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IONOSPHERIC DATA IN JAPAN

FOR JULY 1958

Vol. 10 No. 7

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Prepared by

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

$(M3000)F2$ — 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.

Variality Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M : multiple peaks separated by relatively long period of quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

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

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

N =normal
U =unstable
W=disturbed

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

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

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

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

The data of short wave fade-out (SWF) are 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

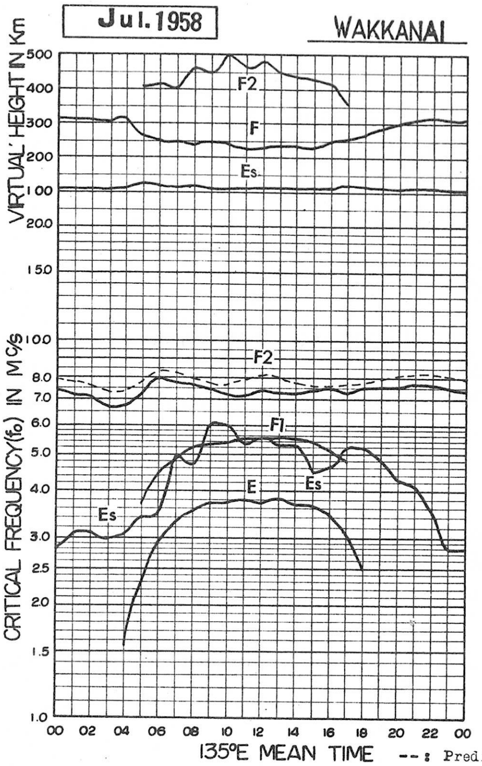
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

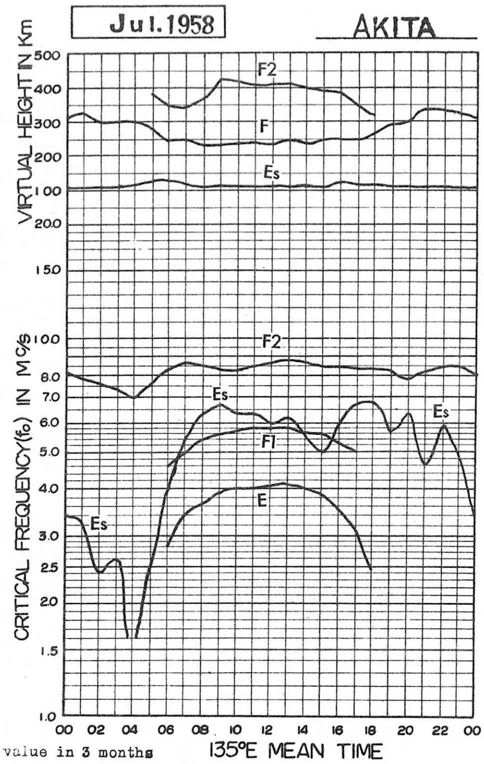
1−	1	1+
2−	2	2+
3−	3	3+

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.

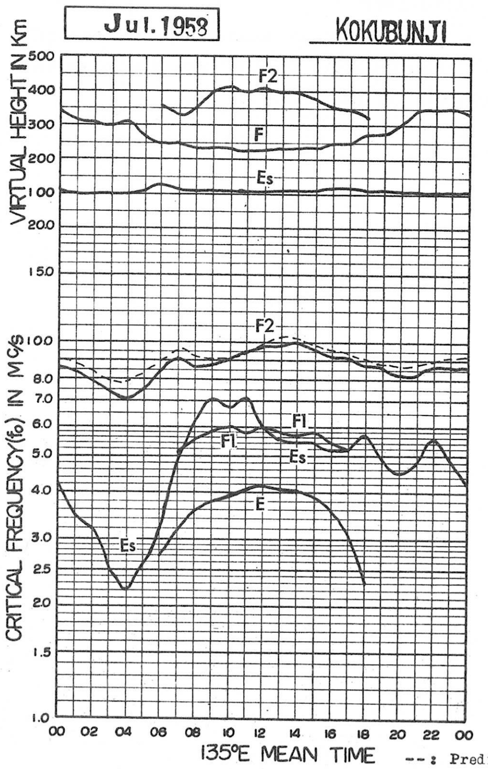
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

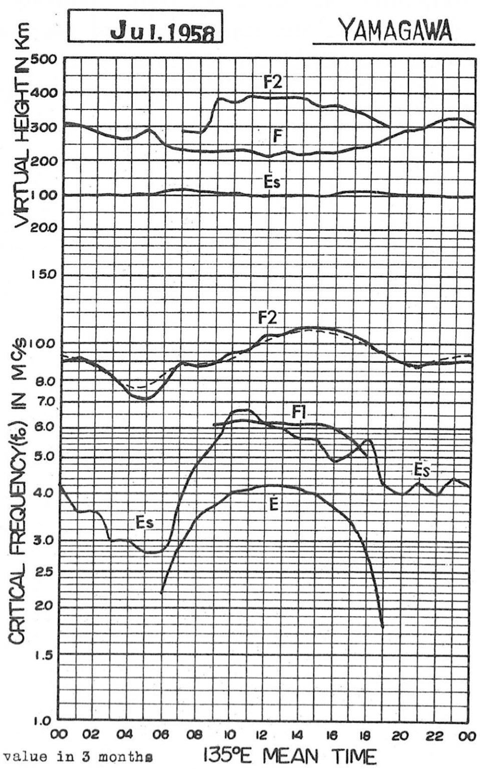




-- : Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





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

IONOSPHERIC DATA

Jul. 1958

foF2

135° E Mean Time (G.M.T.+ 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U7.0S	6.8	6.8	6.6	7.1	8.1	8.3	7.8	6.8	A	A	A	5.9	6.2	6.5	6.4	6.3	6.5	6.7	I6.8A	6.8	7.3	7.3	I7.0A
2	6.7	6.7	6.7F	6.8	7.0F	8.5	9.8	9.4	7.8	7.0	I6.3A	6.5	6.3	6.3	6.8	I6.5A	6.6	I6.7A	6.8	I6.8A	7.1	I7.7S	I7.9S	7.8
3	7.8	7.5	7.2	6.7	6.7	7.1	8.0	7.3	6.6	6.3	6.3	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	A	W	5.8	W	I5.9A	I6.0A	6.0	6.1	6.3	6.1	6.5	I6.6A	U7.5S	7.3	7.3
5	7.0	6.8	6.9	6.6	6.8	7.7	8.1	8.0	7.0	6.2	I6.0A	I5.9C	W	6.1	6.0	6.0	6.1	6.3	6.3	6.5	6.6	7.3	U7.5S	7.5
6	7.3	7.1	7.0	7.0	7.0	I8.2R	9.6	J10.8RH	9.8	9.0	I8.7A	I8.4R	8.6	8.0	I7.8A	I8.2A	7.7	8.0	7.8	7.4	I7.6A	I7.9S	I8.0S	I8.0S
7	I7.8S	7.4	7.3	7.6	7.4	8.1	8.9	8.0	8.3	7.7	7.8	I7.8R	7.7	I7.7R	7.3	U7.4R	I7.7S	7.3	7.3	U7.6S	7.9	S	S	S
8	U7.8S	8.0	7.9	7.8	7.5	8.3	8.5	8.7	I8.8R	9.2	8.7	I8.0R	8.1	I8.5R	I8.4R	I8.3R	I8.1A	U7.3S	I7.9S	I8.5S	S	S	S	F
9	7.3	4.6	3.6	3.2	W	W	W	W	W	W	6.3	6.8	6.3	I7.2A	7.8	8.0	7.8	7.7	7.6	7.5	7.2	U7.7S	U7.7S	U8.0S
10	7.3	I6.7S	6.4	I5.5F	5.8	6.9	8.0	8.1	7.3	6.7	I5.8A	I6.3A	A	A	A	A	5.8	6.0	6.1	6.6	7.0	7.4	7.3	7.3
11	6.9	6.9	6.6	6.3	6.0	5.7	6.3	7.8	7.7	7.3	6.9	7.2	I7.5A	7.2	6.8	6.8	7.1	7.3	7.5	U7.9S	U7.5S	S	S	S
12	S	U7.8S	7.5	6.9	7.0	7.3	7.3	I8.2R	7.8	I7.9R	8.2	7.8	8.3	8.1	7.8	8.2	8.4	7.8	7.6	7.7	U8.8S	9.0	C	C
13	C	C	C	C	C	C	C	C	C	C	I6.7A	7.4	7.1	7.3	7.2	7.3	7.5	7.3	7.3	7.8	U8.0S	U8.0S	U8.1S	8.0
14	U7.6S	7.3	6.7	6.3	6.5	8.2	8.3	7.5	6.8	6.6	6.7	6.6	6.3	6.5	6.0	6.6	6.5	6.8	I6.7A	6.7	I6.8A	7.4	7.4	7.3
15	7.0	6.8	6.3	6.1	6.5	7.3	8.1	7.1	6.6	6.3	I6.3A	6.7	7.1	7.0	7.1	7.1	7.0	7.1	7.0	7.0	6.8	U7.1S	7.5	7.5
16	7.3	6.8	7.0	6.7	5.9F	6.3	6.5	7.3	8.0	8.3	7.3	6.8	7.0	7.3	7.1	7.5	7.7	7.8	7.8	7.5	7.6	S	C	C
17	C	C	C	C	C	C	7.3	7.5	6.8	7.2	7.4	7.3	7.2	7.3	I7.3C	I6.8C	7.2	7.7	I8.2S	U7.9S	U7.3S	7.2	S	C
18	C	C	C	C	C	7.7	8.0	J8.3R	8.6	8.3	7.8	8.0	7.8H	8.0	8.8	8.5	8.3	7.8	8.1	8.3	U8.9S	U8.5S	U7.5S	I7.4S
19	U7.7S	7.2	7.4	6.8	7.3	7.3	7.3	7.3	7.7H	7.7	7.5H	8.3	9.0H	7.9	7.7	7.7H	8.0	7.5	8.5	8.9	9.5	J8.6S	U8.4S	7.8
20	7.5	7.8	7.3	7.3	7.2	7.3	8.0	8.1	8.0	6.4H	7.2	6.9	7.1	7.5	7.7	8.2	7.7	7.8	I8.2A	8.4	8.3	I8.4S	8.3	8.2
21	8.2	7.9	7.2	6.7	7.0	7.2	7.6	7.7	7.1	7.7	8.1	8.1	8.0	7.8	I7.8A	7.4	7.5	7.6	7.7	8.5	U8.9S	S	S	S
22	U7.6S	7.4	7.4	6.8	6.0	6.9	7.7	7.8	8.0	8.0	7.1	7.8	7.9	7.2	7.9	7.7	7.6	7.6	7.5	7.4	U7.5S	I8.3S	I7.8S	I7.6S
23	7.3	6.7	6.5	6.5	5.6	6.0	6.0	5.9	6.0	I5.8A	5.7	I6.0R	6.3	6.8	7.0	7.0H	7.0	7.0	7.1	6.9	7.1	7.4	U7.5S	7.1
24	7.4	7.2	7.0	6.5	6.2	6.8	7.8	8.1	7.9	I7.8A	7.8	I8.2A	8.0	8.0	8.0	8.0	7.8	7.8	I7.9S	J8.3S	8.3	I8.3S	I8.0S	7.9
25	U8.2S	8.0	7.5	7.3	7.0	7.8	7.8	8.5	8.0	8.6	8.5	I8.5R	8.3	8.5	8.1	8.0	U8.0R	I7.7S	7.8	I8.4S	I8.8S	9.0	I8.5S	I7.8S
26	7.7	I7.8S	U7.5S	6.7	6.5	7.0	7.3	7.0	6.8	6.6	I6.4B	6.5	6.5	6.6	6.5	6.5	6.7	6.6	6.7	7.2	I7.4S	I7.5S	I7.6S	7.3
27	I7.4S	I7.4S	7.3	7.1	6.9	7.5	8.3	8.1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	7.1	7.3	7.3	8.1	7.5	6.7	5.6	5.8	6.0	I5.9A	I5.6R	W	6.0	6.2	6.0	6.5	6.5	6.4	6.5	I7.0S	7.1	7.1
29	7.1	I7.0C	6.8	6.6	6.7	7.3	8.8	9.0	8.2	8.4	8.4	I8.6R	8.4	I8.3B	8.0	I8.1A	8.3	8.3	8.3	I8.4C	U8.0S	I8.5S	I8.6S	I8.6S
30	U8.4S	U8.4S	8.0	U7.8S	7.8	8.0	C	C	C	8.4	8.0	7.9	8.0	7.8	J7.8R	8.0	7.8	7.6	8.1	I8.2S	U8.3S	I8.5S	S	S
31	S	S	7.7	6.8	6.0	6.7	7.4	7.0	6.5	I5.8A	5.7	I5.8A	I5.9A	I6.0A	I6.1A	6.1	6.1	6.2	6.3	6.8	7.3	I7.4S	U7.4S	I7.4S
No.	24	25	27	27	26	27	27	27	26	26	28	28	26	27	28	28	29	29	29	29	28	24	21	21
Median	7.4	7.2	7.1	6.7	6.8	7.3	8.0	7.8	7.7	7.5	7.2	7.2	7.4	7.3	7.3	7.4	7.5	7.3	7.5	7.5	U7.5	U7.7	U7.6	7.5
U.Q.	7.8	7.8	7.4	7.1	7.1	8.1	8.3	8.2	8.0	8.3	7.9	8.0	8.0	8.0	7.8	8.0	7.8	7.8	7.9	8.3	8.3	8.4	8.0	8.0
L.Q.	7.2	6.8	6.7	6.5	6.2	6.9	7.3	7.3	6.8	6.4	6.3	6.5	6.3	6.6	6.6	6.6	6.6	6.6	6.7	6.8	7.0	7.4	7.4	7.3
Q.R.	0.6	1.0	0.7	0.6	0.9	1.2	1.0	0.9	1.2	1.9	1.6	1.5	1.7	1.4	1.2	1.4	1.2	1.2	1.2	1.5	1.3	1.0	0.6	0.7

foF2

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

The Radio Research Laboratories, Japan.

W 1

IONOSPHERIC DATA

Jul. 1958 | foF1 | 135° E Mean Time (G.M.T.+ 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	4.8	5.1	5.0^A	A	A	A	5.5	5.4^H	5.4	5.3	5.0	4.8	A					
2						A	A	5.0	A	A	A	A	5.5	I5.5^A	5.5	A	A	A	L					
3						L	4.6	4.9	5.2	5.4	5.5	C	C	C	C	C	C	C	C					
4						C	C	C	C	A	5.3	5.3	I5.4^A	I5.4^A	I5.4^A	5.3	5.0^H	4.8	L					
5						4.2^H	LH	4.9	I5.2^A	I5.3^A	I5.3^A	I5.4^C	5.5	5.4^H	5.4	5.2	5.1	LH	L					
6						L	L	LH	L	6.0	I6.0^A	U5.9^A	5.9	I5.9^A	5.7	I5.5^A	I5.3^A	LH	L					
7						L	L	5.3	5.1	5.6	5.7^H	5.8	5.9^H	5.7	5.6	5.4	A	L	L					
8						L	L	LH	LH	LH	LH	LH	6.0	5.7	5.7	I5.6^A	A	L	A					
9					2.7	3.3	4.2^H	U4.7^RH	4.8	5.2	5.3	5.5	5.6^H	I5.7^A	I5.7^A	5.8	L	L	L					
10					L	4.0	4.6	4.7	5.0	5.2^H	I5.2^A	A	A	A	A	A	L	4.9	L					
11							L	5.0	5.2	L	5.6	5.6	I5.6^A	5.7^H	L	LH	5.0	L	L					
12						L	LH	LH	5.3	5.6	5.8^H	5.8	L	L	5.4	L	L	L	L					
13					C	C	C	C	C	C	I5.5^A	5.5	5.7	L	L	5.2	L	L	L					
14					2.9	3.7	L	5.0	4.8	LH	5.2	5.2	5.3^H	5.3^H	5.3^H	5.0^H	4.9	4.6	A					
15						L	4.4	L	5.2	5.2	I5.2^A	5.3	5.3	5.3	LH	LH	L	L	L					
16						L	4.5	LH	5.1	5.3^H	LH	L	5.7	5.6	LH	LH	L	4.6	A					
17							L	I4.9^A	5.4	5.4	5.3	5.5	5.5^H	5.5	I5.4^C	I5.2^C	5.1^H	L	L					
18						L	L	U4.7^L	5.3^H	I5.4^A	L	5.5	LH	5.6	5.5^H	5.4	L	A						
19						L	L	L	LH	L		5.5	LH	L	L	LH	L	A	L					
20						L	L	4.9	L		5.6	5.6	5.6	L	5.6	L	A	L	A					
21						L	4.5	L	5.3	5.3	A	A	A	A	A	LH	A	L						
22						L	4.7	I4.8^A	5.0	5.3	I5.5^A	5.5	5.5^H	L	5.3	LH	5.1	L	L					
23						3.6	4.2	I4.6^A	I4.8^A	I5.0^A	5.2	U5.4^R	5.4	L	LH		L	L	L					
24						L	C	L	L	A	A	A	A	LH	LH	LH	L	A						
25						L	L		L	5.3	L	L	LH	L	L	L	L		L					
26						L	L	LH	5.1	I5.2^A	I5.3^B	5.5	5.5	L	5.4	L	LH	A						
27						L	A	A	C	C	C	C	C	C	C	C	C	C	C					
28						A	A	L	5.2	I5.3^A	I5.4^A	I5.5^A	I5.5^R	5.5	5.5	5.4	I5.2^A	L	A					
29						L	4.9	L	LH	L	L	L	L	B	5.8	I5.7^A	A	A	A					
30							C	C	C	5.7	6.0	6.1	L	LH	5.9	L	L	L	A					
31						3.7	4.5	A	A	A	5.5	I5.5^A	I5.5^A	I5.5^A	I5.5^A	5.4	5.1	L						
No.					2	6	11	14	18	18	20	20	20	16	19	14	10	5						
Median					2.8	3.7	4.5	4.9	5.2	5.3	5.4	5.5	5.5	5.5	5.5	5.4	5.1	4.8						

foF1

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

The Radio Research Laboratories, Japan.

W 2

IONOSPHERIC DATA

Jul. 1958

f_oE

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					1.70	2.60	3.05	3.45	3.70	3.80	3.80	3.70	3.75	A	A	R	3.55	3.15	2.50	S				
2					A	2.60	3.10	3.50	3.75	3.90	4.00	4.00	3.80	3.70	I3.55A	I3.60A	3.60	3.20	2.60	S				
3					1.70	2.50	3.05	3.50	3.60	3.65	3.70	C	C	C	C	C	C	C	C	C				
4					C	C	C	C	C	3.85	4.05	4.10	4.10	4.00	3.75	A	A	A	2.75	2.00				
5					1.60	2.45	3.00	3.40	3.55	3.65	3.75	I4.00C	4.05	U3.90R	I3.70A	3.65	3.50	3.05	2.50					
6					A	2.55	3.05	3.45	3.60	3.75	3.80	I3.75A	4.00	3.85	A	A	A	3.20	2.60	S				
7					A	I2.50A	3.00	3.50	3.55	3.75	R	B	R	4.00	3.95	3.75	3.35	I3.10A	2.60	A				
8					A	2.40	2.75	3.35	3.55	3.75	3.80	3.85	3.75	3.70	A	A	A	A	A	S				
9				1.20	I1.80A	I2.30A	2.75	3.10	3.50	3.70	3.80	3.75	A	A	A	3.55	3.50	U3.10A	2.50	U1.80S				
10					1.60	2.40	2.95	3.30	3.70	A	A	A	A	3.90	3.75	A	A	A	A	A				
11					A	A	A	A	R	3.75	3.90	3.95	3.75	I3.70A	I3.70A	3.70	3.50	3.10	2.65	2.10				
12					I1.80A	2.35	2.95	I3.25A	I3.50A	3.85	A	A	A	3.70	3.60	3.65	I3.25A	3.20	2.60	S				
13					C	C	C	C	C	C	3.65	I3.80A	I4.00A	4.00	3.90	3.65	3.55	3.00	2.50					
14					1.60	2.35	2.95	3.25	3.50	3.70	3.75	I3.80R	I3.90R	3.90	3.70	I3.60R	3.45	3.05	2.40					
15					1.60H	2.40	3.00	3.40	3.55	3.70	3.75	3.75	I3.75A	I3.75R	I3.65R	3.55	3.45	2.95	2.55					
16					1.45	2.30	2.90	3.40	3.55	3.70	3.70	A	A	A	A	3.55	3.40	I2.90A	2.35					
17					C	C	2.80	3.15	3.40	I3.50A	3.60	3.70	A	R	C	C	A	A	A					
18					C	C	2.70	3.20	3.45	3.60	3.60	A	A	R	R	U3.60R	3.40	3.05	2.35					
19					1.40	2.20	2.85	3.15	3.50	3.65	3.70	3.75	3.70	3.75	I3.60A	3.50	3.45	3.05	2.45					
20					L1.50A	2.25	2.80	3.20	3.50	3.55	3.65	3.60	I3.70A	I3.80R	4.00	3.70	3.55	3.00	2.30					
21					A	2.30	2.80	3.30	3.50	3.70	3.70	3.85	3.75	3.70	I3.55A	I3.60A	3.50	3.05	2.50					
22					A	2.00	2.90	3.30	3.50	3.70	3.75	3.70	4.00	U3.90R	3.75	3.65	3.45	3.05	2.50	S				
23					I1.50A	2.30	2.90	3.20	3.55	3.65	3.75	3.75	3.75	3.75	I3.80A	3.70	A	A	A					
24					A	A	I2.95C	3.50	3.60	3.80	3.70	3.65	3.65	3.70	I3.70A	3.70	3.50	3.10	2.35					
25					1.50	2.00	2.80	3.35	3.50	3.70	U3.90R	4.00	4.00	4.00	4.00	3.50	3.50	3.00	A					
26					1.50	2.25	2.90	3.40	3.65	3.85	I3.95B	4.00	I3.80R	3.70	3.65	3.60	I3.50R	3.10	2.45					
27					A	2.20	2.95	3.30	C	C	C	C	C	C	C	C	C	C	C					
28					1.50	2.40	3.00	3.45	3.65	U3.80R	4.00	U4.00R	3.80	3.70	3.70	3.90°	3.55	3.10	2.50					
29					1.40	2.00	2.90	3.25	3.60	3.70	3.70	A	A	B	A	A	A	A	A					
30					A	2.50	C	C	C	3.80	3.85	3.80	I3.75A	I3.90A	3.95	I3.75R	3.70	3.10	2.25					
31					A	2.10	3.05	I3.60B	3.75	3.75	3.80	3.75	I3.75A	I4.00A	3.70	I3.80A	I3.50A	3.10	2.50					
No.				1	16	25	27	27	26	28	27	23	21	23	21	22	22	23	23	3				
Median				1.20	1.55	2.35	2.95	3.35	3.55	3.70	3.75	3.80	3.75	3.80	3.70	3.65	3.50	3.10	2.50	2.00				

f_oE

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

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

Jul. 1958 | foEs | 135° E Mean Time (G.M.T.+ 9h.)

Wakkanai — Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	2.4M	2.4M	E	3.1M	3.5	3.5	7.0M	7.0M	12.5M	15.0M	9.2M	6.0M	4.3M	5.2M	G	4.2	6.0M	9.3M	13.5M	14.0M	7.5M	5.0M	10.0M
2	9.5M	9.5M	6.0M	4.0M	4.8M	6.6M	6.2M	4.9	6.5M	6.0M	7.1M	6.2M	6.3M	6.7M	7.0M	9.0M	7.0M	13.5M	5.0	13.2M	7.2M	6.0M	4.5M	5.7M
3	7.5M	5.3M	3.1M	2.4M	3.4M	3.5M	3.9	4.1	6.8M	6.8M	6.0M	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	7.2M	5.0M	5.2	5.5M	10.3M	7.2M	6.0M	4.8M	4.4M	3.0	4.7M	6.3M	4.4M	2.9M	E
5	E	E	E	E	2.0	3.2	3.5	4.0	6.7M	6.9M	7.3M	C	G	4.8M	5.3M	5.6M	4.2	9.3M	7.5M	3.5M	4.2M	4.0M	4.2M	4.2M
6	4.0M	3.0M	3.0M	3.0	3.1M	3.1M	3.5M	G	6.2M	8.0M	13.0M	7.0M	6.5M	6.9M	8.0M	10.0M	10.4M	8.0M	4.2M	5.0M	9.0M	10.5M	7.2M	E
7	3.5M	2.5M	2.4M	3.4M	3.1M	3.1	3.6	4.2	4.5	4.6	4.8M	B	G	4.9M	5.3	7.2M	7.2M	3.5M	4.0M	5.8M	3.2M	8.1M	7.0M	2.8M
8	E	E	E	E	2.6M	3.0	5.7M	G	G	4.8	4.2	5.2M	6.0M	6.8M	5.6M	7.3M	9.8M	7.0M	7.0M	5.0M	4.2M	E	E	E
9	E	2.5M	2.0	G	1.9	3.4M	3.5M	3.7	4.5	4.7	5.2	4.5	6.1M	9.0M	7.5M	G	G	4.1M	4.9M	3.3	5.0M	2.7M	E	E
10	E	3.1M	3.8M	4.0M	3.5M	2.7	3.5	G	4.3	5.8M	6.0M	8.3M	8.6M	8.2M	7.8M	9.2M	8.0M	6.4M	5.2M	5.3M	6.8M	6.0M	3.3M	E
11	3.2M	3.1M	3.0M	2.4M	2.1	3.5M	5.0M	5.0M	G	6.7M	6.1M	4.6	9.0M	4.2	6.7M	G	6.5M	5.3M	5.0M	G	3.3M	E	E	E
12	3.5M	E	2.8M	E	3.0M	2.9	3.5	5.0M	5.3M	G	5.7M	5.7M	6.3M	6.2M	5.2M	4.8	5.6M	5.1M	G	3.5M	4.3M	7.5M	C	C
13	C	C	C	C	C	C	C	C	C	C	16.5M	10.6M	5.7M	G	G	G	G	3.8	5.0M	3.7M	3.2M	3.5M	4.2M	2.6M
14	2.3M	2.8M	3.1M	5.0M	G	3.5	3.5	4.1	4.1	G	G	G	G	5.3M	G	G	G	4.4	8.7M	7.2M	9.0M	3.5M	5.0M	7.5M
15	3.5M	3.1M	3.5M	3.5M	G	3.5	5.0	5.3M	5.3M	5.2M	6.7M	5.1M	5.5M	G	G	G	4.2	3.5	G	E	E	3.5M	3.5M	2.9M
16	2.6M	3.4M	3.5M	3.1M	3.5M	2.6	G	4.4	G	5.5M	4.6M	7.5M	7.4M	5.3M	5.0M	3.4G	G	3.5M	5.9M	3.5M	3.1M	4.1M	C	C
17	C	C	C	C	C	C	4.5	5.5M	5.5M	6.0M	5.2M	4.6	4.1M	G	C	C	4.0	4.2M	3.5M	3.5M	4.3M	E	2.8M	C
18	C	C	C	C	C	4.7M	3.5	5.3M	4.0	6.6M	5.8M	5.3M	4.6M	G	G	G	G	5.2M	5.6M	5.1M	3.5M	2.9M	E	E
19	E	2.4M	E	E	1.8	2.6	4.0	5.8M	4.0	4.2	4.3	G	G	4.5	4.1M	G	G	6.5M	4.9M	4.5M	2.6M	3.8M	E	3.1M
20	E	3.5M	3.0M	1.2	3.1M	3.5	5.0M	5.6M	4.0	6.1M	6.1M	4.3	5.2M	G	G	5.0	8.0M	7.5M	13.5M	5.9M	E	E	2.4M	3.1M
21	E	5.7M	3.5M	3.5M	3.5M	G	3.5	5.3M	6.2M	4.5	7.0M	7.2M	7.2M	7.5M	9.0M	4.9M	4.9	4.0	5.5M	4.0M	4.2M	6.0M	3.1M	5.0M
22	3.5M	5.0M	3.1M	E	3.1M	2.5	3.5	6.0M	4.7	5.0	6.1M	4.3	G	G	4.1	G	4.2	4.4	3.5	4.7M	3.9M	4.8M	7.8M	2.3
23	3.2	2.7M	E	2.2M	2.0M	2.8	3.8	6.1M	6.2M	7.1M	5.3M	5.0	4.5	5.3M	5.3M	5.5	6.0M	5.0M	4.5M	6.0M	9.0M	9.5M	9.5M	7.3M
24	6.0M	4.0M	3.1M	3.5M	4.3M	3.5M	C	G	5.7M	9.0M	9.0M	8.5M	7.2M	5.5M	5.3M	4.2	G	6.1M	6.6M	6.0M	8.0M	3.5M	4.2M	3.1M
25	2.7M	2.2M	2.4M	2.2M	G	3.5M	3.5	4.0	6.3M	9.3M	5.2M	4.3	G	5.7M	7.0M	4.2	G	9.0M	8.0M	4.8M	5.0M	5.8M	3.0M	2.2M
26	2.2M	4.0M	4.0M	4.3M	3.4M	2.8	3.5	4.0	4.2	6.5M	B	6.2M	5.5M	5.2M	G	G	G	5.6M	5.2M	E	E	E	E	E
27	2.5M	2.4M	3.4M	1.3	2.6M	2.9	5.6M	15.0M	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	E	3.5M	4.0M	6.8M	6.5M	6.2M	4.3	6.3M	6.2M	6.6M	5.5M	4.2	G	4.8	5.8M	4.0	5.6M	S	3.5M	7.5M	6.0M	6.0M
29	4.2M	C	3.1M	3.0M	G	4.3M	3.5	4.0	G	6.1M	9.0M	6.1M	5.6M	B	6.4M	10.8M	6.8M	7.7M	6.6M	C	7.0M	E	3.5M	E
30	3.0M	3.5M	3.5M	7.0M	2.6M	4.0M	C	C	C	4.4	4.5	4.2	5.3M	5.7M	G	G	6.0M	5.2M	8.0M	6.8M	4.9M	5.0M	7.0M	5.8M
31	4.2M	8.0M	4.2M	4.2M	3.5M	3.5	5.2M	6.0M	6.2M	8.0M	7.2M	11.2M	12.0M	7.6M	10.3M	4.8M	4.6M	5.5M	9.3M	6.0M	7.2M	6.0M	4.5M	4.3M
No.	26	25	27	27	27	28	27	28	27	29	29	27	29	28	28	28	29	29	29	27	29	29	27	26
Median	2.8M	3.1M	3.1M	3.0M	3.1M	3.4	3.5	5.0M	4.7	6.1M	6.0M	5.3M	5.5M	5.3M	5.3M	4.5	4.6	5.2M	5.2M	4.8M	4.3M	4.1M	3.5M	2.8M
U.Q.	3.5	4.0	3.5	3.5	3.5	3.5	5.0	5.7	6.2	7.0	7.2	7.2	6.4	6.8	7.0	5.8	6.6	6.8	7.2	6.0	7.2	6.0	5.0	5.0
L.Q.	E	2.4	2.4	E	2.0	2.8	3.5	4.0	4.0	4.8	5.1	4.5	4.3	4.2	G	G	G	4.2	4.4	3.5	3.2	2.8	2.4	E
Q.R.		1.6	1.1		1.5	0.7	1.5	1.7	2.2	2.2	2.1	2.7	2.1	2.6				2.6	2.8	2.5	4.0	3.2	2.6	

foEs

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

The Radio Research Laboratories, Japan.

W A

IONOSPHERIC DATA

Jul. 1958

f_bE_s

135° E Mean Time (G.M.T.+ 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		E	E		1.5	G	G	4.7	5.0	A	A	A	4.6	4.2	4.3		G	4.5	5.4	A	6.2	3.1	3.4	A
2	3.0	2.9	3.8	2.1	2.5	5.9	5.5	4.6	5.8	5.5	A	5.6	5.2	5.6	4.8	A	6.0	A	3.4	A	6.1	4.5	3.3	4.0
3	4.5	4.0	E	E	G	G	G	G	5.0	4.7	G	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	A	G	G	A	A	A	3.9	3.8	3.2	G	3.0	A	2.5	E	
5					G	G	G	G	6.0	5.5	A	C		4.5	4.5	G	G	G	4.0	2.4	3.8	2.9	E	4.0
6	E	E	E	E	E	2.1	G		G	4.9	A	5.9	5.8	6.2	5.0	A	6.1	G	G	2.4	A	4.7	E	
7	E	E	E	E	1.7	2.6	G	G	G	G	4.7	B		G	5.0	G	A	3.3	2.0	2.2	2.1	A	A	2.0
8					1.7	G	3.8			G	G	4.8	4.8	4.7	4.0	A	A	4.6	A	3.0	3.4			
9		E	E		1.9	2.6	G	G	4.4	4.6	4.9	G	4.2	A	7.2			3.1	3.1	3.0	4.0	E		
10		E	E	E	1.5	G	G		G	4.1	A	A	A	A	A	A	4.7	3.7	3.3	4.0	4.5	4.5	2.4	
11	E	E	E	E	1.7	2.5	3.0	3.9		5.0	5.3	4.5	A	4.0	4.5		4.7	G	4.0		E			
12	E		E		1.7	G	G	3.8	4.1		4.7	4.7	4.9	5.2	G	G	3.7	G		2.9	4.0	2.5	C	C
13	C	C	C	C	C	C	C	C	C	C	A	4.2	4.1					G	G	2.6	E	2.5	3.3	E
14	E	E	E	E		G	G	4.0	G					G				4.1	A	4.5	A	2.9	2.9	3.0
15	3.3	E	E	E		G	2.6	4.4	4.5	G	A	G	4.8				2.9	2.5				2.5	2.3	E
16	E	E	E	E	G	G		4.3		4.6	G	4.7	5.0	G	G	2.9		3.1	4.6	E	E	2.4	C	C
17	C	C	C	C	C	C	4.2	4.8	4.6	4.0	4.5	G	4.0		C	C	3.4	3.1	2.7	E	3.0		E	C
18	C	C	C	C	C	3.4	G	4.3	G	5.9	4.8	4.6	4.0					4.6	4.7	2.9	2.6	E		
19		E			G	G	G	4.9	G	G	G			G	4.0			5.0	3.5	3.7	E	3.0		E
20		E	E	E.	2.0	3.0	3.9	4.7	G	G	G	G	4.2			4.5	5.5	3.6	A	5.2			E	E
21		E	E	E	1.6		G	4.1	5.0	G	5.6	7.0	7.0	6.3	A	4.0	4.9	G	3.6	3.1	3.0	3.0	2.2	3.0
22	E	2.6	E		1.2	G	G	4.8	G	G	5.5	G			G		G	G	G	3.8	3.0	4.0	2.9	E
23	2.2	E		E	1.6	G	3.7	5.0	5.0	A	G	4.7	G	G	4.2	4.6	5.0	3.9	2.7	5.4	4.7	5.5	2.0	4.5
24	3.2	E	E	2.1	2.0	2.5	C		4.5	A	6.3	A	6.7	4.6	4.2	G		5.0	A	3.2	4.0	2.8	E	E
25	E	E	E	E		G	G	G	4.8	4.6	4.7	G		4.9	5.0	G		4.0	2.8	A	3.5	3.4	E	E
26	E	3.9	2.9	2.7	G	G	G	G	G	5.8	B	5.0	5.0	G				5.0	4.5					
27	E	E	E	E	1.6	G	4.7	5.5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C		2.3	2.8	6.0	5.7	5.0	G	5.1	5.5	A	4.7	G		4.6	5.5	3.7	4.3	S	2.1	3.0	2.4	2.1
29	2.1	C	E	E		3.0	3.8	3.9		5.3	5.0	4.9	5.5	B	4.6	A	5.5	5.0	5.5	C	3.0		E	
30	E	E	2.5	E	1.7	1.6	C	C	C	G	G	G	4.1	4.4			4.9	G	5.0	2.4	2.1	2.6	2.8	3.0
31	2.7	E	2.2	E	2.0	2.8	4.2	5.7	6.0	4.7	5.0	A	A	A	A	4.5	4.6	3.5	4.6	4.3	5.6	3.5	2.9	2.6
No.	18	22	22	20	23	27	26	24	23	27	28	25	23	22	20	17	20	29	27	24	26	23	21	17
Median	E	E	E	E	1.6	G	G	4.3	4.4	4.7	5.0	4.7	4.9	4.6	4.6	4.5	4.8	3.5	4.0	3.0	3.4	3.0	2.3	2.1

f_bE_s

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

The Radio Research Laboratories, Japan.

W 5

IONOSPHERIC DATA

Jul. 1958

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	E1.85S	E1.25S	E	E	E	E1.70S	E2.00S	E2.00S	E2.40S	E2.45S	E2.45S	E2.40S	E2.50S	E2.00S	E2.40S	E3.10S	E2.00S	E2.00S	E2.00S	E1.90S	E1.60S	E1.85S	E1.65S	E1.75S
2	E1.85S	E1.30S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.40S	E2.45S	E2.50S	E2.45S	E2.40S	E2.40S	E2.40S	E2.00S	E2.00S	E2.00S	E1.75S	E1.80S	E1.75S	E1.60S	E1.60S
3	E1.80S	E1.10S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.05S	E2.45S	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	E2.05S	E2.40S	E2.40S	E2.40S	E2.50S	E2.00S	E2.00S	E2.40S	E2.00S	E2.00S	E1.85S	E1.60S	E1.75S	E1.85S	E2.00S
5	E2.00S	E1.60S	E1.30S	E1.25S	E	E1.60S	E2.00S	E2.00S	E2.40S	E2.40S	E2.40S	C	E2.15S	E3.15S	E2.40S	E2.15S	E2.00S	E2.00S	E2.00S	E1.75S	E1.70S	E1.70S	E1.60S	E1.60S
6	E1.75S	E	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.50S	E2.50S	E2.50S	E2.50S	E2.50S	E2.45S	E2.45S	E2.00S	E2.10S	E2.00S	E1.95S	E1.85S	E1.75S	E1.75S	E1.90S
7	E1.70S	E1.20S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.40S	3.00	4.80	E3.00S	E2.40S	E2.40S	E2.40S	E2.00S	E2.00S	E1.90S	E1.70S	E2.00S	E1.60S	E1.65S	E2.00S
8	E2.00S	E1.55S	E	E	E	E1.60S	E2.00S	E2.00S	E2.40S	E2.40S	E2.00S	E2.75S	E2.50S	E2.40S	E2.10S	E2.40S	E2.00S	E1.90S	E2.00S	E1.85S	E2.00S	E2.00S	E1.80S	E2.00S
9	E2.00S	E1.20S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.40S	E2.00S	E2.40S	E2.40S	E2.50S	E2.50S	E2.45S	E2.00S	E2.00S	E2.00S	E1.80S	E1.75S	E1.60S	E2.00S	E1.80S
10	E2.00S	E1.25S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.40S	E2.40S	E2.50S	E2.50S	E2.50S	E2.45S	E2.40S	E2.00S	E1.75S	E2.00S	E1.65S	E1.90S	E1.60S	E1.60S	E1.80S
11	E1.60S	E1.20S	E	E	E1.20S	E1.60S	E2.00S	E2.00S	E2.40S	E2.50S	E2.50S	E2.40S	E2.50S	E2.40S	E2.50S	E2.00S	E2.00S	E2.00S	E2.00S	E2.00S	E1.75S	E2.00S	E1.85S	E1.90S
12	E1.60S	E1.20S	E	E	E	E1.60S	E2.00S	E2.00S	E2.10S	E2.45S	E2.45S	E2.50S	E2.40S	E2.50S	E2.40S	E2.50S	E2.05S	E2.40S	E2.00S	E2.00S	E1.90S	E1.70S	C	C
13	C	C	C	C	C	C	C	C	C	C	E2.40S	E2.50S	E2.00S	E2.60S	E2.45S	E2.00S	E2.00S	E2.00S	E1.90S	E1.75S	E1.65S	E1.60S	E1.60S	E2.00S
14	E1.85S	E1.20S	E	E	E	E1.60S	E2.00S	E2.00S	E2.40S	E2.45S	E2.00S	E2.50S	E2.45S	E2.80S	E2.40S	E2.40S	E2.00S	E2.00S	E1.80S	E1.85S	E1.85S	E1.60S	E1.75S	E1.65S
15	E1.70S	E1.25S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.00S	E2.90S	E2.40S	E3.00S	E3.00S	E2.40S	E2.40S	E2.00S	E2.00S	E1.90S	E2.00S	E1.60S	E1.65S	E1.65S	E1.80S
16	E1.90S	E1.60S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.00S	E2.50S	E3.00S	E2.60S	E2.60S	E2.00S	E2.10S	E2.00S	E2.00S	E2.00S	E2.00S	E1.80S	E1.90S	C	C
17	C	C	C	C	C	C	E1.80S	E2.00S	E2.00S	E2.00S	E2.60S	E2.00S	E2.40S	E2.05S	C	C	E2.00S	E1.80S	E1.60S	E1.60S	E1.60S	E1.90S	E1.65S	C
18	C	C	C	C	C	E2.50C	E2.00S	E2.00S	E2.00S	E2.40S	E2.40S	E2.40S	E2.40S	E2.00S	E2.00S	E2.00S	E2.00S	E2.00S	E2.00S	E1.70S	E1.60S	E1.60S	E1.75S	E1.80S
19	E1.90S	E1.25S	E1.20S	E	E1.10S	E1.60S	E2.00S	E2.00S	E2.00S	E2.00S	E2.00S	E2.45S	E2.40S	E2.40S	E2.00S	E2.00S	E2.00S	E2.00S	E2.00S	E1.80S	E1.70S	E1.80S	E1.85S	E1.60S
20	E1.80S	E1.25S	E	E	E	E1.60S	E1.90S	E2.00S	E2.00S	E2.00S	E2.40S	E2.40S	E2.45S	E2.10S	E2.60S	E2.00S	E2.45S	E1.90S	E1.80S	E1.80S	E1.85S	E1.90S	E1.70S	E1.60S
21	E2.00S	E	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.40S	E2.00S	E2.50S	E2.50S	E2.50S	E2.45S	E2.50S	E2.00S	E2.00S	E2.00S	E1.80S	E1.60S	E1.85S	E1.60S	E1.90S
22	E2.00S	E	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.40S	E2.40S	E2.40S	E2.60S	E2.50S	E2.00S	E2.00S	E2.00S	E2.00S	E1.85S	E1.80S	E1.60S	E1.75S	E1.85S	E1.60S
23	E1.80S	E1.50S	1.10	E	E1.20S	E1.60S	E2.00S	E2.00S	E2.00S	E2.00S	E2.45S	E2.45S	E2.40S	E2.50S	E2.40S	E2.40S	E2.40S	E2.00S	E1.80S	E1.65S	E1.85S	E1.60S	E1.85S	E1.60S
24	E1.60S	E1.55S	E	E	E	E1.60S	E2.00S	E2.10S	E2.00S	E2.40S	E2.00S	E2.40S	E2.40S	E2.40S	E2.00S	E2.00S	E2.00S	E1.85S	E2.00S	E1.70S	E1.75S	E1.60S	E2.00S	E1.65S
25	E1.60S	E1.20S	E	E	E	E1.60S	E2.00S	E2.00S	E2.00S	E2.00S	3.00	E2.45S	E2.60S	E2.40S	E2.40S	E2.00S	E2.00S	E2.00S	E1.80S	E1.60S	E1.60S	E1.70S	E1.85S	E2.00S
26	E1.80S	E1.20S	E	E	E	E1.60S	E1.90S	E1.95S	E2.00S	E2.40S	B	E2.40S	E3.00S	E2.60S	E2.40S	E2.05S	E2.00S	E2.00S	E2.00S	E1.80S	E2.00S	E1.75S	E1.65S	E2.00S
27	E1.90S	E1.30S	E	E	E	E1.60S	E2.00S	E2.00S	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	E	E	E	E1.60S	E2.00S	E2.00S	E2.40S	E2.40S	E3.00S	E2.65S	E3.00S	E2.50S	E2.60S	E2.40S	E2.00S	E2.00S	E2.00S	E2.40S	E1.60S	E1.80S	E1.65S	E1.65S
29	E1.65S	C	E	E	E	E1.60S	E2.00S	E2.00S	E2.10S	E2.00S	E2.90S	E2.40S	3.00	I3.30B	2.80	E2.00S	E2.00S	E1.85S	E2.00S	C	E1.85S	E1.60S	E2.00S	E1.75S
30	E1.20S	E	E	E	E	E	C	C	C	E2.00S	E2.50S	E2.50S	E2.50S	E2.40S	E2.50S	E2.40S	E2.00S	E2.00S	E1.85S	E1.65S	E1.60S	E1.60S	E1.65S	E1.60S
31	E1.60S	E1.20S	E	E	E	E1.60S	E2.00S	4.40	E2.40S	E2.40S	E2.50S	E2.40S	E2.40S	E2.40S	E2.40S	E2.40S	E2.00S	E2.10S	E2.00S	E1.85S	E1.75S	E1.80S	E1.60S	E1.80S
No.	26	25	25	26	24	28	28	28	27	29	30	28	29	29	28	28	29	29	29	28	29	29	27	26
Median	E1.80	E1.25	E	E	E	E1.60	E2.00	E2.00	E2.00	E2.40	E2.45	E2.45	E2.50	E2.50	E2.40	E2.40	E2.00	E2.00	E2.00	E1.80	E1.75	E1.75	E1.70	E1.80

f-min

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

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

Jul. 1958 (M3000)F2 135° E Mean Time (G.M.T.+ 9h.)

Wakkanai Lat. 45° 23.6' N Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U245S	250	250	250	255	255	250	225	250	A	A	A	215	215	225	235	240	240	260	I255A	250	235	245	I245A
2	245	225	240F	245	250F	260	255	245	245	240	I225A	230	225	230	230	I240A	250	I250A	265	I260A	255	I245S	I250S	245
3	255	250	250	240	245	240	250	245	240	220	235	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	A	W	215	W	I215A	I215A	225	235	240	245	255	I240A	U245S	250	245
5	240	235	250	235	240	235	240	250	245	215	I220A	I225C	W	220	225	220	235	240	250	260	245	235	U250S	250
6	245	240	250	260	255	I255R	250	J255RH	260	235	I250A	I255R	245	245	I250A	I255A	255	265	270	270	I250A	I240S	I240S	I250S
7	I245S	245	245	250	260	245	250	255	260	245	240	I240R	245	I255R	245	U255R	I260S	265	265	U265S	240	S	S	S
8	U270S	250	250	270	255	260	270	255	250	260	265	I250R	245	I250R	I255R	I260R	I265A	U260S	I255S	I255S	S	S	S	F
9	230	195	205	220	W	W	W	W	W	W	230	245	235	I235A	250	255	260	260	265	285	250	U255S	U245S	U245S
10	245	I250S	255	I240F	235	235	250	260	245	230	I225A	I240A	A	A	A	A	245	245	265	265	255	255	250	245
11	245	250	270	270	285	270	240	270	260	265	245	250	I255A	255	255	255	260	260	270	U270S	U260S	S	S	S
12	S	U245S	255	260	245	245	245	I270R	275	I255R	280	245	255	265	255	270	280	275	265	250	U245S	240	C	C
13	C	C	C	C	C	C	C	C	C	C	I235A	260	255	255	255	260	275	280	270	275	U265S	U245S	U260S	255
14	U250S	255	250	240	245	260	255	245	255	235	255	260	235	265	240	255	265	280	I280A	275	I260A	255	255	245
15	270	250	255	245	260	255	285	265	245	240	I230A	255	260	255	260	265	270	270	285	280	255	U255S	255	255
16	250	265	265	275	260F	280	245	260	265	285	275	245	255	265	255	275	280	285	270	280	265	S	C	C
17	C	C	C	C	C	C	250	275	250	250	270	265	255	270	I270C	I250C	250	270	I290S	U280S	U265S	260	S	C
18	C	C	C	C	C	270	275	J280R	280	280	255	275	250H	255	270	275	285	270	265	270	U265S	U270S	U270S	I260S
19	U250S	245	255	245	260	275	275	275	260H	270	255H	285	265H	270	280	280H	275	270	285	270	275	U265S	U255S	260
20	255	255	255	265	265	265	265	275	275	290H	275	265	255	265	260	280	265	280	I270A	290	265	I250S	260	255
21	255	265	240	245	260	265	270	280	275	265	265	280	270	280	I270A	265	275	265	275	280	U280S	S	S	S
22	U250S	250	260	255	245	250	240	240	255	260	230	255	260	250	270	265	270	265	275	270	U265S	I255S	I260S	I265S
23	260	255	240	265	255	260	245	255	250	I240A	230	I235R	245	275	270	260H	265	285	280	280	255	250	U240S	245
24	245	245	260	250	260	265	260	285	280	I270A	250	I265A	255	250	260	260	275	275	I270S	J275S	255	I260S	I260S	255
25	U250S	255	245	255	245	270	270	270	265	280	260	I260R	245	255	265	265	U285R	I270S	260	I265S	I250S	245	I255S	I250S
26	255	I255S	U255S	240	240	235	235	245	250	245	I245B	225	235	245	245	235	260	260	260	250	I260S	I255S	I250S	255
27	I250S	I250S	245	250	255	230	290	270	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	240	250	250	255	240	225	220	225	215	I215A	I215A	W	215	220	235	250	260	240	245	I240S	240	245
29	240	I245C	250	255	260	245	270	280	245	270	260	I250R	245	I245B	250	I255A	250	270	280	I265C	U245S	I240S	I245S	I245S
30	U250S	U255S	255	U260S	270	260	C	C	C	245	240	245	250	235	J245R	255	260	250	275	I265S	U255S	I245S	S	S
31	S	S	260	250	235	235	250	240	225	I215A	215	I215A	I210A	I220A	I230A	230	235	240	250	245	240	I240S	U245S	I250S
No.	24	25	27	27	27	28	28	28	27	27	29	28	28	28	28	28	29	29	29	29	28	24	21	21
Median	250	250	250	250	255	255	250	260	250	245	245	250	245	250	255	255	260	265	270	270	U255	U250	U250	250

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

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Jul. 1958

(M3000)F1

135° E Mean Time (G.M.T.+ 9h.)

Wakkanai

Lat. 45°23.6' N
Long. 141°41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	335	345	340	A	A	A	365	370^{H}	360	350	335	A	A					
2						A	A	A	A	A	A	A	$I375^{A}$	$I320^{A}$	335	A	A	A	L					
3						L	330	335	345	360	360	C	C	C	C	C	C	C	C					
4						C	C	C	C	A	355	360	$I360^{A}$	$I350^{A}$	$I345^{A}$	335	340^{H}	320	L					
5						290^{H}	LH	330	$I350^{A}$	$I345^{A}$	$I360^{A}$	$I370^{C}$	365	380^{H}	350	365	335	LH	L					
6						L	L	LH	L	330	330	335	335	340	350	A	A	LH	L					
7						L	L	340	355	355	365^{H}	360	340^{H}	350	235	335	A	L	L					
8						L	L	LH	LH	LH	LH	LH	360	340	335	A	A	L	A					
9					255	305	340^{H}	$U335^{RH}$	$U335^{A}$	335	360	355	360^{H}	$I345^{A}$	$I340^{A}$	315	L	L	L					
10					L	305	285	320	345	370^{H}	360	A	A	A	A	A	L	330	L					
11							L	330	380	L	375	375	$I345^{A}$	350^{H}	L	LH	A	L	L					
12						L	LH	LH	345	355	245^{H}	360	L	L	360	L	L	L	L					
13					C	C	C	C	C	C	A	365	335	L	L	355	L	L	L					
14					285	325	L	335	380	LH	385	385	380^{H}	360^{H}	360^{H}	360^{H}	335	A	A					
15						L	330	L	325	370	$I360^{A}$	360	355	365	LH	LH	L	L	L					
16						L	345	LH	350	$I360^{AH}$	LH	L	340	365	LH	LH	L	345	A					
17							L	A	335	335	360	345	350^{H}	355	$I340^{C}$	$I345^{C}$	320^{H}	L	L					
18						L	L	$I335^{A}$	340^{H}	$I345^{A}$	L	350	LH	335	330^{H}	325	L	A						
19						L	L	L	LH	L		380	LH	L	L	LH	L	A	L					
20						L	L	$I340^{A}$	L		335	350	355	L	325	L	A	L	A					
21						L	335	L	$I350^{A}$	355	A	A	A	A	A	LH	A	L						
22						L	310	$I330^{A}$	340	345	$I340^{A}$	365	390^{H}	L	350	LH	350	L	L					
23						315	$U330^{A}$	A	A	A	365	$U355^{R}$	355	L	LH		L	L	L					
24						L	C	L	L	A	A	A	A	LH	LH	LH	L	A						
25						L	L		L	365	L	L	LH	L	L	L	L		L					
26						L	L	LH	365	$I335^{A}$	$I335^{B}$	335	350	L	350	L	LH	A						
27						L	A	A	C	C	C	C	C	C	C	C	C	C	C					
28						A	A	L	345	$I350^{A}$	$I345^{A}$	$I340^{A}$	$I340^{R}$	350	335	325	$I310^{A}$	L	A					
29						L	330	L	LH	L	L	L	L	B	355	$I340^{A}$	A	A	A					
30							C	C	C	350	340	345	L	LH	335	L	L	L	A					
31						305	$I315^{A}$	A	A	A	350	$I355^{A}$	$I360^{A}$	$I345^{A}$	$I335^{A}$	340	$U315^{A}$	L						
No.					2	6	11	11	17	17	19	20	20	16	19	12	8	3						
Median					270	305	330	335	345	350	360	360	355	350	340	340	335	330						

(M3000)F1

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

The Radio Research Laboratories, Japan.

W 8

IONOSPHERIC DATA

Jul. 1958 | 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						L	410	540	460	A	A	A	710	650	590	560	520	480	A					
2						A	365	385	470	500	I620A	585	630	615	600	A	A	A	L					
3						L	390	455	510	600	585	C	C	C	C	C	C	C	C					
4						C	C	C	C	A	W	700	W	I670A	I630A	620	540	470	L					
5						405	L	410	I450A	620	I660A	I705C	W	615	640	615	555	L	L					
6						L	L	LH	L	470	I450A	420	440	460	465	I430A	420	L	L					
7						L	L	400	405	445	475	450	485	440	480	460	A	L	L					
8						L	L	L	L	405	L	460	470	440	425	I395A	A	L	A					
9					W	W	W	W	W	W	580	500	600	I490A	I440A	420	L	L	L					
10					L	440	410	375	440	520	I635A	A	A	A	A	A	L	490	L					
11							L	370	380	420	500	475	I440A	450	L	L	400	L	L					
12						L	L	360	355	420	360	470	L	420	410	390	L	L	L					
13					C	C	C	C	C	C	A	435	460	435	440	405	370	L	L					
14					385	335	L	410	430	520	470	450	540	430	570	450	425	350	A					
15						L	320	L	480	530	I585A	470	440	430	420	400	L	L	L					
16						380	470	410	395	340	380	535	460	420	450	385	L	335	A					
17							410	340	460	450	405	415	440	415	I400C	I460C	410	360	L					
18						L	L	310	345	385	L	390	LH	435	355	355	L	A						
19						L	320	375	LH	380		370	LH	L	385	LH	L	350	L					
20						L	L	330	L		375	420	460	L	400	L	380	L	A					
21						L	340	L	460	370	390	A	A	370	I380A	410	360	L						
22						L	445	440	405	400	540	435	415	L	405	L	370	L	L					
23						370	460	470	485	I560A	630	I590R	515	460	405		L	L	L					
24						L	C	L	L	I395A	460	I410A	430	420	L	L	L	A						
25						L	L		L	360	410	L	L	405	395	L	L		L					
26						L	L	L	485	505	I540B	625	575	520	510	L	430	A						
27						L	310	375	C	C	C	C	C	C	C	C	C	C	C					
28						A	A	570	740	625	665	I690A	I710R	W	690	625	570	L	375					
29						L	350	L	L	395	420	445	470	I460B	455	I430A	L	350	A					
30							C	C	C	440	480	490	L	520	460	L	L	L	A					
31						430	420	490	I540A	I660A	770	I750A	I730A	I680A	I630A	600	540	L						
No.					2	7	15	20	20	26	25	25	22	25	26	18	14	8	1					
Median					D385	405	410	405	460	450	500	470	480	450	445	430	420	355	375					

h′F2

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

The Radio Research Laboratories, Japan.

W 9

IONOSPHERIC DATA

Jul. 1958

h'F

135° E Mean Time (G.M.T.+ 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	320	310	300	295	290	250	250	I260A	A	A	A	A	235	220H	230	225	245	A	A	A	A	360	I380A	I405A
2	345	375A	I375A	340	300	I275A	I255A	A	A	A	A	A	I240A	I265A	285A	A	A	A	290A	I270A	I290A	I305A	350A	I330A
3	I310A	I330A	320	305	320	285	260	250	I245A	250	220	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	A	250	250	I250A	I260A	I250A	235	250H	260	260	320A	I345A	345A	295	310
5	310	340	300	335	280	275H	320H	255	A	A	A	I230C	230	220H	255	230	270	250H	I270A	290A	I310A	360A	350	I345A
6	340	310	300	270	260	250	240	230H	250	A	A	A	A	A	260	I255A	I250A	230H	260	290A	I310A	I355A	340	300
7	310	310	310	300	290	255	250	250	225	220	225H	235	235H	235	I260A	250	I270A	260	255	280	310	I345A	I330A	300
8	290	310	295	300	275	245	250	220H	230H	220H	210H	240H	230	270	220	I240A	I235A	A	A	A	A	390	335	320F
9	395	470	505	510	420	320	260H	240H	I250A	280A	280A	235	220H	I250A	I255A	240	250	260	275	275	I320A	320	310	295
10	315	305	300	345	350	270	290	270	245	200H	A	A	A	A	A	A	I270A	250	290A	A	A	A	325	320
11	325	310	275	290	265	265	230	240	220	I230A	I215A	230	I245A	205H	260	225H	I240A	260	320A	290	290	310	305	310
12	310	310	275	280	280	270	255H	235H	250	255	I220AH	225	I255A	I240A	235	230	240	250	245	280	I305A	320A	C	C
13	C	C	C	C	C	C	C	C	C	C	A	220	235	235	235	235	270	250	270	280	275	310	I320A	300
14	300	290	265	340	325	310	260	255	230	240H	205	220	220H	210H	210H	225H	250	A	A	A	A	340A	335A	340A
15	315	290	310	320	320	285	270	I265A	285A	230	I250A	230	270A	250	225H	240H	240	260	255	275	275	325	325	310
16	300	300	305	300	280	260	225	I250A	240	I250A	250A	250	280	235	220H	225H	285	245	I255A	270	270	310	C	C
17	C	C	C	C	C	C	285A	I280A	270A	220	225	235	225H	235	I210C	I230C	240H	245	250	265	300A	295	320	C
18	C	C	C	C	C	300	240	I240A	220H	I250A	260A	240	200H	230	235H	235	245	A	A	A	290A	260	295	300
19	305	320	290	315	310	265	250	I250A	240H	240	200H	210	190H	230	230	225H	250	A	A	A	260	280A	270	280
20	300	305	295	280	290	275	I270A	I260A	220	260H	255	220	230	235	240	270A	I260A	A	A	A	270	295	300	320
21	300	290	320	310	315	270	225	290A	I265A	250	A	A	A	A	A	230H	I255A	260	I285A	305A	285	300A	280	300
22	320	325	295	295	310	270	260	I270A	250	260	I260A	215	210H	230	240	250H	245	270	270	290A	320A	I315A	305A	290
23	290	295	290	295	320	280	300A	A	A	A	240	260A	235	255	220H	270AH	I265A	290A	255	A	A	A	310	I315A
24	I320A	310	295	300	300	270	I245C	250	250	A	A	A	A	240AH	220H	230H	230	I270A	I280A	290A	I290A	310A	275	310
25	330	305	305	305	310	260	230	230	I245A	245A	260A	210	220H	270	275A	240	225	I250A	260	I305A	I305A	335	285	300
26	310	I340A	305A	350A	320	270	270	250H	240	A	B	A	295A	250	250	230	240H	I275A	I275A	310	290	300	320	305
27	315	310	310	310	320	265	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	325	325	315	A	A	A	250	I250A	I260A	I255A	250	240	260	285A	I265A	255	I305A	310	320	370A	350A	335
29	330	I340C	320	305	300	245	250	250	230H	I250A	255A	250	I225A	I240B	250	I260A	A	A	A	C	310A	315	310	310
30	315	320	310A	300	275	260	C	C	C	225	220	230	215	240H	235	240	I260A	250	I270A	295	310	315	320A	350A
31	315	295	310	325	370	300	I300A	I290A	I270A	250	A	A	A	A	A	255	I265A	265	A	A	A	A	370A	335A
No.	26	26	27	27	27	27	26	24	23	21	20	21	24	25	26	27	27	21	21	19	23	26	27	26
Median	315	310	305	305	310	270	255	250	245	250	245	230	230	240	240	235	250	260	270	290	300	315	320	310

The Radio Research Laboratories, Japan.

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

h'F

W 10

IONOSPHERIC DATA

Jul. 1958 | 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	105	105	E	100	140	130	120	115	110	110	105	110	110	105	G	135	120	115	110	110	115	110	110
2	100	100	100	100	105	125	125	130	115	115	110	110	110	110	105	110	110	110	115	120	110	105	105	105
3	105	105	105	105	110	125	135	125	110	110	110	C	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	125	125	120	110	110	110	105	105	110	150	125	115	125	115	E
5	E	E	E	E	150	135	135	140	110	110	110	C	G	115	110	110	135	120	115	120	110	110	115	115
6	110	110	110	125	105	105	135	G	125	115	110	110	110	110	105	105	110	115	120	115	110	105	110	E
7	105	110	110	110	110	115	125	125	120	110	115	B	G	120	120	115	110	105	105	110	115	105	110	105
8	E	E	E	E	100	120	115	G	G	110	115	115	110	110	105	105	105	100	105	110	140	E	E	E
9	E	135	125	G	110	125	120	115	120	120	110	110	110	105	110	G	G	110	120	135	120	135	E	E
10	E	120	120	120	105	140	130	G	120	105	105	110	110	110	110	110	110	110	105	105	110	110	110	E
11	110	110	105	105	120	110	110	110	G	115	115	110	110	110	105	G	125	125	120	G	125	E	E	E
12	105	E	105	E	105	125	120	110	110	G	105	110	105	110	110	120	110	130	G	130	120	115	C	C
13	C	C	C	C	C	C	C	C	C	C	110	105	110	G	G	G	G	125	120	115	110	110	110	110
14	110	105	105	105	G	125	125	120	125	G	G	G	G	130	G	G	G	130	110	110	110	110	105	105
15	105	105	100	105	G	105	110	125	120	115	110	115	115	G	G	G	105	105	G	E	E	110	110	110
16	110	105	105	105	110	140	G	125	G	120	115	110	105	105	105	100	G	110	115	140	120	120	C	C
17	C	C	C	C	C	C	120	115	110	110	110	110	105	G	C	C	105	105	105	125	105	E	110	C
18	C	C	C	C	C	125	120	115	120	110	110	105	105	G	G	G	G	125	120	110	110	110	E	E
19	E	105	E	E	140	140	130	115	130	115	110	G	G	125	105	G	G	125	120	110	115	110	E	105
20	E	105	105	140	120	120	115	110	120	110	110	110	110	G	G	135	125	120	115	115	E	E	110	105
21	E	110	105	105	105	G	140	135	125	120	110	110	110	110	110	110	135	140	125	120	110	110	110	110
22	105	105	105	E	105	135	130	115	115	110	110	120	G	G	125	G	135	130	130	120	115	110	110	110
23	110	190	E	130	135	145	125	115	110	110	120	110	110	110	110	110	105	105	105	120	110	110	110	105
24	105	105	105	105	100	100	C	G	110	110	105	105	105	110	105	150	G	115	110	110	115	110	110	105
25	105	110	105	105	G	105	100	130	120	120	115	130	G	125	115	110	G	110	110	110	115	120	105	105
26	105	120	115	110	105	125	115	130	130	120	B	110	110	110	G	G	G	125	120	E	E	E	E	E
27	105	105	100	120	125	135	115	110	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	E	125	130	125	115	115	120	115	115	110	110	115	G	145	130	125	125	S	115	110	105	105
29	105	C	105	105	G	115	120	115	G	110	105	105	105	B	105	120	100	110	110	C	110	E	110	E
30	105	100	100	110	100	125	C	C	C	120	115	110	105	105	G	G	125	120	110	110	110	110	105	105
31	105	105	100	105	130	115	120	115	110	110	110	105	105	110	110	100	105	130	120	115	110	110	110	110
No.	18	22	22	20	23	27	26	24	23	27	28	25	23	22	20	17	20	29	27	24	26	23	21	17
Median	105	105	105	105	110	125	120	115	120	110	110	110	110	110	110	110	110	120	115	115	110	110	110	105

h'Es

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

The Radio Research Laboratories, Japan.

W 11

IONOSPHERIC DATA

Wakkanai

Lat. 45°23.6′ N
Long. 141°41.1′ E

Jul. 1958

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		f	f		l,c	h	h	h	C2	C2	C2	C2	c	l	l		h	C3	C4	C4	f2f	f,f3	f,f3	f,f
2	f2	f3	f3	f2	l	c6	h	h	h	h2	c	c	c	c	l	l3	C2	C3	h	C3	f3	f3	f4	f3
3	f5	f6	f	f	c	h	h	h	c	c	c													
4										h	h	h	c	c	c	l	l	l2	h	c	f6	f,f	f	
5					h	h	h	h	c	C2	c			c	l	c	h	h2	C2	f2	f3	f3	f2	f3
6	f2	f2	f	f,f	f2	l	h		h	c	C2	l	c	c	l2	l2	l2	c	c	C3	f3	f3	f3	
7	f2	f	f	f2	l	r	h	h	h	c	c			h	h	c	C2	l2	l,c	l2	f	f3	f3	f
8					l	c	C2			c	c	c	c	c	l	l2	l2	l2	l3	C2	f			
9		f	f4		l	l	c	c	h	h	c	c	l	l	l2			l,h	c	c	f3	f		
10		f	f2	f2	l,h	h	h		h	l	l	l	l2	c	C2	l2	l2	l4	l3	l2	f3	f3	f2	
11	f2	f2	f	f	l	l2	h,l	l		C2	c	c	C2	l	l		h	h	C3		f			
12	f2		f		l	c	c	l	l		l	l	l	c	c	h	l	h		c	f	f2		
13											C2	l	l					h	c	f2	f2	f3	f3	f
14	f	f2	f	f,f		c	h	h	h					h				h	c	f3	f5	f3	f3	f2
15	f3	f2	f2	f		l,h	l,c	h	h	h	c	c	l				l	l				f2	f2	f2
16	f	f2	f2	f	l	h		h		h	c	l	l	l	l	l		l	C2	f	f	f2		
17							c	c	c	l	c	c	l				l	l2	l	f	f5		f	
18						C2	c	h	h	C2	c	l	l					h	c	f3	f5	f		
19		f			c	h	h	c	h	h	c			h	l			h2	C2	f2	f	f3		f2
20		f	f	f	l2	c	C2	c	h	c	c	c	l			h	h	C3	C3	f6			f	f
21		f	f3	f	l		h	h,l	h	h	c	c	c	c	l2	l	h	h	c	f2	f6	f3	f2	f3
22	f2	f4	f3		l,h	h	h	c	h	c	c	h			h		h	h	c	C3	f3	f4	f2	f
23	f2	f		f	l	h	c	C3	c	c	h	c	c	c	l	c	l	l2	l2	f3,f2	f4	f3	f2	f3
24	f2	f	f2	f2	l2	l			c	C2	c	c	c	c	l	h		C3	C3	f3	f4	f2	f2	f2
25	f	f	f	f		l,c	l	h	h	h	c	h		h	C2	c		C2	l2	f3	f3	f2	f	f
26	f	f3	f5	f4	l	h	c	h	h	h		c	c	c				h	C2					
27	f	f	f	f	l	h	c	C2																
28				f3	C3	C2	c	c	h	h	c	c	c	h		h	h	h	C2		f2	f4	f2	f2
29	f2		f3	f2		c	c	c		c	c	l2	l		l	c,l2	l3	c,l2	l5		f2		f2	
30	f	f4	f4	f,f3	l	c,l				h	h	c	l	l			h	h	C3	f2	f3	f2	f2	f4
31	f4	f	f2	f4	c,l2	c	C2	c	c	C2	c	C2	l2	l2	C2	l	l2	h	C2	f5	f4,f2	f4	f5	f4
No.																								
Median																								

The Radio Research Laboratories, Japan.

Types of Es

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

W 12

IONOSPHERIC DATA

Jul. 1958 — 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
1	7.2	7.1	6.9	6.4	6.7	7.9	8.7	9.1	I7.7A	7.2	I7.2A	7.3
2	7.1F	7.2F	7.0F	7.5F	7.2F	8.9F	10.8	9.8H	9.2	8.5	7.8	7.9
3	8.4F	8.3F	7.3F	7.0F	6.9F	7.8	8.1F	7.6	I7.0R	I7.0A	6.9	6.9
4	8.5F	8.2F	7.4F	6.6F	6.6H	7.8	7.7	6.9	6.9	6.6	6.3	6.5
5	7.5	7.1	7.3F	6.9F	7.2F	7.5F	9.1	9.3	8.1	7.1	7.0	6.9
6	7.3S	7.3S	7.1S	7.4	7.3	7.8	9.3	10.8	10.7	10.0	10.2	10.1
7	C	C	C	C	C	C	9.3	9.9	9.4	8.8	9.3	9.5
8	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	7.6	7.5
10	7.6	7.6	7.4	7.6	6.6	8.1	10.1	10.5	9.9	8.6	7.4	6.8
11	7.5	7.4	7.5	6.5	5.8	5.7	6.8	7.8	7.9	7.6H	7.5	8.0
12	8.7	9.0	8.6	7.7	8.0	8.0	9.0	9.5	8.7	8.0	8.9	8.6
13	8.6	8.6	7.9	7.5	6.9F	7.4	8.8	9.2	8.6	8.0	8.5	9.5
14	8.1	7.9	7.1	7.0	6.8	7.6	9.0H	8.1	7.5	8.5	8.6	9.3
15	7.6	7.1F	7.1	6.8	6.7	7.3	8.1	7.8	6.5	6.5	7.5	8.6
16	7.8	7.6S	7.5S	7.2	6.4	6.1H	6.8FH	8.3	I9.2C	8.4H	8.2	7.6
17	8.6F	8.3F	7.6	7.1	7.0F	7.3	7.8	8.2	7.6	7.7	8.4	8.4
18	7.5	7.7	7.6	7.5	7.3	8.0	8.6	9.0	9.3	9.1	8.6	8.9
19	8.4	7.9	8.0	7.6S	7.8	7.0	7.4	8.6	9.0	8.8	9.0	I9.0R
20	9.4S	9.1S	8.8	8.1	8.0	8.6	9.5	10.3	8.6	8.5H	8.5	8.4
21	9.0	9.0	8.2	7.8	7.7	7.9H	8.3	9.1	8.8	9.3	9.2	9.4
22	7.9S	7.9	7.5	7.0	6.2	6.7	8.1	8.6	7.7	7.6	8.6	9.0
23	9.0S	8.6	7.7	7.6	7.0F	6.4	6.3	6.6	6.7	6.8	6.9	7.6
24	I7.4AS	7.4F	7.0F	6.8	6.6	7.0	8.1	8.6	8.7	8.7	8.7	9.1
25	9.1	9.0F	8.1	7.8F	7.2F	7.7	8.4	9.6	8.8	8.7	9.4	9.7
26	8.7	8.5	8.5	7.5F	7.1F	7.4	7.7	I7.3A	7.3	7.2	6.8	6.9
27	8.1	7.9	7.7	7.5	7.4	7.9	8.6	8.7	8.5	9.2	9.5	9.9
28	I8.0AS	8.3	I8.4F	8.4	7.7	7.6F	I7.6A	7.6	6.9	6.8	7.0	6.6
29	7.7	7.7	7.4	7.0	6.9	7.7	8.5	8.7	8.5	9.1	9.3	9.3
30	9.3	9.0	8.6	8.1	8.0	8.5	9.5	9.6	9.3	9.1H	I9.4A	9.3
31	8.9	8.5	7.8	7.1	6.9	6.8	7.6	7.4	6.7	I6.2B	I6.3A	I6.1B
No.	28	28	28	28	28	28	29	29	29	29	30	30
Median	8.1	7.9	7.6	7.4	7.0	7.6	8.4	8.7	8.5	8.4	8.4	8.5
U.Q.	8.7	8.6	8.0	7.6	7.4	7.9	9.0	9.6	9.1	8.8	8.9	9.3
L.Q.	7.6	7.5	7.3	7.0	6.7	7.2	7.7	7.8	7.4	7.2	7.2	7.3
Q.R.	1.1	1.1	0.7	0.6	0.7	0.7	1.3	1.8	1.7	1.6	1.7	2.0

Day	12	13	14	15	16	17	18	19	20	21	22	23
1	7.3	7.3	8.0	7.5	7.3	7.1	7.3	7.4	7.5	I7.4A	7.5	I7.4A
2	I8.2A	8.2	8.5	8.1	7.9	7.7	7.6	7.2	7.0F	I8.0F	8.5F	8.4F
3	7.6	7.7	7.5	7.5	7.6	7.4	7.4	7.3	7.4	7.7F	7.6F	8.0F
4	6.3	6.5	I6.8C	6.7	6.9	7.0	6.7	6.9	6.8S	I7.6A	7.7F	7.6F
5	6.6	I6.6A	6.7	6.4	6.4	6.7	6.9	6.7	6.8	7.2	7.3S	7.8
6	I9.8A	9.5	9.4	9.5	9.1	8.9	8.7	8.3	7.9	8.0	8.6	8.5F
7	9.1	9.0	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C
9	7.7	8.2	9.5	9.5	9.0	8.9	8.6	8.3	7.9	8.8	9.0	8.7
10	6.7	6.3	6.4	6.0	6.2	6.5	7.0	7.5	7.3	7.6	8.0	8.0
11	7.8	8.1	7.8	7.7	7.9	I8.2A	8.5	8.1	7.7	8.2	8.7	8.7
12	9.1	9.5	9.2	9.3	9.1	8.4	8.5	8.6	9.4	9.1	9.3	8.9
13	10.0	9.6	8.6	8.4	8.6	8.6	I8.6A	8.7	8.5	8.6	8.6	8.6
14	8.7	8.8	8.6	8.0	8.1	8.3	7.8	7.0	6.9	7.5	8.0F	7.9
15	9.4	9.0	8.7H	8.8	8.9	8.9	8.4	7.3	7.5	7.7S	8.0S	7.7
16	8.0	8.4	8.0	8.1	8.5	8.5	8.3	8.0	8.3	8.3S	8.2F	8.5
17	8.2	8.9	8.9	8.5	7.8	8.6	9.7S	9.3	7.0	I7.6S	7.6	7.6
18	9.4	9.6	10.7	10.6	10.4	8.7S	8.2	8.7S	9.4S	I8.9S	8.5S	8.4S
19	9.7	10.0	9.5V	9.3	9.3	9.1	I9.2A	I9.2S	9.4S	I9.9S	9.9S	9.5S
20	8.5	9.3	9.5	9.5	8.5	8.7	8.6	I8.8A	8.6	8.6	9.0	8.7
21	9.2	8.9	9.3	8.8	8.8	8.6	8.6	9.2	9.1F	9.1F	I9.0A	8.5
22	8.8	8.8	8.8	9.1	8.8	I8.4A	8.6	I8.6A	8.7	9.3S	I9.7A	9.6S
23	8.0	8.4	8.3	8.2	8.0	8.1	7.8	7.8	7.1	7.1	I7.6F	8.0
24	9.5	9.3	9.1	9.3	9.1	8.8	8.7	8.9	8.5S	8.1	I9.1F	9.6F
25	9.6	9.5	9.2	8.9	8.9	I8.4A	8.1	8.7S	8.9S	8.9F	9.2F	8.9F
26	7.5	7.1	7.5	7.4	7.5	7.4	I7.0A	7.3	7.8S	8.2S	7.7S	7.9S
27	U10.1R	10.0	9.3	9.5	9.0	9.4	9.2	9.0	8.5	I8.8S	I9.0AS	8.6F
28	I6.6A	I6.6A	6.8	7.0	6.9	7.1	I7.0A	6.9	I6.9S	7.3	7.4	7.6
29	9.5	I9.4R	9.4	9.1	9.3	9.5	9.4	9.1	8.6	9.1	9.1	9.4
30	9.6	9.4	I9.3A	9.2	8.8	8.3	I8.4A	8.5	8.6	9.2	9.7	9.4
31	6.4	6.5	6.8	6.6	6.5	6.5	7.0	7.3	7.1	7.4	7.7	8.1
No.	30	30	29	29	29	29	29	29	29	29	29	29
Median	8.6	8.8	8.7	8.5	8.5	8.4	8.4	8.3	7.9	8.2	8.5	8.5
U.Q.	9.5	9.4	9.3	9.3	9.0	8.8	8.6	8.8	8.6	8.9	9.0	8.8
L.Q.	7.6	7.7	7.6	7.5	7.6	7.4	7.4	7.3	7.1	7.6	7.7	7.9
Q.R.	1.9	1.7	1.7	1.8	1.4	1.4	1.2	1.5	1.5	1.3	1.3	0.9

foF2

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 1

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jul. 1958

foF1

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	I5.0L	5.0	5.8	5.7	A	A	5.8	5.7	5.8	I5.8R	5.2	5.2L	L					
2							A	L	6.4L	I5.9A	5.7	5.9	I6.0A	6.0	5.8H	5.9H	5.3H	L	A					
3						L	I4.8L	5.3	5.6	I5.6A	I5.7A	5.7	5.7	5.8	5.6H	5.6	A	A	A					
4						4.1L	4.5	5.3	5.2	I5.6A	5.6	5.6	5.6	5.6	I5.6C	5.4	5.2	I5.0A	A					
5						4.0	4.7L	I5.2A	I5.5A	I5.7A	5.5	5.7	5.7	I5.6A	5.5	5.5	5.3	A	4.1L					
6							L	L	6.0L	6.5H	I6.0L	I6.0A	I6.2A	I6.2A	5.8	5.9	I5.4A	5.0	L					
7							L	5.0	5.7L	5.9	I5.8A	I5.9B	6.1	5.8	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	6.2H	5.9	6.1	6.1H	I6.0L	I6.0L	6.1L	L						
10						L	4.6	4.9	5.3	I5.4R	5.5	A	A	5.5	5.5	5.5	I5.1A	5.2L	L					
11							I5.0L	5.1	5.2	I5.8A	5.6	5.9	6.1H	5.8	5.5	I5.6L	5.4	A	A					
12							L	5.0	6.0	6.0H	6.3	5.6H	6.0	I5.9L	5.6	LH	L	L						
13						L	4.6	A	A	5.5	6.2	5.8	5.5	5.6	5.9	5.7	A	A	A					
14							L	L	5.4	5.4	5.6	5.5	5.6	I5.6A	I5.6A	5.4	4.8	L	L					
15						L	4.3L	5.0	I5.2L	I5.4A	5.4	5.7	5.7	5.6	I5.6L	5.6L	5.1L	L	L					
16						L	4.5L	5.2L	I5.3C	5.2L	I5.7L	6.5H	5.7	5.9LH	5.6	5.1	5.0H	L	L					
17						L	L	L	L	5.5	5.4	I5.6L	5.8	5.6L	5.5	I5.5L	A	L	L					
18						L	L	L	5.4L	I5.5L	I5.8L	6.1	I5.8L	5.9H	5.6L	5.5L	I5.1L	3.9	A					
19							L	I5.2L	I5.6L	5.7LH	I5.6L	I5.7L	I5.9L	5.8	I5.8L	5.4	L	A	A					
20						L	L	L	5.1L	I6.0L	5.6L	I6.0L	5.7	5.7	I5.7L	I5.5L	L	L	A					
21						B	L	A	A	5.6L	5.8	5.5	6.1L	6.0	5.4L	A	L	A	A					
22						4.3	4.9	A	A	A	A	A	I5.9A	I5.8A	5.8	A	A	A	A					
23						L	4.4	4.9	I5.2A	I5.4A	5.5	6.0L	I5.8A	I5.7L	A	A	L	L	L					
24							L	L	5.5L	5.6L	6.1H	6.2H	5.8	6.0	6.0	5.7LH	I5.6A	A	A					
25						L	L	A	L	A	6.2L	A	A	I6.1A	5.8	6.0L	L	A	L					
26						3.9L	L	A	A	5.6H	5.8	5.8	5.7	5.9	5.6	5.7L	5.3	A	A					
27							L	5.0L	I6.2RH	I5.8L	I6.0L	6.4L	6.3	6.1	I6.0LH	I6.0L	I5.7L	L	A					
28							A	L	I5.4A	I5.4A	I5.4B	5.6	I5.6A	I5.7A	I5.5R	5.5	5.4	A	A					
29							L	L	I5.8L	6.2	I6.0L	I6.6L	6.3	I6.0B	I5.9LH	5.6	5.5	L	L					
30							LH	A	L	L	I6.3A	I6.5A	I6.1A	A	A	A	A	A	A					
31						L	4.6	I5.0B	5.4	I5.5R	5.6	I5.6B	I5.8A	5.8	5.5	5.5	5.5	5.0L	L					
No.						4	12	14	22	26	28	26	28	29	27	24	18	6	1					
Median						4.0	4.6	5.0	5.4	5.6	5.7	5.8	5.8	5.8	5.6	5.6	5.3	5.0	4.1					

The Radio Research Laboratories, Japan.

foF1

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

A 2

IONOSPHERIC DATA

Jul. 1958

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						R	3.00	3.55	3.75	3.95	R	R	A	A	A	A	A	3.00	2.45					
2						2.20	3.00	3.45	3.80	4.00	4.20	R	R	A	R	4.00	3.75	3.25	2.50					
3						2.25	3.05	3.50	3.80	I 3.80 R	R	A	A	4.05	I 4.00 A	A	A	A	A					
4						2.25	3.05	3.55	3.90	4.00	4.10	4.15	4.20	4.10	C	A	A	A	1.90					
5						R	3.00	3.40	3.70	3.95	4.05	I 4.20 R	4.30	I 4.25 R	R	A	3.55	3.25	2.50					
6						R	3.00	I 3.45 A	3.85	3.90	I 4.00 B	I 4.00 R	4.00	A	B	3.60	I 3.50 A	3.15	2.50					
7						C	3.00	3.50	3.70	3.65	B	B	B	I 4.20 R	C	C	C	C	C					
8						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
9						C	C	C	C	C	3.95	I 3.95 B	3.95	3.95	I 3.95 A	3.90	I 3.50 A	3.05	A					
10						A	A	A	A	A	A	R	R	4.05	3.95	I 3.45 B	2.85	A	A					
11							2.90	3.50	I 3.65 A	I 3.90 A	4.20	4.10	4.25	A	A	A	A	3.15	2.50					
12						A	3.00	3.05	I 3.50 A	4.00	I 4.00 B	I 4.05 B	4.05	I 4.10 B	4.10	A	A	A	2.55					
13						2.30	3.00	3.35	3.65	3.95	I 3.90 B	B	A	A	A	3.95	I 3.50 A	3.05	A					
14						2.15	2.80	3.00	3.55	3.55	R	R	A	A	A	A	3.50	3.05	2.40					
15						2.30	2.90	3.40	3.75	I 3.80 R	A	A	R	A	A	R	3.50	3.05	2.50					
16						B	2.70	3.35	I 3.55 C	3.75	A	A	R	4.10	I 4.00 R	3.80	3.55	3.05	B					
17						B	2.55	3.05	3.40	I 3.60 R	3.75	R	A	A	3.75	3.55	I 3.25 A	3.00	2.45					
18						B	2.55	3.15	3.50	3.70	3.85	R	A	A	3.95	I 3.70 A	3.55	3.00	2.30					
19						2.15	2.80	3.15	3.50	I 3.75 R	4.00	B	R	R	R	R	3.60	3.10	2.40					
20						B	2.75	3.25	3.60	3.80	R	A	4.05	4.10	4.05	3.95	3.55	3.05	2.45					
21						B	2.80 H	3.30 H	3.55	3.75	R	B	R	R	A	A	A	3.45	A					
22						R	2.80	3.15	3.50	3.90	4.00	4.00	R	R	A	A	A	I 3.15 A	2.45					
23						B	2.70	3.40	3.55	3.80	3.90	B	R	A	A	A	A	A	A					
24						B	2.80 H	3.45	3.70	3.95	4.00	I 4.00 R	R	R	R	R	3.75	3.05	2.10					
25						B	2.60	3.10	3.80	B	B	B	R	R	B	R	B	2.80	A					
26						B	2.90	3.40	3.80	3.95	4.05	R	B	B	B	R	3.60	3.10	2.45					
27						B	2.80 H	3.30	3.55	3.70	B	A	R	A	R	R	3.55	3.10	2.45					
28						2.05	2.95	3.45	3.75	I 3.95 R	B	B	B	R	R	4.05	3.80	3.10	B					
29						B	2.55	3.05	3.50	R	B	B	B	B	B	4.10	3.85	3.45	A					
30						B	A	3.50	3.55	A	A	3.95	A	A	A	A	A	I 3.30 A	A					
31						B	2.80	I 3.25 B	3.75	I 4.00 B	B	B	R	A	4.10	I 4.00 B	3.60	3.10	2.45					
No.						8	27	28	28	25	15	9	7	9	9	12	19	24	18					
Median						2.20	2.80	3.40	3.65	3.90	4.00	4.00	4.05	4.10	4.00	3.90	3.55	3.10	2.45					

foE

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 3

IONOSPHERIC DATA

Jul. 1958 | foEs | 135° E Mean Time (G.M.T.+ 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.6M	2.5M	E	E	E	2.7	4.0	4.1	12.5M	7.6M	14.0M	11.6M	7.6M	7.7M	5.8M	6.4M	5.0M	4.9	9.5M	6.8M	4.8M	11.5M	9.0M	13.2M
2	13.5M	6.0MF	3.8M	3.6M	3.9MF	5.4M	4.5	5.9M	7.8M	8.5M	4.5	6.3M	14.0MY	4.4M	G	G	G	G	5.0M	6.9M	7.1M	5.0M	5.9M	9.5M
3	6.8M	7.1M	E	4.0M	E	G	3.7	6.7M	5.8M	9.4M	13.2M	6.5M	5.6M	10.8M	5.0M	4.5M	8.0M	7.9M	6.8M	5.9M	E	7.9M	6.7M	2.9M
4	2.6M	4.0M	4.3M	2.5MF	2.3M	G	3.9	4.7	4.9	6.6M	6.4M	5.0	5.0	4.8	C	6.4M	5.0M	6.7M	5.7M	5.1M	13.3MY	10.5M	6.8M	2.4M
5	E	2.5M	E	E	E	G	3.9	8.0M	16.5M	D20.0D	4.4	4.8M	4.7	7.4M	10.2M	6.4M	4.7	6.5M	6.7M	2.3M	4.2M	2.6M	3.0M	5.0M
6	3.7M	6.6M	3.7M	3.0M	3.9M	2.3	3.9	4.8	6.1M	4.9	6.7M	11.4M	19.6MY	8.5M	9.5MY	6.1M	12.5MY	7.0MY	3.1	3.5M	5.5M	4.6M	6.5M	9.2M
7	C	C	C	C	C	C	3.5	G	6.6M	8.5M	8.1M	B	4.5M	G	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	4.6	7.6M	6.8M	4.7	7.6M	G	4.5	4.4M	6.0M	4.0M	E	E	2.5M	E
10	E	E	E	E	E	2.5	4.1M	4.7M	5.2M	5.5M	9.6M	9.3M	6.3M	5.0M	6.5M	7.6M	9.5M	9.2MY	7.1M	6.7MY	7.9M	4.6M	10.1M	11.6MY
11	9.2M	6.6M	7.3M	6.3M	3.0M	3.3M	3.6M	4.0	6.5M	6.2M	10.1MY	7.5M	4.5	7.9M	6.5M	6.1M	7.3M	15.6M	10.5M	8.5M	7.5M	7.1M	11.5M	6.0M
12	E	3.7M	E	3.0M	E	4.7M	G	4.0	6.3M	G	B	B	4.7	B	G	5.7MY	5.4M	4.5M	5.2M	3.7M	3.1M	2.6M	2.6MY	4.7M
13	E	4.5M	3.7M	E	E	5.9M	5.6M	5.9M	6.3M	8.0M	6.3MY	6.1M	9.1M	12.8M	5.8M	7.5M	9.0M	8.6M	13.0M	14.5M	8.9MY	4.5M	3.5M	3.5M
14	3.1M	3.6M	E	2.5M	E	G	3.8	6.2M	7.1M	4.6M	4.1	G	4.3M	7.7M	7.5M	6.5M	3.7	4.2	4.6M	6.3M	11.0MY	4.4M	5.7M	6.6M
15	4.6M	7.1M	4.6M	3.0M	2.6M	2.7M	3.3	4.1	6.3M	7.4M	11.4M	8.0M	6.3M	4.4M	4.1M	G	G	G	2.7	3.4M	3.1M	3.5M	3.0M	4.0M
16	3.0M	2.4M	E	E	E	B	G	4.5	C	4.8	6.9M	5.8M	G	4.3	7.2M	4.3	6.4M	4.5M	4.4M	E	7.5M	3.1M	9.0M	3.9M
17	5.8M	2.8M	2.4M	2.6M	E	2.3	3.6	3.8	6.6M	7.0M	6.0M	6.0M	5.9M	4.8M	G	G	6.2M	G	2.7	3.5M	3.7M	3.1M	5.7M	4.2M
18	4.2M	3.0M	3.0M	2.4M	E	2.6	3.9	5.5M	4.1	5.8M	4.2M	4.5	6.0M	4.4M	G	3.8M	4.5	4.3	5.1M	5.7M	7.7M	4.1M	2.8M	2.5M
19	E	E	E	E	E	2.7	4.6M	7.7M	4.0	4.5M	6.4M	B	5.2	G	4.8	4.5	7.0M	6.4M	11.0M	6.8M	2.8M	3.0M	2.5M	E
20	2.3M	2.9M	E	2.1M	E	4.1M	4.7M	4.4	5.8M	7.6M	7.0M	6.9M	G	G	G	4.7	7.8M	10.7MY	5.2M	9.0M	6.4M	4.5M	5.9M	E
21	E	5.0M	4.5M	2.9M	E	2.4	4.9M	7.0M	8.5M	5.7M	G	G	4.7	6.2M	6.0M	6.3M	5.9M	6.8M	8.4M	11.4M	7.1YF	6.7M	12.9M	4.9M
22	2.6M	4.8M	2.9M	3.1M	3.1M	G	G	5.9M	7.1M	7.5M	11.4M	8.2M	7.7M	7.3M	6.6M	7.1M	5.3	7.5	17.4M	14.6M	D20.0D	12.6MY	13.3M	5.6M
23	6.5M	3.0M	3.0M	2.5M	4.4M	2.5	3.7	5.2M	7.0M	6.5M	5.3M	6.1M	7.1M	6.9M	7.7M	6.5M	6.0M	4.4M	5.3M	4.0M	3.2M	10.1MY	5.9M	9.0MY
24	9.5M	4.5M	E	2.5M	E	2.4	3.2	4.9M	4.5	4.6	5.3M	4.5	G	4.7M	G	G	13.3M	10.1M	D20.0D	4.8M	3.6M	12.8MF	4.8M	7.1M
25	5.7M	2.4M	2.2M	3.1M	3.2M	4.3M	4.7M	5.7M	6.1M	8.3M	6.4M	8.8M	7.4M	6.5M	4.5M	G	4.3M	9.8M	9.1M	5.6M	3.1M	3.1MF	6.0M	4.5M
26	3.6M	3.8M	3.6M	4.4M	2.6M	2.5	3.9	13.9M	6.9M	4.7	5.1	6.2M	5.9M	6.2M	5.5M	4.9	6.2M	6.8M	8.6M	9.0MY	7.5M	E	2.5M	E
27	E	E	E	2.2M	2.5M	4.9M	3.0	4.2	4.5	9.2M	7.0M	6.0M	G	5.2M	G	G	4.4	5.2M	7.2M	5.7M	7.0M	7.5M	9.7M	9.0M
28	7.6M	6.0M	E	2.6M	E	4.8M	9.3M	5.7M	6.6M	6.8M	B	6.4M	7.6M	9.0M	G	4.7	6.0M	7.8M	7.6M	4.1M	6.7M	E	5.7M	5.6MY
29	4.4M	2.5M	3.6M	3.5M	2.5M	2.7	4.4M	6.3M	6.6M	6.6M	4.4	7.9M	6.7M	9.6MY	B	5.0	4.4	7.9M	7.2M	3.1M	3.0M	6.7M	12.7M	6.9M
30	4.4M	2.7M	2.5M	4.5M	3.3M	G	3.9M	6.4M	6.7M	9.7M	14.5M	11.3M	12.6M	10.5M	12.7M	9.5M	7.0MD	D20.0D	D20.0D	14.4M	6.6M	9.3M	3.5M	3.9M
31	2.5MY	E	2.4M	E	E	2.2M	3.5	B	4.5	5.6M	6.4M	B	6.9M	6.8M	G	B	G	3.7	6.0M	4.4M	3.9M	5.0M	5.6M	5.0M
No.	28	28	28	28	28	27	29	28	28	29	28	26	30	29	27	28	29	29	29	29	29	29	29	29
Median	3.4M	3.3M	2.4M	2.6M	E	2.5	3.9	5.4M	6.4M	6.6M	6.4M	6.4M	6.0M	6.2M	5.5M	5.0M	5.9M	6.7M	6.8M	5.7M	6.4M	4.6M	5.9M	4.9M
U.Q.	5.8	4.9	3.6	3.1	2.8	4.1	4.4	6.2	7.0	8.2	8.8	8.0	7.4	7.8	7.2	6.4	7.2	8.2	9.3	7.7	7.5	7.7	9.0	7.0
L.Q.	E	2.5	E	E	E	2.2	3.5	4.3	5.5	5.2	4.8	5.8	4.7	4.6	G	G	4.4	4.4	5.2	3.8	3.2	3.1	3.2	3.2
Q.R.		2.4				1.9	0.9	1.9	1.5	3.0	4.0	2.2	2.7	3.2			2.8	3.8	4.1	3.9	4.3	4.6	5.8	3.8

The Radio Research Laboratories, Japan.

foEs

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

A 4

IONOSPHERIC DATA

Jul. 1958

fbEs

135° E Mean Time (G.M.T.+ 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E				2.5	3.9	4.1	5.4	5.7	A	6.5	5.8	5.0	5.2	4.4	4.3	3.6	3.2	3.5	2.8	A	5.5	A
2	5.0	5.0	2.0	2.0	2.0	3.6	4.4	5.0	5.4	6.3	4.5	5.5	A	U4.4B					4.7	6.3	5.0	2.0	2.3	5.0
3	2.0	3.4		2.1			3.3	4.4	4.4	A	5.0	4.5	4.9	5.4	4.4	4.2	5.5	6.0	5.4	2.9		4.4	5.0	1.9
4	1.8	2.0	3.0	2.0	E		3.9	4.6	5.2	5.7	5.2	4.9	4.7	4.8	C	4.8	4.0	5.4	5.0	4.1	4.7	A	2.5	E
5		E					3.5	5.6	6.3	5.5	U4.4B	4.8	4.7	A	5.5	4.8	4.5	5.7	3.6	2.0	2.9	2.4	2.5	4.5
6	3.0	3.5	3.7	2.0	2.8	2.3	3.6	3.5	4.9	4.6	5.2	9.0	A	6.0	5.1	4.5	7.8	2.7	2.9	2.2	2.5	2.2	2.5	5.0
7	C	C	C	C	C	C	G		5.3	5.9	6.4	B	U4.5B		C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	U4.6B	4.5	5.0	U4.7B	5.5		4.1	2.6	5.0	3.0			E	
10						2.5	3.2	3.7	4.1	4.5	5.4	6.0	5.7	5.0	5.3	4.4	5.3	3.6	3.6	4.0	5.3	3.5	4.4	5.5
11	4.6	5.0	5.5	4.5	2.0	2.5	2.5	3.8	4.5	5.4	4.8	5.9	4.5	4.7	5.4	4.7	4.0	A	7.6	5.0	5.5	5.0	5.5	3.1
12		2.7		2.1		3.1		3.6	4.0		B	B	4.7	B		4.1	4.3	4.0	2.1	2.9	2.4	2.0	2.0	3.5
13		3.5	E			3.6	3.4	5.1	5.6	5.5	4.9	4.9	4.4	5.1	4.8	4.7	6.7	7.5	A	4.0	4.6	2.6	1.9	2.7
14	2.6	2.4		E			G	3.9	4.0	4.1	U4.1B		U4.3B	6.0	6.0	5.1	3.7	4.0	3.5	5.6	6.3	3.2	4.5	3.4
15	3.0	1.9	3.9	E	E	1.9	G	G	5.0	5.4	4.9	4.8	4.9	4.4	4.0				2.6	E	2.0	2.0	2.0	2.0
16	2.0	2.0				B		4.5	C	4.8	5.2	4.9		4.3	4.6	4.1	3.9	3.5	2.5		6.3	2.5	5.6	3.4
17	3.6	2.4	E	U2.6B		2.3	3.5	3.8	4.5	5.3	4.9	5.2	5.0	4.5			5.5		2.0	2.9	3.0	D3.0S	4.1	3.5
18	3.9	E	2.0	E		2.5	3.5	4.6	4.0	5.0	4.1	4.4	4.9	4.2		3.4	4.5	3.7	4.6	5.0	6.2	3.0	2.0	E
19						2.5	3.6	4.0	3.8	4.2	4.5	B	5.2		4.8	4.4	5.2	5.3	5.7	3.4	E	2.5	2.2	
20	1.9	2.9		E		2.8	3.8	4.2	4.2	5.2	4.5	5.0				4.4	4.6	4.2	3.9	A	4.4	3.0	4.0	
21		3.8	3.0	2.0		D2.4B	4.1	4.4	7.9	5.0			4.7	5.6	4.4	5.5	5.2	6.3	7.5	7.5	4.0	3.5	A	3.0
22	E	4.0	E	2.2	E			4.9	6.4	6.4	8.1	6.6	7.0	5.5	4.9	5.9	D5.3B	A	8.0	A	3.5	5.5	8.4	3.2
23	2.3	2.0	2.0	E	2.2	2.3	3.4	4.1	5.5	5.5	4.9	5.4	6.1	5.0	6.5	6.0	4.1	3.9	4.2	2.8	2.3	2.8	2.5	E
24	5.5	E		E		2.4	3.0	3.9	4.0	4.5	4.9	4.5		4.7			8.7	5.7	5.0	2.9	2.6	2.8	3.9	3.0
25	3.9	1.9	1.9	1.9	1.9	3.5	4.0	4.9	5.1	6.5	5.6	7.5	6.1	6.0	U4.5B		4.2	A	3.3	2.0	2.1	1.9	3.5	3.4
26	2.5	3.5	2.5	3.1	1.9	2.4	3.6	A	5.9	4.5	5.0	5.4	5.2	5.6	4.7	4.9	4.5	5.8	A	6.5	4.5		E	
27				E	1.9	3.5	3.0	3.5	4.5	5.5	4.8	5.0		U5.2B			4.0	3.6	5.4	3.0	4.6	7.0	A	6.5
28	5.4	2.0		1.7		3.0	A	5.1	6.3	5.6	B	5.5	A	A		U4.7B	5.0	5.0	A	3.3	AS		4.5	2.1
29	3.0	1.9	2.6	2.5	E	2.5	3.5	4.5	5.2	6.0	D4.4B	5.5	5.6	6.1		5.0	4.7	3.8	3.5	2.5	2.0	4.3	4.3	5.5
30	2.6	2.0	E	2.0	2.0		3.1	5.5	5.0	5.0	A	5.9	8.5	8.3	A	6.6	5.8	7.5	A	4.0	2.6	6.0	2.0	E
31	2.0		E			2.0	3.4		4.5	U5.6B	5.3	B	5.6	5.0				3.6	3.5	3.5	2.5	3.9	4.5	2.9
No.	21	24	16	21	12	20	26	27	28	28	26	24	26	26	18	21	26	26	29	28	27	26	29	25
Median	2.6	2.2	2.0	2.0	1.9	2.5	3.5	4.2	5.0	5.4	4.9	5.3	5.1	5.0	5.0	4.7	4.6	4.6	4.6	3.4	3.5	3.0	3.9	3.2

fbEs

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 5

IONOSPHERIC DATA

Jul. 1958 | 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	1.80	1.90	1.95	1.90	1.90	2.00	2.00	2.00	2.50	3.30	4.00	3.45	3.30	3.00	3.00	2.40	2.50	2.05	1.95	1.95	E	E	E	1.70
2	1.80	E	E	E	1.90	1.90	1.90	2.10	2.10	2.90	3.20	4.30	3.00	3.30	3.10	2.90	2.30	2.20	2.00	1.95	1.80	E	1.70	2.00
3	E	E	2.40	1.70	1.90	1.95	2.00	2.20	2.30	2.90	3.90	3.40	3.95	3.40	3.30	2.70	2.45	2.05	1.70	1.80	1.80	1.80	1.70	1.80
4	1.75	1.90	1.70	1.70	1.90	1.80	2.30	2.05	2.20	2.75	2.90	3.30	3.00	2.50	I3.50C	3.00	2.40	2.05	1.90	1.85	1.70	1.70	1.80	2.00
5	2.00	1.70	1.80	1.80	E	1.90	1.95	2.00	2.10	2.45	2.90	4.10	3.30	4.35	3.30	2.20	2.30	1.95	1.90	1.80	E	1.70	E	1.70
6	1.90	1.80	E	1.80	1.80	1.80	1.95	2.00	2.90	3.30	4.10	3.50	3.50	3.50	3.70	3.05	2.10	2.05	1.90	1.80	1.90	1.80	E	2.00
7	C	C	C	C	C	C	1.85	2.05	2.00	3.00	4.30	5.90	3.65	3.20	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	3.00	3.70	3.20	3.10	3.00	3.00	2.00	2.00	1.70	1.70	2.00	2.30	1.80	2.00
10	2.20	2.00	2.00	2.40	1.75	1.90	2.00	2.00	2.00	3.00	2.80	2.55	2.30	3.50	3.50	3.45	2.10	2.00	E	1.80	1.80	1.70	E	2.00
11	2.00	1.90	2.00	1.75	1.70	E	2.00	2.05	2.05	3.30	3.25	3.50	3.40	3.50	3.10	2.90	2.00	2.05	2.00	1.95	1.90	E	1.80	1.75
12	2.00	1.75	2.00	1.75	2.00	1.75	2.10	2.20	2.75	2.95	4.55	4.80	3.05	4.55	3.50	2.55	2.10	2.05	2.00	1.70	1.75	E	1.85	2.00
13	2.50	2.00	2.00	2.00	2.00	2.00	2.10	2.05	2.45	2.70	4.00	3.70	3.25	3.00	2.95	2.50	2.00	2.10	2.00	E	E	1.90	E	1.70
14	1.85	1.70	2.00	1.70	1.80	1.90	2.00	2.00	2.30	3.30	3.55	3.25	3.35	3.20	2.95	2.10	2.20	2.20	2.00	1.70	2.00	1.70	1.85	1.70
15	1.75	1.75	1.70	2.00	1.75	1.75	1.75	2.00	2.15	2.25	3.10	3.30	3.50	3.65	3.20	2.70	2.30	2.00	1.90	1.70	1.70	1.70	1.90	1.90
16	1.70	1.90	2.00	2.00	1.90	2.00	2.10	2.15	I2.10C	2.95	3.55	3.70	3.25	3.30	2.95	2.90	2.20	2.20	2.20	2.15	1.90	1.80	1.80	1.90
17	2.00	2.10	1.90	1.90	2.10	1.90	2.00	1.95	2.00	3.00	3.00	3.10	3.50	3.00	2.50	2.55	2.20	2.05	1.80	2.00	1.80	1.70	1.70	1.85
18	1.90	2.00	1.75	1.90	1.85	2.00	2.00	2.30	2.00	2.20	3.10	2.95	2.90	3.10	2.90	2.70	2.20	2.20	2.05	1.90	2.00	1.80	1.75	1.90
19	1.80	1.90	1.90	1.70	1.90	1.90	1.95	2.00	2.20	3.00	2.80	5.30	3.50	3.30	3.20	2.70	2.10	2.00	2.00	1.80	2.00	1.70	1.90	1.95
20	E	1.90	2.00	1.70	1.70	1.80	1.95	2.30	2.75	2.80	2.75	3.20	3.50	3.45	3.30	2.05	3.00	2.00	1.95	1.85	1.90	1.70	E	2.00
21	2.00	1.95	1.80	1.80	2.00	2.00	2.00	2.00	2.25	2.45	2.90	3.30	4.00	3.45	3.00	2.75	2.10	1.95	1.85	1.75	1.90	E	E	E
22	1.80	1.90	1.90	1.80	1.90	1.90	1.90	1.90	2.10	2.75	3.30	2.95	3.00	2.85	2.80	2.95	2.40	2.00	1.85	1.70	2.00	1.80	E	1.80
23	1.70	1.90	1.90	1.90	1.80	1.95	1.90	2.00	2.10	2.70	3.80	3.95	3.45	3.50	2.55	3.05	2.55	2.10	2.05	1.80	1.70	E	E	2.00
24	1.80	1.80	E	1.95	1.90	1.95	1.90	2.00	2.00	2.40	3.30	2.95	3.30	3.30	3.05	3.00	2.10	2.00	1.90	1.70	E	E	1.70	1.90
25	1.80	1.70	1.80	1.80	1.75	1.85	2.00	1.90	2.00	3.95	5.00	3.90	3.55	3.50	4.10	3.20	4.00	2.00	2.00	1.80	1.90	E	1.70	1.80
26	2.00	1.80	1.70	1.80	1.80	1.80	1.90	2.10	2.25	2.40	3.00	3.35	4.20	4.00	3.80	3.10	2.40	2.05	1.80	1.75	E	1.95	E	1.90
27	1.85	1.80	1.70	1.80	1.70	1.80	1.90	2.10	2.05	2.75	4.00	3.50	3.00	3.00	2.55	3.00	3.00	2.00	2.00	1.70	E	E	1.85	E
28	1.70	E	1.70	E	1.70	1.80	2.00	2.00	2.30	3.50	5.60	4.40	4.05	4.00	3.55	3.00	3.00	2.05	2.00	1.70	1.90	E	1.90	1.95
29	1.75	1.80	E	E	1.70	1.85	1.95	2.05	2.05	3.15	4.05	3.95	5.10	5.50	5.50	3.50	2.95	2.00	1.80	1.70	1.75	E	E	1.70
30	1.80	1.70	1.75	E	E	2.00	2.30	1.95	2.50	3.05	3.55	3.55	3.55	3.10	3.30	2.55	2.70	2.00	E	1.70	E	E	1.70	1.90
31	1.70	2.00	E	2.00	1.90	1.80	2.05	5.00	3.30	4.00	4.05	I3.75B	3.45	3.00	4.00	4.50	2.00	2.00	2.00	1.80	E	E	1.75	1.80
No.	28	28	28	28	28	28	29	29	29	29	30	30	30	30	29	29	29	29	29	29	29	29	29	29
Median	1.80	1.85	1.80	1.80	1.80	1.90	2.00	2.00	2.15	2.95	3.40	3.50	3.40	3.30	3.20	2.90	2.30	2.05	1.95	1.80	1.80	1.70	1.70	1.90

f-min

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 6

IONOSPHERIC DATA

Lat. 39° 43.5′ N
Long. 140° 08.2′ E

Akita

Jul. 1958

(M3000)F2

135° E Mean Time (G.M.T. + 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.45	2.55	2.45	2.45	2.50	2.65	2.50	2.65	I2.45A	2.25	I2.25A	2.25	2.30	2.25	2.45	2.60	2.45	2.45	2.60	2.70	2.55	I2.40A	2.40	I2.40A
2	2.30F	2.45F	2.45F	2.30F	2.50F	2.60F	2.75	2.45H	2.25	2.20	2.40	2.40	I2.40A	2.50	2.45	2.50	2.70	2.60	2.75	2.65	2.50F	I2.40F	2.40F	2.50F
3	2.50F	2.55F	2.50F	2.45F	2.50F	2.60	2.45F	2.30	I2.40R	I2.25A	2.20	2.30	2.40	2.40	2.50	2.50	2.55	2.70	2.70	2.60	2.50	2.30F	2.35F	2.40F
4	2.50F	2.75F	2.60F	2.45F	2.30H	2.55	2.60	2.30	2.35	2.30	2.20	2.30	2.10	2.25	I2.40C	2.40	2.45	2.60	2.50	2.60	2.40S	I2.30A	2.45F	2.40F
5	2.45	2.45	2.45F	2.55F	2.50F	2.30F	2.45	2.60	2.45	2.40	2.30	2.40	2.20	I2.30A	2.40	2.30	2.35	2.55	2.70	2.60	2.40	2.35	2.35S	2.45
6	2.50S	2.35S	2.40S	2.60	2.65	2.70	2.50	2.50	2.60	2.45	2.50	2.50	I2.50A	2.50	2.45	2.55	2.50	2.75	2.70	2.80	2.45	2.50	2.50	2.50F
7	C	C	C	C	C	C	2.50	2.75	2.60	2.40	2.40	2.55	2.50	2.55	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	2.50	2.45	2.45	2.35	2.55	2.60	2.65	2.70	2.70	2.65	2.40	2.40	2.50	2.50
10	2.40	2.50	2.55	2.65	2.40	2.35	2.40	2.50	2.55	2.60	2.55	2.35	2.55	2.35	2.50	2.25	2.40	2.60	2.75	2.80	2.50	2.45	2.45	2.50
11	2.55	2.40	2.65	2.75	2.60	2.60	2.60	2.85	2.85	2.65H	2.85	2.65	2.50	2.70	2.70	2.60	2.75	I2.75A	2.85	2.75	2.55	2.40	2.50	2.55
12	2.55	2.60	2.75	2.65	2.60	2.50	2.65	2.85	2.90	2.55	2.55	2.65	2.65	2.65	2.70	2.75	2.80	2.65	2.70	2.70	2.55	2.45	2.70	2.60
13	2.55	2.70	2.55	2.55	2.30F	2.40	2.50	2.65	2.80	2.55	2.45	2.65	2.70	2.75	2.80	2.65	2.80	2.85	I2.85A	2.85	2.60	2.55	2.55	2.60
14	2.60	2.70	2.60	2.50	2.50	2.45	2.75H	2.75	2.55	2.50	2.55	2.60	2.60	2.60	2.50	2.65	2.75	2.90	3.05	2.70	2.50	2.35	2.50F	2.65
15	2.65	2.50F	2.55	2.50	2.55	2.65	2.85	2.95	2.35	2.30	2.55	2.60	2.70	2.80	2.60H	2.70	2.85	2.95	2.90	2.80	2.50	2.50S	2.50S	2.55
16	2.55	2.65S	2.70S	2.80	2.60	2.35H	2.40FH	2.65	I2.85C	2.75H	2.80	2.50	2.75	2.80	2.75	2.75	2.85	2.85	2.90	2.75	2.70	2.60S	2.55F	2.55
17	2.60F	2.70F	2.75	2.65	2.60F	2.60	2.70	2.95	2.75	2.60	2.75	2.75	2.65	2.75	2.80	2.80	2.60	2.70	2.90S	3.15	2.60	I2.50S	2.50	2.50
18	2.55	2.60	2.65	2.80	2.65	2.75	2.60	2.85	2.80	2.75	2.70	2.55	2.55	2.50	2.55	2.75	2.85	2.90S	2.70	2.70S	2.65S	I2.75S	2.60S	2.55S
19	2.60	2.45	2.60	2.50S	2.75	2.70	2.55	2.85	2.85	2.75	2.80	I2.70R	2.75	2.85	2.75V	2.80	2.85	2.75	I2.80A	I2.80S	2.55S	I2.65S	2.70S	2.60S
20	2.60S	2.60S	2.70	2.75	2.75	2.80	2.85	2.85	2.90	2.60H	2.80	2.75	2.60	2.65	2.75	2.85	2.75	2.90	2.90	I2.80A	2.65	2.55	2.55	2.55
21	2.60	2.55	2.45	2.50	2.55	2.55H	2.60	2.95	2.75	2.80	2.80	2.75	2.80	2.70	2.80	2.75	2.75	2.80	2.85	I2.75A	2.70F	2.55F	I2.60A	2.65
22	2.65S	2.55	2.80	2.65	2.40	2.40	2.50	2.65	2.60	2.20	I2.45A	2.60	2.70	2.65	2.65	2.75	2.85	A	A	A	2.50	2.50S	I2.70A	2.60S
23	2.60S	2.50	2.60	2.75	2.75F	2.75	2.50	2.45	2.45	2.55	2.50	2.60	2.65	2.75	2.85	2.80	2.80	2.85	2.75	2.85	2.70	2.45	I2.50F	2.65
24	I2.60AS	2.55F	2.65F	2.65	2.60	2.85	2.80	3.05	2.90	2.80	2.65	2.60	2.70	2.70	2.65	2.80	I2.70A	2.70	2.80	2.80	2.65S	2.45	I2.40F	2.55F
25	2.50	2.70F	2.60	2.60F	2.45F	2.60	2.60	2.95	2.75	2.65	2.70	2.70	2.70	2.70	2.65	2.70	2.70	I2.80A	2.70	2.70S	2.50S	2.55F	2.60F	2.60F
26	2.55	2.50	2.60	2.50F	2.55F	2.55	2.70	I2.50A	2.50	2.40	2.25	2.30	2.55	2.40	2.55	2.55	2.65	2.80	I2.70A	2.75	2.50S	2.45S	2.45S	2.40S
27	2.50	2.55	2.60	2.50	2.60	2.80	2.75	2.80	2.50	2.60	2.60	2.60	U2.55R	2.60	2.60	2.65	2.60	2.65	2.65	2.65	2.55	I2.40S	I2.40AS	2.55F
28	I2.40AS	2.35	I2.50F	2.55	2.50	2.55F	I2.40A	2.50	2.40	2.20	2.40	2.20	I2.20A	I2.15A	2.35	2.50	2.50	2.60	I2.60A	2.60	I2.50S	2.35	2.40	2.40
29	2.45	2.50	2.55	2.55	2.55	2.85	2.80	2.75	2.60	2.55	2.60	2.50	2.55	I2.45R	2.55	2.55	2.60	2.65	2.75	2.75	2.45	2.45	2.35	2.50
30	2.50	2.55	2.65	2.65	2.60	2.70	2.55	2.70	2.60	2.40H	I2.50A	2.45	2.50	2.50	I2.55A	2.60	2.70	2.65	I2.65A	2.65	2.45	2.40	2.50	2.55
31	2.50	2.60	2.70	2.45	2.40	2.35	2.50	2.60	2.40	I2.15B	I2.15A	I2.05B	2.20	2.15	2.40	2.40	2.45	2.55	2.45	2.60	2.45	2.30	2.30	2.40
No.	28	28	28	28	28	28	29	29	29	29	30	30	30	30	29	29	29	28	28	28	29	29	29	29
Median	2.55	2.55	2.60	2.55	2.55	2.60	2.60	2.70	2.60	2.55	2.50	2.55	2.55	2.60	2.55	2.65	2.70	2.70	2.70	2.70	2.50	2.45	2.50	2.55

(M3000)F2

Sweep 1.6 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 7

IONOSPHERIC DATA

Jul. 1958 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.)

Akita — Lat. 39° 43.5' N, Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	I3.20L	340	3.10	A	A	A	I3.65A	355	325	I325R	350	3.05L	L					
2							A	L	3.15L	I350A	3.70	I3.60A	I3.60A	340	360H	330H	340H	L	A					
3						L	I3.25L	320	350	A	A	365	370	360	360H	340	A	A	A					
4						3.05L	345	A	A	A	I355A	355	375	355	I355C	335	350	A	A					
5						325	3.10L	I3.20A	I3.30A	I340A	370	350	370	A	A	355	320	A	AL					
6							L	L	350L	I350H	I350L	I350A	I3.00A	I3.10A	345	335	I335A	320	L					
7							L	340	345L	350	A	B	325	350	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	320H	345	330	340H	I330L	I320L	3.10L	L						
10						L	3.10	345	340	I355R	A	A	A	345	300	330	I350A	320L	L					
11							I3.05L	335	360	I350A	370	I370A	340H	350	I330A	I340L	335	A	A					
12							L	360	340	335H	335	375H	335	I340L	355	LH	L	L						
13						L	3.15	A	A	A	335	335	380	375	325	335	A	A	A					
14							L	L	335	360	345	365	355	I335A	I325A	I340A	350	L	L					
15						L	345L	340	I345L	I350A	355	335	325	350	I355L	340L	345L	L	L					
16						L	3.10L	I320AL	I350C	I350AL	I355L	345H	370	340LH	340	355	340H	L	L					
17						L	L	L	L	A	360	I340L	330	340L	345	I335L	A	L	L					
18						L	L	L	350L	I350L	I345L	335	I350L	325H	330L	335L	L	A	A					
19							L	L	L	335LH	I365L	I370L	I350L	350	I340L	350	L	A	A					
20						L	L	L	370L	I340L	360L	I335L	355	340	I340L	I350L	L	L	A					
21						B	L	A	A	I350L	345	375	330L	325	350L	A	L	A	A					
22						280	3.15	A	A	A	A	A	I340A	I340A	335	A	A	A	A					
23						L	330	325	A	A	345	3.10L	I340A	I360L	A	A	L	L	L					
24							L	L	345L	3.65L	350H	355H	360	335	335	335H	I340A	A	A					
25						L	L	A	L	A	AL	A	A	I350A	360	335L	L	A	L					
26						3.20L	L	A	A	355H	345	I360A	355	I340A	360	330L	355	A	A					
27							L	360L	I335RH	I350L	I345L	325L	340	345	I340LH	I330L	I320L	L	A					
28							A	L	A	A	B	I330A	I340A	I340A	I345R	330	320	A	A					
29							L	L	I355L	340	I340L	I320L	350	I330B	I330LH	345	330	L	L					
30							LH	A	L	L	I340A	I335A	A	A	A	A	A	A	A					
31						L	3.10	I340B	335	I360R	I355A	I360B	I340A	330	355	340	3.15	320L	L					
No.						4	12	12	18	19	23	25	27	28	26	24	17	4						
Median						310	315	340	345	350	350	350	350	340	340	335	340	320						

(M3000)F1

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 8

IONOSPHERIC DATA

Jul. 1958 | 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						340L	I355L	375	I455A	550	A	A	545	570	475	460	460	450L	L					
2							260	I355LH	470	505	490	480	I495A	450	450	440	390	390	A					
3						330L	355L	455	440	I520A	620	580	495	490	460	450	440	A	A					
4						380	310	550	520	550	640	570	680	600	I550C	540	480	I425A	A					
5						405	370	385	I420A	510	555	540	620	I585A	525	570	550	I440A	350					
6							L	300L	330L	425	395	I405A	I410A	445	440	395	I390A	355	I340L					
7							I350L	320	345	445	445	400	445	430	C	C	C	C	C					
8							C	C	C	C	C	C	C	C	C	C	C	C	C					
9							C	C	C	C	500	500	455	505	405	395	390	345L						
10						400	390	350	390	400	•450	550A	500	560	500	650	480A	445	350					
11							I420L	345	350	345H	390	445	480	400	420	420	395	A	A					
12							345	345	345	445	445	350	405	375	375	375	320	340L	305					
13						410	395	355	350	380	410	400	350	360	390	355	360	I320A	I325A					
14							I300LH	290	450	420	400	400	390	400	I400A	410	360	320	295L					
15						L	320	340	I460L	560	450	395	350	345	I350H	380	330	300	280L					
16						L H	350H	385	I330C	300H	340	500	400	370	375	350	335	300L	L					
17						L	I320L	320	370L	405	370	385	410	375	355	350	395	355	300					
18						I300L	I320L	300	345	300	I380L	425	I380L	420	355	325	305	290	A					
19							I380L	310	300L	345	280L	395L	340L	350	305	350	320	A	A					
20						L	305	320	280	345H	350	360	400	375	355	335	305L	305L	295					
21						270H	I305L	320	I325A	345	350	350	355	370	330	340	350L	A	A					
22						440	420	370	I425A	I490L	I435A	380A	I375A	400	395	350	A	A	A					
23						L	450	455	485	455	460	450	400	390	375	350	I345L	350L	I310L					
24							I300L	295	345	350	395	400	380	390	400	350	I370A	340	A					
25						L	L	285	355	I360A	375	I390A	375	360	365	380	I340L	A	L					
26						360	I350L	I370A	480	510	605	575	460	540	455	450	410	A	A					
27							I300L	320	410	380	405	395	400	395	400	360	395	355	345					
28							A	405L	I510A	595	530	645	I660A	I650A	550	495	470	I425A	I365A					
29							260L	345	I350L	430	410	405	430	445	445	400	395	I345L	305					
30							I300L	300	350	I380H	I420A	405	I430A	I420A	I420A	400	370	I355A	A					
31						400	400	390	540	I660B	I660A	I725B	650	650	545	545	490	450	400L					
No.						11	26	29	29	29	29	29	30	30	29	29	28	22	14					
Median						380	350	345	370	425	420	405	410	410	400	395	390	350	320					

h'F2

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

Jul. 1958 | 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	340	320	310	300	305	250	270	265	A	A	A	A	I245A	255	I270A	290	250	250	270	I285A	310A	A	A	A
2	A	A	350	340	310	280	I255A	I250A	I245A	I240A	210	A	A	250	225H	220H	240H	250	A	A	A	350	340	I320A
3	340	340	310	340	340	260	265	290	220	I250A	280	210	240	I240A	210H	245	A	A	A	300	300	I340A	I355A	350
4	320	300	270A	305	340H	280	I270A	A	A	A	I250A	250	210	250	I250C	290	240	A	A	A	A	I350A	340	340
5	310	345	340	320	310	250	250	I250A	I240A	I215A	235	260	230	A	A	275	280	A	A	300	340A	350	390A	I370A
6	350	I340A	I345A	300	290	260	250	230	280	245H	I250A	I260A	I270A	I280A	270	255	I250A	250	265	295	295	300	305	400
7	C	C	C	C	C	C	250	250	I270A	250	A	B	255	240	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	255H	245	245	250H	I270A	250	260	255	305A	295	295	350	305	300
10	305	345	300	305	345	305	270	245	240	250	A	A	A	I245A	I245A	250	I250A	250	I270A	305	I350A	355	380A	I355A
11	355	400A	355	315	275	295	255	250	220	I255A	240	I245A	200H	250	I270A	I245A	250	A	A	300	I320A	390	405	345
12	325	325	295	275	315	290	245	245	245	225H	250	I230BH	240	240	245	245H	255	250	I255A	295	310	305	300	310
13	300	300	295	305	395	I295A	260	A	A	I290A	295A	255	220	255	250	260	A	A	A	290	325	320	310	310
14	300	295	300	345	345	300	250	250	245	240	215	215	210	A	A	A	245	I275A	I265A	I295A	I320A	390	385	340
15	310	345	355	330	335	295	255	250	A	A	250	250	I240A	240	235	225	240	245	255	260	300	330	320	305
16	310	300	300	295F	270	240	250	I250A	I240C	I220A	I250A	I225AH	210	210H	245	240	240H	255	245	270	I295A	300	I300A	330
17	I310A	300	300	300	300	250	255	245	A	A	I245A	I245A	I240A	245	210	250	I250A	250	260	250	300A	345S	360A	345
18	350	310	300	300	295	260	250	I250A	240	I210A	210	210	I220A	245H	225	240	A	A	A	I295A	I290A	I275A	295	310
19	310	340	310	310	275	260	250	I235A	230	220H	210	I230B	I235A	255	260	250	A	A	A	A	280	290	260	295
20	300	310A	300	260	285	I270A	A	A	220	I270A	205	I210A	215	240	250	245	I250A	I265A	I290A	I300A	305	310	340A	310
21	305	340	325	305	300	I250B	255	250A	I240A	I225A	230	210	250A	I245A	240	A	A	A	A	A	A	A	A	305A
22	310	I340A	290	300	355	280	250	A	A	A	A	A	I245A	I235A	255	A	A	A	A	A	A	A	A	305A
23	285	300	300	295	300	270	245	260	A	A	A	A	A	245A	I235A	I240A	250	250	I280A	285	270	310	380	300
24	I365A	345	300	295	300	275	250	250	245	210	230H	205H	250	250	220	240H	I255A	I265A	I280A	280	280A	A	A	320A
25	350A	295	295	300	320	250A	255	I250A	260	A	A	A	A	I260A	255	230	245	A	A	300	300	340	I340A	300A
26	305	I340A	295	350A	320	280	A	A	A	220H	255	I240A	280A	I280A	220	295	255	A	A	A	A	300	310	340
27	330	310	305	310	300	295A	250	230	225	I235A	245	255	250	250	245H	245	250	250	I275A	295	320	I360A	I380AS	I355A
28	I370A	350	340	305	300	285	A	A	A	A	B	A	A	I275A	250	I250A	A	A	A	305	I315AS	335	400	355
29	355	340	325	300	300	280	245	245	I255A	I255A	245	I250A	260	B	B H	260	245	255	260	280	270	350	I355A	360
30	340	305	300	295	295	250	245H	I250A	250	255	A	A	A	A	A	A	A	A	A	300	305	I345A	310	310
31	300	300	260	295	345	295	280	I260B	275	I255A	I260A	I265B	I290A	280A	245	270	250	250	I280A	305	300	I365A	I400A	380
No.	27	27	28	28	28	28	26	23	20	21	22	21	24	26	25	25	21	16	15	23	24	25	25	28
Median	310	325	300	300	300	280	250	250	240	240	245	245	240	250	245	250	250	250	270	295	300	340	340	325

h'F

Sweep 1.6 Mc to 20.0 Mc in 20 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

A 10

IONOSPHERIC DATA

Jul. 1958 | h'Es | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N, Long. 140° 08.2' E

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

h'Es

Sweep 1.6 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Jul. 1958

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f	f				h	c2	h	c2	c2	c2	c2	l	a	l	l2	l	h2	c2	f4	f2	f4	f4	f5
2	f3	f	f2	f5	f	h3	h2	h2	c2	c2	h	c	c2	l					c2	f3	f2	f2	f2	f3
3	f2	f2		f3			h	c2	c	c2	c	l	l	c2	l	l	l2	l3	l3	f		f3	f3	f2
4	f	f	f2	f	f		h	h2	h	h2	c2	c	h	c		l	l	l2	c2	f2	f2	f2	f2	f
5		f					h	h3	c2	c3	h	h	h	c	c2	l2	h2l	h3	c3	f	f4	f	f	f3
6	f2	f2	f4	f	f	h	h	l2	h2	c	c	c2	c2	l2	c	c	l3	l	h	f	f2	f	f2	f3
7							h		c2	c2	c		c											
8																								
9											c	c	c	c	l2		hl	lh	h2l	f			f	
10						hl	l2	l2	l2	l	l	c	c	c	c	c	l2	l	l2	f	f2	f2	f	f2
11	f2	f2	f2	f2	f	f	l	h	l	l	c	c	h	l	l	hl	hl	c3	c4	f3	f3	f	f2	f
12		f		f		l		c	l				c			l	l2	cl	hl	f	f	f	f	f
13		f	f			c	h	h	c2	c2	c	c	l	l	l2	h	c2l	c2	c2l2	f2	f2	f2	f2	f
14	f	f		f			c	c	c	c	c		l	l2	l	l	h	h2	c2	f4	f2	f2	f2	f2
15	f2	f2	f2	f	f	l	h	h	h2	c2	l	l	c	l	l				hl	f	f	f2	f	f
16	f2	f2						h2		c	l2	l		h	h	h	h	h	c2		f2	f2	f2	f
17	f	f	f	f		h	c2	h2	c2	c2	c	c	l2	l			l2		hl	f	f2	f2	f2	f2
18	f2	f	f2	f		h	c2	c	c	c	c	c	l2	l		l	h	h2	c3	f3	f3	f	f2	f
19						h	h2	c2	h	h	c		h		h	h	h	h2	c3	f2	f	f2	f2	
20	f	f2		f		c2	c3	c2	c	c2	c	l				h	h	c2	c2	f4	f3	f3	f2	
21		f	f	f		h	h2	h2	c2	c			c	c2	l	l2	l2	h2	h2l	f3	f3	f3	f3	f2
22	f2	f2	f	f	f			h3	c3	c2	c3	c2	c2	c2	l	l2	l3	l2	l7h	f6	f2	f2	f3	f2
23	f	f	f	f	f2	h	c2	c2	c2	c2	c	c	c	l	l2	l2	l	l2	l2	f2	f2	f	f2	f
24	f2	f		f		h	h	h	h	c	c	c		h			c2	c2	c2	f3	f2	f2	f2	f2
25	f3	f	f	f2	f2	c2	c3	c2	h	c2	c	c2	c	c	c		c	c2	l2	f	f	f	f2	f
26	f2	f3	f2	f4	f2	h2	h3	c3	c2	h	h	c	c	c	c	h	h	h4	c3	f3	f3		f	
27				f	f	c2	h	c	c2	c2	c2	l		l			h	h	c2	f3	f2	f2	f2	f3
28	f	f		f		h2	c2	c	c2	c!		c	c2	c2		h	h2	h2	c2	f2	f2		f2	f2
29	f2	f2	f3	f2	f	c3	c2	c2	c2	c2	c	c	c	c		h	h	c2	l3	f	f2	f3	f2	f2
30	f	f	f	f	f		l	c2	c2	l	l	c2	l2	l2	l2	l2	l2	c2l	l3	f	f2	f2	f	f
31	f		f			lh	h		c	c	c		c	l				h	c2	f2	f2	f3	f	f
No.																								
Median																								

Types of Es

Sweep 1.6 Mc to 20.0 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Jul. 1958

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	U7.9R	7.6R	6.9	6.6	6.4	7.2R	8.7	9.1	8.1R	I7.7A	A	A	I8.2A	8.1	8.7	8.8	7.9	I7.7R	7.9R	J7.9R	7.5R	J7.5R	U7.9R	J7.9R
2	U7.5R	7.6	7.3R	6.9	7.2R	8.7	10.5R	9.5	9.1	9.1R	9.4R	9.4R	9.7	10.2R	10.4R	10.0R	8.9	8.5	8.3R	U7.8RS	U7.2RS	I7.5R	U7.9R	8.2R
3	8.1	I7.8R	7.7R	7.1R	7.0R	U7.7R	8.7R	U7.5R	J7.4R	7.6	I7.4R	7.8R	8.3R	8.6	8.4	8.4	8.5R	J8.1R	I7.6A	U7.5R	7.6	J7.9R	8.0	8.2
4	8.6	8.8	7.1	6.5	6.3	7.5	U7.6R	6.8R	7.1	6.9	I6.7A	6.6	6.7	6.9	7.0	7.3R	7.2R	7.5R	7.2R	7.0S	6.9	I7.2RS	7.8	J7.8R
5	I7.8R	7.3R	7.3	7.2R	7.0	7.1R	9.0R	9.0RS	7.8	I7.3A	7.2	I7.3A	7.1	I6.9A	6.8	6.8	6.8	7.0	7.2	6.5	6.7	U7.1R	7.5	U7.6R
6	7.4S	7.4	7.4	J7.5R	7.0	7.2	8.5	9.5	9.5H	10.1	U10.2R	10.1	9.8	J9.9R	10.0	10.3	10.0	9.4	9.1	8.6	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	U9.9S	10.2	10.2	9.8	9.6	9.1	U8.9S	8.7	8.6	8.6	8.5	8.7	8.7	I9.1S
8	9.5	U9.4R	I9.4R	8.8	8.1F	8.2	8.8	9.3R	10.4	9.6	I10.2S	10.1	10.0	J9.9R	10.3	9.7	9.7	9.4	9.1	9.3	8.8	S	S	U9.7S
9	U8.6F	SF	J6.9R	5.2S	4.4	4.2	5.4	5.4	AS	G	7.4	I7.9A	U8.5R	9.0	10.5	10.4R	10.1	9.5	8.7	8.4	8.3	9.0	9.5	9.1
10	8.6	8.5	U8.4S	J7.9R	7.2	8.4	9.9	J10.6R	10.5	8.9	8.0	6.9	7.1	6.9	6.9	I6.7A	I7.0A	7.2S	8.1	8.1	7.2	8.2	8.1	8.3
11	I8.1R	7.4S	7.5	6.2	6.0	5.7	7.2	8.4	7.7	7.8	8.2	8.2	8.1	8.5	8.3	8.2	8.4	8.8	8.7S	U7.8S	8.0S	8.5	8.7	8.6
12	9.2	9.2	9.1	8.4	8.4	I8.4C	9.1	9.9	9.0	U8.2R	9.0	U9.6R	10.1R	U10.7R	10.4R	10.2	9.2R	8.7R	9.6S	9.1S	9.1	U9.4R	U9.5R	9.4R
13	8.8R	8.5R	7.9R	7.9	7.5Z	7.5R	8.8	9.4R	8.7	9.0	10.1	J11.3R	U12.1R	11.2R	9.8R	9.2	8.9	9.3R	U9.4R	U9.1R	I8.9A	I9.2R	U9.3R	9.2R
14	U8.8R	8.2	7.7R	U7.3R	6.9	7.7	J9.6R	R	8.7	9.7R	9.8	10.3	10.6R	10.7R	10.7R	9.2R	9.7R	9.4	8.6S	I7.4A	6.9RS	7.5	I7.8RS	8.3R
15	7.8R	U7.4R	I7.3R	7.0	6.8R	7.3	8.3	9.1R	6.9	U7.2R	8.7R	10.4R	10.8R	10.4R	10.4R	10.5	11.1	10.5R	U8.9R	7.4R	C	C	U8.3R	8.2R
16	7.9R	8.1R	I7.5R	6.7	6.5	6.5	U6.9R	8.8R	9.9R	7.9	8.0	9.0R	8.7	9.4	9.1R	U8.8R	8.8R	8.9	8.5R	8.7R	U8.5R	I8.3R	U8.7R	U8.6R
17	U9.3R	K	C	R	U7.2R	7.5R	8.3	8.6R	8.6	8.7R	U9.3S	9.2	9.3	J9.8R	J10.3R	9.7R	8.5	U9.8R	J10.7R	I9.1R	6.9R	I7.2RS	I7.4R	I7.5A
18	7.5	I7.6R	7.4R	I7.3R	6.8	J7.3R	8.7	J9.7R	10.2	U9.2R	8.8	9.4R	10.4	10.3	11.5	11.7R	11.5	9.8	8.8R	RS	R	9.0	8.7R	8.8
19	8.9R	8.4R	8.5R	7.8R	6.9R	U6.8R	J7.8R	9.5R	10.0R	9.6	9.8	9.7H	10.6	J11.3S	11.2	J10.3S	I10.5S	I10.4S	9.7	9.0S	9.1	I9.3A	U9.4S	U9.9R
20	10.0	9.8	J9.4R	8.7	8.8	9.4	10.5	11.0R	9.5	9.0	9.1	9.6	9.9	11.1R	11.2	10.7	9.6	9.4	9.3	9.4	8.6	8.6	I8.8S	8.9
21	I9.2C	J10.0R	9.2R	8.4	8.3	8.2	8.8	9.4	10.0R	10.0	10.4	9.9	9.6	9.9	10.4R	10.0	9.8	I9.4A	9.5	I9.4A	8.8	I9.2RS	U9.5RS	U9.5S
22	8.8	J9.4R	J8.8F	7.3	6.1	6.3H	U8.0R	9.3	I8.3A	I8.4A	I9.4A	10.1	9.9S	9.4S	9.5	I9.6A	9.7	9.2	9.3	U9.4S	I9.0S	9.3S	9.7	I10.1AS
23	J10.6R	9.5	8.7	8.4	8.2	7.0	6.7	7.0	7.5	I8.0AS	I8.5A	9.1	9.5	J9.1S	I9.1RS	U9.2S	I8.9A	I9.0S	8.8	8.3S	U7.2S	7.2S	U7.4S	I7.6RS
24	I7.6RS	7.2	7.2	6.9	6.7	7.0	8.2S	8.9R	8.9	8.8	9.1	I9.4C	I9.9RS	10.2	I9.8RS	U9.9S	I10.0S	J9.8R	I9.3RS	U9.1S	8.2	I8.2S	9.0S	U9.2S
25	RS	U9.7S	U9.0R	C	C	7.7H	8.9	10.1R	8.9R	9.3R	10.0	I10.5A	10.6	10.3	I10.0A	9.5R	9.4R	8.6	8.7	9.1	U9.0S	9.3	9.4	I9.4RS
26	J9.6S	8.7	J9.2S	7.9	7.6	7.7	7.7	7.5	7.4	7.4R	I7.4A	J7.2R	I7.6C	I7.9C	I7.8C	I8.0C	8.0	7.8	7.4RS	7.6S	8.0S	U8.3R	8.0R	8.1R
27	8.2	8.4R	7.7	7.5	7.5S	7.8R	8.5R	9.1R	U9.4R	9.8R	10.3R	10.5	10.9R	10.9	10.6	10.3	10.0R	10.1S	9.6S	9.4	8.6R	U8.3R	I8.9S	J8.4R
28	I8.4R	I8.6A	U9.2R	U8.9R	U8.0R	7.9	7.6	7.3	7.2R	I7.2A	7.4	I7.1A	7.1	7.0R	7.2	7.5	7.6	7.4RS	J7.3R	I7.2A	I7.2C	U7.2S	I7.4S	I7.8C
29	I8.2C	I8.2C	7.9	I7.4C	I7.1C	I7.5C	8.0	8.4	U8.5R	9.2R	I9.3A	U9.7R	10.2	10.2R	10.3	9.7	9.9S	10.2S	I10.0S	U9.4RS	I9.4RS	I9.6RS	I9.5R	I9.5R
30	I9.6RS	I9.6R	I9.4R	8.4R	8.0	8.2R	I9.3R	I9.8R	9.4R	9.4	9.9	10.0	10.3S	10.3S	10.2	I10.2S	U9.8R	9.4R	9.1	8.5	8.4R	R	R	I9.8R
31	9.7R	R	I8.6R	7.1	7.2	7.1	7.8R	7.4	I6.6A	6.5	U6.5R	J6.6R	6.6	6.9R	7.1	7.1S	6.8	J6.8S	7.4R	7.3S	6.9S	U7.3S	7.8	U8.0R
No.	29	27	29	28	29	30	30	29	29	30	30	30	31	31	31	31	31	31	31	30	28	27	28	30
Median	8.6	8.4	7.9	7.4	7.1	7.5	8.5	9.1	8.7	8.8	9.1	9.5	9.8	9.9	10.0	9.6	9.2	9.2	8.8	8.6	8.2	U8.3	U8.7	U8.6
U.Q.	9.2	9.4	9.0	8.2	7.8	7.9	8.9	9.5	9.5	9.3	9.9	10.1	10.3	10.3	10.4	10.2	9.9	9.5	9.3	9.1	8.8	9.2	9.4	9.4
L.Q.	7.9	7.6	7.4	7.0	6.8	7.1	7.8	8.0	7.6	7.6	8.0	7.9	8.2	8.5	8.4	8.4	8.4	8.1	8.1	7.6	7.2	7.5	7.8	8.1
Q.R.	1.3	1.8	1.6	1.2	1.0	0.8	1.1	1.5	1.9	1.7	1.9	2.2	2.1	1.8	2.0	1.8	1.5	1.4	1.2	1.5	1.6	1.7	1.6	1.3

The Radio Research Laboratories, Japan.

foF2

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

K 1

IONOSPHERIC DATA

Jul. 1958

f_oF1

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	A	A	A	A	A	A	A	A	5.4	L	L					
2									L	A	A	A	6.1	6.0^{R}	6.0^{R}	5.9^{L}_{S}	L	L						
3								L	A	A	6.0^{R}	5.9^{R}	6.2	R	A	A	L	A	A					
4								A	A	A	A	A	$^{I}5.8^{A}$	5.7^{S}	5.6^{R}_{S}	5.4	$^{U}5.4^{S}$	L	L					
5						L	L	A	R	A	A	A	A	A	5.5^{S}	$^{U}5.5^{S}$	A	4.9	A					
6								L	A	A	A	A	6.8	L	6.2	6.0^{L}	A	L						
7						C	C	C	C	C	6.5	L	6.2^{L}	6.1	A	A	5.4^{L}	5.3^{L}						
8								L	5.9	L	L	A	A	6.2^{S}	6.2^{H}	L	5.6	5.2^{L}						
9						3.8	4.2	4.7	$^{I}5.2^{S}$	6.6^{R}	A	A	6.1	A	A	A	5.9^{L}	A						
10							L	5.0	$^{I}5.4^{S}$	5.5^{H}	5.8^{S}	5.6^{S}	A	5.5	A	A	A	A	L					
11							L	5.2^{L}	L	L	6.1^{S}	6.3^{H}	6.2^{S}_{H}	$^{I}5.8^{A}$	AS	A	$^{I}5.6^{L}$	5.2^{L}	L					
12						C	L	L		L	L	L	5.8	$^{I}5.8^{A}$	A	A	L	L						
13							A	A	A	5.7	A	L	A	$^{I}5.8^{L}$	5.6	L	A							
14							L	L		L	L	A	5.8^{L}	5.7	R	L	L							
15								L	5.5	R	A	A	L	L	5.7^{L}	5.6^{L}	L	L						
16							L	5.2^{L}	A	L	L	L	R	$^{I}5.7^{L}$	5.5^{L}	S	L	L						
17									L	5.5	R	L	L	L	A	L	L	L	L					
18								L	A	L	A	5.5	5.8^{S}	S	5.7^{L}	A	A	A	A					
19							L	5.0^{L}	L	L	5.6	A	5.8^{L}	S	AS	L	L	S	A					
20								A	L	L	L	5.8	6.0^{L}	5.8	5.8	A	A	A	A					
21							A	A	A	A	A	L	L	6.2	A	A	A	A	A					
22								L	A	A	A	A	A	A	A	A	5.4^{L}	L	A					
23							4.8^{L}	A	A	A	A	A	A	A	A	AS	A	A						
24									5.9^{L}	L	L	C	S	L	LS	B	L	L	A					
25										6.1^{L}	L	A	A	A	A	6.1^{L}	L							
26								5.2	5.5^{L}	A	A	S	C	C	C	C	L							
27									L	6.5	L	L	L	6.1^{R}	6.0^{S}	L	L	A						
28								A	R	A	A	A	AS	AS	S	B	S	L	AS					
29						C		L	A	AS	A	L	B	B	AS	L	L	A						
30										L	6.7	L	$^{I}6.2^{A}$	$^{I}6.2^{R}$	L	6.1^{L}	L	L						
31							L	B	A	S	R	A	6.0^{R}	R	S	5.7^{S}	S	AS	L					
No.						1	2	6	6	6	6	5	14	14	11	8	7	4						
Median						3.8	4.5	5.1	5.5	5.9	6.0	5.8	6.0	5.8	5.7	5.8	5.4	5.2						

The Radio Research Laboratories, Japan.

f_oF1

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

K 2

IONOSPHERIC DATA

Jul. 1958

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						2.20	2.85A	3.55A	3.80	A	A	A	A	A	A	A	3.70	3.20	U2.65A					
2						A	2.95R	3.30R	3.70	3.90AS	I3.90A	R	A	R	R	3.80	3.65R	I3.30RS	2.55					
3						B	3.00R	3.40	U3.80A	3.70	I3.85A	I3.90A	4.05R	A	A	A	S	3.25RS	A					
4						2.20	3.00	3.45	3.75A	U3.90A	4.10	4.25	I4.05A	3.90	3.90A	I3.75A	I3.45A	I3.05A	2.60					
5						I2.15R	2.90S	3.35S	3.70	3.95	4.00	A	A	A	U4.15A	U3.95A	3.60	3.15	A					
6						B	2.85	3.40	A	A	A	I4.05A	4.15	4.10S	3.90	4.00	3.60	U3.20S	2.10					
7						C	C	C	C	C	I4.15S	I4.45B	4.35	I4.15A	I4.10A	3.90	3.50	3.25	A					
8						A	A	A	A	A	A	A	A	R	U4.00R	I3.85S	3.60S	I3.10S	U2.25A					
9					B	R	2.70	3.20	U3.65A	I3.85A	4.00	4.00	U4.00A	A	A	A	A	3.10	2.50					
10						A	2.80	A	A	A	A	A	A	I4.15A	A	A	A	A	A					
11						1.80S	2.80	A	A	A	I4.15A	I4.10S	4.30	I4.10R	I4.05A	3.75	I3.50A	U3.20S	S					
12						C	B	A	A	3.60A	A	A	B	I4.00R	A	A	A	B	B					
13						B	2.70	3.30R	I3.60A	A	3.90A	A	A	A	A	3.85	3.50	3.15	2.20					
14						B	2.60	3.00A	3.30A	I3.60A	3.85	A	A	A	I4.00RS	I3.75A	I3.45RS	3.00	BS					
15						B	2.90A	3.20	3.55A	3.70A	3.90R	A	A	A	A	A	I3.50B	I3.00A	I2.50A					
16						B	2.65R	3.20	3.55	A	A	A	I3.90A	U4.00R	I3.80R	3.75	I3.25A	A	A					
17						B	2.80	I3.05A	I3.20A	I3.30A	I3.55A	A	A	A	A	R	3.30R	3.05R	2.25A					
18						A	2.50	3.10	3.50	3.60A	A	A	A	A	A	A	3.65A	I2.95B	C					
19					B	B	2.60	3.20	3.50A	A	A	A	A	A	U4.10S	I3.80S	I3.55S	A	2.15					
20						A	I2.70A	3.10	I3.45A	A	A	A	A	A	A	3.85	3.60	3.10	A					
21						A	I2.70A	3.15	A	A	A	A	A	A	A	A	A	A	A					
22						B	2.75	3.20	3.50	3.80	3.90	I3.95A	A	A	A	A	A	3.10	B					
23						A	A	I3.10A	I3.40A	I3.65A	I3.75A	A	A	A	A	A	A	A	B					
24						B	2.70	I3.25R	U3.70A	3.80	A	C	U4.15S	I4.05S	I4.00S	I3.90B	I3.60A	3.10	A					
25						B	2.70	I3.10A	3.55	A	B	I4.20A	I4.15A	I4.20A	I3.80A	I4.00A	3.55	3.00	2.25					
26						B	2.70	3.25	3.75	3.95	I4.00B	4.00R	C	C	C	C	I3.70RS	I3.10R	R					
27						A	2.50A	I3.20A	3.60	3.75R	A	A	A	A	U4.20R	U4.00R	3.65R	3.20	2.30					
28						B	2.90R	3.40	I3.70R	B	B	B	B	I4.40R	I4.30R	I4.05B	3.70R	I3.25RS	A					
29						C	A	A	3.40A	C	B	A	B	B	B	I4.10R	I3.80RS	3.20S	R					
30						B	I2.65A	3.30	U3.70A	I3.95R	I4.00A	3.95R	I4.15R	I4.30R	4.30	4.10R	3.80	3.25	I2.30A					
31						A	A	B	A	A	I4.35A	4.30	I4.25R	I4.20R	4.20R	4.05	I3.70RS	I3.10RS	2.20A					
No.						4	25	24	23	16	16	11	11	12	15	19	24	25	14					
Median						2.20	2.70	3.20	3.60	3.80	3.95	4.05	4.15	4.10	4.05	3.90	3.60	3.10	2.30					

foE

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

The Radio Research Laboratories, Japan.

K 3

IONOSPHERIC DATA

Jul. 1958 | **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	5.8M	3.5M	3.2M	2.4M	2.3M	G	4.4M	3.8	7.5M	9.7M	13.1M	13.3M	13.0M	7.1M	7.0M	12.0M	4.3	4.9M	7.4M	4.9M	3.4M	5.4M	8.7M	9.2M
2	6.9M	4.4M	4.3M	E	E	3.8MY	3.2	4.9M	9.1M	8.2M	7.9M	11.3M	4.3M	G	G	G	G	G	3.1	3.8M	3.6M	7.1M	9.5M	4.9M
3	9.0M	8.5M	5.7M	5.7M	3.7M	B	G	4.0	6.3M	7.1M	6.0M	7.0M	5.4M	5.0M	12.0M	7.3M	3.6G	6.2M	12.2M	4.9M	5.0	3.1M	7.2M	6.5M
4	13.1M	2.5M	E	E	2.4M	2.4	3.1	5.6M	6.5	7.1M	7.6M	6.1	6.4M	4.6M	4.8M	5.3M	5.7M	3.9M	5.0M	8.8M	E	3.1M	7.0M	9.1M
5	4.9M	5.0M	4.2M	3.3M	3.2M	G	3.3	7.7M	4.9M	10.4M	11.0M	12.3M	6.9M	9.5M	4.9	4.4	5.8M	5.4M	7.3M	8.0M	6.8M	4.5M	5.8M	3.2
6	8.5M	6.5M	5.6M	4.8M	2.9M	B	G	5.4M	6.1M	6.6M	8.5M	8.5M	6.7M	7.2S	8.5M	4.2	7.5M	4.4M	4.0M	4.2M	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	6.2M	B	5.0	5.0M	8.2M	6.9M	4.0	3.8	3.2	2.5M	E	2.8M	E	2.4M
8	11.5M	8.5M	5.0M	5.4M	3.8M	2.9M	3.0	6.5M	5.0	7.2M	7.6M	7.5M	7.6M	G	4.8	S	5.2M	3.6M	3.1	2.7MY	2.2M	E	E	3.0M
9	3.3M	5.0M	4.0M	E	2.2	3.1	3.1	4.2	5.9M	6.7M	7.1M	12.3M	7.8M	8.5M	10.4M	9.5M	5.3M	7.3M	5.0M	4.5M	5.5M	3.4M	5.8M	3.2M
10	3.9M	3.2M	3.1M	2.7M	3.3M	3.3M	3.3	4.8	5.2S	5.0	5.3	6.6	8.6M	4.7M	7.4M	12.0M	13.1M	11.8M	6.5M	4.9M	4.5M	4.8M	3.9M	3.1M
11	3.9M	3.3M	2.5M	2.5M	1.9M	2.3	G	4.0M	4.3M	4.8M	4.3	G	G	7.5M	5.9S	7.3M	5.4M	3.6	3.9M	3.1M	5.0M	5.0M	4.3M	7.0M
12	6.7M	4.9M	3.7M	E	2.1M	C	3.1	3.6	5.3S	6.5M	5.2M	5.5M	5.5M	6.8M	12.3M	7.3M	5.2M	B	B	E	3.9M	3.9M	3.2M	E
13	6.9M	4.6M	4.0M	5.2M	3.2M	2.5	5.0M	8.6M	9.1M	4.0	6.8M	5.2M	6.2M	5.5M	4.9M	5.0M	8.3M	5.5M	7.5M	6.7M	9.4M	6.9M	6.8M	3.0M
14	3.1M	3.2M	2.7M	2.8M	2.5M	B	3.3	5.4M	6.6M	5.3M	9.4M	9.9M	4.2M	5.5M	G	5.0M	G	5.7M	6.8M	8.7M	6.0M	5.8M	6.0M	9.2M
15	4.7M	3.1M	5.0M	2.8M	E	B	3.4	4.5	5.8M	4.9M	6.1	8.8M	4.6M	5.4M	5.6M	4.8M	B	4.1M	3.0M	4.3M	C	C	3.2M	4.3M
16	3.0M	3.2M	3.2M	2.6M	2.1M	B	G	3.5	6.5M	8.7M	10.4M	9.7M	4.2	4.8	G	G	5.0M	3.7MY	3.9M	3.5M	3.0M	7.8M	3.5M	4.4M
17	3.9M	3.9M	C	2.9M	E	B	3.0	5.0M	7.4M	4.0M	4.9M	6.0M	6.0M	6.2M	7.1M	G	3.9M	G	3.7M	10.0M	3.1M	E	5.7M	8.5M
18	4.4M	4.0M	4.7M	3.2M	2.5M	2.3	3.0	4.8M	7.1M	5.5M	5.7M	5.4M	4.2M	5.5M	5.0M	5.6M	9.5M	8.5M	7.2M	6.1M	5.6M	9.5M	3.2M	2.5M
19	E	2.3M	E	E	2.3M	B	4.6M	3.8	6.0M	11.7M	5.0M	9.5M	4.9M	P4.1S	5.3	S	S	6.9M	7.3M	8.4M	7.2M	10.3M	5.4M	2.5M
20	E	3.0M	2.4M	E	E	2.3	3.2	6.7M	6.3M	5.0	5.0M	5.0	4.9M	3.9G	4.2	5.7	5.5M	7.5M	7.0M	4.4M	4.0M	9.0M	5.8M	5.0M
21	C	3.2M	E	E	4.0M	2.4M	8.3M	14.4M	12.3M	8.8M	10.3M	5.0M	6.8M	6.5M	8.3M	8.5M	13.0M	12.1M	9.4M	13.2MY	11.5M	6.7M	5.0M	9.0M
22	3.0M	2.5M	2.5M	E	E	B	2.9	5.0M	10.0M	10.1M	15.0M	12.1M	8.9M	8.8M	10.4M	14.9M	14.0M	3.6	6.7M	8.8M	5.0S	3.2M	7.7M	10.5M
23	2.4M	3.3M	3.2M	2.5	2.3MY	3.6M	3.8	8.5M	10.1M	14.3M	13.6M	7.1M	8.5M	5.0S	7.4M	5.0M	13.9M	7.5M	4.9M	5.1M	4.9M	2.5M	E	4.4M
24	3.0M	5.2M	3.2M	E	2.1M	B	2.9	G	4.8M	4.4	5.0M	C	G	G	G	B	7.5M	5.3	6.4M	4.3M	6.0M	7.0M	9.4M	9.3M
25	8.5M	5.7M	4.0M	C	C	4.0M	5.0M	5.0M	6.0M	11.9M	B	12.6M	8.5M	10.4M	13.5M	6.0M	G	4.4M	3.0	4.3M	4.4M	4.4M	3.5M	3.2M
26	2.1M	2.7M	2.9M	2.4M	E	B	3.0	5.3	5.8M	7.2M	15.9M	4.9M	C	C	C	C	4.7M	6.2M	7.0M	6.8M	4.4M	7.5M	2.1M	2.3M
27	3.1M	2.7M	E	E	E	3.2M	4.6M	5.3M	5.0M	7.5M	6.2M	5.5M	5.6M	4.3M	G	G	4.1	5.0M	6.0M	4.3M	4.5M	7.4M	6.7M	7.8M
28	13.2M	11.7M	5.8M	3.4M	E	B	4.5	6.8M	4.0M	9.9M	6.7M	15.6M	9.2M	7.0M	G	B	4.9M	5.0M	5.4M	11.2M	C	4.7M	14.5M	C
29	C	C	4.3M	C	C	C	7.4M	5.0M	9.8M	8.2M	8.6M	10.7M	B	B	7.2M	6.0MS	5.0M	6.4M	4.0M	2.9M	E	2.9M	5.7M	5.5M
30	3.2M	4.0M	2.8M	3.1M	2.1M	B	2.8M	3.6	4.1	4.2M	6.0M	4.8M	10.5M	8.7M	G	G	G	4.9M	8.5M	8.7M	7.9M	10.9M	3.4M	6.9M
31	5.8M	3.2M	B	E	E	2.8M	4.0M	B	6.3M	4.8M	4.4M	6.3M	3.8G	G	G	4.8M	4.5M	7.2M	5.3M	5.5M	4.0M	3.0M	5.0M	5.0M
No.	28	29	28	28	28	16	30	29	30	30	30	29	29	28	30	26	29	30	30	31	28	29	30	29
Median	4.2M	3.5M	3.2M	2.5M	2.2M	2.6M	3.2M	5.0M	6.2M	7.1M	6.8M	7.1M	6.0M	5.5M	5.4M	5.4M	5.2M	5.2M	5.7M	4.9M	4.5M	4.8M	5.6M	4.9M
U.Q.	6.9	5.0	4.3	3.2	2.7	3.2	4.4	6.0	7.4	8.8	9.4	11.0	8.2	7.2	8.2	7.3	7.5	6.9	7.2	8.4	5.6	7.2	6.8	8.2
L.Q.	3.0	3.2	2.6	E	E	2.3	3.0	4.0	5.2	5.0	5.3	5.4	4.4	4.6	G	4.4	4.0	3.9	3.9	4.2	3.5	3.1	3.4	3.0
Q.R.	3.9	1.8	1.7			0.9	1.4	2.0	2.2	3.8	4.1	5.6	3.8	2.6		2.9	3.5	3.0	3.3	4.2	2.1	4.1	3.4	5.2

The Radio Research Laboratories, Japan.

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

K 4

IONOSPHERIC DATA

Jul. 1958

fbEs

135° E Mean Time (G.M.T.+ 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.1	2.7	2.1	E	1.7		3.3	3.8	5.6	A	6.6	A	A	6.3	6.4	7.9	4.3	3.7	3.7	3.0	3.3	2.6	6.2	5.1
2	4.0	3.4	2.1			2.6	3.2	4.1	6.0	6.4	6.0	6.5	4.3						2.8	2.6	3.1	5.8	5.9	3.3
3	2.1	5.8	3.6	2.6	2.7	B		3.9	5.6	6.2	4.8	4.5	4.8	5.0	6.3	5.9	D3.6S	5.5	A	3.9	4.5	E	4.0	6.4
4	7.6	1.8			E	G	G	5.2	5.8	6.5	A	6.0	6.0	4.6	4.6	4.3	4.6	3.5	2.9	5.7		E	4.1	5.9
5	3.0	3.2	3.0	2.3	2.0		G	6.2	4.8	A	6.0	A	6.3	A	4.7	4.3	5.2	U3.5A	4.8	6.1	U4.4S	3.4	3.4	2.3
6	6.2	3.5	3.4	2.6	2.1	B		4.6	5.9	6.3	6.7	5.8	6.2	6.2	4.4	G	5.5	3.5	3.0	2.3	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	5.3	B	5.0	5.0	7.0	6.1	3.6	3.4	3.0	E		E		E
8	4.2	4.1	3.4	3.0	2.3	2.3	3.0	3.5	4.5	4.5	6.0	6.3	6.1		4.3	S	4.5	3.5	3.1	2.0	E			2.0
9	2.0	D5.0S	2.0		2.0	3.0	D3.1S	3.8	4.5	5.2	6.5	A	5.5	7.4	6.3	8.8	4.0	5.9	3.8	2.9	4.4	E	4.7	2.4
10	2.5	2.0	1.8	2.0	2.1	2.2	3.2	4.8	4.2	4.0	4.6	5.0	6.0	4.7	6.0	A	A	6.3	3.5	2.6	3.3	3.6	2.2	2.2
11	3.0	2.1	2.1	1.7	E	2.3		3.7	3.8	4.2	4.2			5.8	5.8	6.1	4.7	3.5	3.0	2.3	2.3	4.3	2.6	3.3
12	2.9	3.3	2.6		2.1	C	3.1	3.5	4.5	5.8	5.1	4.5	5.4	6.1	7.1	5.9	3.9	B	B		3.1	2.1	2.3	
13	3.6	2.9	2.6	3.2	1.9	2.5	4.6	6.2	7.2	4.0	6.3	4.8	5.3	4.7	4.6	4.5	6.1	4.6	6.4	6.2	A	3.8	3.0	E
14	2.0	1.8	2.0	2.0	1.7	B	3.2	4.0	4.1	4.3	6.0	6.2	D4.2B	4.8		4.5		5.1	5.2	A	4.0	E	4.7	U6.3A
15	2.5	2.0	3.6	2.0		B	3.2	4.2	5.1	4.3	5.6	6.0	4.4	4.8	4.6	4.1	B	3.4	2.6	2.5	C	C	2.3	E
16	2.1	2.0	2.2	2.0	2.0	B		3.5	5.9	4.7	4.2	5.2	4.2	4.3			4.0	3.5	3.1	3.0	2.0	5.4	U3.3A	2.5
17	2.5	2.0	C	1.6		B	3.0	3.2	4.7	3.9	4.8	5.4	5.4	5.5	6.4		3.7		3.1	8.0	2.7		3.1	A
18	2.9	2.6	3.2	2.4	1.9	2.2	2.8	U3.9A	6.2	4.9	D5.7B	4.9	D4.2B	4.8	4.1	5.5	8.1	5.5	5.0	5.9	4.5	4.0	2.0	E
19		2.1			2.3	B	3.7	3.5	4.3	5.2	4.3	6.4	4.5	S	D5.3S	S	S	S	5.5	3.0	5.2	A	2.0	E
20		2.0	1.5			2.3	3.1	5.8	3.9	4.4	4.6	4.4	4.5	D3.9B	4.2	5.7	5.2	5.7	4.5	3.9	2.1	3.8	4.0	3.2
21	C	1.9			2.7	2.3	7.4	6.7	6.1	6.5	5.8	4.8	5.2	5.7	7.2	8.0	7.0	A	7.3	A	6.3	4.0	2.1	4.0
22	2.0	1.9	E			B	2.9	4.4	A	A	A	8.2	7.8	7.7	9.0	A	3.8	3.6	4.5	3.4	3.0	2.4	2.8	6.5
23	E	2.3	2.0	E	E	2.3	3.4	5.3	6.6	5.8	A	6.8	6.2	5.0S	7.0	D5.0S	A	U7.2S	3.3	4.0	3.0	2.2		2.8
24	2.3	2.9	2.4		E	B	2.9		G	4.4	4.8	C				B	4.3	4.6	6.0	3.4	3.9	3.6	6.4	6.1
25	5.1	2.9	2.6	C	C	B	4.1	4.4	5.1	4.7	B	A	6.1	9.6	A	5.5		3.6	D3.0B	3.6	E	2.0	2.9	2.5
26	E	2.4	2.4	E		B	3.0	4.2	4.5	6.3	A	D4.9S	C	C	C	C	4.7	6.1	5.8S	4.0	2.9	5.9	E	E
27	E	E				2.6	3.4	3.8	4.2	5.2	5.1	5.2	5.3	D4.3B			4.1	4.9	3.8	3.4	3.7	E	4.8	5.1
28	5.3	A	4.2	E		B	4.3	5.9	4.0	A	6.3	A	6.1	6.3		B	S	3.5	4.4	A	C	4.0	2.4	C
29	C	C	2.4	C	C	C	6.4	3.7	6.5	6.3	A	5.3	B	B	7.0	4.4S	4.4	6.0	3.2	2.0		2.0	2.7	4.0
30	2.3	2.4	1.8	1.9	1.7	B	D2.8B	G	4.1	D4.2S	5.6	4.6	6.2	5.1				4.4	4.6	3.0	4.0	4.5	2.2	3.4
31	5.1	2.5	B			2.5	3.3	B	A	4.5	D4.4B	A	D3.8B			4.6	4.3	U6.6A	3.0	5.4	3.6	2.4	E	3.3
No.	26	29	24	17	19	13	24	28	30	29	28	27	24	22	21	20	23	27	29	30	25	27	27	28
Median	2.7	2.4	2.4	2.0	2.0	2.3	3.2	4.0	5.0	5.2	5.9	6.0	5.4	5.3	6.3	5.6	4.5	4.6	3.8	3.4	3.6	3.4	2.9	3.2

fbEs

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

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

Jul. 1958

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	2.00	1.65	1.30	1.80	1.30	1.90	2.00	2.60	2.40	2.80	3.00	3.70	3.35	2.90	2.80	2.50	2.80	2.00	1.80	1.70	2.00	1.60	1.60	1.60
2	1.60	1.60	1.70	1.60	1.80	1.90	2.00	2.25	2.30	2.80	3.00	3.00	3.35	2.90	2.80	2.65	2.90	2.05	2.00	1.80	1.70	1.60	1.80	2.00
3	1.70	1.50	1.30	1.25	1.40	2.60	2.25	2.30	2.30	2.30	2.70	2.75	3.20	3.05	2.70	2.50	2.70	2.20	1.90	2.00	1.50	2.00	1.60	1.40
4	1.40	1.60	2.00	1.40	1.40	1.60	2.00	2.30	2.20	2.50	2.40	2.70	2.80	2.70	2.20	2.40	2.60	2.30	1.90	1.40	1.30	1.50	2.00	2.00
5	1.70	1.80	1.50	1.10	1.30	1.40	2.10	2.30	2.20	2.55	2.90	3.00	2.80	3.60	2.65	2.40	2.10	2.50	2.20	1.80	1.50	1.70	1.80	1.80
6	1.80	1.60	1.35	1.30	1.20	2.20	1.80	2.00	2.20	2.40	3.00	2.70	3.00	2.75	2.90	3.00	2.10	2.40	1.95	1.80	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	3.70	5.60	3.60	3.20	2.50	2.40	2.90	2.10	1.80	2.10	1.85	1.50	1.70	1.90
8	1.70	1.40	1.20	1.30	1.25	1.85	2.25	2.30	2.30	2.50	2.80	2.90	3.05	2.80	3.00	2.95	2.90	2.50	2.00	1.50	1.90	E3.00S	1.95	1.80
9	1.70	1.60	1.10	1.80	1.25	2.00	2.10	2.50	2.45	2.60	2.80	2.90	2.80	3.20	3.00	2.40	2.80	2.20	2.00	1.80	1.90	1.90	1.80	1.90
10	1.80	1.60	1.30	1.40	1.30	1.70	2.65	2.30	2.20	2.60	3.15	3.45	3.40	3.60	3.10	2.40	2.55	1.90	1.90	1.90	1.80	1.50	1.50	1.70
11	1.80	1.60	1.20	1.25	1.40	1.40	2.30	2.50	2.70	2.70	3.00	3.10	2.70	3.10	2.90	3.00	2.40	2.60	E2.50S	1.90	1.80	1.90	1.90	1.40
12	1.70	1.70	1.25	1.95	1.70	I2.40C	2.90	2.80	2.85	3.10	3.55	3.30	4.10	2.50	2.85	2.30	2.30	3.50	2.60	1.80	1.60	1.50	1.80	1.90
13	2.00	1.40	1.30	1.35	1.25	2.10	2.30	2.40	2.10	3.00	3.20	3.30	3.50	3.10	2.90	2.40	2.25	2.10	1.30	1.50	1.80	1.60	2.00	2.00
14	1.70	1.10	1.50	1.70	1.40	2.30	2.10	2.55	2.50	2.90	2.60	3.10	3.65	2.90	2.70	2.60	2.75	2.00	2.20	2.00	2.00	1.60	2.00	1.60
15	1.80	1.25	1.70	1.25	1.80	2.20	2.00	2.30	2.90	2.40	2.60	3.20	2.80	2.90	2.80	2.50	3.70	2.00	1.90	1.50	C	C	1.60	1.30
16	1.30	1.40	1.60	1.40	1.45	2.20	2.10	2.60	2.70	2.40	E3.30C	2.85	2.70	2.50	2.60	2.90	2.10	2.10	1.80	1.50	1.40	1.50	1.50	1.60
17	1.60	1.60	I1.25C	1.10	E2.00E	2.50	2.35	1.80	2.40	2.30	2.90	3.20	3.50	2.10	2.80	2.50	2.55	2.10	2.00	1.90	1.70	2.00	2.00	2.00
18	1.60	1.60	1.50	1.15	1.20	1.40	2.00	2.25	2.30	2.60	2.40	3.00	2.20	2.90	2.70	2.60	2.70	3.20	I1.55C	2.20	1.50	1.70	1.20	1.30
19	1.50	1.50	1.50	1.50	2.00	2.50	2.20	2.50	2.30	2.50	2.60	3.00	3.00	3.20	3.20	E4.30S	2.70	2.50	2.00	1.90	1.90	1.80	1.80	2.00
20	1.60	1.65	1.30	1.90	1.80	1.80	2.10	2.50	2.20	2.70	2.30	2.90	3.50	2.80	2.60	2.35	3.20	2.10	2.00	2.00	1.80	1.50	1.90	1.90
21	I1.60C	1.50	1.20	1.40	1.40	1.40	1.90	2.60	2.70	2.70	2.90	3.10	2.80	2.90	2.70	2.80	2.50	2.30	1.90	1.90	1.90	1.75	1.70	2.00
22	1.60	1.70	1.40	1.70	1.30	2.10	2.00	2.00	2.30	2.50	2.80	3.00	2.40	3.00	2.95	2.60	2.65	2.15	2.60	1.90	1.90	1.80	1.70	1.80
23	1.70	1.95	1.40	1.50	1.45	1.90	2.00	2.60	2.40	2.50	3.15	3.00	3.80	4.00	3.50	3.20	3.00	2.50	2.20	1.80	1.80	1.60	1.70	1.80
24	1.90	1.70	1.30	1.30	1.40	1.90	2.00	2.00	2.30	2.50	2.45	I3.40C	3.40	3.30	3.40	5.70	2.40	2.15	1.90	1.90	1.60	1.90	1.95	1.70
25	1.80	1.40	1.25	C	C	2.20	2.20	2.00	2.50	2.50	4.80	3.30	3.50	3.50	3.10	2.50	2.50	2.30	1.75	1.60	1.60	1.70	1.30	1.50
26	1.70	1.80	1.60	1.60	1.90	2.00	2.30	2.40	2.80	3.20	4.30	3.30	I4.35C	I3.35C	I3.50C	I3.00C	2.40	2.30	2.40	1.80	1.50	1.80	1.70	1.90
27	1.60	1.70	1.65	1.70	1.90	1.90	2.20	2.30	3.00	3.50	3.00	3.20	3.50	3.45	3.10	3.30	3.00	2.30	2.20	2.35	2.00	1.80	1.60	1.75
28	1.60	1.70	1.80	1.70	1.60	2.20	2.60	2.60	3.30	4.10	4.50	4.70	4.50	3.50	3.40	5.50	3.40S	2.20	2.10	1.40	I1.40C	1.20	1.30	I1.25C
29	I1.30C	I1.25C	1.20	I1.45C	I1.35C	I1.60C	2.30	1.90	2.80	I2.75C	4.10	3.50	6.20	6.60	4.70	2.80	2.00	2.55	2.20	1.30	1.50	1.20	1.10	1.70
30	1.80	1.40	1.30	1.20	1.30	2.30	2.50	2.30	2.50	2.90	3.00	3.00	3.50	3.60	3.30	2.50	3.10	1.70	1.30	1.10	1.20	1.30	1.60	1.60
31	1.20	1.40	3.00	1.40	1.30	1.80	2.10	6.20	3.30	3.40	3.20	3.25	3.20	3.10	2.80	2.50	2.20	2.00	1.45	1.70	1.20	1.60	1.80	1.70
No.	30	30	30	29	28	30	30	30	30	30	30	31	31	31	31	30	31	31	30	31	29	28	30	30
Median	1.70	1.60	1.30	1.40	1.40	1.95	2.10	2.30	2.40	2.60	3.00	3.10	3.35	3.10	2.85	2.55	2.65	2.20	2.00	1.80	1.70	1.60	1.70	1.80

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

Jul. 1958

(M3000)F2

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11
1	U2.50R	2.50R	2.45	2.45	2.55	2.75R	2.60	2.75	2.70R	I2.40A	A	A
2	U2.55R	2.50	2.45R	2.45	2.55R	2.75	2.85R	2.60	2.30	2.40R	2.45R	2.40R
3	2.60	I2.60R	2.45R	2.55R	2.50R	U2.65R	2.70R	U2.90R	J2.30R	2.50	I2.35R	2.40R
4	2.55	2.70	2.60	2.45	2.30	2.65	U2.55R	2.25R	2.55	I2.40A	I2.30A	2.25
5	I2.50R	2.40R	2.45	2.50R	2.55	2.25R	2.60R	2.65RS	2.30	I2.20A	2.30	I2.40A
6	2.45S	2.35	2.40	J2.55R	2.60	2.80	2.60	2.85	2.40H	2.50	U2.50R	2.45
7	C	C	C	C	C	C	C	C	C	C	U2.40S	2.45
8	2.40	U2.60R	I2.60R	2.65	2.60F	2.60	2.50	2.80R	2.60	2.55	I2.45S	2.50
9	U2.35F	SF	J2.20R	2.00S	2.05	2.00	2.30	2.60	AS	G	2.40	I2.40A
10	2.45	2.50	U2.55S	J2.60R	2.55	2.25	2.45	J2.55R	2.55	2.50	2.50	2.30
11	I2.55R	2.55S	2.65	2.90	2.45	2.65	2.65	2.85	2.70	2.65	2.55	2.55
12	2.50	2.60	2.75	2.65	2.50	I2.50C	2.65	2.95	3.00	U2.60R	2.55	U2.60R
13	2.60R	2.70R	2.45R	2.55	2.35Z	2.30R	2.60	2.70R	2.60	2.60	2.55	J2.40R
14	U2.75R	2.65	2.55R	U2.55R	2.55	2.45	J2.90R	R	2.40	2.65R	2.55	2.60
15	2.60R	U2.60R	I2.55R	2.55	2.65R	2.70	2.65	3.15R	2.65	U2.35R	2.65R	2.70R
16	2.55R	2.65R	I2.65R	2.70	2.50	2.65	U2.25R	2.75R	3.05R	3.05	2.55	2.60R
17	U2.45R	R	C	R	U2.45R	2.45R	2.65	2.75R	2.70	2.65R	U2.70S	2.65
18	2.50	I2.60R	2.70R	I2.70R	2.70	J2.60R	2.75	J2.60R	2.85	U2.70R	2.55	2.65R
19	2.40R	2.50R	2.60R	2.70R	2.60R	U2.55R	J2.65R	2.85R	2.90R	2.80	2.80	2.65H
20	2.60	2.65	J2.85R	2.75	2.75	2.85	2.95	3.00R	2.85	2.65	2.65	2.80
21	I2.60C	J2.70R	2.70R	2.55	2.60	2.80	2.60	2.75	2.80R	2.80	2.80	2.75
22	2.55	J2.50R	J2.70F	2.65	2.45	2.40H	U2.50R	2.90	I2.60A	I2.35A	I2.35A	2.65
23	J2.65R	2.65	2.55	2.70	2.70	2.85	2.50	2.70	2.65	I2.65AS	I2.70A	2.75
24	I2.50RS	2.55	2.55	2.65	2.55	2.75	3.05S	2.90R	2.90	2.80	2.70	I2.60C
25	RS	U2.70S	U2.60R	C	C	2.45H	2.70	3.00R	3.05R	2.70R	2.60	I2.65A
26	J2.50S	2.50	J2.70S	2.50	2.40	2.60	2.60	2.55	2.45	2.50R	I2.50A	J2.45R
27	2.45	2.50R	2.60	2.55	2.55S	2.80R	2.70R	2.55R	U2.75R	2.55R	2.55R	2.50
28	I2.20R	I2.20A	U2.40R	U2.55R	U2.60R	2.60	2.40	2.40	2.10R	I2.30A	2.35	I2.30A
29	I2.40C	I2.50C	2.55	I2.55C	I2.60C	I2.85C	2.90	2.80	U2.45R	2.60R	I2.55A	U2.45R
30	I2.45RS	I2.55R	I2.65R	2.65R	2.60	2.90R	I2.75R	I2.75R	2.65R	2.50	2.40	2.45
31	2.55R	R	I2.70R	2.40	2.40	2.35	2.50R	2.45	I2.20A	2.20	U2.20R	J2.35R
No.	29	27	29	28	29	30	30	29	29	30	30	30
Median	2.50	2.55	2.60	2.55	2.55	2.60	2.60	2.75	2.65	2.55	2.55	2.50

Day	12	13	14	15	16	17	18	19	20	21	22	23
1	I2.40A	2.35	2.60	I2.60A	2.55	I2.60R	2.65R	J2.70R	2.65R	J2.45R	U2.30R	J2.45R
2	2.45	2.50R	2.55R	2.55R	2.65	2.70	2.75R	U2.60RS	U2.55RS	I2.50R	U2.50R	2.50R
3	2.40R	2.65	2.50	2.55	2.60R	J2.60R	I2.65A	U2.65R	2.45	J2.40R	2.30	2.35
4	2.25	2.30	2.35	2.45R	2.50R	2.55R	2.60R	2.55S	2.30	I2.40RS	2.45	J2.45R
5	2.30	I2.30A	2.30	2.35	2.45	2.55	2.65	I2.55A	2.35	U2.40R	2.35	U2.35R
6	2.35	J2.30R	2.45	2.50	2.60	2.65	2.85	2.70	C	C	C	C
7	2.50	2.55	2.60	2.65	U2.60S	2.70	2.65	2.65	2.45	2.50	2.40	I2.50S
8	2.50	J2.45R	2.50	2.60	2.65	2.70	2.65	2.60	2.25	S	S	U2.45S
9	U2.50R	2.35	2.55	2.60R	2.65	2.75	2.65	2.65	2.40	2.40	2.45	2.55
10	2.45	2.55	2.50	A	A	2.55S	2.70	2.60	2.55	2.40	2.50	2.50
11	2.50	2.60	2.65	2.65	2.75	2.75	2.75S	U2.70S	2.35S	2.35	2.50	2.35
12	2.60R	U2.70R	2.60R	2.70	2.90R	2.55R	2.90S	2.55S	2.45	U2.55R	U2.70R	2.60R
13	U2.55R	2.70R	2.80R	2.65	2.70	2.75R	U2.80R	U2.85R	I2.60A	I2.55R	U2.60R	2.65R
14	2.70R	2.65R	2.55R	2.65R	2.85R	3.00	3.00S	I2.70A	2.50RS	2.40	I2.40RS	2.50R
15	2.70R	2.75R	2.60R	2.75	2.80	2.95R	U3.00R	2.70R	C	C	U2.70R	2.55R
16	2.70	2.75	2.85R	U2.75R	2.80R	2.85	2.75R	2.70R	U2.70R	I2.55R	U2.55R	U2.45R
17	2.65	J2.70R	J2.70R	2.80R	2.60	U2.60R	J2.70R	I3.00R	2.45R	I2.40RS	I2.45R	I2.45A
18	2.50	2.55	2.75	2.85R	2.95	2.85	2.70R	RS	R	2.70	2.65R	2.65
19	2.75	J2.75S	2.75	J2.80S	I2.80S	I2.85S	2.90	2.90S	2.60	I2.55A	U2.65S	U2.60R
20	2.65	2.70R	2.85	2.90	2.85	2.85	2.80	2.85	2.75	2.55	I2.60S	2.50
21	2.60	2.65	2.75R	2.60	2.80	I2.90A	2.75	I2.70A	2.65	I2.60RS	U2.65RS	U2.75S
22	2.55S	2.55S	2.65	I2.70A	2.75	2.85	2.90	U2.85S	I2.55S	2.40S	2.45	I2.55AS
23	2.75	J2.80S	I2.75RS	U2.75S	I2.70A	I2.75S	2.75	2.90S	U2.50S	2.50S	U2.45S	I2.40RS
24	I2.60RS	2.65	I2.60RS	U2.60S	I2.75S	J2.75R	I2.85RS	U2.85S	2.55	I2.45S	2.45S	U2.50S
25	2.65	2.55	I2.60A	2.65R	2.65R	2.75	2.65	2.65	U2.45S	2.55	2.45	I2.60RS
26	I2.50C	I2.50C	I2.50C	I2.70C	2.75	2.70	2.65RS	2.55S	2.50S	U2.40R	2.40R	2.45R
27	2.50R	2.55	2.55	2.55	2.60R	2.70S	2.65S	2.55	2.50R	U2.45R	I2.40S	J2.45R
28	2.40	2.30R	2.35	2.45	2.45	2.55RS	J2.60R	I2.55A	I2.45C	U2.35S	I2.40S	I2.40C
29	2.50	2.45R	2.50	2.55	2.50S	2.60S	I2.60S	U2.60RS	I2.45RS	I2.40RS	I2.40R	I2.40R
30	2.50S	2.50S	2.50	I2.55S	U2.55R	2.65R	2.70	2.60	2.35R	R	R	I2.55R
31	2.15	2.35R	2.45	2.40S	2.45	J2.40S	2.55R	2.65S	2.30S	U2.35S	2.30	U2.40R
No.	31	31	31	30	30	31	31	30	28	27	28	30
Median	2.50	2.55	2.60	2.60	2.65	2.70	2.70	2.65	2.50	U2.45	U2.45	U2.50

(M3000)F2

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

The Radio Research Laboratories, Japan.

K 7

IONOSPHERIC DATA

Jul. 1958 (M3000)F1 135° E Mean Time (G.M.T.+ 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	A	A	A	A	A	A	A	A	3.50	L	L					
2									L	A	A	A	3.45	3.40^{R}	3.40^{R}	3.30^{L}_{S}	L	L						
3								L	A	A	3.50^{R}	3.60^{R}	3.40	R	A	A	L	A	A					
4								A	A	A	A	A	$^{I}3.50^{A}$	3.65^{S}	3.55^{R}_{S}	3.50	$^{U}3.15^{S}$	L	L					
5						L	L	A	R	A	A	A	A	A	3.65^{S}	$^{U}3.45^{S}$	A	3.25	A					
6								L	A	A	A	A	3.25	L	3.25	3.15^{L}	A	L						
7						C	C	C	C	C	3.25	L	3.25^{L}	3.25	A	A	3.30^{L}	3.25^{L}						
8								L	3.40	L	L	A	A	3.35^{S}	3.30^{H}	L	3.35	3.15^{L}						
9						2.40	2.85	3.60	$^{I}3.50^{S}$	2.90^{R}	A	A	A	A	A	A	3.20^{L}	A						
10							L	3.50	$^{I}3.50^{S}$	3.50^{H}	3.30^{S}	3.60^{S}	A	3.65	A	A	A	A	L					
11							L	3.30^{L}	L	L	3.45^{S}	3.35^{H}	3.40^{S}_{H}	$^{I}3.50^{A}$	AS	A	$^{I}3.20^{L}$	3.20^{L}	L					
12						C	L	L		L	L	L	A	$^{I}3.30^{A}$	A	A	L	L						
13							A	A	A	3.70	A	L	A	$^{I}3.45^{L}$	3.60	L	A							
14							L	L		L	L	A	3.45^{L}	3.50	R	L	L							
15								L	3.45	R	A	A	L	L	3.50^{L}	3.40^{L}	L	L						
16							L	3.25^{L}	A	L	L	L	R	$^{I}3.45^{L}$	3.25^{L}	S	L	L						
17									L	3.60	R	L	L	L	A	L	L	L	L					
18								L	A	L	A	3.80	3.50^{S}	S	3.15^{L}	A	A	A	A					
19							L	3.40^{L}	L	L	3.75	A	3.60^{L}	S	AS	L	L	S	A					
20								A	L	L	L	3.60	3.45^{L}	3.55	3.45	A	A	A	A					
21							A	A	A	A	A	L	L	$^{I}3.30^{A}$	A	A	A	A	A					
22								L	A	A	A	A	A	A	A	A	3.35^{L}	L	A					
23							3.15^{L}	A	A	A	A	A	A	A	A	AS	A	A						
24									3.55^{L}	L	L	C	S	L	LS	B	L	L	A					
25										L	L	A	A	A	A	3.30^{L}	L							
26								3.35	3.25^{L}	A	A	S	C	C	C	C	L							
27									L	3.35	L	L	L	3.50^{R}	3.35^{S}	L	L	A						
28								A	R	A	A	A	AS	AS	S	B	S	L	AS					
29						C		L	A	AS	A	L	B	B	AS	L	L	A						
30										L	3.30	L	$^{I}3.35^{A}$	$^{I}3.35^{R}$	L	3.25^{L}	L	L						
31							L	B	A	S	R	A	3.50^{R}	R	S	3.35^{S}	S	AS	L					
No.						1	2	6	6	5	6	5	12	14	11	8	7	4						
Median						2.40	3.00	3.40	3.50	3.50	3.40	3.60	3.45	3.45	3.40	3.30	3.30	3.20						

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Jul. 1958

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							355	330	345	I500A	A	A	I500A	500	430	E450A	410	405	350					
2									L	460	445	450	440	405	400	400	355	350						
3								305	520	450	515	490	470	410	450	410	400	360	A					
4								530	460	E570A	I575A	605	600	555	540	500	470	410	355					
5						455	355	355	500	I580A	555	I530A	560	I545A	550	525	495	440	360					
6								305	300H	400A	405A	390	450	460	445	405	370	370						
7						C	C	C	C	C	445	440	395	410	400	395	370	355						
8								330	380	350	375	400	415	435	410	380	370	350						
9						740	530	450	As	G	530	I520A	450	500	400	425A	350	350						
10							300	380	355	390	430	540	500	460	480	A	A	440A	330					
11							380	350	350	380L	445	420	450	370	410	420	340	350	310					
12						C	325	305		440	415	395	390	350	350	360	305	360						
13							355	330	405	400	380	355	340	335	350	340	355							
14							300	300		375	400	385	355	360	355	350	345							
15								290	405	510	400	360	345	345	355	350	320	295						
16							L	355	290	290	455	315	400	355	340	355	325	305						
17									310	380	345	400	375	355	355	350	400	360	300					
18								265	310	305	340	365	375	390	355	345	305	295	320					
19							375	330	300	370	300	320H	350	350	320	340	325	I310S	305					
20								280	255	325	L	350	375	355	350	305	320	310A	300					
21							E400A	310	305	300	350	330	L	380	355	E380A	350A	A	350A					
22								300	A	A	A	400	410	400A	E460A	A	330	310	300					
23							430	400	E410A	450	I390A	355	360	360	360	345	A	360						
24									325	360	380	I375C	405	380	385	380	350	330	310					
25										375	380	I375A	380	A	I380A	375	325							
26								400	410	470	A	555	I485C	I460C	I470C	I400C	375							
27									300	400	360	400	395	385	390	370	380	350						
28								480	620	A	500	I540A	525	570	525	465	440	385	350					
29						C		330	440	415	I430A	420	405	440	410	405	390	350						
30										380	440	425	420	405	405	400	380	350						
31							400	455	A	610	630	I580R	660	550	500	510	500	E525AS	355					
No.						2	11	24	21	27	27	30	30	30	30	28	29	25	14					
Median						600	355	330	350	400	415	400	410	400	400	380	355	350	325					

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

h'F2

The Radio Research Laboratories, Japan.

K 9

IONOSPHERIC DATA

Jul. 1958 | 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	350	315	310	310	310	255	250	250	I235A	A	A	A	A	A	A	A	250	250	270	300	300	350	E455A	400A
2	360	355	305	320	315	275	250	250	305A	A	A	A	235	225	215	230	225	240	250	275	305	E480A	405	350
3	305	E390A	350	320	350	270	250	255	A	A	220	200	250	I210R	A	A	250	A	A	305A	360A	325	415A	I375A
4	I340A	290	250	305	365	280	255	I255A	I255A	A	A	A	I230A	215	240	240	E305A	255	260	E425A	300	310	400A	E440A
5	350	370	355	320	320	260	255	A	260	A	A	A	A	I235A	225	250	I240A	250A	A	I335A	E400A	380A	405A	350
6	E450A	395A	370A	320	270	270	250	270A	A	A	A	A	E300A	A	250	220	I230A	250	270	280A	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	250	E310B	260A	270A	A	A	230	250	255	300	305	320	350	305
8	355A	350A	320	300	260	250	245	230	240	245A	A	A	A	210	220H	260	260	245	280	250	380	400	360F	390F
9	355	500F	400	495	460	405	325	260	As	E300A	A	A	A	A	A	A	255	I270A	290A	295	360A	350	355	300
10	305	330	300	280	300	295	260	245	250	225	260	245	I255A	230	A	A	A	A	300A	280	320	355	350	320
11	330	310	290	250	305	275	250	255	230	215	215	230H	205H	I240A	As	A	E290A	250	275A	280	320	400A	355	370
12	355	330	300	275	300	I270C	245	250	250	E400A	I205A	210	E290A	A	A	A	250	250	250	255	330A	315	300	300
13	325	300	350	340	395	300	I260A	I245A	I225A	210	I210A	250	I210A	260	250	250	A	E290A	310A	305	I355A	350	340A	300
14	300	300	300	310	305	285	260	245	220	240	I235A	A	255B	245	250	I225A	240	E310A	270A	I270A	350A	350	400	405A
15	300	300	370	300	305	270	250	E290A	E300A	215	A	A	240	250	240	225	240	250	250	255	C	C	340	305
16	320	300	305	280	300	290	250	240	I240A	250	255	E300A	I235A	210	245	230	250	250	250	280	270	E375A	305A	350
17	340A	290	I260C	275	315	265	250	240	290A	210	245	E300A	A	A	A	250	225	250	275A	I260A	285A	345	355	A
18	355	320	315	300	285	250	250	230A	A	255A	I215A	220	205	255	235	A	A	A	A	E340A	300	255	290	310
19	315	325	300	255	255	250	255	240	250A	A	225	A	200	S	As	225	280A	I295S	I285A	260	355A	A	255	300
20	300	305	275	275	285	255	250	I255A	230	225	230	225	225	215	240	I260A	I250A	A	A	280	260	330	350	355
21	I350C	300	275	300	305	280	I255A	A	A	I260A	I235A	245	265A	A	A	A	A	A	A	A	350A	350A	330	330A
22	320	330	275	280	350	295H	250	270A	A	A	A	A	A	A	A	A	245	250	I260A	280	305	310	350	360A
23	295	300	305	285	255	255	250	A	A	A	A	A	A	A	A	As	A	A	270	280A	240	305	320	360A
24	355	340A	325	280	300	260	210	230	230	235	215	I225C	I210S	225	250	I230B	260	E305A	A	275	300A	350A	E400A	405A
25	360A	310	300	C	C	240H	280A	270	260	E300A	260	A	A	A	A	E300A	250	250	275	310A	300	320	350	330
26	300	320	300	295	325	295	250	250	250	A	A	250	C	C	C	I240C	280	E355A	E360A	330A	285	405A	330	350
27	330	305	305	305	300	275	250A	225	230	250	250A	255	255	250	225	220	250	A	300A	295	305	315	375A	400A
28	E500A	A	350A	295	290	265	305A	A	245	A	A	A	As	As	S	I260B	S	255	As	A	I380C	400A	390	I400C
29	I375C	I335C	310	I310C	I300C	I280C	E310A	210	I235A	As	A	250	B	B	As	E350A	250	A	280	265	280	320	330	355
30	340	305	290	275	275	255	250	230	230	E280A	E300A	230	I250A	270A	220	240	250	E295A	325A	290	360A	355A	340	325
31	350	300	290	265	340	305	275	B	A	250	255	A	230	I235R	250	255	290A	As	300	E350A	320	390A	380	390
No.	28	28	30	29	29	30	29	24	21	14	17	13	18	18	15	18	23	17	23	26	28	26	28	28
Median	340	310	305	300	305	270	250	250	240	240	235	230	235	235	240	240	250	250	275	280	305	350	350	350

h′F

Sweep 1.0 Mc to 21.0 Mc in 20 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

K 10

IONOSPHERIC DATA

Jul. 1958

h'Es

135° E Mean Time (G.M.T.+ 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	100	100	100	105	G	110	$^{E}200^{B}$	115	105	105	105	105	105	105	105	125	105	105	105	105	105	105	105
2	105	100	105	E	E	110	140	115	110	110	105	105	105	G	G	G	G	G	115	105	105	105	105	100
3	100	100	100	100	100	B	G	120	105	105	105	105	105	105	105	105	105	115	110	110	105	105	105	105
4	105	105	E	E	105	105	$^{E}180^{B}$	125	120	115	110	110	105	110	110	110	105	110	115	105	E	105	100	105
5	105	100	100	100	100	G	150	130	130	120	105	105	105	105	130	120	130	125	115	105	100	100	100	105
6	105	105	100	100	100	B	G	125	100	105	110	110	110	110	110	$^{E}170^{B}$	125	115	110	115	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	110	B	110	110	120	130	140	145	110	115	E	110	E	100
8	105	100	100	100	100	100	125	110	110	105	105	105	105	G	135	S	120	125	120	115	110	E	E	105
9	110	105	120	E	130	130	130	125	125	110	110	105	105	105	105	105	130	120	125	115	105	110	105	105
10	105	100	100	105	100	105	130	110	105	110	110	105	110	115	110	105	105	100	100	105	100	100	100	100
11	100	100	100	100	100	150	G	110	110	105	120	G	G	115	120	120	120	130	110	100	105	105	105	100
12	105	100	100	E	100	C	$^{E}150^{B}$	115	110	110	120	120	110	110	105	105	140	B	B	E	100	100	100	E
13	105	105	105	105	105	140	125	115	110	115	110	105	110	105	115	140	120	120	115	110	105	105	105	105
14	105	100	100	105	105	B	115	110	110	110	110	105	120	105	G	105	G	115	110	110	105	105	105	105
15	100	100	100	100	E	B	130	120	115	115	110	110	110	110	105	110	B	110	105	105	C	C	100	105
16	105	105	105	100	100	B	G	145	110	105	105	105	110	135	G	G	110	110	110	110	110	105	105	105
17	105	105	C	105	E	B	155	105	105	110	105	105	105	105	100	G	110	G	120	105	105	E	105	100
18	100	100	100	100	100	115	110	110	110	110	105	105	105	105	105	105	115	120	110	110	105	105	105	105
19	E	100	E	E	125	B	115	115	110	100	105	100	105	110	135	S	S	125	110	110	110	105	105	105
20	E	105	100	E	E	110	125	110	110	120	110	105	105	105	105	135	130	120	110	110	115	110	105	105
21	C	110	E	E	105	110	110	110	110	110	110	110	105	105	105	105	105	105	105	100	105	105	105	105
22	105	105	105	E	E	B	160	115	110	155	105	105	105	110	105	105	110	130	120	110	110	110	110	105
23	105	100	100	100	120	120	115	115	110	110	110	110	105	110	110	110	105	105	105	105	105	105	E	105
24	105	100	100	E	105	B	150	G	135	110	110	C	G	G	G	B	120	115	110	110	110	105	105	105
25	105	105	100	C	C	125	120	110	110	110	B	110	110	110	110	110	G	115	120	110	110	105	105	100
26	105	105	100	100	E	B	140	115	115	110	105	115	C	C	C	C	155	130	120	110	110	110	110	110
27	105	110	E	E	E	120	115	110	110	110	110	110	110	115	G	G	150	125	115	110	110	110	105	105
28	105	100	100	105	E	B	140	120	125	110	110	110	110	115	G	B	140	135	115	110	C	110	110	C
29	C	C	105	C	C	C	110	110	105	110	110	110	B	B	125	115	130	110	115	110	E	105	105	100
30	105	100	105	105	100	B	120	150	145	115	110	110	115	125	G	G	G	120	110	110	105	105	105	105
31	100	100	B	E	E	105	110	B	105	110	110	110	105	G	G	140	125	115	110	105	105	105	105	100
No.	26	29	24	17	19	14	24	27	30	30	30	28	27	25	22	20	25	28	30	30	25	27	27	28
Median	105	100	100	100	100	110	125	115	110	110	110	105	105	110	110	110	120	120	110	110	105	105	105	105

The Radio Research Laboratories, Japan.

h'Es

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

K 11

IONOSPHERIC DATA

Jul. 1958

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f	f_2	f	f	f		c	h l	c	l	l	l	l	l	l	l	h	c	c	f	f_2	f	f_2	f_2
2	f_2	f_2	f			l	h	c	c_2	c	l_2	c	l						c	f	f_2	f_3	f_2	f_2
3	f_2	f_4	f_2	f	f			c	c	c	l	l	c	l	l	l	c	c	l_2	f_2	f_3	f	f_2	f_3
4	f_3	f			f	l	h	h	c_2	c	c	c	l	c	c	l	l	l	c	f_3		f	f_2	f_2
5	f_2	f	f_2	f_2	f		h	h	h	h_2	c_2	l_2	l	l	h	h	h	c_2	l_3	f_2	f	f_2	f_3	f_2
6	f_2	f_2	f_3	f_2	f_2			h	l_2	l_2	l	l_2	c	c	c	h	h_2	c	c	f_3				
7											c		c	l	h l	h_2	h	h	l_2	f		f		f
8	f_3	f_3	f_2	f_3	f_2	l	h	l	l	l_2	l_2	l	l_2		h		c	l	c_2	f	f			f_3
9	f_2	f_4	f		l	c	c	c	c_2	l_2	c	c_2	c	l_2	l	l_2	h l	h_2	c_2	f_2	f_4	f	f_3	f_2
10	f_2	f_2	f_2	f	f_2	l	h	l_2	l_2	l	l_2	l	l	l	l	l_2	l_2	l_2	l_3	f_2	f_3	f_2	f_3	f_2
11	f_2	f_2	f_2	f_2	f	h		l_2	l h	l_2	h			c	h	c_2	$h_2 l_2$	c	l	f	f_2	f_3	f_2	f_2
12	f_2	f_2	f_2		f		h	l	l	c	l	l	l	c	l	l	h l				f	f_2	f	
13	f_2	f_3	f_3	f_3	f	h	c	c_2	l_2	l	c	l	l	l	l	h	c	c	c_3	f_3	f	f_2	f_2	f_2
14	f	f	f	f	f		c	c	c	l	c	l	l	l		l		c	l	f_2	f_3	f_2	f_3	f_4
15	f_2	f_2	f_2	f_2			h	c	c	c	c	l	l	l	l	l		l	l	f_2			f_2	f
16	f	f	f	f	f			h	c	l	l	l	l	h			l	l	l	f_2	f_2	f_2	f_3	f_2
17	f_3	f_2		f			h	l	l	l	l	l	l	l	l		c		c	f_2	f		f_2	f_4
18	f_3	f_2	f_3	f_2	f_2	l	c	c_2	c_3	c	l	l	l	l	l	l	c	l	l_2	f	f_2	f_2	f	f
19		f			l		c_2	c	c	l_2	l	l	l	l	h			h	c_3	f_2	f_4	f_4	f	f
20		f	f_2			l	l	c_3	l	l	l	l	l	l	l	h	h	c_2	l_3	f_2	f_2	f_2	f_3	f_3
21		f			f_2	l	l_2	c_2	l_2	l_2	l_2	l	l_2	l_2	l_2	l_2	l_3	l_2	l_3	f_3	f_3	f_3	f_2	f_3
22	f_2	f	f				h	c_2	c_2	h c_2	c_3	l_2	l	l_2	l_2	l_2	l	h	l_2	f	f_2	f_2	f_3	f_3
23	f	f_2	f_2	f	f	l	l	l	l	l_2	l	l	l	l	l_2	l	l_3	l_3	l_2	f_2	f_2	f		f_2
24	f_2	f_2	f_3		f		h		h	c	l						h	h_2	l_2	f_2	f_3	f_2	f_2	f_3
25	f_3	f_2	f_2			l	c_2	l_2	c	l_2		c_2	l	l_3	l_2	l_2		c	h	f_2	f	f	f_2	f_3
26	f	f	f	f			h	c_2	c	c	l_2	c					h l	c_2	c	f_2	f_2	f_5	f	f
27	f	f				l	c_2	l	c	c	l	l	l	l			h	h_2	c_2	f_2	f_2	f_2	f_2	f_3
28	f_3	f_3	f_3	f			h	c	c	l	l	l	l_2	c			h	h	l	f_2		f_3	f_2	
29			f_2				l_3	l	c_2	l	l	l			c	c	h	c_2	c	f		f_2	f_2	f_3
30	f	f	f	f	f		l	h	h	c	l	c	c	c				c	l_2	f	f_2	f_2	f	f_2
31	f_2	f				l	l		l	l	l	c	l			h	h l	c	c	f_2	f_2	f	f_2	f_2
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

K 12

IONOSPHERIC DATA

Jul. 1958

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	U430R	435R	450	435	420	365R	400	375	375R	I505A	A	A	I500A	500	430	I435A	420	I410R	400R	J390R	390R	J460R	U500R	J450R
2	U425R	450	445R	450	405R	365	340R	380	470	470R	450R	465R	450	440R	425R	415R	440	390	355R	U390S	U420S	I425R	U450R	435R
3	400	I410R	440R	410R	435R	U400R	370R	U315R	J520R	450	I525R	490R	470R	410	450	420	410R	J400R	I395A	U380R	450	J455R	510	475
4	I425A	395	390	455	490	390	U420R	530R	460	A	A	A	A	G	G	500R	470R	425R	400R	405S	490	I470S	460	J460R
5	I435R	455R	445	410R	425	500R	400R	400S	500	I580A	G	A	A	A	G	G	G	450	400	I415A	460	U460R	490	U450R
6	460S	475	465	J410R	395	350	400	355	450A	425	U455R	455	480	J485R	465	440	405	400	355	380	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	U455S	460	430	430	425	420	U405S	400	395	380	450	450	470	I440S
8	445	U410R	I400R	400	390F	395	405	350R	410	400	I445S	430	445	J450R	450	410	400	390	400	410	520	S	S	U455S
9	U470F	SF	J520R	625S	580	G	G	G	AS	G	A	A	U450R	500	425	I410A	400	395	380	400	475	485	445	410
10	445	440	U425S	J400R	410	500	445	J430R	405	430	440	G	A	G	A	A	A	A	395	380	405	455	445	410
11	I430R	410S	400	355	430	390	400	355	390	400	450	440	450	405	405	410	395	395	350S	U375S	460S	495	450	480
12	450	400	380	400	410	I410C	400	350	325	U440R	430	U410R	405R	U395R	390R	400	345R	405R	405S	410S	450	U440R	U405R	395R
13	405R	395R	445R	425	510Z	495R	405	370R	410	420	405	J440R	U400R	390R	360R	390	395	360R	U350R	U355R	I410A	I430R	U420R	400R
14	U395R	400	415R	U405R	425	445	J345R	R	460	405R	440	405	395R	400R	400R	400R	360R	345	320S	I375A	430S	470	I460S	440R
15	400R	U400R	I430R	425	410R	360	380	300R	405	G	410R	400R	380R	370R	400R	375	355	325R	U325R	375R	C	C	U450R	430R
16	425R	400R	I405R	390	430	370	U515R	400R	310R	310	455	390R	400	390	350R	U380R	365R	350	350R	360R	U390R	I415R	U415R	U460R
17	U440R	R	C	R	U425R	430R	365	360R	355	400R	U375S	400	400	J390R	J385R	360R	405	U400R	J350R	I315R	440R	I455S	I450R	I450A
18	445	I405R	400R	I380R	380	J395R	375	J400R	355	U390R	400	400R	405	420	395	390R	350	350	395R	RS	R	380	405R	395
19	430R	450R	400R	360R	400R	U405R	J400R	365R	340R	375	350	400H	380	J400S	375	J360S	I370S	I355S	355	350S	425	I400A	U395S	U410R
20	405	400	J355R	385	355	370	350	310R	350	400	400	380	400	400R	375	350	355	360	360	375	380	425	I430S	450
21	I430C	J395R	390R	430	405	360	I400A	370	365R	375	380	390	410	400	395R	400	375	I370A	380	I385A	395	I415S	U410S	U400S
22	425	J430R	J400F	390	470	475H	U410R	335	I445A	I515A	I475A	400	440S	415S	A	A	390	360	360	U370S	I450S	465S	450	I420S
23	J415R	405	430	395	390	340	450	400	A	AS	A	395	395	J390S	I380S	U390S	I400A	I395S	380	350	U410S	420S	U425S	I450S
24	I440S	415	410	400	410	355	325S	340R	355	390	400	I405C	I410S	400	I400S	U410S	I375S	J390R	I360S	U355S	425	I450S	460S	U450S
25	RS	U400S	U405R	C	C	430H	390	325R	320R	400R	400	I410A	400	I400A	I400A	400R	390R	390	395	395	U430S	445	455	I420S
26	J415S	445	J390S	410	450	400	400	440	440	A	A	A	C	C	C	I405C	400	375	400S	410S	425S	U440R	470R	455R
27	445	440R	415	415	410S	350R	360R	410R	U370R	425R	405R	440	430R	410	420	405	400R	400S	390S	415	425R	U440R	I440S	J455R
28	I500R	I510A	U440R	U420R	U400R	400	440	455	G	I500A	A	A	A	AS	G	475	445	425S	J400R	I410A	I450C	U495S	I490S	I480C
29	I460C	I430C	415	I410C	I400C	I340C	325	360	U450R	430R	I430A	U450R	440	450R	445	440	430S	400S	I395S	U400S	I450S	I455S	I450R	I450
30	I445S	I410R	I390R	400R	395	350R	I360R	I355R	380R	440	455	450	450S	440S	440	I420S	U420R	400R	380	400	490R	R	R	I420R
31	420R	R	I385R	465	465	455	420R	B	I535A	G	G	A	G	G	500	G	G	AS	410R	370S	485S	U500S	495	U475R
No.	29	27	29	28	29	29	29	27	27	24	23	23	25	25	25	27	28	29	31	30	28	27	28	30
Median	430	410	410	410	410	395	400	365	405	420	430	410	410	405	400	405	400	395	380	380	435	U450	U450	U450

hpF2

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

Jul. 1958

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	U110R	135R	150	135	130	135R	160	175	175R	I80A	A	A	I105A	120	80	I110A	110	I120R	100R	J110R	120R	J100R	U80R	J150R
2	U115R	140	155R	125	150R	135	120R	190	180	130R	185R	210R	160	130R	155R	135R	110	120	155R	U170RS	U135RS	I130R	U100R	115R
3	145	I120R	105R	140R	155R	U150R	155R	U135R	J110R	125	I130R	75R	135R	115	110	110	115R	J140R	I155A	U145R	125	J145R	130	125
4	I130A	120	170	140	135	130	U175R	120R	100	A	A	A	A	G	G	70R	85R	165R	150R	145S	140	I105RS	185	J140R
5	I130R	120R	125	155R	130	150R	155R	140RS	150	I105A	G	A	A	A	G	G	G	110	120	I145A	130	U135R	120	U110R
6	90S	135	115	J95R	110	135	150	100	150H	130	U135R	125	130	J125R	130	115	120	120	120	150	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	U125S	120	130	120	120	120	U140S	105	115	145	145	100	115	I125S
8	155	U115R	I130R	125	150F	145	190	125R	130	155	I150S	150	125	J115R	145	145	120	115	125	140	130	S	S	U95S
9	U125F	SF	J130R	130S	195	G	G	G	AS	G	A	A	U90R	105	125	I130A	100	115	120	110	120	110	125	115
10	125	115	U95S	J110R	150	155	145	J115R	145	180	160	G	A	G	A	A	A	A	100	160	145	145	105	125
11	I125R	130S	150	190	120	110	100	85	110	155	110	110	125	130	110	115	100	105	150S	U155S	140S	150	100	125
12	105	120	90	140	145	I125C	145	100	130	U110R	120	U140R	125R	U115R	135R	110	145R	135R	145S	165S	130	U115R	U135R	155R
13	120R	115R	115R	125	130Z	145R	145	150R	135	150	145	J160R	U200R	150R	120R	135	95	140R	U145R	U135R	I135A	I130R	U130R	125R
14	U110R	130	135R	U155R	120	145	J125R	R	190	135R	120	130	120R	140R	130R	120R	115R	105	135S	I165A	145RS	120	I120RS	115R
15	140R	U140R	I120R	150	100R	150	130	130R	135	G	90R	105R	130R	135R	140R	110	145	140R	U125R	165R	C	C	U150R	70R
16	120R	150R	I160R	110	140	160	U155R	105R	170R	145	95	110R	100	105	140R	U125R	135R	150	200R	175R	U135R	I165R	U145R	U125R
17	U160R	R	C	R	U110R	150R	185	190R	115	100R	U145S	140	160	J135R	J145R	165R	145	U165R	J125R	J125R	110R	I135RS	I100R	I105A
18	120	I115R	100R	I160R	80	J110R	120	J140R	145	U110R	155	120R	160	125	100	100R	95	135	155R	RS	R	140	145R	105
19	100R	120R	160R	140R	150R	U170R	J120R	135R	115R	75	145	110H	120	J90S	105	J115S	I90S	I105S	100	130S	130	I125A	U105S	U100R
20	120	110	J95R	115	130	100	60	95R	150	110	120	100	125	100R	120	95	105	135	135	100	105	120	I100S	110
21	I100C	J95R	105R	135	115	125	I140A	125	135R	140	110	110	135	110	100R	120	130	I135A	145	I130A	105	I120RS	U100RS	U105S
22	130	J120R	J90F	130	130	120H	U145R	150	I110A	I120A	I130A	100	65S	130S	A	A	100	95	100	U110S	I90S	110S	100	I120AS
23	J90R	115	90	105	105	155	145	75	A	AS	A	80	105	J105S	I95RS	U100S	I100A	I105S	90	110S	U170S	140S	U125S	I115RS
24	I120RS	140	140	110	130	180	100S	100R	120	90	90	I105C	I95RS	140	I105RS	U95S	I120S	J100R	I130RS	U125S	125	I130S	115S	U90S
25	RS	U95S	U100R	C	C	145H	155	85R	125R	105R	155	I130A	105	I110A	I140A	100R	130R	85	130	130	U130S	110	100	I90RS
26	J105S	100	J110S	155	145	150	180	115	130	A	A	A	C	C	C	I100C	90	175	140RS	150S	125S	U120R	130R	135R
27	130	150R	135	130	140S	140R	140R	140R	U200R	145R	160R	140	160R	150	140	150	155R	145S	140S	140	140R	U125R	I120S	J120R
28	I145R	I135A	U130R	U170R	U150R	160	210	175	G	I115A	A	A	A	AS	G	95	145	130RS	J155R	I140R	I155C	U105S	I120S	I125C
29	I150C	I130C	135	I140C	I140C	I135C	170	130	U150R	85R	I110A	U110R	135	140R	115	120	130S	140S	I155S	U160RS	I150RS	I145RS	I150R	I140R
30	I125RS	I130R	I140R	120R	155	160R	I165R	I170R	150R	140	140	140	140S	125S	155	I140S	U130R	160R	135	155	150R	R	R	I120R
31	110R	R	I135R	135	135	185	170R	B	I170A	G	G	A	G	G	90	G	G	AS	140R	140S	165S	U100S	115	U115R
No.	29	27	29	28	29	29	29	27	27	24	23	23	25	25	25	27	28	29	31	30	28	27	28	30
Median	120	120	130	135	135	145	145	130	135	120	130	120	125	125	120	115	120	130	135	140	130	U125	U120	U120

ypF2

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

The Radio Research Laboratories, Japan.

K 14

IONOSPHERIC DATA

Jul. 1958

foF2

135° E Mean Time (G.M.T.+ 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I8.1A	8.2	7.8	J7.7S	7.2	7.0	7.7	8.7	8.4	8.1	8.2	8.9	9.6	9.8	9.5	10.4	10.0	9.6S	9.4	9.5S	9.0	J8.3R	8.5	J8.4R
2	8.9V	8.6	J8.3R	8.1	7.9R	7.7	8.3	8.6	8.3	9.3	9.9	10.5	11.0	12.0	12.4S	12.5S	12.1	11.7S	10.9S	9.7	8.2	8.2	J8.2R	I8.7S
3	J8.4R	F	F	F	6.6	6.8	7.9	8.7	8.5	8.6	8.9	9.3	9.4	10.4	11.3	11.3	10.9	10.4S	U9.7S	U9.4S	I8.6S	9.0	9.3	J9.0S
4	I9.7S	9.4	J8.4R	7.6	6.9	7.4	J8.4R	8.8H	8.5H	8.2	7.4	I6.8A	I7.0A	I7.6A	I8.0A	I8.3A	8.5	8.8	8.5S	I7.6A	6.8	7.4	7.6S	8.0
5	7.8	7.6F	7.0	7.1	7.1	7.2	9.3	9.4	J8.4RH	8.2	I8.1A	7.9	7.8	7.3	I7.7A	8.1	J8.2R	8.3	8.4	8.0	7.8	J7.7S	J8.2S	J8.5S
6	8.9	I8.6S	J8.5R	8.2	6.7	6.4	7.6	8.2	J8.4R	8.6H	8.8	8.9	9.1	10.0	10.6	11.5	11.0	10.3	U10.0S	9.8H	8.9	J8.0SH	J8.4S	8.3
7	8.4	8.9	9.0	8.3	7.9	7.0F	7.8R	9.4	9.0H	9.2H	9.5H	10.0	10.4	10.5	10.2	10.4	10.1	10.4	10.5S	U10.0S	9.0	8.9	9.3	U9.6S
8	I9.8S	9.5S	U9.5S	8.9F	7.8	U7.3S	7.4	9.8S	10.4	9.1H	9.5	10.2	10.1	10.0	10.5	10.4	I10.8C	11.0	9.9S	I9.6S	9.0	S	S	S
9	F	F	8.1	5.9	F	4.6	5.0	5.8	I5.9A	8.3	7.2	I7.2A	8.8	9.9	11.5	11.6	11.6	10.1S	8.9H	9.0	9.5S	9.3S	9.8	I9.7S
10	I9.6S	9.5	9.0	8.6	J7.7RH	C	C	C	C	10.8H	11.5	9.3	10.9	10.4	10.4	9.7	J10.4R	10.5	10.2	9.0	8.1	J8.4R	8.5	8.8
11	8.6	9.0	8.8	7.6	6.6FH	6.0F	7.2	8.4	8.5H	8.3H	8.6	8.9	9.2	10.0	10.8	10.7	10.6	10.0	8.9	9.0	8.9	I9.1S	I9.7S	10.2
12	J10.0S	9.5	9.2	8.4	J7.9R	8.0	9.1S	9.1	9.0H	8.4H	8.4H	9.4	10.7	11.4	10.5	9.5	9.7	10.5	10.5H	I9.7R	J9.2S	S	I9.2S	8.8
13	I8.6R	J8.1R	J7.8R	J7.8R	7.3R	7.1	8.9	8.9	9.0H	9.8	10.9	12.4	13.4	13.9	J14.0R	14.8	I14.2R	13.6	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	9.9	10.2	11.1	11.9	13.0	14.0	13.2	12.8S	12.1	11.1	9.2S	8.5S	I8.6S	9.3S	9.5
15	8.9	8.8	I8.8S	8.5	7.4V	7.2F	7.7	8.9	J8.1SH	8.9	10.1S	10.6	10.5	10.7	11.1	11.5	11.8	10.4	J8.7R	J7.7R	7.6	I7.8S	J8.0S	8.2
16	U9.8S	I7.8F	7.5	7.0	6.3	6.0	6.8	10.2	J9.5S	7.4H	8.7	9.4	10.1	10.0	10.2	10.6	10.6	10.4	10.4S	10.5	I9.8S	8.9	9.7S	10.4
17	10.9	J11.6S	9.0	J7.9R	U7.3R	7.0	7.9	I9.4S	9.7H	9.8H	9.9S	10.0	10.6	11.0	11.2	10.5	9.7S	10.6	11.5S	11.2	8.2	U7.4S	J7.8S	8.5
18	8.6	8.4	J8.4R	7.7	7.0	6.8	7.5	10.3	9.4	8.8H	8.9H	9.9	10.5	10.7	11.3	11.6	11.2	10.1S	9.0S	I9.4A	9.1S	I9.0S	I9.4S	9.4
19	9.6	9.3	9.0	8.6	8.3	U7.7S	8.8H	10.4	10.5H	9.0	10.0	10.4	11.0	11.7	12.0	11.7	12.1	12.1	I10.4SH	9.6H	J10.3S	9.4	9.4S	9.9
20	J10.4S	J10.4S	10.5	9.5	8.8	8.3R	8.9	8.8H	9.1	9.0H	8.9H	9.5	10.5	12.1	12.5	12.1	11.4	10.5	10.8	10.5	I9.4S	I9.2S	9.4	9.5
21	I10.0S	11.0	I10.0S	8.5	8.0H	8.2	8.5	9.5S	10.1	10.0H	10.1H	9.9SH	10.7	11.5	12.1	11.7	10.7	10.8	11.0	U9.7S	9.1S	9.0	9.1S	I9.9S
22	10.5	I9.6A	9.5S	8.5	6.4	6.0	8.1	10.0S	7.0	7.5	9.7	11.0	10.6	10.5	10.6	11.0	11.9	11.9S	11.2	10.7	9.5S	I8.9S	9.3	I9.4S
23	9.4S	I9.4S	9.1S	S	S	7.6S	7.2	8.4H	8.6H	9.0	9.5	9.6	J10.3R	9.7	10.7	11.0	11.5	10.9	10.1S	9.4S	8.5	J8.0S	I8.4S	8.5R
24	J8.3R	I8.4R	8.6	J8.2S	7.6S	6.9	7.2	8.4	7.9H	8.9	9.0	9.1	9.7	10.4	11.3	11.2S	11.7	12.5	10.9	I9.1S	8.9	8.5	8.9	U9.4S
25	I9.0S	I9.3S	10.0S	8.2	7.2F	F	8.2	9.5	9.4	9.0	9.9	10.9	11.1	11.0	I11.0A	10.4	10.0	10.2	10.0	U9.9S	U9.7S	9.7S	I10.2S	10.9
26	11.1	10.4	J10.6S	8.5	J8.0R	7.5	8.1	8.7H	8.9	8.3	8.0	8.5	8.9	9.5	9.8	10.0S	9.9	U9.7S	U9.7S	U9.3S	I8.2S	7.8	I8.6A	I8.8S
27	S	8.8	F	F	7.2	7.0	7.8	9.3	9.5	9.9	9.9	10.4	11.3	11.8S	11.5	11.9	12.1	11.5	10.1S	9.8S	9.5S	8.8	8.9	8.6
28	8.3V	8.5	J8.5S	8.0	7.4S	7.2	8.1	8.9	8.5	7.5	8.3	8.7	8.9	9.0	9.4	9.3	9.5S	8.7	8.5	J8.3R	7.7	7.4S	8.0	8.0
29	J8.3S	8.4	7.6	7.4	6.9	6.5	7.0	8.0	8.7	9.2	9.6H	10.2	11.5	12.0	12.5	12.5	12.1	12.1	12.5	I12.9A	S	S	S	R
30	S	I12.2S	S	S	S	F	9.0	10.0H	10.1	9.9	9.8SH	10.5	11.3	11.0	11.1	11.2	11.3	11.0	U10.0S	U9.4S	J9.6S	9.5SH	9.6H	9.4
31	I9.7S	I9.8S	J9.8S	7.9	7.5	I7.4C	8.7	9.0	8.5H	8.8	8.1	U7.7R	J8.4R	8.4	8.5	8.9	8.5	8.9	9.3	9.1	8.3	8.8S	8.9	9.0
No.	27	28	27	26	27	27	29	29	29	31	31	31	31	31	31	31	31	31	30	30	29	27	28	28
Median	9.0	9.2	8.8	8.2	7.3	7.1	7.9	8.9	8.7	8.9	9.5	9.6	10.5	10.5	11.0	11.0	10.9	10.5	10.0	9.4	8.9	8.8	9.0	9.0
U.Q.	9.8	9.6	9.5	8.5	7.9	7.5	8.6	9.5	9.4	9.3	9.9	10.4	11.0	11.5	11.5	11.7	11.8	11.5	10.8	9.8	9.4	9.0	9.4	9.6
L.Q.	8.4	8.4	8.3	7.7	6.9	6.8	7.4	8.6	8.4	8.3	8.4	8.9	9.2	9.9	10.2	10.4	10.0	10.1	9.3	9.1	8.2	8.0	8.4	8.5
Q.R.	1.4	1.2	1.2	0.8	1.0	0.7	1.2	0.9	1.0	1.0	1.5	1.5	1.8	1.6	1.3	1.3	1.8	1.4	1.5	0.7	1.2	1.0	1.0	1.1

foF2

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

The Radio Research Laboratories, Japan.

Y 1

IONOSPHERIC DATA

Jul. 1958

foF1

135° E Mean Time (G.M.T. + 9h.)

Yamagawa

Lat. 31° 12. 5' N
Long. 130° 37. 7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L		6.5	I6.1A	6.2	6.2H	6.2	5.9	6.0H	5.6	L					
2										6.9L	A	A	6.1	6.3	6.1	6.1H	6.4	5.9	L					
3										A	6.4H	6.1	6.2	I6.4A	5.9	I6.0A	6.0	6.0	L					
4										5.6	6.0	A	A	A	I5.8A	I5.6A	5.4	5.3	A					
5										6.1	I5.9A	5.8	6.1R	I5.9R	I5.8A	5.6	5.5	5.3	5.0					
6											6.1H	6.5	6.2	6.0	6.5H	6.0H	6.0	5.6	L					
7												6.5	6.3	6.2	6.0	6.0	5.8	A	A					
8									L		L	6.1L	6.5	I6.2A	6.3	5.8	I6.1C	5.5						
9							3.4	I4.9A	I5.0A	5.7	A	I6.4A	6.1	6.5	6.0	6.2	5.8	L						
10											6.1	7.0	6.5L	6.0	6.1L	6.5	6.0	5.3	4.8L					
11											6.5	6.5	6.2	6.2	6.5H	6.3H	6.3H	L						
12												6.0	6.3	5.7	LH	6.1H	6.3H	5.9						
13							L	L		6.0	6.2	5.8	6.7	5.5	6.2	6.2	6.2L	L	C					
14							C	C	C	5.6	6.1	6.1	6.2	6.3	5.9H	5.7	5.6	L	A					
15										6.1	6.0	A	A	6.2	5.8	5.7H	5.6	L						
16								L	L		6.5L	6.2	6.1	6.3	5.7	5.9	5.9H	L	L					
17											6.1	6.7L	6.0	6.3	6.0	6.2	5.6	5.2	L					
18								L	4.8			6.0LH	6.0	5.8	5.4	6.3	6.0	A	A					
19											6.0	6.0L	6.0	6.2H	6.0H	6.2H	5.6	4.9						
20												A	6.5	6.2	I6.2A	6.1	I6.0L	A						
21													I6.2A	6.3	5.8	5.8	I5.8A	5.6	4.4					
22										6.5L	6.2	6.0	6.3L	6.8L	6.5	5.7	5.8	5.9L						
23										6.2H	6.2	6.1	6.7H	6.3	6.2	6.7H	5.8	I5.3L						
24										6.1	6.2	I6.5A	6.5	6.2	6.2	6.3	6.0	5.6	L					
25										6.8	A	A	I6.7A	A	A	7.0LH	6.1	6.5	I5.1L					
26									L	6.5L	6.0	6.4	6.2	6.0	6.0	6.0	6.0L	6.2	5.0					
27										6.8	6.2	6.5	6.4	6.2	6.7H	6.2	6.2	L						
28									L	6.5	6.2	6.7	6.2	6.2	6.1	6.2	5.7	5.5	I4.8A					
29												7.0	6.1	R	6.2	A	I6.3A	5.8						
30												6.7H	6.2	6.8	6.4	6.6	I6.2A	A						
31										6.0	6.1	6.3	6.4	6.3	6.0	6.0	6.0	5.7	5.0					
No.							1	1	2	15	20	25	29	28	29	30	31	20	7					
Median							3.4	4.9	4.9	6.1	6.2	6.3	6.2	6.2	6.1	6.1	6.0	5.6	5.0					

foF1

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

The Radio Research Laboratories, Japan.

Y 2

IONOSPHERIC DATA

Jul. 1958 | 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							2.45	3.00	3.45	3.90	4.05	4.15	4.20	A	A	A	A	3.40	2.85	1.85				
2						S	2.30	$^{I}3.00^{R}$	3.45	3.90	4.00	4.00	A	A	4.20	$^{I}4.05^{A}$	3.70	3.50	2.95	S				
3							A	A	3.45	3.80	4.10	4.15	4.15	4.00	4.20	4.10	3.90	3.50	2.80	1.70				
4							2.30	3.05	3.55^{R}	3.80	4.10	4.15	4.20	4.10	4.00	3.90	A	A	A					
5							2.45	3.05	3.50	3.70^{R}	4.00^{R}	$^{I}4.10^{A}$	4.00	4.00	3.90	$^{I}3.90^{A}$	$^{I}3.65^{A}$	3.40	2.75	1.90				
6							A	2.85	3.30	$^{I}3.80^{A}$	A	A	$^{I}4.20^{A}$	4.20	R	A	A	3.45	2.90	R				
7							A	2.90	3.40	3.80	4.20	4.20^{R}	A	A	A	R	A	3.50	2.90	S				
8							2.25^{H}	3.05	3.45	3.60	4.00	4.20	4.30	4.20^{R}	4.10	4.00^{R}	$^{I}3.70^{C}$	3.25	2.80	A				
9							2.10	2.90	3.40	3.80	3.90	4.05	$^{I}4.15^{R}$	4.20	4.05	3.90	3.70	3.40	2.70	A				
10						C	C	C	C	$^{I}3.75^{A}$	3.90	4.05	4.10	A	A	A	3.70	3.35	A	A				
11						S	2.20	2.95	3.45	3.85^{R}	A	A	A	A	A	4.05	3.75^{S}	3.40	2.85	S				
12							2.30	2.75	3.30	$^{I}3.65^{A}$	$^{I}3.80^{A}$	$^{I}4.05^{A}$	4.30	4.20	4.00	3.80	$^{I}3.60^{A}$	3.40	2.85	A				
13							2.00	2.90	3.40	3.60	A	A	A	A	R	R	3.65	3.40	C	C				
14						C	C	C	C	3.60	A	A	A	A	A	A	A	$^{I}3.30^{R}$	A					
15							2.00	2.90	3.45^{S}	3.60	3.90	4.05	4.00	3.90	A	A	A	A	A	A				
16							2.05	2.80	3.25	3.60	3.90	$^{I}4.00^{S}$	$^{I}4.20^{A}$	$^{I}4.20^{R}$	$^{I}4.05^{S}$	3.95	3.65	3.25	2.70	1.70				
17							$^{I}2.25^{A}$	2.90	3.30^{R}	3.60	3.65	A	A	A	A	A	3.60	3.15	2.55	S				
18							2.00	2.70	3.20^{R}	3.65	3.70	A	A	A	A	3.80^{C}	3.60	3.15	2.70	S				
19							S	2.60	3.05	$^{I}3.40^{A}$	$^{I}3.85^{A}$	$^{I}4.05^{A}$	4.15	$^{I}4.10^{R}$	4.00	3.80	3.70	3.30	$^{I}2.60^{A}$	1.80				
20							2.00	2.85	3.40	3.65	3.85	4.00	4.00	A	A	A	3.90	3.40	2.65	1.75				
21							S	2.85	3.40	3.60	A	A	A	A	A	A	A	A	A	S				
22							2.25	2.80	3.45	3.80	$^{I}4.00^{A}$	4.10	4.20^{R}	$^{I}4.25^{S}$	4.20	3.90	3.70	3.40	$^{I}2.70^{R}$	1.70				
23							A	$^{I}2.75^{A}$	3.40	3.75	3.90	4.00	3.95	3.95	4.00	3.90	A	A	A	A				
24							2.05	2.90	3.50	3.75	4.00	4.00	4.05	4.10	4.00	A	A	3.50	2.80	A				
25							S	2.85	$^{I}3.35^{R}$	3.65	4.00	4.20	4.20	4.30^{R}	4.30	4.00	3.80	3.35^{R}	$^{I}2.80^{R}$	S				
26							2.15	$^{I}2.85^{A}$	3.60	3.75	3.95	4.00	$^{I}3.95^{R}$	R	A	4.20	$^{I}3.70^{A}$	3.35^{H}	2.90	1.90				
27							A	3.05	3.55	$^{I}3.80^{A}$	4.00	4.10	$^{I}4.00^{A}$	A	A	A	$^{I}3.85^{A}$	$^{I}3.35^{A}$	2.90	S				
28							2.10	3.05	3.60	4.05	$^{I}4.05^{R}$	$^{I}4.15^{S}$	4.30	4.20	$^{I}4.20^{A}$	4.20	3.80	3.50	2.90	R				
29							A	2.90	3.50	4.00	4.10	$^{I}4.10^{A}$	B	B	4.60	4.35	4.00	3.55	2.65	A				
30							2.20	3.05	3.65	3.90	4.10	4.25	4.45	4.40	4.20	4.00	3.75	3.45	3.00	S				
31							2.35	3.40	3.60	A	A	4.40	4.40	4.40	4.40	4.20	3.95	3.50	2.75	S				
No.							20	28	29	30	25	24	22	17	17	19	22	27	24	8				
Median							2.20	2.90	3.45	3.75	4.00	4.10	4.20	4.20	4.10	4.00	3.70	3.40	2.80	1.80				

foE

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

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Jul. 1958 | f_oEs | 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	12.2M	3.1M	7.0M	4.6M	4.3M	3.4M	3.1M	5.1	4.8	5.3	7.0M	7.6M	5.0	5.0M	8.8M	8.1M	5.9M	4.3M	3.0	2.5	3.8M	2.4M	S	2.9M
2	S	E	2.9M	1.1	2.2M	1.4	G	3.3	3.8	5.2	7.1M	6.7	7.9M	6.3M	G	5.6M	G	3.8	3.3	4.3M	2.9M	2.6M	5.9M	9.5M
3	9.2M	7.2M	7.0M	5.7M	4.8M	5.1M	4.9M	5.0M	7.5M	9.5M	6.6M	9.5M	5.0	8.8M	4.9	9.7M	9.5M	6.2M	5.6M	6.4M	3.6M	7.7M	7.0M	3.1M
4	7.5M	4.0M	5.7M	3.3M	3.1M	4.0M	3.1M	G	5.9M	4.5	5.2	8.6M	9.1M	8.8M	13.0M	11.0M	8.0M	6.5M	6.0M	8.6M	4.2M	5.8M	4.0M	7.5M
5	4.2M	4.3M	4.3M	4.3M	4.3M	5.8M	3.3	4.4	8.3M	5.1	9.5M	6.8M	5.0	11.3M	8.3M	11.0M	4.5M	3.9	3.3	3.0M	2.9M	E	3.9M	4.8M
6	3.9M	5.8M	4.5M	4.5M	4.3M	3.8M	4.2M	3.4	3.8	4.0	6.1M	6.0	6.2M	4.9	5.4	5.5M	4.8M	3.6	3.1	2.6	2.3M	3.0M	2.7M	E
7	3.6M	3.4M	2.9M	2.3M	E	E	2.6	3.5	5.7M	5.4	5.7	5.2	5.0M	5.9M	4.7	5.4	6.3M	7.0M	9.2M	9.2M	5.7M	4.4M	3.6M	3.4M
8	3.0M	3.4M	E	E	4.5M	4.3M	3.5M	3.6	4.3	5.2	4.8	8.8M	4.7	6.3	5.6	5.3	C	6.2M	3.1	3.4M	3.1M	2.3M	2.8M	2.2M
9	E	2.8M	4.3M	E	1.4	3.8M	2.8	7.0M	6.2	9.5M	6.9	7.2M	5.2	5.2	6.4M	4.4M	G	G	3.8	6.4M	3.8M	S	5.8M	3.0M
10	5.9M	7.0M	3.2	3.1M	2.2M	C	C	C	C	4.8M	7.3M	5.2	13.3M	9.8M	5.3M	4.7M	G	4.2M	6.7M	6.7M	6.8M	4.3M	3.6M	3.1M
11	4.4M	3.0M	2.1M	E	1.9M	G	2.4	3.4	6.1M	4.6	5.7M	6.0M	6.2M	6.9M	5.9M	5.9M	G	5.7M	5.6M	4.5M	3.9M	3.1M	2.7M	4.4M
12	2.8M	E	E	E	E	3.4M	3.1M	3.3	3.7	3.9	4.9M	4.4M	G	G	4.8	5.0	7.0	6.3M	5.0M	3.2M	3.2M	2.9M	2.2M	2.1M
13	3.1M	E	2.1M	1.2	1.2	E	2.7	3.3	7.1M	4.3	5.6M	7.0M	12.3M	5.7M	G	G	4.3	3.6	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	15.0M	9.5M	12.3M	5.3M	5.9	6.8	5.7M	5.0M	4.6	6.3M	6.4M	6.2M	4.2M	7.0M	8.5M
15	7.0M	5.7M	5.9M	4.4M	4.1M	2.8M	2.4	3.5	5.1	6.5	6.8M	7.9M	8.8M	6.5	8.8M	5.9M	7.7M	7.6M	6.8M	6.6M	2.8M	2.2M	S	3.1M
16	3.0M	2.2M	2.3M	3.0M	E	2.2M	G	G	4.0	5.8M	6.9M	G	4.3	4.4	4.5	4.4	G	3.5	3.8	4.2M	4.3M	4.3M	3.1M	4.3M
17	3.2M	E	2.6M	2.7M	3.4M	E	4.8M	4.9M	5.4M	5.7	6.8M	7.1M	9.7M	9.0M	4.4M	7.2M	G	5.0	6.1M	2.7	3.1M	2.3M	4.2M	4.4M
18	3.4M	3.2M	3.6M	3.0M	2.3M	E	G	3.6	4.0	4.3	4.5	7.7M	4.2	5.4M	6.6M	G	5.0	8.5M	8.8M	9.7M	8.7M	4.5M	5.9M	3.6M
19	3.0M	2.4M	E	2.3M	2.4M	2.6M	3.0	5.6M	6.5M	4.3M	7.0M	6.5M	9.2M	G	G	G	G	6.6	7.3M	3.1M	4.5M	3.0M	2.1M	4.4M
20	4.0M	4.3M	4.9M	3.0M	2.9M	E	2.5	5.1M	4.4	5.7M	6.3M	7.4M	8.5M	9.5M	7.6	5.8M	4.4	5.6	5.5M	4.4M	4.7M	6.8M	5.9M	5.9M
21	E	3.3M	3.7M	3.6M	4.3M	2.9M	2.8	3.8	4.5	6.4M	9.6M	5.9M	7.2M	9.6M	6.2M	8.1M	8.5M	4.6M	3.6M	3.6M	3.0M	3.5M	3.0M	9.5M
22	9.5M	12.2M	5.7M	4.5M	3.3M	2.6M	G	3.8	5.1	7.4	5.7M	5.9	4.9	8.5M	7.0M	7.5	8.4M	4.1	6.0	9.1M	8.8M	7.2M	4.5M	4.7M
23	5.8M	4.3M	3.5M	5.2M	3.6M	4.8M	2.3	3.8M	3.8	4.4	6.5M	5.4	9.0M	5.8M	5.3	4.5	5.7M	4.8M	3.9M	3.8M	3.6M	3.4M	2.7	1.9M
24	3.0M	E	3.1M	3.4M	2.8M	3.0M	2.8M	5.9M	3.6	G	6.2M	7.4M	9.2M	6.2M	6.2M	7.0M	4.0	5.4M	3.5	4.0M	4.4M	4.7M	2.4M	2.9M
25	3.2M	7.1M	9.4M	8.3M	6.5M	4.9M	6.4M	5.4M	9.3M	13.0M	15.5M	9.6M	9.5M	10.6M	16.0M	12.5M	9.5M	10.5M	7.1M	3.6M	4.3M	7.0M	5.9M	5.8M
26	4.7M	4.3M	4.3M	2.9M	E	2.4M	3.1M	4.0	6.8M	7.8M	6.5M	4.7	5.9M	6.2M	5.2M	5.6	4.6M	3.8M	3.8	3.3	5.7M	7.6M	10.2M	8.3M
27	8.0M	3.4M	3.3M	4.3M	3.1M	3.0M	3.8M	3.5	4.3	6.4M	5.2	5.6M	10.0M	5.5M	5.8M	4.4	4.7M	5.2M	3.2	2.3	2.8M	4.6M	4.9M	5.8M
28	5.0M	5.5M	5.5M	4.0M	3.7M	2.8M	2.6	6.5M	4.4	5.0	7.2M	5.8	7.0M	5.2	5.4	G	4.0	4.7	7.3M	5.6M	5.9M	9.1M	7.0M	7.2M
29	9.5M	4.9M	4.8M	3.1M	3.1M	3.5M	5.0M	4.9M	8.4M	8.8M	10.0	12.2M	B	B	5.4	6.4	8.5	6.4M	12.2M	13.6M	4.3M	5.6M	3.0M	2.2M
30	4.3M	3.8M	3.4M	3.0M	E	E	2.4	3.4	G	5.8M	4.4	4.6	5.4	5.6	5.3	7.5M	8.4M	9.5M	6.4M	3.4	3.6M	5.6M	9.5M	8.8M
31	5.5M	3.8M	3.4M	2.9M	2.7M	C	3.4M	8.6	4.4	5.6M	6.8M	G	G	5.5	7.7M	5.1	8.2M	13.5M	6.4M	5.8M	6.5M	5.5M	3.4M	3.9M
No.	29	30	30	30	30	28	29	29	29	31	31	31	30	30	31	31	30	31	30	30	30	29	28	30
Median	4.2M	3.6M	3.6M	3.0M	3.0M	2.8M	2.8	3.8	4.8	5.4	6.6M	6.7M	6.2M	6.0M	5.6M	5.6M	4.9M	5.2M	5.6M	4.2M	4.0M	4.3M	4.0M	4.4M
U.Q.	6.4	4.9	4.9	4.3	4.1	3.8	3.4	5.1	6.4	6.5	7.1	7.7	9.1	8.8	7.0	7.5	8.0	6.5	6.7	6.4	5.7	5.7	5.9	5.9
L.Q.	3.0	2.8	2.9	2.3	1.9	G	2.4	3.4	4.0	4.5	5.7	5.4	5.0	5.4	4.9	4.5	4.0	4.1	3.6	3.3	3.1	3.0	2.9	3.0
Q.R.	3.4	2.1	2.0	2.0	2.2		1.0	1.7	2.4	2.0	1.4	2.3	4.1	3.4	2.1	3.0	4.0	2.4	3.1	3.1	2.6	2.7	3.0	2.9

The Radio Research Laboratories, Japan.

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

Y 4

IONOSPHERIC DATA

Jul. 1958

fbEs

135° E Mean Time (G.M.T.+ 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	2.9	3.8	3.3	2.9	1.7	G	3.8	3.9	4.9	5.4	6.5	4.6	4.4	8.5	4.7	G	G	G	2.3	2.5	1.7	S	E
2	S		E	1.1	E	1.4		G	G	4.9	6.6	6.4	4.6	4.6		G		G	3.2	G	1.6	S	4.0	2.1
3	5.3	4.7	2.5	3.9	3.5	3.4	3.5	4.0	6.7	8.3	4.8	5.0	4.6	7.5	4.6	7.5	5.0	4.8	5.0	3.5	1.7	D7.7S	4.7	S
4	U3.5A	2.0	2.5	2.0	1.9	2.2	2.2		G	4.2	4.4	A	A	A	A	A	5.4	4.6	4.8	A	2.1	1.9	2.9	3.5
5	2.1	2.2	2.6	1.9	3.0	3.0	G	3.4	4.7	4.7	6.0	4.8	5.0	5.2	A	5.3	G	3.7	3.1	1.8	E		2.0	2.4
6	2.4	2.0	4.7	E3.9A	3.5	2.8	G	G	G	4.0	G	5.1	4.9	4.4	4.6	4.4	G	G	3.1	2.5	1.6	E	1.6	
7	2.4	2.5	1.7	1.1			G	3.4	4.5	5.1	5.6	5.0	G	5.1	4.6	5.0	4.6	6.4	8.5	8.4	5.6	3.9	2.6	2.6
8	S	2.5			3.8	2.0	G	G	4.0	4.1	4.2	4.4	4.6	6.3	4.4	4.4	C	4.5	G	G	S	E	S	E
9		1.7	1.7		D1.4S	1.9	2.5	5.3	A	4.9	6.3	5.4	4.7	5.0	5.4	3.8			3.3	G	E	S	3.0	E
10	3.5	3.5	U2.5A	1.8	2.1	C	C	C	C	4.0	4.2	5.0	6.0	4.5	G	4.1		3.2	G	3.2	2.5	2.5	2.8	1.7
11	2.9	2.0	E		E		G	3.4	G	G	4.6	4.9	4.6	4.9	4.4	G		4.4	4.0	2.5	2.5	2.5	2.0	3.5
12	1.7					E	2.6	G	G	G	G	4.3			4.6	G	G	G	2.5	G	1.9	E	E	E
13	E		E	1.1	1.2		2.5	3.3	5.3	4.1	4.6	4.9	4.8	4.6			4.1	G	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	5.0	4.8	4.6	4.6	5.0	4.7	4.8	4.3	4.3	3.8	4.8	4.5	2.5	4.6	4.1
15	4.5	3.2	2.9	3.8	2.5	1.8	G	3.2	4.4	5.1	5.2	6.9	7.6	5.1	4.8	4.8	4.9	G	5.0	2.7	1.7	E	S	E
16	1.9	E	1.3	1.8		E			3.8	4.6	4.3		D4.3S	4.4	4.5	4.3		G	3.6	3.4	3.5	2.5	2.1	3.1
17	S		1.7	E	1.7		2.5	4.0	3.8	4.7	4.7	5.1	5.7	5.0	4.4	5.3		4.6	3.6	2.7	1.7	E	2.2	3.8
18	2.2	2.5	1.8	1.7	E			3.5	3.8	G	4.4	4.3	G	4.6	4.6		4.8	7.7	6.3	A	5.5	2.5	3.8	2.3
19	S	1.7		1.1	1.7	1.3	2.7	4.1	3.9	4.0	4.3	4.9	5.3					4.2	4.1	1.6	3.1	E	E	U2.5A
20	2.6	2.5	2.1	1.7	1.6		G	4.1	4.3	4.6	4.9	6.2	6.0	4.9	6.3	4.4	4.4	5.4	4.3	3.8	3.7	2.4	2.7	2.1
21		1.7	1.7	2.1	2.8	1.8	G	3.5	4.3	4.6	4.7	4.9	6.7	4.8	4.7	5.5	7.9	3.9	G	2.3	1.7	1.7	1.8	5.2
22	7.2	A	2.5	3.4	2.0	1.8		3.4	4.7	G	4.6	4.7	4.4	6.1	G	5.0	G	D4.1B	5.2	3.8	5.5	A	2.2	1.9
23	3.5	2.5	1.6	2.5	2.5	1.7	S	G	G	4.1	4.6	G	5.1	4.6	4.5	4.3	4.4	4.2	G	G	1.7	1.8	1.7	1.7
24	2.1		1.2	E	1.7	1.3	1.8	G	G		5.0	6.6	5.1	4.9	4.9	G	G	3.4	3.4	3.0	3.7	1.7	S	S
25	E	4.1	4.5	3.8	3.9	2.1	2.9	4.5	4.8	5.3	8.0	9.2	8.0	9.0	A	4.3	5.0	4.2	4.2	G	3.8	4.0	3.9	4.0
26	3.2	3.3	2.5	1.7		1.7	2.0	3.7	4.6	4.7	4.8	4.6	5.2	5.0	G	5.2	G	3.1	3.6	D3.3S	E5.5A	5.2	A	4.3
27	2.2	2.0	1.7	1.7	1.5	1.8	G	G	3.8	4.7	4.4	4.6	4.6	4.8	G	G	G	G	3.0	2.1	1.7	3.5	2.3	3.5
28	4.5	3.5	3.4	3.4	2.0	E	G	3.4	G	G	5.3	5.1	5.6	5.1	4.8		G	4.5	6.9	2.6	1.7	5.4	2.6	4.7
29	6.0	2.5	2.2	1.7	1.6	1.7	2.9	3.8	7.5	8.1	5.5	4.6	B	B	5.3	6.0	8.2	4.9	11.4	A	2.5	2.7	2.0	S
30	E3.6A	1.7	1.9	1.3			G	G		G	4.4	4.5	4.6	G	4.6	6.0	6.6	6.0	5.3	2.5	1.7	1.9	3.5	6.0
31	3.8	2.2	E2.2A	1.8	1.3	C	1.8	G	4.3	4.6	4.7			4.9	4.5	G	4.1	4.5	3.4	3.3	4.4	2.7	1.9	2.4
No.	23	25	26	25	24	21	24	27	28	30	31	29	27	28	28	27	23	29	30	30	28	27	26	26
Median	2.9	2.5	2.0	1.8	2.0	1.8	G	3.4	4.0	4.6	4.7	4.9	4.9	4.9	4.6	4.4	4.3	4.2	3.6	2.6	2.3	2.5	2.4	2.4

fbEs

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

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Jul. 1958

f-min

135° E Mean Time (G.M.T.+ 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.60S	E	E	E	E	E	E1.60S	1.60	1.60	2.20	2.00	2.20	2.45	2.20	2.20	2.20	2.00	1.90	1.25	1.25	E1.60S	1.20	E1.65S	1.20
2	E1.70S	E	1.20	E	1.10	1.20	1.60	1.50	2.00	1.90	2.20	2.45	2.20	2.20	2.20	2.20	1.60	1.50	1.20	1.10	1.10	E1.60S	E1.55S	E1.60S
3	1.25	E	E	E	E	E	1.65	1.70	1.60	1.85	2.20	2.45	2.20	2.45	2.20	2.20	1.70	1.60	E1.60S	E1.55S	E1.65S	E1.60S	E1.60S	E1.50S
4	E1.50S	E	E	1.10	E	E	1.60	1.60	1.60	1.60	1.75	1.90	2.20	2.20	2.20	2.20	1.70	1.50	E1.80S	E1.50S	1.00	E1.60S	E1.60S	E1.60S
5	E1.60S	E	E	1.25	E	1.00	1.80	1.60	1.60	1.90	2.20	2.20	2.20	3.15	2.20	2.20	1.70	E1.60S	1.25	E1.50S	E1.50S	E1.60S	E1.60S	E1.55S
6	E1.70S	1.30	E	E	E	1.25	1.20	1.25	1.30	2.20	2.20	2.45	2.45	2.20	2.20	2.20	1.90	1.60	1.55	E1.50S	1.20	1.15	1.30	E1.65S
7	E1.65S	E	E	E	1.10	1.50	1.25	1.50	1.50	1.90	3.50	3.60	2.60	2.70	2.45	2.20	2.20	1.60	E1.55S	1.15	1.20	E1.90S	E1.70S	E1.60S
8	E1.70S	E1.60S	1.25	E	E	1.10	E1.70S	1.60	1.60	1.70	2.20	2.45	2.30	2.45	2.45	2.20	I1.95C	1.60	E1.60S	1.50	E1.70S	E1.65S	E1.70S	E1.60S
9	E1.60S	E	E	1.20	E	1.00	1.50	1.50	1.65	1.60	1.80	2.20	2.20	2.20	2.20	1.85	2.20	E1.60S	E1.60S	E1.60S	E1.60S	E1.70S	E1.50S	E1.60S
10	E1.70S	1.20	E	E	E	C	C	C	C	2.00	1.90	2.45	2.35	2.45	2.30	2.45	2.00	E1.50S	E1.50S	1.25	E1.60S	E1.65S	E1.65S	E1.65S
11	E1.60S	E	E	E	1.20	1.15	1.30	1.50	1.30	1.70	1.50	2.20	2.40	2.45	2.35	1.80	1.50	1.70	E1.50S	E1.60S	E1.70S	E1.50S	E1.60S	E1.70S
12	1.30	1.20	1.20	1.20	1.15	1.30	1.70	1.70	1.80	2.20	2.20	2.80	2.60	2.60	2.30	2.50	2.20	2.30	E1.60S	1.60	1.25	E1.60S	E1.70S	E1.60S
13	E1.70S	1.75	1.30	E	E	1.30	E1.55S	1.60	1.60	2.20	2.20	2.30	2.70	2.70	2.75	2.20	1.90	1.85	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	1.60	1.70	1.70	2.20	2.20	1.90	2.20	2.20	1.85	E1.50S	E1.60S	E1.60S	E1.70S	E1.65S	E1.70S
15	E1.70S	E	E	E	E	E	1.70	1.25	1.60	1.60	1.85	2.20	2.30	2.30	2.20	2.20	1.85	1.60	E1.70S	E1.60S	E1.60S	E1.70S	E1.75S	E1.60S
16	E1.70S	E1.60S	E	E	1.25	E1.70S	1.70	1.60	1.60	1.70	1.90	1.90	2.20	2.60	2.50	2.20	2.00	1.90	E1.60S	E1.60S	E1.60S	E1.50S	1.20	E1.60S
17	E1.70S	1.20	E	E	E	1.30	1.60	1.70	1.50	1.60	1.80	1.50	1.85	1.90	2.20	2.20	1.80	1.60	E1.55S	1.25	1.30	E1.65S	E1.70S	E1.70S
18	E1.60S	1.30	1.10	E	1.10	1.15	E1.60S	1.80	1.55	1.75	1.60	1.80	1.70	2.20	2.20	2.20	1.85	E1.60S	E1.60S	E1.65S	E1.60S	E1.70S	E1.65S	E1.60S
19	E1.70S	E	1.30	E	E	1.15	E1.70S	1.60	1.60	2.20	1.75	2.20	1.85	2.20	2.20	2.20	2.20	1.70	E1.50S	1.15	E1.60S	E1.50S	E1.60S	1.30
20	E1.55S	1.30	E	E	E	1.20	1.60	1.50	1.60	1.90	2.20	2.20	2.60	2.45	2.50	2.20	2.20	1.90	E1.55S	E1.65S	1.30	1.25	E1.60S	E1.60S
21	E1.70S	1.20	1.20	E	E	E1.70S	1.65	1.60	1.80	1.85	2.20	2.20	2.20	2.20	2.20	2.20	1.90	1.60	E1.60S	1.15	E1.65S	1.25	1.30	E1.60S
22	E1.60S	E	E	E	E	1.15	1.60	1.25	1.50	1.60	1.60	2.20	2.20	2.20	1.90	1.90	1.70	1.65	E1.60S	1.25	1.30	1.25	E1.60S	E1.60S
23	E1.60S	E	E	E	E	1.15	E1.70S	1.60	1.60	1.90	2.20	2.20	2.20	2.45	2.60	2.45	1.85	1.55	E1.50S	E1.60S	1.20	1.20	1.25	E1.65S
24	1.25	E	E	E	E	E	1.15	1.10	1.25	1.60	1.75	1.70	2.20	2.20	2.20	1.90	1.60	E1.55S	E1.55S	E1.60S	1.20	1.30	E1.65S	E1.70S
25	E1.60S	E	E	E	E	1.15	1.10	1.25	1.65	1.90	3.20	2.20	2.20	2.50	2.20	2.20	2.00	1.70	1.60	E1.60S	1.20	1.20	E1.60S	E1.60S
26	E1.60S	E	E	E	E	1.10	1.60	1.70	1.60	1.60	2.20	2.20	2.65	2.55	2.20	2.45	2.20	1.50	1.50	1.10	E1.60S	E1.60S	E1.65S	E1.60S
27	E1.60S	E	E	E	E	1.00	E1.60S	1.60	1.70	1.90	2.30	2.20	2.70	2.90	2.50	2.30	2.20	1.75	1.50	1.30	1.25	E1.50S	1.30	1.30
28	E1.65S	E	E	E	E	1.30	1.60	1.50	1.70	2.30	2.70	3.15	3.15	2.50	2.55	2.55	1.90	1.70	E1.50S	E1.50S	1.20	E1.60S	1.30	E1.60S
29	E1.60S	E	E	E	E	1.15	1.20	1.25	1.80	1.85	2.45	2.55	4.90	5.20	3.20	2.60	2.00	1.90	E1.55S	E1.50S	E1.60S	E1.60S	E1.50S	E1.70S
30	E1.60S	E	E	E	E	1.20	1.70	1.15	2.00	1.85	2.45	2.30	2.50	2.45	2.45	2.40	2.00	1.70	E1.60S	E1.60S	1.20	1.25	1.25	E1.65S
31	E1.70S	2.00	E	E	E	C	E1.70S	2.50	2.00	2.20	2.50	2.50	2.95	2.20	2.65	2.20	2.00	1.80	1.50	E1.65S	E1.50S	E1.50S	E1.60S	E1.60S
No.	30	30	30	30	30	26	25	29	29	31	31	31	31	31	31	31	31	31	30	30	30	30	30	30
Median	E1.60	E	E	E	E	1.15	1.60	1.60	1.60	1.85	2.20	2.20	2.30	2.45	2.20	2.20	1.95	1.60	E1.55	E1.50	E1.50	E1.60	E1.60	E1.60

f-min

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

The Radio Research Laboratories, Japan.

Y 6

IONOSPHERIC DATA

Jul. 1958 | (M3000)F2 | 135° E Mean Time (G.M.T.+ 9h.)

Yamagawa — Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I2.50A	2.60	2.55	J2.60S	2.65	2.70	3.00	2.85	2.75	2.85	2.35	2.45	2.40	2.55	2.45	2.60	2.70	2.60S	2.70	2.65S	2.60	J2.35R	2.40	J2.40R
2	2.60V	2.60	J2.55R	2.60	2.70R	2.75	3.00	2.85	2.70	2.35	2.45	2.50	2.45	2.50	2.50S	2.55S	2.60	2.60S	2.70S	2.90	2.60	2.35	J2.50R	I2.65S
3	J2.75R	F	F	F	2.60	2.80	2.85	2.90	2.45	2.35	2.50	2.60	2.55	2.50	2.60	2.65	2.65	2.60S	U2.70S	U2.60S	I2.50S	2.50	2.45	J2.55S
4	I2.70S	2.90	J2.60R	2.55	2.35	2.45	J2.95R	2.60H	2.50H	2.55	2.55	I2.30A	I2.30A	I2.40A	I2.40A	I2.50A	2.60	2.70	2.70S	I2.70A	2.35	2.35	2.40S	2.50
5	2.65	2.50F	2.55	2.55	2.55	2.55	2.90	3.10	J2.65RH	2.45	I2.40A	2.45	2.50	2.45	I2.45A	2.55	J2.50R	2.55	2.65	2.65	2.55	J2.35S	J2.30S	J2.50S
6	2.60	I2.50S	J2.50R	2.85	2.70	2.65	2.90	3.15	J2.75R	2.70H	2.55	2.40	2.60	2.50	2.45	2.60	2.65	2.65	U2.85S	2.75H	2.75	J2.40SH	J2.50S	2.40
7	2.40	2.60	2.75	2.65	2.80	2.70F	2.65R	2.95	2.90H	2.35H	2.35H	2.50	2.50	2.60	2.55	2.60	2.65	2.65	2.70S	U2.85S	2.65	2.45	2.45	U2.55S
8	I2.60S	2.65S	U2.65S	2.70F	2.70	U2.60S	2.70	2.75S	3.05	2.40H	2.50	2.65	2.60	2.50	2.50	2.55	I2.60C	2.70	2.65S	I2.75S	2.30	S	S	S
9	F	F	2.25	2.35	F	2.30	2.35	2.30	I2.20A	2.75	2.45	I2.25A	2.40	2.40	2.60	2.65	2.75	2.80S	2.65H	2.65	2.65S	2.45S	2.45	I2.60S
10	I2.65S	2.60	2.75	2.75	J2.60RH	C	C	C	C	2.75H	2.90	2.75	2.70	2.70	2.70	2.70	J2.70R	2.85	2.95	2.90	2.65	J2.50R	2.50	2.55
11	2.70	2.55	2.85	2.80	2.55FH	2.60F	2.95	2.95	2.95H	2.65H	2.70	2.60	2.70	2.70	2.70	2.80	2.85	3.00	2.75	2.70	2.60	J2.50S	I2.55S	2.65
12	J2.75S	2.75	2.85	2.95	J2.65R	2.65	3.10S	3.10	3.00H	2.85H	2.50H	2.55	2.70	2.85	2.70	2.65	2.60	2.60	2.70H	I2.70R	J2.55S	S	I2.70S	2.60
13	I2.60R	J2.60R	J2.55R	J2.60R	2.65R	2.35	2.70	3.25	2.35H	2.65	2.55	2.75	2.75	2.80	J2.80R	2.85	I2.80R	2.90	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	2.85	2.55	2.60	2.60	2.75	2.80	2.75	2.85S	2.95	2.90	2.95S	2.50S	I2.50S	2.70S	2.70
15	2.55	2.70	I2.60S	2.80	2.65V	2.75F	2.70	2.95	J2.25SH	2.60	2.70S	2.75	2.65	2.70	2.80	2.80	2.95	3.05	J2.90R	J2.75R	2.55	I2.55S	J2.65S	2.70
16	U2.70S	I2.70F	2.70	2.75	2.75	2.55	2.55	3.05	J3.55S	2.35H	2.65	2.80	2.85	2.75	2.85	2.90	2.80	2.80	2.80S	2.95	I3.00S	2.70	2.60S	2.70
17	2.75	J2.85S	2.90	J2.75R	U2.75R	2.75	2.60	I2.90S	2.80H	2.75H	2.65S	2.60	2.75	2.70	2.85	2.80	2.70S	2.75	2.95S	3.15	2.95	U2.45S	J2.50S	2.50
18	2.70	2.75	J2.80R	2.85	2.90	2.80	2.60	3.10	3.25	2.70H	2.50H	2.50	2.60	2.60	2.70	2.75	2.95	2.95S	2.75S	I2.80A	2.85S	I2.70S	I2.60S	2.55
19	2.65	2.70	2.75	2.80	2.70	U2.60S	2.65H	3.05	3.05H	2.75	2.95	2.70	2.75	2.80	2.75	2.75	2.80	2.90	I2.75SH	2.85H	J2.75S	2.70	2.60S	2.60
20	J2.65S	J2.70S	2.90	2.80	2.95	3.00R	3.20	3.00H	3.50	2.90H	2.70H	2.65	2.60	2.80	2.90	2.90	2.90	2.85	2.90	2.80	I2.80S	I2.60S	2.55	2.55
21	I2.65S	2.90	I3.05S	2.75	2.60H	2.70	2.70	2.95S	3.00	2.85H	2.85H	2.70SH	2.75	2.70	2.75	2.85	2.80	2.85	2.95	U2.90S	2.80S	2.55	2.65S	I2.60S
22	2.85	I2.80A	2.75S	2.80	2.45	2.45	2.85	3.40S	3.15	2.20	2.60	2.90	2.85	2.75	2.75	2.65	2.80	2.85S	2.85	2.90	2.75S	I2.50S	2.60	I2.60S
23	2.60S	I2.70S	2.65S	S	S	3.05S	2.75	2.85H	2.55H	2.75	2.75	2.90	J2.70F	2.80	2.90	2.70	2.70	2.85	2.90S	2.95S	2.70	J2.60S	I2.60S	2.60R
24	J2.55R	I2.60R	2.80	J2.80S	2.90S	2.75	2.90	3.00	3.05H	2.95	2.90	2.70	2.60	2.60	2.65	2.65S	2.75	2.85	2.95	I2.90S	2.75	2.50	2.50	U2.80S
25	I2.65S	I2.90S	3.05S	2.70	2.50F	F	2.95	3.25	3.10	2.85	2.75	2.65	2.80	2.80	I2.70A	2.80	2.70	2.70	2.75	U2.70S	U2.70S	2.55S	I2.45S	2.55
26	2.75	2.80	J2.70S	2.95	J2.60R	2.55	2.70	2.80H	2.70	2.75	2.65	2.45	2.60	2.75	2.65	2.60S	2.70	U2.70S	U2.70S	U2.75S	I2.60S	2.45	I2.40A	I2.50S
27	S	2.60	F	F	2.75	2.60	2.85	2.95	2.80	2.60	2.45	2.45	2.55	2.65S	2.55	2.60	2.70	2.80	2.65S	2.60S	2.65S	2.40	2.50	2.45
28	2.35V	2.35	J2.60S	2.65	2.60S	2.50	2.80	2.60	2.45	2.35	2.55	2.35	2.45	2.55	2.60	2.60	2.65S	2.65	2.70	J2.70R	2.70	2.35S	2.40	2.50
29	J2.55S	2.50	2.70	2.70	2.75	2.75	2.85	3.00	2.65	2.60	2.55H	2.45	2.60	2.50	2.65	2.65	2.60	2.65	2.65	I2.70A	S	S	S	R
30	S	I2.65S	S	S	S	F	2.80	2.90H	2.95	2.60	2.45SH	2.50	2.65	2.60	2.55	2.50	2.65	2.70	U2.70S	U2.75S	J2.60S	2.50SH	2.50H	2.55
31	I2.60S	I2.65S	J2.85S	2.70	2.45	I2.45C	2.90	3.45	2.55H	2.40	2.50	U2.35R	J2.40R	2.40	2.55	2.70	2.55	2.60	2.70	2.80	2.40	2.40S	2.45	2.45
No.	27	28	27	26	27	27	29	29	29	31	31	31	31	31	31	31	31	31	30	30	29	27	28	28
Median	2.65	2.65	2.70	2.75	2.65	2.65	2.85	2.95	2.80	2.65	2.55	2.60	2.60	2.65	2.65	2.65	2.70	2.75	2.70	2.75	2.65	2.50	2.50	2.55

(M3000)F2

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

The Radio Research Laboratories, Japan.

Y 7

IONOSPHERIC DATA

Jul. 1958

(M3000)F1

135° E Mean Time (G.M.T.+ 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L		3.35	I3.60A	3.60	3.40H	3.30	3.65	3.35	3.20	L					
2										3.15L	A	A	3.60	3.45	3.55	3.50H	3.15	3.40	L					
3										A	3.45H	3.60	3.55	I3.30A	3.70	I3.40A	3.20	3.20	L					
4										3.65	3.50	A	A	A	I3.55A	3.50A	A	3.20	A					
5										3.45	I3.10A	3.60	3.45R	I3.60R	I3.60A	3.20	3.65	3.40	3.25					
6											3.45H	3.45	3.60	3.65	2.90H	3.10H	3.20	3.25	L					
7												3.40	3.40	3.40	3.65	3.50	3.40	A	A					
8									L		L	3.60L	3.40	I3.55A	3.40	3.65	I3.10C	3.30						
9							2.80	I2.70A	I3.60A	3.35	A	I3.20A	3.60	3.30	A	3.40	3.45	L						
10											3.60	3.15	3.25L	3.70	3.65L	3.40	3.35	3.40	3.60L					
11											3.25	3.40	3.55	3.45	3.15H	3.35H	3.25H	L						
12												3.65	3.35	3.75	LH	3.30H	3.35H	3.30						
13							L	L		3.40	3.45	3.65	3.30	4.00	3.25	3.30	L	L	C					
14							C	C	C	3.55	3.45	3.45	3.45	3.35	3.50H	3.40	3.40	L	A					
15										3.25	3.40	A	A	3.35	3.60	3.50H	3.50	L						
16								L	L		3.25L	3.40	3.45	3.40	3.70	3.30	3.45H	L	L					
17											3.40	3.30L	A	3.25	3.40	3.30	3.30	3.40	L					
18								L	4.15			3.65LH	3.55	3.45	3.65	3.30	3.50	A	A					
19											3.55	3.55L	3.35	3.50H	3.45H	3.25H	3.35	3.75						
20												A	A	3.35	I3.40A	3.45	I3.50L	A						
21													I3.70A	3.45	3.70	A	I3.50A	3.40	3.65					
22										3.10L	3.55	3.50	3.35L	A	3.25	3.50	3.35	3.55L						
23										3.40H	3.40	3.60	3.20H	3.50	3.55	3.20H	3.45	I3.50L						
24										3.60	3.55	I3.50A	3.25	3.45	3.35	3.35	3.55	3.50	L					
25										3.40	A	A	A	A	A	3.20LH	3.25	3.25	I3.55L					
26									L	3.25L	3.55	3.35	3.55	3.65	3.65	3.35	3.35L	3.20	3.50					
27										3.30	3.55	3.55	3.60	3.55	3.15H	3.40	3.10	L						
28									L	3.15	3.25	3.15	3.40	3.50	3.55	3.40	3.45	3.45	I3.40A					
29												3.30	3.75	R	3.55	A	I3.20A	3.25						
30												3.45H	3.70	3.35	3.60	A	A	A						
31										3.50	3.45	3.50	3.45	3.55	3.65	3.50	3.35	3.15	3.30					
No.							1	1	2	15	20	25	26	27	28	28	28	20	7					
Median							2.80	2.70	3.90	3.40	3.45	3.50	3.45	3.45	3.55	3.40	3.35	3.35	3.50					

(M3000)F1

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

The Radio Research Laboratories, Japan.

Y 8

IONOSPHERIC DATA

Jul. 1958

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								300	280		455	455	450	410	455	395	375	375	300					
2										415	395	425	400	395	370	370	360	335	300					
3										A	450	405	405	410	390	375	350	350	340					
4										395	455	A	A	A	I475A	I450A	405	370	345					
5										450	470	480	475	I520A	I490A	445	430	395	350					
6											390	450	435	435	420	385	355	355	310					
7												400	410	390	395	400	380	365	370					
8									280		L	320	390	420	400	390	I375C	340						
9							500	590	I760A	390	E480A	I550A	460	440	395	370	350	295						
10											330	365	350	340	345	390	350	325	300					
11											375	400	370	385	355	350	345	300						
12												395	365	345	350	375	350	345						
13							300	250		370	370	340	345	330	335	325	305	305	C					
14							C	C	C	300	340	350	350	350	330	335	315	295	250					
15										385	375	350	390	355	350	345	310	280						
16								285	250		350	350	340	350	345	340	320	L	290					
17											315	350	350	350	340	345	350	335	275					
18								285	240			350	355	390	350	345	320	325	355					
19											340	300	345	340	330	330	330	275						
20												360	395	340	330	315	295	300						
21													355	350	350	305	345	305	290					
22										600	395	330	305	340	350	305	330	300						
23										355	350	330	355	360	340	350	340	300						
24										330	350	370	405	390	360	355	345	300	270					
25										355	360	E390A	350	365	I360A	350	350	350	300					
26									350	350	375	440	430	395	380	365	345	350	300					
27										350	300	400	390	375	395	385	350	325						
28									400	520	445	450	450	430	405	410	350	330	390					
29												450	385	400	375	355	370	350						
30												420	390	395	400	400	355	350						
31										405	450	530	480	475	450	400	410	390	345					
No.							2	5	7	15	22	29	30	30	31	31	31	30	18					
Median							400	285	280	385	375	395	390	390	360	365	350	330	300					

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

Jul. 1958 | 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	I330A	300	350	340	300	285	250	250	230	240	260	I245A	200	190H	E300A	240	205H	245	245	275	275	290	330	340
2	305	295	290	290	260	260	245	240	225	250	I250A	I265A	210	200	200	220H	245	225	245	260	250	300	360	300
3	350	310	285	320	345	300	250	250	E405A	I270A	225H	245	225	I285A	215	I250A	270	285	310	280	290	I380A	375	340
4	315	260	255	275	345	340	240	240H	240H	225	225	A	A	A	I255A	I260A	I270A	295	I295A	I295A	300	350	370	350
5	325	325	330	300	340	330	250	245	250H	240	I305A	240	250	250	I250A	I280A	220	230	245	275	290	320	350	350
6	330	325	350	275A	300	300	250	235	215	205H	200H	240	210	220	225H	205H	220	220	250	260H	250	240H	310	340
7	350	325	285	250	250	260	250	240	240H	250H	270H	250	210	250	220	260	245	A	A	E340A	310	365	350	330
8	300	300	295	270	270	275	250	240	230	205H	205	200	200	I230A	200	240	I250C	250	250	270	355	350	350	370
9	290	350	380	475	400	355	350	I365A	I260A	270	I270A	285	240	240	I270A	230	230	240	230H	280	290	300	345	300
10	300	315	290	255	250H	C	C	C	C	225H	215	245	I215A	195	195	200	225	205	245	260	275	325	330	305
11	325	320	250	235	260H	315	250	250	220H	200H	200	240	200	230	225H	230H	240H	270	255	275	285	340	320	325
12	280	275	255	250	265	295	250	235	200H	200H	200H	200	200	205	215H	205H	230H	225	230H	260	300	300	290	255
13	285	290	300	290	300	340	255	240	285H	205	225	230	225	205	205	220	235	235	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	260	240	225	205	230	225H	250	235	265	I240A	260	320	330	325	300
15	350	310	325	295	290	275	245	235	250H	290	275	A	A	260	240	245H	E275A	230	270	250	300	305	310	290
16	300	290	275	290	280	330	255	245	230	230H	205	205	200	205	205	215	210H	225	250	275	255	280	315	305
17	275	250	230	245	270	275	250	250	230H	250H	225	250	I260A	265	200	290	225	305	250	250	225	300	350	350
18	300	300	270	255	250	260	250	230	225	200H	195H	190H	200	225	230	235	270	A	A	I330A	300	285	320	325
19	300	290	280	250	275	285	255H	255	235H	210	200	230	E285A	195H	220H	205H	220	250	250H	205H	300	250	275	305
20	300	300	265	250	250	240	230	240H	230	215H	245H	I250A	I230A	245	I250A	230	250	I250A	270	280	265	300	325	330
21	305	270	240	270	310H	290	250	240	240	225H	250H	225H	A	240	220	I250A	I270A	230	240	250	250	285	310	350
22	325	I340A	270	290	305	365	250	240	240	200	235	205	200	I245A	270	260	205	255	280	265	300	I345A	320	305
23	320	300	300	285	250	245	240	210H	210H	210H	240	210	200AM	205	200	225H	240	250	250	250	250	290	300	300
24	325	300	270	250	250	250	240	230	215H	215	255	I255A	250	245	240	225	215	230	250	250	300	300	325	300
25	300	350	295	295	370	330	255	245	245	250	I270A	I260A	I250A	A	A	200H	275	245	275	275	300	330	370	345
26	300	290	275	230	270	300	250	250H	255	245	225	200	245	230	200	290	205	235	245	300	320A	400	A	370
27	305	295	290	270	250	290	250	240	220	230	200	205	200	205	210H	225	225	235	240	260	280	320	325	340
28	400	400	310	280	260	300	245	240	240	235	290	250	E290A	245	230	220	215	250	I290A	290	290	450	370	400
29	405	305	300	275	260	270	250	240	E400A	E430A	260H	210	220	250	255	I300A	I300A	E295A	A	I345A	270	300	300	290
30	300A	285	250	250	215	240	245	230H	220	225	200H	205H	215	210	220	I280A	I290A	A	300	275	280	300H	350H	400
31	345	300	270A	250	300	I300C	250	245	225H	240	240	230	250	225	225	225	220	265	250	295	350	345	340	345
No.	30	30	30	30	30	29	29	29	27	30	31	29	26	29	29	31	30	27	27	29	30	30	29	30
Median	305	300	285	270	270	290	250	240	230	230	235	230	210	230	220	230	230	245	250	275	290	300	325	330

h'F

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

The Radio Research Laboratories, Japan.

Y 10

IONOSPHERIC DATA

Jul. 1958

h'Es

135° E Mean Time (G.M.T.+ 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

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

h'Es

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

The Radio Research Laboratories, Japan.

Y 11

IONOSPHERIC DATA

Jul. 1958

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	f3	f4	f6	f5	f4	f2	l	c2	c2	h2	c4	c3	c2	l	l3	l2	l2	l	h2	c3	f5	f2		f
2			f	f	f	h		h	h2	c2	c3	c3	l2	l		l		h	h2	c2l	f2	f	f6	f5
3	f3	f3	f2	f4	f6	f4	l4	l3h2	h5	h5	c2h	c3	c	c3	c	c3	h2	h3	h4	c6	f2	f8	f7	f2
4	f4	f4	f5	f4	f6	f2	lh		ch	h2	h	h3	c3	c2	c3	c3	l4	l3h2	l5	f7	f4	f3	f3	f2f7
5	f2f4	f2f5	f4f2	f2	f5	f3	cl	h	h2	h2	h2	l2	c2	c2	c4	l3	l	h	h2	l2h	f2		f3	f3
6	f2	f3	f7	f8	f7	f6	l3	hl	c2	l	l	l2	l	h	h	l2	l2	h	h2	c2l	f	f2	f2	
7	f6	f4	f4	f2			l2	c2	c4	c3	c2	c	l	l2	l	h2l	l3	h4	c6	c6	f9	f3	f3	f4
8	f2	f2			f4	f4	lh	c2l3	h2	h	c	c	h	h2	h	h		c3	c2	l3	f	f	f	f
9		f	f2		f	f4	h2	h7	h4	h3	h3	h2	h	h2	h2	l			h3	l3	f2		f6	f2
10	f4	f5	f7	f	f					l	h	h3	c3	l2	l	l		l2h	l3	l3	f2	f4	f3	f2
11	f6	f3	f		f		h2	h2	l	c	l2	l3	l	l2	l2	lh		h3	c4	c4	f7	f5	f3	f3
12	f2					f	lh	h	hl	l	l	l			hl	c	l3	h	l2	l2	f2	f3	f	f
13	f		f	f	f		c2	h3	h3	h	l2	l2	l2	l			h	h						
14										c3	l2	l2	l	l2	l2	l2	l2	hl2	ll	f4	f5	f3	f3	f5
15	f4	f6	f5	f5	f5	f2	c2	h2	h2	c3	h3	c4	c3	c3	l2	l2	l3	l3	l4	l3	f2	f		f
16	f2	f	f	f3		f			h	h	h		l	h	h	h		h	h2	c3	f8	f3	f4	f6
17	f		f6	f2	f2		l2	c3	c2	c3	l2	l3	l3	l2	l2	l3		h3	h5	h5	f	f2	f3	f5
18	f3	f5	f2	f4	f			h3	h2	c	c	l	l	l2	l2		h2	h4	h6l	c6	f4	f3	f5	f3
19	f2	f		f	f2	f	c4l	c4	c3	l	l	l2	h2					h3	l4	l	f5	f2	f	f4
20	f3	f2	f2	f2	f		c3	c4	c2	c2	c3	c4	c3	l2	l3	l	h	h4	h4	c7	f7f4	f2f3	f3	f3
21		f	f	f	f3	f	c	h3	h2	c3	l3	l2	l3	l2	l2	l3	l4	l3	l4h	l4	f4	f2	f3	f3
22	f6	f4	f5	f5	f3	f		h2	h2	c2	lh	h	h	h3	h2	h3	h2	h	h2	c6	f4	f5	f4	f5
23	f4	f3	f2	f2	f2	f	c	l	c2	h	h2	c2	c3	c	c2	c	l3	l3	l4	l3	f2	f3	f2	f
24	f3		f2	f	f3	f2	lh2	lh	h		c3	c4	c3	c2	c2	l	l2	l2h	h3	c8	f8f5	f2f	f2	f2
25	f	f3	f4	f5	f4	f2f4	h3l	h4	c3	c	c2	c2	c3	h3	h3	h2	h3	h2	h3	l2c2	f8	f4	f4	f4
26	f6	f5	f3f2	f		f	l2	l3	c3	c3	c2	c2	c2	c3	l	h2l	l2	l2h	h2	c6l	f8	f5	f4	f4
27	f3	f4	f2	f4	f5	f4	l2	h	c2	l2	c	c	l2	lh	l	l	l	l3h	h2	c	f2	f4	f5	f6
28	f9	f9	f5	f5	f4	f	h	lh2	h	h	h2l	h	c2	c2	lh		h	h2	h4	c3l	f4	f7	f4	f4
29	f4	f3	f4	f3	f2	f2	l4	c2	h5	c3	c3	l			h	h2	h4	h4	h4	l3	f4	f6	f2	f2
30	f7	f2	f3	f			hl2	h		l	h	h	h	h	h	h2	c5	c4	h3	c3	f2	f3	f5	f6
31	f6	f4	f3	f4	f		l	h	h	l2	l2			h	h	h	h	h2	h3	c4	f4	f3	f3	f4
No.																								
Median																								

Types of Es

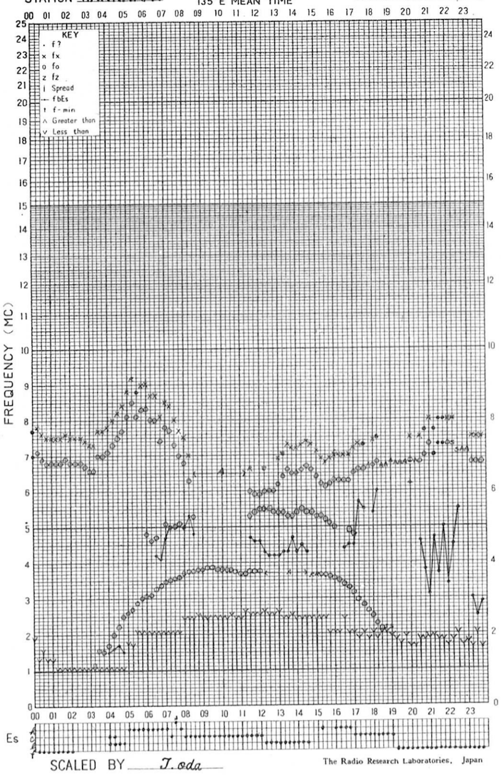
Sweep 1.0 Mc to 20.0 Mc in 1 min ~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

Y 12

f-PLOT OF IONOSPHERIC DATA

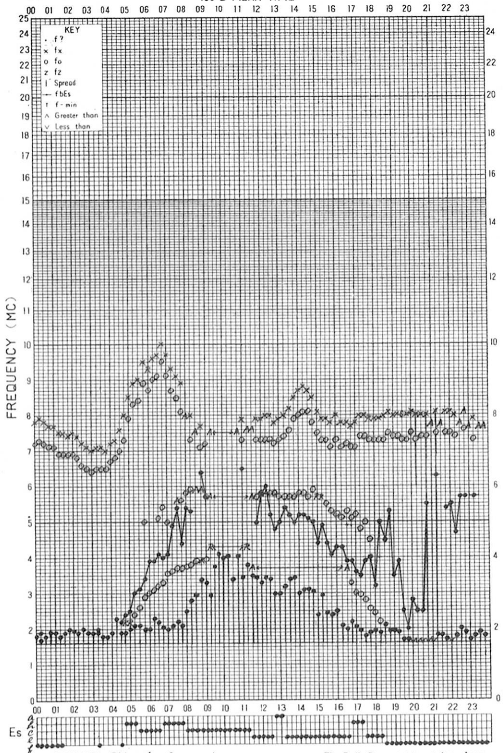
STATION WAKKANAI 135° E MEAN TIME DATE July. 1 1958



SCALED BY T. oda The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

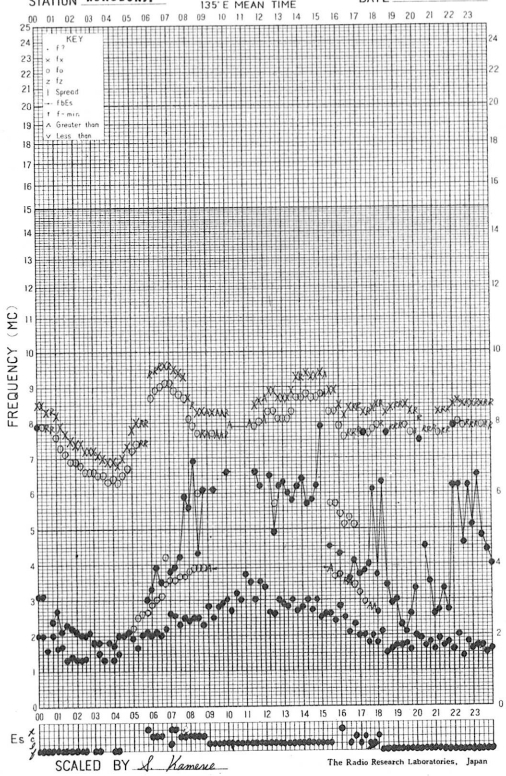
STATION AKITA 135° E MEAN TIME DATE JUL 1 1958



SCALED BY M. Izumi The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

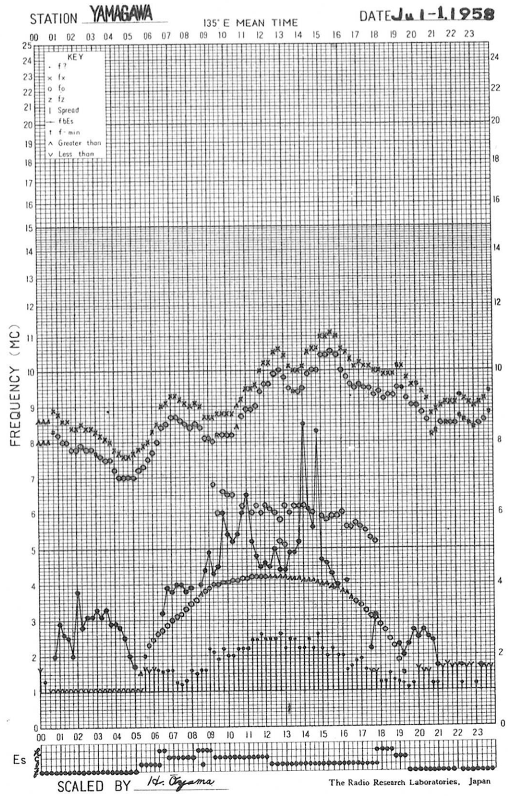
STATION KOKUBUNJI 135° E MEAN TIME DATE JUL. 1.1958



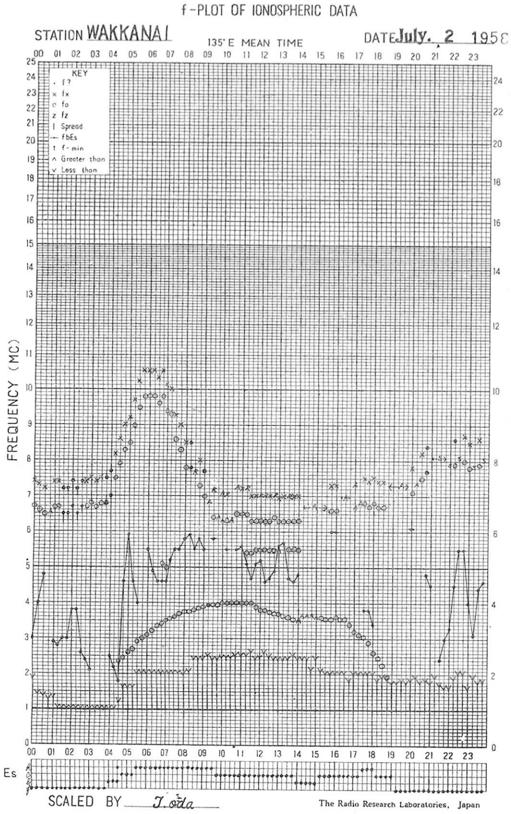
SCALED BY S. Kamese The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE Jul-1.1958



SCALED BY H. Oyama The Radio Research Laboratories, Japan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DATE July. 2 1958
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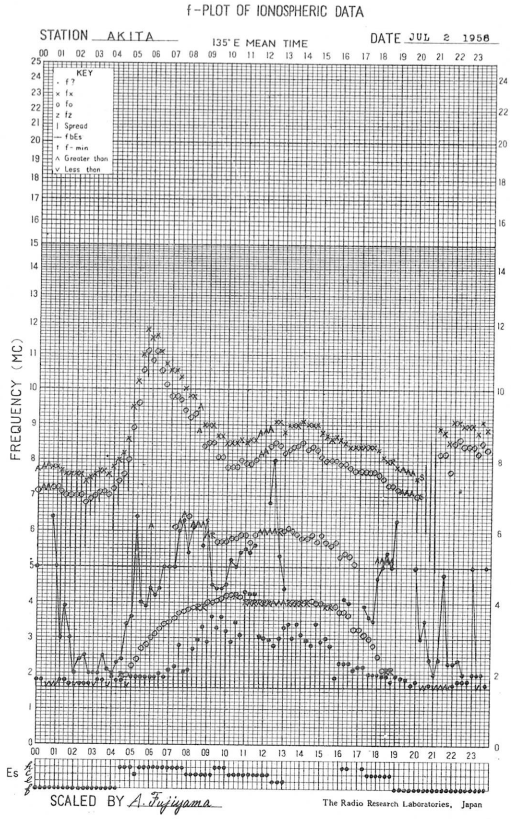
SCALED BY I. Oda
The Radio Research Laboratories, Japan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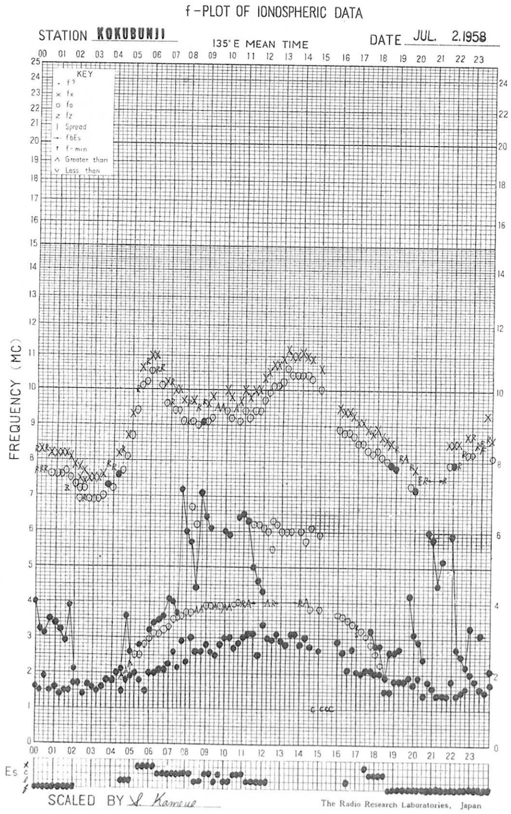
The Radio Research Laboratories, Japan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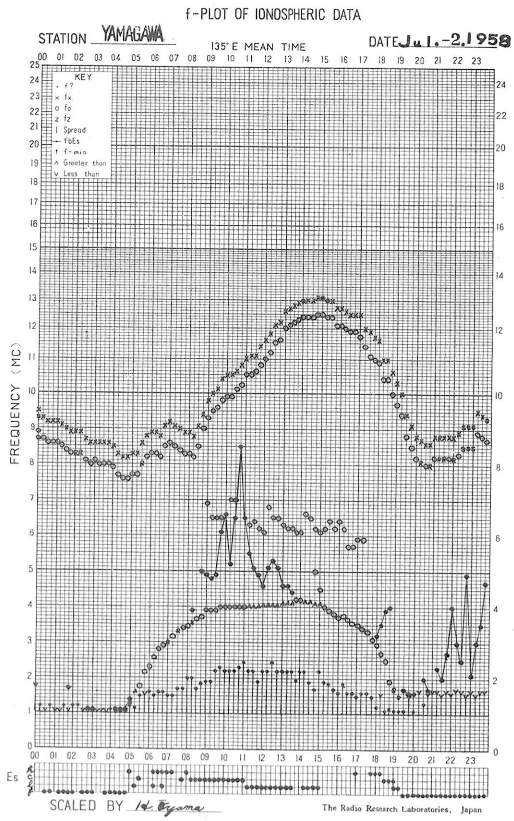
The Radio Research Laboratories, Japan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SCALED BY H. Oyama
The Radio Research Laboratories, Japan

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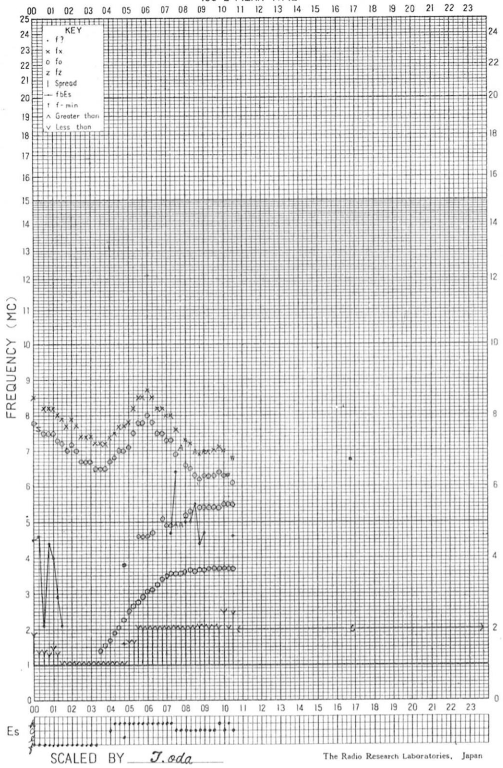

SCALED BY *T. oda* The Radio Research Laboratories, Japan

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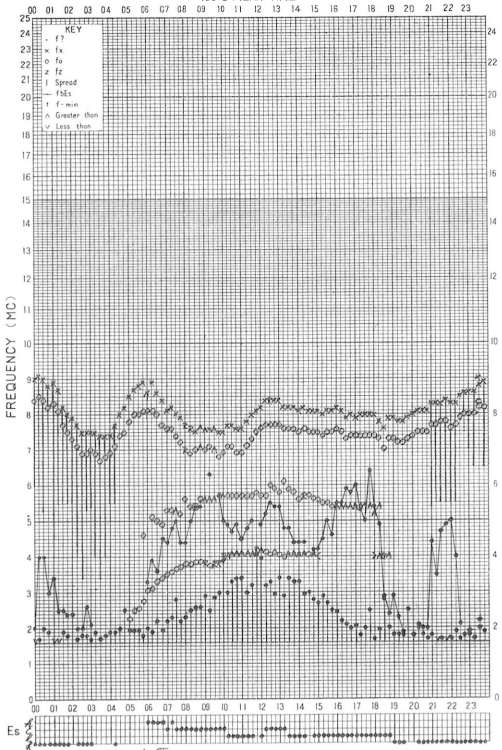

SCALED BY *A. Fujiyama* The Radio Research Laboratories, Japan

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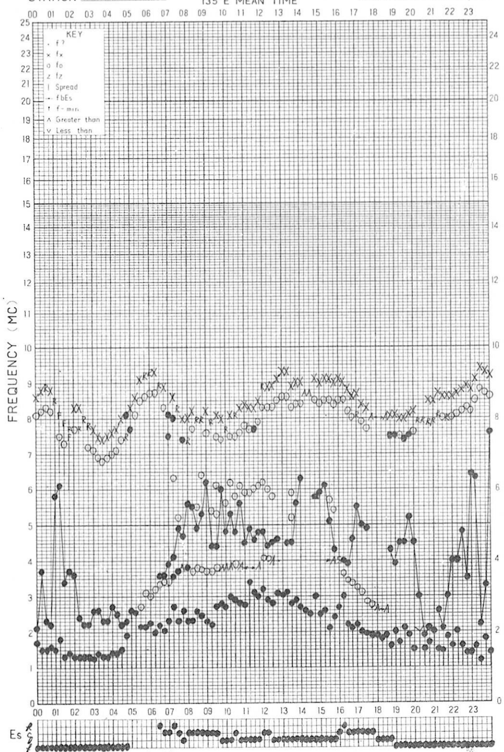

SCALED BY *S. Kamoue* The Radio Research Laboratories, Japan

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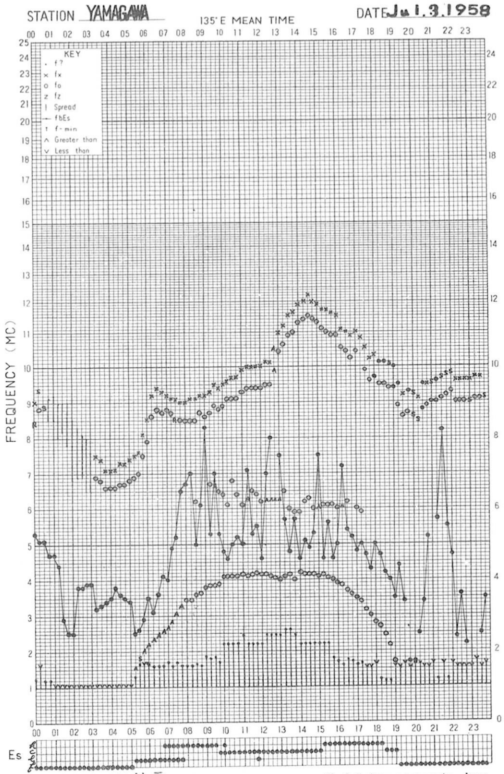
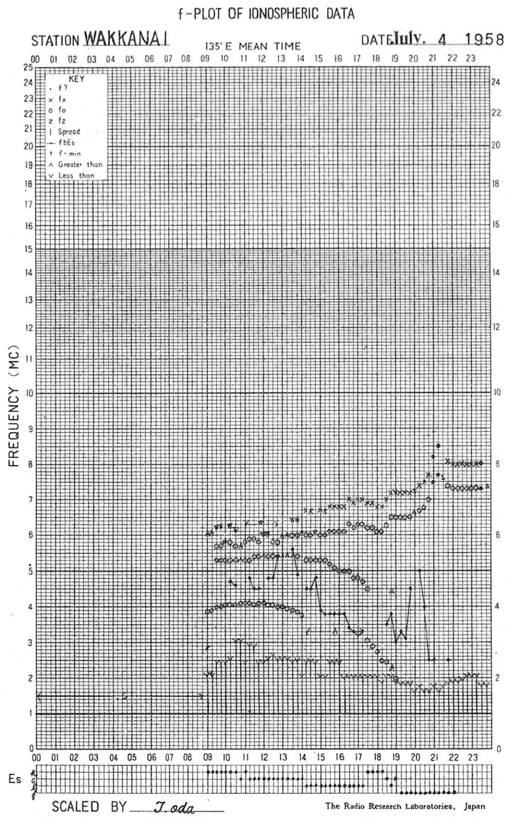


SCALED BY *H. Oyama* The Radio Research Laboratories, Japan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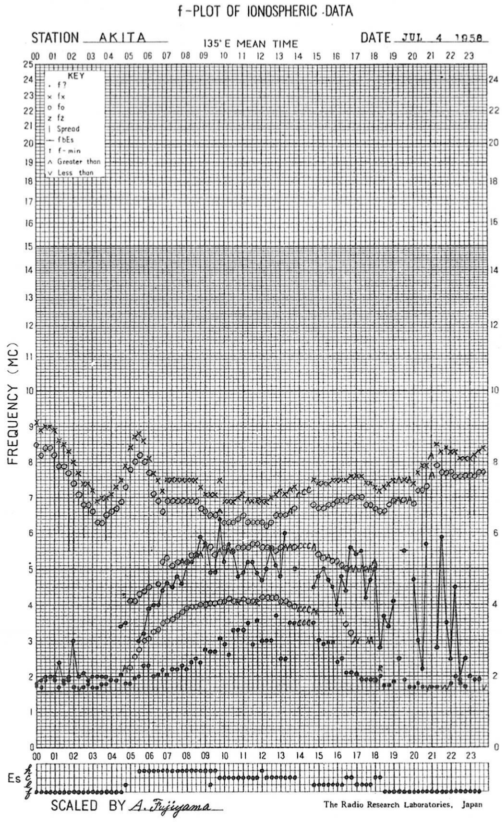
SCALED BY T. oda
The Radio Research Laboratories, Japan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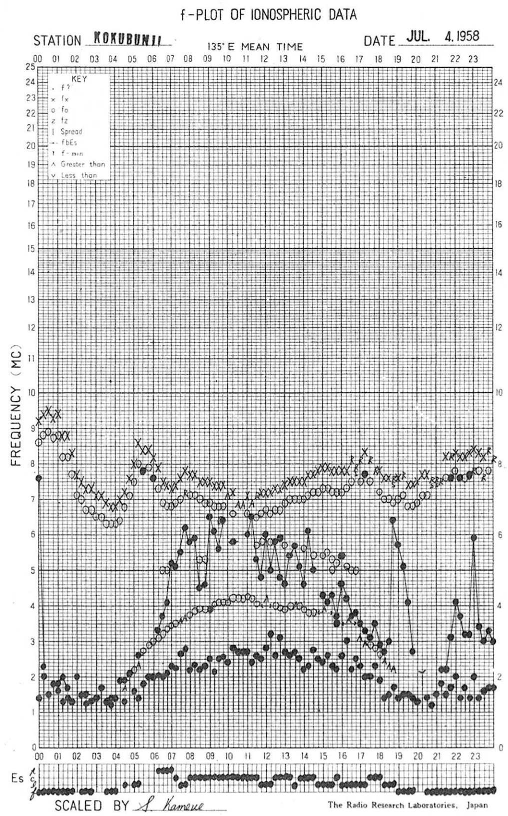
SCALED BY A. Fujiyama
The Radio Research Laboratories, Japan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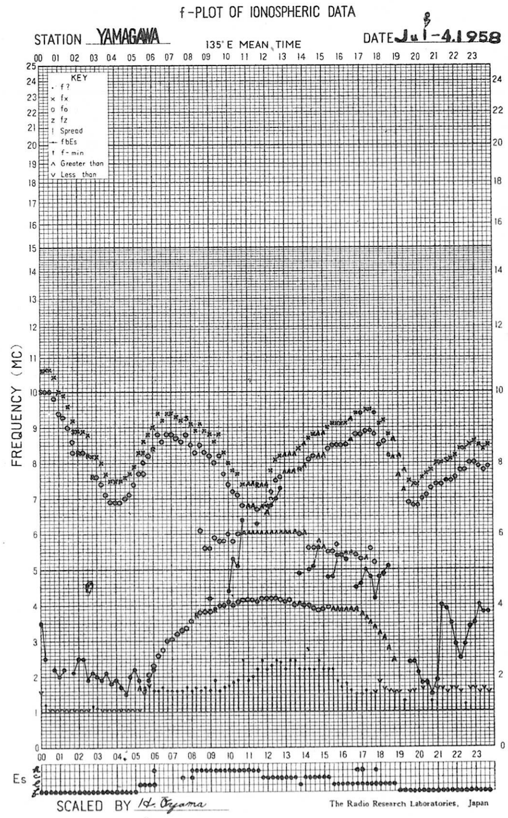
SCALED BY S. Kameue
The Radio Research Laboratories, Japan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SCALED BY H. Oyama
The Radio Research Laboratories, Japan

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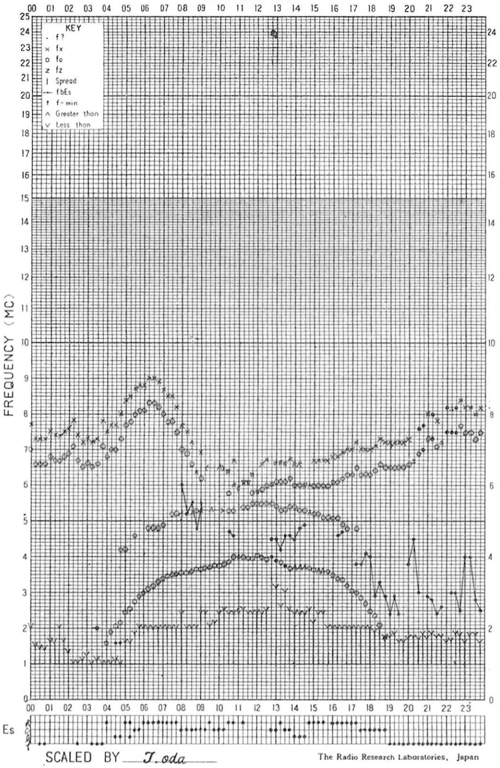
STATION WAKKANAI 135°E MEAN TIME DATE July. 5 1958



SCALED BY T. Oda The Radio Research Laboratories, Japan

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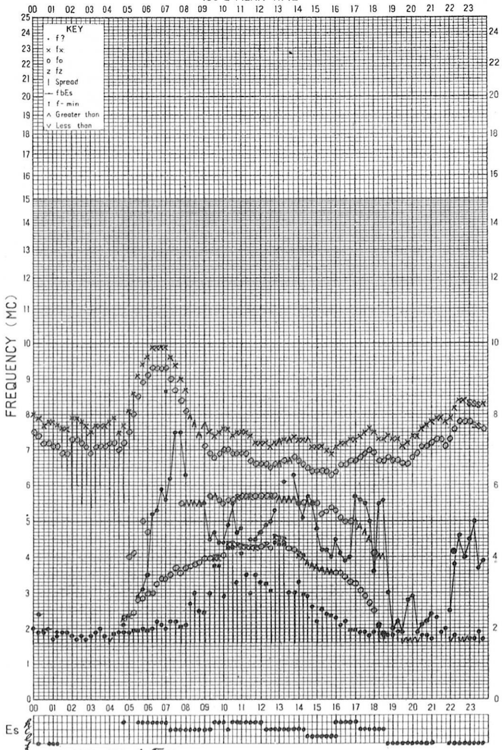

SCALED BY A. Fujiyama The Radio Research Laboratories, Japan

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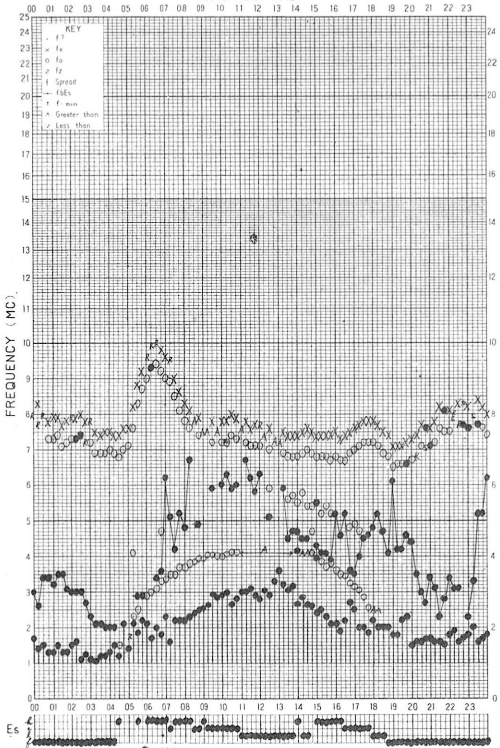

SCALED BY T. Koizumi The Radio Research Laboratories, Japan

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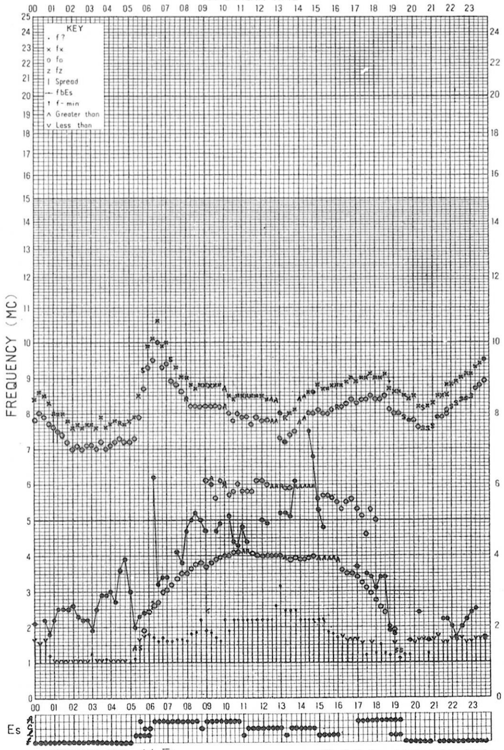
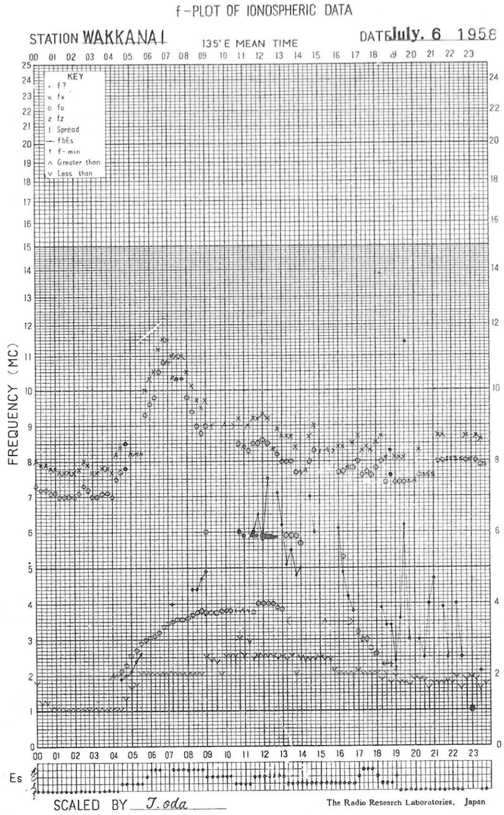


SCALED BY H. Oyama The Radio Research Laboratories, Japan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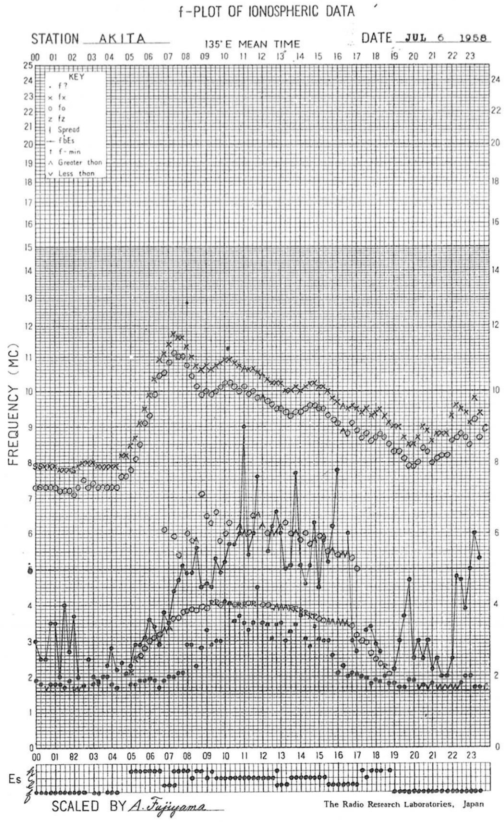
SCALED BY T. oda
The Radio Research Laboratories, Japan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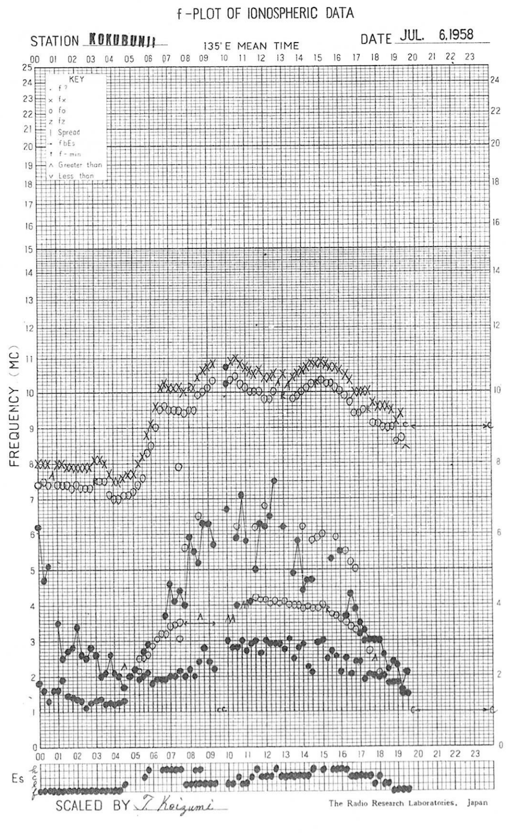
SCALED BY A. Fujiyama
The Radio Research Laboratories, Japan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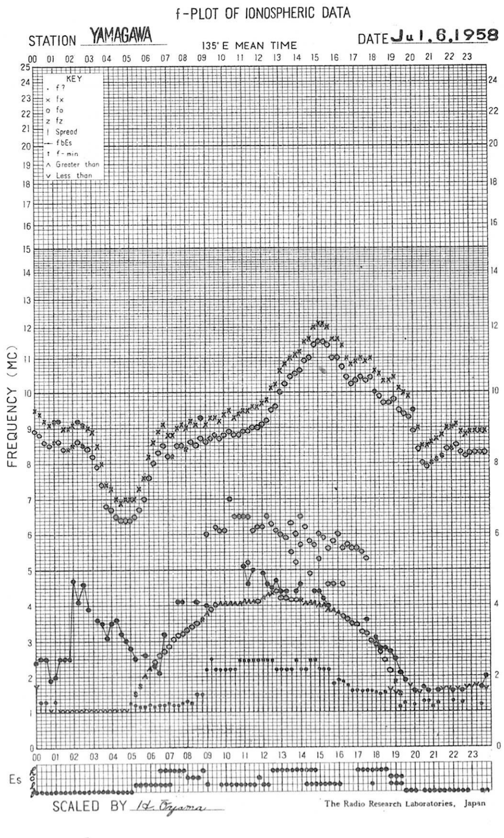
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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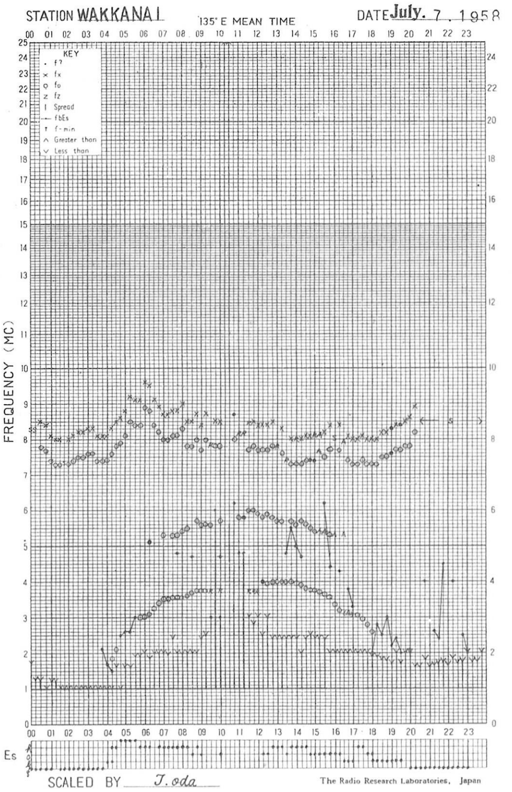

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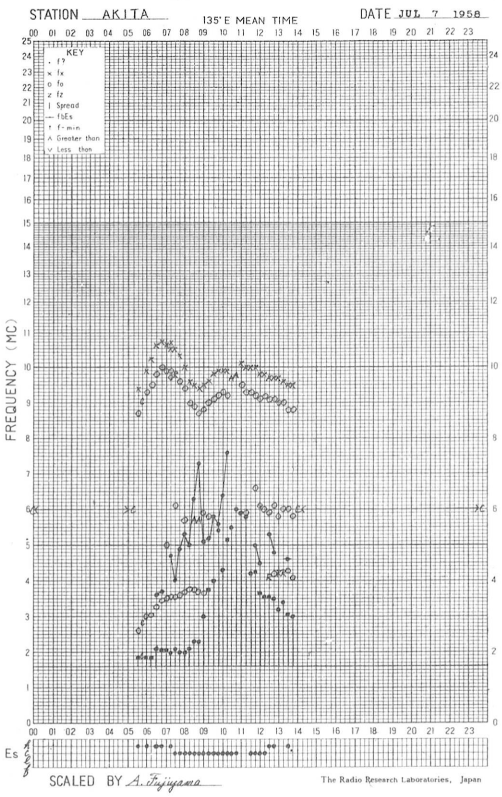

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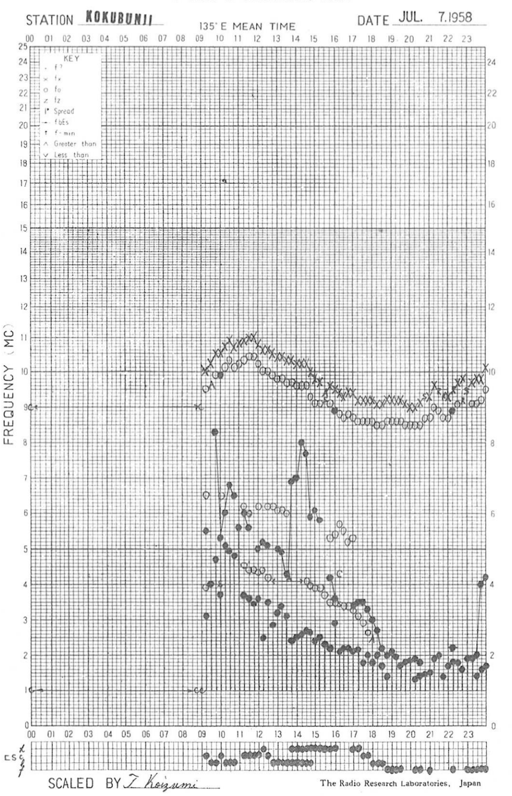

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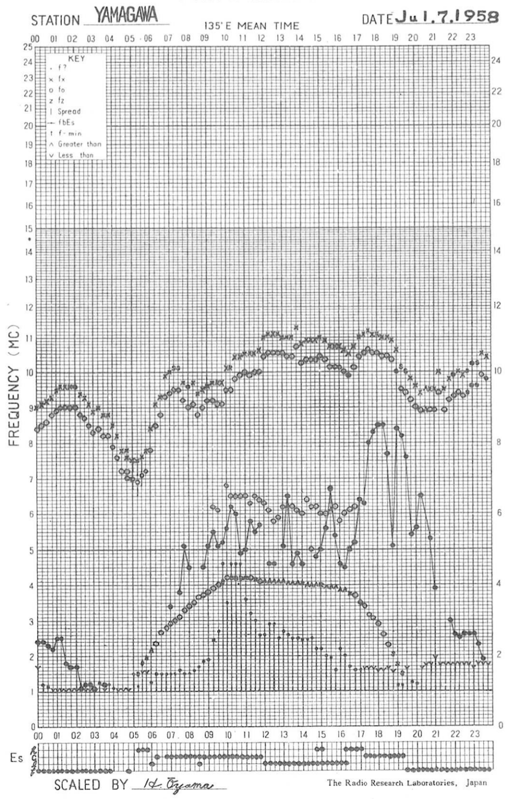

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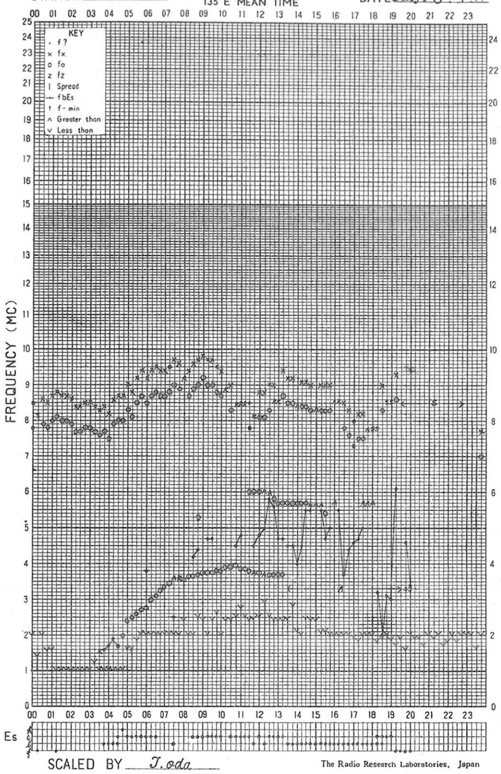
STATION WAKKANAI 135°E MEAN TIME DATE July. 8 . 1958



SCALED BY T. Oda The Radio Research Laboratories, Japan

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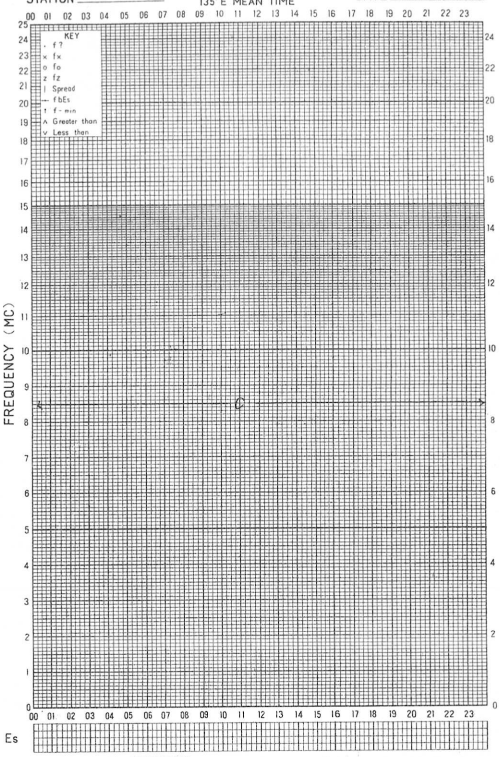

SCALED BY Y.ECHIZENYA The Radio Research Laboratories, Japan

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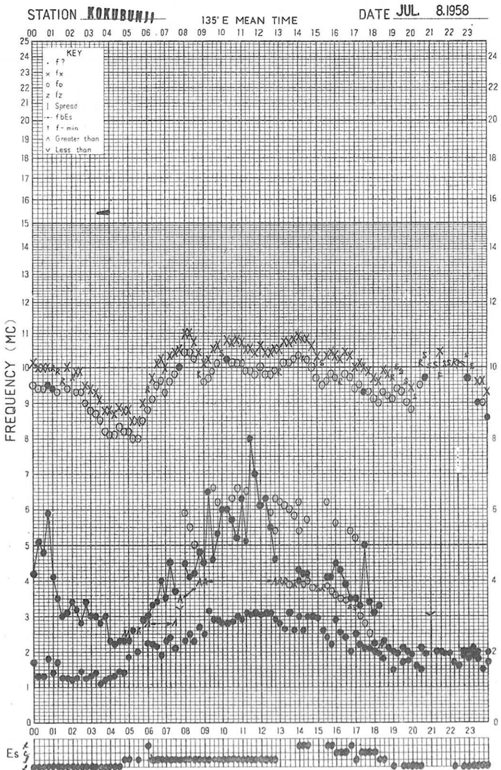

SCALED BY T. Koizumi The Radio Research Laboratories, Japan

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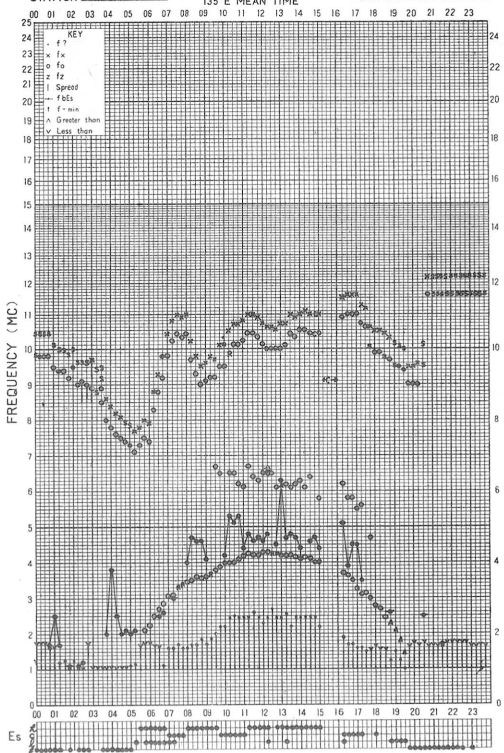

SCALED BY H. Oyama The Radio Research Laboratories, Japan

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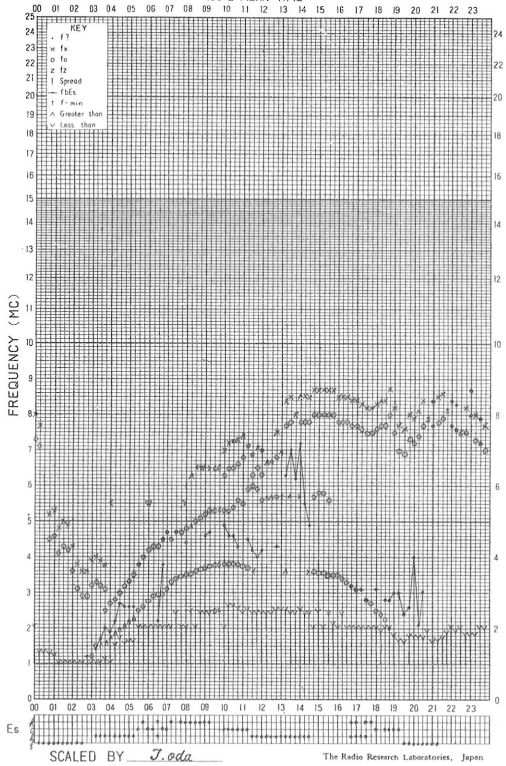
STATION WAKKANAI — 135°E MEAN TIME — DATE July. 9. 1958



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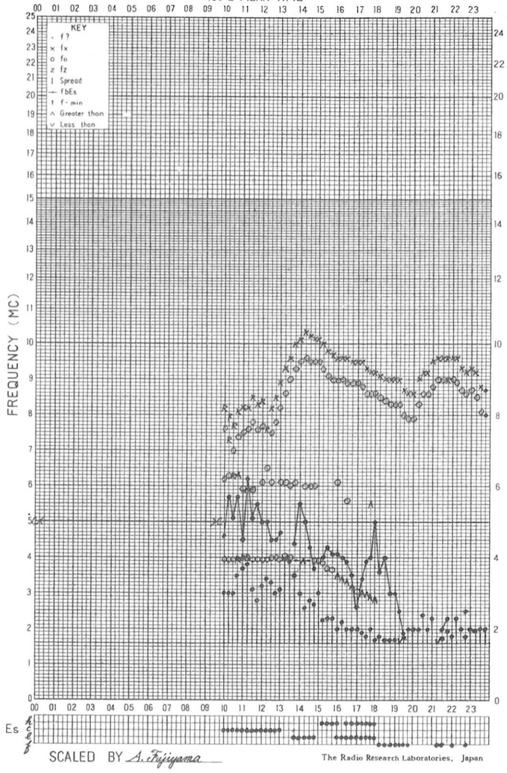

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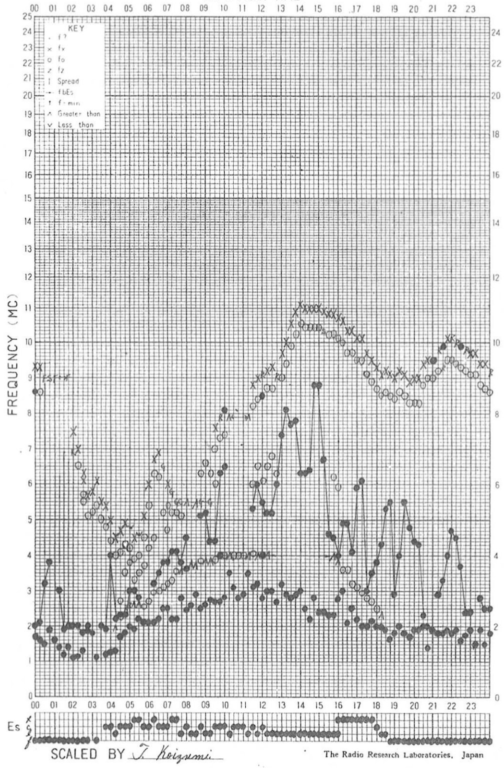

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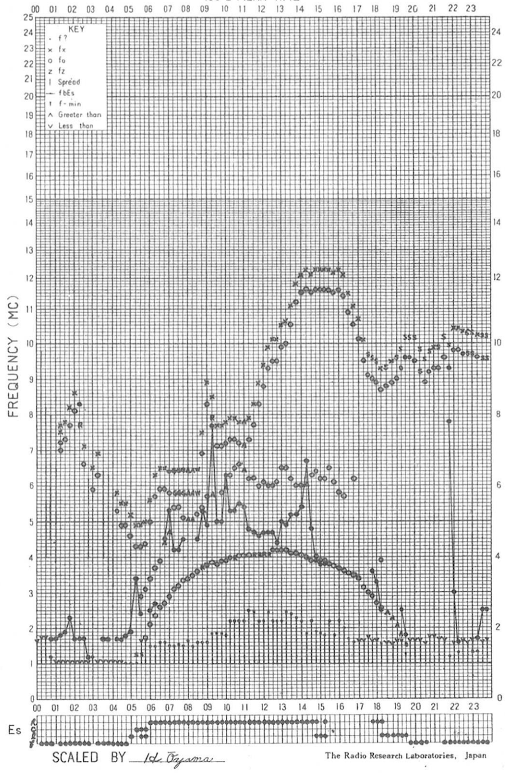

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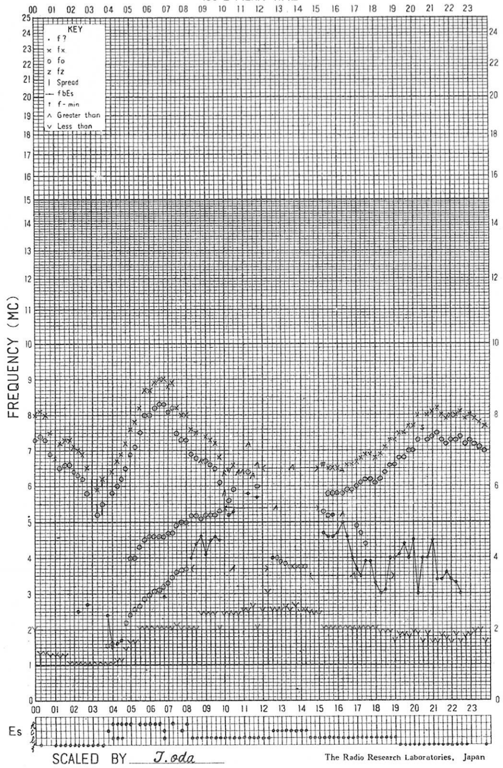

SCALED BY J. oda

The Radio Research Laboratories, Japan

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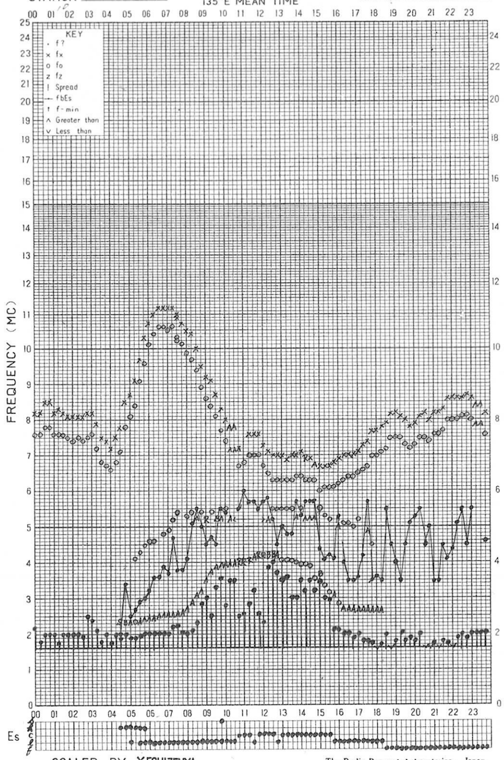

SCALED BY Y.ECHIZENYA

The Radio Research Laboratories, Japan

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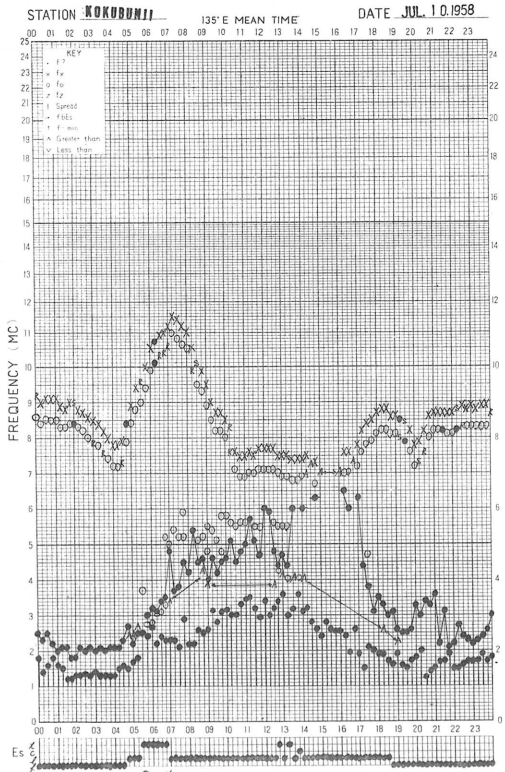

SCALED BY T. Koizumi

The Radio Research Laboratories, Japan

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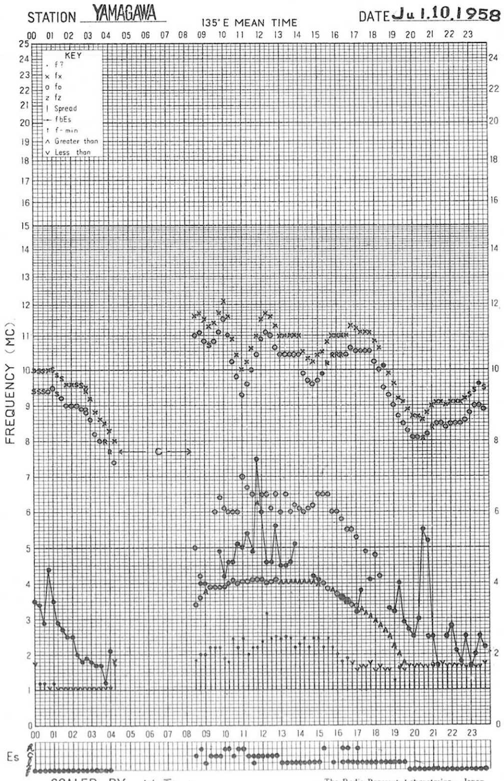
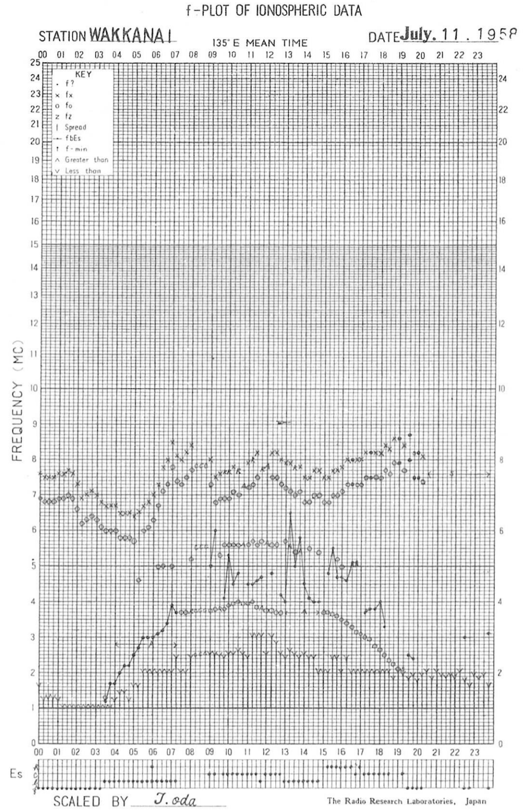


SCALED BY H. Oyama

The Radio Research Laboratories, Japan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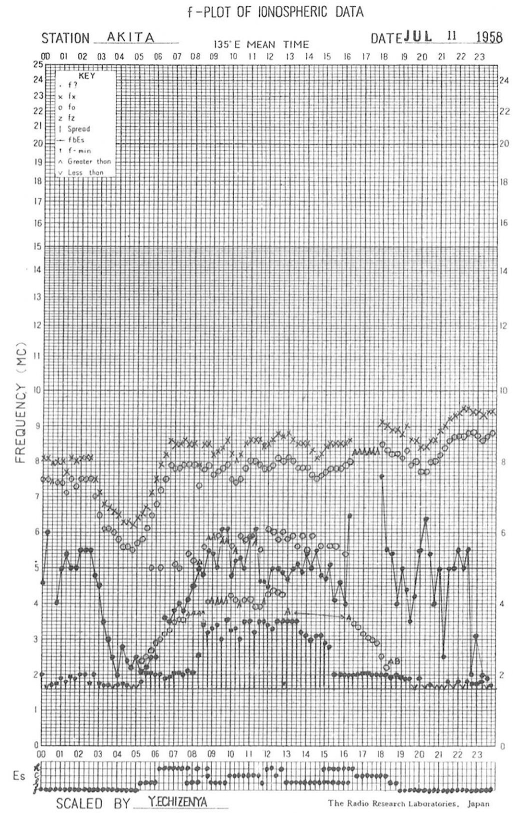
The Radio Research Laboratories, Japan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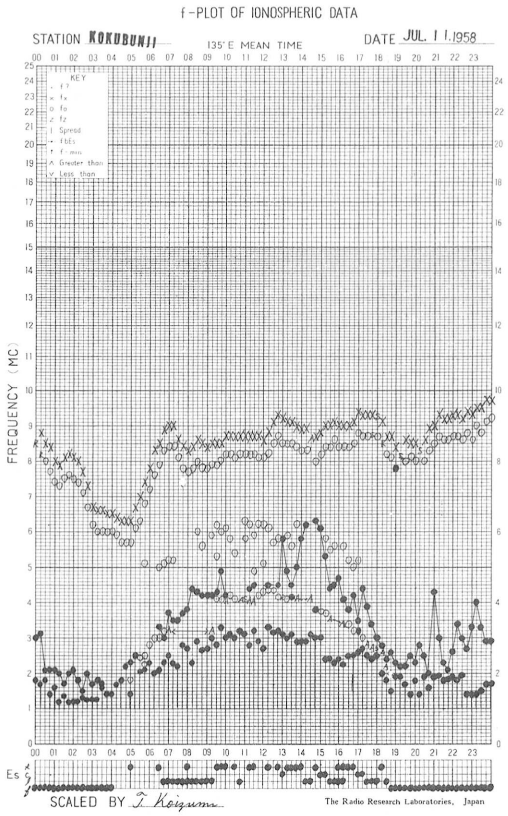
SCALED BY Y.ECHIZENYA
The Radio Research Laboratories, Japan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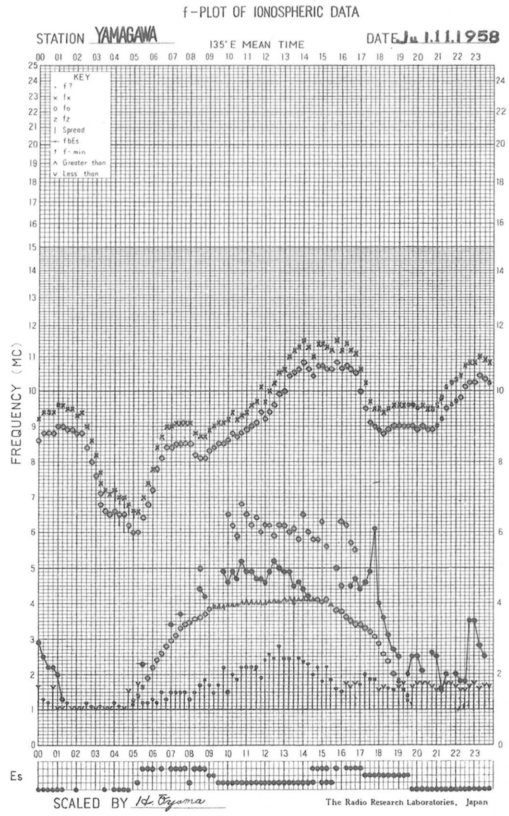
SCALED BY T. Koizumi
The Radio Research Laboratories, Japan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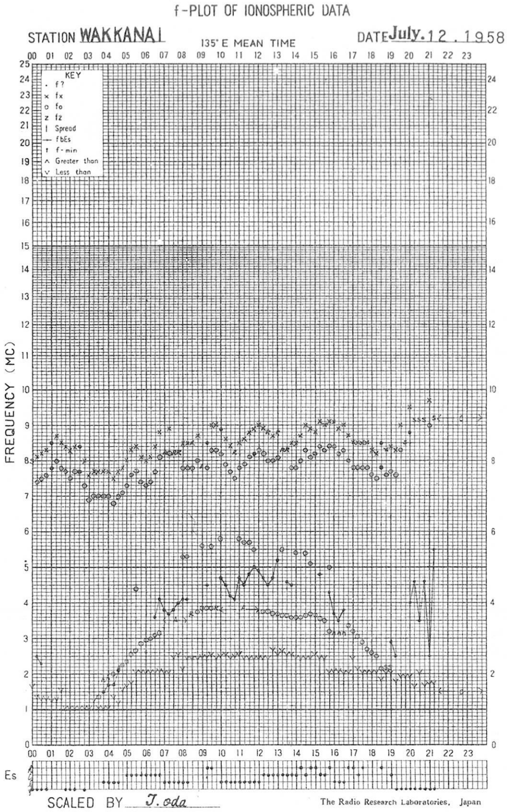
SCALED BY H. Oyama
The Radio Research Laboratories, Japan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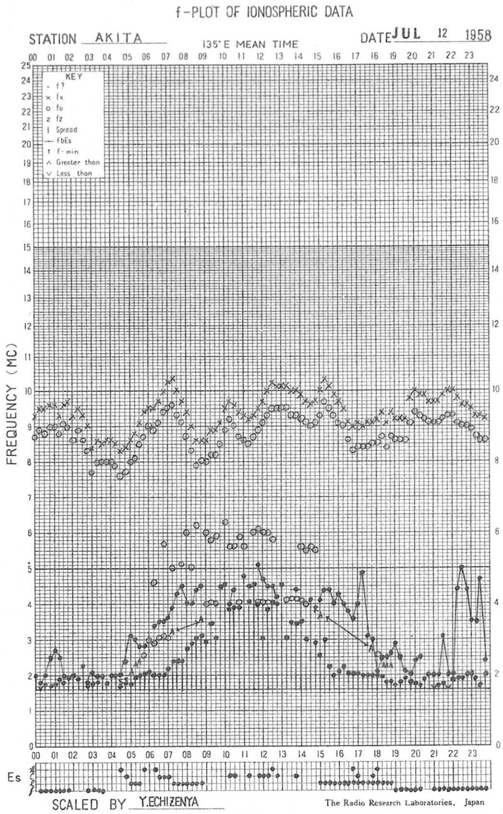
SCALED BY T. Oda
The Radio Research Laboratories, Japan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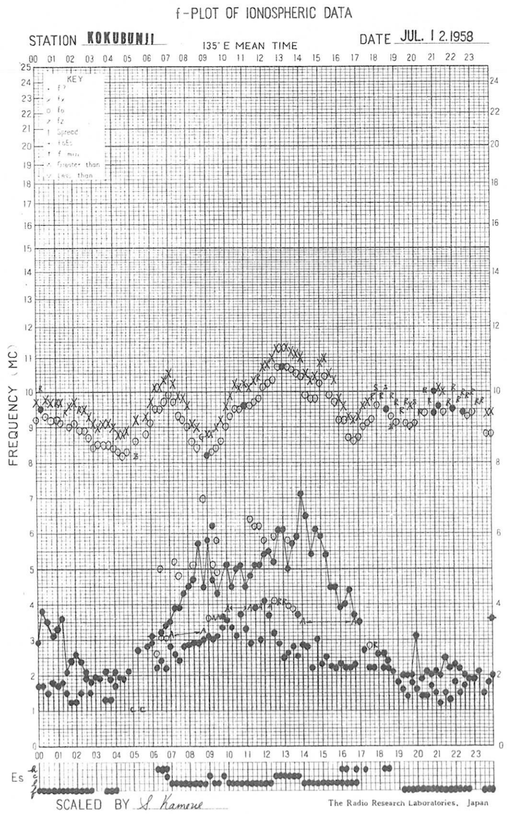
The Radio Research Laboratories, Japan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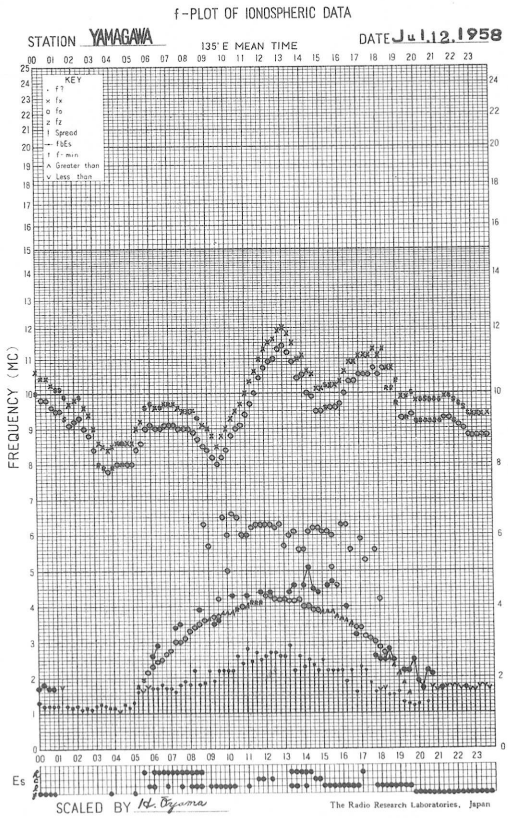
The Radio Research Laboratories, Japan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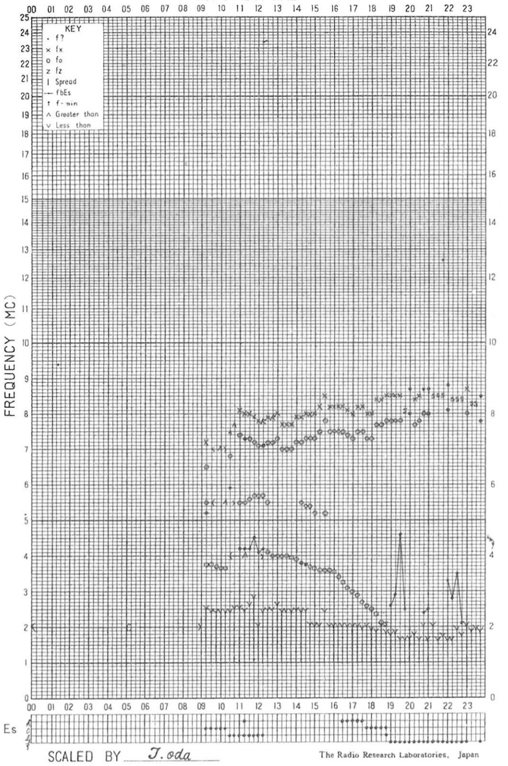

SCALED BY J. oda The Radio Research Laboratories, Japan

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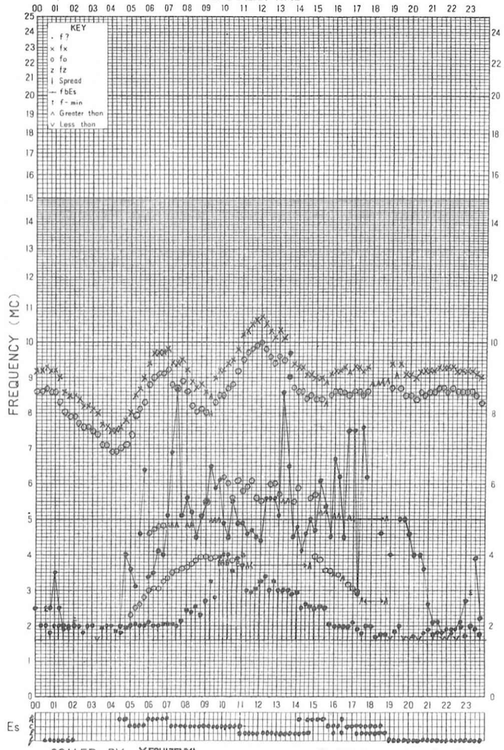
STATION AKITA 135°E MEAN TIME DATE JUL 13 1958



SCALED BY Y.ECHIZENYA The Radio Research Laboratories, Japan

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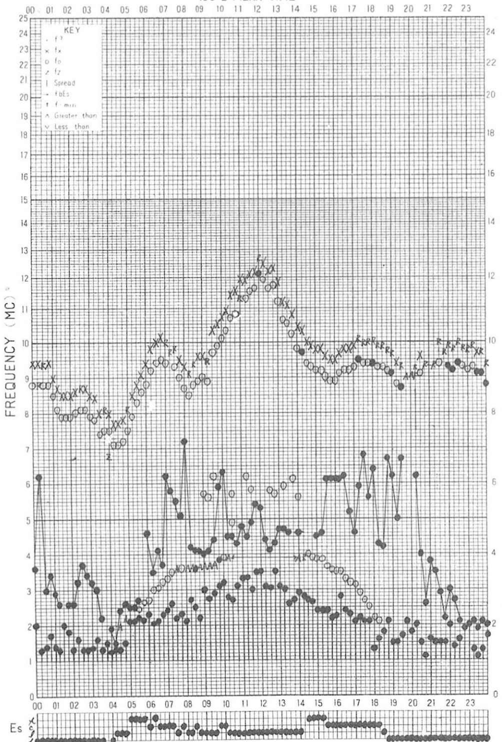
STATION KOKUBUNJI 135°E MEAN TIME DATE JUL. 1 3.1958



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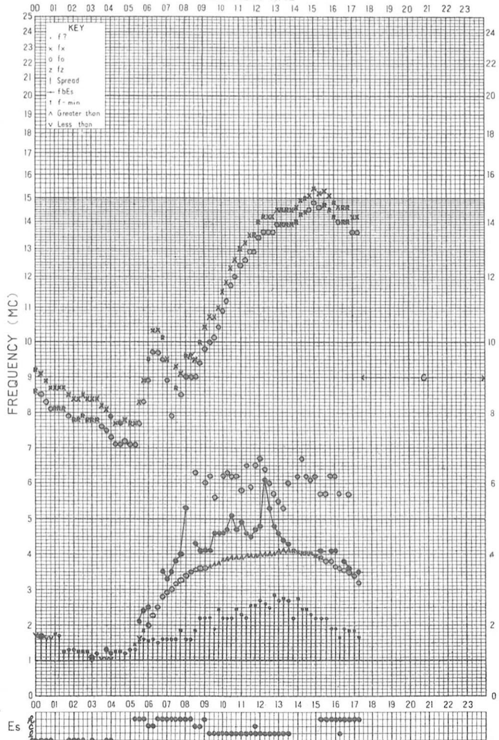

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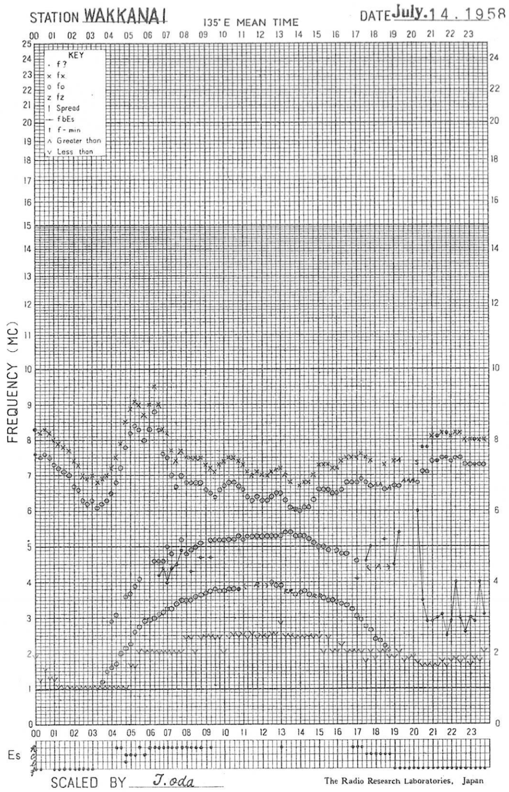

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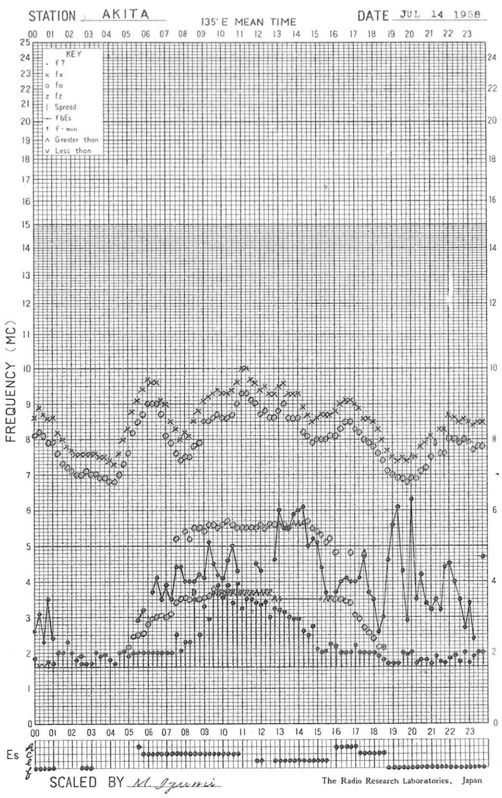

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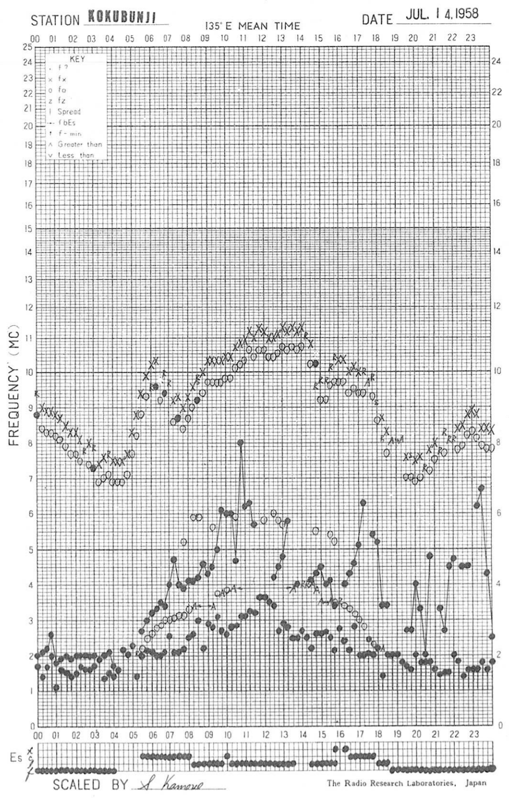

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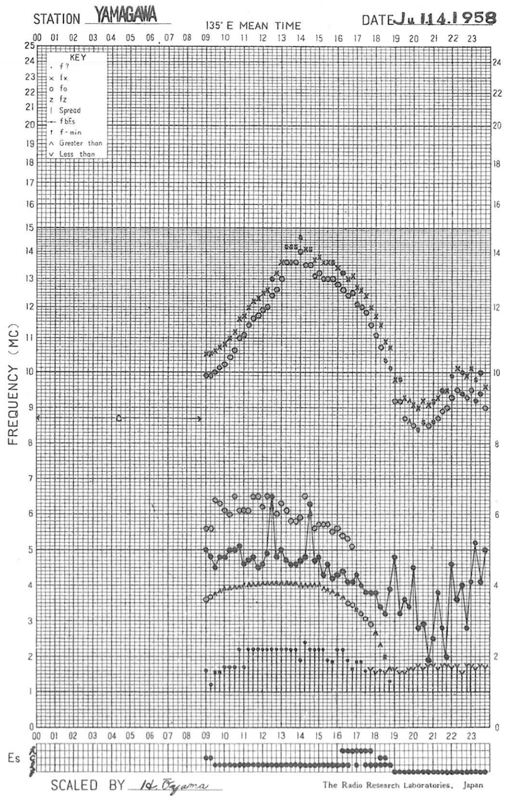

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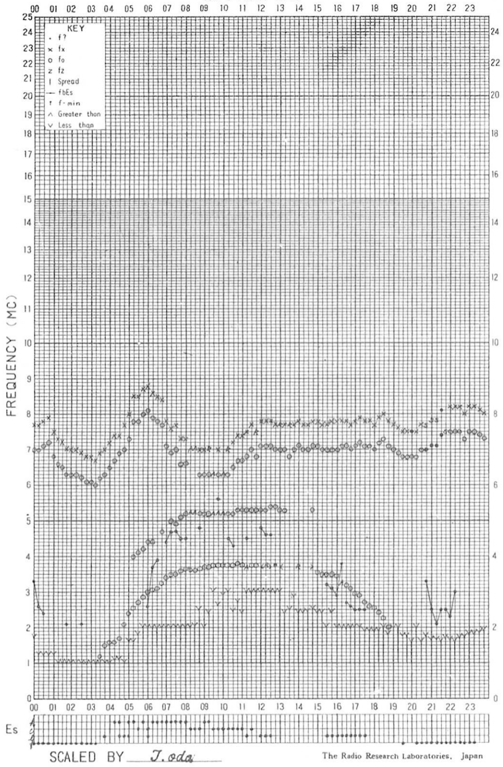

SCALED BY T. oda　The Radio Research Laboratories, Japan

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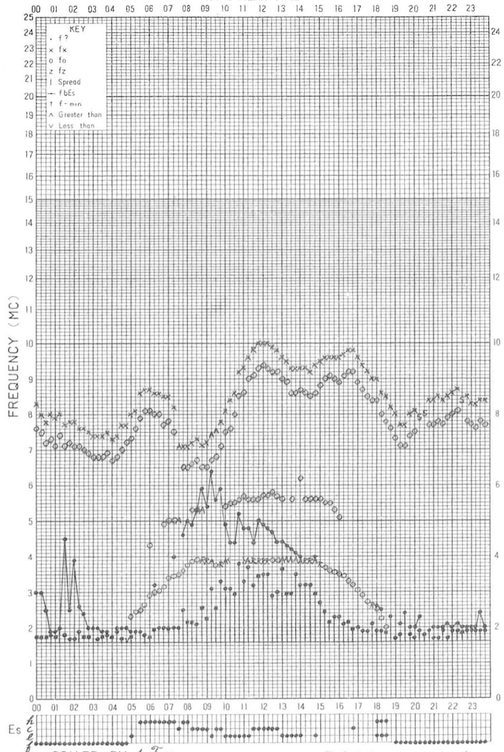

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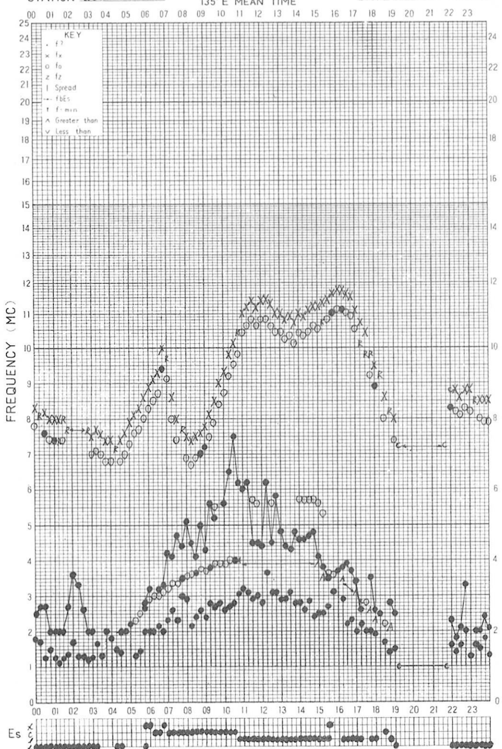

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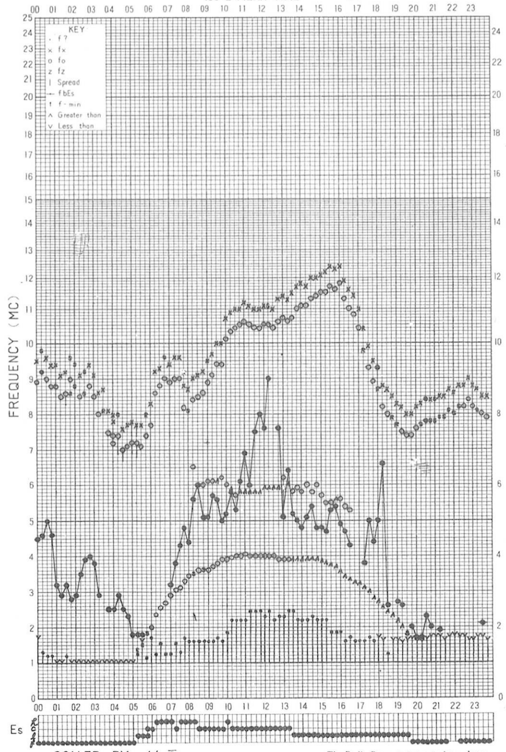

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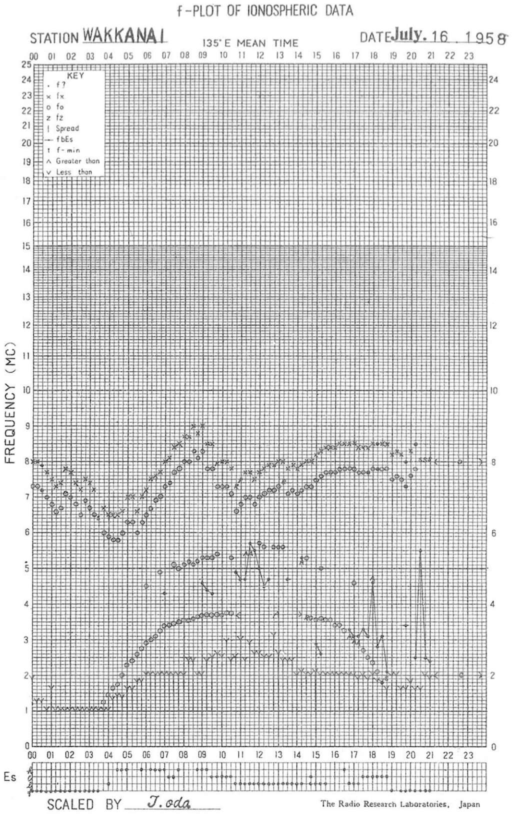
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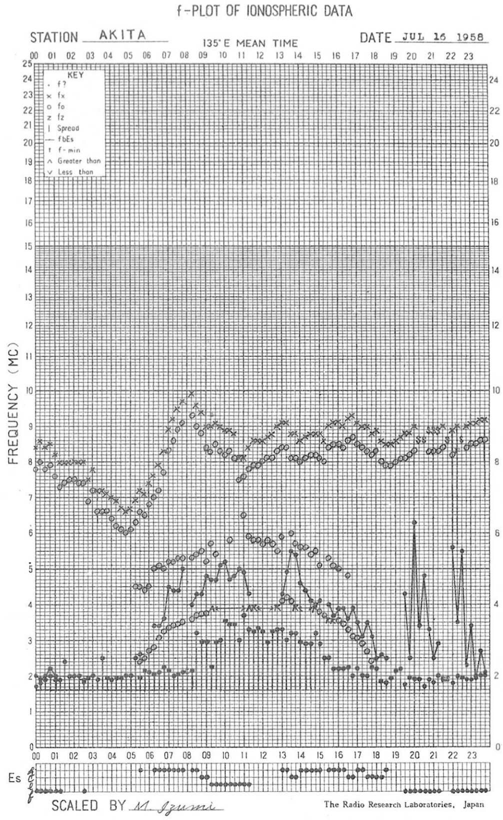
The Radio Research Laboratories, Japan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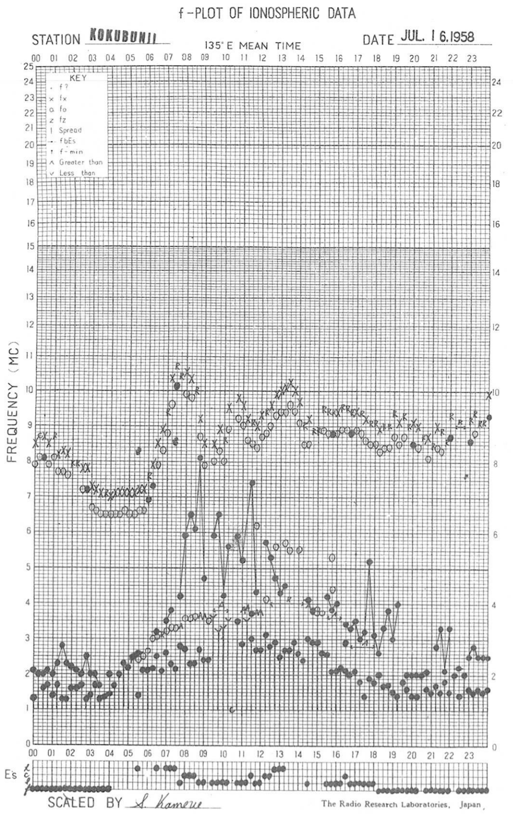
The Radio Research Laboratories, Japan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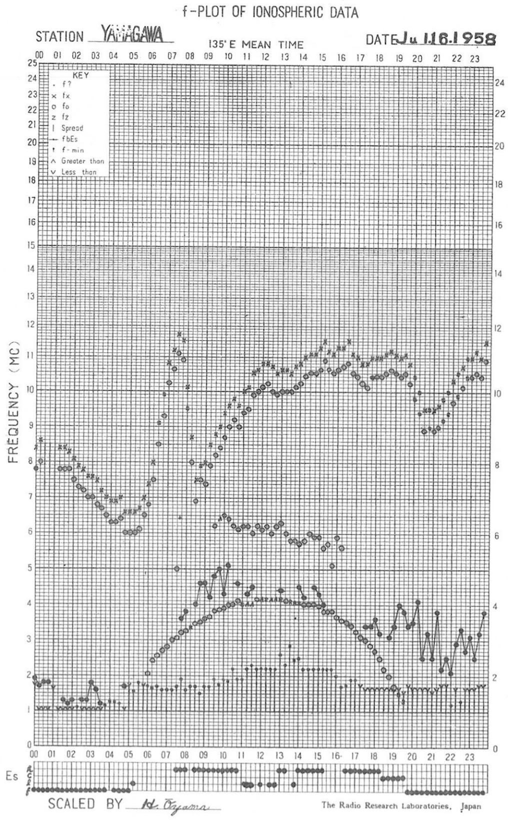
SCALED BY S. Kameue
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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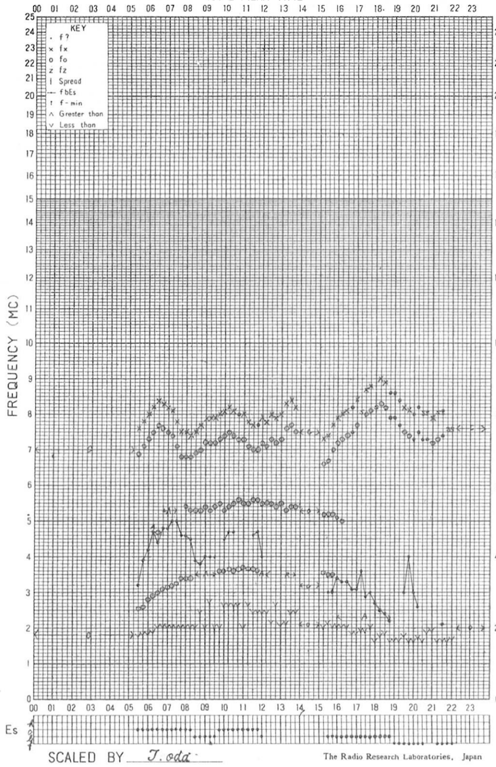

SCALED BY T. Oda   The Radio Research Laboratories, Japan

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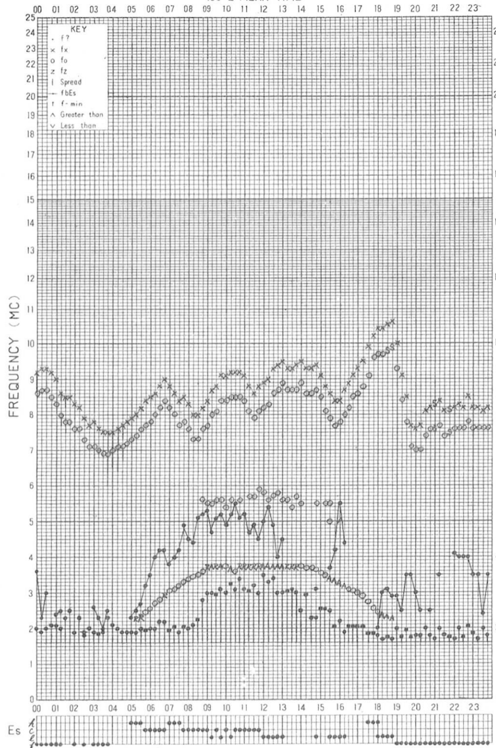

SCALED BY A. Fujiyama   The Radio Research Laboratories, Japan

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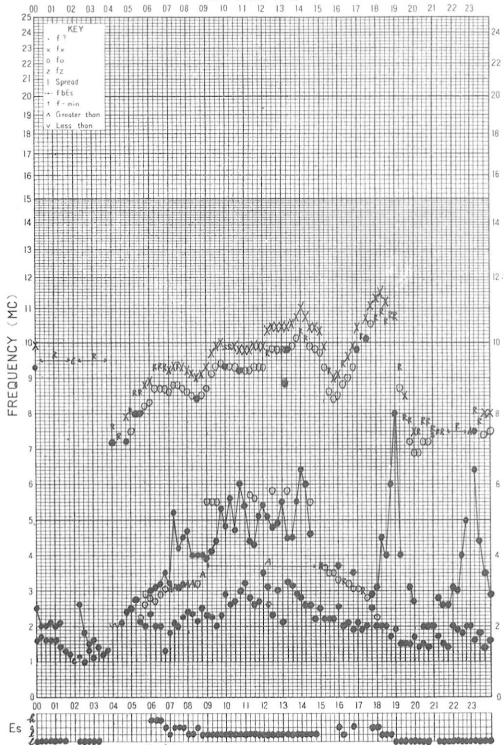

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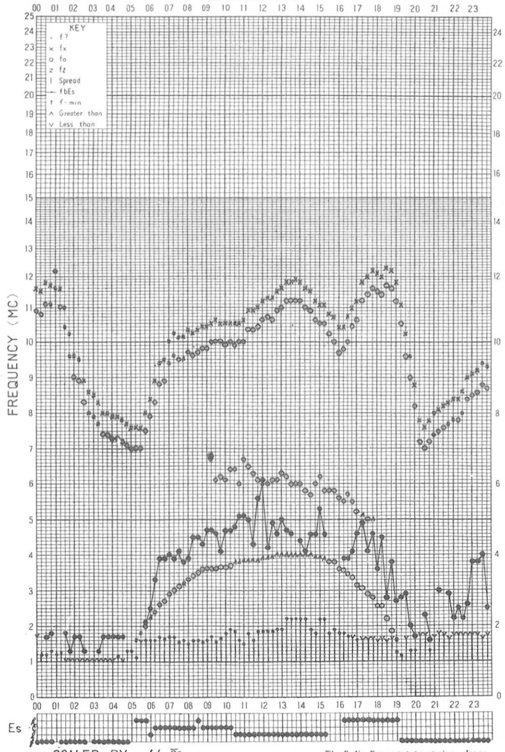

SCALED BY H. Fyama   The Radio Research Laboratories, Japan

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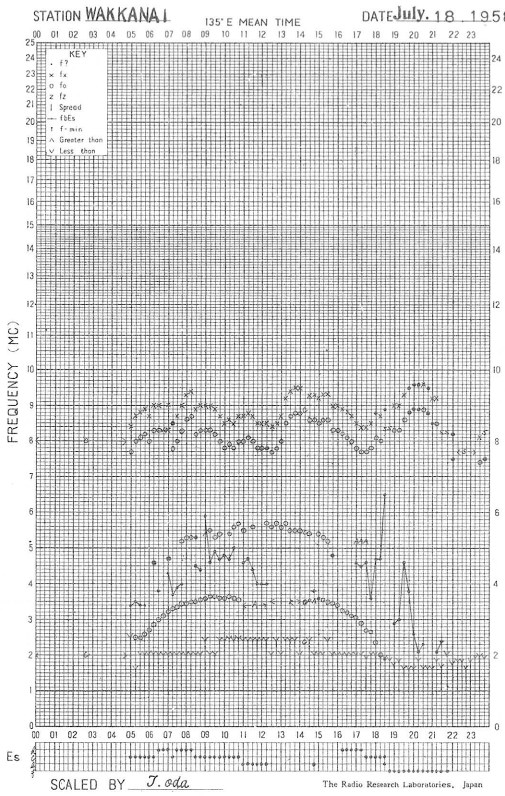

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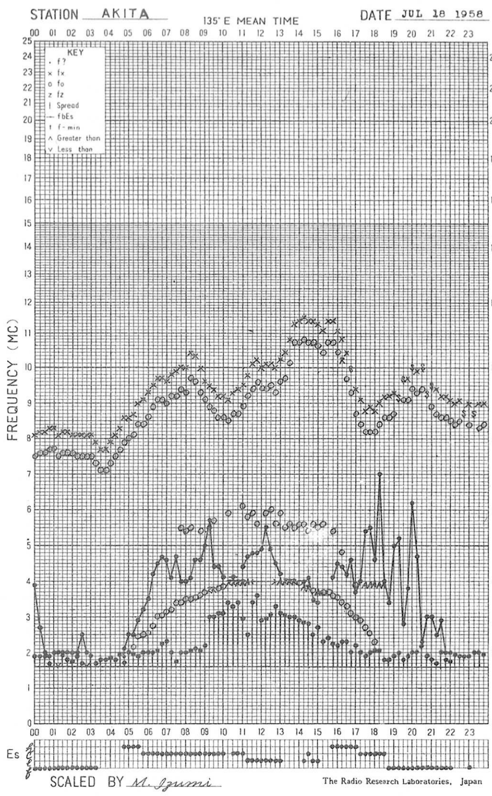

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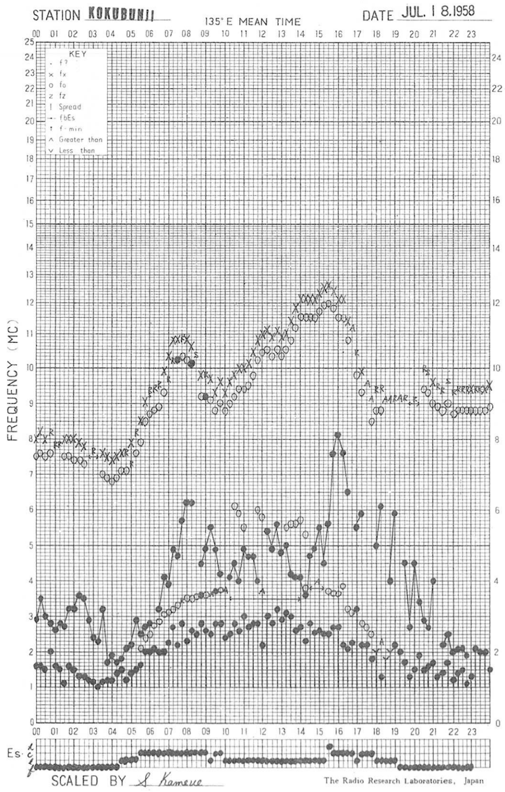

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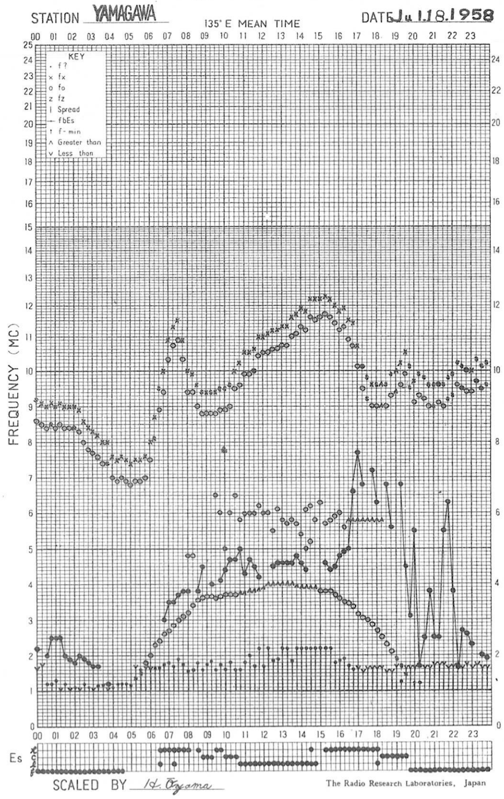

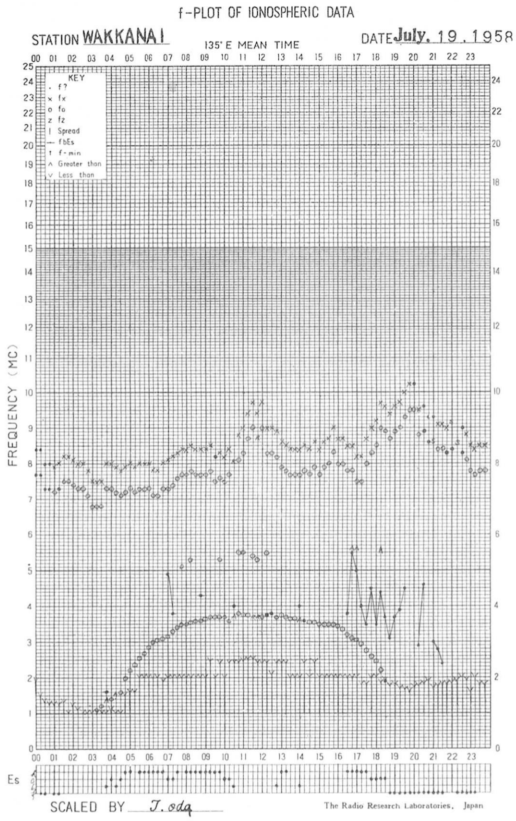
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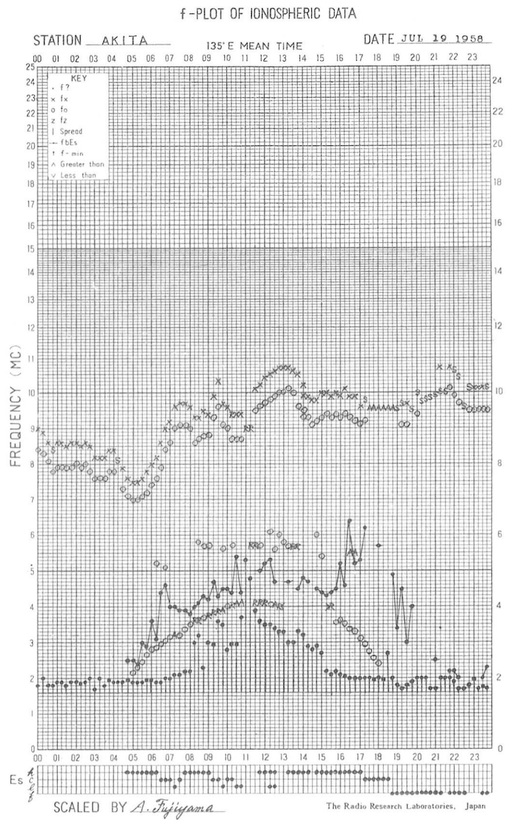
SCALED BY T. oda
The Radio Research Laboratories, Japan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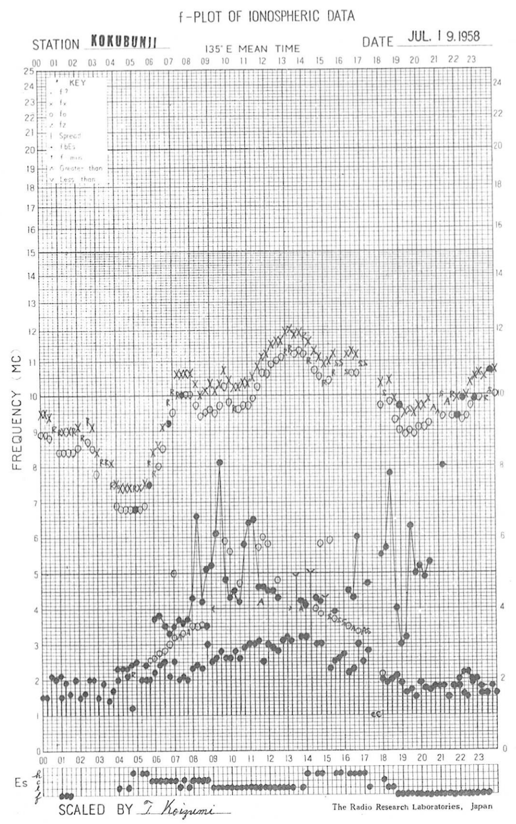
The Radio Research Laboratories, Japan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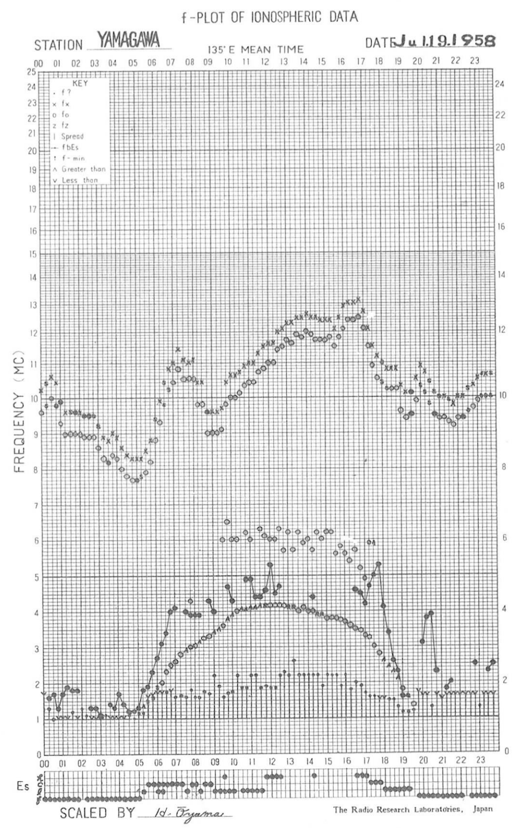
The Radio Research Laboratories, Japan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SCALED BY H. Oyama
The Radio Research Laboratories, Japan

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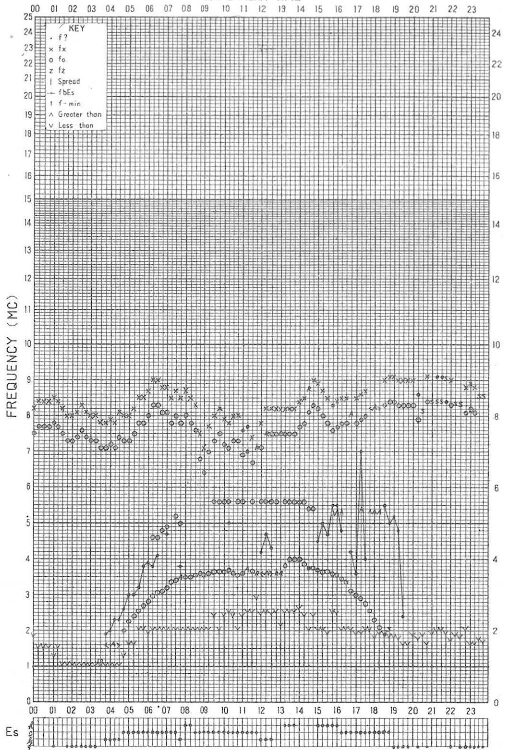

SCALED BY J. Oda   The Radio Research Laboratories, Japan

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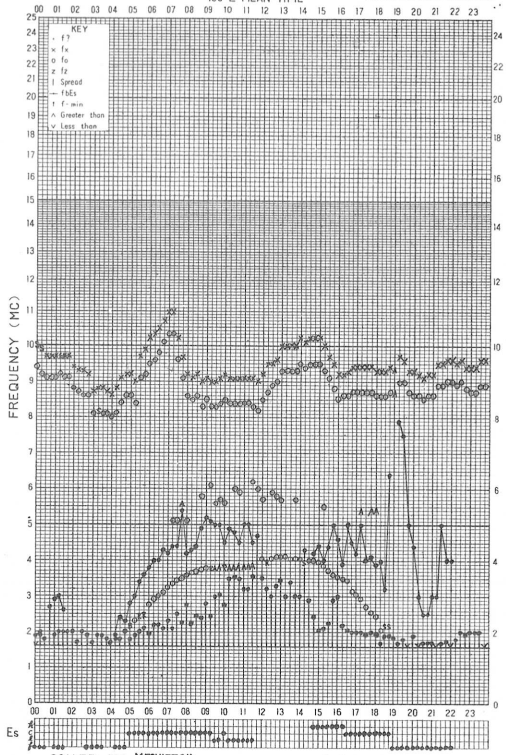

SCALED BY Y.ECHIZENYA   The Radio Research Laboratories, Japan

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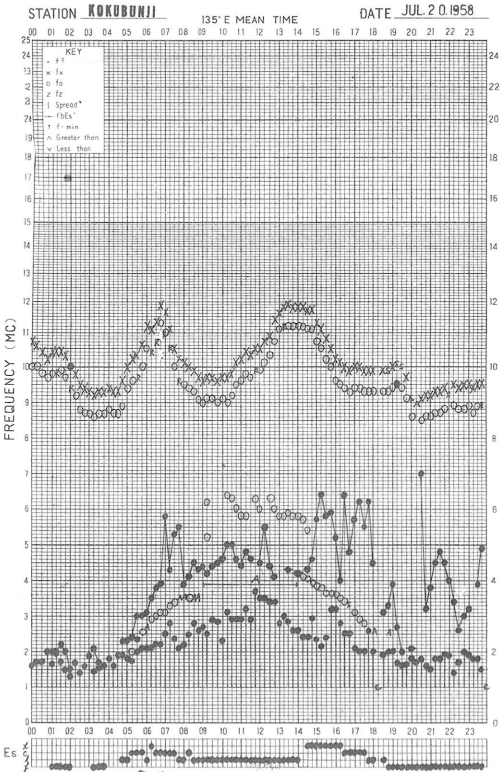

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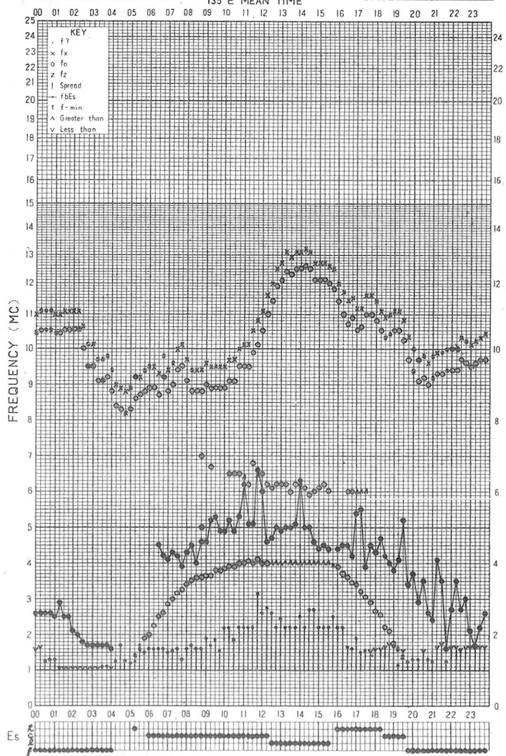

SCALED BY H. Oyama   The Radio Research Laboratories, Japan

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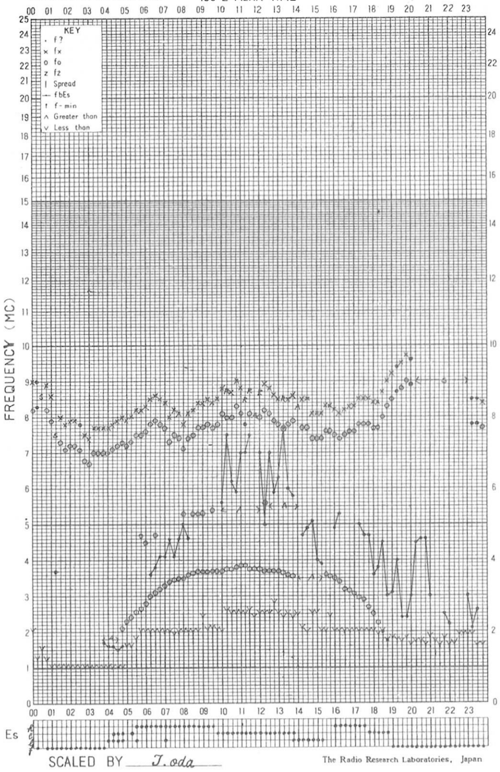

SCALED BY T. oda The Radio Research Laboratories, Japan

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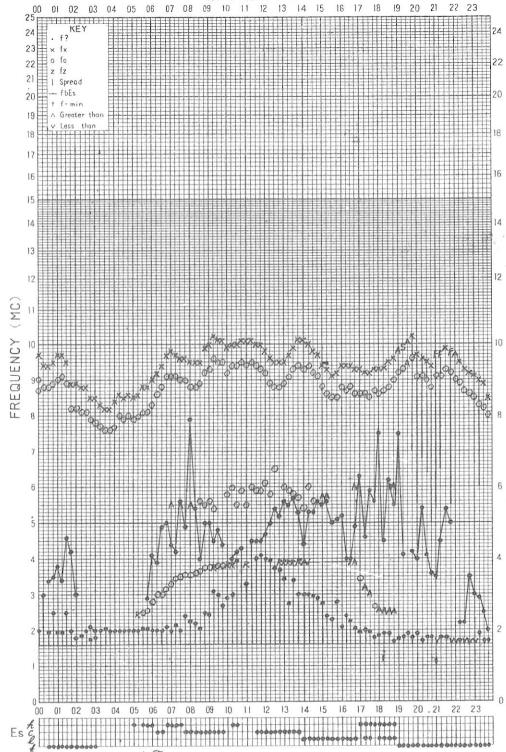

SCALED BY A. Fujiyama The Radio Research Laboratories, Japan

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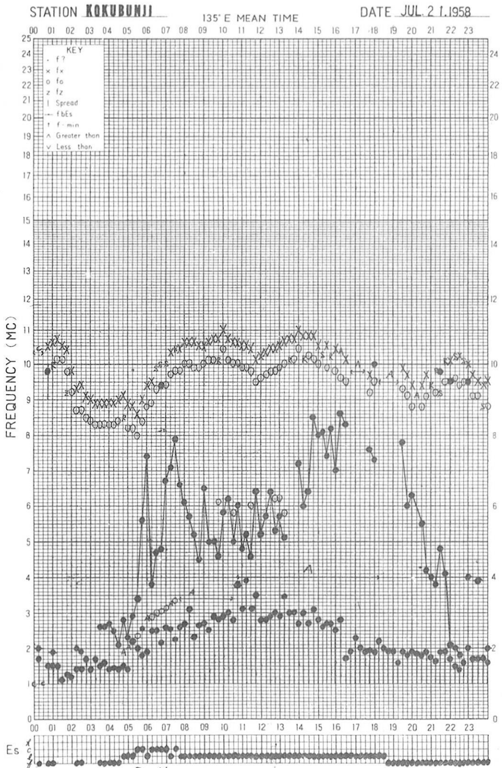

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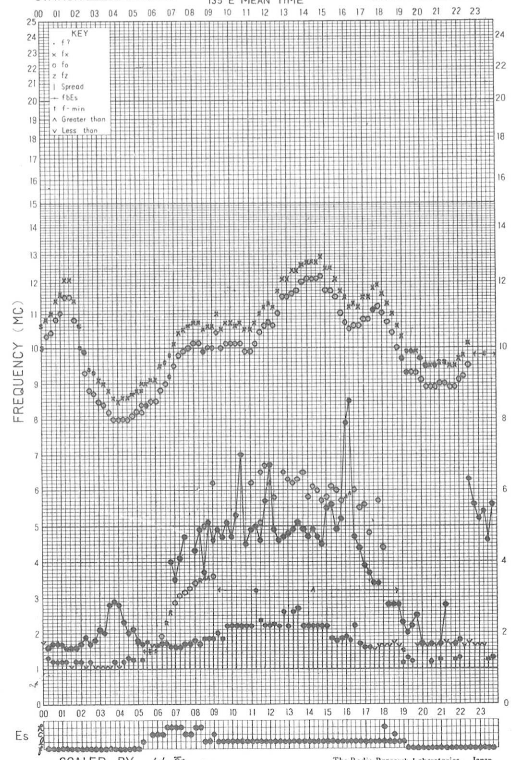

SCALED BY H. Oyama The Radio Research Laboratories, Japan

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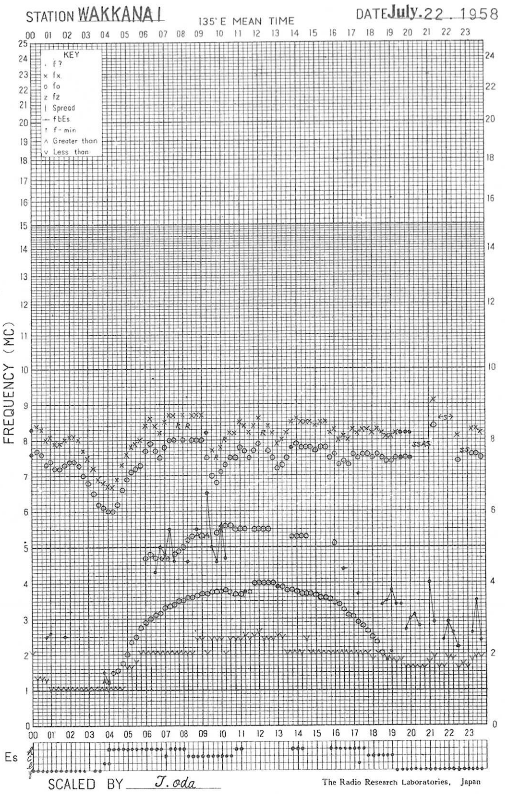

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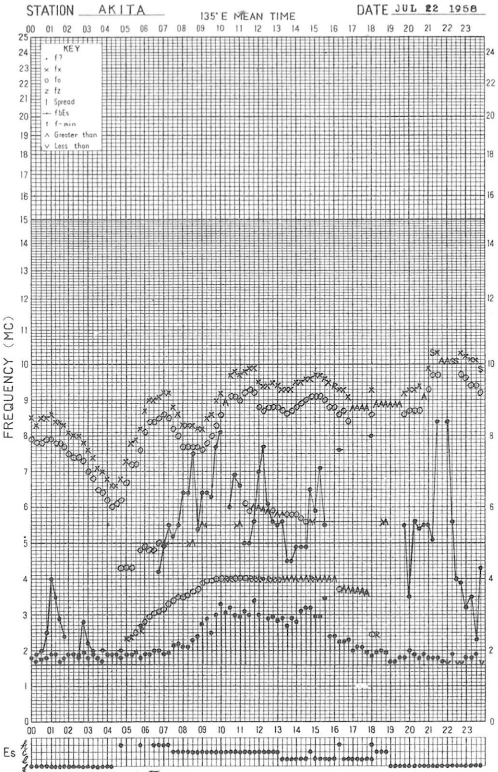

SCALED BY A. Fujiyama The Radio Research Laboratories, Japan

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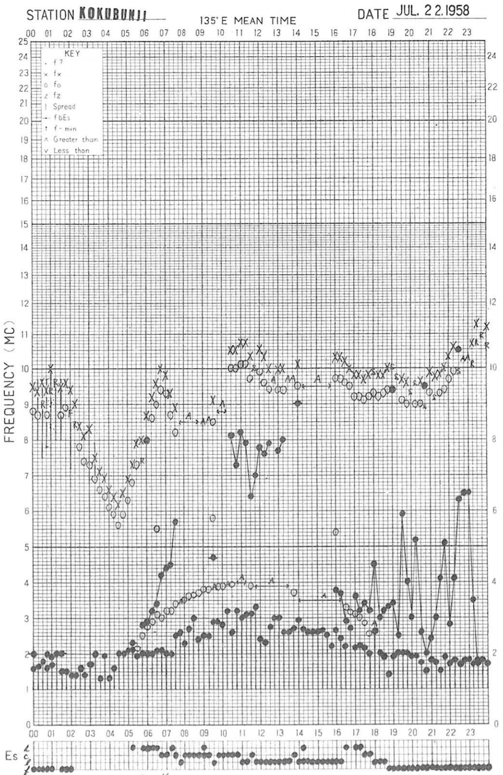

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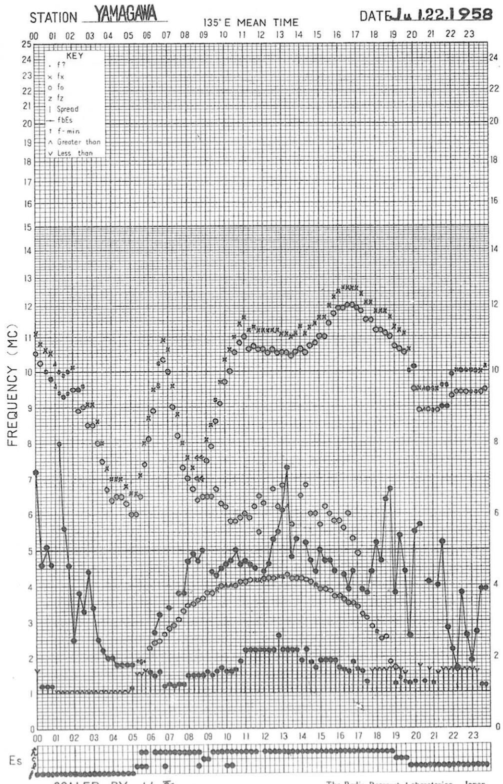

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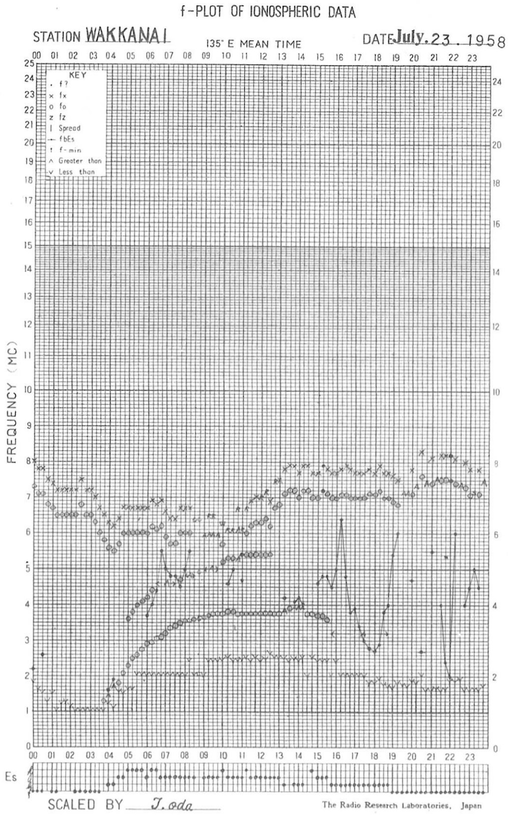

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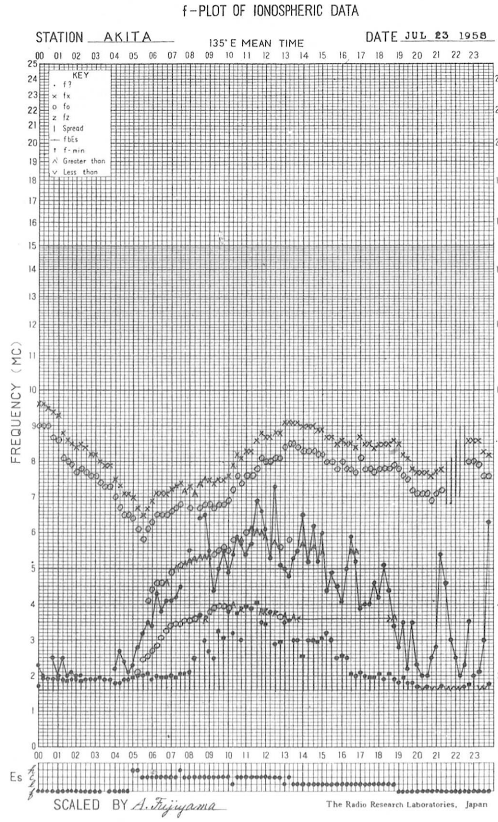
The Radio Research Laboratories, Japan



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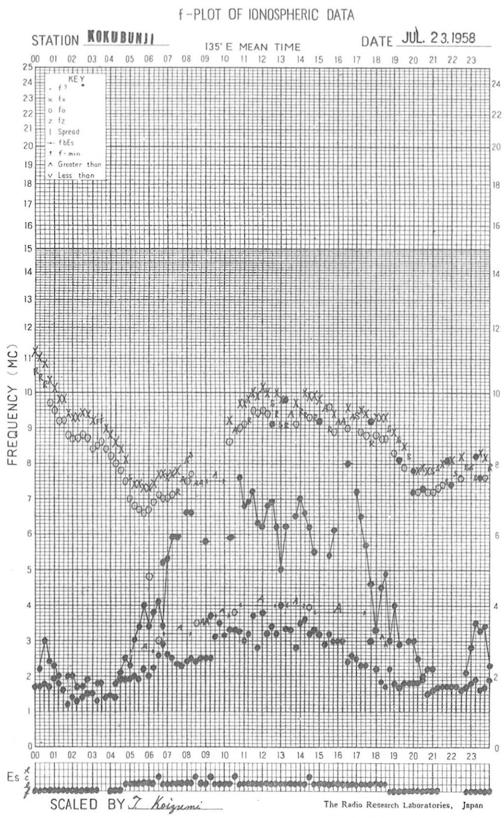
The Radio Research Laboratories, Japan



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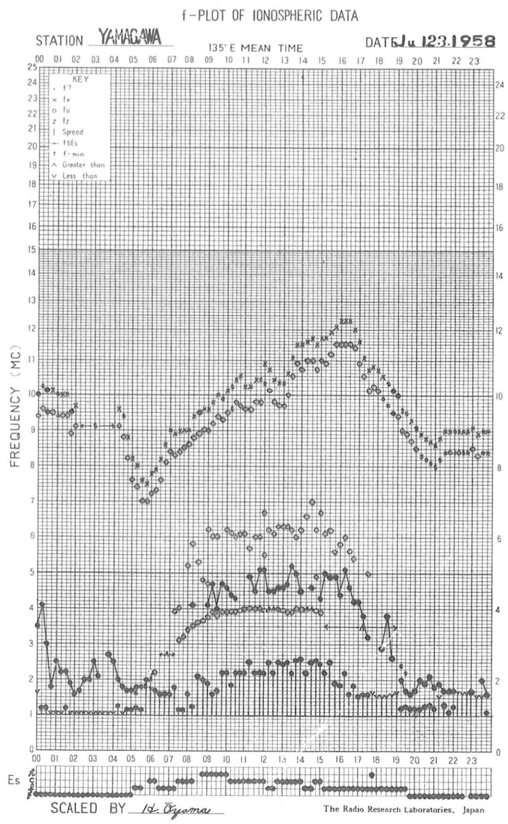
SCALED BY T. Koizumi
The Radio Research Laboratories, Japan



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SCALED BY H. Oyama
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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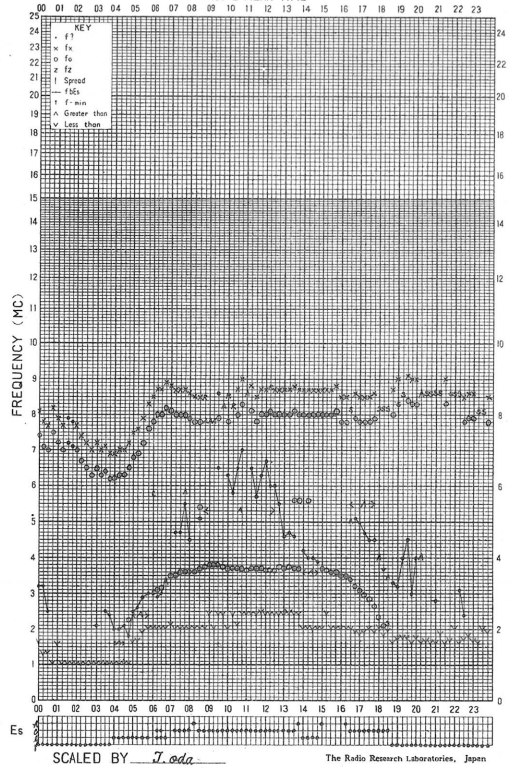

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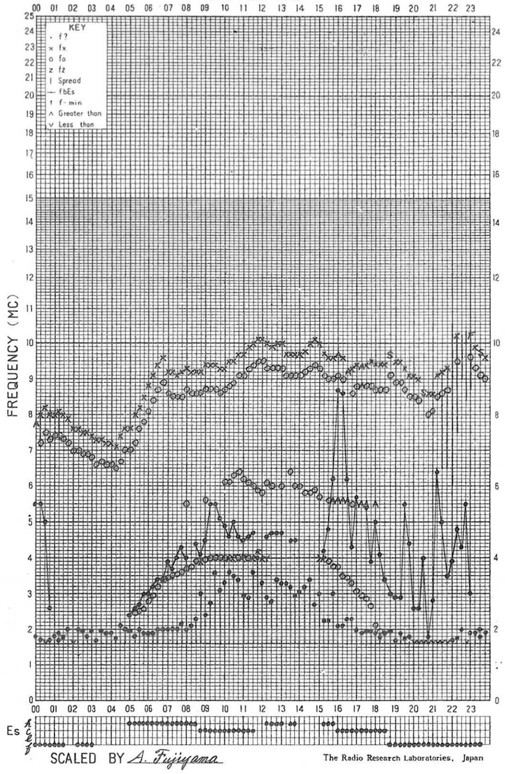

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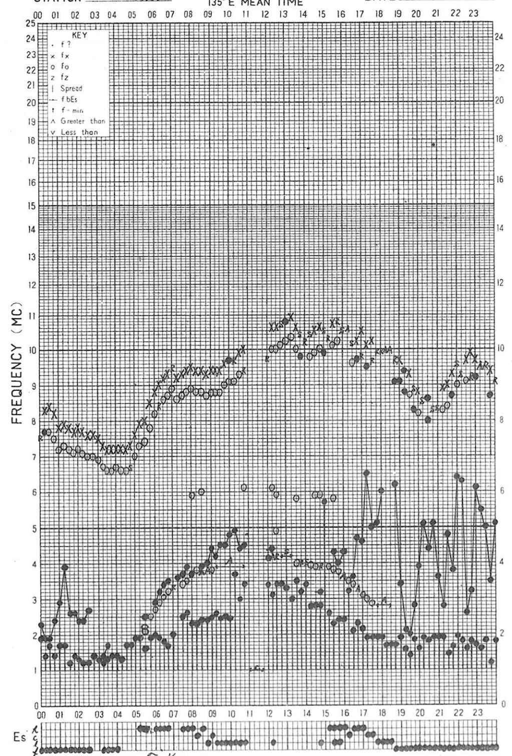

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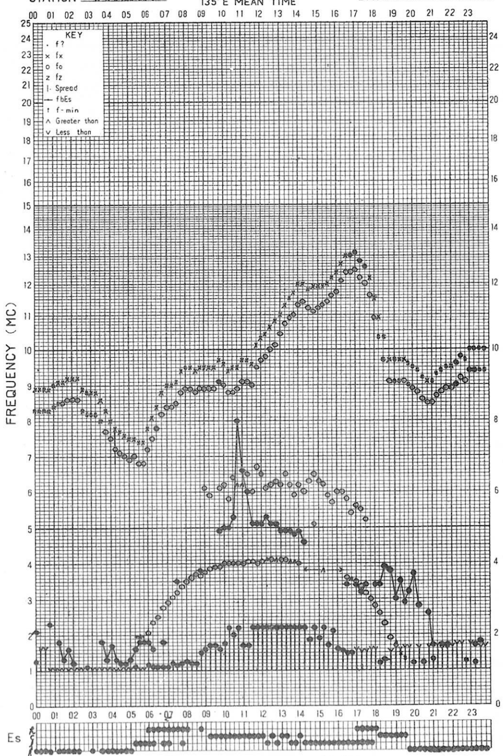

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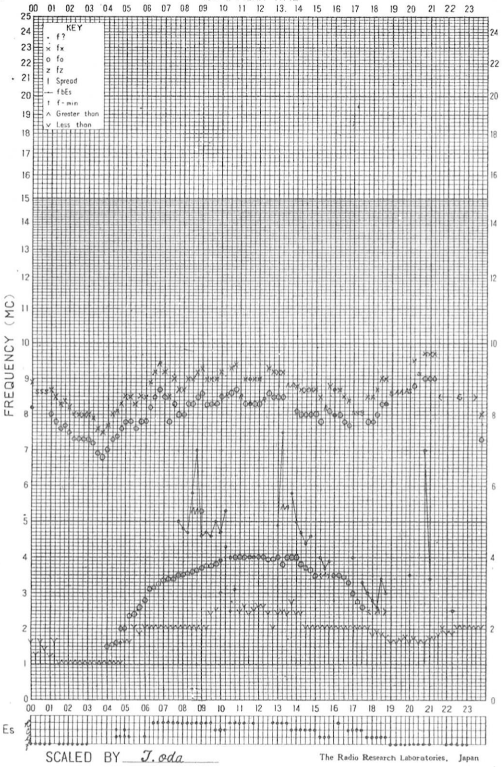

SCALED BY T. oda   The Radio Research Laboratories, Japan

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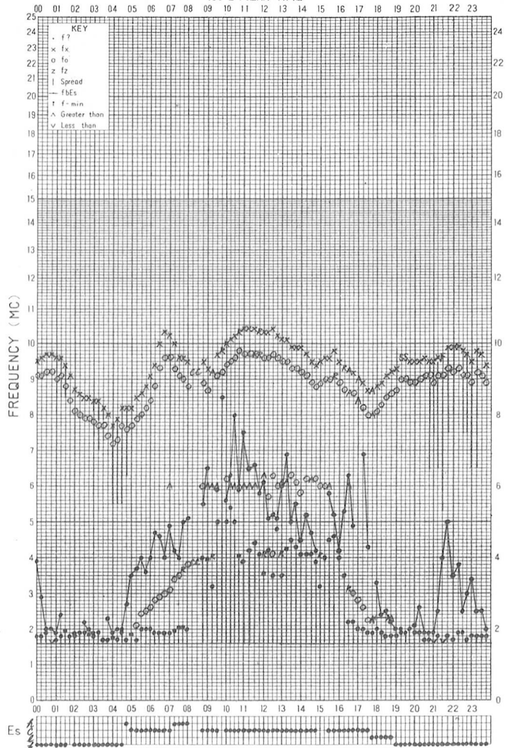
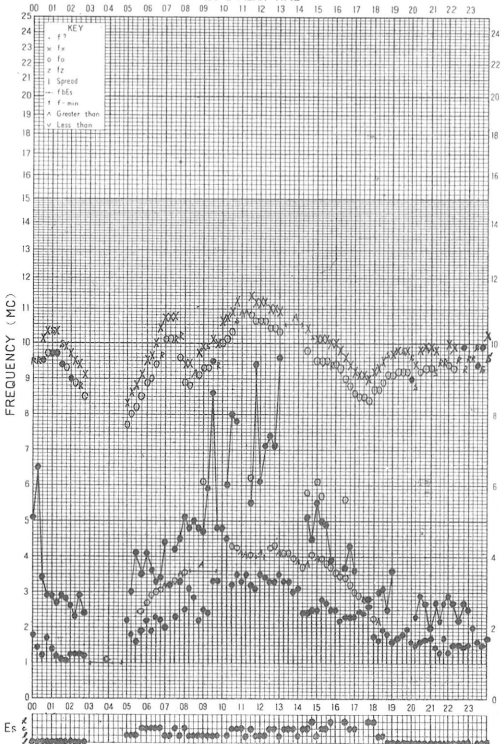
STATION AKITA   135°E MEAN TIME   DATE JUL 25 1958



SCALED BY   The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

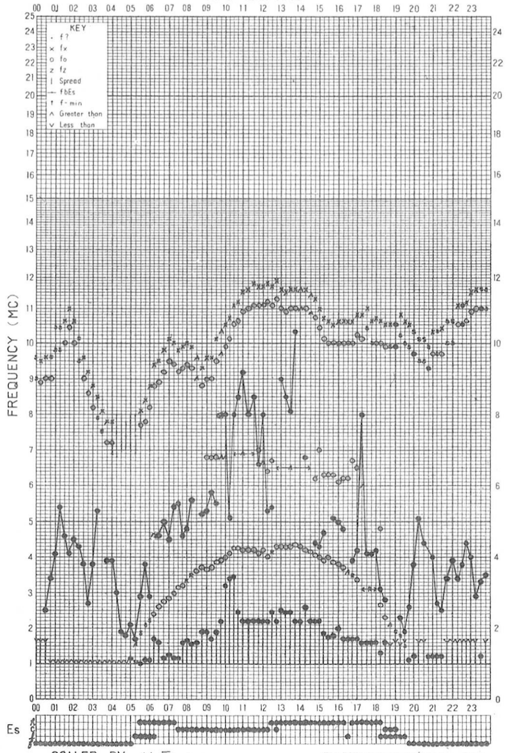
STATION KOKUBUNJI   135°E MEAN TIME   DATE JUL. 25.1958



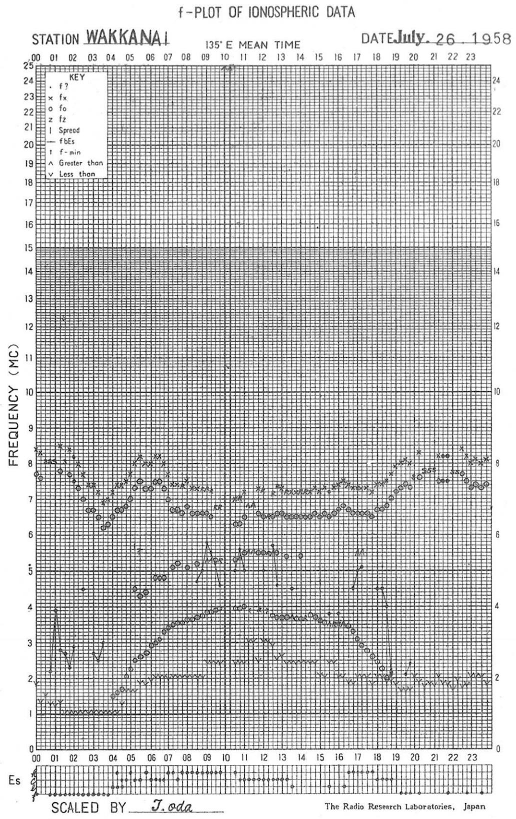
SCALED BY T. Koizumi   The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA   135°E MEAN TIME   DATE Ju l.25.1958



SCALED BY H. Oyama   The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE July. 26. 1958
KEY
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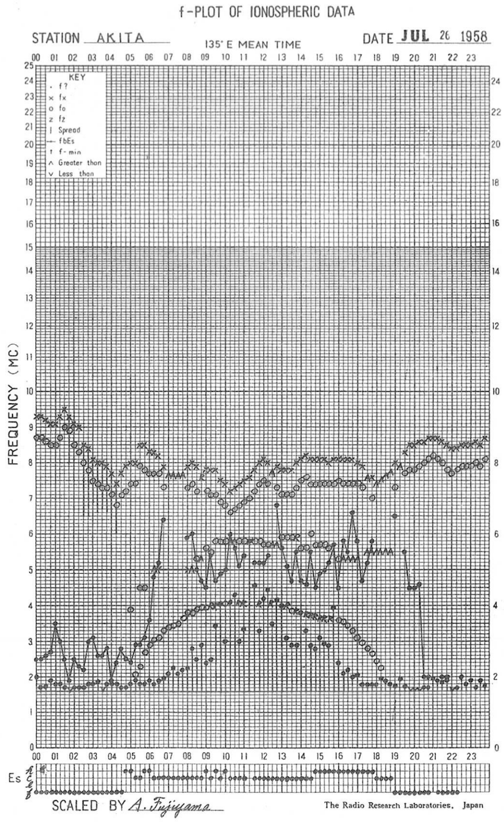
Greater than
Less than
FREQUENCY (MC)
Es
SCALED BY J. oda
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE JUL 26 1958
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Greater than
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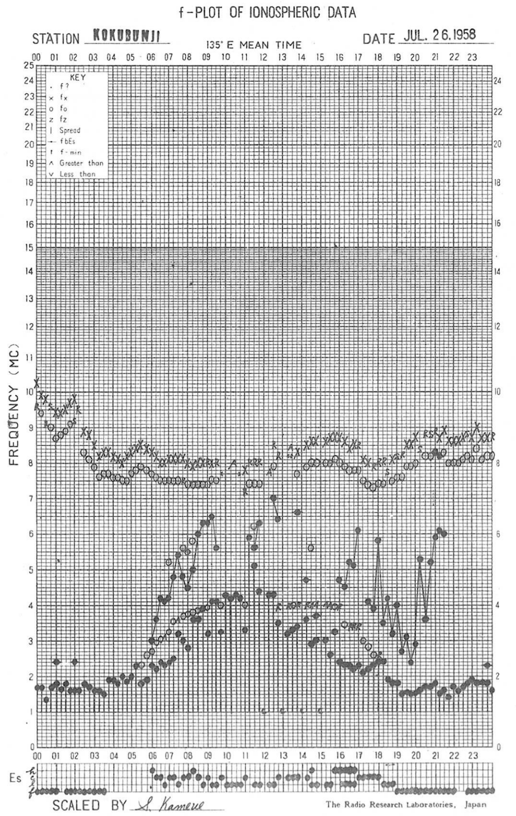
FREQUENCY (MC)
Es
SCALED BY A. Fujiyama
The Radio Research Laboratories, Japan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STATION KOKUBUNJI
135° E MEAN TIME
DATE JUL. 26.1958
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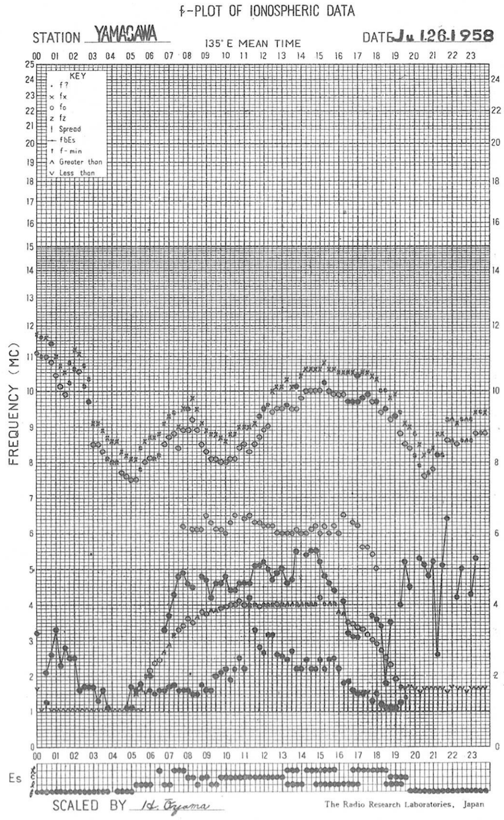
SCALED BY S. Kameue
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE Jul 26 1958
KEY
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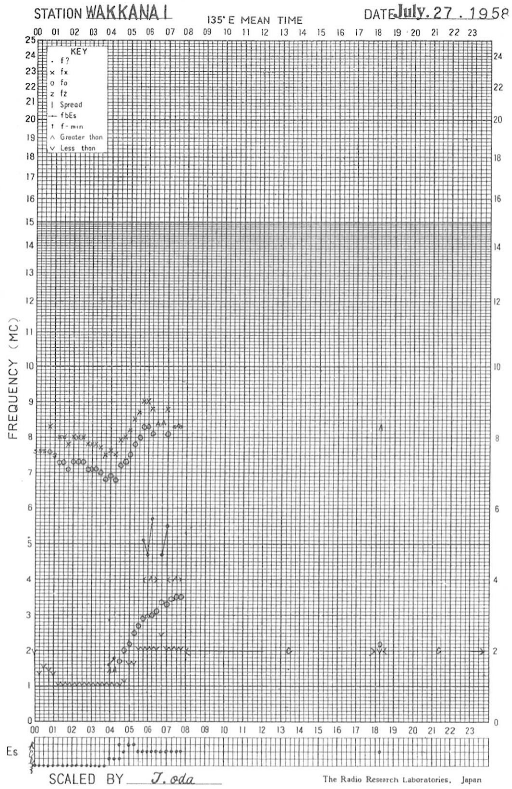
FREQUENCY (MC)
Es
SCALED BY H. Oyama
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA



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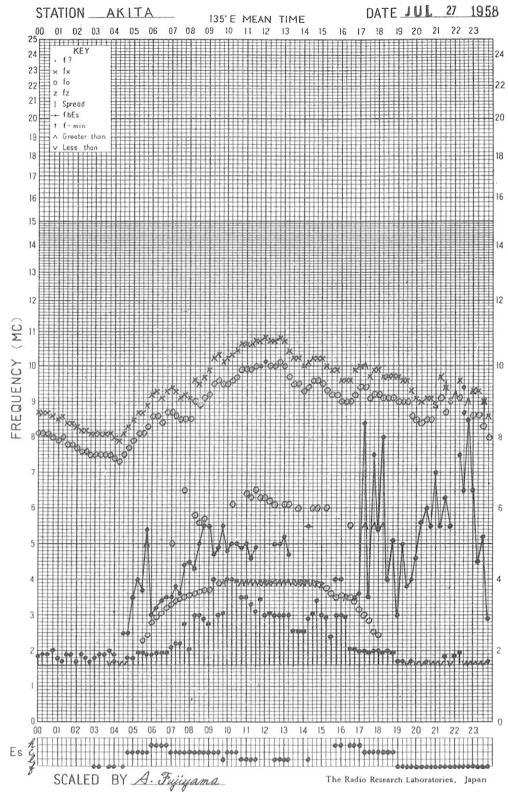

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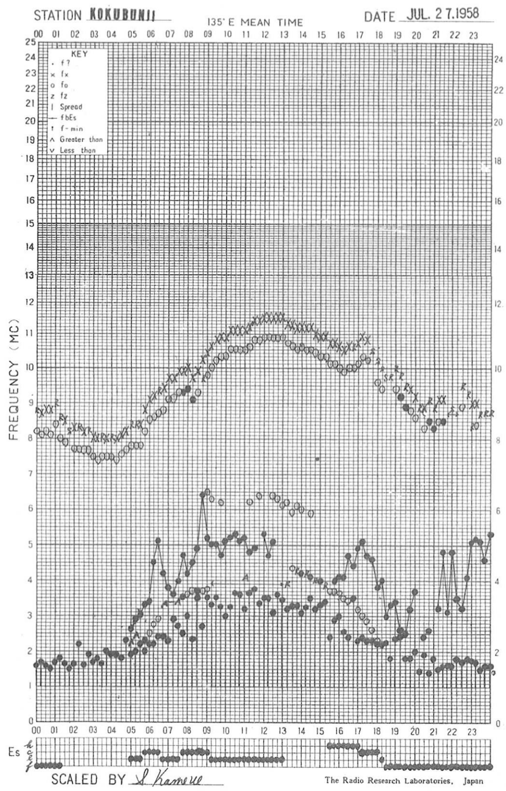

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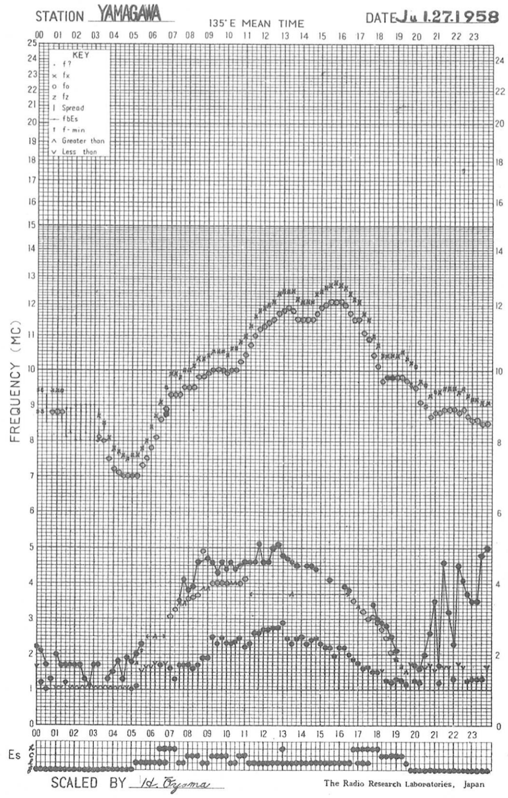

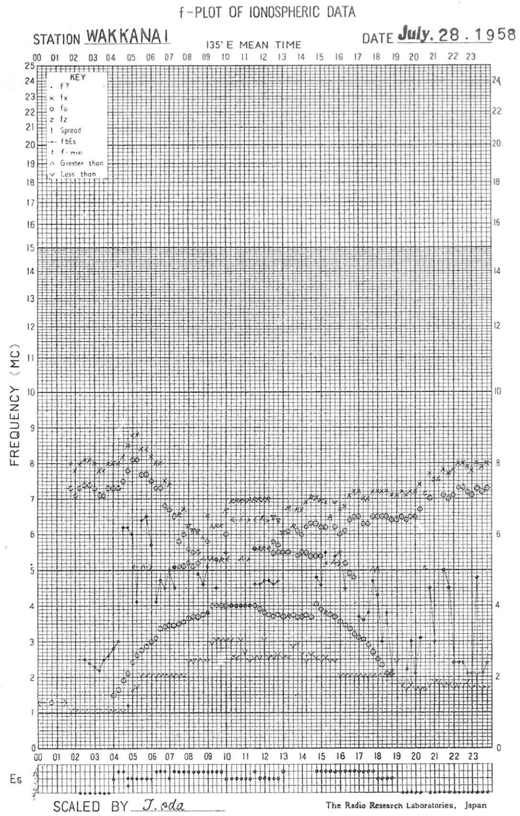
f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE July. 28 . 1958
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v Less than
FREQUENCY (MC)
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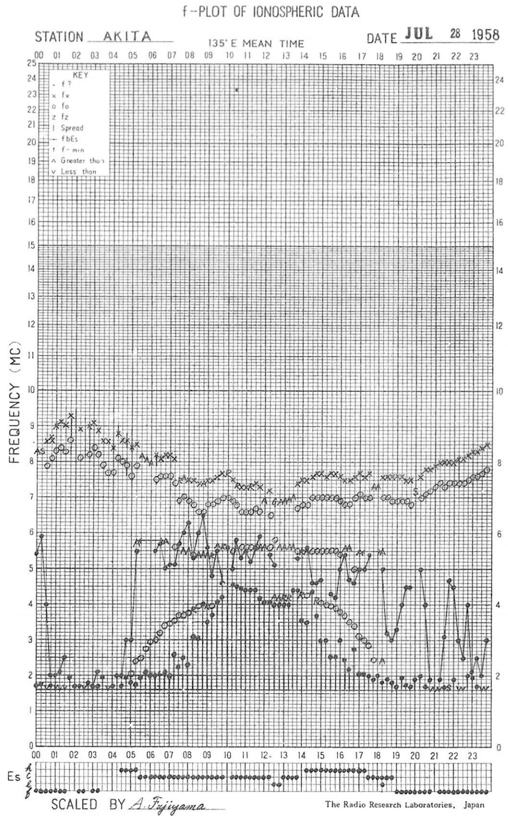
SCALED BY J. oda
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE JUL 28 1958
KEY
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FREQUENCY (MC)
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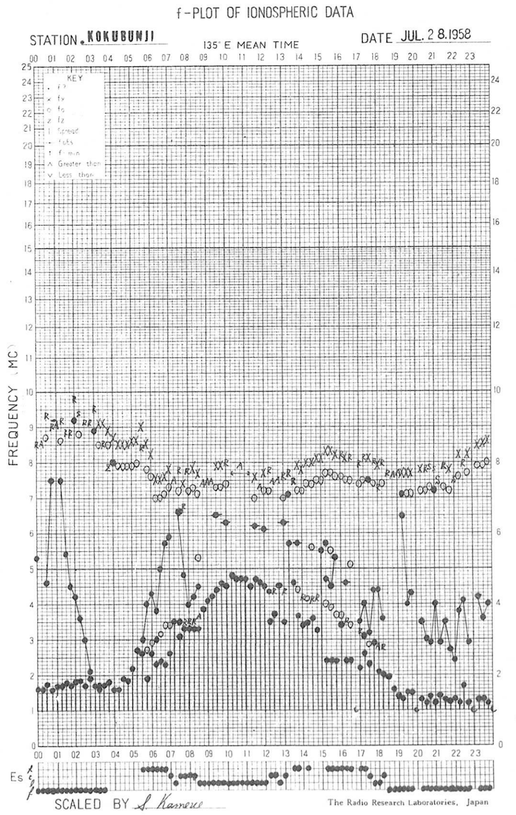
SCALED BY A. Fujiyama
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE JUL. 2 8.1958
KEY
FREQUENCY (MC)
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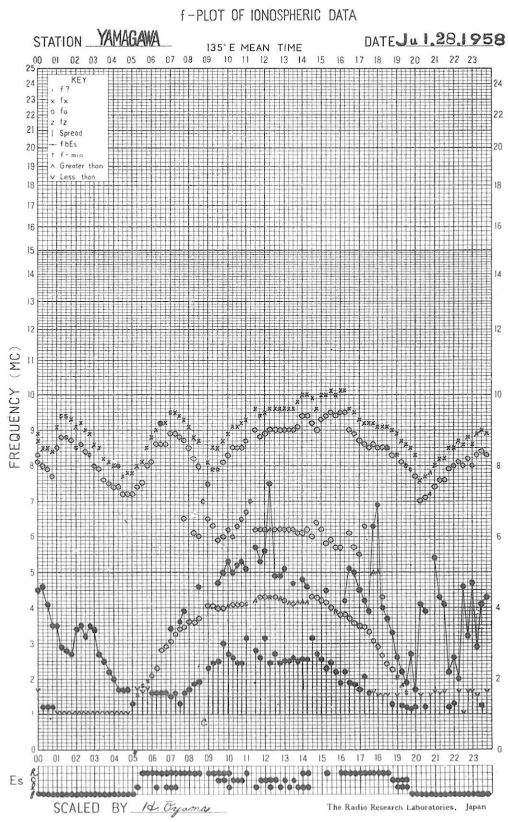
SCALED BY S. Kameue
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE Jul.28.1958
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FREQUENCY (MC)
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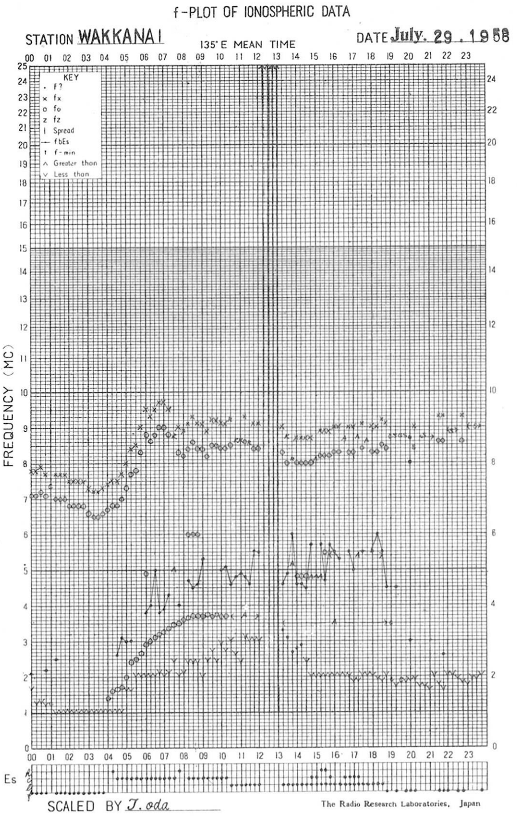
SCALED BY H. Oyama
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE July. 29. 1958
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Less than
FREQUENCY (MC)
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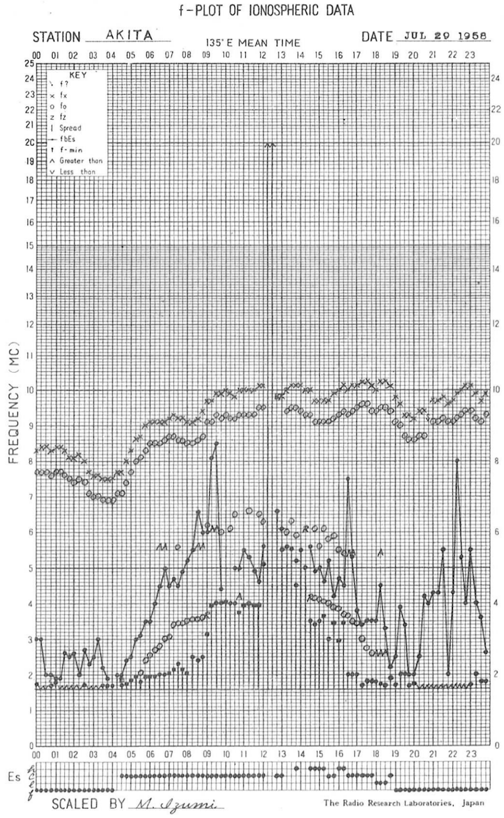
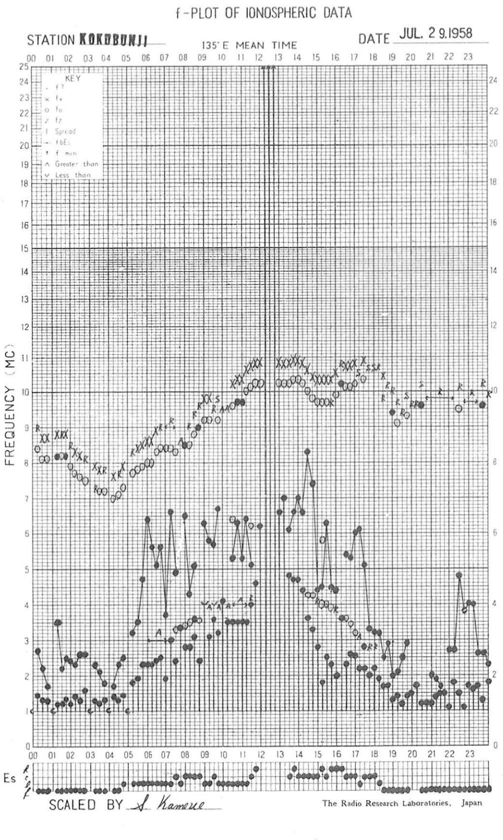
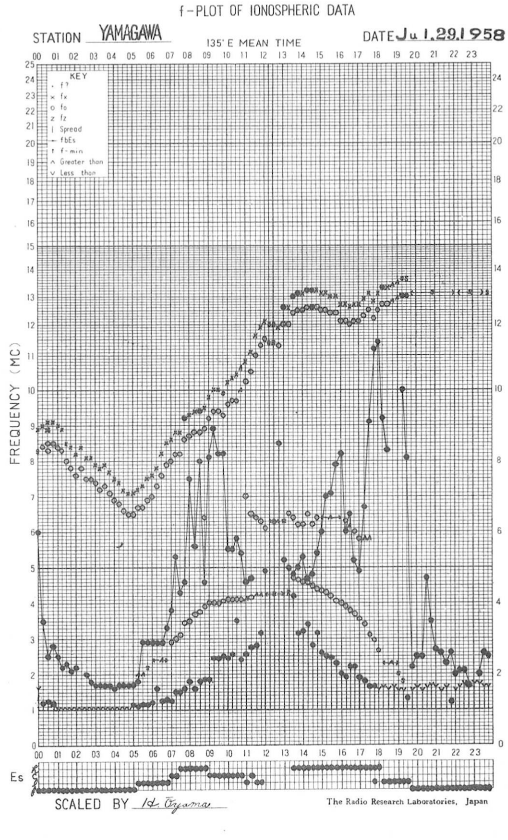
SCALED BY T. Oda
The Radio Research Laboratories, Japan

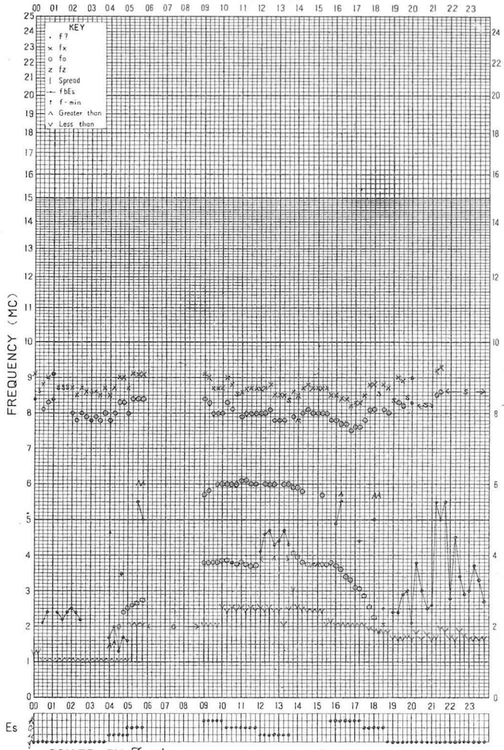

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE JUL 29 1958
KEY
FREQUENCY (MC)
Es
SCALED BY M. Izumi
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE JUL. 29.1958
KEY
FREQUENCY (MC)
Es
SCALED BY S. Kamune
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE Jul.29.1958
KEY
FREQUENCY (MC)
Es
SCALED BY H. Oyama
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

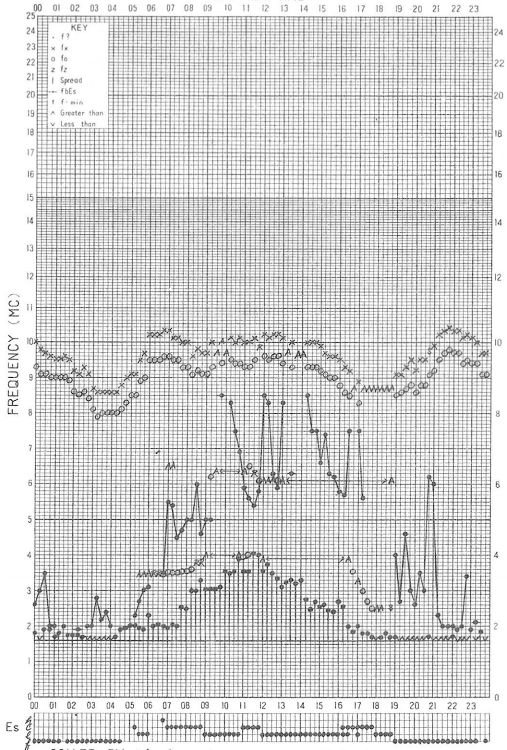
STATION WAKKANAI 135°E MEAN TIME DATE July. 30. 1958



SCALED BY T. Oda The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

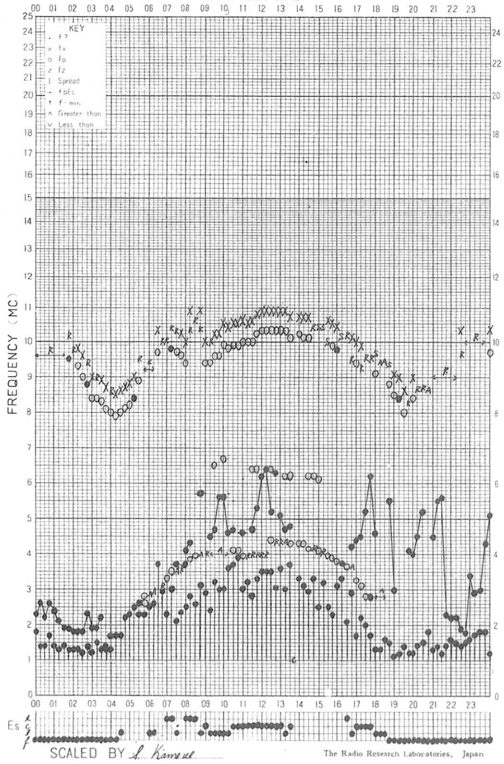
STATION AKITA 135°E MEAN TIME DATE JUL 30 1958



SCALED BY M. Izumi The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

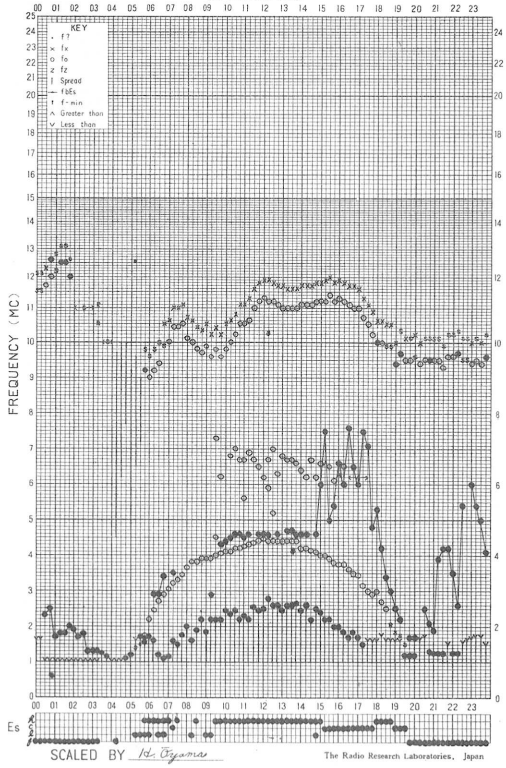
STATION KOKUBUNJI 135°E MEAN TIME DATE JUL. 30. 1958



SCALED BY S. Kamue The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

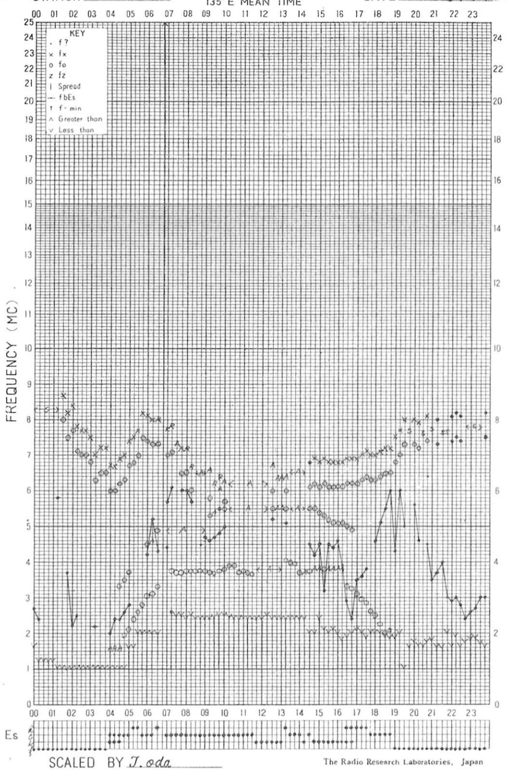
STATION YAMAGAWA 135°E MEAN TIME DATE Jul. 30. 1958



SCALED BY H. Oyama The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE July. 31. 1958

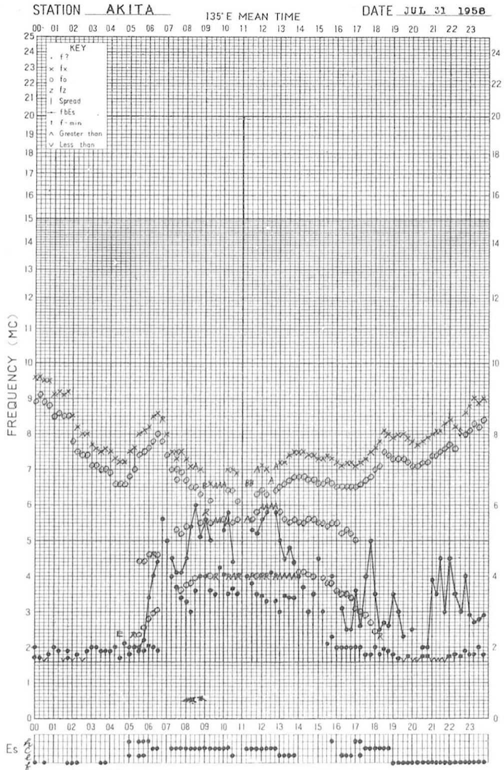


SCALED BY T. Oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE JUL 31 1958

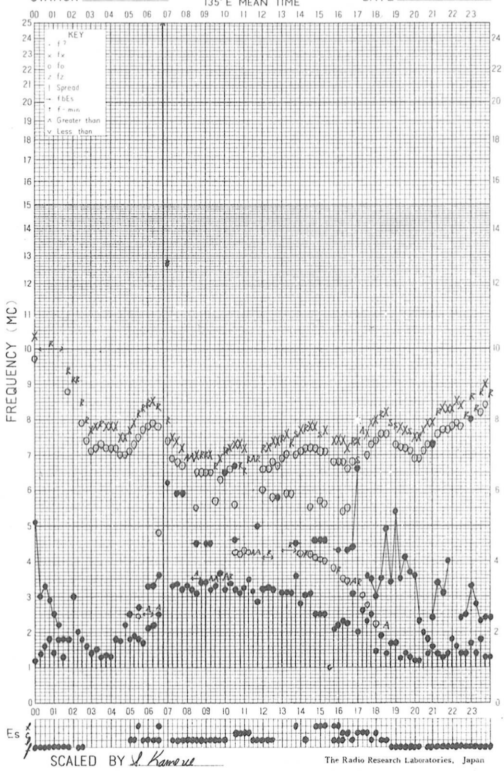


SCALED BY M. Izumi

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JUL. 31.1958

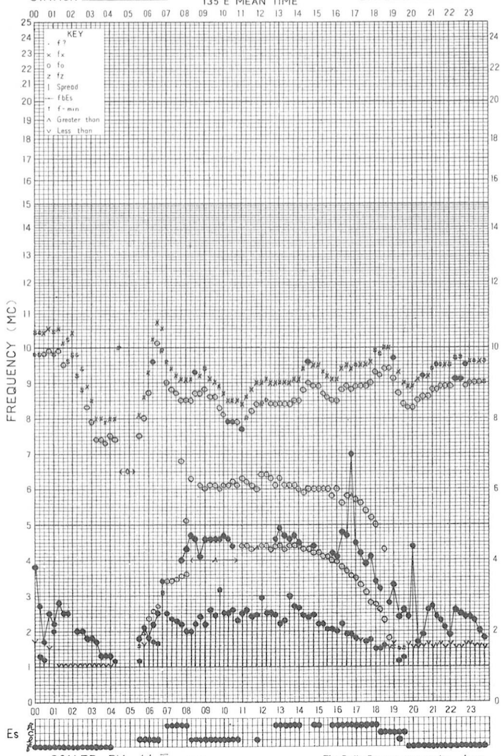


SCALED BY S. Kawase

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE Ju l.31.1958



SCALED BY H. Ozyama

The Radio Research Laboratories, Japan

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO Time in U.T.

July 1958	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	15	15	18	-	16	0	1	2	2	1
2	-	-	-	-	(22)	1	1	1	-	1
3	64	71	59	-	64	2	2	2	-	2
4	64	70	65	(27)	66	2	2	2	(1)	2
5	27	25	17	-	23	1	1	1	-	1
6	27	33	38	-	38	2	2	3	-	2
7	145	28	27	-	75	3	1	1	1	2
8	18	21	20	-	19	0	1	1	0	1
9	21	21	20	-	21	1	1	1	-	1
10	21	21	17	(16)	20	1	0	1	1	1
11	17	18	18	-	17	1	1	1	-	1
12	24	23	34	(65)	25	1	1	2	2	1
13	85	60	44	(64)	64	2	2	1	-	2
14	71	55	41	-	57	2	1	1	1	2
15	30	23	23	21	25	1	1	1	1	1
16	28	31	42	23	31	1	2	2	1	2
17	22	34	65	(19)	37	1	1	2	1	1
18	26	28	29	-	27	1	1	1	1	1
19	-	26	23	81	24	1	2	?	2	2
20	59	35	33	32	50	2	1	1	1	2
21	32	42	35	41	36	1	1	1	2	1
22	42	32	31	-	37	1	1	1	(2)	2
23	-	-	-	-	-	1	2	(1)	-	2
24	41	54	49	-	47	2	2	2	-	2
25	51	42	30	30	41	2	2	1	1	2
26	22	30	19	-	25	1	1	1	-	1
27	27	34	34	54	32	2	2	2	2	2
28	47	50	52	49	50	2	2	2	1	2
29	40	189	152	26	127	1	3	2	1	2
30	23	25	23	-	24	1	2	1	-	1
31	22	26	29	41	26	2	2	2	2	2

Outstanding Occurrences

July 1958	Start-time	Duration	Type	Max. Int. Inst.	Max. Int. Smd.	Max. Time	Remarks
1	0353	2m	CD/8	165	55	0354-30s	
	0806	30s	CD/8	310	70	-	
	2124-20s	40s	CD/8	340	55	2124-45s	
2	0147-30s	1m	CD/8	245	55	0148-30s	
3	2014-40s	1m	CD/8	480	100	2014-40s	
5	0020-30s	10s	SD/8	860	470	-	
	0204-15s	40s	CD/8	1310	720	-	
	0719-20s	15s	CD/8	260	170	-	
6	1903	30s	CD/8	550	130	-	
7	0027	} 120m	CD/9	1620	400	0028	first part
				650	210	0153	plus part
10	0732	2m20s	CD/8	550	110	0732-15s	
11	0557 ?	2m30s ?	CD/8	1010	195	0558	
	0634-30s	20s	CD/4	210	120	-	
	0725	1m30s	CD/8	2810	1220	-	
	0849-50s	50s	CD/8	380	210	-	
12	0755-40s	3m30s	CD/8	1900	690	0757-20s	
	1932	5m	CD/8	260	45	1936-30s	
14	0934-45s	40s	CD/8	410	105	-	
15	0640-30s	10s	SD/4	700	400	-	
	0808-50s	30s	CD/8	1730	620	-	
16	2056-30s	4m	CD/8	380	110	2059	
17	0730 ?	20s ?	CD/8	600	320	-	
	2115-50s	2m	CD/8	2110	860	2117	
19	0106-10s	50s	CD/8	810	180	-	
20	0031	40s	CD/8	840	240	-	
	0241-30s	1m30s	CD/8	1430	400	-	
	0542-30s	30s	CD/8	510	185	-	
	2226-30s	30s	CD/8	470	140	-	
21	0351	30s	CD/4	265	50	-	
	0503-30s	50s	CD/8	1200	300	-	
	0623-20s	50s	CD/8	360	95	-	
22	0035-30s	30s	CD/8	330	150	-	
	2254-30s	40s	CD/8	770	255	-	
23	0212-40s	1m15s	CD/8	690	160	-	
	0427-30s	45s	CD/8	1010	430	-	
	0448-10s	45s	CD/8	2060	560	-	
25	0129-50s	10s	CD/4	490	275	-	
	0430	30s	CD/8	1400	640	-	

Outstanding Occurrences

page 2

July 1958	Start-time	Duration	Type	Max. Int. Inst.	Max. Int. Smd.	Max. Time	Remarks
26	0303-50s	20s	CD/8	980	155	-	
	0856-10s	30s	CD/8	600	285	-	
27	0340	2m	CD/8	>2700	>1300	-	off scale
	0524-30s	1m30s	CD/8	>2700	>1300	-	off scale
28	0304-15s	20s	CD/8	2100	1020	-	
	0318-20s	30s	CD/8	2560	1250	-	
	0430-30s	30s	CD/8	2050	1030	-	
	0614-10s	20s	CD/8	2240	1030	-	
	0726-30s	10s	CD/8	1280	690	-	
	0748-30s	30s	CD/8	1390	430	-	
	0756-30s	20s	CD/8	> 2620	> 1280	-	off scale
	0841	20s	CD/8	760	300	-	
	0850	30s	CD/8	1010	400	-	
29	0255	217m	CD/9	>3000	> 3000	0305 ?	1st peak off scale
				180	110	0355	2nd peak
				-	255	-	plus part
	2028-30s	1m30s	CD/8	910	450	-	
30	0309-30s?	20s ?	CD/8	400	215	-	
	0337-30s	20s	CD/8	350	110	-	
31	0023-40s	40s	CD/8	540	270	-	
	0208-30s?	3m ?	CD/8	740	220	0209-45s?	
	0437	-	SD/4	1400	780	-	instant
	0438-20s	10s	CD/4	570	140	-	
	0520-30s	20s	CD/4	370	125	-	
	0609-30s	40s	CD/8	350	105	-	
	0611	30s	CD/8	375	105	-	
	0758-50s	15s	CD/8	590	280	-	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

July 1958	Whole Day Index	W W V				S. F.				W W V H				Warning				Principal magnetic storms		
		00 06	06 12	12 18	18 24	00 06	06 12	12 18	18 24	00 06	06 12	12 18	18 24	00 06	06 12	12 18	18 24	Start	End	ΔH
1	3+	3	3	4	4	4	2	3	3	3	3	3	2	N	N	N	N			
2	2-	2	1	1	1	4	1	1	2	2	1	3	1	N	N	N	N			
3	2-	1	1	1	3	3	1	1	3	3	2	2	2	N	N	N	N			
[4]	3-	3	2	2	3	3	2	2	2	2	2	1	1	N	N	N	N			
5	2o	2	3	3	2	3	1	1	2	2	2	2	2	N	N	N	N			
6	2o	1	1	3	2	4	2	2	1	3	2	3	2	N	N	N	N			
7	1+	1	2	2	2	2	1	1	2	3	2	2	2	N	N	N	N			
8*	3o	1	3	4	3	3	3	4	4	2	1	4	3	N	W	W	W	0748	---	520γ
9*	3+	1	4	3	3	4	4	3	4	2	1	2	1	W	U	U	N	---	---	
10	3-	2	3	2	1	4	3	3	2	2	2	2	1	N	N	N	N	---	---	
11	1+	2	1	1	1	2	2	2	1	2	2	2	1	N	N	N	N	---	1000	
12	2o	2	1	1	2	1	3	3	3	1	2	2	1	N	N	N	N			
13	2+	2	2	2	1	3	2	3	2	1	1	2	1	N	N	N	N			
14	2-	1	2	2	1	2	2	2	2	1	2	2	2	N	N	N	N			
15	2-	2	2	1	1	2	2	2	2	2	1	2	2	N	N	N	N			
16	2-	2	1	1	2	4	1	1	1	1	2	1	1	N	N	N	N			
17	2-	2	3	2	2	1	2	1	2	1	2	2	2	N	N	N	N			
18	3-	3	3	2	2	3	3	3	2	2	2	2	2	N	N	N	N			
19	2o	3	2	1	1	3	2	3	2	2	2	3	3	N	N	N	N			
20	3o	3	2	3	3	3	3	3	2	2	3	3	2	N	N	N	N			
21	3-	3	2	3	3	2	2	3	3	2	2	1	2	N	N	N	N			
22	3+	3	4	4	3	3	3	3	3	2	3	2	2	U	U	U	U			
23	2+	2	2	2	2	2	2	3	2	2	3	2	2	N	N	N	N			
24	1+	2	1	1	2	2	1	2	2	2	1	1	2	N	N	N	N			
25	2o	1	2	2	3	2	2	2	2	2	2	2	1	N	N	N	N			
[26]	1+	2	1	2	1	2	1	2	2	2	2	2	3	N	N	N	N			
[27]	3-	1	1	2	3	3	3	3	4	2	2	1	1	N	N	N	N			
28	2o	3	1	1	1	4	2	2	3	1	1	1	1	N	N	N	N			
29	1+	1	1	1	1	4	1	2	1	2	1	1	1	N	N	N	N			
30*	2o	2	2	1	2	2	1	3	3	1	2	2	2	N	N	N	U			
31*	3-	2	3	2	3	3	2	2	3	1	1	2	2	U	U	N	N			

* = day of Special World Interval

[ ] = Regular World Day

( ) = inaccurate

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO — Time in U.T.

July	S W F										S E A			Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar noise	Mag.
1958	WS	SF	HA	TO	MN	LN										
7	-	30	-	30'	-	-	00.00	140	G	2+	yes			x	x	
10											21.40	60	2	x		
15											09.20	20	1	x		
19		47	23				19.06	17	S	3+				x	x	
20		10	10	12			06.40	25	Slow	1+	06.40	42	1	x	x	
23	15"	32				-	13.15	40	Slow	2+				x	x	
25		21		-	15		00.45	110	G	2-				x		
27		-			27		02.10	85	G	2						
28		(37)		(34)'	18		01.06	50	Slow	3-						
29											02.20	40	1			
	-	8	-	8'	7	-	02.46	>14	Slow	1-				x	x	
	-	>43	-	>31' >13'	>38	-	03.00	75	S	3+	03.02	43	1	x	x	x
30	-	>40	>35	-	-	-	21.34	50	S	3						

NOTE - : unreadable, ( ) : uncertain.

IONOSPHERIC DATA IN JAPAN FOR JULY 1958

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