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IONOSPHERIC DATA IN JAPAN

FOR JANUARY 1958

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Prepared by

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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CONTENTS

SITES OF THE RADIO WAVE OBSERVATORIES

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

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

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

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

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

$h'E_s$	The lowest virtual height of the trace used to give the f_0E_s.
$hpF2$	The virtual height of the $F2$ layer measured on the ordinary-wave branch at a frequency equal to 0.834 f_0F2.
$ypF2$	The semi-thickness of the $F2$ layer deduced from a parabolic fit to the "nose" of the electron density distribution with height and based on the observed $h'f$ trace. (The difference between $hpF2$ and the virtual height at 0.969 f_0F2).

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

A	Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example E_s.
B	Measurement influenced by, or impossible because of, absorption in the vicinity of f-min.
C	Measurement influenced by, or impossible because of, any non-ionospheric reason.
D	Measurement influenced by, or impossible because of, the upper limit of the normal 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 blow.
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 extraodinary 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 determind 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 thick 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*, at 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

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

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

d. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

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

a. Daily Data

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

Variability Variability is expressed in four grades as follows:

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

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

b. Outstanding occurrences

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

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

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

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

S : simple rise and fall of intensity
C : complex variation of intensity
A : appears to be part of general activity
D : distinct from (i.e. apparently superposed upon) the general activity
M : multiple peaks separated by relatively long period of

quietness

F : multiple peaks separated by relatively short period of quietness

E : sudden commencement or rise of activity

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

Maximum intensity

Instantaneous: The highest value above the base level.

Smoothed: By multiplying the duration, the approximate total power of the phenomenon can 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 prepared from the field intensities of 6 circuits received at Hiraiso, and are given in the tabulated form.

Circuits and intensities

WS.....WWV 20, 15 and 10 Mc (Washington, D.C.)
SF.....WNA-27 7.6550 Mc; WND-20 10.4925 Mc
WNC-93 13.7525 Mc; WNC-37 17.4200 Mc (San Francisco)
HA.....WWVH 15 and 10 Mc (Hawaii)
TO..... JJY 15 and 10 Mc (Tokyo)
MN.....DZM-28 14.5850 Mc (Manila)
LN.....GIJ-37 14.6702 Mc (London)

Drop-out Intensities (in db) are tabulated for each circuit arranged above. *Start-time, Duration, Type* and *Importance* given in the table are determined from the data of a circuit (underlined) that secured the event with the highest confidence.

Types

S–SWF:	**sudden drop-out and gradual recovery**
Slow S–SWF:	**slow drop-out taking 5 to 15 minutes and gradual recovery**
G–SWF:	**gradual disturbance; fade irregular in both drop out and recovery**

Importances

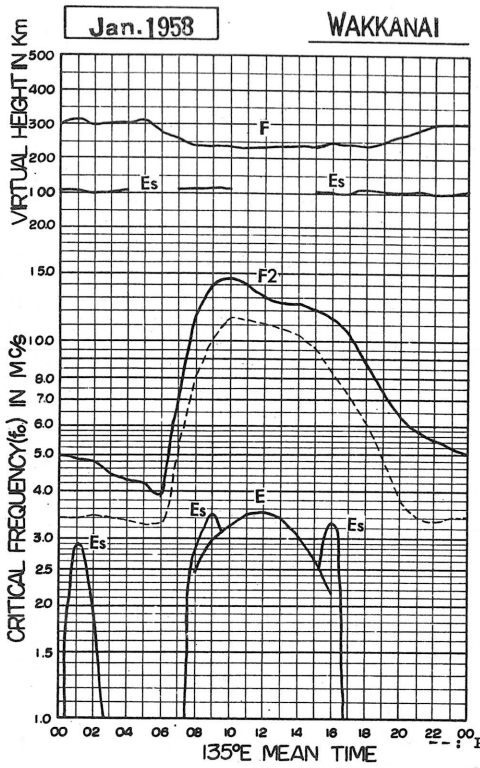
Degrees of SWF are derived from the *Drop-out Intensity* of the underlined circuit with some statistical consideration and classified in 9 grades from 1– (slight) to 3+ (very great) as follows:

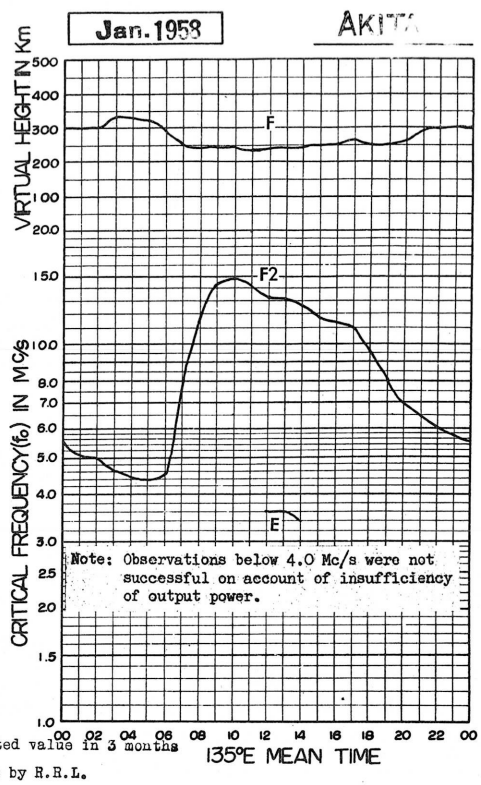
1–	2–	3–
1	2	3
1+	2+	3+

The data of sudden enhancement of atmospherics (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.

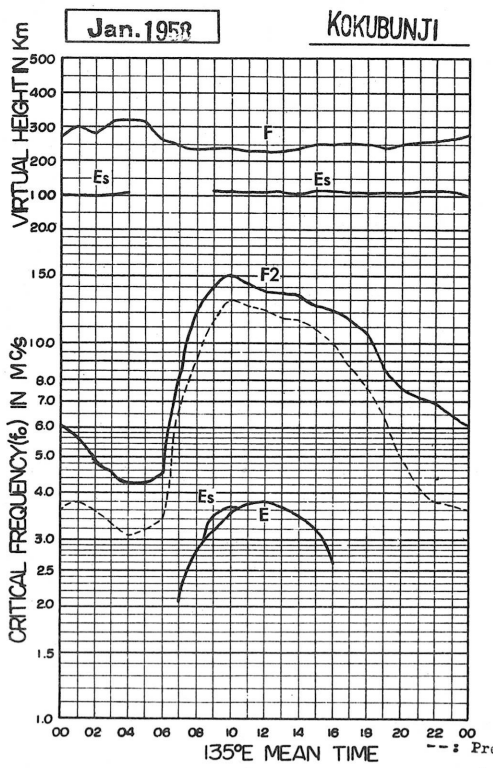
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

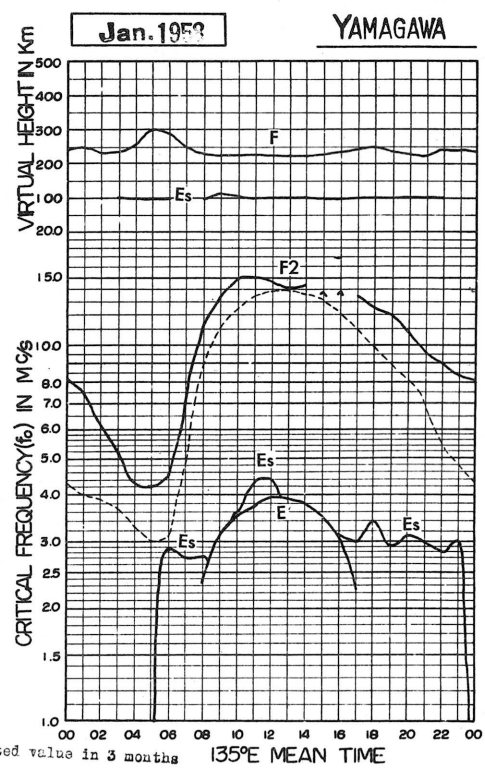




--: Predicted value in 3 months advance by R.R.L.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





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

IONOSPHERIC DATA

Jan. 1953 | 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	6.0	5.7	5.6	5.7	5.0	5.3	5.7	8.0	C	C	C	C	C	C	C	C	C	11.7	10.3	8.4	I 7.5 S	7.0	7.2	7.0
2	6.8	6.0	5.8	5.8	4.8	4.0	4.1	7.5	11.7	R	R	R	R	R	R	12.0	U 11.8 R	12.0	10.3	8.7	6.8	6.1	6.5	6.2
3	6.2	6.1	6.0	6.0	5.8	5.6	6.0	U 8.5 C	C	C	C	C	C	C	C	12.0	11.7	10.3	8.1	7.5	6.3	5.8	5.1	4.5
4	I 4.2 A	4.1	4.3	4.2	4.1	C	C	C	C	C	C	C	13.0	I 12.8 C	12.5	I 11.8 C	11.2	9.1	8.7	7.1	5.8	5.0	4.7	4.5
5	4.8	4.8	4.6	4.1	3.8	3.5	3.5	6.1	9.8	C	C	C	C	C	C	10.4	9.8	9.7	7.7 H	6.5	5.5	5.5	5.5	5.3
6	4.5	4.8	4.9	4.0	4.2	4.0	3.4	6.4	10.5	C	C	C	C	C	C	C	J 10.7 R	10.3	I 8.0 C	6.2	5.8	5.3	4.9	5.0
7	4.8	4.5	4.3	4.0	4.0	3.8	3.4	6.8	11.5	C	C	C	C	C	C	C	C	C	C	6.7	5.7	5.2	4.9	J 4.7 S
8	4.7	4.2	J 4.3 R	4.2	3.6	3.2	3.3	6.8	C	C	C	C	C	C	C	C	C	S	S	6.0	5.4	5.3	5.4	5.2
9	4.6	4.2	4.2	4.2	4.0	3.8	3.7	7.1	C	C	C	C	C	C	C	C	C	U 7.9 S	6.8	5.5	5.0	4.7	4.7	4.3
10	4.4	4.0	3.7	3.7	3.8	3.7	3.7	7.2	C	C	C	C	12.3 H	U 12.6 R	12.1 H	11.5 H	11.4	U 10.4 S	I 8.8 S	7.1	6.5	5.7	5.3	4.5
11	4.3	4.4 V	4.8	I 4.2 C	3.8	3.8	3.9	7.4	I 11.4 C	I 13.0 R	14.8	14.5	I 13.4 R	13.0	12.6	12.3 H	11.8	10.8	9.2	7.2	6.2	5.8	5.8	6.0
12	5.8	5.2	5.3	5.0 F	5.0 F	5.0 F	4.7	7.3	12.2	J 14.6 R	I 14.6 R	J 14.6 R	12.8 H	12.7 H	12.7	12.2	12.0	11.1	8.7	7.4	6.7	6.6	6.6	6.4
13	6.3	6.3	5.9	5.2	5.0	5.0	5.1	7.2	11.5	12.8	J 14.3 R	13.0 H	12.7	12.5 H	12.5	11.5 H	11.7	10.8	9.5	8.8	7.5	6.5	6.5	6.5
14	6.0	5.6	5.6	5.0	4.8	4.9	4.4	7.3	13.0	J 14.7 R	J 15.0 R	I 14.8 R	I 13.4 R	12.8	12.6 H	12.7	12.5	11.6	9.2	7.0	6.8	6.5	6.6	6.3
15	5.6	5.3	5.0	4.9	5.0	5.0	4.3	6.8	12.0	I 14.8 C	J 15.0 R	14.7	U 13.0 R H	13.0 H	12.8	12.5	12.0	12.0	11.6	I 9.7 C	7.8	6.8	6.5	5.3
16	4.9	4.8	5.0	4.8	4.3	3.8	3.3	6.8	11.2	J 14.3 R	I 14.4 C	J 14.0 R	13.2 H	12.8	12.3	11.9	11.2	10.2	9.1	8.2	6.3	5.8	6.0	6.2
17	6.0	5.6	5.2	5.3	5.3	4.5	3.7	I 7.2 C	12.5	J 14.5 R	J 15.0 R	I 14.2 R	U 13.5 R H	13.1	13.0	12.5	12.5	12.5	10.3	8.8	U 8.0 S	7.3	6.3	6.5
18	5.8	4.9	4.9	4.8	5.0	5.0	4.8	7.5	12.0	I 13.7 R	J 15.0 R	J 14.8 R	J 14.0 R H	13.3 H	13.5	13.0	12.7	12.5	9.5	9.3	U 7.8 S	8.3	7.4	7.1
19	6.2	6.2	6.0	6.5	6.0	5.6	5.8	U 8.4 S	12.8	R	R	R	R	R	R	12.0 H	12.0	10.8	9.5	7.8	6.2	5.7	5.3	4.7
20	4.3	4.1	4.4	4.3	4.2	4.2	4.2	J 8.3 R	12.0	14.3	14.0	13.2	12.6 H	12.0 H	12.3	11.1	9.7	9.5	7.8	7.3	6.3	5.5	4.9	4.9
21	5.0	4.6	4.5	4.3	3.9	4.1	4.7	7.8	11.3	13.8	14.5	14.8	14.5 H	14.6 H	J 13.5 R	U 13.3 R	13.0	12.5	11.1	9.2	8.7	8.3	U 7.3 S	U 8.1 S
22	7.3	5.8	5.7	5.3 H	5.3	5.0	5.3	8.3	12.6	J 14.5 R	J 13.3 R	13.3	13.2 H	12.5	12.3	10.8	11.3	9.8	8.6	7.8	6.5	6.3	5.7	5.0
23	4.6	5.1	5.3	4.5	4.1	4.0	3.8	6.8	12.2	J 14.2 R	13.8	13.8	13.0 H	13.5	12.7 H	11.8 H	11.5	10.1	9.2	7.7	7.3	J 7.3 R	6.9	6.1
24	6.3	5.8	5.4	5.3	5.3	4.9	4.8	7.3	11.1	J 14.3 R	J 14.5 R	J 13.8 R	13.3	12.7	12.8	12.2 H	11.5	10.3	8.5	U 8.0 S	5.9	5.9	5.0	4.7 F
25	5.3	5.4 F	4.6 F	4.7 F	4.3	C	C	C	C	C	15.0	15.3 H	I 13.2 R	12.4	12.3 H	12.0	10.3	10.0	8.3	6.7	5.3	5.5	5.2	4.9
26	4.0	4.2	4.0	4.0	4.0	4.2	4.0	5.7	9.5	C	C	C	C	C	C	C	10.0	10.8	J 8.8 R	6.5	5.5	5.5	5.5	5.5
27	5.2	4.8	4.5	4.1	4.0	3.8	3.5	6.5	9.2	13.3	12.8	11.8	11.1 H	10.8	10.7	9.7 H	9.5	8.3	7.5	6.3	5.2	5.3	5.2	4.8
28	5.0	4.6	4.3	3.8	3.6	3.5	3.4	5.8	8.7	12.3	12.6	12.4	11.8 H	11.5 H	10.9 H	10.5	10.0	9.2	7.8	5.8	5.3	5.3	5.6	5.0
29	4.6	4.5	4.5	4.5	4.1	3.9	3.2	6.5	9.8	12.2	13.0	13.3 H	12.3 H	12.0 H	11.8	11.5	11.5	11.0	8.8	7.4	6.5	6.2	5.7	4.7
30	4.8	4.9	4.8	4.5	4.6	4.2	3.6	6.8	11.7	I 13.8 R	J 14.5 R	J 13.8 R	12.8	12.4 H	12.2	11.2	11.1	9.9	8.3	6.5	5.8	5.7	5.3	5.2
31	5.3	5.1	4.7	4.7	4.7	4.2	3.9	6.8	10.6	13.3 H	J 14.0 R	J 14.5 R	13.3 H	13.0	12.8	12.1	11.5	10.6	9.0	6.5	5.3	4.3	4.3	4.0
No.	31	31	31	31	31	29	29	29	24	18	19	19	21	21	21	25	27	29	29	31	31	31	31	31
Median	5.0	4.9	4.8	4.5	4.3	4.2	3.9	7.2	11.5	14.0	14.5	14.0	13.0	12.7	12.5	12.0	11.5	10.4	8.8	7.3	6.3	5.8	5.5	5.2
U.Q.	6.0	5.6	5.6	5.2	5.0	5.0	4.8	7.5	12.1	14.5	15.0	14.7	13.3	13.0	12.8	12.2	12.0	11.4	9.5	8.2	6.8	6.5	6.5	6.3
L.Q.	4.6	4.5	4.4	4.2	4.0	3.8	3.5	6.8	10.6	13.3	13.8	13.3	12.5	12.4	12.2	11.4	10.7	9.8	8.2	6.5	5.5	5.3	5.1	4.7
Q.R.	1.4	1.1	1.2	1.0	1.0	1.2	1.3	0.7	1.5	1.2	1.2	1.4	0.8	0.6	0.6	0.8	1.3	1.6	1.3	1.7	1.3	1.2	1.4	1.6

The Radio Research Laboratories, Japan.

foF2

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

W 1

IONOSPHERIC DATA

Jan. 1958 | f_oF1 | 135° E Mean Time (G.M.T.+ 9h.) | Wakkanai | Lat. 45° 23.6' N, Long. 141° 41.1' E

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

f_oF1

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

The Radio Research Laboratories, Japan.

W 2

IONOSPHERIC DATA

Jan. 1958 | 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	I 2.95 A	3.25	3.40	3.40	3.30 H	2.90	2.35								
2									2.55	2.90	3.25	3.40	3.40	3.30	3.00	2.35								
3									2.35	I 2.70	3.20	3.40	3.40	3.30	2.90	A								
4									C	2.90	3.10	3.35	I 3.35 A	3.20	2.90	C								
5									A	C	C	C	3.35	I 3.20 B	B	B								
6									S	S	S	S	S	S	3.05	2.50								
7									S	2.90	3.30	S	S	3.25	S	S								
8									S	S	S	S	S	S	S	S	S							
9									2.60	2.75	3.10	3.30	I 3.35 A	3.25	2.80	S								
10									S	2.90	3.15	3.35	3.50	3.20	2.75	2.35								
11									C	2.90	3.35	3.50	3.55	U 3.35 S	3.00	S	S							
12									S	A	3.25	3.50	3.50	3.30	3.05	S	S							
13									S	2.95	3.30	3.50	3.55	3.50	A	A	A							
14									2.50	I 3.00 A	3.45	3.55	3.55	3.50	3.15	2.70	S							
15									2.50	I 2.95 C	3.40	3.50	3.50	3.50	3.25	2.80	S							
16									2.45	3.05	I 3.40 C	3.55	3.60	3.55	3.20	2.70	2.15							
17									2.40	3.00	I 3.25 A	3.50	3.50	3.50	3.10	2.70	S							
18									2.45	I 2.80 A	I 3.15 A	3.50	3.55	3.40	3.10	2.60	S							
19									2.45	3.05	3.40	3.40	3.50	3.40	3.15	2.70	J 1.70 R							
20									A	A	A	3.60	3.50	3.50	3.10	2.65	S							
21									2.50	2.90	A	A	A	A	3.15	2.80	A							
22									A	A	I 3.35 A	3.50	U 3.50 S	3.20	3.00	2.65	S							
23									A	A	3.15	3.30	I 3.35 S	S	S	S	S							
24									A	I 3.00 A	3.25	3.50	I 3.50 A	3.50	3.15	S	S							
25									C	C	3.35	3.45	3.50	3.40	2.90	2.55	A							
26									A	C	C	C	C	C	C	C	A							
27								S	2.40	2.85	3.20	3.40	3.35	3.45	3.00	2.80	2.35							
28								S	2.35	3.00	3.30	3.35	3.45	3.35	3.10	2.60	S							
29								S	2.35	2.95	3.40	3.50 H	3.45	3.30	3.15	2.70	2.15							
30								A	I 2.45 A	3.00	3.25	3.50	3.40	3.50	3.15	2.80	2.15							
31									2.50	3.00	3.25	3.35	3.50	3.40	3.05	2.60	S							
No.									15	22	25	25	26	26	25	19	5							
Median									2.45	2.95	3.25	3.50	3.50	3.40	3.05	2.65	2.15							

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

Jan. 1958 | foEs | 135° E Mean Time (G.M.T.+ 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	3.5M	2.5M	3.5M	2.5M	E	6.1M	7.3M	3.5	G	G	G	G	G	3.5M	3.5M	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	G	3.4	3.5	3.9	4.2	3.8	3.5	4.5M	4.5M	3.3M	4.0M	6.5M	7.3M	3.5M	5.2M	E
3	3.0M	1.5	E	1.5	3.4M	E	3.2M	E	G	6.0M	3.5	4.0	5.2M	3.8	3.5	3.5M	S	E	3.5M	E	4.0M	3.5M	5.0M	6.7M
4	5.8M	3.5M	3.5M	3.5M	3.5M	C	C	C	C	3.5	G	G	5.5M	G	G	C	S	E	E	E	E	3.5M	3.5M	4.6M
5	3.5M	3.5M	3.0M	3.5M	2.0M	5.0M	3.5M	6.1M	6.0M	C	C	C	G	B	B	B	3.5M	E	S	S	S	E	4.3M	3.5M
6	3.5M	3.5M	2.7M	1.3	E	E	3.4M	5.0M	5.5M	S	S	S	S	S	3.4	G	S	3.3M	C	E	E	E	E	3.5M
7	3.5M	E	2.8M	E	E	E	5.0M	3.5M	S	G	G	S	S	G	S	S	3.3M	3.6M	3.5M	3.5M	3.5M	3.5M	3.5M	3.3M
8	3.3M	3.6M	5.3M	1.5	1.3	3.0M	E	E	3.6M	S	S	S	S	S	S	S	S	E	2.9My	2.9My	3.2My	4.8M	3.6M	3.5M
9	5.3M	5.0M	3.6M	3.2M	3.0M	E	E	3.6M	5.8M	G	3.4	3.5	6.4M	G	G	S	2.9M	E	4.2M	4.0My	3.5M	4.0My	6.0M	5.3M
10	4.8My	3.1M	3.5M	E	E	E	E	3.5M	2.9	3.4M	3.4M	G	G	G	G	G	7.1M	E	E	E	E	E	E	E
11	E	E	2.4M	C	E	E	E	E	C	3.3	G	G	G	G	G	S	S	E	E	E	E	E	3.4M	E
12	E	3.5M	3.5M	3.5M	E	E	E	E	8.5M	3.5M	3.5	G	G	G	G	S	S	E	E	E	E	E	E	E
13	E	3.5M	E	1.2	E	E	E	E	S	G	G	G	G	G	3.5	5.0M	5.5M	3.5M	E	E	3.5M	E	4.2M	3.5M
14	E	3.5M	3.3M	E	E	E	E	E	G	6.1M	G	G	G	G	G	G	S	E	E	E	E	E	E	3.5M
15	E	2.9M	2.0M	1.2	E	E	E	E	G	C	G	G	G	G	G	G	S	E	E	C	3.1M	E	E	E
16	E	3.5M	E	E	E	E	E	E	G	G	C	G	G	G	G	G	G	E	E	E	E	E	E	E
17	E	E	E	1.6	2.4M	E	E	C	G	G	4.5M	G	G	G	G	G	S	E	E	E	E	E	E	3.5M
18	3.5M	2.4M	E	E	E	E	E	E	G	3.5	4.0M	G	G	G	G	G	S	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	4.0M	G	3.5	3.5M	G	G	G	G	G	G	E	E	E	E	E	5.0M	3.5M
20	4.5M	4.5M	3.5M	E	E	E	E	E	5.0M	5.5M	5.7M	G	G	G	G	G	S	E	E	E	E	E	E	S
21	3.5M	3.5M	3.5M	E	E	E	E	E	G	G	5.7M	6.7M	6.0M	4.9M	3.5M	3.5M	2.5M	E	E	E	E	5.7M	3.5M	E
22	E	E	E	E	E	E	E	E	5.5M	6.2M	8.0M	G	G	G	G	G	S	E	E	3.5M	E	E	E	E
23	3.5M	3.5M	2.0M	2.3M	1.3	E	E	E	3.5M	5.8M	G	G	S	S	S	S	S	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	E	3.5M	3.5M	G	G	4.0M	G	G	S	S	E	E	3.5M	E	E	E	E
25	E	3.5M	E	3.5M	2.4M	C	C	C	C	C	G	G	G	G	G	3.5M	3.5M	4.0M	3.5M	E	E	E	E	E
26	E	E	3.5M	E	E	E	E	3.2M	3.5M	C	C	C	C	C	C	C	3.5M	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	S	G	3.5	3.5	G	G	G	G	G	G	E	E	E	E	E	E	E
28	3.0M	2.4M	2.5M	1.3	E	E	E	S	2.7	3.5	G	G	G	G	G	2.6q	S	3.5M	E	E	E	E	3.5M	E
29	E	3.5M	2.4M	E	E	E	E	S	G	3.5	G	G	G	G	G	G	G	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	5.6M	2.9	G	G	G	G	G	G	G	G	E	E	3.5M	4.5M	5.3M	3.5M	3.5M
31	E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	3.5	S	E	E	E	E	E	E	E
No.	31	31	31	30	31	29	29	25	26	25	26	26	26	26	26	21	15	31	29	29	30	31	31	30
Median	E	2.9M	2.0M	E	E	E	E	E	2.8	3.5	G	G	G	G	G	G	3.3M	E	E	E	E	E	E	E
U.Q	3.5	3.5	3.5	1.6	1.3	E	E	3.5	5.0	4.2	3.5	G	G	G	G	3.5	3.5	E	E	E	3.1	3.5	3.5	3.5
L.Q	E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	E
Q.R																								

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

Jan. 1953 | 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		3.4	5.5	2.5						2.4	E						
2										G	G	G	G	G	G	3.8	3.0	2.4	2.5	2.6	6.0	2.5	2.4	
3	E	E		E	E		E			3.1	G	G	4.4	G	G	2.5	S		E		2.4	2.4	2.4	2.4
4	A	2.2	E	E	E	C	C	C	C	2.5			4.0			C	S					E	2.0	2.7
5	2.1	E	E	2.6	E	2.2	E	2.4	3.0	C	C	C		B	B	B	2.8		S	S	S		2.1	2.0
6	2.0	E	E	E			2.5	2.9	G	S	S	S	S	S	G		S	2.0	C					E
7	E		E				E	E	S			S	S		S	S	2.4	2.4	2.1	2.4	2.5	2.1	2.4	2.5
8	E	E	2.4	E	E	E			G	S	S	S	S	S	S	S	S		2.4	E	2.4	2.1	2.5	2.4
9	3.0	3.0	2.9	2.5	E			E	G		2.7	2.5	3.9			S	2.4		E	E	2.2	2.2	3.0	2.8
10	2.3	E	E					E	2.9	G	G						E							
11			E	C					C	G						S	S						E	
12		E	E	E					6.0	3.0	3.0					S	S							
13		E		E					S						3.2	3.8	2.8	2.5			E		2.9	E
14		E	E							3.2							S							E
15		E	E	E													S			C	E			
16		E									C						S							2.6
17				E	E			C			3.5						S							
18	E	E								3.0	3.2													
19								3.1		2.8	3.1												2.4	E
20	2.4	E	E						3.0	3.0	4.0						S							S
21	E	E	E								4.2	4.0	3.7	3.8	3.0	2.4	2.4					2.5	E	
22									2.6	3.1	3.8						S			E				
23	E	E	E	E	E				2.6	3.0			S	S	S	S	S							
24									2.6	3.0			3.8			S	S			E				
25		E		E	E	C	C	C	C	C						2.3	2.3	2.1	2.0					
26			E					E	2.5	C	C	C	C	C	C	C	2.2							
27								S		G	G													
28	E	E	E	E				S	G	2.8						2.1	S	2.4					E	
29		E	E					S		G														
30								1.8	2.6											E	E	E	E	E
31																G	S							
No.	13	19	17	14	9	3	5	8	14	17	13	4	6	3	5	7	10	7	6	7	8	8	13	12
Median	E	E	E	E	E	E	E	E	2.6	3.0	3.0	G	3.8	G	G	2.4	2.4	2.4	2.0	E	2.3	2.2	2.4	2.2

f_bE_s

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

The Radio Research Laboratories, Japan.

W 5

IONOSPHERIC DATA

Jan. 1958 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.60	1.60	E1.55S	E	E	E1.60S	E1.80S	E2.00S	E2.00S	1.90	2.05	E2.35S	E2.35S	E2.40S	2.00	E1.90S	1.85	E1.80S	1.80	1.80	E1.75S	E2.00S	E2.00S	E2.00S
2	1.60	E1.20S	E	E	E	1.60	E1.75S	E1.90S	E2.10S	E2.00S	2.10	2.05	2.10	2.05	E2.00S	E2.00S	E1.65S	E1.70S	E1.75S	E1.65S	E1.80S	E2.00S	E1.75S	E1.75S
3	E1.60S	E	E	E	E	E1.50S	E1.80S	E2.00S	E2.00S	E2.00S	E2.05S	2.10	E2.10S	2.15	2.10	E1.80S	E2.30S	1.80	1.80	E1.65S	E2.00S	E1.60S	E1.70S	E2.00S
4	1.60	E	E	E	E	C	C	C	C	E2.30S	E2.40S	E2.40S	2.40	2.40	E2.20S	C	E2.00S	E1.80S	E1.80S	1.75	1.75	1.70	E1.65S	E1.70S
5	1.60	E	E	E	E	E1.20S	1.70	1.70	E2.40S	C	C	C	3.00	4.00	3.00	3.00	E2.00S	E2.00S	E2.00S	E2.40S	E2.40S	E2.00S	1.70	E1.75S
6	1.55	1.20	E	E	1.10	1.60	1.70	1.80	E2.50S	E3.00S	E3.80S	E4.70S	E4.60S	E4.00S	E2.90S	E2.50S	E2.00S	1.80	C	E1.80S	E2.00S	E1.80S	E1.80S	E2.00S
7	1.60	E1.50S	E	E	E	E1.50S	E2.00S	E2.00S	E2.50S	E2.40S	E2.60S	E3.95S	E4.00S	E3.00S	3.10	2.55	E1.80S	E2.05S	E2.00S	E1.65S	E1.70S	E2.00S	E1.75S	E2.00S
8	E1.60S	1.25	E	E	1.10	1.65	E1.80S	E2.00S	E2.65S	E4.70S	E4.50S	E4.60S	E3.90S	E3.80S	E3.15S	E3.00S	E2.40S	E2.40S	E2.00S	E2.00S	E2.00S	E2.00S	E2.00S	E2.00
9	1.60	1.35	E	E	E	1.60	E2.00S	E2.00S	E2.00S	2.05	2.35	2.40	2.40	E2.40S	E2.45S	E2.70S	1.80	E2.00S	E2.00S	1.75	E1.80S	E1.70S	E1.75S	E2.00S
10	1.65	E1.25S	E	1.20	1.20	1.65	1.80	1.75	E2.40S	E2.40S	E2.40S	E2.40S	E3.00S	E2.40S	E2.40S	E2.05S	E2.40S	E2.05S	1.65	E2.00S	E2.00S	1.80	1.95	E2.05S
11	1.60	1.25	E	C	E	1.50	E1.70S	E1.90S	C	2.60	2.50	2.70	2.60	2.50	2.50	E3.00S	E2.40S	E2.00S	E2.00S	E1.85S	E1.85S	E1.80S	E1.75S	E1.70S
12	1.60	1.30	E	E	E	1.50	E2.00S	E1.80S	E2.50S	E2.50S	2.60	2.70	2.60	2.70	2.50	E2.75S	E2.40S	E1.80S	E1.80S	E1.75S	E2.00S	E2.00S	E1.80S	E2.00S
13	1.55	E1.20S	E	E	E	1.55	E1.80S	E1.80S	E2.60S	2.50	2.80	2.60	3.00	3.00	E2.50S	E2.45S	E2.00S	E1.75S	E1.75S	E1.75S	E1.80S	E2.00S	E1.60S	E2.00S
14	1.60	E1.60S	E	E	E	1.50	E2.00S	E2.00S	E2.00S	E2.40S	E2.50S	E2.50S	2.50	E2.40S	E2.40S	E2.40S	E2.10S	1.90	E1.85S	E2.00S	E1.80S	E2.00S	E1.80S	E2.00S
15	1.55	E1.25S	E	E	E	1.50	E1.60S	E2.00S	E2.00S	C	E2.00S	E2.10S	E2.40S	E2.40S	E2.40S	E2.35S	E2.40S	E2.00S	E1.85S	C	E2.00S	E2.00S	E2.00	E2.00S
16	E1.55S	E1.25S	E	E	E	1.50	E1.75S	E2.00S	E2.00S	E2.00S	C	2.35	2.50	2.40	2.40	2.10	E1.80S	1.75	1.80	1.75	1.75	E2.00S	E2.00S	E2.00S
17	1.70	1.50	1.10	E	E	1.50	1.70	C	E2.00S	E2.00S	2.50	2.40	2.40	2.40	E2.60S	E2.00S	E2.35S	1.70	E2.00S	E2.00S	E1.80S	1.60	E1.75S	E1.70S
18	E1.50S	E1.25S	E	E	E	1.55	E2.00S	E1.80S	E2.00S	E2.00S	E2.00S	E2.00S	E2.10S	2.05	E2.00S	E2.00S	E2.10S	1.80	E1.70S	E1.75S	E1.80S	E2.00S	E2.00S	E2.00S
19	1.60	E1.20S	E1.65S	E	E	E1.55S	E1.80S	E1.65S	E2.00S	2.10	2.40	2.05	2.60	E2.00S	E2.00S	E2.00S	E2.00S	E1.75S	E2.00S	E2.00S	1.80	E2.00S	E2.00S	E1.65S
20	E1.60S	1.20	E	E	E	E1.40S	E1.75S	E1.75S	E2.00S	E2.00S	E2.00S	E2.00S	E2.40S	E2.35S	E2.35S	E2.00S	E2.15S	E1.80S	E1.80S	E1.80S	E1.80S	E1.80S	E1.80S	E2.15S
21	E1.55S	E	E	E	E	1.60	E1.65S	E1.80S	E2.00S	E2.00S	E2.00S	E2.35S	E2.35S	E2.05S	E2.00S	E2.00S	E2.00S	E2.00S	E1.80S	E1.80S	E1.80S	E1.75S	E1.75S	E1.90S
22	E1.60S	1.50	E	E	E1.40S	E1.60S	E1.70S	E2.00S	E2.00S	E2.00S	E2.35S	E3.00S	E3.00S	E2.40S	E2.40S	E2.15S	E2.20S	E1.85S	E1.70S	E2.00S	E1.75S	E1.75S	E2.00S	E1.80S
23	E1.50S	E1.35S	E	E	E	1.55	E1.80S	E1.80S	E1.75S	E2.00S	E2.50S	E2.40S	E3.30S	E3.80S	E3.20S	E2.80S	E2.20S	E1.80S	E1.75S	E1.70S	E2.00S	E2.00S	E1.65S	E2.00S
24	1.65	1.60	E	E	E	E1.50S	E1.90S	1.65	E2.00S	E2.40S	E2.60S	2.50	E2.40S	E2.60S	E2.40S	E3.00S	E2.15S	E2.00S	E1.75S	E2.00S	E1.85S	E1.80S	E1.80S	E1.75S
25	E1.65S	E1.30S	E	E	E	C	C	C	C	C	E2.05S	E2.30S	E2.05S	E2.05S	E2.05S	E2.00S	E1.80S	E1.80S	E1.80S	E2.40S	E2.00S	E1.90S	E1.75S	E1.80S
26	E1.60S	E1.30S	E	E	E	E1.40S	E1.80S	E1.80S	E2.00S	C	C	C	C	C	C	C	1.70	E1.85S	E1.60S	E1.70S	E1.85S	E1.80S	E1.75S	E1.75S
27	1.60	E1.35S	E1.05S	E	E	E1.50S	E2.00S	E1.80S	E2.00S	E2.00S	E2.00S	E2.00S	E2.10S	E2.40S	E2.50S	E2.00S	E2.00S	E1.65S	1.75	E2.00S	E1.75S	E2.00S	E2.00S	E1.65S
28	E1.60S	E1.20S	E	E	E	E1.50S	E1.90S	E2.00S	E2.00S	E2.00S	E2.05S	E2.00S	E2.05S	E2.10S	E2.00S	E1.80S	E2.20S	E1.70S	E1.80S	E1.75S	E2.00S	E1.65S	E1.60S	E1.60S
29	1.60	E1.25S	E	1.05	E	E1.55S	E1.90S	E2.00S	E2.00S	E2.00S	E2.10S	E2.05S	E2.40S	E2.40S	E2.40S	E2.05S	E1.80S	E1.70S	E1.70S	1.70	E1.80S	E1.65S	E1.80S	E1.80S
30	E1.45S	E1.20S	E	E	E	E	E1.80S	E1.65S	E2.00S	E2.00S	E2.40S	E2.40S	2.50	2.50	E2.40S	E2.10S	E1.85S	E1.70S	1.70	E1.70S	E1.70S	E1.70S	E1.70S	E1.80S
31	1.60	E1.20S	E	E	1.05	1.55	E1.70S	E1.75S	E2.00S	E2.00S	E2.35S	E2.05S	E2.00S	E2.05S	E2.30S	E2.00S	E2.00S	E1.70S	E1.65S	E1.65S	E1.80S	E1.80S	E1.75S	E1.90S
No.	30	31	28	30	30	25	29	28	28	27	28	29	30	30	30	29	31	31	30	30	31	31	31	31
Median	1.60	E1.25	E	E	E	1.50	E1.80	E1.80	E2.00	E2.00	E2.40	E2.40	E2.40	E2.40	E2.40	E2.10	E2.00	E1.80	E1.80	E1.80	E1.80	E1.80	E1.75	E1.90

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

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

Wakkanai

Lat. 45° 23.6' N
Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.50	2.20	2.15	2.20	2.10	2.20	2.30	2.60	C	C	C	C	C	C	C	C	C	2.75	2.60	2.55	$I_{2.70}^{S}$	2.60	2.50	2.60
2	2.65	2.45	2.30	2.60	2.40	2.30	2.50	2.70	3.10	R	R	R	R	R	R	2.75	$U_{2.85}^{R}$	2.70	2.85	2.65	2.60	2.45	2.30	2.55
3	2.40	2.35	2.40	2.40	2.55	2.35	2.65	$U_{2.95}^{C}$	C	C	C	C	C	C	C	2.80	2.75	2.75	2.85	2.70	2.75	2.85	2.70	2.50
4	$I_{2.45}^{A}$	2.35	2.40	2.45	2.55	C	C	C	C	C	C	C	2.90	$I_{2.90}^{C}$	2.90	$I_{2.80}^{C}$	2.85	2.70	2.85	2.95	2.95	2.60	2.45	2.45
5	2.50	2.60	2.80	2.60	2.80	2.50	2.95	2.85	3.05	C	C	C	C	C	C	2.80	2.75	2.80	2.60^{H}	2.80	2.65	2.75	2.70	2.65
6	2.40	2.55	2.70	2.55	2.55	2.55	2.50	2.90	3.00	C	C	C	C	C	C	C	$J_{2.80}^{R}$	2.75	$I_{2.80}^{C}$	2.70	2.85	2.65	2.45	2.45
7	2.35	2.45	2.55	2.30	2.40	2.65	2.80	2.75	3.00	C	C	C	C	C	C	C	C	C	C	2.90	2.85	2.60	2.55	$J_{2.50}^{S}$
8	2.55	2.40	$J_{2.50}^{R}$	2.55	2.40	2.50	2.45	2.90	C	C	C	C	C	C	C	C	C	S	S	2.75	2.50	2.45	2.65	2.75
9	2.60	2.50	2.45	2.60	2.50	2.65	2.80	2.90	C	C	C	C	C	C	C	C	C	$U_{2.95}^{S}$	2.85	2.70	2.60	2.55	2.55	2.45
10	2.50	2.40	2.40	2.45	2.45	2.60	2.80	2.80	C	C	C	C	2.65^{H}	$U_{2.75}^{R}$	2.65^{H}	2.60^{H}	2.65	$U_{2.70}^{S}$	$I_{2.70}^{S}$	2.85	2.65	2.75	2.65	2.35
11	2.20	2.25^{V}	2.45	$I_{2.50}^{C}$	2.35	2.50	2.65	2.85	$I_{3.05}^{C}$	$I_{3.05}^{R}$	3.05	2.90	$I_{2.85}^{R}$	2.75	2.65	2.65^{H}	2.70	2.60	2.75	2.90	2.60	2.65	2.75	2.75
12	2.95	2.50	2.60	230^{F}	240^{F}	2.50^{F}	2.75	2.85	3.05	$J_{3.10}^{R}$	$I_{2.95}^{R}$	$J_{2.85}^{R}$	2.80^{H}	2.80^{H}	2.65	2.60	2.60	2.65	2.70	2.70	2.50	2.55	2.50	2.55
13	2.40	2.65	2.70	2.35	2.40	2.55	2.80	2.70	3.10	3.05	$J_{3.00}^{R}$	2.90^{H}	2.75	2.65^{H}	2.65	2.60^{H}	2.55	2.65	2.75	2.70	2.90	2.70	2.75	2.70
14	2.70	2.70	2.65	2.40	2.30	2.60	2.75	2.75	3.15	$J_{3.05}^{R}$	$J_{3.05}^{R}$	$I_{2.95}^{R}$	$I_{2.80}^{R}$	2.75	2.75^{H}	2.70	2.90	2.75	2.70	2.60	2.60	2.60	2.70	2.85
15	2.70	2.45	2.30	2.25	2.30	2.65	2.85	2.65	2.90	$I_{3.00}^{C}$	$J_{3.10}^{R}$	2.95	$U_{2.85}^{R}$	2.75^{H}	2.70	2.65	2.60	2.65	2.60	$I_{2.85}^{C}$	2.75	2.60	2.70	2.60
16	2.20	2.25	2.60	2.50	2.70	2.35	2.50	2.80	3.05	$J_{3.00}^{R}$	$I_{2.95}^{C}$	$J_{2.85}^{R}$	2.80^{H}	2.65	2.70	2.65	2.65	2.65	2.80	2.80	2.55	2.45	2.45	2.50
17	2.55	2.40	2.35	2.40	2.50	2.50	2.35	$I_{2.55}^{C}$	2.90	$J_{2.95}^{R}$	$J_{2.85}^{R}$	$I_{2.70}^{R}$	$U_{2.70}^{RH}$	2.65	2.70	2.60	2.65	2.75	2.65	2.70	$U_{2.70}^{S}$	2.60	2.65	2.50
18	2.70	2.45	2.35	2.35	2.35	2.65	2.65	2.75	3.00	$I_{3.10}^{S}$	$J_{3.10}^{R}$	$J_{2.95}^{R}$	$J_{2.75}^{RH}$	2.70^{H}	2.75	2.70	2.85	2.75	2.65	2.65	$U_{2.75}^{S}$	2.45	2.70	2.50
19	2.15	2.20	2.40	2.35	2.40	2.55	2.65	$U_{2.80}^{S}$	2.95	R	R	R	R	R	R	2.65^{H}	2.70	2.80	2.90	2.90	2.80	2.75	2.65	2.50
20	2.45	2.20	2.25	2.30	2.40	2.45	2.70	$J_{2.90}^{R}$	3.20	3.10	2.90	2.75	2.75^{H}	2.65^{H}	2.75	2.75	2.60	2.80	2.70	2.80	2.85	2.75	2.55	2.40
21	2.60	2.45	2.35	2.20	2.15	2.25	2.80	2.95	3.10	3.00	3.05	3.10	2.80^{H}	2.75^{H}	2.70	$U_{2.85}^{R}$	2.80	2.70	2.70	2.70	2.75	2.70	$U_{2.80}^{S}$	$U_{2.85}^{S}$
22	2.85	2.65	2.55	235^{H}	2.35	2.40	2.60	2.90	2.95	$J_{3.10}^{R}$	$J_{2.95}^{R}$	2.95	2.80^{H}	2.75	2.70	2.75	2.70	2.80	2.85	2.80	2.70	2.75	2.70	2.35
23	2.15	2.40	2.65	2.80	2.35	2.30	2.65	2.75	3.15	$J_{3.15}^{R}$	2.95	3.00	2.85^{H}	2.90	2.75^{H}	2.70^{H}	2.75	2.70	2.80	2.75	2.80	$J_{2.70}^{R}$	2.55	2.50
24	2.55	2.55	2.50	2.45	2.55	2.35	2.50	3.05	2.90	$J_{3.10}^{R}$	$J_{3.05}^{R}$	$J_{3.05}^{R}$	2.85	2.95	2.80	2.80^{H}	2.85	2.85	2.95	$U_{3.00}^{S}$	2.70	2.95	2.50	230^{F}
25	2.50	2.75^{F}	2.60^{F}	2.70^{F}	2.55	C	C	C	C	C	3.05	3.15^{H}	$I_{2.80}^{R}$	2.80	2.75^{H}	2.85	2.70	2.85	2.90	2.85	2.65	2.70	2.75	2.65
26	2.35	2.30	2.30	2.30	2.35	2.75	3.20	2.95	3.05	C	C	C	C	C	C	C	2.65	2.75	$J_{2.90}^{R}$	2.85	2.70	2.65	2.65	2.80
27	2.80	2.70	2.65	2.70	2.45	2.70	2.75	2.90	2.95	3.15	3.10	2.95	2.50^{H}	2.70	2.90	280^{H}	2.90	2.90	3.00	2.95	2.70	2.75	2.70	2.70
28	2.80	2.80	2.75	2.55	2.60	2.70	3.10	3.20	3.10	3.10	3.10	2.95	2.75^{H}	280^{H}	2.75^{H}	285	2.90	2.90	2.95	2.95	2.70	2.85	2.60	2.75
29	2.65	2.50	2.55	2.60	2.60	2.80	3.00	3.05	3.25	3.20	3.00	3.00^{H}	2.85^{H}	2.85^{H}	285	2.80	2.80	2.90	2.95	2.85	2.80	2.85	2.80	2.55
30	2.50	2.60	2.55	2.60	2.85	2.60	2.75	2.85	3.15	$I_{3.10}^{R}$	$J_{3.10}^{R}$	$J_{3.05}^{R}$	2.90	2.85^{H}	2.90	2.85	2.90	2.90	2.85	3.05	2.75	2.60	2.90	2.55
31	2.60	2.45	2.40	2.40	2.50	2.60	2.60	3.05	3.00	3.00^{H}	$J_{3.15}^{R}$	$J_{3.05}^{R}$	2.95^{H}	2.90	2.85	2.85	2.95	2.90	2.95	3.10	3.00	2.75	2.65	2.65
No.	31	31	31	31	31	29	29	29	24	18	19	19	21	21	21	25	27	29	29	31	31	31	31	31
Median	2.50	2.45	2.50	2.45	2.40	2.55	2.70	2.85	3.05	3.10	3.05	2.95	2.80	2.75	2.75	2.75	2.75	2.75	2.80	2.80	2.70	2.65	2.65	2.55

(M3000)F2

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

The Radio Research Laboratories, Japan.

W 7

IONOSPHERIC DATA

Jan. 1958 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.) | Wakkanai | Lat. 45° 23.6' N, Long. 141° 41.1' E

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

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

The Radio Research Laboratories, Japan.

W 8

IONOSPHERIC DATA

Jan. 1958 | h'F2 | 135°E Mean Time (G.M.T.+ 9h.) | Wakkanai | Lat. 45° 23.6' N, Long. 141° 41.1' E

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

h'F2

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

The Radio Research Laboratories, Japan.

W 9

IONOSPHERIC DATA

Jan. 1958 | h'F | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N | Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	325	400	390	400	450	400	350	325	250	260^{A}	245	235	225	240	245	255	240	250	250	250	290	265	300	270
2	270	290	290	270	230	330	275	290	250	260	230	245	250	245	240	245	270	240	265	250	$^{I}290^{A}$	320	340	320
3	300	330	275	280	275	280	275	260	225	220	235	220	245	245^{H}	245	235	250	220	240	250	265	280	300	320
4	$^{I}400^{A}$	390^{A}	360	345	285	C	C	C	C	230	230	230	240	235	240	$^{I}225^{C}$	245	220	250	235	255	280	320	380^{A}
5	350	320	280	340^{A}	310	360^{A}	280	260	230	C	C	C	235	240	245	230	245	260	220	250	275	280	315	310
6	350	310	310	255	260	280	375^{A}	290	235	235	235	240	245	250	235	230	250	250	$^{I}250^{C}$	250	270	270	310	350
7	350	325	320	275	320	310	270	260	235	230	250	240	230^{H}	250^{H}	230^{H}	235	235	250	240	250	280	295	300	320
8	305	330	350	300	315	350	375	275	235	250	235	240	240^{H}	250^{H}	240^{H}	240^{H}	255	250	245	240	325	310	320	300
9	330	395	405	330	300	280	295	260	230	245	240	235	235^{H}	250^{H}	250^{H}	225^{H}	265	250	250	270	285	315	350	400
10	345	370	325	345	330	315	305	265	250	240	240	240^{H}	230^{H}	250	245^{H}	245^{H}	275	250	235	230	270	265	290	365
11	415	375	300	$^{I}275^{C}$	350	350	310	270	$^{I}240^{C}$	235	240	240	225^{H}	240	240	245^{H}	260	245	255	235	280	310	270	280
12	270	280	300	350	350	290	260	245	250^{A}	240	240	240	240^{H}	245^{H}	250	250	265	245	230	270	270	310	310	280
13	290	285	260	255	300	310	270	265	245	250	250	230^{H}	240	235^{H}	250	245^{H}	275	250	255	250	245	270	300	290
14	265	270	280	320	355	280	275	265	250	225	225	240	225^{H}	235	235^{H}	250	250	250	235	240	290	280	280	270
15	275	290	390	400	340	270	225	250	255	$^{I}240^{C}$	220	235	220^{H}	240^{H}	240^{H}	255	250	250	250	$^{I}225^{C}$	235	290	275	310
16	400	380	275	255	250	280	350	270	245	245	$^{I}235^{C}$	235	240^{H}	240	240	240	250	250	240	250	265	350	310	305
17	285	305	315	340	280	270	310	$^{I}280^{C}$	240	220	235	240^{H}	235^{H}	230	260	245	260	240	220	250	270	265	265	320
18	250	340	350	305	325	290	275	270	245	225	220	240	230^{H}	235^{H}	245	245	250	245	250	260	260	300	250	300
19	290	370	360	295	250	265	290	275	245	230	230	235	225^{H}	240^{H}	240	230^{H}	250	240	235	235	245	275	285	290
20	350	405	360	300	320	310	270	245	250	240	225	230	225^{H}	230^{H}	250	245	235	235	250	250	260	250	300	350
21	300	315	325	360	420	380	270	250	235	235	235	230	230^{H}	235^{H}	235^{H}	235	250	240	235	240	270	265	270	260
22	250	250	270	250^{H}	350	340	285	250	245	245	230	240	225^{H}	240	245	240	255	225	230	250	240	280	295	360
23	405	360	265	250	280	350	300	230	245	245	225	235	215^{H}	250	240^{H}	220^{H}	255	235	250	220	280	290	285	310
24	280	300	290	310	300	350	290	240	240	240	240	225	230	240	240	240^{H}	240	220	225	245	250	270	325	390
25	335	275	255	255	300	C	C	C	C	C	240	240^{H}	210^{H}	245	220^{H}	250	220	245	240	250	290	300	270	300
26	350	360	360	340	290	270	250	240	240	C	C	C	C	C	C	C	245	245	220	235	270	310	305	265
27	260	275	300	270	280	290	300	245	245	255	235	235	225^{H}	235	260	240^{H}	250	220	245	250	250	300	285	285
28	280	280	280	255	275	310	250	240	225	245	240	240	230^{H}	240^{H}	240^{H}	240	240	240	225	225	300	275	295	265
29	285	300	300	300	275	285	250	235	220	235	245	225^{H}	225^{H}	230^{H}	240	245	245	220	215	230	250	260	260	290
30	305	315	310	265	260	265	275	225	240^{H}	245	240	230	230	235^{H}	240	240	240	225	240	220	270	335	275	290
31	300	290	290	305	290	310	340	250	230	230^{H}	240	235	230^{H}	240	240	235	240	235	220	225	250	270	300	300
No.	31	31	31	31	31	29	29	29	29	28	29	29	30	30	30	30	31	31	31	31	31	31	31	31
Median	300	315	300	300	300	310	280	260	240	240	235	235	230	240	240	240	250	245	240	250	270	280	300	300

h'F

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

The Radio Research Laboratories, Japan.

W 10

IONOSPHERIC DATA

Jan. 1958 | f'Es | 135° E Mean Time (G.M.T. + 9h.) | Wakkanai | Lat. 45° 23.6' N, Long. 141° 41.1' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	105	105	110	110	E	115	110	110	G	G	G	G	G	105	100	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	G	165	150	140	130	130	120	115	110	110	110	110	105	115	110	E
3	105	120	E	110	110	E	110	E	G	105	145	120	120	125	115	110	S	E	105	E	105	100	100	100
4	100	100	100	105	105	C	C	C	C	110	G	G	105	G	G	C	S	E	E	E	E	105	105	100
5	100	105	105	100	110	110	110	105	110	C	C	C	G	B	B	B	100	E	S	S	S	E	100	100
6	100	100	100	105	E	E	110	110	110	S	S	S	S	S	135	G	S	100	C	E	E	E	E	100
7	100	E	115	E	E	E	115	140	S	G	G	S	S	G	S	S	100	100	105	100	100	105	100	100
8	105	125	100	110	115	135	E	E	100	S	S	S	S	S	S	S	S	E	110	105	105	105	100	100
9	100	100	100	100	100	E	E	120	110	G	105	105	100	G	G	S	105	E	110	115	110	105	100	100
10	105	100	100	E	E	E	E	120	160	150	160	G	G	G	G	G	110	E	E	E	E	E	E	E
11	E	E	100	C	E	E	E	E	C	150	G	G	G	G	G	S	S	E	E	E	E	E	110	E
12	E	105	100	100	E	E	E	E	110	110	110	G	G	G	G	S	S	E	E	E	E	E	E	E
13	E	100	E	100	E	E	E	E	S	G	G	G	G	G	100	100	100	100	E	E	100	E	105	105
14	E	105	105	E	E	E	E	E	G	110	G	G	G	G	G	G	S	E	E	E	E	E	E	110
15	E	110	100	100	E	E	E	E	G	C	G	G	G	G	G	G	S	E	E	C	105	E	E	E
16	E	105	E	E	E	E	E	E	G	G	C	G	G	G	G	G	G	E	E	E	E	E	E	E
17	E	E	E	105	100	E	E	C	G	G	110	G	G	G	G	G	S	E	E	E	E	E	E	110
18	120	105	E	E	E	E	E	E	G	115	110	G	G	G	G	G	S	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	125	G	110	110	G	G	G	G	G	G	E	E	E	E	E	100	100
20	100	100	100	E	E	E	E	E	110	110	100	G	G	G	G	G	S	E	E	E	E	E	E	S
21	105	105	100	E	E	E	E	E	G	G	105	105	105	105	110	105	105	E	E	E	E	100	100	E
22	E	E	E	E	E	E	E	E	105	105	105	G	G	G	G	G	S	E	E	100	E	E	E	E
23	105	105	105	105	105	E	E	E	100	100	G	G	S	S	S	S	S	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	E	110	110	G	G	105	G	G	S	S	E	E	100	E	E	E	E
25	E	100	E	100	100	C	C	C	C	C	G	G	G	G	G	100	100	100	100	E	E	E	E	E
26	E	E	105	E	E	E	E	110	110	C	C	C	C	C	C	C	105	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	S	G	150	150	G	G	G	G	G	G	E	E	E	E	E	E	E
28	105	100	100	100	E	E	E	S	125	125	G	G	G	G	G	100	S	100	E	E	E	E	105	E
29	E	100	100	E	E	E	E	S	G	160	G	G	G	G	G	G	G	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	105	115	G	G	G	G	G	G	G	G	E	E	110	105	105	100	105
31	E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	115	S	E	E	E	E	E	E	E
No.	13	19	17	14	9	3	5	8	14	17	13	4	6	3	5	7	10	7	6	7	8	8	13	12
Median	105	105	100	100	105	110	110	115	110	110	110	110	105	125	115	105	105	100	110	105	105	105	100	100

f'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

Jan. 1958

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

Types of Es

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

The Radio Research Laboratories, Japan.

W 12

IONOSPHERIC DATA

Jan. 1958 | foF2 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	I 6.8 S	6.4	6.6	6.5	5.8	6.3	6.8	9.5	I 14.8 R	J 15.7 R	17.0	16.4	15.7	I 15.3 RH	J 14.8 HR	14.5	14.0	13.0	11.6	9.9	8.9	I 8.3 S	7.1	I 7.2 S
2	7.3	6.6	5.9	5.5	5.0	4.5	4.5	7.0	11.5	13.2	I 14.7 R	14.5	14.0	13.9	13.5	12.5	12.5	12.9	11.1	9.6	7.7	I 6.8 C	6.7	6.6
3	6.5	6.2	6.0	5.9	6.0	5.4	6.1	9.4	13.5	15.1	J 14.9 R	13.9	12.9 H	12.7	12.4 H	11.7	11.0	11.4	9.4	L 8.0 S	I 7.1 S	6.8 S	5.6 S	5.0
4	4.8	4.5	4.7	4.6	4.4	4.3	J 4.1 R	7.3 S	11.4	14.6	J 14.9 R	13.1 H	12.4 H	12.7 H	12.6	11.5	10.6	10.6	9.0	U 7.7 S	6.2	5.3	5.0	4.4
5	4.5	5.0	4.9	4.5	3.6	3.6	J 3.6 R	7.0	10.5	12.8	J 14.4 R	13.6	12.6 H	12.3 H	11.7 H	11.4	10.1 H	9.7	8.9	6.9 S	6.2 S	J 6.3 S	J 6.2 S	5.8 S
6	5.0	5.2	5.1	4.2	4.1	J 3.8 R	J 3.7 R	7.4 S	11.5	14.1	J 14.9 R	J 14.4 HR	13.8 H	J 13.4 R	12.4	11.3	10.5	10.5	9.2	7.0	C	C	C	C
7	4.7	5.0	4.8	4.5	4.6	4.5	4.6	7.2	11.2	13.9	I 14.7 R	13.7	J 13.4 HR	13.0 H	12.3	11.8	I 11.3 C	10.6	9.6	7.9	6.3	5.6	6.0	5.4
8	5.1	4.7	4.6	4.4	4.1	J 3.9 R	4.2	7.8	11.7	J 14.2 R	I 14.8 S	J 14.0 R	13.0	12.7 H	12.0 H	10.6 H	I 9.9 S	10.5 S	8.8 S	6.5	5.7	5.6	5.3	5.4
9	5.0	4.6	4.4	4.6	4.4	4.4	4.2 S	7.4	12.6	14.1	14.9	14.2	13.1 H	12.6 H	12.3 H	11.7	10.1	9.6	7.6	5.9	I 5.5 A	5.5	5.7	5.5
10	5.5	4.7	4.3	4.4	4.4	4.2	4.5	8.4	12.4	15.1	14.9	14.1 H	13.0 H	13.0 H	12.9 H	11.8 H	11.5	11.3 S	I 9.6 S	I 8.0 S	6.9	7.0 S	6.1 S	5.3 S
11	I 4.8 S	I 4.8 S	5.3 V	5.3 S	4.0 SH	3.8 S	I 4.5 S	8.3 S	12.7	14.3	I 14.3 C	14.3 H	13.3 H	13.2 H	12.3	11.5	11.3 S	10.8 S	I 9.1 S	J 8.4 S	6.3 S	6.1 S	6.0 S	5.9 S
12	5.8 S	4.9	5.1	4.6	4.6	4.7	I 5.1 S	I 8.0 S	12.0 S	14.5	14.7	14.0	13.9 H	13.5 H	13.5	13.0	12.4	11.8 S	I 10.0 S	7.9 S	7.0	6.7	6.1	6.4
13	6.2	5.8	5.0	4.2	4.5	4.4	4.4	I 7.4 C	I 11.0 S	I 13.2 S	14.6 S	14.0 S	13.1 H	12.6 H	12.2 H	11.5 H	S	S	S	9.0 S	7.5 S	6.8 S	6.8 S	6.8 S
14	6.4	6.1	5.6	4.9	4.7 S	I 4.8 S	I 5.3 S	I 8.0 S	12.6	16.6	15.4	13.9 H	13.1 H	13.2 H	13.1 H	12.1	12.0	I 10.8 S	9.8 S	8.5	7.0	7.0	6.7	L 6.2 C
15	5.6	5.4	4.6	4.9	5.0	5.3	5.0	7.3	12.4	16.7	16.2	14.7 H	13.3 H	13.1 H	13.3 H	12.8	12.3	12.5 S	11.6 S	I 10.1 S	J 8.4 S	I 7.1 S	7.1 S	6.5 S
16	5.3 S	5.6 S	6.0	5.4	4.5	4.4	I 4.9 S	7.9 S	11.4 S	13.8	14.9	13.7	12.9 H	12.8	12.3 H	11.6	10.8	10.5	9.5 S	8.0	6.1	6.0	6.2	6.3
17	6.0	5.9	5.3	5.2	5.4	5.0	4.1	7.5	13.3	15.1	14.3	14.5 H	14.5 H	13.7 H	13.8 H	13.3	12.8	13.2	12.7 S	9.6 S	9.2 S	8.6 S	7.1 S	7.0 S
18	6.7	5.2	5.0 F	5.0 F	5.2	5.3	4.9	8.1	12.5	15.5	J 15.7 R	14.4	14.4 H	13.8 H	13.8 H	13.1	13.0	12.8	10.8	9.4	8.9	9.0	9.0	7.4
19	6.8	6.9	6.7	6.8	6.5	5.7	6.0	9.3	13.7	15.8	15.8	15.1 H	14.7 H	14.5	14.0 H	13.4 H	13.0	12.7	11.6	9.0 S	7.2	6.6 S	6.1	5.6
20	5.3	4.6	4.9 V	4.8	4.5	4.3 F	4.4	7.7	11.9	14.8	15.3	13.9	12.9 H	12.8 H	12.9 H	12.2	10.5	10.1	8.5	7.4	6.5	6.5	5.5	5.0
21	5.5	5.4	4.7	4.7	4.3	4.2	5.1	8.1	11.9	14.8	15.4	14.7 H	14.2 H	14.2 H	13.3 H	12.9 H	12.9 H	13.1	11.7 S	8.9 S	9.0	9.1 S	8.6 S	7.5 S
22	7.4 S	5.9	5.3	5.1	5.1 S	4.8	5.2 S	7.8	12.1	14.8	14.1	14.2 H	13.0 H	13.1 H	12.3 H	11.2 H	10.3	11.1	I 9.5 C	8.1	7.2 S	6.1 S	5.6 S	5.3
23	4.8	4.9	5.4	4.7	4.4	4.4 S	4.6	7.4 S	11.6	15.0 S	15.4	14.7 H	14.9	14.1 H	14.6	12.8 H	11.5 H	J 11.5 R	J 10.0 R	8.5	7.6	7.2	6.5	6.1 F
24	6.0	6.0	5.2	5.1	5.2	4.8	4.7	8.1	J 11.2 R	13.2	14.5 V	C	C	14.3 H	13.6 H	12.9	11.7	10.9	9.0	7.1	6.9	6.5	6.0 F	I 5.2 F
25	5.4 F	6.1 F	4.8 F	4.2 F	4.3 F	4.0 F	4.0	8.0	12.3	14.7	J 15.9 R	15.1	15.5	15.0 H	14.7 H	14.4	13.5	12.1	J 11.0 R	9.4	7.0 S	6.1	5.9	5.5
26	4.6	4.2	4.1	4.0	4.0	4.4	4.0	6.7	9.8	13.4	13.8	13.0	13.0 H	12.8 H	12.6	11.8	11.0	11.3	9.7	7.3	6.0	5.5	5.9	6.1
27	5.6	5.1	4.0	3.9	3.8	3.5	3.3	6.6	9.6	12.5 H	I 15.5 R	13.8	11.7 H	11.7 H	11.5 H	10.8	9.8	9.1	7.8	7.1	6.0	5.8 S	6.0 S	5.8
28	5.6 S	5.1	4.5	3.6	3.5	3.5	3.6 S	6.5 S	9.5	10.7	12.7	13.2	12.1 H	11.8 H	11.7 H	11.3	J 10.2 R	9.0	8.7	6.9	5.3	5.5	5.4	5.5 F
29	4.8	4.7	4.4	4.5	4.4	4.4	4.6	7.0	J 10.1 R	J 11.5 R	13.9	14.1	13.3 H	13.1	12.7	11.6	11.5	11.5	9.6	7.5	6.7	6.0	5.7	5.1
30	4.8	4.8	4.8	4.8	4.7	4.4	4.3	7.7 S	10.8	14.0	J 15.4 R	14.6	12.8 H	12.3 H	12.3	11.8	J 10.9 R	J 10.2 R	9.0 S	7.5 S	6.2 S	6.1 S	6.0 S	5.3 F
31	5.7 F	5.1 F	5.0 F	4.8 F	4.8	4.8 F	4.5	7.6	11.4	13.9	14.2	14.1	13.2 H	13.0 H	12.9	12.4	J 11.2 R	J 10.3 R	9.3 S	7.8 S	5.4	5.0	4.4	4.6
No.	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	30	30	30	31	30	30	30	30
Median	5.5	5.1	5.0	4.7	4.5	4.4	4.5	7.7	11.7	14.3	14.9	14.1	13.2	13.1	12.7	11.8	11.3	11.0	9.6	8.0	6.9	6.4	6.0	5.7
U.Q.	6.2	5.9	5.3	5.1	5.0	4.8	5.0	8.1	12.5	15.1	15.4	14.5	14.0	13.8	13.5	12.9	12.4	12.1	10.8	9.0	7.5	7.0	6.7	6.4
L.Q.	4.8	4.8	4.6	4.4	4.3	4.2	4.1	7.3	11.2	13.4	14.4	13.9	12.9	12.7	12.3	11.5	10.5	10.5	9.0	7.4	6.2	6.0	5.7	5.3
Q.R.	1.4	1.1	0.7	0.7	0.7	0.6	0.9	0.8	1.3	1.7	1.0	0.6	1.1	1.1	1.2	1.4	1.9	1.6	1.8	1.6	1.3	1.0	1.0	1.1

foF2

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

The Radio Research Laboratories, Japan.

A 1

21

IONOSPHERIC DATA

Jan. 1958 | 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																								
2																								
3																								
4																								
5																								
6																								
7																	C							
8											S													
9																								
10																								
11											C													
12																								
13								C																
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23											L													
24												C	C											
25													L											
26												L												
27											L	L	L	L										
28											L	L	L											
29																								
30																								
31																								
No.																								
Median																								

foF1

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

The Radio Research Laboratories, Japan.

A 2

IONOSPHERIC DATA

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

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	B	B	B	B	B	B	B	B	B							
2								B	B	B	B	B	B	B	B	B	B							
3								B	B	B	B	B	B	B	B	B	B							
4								B	B	B	B	B	B	B	B	B	B							
5								B	B	B	B	B	B	B	B	B	B							
6								B	B	B	B	B	B	B	B	B	B							
7								B	B	B	B	B	B	B	B	B	C							
8								B	B	B	S	B	B	B	B	B	B							
9								B	B	B	B	B	B	B	B	B	B							
10								B	B	B	B	B	B	B	B	B	B							
11								B	B	B	C	B	B	B	B	B	B							
12								B	B	B	B	B	B	B	B	B	B							
13								C	B	S	B	B	B	B	B	B	B							
14								B	B	B	B	B	B	B	B	B	B							
15								B	B	B	B	B	B	B	B	B	B							
16								B	B	B	B	B	B	B	B	B	B							
17								B	B	R	B	R	B	B	B	B	B							
18								B	B	B	I 3.10 A	I 3.40 A	I 3.60 A	3.60	3.50	3.05	B							
19								B	2.30	R	B	B	3.60	3.75	I 3.45 B	B	B							
20								B	R	A	A	A	A	A	B	B	B							
21								B	B	B	B	B	B	B	B	B	B							
22								B	B	B	B	B	B	B	B	B	B							
23								B	B	B	B	B	B	3.50	B	B	B							
24								B	B	B	B	C	C	B	B	B	B							
25								B	2.55	I 3.00 R	3.35	I 3.50 A	3.55	A	B	B	B							
26								B	B	B	B	B	B	B	B	B	B							
27								B	B	B	B	B	B	B	B	3.10	B							
28								B	B	I 2.80 A	B	B	I 3.40 B	I 3.50 B	3.40	B	B							
29								B	B	B	B	B	B	B	B	B	B							
30								B	R	B	3.40	B	B	I 3.55 B	I 3.20 B	B	B							
31								B	2.65	B	B	I 3.60 B	I 3.65 B	I 3.60 R	3.40	B	A							
No.									3	2	3	3	5	6	5	2								
Median									2.55	2.90	3.35	3.50	3.60	3.60	3.40	3.10								

Note: Observations below 4.0 Mc/s were not successful on account of insufficiency of output power.

foE

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

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	E	E	E	C	E	E
3	E	5.3^{M}	E	E	E	E	E	B	B	B	B	6.6^{M}	B	4.5	B	B	4.5^{YM}	E	E	E	E	E	E	E
4	E	E	E	E	E	E	E	B	B	B	5.5^{M}	B	B	B	B	B	B	E	E	E	E	E	E	E
5	E	E	E	E	E	6.2^{M}	E	B	B	B	B	B	B	B	B	B	B	E	E	E	S	E	E	E
6	E	E	E	E	E	E	S	B	B	B	B	B	B	B	B	B	B	E	E	E	C	C	C	C
7	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	C	E	E	E	E	E	E	E
8	E	E	E	E	E	E	E	B	B	B	S	B	B	B	B	B	B	E	E	3.5^{M}	E	3.5^{M}	E	E
9	E	E	2.7^{M}	E	E	E	S	B	B	B	B	B	B	4.2	B	B	B	3.0^{YM}	4.3^{M}	6.8^{M}	7.7^{M}	3.6^{M}	E	E
10	3.1^{M}	3.5^{M}	3.0^{M}	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	S	S	S	S	S	S
11	S	S	S	S	S	S	S	B	B	B	C	B	B	B	B	B	B	E	S	E	S	S	S	E
12	E	E	E	E	E	E	S	B	B	5.5^{YM}	B	B	B	B	B	B	B	E	E	E	E	E	S	S
13	E	E	E	3.0^{YM}	E	E	E	C	B	S	B	B	B	B	B	B	B	E	E	E	E	S	E	E
14	3.2^{M}	E	3.1^{M}	E	E	S	S	B	B	3.5^{M}	B	B	B	B	B	B	B	E	E	E	E	E	S	C
15	4.0^{M}	E	2.1^{YM}	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	E	E	E	E	E	E
16	S	E	2.7^{M}	3.0^{YM}	2.4^{YM}	E	S	B	B	B	B	B	B	B	B	B	B	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	B	B	4.1^{M}	B	4.0^{M}	B	B	B	B	B	E	E	E	E	E	E	E
18	3.2^{YM}	E	E	E	E	E	E	B	B	B	4.2^{M}	4.7^{M}	4.0^{M}	G	G	G	B	E	E	E	E	E	E	E
19	E	E	E	E	E	E	E	B	3.0	4.8^{M}	B	B	G	G	B	B	B	E	E	E	E	E	E	E
20	E	E	3.9^{M}	E	E	E	E	B	G	3.5^{M}	3.6^{M}	4.6^{M}	6.7^{M}	6.0^{M}	B	B	B	E	E	E	E	E	E	E
21	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	E	E	E	E	E	E
22	E	3.3^{M}	E	E	E	2.6^{M}	E	B	B	B	B	B	B	B	B	B	B	E	C	E	E	E	E	E
23	E	E	E	E	E	E	E	B	B	B	B	B	B	G	B	B	B	E	E	E	E	E	E	E
24	E	E	E	E	E	E	E	B	B	B	B	C	C	B	B	B	B	E	E	E	E	E	E	E
25	E	E	E	E	E	E	E	B	G	G	G	5.9^{M}	G	4.5^{M}	B	B	B	E	E	E	E	E	E	E
26	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	E	E	E	E	E	E
27	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	4.0	B	4.3^{M}	E	E	E	E	E	E
28	E	E	E	E	E	E	E	B	B	4.0^{M}	B	B	B	B	G	B	B	E	E	E	E	E	E	4.5^{M}
29	E	E	2.6^{M}	2.5^{M}	E	E	E	B	B	B	B	B	B	B	B	B	B	E	E	E	E	E	E	E
30	E	E	E	E	E	E	E	B	B	B	G	B	B	B	B	B	B	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	B	G	B	B	B	B	4.0	4.5^{M}	B	3.0^{M}	3.6^{M}	E	E	E	E	E	E
No.	29	30	30	30	30	29	25		4	7	5	5	4	8	3	2	2	31	28	30	27	26	26	27
Median	E	E	E	E	E	E	E		G	4.0^{M}	3.6^{M}	4.7^{M}	G	4.1	G	G	3.8^{M}	E	E	E	E	E	E	E
U.Q.	E	E	E	E	E	E	E			4.8	4.6	6.2		4.5				E	E	E	E	E	E	E
L.Q.	E	E	E	E	E	E	E			3.5	G	4.3		G				E	E	E	E	E	E	E
Q.R.										1.3		1.9												

Note: Observations below 4.0 Mc/s were not successful on account of insufficiency of output power.

foEs

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

The Radio Research Laboratories, Japan.

A 4

IONOSPHERIC DATA

Jan 1953 | 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								B	B	B	B	B	B	B	B	B	B							
2								B	B	B	B	B	B	B	B	B	B					C		
3		5.0						B	B	B	B	4.4	B	4.4	B	B	3.6							
4								B	B	B	4.2	B	B	B	B	B	B							
5						3.4		B	B	B	B	B	B	B	B	B	B				S			
6							S	B	B	B	B	B	B	B	B	B	B				C	C	C	C
7								B	B	B	B	B	B	B	B	B	C							
8								B	B	B	S	B	B	B	B	B	B			3.0		3.0		
9			1.9				S	B	B	B	B	B	B	4.2	B	B	B	3.0	2.7	3.2	A	2.6		
10	2.8	2.1	2.0					B	B	B	B	B	B	B	B	B	B		S	S	S	S	S	S
11	S	S	S	S	S	S	S	B	B	B	C	B	B	B	B	B	B		S		S	S	S	
12							S	B	B	4.2	B	B	B	B	B	B	B						S	S
13				2.0				C	B	S	B	B	B	B	B	B	B					S		
14	2.5		1.8			S	S	B	B	3.4	B	B	B	B	B	B	B						S	C
15	3.0		1.6					B	B	B	B	B	B	B	B	B	B							
16	S		1.9	1.8	1.9		S	B	B	B	B	B	B	B	B	B	B							
17								B	B	G	B	3.8	B	B	B	B	B							
18	2.0							B	B	B	3.9	4.0	3.9				B							
19								B	G	3.9	B	B			B	B	B							
20			2.5					B		3.4	3.5	3.5	5.0	4.4	B	B	B							
21								B	B	B	B	B	B	B	B	B	B							
22		2.5				1.8		B	B	B	B	B	B	B	B	B	B		C					
23								B	B	B	B	B	B		B	B	B							
24								B	B	B	B	C	C	B	B	B	B							
25								B				4.5		G	B	B	B							
26								B	B	B	B	B	B	B	B	B	B							
27								B	B	B	B	B	B	B	B	3.7	B	2.4						2.5
28								B	B	3.5	B	B	B	B		B	B							
29			E	2.0				B	B	B	B	B	B	B	B	B	B							
30								B	B	B		B	B	B	B	B	B							
31								B		B	B	B	B	4.0	4.0	B	3.0	3.0						
No.	4	3	7	3	1	2			1	6	3	5	2	5	1	1	2	3	1	2	1	2		1
Median	2.6	2.5	1.9	2.0	1.9	2.6			G	3.4	3.9	4.0	4.4	4.2	4.0	3.7	3.3	3.0	2.7	3.1	A	2.8		2.5

Note: Observations below 4.0 Mc/s were not successful on account of insufficiency of output power.

f_bE_s

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

IONOSPHERIC DATA

Jan. 1958 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N | Long. 140° 08.2' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	3.00	2.60	3.40	2.75	2.60	2.50	3.00	3.50	3.80	3.85	4.00	4.00	4.00	4.00	4.00	4.00	4.00	2.90	3.00	3.00	2.70	3.00	2.50	3.00
2	3.00	3.30	3.50	2.80	3.00	2.95	2.50	3.00	3.75	3.70	3.90	4.00	4.00	4.00	4.00	3.80	3.90	3.00	2.75	3.00	3.40	I 2.55 C	2.90	3.30
3	2.70	2.60	2.50	3.00	2.90	2.75	2.95	3.25	4.00	I 4.00 C	4.40	4.00	4.20	4.00	4.00	3.95	3.30	3.30	3.00	3.50	3.50	3.00	3.45	3.30
4	2.75	3.45	3.20	3.80	2.75	3.50	3.20	3.20	3.85	3.80	4.00	4.15	4.00	4.00	3.95	3.70	4.00	2.30	3.50	3.00	2.50	3.00	3.40	3.00
5	3.40	2.75	2.50	2.95	2.90	3.00	3.10	3.60	3.30	4.00	4.00	4.50	4.00	4.40	4.00	4.00	3.75	3.30	3.00	3.10	4.50	3.50	3.50	2.50
6	2.95	3.45	3.25	2.80	2.80	3.00	3.00	3.80	4.20	4.00	4.40	4.40	4.50	4.50	4.10	4.00	3.90	3.00	3.00	2.55	C	C	C	C
7	2.50	2.75	2.50	3.10	2.75	3.40	2.80	3.20	3.90	4.00	4.45	4.25	4.90	4.55	4.45	4.00	I 3.75 C	3.00	2.75	2.90	3.10	2.65	2.75	3.05
8	3.50	2.80	3.50	3.40	2.50	3.10	2.80	3.40	4.10	4.30	I 4.40 S	4.30	4.50	4.50	4.30	4.00	3.50	2.90	2.90	2.30	3.50	2.50	2.50	2.70
9	2.50	1.75	1.75	1.80	1.80	1.90	3.00 S	2.80	2.80	3.25	3.25	3.95	3.85	3.50	3.50	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.40	2.25
10	1.50	1.80	1.70	1.70	1.70	1.90	2.50	2.40	2.90	3.80	4.00	3.80	4.00	4.00	3.80	4.00	2.70	2.40	4.00 S	3.60 S	3.95 S	6.00 S	5.25 S	4.50 S
11	3.50 S I	2.10 S	1.70	1.75	1.90	2.40	4.00 S	3.70	3.40	3.60	I 3.75 C	3.95	4.45	3.95	3.95	3.75	4.00	3.00	4.50 S	2.75	4.70 S	4.70 S	5.00 S	2.90
12	1.90	1.80	1.80	1.75	1.75	1.75	3.30	2.30	3.40	3.85	3.90	3.50	3.55	3.85	3.55	3.60	3.00	3.50	2.60	3.10	2.50	3.00	6.00 S	5.00 S
13	3.60	1.40	1.05	1.10	1.10	1.50	2.75 S I	2.90 S	3.50	3.80	3.90	4.10	3.90	3.90	3.80	3.90	3.50	2.75	3.50	2.80	2.60	5.20 S	2.60	2.50
14	2.00	2.50	1.50	1.80	1.50	3.90 S I	3.50 S	3.30	3.70	3.00	3.40	3.55	3.60	3.60	3.40	3.00	2.50	2.60	3.00	2.50	2.70	3.00	4.00 S I	2.85 C
15	2.55	1.75	E	1.50	1.50	1.50	2.55	2.55	3.00	3.90	3.70	3.80	3.80	3.90	3.95	3.50	3.60	2.90	2.90	3.10	3.00	2.90	2.90	2.50
16	4.00 S	1.75	1.85	E	E	2.00	3.00	3.40	3.45	3.75	4.00	3.50	3.80	4.00	3.50	3.40	3.50	2.30	3.00	3.00	2.20	2.70	2.90	2.90
17	2.50	1.75	1.60	1.50	1.90	1.85	3.00	2.90	3.00	2.90	3.75	3.50	3.80	3.90	3.95	3.60	2.70	2.50	2.20	2.00	2.40	2.00	1.80	1.90
18	1.90	2.00	2.00	1.80	2.10	2.00	2.70	2.30	2.90	3.25	3.00	2.60	2.70	2.50	2.45	2.40	2.40	1.60	2.00	2.00	2.40	1.95	2.60	2.00
19	1.90	1.50	1.60	1.50	1.50	1.80	2.00	2.40	2.05	2.50	3.70	4.00	3.50	3.50	3.50	3.50	2.60	2.50	2.30	2.60	2.00	2.00	1.95	2.00
20	1.95	3.50	1.90	2.45	1.80	1.75	2.00	2.70	2.30	2.40	2.40	2.70	2.40	2.50	3.50	3.40	3.00	2.40	2.00	2.50	2.00	2.10	2.00	2.00
21	2.00	1.90	1.50	1.90	1.70	1.85	2.00	1.90	2.95	3.55	3.75	3.80	3.95	3.75	3.75	3.50	2.90	2.50	2.50	2.90	2.60	2.50	2.50	2.50
22	2.20	2.50	1.90	1.50	2.50	1.80	2.20	2.40	2.85	3.40	3.70	4.00	4.30	3.60	3.90	3.45	2.70	2.00	I 2.60 C	2.80	2.50	1.90	2.75	1.70
23	1.50	1.90	1.80	1.90	1.80	1.90	1.90	2.60	2.85	3.40	3.60	3.75	3.60	2.70	3.70	3.05	2.60	2.60	2.00	1.90	2.00	1.95	1.90	2.30
24	1.80	1.95	2.00	1.95	1.95	1.80	1.85	2.00	2.80	3.05	3.70	C	C	3.85	3.50	3.00	2.50	1.95	1.85	E	1.90	E	1.90	E
25	E	E	E	E	1.90	1.90	E	2.00	2.00	2.20	2.55	2.75	2.40	2.50	3.40	3.00	2.40	2.00	E	2.00	1.90	E	E	2.40
26	E	E	E	1.85	E	E	E	2.00	2.90	3.00	3.50	3.70	3.50	4.00	3.70	3.10	2.45	2.00	1.90	1.90	2.00	1.75	1.90	1.95
27	2.00	E	E	E	2.00	E	1.95	1.90	2.70	3.70	3.80	3.90	3.95	3.70	3.70	2.80	2.95	2.00	2.00	2.00	1.80	1.90	1.95	1.80
28	1.90	1.95	1.80	1.90	1.90	1.80	1.90	1.90	2.95	2.70	3.70	3.90	3.90	3.50	3.00	3.50	2.60	1.95	2.00	1.90	1.95	1.90	1.85	2.00
29	2.00	2.05	E	1.95	E	1.80	1.80	1.90	2.95	3.20	3.60	4.20	3.70	3.70	4.80	3.30	2.80	1.95	1.95	1.95	1.80	1.90	1.95	1.95
30	1.95	1.90	1.90	1.90	1.80	1.95	1.90	2.00	2.20	3.40	3.20	3.90	4.30	3.90	3.50	3.40	2.80	1.85	1.90	1.90	1.95	1.90	1.95	1.90
31	1.90	1.95	1.90	1.90	1.90	1.95	1.95	2.00	2.30	3.70	3.90	3.80	4.00	3.00	3.20	3.10	2.00	2.00	1.95	2.00	1.95	2.00	1.90	2.00
No	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	30	30	30	30
Median	2.00	1.95	1.80	1.90	1.90	1.90	2.55	2.60	2.95	3.60	3.75	3.90	3.90	3.90	3.75	3.50	2.95	2.50	2.60	2.55	2.45	2.30	2.50	2.45

Note: Observations below 4.0 Mc/s were not successful on account of insufficiency of output power.

f-min

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

IONOSPHERIC DATA

Jan 1958 | (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	I 2.35 S	2.15	2.25	2.25	2.00	2.15	2.40	2.50	I 2.80 R	J 2.80 R	2.70	2.70	2.60	I 2.60 RH	J 2.55 H R	2.55	2.55	2.60	2.65	2.60	2.50	L 2.70 S	2.40	I 2.70 S
2	2.80	2.75	2.50	2.75	2.45	2.45	2.70	2.85	2.85	2.75	I 2.70 R	2.60	2.50	2.50	2.50	2.50	2.55	2.70	2.70	2.70	2.60	I 2.60 L	2.45	2.50
3	2.45	2.45	2.50	2.40	2.60	2.60	2.70	2.90	3.00	2.90	J 2.80 R	2.75	2.65 H	2.65	2.65 H	2.70	2.65	2.75	2.55	I 2.95 S	I 2.80 S	2.50 S	3.05 S	2.65
4	2.70	2.45	2.55	2.65	2.45	2.60	J 2.80 R	3.00 S	3.05	3.05	J 2.95 R	2.80 H	2.70 H	2.60 H	2.70	2.80	2.70	2.75	2.80	U 2.90 S	2.50	2.60	2.80	2.50
5	2.45	2.70	2.90	2.90	2.60	2.55	J 2.80 R	3.10	3.00	2.95	J 2.85 R	2.85	2.75 H	2.70 H	2.70 H	2.75	2.65 H	2.70	2.90	2.80 S	2.60 S	J 2.70 S	J 2.75 S	2.75 S
6	2.60	2.65	2.80	2.90	2.45	J 2.60 R	J 2.75 R	2.90 S	2.95	2.90	J 2.90 R	J 2.85 H R	2.65 H	J 2.70 R	2.75	2.70	2.80	2.80	2.95	2.85	C	C	C	C
7	2.50	2.70	2.65	2.45	2.40	2.60	2.85	2.90	3.00	2.95	I 2.90 R	2.80	J 2.70 R	2.65 H	2.70	2.70	I 2.70 C	2.65	3.00	2.90	2.75	2.70	2.70	2.75
8	2.70	2.65	2.60	2.50	2.50	J 2.35 R	2.50	2.85	3.05	J 2.90	I 2.90 S	J 2.80 R	2.70	2.60 H	2.65 H	2.65 H	I 2.70 S	2.80 S	2.95 S	2.70	2.60	2.75	2.60	2.80
9	2.80	2.70	2.50	2.60	2.60	2.55	2.85 S	2.90	3.10	2.90	2.85	2.70	2.60 H	2.55 H	2.65 H	2.65	2.60	2.80	2.85	2.65	I 2.65 H	2.60	2.60	2.65
10	2.80	2.65	2.40	2.45	2.55	2.45	2.70	2.95	2.90	2.90	2.75	2.70 H	2.55 H	2.45 H	2.50 H	2.55 H	2.60	2.70 S	I 2.70 S	I 2.80 S	2.70	2.85 S	2.80 S	2.60 S
11	I 2.60 S	L 2.40 S	2.65 V	2.70 S	2.30 SH	2.35 S	I 2.55 S	2.95 S	3.05	2.85	I 2.80 C	2.80 H	2.70 H	2.60 H	2.60	2.55	2.65 S	2.70 S	I 2.85 S	J 3.05 S	2.70 S	2.60 S	2.65 S	2.80 S
12	2.85 S	2.80	2.75	2.25	2.30	2.40	I 2.70 S	I 3.00 S	3.00 S	2.90	2.80	2.60	2.55 H	2.50 H	2.50	2.50	2.55	2.65 S	I 2.80 S	2.65 S	2.70	2.50	2.55	2.65
13	2.80	2.90	2.85	2.25	2.30	2.50	2.70	I 2.85 C	I 3.05 S	I 2.90 S	2.80 S	2.70 S	2.60 H	2.60 H	2.55 H	2.60 H	S	S	S	2.85 S	2.80 S	2.65 S	2.70 S	2.75 S
14	2.80	2.80	2.70	2.50	2.25 S	I 2.55 S	L 2.85 S	I 3.05 S	2.85	2.90	2.90	2.65 H	2.60 H	2.50 H	2.55 H	2.55	2.65	I 2.80 S	2.85 S	2.75	2.60	2.75	2.70	I 2.70 C
15	2.80	2.60	2.40	2.15	2.40	2.70	2.90	2.80	3.00	2.95	2.80	2.65 H	2.65 H	2.50 H	2.50 H	2.60	2.60	2.65 S	2.70 S	I 2.85 S	J 2.90 S	I 2.65 S	2.65 S	2.65 S
16	2.35 S	2.30 S	2.80	2.60	2.65	2.50	I 2.50 S	2.90 S	3.00 S	2.85	2.80	2.65	2.60 H	2.55	2.60 H	2.65	2.60	2.65	2.85 S	2.85	2.60	2.40	2.50	2.70
17	2.65	2.60	2.70	2.40	2.55	2.80	2.70	2.70	3.00	2.90	2.65	2.60 H	2.50 H	2.40 H	2.45 H	2.50	2.50	2.65	2.75 S	2.75 S	2.60 S	2.70 S	2.50 S	2.65 S
18	2.70	2.55	2.25 F	2.40 F	2.40	2.65	2.75	2.90	2.90	3.00	J 2.85 R	2.70	2.60 H	2.55 H	2.50 H	2.55	2.55	2.75	2.70	2.90	2.60	2.55	2.85	2.50
19	2.50	2.30	2.40	2.40	2.60	2.50	2.55	2.80	3.00	2.95	2.90	2.70 H	2.60 H	2.60	2.55 H	2.60 H	2.70	2.75	2.85	2.90 S	2.85	2.80 S	2.95	2.70
20	2.65	2.30	2.45 V	2.50	2.45	2.45 F	2.75	2.95	3.05	2.95	2.95	2.75	2.60 H	2.60 H	2.55 H	2.60	2.70	2.80	2.80	2.85	2.80	2.90	2.70	2.45
21	2.65	2.80	2.45	2.35	2.10	2.30	2.95	3.10	3.00	3.00	2.90	2.65 H	2.55 H	2.55 H	2.55 H	2.50 H	2.60 H	2.70	2.75 S	2.85 S	2.55	2.70 S	2.85 S	2.80 S
22	2.85 S	2.80	2.50	2.45	2.35 S	2.50	2.70 S	2.90	2.90	2.90	2.90	2.80 H	2.70 H	2.70 H	2.70 H	2.70 H	2.70	2.80	I 2.85 C	2.85	2.95 S	2.70 S	2.55 S	2.45
23	2.35	2.45	2.70	2.65	2.30	2.35 S	2.80	3.00 S	3.05	3.00 S	3.00	2.70 H	2.75	2.60 H	2.75	2.65 H	2.60 H	J 2.75 R	J 2.90 R	2.90	2.80	2.85	2.85	2.45 F
24	2.60	2.75	2.65	2.35	2.50	2.35	2.75	3.10	J 3.10 R	2.95	2.95 V	C	C	2.80 H	2.70 H	2.70	2.80	2.90	2.85	2.90	2.90	2.90	2.95 F	I 2.50 F
25	2.60 F	3.00 F	3.05 F	2.60 F	2.70 F	2.50 F	2.60	3.10	3.15	3.00	J 2.95 R	2.85	2.75	2.70 H	2.65 H	2.55	2.75	2.70	J 2.75 R	2.95	2.85 S	2.75	2.75	2.90
26	2.65	2.40	2.40	2.40	2.50	2.80	2.90	3.10	3.05	3.05	2.90	2.90	2.75 H	2.75 H	2.70	2.65	2.70	2.75	2.90	2.90	2.65	2.60	2.60	2.80
27	2.80	2.95	3.00	2.55	2.35	2.65	2.70	3.20	3.25	2.90 H	I 3.05 R	3.05	2.75 H	2.75 H	2.70 H	2.85	2.95	2.95	2.90	2.95	2.70	2.65 S	2.70 S	2.80
28	2.90 S	2.95	3.10	2.60	2.55	2.60	3.10 S	3.10 S	3.20	2.90	2.95	2.95	2.85 H	2.85 H	2.80 H	2.90	J 2.95 R	3.00	3.00	3.15	2.65	2.70	2.70	2.90 F
29	2.75	2.70	2.65	2.55	2.50	2.55	3.10	3.30	J 3.15 R	J 3.10 R	3.00	3.00	2.75 H	2.75	2.85	2.75	2.80	2.90	2.90	2.90	2.85	2.85	2.80	2.80
30	2.70	2.60	2.70	2.75	2.75	2.75	2.80	3.05 S	3.10	3.00	J 3.05 R	2.95	2.90 H	2.75 H	2.80	2.90	J 2.95 R	J 2.95 R	3.00 S	3.00 S	2.90 S	2.80 S	2.80 S	2.60 F
31	2.65 F	2.75 F	2.60 F	2.50 F	2.70	2.55 F	2.55	3.00	3.10	3.10	2.95	3.00	2.80 H	2.75 H	2.75	2.85	J 2.90 R	J 2.95 R	3.00 S	3.15 S	2.80	2.95	2.70	2.65
No.	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	30	30	30	31	30	30	30	30
Median	2.65	2.65	2.65	2.50	2.45	2.55	2.75	2.95	3.00	2.90	2.90	2.75	2.65	2.60	2.65	2.65	2.70	2.75	2.85	2.85	2.70	2.70	2.70	2.70

(M3000)F2

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

The Radio Research Laboratories, Japan.

A 7

27

IONOSPHERIC DATA

Jan. 1958 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.) | Akita | Lat. 39° 43.5' N, Long. 140° 08.2' E

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

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

The Radio Research Laboratories, Japan.

A 8

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

May 1958

h'F2

135° E Mean Time (G.M.T.+ 9h.)

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																	C							
7																								
8											S													
9																								
10																								
11											C													
12																								
13								C																
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23											240													
24												C	C											
25													L											
26												250												
27											260	240	230H	250H										
28											L	L	LH											
29																								
30																								
31																								
No.											2	2	1	1										
Median											250	245	230	250										

h'F2

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

The Radio Research Laboratories, Japan.

A 9

IONOSPHERIC DATA

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	360	400	400	405	460	400	375	295	255	230	245	240	245	230H	245H	250	250	260	290	250	300	265	305	305
2	300	300	330	250	330	390	305	255	245	245	250	245	250	250	250	250	275	265	255	250	290	I305C	345	345
3	345	I350A	305	350	305	300	325	250	250	250	240	240	220H	250	245H	245	255	285	250	210	290	300	260	305
4	345	I360B	360	375	300	I325B	290	280	235	245	245	230H	235H	240H	245	245	250	255	260	255	260	300	305	I375B
5	I395B	340	295	300	B	B	B	255	240	240	245	240	240H	240H	245H	215	230H	270	255	240	I300S	310	305	295
6	315	350	300	290	360	385	I350S	280	240	245	250	245H	240H	250	245	240	250	270	250	255	C	C	C	C
7	355	330	310	I350B	360	360	295	250	245	240	250	240	240H	245H	245	245	I260C	260	250	250	270	290	305	305
8	310	315	I345B	I355B	355	I360B	360	260	240	250	I245S	240	250	250H	250H	240H	260	280	250	270	340	300	320	300
9	300	300	350	320	300	320	I275S	255	250	245	245	245	245H	245H	245H	250	250	260	255	295	I340A	340	305	300
10	300	305	340	345	340	345	300	250	250	250	245	230H	230H	245H	250H	255H	260	260	250S	260S	305	I300S	I285S	S
11	S	I355S	310	250	295H	410	I340S	255	230	225	I235C	240H	235H	245H	250	245	290	260	290	260	I285S	I305S	I295S	260
12	290	280	290	350	365	350	I290S	245	240	245	245	245	245H	245H	250	250	250	250	255	260	300	335	I350S	I305S
13	300	250	245	350	400	305	I300S	I275C	245	240	240	245	240H	250H	245H	245H	275H	270	260	265	250	I280S	310	305
14	260	270	260	300	350	S	S	260	250	250	235	230H	240H	245H	250H	250	250	260	250	250	310	300	I290S	I290C
15	300	300	350	400	345	260	250	260	250	245	225	225H	240H	230H	250H	255	265	280	260	245	250	270	320	295
16	I320S	350	275	260	255	330	I310S	275	235	240	250	245	245H	245	245H	250	250	260	260	250	295	350	350	310
17	295	290	275	340	300	270	300	260	245	245	235	245H	240H	245H	250H	250	250	260	245	250	290	260	245	290
18	255	300	380	370F	350	300	275	255	250	245	245	225	245H	245H	245H	250	250	255	250	255	250	295	250	250
19	300	350	350	300	250	260	300	260	245	240	240	235H	240H	240	245H	240H	250	245	240	230	250	265	260	255
20	295	I360B	370	360	340	310	280	245	250	245	250	245	245H	245H	245H	250	250	255	245	250	250	255	295	310
21	300	290	300	350	450	400	260	250	245	255	240	220H	220H	245H	245H	250H	260H	265	250	230	295	260	260	250
22	260	275	275	310	390	350	280	235	240	245	245	240H	230H	230H	240H	235H	250	255	I250C	250	255	290	305	340
23	360	345	275	255	310	355	290	220	240	240	240	215H	240	220H	250	225H	240H	255	250	250	255	250	265	340
24	300	260	285	330	290	360	245	250	225	245	245	C	C	225H	225H	245	230	245	240	240	250	255	260	355
25	330	255	250	295	300	345	305	250	245	255	245	245	230	240H	235H	250	250	220	240	240	250	290	255	290
26	300	340	350	350	310	295	250	245	245	250	245	245	245H	245H	245	250	245	280	210	240	250	300	300	280
27	250	250	255	290	350	310	260	250	240	235H	255	245	220	230	240H	250	250	250	255	245	260	270	270	275
28	255	255	250	295	325	320	245	230	230	245	230	245	230	245H	245H	250	245	245	245	225	260	290	270	290
29	300	300	300	335	295	305	250	215	220	230	240	245	230H	240	260	240	250	245	220	230	260	250	265	255
30	300	320	305	300	290	295	260	245	230	240	240	240	240H	225H	240	250	240	245	245	245	250	260	300	310F
31	330F	255	300	345	300	300	340	250	220	240	240	240	225H	240H	245	250	235	240	245	230	250	255	300	300
No.	30	31	31	31	30	29	29	31	31	31	31	30	30	31	31	31	31	31	31	31	30	30	30	29
Median	300	300	300	335	330	325	290	250	245	245	245	240	240	245	245	250	250	260	250	250	260	290	300	300

h'F

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Akita

Lat. 39° 43.5' N
Long. 140° 08.2' E

Jan. 1958

h'Es

135° E Mean Time (G.M.T.+ 9h.)

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

The Radio Research Laboratories, Japan.

Note: Observations below 4.0 Mc/s were not successful on account of insufficiency of output power.

h'Es

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

A 1

IONOSPHERIC DATA

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

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

Note: Observations below 4.0 Mc/s were not successful on account of insufficiency of output power.

Types of Es

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

The Radio Research Laboratories, Japan.

A 12

IONOSPHERIC DATA

Jan. 1953 | 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	7.4	6.9	7.1	6.8	6.4	6.6	7.4	10.9	15.6	16.9	16.1	16.3	16.0	14.7	14.7	14.1	14.1	13.2	11.9	11.1	9.4	8.0	7.2	7.8
2	8.1	7.2	5.9	5.0	4.6	4.3	4.7	8.4	11.0	13.2	15.2	14.6	13.5	13.4	12.9	12.5	12.4	12.6	11.4	10.6	8.6	7.9	7.4	7.2
3	7.0	6.6	6.1	5.7	5.9	5.3	5.9	10.2	13.8	14.6	14.9	13.9	12.9	12.9	12.8	11.6	11.4	11.7	11.1	9.1	8.4	7.8	7.2	6.4
4	5.7	5.2	5.0	5.0	4.7	4.5	4.5	8.0	12.1	14.1	14.9	13.6	12.6	12.8	13.1	12.1	11.0	11.6	9.7	8.7	8.2	6.9	6.7	5.4
5	4.9	5.3	5.5	5.2	2.7	3.2	3.5	7.6	11.4	13.4	14.4	14.4	13.0	12.4	12.3	11.9	10.7	10.3	9.7	8.2	7.5	7.5	7.5	7.1
6	5.8	5.5	4.9	4.1	3.8	3.8	3.9	8.0	12.3	14.1	15.3	15.1	14.1	13.6	13.4	11.6	10.9	10.4	9.8	8.0	7.1	6.3	5.5	5.0
7	5.2	5.4	4.6	4.4	4.3	4.6	4.5	8.3	11.3	14.7	14.9	14.3	14.1	13.5	13.2	12.3	11.8	11.0	10.9	8.8	7.3	6.8	6.5	6.1
8	5.5	5.0	4.9	4.2	4.2	4.0	4.4	C	C	14.2	14.5	14.5	13.6	13.4	12.7	11.4	10.6	10.3	9.9	7.8	6.8	6.6	6.4	6.3
9	S	5.3	4.6	4.7	4.3	4.3	4.4	8.7	12.6	15.0	14.4	14.4	13.7	13.4	13.3	12.5	10.4	10.4	8.2	7.0	6.7	6.7	7.0	7.0
10	6.4	5.2	4.5	4.5	4.4	4.3	4.7	9.6	12.8	15.2	15.3	14.2	13.7	13.7	14.0	13.2	12.1	12.2	11.2	9.0	7.8	7.8	8.0	6.4
11	5.4	5.4	5.8	5.3	3.7	3.8	4.1	8.6	12.6	14.1	14.2	14.3	13.4	13.3	12.8	11.9	11.1	11.3	9.5	8.5	7.1	6.5	6.8	6.5
12	5.6	5.3	4.5	4.2	4.2	4.1	4.4	8.8	11.7	13.7	14.7	14.5	14.2	14.0	14.1	13.6	13.0	12.9	10.7	9.1	8.2	7.3	7.5	7.7
13	7.3	6.2	4.4	3.5	3.6	3.9	3.9	8.1	11.5	13.9	14.6	14.1	13.2	12.6	12.0	11.3	10.7	11.7	10.8	9.0	7.7	7.1	6.9	7.1
14	7.1	6.5	5.0	4.5	4.3	4.4	4.0	7.8	12.5	16.2	15.4	13.2	13.5	13.6	13.5	12.9	12.2	11.7	11.1	9.2	7.3	7.7	7.7	6.0
15	5.3	5.5	4.8	4.7	5.0	5.1	5.5	9.9	13.1	16.3	16.4	14.1	13.5	13.2	13.7	13.2	12.8	12.9	13.0	12.0	9.6	8.6	8.2	8.2
16	6.3	6.6	7.0	5.8	4.8	4.8	4.9	8.6	12.5	13.5	14.6	13.6	13.3	13.0	12.7	11.8	10.8	10.5	9.7	8.3	6.4	6.2	6.7	6.8
17	6.4	6.1	5.0	4.8	4.9	5.1	3.5	7.7	12.7	14.1	13.7	13.7	14.2	13.8	13.6	13.5	13.3	13.8	12.8	10.6	9.7	9.8	9.1	8.1
18	7.3	5.7	5.0	5.2	5.0	5.4	5.0	8.6	12.1	15.7	15.4	13.6	13.8	13.5	13.4	13.2	12.6	12.6	11.3	9.9	9.6	9.3	9.3	7.1
19	6.9	6.8	6.7	6.9	6.9	5.6	5.7	9.6	14.4	15.3	15.3	14.7	15.0	14.6	14.6	14.1	13.9	14.0	12.8	11.1	8.7	7.4	6.7	6.5
20	5.9	5.0	5.1	5.1	5.0	4.8	4.5	8.1	11.6	14.2	15.8	14.1	13.8	14.0	13.8	13.8	12.4	11.0	9.9	8.2	7.4	7.4	6.1	5.1
21	5.8	6.2	4.5	4.5	4.2	4.3	5.6	8.0	11.4	15.0	15.8	13.9	13.8	13.9	13.2	12.7	12.6	12.8	11.6	9.7	9.3	9.4	9.2	8.4
22	7.2	5.7	4.6	4.4	4.2	4.3	4.7	8.2	10.9	13.6	14.1	14.2	13.7	13.1	13.1	11.9	10.1	10.1	9.8	8.1	7.8	5.9	5.6	5.3
23	5.0	4.8	4.9	4.4	4.1	4.2	4.8	9.0	11.8	14.8	16.3	15.4	C	C	C	R S	14.4	14.0	13.0	11.2	9.2	7.8	7.2	6.3
24	6.8	7.2	5.4	5.2	4.8	4.3	4.7	7.8	12.2	13.2	14.8	15.0	14.8	14.6	14.6	13.8	12.2	10.9	8.8	7.9	7.4	6.5	6.4	5.1
25	5.2	5.8	4.3	3.9	4.0	3.9	3.6	8.5	12.2	13.8	15.8	15.9	17.6	18.0	18.7	17.8	16.1	15.1	13.8	13.2	11.0	9.0	8.8	8.9
26	6.7	5.9	5.0	4.3	4.4	4.6	4.3	7.5	11.3	13.6	14.6	14.0	14.2	13.8	13.6	13.0	12.3	11.4	11.1	8.6	6.8	5.9	6.1	6.4
27	6.8	5.7	3.8	3.2	3.2	3.2	3.1	7.2	10.8	12.3	16.4	14.6	13.7	13.5	13.3	12.5	11.0	9.8	8.4	8.2	7.1	7.0	7.1	7.6
28	6.8	6.0	4.6	3.3	3.0	3.1	3.6	7.0	10.1	10.9	12.8	13.7	13.2	13.0	12.8	12.1	10.7	9.6	9.0	7.8	6.1	5.8	6.0	5.1
29	4.9	4.6	4.3	4.2	4.2	4.3	4.9	8.1	10.7	12.1	15.1	13.8	14.2	14.3	13.8	12.4	11.6	12.1	10.4	8.1	7.0	6.3	5.8	5.8
30	5.0	4.9	4.7	4.6	4.6	4.3	4.7	7.8	11.0	13.4	14.8	15.1	14.0	12.7	13.0	12.4	11.4	10.6	9.6	8.2	6.9	5.9	6.2	5.5
31	5.4	5.3	4.7	4.8	4.9	4.9	4.7	7.7	12.3	13.5	14.7	14.4	13.3	12.8	13.3	13.7	13.0	11.5	9.8	8.2	5.9	5.9	5.3	5.5
No.	30	31	31	31	31	31	31	30	30	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31
Median	6.1	5.7	4.9	4.6	4.3	4.3	4.5	8.2	12.1	14.1	14.9	14.3	13.7	13.5	13.3	12.5	12.1	11.6	10.7	8.7	7.5	7.1	6.9	6.4
U. Q.	6.9	6.2	5.4	5.2	4.9	4.8	4.9	8.7	12.6	15.0	15.4	14.6	14.2	13.9	13.8	13.5	12.8	12.8	11.4	9.9	8.7	7.8	7.5	7.2
L. Q.	5.4	5.3	4.6	4.2	4.1	4.0	4.0	7.8	11.3	13.5	14.6	13.9	13.4	13.0	12.9	11.9	10.9	10.5	9.7	8.2	7.0	6.3	6.2	5.5
Q. R.	1.5	0.9	0.8	1.0	0.8	0.8	0.9	0.9	1.3	1.5	0.8	0.7	0.8	0.9	0.9	1.6	1.9	2.3	1.7	1.7	1.7	1.5	1.3	1.7

IONOSPHERIC DATA

Jan. 1953 | 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																								
2										C														
3																								
4																								
5																								
6																								
7																								
8								C	C															
9																								
10														L										
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																C	C	C						
22								C	C	C	C													
23												C	C	C										
24										C														
25										C														
26																								
27											6.0 L		L											
28														5.9 L										
29												4.4 L	4.2											
30																								
31																								
No.											1	1	1	1										
Median											6.0	4.4	4.2	5.9										

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

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

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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	2.90H	3.30H	3.55I	3.70A	3.80	3.70	3.50	3.10	2.25							
2								2.05	2.90HI	3.30C	3.70	3.90	4.00	3.80	3.45	I3.10A	2.25							
3								B	3.00H	3.25H	3.55	3.75	3.80	3.65	3.65A	2.95	A							
4								2.05	2.95H	3.30R	A	A	I3.70A	I3.60R	I3.50R	I3.05A	B							
5								2.20H	2.95H	3.30	A	A	A	3.80R	I3.45R	3.10R	2.60R							
6								B	I2.90B	B	B	B	B	I3.65B	I3.45B	3.30	A							
7								B	B	B	B	B	B	B	B	B	B							
8								C	C	B	B	B	B	B	B	3.15R	I2.60B							
9								B	2.75H	3.30	3.55R	I3.70R	3.80	3.80R	3.55R	3.05R	B							
10								B	2.80	3.40R	3.55	3.70	3.80	3.65	3.40R	R	B							
11								B	2.70	3.10R	I3.50R	I3.60B	I3.70B	I3.65B	I3.50B	A	A							
12								2.05	2.90H	A	A	A	3.80	I3.75R	I3.50B	R	B							
13								2.10	2.80R	3.30	R	A	I3.85R	3.70R	3.55	3.25	I2.50B							
14								2.05	2.80	2.95	I3.40A	3.80	3.85	3.75R	3.60	3.30R	I2.70B	B						
15								2.35	2.90	3.10A	I3.55A	I3.80A	3.85	I3.85R	I3.60B	3.35	B							
16								B	2.80	I3.10A	I3.55A	3.95	4.00	3.90	3.65	3.35	2.70							
17								1.90	2.75	3.10	3.30	I3.45A	3.70A	3.75	3.60R	3.25	2.30							
18								B	2.75	3.30	3.50	3.85	3.90	3.90H	3.65	3.25	2.60							
19								B	2.65	I3.00A	B	A	A	A	3.60R	3.30	A	A						
20								B	2.70	I3.30A	3.65	3.75R	3.90	A	A	A	A	A						
21								2.20	2.80	3.30R	3.65R	I3.70R	3.75	3.75	3.60R	C	C	C						
22								C	C	C	C	3.65	3.75	3.65	3.55R	3.30	I2.60A							
23								B	B	3.25R	R	C	C	C	3.50	3.20	2.60R	B						
24								B	2.80R	I3.20C	I3.50R	3.75	3.80	3.75	3.60	3.15	2.65H	B						
25								2.00	2.90HI	I3.10C	3.40	3.70	3.70	I3.70A	3.45	3.10	2.70	B						
26								B	2.55	I3.10A	3.60	3.80	3.80	3.85	3.65	3.20	2.60	B						
27								2.20	2.85H	3.15	3.50	3.60	I3.70B	3.75	3.50	3.20	2.65	B						
28								A	2.80	3.05	3.40	3.55R	3.70	I3.70R	3.50	3.20	2.60							
29								B	2.80H	3.20	3.40	I3.50B	3.60	3.65	3.50	3.15	B	B						
30								B	2.80H	I3.20A	3.50	3.65	3.70	I3.65B	3.50R	3.20	2.70							
31								R	2.80H	3.20	I3.50R	3.70	3.75	3.70	3.55R	3.20	2.50	B						
No.								11	27	26	21	22	25	26	28	25	18							
Median								2.05	2.80	3.20	3.50	3.70	3.80	3.70	3.50	3.20	2.60							

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

Jan. 1958 | foEs | 135° E Mean Time (G.M.T. + 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	B	G	3.5	3.9	3.9	G	3.6 G	4.1 M	G	G	E	E	E	E	E	E	E
2	E	E	2.5 M	3.0 M	E	E	E	G	G	C	4.2	4.3	4.3	4.4	G	3.6	G	3.0 M	E	3.5 M	E	E	3.0 M	2.7 M
3	3.1 M	E	E	4.4 M	4.9 M	E	E	B	G	4.4	6.4 M	G	4.7	4.8	4.0 M	3.2	3.5 M	3.5 M	2.5 M	C	3.6 M	2.5 M	E	3.1 M
4	E	E	E	3.7 M	E	3.4 M	E	G	G	3.1 G	4.9 M	6.9	5.6 M	3.0 G	G	3.7 M	B	E	E	E	E	E	E	E
5	E	E	3.3 M	5.7 M	2.8 M	E	E	G	G	G	3.9 M	4.4	3.9 M	3.2 G	G	G	G	E	3.0 M	4.4 M	5.0 M	4.0 M	4.4 M	E
6	2.5 M	2.8 M	3.2 M	3.0 M	E	E	E	B	B	B	B	B	B	B	B	G	4.3	2.0 M	5.8 M	3.3 M	E	E	E	E
7	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	3.3 M	3.2 M	3.3 M	3.3 M	3.1 M	3.2 M
8	3.1 M	2.2 M	E	E	E	E	E	C	C	B	B	B	B	B	B	G	B	C	3.1 M	3.2 M	3.2 M	E	3.0 M	2.8 M
9	E	2.8 M	2.9 M	2.8 M	E	E	E	B	G	3.5	G	G	4.1	G	G	G	B	3.2 M	5.0 M	3.2	3.5 M	E	2.7 M	5.1 M
10	3.8 M	3.4 M	E	3.1 M	2.4 M	E	E	B	G	2.8 G	3.9	G	G	G	G	G	B	E	E	E	2.3 M	2.3 M	2.3 M	E
11	3.5 M	E	E	E	E	E	E	B	3.1	G	G	B	B	B	B	3.4	2.9 M	3.7 M	6.9 M	5.0 M	3.0 M	3.5 M	4.4 M	3.8 M
12	3.1 M	3.0 M	E	2.3 M	E	E	E	G	G	3.5 M	12.0 M	3.9 M	G	G	B	2.9 G	B	E	E	E	E	E	3.0 M	2.5 M
13	E	E	E	E	E	E	E	G	3.6	G	G	4.1 M	3.6 G	G	3.7	3.7	2.7	3.2 M	E	E	E	E	2.3 M	E
14	E	E	E	3.1 M	3.3	E	E	G	G	4.9	4.1 M	3.0 G	3.1 G	G	G	G	B	B	E	E	E	E	E	E
15	E	4.0 M	4.0 M	3.7	2.3 M	E	E	G	G	4.5 M	4.0	6.1 M	3.7 G	G	B	2.6 G	B	E	E	E	E	E	E	E
16	3.1 M	3.5 M	4.0 M	E	E	E	E	B	3.0	4.3 M	4.1 M	G	G	G	G	G	G	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	G	G	3.5	4.8 M	5.2 M	3.9	G	G	G	G	E	E	E	E	E	E	E
18	E	3.3 M	3.4 M	4.2 M	2.6 M	E	E	B	G	3.6	4.4	4.0	3.2 G	G	2.6 G	G	G	E	E	E	E	E	E	7.2 M
19	2.5 M	E	E	E	E	E	E	B	2.8	4.7	5.3 M	5.0 M	9.2 M	12.1 M	3.3 G	G	3.2	2.3	E	E	E	E	E	E
20	E	E	E	3.8 M	2.9 M	E	E	B	G	4.9 M	G	3.4 G	3.6 G	5.7 M	9.1 M	6.0 M	4.1 M	5.2 M	3.2 M	E	E	E	E	E
21	E	E	E	2.4 M	E	E	E	G	G	G	G	G	G	G	G	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	3.8 M	3.2	3.1 M	2.2 M	E	E	E	E	E
23	E	E	E	E	E	E	E	B	B	G	G	C	C	C	G	2.2 G	G	B	E	E	E	E	E	E
24	E	E	E	E	E	E	E	B	G	C	G	G	G	G	G	G	G	2.5 M	E	E	E	E	E	E
25	E	E	E	E	E	E	E	G	G	C	3.7	2.8 G	3.6 G	4.9	G	G	G	B	E	E	E	E	E	E
26	E	E	E	E	E	E	E	B	2.9	4.8 M	G	G	G	G	2.8 G	2.7 G	G	B	2.9 M	3.0 M	E	E	E	E
27	E	E	E	E	E	E	E	G	G	3.4	3.7	4.1	3.9	4.1	5.0	5.3 M	G	2.2	9.0 M	5.0 M	3.0 M	E	E	E
28	E	E	E	E	E	E	E	2.1	G	5.0 M	G	G	G	G	G	G	G	E	4.7 M	5.2 M	3.1 M	E	E	E
29	E	2.9 M	2.5 M	2.5 M	E	E	E	B	G	3.4	G	B	G	G	3.7	3.3	2.9	B	E	E	2.8 M	E	E	E
30	E	E	E	E	E	E	E	B	G	3.4 M	G	B	G	B	G	G	G	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	G	G	G	G	4.2	4.1	4.1	G	4.4 M	3.0	2.6	3.5 M	E	3.2 M	E	E	E
No.	30	30	30	30	30	30	30	13	26	24	27	25	26	25	25	29	22	24	30	29	30	30	30	30
Median	E	E	E	E	E	E	E	G	G	3.5	3.7	G	G	G	G	G	G	E	E	E	E	E	E	E
U. Q.	2.5	2.8	2.5	3.1	E	E	E	G	G	4.4	4.2	4.2	3.9	4.1	3.5	3.5	3.0	3.0	3.2	3.2	3.0	E	2.3	2.5
L. Q.	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	E
Q. R.																								

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jan. 1958 | foEs | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B		3.4	3.9	D3.9 B		3.2	3.3									
2			E	2.1						C	4.1	4.2	4.3	4.2		3.6		2.0		2.2			2.0	E
3	2.3			E	2.7			B		4.1	4.5		4.3	4.2	3.3	D3.2 B	2.7	2.3	2.0	C	2.1	E		E
4				E		E				3.0	3.9	6.0	3.8	2.9		3.1	B							
5			E	2.6	E						3.8	4.3	D3.9 S	3.1					2.3	3.4	3.8	3.4	2.4	
6	E	2.1	2.5	2.2				B	B	B	B	B	B	B	B		3.6	2.0	4.5	2.6				
7								B	B	B	B	B	B	B	B	B	B		2.2	2.5	2.6	2.2	2.4	2.3
8	E	E						C	C	B	B	B	B	B	B		B	C	E	2.0	E		E	E
9		2.1	2.2	2.2				B		3.5			4.1				B	2.6	2.1	2.1	2.0		2.1	3.0
10	2.5	2.6		1.8	E			B		2.8	3.6						B				E	E	E	
11	1.9							B	3.0			B	B	B	B	3.4	D2.9 B	2.9	3.1	2.1	2.1	2.1	2.0	2.1
12	1.9	2.3		E						3.5	6.1	D3.9 B			B	D2.9 B	B						E	E
13									3.5			4.1	D3.6 B		3.7	3.5	2.7	2.4					E	
14				2.3	E					4.0	3.7	3.0	3.0				B	B						
15		2.5	2.6	2.8	E					3.7	3.7	4.8	3.7		B	D2.6 B	B							
16	E	1.9	2.3					B	3.0	3.6	4.0													
17										3.5	4.0	4.0	3.9											
18		E	2.2	2.3	E			B		3.4	3.9	G	D3.2 C		2.6									4.1
19	E							B	D2.8 B	3.6	4.2	4.2	4.5	6.7	3.2		3.2	2.3						
20				2.0	2.0			B		3.4		3.3	3.5	5.1	6.2	4.8	3.4	3.9	2.4					
21				E												C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C					2.7	3.0	2.2	2.0					
23								B	B			C	C	C		2.2		B						
24								B		C								E						
25										C	3.6	2.5	2.9	3.8				B						
26								B	2.9	3.3					2.8	2.7		B	2.1	E				
27										3.3	3.7	3.8	3.8	4.0	4.7	4.7		2.2	E	2.1	1.8			
28								2.1		3.8									3.7	2.7	2.0			
29		2.1	E	1.7				B		3.4		B			3.6	3.3	2.9	B			1.9			
30								B		3.4				B										
31												4.2	4.0	G		3.4	2.9	2.6	U2.8 A		E			
No.	8	9	8	14	7	1		1	4	18	15	13	13	10	9	11	8	12	13	10	11	5	9	8
Median	E	2.1	2.2	2.0	E	E		2.1	3.0	3.4	3.9	4.1	3.9	3.9	3.3	3.4	3.0	2.3	2.2	2.2	2.0	2.1	2.0	E

foEs

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

The Radio Research Laboratories, Japan.

K 5

IONOSPHERIC DATA

Jan.1958 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	2.00	1.80	1.70	1.60	1.80	1.60	1.90	2.20	2.10	1.95	2.25	2.50	2.80	2.60	2.60	2.10	1.90	1.80	1.95	1.80	1.70	1.60	1.55	1.60
2	1.70	1.70	1.95	1.60	2.00	1.65	1.80	1.80	2.25	I 2.30 C	2.90	3.00	2.80	3.20	2.40	2.45	2.00	1.90	1.90	1.90	1.65	1.80	1.60	1.70
3	1.80	1.60	1.75	1.80	1.60	1.80	1.75	2.10	2.10	2.10	2.30	2.80	2.50	2.40	2.50	2.30	1.85	1.80	1.60	I 1.75 C	1.60	1.85	1.90	1.60
4	1.80	1.55	1.75	1.80	1.70	1.65	1.65	1.80	2.30	2.35	2.50	2.80	2.80	2.20	2.65	2.00	2.50	1.90	1.80	1.70	1.70	1.70	1.60	1.75
5	1.60	1.75	1.90	1.60	1.80	1.70	1.60	1.90	2.10	2.50	2.90	3.00	2.90	2.90	3.00	2.70	2.20	1.90	1.80	1.80	1.90	1.90	1.70	1.70
6	2.00	1.90	2.20	2.00	1.60	1.75	1.65	2.20	2.90	3.50	3.70	4.10	4.00	4.00	4.20	2.90	2.20	1.70	2.10	1.90	1.90	2.00	1.90	1.80
7	1.90	2.30	1.60	1.90	1.65	1.60	1.80	2.10	3.10	3.65	3.90	4.10	4.00	4.05	3.70	3.70	2.85	1.80	1.90	1.90	1.80	1.80	1.70	1.65
8	1.85	1.70	1.75	1.70	1.80	2.00	2.00	C	C	3.60	3.60	4.00	4.00	3.90	4.00	2.60	2.80	I 1.90 C	1.90	1.75	1.90	1.90	1.80	1.90
9	1.85	1.75	1.80	1.90	2.10	1.70	1.70	2.10	2.10	2.55	2.50	3.00	2.90	3.10	2.90	2.30	2.60	1.80	1.70	1.90	1.90	1.55	1.70	1.80
10	1.70	1.70	1.80	1.70	1.85	1.70	1.70	2.00	2.20	2.40	2.80	3.10	3.00	3.10	2.60	2.70	2.60	1.90	2.10	1.90	1.90	1.80	1.80	1.80
11	1.70	2.00	2.05	1.90	2.00	1.80	1.75	2.10	2.30	2.60	3.30	3.75	3.90	4.10	3.80	3.10	2.20	1.85	1.70	1.75	1.80	1.60	1.65	1.60
12	1.80	1.60	1.80	1.80	1.90	1.90	1.70	1.90	2.75	2.80	3.20	2.95	3.65	3.00	3.60	2.60	2.70	1.90	1.80	1.70	1.70	1.70	1.60	1.75
13	1.65	1.70	1.70	1.90	1.70	1.90	1.60	1.85	2.55	2.30	3.00	2.90	2.95	3.05	3.20	2.75	2.55	1.70	2.05	1.90	1.90	1.90	1.70	1.70
14	1.70	1.65	1.90	1.75	1.80	1.70	1.70	1.75	1.95	2.10	2.60	2.40	2.60	2.70	2.90	2.60	2.70	2.00	1.80	1.95	1.60	1.85	1.70	1.80
15	1.80	1.80	1.70	1.65	1.70	1.65	1.65	1.80	2.10	2.40	2.60	3.05	2.70	3.10	3.75	2.30	2.90	2.50	1.85	1.70	1.60	1.80	1.70	1.60
16	1.80	1.60	1.80	1.85	1.90	1.60	1.80	2.20	2.10	2.20	2.70	2.85	2.95	2.90	2.80	2.60	2.25	1.95	1.60	1.75	1.60	1.55	1.70	1.70
17	1.60	1.60	1.80	1.75	1.60	1.70	1.60	1.65	2.10	2.05	3.00	2.70	2.50	2.80	3.30	2.50	2.20	2.00	1.60	1.70	1.60	1.80	1.55	1.60
18	1.80	1.70	1.60	1.60	1.60	1.60	1.50	2.10	2.30	2.10	2.50	3.00	2.30	2.55	2.20	2.25	2.30	1.90	1.70	1.60	1.70	1.50	1.80	1.65
19	1.75	1.55	1.70	1.60	1.65	1.60	1.60	2.00	2.00	2.20	3.05	2.70	2.65	2.50	2.15	2.40	2.00	1.90	1.80	1.80	1.60	1.80	1.60	1.70
20	1.60	1.85	1.85	1.80	1.75	1.70	1.70	2.20	2.20	2.40	2.60	2.60	2.70	2.70	2.30	2.50	1.85	1.80	1.80	2.00	1.60	1.60	1.65	1.70
21	1.60	1.60	1.80	1.70	1.70	1.70	1.60	1.90	2.00	2.30	2.70	2.90	2.80	2.60	2.80	E 3.35 C	E 3.00 C	E 2.10 C	E 2.00 C	E 2.60 C	E 2.80 C	E 2.50 C	E 2.55 C	E 2.65 C
22	E 2.70 C	E 2.55 C	E 2.90 C	E 2.05 C	E 2.75 C	E 2.30 C	E 2.70 C	E 3.60 C	E 3.60 C	E 4.10 C	E 4.10 C	2.80	2.40	2.60	3.00	2.20	1.90	1.60	1.70	2.30	1.90	1.45	2.25	1.70
23	2.00	2.05	1.95	1.80	1.80	1.95	1.80	2.10	2.90	2.80	2.80	E 3.80 C	E 3.90 C	E 4.10 C	2.80	1.90	2.15	2.25	2.00	1.85	2.10	1.80	1.90	2.70
24	2.10	1.75	1.70	2.10	2.00	1.80	2.05	2.10	2.10	E 3.40 C	2.75	2.85	2.40	2.80	2.80	2.40	2.10	2.00	1.70	1.60	1.60	1.80	1.50	1.50
25	1.60	1.60	1.70	1.80	1.70	1.85	1.60	1.70	1.90	I 2.30 C	2.75	2.00	2.25	2.20	2.10	2.30	2.20	1.90	1.65	1.80	1.80	1.80	1.80	1.80
26	1.70	1.70	1.80	1.70	1.70	1.70	1.70	2.10	2.00	2.05	2.35	2.60	2.60	2.80	2.35	2.20	2.05	2.00	1.75	1.70	1.80	1.80	1.90	1.70
27	1.70	1.80	1.70	1.70	1.90	1.90	1.70	1.80	1.90	2.10	2.30	2.40	3.70	2.40	2.30	3.00	2.10	2.00	1.90	1.75	1.60	1.40	1.50	1.70
28	1.60	1.40	1.50	1.70	1.60	1.70	1.70	1.75	1.90	2.40	2.60	3.00	2.90	3.30	3.05	2.30	2.20	1.95	1.90	1.50	1.50	1.50	1.55	1.50
29	1.50	1.60	1.40	1.50	1.60	1.70	1.55	2.10	2.25	2.40	2.80	4.00	2.80	2.40	2.40	2.20	2.50	2.20	1.80	1.80	1.50	1.70	1.70	1.70
30	1.70	1.75	1.70	1.65	1.50	1.60	1.60	2.35	2.25	2.40	3.05	2.70	2.80	3.75	2.85	2.40	2.20	1.90	1.90	1.50	1.55	1.95 S	1.75	2.10
31	1.70	1.35	1.60	1.70	1.70	1.60	1.40	1.80	2.20	2.60	3.05	2.45	2.60	2.65	2.60	2.10	1.95	1.80	1.80	1.60	1.80	1.70	1.70	1.80
No.	30	30	30	30	30	30	30	29	29	29	30	30	30	30	31	30	30	30	30	30	30	30	30	30
Median	1.70	1.70	1.75	1.70	1.70	1.70	1.70	2.00	2.10	2.40	2.80	2.90	2.80	2.80	2.80	2.40	2.20	1.90	1.80	1.80	1.70	1.80	1.70	1.70

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

Jan. 1958 | (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	2.50	2.25	2.35	2.25	2.20	2.15	2.30	2.55	2.90	2.85	2.65	2.65	2.55	2.45	2.50	2.50	2.55	2.60	2.65	2.60	2.55	2.75	2.40	2.60
2	2.85	2.80	2.85	3.05	2.55	2.50	2.55	3.00	2.80	2.70	2.70	2.65	2.50	2.50	2.45	2.45	2.50	2.60	2.65	2.60	2.55	2.60	2.45	2.55
3	2.55	2.55	2.50	2.45	2.55	2.55	2.70	2.85	3.05	3.00	2.80	2.65	2.65	2.55	2.60	2.65	2.65	2.65	2.80	2.80	2.75	2.75	2.85	2.65
4	2.65	2.55	2.50	2.60	2.75	2.60	3.00	2.95	3.05	3.00	2.90	2.80	2.60	2.60	2.60	2.70	2.65	2.85	2.90	2.85	2.85	2.70	2.60	2.55
5	2.40	2.60	2.80	3.10	3.15	2.50	2.75	3.05	3.10	3.10	2.90	2.85	2.75	2.60	2.60	2.70	2.70	2.65	2.80	2.85	2.65	2.70	2.90	2.95
6	2.75	2.75	2.80	2.70	2.35	2.50	2.55	2.95	3.10	2.95	2.95	2.70	2.75	2.65	2.75	2.65	2.65	2.80	2.90	2.80	2.95	2.70	2.65	2.55
7	2.60	2.80	2.80	2.60	2.55	2.55	2.85	3.05	3.00	3.00	2.90	2.75	2.70	2.60	2.60	2.65	2.65	2.75	2.80	2.85	2.80	2.60	2.75	2.95
8	2.90	2.70	2.85	2.30	2.40	2.35	2.55	C	C	2.95	2.75	2.70	2.55	2.55	2.60	2.65	2.55	2.70	2.65	2.75	2.75	2.60	2.65	2.80
9	S	2.80	2.60	2.60	2.65	2.60	2.75	3.00	2.95	3.00	2.85	2.70	2.65	2.50	2.50	2.60	2.60	2.80	2.80	2.70	2.55	2.60	2.60	2.85
10	2.80	2.90	2.60	2.60	2.50	2.60	2.75	2.90	2.90	2.90	2.85	2.60	2.50	2.40	2.50	2.55	2.50	2.60	2.70	2.65	2.60	2.80	2.95	2.70
11	2.60	2.60	2.75	3.00	2.70	2.25	2.80	2.90	3.00	2.90	2.80	2.70	2.55	2.50	2.55	2.55	2.55	2.75	2.75	2.80	2.75	2.60	2.70	2.80
12	2.85	2.85	3.00	2.50	2.35	2.45	2.75	3.05	3.10	2.75	2.80	2.60	2.55	2.45	2.50	2.45	2.45	2.70	2.50	2.65	2.70	2.50	2.60	2.85
13	3.00	3.00	3.20	2.25	2.25	2.60	2.85	3.15	3.05	2.90	2.80	2.85	2.60	2.50	2.45	2.50	2.55	2.65	2.80	2.90	2.65	2.70	2.70	2.80
14	2.95	2.90	3.10	2.60	2.35	2.60	2.95	2.90	2.90	2.95	2.80	2.60	2.50	2.45	2.50	2.50	2.55	2.70	2.80	2.70	2.50	2.55	2.85	2.90
15	2.65	2.75	2.35	2.20	2.45	2.75	2.75	2.90	2.85	2.95	2.85	2.55	2.50	2.40	2.50	2.50	2.50	2.55	2.70	2.75	2.65	2.55	2.45	2.70
16	2.50	2.40	2.85	2.95	2.45	2.50	2.55	2.90	2.65	2.95	2.80	2.65	2.55	2.45	2.55	2.55	2.60	2.65	2.80	2.85	2.65	2.40	2.50	2.65
17	2.80	2.80	2.90	2.25	2.45	2.75	3.25	2.85	2.90	2.90	2.75	2.45	2.45	2.45	2.40	2.45	2.50	2.60	2.75	2.75	2.70	2.75	2.65	2.80
18	2.85	2.75	2.30	2.40	2.50	2.80	2.95	2.85	2.80	3.00	2.75	2.55	2.45	2.45	2.45	2.50	2.55	2.65	2.80	2.70	2.70	2.65	2.80	2.70
19	2.45	2.40	2.25	2.35	2.60	2.55	2.55	2.90	3.05	2.95	2.90	2.60	2.60	2.55	2.55	2.55	2.65	2.70	2.75	2.70	2.75	2.85	2.85	2.75
20	2.60	2.45	2.55	2.55	2.55	2.65	2.90	2.95	2.85	2.90	2.95	2.70	2.55	2.50	2.50	2.60	2.60	2.65	2.90	2.70	2.60	2.85	2.65	2.60
21	2.60	2.90	2.50	2.50	2.20	2.35	2.95	3.00	2.90	2.90	2.95	2.60	2.50	2.50	2.45	2.45	2.45	2.65	2.65	2.60	2.60	2.75	2.90	2.75
22	2.85	3.00	2.45	2.75	2.40	2.45	2.80	3.15	3.05	2.95	2.90	2.75	2.70	2.60	2.60	2.65	2.65	2.75	2.85	2.85	2.95	2.70	2.75	2.60
23	2.40	2.45	2.65	2.75	2.45	2.50	2.75	3.15	3.10	3.10	3.00	2.80	C	C	C	R 5	2.65	2.80	2.60	2.85	2.85	2.90	2.90	2.65
24	2.55	3.00	2.65	2.50	2.65	2.95	2.90	2.95	3.25	3.05	2.95	2.95	2.75	2.65	2.65	2.70	2.70	2.95	2.85	3.00	2.95	2.95	2.95	2.70
25	2.65	3.10	2.75	2.60	2.65	2.55	2.70	3.20	3.30	3.00	3.05	2.75	2.60	2.65	2.60	2.65	2.60	2.85	2.70	2.95	2.80	2.70	2.60	2.80
26	2.60	2.40	2.40	2.50	2.55	2.80	3.00	2.95	2.90	2.95	2.95	2.80	2.70	2.70	2.65	2.65	2.70	2.65	2.75	2.75	2.70	2.70	2.65	2.80
27	3.15	3.15	3.20	2.40	2.35	2.60	2.85	3.05	3.05	2.95	3.00	2.90	2.75	2.65	2.65	2.70	2.75	2.85	2.85	2.95	2.85	2.75	2.85	2.90
28	3.05	3.10	3.05	2.75	2.65	2.75	3.35	3.05	3.25	3.05	2.90	2.90	2.90	2.75	2.75	2.90	2.90	2.90	2.90	2.95	2.60	2.60	2.75	2.75
29	2.85	2.85	2.65	2.65	2.55	2.65	3.05	3.30	3.35	3.05	3.10	2.70	2.75	2.75	2.75	2.75	2.70	2.90	2.90	3.00	2.85	2.70	2.80	2.85
30	2.80	2.65	2.70	2.65	2.65	2.70	2.90	3.20	3.20	3.05	3.00	2.90	2.95	2.70	2.75	2.80	2.90	2.90	2.90	2.90	3.05	2.70	3.00	2.85
31	2.60	2.85	2.55	2.50	2.55	2.60	2.55	2.95	3.10	2.95	3.00	2.90	2.80	2.75	2.70	2.80	2.85	2.95	2.95	2.95	2.85	2.90	2.65	2.75
No.	30	31	31	31	31	31	31	30	30	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31
Median	2.65	2.80	2.60	2.60	2.55	2.55	2.80	2.95	3.05	2.95	2.90	2.70	2.60	2.55	2.60	2.60	2.60	2.70	2.80	2.80	2.70	2.70	2.70	2.75

(M3000)F2

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

The Radio Research Laboratories, Japan.

K 7

IONOSPHERIC DATA

Jan. 1958 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2										C														
3																								
4																								
5																								
6																								
7																								
8								C	C															
9																								
10														L										
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																C	C	C						
22								C	C	C	C													
23												C	C	C										
24										C														
25										C														
26																								
27											3.35L		L											
28														3.55L										
29												4.30L	4.30											
30																								
31																								
No.											1	1	1	1										
Median											3.35	4.30	4.30	3.55										

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

The Radio Research Laboratories, Japan.

K 8

IONOSPHERIC DATA

Jan. 1958 | h'F2 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2										C														
3																								
4																								
5																								
6																								
7																								
8								C	C															
9																								
10														355										
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																C	C	C						
22								C	C	C	C													
23												C	C	C										
24										C														
25										C														
26																								
27											300		295											
28														300										
29												230	230H											
30																								
31																								
No.											1	1	2	2										
Median											300	230	260	330										

h'F2

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

The Radio Research Laboratories, Japan.

K 9

IONOSPHERIC DATA

Jan. 1958 | h'F | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	350	325	355	360	365	390	350	290	250	245	245	230	230H	230H	230H	250	255	255	270	260	255	250	245	300
2	275	280	270	215H	320	320	300	235	230	I250C	250	250	240H	250	245H	240H	255	270	270	250	240	300	275	305
3	300	290	265	305	330A	255	295	260	240	240	235	230	230H	235H	250H	230	250	275	250	I230C	260	250	250	270
4	275	300	305	300	270	300	245	245	230	240	240	250A	230	235H	245	240	240	260	240	245	290	230	250	260
5	350	305	260	255	230H	355	260	250	240	245	240	245	245	230	245	245	230	240	250	255	310A	300A	260	265
6	265	305	290	270	305	325	315	260	245	240	240	245	240	240H	250	240	250	250	275A	250	250	255	295	330
7	315	305	290	305	320	330	250	250	240	245	245	240H	235H	245	240H	235	240	250	260	240	250	285	300	270
8	270	280	265	270H	350	400	350	C	C	240	245	235	240	245H	245H	240	245	I260C	240	240	255	300	260	280
9	265	300	310	310	310	300	270	250	240	250	245	250	245	240H	240H	250	240	255	240	260	250	280	295	280
10	280	280	320	320	325	310	300	265	240	250	250	240H	220H	225	250	250	245	265	250	240	250	255	255	250
11	310	305	270	240	300	400	265	245	240	230	230H	230	235H	230H	250H	250H	255	275	250	250	250	280	300	255
12	275	300	260	330	380	350	275	240	230	230	250A	240H	235H	235H	245H	250	255	275	245	235	270	260	300	280
13	250	250	225	380	410	330	255	245	235	240	245	245	230H	235H	240H	240H	260	275	255	250	230	250	290	280
14	270	255	255	325	375	310	235	250	240	250	240	225H	220H	230H	240H	250H	250	255	250	235	255	290	250	255
15	300	300	400	460	320	245	240	240	245	250	235	230AH	225H	230	250H	245	255	275	255	230	220	250	280	275
16	310	335	280	230	320	325	325	260	250	250	240	235	235H	230H	245	250	245	275	255	230	250	320	310	300
17	260	270	250	300	325	270	230	250	230	250	245	230H	235H	235H	230	250	255	280	240	230	250	275	250	245
18	250	270	360	375	345	280	250	255	240	245	230	230H	230H	230H	240	250	245	255	260	270	250	295	250	270A
19	310	330	350	325	260	230	300	275	250	245	240	220	230AH	E290AH	240H	250	240	250	235	220	235	255	250	255
20	265	300	315	315	315	270	250	240	240	245	250	240	240H	250H	A	E280A	250	280	255	220	250	255	250	275
21	300	255	300	310	415	405	255	225	230	240	250	220H	215H	240	240H	250H	250	E270C	E250C	E250C	E300C	E265C	E255C	E255C
22	E260C	E255C	E320C	E265C	E425C	E380C	E285C	E250C	230	E245C	240	225	240	230	245	240	245	260	255	230	250	220	305	320
23	360	350	280	260	330	355	300	245	220	235H	250	230	220	240	225H	250	240	260	230	240	250	255	250	290
24	305	250	230	310	280	350	260	240	245	240	220	220	240	240H	240	240	240	245	225	250	245	250	255	265
25	335	235	235	315	300	350	300	250	230	I230C	250	230	220H	225H	210H	245H	250	220	195	255	240	255	250	250
26	255	300	335	320	320	265	250	250	250	240	240	240	230	230	240	240	250	250	230	220	250	275	300	260
27	250	300	250	320	390	350	270	250	240	240	230	240	225	240H	250AH	260A	240	250	240	255	250	255	270	255
28	250	245	230	300	300	310	250	230	230	230	230	230	220	220	250	235	245	235	270	245	245	285	280	255
29	275	280	300	310	300	325	250	225	230	230	230	200	200	230	245	250	250	250	225	230	250	250	260	270
30	255	300	300	290	285	275	275	235	230	235	220	220	230	225	240	240	240	240	230	225	230	255	275	270
31	300	250	280	320	305	300	315	250	225	240	240	230	225	220H	230	250	250	230	250A	230	240	255	250	290
No.	31	31	30	31	30	30	30	30	30	30	31	31	31	30	30	30	31	30	31	30	30	30	31	31
Median	275	300	280	310	320	320	270	250	240	240	240	230	230	230	240	250	250	255	250	240	250	255	260	270

h'F

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

The Radio Research Laboratories, Japan.

K 10

IONOSPHERIC DATA

Jan. 1958 | h'Es | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	E	E	B	G	160	150	160	G	115	115	G	G	E	E	E	E	E	E	E
2	E	E	100	100	E	E	E	G	G	C	150	145	140	140	G	120	G	105	E	135	E	E	115	110
3	110	E	E	105	105	E	E	B	G	125	120	G	130	120	100	130	100	105	105	C	100	100	E	105
4	E	E	E	105	E	105	E	G	G	110	105	100	105	105	G	100	B	E	E	E	E	E	E	E
5	E	E	125	105	105	E	E	G	G	G	115	105	105	110	G	G	G	E	105	100	100	100	100	E
6	100	100	105	100	E	E	E	B	B	B	B	B	B	B	B	G	110	105	105	100	E	E	E	E
7	E	E	E	E	E	E	E	B	B	B	B	B	B	B	B	B	B	E	105	100	100	100	100	100
8	100	100	E	E	E	E	E	C	C	B	B	B	B	B	B	G	B	C	115	100	105	E	100	100
9	E	100	100	100	E	E	E	B	G	175	G	G	155	G	G	G	B	110	105	105	105	E	100	100
10	100	100	E	100	100	E	E	B	G	110	140	G	G	G	G	G	B	E	E	E	100	100	100	E
11	100	E	E	E	E	E	E	B	155	G	G	B	B	B	B	130	100	115	105	105	105	100	100	100
12	100	100	E	100	E	E	E	G	G	115	110	110	G	G	B	100	B	E	E	E	E	E	100	100
13	E	E	E	E	E	E	E	G	150	G	G	110	110	G	165	130	150	130	E	E	E	E	100	E
14	E	E	E	100	100	E	E	G	G	110	110	105	105	G	G	G	B	B	E	E	E	E	E	E
15	E	100	100	100	105	E	E	G	G	125	115	105	110	G	B	110	B	E	E	E	E	E	E	E
16	100	100	100	E	E	E	E	B	125	125	115	G	G	G	G	G	G	E	E	E	E	E	E	E
17	E	E	E	E	E	E	E	G	G	120	115	105	130	G	G	G	G	E	E	E	E	E	E	E
18	E	105	100	100	105	E	E	B	G	135	120	130	115	G	105	G	G	E	E	E	E	E	E	105
19	110	E	E	E	E	E	E	B	130	120	110	105	110	105	110	G	120	120	E	E	E	E	E	E
20	E	E	E	100	100	E	E	B	G	115	G	110	105	105	100	100	100	100	100	E	E	E	E	E
21	E	E	E	100	E	E	E	G	G	G	G	G	G	G	G	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	105	100	105	105	E	E	E	E	E
23	E	E	E	E	E	E	E	B	B	G	G	C	C	C	G	100	G	B	E	E	E	E	E	E
24	E	E	E	E	E	E	E	B	G	C	G	G	G	G	G	G	G	105	E	E	E	E	E	E
25	E	E	E	E	E	E	E	G	G	C	150	105	100	100	G	G	G	B	E	E	E	E	E	E
26	E	E	E	E	E	E	E	B	130	115	G	G	G	G	110	110	G	B	120	110	E	E	E	E
27	E	E	E	E	E	E	E	G	G	175	170	145	155	155	135	135	G	180	120	110	110	E	E	E
28	E	E	E	E	E	E	E	150	G	120	G	G	G	G	G	G	G	E	110	105	105	E	E	E
29	E	100	100	100	E	E	E	B	G	E 190 B	G	B	G	G	130	130	120	B	E	E	105	E	E	E
30	E	E	E	E	E	E	E	B	G	115	G	G	G	B	G	G	G	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	G	G	G	G	140	150	130	G	120	180	135	125	E	105	E	E	E
No.	8	9	8	14	7	1		1	5	17	15	15	15	10	9	14	9	12	13	10	11	5	9	8
Median	100	100	100	100	105	105		150	130	120	115	110	110	110	110	115	110	110	105	105	105	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

Jan. 1958

Types of Es

135° E Mean Time (G.M.T. + 9h.)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										h	h	hl		l	l2									
2			f	f							h	h	h	h		l		f		f			f2	f
3	f			f2	f3					C	C2		h2	cl	l2	k	l	f2	f		f2	f		f
4				f		f				h	l	l2	l	l		l								
5			f	f2	f						l	l	l	l					f	f2	f3	f2	f2	
6	f	f	f	f													l	f	f3	f2				
7																			f	f	f	f2	f2	f2
8	f	f																	f	f2	f		f	f
9		f	f	f						h			h					f2	f	f	f		f2	f2
10	f2	f2		f2	f					l	h										f	f	f	
11	f								h							h	l	f2	f3	f2	f2	f	f2	f2
12	f2	f2		f						l	l2	l				l							f	f
13									h			l	l		h	h	h	f3					f	
14				f2	f					C	l	l	l											
15		f2	f2	f3	f					C2	l	l2	l			l								
16	f	f2	f						C	l	l													
17										h2	C	l2	hl											
18		f	f2	f2	f					h	C	h	l		l									f5
19	f								h	l	C	l	l2	l2	l		l	l						
20				f	f					l		l	l	l	l2	l2	l	l2	f					
21				f																				
22																l	l	f	f					
23																l								
24																		l						
25											h	l	l	l										
26									C	l					l	l			f	f				
27										h	h	h	h	h	h2	h2		h	ff	ff	f			
28								h		C2									f2	f2	f			
29		f2	f	f						h					h	h	l				f			
30										l														
31												h	h	c		lh	h	h2	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

Jan. 1958 | h_pF_2 | 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	455	505	490	510	550	555	480	400	350	350	390	400	420	445	440	445	420	400	405	395	405	355	445	405
2	350	370	340	305	410	440	405	325	355	370	390	395	435	450	450	445	425	400	400	390	400	410	440	415
3	400	400	405	435	415	410	390	330	315	320	350	390	390	410	405	395	395	395	345	370	380	375	350	380
4	380	400	420	390	375	400	320	325	300	330	355	365	400	400	395	370	400	365	330	300	330	370	400	400
5	455	410	350	300	280	430	355	310	300	305	350	350	365	395	380	375	370	395	350	350	395	370	345	325
6	360	385	350	365	470	440	360	330	305	330	355	370	390	400	400	375	370	380	365	350	350	375	400	425
7	405	355	370	410	445	425	355	315	310	330	350	370	390	405	400	395	385	380	350	350	350	400	370	340
8	340	365	350	485	450	490	450	C	C	345	360	390	420	440	410	390	420	375	375	360	360	390	375	355
9	S	365	400	400	400	400	360	305	345	330	350	390	400	430	425	400	400	365	355	360	400	400	395	350
10	355	345	410	410	425	410	370	335	320	345	355	400	425	455	430	405	415	395	360	375	400	355	320	370
11	400	400	355	320	375	505	350	325	310	345	370	395	410	430	410	410	410	360	380	360	370	400	375	350
12	350	360	320	445	485	450	370	325	305	355	365	400	430	445	440	440	425	380	390	390	395	410	405	360
13	320	325	270	500	500	400	340	300	320	350	360	355	405	425	440	430	410	390	355	345	380	380	390	360
14	330	330	310	400	495	410	320	340	350	315	355	400	420	450	425	425	400	385	360	360	405	405	345	330
15	400	360	490	540	440	350	360	320	350	350	350	415	445	455	440	440	410	410	370	355	390	400	375	375
16	425	450	350	310	450	430	405	335	310	310	370	400	410	440	410	400	400	390	360	350	390	445	410	390
17	370	350	325	445	440	355	255	330	325	340	350	455	445	450	470	450	430	400	385	380	395	380	380	370
18	380	360	495	475	425	370	325	345	345	345	360	390	455	455	450	415	400	390	375	385	390	390	370	355
19	440	460	570	475	400	405	420	340	320	330	355	405	405	430	425	410	400	370	355	390	360	355	335	355
20	390	450	425	410	410	380	350	325	345	355	350	375	420	435	440	410	395	385	335	360	380	350	370	400
21	400	335	450	440	545	505	315	305	325	350	325	400	430	420	440	450	430	380	365	395	400	365	350	350
22	345	320	450	350	455	420	350	305	300	340	345	370	385	400	400	390	380	360	355	345	330	375	380	410
23	455	450	390	370	450	435	380	300	310	320	320	365	C	C	C	R S	400	370	400	345	350	350	330	385
24	405	305	380	435	395	450	340	325	280	320	335	350	370	400	395	395	345	340	335	320	310	315	340	375
25	400	305	350	405	380	415	375	300	270	330	310	375	395	400	405	400	395	355	365	320	340	360	360	370
26	400	450	450	440	430	360	320	315	325	330	330	360	395	400	395	390	365	390	360	350	355	405	390	360
27	300	290	280	460	475	400	340	300	300	320	345	350	375	395	400	375	355	350	350	345	350	355	355	330
28	310	300	305	370	385	370	275	300	290	315	350	345	350	375	370	345	340	330	340	310	390	395	370	375
29	345	350	445	400	405	400	310	275	270	310	320	360	375	375	375	370	370	345	325	310	340	370	360	350
30	350	380	380	380	390	385	345	290	290	310	340	345	350	380	375	350	350	340	350	340	305	375	330	350
31	400	340	400	425	410	400	415	325	300	310	325	345	355	375	390	350	345	340	325	310	340	340	380	380
No.	30	31	31	31	31	31	31	30	30	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31
Median	385	360	380	410	425	410	355	325	310	330	350	375	400	420	410	400	400	380	355	355	380	375	370	370

h_pF_2

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jan. 1958 | ypF2 | 135° E Mean Time (G.M.T.+ 9h.) | Kokubunji Tokyo | Lat. 35° 42.4' N | Long. 139° 29.3' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	95RS	145	100S	130	I125S	170	110RS	140RS	100RS	95R	110	125	125SH	J115SH	J 65LH	115	120	150	100S	J100S	125	U100S	155	U105S
2	U 85S	105	130	150H	135	135	145	75	100S	I110C	100R	115	115H	140	140H	155H	130	125	95	I140RS	160	I115S	165	135S
3	130	190	145S	145S	135S	135S	110S	110R	95R	80S	110	115	130H	120H	120H	115	150	110	90	I110C	110	95	95	130
4	145	100	135	110	125	120	95	125	90	90R	70R	85	120	120H	130	155	140	125S	110RS	155S	90S	130S	140S	140S
5	145	110S	150S	100S	120H	120	135	90S	85	95	85	85R	135	130	145	135	130R	110S	125S	115R	110R	110R	110S	110R
6	130S	120S	150S	160	150	155	180	90R	95	105R	135R	110R	110	110H	120	140	125R	90RS	I 75S	110R	130	145	150	105
7	105S	110RS	90	110	125	135	100	75R	105	85R	90	95H	100RH	115	135H	115	125	120RS	130R	125	105RS	150	120	85
8	110	125	105	165H	150	110R	100	C	C	85R	140	110	130	110H	150H	190	220RS	I 150C	135S	140S	140	130	175	95
9	S	115R	150	130	120	150	115	95R	60	75R	120	100R	115	125H	135H	130	150R	105R	125	125	190	125	130	120
10	95S	135	125	130	135	140	90S	115RS	130	80R	95R	130H	140H	135	130	155	150	125	145R	175	150	I110S	95S	140R
11	115	160	145S	95	145	155	165	145	90	80	70H	95	130H	145H	130H	140H	140	115	105	90	120	140	125	125
12	110	130	85	135	115	155	90	80	100	100	115	110H	100H	105H	105H	130	165	120	U 130S	120	85	135	100S	90S
13	85	75	90	170	100	150	125	80	85	100	120	95	145H	145H	160H	140H	130	130	J 95S	110	U 120S	130	110	110
14	70	115	85	150	135	130	155	110S	95	I 95R	145R	150H	130H	110H	125H	165H	140	115	120S	140	155S	155S	160	120
15	105	130R	110	140	130	135	150	160RS	100	100	100	140H	105H	145	120H	130	140	130	J 130S	140	115S	150	U 140S	120S
16	115	155	125	120S	110	145	135	85	80	90	100	100	145H	120H	140	150	J 105R	U 110S	90S	I 110S	150	130	J 115S	130
17	125	120	115	155	110	100	125	130	115	100	130	110H	125	130H	120H	130	145	105	115	U 100S	100	U 110S	160	J 75S
18	100	140	115	125	115	100	115	110	105	U 75S	125	150H	155H	125H	145	175	150	130	95	105	100	I 105S	100	145
19	130	125	100	140	135	135	130	75S	85	95R	105	145	105RH	125H	115RH	120	110R	130	135RS	120R	145	105S	130	155
20	170	150	100S	125S	105S	150S	130	155RS	100	95	55R	115	125H	130H	110	115	135	145R	I 100S	160S	220	110R	160	115
21	130	90	125	160	115	145	95R	135S	130R	I 90R	85R	125H	130H	130	160H	150H	135	125	145	I 110RS	120RS	135R	100	105R
22	105S	110	125	110	115R	170R	150	95R	110R	80	80R	115	105	140	130	115	130	80	85	105	80	125	95	90
23	135	105	110	140	125	115	110	75	90	65RH	85R	95R	C	C	C	RS	115R	85R	110R	I 105S	110S	100S	85	115R
24	145	95S	170	140	155	135	90	95	85R	80	75R	80R	85R	100RH	105R	105	130	75R	115	85R	95S	95	60V	125
25	100	105	145	145	160	135	115	85	85R	I 95C	145R	125R	105RH	I 105RH	U 120RH	120RH	I 120RS	U 115S	145	115	J 120S	I 150S	250S	J 130S
26	175S	150	I 100S	140	125	90S	150	125RS	155RS	100	95R	100	105	100	105	125	150	160	190RS	160	155	135	85	90R
27	60	60R	75	180	175	110	110	100S	130R	110	55R	95	100	85H	105H	125	145	90	110	60	105	115	95	110
28	85	95	105	130	115	80	55	120	65	125	65	85	105	105	105	105	95	110	110	105S	145	155	130	125
29	130	100	105	110	150	110	80	80	85	90	80	110	85H	95	105	130	130	110	U 105S	105	115	120	140	105
30	95	105	120	120	110	115	105	65	85	90	65	95R	90	100	105	125	105	U 80S	90S	95	90	130	75	100
31	120	110	120	125	110	120	120	100	95	90	90	80	140	120H	105	105	110	115	95S	J 90S	160	135	125	125
No.	30	31	31	31	31	31	31	30	30	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31
Median	110	115	115	135	125	135	115	100	95	90	95	110	120	120	120	130	130	115	110	110	120	130	125	115

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

Jan. 1958 | foF2 | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U 9.5 S	J 8.3 R	8.3	J 7.9 S	7.3	7.1	J 7.9 S	10.5	14.5	15.0	15.1	U 15.5 SH	U 15.4 SH	14.9 H	I 14.8 SH	14.2 H	14.0 H	I 13.3 S	12.6 S	U 12.3 S	10.8	9.6 S	7.8 S	U 8.0 S
2	8.2	J 8.1 R	6.9	4.4	4.3 H	3.9	4.3	7.0	9.7	12.8	I 15.0 SH	I 15.0 S	13.9 H	13.9 SH	13.6 H	13.5 H	I 13.5 SH	13.6	S	12.5	I 12.0 S	10.4	9.0	8.6
3	J 8.1 R	J 7.9 R	6.5	5.7	5.6	5.2 H	5.2 S	7.4	13.0	15.2	15.0	14.5 H	I 13.7 SH	13.6 H	I 14.0 SH	13.5 H	13.0 SH	U 12.5 S	I 12.6 S	I 12.5 S	I 12.3 S	I 11.6 S	11.0	J 9.9 S
4	J 8.2 S	7.0	6.5	6.3	5.9	5.0	4.9	7.0	11.5	13.4	15.0 H	14.4 S	13.5 H	13.6 H	13.3 H	13.5 SH	12.8 H	12.5	12.9 S	12.0	11.5	11.0 S	9.3 S	7.6 S
5	6.9	6.9	6.7	6.1	4.7	3.6	J 4.0 R	6.8	11.0	13.0	14.1 H	14.4 H	13.4	12.4 H	12.7 H	12.5 H	12.3	11.3	10.9	10.8	10.5 SH	9.4	8.2 S	J 8.4
6	7.1	5.9	5.9	4.8 S	3.5	3.5	3.5	6.2 S	11.0	14.3	14.3	14.5	15.2 H	14.1 H	14.3 H	13.5 H	12.0 H	11.8	I 11.7 C	10.6	9.2 S	I 8.6 C	J 8.0 S	U 7.3 SH
7	J 8.0 S	7.3	6.2 S	5.1 H	4.4	4.3	4.5	7.1 S	11.2	13.9	I 15.2 C	14.6	14.6 H	13.9 H	13.6 H	13.6 H	13.3 H	12.0	I 11.4 C	11.0 S	10.5	9.5 S	8.9	J 8.3 R
8	U 7.7 S	6.8	7.6 S	5.4	3.7 S	4.0	3.9	I 7.2 C	12.3	15.0	14.4	15.0 H	15.5 SH	15.7 SH	15.4 SH	15.0 H	13.7 H	12.5 S	12.1	11.9 S	J 10.5 R	U 9.5 S	9.0	J 7.9 R
9	J 8.2 S	J 8.6 S	7.3	6.3	4.3	4.2	4.4	7.1	12.3	I 15.4 S	I 15.1 C	15.1 H	15.0 H	15.4 H	15.4 H	U 15.3 SH	15.0 H	12.4	12.1	11.5	I 11.1 S	I 11.0 S	10.0 S	I 9.6 S
10	J 8.1 S	7.1 S	6.4	5.7 S	5.2	5.1	5.9	8.8	13.2 S	15.4	I 15.5 C	I 15.5 SH	I 15.3 C	I 15.1 C	15.5 SH	15.4 SH	14.7 SH	14.4	I 14.4 S	I 13.2 S	U 12.4 S	I 11.9 S	11.1	9.2 S
11	U 7.7 S	7.5	8.0 S	6.5	4.0	3.8	4.5	8.0 S	12.4	14.0 S	14.4 H	14.4	14.0 H	13.5 H	13.9 H	13.3 H	12.0 H	11.5	11.9 S	10.4	9.7 S	8.5 S	8.5	U 7.9 S
12	6.4	6.1	5.7	4.4 V	4.2 H	4.6	5.1	7.4	11.1	12.9	14.5 H	15.0 H	15.1 H	15.5 H	15.0 SH	D 13.8 SH	D 13.8 SH	D 13.8 S	D 13.8 S	D 13.8 S	S	U 12.6 SH	I 11.3 S	10.7
13	10.0	8.7	6.1	4.3 H	3.7 S	4.0	5.1	7.5 S	11.0	13.4	14.6	14.2 H	13.5	12.9 H	13.0 H	12.7 H	12.1 H	12.2	12.1 S	10.4	9.2 S	8.5 H	J 8.0 R	J 8.3 R
14	8.6	J 8.0 R	6.0	4.3	3.8	4.2	4.1	6.1 H	11.4	14.9	15.0 H	13.5 SH	13.9 H	14.0 H	14.4 H	14.0 H	13.7 H	13.5	13.0 S	I 12.4 S	9.5	9.0 S	8.8	U 7.6 S
15	5.9	6.5	5.9	5.6	5.7 H	6.1 SH	5.7	7.0	11.5	15.5	14.9 H	13.0 H	I 13.6 SH	14.0 H	14.3 H	14.0 H	14.0 H	13.6	14.0	D 13.8 S	D 13.8 S	S H	S	J 10.7 S
16	J 10.0 S	9.0 S	8.9	U 7.9 S	5.4	4.9 H	5.5 H	J 8.1 R	12.5	13.0	13.7 H	13.6 H	13.5 H	14.0 H	14.1 H	13.6 H	13.4 H	12.0	11.7	J 10.3 S	8.8 H	J 8.1 R H	I 8.4 S	J 8.5 S
17	U 8.0 S	U 7.6 S	6.0	5.1	4.7 H	4.5	4.1	6.2 S	10.3	12.0	13.1	13.2 SH	14.0 H	13.8 SH	U 13.5 SH	13.7 SH	14.0 S	14.0 S	D 13.8 S	D 13.8 S	D 13.8 S	D 13.8 S	S	S
18	U 9.6 S	J 8.0 S	5.9 S	6.0	5.6 SH	5.9 S	4.5	J 6.4 R H	11.0	I 15.1 S	I 15.3 S	13.5 H	U 13.5 SH	14.4 H	14.0 H	13.6 H	13.5 H	13.0 S	12.2	11.3	11.5	9.6 S	9.9 S	J 8.5 S
19	7.2 S	7.6 S	6.5	6.6	6.9 H	6.5	5.8	7.7 S	12.9	14.5	15.0	15.1 H	15.0 H	15.2 H	14.9 H	14.8 H	14.5 H	14.0	14.7	D 13.8 S	D 13.8 S	D 13.8 S	I 11.5 S	11.0 S
20	9.4 S	U 7.8 SH	6.5	J 6.3 R	5.8	5.9	4.8 S	6.1 S	J 10.1 S	14.3	15.5	15.5 H	14.7 H	15.1 SH	D 13.8 S	D 13.8 S	D 13.8 S	J 14.5 S	U 12.6 S	12.0	I 10.1 S	U 9.5 S	J 8.9 S	7.0
21	6.3	6.3	4.9	4.8	4.1	4.4 H	5.9	6.2 S	9.3 S	13.6 H	I 15.1 S	14.5 H	14.0 H	14.1 H	14.0 H	13.2 H	13.0 H	12.7	12.8 S	12.7	U 11.6 S	U 11.5 S	I 11.1 S	9.3 S
22	8.6	7.2	6.3	5.7 S	4.3	3.9 S	4.2	7.0	11.0	13.0	I 15.1 SH	L 15.4 SH	15.3 H	14.9 H	15.0 H	14.9 H	13.9 H	12.9	12.1	I 10.7 S	I 10.2 S	9.2 S	8.0 SH	7.5 SH
23	6.9	6.5	6.4	4.8	4.0 H	4.2	4.1 S	7.0	11.3	13.0	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 S	D 13.8 S	D 13.8 S	15.0	I 12.7 S	J 10.6 S	8.9 S
24	7.6	J 7.8 S	5.8 S	5.3 S	4.4	4.1	4.4	6.5	11.5	12.0	15.0 H	U 15.5 SH	D 13.8 SH	D 13.8 SH	D 13.8 SH	C	C	C	C	C	C	C	J 8.5 S	7.9 S
25	I 8.2 S	7.0	4.3	3.7 S	3.7 S	3.6 S	3.7 S	6.3 S	12.5 S	I 12.8 C	14.0 S	D 13.8 SH	D 13.8 SH	C	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 S	D 13.8 S	D 13.8 S	D 13.8 S	I 12.8 S	I 12.8 S	10.8	10.9
26	9.0	U 7.8 S	J 7.6 S	7.5 S	6.7	6.5	6.4 H	J 8.0 S	12.2	I 14.8 S	U 15.5 S	U 15.3 SH	C	D 13.8 SH	D 13.8 SH	D 13.8 SH	15.5 SH	15.0	14.6	13.5	J 11.3 S	J 9.7 SH	8.9	9.0
27	8.9	J 8.4 S	U 5.8 S	3.6 S	3.5 SH	3.6 S	3.6 S	U 5.5 S	9.9 S	12.5	J 14.3 R H	I 15.2 C	15.5 SH	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 SH	D 13.8 S	14.8	13.9 S	14.9	I 14.1 S	I 12.8 S	I 11.9 S
28	J 10.9 S	J 8.8 S	5.8 S	3.8	2.9	2.8 H	2.9 S	5.8 S	10.3	11.0	13.2 H	15.0	15.0	D 13.8 SH	D 13.8 SH	D 13.8 SH	U 15.0 SH	14.0 S	U 12.6 S	I 10.5 S	J 9.4 S	U 9.1 S	8.1	7.3
29	7.0	6.9	5.3 S	4.0	3.7 S	3.7 S	4.1 S	6.4	10.5	12.0	S H	14.0 H	15.2 H	D 13.8 SH	D 13.8 SH	15.0 SH	14.6 S	14.0 S	13.3 S	U 11.9 S	10.8 S	U 9.2 S	J 8.3 R	J 8.0 S
30	7.0	I 5.7 S	I 5.6 S	4.9 S	4.3	3.8	4.2	J 6.2 S	11.1	12.6	14.2	U 15.2 SH	U 15.3 SH	U 15.2 SH	15.0 SH	14.6 H	14.0 H	13.4 S	U 12.5 S	10.7	10.7	J 9.7 S	U 8.5 S	8.0
31	7.8	6.7	5.0 S	4.8	4.7	4.6	4.6	5.7 S	10.6	13.4	15.3 S	15.3 S	U 15.0 SH	14.6 H	U 15.2 SH	I 15.0 SH	15.0 H	13.9	12.5	10.4	J 10.6 S	U 9.5 S	U 9.5 S	8.7
No.	31	31	31	31	31	31	31	31	31	31	29	29	27	24	23	30	30	30	29	30	29	29	29	30
Median	8.1	7.5	6.2	5.3	4.3	4.2	4.5	7.0	11.2	13.4	15.0	15.0	14.7	14.1	14.3	D 13.8	D 13.8	13.4	12.6	12.0	10.8	9.6	9.0	8.4
U.Q.	8.9	8.0	6.7	6.3	5.6	5.1	5.2	7.4	12.3	14.9	15.1	15.2	15.2	15.1	15.0	—	—	13.9	13.8	13.5	12.4	11.8	10.7	9.3
L.Q.	7.1	6.8	5.8	4.4	3.8	3.8	4.1	6.2	10.6	12.8	14.3	14.0	13.7	13.8	13.6	13.5	13.3	12.5	12.1	10.7	10.0	9.2	8.4	7.9
Q.R.	1.8	1.2	0.9	1.9	1.8	1.3	1.1	1.2	1.7	2.1	0.8	1.2	1.5	1.3	1.4	—	—	1.4	1.7	2.8	2.4	2.6	2.3	1.4

The Radio Research Laboratories, Japan.

foF2

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

Y 1

IONOSPHERIC DATA

Jan. 1958 | foF1 | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																								
7											C													
8								C																
9																								
10													C	C										
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																6.5 LH	L							
21																								
22																								
23																								
24																C	C	C	C	C	C	C		
25														C										
26													C											
27												C												
28																								
29																								
30																								
31																								
No.																1								
Median																6.5								

foF1 | Sweep 1.0 Mc to 20.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 2

IONOSPHERIC DATA

Jan. 1958 | foE | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									2.20	2.85	3.30	I3.80S	3.85	3.90	I3.65A	I3.40A	2.95	2.30						
2									2.20	3.20	3.60	4.00	4.00	4.00	3.75	3.60	A	A						
3									2.30	3.00	3.55	I3.85A	3.95	4.00	I3.70A	3.45H	2.85	1.90						
4									2.20	2.95	3.45	I3.70A	A	A	A	3.40	2.80	A						
5									2.40	3.10	3.50	A	A	A	J3.80R	3.45	2.90	2.10						
6									2.30	3.00	3.50	A	A	A	J3.80R	I3.50A	3.05	2.25						
7									2.20	3.10	I3.55C	3.80C	3.90	4.00	J3.80R	3.35	I2.85A	2.05						
8									2.30	3.15	3.50	J3.60S	I3.70A	3.80	J3.70R	I3.35S	2.80	A						
9									2.40	3.10	I3.50A	3.75	3.95	3.90	I3.70S	3.50	2.80	2.20						
10									2.40	I3.20A	3.60	3.75	I3.80C	I3.70C	I3.70A	3.45	I2.95A	A						
11									2.45	3.10	3.50	I3.80A	3.90	3.90	3.80H	3.60H	I3.05A	2.05						
12									2.35	I3.05A	I3.40A	3.70	4.00	3.90	3.85	3.60	3.05	2.00						
13									2.25	2.95	I3.30A	I3.80A	3.90	3.90	3.85	3.60	3.00	A						
14									2.25	2.80	A	A	A	A	3.90	3.60	3.20	2.45						
15									2.40	3.10	3.50	A	A	A	3.90	3.80	3.20	2.40						
16									2.50	3.20	3.50	I3.70A	3.90	4.00	3.90	3.70	3.25	A						
17									2.35	3.20	A	A	A	3.90	3.90	3.65	3.10	2.30						
18									2.45H	3.10H	I3.60S	A	A	A	A	A	3.20	2.35						
19									2.35S	2.90	3.20	A	A	A	A	A	A	A						
20									2.60	3.10	3.50	3.80	3.90	3.95	3.85	3.65H	3.10	2.15						
21									2.40	3.00	I3.40A	I3.70A	3.90	3.90	I3.75A	3.50	3.05	A						
22									2.40	3.10	3.50	J3.75	3.90	3.90	3.90	3.60	3.15	A						
23									2.40	3.15	3.50	3.70	3.90	3.90	J3.80R	3.60	3.00	2.05						
24									2.30	2.95	I3.30A	3.70	I3.80C	3.90	3.65H	C	C	C						
25									2.45	I3.15C	3.55S	I3.70S	3.85	I3.85C	3.70	3.55	2.90	2.20						
26									2.30	3.00	I3.40A	I3.75A	C	A	A	3.60S	3.10	I2.20A						
27									2.20	2.85	3.30	I3.70C	J3.80	J3.70S	3.65S	3.50H	3.10	2.45H						
28									2.40	I3.15C	I3.60A	I3.75A	J3.80	J3.85R	3.80	3.55	3.05	2.45						
29									I2.45A	3.05	3.45	3.75	I3.90R	J3.85R	J3.80	3.50	3.00	2.25						
30									2.40	3.05	3.50	I3.70A	3.90	3.80	3.75	3.50	3.25	2.50						
31									2.25	2.95	3.50	I3.75S	C	J3.80R	3.70S	3.45	3.05	2.50H						
No.									31	31	29	24	21	23	27	28	28	21						
Median									2.35	3.10	3.50	3.75	3.90	3.90	3.80	3.50	3.05	2.25						

foE

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

The Radio Research Laboratories, Japan.

Y 3

IONOSPHERIC DATA

Jan. 1958 | 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	4.3M	S	E	2.8M	S	S	S	S	G	3.2	3.6	5.0	4.8	G	5.5M	5.8M	G	G	3.8M	3.4M	3.1M	S	S	S
2	S	E	E	E	E	E	S	S	G	G	G	4.4	G	G	4.8M	4.5M	4.4M	4.5M	3.7M	3.1M	3.0M	3.1M	3.1M	S
3	5.9M	3.4M	E	1.5	3.2M	2.8M	2.3M	2.7M	3.1M	G	4.6	8.3M	4.5	G	4.7	G	G	G	S	S	S	S	S	S
4	E	2.8M	2.9M	E	E	E	S	E	3.1M	G	G	4.4M	4.5M	5.7M	7.0M	5.7M	5.7M	3.8M	3.8M	3.6M	2.9M	S	2.0M	2.3M
5	S	E	E	3.1M	3.1M	3.6M	4.4M	2.7M	G	G	3.8	6.4M	6.6M	5.7M	G	G	G	3.0M	S	S	S	S	S	S
6	E	E	E	E	E	3.1M	3.8M	S	3.1M	G	G	4.9M	5.6M	5.3M	G	5.1M	G	3.0M	C	S	S	S	S	S
7	S	E	E	E	E	E	S	S	G	G	C	6.3M	G	G	G	G	4.2M	3.1M	C	C	S	S	S	S
8	S	E	E	E	E	E	S	C	G	G	G	G	3.9	G	G	4.2M	G	3.1M	2.7M	S	2.8M	2.8M	3.1M	S
9	E	E	E	E	E	E	S	S	G	G	3.8M	4.0	4.2	4.9	G	6.0M	4.3M	3.1M	E	E	S	S	S	S
10	S	E	E	E	E	E	3.3M	S	G	4.5M	G	G	C	C	6.2M	4.4M	4.6M	3.4M	3.7M	3.4M	3.1M	2.1M	S	S
11	S	E	E	3.4M	3.0M	E	S	S	G	G	G	3.9	G	G	G	G	4.1	G	E	5.7M	5.9M	3.0M	2.0M	3.1M
12	S	3.0M	1.4	3.4M	3.4M	S	E	S	3.1M	4.3M	4.5M	4.0	6.2M	5.0M	4.8M	G	3.1G	3.1M	S	2.7M	S	S	S	S
13	S	E	E	E	E	E	E	S	3.1	G	4.5	3.9	4.5M	G	2.9G	G	G	3.6M	3.6M	3.1M	S	S	S	S
14	S	E	E	E	E	E	S	S	3.6M	3.4	6.2	5.8M	8.8M	5.0M	4.4M	4.8M	3.1G	G	S	S	2.7M	3.1M	2.8M	S
15	S	E	E	E	1.4	E	S	S	4.4M	3.2	4.5	10.5M	9.6	7.0	G	G	3.5	3.1M	3.1M	3.0M	S	2.2M	S	S
16	S	E	E	E	E	3.1M	2.8M	S	3.1M	3.6	4.5	5.2	G	G	4.5M	4.5M	5.5M	5.0M	4.3M	3.2M	3.1M	3.0M	S	S
17	S	E	E	E	E	E	S	S	G	G	4.1	5.6M	6.8	4.0	G	3.1M	G	G	S	S	S	S	S	S
18	S	E	E	E	3.1M	3.0M	2.9M	S	3.1M	G	4.1	5.7M	6.5M	9.6M	9.2	5.6M	3.1G	3.0M	3.6M	2.8M	3.1M	S	S	S
19	E	E	3.2M	2.8M	3.1M	E	S	S	3.1M	6.7M	3.8	4.0	6.4M	5.6M	11.3	10.6M	9.8M	5.7M	6.5M	2.9M	S	S	S	S
20	S	E	E	E	E	E	S	S	G	G	G	3.8G	4.4M	3.8G	3.8G	G	G	3.0M	3.6M	3.2M	3.1M	S	S	S
21	S	S	E	E	E	3.3M	S	S	G	3.6	4.0	4.5M	G	G	3.9	4.3M	G	3.0	3.1	S	S	S	S	S
22	S	E	E	E	E	E	S	S	G	3.4	3.7	G	G	5.6M	G	G	G	2.8	2.9M	2.2M	S	S	S	S
23	S	E	E	E	E	E	S	S	G	G	G	G	G	G	G	G	3.6M	3.1M	2.6M	S	S	S	S	S
24	S	E	E	E	E	E	S	S	G	G	3.6	4.5M	3.7G	G	G	C	C	C	C	C	C	C	S	2.8M
25	3.4M	2.8M	E	E	E	E	S	S	3.1M	C	3.6	G	G	C	5.5M	G	G	G	S	2.2M	3.2M	3.2M	2.8M	S
26	2.6M	S	E	E	E	2.3M	2.9M	3.1M	2.8	3.6	4.0	4.5M	C	5.1M	4.0	G	G	2.4M	2.1M	2.8M	2.3M	3.4M	4.4M	4.3M
27	E	E	E	E	E	E	S	S	2.7	3.2	3.6	C	G	4.0	4.4M	G	3.1G	4.4	2.6	2.2	3.2M	3.1M	S	S
28	S	E	E	3.1M	E	S	S	S	2.7	C	4.5M	4.5M	G	G	G	G	3.7	2.7	S	2.7M	S	S	S	S
29	S	E	3.1M	2.9M	3.1M	E	S	S	3.5M	3.6	G	G	5.7M	G	3.8M	G	3.1M	3.1M	2.3M	2.7M	S	S	S	S
30	S	E	E	E	E	E	S	S	G	3.2	G	5.0M	G	G	G	G	G	3.1M	S	S	S	S	S	S
31	E	E	E	E	E	E	S	S	3.1M	4.6M	G	4.1	4.7	G	G	G	G	2.9	4.3M	2.9M	3.2M	S	S	S
No.	10	28	31	31	30	28	9	4	31	29	30	30	29	29	31	30	30	30	20	20	14	10	7	4
Median	E	E	E	E	E	E	2.9M	2.7M	2.7	G	3.6	4.4	4.4	G	3.8	G	3.1	3.0M	3.4M	2.9M	3.1M	3.0M	2.8M	3.0M
U.Q.	3.4	E	E	1.5	1.4	E	3.6		3.1	3.6	4.1	5.2	6.0	5.2	4.8	4.5	4.1	3.1	3.8	3.2	3.2	3.1	3.1	
L.Q.	E	E	E	E	E	E	E		G	G	G	3.9	G	G	G	G	G	2.7	2.6	2.7	2.9	2.8	2.0	
Q.R.												1.3						0.4	1.2	0.5	0.3	0.3	1.1	

foEs

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

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

Jan. 1958 | 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	1.9	S		1.3	E	S	S	S		3.2	G	E 4.7 A	4.0		G	3.9			2.6	2.5	1.8	S	S	S
2	E						S	S				G			3.4	2.8	3.1	2.8	2.5	2.2	1.9	1.9	1.7	S
3	S	2.0		E	1.8	1.7	S	S	G		4.1	5.0	4.1		4.7				S	S	S	S	S	S
4		1.8	1.7				S		G			G	G	4.6	4.5	3.2	2.6	G	2.5	2.7	2.1	S	S	1.8
5	S			1.8	1.7	2.4	2.6	S			3.8	4.1	4.5	4.0				1.7	S	S	S	S	S	S
6						1.7	1.8	S	G			G	4.1	G		4.0		1.8	C	S	S	S	S	S
7	S						S	S			C	3.4					2.9	G	C	C	S	S	S	S
8	S						S	C					G			G		G	1.8	S	1.7	S	S	S
9							S	S			G	G	G	4.2		3.1	2.5	S			S	S	S	S
10	S						S	S		G			C	C	3.9	U 2.5 A	G	G	2.0	2.5	S	S	S	S
11	S			1.9	1.8		S	S				D 3.9 B					3.9			2.2	2.6	S	S	S
12	S	S	E	1.9	2.0	S		S	G	G	G	3.4	3.4	3.4	3.2		2.6	G	S	S	S	S	S	S
13	S							S	G		4.1	G	3.4		2.7			G	1.9	S	S	S	S	S
14	S						E	S	G	G	4.7	G	5.4	G	3.1	U 2.9 A	2.5		S	S	S	2.1	S	S
15	S				E		S	S	G	G	4.2	5.0	G	6.1			G	2.3	1.8	1.8	S	S	S	S
16	S					1.8	S	S	G	G	4.1	4.1			3.4	3.4	3.1	2.9	2.5	2.3	S	1.9	S	S
17	S						S	S			G	4.3	5.3	3.5		2.6			S	S	S	S	S	S
18	S				1.9	1.7	S	S	G		4.0	4.1	4.6	4.5	5.7	3.9	2.2	2.1	2.9	2.0	S	S	S	S
19			1.9	1.2	1.3		S	S	G	G	3.8	D 4.0 B	4.6	4.6	7.0	5.1	6.2	4.2	2.7	S	S	S	S	S
20	S						S	S				3.4	3.7	3.4	3.0			1.8	2.0	2.0	2.0	S	S	S
21	S	S				2.1	S	S		G	3.7	4.0			G	U 3.2 A		G	2.0	S	S	S	S	S
22	S						S	S		G	G			G				G	1.8	S	S	S	S	S
23	S						S	S									2.1	2.0	2.0	S	S	S	S	S
24	S						S	S			D 3.7 S	3.4	3.4			C	C	C	C	C	C	C	S	2.2
25	2.1	1.8					S	S	G	C	E 3.4 A			C	G				S	S	S	S	S	S
26	1.8	E				1.6	2.1	2.5	G	D 3.6 S	3.8	G	C	4.2	D 4.1 B			2.3	S	S	S	1.9	2.5	S
27							S	S	2.6	3.2	D 3.6 S	C		D 4.0 B	3.4		1.9	1.7	2.5	2.0	2.5	2.5	S	S
28	S			E		S	S	S	G	C	3.7	3.8					3.5	G	S	S	S	S	S	S
29	S		E	E	1.9		S	S	2.5	D 3.6 S			3.5		2.6		2.2	1.9	S	S	S	S	S	S
30	S						S	S		G		3.9						1.8	S	S	S	S	S	S
31							S	S	G	G		4.1	4.7					2.9	3.4	1.9	1.9	S	S	S
No.	4	4	4	8	9	7	4	1	16	14	17	23	18	13	17	13	16	23	16	11	8	5	2	2
Median	1.8	1.8	E	1.2	1.8	1.7	2.0	2.5	G	G	3.8	3.8	3.8	4.0	3.4	3.2	2.6	1.8	2.2	2.2	2.0	1.9	2.1	2.0

foEs

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

The Radio Research Laboratories, Japan.

Y 5

IONOSPHERIC DATA

Jan. 1958 | f-min | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E1.70s	E1.60s	1.35	1.25	1.25	E1.70s	E1.70s	E1.70s	1.75	1.60	1.75	2.00	1.95	1.90	1.90	2.10	1.70	E1.80s	E1.60s	E1.60s	E1.65s	E1.70s	E1.75s	E1.60s
2	1.30	1.35	1.25	1.25	1.10	1.30	E1.70s	E1.70s	1.70	1.70	1.90	2.20	2.10	1.90	1.85	1.70	1.55	E1.70s	E1.70s	E1.70s	E1.70s	E1.70s	E1.70s	E1.70s
3	E1.70s	1.35	1.30	1.20	1.10	1.10	E1.60s	E1.70s	1.80	1.75	1.90	1.90	2.20	2.45	2.45	1.70	1.70	1.60	E1.70s	E1.70s	E1.65s	E1.70s	E1.70s	E1.70s
4	1.30	1.25	1.25	1.35	1.25	1.35	E1.70s	1.90	1.85	1.70	1.90	2.10	1.85	1.90	1.50	1.60	1.30	1.35	E1.65s	E1.70s	E1.70s	E1.70s	E1.65s	E1.70s
5	E1.70s	1.25	1.30	1.25	1.25	1.30	1.25	E1.70s	1.75	1.80	1.95	1.90	2.00	2.45	1.90	2.20	1.50	E1.50s	E1.60s	E1.60s	E1.60s	E1.70s	E1.70s	E1.70s
6	1.30	1.25	1.20	1.25	1.25	1.30	E1.70s	E1.70s	E1.70s	1.70	1.75	1.85	1.90	2.00	2.20	1.85	1.70	E1.60s	C	E1.60s	E1.70s	E1.70s	E1.70s	E1.70s
7	E1.70s	1.25	1.20	1.20	1.10	1.35	E1.70s	B1.60s	1.70	1.50	I1.80c	1.50	2.20	2.45	1.85	1.70	1.55	E1.70s	C	E1.70s	E1.70s	E1.70s	E1.75s	E1.70s
8	E1.70s	1.25	1.10	1.10	1.10	1.35	E1.70s	C	1.70	1.75	1.70	2.20	2.30	2.45	2.30	2.20	1.70	E1.60s	1.25	E1.65s	E1.60s	E1.70s	E1.70s	E1.70s
9	1.35	1.25	1.25	1.25	1.25	1.35	E1.70s	E1.75s	1.70	1.85	2.20	1.95	2.20	2.20	1.85	1.80	1.80	E1.80s	E1.60s	E1.70s	E1.60s	E1.80s	E1.70s	E1.70s
10	E1.70s	1.20	E	E	1.20	1.10	E1.70s	E1.65s	1.60	1.50	2.45	1.90	I1.80c	I1.70c	1.70	1.70	1.70	1.50	E1.60s	E1.60s	E1.70s	E1.70s	E1.70s	E1.70s
11	E1.70s	1.25	1.25	E	1.10	1.35	E1.70s	E1.70s	1.50	1.90	2.35	2.55	2.50	2.90	2.45	2.50	2.10	1.60	1.35	E1.70s	1.25	E1.70s	E1.60s	E1.60s
12	E1.70s	E1.60s	1.25	1.15	1.25	E1.70s	1.30	E1.60s	1.50	1.80	1.60	1.85	1.60	2.05	1.85	1.85	1.85	E1.70s	E1.60s	E1.60s	E1.70s	E1.70s	E1.75s	E1.60s
13	E1.70s	1.20	E	E	E	1.35	1.25	E1.70s	E1.50s	1.60	1.90	2.45	2.45	2.45	2.20	1.70	1.55	1.25	1.20	E1.70s	E1.65s	E1.60s	E1.60s	E1.70s
14	E1.55s	1.20	1.25	1.25	1.25	1.35	1.35	E1.55s	1.35	1.50	1.60	1.95	2.20	2.20	1.80	1.75	1.70	E1.50s	E1.50s	E1.65s	E1.70s	E1.70s	E1.70s	E1.70s
15	E1.60s	1.25	1.25	1.25	1.25	1.35	E1.60s	E1.70s	1.60	1.75	2.20	2.05	2.45	2.45	2.45	2.35	2.50	E1.65s	E1.60s	E1.60s	E1.70s	E1.70s	E1.70s	E1.70s
16	E1.70s	1.25	1.15	1.10	1.15	1.35	E1.70s	E1.70s	1.85	1.70	1.90	2.20	2.00	2.15	2.00	1.60	1.50	E1.50s	E1.70s	E1.70s	E1.70s	E1.70s	E1.70s	E1.80s
17	E1.90s	1.35	E	E	E	1.20	E1.70s	E1.70s	E1.70s	1.60	1.80	2.10	2.30	2.45	2.20	1.90	1.70	E1.70s	E1.60s	E1.70s	E1.70s	E1.70s	E1.70s	E1.70s
18	E1.70s	1.25	E	1.30	E	1.35	E1.70s	E1.65s	1.60	1.85	2.00	1.90	1.90	1.85	1.70	1.70	1.65	E1.70s	1.10	1.15	E1.60s	E1.70s	E1.70s	E1.75s
19	1.35	1.35	1.05	E	1.00	1.25	E1.70s	E1.60s	1.70	1.25	1.90	1.50	2.10	2.20	2.50	1.85	1.60	E1.70s	E1.65s	E1.70s	E1.65s	E1.60s	E1.75s	E1.70s
20	E1.70s	1.25	1.10	1.15	E	1.15	E1.70s	E1.70s	1.80	2.20	2.05	2.45	2.20	2.20	2.20	1.70	1.60	1.45	E1.60s	E1.70s	E1.70s	E1.70s	E1.80s	E1.70s
21	E1.70s	E1.70s	1.25	1.25	1.10	E1.70s	E1.80s	E1.70s	1.70	1.70	1.75	1.90	2.20	2.20	2.20	2.15	1.65	E1.60s	E1.60s	E1.70s	E1.70s	E1.75s	E1.70s	E1.75s
22	E1.70s	1.25	1.20	E	1.15	1.25	E1.70s	E1.75s	1.25	1.50	1.60	2.10	2.45	2.40	2.20	1.90	1.50	E1.60s	1.25	E1.70s	E1.65s	E1.60s	E1.70s	E1.70s
23	E1.70s	1.25	E	1.25	E	1.10	E1.70s	E1.60s	1.70	1.30	1.60	1.60	1.70	1.80	1.65	1.55	1.50	E1.70s	E1.70s	E1.75s	E1.75s	E1.80s	E1.70s	E1.70s
24	E1.55s	1.25	E	1.10	E	1.40	E1.75s	E1.75s	1.70	1.55	1.50	1.80	1.85	2.00	1.80	C	C	C	C	C	C	C	E1.70s	E1.70s
25	E1.70s	1.35	E	1.10	1.10	1.35	E1.70s	E1.65s	1.70	I1.50c	1.90	1.85	1.85	I1.70c	1.50	1.25	1.30	E1.60s	E1.70s	E1.70s	E1.70s	E1.70s	E1.70s	E1.90s
26	1.35	1.25	1.20	1.20	E	1.05	1.10	E1.65s	1.70	1.25	2.10	1.70	I2.15c	2.45	2.00	2.50	1.85	1.60	E1.65s	E1.70s	E1.95s	E1.70s	E1.65s	E1.70s
27	1.40	1.20	1.10	1.10	1.15	1.35	E1.80s	E1.70s	1.70	1.25	1.50	I1.70c	1.85	1.70	1.60	1.70	1.30	1.15	E1.70s	E1.70s	E1.60s	E1.70s	E1.70s	E1.70s
28	E1.70s	1.35	1.10	1.25	E	E1.70s	E1.70s	E1.70s	1.75	E4.00c	1.50	1.65	1.90	E1.90s	1.85	1.70	1.70	E1.65s	E1.70s	E1.65s	E1.70s	E1.70s	E1.70s	E1.90s
29	E1.70s	1.25	E	1.25	E	1.30	E1.70s	E1.70s	1.70	1.75	1.60	1.80	1.85	1.70	1.50	1.50	1.30	1.15	E1.70s	E1.70s	E1.70s	E1.70s	E1.60s	E1.70s
30	E1.70s	1.70	1.10	E	E	1.35	E1.70s	E1.60s	1.70	1.50	1.90	2.20	2.00	1.85	1.85	2.05	1.50	E1.50s	E1.70s	E1.60s	E1.70s	E1.75s	E1.60s	
31	1.35	1.25	E	E	E	1.25	E1.70s	E1.70s	1.70	1.25	1.25	1.70	2.30	1.60	2.00	1.15	1.70	E1.70s	E1.70s	E1.70s	E1.70s	E1.75s	E1.70s	E1.70s
No.	31	28	31	31	31	27	31	30	31	30	31	31	31	31	31	30	30	30	28	30	30	30	31	31
Median	E1.70	1.25	1.15	1.20	1.10	1.35	E1.70	E1.70	1.70	1.65	1.90	1.90	2.10	2.15	1.90	1.70	1.65	E1.60	E1.60	E1.70	E1.70	E1.70	E1.70	E1.70

f-min | Sweep 1.0 Mc to 20.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

IONOSPHERIC DATA

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

Yamagawa

Lat. 31° 12.6' 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	U2.40S	J2.55R	2.40	J2.55S	2.50	2.30	J2.40S	2.70	2.85	3.00	2.80	U2.70SH	U2.55SH	2.50H	I2.50SH	2.40H	2.50H	I2.60S	2.70S	U2.70S	2.70	2.70S	2.60S	U2.60S
2	2.70	J2.90R	3.05	3.95	2.65H	2.50	2.65	3.10	2.95	2.75	I2.75SH	I2.75S	2.55H	2.50SH	2.45H	2.45H	I2.55SH	2.60	S	2.90	I2.75S	2.70	2.80	2.55
3	J2.70R	J2.90R	2.75	2.65	2.65	2.55H	2.85S	2.80	3.05	3.20	2.95	2.75H	I2.70SH	2.60H	I2.55SH	2.65H	2.65SH	U2.70S	I2.80S	I2.90S	I2.85S	I2.85S	2.80	J2.95S
4	J2.70S	2.80	2.70	2.80	2.95	2.90	2.85	2.90	3.25	3.05	2.95H	2.80S	2.70H	2.65H	2.65H	2.60SH	2.75H	2.70	2.80S	2.80	2.85	2.80S	2.90S	2.80S
5	2.70	2.95	3.05	3.15	3.10	2.55	J2.65R	2.95	3.25	3.25	3.25	3.05H	2.90H	2.85	2.65H	2.65H	2.65H	2.75	2.80	2.85	2.80SH	2.95	2.80S	J3.10R
6	3.00	3.00	2.90	3.15S	2.45	2.40	2.45	2.65S	3.10	3.05	2.85	2.75	2.75H	2.65H	2.65H	2.70H	2.70H	2.70	I2.75C	2.95	2.85S	I2.70C	J2.75S	U2.70SH
7	J2.85S	2.85	3.10S	2.60H	2.65	2.60	2.70	2.85S	3.15	3.00	I2.90C	2.75	2.75H	2.60H	2.60H	2.65H	2.65H	2.70	I2.75C	2.90S	2.80	2.85S	2.85	J2.85R
8	U2.85S	2.85	2.90S	3.45	2.60S	2.50	2.65	I2.65C	3.05	3.05	2.90	2.70H	2.65SH	2.50SH	2.55SH	2.55H	2.60H	2.65S	2.70	2.85U	J2.80R	U2.70S	2.80	J2.70R
9	J2.80S	J2.80S	2.95	3.05	2.95	2.55	2.85	2.80	3.10	I2.95S	I2.85C	2.80H	2.65H	2.65H	2.55H	U2.60SH	2.60H	2.65	2.75	2.80	I2.80S	I2.80S	2.75S	I3.00S
10	J2.75S	2.90S	2.75	2.45S	2.60	2.60	2.80	2.75	3.05S	3.05	I2.85C	I2.65SH	I2.60C	I2.50C	2.55SH	2.60SH	2.55SH	2.60	I2.75S	I2.85S	U2.65S	I2.80S	2.95	2.95S
11	U2.70S	2.70	2.90S	3.25	3.00	2.45	2.65	2.80S	3.15	3.00S	2.85H	2.70	2.60H	2.55H	2.60H	2.60H	2.60H	2.60	2.80S	2.80	2.80S	2.70S	2.85	U2.85S
12	2.95	2.95	3.00	2.60V	2.50H	2.45	2.55	2.75	3.15	3.00	2.80H	2.75H	2.55H	2.60H	2.60SH	SH	SH	S	S	S	S	U2.80SH	I2.65S	2.80
13	3.00	3.00	3.15	2.40H	2.50S	2.65	2.85	2.70S	3.20	3.00	2.85	2.75H	2.70	2.50H	2.55H	2.55H	2.55H	2.60	2.90S	2.85	2.70S	2.70H	J2.75R	J2.80R
14	3.10	J3.10R	3.20	2.70	2.50	2.55	3.30	2.40H	3.00	3.05	3.00H	2.60SH	2.60H	2.50H	2.50H	2.50H	2.55H	2.60	2.75S	I2.70S	2.65	2.75S	2.85	U2.80S
15	2.75	2.80	3.10	2.40	2.30H	2.70SH	2.65	2.90	2.95	3.00	2.80H	2.60H	I2.60SH	2.50H	2.60H	2.50H	2.50H	2.65	2.80	S	S	SH	S	J2.75S
16	J2.85S	2.85S	2.90	U3.05S	2.50	2.50H	2.50H	J2.70R	3.25	3.10	2.90H	2.70H	2.65H	2.55H	2.55H	2.50H	2.55H	2.65	2.75	J2.85S	2.60H	I2.45HR	I2.60S	J2.70S
17	U2.85S	U2.95S	3.20	2.75	2.55H	2.75	2.95	2.60S	3.15	3.10	2.85	2.65SH	2.65H	2.55SH	U2.40SH	2.50SH	2.55SH	2.65S	S	S	S	S	S	S
18	U2.90S	J2.95S	2.70S	2.75	2.70SH	3.05S	2.95	J2.65HR	2.80	I3.05S	I3.00S	2.75H	U2.45SH	2.45H	2.50H	2.50H	2.55H	2.65S	2.70	2.70	2.80	2.65S	2.90S	J2.75S
19	2.65S	2.80S	2.60	2.45	2.65H	2.80	2.75	2.75S	3.10	3.10	2.80	2.80H	2.60H	2.60H	2.60H	2.65H	2.65H	2.75	2.75	S	S	S	I2.70S	2.85S
20	2.95S	U2.45SH	2.55	J2.70R	2.75	2.95	3.00S	2.55S	J3.10S	2.95	3.30	2.80H	2.70H	2.65SH	S	S	S	J2.75S	U2.75S	2.80	I2.70S	U2.90S	J2.70S	2.75
21	2.60	3.05	2.65	2.65	2.30	2.25H	3.20	3.25S	3.15S	2.80H	3.00S	2.70H	2.60H	2.55H	2.50H	2.50H	2.65H	2.55	2.70S	2.75	U2.70S	U2.80S	I2.85S	2.95S
22	2.95	3.05	2.90	3.00S	2.90	2.45S	2.75	2.80	3.20	3.00	I2.95SH	I2.90SH	2.80H	2.65H	2.60H	2.65H	2.65H	2.70	2.80	I2.90S	I2.95S	2.85S	2.50SH	2.70SH
23	2.65	2.55	3.15	2.65	2.60H	2.50	2.55S	2.90	3.30	3.10	SH	SH	SH	SH	SH	SH	SH	S	S	S	2.90	I2.90S	J2.95S	2.85S
24	2.80	J3.10S	3.15S	2.55S	2.95	2.65	2.55	2.90	3.40	3.10	3.00H	U3.05SH	SH	SH	SH	C	C	C	C	C	C	J2.85S	2.65S
25	I2.85S	3.20	3.05	2.55S	2.80S	2.50S	2.80S	3.05S	3.50S	I3.10C	3.00S	SH	SH	C	SH	SH	SH	S	S	S	S	I2.95S	2.90	3.00
26	2.90	U2.60S	J2.75S	2.70S	2.70	2.80	2.85H	J2.95S	3.10	I3.20S	U3.10S	U2.95SH	C	SH	SH	SH	2.75SH	2.75	2.80	2.95	J2.75S	I2.70SH	2.75	2.95
27	3.15	J3.40S	U3.60S	2.55S	2.45SH	2.55S	3.05S	U2.90S	3.35S	3.20	J2.95HR	I2.90C	2.95SH	SH	SH	SH	SH	S	2.90	2.75S	2.90	I2.90S	I2.95S	I2.90S
28	J2.95S	J2.85S	3.25S	3.00	3.00	2.75H	2.90S	3.00S	3.60	3.05	3.05H	2.95	2.80SH	SH	SH	SH	U2.85SH	2.95S	U3.00S	I2.90S	J2.95S	U2.80S	2.60	2.85S
29	3.00	3.20	2.75S	2.80	2.85S	2.65S	2.75S	3.15	3.50	3.15	SH	2.90H	2.75H	SH	SH	2.75SH	2.75S	2.90S	2.85S	U2.85S	2.90S	U2.70S	J2.55R	U2.90S
30	3.20	I2.80S	I3.00S	2.95S	2.80	2.90	2.80	J3.05S	3.35	3.30	3.10	U3.00SH	U2.95SH	U2.90SH	2.80SH	2.75SH	2.80SH	2.90S	U2.90S	2.90	3.00	J2.80S	U2.70S	2.75
31	2.90	3.00	2.75S	2.55	2.60	2.65	2.65	2.85S	3.10	3.10	3.00S	3.05S	U2.85SH	2.80H	U2.70SH	I2.90SH	2.90H	2.95	3.05	2.80	J2.95S	U2.65S	U2.95S	2.75
No.	31	31	31	31	31	31	31	31	31	31	29	29	27	24	23	23	25	26	25	24	25	27	29	30
Median	2.85	2.90	2.90	2.70	2.65	2.55	2.75	2.80	3.15	3.05	2.95	2.75	2.65	2.60	2.55	2.60	2.65	2.70	2.80	2.85	2.80	2.80	2.80	2.80

(M3000)F2

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

The Radio Research Laboratories, Japan.

Y 7

IONOSPHERIC DATA

Jan. 1958 | (M3000)F1 | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																								
7											C													
8								C																
9																								
10													C	C										
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																3.10 LH	L							
21																								
22																								
23																								
24																C	C	C	C	C	C	C		
25														C										
26													C											
27												C												
28																								
29																								
30																								
31																								
No.																1								
Median																3.10								

(M3000)F1 Sweep 1.0 Mc to 20.0 Mc in 1 min/sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 8

IONOSPHERIC DATA

Jan. 1958 | h'F2 | 135° E Mean Time (G.M.T. + 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																								
7											C													
8								C																
9																								
10													C	C										
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																350	300							
21																								
22																								
23																								
24																C	C	C	C	C	C	C		
25														C										
26													C											
27												C												
28																								
29																								
30																								
31																								
No.																1	1							
Median																350	300							

h'F2

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

The Radio Research Laboratories, Japan.

Y 9

IONOSPHERIC DATA

Jan. 1958 | h'F | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	295	255	300	295	260	330	335	300	250	230	240	230H	220H	220H	215H	245H	235H	250	255	275	245	250	215	300
2	280	250	250	190	170H	300	300	235	220	230	235H	230	230H	220H	225H	230H	245H	250	275	250	240	240	240	255
3	285	260	240	245	255	250H	285	270	250	235	220	235H	220H	210H	225H	230H	225H	245	250	235	220	220	230	240
4	230	260	270	250	240	245	250	250	225	205	215H	225	220H	225H	230H	230H	215H	240	250	250	230	220	235	220
5	250	250	245	250	220	E320A	345	250	220	225	220H	210H	225	220H	215H	240H	240	235	240	245	225H	240	245	230
6	240	250	240	205	240	320	345	300	240	230	225	225	230H	220H	220H	230H	225H	240	I240C	240	220	230	250	260H
7	250	250	230	200H	260	275	290	250	230	215	I225S	230	230H	230H	220H	220H	240H	245	I245S	245	230	220	240	250
8	240	250	245	200	290	345	300	I280C	225	220	225	225H	220H	230H	230H	240H	240H	240	245	245	225	235	245	235
9	250	250	240	235	215	285	280	255	225	240	230	220H	220H	210H	220H	225H	245H	235	240	220	215	230	250	245
10	225	240	230	240	275	275	280	250	240	240	240	220H	I220C	I215C	220H	240H	240H	250	250	230	220	210	245	230
11	230	260	230	210	230	350	300	250	225	220	225H	235	220H	215H	215H	245H	240H	230	250	245	250	240	250	230
12	245	250	240	280	320H	305	290	240	205	225	215H	230H	225H	225H	230H	235H	250H	250	240	240	225	220H	245	255
13	235	210	200	200H	300	295	250	240	225	230	230	225H	225	225H	210H	225H	240H	250	255	240	215	225H	255	250
14	250	235	210	230	300	300	220	245H	245	225	240H	215H	235H	235H	220H	240H	245H	250	250	245	210	270	240	240
15	240	290	240	275	260H	230H	250	245	250	240	220H	235H	205H	E280AH	230H	240H	240H	250	255	250	235	200H	245	250
16	255	240	245	210	200	300H	290H	270	230	220	230H	220H	220H	220H	235H	240H	240H	250	250	245	230H	290H	285	245
17	250	245	225	240	200H	235	260	240	205	225	225	200H	240H	220H	220H	230H	245H	250	260	250	250	230	220	220
18	210	235	260	245	280H	250	215	260H	250	240	225	225H	205H	230H	250H	225H	240H	245	255	270	245	250	250	220
19	250	270	280	280	270H	245	245	260	245	230	220	220H	220H	220H	E340AH	250H	E270AH	250	250	245	225	205	225	240
20	220	205H	290	265	255	235	200	225	220	220	240	220H	220H	225H	205	220	245	240	240	240	230	240	250	250
21	240	240	270	250	300	400H	255	230	220	230H	235	225H	210H	210H	225H	240H	240H	245	270	230	250	225	220	230
22	240	215	245	215	220	340	300	240	230	220	220H	210H	220H	210H	210H	225H	235H	240	240	230	235	215	240H	290H
23	300	280	210	195	210H	305	345	250	225	215	220H	210H	200H	200H	205H	205H	230H	240	250	225	220	200	215	245
24	250	240	215	245	200	300	320	225	220	210	220H	215H	200H	220H	200H	C	C	C	C	C	C	C	240	270
25	270	200	200	255	245	300	300	260	235	I220C	220	195H	205H	I200C	220H	220H	240H	240	225	210	215	220	205	235
26	220	255	250	270	230	245	250H	270	245	240	240	205H	I225C	225H	230H	200H	235H	245	240	205	205	225H	250	245
27	230	210	205	220	290H	300	255	250	235	230	210H	I225C	200H	215H	205H	230H	205H	240	225	205	240	220	225	230
28	220	200	200	240	240	300H	290	250	230	230	205H	240	200H	225H	225H	220H	225H	240	205	200	230	225	240	250
29	250	240	230	255	265	285	290	250	220	225	225H	215H	205H	200H	240H	235H	240	245	220	205	205	210	250	250
30	225	250	240	240	230	245	290	275	230	220	215	200H	205H	210H	205H	230H	230H	240	215	220	230	210	245	250
31	235	220	235	280	270	285	300	295	220	225	230	225	220H	205H	205H	220H	240H	240	225	200	220	225	250	240
No.	31	31	31	31	31	30	31	31	31	31	31	31	31	30	30	30	29	30	30	30	30	30	31	31
Median	240	250	240	240	255	300	290	250	230	225	225	225	220	220	220	230	240	245	250	240	230	225	245	245

h'F

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

The Radio Research Laboratories, Japan.

Y 10

IONOSPHERIC DATA

Jan. 1958 | h'Es | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N | Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	S	E	100	S	S	S	S	G	150	150	120	110	G	100	100	G	G	100	100	100	S	S	S
2	S	E	E	E	E	E	S	S	G	G	G	120	G	G	100	100	100	100	100	100	95	95	95	S
3	100	100	E	105	100	100	100	100	100	G	110	100	110	G	105	G	G	G	S	S	S	S	S	S
4	E	100	100	E	E	E	S	E	100	G	G	100	100	100	100	100	100	100	100	100	100	S	100	95
5	S	E	E	100	100	100	100	100	G	G	105	105	100	100	G	G	G	100	S	S	S	S	S	S
6	E	E	E	E	E	100	100	S	100	G	G	100	105	100	G	100	G	100	C	S	S	S	S	S
7	S	E	E	E	E	E	S	S	G	G	C	100	G	G	G	G	100	100	C	C	S	S	S	S
8	S	E	E	E	E	E	S	C	G	G	G	G	100	G	G	105	G	100	100	S	100	100	100	S
9	E	E	E	E	E	E	S	S	G	G	100	150	145	130	G	100	100	95	E	E	S	S	S	S
10	S	E	E	E	E	E	105	S	G	100	G	G	C	C	100	100	100	100	100	100	100	100	S	S
11	S	E	E	95	95	E	S	S	G	G	G	110	G	G	G	G	100	G	E	100	100	100	100	135
12	S	100	100	100	95	S	E	S	100	100	100	100	100	100	100	G	95	95	S	100	S	S	S	S
13	S	E	E	E	E	E	E	S	150	G	140	105	100	G	100	G	G	100	100	100	S	S	S	S
14	S	E	E	E	E	E	S	S	125	105	100	100	100	100	100	100	100	G	S	S	100	100	100	S
15	S	E	E	E	95	E	S	S	105	145	100	100	100	100	G	G	150	100	100	100	S	100	S	S
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19	E	E	100	100	100	E	S	S	100	100	105	105	100	100	100	100	100	100	100	100	S	S	S	S
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22	S	E	E	E	E	E	S	S	G	150	110	G	G	110	G	G	G	100	100	100	S	S	S	S
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24	S	E	E	E	E	E	S	S	G	G	100	100	100	G	G	C	C	C	C	C	C	C	S	100
25	100	95	E	E	E	E	S	S	100	C	100	G	G	C	100	G	G	G	S	100	100	100	100	S
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29	S	E	100	100	100	E	S	S	120	110	G	G	100	G	100	G	100	100	100	100	S	S	S	S
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31	E	E	E	E	E	E	S	S	100	100	G	150	130	G	G	G	G	130	110	100	100	S	S	S
No.	4	4	4	8	8	7	7	3	16	14	19	24	18	14	17	13	16	24	18	19	14	10	7	4
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h'Es

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

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Y 11

IONOSPHERIC DATA

Jan. 1958 | Types of Es | 135° E Mean Time (G.M.T.+ 9h.) | Yamagawa | Lat. 31° 12.5' N, Long. 130° 37.7' E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f2			f						h2	h	h2	h		l2	l2h			f2	f4	f			
2												c			l2	l	l3	l4	f3	f3	f2	f	f2	
3	f	f2		f	f	f2	f	f2	l		c	l3	c		l2									
4		f	f						l			l2	l2	l2	l3	l2	l2	l	f	f2	f		f	f2
5				f	f	f3	f3	f			c2	l2	l2	l5				l						
6						f2	f2		l			l	l	l2h		l2		l						
7												l					l3	l						
8													l			l2		l2	f3		f	f	f	
9											l	f	h	h		l	l	l						
10							f			l2					l2	l	l2	l	f2	f	f	f		
11				f2	f							l					l2			f2	f3	f2	f	f
12		f	f2	f2	f2				l	l2s	l2h	l	l2h	l2	l2		l2	l		f				
13									h2		h2l2	l	l		l			l2	f3	f2				
14									h	c2	l3	l2	l3	l2	l2	l2	l				f	f3	f2	
15					f				l	h	c2l	l2	l	l3			h	l	f2	f		f		
16						f2	f2		l	c2	c	l			l2	l2	l2	l4	f2	f4	f2	f2		
17											l	l2	l3	l		l								
18					f2	f	f		l		h	l	l3	l3	l3	l3	l	l	f4 f3	f	f			
19			f2	f2	f				l	lc2	c	l2	l2	l2	l3	l4	l3	l4	f4	f				
20												l	l2	l	l			l	f2	f2	f			
21						f				cl	l	l			l	l2		l2	f2					
22										h	h			c				l2	f2	f				
23																	l2	l	f2					
24											l2	l2	l2											f2
25	f2	f							l		l2				l					f	f	f3	f	
26	f2					f2	f2	f3	c	c3	l2	l		l2	l2			l2h	f	f	f	f2	f4	f2
27									h	h	h			h	l		l	l	f2 f2	f f	f4	f3		
28				f					h3		l2	l2					c2	c		f				
29			f	f	f2				l	c2			l		l		l2	lh	f	f				
30										h		l2						l						
31									l	lh		h	h2					h3	f6	f	f			
No.																								
Median																								

Types of Es

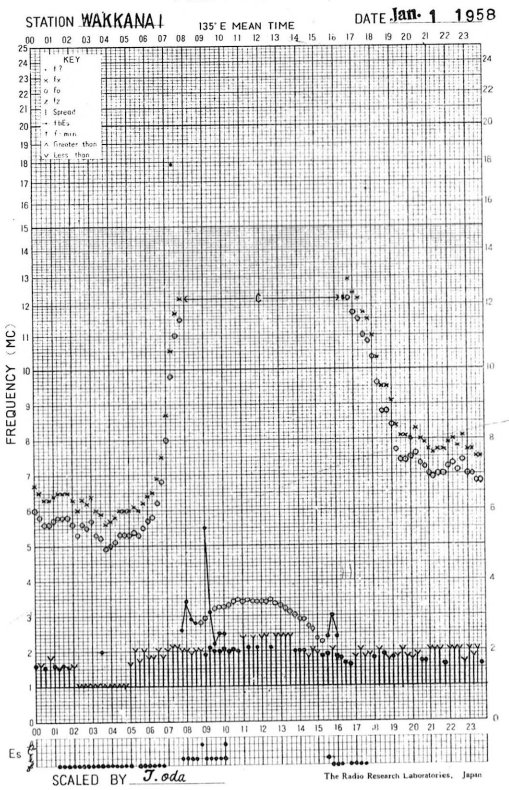
Sweep 1.0 Mc to 20.0 Mc in 1 min sec in automatic operation.

The Radio Research Laboratories, Japan.

Y 12

f-PLOT OF IONOSPHERIC DATA

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



SCALED BY J. Oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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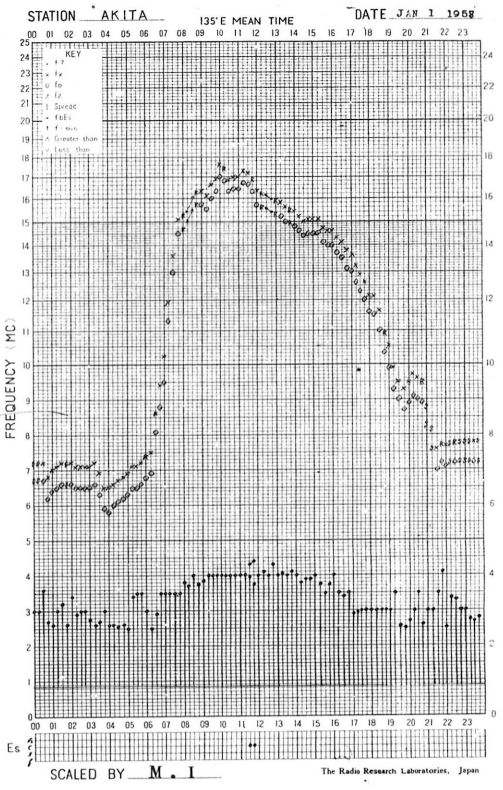

SCALED BY M. I

The Radio Research Laboratories, Japan

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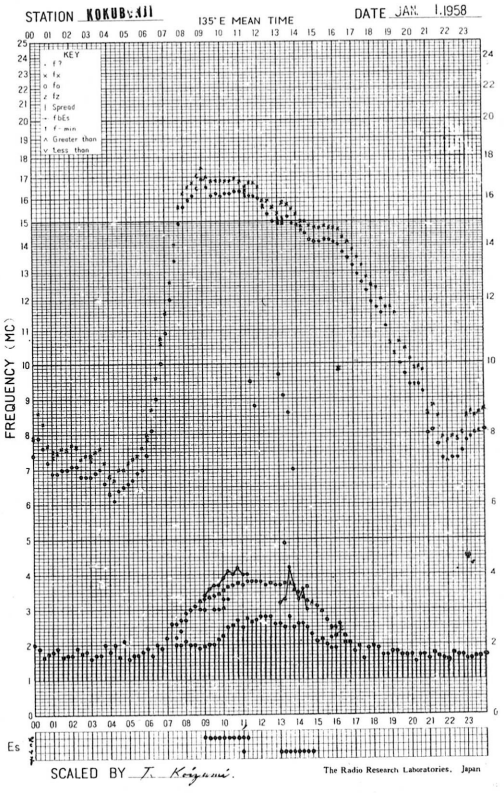

SCALED BY T. Kitagami

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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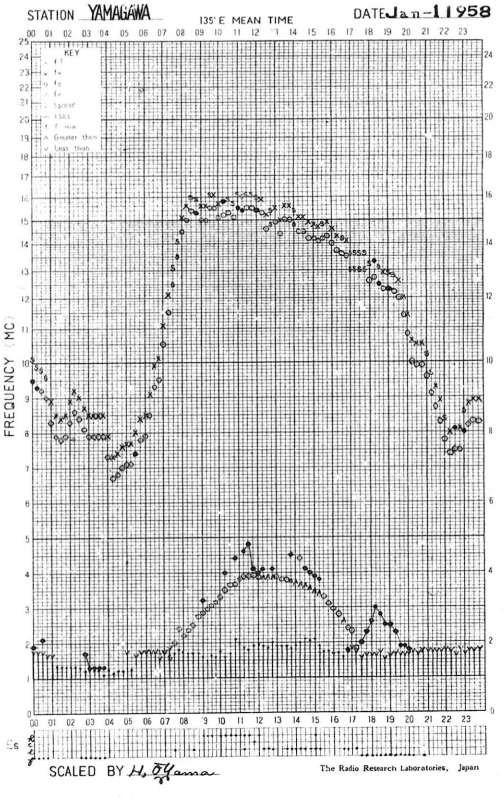

SCALED BY H. Ogama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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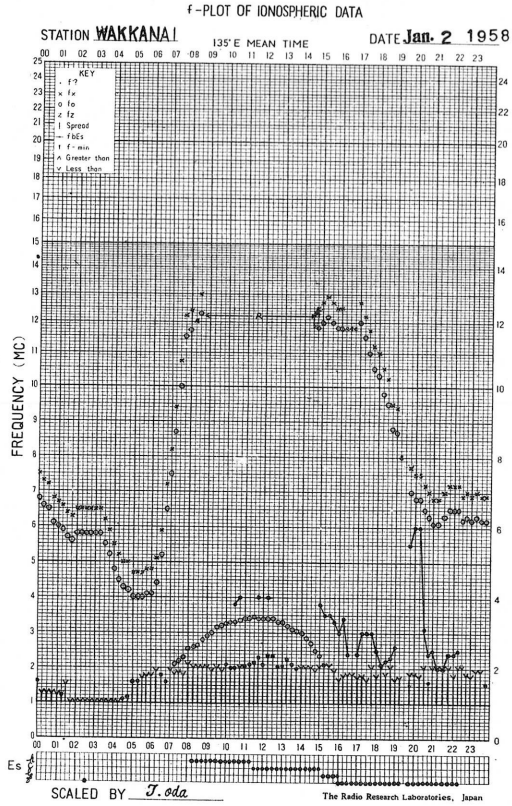

SCALED BY T. oda

The Radio Research Laboratories, Japan

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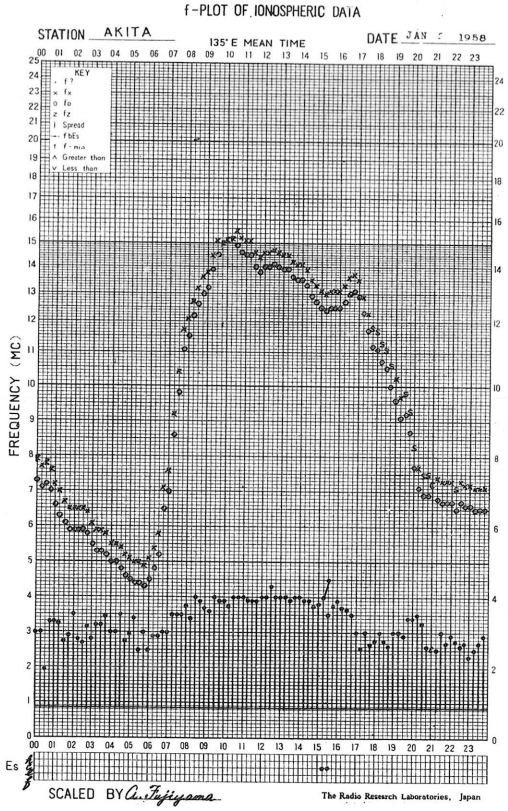

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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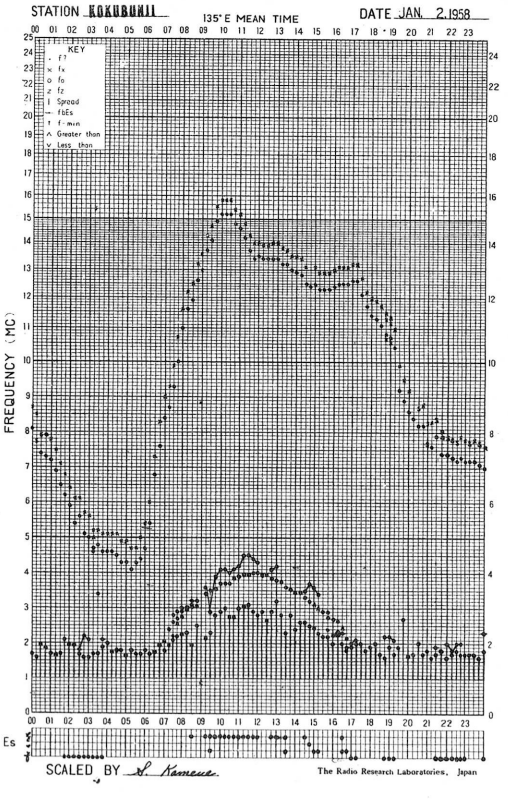

SCALED BY S. Kameue

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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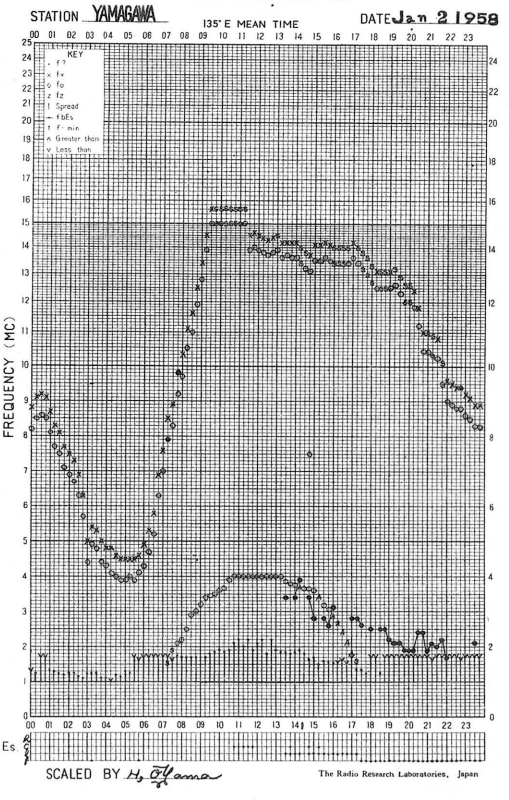
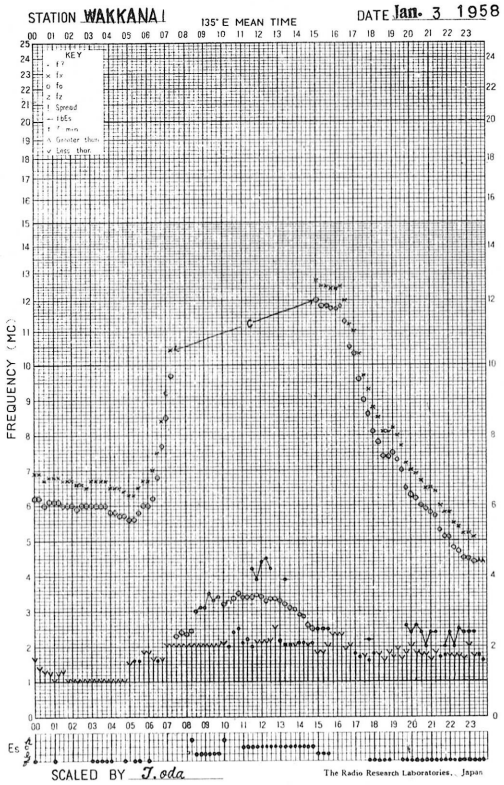


SCALED BY H. Ofuama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DAIA

STATION WAKKANAI 135° E MEAN TIME DATE Jan. 3 1958



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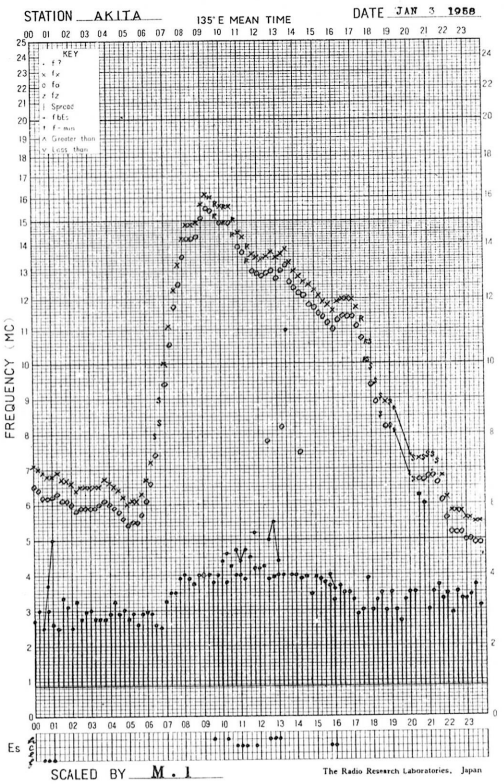

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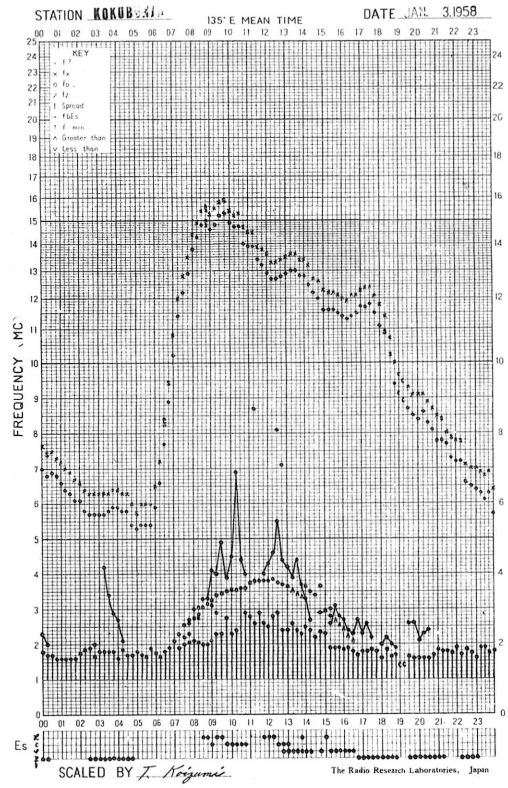

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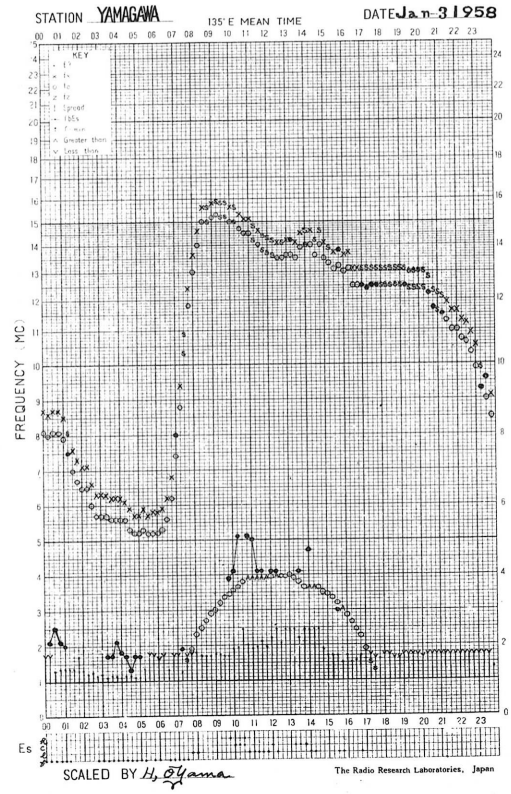

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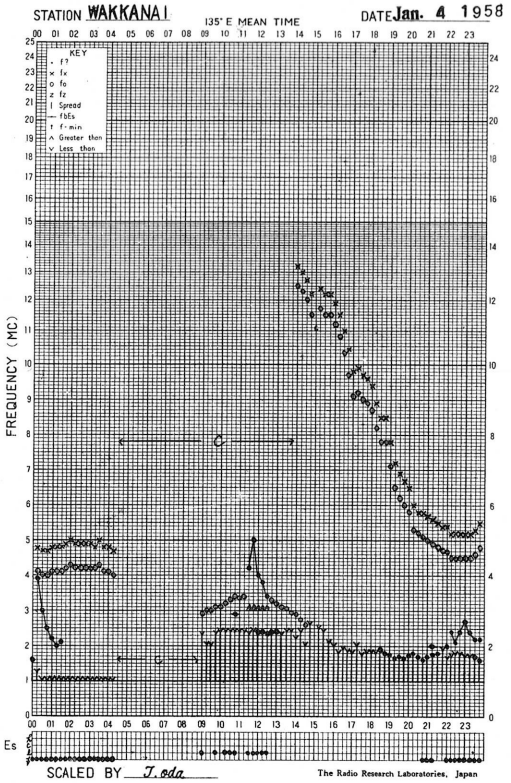
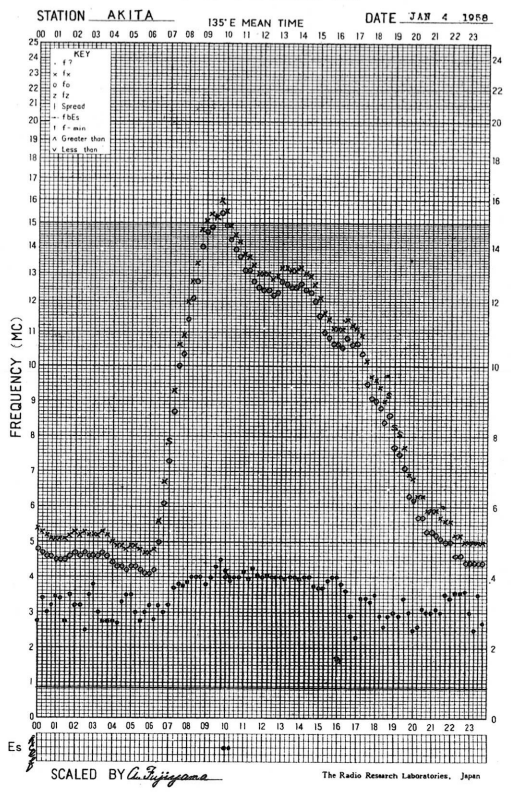


SCALED BY I. Oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135° E MEAN TIME DATE JAN 4 1958

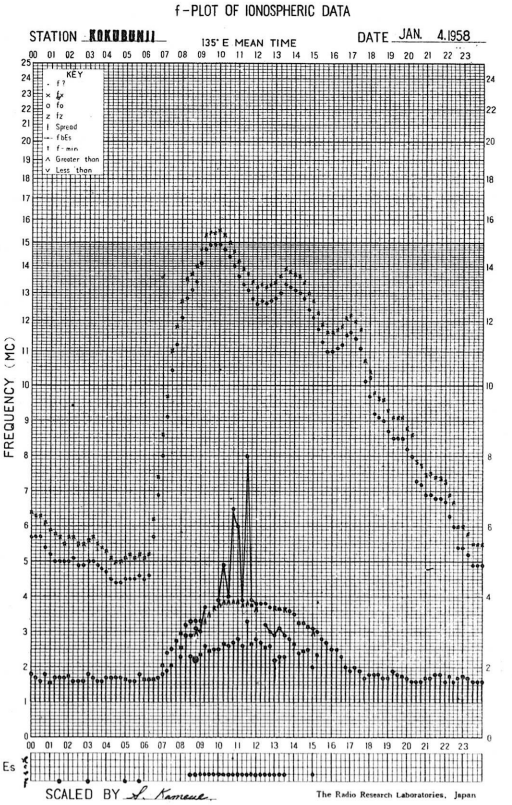


SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE JAN. 4.1958

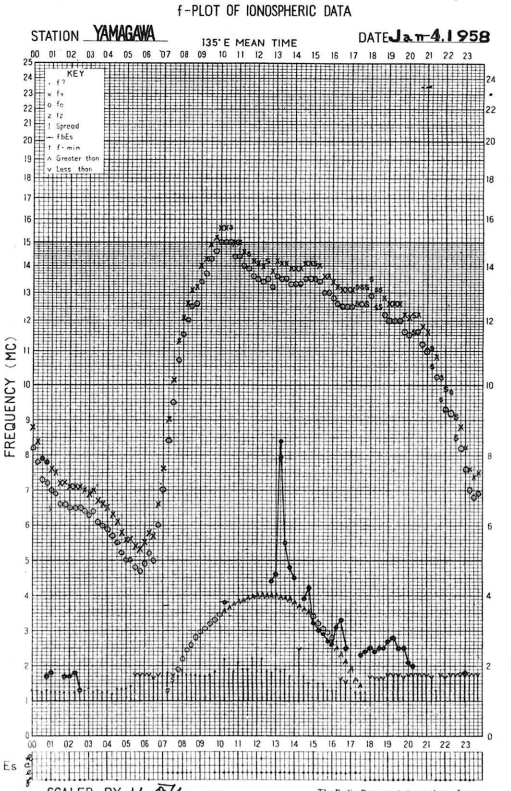


SCALED BY S. Kameuchi

The Radio Research Laboratories, Japan

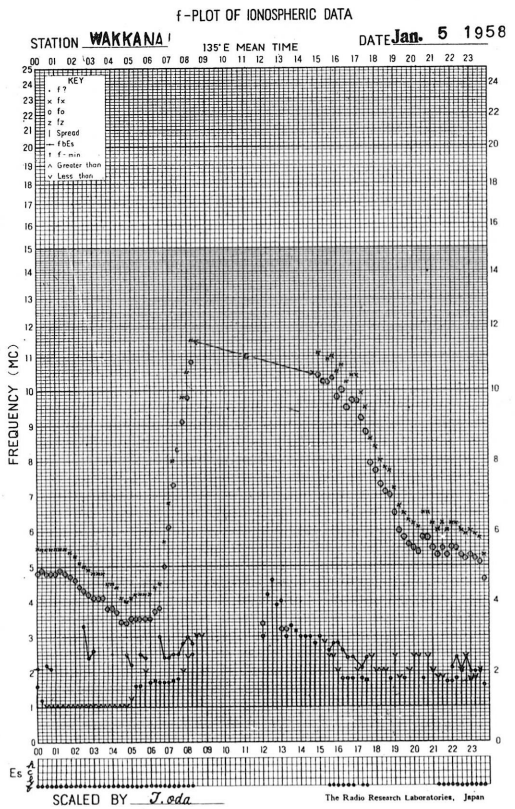
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE Jan 4, 1958



SCALED BY H. Ohyama

The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
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135° E MEAN TIME
DATE Jan. 5 1958
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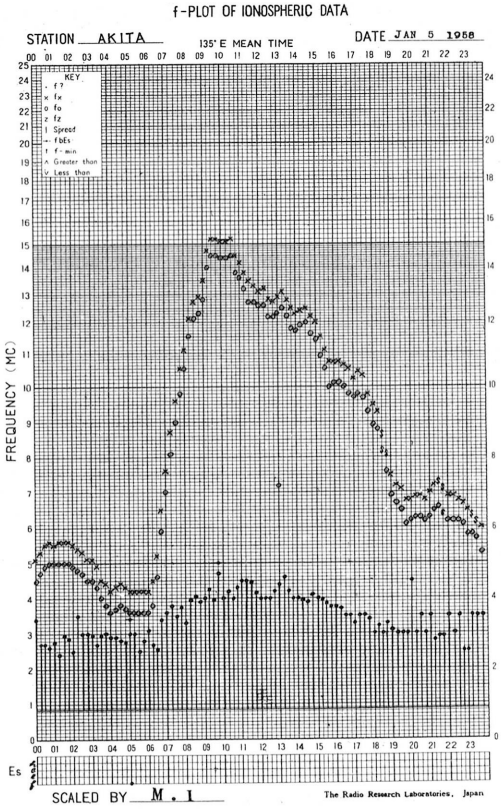
FREQUENCY (MC)
Es
SCALED BY J. oda
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE JAN 5 1958
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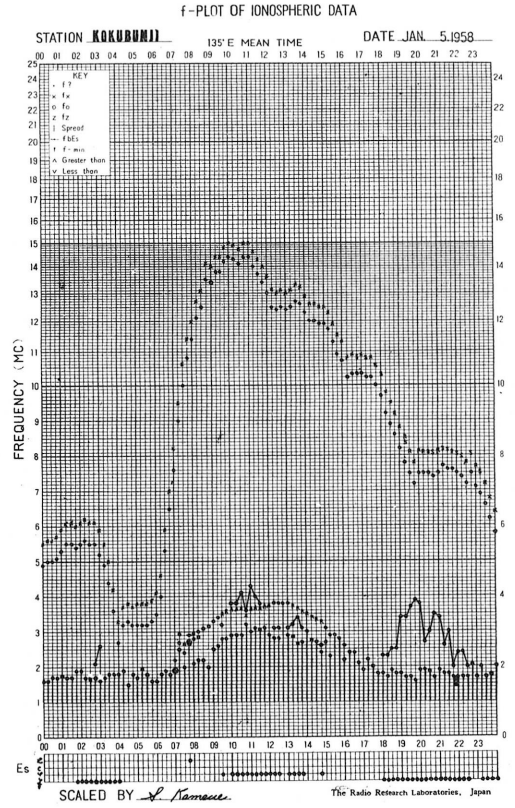
SCALED BY M. I
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
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DATE JAN. 5.1958
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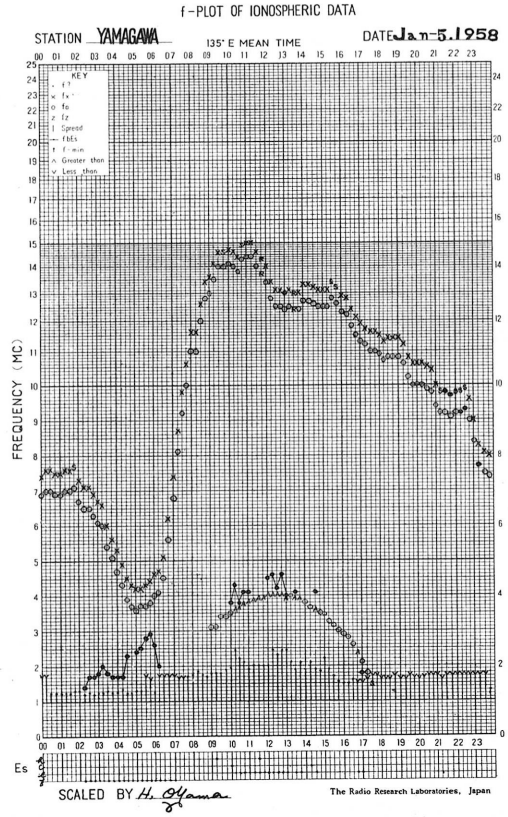
SCALED BY S. Kamaeue
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
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FREQUENCY (MC)
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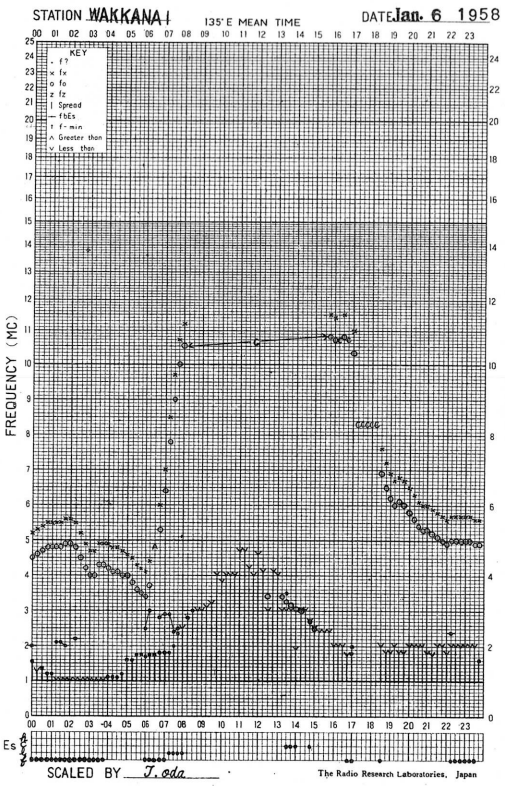
SCALED BY H. Ofuma
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE Jan. 6 1958



SCALED BY T. Oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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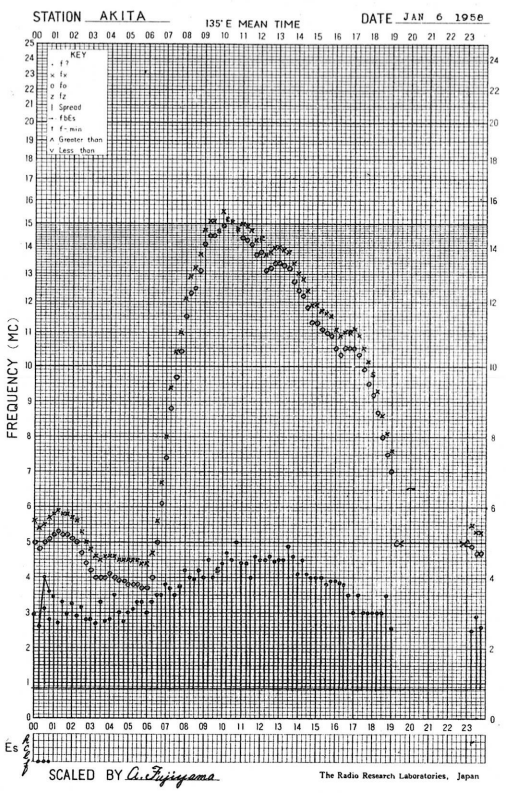

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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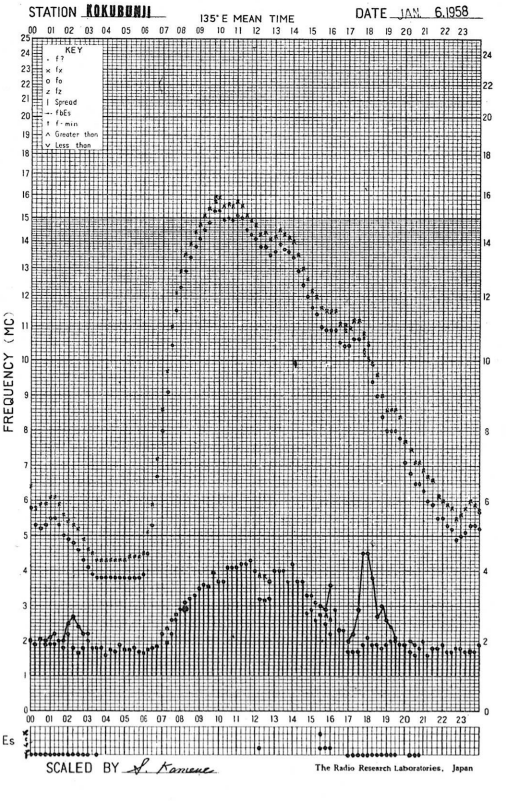
STATION KOKUBUNJI 135°E MEAN TIME DATE JAN. 6.1958



SCALED BY S. Kamisue

The Radio Research Laboratories, Japan

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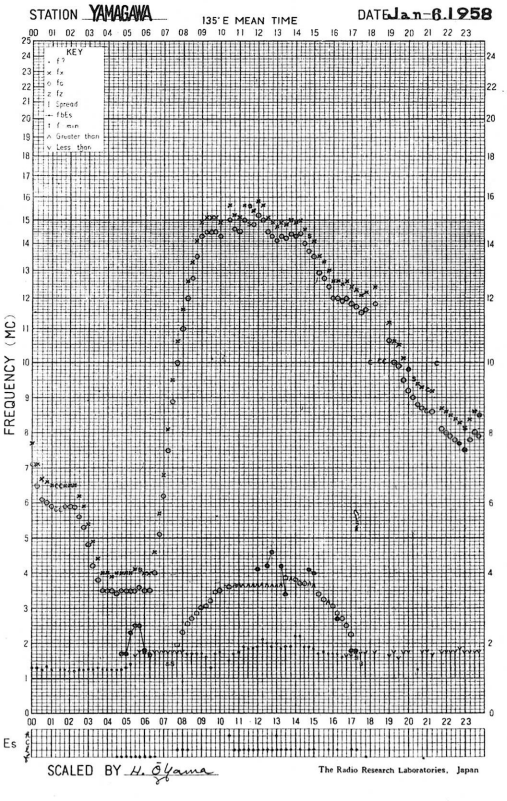

SCALED BY H. Ōyama

The Radio Research Laboratories, Japan

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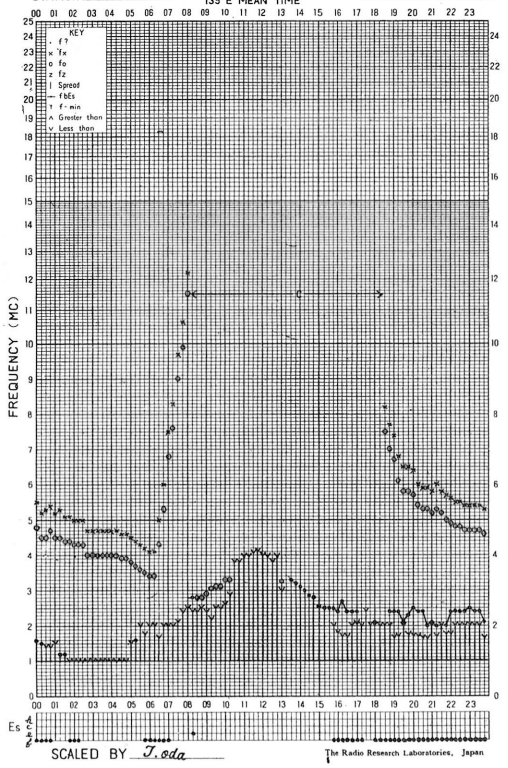

SCALED BY J. Oda

The Radio Research Laboratories, Japan

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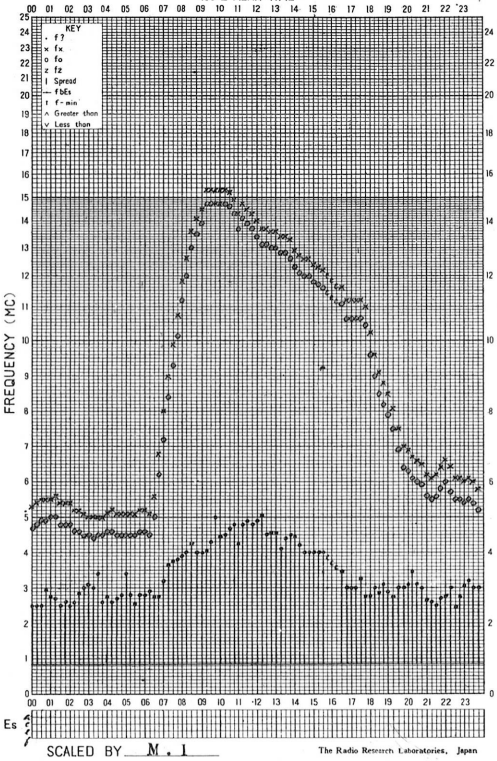
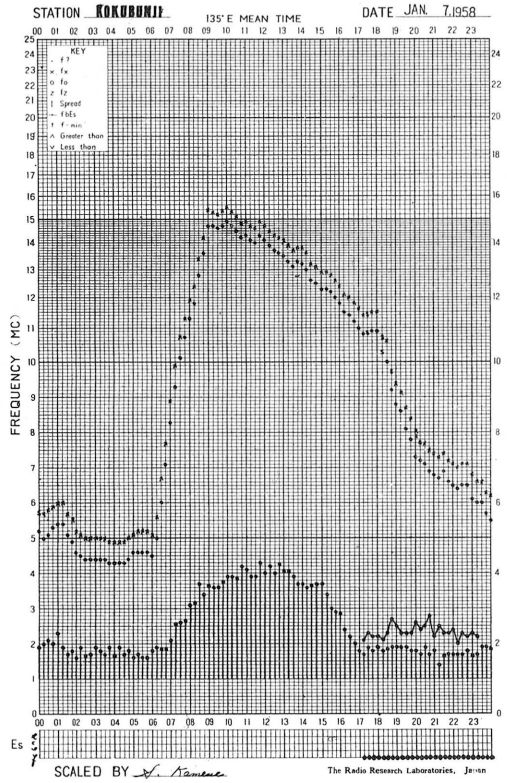


SCALED BY M. I

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE JAN. 7,1958



SCALED BY K. Kamenc

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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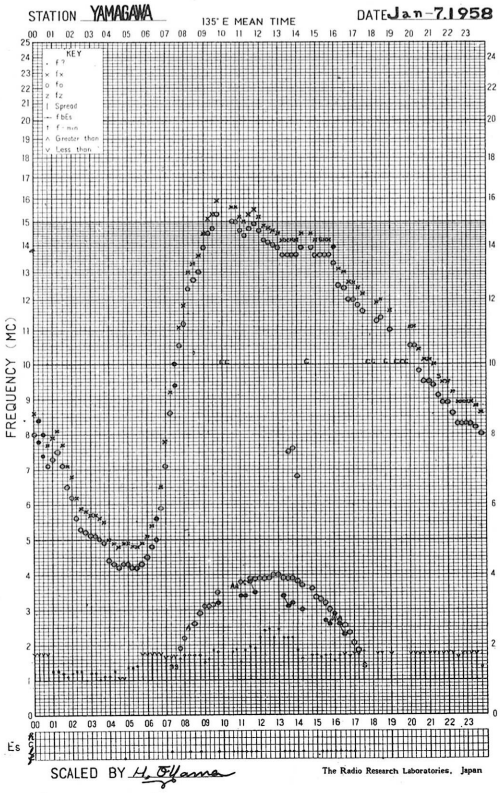

SCALED BY H. Ofuna

The Radio Research Laboratories, Japan

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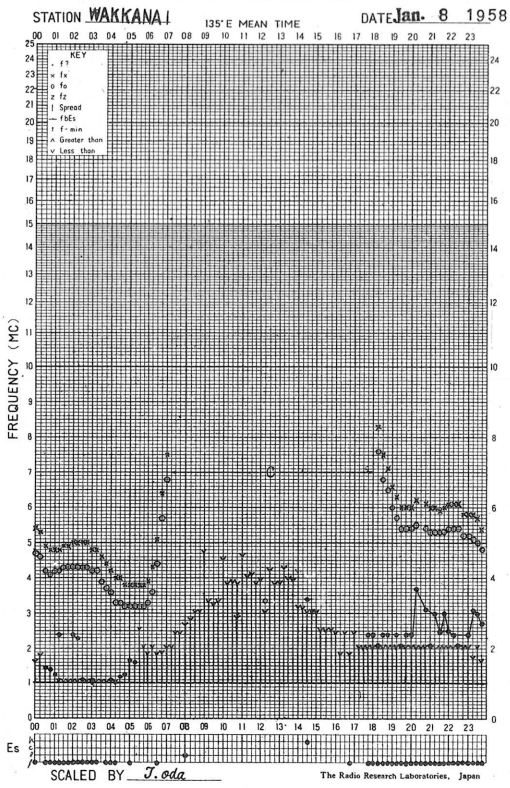
STATION WAKKANAI 135°E MEAN TIME DATE Jan. 8 1958



SCALED BY T. Oda

The Radio Research Laboratories, Japan

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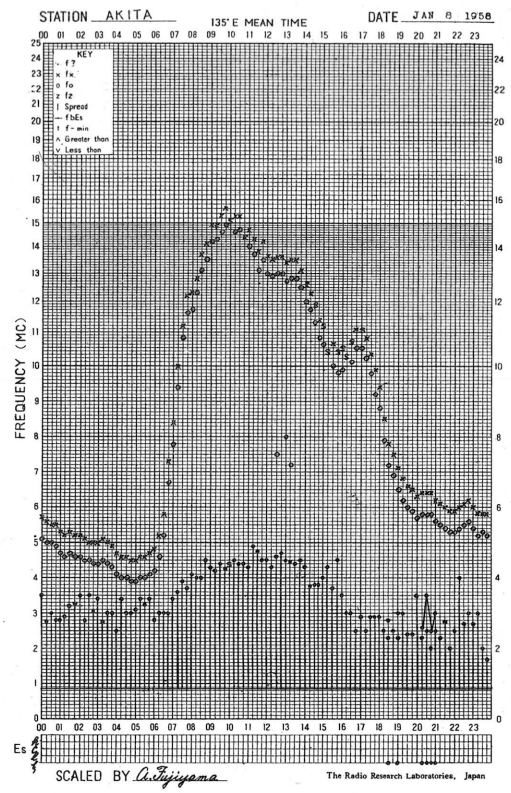

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The Radio Research Laboratories, Japan

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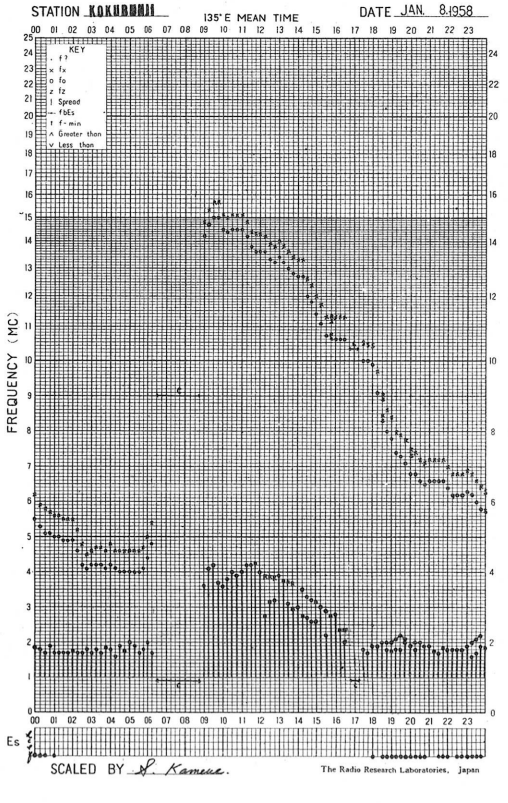

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The Radio Research Laboratories, Japan

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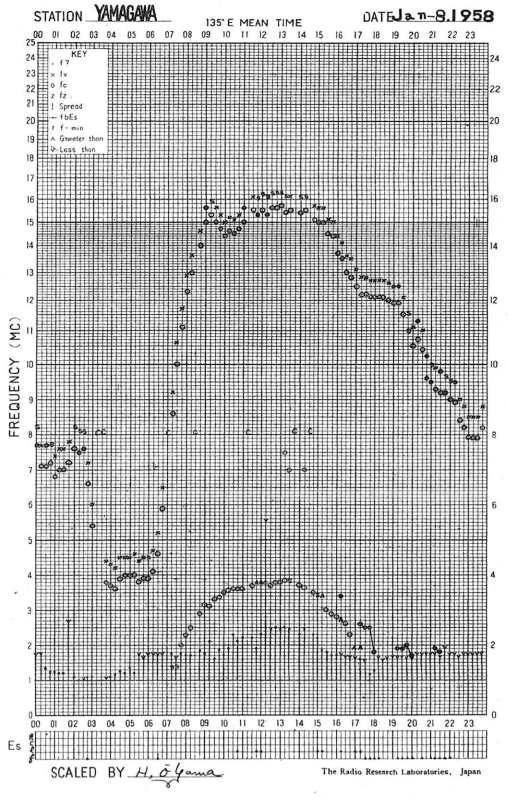
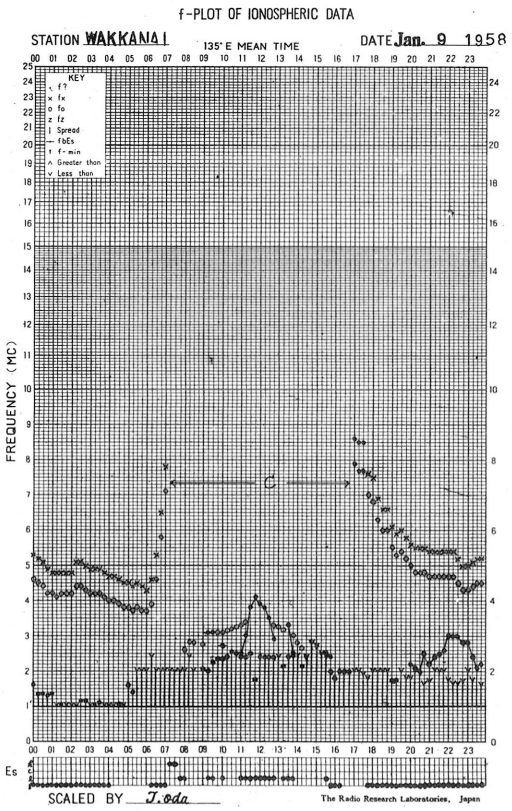


SCALED BY H. Ōyama

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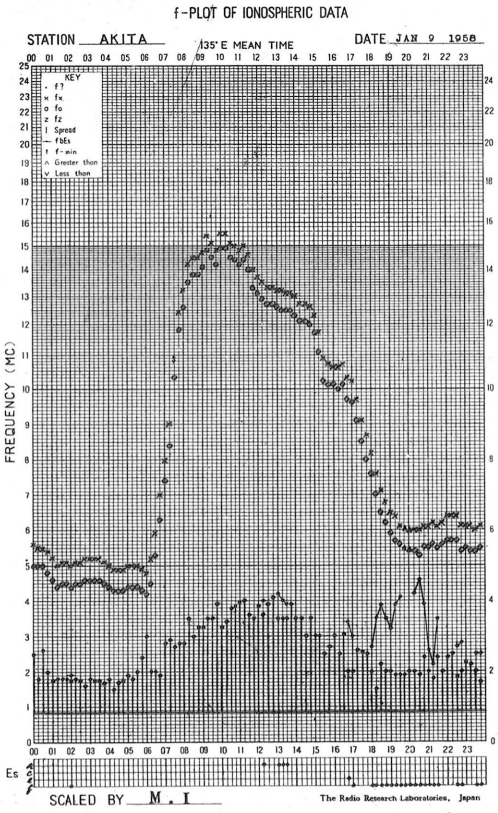
The Radio Research Laboratories, Japan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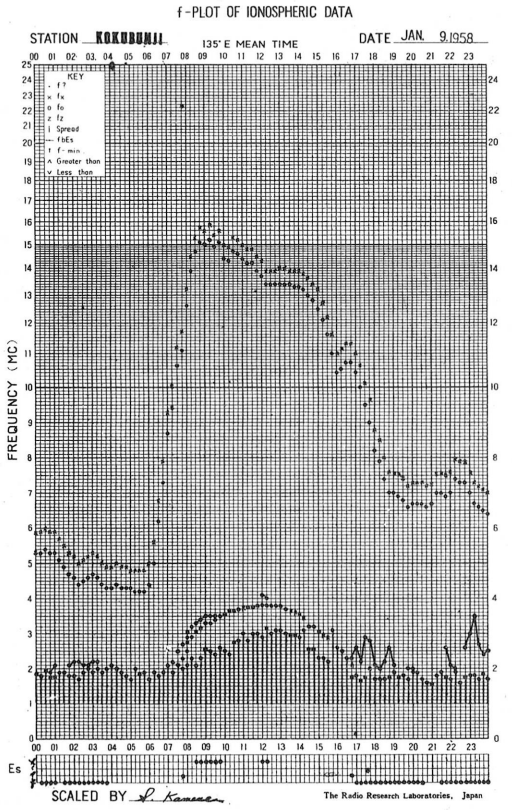
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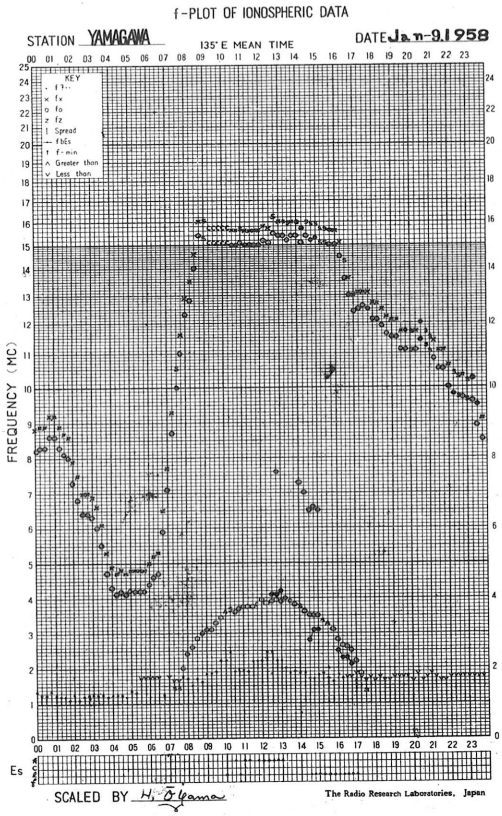
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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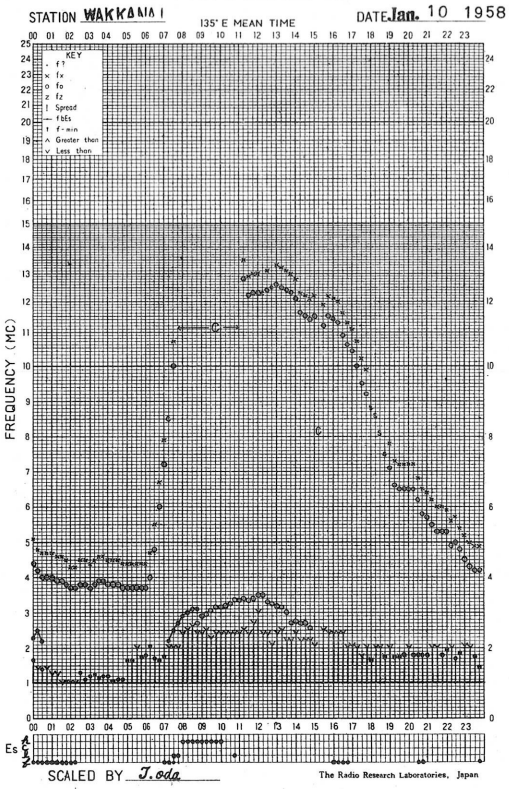

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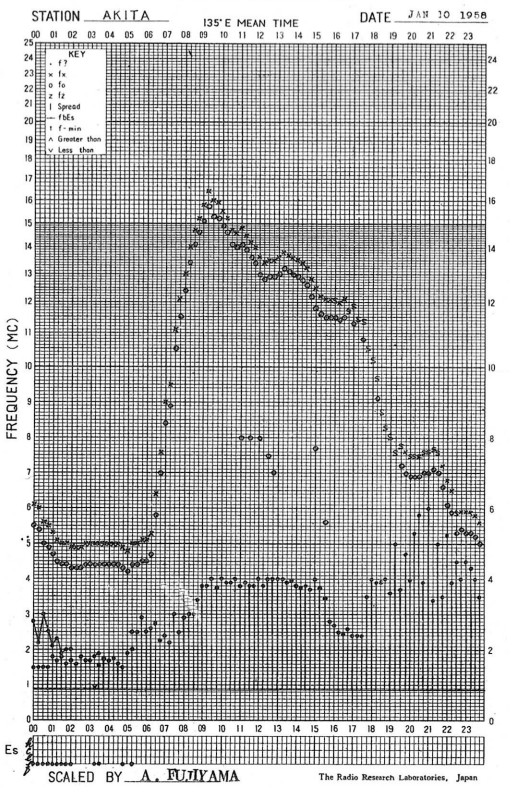

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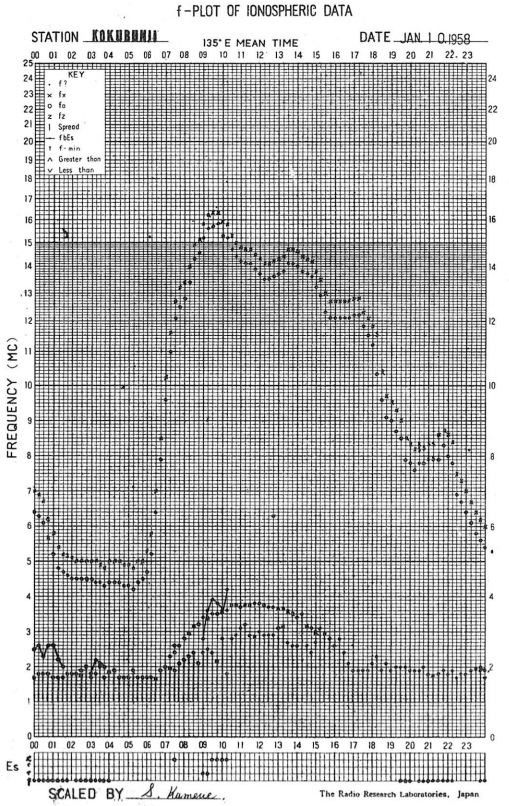

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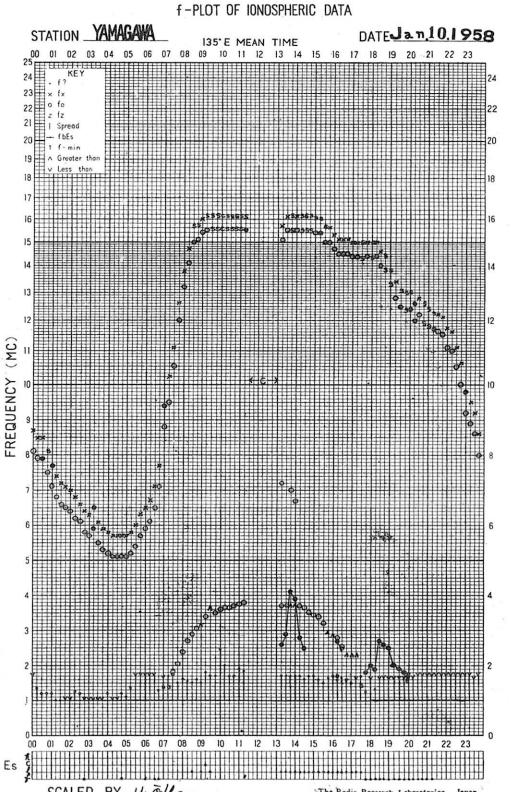

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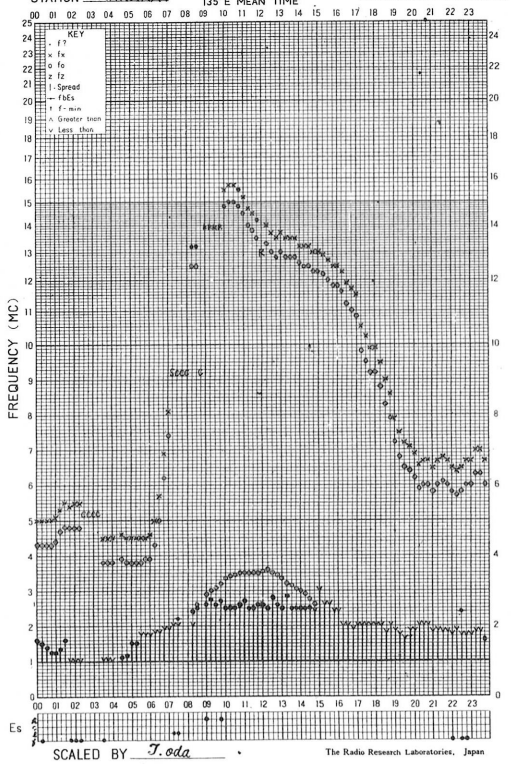

SCALED BY T. Oda

The Radio Research Laboratories, Japan

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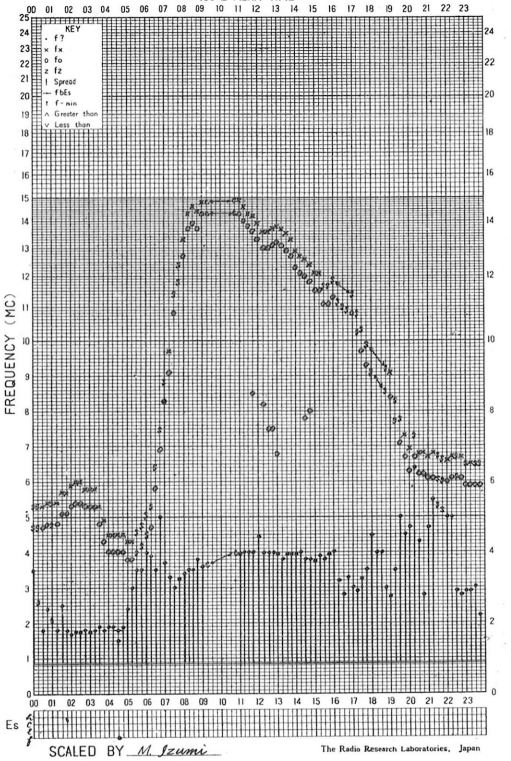

SCALED BY M. Izumi

The Radio Research Laboratories, Japan

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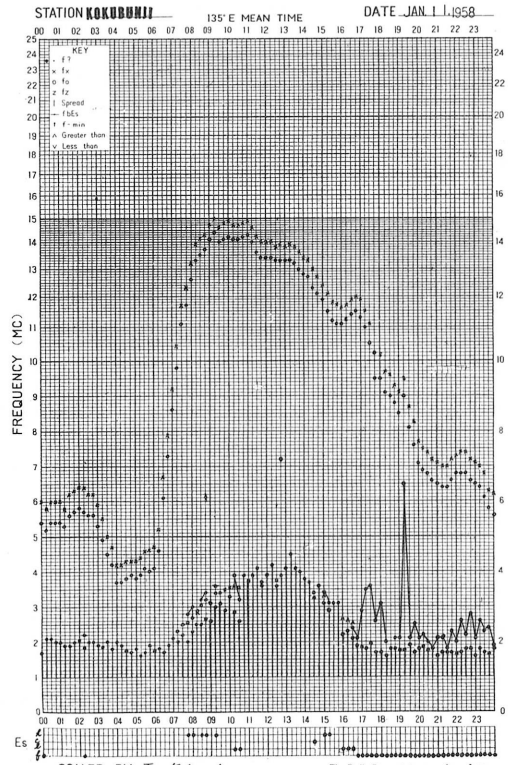

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The Radio Research Laboratories, Japan

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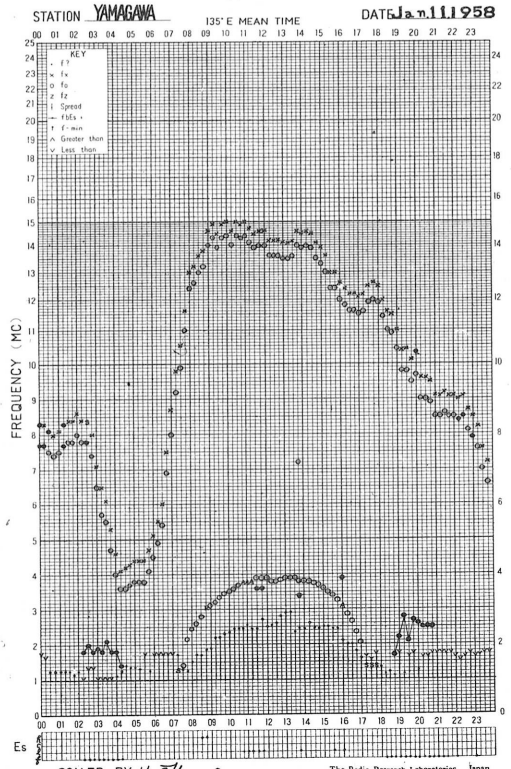
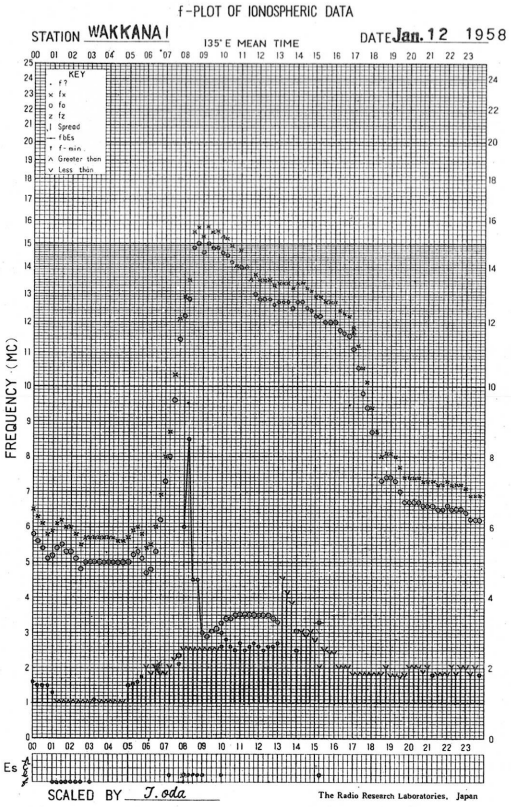


SCALED BY H. Ohama

The Radio Research Laboratories, Japan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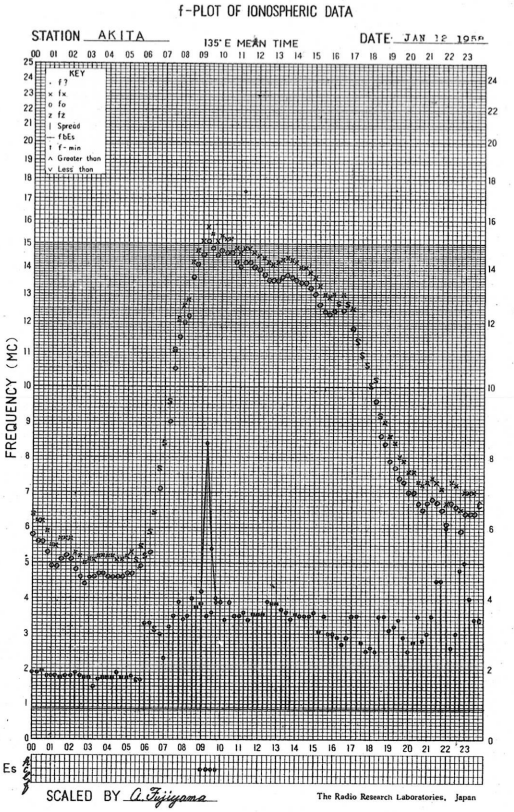
The Radio Research Laboratories, Japan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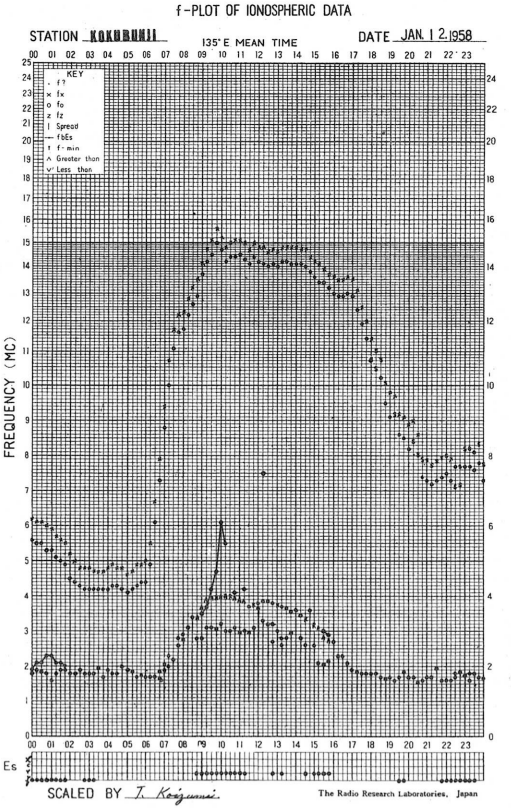
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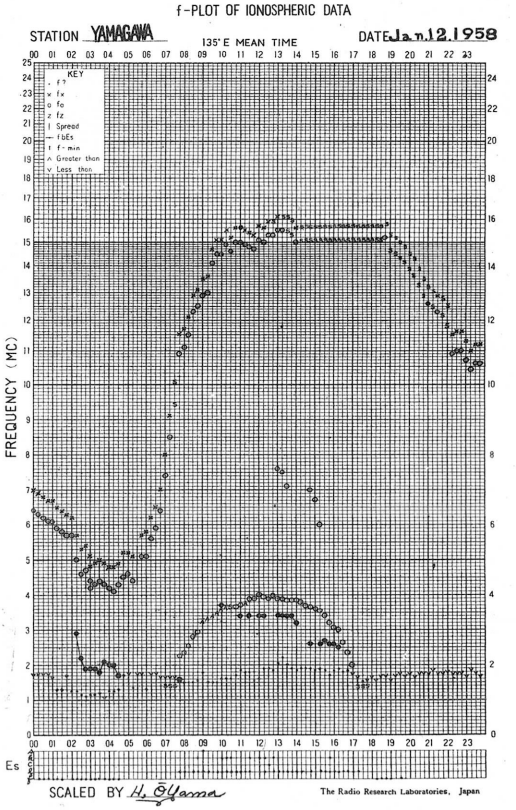
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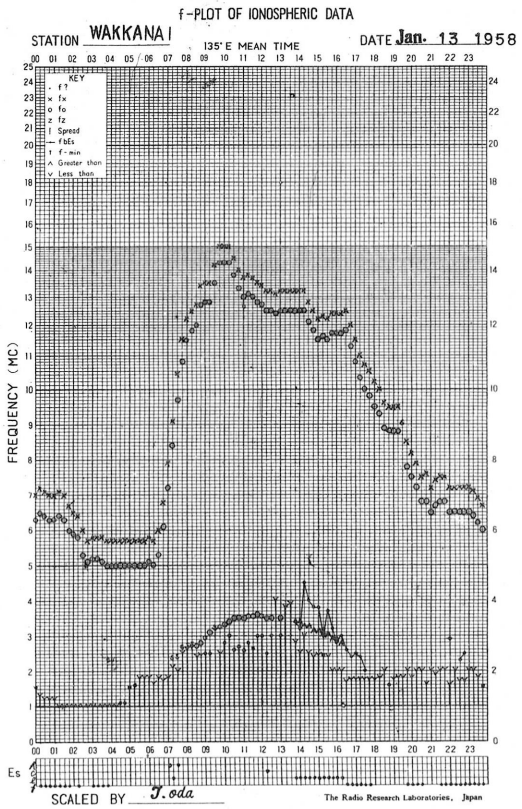
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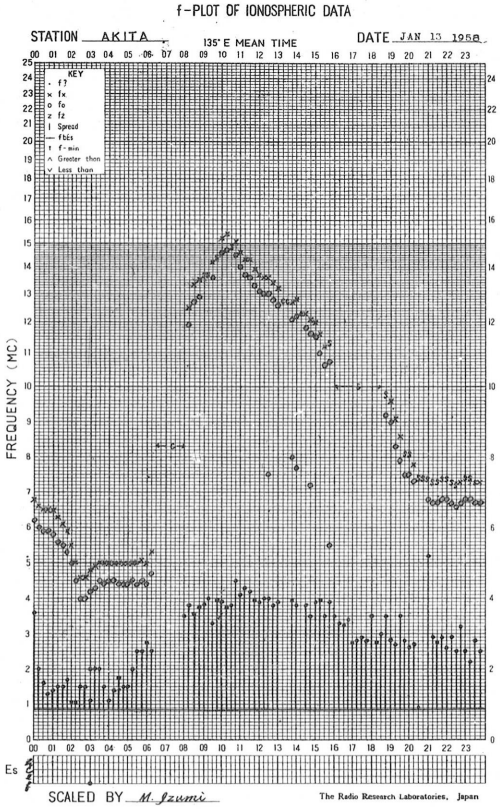
SCALED BY T. Oda
The Radio Research Laboratories, Japan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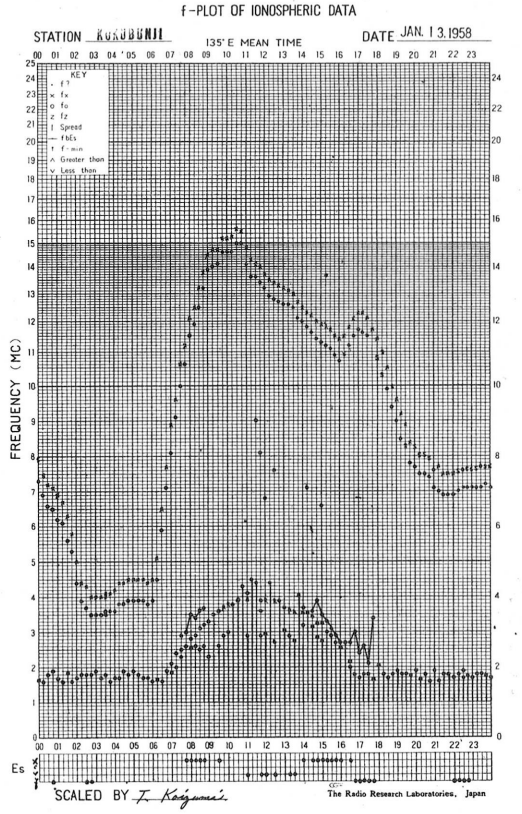
The Radio Research Laboratories, Japan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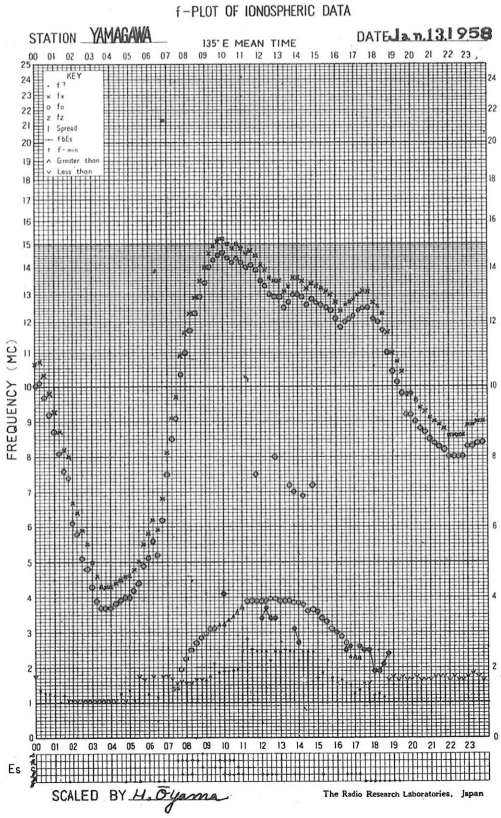
SCALED BY I. Kaizumi
The Radio Research Laboratories, Japan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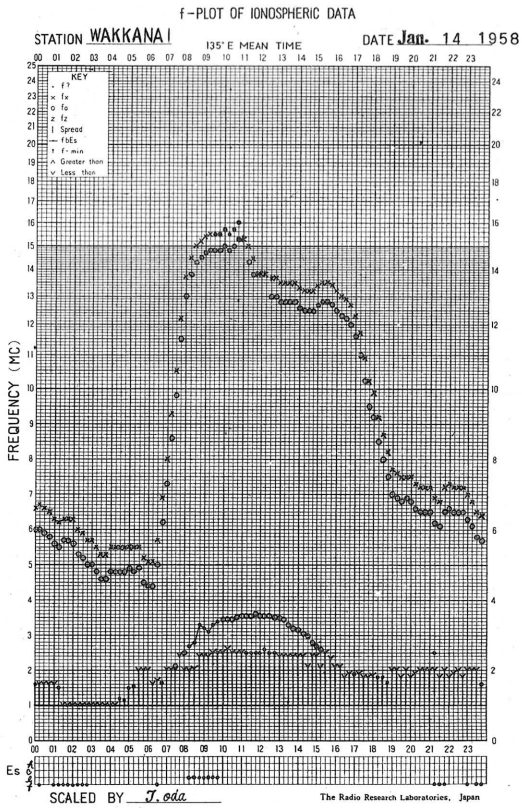
The Radio Research Laboratories, Japan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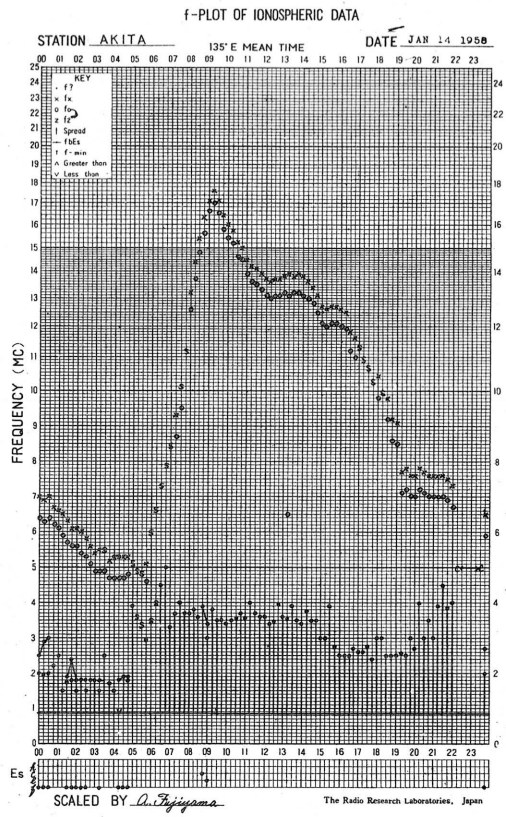
SCALED BY T. Oda
The Radio Research Laboratories, Japan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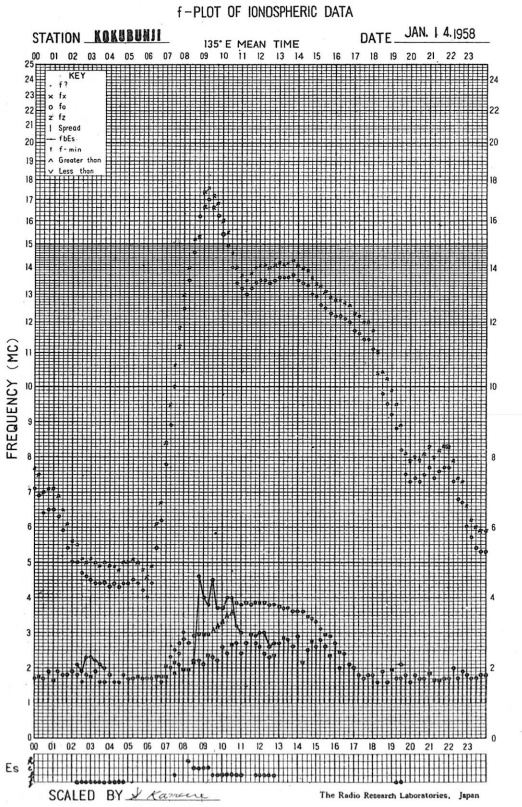
The Radio Research Laboratories, Japan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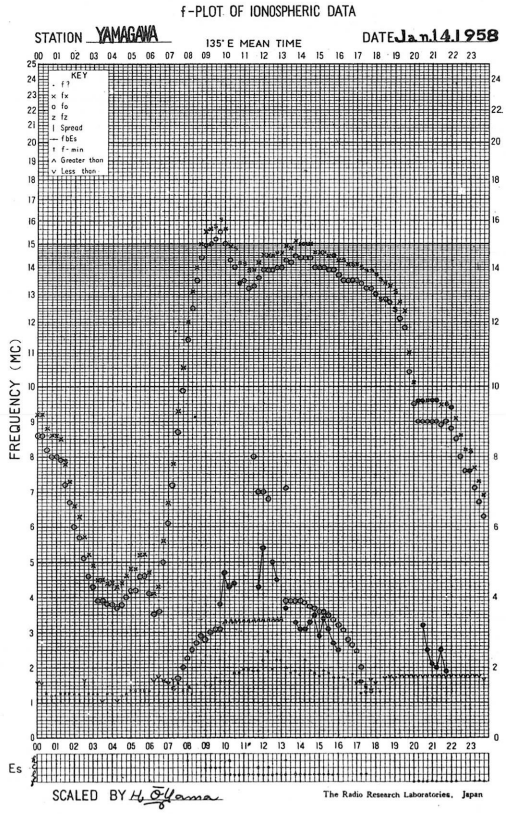
The Radio Research Laboratories, Japan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SCALED BY H. Ohama
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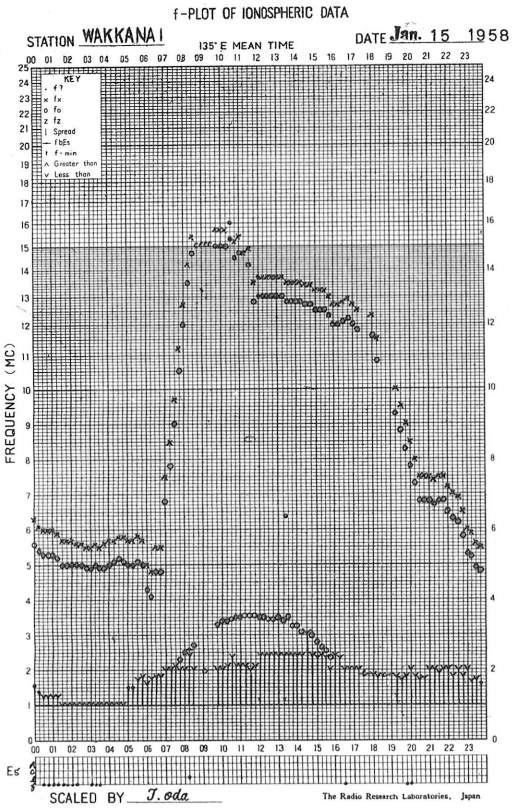
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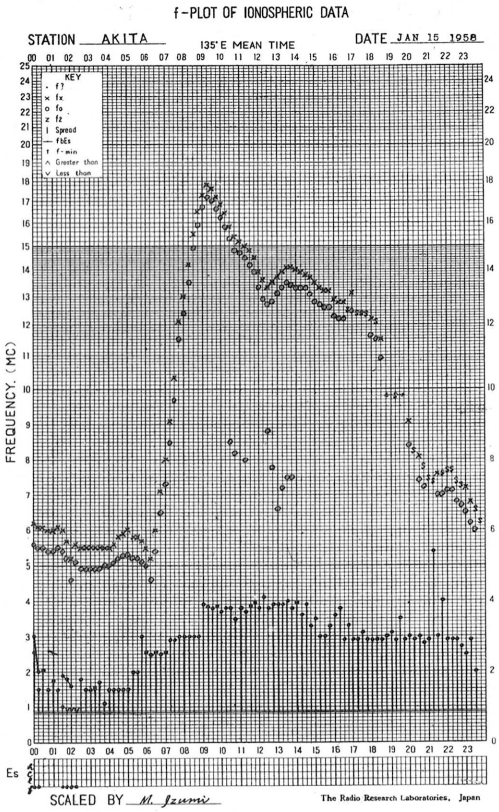
The Radio Research Laboratories, Japan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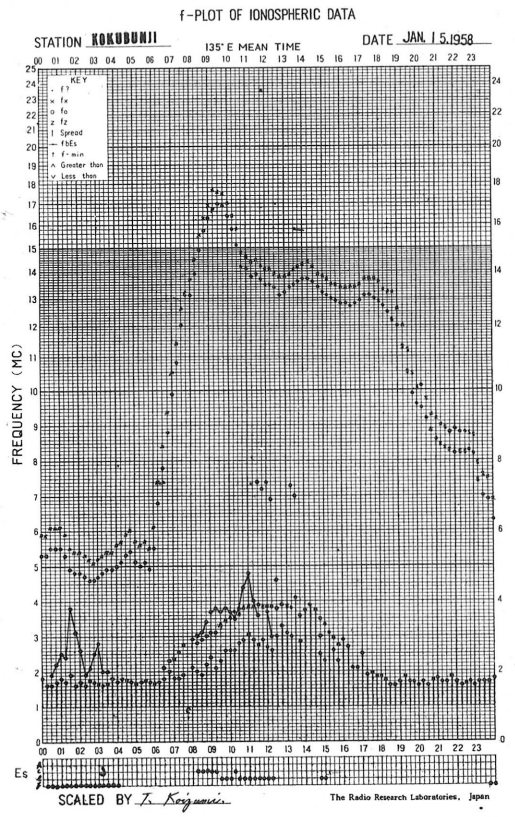
The Radio Research Laboratories, Japan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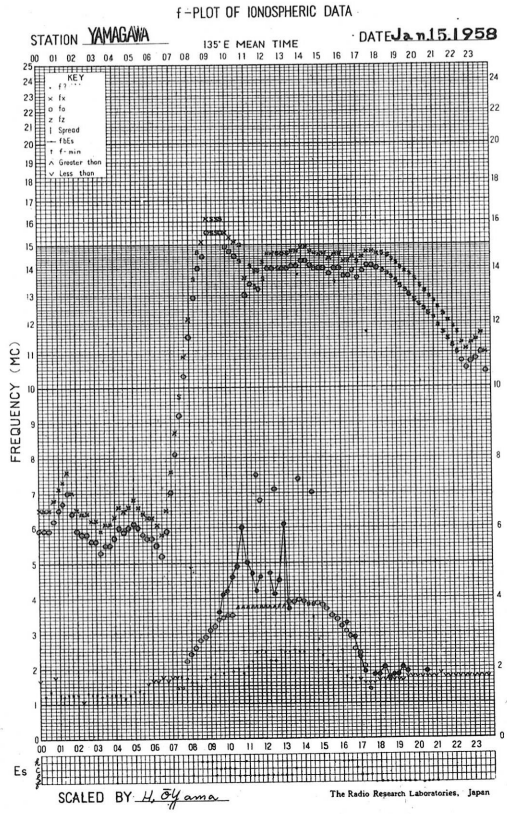
SCALED BY T. Kozyumi
The Radio Research Laboratories, Japan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The Radio Research Laboratories, Japan

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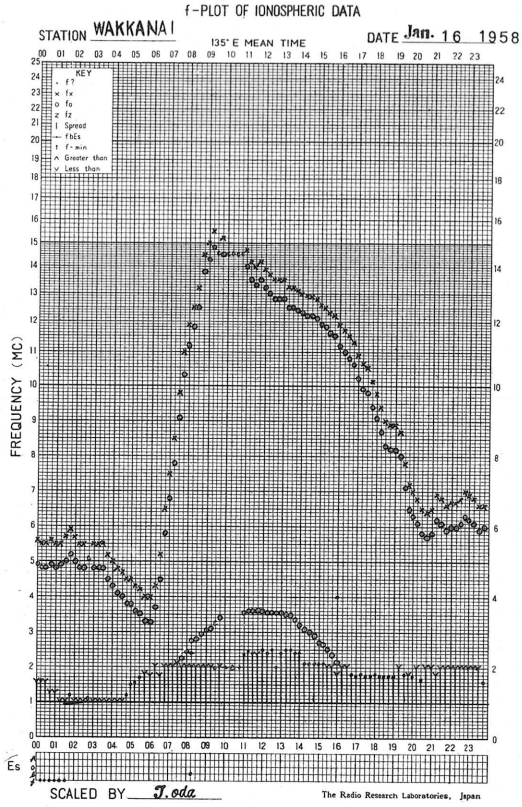

SCALED BY T. Oda The Radio Research Laboratories, Japan

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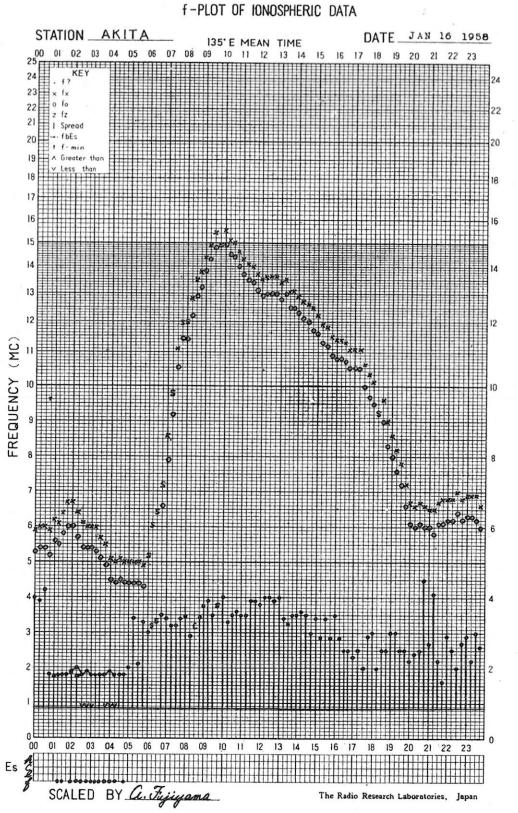

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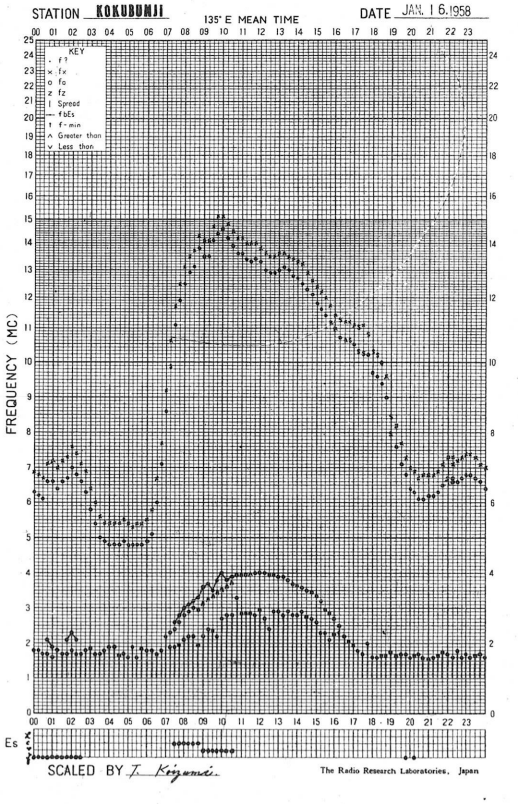

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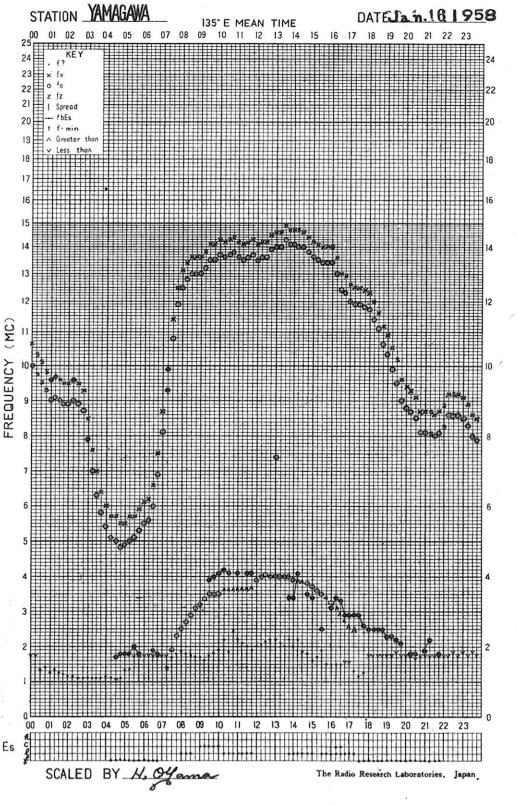

SCALED BY H. Yama The Radio Research Laboratories, Japan

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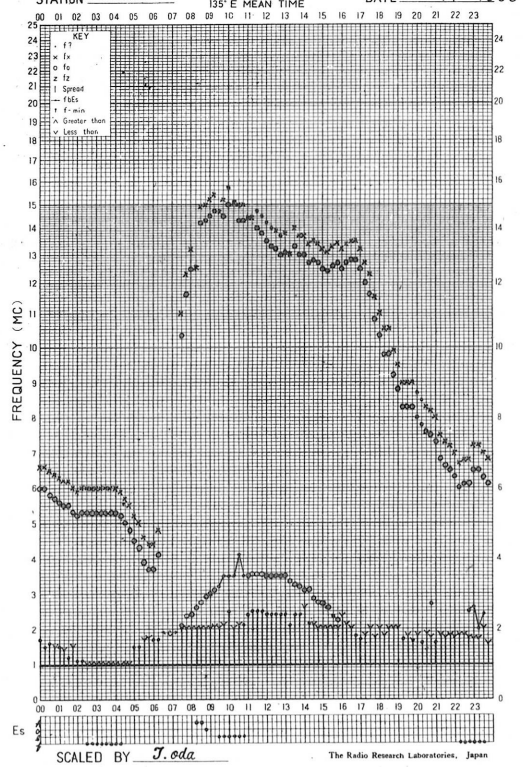

SCALED BY J. oda

The Radio Research Laboratories, Japan

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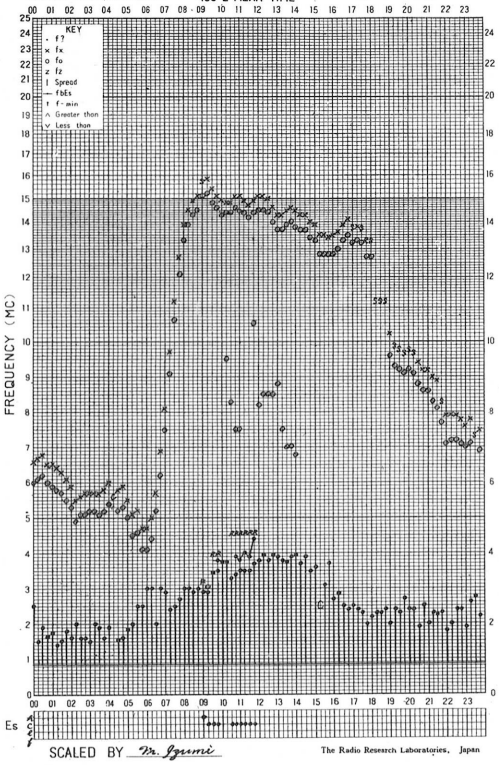

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The Radio Research Laboratories, Japan

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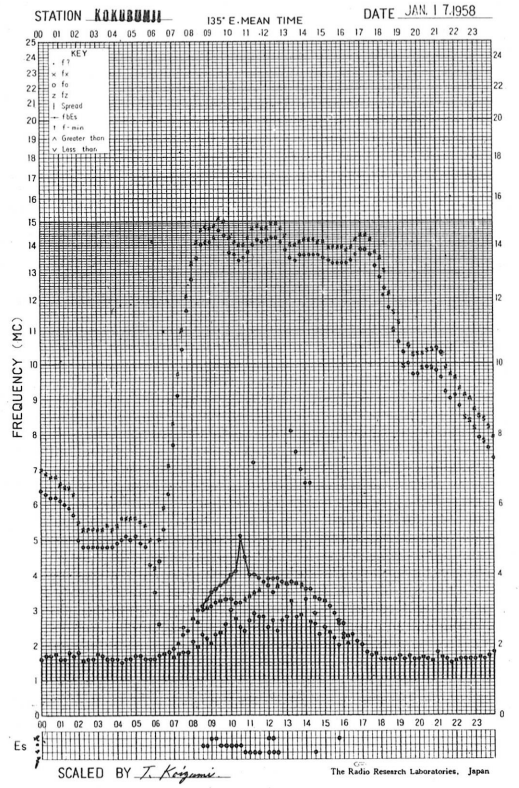

SCALED BY T. Koizumi

The Radio Research Laboratories, Japan

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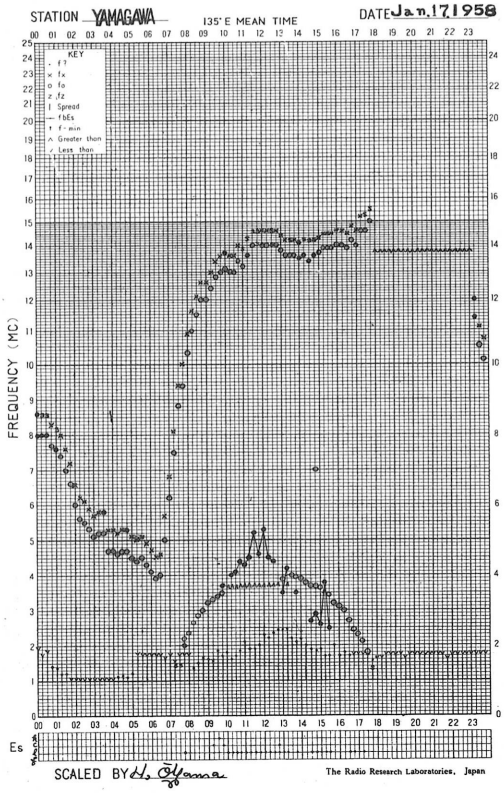
STATION YAMAGAWA 135° E MEAN TIME DATE Jan. 17 1958



SCALED BY H. Ohama

The Radio Research Laboratories, Japan

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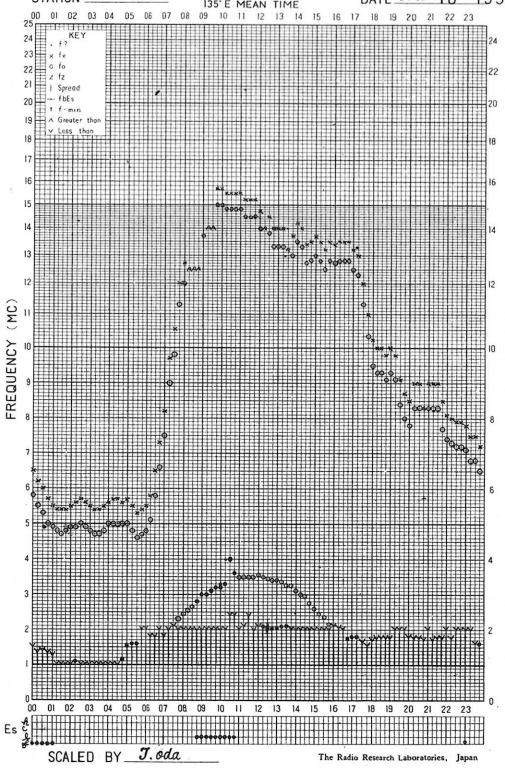
STATION WAKKANAI 135° E MEAN TIME DATE Jan. 18 1958



SCALED BY T. Oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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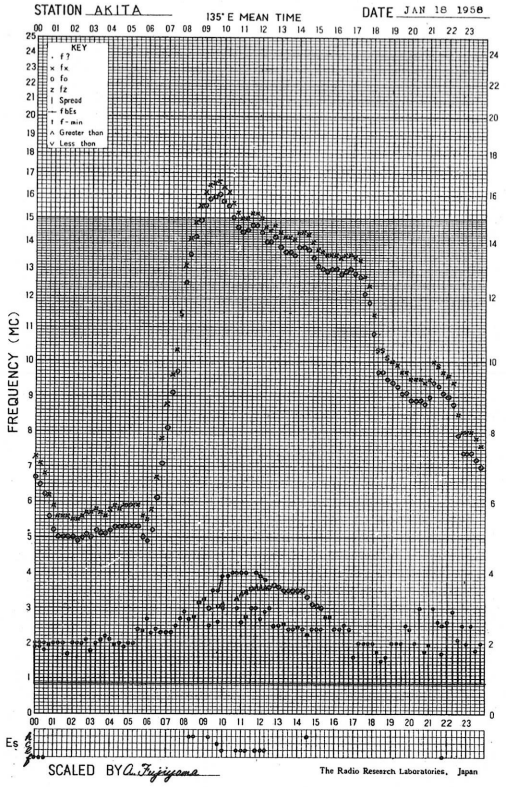

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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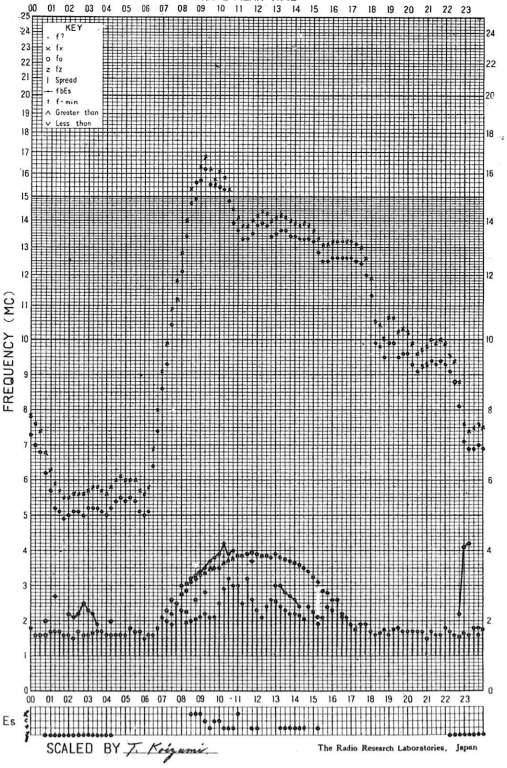

SCALED BY T. Koizumi

The Radio Research Laboratories, Japan

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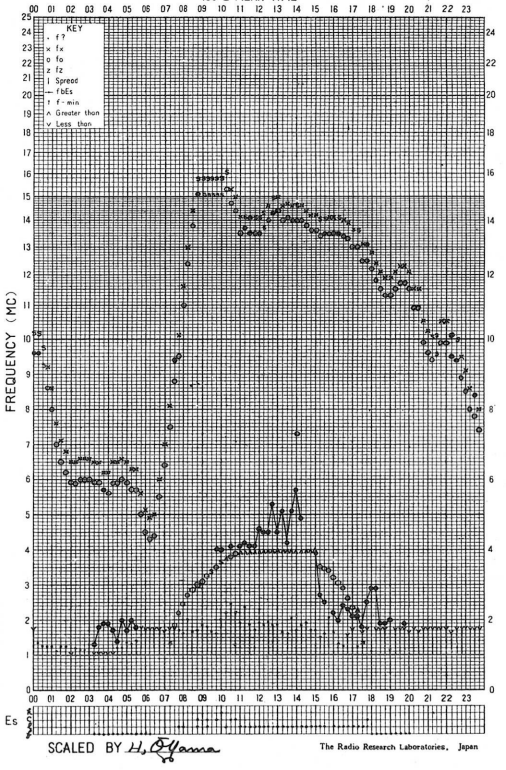

SCALED BY H. Ohyama

The Radio Research Laboratories, Japan

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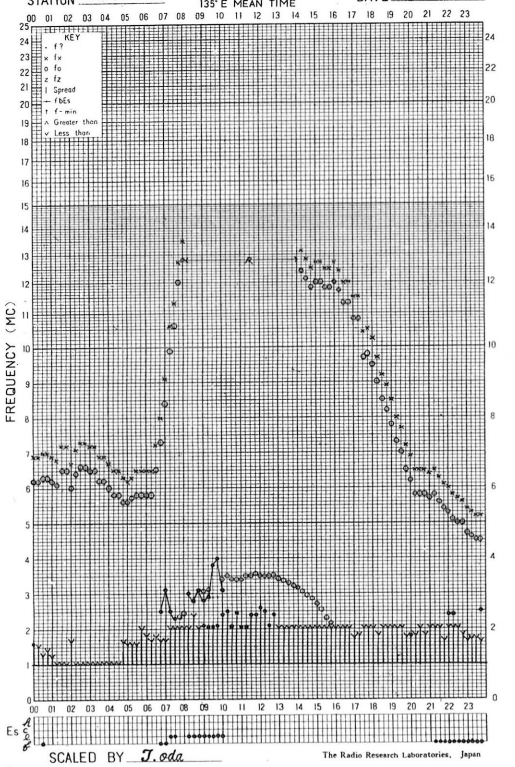

SCALED BY T. Oda

The Radio Research Laboratories, Japan

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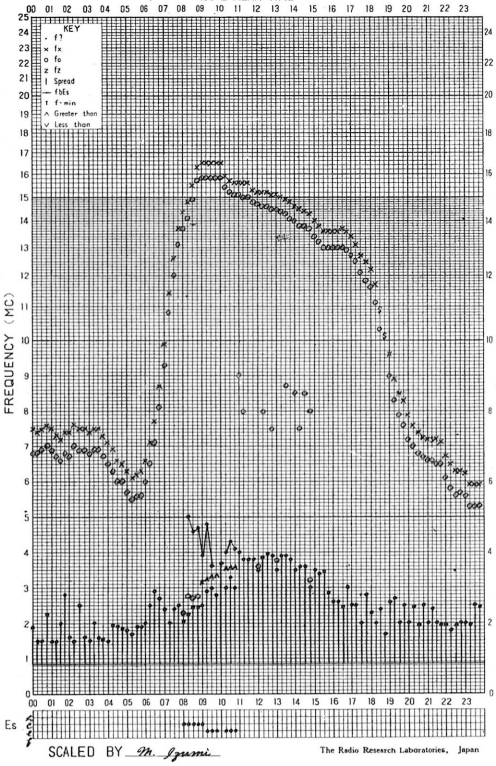

SCALED BY M. Iyemi

The Radio Research Laboratories, Japan

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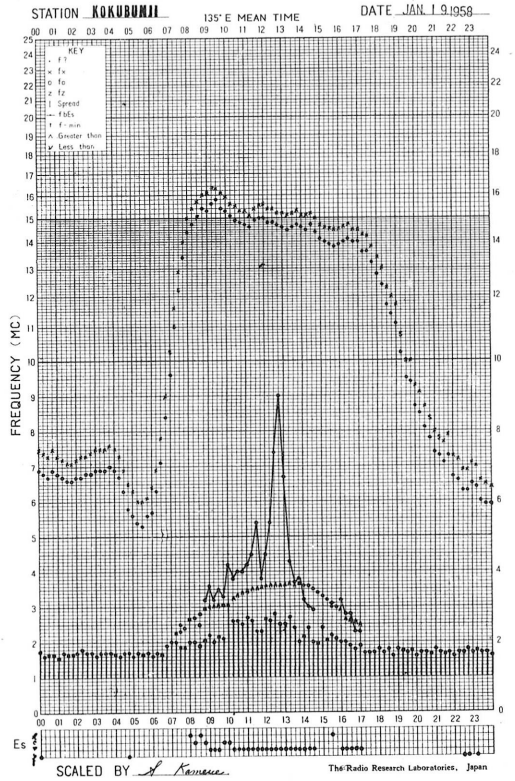

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The Radio Research Laboratories, Japan

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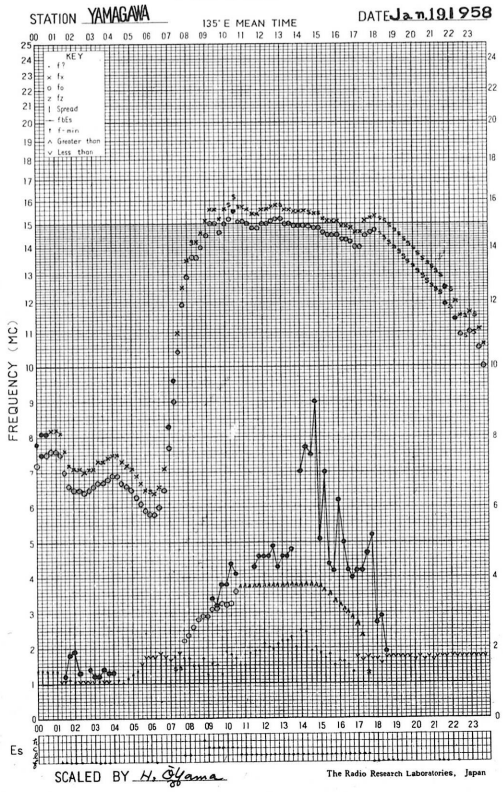
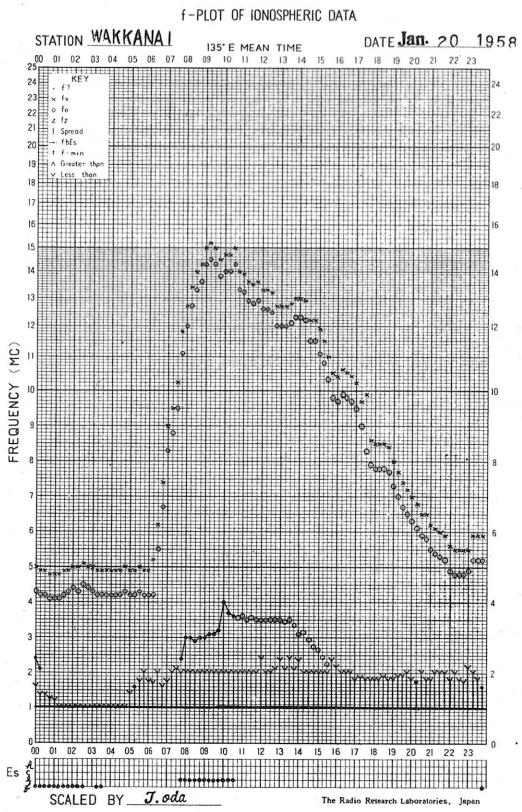


SCALED BY H. Ofama

The Radio Research Laboratories, Japan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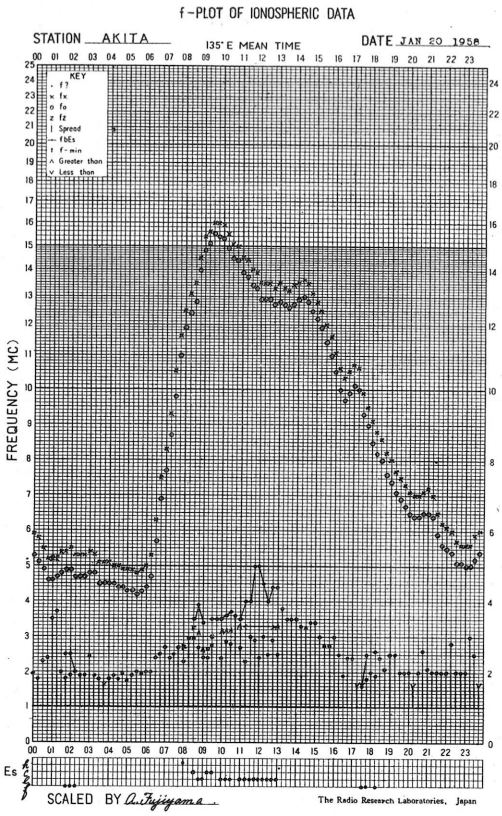
SCALED BY T. oda
The Radio Research Laboratories, Japan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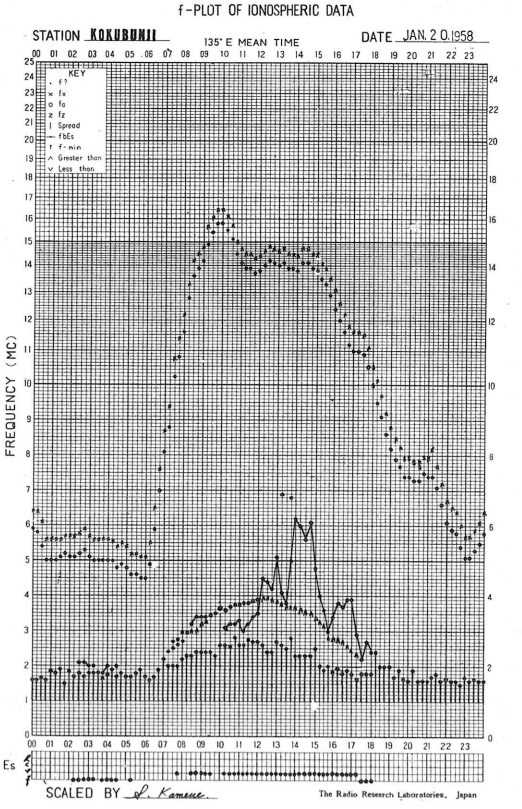
SCALED BY A. Fujiyama
The Radio Research Laboratories, Japan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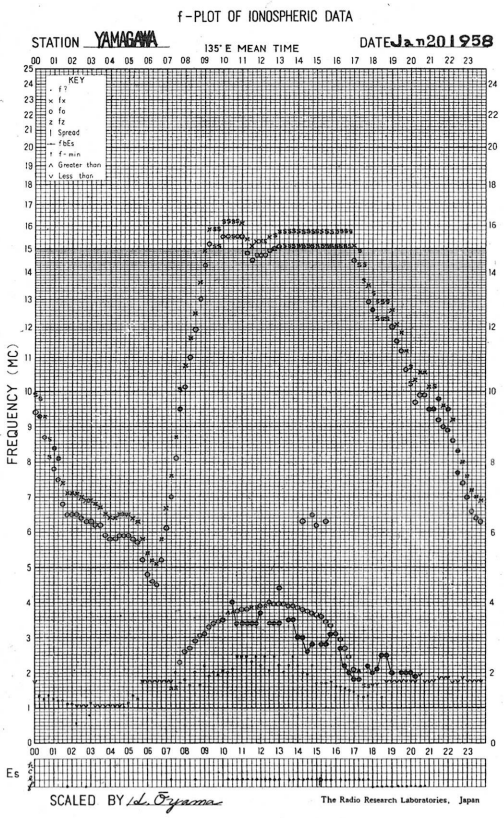
SCALED BY S. Kamisue.
The Radio Research Laboratories, Japan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SCALED BY M. Fujiyama
The Radio Research Laboratories, Japan

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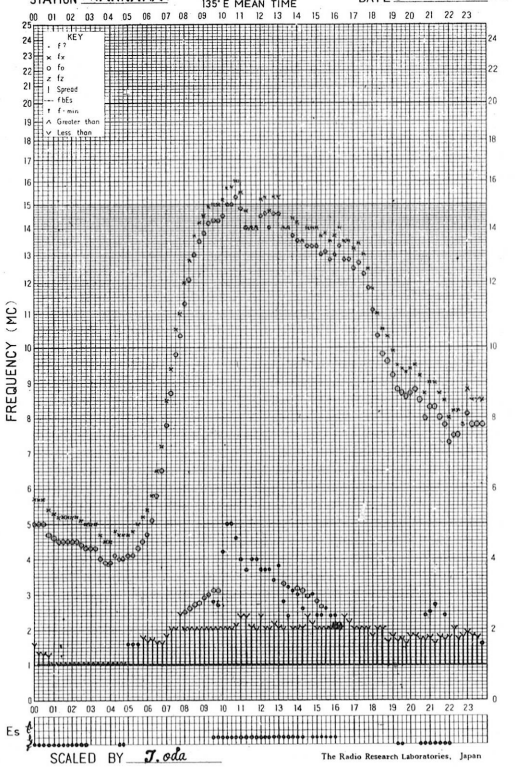

SCALED BY J. Oda

The Radio Research Laboratories, Japan

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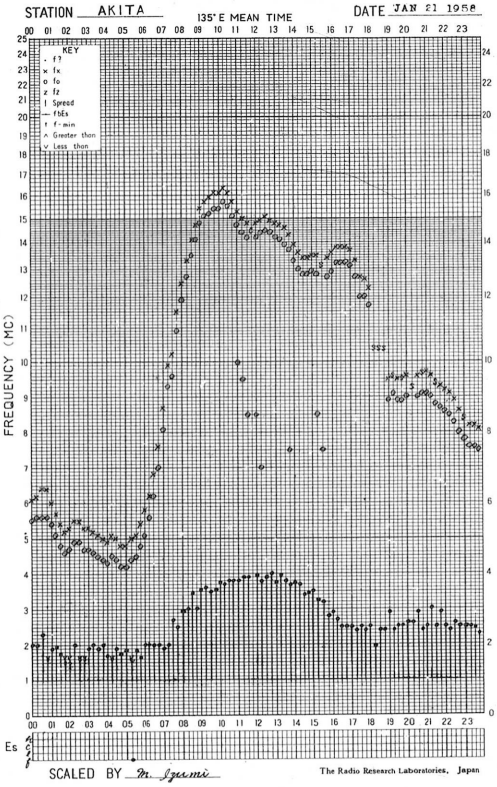

SCALED BY M. Izumi

The Radio Research Laboratories, Japan

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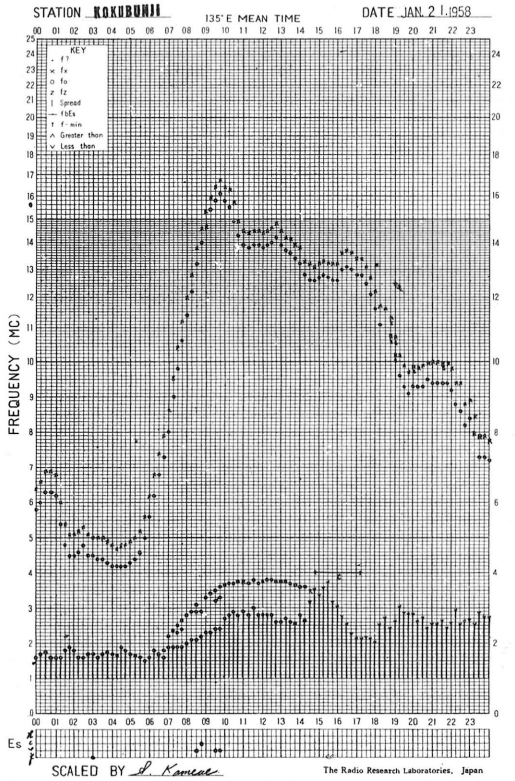

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The Radio Research Laboratories, Japan

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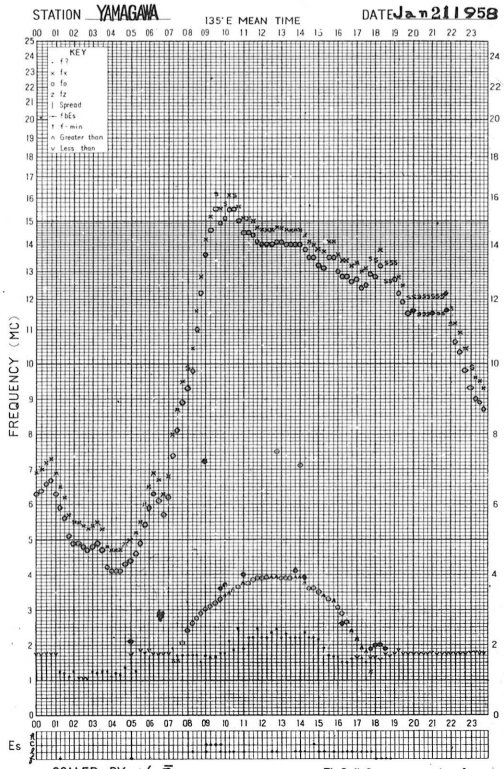

SCALED BY H. Fujama

The Radio Research Laboratories, Japan

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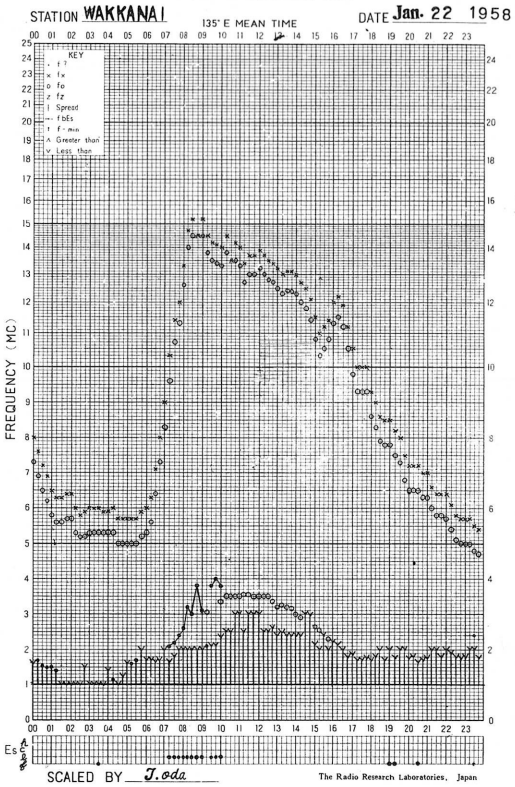

SCALED BY T. Oda

The Radio Research Laboratories, Japan

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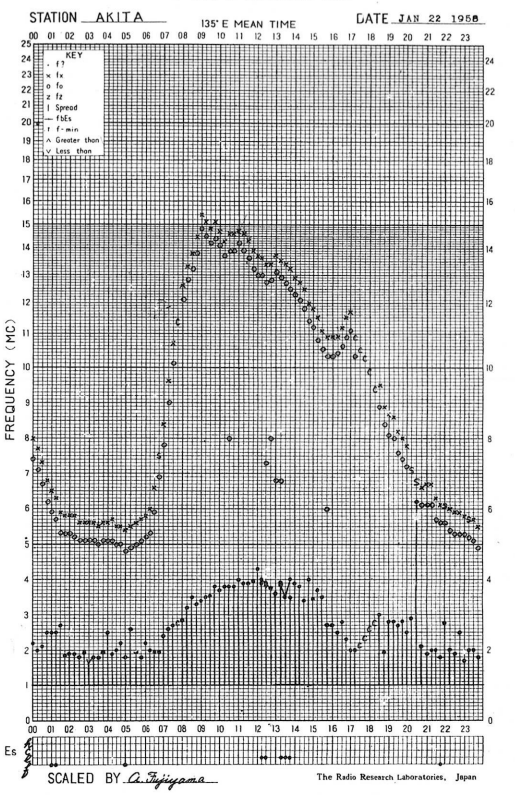

SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

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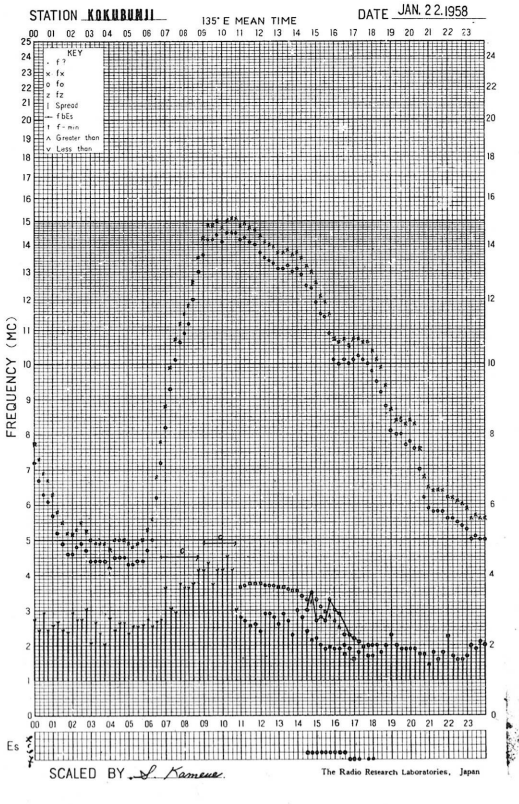

SCALED BY S. Kameue

The Radio Research Laboratories, Japan

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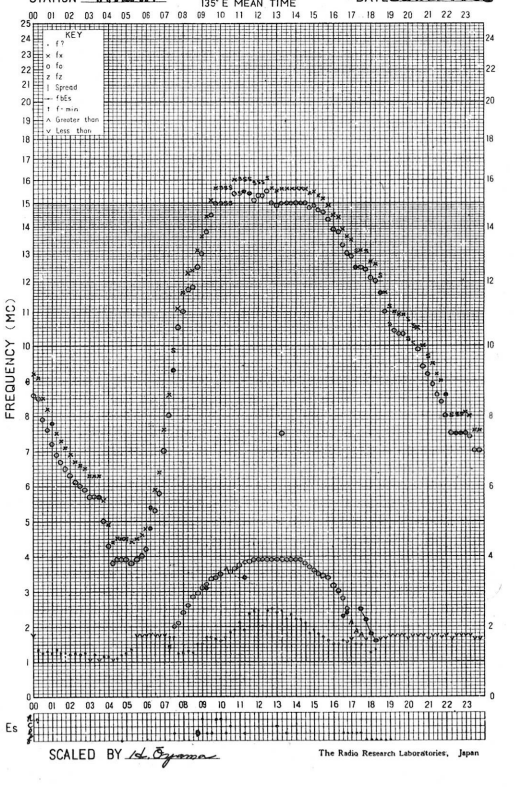

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The Radio Research Laboratories, Japan

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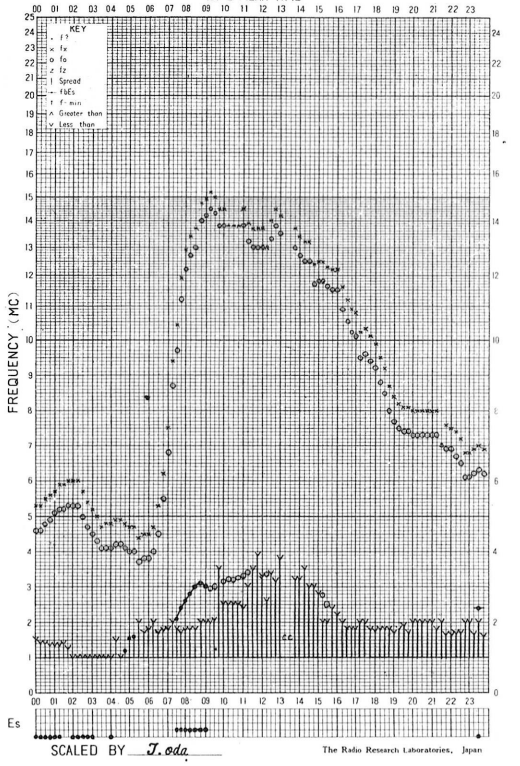

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The Radio Research Laboratories, Japan

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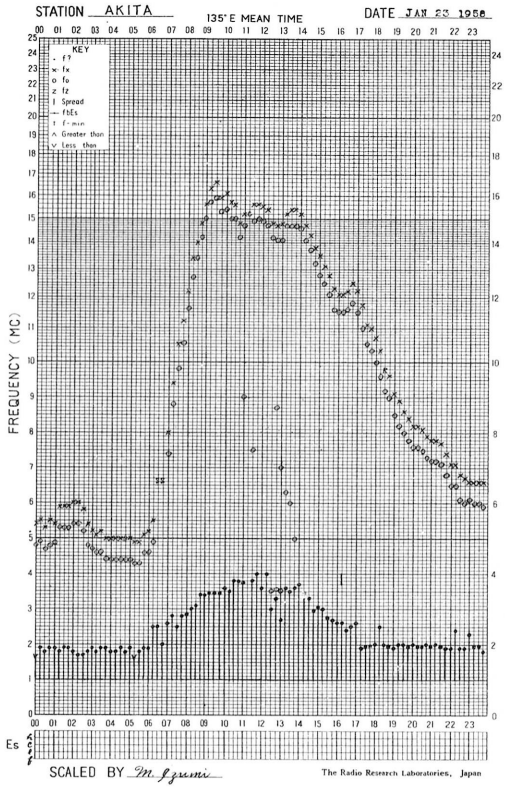

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The Radio Research Laboratories, Japan

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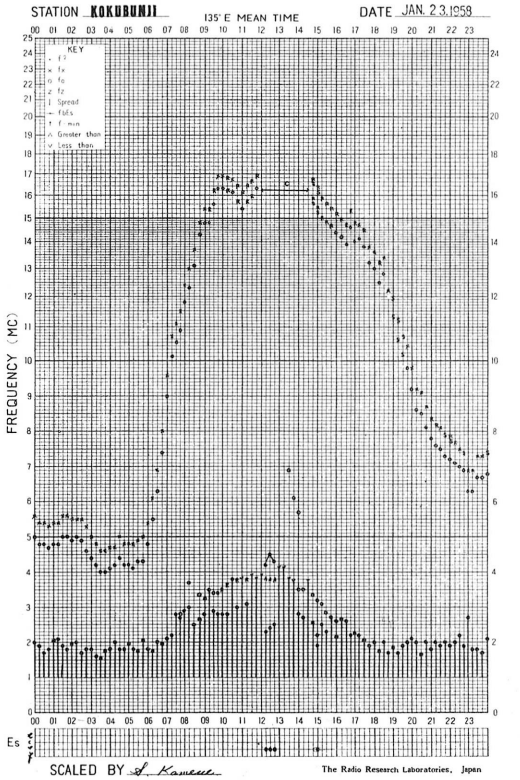

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The Radio Research Laboratories, Japan

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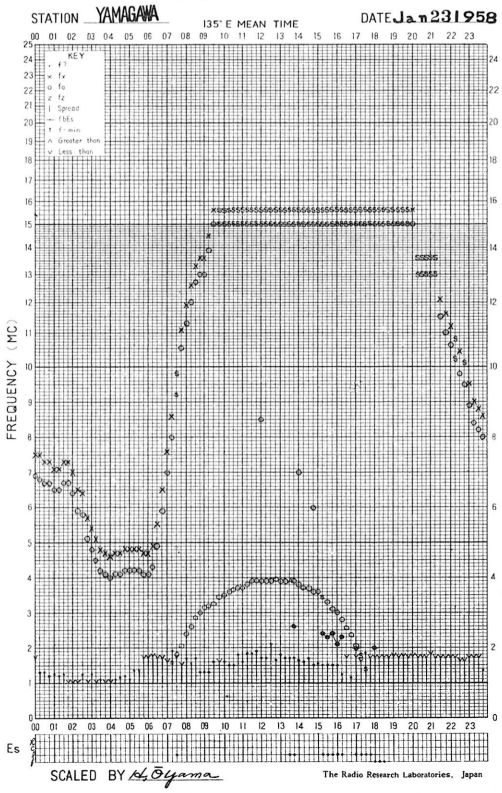

SCALED BY H. Ogama

The Radio Research Laboratories, Japan

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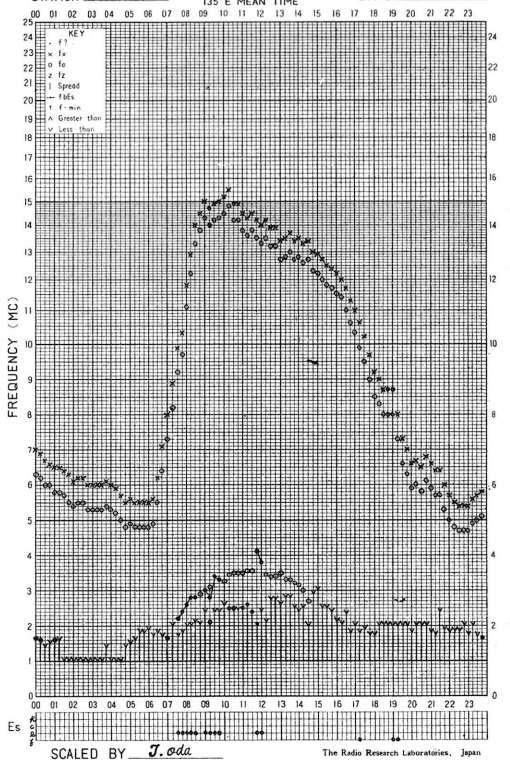

SCALED BY J. oda

The Radio Research Laboratories, Japan

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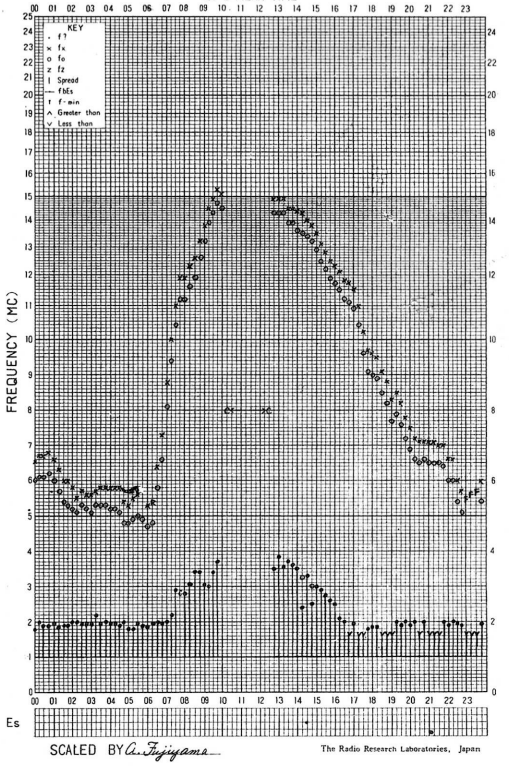

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The Radio Research Laboratories, Japan

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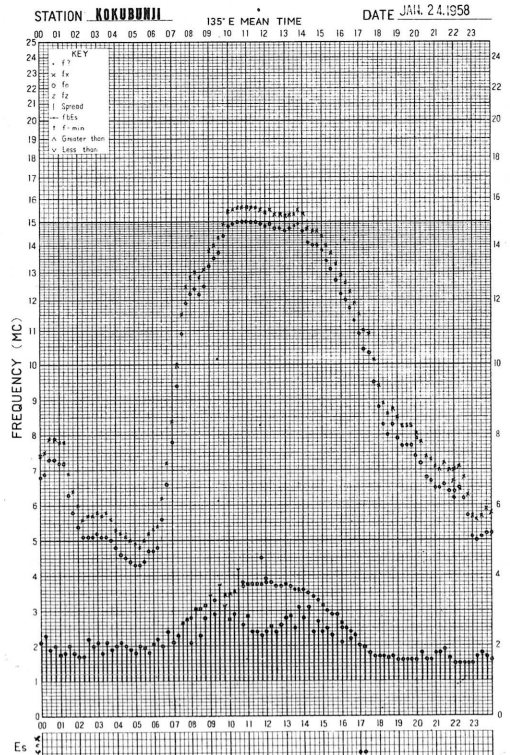

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The Radio Research Laboratories, Japan

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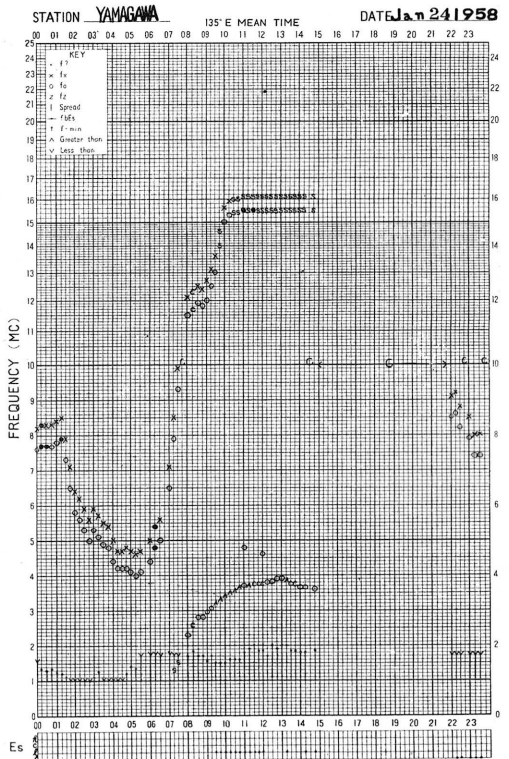

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The Radio Research Laboratories, Japan

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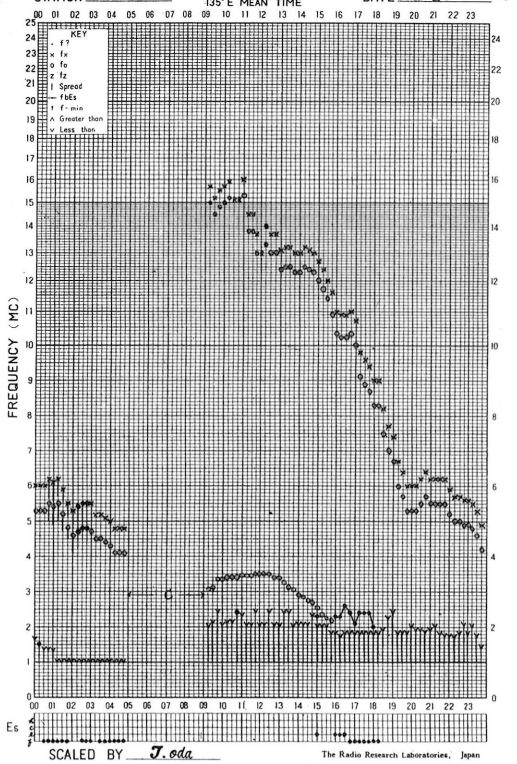

SCALED BY T. oda

The Radio Research Laboratories, Japan

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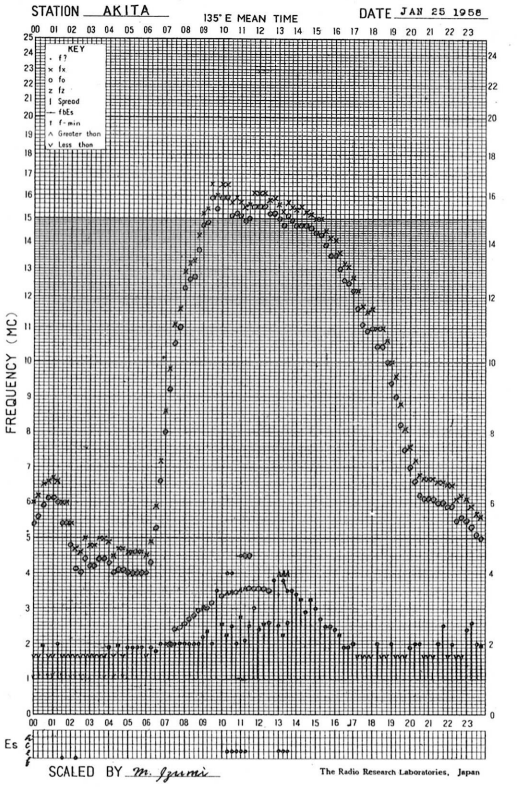

SCALED BY M. Izumi

The Radio Research Laboratories, Japan

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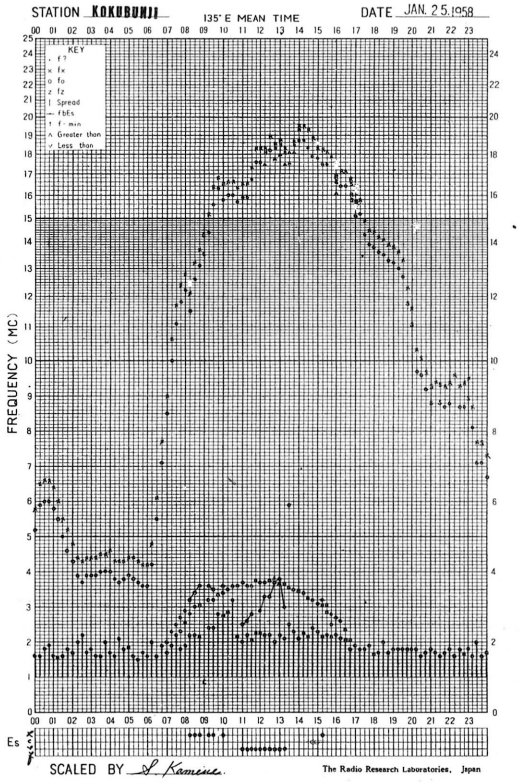

SCALED BY S. Kameue

The Radio Research Laboratories, Japan

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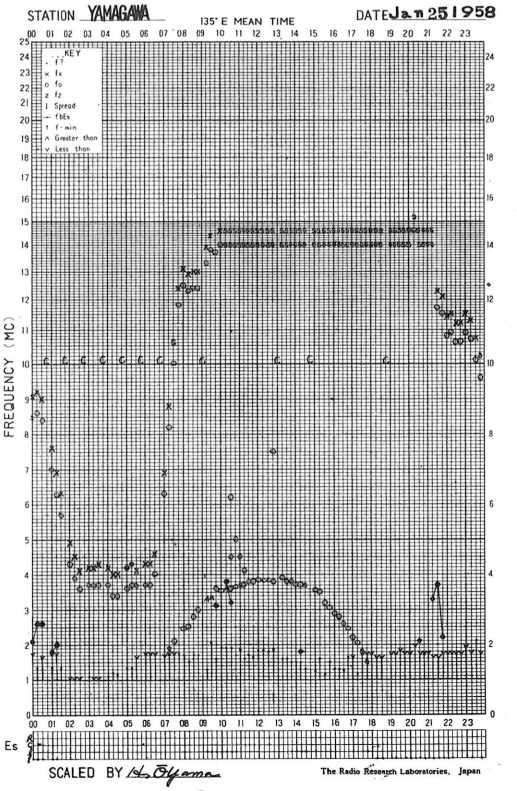

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The Radio Research Laboratories, Japan

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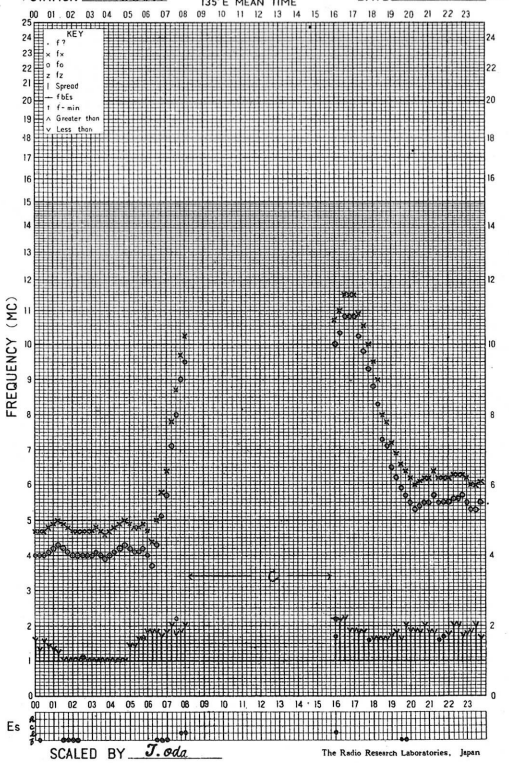

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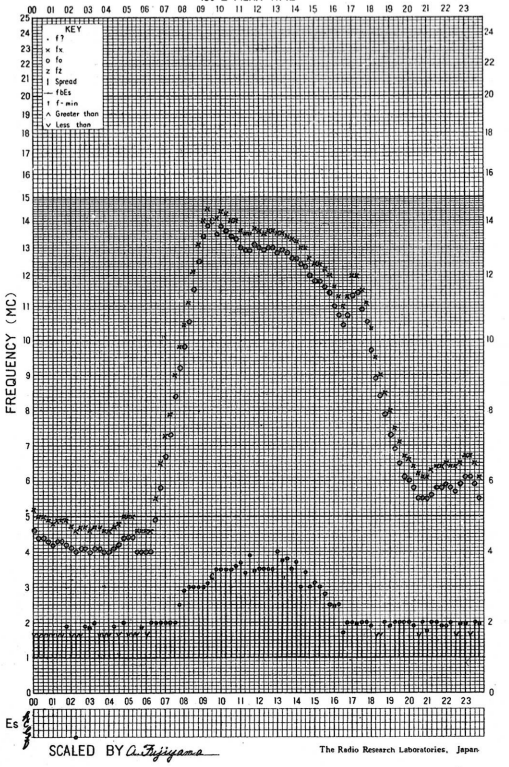

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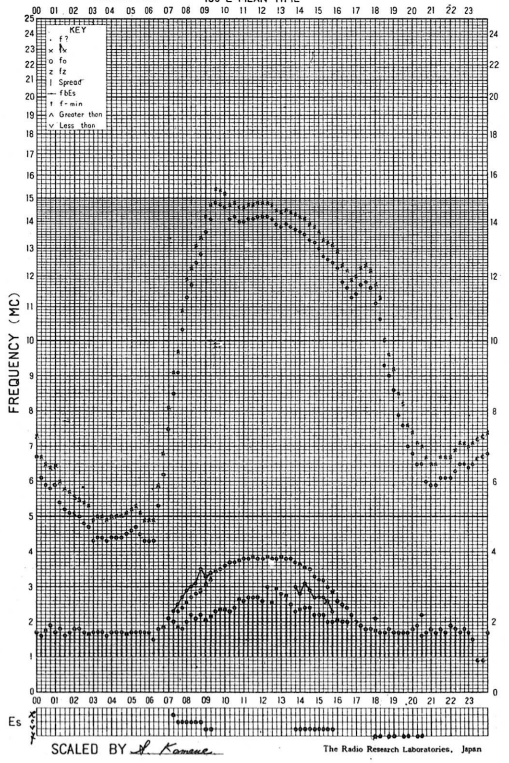

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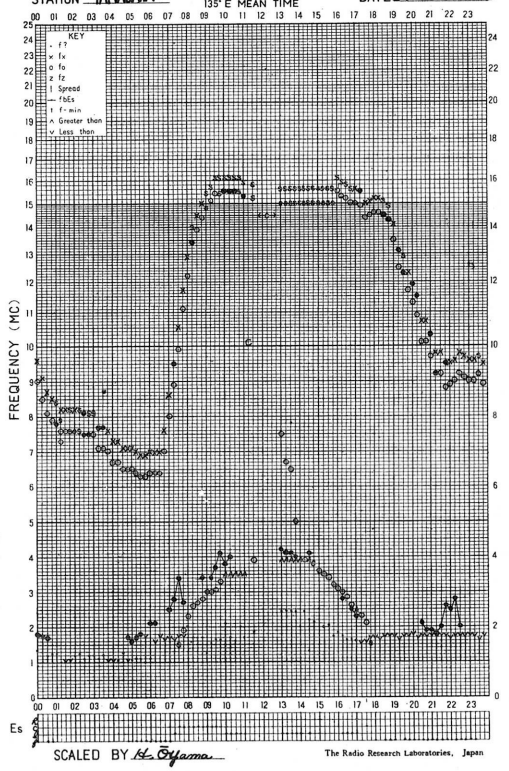

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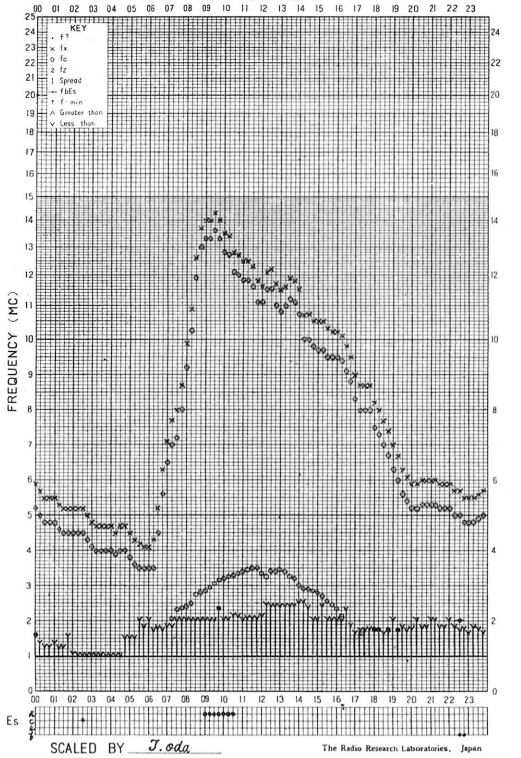

SCALED BY T. oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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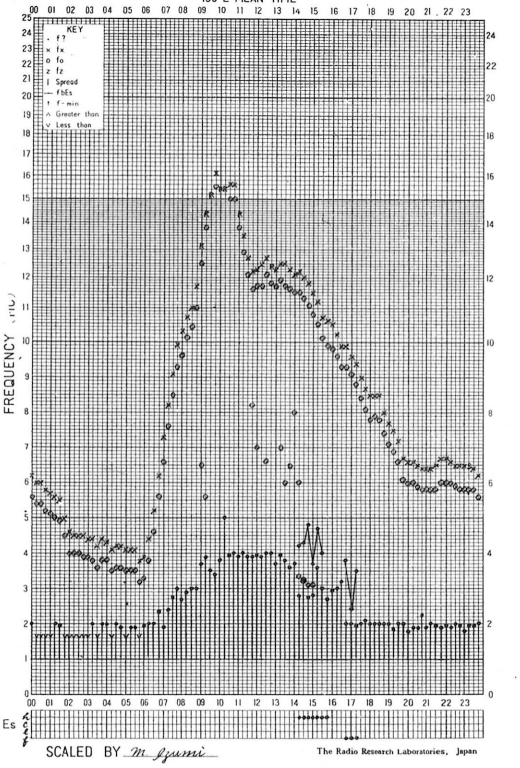

SCALED BY M. Ijumi

The Radio Research Laboratories, Japan

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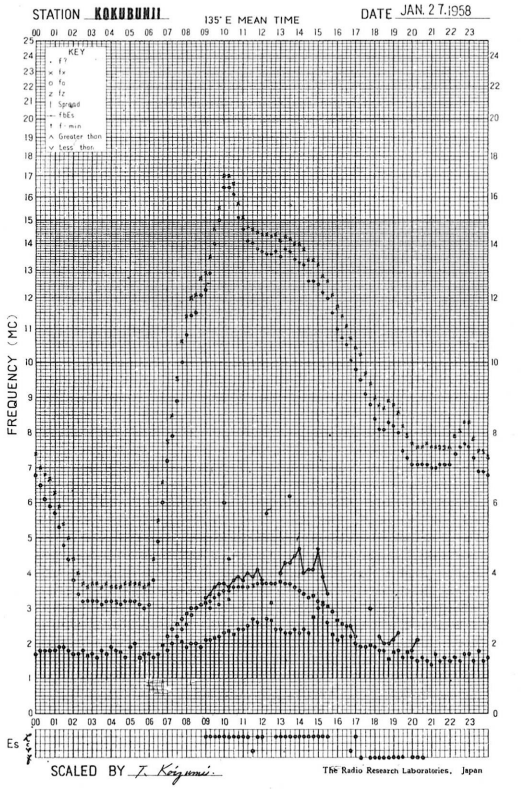

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The Radio Research Laboratories, Japan

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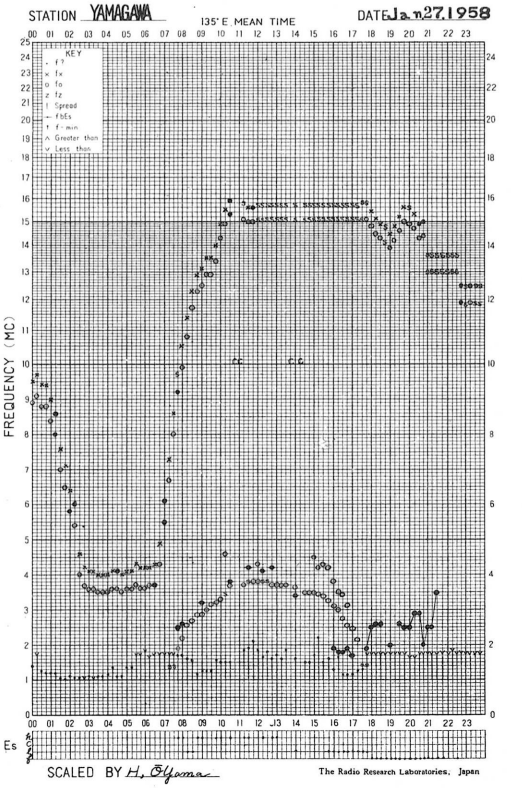
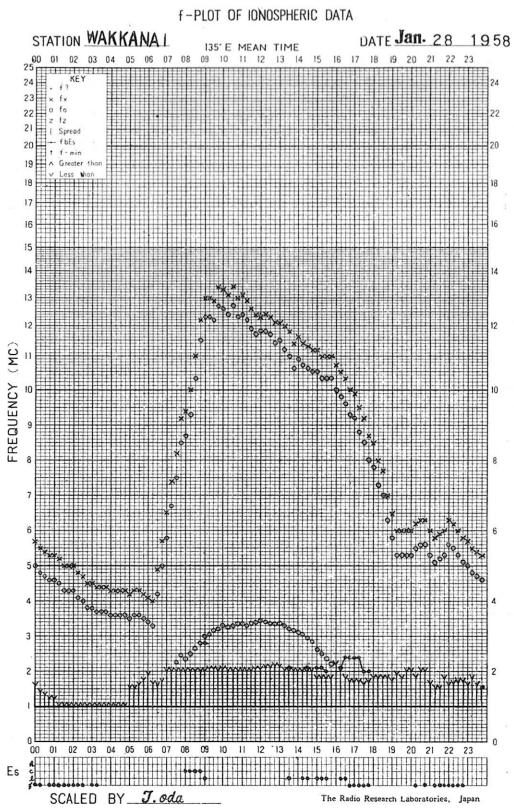


SCALED BY H. Ofuma

The Radio Research Laboratories, Japan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KEY
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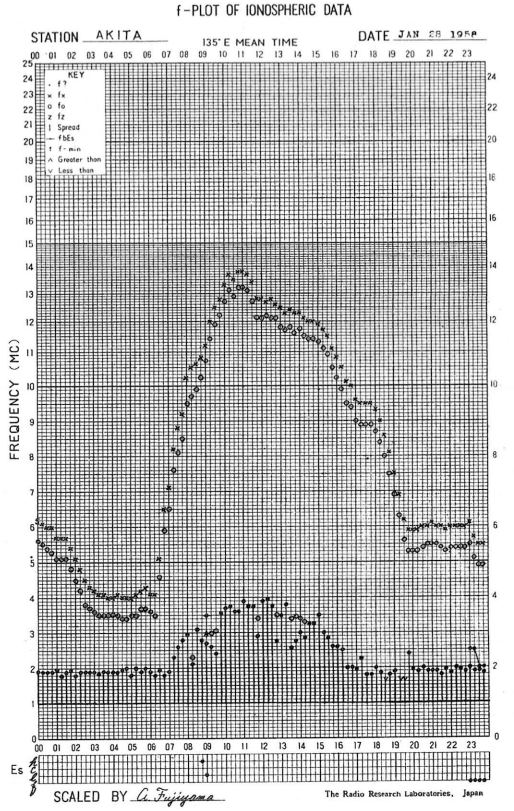
SCALED BY T. Oda
The Radio Research Laboratories, Japan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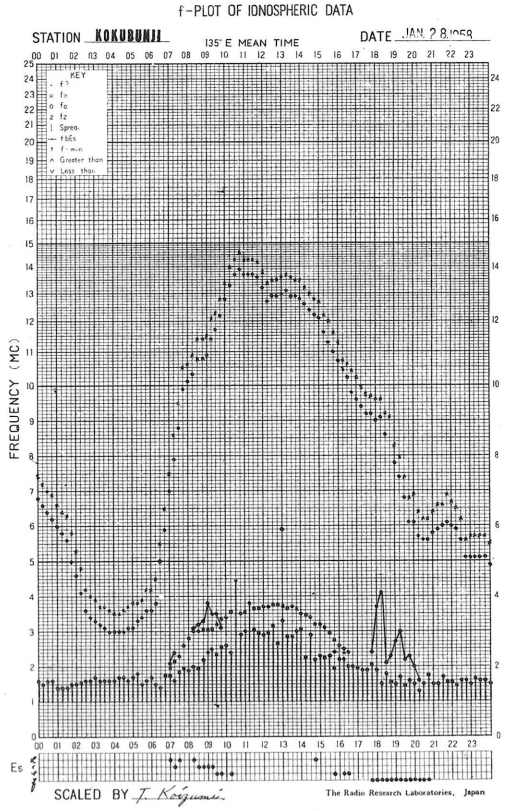
The Radio Research Laboratories, Japan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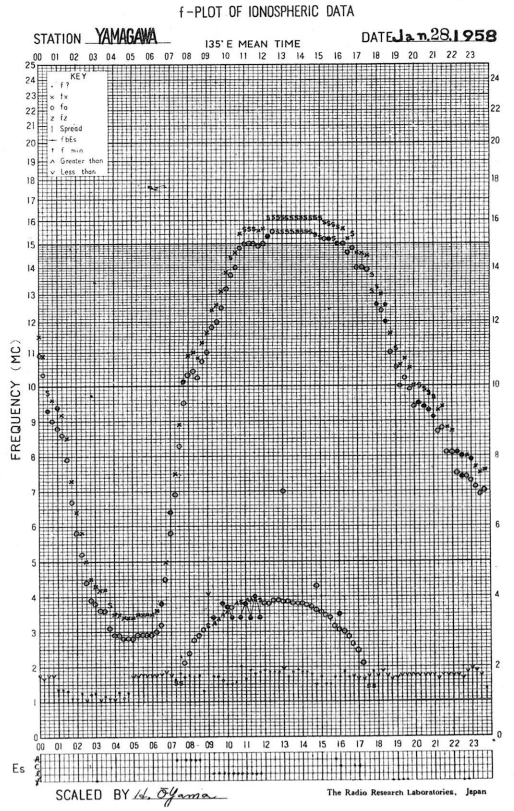
STATION KOKUBUNJI
135° E MEAN TIME
DATE JAN. 28 1958
KEY
FREQUENCY (MC)
Es
SCALED BY T. Kozumi
The Radio Research Laboratories, Japan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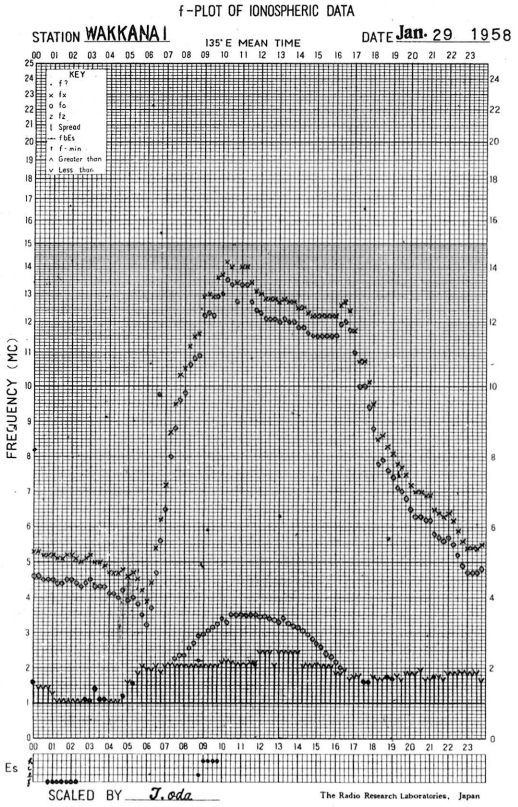
STATION YAMAGAWA
135° E MEAN TIME
DATE Jan. 28 1958
KEY
FREQUENCY (MC)
Es
SCALED BY H. Ofuna
The Radio Research Laboratories, Japan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STATION WAKKANAI
135° E MEAN TIME
DATE Jan. 29 1958
KEY
. f?
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o fo
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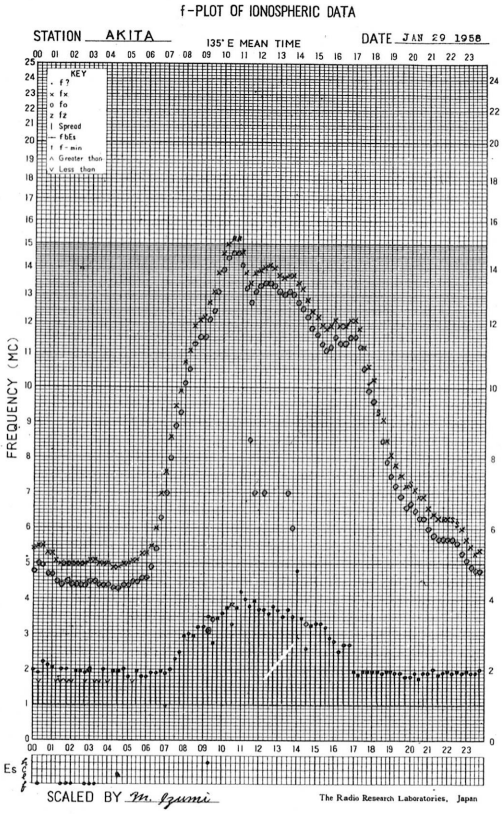
| Spread
— fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MC)
Es
SCALED BY T. Oda
The Radio Research Laboratories, Japan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STATION AKITA
135° E MEAN TIME
DATE JAN 29 1958
KEY
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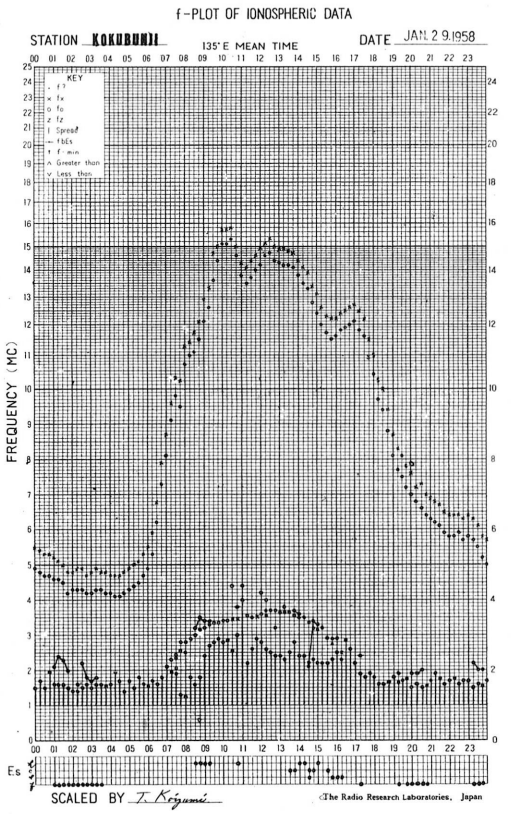
× fx
o fo
z fz
| Spread
— fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MC)
Es
SCALED BY M. Izumi
The Radio Research Laboratories, Japan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STATION KOKUBUNJI
135° E MEAN TIME
DATE JAN 29 1958
KEY
. f?
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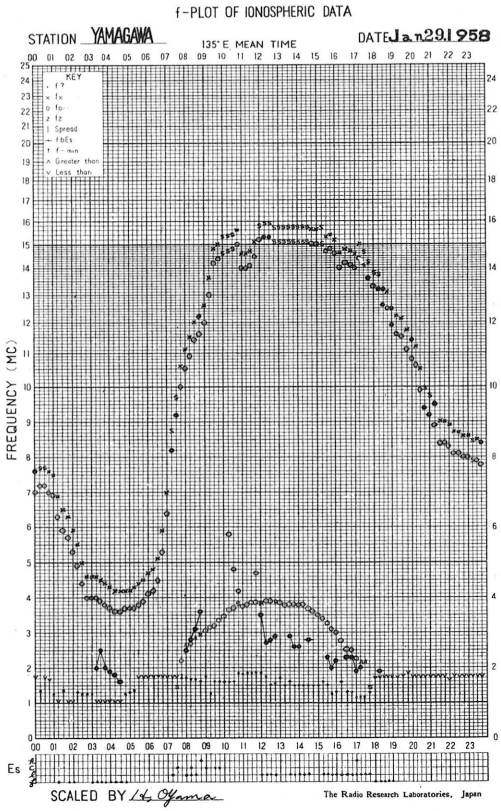
o fo
z fz
| Spread
— fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MC)
Es
SCALED BY T. Kitgumi
The Radio Research Laboratories, Japan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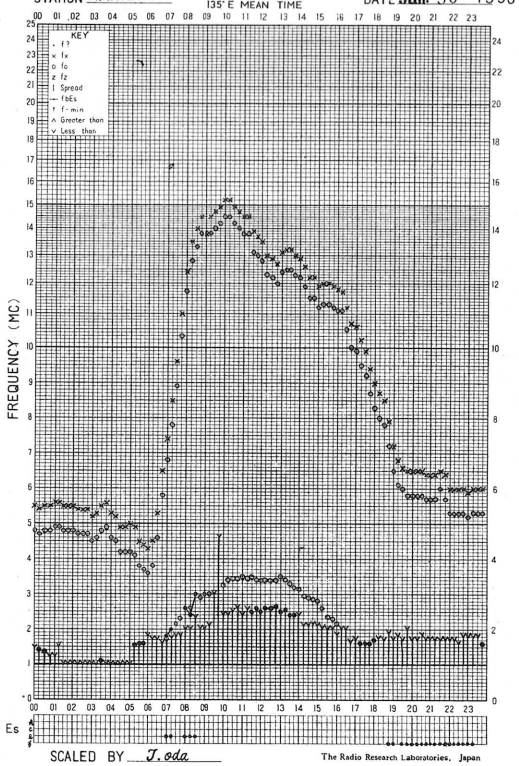
STATION YAMAGAWA
135° E MEAN TIME
DATE Jan 29 1958
KEY
. f?
× fx
o fo
z fz
| Spread
— fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MC)
Es
SCALED BY H. Ohmae
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

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

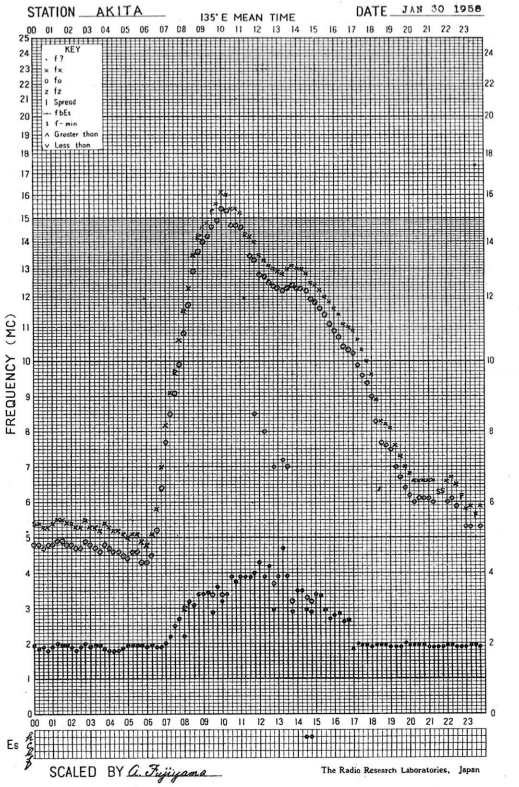


SCALED BY T. Oda

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135° E MEAN TIME DATE JAN 30 1958

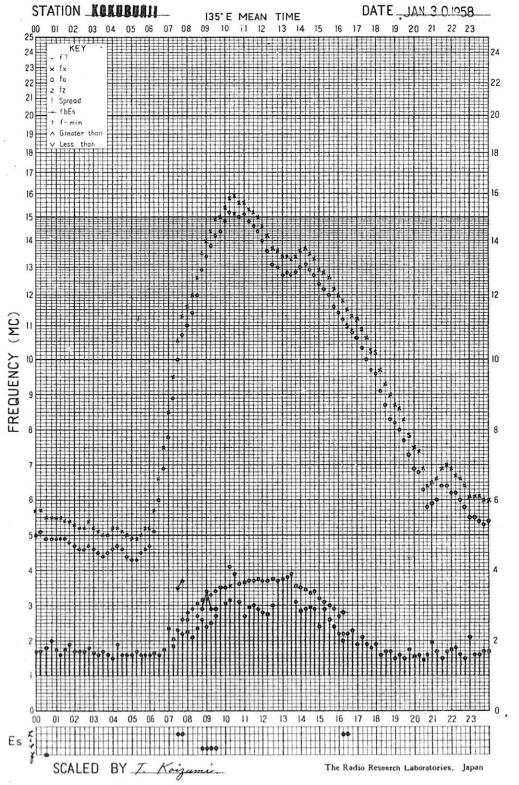


SCALED BY A. Fujiyama

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE JAN 30 1958

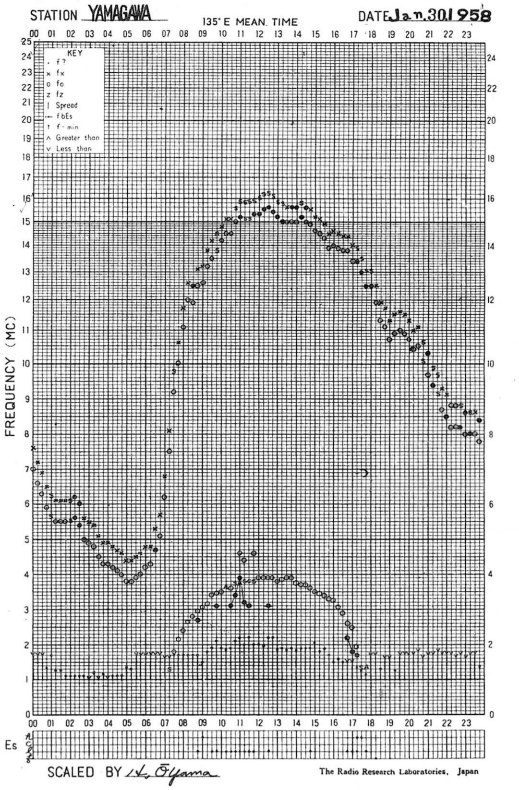


SCALED BY T. Koizumi

The Radio Research Laboratories, Japan

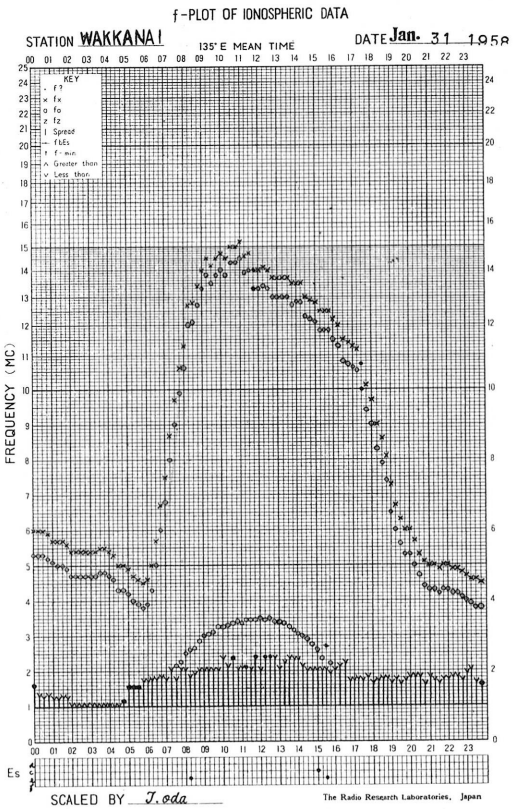
f-PLOT OF IONOSPHERIC DATA

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



SCALED BY H. Ofuama

The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE Jan. 31 1958
KEY
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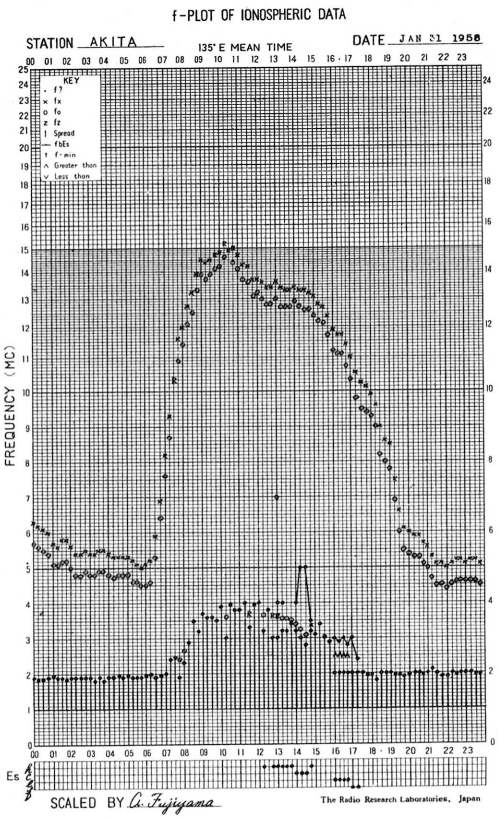
v Less than
FREQUENCY (MC)
Es
SCALED BY T. Oda
The Radio Research Laboratories, Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE JAN 31 1958
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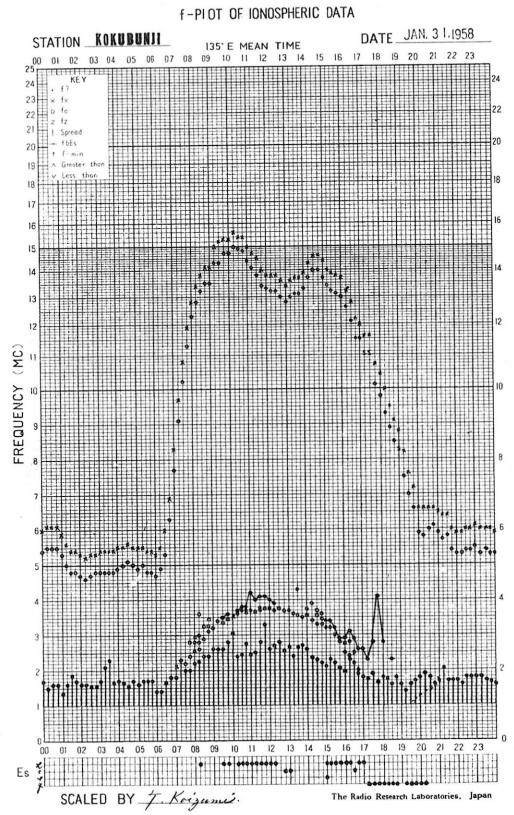
| Spread
— fbEs
t f-min
^ Greater than
v Less than
FREQUENCY (MC)
Es
SCALED BY A. Fujiyama
The Radio Research Laboratories, Japan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STATION KOKUBUNJI
135° E MEAN TIME
DATE JAN. 31.1958
KEY
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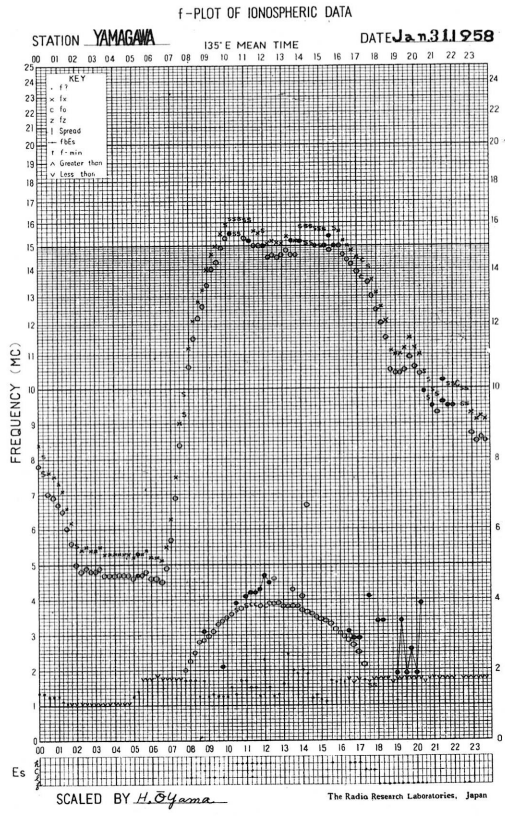
FREQUENCY (MC)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories, Japan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STATION YAMAGAWA
135° E MEAN TIME
DATE Jan.31 1958
KEY
. f?
× fx
o fo
z fz
| Spread
— fbEs
t f-min
^ Greater than
v Less than
FREQUENCY (MC)
Es
SCALED BY H. Ōyama
The Radio Research Laboratories, Japan

SOLAR RADIO EMISSION 200 Mc/s

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

HIRAISO

Time in U.T.

Jan.	Steady Flux					Variability				
1958	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	17	18	13	13	17	1	1	0	0	1
2	12	12	13	13	12	0	1	0	0	0
3	13	13	13	-	13	0	1	0	1	0
4	12	11	11	14	11	1	1	0	-	1
5	12	13	15	-	13	1	0	0	0	0
6	11	14	11	-	12	1	1	0	1	1
7	13	11	13	-	12	1	1	1	0	1
8	14	15	12	(12)	14	0	1	1	0	1
9	13	(13)	-	-	13	0	0	0	0	0
10	-	-	-	-	-	0	0	0	-	0
11	-	23	23	-	23	-	2	1	1	1
12	18	19	15	15	17	1	1	1	0	1
13	15	15	-	-	15	0	0	1	-	0
14	(26)	26	-	21	26	-	1	1	1	1
15	22	16	12	48	18	1	2	1	2	1
16	47	55	38	21	47	2	2	2	2	2
17	27	31	33	40	28	2	2	2	2	2
18	74	77	56	21	62	2	2	2	2	2
19	22	23	25	37	23	3	2	2	2	2
20	27	23	19	18	29	2	2	2	2	2
21	22	20	18	18	20	2	2	1	1	2
22	17	18	15	12	17	1	1	1	2	1
23	18	18	17	17	16	1	1	0	0	1
24	14	18	16	19	17	1	1	0	1	1
25	18	18	20	-	16	1	1	-	-	1
26	-	-	-	-	-	-	-	-	-	-
27	15	18	23	40	23	1	2	2	2	2
28	39	33	31	14	35	2	2	2	2	2
29	20	20	23	17	19	1	1	1	2	1
30	18	20	26	22	20	1	2	1	2	2
31	21	-	-	24	21	1	-	-	1	1

Outstanding Occurrences

Jan. 1958	Start-time	Dura-tion	Type	Max. Inst.	Int. Smd.	Max. Time	Remarks
2	0547-40s	30s	CD/4	700	-	-	
5	0525-30s	30s	SD/4	400	120	-	
6	0240-20s	30s	CD/4	670	-	-	
15	0541	20s	SD/4	240	-	-	
	C541-40s	20s	SD/4	550	-	-	
	2255-30s	1m	SCD/8	500	-	-	
	2303-30s?	ca4m	CD/8	>3000	-	2304	1st peak
				>3000	-	2305	2nd peak
18	2257-30s	2m	CD/8	380	125	2258	
23	0111-40s	4m40s	ECD/8	-	35	-	mean flux
	0521-15s	1m50s	CD/8	225	116	0521-30s	1st peak
				80	41	0522-30s	2nd peak
25	0503-20s	2m	CA/2	-	20	-	mean flux;
	0525	40s	CA/4	250	44	-	
	0550	1m	CA/8	700	118		

Bursts, not so ditinct from activities, are omitted.

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

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

ж = day of Special World Interval
() = inaccurate
[] = Regular World Day
--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Jan. 1958	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	MN	LN										
8											04.40	40	2			
13	-	12			12		02.10	30	S	1					x	
15	-	-	-		16		05.10	40	Slow	1+	05.13	47	1		x	
											06.50	40	1-			
		30					16.36	20	S	2				x		
17	15	16				-	15.03	20	S	1+						
18	>24	17			24		01.12	25	Slow	2-	01.16	42	2			
											06.37	42	2		x	
19											07.04	42	1			

NOTE

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

(2) - : unreadable, ( ) : uncertain

IONOSPHERIC DATA IN JAPAN FOR JANUARY 1958
電 波 観 測 報 告　才10巻 才1号

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