

F—209

IONOSPHERIC DATA IN JAPAN

FOR MAY 1966

Vol. 18 No. 5

Issued in August 1966

Prepared by

THE RADIO RESEARCH LABORATORIES
MINISTRY OF POSTS AND TELECOMMUNICATIONS

KOKUBUNJI, TOKYO, JAPAN

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SITE 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.	Midori-cho, Wakkanai-shi, Hokkaido
Akita	39°43.5'N.	140°08.2'E.	Tegata Sumiyoshi-cho, Akita-shi, Akita-ken
Kokubunji	35°42.4'N.	139°29.3'E.	Nukuikita-machi, Koganei-shi, Tokyo-to
Yamagawa	31°12.1'N.	130°37.1'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.	Isozaki-machi, Nakaminato-shi, Ibaraki-ken

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

All symbols and terminology in the table of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction," 1961.

Terminology

f_oF2	} The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.
f_oF1	
f_oE	
f_oE_s	The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
f_oE_s	The lowest ordinary wave frequency at which the E_s layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.
f -min	The 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.
hF	The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by hF . Thus hF 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.
hE_s	The lowest virtual height of the trace used to give the f_oE_s .
h_pF2	The virtual height of the $F2$ layer measured on the ordinary

wave branch at a frequency equal to $0.834f_oF2$.

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 $0.969f_oF2$).

a. Descriptive Letters

The following letters are entered after or used to replace a numerical value on the 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 below.
- F Measurement influenced by, or impossible because of, the presence of spread echoes.
- G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.
- H Measurement influenced by, or impossible because of, the presence of a stratification.
- L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
- M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
- N Conditions are such that the measurement cannot be interpreted.
- O Measurement refers to the ordinary component.
- R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
- S Measurement influenced by, or impossible because of, interference or atmospherics.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- V Forked trace which may influence the measurement.
- W Measurement influenced or impossible because the echo lies outside the height range recorded.
- X Measurement refers to the extraordinary component.
- Y Intermittent trace.
- Z Third magneto-ionic component present.

b. Qualifying Letters

The following letters are entered in the first column before a numerical

value on the 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.
O	Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)
T	Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
U	Uncertain or doubtful numerical value.
Z	Measurement deduced from the third magneto-ionic component.

c. Description of Standard Types of E_s

The eight standard types of E_s are identified by corresponding lower case letters: *f, l, c, h, q, r, a, s*. These letters suggest the names flat, low, cusp, high, equatorial, retardation, auroral and slant, respectively. It is strongly emphasized that these names are not restrictive. The letter 'n' is used to designate any E_s trace that does not correspond to any of the eight types.

- f* An E_s trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat E_s traces observed in the daytime are classified according to their virtual height: *h* or *l*.
- l* A flat E_s trace at or below the normal E layer minimum virtual height in the day or below the night E layer minimum virtual height at night.
- c* An E_s trace showing a relatively symmetrical cusp at or below f_oE . This is usually continuous with the normal E trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)
- h* An E_s trace showing a discontinuity in height with the normal E layer trace at or above f_oE . 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. (Usually a daytime type.)
- 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 showing an increase in virtual height at the high frequency end similar to group retardation but which is non-blanketing over part or all of its frequency range. This is distinguished from the usual group retardation (as in the case of an occulting thick E layer) by the lack of group retardation in the F layer traces at corresponding frequencies and the lack of complete blanketing.
- a* An E_s having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These

sometimes extend over several hundred kilometers of virtual height.

s A diffuse E_s trace which rises steadily with frequency and usually emerges from another type E_s trace. The rising trace alone is classified as 's'; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal E_s trace such as E_s-l or E_s-f , at frequencies which greatly exceed the E layer critical frequency, whereas at low latitudes it usually rises from E_s-q , E_s-c , or E_s-h at frequencies near the regular E critical frequency. Type *s* is never used to determine f_oE_s and $h'E_s$. The slant trace is sometimes observed to start at f_oE without echoes clearly identifiable as E_s echoes being seen.

n The designation 'n' is used to denote an E_s trace which cannot be classified into one of the standard types. When a trace appears to be intermediate between any two classes a choice should be made whenever possible even if it is uncertain. 'n' should be used sparingly.

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 observations are carried out on 200 and 500 Mc/s at Hiraiso Radio Wave Observatory.

Antennas are a broadside array of 6×4 doublets for 200 Mc/s and a parabolic reflector of 5 meter for 500 Mc/s, each having the total power receiver.

Observations are feasible almost from sunrise to sunset.

a. Time and Unit

The time is expressed as U.T.

The unit is $10^{-22} \text{ W} \cdot \text{m}^{-2} \cdot (\text{c/s})^{-1}$ for both components of polarization.

b. Daily Data

Flux density

The three-hourly and daily mean values are given.

Variability

The three-hourly and daily mean values are given at 200 Mc/s only.

Variability is expressed in the following four grades:

0=Quiet or no burst,

1=A few bursts,

2=Many bursts,

3=Very many bursts.

The number of bursts exceeding the flux level is counted.

c. Distinctive Events

The phenomena are picked up on the following criteria:

1. Distinct from the prevailing kind of activity,
2. Correlated with other known solar phenomena,
3. Remarkable change-over from one situation to another.

Starting time and *Time of maximum* are given to nearest minute in general, but to nearest a tenth minute for short intense occurrences or clear commencements.

Duration is given in minutes and to nearest a tenth minute, if short or clear.

Descriptive type is denoted by the following symbols:

S = Simple rise and fall of intensity;

C = Complex variation of intensity,

C+ = Prolonged broad-band enhancement of radiation, generally of spectral type IV;

F = Group of bursts: multiple peaks probably belonging to the same event, but separated by relatively short period of quietness;

RF = More or less irregular rise and fall of intensity, at metric or decimetric wavelengths;

e = Sudden beginning of burst with steep rise of intensity;

E = Steep rise of intensity of continuum background;

p.i. = post-burst increase;

onset storm = clear-cut beginning of a noise storm.

Peak intensity is the flux density of the highest peak reached during the occurrence, measured above the pre-burst level.

Mean intensity is the flux density averaged over the burst's duration, measured above the pre-burst level; therefore, multiplying the duration, the total energy of the occurrence can be estimated.

C. RADIO PROPAGATION CONDITIONS

a. Field Intensities of WWV and WWVH

Field intensity observations of WWV and WWVH transmitted from Washington D.C. and Hawaii, respectively, are carried out at Hiraio Radio Wave Observatory. In order to avoid interferences with several standard frequency waves on the same frequency, the upper side-band of 440 c/s is picked up by the use of a narrow band pass filter of ± 40 c/s bandwidth.

Tabulated *field intensity* is the average of peak value of the incident upper side-band field intensity in dB above one microvolt per meter. The *duration* of observation is two minutes for WWV and three minutes for WWVH following the time indicated in universal time on the table.

Particulars of the transmitter and receiver are summarized in the following tables:

Transmitter

	WWV	WWVH
Location	Washington, D.C. Long. 76°51' W Lat. 39°00' N	Maui, Hawaii Long. 156°28' W Lat. 20°46' N
Power	3 kW for the upper side-band	0.5kW * for the upper side-band
Antenna	$\lambda/2$ vertical	$\lambda/2$ vertical
Distance	10050 km	6270 km

* Reduced from the carrier power of 2 kW with amplitude modulation of 100%.

Receiver

Antenna	4.5m vertical rod
Bandwidth	± 40 c/s for the upper side-band
Calibration	each half hour

Descriptive symbols are as follows:

- C: Measurement influenced by, or impossible because of, any non-propagational reasons.
- S: Measurement influenced by, or impossible because of, interferences or atmospherics.
- (): Unaccurate measurement influenced by interferences, atmospherics, or non-propagational reasons.
- <: Less than the following figure.

b. Radio Propagation Quality Figures

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

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

The tabulated circuits contain Hamburg (commercial circuit), WWV (frequencies 10, 15, 20Mc broadcast from Washington, D.C.), San Francisco (commercial circuit) and WWVH (frequencies 10, 15Mc 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 averages of the 6-hourly indices of Hamburg WWV and S. F.

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

c. Sudden Ionospheric Disturbance (S. I. D.)

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

Circuits and Drop-out intensity

WS WWV 20 Mc, 15 Mc and 10 Mc (Washington)
 S F Various commercial circuits (San Francisco)
 HA WWVH 15 Mc and 10 Mc (Hawaii)
 TO JJY 15 Mc and 10 Mc (Tokyo)
 S H BPV 15 Mc and 10 Mc (Shanghai)
 HB Various commercial circuits (Hamburg)

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

Start-times and Durations

Types

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

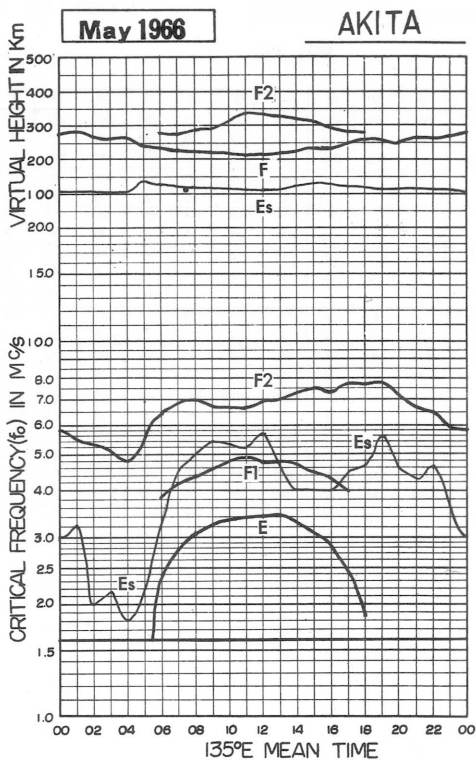
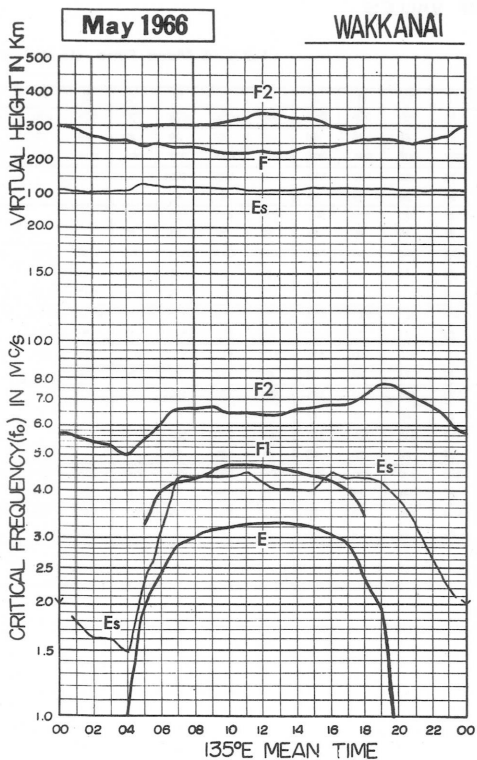
Importances

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

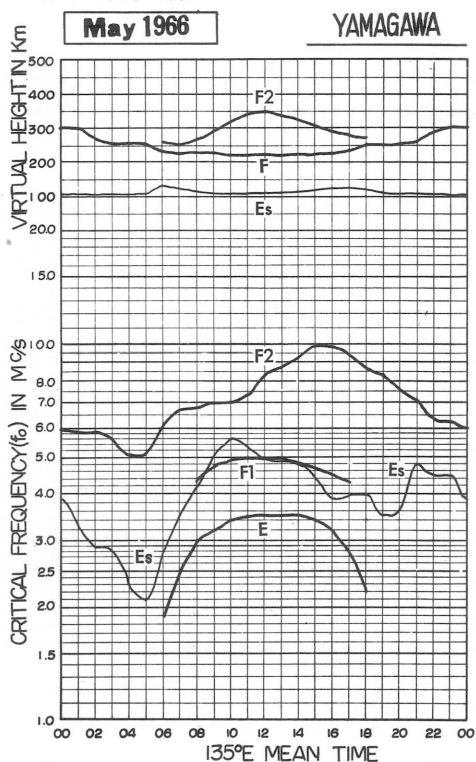
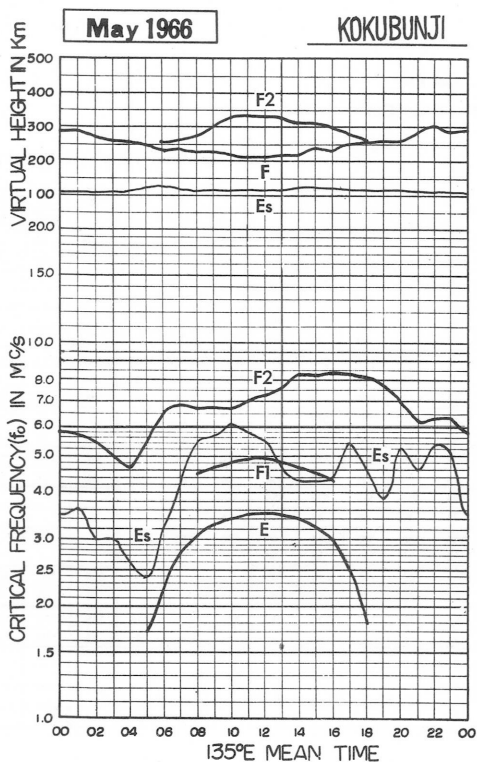
1-	1	1+
2-	2	2+
3-	3	3+

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



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

0.1 Mc 135° E Mean Time (G. M. T. +9h)

f_oF₂

May 1966

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	061	058	053	055	047	051	056H	059	061	068	067	067	068	072	074	073	068	063	061	064	066	069	065	063F
2	SF	061F	054F	054F	054	057	068	072	075	071	070	065	065	069	073	079	080	078	077	081	075	077S	078	063
3	057	054	045	038	036	038	I042R	044	I051R	I052R	055	I056R	060	064	063	065	063	063	063	I070S	I069S	I061S	I056S	055
4	053	053	053	053	051	050	058	066	058	065	067	I063R	J057R	061	081	075	076	076	077	081	068	068	I055S	051
5	054S	F	049F	053F	053F	054	057	060	064	065	071	070	064	065	071	070	070	067	072	077	071	070	065	057
6	057	058	057	054	052	054	055	057	070	074	068	066	070	074	072	075	079	078	078	081	074	068	069	055
7	053	051	050	050	049	055H	053	052	057	067	064	064	063	064	066	068	075	076	070	069	065	061	059	056
8	054	053F	F	F	I053F	047	I051A	055	060	059	065	068	064	061	065	066	070	069	069	077	076	070	C	054
9	052S	F	F	F	044	C	C	C	C	053	063	058	050	I062A	060	063	064	067	073	080	081	070	058	051
10	050	050	050	052	050F	056F	060F	060	A	A	058	065	064	066	063	063	A	A	071	076	070	061	061	053
11	F	F	F	F	048	057	061	059	061	058	058	A	A	064	067	069	068	070	073	075	065	063	057	054
12	053	F	F	F	F	058F	060F	070F	073F	078	073	070	062	067	066	I067A	067	I068A	074	074	072	071	063	I053F
13	SF	I050F	050F	050F	050F	053	067	079	070	I064A	065	063	068	064	066	067	065	074	076	077	077	070	071	068
14	063	063	059	060	058	053	057	062	063	064	066	065	064	063	062	064	065	070	073	079	077	069	063	SF
15	056	053	054	050F	050F	051F	058	065	065	066	I064A	061	060	063	064	066	A	066	070	076	071	SF	063F	062F
16	058F	055	055	049F	050F	055	066	071	066	068	069	067	071	073	073	072	071	073	076	078	074	063	058	057
17	F	I055F	053F	F	048F	060F	067	070	073	072	063	064	059	061	067	072	076	075	071	080	083	075	069	063
18	059	058	058	053	055	061	075	085	077	072	064	065	061H	067	067	068	072	071	073	077	080	074	072	067
19	063	063	063	058	058	063	066	073	066	071	071	067	068	070	067	065	063	066	069	081	081	076	I067F	071F
20	071F	067	066	062	059	050	061	061	067	070	073	072	066	070	066	072	068	067	063	072	078	079	073	068
21	064	061	061	059	056	061	075	070	066	067	065	061	070	067	067	078	076	075	071	079	079	076	074	073
22	070	069	067	065	063	073	084	075	C	C	C	C	C	C	C	C	C	C	C	080	A	A	SF	SF
23	A	I056F	SF	SF	050F	064	063	I068A	074	I073A	080	081	071	064	064	A	A	I061A	067	081	084	I085S	074	067
24	SF	SF	067F	054	I050F	I057F	I071A	076	I067A	071	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	057	056	060	057	059	062	063	A	A	A	A	073	I072A	068	SF
26	061F	056F	050F	I047F	053F	065	070	079	070	064	058	I060C	066	I072A	070	066	063	060	064	075	083	088	074F	SF
27	SF	SF	F	039F	I037F	041	W	W	W	A	A	R	R	R	R	R	051	050	048	049	047	049	052	051
28	048	046	043	040	043	059	060	056	060	064	060	058	065	073	070	075	067	064	073	079	075	070	068	067
29	056	053	052	049	050	057	069	075	078	072	067	068	066	059	062	063	061	064	075	085	086	075	SF	SF
30	F	F	048F	043F	043F	053	066	065	A	A	A	A	065	061	064	062	062	060	064	073	074	A	070	069
31	063	060	055	054F	053F	054	061	061	I061A	063	058	060	051	060	066	062	075	089	085	083	081	075	070	072
No.	22	23	24	24	29	29	28	28	25	27	27	26	27	28	28	28	25	27	29	29	29	27	27	25
Median	057	056	054	053	050	055	061	066	066	067	065	065	064	064	066	067	068	068	072	077	075	070	067	062
U. Q.	063	061	058	055	054	060	068	072	072	071	069	067	068	070	070	072	075	075	075	080	080	075	071	068
L. Q.	053	053	050	049	048	052	058	060	061	064	060	061	061	062	064	064	064	064	068	074	070	068	059	054
Q. R.	010	008	008	006	006	008	010	012	011	007	009	006	007	008	006	008	011	011	007	006	010	007	012	014

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

f_oF₂

W 1

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

0.01 Mc 135° E Mean Time (G.M.T. + 9h)

foF1

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						300	430	430	440	440	470	450	470	440	450	430	400	330L						
2							410L	430	440	440	460	460	470	470	460	A	A	A						
3							I390A	I410R	A	C	A	A	I460C	460	440	430	420							
4							430	430	I440R	460	I460C	I460C	470	480	470	480	430	I400L						
5							380	430	440	450	470	460	460	480	450	430	A	A						
6							420	I430A	I450A	460	460	460	480	I450A	I440A	420								
7							I410A	440	430	450	470	470	470	450	430	A	A							
8							A	I430A	440	470	460	460	470	460	I450A	440	I400A	A						
9							C	C	C	450	I450A	I470A	I450A	I450A	440	400	400	A						
10							A	A	A	A	460	460	460	440	430	450	A	A						
11							300L	I400A	420	440	470	A	A	A	450	440	I420A	390	310					
12							A	I450A	450	I450A	I450A	I460A	460	460	450H	A	A							
13							400	A	A	A	460	I470A	460	460	450	440	430	A	A					
14							380	410	430	450	460	470	I470A	460	460	450	430	A						
15							400L	I420A	I440A	I450A	I450A	470	490	450	450	A	A							
16							400	I420A	I450A	450	I470A	480	490	A	A	A	A							
17							430	440	440	450	460	I480A	480	480	470	440	430	A						
18							400	430	430	450	470	480H	470	470	460	460	400	400	330					
19							400	430	430	460	I470A	I470A	480	470	460	460	430	A	A					
20							I400A	430	440	460	470	480	470	480	480	460	430	400						
21							400	430	450	480	490	500H	I480A	490	500	460	430	I400A	A					
22							380L	410	I420A	C	C	C	C	C	C	C	C	C	A					
23							A	A	A	A	A	I490A	490	500	480	A	A	A	350					
24							A	A	A	450	C	C	C	C	C	C	C	C	C					
25							C	C	C	460	470	470	470	470	460	A	A	A	A					
26							400	430	I430A	450	480	C	A	A	A	450	430	400	I360L					
27							320	370	400	A	A	I410R	I430R	I440A	I440R	430	420	370	I340L					
28							I340L	I400L	420L	450	460	470	480	470	470	I430A	430	400	350L					
29								400H	420	I460A	470	470	470	480	470	450	A	A						
30							340	A	A	A	I470A	I470A	470	I450A	460	440	420	A	A					
31							I270L	400	I410A	I420A	450	470	460L	470H	430	I440A	I420A	A	A					
No.						6	17	22	23	24	25	26	26	26	27	22	19	9	6					
Median						I250L	400	420	430	450	470	470	470	460	450	440	420	400	340L					
U. Q.																								
L. Q.																								
Q. R.																								

foF1

Sweep 1.0 Mc tot 8.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

W 2

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

0.01 Mc f_oE 135° E Mean Time (G. M. T. +9h)

f_oE

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					105	175	230	265	295	315	320	330	I325A	305	305	295	275	220						
2					E	190	230	285	300	305	305	300	I305C	325	I310A	I295A	280	230	180	E				
3					105	180	225	270	300	320	I330C	I330C	I330C	325	310	295	290	220	S	S				
4					105	180	220	285	300	320	320	I325C	335	I325A	I310A	300	275	220	S	S				
5					A	S	220	280	290	305	I320C	325	330	300	305	I310R	280	230	180	S				
6					E	185	230	280	300	315	320	325	305	A	A	A	270	A	A	A				
7					A	160	230	270	295	305	310	300	300	320	325	305	275	225	S	E				
8					A	190	230	280	300	305	315	I310B	310	310	320	305	285	230	185	E				
9					E	C	C	C	C	310	305	315	325	320	315	295	290	230	S	A				
10					E	200	245	290	300	305	310	315	310	320	I300A	I300A	295	220	S	S				
11					A	195	230	275	300	320	325	325	315	I300A	I305A	300	A	A	A	E				
12					A	A	A	290	305	315	305	315	325	325	320	310	290	240	195	E				
13					A	200	240	290	305	320	325	330	315	315	305	300	285	240	195	S				
14					E	190	230	280	300	315	315	325	315	A	A	A	290	225	190	S				
15					A	175	245	290	300	315	315	A	A	A	A	300	270	220	190	S				
16					E	210	255	300	310	315	315	315	305	330	325	310	285	235	A	E				
17					E	205	240	280	300	315	325	330	330	330	335	300	265	240	195	S				
18					A	200	250	290	305	310	320	310	A	A	A	A	290	240	195	S				
19					105	200	250	295	305	320	325	I305A	I310A	I325A	I325R	315	300	250	190	S				
20					120	200	255	300	315	330	335	340	320	340	315	A	A	A	200	A				
21					E	I130S	205	250	295	315	325	330	I320B	A	A	A	300	270	200	S				
22					E	A	205	I265A	290	C	C	C	C	C	C	C	C	C	200	S				
23					E	A	200	270	295	305	315	325	325	305	I320A	335	320	255	190	E				
24					A	205	240	275	295	300	C	C	C	C	C	C	C	C	C	C				
25					C	C	C	C	C	305	325	330	I330A	I330A	325	315	300	250	200	S				
26					E	A	205	255	290	310	320	340	I345C	340	330	320	295	I225A	200	130	S			
27					E	150	190	235	280	300	I320R	I325B	345	U345R	330	320	315	290	235	200	E			
28					E	150	205	255	290	305	310	305	315	330	325	315	300	250	190	S				
29					E	145	205	255	295	310	325	330	345	325	330	320	300	255	200	E				
30					E	A	200	250	280	300	315	U335R	335	330	I325B	300	290	250	205	S				
31					E	120	200	245	285	300	310	I325B	340	330	U330R	U330R	295	250	205	S				
No.					10	17	27	28	29	30	29	28	26	24	24	24	27	26	21	10				
Median					E	105	200	240	285	300	315	320	325	325	320	305	290	235	195	E				
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

f_oE

W 3

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

foEs

May 1966

0.1 Mc 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	E015S	013	013	E	G	G	G	037	035	036	041	041	J045	G	G	G	G	019G	J023	J022	J043	J043	J031	J040	
2	J043	J023	J024	J023	015	G	027	032	043	040	043	G	E040C	G	J043	045	063	040	024	040	J047	E018S	E016S	E015S	
3	E	E	E	E	G	G	030	040	040	047M	E045C	043	E047C	040	040	G	G	G	027	023	E020S	S	E018S	E017S	
4	E020S	E015S	E	E	G	G	G	G	038	040	040	E047C	040	038	J044	G	G	G	E020S	E015S	E016S	E015S	E015S	E015S	
5	E017S	E	E	E	J030	033	G	G	G	G	E035C	040	040	G	G	G	J053	J061	J045	J064	J051	021	E020S	E015S	
6	025	E015S	E	E	E	G	G	035	J053	047	044	050	039	J070	J056	J048	033	040	030	029	023	018	E018S	E016S	
7	E020S	016	018	018	015	020	031	J054	040	037	038	039	038	G	040	051	J073	J063	J063	051	J063	J063	E015S	J041	
8	J031	J030	J029	J030	J043	032	J064	J043	045	042	040	048	038	G	046	040	J055	J080	031	J043	019	E011S	C	E	
9	J053	J054	J030	J020	029	C	G	C	C	045	050	056	J057	J083	G	G	043	J065	J088	J043	J076	020	J033	J030	
10	J021	013	E	020	E	G	041	049	073M	067M	053	053	041	043	043	048	J083	J078	043	J036	J028	E015S	E018S	J043	
11	J031	J044	J033	J028	J035	G	036	J053	040	041	045	J086	J120	138	050	037	J056	036	034	033	J061	J030	J063	J032	
12	J024	J022	013	016	018	J034	035	044	049	046	J068	071M	043	G	G	J106	J075	J073	J053	J044	J043	J043	J036	J023	
13	E016S	015	015	015	017	029	036	J073	065	J075	J034	J032	037	038	G	040	038	042	043	J032	J035	J035	J023	E020S	
14	E015S	J033	016	E	E	023	029	038	044	J058	043	043	063	041	J043	J063	040	041	J034	J038	E016S	J033	J080	J034	
15	E015S	J023	J024	J024	016	026	035	046	J076	J083	J128	J123	J065	J056	047	J071	J105	J075	J065	J055	J061	J083	J053	E017S	
16	E020S	018	J030	J051	J063	G	031	J051	045	040	J065	038	036	061	128	J076	J081	J070	J073	J073	J025	E015S	J028	J031	
17	J021	J020	J018	J026	026	G	032	J043	038	047	J053	J073	043	G	G	039	038	030	028	E020S	J023	E032	E017S	E016S	
18	J029	J024	J019	J021	024	025	G	034	044	055	040	043	J056	035	040	038	038	030	028	J043	050M	E016S	J033	J031	
19	E017S	E	E	E	G	G	G	G	033	039	043	J069	J093	040	G	039	J055	J043	J073	J073	J040	J036	J070	033	
20	E020S	E	E012S	J024	G	025	040	044	043	040	038	G	G	040	038	J056	J043	J033	G	029	J025	E015S	E015S	E016S	
21	E020S	E	E	E	E	E015S	028	041	J043	040	G	043	097	J080	J050	040	041	039	J043	E014S	J032	J030	J026	E016S	
22	J043	J017	E	014	020	028	038	044	C	C	C	C	C	C	C	C	C	C	J076	J077	J115	J143	E011S	J073	
23	J063	J063	J030	J033	J033	J063	040	J093	J073	J110	051	J053	040	043	040	J115	J103	J075	033	J063	J065	J063	J023	E015S	
24	J063	J043	J023	015	J033	053	J093	J120	J090	J053	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	037	040	J053	J056	J054	040	J066	J105	J090	J110	J110	J063	J083	J072	J053	
26	J043	J031	016	E	015	023	022G	J073	J048	041	047	C	057	J075	J073	J046	043	035	G	G	E016S	E015S	E016S	E015S	
27	E016S	E	015	015	G	024	029	034	034	050	056	036	042	044	040	036	045	051	G	J053	J043	J043	J031	J045	
28	J033	J021	014	E	G	G	G	035	038	G	G	G	G	G	G	053	040	J043	050	J021	J034	J034	J038	J025	
29	E015S	018	J035	E	G	G	G	G	043	J074	040	040	G	G	040	J063	J074	J074	J063	J083	J053	J060	J034	J020	
30	J043	J038	J043	J030	020	G	041	013	J068	J066	055	J061	055	J070	J058	G	G	043	J043	J043	J060	J090	J053	018	
31	E020S	E	015	E	G	033	J066	J083	043	038	045	G	G	G	047	J061	J065	J065	J054	031	J026	J020	J023	J023	
No.	30	30	30	30	30	29	29	29	28	30	29	28	29	29	29	29	29	29	29	30	30	30	29	29	30
Median	E020	018	016	016	015	023	031	043	044	044	044	045	042	040	040	040	045	043	043	042	038	032	026	022	
U. Q.	033	030	024	024	026	028	039	052	059	055	054	057	056	058	046	054	063	072	063	055	060	052	036	033	
L. Q.	E017	013	E	E	G	G	G	034	040	040	040	040	038	G	G	036	040	038	028	029	023	E017	E018	E016	
Q. R.	D016	017						018	019	015	014	017	018	018	018	018	023	034	035	026	037	D035	D018	D017	

foEs

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

0.1 Mc
135° E Mean Time (G. M. T. + 9h)

fbEs

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	S	E	012					G	G	G	G	G	038				063	017G	022	021	025	020	018	019	
2	020	016S	015	012	E		G	G	G	G	040		C	040	045			039	017	040	023	S	S	S	
3							G	040	040R	047R	C	043R	C	G	G				025	020	S	S	S	S	
4	S	S							G	040R	C	C	G	037	041				S	S	S	S	S	S	
5	S			017	019	027					C	039	G				050	060	047	052	043	020	S	S	
6	020	S						G	043	046	G	040	G	052	047	045	023	036	025	020	020	018	S	S	
7	S	015	018	014	013	G	G	050	G	G	G	G	G		G	050	070	046	053	050	045	040	S	016	
8	020	017	013	016	022	028	A	040	044	G	G	G	G		046	G	040	040	030	027	019	S	C		
9	016	020	022	017	024	C	C	C	C	G	G	048	050	A			037	058	060	042	062	018	029	027	
10	019	012		018			038	046	A	A	046	G	G	G	037	040	A	A	030	036	022	S	S	028	
11	016	020	026	020	027		035	048	040	G	G	A	A	053	040	G	056	033	021	020	050	022	046	032	
12	020	E	E	E	012	023	030	042	048	043	068	064	G	G		A	060	A	053	043	040	028	033	018	
13	S	014	011	E	016	G	G	060	057	A	044	047	G	G		039	G	040	041	030	031	030	016	S	
14	S	018	E			G	G	G	042	G	G	042	057	039	037	044	037	040	030	016	S	028	018	016S	
15	S	E	020	020	013	G	G	043	062	060	A	044	041	036	042	047	A	041	057	044	052	025	016	S	
16	S	E	021	014	040		G	050	045	G	057	G	G	060	050	051	065	042	043	067	020	S	024	017S	
17	020	012	016	018	020		G	G	G	G	G	056	G			G		039	021	S	020	032	S	S	
18	020	016	017	E	018	G	G	G	G	G	G	G	044	035	035	034	G	020G	G	030	045	S	020	020	
19	S						G	G	G	G	066	060	040	037		G	040	042	046	064	040	027	023	028	
20	S	S	S	013		G	040	042	G	G	G		G	G	G	038	031	032		026	020	S	S	S	
21	S				S	G	G	G	G	C	C	G	055	040	038	038	G	039	043	S	028	020	025	S	
22	027	E		E	013	018	026	043	C	C	C	C	C	C	C	C	C	C	055	059	A	A	S	018	
23	A	020	017	012	020	053	039	A	057	A	050	050	G	040	G	A	A	A	G	050	056	023	020	S	
24	027	027	018	E	020	042	A	047	A	040	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	C	C	042	040	036	G	053	A	A	A	A	A	045	A	056	030
26	030	023	014		015	014	020G	G	047	G	G	C	056	A	050	041	G	029				S	S	S	
27	S	E	E	E		G	G	G	G	A	A	036R	042R	044R	040R	G	040	G		040	020	040	030	030	
28	020	018	E				G	G	G						043			G	G	S	020	025	038	020	
29	S	015	012						042	048	G		G		040		051	060	056	037	030	038	027	016	
30	038	033	023	025	016		040	042	A	A	A	A	045	056	G			043	043	042	060	A	019	018	
31	S		011			G	G	055	A	G	G	045			046		060	043	054	023	025	019	017	017	
No.																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

fbEs

W 5

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

0.1 Mc
135° E Mean Time (G. M. T. + 9h)

f-min

May 1966

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	EO15S	E	E	E	E	E	E	011	011	020	020	020	021	020	017	011	011	011	E	EO12S	EO17S	EO12S	EO12S	EO11S	
2	EO15S	EO16S	E	E	E	E	011	011	012	017	020	018	EO40C	020	017	011	012	011	015	E	EO13S	EO18S	EO16S	EO15S	
3	E	E	E	E	E	015	011	018	018	018	EO45C	025	EO47C	027	017	012	018	016	EO18S	EO17S	EO20S	S	EO18S	EO17S	
4	EO20S	EO15S	E	E	E	015	011	017	017	018	018	EO47C	025	020	017	012	016	017	EO20S	EO15S	EO16S	EO15S	EO20S	EO15S	
5	EO17S	E	E	E	E	EO17S	017	016	017	020	EO35C	024	026	021	018	018	012	011	012	EO11S	EO15S	EO15S	EO20S	EO15S	
6	EO15S	EO15S	E	E	E	E	011	011	012	018	012	012	018	020	020	018	012	011	E	E	E	E	EO18S	EO16S	
7	EO20S	E	E	E	E	011	012	012	012	011	018	012	025	018	020	020	012	011	EO15S	E	EO15S	E	EO15S	EO15S	
8	EO16S	E	E	E	E	015	012	011	011	020	022	033	020	020	020	015	018	011	011	E	EO11S	EO11S	C	E	
9	EO12S	E	E	E	E	C	C	C	C	020	021	021	020	020	020	012	012	012	EO18S	E	EO15S	EO15S	EO15S	EO11S	
10	E	E	E	E	E	011	011	011	011	012	020	025	020	020	020	017	015	015	EO17S	EO11S	E	EO15S	EO18S	EO15S	
11	EO15S	E	E	E	E	011	017	017	019	012	020	020	020	020	020	020	017	011	011	E	EO16S	EO17S	EO11S	010	
12	E	E	E	E	E	E	012	020	020	017	022	023	022	020	021	020	018	012	015	E	E	EO16S	EO17S	EO15S	
13	EO16S	E	E	E	E	E	011	012	017	017	020	020	020	020	020	019	018	012	011	EO13S	E	E	E	EO20S	
14	EO15S	E	E	E	E	011	011	011	011	012	020	022	020	019	012	012	012	012	E	EO15S	EO16S	EO12S	EO16S	EO16S	
15	EO15S	E	E	E	E	011	011	012	018	018	026	020	021	027	020	020	017	017	011	EO12S	EO18S	EO15S	EO15S	EO17S	
16	EO20S	E	E	E	E	017	017	020	018	015	020	021	020	020	020	020	020	020	012	011	E	EO15S	E	EO17S	
17	EO17S	E	E	E	E	011	011	011	020	020	020	021	027	020	021	020	017	012	E	EO20S	EO15S	EO15S	EO17S	EO16S	
18	E	E	E	E	E	E	E	017	021	021	026	020	027	027	022	020	017	011	011	EO15S	EO15S	EO16S	E	EO13S	
19	EO17S	E	E	E	E	011	011	012	020	021	020	022	022	025	020	017	020	015	015	EO12S	E	E	EO15S	EO16S	
20	EO20S	E	EO12S	E	E	011	011	012	020	020	026	025	023	021	023	020	022	011	011	E	E	EO15S	EO15S	EO16S	
21	EO20S	E	E	E	E	EO15S	011	012	020	021	023	035	025	022	021	020	020	022	011	E	E	EO15S	EO15S	EO16S	
22	E	E	E	E	E	E	011	012	012	C	C	C	C	C	C	C	C	C	012	EO14S	E	EO11S	EO15S	EO16S	
23	EO15S	E	E	E	E	E	011	011	012	020	022	022	022	028	020	018	020	011	011	E	E	E	EO11S	EO12S	
24	EO16S	E	E	E	E	016	012	012	018	020	C	C	C	C	C	C	C	C	C	E	E	EO15S	EO15S	EO15S	
25	C	C	C	C	C	C	C	C	C	020	020	020	022	027	020	016	016	011	011	EO14S	E	E	E	EO15S	
26	E	E	E	E	E	011	011	012	018	017	021	C	020	026	022	021	020	011	011	011	011	011	EO16S	EO15S	
27	EO16S	E	E	E	E	E	011	012	019	020	034	030	021	022	020	020	017	012	012	E	E	EO15S	E	EO12S	
28	E	E	E	E	E	E	013	012	017	018	020	023	022	021	022	012	017	012	011	EO16S	EO15S	E	EO12S	EO16S	
29	EO15S	E	E	E	E	011	012	012	019	021	022	026	025	021	022	025	012	012	012	E	E	E	E	E	
30	E	E	E	E	E	012	012	012	020	020	025	021	020	034	020	020	018	011	011	EO12S	EO16S	EO17S	EO17S	E	
31	EO20S	E	E	E	E	011	011	011	020	020	034	020	023	025	025	021	012	016	011	EO12S	E	E	E	EO16S	
No.	30	30	30	30	30	29	29	29	28	30	29	28	29	29	29	29	29	29	30	30	30	29	29	29	30
Median	EO15S	E	E	E	E	011	011	012	018	020	020	022	022	021	020	019	017	012	011	EO12S	EO12S	EO15S	EO15S	EO15S	
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

f-min

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

135° E Mean Time (G. M. T. +9h)

M(3000) F2 0.01

May 1966

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	280	275	280	270	270	305	310H	310	325	325	325	315	325	315	315	325	335	335	310	295	290	290	275	285F
2	SF	300F	285F	290F	300	320	340	325	335	340	330	340	305	330	310	315	285	285	290	280	260	275S	290	270
3	260	265	275	245	265	275	I290R	300	I310R	I310R	315	I315R	305	315	320	315	320	320	320	I295S	I305S	I320S	I310S	295
4	305	280	285	305	320	325	330	335	325	340	325	I320R	J300R	300	310	295	310	310	325	315	310	315	U310S	280
5	285S	F	275F	310F	315F	325	335	305	315	340	315	315	315	310	285	315	325	330	320	310	315	305	295	310
6	280	280	285	290	305	310	330	320	325	330	340	320	310	320	310	300	310	325	310	320	315	295	250	295
7	285	295	300	295	300	330H	335	I325A	315	305	330	315	345	315	320	320	335	330	335	320	310	295	290	295
8	295	290F	F	F	U310F	320	I305A	320	330	320	310	325	315	325	310	310	320	320	320	315	305	310	C	310
9	290S	F	F	F	320	C	C	C	C	300	320	305	315	I315A	315	305	315	315	315	290	315	320	310	295
10	280	280	295	310	300F	285F	300F	315	A	A	345	325	325	320	315	305	A	A	325	315	320	310	305	300
11	F	F	F	F	315	335	330	345	340	330	310	A	A	300	305	315	325	330	315	320	310	300	315	295
12	285	F	F	F	F	320F	275F	300F	300F	305	305	315	295	310	325	I315A	315	I310A	310	310	305	315	315	285F
13	SF	295F	300F	300F	315F	320	330	320	330	I315A	320	295	320	300	310	310	295	305	320	310	300	285	285	295
14	290	285	290	300	315	305	315	325	320	330	320	310	315	315	300	295	310	315	300	315	310	280	290	SF
15	300	290	295	320F	320F	335F	315	325	320	335	I315A	310	295	310	295	320	A	320	315	315	350	SF	290F	280F
16	295F	290	310	295F	320F	325	335	335	335	340	320	285	295	305	305	305	310	300	315	320	320	300	295	290
17	F	290F	275F	F	315F	315F	315	330	315	335	335	315	305	280	285	305	310	320	295	290	300	305	290	300
18	280	290	295	300	305	295	300	320	325	345	305	310	280H	305	300	295	305	310	305	305	295	285	290	285
19	285	285	300	305	295	290	295	315	320	325	295	315	305	315	315	310	315	310	305	295	290	305	U300F	285F
20	280F	285	290	305	320	345	315	300	320	330	315	310	330	315	305	310	325	325	300	280	295	295	295	295
21	295	290	285	290	305	295	325	335	325	305	325	295	295	315	275	295	315	320	310	305	295	280	280	290
22	285	290	295	305	300	305	315	320	C	C	C	C	C	C	C	C	C	C	315	300	A	A	SF	SF
23	A	U285F	SF	SF	300F	330	315	I310A	310	I295A	300	310	315	295	315	A	A	I295A	300	290	305	U280S	290	285
24	SF	SF	315F	315	U300F	U300F	I310A	315	I285A	310	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	300	285	305	290	300	295	315	A	A	A	A	290	I290A	290	SF
26	305F	285F	280F	U300F	295F	280	300	305	310	330	295	I295C	300	I300A	305	315	320	315	280	270	265	275	250F	SF
27	SF	SF	SF	270F	245F	250	W	W	W	A	A	R	R	R	R	275	300	310	300	300	270	280	280	280
28	285	285	290	290	300	330	315	315	305	315	320	290	280	305	295	320	315	295	300	300	305	285	300	300
29	305	285	295	300	320	315	300	310	310	320	285	325	305	295	295	295	300	290	295	300	300	335	SF	SF
30	F	F	300F	280F	300F	295	305	340	A	A	A	A	310	280	320	305	305	315	300	305	305	A	285	305
31	310	305	310	290F	285F	300	300	330	I310A	320	285	290	280	270	290	265	275	305	285	290	290	295	275	285
No.	22	23	24	24	29	29	29	29	26	27	27	26	27	28	28	28	25	27	29	29	29	27	27	25
Median	285	285	290	300	305	315	315	320	320	320	315	310	305	310	310	310	315	315	310	305	305	295	290	295
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0Mc in 40 sec in automatic operation

M(3000) F2

W 7

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (G. M. T. +9h)

0.01

M(3000)F1

May 1966

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					365	365	390	365	365	360	380	365	390	365	370	375	365L							
2						390L	370	410	370	370	370	365	360	350	350	A	A	A						
3						I365A	I355R	A	C	A	I360C	355	365	370	360									
4						360	370	I370R	370	I385C	365	355	340	350	355	U375L								
5					370	365	360	360	370	370	360	380	380	R	A	A	A							
6						380	I365A	I375A	375	375	365	A	A	A	A	355								
7						370	I365A	365	395	380	385	360	380	370	A	A	A							
8						A	I375A	370	385	375	360	375	I355A	365	A	A	A							
9					C	C	C	C	390	400	I390A	I380A	I370A	365	350	A	A							
10						A	A	A	A	405	390	380	390	A	A	A	A							
11					400L	385	I385A	I390A	400	365	A	A	I370A	365	I355A	I365A	370							
12						A	I360A	A	A	A	A	370	385	380H	A	A	A							
13						375	A	A	A	A	A	370	370	365	I355A	355	A	A						
14						345	375	I390A	380	380	I370A	I370A	385	375	I350A	I355A	A							
15						375L	A	A	A	A	I380A	365	400	A	A	A	A							
16						380	I370A	380	385	I370A	375	365	A	A	A	A	A							
17							355	375	390	390	I375A	375	375	345	365	355	A							
18						375	355	375	380	380	375H		365	350	355	375	375	365						
19						370	370	400	395	I390A	I390A	375	370	355	350	A	A	A						
20						I360A	I370A	365	375	385	380	400	355	360	350	355	375							
21						375	380	380	375	365	365H	I360A	345	340	350	365	I365A	A						
22					370L	370	I390A	C	C	C	C	C	C	C	C	C	C	C	A					
23						A	A	A	A	A	I370A	370	350	355	A	A	A	A	355					
24						A	A	A	A	360	C	C	C	C	C	C	C	C	C					
25					C	C	C	C	C	375	395	I380A	375	380	350	A	A	A	A					
26						370	395	I370A	400	395	C	A	A	A	A	A	365	375	U345L					
27					325	315	340	395	375	A	A	I410R	I385R	I370A	I360A	350	I355A	380	U345L					
28						U385L	U380L	380L	380	375	380	370	365	355	360	I375A	355	370	345L					
29						370H	365	I390A	I385A	385	405	385	355	360	A	A	A	A						
30						355	A	A	A	I370A	I380A	I380A	I375A	370	375	365	365	A	A					
31					U345L	350	I375A	I400A	380	390	I385A	395L	385H	420	I350A	I340A	A	A						
No.					2	6	17	21	22	22	22	24	26	25	25	17	16	9	6					
Median					U335L	370L	370	370	375	380	380	380	370	370	360	355	355	375	350L					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

M(3000)F1

W 8

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (G. M. T. +9h)

km

h'F2

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						320		320	305	300	310	300	315	310	295	295	270	260						
2								270	270	275	275	280	345	310	315	300	I270A	260						
3								410	R	A	340	I350R	350	335	310	300	300							
4								300	315	280	300	300	I372R	365	315	325	280	275						
5							300	315	295	300	300	305	310	350	310	310	295	I290A						
6								300	300	270	275	300	325	310	310	310	300							
7							300	I320A	325	300	300	345	310	310	305	305	I295A	265						
8								300	300	310	345	300	310	340	330	310	290	275						
9						C	C	C	C	325	310	360	350	A	310	330	300	320						
10							290	295	A	A	290	310	310	300	310	330	A	A						
11						250	275	250	275	300	360	A	A	A	320	320	300	275	260					
12								315	305	300	I305A	A	340	335	320	I310A	I305A							
13							300	A	275A	I300A	325	350	325	340	325	310	320	290	265					
14							310	280	300	300	305	325	I350A	320	350	340	305	295						
15							270	300	I305A	I310A	I315A	320	375	335	350	305	A	290						
16							280	280	285	280	310A	350	340	I310A	315	325	I310A	300						
17								290	300	275	295	350	355	400	360	310	300	275						
18							300	275	280	280	325	350		340	330	350	300	295	275					
19							315	290	300	300	I310A	I320A	350	315	310	310	300	300	300					
20							300	340	320	305	300	310	325	320	300	320	300	280						
21							260	275	280	340	305	350	350	330	390	325	290	275	A					
22						275	290	260	C	C	C	C	C	C	C	C	C	C	A					
23							275	I320A	305	I325A	325	300	315	350	345	A	A	A	300					
24						300	A	285	I355A	310	C	C	C	C	C	C	C	C	C					
25						C	C	C	C	375	415	360	410	370	350	325	A	A	A					
26							295	280	280	295	400	C	360	I330A	310	320	310	300	320					
27					390	460	W	W	W	A	A	R	R	R	R	445	380	350	335					
28						255	260	300	345	310	320	400	390	320	330	300	300	300	300					
29							295	300	290	300	315	310	340	360	360	350	350	I335A						
30						330	310	275	A	A	A	A	340	415	320	325	295	300	305					
31						310	310	320	I315A	310	410	390	430L	440	350	425	A	275	310					
No.						2	7	20	28	25	26	27	24	26	26	28	28	24	10					
Median						350	300	300	300	300	310	320	340	335	320	320	300	290	300					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

h'F2

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time (G. M. T. + 9h)

km *h'F*

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	300	295	300	280	315	265	220H	250	245	225	235	235	245	215	215	240	230	225	260	265	295	280	295	300	
2	300	260	250	265	280	250	240	235	250	220	230	215	235	210	260	A	A	A	270	A	280	290	290	250	
3	260	270	235	250	290	250	275	1270A	1265A	A	C	A	1245C	250	220	225	240	250	260	260	255	1250S	250	275	
4	300	300	290	260	250	240	250	250	240	1230R	240	1230C	235	210	E280A	250	260	245	255	250	250	250	245	305	
5	300	290	290	260	250	250	240	220	250	225	210	220	240	230	200	R	A	A	A	A	A	A	260	255	
6	300	295	285	270	260	235	230	235	1225A	1245A	220	220	210	A	A	A	230	1250A	260	240	245	255	250	260	
7	300	275	260	250	300	240H	250	A	250	205	225	205	210	225	250	A	A	A	A	A	A	1250A	260	260	
8	300	300	295	270	260	255	1255A	1250A	1240A	240	210	230	220	220	1255A	275	A	A	A	260A	250	235	C	260	
9	300	315	300	255	275	C	C	C	C	215	200	1210A	1220A	1235A	260	225	A	A	A	A	A	A	240	300A	
10	300	300	260	250	235	A	A	A	A	A	A	210	210	210	215	A	A	A	270A	1250A	245	240	250	300	
11	270	310	350A	300	290A	230	250	1245A	1240A	235	240	A	A	A	1230A	240	1240A	1230A	250	235	1245A	255	A	A	
12	305	285	265	250	240	250	245H	1250A	1245A	A	A	A	240	210	235H	A	A	A	A	A	1255A	250A	1255A	275	
13	300	295	275	250	240	240	250	A	A	A	A	A	210	230	215	1250A	250	1270A	1265A	250A	1255A	1280A	270	275	
14	265	290	270	255	250	230	250	250	1235A	250	240	1225A	1230A	220	225	1240A	1245A	1260A	265	245	240	250A	275	255	
15	280	280	290	255	250	240	250	A	A	A	A	1215A	240	215	A	A	A	A	A	A	A	A	275	260	280
16	275	255	260	260	1245A	245	250	1250A	1240A	225	1245A	230	205	A	A	A	A	A	A	A	235	245	290	275	
17	300	280	285	280	250	245	250	245	225	215	220	1215A	225	200	240	250	245	1250A	245H	260	250	1245A	250	250	
18	295	290	280	260	275	235	245	250	240	210	225	200H	1225A	210	215	240	245	250	250	260A	1255A	250	260	260	
19	300	270	260	250	255	245	240	235	220	210	1215A	1215A	210	200	250	245	1250A	A	A	A	1260A	255	270	285A	
20	280	270	260	250	245	225	1250A	1245A	245	230	210	225	220	225	235	250	240	250	240	290A	275	250	250	260	
21	275	270	270	275	260	250	250	240	220	210	215	225H	1220A	260	225	240	260	1270A	1260A	260	275A	270	280	270	
22	290A	260	260	250	260	245	245	1240A	C	C	C	C	C	C	C	C	C	C	C	A	A	A	225	270	
23	A	315	310	300	245	1260A	1250A	A	A	A	A	1235A	220	250	220	A	A	A	250	A	A	250	235	270	
24	300A	305	250	230	270	A	A	A	A	225	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	210	205	1220A	235	210	260	A	A	A	A	A	A	A	A	300A	
26	280	270	300	290	250	245H	225	205	1225A	210	210	C	A	A	A	A	230	240	250	290	310	290	335	280	
27	300	250	330	350	225	270	260	230	250	A	A	1215R	1245A	1240A	1250A	250	1265A	240	245	1290A	300	1310A	E350A	1315A	
28	300	295	260	265	260	245	230	220	200	200	200	200	230	230	245	1230A	220	240	265	250	250	270	1280A	260	
29	260	290	280	260	260	250	250H	225	A	A	225	190	240	235	210	A	A	A	A	A	A	A	270A	260	
30	1300A	1300A	265	300A	260	240	A	A	A	A	A	A	A	A	230	220	230	230	A	A	A	A	275	260	
31	255	250	250	250	280	260	255	1240A	1225A	225	205	1215A	190	200H	200	A	A	A	A	A	250	270	250	280	275
No.	29	30	30	30	30	28	26	22	21	21	21	23	26	24	25	16	16	14	17	17	21	26	27	29	
Median	300	290	270	260	260	245	250	240	240	225	220	215	225	220	230	240	240	250	260	260	255	250	260	270	
U. Q.																									
L. Q.																									
Q. R.																									

h'F

IONOSPHERIC DATA

Lat. 45° 23.6'N
Long. 141° 41.1'E

Wakkanai

135° E Mean Time (G.M.T. +9h)

km

f'Es

May 1966

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

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

f'Es

W11

IONOSPHERIC DATA

Wakkanai

Lat. 45° 23.6'N
Long. 141° 41.1'E

Types of Es

135° E Mean Time (G. M. T. + 9h)

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	f	f	f				h	h	c	c	c	c	12				1	1	f	f2	f2	f2	f2	f2	
2	f	f2	f2	f	c		h	h	c	c	c	c		c1	h1	h	h	1	h	c1	f2				
3						h	h	h	h	c	c	c		c	c			h	h	c					
4						h	h	h	h	c	c	c		1	1										
5				f	c1	c					c	c				h	c	c3	c3	f3	f				
6	f				1	h	c	c3	c2	c	c	c	12	12	12	1	h212	12	1	f2	f				
7	f	f	f	f	1	h	c	c3	c2	c	c	c		h	c2	c2	c3	c4	c2	f4	f2			f	
8	f	f	f	f	12	c	c3	c	c	c	c	c		h	h	c	c	c	c	f					
9	f	f2	f	f	1				c	c	c	c2	c	c2		c	c2	c2	c2	c1	f3	f	f2	f3	
10	f2	f	f3			h	c		c	c	c2	c	c	1	c1	c4	c2	c	c2	c	f			f2	
11	f	f2	f2	f2	12		c	c3	c	c	c	c3	1	1	1	12	13	1	c1	f3	f	f4	f2		
12	f2	f2	f	f	1	12	1	c	c	c	c4	c2	c		c2	c2	c2	c4	c3	f2	f2	f2	f		
13	f	f	f	f	1	c	c	c2	c2	c	c	c	c	c	h	h	h	h	c2	c2	f2	f3	f		
14	f2	f	f	f	h	h	h	c	c	c	c	c	1	1	12	h	h	c2	c2	c2	f2	f2	f2		
15	f	f	f	f2	1	h	c	c	c2	c2	c3	1	1	1	c1	c	c2	c2	c2	c3	f4	f2	f		
16					12		h	c2	c	c	c2	c	c	c2		c3	c2	c3	1	c2	f		f3	f	
17	f	f	f2	f2	1		c	c	c	c	c	c2	c		c	c	c	c	c	f	f2				
18	f2	f	f2	f	c	h			c	c	c	c	1	1	1	h	h1	c	c2	f2	f2	f2	f		
19							c	c	c	c	c	12	1	1	h	h	c	c	c2	c3	f4	f2	f3	f2	
20				f		h	c	c2	c	c	c			c	c	1	1	12	1	f2					
21						h	c	c	c		c	c	12	1	1	h	c	c	c	f3	f2	f			
22	f2	f		1	h1	c1	1	c										c3	c2	f4	f5			f2	
23	f3	f2	f2	12	1	c2	c	c3	c2	c4	c	c	c	1	c	c4	c2	c3	c	c4	f4	f2	f		
24	f2	f2	f	f	12	c2	c3	c2	c	c	c														
25									c	c	c	1	1	1	c	c2	c4	c2	c3	f4	f6	f5	f2		
26	f2	f2	f		1	c1	1	c	c	c	c	c	c2	c	c2	c	12								
27			f	c		h	h	h	h	c3	c2	c	c	h	c2	c		c	c2	f	f2	f3	f2		
28	f2	f2	f				c	c	c		c	c	c	c	c	c		c	c2	f2	f5	f3	f2		
29	f	f	f				c	c2	c	c	c			h	c3	h	c3	c2	c5	c2	f3	f4	f2	f	
30	f3	f3	f3	12	1		h	c	c2	c	c	c2	c	c	c		h	c2	c3	f2	f4	f2	f		
31			f2			c	c	c2	c2	c	c	c	c	c3	c2	c3	c2	c3	c	f2	f	f	f	f	
No.																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

Sweep 1.0 Mc to 18.0 Mc in 40 sec in automatic operation

The Radio Research Laboratories, Japan

Types of Es

W 12

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

0.1 Mc **foF2** 135° E Mean Time (G. M. T. +9h)

May 1966

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	060	057	FS	053	052	049	057	065	068	062	076	069	076	073	079	081	071	068	066	072	069	I068R	068	058
2	057	FS	FS	053F	052	053	048	048	051	I056A	057	060	065	067	076	072	I071R	067	071	077	075	062	079S	059
3	062	056	053	042	038	042	043H	048	051	I056A	057	060	065	067	076	072	I071R	067	071	077	075	062	058S	055
4	055	053	051	052	048	051	058	065	074	075	067	067	071	071	070	071	071	072	071	072	082	069	064	057S
5	052S	052S	051	050S	051	055	060	062	065	070	067	071	066	069	078	081	I083A	090R	082	I080A	072	061	061	056
6	056	056	055	053	054	056	055	060	066	076R	080	070	066	069	078	081	I083A	090R	082	I080A	072	061	061	056
7	053	053	053	051S	048	054	063	066	070H	064H	I072A	067	070	070	077	080	083	084	077	I070A	065	057	052	RS
8	FS	F	F	F	F	F	046	054	A	A	A	064	070	072	073	076	074	073	I073R	084	082	FS	FS	052F
9	052F	050	051F	F	F	F	060H	064H	I063A	I057A	069	061	067	071	070	067	071	078	084	086	I071R	A	A	A
10	A	051	FS	052S	047H	055	065	071S	A	A	069	065	069	071	072	068	077	077	080	077F	068	064F	062F	FS
11	050	050S	047	046	045	045	057	074	061	061	057	066	062	068	074	083	086	I086R	081	071	060H	054	055	052
12	051	FS	FS	046F	045	051	064H	069H	076	074	072	073	065	068	076	079	078	079	071	074	071	071	064	055
13	056S	FS	053S	051S	047	051	068	073	I066A	058	I065A	I067A	065	072	073	073	069	079	091	081	071	068S	F	FS
14	066F	065	062	062	052	052	065	065	067	065	066	067	069	068	066	068	074	078	I080R	I078A	074S	067	061	055
15	FS	054F	055	048	047	056	063	071	070	068	067	065	I066A	I070A	075	078	074	076	070	I073A	I072A	066R	053	FS
16	FS	RS	FS	049F	045	051	066	072	067	067	067	072	079	085	080	082	081	082	I082R	078S	069	FS	056	FS
17	054F	FS	046F	046S	041	049	065	071	076	071	063	063	069	066	073	081	082	081	076	085	081	071	071S	FS
18	068	062	060	056	052	061	076	090	078	067	065	068	067	070	072	076	079R	081	081R	079	074	FS	FS	070
19	065	063	063	059	055	060	072	080	073	071	073	073	073	072	085	075	067	073	077	078	074	071S	069	I068A
20	FS	067	FS	FS	057	055	061	067	081	083	084	081	081	079	075	075	079	070	068	074	076S	081	076	074
21	066	062	061	062	061	066	079	082	067H	062H	067	068	069	072	070	083	I091R	086R	079	078	072	I069A	069	067
22	065	065	062	062	FS	071	069	I070A	071H	I075A	I077A	083	I081A	083	083	084	084	081	I076R	080	078	065	066S	A
23	A	FS	A	FS	054	060F	I068A	066	076	077	I086A	086	075	069	070	066	A	A	A	I079R	FS	FS	FS	FS
24	064F	FS	065S	FS	FS	FS	056	071	081	079	I076A	075	073	068	063	061	068	069	I074A	072S	067	067S	060F	
25	FS	FS	058S	054	048	055	064	069	061H	060	060	066	064	066	067	068	063	061	066	I070R	071S	FS	FS	FS
26	FS	051S	047	046	045	051H	073	083	I069R	I061A	058H	064	I068A	073	078	070	065	068	068	078H	080	083	078R	080
27	076	FS	FS	FS	FS	FS	041	041	E040G	A	A	A	A	A	054	057	061	062	I048A	046	049F	FS	F	F
28	F	F	042F	039	039	050	062	059	059	066	I062A	062	067	079	085	084	072	I070R	071	079	075	072	066	066
29	060	053	052	I050R	048	058	063	077	075	067	070	061H	063	069	064	068	068	068	081	090	FS	FS	FS	065F
30	F	FS	056	051F	048	056	068	074	066	I063A	060	064	065	068	068	070	072	066	A	A	A	067	FS	FS
31	FS	F	056S	053F	052F	065F	074	079	I071A	I064A	063	A	A	A	065	073	070	077	092	086	I086R	080	079	073
Count	20	18	23	25	26	30	31	31	29	28	29	29	29	31	31	31	30	30	29	30	28	23	22	19
Median	058	055	053	051	048	055	065	069	070	067	067	067	069	070	073	075	074	078	077	078	072	067	065	059
U. Q.	065	062	060	054	052	058	071	074	076	072	072	072	072	073	079	082	082	081	081	081	075	071	069	068
L. Q.	054	052	051	047	045	051	060	064	066	062	063	064	066	068	070	068	071	069	072	074	070	064	058	055
Q. R.	011	010	009	007	007	007	011	010	010	010	009	008	006	005	009	014	011	012	009	007	005	007	011	013

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

foF2

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

foF1 0.01 Mc 135° E Mean Time (G.M.T. +9h)

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						L	L	L	440L 450L	450L 460L	480 490	480 490	470 I500A	480H 490	470 A	450 450H	L 420	LH 400L							
2						A	A	A	450L 460L	460L 470L	480 480H	480 480H	I500A 490	A A	450H A	L 420	L 400L								
3									A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
4									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
5									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
6									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
7									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
8									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
10									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
11									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
12									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
13									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
14									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
15									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
16									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
17									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
18									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
19									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
20									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
21									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
22									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
23									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
24									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
25									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
26									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
27									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
28									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
29									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
30									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
31									L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Count	2	6	11	17	19	21	21	21	22	26	27	24	19	7											
Median	340L	390	420	440	460	480	490	480	480	480	470	450	430	400L											
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

foF1

A 2

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

0.01 Mc **f_oE** 1.35 E Mean Time (G.M.T. +9h)

f_oE

May 1966

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	220	265	300	325	330	335	335	340	I330R	310	280	235	185					
2						E	215	275	1295A	320	330	A	S	A	330	I310A	290	235	180					
3						E	220	260	305	330	340	345	340	335	320	310	280	240	A					
4						E	235	280	A	A	A	350R	I350A	I340A	330	310	280	245	A					
5						E	220	1260A	305	330	325	335	340R	A	A	A	285	230	180					
6						E	225	275	305	325	330	340	I340A	345	335	310	280	235	180					
7						E	220	270	305	325	330R	335	A	A	325	310	280	230	E					
8						E	225	275	310	330	335A	340	I340A	I345A	340	315	285	240	A					
9						E	230	285	310	I320A	I330A	340	345	340	335	320	285	245	A					
10						E	A	255	A	A	A	330	A	A	A	A	A	235	A					
11						E	A	275	310	325	335	I340A	I340A	I340A	340R	A	A	A	A					
12						E	A	290	305	325	I330A	335	I340A	345R	325	320	290	A	A					
13						E	I240A	285	315	330	345	350	355	I340A	320	305	285	245	185					
14						185	245	285	315	325	335	350	355	350	335	305	290	245	185					
15						E	235	280	315	330	335	340	I345R	340R	330	310	285	245	A					
16						E	245	275	295	I325A	330	A	A	A	I335A	320	290	240	A					
17						E	A	A	300	325	330	335	A	A	I330A	I315A	295	255	180					
18						185	240	290	315	325	335	355	A	A	A	A	A	185						
19						190	250	280	310	340	A	A	A	A	A	310	295	255	A					
20						190	250	295	I320A	I330A	340R	345	A	A	A	310	290	260	185					
21						195	245	285	315	330	I335R	I340R	I340R	350	A	A	A	260	200					
22						A	250	285A	320	330	340	345	350	I340A	340	315	295	255	A					
23						A	235	295	320	325	335	345	A	A	A	325	305	I260A	210					
24						E	250	295	315	330	335A	A	A	350R	I340A	325	305	255	A					
25						200	245	275	310	330	A	A	340	340A	I330A	315	295	250	A					
26						A	250	290	310	330	I340R	345	350	345	335	310	A	A	200A					
27						205	245	275	310	330	340	345	350	I350R	330	315	290	255	A					
28						205	240	285	310	325	335	345	I350A	345	335	325	295	255	A					
29						A	235	275	310	325	335	345	I350R	345R	330	310	290	250	200					
30						A	235	280	315	325	330	335R	340	350	340	315	300	260	205					
31						195	240	280	310	320	325	330	335	350	340	330	305	265	A					
Count						25	27	30	29	29	27	26	21	21	24	26	26	27	15					
Median						E	240	280	310	325	335	340	340	345	330	310	290	245	185					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

f_oE

A 3

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

0.1 Mc 1 3.5° E Mean Time (G.M.T. +9h)

foEs

May 1966

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	J018	J013E	J012E	E	E	019	027	038	J041	040	040	040	035	G	G	G	G	G	G	J016E	J015E	J013E	J017	J025
2	J021	J016E	E	J051	E	020	030	J064	J050	039	J038	J058	J080	J067	G	041	038	032	J039	J060	J062	J039	J064	E
3	E	E	E	E	J016E	G	027	035	J046	J063	J046	J058	J049	J053	J051	033	G	032	J038	J023	J038	J026	J023	J018
4	J016E	J018	J018	E	J018	E	G	033	039	J041	J039	G	J038	J038	G	G	034	J037	J040	J028	J020	J016E	J015E	J013E
5	J026	J015E	J014E	E	E	J030	G	031	038	042	039	G	036	J066	040	036	G	032	J039	J050	J041	J036	J028	J015E
6	E	E	J016E	J014E	J013E	E	G	G	037	039	045	J045	J036	G	G	J139	044	J059	J074	J105	J037	J033	J025	E
7	J016E	J018	J025	J028	J027	019	030	J044	044	J059	J080	J080	J115	J100	044	041	J059	J051	J058	J078	J061	J061	J073	J060
8	J057	J043	J056	J015E	J027	026	033	J048	J080	J142	J135	J047	J101	J052	042	036	035	J045	J081	J058	J028	J073	J052	J018
9	E	J031	J036	J041	J068	J033	033	J038	J100	J095	J059	J057	J133	036	037	035	038	J035	J046	J056	J083	J090	J096	J096
10	J064	J068	J068	J059	J029	J035	057	J097	J137	J136	J079	J057	J068	J061	J040	J063	J040	037	J075	J076	J071	J061	J018	J060
11	J059	J047	J033	J037	J026	021	J064	J039	038	J049	J051	J076	J058	042	036	J040	J039	J045	J043	J034	J053	J028	J036	J040
12	J036	J043	J048	J029	J039	J056	J037	J040	J038	J043	J080	J044	046	G	039	J044	G	J034	J034	J029	J036	J038	J061	J043
13	J049	J034	J036	J023	J023	J021	028	041	J070	J104	J073	J081	J056	J056	039	045	J061	J060	J079	J038	J016E	J051	J050	J035
14	E	J013E	J016E	J029	E	G	028	J046	J044	J042	041	J041	043	G	J041	J036	033	J056	J070	J087	J066	J028	J025	J023
15	J023	J038	J021	J023	J012E	021	033	J045	J059	J044	J073	J070	J086	J074	G	039	J056	J070	J059	J080	J072	J062	J078	J060
16	J060	J060	J058	J029	J016E	J022	J046	J050	J060	J068	045	J048	J053	042	042	J044	J060	J065	J073	J060	J045	J043	J038	J043
17	J013E	J034	J024	J025	J028	J031	035	J048	J060	044	J053	J051	J056	J060	J037	J038	J034	J065	J040	J038	J025	J052	J061	J032
18	J024	J016E	E	J021	J019	G	035	J060	J081	J044	038	043	J057	J036	J066	J073	J050	039	J041	J050	J023	J042	J060	J038
19	J015E	J026	J027	J018	J023	020	J030	038	036	043	J040	J053	J061	J063	J049	039	J056	032	J028	J029	J063	J053	J048	J073
20	J038	J035	J025	J016E	E	021	030	J046	J063	J052	041	038	037	036	035	034	033	J038	J044	J045	J021	J036	J017	J026
21	J018	J018	E	E	E	023	030	039	J044	J054	043	047	039	042	J045	J055	035	J067	J059	J063	J050	J077	J046	J037
22	J061	J049	J020	J058	J026	022	036	J064	J093	J071	J143	J082	J095	D	J051	J116	033	J051	J068	J077	J046	J078	J110	J113
23	J108	J060	J078	J058	J063	J068	J071	J078	J099	J081	J145	042	J076	J102	044	J074	J138	J111	J109	J098	J072	J090	J063	J061
24	J045	J032	J018	J057	J020	J035	J046	J050	J081	J071	J078	J053	J052	G	J067	J062	J055	J070	J103	J034	J049	J044	J031	J036
25	J033	J060	J018	J038	J018	027	J039	J074	J065	J065	J080	J060	J063	J065	J050	039	036	J040	J050	J046	J061	J070	J071	J059
26	J068	J061	J017	J013E	E	023	028	035	J106	J073	J051	J064	J068	J046	J044	J046	J061	J063	026	E	E	J016E	J012E	J013E
27	J013E	E	E	J013E	J018	025	029	037	038	J056	J053	J052	J059	J066	040	036	035	J068	J037	J035	J028	J029	J013E	J013E
28	J050	J036	J023	E	J013E	G	027	035	039	J040	J079	J051	J076	040	038	039	J063	J114	J038	J058	J037	J022	J034	J023
29	J031	J030	J016E	J016E	J016E	022	033	J046	033	041	041	044	043	J045	J048	G	042	J044	J043	J105	J064	J060	J050	J041
30	J030	J015E	J013E	E	E	023	J037	J049	J046	J078	J055	J061	J051	043	039	043	J050	J044	J085	J104	J109	J089	J060	J053
31	J053	J061	J031	J036	J039	024	J056	J078	J083	J087	J058	J069	J077	J051	J058	J071	J056	J066	J047	J096	J064	J028	J039	J016E
Count	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Median	J030	J032	J020	J023	J018	022	033	J045	J050	J054	J053	J052	J057	J046	040	040	J040	J045	J047	J056	J046	J043	J046	J036
U. Q.	053	047	033	037	027	027	037	050	081	073	079	061	076	065	048	055	056	065	074	078	064	062	061	059
L. Q.	E	E	E	E	E	019	028	038	039	042	041	044	043	036	037	036	034	036	039	034	028	028	025	018
Q. R.						008	009	012	042	031	038	017	033	029	011	019	022	029	035	044	036	034	036	041

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

foEs

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

0.1 Mc **1 35° E** Mean Time (G. M. T. +9h)

fbEs

May 1966

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					018	027	035	040	037	039	039	035			040	037	030	029	052	054	031	E	E
2	E		022			018	029	044	039	038	056	040	050	043		040	037	030	038	020	E	019	E	E
3							027	035	045	A	043	058	049	050	048	032		030	038	020	E			
4		018	E		E		033	039	039	041	037		037	038			033	035	040	027	E			
5	E					E	031	036	036	038	039	038	G	066	038S	036		031	038	050	040	E	025	
6									036	039	039	038	036			A	036	055	065	A	024	020	025	
7		E	019	E	024	018	029	038	041	056	A	038	039	051	044	038	057	045	050	A	035	030	025	045
8	035	030	021		E	024	029	045	A	A	A	038	061	038	042	035	034	045	059	047	E	035	024	E
9		E	019	028	037	018	032	033	A	A	039	052	058	036	037	035	036	029	043	036	050	A	A	A
10	A	025	032	037	019	031	045	060	A	A	060	056	041	046	035	046	038	037	075	051	038	040	E	042
11	E	020	E	E	019	020	064	039	038	045	043	057	045	039	036	036	034	032	038	024	022	019	029	035
12	028	030	032	022	026	020	035	040	036	043	062	0044R	043		038	044		028	031	024	019	030	037	019
13	020	019	034	E	E	020	023	039	A	053	A	A	055	052	037	045	061	058	072	020		033	035	E
14				E			028	042	042	038	038	038	039		036	033	031	055	069	A	E	E	E	020
15	E	E	018	018		020	030	044	050	044	049	057	A	A		038	048	032	034	A	A	018	024	034
16	034	039	019	019		022	047	050	056	062	042	043	039	039	041	042	060	054	055	057	030	E	023	037
17		018	019	020	022	030	031	045	048	044	043	046	045	049	035	035	034	046	039	035	018	048	018	025
18	E			E	E		034	052	050	037	036	039	038	037	057	065	045	038	041	043	018	038	E	E
19		018	E	E	E	020	028	035	034	041	039	040	043	043	041	039	053	032	028	026	034	050	035	A
20	038	030	020			021	030	040	060	051	038	038	037	036	0035R	034	033	038	039	045	019	E	E	019
21	E	E				022	028	039	041	049	033	045	039	042	039	046	055	066	058	055	050	A	040	033
22	052	035	020	036	022	021	036	040	A	065	A	A	069	A	051	052	032	048	068	070	030	038	E	A
23	A	040	A	038	030	033	A	062	060	073	A	039	055	059	043	062	A	A	A	055	056	020	040	045
24	029	022	E	031	E	031	046	050	069	065	A	047	048		046	047	0055R	046	A	E	049	032	025	021
25	022	022	E	022	E	026	035	036	039	040	044	051	040	055	035	037	036	034	034	020	021	050	055	040
26	046	040	E			022	027	033	052	A	051	063	A	046R	044	041	049	032	025					
27					E	023	028	036	036	A	A	A	A	050	039	035	034	035	A	025	E	027	E	
28	E	025	E				027	031	036	040	A	043	053	039	038	037	054	054	030	030	022	019	026	021
29	025	E				020	033	037	033	038	0041R	044	043	045	039		041	041	041	054	028	044	030	033
30	020					022	037R	045	046	A	051	060	050	041	038	043	045	044	A	A	A	025	050	033
31	027	023	023	030	E	024	053	069	A	A	057	A	A	049	051	061	050	049	031	056	051	E	018	

Count																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

fbEs

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

0.1 Mc **f_{min}** 135° E Mean Time (G.M.T. +9h)

May 1966

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	017	017	E	017	017	017	017	017	018	018	E	017	E	E	E	E	E	E	E
2	E	E	E	E	E	E	E	E	E	018	017S	018	020	017	017	E	018	017	017	017	E	E	E	E
3	E	E	E	E	E	E	017	017	E	017	017	018	018	017	017	017	018	017	017	E	E	E	E	E
4	E	E	E	E	E	E	E	E	E	017	018	021	018	017	017	018	017	018	E	E	E	E	E	E
5	E	E	E	E	E	E	E	017	017	017	018	018	018	019	018	017	018	017	017	E	E	E	E	E
6	E	E	E	E	E	E	017	017	017	018	017	018	017	017	017	017	017	017	017	E	E	E	E	E
7	E	E	E	E	E	E	E	E	018	017	019	017	017	017	018	017	017	017	E	E	E	E	E	E
8	E	E	E	E	E	E	017	017	017	017	018	018	017	018	018	017	017	017	E	E	E	E	E	E
9	E	E	E	E	E	E	017	017	018	018	017	018	019	018	017	017	018	017	E	E	E	E	E	E
10	E	E	E	E	E	E	017	017	E	017	017	017	028	019	017	017	017	017	E	E	E	E	E	E
11	E	E	E	E	E	E	018	E	017	019	022	018S	018	019	018	018	018	017	E	E	E	E	E	E
12	E	E	E	E	E	E	017	017	018	018	019	023	018	017	018	017	018	017	E	E	E	E	E	E
13	E	E	E	E	E	E	E	E	017	017	017	018	017	017	017	017	017	017	E	E	E	E	E	E
14	E	E	E	E	E	E	017	017	017	018	017	017	017	021	021	017	020	017	017	017	017	017	017	017
15	E	E	E	E	E	E	E	017	017	018	017	018	019	022	017	020	017	017	017	017	017	017	017	017
16	E	E	E	E	E	E	017	017	017	018	020	030	018	023	019	019	017	E	E	E	E	E	E	E
17	E	E	E	E	E	E	017	017	017	017	018	019	017	019	018	017	018	017	E	E	E	E	E	E
18	E	E	E	E	E	E	E	017	017	018	020	018	018	021	018	018	017	017	E	E	E	E	E	E
19	E	E	E	E	E	E	017	E	017	017	017	017	017	017	017	017	017	019	E	E	E	E	E	E
20	E	E	E	E	E	E	017	017	017	018	018	018	019	019	018	017	017	017	E	E	E	E	E	E
21	E	E	E	E	E	E	E	E	017	017	019	025	019	018	018	023	020	017	E	E	E	E	E	E
22	E	E	E	E	E	E	017	017	018	019	018	018	018	018	019	017	018	017	E	E	E	E	E	E
23	E	E	E	E	E	E	E	E	017	018	017	017	018	017	018	017	020	017	E	E	E	E	E	E
24	E	E	E	E	E	E	017	017	017	017	017	017	017	018	020	017	018	017	E	E	E	E	E	E
25	E	E	E	E	E	E	E	E	E	017	017	017	017	017	017	017	017	017	E	E	E	E	E	E
26	E	E	E	E	E	E	017	E	017	017	018	018	019	018	018	017	018	017	E	E	E	E	E	E
27	E	E	E	E	E	E	017	017	017	018	018	019	017	021	017	017	017	017	E	E	E	E	E	E
28	E	E	E	E	E	E	E	017	017	017	018	018	018	020	021	017	017	018	E	E	E	E	E	E
29	E	E	E	E	E	E	018	017	017	018	018	022	028	021	018	017	018	017	E	E	E	E	E	E
30	E	E	E	E	E	E	017	017	018	021	018	017	020	020	018	017	017	017	E	E	E	E	E	E
31	E	E	E	E	E	E	E	017	017	017	017	018	018	017	018	017	018	017	E	E	E	E	E	E
Count	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Median	E	E	E	E	E	E	017	017	017	017	018	018	018	018	018	017	017	017	E	E	E	E	E	E
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

f-min

The Radio Research Laboratories, Japan

A 6

IONOSPHERIC DATA

Akita

1 35° E Mean Time (G. M. T. +9h)

M(3000) F2 0.01

May 1966

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	275	270	285	280	270	305	335	325	335	340	330	330	330	320	320	320	325	325	305	310	290	1290R	300	295	
2	285	FS	FS	290F	295	330	335	325	340	350	335	325	315	310	300	320	305R	320	305	305R	305	285	305S	270	
3	270	275	300	335	300	335	315H	300	305	I310A	295	I305A	315	310	315	330	I330R	325	310	310	310	300	295S	285	
4	275	275	285	295	300	320	345	340	350	340	345	305	305	285	300	315	325	315	315	320	325S	305	295	275S	
5	265S	270S	285	290S	315	325	340	340	325	345	325	315	325	315	315	315	325	325	315	320	325	300	310	285	
6	280	285	285	295	300	330	335	320	315R	335	345	305	290	305	300	I295A	305R	325	330	I330A	335	295	300	290	
7	285	285	290	300S	300	310	335	350	320H	I315H	I330A	320	320	310	320	320	320	330	335	I320A	300	300	295	RS	
8	FS	F	F	F	F	F	330H	340	A	A	A	290	310	315	315	320	330	320	I315R	305	315	FS	FS	295F	
9	285F	285	295F	F	F	F	330H	325H	I350A	I310A	320	290	320	315	315	315	305	305	325	325	I320R	A	A	A	
10	A	295	FS	315S	320H	325	325	330S	A	A	320	310	305	320	320	315	320	320	325	325F	305	295F	305F	FS	
11	290	295S	300	305	300	335	350	345	345	315	310	315	305	310	300	305	315	I340R	335	340	300H	300	295	290	
12	280	FS	FS	295F	315	305	330H	320H	315	310	310	310	310	310	305	315	320	320	320	315	300	305	300	290	
13	270S	FS	285S	310S	320	325	340	340	I330A	285	I300A	I305A	295	315	300	315	300	300	320	315	300	280S	F	FS	
14	280F	290	295	300	275	305	325	325	335	315	315	300	315	315	305	305	320	315	I310R	I310A	320S	305	300	285	
15	FS	295F	305	295	295	315	325	330	335	325	315	305	I300A	I300A	305	310	325	325	320	I315A	I320A	320R	305	FS	
16	FS	RS	FS	300F	305	330	335	345	315	330	290	300	295	300	300	305	310	320	I315R	335S	335	FS	305	FS	
17	295F	FS	305F	325S	320	310	330	335	330	330	300	285	310	290	300	310	305	310	310	295	305	315	300	280S	FS
18	290	290	300	300	290	295	315	325	335	330	320	305	310	290	295	285	315R	315	315R	310	285	FS	FS	295	
19	280	290	300	300	295	300	310	320	310	305	310	300	305	295	320	320	320	315	315	310	310	305S	305	I300A	
20	FS	300	FS	FS	315	325	315	310	310	315	305	310	320	315	310	310	325	315	300	295	305S	295	305	300	
21	290	290	285	295	295	335	315	345	345H	300H	315	310	305	305	295	295	I315R	325R	315	320	295	I280A	290	300	
22	290	295	310	305	FS	340	355	345	I310A	280H	I295A	I290A	290	I295A	300	305	305	325	I310R	315	325	295	305S	A	
23	A	FS	A	FS	300	335F	I340A	310	315	290	I305A	305	310	305	315	305	A	A	A	I310R	FS	FS	FS	FS	
24	295F	FS	325S	FS	FS	320	325	310	310	310	I300A	305	315	315	300	295	320	320	I305A	320R	320S	285	300S	295F	
25	FS	FS	310S	320	300	310	330	330	315H	310	290	320	300	305	315	330	315	330	305	I295R	310S	FS	FS	FS	
26	FS	295S	300	290	280	275H	315	350	I340R	I320A	275H	I300A	I310A	305	310	320	295	300	295	270H	275	270	275R	280	
27	275	FS	FS	FS	FS	275	235	300	G	A	A	A	A	245	270	300	320	295F	I300A	295	275F	FS	F	F	
28	F	F	305F	310	300	320	340	350	290	350	I300A	290	300	295	305	295	320	I320R	305	305	305	295	305	305	
29	300	295	290	I290R	295	290	300	315	330	315	320	310H	290	305	295	310	310	295	300	310	FS	FS	FS	305F	
30	F	FS	320	295F	295	305	320	340	325	I310A	290	290	310	300	300	305	320	310	A	A	A	295	FS	FS	
31	FS	F	310S	295F	285F	300F	320	330	I320A	I290A	330	A	A	285	285	285	285	300	300	I300R	275	280	285	285S	
Count	20	18	23	25	26	30	31	31	29	28	29	29	29	31	31	31	30	30	29	30	28	23	22	19	
Median	280	290	300	300	300	320	330	330	325	315	310	305	310	305	305	310	320	320	315	310	310	295	300	290	
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

M(3000) F2

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

M(3000)F1 0.01 135° E Mean Time (G.M.T. +9h)

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	L	365L 380L	365	360	385	365H	360	360	L	LH							
2						A	A	A	355L 350L	I350A	I350A	I355A	335	370H	340	L	L							
3							340	A	A	A	345L	A	A	A	A	355L	360	370L	A					
4						L	L	L	375L 365L	375H	375H	370	350	365	385H	L	L							
5						L	L	L	350L 360H	370	375	380	I365A	360	350	355L	L							
6						L	L	L	370L 375	380	355L	360	395	360	A	L	A							
7						L	L	L	I370A	A	A	375	365	I365A	I350A	345	A							
8						L	L	L	A	A	A	395	I365A	355	350	355	A							
9						L	L	L	360	I360A	I365A	380	A	A	395H	360	350	345	L					
10						A	A	A	A	A	A	400	I360A	360	I350A	365	L							
11						L	L	L	385L	I385A	385	I370A	I360A	409H	340	335	345	360						
12							340L	A	A	A	A	A	365	360	375	I360A	355L	L						
13						L	L	L	A	A	A	A	A	A	345	A	A	A						
14						L	L	L	A	A	365	385	390	375	365	375	355	A						
15						L	L	L	A	A	360	I380A	A	A	375	350	I355A	L						
16						A	A	A	A	A	350	370	360	375	365	350	A	A						
17						A	A	A	A	A	370H	345	370	I360A	365	350	350L	A						
18						L	L	L	A	A	385	385	365L	380	A	A	A							
19						360L	370	375	385	390	370	370H	360	365	360	I360A	350L	L						
20						L	L	L	A	A	370	370H	360	380H	355	375	340L	L						
21						L	L	L	395	I380A	365	365	395	365	355	A	A	A						
22						L	L	L	A	A	A	A	A	A	A	A	350H	A						
23						A	A	A	A	A	A	395	A	A	360	A	A	A						
24						A	A	A	A	A	A	A	I365A	375	A	A	A	A						
25						L	L	L	350	380	395	345	I360A	370	I360A	380	355L	355	A					
26						370	365	A	A	A	A	A	A	A	A	350	I365A	L						
27						310	360	335	375	A	A	A	I385A	I380A	365	350	360	375L	A					
28						385L	380	380	365	I370A	370	I360A	360	365	380	I365A	A	L						
29						355	350	360	385	375	355	390R	I355A	375	345	345	I355A	A						
30						L	A	A	A	A	A	A	A	370	365	I370A	I355A	A						
31						355L	A	A	A	A	A	A	A	A	A	A	A	A	L					
Count	2	5	9	15	15	19	19	19	22	24	25	23	19	4										
Median	330L	360	350	375	375	370	370	370	370	365	365	350	355	365L										
U. Q.																								
L. Q.																								
Q. R.																								

M(3000)F1

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

135° E Mean Time (G.M.T. +9h)

h'F2 km

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						260	280	290	265	275	285	285	300	290	265	265	265	255						
2						250	250	255	250	290A	295	320	310	320	285	275	275	255						
3						380	345A	I330A	I330A	330	I350A	310	310	305	305	290	290	270	280					
4						265	265	280	270	270CH	335	355	320	320	280	270	270	270						
5						255	310	275	305	325	305	I330A	320	320	295	295	295	270						
6						290	285	270	265	315	360	315	310	I310A	295	295	270							
7						255	275	A	A	I300A	290	315	325	305	290	285	280							
8						250	280	A	A	A	315H	I340A	325	305	295	285	290							
9						280	285	I270A	A	310	320	340	315	300	315	315	300							
10						I270A	A	A	A	A	345	340	315	310	310	295	285							
11						240	255	300	340	340	340	320	330	325	305	285	260							
12						295	285	295	310	295	325	330	330	315	290	280	275							
13						270	265	A	A	I355A	I340A	375	320	330	305	I320A	320	A						
14						260	280	295	300	330	350	320	335	335	330	300	300	295	A					
15						255	285	290	315	335	350	I350A	I350A	325	310	290	270							
16						270	255	300A	A	370	355	335	315	315	305	300A	275	270						
17						275	270	275	270	320L	415	340	360	345	315	300	280	270						
18						285	270	270	285	310	350	345	350	355	335	305	280							
19						295	275	265	300	325	340	320	360	295	300	305	295	275						
20						280	315	300	290	290	285	315	320	315	325	290	260	280						
21						260	255	240	290A	300	340	350	340	340	325	290	280	280						
22						250	240	A	A	A	A	I320A	I325A	330	315	300	275	A						
23						I280A	300A	I300A	I300A	I305A	295	305	340A	325	A	A	A	A						
24						275	I280A	305A	310A	I310A	315	330	305	345	365	320	295	I280A						
25						280	280	305	340	380	340	355	340A	335	285	295	290	290						
26						280	255	A	A	A	I370A	I335A	340	295	300	340	310	290						
27						440	505L	390	G	A	A	A	I520A	435	360	315	320L	A						
28						280	250	390	280	I320A	400	340	310	275	285	315	295							
29						335	280	270	295	310	315	385	340	360	325	315	335	300						
30						320	310	270	325	I340A	380	I375A	345	350	340	295	300	A						
31						310	285	I275A	A	A	A	A	A	395	360	I350A	345	295	275					
Count						3	20	31	25	22	25	28	29	31	31	30	30	12						
Median						320	280	275	290	290	310	340	335	330	320	310	295	280	280					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

h'F2

A 9

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

135° E Mean Time (G.M.T. +9h)

km *h'F*

May 1966

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	305	290	295	300	260H	245	245A	I240A	225	225	225	190	195	205	215	220	225	245	240	255	275	255	245
2	270	265	270	290	260	235	245	I235A	240	210	I215A	210	I215A	225	190H	I240A	250	250	270	290	330	300	290	255
3	255	275	255	240	290	255H	235	I245A	A	A	A	A	A	A	A	220	220	250	I270A	250	240	250	255	280
4	295	305	295	265	245	245	240	230	240	240A	200H	210	200	215	200	185H	245	I255A	265	255	230	235	245	300
5	315	300	290	275	245	225H	200H	235	240	225	215	210	210	I200A	230S	240	185H	255	275	260	260	255	260	285
6	300	295	290	265	255	230	200H	225	230	225	225	220	210	190H	195H	I235A	250A	I265A	280A	I260A	230	280	265	250
7	270	290	285	275	290	245	240H	I225A	A	A	A	215	220	I225A	I235A	245	A	A	250	I250A	280A	280	280A	A
8	A	A	A	305	275	270	240	240	A	A	A	205	I220A	240	I230A	240	245	A	A	280A	250	285A	255	270
9	290	295	285	I300A	I290A	245	245	245	I235A	I225A	220	A	A	190H	215	240	255	255	255	255	250	A	A	A
10	A	310	315	285	250	245	240	A	A	A	A	A	205	I240A	220	A	A	A	A	250A	280A	I280A	240	I250A
11	280	300	285	300	280	240	260	I235A	220	I230A	220	I200A	I235A	190H	240	270	225	240	250	235	235	255	300	315
12	340	335	290	290	270	250	260	270	215	A	A	A	230	215	225	I220A	230	240	250	240	255	260	280	265
13	310	300	315	255	235	235	240	A	A	A	A	A	A	A	240	A	A	A	A	240	235	300A	305A	290
14	280	285	270	255	230	270	240	A	A	235	210	205	225	215	225	230	235	A	A	A	220	225	230	265A
15	285	295	265	250	280	240	240	A	A	A	A	A	A	A	205	240	I235A	225	265	I280A	I250A	235	255	290A
16	320	I310A	305	265	230	255	A	A	A	A	245	220A	210	220	240A	A	A	A	A	255A	240	240	255	I255A
17	255	310	265	250	255	250	240H	A	A	A	215	I225A	I220A	I220A	205	240A	240	I250A	I270A	250	230	I265A	275	265
18	260	275	260	270	265	240	240A	A	A	215	200H	225	195	185	A	A	A	I250A	260	275	250	I325A	255	245
19	285	290	260	245	260	245	245	230	220	225	195	205	230A	230A	230A	240A	I225A	235	I260A	245	250	I270A	275	I290A
20	305	295A	250	240	235	225H	235	A	A	A	205	190	195	200H	235A	225	250	A	A	295	260	265	255	250
21	255	280	280	265	265	240	230	I235A	225	I225A	250	235H	200	240A	245	A	A	A	A	265	I270A	I285A	290A	290A
22	I300A	I280A	255	I270A	280	240	240	A	A	A	A	A	A	A	A	A	235	I240A	I265A	I260A	250	270A	265	A
23	A	A	A	A	280	260	A	A	A	A	A	200	A	A	A	A	A	A	A	A	I300A	290A	250	I260A
24	270A	290A	255	250A	270	260	A	A	A	A	A	A	I230A	225	A	A	A	A	A	250A	255A	I275A	260	280A
25	285A	275	255	240	270	240	I250A	260A	230	210	A	A	215	I220A	215	220	240A	A	A	250	265	I265A	A	A
26	265A	I275A	285	295	290	240H	230	215	A	A	A	A	A	A	A	A	A	A	250	275	310	295	305	270
27	270	270	340	340	310	280A	250	I250A	240A	A	A	A	I230A	I230A	I240A	245	235A	A	A	285A	290	310A	320	305
28	295	285A	270	260	260	255	245	220	205	230	I220A	I215A	I220A	220	225	240	I220A	I240A	I255A	260	255	250	275	270
29	265	275	265	260	270	240	240	I225A	220	225	I210A	I205A	200	I210A	220	225	A	A	A	270A	220	A	A	280A
30	280	260	245	255	265	240	I235	I220A	A	A	A	A	A	240	245	I220A	I235A	A	A	A	A	265	I300A	280A
31	280	260	255	300A	290	280	A	A	A	A	A	A	A	A	A	A	A	A	A	280A	I285A	245	260	280
Count	28	29	30	30	31	31	27	18	14	14	16	18	22	24	24	21	20	15	17	29	30	29	28	27
Median	280	290	275	265	270	245	240	235A	230	225	215	210	215	220	225	240	235	250	260	260	250	265	260	270
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

h'F

A 10

IONOSPHERIC DATA

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

135° E Mean Time (G.M.T. +9h)

km f_oF₂

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	105	E	E	E	E	145	140	135	125	125	125	120	125	G	G	G	G	G	G	E	E	E	110	110	
2	100	E	E	E	E	140	140	130	130	120	115	120	115	110	G	155	140	140	130	125	125	130	120	120	E
3	E	E	E	E	E	G	150	140	140	130	125	120	115	115	115	130	G	140	130	120	120	115	105	115	
4	E	110	110	E	110	E	G	145	130	125	125	G	120	125	G	G	150	130	120	120	125	E	E	E	
5	100	E	E	E	E	120	G	155	140	130	130	G	125	120	130	135	G	140	125	120	115	115	115	E	
6	E	E	E	E	E	E	G	G	135	130	125	120	120	G	G	125	140	130	120	115	115	115	100	E	
7	E	110	105	110	105	140	130	125	125	115	110	115	110	110	140	140	125	120	120	115	115	115	110	105	
8	105	105	105	E	110	135	140	125	120	115	110	120	120	120	125	145	145	130	120	130	140	120	115	105	
9	E	110	110	110	105	115	140	130	115	110	110	120	115	145	165	150	140	130	125	115	115	115	110	110	
10	105	105	105	105	105	110	110	105	105	110	110	110	115	110	110	110	125	120	115	115	115	110	110	110	
11	105	105	105	105	110	110	115	125	125	120	125	110	115	120	130	135	115	105	125	105	100	110	110	110	
12	100	110	110	105	105	110	115	115	115	105	105	120	120	G	150	135	G	105	105	105	110	115	110	115	
13	110	110	105	105	105	115	150	130	125	120	115	115	115	115	130	145	140	135	130	125	E	115	115	110	
14	E	E	E	105	E	G	145	125	120	120	120	115	120	G	115	120	145	130	120	115	120	115	110	105	
15	105	100	100	110	E	145	130	125	120	115	110	110	105	115	G	130	125	120	115	115	115	105	105	105	
16	105	105	105	105	E	160	130	120	110	110	115	115	120	130	130	125	125	115	110	110	105	110	110	105	
17	E	105	100	100	100	105	125	115	115	110	115	110	115	115	115	115	125	125	115	110	105	110	115	100	
18	105	E	E	105	105	G	125	120	115	115	120	115	110	110	105	105	105	105	125	105	105	110	105	105	
19	E	105	100	105	105	105	145	130	120	120	115	105	105	100	100	140	125	125	110	105	105	105	110	105	
20	110	100	100	E	E	140	140	125	115	115	115	120	125	115	115	115	150	130	125	110	110	115	110	110	
21	110	105	E	E	E	130	130	125	115	110	170	140	110	150	115	110	130	130	125	120	120	120	120	110	
22	110	105	105	105	105	145	130	125	115	115	115	110	110	105	115	145	140	125	120	125	125	120	110	115	
23	110	105	110	105	110	125	120	120	115	115	115	120	110	110	125	125	125	115	115	115	110	110	105	105	
24	100	100	100	100	110	120	125	120	115	110	105	105	105	G	130	130	130	125	115	115	115	115	105	105	
25	110	110	110	105	110	140	130	120	110	115	115	115	110	110	110	140	125	125	115	115	110	110	105	110	
26	105	105	105	E	E	140	140	140	125	125	125	120	120	125	120	115	110	115	130	E	E	E	E	E	
27	E	E	E	E	110	140	140	130	140	120	120	115	120	130	140	140	135	125	120	120	120	110	120	E	
28	110	110	110	E	E	G	145	125	125	125	115	120	115	125	150	140	140	120	110	115	110	110	110	110	
29	105	105	E	E	E	140	130	125	135	125	125	120	120	120	115	G	130	125	120	110	110	110	110	105	
30	105	E	E	E	E	145	130	125	125	115	120	120	120	125	155	140	135	130	120	110	110	110	115	110	
31	105	105	105	105	105	145	125	120	115	110	110	110	110	115	130	125	130	125	115	120	115	115	110	E	
Count	22	22	20	18	17	25	28	30	31	31	31	29	31	26	26	28	27	30	30	29	28	28	29	24	
Median	105	105	105	105	105	140	130	125	120	115	115	115	115	115	125	130	130	125	120	115	115	115	110	110	
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

f_oF₂

A 11

Lat. 39° 43.5'N
Long. 140° 08.2'E

Akita

IONOSPHERIC DATA

135° E Mean Time (G.M.T. +9h)

Types of Es

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	f					h	h4	h3	h	h2	h2	h	h			h c	h	h2	h2	f3	f4	f4	f2	f2	
2	f2		f3			h	h2	h2	h2	h3	h2	h2	h2	h2	h2	h c	h	h2	c3	f3	f2	f2	f	f2	
3					f		h	h2	h2	h2	h	h	h	h			h	h2	c3	f2	f				
4		f2				c		h	h	h2	h	h	h	h2	h	h	h	h	c3	f5f2	f3	f2	f6		
5	f2							h	h2	h	h	h	h	h	h	h3	h2	h2	c5	f7f3	f f5	f2	f4		
6									h2	h	h	h	c	c2	h2	h	h2	h4	e2	f5	f5	f3	f4	f3	
7	f	f2	f3		f4	h	h3	h3	h2	c3	c3	c	h2	h2	h	h	h2	h2	c3	f5	f	f7	f4	f	
8	f4	f4	f2	f3	f3	c2	h2	h2	c3	c3	c	h2	c3	h	h	h	h	h2	c2	f4	f3	f4	f5	f7	
9	f2	f3	f3	f5	f3	h2	c3	h2	h3	c4	e2	e2	c	e2	c	e2	h 1	h2	c6	f2	f3	f3	f2	f4	
10	f4	f2	f3	f5	f3	h2	c3	h2	h3	h2	h3	e2	c	h2	h	h	c	h2	h3	f4	f3	f2	f3	f5	
11	f2	f2	f2	f2	f2	e5	e5	h2	e2	h2	h3	e2	c	h2	h	h	c	h2	h3	f4	f3	f2	f3	f5	
12	f6	f6	f4	f3	f3	h2	c3	e3	e2	h2	h3	e2	e2	h	h	h2	h2	h2	h3	f3	f3	f3	f4	f2	
13	f2	f3	f3	f2	f2	h	h2	h3	h3	h4	h2	e3	h2	e2	h	h2	h2	h2	h7	f3	f3	f3	f7	f2	
14				f2		h2	h2	h2	h2	h	h	h	c	c	h	h	h	h2	e7	f6	f	f	f2	f2	
15	f2	f2	f	f2		h2	h2	h2	h2	h2	e2	e2	h4	e2	h	h	h2	e2	h3	f3	f7	f2	f3	f3	
16	f5	f4	f2	f2		h	h2	h3	e3	e2	e2	e2	h	h	h	h2	h2	c3	h3	f3	f4	f2	f3	f6	
17		f2	f4	f3	f3	h3	h2	h3	h3	e2	h2	e2	h	h2	h	h2	h2	h2	e4	f3	f3	f4	f4	f2	
18	f2		f2	f2	f	h2	h2	h3	e3	h	h	c	c	h	h2	h3	h2	h2	h2	h3	f3	f4	f2	f2	
19		f4	f2	f	f	h	h	h2	h	h2	h	h	c	h	h2	h	h	h2	h2	h3	f3	f4	f4	f2	
20	f7	f2	f2			h	h	h2	h2	h2	h	h	h	h	h	h	h	h2	e2	f4	f2	f2	f	f2	
21	f	f2				h 1	h	h2	h2	e2	h c	h	e	h	c h	h3	h2	h4	e2	f3	f3	f5	f4	f3	
22	f5	f4	f2	f3	f3	h	h	h3	h4	h3	h3	h2	e3	e3	h2	h h2	h	h2	c3	f3	f2	f4	f3	f5	
23	f5	f3	f3	f4	f3	c2	h3	h3	h4	h3	h2	h	e2	e2	h	h3	h4	c5	c3	f4	f7	f3	f3	f3	
24	f2	f2	f2	f2	f2	c4	h2	h2	h4	e3	e3	h2	c	h2	h2	h2	h2	h4	c3	f2	f7	f5	f4	f2	
25	f3	f3	f2	f4	f2	h2	h3	h2	e2	h	h	h2	h	e2	c	h	h	h2	e2	f3	f2	f4	f4	f5	
26	f4	f3				h2	h	h	h2	h4	h2	h3	h2	h2	h2	h3	e2	c2	h						
27					f2	h2	h	h3	h	h2	h2	h	h2	h	h	h	h	h2	c6	f2	f3	f3	f2		
28	f2	f2	f2			h	h	h2	h2	h2	h3	h	h2	h	h	h	h2	h2	h2	f2	f3	f3	f4	f3	
29	f3	f2				h	h2	h2	h	h2	h	h	h	h2	h2	h	h	h	c3	f3	f2	f4	f4	f6	
30	f4					h	h2	h4	h2	e3	h2	h3	h2	h	h	h	h2	h2	c3	f4	f5	f2	f8	f3	
31	f2	f4	f4	f4	f2	h2	h3	h2	h5	e2	e2	e5	e2	h2	h	h3	h3	h2	c2	f3	f2	f	f3		
Count																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

Types of Es

Sweep 1.6 Mc to 16.0 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

A 12

IONOSPHERIC DATA

foF2

May 1966

0.1 Mc 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	062	058	056	054	053	057	065S	071S	067	071	074	U077R	077R	081	083	083	U074R	072	074	U077S	071S	066	067	063
2	058	U053R	050R	054	056F	059	068	U072S	080	071	067	U073R	U074R	086R	092	101	097	083R	081	U076S	S	072S	U075S	064
3	060	055	057	042S	040	046	050	055	057	A	A	067	073	078	086	087	078	076	079	084	A	058	056	055
4	054	054	051	051	048	055	061	068	070	073	067	U067R	078	081	098	112	093	082	079	U080S	U076S	059S	U056R	055
5	U052R	053	053	049	U048R	058	060	064	068	U071S	071	074R	073	077	077	075	U074R	U074S	U077S	U077S	U071S	059S	055	056
6	055	054	054	052	048	056	067S	070	067	072R	066	070R	076R	077	089	092	097	096S	U083S	082	067	U057S	F	U057S
7	056	054	052	050	045	051	069S	070	067	064	069	077	U076R	076	084	094	095	087	U084S	U072A	063S	059S	056	048
8	U052S	U050F	042F	U043F	U040F	050	061	065	068	074R	066	I062A	A	080	087R	086	084	U077R	080	I080A	071S	F	F	A
9	U050F	F	F	U046F	F	U052F	U066S	R	063	072	066	072	068	077	084	U077R	083	089	094	A	U063S	057	051	052F
10	050	F	F	U044F	044F	055	066	069	069	063	067	071	069	077	081	080	088	086S	A	U070S	U063S	U061S	U055F	F
11	U052S	U051R	U047F	F	U046F	062	068	062R	063	I060A	058	065	070	071R	084	092R	U103S	U095S	U091S	068	059	U052S	054	052
12	048	049	U047F	042F	U044S	048	064	070	069	070R	U074R	072	U073R	U073R	084	089	085	088R	U080S	U075S	U072S	067	064	057S
13	056	055	053	U052S	049	U054R	068	068	066	A	A	A	A	074	086	078	074	084	095	086	068	062F	F	F
14	F	F	F	F	F	062F	071	068	064	A	068	071	074	075R	U072R	U075R	084	083	U083S	S	068S	A	A	A
15	A	F	F	U049S	U046F	057S	U071S	069S	071	066	A	A	I072A	077	080R	090	095	079	071	061S	U076S	S	F	F
16	U052S	F	051S	048F	042F	051S	072	U074S	070	068	066	A	090	093	094	095	U100S	097S	086S	I078S	066	059S	095	F
17	F	F	F	A	U040S	049	068	071S	A	A	064	I067A	U073R	076	081	089	088	083	U082S	085S	083S	A	F	A
18	U067F	U063F	F	062S	054	062	076S	090	A	A	A	072	072	073	U076R	087	091	088	084	S	U068S	U070S	U067S	U066S
19	061S	061S	059	054	050	056	071S	082	A	067	U069A	074R	U070R	080	091	082R	076	081	U083S	U076S	U072S	U068S	069	065S
20	062R	U059F	060F	U057F	054F	058	060	071	087	092	085	I085A	090	089	092	081	086	C	C	C	C	C	C	C
21	C	065S	065S	064S	061S	066	088	080	A	A	070	U072S	U067R	A	A	090	U099R	U099R	090	U073S	067S	U065S	U063S	F
22	U062S	C	C	C	C	C	C	C	C	C	A	A	091	I096C	095	098	094	091	083	I082C	U076S	066S	U055S	057F
23	I056A	I057A	U056F	A	U052F	056	064	U064A	072S	095	I086A	082	I080A	082	I078R	U077R	071	068	U072S	I074S	073F	U077S	I074A	I069A
24	F	U067F	U064F	C	C	C	C	C	C	A	A	079R	079	078	073R	072	080	085	082	077S	F	F	U063F	U066S
25	F	U059F	U060F	047F	044F	052F	067	067	067	058	062	070R	070R	074	072	069	064R	071R	070	I070A	U076S	I081S	U081S	U069F
26	U072S	067S	057	047S	045F	065	078	085	058	058	064	071R	068	075R	085	I071R	I073A	U075A	U075S	079S	U081S	U086S	S	U086S
27	084S	U073S	068	056F	U050S	045	047	050	E042G	057	R	R	U050R	I054A	056	063	058	054	045	051	056	057	057S	058S
28	F	U056F	054S	050	U045S	051	064	057	054	064	058	065	070R	083R	095	093	075	U072S	073	U077S	I081S	U070S	065S	065S
29	F	C	C	C	C	C	C	C	C	C	C	039	062	U072R	072	073	U075S	075	081S	088S	U070S	U058S	F	U066S
30	065S	060S	054S	U041F	045F	053	065	U074S	062	064	066	062	065	069	074R	077	078	078	070R	069	J066S	F	A	U064F
31	U061F	U059F	F	052F	056F	063	076	081	A	A	A	A	A	A	067	080	U077R	078	095S	U087S	082	U064F	S	U083S
Count	23	23	22	24	26	28	28	27	23	21	22	25	28	30	30	30	31	31	30	29	27	27	23	21
Median	058	057	054	050	047	055	066	069	067	068	067	071	073	077	084	083	084	083	081	0877S	U070S	062S	U063	064
U. Q.	062	061	059	054	053	058	071	074	070	072	070	074	076	081	089	092	094	088	084	082	076	070	070	066
L. Q.	052	054	051	046	044	051	062	065	063	064	066	067	069	074	077	077	075	075	074	070	066	058	055	056
G. R.	010	007	008	008	009	007	009	009	007	008	004	007	007	007	012	015	019	013	010	010	010	010	012	015

The Radio Research Laboratories, Japan

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

foF2

K 1

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

0.01 Mc **f_oF₁** 135° E Mean Time (G. M. T. +9h)

f_oF₁

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	L	A	A	A	480L	490L	480L	490L	450L	390L	L						
2						L	L	L	460L	A	A	U500L	L	480L	480L	A	A	A						
3								400L	A	A	A	A	500L	490L	470L	U450L	L	L						
4									L	450L	L	A	A	490L	490L	450L	420L	L						
5									A	440L	A	480L	U500L	490L	460L	470L	430L	L						
6						L	L	L	A	A	470L	U500L	490L	U500L	A	A	A	A	A					
7						L	A	A	A	L	A	A	U490L	460	R	A	A	A						
8							L	L	460L	A	A	A	A	480L	460L	450L	430	L	L					
9									A	A	A	470	480	470	470	L	440L	L	A					
10								L	U440L	470L	A	480L	470L	480L	460L	460L	430L	L	A					
11							L	A	A	A	480L	470L	A	A	U460L	450L	A	A						
12						L	L	430L	A	470L	U480L	L	A	480L	460L	440L	30L	L						
13						L	L	L	A	A	A	A	A	A	470	450	A	A						
14						A	A	A	A	A	A	490L	490L	480L	A	A	430L	A	A					
15						L	L	L	A	A	A	A	A	490L	470	450L	430L	A	A					
16						L	L	L	A	480L	U500L	A	A	490L	U500L	480L	450L	400L	A					
17							A	A	A	A	A	A	U490L	A	A	470L	A	A						
18						L	L	430L	A	A	A	500L	490L	480L	480L	A	A	A						
19						L	L	L	A	A	A	A	A	A	470L	A	450L	A	L					
20									L	A	A	A	A	A	R	A	420L	C	C					
21						L	L	L	A	A	A	520L	R	A	A	A	470L	A	L					
22						C	C	C	C	C	A	A	A	C	480L	480L	450L	A	A					
23						A	A	A	490L	A	A	A	A	R	480L	A	450L	L	A					
24						C	C	C	C	A	A	A	R	480	500L	470L	A	A	A					
25						A	A	A	A	A	480L	A	A	U480L	470L	470L	A	A	A					
26						L	L	L	A	A	A	A	A	A	A	480L	A	A	A					
27							370L	L	420	A	R	R	R	A	A	430	420L	A						
28							L	L	440L	460L	R	A	U500L	480L	470L	440L	430L	A	A					
29						C	C	C	C	C	R	R	R	470L	470L	A	A	410L	L					
30						L	L	410L	L	460L	490	470	U480R	470	470	A	450L	A	A					
31						A	A	A	A	A	A	A	A	460	A	A	A	A	A					
Count						3	3	3	8	6	8	9	12	21	22	19	17	2						
Median						380L	430L	430L	450L	470L	480L	490L	490L	480L	470L	450L	430L	400L						
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

f_oF₁

K 2

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

0.01 Mc **foE** 13.5° E Mean Time (G.M.T. +9h)

foE

May 1966

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	210	270	305	330	340	350	330	325	310	315	280	255	180						
2					B	215	260	310	320	I330R	355	A	A	A	A	A	A	A	B					
3					B	210	R	300	335	345	350	350	340	325	A	A	300	250	A					
4					B	220	280	315	A	A	A	A	A	A	A	A	280	235	B					
5					B	A	A	295	I320A	I340R	I340R	I325A	I340A	335	315	285	240	B						
6					B	I230A	R	A	330	340	I350A	355	I340R	345	320	285	245	B						
7					B	215	280	305	325	R	335	I340R	350R	340	320	285	230	B						
8					B	220	I270A	I300A	320	340	I340R	350	340	335	325	295	245	B						
9					B	215	270	310	330	335	335	355	I350A	345	330	290	240	B						
10					B	A	A	A	A	A	A	A	R	340	325	305	240	B						
11					B	210	R	305	320	330	350	350	340	320	I320A	285	A	B						
12					B	A	A	A	A	A	A	A	335	340	345	320	I300R	A	B					
13					A	235	280	310	335	350	350	I350A	I345A	305	I315A	A	A	180						
14					A	I220A	285	I315A	325	335	A	A	A	A	A	300	285	I250R	200					
15					B	225	275	I300A	305	320	330	340	350	350	325	300	250	I180A						
16					150	230	275	300	325	A	A	A	A	A	R	330	300	235	B					
17					B	A	290	315	330	I335A	I335A	R	A	A	R	320	300	A	B					
18					B	I230A	270	A	A	A	A	R	R	A	A	330	305	250	B					
19					B	230	I260A	300	A	A	A	R	R	A	I340R	330	315	270	190					
20					165	230	I290A	R	A	A	A	A	A	A	A	R	R	C	C					
21					B	220	280	315	A	A	A	A	A	A	A	R	310	265	200					
22					C	C	C	C	C	345	360	365	I360C	350	340	310	260	175						
23					B	275	285	315	I330A	350	R	A	A	A	A	A	A	270	180					
24					C	C	C	C	C	320	325	A	A	R	350	335	300	260	205					
25					200	225	275	320	325	335	355	I365R	370	355	335	310	275	190						
26					A	A	A	320	335	I350R	365	365	360	330	320	295	250	200						
27					A	220	265	300	330	345	355	355	365	355R	325	295	265	185						
28					170	225	280	315	325	335	340	350	340	330	325	305	255	175						
29					C	C	C	C	C	C	C	I350R	I350R	335	330	300	255	175						
30					170	225	275	305	330	340	345	I350A	350	350	325	310	265	A						
31					170	230	285	315	330	335	340	340	360	355	335	315	280	180						
Count					6	23	21	23	22	21	20	19	20	22	25	27	25	15						
Median					170	225	275	310	330	340	350	350	350	340	325	300	250	180						
U. Q.																								
L. Q.																								
G. R.																								

The Radio Research Laboratories, Japan

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

foE

K 3

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

0.1 Mc 135° E Mean Time (G. M. T. +9h)

foEs

May 1966

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	022	020	011B	013B	013B	018	029	040	055	054	060	043	040	037	034	062	072	048	021	039	023	022	024	0158
2	023	023	024	012B	E	025	036	058	040	051	089	G	050	042	044	062	072	048	041	030	055	029	054	069
3	023	023	023	037	024	023	031	037	049	088	084	053	044	042	038	036	G	031	024	034	077	025	028	024
4	024	023	024	027	023	027	029	037	043	040	043	055	070	058	042	035	G	030	037	031	032	029	029	024
5	025	025	022	026	025	030	033	042	037	055	043	047	077	044	056	G	G	020G	030	028	021	026	042	051
6	025	026	030	024	024	025	026	036	042	071	038	041	043	047	053	062	057	055	064	071	062	062	064	022
7	014B	025	022	024	026	018	030	043	054	053	054	069	G	044	046	054	069	059	075	074	051	037	063	063
8	057	053	028	051	025	020	036	040	042	050	051	089	091	G	040	G	035	031	037	113	085	064	069	107
9	071	059	051	044	055	025	041	070	055	056	060	047	040	047	040	043	034	037	065B	085B	063	062	042	062
10	062	057	058	056	027	028	031	033	034	041	119	121	150	G	G	G	G	043	090	014B	054	054	043	041
11	030	043	044	054	031	019	032	042	056	083	043	041	054	060	044	039	041	044	043	055	028	052	040	034
12	025	025	019	073	056	030	029	038	056	045	041	040	052	042	G	G	G	039	030	024	013B	024	029	031
13	021	025	026	030	021	021	031	036	084	107	131	103	09B	063	057	040	048	064	070M	053	053	034	0638	053
14	069	040F	032	042	025	024	053	064	058	076M	056	049	041	045	065	050	044	061	048	051	061	088	078	110
15	070	042	061	030	040	034	039	043	044	055	090M	116	100	044	G	037	034	054	040	064	051	051	061	043
16	085	060	052	025	022	G	032	039	059	041	072	120	075	042	041	039	036	035	070	039	043	043	051	062
17	060	021	051	052	044	056	041	043	078	084	064	094	055	064	049	043	044	056	085	061	062	101	095	076
18	054	043	042	031	027	025	032	040	107	116	109	052	055	048	044	056	075	085	077	065	052	043	043	025
19	024	026	029	029	022	020	032	047	073	100	104	071	050	061	041	052	084	070	037	025	021	044	060	056
20	065	056	026	024	027	021	033	042	065	066	083	145	120	097	037	048	037	G	G	G	G	G	G	G
21	G	030	028	038	025	022	034	043	076	120	055	045	058	087	089	090	050	054	044	036	040	043	054	060
22	067	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	044	058	050	G	086	047	085	058
23	119	105	104	078	059	085	054	103	106	091	109	109	107	049	049	056	057	053	064	087	090	070	088	107
24	060	084	108	G	G	G	G	G	G	126	119	077	054	041	048	043	058	050	049	054	052	061	063	051
25	023	083	043	030	G	040	062	065	065	057	050	070	055	066	G	051	049	069	043	105	065	037	059	058
26	035	044	061	035	030	023	041	055	043	053	057	065	058	064	064	075	114	120	109	024	014B	014B	021	
27	019	020	019	012	028	030	031	040	043	057	046	041	044	062	043	041	040	048	031	028	040	024	030	030
28	033	043	038	029	022	020	030	035	037	040	040	056	049	049	043	039	063	105	036	041	025	036	061	030
29	042	G	G	G	G	G	G	G	G	G	G	041	041	047	039	063	036	036	041	025	036	070	061	030
30	035	031	023	021	025	026	036	041	043	043	062	058	048	038	042	073	037	058	058	031	036	040	088	044
31	056	074	069	052	029	037	039	056	070	088	085	134	127	059	067	062	062	077	060	054	062	071	058	0765
Count	30	29	29	28	28	28	28	28	28	29	30	31	31	30	31	31	31	30	30	29	30	30	30	30
Median	035	036	030	030	026	024	032	042	055	057	061	058	055	047	043	043	044	054	046	039	052	046	054	051
U. Q.	062	055	052	043	030	029	039	051	068	088	090	103	077	061	049	056	058	061	065	064	062	062	063	062
L. Q.	024	025	024	024	024	020	031	038	043	050	050	045	044	042	039	037	034	037	037	028	032	029	037	030
Q. R.	038	030	028	019	006	009	008	013	025	038	040	058	033	019	010	019	024	024	028	036	030	033	026	032

The Radio Research Laboratories, Japan

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

foEs

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

0.1 Mc **135° E Mean Time** (G.M.T. +9h)

f_bE_s

May 1966

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	B	B	B	016	026	038	047	052	056	040	040	037	E034R				020	038	015	E	016	S	
2	E	E	021	014	B	020	034	055	039	051	057		045	040	041	046	063	045	030	021	040	020	041	017	
3	E	E	015	021	025	017	030	034	048	A	A	053	043	038	036	028		028	022	029	A	025	017	016	
4	E	019	015	022	014	022	027	035	042	038	041	054	044	041	040	034		026	023	028	030	017	E029R	015	
5	E22	017	E	015	014	022	032	040	034	052	040	042	041	041	040			E20G	026	023	015	023	027	034	
6	016	016	023	014	E	016	025	032	042	068	037	039	041	043	053	041	055	045	054	055	041	041	041	E	
7	B	017	014	015	015	016	029	041	048	045	051	062		044	E046R	053	048	041	055	A	026	040	028	021	
8	025	023	017	022	E	020	025	032	040	E050R	E051R	A	A		039	040	034	030	027	A	027	046	054	A	
9	041	051	028	026	026	015	035	053	052	055	054	040	039	044	040	040	032	025	054	A	045	028	025	041	
10	040	038	029	025	019	025	026	032	034	040	053	040	040					035	A	B	040	037	026	033	
11	017	025	017	016	016	017	023	040	055	A	041	039	047	057	038	037	E041R	041	026	050	018	020	027	016	
12	019	016	015	015	030	026	026	031	046	043	040	040	051	040			034	022	023	B	016	026	026	026	
13	016	015	018	017	018	020	028	033	054	A	A	A	A	056	045	033	045	056	069	052	052	020	051	025	
14	042	016	017	026	015	014	041	054	052	A	048	038	039	038	055	048	037	056	043	050	036	A	A	A	
15	A	015	014	016	E	026	026	035	044	046	A	A	A	040	037	037	034	042	040	050	041	040	041	031	
16	016	015	033	017	013		030	028	042	040	039	A	059	041	040	038	035	032	065	019	026	025	016	016	
17	041	E	A	A	018	025	028	041	A	A	053	A	044	045	E049R	041	044	041	052	041	039	A	052	A	
18	051	040	032	027	023	021	026	036	A	A	A	044	040	040	043	054	069	068	040	041	018	017	040	015	
19	E	014	017	014	E	020	025	040	A	053	060	063	E050R	052	040	052	042	047	026	018	016	020	041	042	
20	026	021	020	016	015	020	030	041	062	063	079	A	078	065	E037R	E048R	034	C	C	C	C	C	C	C	
21	C	017	015	033	016	021	027	041	A	A	041	042	054	A	A	042	050	041	034	027	040	041	046	C	
22	042	C	C	C	C	C	C	C	C	C	A	A	053	C	040	041	038	041	043	C	041	027	018	018	
23	A	A	040	A	038	046	047	046	041	081	A	075	A	046	044	041	038	040	055	052	033	057	042	A	
24	016	041	020	C	C	C	C	C	C	A	A	056	040	040	044	040	050	045	041	038	041	042	042	014	
25	014	018	017	025	B		040	051	056	053	041	056	055	044		040	043	056	039	046	042	018	026	030	
26	018	023	038	026	027	021	030	051	040	052	055	061	055	057	060	042	A	A	056	014	B	B	B	E	
27	E	E	E	012	014	028	027	033	E043R	055	041	040	042	A	E043R	037	037	040	027	019	053	015	015	026	
28	026	017	013	016	E	020	028	032	036	039	039	053	039	040	040	038	034	041	034	019	016	025	016	020	
29	028	C	C	C	C	C	C	C	C	C	C	040	040	040	038	053	065	034	027	022	024	026	040	021	
30	026	020	E	012	013	021	035	038	041	043	045	053	045	037	038	072	033	046	054	022	026	025	A	042	
31	046	051	053	018	015	027	035	050	A	A	A	A	A	040	062	052	054	051	041	040	040	054	040	041	
Count																									
Median																									
U. Q.																									
L. Q.																									
G. R.																									

IONOSPHERIC DATA

May 1966

f-min

0.1 Mc 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	014	013	011	013	013	014	015	016	015	016	018	022	018	021	017	016	015	015	014	014	013	015	012	015
2	014	013	012	012	010	015	014	015	016	018	022	028	027	026	018	016	015	014	014	014	016	014	011	013
3	014	013	013	013	012	015	014	015	015	018	023	025	026	022	018	022	016	016	013	011	011	015	014	011
4	013	011	010	011	011	013	013	014	015	017	025	028	018	017	017	016	015	014	015	013	013	012	014	014
5	012	013	012	010	012	015	015	015	016	016	018	017	017	017	017	017	014	014	015	014	013	014	014	013
6	014	013	010	010	014	015	016	015	016	026	023	023	023	023	016	017	014	014	015	014	013	014	014	015
7	014	012	011	012	011	012	014	016	016	017	023	023	026	025	018	016	016	016	014	016	016	011	013	011
8	011	013	013	014	013	013	014	015	016	017	026	027	026	024	022	016	018	016	014	013	012	013	014	013
9	011	012	013	011	011	014	014	016	017	017	023	023	022	015	017	016	015	014	013	016	016	011	015	015
10	013	011	010	011	011	013	015	014	015	017	018	018	026	025	021	018	016	015	014	014	011	013	012	011
11	011	011	011	011	010	014	014	016	017	017	018	019	016	026	018	017	017	016	013	013	011	013	015	015
12	013	012	014	013	012	014	015	017	017	017	023	028	020	019	018	017	016	015	013	012	013	015	011	014
13	011	011	014	011	011	013	014	016	016	018	017	018	017	016	017	016	015	013	013	013	015	011	014	010
14	012	011	010	011	011	011	014	015	016	017	018	020	021	017	019	016	017	014	014	012	014	014	013	013
15	012	014	011	011	011	014	014	016	014	016	017	018	019	017	017	016	015	014	014	015	013	012	014	014
16	014	011	012	010	011	013	015	014	017	017	022	023	026	026	023	017	016	015	015	014	013	015	012	013
17	013	011	013	012	012	014	014	015	016	018	023	022	018	024	027	017	017	015	014	013	013	013	012	014
18	013	012	011	010	011	015	014	014	015	017	019	017	017	017	016	016	015	014	014	013	013	012	010	013
19	011	013	011	011	013	015	014	014	016	017	017	017	026	017	026	017	017	014	014	012	011	011	011	011
20	013	014	014	014	014	016	016	016	022	026	024	026	026	026	025	016	013	C	C	C	C	C	C	C
21	C	013	011	013	014	015	014	016	018	017	027	027	027	027	023	018	017	016	014	014	015	014	014	014
22	014	C	C	C	C	C	C	C	C	C	C	C	026	C	018	017	016	016	014	C	012	014	014	013
23	012	014	014	011	012	014	015	016	016	018	022	027	027	027	027	015	015	015	014	013	014	012	014	012
24	012	013	014	C	C	C	C	C	C	019	017	026	028	022	022	017	017	015	014	012	011	012	011	011
25	011	012	010	011	011	015	014	015	017	018	024	026	026	026	017	017	017	018	015	014	013	013	013	013
26	011	013	011	011	010	012	014	015	017	021	023	027	024	024	024	017	017	014	014	013	014	014	014	014
27	013	014	013	010	011	014	015	015	016	026	019	024	027	025	017	016	015	014	014	011	011	010	013	011
28	010	013	011	010	011	013	014	016	017	016	018	017	017	020	017	016	016	015	014	011	014	011	012	012
29	012	C	C	C	C	C	C	C	C	C	C	020	028	023	023	016	015	014	014	010	010	011	011	011
30	011	010	013	011	011	015	016	016	016	023	026	026	025	026	017	017	015	014	014	012	015	013	015	012
31	013	013	012	012	010	014	014	017	016	017	017	022	022	018	017	018	017	017	014	012	015	014	014	011
Count	30	29	29	28	28	28	28	28	28	29	30	31	31	30	31	31	31	30	30	29	30	30	30	30
Median	012	013	012	011	011	014	014	015	016	017	022	023	025	023	018	017	016	015	014	013	012	012	013	012
U. Q.																								
L. Q.																								
Q. R.																								

f-min

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

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

135° E Mean Time (G.M.T. +9h)

0.01
M(3000) F2

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	265	275	280	275	305	330S	340S	325	305	310	U320R	310R	320	310	260	U330R	320	305	U310S	300S	280	295	285
2	300	U285R	280R	285	305F	315	335	U340S	325	330	305	U300R	U300R	295R	295	325	320	300R	305	U315S	S	290S	U280S	290
3	295	275	290	320S	290	330	340	325	325	A	A	A	300	310	310	320	315	320	310	320	A	290	280	275
4	275	275	285	295	290	325	345	340	325	355	285	U285R	290	285	295	315	330	315	310	U305S	U340S	295S	U285R	280
5	U285R	285	300	300	U300R	330	330	340	325	U325S	300	310R	295	300	315	310	U310R	U310S	U325S	U330S	U330S	315S	275	265
6	275	285	285	300	315	325	340	335S	345	330R	310	295R	303R	285	300	290	310	320S	U320S	315	305	U275S	F	U305S
7	295	280	300	300	U275F	325	330S	345	335	325	310	325	U320R	305	305	305	315	315	U325S	U330A	315S	300S	305	315
8	U275S	U280F	280F	U275F	U285F	330	330	340	330	340R	340	U285A	A	300	303R	310	310	U315R	300	U320A	310S	F	F	A
9	U290F	F	F	U280F	F	U295F	U335S	R	325	345	290	310	290	310	310	U303R	295	295	310	A	U335S	295	290	275F
10	275	F	F	U285F	F	U290F	335	335R	330	300	300	315	295	300	305	310	305	325S	A	U315S	U329S	U310S	U300F	F
11	U300S	U295R	285F	F	U290F	330	355	335R	340	U330A	295	290	305	295R	290	305R	U320S	U340S	U360S	305	315	U300S	290	290
12	290	290	U295F	290F	U295S	300	320	320	310	300R	U310R	275	U300R	U300R	305	295	300	315R	U310S	U305S	295	305	290S	290S
13	280	285	300	U300S	305	U345R	330	330	340	A	A	A	A	290	310	305	285	295	315	325	280	290F	F	F
14	F	F	F	F	F	305F	325	325	315	A	295	290	305	295R	U300R	U300R	310	315	U305S	S	300S	A	A	A
15	A	F	F	U305S	U290F	320S	U330S	320S	290	310	A	A	U290A	295	290R	290	320	325	315	305S	U280S	S	F	F
16	U310S	F	300S	300F	300F	325	340	U340S	325	315	290	A	295	290	290	290	U320S	330S	310S	U330S	305	295S	295	F
17	F	F	A	A	U285S	310	335	330S	A	A	295	U285A	U295R	290	290	290	295	300	U295S	305S	300S	A	F	A
18	U300F	U300F	F	305S	280	320	305S	335	A	A	A	295	300	290	U295R	300	305	315	310	S	U275S	U285S	U305S	U305S
19	290S	295S	295	295	295	330	310S	315	A	335	U285A	295R	U285R	280	285	310R	305	305	U310S	U305S	285	290S	290S	
20	295R	U285F	300F	U315F	305F	335	310	320	300	300	295	U285A	290	275	285	290	290	C	C	C	C	C	C	C
21	C	295S	285S	275S	295S	305	330	345	A	A	285	U320S	U270R	A	A	285	U315R	U315R	330	U320S	280S	U275S	U275S	F
22	U305S	C	C	C	C	C	C	C	C	C	A	A	275	U285C	290	295	305	315	295	U325C	U305S	305S	U290S	300F
23	U290A	U280A	U285F	A	U285F	320	330	U315A	285S	295	U290A	295	U280A	295	U295R	U310R	320	290	U305S	U290F	U285S	U310A	U310A	
24	F	U310F	U330F	C	C	C	C	C	C	A	A	290R	290	305	295R	300	305	315	330	335S	F	F	U305F	U285S
25	F	U295F	U335F	315F	300F	320F	315	320	320	280	305	300R	305R	300	305	300	310R	305R	295	U295A	U290S	U300S	U305S	U310F
26	U300S	295S	300	275S	265F	290	320	330	340	320	290	305R	280	290R	310	U300R	U290A	U295A	U305S	290S	U270S	U265S	S	U265S
27	285S	U305S	280	250F	U295S	280	270	270	G	285	R	R	U250R	U250A	260	295	300	315	310	290	265	270	265S	270S
28	F	U280F	295S	300	U285S	320	320	345	350	310	235	285	275R	295R	295	315	300	U300S	295	U300S	U300S	U290S	290S	290S
29	F	C	C	C	C	C	C	C	C	C	C	265	280	U305R	300	295	U305S	295	305S	295S	U300S	F	U295S	U295S
30	290S	290S	U315F	U315F	295F	305	310	U320S	300	265	300	290	275	290	285R	310	305	310	310R	300	U335S	F	A	U300F
31	U315F	U300F	F	275F	290F	315	335	325	A	A	A	A	A	275	295	U300R	290	300S	U320S	305	U295F	S	U280S	U290S
Count	23	23	22	24	26	28	27	23	23	21	22	25	28	30	30	31	31	30	29	27	27	23	21	22
Median	290	285	295	300	290	320	330	330	325	315	295	295	290	295	295	300	305	315	310	U310S	U300S	295S	U290	290
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

M(3000) F2

K 7

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

M(3000)F1 0.1 135° E Mean Time (G.M.T. +9h)

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							L	L	A	A	A	365L	360L	355L	340L	355L	375L	L							
2							L	A	360L	A	A	U360L	L	370L	355L	A	A	A							
3								340L	A	A	A	A	360L	350L	360L	U355L	L	L							
4									L	365L	L	A	A	345L	340L	370L	355L	L							
5								A	355L	A	365L	U350L	365L	365L	365L	345L	345L	L							
6							L	L	L	A	375L	U365L	340L	U335L	A	A	A	A	A						
7							L	A	A	L	A	A	U340L	365	R	A	A	A							
8							L	L	A	A	A	A	A	365L	350L	350L	340	L	L						
9									A	A	A	365	375	A	345	L	335L	L	A						
10								L	U360L	355L	A	365L	385L	355L	355L	350L	340L	L	A						
11							L	A	A	A	375L	395L	A	A	U365L	350L	A	A							
12							L	350L	A	370L	U370L	L	A	345L	360L	375L	350L	L							
13							L	L	A	A	A	A	A	A	A	355	A	A							
14							A	A	A	A	A	360L	365L	370L	A	A	345L	A	A						
15							L	L	A	A	A	A	A	360L	365	355L	365L	A	A						
16							L	L	A	365L	U350L	A	A	360L	U350L	335L	350L	350L	A						
17								A	A	A	A	A	U375L	A	A	340L	A	A							
18							L	360L	A	A	A	345L	380L	380L	360L	A	A	A	A						
19							L	L	A	A	A	A	A	A	360L	A	350L	A	L						
20							L	L	A	A	A	A	A	A	A	R	A	C	C						
21							L	L	A	A	360L	R	A	A	A	355L	A	L	L						
22							C	C	C	C	A	A	A	C	370L	345L	345L	A	A						
23							A	A	340L	A	A	A	A	R	350L	A	340L	L	A						
24							C	C	C	A	A	A	R	370	335L	350L	A	A	A						
25							A	A	A	A	375L	A	A	U370L	370L	355L	A	A	A						
26						L	360L	A	L	A	A	A	A	A	A	355L	A	A	A						
27							335L	L	A	A	R	R	R	A	A	340	330L	A	A						
28							L	L	375L	385L	R	A	U370L	365L	370L	355L	345L	A	A						
29							C	C	C	C	C	R	R	380L	360L	A	A	335L	L						
30						L	330L	L	350L	365	A	A	A	380	365	A	355L	A	A						
31							A	A	A	A	A	A	A	385	A	A	A	A	A						
Count							3	3	7	6	7	9	11	20	21	19	16	2							
Median							335L	350L	360L	365L	370L	365L	365L	365L	360L	355L	345L	340L							
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

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

M(3000)F1

K 8

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

13° 5' E Mean Time (G.M.T. +9h)

km

h'F2

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							260	250	270	300	315	300	305	300	300	280	275	265						
2							250	265	280	250	E320A	330	300	315	305	300	270	280						
3							305	310	A	A	A	320	320	300	300	280	270	260						
4								260	250	275	350	330	330	330	320	275	260	265						
5							260	285	300	310	315	330	315	295	250	300	280							
6							255	265	260	315	280	345	315	360	310	310	300	265	255					
7							260	250	260	300	300	300	300	325	305	300	275	265						
8							260	275	260	265	A	A	A	320	300	280	280	270	260					
9								275	260	340A	300	330	310	300	300	300	310	300	260					
10								250	270	310	345	310	330	325	305	300	260	A						
11								240	250	290	I300A	335	325	360	330	305	270	255						
12								280	300	280	330	310	330	350	310	300	275							
13								235	250	275	A	A	A	E340A	300	305	330	300A						
14								250	E280A	300A	A	330	330	325	325	325	300	285	275					
15								260	280	300	A	A	I355A	335	330	310	275	260	260					
16								260	260	285	300	360	I385A	345	320	310	275	270	270					
17								260	A	A	360	I380A	360	340	350	310	300	300	300					
18								275	250	A	A	A	330	330	330	310	325	300	260					
19								270	270	A	280	330	345	360	325	285	300	290	260					
20								280	300	295	E380A	I360A	350	330	285	310	330	C	C					
21								250	250	A	A	360	300	E430A	A	A	320	290	280	250				
22								C	C	C	A	A	350	I320C	310	310	300	265	270					
23								280	280	330	315	A	E370A	A	310	330	300	315	315					
24								C	C	A	A	A	310	330	310	330	300	275	260					
25								275	275	310	E420A	345	320	330	305	320	300	310	280					
26								325	270	250	240	310	370	330	375	340	300	310	I320A	310				
27								405	365	G	E430A	R	R	560	A	E450A	350	320	300					
28								265	250	265	325	500	380A	400	345	310	275	300	300	285				
29								C	C	C	C	425	380	330	330	330	330	310	285					
30								275	315	275	320	350	E375A	395	345	350	E350A	305	300	E300A				
31								260	270	A	A	A	A	390	330	330	350	300	255					
Count							2	19	26	23	21	21	25	27	29	30	31	31	30	19				
Median							300	260	260	280	300	330	340	330	310	310	300	280	265					
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

h'F2

K 9

Lat. 35° 42.4' N
Long. 139° 29.3' E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (G.M.T. +9h)

km *h'F*

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	300	310	300	295	300	270	225	250	A	A	A	215	210	210	215	220	215	215H	260	270	250	275	260	260
2	255	270	310	300	255	235	240	I245A	240	I250A	I250A	230	E300A	210	245	A	A	A	270	265	275	300	305	255
3	250	280	275	275	265	240	260	260	A	A	A	A	240	220	220	220	220	245	260	250	I240A	250	290	300
4	300	300	300	260	260	240	230	250A	E250A	225	210	A	250	225	250	200H	235	230	250	250	230	240	325	300
5	320	300	265	260	295	250	230	I240A	210	I250A	215H	250	225	215	215	230	215	250	260	250	225	245	320	350A
6	310	300	300	260	235	230	225	240	255	I250A	215	205	250	260	A	E300A	A	A	A	270	270	E350A	E345A	250
7	265	295	260	260	265	245	245	A	A	E300A	I200A	I180A	270	270	I260A	I250A	A	A	260	I250A	260	315	270	315
8	E370A	330	300	315	270	250	250	235	235	A	A	A	A	215	230	220H	230	255	250	I270A	255	310	E350A	A
9	320	E340A	325	325	300	225	250	230	A	A	A	225	200	E300A	250	E250A	230	A	A	A	250A	260	300	E310A
10	E300A	E350A	300	250	250	250	240	230	205	230	I235A	205	205	200H	225	200H	230H	270	A	A	255	300	310	315
11	260	290	315	300	300	250	230	A	A	A	210	185	I220A	I230A	200	250	I260A	I240A	230	285A	230	275	310	290
12	315	285	250	290	280	255	230	220	I250A	270	220	185	I205A	230	220	225	210H	250	250	240	230	255	280	290
13	310	285	280	260	230	230	230	225	A	A	A	A	A	A	A	230	A	A	E300A	250A	E300A	300	A	290
14	E340A	290	250	260	280	250	A	A	I240A	I260A	A	210	215	220	A	A	250	A	A	A	260	260	A	A
15	1300A	260	250	250	260	270	250	230	A	A	A	A	A	A	225	I260A	275	A	230	250	250	260	330	310
16	275	275	295A	255	260	230	245	240	E255A	210	265	A	A	A	200H	220	245	250	I235A	I250A	300	310	305	300
17	E320A	265	A	A	255	255	245	A	A	A	A	A	220	A	A	280	A	A	A	A	270	260	A	E345A
18	310	300	265	260	290	240	230	230	A	A	A	E260A	200	200	E300A	A	A	A	A	A	255	275	280	310
19	280	275	260	255	275	250	230	270	A	A	A	A	A	A	225	I260A	275	A	230	250	250	260	330	310
20	300	310	280	230	245	250	240	E280A	A	A	A	A	A	A	R	A	230	C	C	C	C	C	C	C
21	C	290	270	E300A	255	240	230	220	A	A	215	225	A	A	A	250	A	E300A	230	240	260	320	335	350
22	300	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	I310A	I315A	E375A	A	305	300	A	A	230	A	A	A	I190A	I210C	225	250	260	A	A	I260C	270A	255	270	300
24	275	300	265	C	C	C	C	C	C	C	C	C	A	310A	280	250	230	E310A	A	280	295	350A	265	I290A
25	280	280	245	260	260	230	A	A	A	A	230	A	200	225	265	245	A	A	A	A	240	325	320	315
26	275	260	325	330	350A	250	240	A	225	A	A	A	A	A	A	260	A	A	A	A	270	315	310	295
27	275	280	265	350A	250	E370A	250	250	A	A	250	210	280	A	A	275	265	I250A	265	280	345	300	315	325
28	325	275	250	235	250	235	230	225	215	205	230	I210A	205	210	215	240	220	A	A	260	255	270	270	260
29	285	C	C	C	C	C	C	C	C	C	C	215	180H	215	220	A	250	275	240	240	240	300	335	285
30	280	275	240	230	265	255	225	250	250	220	I220A	I215A	I220A	205	225	I245A	220	I245A	I255A	250	250	270	A	310
31	320	280	E385A	315	280	275	A	A	A	A	A	A	200	I220A	I230A	A	A	A	A	260	E325A	E360A	315	320
Count	30	29	28	26	28	28	24	20	13	11	14	16	20	24	23	26	20	16	18	29	30	28	27	28
Median	290	275	260	265	250	235	240	230	220	210	220	220	220	220	220	240	230	250	255	260	260	290	300	290
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

h'F

K 10

IONOSPHERIC DATA

May 1966

f_oF₂

135° E Mean Time (G.M. T. +9h)

Kokubunji Tokyo

Lat. 35° 42.4' N
Long. 139° 28.3' 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	110	100	B	B	B	140	130	125	120	115	115	115	120	115	120	g	g	g	150	115	115	115	115	8
2	110	110	B	B	B	125	130	125	125	120	115	g	115	110	110	105	100	125	100	100	110	110	110	110
3	105	110	110	110	110	135	130	130	130	120	115	120	120	120	125	115	g	130	125	115	115	115	115	110
4	110	105	105	105	105	150	140	125	110	110	115	110	110	110	105	105	g	150	115	115	115	115	110	105
5	100	100	105	100	100	110	110	110	115	110	120	120	110	110	130	g	g	105	120	120	115	115	115	110
6	115	110	115	115	120	125	115	150	120	115	130	120	155	125	130	125	125	120	120	115	115	115	115	115
7	B	110	110	110	115	155	130	120	120	115	115	115	g	140	130	130	125	120	115	110	115	115	110	110
8	110	105	100	110	115	135	125	115	115	115	115	115	115	g	125	g	130	130	115	115	115	120	115	115
9	110	110	105	105	110	115	130	115	115	110	110	110	130	160	160	150	145	125	115	110	110	105	105	105
10	105	105	105	105	105	105	110	110	110	110	110	110	110	g	g	g	g	120	115	B	110	110	110	110
11	105	105	105	105	115	115	115	115	115	110	120	120	115	115	120	115	115	125	110	110	100	110	115	110
12	115	110	110	115	115	110	110	115	110	110	110	115	115	115	g	g	g	110	110	105	B	115	110	110
13	110	110	100	105	105	160	125	130	115	115	115	110	110	110	110	105	130	130	120	115	115	115	110	110
14	105	100	105	100	100	100	125	120	115	115	115	115	110	110	115	110	125	120	120	120	115	115	115	115
15	115	110	110	110	115	130	130	125	110	115	115	115	115	125	g	160	165	120	120	115	115	115	110	110
16	110	110	110	110	110	g	140	125	115	115	110	110	110	110	130	130	130	115	115	115	110	110	110	110
17	110	110	105	100	105	100	110	125	115	115	115	115	115	110	115	120	130	115	110	110	105	110	110	110
18	110	110	100	100	100	105	130	115	110	110	110	110	115	110	150	130	125	120	120	110	115	110	110	110
19	110	105	105	105	110	130	120	120	115	110	110	110	125	120	165	130	125	120	120	110	105	110	110	110
20	105	100	100	110	115	130	125	125	120	115	110	110	105	105	105	110	110	110	C	C	C	C	C	C
21	C	110	105	100	115	125	125	115	115	110	110	110	110	110	110	110	130	125	120	120	110	110	115	115
22	110	C	C	C	C	C	C	C	C	C	115	115	120	C	165	130	130	125	120	C	120	115	115	115
23	115	110	110	110	110	110	125	115	115	115	115	110	110	110	110	115	110	125	120	115	110	110	115	115
24	110	110	105	C	C	C	C	C	C	110	110	110	110	175	130	130	125	120	120	115	115	115	115	110
25	110	110	110	110	B	g	125	120	115	115	115	115	125	120	g	125	125	120	120	115	115	110	110	110
26	110	110	110	110	105	130	110	130	130	125	125	120	120	115	115	115	115	115	120	120	B	B	B	120
27	120	120	145	130	130	115	130	130	130	125	125	120	130	130	125	125	125	120	120	115	115	115	115	110
28	110	110	110	110	115	190	130	125	120	120	125	125	125	120	120	130	120	120	115	115	115	115	115	110
29	110	C	C	C	C	C	C	C	C	C	C	120	120	120	150	125	120	120	120	115	110	110	115	115
30	110	110	110	110	115	130	130	125	120	110	110	110	110	130	150	125	145	115	115	110	105	105	105	115
31	110	110	110	110	115	125	125	120	115	115	115	115	125	140	125	125	120	120	115	115	115	115	115	110
Count	29	29	28	26	25	26	28	28	28	29	30	30	28	27	26	25	25	29	30	28	28	29	29	29
Median	110	110	110	110	110	125	125	120	115	115	115	115	115	125	125	125	125	120	120	115	115	115	115	110
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

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

f_oF₂

K 11

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

135° E Mean Time (G.M.T. +9h)

Types of Es

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	f	f2				h	h	h	e2	e3	e2	c	c	e2	e2				h2	f3	f6	f	f2	
2	f	f2	f			h	h3	h2	h	e2	e2		1	1	12	12	12	h213	12	f	f6	f4	f6	f3
3	f	f	f2	f3		1	h2	h	h3	e3	e4	e2	e2	h	h	e		h2	e2	f5	f5	f5	f2	f3
4	f2	f2	f3	f4		f2	13	h2	h3	1	1	1	1	1	1	1		h2	16	f5	f2	f2	f3	f
5	f4	f2	f	f2		f2	12	13	e2	12	c	c	1	1	h			1	e4	f6	f	f4	f2	f4
6	f2	f3	f2	f2		f	1	h12	e2	e2	h	c	h	h	b2	b2	h31	e31	e4	f5f2	f6f	f5	f6	f
7	f3	f2	f2	f2		f2	h	h3	e2	e2	e2	c2	h	h	h2	h2	h2	e3	13	f6	f2	f5	f6	f4
8	f3	f2	f2	f3		f	h2	h3	e	e	e2	e2	e2		h		h2	h2	13	f5	f3	f3	f5	f4
9	f3	f3	f4	f3		f2	1	h3	e2	e2	e2	e	h	h1	h	h	h	h3	e3	f5	f4	f3	f4	f4
10	f3	f4	f4	f6		f5	14	12	e2	12	12	12	12					e2	13		f5	f6	f5	f7
11	f	f2	f3	f2		f2	1	e2	e2	e3	e	c	e2	e2	e2	e	e2	h13	12	f3	f2	f3	f4	f2
12	f2	f	f2	f3		f4	12	1	12	1	1	1	e2	c			12	12	f5	f	f6	f3		
13	f2	f2	f3	f2		f2	h2e	h	e2	e2	e3	e2	e3	e2	e3	13	h313	h213	e6	f4	f4	f5	f4	f4
14	f4	f2	f3	f4		f3	12	h3	e2	12	e2	1	12	12	e2	e2	h	e4	16	f6	f2	f3	f4	f6
15	f6	f3	f3	f4		f2	h3	h2	12	e2	e3	e2	e2	h	h	h	h2	e3	e5	f6	f3	f5	f4	f4
16	f3	f2	f6	f5		f	h3	h2	e2	c	1	12	12	1	h	h	h	e2	14	f3	f3	f3	f2	f3
17	f4	f	f5	f4		f2	12	12	e3	e2	e2	e2	e2	12	e	e2	h2	12	12	f5	f2	f4	f4	f4
18	f4	f4	f4	f4		f2	1h2	h2	13	e3	e2	12	e	1	h12	h2	h4	e412	e313	f5	f2	f3	f5	f2
19	f2	f2	f2	f2		f2	h2	e3	e3	e3	13	e3	h	e2	h	h	h2	e2	e4	f2	f2	f3	f5	f5
20	f2	f2	f4	f2		f	h2	h2	h	e3	13	13	12	12	1	e2	e2			f2	f2	f3	f5	f5
21		f2	f2	f2		f	h2	h2	e	e2	13	1	12	12	12	c	h	h2	e4	f4	f3	f4	f6	f4
22	f5										e3	e3	e8		h	h	h	h3	e4	f3	f3	f3	f2	
23	f3	f3	f3	f4		f4	13	h2	e2	e2	e2	e2	12	1	12	1	12	h3	e4	f4	f3	f6	f3	f6
24	f4	f4	f3						e4	e2	e2	12	1	h	h	h	h3	e3	e4	f4	f5	f6	f5	f2
25	f2	f4	f4	f4				h3	e2	e2	e	e2	h2	e2	h	h2	h2	e3	e2	f6	f4	f3	f3	f4
26	f3	f3	f4	f5		f7	h2	14	h3	h	h	h2	e2	e2	e3	e2	e3	e3	e3	f2			f	
27	f	f	f	f		f	12	h	h	h	h	c	h	h2	h	h	h	e2	e3	f6	f4	f2	f2	f6
28	f5	f3	f3	f3		f	h	h	e	h	h	h	h	c	c	h	c	e4	15	f6	f6	f3	f3	f6
29	f5										e	e	e	e	h	h2	e3	e2	e3	f4	f5	f2	f6	f4
30	f4	f6	f2	f2		f	h3	h3	e2	e2	e2	e2	h	h	h2	h	h2	h	e2	f4	f5	f4	f4	f6
31	f6	f5	f6	f5		f	h4	h3	e2	e2	e2	e2	h	h3	h2	h2	e2	e3	e3	f6	f5	f5	f5	f4

Count																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

IONOSPHERIC DATA

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

135° E Mean Time (G. M. T. +9h)

km

f_oF₂

May 1966

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	380	385	375	370	375	320	285S	265S	280	320	320	U310R	325R	310	315	305	U290R	295	320	U305S	320S	360	340	345	
2	320	U345R	370R	370	325F	305	270	U270S	305	295	A	U330R	U310R	325R	330	315	300	320R	310	U305S	S	355S	U360S	340	
3	325	375	340	275S	325	280	270	310	A	A	A	330	320	310	310	300	300	295	315	300	A	330	360	380	
4	380	360	360	330	340	285	255	270	295	265	335	A	345	355	350	300	280	295	305	U320S	U280S	330S	U355R	375	
5	U370R	370	355	330	U365R	280	275	275	305	U300S	330	325R	340	330	305	310	U310R	U305S	U300S	U280S	U280S	305S	375	385	
6	375	365	355	325	285	265	275	280S	275	A	300	350R	330R	375	330	345	320	295S	U285S	300	320	U375S	F	U325S	
7	330	355	325	325	355	290	285S	265	270	300	315	300	U310R	330	320	320	310	295	U275S	I280A	310S	340S	310	305	
8	U390S	U375F	340F	U360F	U340F	280	275	270	285	265R	270	A	A	330	315R	315	310	U310R	310	I310A	325S	F	F	A	
9	U350F	F	F	U375F	F	U355F	U275S	R	A	260	350	305	350	320	315	U320R	340	335	305	A	U260S	330	350	385F	
10	380	F	F	U300F	310F	280	280	270	280	310	350	310	345	330	320	310	320	285S	A	U280S	U330S	U310S	U335F	F	
11	U325S	U325R	U350F	F	U335F	275	265	265R	A	A	350	360	325	365R	335	330R	U300S	U285S	U265S	320	300	U330S	350	355	
12	370	340	U325F	365F	U330S	310	305	310	305	330R	U315R	370	U330R	U350R	330	320	320	300R	U305S	U315S	U305S	335	350	350S	
13	375	375	330	U325S	300	U280R	295	275	A	A	A	A	A	345	310	320	350	335	300	280	340	350F	F	F	
14	F	F	F	F	F	320F	290	300	300	A	A	A	325	330R	U330R	U335R	320	305	U320S	S	320S	A	A	A	
15	A	F	F	U320S	U345F	300S	U275S	285S	325	305	A	A	I360A	345	345R	335	300	285	295	315S	U370S	S	F	F	
16	U325S	F	325S	325F	330F	285	275	U275S	310	310	365	A	375	355	355	350	U310S	300S	295S	I280S	305	335S	355	F	
17	F	F	F	A	U335S	305	285	270S	A	A	A	I380A	U360R	355	360	335	330	325	U325S	320S	315S	A	F	A	
18	U320F	U345F	F	320S	360	290	305S	275	A	A	A	335	330	350	U360R	335	330	305	305	S	U385S	U355S	U315S	U335S	
19	355S	335S	320	330	335	275	305S	300	A	280	A	A	U360R	375	345	305R	315	325	U300S	U320S	U365S	U330S	375	335S	
20	345R	U355F	340F	U305F	315F	275	285	305	325	315	A	A	A	355	340	350	345	G	C	C	C	C	C	C	
21	C	365S	345S	350S	325S	295	275	260	A	A	365	U305S	G	A	A	350	U310R	U310R	275	U275S	340S	U355S	U380S	F	
22	U325S	C	C	C	C	C	C	C	C	C	A	A	375	I360C	345	345	310	295	315	I300C	U315S	315S	U340S	345F	
23	I360A	I365A	U395F	A	U345F	300	280	U280A	365S	A	A	A	A	330	I350R	U310R	310	345	U325S	I330S	345F	U360S	I320A	I320A	
24	F	U310F	U285F	C	C	C	C	C	C	A	A	340R	335	315	345R	340	320	310	285	285S	F	F	U330F	U370S	
25	F	U355F	U330F	345F	315F	305F	305	285	A	A	355	350R	320R	330	310	330	310R	310R	335	I340A	A	I330S	U325S	U335F	
26	U335S	330S	345	375S	380F	350	305	270	245	A	A	A	375	365R	315	R	I330A	I340A	U325S	345S	U410S	U390S	S	U395S	
27	370S	U345S	345	420F	U335S	425	405	G	G	A	R	R	G	A	470	355	325	315	305	345	400	395	400S	415S	
28	F	U345F	335S	300	U330S	285	285	260	265	330	G	380	400R	360R	330	305	335	335	U315S	340	U335S	U320S	U345S	335S	
29	F	C	C	C	C	C	C	C	C	C	C	C	R	U330R	330	340	A	325	310S	310S	U285S	U345S	F	U335S	
30	330S	335S	325S	U285F	335F	305	315	U295S	335	G	355	A	400	350	350R	A	310	305	300R	310	J345S	F	A	U325F	
31	U320F	A	F	370F	355F	300	275	280	A	A	A	A	A	390	345	U345R	365	315S	U305S	310	U365F	S	U355S	U370S	
Count	23	22	22	24	26	28	28	26	17	14	15	17	23	29	30	29	30	30	29	27	26	23	21	22	
Median	350	355	340	330	335	290	280	275	300	300	335	335	340	345	330	330	310	310	305	U310S	U320S	335S	U350	345	
U. Q.																									
L. Q.																									
Q. R.																									

The Radio Research Laboratories, Japan

K 13

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

f_oF₂

Lat. 35° 42.4'N
Long. 139° 29.3'E

Kokubunji Tokyo

IONOSPHERIC DATA

135° E Mean Time (G.M.T. +9h)

ypF2 km

May 1966

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	070	065	075	070	075	045S	050S	045	045	055	U045R	055R	045	050	055	U045R	050R	050	050	U060S	055S	065	060	065	
2	060	U070R	055R	055	055F	050	U045S	040	050	045	A	U045R	U060R	060R	065	065	060	055R	055	U050S	S	045S	U060S	070	
3	050	075	060	055S	050	050	045	040	A	A	A	050	075	070	060	055	060	065	065	055	055	A	090	085	070
4	065	085	070	070	065	060	050	050	050	045	065	A	055	050	050	065	065	065	055	U050S	U045S	045S	U050R	040	
5	U050R	055	065	055	U045R	050	045	040	045	U045S	045	050R	050	070	060	055	U050R	U050S	U050S	U045S	U045S	050S	055	065	
6	055	060	060	055	070	055	050	045S	060	A	045	050R	055R	050	060	060	060	055S	U055S	050	040	U050S	F	U050S	
7	065	065	060	055	065	050	040S	045	050	050	045	050	U050R	050	050	055	060	050	U060S	U040A	040S	055S	065	045	
8	U040S	U050F	065F	U050F	U065F	045	050	045	050	050R	040	A	A	060	045R	045	055	U045R	050	U040A	040S	F	F	A	
9	U050F	F	F	U050F	F	U070F	U055S	R	A	040	070	060	055	055	080	U075R	065	065	065	A	U050S	U055S	U060F	F	
10	060	F	F	U050F	045F	040	045	060	045	055	035	045	055	055	060	055	045	055S	A	U050S	U055S	U055S	U060F	F	
11	U060S	U075R	U050F	F	U065F	045	035	045R	A	A	050	065	055	050R	050	050R	U050S	U045S	U040S	055	050	U055S	065	055	
12	035	060	U050F	055F	U055S	055	045	045	045	050R	U050R	085	U055R	U035R	050	065	050	050R	U065S	U040S	U050S	045	065	055S	
13	050	040	065	U060S	055	U055R	040	045	A	A	A	A	A	055	060	075	055	065	045	060	060	050F	F	F	
14	F	F	F	F	F	075F	060	050	055	A	065	050	055	055R	U055R	U055R	045	045	U050S	S	055S	A	A	A	
15	A	F	F	F	U055S	U055F	U045S	055S	050	055	A	A	U055A	060	055R	060	050	050	055	U045S	U050S	S	F	F	
16	U055S	F	060S	055F	055F	055	050	U040S	045	040	055	A	060	045	060	050	U055S	050S	065S	U060S	065	065S	045	F	
17	F	F	A	A	U065S	070	045	045S	A	A	A	U040A	U045R	060	045	065	050	055	U060S	050S	055S	A	F	A	
18	U060F	U070F	F	055S	055	055	055S	055	A	A	A	050	065	055	U040R	050	060	055	065	S	U065S	U050S	U070S	U065S	
19	065S	070S	065	050	065	055	045S	050	A	050	A	A	U055R	065	055	060R	050	050	U045S	U060S	U055S	U055S	055	065S	
20	060R	U050F	070F	U070F	045F	045	060	045	060	065	A	A	A	075	055	050	055	055	C	C	C	C	C	C	
21	C	040S	070S	070S	070S	055	070	040	A	A	050	U030S	G	A	A	050	U065S	U060R	050	U065S	085S	U080S	U070S	F	
22	U055S	G	G	G	G	G	G	G	C	C	A	A	050	U060C	060	055	065	055	065	U065C	U065S	U070S	U060F	060F	
23	U060A	U070A	U035F	A	U055F	050	050	U095A	060S	A	A	A	A	055	U055R	U060R	045	065	U050S	U055S	060F	U070S	U065A	U060A	
24	F	U070F	U065F	C	C	C	C	C	C	A	055R	060	065	065	050R	055	060	065	060	055S	F	F	U050F	U060S	
25	F	U045F	U060F	045F	050F	040F	055	045	A	A	030	030R	060R	065	055	070	060R	050R	060	U060A	A	I050S	U045S	U060F	
26	U050S	065S	060	055S	065F	050	050	050	050	A	A	A	055	055R	060	R	U055A	U055A	U055S	055S	U045S	U055S	S	U075S	
27	050S	U050S	055	050F	U065S	050	050	G	G	A	R	R	G	A	030	045	060	055	065	055	050	055	055S	045S	
28	F	U070F	065S	075	U065S	065	050	045	065	040	G	055	045R	045R	055	045	050	U060S	060	U065S	I060S	U055S	U055S	090S	
29	F	C	C	C	C	C	C	C	C	C	C	G	R	U055R	065	055	A	070	075S	060S	U065S	U040S	F	U075S	
30	070S	065S	075S	U060F	065F	050	055	U060S	065	G	045	A	050	055	055R	A	060	065	055R	085	U050S	F	A	U065F	
31	U065F	A	F	055F	050F	050	050	070	A	A	A	A	A	060	070	U060R	055	065S	U055S	045	U055F	S	U045S	U055S	
Count	23	22	22	24	26	28	28	26	17	14	15	17	23	29	30	29	30	30	29	27	26	23	21	22	
Median	060	065	060	055	060	050	045	045	050	050	050	050	055	055	055	055	055	055	055	055	055S	055S	U060	060	
U. Q.																									
L. Q.																									
G. R.																									

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

The Radio Research Laboratories, Japan

K14

ypF2

IONOSPHERIC DATA

May 1966

foF2

0.1 Mc

135° E Mean Time (G.M.T. +9h)

Yamagawa

Lat. 31° 12.1'N
Long. 130° 37.1'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	I065S	063	064	058	057S	059	I069S	I071S	066	071	076	082	087	090	091	085	082	084	S	S	S	I071S	068S		
2	I061S	056S	053S	I050S	I048S	046	J062S	065	083	I078S	081	084	I01S	I10	I10	I14	I07	I04S	I102S	I104S	I095S	083S	I073S	J064S	
3	060	056S	057	057	050	047S	063	060	060	A	A	071	085	J098S	102	102	103	J095S	091S	I086S	I071S	I060S	057		
4	056	I055S	054S	055	J051S	051S	058	062	J078S	071	073S	G	G	G	G	G	G	G	G	G	G	G	064S	065S	
5	058	057	058	049	J054S	052	052	061	068	077S	081	084	088	091	090	097S	090	086	I086S	085	I076S	054	J048S	050S	
6	051	I050S	051	050	041	039S	055	J072S	072	063	070	073	086	099	101S	107	118	116	I091S	I079S	I069S	I064S	059S	S	
7	S	062S	I061S	058	J053S	051	J065S	068	070	J073S	070S	079	J079S	082	087S	099S	106	I01S	I093S	084S	068S	I063S	I060S	I057S	
8	055S	054S	049S	040	039S	040	062S	I076S	079	J074S	060	062	I077A	092S	J099S	099	099	J095S	085	I087S	I079S	060S	052S	048	
9	A	S	S	041S	I042S	I044S	060	068	I076A	076S	063S	I069S	069	084	089	097	099S	102	I07	090S	I076S	056	056	053	
10	S	S	S	060S	048S	042S	056	068	060	067	071	072	078	085	I094G	104	114	112	I098S	J079S	068S	I062S	I060S	059	
11	057S	F	F	056	056F	058F	067	061	058	063	I064S	067S	I073A	080	096S	111	117	111	091	I076S	066S	062	062S	S	
12	S	F	F	F	051F	051F	061S	066	068	068	066	069	084	084	093S	089	092	082	084	086S	085	074S	061	057	
13	056S	059S	F	054	042	042	057	065	I064A	070	072	066	081	087	083	083	097	093S	I095S	094	I075S	S	S	S	
14	S	S	I071S	I066S	060S	058S	068	I072S	071S	074S	072	084	089	A	A	I095A	103	A	A	080S	I073A	I067S	061	S	
15	S	S	S	055S	055S	054S	I066S	I086A	077S	I068A	I066A	076S	084	086	095S	105	106	093	I081S	I077A	I074S	I071S	S	S	
16	S	051	049F	044S	042F	041	063	081	I071G	068	070	082	097	105	106	111	119	111	091	086	I075S	064S	058S	I061S	
17	I061S	I058S	I055S	F	052F	055F	069	075S	067	G	G	G	092S	101	102	I101A	098	J095S	099	099S	095S	I081S	I074S	I070S	
18	I074S	065S	060	056S	049	049	066	086	063	063	070	081	I084A	087	091	099	096	094	086	073S	066	I069S	072S	I069S	
19	I071S	I070S	J065S	F	052	053	J077S	078	065	064	I070A	070	082	090	098S	102	102	091	075	I076S	J078S	074S	066	S	
20	S	F	F	060	F	046	056	067	087	085	086	094	099	102	099	102	097	086	079	073	076S	I076S	075	067S	
21	I064S	062	I063S	054F	045	051	064	063	062	070	I074A	076	075	078	090	104	111	100	087	079S	067	I064S	059	I055S	
22	I057A	I061S	067	I056S	F	051F	054	060	I065A	074	075	084	099	112	112	114	110	101	103	102S	085	068	S	S	
23	S	S	S	056F	F	056F	059	064S	079	096S	088	083	I092A	I102A	109	110	095	085	084S	084	J079S	073S	070	067S	
24	S	S	F	F	F	F	060	062S	071	076	081	083	083	089	092	103	103	J096S	A	A	071	S	S	S	
25	S	S	S	I075S	048	043	040	057	065	I070A	I071A	079	089	090	075	078	080	081	077	079S	079	079	077	077	
26	S	S	F	F	F	F	J077S	061	059	062	069	066	A	S	I081A	084	084	086	087	085	I084S	090	094S	I087S	
27	I091S	I087S	J079S	065	074S	058S	050	I051A	045	A	A	055	050R	055	066	066	062	059	050	049	053	057	057	062S	
28	058	059	I057S	044	I048S	046	056	056	057	060	062	064	072	088	094	090	091	095S	084	J090S	097S	I075S	J067S	063S	
29	I065S	066S	J053F	047F	051S	051	072S	078	071S	066	058	064	070	077	087	095	102	I095A	083	079S	072	I074S	071S	071S	
30	069S	067	I065S	064F	054S	050F	061	070	072	072	066	065	073	078	087	087	087	081	071S	077S	I076S	073S	S	S	
31	S	S	063	J057S	F	065S	082S	075S	065	057	I065G	J064S	065	073	087S	J088S	084	090	094S	082	I078S	081	082	S	
Count	18	19	22	25	25	29	31	31	31	28	28	29	29	28	29	30	30	29	27	28	29	27	26	21	
Median	U060S	059S	059S	056	051S	051	062	067	068	070	070	073	084	088	093	099	099	095	087	083S	076S	071S	063S	063S	
U. Q.	065	065	065	058	054	054	067	075	072	074	074	082	089	098	100	104	106	101	094	086	079	075	072	068	
L. Q.	057	056	054	048	044	045	057	061	063	065	066	066	074	083	087	089	091	086	083	078	070	063	059	057	
Q. R.	008	009	011	010	010	009	010	014	009	009	008	016	015	015	013	015	015	015	015	011	008	009	012	013	011

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

foF2

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

foF1 0.01 Mc 135° E Mean Time (G.M.T. +9h)

foF1

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L	L	L	I500A	500	I500A	490	490	500	L	L					
2							L	L	L	L	L	I500A	500	I500A	490	480	470L	L	L					
3									A	A	A	510	500	500	480	470	L	L	A					
4									L	L	L	C	C	C	C	C	C	C	C					
5									L	L	L	480L	480	510	500	A	490	470H	L	L				
6									L	L	L	500	480	510	490	490	I470A	L	L					
7									A	L	L	490L	480	500	480	470	440	A	L					
8							L	L	L	L	L	430	450	470	490	A	480	I470A	450	420	A			
9							L	L	L	L	L	A	460	L	480	L	I480R	I480R	460	450	430L	L		
10							L	L	L	L	L	450	480	480	510	490	480	470	430	L	L			
11							L	L	L	L	L	420L	A	A	I480A	I490A	I500A	480	I460A	A	A			
12							L	L	L	L	L	430L	460H	L	L	500	490	470	460	450	420L	L		
13							L	L	L	L	L	490	480	500L	470	490	480	480	440	A	A			
14									A	A	A	510	LH	500	500	A	A	A	A	A	A			
15									A	A	A	A	A	A	A	A	A	A	A	A	A			
16							L	L	L	L	L	C	A	A	490L	510	500	I500A	470	I470A	420L	A		
17									L	L	L	C	C	A	A	A	A	460	A	L				
18							L	L	L	L	L	A	A	A	I510A	I500A	490	I480A	470	450	430	A		
19							L	L	L	L	L	A	480L	A	I510A	510	510	490	I490A	A	420	A		
20							A	A	A	L	L	A	I480A	500	I520A	490L	500	500	480	460	440L	L		
21									A	L	L	A	A	A	520L	500	I520A	500	470	440L	A			
22							370	A	A	A	A	A	490	A	A	510	520	490	480	I460A	A	A		
23							L	A	A	A	A	A	A	A	I510A	490	480	470	A	A				
24									A	A	A	A	460	I490A	I500A	530	510	490	480	A	A			
25							A	A	A	A	A	A	A	A	A	500	I490A	I480A	500	I480A	460	440	A	
26							A	L	L	L	L	A	A	A	A	A	A	A	A	L	360	L		
27							A	A	A	A	A	A	A	A	A	460	470	450	450	L	A			
28							L	L	L	L	L	L	490	480	490	490	510	I480A	470	460	430	L		
29							L	L	L	L	L	L	460L	A	A	A	480	A	A	A	A	A		
30							L	L	L	L	L	L	450L	480	490	490L	470	490	470	450	A	L		
31							L	L	L	L	L	L	450L	470L	I480C	A	A	480	480	A	460	I440A	L	
Count							1	7	14	13	23	22	24	24	26	24	23	11	1					
Median							370	430L	480	490	500	500	500	480	470	450	430	360						
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

foF1

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

0.01 Mc f_oE 135° E Mean Time (G.M.T. +9h)

May 1966

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							180	250	I295R	330	340	350	350	A	A	320	305	270	210					
2							S	250	290	315	A	A	A	340	I340R	I330A	320	275	210					
3							S	250	290	I315A	340	R	R	B	B	R	R	290	A					
4							S	240	290	I325R	340	G	G	C	C	G	C	C	C					
5							S	A	300	325	345	350	A	A	A	A	R	280	210					
6							180	250	285	I310A	I330A	335	I340R	340	340	330	300	270	210					
7							170	240	290	I330A	I340A	I350A	350	I350B	350	335	I305R	270	215					
8							170	250	300	320	A	A	B	B	I340A	I330A	I310R	280	210					
9							160	250	295	A	A	340	350	350	A	A	310	280	I215B					
10							A	A	A	A	A	335	I340B	340R	340	A	A	280	210					
11							175	250	295	325	345	350	350	350	345	A	A	280	A					
12							A	A	A	A	A	A	340	A	A	I335A	I310R	280	A					
13							170	260	300	320	330	360	I350A	350	I350R	I340R	I325R	A	A					
14							S	250	300	A	A	A	350	A	A	A	A	A	A					
15							S	250	300	315	A	A	A	A	360	I335A	310	A	A					
16							200H	260	I295G	320	I325A	I330A	A	A	A	R	A	A	220					
17							200	260H	I300R	G	C	C	340	340	335	340	330	280	A					
18							180H	I265A	A	A	A	A	A	A	A	A	A	280	225					
19							195	250	300	315	I315A	I330A	350	I350A	360	350	320	290	225					
20							190	260	295	A	A	A	A	A	A	A	335	300	A					
21							200	270	310	A	A	A	A	A	A	A	340	300	235					
22							195	I270A	310	340	360	365	I370R	360	350	350	320	290	240					
23							195	270	310	330	345	A	A	A	360	360	320	290	230					
24							190	270	305	A	A	350	350	370	370	355	330R	290	230					
25						S	210	260H	305	325	345R	350	365	365	350	340R	325	290	230					
26							S	200	265H	300R	335H	345R	355R	370	365	355	345	320	295	240	B			
27							S	200	245H	300	315	A	R	R	R	355	340	315R	280	240	145			
28							S	A	250	I290A	I330A	350	360	360	350	330	320	290	240					
29							S	195	260	300	320	340	350	I360R	I355R	340	320	280	220					
30							S	210	260	I300A	330	340	I340A	A	R	340	315	280	I215G					
31							S	185	240	300	I315A	I335G	350	350	I350A	350	335	315	285	230				
Count							22	28	28	22	18	18	19	16	19	20	23	26	22	1				
Median							190	250	300	320	340	350	350	350	350	340	320	280	220	145				
U. Q.																								
L. Q.																								
G. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

f_oE

Y 3

IONOSPHERIC DATA

May 1966

foEs

0.1 Mc 1 3.5° E Mean Time (G. M. T. +9h)

Yamagawa

Lat. 31° 12.1'N
Long. 130° 37.1'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	E015B	J029	E015B	E023B	E014B	E015B	025	028	G	045	046	J084	051	J069	J051	036	G	G	J060	037M	021	021	021M	020
2	022	021M	021	E015B	J029	021	030	036	036	063M	J080	041	J086	043	044	J051	036	037	J038	029	070M	051M	037M	027M
3	J028	J030	E018B	E015B	J023	E015B	030	034	J053	081	J079	G	044	042	E041B	043	G	G	J053	023	J053	052M	J021	026
4	J031	019M	021	E014B	E015B	021	023	029	037	040	047	G	G	G	G	G	G	G	G	G	G	G	G	J034
5	J028	J023	029M	021	019M	E015B	020	027	038	039	038	046	J053	J093	J053	035	029G	032	028	030	J024	J030	028	J027
6	J022	J033	J032	J030	J031	J022	G	031	J046	035	041	040	039	039	046	J061	040	030	027	018	J034	J025	J030	J030
7	J039	J043	020	J024	J023	021	019	031	040	J052	J051	J044	037	E040B	042	039	036	042	031	J038	J036	J043	J053	J060
8	J028	J028	J022	J020	J021	E015B	024	038	038	J045	045	045	J083	038	J050	J056	039	035	J061	J034	J030	049M	053M	J046
9	068M	021	021	E015B	E015B	E015B	026	J041	J077	J051	J056	043	038	041	037	035	034	021G	E022B	017	021M	023M	J053	028M
10	029M	J038	J026	J045	027	020	021	J038	033	045	J040	036	E042B	G	G	037	036	031	031	J048	057M	J084	045M	034M
11	J031	J031	J044	J035	J030	022	J020	032	040	J096	J085	J077	J085	J063	044	J062	086M	J085	060	019	J020	J022	035M	J037
12	J052	J050	028	J037	J023	035	J032	030	033	038	038	044	042	J052	042M	036	030G	023G	023	E015B	021M	020M	020	021
13	J030	J029	J023	021	021	021	022	G	078M	J051	J052	G	037	038	G	G	030G	J054	J054	056M	021M	J021	J021	J038
14	J053	037M	J034	J038	022	E015B	031	J057	J059	041	J041	J072	J054	188M	119M	146M	J094	123M	J112	054M	110M	060M	065M	091M
15	073M	053M	090M	048M	J057	J054	067M	J101	J085	J088	103M	067M	J076	J063	048	051	057	069M	J073	094M	J055	060M	059M	064M
16	037M	J023	J022	J020	J023	021	029	J043	G	J054	058	J056	J057	J048	J061	029G	J053	J033	J049	036M	047M	092M	058M	068M
17	058M	037M	053M	J021	J053	J030	027	029	042	G	G	G	J068	J085	J078	J112	J062	J052	072M	J049	021	J029	098M	051M
18	J056	051M	J048	037M	029M	021M	026	031	J039	080M	110M	094M	J161	J103	130M	J064	035	030	J040	024	J037	047M	037M	045M
19	043M	J023	J024	J028	J028	E015B	028	J039	063M	J062	091M	110M	044	J046	043	053	J050	J049	J055	J063	084	057M	049M	062M
20	070M	J053	018M	J031	J024	021	028	J051	J080	144M	122M	112M	045M	J058	J044	J040	027G	G	J035	084M	061M	J030	057M	044M
21	084M	J033	035M	J023	J023	023	043	030	J051	041	J077	120M	J061	044	J056	073M	052M	040	J041	037	029	J052	J042	J062
22	107M	068M	069M	J063	035M	J020	044	035	J083	J051	J056	J053	049	050	048	041	070M	J048	J055	067M	J054	J051	103M	105M
23	J021	036M	J029	J030	J022	J022	024	J044	J063	J099	J062	J097	176M	141M	112M	044	044	J046	039	J045	J054	J055	060M	062M
24	J062	J043	J039	J054	J054	023	J032	038	J065	J046	J066	J065	J049	042	048	046	J064	J084	J103	J076	J058	J053	J064	048M
25	J062	J050	J054	E014B	B	020	028	J047	061	J086	J086	039	J086	J060	J055	059	039	039	J046	J098	J062	J053	063M	J051
26	J062	J054	J054	J054	J052	J032	032	J044	044	047	061	J062	J080	J077	J088	050	J085	J052	028	021	J022	J054	020	018M
27	017M	022	021	B	012	019	038	J056	J051	069	093	038	043	047	043	G	G	032	J043	020	032	J038	047M	022
28	J031	021	029	J052	J039	J046	J029	028	J033	035	037	J071	047	040	J058	037	037	033	026	E016S	E015S	J031	J047	
29	J029	J024	J020	021M	B	E014S	028	032	J043	J068	J064	J050	051	J052	054	J064	J065	J110	J077	J028	J026	056M	030M	J050
30	J052	J045	J051	034M	053M	029M	025	032	038	039	037	043	043	039	033G	040	045	J047	J036	016	J022	069M	077M	067M
31	063M	052M	059M	061M	J039	J038	035	G	J040	G	J061	J054	J045	J045	046	046	039	J053	J039	J040	J029	J037	037M	J033
Count	31	31	31	31	31	31	31	31	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	31
Median	J039	J033	029	J028	J023	021	028	035	042	J051	056	053	050	J049	048	045	039	040	J040	035	J036	J048	045M	045M
U. Q.	062	050	048	038	035	029	044	063	077	082	072	076	063	058	056	057	057	052	055	056	055	055	060	061
L. Q.	028	023	021	020	021	E015	024	030	038	041	043	043	041	043	037	034	034	031	031	021	022	029	030	028
Q. R.	034	027	027	018	014	D014	008	014	025	036	039	030	033	022	015	019	023	021	024	035	022	026	030	033

foEs

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

May 1966

f_oF₂S

0.1 Mc **135° E Mean Time** (G. M. T. +9h)

Yamagawa

Lat. 31° 12.1'N
Long. 130° 37.1'E

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	S	023	B	B	B	S	022	028	039	045	070	048	066	041	036				025	060	025	E	E	020	
2	018	E	018	B	020	016	032	029	035	050	071	040	070	041	039	038	035	035	036	021	E070S	E051S	023	023	
3	023	025	B	B	016	S	028	032	048	A	A		044	041	B	042			052	022	E053S	043	018	E	
4	017	E	E	B	B	020	022	029	035	039	046	C	G	C	C	C	C	C	C	C	G	G	016	E	
5	021	E	E	E	E	S	G	027	038	037	038	045	047	049	040	033	E029R	031	026	023	024	021	023	022	
6	018	E033S	023	022	031	E		G	038	035	039	E040R	E039R	039	041	060	040	030	027	017	032	025	022	025	
7	024	037	E	022	021	E	019	030	039	043	042	040	E037R	B	040	038	036	041	030	035	032	021	023	023	
8	017	019	017	E	E	S	023	037	033	041	044	043	A	E038R	050	040	039	034	E061S	032	028	037	031	040	
9	A	020	E	B	B	S	023	032	A	041	042	041	E038R	E041R	E037R	033	032	020G	B	017	E	E	017	018	
10	017	023	022	024	023	017	021	028	032	041	040	E036R	B			036	034	031	E031R	E048S	051	043	029	E	
11	026	022	025	016	015	013	015	027	036	051	056	057	A	057	041	047	063	083	041	019	E	E	021	016	
12	E	021	014	014	015	018	023	027	032	037	044	044	041	039	039	035	E030R	023G	022	S	E	E	E	017	
13	022	019	016	019	E	E	G		A	048	042		037	E038R			E030R	050	049	038	E	017	021	036	
14	E053S	018	025	024	015	B	031	055	053	039	038	040	046	A	A	A	076	A	A	043	A	053	049	022	
15	033	044	022	025	036	017	039	A	072	A	A	048	073	062	041	049	056	043	E073S	A	025	031	E059S	032	
16	024	E	016	016	017	019	021	038	C	049	043	050	049	044	057	E029R	050	032	038	024	021	044	026	021	
17	024	019	016	016	014	018	026	029	041	C	C	C	067	080	074	A	043	044	032	022	E	E	039	041	
18	044	037	037	016	017	015	025	029	036	052	062	065	A	043	057	041	034	G	039	022	022	026	E	023	
19	022	E	015	017	021	S	027	039	046	044	A	062	044	040	040	051	048	039	053	E063S	017	022	020	024	
20	017	030	E	019	021	016	023	047	068	075	044	057	042	044	042	038	027G		029	029	039	021	028	022	
21	023	026	026	018	021	031	030	042	037	054	A	043	039	054	041	038	039	033	E037R	047	049	039	035	039	
22	A	031	E	046	018	017	021	031	A	040	054	048	044	050	042	039	069	045	053	022	035	025	041	040	
23	E	023	019	023	016	016	023	035	060	070	052	056	A	A	040	042	039	046	039	045	043	036	E	035	
24	022	018	018	018	018	021	031	038	064	041	061	061	040	040	042	040	064	082	A	A	031	E	024	038	
25	E	029	030	B		011	026	045	048	A	A	037	078	055	047	055	036	037	E046R	072	020	021	026	030	
26	023	040	032	046	030	023	031	041	039	034	060	058	A	E077S	A	048	057	035	G	021	017	017	E	E	
27	E	016	E		E012R	018	037	A	041	A	A	G	042	047	042			030	042	020	026	031	044	E	
28	016	017	013	015	023	E	023	G	032	G	037	040	040	039	057	037	034	031	025	S	S	S	018	025	
29	022	016	015	015	S	026	032		040	062	056	048	048	042	053	054	055	A	058	024	023	032	017	034	
30	033	033	034	022	022	015	024	031	035	038	037	040	042	039	E033R	040	042	044	035	015	021	041	044	040	
31	017	034	026	025	018	018	035	033	035	C	035	0661S	049	041	045	045	038	046	033	033	022	031	022	031	
Count																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

f_oF₂S

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E
Yamagawa

0.1 Mc **f-min** 135° E Mean Time (G.M.T. +9h)

f-min

May 1966

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	E015S	E015S	013	023	014	E015S	E015S	015	017	023	022	022	023	033	032	023	017	015	017	E015S	E015S	E015S	E015S	E015S
2	E015S	E014S	015	015	015	E015S	E015S	015	015	022	022	023	024	024	022	022	021	015	015	E015S	E015S	E015S	E015S	E015S
3	E015S	E015S	018	015	015	E015S	E015S	015	015	023	022	023	024	039	041	021	021	015	015	E015S	E015S	E015S	E015S	E015S
4	E015S	E015S	015	014	015	015	E015S	015	017	021	023	C	C	C	C	C	C	C	C	C	C	C	E015S	E015S
5	E015S	E015S	015	015	015	E015S	E014S	015	016	018	024	031	024	024	023	023	019	015	016	E015S	E015S	E015S	E015S	E015S
6	E015S	E014S	E014S	012	013	E015S	E015S	013	015	016	023	024	022	022	025	022	015	015	015	E014S	E015S	E015S	E015S	E015S
7	E015S	E015S	015	015	015	E015S	E015S	014	015	015	017	023	032	040	021	018	017	015	015	E015S	E015S	E015S	E015S	E015S
8	E015S	E015S	015	015	015	E015S	E015S	015	015	018	023	023	035	035	023	018	018	017	015	E015S	E015S	E015S	E015S	E015S
9	E015S	E015S	E015S	015	015	E015S	E015S	015	015	018	022	023	022	021	025	022	015	015	022	E014S	E015S	E015S	E015S	E015S
10	E015S	E015S	015	015	014	E015S	E015S	015	015	022	022	022	042	023	022	015	015	015	015	E014S	E012S	E015S	E015S	E015S
11	E015S	E014S	E	E	E	E	E014S	015	015	017	020	021	023	021	023	018	016	015	014	E015S	E015S	E015S	E015S	E015S
12	E015S	E014S	E	012	E	E015S	012	014	017	016	017	023	021	021	018	015	016	015	015	E015S	E015S	E015S	E015S	E015S
13	E015S	E013S	013	E	012	E014S	E015S	014	015	015	016	023	021	017	017	016	015	015	015	E015S	E015S	E015S	E015S	E015S
14	E015S	E015S	E015S	E	012	015	E015S	015	015	016	017	019	024	022	016	018	015	015	014	E015S	E015S	E015S	E015S	E015S
15	E015S	E015S	015	015	E	E015S	E014S	013	015	015	017	016	018	022	021	015	015	015	015	E015S	E015S	E015S	E015S	E015S
16	E015S	E015S	013	012	015	E014S	E015S	013	C	015	017	017	023	023	017	018	016	015	015	E012S	E015S	E015S	E015S	E015S
17	E015S	E015S	011	E	E	E014S	015	016	018	C	0	0	021	023	021	021	021	015	014	E015S	E015S	E015S	E015S	E015S
18	E015S	E015S	E	E	E	E	E015S	015	015	016	015	019	022	022	020	017	015	015	014	E013S	E015S	E015S	E015S	E015S
19	E015S	E015S	E	E	E	E015S	E015S	015	015	015	016	018	021	022	022	021	015	015	016	E014S	E015S	E015S	E015S	E016S
20	E016S	E015S	016	015	014	E015S	E015S	015	016	015	020	021	023	022	022	021	015	015	015	E015S	E015S	E015S	E015S	E015S
21	E015S	E015S	013	014	011	E015S	E014S	015	016	016	017	018	023	023	023	020	019	016	019	E015S	E015S	E015S	E015S	E013S
22	E015S	E015S	E015S	E	E	E	E015S	015	016	014	023	021	022	020	022	022	018	015	015	E015S	E015S	E015S	E015S	E015S
23	E015S	E	E	E	E	E	E	012	015	015	017	021	022	023	021	017	015	015	015	E015S	E015S	E015S	E015S	E015S
24	E015S	E015S	014	E	E	E	E015S	015	015	016	018	021	021	023	023	018	016	016	015	E016S	E016S	E016S	E016S	E015S
25	E016S	E	E	014	E	E	E014S	016	015	016	017	018	021	018	018	017	016	016	016	E016S	E015S	E014S	E016S	E016S
26	E016S	E016S	E	E	E	E	E016S	013	016	016	022	022	022	021	022	018	016	015	015	E015S	E015S	E016S	E016S	E016S
27	E016S	E	E	E	E	E	E016S	014	017	016	017	019	018	017	021	017	016	016	014	E015S	E015S	E016S	E016S	E016S
28	E	E	E	E	E	E	E016S	015	016	018	018	020	022	022	022	021	016	015	016	E016S	E015S	E015S	E015S	E016S
29	E015S	E	011	E	E	E014S	E015S	015	015	017	019	023	023	023	022	020	015	015	016	E015S	E015S	E015S	E015S	E015S
30	E014S	E015S	E	E	E	E	E013S	015	015	016	017	021	023	024	022	021	016	015	E027C	E014S	E015S	E015S	E015S	E015S
31	E015S	E015S	E	E	E	E	E015S	015	015	021	C	021	018	022	017	017	016	015	014	E015S	E015S	E015S	E015S	E015S
Count	31	31	31	31	31	31	31	31	30	30	29	29	30	30	30	30	30	30	30	30	30	30	31	31
Median	E015S	E015S	012	012	E	E015S	E015S	015	015	016	018	021	022	022	022	018	016	015	015	E015S	E015S	E015S	E015S	E015S
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 19.5 Mc in 20_sec in automatic operation The Radio Research Laboratories, Japan Y 6

IONOSPHERIC DATA

Yamagawa

Lat. 31° 12.1'N
Long. 130° 37.1'E

135° E Mean Time (G.M.T. +9h)

0.01 M(3000) F2

May 1966

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	I280S	270	265	275	280S	290	I325S	I340S	335	335	315	310	310	310	320	320	305	320	S	S	S	S	I290S	295S
2	I285S	300S	300S	I290S	I300S	310	J340S	320	345	I330S	310	285	290S	300	300	300	295	300S	I305S	I305S	I315S	290S	I290S	J300S
3	280	275S	280	300	295	300S	350	350	360	A	A	295	305	J305S	310	305	320	J315S	320S	I315S	I295S	I290S	275	275
4	275	I280S	285S	290	J295S	310S	335	340	J345S	325	300S	C	C	C	C	C	C	C	C	C	C	C	275S	280S
5	280	290	310	300	J295S	310	335	335	350	325	315S	340	300	305	310	300	310S	315	I315S	325	I320S	300	J275S	270S
6	275	I280S	295	300	320	280S	330	J345S	350	325	315	300	280	295	290S	295	305	335	U325S	I325S	I310S	I300S	265S	S
7	S	280S	I310S	295	J305S	315	J355S	325	345	J330S	315S	310	J295S	300	300S	300S	320	315S	I335S	335S	305S	I300S	I295S	I290S
8	280S	285S	275S	285	285S	300	330S	I330S	355	J365S	335	275	I280A	295S	J305S	305	305	J315S	315	I335S	I325S	320S	290S	280
9	A	S	S	295S	I285S	I305S	335	340	I330A	340S	305S	I300S	285	290	300	300	295S	305	325	325S	I315S	305	290	275
10	S	S	S	S	320S	315S	320S	340	345	335	330	310	300	285	I295C	300	320	340	I330S	J315S	330S	I300S	I285S	290
11	270S	F	F	F	290	305F	335F	330S	320	325	305	265	275	290	310S	305	310	300	300	310S	325	285S	300	275
12	S	F	F	F	300	310	335	345	I330A	305	310	260	295	305	295	290	305	300S	I310S	325	I305S	S	S	S
13	275S	290S	F	335	300	310	335	345	I330A	305	310	260	295	305	295	290	305	300S	I310S	325	I305S	S	S	S
14	S	S	I295S	I300S	285S	290S	325	U320S	325S	295S	270	275	300	A	A	I300A	320	A	A	315S	I310A	I315S	290	S
15	S	S	I295S	FS	290S	300S	I320S	I330A	330S	I315A	I285A	270S	285	275	285S	305	320	325	S	A	I290S	I280S	S	S
16	S	315	290F	295S	295F	295	315	345	I330C	305	285	250	275	285	285	295	310	325	320	325	S	A	I290S	S
17	I310S	I305S	I310S	F	290F	315F	350	345S	345	C	C	C	275S	285	285	295	310	325	320	305	I290S	295S	290S	I285S
18	I300S	295S	280	305S	300	305	320	350	350	310	300	295	I290A	275	295	295	300	315	325	310S	280	I295S	I280S	I265S
19	I280S	I290S	J295S	F	290	305	J320S	360	345	305	I300A	260	270	290	295S	295	315	320	300	I295S	J290S	295S	285	S
20	S	F	F	F	300	320	325	315	320	295	290	280	270	270	290	300	310	320	315	290	280S	I280S	295	290S
21	I270S	275	I300S	315F	300	335	345	350	325	315	I300A	285	285	265	280	290	310	320	320	310S	290	I275S	270	I270S
22	I285A	I300S	315	I325S	F	335F	350	335	I320A	285	275	250	270	285	285	295	305	295	300	295S	310	285	S	S
23	S	S	S	280F	F	320F	315	305S	290	315S	315	265	I260A	I280A	295	295	305	300	300S	310	J305S	280S	285	270S
24	S	S	F	F	F	F	315	295S	290	305	295	290	270	280	275	300	320	J320S	A	A	290	S	S	S
25	S	S	I340S	315	300	300	335	330	310	I310A	I295A	285	290	310	280	295	300	300	295	290S	300	280	295	290
26	S	S	F	F	F	F	J355S	340	315	300	305	305	A	S	I290A	275	285	290	290	280	I270S	260	265S	I275S
27	I280S	I280S	J290S	245	260S	280S	320	I300A	260	A	A	265	210R	255	285	305	300	305	310	285	265	265	265	280S
28	275	300	I310S	290F	I290S	300	340	325	270	300	290	270	265	285	300	295	285	295S	275	J290S	310S	I310S	J285S	285S
29	I290S	280S	J285F	300F	305	315	335S	360	335S	335	A	285	285	275	295	295	315	I315A	325	305S	280	I280S	280S	285S
30	285S	275	I285S	305F	300S	300F	315	315	310	310	305	265	300	275	290	295	300	300	300S	290S	I290S	290S	S	S
31	S	S	305	J280S	F	310S	340S	360S	355	335	I310C	J285S	290	275	285S	J300S	280	290	310S	300	I285S	265	285	S
Count	18	19	22	25	25	29	31	31	31	31	28	29	29	28	29	30	30	29	26	27	29	27	26	21
Median	U280S	285S	295S	300	295S	310	335	340	330	315	300	285	285	285	295	300	305	315	310	310S	305S	290S	285S	280S
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation The Radio Research Laboratories, Japan

M(3000) F2

Y 7

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

0.01 M(3000) F1 135° E Mean Time (G.M. T. +9h)

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L	L	I360A	A	A	345	345	340	L	L					
2								350L	A	I365A	A	I360A	A	A	360	355	340L	L	A					
3								A	A	A	A	A	A	A	340	355	L	L	A					
4								L	L	L	L	C	C	C	C	C	C	C	C					
5									355L	355	355	A	A	A	365	360H	360	L	L					
6								L	L	L	L	385	350	345	345	A	A	L	L					
7								A	L	L	355L	375	345	360	340	345	355	A	L					
8								L	370	375	A	370	A	355	A	375	340	355	A					
9								L	A	370	L	375	L	I380R	I350R	355	355	330L	L					
10								L	L	375	375	395	335	350	360	350	370	L	L					
11								L	A	A	A	I360A	A	I345A	355	I360A	I350A	A	A					
12								L	370L	360H	L	L	340	350	365	370	375	355L	L					
13								L	A	A	A	355	360L	395	355	355	345	A	A					
14								A	A	345	LH	360	350	A	A	A	A	A	A					
15								A	A	A	A	A	A	A	375	A	A	A	A					
16								L	L	C	A	A	360	365	I360A	315	A	355L	A					
17								L	L	L	C	C	A	A	A	A	A	A	L					
18								L	L	A	A	A	A	370	A	360	355	350	A					
19								L	L	A	355L	A	I370A	370	350	A	A	355	A					
20								A	A	A	A	360	I340A	370L	360	345	355	340L	L					
21								A	L	A	A	A	345L	380	I360A	360	350	345	340L					
22								390	A	365	A	A	345	A	365	355	A	A	A					
23								L	A	A	A	A	A	I370A	365	355	360	A	A					
24									A	370	A	A	350	395	345	355	A	A	A					
25								A	A	A	A	360	A	A	A	A	370	340	A					
26								A	L	L	A	A	A	A	A	A	A	L	355	L				
27								A	A	A	A	385	380	A	360	375	340	L	A					
28								L	L	L	335	365	370	355	A	360	350	350	L					
29								L	L	370L	A	A	A	375	A	A	A	A	A					
30								L	360L	370	365	370L	415	380	375	355	A	A	L					
31								L	390L	380L	I375G	A	A	375	A	A	355	A	L					
Count	1	6	12	11	19	16	21	21	21	21	21	21	18	10	1									
Median	390	370L	370	360	365	355	360	355	355	355	350	355	350	350	355									
U. Q.																								
L. Q.																								
Q. R.																								

The Radio Research Laboratories, Japan

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

M(3000) F1

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

135° E Mean Time (G.M.T. +9h)

km

h'F2

May 1966

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							245	245	250	270	280	310	315	310	290	290	310	280	275					
2									260	275	E325A	325	320	300	285	300	295	290	290					
3									250	A	A	335	300	300	285	290	270	260	270					
4									245	255	315	C	C	C	C	C	C	C	C					
5									240	270	270	300	315	300	310	300	285	280	265					
6							245	245	240	275	305	330	345	325	320	310	300	255	245					
7									245	285	300	300	325	300	325	300	280	275	255					
8								240	255	230	270	405	A	325	300	290	290	275	I280A					
9							250	I275A	260	300	315	350	335	320	310	300	290	290	255					
10							245	280	280	300	305	330	325	325	305	305	280	255	240					
11							235	230	240	280	375	325	I350A	350	345	300	285	260	245					
12							255	260	275	285	330	350	355	340	300	300	290	280	280					
13							245	250	I270A	325	300	375	330	300	315	330	300	280	280					
14									270	335	330	340	325	A	A	A	280	A	A					
15							A	E310A	A	A	A	375	350	350	340	300	275	255	A					
16							270	250	I260G	320	330	380	350	325	325	320	295	250	250					
17								240	250	C	C	C	355	350	325	A	310	300	280					
18								240	240	300	E350A	330	A	345	330	310	290	275	250					
19							270	235	250	300	A	435	375	355	315	320	280	270	290					
20							280	300	E350A	290	340	310H	315	325	300	290	290	280	275					
21								250	275	305	A	340	320	395	350	325	290	275	250					
22							240	I275A	305	350	350A	375	340	310	305	290	290	290	275					
23							260	325	290	275	380	I360A	I340A	I340A	325	300	290	290	295					
24								E370A	290	325	340	370	350	345	310	275	300	A						
25							250	300	A	I330A	350	E355A	300	320	340	305	305	295						
26							245	300	315	340	335	A	A	I340A	340	330	300	285	285					
27							I345A	500	A	A	455	670	505	380	340	335	315	300						
28							260L	450	355	360	380	385	350	300	305	285	290	280						
29							255	250	275	E320A	A	390	350	370	340	305	315	I275A	270					
30							270	280	310	340	365	340	370	330	315	300	290	285						
31							225	250	290	I355G	A	355	390	335	305	345	300	255						
Count							6	23	30	26	24	28	27	28	29	28	30	29	27	1				
Median							255	250	270	290	320	340	350	340	325	305	290	280	275	285				
U. Q.																								
L. Q.																								
G. R.																								

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 9

h'F2

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

135° E Mean Time (G.M.T. +9h)

h'f

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	290	340	300	300	275	275	240	240	225	235	E250A	A	A	A	290	215	205H	240	255	295	250	255	260	270
2	280	280	270	280	255	255	230	230	235	1245A	1240A	200	I205A	225	225	225	240	260	A	270	1260A	E300S	270	255
3	305	325	290	250	240	250	230	240	A	A	A	210H	E280A	230	250	E265A	275	240H	A	250	260	275	250	300
4	300	300	280	260	250	255	235	235	235	235	275	G	C	C	C	C	10	C	C	C	C	C	300	300
5	305	275	255	275	270	235	230	235	250	225	220H	E250A	A	A	220	215H	220	240	250	235	225	225	330	335
6	325	1345A	300	275	E260A	300	240	235	235	225	210H	215	250	240	E250A	A	A	240	240	240	250	255	330	330
7	300	340	260	255	250	250	230	230	1230A	1225A	E250H	200	250	215	255	230	240H	1250A	250	235	250	250	300	290
8	300	295	295	300	275	275	240	1240A	215	E230A	A	220	I205A	220	I230A	225	E270A	235	A	250	230	250	310	E350A
9	A	300	280	270	300	270	240	240	A	230	240	220	205	I220A	A	220	230	230	245	235	220	225	275	300
10	345	325	295	250	250	250	240	225	220	E240A	200	180	250	230	220	230	230	230	1240A	265	250	300	295	275
11	340	305	330	290	255	230	230	220	A	A	A	I235A	I225A	I250A	245	A	A	1240A	A	215	230	265	300	300
12	270	300	275	255	275	240	250	220	205	230	200H	E280A	240	205	220	220	210	205H	220	250	230	225	245	300
13	305	295	300	245	225	250	240	230	1230A	A	260	195	195	210	220	200H	215H	1245A	1260A	250	225	250	305	340
14	1315A	250	260	250	260	260	250	290	A	215	195H	220	E270A	A	A	A	A	A	A	260	1255A	335	E360A	265
15	330	320	280	275	300	260	265	A	A	A	A	A	A	A	205	A	A	A	A	A	A	250	260	I275A
16	280	275	280	250	275	270	240	1240A	1240C	1240A	250	1225A	245	220	I230A	210	1215A	230	A	245	245	E300A	300	285
17	320	230	255	240	255	250	245	230	240	C	C	C	A	A	A	A	1240A	1265A	250	255	225	240	350	320
18	280	295	320	240	250	265	235H	240	225	1245A	A	A	A	225	A	255	230	220H	1250A	240	280	310	280	370
19	250	275	260	250	280	260	250	1240A	1230A	E270A	A	I255A	215	200	275	A	A	E260A	A	A	250	250	260H	305
20	315	300	280	255	240	230	240	1245A	1255A	1250A	250	A	230	230	240	225	230	240	245	295	300	290	250	255
21	300	300	270	245	280	275	240	1230A	225	1245A	1250A	230	210	I220A	220	230H	245	210H	A	245	E300A	E310A	250	340
22	I250A	330	240	290	225	220	225	200	A	200	A	A	260	I210A	230	225H	A	A	A	250	245	250	310	305
23	275	300	250	300	280	240	235	240	A	A	A	A	A	A	225	255	240	A	A	260	275	280	E350A	300
24	330	285	250	250	245	240	255	230H	A	E250A	A	A	230	190	210	250	A	A	A	A	265	255	295	350
25	280	305	250	205	250	260	235	1230A	A	A	A	200	A	A	A	A	210	250	1280A	1295A	275	275	270	280
26	280	280	275	370	325	250	240	1220A	245	E270A	A	A	A	A	A	A	A	250	210	270	320	310	310	305
27	290	290	245	320	290	295	280	A	A	A	A	210	225	I235A	260	230	235H	240	1255A	280	340	350	E400A	290
28	300	275	240	230	290	270	245	225	205H	190H	200	225	220	210	1215A	225	220	220	230	270	240	215	250	325
29	290	270	250	250	255	250	240	240	240	A	A	A	A	240	A	A	A	A	A	245	250	280	275	300
30	300	305	300	255	255	260	245H	230	225	200	195H	215	210	205	220	250	A	A	A	255	255	290	335	270
31	305	300	280	305	290	255	250	225	205	195	I180C	A	A	230	I220A	I230A	240	A	1260A	255	270	310	290	310
Count	30	31	31	31	31	31	31	29	21	22	17	19	20	22	23	21	20	22	16	27	30	30	31	31
Median	300	300	275	255	260	255	240	230	230	230	225	220	225	220	225	225	230	240	250	250	250	260	290	300
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 10

h'f

IONOSPHERIC DATA

Lat. 31° 12.1'N
Long. 130° 37.1'E

Yamagawa

135° E Mean Time (G.M.T. +9h)

km

f^oF₂S

May 1966

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	110	B	B	B	S	145	145	G	120	120	110	110	105	115	120	G	G	125	110	110	105	100	100
2	100	100	105	B	110	120	140	130	125	120	105	110	105	120	125	100	150	135	120	110	110	105	105	105
3	100	100	B	B	110	S	140	140	130	125	125	G	170	170	B	175	G	G	130	125	115	110	110	110
4	105	105	110	B	B	105	145	150	130	125	120	G	G	G	G	G	C	C	C	C	C	G	115	110
5	105	110	105	105	110	S	110	155	130	135	130	125	120	105	105	105	110	165	130	120	120	115	115	115
6	115	115	110	105	105	105	G	150	110	120	120	115	115	115	135	120	125	145	125	120	110	110	110	110
7	110	110	110	105	105	105	110	150	125	120	115	110	120	B	150	145	140	130	125	110	110	110	110	105
8	105	105	100	100	100	S	130	125	125	120	120	110	105	120	110	110	130	130	110	105	110	110	110	110
9	110	100	100	B	B	S	145	125	115	110	105	110	120	115	115	120	150	105	B	120	120	115	110	105
10	105	110	110	105	105	105	105	105	105	105	110	115	B	G	G	160	110	145	120	115	110	110	105	105
11	100	105	105	100	100	105	110	125	115	110	110	110	110	110	110	105	100	125	110	100	100	120	120	105
12	105	105	105	105	105	105	105	105	105	105	105	105	110	105	105	105	105	105	120	S	100	100	100	100
13	100	100	110	105	125	125	150	G	115	110	110	G	120	120	G	G	100	100	100	100	120	110	110	105
14	105	100	100	100	100	B	125	125	120	105	105	110	110	105	105	100	125	120	120	115	115	115	115	110
15	110	105	105	110	105	105	120	120	115	110	125	105	130	125	130	145	130	100	120	115	110	110	110	110
16	110	105	105	105	100	110	130	120	G	110	105	110	105	105	100	100	100	100	120	110	110	105	105	110
17	105	105	105	100	100	100	120	130	125	G	G	C	110	110	110	120	125	115	110	105	110	120	105	105
18	100	100	100	115	115	100	140	135	110	110	105	105	105	105	100	105	155	150	120	120	115	115	105	105
19	105	100	100	100	105	S	120	120	110	110	105	105	115	110	170	135	125	120	110	110	110	110	105	100
20	110	100	100	100	100	100	125	115	105	105	100	100	100	100	105	105	105	G	100	100	100	095	110	110
21	110	100	105	110	110	110	120	115	115	105	105	105	105	105	105	105	145	125	120	115	115	115	115	115
22	115	110	110	105	105	105	115	125	125	125	120	115	120	145	145	150	125	125	120	115	110	110	110	105
23	105	105	105	100	100	100	140	120	115	110	110	105	105	115	120	150	135	125	120	115	110	110	105	105
24	110	110	110	110	110	115	120	120	110	110	105	110	115	120	140	150	125	125	120	120	120	120	110	110
25	110	110	110	B	E	145	140	120	120	120	120	130	130	125	130	125	135	125	120	115	115	110	105	105
26	105	105	100	100	100	130	130	125	130	130	125	125	125	125	120	125	115	125	140	115	110	110	120	120
27	120	105	105	E	130	130	130	125	130	115	125	160	140	130	135	G	G	145	120	115	110	110	110	110
28	105	105	105	105	105	105	150	150	105	110	150	130	130	150	125	135	130	130	125	S	S	S	110	110
29	105	105	105	105	E	S	130	125	120	115	115	115	140	125	130	125	125	115	115	110	110	110	110	110
30	110	110	105	105	105	105	130	125	120	120	120	110	105	105	105	145	125	120	110	110	105	105	105	105
31	105	105	105	105	105	105	110	110	G	115	G	115	110	110	130	125	130	125	115	110	110	110	105	105
Count	30	31	29	24	26	23	30	30	28	30	29	27	29	28	27	28	27	27	29	28	29	29	31	31
Median	105	105	105	105	105	105	130	125	120	110	110	110	115	115	120	120	125	125	120	115	110	110	110	105
U. Q.																								
L. Q.																								
Q. R.																								

Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

Y 11

f^oF₂S

IONOSPHERIC DATA

May 1966

Types of Es

135° E Mean Time (G.M.T. +9h)

Yamagawa

Lat. 31° 12.1'N
Long. 130° 37.1'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		f2f2					h2	h		c	o2	o2	c	12	o	e			c	f3	f3	f	f	f	
2	f	f	f2f		f2	f	h5	h2	h21	o2	13	1	12	e1	c1	12	h1	h	c2	f2	f2f	f2	f2	f2f	
3	f2	f			f		h4	h	h3	h31	h2		h	h					h c	f2	f2	f2	f		
4	f2	f					h2	h2	h3	h	c												f2f	f2	
5	f2	f	f3	f	f		1	h e	h	h	h	h	c	12	1	1	1	h	h2	f	f2	f2	f2	f3	
6	f2	f3	f3	f3	f3	f	h	h	e2	e	e	e	c	o	h	e2	h	h	e	f	f2	f3	f2	f3	
7	f2	f3	f2	f2	f	f	h	h	e2	e2	12	1	e	h	h	h	h	h2	h	f2	f3	f2	f2	f2	
8	f2	f	f		f		c	h2	h	e	e21	1	12	e	12	12	h	h	e2	f4f2	f3f	f2f	f2	f2	
9	f2f2	f3	f				h	h	e3	12	1	e	c	1	e	h1	h1	1	f	f	f	f	f2	f3	
10	f2	f2	f2	f4	f3	f3	12	12	1	1	o	e			h1	1	h	e	f2	f7f	f3	f3	f2	f2	
11	f2	f4	f3	f4	f5	f2	1	e21	e3	o3	o2	o2	o5	o2	o	12	12	e513	e312	f2	f	f2	f2f	f3	
12	f2	f2	f2	f3	f3	f3	13	12	1	12	1	1	c	1	1	1	1	1	e	f	f	f	f2	f2	
13	f2f3	f2	f2f	f3	f	f	h		e3	e3	o2		c	c		1	13	12	f3	f	f2	f3	f5		
14	f3	f4	f2	f2	f5		e4	h3	e3	1	1	e	o2	14	15	14	h314	e313	e214	f2f3	f3f	f6	f2f2	f2f	
15	f5	f4	f3	f	f3	f3	e212	e3	o3	h12	h12	12h	h21	h1	h	h1	h3	13h2	e513	f2f2	f2f2	f2f	f2f	f2f2	
16	f6	f	f2	f2	f2	f3	h2	e4		e2	12	o2	12	12	13	1	13	13	e313	f4f2	f2f2	f2f	f3	f5f	
17	f2f2	f3f	f3	f	f2	f2	c	h2	h				o3	e3	e4	h4e2	h2	e4	1	f2	f	f	f3	f6	
18	f5	f3	f5	f2f2	f	f2	h2	h1	12	12h	12	13	14	12	14	12	h1	h1	e21	f4	f2f2	f2f	f2	f3f2	
19	f2	f2	f3	f2	f3		e3	e2	e4	e3	e2	12	c	e	h	h1	h1	e21	e4	f2	f2	f2	f3	f3	
20	f2f2	f2	f	f2	f2	f2	e21	e3	e3	13	12	12	1	12	12	12	1	12	12	f2	f3	f3	f2f2	f2f3	
21	f2f	f2	f2f	f	f2	f4	e4	e4	e2	13	12	12	1	12	12	1	h1	h3	e2	f2f	f7f	f6f2	f2f	f6	
22	f3	f3	f2	f3	f3	f	1	h	h21	h	e2	e2	c	h	h	h	h2	h2	e3	f2	f3	f2	f3	f3	
23	f	f3	f5	f3	f2	f2	h1	e2	e3	e3	e3	12	13	e21	c	h	h2	h3	e3	f4	f4	f3	f2	f2f2	
24	f2f4	f3	f3	f2	f2	f4	e5	e4	e4	e3	13	e3	c	h	h	h3	h3	h41	e31	f4	f2	f2	f2	f3	
25	f	f6	f3			h	h3	h4	h2	h4	h4	h	h3	h2	h2	h	h	h2	e3	f4	f2	f2	f2	f2	
26	f2	f4	f6	f3	f4	h12	h3	h2	h	h2	h2	h2	h2	h	h3	h	e2	h2	h	c	f4	f2	f	f	
27	f	f2	f2	f2	f	h2	h4	h3	h2	h2	h1	h	h1	h	h	h	h	h	e2	e2	f2	f4	f6	f2	
28	f3	f2	f2	f2	f3	12	12	h1	1	1	h	h	h	h	h2	h	h	h	e	e	f2	f4	f2	f6	
29	f3	f4	f4	f		h4	h2	h2	e2	e3	e2	e2	h	h	h2	h2	h3	e4	e2	f2	f6	f4	f2f	f3	
30	f4	f4	f4	f4	f7	1	e213	h2	e21	e	e	1	1	1	1	h	h2	e2	e	f	f2	f3	f3	f3f	
31	f2	f4	f5	f3	f2	13	e3	o2	e	e	e2	e2	e2	c	h	h2	h2	h2	e4	f3	f5	f6	f4	f4	
Count																									
Median																									
U. Q.																									
L. Q.																									
Q. R.																									

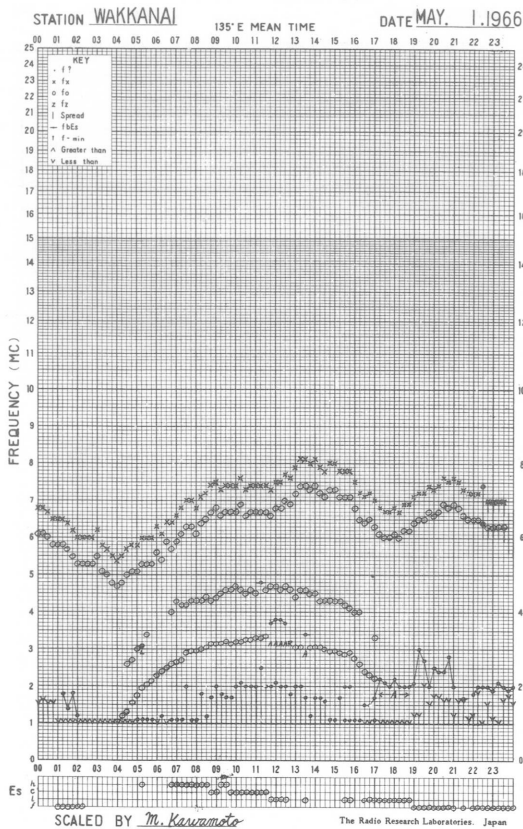
Sweep 1.0 Mc to 19.5 Mc in 20 sec in automatic operation

The Radio Research Laboratories, Japan

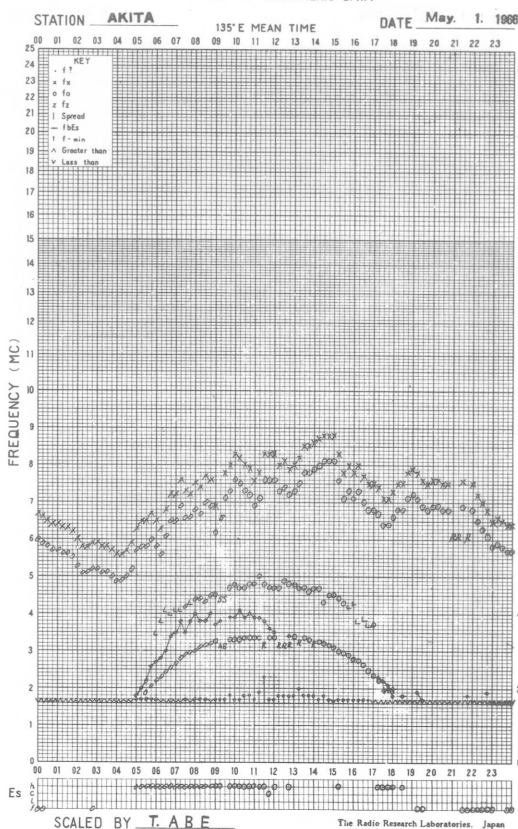
Types of Es

Y 12

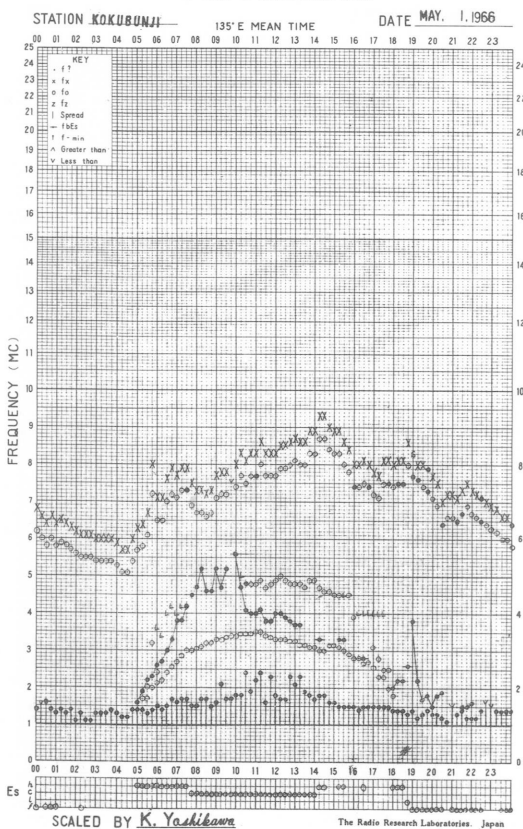
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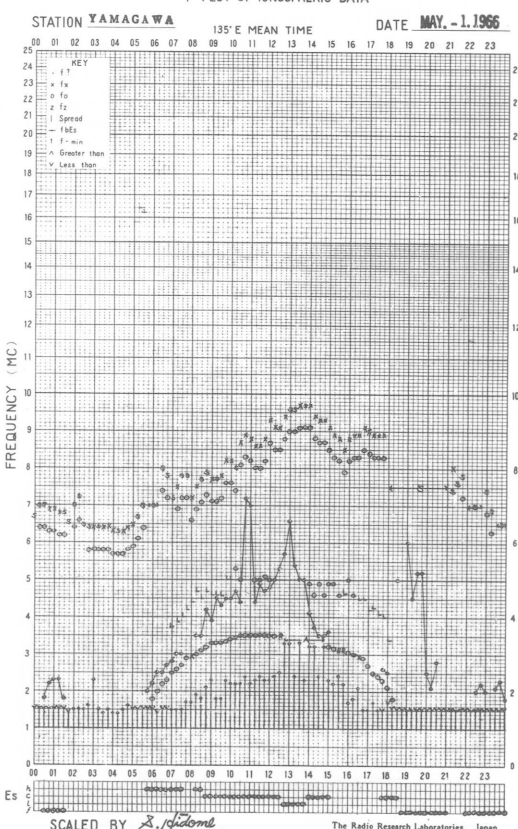
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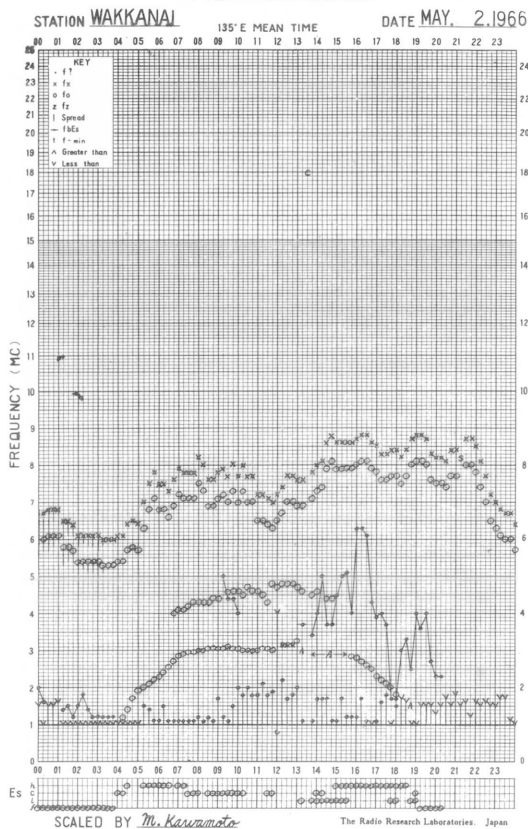
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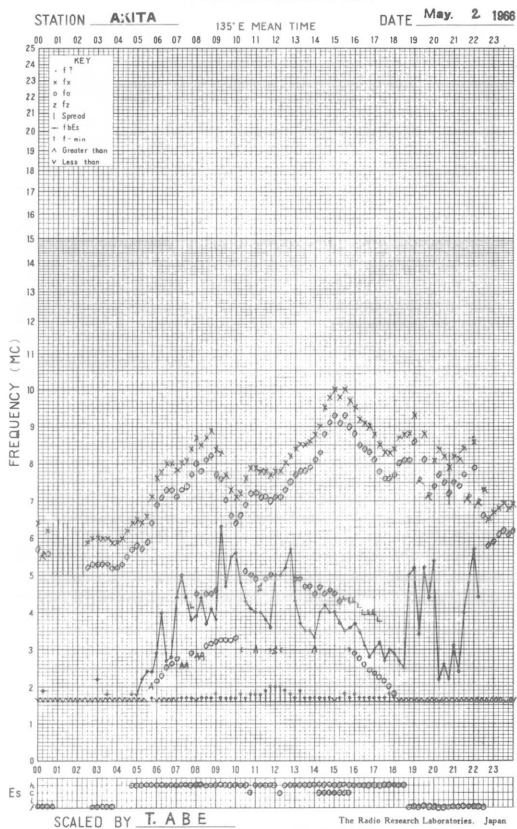
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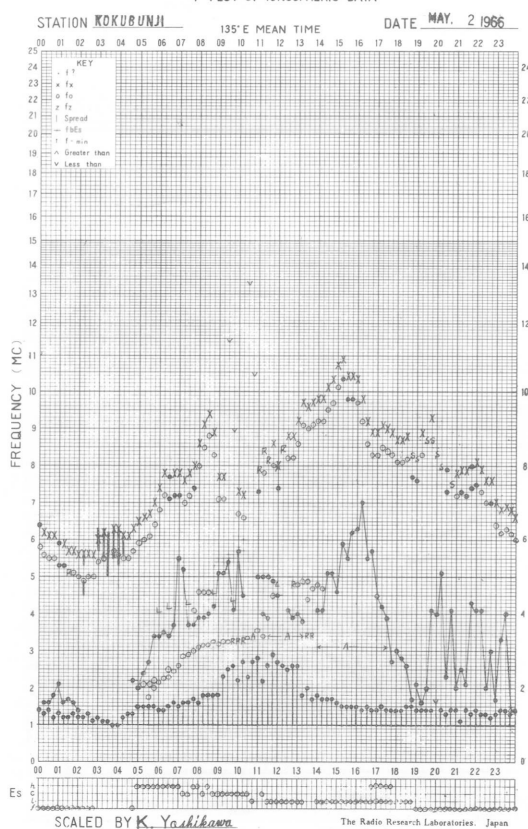
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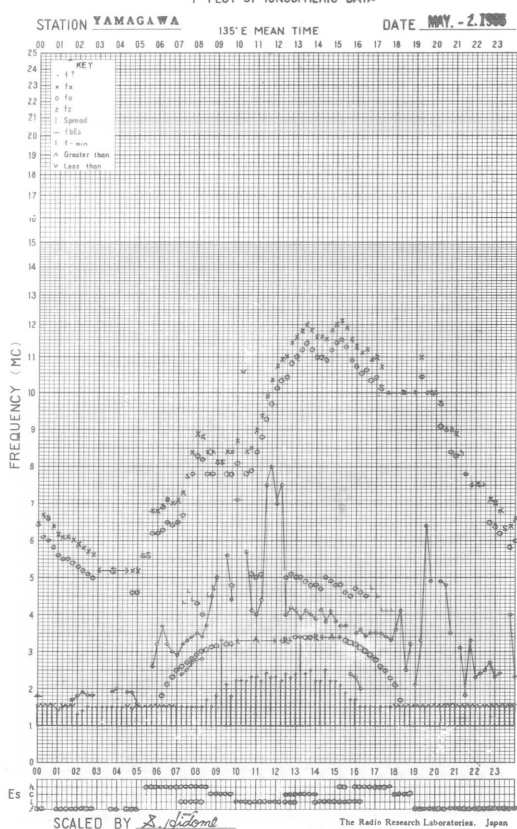
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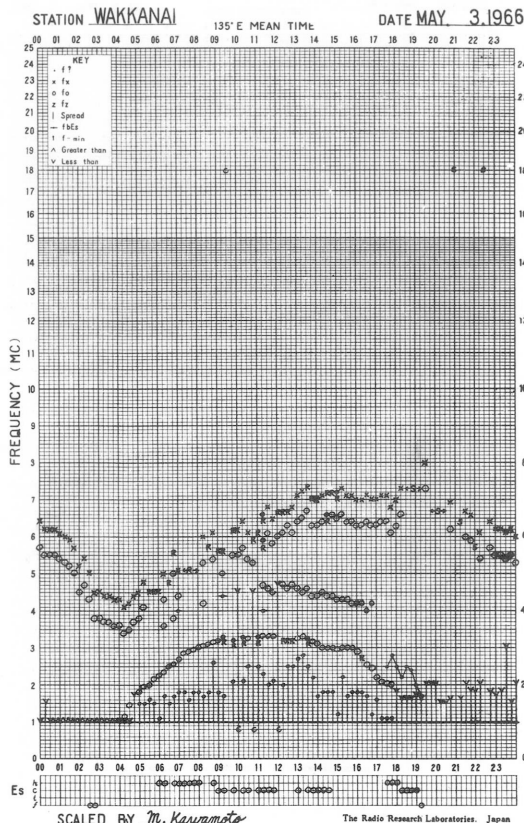
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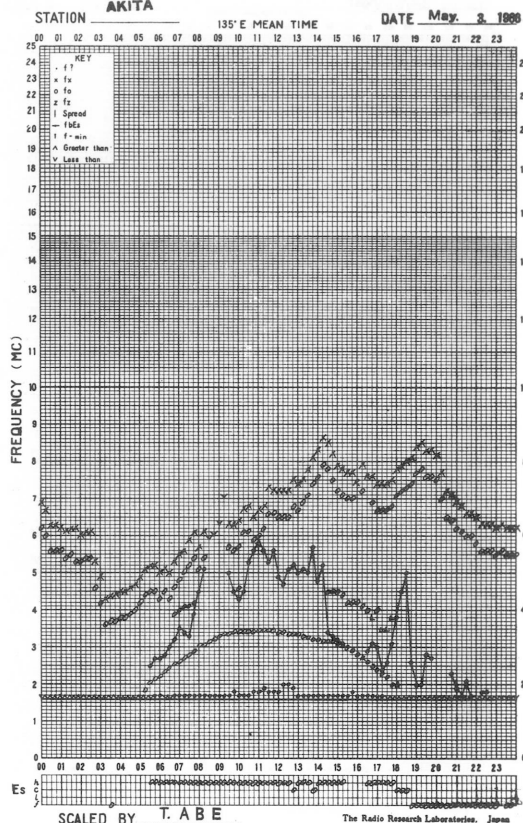
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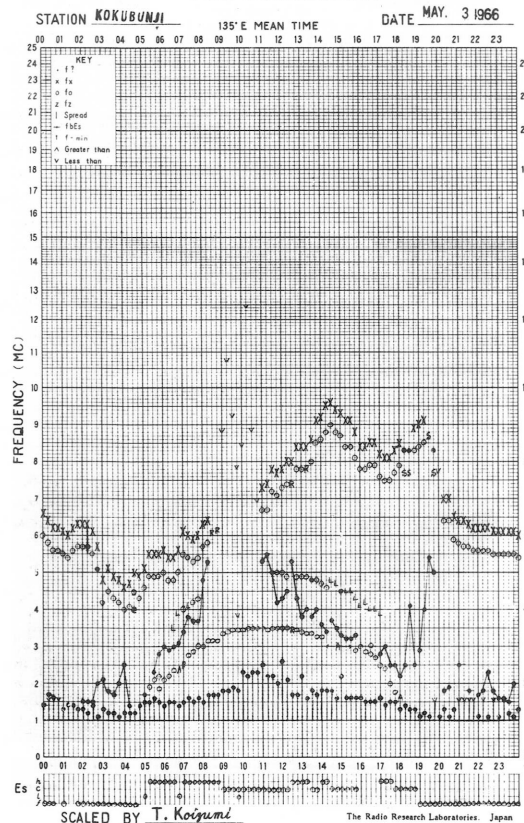
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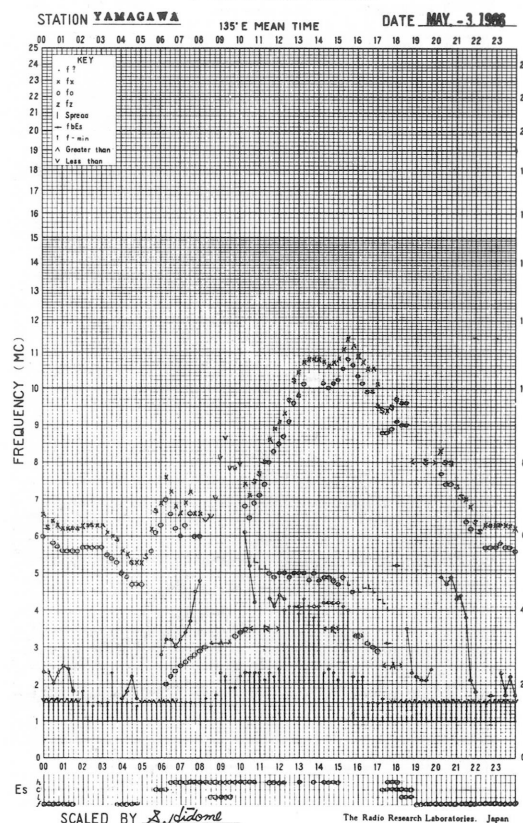
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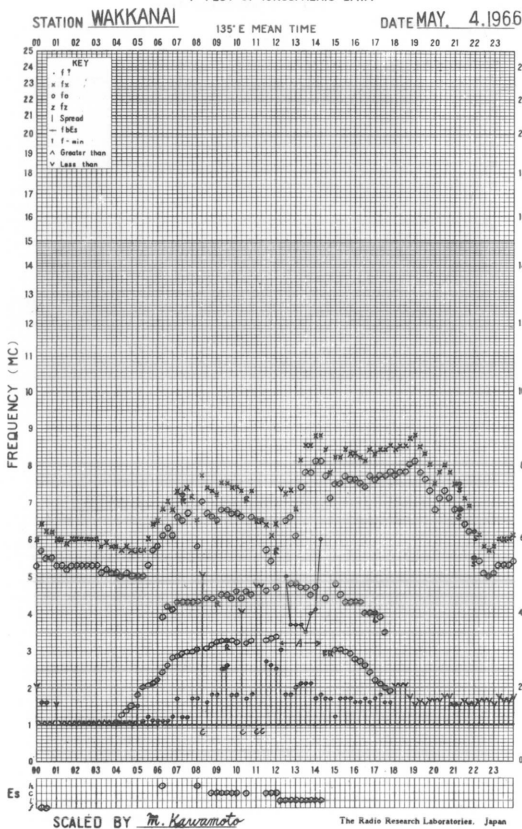
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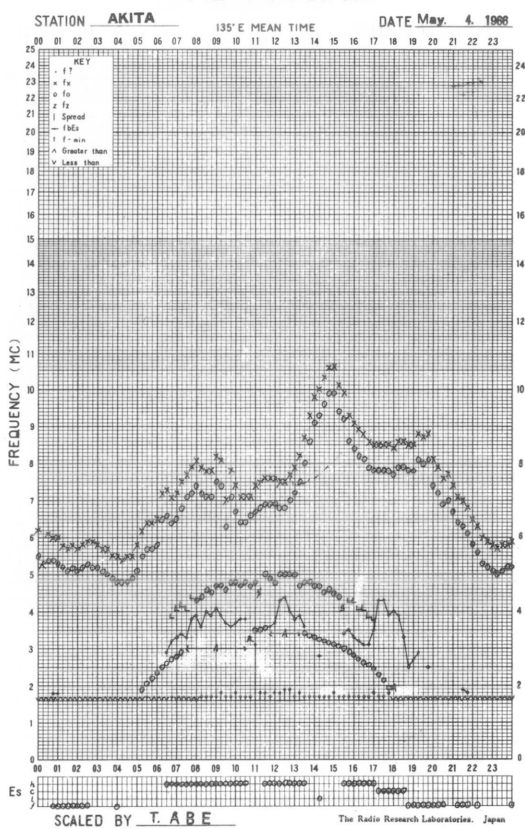
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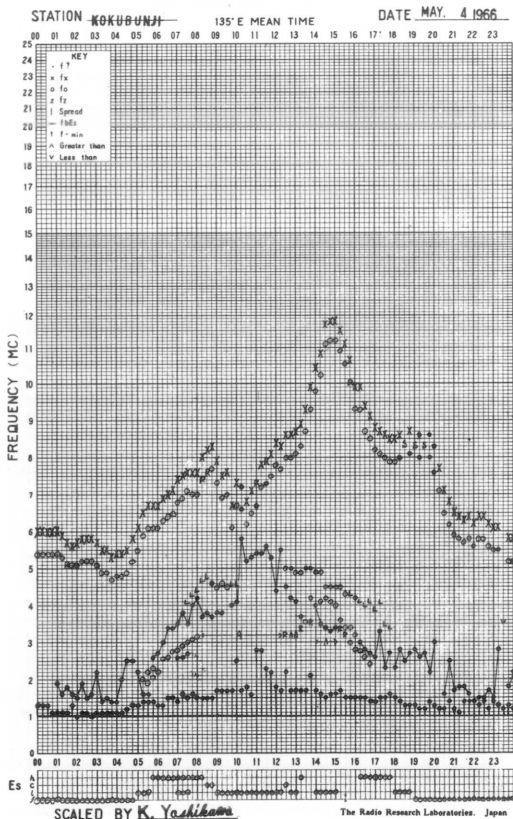
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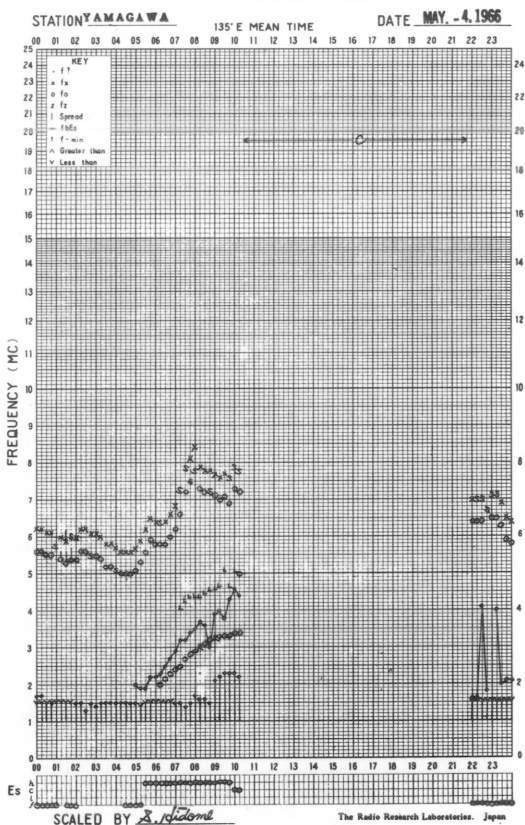
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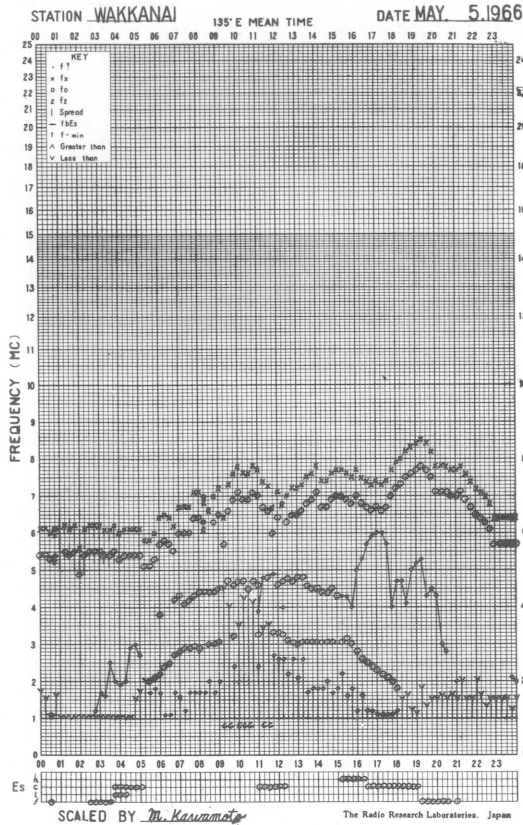
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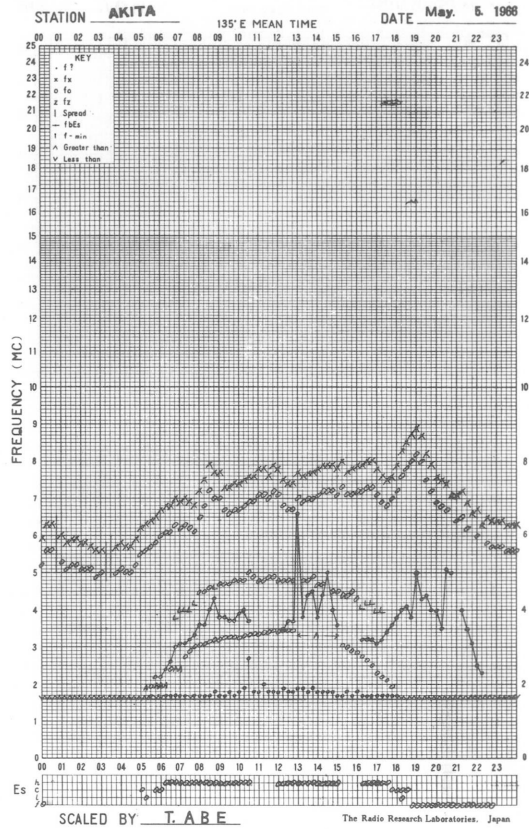
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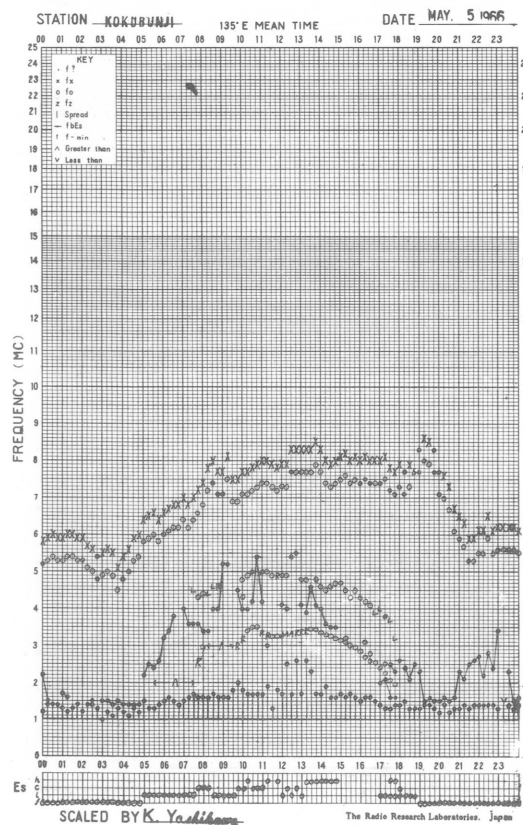
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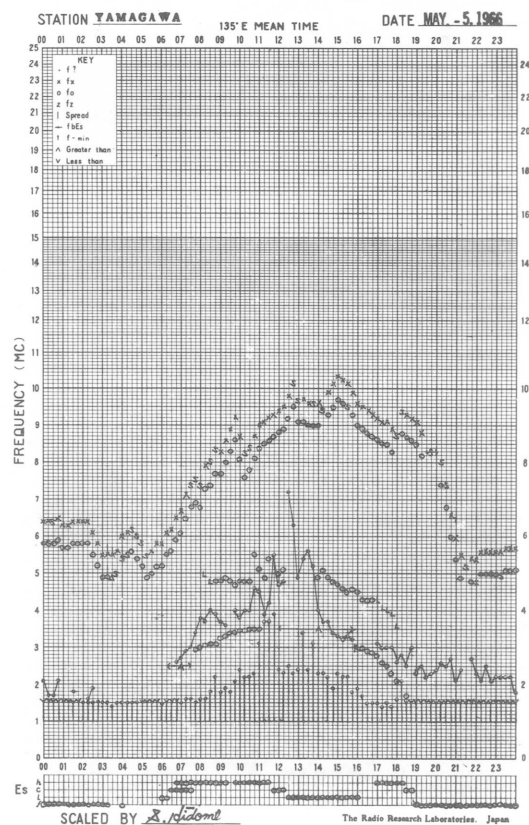
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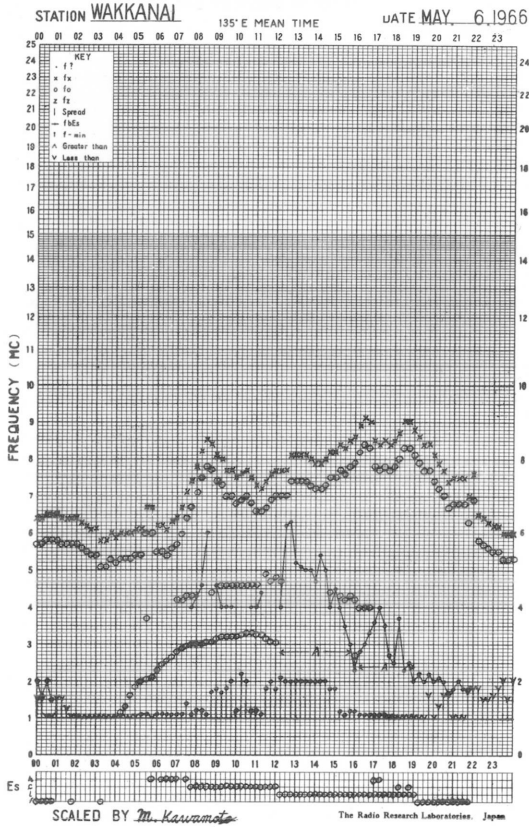
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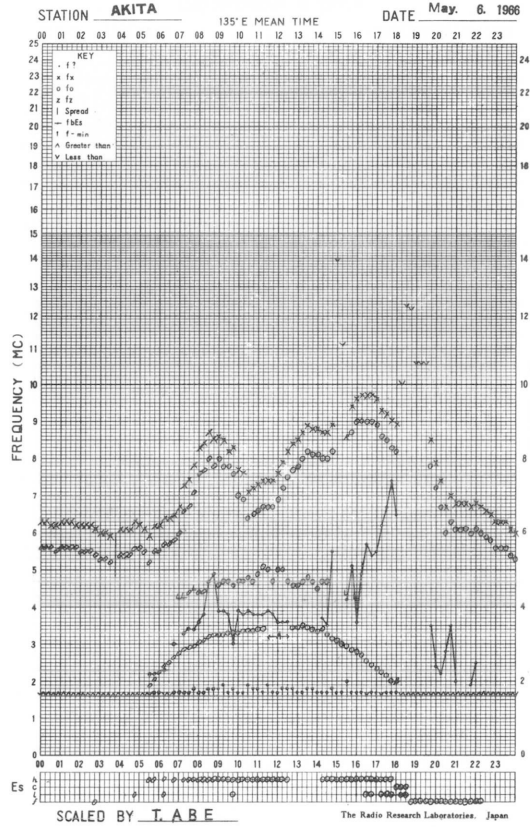
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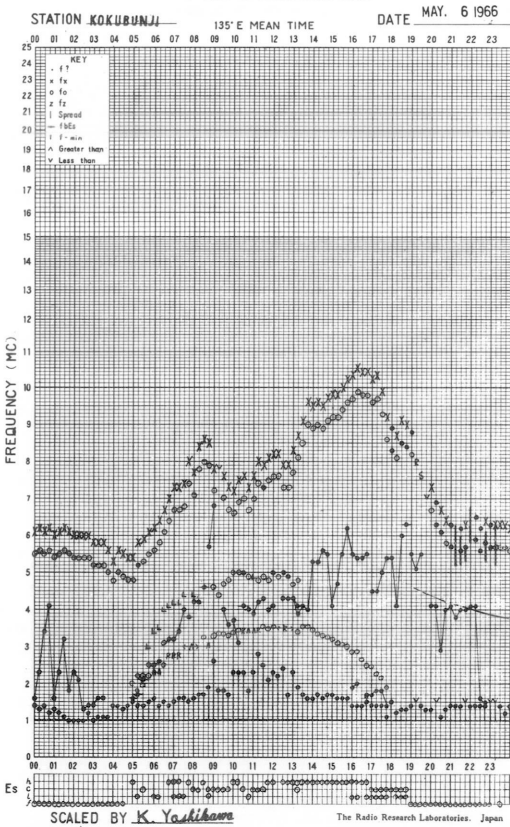
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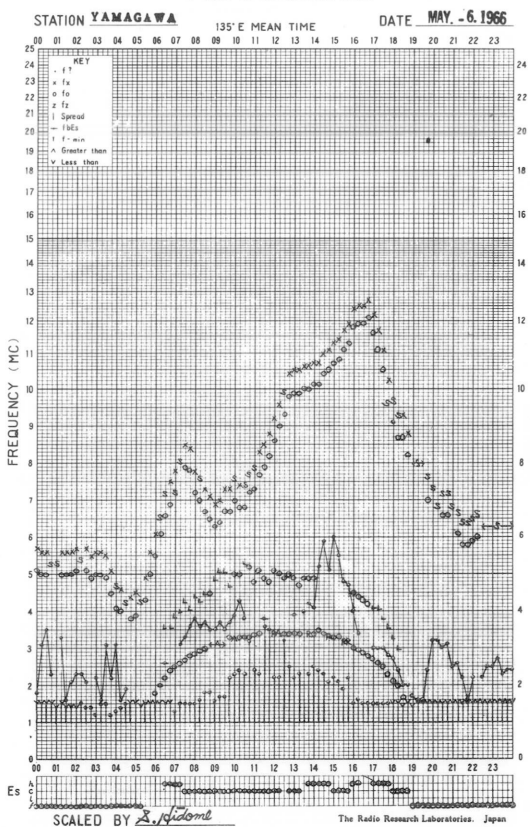
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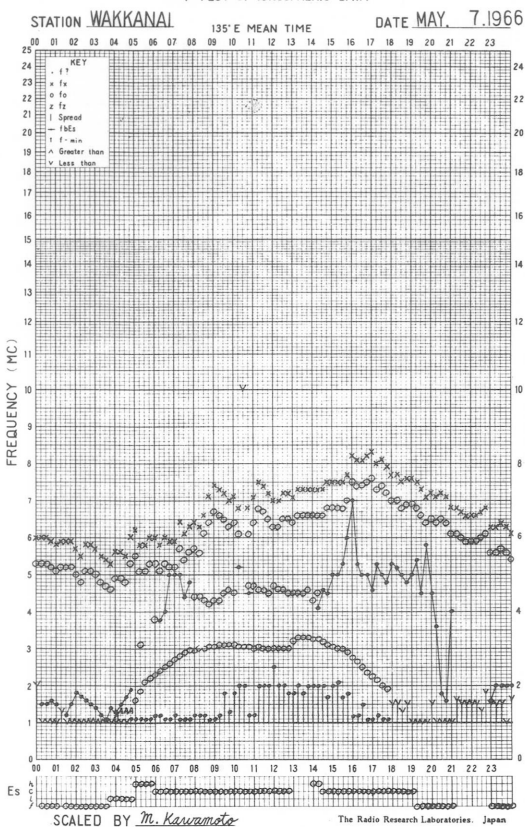
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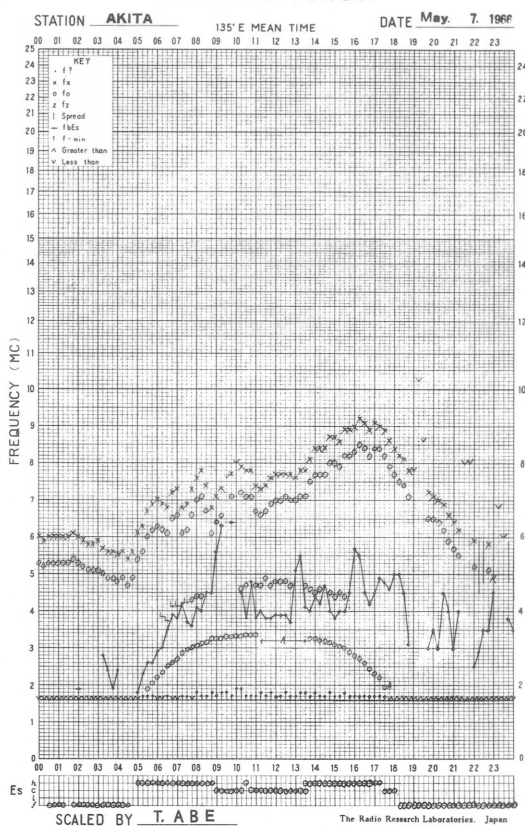
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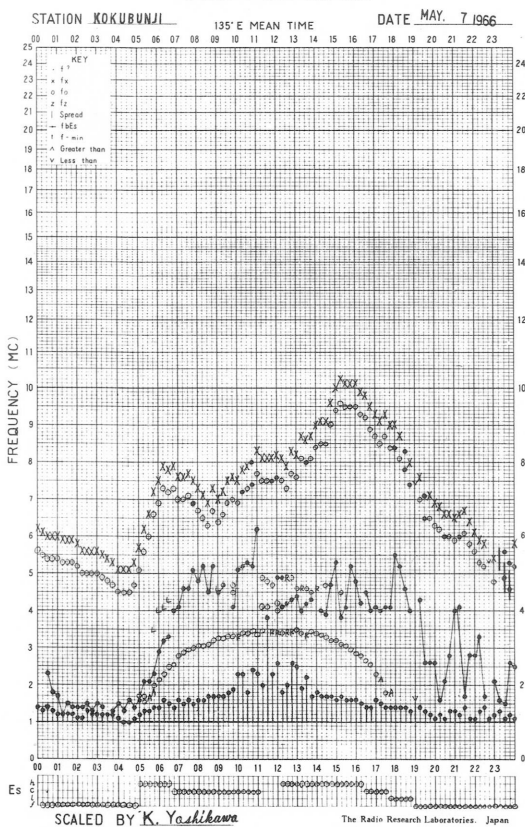
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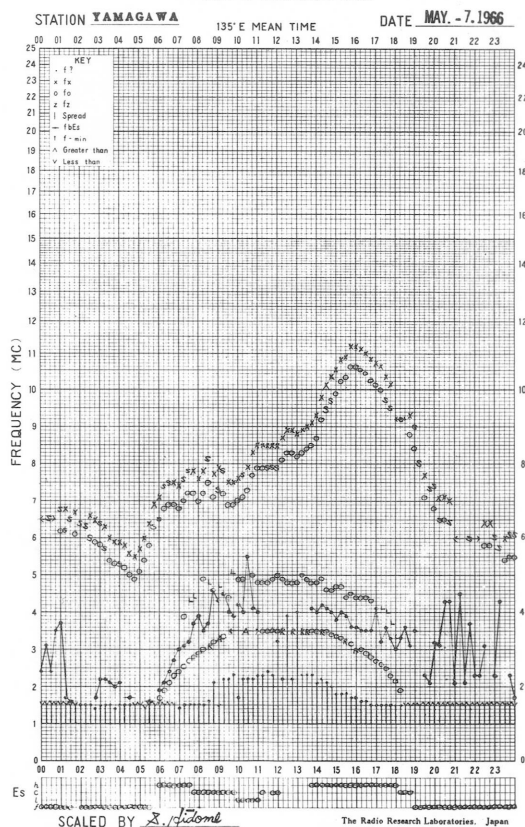
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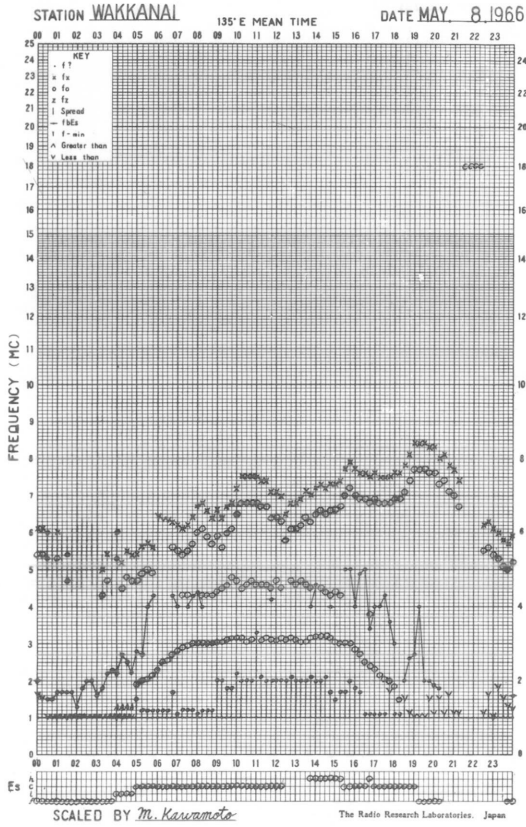
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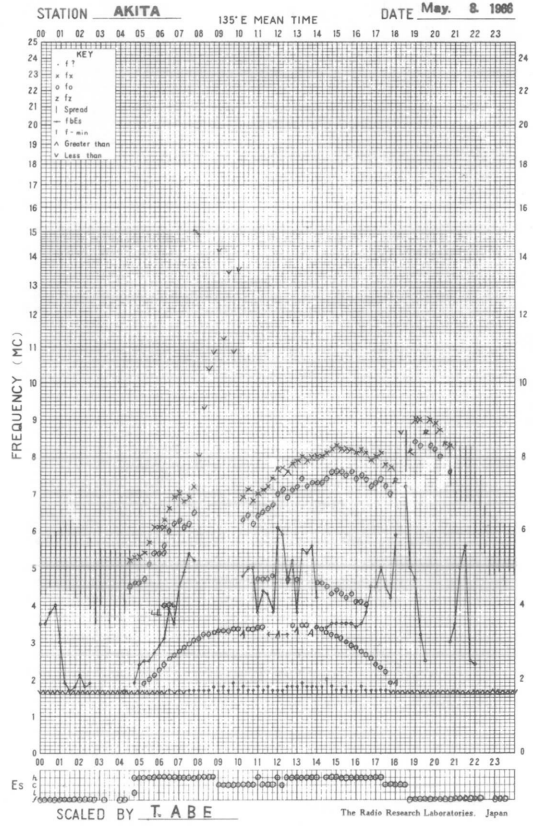
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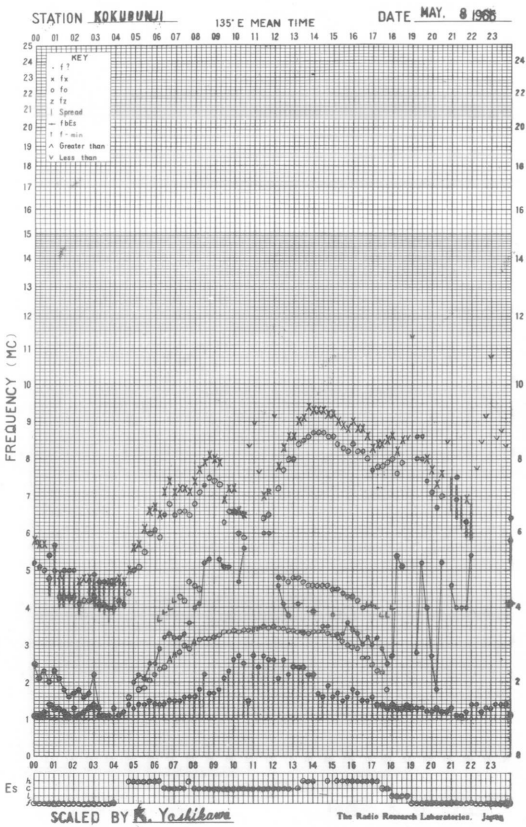
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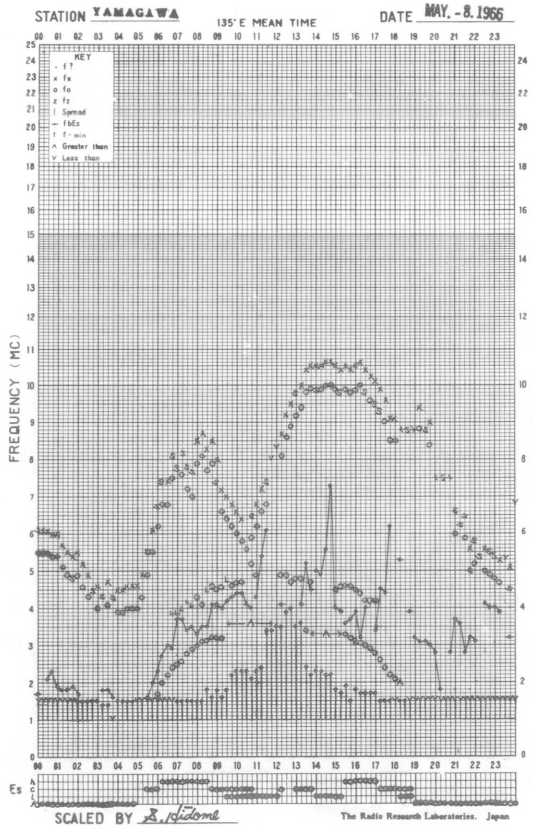
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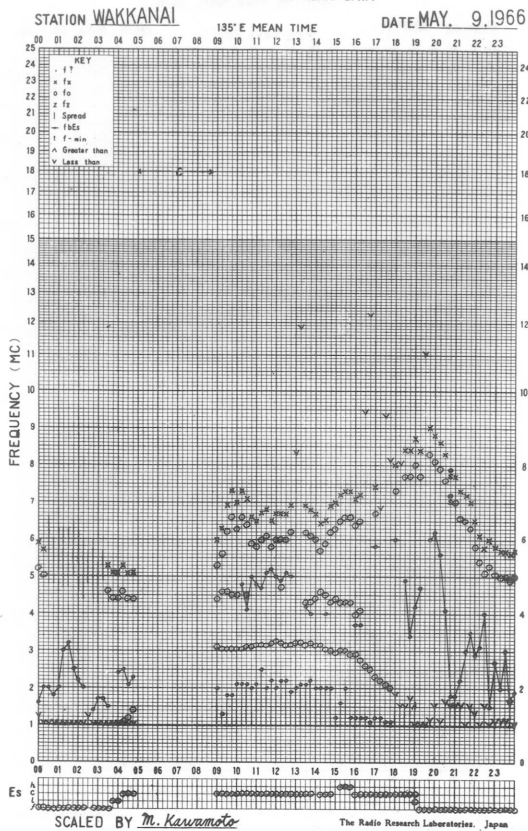
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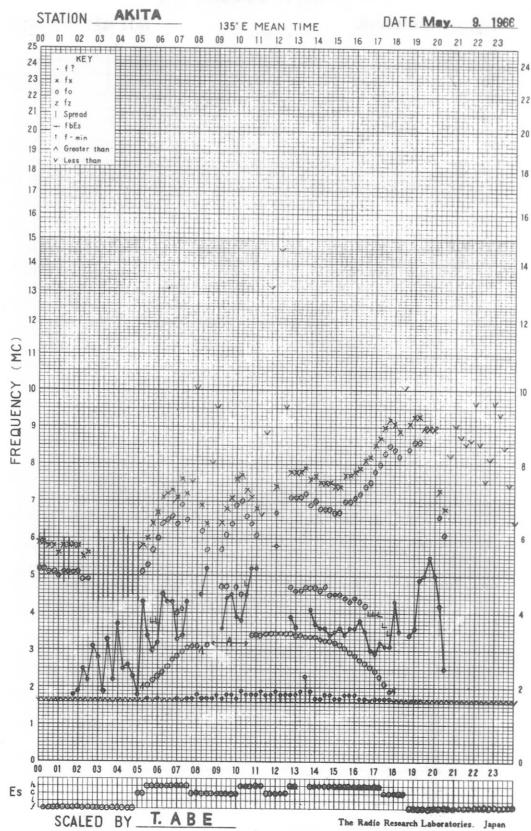
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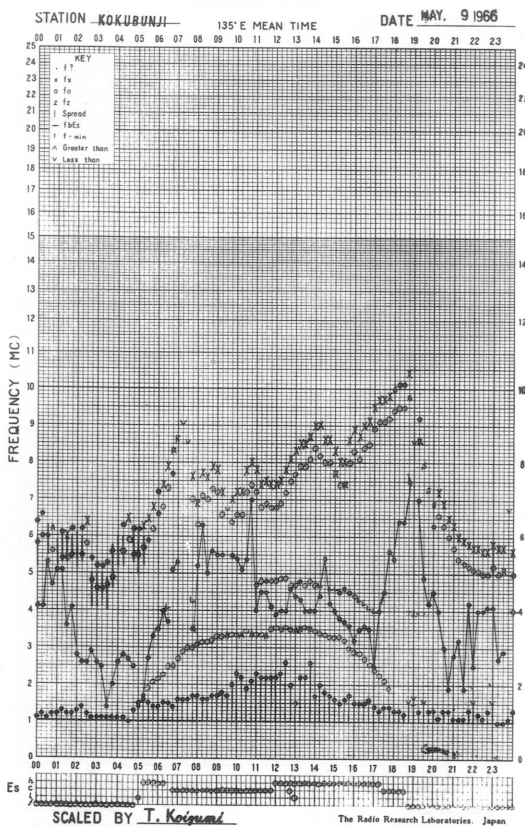
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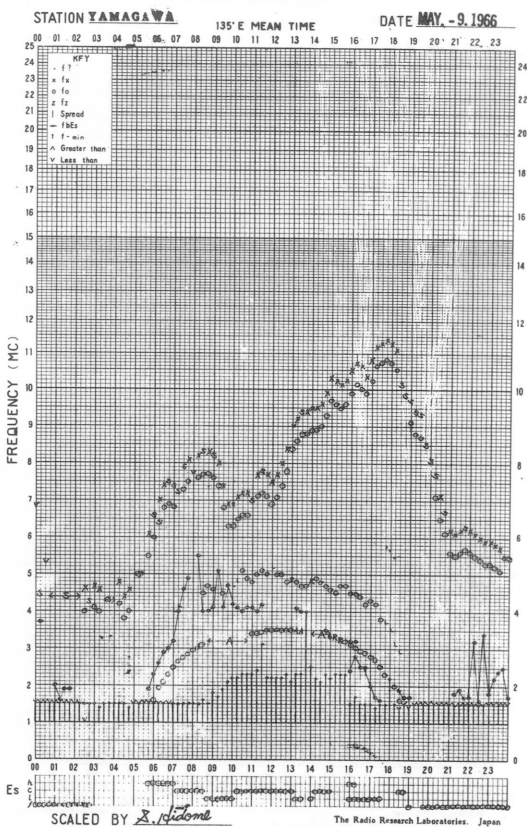
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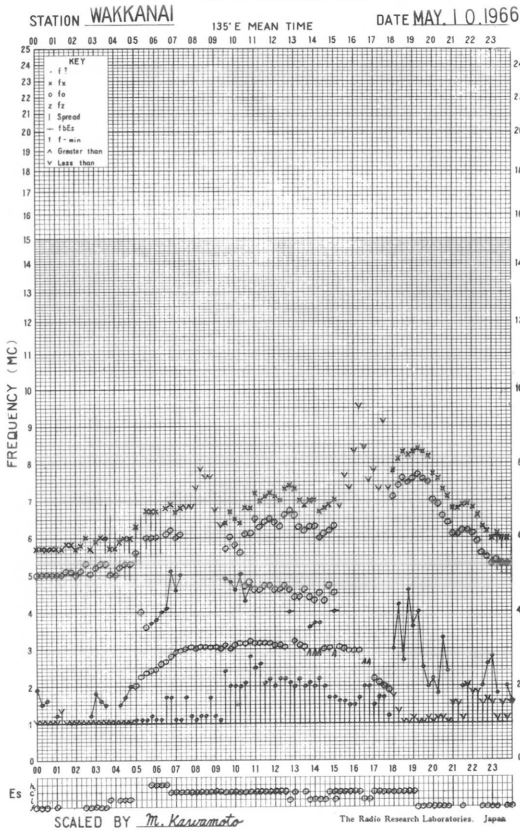
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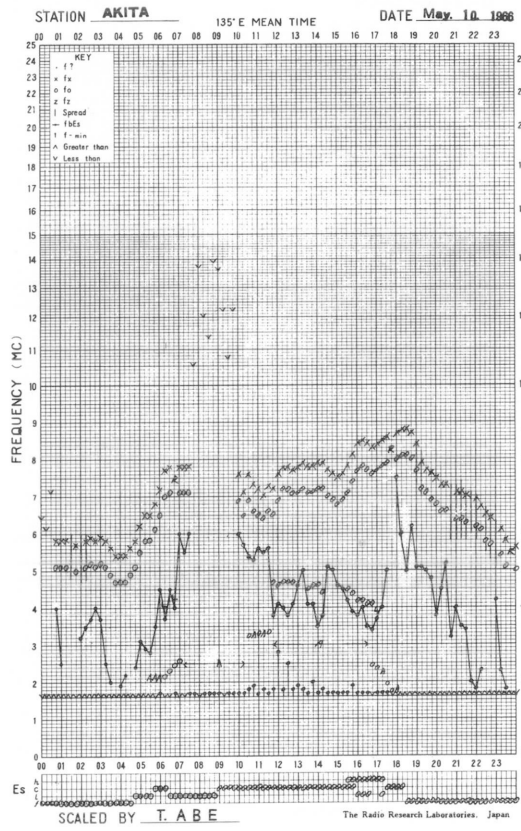
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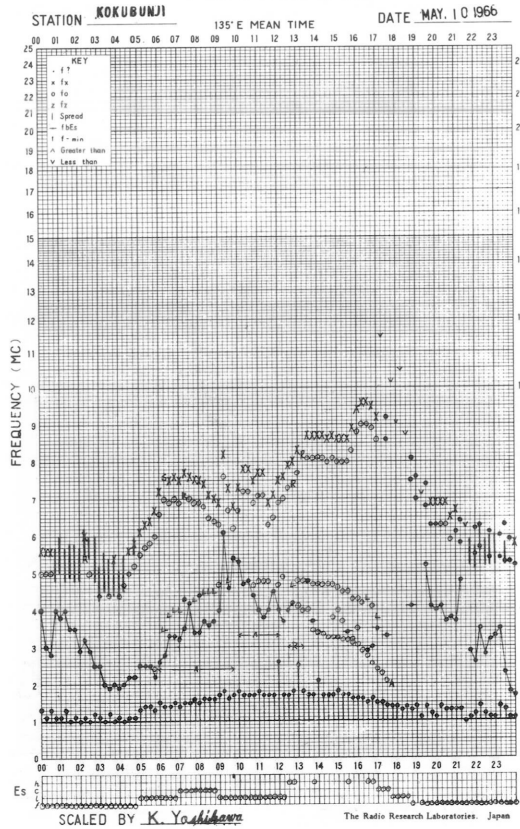
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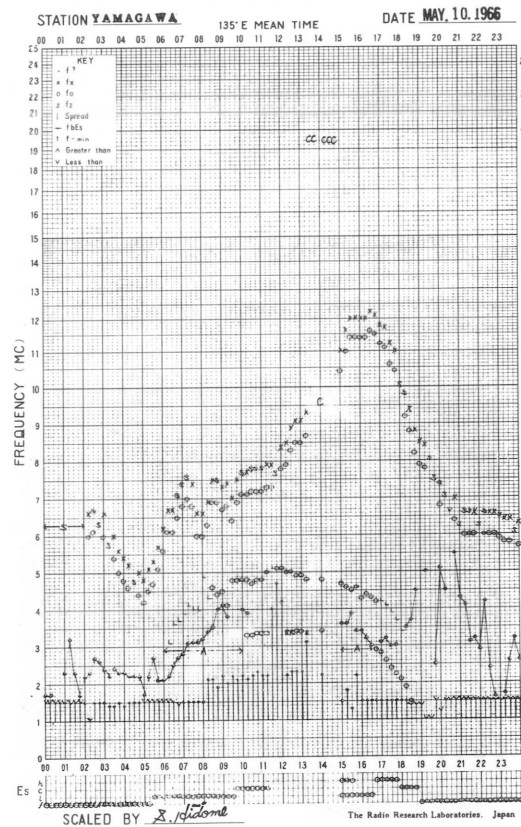
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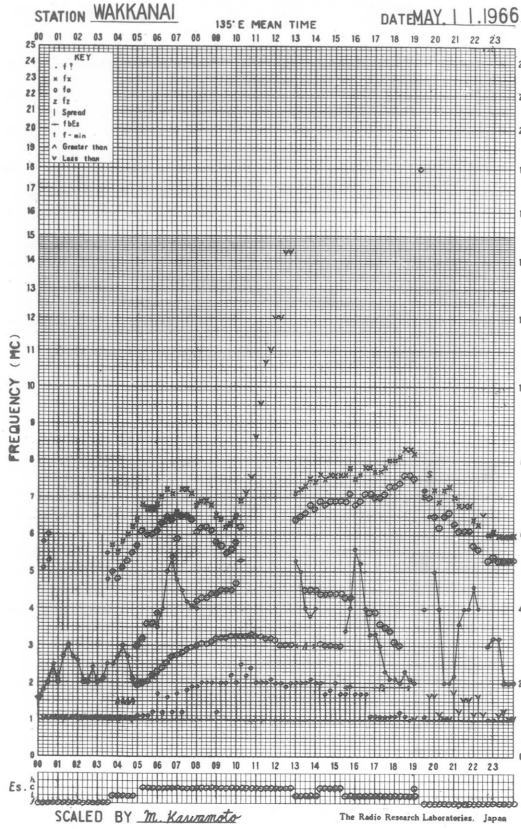
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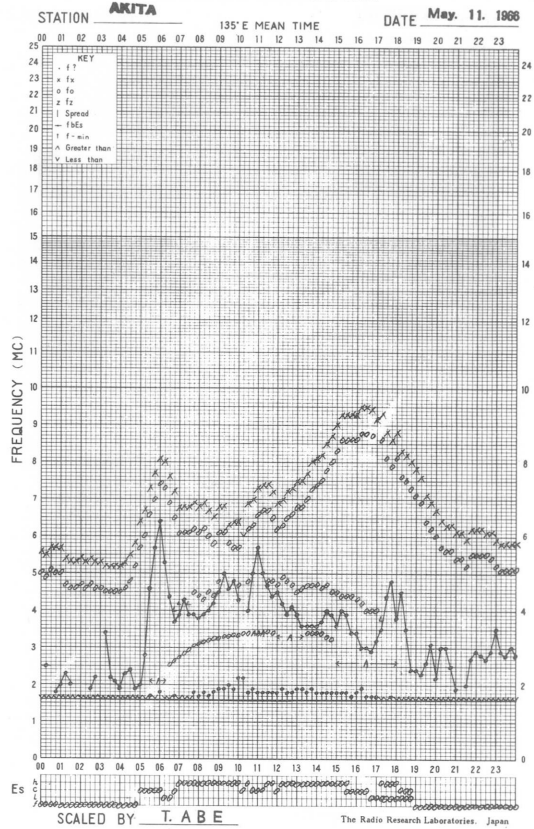
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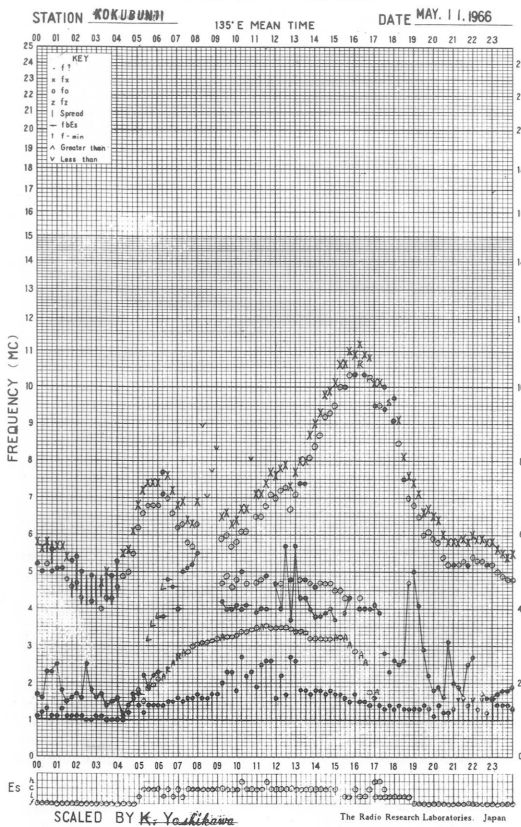
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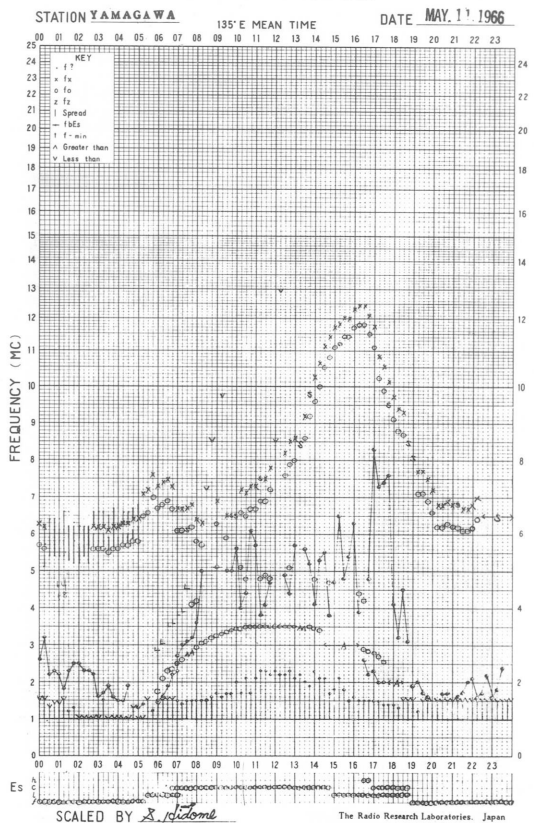
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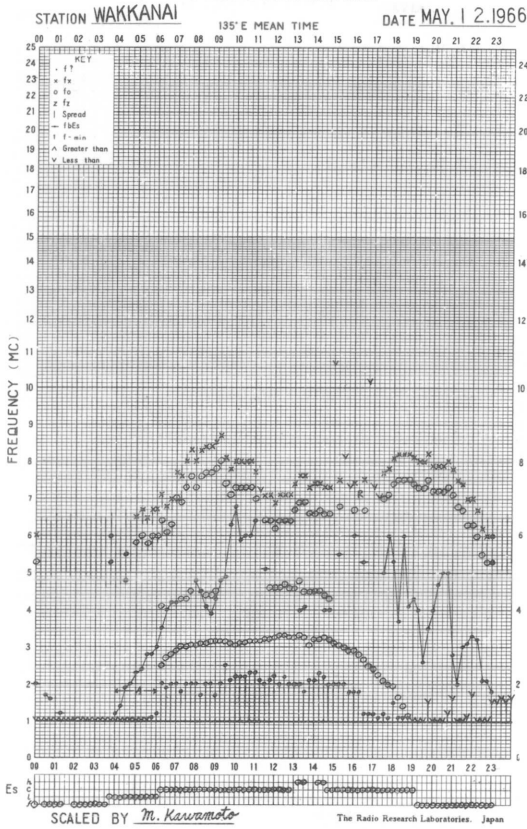
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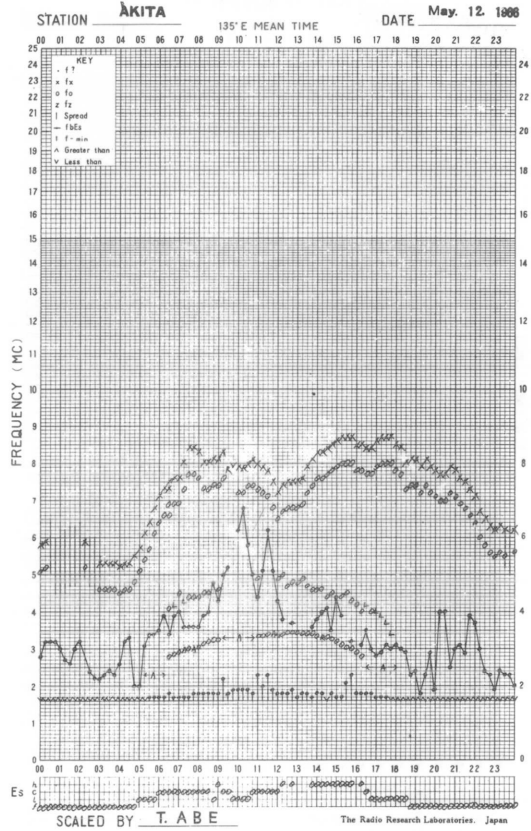
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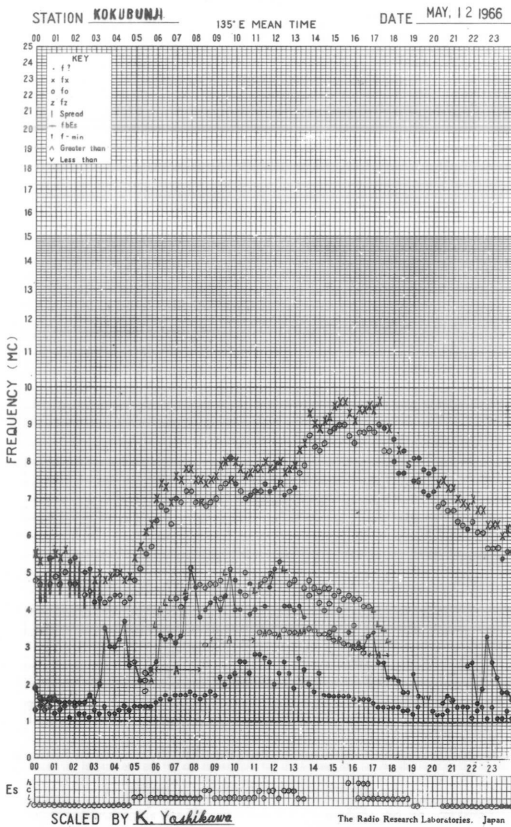
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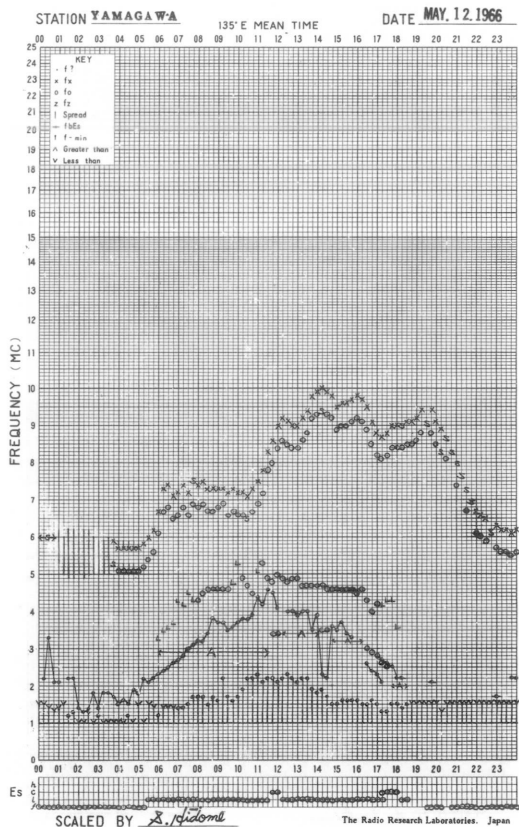
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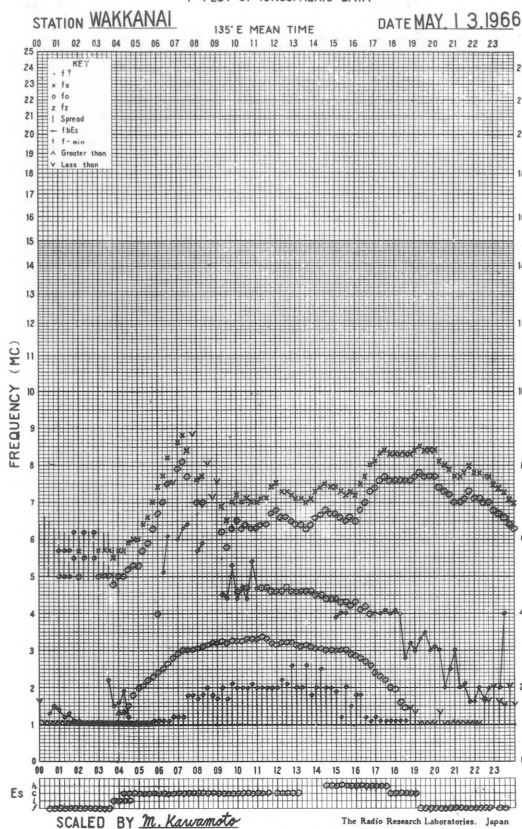
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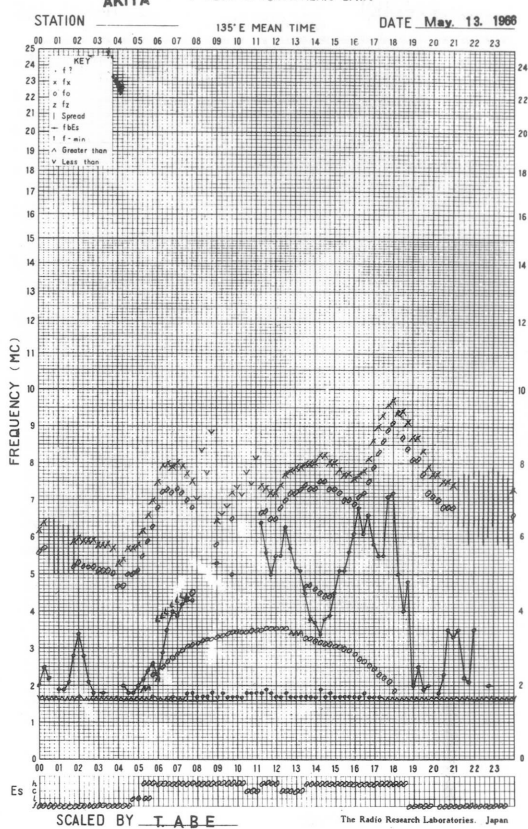
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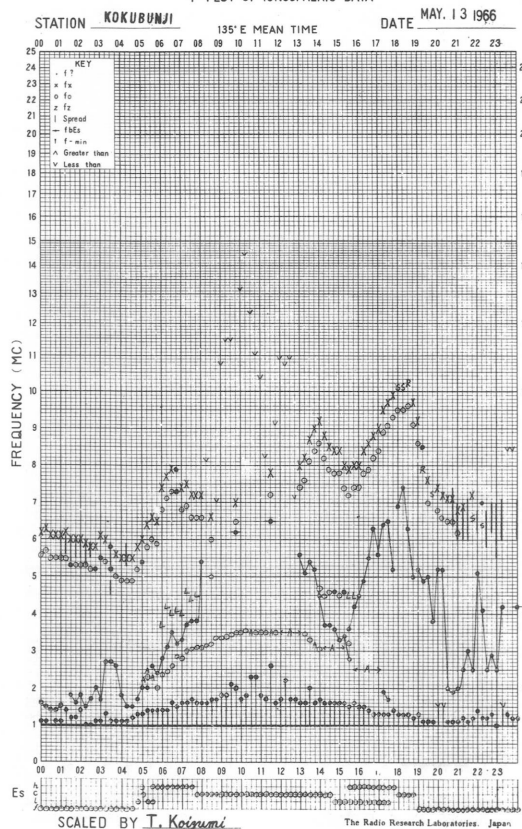
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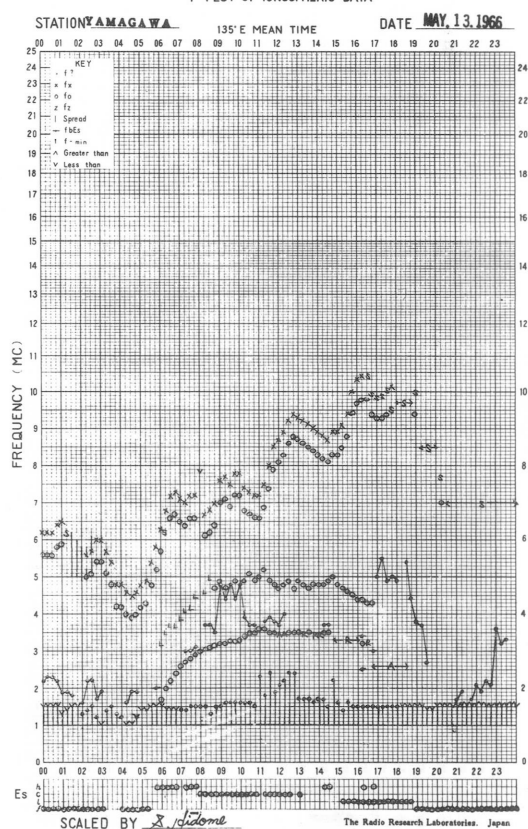
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f-PLOT OF IONOSPHERIC DATA

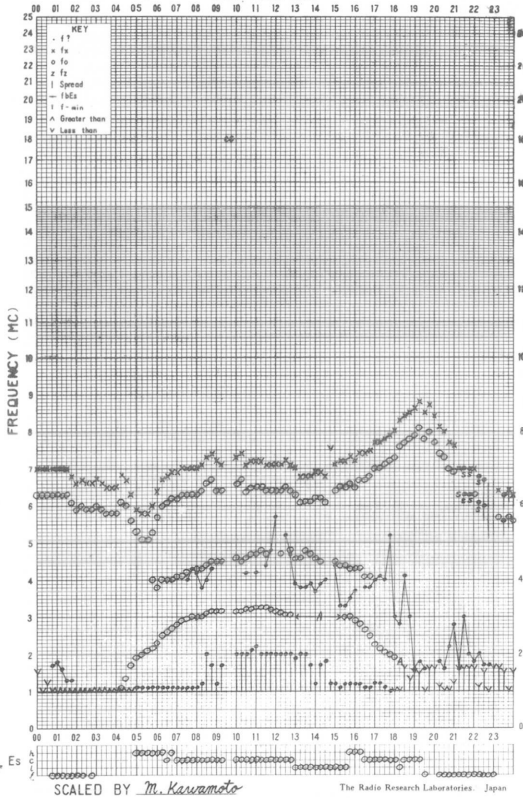


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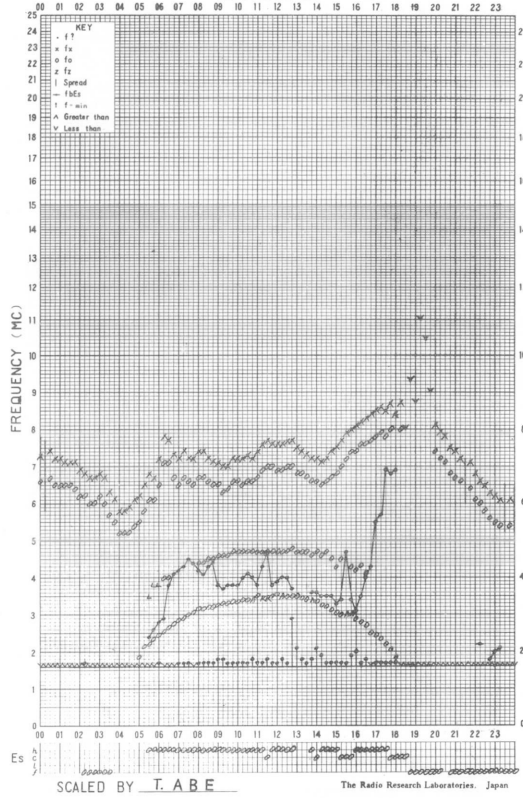
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STATION WAKKANAI 135° E MEAN TIME DATE MAY 14 1966



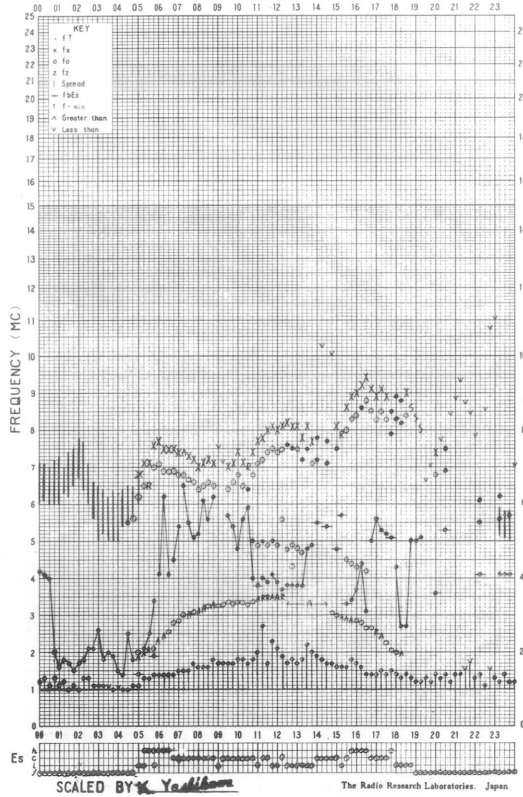
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STATION AKITA 135° E MEAN TIME DATE May. 14. 1966



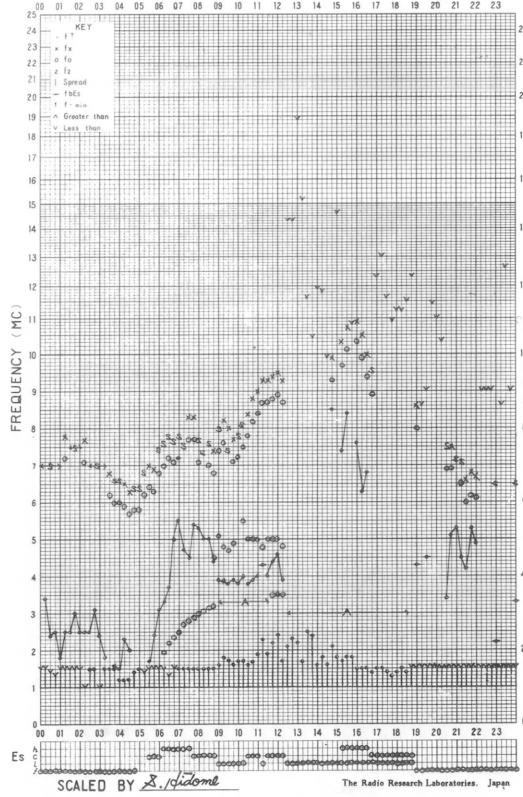
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STATION KOKUBUNJI 135° E MEAN TIME DATE MAY 14 1966

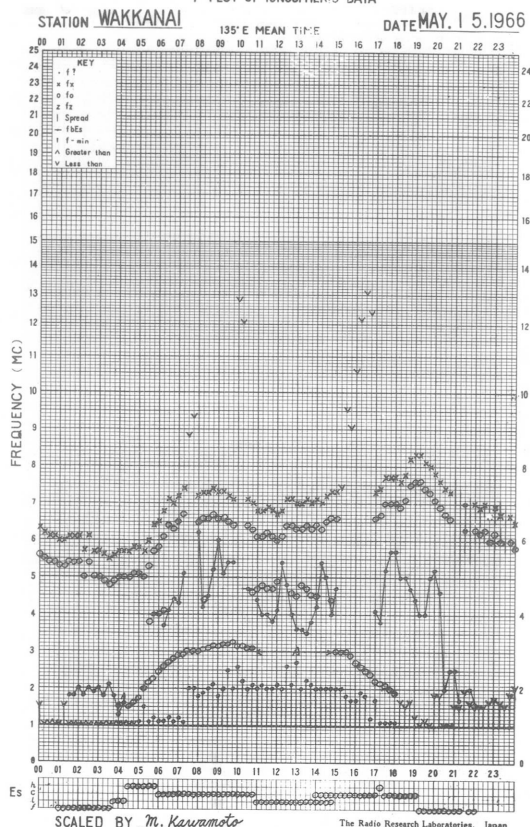


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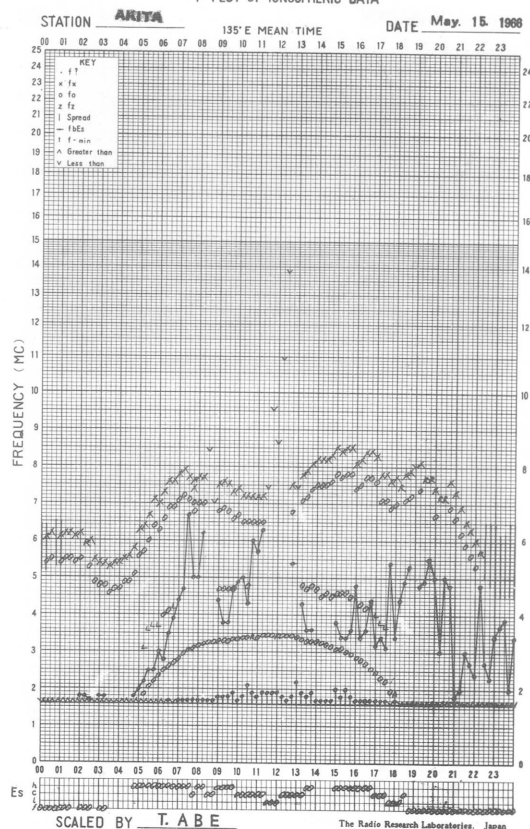
STATION YAMAGAWA 135° E MEAN TIME DATE MAY 14, 1966



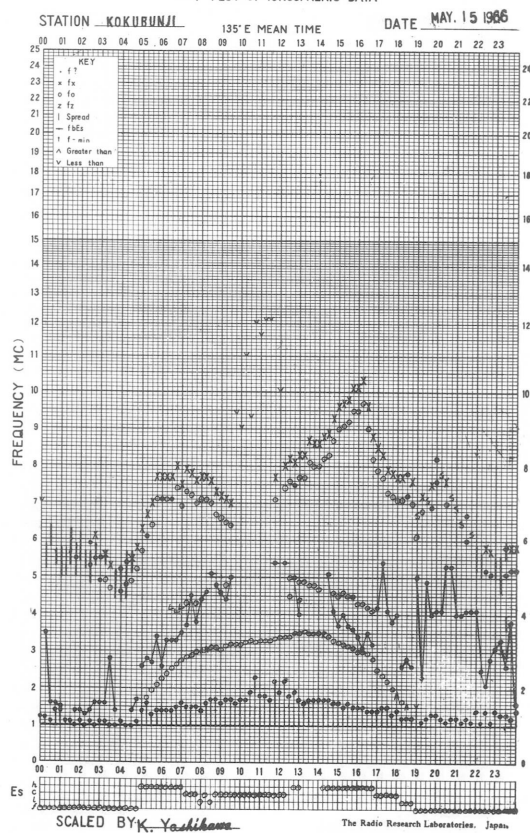
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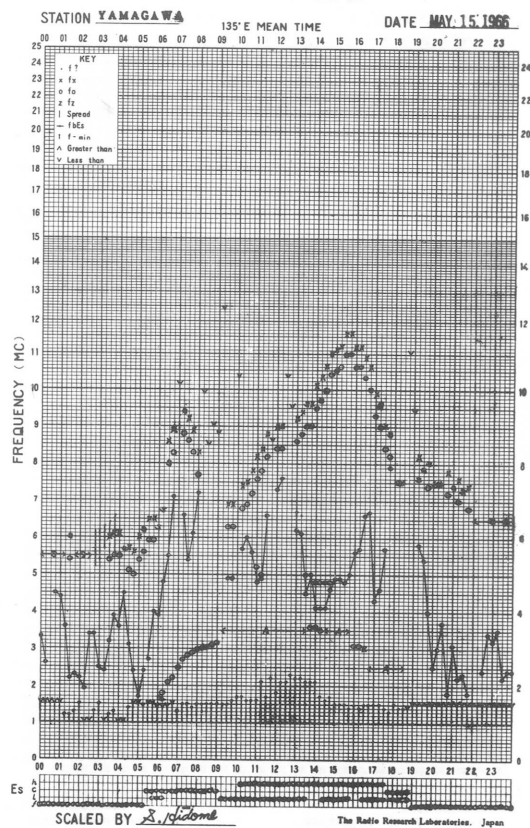
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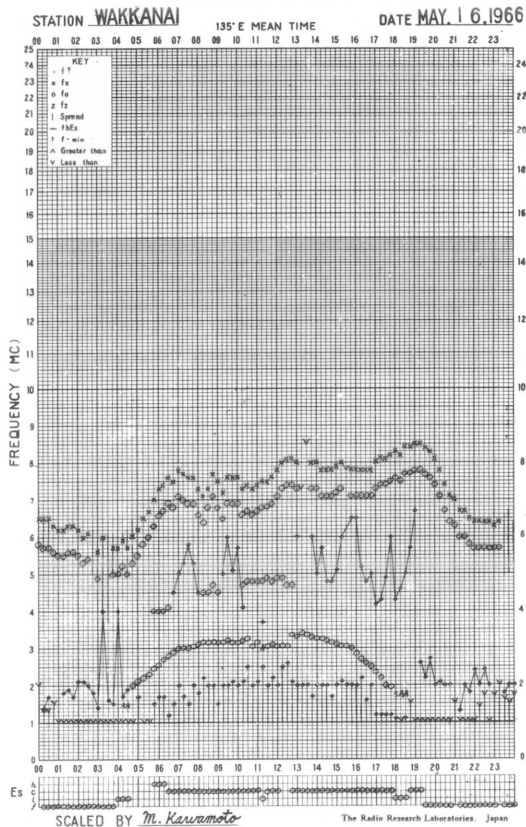
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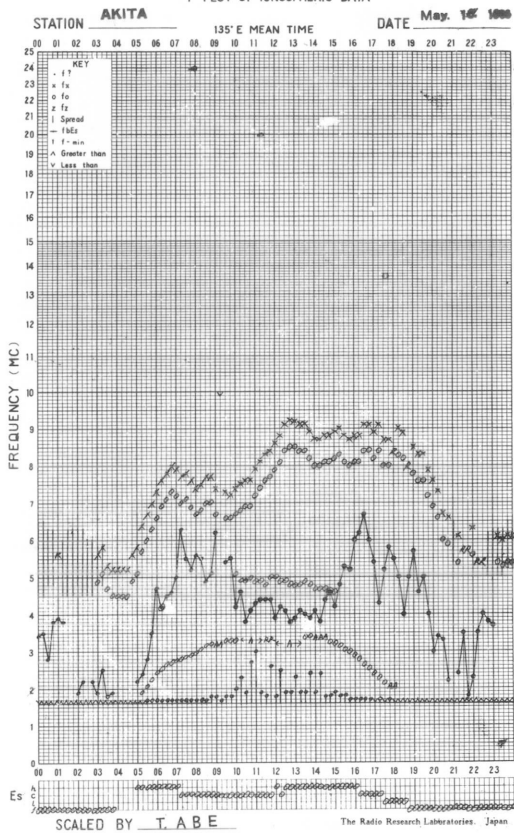
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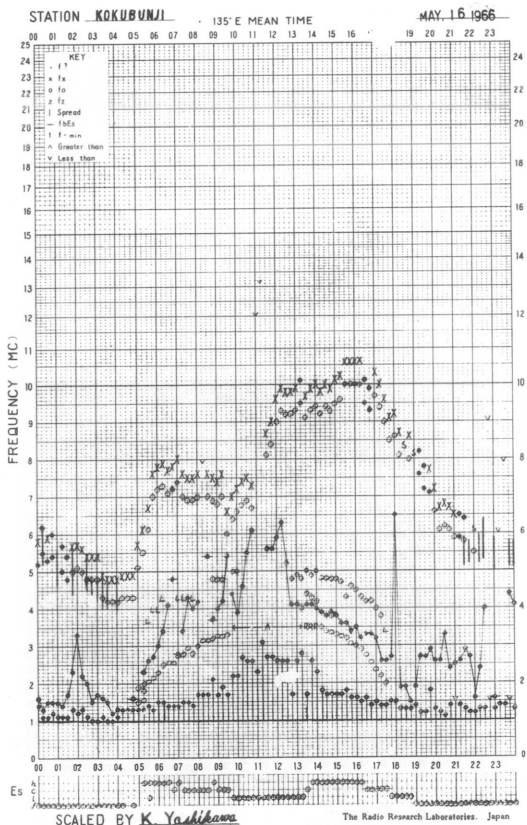
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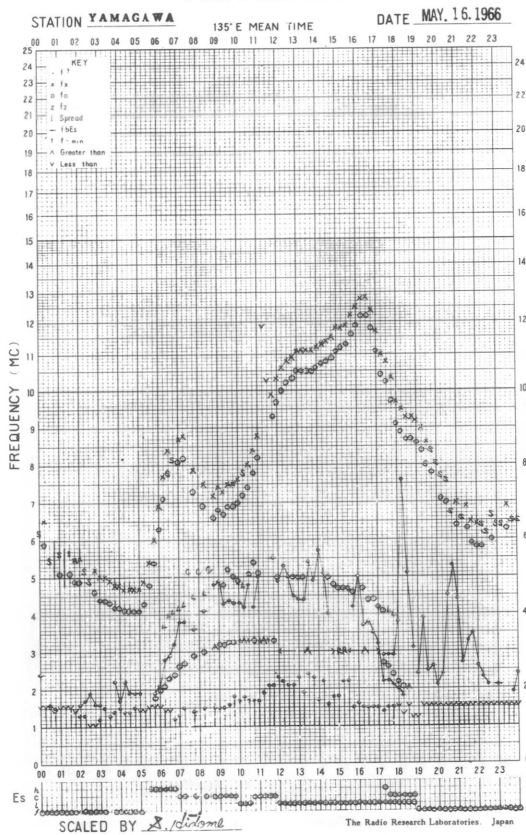
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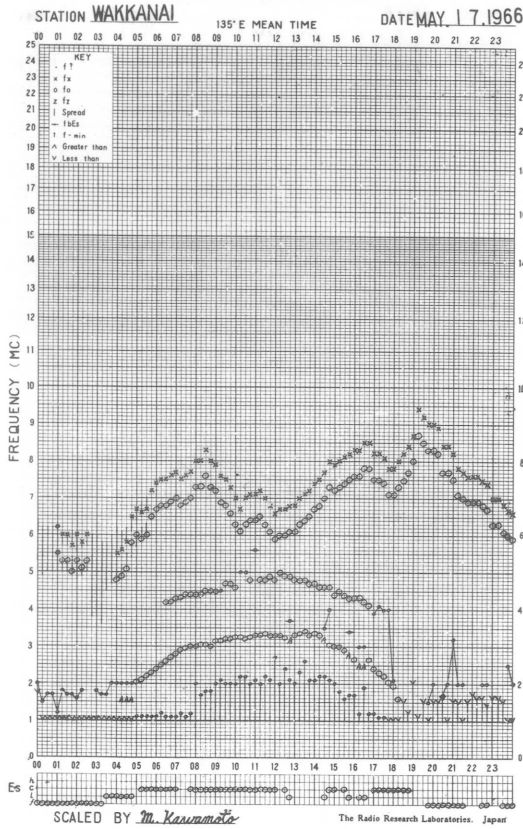
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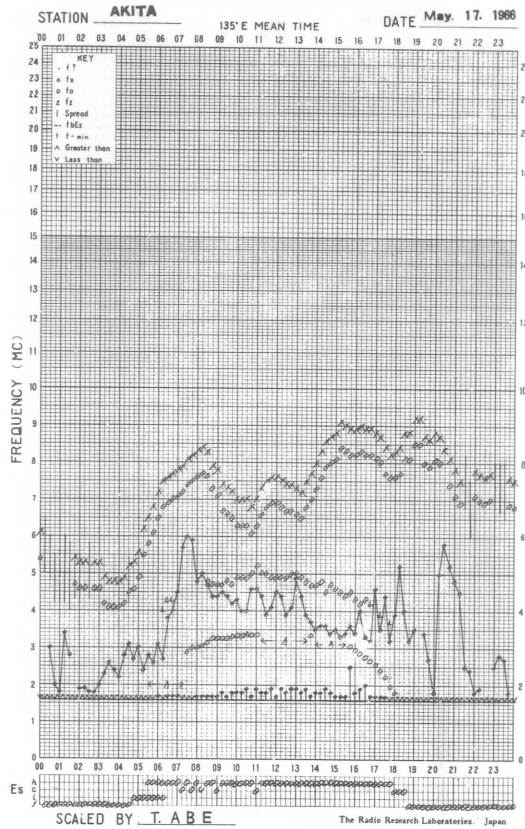
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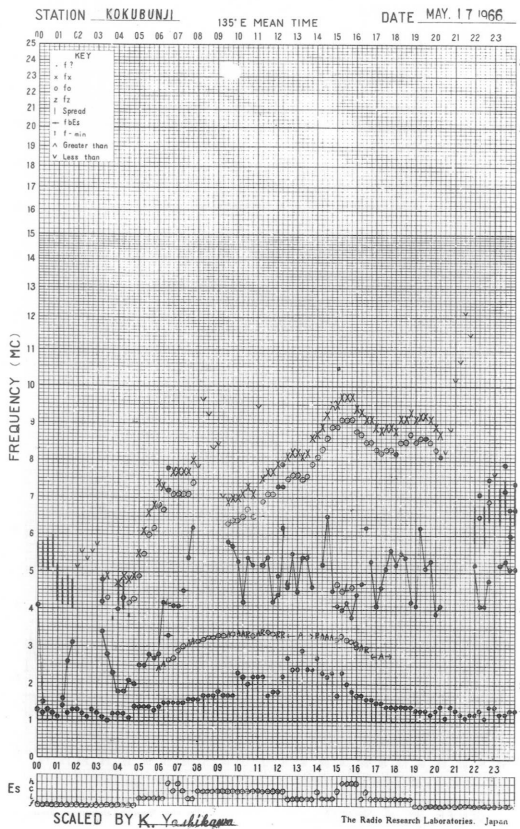
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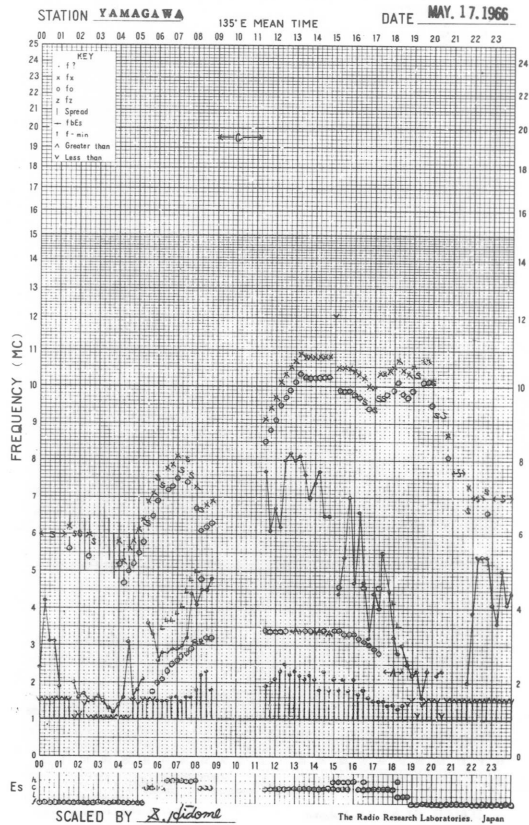
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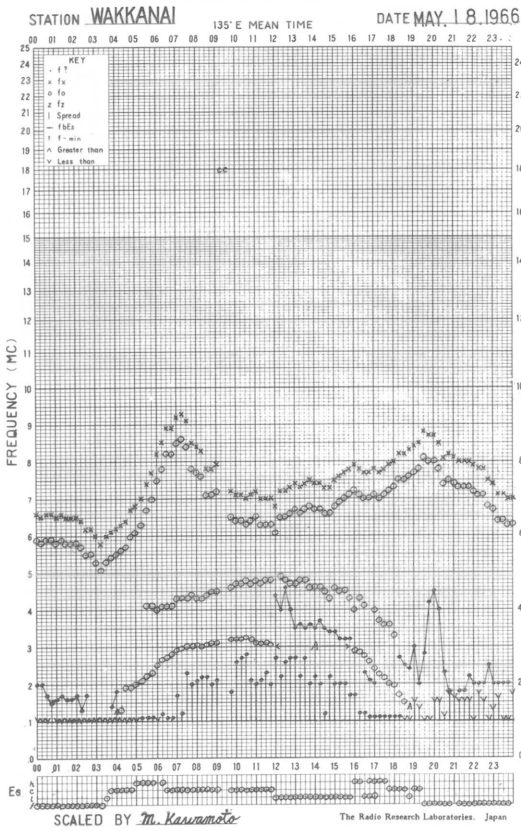
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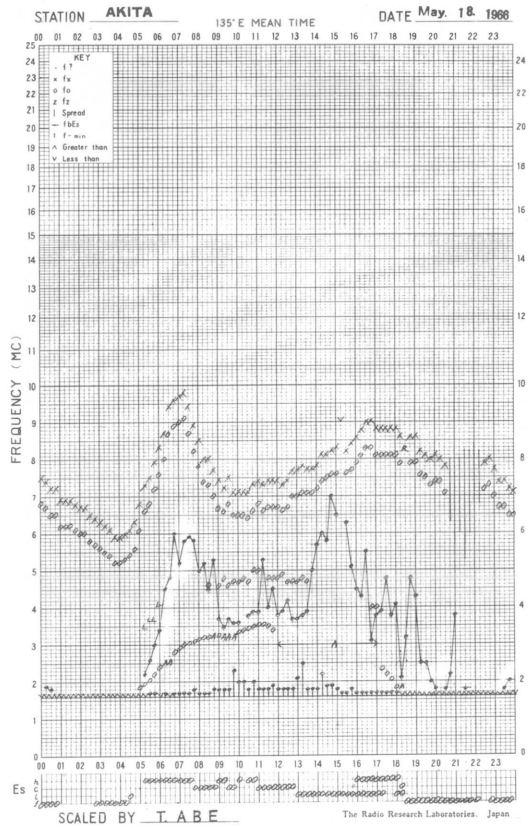
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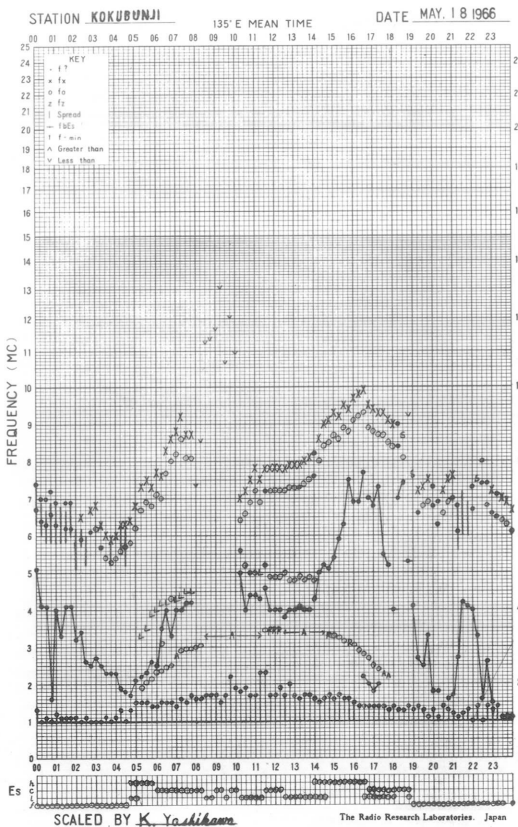
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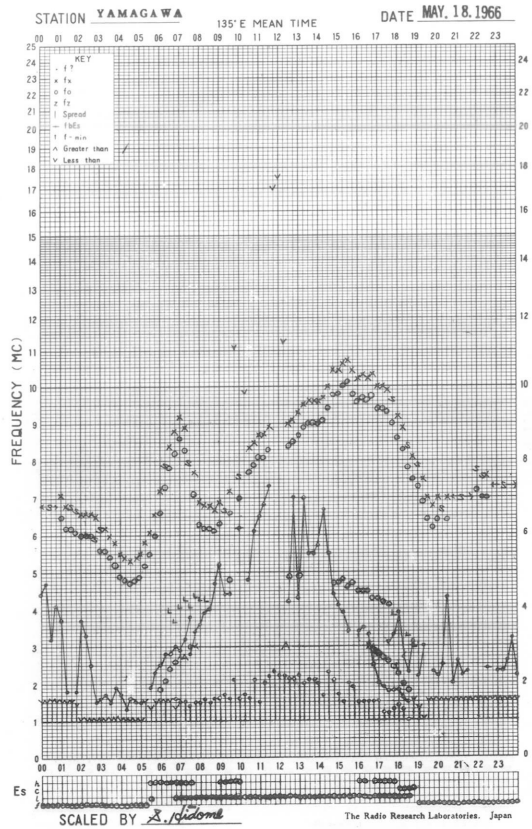
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f-PLOT OF IONOSPHERIC DATA

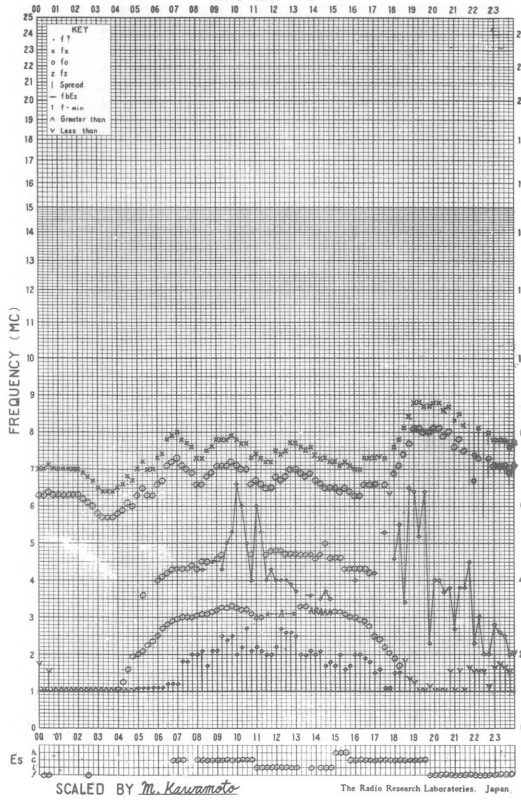


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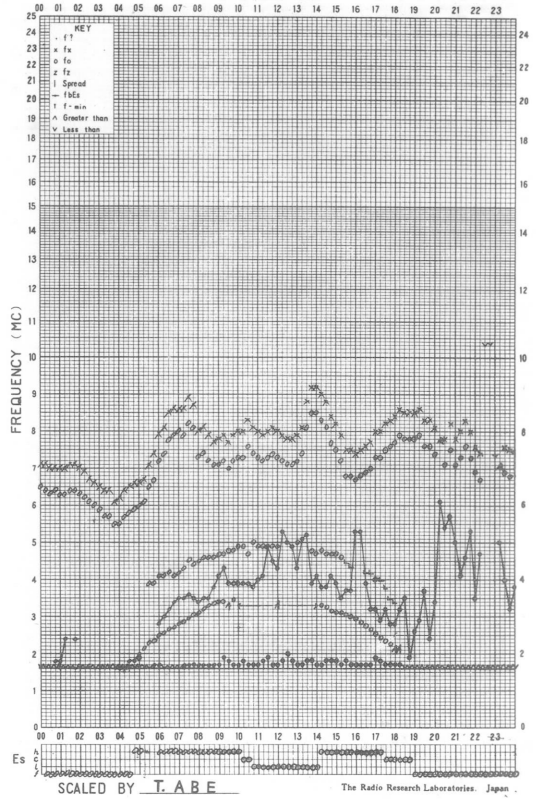
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STATION WAKKANAI 135° E MEAN TIME DATE MAY 19 1966



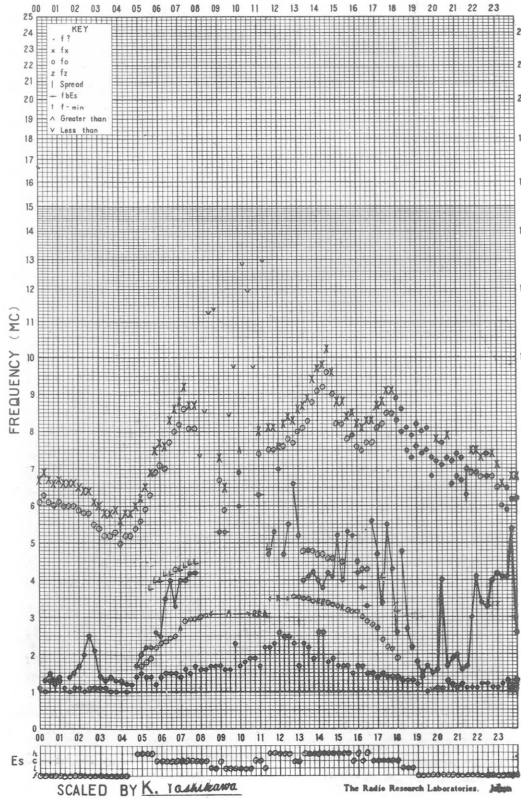
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STATION AKITA 135° E MEAN TIME DATE May. 18 1966



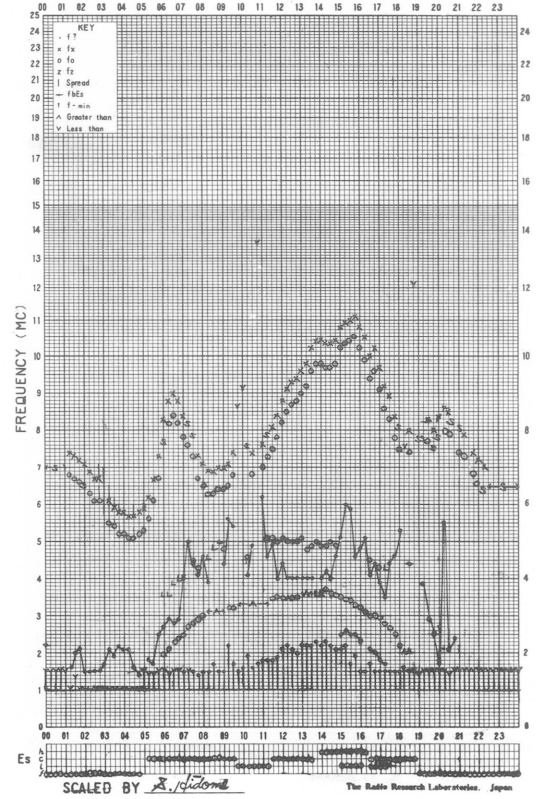
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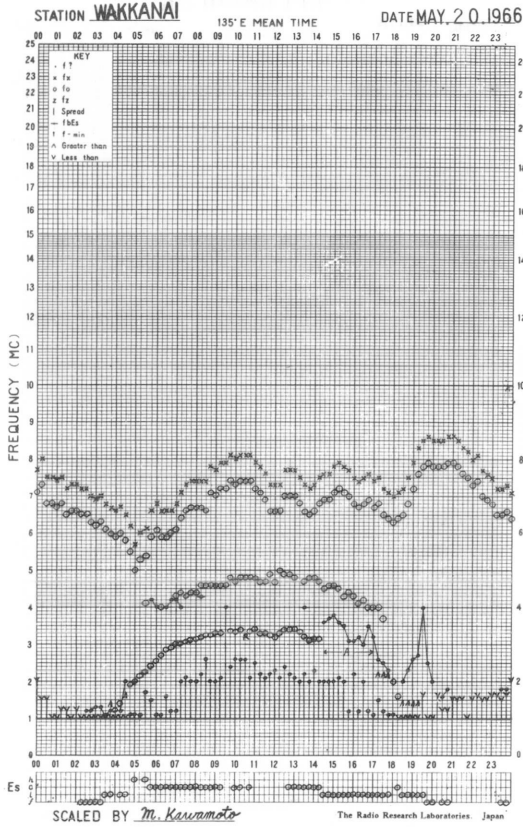


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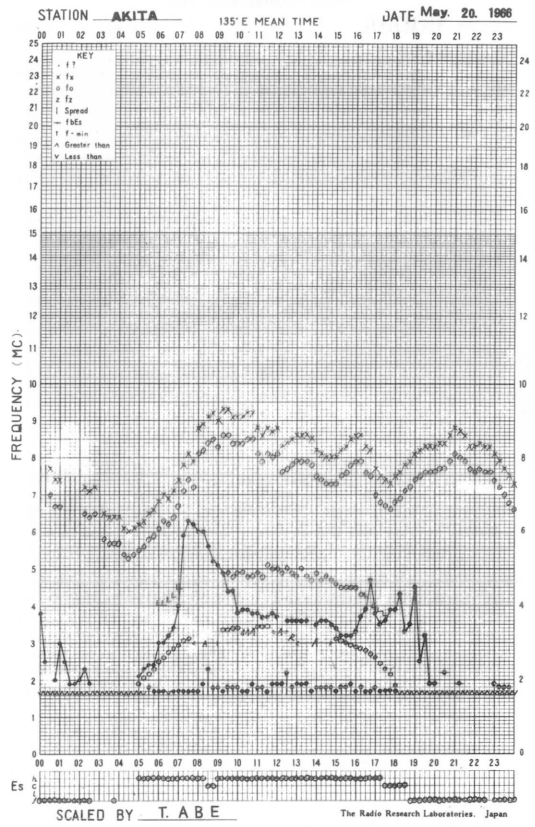
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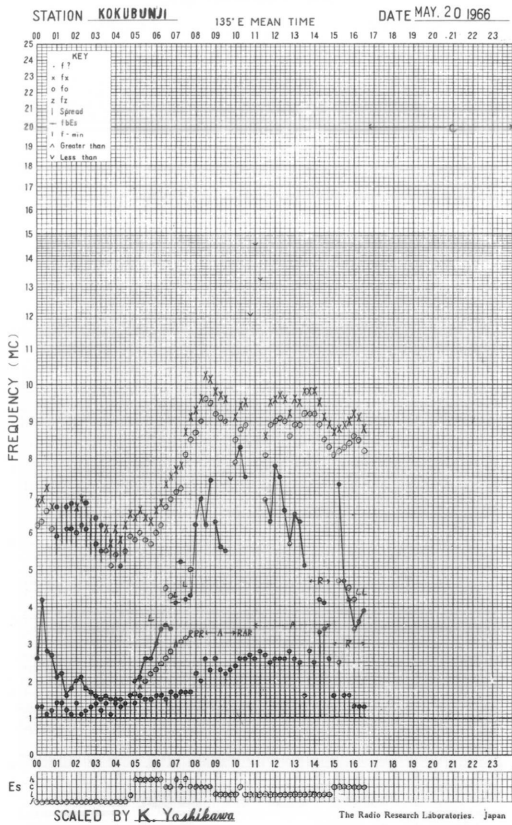
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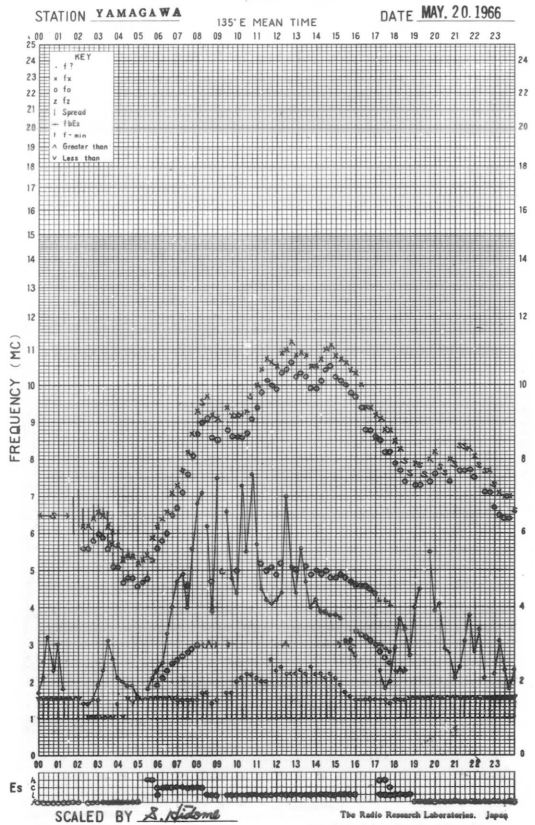
f-PLOT OF IONOSPHERIC DATA



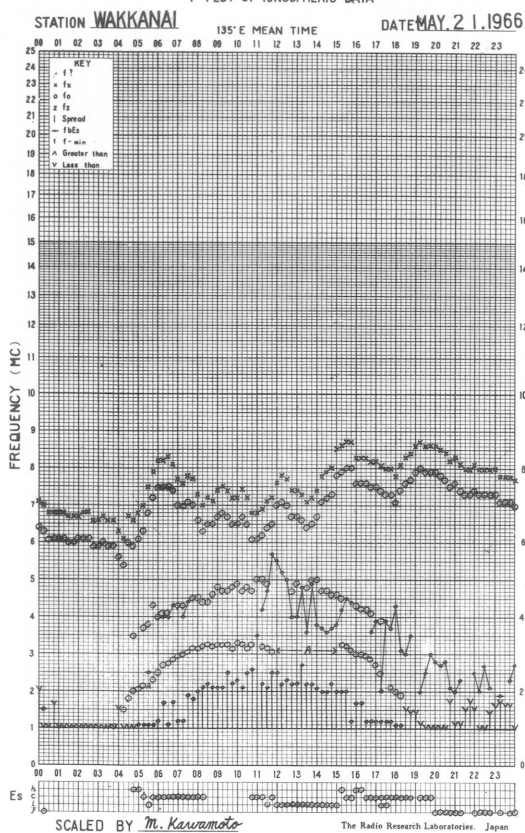
f-PLOT OF IONOSPHERIC DATA



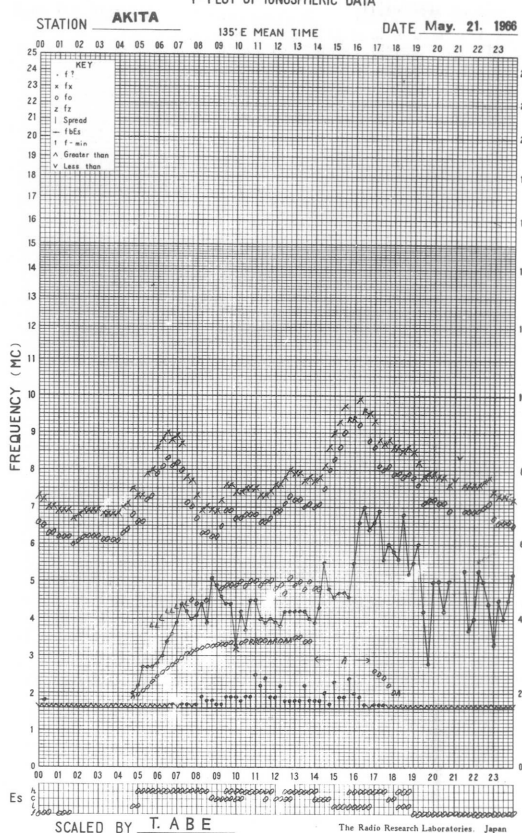
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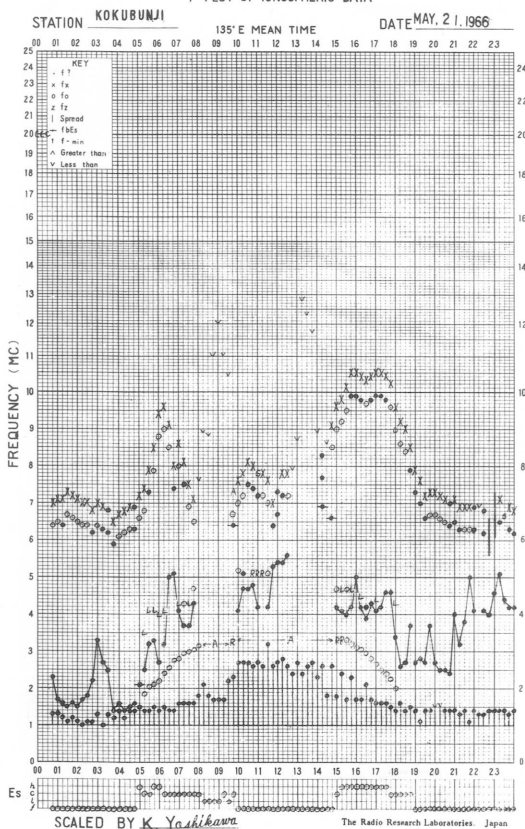
f-PLOT OF IONOSPHERIC DATA



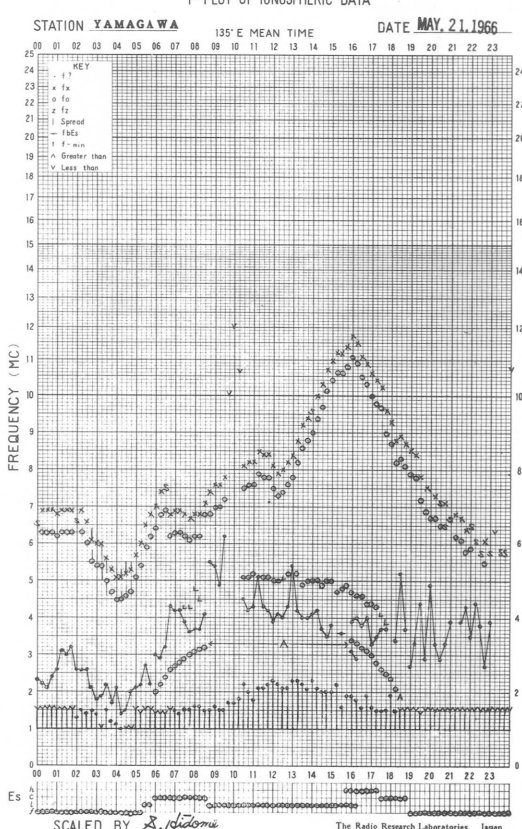
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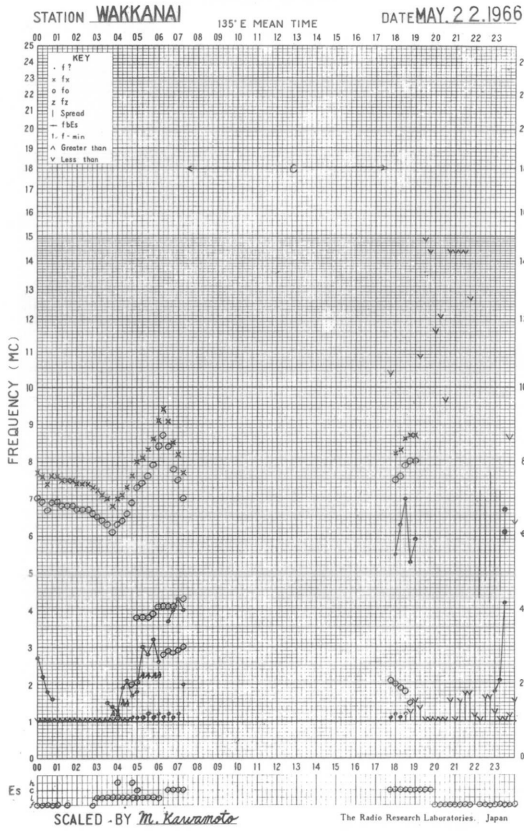
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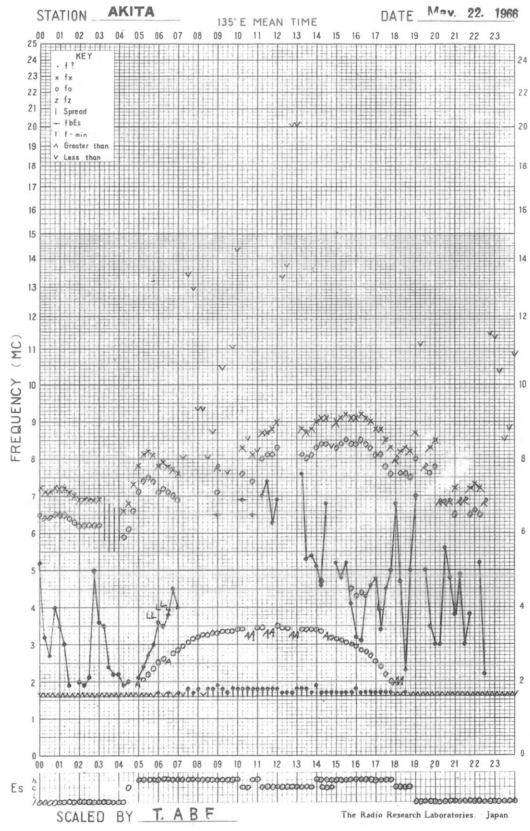
f-PLOT OF IONOSPHERIC DATA



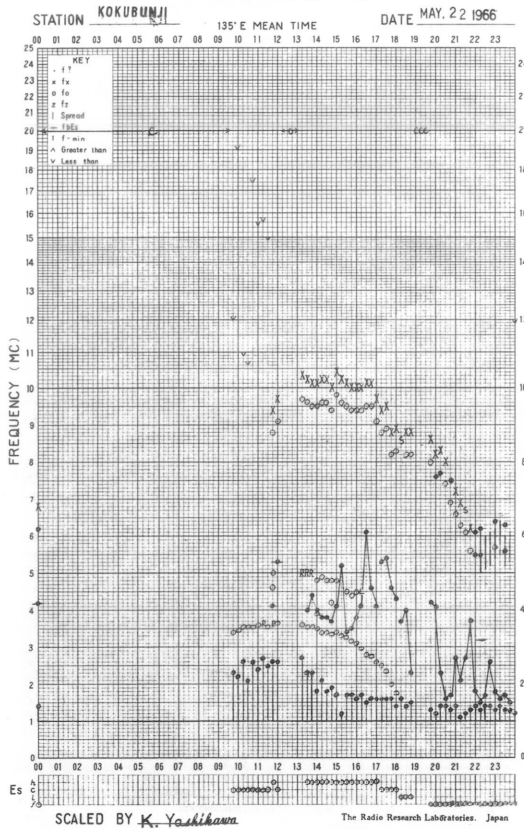
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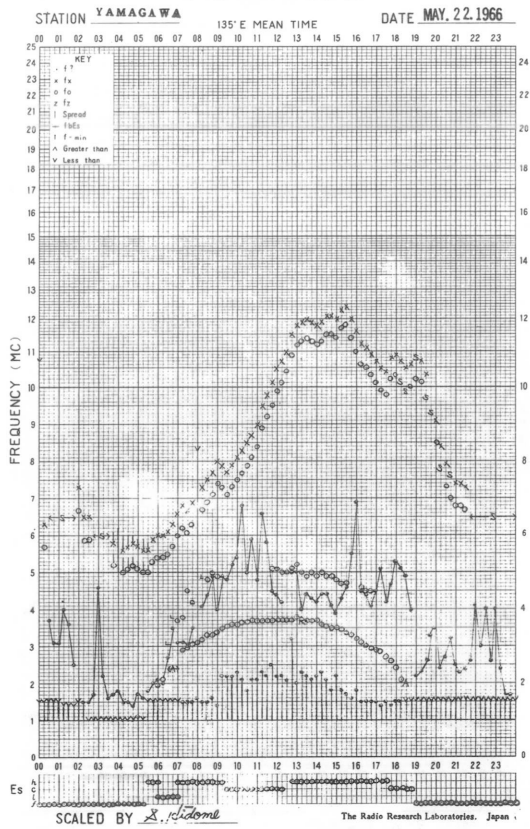
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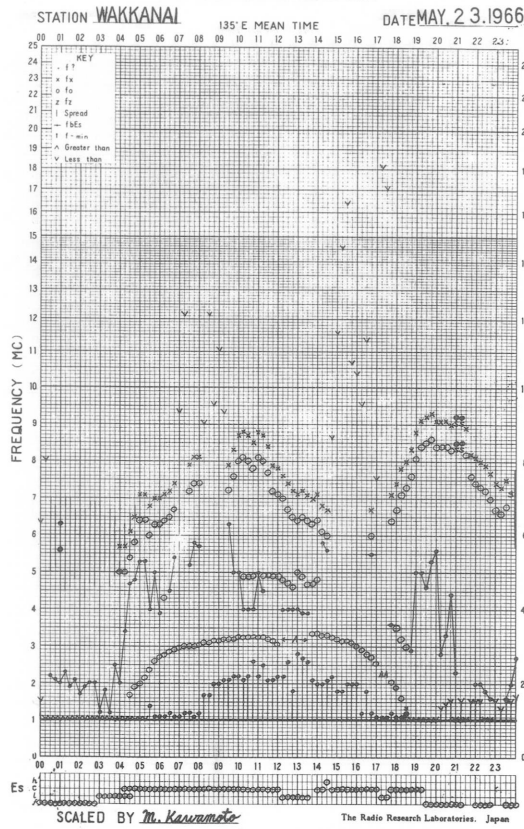
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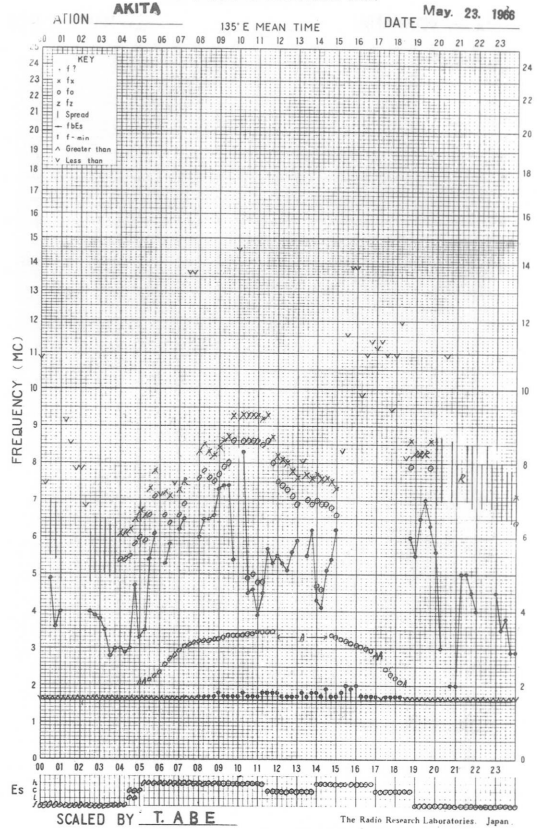
f- PLOT OF IONOSPHERIC DATA



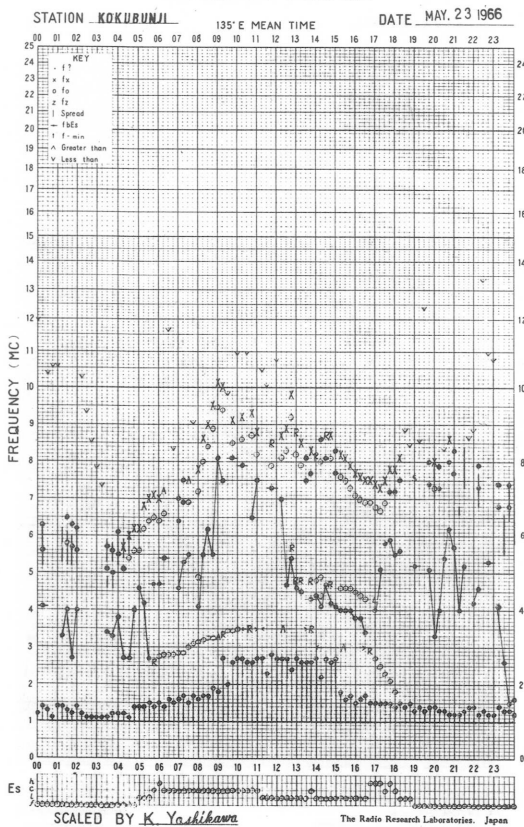
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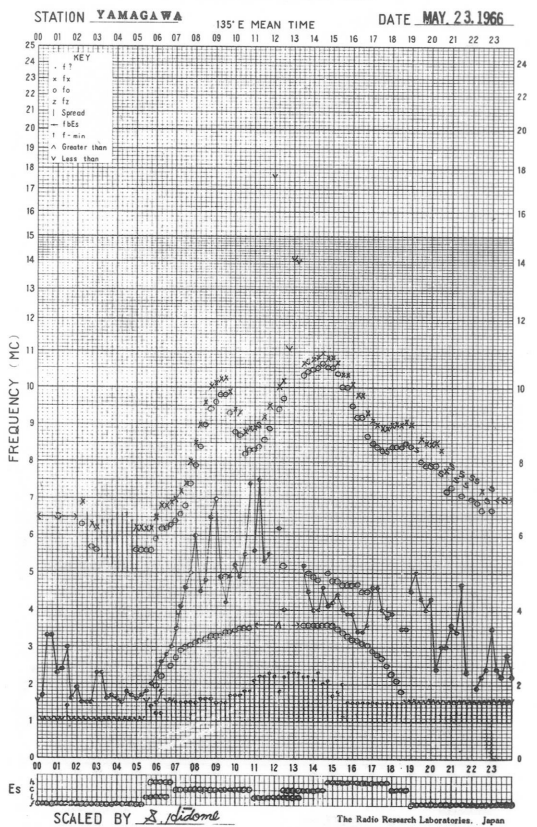
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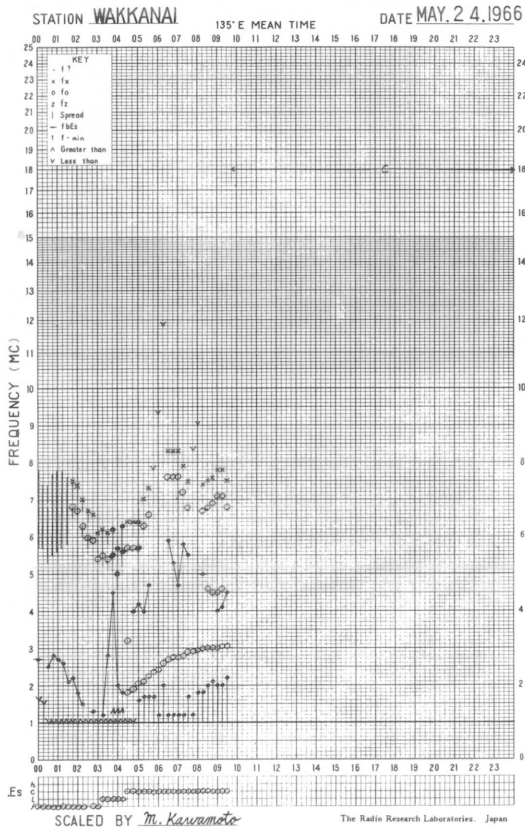
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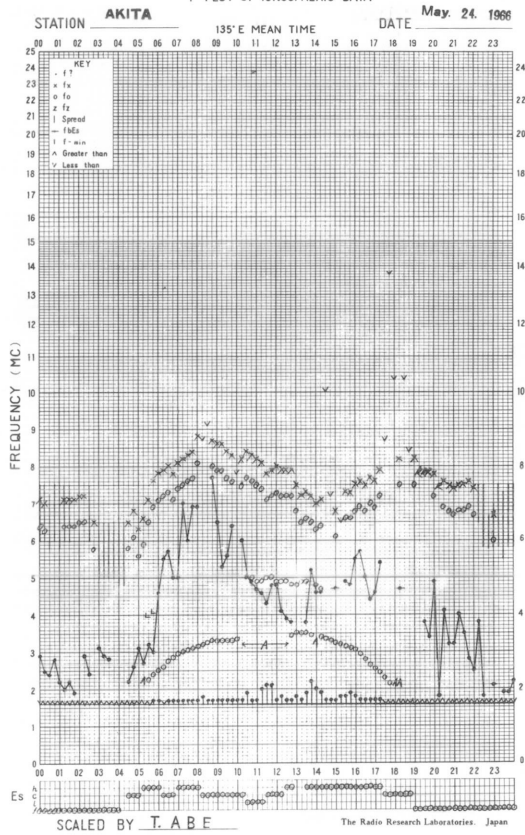
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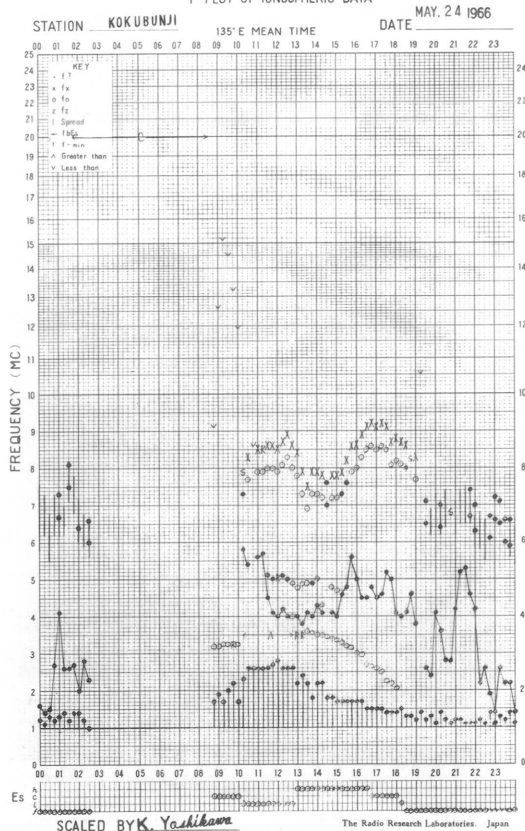
f-PLOT OF IONOSPHERIC DATA



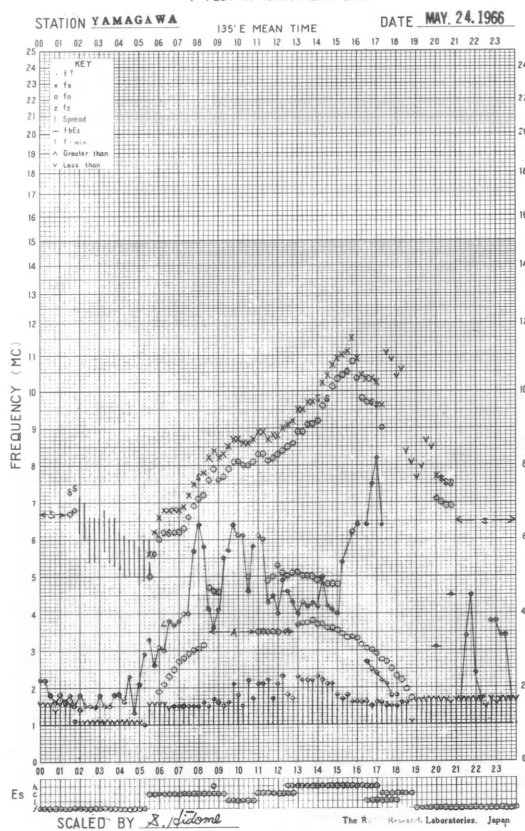
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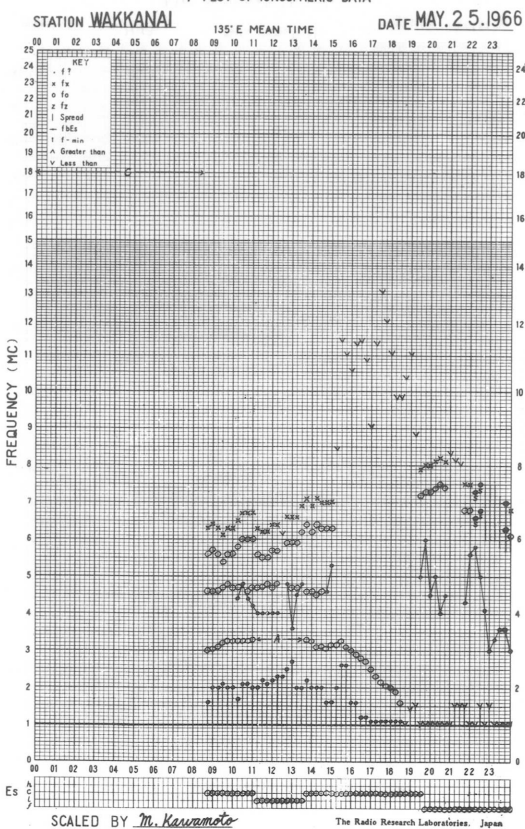
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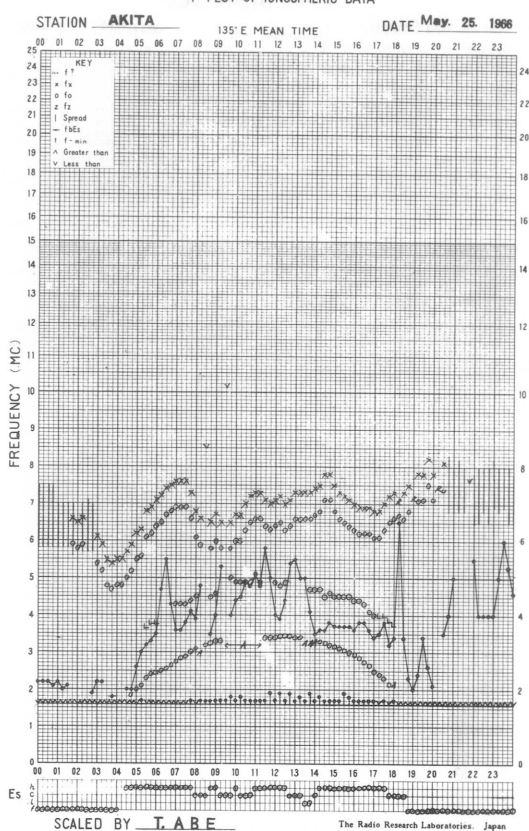
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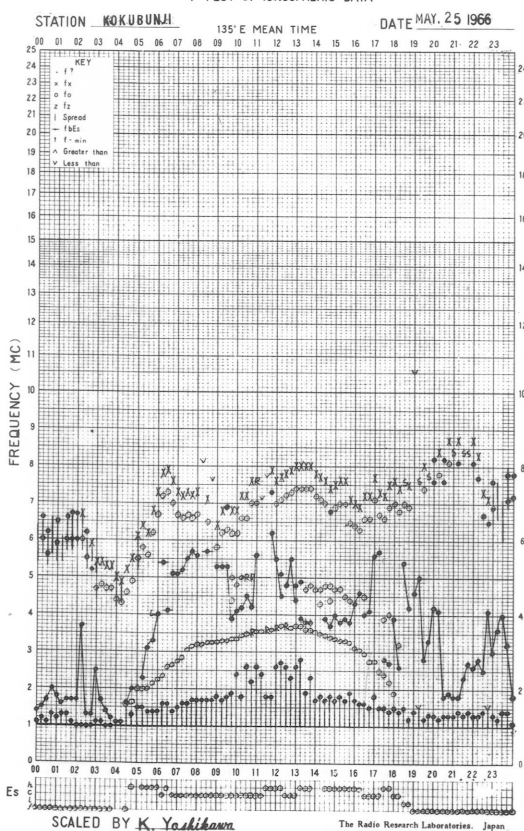
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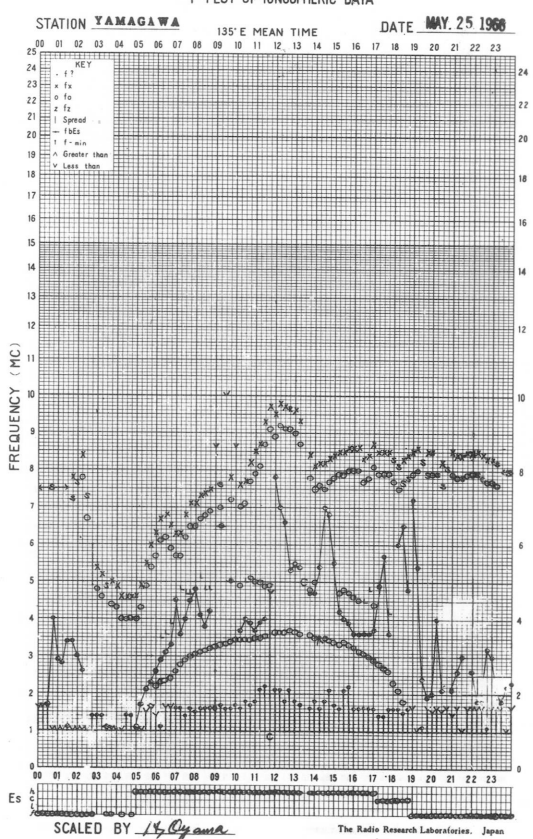
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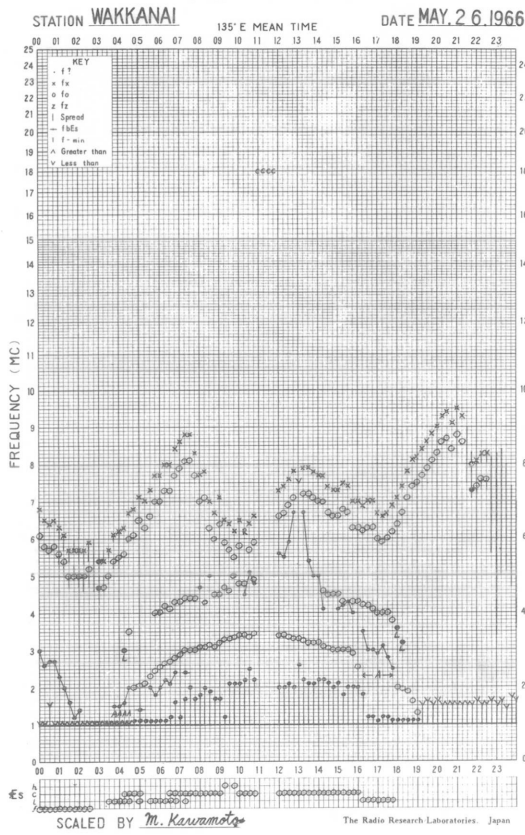
f-PLOT OF IONOSPHERIC DATA



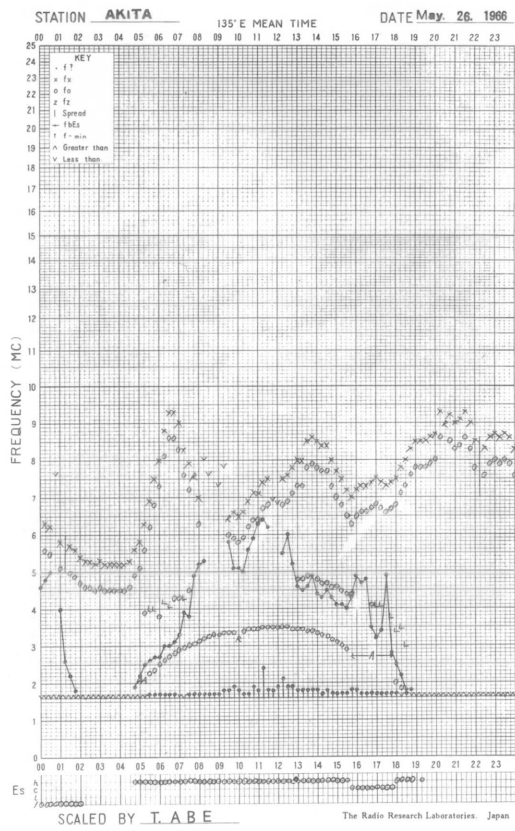
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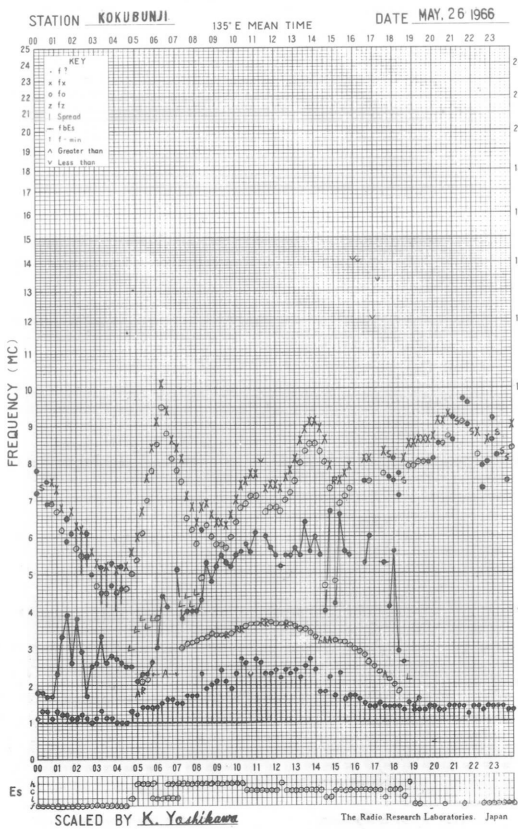
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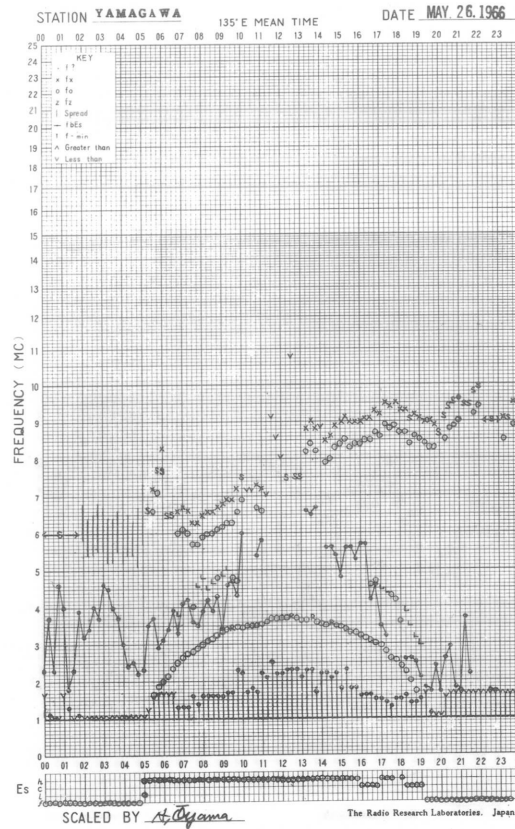
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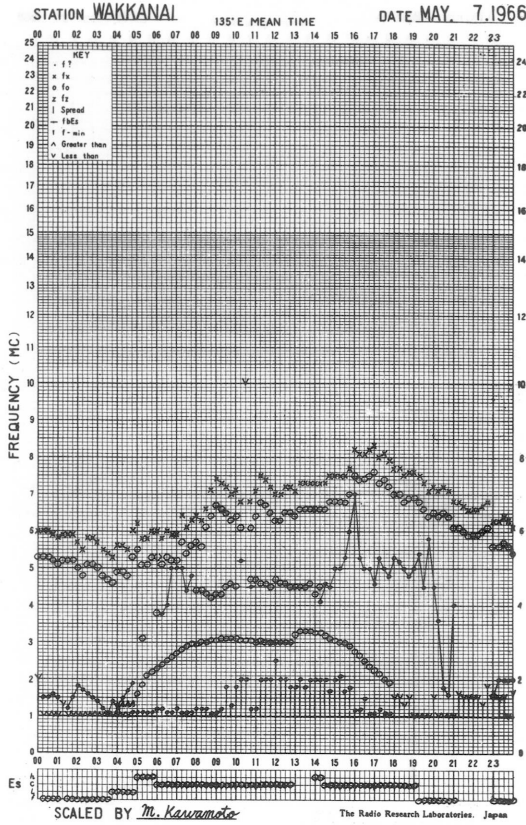
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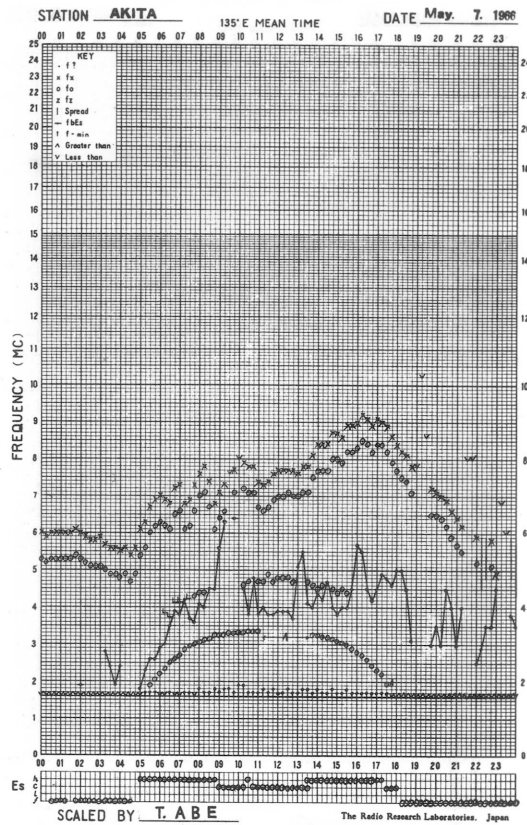
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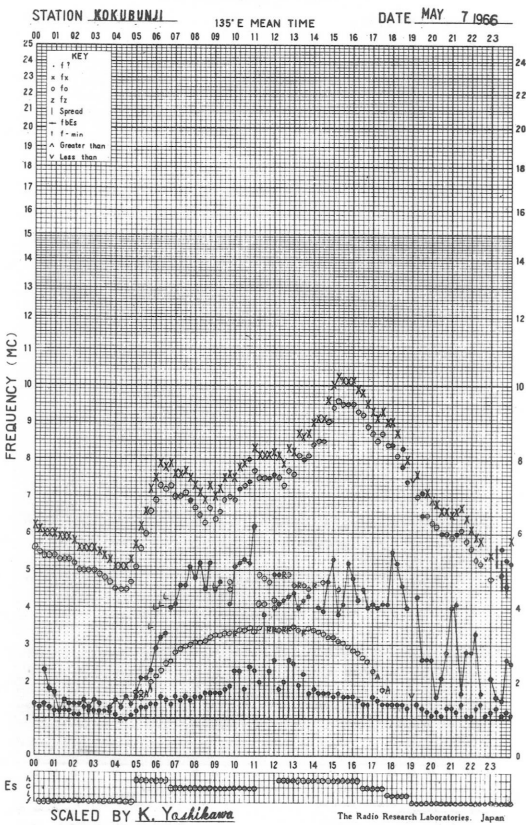
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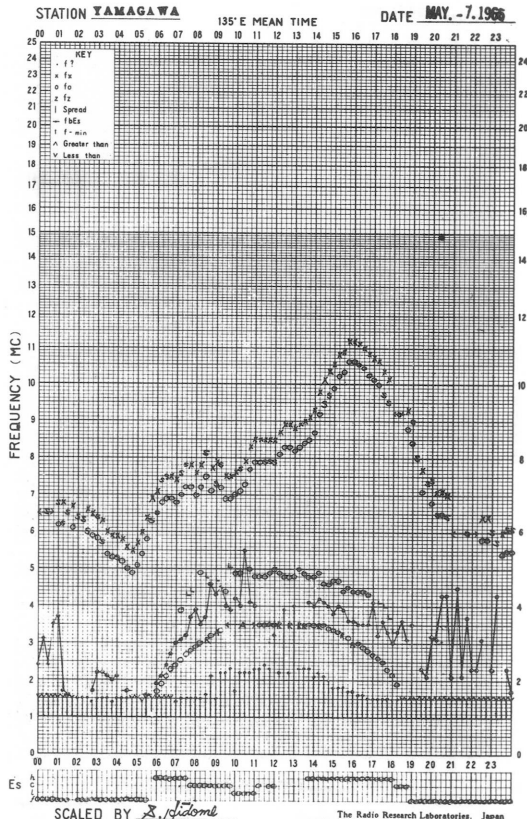
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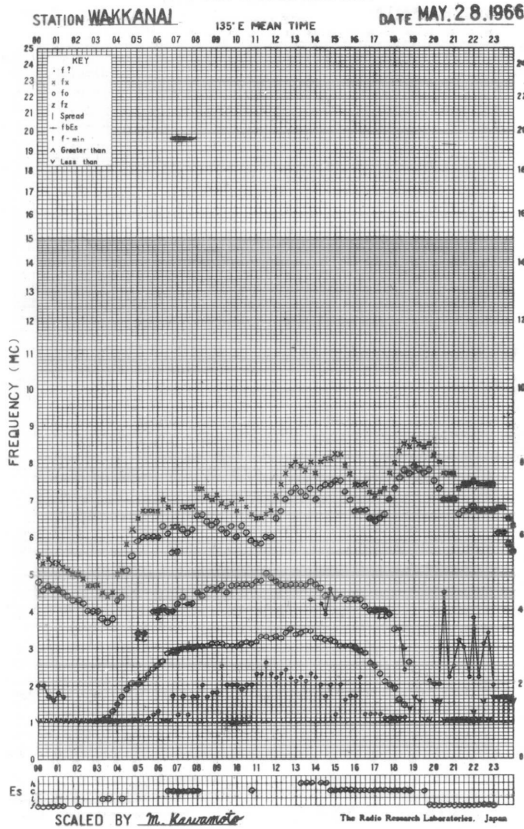
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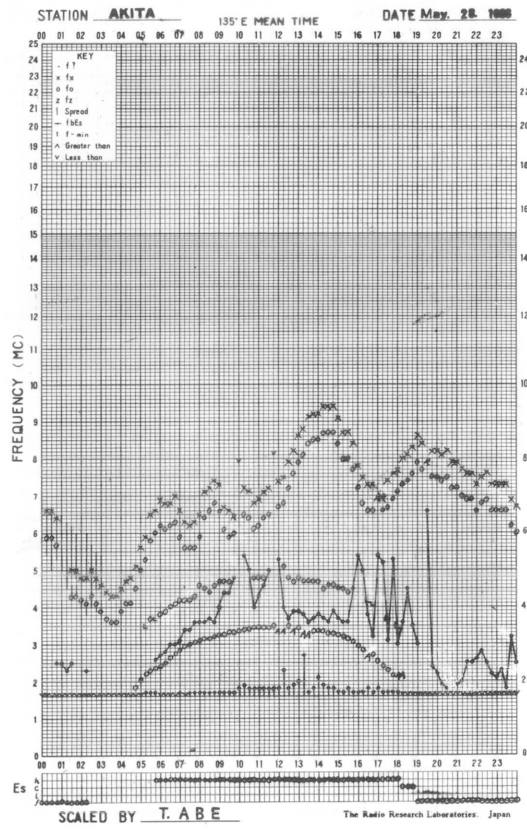
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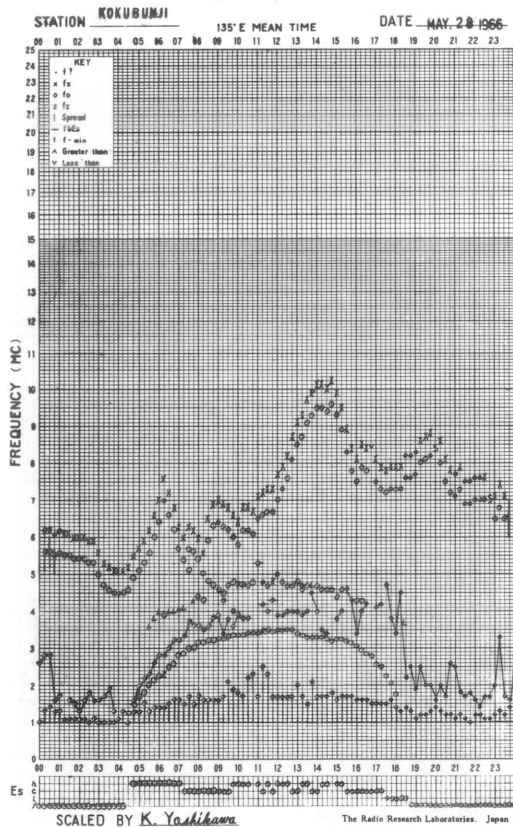
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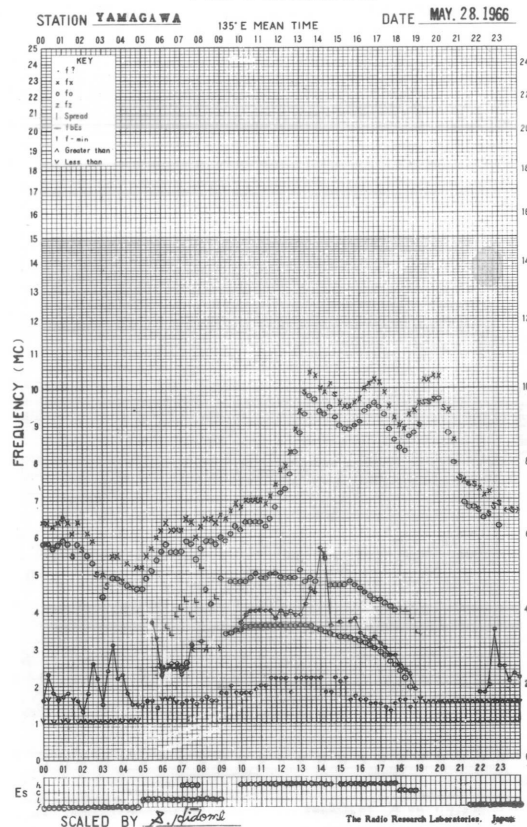
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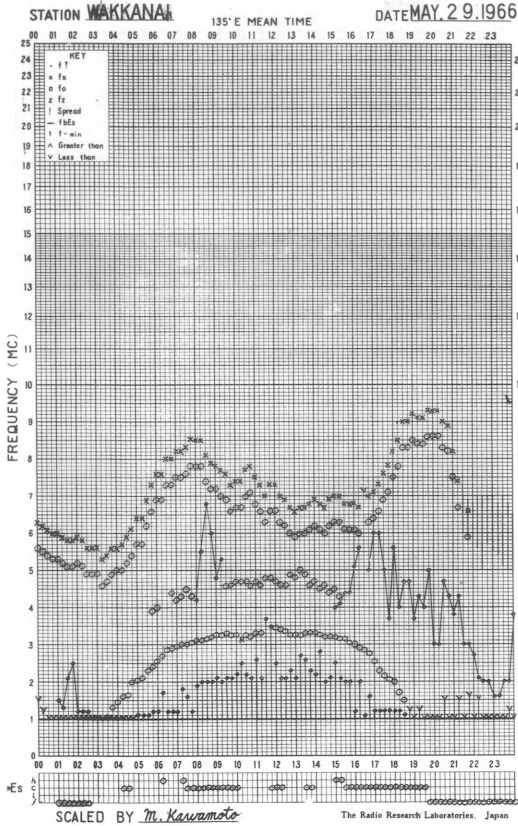
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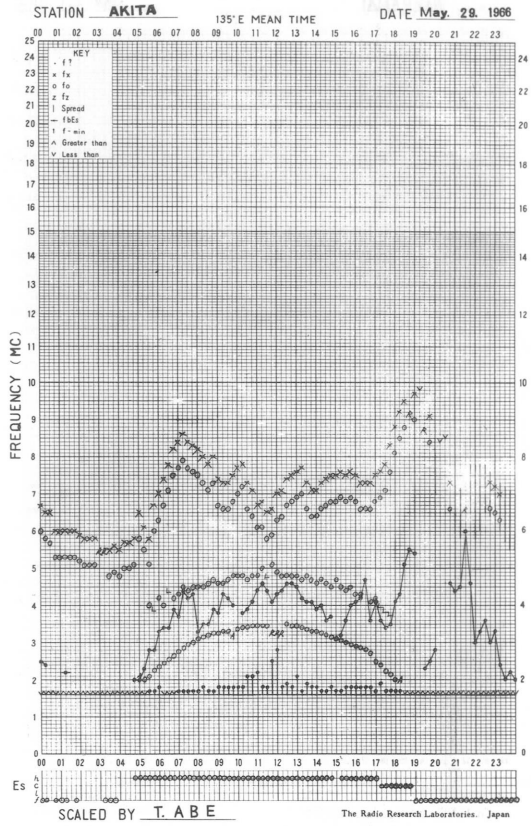
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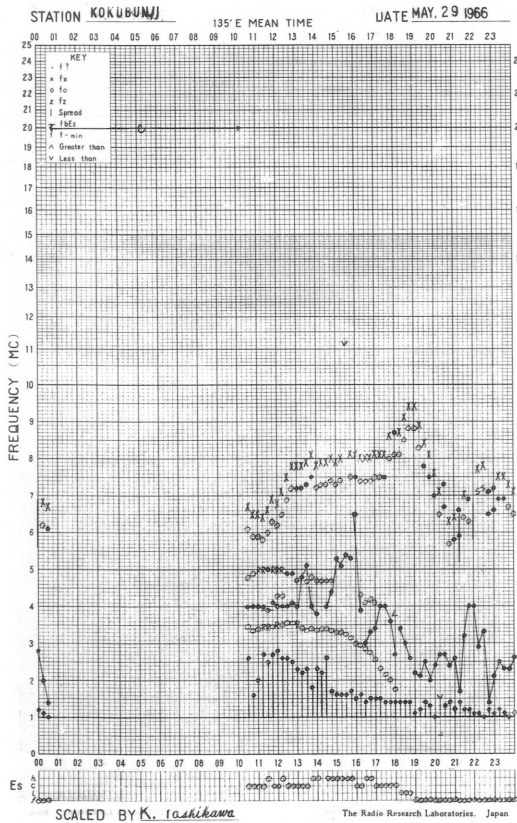
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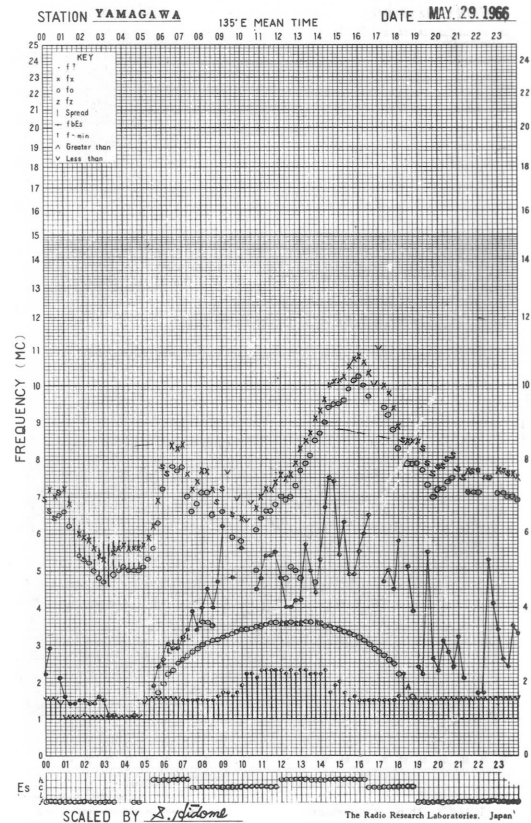
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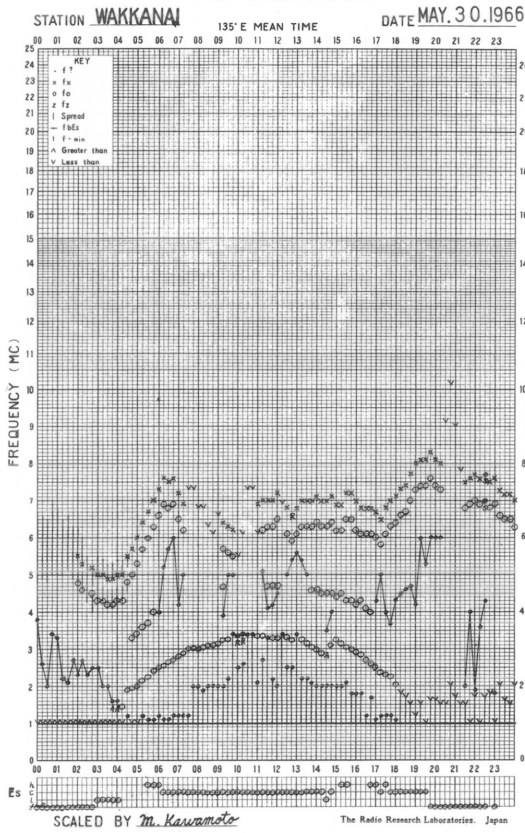
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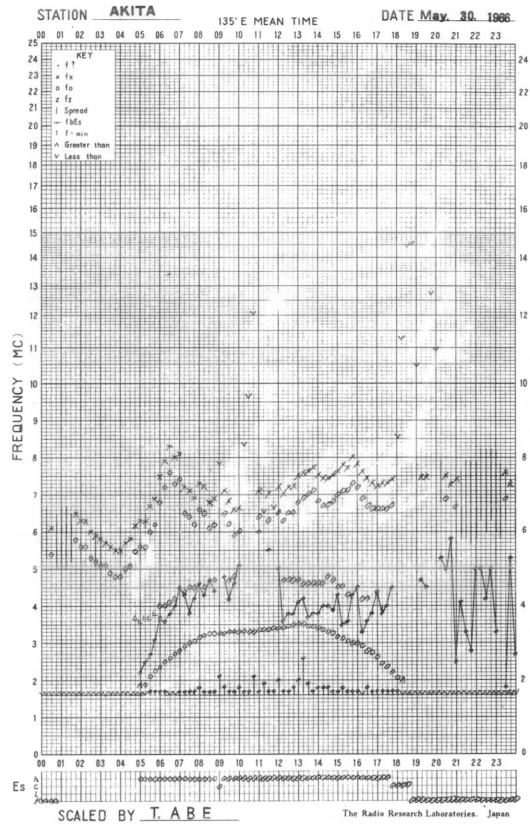
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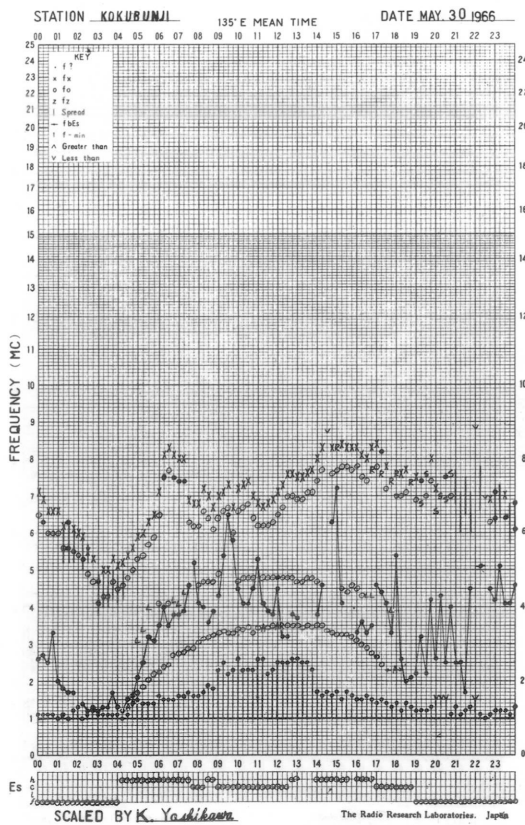
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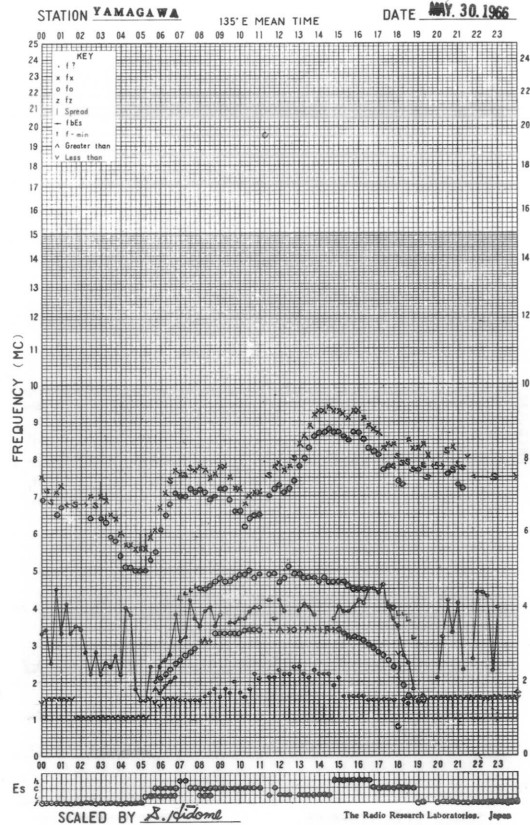
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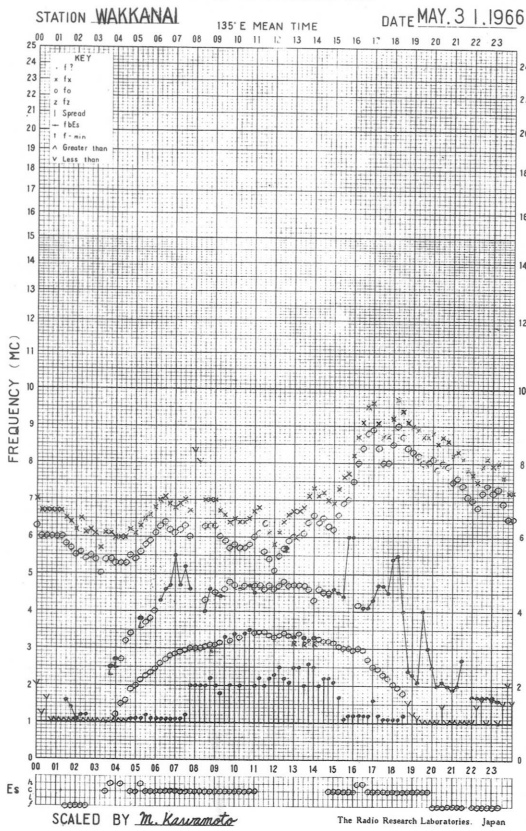
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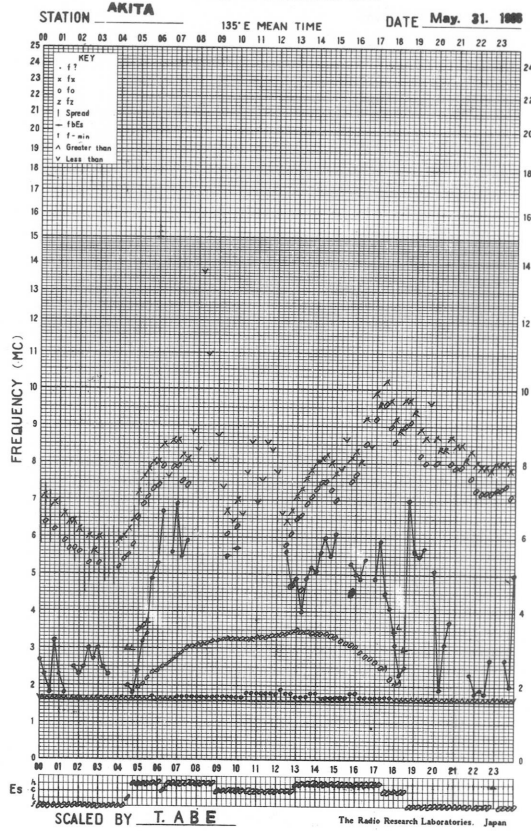
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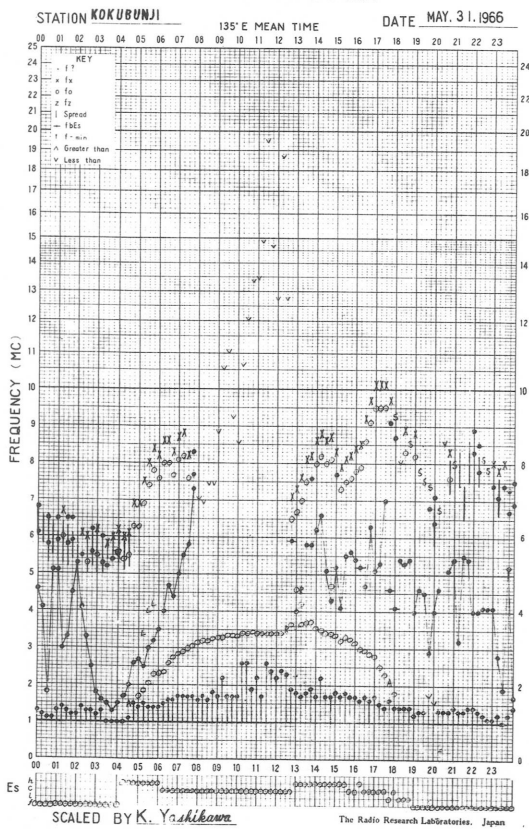
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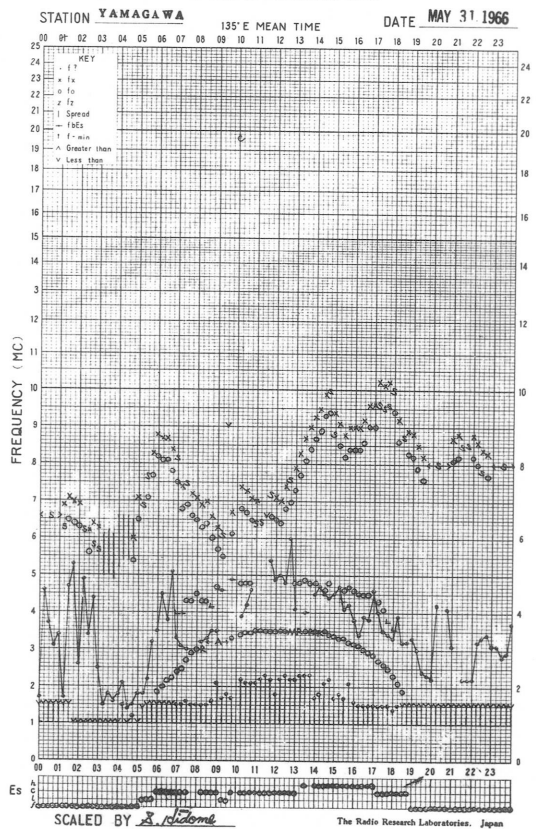
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



SOLAR RADIO EMISSION

Flux Density and Variability										
Month: May 1966						Frequency: 200 Mc/s				
Observing station: Hiraíso										
Flux density $10^{-22} W_m^{-2} (c/s)^{-1}$						Variability 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	6	8	6	5	7	0	0	0	0	0
2	5	6	7	6	6	0	0	0	0	0
3	5	7	6	6	6	0	0	0	0	0
4	6	(6)	6	7	6	1	(0)	0	0	0
5	7	6	6	7	6	0	0	0	0	0
6	7	7	7	6	7	0	0	0	0	0
7	7	8	7	7	7	0	0	0	0	0
8	8	6	6	7	7	0	0	0	0	0
9	7	7	7	7	7	0	0	0	0	0
10	7	9	8	7	8	0	0	0	0	0
11	8	7	8	7	7	0	0	0	0	0
12	7	7	7	7	7	0	0	1	0	0
13	7	8	(8)	(8)	8	0	0	(0)	(0)	0
14	8	9	8	8	8	0	0	0	0	0
15	7	9	8	8	8	0	0	0	0	0
16	7	7	8	7	7	0	0	0	0	0
17	7	7	7	7	7	0	0	0	0	0
18	7	7	7	-	7	0	0	0	-	0
19	7	7	8	7	8	0	0	0	0	0
20	9	10	9	13	9	0	0	0	1	0
21	9	9	9	9	10	1	1	1	0	1
22	10	10	8	8	9	0	1	0	0	0
23	7	7	8	-	8	0	0	0	-	0
24	7	7	7	8	7	0	0	0	0	0
25	8	9	8	9	8	0	1	1	1	1
26	8	8	7	8	8	1	0	0	1	1
27	7	8	10	9	8	0	0	0	0	0
28	8	8	9	10	8	0	0	0	0	0
29	9	9	9	8	9	0	0	0	0	0
30	7	7	6	7	7	0	0	0	0	0
31	8	8	6	7	7	0	0	0	0	0

Note No observations during the following periods:

2nd	2225-	2340	13th	0700-	2300
4th	0325-	0550	18th	1930-	2400
4th	2225-	2340	23rd	1930-	2400
5th	2225-	2350	24th	1930-	2200

SOLAR RADIO EMISSION

Flux Density					
Month: May 1966					
Observing station: Hiraiso			Frequency: 500 Mc/s		
Flux density $10^{-22} W_m^{-2} (c/s)^{-1}$					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	26	26	26	26	26
2	27	27	27	28	27
3	27	28	27	27	28
4	27	27	26	28	27
5	27	26	27	26	27
6	27	27	26	26	26
7	28	27	26	27	27
8	28	28	26	26	27
9	28	27	26	26	27
10	27	28	26	26	27
11	29	28	27	27	28
12	27	27	26	25	27
13	27	27	26	26	26
14	26	27	28	28	27
15	30	29	26	27	28
16	28	29	29	30	28
17	30	29	27	28	29
18	29	28	28	26	28
19	29	29	30	29	28
20	28	27	28	-	28
21	30	29	30	27	29
22	29	29	27	29	28
23	29	30	29	-	29
24	29	31	32	29	31
25	31	30	28	27	29
26	29	29	28	27	28
27	29	29	31	26	29
28	28	27	26	30	27
29	31	30	30	28	30
30	29	28	29	26	28
31	28	28	29	29	28

Note No observations during the following periods:

20th 1930- 2400

23rd 1930- 2400

Measurement of H.F. Field Strength (Upper Side-band of WWV)
 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antennas: Rod (4.5 m) Measured at Hiraïso

UT Date	0015	0115	0215	0315	0415	0515	0615	0715	0815	0915	1015	1115	1215	1315	1415	1515	1615	1715	1815	1915	2015	2115	2215	2315	
1	<18s	<18s	<19s	<24s	<16s	<12s	<9s	<16s	<30s	<26s	<9s	<14s	<2s	<5s	<6s	<9s	<8s	<27s	<11s	<33	<26	<19	<18	<19	
2	-7	-12	-9	-16	<10s	<10s	<11s	-17	<20s	<7s	<14s	<9s	<9s	<11s	<7s	<3s	<25s	<25s	<11s	-33	-26	-19	-18	-19	
3	-28	<25s	-29	<15s	<26s	<24s	<11s	-23	<24s	<26s	8	1	<18s	7	7	2	-16	-6	-14	-14	-13	-14	-13	-6	
4	<21s	-17	-22	<22s	-17	<18s	<36s	<19s	<26s	<22s	<11s	<12s	<3s	<22s	<26s	<16s	<22s	-27	-24	-22	-17	-8	-6	-11	
5	-19	-19	-12	-23	<16s	<14s	<27s	<27s	<30s	<21s	<15s	<11s	0	-1	-4	-17	-12	-17	-21	-31	-17	-8	-6	-11	
6	-20	-11	-11	C	<15s	<19s	<11s	<20s	<15s	<16s	<12s	-11	3	2	<14s	<19s	-17	-23	(-30s)	-27	-16	-10	-12	-15	
7	-18	-18	<22s	<24s	<18s	<17s	<25s	<22s	<24s	-14	-15	-7	8	2	-7	-4	-13	-22	-19	-13	-14	-9	-12	-21	
8	-24	-24	-15	-20	8	<15s	8	<14s	<24s	<4s	<24s	6	6	<8s	3	2	-1	0	1	-12	-7	-2	-12	-14	
9	-19	-22	-20	-22	-19	-20	<22s	<20s	<16s	<15s	-11	-1	<5s	6	-3	<16s	<16s	-3	6	-8	-8	2	-6	-9	
10	-17	-13	(-17)c	-10	-22	<18s	<29s	<24s	<22s	<17s	-11	7	11	-3	-2	-2	-2	-11	-14	-15	-12	-7	-12	-11	
11	-16	-13	-7	-10	-5	(-12s)	-3	-4	-8	<12s	<8s	2	1	7	-10	-6	-10	-10	-15	-8	2	-18	-6	-18	
12	-23	-14	-14	-18	<16s	-8	-3	-3	-3	-3	-1	-5	0	-1	-9	-20	-16	1	-9	2	5	<18s	-4	-11	
13	-18	-14	-7	-18	<21s	<20s	<22s	<19s	<19s	<15s	-13	-1	8	9	-11	-2	-11	12	(-10s)	-7	-8	-4	-7	-8	
14	-9	-11	-11	-11	-22	<28s	<23s	<19s	-6	-6	-6	-2	8	1	-7	-3	-10	-7	-9	-7	-4	-7	-14	-14	
15	-11	-11	-15	-14	-19	<21s	<22s	-21	-22	<19s	-13	14	15	0	2	-5	-6	-6	-10	-10	-14	-9	-14	-10	
16	-7	-13	-8	-7	-10	-13	-18	-14	-8	-5	-11	11	8	6	-8	-12	-13	-17	-13	-10	-10	-17	-13	-19	
17	-17	-19	-14	-12	-15	-13	-16	<2s	<25s	-18	-6	5	8	3	-8	-8	-8	-14	8	-12	-7	-7	-9	-16	
18	-14	-20	-20	-19	<10s	<21s	<21s	-18	-19	<19s	<19s	2	-2	7	-8	-10	-17	<31s	<10s	-11	-7	-9	-13	-12	
19	-10	-18	-17	-17	<19s	<24s	<23s	<29s	-18	<11s	<15s	4	8	1	-7	2	-1	-1	<12s	-11	-13	-17	-21	<21s	
20	(-23)c	-20	-16	-9	-20	<16s	<22s	-14	<22s	<19s	-8	-3	8	-2	-2	-7	-8	-16	-9	-8	-6	-9	-9	-28	
21	(-27)s	-16	-13	-18	-10	-18	-13	-22	-19	-17	-11	-3	-1	1	2	2	-7	-9	-13	-17	-10	-7	-14	-13	
22	-24	-17	-15	-16	-11	-17	-23	-23	-8	-7	-9	3	16	5	-1	-8	-8	-7	-13	-15	-9	-12	-13	-19	
23	-12	-16	-10	-4	-11	-9	-11	-18	C	C	4	6	12	3	0	-3	-7	-3	-9	-12	-13	-6	-10	-12	
24	-8	-11	-9	-11	-14	-11	8	-27	-23	-13	-5	7	(9s)	-1	-1	-4	-10	-4	-8	-15	-8	-11	-14	-14	
25	-18	-15	-14	-16	-11	-15	(-29)s	-24	-10	-3	10	-3	8	11	5	-9	-14	-21	-20	-13	-8	-13	-13	-15	
26	-24	-25	-12	-12	-13	-25	<21s	<14s	-21	<12s	(-9s)	<9s	<5s	<11s	<7s	<5s	<13s	<28s	<29s	<33s	<34s	-28	-18	<34s	
27	<26s	<29s	<29s	<36s	<31s	<26s	8	<19s	-21	<18s	<20s	-14	-2	8	-11	<16s	<17s	<34s	<8s	<11	-6	-3	-7	-12	
28	-13	-15	-14	-3	-10	-3	-9	-9	-8	-10	-13	8	4	0	5	-7	-13	-20	<9s	-12	-11	-4	-4	-9	
29	-9	-12	-12	-17	-10	-18	-18	-14	<11s	<13s	-9	8	5	8	-8	-7	(-13s)	-11	-13	-12	-3	8	(1s)	-25	
30	-20	-19	-19	-19	C	C	C	C	<1s	-16	-14	-1	-2	0	1	-5	-4	-7	-15	-24	-14	-12	-22	-21	
31	-23	-28	8	<16s	<10s	-20	8	<17s	<18s	<17s	<17s	-11	<2s	<12s	-12	<4s	<19s	<27s	<21s	<24s	-27	(-29)s	(-27)s	(-28)s	
Median	(-18)s	-17	-14	(-17)s	<17s	<19s	<(-27)s	<(-19)s	<(-19)s	<(-15s)	(-11s)	-1	(4s)	(-1s)	(-7s)	(-13s)	-11	(-13s)	-11	(-13s)	-12	-9	-9	-12	-14
Med. Count	31	30	30	30	29	30	30	30	30	30	30	31	26	31	31	31	31	30	30	29	29	28	28	28	29
Upper decile	-8	-11	-8	<5s	<10s	-9	<4s	<3s	<4s	<4s	10	10	<15s	<7s	<2s	2	-2	0	-8	-7	-3	-3	-6	-8	
Lower decile	<26s	<26s	<22s	<24s	<22s	<25s	<27s	<26s	<26s	<22s	<17s	<12s	<3s	<11s	<12s	<17s	<19s	<28s	<28s	<24s	<26	<19s	<21	<28s	

Measurement of H.F. Field Strength (Upper Side-band of WWVH)
 Frequency: 15 Mc/s, Bandwidth: ±40 c/s, Receiving Antenna: Rod (4.5 m) Measured at Hiraio

May 1966

UT Date	0045	0145	0245	0345	0445	0545	0645	0745	0845	0945	1045	1145	1245	1345	1445	1545	1645	1745	1845	1945	2045	2145	2245	2345
1	-4	-3	0	3	9	15	16	12	4	15	3	-5	14	-3	-13	<5s	0	0	0	0	0	0	0	0
2	-13	0	5	8	15	17	20	20	20	21	23	21	26	<10s	<2s	<15s	-1	4	8	0	0	0	0	0
3	-15	-4	5	6	7	16	20	22	19	19	16	13	<8s	13	4	-4	16	9	2	0	0	0	0	0
4	-10	-6	-1	14	15	19	20	20	12	-5	10	7	19	13	1	-12	14	7	-2	2	2	-1	-4	-6
5	-3	-8	4	3	12	12	21	14	-5	-6	-7	-7	14	-15	<10s	<23s	-6	2	0	4	-1	-2	-2	-4
6	-6	-3	0	8	15	15	16	21	8	9	9	1	4	12	<10s	-10	4	2	-2	7	-2	-2	-5	-10
7	-6	-3	0	1	11	15	20	18	15	3	0	-5	-2	7	<13s	-2	11	-7	2	-3	0	-4	0	-9
8	-8	-2	-1	4	8	17	20	25	17	<13s	(6s)	3	6	7	-7	-2	11	6	-1	2	0	0	-6	-6
9	-9	-4	-1	3	9	15	18	24	21	17	-4	17	6	-1	<8s	<15s	11	7	5	12	3	0	-3	-3
10	-2	-4	-4	10	10	16	19	11	17	21	17	17	12	-7	<6s	<17s	13	0	-8	3	-3	-4	-2	-3
11	-4	-5	0	4	11	14	16	19	17	23	13	3	3	6	<14s	-11	6	0	0	0	-3	-10	-4	-5
12	-5	-4	1	3	11	16	15	17	20	13	9	6	10	-12	-10	<19s	-7	3	(4c)	11	6	-3	-15	-20
13	-5	-8	-9	4	11	15	19	16	17	18	-7	-3	0	5	-5	3	23	19	4	-1	2	-7	-6	-9
14	-4	-1	3	11	9	20	18	21	24	19	17	15	12	-2	-2	-12	-9	-1	2	-1	2	-6	-2	-8
15	-9	-6	0	8	14	18	17	20	19	19	20	14	14	12	-4	-20	-9	4	5	11	-1	-8	-7	-8
16	-8	-2	-1	7	8	15	18	22	18	17	15	19	15	16	-9	-12	6	15	7	2	1	-5	8	-6
17	-7	-6	-6	1	13	14	18	20	<22s	19	25	23	16	18	15	-12	-2	13	1	11	3	1	-5	-13
18	-11	-8	-2	0	12	15	16	21	18	17	18	19	19	0	-2	1	13	10	2	4	2	-1	-5	-10
19	-12	-4	-2	7	15	13	16	20	19	18	20	18	19	1	11	-1	16	9	10	5	1	-4	-10	-12
20	-3	-3	-2	3	9	14	16	21	22	21	20	20	19	15	21	15	19	15	5	4	0	-1	-13	-15
21	-11	-8	-2	4	5	12	15	19	18	15	16	20	14	-1	-1	-15	15	13	1	8	1	-4	7	-14
22	-5	-5	-1	2	14	14	17	17	21	17	19	11	18	20	16	2	14	8	2	5	-1	-5	-4	-7
23	-2	-6	-2	2	12	13	18	22	C	C	15	18	18	14	10	19	14	9	8	5	5	2	0	-1
24	-3	-5	-3	1	13	18	16	19	23	21	18	12	7	<7s	-3	-11	10	-4	4	5	5	-4	-2	-6
25	-4	-3	-4	5	14	14	19	21	20	22	21	15	21	17	12	8	8	10	-3	0	3	0	-4	-4
26	-7	-3	-1	6	11	13	23	17	20	20	9	13	21	19	18	13	-6	<6s	<16s	<29s	-10	-6	-27	-12
27	-18	-17	-12	-4	3	10	13	11	6	22	<23s	<19s	<9s	<15s	-17	-6	9	5	11	8	2	1	-6	-7
28	0	0	3	7	11	19	16	23	23	17	25	22	16	3	16	-10	-14	9	3	4	0	1	0	-5
29	1	-3	-2	3	10	14	19	20	22	23	20	26	22	19	8	-10	14	9	9	4	4	2	4	-2
30	-4	-2	7	10	C	C	18	C	19	14	25	18	20	15	-5	15	-2	4	-2	5	4	4	-8	-10
31	-8	-3	5	8	11	13	18	21	23	21	23	21	20	23	16	24	10	15	-2	6	3	-9	-1	-1
Median	-6	-4	-1	4	11	15	18	20	(19s)	18	16	15	15	(10s)	(-2s)	(-10s)	10	7	2	4	1	-3	-5	-8
Med. Count	31	31	30	31	30	30	30	30	30	30	31	31	31	31	31	31	30	30	30	30	29	29	29	31
Upper decile	-2	0	4	10	15	19	20	23	23	22	23	22	21	19	16	15	16	15	9	11	11	5	2	0
Lower decile	-13	-8	-6	1	7	12	15	12	<6s	<3s	-6	-5	<0s	<12s	<13s	<19s	-7	-4	-4	-3	-3	-8	-13	-14

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

May 1966	Whole Day Index	H B			W W V				S F				W W V H				Warning				Principal magnetic storms			
		06 12 18 24	06 12 18 24	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	00 06 12 18	Start	End	Δ H					
1	4-	4	3	3	(3)	-	-	4	4	4	4	4	4	4	4	4	N	N	N	N				
2	4-	4	3	(3)	4	-	-	2	4	4	4	4	4	4	4	4	4	5	4	4				
3	4o	4	4	(5)	2	-	(4)	4	4	4	4	4	4	4	4	4	4	5	4	4				
4	4-	4	3	(4)	3	-	-	4	4	4	4	4	4	4	4	4	4	4	5	4				
5	4o	4	4	4	4	-	(4)	4	4	(4)	4	4	4	4	4	4	4	4	4	4				
6	4-	C	(4)	4	(4)	-	(2)	3	4	(4)	4	4	4	4	4	4	4	5	4	4				
7	4-	4	4	4	3	(4)	4	4	4	(4)	4	3	4	4	4	4	4	4	4	4				
8	4o	4	4	4	3	4	5	4	4	(4)	4	(4)	4	(4)	4	4	4	(4)	5	4				
9	4o	4	4	4	3	(3)	4	4	(4)	5	(5)	5	4	4	4	4	4	4	4	4				
10	4+	4	4	4	4	4	5	5	4	5	4	5	4	5	4	4	4	5	4	4				
11	5-	4	(4)	C	5	(5)	5	5	5	4	4	5	4	5	4	4	4	5	4	4				
12	5-	4	5	5	4	5	4	5	5	5	5	5	5	5	5	5	4	4	(4)	4				
13	4+	4	4	5	4	4	5	4	4	4	4	5	4	4	4	4	4	4	4	4				
14	4+	4	4	4	4	4	5	4	4	5	4	4	4	5	4	4	4	5	4	4				
15	4+	4	5	C	4	4	5	4	4	4	4	4	4	4	4	4	4	5	4	4				
16	4+	4	4	4	5	5	4	5	4	4	4	4	4	4	4	4	4	5	4	4				
{17}	5-	4	5	5	4	5	(4)	4	5	4	5	4	4	5	4	4	4	5	5	4				
{18}	4+	4	4	5	3	4	4	4	4	5	5	4	4	5	5	4	4	5	5	4				
{19}	4+	4	5	4	4	4	5	4	4	5	4	4	4	5	5	4	4	5	5	4				
20	4o	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5	4				
21	4+	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	5	4	4				
22	4+	4	5	4	4	4	5	5	4	4	4	4	4	4	4	4	4	5	5	4				
23	4+	4	4	4	5	4	5	5	4	4	4	4	4	4	4	4	4	5	5	4				
24	4+	4	4	4	5	4	5	5	4	4	4	4	4	4	4	4	4	5	4	4				
25	4+	4	4	C	4	5	4	5	4	4	4	4	4	4	4	4	4	5	5	4				
26	2+	3	(2	2)	4	(2	1	1)	4	3	2	2	4	5	4	3	N	N	U	U				
27*	3-	3	3	(3)	(1	2)	3	4	2	3	3	4	3	4	4	4	U	U	U	U				
28	4o	3	4	C	5	4	4	4	4	3	4	4	4	5	4	4	N	N	N	N				
29	4o	3	4	4	4	4	4	4	4	4	4	4	4	(5)	4	4	N	N	N	N				
30	4-	4	4	4	(3)	3	4	3	4	4	5	4	(4)	5	5	4	N	N	N	N				
31	3-	3	(3	3)	2	(2	2)	1	3	4	4	3	4	5	5	4	N	N	U	U	0343	---	86 ^y	
																					2328	---	174 ^y	
																						---	---	07xx

IQSY GEOALERT and ADALERT (Western Pacific Region)

- * = MAGSTORM
- o = MAGCALME
- Δ = COSMIC EVENT

- () = Regular World Day
- = impossible to evaluate
- () = inaccurate
- C = artificial accident
- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAI SO

Time in U.T.

May 1966	Drop-out Intensities (db)						S W F		Type	Imp.	Correspondence		
	HA		TO		HB		Start-time	Dura-tion			Flare	Solar Noise	Mag.
	WS	SF	HA	TO	HB	SH							
4	11	2				8	01.50	40	1+	x	x		
11	-	11	10	-			20.57	52	1+	x	x		
12			6				03.52	17	1				
25	6					2	06.28	30	1-	x	x		

IONOSPHERIC DATA IN JAPAN FOR MAY 1966

第 18 卷 第 5 号

1966年8月20日 印刷
1966年8月25日 発行 (不許複製非売品)

編集兼 田 尾 一 彦
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電話 國分寺 (0423) (21) 1 2 1 1 (代)

印刷所 丸 井 工 文 社
東京都千代田区神田猿樂町2の8
電話 (291) 5 6 0 7, 5 6 0 8
