60	z60	z60	z50							
28										z55	z50	z50	z75	z60	z60	z55	z45							
29																								
30																								
31																								
No.									2	17	28	24	25	26	21	10	5							
Median									z35	z50	z55	z55	z60	z55	z55	z50	z50							

h'F2

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

The Radio Research Laboratories, Japan.

K 9

41

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	325	290	280	300	300	I310S	300	255	240	245	245	235	200	200	205	225	245	225	255	250	245	290	260	280
2	285	295	295	255	260	E350S	280	230	230	205	230	225	210	230	235	230	250	230	240	295A	250	260	E310SE	350S
3	E345S	300	260	255	255	305	260	230	225	205	195H	225	205	230	245	245	240	225	220	275	260	325	305	265
4	300	325	300	225	240	I390S	355	230	240	250	230	255	230	230	225	245	240	230	235	250	250	250	295	340
5	E330S	345	315	310	245	290	360	260	235	255	250	240	230	240	225	245	255	240	225	255	275	E300A	265	290
6	300	275	295	250	240	255	255	225	250	245	230	225	E240S	225	235	235	245	230	235	270	290	255	260	I325A
7	E350S	350	350	295	I225A	300	I240S	240	245	230	I240A	230	225	230	225	230	225	225	225	250	240	325	E350A	305
8	300	255	230	230	230	340	250	225	240	250	200	205	225	225	230	225	240	240	235	245	240	255	285	260
9	350	310	300	250	230	I300SE	355S	245	240	245	225	230	235	220	240	E245S	240	230	230	255	225	260	315	305
10	300	300	290	250	250	260	290	250	255	240	245	230	250	205	235	E250S	240	225	240	285	250	240	E260S	300
11	305	310	300	260	235	255	255	235	230	230	220	250	240	250	250	230	230	210	240	255	255	265	305	305
12	300	255	215	250	250	295	255	215	220	235	245	245	225	220	245	215	235	225	220	250	210	305	350	325
13	310	300	260	290	255	300	250	225	225	230	230	230	230	205	225	255	225	210	225	255	350	350	355	305
14	255	255	260	325	400	350	320	250	250	215	215	275	A	A	240	250	240	225	240	250	205	250	A	C
15	C	305	290	300	250	225	300	230	205	200	240	220	235	220	240	250	230	210	235	245	220	255	340	300
16	300	295	330	295	260	290	E300S	230	230	230	205H	230	C	C	C	C	C	210	210	305	280	295	250	E325A
17	300	350A	340	320	305	E300S	305	240	250	245	230	210	225	E250B	225	225	230	225	220	235	230	290	I350A	355
18	330	255	285	350	360	340	305	255	240	205	240	240	245	240	225	235	235	250	225	225	220	340	375	300
19	340	355	310	270	260	S	S	250	245	235	225	220	230	210	220	235	250	230	205	255	255	255	E360A	350
20	345	305	250	255	I275SE	355S	300	235	235	220	205	210H	215	205	240	235	250	205	205	250	300	300	300	305
21	305	255	270	305	300	350	280	245	225	245	215	230	225	210	205	240	230	225	205	255	265	255	270	I300C
22	I300C	300	250	250	295	295	300	245	235	230	215	200	E250S	215	210	225	235	225	205	255	260	250	305	300
23	300	255	280	280	305	295	250	245	230	225	215	220	230	220	220	210	245	240	E275A	260	310A	255	255	290
24	310	305	300	275	255	265	300	245	240	230	230	230	220	205	240	250	225	230	230	230	240	250	C	C
25	C	C	C	C	C	C	C	C	C	225	220	220	220	225	225	205	235	240	245	215	260	295	345	255
26	255	300	260	290	300	300	255	235	230	210	200H	220	205	230	220	205	240	230	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	225	235	230	210	245	205	220	235	230	210	240	255	290	340	305
28	305	300	255	235	240	I300SE	295S	225	230	240	225	210	215	220	225	E240S	230	220	230	250	250	335	305	E350A
29																								
30																								
31																								
No.	22	26	26	26	26	23	22	26	26	28	28	28	24	25	27	24	27	28	26	27	27	26	22	22
Median	300	300	290	270	255	300	285	240	235	230	230	230	225	220	225	230	240	225	230	250	250	260	305	300

h'F

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

The Radio Research Laboratories, Japan.

K 10

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	E	S	S	S	S	C	175	155	B	G	G	115	110	S	S	S	S	S	S	S	S
2	S	S	E	E	E	S	S	S	110	G	B	G	G	B	B	G	140	115	105	100	S	S	S	S
3	S	S	E	E	E	S	S	S	125	G	G	G	G	160	G	G	G	125	S	E	S	105	S	S
4	100	S	E	E	E	S	S	S	G	G	155	145	140	145	140	130	B	S	S	110	S	S	S	S
5	S	E	E	E	110	S	S	S	E195S	110	150	145	135	G	G	G	S	B	S	S	S	100	105	100
6	100	E	E	E	E	S	S	S	G	155	140	125	105	G	115	115	S	155	S	110	S	105	100	100
7	S	S	E	E	105	105	S	S	155	130	115	115	115	G	G	G	S	S	105	110	110	110	105	105
8	S	E	E	E	E	S	B	155	G	115	G	G	105	G	G	S	G	B	S	S	S	S	S	S
9	S	E	E	E	E	S	S	G	180	G	G	B	B	B	G	G	110	105	S	S	S	S	S	S
10	S	S	E	E	S	S	180	S	G	G	G	G	B	G	125	105	105	S	E	S	110	S	S	110
11	S	S	E	E	E	S	S	G	G	G	G	155	105	G	G	G	S	S	S	S	S	105	S	S
12	S	S	S	E	E	S	S	S	G	195	155	G	105	105	G	115	G	S	S	S	S	S	S	E
13	S	S	S	E	S	S	S	G	G	G	G	B	B	G	G	B	B	S	S	S	S	S	S	S
14	S	E	E	E	E	105	S	G	G	110	G	G	110	110	110	105	105	105	S	S	S	S	105	C
15	C	E	E	E	E	E	S	S	B	B	G	160	B	115	125	120	S	S	S	110	S	S	S	S
16	S	S	S	E	E	S	S	G	G	G	G	G	C	C	C	C	C	S	S	110	S	S	E	105
17	S	100	100	E	S	S	105	S	105	G	G	B	B	B	B	130	S	S	S	E	S	S	110	105
18	S	S	E	105	E	S	B	S	115	115	G	105	B	B	115	B	B	S	S	S	S	S	S	S
19	S	S	S	E	S	S	S	S	G	B	G	105	G	115	G	G	B	B	S	S	S	S	105	S
20	S	S	E	E	S	S	B	S	115	120	G	G	B	S	G	G	S	S	S	S	S	E	S	S
21	S	105	E	100	E	S	S	S	G	S	115	G	G	G	G	G	B	S	S	S	S	S	S	C
22	C	S	E	E	E	105	S	G	G	G	G	B	S	B	S	G	S	S	S	S	E	E	S	S
23	S	S	105	E	E	S	S	S	G	G	120	B	G	G	G	130	115	110	105	110	105	S	S	S
24	S	S	E	E	E	E	S	G	G	G	G	180	G	G	G	G	S	S	S	S	S	S	C	C
25	C	C	C	C	C	C	C	C	C	G	G	G	G	G	130	125	S	S	S	S	S	S	S	S
26	S	S	S	E	E	S	B	S	G	G	G	G	G	G	G	G	B	S	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	B	B	B	G	E195S	G	G	S	B	S	S	S	S	S	S
28	S	S	E	E	S	S	S	S	140	120	110	110	115	115	115	115	S	S	S	S	110	S	S	105
29																								
30																								
31																								
No.	2	2	2	2	2	3	2	1	8	10	9	10	9	7	9	11	5	6	3	7	4	5	6	7
Median	100	100	100	100	110	105	140	155	120	120	140	135	110	115	115	115	110	110	105	110	110	105	105	105

$h'Es$

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

IONOSPHERIC DATA

Feb. 1961

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										h	h				l	l								
2									l								h	l	fz	fz				
3									l					h				l				f		
4	f										h	h	h	h	h	h				f		f		
5					f				h	l	h	h	h									f3	f	f
6	f									h	h	h	l		l	l		h		fz		f	fz	fz
7					fz	fz			h	h	lz	C	l						f	fz	fz	f3	fz	fz
8								h		l			l											
9									h								l	l						
10							h								hl	l	l				f			f
11												h	l									f		
12										h	h		l	l		C								
13																								
14						f				l			Cz	C3	l	lz	lz	l					f3	
15												h		l	C	l				f				
16																				f				f3
17		f3	f				lz		lz							h							fz	fz
18				f					l	l		l			l									
19												l		l									fz	
20									l	l														
21		f		f							l													
22						f																		
23			f								l					h	l	l	f3	f	f3			
24												h												
25															h	h								
26																								
27														h										
28									h	C	C	l	l	l	l	l					f			f3
29																								
30																								
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.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J355S	J300S	340	300	J335S	I350S	J315S	U280S	J245R	280	280	280	260	260	280	300	255	260	330	305	290	345	310	335
2	345	360	350S	315S	340	I380S	325	I250S	255	280	295	295	300	285	285	300	280	255	265	310	300	310	345	355
3	U355S	345	320S	320S	315	J350S	325S	J255S	245	J295S	285	255	300	255	275	290	260R	255	275	330	320	380	355	325
4	355	U375S	360	250	235	I400S	J380S	J255S	J255S	255	300R	300	I300R	300	290	295	280	280	295	325	295	300	345	405
5	I400S	395	385S	380	305	U310S	395	345	255	305	325	350	J305R	295	290	300	305	300	295	350	310	315	335	355
6	350	355	355	310	325	U350S	J305S	270	265	285	275	305	300	300	300	255	285	260	300	305	350	300	300	I370A
7	390	400	405	J350S	I265A	325	I275S	U295S	U295S	305S	295	280	300	300	300	290	260	280	280	305	295	350	380S	355S
8	360	310	295S	255	290	370	U300R	J260S	290	265	245	295	290	295	305	295	295	290	305	300	260	305	350	U310S
9	400	385	350	300	260	I315S	J355S	J295S	285	300	300	J300R	285	300	280	300	280	290	285	320	290	330	J380S	375
10	355S	355	335	300	305	345	305	J295S	300	275	250	300	295	255	300	290	U280S	255	300	330	295	285	315	325
11	355	370	355	330	280	295	315	265	255	260	260S	300	300	260	280	250	260R	255	295	310	330	305	380	U355S
12	355	300	250	300	300	345	310	265	260	280	295	260	300	300S	295	285	255	255	305	300	250	320	390	380
13	360	350	310	330	305S	330	300	J250S	255	285	295	300	260	295	285V	J295R	250	255	290	300	U400S	395S	U440S	385
14	315	300	335S	405	J445R	J400S	J340S	260	255	300	300	300	I280A	295	300	280	255	255	300	305	255	305	A	C
15	C	360	345S	365	300	250	350	260	260	280	295	J300R	J300R	300	295	270	255	250	285	275	255	310	J350S	J330S
16	350	U350S	I350S	340	J300S	315	340	255	260	290	300	300	C	C	C	C	C	J255R	285	355	345	340S	315	325
17	355	395	365S	390	350	350	360	I310S	300	255	255	J305R	290R	250	260	260	250	250	300	290	275	U320S	I385A	405S
18	385	300	345S	I400S	415	380	355	305S	275	400H	J300R	I300C	J300S	J295R	255	260	285	U300S	I270S	255	300	380	405	U335S
19	380	395	J370S	J305S	J300S	I400S	I375S	U285S	255S	255S	305	280	255	300	300	295S	J270R	J250R	255	305S	305	300	385	405
20	U355S	350	J290S	305	I350S	U395S	330	U285S	250	U250S	305	295	295	300S	255	260	U255S	I260S	275	300	355	355	350	355
21	380	330	330	380	380	395S	335	255S	295	280	255	260	305	300	300	255	260	255	285	325	320	305	315	I340C
22	I350C	355S	300	300	350	320	350	J260S	280	J275S	J300S	300	290	300	285	300	255	255	255	340	310	325	U355S	360
23	U355S	310	330	350S	365	310	310S	285S	I270S	J265S	295	305	J300R	260	260	260	300	265	295	315	335	305	290	355
24	J365S	375	355S	J345S	335	330	320	I270S	295	260	285	280	300	300	295	295	295	275	300	300	300	305	C	C
25	C	C	C	C	C	C	C	C	C	285	J285S	300	300	290	295	295	285	290	290	280	330	340	335	305
26	325	345	345	350	350	350S	305	280S	255	255	300	300	295	295	300	300	255	265	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	U285R	260	I295R	300	300	300	300	285	285	295	305S	305	350	380	385
28	355S	J315S	305	295	285S	I360S	330	280S	295	300S	290S	265S	305	300	305	U300S	295S	260	300	320	345	400	375	U345S
29																								
30																								
31																								
No.	25	26	26	26	26	26	26	26	26	28	28	28	27	27	27	27	27	28	27	27	27	27	25	25
Median	355	350	345	325	310	350	330	270	260	280	295	300	300	295	295	295	270	260	295	305	305	320	350	355

hpF2

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

The Radio Research Laboratories, Japan.

K 13

45

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J 85S	J 95S	60	100	J 65S	I 80S	J 50S	u 55S	J 55R	75	65	35	50	45	110	50	50	80	65	90	105	100	85	65
2	100	130	105S	85S	55	I 90S	75	I 70S	50	50	35	50	45	60	60	55	30	90	60	90	60	85	100	90
3	u 90S	60	80S	70S	90	J 90S	80S	J 55S	35	J 60S	30	75	50	55	55	60	70R	90	75	70	75	70	90	80
4	95	u 40S	90	55	60	I 85S	J 70S	J 70S	J 70S	75	55R	80	I 60R	45	55	100	65	75	100	80	60	95	65	85
5	I 100S	100	75S	70	100	u 85S	60	100	55	85	70	60	J 45R	60	55	75	95	50	100	105	90	90	70	90
6	50	85	90	95	75	u 65S	J 90S	80	50	25	55	90	55	80	50	90	55	80	90	90	60	90	60	I 85A
7	65	95	100	J 75S	I 140A	115	I 75S	u 55S	u 55S	80S	60	80	55	75	55	55	70	75	70	50	100	95	65S	90S
8	90	80	95S	70	60	80	u 100R	J 85S	65	60	100	55	95	50	90	45	55	55	90	65	45	95	75	u 85S
9	95	70	90	50	85	I 60S	J 90S	J 60S	45	45	45	J 60R	65	30	40	60	65	60	70	75	65	80	J 60S	75
10	90S	95	65	95	95	65	100	J 55S	55	70	40	40	100	90	55	55	u 60S	55	55	65	60	65	130	75
11	85	80	95	70	65	60	85	80	75	85	50S	95	55	70	65	60	55R	55	65	85	90	100	110	u 135S
12	55	60	95	55	90	100	95	80	85	75	30	85	50	95S	55	50	55	55	100	50	50	80	70	70
13	90	55	85	70	90S	70	95	J 50S	55	30	50	45	60	40	105V	J 35R	50	50	60	60	u 105S	100S	u 105S	100
14	75	80	70S	85	J 100R	J 100S	J 80S	45	50	55	55	50	I 60A	50	45	55	85	55	95	75	90	90	A	C
15	C	90	65S	85	90	55	95	90	70	50	50	J 45R	J 50R	45	55	60	70	65	70	70	55	85	J 55S	J 70S
16	55	u 55S	I 55S	50	J 100S	80	65	55	70	30	45	55	C	C	C	C	C	J 90R	110	100	70	60S	80	70
17	85	100	85S	105	95	95	85	I 80S	60	65	50	J 90R	65R	70	55	60	55	50	90	60	60	u 85S	I 70A	95S
18	70	95	60S	I 95S	90	65	50	90S	70	145H	J 50R	I 75C	J 55S	J 50R	55	85	60	u 55S	I 60S	50	95	65	90	u 75S
19	75	100	J 85S	J 85S	J 95S	I 120S	I 90S	u 65S	45S	55S	85	35	65	95	55	50S	J 75R	J 50R	90	90S	90	95	70	90
20	u 45S	60	J 60S	90	I 80S	u 100S	65	u 70S	50	u 60S	50	60	55	50S	50	55	u 55S	I 80S	80	95	85	90	100	90
21	65	65	80	75	115	105S	60	50S	100	65	65	85	85	45	55	55	70	70	70	75	75	90	80	I 70C
22	I 90C	100S	90	90	95	75	95	J 60S	50	J 85S	J 45S	55	45	85	60	50	50	55	90	110	85	80	u 60S	70
23	u 100S	85	70	90S	85	85	90S	60S	I 75S	J 50S	50	75	J 30R	70	70	50	90	65	50	80	55	50	65	95
24	J 80S	75	90S	J 65S	70	75	80	I 60S	35	55	60	65	55	45	50	60	45	70	95	60	95	90	C	C
25	C	C	C	C	C	C	C	C	C	45	J 65S	45	50	55	40	60	70	55	55	65	75	105	65	90
26	80	60	65	95	95	95S	90	55S	55	50	45	45	60	35	50	50	55	80	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	u 35R	75	I 70R	55	40	80	55	55	60	85	85S	85	90	70	70
28	100S	J 80S	85	100	50S	I 85S	70	65S	55	95S	65S	80S	85	75	90	u 95S	50S	90	100	85	70	95	80	u 75S
29																								
30																								
31																								
No.	25	26	26	26	26	26	26	26	26	28	28	28	27	27	27	27	27	28	27	27	27	27	25	25
Median	85	80	85	85	90	85	80	60	55	60	50	60	55	55	55	55	55	60	80	75	75	90	70	85

ypF2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Feb. 1961 | foF2 | 135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.3	3.5	3.7	3.3	3.0	3.1	3.0	4.1	7.1	7.3	7.6	10.6	10.6	7.7	7.0	7.4	7.5	7.1	5.1	5.7	6.5	6.5	6.6	5.7
2	5.1	4.7	4.6	4.4	3.6	3.6	3.7	5.0	7.9	8.4	9.6	12.4	11.7	12.8	12.0	11.6	11.3	10.6	7.7	6.5	6.2	6.0	5.2	4.1
3	3.9	4.1	4.0	3.8	3.6	2.7	2.8	4.4	8.2	7.6	9.3	11.6	10.0	10.2	9.0	8.4	7.3	7.7	5.3	4.4	5.5	5.0	4.6	4.6
4	3.9	3.8	4.1	4.5	2.3	2.4	2.3	4.0	8.1	9.9	10.8	10.9	11.2	12.5	11.5	9.7	9.2	9.1	7.0	4.8	5.0	4.6	3.8	3.1
5	3.3	3.5	3.5	3.4	3.4	2.6	2.8	5.1	8.7	8.1	10.5	13.2	14.1	12.1	9.6	8.1	8.2	10.3	8.8	5.6	5.9	5.6	3.9	3.8
6	3.9	4.0	4.1	4.0	3.7	3.5	3.2	4.3	8.5	9.7	9.5	11.0	12.7	13.6	13.6	13.7	11.0	9.0	7.9	6.4	6.7	5.7	4.1	3.9
7	3.7	3.5	3.3	3.6	4.2	4.8	4.2	3.9	8.0	10.2	10.3	11.7	11.0	11.2	11.1	11.0	9.8	8.6	7.4	6.0	6.4	5.7	4.2	4.0
8	3.8	3.7	3.5	3.0	2.7	2.5	2.5	4.0	7.7	9.1	10.4	9.9	9.6	9.3	10.0	10.4	10.2	9.4	8.6	7.3	5.5	4.7	4.2	4.4
9	4.1	3.9	3.9	3.9	3.8	2.1	2.0	3.9	7.6	9.0	8.4	9.6	9.7	10.3	8.4	8.5	8.1	7.6	6.7	6.1	6.2	4.8	3.6	3.4
10	3.7	3.8	3.6	3.6	3.7	3.1	2.6	3.6	7.3	9.4	8.4	9.8	8.8	8.4	9.0	8.4	8.4	7.8	6.6	5.4	6.1	6.4	3.5	2.4
11	2.7	2.9	3.0	3.0	3.3	2.8	2.4	3.9	6.5	7.4	8.6	8.4	9.0	10.8	8.6	7.7	7.4	6.9	6.2	5.5	5.0	5.3	4.6	4.3
12	4.3	4.4	4.0	3.0	3.0	2.8	2.8	4.0	6.7	7.5	8.2	8.6	8.0	8.3	9.1	8.4	7.8	7.1	5.8	4.8	5.1	5.1	3.9	3.5
13	3.6	3.6	3.4	3.2	3.1	2.9	2.7	4.0	6.5	7.6	7.6	9.7	9.7	10.3	9.6	8.9	8.7	6.9	6.6	5.2	5.6	6.1	6.2	5.8
14	5.8	5.8	5.6	4.4	S	Fs	Fs	6.0	9.6	10.2	10.6	12.5	14.3	12.8	13.1	12.4	11.0	8.8	7.6	6.6	5.8	4.6	2.7	2.7
15	2.9	3.0	3.3	3.4	3.6	3.1	2.3	4.0	7.1	8.5	8.5	9.0	10.1	11.6	10.9	11.3	9.1	7.0	6.9	4.8	4.4	3.2	3.3	3.5
16	3.6	3.8	3.5	3.5	3.7	3.2	2.8	4.2	7.1	8.2	9.4	11.0	11.5	12.7	12.6	12.5	9.8	7.6	6.5	4.9	5.9	4.8	4.9	4.6
17	3.7	3.8	3.7	3.6	4.1	3.5	3.6	4.2	8.2	10.9	11.0	11.4	10.9	9.9	9.8	8.6	7.5	7.3	7.3	5.8	5.5	5.5	S	4.2
18	4.0	4.9	3.7	3.4	3.4	3.3	3.2	4.0	6.7	7.6	10.5	12.4	10.9	11.1	10.5	8.7	8.4	9.2	S	6.8	4.0	3.2	3.3	3.8
19	3.7	3.6	3.6	3.7	3.5	3.6	3.2	5.2	6.7	7.5	9.1	11.6	10.7	11.2	10.6	10.3	9.6	8.9	8.0	6.1	4.5	4.4	3.8	3.3
20	2.7	3.2	3.3	3.0	3.0	3.0	2.7	4.5	S	8.3	8.8	9.4	11.1	11.5	11.1	8.7	8.3	8.7	7.7	4.7	4.4	4.3	4.1	4.0
21	3.8	4.0	3.7	3.3	3.4	3.3	3.5	5.5	7.8	9.2	9.3	8.4	11.3	11.7	11.7	11.6	S	9.2	8.9	6.0	5.8	6.4	5.4	4.4
22	3.6	3.7	3.8	3.4	3.1	3.0	2.8	4.8	7.6	8.5	10.5	12.2	11.9	11.4	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	10.0	9.2	10.3	10.8	10.6	8.3	7.8	8.3	8.5	7.1	5.4	5.3	5.1	3.9
24	3.3	3.5	3.6	3.5	3.4	3.6	3.2	4.9	7.2	9.4	9.4	8.7	8.9	9.7	10.4	10.0	8.6	8.4	8.2	6.4	5.2	4.7	4.3	4.7
25	4.7	4.9	5.0	4.6	4.1	3.9	3.9	5.6	8.0	8.2	9.2	9.0	8.8	10.2	10.5	10.7	9.3	8.8	8.5	8.5	6.6	5.2	4.9	4.7
26	4.0	3.4	3.4	3.5	3.5	3.4	3.3	5.3	7.6	8.2	8.3	8.5	9.2	9.7	9.6	9.3	9.2	8.8	7.8	6.0	5.3	5.1	4.9	4.8
27	4.1	3.9	4.0	3.9	3.7	3.5	3.4	5.3	7.7	9.1	9.3	9.4	10.6	10.6	9.3	10.8	9.8	8.6	7.8	7.0	6.2	5.1	4.7	4.5
28	4.6	4.6	5.1	4.9	4.5	2.9	3.1	5.3	7.3	8.7	10.7	10.7	10.3	10.9	12.0	10.9	10.5	9.6	7.8	7.4	5.8	5.3	5.3	4.9
29																								
30																								
31																								
No.	27	27	27	27	26	26	26	27	26	27	28	28	28	28	27	27	26	27	26	27	27	27	26	27
Median	3.8	3.8	3.7	3.5	3.5	3.1	2.8	4.3	7.6	8.5	9.4	10.2	10.6	10.8	10.5	9.7	8.9	8.6	7.5	6.0	5.6	5.1	4.2	4.1
U.Q	4.1	4.1	4.0	3.9	3.7	3.5	3.2	5.2	8.0	9.4	10.4	11.6	11.2	11.6	11.5	11.0	9.8	9.1	8.0	6.6	6.2	5.6	4.9	4.6
L.Q	3.6	3.5	3.5	3.3	3.1	2.8	2.6	4.0	7.1	7.6	8.6	9.1	9.6	10.0	9.3	8.4	8.1	7.6	6.6	5.2	5.1	4.7	3.8	3.5
Q.R	0.5	0.6	0.5	0.6	0.6	0.7	0.6	1.2	0.9	1.8	1.8	2.5	1.6	1.6	2.2	2.6	1.7	1.5	1.4	1.4	1.1	0.9	1.1	1.1

The Radio Research Laboratories, Japan.

foF2

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

Y 1

47

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												4.8L	I4.9L	I4.8L	L									
2												5.0	4.7L											
3												I4.8L												
4																								
5													L	L										
6																								
7												L	L	L	L									
8																								
9																								
10												L	I4.7L	L	L									
11													I4.7L											
12												L	L	L										
13												4.8	4.7	4.9L	4.8	L								
14																								
15												L	L	L	L	4.5L	L							
16												L	4.8L	4.7	I4.6L	L								
17												L	L	L	L									
18																								
19											L	L	L											
20											L	L	L	I4.9L	L	L								
21												L	5.0L	L										
22											L	L	L	L	C	C	C	C	C					
23								C	C	C	C		L	L	4.9L	L								
24													L	L	L	L								
25												L	L	L	L	L								
26													5.0	I5.0L	L									
27											L	L	L	L										
28											L	4.9L	L	L	4.8L	L								
29																								
30																								
31																								
No.												5	8	5	4	1								
Median												4.8	4.8	4.9	4.8	4.5								

foF1

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	2.10	2.80	3.15	3.40	3.60	3.50	3.40	I 3.20 A	2.90	2.30	S					
2								S	2.20	2.90	I 3.20 A	3.40	3.50	3.60	3.45	3.20	2.80	2.25	S					
3								S	2.30	2.70	3.25	3.50	3.50	3.50	3.50	3.30	2.90	2.20	S					
4								S	2.15	2.70	3.25	3.40	3.50	3.55	3.45	3.30	3.00	2.30	A					
5								S	2.20	2.80	3.20	I 3.30 A	I 3.40 A	3.45	3.40	3.15	2.90	2.10	S					
6								S	2.30	2.55	3.10	3.20	3.45	3.45	3.35 R	3.25	2.90	2.15	S					
7								S	2.30	2.80	3.20	I 3.40 A	I 3.50 A	3.45	3.40	3.20	I 2.90 A	2.30	S					
8								S	2.30	I 2.70 A	I 3.15 A	I 3.30 A	I 3.40 A	3.45	3.40	3.15	2.80	2.25	S					
9								S	2.20	I 2.70 R	3.15 R	3.25 R	3.50	3.40	3.30	3.25	2.90	A	A					
10								S	2.15	2.70	3.10 R	I 3.30 A	3.35	3.50	3.40	3.20	I 2.85 A	2.30	S					
11								S	2.20	2.70	3.05	3.30	I 3.40 R	3.40	3.25	3.05	2.80	2.45	A					
12								S	2.20	2.70	3.10	3.25	3.40	3.40	3.35	3.20	2.90	2.35	S					
13								S	2.20	2.75	3.10	3.25	A	A	I 3.30 A	3.10	2.70	2.20	S					
14								S	2.15	2.70	3.10	3.20	3.25	A	A	A	2.70	2.20	S					
15								S	2.30	2.80	3.10	3.30	3.40	3.30	3.20	3.20 R	2.90	A	S					
16								S	2.30	2.80	3.00	I 3.30 A	3.50	3.45	3.40	3.25	2.85	2.20	S					
17								S	2.20	2.80	I 3.20 C	I 3.35 R	3.40	3.50	3.40	I 3.20 A	3.00	A	S					
18								S	2.25	2.70	3.10	3.25	3.50	3.45	3.35	3.10	I 2.75 A	I 2.25 A	S					
19								S	2.35 H	2.80 H	3.10	3.25	A	A	A	3.15	2.90	A	S					
20								S	2.30	2.80	3.10	I 3.25 A	3.45	3.40	3.35	3.20	2.85	2.20	S					
21								S	2.30	2.90	3.10	I 3.25 A	3.50	3.50	3.40	3.20	2.95	2.40	S					
22								S	2.45	2.95	3.15 R	3.35	3.40	3.50	C	C	C	C	C					
23								C	C	C	I 3.05 C	I 3.35 A	3.45	I 3.40 R	3.40	R	3.00	A	S					
24								S	2.35	2.90	3.20 R	I 3.35 R	I 3.45 R	3.45	3.40	3.25 R	3.00	2.45	S					
25								S	2.30	I 2.80 R	I 3.20 C	3.30	A	A	A	3.30	3.00	2.40	S					
26								S	2.30	2.90	3.30	3.40	I 3.50 A	3.50 R	3.50	3.30	2.90	2.50	S					
27								S	2.40 H	2.95 H	3.30 H	3.40 R	3.50	A	A	A	A	2.50	S					
28								S	2.40	2.90	3.25	3.30	I 3.50 A	3.60	I 3.45 A	3.20	3.00	A	A					
29																								
30																								
31																								
No.									27	27	28	28	25	23	23	24	26	21						
Median									2.30	2.80	3.15	3.30	3.45	3.45	3.40	3.20	2.90	2.30						

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

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

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	E	E	E	1.6	S	S	G	G	G	3.8	G	3.7	3.8	3.5	2.9	2.2^{G}	S	S	2.2	↘2.5	S	S
2	S	S	E	E	E	S	S	S	2.1^{G}	G	↘3.8	G	3.3^{G}	G	G	G	G	S	S	S	S	S	S	S
3	S	S	E	E	E	E	S	S	G	G	3.7	3.8	G	G	G	3.6	G	G	2.4	↘2.4	C	S	S	S
4	S	S	E	E	E	S	S	S	G	G	4.2	4.6	4.3	3.8	4.1	2.1^{G}	2.2^{G}	2.8	↘2.1	↘2.5	S	↘2.4	↘2.1	2.1
5	S	S	E	E	E	S	S	S	G	3.0	3.1^{G}	4.5	3.6	G	G	2.9^{G}	2.5^{G}	G	S	S	S	↘2.3	S	↘2.2
6	S	S	E	E	E	E	S	S	G	3.1	4.1	3.8	G	G	2.8^{G}	3.3	2.6^{G}	G	S	2.4	↘3.2	2.3	S	S
7	S	S	E	E	E	S	S	S	2.8	3.1	3.8	3.7	3.6	3.4^{G}	3.1^{G}	G	4.5	G	S	3.1	↘3.6	↘3.4	2.3	3.4
8	↘2.4	2.3	E	E	E	E	S	G	3.0	3.6	3.4	3.5	3.4	2.9^{G}	2.3^{G}	G	G	G	2.0	S	S	S	S	S
9	S	S	E	E	E	S	S	S	G	G	G	G	G	2.9^{G}	G	G	2.4^{G}	↘3.0	↘3.0	↘2.5	↘2.3	2.5	S	↘2.4
10	↘2.3	↘2.6	↘2.4	E	E	E	S	↘2.2	G	G	G	3.3	3.4	3.3^{G}	G	G	3.1	2.1^{G}	S	S	S	S	S	S
11	S	S	S	E	E	S	S	S	G	G	3.4	3.5	G	3.7	3.4	2.5^{G}	2.4^{G}	2.0^{G}	↘2.3	↘2.1	S	S	S	S
12	↘2.3	2.5	E	E	E	S	S	S	G	2.8	3.4	3.5	G	G	G	G	G	G	S	S	S	S	S	S
13	S	S	E	E	E	E	S	S	G	G	G	G	3.8	3.5	3.7	G	G	2.4	S	S	S	S	S	S
14	↘2.3	↘2.4	S	1.5	1.3	S	S	S	G	G	G	3.5	6.1	↘8.9	↘5.2	↘8.4	2.7^{G}	2.0^{G}	S	↘3.1	↘2.5	↘2.4	S	4.5^{M}
15	2.2	2.7	S	2.4	E	E	S	S	G	2.1^{G}	3.3	3.5	3.5	3.6	3.5	G	2.7^{G}	2.3	2.0	S	S	S	S	S
16	S	S	2.2	E	E	S	S	S	G	G	3.2	4.1^{M}	3.7	G	G	G	G	G	S	S	S	S	S	S
17	S	S	S	E	E	2.1	↘1.9	S	G	3.2	C	G	G	G	G	3.3	3.1	2.5	S	S	S	2.2	↘2.5	3.9^{M}
18	S	S	2.1	E	E	S	S	S	G	G	2.4^{G}	3.4	G	G	G	G	2.9	2.5	S	S	S	S	S	S
19	S	2.6	↘2.5	E	1.2	E	S	S	G	G	3.3	4.3	↘5.2	3.7	3.6	3.5	3.1	↘2.7	↘2.3	S	S	S	2.6	↘2.1
20	4.6^{M}	S	E	E	E	E	S	S	G	G	3.3	3.5	G	3.7	3.7	3.4	3.2	2.7	S	S	2.0	2.3	S	S
21	S	↘2.1	3.3	↘2.2	E	S	S	S	G	3.2	3.8	3.6	G	G	G	G	2.8^{G}	G	S	S	S	↘2.4	S	S
22	S	S	S	E	E	↘2.2	S	S	G	3.1	3.4	3.7	G	G	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	3.5	3.3^{G}	3.4^{G}	G	3.3^{G}	3.1	2.7	S	S	S	S	S	S
24	S	2.4	2.4	E	E	E	S	S	G	3.3	3.5	G	G	G	G	G	2.7^{G}	G	S	S	S	S	S	S
25	S	S	E	E	C	C	S	S	G	C	C	G	3.7	3.6	3.5	G	G	G	S	S	S	S	S	S
26	S	S	E	E	E	S	S	S	G	G	3.6	3.6	4.2	3.3^{G}	3.4^{G}	G	G	2.7	S	S	S	S	S	S
27	S	S	E	E	E	E	S	G	G	3.3	3.7	3.9	G	3.6	3.6	3.6	3.0	2.7	2.1	↘2.9	3.1	S	S	S
28	S	3.2	E	E	E	S	S	G	G	3.2	3.6	3.7	3.8	G	3.6	3.7	3.6	3.0	2.1	S	S	↘2.1	S	S
29																								
30																								
31																								
No.	6	9	22	27	26	13	1	4	27	26	25	28	28	28	27	27	27	26	9	8	7	11	14	7
Median	2.3	2.5	E	E	E	E	1.9	G	G	G	3.4	3.5	G	G	G	G	G	G	2.1	2.5	2.5	2.4	2.4	2.4
U.Q	2.4	2.6	2.1	E	E	E		G	G	3.1	3.7	3.8	3.7	3.6	3.6	3.4	3.1	2.7	2.4	3.0	3.2	2.5	2.6	3.9
L.Q	2.3	2.4	E	E	E	E		G	G	G	G	3.4	G	G	G	G	G	G	2.0	2.4	2.2	2.3	2.2	2.1
Q.R	0.1	0.2										0.4							0.4	0.6	1.0	0.2	0.4	1.8

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S				E1.6 S	S	S				G		G	↑3.8	↑3.4	2.8	2.1 G	S	S	E	2.↑	S	S
2	S	S				S	S	S	2.0 G		G		↑3.2 G					S	S	S	S	S	S	S
3	S	S					S	S			↑3.7	↑3.8				G			2.↑	2.4	C	S	S	S
4	S	S				S	S	S			4.1	4.5	4.1	G	4.0	2.0 G	2.1 G	G	E2.1 S	2.↑	S	2.4	E	E
5	S	S				S	S	S		G	2.8 G	G	G			2.8 G	2.4 G		S	S	S	2.2	S	E
6	S	S					S	S		G	↑3.9	G			2.8 G	2.8	2.5 G		S	2.4	2.7	2.1	S	S
7	S	S				S	S	S	G	G	G	G	G	↑3.4 G	↑3.1 G		4.1		S	2.0	↑3.5	↑3.↑	1.8	2.6
8	2.0	1.8					S		G	↑3.↑	G	G	G	2.↑ G	2.2 G				G	S	S	S	S	S
9	S	S				S	S	S						G			2.0 G	G	2.7	2.1	2.1	E	S	E
10	1.9	1.9	E				S	G				G	↑↑	↑3.2 G			G	1.8 G	S	S	S	S	S	S
11	S	S	S			S	S	S			G	G		G	G	2.2 G	2.0 G	1.9 G	G	1.9	S	S	S	S
12	1.9	1.8				S	S	S		G	G	G							S	S	S	S	S	S
13	S	S					S	S					G	E↑5 B	↑3.7			G	S	S	S	S	S	S
14	1.9	1.8	S	1.5	1.↑	S	S	S				G	6.1	6.0	4.1	↑↑	2.6 G	1.9 G	S	E↑.1 S	2.↑	2.1	S	2.0
15	2.0	E	S	E			S	S		1.9 G	G	G	G	G	G		2.7 G	G	G	S	S	S	S	S
16	S	S	E			S	S	S			G	G	↑↑						S	S	S	S	S	S
17	S	S	S			E	1.8	S		G	C					G	G	G	S	S	S	2.2	E2.5 S	2.7
18	S	S	E			S	S	S			2.0 G	G					G	G	S	S	S	S	S	S
19	S	E	2.0		E		S	S			G	↑3.9	4.1	↑3.6	↑3.6	↑3.5	G	G	G	S	S	S	1.9	2.0
20	2.1	S					S	S			G	G		G	E↑.7 B	G	G	2.5	S	S	1.9	E	S	S
21	S	E	2.6	E		S	S	S		G	↑3.5	G					2.6 G		S	S	S	2.0	S	S
22	S	S	S			1.9	S	S		G	G	↑3.6			C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	G	↑3.2 G	E↑.4 R		E↑.↑ R	G	2.5	S	S	S	S	S	S
24	S	1.9	E				S	S		G	G						2.6 G		S	S	S	S	S	S
25	S	S			C	C	S	S		C	C		G	G	G				S	S	S	S	S	S
26	S	S				S	S	S			G	G	4.2	↑↑ G	↑2.↑ G			G	S	S	S	S	S	S
27	S	S					S			G	G	G		E↑.6 B	E↑.6 B	E↑.6 B	G	2.2	G	2.8	2.6	S	S	S
28	S	A				S	S			G	G	G	E↑.8 B		G	G	G	C	G	S	S	2.1	S	S
29																								
30																								
31																								
No.	6	9	6	↑	2	↑	1	1	↑	12	20	22	14	13	13	11	1.9	15	8	7	7	11	↑	7
Median	2.0	1.8	E	E	E	E1.6	1.8	G	G	G	G	G	G	G	G	G	G	G	G	2.↑	2.↑	2.1	1.8	2.0

foEs

Sweep 1.0 Mc to 20.0 Mc in ↑0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 5

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IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Feb. 1961

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	E1.80S	E1.80S	1.80	1.00	E	E	E1.70S	E1.80S	1.70	1.80	2.10	2.20	2.10	1.90	2.10	1.90	1.80	1.70	E1.90S	E1.80S	E1.70S	E1.80S	E1.70S	E1.70S
2	E1.70S	E1.80S	1.70	1.00	E	E1.80S	E1.70S	E1.70S	E1.60S	1.80	1.90	1.85	2.00	2.10	2.10	1.80	1.70	E1.80S	E1.70S	E1.80S	E1.90S	E1.80S	E2.00S	E2.00S
3	E1.90S	E1.80S	1.20	1.20	1.45	1.30	E1.80S	E1.80S	1.80	1.80	1.80	1.90	2.20	2.00	2.10	1.80	1.80	1.60	E1.70S	E1.70S	C	E1.60S	E1.90S	E1.80S
4	E1.70S	E1.90S	1.60	1.20	E	E1.70S	E1.80S	E1.80S	E1.80S	1.70	1.80	2.05	2.20	2.20	2.00	1.80	1.80	1.25	E1.70S	E1.80S	E1.80S	E1.80S	E2.00S	E1.70S
5	E2.20S	E1.80S	1.70	1.00	E	E1.80S	E1.60S	1.80	E1.80S	1.70	1.80	1.80	2.10	1.90	1.80	1.80	1.80	1.60	E1.70S	E1.70S	E1.80S	E1.60S	E1.70S	E1.70S
6	E1.80S	E1.70S	1.60	E	1.00	1.30	E1.70S	E1.80S	E1.60S	1.65	1.60	1.80	2.10	2.15	1.90	1.90	1.80	E1.60S	E1.80S	E1.70S	E1.70S	E1.80S	E1.85S	E1.80S
7	E1.80S	E1.80S	1.75	1.40	1.25	E2.00S	E1.90S	E1.90S	1.75	1.70	1.80	1.90	1.90	2.05	2.10	1.90	1.80	1.80	E1.70S	E1.70S	E1.80S	E1.80S	E1.70S	E1.80S
8	E1.70S	E1.70S	1.30	E	E	1.30	E1.40S	1.60	E1.60S	1.70	1.70	1.95	1.90	1.95	1.90	1.80	1.85	1.80	E1.80S	E1.70S	E1.90S	E1.70S	E1.90S	E1.90S
9	E1.80S	E1.70S	1.70	1.30	1.00	E1.60S	E1.80S	E1.70S	E1.80S	1.65	1.80	2.05	1.95	2.00	1.90	1.80	1.80	1.65	E1.70S	E1.70S	E1.70S	E1.90S	E1.75S	E1.80S
10	E1.80S	E1.70S	1.70	1.30	1.30	1.10	E1.80S	1.70	E1.80S	1.60	1.80	1.80	1.90	1.90	1.90	1.70	1.70	1.70	1.80	E1.80S	E1.70S	E1.80S	E1.90S	E1.90S
11	E1.85S	E1.70S	E1.75S	1.30	1.00	E1.80S	E1.40S	E1.75S	1.70	1.80	1.80	1.90	2.50	2.00	1.85	1.65	1.70	1.60	E1.50S	E1.70S	E1.80S	E1.75S	E1.80S	E1.50S
12	E1.80S	E1.50S	1.25	E	1.30	E1.80S	E1.80S	E1.80S	1.70	1.80	1.75	1.80	1.80	1.80	2.00	1.90	1.80	1.70	1.80	E1.80S	E1.70S	E1.80S	E1.80S	E1.80S
13	E1.70S	E1.70S	1.80	1.80	1.25	1.70	E1.80S	E1.70S	1.70	1.70	1.90	1.80	1.80	1.90	1.90	1.90	1.75	1.65	E1.90S	E1.75S	E1.80S	E1.80S	E1.80S	E1.80S
14	E1.70S	E1.65S	E1.70S	1.00	E	E1.80S	E1.75S	E1.70S	1.65	1.80	1.80	1.85	2.05	1.80	2.00	1.80	1.85	1.65	1.80	E1.80S	E1.70S	E1.60S	E1.90S	E1.60S
15	E1.80S	E1.90S	E1.70S	1.30	E	1.30	E1.80S	E1.80S	1.80	1.70	1.75	1.80	2.05	2.00	2.00	1.90	1.75	E1.80S	E1.70S	E1.70S	E1.60S	E1.70S	E1.80S	E1.90S
16	E1.90S	E1.80S	E1.75S	1.70	E	E1.80S	E1.75S	E1.80S	1.70	1.80	1.70	1.75	1.70	2.00	1.90	1.80	1.70	1.65	1.90	E1.80S	E1.90S	E1.70S	E1.70S	E1.75S
17	E1.80S	E1.80S	E1.75S	1.35	1.00	1.20	E1.70S	1.80	1.70	1.90	I 1.80C	1.80	1.90	2.20	2.10	1.90	2.00	1.80	E1.80S	E1.80S	E1.80S	E1.75S	E1.90S	E1.70S
18	E1.80S	E1.90S	1.70	1.25	E	E1.80S	E1.70S	E1.70S	1.70	1.70	1.65	1.80	1.85	1.95	2.05	1.80	1.80	1.70	E1.80S	E1.80S	E1.80S	1.25	E1.80S	E1.80S
19	E1.75S	E1.80S	E1.70S	1.00	E	1.80	E1.80S	E1.80S	1.75	1.80	1.80	1.80	1.80	1.80	2.00	1.90	1.80	1.65	E1.90S	E1.90S	1.40	E1.80S	E1.75S	E1.70S
20	E1.70S	E1.80S	1.75	1.70	1.70	1.30	E1.80S	1.75	E1.75S	1.80	1.90	1.90	1.80	1.90	1.90	1.90	1.80	1.70	E1.80S	E1.70S	E1.80S	E1.75S	E1.80S	E1.75S
21	E1.75S	E1.80S	1.70	1.40	1.80	E1.80S	E1.80S	E1.70S	1.80	1.90	1.85	1.80	1.95	2.10	2.00	1.85	1.75	1.80	1.80	E1.80S	E1.80S	E1.80S	E2.00S	E1.90S
22	E1.60S	E1.90S	E1.85S	1.80	1.75	E1.75S	E1.80S	1.70	1.80	1.75	1.70	1.80	1.80	2.20	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	I 1.80C	1.80	2.00	1.80	2.30	2.05	1.90	1.80	1.85	E1.75S	E1.60S	E1.80S	E1.95S	E1.90S
24	E1.80S	E1.80S	1.30	1.00	1.70	1.80	1.40	1.75	E1.70S	1.85	1.90	2.10	2.25	2.00	2.00	2.05	1.80	1.75	1.80	E1.80S	E1.80S	E1.90S	E1.80S	E1.70S
25	E1.80S	E1.90S	1.30	1.80	I 1.55C	C	E1.95S	1.75	1.70	I 1.80C	I 1.90C	1.95	2.00	1.95	2.00	1.90	1.90	1.90	1.90	E1.80S	E1.70S	E1.90S	E1.90S	E1.90S
26	E1.80S	E1.80S	1.25	E	1.20	E1.80S	E1.80S	1.90	1.80	1.80	1.80	1.90	1.90	1.90	1.90	1.90	1.95	1.80	1.85	E1.85S	E1.80S	E1.80S	E1.80S	E1.90S
27	E1.90S	E1.90S	E	1.90	1.30	1.80	1.80	1.80	1.75	1.80	1.80	1.85	1.90	2.25	2.25	1.95	2.25	1.90	E1.70S	E1.80S	E1.70S	E1.80S	E1.90S	E1.90S
28	E1.90S	E1.75S	1.30	1.80	1.00	E1.80S	E1.70S	1.90	1.80	1.95	1.90	1.90	1.85	1.90	2.00	1.95	1.85	1.75	E1.70S	E1.80S	E1.80S	E1.70S	E1.90S	E1.70S
29																								
30																								
31																								
No.	27	27	23	27	27	26	27	27	22	27	28	28	28	28	27	27	27	25	27	27	26	27	27	27
Median	E1.80	E1.80	E1.70	1.30	1.00	E1.80	E1.80	E1.80	1.70	1.80	1.80	1.85	1.90	2.00	2.00	1.90	1.80	1.70	E1.80	E1.80	E1.80	E1.80	E1.80	E1.80

f-min

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

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.75	2.90	3.10	2.95	3.05	2.70	2.75	3.15	3.50	3.35	3.20	3.25	3.50	3.40	3.10	3.25	3.25	3.55	3.15	2.85	3.00	3.20	2.85	3.10
2	2.95	2.85	2.85	2.80	2.90	2.70	2.80	3.20	3.50	3.55	3.15	3.35	3.15	3.00	2.95	3.05	3.15	3.30	3.30	3.10	3.00	3.15	2.85	2.95
3	2.70	2.65	3.10	3.20	3.10	2.80	2.80	3.20	3.65	3.55	3.30	3.45	3.20	3.15	3.00	3.10	3.15	3.50	3.60	2.80	2.85	2.75	2.80	2.90
4	2.85	2.55	2.80	3.40	2.85	2.55	2.60	3.05	3.30	3.15	3.20	3.30	3.20	2.95	3.15	2.85	2.95	3.10	3.30	3.00	3.00	3.15	3.05	2.70
5	2.50	2.55	2.70	2.80	2.95	3.10	2.55	3.05	3.50	3.00	2.85	3.05	3.10	3.15	3.10	3.00	2.90	3.20	3.20	2.95	2.95	3.25	2.85	2.75
6	2.75	2.70	2.65	2.60	3.25	3.05	2.90	3.10	3.50	3.30	2.95	3.10	3.15	3.25	3.10	3.05	3.15	3.20	3.30	2.95	3.35	3.35	2.75	2.60
7	2.55	2.70	2.60	3.45	3.90	2.40	2.65	3.10	3.30	3.45	3.30	3.25	3.35	3.20	3.15	3.20	3.20	3.35	3.30	2.95	3.15	3.00	2.70	2.80
8	2.90	2.95	3.25	3.15	3.35	2.55	2.90	3.25	3.10	3.30	3.50	3.35	3.25	3.05	3.10	3.20	3.20	3.20	3.15	3.20	3.25	2.75	2.70	2.75
9	2.95	2.85	2.75	3.10	3.80	2.55	2.75	3.10	3.35	3.60	3.20	3.25	3.25	3.40	3.25	3.15	3.35	3.30	3.30	2.95	3.30	3.20	3.05	2.70
10	2.80	3.05	3.05	2.90	3.25	3.05	2.70	2.95	3.40	3.50	3.35	3.45	3.30	3.30	3.25	3.15	3.30	3.35	3.35	3.10	3.00	3.40	3.55	2.75
11	2.75	2.75	2.75	2.85	3.30	3.35	2.70	3.25	3.50	3.30	3.45	3.05	3.20	3.45	3.30	3.40	3.40	3.35	3.45	3.25	3.00	3.10	2.95	2.90
12	2.80	3.10	3.45	3.05	3.15	3.10	2.70	3.15	3.50	3.50	3.35	3.55	3.25	3.15	3.20	3.35	3.40	3.50	3.50	3.10	3.05	3.20	2.85	2.70
13	2.75	2.90	3.05	3.15	3.05	2.95	2.95	3.20	3.40	3.45	3.10	3.20	3.40	3.30	3.35	3.35	3.55	3.50	3.55	2.90	2.55	2.60	2.75	2.80
14	2.85	3.00	3.05	2.95	S	Fs	Fs	3.10	3.40	3.35	3.25	2.95	3.15	3.05	3.05	3.15	3.20	3.30	3.20	3.15	3.20	3.50	2.80	2.75
15	2.75	2.80	2.90	2.75	3.35	3.40	2.75	3.25	3.50	3.50	3.35	3.15	3.00	3.20	3.15	3.45	3.40	3.50	3.55	3.35	3.45	2.90	2.90	2.70
16	2.90	2.90	2.85	2.85	2.95	2.95	3.05	3.20	3.45	3.30	3.20	3.25	3.20	3.15	3.10	3.35	3.45	3.40	3.40	2.95	3.15	2.85	3.00	3.05
17	2.70	2.75	2.85	2.80	3.05	3.10	2.65	2.90	3.20	3.40	3.30	3.40	3.30	3.30	3.40	3.45	3.50	3.30	3.40	3.35	3.20	3.10	S	2.65
18	2.70	3.10	2.95	2.70	2.65	2.75	2.65	2.95	3.20	3.00	2.95	3.25	3.40	3.25	3.45	3.35	3.20	3.20	S	3.55	3.35	2.60	2.80	2.75
19	2.95	2.65	2.80	2.80	2.65	2.60	2.70	3.40	3.70	3.40	3.25	3.30	3.20	3.25	3.20	3.35	3.40	3.55	3.45	3.40	3.15	3.00	3.10	2.70
20	2.75	2.85	3.05	3.15	2.85	2.95	2.75	3.25	S	3.50	3.35	3.20	3.25	3.30	3.40	3.35	3.35	3.40	3.50	3.25	3.05	2.95	2.80	2.85
21	2.85	3.00	3.10	2.75	2.75	2.80	2.75	3.30	3.40	3.40	3.50	3.00	3.10	3.15	3.10	3.25	S	3.20	3.30	3.00	2.90	2.95	3.10	2.95
22	2.60	2.95	3.05	3.30	3.05	2.85	2.60	3.15	3.30	3.30	3.10	3.30	3.30	3.15	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	3.30	3.25	3.20	3.25	3.40	3.25	3.20	3.20	3.35	3.10	2.90	3.00	3.35	3.05
24	2.85	2.70	2.90	2.95	2.90	3.10	2.95	3.25	3.35	3.30	3.40	3.30	3.20	3.20	3.20	3.30	3.20	3.25	3.30	3.25	3.10	2.85	3.10	2.85
25	2.90	3.10	3.05	3.25	3.00	2.90	2.95	3.30	3.50	3.45	3.40	3.30	3.20	3.10	3.20	3.25	3.20	2.95	3.20	3.25	3.15	3.00	3.05	3.15
26	3.15	3.00	2.90	2.95	3.05	3.05	3.05	3.30	3.55	3.55	3.35	3.30	3.35	3.25	3.15	3.25	3.25	3.25	3.40	3.05	2.95	3.00	3.20	3.15
27	3.05	2.95	2.90	2.75	3.15	3.15	2.95	3.25	3.65	3.30	3.40	3.20	3.10	3.05	3.25	3.05	3.25	3.45	3.25	3.25	3.25	2.95	2.80	2.70
28	2.75	2.85	2.95	3.25	3.45	2.85	2.70	3.30	3.45	3.20	3.20	3.25	3.05	3.00	3.15	3.10	3.10	3.25	3.15	3.10	2.95	2.75	2.85	2.75
29																								
30																								
31																								
No.	27	27	27	27	26	26	26	27	26	27	28	28	28	28	27	27	26	27	26	27	27	27	26	27
Median	2.80	2.85	2.90	2.95	3.05	2.90	2.75	3.20	3.45	3.40	3.30	3.25	3.20	3.20	3.15	3.25	3.20	3.30	3.30	3.10	3.05	3.00	2.85	2.75

M(3000)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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												↘.65 L	I ↘.65 L	I ↘.90 L	L									
2												↘.70	↘.75 L											
3												I ↘.75 L												
4																								
5													L	L										
6																								
7												L	L	L	L									
8																								
9																								
10												L	I ↘.75 L	L	L									
11													I ↘.70 L											
12												L	L	L										
13												↘.60	↘.65	↘.70 L	↘.75	L								
14																								
15												L	L	L	L	↘.65 L	L							
16												L	↘.70 L	↘.65	I ↘.65 L	L								
17												L	L	L	L									
18																								
19											L	L	L											
20											L	L	L	I ↘.60 L	L	L								
21												L	↘.60 L	L										
22											L	L	L	L	C	C	C	C	C					
23								C	C	C	C		L	L	↘.65 L	L								
24													L	L	L	L								
25												L	L	L	L	L								
26													↘.60	I ↘.70 L	L									
27											L	L	L	L										
28											L	↘.70 L	L	L	↘.65 L	L								
29																								
30																								
31																								
No.												5	8	5	4	1								
Median												↘.70	↘.70	↘.70	↘.65	↘.65								

M(3000)F1 Sweep 1.0 Mc to 20.0 Mc in ↘0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												285	250	250	250									
2												275	270											
3												250												
4																								
5													260	260										
6																								
7												270	255	280	270									
8																								
9																								
10												260	255	270L	280									
11													270											
12												250	270	255										
13												290	255	270	270	255								
14																								
15												295	1280L	290	270	250	240							
16												275	270	290	275	250								
17												255	275	250	255									
18																								
19											260	255	250											
20											260	280	285	255	250	250								
21												250	300	260										
22											285	275	255	290	C	C	C	C	C					
23								C	C	C	C		275	270	255	250								
24													275	290	280	275								
25												260	280	1285L	285	255								
26													265	270	290									
27											250	260	290	285										
28											275	260	290	290	280	275								
29																								
30																								
31																								
No.											5	17	21	18	13	8	1							
Median											260	260	270	270	270	250	240							

h'F2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	↓25	↓00	265	250	240	↓40	↓25	260	230	205H	190H	230	235	225	200	205H	250	240	215	270	250	240	245	240
2	250	260	285	260	245	↓20	↓00	250	240	235	205H	220	205	205H	210H	205H	245	245	205	235	225	250	250	290
3	↓05	↓05	250	240	230	250	↓20	270	240	220	225	230	200H	230H	205H	225H	240	250	205	↓05	I270C	290	↓00	255
4	260	↓50	↓00	220	205	E400S	E400S	290	245	245	250	E270H	240H	230H	250H	225H	200H	250	240	250	255	255	250	↓05
5	E↓90S	↓50	↓05	280	240	295	↓70	260	210	250	250H	240H	230	210	230H	230H	250H	250	230	245	260	240	275	↓00
6	↓05	↓00	↓05	280	225	270	275	255	245	235	235	210H	210H	200H	230H	225H	230	245	230	250	250	215	255	↓00
7	↓30	↓40	↓60	270	200	S	S	275	250	245	230H	240	240	240	225	230	240	240	225	245	250	270	↓00	↓40
8	↓00	260	240	225	220	↓10	295	240	250	250	240H	240H	210H	200H	240H	230H	235	240	230	225	215	240	280	295
9	265	290	↓10	260	200	405	S	260	245	250	240	225	240	210H	210H	240H	210H	245	230	240	240	225	260	↓30
10	↓10	280	255	280	245	225	E↓00S	275	250	240	240	240	225	215	215	200H	240	240	230	250	260	225	220	↓50
11	↓50	↓40	↓30	290	245	240	290	250	235	240	245	240	225	205H	240H	220H	220	240	225	240	260	245	260	295
12	↓00	250	220	240	250	265	↓00	250	230	205H	240	245	225	225	225H	230H	230	230	210	240	250	235	250	↓15
13	↓05	290	260	255	250	280	290	250	240	205H	240	210	205	250	230	230	240	225	230	240	↓00	↓05	275	285
14	260	260	255	260	↓50	↓05	260	270	250	235	225H	230H	270	250	245H	225H	205H	220H	230	250	250	225	E280S	E↓50A
15	↓40	↓40	↓00	↓00	240	205	S	250	240	240	240	240	210	200	235	245	210	225	205	220	225	250	295	↓10
16	↓00	290	295	↓00	250	E270S	265	260	240	240	230H	240	235	210	240	225	235	230	230	240	255	280	245	260
17	295	↓00	285	↓00	270	260	↓25	290	250	240	I240C	225	210	225	205	220H	230	240	230	210	245	230	↓00	↓55
18	↓45	250	255	↓20	↓10	↓45	↓30	250	245	245	245	230	245	240H	240H	225H	225	250	230	210	225	↓05	↓05	↓10
19	260	↓30	↓30	290	275	↓50	↓50	250	225	230	230	230	240	210H	235H	230H	225H	240	225	220	225	245	250	↓10
20	↓65	↓05	260	290	↓00	275	↓40	250	235	230	220	210	205	200	250	230	235	240	210	205	255	265	295	285
21	290	280	270	↓10	↓05	↓05	↓00	245	240	235	225	205	205	220	220H	205H	235	240	225	240	255	245	245	250
22	295	295	260	240	255	295	↓55	255	240	235	210	200	220	210	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	I225C	205H	215	250	230	220	225	245	235	225	215	255	240	250
24	↓00	↓40	290	260	275	255	275	240	240	240	245	240	225	220	225	230	225	240	235	220	230	260	290	295
25	270	↓00	255	250	I260C	I295C	295	250	235	I225C	I235C	225	220	210	205	230	225H	240	230	225	220	250	255	250
26	250	280	275	255	260	275	270	240	235	230	230H	210H	240	200	205	190H	220H	245	225	230	240	270	250	255
27	260	290	270	↓10	250	255	280	250	235	245	230	220	205	250	250H	255H	240H	245	235	245	240	250	295	↓20
28	↓05	I295A	260	240	205	↓00	↓20	250	240	220	230	235	225	220	230	230	235H	I240C	230	240	240	↓05	280	295
29																								
30																								
31																								
No.	26	27	27	27	27	25	23	27	27	27	28	27	28	28	27	27	27	27	27	27	27	27	26	26
Median	↓00	295	270	260	250	280	↓00	250	240	235	230	230	225	220	230	225	230	240	230	240	250	250	260	295

h'F

Sweep 1.0 Mc to 20.0 Mc in ↓0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 10

IONOSPHERIC DATA

Feb. 1961 | R'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	E	E	E	105	S	S	G	G	G	170	G	140	125	110	110	110	S	S	105	100	S	S
2	S	S	E	E	E	S	S	S	125	G	110	G	110	G	G	G	G	S	S	S	S	S	S	S
3	S	S	E	E	E	E	S	S	G	G	175	150	G	G	G	150	G	G	135	110	C	S	S	S
4	S	S	E	E	E	S	S	S	G	G	145	140	140	150	140	100	100	155	100	105	S	105	105	100
5	S	S	E	E	E	S	S	S	G	175	110	110	110	G	G	110	110	G	S	S	S	110	S	115
6	S	S	E	E	E	E	S	S	G	125	130	120	G	G	105	110	110	G	S	110	100	105	S	S
7	S	S	E	E	E	S	S	S	155	150	130	110	110	110	110	G	105	G	S	110	105	105	110	105
8	105	105	E	E	E	E	S	G	145	150	155	110	105	105	105	G	G	G	105	S	S	S	S	S
9	S	S	E	E	E	S	S	S	G	G	G	G	G	105	G	G	105	100	100	105	100	100	S	110
10	110	105	105	E	E	E	S	105	G	G	G	105	110	120	G	G	120	105	S	S	S	S	S	S
11	S	S	S	E	E	S	S	S	G	G	180	170	G	150	160	105	105	105	105	100	S	S	S	S
12	110	105	E	E	E	S	S	S	G	160	155	140	G	G	G	G	G	G	S	S	S	S	S	S
13	S	S	E	E	E	E	S	S	G	G	G	G	110	110	110	G	G	145	S	S	S	S	S	S
14	100	110	S	130	125	S	S	S	G	G	G	140	115	110	110	110	110	110	S	100	120	110	S	110
15	105	110	S	110	E	E	S	S	G	105	175	150	140	130	130	G	110	120	110	S	S	S	S	S
16	S	S	105	E	E	S	S	S	G	G	140	105	105	G	G	G	G	G	S	S	S	S	S	S
17	S	S	S	E	E	105	105	S	G	160	C	G	G	G	G	115	130	120	S	S	S	110	105	105
18	S	S	105	E	E	S	S	S	G	G	105	140	G	G	G	G	110	110	S	S	S	S	S	S
19	S	130	105	E	105	E	S	S	G	G	150	130	110	110	110	125	135	100	100	S	S	S	110	110
20	110	S	E	E	E	E	S	S	G	G	130	105	G	135	130	130	125	120	S	S	105	110	S	S
21	S	125	100	105	E	S	S	S	G	145	130	110	G	G	G	G	110	G	S	S	S	100	S	S
22	S	S	S	E	E	105	S	S	G	150	140	130	G	G	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	105	120	120	G	115	130	120	S	S	S	S	S	S
24	S	105	105	E	E	E	S	S	G	175	160	G	G	G	G	G	120	G	S	S	S	S	S	S
25	S	S	E	E	C	C	S	S	G	C	C	G	105	110	110	G	G	G	S	S	S	S	S	S
26	S	S	E	E	E	S	S	S	G	G	155	170	145	110	110	G	G	145	S	S	S	S	S	S
27	S	S	E	E	E	E	S	G	G	180	150	140	G	110	110	115	110	120	110	110	115	S	S	S
28	S	105	E	E	E	S	S	G	G	155	140	135	105	G	110	120	120	110	110	S	S	105	S	S
29																								
30																								
31																								
No.	6	9	6	3	2	3	1	1	3	12	20	22	15	16	15	13	19	16	9	8	7	11	4	7
Median	110	105	105	110	115	105	105	105	145	150	140	130	110	110	110	115	110	115	105	110	105	105	110	110

R'Es

Sweep 1.0 Mc to 200 Mc in 30 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 11

57

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						f						h		h	h	l	l2	l2			f	f2		
2									l		l2		l											
3											h	h				h			h3	f3				
4											h2	h	h2	h	h	l	l	h l	l2	f3		f	f	f
5										h	l	l	l			l2	l2					f2		f
6										h3	h2	h			l	l3	l2			f5	f4	f2		
7									h l	h	h	l	l	l	l		l2			f4	f5	f7	f2	f4
8	f2	f							h2	h l2	h l	l	l	l	l				l					
9														l			l	l2	l2	f3	f	f		f
10	f	f2	f					l2				l	l	l			l2 l	l2						
11											h	h		h	h	l2	l	l	l	f2				
12	f2	f3								h	h	h												
13													l	l	l			h						
14	f	f3		f	f							h	h2	l3	l2	l2	l	l		f4	f2	f4		f3
15	f2	f2		f2						l	h	h	h	h	h		l	l2	l					
16			f								h	l	l											
17						f	f			h						l	h	l2				f	f2	f3
18			f								l	h					l	l2						
19		f	f4		f						h l	h	l	l	l	h	h l2	l3	l				f2	f2
20	f5										h	l		h	h	h	h	C2			f2	f2		
21		f	f3	f2						h	h	l					l2					f3		
22						f2				h	h l2	h l												
23												l	l	l		l	h	l						
24		f2	f							h	h						l							
25													l	l	l									
26											h	h	h l	l	l			h						
27										h	h	h		l	l	l	l	l	l	f6	f2			
28		f4								h	h	h	l		l	h	h	l3	l			f2		
29																								
30																								
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.

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

Note

4th to 18th : No observations.

19th to 28th : Unreliable observations.

No outstanding occurrences during the periods with any observations.

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Feb. 1961	Whole Day Index	L. N. 06 12 18 / 12 18 24	W W V 00 06 12 18 / 06 12 18 24	S. F. 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	1+	1 1 1	1 2 2 1	3 2 2 1	2 1 1 1	N N N N			
2	1+	1 2 2	1 2 2 1	3 (1) 1 1	2 1 2 2	N N N N			
3	2-	3 1 2	1 2 2 1	2 2 1 1	2 1 2 4	N N N N	0908	---	45 γ
4	3-	3 3 3	1 2 2 3	2 2 3 -	2 1 1 2	N N N N	1331	---	158 γ
5	3-	C C C	4 2 2 1	3 - - 2	1 1 2 1	U U U U	---	22XX	
6	2+	3 2 3	1 1 1 1	3 3 (3) 2	1 1 1 1	N U U U	0105	2100	74 γ
7	2+	3 2 (3)	(1) 2 2 2	1 2 (2) -	2 3 2 2	U N N N			
8	2o	1 1 2	2 2 2 3	2 2 2 1	1 2 1 2	N N N N			
9	2-	1 1 1	4 2 2 1	1 2 3 1	1 1 2 3	N N N N			
10	2-	(1) 1 1	2 2 2 1	2 2 2 2	2 3 2 2	N N N N			
11	3o	3 - -	2 2 2 2	2 2 2 2	2 3 2 3	N N N N			
12	3o	C C C	3 2 2 2	3 3 3 3	2 3 3 3	N N N N			
13	3o	2 2 (3)	3 2 2 4	3 3 2 3	2 3 3 3	N U U U	0253	---	121 γ
[14]	3o	1 - -	4 2 2 4	2 2 2 3	2 2 2 3	U U U U	---	11XX	
[15]	3-	1 2 -	4 2 2 4	3 3 2 1	2 2 3 3	U U N N			
[16]	3o	1 2 -	4 2 2 4	2 2 2 2	2 2 2 1	N U U U	0043	23XX	106 γ
17	3o	3 3 -	4 2 2 3	3 2 2 3	2 1 3 3	U U U U	0641	---	122 γ
18	3o	3 (3) -	4 2 2 4	3 1 3 3	2 2 3 2	U U U U	---	22XX	
19	3-	2 2 2	3 2 2 4	3 2 1 2	2 1 3 2	U U U U			
20	2+	3 2 1	3 2 2 1	2 3 2 (2)	1 2 3 1	U U U U			
21	2-	2 1 2	1 2 2 1	2 2 1 2	1 2 1 1	N N N N			
22	3o	3 2 -	2 2 2 2	2 2 2 (3)	2 1 2 2	N N N N			
23	2-	(3) 3 1	1 2 2 2	2 1 1 (C)	2 2 2 2	N N N N			
24	1+	2 1 1	2 2 2 2	1 1 1 2	2 2 2 1	N N N N			
25	1+	2 1 1	2 2 2 2	2 1 1 1	1 1 2 1	N N N N			
26	2o	2 2 1	2 2 2 1	2 2 2 2	2 1 2 2	N N N N			
27	1+	1 1 1	2 2 2 1	2 1 1 2	1 2 2 2	N N N N			
28	1+	1 1 2	1 2 2 1	1 2 2 1	2 1 2 1	N N N N			

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Feb. 1961	S W F					S E A			Correspondence		
	Drop-out Intensities (db) WS SF HA TO LN	Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag.
	None										

PROVISIONAL IONOSPHERIC DATA

Dec. 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	4.4F	4.9F	4.0F	F	5.2F	6.1F	F	B	B	B	B	B	B	B	B	5.3R	4.9F	B	S	B	B	B	3.9F	3.7F
2	B	B	B	3.7F	4.3R	4.5F	R	4.9F	B	B	4.9R	5.0R	5.3F	5.9F	5.8R	5.6F	B	R	S	4.9F	R	5.1F	4.4F	4.6F
3	B	B	B	F	B	4.7F	5.1F	4.9F	B	5.2F	B	6.0F	6.3F	7.0F	7.2R	7.4R	6.8F	6.3F	6.0F	6.0F	5.3F	4.8F	4.6F	4.4F
4	5.0F	5.2F	4.8F	5.3F	6.0F	6.6F	7.2F	8.1F	8.7F	9.1F	9.4F	9.0F	9.0F	8.3F	8.0F	7.8F	7.1F	7.1	6.2F	5.1F	5.0F	5.1F	5.0F	R
5	4.4F	R	4.8F	4.9F	5.7F	6.8F	7.2F	7.2F	8.0F	R	6.0F	6.7F	6.7F	7.0F	7.3F	7.8F	8.0F	S	7.1F	6.3F	5.3F	5.0F	5.1F	5.3F
6	4.8F	5.3F	F	6.0F	6.0F	7.2F	6.7F	6.3F	6.7F	B	6.5R	F	6.0F	6.3F	6.6F	8.0	7.1	B	5.0F	R	B	B	F	4.0F
7	4.5F	4.9F	R	R	B	B	4.7R	B	B	5.5R	5.7F	5.7F	5.8F	5.9F	6.0F	6.4F	6.6F	6.3F	5.4F	4.7F	5.4F	5.8F	B	5.6F
8	4.6F	5.0F	B	4.3F	4.9F	5.2F	5.2F	B	B	B	B	B	B	5.1F	5.8F	C	6.1F	S	5.6F	5.7F	5.6F	5.3F	5.1F	5.1F
9	4.9F	5.0F	5.3F	6.0F	D4.2F	6.1F	F	B	B	B	5.2F	6.0R	5.7F	R	5.7F	6.2F	6.3F	5.3F	4.8F	5.0F	5.6F	5.8F	4.7F	4.4F
10	B	D3.9F	5.3R	5.1F	5.4F	5.6F	B	5.9F	6.1F	7.0F	7.3F	7.3F	7.0F	7.0F	7.0	7.1	7.3F	7.1F	6.3F	5.9F	5.4	5.3F	5.3F	4.9F
11	5.2F	5.2F	6.3F	6.8F	7.1F	7.2F	7.9F	8.3F	8.9F	8.9F	9.2	9.2	8.9	8.6F	8.7	9.0	8.2	C	C	C	C	5.6F	5.9	5.7F
12	F	4.9F	4.9F	5.7F	5.1F	5.4F	B	5.0F	5.8F	6.0F	6.3F	6.9F	7.3F	7.6F	8.0F	8.1	7.4F	S	5.0F	B	B	4.8F	B	B
13	4.1F	C	B	F	C	R	B	B	B	B	B	B	B	7.1R	7.3F	6.3F	6.1F	6.2R	6.0F	5.1F	5.4F	5.7F	5.5F	6.0F
14	5.6F	5.9F	6.2F	5.8F	6.4F	7.7F	8.0F	8.2F	8.4F	9.1F	9.0F	9.0F	8.6F	7.5F	7.0F	6.5F	6.3F	6.5F	6.2F	6.3F	6.8F	6.7F	6.6F	6.2F
15	5.0F	R	B	4.6F	5.0F	B	B	5.5F	5.5F	5.9F	6.0F	5.8F	7.0F	7.6	7.5F	B	B	F	F	4.6F	F	3.6F	3.8F	B
16	3.8F	3.9R	F	3.7F	B	B	B	B	B	B	B	B	B	B	B	5.0F	5.6F	5.3F	5.3F	5.9F	5.5F	5.4F	S	4.5F
17	4.4F	4.0F	3.7F	4.1F	4.3F	F	F	5.9F	5.1F	5.7F	B	5.6F	5.9F	6.2F	5.6F	5.3F	S	6.0F	6.0F	5.7F	5.5F	5.7F	5.0F	4.1F
18	4.3R	4.5F	4.8F	5.1F	4.6F	4.9R	5.0R	B	F	B	C	B	F	5.1R	5.9R	6.7R	5.8F	5.4F	F	4.3F	3.9F	4.1F	4.9F	B
19	B	4.0F	F	B	D3.7F	B	4.8R	4.8R	5.6F	6.0F	6.3F	6.1F	6.2F	6.5F	R	7.0F	7.3F	5.7R	5.7F	5.1F	4.6F	4.8F	4.7F	5.1F
20	4.7F	4.5R	4.4F	4.7F	5.3F	B	B	B	B	5.4F	5.3F	5.8F	6.0F	6.5	7.2F	8.2F	7.1F	5.5R	6.2R	5.0F	4.9F	5.1R	B	B
21	B	4.7F	B	3.6F	F	B	B	B	5.3F	5.7F	5.7F	6.2F	6.0	6.5F	6.4F	6.7F	6.0F	5.9F	R	R	4.8F	4.7F	4.9F	5.1F
22	4.6F	B	4.0F	F	B	4.0F	B	B	B	B	B	5.0R	B	5.4R	6.7R	7.0R	6.5R	6.3F	6.0R	5.1F	4.8F	4.7	4.7	4.5F
23	4.7F	B	B	B	B	B	B	5.0F	B	B	5.7F	R	B	R	7.7F	B	5.6R	F	S	5.0F	4.7F	5.1F	5.0F	4.4F
24	4.7F	4.8F	4.5F	4.7R	R	B	5.0F	5.6F	6.3F	6.1F	6.0F	6.1F	6.2F	6.7F	7.0F	6.9F	7.0F	5.6	5.7F	5.7R	4.7F	4.3F	5.0R	4.6F
25	B	R	B	B	F	C	C	C	C	4.8R	4.7F	5.2F	5.8F	6.7F	6.6F	6.3R	6.2F	6.0F	6.5F	6.8	6.1	5.4	5.4	5.2F
26	4.0R	4.1F	B	B	B	B	5.0F	5.1F	B	B	B	B	B	B	S	6.3F	C	C	6.2F	6.4F	6.0F	6.0F	6.0F	6.2F
27	6.0F	4.9F	5.3F	5.6F	5.0F	F	B	B	B	B	B	B	B	B	B	4.8F	B	B	F	B	B	B	F	B
28	B	B	B	B	B	B	B	4.9F	5.0F	4.9F	5.3F	5.6R	5.6F	6.3	6.4F	B	B	4.9F	4.6F	B	B	5.2F	4.2F	4.0R
29	B	4.1F	4.7F	F	B	B	B	F	5.2F	5.0F	5.9R	6.0F	6.3F	6.3F	S	7.6F	6.8F	5.7F	5.5F	B	5.0F	5.0F	5.6F	5.3R
30	4.5F	F	4.9F	R	5.3F	5.3F	5.7F	F	B	6.7F	6.7F	6.6F	B	6.5F	6.7F	6.1F	6.6F	5.8F	5.3F	4.9F	4.2F	4.3F	5.0R	4.4F
31	F	F	R	5.0R	5.0F	F	5.1F	5.7F	B	B	5.1F	5.3F	B	B	B	7.1F	7.0F	5.9F	R	R	B	4.7F	3.8R	4.2F
No.	21	20	16	19	19	15	14	17	14	17	21	22	20	24	24	27	25	20	22	22	22	28	25	25
Median	4.6	4.8	4.8	5.0	5.1	5.6	5.2	5.6	6.0	5.9	6.0	6.0	6.2	6.5	6.8	6.7	6.6	5.9	5.8	5.1	5.3	5.1	5.0	4.6
U.Q	5.0	5.0	5.3	5.7	5.7	6.8	7.2	6.8	8.0	6.8	6.6	6.7	7.0	7.0	7.3	7.6	7.1	6.3	6.2	5.9	5.5	5.5	5.4	5.3
L.Q	4.4	4.1	4.4	4.3	4.6	4.9	5.0	5.0	5.3	5.3	5.6	5.6	5.8	6.2	6.2	6.2	6.1	5.6	5.3	5.0	4.8	4.8	4.6	4.4
Q.R	0.6	0.9	0.9	1.4	1.1	1.9	2.2	1.8	2.7	1.5	1.0	1.1	1.2	0.8	1.1	1.4	1.0	0.7	0.9	0.9	0.7	0.7	0.8	0.9

Observed by M. Ōse | foF2 | Sweep 1.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

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