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IONOSPHERIC DATA IN JAPAN

FOR AUGUST 1959

Vol. 11 No. 8

[IGC 1959]

Issued in October 1959

Prepared by

THE RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

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THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

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

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

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

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

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

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

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

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

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

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

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

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

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

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

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

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

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

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

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

O Measurement refers to the ordinary component.

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceeding symbol on monthly tabulation sheets.

D — *greater than.....*

E — *less than.....*

I — Missing value has been replaced by an interpolated value.

J — Ordinary component characteristic deduced from the extraordinary component.

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

U — Uncertain or doubtful numerical value.

Z — Measurement deduced from the third magnetoionic component.

c. Description of Standard Types of E_s

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

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

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

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

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

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

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

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

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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

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

activity

M : multiple peaks separated by relatively long period of quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

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

C. RADIO PROPAGATION CONDITIONS

a. Radio Propagation Quality Figures

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

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

The tabulated circuits contain 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

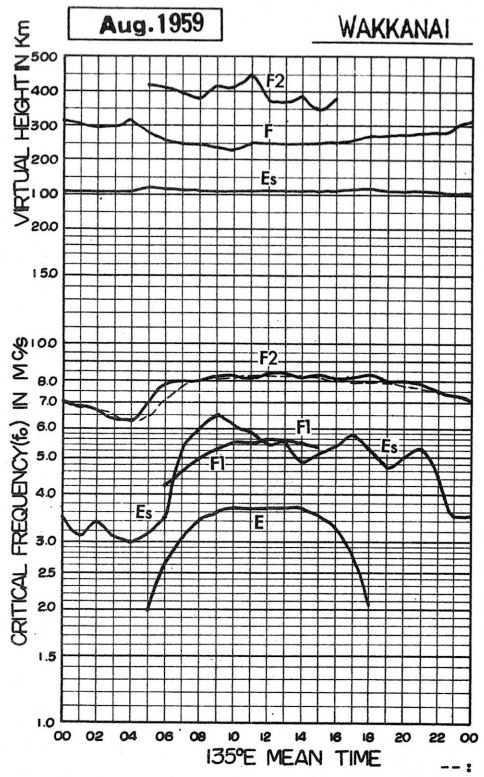
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

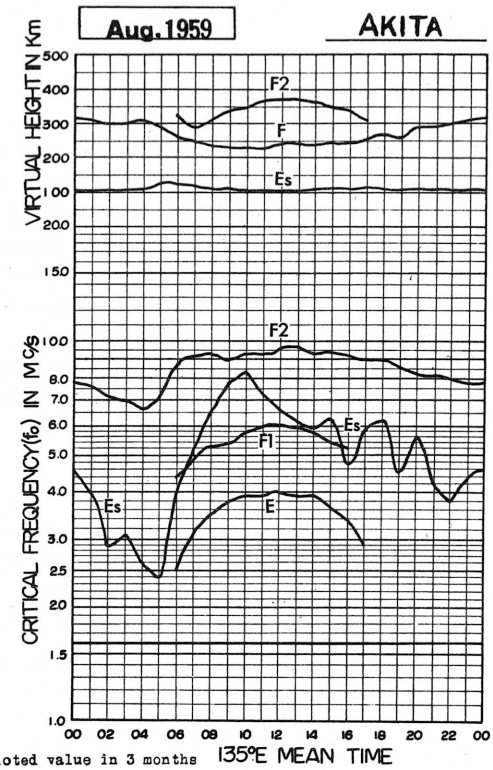
1—	1	1+
2—	2	2+
3—	3	3+

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.

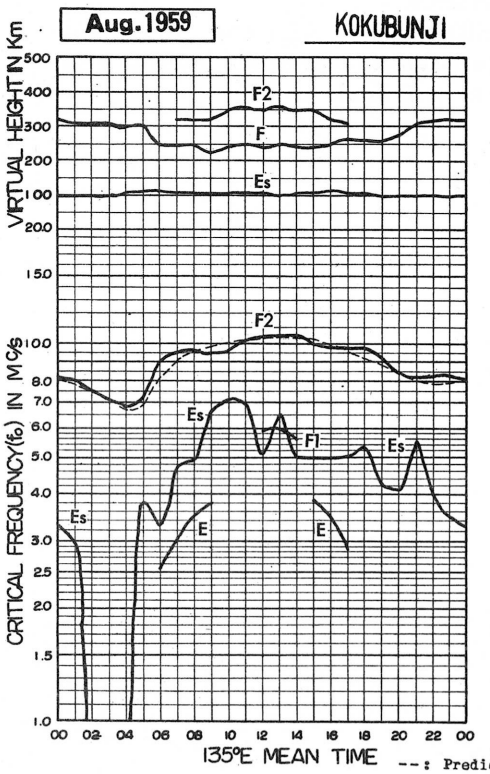
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

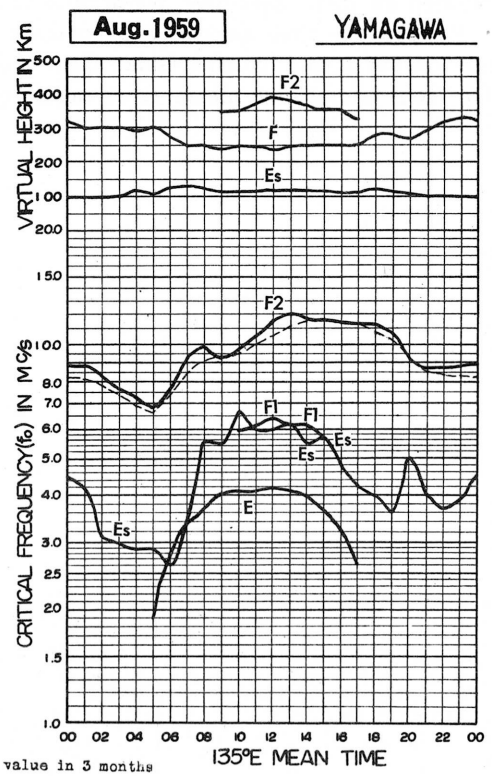




--: Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





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

IONOSPHERIC DATA

Aug. 1959 | 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	7.7	7.6	6.7	6.0	5.9	6.8	7.2	U7.7 R	7.3	I7.1 A	I6.6 A	I6.4 A	6.6	6.7	6.3	6.8	7.2	I7.3 A	7.7	7.5	7.5	7.4	7.2	A S
2	A	S	I6.7 S	I6.3 F	6.3	7.3	7.9	I7.6 A	7.3	7.4	7.8	7.0	7.1	7.9	7.3	7.9	A	A	A	A	8.0	8.1	U7.6 S	7.5
3	7.1	6.6	6.4	6.1	5.9	6.5	7.8	7.3	7.0	I6.7 A	I6.7 A	6.8	I6.5 A	I6.9 A	7.2	7.6	7.0	6.5	7.0	I7.8 S	I7.6 S	7.3	7.0	6.7
4	6.6	6.5	6.3	I6.2 C	I6.1 C	6.5	6.8	7.2	A	A	A	A	A	A	A	6.3	6.3	I6.3 A	I6.3 A	6.2	6.7	6.9	I7.1 A	6.8
5	6.8	6.1	5.7	5.1	4.9	5.2	6.5	7.0	6.2	6.1	5.9	6.0	6.0	6.3	6.7	R	A	A	A	7.2	7.8	7.3	7.3	6.8
6	6.8	6.5	6.4	6.2	6.0	7.0	I7.9 A	7.8	6.6	6.3	6.5	6.6	6.6	7.0	7.1	7.2	7.3	7.3	7.3	7.0	U7.5 S	8.0	7.6	7.6
7	7.2	7.3	6.8	5.5	5.0	6.3	7.0	R	A	C	A	R	R	R	A	A	I6.2 A	I6.1 A	I6.1 A	I6.5 A	7.0	U7.3 S	U6.8 S	6.7
8	6.3	5.8 F	F	F	F	6.6	7.3	6.3	6.5	6.0	I6.4 A	I6.8 A	7.0	7.5	7.4	7.0	6.8	7.3	7.4	I7.8 A	8.3	8.3	8.1	6.5 F
9	6.5 F	F	F	F	6.7	8.0	8.1	8.1	6.7	I6.7 A	I7.0 A	7.1	7.4	7.4	7.2	6.5 H	7.0 H	7.2	7.1	7.7	I8.2 S	7.8	7.3	6.7
10	6.5	6.3	6.1	5.9	5.8	6.2	6.1	6.5	6.3	6.7	7.0	6.7	7.3 H	7.5	8.0	8.1	7.6	7.6	I7.3 A	I7.4 C	I7.5 S	7.5	7.6	FS
11	FS	F	6.6 F	U6.5 F	6.3 F	6.5	7.1	8.3	J7.1 R	7.1	6.8	7.0	8.1	8.1	8.0	8.5	7.8	8.2	7.9	U8.0 S	U7.8 S	U7.8 S	I7.8 S	7.0
12	6.9	6.6	6.3	6.5	6.8	7.4	7.9	7.5	7.3	7.9	7.8	8.4	8.8	8.7	I9.0 A	I8.8 A	8.2	7.8	7.7	8.1	U8.0 S	I8.0 S	I7.6 S	U7.3 S
13	U7.3 S	7.3	7.2	6.5 F	6.5	6.7	I7.1 A	7.6	7.8	A	A	A	8.3	8.3	8.0	7.4	7.6	7.9	I8.0 A	7.8	I8.0 S	I7.8 S	7.3	6.8
14	I6.9 F	I6.8 F	6.8 F	I6.7 F	7.0	7.5	U8.3 R	8.3	I8.6 A	8.5	8.3	8.4	8.4	I8.4 A	8.2	8.5	8.3	8.3	8.3	I8.0 A	I7.6 S	7.7	I7.6 S	I7.6 FS
15	U7.5 F	I7.5 FS	7.6 F	I7.0 A	6.5	7.0	8.1	8.8	A	A	A	8.8	9.1	8.8	8.8	8.8	8.8	8.9	8.9	U8.8 S	I9.1 S	U9.5 S	8.2	8.0
16	7.3	7.0	6.8	7.0	6.7	7.1	7.3	9.0	9.0	8.8	8.7	8.8	8.7	8.3	8.7	8.3	8.0	9.3	10.5	S	S	S	U7.5 S	6.5
17	6.0	5.8	4.5	3.9	3.5 F	4.3 H	W	4.9	R	W	W	5.2	W	W	6.2	6.9	6.2	6.5	5.8	6.8	7.3	6.0	FS	FS
18	FS	FS	F	F	4.0 F	5.0	6.0 H	5.6	5.7	6.3	6.6	7.6	8.1	I7.5 RH	7.4	8.3	7.9	8.0	8.3	8.3	7.8	7.0	6.8	6.5
19	6.5	6.1	6.0	5.9	5.3	6.0	6.4	7.0	8.3	8.8	I8.6 A	8.7	8.7	9.0	8.8	8.7	8.6	8.5	8.4	A	A	FS	7.0 F	I7.3 FS
20	I7.1 F	I6.8 FS	6.5 F	6.5 F	6.3	6.8	I8.5 R	9.3	9.3	8.5	8.4 H	8.1 H	8.8	8.9	9.0	8.6	8.8	9.1	I8.9 A	I8.9 S	I8.9 A	8.5	I7.6 A	7.3
21	6.8	6.1	6.3	5.7	5.8	7.3	10.5	11.7	11.6	11.1	9.7	9.4	U10.8 R	10.8	10.3	9.4	9.0	I9.1 S	10.0	S	S	S	S	7.4
22	7.5	7.0	6.7	6.2	6.0 F	5.7	6.5	7.2	7.1	7.0	I7.2 R	7.5	7.7	8.0	7.7	7.7	7.4	7.5	8.0	7.5	I8.2 S	I7.2 S	6.5	6.1
23	6.3 F	6.3	6.3	5.8	5.8	6.5	7.9	C	C	C	C	C	C	C	C	C	C	C	9.0	8.9	U8.3 S	I7.9 S	I7.6 S	7.5
24	7.1	7.0	6.8	6.7	6.4	7.3	8.3	10.0 Z	9.0	9.3	9.0	J10.2 R	9.5 H	9.5 H	9.5 H	8.7 H	8.9 H	9.0	8.7	9.2	8.8	I8.2 S	7.6	U7.8 S
25	8.0	7.8	7.0	7.3	7.2	8.1	9.1	9.6 H	9.8	9.8 H	9.8 H	I9.5 A	9.3	9.7	9.3	9.0	9.5	9.7	9.5	9.1	I9.0 S	8.8	U8.3 S	I8.2 S
26	8.0	7.6	7.1	6.7	7.3	7.4	7.9	8.3	8.3	8.5	8.7	9.0	8.8	9.0	8.6 H	8.3 H	8.5 H	8.8	9.0	S	S	S	S	S
27	U7.4 S	7.3	7.3	7.0	6.5	7.3	9.0	9.4 H	J10.5 RH	10.0 H	10.0 H	9.5 H	9.6	9.6	9.4	8.7	8.5 H	9.0	8.8	8.8	U9.0 S	I8.6 AS	I8.3 S	U8.3 S
28	8.3	7.9	7.7	7.2	6.6	7.3	9.5	10.4	10.1 H	10.2 H	U10.4 R	10.3	10.3	9.8	9.3	8.3	9.3 H	9.0	9.8	U9.8 S	I9.2 S	I8.8 S	I8.5 S	8.3
29	8.2	8.0	7.7	7.0	6.8	U7.8 S	9.8	10.8	11.1	10.8	J10.8 R	10.8	10.3	10.1	9.8	9.4 H	9.0 H	8.8	9.5	U9.7 S	S	S	S	I7.6 S
30	7.5	7.0	6.7	7.1	6.6	7.3	8.2	8.0 H	8.3	8.3 H	8.3	8.0 H	8.3	8.5	8.3	8.3	8.3	8.4	9.0	U8.5 S	7.8	6.9	6.8	6.5
31	6.8	6.6	6.5	5.8	6.0	7.2	9.3	11.5	11.2 H	10.8 H	10.6	I10.4 R	10.0	9.0	8.5	8.2	8.3	8.3	8.4	8.6	8.5	U7.6 S	7.2	7.0
No.	28	27	28	28	30	31	30	29	26	25	25	27	27	27	28	28	28	28	29	26	26	26	27	27
Median	7.1	6.8	6.7	6.4	6.3	7.0	7.9	8.0	8.0	8.3	8.3	8.1	8.4	8.4	8.2	8.3	8.1	8.2	8.3	8.0	U8.0	7.8	7.6	7.3
U.Q.	7.5	7.3	6.9	6.8	6.6	7.3	8.3	9.4	9.3	9.0	9.4	9.4	9.3	9.0	9.0	8.7	8.7	9.0	9.0	8.8	8.5	8.2	7.6	7.6
L.Q.	6.7	6.3	6.3	5.9	5.8	6.5	7.1	7.2	7.0	6.7	6.8	6.8	7.3	7.5	7.4	7.5	7.2	7.3	7.4	7.5	7.6	7.3	7.1	6.7
Q.R.	0.8	1.0	0.6	0.9	0.8	0.8	1.2	2.2	2.3	2.3	2.6	2.6	2.0	1.5	1.6	1.2	1.5	1.7	1.6	1.3	0.9	0.9	0.5	0.9

foF2

Sweep 4.0 Mc to 20.7 Mc in 1 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

W 1

6

IONOSPHERIC DATA

Aug. 1959 | 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						3.5	4.8	4.7	A	A	A	A	5.5	5.7	I 5.6 L	5.3	I 5.0 A	A						
2							L	A	A	A	A	5.6	5.5	5.5	I 5.5 A	5.3	A	A						
3						L	A	A	A	A	I 5.4 A	5.5	A	A	A	L	L	L						
4							A	A	A	A	A	A	A	A	A	A	I 5.0 A	A						
5						3.7	I 4.1 A	I 4.5 A	I 4.9 A	5.2	5.4	5.5	5.7	I 5.5 L	I 5.5 L	5.1	A	A						
6							A	4.7	I 5.1 L	5.3	I 5.3 L	5.5	5.6	5.4	5.5	I 5.5 A	A	A						
7						L	L	A	A	C	A	A	A	R	A	A	A	A						
8							4.2	I 5.0 L	5.0	L	A	A	I 5.6 L	5.7 H	I 5.6 L	L								
9						L	L	L	L	A	A	A	I 5.5 LH	5.6	5.5 H			L						
10						L	4.2	4.6	5.2	5.4	5.6	5.7		I 5.6 LH	5.4	A								
11							4.5	I 4.7 A		I 5.4 L	I 5.6 A	5.8	5.6	5.6	5.6	L	L	L						
12								L	L	LH	LH	5.5	5.6	LH	A	A	L	L						
13							A	L	4.8	A	A	A	A	I 5.7 L	5.5	LH	L	A						
14							L		A	L	L	L	L	A	A	5.5	L	L						
15							A	A	A	A	A	A	A	L	L	L	L	L						
16							L	L	L	L	5.5	L	L	L	L	LH	A							
17							U 3.7 R	4.2	R	U 4.6 R	U 4.9 R	5.0	5.0	5.0	5.0	5.2	4.8	L						
18						3.3		4.5	4.7	5.0	5.3	5.3	L		LH	B	L	L						
19								L	A	A	I 5.7 A	I 5.9 A	I 5.7 L	I 5.6 L	I 5.6 L	I 5.6 L	L							
20									A				I 5.7 L	L	L	L	A							
21										L	L	L	5.9	L	L	L								
22							L	L	L	L	L	L	A	L	L	L								
23								L	C	C	C	C	C	C	C	C	C	C						
24											6.4	5.8												
25													A	A	L	L								
26									L	5.9	L	L	L	6.2										
27													L	L	L									
28												L	L	L	L	L								
29									L		L	L	L	L	L									
30											6.3		L	L	L	L								
31											L		L	LH	L	A	L							
No.						3	6	8	6	7	11	11	12	12	11	7	3							
Median						3.5	4.2	4.6	5.0	5.3	5.5	5.5	5.6	5.6	5.5	5.3	U 4.0							

foF1

Sweep 4.0 Mc to 20.7 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

W 2

IONOSPHERIC DATA

Aug. 1959 | foE | 135° E Mean Time (G.M.T.+ 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					A	2.25	2.75	3.15	3.50	3.65	3.75	3.75	3.55	I 3.70 A	I 3.85 A	3.70	I 3.30 A	A	A					
2					A	A	2.95	3.30	3.50	3.70	3.80	3.65	I 3.70 A	3.70	I 3.60 A	3.80	3.40	2.70	A					
3					A	2.05	2.70	3.20	3.50	3.60	3.75	A	A	A	A	R	3.45	3.00	2.35					
4						2.00	2.90	3.35	3.55	3.55	A	A	A	A	A	A	A	A	A					
5					A	2.20	2.70	3.10	3.30	3.50	3.60	R	A	R	A	A	A	A	A					
6					A	2.20	2.80	3.00	A	A	A	A	R	R	3.75	A	A	A	A					
7					A	2.15	2.90	3.35	3.45	I 3.65 C	3.70	A	A	A	A	A	3.40	3.00	2.25					
8						2.30	3.00	3.30	3.50	3.60	3.60	3.70	3.70	3.65	3.65	3.60	3.40	2.95	2.25					
9					A	2.00	2.75	3.25	3.50	3.60	3.60	3.60	3.60	A	A	R	3.35	2.90	2.05					
10					130	2.20	2.80	3.20	3.50	3.60	3.75	3.75	3.70	I 3.75 A	3.90	3.65	3.40	2.90	2.25					
11						2.15	2.80	3.25	3.55	3.65	3.60	3.70	3.70	3.60	3.55	3.50	3.30	2.85	2.20					
12					A	1.80	2.60	3.00	3.35	3.45	3.70	I 3.80 R	3.85	3.80	3.70	3.55	3.10	I 2.70 A	2.25					
13					A	A	2.50	3.10	3.40	3.65	3.75	3.65	I 3.60 A	3.45	A	A	A	A	A					
14					A	A	2.65	3.00	3.25	A	A	B	3.65	A	A	A	3.40	2.75	2.00					
15						2.00	2.55	3.10	3.40	3.55	3.55	3.60	3.60	A	A	A	A	A	2.10					
16					A	A	2.55	2.85	A	A	A	A	A	A	A	A	3.25	2.75	2.00					
17					1.25	2.25	2.45	2.90	I 3.10 A	3.30	3.40	3.50	R	A	R	3.50	3.05	2.80	1.80					
18					A	2.00	2.75	3.05	3.40	3.55	3.75	3.90	3.75	B	R	I 3.55 R	3.20	2.75	2.10					
19					A	1.80	2.60	3.10	3.40	3.60	3.55	3.65	A	A	R	3.50	3.25	2.70	2.05					
20						A	2.40	2.95	3.25	3.45	3.60	I 3.60 A	I 3.70 A	A	A	A	3.55	2.80	1.85					
21						A	2.60	3.00	3.15	A	A	A	3.55	A	3.75	3.65	3.35	2.75	1.95					
22						A	2.65	3.10	3.35	3.50	B	A	A	A	3.85	3.55	3.25	2.80	1.90					
23						1.70	2.65	3.10	C	C	C	C	C	C	C	C	C	C	A					
24						A	2.65	3.15	3.50	A	A	R	R	R	3.75	3.55	3.35	2.70	1.70					
25						1.95	2.60	3.10	3.65	A	A	A	A	A	A	3.60	3.50	2.75	2.00					
26						1.60	2.65	3.10	3.45	3.55	3.65	3.70	3.80	3.75	3.75	3.50	3.25	2.70	1.85					
27						1.85	2.45	I 3.00 A	3.50	3.60	3.50	3.75	A	A	A	A	A	2.75	A					
28						1.90	2.40	3.00	3.40	3.55	B	A	R	A	A	A	3.25	A	A					
29						1.90	2.60	3.10	3.45	3.60	R	A	A	A	A	A	A	A	A					
30						A	2.55	3.15	3.70	3.80	3.95	3.90	3.75	A	A	A	A	A	A					
31						A	2.55	3.00	3.30	3.50	3.90	4.00	4.00	4.05	3.85	3.60	3.20	2.65	S					
No.					2	21	31	31	28	24	20	17	16	9	12	15	22	21	19					
Median					130	2.00	2.65	3.10	3.45	3.60	3.70	3.70	3.70	3.70	3.75	3.55	3.30	2.75	2.05					

foE

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

The Radio Research Laboratories, Japan.

W 3

IONOSPHERIC DATA

Aug. 1959 | 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	3.6M	3.1M	3.4M	3.5M	3.2M	3.5	G	4.0	7.5M	9.6M	7.8M	7.3M	9.1M	6.5M	10.0M	6.0M	11.0M	12.5M	4.0M	4.0M	3.1M	5.3M	6.5M	7.8M
2	11.5M	8.5M	4.0M	2.5M	3.0M	4.0M	3.5	9.7M	7.0M	6.5M	6.5M	6.5M	5.0M	5.5M	6.0M	5.8M	11.8M	10.6M	10.5M	9.0M	9.5M	5.3M	5.0M	3.0M
3	3.5M	3.2M	E	3.1M	3.1M	2.9	6.0M	6.5M	10.5M	7.3M	9.6M	5.6M	6.8M	11.7M	8.5M	G	G	4.0	5.3M	4.3M	7.0M	6.5M	5.8M	4.6M
4	3.1M	2.6M	3.5M	C	C	2.9	5.6M	7.0M	11.5M	10.5M	7.4M	7.1M	9.0M	8.3M	6.5M	6.5M	5.6M	6.5M	7.0M	5.0M	3.2M	5.2M	6.8M	E
5	E	E	2.4M	3.0M	3.5M	4.5M	4.7M	5.8M	6.0M	6.5M	4.3	5.5M	4.2M	G	4.0	7.2M	12.0M	9.8M	13.5M	5.0M	5.0M	5.3M	4.5M	4.0M
6	6.5M	3.5M	3.5M	3.1M	4.0M	8.0M	9.0M	5.5M	5.0M	5.8M	5.0M	5.3M	G	G	G	7.5M	7.1M	9.0M	8.0M	6.5M	4.0M	3.5M	E	3.1M
7	3.4M	2.5M	3.5M	3.5M	3.2M	G	3.5M	7.2M	8.2M	C	6.5M	5.8M	5.5M	5.0M	5.2M	6.0M	7.2M	10.5M	13.0M	11.7M	8.0M	9.0M	4.0M	3.5M
8	2.8M	2.5M	2.4M	E	3.0M	5.3M	5.8M	8.0M	7.0M	6.5M	10.2M	9.5M	5.5M	G	G	7.0M	7.8M	7.2M	6.0M	7.5M	5.9M	7.0M	E	E
9	E	2.4M	2.5M	3.1M	6.0M	4.5	3.5	5.5M	6.5M	11.6M	9.5M	9.0M	G	6.0M	5.2M	G	3.4	2.2G	6.0M	4.3M	2.7M	4.5M	6.5M	3.5M
10	3.7M	2.8M	3.1M	4.0M	G	G	3.5	4.3	5.6M	4.5	5.7M	5.8M	5.6M	5.5M	5.3M	6.1M	9.0M	6.5M	9.1M	C	7.2M	5.5M	8.0M	3.1M
11	4.9M	4.5M	3.5M	3.5M	3.1M	3.8M	5.5M	5.6M	6.0M	4.7	10.0M	5.5M	6.0M	4.4	4.2	4.2M	G	G	G	2.7M	5.8M	7.0M	10.0M	E
12	3.4M	E	2.4M	3.1M	3.0M	G	G	5.0M	4.0	4.3	4.2	G	G	G	12.5M	11.5M	7.5M	5.0M	3.5	2.7M	3.0M	6.0M	6.0M	6.5M
13	6.8M	6.2M	4.5M	3.5M	4.1M	3.7M	11.5M	4.0	6.0M	8.5M	12.0M	9.5M	10.2M	8.0M	5.0M	4.1M	4.0M	5.8M	9.0M	6.5M	3.0M	5.8M	8.0M	7.0M
14	5.3M	5.5M	4.8M	7.0M	3.5M	2.1M	4.1	6.7M	14.5M	12.0M	9.0M	6.0M	6.0M	9.0M	7.8M	5.3M	G	G	8.0M	15.0M	3.5M	6.3M	5.6M	6.5M
15	6.5M	7.8M	6.5M	10.0M	3.2M	6.0M	6.5M	7.5M	13.5M	10.5M	15.0M	8.0M	8.0M	5.2M	5.3M	5.8M	4.8M	4.1M	6.5M	5.3M	9.0M	2.6M	E	E
16	E	E	E	2.4M	2.4M	5.0M	3.5	4.8M	5.8M	7.0M	5.7M	5.1M	4.7M	4.1M	5.2M	4.1M	7.1M	5.8M	5.5M	5.7M	E	E	E	E
17	3.5M	2.3M	2.3M	2.2M	2.1	G	2.7	5.3M	4.2M	5.3M	G	G	G	5.3M	G	G	G	3.1	4.1M	2.7M	2.7M	E	E	E
18	E	2.4M	3.0M	2.6M	2.4M	3.5M	G	4.0	G	G	G	G	G	8	G	8	G	G	2.7	4.4M	E	3.4M	3.6M	3.5M
19	3.3M	3.1M	E	3.1M	2.5M	4.2M	5.3M	5.8M	6.0M	8.5M	15.0M	7.5M	11.0M	6.0M	G	5.1M	6.0	9.0M	8.0M	15.5M	8.0M	7.1M	6.5M	4.5M
20	5.6M	4.0M	3.0M	3.5M	3.0M	6.0	8.0M	8.0M	9.0M	12.2M	7.0M	4.0M	4.3M	6.0M	4.0M	6.0M	7.0	6.5M	10.0M	6.5M	8.5M	8.0M	9.0M	4.0M
21	5.2M	3.3M	E	E	3.1M	2.2M	3.2	5.3M	5.3M	6.8M	5.9M	7.8M	G	6.2M	6.5M	G	6.3M	7.0M	6.2M	6.5M	8.5M	3.0M	6.0M	7.0M
22	6.8M	7.5M	3.5M	3.1M	1.2	5.0M	3.5	5.3M	6.5M	5.5M	5.0M	8.0M	10.0M	5.5M	4.7	G	3.9	4.0	4.5M	5.0M	9.0M	6.6M	3.5M	4.8M
23	2.6M	3.1M	3.5M	3.5M	E	G	G	4.2	C	C	C	C	C	C	C	C	C	C	2.4	3.0M	E	3.0M	4.0M	3.1M
24	2.7M	2.9M	3.5M	3.5M	E	3.2M	5.6M	4.0	5.8M	5.7M	5.7M	G	G	G	G	G	G	G	2.7	3.0M	4.5M	3.5M	3.2M	E
25	3.0M	2.5M	5.0M	3.5M	3.2M	G	G	4.2	5.3M	6.5M	6.5M	13.5M	8.2M	10.3M	4.8M	G	G	G	G	3.5M	4.8M	3.8M	E	E
26	3.2M	E	3.4M	2.4M	E	G	3.6	5.2M	5.7M	4.4	G	G	4.6	4.3	G	G	G	3.5	2.4	3.5M	10.0M	E	E	E
27	E	3.1M	2.6M	3.5M	3.5M	G	G	4.0M	5.5M	6.5M	5.6M	6.0M	10.5M	9.6M	4.5M	6.2M	4.1M	G	3.0M	3.5M	3.5M	7.0M	8.0M	5.5M
28	6.0M	4.1M	3.3M	2.5M	E	G	G	G	G	G	7.2M	6.2M	G	4.9M	5.0M	5.0M	G	3.5M	2.3M	3.5M	5.7M	3.5M	3.5M	3.5M
29	3.5M	3.5M	3.5M	4.0M	2.5M	G	G	G	G	6.5M	G	6.0M	5.5M	5.7M	4.7M	4.1M	5.0M	6.0M	3.5M	3.7M	5.8M	7.0M	5.7M	5.8M
30	3.5M	4.0M	3.5M	3.1M	5.3M	5.3M	6.5M	G	6.5M	G	4.9	G	5.2YM	4.9M	6.5M	5.0M	6.7M	6.3M	3.5M	5.0M	5.0M	6.0M	4.0M	3.0M
31	3.1M	E	2.4M	2.5M	2.5M	2.5M	3.5	3.5	G	G	G	G	G	G	G	7.5M	9.5M	9.0M	2.2	2.9M	6.5M	3.5M	2.4M	2.4M
No.	31	31	31	30	30	31	31	31	30	29	30	30	30	29	30	29	30	30	31	30	31	31	31	31
Median	3.5M	3.1M	3.4M	3.1M	3.0M	3.2M	3.5	5.3M	6.0M	6.5M	6.2M	5.9M	5.4M	5.5M	4.9M	5.1M	5.3M	5.8M	5.3M	4.7M	5.0M	5.3M	4.5M	3.5M
U.Q.	5.3	4.0	3.5	3.5	3.2	4.5	5.6	6.5	7.0	7.9	9.0	7.5	8.0	6.4	6.0	6.2	7.2	7.2	8.0	6.5	8.0	6.6	6.5	4.8
L.Q.	2.8	2.4	2.4	2.5	2.4	G	G	4.0	5.3	4.6	4.9	4.0	G	4.2	G	G	G	3.1	2.7	3.5	3.1	3.5	2.4	E
Q.R.	2.5	1.6	1.1	1.0	0.8			2.5	1.7	3.3	4.1	3.5		2.2				4.1	5.3	3.0	4.9	3.1	4.1	

foEs

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

The Radio Research Laboratories, Japan.

W 4

IONOSPHERIC DATA

Aug. 1959 | 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	E	E	1.3	G		G	6.0	A	A	A	4.7	4.8	5.0	4.6	5.0	A	2.8	E	E	2.6	5.5	A
2	A	5.5	E	E	1.6	2.7	2.5	A	6.5	5.5	5.8	4.6	4.6	4.5	5.5	5.0	A	A	A	A	3.5	3.5	2.2	E
3	E	E		E	1.5	G	4.5	5.5	5.5	A	A	4.6	A	A	5.6			G	4.5	3.5	5.5	E	4.5	4.0
4	E	E	E	C	C	2.4	4.7	4.8	A	A	A	A	A	A	A	5.6	5.0	A	A	2.6	E	4.5	A	
5			E	E	2.0	3.5	4.3	4.6	5.0	4.8	G	4.3	4.6		D 4.0 B	4.0	A	A	A	2.9	3.5	4.5	3.1	3.0
6	E	E	E	E	3.5	4.9	A	4.3	4.0	4.5	4.2	4.4				5.5	5.0	5.6	5.6	5.0	3.5	E		E
7	E	E	E	E	1.6		G	6.1	A	C	A	4.8	4.6	4.5	4.8	A	A	A	A	A	5.0	5.0	3.5	E
8	E	E	E		E	3.7	3.6	5.0	4.6	4.8	A	A	4.6			4.7	4.8	5.6	4.4	A	2.4	E		
9		E	E	E	2.7	3.2	G	3.9	4.3	A	A	5.8		4.8	4.5		2.6	G	5.5	3.5	E	3.5	E	2.6
10	2.8	E	E	E			G	4.1	4.6	G	4.7	4.7	4.7°	4.0	G	5.2	5.0	3.7	A	C	5.5	4.5	4.7	E
11	2.5	E	E	E	E	G	4.0	4.6	5.1	4.6	5.6	G	4.5	G	G	3.6				E	4.0	E	E	
12	E		E	E	1.2			4.2	G	G	G				A	A	G	3.0	G	E	E	3.1	A	E
13	3.0	3.5	2.6	E	1.9	2.9	A	G	G	A	A	A	5.8	5.0	4.0	3.6	3.4	4.7	A	5.5	E	A	E	3.5
14	2.9	2.5	3.0	4.8	1.5	2.0	G	5.0	A	4.8	4.8	5.5	5.5	A	5.8	4.7			G	A	E	5.6	E	E
15	4.7	4.7	4.0	A	E	4.7	5.8	6.5	A	A	A	7.4	6.2	4.5	4.1	4.7	3.9	2.9	5.5	4.6	7.5	E		
16				E	1.4	2.1	3.1	3.7	3.6	4.5	4.5	4.6	4.4	3.9	4.1	4.0	6.0	4.3	4.7	3.4				
17	E	E	E	E	G		G	3.1	A	G				4.5				G	3.0	E	E			
18		E	E	E	1.3	G		G						B		B			G	3.5		2.1	E	E
19	E	E		E	1.6	2.9	4.5	G	5.0	6.0	A	5.9	4.8	4.6		G	G	7.0	5.0	A	A	5.0	4.6	2.2
20	3.4	E	E	E	E	5.0	4.7	7.5	4.6	4.6	4.5	4.0	D 4.3 B	4.4	3.9	3.8	6.0	6.2	A	A	A	5.5	A	3.2
21	3.0	E			E	2.1	G	4.5	4.4	5.3	4.8	4.6		5.3	5.0		4.7	5.0	5.5	A	A	E	3.9	5.0
22	5.5	6.0	2.1	E	E	4.0	G	4.4	4.6	4.5	D 5.0 B	4.7	6.9	4.6	4.6		G	G	3.8	4.0	A	A	2.7	2.9
23	E	E	E	E				G	C	C	C	C	C	C	C	C	C	C	2.4	E		E	2.4	2.2
24	E	E	E	E		2.1	3.7	G	4.7	4.5	4.0								G	E	3.5	2.6	E	
25	E	E	2.1	E	E			G	4.7	4.7	4.4	A	7.5	8.7	4.4					2.6	4.0	2.9		
26	E		E	E			G	G	4.8	G			4.6	G				G	G	2.8	E			
27		E	E	E	E			3.9	G	5.0	4.7	4.7	4.8	5.8	3.9	5.0	3.4		2.4	E	E	A	5.5	4.0
28	2.4	2.9	E	E							6.5	5.0		4.3	3.9	3.6		2.8	2.0	1.6	2.5	2.8	2.5	E
29	E	E	E	E	E					5.7		5.0	4.0	4.9	4.0	3.7	3.4	3.0	2.3	2.1	3.0	4.5	2.6	A
30	E	E	E	E	E	4.6	5.8		5.5		G		G	4.6	4.7	3.8	4.6	2.9	2.5	4.0	4.0	2.5	3.0	2.2
31	E		E	E	E	2.0	G	G								6.3	5.2	5.5	G	E	4.5	2.5	E	E
No.	26	26	27	28	25	21	23	28	26	25	25	23	20	23	21	21	21	24	29	30	28	28	24	22
Median	E	E	E	E	1.2	2.7	3.6	4.2	4.8	4.8	D 5.0	4.8	4.7	4.6	4.5	4.7	4.8	4.5	4.4	3.4	3.5	3.0	2.8	2.2

f_bE_s

Sweep 4.0 Mc to 20.7 Mc in 1 min/~~sec~~ in automatic operation.

The Radio Research Laboratories, Japan.

W 5

13

IONOSPHERIC DATA

Aug. 1959 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	1.60	1.65	1.70	1.75	1.80	1.80	E 2.40 S	E 2.00 S	1.75	E 2.40 S	1.65	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
2	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	1.60	1.65	1.70	1.75	1.75	E 2.40 S	E 2.50 S	E 2.40 S	E 2.40 S	E 2.50 S	1.70	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
3	E 1.60 S	E 1.60 S	E	E	E	E 1.60 S	E 1.65 S	E 1.70 S	1.70	1.75	E 2.40 S	E 2.10 S	E 2.60 S	E 2.40 S	E 2.50 S	E 2.40 S	1.75	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
4	E 1.60 S	E 1.40 S	E	C	C	E 1.60 S	1.80	1.70	1.75	1.70	1.75	E 2.40 S	E 2.70 S	E 3.00 S	E 2.40 S	E 2.40 S	1.70	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
5	E 1.60 S	E 1.60 S	E	E	E	E 1.60 S	E 1.60 S	1.60	1.70	1.70	1.80	E 2.75 S	E 2.40 S	E 2.40 S	1.70	1.75	1.70	1.60	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
6	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	E 1.60 S	1.65	1.70	1.90	E 2.40 S	1.75	1.85	1.80	1.80	1.70	2.00	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
7	E 1.60 S	E 1.40 S	E	E	E	E 1.60 S	E 1.60 S	1.70	1.60	C	E 2.50 S	2.00	E 2.50 S	1.75	E 1.75 S	1.80	1.75	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
8	E 1.60 S	E	E	E	E	E 1.60 S	E 1.60 S	1.70	1.70	1.70	1.80	1.80	E 2.50 S	E 2.50 S	E 2.80 S	1.80	1.75	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
9	E 1.60 S	E	E	E	E	E 1.60 S	E 1.60 S	1.60	E 2.40 S	1.80	E 2.40 S	E 2.40 S	E 2.40 S	E 2.00 S	E 2.40 S	1.80	1.60	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
10	E 1.60 S	E	E	E	E	E 1.50 S	1.60	1.65	1.60	1.85	2.00	1.80	E 2.20 S	1.80	1.90	E 2.70 S	1.90	1.60	E 1.60 S	C	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
11	E 1.60 S	E	E	E	E	E 1.60 S	E 1.60 S	1.75	1.80	1.70	1.75	E 2.40 S	E 2.40 S	E 2.05 S	E 2.50 S	1.90	1.60	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
12	E 1.60 S	E 1.30 S	E	E	E	E 1.60 S	1.60	1.60	1.60	1.80	1.75	E 2.40 S	1.90	E 2.40 S	1.90	2.00	1.70	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
13	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	1.60	1.70	1.70	1.75	1.75	E 2.40 S	E 2.30 S	E 2.40 S	1.60	1.70	1.60	1.80	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
14	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	E 1.60 S	1.70	1.70	1.75	1.90	4.50	2.90	E 2.10 S	1.90	1.75	1.70	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
15	E 1.60 S	E	E	E	E	E 1.60 S	1.60	1.65	1.70	1.75	E 2.40 S	2.70	2.40	2.70	1.65	1.75	1.75	1.65	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
16	E 1.60 S	E 1.25 S	E 1.25 S	E	E	E 1.60 S	1.60	1.65	1.75	1.75	1.75	1.80	1.75	E 2.40 S	1.75	1.70	1.60	1.70	E 1.70 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
17	E 1.60 S	E 1.20 S	E	E	E	E 1.60 S	E 1.60 S	1.70	1.70	1.70	E 2.85 S	2.40	2.00	2.60	1.90	1.75	1.75	1.80	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
18	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	E 2.00 S	1.90	1.90	E 2.40 S	E 2.40 S	2.10	E 2.40 S	4.50	2.50	2.50	1.65	1.70	E 1.70 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
19	E 1.60 S	E 1.60 S	E	E	E	E 1.60 S	1.60	1.70	1.70	1.80	2.00	E 2.50 S	2.00	E 2.30 S	E 2.40 S	1.75	2.00	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
20	E 1.60 S	E	E	E	E	E 1.60 S	1.60	1.75	1.70	1.75	2.05	E 2.40 S	E 2.40 S	E 2.10 S	E 2.10 S	2.10	1.75	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
21	E 1.60 S	E 1.30 S	E 1.20 S	E	E	E 1.60 S	E 1.75 S	1.80	1.90	2.00	E 2.40 S	E 2.60 S	E 2.60 S	E 2.40 S	1.90	1.85	E 2.50 S	1.75	E 1.65 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
22	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	E 1.70 S	1.70	1.75	1.70	4.60	2.50	2.60	2.50	2.55	2.00	1.70	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
23	E 1.60 S	E	E	E	E	E 1.60 S	1.60	1.75	C	C	C	C	C	C	C	C	C	C	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
24	E 1.60 S	E 1.25 S	E 1.25 S	E	E	E 1.60 S	1.60	1.70	1.70	1.75	2.50	2.80	2.80	1.70	1.75	1.80	1.70	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
25	E 1.60 S	E 1.25 S	E	E	E	E 1.60 S	E 1.70 S	1.70	2.50	1.75	2.00	E 2.40 S	1.85	1.60	1.80	1.75	1.80	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
26	E 1.60 S	E 1.25 S	E 1.20 S	E	E	E 1.40 S	E 1.60 S	1.70	1.70	1.90	2.05	1.90	E 2.50 S	1.75	1.80	1.70	1.70	1.70	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
27	E 1.60 S	E 1.30 S	E	E	E	E 1.60 S	1.60	1.75	E 2.40 S	E 2.40 S	E 2.40 S	E 2.40 S	E 2.40 S	E 2.20 S	2.00	1.60	1.70	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
28	E 1.60 S	E 1.20 S	E 1.25 S	E	E	E 1.60 S	1.65	1.75	E 2.60 S	E 2.50 S	4.50	E 3.00 S	E 3.00 S	E 3.60 S	1.80	1.70	1.75	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
29	E 1.60 S	E 1.25 S	E 1.25 S	E	E	E 1.60 S	1.60	1.65	1.75	1.75	E 2.50 S	E 2.40 S	E 2.40 S	E 2.40 S	E 2.40 S	1.90	1.65	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
30	E 1.60 S	E	E	E	E	E 1.60 S	E 1.60 S	1.75	E 2.50 S	1.70	3.00	2.40	2.50	2.00	1.75	1.75	1.75	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
31	E 1.60 S	E 1.25 S	E	E	E	E	E 1.60 S	1.70	1.70	2.75	1.90	2.00	2.00	2.00	2.10	1.70	1.75	1.60	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S	E 1.60 S
No.	31	31	25	30	30	31	31	31	26	26	20	30	30	30	21	25	29	30	31	30	31	31	31	31
Median	E 1.60	E 1.25	E	E	E	E 1.60	E 1.60	1.70	1.70	1.75	1.85	E 2.40	E 2.40	E 2.35	1.80	1.75	1.70	1.60	E 1.60	E 1.60	E 1.60	E 1.60	E 1.60	E 1.60

f-min

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

The Radio Research Laboratories, Japan.

W 6

IONOSPHERIC DATA

Aug. 1959 | (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	255	260	270	255	260	265	235	U250 R	275	I260 A	I250 A	I255 A	250	245	275	250	265	I265 A	265	270	255	260	240	AS
2	A	S	I250 S	I245 F	245	245	265	I260 A	250	260	260	270	250	255	250	280	A	A	A	A	275	270	U250 S	255
3	255	255	260	250	255	245	280	265	255	I245 A	I255 A	255	I275 A	I260 A	250	275	275	275	260	I270 S	I265 S	260	245	255
4	245	255	265	I265 C	I265 C	250	240	250	A	A	A	A	A	A	A	265	270	I270 A	I285 A	265	255	245	I240 A	250
5	245	265	260	245	240	235	250	255	265	265	245	245	245	275	260	R	A	A	A	265	270	250	260	250
6	250	290	260	260	255	250	I270 A	285	305	255	240	260	250	260	260	275	265	275	280	275	U255 S	260	255	250
7	250	265	285	260	240	245	245	R	A	C	A	R	R	R	A	A	I260 A	I275 A	I280 A	I260 A	255	U245 S	U255 S	260
8	260	260 F	F	F	F	260	290	255	270	240	I260 A	I260 A	250	265	285	280	290	275	280	I270 A	270	270	270	275 F
9	260 F	F	F	F	255	280	285	255	285	I255 A	I250 A	240	265	270	285	305 H	270 H	280	275	270	I280 S	260	275	255
10	250	255	260	260	255	260	250	255	250	285	260	250	265 H	260	275	290	275	300	I280 A	I270 C	I265 S	255	245	FS
11	FS	F	260 F	U255 F	260 F	255	255	300	U285 R	275	295	240	285	275	280	275	280	290	295	U280 S	U260 S	U265 S	I270 S	260
12	255	255	245	265	270	280	315	310	275	285	260	275	275	275	I285 A	I285 A	280	290	270	285	U275 S	I275 S	I270 S	U250 S
13	U240 S	245	265	265 F	270	285	I285 A	280	300	A	A	A	285	275	285	270	275	280	I285 A	270	I270 S	I270 S	260	255
14	I250 F	I255 F	265 F	I260 F	265	280	U295 R	290	I315 A	295	280	285	280	I280 A	270	285	280	275	290	I275 A	I255 S	260	I260 S	I255 FS
15	U255 F	I260 FS	260 F	I260 A	265	280	285	300	A	A	A	280	275	280	275	280	285	290	285	U280 S	I265 S	U270 S	275	265
16	255	245	245	250	270	275	260	295	310	285	280	270	285	270	280	275	265	260	260	S	S	S	U255 S	240
17	235	245	235	240	255 F	240 H	W	240	R	W	W	230	W	W	245	255	250	265	260	250	270	250	FS	FS
18	FS	FS	F	F	245 F	255	270 H	255	250	270	255	290	290	I295 RH	270	280	285	285	290	290	275	260	265	255
19	255	255	265	275	275	310	290	285	290	280	I275 A	275	275	270	270	275	290	285	290	A	A	FS	250 F	I255 FS
20	I255 F	I260 FS	260 F	260 F	255	265	I275 R	295	305	290	285 H	275 H	285	280	275	280	280	290	I280 A	I270 S	I270 A	270	I250 A	245
21	245	245	255	255	260	255	285	295	290	270	275	255	U260 R	270	270	265	275	I275 S	280	S	S	S	S	260
22	255	245	250	260	260 F	280	285	305	285	290	I270 R	265	255	275	270	270	270	270	285	270	I275 S	I270 S	255	260
23	255 F	260	265	260	265	290	280	C	C	C	C	C	C	C	C	C	C	C	275	285	U275 S	I270 S	I250 S	240
24	250	245	260	265	250	265	290	280 Σ	300	285	260	J265 R	260 H	270 H	265 H	270 H	280 H	290	275	270	285	I265 S	255	U255 S
25	260	255	240	245	250	270	305	300 H	290	295 H	280 H	I285 A	270	270	270	270	275	275	285	280	I270 S	270	265	I265 S
26	260	250	240	245	255	265	280	285	285	285	275	270	280	270	275 H	270 H	280 H	285	280	S	S	S	S	S
27	U260 S	260	260	270	255	285	305	290 H	J280 RH	270 H	265 H	265 H	260	265	265	275	275 H	275	285	270	U275 S	I270 AS	I270 S	U275 S
28	270	270	260	270	260	275	295	290	280 H	275 H	U265 R	255	265	265	270	270	270 H	275	270	U285 S	I285 S	I275 S	I270 S	270
29	270	275	260	270	265	U285 S	300	280	270	275	J265 R	260	255	260	265	255 H	275 H	275	280	U275 S	S	S	S	I250 S
30	255	245	245	245	245	250	270	260 H	270	240 H	270	260 H	270	275	280	275	285	280	290	U280 S	255	250	250	255
31	250	250	250	250	250	265	275	285	285 H	265 H	260	I255 R	250	260	265	260	270	275	285	270	280	U260 S	255	240
No.	28	27	28	28	30	31	31	29	26	26	26	27	28	28	28	28	28	28	29	26	26	26	27	27
Median	255	255	260	260	255	265	280	285	285	270	260	260	265	270	270	275	275	275	280	270	U270	260	255	255

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

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Aug. 1959 | (M3000)F1 | 135° E Mean Time (G.M.T. + 9h.) | **Wakkanai** | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						3.10	3.10	3.25	A	A	A	A	3.40	3.40	I 3.40 L	3.25	A	A						
2							L	A	A	A	A	I 3.55 A	3.45	3.45	I 3.40 A	A	A	A						
3						L	A	A	A	A	I 3.70 A	3.50	A	A	A	L	L	L						
4							A	A	A	A	A	A	A	A	A	A	A	A						
5						I 2.95 A	A	A	A	I 3.45 A	3.65	3.60	3.65	I 3.65 L	I 3.60 L	3.60	A	A						
6							A	A	L	3.60	I 3.80 L	3.65	3.40	3.55	3.40	I 3.35 A	A	A						
7						L	L	A	A	C	A	A	A	R	A	A	A	A						
8							A	L	A	A	A	A	I 3.55 L	3.35 H	I 3.45 L	L								
9						L	L	L	L	A	A	A	A	3.55	3.45 H			L						
10						L	3.15	I 3.35 A	I 3.30 A	3.30	3.45	3.55		I 3.55 LH	3.30	A								
11							A	A		I 3.70 L	I 3.60 A	3.45	3.25	3.50	3.50	L	L	L						
12								L	L	LH	LH	3.65	3.45	LH	A	A	L	L						
13							A	L	3.55	A	A	A	A	I 3.60 L	3.55	LH	L	A						
14							L		A	L	L	A	A	A	A	A	L	L						
15							A	A	A	A	A	A	A	L	L	L	L	L						
16							L	L	L	L	3.75	L	L	L	L	LH	A							
17							U 3.25 R	3.45	R	U 3.45 R	3.45	3.60	I 3.50 B	3.45	3.20	2.95	3.20	L						
18						2.85		3.35	3.55	I 3.30 A	3.60	3.50	L		LH	B	L	L						
19								L	A	A	A	A	L	I 3.50 L	I 3.50 L	I 3.40 L	L							
20									A				I 3.60 L	L	L	L	A							
21										L	L	L	3.55	A	A	L								
22							L	L	L	L	L	L	A	L	L	L								
23								L	C	C	C	C	C	C	C	C	C	C						
24											3.45	3.70												
25													A	A	L	L								
26									L	3.45	L	L	L	3.55										
27													L	A	L									
28												L	L	L	L	L								
29									L		L	L	L	L	L									
30											3.35		L	L	L	L								
31											L	L	L	LH	L	A	A							
No.						3	3	4	3	7	10	10	10	12	11	5	1							
Median						2.95	3.15	3.35	3.55	U 3.45	3.60	3.60	3.50	3.50	3.45	3.35	3.20							

(M3000)F1 Sweep 10 Mc to 20.7 Mc in 1 min ~~sec~~ in automatic operation.

IONOSPHERIC DATA

Aug. 1959 | 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						350	460	400	I380 A	A	A	A	500	525	I500 L	460	385	A						
2							L	A	A	420	400	470	470	390	435	340	A	A						
3						L	350	I340 A	415	I480 A	I470 A	450	I465 A	I455 A	450	350	L	L						
4							420	420	A	A	A	A	A	A	A	A	400	A						
5						560	440	400	415	460	580	580	600	I465 L	440	370	A	A						
6							A	325	300	500	I510 L	450	520	420	430	370	370	A						
7						450	I350 L	400	A	C	A	A	A	R	A	A	A	A						
8							290	I410 L	405	I440 L	I470 A	I450 A	I440 L	400	L	L								
9						320	310	I340 L	L	A	A	525	450	390	350			L						
10						L	450	400	500	370	425	490		420	370	320								
11							395	320		I380 L	360	500	360	365	390	330	L	L						
12								275	I315 L	375	410	370	370	I360 L	I350 A	I310 A	L	L						
13							A	L	300	A	A	A	360	I360 L	345	L	L	L						
14							L		A	335	375	I350 L	I360 L	I370 A	390	350	L	L						
15							A	A	A	A	A	A	A	I340 L	L	L	L	L						
16							L	L	L	L	330	I350 L	I315 L	I365 L	I360 L	380	A							
17							W	600	R	W	W	710	W	W	535	435	485	I375 L						
18						420		490	540	415	410	335	340		I400 L	310	L	L						
19								L	300	350	A	A	L	375	I355 L	I345 L	320							
20									275				I345 L	L	L	L	A							
21										L	I340 L	410	370	350	L	L								
22							L	310	L	L	L	L	A	375 L	I370 L	370								
23								C	C	C	C	C	C	C	C	C	C	C						
24											405	350												
25													A	A	L	L								
26									L	360	365	I370 L	I375 L	375										
27													380	370	L									
28												L	L	L	L	L								
29									L		L	L	L	L	L									
30											420		L	L	L	L								
31											360	I370 L	370	420	L	A	L							
No.						5	10	14	11	13	17	17	19	21	16	14	5	1						
Median						420	410	400	380	415	410	450	375	375	390	350	385	375						

h'F2 Sweep 10 Mc to 20 Mc in 1 min (sec) in automatic operation.

The Radio Research Laboratories, Japan.

W 9

IONOSPHERIC DATA

Aug. 1959 | 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	315	270	250	260	325	275	250	250	A	A	A	A	275	275	I265 A	290 A	I270 A	I265 A	270 A	280	270	300 A	I320 A	A
2	A	A	270	290	340	285	255	A	A	A	A	250 A	270	240	I260 A	A	A	A	A	A	A	A	275	295
3	290	295	290	290	350	270	I270 A	I260 A	I250 A	I265 A	I255 A	250	A	A	A	240	250	270	I290 A	I305 A	I285 A	250	I300 A	I330 A
4	335	315	290	I290 C	I285 C	270	A	A	A	A	A	A	A	A	A	A	A	A	A	300	315	I320 A	I320 A	300
5	310	290	320	320	390	I310 A	A	A	A	I245 A	235	220	250	230	230	230	A	A	A	A	A	A	A	A
6	320	310	300	310	I340 A	A	A	A	250	250	220	210	230	230	235	I260 A	A	A	A	A	A	300	280	300
7	300	290	275	315	350	295	275	A	A	C	A	I255 A	270 A	260 A	A	A	A	A	A	A	A	A	I275 A	290 A
8	290	275	305	335	350	A	A	A	A	A	A	A	250	250 H	250	275 A	A	A	A	A	300	285	275	240
9	305	290	320	320	340 A	I315 A	250	260	265	A	A	A	220 H	260	250 H	240 H	240 H	250	I265 A	I285 A	265	I280 A	275	I310 A
10	0340 A	320	320	310	370	305	275	I270 A	I275 A	260	260	250	260 H	220 H	250	I270 A	I275 A	275	I260 A	I280 C	A	A	A	290
11	335 A	320	290	295	305	315	I305 A	I295 A	I275 A	270	I235 A	225	250 A	240	240	235	235	250	265	260	I275 A	290	280	270
12	300	300	315	295	295	230	240	I240 A	210	205 H	200 H	210	235	250 H	I250 A	I250 A	250	240	260	270	270	I275 A	I280 A	300
13	I310 A	I330 A	295 A	275	295	270	I270 A	245	240	A	A	A	A	I265 A	230	220 H	250	A	A	A	275	I270 A	270	A
14	A	A	I330 A	I320 A	300	260	245	A	A	A	250	A	A	A	A	I250 A	240	250	265	I295 A	270	I295 A	305	290
15	A	A	A	A	295	A	A	A	A	A	A	A	A	260	240	I255 A	260	250	A	A	A	270	240	295
16	295	315	320	300	285	270	250	260	230	245	240	260 A	250	230	250	250 H	I290 A	A	A	A	240	270	300	360
17	420	370	365	400	460	340 H	285	250	I240 A	250	235	250	I250 B	I250 A	E280 B	250	260	250	300 A	325	290	275	320	260
18	370	350	370	395	385	320	280 H	250	230	I260 A	225	250	230	250 H	250 H	I250 B	240	250	260	I250 A	245	270	310	310
19	320	320	300	260	260	290	I265 A	240	A	A	A	A	A	240	230	260	250	I265 A	A	A	A	A	A	305
20	I305 A	305	300	295	310	I280 A	I260 A	I245 A	I245 A	245 A	240 H	225 H	250	250	240	250	A	A	A	A	A	A	A	A
21	I345 A	355	315	295	325	265	260	260 A	250	I245 A	240	250	250	I245 A	I250 A	250	295 A	I275 A	A	A	A	260	A	A
22	A	A	345	320	320	I300 A	270	I240 A	I240 A	250	I240 B	250	I240 A	250	260	235	260	275	A	A	A	A	I330 A	
23	335	330	300	300	320	260	250	250	C	C	C	C	C	C	C	C	C	C	270	255	270	290	300 A	335 A
24	320	325	285	300	310	270	270	245	I250 A	I235 A	210	205	245 H	240 H	245 H	240 H	250 H	260	260	275	I275 A	I290 A	280	300
25	320	300	340	305	300	260	245	245 H	I230 A	240 H	220 H	A	A	A	260	235	265	260	265	275	I285 A	290 A	290	295
26	300	300	320	335	310	290	260	265	I250 A	240	225	235	235	235	225 H	250 H	250 H	270	270	270 A	260	265	275	290
27	300	295	295	260	260	260	240	220 H	270 H	I255 AH	250 H	250 H	260	I250 A	230	I240 A	240 H	260	260	255	275	I295 A	I305 A	I300 A
28	295	290 A	290	270	245	260	250	240	225 H	220 H	I240 A	260 A	230	240	235	240	240 H	265	275	260	260	270 A	280 A	270
29	290	290	275	275	260	270	245	235	230	I225 A	210	270 A	210	250	240	250 H	240 H	250	270	270	A	A	A	I310 A
30	290	320	335	280	310	I320 A	I280 A	250 H	I250 A	225 H	240	230 H	230	250	250	240	I260 H	260	280	A	A	A	I320 A	345
31	320	305	270	335	340	295	250	240	240 H	250 H	220	250	235	225 H	250	A	A	A	275	290	I275 A	290 A	270	320
No.	27	27	30	30	31	28	26	23	21	20	21	21	23	26	25	26	22	20	18	18	19	22	24	26
Median	310	305	300	300	310	280	260	250	245	245	235	250	250	250	250	250	250	260	270	275	275	280	280	300

h'F

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

The Radio Research Laboratories, Japan.

W 10

IONOSPHERIC DATA

Aug. 1959 | 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	105	105	105	100	105	100	G	130	115	110	110	110	110	105	125	130	110	110	105	105	110	110	110	110
2	110	105	125	105	105	100	125	115	110	110	110	110	110	110	105	135	110	105	105	105	100	100	105	105
3	130	100	E	100	100	120	115	115	110	110	110	105	110	105	110	G	G	130	120	110	110	110	105	105
4	105	100	100	C	C	125	120	115	110	105	105	105	105	100	105	100	105	105	100	105	110	110	110	E
5	E	E	105	105	100	120	120	110	110	110	110	110	105	G	105	120	110	105	105	105	105	100	100	100
6	100	100	100	100	115	115	110	110	110	110	110	105	G	G	G	100	100	100	100	110	110	E	105	105
7	105	105	100	100	100	G	115	110	110	C	105	105	105	110	110	130	120	110	110	110	115	110	105	105
8	105	105	105	E	140	125	125	110	115	110	105	110	115	G	G	125	115	115	115	110	110	110	E	E
9	E	100	105	125	105	125	125	115	115	110	105	105	G	110	105	G	105	105	120	120	115	110	110	110
10	105	105	105	105	G	G	125	120	110	115	110	110	115	110	120	125	120	115	115	C	110	110	110	105
11	105	105	120	100	105	130	125	120	120	115	110	110	110	115	115	115	G	G	G	120	110	110	110	E
12	105	E	125	120	120	G	G	125	115	115	125	G	G	G	115	110	115	110	115	120	115	110	110	110
13	110	105	105	105	105	110	110	125	115	110	110	110	105	105	105	105	110	110	110	110	115	110	110	110
14	110	105	100	100	100	110	120	110	110	105	105	110	110	105	100	100	G	G	115	110	115	110	110	110
15	110	100	100	100	100	120	120	115	110	110	110	110	110	110	110	105	110	130	120	110	110	110	E	E
16	E	E	E	120	125	120	110	110	105	110	105	105	105	105	110	110	130	125	120	110	E	E	E	E
17	105	135	125	125	120	G	120	110	110	110	G	G	G	110	G	G	G	135	115	145	125	E	E	E
18	E	140	125	120	125	130	G	120	G	G	G	G	G	R	G	R	G	G	125	115	E	105	105	105
19	105	110	E	110	120	120	120	115	115	115	110	110	105	110	G	130	135	120	120	110	115	110	110	105
20	105	110	100	100	100	120	120	115	110	110	115	105	110	110	110	110	125	120	115	115	110	110	115	110
21	105	115	E	E	125	125	125	120	110	110	110	110	G	110	125	G	125	120	120	120	115	115	110	110
22	105	105	105	105	110	125	125	115	115	115	110	100	110	110	115	G	140	125	120	115	120	110	110	110
23	110	105	105	110	E	G	G	120	C	C	C	C	C	C	C	C	C	C	125	120	E	110	105	100
24	100	100	100	130	E	105	125	130	115	110	110	G	G	G	G	G	G	G	145	120	115	110	110	E
25	110	105	100	100	100	G	G	120	115	105	110	105	110	110	110	G	G	G	G	120	115	110	E	E
26	110	E	105	105	E	G	125	120	110	110	G	G	115	120	G	G	G	130	130	115	115	E	E	E
27	E	100	100	100	100	G	G	110	115	110	110	115	105	105	105	100	100	G	105	100	100	105	105	105
28	100	100	100	100	E	G	G	G	G	G	110	105	G	105	105	105	G	115	115	110	110	105	105	105
29	105	100	100	100	100	G	G	G	G	110	G	110	105	105	105	100	100	100	105	105	105	115	110	110
30	110	110	105	105	115	120	120	G	120	G	115	G	115	110	110	110	105	105	100	115	110	110	110	105
31	105	E	105	105	105	110	125	115	G	G	G	G	G	G	G	125	130	120	125	115	110	110	110	105
No.	26	26	27	28	25	21	23	28	26	25	25	23	21	23	22	21	21	24	29	30	28	28	24	22
Median	105	105	105	105	105	120	120	115	110	110	110	110	110	110	110	110	110	115	115	110	110	110	110	105

Es

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

The Radio Research Laboratories, Japan.

W 11

IONOSPHERIC DATA

Aug. 1959

Types of Es

135° E Mean Time (G.M.T.+ 9h.)

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f2	f	f2	f	l2	l		h	C2	C2	C2	C2	C2	l	C.l	h	l2	C3	l3	f2	f2	f4	f4	f6
2	f5	f5	f	f2	l	l3	C.l	C5	C2	C4	C	C	l	C	l	h	C2	C2	C4	f5	f4	f3	f3	f
3	f	f		f	l.l2	C	C	C	C2	C	C	l	l2	l3	l2			h	C2	f3	f6	f2	f4	f5
4	f2	f3	f2			C	C	C	C2	C	l	l	l2	l2	l2	l3	l4	l3	l2	f2	f2	f6	f5	
5			f	f	l	C2	C	C	C	C	C	C	l		l	C2 l	l2	l2	l2	f3	f4	f4	f3	f4
6	f3	f	f	f	l4	C	C3	C	l	l	l	l				l	l2	l2	l3	f4	f4	f2		f2
7	f	f	f2	f	l		C	C2	C3		C	l	l	l	l	C.l	C2	C3	C6	f5	f6	f5	f4	f
8	f	f	f		f.f	C	C2	C3	C	C	C2	C2	C			h	C2	C4	C3	f4	f4	f2		
9		f	f2	f.f	l4	C3	C	C	C2	C2	C2	C2		l	l		l	l	C2 l	f4	f	f5	f2	f4
10	f4	f	f2	f2			C	C	C	C	C	C	C	C	C	C	C	C	C2		f4	f5	f5	f2
11	f4	f	f2 f	f2	f3	C	C	C	C	C	C2	C	C	C	C	C				f	f3	f2	f2	
12	f2		f	f	l2			h	C	C	h				C2	C2	C2	l	C	f	f	f4	f3	f2
13	f5	f5	f3	f2	l3	l3	l2	h	C	C3	C2	C2	l	C2	l	l	l	l2	l4	f5	f2	f6	f2	f3
14	f3	f4	f6	f4	l2	l	C	C2	C2	l2	l	C	C	l	l3	l2			C	f3	f2	f4	f2	f2
15	f4	f3	f3	f4	f2	C	C2	C	C2	C3	C2	C2	C2	l	l	l2	l	C.l	C2	f6	f5	f		
16				f	l	l	C2	C	l	l	l	l	l	l	l	l	f2	f2	C3	f4	f			
17	f	f	f	f	l		C	C	l	C				l				f	C2	f				
18		f	f2	f2	l	C		C											C	f4		f3	f2	f2
19	f	f		f	l	C2	C2	C	C	C3	C2	C	l2	l		h	h	C3	C	f3	f3	f5	f3	f2
20	f5	f2	f2	f	f	l	C2	C2	C2	C	C	l	l	l	l	l	h	C2	C2	f2	f5	f6	f5	f5
21	f4	f2			f	l	C	C	C	l2	l2	l		l	h		C	C	C3	f6	f4	f	f3	f3
22	f5	f6	f3	f3	f	l2	C	C	C	C	C	l	l	l	C		h	C	C2	f4	f6	f4	f4	f2
23	f	f3	f4	f2				C											l	f		f2	f2	f2
24	f2	f	f	f f		f	C	h	C2	l	l								h	f2	f5	f5	f2	
25	f2	f	f3	f	f			C	C	l	l	l	l2	l2	l					f2	f5	f5		
26	f		f	f			C	C	C	C			C	h				h	C	f3	f3			
27		f	f2	f2	f			l	C	C	C	C	l	l2	l	l3	l		l	f2	f2	f2	f3	f4
28	f2	f2	f2	f							C	l		l	l	l		l	l	f2	f2	f2	f3	f
29	f	f2	f2	f2	f					C		l	l	l	l	l	l	l2	l	f2	f2	f3	f2	f3
30	f2	f2	f2	f2	f2	l3	C		C		C		C	l	l	l	l2	l3	l2	f6	f3	f4	f6	f2
31	f2		f2	f2	f2	l	C	C								h2	h2	C3	C	f	f4	f4	f	f
No.																								
Median																								

Types of Es

Sweep 10 Mc to 207 Mc in 1 ~~sec~~ min in automatic operation.

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

Aug. 1959 | foF2 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	8.5F	8.2F	6.6F	6.5F	6.6	7.7	8.2	8.0	7.1	I 7.4A	7.6	7.4	7.9	I 7.4A	7.7	8.1	8.2	8.3	8.6	7.9S	7.6S	7.1	I 7.2F
2	I 7.4F	I 7.4F	I 7.6F	7.2F	I 7.0F	7.1	9.3S	9.2	I 9.9A	10.0	9.1	8.8	9.1	10.1	9.1	I 9.4A	9.0	9.0	9.1	8.6	8.2	8.1	7.9	I 7.8F
3	I 8.2F	7.8	7.2F	6.8F	I 6.5F	6.7F	8.2	8.2	7.4	6.9	7.6	8.0	8.4	7.9	8.2	9.0	8.1	11.6	I 7.6A	I 7.9A	7.7	7.9	8.1V	7.9
4	7.6	7.7	7.3	6.8	6.6	7.1	7.5	8.0	I 7.3A	I 6.9A	A	A	A	A	A	6.8	6.9	6.8	6.6	6.5	7.0	6.7S	7.2	AF
5	A	F	6.4F	6.5F	6.0F	5.7	6.7	7.4	6.9	I 6.7A	6.8	6.8	7.2	7.0	7.5	7.7	I 7.9A	I 7.6A	7.6S	A	A	A	AS	S
6	F	F	F	F	6.9F	7.2F	9.0	A	A	A	7.9	I 8.0A	8.0	8.1	8.3	8.2	8.0	8.5	8.2S	7.9S	A	AS	F	F
7	7.8	7.7	6.8	5.9	5.5F	6.0F	8.3	8.2	I 7.5A	A	A	A	I 6.4A	6.4	I 6.3A	6.4	6.9	6.7	6.9S	A	A	7.6S	I 7.2S	6.7F
8	6.3F	6.1	5.6F	5.9	I 5.3F	5.9	7.5	8.4	8.5H	7.5	7.2	7.5	8.2	I 8.2A	8.2	A	A	A	8.3	I 8.4A	8.6	8.8	8.0	8.0
9	7.4F	7.3F	6.9F	7.0F	I 7.6F	8.3	9.3	9.6	9.0	8.9	9.3	8.4	8.9	8.6	8.3	7.8	7.6	7.9	8.0	8.5	8.6	8.0	7.8	7.3
10	7.1	7.0	6.5	6.6	6.5	7.0	7.2	7.8	7.7	8.0	8.2	8.1	9.0	8.8	9.0	9.5	8.6	8.3	8.2	7.5	7.9	7.8	8.0	7.1
11	7.8	7.4	I 7.4F	7.5F	7.1F	I 7.0F	8.0	9.7	9.3	8.6	7.8	I 8.4A	9.2	9.3	9.3	9.0	8.9	8.9	9.3S	8.7S	8.1S	8.2S	8.1S	I 7.8F
12	7.8F	7.6F	7.2F	7.0	6.7	7.5	8.4	C	C	C	8.8	9.3	9.7	9.9	10.1	9.6	9.3	8.6	J 8.3S	I 8.5A	8.3S	9.5	7.7S	8.1S
13	7.0	8.0	7.9S	7.6	7.3S	6.9	7.6	8.6	8.2	8.5	I 8.4A	9.2	I 9.6A	9.6	8.8	8.3	8.5	8.7	8.5	8.4	8.0	8.2	8.3	7.5
14	7.2	7.3F	7.5F	7.5	7.4	7.9	8.8	9.0	9.4	8.5	I 9.0C	9.1	9.2	9.2	9.4	9.4	9.4	9.1	9.0	8.5	7.6	7.8	8.0	7.9F
15	8.0F	7.8F	7.5F	7.3	7.4	7.7	9.2	9.6	9.5	I 9.8A	I 10.1A	10.1	11.0	10.5	10.6	10.4	9.9	9.7S	9.5S	A	A	F	F	F
16	9.0F	8.7F	8.5F	8.1F	I 7.4F	7.6S	8.7	10.8	10.2	9.1H	9.3H	9.5	10.6	9.8	10.2	9.3	9.2	I 9.5A	I 10.5A	10.7S	9.6	8.7S	8.5	7.6F
17	7.1	7.3	6.3	5.8	5.0	5.1FH	5.3F	5.6	G	5.7	5.9	6.5	6.2	7.2	7.0	7.9	7.4	7.2	7.0	7.0	8.0S	6.0S	6.0S	6.2S
18	5.4S	5.5	5.3S	5.1S	5.0S	5.3S	6.0	6.3	6.7	8.0	8.9	9.1	8.9	8.6	8.5	9.1	9.1	8.7	8.8S	9.5S	7.7S	7.2S	7.0	7.1S
19	6.9	6.7	6.7	6.1	5.5	6.0S	7.7	8.1	9.2	8.9	9.9	9.6	9.8	9.9	10.1	I 10.0C	9.5	9.1	8.8S	8.4S	7.1	7.7S	7.6S	7.2S
20	7.1S	7.1	6.8	6.6F	6.2F	6.6F	8.8F	9.7	10.2	9.5	9.4	9.5	10.1	10.0	10.3	10.0	9.6	10.3	9.1	9.3S	8.8	I 8.7AB	8.1	8.1
21	8.0	7.3	7.1	7.1F	7.0	7.6	10.7	12.5	12.2	11.4	10.7	10.8	11.6	12.1	12.1	10.7	10.2	10.2	11.0S	10.6S	9.2S	8.9S	8.0S	8.2
22	8.4S	7.7	7.1F	7.1F	6.7F	6.4F	7.6	8.4	I 7.6A	I 8.0A	8.0	8.8	8.3	8.6	8.7	8.1	8.2	8.5	8.5	8.4	8.1S	7.3	7.0	6.8
23	6.6	6.5	6.3	6.0	5.8	7.0	9.2	10.9	11.0	9.6	10.4	9.8	9.5	9.4	10.1	10.3	10.0	9.8	9.3	9.5S	8.5	8.1S	8.1S	7.9S
24	7.9	7.6	7.3	7.1	6.6	7.5	9.7SH	10.8	10.1	10.3	10.0	10.2	11.2	10.4	10.5	10.2	9.9	10.0	9.5	9.5S	9.0	8.1	7.6	8.1
25	8.1	8.0	7.6S	7.9	7.5	8.5	9.5	11.0	11.3	11.1	10.5	10.4	10.0	10.1	10.1	10.1	10.6	10.8	10.0S	9.8S	9.0S	9.0S	I 8.8AS	9.1S
26	8.9S	8.3	7.9	7.6S	7.9S	8.2S	8.8	9.1S	9.0	9.3	9.4	10.7	10.2	10.0	9.7	9.6	9.6	9.7S	9.8S	9.3S	8.4S	8.1S	8.2S	8.1S
27	8.0	8.0S	8.0S	7.2S	6.5	6.8	9.1S	9.1	11.0	11.0	10.6	10.9	10.6	10.5	9.9	9.5	9.4	9.5	9.4	9.5	9.1S	8.9	9.3	9.1
28	8.7	8.6	8.5	7.7	7.0	7.5	10.0	11.1	10.3	10.3	11.1	11.6	11.3	11.1	11.0	10.2	10.3	10.1S	10.2S	10.4S	9.4S	9.1S	9.2S	9.2S
29	9.3S	8.9S	8.6	7.9S	7.4	8.0	9.3S	10.9	11.0	11.1	11.2	11.7	11.4	11.0	10.8	10.2	9.6	9.6	10.2	9.6S	9.1	8.3	8.0	8.1
30	8.3	7.1	7.2	7.5	6.9	7.4	9.2	10.3H	10.5	11.4	10.9	10.1	9.8	9.6	9.5	9.1	9.2	9.7	9.8S	9.3S	7.7S	7.4S	7.4S	7.3S
31	7.7S	7.5S	7.4	6.5	6.6	7.2S	9.6S	11.9S	11.5	11.3	11.8	11.7	11.2	10.0	9.7	9.3	9.0	8.7	9.0	8.9	8.9	C	C	7.7
No.	28	29	30	30	31	31	31	29	29	28	29	29	30	30	30	30	30	30	31	28	27	27	27	27
Median	7.8	7.6	7.2	7.0	6.7	7.1	8.8	9.1	9.3	9.0	9.3	9.3	9.6	9.6	9.4	9.4	9.2	9.0	9.0	8.6	8.3	8.1	8.0	7.8
U.Q	8.2	8.0	7.6	7.5	7.3	7.6	9.3	10.8	10.4	10.3	10.4	10.3	10.6	10.1	10.1	10.0	9.6	9.7	9.5	9.5	8.9	8.7	8.1	8.1
L.Q	7.1	7.2	6.8	6.5	6.2	6.6	7.6	8.2	7.6	8.0	8.0	8.2	8.4	8.6	8.3	8.2	8.1	8.3	8.2	8.4	7.7	7.7	7.4	7.3
Q.R	1.1	0.8	0.8	1.0	1.1	1.0	1.7	2.6	2.8	2.3	2.4	2.1	2.2	1.5	1.8	1.8	1.5	1.4	1.3	1.1	1.2	1.0	0.7	0.8

foF2

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

The Radio Research Laboratories, Japan.

A 1

21

IONOSPHERIC DATA

Aug. 1959 | foF1 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	I 4.4 L	5.0	5.0	I 5.3 A	A	A	5.8	5.4 H	I 5.5 A	I 5.4 A	I 5.4 L	A	A					
2							L	A	A	A	A	6.1	A	A	5.6	A	L	L	A					
3							I 4.3 L	I 4.8 L	5.4	I 5.8 L	I 5.6 L	5.7	5.8	I 5.8 L	5.6	A	L	L	A					
4						L	4.5 L	I 4.7 A	A	A	A	A	A	A	A	I 5.2 A	5.1	L	A					
5						3.5	4.1	4.3	I 5.0 A	I 5.2 A	I 5.5 L	5.8	A	L	A	A	A	A	A					
6							A	A	A	A	A	A	5.8	5.8	5.8	A	L	A	A					
7						L	L	L	A	A	A	A	I 5.4 A	5.4	A	A	5.2	A	A					
8						L	L	L	5.8	5.4 L	5.8	L	A	A	I' 5.6 L	A	A	A	A					
9							A	4.6	I 5.5 L H	I 5.4 L H	I 5.4 L	I 5.7 A	5.8	5.7	5.6	I 5.4 L	5.3	L	L					
10							4.5 L	4.8	I 5.2 L	5.7 L	I 5.7 A	I 6.0 L	I 5.8 A	5.6	5.7	5.6 L	L	L	A					
11							A	5.0 L	A	L	A	A	A	I 6.0 L	6.0 L	I 5.6 L	5.2 L	L						
12							L	C	C	C	5.8	5.6 L H	6.0	5.8 L	I 5.6 H	5.7 L	L	A	A					
13						L	L	L	A	A	A	6.0	A	L	A	A	L	L						
14								L	A	A	C	A	L	6.1	5.6 H	5.5 L	L	A						
15								A	A	A	A	A	A	A	A	A	L	L	A					
16						L	L	L	L	L	L H	6.1 L	I 5.7 L	6.0 L	5.9 L	L	A	A	A					
17							3.9	4.4	4.9 A	5.1	5.3	5.3	I 5.3 A	5.6	5.4	I 5.4 L H	I 4.7 L	I 4.0 L	L					
18						L	L	4.9	5.5	5.7	A	A	L	L	I 5.8 L	5.4 H	5.3 L	L	A					
19							L	L	L	I 5.2 L	I 5.5 L	I 5.9 L	6.1 L	5.7 L	I 5.8 L	C	L	L						
20							L	L	L	L	L	L	6.0 L	A	A	L	A	A						
21							L	L	A	A	7.0 L	I 6.6 L	I 6.0 L	6.4	6.0 H	L H	L	L						
22							L	A	A	A	L	5.7 L	6.5	L	L	L H	L	L						
23										L	6.1 L	I 6.2 L	I 6.2 L	6.3 L	6.1 L	L	L	L	L					
24							L	L	L	L	L	6.6 L	6.0	6.1 L	6.1 L	L	L							
25								L		L	I 6.5 L	I 6.8 L	I 6.8 L H	L	L	L	L	L						
26							L	L	A	6.1 L	I 6.1 L	I 6.2 L	I 6.6 L	I 6.2 L	I 6.4 L	L	L	L						
27								L	L	I 6.0 L	L	L	L	A	L	I 5.9 L H	L	L						
28										L	L	6.1 L H	7.0 L	6.5 L	6.5 L	L H	L	L	L					
29							L	L	L	L H	L H	A	L	L	L	L	L							
30								L	A	L	L	L	6.9 L	I 6.6 L	6.9 L	L	L	L						
31							L	L	L	L	L	L	5.7	I 6.4 L	I 6.3 A	L	L	L						
No.						1	6	9	8	11	12	17	20	19	21	10	7	1						
Median						3.5	4.4	4.8	5.3	U 5.4	U 5.8	6.0	6.0	6.0	5.8	U 5.4	5.2	U 4.0						

foF1

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

The Radio Research Laboratories, Japan.

A 2

IONOSPHERIC DATA

Aug. 1959 | 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	250	320	365	380	390	I 390 R	I 400 R	I 405 R	400	370	B	A	A					
2							A	330	365	380	395	395	A	A	A	360	A	A	A					
3						B	260	330	370	380	I 395 A	I 395 A	395	A	A	A	350	300	B					
4						B	280	330	355	375	375	A	A	A	A	A	A	A	A					
5						B	255	310	350	380	390	A	A	A	A	380	360	295	B					
6						B	265	310	350	365	I 375 A	A	A	A	A	A	A	A	A					
7						B	275	330	365	375	R	A	A	A	400	395	350	305	B					
8						B	275	305	355	375	380	A	A	A	I 395 B	395	350	300	205					
9						B	265	315	350	375	I 380 A	395	390	A	A	A	340	300	215					
10						B	280	310	355	370	390	390	395	395	365	370	375	305	B					
11						B	260	310	355	390	400	390	375	I 365 A	B	A	345	A						
12						B	I 250 R	C	C	C	395	I 405 A	410	390	395	375	320	A	A					
13						B	250	330	345	355	A	A	A	A	A	A	A	285	A					
14						B	A	A	A	A	C	B	B	R	395	370	335	295	A					
15						B	245	320	345	355	360	380	380	I 370 B	A	A	A	A	A					
16						R	A	A	350	A	A	A	A	A	A	A	A	270	B					
17						B	230	300	310	380	A	A	A	A	A	370	I 330 R	I 275 R	B					
18						B	R	300	I 330 R	I 370 A	385	I 390 A	I 390 R	B	R	A	330	290	B					
19						B	245	305	I 345 A	380	390	I 400 B	400	390	I 380 R	I 360 C	340	285	B					
20						B	240	295	345	355	A	A	A	A	A	A	A	280	B					
21							230	300	340	A	A	A	A	R	395	365	I 335 R	290	B					
22							R	305	330	A	B	A	R	380	390 H	I 365 B	325	285	B					
23							250	305	355	380	395	400	I 390 A	I 400 A	I 405 R	375	350	290	B					
24						B	260	305	A	A	A	I 405 B	410	I 405 R	I 400 R	375	345	280	B					
25							245	305	I 370 R	390	400	R	R	R	400	380	360	295	B					
26							255	320	355	380	395	395	400	380	375	R	R	I 290 A	B					
27							B	280	360	385	395	A	A	A	A	360	I 320 A	R	B					
28							I 240 A	285	350	A	B	R	400	I 405 R	400	380	340	270	B					
29							250	310	I 355 A	I 390 A	R	A	A	A	A	A	A	A	A					
30							210	310	370	400	410	400	410	395	A	A	A	270 H	A					
31							230	285	310	A	A	A	A	405	405	380	315	275	B					
No.							25	28	28	23	19	14	14	13	15	15	20	22	2					
Median							250	310	350	380	390	395	400	395	395	370	340	290	210					

foE

Sweep 460 Mc to 200 Mc in 20 sec in automatic operation.

The Radio Research Laboratories, Japan.

A 3

IONOSPHERIC DATA

Aug. 1959 | 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	6.7M	4.0M	4.4M	3.6M	4.0M	3.1M	3.0	4.1	6.5M	8.6M	14.0M	18.0M	17.0M	G	13.9M	8.7M	6.7M	6.7M	9.0M	6.7M	5.8M	4.0M	3.1M	5.7M
2	6.7M	4.9M	6.6M	6.7V	7.3M	6.7M	4.7M	11.6M	14.4M	9.3M	9.0M	6.6M	7.5M	10.5M	5.6M	12.6M	4.7M	4.5M	8.0M	3.9M	4.0M	8.5M	9.2M	4.9M
3	5.9M	3.0M	E	3.1M	2.6M	B	3.2	5.9M	5.6M	6.7M	6.5M	7.0M	7.7M	6.2M	6.8M	9.1M	12.0M	11.5M	10.3M	8.6M	9.0V	7.5M	4.0M	8.5V
4	7.0M	7.0M	4.6M	3.1M	3.5M	4.1M	3.6	8.4M	9.4M	10.6M	13.7MD	200D	11.2M	8.4M	8.5M	6.9M	5.0M	5.9M	9.2M	7.0M	6.0M	4.2M	6.0M	9.0M
5	9.4M	7.1M	6.7M	6.8M	4.8M	3.0	5.7M	4.9M	9.1M	12.6M	8.6M	6.2M	6.4M	8.3M	9.2M	9.5M	11.7M	8.2M	14.4M	14.4M	17.1V	14.2M	7.3M	6.7M
6	3.8M	4.0M	2.8M	3.1M	4.0M	5.7M	5.5M	14.4M	14.2M	13.3M	8.4M	9.5M	5.5M	6.6M	7.2M	10.6M	12.0M	7.7M	7.9M	9.0M	8.6M	8.3M	2.4M	3.7M
7	4.2M	2.6M	2.8M	3.0M	E	B	4.5M	7.4M	16.0M	9.5M	17.1M	10.4M	9.1M	6.3M	15.7M	6.7M	6.8M	7.5M	6.9M	13.1V	13.2M	7.5M	5.7M	5.6M
8	4.4M	4.1M	2.9M	3.1M	2.7M	4.2M	5.1M	7.1M	6.7M	5.0M	8.8M	12.0M	13.2M	12.0M	4.4M	10.9M	9.9M	12.5M	7.6M	13.2M	5.8M	4.2M	3.5M	4.4M
9	9.0M	6.7M	6.8M	3.0M	E	2.4	5.5M	4.6M	5.0M	4.0	5.9M	7.7M	6.4M	5.6M	7.5M	6.3M	G	3.2M	3.1M	3.8M	7.1M	3.8M	4.4M	6.5M
10	4.6M	4.5M	5.5M	3.2M	E	2.5	3.5	5.1M	6.0M	5.8M	6.6M	9.1M	8.7M	8.5M	5.5M	5.0	10.6M	6.8M	6.7M	6.7M	6.7M	5.6M	6.7M	4.5M
11	5.7M	9.0M	5.9M	6.9M	9.0M	B	6.5M	4.7M	7.5M	9.9M	7.9M	12.0M	10.2M	7.9M	5.7M	4.5M	4.0M	4.6M	5.5M	E	3.0M	E	9.0M	9.0M
12	5.1M	3.7M	2.6M	3.2M	4.4M	B	G	C	C	C	6.2M	4.6M	4.6	7.1M	7.2M	4.0	5.0M	8.1M	18.4M	13.2M	8.9M	5.5M	5.7M	3.2M
13	3.1M	4.0M	3.0M	3.1M	3.3M	B	2.7	3.9	6.9M	9.2M	15.0M	9.8M	12.0M	8.8M	6.4M	7.8M	5.1M	G	4.0M	4.5M	9.0M	3.1M	7.9M	5.5M
14	5.5M	5.9M	6.9M	6.7M	4.5M	4.5M	4.5M	7.0M	8.5M	11.0M	C	9.7M	5.0M	G	4.5	4.0	3.7	6.8M	8.0M	14.5V	5.6M	5.0M	6.0M	8.6M
15	5.7M	3.2M	E	3.0M	E	3.9M	4.5M	11.5M	12.5M	18.2M	14.9M	8.5M	9.1M	10.3M	11.7M	8.0M	5.2M	5.9M	5.0M	8.7M	11.0M	6.9M	3.7M	4.4M
16	E	3.5M	4.0M	3.1M	6.2V	3.2M	5.5M	5.0M	6.4M	8.0M	7.0M	5.9M	6.4M	5.3M	6.5M	9.5M	8.1MD	20.0D	11.9M	12.7M	4.0M	E	E	E
17	E	E	3.8M	E	E	2.4	G	4.2M	3.9	4.6	4.2M	5.1M	6.7M	5.2M	5.1	4.0	G	G	2.9	E	E	E	E	E
18	E	2.6M	E	3.2M	3.1M	2.3	2.9	3.5	G	4.1M	8.5M	8.7M	9.8M	5.9M	G	4.8V	G	3.2	7.1M	9.0M	5.7M	4.0M	E	E
19	4.2M	E	2.7M	E	E	2.0	6.6M	7.1M	9.0M	7.6M	10.0M	4.6M	4.6	4.2	G	C	4.3	16.8M	9.0M	3.1M	9.0M	5.7M	6.7M	4.9M
20	9.0M	8.5M	2.5M	4.3V	E	B	5.3M	9.0M	4.0	7.9M	12.7M	9.0M	12.0M	12.0M	13.4M	6.3M	9.1M	9.5M	5.5M	4.2M	13.0V	18.2M	9.1M	8.9M
21	5.0M	4.6M	5.2M	3.1M	3.0M	3.3M	4.3M	5.0M	6.8M	9.0M	12.6M	6.5M	6.6M	G	G	G	G	G	3.0	E	3.9M	5.2M	E	4.7M
22	3.1M	9.3M	6.8M	3.3M	5.8M	4.8M	4.4M	8.7M	12.0M	10.4M	B	6.6M	G	G	G	B	G	4.0	4.3M	4.5M	4.0M	7.3M	4.8M	6.8M
23	5.3M	5.7M	4.5M	3.2M	E	E	3.6	5.1M	6.3M	7.2M	6.6M	5.3M	9.9M	4.6M	G	G	G	G	2.3	E	E	3.1M	E	3.5M
24	3.2M	E	E	E	E	B	G	3.9	4.5M	9.9M	8.8M	B	G	G	G	G	G	G	2.1	2.9M	3.1M	E	E	4.0M
25	9.3M	3.1M	E	E	E	E	2.7	3.3	G	G	G	G	G	G	4.2	4.9	G	G	B	E	E	7.5M	13.5V	3.1M
26	3.7M	5.5V	E	3.3M	E	E	3.0	5.5M	7.0M	4.5	5.7M	5.9M	6.0M	5.4M	6.1M	6.3M	4.3M	3.9	B	E	E	E	E	E
27	E	E	E	E	E	E	2.5	4.6M	4.0	4.1	5.6M	7.9M	9.5V	8.8M	4.6M	3.9M	4.3M	3.6M	B	E	3.8M	3.1M	E	3.1M
28	2.9M	E	E	E	E	E	2.7	3.2	G	4.5M	B	G	4.5	G	G	G	G	6.4M	4.2M	5.6M	E	3.9M	E	E
29	E	4.3M	4.2M	E	E	E	G	3.6	4.7M	4.5M	G	7.3M	4.4M	6.4M	6.5M	8.6M	7.7M	6.8M	5.9M	3.5M	3.0M	3.1M	E	E
30	4.5M	E	E	E	3.0M	E	5.8M	5.8M	7.0M	4.3	8.5M	4.5M	4.8M	7.4M	5.9M	4.8M	3.9M	3.1	4.1M	3.2M	3.6M	E	E	E
31	5.7M	E	E	E	E	E	4.0M	5.8M	4.7M	4.5M	5.1M	5.2M	4.5	4.5	7.2M	6.4M	5.0M	5.0M	5.3M	4.9M	5.5M	C	C	3.7M
No.	31	31	31	31	31	24	31	30	30	30	28	30	31	31	31	29	31	31	28	31	31	30	30	31
Median	4.6M	4.0M	2.9M	3.1M	2.6M	2.4	4.0M	5.1M	6.6M	7.8M	8.4M	7.2M	6.6M	6.2M	5.9M	6.3M	4.7M	5.9M	6.3M	4.5M	5.6M	4.2M	3.8M	4.4M
U.Q	5.9	5.7	5.2	3.3	4.0	4.0	5.3	7.1	9.0	9.9	11.3	9.5	9.8	8.4	7.2	8.6	7.7	7.7	8.5	9.0	8.9	7.3	6.7	6.5
L.Q	3.1	2.6	E	E	E	E	2.7	4.2	4.7	4.5	6.0	5.3	4.6	4.2	4.2	4.0	G	3.2	4.2	2.9	3.1	3.1	E	3.1
Q.R	2.8	3.1					2.6	2.9	4.3	5.4	5.3	4.2	5.2	4.2	3.0	4.6		4.5	4.3	6.1	5.9	4.2		3.4

The Radio Research Laboratories, Japan.

foEs

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

IONOSPHERIC DATA

Aug. 1959 | f_bE_s | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	G	3.0	G	4.9	5.8	A	6.0	5.0		6.2	5.3	3.5	4.9	5.8	3.5	3.5	E	E	E
2	4.0	E	4.5	E	3.5	5.7	3.0	6.5	A	8.0	7.3	5.3	6.7	7.6	4.8	6.0	4.0	4.1	7.5	3.0	3.4	3.5	4.0	2.5
3	3.9	E		E	E	B	3.0	5.0	4.0	5.1	4.6	5.5	5.2	5.1	5.3	5.6	4.9	3.5	A	A	2.7	2.7	2.1	3.0
4	2.8	6.5	3.5	2.3	2.5	2.2	3.5	5.4	A	A	A	A	A	A	A	6.4	4.3	4.5	5.2	5.0	4.1	2.9	5.0	6.3
5	A	4.0	5.0	4.4	2.0	2.5	3.0	3.9	5.5	A	5.5	5.3	5.7	5.9	6.9	6.2	A	A	6.8	A	A	A	A^S	5.3
6	E	E	E	E	E	4.0	4.7	A	8.4	A	7.3	A	4.7	5.6	5.0	5.8	5.0	7.0	5.5	7.5	A	A^S	E	E
7	E	E	E	E		B	3.6	5.5	A	A	A	A	5.7	4.8	A	5.5	3.9	6.4	6.6	A	6.2	5.5	E	3.5
8	E	E	E	E	E	3.0	3.4	4.0	4.4	4.2	5.1	5.6	7.0	A	$^U44^B$	A	A	A	7.0	A	4.7	3.3	1.8	2.5
9	4.2	2.9	3.4	E		2.3	4.5	3.9	4.4	4.0	4.4	6.9	5.3	4.9	4.2	4.0		2.5	2.4	1.8	5.3	2.7	3.1	4.0
10	2.0	3.5	3.8	1.9		2.0	3.2	4.2	5.0	4.9	5.3	5.0	7.7	4.8	4.7	4.5	G	3.6	4.7	3.7	3.9	3.2	2.0	2.5
11	3.1	6.0	3.6	3.7	4.0	B	5.5	4.0	5.5	5.3	6.2	A	7.2	6.0	4.5	3.9	3.2	G	3.0		E		4.0	E
12	E	2.4	E	E	1.9	B		C	C	C	5.3	3.4	4.4	4.5	4.4	G	4.0	6.0	6.5	A	6.4	3.5	3.5	E
13	E	E	E	2.0	2.5	B	G	G	5.9	6.0	A	5.4	A	5.6	5.6	6.9	4.1		3.0	2.8	3.4	2.3	3.5	2.5
14	3.0	E	3.5	3.0	2.4	2.5	3.3	3.5	5.5	7.0	C	6.9	$^D5.0^B$		G	G	3.5	5.6	2.5	2.1	2.0	2.5	3.5	5.1
15	1.9	2.3		E		2.0	3.4	8.5	8.6	A	A	6.9	8.7	9.5	9.7	7.3	4.6	4.5	4.5	A	A	4.0	E	3.0
16		E	E	E	E	G	G	4.0	5.0	5.0	4.2	4.8	5.1	4.2	4.4	4.5	5.4	A	A	7.6	2.9			
17			2.4			2.0		3.1	3.6	4.3	4.0	4.7	5.8	4.7	5.1	4.0			2.7					
18		E		E	E	2.3	G	3.5		4.0	6.7	5.5	5.6	5.4		4.2		G	6.5	8.0	4.3	E		
19	E		E			G	4.0	5.0	4.8	5.5	4.4	4.5	4.6	4.2		C	3.8	3.0	2.7	E	5.5	4.1	4.0	E
20	5.5	E	E	E		B	4.0	3.8	G	5.1	4.2	5.1	5.1	6.5	8.5	4.9	5.8	7.5	4.4	3.4	3.5	2.5	6.3	4.9
21	3.5	3.6	3.8	1.8	E	2.4	3.4	4.0	5.7	6.9	4.6	4.5	5.0						2.8		E	E		E
22	E	E	E	E	E	2.4	3.2	6.7	A	A	B	5.0				B		3.4	3.5	3.5	3.5	4.0	2.5	4.1
23	3.4	4.5	2.5	2.0			3.3	4.0	5.0	5.8	4.3	4.6	5.6	4.4					G			E		E
24	E					B		3.5	3.8	5.2	4.8	B							2.1	E	E			2.0
25	2.1	2.5					2.7	3.3							G	4.8			B			5.1	A^S	E
26	E	E		E			2.9	4.7	6.5	4.1	5.0	5.3	4.8	4.4	5.0	5.0	3.5	G	B					
27							G	3.4	3.9	4.0	4.9	4.6	4.7	8.1	4.2	3.4	3.5	2.6	B		3.4	E		2.5
28	2.0						2.7	$^U3.2^B$		G	B		4.5					3.1	G	E		E		
29		E	E					G	G	4.0		6.5	4.4	5.6	5.5	4.7	5.1	4.0	4.0	2.5	2.1	2.8		
30	E				E		5.0	5.2	5.5	4.3	5.5	4.5	4.8	6.2	4.9	4.4	3.5	G	3.0	E	2.5			
31	4.8						3.2	3.9	3.7	4.5	4.5	4.5	4.5	$^U4.5^B$	6.5	4.4	3.5	3.5	4.5	4.0	3.5	C	C	2.4
No.	26	24	21	22	16	16	27	30	27	29	26	28	27	24	24	25	22	25	28	24	26	24	19	24
Median	2.0	E	E	E	E	2.3	3.2	4.0	5.0	5.2	5.2	5.3	5.2	5.5	5.0	4.8	4.0	4.0	4.4	3.6	3.5	2.8	3.5	2.5

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

The Radio Research Laboratories, Japan.

A 5

25

IONOSPHERIC DATA

Aug. 1959 | f-min | 135° E Mean Time (G.M.T. + 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	2.00	2.30	2.40	2.70	2.80	3.00	3.50	3.50	3.40	3.00	3.20	2.80	2.00	2.00	2.00	E	E	E	E
2	E	E	E	E	E	E	2.00	2.40	2.40	3.05	3.20	3.00	2.90	2.55	2.75	3.00	2.50	2.25	2.15	1.95	E	E	E	E
3	E	E	E	E	E	1.90	2.00	2.40	2.60	2.75	3.45	3.40	3.60	3.55	3.55	2.70	2.60	2.45	2.20	1.80	E	E	E	E
4	E	E	E	1.90	E	1.85	2.50	2.45	2.55	3.05	2.75	3.05	3.40	3.00	3.30	2.65	2.55	1.95	2.00	E	E	E	E	E
5	E	E	E	E	E	1.75	2.15	2.40	2.45	3.00	3.50	3.40	3.50	3.40	3.25	2.25	2.00	2.40	2.00	E	E	E	E	E
6	E	E	E	E	E	2.10	2.00	2.40	2.50	2.80	2.70	3.10	3.00	3.00	2.80	2.80	2.45	1.95	1.80	E	E	E	E	E
7	E	E	E	E	E	2.00	2.00	2.00	2.40	2.45	2.80	3.25	3.35	3.45	2.90	2.95	2.45	2.00	1.95	E	E	E	E	E
8	E	E	E	E	E	1.85	2.00	1.95	2.70	2.70	2.70	2.70	3.00	3.15	4.00	2.70	2.25	2.00	1.80	E	E	E	E	E
9	E	E	E	E	E	1.70	2.00	2.05	2.30	2.70	2.65	3.10	3.15	3.45	2.75	2.25	2.05	1.90	1.85	1.75	E	E	E	E
10	E	E	E	E	E	1.80	1.80	2.00	2.20	2.65	2.60	2.50	3.10	2.65	2.75	2.75	2.70	2.00	2.00	E	E	E	E	E
11	E	E	E	E	E	2.00	1.90	1.90	2.55	2.80	2.80	3.30	3.50	2.90	3.50	2.75	2.50	2.00	1.80	1.75	E	E	E	E
12	E	E	E	E	E	2.00	1.90	C	C	C	2.90	3.35	3.45	2.80	2.75	2.75	2.30	1.95	E	E	E	E	E	E
13	E	E	E	E	E	2.10	1.75	2.00	2.05	2.75	2.75	3.45	2.55	2.80	3.05	2.55	2.45	1.95	1.90	E	E	E	E	E
14	E	E	E	E	E	1.85	1.75	1.95	2.00	2.50	I 3.40 C	4.70	4.40	3.50	3.25	2.60	2.75	1.90	1.80	E	E	E	E	E
15	E	E	E	E	E	1.75	1.90	2.50	2.25	2.75	2.75	2.80	2.80	3.45	3.10	2.70	2.80	1.90	1.85	E	E	E	E	E
16	E	E	E	E	E	E	1.90	2.00	2.75	2.75	3.00	3.10	3.45	3.05	2.95	2.45	2.30	2.00	1.90	E	E	E	E	E
17	E	E	E	E	E	1.75	1.90	2.00	2.05	2.80	3.20	3.10	3.20	3.30	2.85	2.00	2.30	1.95	1.95	E	E	E	E	E
18	E	E	E	E	E	1.80	2.00	2.60	2.80	3.10	3.45	3.50	3.40	3.70	3.40	3.45	2.40	2.35	2.00	E	E	E	E	E
19	E	E	E	E	E	1.75	1.90	2.25	2.80	2.70	2.80	4.00	3.20	2.75	3.00	I 2.40 C	2.70	1.80	1.90	E	E	E	E	E
20	E	E	E	E	E	2.00	2.10	2.30	2.80	2.75	2.70	3.50	3.05	2.60	2.90	3.05	2.45	1.80	1.80	E	E	E	E	E
21	E	E	E	E	E	E	1.95	1.95	2.45	2.80	3.10	3.25	3.10	2.90	3.10	2.70	2.80	2.40	1.95	1.80	E	E	E	E
22	E	E	E	E	E	1.80	2.00	2.30	2.50	2.55	5.40	3.45	3.45	3.45	3.05	3.90	2.50	2.00	1.90	E	E	E	E	E
23	E	E	E	E	E	E	2.05	2.50	2.50	2.50	3.20	3.20	3.50	3.45	2.80	2.75	2.30	2.00	1.80	E	E	E	E	E
24	E	E	E	E	E	1.90	1.80	2.00	2.40	2.95	2.90	4.75	3.45	3.50	3.40	2.80	2.45	1.95	1.90	E	E	E	E	E
25	E	E	E	E	E	E	1.95	2.05	3.45	2.95	2.90	2.80	3.20	3.50	2.80	2.80	2.75	1.95	2.10	E	E	E	E	E
26	E	E	E	E	E	E	1.90	1.95	2.80	2.75	2.80	3.40	3.00	3.00	2.80	2.80	2.00	1.90	1.95	E	E	E	E	E
27	E	E	E	E	E	E	2.00	2.00	2.00	2.70	3.85	3.50	3.05	3.40	3.00	2.50	1.95	2.00	2.20	E	E	E	E	E
28	E	E	E	E	E	E	1.90	2.20	2.60	2.95	4.70	3.60	3.15	3.20	2.80	2.75	2.45	2.00	1.80	E	E	E	E	E
29	E	E	E	E	E	E	1.80	2.10	2.50	2.75	3.10	3.50	3.50	3.20	3.05	2.50	1.95	2.00	1.70	E	E	E	E	E
30	E	E	E	E	E	E	1.95	2.00	3.05	3.40	3.50	3.45	3.30	3.20	3.20	2.95	2.75	E	E	E	E	E	E	E
31	E	E	E	E	E	E	1.85	1.95	2.40	3.60	3.55	3.10	3.70	3.50	3.50	2.75	2.70	2.00	1.70	E	E	C	C	E
No.	31	31	31	31	31	31	31	30	30	30	31	31	31	31	31	31	31	31	31	31	31	30	30	31
Median	E	E	E	E	E	1.75	1.95	2.05	2.50	2.75	3.00	3.35	3.30	3.20	3.00	2.75	2.45	2.00	1.90	E	E	E	E	E

f-min

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | (M3000)F2 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	2.70F	2.85F	2.60F	2.55F	2.30	2.50F	2.60	2.50	2.55	I 2.60A	2.65	2.55	2.80	I 2.75A	2.65	2.80	2.75	2.80	2.85	2.65S	2.55S	2.55	I 2.50F
2	I 2.50F	I 2.60F	I 2.60F	2.55F	I 2.50F	2.55	2.50S	2.70	I 2.75A	2.90	2.85	2.60	2.55	2.70	2.70	I 2.70A	2.70	2.80	2.85	2.90	2.70	2.70	2.55	I 2.60F
3	I 2.60F	2.75	2.70F	2.60F	I 2.50F	2.60F	2.85	2.85	2.85	2.60	2.70	2.65	2.70	2.65	2.70	2.85	3.05	2.85	I 2.85A	I 2.75A	2.70	2.50	2.70V	2.50
4	2.50	2.55	2.65	2.65	2.50	2.55	2.60	2.60	I 2.55A	I 2.50A	A	A	A	A	A	2.65	2.80	2.80	2.80	2.75	2.55	2.65S	2.50	AF
5	A	F	2.35F	2.50F	2.50F	2.40	2.40	2.65	2.50	I 2.50A	2.55	2.60	2.35	2.55	2.75	2.85	I 2.80A	I 2.80A	2.85S	A	A	A	AS	S
6	F	F	F	F	2.60F	2.55F	2.90	A	A	A	2.70	I 2.60A	2.75	2.70	2.70	2.75	2.75	2.85	2.95S	AS	A	AS	F	F
7	2.55	2.70	2.65	2.45	2.30F	2.35F	2.80	2.70	I 2.80A	A	A	A	I 2.45A	2.65	I 2.50A	2.50	2.65	I 2.80A	I 2.80S	A	A	2.50S	I 2.60S	2.55F
8	2.65F	2.70	2.50F	2.50	I 2.45F	2.55	2.75	2.60	2.45H	2.85	2.55	2.60	2.70	I 2.75A	2.95	A	A	A	2.90	I 2.75A	2.70	2.70	2.60	2.60
9	2.55F	2.60F	2.50F	2.55F	I 2.60F	2.70	2.80	3.00	2.60	2.50	2.90	2.55	2.75	2.80	2.90	2.85	2.90	2.85	2.95	2.75	2.80	2.65	2.70	2.45
10	2.50	2.45	2.50	2.50	2.40	2.50	2.60	2.70	2.55	2.65	2.95	2.65	2.75	2.85	2.75	2.85	2.90	2.90	3.00	2.75	2.70	2.60	2.65	2.60
11	2.70	2.45	I 2.55F	2.65F	2.60F	I 2.60F	2.85	2.90	3.00	3.00	2.70	I 2.70A	2.70	2.65	2.75	2.75	2.90	2.85	2.80S	2.90S	2.70S	2.60S	2.75S	I 2.60F
12	2.55	2.65F	2.60F	2.70	2.60	3.10	3.10	C	C	C	2.60	2.75	2.80	2.75	2.80	2.70	2.90	2.80	J 2.80S	I 2.80A	2.75S	2.80	2.65S	2.40S
13	2.55	2.65	2.85S	2.80	2.80S	2.90	3.10	3.05	3.15	3.00	I 2.90A	2.75	I 2.90A	2.90	2.85	2.80	2.80	2.90	2.85	2.85	2.65	2.65	2.65	2.60
14	2.65	2.50F	2.55F	2.65	2.75	2.75	3.05	2.85	3.10	2.70	I 2.80C	2.75	2.70	2.65	2.80	2.80	2.80	2.90	2.90	2.80	2.65	2.55	2.60	2.65F
15	2.70F	2.70F	2.65F	2.50	2.75	2.90	3.10	3.10	3.10	I 2.90A	I 2.80A	2.65	2.70	2.70	2.75	2.80	2.80	2.90S	2.85S	A	A	F	F	F
16	2.65F	2.55F	2.50F	2.60F	I 2.70F	2.70S	2.90	2.95	3.05	2.75H	2.70H	2.65	2.80	2.75	2.85	2.80	2.70	I 2.55A	I 2.70A	2.80S	I 2.85S	2.50S	2.45	2.35F
17	2.20	2.45	2.30	2.25	2.20	2.35H	2.30F	2.40	G	2.25	2.30	2.45	2.25	2.60	2.45	2.70	2.65	2.85	2.60	2.50	2.80S	2.40S	2.30S	2.55S
18	2.40S	2.50	2.45S	2.40S	2.45S	2.55S	2.65	2.55	2.60	2.75	2.80	2.95	2.95	2.85	2.80	2.95	2.90	2.90	2.85S	2.90S	2.80S	2.75S	2.55	2.55S
19	2.55	2.45	2.55	2.65	2.65	2.85S	3.20	3.00	2.80	2.80	2.75	2.70	2.70	2.70	2.70	I 2.75C	2.85	2.85	2.95S	2.90S	2.55	2.50S	2.65S	2.70S
20	2.55S	2.60	2.65	2.60F	2.60F	2.70F	2.95F	3.00	2.95	2.85	2.75	2.80	2.85	2.70	2.80	2.80	2.70	2.80	2.80	2.70S	2.70	I 2.60A	2.55	2.50
21	2.45	2.45	2.50	2.45F	2.50	2.60	2.80	3.00	2.95	2.85	2.60	2.60	2.60	2.65	2.75	2.70	2.75	2.75	2.80S	2.85S	2.70S	2.70S	2.55S	2.55
22	2.70S	2.65	2.55F	2.60F	2.55F	2.80F	2.90	3.10	I 3.00A	I 2.85A	2.70	2.85	2.65	2.70	2.80	2.75	2.85	2.80	2.85	2.85	2.80S	2.70	2.60	2.55
23	2.50	2.45	2.70	2.50	2.45	2.80	3.05	3.00	3.00	2.90	2.40	2.85	2.70	2.60	2.60	2.65	2.70	2.75	2.70	2.85S	2.65	2.60S	2.60S	2.50S
24	2.55	2.50	2.60	2.60	2.45	2.60	2.90S H	3.05	2.95	2.95	2.75	2.55	2.70	2.70	2.65	2.75	2.75	2.85	2.80	2.75S	2.70	2.70	2.60	2.55
25	2.55	2.65	2.50S	2.55	2.50	2.80	3.05	2.95	2.90	3.00	2.60	2.75	2.65	2.70	2.70	2.70	2.75	2.80	2.90S	2.85S	2.65S	2.60S	I 2.50S	2.55S
26	2.60S	2.60	2.45	2.40S	2.55S	2.75S	2.85	2.95S	2.80	2.75	2.65	2.70	2.75	2.80	2.70	2.75	2.70	2.95S	2.90S	2.80S	2.75S	2.60S	2.65S	2.65S
27	2.65	2.65S	2.70S	2.90S	2.75	2.70	3.10S	2.75	2.75	2.70	2.70	2.65	2.55	2.65	2.70	2.70	2.70	2.75	2.85	2.70	2.65S	2.60	2.70	2.65
28	2.70	2.70	2.80	2.90	2.60	2.70	3.00	3.10	3.05	2.70	2.65	2.70	2.60	2.60	2.70	2.65	2.70	2.80S	2.85S	2.90S	2.70S	2.65S	2.70S	2.70S
29	2.70S	2.70S	2.80	2.80S	2.70	2.90	3.10S	3.00	2.90	2.70	2.60	2.60	2.55	2.60	2.60	2.65	2.70	2.80	2.80	2.90S	2.70	2.65	2.50	2.55
30	2.70	2.45	2.40	2.55	2.45	2.50	3.05	2.85H	2.80	2.65	2.65	2.70	2.65	2.60	2.70	2.75	2.65	2.80	2.85S	2.90S	2.65S	2.45S	2.45S	2.40S
31	2.45	2.55S	2.65	2.30	2.40	2.50S	2.75S	2.85S	2.80	2.60	2.55	2.60	2.60	2.50	2.50	2.60	2.70	2.80	2.80	2.65	2.65	C	C	2.45
No.	28	29	30	30	31	31	31	29	29	28	29	29	30	30	30	30	30	30	31	27	27	27	27	27
Median	2.55	2.60	2.60	2.60	2.55	2.60	2.90	2.90	2.80	2.75	2.70	2.65	2.70	2.70	2.70	2.75	2.75	2.80	2.85	2.80	2.70	2.60	2.60	2.55

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | (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	I 3.25 L	3.30	I 3.50 A	I 3.50 A	A	A	3.30	3.55 H	I 3.50 A	I 3.40 A	I 3.20 L	A	A					
2							L	A	A	A	A	3.40	A	A	I 3.45 L	A	L	L	A					
3							I 3.35 L	I 3.50 L	3.55	I 3.30 L	I 3.60 L	I 3.50 A	3.45	L	A	A	L	L	A					
4						L	3.15 L	A	A	A	A	A	A	A	A	I 3.40 A	3.35	L	A					
5						2.80	3.20	3.25	I 3.40 A	I 3.35 A	I 3.30 L	3.30	A	L	A	A	A	A	A					
6							A	A	A	A	A	A	3.45	I 3.45 A	3.30	A	L	A	A					
7						L	L	L	A	A	A	A	A	3.30	A	A	3.25	A	A					
8						L	L	L	3.55	3.50 L	3.30	L	A	A	I 3.45 L	A	A	A	A					
9							A	3.45	I 3.60 H	I 3.70 H	I 3.80 L	I 3.50 A	3.35	3.50	3.40	I 3.50 L	3.55	L	L					
10							3.20 L	3.35	I 3.40	3.50 L	I 3.55 A	I 3.65 L	I 3.60 A	3.55	3.45	3.40 L	L	L	A					
11							A	3.35 L	A	L	A	A	A	I 3.20 L	3.25 L	I 3.35 L	3.35 L	L						
12							L	C	C	C	3.45	3.55 H	3.50	3.45 L	I 3.45 H	3.35 L	L	A	A					
13						L	L	L	A	A	A	3.45	A	L	A	A	L	L						
14								L	A	A	C	A	L	3.40	3.40 H	3.30 L	L	A						
15								A	A	A	A	A	A	A	A	A	L	L	A					
16						L	L	L	L	L	L H	3.30 L	I 3.60 L	3.50 L	3.40 L	L	A	A	A					
17							3.10	3.35	3.55 H	3.15	3.40	3.40	I 3.40 A	3.30	I 3.50 A	I 3.25 H	I 3.50 L	I 3.70 L	L					
18						L	L	3.10	3.30	3.35	A	A	L	L	I 3.55 L	3.70 H	3.45 L	L	A					
19							L	L	L	I 3.70 L	I 3.60 L	I 3.40 L	3.30 L	3.50 L	I 3.30 L	C	L	L						
20							L	L	L	L	L	L	3.40 L	A	A	L	A	A						
21							L	L	A	A	3.40 L	I 3.30 L	I 3.40 L	3.30	3.35 H	L H	L	L						
22							L	A	A	A	L	3.55 L	3.50	L	L	L H	L	L						
23										L	3.45 L	I 3.40 L	I 3.40 L	3.35 L	3.30 L	L	L	L	L					
24							L	L	L	L	L	3.35 L	3.60	3.45 L	3.30 L	L	L							
25								L		L	I 3.60 L	I 3.45 L	I 3.35 H	L	L	L	L	L						
26							L	L	A	3.45 L	I 3.55 L	I 3.30 L	I 3.35 L	I 3.45 L	I 3.30 L	L	L	L						
27								L	L	I 3.50 L	L	L	L	A	L	I 3.40 H	L	L						
28										L	L	3.50 H	3.30	3.30	3.30 L	L H	L	L	L					
29							L	L	L	L H	L H	A	L	L	L	L	L							
30								L	A	L	L	L	3.45 L	I 3.30 L	3.40 L	L	L	L						
31							L	L	L	L	L	L	3.70	I 3.45 L	I 3.40 A	L	L	L						
No.						1	6	8	8	11	12	17	19	18	20	10	7	1						
Median						2.80	3.20	3.35	U 3.50	U 3.50	U 3.50	3.40	3.40	3.45	3.40	U 3.40	3.35	U 3.70						

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

The Radio Research Laboratories, Japan.

A 8

IONOSPHERIC DATA

Aug. 1959 | 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						L	355 L	400	320	I 430 A	I 420 A	430	465	390	I 390 A	410	355 L	I 340 A	A					
2							L	A	A	340 A	320 A	405	410	370	350	370	340 L	320 L	I 300 A					
3							I 325 L	I 290 L	345	I 510 L	400	405	400	405	410	345	310	L	A					
4						L	385	400	I 435 A	I 475 A	A	A	A	A	A	I 430 A	370	360	A					
5						450	445	395	420 A	I 480 A	480	480	400	I 370 L	I 390 A	390	A	A	A					
6							300	A	A	A	A	I 420 A	395	410	400	370	I 355 L	I 320 A	A					
7						L	340	I 355 L	I 375 A	A	A	A	540	470	I 600 A	500	420	A	A					
8						L	L	370 L	350 H	340	450	425 L	I 400 A	I 390 A	345	A	A	A	A					
9							320	315	355	I 315 L	325	I 380 A	385	355	360	345 L	365	320	300 L					
10							355	370	I 370 L	425	300	I 335 L	I 375 A	350	395	350	300	I 290 L	290					
11							305	345	275	300	A	A	380	I 370 L	355	I 335 L	320	I 305 L						
12							I 295 L	C	C	C	340	360	375	360	340	340	L	A	A					
13						L	260	I 280 L	280	315	I 340 A	370	I 345 A	350	345	I 350 A	I 340 L	I 300 L						
14								250 L	290	I 320 A	I 350 C	I 350 A	350 L	400	355	350	305	300						
15								I 270 A	A	A	A	370	A	A	A	A	260	300	A					
16						L	L	290 L	240	I 300 H	I 350 LH	395	355	360	350	310 L	I 350 A	I 340 A	I 310 A					
17							415	415	G	605	590	505	I 550 A	445	475	395	I 330 L	320	L					
18						L	L	455	445	400	I 340 A	310	330	355 L	I 355 L	325	320	I 280 L	A					
19							L	L	L	I 340 L	340 L	340 L	370	355	370 L	I 335 C	300 L	I 290 L						
20							L	I 260 L	L	285	I 310 L	345	350	360	I 345 A	345	340 A	310						
21							I 280 L	255	260	310	380	I 345 L	345 L	355	340	345 L	I 330 L	305						
22							L	A	A	A	L	355	420	400	350	I 375 L	L	L						
23										I 305 L	325 L	I 340 L	350 L	400	380	355 L	325 L	L	L					
24							L H	255	250	280 L	355 L	400	350	355	365	345	350							
25								L		I 260 L	I 330 L	340 L	I 360 L	I 370 L	375 L	340 L	310 L	L						
26							L	L	A	355	I 360 A	355	I 380 L	370 L	I 360 L	340 L	I 310 L	L						
27								I 230 L	305 L	255	I 310 L	360	395	I 360 A	I 380 L	340 L	L	L						
28										260 L	345 L	340	375	355	360	I 350 L	I 340 L	300 L	L					
29							L	255	I 280 L	345	I 340 L	350	I 330 L	390	350 L	I 350 L	I 340 L							
30								295 H	305	345 L	L	L	400	I 370 L	395	370	I 340 L	L						
31							L	I 260 L	I 275 L	I 320 L	370	370	325	400 L	405	I 385 L	L	L						
No.						1	13	22	20	26	24	27	29	29	29	29	25	17	4					
Median						450	325	290	310	340	350	370	375	370	360	350	340	305	U 300					

h'F2

Sweep 1.60 Mc to 20.0 Mc in 2.0 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | 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	290	290	270	270	320	250	250	245	I 245 A	I 245 A	A	A	A	230 H	I 245 A	I 255 A	230	A	A	290	I 290 A	295	320	340
2	I 340 A	320	I 300 A	330	I 340 A	I 290 A	255	A	A	A	A	270 A	A	A	I 245 A	I 270 A	245	I 260 A	I 265 A	265	295	340	330 A	340 A
3	340 A	290	290	300	310	300	255	I 250 A	235	I 215 A	250	I 250 A	I 250 A	A	A	A	A	255	I 280 A	I 305 A	270	340 A	310	340 A
4	350 A	I 350 A	300 A	300	300 A	305	265	A	A	A	A	A	A	A	A	A	260	A	A	A	350 A	340 A	I 370 A	A
5	A	350 A	I 375 A	I 375 A	340	340 A	285	255	A	A	A	A	A	A	A	A	A	A	A	A	A	A	AS	A
6	320	330	300	295	295	A	A	A	A	A	A	A	245	A	A	A	A	A	A	A	A	AS	260	305
7	305	290	230	290	315	290	A	A	A	A	A	A	I 260 A	240	A	A	250	A	A	A	A	A	325	I 320 A
8	320	300	320	350	365	I 290 A	260	250	240	230	A	A	A	A	I 250 B	A	A	A	A	A	320 A	300 A	290	300 A
9	I 330 A	325	350 A	340	305	295	I 275 A	250	255 H	205 H	210	I 230 A	I 240 A	250 A	240	245	245	245	275	295	300 A	290 A	300	I 310 A
10	340	370	320 A	340	345	315	260	A	A	255	I 275 A	290 A	I 250 A	245	260	255	245	260	I 270 A	290	300 A	330 A	320	305
11	320 A	A	A	330 A	340 A	300	I 275 A	250	A	A	A	A	A	I 240 A	240 A	240	240	250	250	255	255	275	I 300 A	320
12	325	310	300	295	290	230	250	C	C	C	A	225 H	250	240	230 H	210	250	I 235 A	A	A	A	A	A	300
13	340	310	270	275	270 A	245	255	255	A	A	A	A	A	A	A	A	260 A	250	255	250	300 A	295	290 A	310
14	305	340	350 A	340	300	270	250	240	I 240 A	I 240 A	C	A	B	240	220 H	245	245	I 255 A	260	255	280	340 A	340 A	I 320 A
15	295	300	290	300	290	250	265	A	A	A	A	A	A	A	A	A	260	A	A	A	A	A	290	250 A
16	290	305	320	290	290	280	250	250	I 250 A	250 A	205 H	255	260	240	250	I 260 A	A	A	A	A	260	270	330	360
17	400	345	350 A	360	390	360 H	295	245	220 H	280	255	295	I 255 A	260	I 240 A	245 H	250	256	295	340	285	285	370	305
18	310	340	345	345	350	330	270	250	250	225	I 225 A	I 230 A	I 220 A	I 230 A	240	225 H	240	255	A	A	A	270	280	310
19	320	340	300	260	250	275	A	A	A	I 240 A	205	220	220	210	240	I 240 C	250	I 255 A	250	245	I 265 A	I 295 A	I 300 A	280
20	I 300 A	310	295	270	295	295	I 260 A	245	230	I 225 A	215	I 215 A	A	A	A	A	A	A	290 A	290 A	300 A	290 A	I 330 A	I 345 A
21	350 A	I 350 A	I 350 A	310	310	295	260	230 A	A	A	240	230	I 245 A	240	220 H	220 H	235	250	270	250	250	270	270	320
22	290	295	305	300	300	280	260	I 260 A	I 235 A	I 220 A	I 230 B	I 240 A	245	235	230	220 H	245	255	270	260	290 A	I 300 A	310 A	A
23	A	I 330 A	305	305	345	295	250	250	250 A	I 230 A	215	220	I 235 A	220	240	250	245	255	270	250	250	290	300	325
24	310	335	290	290	325	290	250	240	230	255	245	245	220	245	230	245	250	255	260	265	290	260	305	330 A
25	340	310	310	305	305	270	245	240	250	240	220	220	200 H	220	225	I 250 A	240	250	250	260	260	I 285 A	I 300 AS	305
26	300	310	340	340	310	285	260	A	A	220	I 240 A	I 225 A	250	230	I 220 A	I 225 A	250	250	275	255	245	290	290	285
27	290	295	290	240	260	245	245	240	235	245	I 230 A	240	245	I 215 A	245	230 H	245	255	260	260	290 A	290	300	290 A
28	290	295	290	250	250	295	250	245	240	220 H	225 B	215 H	230	220	235	235 H	250	250	270	250	240	250	275	290
29	290	290	270	250	270	270	245	250	240	215 H	210 H	I 245 A	240	I 245 A	I 255 A	250 A	I 270 A	290 A	290 A	255	255	250	295	310
30	285	285	350	290	295	300	255	I 245 A	I 240 A	225	255	230	245	I 245 A	240	230	250	260	280	250	260 A	280	330	340
31	I 330 A	300	290	330	340	305	255	250	220	245	240	240	235	240	I 250 A	245	245	255	I 280 A	290 A	300 A	C	C	340 A
No.	29	30	30	31	31	30	28	22	18	21	19	21	21	22	23	22	25	22	21	22	25	25	28	28
Median	320	310	300	300	305	290	255	250	240	230	230	230	245	240	240	245	245	255	270	260	285	290	300	310

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | 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	110	105	100	105	105	105	155	130	125	110	110	110	115	G	110	110	110	105	100	105	105	105	110	115
2	105	105	105	100	105	105	120	120	110	110	110	105	105	105	105	110	110	110	105	100	100	100	105	100
3	100	105	E	105	100	B	145	120	125	110	105	110	105	140	115	125	140	120	110	105	110	105	105	105
4	105	100	100	100	100	125	135	115	110	105	105	105	105	105	105	105	105	105	100	100	105	100	105	105
5	105	100	100	105	110	130	120	125	110	110	105	105	105	105	105	120	115	110	105	105	110	105	100	100
6	100	100	100	110	115	120	110	105	105	105	105	105	100	100	100	100	100	120	120	110	120	120	110	110
7	100	100	105	100	E	B	130	120	110	105	105	100	105	110	120	120	130	120	110	115	110	120	115	110
8	105	105	120	110	125	125	120	110	115	120	105	105	105	110	125	130	120	115	110	110	110	110	110	105
9	105	105	100	105	E	140	120	120	115	120	105	105	105	105	100	100	G	105	130	110	110	110	105	105
10	105	105	105	105	E	135	140	120	115	115	110	110	110	115	115	140	125	120	110	110	105	105	110	105
11	105	105	105	105	105	B	125	130	110	110	105	105	105	105	105	110	110	105	105	E	105	E	105	110
12	110	115	120	105	120	B	G	C	C	C	115	100	140	120	125	140	110	105	105	105	105	110	105	105
13	100	105	105	105	105	B	130	130	110	105	105	105	105	105	105	105	105	G	115	110	110	105	105	105
14	105	105	105	105	105	105	115	110	105	105	C	105	110	G	145	125	140	115	110	110	105	105	105	100
15	105	105	E	110	E	135	130	110	105	105	105	105	105	105	105	105	105	105	105	110	110	110	105	100
16	E	100	120	100	125	120	110	110	110	110	110	110	110	110	105	105	125	120	110	110	110	E	E	E
17	E	E	130	E	E	135	G	130	110	170	110	105	105	105	125	150	G	G	125	E	E	E	E	E
18	E	140	E	125	130	130	140	120	G	120	105	105	105	105	G	105	G	150	120	120	115	110	E	E
19	105	E	110	E	E	140	120	110	110	110	110	115	110	115	G	C	130	115	110	120	110	110	110	110
20	105	110	120	120	E	B	120	120	115	110	105	105	105	105	105	110	120	120	110	110	110	110	110	110
21	110	110	105	110	135	125	110	110	105	105	105	105	105	G	G	G	G	G	125	E	120	115	E	110
22	105	105	105	115	105	120	120	115	105	110	B	105	G	G	G	B	G	145	120	110	110	110	110	110
23	105	105	105	105	E	E	135	125	115	115	120	120	105	120	G	G	G	G	130	E	E	120	E	110
24	110	E	E	E	E	B	G	120	120	105	105	B	G	G	G	G	G	G	150	140	110	E	E	105
25	105	100	E	E	E	E	150	145	G	G	G	G	G	G	145	120	G	G	B	E	E	110	110	105
26	105	100	E	100	E	E	130	115	110	120	120	110	110	110	110	110	115	110	B	E	E	E	E	E
27	E	E	E	E	E	E	120	110	125	125	110	110	105	105	105	105	105	140	B	E	100	100	E	100
28	100	E	E	E	E	E	115	115	G	110	B	G	115	G	G	G	G	120	120	110	E	105	E	E
29	E	100	100	E	E	E	G	120	115	110	G	105	105	105	105	105	100	100	100	105	110	110	E	E
30	105	E	E	E	105	E	110	115	110	125	110	120	120	110	110	105	110	130	105	100	105	E	E	E
31	100	E	E	E	E	E	120	110	110	115	110	105	110	110	125	125	125	125	115	110	110	C	C	100
No.	26	24	21	22	16	16	27	30	27	29	26	28	28	24	24	25	22	25	29	24	26	24	19	24
Median	105	105	105	105	105	125	120	120	110	110	105	105	105	105	110	110	110	115	110	110	110	110	105	105

h'Es

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

The Radio Research Laboratories, Japan.

A 11

IONOSPHERIC DATA

Aug. 1959

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	fz	f	fz	f	f	c	h	h	h	cz	cz	cz	cz		cz	cz	c	lz	l3	f	fz	f	fz	f3
2	f	f3	f3	fz	f3	f3	l	c4	cz	c3	c3	c	l3	lz	l	c3	lz	lz	l3	fz	f5	fz	f	f
3	f	f		f	f		h	cz	c	cz	lz	lz	cz	hl	cl	czl	hz	cz	cz	f4	f	fz	fz	f
4	fz	f3	f3	f	f	cz	h	c3	c3	c3	cz	lz	l3	lz	lz	l3	l3	l3	lz	fz	f	f	fz	fz
5	fz	f3	f4	f3	f	h	cz	cz	cz	c3	cz	lz	lz	lz	l3	c	cz	c3	c3	f4	f3	f4	fz	fz
6	f	f	f	f	f	cz	c4	c3	cz	c4	l3	lz	lz	lz	lz	lz	lz	f5l	f3l	f4	f3	fz	f	f
7	f	f	f	f			hz	cz	cz	c4	cz	lz	l	l	cz	cz	h	c4	c3	f3	fz	f3	fz	fz
8	f3	fz	f	lf	f	h	cz	c3	cz	c	cz	lz	l3	lz	c	f3	c4	cz	c6	f4	f3	fz	f	fz
9	f3	fz	fz	f		h	c3	cz	cz	c	l	cz	c	lz	l	l		l	h	f	fz	fz	fz	fz
10	fz	f4	fz	f3		h	hz	cz	cz	cz	cz	cz	c3	cz	c	hz	c	cz	c3	f3	f	f	fz	fz
11	f3	f4	f3	f4	f3		c3	hz	cz	cz	cz	cz	c3	l3	cz	lz	l	lz	f3		f		fz	f3
12	fz	f3	f	f	f3						cz	l	h	h	h	h	cz	lz	lz	f4	fz	fz	fz	f
13	f	f	fz	fz	fz		h	h	cz	c3	lz	lz	lz	l3	lz	l4	lz		lz	f4	fz	f	fz	f
14	fz	f	fz	fz	f	c	lz	l	lz	l3		c	c		h	c	h	c3	lz	f	fz	fz	f3	fz
15	f	f		fz		h	hz	cz	c4l	cz	cz	cz	c3	cz	lz	l4	lz	l4	l3	fz	f3	f3	f	fz
16		fz	f	fz	f	c	lz	lz	cz	l	l	lz	l	l	l	lz	czl	cz	c3	f3	fz			
17			f			h		h	c	h	l	l	lz	l	hl	h			h					
18		f		fz	f	h	h	c		l	cz	l	cz	c		l		h	c6	f5	f3	fz		
19	f		f			h	c3	c3	lz	cz	c	c	c	c			h	cz	cz	f	fz	fz	fz	f
20	fz	f	f	f			cz	c	c	cz	l	l3	l	l	lz	l	c3l	c5	c3	f	fz	fz	fz	f3
21	f3	fz	fz	fz	f	f	cz	cz	cz	lz	lz	l	lz						h		f	f		f
22	f	fz	f	f	fz	fz	c	c3	cz	l3		lz						h	cz	fz	fz	fz	f	fz
23	f	f3	f	f			hz	cz	cz	cz	c	c	lz	l					h			f		f
24	f							c	l	lz	l								h	f	f			f
25	fz	f					h	h							h	cz						fz	f3	f
26	f	f		f			h	cz	c3	c	cz	c	cz	c	c	cz	c	l						
27							c	cz	h	c	c	l	l	lz	l	l	l	h			fz	f		f
28	f						l	c		l			c					c	c	fz		f		
29		f	f					h	l	l		lz	l	lz	l	lz	lz	lz	lz	f	f	f		
30	f				f		cz	c3	cz	h	c	c	c	cz	lz	lz	l	h	lz	f	fz			
31	fz						cz	cz	c	l	l	lz	l	c	cz	c	c	cz	cz	fz	f			f
No.																								
Median																								

Types of Es

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

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Aug. 1959 | 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	I 9.0 s	I 9.0 A	9.2	7.3	6.7	J 6.6 F	J 8.3 s	8.6	8.2 R	I 8.0 A	8.5	8.5	8.4	9.0	8.9	8.7	9.1	8.9	9.4 s	9.3 s	I 8.2 R	7.7	7.5 s	7.2
2	u 7.1 s	6.9	I 6.8 R	6.5	J 6.2 s	I 6.7 A	9.0	10.2 s	J 10.7 R	A	A	A	J 10.0 s	10.8	I 10.2 A	10.0 R	10.2 s	10.4 s	I 9.8 s	I 9.0 A	8.1	I 8.4 s	8.6	I 8.1 s
3	I 8.6 s	u 8.7 R	J 7.6 s	6.9	6.6	6.5 R	9.2 s	J 10.2 s	J 8.4 R	7.5 R	I 8.0 A	I 8.7 A	I 9.2 R	9.1	9.1	u 9.5 s	9.1 s	8.5	A	A	A	A	A	8.4 z
4	I 8.1 s	J 8.0 s	7.5	7.0 R	6.6	7.2	7.9	8.1	7.2	I 6.9 A	I 6.9 A	6.8	7.0	7.3	7.1	7.2	7.4	7.0	I 7.3 R	7.0	7.3	I 7.3 s	I 7.5 s	I 7.5 s
5	I 6.7 s	7.2 R	6.8	6.6	6.1	u 5.7 s	6.5	I 7.4 R	7.0	7.4	A	A	A	7.7	8.1	J 8.2 s	8.4 s	I 8.3 A	I 8.3 s	I 8.1 s	u 7.7 s	I 7.6 A	I 8.0 s	J 8.4 s
6	I 8.4 s	I 8.1 s	I 7.9 A	7.2	J 7.2 R	6.9 R	9.3 s	u 9.3 R	9.0	8.5	u 8.7 R	A	A	A	9.4 s	9.2	9.0	9.2	8.8	u 8.2 s	I 7.6 s	I 8.3 A	I 8.3 s	I 8.0 s
7	I 7.9 s	I 8.1 s	J 7.3 s	I 6.0 s	5.7	5.7 s	8.5	8.1	A	A	A	I 6.7 A	I 7.2 A	7.1	I 6.8 s	6.9	7.4	u 7.4 R	7.2 s	u 7.4 s	I 7.2 s	A	S	J 7.8 s
8	u 7.4 s	S	S	I 5.6 s	I 5.5 s	J 6.2 s	7.9	u 9.4 s	10.0	8.5	I 8.9 s	8.7	I 8.9 A	9.4	9.0	8.2	8.1	I 8.4 A	8.7	8.4	I 8.6 s	I 8.7 A	8.7	8.9
9	8.0	8.1	7.3	7.6	7.5	8.3	9.3	9.6 s	10.2	9.9	9.7	9.4	10.1 R	9.7	9.2	9.2	8.6	8.6	8.7	8.8	8.4	J 8.0 s	8.0	7.7
10	7.5	7.4	6.7	6.9	6.9	7.5	8.1	J 8.5 s	8.8	9.0	9.1	u 9.3 s	J 10.2 R	I 10.5 R	10.1	J 10.7 s	9.3	u 9.6 s	9.2	J 8.5 s	8.1	J 8.4 s	8.6	8.3
11	J 8.2 s	7.4	7.5 s	7.7	7.5	7.1 R	8.7	9.8 s	J 11.3 s	9.6	8.4	9.0	I 10.0 s	u 10.3 R	J 10.6 s	10.0 s	9.5 s	9.7 s	I 10.1 s	9.2 s	8.6 R	J 8.3 s	8.6	8.3 R
12	8.1	J 8.6 R	7.7 s	7.1 R	6.7	7.6	u 8.0 s	8.7	8.6	8.4	8.7	9.9	10.6 R	10.6 R	10.8 R	10.2 s	9.9	9.9	9.3	I 9.3 A	9.0	8.6	8.5	8.2
13	8.1	8.2	I 8.3 s	7.8	7.2	7.7	9.0	9.6	8.6	8.7	8.9	I 10.0 s	J 10.4 s	J 10.4 s	9.7	9.3 s	9.2	9.3	u 9.5 s	I 9.0 s	7.9 R	J 8.0 s	8.4 R	8.1
14	u 8.0 R	7.7	u 7.1 R	7.0	7.1 s	u 7.5 s	8.5	9.3 s	9.1	8.8	9.1	u 9.3 R	I 9.8 R	u 10.0 R	10.1	u 10.0 s	I 10.4 s	I 10.0 s	I 9.7 s	9.4 s	u 8.0 s	J 8.1 R	J 8.5 R	I 8.6 R
15	I 8.9 s	8.6	u 7.8 s	J 8.1 R	I 7.9 s	J 8.1 R	I 9.4 s	J 10.0 s	9.3	9.8 R	I 10.5 A	10.8	11.7	11.7	11.7	11.5	J 10.7 s	I 10.4 s	I 10.2 s	I 9.9 s	8.9	S	S	S
16	I 9.8 s	I 9.2 s	J 8.9 s	8.6	J 8.4 R	8.2	J 9.7 s	J 11.0 s	10.5 s	9.3	9.2	u 10.2 s	11.1	10.7	11.0 s	10.3 s	9.8 s	9.7	J 11.0 R	S	A	8.8 s	9.0 s	8.7 z
17	7.5	7.8 R	7.1	7.1	6.4	6.0 s	7.2 s	u 7.7 s	7.4	I 6.7 s	7.2	7.1	7.1	8.3	7.9	8.6	8.4	8.3	u 7.6 s	I 7.6 s	I 7.4 s	I 6.2 s	I 6.0 s	6.2 s
18	u 5.9 s	5.7 s	I 5.7 A	5.8	5.4	J 5.6 s	I 6.2 R	6.4	7.6 R	9.0	u 9.5 s	I 9.6 s	9.3	10.0 R	J 10.8 s	u 10.0 s	u 10.2 s	I 9.8 s	I 9.8 s	I 9.5 s	J 8.1 R	7.7	6.9	7.0 s
19	u 7.1 R	J 6.7 R	6.9	6.3	5.8	5.9	8.0 s	8.8	9.1	9.6	J 10.4 s	10.4	10.3	10.7	11.3	11.2	J 10.5 s	J 10.1 s	9.6 s	8.7	6.9	7.1	J 7.8 s	7.4 s
20	7.2	7.1	6.9	6.6	6.1	6.5	9.0	10.2 s	u 10.0 s	I 10.1 s	10.6	10.5	11.2	11.2 R	11.7	11.1	J 10.1 s	J 11.0 s	I 10.3 s	u 9.5 s	u 8.6 s	I 8.1 A	J 8.0 s	8.5
21	8.7 s	I 8.1 A	I 7.9 s	I 7.9 s	J 7.4 s	7.8	I 10.3 s	12.5	11.8	11.1	11.2	u 11.9	12.5	13.1	12.5	11.8	11.3	J 11.1 s	11.7	I 10.7 s	8.9 R	9.0	I 8.8 s	u 8.7 R
22	8.8	7.9	7.3 s	u 7.1 s	7.2	7.9	I 8.7 s	9.0	8.2	8.5	I 9.5 R	u 10.0 R	9.7 s	9.7	9.7	9.0	9.0	9.2	9.4	8.9	u 7.8 s	u 7.3 s	u 7.3 s	I 7.5 s
23	7.1 s	7.0	6.7	6.3	6.0	7.0 s	u 9.3 s	J 10.7 s	10.7	10.1	J 10.5 R	10.6 s	10.7 s	I 10.5 s	11.2	11.5	11.2	J 10.9 s	I 10.7 s	I 10.6 s	8.7	8.3 s	u 8.4 s	8.3
24	I 8.1 s	7.8	7.6 s	7.2	6.8	7.4 R	u 9.5 s	u 10.6 s	J 10.6 s	10.5 s	u 10.1 R	10.4 R	11.1	11.4	11.7	11.5	J 11.0 s	J 11.1 s	I 10.6 s	9.6 s	8.8	8.1 s	I 7.9 s	8.2 s
25	8.1 s	J 8.2 s	7.6	7.4	7.4	8.0 s	I 10.0 s	J 10.4 s	11.7	10.8	10.4	J 11.1 R	10.5	10.4	J 10.7 R	10.9	11.3	11.5	11.5	I 10.3 s	9.5 s	I 9.4 s	9.3 s	9.3 s
26	u 9.4 s	J 8.7 R	I 8.3 s	J 8.1 R	I 8.1 s	I 8.9 s	J 9.6 s	I 9.7 s	9.2	9.5	10.1 s	11.2	12.0	11.3	11.1	I 10.8 s	10.6 s	J 11.1 s	J 10.9 s	9.6 s	8.9	u 8.9 s	8.8	u 9.0 s
27	8.9	8.8	8.6	7.9	6.9	6.6	8.3	9.2	10.8	11.1	11.0	11.2	11.1	10.9	10.2 s	u 10.2 s	10.1 s	9.8 s	I 9.8 s	9.6 s	9.1	u 9.5 s	I 9.7 s	I 9.7 s
28	I 9.2 s	9.2	8.7 s	7.7	7.0	7.3	u 10.1 s	11.0	10.4 s	10.4	11.2	12.0	12.0	12.1	12.0	11.5	11.3	11.3	J 11.4 s	J 10.8 s	I 10.1 s	I 9.7 s	u 9.7 s	S
29	S	S	I 10.0 s	8.6 R	7.8	7.8	9.4 s	10.6 s	J 10.9 R	10.7 R	11.6	11.8	12.0	11.7	11.2	11.0 R	10.6 s	J 10.5 s	J 10.8 s	I 9.8 s	9.1	I 8.5 s	8.4 R	8.4
30	u 8.6 R	7.6	7.4 s	u 7.9 R	6.9	7.1 s	I 9.6 s	11.4	11.6	12.7	12.2	11.4	J 11.1 R	10.9 R	10.6	9.9	10.2 s	J 10.7 s	J 10.5 s	I 9.5 s	J 7.9 s	S	S	8.0
31	I 8.0 s	8.0	7.8 s	6.5	6.8	7.3 s	I 9.9 s	u 12.4 s	11.3	11.6	12.4	12.3	11.6	11.0	10.6	J 10.5 s	9.6 s	9.3 s	9.4 s	9.3 s	8.8	I 9.0 s	8.8	8.4
No.	30	29	30	31	31	31	31	31	30	29	28	28	29	30	31	31	31	31	30	29	29	27	27	29
Median	u 8.1	8.0	7.6	7.1	6.9	7.2	9.0	9.6	9.6	9.5	9.6	10.1	10.4	10.5	10.6	10.0	9.9	9.8	9.8	u 9.3	8.4	u 8.3	8.4	8.3
U.Q	8.7	8.6	7.9	7.8	7.4	7.8	9.5	10.6	10.7	10.4	10.6	11.2	11.2	11.0	11.2	11.0	10.6	10.7	10.6	9.6	8.9	8.8	8.8	8.6
L.Q	7.5	7.4	7.1	6.6	6.2	6.5	8.1	8.7	8.6	8.5	8.8	9.2	9.5	9.7	9.2	9.2	9.0	8.9	9.2	8.6	7.8	7.7	7.9	7.8
Q.R	1.2	1.2	0.8	1.2	1.2	1.3	1.4	1.9	2.1	1.9	1.8	2.0	1.7	1.3	2.0	1.8	1.6	1.8	1.4	1.0	1.1	1.1	0.9	0.8

foF2

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

The Radio Research Laboratories, Japan.

K 1

IONOSPHERIC DATA

Aug. 1959 | foF1 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	A	S	AS	A	I 5.7 S	I 5.6 S	S	A							
2								L	A	A	A	A	A	A	A	A	L	A	A					
3							L	A	S	A	A	A	I 5.7 A	I 5.7 A	I 5.6 S	I 5.4 S	S	A	A					
4								5.0 L	I 5.0 S	A	A	S	S	S	S	B	S							
5						L	4.3	I 4.7 S	I 5.2 S	S	A	A	A	S	S	S	S							
6								.	A	S	A	A	A	A	A	A	S	S						
7								A	A	A	A	A	A	A	S	I 5.3 S	S							
8								A	A	S	A	A	A	AS	L	L	L	A	A					
9									AS	L	A	S	I 6.1 AS	I 6.0 A	AS	A	L	L						
10								L	L	S	A	I 6.0 A	I 5.8 A	I 5.9 A	A	A	A	S	A					
11							A	A		L	A	S	L	S	S	AS	S	AS						
12										A	S	L	L	A	L	S	A	A						
13										S	S	S	S	S	S	S	L	S						
14										S	S	B	B	S	S	S								
15										S	A	A	S	S	S	S	A	A						
16											L	I 6.0 R	I 5.9 L	I 5.8 A	L	L	L	L						
17						L	I 4.1 L	5.0 S	4.8 H	S	I 5.7 S	I 5.8 S	I 5.9 B	I 5.8 S	I 5.5 S	S		L						
18									S	S	S	LS	S	SA	A	A	L							
19										A	A	A	L	6.1 L	6.0 L	L	L							
20										A	S		S	L	S	S	S							
21											L	LS	S	S	S	S	S	A						
22										L	B	B	LS	L	L	L	L							
23										A	A	L	L	A	S	L	L							
24										S	L	L	L	L	S	L	S							
25									L		L	L	LH	I 6.6 L	S	L	L							
26												A	L	L	LS	L	L							
27										S	S	L	A	L	S	L	S							
28												L	L	L	L	L	L							
29										S	L		6.4 L	I 6.4 L	I 6.5 L	L	L							
30										A	L		L	6.4 L	L	L	L							
31										L		A	L	I 6.6 L	A	S	A							
No.							2	3	3		1	3	6	11	5	2								
Median							4.2	5.0	5.0		5.7	6.0	5.9	6.0	5.6	5.4								

foF1

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

The Radio Research Laboratories, Japan.

K 2

IONOSPHERIC DATA

Aug. 1959 | foE | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	B	I 3.30 A	3.95	R	B	B	B	B	B	B	A	A	B					
2						B	A	S	I 3.60 R	I 3.75 A	B	A	B	B	B	3.95 R	U 3.35 S	S	A					
3						B	B	I 3.25 A	U 3.60 A	B	A	B	B	B	B	R	I 3.55 B	I 2.85 B	B					
4						B	B	A	R	B	B	B	B	B	B	B	B	A	B					
5						B	B	S	R	B	B	B	B	B	B	B	B	B	B					
6						B	U 2.55 R	I 3.00 B	I 3.45 R	B	B	A	B	A	A	B	S	S	A					
7						B	U 2.70 R	U 3.25 S	R	B	A	B	A	B	R	B	B	A	B					
8						B	B	AS	A	B	B	A	A	B	B	A	S	A	B					
9						B	B	A	A	A	A	A	A	A	R	A	A	A	B					
10						B	2.65	3.20	3.60	A	A	A	A	A	B	A	3.50	U 3.10 S	B					
11						B	A	B	U 3.70 A	3.80 A	A	B	B	A	A	A	A	B	A					
12						B	2.55	3.00	3.45	I 3.80 B	I 4.05 B	4.10	4.10	U 4.20 S	4.00	3.70	A	A	A					
13						B	R	I 3.05 A	3.35	B	B	B	A	A	A	A	I 3.40 R	AS	A					
14						B	B	A	R	3.70	B	B	B	B	B	I 3.70 R	I 3.40 S	I 2.85 B	A					
15						B	R	U 3.20 S	U 3.35 R	3.55 R	R	B	A	A	A	A	A	B	A					
16						B	B	I 2.70 B	3.45 A	B	R	A	A	A	A	U 3.90 R	A	A	A					
17						B	B	I 2.90 A	U 3.40 A	R	B	B	B	B	I 3.90 R	I 3.65 B	U 3.25 S	B	B					
18						B	B	I 2.95 B	B	B	B	B	B	B	B	A	B	B	B					
19						B	B	B	B	3.70	B	A	A	A	A	I 3.80 R	I 3.40 S	U 2.80 S	B					
20						B	S	I 3.70 B	3.40	A	R	B	B	A	B	B	I 3.50 S	S	B					
21						B	B	A	A	A	A	A	B	U 4.10 R	B	R	B	S	B					
22						B	B	B	B	R	B	B	A	B	B	B	B	I 2.90 B	B					
23						B	B	3.20 S	3.70 R	I 3.90 A	I 4.00 R	I 4.05 B	U 4.05 S	A	A	A	B	I 2.85 B	B					
24						B	S	A	A	3.80 R	R	B	R	R	A	R	3.50 R	I 2.95 B	B					
25						B	S	I 3.00 B	I 3.75 A	U 3.80 A	R	B	R	B	B	B	U 3.50 R	I 2.95 B	A					
26						B	B	I 3.15 B	3.50	I 3.90 R	I 4.00 A	I 4.00 B	I 4.00 A	4.05 R	B	A	S	A	A					
27							B	I 3.10 A	A	A	A	B	A	A	A	A	A	A	B					
28						B	B	I 3.05 A	I 3.65 R	3.90 R	B	B	R	R	R	I 3.85 R	3.50 R	I 2.75 B	B					
29						B	2.55 R	U 3.05 R	U 3.20 R	U 4.00 R	R	A	A	R	A	3.85 R	3.50	B	A					
30							B	B	B	A	B	B	B	B	R	R	B	B	B					
31							I 2.30 A	I 2.95 A	U 3.40 A	B	A	A	A	B	B	3.85	U 3.40 R	B	B					
No.							6	19	18	12	3	3	3	3	2	9	13	9						
Median							U 2.55	U 3.05	U 3.50	U 3.80	U 4.00	U 4.05	U 4.05	U 4.10	U 3.95	U 3.85	U 3.50	U 2.85						

foE

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

The Radio Research Laboratories, Japan.

K 3

IONOSPHERIC DATA

Aug. 1959 | 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	6.9M	10.9M	8.8M	5.0M	3.0M	B	B	4.4M	12.3M	7.3M	6.3M	12.4M	7.2M	5.0	8.6M	6.0MS	9.2M	5.0M	5.9M	3.4M	7.2M	4.1M	6.9M	4.5M
2	E	4.7M	E	E	6.0M	7.0M	9.2M	5.3M	8.4M	17.7MS	18.6M	P20.0P	9.9M	12.5M	10.9M	7.2M	9.0M	10.3M	9.8MS	9.3MS	5.2M	5.7M	3.0M	3.0M
3	3.3M	6.6M	E	E	E	B	B	6.0MS	6.0MS	9.1M	10.9M	12.1M	8.1M	6.9M	4.6M	G	5.0M	8.9M	14.3M	7.1M	15.0M	12.2M	9.4M	6.5M
4	7.3M	6.8M	5.0M	3.5M	3.8M	B	B	4.8M	5.0M	7.6MS	12.5M	6.6M	4.7	6.5M	5.0M	B	5.1MS	4.0MS	8.9M	7.0M	E	5.0M	3.2M	2.2M
5	E	E	E	E	E	B	3.3	S	4.6	4.6M	15.0	8.6M	9.4M	4.7	7.0M	5.0	4.8M	10.8M	7.0M	3.6M	6.4M	9.0M	5.5M	3.1M
6	4.1M	6.9M	8.8M	5.7M	3.7M	B	4.5M	4.3M	8.3M	5.0M	17.6M	13.1M	9.1M	13.1M	7.5M	9.0M	S	5.3MS	5.3M	5.3M	7.2M	8.0M	8.8M	5.5MS
7	4.1M	3.1M	E	3.6M	2.1M	B	3.1	5.3MS	11.1M	8.0M	12.8M	9.0M	8.3M	7.2M	5.0M	5.0M	4.7M	4.9M	5.5M	3.9MS	4.5M	13.0M	5.8M	6.6M
8	3.2M	E	3.3M	E	5.0M	3.9M	6.5M	6.9M	7.7M	12.9M	7.3M	7.1MF	16.3M	6.9M	B	4.0MF	5.4M	9.5M	7.4	5.6M	5.2M	9.4M	3.8M	4.3M
9	4.2M	3.0M	E	3.0M	E	4.1M	4.9M	3.8	5.3M	4.8M	7.0M	4.8M	5.2M	7.1M	4.6	6.2M	5.0M	3.9M	3.3M	E	3.5M	5.5M	4.5M	3.6M
10	4.9M	3.8M	4.0M	3.8M	E	3.7M	3.2	4.5M	4.8M	5.0M	7.2M	8.6M	6.8M	7.0M	7.1M	9.1M	7.4M	5.0M	10.0M	5.4M	5.4M	E	4.3M	4.0M
11	6.7M	7.1M	5.9M	E	E	B	6.8M	7.1M	5.0M	7.3M	9.2M	5.8MS	5.7M	5.2MS	6.8M	6.7M	10.7M	5.0MS	3.4M	3.5M	3.5M	3.6M	3.5M	E
12	6.0M	3.2M	2.4M	E	E	B	G	4.7M	4.9M	8.0M	5.2M	4.8	4.5	6.7M	4.8	4.9S	13.1M	9.1M	11.6M	12.3M	5.6M	8.5M	6.0M	8.5M
13	4.5M	4.5M	3.3M	E	E	B	G	5.2M	8.4M	4.5	5.0MS	7.0M	4.9MS	6.2MS	4.8M	5.0M	G	6.7MS	6.0MS	7.7M	E	7.6M	3.7M	3.2M
14	4.0M	4.3M	3.0M	3.3M	3.4M	B	B	4.3M	G	7.0M	5.0M	B	B	B	B	4.9	4.2S	6.4MS	2.5	3.3M	3.7M	3.8M	4.1M	3.1M
15	E	E	E	E	E	B	3.1S	4.8	5.0M	18.0M	13.7M	10.9M	6.6M	5.0M	5.4MS	5.0M	7.3M	8.5M	3.8M	4.9M	9.2M	6.0M	5.5MS	6.0M
16	E	E	E	E	E	B	5.0M	8.4M	6.9M	6.9M	5.0	4.8	4.8	9.2M	4.2M	G	5.0M	4.8M	6.1M	10.3M	14.3M	7.1M	E	E
17	2.9M	E	3.9M	5.9M	2.5M	B	B	4.9M	3.8	4.3	5.6MS	6.9M	B	5.0	5.0	4.9M	G	B	B	3.0MS	3.2M	5.7M	E	E
18	E	2.8M	8.3M	5.0M	3.7M	B	4.9M	4.5M	4.0	4.4	B	5.4MS	4.8	6.8	7.1M	8.5M	B	B	B	E	7.0M	5.5M	4.0M	E
19	E	E	E	E	E	B	3.3S	B	7.2M	6.7M	7.6M	8.5M	4.3	4.5M	4.8M	G	3.8	5.0S	4.5M	S	3.9M	5.9M	6.4M	6.2M
20	5.0M	2.5M	3.2M	4.5M	E	B	2.8S	6.4M	4.9M	8.8M	6.5	6.2MS	5.5MS	7.4M	B	B	S	7.6M	8.4	4.8M	4.9M	11.9M	7.5M	8.6M
21	6.5M	10.3M	4.5M	E	E	3.9M	3.9MS	5.0M	12.2M	5.3MS	4.9MS	4.5M	5.0M	G	B	G	B	7.6M	4.6M	8.7M	5.9M	5.3M	4.5M	4.5M
22	3.3M	3.3M	E	E	E	B	B	5.5M	4.8M	G	B	B	5.0	B	B	B	B	3.5	B	E	4.1M	3.9M	7.0M	5.4M
23	8.7M	6.0M	5.0M	4.0M	2.9	B	B	5.0M	4.9M	7.9M	12.3M	B	4.6	10.3M	10.1M	5.6MS	3.4	B	B	E	E	E	3.0M	6.0M
24	6.8M	3.0	E	E	2.4	B	S	4.0	4.1M	G	G	B	G	G	4.5	2.9G	3.8	B	B	4.4M	E	E	E	2.9M
25	E	E	E	E	E	B	S	B	4.0S	4.1	G	B	G	B	4.5	B	G	B	4.0	3.7M	E	6.3M	6.1M	6.6M
26	5.9M	4.5M	5.5M	3.5M	2.5	B	2.8	4.6M	4.8	6.9	7.2M	11.2M	5.0	4.6	4.4	5.0MS	3.8	4.5	4.9M	5.0MS	3.0	E	2.5	E
27	E	E	E	E	E	E	B	4.1	4.0	4.9	5.0	4.7	7.9	6.8MS	6.9M	5.0	5.0MS	3.9	2.5	E	3.0	3.2M	3.0M	3.5M
28	E	3.0M	E	E	E	B	B	4.3M	G	G	B	B	4.4	G	G	G	G	B	2.5	E	E	4.0M	2.3	E
29	E	E	E	E	E	B	2.9	4.9M	3.5	G	G	4.3	4.4	4.0G	4.0	G	G	B	3.5M	3.8MS	E	4.3M	3.2	E
30	E	E	E	E	E	E	B	4.6M	4.4	10.5M	10.0M	4.5	B	B	4.0	G	B	B	B	E	E	2.3	E	3.5M
31	E	E	E	2.1	E	E	3.3	3.5	5.0MS	4.6	4.7	7.8M	8.9M	4.9	8.9M	4.9	5.0	5.0M	2.5	6.7MS	8.6M	6.0MS	3.3M	E
No.	31	31	31	31	31	8	19	28	31	31	28	25	28	27	26	27	25	23	25	30	31	31	31	31
Median	3.3M	3.0M	E	E	E	3.8M	3.3	4.8M	4.9M	6.7M	7.1M	7.0M	5.1M	6.5M	5.0M	5.0M	5.0M	5.0M	5.3M	4.2M	4.1M	5.5M	4.0M	3.5M
U.Q	5.9	4.7	4.5	3.6	2.9	4.0	4.9	5.3	7.2	8.0	17.6	10.0	8.0	7.1	7.1	6.0	6.4	8.5	7.9	6.7	6.4	7.6	6.0	6.0
L.Q	E	E	E	E	E	E	2.9	4.4	4.1	4.5	5.0	4.8	4.6	4.7	4.5	G	3.6	4.8	3.4	3.0	E	3.8	3.0	E
Q.R							2.0	0.9	3.1	3.5	6.6	5.2	3.4	2.4	2.6		2.8	3.7	4.5	3.7		3.8	3.0	

foEs

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

The Radio Research Laboratories, Japan.

K 4

IONOSPHERIC DATA

Aug. 1959 | f_bE_s | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.4	A	6.7	3.9	7.6	B	B	3.7	4.3	A	4.8	6.3^{s}	7.0	S	6.4^{s}	6.0^{s}	6.3	4.4	5.1	D3.4^{B}	7.0	3.1	4.1	7.7
2		7.6			7.0	A	5.5^{s}	4.2	7.8	A	A	A	8.6	6.5	A	5.7	4.0	9.8	7.5	A	4.4	5.4	7.3	3.0
3	3.0	3.9				B	B	6.0	D6.0^{s}	7.1	A	A	7.5	6.4	S		D5.0^{s}	7.4	A	A	A	A	A	4.4
4	6.4	4.7	4.2	3.5	3.2	B	B	4.0	4.0	A	A	S	S	6.7^{s}	S	B	4.8	D4.0^{s}	5.8	5.6		3.5	7.6	7.2
5						B	3.2	S	4.6	S	A	A	A	S	6.7	S	4.6	A	6.0^{s}	3.6	4.0	A	4.0	3.1
6	7.8	5.7	A	4.0	3.0	B	4.1	4.0	7.5	S	8.1	A	A	A	7.1	8.1	S	S	4.4	4.3	6.2^{s}	A	6.1	7.7
7	3.7	7.6		3.0	D2.1^{B}	B	3.0	D5.3^{s}	A	A	A	A	A	6.3	4.7	S	4.3	4.8	5.1	3.6^{s}	4.4	A	4.1	4.3
8	7.3		E		3.7	3.8	6.0^{s}	6.0	5.9	U5.2^{s}	6.7	6.5	A	D6.9^{s}	B	4.0	5.3	A	6.6	4.8	D5.2^{s}	A	7.5	7.9
9	3.0	7.5		7.3		3.9	4.0	3.6	D5.3^{s}	4.3	6.0	D4.8^{s}	D5.7^{s}	6.0	D4.6^{s}	5.5	5.0	3.6	7.8		7.3	7.5	7.6	7.3
10	4.1	3.0	3.0	7.5		3.1	3.0	4.2	4.7	D5.0^{s}	6.3	6.7	6.2	6.2	6.7	8.4	6.7	D5.0^{s}	8.2	4.7	4.6		3.0	7.8
11	4.5	6.4	3.5			B	6.0	6.5	4.7	6.6	8.0	D5.8^{s}	4.8	S	6.6	6.0^{s}	6.3^{s}	D5.0^{s}	7.7	7.8	3.5	3.0	7.8	
12	7.3	7.6	E			B		4.0	D4.9^{s}	6.0	D5.2^{s}	4.6	4.5	6.3	4.7	D4.9^{s}	7.6	7.5	4.0	A	3.8	4.4	7.6	4.0
13	7.4	3.3	7.3			B		3.7	6.1	D4.5^{s}	S	6.5	S	S	S	S		6.4^{s}	4.6	D7.7^{s}		4.7	7.9	7.6
14	3.4	3.6	7.7	7.4	7.6	B	B	3.6		6.2	S	B	B	B	B	4.7	D4.2^{s}	6.1^{s}	D2.5^{B}	E	3.4	7.7	3.5	3.0
15						B	3.1	4.2	S	4.5	A	8.1	6.0^{s}	S	S	S	7.1	6.2	3.8	4.0	6.0^{s}	4.4	3.8	3.0
16						B	4.5	4.2	6.2	5.7^{s}	B	4.7	4.5	7.5	4.7		4.7	3.9	4.2	3.1	A	U5.2^{A}		
17	E		3.2	5.1	7.2	B	B	3.7	3.8	4.3	5.5^{s}	6.5	B	S	S	S		B	B	E	3.0	A		
18		7.1	A	4.7	7.8	B	4.3	3.9	4.0	S	B	5.0^{s}	S	6.8	6.5	8.1	B	B	B		6.6	4.5	3.8	
19						B	D3.3^{s}	B	6.7^{s}	6.0^{s}	6.0	5.8	D4.3^{B}	4.4	4.6		3.7	4.5	4.0	S	3.2	3.5	3.1	5.0
20	3.2	7.0	7.2	7.2		B	D2.8^{s}	6.0	4.4	7.7	6.2^{s}	6.1^{s}	S	6.1^{s}	B	B	S	7.2	7.6	3.1	4.2	A	3.4	7.6
21	4.9	A	3.0			7.9	3.8	4.5	8.7	S	S	D4.5^{s}	S		B		B	6.5	7.6	8.2	3.6	3.3	3.5	3.7
22	7.7	7.9				B	B	D5.5^{s}	4.0		B	B	5.0	B	B	B	B	3.5	B		3.3	7.8	7.7	3.6
23	3.7	5.0	4.2	3.0	E	B	B	4.2	4.4	7.4	9.9	B	4.6	6.4	6.5	4.7	D3.4^{s}	B	B				7.4	7.8
24	3.6	7.2			E	B	S	3.4	3.7			B			4.5	B	D3.8^{s}	B	B	3.0				E
25						B	S	B	D4.0^{s}	4.1		B		B	4.3	B		B	7.9	3.5		U4.6^{A}	4.1	5.7
26	3.6	7.9	3.8	7.4	E	B	7.8	4.1	4.8^{s}	6.1^{s}	6.2^{s}	6.5	D5.0^{B}	D4.6^{B}	4.2	4.1	3.8	4.1	4.0	3.0	7.3		E	
27							B	3.6	4.0	4.9	S	4.7	7.2	6.2^{s}	6.3^{s}	4.8	S	3.5	D7.5^{B}		7.4	7.2	7.7	3.0
28		7.3				B	B	3.3			B	B	D4.4^{B}					B	7.4			7.6	E	
29						B	7.9	4.1	B			B	D4.4^{B}	B	D4.0^{B}			B	3.2	7.8		7.5	7.0	
30							B	4.1	4.3	9.1	5.9	D4.5^{B}	B	B	D4.0^{B}		B	B	B			7.3		3.5
31				E			3.0	3.5	5.0^{s}	4.6	S	7.6	6.1^{s}	S	8.0	S	D5.0^{B}	4.0	7.2	S	7.4	3.9	7.7	
No.	19	20	15	13	11	5	15	28	26	21	18	19	16	15	17	12	16	21	23	21	23	27	27	23
Median	3.4	3.0	3.2	3.0	2.6	3.8	3.8	4.1	4.8	6.1	7.4	6.5	6.6	6.3	6.4	5.6	D5.0	D5.0	4.2	3.6	4.0	4.4	7.9	3.0

f_bE_s

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

The Radio Research Laboratories, Japan.

K 5

37

IONOSPHERIC DATA

Aug. 1959 | f-min | 135° E Mean Time (G.M.T.+ 9h.)

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.50	1.90	1.80	1.60	1.60	2.30	2.80	2.30	2.85	2.90	4.20	4.20	4.50	4.20	4.00	3.70	2.80	2.10	2.40	2.20	2.20	2.30	1.30	1.60
2	1.80	1.80	3.50	2.20	1.80	2.35	2.20	2.80	2.40	3.00	4.10	3.85	4.10	4.10	4.15	3.20	3.20	3.00	2.00	2.00	2.00	2.00	2.00	2.00
3	1.70	2.20	2.00	2.00	1.50	2.70	2.90	2.80	2.70	3.70	3.60	4.10	4.10	4.40	4.20	3.70	4.20^{S}	3.10	2.20	2.00	2.60	2.00	1.80	1.80
4	2.00	1.80	2.20	1.70	1.90	2.20	3.70	2.70	3.10	3.80	3.80	4.00	4.30	4.20	4.10	5.20	3.50	2.60	2.20	2.00	2.30	1.90	1.60	1.80
5	2.10	2.20	2.00	1.60	1.90	2.40	2.80	4.90	2.80	3.80	4.10	4.40	4.40	4.10	4.50	4.00	3.80	3.10	2.20	1.80	1.90	1.80	1.90	2.30
6	2.30	2.50	2.90	2.60	2.20	2.90	2.30	3.10	2.80	3.70	3.70	3.60	4.50	3.80	3.40	4.10	E4.60^{S}	4.10^{S}	2.30	1.80	2.20	2.20	2.20	2.30
7	2.00	2.10	1.90	2.10	1.60	2.30	2.10	2.90	2.90	4.00	3.60	4.10	3.70	4.40	3.80	4.05	3.80	3.00^{S}	2.60	1.50^{S}	2.60	2.30	2.60	2.00
8	1.80	1.90	2.00	1.80	2.20	2.40	2.80	2.75	2.70	3.90	3.90	3.90	3.90	4.10	4.90	2.90	E3.60^{S}	2.90	2.20	1.90	2.30	2.00	1.80	1.80
9	2.00	1.90	1.90	1.80	1.30	2.30	2.50	3.00	2.60	3.10	3.90	3.80	4.00	3.80	3.35	2.60	2.90	2.90	2.20	2.10	1.80	2.00	1.90	1.80
10	2.05	1.50	1.80	2.00	1.80	1.90	2.05	2.25	2.60	3.50	3.70	3.80	4.00	3.80	4.10	3.60	3.10	2.80	2.80	1.85	2.10	2.00	2.30	1.90
11	2.10	2.00	2.00	1.90	2.10	2.10	2.60	3.15	2.80	2.60	3.40	4.30	4.10	3.80	3.65	2.55	2.90	2.60	1.90	2.00	2.00	2.20	2.10	2.00
12	2.00	2.00	1.90	2.30	2.05	2.10	2.10	2.90	2.30	3.80	4.05	3.20	3.70	3.70	3.50	2.90	2.80	2.50	2.00	2.20	2.20	2.00	2.00	2.00
13	1.90	1.80	2.00	2.05	2.10	2.30	2.20	2.10	2.60	3.55	3.80	4.00	3.60	3.65	3.10	2.65	2.90	2.65	2.20	2.20	2.20	2.15	2.10	2.00
14	2.00	1.90	2.10	1.85	2.00	2.10	3.00	2.90	2.80	2.60	3.80	6.20	6.20	6.00^{S}	6.00^{S}	3.00	E3.80^{S}	2.90	2.10	1.90	2.05	2.00	2.00	2.70
15	2.00	2.30	1.90	2.20	2.10	2.90	2.10	2.90	3.00	2.90	3.20	3.90	3.75	3.70	3.45	3.15	2.90	2.80	2.00	1.90	2.00	2.00	1.80	2.10
16	2.00	2.00	1.50	2.00	2.00	2.20	2.80	3.10	2.60	3.60	3.70	3.70	3.70	3.60	2.80	3.20	2.80	2.80	2.65	2.00	2.00	2.00	2.10	2.10
17	2.00	2.10	1.90	2.00	2.00	2.10	2.90	2.80	2.70	3.00	4.15	4.20	6.20	4.25	3.65	4.10	2.85	3.40	2.80	1.80	2.10	2.20	2.20	2.40
18	2.00	2.00	2.20	2.00	2.00	2.40	2.90	3.05	3.50	3.50	4.50	4.20	4.10	6.10	3.90	3.20	4.30	3.60	4.00	2.00	2.60	2.20	2.20	2.40
19	2.40	2.80	2.20	2.05	2.00	2.70	2.60	3.60	3.60	3.20	4.00	3.90	3.80	3.65	3.20	2.80	2.95	2.40	2.05	E2.20^{S}	2.10	1.40	1.80	1.90
20	1.50	1.60	1.90	1.50	2.00	2.00	E2.60^{S}	3.00	2.70	2.35	2.80	3.85	4.05	3.70	4.20	4.40	2.70	2.70	2.90	1.90	2.20	2.00	2.00	2.10
21	2.10	2.20	2.00	2.00	2.20	1.65	2.50	2.80	2.10	3.35	3.50	3.60	4.00	3.70	6.00^{S}	3.10	4.30	E3.50^{S}	2.30	2.00	2.30	2.00	2.10	2.00
22	2.20	2.20	2.00	2.00	2.10	2.20	2.90	2.90	2.90	3.15	8.50	6.20	3.60	4.80	5.80	4.20	3.90	3.00	2.40	2.20	2.20	2.00	2.00	2.00
23	2.00	2.30	2.00	2.00	2.00	2.00	3.50^{S}	2.80	2.75	3.00	3.70	4.50	3.70	3.70	3.50	2.80	3.10	3.00	2.50	2.00	2.00	2.00	2.20	1.70
24	2.00	2.05	2.20	2.80	1.80	2.00	3.00^{S}	2.70	2.60	2.90	2.90	6.00^{S}	3.35	3.35	2.90	2.60	3.10	3.20	2.60	1.90	1.90	2.30	2.00	2.00
25	2.00	2.00	2.00	2.10	2.00	2.15	E2.90^{S}	2.95	3.50	2.90	3.60	5.10	3.30	4.60	4.10	4.10	2.90	E3.20^{S}	2.20	1.80	2.10	1.40	2.00	1.70
26	1.50	1.90	1.90	1.50	2.00	2.10	2.50	2.80	2.50	3.20	3.70	4.00	3.90	3.80	3.70	3.00	2.80	2.00	2.10	1.80^{S}	1.50	2.00	1.90	2.10
27	2.00	2.00	2.00	2.00	2.00	2.00	2.90	2.90	2.60	3.50	3.70	4.10	3.70	3.50	3.00	2.90	2.90	2.20	2.00	2.00	1.90	1.80	1.90	1.90
28	2.20	1.90	1.90	2.00	2.00	1.90	2.90	2.80	2.65	3.00	5.50	5.40	3.80	3.70	3.65	2.80	2.90	3.15	2.00	1.90	2.00	1.90	1.90	2.30
29	2.00	2.00	1.90	2.00	2.00	2.00	2.20	2.80	2.60	3.00	3.60	3.90	3.70	3.80	3.55	2.70	2.90	3.50	2.20	1.90	2.20	1.90	1.60	2.20
30	2.00	2.10	2.10	2.00	1.60	2.00	3.00	2.90	3.70	3.00	5.50	4.30	5.50	5.50	3.60	2.90	3.90	3.10	2.20	1.80	1.90	2.00	2.20	2.00
31	2.00	2.20	1.80	1.70	2.20	2.00	2.20	2.70	2.50	4.20	3.50	3.50	3.70	4.10	4.10	3.10	3.00	3.00	2.00	1.50^{S}	2.00	1.80	2.00	2.00
No.	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	28	29	31	30	31	31	31	31
Median	2.00	2.00	2.00	2.00	2.00	2.15	2.70	2.90	2.70	3.20	3.70	4.00	3.90	3.80	3.70	3.10	3.00	2.90	2.20	1.90	2.10	2.00	2.00	2.00

f-min

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

The Radio Research Laboratories, Japan.

K 6

IONOSPHERIC DATA

Aug. 1959 | (M3000)F2 | 135° E Mean Time (G.M.T.+ 9h.) | **Kokubunji Tokyo** | Lat. 35° 42.4' N | Long. 139° 29.3' E

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

(M3000)F2 Sweep 1.0 Mc to 20.0 Mc in 20 ~~min~~ sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | (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	S	AS	A	I 3.50 S	I 3.55 S	S	A							
2								L	A	A	A	A	A	A	A	A	L	A	A					
3							L	A	S	A	A	A	A	A	I 3.50 S	I 3.60 S	S	A	A					
4								2.40 L	I 3.80 S	A	A	S	S	S	S	B	S							
5						L	3.05	I 3.25 S	I 3.40 S	S	A	A	A	S	S	S	S							
6									A	S	A	A	A	A	A	A	S	S						
7								A	A	A	A	A	A	A	S	I 3.65 S	S							
8								A	A	S	A	A	A	AS	L	L	L	A	A					
9									AS	L	A	S	I 3.50 AS	I 3.45 A	AS	A	L	L						
10								L	L	S	A	I 3.50 A	I 3.50 A	I 3.50 A	A	A	A	S	A					
11							A	A		L	A	S	L	S	S	AS	S	AS						
12										A	S	L	L	A	L	S	A	A						
13										S	S	S	S	S	S	S	L	S						
14										S	S	B	B	S	S	S								
15										S	A	A	S	S	S	S	A	A						
16											L	I 3.20 R	I 3.40 L	I 3.45 A	L	L	L	L						
17						L	I 2.90 L	3.10 S	3.70 H	S	I 3.40 S	I 3.40 S	I 3.40 B	I 3.45 S	I 3.65 S	S		L						
18									S	S	S	LS	S	SA	A	A	L							
19										A	A	A	L	3.30 L	3.15 L	L	L							
20										A	S		S	L	S	S	S							
21											L	LS	S	S	S	S	S	A						
22										L	B	B	LS	L	L	L	L							
23										A	A	L	L	A	S	L	L							
24										S	L	L	L	L	S	L	S							
25									L		L	L	LH	I 3.50 L	S	L	L							
26												A	L	L	LS	L	L							
27										S	S	L	A	L	S	L	S							
28												L	L	L	L	L	L							
29										S	L		3.45 L	I 3.45 L	I 3.40 L	L	L							
30										A	L		L	3.45 L	L	L	L							
31										L		A	L	I 3.40 L	A	S	A							
No.							2	3	3		1	3	5	10	5	2								
Median							U 3.00	3.10	U 3.70		U 3.40	U 3.40	U 3.45	U 3.45	U 3.50	U 3.60								

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Aug. 1959 | h'F2 | 135° E Mean Time (G.M.T.+ 9h.) | **Kokubunji Tokyo** | Lat. 35° 42.4' N, Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								305	400S	I440A	350	400	400	390	390	360	345							
2								315	300	A	A	A	E450A	350	I365A	350	350	E430A	305A					
3							340	260	300	E410A	I375A	I395A	390A	375	390	350	305	350A	A					
4								400	455S	I440A	I480A	550S	500S	430	450	415	355							
5						405	450	355S	405S	420S	A	A	A	405A	400	375	315							
6									E350A	380S	E450A	A	A	A	350A	E400A	350	305S						
7								300	A	A	A	I520A	I465A	E450A	I415S	410S	360S							
8								300	305	320	450A	400	I390A	350	350	305	I330	I340A	320					
9									305	330	350	380	370	350	350	350	305	300						
10								400	355	310	350	350	355	320	350	E350A	320A	300	E350A					
11							300	320A		350	E540A	400	350	375	320	350	300S	305S						
12										300	425	365	340	350	350	300	350	305						
13										300	300	370	315	325	350	320	320	300S						
14										S	350	305	350	355	355	350								
15										300	I335A	350A	330	350	315S	305	305	300						
16											400	335	345	340A	320	325	350	340						
17						390	365	425	320	I500S	405S	E500A	I450B	390	400	385		330S						
18									355S	345	275	330	350	340	320	370A	300							
19										305	340	305	355	355	350	305	350							
20										305	300		350	355	350	320	305							
21											355	350	355	350	305	340	340	300						
22										340	E400B	350	340	350	350	350	350							
23										300	E480A	310	350	375	380	350	325							
24										265	275	360	390	365	355	350	330							
25									290		325	325	350	350	315	365	325							
26												375	340	360	325	350	315							
27										285	355	360	375	390	360	350	320							
28												350	350	355	350	350	305							
29										265	340		355	355	355	350	305							
30										315	320		350	360	350	350	330							
31										350		350	355	400	400A	350	310							
No.						2	4	10	11	22	21	24	28	29	31	30	29	12	2					
Median						400	350	320	320	320	350	355	350	355	350	350	325	305	310					

h'F2

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

IONOSPHERIC DATA

Aug. 1959 | 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	355	I350A	305	290	310	320	250	250	I250A	I250A	270A	AS	A	I235S	I245S	S	A	305A	300A	255	E400A	305	E350A	350
2	350	330	300	320	320	I355A	300S	250	A	A	A	A	A	A	A	A	235	I280A	A	I305A	315A	355	300	300
3	300	300	300	300	305	300	250	I250A	I260S	A	A	A	A	A	I255S	I260S	E300S	A	A	A	A	A	A	400A
4	E450A	350A	350A	300	350	310	300	255	260	A	A	S	S	S	S	B	E345A	305S	E350A	E360A	300	350	350	300
5	350	350	340	310	320	320	255	I255S	250	S	A	A	A	S	I300S	I230S	280A	I265A	E300S	265	300	I335A	370A	320
6	320	390A	A	325	300	305	255	240	A	S	A	A	A	A	A	A	270S	I275S	270A	275	E425AS	A	355A	315
7	355	300	225	320	350	300	250	A	A	A	A	A	A	A	240	I245S	250	320A	305A	280AS	330A	A	E390A	350A
8	300	260	300	350	E400A	300	E320S	A	A	S	I230A	A	A	AS	245	245	E290A	A	A	300A	I335AS	I325A	300	305
9	305	300	305	305	300	300	260	250	I225SA	210	I260A	I265S	I235AS	I255A	I265AS	I250A	E295A	250	260	275	270	290	300	330
10	355A	320	305	350	350	305	250	255	260A	S	I245A	I245A	A	A	A	A	A	S	A	300A	340A	300	305	300
11	320A	E405A	370A	300	290	260	A	A	260	E300A	I245A	I240S	260	S	S	I235AS	I260S	I310A	255	250	270	300	300	300
12	350	305	265	300	270	250	205	250	250S	A	S	210	205	A	260	S	A	A	260A	A	295	295A	305	350A
13	345	320	260	255	260	255	240	245	250A	S	S	S	S	S	S	S	250	S	270A	I260S	255	350A	300	300
14	320A	305	305	305	290	255	240	220	215	S	S	I260B	I250B	I245S	I240S	260	260S	300AS	255	250	300	325	350	300
15	285	290	290	305	255	255	250	250	255	220	A	A	S	I255S	I265S	S	A	A	255	270	E350AS	400A	305	300
16	265	300	305	300	270	275	260	250	230	255S	250	210	235	I255A	225	240	250	E290A	310A	260	I300A	310A	350	370
17	400	350	355	405A	355	350	270	250	200H	240	E400S	S	I260B	S	S	I240S	250	250	270	310	295	I300A	390	350
18	300	355	I390A	400A	370	345	E305A	250	230	S	230	250A	I245S	SA	A	A	250	250	270	250	E305A	320	350A	320
19	340	350	320	260	285	300	260	240	275A	A	A	I245A	240	225	245	245	245	260A	250	250	295	390A	330	350A
20	350A	305	300	305	300	300	255	255	240	I250A	I270S	265AS	S	E340AS	220	250	I250S	305AS	300A	255S	300	I305A	360	370
21	370	A	320	305	305	300	255S	250	280A	250S	E300S	240S	I250S	I250S	I240S	225	250	I260A	255	E300A	255	305	300	345
22	305	305	305	305	310	255	250	250S	210	210	I250B	I250B	250	250	E310B	245	250	255	260	255	250	285	340A	350
23	355	E400A	350A	305	350	300	250	240	250	A	A	210	240	I250A	I255S	240	250	250	255	250	250	295	315	325
24	340	320	300	300	325	300	250	250	220	215	230S	E300S	255	250	245	250	250	255	260	255	265	275	345	305
25	305	305	305	305	300	275	250	240	235	230	220	250	200H	240	210	240	250	250	255	260	275	310A	320A	E400A
26	305	305	350	350	325	275	255	250	250S	260S	E320S	I235A	250	265	225	240	250	260	265A	255	255	290	285	290
27	300	300	275	250	250	250	235	235	230	220	I245S	230	I245A	E350S	I265S	255	I255S	250	260	265	270	300	300	300
28	300	300	260	250	260	290	250	220	230	210	255	255S	230	225	225	240	250	250	265	250	250	260	265	275
29	265	260	250	245	250	250	225	235	220	205	235	E275S	230	270	220	215	225	250	260	250	250	255	305	310
30	285	280	350	300	265	300	250	230	220	I230A	250	250	250	250	230	245	250	255	265	250	240	310	330	350
31	320	300	285	295	350	305	250	235	250S	220	E265S	I270A	E300S	E300S	A	S	A	265	260	E400S	275	320A	300	305
No.	30	28	30	31	30	31	28	28	27	16	15	18	18	15	21	21	22	24	25	26	26	28	28	30
Median	320	305	305	305	300	300	250	250	250	225	245	250	245	250	245	245	250	260	260	260	275	305	310	320

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | $h'Es$ | 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	100	100	100	100	100	B	B	100	110	110	115	105	110	120	110	105	105	100	105	105	105	100	105	105
2	E	100	E	E	105	100	100	120	110	105	105	105	105	105	105	105	105	100	100	100	100	100	100	100
3	105	100	E	E	E	B	B	110	105	105	100	100	100	105	105	G	115	105	100	100	100	100	100	100
4	100	100	100	100	110	B	B	110	110	105	100	105	100	105	100	B	110	100	100	100	E	100	100	100
5	E	E	E	E	E	B	120	S	105	110	100	105	105	105	105	115	110	105	100	100	100	100	100	100
6	100	100	100	100	105	B	105	105	100	100	100	100	100	100	100	100	S	105	105	105	105	100	100	100
7	100	100	E	100	100	B	150	105	105	100	100	100	100	110	120	120	120	105	105	105	105	100	105	105
8	100	E	115	E	100	110	105	105	100	105	100	100	100	100	B	105	115	105	105	105	100	105	105	100
9	100	100	E	100	E	105	110	105	105	105	100	100	100	100	175	100	100	140	110	E	100	105	100	105
10	100	100	100	100	E	110	110	105	105	105	105	100	105	100	105	105	110	105	100	100	100	E	100	100
11	100	100	100	E	E	B	110	105	105	100	105	105	105	105	100	100	100	100	100	100	100	100	100	E
12	100	105	105	E	E	B	G	110	115	110	120	130	140	110	105	105	105	100	100	100	100	100	100	100
13	100	100	100	E	E	B	G	105	105	105	100	100	105	100	100	120	G	105	105	105	E	105	100	100
14	100	100	100	100	105	B	B	105	G	100	100	B	B	B	B	110	115	105	110	105	105	105	100	100
15	E	E	E	E	E	B	110	110	100	100	105	105	100	100	100	100	100	100	100	100	100	105	105	105
16	E	E	E	E	E	B	105	105	105	105	105	105	105	100	105	G	100	115	105	105	105	105	E	E
17	105	E	120	105	115	B	B	105	105	135	110	120	B	120	120	130	G	B	B	115	105	100	E	E
18	E	130	115	110	115	B	105	105	105	105	B	105	105	100	100	100	B	B	B	E	105	105	105	E
19	E	E	E	E	E	B	115	B	105	110	105	105	110	110	105	G	145	115	110	S	105	105	105	105
20	105	110	105	105	E	B	115	105	105	105	105	105	100	100	B	B	S	105	105	100	100	105	105	105
21	105	105	100	E	E	110	105	105	100	105	105	105	105	G	B	G	B	110	110	100	100	100	100	100
22	100	100	E	E	E	B	B	100	100	G	B	B	100	B	B	B	B	130	B	E	105	105	100	100
23	100	100	100	100	105	B	B	110	110	105	105	B	105	105	105	100	120	B	B	E	E	E	105	100
24	105	110	E	E	105	B	S	110	100	G	G	B	G	G	100	100	140	B	B	105	E	E	E	100
25	E	E	E	E	E	B	S	B	145	115	G	B	G	B	130	B	G	B	110	110	E	105	105	100
26	100	100	105	105	110	B	125	110	115	110	105	105	120	110	110	105	135	105	100	100	105	E	105	E
27	E	E	E	E	E	E	B	110	105	105	105	105	105	100	100	100	100	100	100	E	100	105	100	100
28	E	100	E	E	E	B	B	105	G	G	B	B	105	G	G	G	G	B	110	E	E	100	100	E
29	E	E	E	E	E	B	115	105	105	G	G	100	100	100	100	G	G	B	100	100	E	100	100	E
30	E	E	E	E	E	E	B	105	105	100	100	120	B	B	100	G	B	B	B	E	E	100	E	100
31	E	E	E	100	E	E	105	105	105	105	100	100	100	100	110	110	110	105	105	100	100	100	100	E
No.	19	20	15	13	12	5	17	28	29	27	25	25	26	24	25	20	20	23	25	23	23	27	27	23
Median	100	100	100	100	105	110	110	105	105	105	105	105	105	100	105	105	110	105	105	100	100	100	100	100

$h'Es$

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

The Radio Research Laboratories, Japan.

K 11

IONOSPHERIC DATA

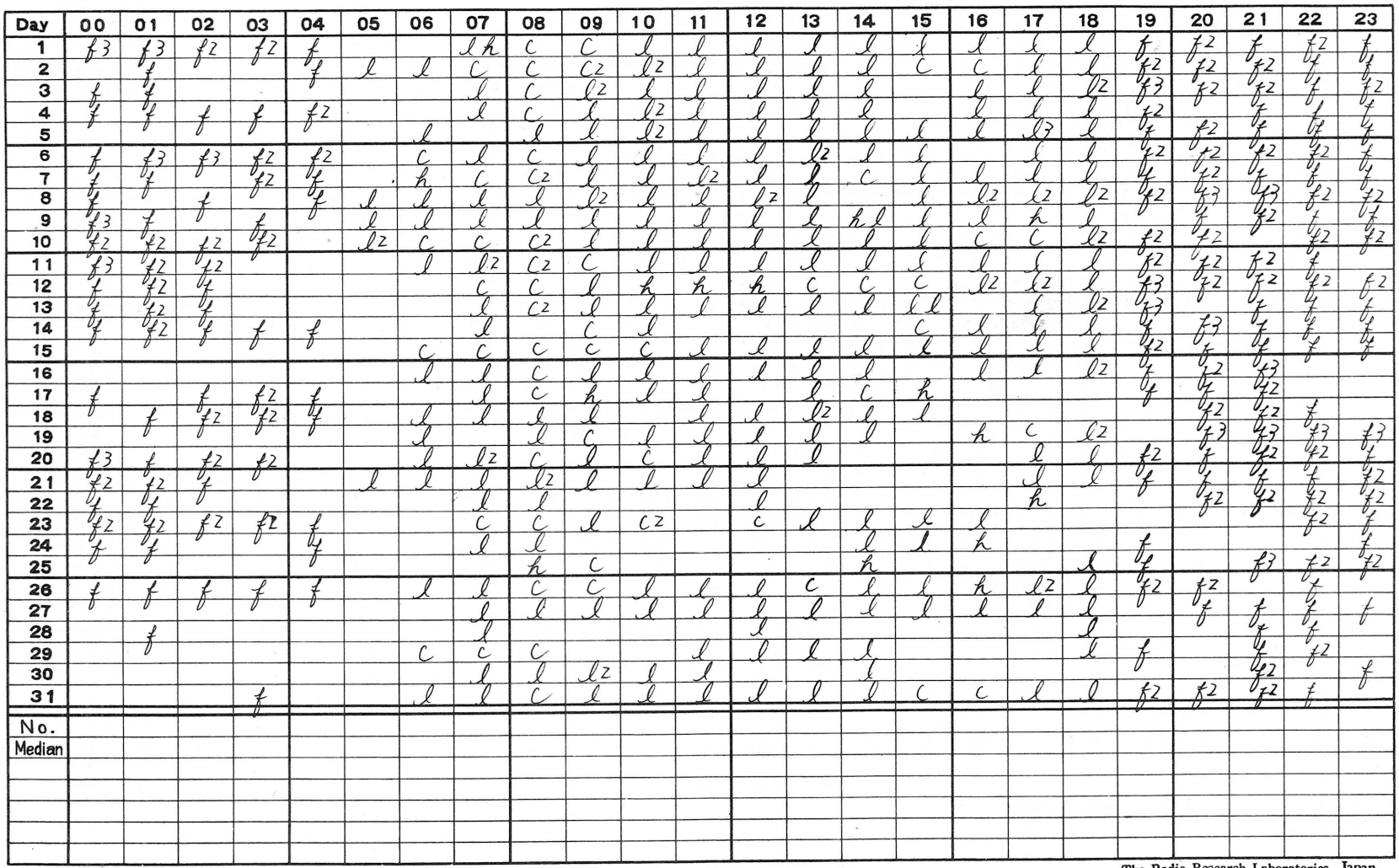
Aug. 1959

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	f3	f3	f2	f2	f			l h	c	C	l	l	l	l	l	l	l	l	l	f	f2	f	f2	f
2		f			f	l	l	C	C	C2	l2	l	l	l	l	C	C	l	l	f2	f2	f2	f	
3	f	f						l	C	l2	l	l	l	l	l		l	l	l2	f3	f2	f2	f	f2
4	f	f	f	f	f2			l	C	l	l2	l	l	l	l		l	l	l	f2		f	f	f
5							l		l	l	l2	l	l	l	l	l	l	l3	l	f	f2	f	f	f
6	f	f3	f3	f2	f2		C	l	C	l	l	l	l	l2	l	l		l	l	f2	f2	f2	f2	f
7	f	f		f2	f		h	C	C2	l	l	l2	l	l	C	l	l	l	l	f	f2	f	f	f
8	f		f		f	l	l	l	l	l2	l	l	l2	l		l	l2	l2	l2	f2	f	f3	f2	f2
9	f3	f		f		l	l	l	l	l	l	l	l	l	h l	l	l	h	l		f	f2		f
10	f2	f2	f2	f2		l2	C	C	C2	l	l	l	l	l	l	l	C	C	l2	f2	f2		f2	f2
11	f3	f2	f2				l	l2	C2	C	l	l	l	l	l	l	l	l	l	f2	f2	f2	f	
12	f	f2	f					C	C	l	h	h	h	C	C	C	l2	l2	l	f3	f2	f	f2	f2
13	f	f2	f					l	C2	l	l	l	l	l	l	l l		l	l2	f3		f	f	f
14	f	f2	f	f	f			l		C	l					C	l	l	l	f3	f3	f	f	f
15							C	C	C	C	C	l	l	l	l	l	l	l	l	f2	f	f	f	f
16							l	l	C	l	l	l	l	l	l		l	l	l2	f	f2	f3		
17	f		f	f2	f			l	C	h	l	l		l	C	h				f	f	f2		
18		f	f2	f2	f		l	l	l	l		l	l	l2	l	l					f2	f2	f	
19							l		l	C	l	l	l	l	l		h	C	C2		f3	f3	f3	f3
20	f3	f	f2	f2			l	l2	C	l	C	l	l	l				l	l	f2	f	f2	f	f
21	f2	f2	f			l	l	l	l2	l	l	l	l					l	l	f	f	f	f2	f2
22	f	f						l	l				l					h			f2	f2	f2	f
23	f2	f2	f2	f2	f			C	C	l	C2		C	l	l	l	l						f2	f
24	f	f			f			l	l						l	l	h			f				f
25									h	C					h				l	f		f3	f2	f2
26	f	f	f	f	f		l	l	C	C	l	l	l	C	l	l	h	l2	l	f2	f2		f	f
27								l	l	l	l	l	l	l	l	l	l	l	l		f	f	f	f
28		f						l					l						l			f	f	
29							C	C	C			l	l	l	l				l	f		f	f2	
30								l	l	l2	l	l			l							f2		f
31				f			l	l	C	l	l	l	l	l	l	C	C	l	l	f2	f2	f2	f	
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

Aug. 1959 | 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	I330s	I375A	350	375	400	J450F	J445s	350	440R	I445A	370	415	400	400	400	385	355	375	350s	350s	I395R	450	430s	440
2	"440s	430	I410R	405	J420	I440A	400	370s	J350R	A	A	A	A	400	I400A	400R	375s	I360A	I345s	I350A	395	I410s	400	I405s
3	I420s	"375R	J400s	400	420	450R	350s	J300s	J320R	I360A	I385A	I400A	I385R	400	400	"390s	345s	A	A	A	A	A	A	455R
4	I420s	J405s	420	390R	450	405	380	425	485	I510A	I505A	I500s	S	S	S	415	360	355	I355R	370	410	I420s	I415s	I410s
5	I445s	455R	450	450	440	"455s	450	I395R	415	420	A	A	A	405	400	J380s	350s	I345A	I330s	I340s	"375s	A	S	J440s
6	I415s	I405s	I395A	400	J370R	405R	320s	"305R	350	400	I390A	A	A	A	370s	I400A	390	350	320	"345s	I410s	A	S	S
7	I425s	I395s	J360s	I410s	440	465s	390	360	A	A	A	A	A	A	S	I400s	360	"350R	350s	"350s	I400s	A	S	J405s
8	"385s	S	S	I460s	I455s	J350s	380	"355s	350	355	I430s	400	I400A	360	360	350	365	I360A	350	355	I400s	I410A	400	395
9	400	400	450	400	400	390	350	400s	355	390	400	400	400R	400	390	360	350	350	350	355	355	J395s	405	440
10	450	405	405	445	445	405	400	J430s	400	360	380	"360s	J380R	I370R	385	J360s	355	"320s	I330A	J355s	400	J405s	390	390
11	J385s	I415A	350s	400	400	390R	380	390s	J340s	355	A	400	I400s	"400R	J355s	370s	355s	350s	I335s	340s	360R	J410s	375	395R
12	440	J400R	350s	400R	395	300	"325s	310	300	320	440	400	380R	390R	380R	345s	390	330	355	I365A	350	355	380	420
13	430	400	I350s	360	375	350	310	295	305	350	360	I400s	I380s	J355s	355	365s	350	350	"320s	I335s	375R	J400s	390R	375
14	"400R	400	"400R	395	360s	"340s	300	305s	325	350	390	I370B	I400R	"400R	390	"400s	S	S	I340s	325s	"395s	J410R	J440R	I390R
15	I385s	355	"405s	J400R	I360R	J340R	I300s	J300s	340	360R	I370A	395	365	390	385	360	J355s	S	S	I370s	400	S	S	S
16	S	S	J410s	405	J380R	365s	J370s	J320s	305s	370	400	"400s	390	375	355s	375s	400s	405	J395R	S	A	440s	455s	500R
17	530	425R	495	455	500	455s	455s	"460s	320	I400s	S	S	B	395	405	400	350	350	"355s	I400s	S	S	I490s	425s
18	"400s	460s	I455A	450	455	J425s	I360R	375	390R	375	"320s	I350s	360	350R	J355s	"390s	"340s	I350s	I340s	I340s	J320R	380	420	405s
19	"415R	J450R	410	375	385	360	300s	320	300	380	J395s	380	395	395	400	380	J355s	J355s	325s	350	390	440	J400s	400s
20	405	400	395	405	390	400	345	305s	"340s	I350s	350	380	365	400R	400	375	J380s	J355s	S	"375s	"400s	A	J450s	450
21	440s	I445A	I440s	I425s	J440s	410	S	305	300	350	405	400	400	400	400	395	390	J355s	355	I335s	350R	400	I410s	"405R
22	400	400	410s	"405s	410	350	I305s	275	300	365	I355R	"380R	355s	395	390	380	375	350	345	350	"330s	"405s	"440s	I425s
23	425s	415	400	385	455	390s	"300s	J315s	330	325	I375R	365s	405s	I420s	415	400	400	J390s	I370s	I350s	375	420s	"430s	425
24	I425s	430	400s	400	455	400R	"305s	"305s	J350s	365s	"395R	400R	430	410	405	400	J400s	J375s	I355s	375s	400	380s	I440s	410s
25	405s	J400s	425	440	405	355s	I320s	J340s	310	350	395	J380R	400	415	J405R	400	390	380	350	I360s	395s	I410s	400s	420s
26	"400s	J400R	I440s	J465R	I435s	I375s	J315s	I305s	305	375	385	420	395	400	395	I400s	400s	J355s	J355s	355s	400	"405s	400	"390s
27	400	400	370	350	365	355	305	330	355	340	400	410	415	420	420	"400s	380s	390s	I380s	380s	415	"420s	S	S
28	I400s	385	355s	345	365	380	"310s	300	305s	395	400	400	400	400	400	410	400	380	J350s	J350s	I375s	I395s	"405s	S
29	S	S	S	350R	345	340	305s	300s	J320R	400R	400	400	400	400	410	400R	400s	J375s	J355s	I350s	360	I400s	440R	420
30	"390R	400	455s	"400R	400	405s	I345s	340	380	350	375	400	J400R	400R	400	400	400	J360s	J345s	I350s	J415s	S	S	440
31	I425s	400	400s	440	455	430s	I370s	"325s	360	405	400	400	405	430	420	J400s	380s	355s	355s	I370s	400	I410s	410	440
No.	29	28	29	31	31	31	30	31	30	29	26	26	25	28	29	31	30	28	28	29	28	23	24	27
Median	"415	400	405	400	405	390	335	320	340	365	390	400	400	400	400	395	375	355	350	"350	395	410	410	420

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

The Radio Research Laboratories, Japan.

K 13

IONOSPHERIC DATA

Aug. 1959 | 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	I105s	I145A	95	120	145	J145F	J150s	150	110R	I170A	130	150	150	125	150	115	100	150	120s	150s	I140R	150	120s	160
2	u130s	150	I135R	145	J105s	I120A	210	130s	J165R	A	A	A	A	130	I140A	120R	125s	I140A	I135s	I130A	130	I145s	135	I140s
3	I120s	u155R	J120s	150	130	130R	100s	J100s	J130R	I140A	I115A	I135A	I120R	100	125	u90s	105s	A	A	A	A	A	A	140s
4	I150s	J125s	145	100R	150	120	170	165	165	I125A	I105A	I100s	S	S	S	95	105	95	I140R	130	175	I145s	I145s	I155s
5	I155s	185R	150	150	110	u150s	150	I140R	180	110	A	A	A	115	75	J75s	I110s	I135A	I120s	I120s	u125s	A	S	J150s
6	I165s	I145s	I105A	160	J130R	150R	135u	150R	110	170	I150A	A	A	A	120s	I100A	130	90	115	u120s	I160s	A	S	S
7	I160s	I160s	J130s	I170s	130	155	160	190	A	A	A	A	A	A	S	I100s	100	u140R	100s	u150s	I175s	A	S	J145s
8	u155s	S	S	I140s	I140s	J150s	165	u185s	115	95	I145s	145	I100A	95	95	150	130	I115A	105	140	I145s	I140A	145	105
9	145	145	105	120	100	110	145	140s	140	115	100	150	115R	105	65	95	105	100	90	150	185	J150s	145	115
10	100	145	150	110	115	145	145	J115s	105	145	75	u95s	J75R	I125R	70	J100s	135	u85s	I100A	J140s	145	J135s	115	110
11	J70s	I115A	205s	100	100	155R	165	110s	J115s	105	A	125	I160s	u100R	J125s	120s	135s	130s	I170s	115s	190R	J130s	130	140R
12	120	J125R	120s	120R	130	170	u150s	130	120	80	110	150	130R	155R	100R	125s	110	120	145	I105A	100	135	120	135
13	120	95	I100s	135	125	155	90	100	135	125	155	I125s	I110s	J110s	110	125s	100	115	u120s	I130s	150R	J130s	150R	115
14	u130R	125	u120R	105	140s	u160s	155	95s	120	125	85	I135B	I120s	u130R	100	u100s	S	S	I120s	125s	u130s	J130s	J110R	I125R
15	I100s	110	u145s	J115R	I120s	J100R	I100s	J95s	145	145R	I130A	105	60	110	115	130	J105s	S	S	I175s	190	S	S	S
16	S	S	J155s	130	J140R	120	J130s	J135s	175s	120	140	u170s	110	120	115s	125s	120s	165	J110R	S	A	160s	195s	140
17	125	125R	155	155	190	195s	z35s	u180s	120	I90s	S	S	B	115	120	145	140	110	u175s	I165s	S	S	I170s	125s
18	u220s	115s	I155A	150	145	J150s	I145R	180	180R	175	u150s	I100s	65	90R	J140s	u110s	u135s	I170s	I145s	I140s	J135R	150	125	120s
19	u160R	J100R	120	125	135	160	100s	130	135	120	J105s	115	100	110	100	75	J140s	J135s	100s	105	115	155	J145s	135s
20	150	105	105	100	110	100	100	95s	u145s	I140s	150	140	110	115R	140	130	J150s	J100s	S	u145s	u130s	A	J160s	150
21	130s	I120A	130s	I150s	J160s	180	S	95	100	135	115	140	115	100	115	115	110	J165s	130	I160s	205R	160	I150s	u155R
22	130	150	130s	u150s	125	150	I145s	100	100	130	I160R	u150R	105s	90	90	115	100	110	105	150	u120s	u145s	u145s	I130s
23	140s	120	105	130	135	110s	u90s	J85s	120	175	I130R	140s	150s	I145s	135	125	150	J120s	I115s	I125s	165	155	u115s	145
24	I155s	140	100s	150	165	160R	u150s	u115s	J105s	135s	u150R	150R	110	140	160	170	J140s	J120s	I135s	165	170	120s	I130s	135s
25	145s	J105s	125	115	150	140s	I105s	J105s	90	140	100	J120R	100	130	J105R	130	110	135	140	I150s	150s	I145s	130s	105s
26	u125s	J150R	I140s	J125R	I115s	I125s	J135s	140s	150	170	105s	110	120	115	130	I130s	135s	J125s	J145s	135s	175	u140s	135	u135s
27	150	150	115	140	135	155	120	135	135	135	120	135	125	120	130s	u140s	120s	130s	I155s	160s	175	u145s	S	S
28	I145s	115	140s	115	130	135	u140s	100	145s	130	150	140	135	150	130	140	140	110	J120s	J130s	I130s	I150s	u150s	S
29	S	S	S	155R	115	150	145s	125s	J120R	125R	140	140	150	150	140	130R	175s	J140s	J135s	I155s	200	I170s	115R	145
30	u135R	125	145s	u120R	140	140s	I135s	110	140	115	125	155	J120R	130R	120	145	140	J105s	J105s	I140s	J140s	S	S	145
31	I120s	115	120s	150	170	170s	I145s	u95s	140	145	150	125	145s	130	135	J120s	160s	125s	180s	I145s	160	I170s	160	140
No.	29	28	29	31	31	31	30	31	30	29	26	26	25	28	29	31	30	28	28	29	28	23	24	27
Median	u135	125	130	130	130	150	145	125	130	130	130	140	115	120	120	120	130	120	120	u140	150	145	140	140

ypF2

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

The Radio Research Laboratories, Japan.

K 14

IONOSPHERIC DATA

Aug. 1959 | 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	9.2^{s}	9.1^{s}	9.3^{s}	6.9	6.1	F	7.0	7.9^{s}	8.9^{H}	9.7^{s}	9.5^{s}	9.0	9.4^{s}	9.5	10.6	10.4	10.5	11.1	10.7	10.6	8.7	7.8^{s}	7.6^{s}	7.8^{s}
2	7.6^{s}	7.2	7.7^{s}	6.2	5.5	5.5	6.5	9.3	9.8	8.5	8.8	9.8	10.6	12.2	12.4	12.4^{s}	13.4	12.2	11.1	10.8	10.4^{s}	10.0^{s}	9.8	10.0^{s}
3	9.5^{s}	8.5	7.2^{s}	6.1^{F}	6.0^{F}	F	7.4^{s}	10.3	8.7	7.4	8.4^{H}	9.9^{s}	11.2	11.6^{s}	10.7	10.9	11.1	9.6	8.2^{s}	8.2	8.9^{s}	7.6	7.7^{s}	7.9
4	7.7^{s}	7.9	7.9^{s}	7.4	6.9	6.9^{s}	7.6	9.1^{H}	7.8	8.0	8.2	9.1	10.0	9.6^{s}	9.2	8.9	8.8	8.9	9.3^{s}	9.2	8.7	7.8^{s}	8.0^{s}	8.1
5	8.0	8.1	8.0^{s}	7.3^{s}	6.9	6.7	6.9^{H}	7.0	7.4^{s}	7.8	8.2^{s}	9.5^{s}	10.8	10.6	10.4^{s}	10.4	11.0	11.0	10.6	10.2^{s}	9.2^{A}	8.3^{s}	8.5^{F}	9.1^{s}
6	10.0^{s}	9.4	8.7	8.0^{s}	7.6^{s}	6.6	7.8^{s}	9.2^{s}	8.4	9.2	9.1	10.0	10.8	11.5	11.4^{s}	11.2	10.9	10.6	9.9^{s}	9.0^{A}	7.8^{A}	8.1	9.0	F
7	F	9.2^{s}	9.5^{s}	6.2^{F}	6.1	6.0^{F}	7.4	8.3	10.1^{H}	8.2^{s}	8.6	9.2^{s}	9.6	9.4	9.0	8.4	8.4	8.7	8.9	9.2^{s}	8.2^{s}	7.4^{s}	7.6^{s}	7.9^{s}
8	8.3	8.5	8.0^{s}	7.4^{s}	7.0	6.8	7.3^{s}	10.2^{s}	9.4^{A}	8.6^{H}	8.5^{H}	9.6^{s}	11.1	10.6	10.2	10.1	9.7	9.3	9.2	9.0	8.9	8.6	8.8	9.4
9	9.4^{s}	9.5	8.4^{s}	8.4	8.0^{s}	7.4^{s}	8.5	10.1^{s}	9.9^{s}	9.2^{H}	9.0	9.5	9.8	10.1	10.1	10.4^{s}	10.6	10.7	10.5	9.3^{s}	8.7	8.1^{s}	7.8^{s}	7.9^{s}
10	7.8^{s}	7.4	7.2^{s}	7.0	7.1	6.9	7.8	9.8^{s}	9.5	8.9	9.8	10.6	11.2	12.2	11.6	11.0	11.1	11.5^{s}	11.1	10.0	8.7	8.7	8.6	8.4
11	7.9	8.2	7.6^{s}	7.9^{s}	7.2^{s}	6.7	7.5^{s}	9.9^{s}	10.8	9.6^{A}	9.2^{A}	9.8	10.2^{A}	11.4	11.8	12.2	12.1^{A}	12.1	12.1^{s}	11.4	9.2	9.0^{C}	9.9	11.1
12	11.2^{s}	11.0	11.0	8.4^{s}	6.4	6.2	7.4	8.6	8.8	8.9^{H}	9.2	10.3	11.4	11.9	12.0	11.5	11.5	10.9	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	9.8	10.5	11.5	11.5	11.2	11.1	11.2	11.1^{s}	10.5	10.7	9.4	8.8	8.9^{s}	8.6
14	8.6^{s}	8.6	7.7^{s}	7.5^{s}	7.4^{s}	6.7	7.4	8.6^{H}	9.1	9.4^{H}	9.3	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	9.2^{H}	10.1	11.1	11.7	12.1	12.4	12.4	12.0	11.4	11.9	11.3	9.3^{s}	8.7	9.5	9.8
16	9.5	9.2	8.7	8.2^{s}	8.1	7.2	7.9	9.7^{s}	10.5	8.5^{H}	9.6	10.8	11.6	12.7	11.7	11.3	10.7	10.3	11.7	12.5^{s}	9.4^{s}	9.1^{s}	10.1	10.7^{s}
17	8.9^{F}	8.9^{F}	9.0	8.5	7.7^{s}	7.1	7.0	7.6	9.2	7.6^{H}	8.8	9.6^{s}	8.4	10.6	10.9	9.7^{s}	11.1	10.2	10.3^{s}	9.9^{s}	8.4	6.5	6.0^{A}	6.4
18	6.3	6.0	6.0^{s}	6.2	6.0^{s}	6.0^{F}	6.6^{s}	6.8	8.1	10.4^{A}	10.5	10.1^{s}	11.5	13.8	14.1	13.6	13.1^{s}	12.7	11.5	11.9^{s}	9.7^{s}	7.5^{s}	7.7^{A}	7.9^{s}
19	8.1	8.0^{s}	7.8^{s}	7.2	6.2	5.7^{s}	6.9	9.0	8.6	9.3	10.1	10.3	10.9	11.7	12.2	11.8	12.0	11.1	11.1	9.5	7.6^{s}	7.1^{s}	7.6	7.7^{s}
20	8.0	7.9^{s}	8.0	7.0^{s}	6.8	6.4^{s}	7.0	9.4	9.0	9.7	10.0	10.8	11.7	12.4	13.0	13.1	12.6	13.3^{H}	12.4	10.4	9.1	8.7	8.3	8.0^{s}
21	8.8	8.9	8.0	7.6^{A}	7.6	7.3	7.9^{s}	10.0	10.3	10.5	10.5^{s}	12.5	13.5	14.3	14.5^{s}	14.0	13.7	13.4	13.5	12.8	11.2^{s}	10.5^{s}	11.3^{s}	10.5^{s}
22	10.8^{s}	10.0^{s}	8.6^{s}	7.5^{s}	7.5^{s}	7.5^{s}	7.8^{s}	8.7	8.7	9.1	10.7	11.3^{H}	11.6	12.4	12.5	11.6	11.1	11.2	11.2^{s}	11.1	9.1	7.2	7.1^{s}	7.5^{s}
23	7.8^{s}	8.1^{s}	7.6^{s}	6.7	6.0	6.4	7.9^{s}	8.9	10.0^{s}	10.2	10.4	11.2	12.2	13.8	15.0	15.3	15.5^{s}	14.5^{s}	14.0	14.1^{s}	S	S	11.6	10.9^{s}
24	10.5	10.4^{s}	10.0^{s}	9.0	8.1	7.8^{s}	8.7	9.1	10.2^{H}	10.1	10.0^{SH}	10.5	11.4	12.2	12.4	12.4^{s}	12.3	12.7	12.4^{s}	11.2	9.5^{s}	9.2	8.9	9.8
25	9.7^{s}	10.9^{s}	9.7^{s}	7.7^{s}	8.2^{s}	6.9	8.0^{s}	10.3	11.2	10.4	10.5	11.0	11.2	11.2	11.6	11.8	12.5	12.4	11.8^{s}	11.6	10.7	10.4^{s}	10.0^{s}	10.0^{s}
26	9.4^{s}	9.4^{s}	8.4^{s}	7.9^{s}	7.7^{s}	7.9^{s}	9.0	10.0^{s}	9.8^{s}	10.1	10.6	11.7	12.6	12.5	12.6	12.5	12.8^{A}	12.9	13.0^{s}	12.6^{s}	13.5^{s}	S	S	S
27	S	S	S	11.5^{s}	10.7^{s}	7.7^{s}	8.2^{s}	10.8	11.8	11.3	11.1	11.6	12.0	11.7^{H}	11.7	11.9	11.5	11.5	11.2^{s}	10.9	10.2	10.7^{s}	11.2^{s}	S
28	11.7^{s}	11.0^{s}	10.2^{s}	8.6	7.5^{s}	7.0	8.2^{s}	7.9^{s}	10.8	10.4	11.2^{H}	12.2	13.1	13.7	13.9^{s}	14.0^{s}	14.1^{s}	13.9^{s}	13.2	13.0^{s}	13.0^{s}	S	S	S
29	S	S	S	S	S	S	8.4^{s}	10.4	11.2	11.5^{C}	11.8	12.2^{F}	12.4^{F}	12.6	11.9	11.4	11.9	11.9	12.0	11.0	9.4^{s}	9.3^{s}	9.7^{s}	9.2
30	9.5^{s}	9.5	8.3^{s}	8.1^{s}	7.9^{s}	6.4^{s}	7.7^{s}	10.3	11.4	12.0^{H}	11.8	11.8^{H}	12.2	12.0	11.6	11.2	11.1	11.2	11.4^{s}	10.7	9.2	9.4	9.8^{s}	9.5
31	8.9	9.5^{s}	8.9^{s}	7.7^{s}	7.4^{s}	7.5^{s}	8.5	10.9	10.7	11.4	12.6	12.3^{SH}	12.7	12.6	12.5	11.8	10.8	10.2^{s}	10.5	10.9^{s}	9.2	9.9	8.8	8.8
No.	26	27	27	28	28	26	29	29	29	30	31	30	30	30	30	30	30	30	29	29	28	26	27	25
Median	8.9	8.9	8.3	7.6	7.3	6.8	7.7	9.3	9.8	9.4	9.8	10.5	11.4	12.0	11.8	11.6	11.4	11.2	11.2	10.8	9.2	8.7	8.8	8.8
U.Q	9.5	9.5	9.0	8.2	7.7	7.3	8.1	10.2	10.6	10.4	10.5	11.3	12.0	12.5	12.5	12.4	12.5	12.4	12.0	11.5	9.6	9.3	9.8	9.9
L.Q	8.0	8.1	7.7	7.0	6.3	6.4	7.2	8.6	8.8	8.6	9.0	9.8	10.8	11.2	10.9	10.9	10.9	10.6	10.5	9.7	8.7	7.8	7.7	7.9
Q.R	1.5	1.4	1.3	1.2	1.4	0.9	0.9	1.6	1.8	1.8	1.5	1.5	1.2	1.3	1.6	1.5	1.6	1.8	1.5	1.8	0.9	1.5	2.1	2.0

foF2

Sweep 1.0 Mc to 20.3 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 1

IONOSPHERIC DATA

Aug. 1959 | 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	L	I6.1A	6.2	5.8	5.7	I5.6L	L						
2											I6.2A	6.2	6.5	I6.3A	I6.0A	I6.0A	I5.6A	L						
3												6.1	6.0	6.1	6.2	6.1	5.7							
4										5.7	5.6	6.0	5.5	5.9	6.1	6.0	5.4	L	L					
5									L	L	U5.9L	I6.2L	I6.1A	I6.3A	I6.2A	I6.0A	5.8H	L						
6										L	A	A	6.3	5.8	6.0	5.9	U5.8L	L						
7												5.9	6.2	I6.2L	U6.3L	LH	L	L						
8												I6.2L	5.7	6.3	U6.0L	6.2	5.7L	L						
9											6.0	6.2L	6.1	6.1	6.0	6.0	5.7	L						
10								L			6.0	6.3	I6.2L	6.0	A	6.0	5.7	A						
11										A	A	A	A	L	L	A	A	A						
12											6.0	LH	5.6	I6.2L	U5.8L	5.9	A	A	C					
13						C	C	C	C	C	L	L	6.4	6.3	L	L	5.6	L						
14											L	C	C	C	C	C	C	C	C					
15						C	C	C	C		L	5.9	L	6.2	6.0	I6.0A	5.3	L						
16												L	LH	6.2	I6.0L	U6.0L	L	L	A					
17								L	L		6.1		L	6.1	U6.2L	I6.2L	L	L						
18									L	A	L	A	U6.5L	I6.2A	U6.0A	6.0	L	L						
19										L	L	L	I6.4L	5.7	6.0	6.2	U5.6L	L						
20										A	A	L	6.5	I6.3L	6.4	6.0	L							
21												5.9	6.6	6.4	6.4	6.4	LH	L						
22										L			L	6.2	6.2	6.3	I6.0L	L						
23												L	6.7	6.6	6.5	6.4	6.0	L						
24												U6.3L	6.6	6.3	L	I6.4L	I6.2L	L						
25												L	U6.8L	L	U6.6L	U6.6L	I6.1L	L						
26												L	L	L	L	L	A	A						
27												6.3	L		6.5	U6.3L	LH	L						
28												L	U7.0LH	7.0	I6.6L	U6.8L	6.4LH	L						
29											L	I6.5A	LH	6.7	U6.7L	6.5	6.3	L						
30													I7.2L	I6.8A	6.5	U6.6L	6.6L	L						
31										L			7.0	6.6	I6.8L	U6.8L	L	L						
No.										1	7	13	22	26	25	26	19							
Median										5.7	6.0	6.2	6.4	6.2	6.2	6.2	5.7							

foF1

Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | 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							A	3.00	3.30	3.65	4.05	4.20	4.20	4.15	4.20	4.00	3.60	3.25	2.40	S				
2							S	3.00	3.40	3.80	3.90	4.00	4.00	4.30	4.20	4.05	3.60	I3.20A	2.80	A				
3							S	2.80	I3.30A	I3.55A	3.80	I3.90A	I4.00A	4.10	A	A	A	A	A	A				
4							1.90	2.90	3.40	I3.80A	4.00	4.10	I4.30C	4.40	I4.30R	4.20	I3.90A	3.30	A	A				
5							S	2.80	3.40	3.80	4.00	4.00	4.00R	4.15	4.00	3.90	3.60	3.25	2.70	A				
6							S	2.80	3.40	3.80	4.00	I4.05A	4.10	A	A	A	A	A	A	A				
7							2.00	2.90	3.25	3.50	I3.70A	4.10	I4.20R	4.20R	4.20	4.00	3.75	3.30	2.70	S				
8							2.00	2.80	3.20	A	A	S	4.10	4.00	I4.15B	4.10	3.70	3.40	2.60	R				
9							A	2.60	I3.05R	3.70	I4.00A	3.90	4.00	A	A	A	A	3.35	A	A				
10							1.90	2.80	3.30	3.60	4.00	4.10	4.20	4.15	4.20	3.90	I3.75R	3.30	2.40	S				
11							S	2.80	3.50	3.80	3.90	4.10	4.10	A	A	A	A	A	A	A				
12							A	2.90	3.30	3.60	I3.90A	4.10	A	A	A	A	3.50	3.20	C	C				
13							C	C	C	C	3.90	4.00	4.10	4.00	4.00	I3.95C	I3.60A	3.20	2.40	A				
14							A	A	I3.30A	3.70	I3.90A	C	C	C	C	C	C	C	C	C				
15							C	C	C	A	A	4.10	4.05	A	A	A	A	A	2.70	S				
16							S	2.80	3.20	3.60	A	A	A	A	A	4.00	3.60	3.20	2.50	S				
17							S	2.30	2.90	3.35	4.00	4.20	4.20	4.20	4.10	3.85	3.60	3.20	2.60	S				
18							S	2.70	3.40	3.65	4.00	4.00	4.10	I4.20B	4.10	4.00	3.40	I3.00A	2.60	S				
19							S	2.90	3.10	3.50	3.70	3.90	4.10	4.10	4.10	3.75	I3.60A	3.20	2.60	S				
20							1.90	2.60	3.40	3.70	3.90	4.20	I4.20R	4.20	4.20	4.10	3.70	3.25	2.50	S				
21							S	2.40	3.00	3.40	A	A	A	A	A	4.00	3.70	I3.30A	2.50	S				
22							S	2.80	I3.40A	I3.90A	I4.00B	I4.10R	R	A	R	4.00	3.80	3.30	2.60	S				
23							A	2.70	3.50	3.90	4.10	4.30	4.10	4.20	4.00	A	A	A	A	A				
24							A	2.70	A	A	A	A	4.25	I4.20A	I4.25R	4.10	3.70	3.30	2.50	S				
25							S	2.70	3.50R	3.75	I4.00S	R	R	R	4.10R	I4.05R	3.80	3.30	2.60	R				
26							A	I2.70A	3.35	3.80	4.00	4.10	4.20	4.15	4.00	A	R	A	A	A				
27							S	2.65	3.40	3.70	I3.85S	4.05	A	A	A	A	I3.60A	3.20	2.60	A				
28							S	2.75	3.50	3.70	I3.95B	I4.15B	4.30	4.15	4.00	I3.95A	3.75	3.25	2.35	S				
29							A	2.70	3.40	I3.75C	4.00	4.00	I4.00A	4.00	4.10	I3.85A	I3.65A	3.30	2.70S	S				
30							S	2.60	3.50	3.80	3.90	I4.20A	I4.30A	4.20	4.00	I3.85A	I3.65A	3.20	2.50	S				
31							S	2.80	3.35	A	R	A	A	A	A	A	3.70R	3.30	2.40	S				
No.							5	28	28	26	25	24	23	19	19	20	23	24	22					
Median							1.90	2.80	3.40	3.70	4.00	4.10	4.10	4.15	4.10	4.00	3.65	3.25	2.60					

foE

Sweep 1.0 Mc to 20.3 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Aug. 1959 | foEs | 135° E Mean Time (G.M.T.+ 9h.)

Yamagawa

Lat. 31° 12.5' N
Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.4M	S	4.0M	6.1M	6.3M	5.9M	2.4	4.0	6.4	6.0M	6.9M	7.2M	13.6M	19.0M	6.0M	11.0M	8.5M	6.8M	7.2M	2.5M	4.6M	3.8M	3.0M	3.2M
2	2.9M	2.3M	2.1M	2.0M	E	E	2.6	3.4	6.8M	5.0	10.0M	13.8M	7.1M	8.5M	12.0M	13.5M	9.7M	4.5M	G	9.1M	9.1M	6.0M	6.1M	6.0M
3	4.6M	2.4M	2.3M	3.3M	2.8M	2.9M	2.3	3.1	5.4M	5.4M	5.8M	6.1M	6.1M	6.6M	5.4M	6.1M	6.2M	6.2M	7.0M	3.6M	6.6M	6.7M	3.5M	S
4	4.0M	5.3M	3.9M	3.9M	2.9M	S	2.9	3.4	4.3	5.3M	4.6	4.9	C	5.5	G	5.3	6.7M	4.0	6.2M	8.9M	6.0M	2.9M	2.8M	3.0M
5	2.6M	S	2.1M	2.8M	2.8M	E	2.7	4.1	5.3M	4.2	10.5M	11.0M	17.5M	9.0M	9.8M	7.1M	3.8	3.4	5.6M	9.1M	14.8M	7.1M	5.7M	3.1M
6	2.8M	3.7M	3.1M	2.8M	2.7M	3.6M	2.1	3.5	6.5M	5.5M	9.3M	9.6M	6.5M	6.0M	5.7M	5.9M	5.1M	6.0M	4.4M	13.5M	9.1M	9.1M	7.1M	9.1M
7	7.0M	4.3M	5.0M	5.3M	5.2M	4.7M	G	3.8	5.2M	8.7M	14.1M	4.8	5.4	5.6	5.2	4.4	G	3.6	5.0M	S	2.7M	S	3.0M	6.7M
8	6.0M	8.8M	4.5M	E	E	2.8M	4.1M	4.3	14.3M	9.1M	7.2M	6.2M	4.5	6.1M	5.0	7.0M	4.8	4.5	3.6	4.5M	5.5M	4.1M	4.1M	9.0M
9	6.1M	8.6M	5.8M	5.5M	4.5M	4.3M	4.0M	3.7	3.9	4.3	4.2	5.9M	6.6	5.0	7.0	5.3M	6.2M	4.0M	6.2M	6.0M	7.2M	6.0M	6.0M	6.8M
10	6.0M	4.1M	6.1M	6.2M	5.5M	S	3.4	3.9	4.0	7.0M	5.0	5.5	6.0M	6.3	6.4M	6.2M	4.5M	8.8M	8.9M	4.1M	3.7M	2.4M	2.1M	2.8M
11	3.7M	3.0M	3.6M	2.8M	E	E	2.9	3.7	6.6M	12.6M	13.2M	9.1M	14.7M	15.0M	14.5M	7.2M	13.3M	7.3M	7.2M	9.1M	9.1M	C	5.8M	4.8M
12	4.4M	5.6M	2.8M	3.0M	3.2M	3.6M	3.0M	G	6.2M	5.4	8.5M	4.6	4.4	13.3M	5.8M	7.6M	7.2M	6.9M	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	6.1M	9.1M	6.2M	4.8	4.6	6.1M	5.2M	G	2.8	3.1M	5.0M	3.2M	2.7M	5.0M
14	6.0M	5.0M	2.9M	3.0M	3.0M	2.4M	3.9M	6.0M	5.6M	4.4M	5.4M	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	6.8M	4.1M	4.9	5.0	9.1M	5.4M	6.8M	5.4M	4.5M	3.9	5.0M	3.5M	2.4M	3.0M	3.6M
16	4.2M	3.4M	4.1M	6.0M	4.5M	3.1M	2.8	6.7M	11.5M	5.9M	6.6M	7.1M	6.0M	7.4M	9.0M	4.2	4.1	4.4	5.4M	2.9M	2.1M	2.1M	11.0M	6.8M
17	6.2M	4.5M	3.9M	2.5M	6.0M	3.9M	6.3M	7.1M	5.7M	9.0M	6.0M	5.5	5.5	5.1	5.6	5.4	5.0	3.6	3.4	3.6M	2.7M	6.0M	9.4M	3.8M
18	3.7M	4.5M	E	7.1M	9.0M	6.0M	2.9M	7.5M	6.0M	11.3M	9.0M	14.5M	7.8M	7.1M	11.6M	6.0M	5.3M	4.5M	2.2	S	9.2M	4.3M	9.0M	4.0M
19	6.0M	2.8M	2.7M	3.0M	3.0M	3.7M	4.2M	5.6M	6.8M	9.1M	5.1	4.3	6.4M	4.9	4.8	4.2	3.8	3.5	3.6	2.9	5.5M	9.1M	9.1M	9.0M
20	9.1M	7.0M	6.6M	4.3M	4.0M	3.7M	G	3.5	5.0	6.8M	9.2M	6.0M	G	4.8	4.8	5.1	G	G	2.7	S	2.8M	5.7M	3.6M	4.0M
21	6.0M	3.0M	3.0M	9.2M	9.0M	6.0M	2.4	3.0	6.2M	6.7M	7.2M	6.7M	4.6	6.5M	4.5	G	G	3.9M	G	2.5	3.6M	4.0M	4.5M	3.7M
22	2.8M	2.8M	4.0M	4.4M	2.9M	2.1M	G	2.6M	4.1M	4.8M	B	G	4.6	9.0M	4.3	G	G	G	3.6	3.2M	4.5M	6.0M	9.0M	6.8M
23	7.0M	5.7M	4.5M	3.1M	3.0M	3.1M	2.1	3.5	6.0	9.0M	5.5	5.5	9.0M	5.8M	7.4M	6.0M	11.0M	5.3M	7.2M	6.2M	5.7M	2.1M	2.5M	2.7M
24	2.2M	4.6M	3.1M	2.5M	E	2.5M	3.4M	3.0	4.7M	4.4	6.7M	5.1M	G	5.4M	G	4.4	4.1	G	4.0	9.4M	5.0M	4.0M	3.0M	3.9M
25	2.4M	S	E	E	E	2.2	2.0	5.8M	3.7	4.1	S	G	G	G	G	G	G	4.5M	3.7M	3.2	5.8M	4.0M	2.9M	S
26	S	S	E	3.2M	2.9M	2.7M	3.6M	4.2M	3.7	5.0	8.9M	5.2	5.6	6.9M	9.1M	7.1M	14.3M	14.7M	5.1M	6.8M	5.4M	3.1M	3.7M	2.7M
27	4.8M	S	1.9M	E	2.9M	3.0M	G	3.4	7.0M	6.0M	7.2M	6.9M	6.8M	8.3M	8.7M	5.4M	5.3M	G	4.8M	3.1M	3.1M	S	2.6M	2.4M
28	S	S	S	2.1M	2.6M	2.3M	2.1	3.0	3.7	5.4M	6.0M	5.0	4.8	7.7M	4.4	4.4	4.2M	G	G	2.0	2.2M	S	S	S
29	S	S	S	2.1M	1.2	2.8M	2.3	3.0	5.6M	C	7.3M	9.1M	6.1M	4.9	4.9	4.7M	4.4M	G	G	2.1	2.0	S	S	S
30	5.1M	4.1M	3.6M	3.6M	3.5M	1.8	G	G	4.0	4.3	6.7M	6.1M	4.7	9.0M	6.2M	6.2M	4.5M	G	2.4G	G	2.2M	S	3.9M	3.8M
31	2.8M	2.4M	E	2.5M	2.5M	E	G	2.8	G	4.1M	G	4.1	7.0M	5.8M	5.2M	5.5M	4.8	4.9	7.1M	3.0M	9.0M	3.9M	2.2M	3.2M
No.	26	22	27	29	29	27	29	29	29	29	29	30	29	30	30	30	30	30	29	26	29	23	27	25
Median	4.5M	4.2M	3.1M	3.0M	2.9M	2.9	2.6	3.5	5.6M	5.5M	6.7M	6.0M	6.0M	6.4M	5.5M	5.7M	4.9M	4.2	4.0M	3.6M	5.0M	4.0M	3.7M	3.9M
U.Q	6.0	5.3	4.1	4.8	4.5	3.7	3.4	4.2	6.4	7.8	9.0	7.2	6.9	8.5	7.4	6.8	6.2	5.3	6.2	6.8	6.9	6.0	6.1	6.8
L.Q	2.9	3.0	2.1	2.5	2.6	2.2	2.0	3.0	4.0	4.6	5.4	4.9	4.6	5.4	4.8	4.4	4.1	G	2.8	2.9	3.0	3.1	2.9	3.2
Q.R	3.1	2.3	2.0	2.3	1.9	1.5	1.4	1.2	2.4	3.2	3.6	2.3	2.3	3.1	2.6	2.4	2.1		3.4	3.9	3.9	2.9	3.2	3.6

The Radio Research Laboratories, Japan.

foEs

Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

Y A

IONOSPHERIC DATA

Aug. 1959 | f_bE_s | 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	E	S	1.9:	4.0	2.7	2.5	G	3.6	G	4.1	4.8	5.7	6.9	5.1	4.5	4.6	4.0	4.6	4.1	3.1	2.5	1.9	S	2.0
2	2.0	1.8	1.7	1.8			G	G	4.7	4.7	7.2	5.3	5.6	8.0	10.5	9.6	9.4	3.7		$^{D}9.1^{S}$	8.2	$E_{4.1}{}^{A}$	3.9	2.8
3	3.3	E	1.8	1.9	1.8	1.7	G	G	G	4.2	4.7	4.6	4.5	4.6	4.7	4.8	4.2	5.2	4.5	2.9	$E_{6.4}{}^{A}$	1.8	E	S
4	2.0	$E_{4.4}{}^{A}$	3.0	2.3	1.7	S	2.7	3.4	4.0	G	4.5	4.9	C	5.3		5.2	4.6	G	3.8	7.5	4.2	1.8	1.9	1.8
5	1.7	S	1.7	1.8	1.7		2.5	3.4	3.8	4.1	5.2	5.4	8.1	8.1	8.7	6.2	G	G	4.3	8.0	A	4.6	2.6	1.8
6	2.1	2.9	2.0	1.8	1.7	2.6	G	3.4	4.8	4.2	6.2	7.2	4.9	4.7	4.7	4.7	4.2	3.9	3.0	A	A	4.1	2.5	3.0
7	3.2	3.4	3.9	3.1	4.0	3.5		3.3	4.3	A	7.8	4.7	5.2	5.0	4.9	4.4		G	4.1	S	E	S	1.7	1.8
8	4.0	4.9	2.6			E	3.3	3.7	A	4.5	5.0	5.5	4.5	5.0	5.0	5.2	4.7	4.3	3.2	2.2	2.2	S	3.5	3.5
9	4.0	5.5	3.7	3.6	3.2	4.1	G	3.2	3.7	4.3	G	5.0	5.8	4.4	5.7	4.3	4.0	3.0	4.3	3.7	3.2	2.2	2.6	3.1
10	3.3	2.0	3.1	3.0	3.3	S	3.2	3.6	3.8	5.0	4.2	5.4	5.5	5.2	5.7	5.2	G	6.4	4.3	2.3	2.7	E	E	S
11	1.9	S	2.4	2.1			G	3.7	4.5	A	A	7.0	A	4.6	5.4	6.3	A	6.2	6.4	6.8	4.2	C	4.9	3.7
12	3.1	3.1	2.2	2.1	2.3	1.8	G		3.7	4.7	4.3	4.5	G	5.0	4.2	4.5	6.3	4.8	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	4.8	4.8	4.9	4.4	4.5	4.9	3.8		G	G	3.2	2.1	2.2	2.2
14	2.0	2.5	1.8	1.8	1.5	E	G	G	G	G	4.5	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	G	G	4.6	4.7	4.8	4.8	7.2	4.6	3.8	2.3	2.4	2.8	S	1.9	2.7
16	3.4	$^{D}3.4^{S}$	2.2	1.8	2.3	1.8	G	5.4	8.7	5.0	5.4	5.1	4.5	5.3	4.7	G	G	4.3	4.5	G	E	E	5.5	5.5
17	1.9	2.0	2.6	2.0	3.3	2.1	4.7	4.3	4.3	4.4	4.5	5.4	4.9	4.8	5.2	5.2	4.3	G	3.3	2.5	S	4.3	A	2.0
18	1.9	2.1		3.2	1.7	3.2	G	6.1	4.5	A	5.3	9.0	6.0	6.3	4.7	4.5	4.4	3.7	2.1	S	S	2.5	A	2.5
19	2.2	1.8	1.7	2.2	2.0	2.3	3.4	4.0	5.0	5.3	4.7	G	5.2	4.8	4.4	4.2	G	3.4	G	$E_{2.5}{}^{A}$	4.2	1.8	3.4	2.5
20	1.8	S	3.0	2.0	2.0	1.7		3.3	4.1	5.7	6.0	5.0		4.8	4.8	4.5			G	S	1.7	S	S	2.6
21	2.1	1.9	1.8	3.6	3.9	3.5	G	G	5.0	5.7	4.8	4.8	4.5	5.4	4.4			G		2.7	3.3	2.6	3.0	2.8
22	$E_{2.5}{}^{A}$	S	3.7	3.6	2.0	E		2.5	G	G	B		G	G	G				G	2.4	3.6	2.5	4.1	S
23	2.3	2.5	2.4	1.7	1.8	1.8	G	G	4.3	7.2	4.5	4.9	5.0	4.5	5.2	4.9	4.4	4.5	6.1	2.5	3.7	S	S	1.8
24	S	3.8	1.9	1.4		E	G	G	G	4.1	4.2	4.6		G		G	4.1		3.3	$^{D}9.4^{S}$	3.0	2.6	2.7	3.3
25	E	S				E	G	G	G	G	S							3.2	2.5	3.2	4.6	2.6	S	S
26	S	S		E	E	1.8	2.5	G	G	4.9	8.0	5.0	5.4	5.6	6.3	6.3	A	11.5	4.3	4.5	4.1	2.0	2.8	1.8
27	3.4	S	1.2		1.7	1.7		3.3	4.8	4.6	6.3	5.4	4.9	4.6	4.6	G	4.0		2.1	G	2.2	S	E	E
28	S	S	S	1.9	1.8	E	G	G	G	4.1	5.0	4.7	G	4.8	G	G	3.5			G	1.6	S	S	S
29	S	S	S	1.8	1.2	1.8	G	G	4.4	C	5.0	8.7	G	4.7	4.6	4.2	G			G	1.8	S	S	S
30	2.8	1.7	1.8	2.1	1.5	1.8			4.0	4.1	4.5	G	G	8.0	5.4	4.2	4.1		2.3		E	S	2.5	1.8
31	2.0	1.9		1.5	1.8			2.7		G		G	5.0	4.9	4.5	4.7	4.6	4.8	$^{D}7.1^{S}$	G	4.5	2.9	1.6	2.3
No.	24	18	23	26	24	23	23	27	28	29	28	28	26	29	27	27	25	22	25	25	26	18	23	23
Median	2.1	2.3	2.2	2.0	1.8	1.8	G	3.3	4.0	4.4	4.8	5.0	4.9	4.8	4.7	4.7	4.2	3.8	3.3	2.5	3.2	2.4	2.6	2.5

f_bE_s

Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 5

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IONOSPHERIC DATA

Aug. 1959 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.70S	E1.60S	E1.70S	E	1.00	1.40	1.70	1.70	1.80	1.85	2.20	2.40	2.20	2.30	2.20	2.20	1.80	1.85	1.70	1.30	E1.70S	E1.70S	E1.70S	E1.70S
2	E1.60S	1.40	E	E	1.00	E1.80S	1.70	1.90	1.80	2.00	2.20	2.00	2.50	2.40	2.40	2.40	2.20	1.90	1.80	1.75	E1.80S	E1.50S	E1.60S	E1.75S
3	E1.70S	E1.70S	E	E	E	E	1.90	1.80	1.90	2.30	2.20	2.00	2.30	2.50	3.70	2.50	2.00	2.05	E1.80S	1.30	1.40	E1.70S	E1.70S	E1.70S
4	1.40	E1.70S	1.50	E	E	E1.70S	1.80	1.85	1.85	1.90	2.30	1.90	E5.00C	2.40	2.50	2.30	1.90	1.75	1.60	1.40	E1.70S	E1.70S	E1.50S	E1.70S
5	1.50	E2.00S	E	E	E	E1.50S	1.90	1.80	1.80	1.90	2.30	3.20	2.70	3.20	2.30	2.00	2.00	1.80	1.80	E1.50S	E1.70S	E1.70S	E1.70S	E1.60S
6	E1.70S	1.40	1.00	E	E	1.40	1.70	1.80	1.85	2.15	2.20	2.40	2.60	2.60	2.30	2.70	2.60	1.80	1.60	1.60	E1.70S	E1.60S	E1.70S	E1.70S
7	E1.70S	E1.50S	E	E	1.00	E1.50S	1.60	1.80	1.80	2.00	2.50	2.30	3.20	2.40	2.40	2.20	2.00	1.80	1.70	1.90	E1.70S	E1.70S	E1.60S	E1.60S
8	E1.70S	E1.80S	E	1.40	1.15	1.30	1.70	1.70	1.90	1.90	2.20	4.20	3.20	2.30	4.50	2.20	1.90	1.70	1.70	1.30	E1.70S	E1.60S	E1.80S	E1.50S
9	E1.70S	E1.75S	1.20	1.70	E	1.30	1.70	1.80	1.95	2.10	3.05	2.40	2.80	2.40	2.00	2.20	1.85	1.80	1.80	1.60	E1.60S	E1.60S	E1.60S	E1.60S
10	E1.70S	E1.70S	E	E	E	E1.60S	1.70	1.65	1.80	1.80	2.20	2.30	2.25	2.50	2.50	1.90	1.90	1.80	1.70	E1.60S	E1.80S	E1.70S	E1.80S	E1.80S
11	E1.50S	E2.00S	1.20	E	1.70	1.80	1.85	2.00	2.00	2.20	2.30	2.30	2.50	3.20	2.50	2.50	2.30	1.85	1.70	1.30	E1.75S	C	E1.70S	E1.60S
12	1.20	E1.70S	E	E	E	1.00	E1.70S	1.70	1.90	1.90	1.90	2.40	2.40	2.00	E4.00C	1.85	1.90	1.90	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	2.10	2.20	3.30	2.60	2.20	2.20	2.00	1.80	1.80	1.70	E1.60S	E1.60S	E1.60S	E1.70S
14	E1.70S	E1.70S	1.30	1.30	1.10	1.50	1.80	1.85	1.90	2.05	2.30	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	2.20	2.40	2.50	2.50	2.50	3.00	2.30	2.50	1.90	1.50	1.50	E1.70S	E1.70S	E1.70S	E1.60S
16	E1.70S	E1.70S	1.30	E	E	1.35	1.40	1.90	1.90	2.20	2.40	2.40	2.20	2.30	2.20	2.20	2.20	2.00	1.80	E1.60S	E1.70S	E1.70S	E1.80S	1.40
17	1.10	E1.60S	E	E	E	1.00	1.70	1.85	2.00	1.95	2.00	2.50	2.40	2.70	2.20	2.00	2.00	1.70	1.70	E1.70S	E1.70S	E1.70S	E1.70S	E1.70S
18	E1.75S	E1.80S	1.30	1.00	E	E1.70S	1.60	1.85	2.00	2.20	2.20	2.50	3.00	4.30	3.20	3.20	2.20	1.80	1.60	1.70	E1.80S	E1.70S	E1.75S	E1.80S
19	E1.70S	1.00	1.00	E	E	E1.70S	1.80	1.85	1.90	2.10	2.30	2.60	3.20	2.60	2.40	2.30	2.00	1.90	1.75	1.70	E1.70S	E1.60S	E1.80S	E1.70S
20	E1.60S	E1.75S	1.00	E	E	1.20	1.70	1.80	1.90	1.90	2.30	2.50	2.50	2.60	2.60	3.20	2.10	1.90	1.80	1.80	E1.60S	E1.60S	E1.80S	E1.60S
21	E1.60S	E1.80S	1.70	E	E	1.00	1.60	1.80	1.90	1.90	3.30	2.50	2.40	3.25	2.40	2.00	2.30	1.80	1.35	E1.70S	E1.60S	E1.60S	E1.60S	E1.60S
22	E1.60S	E1.70S	1.70	1.60	E	1.30	1.90	1.75	1.90	2.30	4.90	3.20	3.15	2.40	2.30	2.10	2.00	1.80	1.60	1.60	E1.70S	E1.80S	E1.50S	E1.80S
23	E1.70S	1.60	E	E	E	1.40	1.60	1.75	2.30	2.00	2.20	2.60	2.50	2.50	2.40	2.20	2.00	1.90	1.80	1.55	E1.70S	E1.60S	E1.70S	E1.50S
24	E1.60S	1.50	E	E	1.20	E1.80S	E1.75S	1.70	2.00	2.00	2.40	3.30	2.60	3.20	2.30	2.30	1.95	1.85	1.20	E1.80S	E1.50S	E1.70S	E1.70S	E1.60S
25	E	E1.70S	1.00	E	E	1.30	1.70	1.80	2.50	2.20	E4.90S	3.20	2.50	3.25	2.70	2.25	2.30	1.80	E1.50S	1.20	E1.70S	E1.80S	E1.80S	E1.95S
26	E1.70S	E1.80S	1.10	1.50	1.00	1.15	1.65	1.80	1.85	2.25	2.40	2.40	2.60	3.20	2.60	2.05	2.00	1.80	E1.70S	E1.75S	E1.75S	1.10	E1.60S	E1.70S
27	E1.70S	E1.90S	E	1.10	E	1.20	2.10	1.90	1.90	2.50	E4.20S	3.40	3.30	2.60	2.35	2.20	2.05	1.80	1.50	1.30	E1.60S	E1.70S	E1.60S	E1.70S
28	E1.70S	E1.60S	E1.70S	E	E	E1.70S	1.60	1.85	2.00	2.20	4.30	4.20	3.40	3.20	2.50	2.30	2.05	1.90	1.80	E1.70S	E	E1.70S	E1.90S	E1.70S
29	E1.80S	E1.80S	E1.70S	E	E	1.20	1.60	1.80	1.90	I2.15C	2.30	2.50	2.50	2.50	2.40	2.30	2.10	1.80	1.70	1.10	1.40	E1.70S	E1.75S	E1.60S
30	E1.70S	E1.70S	E	E	E	E	1.80	1.70	2.20	2.20	2.30	3.70	3.20	2.60	2.50	2.20	2.20	1.60	1.50	1.60	E1.60S	E1.70S	1.40	1.40
31	E1.70S	E1.80S	1.10	E	E	1.70	2.00	1.80	1.60	3.30	3.20	2.20	2.30	2.20	3.00	2.00	1.80	1.80	1.35	1.60	E1.70S	1.50	E1.50S	E1.70S
No.	29	29	26	29	29	20	28	29	29	30	29	30	29	30	29	30	30	30	28	24	29	28	29	29
Median	E1.70	E1.70	1.00	E	E	1.30	1.70	1.80	1.90	2.10	2.30	2.50	2.60	2.55	2.40	2.20	2.00	1.80	1.70	E1.60	E1.70	E1.70	E1.70	E1.70

f-min

Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | (M3000)F2 | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.50$	2.65$	3.00$	2.80	2.40	F	2.85	J2.95$	2.65H	U2.80$	2.65$	2.55	U2.55$	2.50	2.65	2.70	2.65	2.70	2.65	2.80	2.60	2.45$	2.35$	J2.45$
2	2.50$	2.50	2.70$	3.05	2.40	2.40	2.60	3.00	3.30	2.40	2.50	2.45	2.40	2.55	2.60	J2.60$	2.60	2.80	2.70	2.70	J2.70$	U2.50$	2.55	J2.50$
3	U2.65$	2.75	U2.55$	2.55F	2.45F	F	I2.60$	3.10	3.35	2.85	2.50H	J2.50$	2.60	U2.65$	2.65	2.65	2.90	2.90	J2.75$	2.55	U2.70$	2.55	J2.50$	2.40$
4	J2.40$	2.40	J2.65$	2.55	2.60	2.65$	2.50	3.00H	2.60	2.15	2.40	2.25	2.50	U2.50$	2.50	2.45	2.70	2.60	2.90$	2.75	2.65	2.40$	I2.40$	2.60
5	2.40	2.40	U2.45$	2.50$	2.45	2.35	2.45H	2.35	U2.45$	2.65	U2.60$	2.65$	2.60	2.55	J2.60$	2.60	2.65	2.70	2.85	I2.80$	I2.60A	2.40$	2.30F	U2.40$
6	I2.50$	2.75	2.75	J2.50$	U2.80$	2.70	2.80$	3.15$	2.95	2.70	2.65	2.40	2.50	2.50	2.55$	2.60	2.55	2.75	U2.80$	I2.90A	I2.50A	2.45	2.35	F
7	F	2.70$	U2.85$	2.75F	2.45	I2.45F	2.65	2.90	3.05H	J2.75$	2.45	2.60$	2.60	2.70	2.65	2.60	2.75	2.65	2.85	2.75$	2.70$	2.45$	U2.35$	2.40$
8	2.40	2.60	U2.60$	2.45$	2.50	2.35	2.60$	V2.85$	I3.00A	2.80H	2.45H	I2.35$	2.60	2.70	2.65	2.65	2.75	2.70	2.80	2.65	2.60	2.50	2.50	2.45
9	U2.55$	2.45$	U2.60$	2.60	J2.70$	J2.85$	2.70	2.95$	2.90$	2.80H	2.55	2.55	2.60	2.60	2.65	2.70$	2.75	2.80	2.85	2.80$	2.75	J2.55$	2.45$	2.40$
10	2.45$	2.45	2.50$	2.40	2.50	2.35	2.40	J2.85$	2.75	2.60	2.75	2.65	2.50	2.60	2.70	2.65	2.70	2.85$	2.75	2.60	2.60	2.55	2.55	2.60
11	2.55	2.70	J2.50$	2.65$	J2.65$	2.70	2.65$	U2.80$	2.95	I2.80A	I2.40A	2.35	I2.70A	2.55	2.60	2.60	I2.65A	2.65	2.80$	2.90	2.70	I2.55C	2.50	I2.60$
12	I2.55$	2.65	2.90	2.50$	2.65	2.60	2.90	3.00	3.00	2.90H	2.75	2.45	2.60	2.50	2.65	2.60	2.50	2.65	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	2.65	2.55	2.65	2.65	2.60	2.65	2.70	2.80$	2.75	2.85	2.70	2.50	2.60$	2.50
14	2.55$	2.65	2.60$	U2.60$	2.75$	2.70	2.85	2.95H	2.90	2.85H	2.70	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	2.65H	2.55	2.60	2.60	2.55	2.65	2.65	2.65	2.65	2.75	2.85	2.90$	2.45	2.50	2.75$
16	2.65	2.60	2.60	J2.45$	2.80	2.80	2.90	3.10$	3.15	2.60H	2.30	2.60	2.50	2.70	2.65	2.65	2.55	2.35	2.50	J2.85$	2.50$	2.30$	2.25	J2.40$
17	2.25F	2.45F	2.50	2.50	U2.15$	2.25	2.30	2.15	2.60	2.75H	2.60	J2.80$	2.50	2.70	2.75	2.50$	2.70	2.70	2.65$	2.70$	2.75	2.70	I2.25A	2.40
18	2.55	2.50	2.40$	2.35	2.45$	2.50F	2.90$	2.65	2.50	I2.90A	2.75	J2.95$	2.60	2.70	2.75	2.65	2.65$	2.65	2.80	2.85$	U2.90$	2.65$	I2.50A	J2.55$
19	2.40	2.40$	2.50$	2.55	2.65	2.65$	3.00	3.15	2.80	2.65	2.80	2.65	2.55	2.65	2.60	2.60	2.65	2.80	2.90	2.90	J2.75$	2.40$	2.45	2.40$
20	2.50	2.55$	2.50	2.70$	2.55	2.50$	2.85	3.20	2.85	2.90	2.80	2.70	2.65	2.60	2.55	2.65	2.55	2.70H	2.90	2.70	2.50	2.45$	2.40	J2.35$
21	2.50	2.60	2.45	I2.40A	2.40	2.45	U2.65$	3.05	3.00	2.95	J2.60$	2.70	2.65	2.60	2.60$	2.65	2.70	2.70	2.80	2.85	2.65$	2.45$	U2.60$	J2.50$
22	J2.60$	I2.55$	J2.55$	2.60$	2.55$	I2.80$	J3.00$	3.20	3.15	2.80	2.85	2.70H	2.60	2.65	2.75	2.65	2.65	2.70	2.70$	2.80	3.05	2.30	U2.40$	U2.40$
23	2.45$	U2.50$	2.65$	2.55	2.50	2.65	U3.10$	2.95	3.00$	2.95	2.75	2.55	2.55	2.55	2.55	2.55	U2.45$	U2.55$	2.65	2.85$	S	S	2.45	2.50$
24	2.40	U2.60$	U2.60$	2.55	2.60	J2.55$	3.00	3.05	2.90H	2.60	2.70H	2.65	2.45	2.55	2.55	2.60$	2.50	2.70	U2.75$	2.70	U2.50$	2.50	2.45	2.60
25	J2.60$	I2.65$	U2.80$	J2.60$	J2.60$	2.60	J2.80$	3.00	3.05	2.90	2.70	2.60	2.60	2.50	2.55	2.55	2.60	2.75	I2.70$	2.75	2.65	U2.40$	I2.50$	J2.60$
26	2.55$	I2.65$	J2.55$	J2.45$	J2.70$	2.85$	3.05	I3.10$	3.15	2.90	2.65	2.60	2.65	2.65	2.60	2.65	I2.65A	2.65	2.75$	2.70$	2.65$	S	S	S
27	S	S	S	U2.65$	U2.75$	U2.70$	2.70$	2.95	2.80	2.70	2.65	2.60	2.50	2.40H	2.50	2.50	2.60	2.65	2.60$	2.65	2.55	2.50$	2.55$	S
28	2.75$	2.75$	J2.75$	2.80	I2.75$	2.75	J2.85$	J2.90$	3.00	2.80	2.55H	2.50	2.60	2.55	2.50$	U2.50$	U2.55$	U2.60$	2.70	2.75$	I2.80$	S	S	S
29	S	S	S	S	S	S	J2.80$	2.95	2.95	I2.70F	2.55	2.55F	2.50F	2.55	2.50	2.45	2.50	2.60	2.75	2.65	2.65$	U2.45$	2.55$	2.50
30	2.55$	2.75	2.45$	2.60$	J3.00$	2.40$	2.50$	2.85	2.90	2.75H	2.55	2.50H	2.55	2.55	2.60	2.60	2.60	2.65	2.65$	2.80	2.45	2.35	I2.40$	2.45
31	2.45	2.55$	2.60$	U2.60$	I2.45$	2.50$	2.65	3.10	2.80	2.55	2.55	2.55$	2.45	2.45	2.50	2.55	2.65	2.55$	2.65	2.75$	2.50	2.45	2.50	2.40
No.	26	27	27	28	28	26	29	29	29	30	31	30	30	30	30	30	30	30	29	29	28	26	27	25
Median	2.50	2.60	2.60	2.55	2.60	2.60	2.80	2.95	2.95	2.80	2.60	2.60	2.60	2.55	2.60	2.60	2.65	2.70	2.75	2.75	2.65	2.45	2.45	2.45

(M3000)F2 Sweep 1.0 Mc to 20.3 Mc in 30 sec in automatic operation.

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

Aug. 1959 | (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	L	I3.30A	3.25	3.40	3.30	I3.20L	L						
2											I3.15A	3.20	3.25	I3.20A	I3.40A	I3.35A	I3.35A	L						
3												3.35	3.35	3.30	3.20	3.30	3.25							
4										3.35	3.55	3.35	3.65	3.20	3.30	3.15	3.40	L	L					
5									L	L	U3.35L	I3.40L	I3.30A	I3.20A	I3.20A	I3.30A	3.10H	L						
6										L	A	A	3.15	3.45	3.15	3.20	U3.10L	L						
7												3.50	3.20	I3.20L	U3.20L	LH	L	L						
8												I3.30L	3.70	3.25	U3.35L	3.05	3.20L	L						
9											3.35	3.25L	A	3.25	A	3.15	3.20	L						
10								L			3.50	3.35	I3.40L	3.35	A	3.15	3.20	A						
11										A	A	A	A	L	L	A	A	A						
12											3.40	LH	3.75	I3.10L	U3.25L	3.40	A	A	C					
13						C	C	C	C	C	L	L	3.30	3.35	L	L	3.30	L						
14											L	C	C	C	C	C	C	C	C					
15						C	C	C	C		L	3.55	L	3.25	3.35	I3.25A	3.55	L						
16												L	LH	3.20	I3.40L	U3.35L	L	L	A					
17								L	L		3.10		L	3.30	U3.20L	I3.05L	L	L						
18									L	A	L	A	A	I3.30A	U3.35L	3.35	L	L						
19										L	L	L	I3.30L	3.70	3.15	3.20	U3.20L	L						
20										A	A	L	3.25	I3.20L	3.20	3.20	L							
21												3.70	3.20	3.40	3.35	3.35	LH	L						
22										L			L	3.40	3.40	3.40	I3.30L	L						
23												L	3.25	3.20	3.25	3.10	3.20	L						
24												U3.50L	3.30	3.35	L	I3.20L	I3.15L	L						
25												L	U3.40L	L	U3.25L	U3.10L	I3.15L	L						
26												L	L	L	L	L	A	A						
27												3.50	L		3.30	U3.10L	LH	L						
28												L	U3.15LH	3.20	I3.30L	U3.20L	3.20H	L						
29											L	I3.30A	LH	3.20	U3.15L	3.25	3.15	L						
30													I3.25L	I3.20A	3.20	U3.20L	3.05L	L						
31										L			3.30	3.25	I3.10L	U3.10L	L	L						
No.										1	7	13	20	26	24	26	19							
Median										3.35	3.35	3.35	3.30	3.25	3.25	3.20	3.20							

(M3000)F1 Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

IONOSPHERIC DATA

Aug. 1959 | 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										335	350	400	400	410	360	350	350	335						
2											400	430	410^{S}	400	$^{E}425^{A}$	400	350	305						
3												395	400	350	375^{S}	375	300							
4										500	450^{S}	475	400	400	400	400	350	350	300					
5									415	380	360	375	380	380	$^{E}400^{A}$	360	340	300						
6										350	310	435	400	400	380	365	360	320						
7												405^{S}	400	370	380	L	360	350						
8												420	400	395	370	365	350	$^{I}350^{L}$						
9											400	395^{S}	390	395	375^{S}	350	340	320						
10								310			350	360	345	355	340	350	350	310						
11										A	A	400	$^{I}405^{A}$	375	370	350	$^{I}350^{A}$	325						
12											330	400	350	385	350	370	330	295	C					
13						C	C	C	C	C	350	$^{I}350^{L}$	360	360	325	330	345	320						
14											300	C	C	C	C	C	C	C	C					
15						C	C	C	C		340	360	355	370	350	350	320	L						
16												350	390	350	330	350	350	400	350					
17								L	350		420		450	385	345	400	325	335						
18									$^{I}400^{L}$	$^{I}335^{A}$	350	$^{E}400^{A}$	385	345	340	340	330	315						
19										380	320	300	350	370	355	310	325	290						
20										300	300	335	370	350	360	350	350							
21												350	350	340	350	350	335	300						
22										300^{S}			330	350	350	350	L	330						
23												350	390	385	370	355	350	350						
24												350	400	390	380	350	$^{I}360^{L}$	310						
25												300	350	400	380	390	350	300						
26												375	330	350	370	350	$^{I}375^{A}$	$^{E}425^{A}$						
27												350	390		395	375	340	325						
28												390	380	380	380	380	350	325						
29											350	390	385	380	375	395	390	340						
30													380	400	380	390^{S}	375	L						
31										350			400	400	L	380	340	350						
No.								1	3	9	16	25	30	29	27	29	29	25	2					
Median								310	400	350	350	375	390	380	370	355	350	325	325					

h'F2 | Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

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IONOSPHERIC DATA

Aug. 1959 | 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	300	295	250	250	350	400	275	245	235^{H}	230	250	$E_{330}{}^{A}$	A	265	225	250	245	280	295	280	265	295	350	355
2	340	300	290	250	325	380	280	255	250	250	$I_{290}{}^{A}$	290	300	$I_{290}{}^{A}$	$I_{275}{}^{A}$	$I_{250}{}^{A}$	$I_{255}{}^{A}$	245	250	$I_{320}{}^{A}$	$E_{350}{}^{A}$	300^{A}	330	320
3	300	270	300	335	340	350	275	245	240	225	245	225	240	250	250	250	235	300	300	300	350^{A}	250	300	330
4	350	390^{A}	305^{A}	300	300	280	290	250^{H}	250	215	230	250	$E_{250}{}^{C}$	$E_{315}{}^{A}$	250	300	250	250	$E_{290}{}^{A}$	$E_{350}{}^{A}$	300	300	345	305
5	320	350	300	300	310	340	300^{H}	250	240	230	300	265	A	$E_{260}{}^{A}$	A	A	230^{H}	250	295	$E_{350}{}^{A}$	$I_{330}{}^{A}$	350	350	335
6	310	300	270	300	280	300	260	250	255	225	$I_{270}{}^{A}$	$I_{235}{}^{A}$	250	230	255	250	250	250	260	$I_{270}{}^{A}$	A	400	350	355
7	355	300	280	255	$E_{400}{}^{A}$	380	250	250	280^{H}	$I_{250}{}^{A}$	$I_{250}{}^{A}$	245	280	260	255	250^{H}	250	240	300	260	260	250	320	335
8	350	350	300	305	315	340	300	260	$I_{275}{}^{A}$	240^{H}	250^{H}	230	210	290	290	300	280	275	290	295	300	300	350	350
9	350	350	310	340	300	300	285	265	245	225^{H}	225	255	$I_{240}{}^{A}$	225	$I_{280}{}^{A}$	250	250	245	300	295	290	275	350	350
10	350	340	345	360	350	350	300	280	250	275	225	285	$E_{300}{}^{A}$	275	A	$E_{300}{}^{A}$	250	A	290	255	300	300	300	300
11	315	335	335	310	275	290	275	255	250	A	A	A	A	225	300	A	A	$I_{290}{}^{A}$	295	300	315	$I_{330}{}^{C}$	350	325
12	320	300	265	275	250	270	275	240	245	250^{H}	200	200^{H}	210	270	210	245	A	A	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	250	250	245	235	230	$E_{275}{}^{C}$	235	250	260	265	275	290	300	325
14	320	300	300	300	280	250	255	240^{H}	230	220^{H}	225	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	225^{H}	225	235	250	250	250	A	255	250	295	270	265	290	300	300
16	310	$E_{350}{}^{A}$	325	320	285	260	280	270	$E_{300}{}^{A}$	240^{H}	275	280	250^{H}	$E_{300}{}^{A}$	250	250	245	295	A	275	255	305	$E_{430}{}^{A}$	400
17	375	370	320	315	$E_{375}{}^{A}$	350	$I_{330}{}^{A}$	$E_{370}{}^{A}$	280	250^{H}	250	285	250	250	$E_{290}{}^{A}$	300	250	250	275	285	270	280	A	380
18	300	325	355	395	350	350	275	A	250	A	280	$I_{255}{}^{A}$	$I_{245}{}^{A}$	$I_{250}{}^{A}$	250	250	250	250	270	270	250	250	A	330
19	345	345	300	250	250	290	290	250	250	270	245	225	280	225	230	250	250	245	255	240	300	300	350	350
20	320	300	325	300	285	310	290	250	250	$I_{240}{}^{A}$	$I_{250}{}^{A}$	250	225	250	250	250	250	250^{H}	260	290	250	270	350	380
21	345	300	325	$E_{350}{}^{A}$	$E_{380}{}^{A}$	340	295	250	255	250	250	230	230	285	230	240	230^{H}	255	280	255	250	295	300	300
22	300^{A}	290	340	350	300	255	240	240	235	220	250	230^{H}	235	240	235	245	225	250	250	255	240	300	$E_{400}{}^{A}$	370
23	350	345	310	260	325	300	250	250	250	300	250	250	250	225	280	275	255	280	300	280	250	250	300	310
24	300	330	295	275	290	300	250	240	230^{H}	240	220^{H}	215	225	230	240	250	245	250	250	$I_{295}{}^{A}$	300	290	345	330
25	300	290	250	275	255	250	250	250	240	225	245	210	230	225	215	240	250	250	255	290	300	300	305	310
26	300	300	295	325	305	255	255	240	230	250	$E_{350}{}^{A}$	240	$E_{290}{}^{A}$	290	$E_{330}{}^{A}$	$E_{340}{}^{A}$	$I_{310}{}^{A}$	A	300	285	290	255	265	260
27	295	280	250	230	240	205	275	250	250	245	250	260	230	225^{H}	240	225	250^{H}	250	270	265	290	295	295	295
28	270	255	255	245	250	270	265	240	235	240	250^{H}	220	200^{H}	245	225	250	225^{H}	250	270	280	255	245	295	250
29	255	265	245	230	240	230	255	250	250	$I_{250}{}^{C}$	250	$I_{260}{}^{A}$	205^{H}	250	250	240	245	250	270	270	265	280	300	300
30	325	280	310	345	250	295	300	250	250	240^{H}	250	250^{H}	240	$I_{245}{}^{A}$	$E_{290}{}^{A}$	245	250	255	280	270	250	300	330	310
31	310	295	290	260	340	300	290	250	240	245	240	230^{H}	235	240	240	250	270	275	350	280	$E_{315}{}^{A}$	315	275	345
No.	29	28	29	28	26	29	29	27	28	28	29	28	24	27	25	24	28	27	27	27	26	29	25	29
Median	320	300	300	300	295	300	275	250	250	240	250	250	240	250	250	250	250	250	280	280	270	295	320	330

h'F

Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Aug. 1959 | 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	S	100	100	100	100	110	140	130	130	130	130	120	125	130	125	125	125	120	100	100	100	100	100
2	100	100	100	100	E	E	130	140	125	125	115	110	115	125	120	115	115	105	G	100	100	100	100	100
3	100	100	100	100	100	100	155	140	105	110	115	110	115	110	115	105	100	105	100	100	120	115	110	S
4	100	100	100	100	100	S	130	130	130	100	125	125	C	150	G	110	120	125	100	100	100	100	100	100
5	100	S	100	100	100	E	135	130	130	140	125	115	110	115	115	110	130	150	125	115	105	100	100	100
6	100	100	100	100	100	105	125	130	110	120	110	110	110	110	105	105	105	100	100	125	120	110	110	110
7	110	100	100	100	110	100	G	140	125	110	100	145	145	140	140	150	G	140	125	S	120	S	125	105
8	105	110	110	E	E	100	125	125	115	110	110	110	125	110	150	130	135	140	130	125	120	100	100	110
9	105	105	105	105	105	105	120	125	125	125	120	110	115	125	105	105	105	100	100	100	100	120	125	110
10	105	105	105	105	105	S	140	115	125	125	125	125	125	125	145	130	130	115	115	110	100	120	120	110
11	100	100	100	100	E	E	130	135	125	115	115	115	110	105	105	105	105	105	100	100	100	C	100	100
12	100	100	100	100	100	100	100	G	135	125	110	125	100	110	105	120	120	125	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	125	120	120	130	125	110	100	G	140	100	100	100	100	110
14	110	105	105	105	110	115	100	105	100	105	105	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	120	125	125	125	110	110	105	100	100	135	120	115	100	100	100
16	100	100	105	105	105	105	130	125	110	115	110	110	115	110	110	165	155	135	125	110	105	105	120	115
17	105	110	120	120	125	125	120	120	125	110	145	145	140	145	140	140	150	150	135	100	100	105	105	105
18	105	130	E	110	115	110	125	125	120	115	115	115	115	110	110	120	110	110	100	S	125	120	125	100
19	100	100	100	100	100	125	125	120	110	115	115	125	115	120	120	120	100	150	140	125	125	125	120	110
20	120	115	105	105	105	115	G	130	130	110	110	120	G	145	150	145	G	G	145	S	120	115	110	115
21	120	105	110	110	110	105	120	120	110	105	110	110	115	110	105	G	G	105	G	110	115	110	100	100
22	100	100	105	105	110	120	G	115	105	115	B	G	155	110	195	G	G	G	145	100	120	120	115	115
23	110	105	100	105	110	110	115	145	130	125	125	135	120	125	115	115	105	100	100	100	100	100	100	100
24	100	100	100	100	E	100	105	150	120	110	105	105	G	120	G	165	150	G	130	120	110	100	100	100
25	100	S	E	E	E	110	150	100	150	145	S	G	G	G	G	G	G	100	100	120	100	100	100	S
26	S	S	E	105	125	105	105	110	145	125	110	115	110	105	105	105	120	105	100	100	100	100	100	100
27	100	S	100	E	110	105	G	130	110	110	105	105	105	110	105	100	105	G	100	105	100	S	100	100
28	S	S	S	100	110	110	140	135	130	115	110	110	115	110	110	105	105	G	G	130	100	S	S	S
29	S	S	S	100	115	110	115	175	130	C	115	115	100	115	115	110	110	G	G	130	125	S	S	S
30	120	120	120	115	110	120	G	G	130	125	120	110	130	120	110	120	110	G	100	G	100	S	100	100
31	100	100	E	100	100	E	G	115	G	105	G	105	100	100	105	100	145	135	130	120	125	100	100	100
No.	26	22	23	26	24	23	23	27	28	29	28	28	26	29	27	27	25	22	25	25	29	23	27	25
Median	100	100	100	100	110	105	125	130	125	115	115	115	115	115	115	115	110	110	120	110	105	100	100	100

h'Es

Sweep 1.0 Mc to 20.3 Mc in 30 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 11

57

IONOSPHERIC DATA

Aug. 1959 | Types of Es | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f		f2	f4	f2	f	l2	h2	h	h	h	h2	h2	h2	h	h2	h	h2	h4	l4	f3	f2	f2	f5
2	f5	f	f	f			h2	h	c2	c2	c4	c3	c2	h3	c3	c4	c3	l2		l3	f5	f7	f5	f5
3	f5	f2	f2	f5	f2	f2	h	h	l2	l2	c3	l	l2	c2	l	l2	ll2	l4	l5	l4	f5f3	f3	f2	
4	f3	f6	f6	f4	f2		h2	h2	h2	l	h	h		h2		h2	l2	h2	l3	l4	f5	f3	f3	f2
5	f2		f	f2	f2		h2	h2	h	h	c2	c2	c3	c3	c3	c3	c2	h	h3	l4	f7	f3	f4	f4
6	f	f2	f2	f3	f	f7	c	c2	c3	c	c3	l2	c2	l2	l2	l2	l	l3	l2h	l2l4	f2f3	f5	f2	f3
7	f3	f3	f6	f3	f4f3	f6		h2	h2	c3	l3	h	h	h	h2	h		h	c4		f2		f2	f4
8	f3	f3	f2f5			f	c2	c4	c4	l2	l2	l	c	c2	h	h2	h2	h2	h2	c3l3	f2f7	f2	f3	f2
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11	f2	f	f2	f			h2	h2	h3	c3	c3	c4	c4	l2	l2	l3	l5	l4	l6	l5	f5		f5	f6
12	f3	f4	f4	f5	f6	f2	l2		h2	h2	l2	c	l	l2	l	l2	c4	c3						
13											c2	c2	c2	h	h	l	lh		h2l2	l4	f4	f4	f4	f2
14	f2	f3	f2	f3	f2	f2	l	l2	l	l	l													
15										l	l	c	c2	l2	l	l3	l	l2	h3l2	h3	f3	f	f2	f5
16	f3	f3	f3	f2	f3	f2	h3	c3	c4	c2	l4	l3	l2	l3	l2	h	h	h2	c	c2	f	f2	f4	f7
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21	f2f4	f	f2	f5	f5	f5	c2	c	c3	c4	l	l2	l	l2	l			l2		h2	f6	f4	f3	f5
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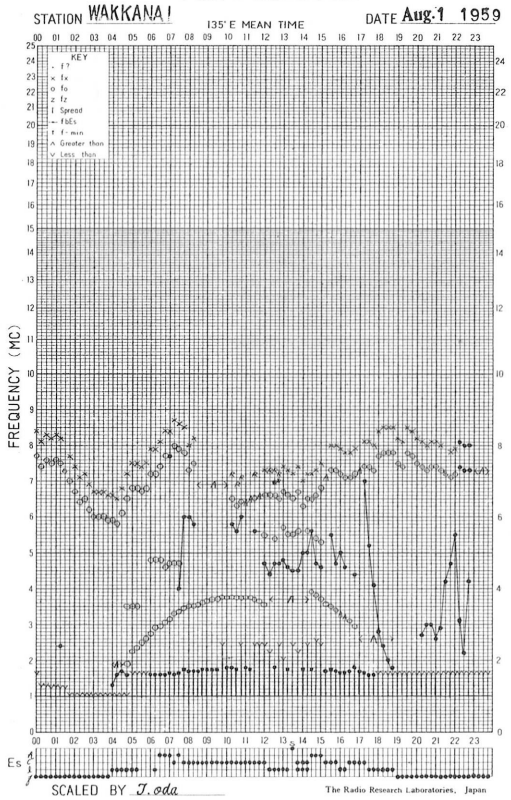
25	f					f	h	lh2	h	h								l3	l3	h5l	f4	f3	f	
26				f2	f	f2	l3	l4	h	h	h3	h2	c2	c3	h2	l2	h3l3	l6	l3	l4	f4	f2	f4	f2
27	f5		f		f	f		h	h4	c2	c2	c2	l2	l	l2	l	l3		l	l2	f2		f2	f
28				ff2	f2f	f2	h2	h	h	h	c	c	c	c	c	l	l			h2	f2			
29				f2	f	f	l2	h	h		c3	c3	ll	c	c2	l	l			h2l	f2			
30	f3	f2	f2	f4	f3	f2			c	c	c2	l	l	c3	c2	l	l		l2		f		f3	f3
31	f2	f		f3	f3			l		l		l	l2	l2	l	l2	h l2	h3	c4	c6	f2f2	f5	f	f2
No.																								
Median																								

Types of Es | Sweep 1.0 Mc to 20.3 Mc in 30 ~~min~~ sec in automatic operation.

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE Aug. 1 1959



SCALED BY T. oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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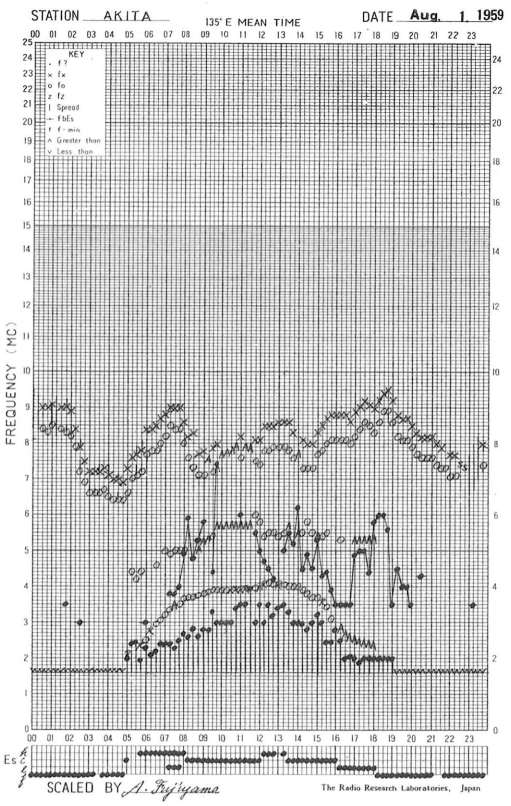

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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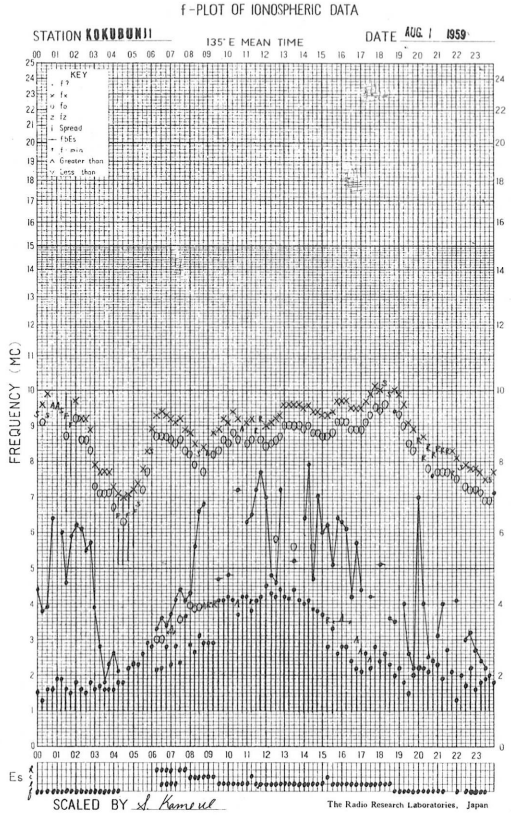

SCALED BY I. Kameul

The Radio Research Laboratories, Japan

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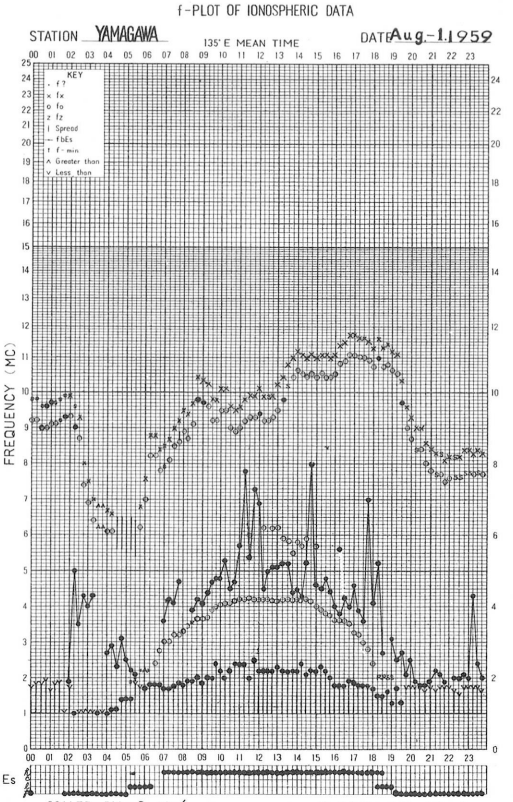

SCALED BY S. Nozomi

The Radio Research Laboratories, Japan

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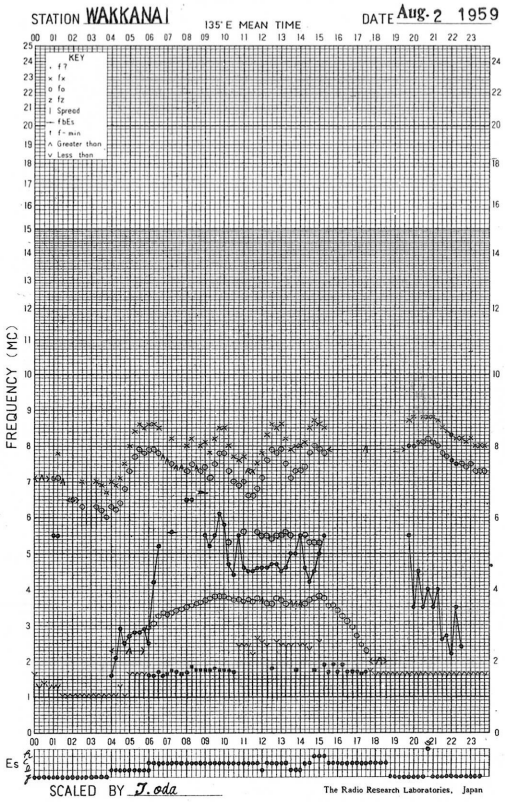

SCALED BY T. oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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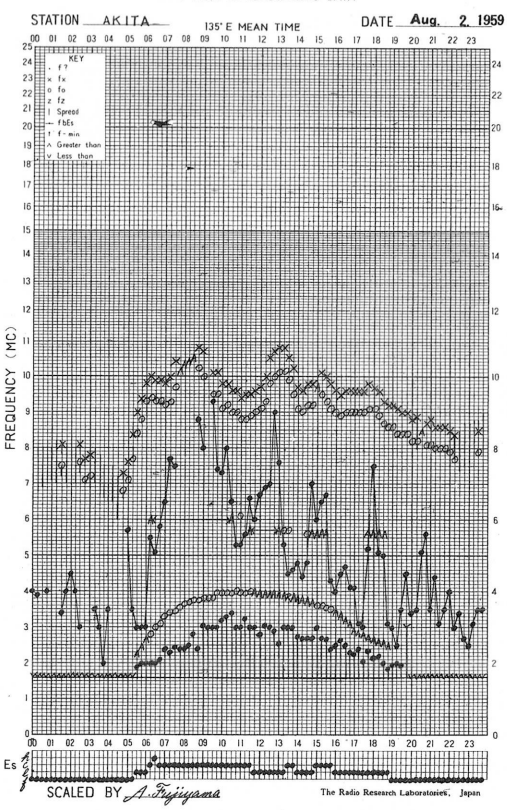

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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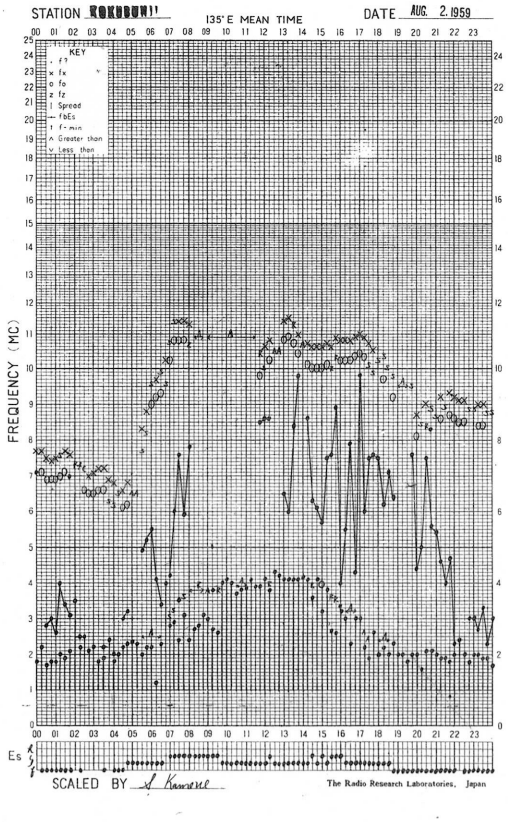

SCALED BY K. Kawasumi

The Radio Research Laboratories, Japan

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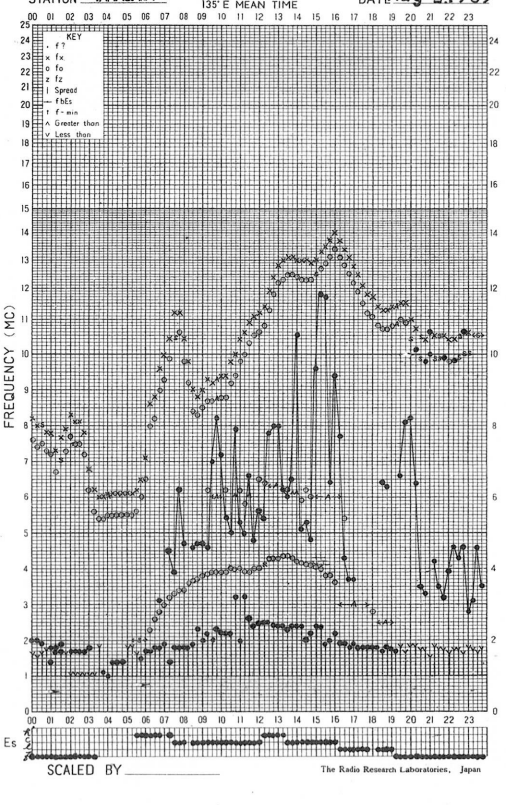

SCALED BY

The Radio Research Laboratories, Japan

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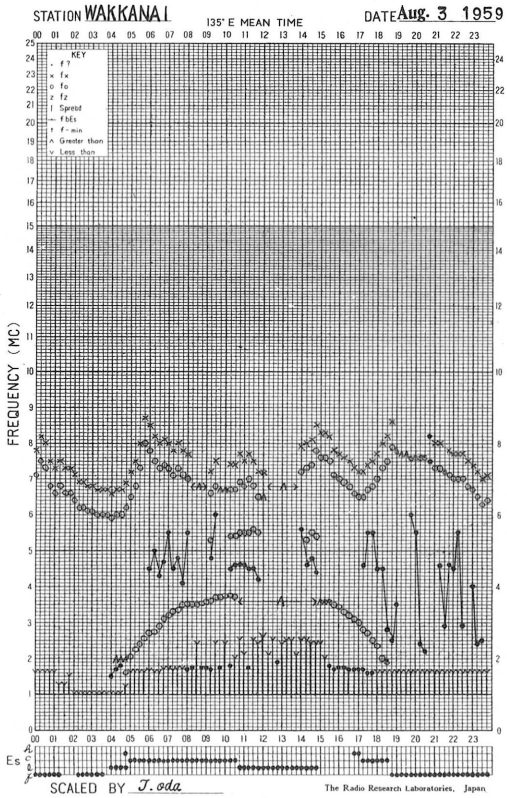

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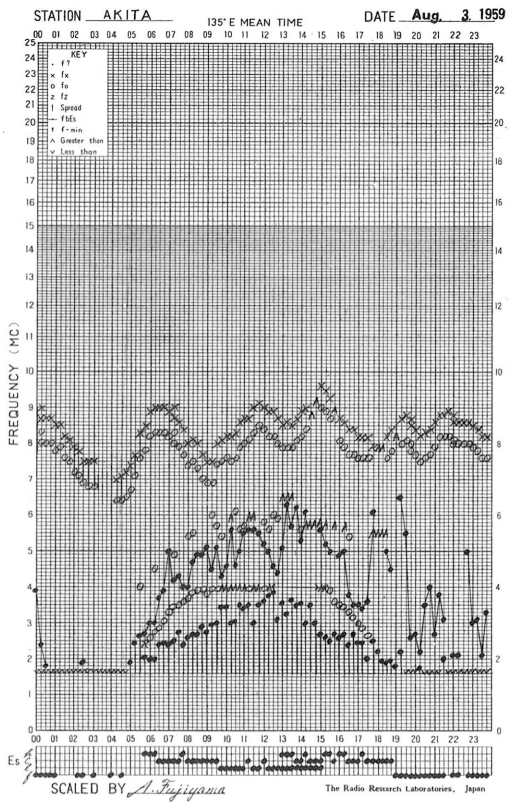

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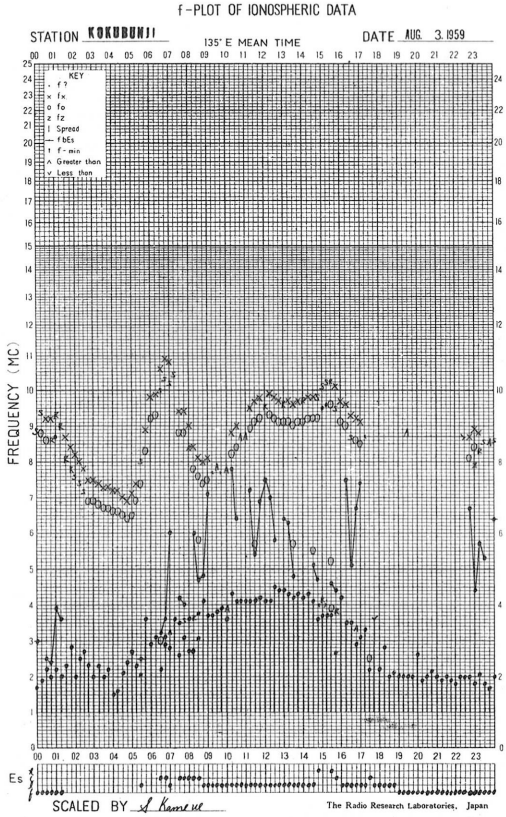

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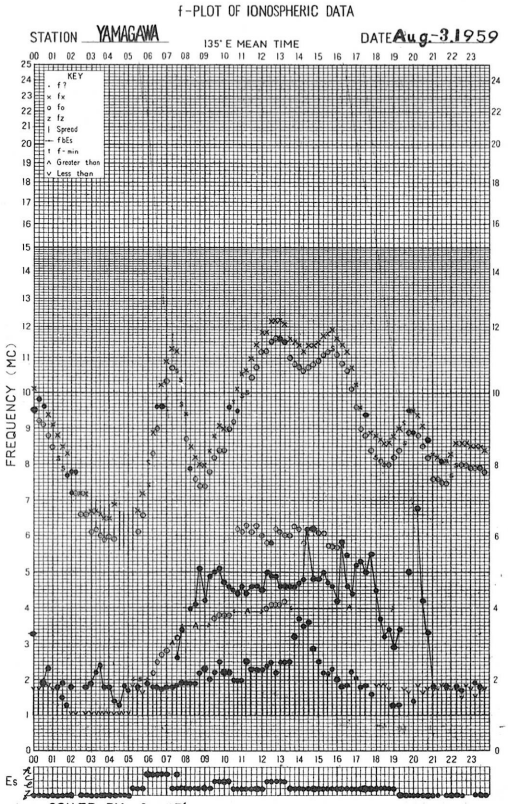

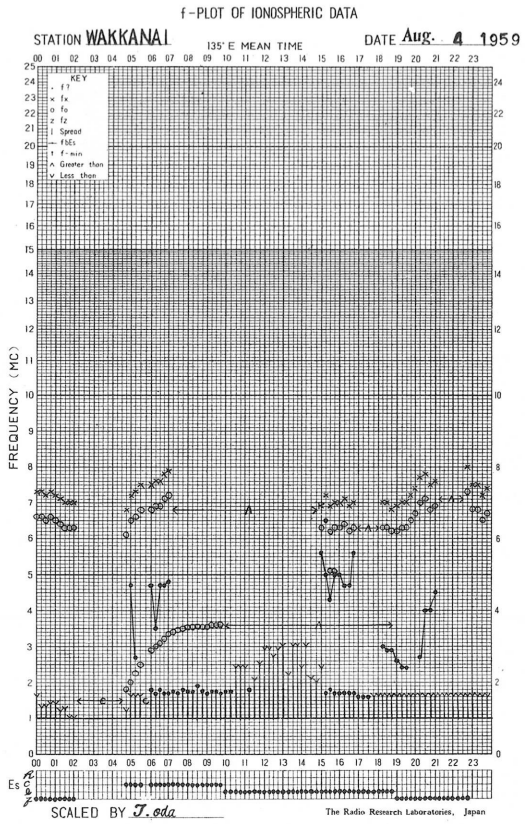
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STATION WAKKANAI
135° E MEAN TIME
DATE Aug. 4 1959
KEY
. f?
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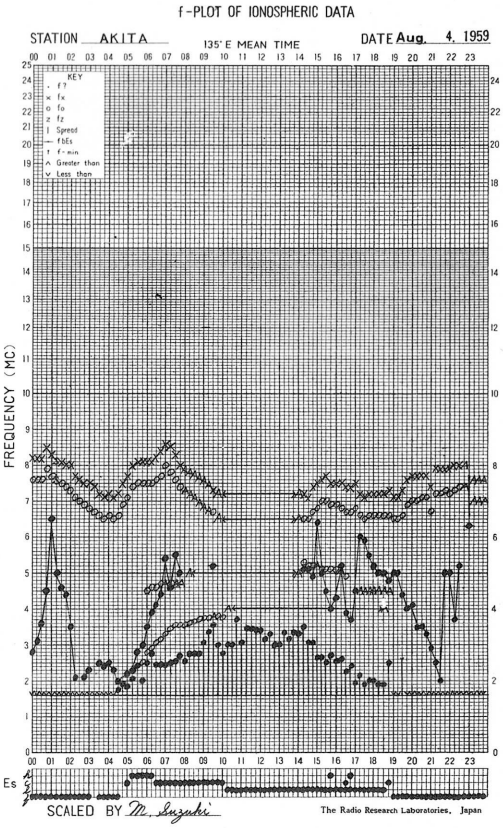
FREQUENCY (MC)
Es
SCALED BY T. Oda
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Aug. 4, 1959
KEY
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FREQUENCY (MC)
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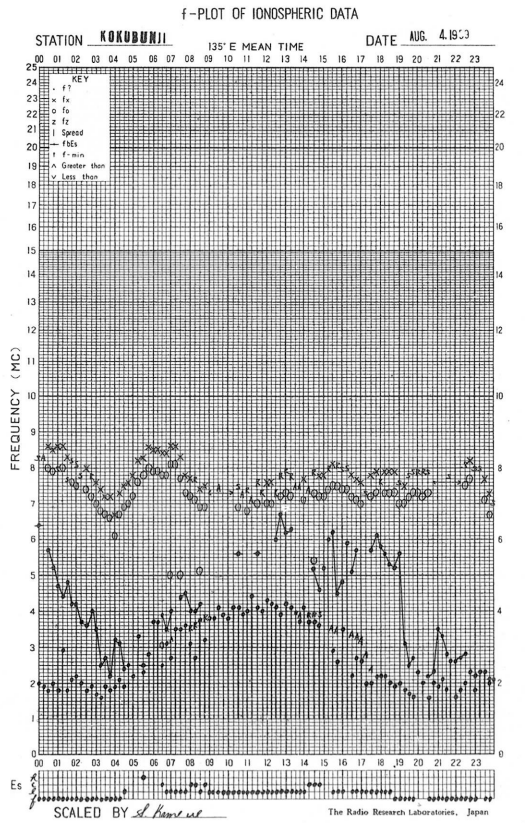
SCALED BY M. Suzuki
The Radio Research Laboratories, Japan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STATION KOKUBUNJI
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DATE AUG. 4.1959
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FREQUENCY (MC)
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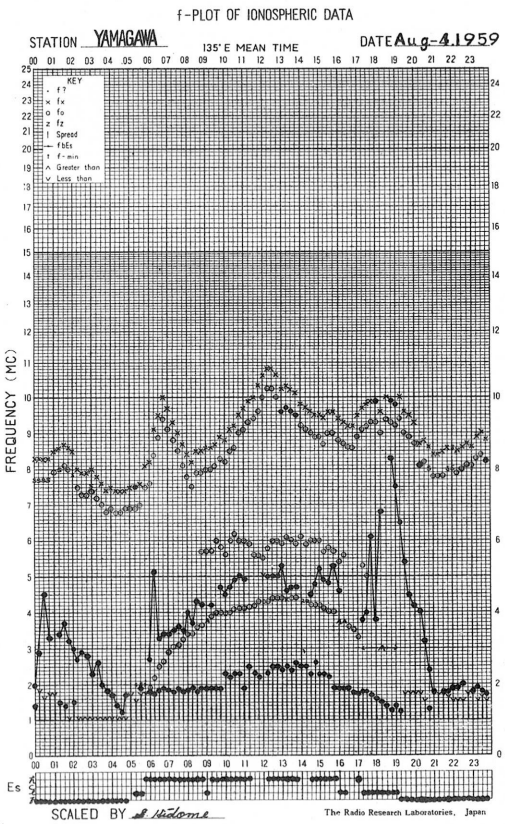
SCALED BY S. Hamaguchi
The Radio Research Laboratories, Japan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DATE Aug-4.1959
KEY
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FREQUENCY (MC)
Es
SCALED BY S. Nishome
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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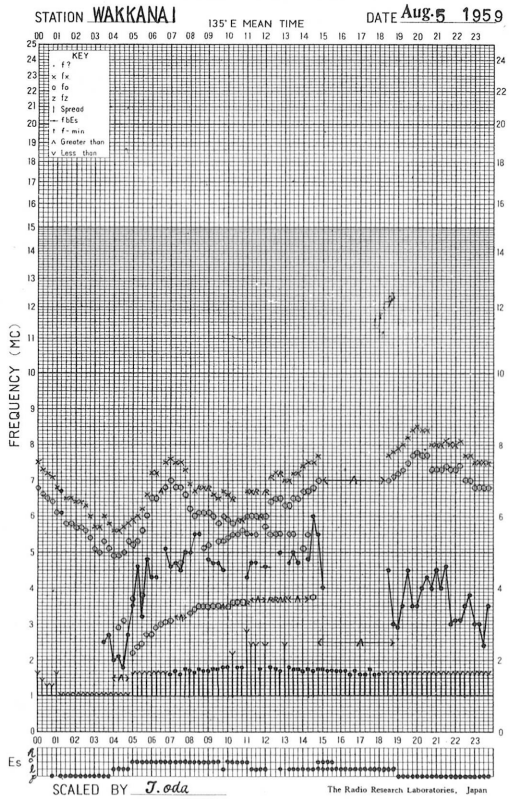

SCALED BY T. oda

The Radio Research Laboratories, Japan

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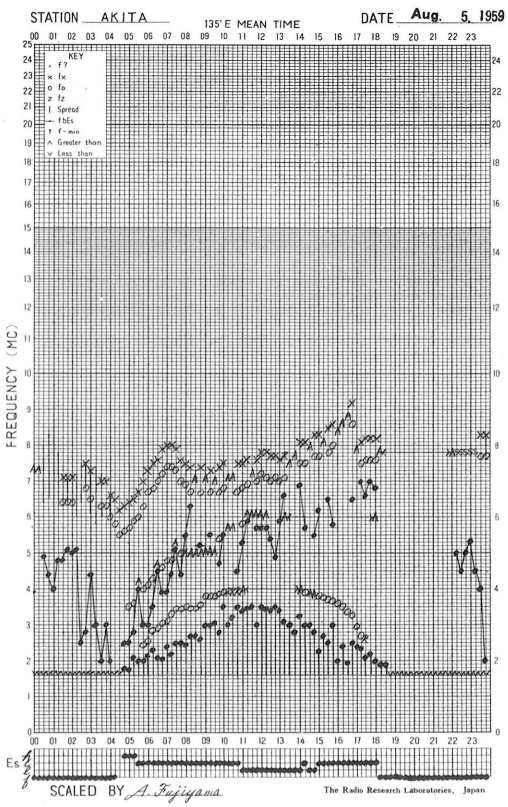

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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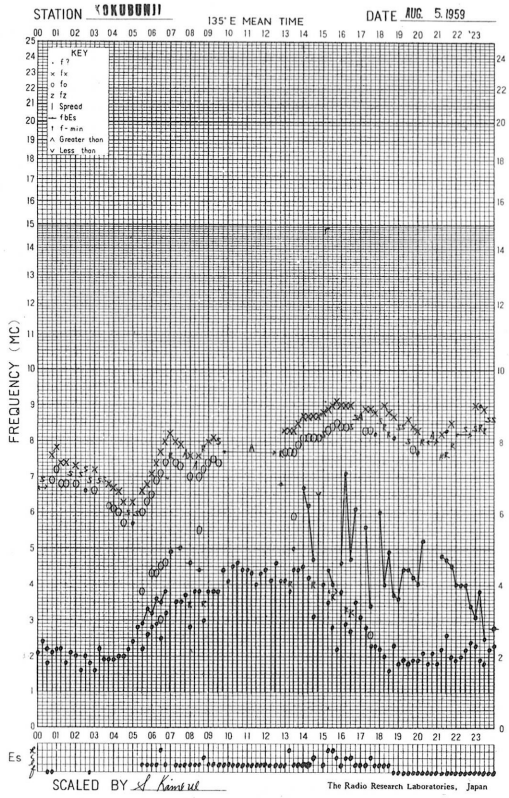

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The Radio Research Laboratories, Japan

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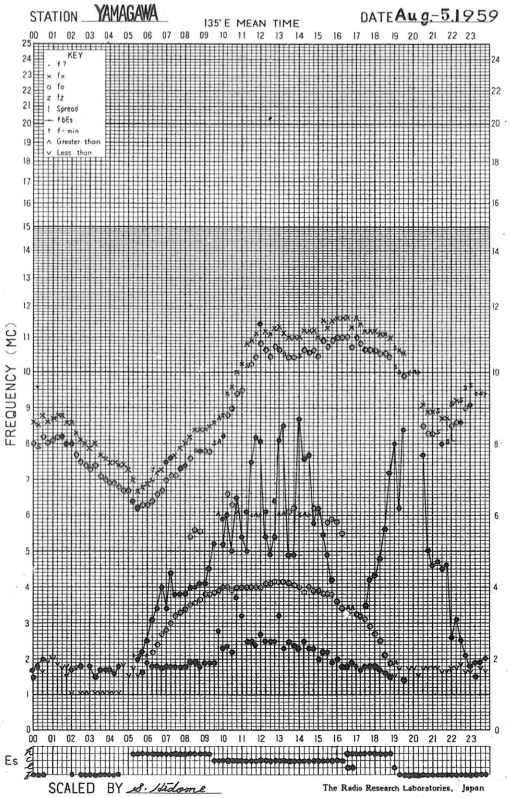

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The Radio Research Laboratories, Japan

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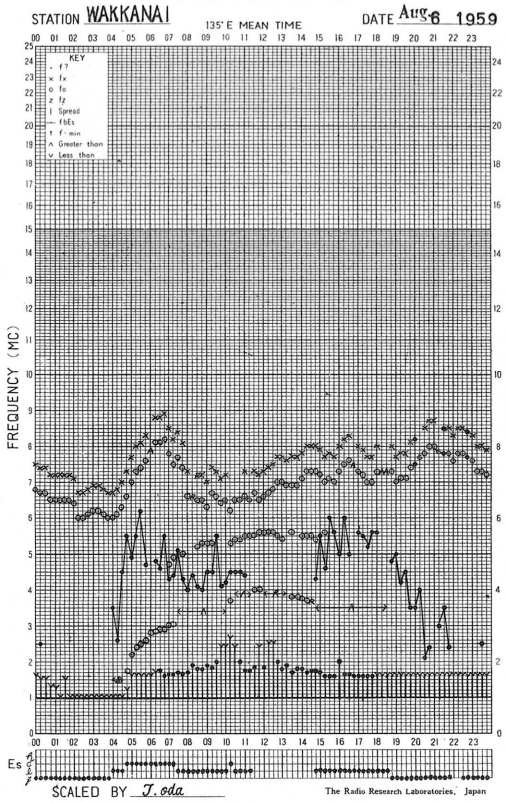

SCALED BY T. oda

The Radio Research Laboratories, Japan

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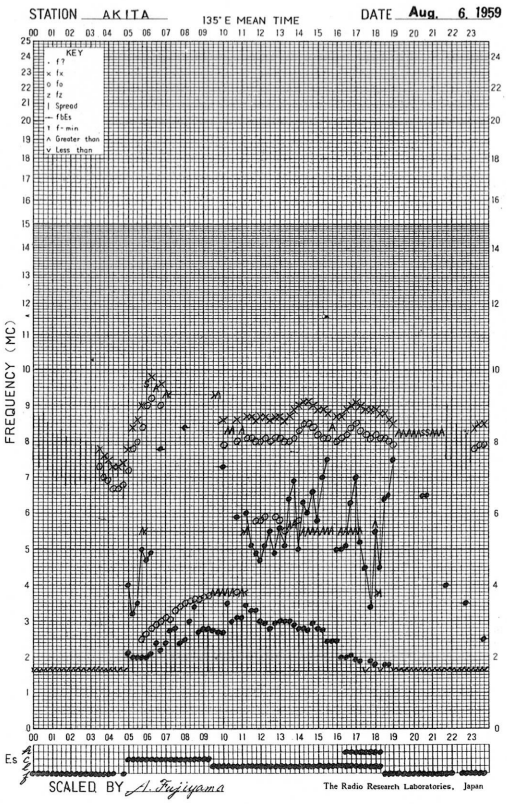

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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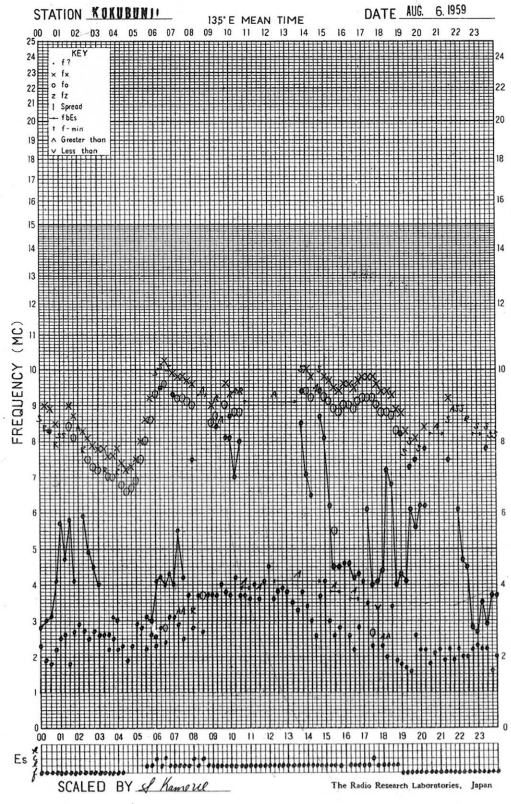

SCALED BY S. Kamesaki

The Radio Research Laboratories, Japan

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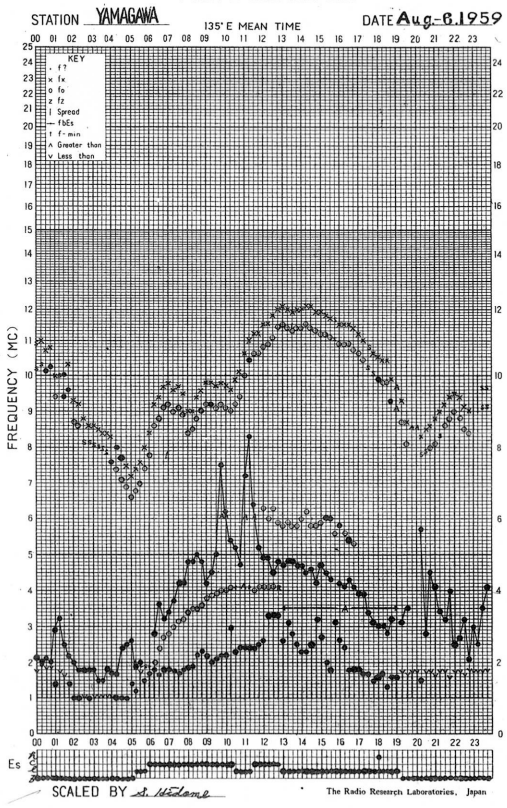

SCALED BY S. Uesawa

The Radio Research Laboratories, Japan

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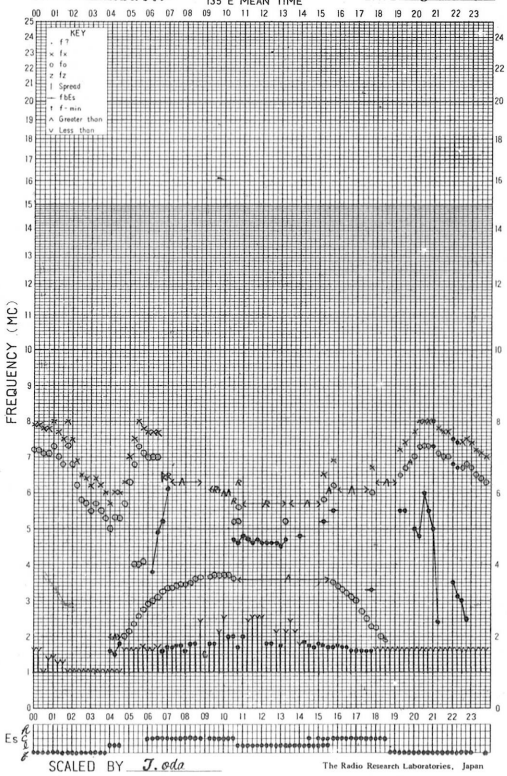

SCALED BY J. oda

The Radio Research Laboratories, Japan

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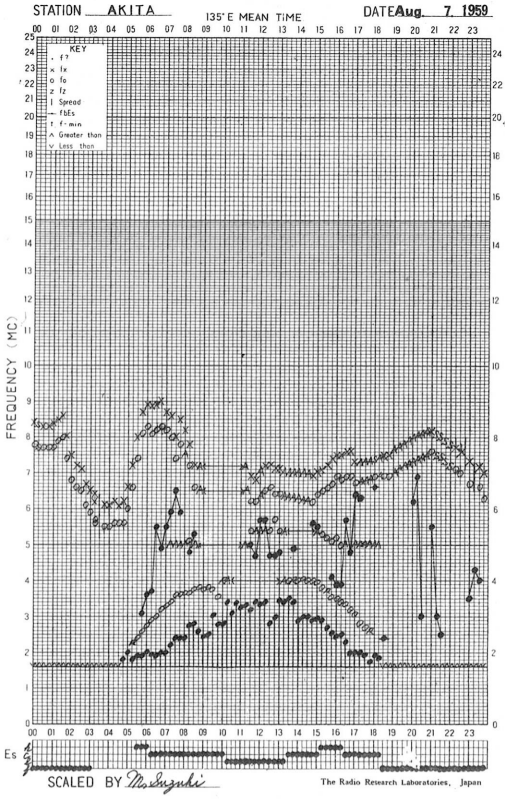

SCALED BY M. Suzuki

The Radio Research Laboratories, Japan

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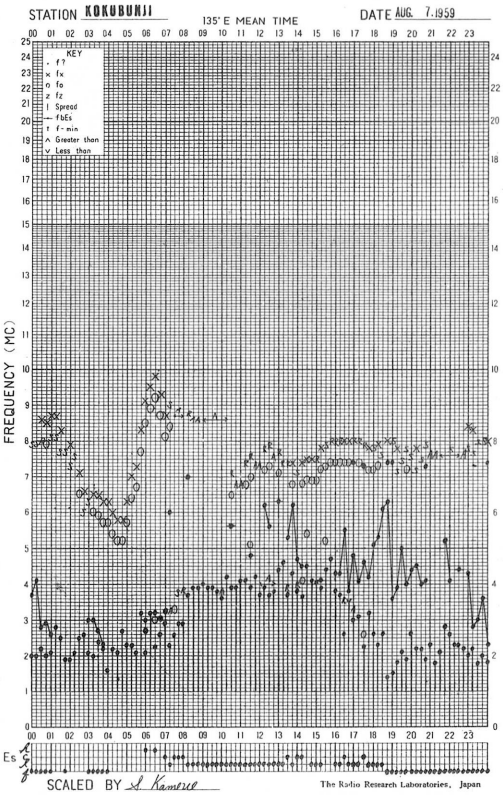

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The Radio Research Laboratories, Japan

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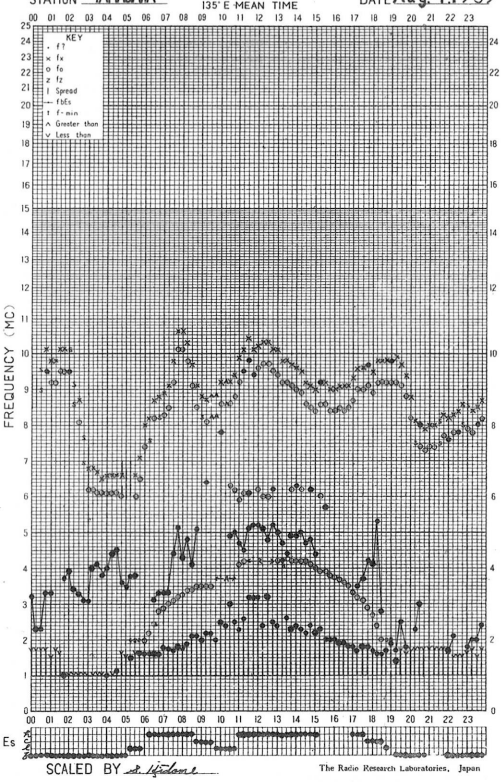

SCALED BY S. Kitano

The Radio Research Laboratories, Japan

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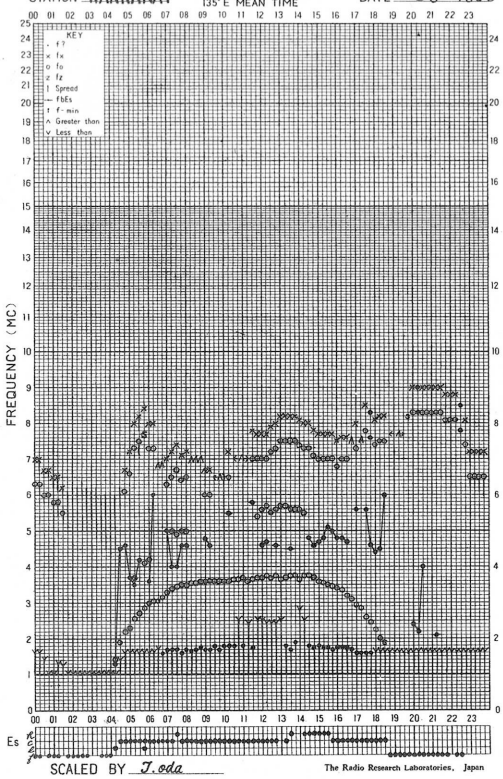

SCALED BY T. Oda

The Radio Research Laboratories, Japan

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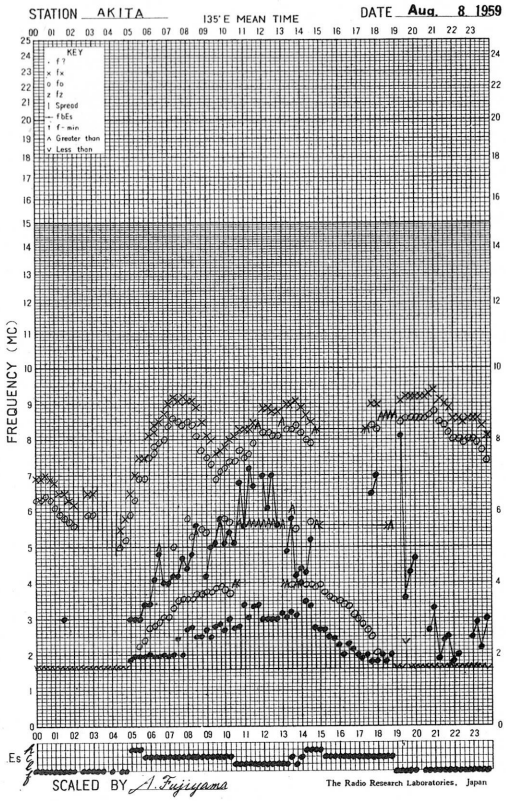
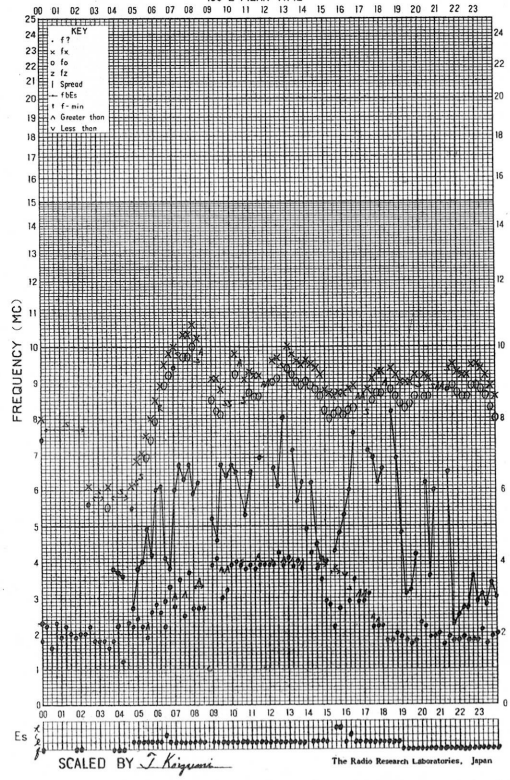


SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 8.1959

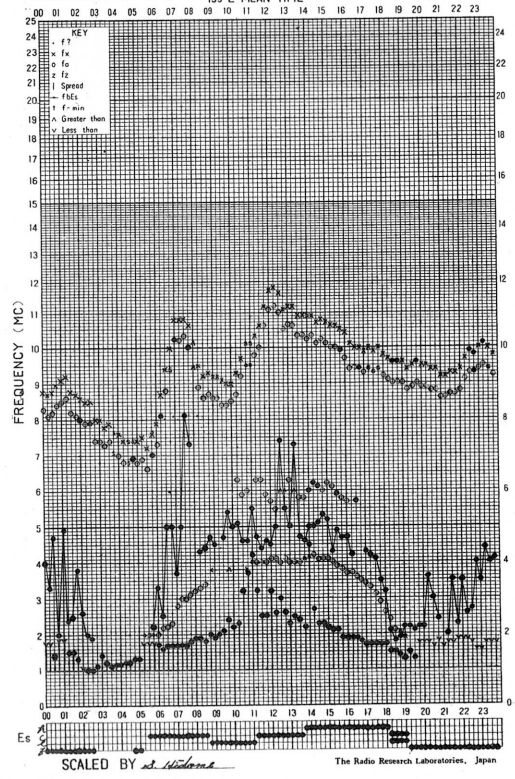


SCALED BY T. Kitzumi

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE Aug.8.1959



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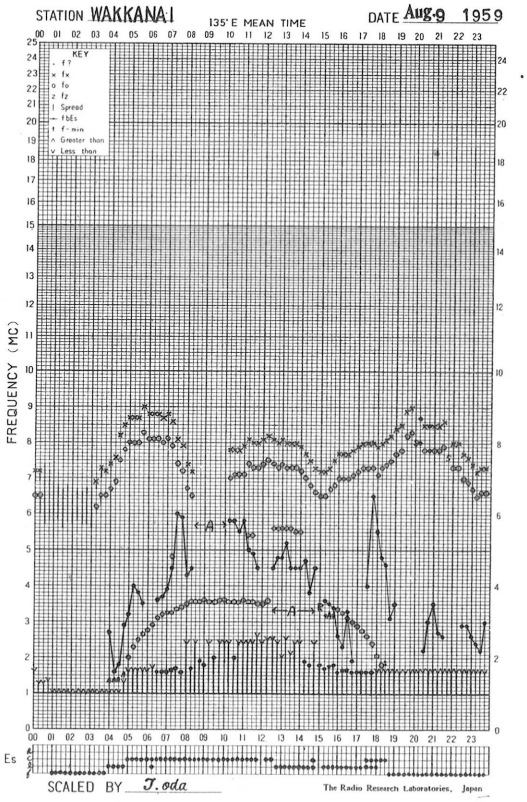

SCALED BY T. oda

The Radio Research Laboratories, Japan

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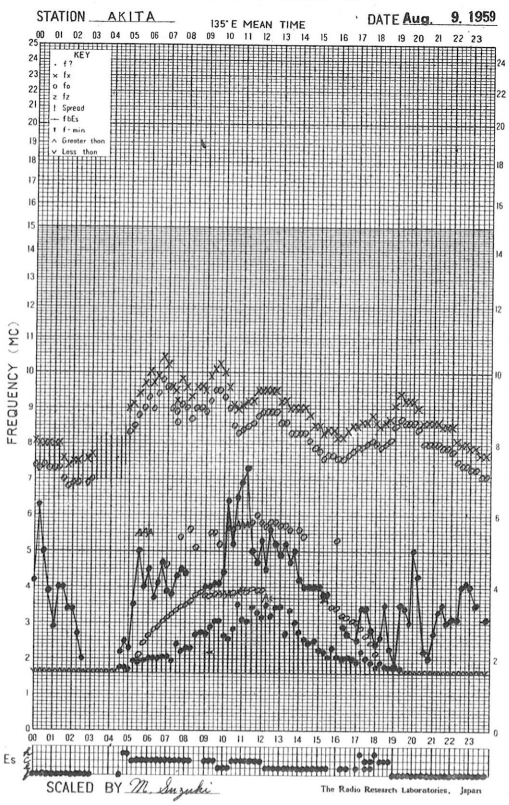

SCALED BY M. Inuzuki

The Radio Research Laboratories, Japan

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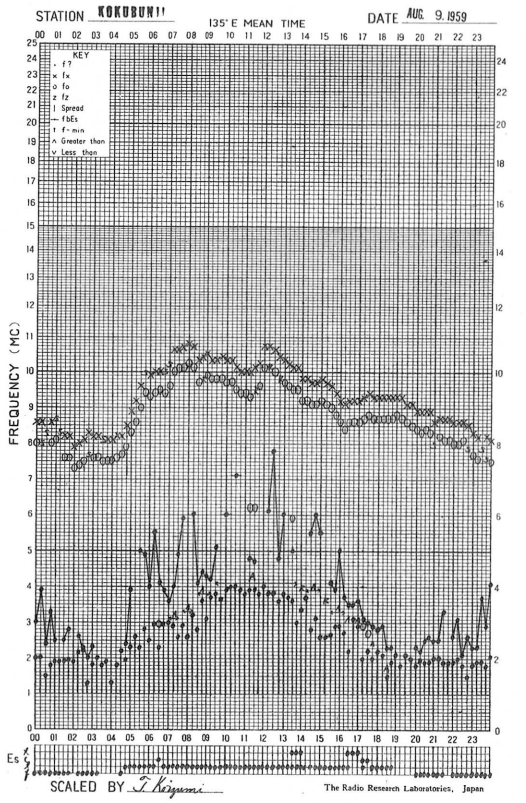

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The Radio Research Laboratories, Japan

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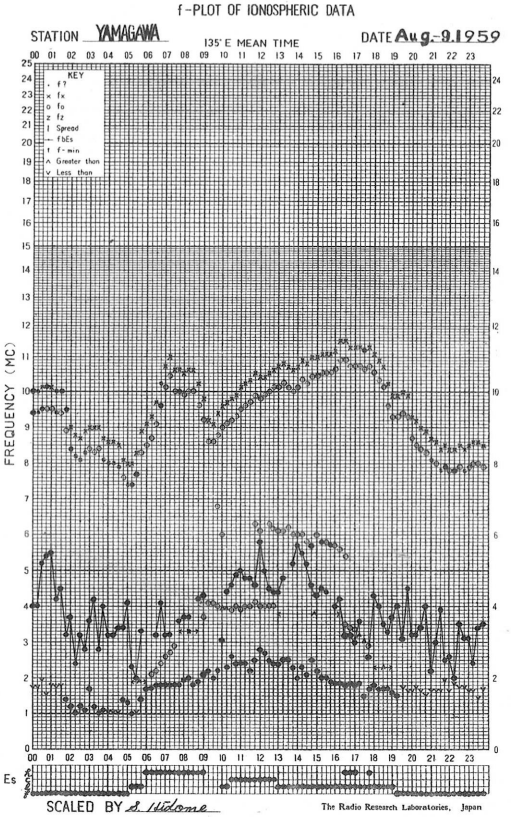

SCALED BY S. Hidome

The Radio Research Laboratories, Japan

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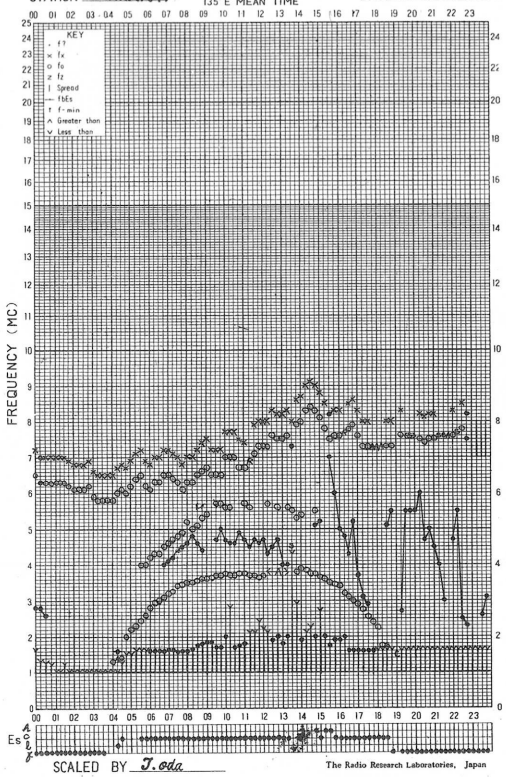

SCALED BY T. Oda The Radio Research Laboratories, Japan

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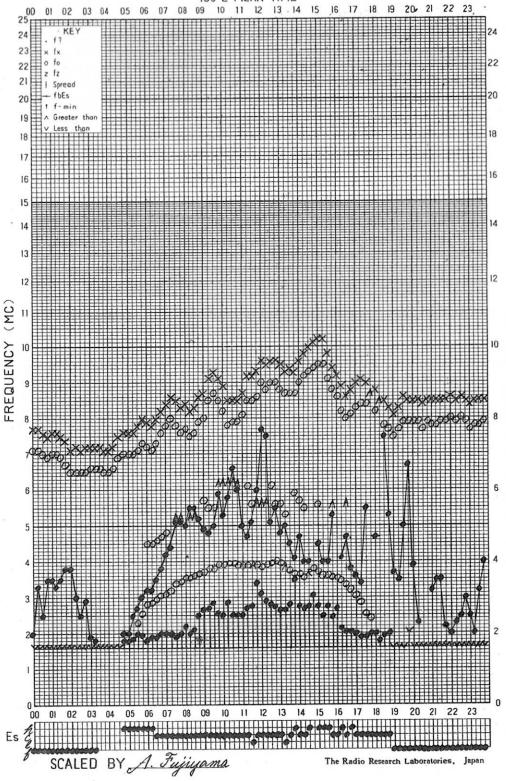

SCALED BY A. Fujiyama The Radio Research Laboratories, Japan

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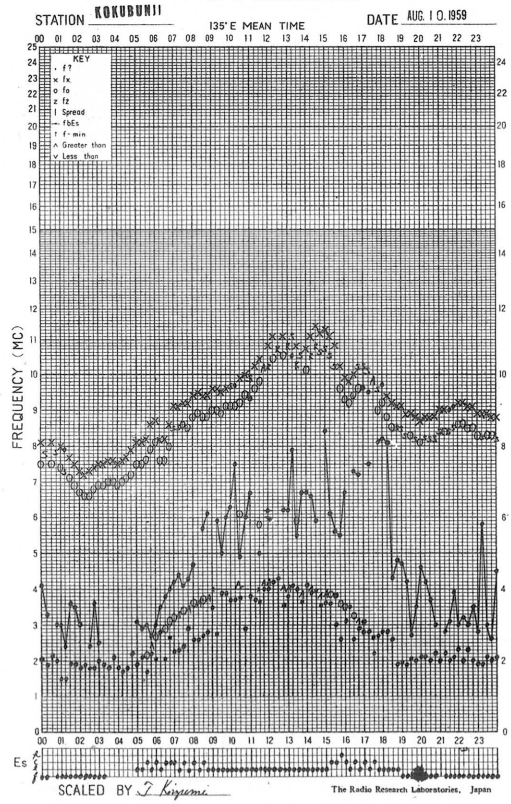

SCALED BY I. Kiyomi The Radio Research Laboratories, Japan

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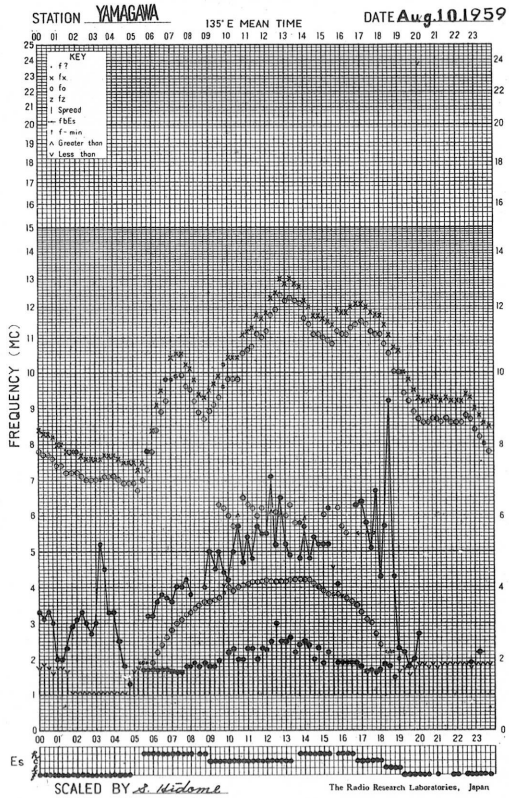

SCALED BY S. Nidome The Radio Research Laboratories, Japan

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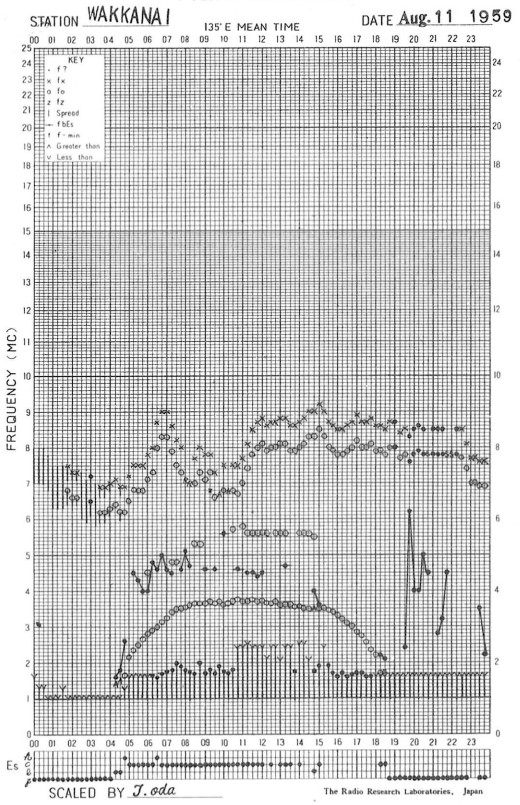

SCALED BY T. oda

The Radio Research Laboratories, Japan

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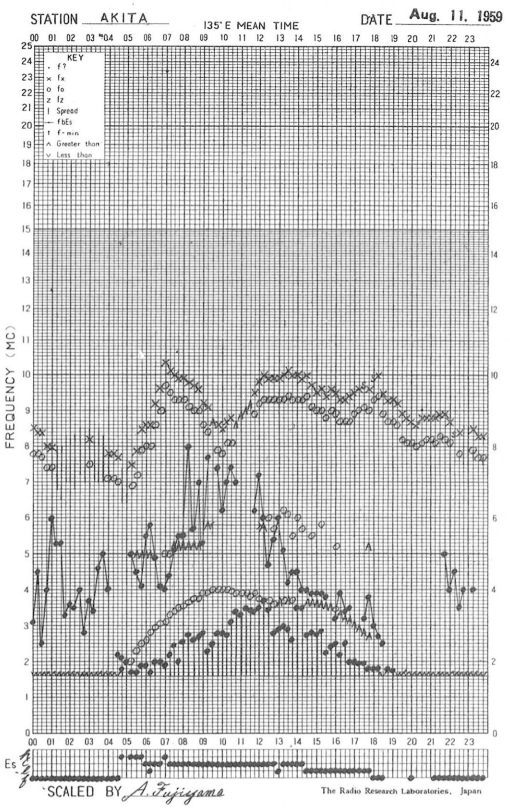

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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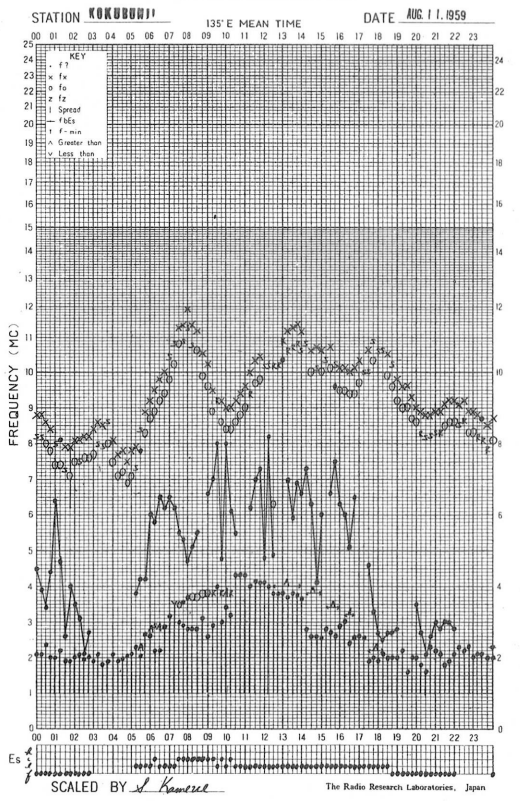

SCALED BY S. Kameue

The Radio Research Laboratories, Japan

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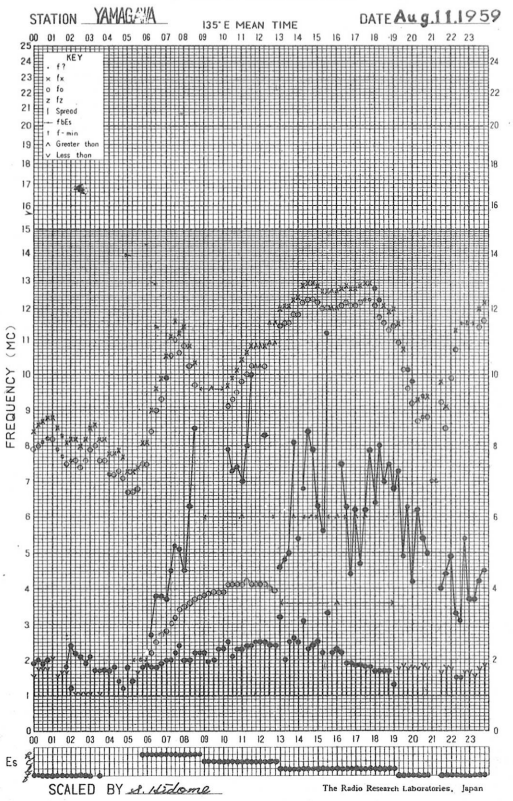

SCALED BY S. Nidome

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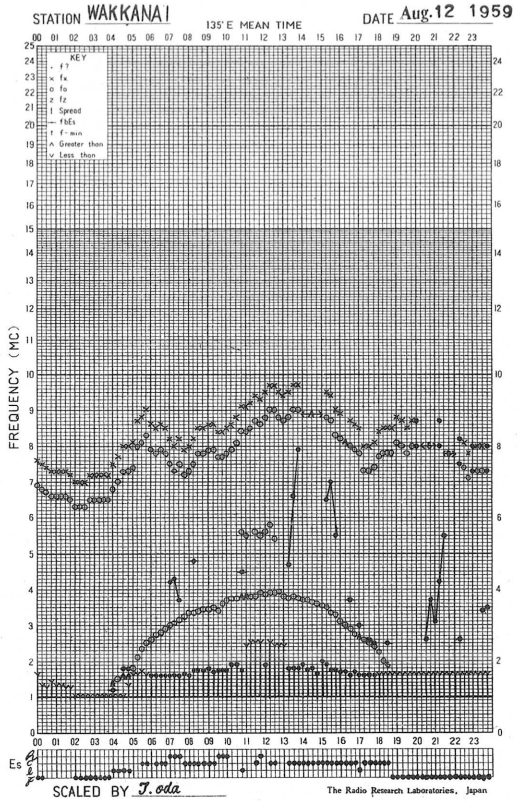

SCALED BY T. Oda

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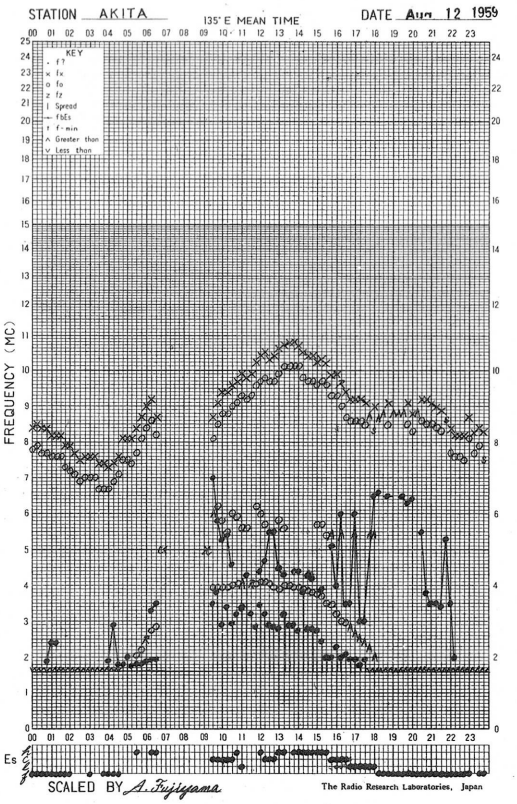

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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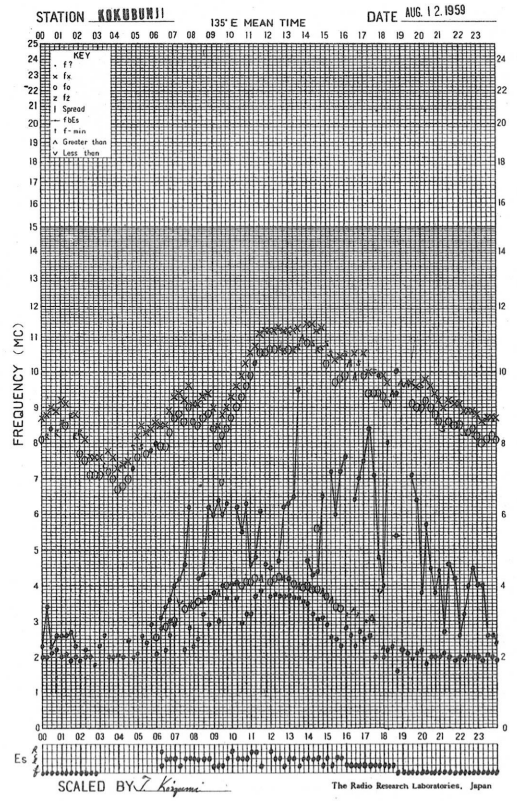

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The Radio Research Laboratories, Japan

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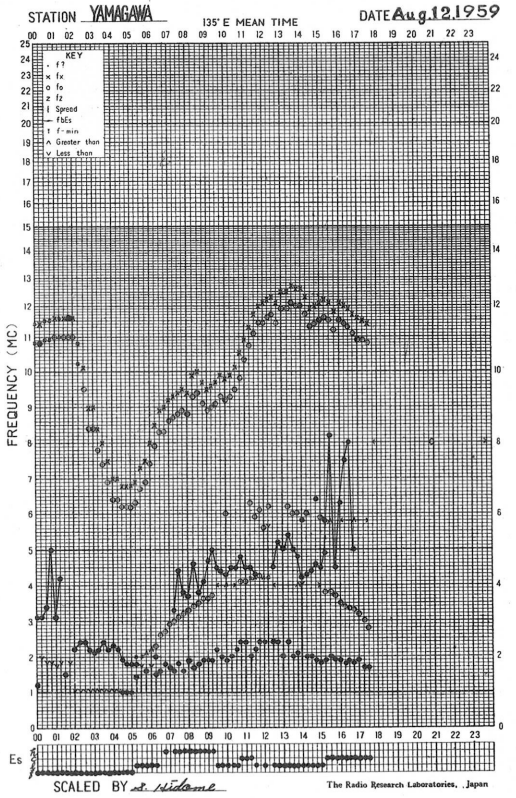

SCALED BY S. Nidome

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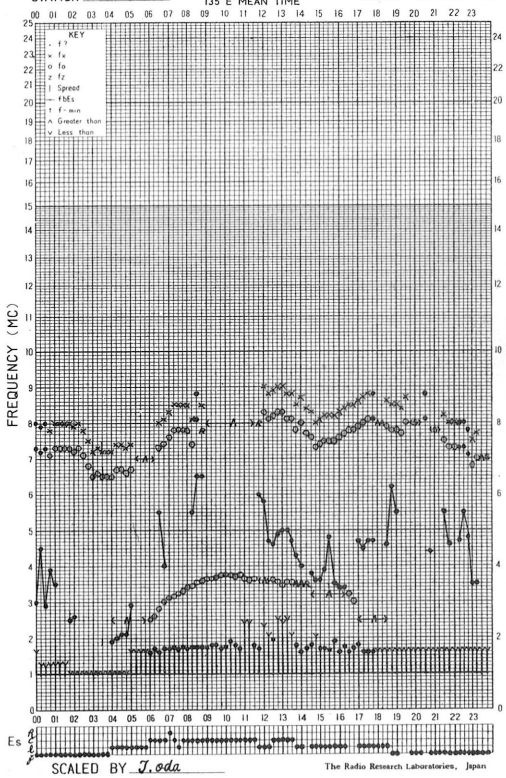

SCALED BY T. Oda The Radio Research Laboratories, Japan

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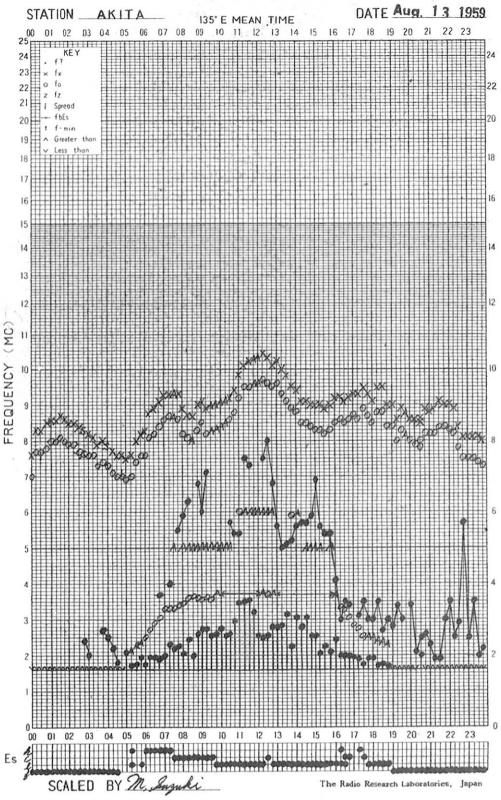

SCALED BY M. Inuzuki The Radio Research Laboratories, Japan

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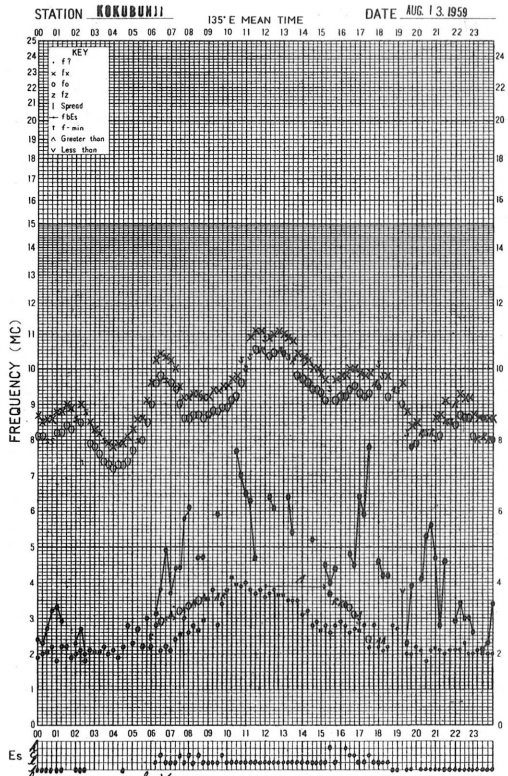

SCALED BY S. Kamei The Radio Research Laboratories, Japan

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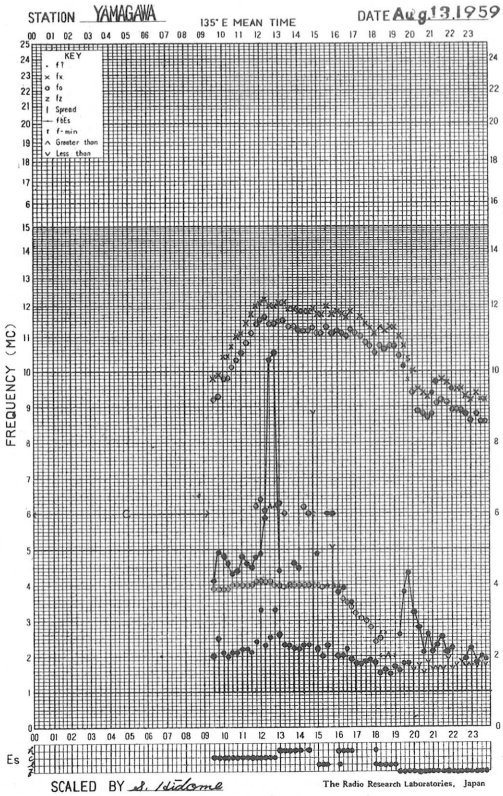

SCALED BY S. Ichidome The Radio Research Laboratories, Japan

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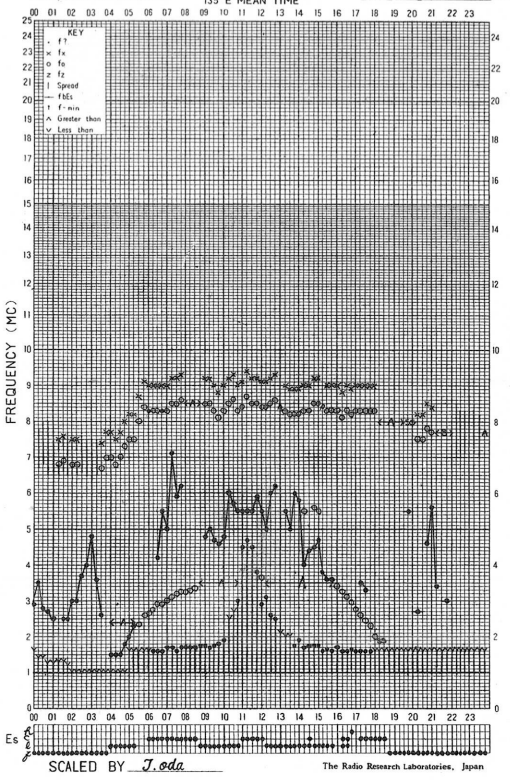

SCALED BY T. Oda

The Radio Research Laboratories, Japan

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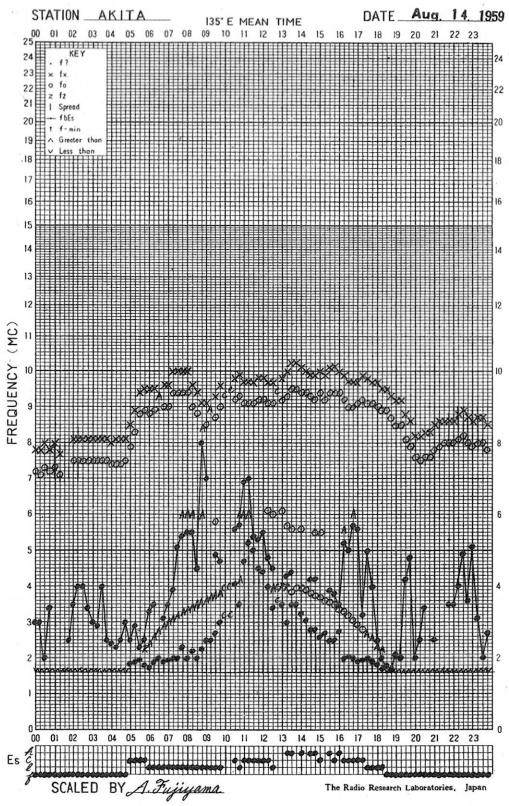

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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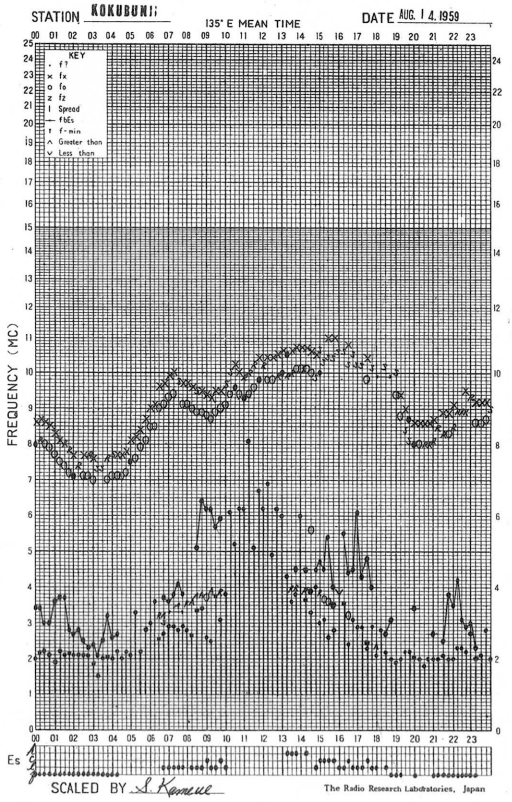

SCALED BY S. Kameue

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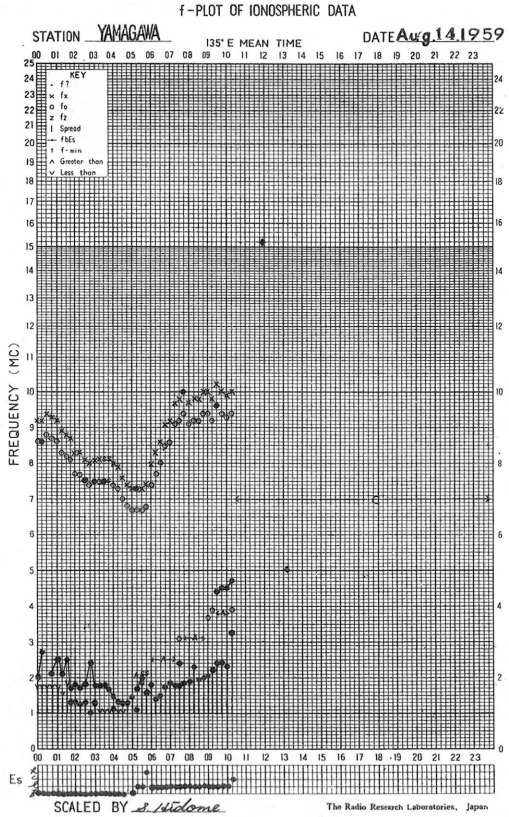

SCALED BY S. Hidome

The Radio Research Laboratories, Japan

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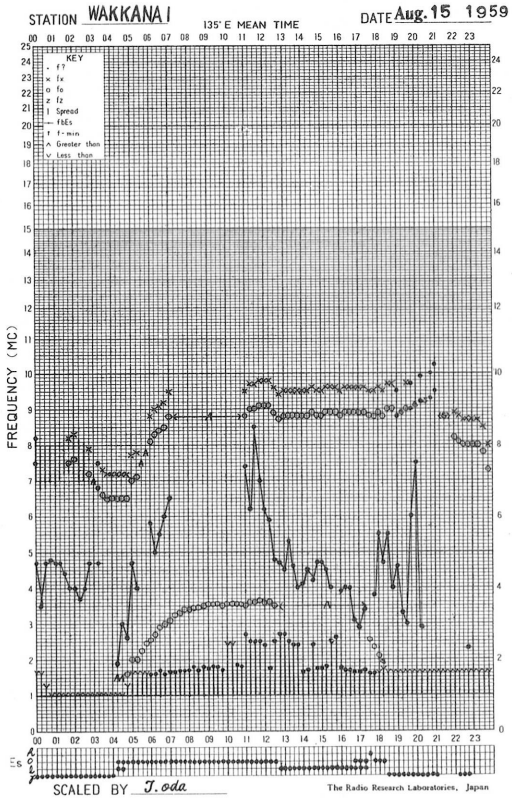

SCALED BY T. oda

The Radio Research Laboratories, Japan

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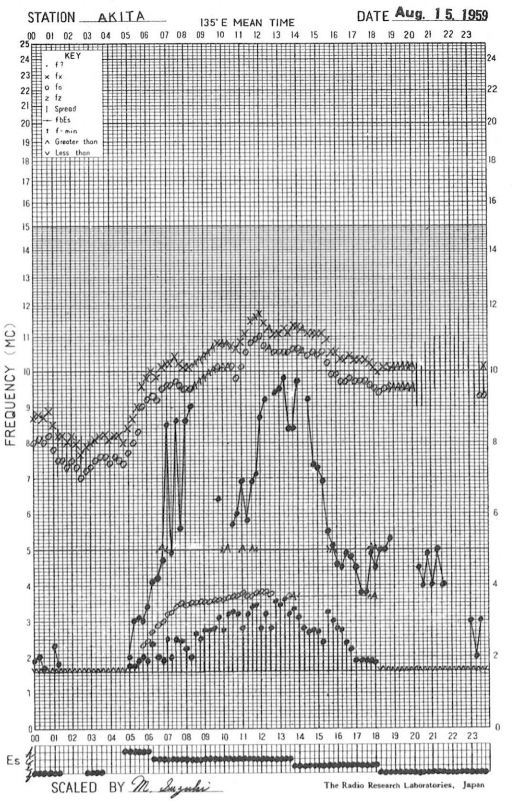

SCALED BY M. Suzuki

The Radio Research Laboratories, Japan

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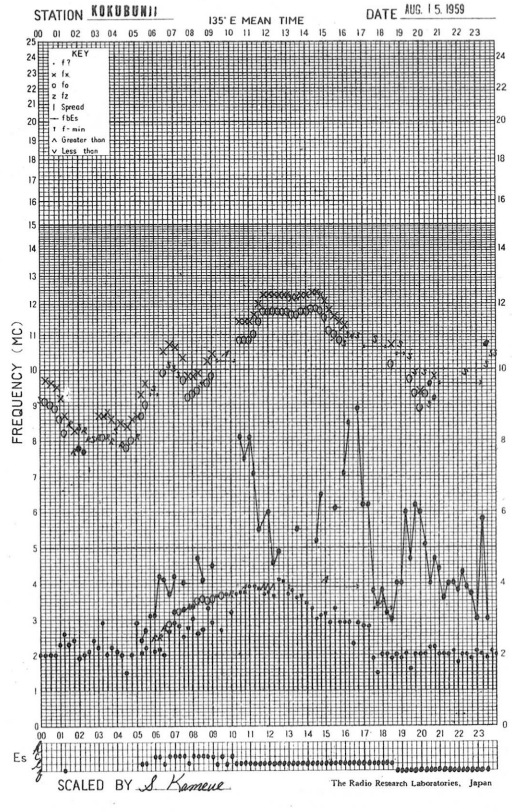

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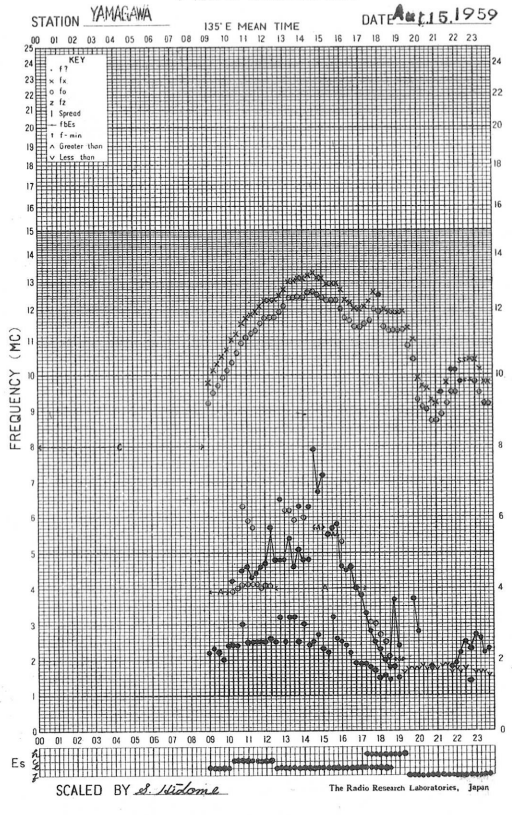

SCALED BY S. Hidome

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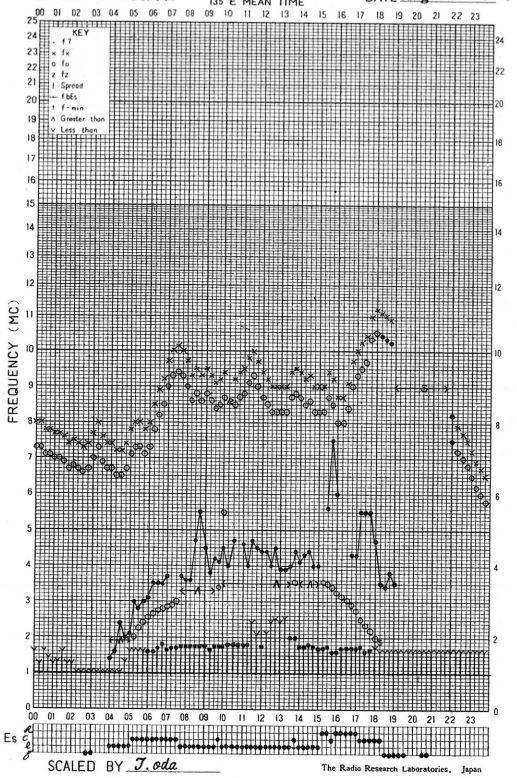

SCALED BY T. oda

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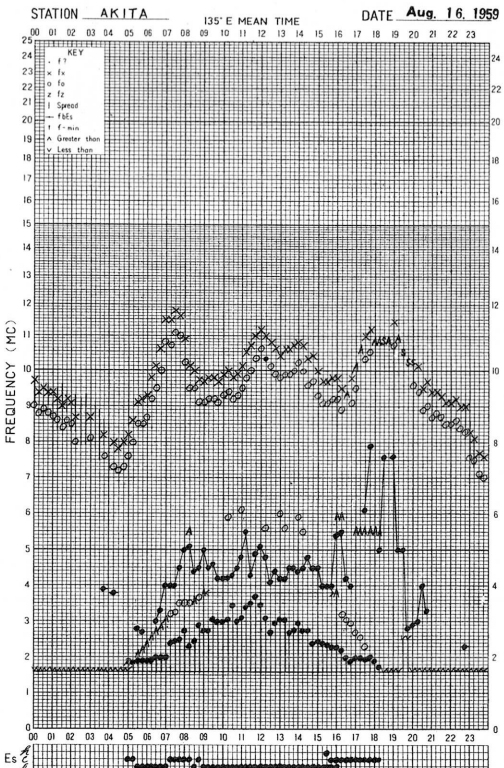

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The Radio Research Laboratories, Japan

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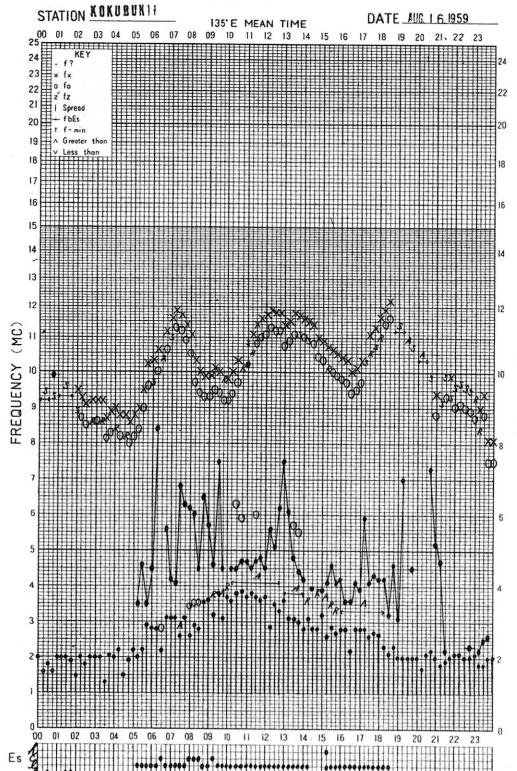

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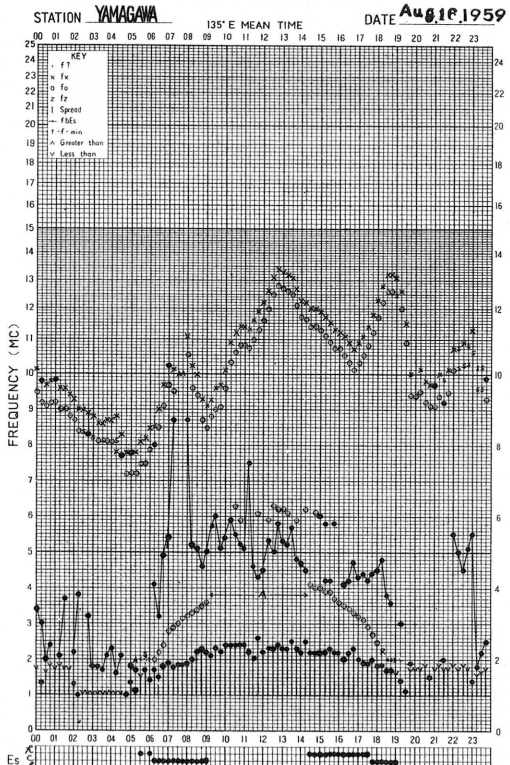

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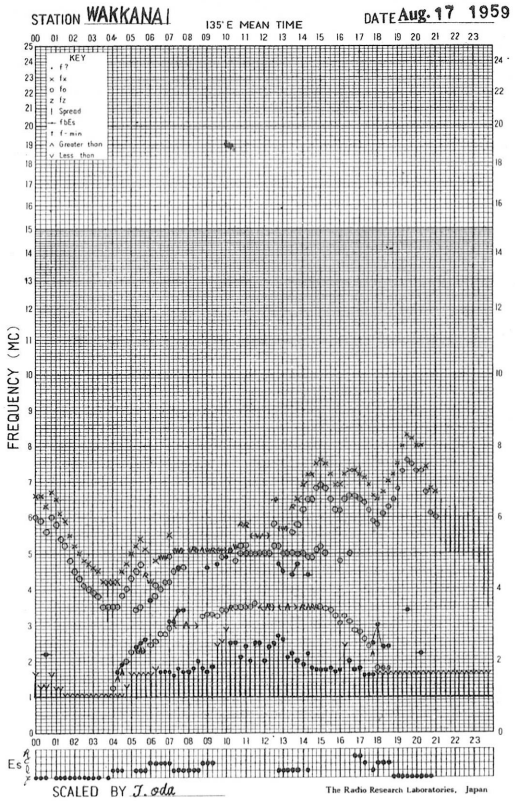

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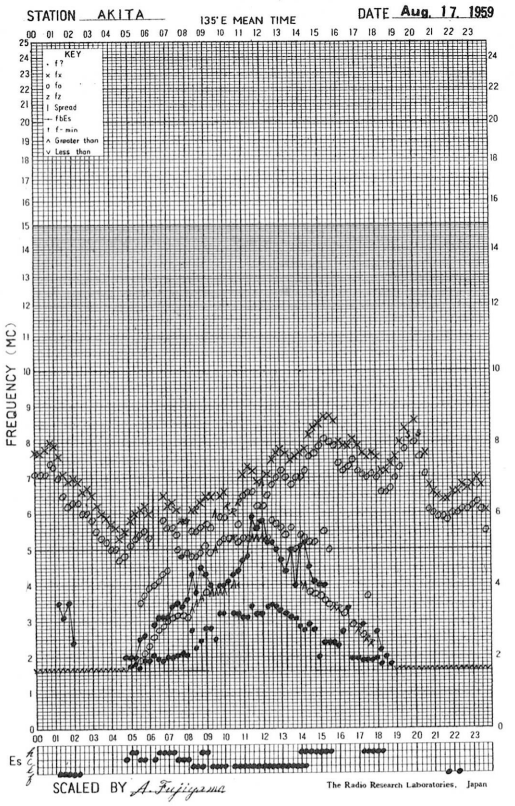

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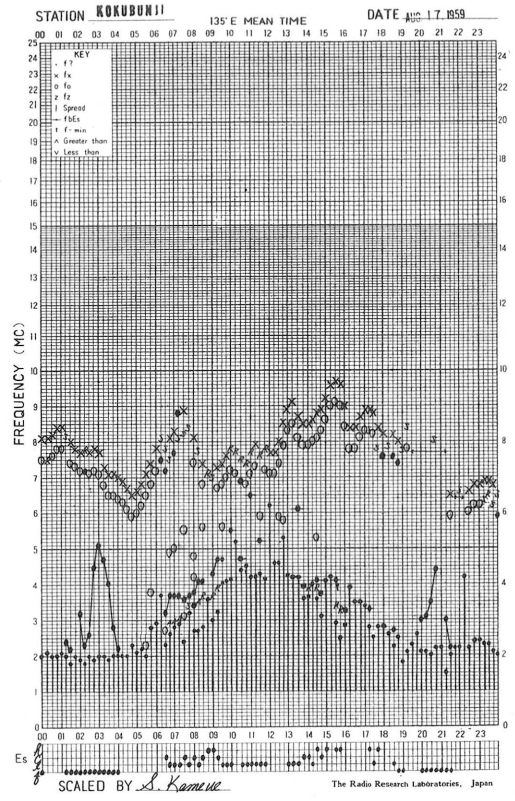

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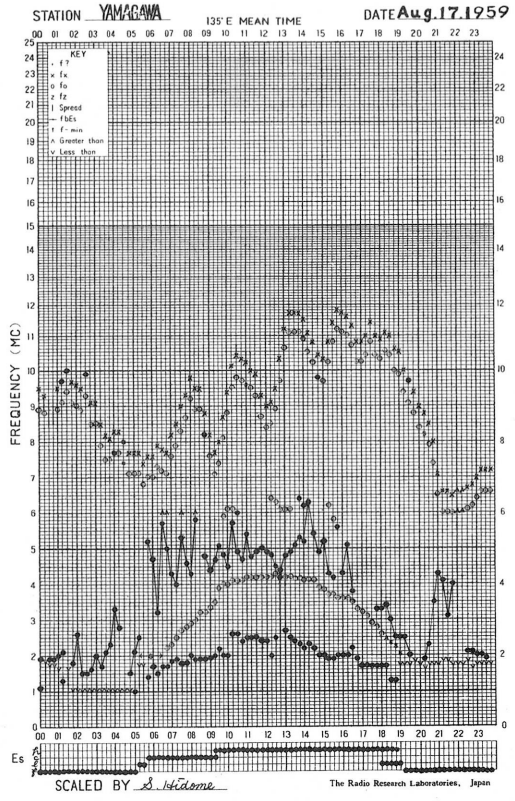

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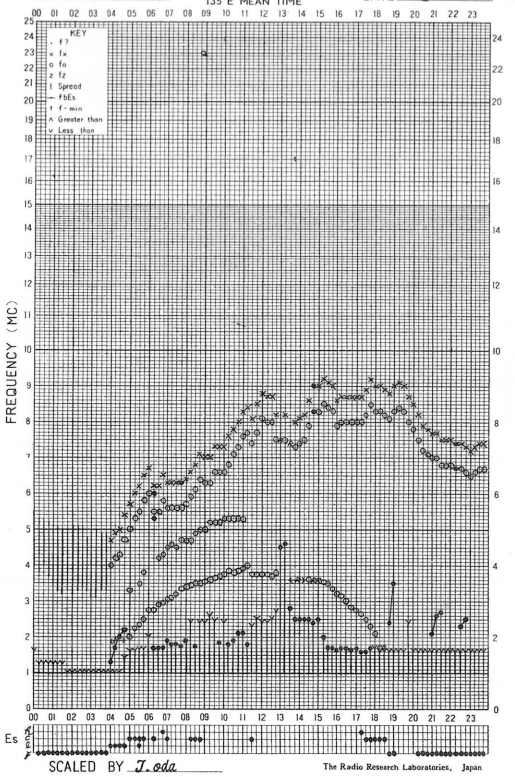

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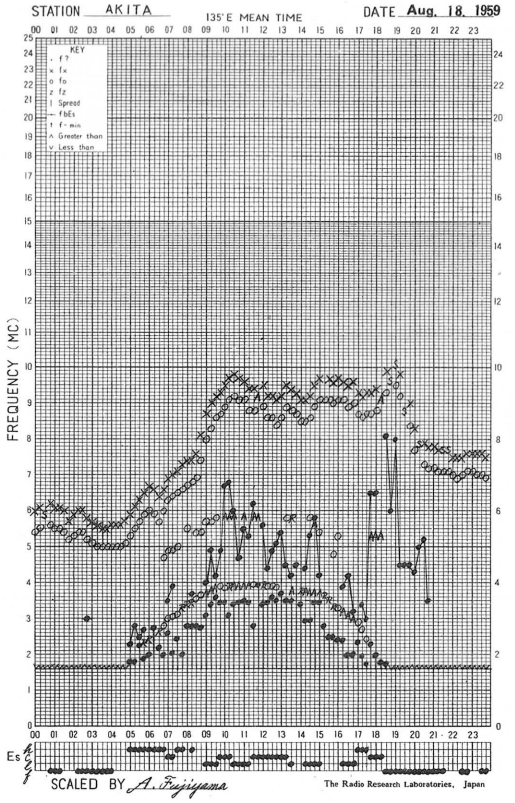

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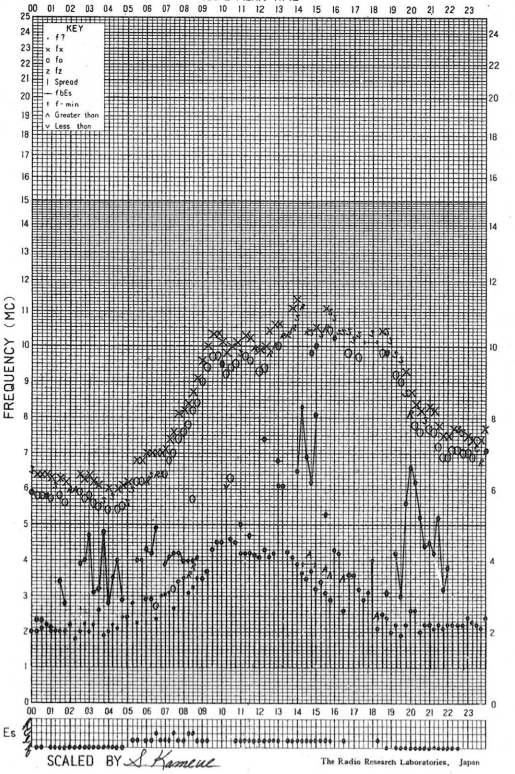

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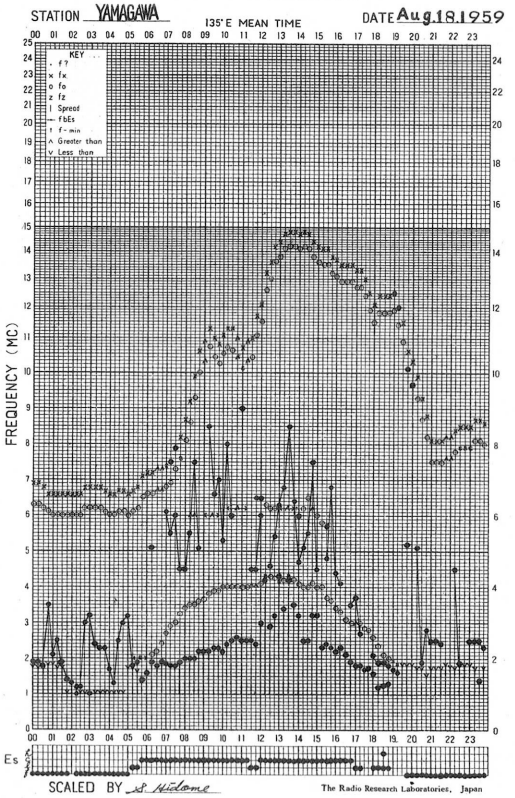
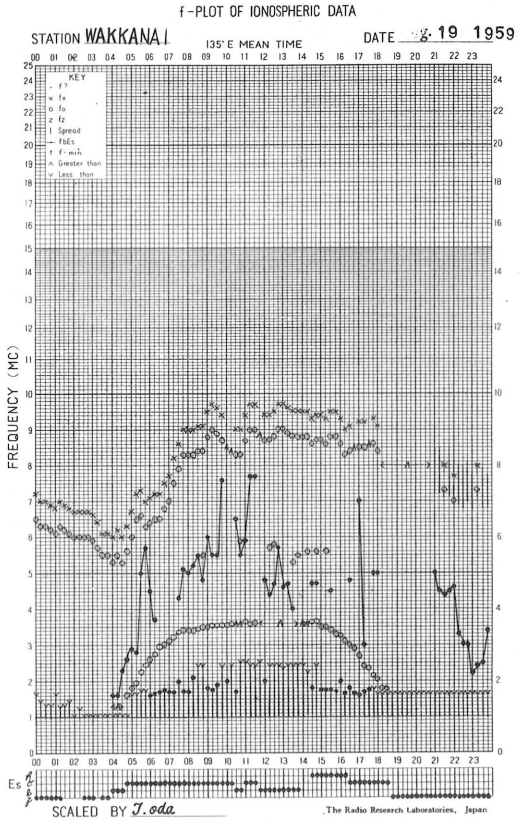


SCALED BY S. Hidoma

The Radio Research Laboratories, Japan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STATION WAKKANAI
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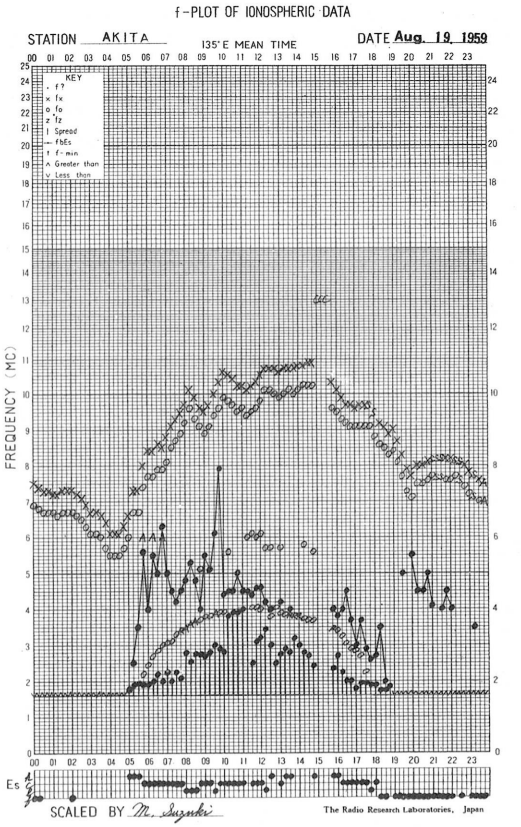
SCALED BY T. oda
The Radio Research Laboratories, Japan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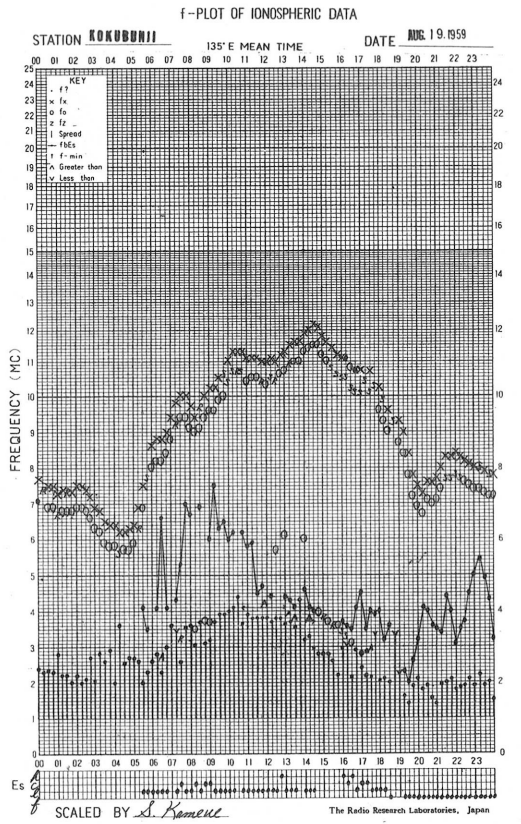
SCALED BY M. Suzuki
The Radio Research Laboratories, Japan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DATE AUG. 19. 1959
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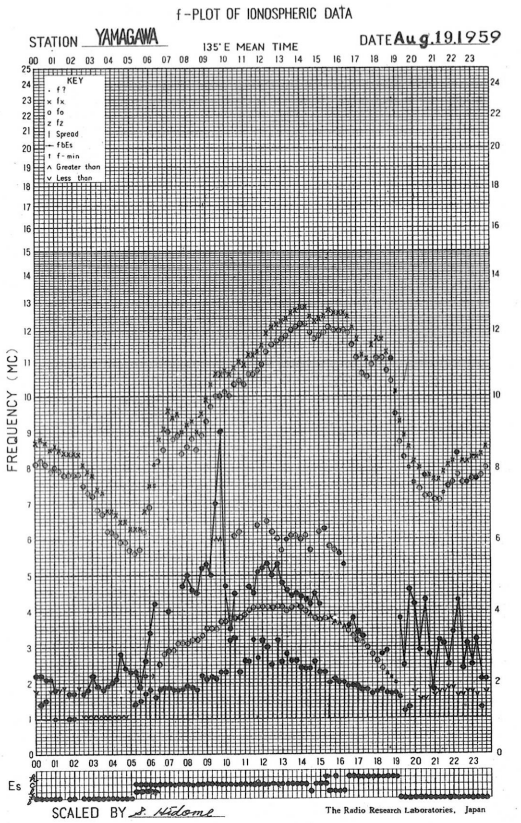
v Less than
FREQUENCY (MC)
Es
SCALED BY S. Kameue
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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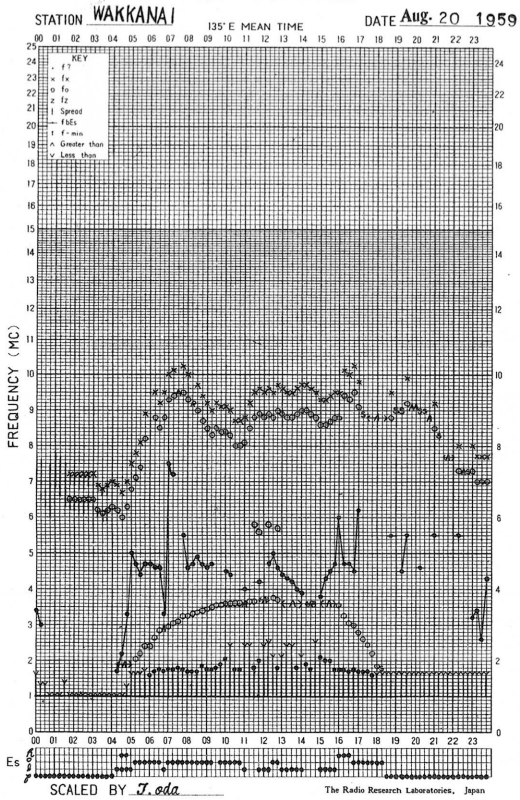

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The Radio Research Laboratories, Japan

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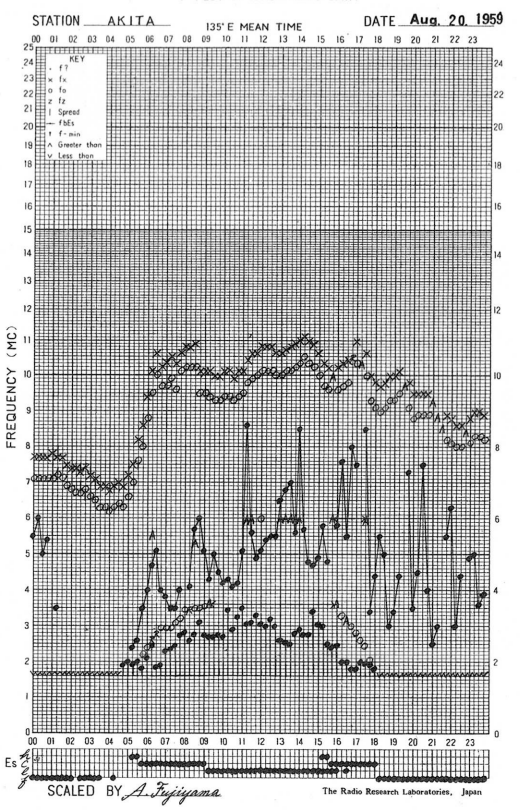

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The Radio Research Laboratories, Japan

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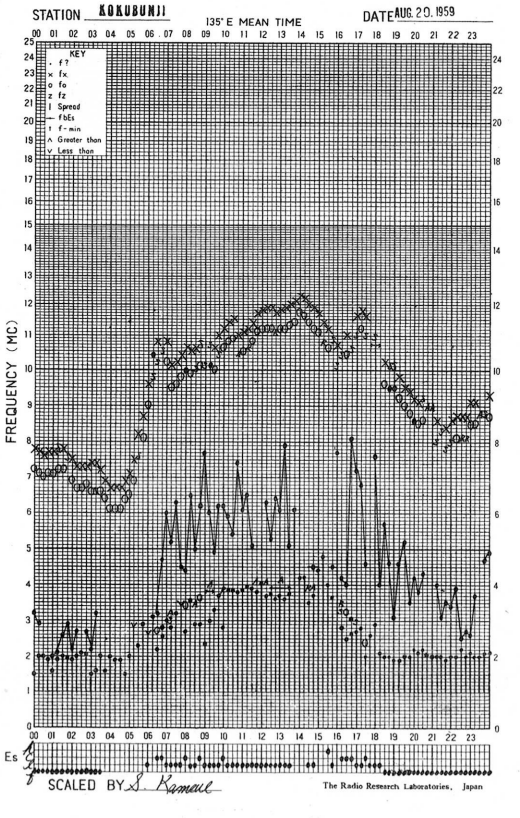

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The Radio Research Laboratories, Japan

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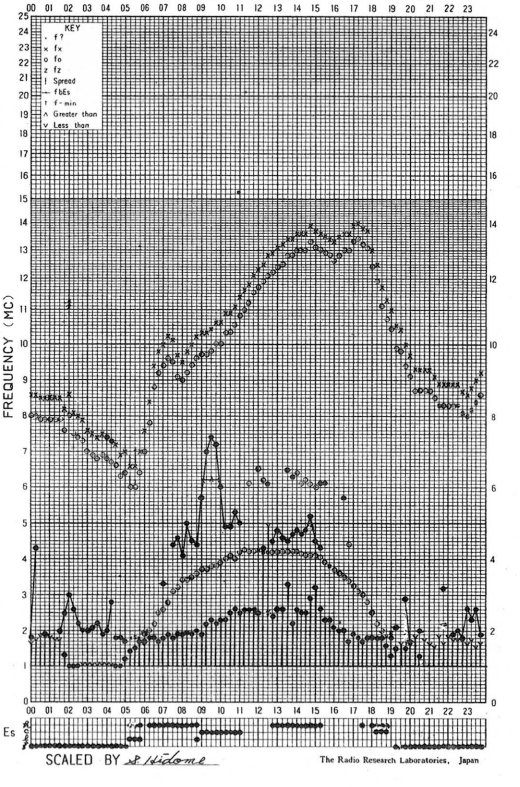

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The Radio Research Laboratories, Japan

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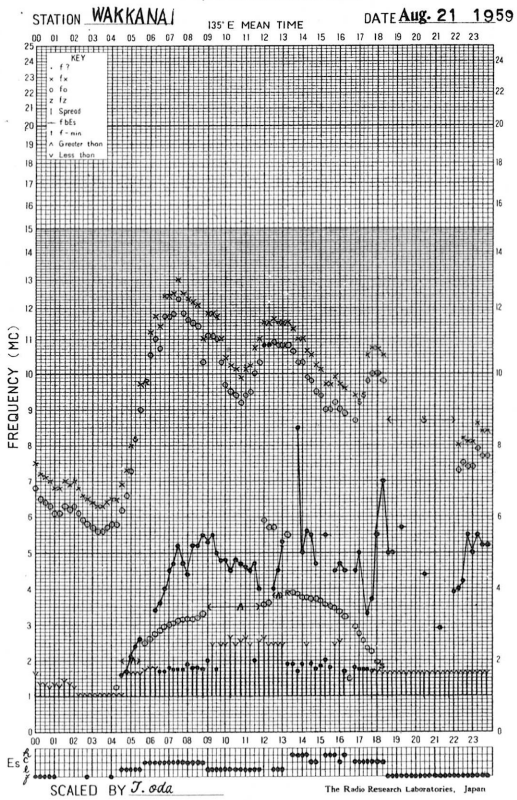

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The Radio Research Laboratories, Japan

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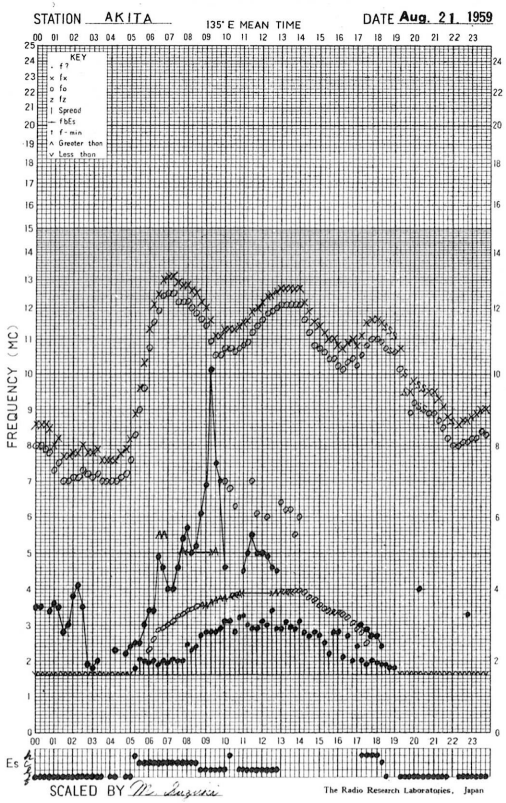

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The Radio Research Laboratories, Japan

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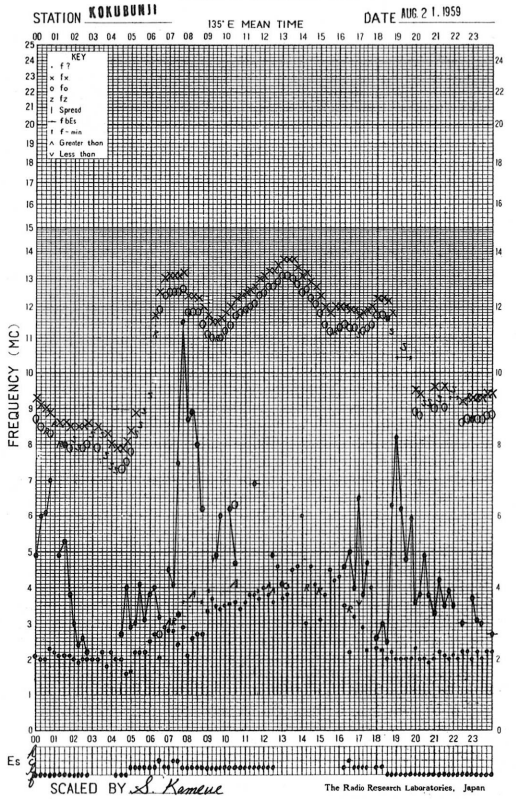

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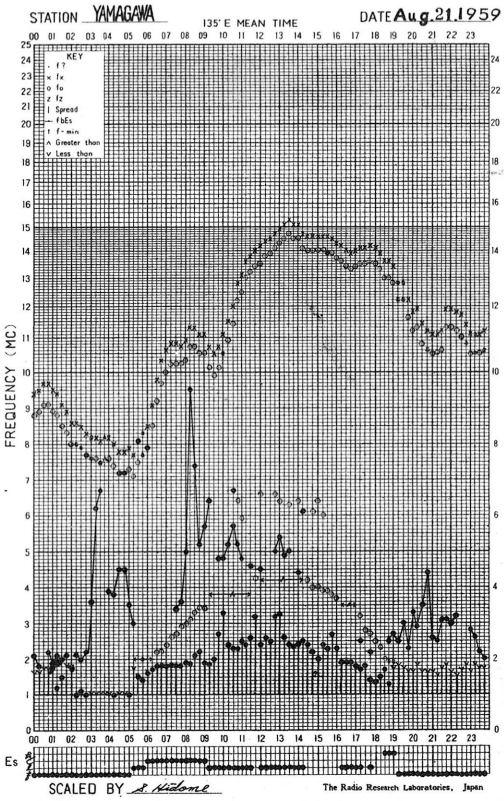

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The Radio Research Laboratories, Japan

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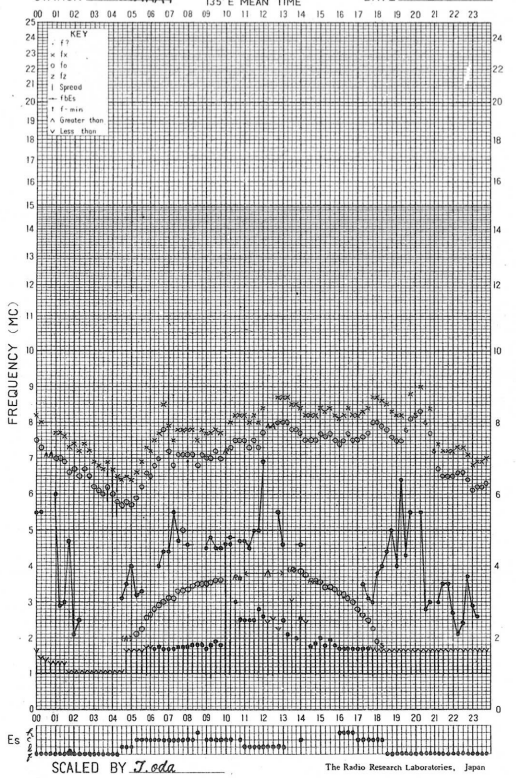

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The Radio Research Laboratories, Japan

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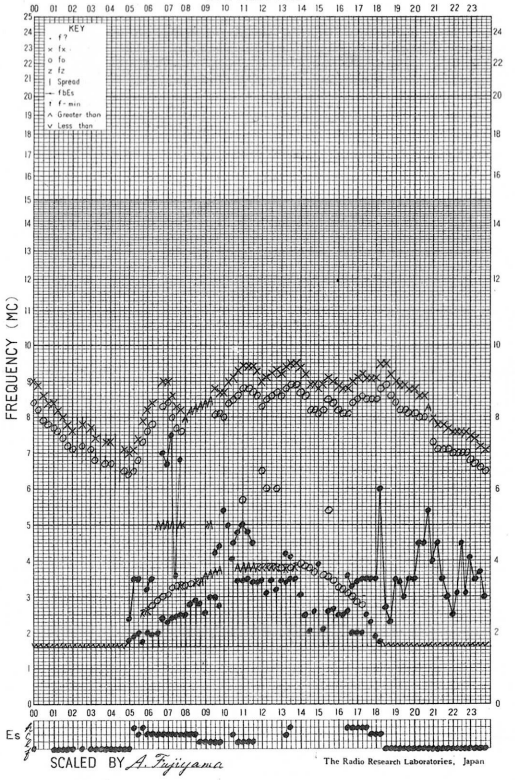

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The Radio Research Laboratories, Japan

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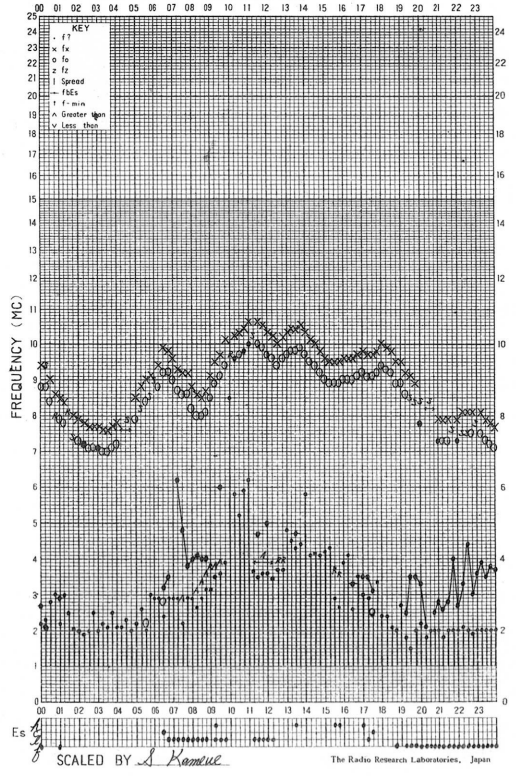

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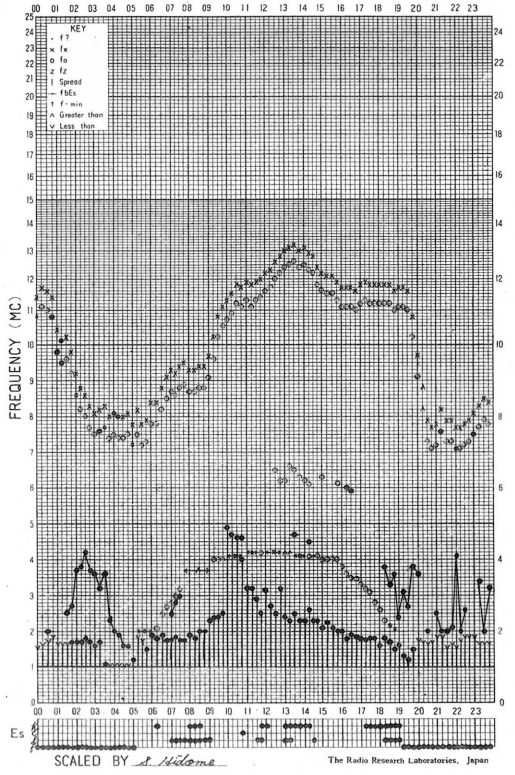

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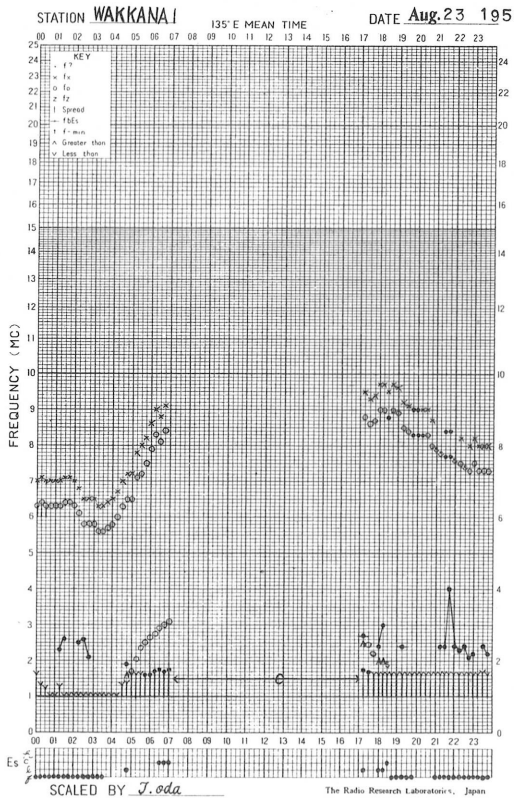

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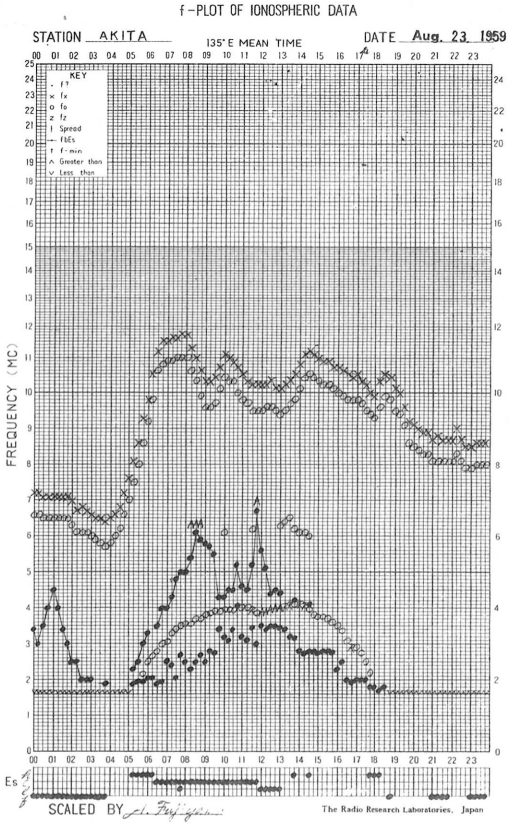

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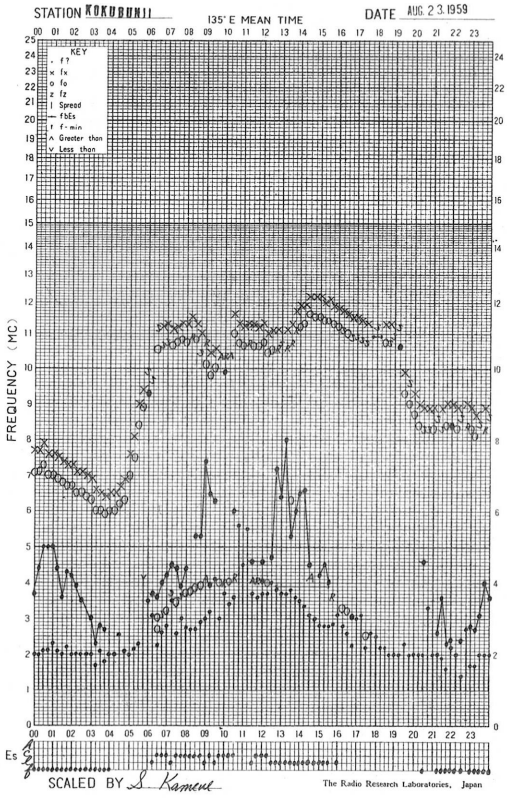

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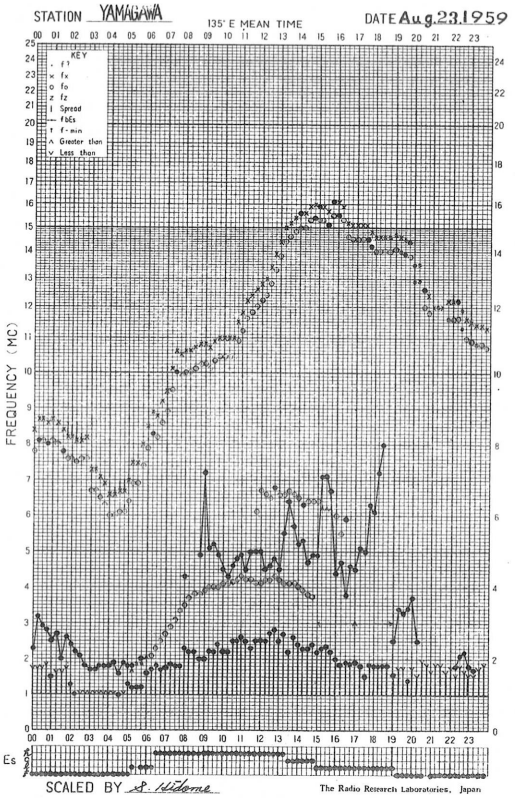

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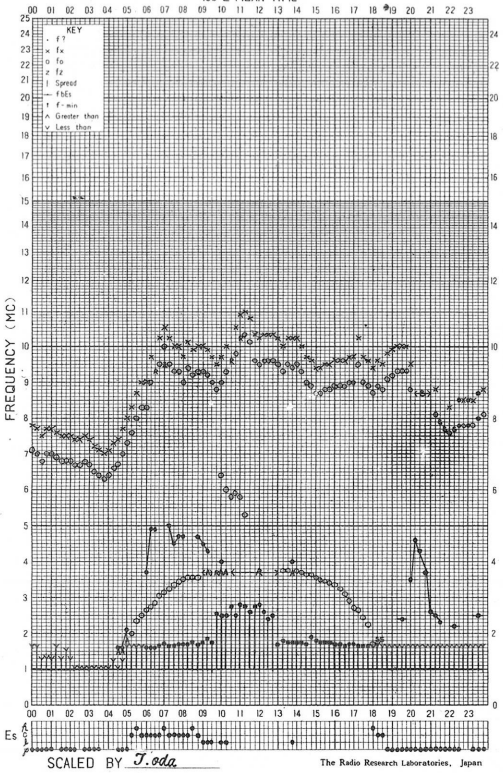

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The Radio Research Laboratories, Japan

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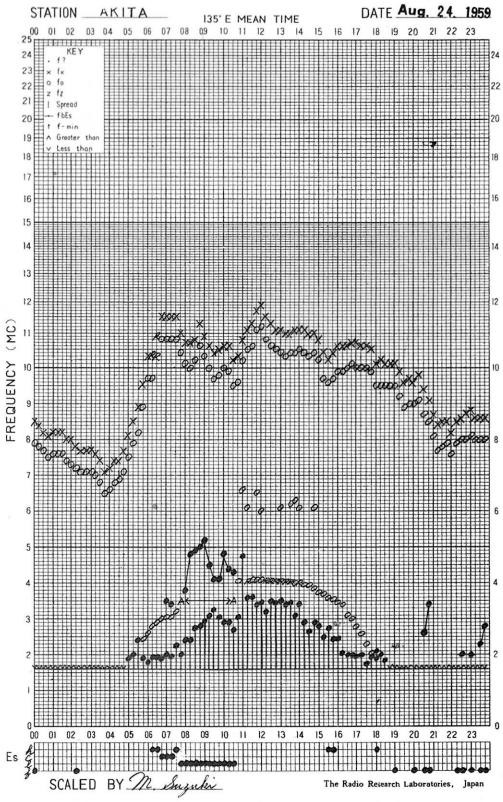

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The Radio Research Laboratories, Japan

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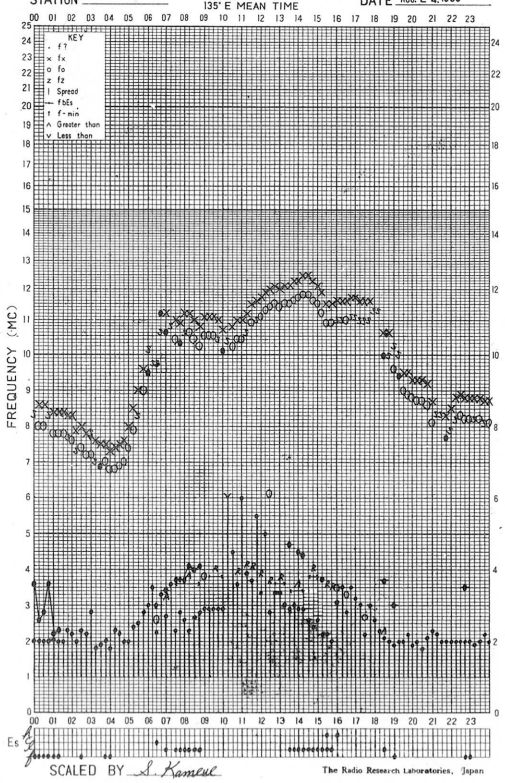

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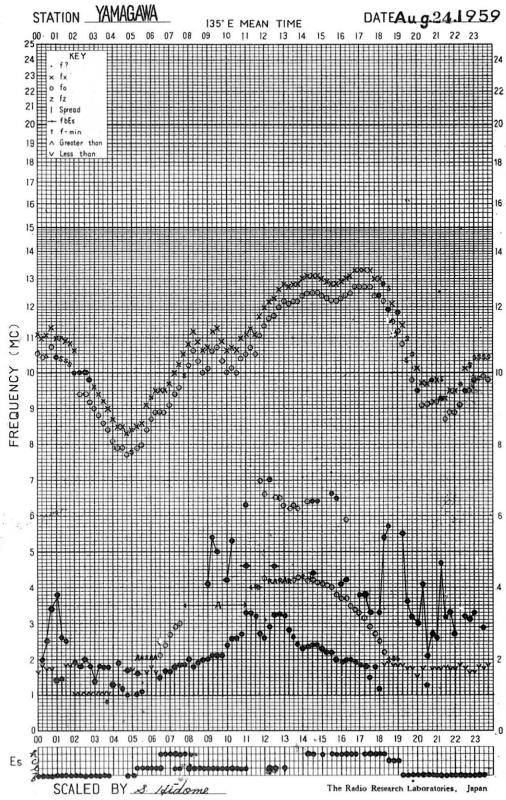

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The Radio Research Laboratories, Japan

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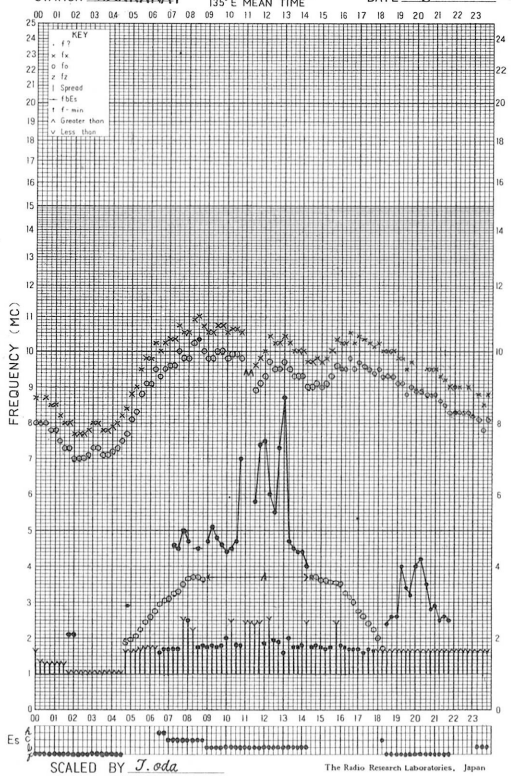

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The Radio Research Laboratories, Japan

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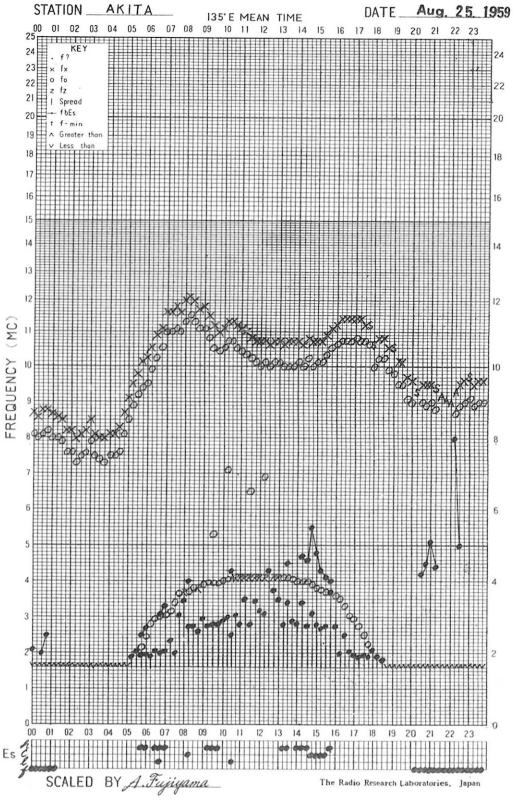

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The Radio Research Laboratories, Japan

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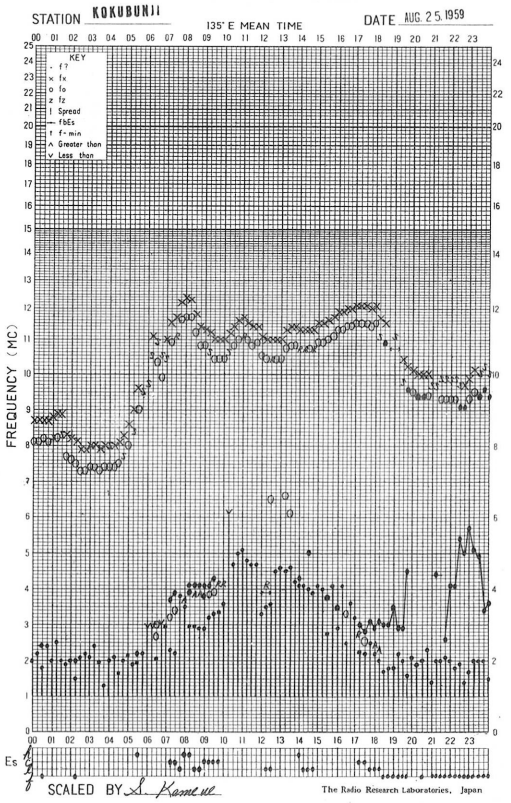

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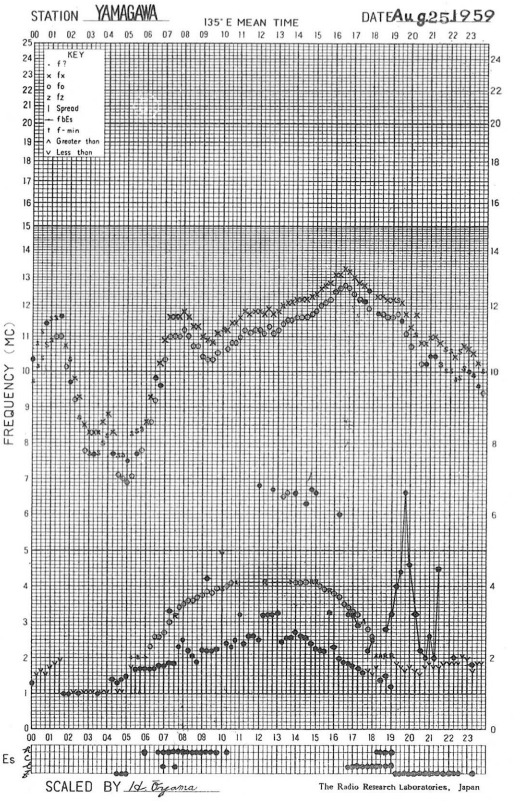

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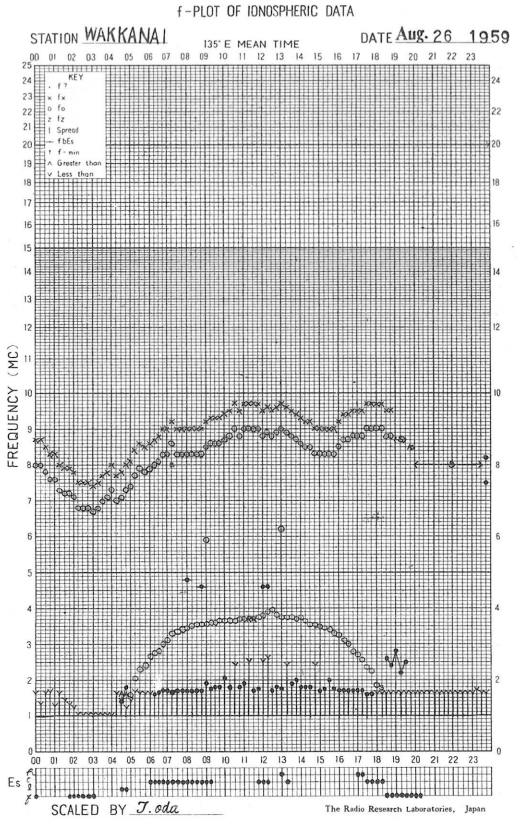
The Radio Research Laboratories, Japan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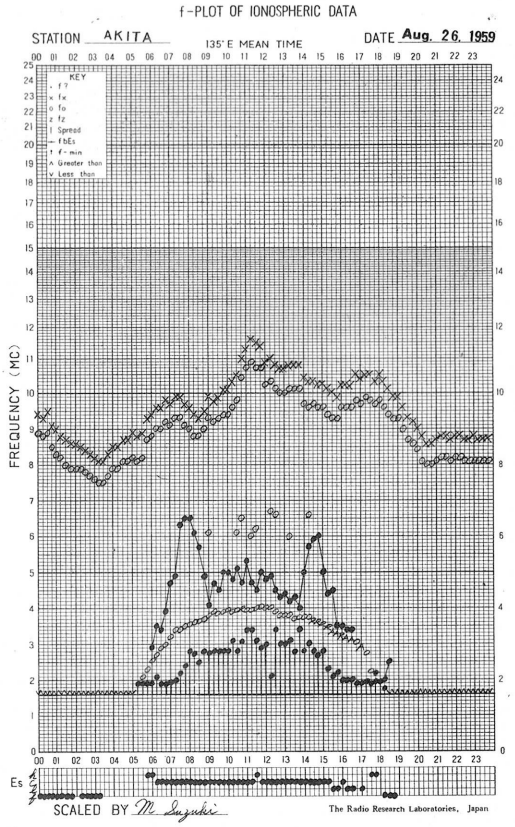
The Radio Research Laboratories, Japan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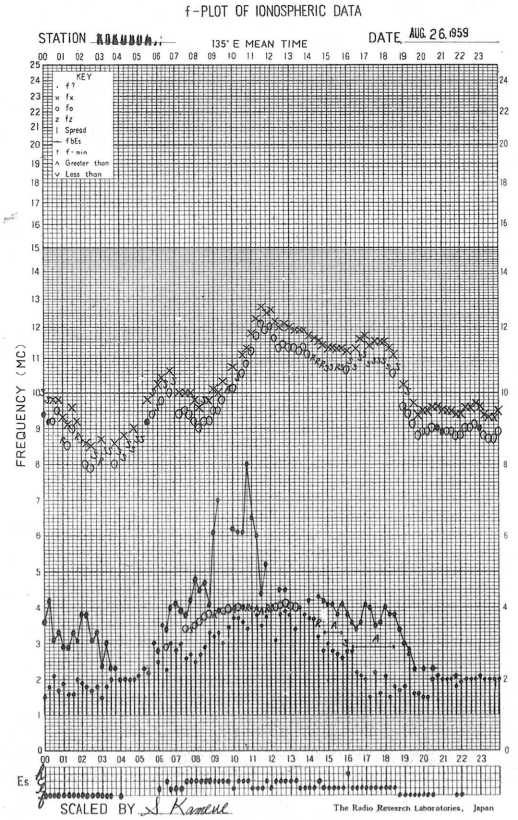
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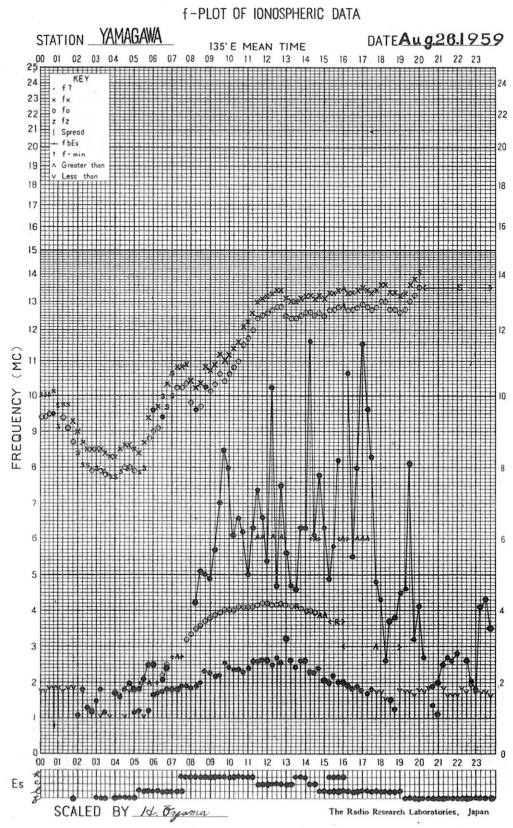
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The Radio Research Laboratories, Japan

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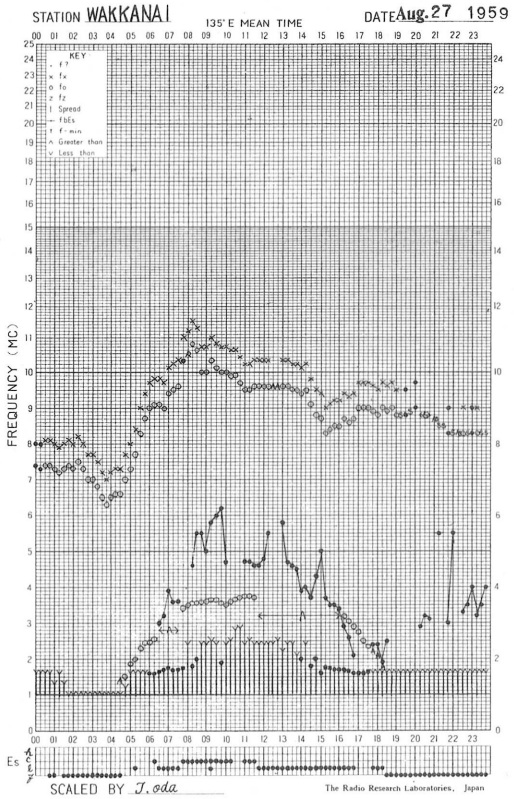

SCALED BY I. oda

The Radio Research Laboratories, Japan

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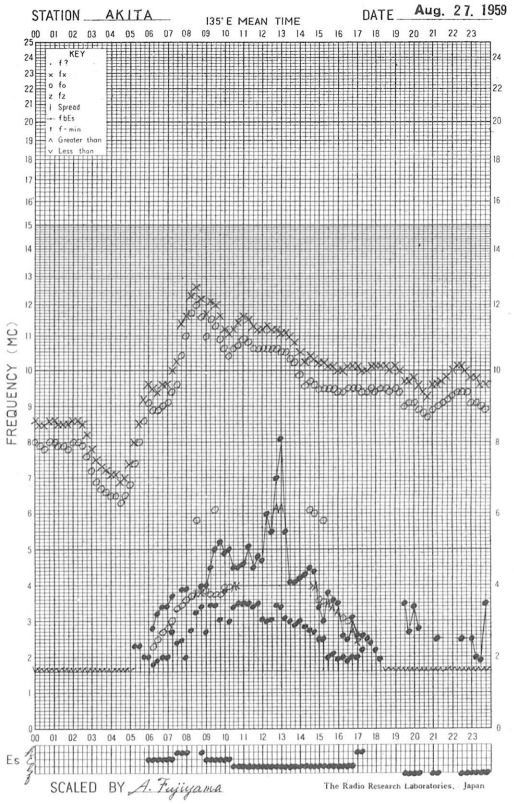

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The Radio Research Laboratories, Japan

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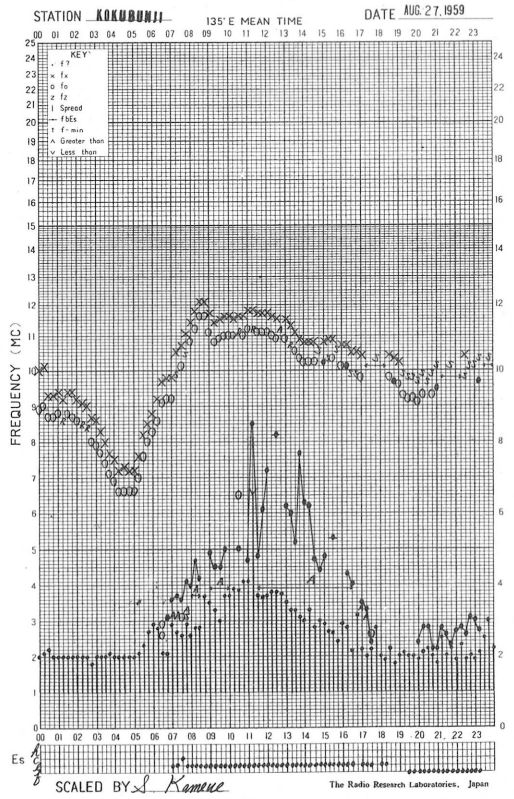

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The Radio Research Laboratories, Japan

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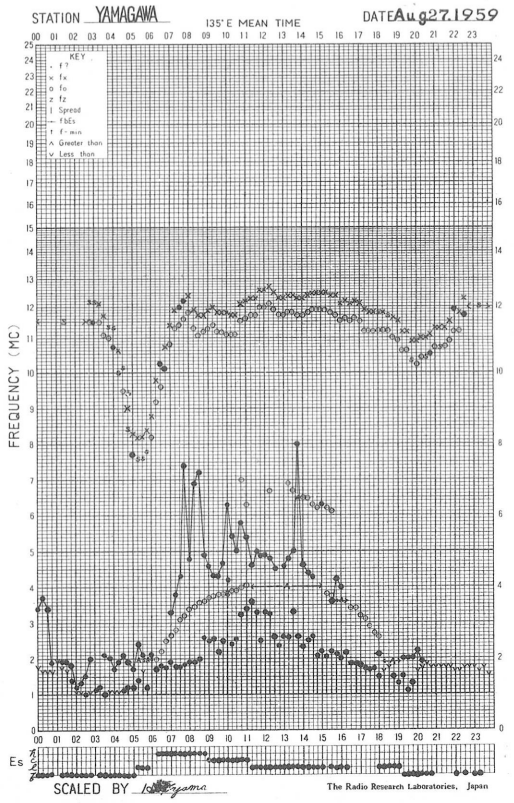

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The Radio Research Laboratories, Japan

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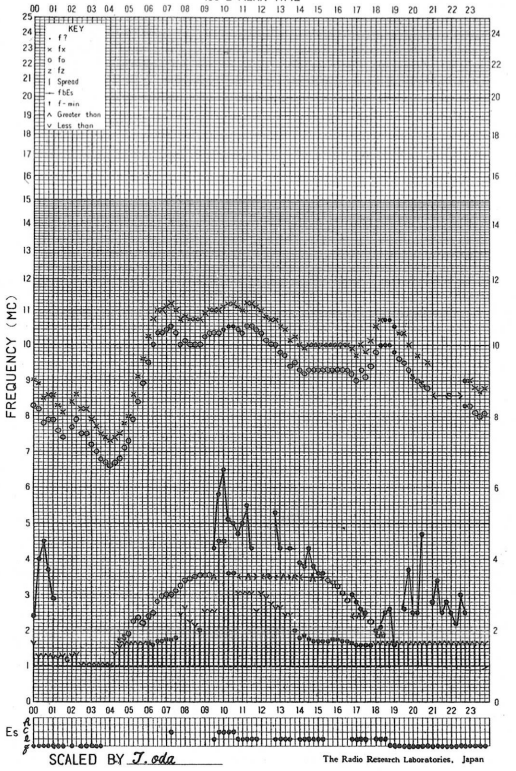

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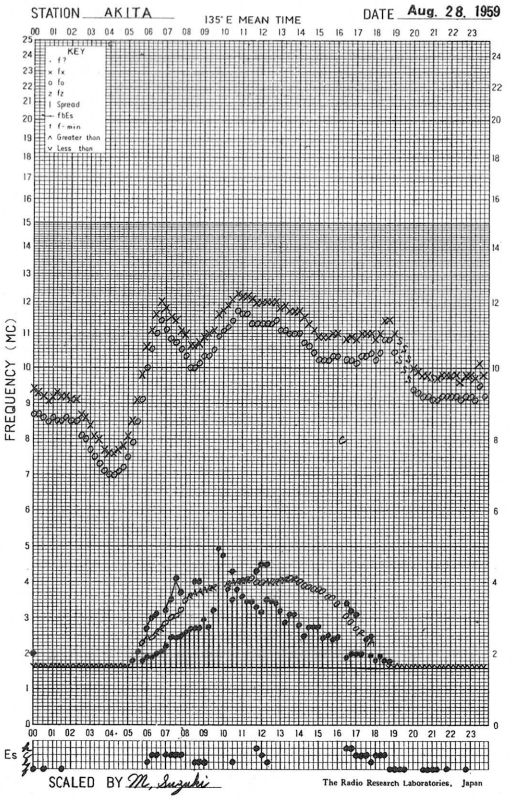

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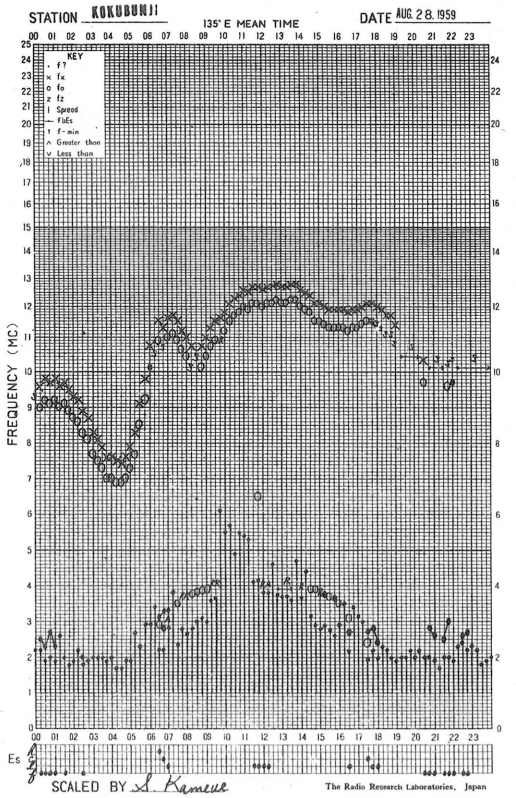

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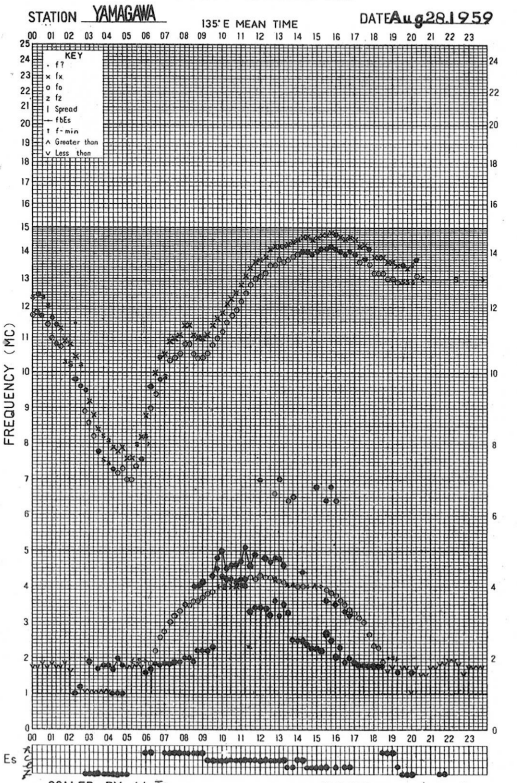

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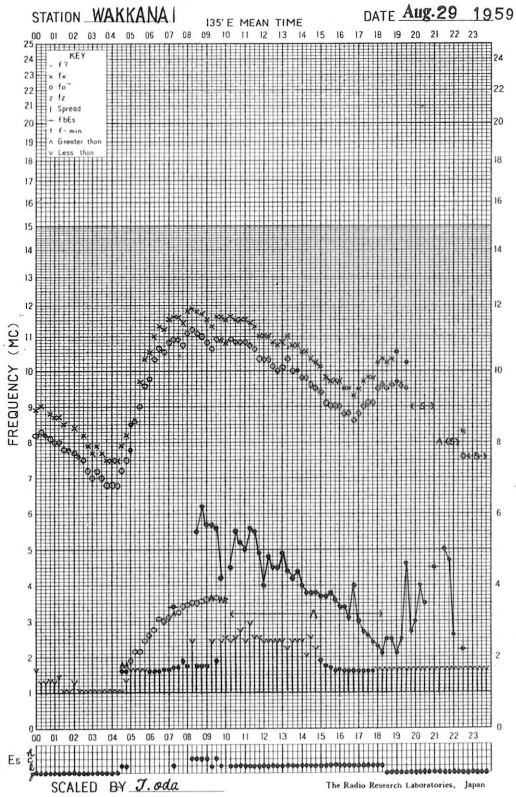

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The Radio Research Laboratories, Japan

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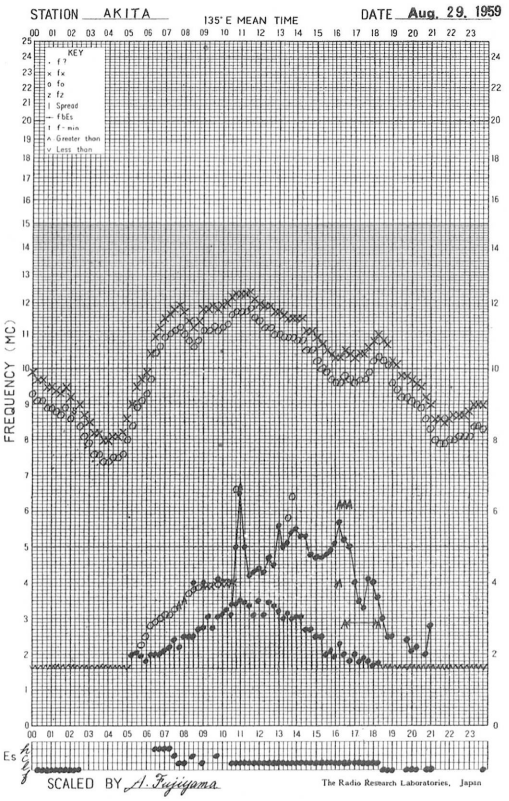

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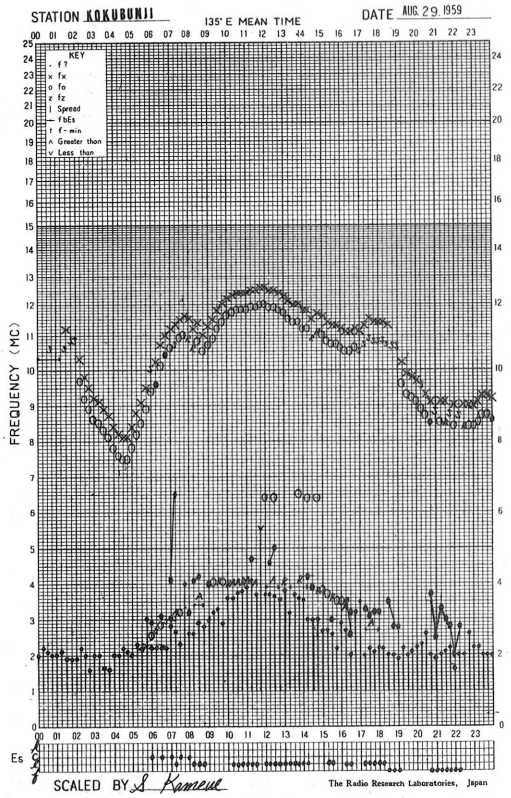

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The Radio Research Laboratories, Japan

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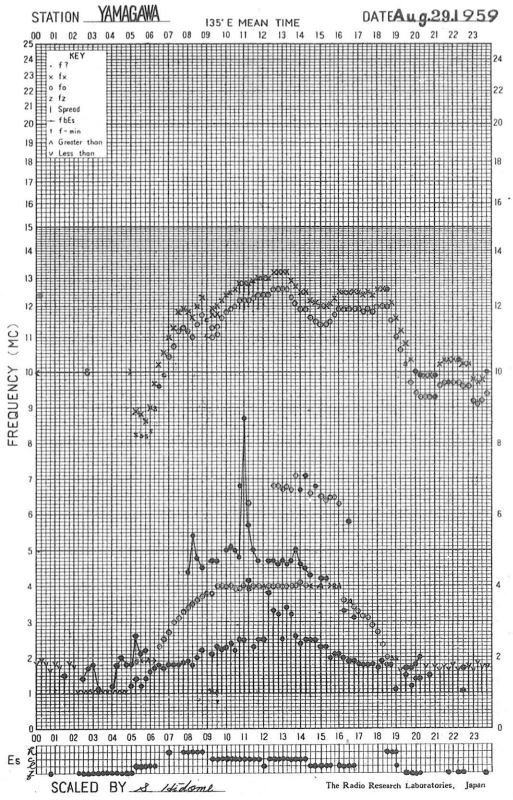

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The Radio Research Laboratories, Japan

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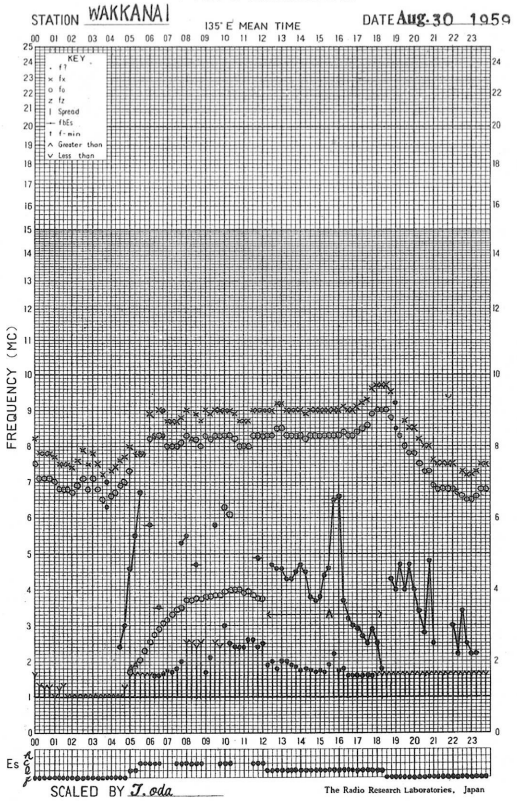

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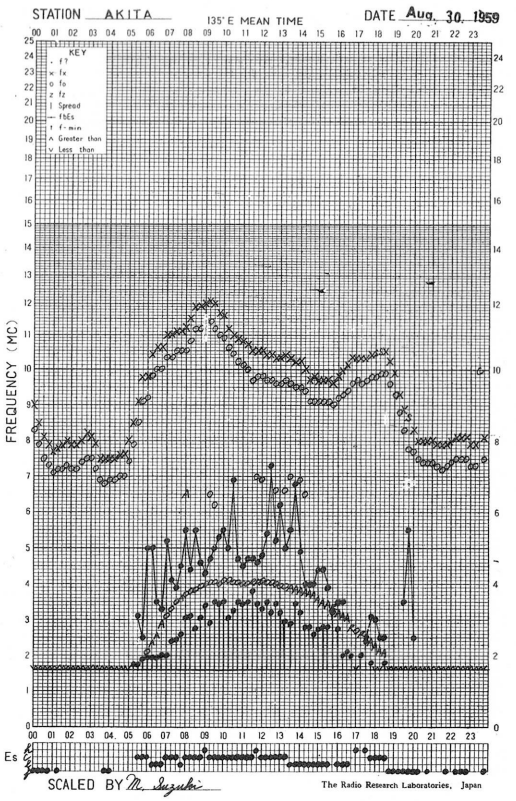
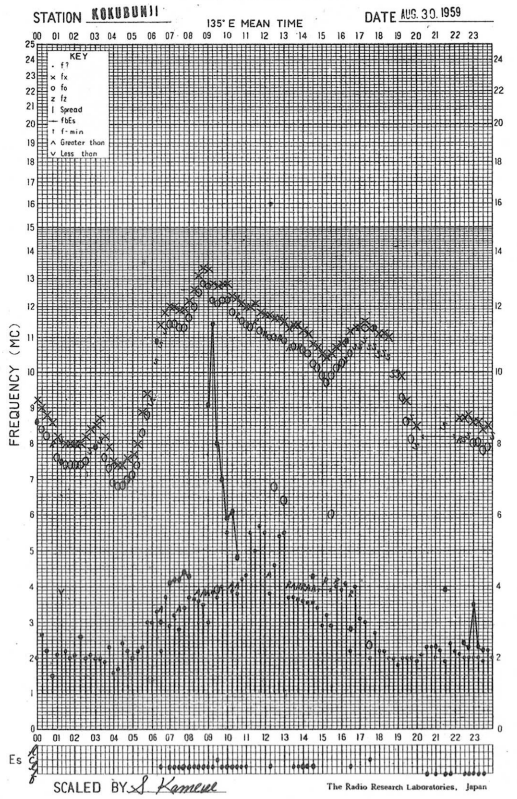


SCALED BY M. Suzuki The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

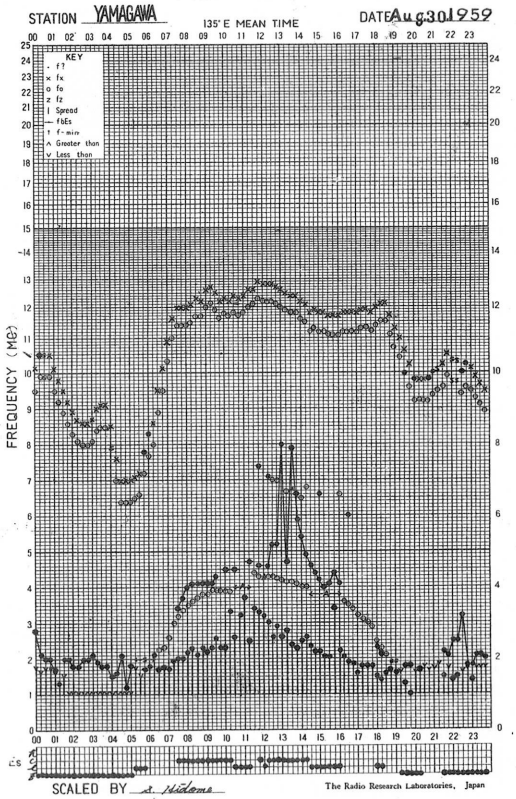
STATION KOKUBUNJI 135° E MEAN TIME DATE AUG. 30. 1959



SCALED BY S. Kameue The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE Aug. 30 1959



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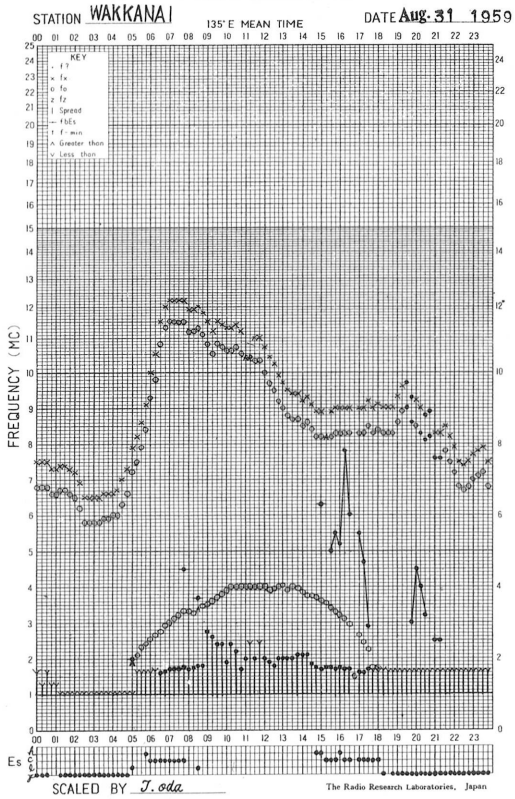
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE Aug. 31 1959

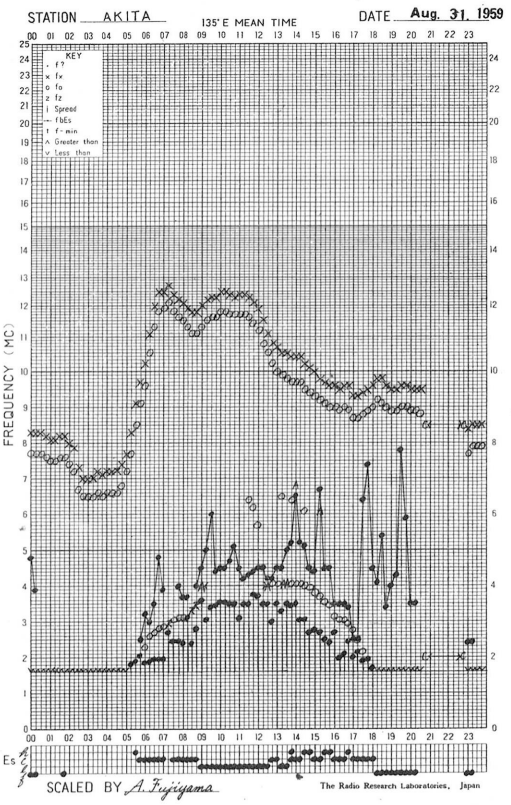


SCALED BY T. oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Aug. 31, 1959

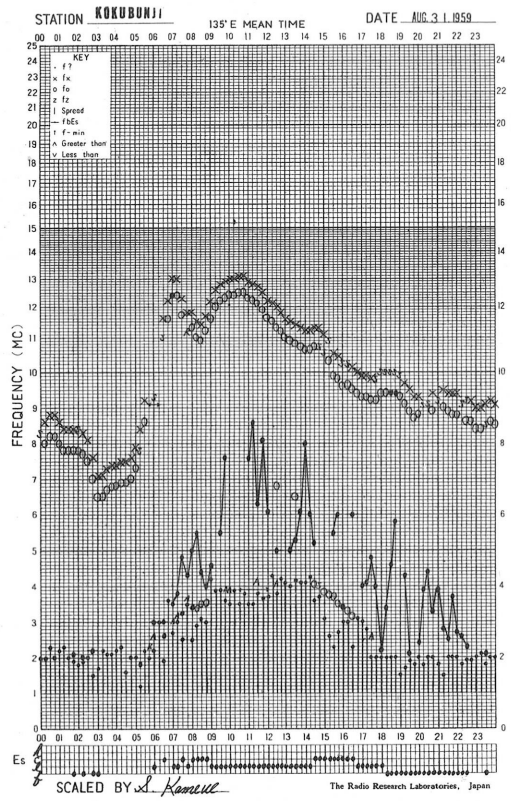


SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 31. 1959

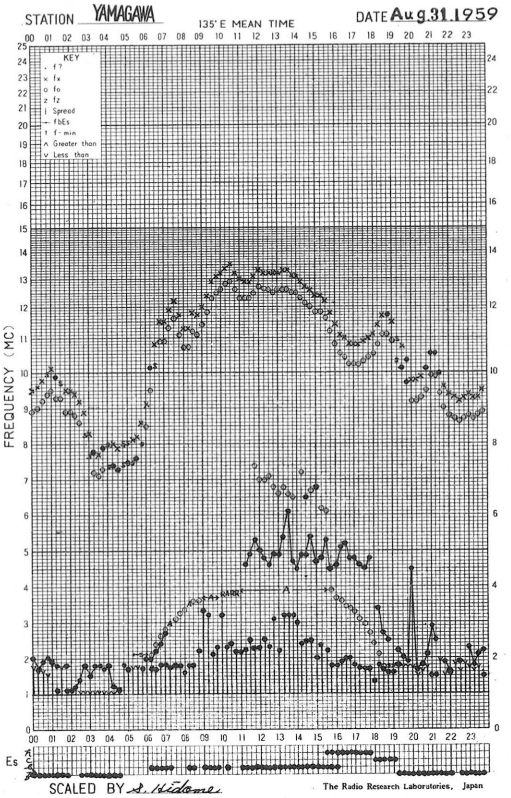


SCALED BY S. Kamei

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE Aug. 31. 1959



SCALED BY S. Hidaka

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SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

Aug. 1959	Steady Flux					Variability				
	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	15	14	13	16	14	1	1	1	1	1
2	16	13	10	(12)	14	1	1	1	1	1
3	9	7	-	-	9	1	1	-	-	1
4	-	-	-	-	-	-	-	-	-	-
5	11	11	10	-	11	1	1	1	-	1
6	10	11	11	10	11	1	1	1	1	1
7	11	10	10	-	10	1	1	1	-	1
8	11	11	11	-	11	1	1	1	1	1
9	9	9	-	-	9	1	1	1	-	1
10	6	7	6	-	6	0	0	0	-	0
11	7	7	9	8	7	0	0	0	0	0
12	8	7	7	-	8	1	1	1	-	1
13	8	9	9	-	8	0	1	1	-	1
14	24	13	9	-	16	1	1	0	-	1
15	8	8	8	-	8	1	0	1	0	0
16	8	9	7	-	8	-	1	1	1	1
17	8	9	8	9	8	1	1	1	1	1
18	10	10	10	-	10	1	1	1	1	1
19	9	9	(8)	-	9	-	-	-	-	-
20	9	6	7	-	7	1	1	1	-	1
21	9	10	(10)	-	10	1	1	1	0	1
22	9	8	-	-	8	0	1	0	-	0
23	14	12	12	19	13	1	1	0	1	1
24	31	31	34	22	28	1	1	2	1	1
25	49	67	86	-	56	1	2	2	-	2
26	95	89	80	-	89	2	2	2	2	2
27	54	49	49	-	51	2	2	2	-	2
28	23	20	21	-	21	2	2	2	-	2
29	45	76	139	-	74	2	2	2	2	2
30	204	120	108	32	134	2	2	2	2	2
31	28	27	-	-	29	2	2	1	-	2

Outstanding Occurrences

Aug. 1959	Start-time	Dura-tion	Type	Max. Inst.	Int. Smd.	Max. Time	Remarks
6	0530.9	0.5	SD/4	820	280	-	
6	2023.6	0.7	CD/4	440	140	-	
6	2336.7	~5	CD/4	540	50	2338.1	
7	0250.6	2.7	CD/4	600	260	0251.9	
8	0652.5	2.1	CD/4	420	110	0653.7	
8	2150.3	0.9	CD/4	490	250	-	
9	0418.0	0.7	SD/4	550	260	-	
9	0821.7	0.6	SD/4	≥500	≥250	-	
12	0841.8	0.5	ECD/4	880	390	-	
14	0148 ?	~60	CA/1	-	60	-	rise and fall
17	0328.6	2.7	F/3	660	-	0328.6	
17	0334.2	2.4	SD/4	610	290	0334.9	
17	0519.8	0.4	CD/4	600	250	-	
17	0713.0	2.5	CD/8	860	240	0713.6	first part
		5		530	270	0717.4	second part
17	2045.7	1.3	CD/4	460	200	2046.5	
19	2243.9	0.7	CD/4	410	90	-	
20	0401.5	1.4	CD/4	860	110	0401.7	
29	0208.0	1.2	ECD/?	-	-	-	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 1959	Whole Day Index	W W V 00-06	W W V 06-12	W W V 12-18	W W V 18-24	S. F. 00-06	S. F. 06-12	S. F. 12-18	S. F. 18-24	W W V H 00-06	W W V H 06-12	W W V H 12-18	W W V H 18-24	Warning 00-06	Warning 06-12	Warning 12-18	Warning 18-24	Principal magnetic storms Start	End	ΔH
1	2+	2	2	2	2	3	2	3	2	2	2	3	3	N	N	N	N			
2	2+	3	3	2	1	3	3	2	2	3	2	3	2	N	N	N	N			
3	3o	3	2	3	2	3	3	3	3	2	2	3	2	N	N	N	N			
4	3-	2	2	2	3	3	2	3	2	2	2	2	2	N	N	N	N			
5	2o	3	2	2	2	2	2	2	1	1	2	2	2	N	N	N	N			
6	2+	2	2	2	4	1	2	2	3	2	2	2	1	N	N	N	N			
7	2+	4	3	2	2	3	2	1	1	1	1	3	3	N	N	N	N			
8	2-	3	2	2	2	1	1	1	(1)	2	1	1	(2)	N	N	N	N			
9	2-	2	1	2	3	1	C	C	C	1	1	1	2	N	N	N	N			
10	1o	2	1	1	1	C	(1)	1	1	1	1	1	1	N	N	N	N			
[11]	1o	1	1	1	(1)	2	1	1	1	1	1	1	1	N	N	N	N			
[12]	1o	1	1	1	1	2	1	1	1	1	1	1	1	N	N	N	N			
[13]	1o	1	1	1	1	1	1	(1)	1	2	(1)	1	(2)	N	N	N	N			
14	1o	1	1	1	1	2	1	1	1	2	1	1	1	N	N	N	N			
15	1o	1	2	1	1	1	1	1	1	3	2	2	1	N	N	N	N			
16	3o	1	3	3	4	2	3	3	4	1	1	1	1	N	U	U	U	0403	---	
17	4o	4	4	4	4	4	4	4	4	(3	2)	4	2	U	U	U	U	---	---	
18	3+	(4)	2	3	3	3	3	3	4	2	1	2	1	U	U	U	U	---	1300	248γ
19	3-	2	2	2	2	3	3	3	2	2	2	2	2	U	U	U	U			
20	3-	2	3	3	2	3	2	2	3	3	2	2	2	U	U	U	U	0413	1800	107γ
21	2+	2	2	1	2	3	3	3	3	(2)	1	2	1	U	U	U	U			
22	2+	3	2	1	2	3	(2)	2	3	2	1	2	2	N	N	N	N			
23	2-	3	2	1	1	2	(1)	1	2	1	1	1	(2)	N	N	N	N			
24	2-	4	2	1	1	2	1	1	1	2	2	1	2	N	N	N	N			
25	1o	(2)	1	1	2	1	1	1	(1)	2	2	1	2	N	N	N	N			
26	1o	2	1	1	1	1	1	1	(2)	2	1	1	1	N	N	N	N			
27	1o	1	1	1	1	1	(1)	1	1	1	(1	1)	1	N	N	N	N			
28	1o	1	1	1	1	2	1	1	1	(1)	1	1	1	N	N	N	N			
29	1o	1	1	1	1	1	(1)	1	1	1	1	1	1	N	N	N	N			
30	1+	1	1	1	1	2	(1)	2	2	1	1	2	2	N	N	N	N			
31	2-	1	1	1	1	3	2	1	3	2	1	1	1	N	N	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.

Aug. 1959	S W F								S E A			Correspondence		
	Drop-out Intensities (db)					Start-time	Dura-tion	Type	Imp.	Start-time	Dura-tion	Imp.	Flare	Solar Noise	Mag
	WS	SF	HA	TO	LN										
3		21				21.19	70	S	2-						
22	12"	24	25			00.56	42	S	2-				x		
29	21"	22	20			02.06	15	S	2-						x
30			20'		20	15.30	20	S	2+						
30	-"	30	16			23.52	12	S	2	23.55	57	2		x	
31		25	21	-		22.48	13	S	2-				x		

NOTE (1) Suffixes of Drop-out Intensities for WS, HA and TO
' : 10 Mc, no suffix : 15 Mc, " : 20 Mc.

(2) - : unreadable, ( ) : uncertain

IONOSPHERIC DATA IN JAPAN FOR AUGUST 1959
電 波 観 測 報 告　第11巻 第8号

1959年10月10日 印 刷
1959年10月20日 発 行　（不許複製非売品）

編集兼発行人　岡 登 博 美
東京都小金井市貫井北町4—573

発行所　郵政省電波研究所
東京都小金井市貫井北町4—573
電話 国分寺 137—139, 151

印刷所　今井印刷所
東京都新宿区筑土八幡町8番地
電話 九段 (33) 2304