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IONOSPHERIC DATA IN JAPAN

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RADIO RESEARCH LABORATORIES

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN

CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES AND HIRAISO BRANCH

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.	Nukui-Kitamachi, 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 Branch.

	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_0F2, f_0F1, f_0E — The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.

f_0Es — The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.

f_bEs — The lowest ordinary wave frequency at which the Es 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.

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

$h'Es$ — The lowest virtual height of the trace used to give the f_0Es.

$hpF2$ — The virtual height of the $F2$ layer measured on the ordinary

wave component at a frequency equal to $0.834 f_0F2$.

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

a. Descriptive 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 *Es*.

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. Definitions of the CNT, MED, UQ and LQ

Median count (CNT) is the number of values from which a median has been computed. In addition to numerical values, the count may include certain descriptive letters.

Median (MED) of a set of numbers is the middle value when the numbers are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

Upper quartile (UQ) is the median value of the upper half of the values when they are ranked according to magnitude; the *lower quartile* (LQ) is the median value of the lower half.

d. Description of Standard Types of *Es*

The eight standard types of *Es* are identified by corresponding capital letters: *F*, *L*, *C*, *H*, *Q*, *R*, *A*, *S*. These letters suggest the names flat, low, cusp, high, equatorial, retardation, auroral and slant, respectively. The letter '*N*' is used to designate any *Es* trace that does not correspond to any of the eight types.

F	An *Es* 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 *Es* traces observed in the daytime are classified according to their virtual hight: *H* or *L*.
L	A flat *Es* 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 *Es* trace showing a relatively symmetrical cusp at or below f_0E. 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 *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above f_0E. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)
Q	An *Es* 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 *Es* 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 *Es* 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 *Es* trace which rises steadily with frequency and usually emerges from another type *Es* 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 *Es* trace such as *Es-L* or *Es-F*, at frequencies which greatly exceed the *E* layer critical frequency, whereas at low latitudes it usually rises from *Es-Q* *Es-C* or *Es-H* at frequencies near the regular *E* critical frequency. Type *S* is never used to determine f_0Es and $h'Es$. The slant trace is sometimes observed to start at f_0E without echoes clearly identifiable as *Es* echoes being seen.

N The designation '*N*' is used to denote an *Es* 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.

e. **Multiple Reflections from *Es***

When the ionogram shows the presence of multiple reflections from *Es* 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 MHz at Hiraiso Branch.
Antennas are two parabolic reflectors : 10 meter for 200 MHz and
5 meter for 500 MHz, 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} W·m^{-2}Hz^{-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 MHz 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.

Bracet means that observation time does not exceed one third of the period.

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 Strengths of WWV and WWVH

Field Strengths observations of WWV and WWVH transmitted from Fort Collins, Colorado and Hawaii, respectively, are carried out at Hiraiso Branch. In order to avoid interferences with other standard frequency waves on the same frequency, the upper side-band of 440 Hz is picked up by the use of a narrow band pass filter with ±40 Hz bandwidth.

The *tabulated field strength* 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	Fort Collins, Colorado Long. 105°02′ W Lat. 40°41′ N	Maui, Hawaii Long. 156°28′ W Lat. 20°46′ N
Power	3 kW for the upper side-band	0.5 kW* for the upper side-band
Antenna	λ/2 vertical	λ/2 vertical
Distance	9150 km	6270 km

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

Receiver

Antenna	4.5 m vertical rod
Bandwidth	±40 Hz for the upper side-band
Calibration	every half an hour

The meaning of *Descriptive symbols* is 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.

U: Inaccurate measurement influenced by interferences, atmospherics, or non-propagational reasons.

E: 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)
2=poor (disturbed)
3=rather poor (unstable)
4=normal
5=good

The tabulated circuits contain Hamburg (commercial circuit), WWV (10, 15 and 20 MHz frequencies broadcast from Fort Collins, Colorado), Lima (commercial circuit) and WWVH (10 and 15MHz frequencies broadcast from Hawaii), which are received at Hiraiso Branch.

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

N=normal
U=unstable
W=disturbed

The letter W expresses HF propagation disturbances which are expected to occur during the following 12 hours after issue. The letter U and N also means unstable and normal conditions, respectively.

Whole day radio quality indices stand for the averages of the 6-hourly indices of the circuits of Hamburg, WWV and Lima.

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

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

The data of short wave fade-out (SWF) are prepared from the records of field intensities at Hiraiso, of the following circuits. Start-time, Duration, Type and Importance are obtained from the data of a circuit whose Drop-out Intensity is underlined. Drop-out Intensities of 10, 15 and 20 MHz are indicated by (′), (none), and (″), respectively. Characteristics of the phenomenon are classified as follows.

Circuits and Drop-out intensities

CO.....WWV 20, 15 and 10 MHz (Fort Collins, Colorado)
LM .....Various frequencies of commercial circuit (Lima)
HA.....WWVH 15 and 10 MHz (Hawaii)
TO.....JJY 15 and 10 MHz (Tokyo)
SH.....BPV 15 and 10 MHz (Shanghai)
HB.....Various frequencies of commercial circuit (Hamburg)

Start-time and Duration
Types

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

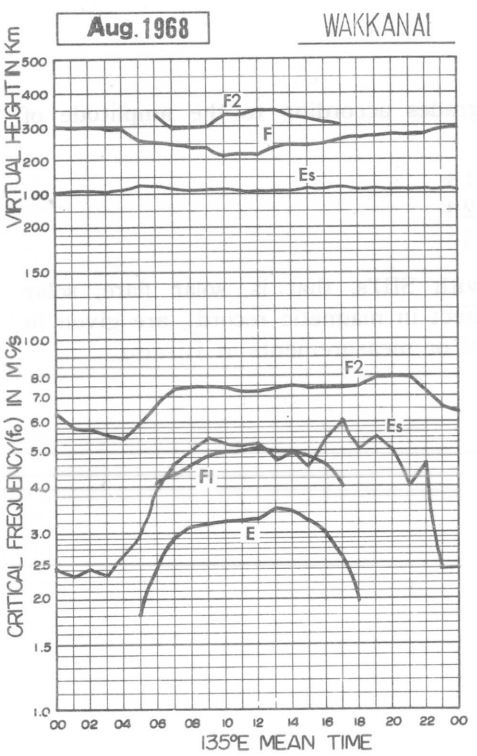
Importances

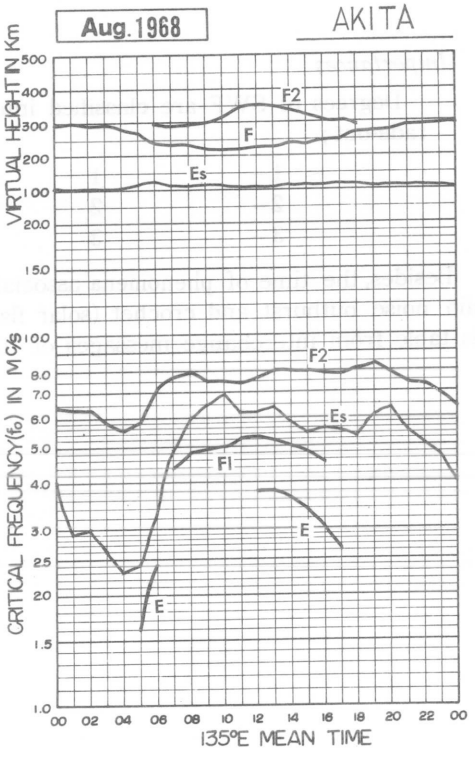
Degrees of SWF are classified into 9 grades according to the amplitude of fade-out;

1−	1	1+
2−	2	2+
3−	3	3+

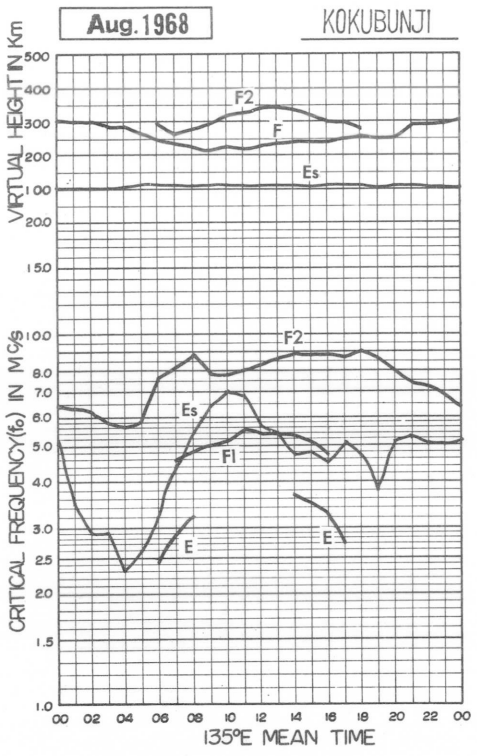
Besides, the time of phenomena associated with SID's, that is, solar flare, solar radio noise outburst and crochet (solar flare effect in magnetic record), are given in this table from interchange messages of IUWDS or measurements at Hiraiso.

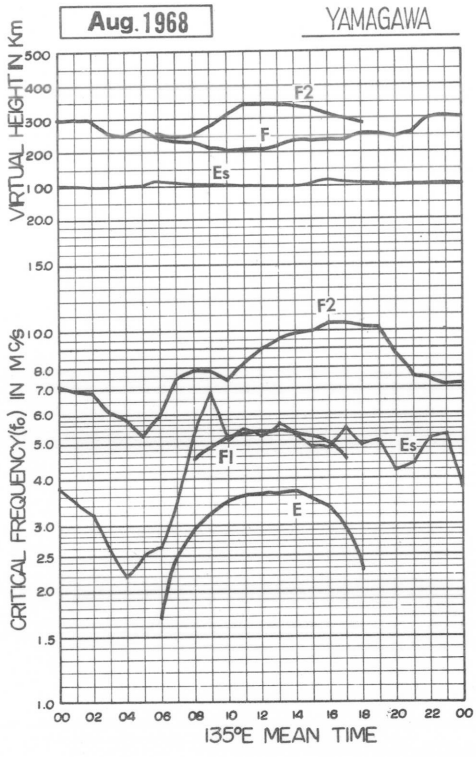
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: WAKKANAI

AUG. 1968

135° E Mean Time (G. M. T. +9h)

CHAR \ HR		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	63	58	57	55	54	60	67	73	74	74	74	72	72	73	74	73	73	73	74	78	79	78	72	66
	CNT	25	26	26	27	26	29	29	29	28	28	27	28	29	31	31	31	31	30	31	30	30	27	22	25
	Q R	11	11	8	8	8	7	9	11	18	14	12	9	9	8	9	7	8	7	8	12	8	10	8	8
foF1	MED							405	430	460	485	495	500	510	500	500	480	460	400	365L					
	CNT							8	14	17	20	20	19	17	22	25	22	15	6	2					
foE	MED					E	180	242	290	310	315	320	328	325	350	345	325	300	255	195	E				
	CNT					20	21	30	30	30	30	28	20	18	21	21	25	27	27	15	9				
foEs	MED	J24X	J23X	J24X	J23X	J26X	29	39	46	J50X	J54X	J52X	J51X	52	47	J50X	45	J54X	J61X	J50X	J54X	J50X	J40X	J46X	J24X
	CNT	30	30	30	30	30	30	30	30	30	31	31	31	29	31	31	31	31	31	31	30	30	30	30	30
	Q R	23	13	15	15	20	10	22	23	29	33	30	20	22	22	18	22	32	27	47	30	32	33	36	23
f-min	MED	E	E	E	E	E	E	12	12	17	18	18	20	20	20	18	18	17	11	E	E	E	E	E15E	E
	CNT	30	30	30	30	30	30	30	30	30	31	31	31	30	31	31	31	31	31	31	30	30	30	30	30
M (3000) F2	MED	270	270	270	270	275	280	285	300	298	300	288	282	285	280	290	290	290	290	290	280	280	275	278	275
	CNT	25	26	26	27	26	29	29	29	28	28	28	28	29	31	31	31	31	30	31	30	30	27	22	25
M (3000) F1	MED							322	350	365	360	360	350	345	340	340	340	340	345	U335L					
	CNT							8	11	15	18	17	19	17	22	24	21	13	5	1					
h'F2	MED							335	290	295	298	328	330	350	350	325	325	310	305	285					
	CNT							12	25	23	26	26	25	27	31	29	30	26	18	3					
h'F	MED	290	298	300	295	295	260	255	250	235	232	210	215	215	235	250	245	250	258	270	270	275	275	275	280
	CNT	29	30	29	30	30	26	23	18	18	18	18	19	18	23	23	22	20	18	20	24	26	25	25	28
h'Es	MED	110	110	108	105	110	125	125	120	115	115	110	110	110	110	110	118	115	120	115	112	110	110	110	110
	CNT	23	25	26	26	26	28	29	30	28	30	28	28	25	27	27	26	28	31	30	30	28	28	28	24
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: AKITA

AUG. 1968

135° E Mean Time (G. M. T. +9h)

CHAR \ HR		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	64	63	63	58	55	58	71	77	80	75	75	74	76	80	80	80	78	78	81	83	78	74	73	68
	CNT	14	15	15	20	22	27	30	29	29	28	28	28	29	28	29	28	28	28	29	29	23	21	17	15
	Q R	8	8	8	9	9	7	9	18	15	20	12	10	8	10	11	8	7	10	12	12	11	9	12	10
foF1	MED							405L	440	480	490	500	525	530	520	500	480	450	420						
	CNT							4	12	13	17	19	24	24	20	21	18	10	2						
foE	MED						162	U240	285	328	355	365	380	380	382	365	335	305	260		E				
	CNT						4	7	3	2	3	2	1	5	8	9	12	13	7		1				
foEs	MED	J40X	J29X	J30X	J26X	J23X	J24X	33	J49X	J60X	J65X	J69X	J62X	J62X	J64X	J58X	J54X	J56X	J55X	J53X	J61X	J63X	J54X	J50X	J47X
	CNT	30	29	30	30	28	29	29	29	29	29	29	29	30	30	30	29	28	29	29	28	27	29	30	30
	Q R	35	17	14	12	11	10	17	34	27	26	42	31	32	40	39	35	42	40	31	39	37	25	46	50
f-min	MED	E13S	E	E	E	E	12	17	17	18	18	20	21	22	21	19	18	18	17	14	E13S	E13S	E13S	E13S	E13S
	CNT	30	29	30	30	28	29	29	29	29	29	29	29	30	30	30	29	28	29	29	28	27	29	30	30
M (3000) F2	MED	270	265	275	280	285	290	305	315	305	305	300	285	290	285	290	290	295	295	300	295	285	275	285	275
	CNT	14	15	15	20	22	27	30	29	29	28	28	28	29	28	29	28	28	28	29	29	23	21	17	15
M (3000) F1	MED							330L	355	365	365	365	350	355	352	348	348	350	345						
	CNT							4	12	13	17	19	23	23	20	20	18	10	2						
h'F2	MED						312	290	280	280	295	310	345	350	348	330	320	305	300	285					
	CNT						2	19	28	29	28	22	27	28	28	29	28	27	28	6					
h'F	MED	290	300	290	290	278	270	240	232	U230A	220	215	218	225	225	235	230	240	248	270	270	272	280	280	290
	CNT	28	29	29	30	30	30	24	22	16	13	17	18	20	21	20	17	14	16	22	28	28	28	28	28
h'Es	MED	105	105	105	105	105	115	125	115	115	115	115	110	110	110	115	118	115	115	115	110	110	110	110	110
	CNT	30	28	28	26	22	23	28	28	29	29	28	28	28	27	29	26	27	29	29	28	27	29	30	28
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: KOKUBUNJI

AUG. 1968

135° E Mean Time (G.M.T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	64	63	62	58	56	58	76	82	88	78	77	80	83	86	89	88	88	87	90	86	80	73	72	68
	CNT	27	26	26	29	29	31	31	31	31	29	27	28	30	30	29	30	30	31	31	30	28	24	24	26
	Q R	10	13	7	7	8	6	8	14	19	18	10	10	10	16	13	16	11	12	17	13	13	11	10	12
foF1	MED								455	485L	500L	510L	U550L	535L	535L	530L	510L	U470L							
	CNT								4	8	4	9	7	12	14	15	13	5							
foE	MED						140	240	285	320	345	370	U395A	390	390	370	350	312	270	195					
	CNT						1	5	6	4	2	1	1	3	3	7	9	14	13	2					
foEs	MED	J51X	J35X	J29X	J29X	23	26	32	J44X	J54X	J64X	J70X	J68X	56	54	47	48	45	J51X	J47X	J38X	J51X	J52X	J50X	J50X
	CNT	31	30	28	31	31	31	31	30	31	31	31	30	30	30	30	30	31	30	30	30	27	28	30	31
	Q R	25	17	13	11	15	10	11	11	22	48	60	36	25	17	36	21	32	31	29	33	32	34	33	38
f-min	MED	E15S	E15S	13	12	11	15	15	15	16	17	25	26	26	26	25	19	16	15	14	E15S	E16S	E16S	E15S	E15S
	CNT	31	30	28	31	31	31	31	30	31	31	31	30	30	30	30	30	31	30	30	30	27	28	30	31
M (3000) F2	MED	275	275	275	280	280	290	310	315	320	310	300	282	285	285	285	290	295	295	300	298	282	272	280	278
	CNT	27	26	26	29	29	31	31	31	31	26	25	26	29	29	28	30	30	31	31	30	28	24	24	26
M (3000) F1	MED								342	365L	372L	375L	U352L	360L	342L	345L	350L	U360L							
	CNT								4	7	4	7	6	12	12	15	13	5							
h'F2	MED						355	295	262	275	292	315	322	342	345	335	318	300	298	278					
	CNT						3	13	26	31	28	26	24	29	30	27	28	29	30	21					
h'F	MED	302	300	300	280	278	265	248	241	226	210	225	218A	224	235	235	238	242	250	262	251	252	281	284	282
	CNT	29	31	31	31	31	29	30	22	14	11	15	13	16	19	19	17	18	14	14	28	27	26	26	28
h'Es	MED	105	102	102	105	105	115	115	115	110	110	110	110	110	110	110	110	115	115	110	105	110	110	105	105
	CNT	31	30	26	31	29	27	29	30	31	31	31	30	28	29	30	28	29	29	29	30	27	28	30	31
hpF2	MED	390	378	375	360	360	342	300	290	300	302	322	355	355	355	355	345	335	330	320	320	335	370	352	362
	CNT	27	26	25	29	29	30	31	29	31	24	24	24	27	29	26	29	29	30	30	29	27	24	24	26
ypF2	MED	95	98	95	100	95	95	95	90	90	90	95	102	105	100	100	100	105	105	100	100	105	100	100	100
	CNT	27	26	25	29	29	30	31	29	31	24	24	24	27	29	26	29	29	30	30	29	27	24	24	26

IONOSPHERIC DATA
LIST OF MEDIAN VALUES

OBSERVED AT: YAMAGAWA

AUG. 1968

135° E Mean Time (G.M.T. +9h)

CHAR	HR	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
foF2	MED	72	69	68	61	58	52	60	75	78	78	74	82	90	95	99	100	104	104	103	102	87S	75	73S	71
	CNT	21	23	20	25	25	25	29	30	30	29	30	30	30	31	31	31	31	31	30	31	31	30	27	23
	Q R	13	16	16	12	10	10	14	10	17	11	15	12	12	17	17	20	18	16	14	17	17	11	12	13
foF1	MED								U370L	450	490L	520	530	540	540	530	520	500	450L						
	CNT								2	8	11	16	19	22	20	23	22	21	10						
foE	MED						E	168	250	295	325	350	360	365	365	370	352	332	290	225	E				
	CNT						2	8	25	26	22	20	18	18	13	12	18	18	21	15	2				
foEs	MED	J38X	J35X	J32X	J26X	J22X	J25X	26	35	J53X	68	51	54	52	56	52	49	48	J55X	J49X	J50X	J42X	J44X	J51X	J52X
	CNT	30	30	30	30	31	31	30	29	29	28	27	30	29	30	30	31	30	31	31	30	30	30	31	30
	Q R	36	24	20	22	18	19	12	34	23	38	37	34	37	29	21	22	25	23	36	36	44	33	40	27
f-min	MED	E14S	12	13	12	E11E	12	E14S	14	15	15	17	18	20	21	18	17	15	15	14	12	E15S	E15S	E15S	E15S
	CNT	30	30	30	30	31	31	30	29	29	28	27	30	29	30	30	31	30	31	31	30	30	30	31	30
M (3000) F2	MED	270	275	285	285	290	295	315	330	325	310	295	280	278	275	275	280	285	290	295	305	295S	282	265S	275
	CNT	21	23	20	25	25	25	29	30	30	27	30	30	28	30	30	31	31	31	30	31	30	30	27	23
M (3000) F1	MED								U378L	360	370L	365	355	350	355	350	345	345	U340L						
	CNT								2	7	11	16	17	17	17	18	17	17	9						
h'F2	MED							260	250	255	278	318	345	346	342	340	328	312	295	278					
	CNT							7	28	29	25	26	30	28	30	30	30	31	30	31					
h'F	MED	300	300	295	260	255	270	245	230	230	215	206	208	207	216	232	233	U238	U238E	255	254	245	258	298	302
	CNT	31	30	29	30	31	30	29	21	18	16	24	22	14	18	16	18	17	12	15	28	29	29	30	30
h'Es	MED	105	100	100	100	105	105	120	120	110	110	105	105	105	105	105	108	120	115	110	105	100	102	105	105
	CNT	29	28	27	22	26	24	28	28	28	28	27	30	28	29	28	30	30	31	31	29	29	30	28	29
hpF2	MED																								
	CNT																								
ypF2	MED																								
	CNT																								

IONOSPHERIC DATA

AUG. 1968 | foF2 (0.1) | 135 E Mean Time (G. M. T. +9 h)

Station WAKKANAI Lat. 45°23.6'N, Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U F 75	U F 71	68	63	60	71	83	90	93	87	85	71	I A 72	78	73	I A 73	76	I A 75	75	73	75	U F 73	F	70
2	F 63	F 63	F	F 53	56	63	74	83	86	90	74	72	I A 74	73	71	69	68	68	67	78	81	83	80	76
3	70	F 65	F 65	F	F 50	60	72	I R 83	79	68	70	64	70	72	72	70	I A 73	76	81	84	80	73	F 73	F 68
4	F 58	55	53	46	44	52	60	63	A	A	A	A	A	52	53	53	54	I A 56	I A 64	67	72	70	65	63
5	55	53	50	50	50	48	58	71	62	A	A	62	64	64	64	60	65	66	68	71	73	73	F	U F 67
6	63	F	U F 58	U F 63	F 65	60	65	68	71	I A 74	64	A	A	71	69	71	71	69	76	76	73	F	F 76	F 73
7	68	63	60	57	56	64	85	94	77	72	I A 72	70	68	78	83	84	I A 69	73	77	88	U S 85	A	A	A
8	F	F	F	F	U F 58	F 58	68	I A 72	67	68	A	A	I B 71	68	72	72	70	71	73	87	88	88	73	68
9	62	F 65	F 61	58	63	73	F 73	80	78	78	74	75	77	88	80	77	71	71	70	76	78	74	F	F
10	67	U F 63	F	U F 55	F	U F 58	67	73	66	68	67	70	73	73	68	72	66	66	71	73	76	83	76	70
11	66	65	62	60	60	63	70	70	70	76	69	74	71	74	75	73	76	76	74	77	81	78	73	66
12	65	F	F 61	F 60	57	59	70	83	82	85	78	76	80	77	74	74	73	75	78	82	81	81	73	73
13	70	63	60	61	60	60	70	73	75	73	73	73	75	80	84	79	79	80	79	83	78	78	74	70
14	68	64	63	63	F	73	66	77	73	I A 74	86	84	93	86	78	73	73	74	75	88	94	88	73	64
15	64	68	61	55	43	45	46	56	56	55	61	66	65	63	65	69	68	63	66	71	73	69	F	F 60
16	F	F	F 57	U F 58	F 62	F 62	A	A	A	A	I A 83	89	74	I A 76	78	76	76	69	73	80	78	84	73	60
17	57	53	54	55	46	F	58	66	60	59	66	59	67	71	69	73	74	A	69	64	64	68	63	56
18	55	51	I A 48	46	50	49	52	55	61	I A 54	W	54	57	63	60	63	68	71	70	67	66	I A 62	F 63	F
19	F 50	F 48	F 49	F 50	F 43	46	65	73	61	59	53	57	60	63	61	61	I A 63	64	61	65	70	70	65	59
20	54	48	51	F 51	46	47	59	67	51	56	56	61	66	63	61	62	63	63	63	69	74	69	60	47
21	48	U F 43	U F 50	F 49	F 48	55	66	75	71	79	76	73	72	76	76	73	75	74	69	76	78	69	66	64
22	61	56	53	54	54	64	89	86	80	73	72	73	76	79	82	80	74	73	73	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	84	80	69	I C 74	70	76	76	79	78	86	89	I A 88	S 80	F	U F 66
24	F	F 56	F	F	F	F 56	54	69	H 63	64	62	60	59	73	73	70	70	82	83	86	81	73	67	F
25	F	U F 59	U F 57	F 59	F 56	I A 56	64	77	69	70	74	69	81	87	87	86	84	80	81	85	81	F	F	F
26	64	61	58	56	54	66	68	73	82	84	83	I A 73	79	85	81	76	76	69	74	86	87	78	62	58
27	53	53	53	53	51	59	68	73	81	76	80	78	77	73	73	80	74	70	I A 72	78	78	76	65	55
28	52	51	51	50	51	64	67	76	77	81	H 68	73	67	77	75	77	74	74	77	83	81	83	70	67
29	63	56	54	F 54	F	F 60	73	73	84	98	78	70	74	77	75	75	71	73	79	90	88	78	69	63
30	F	F 57	55	53	52	57	77	88	83	93	91	75	71	72	75	80	75	78	75	76	82	84	82	68
31	F 66	F 64	U F 63	F 60	F 56	F 63	63	81	83	80	93	83	83	78	80	79	78	79	79	83	82	81	F	F 65
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	26	27	26	29	29	29	28	28	27	28	29	31	31	31	31	30	31	30	30	27	22	25
MED	63	58	57	55	54	60	67	73	74	74	74	72	72	73	74	73	73	73	74	78	79	78	72	66
UQ	66	F 64	61	60	58	63	72	81	82	82	80	74	76	78	78	77	76	76	78	85	82	82	73	68
LQ	55	53	53	52	50	56	63	70	64	68	68	65	67	70	69	70	68	69	70	73	74	72	65	60

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IONOSPHERIC DATA

AUG. 1968 | foF1 (0.01) | 135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N. Long. 141 41.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A 480	480	490	500	A	A	500	A	A	A							
2								A	A	A	A	A	A	500	500	500	UL 480	A						
3							A	IA 440	470	IA 480	A	A	A	A	A	A	A	410	UL 360					
4							A	A	A	A	A	A	A	490	470	A	A	A	A					
5							IA 410	430	450	A	A	A	A	500	490	490	470	420						
6							A	A	A	A	A	A	A	A	A	480	UL 480	400	L 370					
7								440	L 460	500	IA 500	510	510	500	500	A	A	A						
8							A	A	A	A	A	A	B	A	500	A	460	A						
9							A	440	A	A	IA 500	530	510	500	A	470	A	A						
10							410	430	480	490	530	IA 500	510	500	510	480	440	A	A					
11							400	430	490	490	500	500	480	500	500	460	470	L						
12							UL 470	A	A	500	490	500	H 520	510	520	500	A	A						
13								470	480	500	500	540	520	530	520	A	470							
14								A	A	A	IA 510	A	A	A	A		L	A						
15							410	IA 430	460	490	480	510	520	H 530	IA 490	500	460	A						
16							A	A	A	A	A	510	A	A	500	500	A	L						
17								A	A	IA 480	490	510	510	520	510	A	A	A						
18							390	420	430	IA 480	K	490	500	500		500	470	L 400						
19							400	430	A	A	490	IA 490	A	A	A	490	A	L 400						
20							A	420	L	480	490	510	490	500	L 500	480	440	400						
21								UL 450	L 440	500	520	A	A	A	510	480	460							
22							L 400	A	450	480	500	L 500	520	530	500	480	L 410							
23							C	C	C	500	490	500	IC 520	L 500	500	500								
24								410		480	490			500	500	L 470	A	A						
25								A	UL 460	L 480	UL 500	490	500	UL 500	520	500	UL 460							
26								A	A	A	A	A	A	A	470	UL 470	A	A						
27								L	480	480	490	500	500	520	L 500	A	L	A						
28								L	460	480		480	490	500	500	470	UL 460							
29									480	490	A	A	540	500	490	480	A							
30								A	IC 460	500	480	490	IC 500	530	500	480	L	L						
31								UL 430	IA 480	A	500	A	A	H 500	500	500	420							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							8	14	17	20	20	19	17	22	25	22	15	6	2					
MED							405	430	460	485	495	500	510	500	500	480	460	400	L 365					
UQ							410	440	480	500	500	510	520	520	500	500	470	410						
LQ							400	430	460	480	490	495	500	500	500	480	450	L 400						

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | foE (0.01) | 135 E Mean Time (G. M. T. +9 h)

Station WAKKANAI Lat. 45°23.6'N, Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	195	265	290	315	310	300	300	390	350	355	325	300	275	200	E				
2					A	200	290	305	320	325	330	325	315	300	I A 300	I A 305	300	I A 255	I A 200	S				
3					E	195	250	300	325	350	365	365	355	400	370	335	310	280	200	S				
4					E	190	245	290	300	305	320	A	370	320	300	365	305	255	I A 185	E				
5					E	A 255	280	315	320	315		A	A	A	A	A	315	270	A	E				
6					E	200	250	300	320	335	345	355	325	305	A	A	A	A	A	A				
7					E	180	240	285	305	315	325	305	A	A	A	340	305	A	A	A				
8					E	170	240	295	305	315	300	315	I B 315	I A 300	305	A	A	280	200	S				
9					E	200	240	290	310	315	300	310	A	A	A	I A 325	310	280	200	E				
10					E	180	245	295	320	325	325	315	320	A	A	320	310	275	200	E				
11					E	190	250	290	300	300	I A 350	330	365	370	350	315	305	270	A	A				
12					E	190	250	300	320	345	335	A	A	A	A	A	A	275	180	E				
13					E	150	250	300	310	A	365	365	370	355	340	310	290	A	205	E				
14					E	A 255	300	320	345	360	350	B	385	350	360	315	290	195	E					
15					E	155	260	300	320	330	375	390	390	385	370	330	315	270	S	E				
16					E	S 250	300	315	335	370	370	325	I A 325	365	325	300	210	A	A					
17					E	145	250	300	315	325	320	A	385	395	370	345	300	255	150					
18					E	170	230	290	310	315	310	310	320	355	330	330	300	255	180					
19					E	125	240	290	305	315	320	300	295	I A 300	300	330	305	240	S					
20					E	S 225	280	300	310	305	305		A	A	A	A	A	A	S					
21					E	130	220	280	300	305	320	A	A	A	A	300	320	I A 255	A					
22						180	230	285	295	305	310	A	325	330	330	320	I A 300	265	A					
23						C	C	C	C	300	300	A	C	370	345	325	300	255	150					
24						150	225	280	300	315	A	A	A	350	350	330	300	235	150					
25						130	210	260	290	I C 290	300	350	I A 355	360	350	335	295	240	A					
26						A 225	290	305	325	315	A	A	355	I A 315	I A 320	300	240	A						
27						S 225	285	315	315	315	305	300	305	I A 300	I A 300	300	255	120						
28						150	230	280	305	300	A	A	A	A	350	320	295	250	A					
29						A 235	290	300	315	320	A	A	A	A	330	295	250	A						
30						S 245	285	I C 300	315	A	355	C	350	315	320	295	245	S						
31						A 235	300	315	335	350	350	310	A	A	A	245	200	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					20	21	30	30	30	30	28	20	18	21	21	25	27	27	15	9				
MED					E	180	242	290	310	315	320	328	325	350	345	325	300	255	195	E				
UQ					E	190	250	300	315	325	348	355	370	370	350	330	308	272	200	E				
LQ					E	150	230	285	300	310	310	308	315	320	315	320	300	248	165	E				

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | foEs (0.1) | 135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45°23.6'N. Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 23	16	J X 43	J X 30	23	31	J X 45	47	G	39	J X 73	39	J X 85	90	G	93	J X 58	J X 103	J X 63	J X 66	J X 61	J X 73	J X 61	J X 23
2	J X 41	J X 24	J X 31	J X 22	20	G	35	40	J X 90	J X 123	J X 73	J X 70	J X 73	J X 47	J X 50	J X 45	J X 61	J X 93	J X 103	J X 33	J X 51	J X 28	J X 23	J X 43
3	E	J X 21	J X 33	J X 23	E	33	J X 58	J X 83	J X 47	J X 64	J X 83	60	J X 61	J X 63	J X 60	J X 68	J X 135	J X 53	30	J X 50	J X 31	J X 63	J X 43	J X 53
4	J X 41	J X 30	J X 23	70	J X 65	J X 41	J X 73	J X 120	J X 124	90	86	J X 91	J X 75	60	M 53	54	120	123	J X 121	J X 73	J X 35	J X 28	J X 51	J X 33
5	J X 31	J X 30	J X 21	18	J X 23	29	J X 45	J X 55	41	J X 54	70	J X 74	J X 63	J X 53	43	40	J X 87	J X 65	33	22	E S 16	J X 63	J X 63	J X 41
6	J X 65	J X 38	J X 33	J X 41	32	31	J X 55	J X 73	J X 79	J X 92	J X 93	J X 93	J X 83	J X 65	J X 113	40	J X 65	34	J X 33	43	J X 91	J X 51	J X 53	J X 23
7	24	18	J X 25	18	J X 33	24	33	53	40	J X 60	J X 90	J X 55	42	43	51	J X 128	J X 136	J X 93	J X 93	J X 100	J X 93	J X 133	J X 85	J X 130
8	J X 160	J X 75	J X 60	J X 63	J X 33	40	J X 70	J X 61	J X 66	71	J X 80	J X 75	B	J X 61	44	J X 53	39	J X 61	J X 50	J X 83	J X 41	J X 33	J X 23	E S 15
9	J X 23	J X 24	E	J X 30	E	J X 40	J X 54	40	J X 51	J X 85	J X 100	J X 53	J X 53	J X 54	J X 63	40	J X 53	51	J X 60	J X 60	J X 90	J X 53	J X 63	J X 63
10	24	J X 31	J X 83	J X 63	18	27	40	40	J X 51	50	45	J X 86	51	50	J X 43	43	43	J X 70	J X 40	J X 53	J X 28	J X 25	19	J X 43
11	J X 25	E	E	J X 21	J X 25	27	J X 43	42	J X 50	J X 81	40	40	G	G	J X 56	G	G	30	J X 30	J X 30	J X 35	J X 40	J X 35	J X 25
12	J X 23	J X 25	J X 21	J X 33	J X 61	25	32	J X 73	J X 70	48	J X 50	J X 45	40	40	43	J X 41	J X 63	68	J X 78	J X 53	J X 50	J X 43	J X 73	J X 51
13	J X 29	26	J X 24	J X 31	J X 24	29	31	40	43	39	G	G	48	46	J X 50	J X 63	62	51	G	24	J X 25	J X 33	J X 43	J X 24
14	J X 24	J X 40	J X 21	J X 23	J X 65	J X 43	J X 33	J X 73	J X 123	J X 93	J X 60	J X 60	J X 60	J X 66	J X 80	J X 43	40	J X 53	J X 50	J X 65	J X 31	J X 40	J X 24	E S 15
15	E S 15	16	15	E	13	20	38	48	G	43	G	G	G	44	J X 75	J X 155	39	J X 61	J X 33	21	J X 63	J X 30	J X 25	J X 23
16	I	E	J X 23	40	J X 53	J X 55	J X 73	J X 108	J X 101	J X 144	J X 78	56	J X 63	J X 73	J X 73	47	J X 61	30	26	65	J X 83	J X 33	J X 24	E S 15
17	E S 15	E	J X 20	E	J X 26	29	31	43	J X 63	J X 81	J X 53	39	G	J X 73	46	J X 71	J X 84	J X 101	J X 143	J X 70	J X 25	J X 21	E S 15	E
18	21	J X 33	J X 61	J X 23	J X 40	30	J X 53	37	41	J X 53	38	J X 43	44	G	G	41	37	30	29	J X 33	J X 50	J X 70	J X 54	J X 35
19	E S 17	E	E	L	23	J X 33	29	34	J X 65	J X 54	J X 50	51	50	J X 65	J X 53	J X 50	J X 160	J X 143	J X 98	J X 38	E S 12	E	J X 50	J X 30
20	18	J X 23	J X 30	J X 25	J X 30	40	J X 63	J X 63	38	J X 54	G	40	40	J X 43	J X 43	J X 51	J X 33	33	J X 35	J X 45	J X 25	J X 33	J X 93	J X 43
21	J X 60	J X 33	J X 25	J X 23	L	27	32	35	42	46	45	50	J X 64	J X 55	38	G	G 25	J X 33	36	J X 63	J X 70	J X 63	J X 40	21
22	J X 26	J X 21	J X 21	15	18	23	32	J X 50	J X 44	J X 46	41	J X 43	42	40	40	G	33	30	33	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	J X 83	J X 54	J X 54	C	G	G	45	J X 45	61	J X 50	J X 40	J X 141	J X 74	J X 54	J X 20
24	J X 25	J X 35	J X 40	J X 50	J X 50	J X 33	40	37	38	48	J X 45	J X 53	44	G 31	G	G	J X 72	J X 90	J X 33	J X 68	J X 31	E S 18	J X 51	J X 55
25	J X 42	J X 23	J X 83	51	J X 70	J X 58	J X 71	J X 63	40	E C 40	34	G 34	38	40	J X 90	J X 131	J X 75	J X 64	J X 85	J X 105	J X 63	J X 71	J X 96	E
26	E	E	16	J X 21	J X 43	18	J X 50	J X 63	J X 75	J X 73	J X 65	J X 67	J X 93	J X 78	J X 51	J X 43	J X 54	J X 64	35	J X 73	J X 16	J X 73	J X 35	J X 31
27	L	J X 23	J X 41	J X 25	J X 36	31	31	36	45	J X 53	J X 43	43	39	44	J X 71	J X 63	G	J X 63	J X 85	J X 65	J X 63	J X 40	J X 33	18
28	20	20	J X 24	J X 33	J X 23	G	34	J X 42	J X 51	44	J X 52	J X 41	J X 53	40	J X 60	43	35	J X 50	J X 53	J X 55	J X 27	J X 51	J X 83	J X 33
29	J X 43	J X 65	J X 35	J X 44	J X 38	J X 23	34	38	41	J X 73	J X 54	J X 56	J X 61	J X 50	J X 40	39	J X 65	J X 64	J X 83	J X 93	J X 51	J X 33	J X 53	E S 15
30	J X 33	J X 23	L	L	L	15	G	J X 46	D C 100	J X 50	40	G	E C 67	G	44	G	G	34	J X 38	J X 33	J X 54	J X 23	E	J X 22
31	J X 53	J X 18	J X 20	18	J X 21	21	G 20	31	50	50	49	51	J X 74	39	J X 38	J X 60	35	J X 50	J X 63	J X 43	J X 40	J X 34	J X 31	21
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	31	31	31	29	31	31	31	31	31	31	30	30	30	30	30
MED	J X 24	J X 23	J X 24	J X 23	J X 26	29	39	46	J X 50	J X 54	J X 52	J X 51	52	47	J X 50	45	J X 54	J X 61	J X 50	J X 54	J X 50	J X 40	J X 46	J X 24
UQ	J X 41	J X 31	J X 35	J X 33	J X 40	33	J X 54	J X 63	J X 70	J X 81	J X 72	J X 60	J X 64	J X 62	J X 60	J X 62	J X 68	J X 69	J X 80	J X 68	J X 63	J X 63	J X 61	J X 43
LQ	18	18	J X 20	18	20	23	32	40	41	48	42	40	42	40	42	40	36	42	33	J X 38	J X 31	J X 30	J X 25	20

IONOSPHERIC DATA

AUG. 1968 | foEs (0.1) | 135 E Mean Time (G. M. T. +9 h)

Station WAKKANAI Lat. 45°23.6'N. Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	17	12	24	20	15	29	41	45	G	G	45	G	A	51	G	A	50	A	60	55	35	50	52	18
2	18	19	18	E	13	G	G	35	70	56	66	69	A	G	42	40	G	48	42	27	30	27	20	20
3	E	17	20	E	E	G	50	46	44	62	50	57	51	60	57	62	A	39	G	49	24	30	22	27
4	18	16	17	18	18	38	51	45	A	A	A	A	A	G	G	47	51	A	A	34	20	22	20	22
5	29	25	18	17	14	24	40	G	G	A	A	55	50	41	40	40	G	37	25	20	S	20	42	30
6	41	28	18	21	26	30	49	60	45	A	51	A	A	53	57	40	40	33	30	40	50	28	30	15
7	E	16	18	E	28	G	G	40	G	45	A	G	40	38	40	70	A	62	52	48	50	A	A	A
8	18	42	41	37	24	31	65	A	60	61	A	A	B	50	41	51	35	60	50	40	30	16	19	E
9	17	E	E	E	E	40	51	40	47	53	52	42	40	46	50	37	52	41	56	59	65	41	45	20
10	E	17	40	16	17	G	40	G	47	47	43	54	49	40	42	42	G	47	34	48	20	20	18	E
11	18	E	E	15	17	G	33	G	G	45	40	G	G	G	G	G	G	G	26	27	30	40	31	20
12	20	19	13	16	15	G	G	68	66	45	G	40	40	40	42	40	49	60	60	18	40	32	20	30
13	17	17	17	20	16	G	G	G	G	39	G	G	G	G	45	60	40	28	G	20	20	17	40	22
14	16	24	17	20	55	30	20	70	65	A	51	53	60	55	73	41	G	50	31	50	21	21	23	E
15	E	16	E	E	G	G	G	46	G	G	G	G	G	G	51	41	G	42	30	16	40	20	20	E
16	E	E	E	12	28	56	A	A	A	A	A	G	60	A	48	47	50	28	27	62	60	19	17	E
17	E	E	15	E	22	25	G	43	51	50	G	39	G	G	G	52	65	A	60	40	15	17	E	E
18	18	26	A	18	31	22	G	G	G	A	G	G	G	G	G	G	G	G	G	22	22	A	48	25
19	E	E	E	E	20	28	G	G	52	52	48	50	50	50	51	41	A	30	30	17	E	E	29	20
20	16	17	20	17	16	27	41	35	G	G	G	G	40	42	41	36	32	30	33	44	22	25	42	40
21	33	25	16	18	E	25	G	G	G	44	45	50	54	54	37	G	G 25	33	36	25	32	28	38	19
22	18	18	18	12	15	G	G	48	G	G	G	40	G	G	G	G	30	G	30	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	G	G	40	C	G	G	G	G	32	49	26	A	50	30	E
24	17	27	29	29	32	30	36	G	G	G	40	40	37	G 30	G	G	52	47	23	40	20	E	30	36
25	17	E	16	28	28	A	51	60	G	E C 40	37	G 32	37	32	47	42	44	50	61	50	50	50	52	E
26	E	E	E	15	25	17	42	59	68	65	54	A	55	77	40	40	51	62	32	47	18	40	30	20
27	E	E	15	16	E	28	28	34	42	42	G	G	G	42	40	46	G	48	A	25	37	E	E	12
28	16	15	12	17	18	G	G	37	G	G	40	41	44	39	G	27	26	45	32	55	23	19	32	14
29	30	22	25	20	E	16	32	G	G	G	52	50	50	38	36	G	48	G	70	60	38	19	E	E
30	20	17	E	E	E	G	G	42	E C 70	G	37	G	E C 67	G	G	G	G	G	27	30	28	16	E	E
31	12	E	15	11	E	17	G 20	G	49	48	48	50	60	38	36	35	34	42	20	24	30	26	16	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	31	31	31	29	31	31	31	31	31	31	30	29	30	30	30
MED	17	17	17	16	16	23	30	40	E G 42	45	45	40	U 46	39	40	40	35	42	32	40	30	24	30	18
UQ	18	22	20	20	25	30	42	48	U 56	62	52	54	U 58	50	46	46	50	50	54	49	40	40	40	22
LQ	E	E	12	E	G	G	G	G	G	G	G	G	37	G	G	E G 27	G	30	27	25	21	19	19	E

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IONOSPHERIC DATA

AUG. 1968 | f min (0.1) | 135 E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N. Long. 141° 41.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E	E	E	E	11	E	11	11	11	18	18	19	20	18	18	12	12	E	E	E	E	E	E
2	E S 15	E	E	E	E	E	18	17	11	18	18	18	20	17	19	18	17	18	E	E S 15	E	E	E S 15	E
3	E	E	E	E	E	11	E	E	18	17	18	23	19	30	20	18	18	17	12	E S 15	E	E S 15	E S 15	E S 15
4	E	E	E	E	E	E	E	E	11	18	18	20	20	20	18	18	18	E	E	E	E	E	E S 15	E
5	E S 16	E	E	E	E	E	E	E	18	17	18	18	17	11	18	15	11	E	E	E	E S 16	E S 15	E S 17	E
6	E	E	E	E	E	E	17	E	11	18	25	19	20	20	19	19	18	12	E	E	E S 15	E	E	E
7	E S 17	E	E	E	E	E	11	17	18	19	20	20	18	20	20	18	18	12	E	E	E	E	E S 16	E S 15
8	E S 16	E	E	E	E	E	18	18	17	20	20	18	B	20	18	17	22	11	E	E S 15	E	E	E S 15	E S 15
9	E S 15	E	E	E	E	E	16	20	20	20	24	23	20	20	20	18	18	12	17	E	E	E	E	E
10	E S 15	E	E	E	E	11	17	11	18	18	19	20	20	21	18	18	12	E	E	E	E	E	E	E S 17
11	E S 15	E	E	E	E	E	E	11	17	18	18	20	18	23	20	18	17	17	E	E	E	E S 16	E S 16	E
12	E	E	E	E	E	E	11	17	18	18	18	20	20	20	18	17	12	11	11	E	E	E S 14	E S 17	E S 17
13	E S 15	E	E	E	E	E	12	16	18	18	18	18	21	20	17	18	18	18	E	E	E S 15	E S 15	E S 15	E S 15
14	E	E	E	E	E	E	E	11	18	18	20	20	38	21	20	17	18	12	E	E	E	E	E S 15	E S 15
15	E S 15	E	E	E	E	E	E	E	12	18	20	20	20	20	18	17	17	17	E S 17	E	E	E	E	E S 16
16	E	E	E	E	E	E S 17	16	12	17	20	18	20	20	18	19	18	17	11	E	E	E	E	E S 15	E S 15
17	E S 15	E	E	E	E	E	E	17	17	18	20	25	25	20	18	18	18	16	11	E	E	E	E S 15	E
18	E	E	E	E	E	15	18	17	18	18	20	20	21	18	18	19	18	11	E	E	E S 15	E S 16	E	E
19	E S 17	E	E	E	E	E	17	11	18	18	17	18	18	18	17	18	18	E	E S 15	E	E S 12	E	E	E
20	E	E	E	E	E	E S 18	18	18	18	20	20	19	20	20	20	18	18	15	E S 15	E S 15	E	E S 15	E	E S 15
21	E S 15	E	E	E	E	E	13	17	18	20	20	30	28	20	18	18	17	11	E	E S 15	E S 16	E S 15	E S 15	E
22	E 2 15	E	E	E	E	E	12	12	19	20	20	19	20	21	17	18	12	11	E	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	19	17	18	C	20	18	15	18	11	E	E	E	E	E	E S 18
24	E	E	E	E	E	E	E	11	16	16	17	20	18	23	16	17	12	11	E	E	E	E S 16	E	E
25	E	E	E	E	E	E	12	12	11	E C 40	17	20	19	18	12	17	16	11	E	E	E	E	E S 15	E
26	E	E	E	E	E	E	12	12	16	15	18	18	19	18	19	20	20	E	E	E	E	E	E	E
27	E	E	E	E	E	E S 12	14	16	16	17	18	18	18	19	16	19	12	E	E	E	E	E	E	E
28	E	E	E	E	E	E	12	17	17	18	17	20	18	18	17	17	15	E	E	E	E	E	E S 15	E
29	E	E	E	E	E	E	12	16	12	17	25	18	19	16	18	18	12	E	E	E	E	E	E	E S 15
30	E	E	E	E	E	E S 12	12	E	E C 70	18	17	17	E C 67	20	18	18	11	11	E S 15	E	E	E	E	E S 15
31	E	E	E	E	E	E	13	11	15	17	17	18	18	18	16	16	11	E	E	E	E	E	E	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	31	31	31	30	31	31	31	31	31	31	30	30	30	30	30
MED	E	E	E	E	E	E	12	12	17	18	18	20	20	20	18	18	17	11	E	E	E	E	E E 15	E
UQ	E S 15	E	E	E	E	E E 11	16	17	18	18	20	20	20	20	19	18	18	12	E E 11	E	E	E S 15	E S 15	E S 15
LQ	E	E	E	E	E	E	E	11	15	18	18	18	18	18	18	17	12	E	E	E	E	E	E	E

IONOSPHERIC DATA

AUG. 1968

M(3000)F2 (0.01)

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

Station WAKKANAI Lat. 45°23.6'N, Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U F 295	U F 270	280	280	275	270	295	290	290	305	310	280	I A 280	295	285	I A 290	305	I A 290	310	280	280	U F 275	F	290
2	F 270	F 275	F	F 270	275	285	285	300	290	300	290	265	I A 285	295	295	290	280	295	285	270	285	275	290	275
3	265	F 260	F 285	F	F 285	275	270	I K 300	315	295	275	290	265	280	280	270	I A 275	280	295	290	280	280	F 260	F 275
4	F 270	285	285	275	275	255	270	270	A	A	A	A	A	225	245	265	285	I A 275	I A 275	275	255	265	270	285
5	280	285	280	280	285	300	285	300	320	A	A	275	290	285	290	275	275	280	275	280	260	260	F	U F 255
6	260	F	U F 270	U F 270	F 290	285	275	295	275	I A 300	280	A	A	280	270	270	270	250	290	290	275	F	F 270	F 275
7	265	270	270	265	275	270	275	305	300	290	I A 280	270	255	275	290	300	I A 290	285	275	295	U S 295	A	A	A
8	F	F	F	F	U F 275	F 265	I A 280	I A 290	300	295	A	A	I B 290	270	280	290	285	280	270	285	285	290	285	270
9	265	F 270	F 275	275	270	300	F 275	300	280	310	285	275	275	285	285	295	295	285	290	275	280	275	F	F
10	275	U F 275	F	U F 270	F	U F 275	280	305	285	290	255	265	290	285	275	290	290	280	290	265	265	275	280	270
11	275	280	275	270	265	280	295	295	285	320	310	285	270	280	290	290	290	290	285	275	270	280	290	270
12	270	F	F 260	F 265	280	275	265	305	300	310	310	285	285	290	285	285	290	295	280	280	270	295	270	280
13	285	280	270	270	285	280	275	290	295	280	300	275	285	280	290	290	295	300	295	300	275	280	280	270
14	265	260	260	260	F	300	325	300	280	I A 275	285	275	275	295	280	280	285	285	275	275	280	295	260	260
15	255	255	280	290	270	280	245	280	270	235	270	275	275	270	270	265	295	275	265	265	255	260	F	F 255
16	F	F	F 260	U F 260	F 265	F 275	A	A	A	A	I A 265	280	280	I A 275	310	290	280	290	275	275	265	300	275	265
17	265	265	265	270	270	F	280	270	295	255	285	260	270	280	290	280	280	A	280	280	250	265	260	285
18	255	255	I A 250	255	260	280	250	250	280	I A 255	M	260	260	275	280	270	275	290	300	280	275	I A 265	F 260	F
19	F 260	F 250	F 255	F 260	F 250	265	265	285	280	290	240	255	265	280	275	280	I A 285	295	290	270	270	270	275	270
20	275	265	265	F 275	285	275	270	305	315	265	280	260	280	280	280	290	285	290	285	265	285	285	280	285
21	270	U F 255	U F 260	F 265	F 290	305	290	310	290	315	305	285	280	290	295	290	290	310	290	275	295	275	265	275
22	280	275	280	280	280	280	305	305	320	330	310	290	290	280	290	315	285	295	290	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	320	315	305	I C 295	280	295	290	290	290	285	285	I A 285	S 290	F	U F 350
24	F	F 260	F	F	F	F 320	310	290	280	290	290	305	305	280	305	300	275	285	275	290	285	260	260	F
25	F	U F 260	U F 285	F 255	F 265	I A 290	305	330	330	315	270	320	285	300	300	300	310	300	305	305	270	F	F	F
26	270	280	275	270	280	335	320	285	320	310	315	I A 300	285	305	310	305	315	295	285	295	295	310	290	280
27	265	270	270	280	270	300	325	320	320	330	315	300	315	300	295	295	310	315	I A 305	285	300	290	290	295
28	280	270	270	270	280	320	320	315	320	345	285 H	315	295	300	295	300	295	310	295	290	285	300	305	280
29	280	270	275	F 275	F	F 290	310	305	315	320	335	315	295	310	305	305	295	290	290	290	300	310	305	285
30	F	F 290	290	285	275	300	310	315	330	290	330	320	315	280	300	305	305	305	295	290	260	275	305	280
31	F 275	F 265	U F 270	F 280	F 275	F 300	315	325	315	310	300	315	300	285	295	290	295	290	290	285	280	275	F	F 255
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	26	27	26	29	29	29	28	28	28	28	29	31	31	31	31	30	31	30	30	27	22	25
MED	270	270	270	270	275	280	285	300	298	300	288	282	285	280	290	290	290	290	290	280	280	275	278	275
UQ	275	275	280	278	280	300	310	305	318	315	310	302	290	292	295	298	295	295	292	290	285	290	290	285
LQ	265	260	265	265	270	275	275	290	282	290	278	272	275	280	280	280	282	285	278	275	270	272	265	270

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IONOSPHERIC DATA

AUG. 1968 | M(3000)F1 (0.01) | 135° E Mean Time (G. M. T. + 9h)

Station WAKKANAI Lat. 45°23.6'N, Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	350	375	I A 355	380	A	A	340	A	A	A						
2								A	A	A	A	A	A	340	335	345	U L 325	A						
3							A	A	345	I A 360	A	A	A	A	A	A	A	I A 335	U L 335					
4							A	A	A	A	A	A	A	345	345	A	A	A	A					
5							I A 325	350	380	A	A	A	A	345	345	320	350	A						
6							A	A	A	A	A	A	A	A	A	330	I A 330	335	A					
7								A	L 355	I A 350	I A 345	335	345	335	335	A	A	A						
8							A	A	A	A	A	A	B	A	340	A	340	A						
9							A	A	A	A	I A 345	340	340	I A 325	A	345	A	A						
10							I A 345	365	A	A	315	I A 335	I A 335	340	335	I A 355	345	A	A					
11							350	370	330	I A 345	365	340	375	340	340	355	320	L						
12							U L 320	A	A	A	385	355	H 345	335	335	320	A	A						
13								340	345	360	380	345	345	325	I A 335	A	A							
14								A	A	A	A	A	A	A	A		L	A						
15							310	I A 335	350	345	360	335	340	H 325	I A 350	I A 325	350	A						
16							A	A	A	A	A	350	A	A	A	A	A	L						
17								A	A	I A 355	355	350	335	325	335	A	A	A						
18							305	325	355	I A 350	R	345	340	330		320	325	L 350						
19							315	330	A	A	A	I A 345	A	A	A	325	A	L 350						
20							A	335	L	375	350	335	350	340	L 335	335	340	345						
21								U L 355	L 365	I A 340	I A 345	A	A	A	335	345	335							
22							L 375	A	380	370	365	L 360	335	335	340	335	L 365							
23							C	C	C	360	365	360	I C 365	L 360	345	330								
24								365		350	350			340	340	L 355	A	A						
25								A	U L 380	L 375	U L 385	365	370	U L 350	I A 345	340	A							
26								A	A	A	A	A	A	A	360	U L 360	A	A						
27								L	A	365	370	360	360	340	L 345	A	L	A						
28								L	375	365		400	355	340	340	355	U L 360							
29									370	365	A	A	I A 345	360	345	350	A							
30								A	I C 385	350	375	385	I C 370	360	340	350	L	L						
31								U L 370	I A 370	A	A	A	A	H 360	340	340	355							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							8	11	15	18	17	19	17	22	24	21	13	5	1					
MED							322	350	365	360	360	350	345	340	340	340	340	345	U L 335					
UQ							348	362	378	365	370	360	360	345	345	350	350	L 350						
LQ							312	335	350	U A 350	350	340	340	335	335	330	330	335						

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IONOSPHERIC DATA

AUG. 1968 | h'F2 (km) | 135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45°23.6'N. Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	290	295	275	285	320	I A 345	340	310	I A 330	305	A						
2								310	A	295	A	A	A	320	340	340	340	315						
3							A	285	280	I A 320	370	345	390	A 360	355	400	A	315	285					
4							A	345	A	A	A	A	A	635	575	470	A	A	A					
5							345	300	295	A	A	400	360	370	340	400	355	325						
6							325	A	350	I A 340	360	A	A	350	375	340	L 330	325	300					
7								270	285	325	I A 335	350	370	360	320	I A 315	A	A						
8							A	A	A	A	A	A	I B 345	395	350	320	320	I A 335						
9							315	280	290	310	360	395	350	340	320	310	300	300						
10							310	270	330	335	425	400	350	380	365	320	310	325	285					
11							275	290	310	275	300	345	320	340	320	340	300	300						
12							360	I A 290	A	270	305	325	350	320	340	335	305	A						
13								315	300	275	315	365	345	360	320	A 325	305							
14								A	A	I A 330	350	330	345	320	A		A 320	310						
15							570	390	405	585	425	390	390	400	415	370	320	320						
16							A	A	A	A	I A 355	325	340	I A 380	310	325	310	260						
17								360	360	500	345	475	410	360	340	355	A	A						
18							460	465	375	I A 500	W	510	500	395		390	345	300						
19							360	325	375	A	615	510	425	390	370	350	I A 335	300						
20							375	300	L 305	460	440	465	365	365	365	350	325	295						
21								290	265	310	310	A 300	365	325	325	310	320							
22							270	250	260	265	300	320	330	350	310	290	285							
23							C	C	C	285	295	280	I C 325	320	340	340								
24								345		350	320			360	315	305	345	310						
25								290	275	L 280	U L 350	280	330	310	315	300	285							
26								A 350	A 290	300	295	A	350	I A 310	270	275	275	I A 290						
27								270	295	270	295	320	300	325	310	300	L 290	280						
28								275	260	250		300	325	340	325	300	310							
29									285	270	265	285	350	310	300	310	300							
30								275	I C 265	295	295	280	I C 285	360	315	305	300	285						
31								260	275	265	295	300	310	300	305	320	275							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							12	25	23	26	26	25	27	31	29	30	26	18	3					
MED							335	290	295	298	328	330	350	350	325	325	310	305	285					
UQ							368	325	320	335	360	395	365	368	350	350	325	320	292					
LQ							305	275	278	275	295	300	330	322	315	310	300	295	285					

IONOSPHERIC DATA

AUG. 1968 | $h'F$ (km) | 135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45°23.6'N. Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	260	285	300	300	275	I A 255	I A 235	225	200	I A 210	210	I A 215	I A 215	220	A	A	A	A	A	A 300	A	A	250
2	260	275	285	280	310	260	260	A	A	A	A	A	A	230	A 250	240	245	A	A	300	A 270	A 270	265	285
3	280	295	280	255	280	250	A	A	A	I A 230	A	A	A	A	A	A	A	I A 260	260	I A 260	265	300	300	290
4	285	285	300	280	295	A	A	A	A	A	A	A	A	250	265	A	A	A	A	A 290	295	275	295	300
5	310 A	315	290	265	275	265	I A 260	250	210	A	A	A	A	240	245	250	240	I A 235	260	270	265	300	A	A 320
6	A	320	310	315	285	285	A	A	A	A	A	A	A	A	A	255	I A 255	255	A	A	A	A 330	A 325	265
7	270	300	275	270	A 320	265	250	I A 245	220	I A 240	I A 240	235	215	225	250	A	A	A	A	A	A	A	A	A
8	295	I A 330	A	A 340	280	A	A	A	A	A	A	A	B	A	250	A	260	A	A	A	A 285	260	250	260
9	290	290	290	270	270	270	A	A	A	A	I A 235	225	215	I A 260	I A 230	240	A	A	A	A	A	A	A	250
10	265	265	I A 280	295	315	270	I A 260	250	A	A	270	A	A	240	250	I A 240	245	I A 265	I A 270	I A 270	290	275	260	265
11	300	270	270	300	285	260	260	220	220	I A 210	200	215	210	235	235	220	220	240	265	270	300	A 295	275	285
12	300	290	290	300	275	260	250	A	A	A	210	210	H 200	220	250	260	A	A	A	265	A 300	270	275	A 285
13	265	250	290	295	280	260	260	250	225	240	200	225	210	250	A	A	A	250	270	250	260	275	300	290
14	275	325	315	310	I A 315	260	245	A	A	A	A	A	A	A	A	260	255	A	300	I A 300	275	255	255	275
15	320	300	255	250	295	260	290	I A 250	240	225	225	245	240	H 225	A	A	250	I A 265	305	270	I A 295	275	305	300
16	295	315	320	320	300	A	A	A	A	A	A	240	A	A	A	A	I A 250	250	290	I A 300	I A 315	260	250	260
17	305	330	320	275	320	335	250	I A 260	I A 260	I A 235	225	215	250	260	250	A	A	A	A	A 300	300	290	275	275
18	325	350	I A 350	350	A 400	300	290	275	245	I A 235	210	240	265	240	260	265	260	255	270	265	275	A	A	340
19	300	320	300	295	335	A 350	260	250	A	A	A	I A 250	A	A	A	285	A	A 260	A 280	275	275	280	290	300
20	270	310	340	310	265	275	I A 260	250	225	210	200	225	215	250	270	240	250	250	285	I A 290	275	260	I A 295	A
21	A 365	375	320	310	260	260	250	235	250	A	A	A	A	A	235	235	255	275	A 275	280	275	275	A 325	285
22	290	290	300	290	295	270	250	A	230	210	205	210	230	245	250	240	235	250	275	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	220	205	210	I C 210	215	230	280	250	270	I A 280	270	I A 275	I A 280	270	250
24	270	305	330	355	340	250	255	235	H 240	250	235	225	200	225	250	245	A	A	285	A 265	260	265	300	A 400
25	275	275	300	350	345	A	A	A	215	210	200	205	220	215	A	290	I A 265	A	A	A	A	A	I A 240	270
26	260	270	275	290	305	245	A 265	A	A	A	A	A	A	A	250	260	A	A	A 270	I A 265	260	A 260	275	285
27	300	300	300	295	275	250	240	245	I A 245	250	210	210	200	250	250	I A 245	250	A	A	280	270	260	220	250
28	260	295	300	295	285	250	240	245	220	220	H 200	190	I A 245	250	250	250	260	I A 260	265	I A 270	260	250	A 270	265
29	285	300	310	305	300	250	245	240	240	250	A	A	I A 260	205	225	245	I A 245	250	I A 270	I A 270	A 260	250	245	260
30	290	260	260	260	270	250	240	I A 250	I C 250	250	200	210	I C 210	205	210	240	240	260	250	285	A 320	265	245	250
31	295	275	275	255	285	260	220	250	I A 250	I A 260	A	A	A	H 195	205	235	250	275	260	270	280	290	260	290
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	30	26	23	18	18	18	18	19	18	23	23	22	20	18	20	24	26	25	25	28
MED	290	298	300	295	295	260	255	250	235	232	210	215	215	235	250	245	250	258	270	270	275	275	275	280
UQ	300	315	310	310	315	270	260	250	245	250	225	230	240	250	250	260	255	A 265	282	288	295	280	295	290
LQ	270	275	280	280	275	250	248	240	220	210	200	210	210	218	232	240	245	250	265	268	265	260	255	260

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IONOSPHERIC DATA

AUG. 1968 | fEs (km) | 135° E Mean Time (G. M. T. + 9 h)

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	110	110	110	110	125	125	115	G	120	110	120	115	115	G	120	135	120	120	115	115	110	110	110
2*	105	105	105	105	105	G	140	135	115	115	115	110	110	110	110	110	125	110	120	140	120	110	110	110
3	E	105	105	110	E	110	140	135	140	120	120	115	115	150	140	120	115	115	120	110	110	115	115	115
4	110	110	110	125	120	120	115	110	110	115	115	110	115	115	115	125	115	110	110	110	110	110	110	105
5	105	105	100	105	105	135	125	120	125	120	115	110	105	105	105	110	125	125	105	105	S	110	110	110
6	110	110	110	105	105	135	135	125	120	115	110	115	110	110	110	115	110	110	110	120	110	110	115	110
7	110	110	105	110	120	140	125	120	125	120	110	115	110	110	110	115	115	110	110	110	110	110	115	110
8	110	110	105	105	105	125	120	115	115	110	110	110	B	110	110	110	110	125	120	115	115	110	110	S
9	110	110	E	105	E	140	125	125	115	110	110	110	110	110	110	110	135	135	115	115	110	110	110	110
10	110	110	110	105	110	145	135	120	115	110	115	110	115	110	110	120	145	125	120	115	110	110	110	110
11	110	E	E	110	115	145	125	125	120	110	115	120	G	G	115	G	G	140	105	105	105	105	105	105
12	105	110	110	110	110	140	135	115	115	115	115	110	110	110	110	110	110	120	120	115	110	110	110	110
13	110	110	110	105	105	125	145	125	120	110	G	G	120	120	115	110	115	110	G	125	115	110	115	110
14	110	110	110	110	115	115	110	120	115	115	115	110	115	115	115	120	135	135	125	120	110	110	110	S
15	S	110	110	E	140	140	140	120	G	125	G	G	G	135	115	120	140	125	120	140	115	115	110	110
16	E	E	115	110	140	135	125	125	115	120	115	120	110	115	115	120	115	115	120	120	115	110	110	S
17	S	E	110	E	125	120	120	120	110	110	110	110	G	140	145	125	120	115	115	110	110	110	S	E
18	110	125	120	135	120	140	125	125	135	115	120	110	110	G	G	145	145	145	120	120	115	110	110	110
19	S	E	E	E	135	125	140	125	120	115	110	110	110	110	110	150	115	115	115	110	S	E	110	110
20	110	110	110	110	110	125	125	120	120	115	G	110	110	110	110	110	110	110	110	115	110	110	110	110
21	110	110	110	110	E	125	125	120	120	115	120	110	110	110	110	G	105	105	120	115	110	110	110	110
22	105	105	105	105	110	140	140	115	120	115	115	110	120	125	120	G	115	145	120	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	110	105	105	C	G	G	125	125	120	110	110	110	110	105	110
24	105	100	100	100	100	115	120	120	115	110	110	105	110	110	G	G	115	110	110	110	110	S	110	105
25	105	100	105	120	110	115	110	110	115	C	105	105	105	105	115	110	115	115	110	110	110	110	105	E
26	E	E	100	105	100	110	110	110	110	110	110	105	105	110	110	110	120	120	120	115	115	110	110	110
27	E	100	105	105	105	115	120	115	115	110	110	110	110	110	110	110	G	120	110	110	110	115	115	110
28	110	110	105	105	105	G	140	115	110	110	105	105	105	105	120	125	140	120	120	110	110	110	110	110
29	105	105	105	105	100	105	120	120	115	110	110	110	110	110	110	145	120	125	110	110	110	110	115	S
30	105	105	E	E	E	145	G	115	110	110	115	G	C	G	115	G	G	125	115	110	115	115	E	110
31	105	100	100	100	100	105	110	145	115	115	110	110	110	105	105	100	110	110	105	105	105	110	105	110
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	25	26	26	26	28	29	30	28	30	28	28	25	27	27	26	28	31	30	30	28	28	28	27
MED	110	110	108	105	110	125	125	120	115	115	110	110	110	110	110	118	115	120	115	112	110	110	110	110
UQ	110	110	110	110	120	140	135	125	120	115	115	110	115	115	115	125	130	125	120	115	115	110	110	110
LQ	105	105	105	105	105	115	120	115	115	110	110	110	110	110	110	110	115	110	110	110	110	110	110	110

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AUG. 1968

Types of Es

135° E Mean Time (G. M. T. + 9h)

Station WAKKANAI Lat. 45°23.6'N, Long. 141°41.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 2	F 1	F 2	F 2	L 1	C 2	C 3	C 2		C 1	C 2	C 1	C 2	C 2		CL 31	H 2	C 3	C 5	C 3	F 2	F 3	F 5	F 2
2	F 2	F 2	F 2	F 2	L 1		H 1	H 2	C 3	C 4	C 2	C 3	C 4	C 2	L 1	L 2	C 1	L 2	CL 21	H 2	F 3	F 2	F 2	F 3
3		F 2	F 2	F 1		LH 11	H 2	H 2	H 1	C 2	C 2	C 2	C 2	H 1	H 2	C 2	C 4	C 2	C 2	C 2	F 2	F 4	F 2	F 2
4	F 2	F 1	F 1	FH 22	C 2	C 3	C 2	C 3	C 2	C 2	C 4	L 3	C 2	C 1	C 2	C 1	C 2	C 3	L 3	C 2	F 4	F 2	F 2	F 2
5	F 3	F 3	F 1	F 1	L 1	HL 11	C 3	C 3	C 1	C 1	C 2	L 2	L 2	L 1	L 1	L 1	C 1	CL 21	L 1	L 1		F 2	F 3	F 3
6	F 2	F 3	F 2	F 2	L 1	H 2	H 2	C 3	C 2	C 2	C 2	C 2	C 2	C 2	L 2	L 1	L 2	L 2	C 3	CL 44	F 3	F 3	F 5	F 2
7	F 1	F 1	F 2	F 1	C 2	H 1	C 1	C 2	C 1	C 2	C 3	C 1	L 1	L 1	L 1	C 2	C 2	L 4	L 3	L 3	F 2	F 4	F 3	F 4
8	F 3	F 3	F 2	F 2	L 2	C 4	C 4	C 4	C 3	C 3	C 2	C 3		C 2	C 2	L 3	L 1	C 2	C 5	C 5	F 4	F 1	F 1	
9	F 2	F 1		F 1		H 2	C 2	C 1	C 2	C 2	C 2	C 2	L 1	L 1	L 2	L 1	H 1	H 2	C 3	C 5	F 6	F 5	F 3	F 1
10	F 1	F 2	F 3	F 2	L 1	H 1	H 2	C 1	C 1	C 1	C 1	C 2	C 2	L 1	L 1	C 2	H 1	C 2	C 2	C 5	F 2	F 3	F 1	F 1
11	F 2			F 1	C 1	H 1	C 2	C 1	C 1	C 2	L 1	C 1			C 1			HL 11	L 2	L 2	F 3	F 3	F 4	F 3
12	F 2	F 2	F 1	F 1	L 1	H 1	H 1	C 4	C 2	C 1	C 1	L 1	L 1	L 1	L 2	L 1	L 2	C 6	C 5	C 2	F 5	F 4	F 2	F 3
13	F 3	F 1	F 1	F 2	L 2	C 1	H 1	C 1	C 1	L 1			C 1	C 1	C 2	C 2	C 2	L 2		C 1	F 2	F 2	F 3	F 2
14	F 1	F 2	F 2	F 2	L 6	L 2	L 1	C 2	C 2	C 4	C 2	C 2	C 1	C 2	C 3	C 2	H 1	H 3	C 4	C 3	F 2	F 2	F 3	
15		F 1	F 1		H 1	H 1	H 1	C 2		C 1				H 1	C 2	C 1	H 1	C 2	C 3	H 1	F 3	F 2	F 2	F 2
16			F 1	F 2	C 6	C 5	C 3	C 5	C 4	C 2	C 2	C 1	C 2	L 2	C 1	C 2	C 2	C 2	CL 31	CL 41	F 6	F 2	F 2	
17			F 1		C 2	C 2	C 1	C 2	C 2	C 2	C 2	L 1		H 1	H 1	C 2	C 3	C 5	C 2	F 3	F 2	F 1		
18	F 1	F 4	F 4	F 2	C 4	H 1	C 2	C 1	H 1	C 2	C 1	C 1	C 1			H 1	H 1	H 1	C 2	F 3	F 2	F 6	F 7	F 4
19					C 2	C 3	H 1	C 1	C 2	C 1	C 2	C 1	C 2	L 2	C 2	H 1	C 5	C 2	C 2	F 2			F 2	F 2
20	F 1	F 2	F 2	F 2	L 1	C 1	C 2	C 1	C 1	C 1		C 1	L 1	L 2	L 2	L 2	L 1	L 1	L 2	F 4	F 2	F 2	F 2	F 4
21	F 4	F 3	F 2	F 2		C 1	C 1	C 1	C 1	C 1	C 1	L 1	L 2	L 2	L 1		L 1	L 2	CL 21	F 2	F 3	F 3	F 3	F 2
22	F 2	F 2	F 1	F 1	F 1	H 1	H 1	C 2	C 1	C 2	C 1	L 1	C 1	C 1	C 1		L 1	H 1	CL 21					
23										C 1	C 2	L 1				C 1	C 2	C 2	C 6	F 4	F 4	F 3	F 3	F 1
24	F 1	F 4	F 3	F 2	F 3	C 4	C 3	C 2	C 1	C 2	L 1	L 1	L 1	L 1			C 2	C 4	C 1	F 4	F 2		F 6	F 4
25	F 2	F 1	F 2	FH 13	F 4	C 3	C 4	C 4	C 1		L 1	L 1	L 1	L 1	C 2	C 2	C 3	C 3	CL 51	F 7	F 4	F 5	F 4	
26			F 1	F 2	F 2	L 1	C 2	C 2	C 3	C 3	C 2	L 3	L 2	C 4	L 2	L 2	C 2	C 5	CL 31	F 3	F 2	F 3	F 4	F 5
27		F 1	F 2	F 2	F 2	C 3	C 1	C 1	C 1	C 2	C 1	C 1	C 1	C 2	L 2	L 2		C 3	C 6	F 4	F 3	F 1	F 1	F 1
28	F 1	F 2	F 1	F 2	F 2		H 1	C 2	C 2	C 2	L 2	L 1	L 2	L 2	C 1	CL 11	HL 11	CL 22	CL 32	F 5	F 2	F 2	F 2	F 2
29	F 3	F 2	F 3	F 3	F 2	L 1	C 1	C 1	C 1	C 2	C 2	L 2	L 2	L 1	L 1	H 1	C 2	C 2	C 4	F 4	F 3	F 1	F 1	
30	F 2	F 2				H 1		C 3	C 2	C 2	L 1				C 1			C 1	C 4	F 2	F 3	F 2		F 1
31	F 1	F 1	F 1	F 1	F 1	L 1	L 1	H 1	C 2	C 2	C 2	C 1	C 2	L 1	L 1	L 2	CL 21	C 2	L 2	F 2	F 1	F 2	F 1	F 2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | foF2 (0.1) | 135° E Mean Time (G. M. T. + 9h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 8.2' E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	F	F	67	85	93	95	92	77	74	77	82	80	IA 78	80	84	83	IA 80	IR 78	75	IR 76	76
2	F	69	67	68	64	66	77	90	86	88	IA 82	71	72	77	IA 81	80	72	76	73	72	F	F	F	F
3	F	F	F	F	55	57	76	98	96	78	67	65	72	82	79	A	A	A	IA 89	84	IR 78	73	74	F
4	F 69	66	63	59	51	53	64	59	IA 62	61	A	A	A	A	IA 57	56	IA 58	61	64	62	IA 66	S 71	IA 65	F
5	F	F	F	56	53	55	61	78	58	56	62	67	73	72	69	67	73	72	76	74	72	73	72	66
6	61	F	F	65	61	58	71	72	73	74	75	74	74	80	78	80	80	82	89	84	IR 68	69	F	S 82
7	F	F	S 62	63	58	62	83	IR 90	Z 80	66	73	76	75	79	IA 90	86	80	IA 77	79	IR 87	88	79	A	A
8	F	F	F	F	F	S 60	75	74	IA 67	67	IA 67	67	82	76	75	76	77	75	84	85	F	F	78	68
9	64	63	64	61	IC 61	IC 68	81	91	IA 92	86	IA 83	IA 83	86	91	91	86	IC 82	79	78	IC 78	IC 78	70	F	F
10	F	IC 63	F	53	IC 51	63	IC 72	76	75	66	IA 66	IA 74	78	88	IA 80	75	73	IA 70	71	71	F	F	79	F
11	66	F	63	63	61	64	71	79	80	74	75	72	79	85	90	85	84	80	76	83	79	81	77	72
12	69	66	66	61	60	64	80	IR 91	IR 97	85	72	78	83	IA 90	92	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	79	78	81	83	89	93	89	88	90	89	75	78	75	70
14	F 66	67	65	62	64	69	79	79	72	73	IA 82	92	96	89	IA 79	IA 78	78	82	84	89	92	76	F	76
15	S 73	F 69	F	F	46	44	50	59	58	E G 58	IC 64	IC 73	73	IA 70	74	76	77	IA 71	70	75	72	72	64	65
16	62	61	64	64	60	60	67	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	72	69
17	64	59	56	52	48	54	65	71	76	80	85	84	75	88	85	IR 79	IA 76	IA 86	IA 84	69	IA 62	68	65	60
18	54	53	53	49	48	50	54	57	64	IA 58	IA 57	63	67	68	69	68	77	74	74	74	61	61	63	F
19	61	IR 57	IR 56	IR 54	IR 54	52	73	76	66	66	63	68	74	77	78	72	67	67	IA 69	73	C	F	F	63
20	F	F	F	F	F	55	65	72	IA 63	A	A	A	71	A	A	68	69	67	69	71	71	F	F	F
21	F	F	F	F	F	55	67	71	74	77	77	74	77	78	84	81	86	87	81	78	73	66	F	F
22	F	F	55	54	55	60	87	R 93	V 77	76	73	73	76	82	87	84	82	78	77	84	86	90	77	61
23	58	60	57	57	56	58	71	80	88	89	75	72	77	79	80	81	84	84	86	87	88	80	71	F
24	F	F	F	54	54	F	69	V 71	84	71	69	70	65	78	89	82	76	86	IR 90	IR 89	76	IR 66	F	F
25	F	F	F	F	F	F	73	74	77	70	73	82	83	93	IR 94	92	IA 90	IA 90	IR 92	87	79	S 74	F	F
26	F	F	F	F	F	F	64	83	93	86	84	81	86	96	89	86	79	81	85	84	R	A	F	F
27	F	54	F	52	53	55	69	77	86	86	78	79	81	74	78	86	80	76	73	78	R	R	F	53
28	47	47	46	47	47	55	68	74	87	68	77	66	72	72	82	77	77	81	87	86	83	81	73	59
29	F	F	F	F	F	55	70	86	92	91	77	73	74	78	78	76	76	IA 78	88	IR 91	92	79	63	A
30	A	F	F	F	F	S 51	74	90	83	92	83	82	70	71	77	80	86	77	79	76	80	F	F	73
31	72	70	68	63	59	62	73	77	86	94	88	84	80	84	81	84	89	85	84	86	83	84	77	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	15	15	20	22	27	30	29	29	28	28	28	29	28	29	28	28	28	29	29	23	21	17	15
MED	64	63	63	58	55	58	71	77	80	75	75	74	76	80	80	80	78	78	81	83	78	74	73	68
UQ	69	66	64	63	60	62	76	90	87	86	80	80	81	86	89	84	83	84	86	86	83	79	77	72
LQ	61	58	56	54	51	55	67	72	72	66	68	70	73	76	78	76	76	74	74	74	72	70	65	62

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | foF1 (0.01) | 135 E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39°43.5'N. Long. 140°8.2'E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	L 450	L 500	A	A	500	530	520	510	A	A	A						
2						L	L	L 470	A	A	510	530	A	A	A	A	A	A						
3							A	L	A	A	A	L 530	I A 540	A	A	A	A	A						
4							L 440	I A 450	I A 480	A	A	A	A	A	470	I A 420	420	A						
5							L 400	440	L	500	500	520	I A 540	520	510	480	A	L						
6							L 400	L 450	A	A	530	I A 550	I A 530	510	510	L 510	L	A						
7							L	L 430	L	L 510	I A 510	540	A	A	I A 500	I A 480	I A 440	A	L					
8						L	A	A	A	A	A	490	A	A	A	A	A	A	L					
9							A	A	A	A	A	A	540	520	520	490	C	A						
10								L	A	A	A	A	A	A	A	A	440	A						
11								A	I A 480	I A 480	530	L 540	540	530	480	470	L 450	L						
12							L	L 450	L 470	I A 490	500	570	I A 550	I A 540	520	C	C	C	C					
13							C	C	C	C	L 520	550	530	H 530	I A 520	500	L 480	L 420	A					
14							L	L 460	L 470	I A 590	A	A	A	A	A	A	A	A						
15							410	430	500	580	I C 540	I C 530	550	I A 530	I A 530	I A 500	I A 470	A						
16							A	C	C	C	C	C	C	C	C	C	C	C	C					
17							L	460	L 530	I A 530	530	530	I A 540	A	A	A	A	A	A					
18							A	420	A	I A 500	I A 500	510	H 520	H 560	L	L 480	L 450	L	L					
19							L	L 420	I A 470	500	540	510	500	490	500	470	A	A	A					
20							L 440	I A 430	I A 480	A	A	A	A	A	A	A	A	A						
21							L	L	480	A	500	I A 550	520	520	500	L 470	470	L						
22								A	L	480	500	I A 510	530	I A 510	500	L 470	L	L						
23							L	L	L 480	490	490	510	540	510	530	520	L 450	L						
24								A	A	L 500	510	A	510	540	510	U L 500	A	A						
25								L	A	U L 480	L	550	L 540	520	I A 500	A	A	A						
26								A	A	A	500	550	I A 530	I A 520	I A 490	L	L	L						
27								A	A	A	A	500	I A 520	A	I A 510	480	L 400	L						
28								L	L 450	470	500	480	H 530	500	500	L 480	L	L						
29								L	A	480	500	L 580	I A 540	500	480	L	A	A						
30								L	L	A	510	510	490	510	500	500	L	A						
31									L	490	500	510	530	500	L 500	L 480	L	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	12	13	17	19	24	24	20	21	18	10	2						
MED							L 405	440	480	490	500	525	530	520	500	480	450	420						
UQ							425	L 450	480	500	525	550	540	530	510	500	L 470							
LQ							L 400	430	L 470	480	500	510	525	510	500	L 470	440							

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IONOSPHERIC DATA

AUG. 1968 | foE (0.01) | 135 E Mean Time (G. M. T. +9 h)

Station AKITA Lat. 39 43.5' N. Long. 140 8.2' E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	A	A	A	A	A	A	375	355	340	310	A	A	S				
2						185	A	A	A	355	A	A	A	A	A	A	A	A	A					
3					A	A	A	A	A	A	A	A	A	A	365	345	A	A	A	S				
4						A	A	A	A	A	A	A	A	A	A	A	A	A	A	S				
5						A	A	A	A	A	A	A	A	A	A	I A 335	A	A	A	S				
6						I A 165	I A 240	A	A	A	A	A	A	A	A	A	A	A	A	E				
7						A	A	A	A	A	A	A	A	A	A	A	310	A	A	S				
8						A	A	A	A	A	A	A	B	A	A	A	A	A	A					
9						C	A	A	A	A	A	A	A	A	A	335	I C 305	270	A					
10						A	I C 240	280	A	A	A	A	A	A	A	A	320	275	A					
11						160	I A 235	A	A	A	A	A	I A 380	A	A	A	315	A	A					
12						A	A	A	A	350	360	A	A	A	A	C	C	C	C					
13						C	C	C	C	C	370	380	395	390	370	A	A	A	A					
14						A	250	300	340	I A 360	A	A	A	A	A	A	A	A	A					
15						160	240	A	A	A	C	C	A	I A 390	I A 375	350	A	A	B					
16						A	A	C	C	C	C	C	C	C	C	C	C	C	C					
17						A	A	A	A	A	A	A	A	385	370	350	A	A	A					
18						A	A	A	A	A	A	A	A	380	I A 360	335	310	260	A					
19						S	A	A	A	A	A	A	A	375	360	340	305	A	A					
20						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						A	A	A	A	A	A	A	I A 375	K 385	A	A	A	A	A					
22						S	A	A	A	A	A	A	A	A	A	A	A	265	A					
23						A	A	A	A	A	A	A	390	I A 380	370	335	305	240	A					
24						S	225	A	A	A	A	A	A	A	A	A	300	255	A					
25						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
26						B	A	A	A	A	A	A	A	A	A	A	295	255	A					
27						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
28						A	A	A	A	A	A	A	A	A	350	330	I A 295	A	A					
29						A	A	A	A	A	A	A	A	A	A	335	295	A	A					
30						A	A	A	A	A	A	A	A	A	A	A	295	A	A					
31						B	I A 230	285	315	A	A	A	K 380	A	A	320	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	7	3	2	3	2	1	5	8	9	12	13	7		1				
MED						162	U 240	285	328	355	365	380	380	382	365	335	305	260		E				
UQ						175	240	292		358			390	388	370	342	310	268						
LQ						160	232	282		352			U A 380	378	360	335	295	255						

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968

foEs (0.1)

135° E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39°43.5'N. Long. 140° 8.2'E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 53	J X 74	J X 41	J X 40	J X 28	J X 45	J X 45	J X 69	J X 77	J X 78	J X 165	J X 66	41	49	49	J X 95	J X 73	J X 84	J X 35	J X 88	J X 63	J X 54	J X 64	J X 57
2	J X 39	J X 41	J X 38	J X 28	J X 29	G	30	J X 53	J X 50	J X 68	J X 100	J X 45	J X 64	J X 59	J X 93	J X 74	J X 65	J X 63	J X 74	J X 64	J X 87	J X 26	J X 79	J X 43
3	J X 28	J X 18	J X 26	E	J X 16	J X 35	J X 64	J X 80	J X 83	J X 111	J X 69	J X 58	J X 68	J X 68	J X 73	J X 110	J X 135	D	J X 130	J X 169	J X 54	J X 14	J X 21	J X 28
4	J X 20	J X 29	J X 21	J X 18	E S 12	J X 29	J X 61	J X 54	J X 88	J X 96	J X 106	J X 113	J X 170	D	J X 89	J X 66	J X 79	J X 76	J X 61	J X 88	J X 89	J X 64	J X 79	J X 78
5	J X 43	J X 41	J X 34	J X 30	J X 24	J X 22	26	J X 33	J X 44	J X 54	J X 66	J X 54	J X 68	42	J X 43	J X 54	J X 49	J X 46	J X 53	J X 53	J X 54	J X 65	J X 84	J X 40
6	J X 63	J X 36	J X 30	J X 18	J X 21	J X 19	31	J X 43	J X 75	J X 68	J X 51	J X 81	J X 59	J X 43	J X 43	J X 73	J X 59	J X 52	J X 39	J X 44	J X 58	J X 64	J X 33	J X 53
7	J X 73	J X 54	J X 61	J X 39	J X 21	J X 40	30	38	J X 44	J X 45	J X 78	J X 73	J X 73	J X 81	J X 123	J X 149	J X 102	J X 115	J X 76	J X 51	J X 74	J X 64	J X 79	J X 88
8	J X 73	J X 78	J X 73	J X 74	J X 28	21	J X 53	J X 73	J X 77	J X 163	J X 116	J X 76	J X 79	J X 74	J X 71	J X 59	J X 76	J X 64	J X 53	J X 62	J X 83	J X 44	J X 31	E S 13
9	J X 17	J X 18	J X 23	J X 20	C	C	J X 49	J X 83	J X 95	J X 84	J X 91	J X 84	J X 45	J X 53	J X 48	G	C	J X 61	J X 75	C	C	J X 65	J X 45	J X 54
10	J X 79	C	J X 51	J X 27	C	25	C	41	J X 53	J X 54	J X 66	J X 93	J X 77	J X 77	J X 80	J X 56	39	J X 99	J X 47	J X 43	J X 52	J X 34	J X 38	J X 32
11	J X 24	J X 25	J X 32	J X 21	J X 18	G	J X 39	J X 80	J X 83	J X 69	J X 57	40	J X 39	J X 41	J X 40	35	G	31	34	J X 33	J X 29	J X 25	J X 20	J X 20
12	J X 28	J X 39	J X 29	J X 29	J X 37	J X 29	32	J X 77	J X 49	J X 64	J X 63	J X 76	J X 77	J X 103	J X 43	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	G	G	J X 79	J X 84	J X 94	J X 58	J X 38	J X 40	J X 35	M 22	J X 20	J X 41	J X 50	J X 41
14	J X 33	J X 28	E S 13	J X 28	J X 51	J X 43	J G 23	G	46	J X 65	J X 149	J X 79	J X 56	J X 135	J X 115	J X 129	J X 139	J X 45	J X 45	J X 59	J X 109	J X 66	J X 33	E S 13
15	J X 23	J X 24	J X 26	J X 18	J X 19	G	G	35	41	38	C	C	J X 73	J X 123	J X 65	J X 58	J X 81	J X 80	J X 64	J X 80	J X 36	J X 54	J X 36	M 21
16	J X 30	J X 35	J X 38	J X 30	J X 44	J X 26	J X 54	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	J X 82	J X 74
17	J X 37	J X 20	J X 21	E	E	25	31	39	J X 64	J X 81	J X 76	J X 55	J X 79	J X 75	J X 80	J X 104	J X 121	J X 86	J X 154	J X 126	J X 79	J X 51	J X 19	J X 19
18	J X 18	J X 24	J X 29	J X 30	J X 28	J X 40	J X 41	39	J X 61	J X 79	J X 153	J X 41	J X 53	G	J X 39	G	33	30	23	J X 60	J X 29	J X 34	J X 40	J X 42
19	J X 68	J X 80	J X 113	J X 84	J X 34	19	33	33	J X 60	J X 59	J X 69	J X 62	41	G	42	44	J X 64	J X 53	J X 78	J X 85	C	J X 49	M 21	J X 25
20	J X 63	J X 65	J X 38	J X 25	E	J X 44	J X 55	J X 76	J X 69	J X 53	J X 175	J X 123	J X 66	J X 88	J X 136	J X 100	J X 79	J X 64	J X 44	J X 37	J X 53	J X 74	J X 62	J X 25
21	J X 26	J X 23	J X 24	J X 18	E	J X 29	J X 37	38	J X 49	J X 54	J X 60	J X 112	42	G	J X 41	39	J X 54	J X 29	J X 24	J X 78	J X 82	J X 78	J X 44	J X 31
22	J X 29	J X 28	J X 26	J X 29	J X 21	J X 30	27	J X 49	J X 62	J X 48	J X 58	J X 71	J X 93	J X 74	J X 64	J X 45	J X 38	32	J X 38	J X 48	J X 31	J X 28	J X 21	J X 29
23	M 19	J X 25	J X 24	E	E	20	J X 35	J X 73	J X 42	J X 78	J X 58	J X 45	G	J A 45	G	38	37	J X 43	28	J X 32	J X 75	J X 43	J X 83	J X 63
24	J X 73	J X 44	J X 32	J X 18	J X 23	17	37	J X 49	J X 79	J X 36	J X 47	J X 49	J X 55	44	J X 47	35	J X 54	J X 55	J X 61	J X 84	J X 65	J X 83	J X 84	J X 84
25	J X 54	J X 39	J X 29	J X 24	J X 26	J X 28	J X 74	J X 83	J X 59	J X 49	J X 67	J X 57	J X 55	J X 84	J X 125	J X 64	J X 99	J X 90	J X 47	J X 73	J X 129	J X 84	J X 79	J X 79
26	J X 77	J X 35	J X 69	J X 44	J X 28	E B 17	J X 44	J X 49	J X 74	J X 79	J X 83	J X 73	J X 80	J X 83	J X 82	42	J X 43	34	J X 66	J X 86	J X 85	J X 109	J X 84	J X 84
27	J X 54	J X 29	J X 37	J X 57	J X 20	E S 14	29	J X 66	J X 52	J X 80	J X 138	J X 70	J X 67	J X 52	J X 75	J X 42	33	32	J X 55	J X 83	J X 84	J X 84	J X 80	J X 81
28	J X 43	J X 23	J X 19	J X 36	J X 29	J X 19	23	J X 73	36	J X 38	J X 43	J X 41	44	38	J G 34	36	J X 54	J X 33	J X 34	J X 29	J X 33	J X 53	J X 50	J X 75
29	J X 40	E	J X 23	J X 24	J X 32	J X 23	28	J X 51	J X 76	J X 59	39	41	J X 81	J X 68	J X 43	37	J X 83	J X 83	J X 66	J X 83	J X 47	J X 64	J X 30	J X 79
30	J X 74	J X 43	J X 39	J X 25	J X 23	J X 24	26	J X 44	J X 54	J X 79	J X 83	J X 58	J X 46	J X 43	J X 53	42	36	J X 59	J X 35	J X 46	J X 83	J X 69	J X 66	J X 81
31	J X 30	J X 25	E	E	E	E B 17	25	32	41	41	47	42	G	J X 47	J X 48	G	J X 38	J X 50	J X 59	J X 54	J X 45	J X 29	J X 53	J X 51
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	28	29	29	29	29	29	29	29	30	30	30	29	28	29	29	28	27	29	30	30
MED	J X 40	J X 29	J X 30	J X 26	J X 23	J X 24	33	J X 49	J X 60	J X 65	J X 69	J X 62	J X 62	J X 64	J X 58	J X 54	J X 56	J X 55	J X 53	J X 61	J X 63	J X 54	J X 50	J X 47
UQ	J X 63	J X 41	J X 38	J X 30	J X 28	J X 29	J X 45	J X 73	J X 76	J X 79	J X 100	J X 76	J X 77	J X 83	J X 82	J X 73	J X 80	J X 80	J X 66	J X 84	J X 83	J X 66	J X 79	J X 78
LQ	J X 28	J X 24	J X 24	J X 18	J X 17	19	28	39	J X 49	J X 53	J X 58	J X 45	J X 45	J X 43	J X 43	38	J X 38	J X 40	J X 35	J X 45	J X 46	J X 41	J X 33	J X 28

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IONOSPHERIC DATA

AUG. 1968 | f_bE_s (0.1) | 135° E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 8.2' E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / 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	20	25	22	24	17	36	42	39	40	65	66	48	40	41	40	A	53	64	34	A	38	47	40	28
2	26	31	25	16	23	G	28	40	44	59	A	43	45	59	A	54	62	56	45	36	39	16	18	16
3	16	E	E	E	E	20	58	43	66	53	59	50	58	56	62	A	A	A	A	42	19	13	20	20
4	18	17	18	14	E S 12	22	29	39	A	54	A	A	A	A	A	44	A	35	40	36	A	40	A	23
5	25	36	26	21	21	20	26	31	40	45	40	48	55	42	41	42	46	34	46	36	34	31	25	26
6	29	25	20	14	E	19	28	34	61	65	43	57	57	39	42	37	43	51	36	41	E R 58	28	20	24
7	28	24	41	29	17	31	30	34	41	41	54	47	60	64	A	55	66	A	25	19	34	30	A	A
8	50	44	40	24	17	20	45	59	A	58	A	45	70	67	55	55	55	42	28	42	52	38	19	E S 13
9	E	E	18	14	C	C	44	79	A	74	A	A	45	48	40	G	C	54	74	C	C	18	34	51
10	17	C	34	17	C	21	C	37	49	54	A	A	71	74	A	55	37	A	39	24	45	17	26	17
11	17	22	28	18	E	G	39	65	42	52	41	40	39	40	40	35	G	31	28	22	19	17	17	16
12	18	24	23	18	13	26	29	39	43	56	43	48	67	A	37	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	G	G	52	41	53	36	35	27	32	E	17	24	20	27
14	17	18	E S 13	25	35	20	G 20	G	42	60	A	75	54	66	A	A	61	46	39	41	25	39	21	E S 13
15	17	18	16	E	17	G	G	31	36	38	C	C	42	A	59	51	48	A	46	30	23	27	19	E
16	18	25	18	26	20	21	43	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	32	29
17	21	14	E	E	E	23	30	35	45	59	42	44	61	61	65	58	A	A	A	64	A	38	17	16
18	E	17	21	22	15	30	37	34	46	A	A	40	41	G	39	G	32	G	23	29	23	28	16	27
19	31	47	45	32	27	19	29	32	55	39	44	41	40	G	42	44	49	43	A	25	C	28	E	E
20	28	34	E	16	E	19	30	64	A	A	A	A	54	A	A	51	47	40	30	27	23	49	48	17
21	18	E	E	13	E	21	32	36	44	48	47	65	42	G	39	37	38	27	23	57	19	52	22	19
22	18	18	20	21	14	18	27	47	41	39	49	60	45	56	43	35	34	30	24	30	20	19	18	19
23	E	E	E	E	E	19	30	31	38	39	41	39	G	39	G	37	36	27	22	32	25	18	55	40
24	39	24	23	E	E	15	33	47	78	36	43	49	39	42	39	35	52	44	54	44	44	26	18	30
25	24	19	19	14	18	19	29	40	44	38	47	40	38	49	61	57	A	A	43	64	64	34	59	31
26	44	18	35	24	18	E B 17	39	47	55	75	40	48	55	53	55	40	39	31	37	62	60	A	34	30
27	18	18	19	21	E	E S 14	27	59	50	69	65	44	54	52	73	36	33	30	50	36	18	20	26	21
28	18	18	14	22	24	17	23	30	35	37	43	39	43	38	G 32	35	30	27	28	24	31	23	17	23
29	20	E	E	15	21	15	25	31	51	44	39	40	59	42	39	37	60	A	26	57	25	38	24	A
30	A	31	22	20	E	17	25	40	47	71	47	43	42	38	44	38	32	45	32	44	34	33	29	26
31	19	17	E	E	E	E B 17	25	31	36	40	40	40	G	39	38	G	37	50	22	34	25	22	27	20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	28	29	29	29	29	29	29	29	30	30	30	29	28	29	29	28	27	29	30	30
MED	18	18	20	18	14	19	29	39	45	54	47	47	48	48	44	40	46	44	36	36	U 28	28	23	23
UQ	28	25	25	22	19	21	37	47	55	65	A	57	58	64	65	55	60	64	46	44	43	38	34	29
LQ	17	17	13	14	E	17	27	32	41	40	42	40	41	39	39	36	36	31	28	28	23	20	18	17

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | f-min (0.1) | 135 E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39 43.5 'N. Long. 140 8.2 'E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 13	E	E	E	E	13	17	17	18	17	18	25	18	23	17	18	16	17	16	E S 12	E	E S 13	E S 13	E S 13
2	E S 12	E	E	E	E	16	17	17	17	18	18	21	19	20	19	17	19	16	14	E S 12	E	E	E	E S 12
3	E S 13	E	E	E	E	14	13	17	18	18	18	20	19	32	25	18	18	18	17	E S 12	E S 14	E	E S 13	E S 13
4	E S 13	E	E	E	E S 12	14	14	14	18	18	19	20	21	19	21	18	19	17	16	E S 13	E S 13	E S 13	E S 13	E S 14
5	E S 14	E	E	E	E	12	17	18	18	18	17	18	18	18	18	18	18	17	13	E S 14	E S 13	E S 14	E S 13	E S 13
6	E S 13	E	E	E	E	E	17	14	17	18	20	21	20	20	20	17	17	17	17	E	E S 13	E	E S 12	E S 13
7	E S 13	E	E	E	E	14	17	17	20	18	19	19	18	19	18	18	18	18	15	E S 12	E S 13	E S 13	E S 13	E S 14
8	E S 12	E	E	E	E	14	16	17	17	25	23	18	56	20	19	18	23	17	13	E S 13	E	E S 13	E S 12	E S 13
9	E S 13	E	E	E	C	C	18	17	19	18	20	24	27	20	20	17	C	17	17	C	C	E S 12	E S 13	17
10	E S 13	C	E	E	C	14	C	18	18	17	22	21	23	21	18	17	17	17	14	E S 13	E S 13	E S 13	E S 13	E S 13
11	E S 13	E	E S 13	E	E	E S 14	18	17	18	17	18	19	20	21	22	19	18	18	14	E S 13	E S 13	E S 13	E S 13	E S 13
12	E S 13	E	E S 13	E S 12	E	E	17	17	18	21	21	22	22	20	21	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	22	21	24	24	25	18	20	19	16	E S 14	E S 15	E S 16	E S 16	E S 16
14	E S 16	E S 14	E S 13	E	E	13	17	17	17	19	26	27	25	20	22	20	19	17	14	17	E S 13	E S 13	E S 13	E S 13
15	E S 13	E	E	E S 12	E	13	17	14	18	18	C	C	23	23	20	18	17	17	16	E S 13	E S 13	E S 13	E S 13	E S 13
16	E S 12	E	E	E	E	12	16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E S 12	E S 13
17	E S 13	E	E	E	E	12	18	16	17	23	23	27	25	25	23	18	16	16	14	E S 13	E S 13	E S 13	E	E S 12
18	E S 13	E	E	E	E	14	17	18	18	19	23	24	25	22	23	18	17	18	16	17	E S 13	E S 13	E S 13	E S 13
19	E S 16	E S 13	E	E	E S 12	E S 13	16	15	17	22	22	23	23	23	19	17	14	17	13	E S 12	C	E S 13	E S 13	E S 13
20	E S 13	E S 13	E S 13	E	E	14	14	17	18	18	21	24	18	24	23	18	17	14	13	E S 13	E S 13	E S 13	E S 13	E S 13
21	E S 13	E	E S 12	E	E	12	17	17	18	17	22	25	24	22	19	18	17	13	12	E S 13	E S 13	E S 13	E S 13	E S 12
22	E S 13	E S 13	E	E	E	E S 13	14	17	18	24	24	23	19	21	18	18	17	16	17	E S 13	E S 13	E S 13	E S 13	E S 12
23	E S 13	E	E	E	E	12	14	17	18	19	18	18	22	25	21	18	18	17	13	E S 13	E S 13	E S 13	E S 13	E S 13
24	E S 13	E	E	E	E	E S 13	13	17	17	18	18	18	19	23	19	18	14	14	12	E S 13	E S 13	E S 12	E S 13	E S 13
25	E S 13	E	E	E	E	E S 12	12	13	17	18	18	19	19	21	18	17	17	14	12	E S 13	E S 12	E S 14	E S 13	E S 13
26	E S 12	E	E	E	E	17	14	17	18	17	18	20	19	18	18	19	16	14	E	E S 12	E S 12	E S 13	E S 13	E S 13
27	E	E	E	E	E	E S 14	17	17	20	18	18	19	21	19	19	19	18	17	13	E S 12	E S 12	E S 13	E S 12	E S 13
28	E S 13	E	E	E	E	E	18	17	17	19	18	21	23	20	19	18	17	14	12	E S 14	E S 12	E S 13	E S 13	E S 13
29	E S 13	E	E	E	E	L	17	13	17	19	26	23	24	19	22	19	18	18	13	17	E S 13	E S 13	E S 13	E S 13
30	E S 13	E S 13	E	E	E S 13	E	13	14	18	17	18	22	22	23	18	17	20	17	13	E S 13	E S 13	E S 13	E S 13	E S 12
31	E S 13	E S 13	E	L	E	17	18	14	18	19	24	21	19	22	18	14	18	18	13	E S 12	E S 12	E S 12	E S 12	E S 13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	30	30	28	29	29	29	29	29	29	29	30	30	30	29	28	29	29	28	27	29	30	30
MED	E S 13	E	E	E	E	12	17	17	18	18	20	21	22	21	19	18	18	17	14	E S 13	E S 13	E S 13	E S 13	E S 13
UQ	E S 13	E	E	E	E	14	17	17	18	19	22	23	24	23	22	18	18	17	16	E S 13	E S 13	E S 13	E S 13	E S 13
LQ	E S 13	E	E	E	E	E E 12	14	15	17	18	18	19	19	20	18	17	17	16	13	E S 12	E S 12	E S 13	E S 13	E S 13

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | M(3000)F2 (0.01) | 135 E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39°43.5'N. Long. 140°8.2'E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	F	F	290	305	310	305	315	300	295	285	300	300	I A 290	295	300	305	I A 300	I R 285	275	I R 290	275
2	F	290	270	275	280	285	275	300	305	300	I A 295	280	280	285	I A 295	300	290	305	300	285	F	F	F	F
3	F	F	F	F	280	270	285	305	320	310	300	270	265	285	290	A	A	A	I A 300	300	I R 280	275	270	F
4	F 275	290	285	285	295	285	325	260	I A 275	280	A	A	A	A	I A 260	285	I A 275	295	300	275	I A 270	S 265	I A 280	F
5	F	F	F	285	295	300	285	315	330	275	275	275	300	285	290	290	295	300	295	310	255	275	285	275
6	260	F	F	285	295	290	290	300	305	295	290	290	285	275	280	275	285	290	305	320	I R 280	265	F	S 295
7	F	F	S 285	285	285	285	290	I R 315	Z 300	290	290	285	290	270	I A 290	290	295	I A 300	280	I R 295	305	305	A	A
8	F	F	F	F	F	S 285	305	310	I A 305	335	I A 300	270	295	305	280	295	285	285	290	290	F	F	295	280
9	285	270	280	280	I C 280	I C 290	295	305	I A 285	305	I A 295	I A 280	280	280	285	290	I C 295	295	295	I C 295	I C 280	285	F	F
10	F	I C 290	F	270	I C 270	300	I C 310	315	315	305	I A 285	I A 280	270	295	I A 295	290	290	I A 305	310	295	F	F	305	F
11	275	F	285	285	295	330	315	330	305	305	290	285	280	275	295	290	295	300	295	290	285	285	290	290
12	290	275	280	290	285	285	295	I R 305	I R 315	315	310	275	280	I A 280	290	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	305	295	290	280	280	295	295	295	315	310	285	275	290	275
14	F 270	265	270	275	275	325	315	315	325	290	I A 275	275	285	280	I A 280	I A 280	280	280	280	285	305	275	F	265
15	S 255	F 260	F	F	270	275	250	280	265	U	I C 245	I C 280	290	I A 270	285	290	290	I A 295	275	285	270	260	260	265
16	270	255	265	265	295	285	300	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	265	260
17	255	255	260	260	245	275	295	275	265	280	285	285	265	285	295	I R 290	I A 280	I A 295	I A 310	300	I A 260	270	275	265
18	250	245	255	245	250	275	255	265	270	I A 260	I A 260	280	285	285	290	300	300	305	295	300	270	265	275	F
19	265	I R 260	I R 255	I R 260	I R 265	260	295	290	300	290	260	280	285	290	305	310	305	300	I A 300	285	C	F	F	275
20	F	F	F	F	F	280	275	320	I A 300	A	A	A	285	A	A	295	305	300	300	295	285	F	F	F
21	F	F	F	F	F	315	330	330	310	300	300	295	295	285	295	285	295	310	295	295	300	290	F	F
22	F	F	275	285	285	295	325	K 325	V 300	315	310	290	290	295	300	295	305	290	285	285	285	300	315	280
23	270	285	275	275	285	305	310	300	330	335	335	295	300	295	285	285	290	285	290	295	290	295	295	F
24	F	F	F	275	280	F	325	V 285	300	310	300	300	295	275	305	290	290	285	I R 300	I R 320	290	I R 275	F	F
25	F	F	F	F	F	F	315	325	325	330	295	295	290	290	I R 300	295	I A 300	I A 300	I R 300	310	310	S 285	F	F
26	F	F	F	F	F	F	300	315	325	290	315	280	295	300	300	295	295	295	310	300	K	A	F	F
27	F	265	F	275	285	290	330	320	315	310	320	300	305	290	290	305	305	305	305	280	K	K	F	300
28	285	260	270	280	295	305	325	335	345	340	310	290	300	280	300	290	290	285	290	300	295	295	305	290
29	F	F	F	F	F	295	315	325	325	335	310	300	305	310	305	290	305	I A 295	295	I R 300	310	320	285	A
30	A	F	F	F	F	S 295	325	330	310	320	305	315	310	285	290	290	305	315	310	285	280	F	F	275
31	285	285	280	290	290	290	325	315	305	320	310	325	295	300	280	285	295	295	290	290	280	290	285	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	15	15	20	22	27	30	29	29	28	28	28	29	28	29	28	28	28	29	29	23	21	17	15
MED	270	265	275	280	285	290	305	315	305	305	300	285	290	285	290	290	295	295	300	295	285	275	285	275
UQ	275	285	280	285	295	298	325	320	320	318	310	295	295	295	300	295	300	300	305	300	292	290	295	285
LQ	260	260	268	275	275	285	290	300	300	290	288	280	285	280	285	290	290	292	290	285	280	275	275	270

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IONOSPHERIC DATA

AUG. 1968

M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39°43.5'N. Long. 140° 8.2'E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	L 360	L 360	A	A	A	360	360	350	A	A	A						
2						L	L	L	I A 370	A	A	375	360	A	A	A	A	A	A					
3							A	L	A	A	A	L 325	A	A	A	A	A	A	A					
4							L	340	I A 360	I A 350	A	A	A	A	A	340	I A 340	335	A					
5							L 350	365	L	380	380	330	I A 355	345	360	350	A	L						
6							L 325	L 355	A	A	350	I A 325	I A 320	355	335	L 325	L	A						
7							L	L 355	L	L 365	I A 365	335	A	A	A	I A 355	I A 360	A	L					
8						L	A	A	A	A	A	365	A	A	A	A	A	A	L					
9							A	A	A	A	A	A	340	I A 335	345	350	C	A						
10								L	A	A	A	A	A	A	A	A	360	A						
11								A	370	I A 385	360	L 350	335	340	375	365	L 355	L						
12							L	L 370	L 365	I A 365	370	330	I A 335	I A 335	345	C	C	C	C					
13							C	C	C	C	L 350	340	I A 355	H 355	I A 350	340	L 345	L 355	A					
14							L	L 360	L 375	I A 330	A	A	A	A	A	A	A	A						
15							335	350	320	295	I C 355	I C 350	330	I A 345	I A 340	I A 340	I A 340	A						
16							A	C	C	C	C	C	C	C	C	C	C	C	C					
17							L	350	L 315	I A 340	360	370	I A 335	A	A	A	A	A	A					
18							A	340	A	I A 340	I A 370	415	H 335	H 320	L	L 340	L 340	L	L					
19							L	L 365	I A 355	355	335	355	360	365	355	355	A	A	A					
20							L 295	I A 340	I A 350	A	A	A	A	A	A	A	A	A						
21							L	L	375	A	365	I A 330	350	350	340	L 355	345	L						
22								A	L	375	I A 370	I A 360	360	I A 360	355	L 345	L	L						
23							L	L	L 365	370	380	380	355	355	340	325	L 355	L						
24								A	A	L 360	355	A	360	335	335	U L 340	A	A						
25								L	A	U L 375	L	340	L 345	I A 350	I A 350	A	A	A						
26								A	A	A	380	340	I A 340	I A 345	I A 360	L	L	L						
27								A	A	A	A	360	I A 365	A	I A 345	350	L 375	L						
28								L	L 380	400	380	410	H 360	380	345	L 350	L	L						
29								L	A	375	380	L 330	I A 350	365	360	L	A	A						
30								L	L	A	365	375	370	355	I A 350	325	L	A						
31									L	370	365	355	360	365	L 340	L 350	L	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	12	13	17	19	23	23	20	20	18	10	2						
MED							L 330	355	365	365	365	350	355	352	348	348	350	345						
UQ							342	L 362	L 370	375	375	368	360	360	355	350	L 360							
LQ							L 310	345	355	U A 350	358	332	338	342	340	340	340							

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | h'F2 (km) | 135° E Mean Time (G. M. T. + 9 h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 8.2' E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / 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	275	285	280	I A 300	320	370	320	320	I A 325	320	310						
2						310	265	270	270	280	A	305	375	365	I A 340	310	I A 310	300	280					
3							320	290	270	300	I A 310	450	410	355	350	A	A	A	A					
4							290	440	I A 415	400	A	A	A	A	I A 490	410	A	340	300					
5							350	280	280	450	410	390	345	360	340	350	340	290						
6							300	300	330	350	360	345	370	365	370	355	320	315						
7							295	260	260	290	335	370	350	390	I A 330	300	335	I A 310	295					
8						315	295	285	I A 300	280	A	350	350	335	360	325	330	315	290					
9							280	I A 300	I A 310	330	A	I A 360	360	350	325	320	I C 305	305						
10								280	280	300	A	A	A	335	I A 340	350	315	I A 320						
11								280	300	300	355	360	370	360	320	325	300	280						
12							285	275	270	275	295	380	370	I A 355	320	C	C	C	C					
13							C	C	C	C	360	350	335	360	340	310	300	300	275					
14							275	280	280	320	I A 370	365	320	360	I A 340	I A 335	350	325						
15							480	400	460	G	C	I C 380	360	I A 370	365	345	320	I A 320						
16							280	C	C	C	C	C	C	C	C	C	C	C	C					
17							290	365	410	340	310	320	410	345	335	325	I A 320	I A 300	A					
18							320	420	400	I A 490	A	415	355	375	330	330	325	285	280					
19							285	290	280	350	450	380	380	340	325	305	305	300	A					
20							355	310	I A 335	A	A	A	380	A	A	350	305	290						
21							255	255	315	280	310	I A 310	340	350	330	320	305	280						
22								260	255	290	290	340	350	330	310	305	290	290						
23							275	250	275	245	265	305	330	330	330	345	290	280						
24								290	I A 270	305	315	290	310	380	305	315	310	290						
25								255	255	255	310	330	330	320	310	305	I A 300	I A 285						
26								275	245	345	270	350	310	310	310	300	280	275						
27								280	270	290	290	300	315	325	I A 340	305	280	275						
28								250	250	255	280	L 275	340	340	310	320	295	300						
29								270	260	245	285	330	335	310	320	300	305	I A 300						
30								245	290	280	280	290	280	320	335	320	295	270						
31									275	270	280	280	325	310	320	320	280	275						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	19	28	29	28	22	27	28	28	29	28	27	28	6					
MED						312	290	280	280	295	310	345	350	348	330	320	305	300	285					
UQ							310	295	310	342	355	368	370	360	340	340	320	310	295					
LQ							278	265	270	280	285	308	330	328	320	308	298	282	280					

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | h'F (km) | 135° E Mean Time (G. M. T. +9 h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 8.2' E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	300	280	300	280	280	I A 255	I A 240	230	A	A	A	210	225	230	A	A	A	260	I A 260	280	I A 310	295	290
2	285	290	295	290	270	245	235	I A 230	I A 230	A	A	225	230	A	A	A	A	A	A	270	I A 305	310	265	270
3	290	270	250	245	260	310	A	A	A	A	A	A	A	A	A	A	A	A	A	250	245	245	290	290
4	290	270	260	280	240	270	I A 260	I A 230	A	A	A	A	A	A	A	A	A	A	A	300	I A 305	A 310	I A 310	290
5	290	I A 320	290	285	270	265	230	200	I A 225	220	205	A	A	245	215	I A 230	I A 245	I A 255	280	255	300	300	275	300
6	I A 310	A 340	300	275	260	240	240	230	A	A	230	A	A	205	250	250	I A 250	I A 280	275	250	I A 275	310	350	260
7	290	290	A 330	290	270	290	245	235	I A 230	225	A	A	A	A	A	A	A	A	265	270	245	250	A	A
8	A	A	A	310	290	275	A	A	A	A	A	A	A	A	A	A	A	A	A	280	I A 285	280	240	245
9	300	300	285	255	I C 260	I C 270	A	A	A	A	A	A	A 230	I A 245	260	240	C	A	A	I C 300	I C 265	255	I A 320	I A 290
10	270	I C 265	I A 290	305	I C 320	270	C	A	A	A	A	A	A	A	A	A	230	I A 250	270	250	I A 315	280	250	260
11	280	310	290	270	240	240	260	I A 230	I A 230	I A 215	200	210	215	240	240	230	240	230	270	265	260	280	255	270
12	275	290	290	280	275	275	240	I A 235	I A 225	I A 220	240	I A 220	I A 230	I A 225	240	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	200	240	I A 230	H 220	I A 240	225	245	245	I A 250	255	245	285	270	280
14	290	325	305	310	A 330	240	245	240	A	A	A	A	A	A	A	A	A	I A 250	290	295	250	280	290	290
15	305	300	245	245	250	280	240	230	230	230	I C 225	I C 230	240	I A 230	A	A	A	I A 265	A 290	270	285	320	280	300
16	315	350	310	330	270	270	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A 315	290
17	320	315	310	255	340	290	255	230	A	A	215	215	A	A	A	A	A	A	A	A	I A 285	I A 290	270	280
18	350	350	315	355	295	340	A	260	I A 245	I A 255	I A 235	195	H 180	H 195	235	235	230	250	I A 260	255	265	I A 305	290	360
19	340	I A 350	I A 350	340	350	310	255	230	I A 220	215	240	210	230	230	235	I A 240	A	A	A	255	I C 270	280	245	275
20	320	I A 335	320	310	290	290	240	I A 240	A	A	A	A	A	A	A	A	A	A	275	270	265	I A 280	I A 280	250
21	305	280	300	290	290	270	I A 240	I A 235	230	A	A	A	230	215	230	240	240	230	250	I A 270	250	I A 270	300	300
22	260	295	290	290	290	275	240	I A 240	I A 230	205	I A 220	I A 240	220	I A 220	230	220	250	240	250	285	275	250	230	260
23	290	295	290	280	270	255	245	230	220	200	230	195	215	210	240	230	245	240	265	265	245	240	A	300
24	285	290	300	290	265	255	245	I A 240	I A 235	230	240	I A 225	210	230	240	230	A	A	290	250	280	270	310	330
25	340	310	290	255	290	275	240	I A 240	I A 235	215	I A 205	225	220	I A 230	I A 240	A	A	A	270	290	I A 280	290	I A 275	305
26	I A 295	270	I A 295	290	290	255	260	A	A	A	200	I A 235	I A 235	I A 225	I A 230	240	A 230	240	255	290	A	A	280	290
27	280	315	295	290	280	270	240	A	A	A	A	240	I A 240	I A 240	I A 235	230	230	250	280	290	250	280	245	230
28	275	290	310	290	290	260	240	230	230	210	210	185	H 200	185	240	225	240	240	270	245	265	250	230	255
29	295	255	270	270	270	250	240	240	A	A	205	190	I A 230	215	220	240	A	A	275	280	245	235	240	A
30	A	305	260	260	280	280	245	A	A	A	A	210	210	210	I A 205	240	255	I A 250	270	290	280	280	290	280
31	280	260	270	250	245	255	235	230	235	225	205	200	205	200	230	225	I A 235	I A 245	255	275	275	270	290	310
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	30	30	30	24	22	16	13	17	18	20	21	20	17	14	16	22	28	28	28	28	28
MED	290	300	290	290	278	270	240	232	U A 230	220	215	218	225	225	235	230	240	248	270	270	272	280	280	290
UQ	306	315	305	300	290	280	250	U A 240	U A 232	225	230	U 230	A 230	U A 230	240	240	245	U A 250	275	288	282	295	292	300
LQ	280	280	285	270	265	255	240	230	228	215	205	200	210	210	230	230	230	240	260	255	250	262	252	265

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IONOSPHERIC DATA

AUG. 1968 | $f'Es$ (km) | 135° E Mean Time (G. M. T. +9h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 8.2' E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	105	105	100	100	115	115	110	110	110	110	110	115	125	125	125	120	115	120	115	110	110	105	105
2	105	105	100	100	105	G	130	115	120	115	115	115	110	110	110	110	110	110	110	105	110	115	110	110
3	105	105	100	E	110	160	130	125	120	115	115	110	120	125	125	115	115	115	115	110	110	105	110	105
4	105	105	105	105	S	120	115	115	115	115	115	115	110	110	110	110	110	110	110	105	110	110	105	105
5	105	100	100	100	100	105	130	115	115	110	110	110	110	110	110	120	120	110	110	110	100	110	110	105
6	105	100	100	105	105	100	130	125	115	110	115	115	110	110	110	105	110	110	105	105	105	105	115	110
7	105	105	105	105	110	120	130	125	120	120	115	110	105	105	115	115	115	115	115	115	115	105	110	110
8	105	105	105	105	130	130	115	115	115	115	110	110	110	110	110	105	110	110	110	105	105	110	110	S
9	105	105	105	100	C	C	125	115	115	115	115	115	115	110	110	G	C	120	115	C	C	115	115	110
10	110	C	105	105	C	130	C	125	115	115	115	110	110	110	110	110	140	115	120	115	115	115	105	110
11	105	105	105	100	105	G	120	115	110	115	110	115	110	110	110	120	G	110	115	105	105	105	110	105
12	105	110	110	110	110	110	120	115	115	115	120	115	110	110	115	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	G	G	125	130	120	120	125	120	110	105	120	120	120	110
14	110	110	S	110	110	105	110	G	125	115	115	115	115	115	115	115	115	115	120	115	110	110	110	S
15	105	105	105	110	105	G	G	115	115	115	C	C	120	115	120	125	115	115	110	105	105	105	110	110
16	105	110	110	105	105	115	125	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	110	110
17	105	110	110	E	E	140	125	120	115	115	110	110	130	130	130	115	115	115	110	110	110	110	110	110
18	110	125	110	115	125	125	115	125	115	115	115	115	115	G	115	G	145	140	125	115	115	110	110	110
19	115	110	110	110	110	130	125	125	115	120	115	115	120	G	140	135	130	125	115	115	C	105	110	110
20	105	105	115	110	E	120	115	115	115	115	110	110	105	105	105	100	100	105	100	105	110	115	110	110
21	110	110	110	105	E	105	115	115	115	110	110	110	115	G	115	125	100	105	100	110	105	110	105	105
22	105	100	100	100	110	105	120	115	115	115	110	110	115	110	110	110	110	130	105	105	105	100	100	100
23	105	110	115	E	E	130	125	110	115	110	105	110	G	105	G	130	125	115	120	115	105	100	110	110
24	105	100	100	100	105	135	125	115	115	115	115	115	110	115	115	120	130	120	115	105	105	110	110	105
25	105	105	105	120	115	115	115	120	115	110	105	110	105	105	115	125	115	115	115	115	115	110	110	105
26	105	105	105	105	100	B	125	115	110	115	115	110	110	110	115	115	130	130	115	115	115	115	110	110
27	110	105	105	105	115	S	130	115	115	115	110	110	110	105	110	115	115	120	115	110	110	110	115	115
28	110	110	105	105	105	110	115	105	115	115	110	110	115	115	110	140	105	105	105	105	100	100	100	105
29	115	E	105	100	100	115	140	120	115	115	115	115	110	110	105	155	125	115	115	115	110	115	105	105
30	105	105	100	100	100	100	120	115	115	115	115	110	115	120	120	125	125	125	120	115	115	110	115	105
31	100	105	E	E	E	B	140	140	125	120	120	120	G	105	105	G	120	115	110	105	105	105	110	105
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	28	28	26	22	23	28	28	29	29	28	28	28	27	29	26	27	29	29	28	27	29	30	28
MED	105	105	105	105	105	115	125	115	115	115	115	110	110	110	115	118	115	115	115	110	110	110	110	110
UQ	110	110	110	110	110	130	130	122	115	115	115	115	115	115	115	125	125	120	115	115	112	110	110	110
LQ	105	105	102	100	105	108	115	115	115	115	110	110	110	110	110	110	110	110	110	105	105	105	110	105

IONOSPHERIC DATA

AUG. 1968 | Types of Es | 135° E Mean Time (G. M. T. + 9h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 8.2' E Sweep 1.0 Mc to 20.0 Mc in 15 sec in automatic operation

Hour / 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 4	F 3	F 4	F 3	F 2	C 4	C 3	C 3	C 3	C 3	C 3	C 2	C 1	H 1	H 2	H 5	H 3	C 3	C 4	C 6	F 6	F 3	F 5	F 4
2	F 4	F 5	F 3	F 2	F 4		H 1	C 3	C 3	C 4	C 3	C 2	C 2	C 2	C 5	C 3	C 3	C 3	C 3	F 4	F 4	F 3	F 3	F 3
3	F 2	F 1	F 1		L 1	H 2	H 4	H 4	C 5	C 2	C 2	C 2	C 2	H 1	H 3	C 5	C 3	C 3	C 4	C 5	F 3	F 1	F 1	F 2
4	F 1	F 2	F 2	F 1		C 2	C 2	C 3	C 3	C 2	C 3	C 4	C 3	C 3	C 4	C 4	C 5	C 3	C 4	L 4	F 5	F 4	F 4	F 4
5	F 4	F 5	F 4	F 5	F 3	L 1	H 1	C 2	C 2	C 2	C 1	C 2	C 3	C 1	C 1	H 2	C 2	C 2	C 3	C 4	F 2	F 3	F 2	F 4
6	F 2	F 2	F 3	F 1	F 1	L 1	H 2	H 3	C 4	C 3	C 2	C 2	C 3	C 2	C 2	L 2	C 2	C 3	L 3	L 6	F 3	F 4	F 2	F 3
7	F 3	F 5	F 3	F 4	F 1	C 3	H 2	H 3	C 2	C 2	C 3	C 2	L 3	L 2	C 4	C 2	C 2	C 3	C 2	C 2	F 3	F 3	F 5	F 6
8	F 4	F 4	F 3	F 2	F 3	H 2	C 2	C 6	C 5	C 3	C 4	C 2	C 1	C 4	C 2	L 3	C 2	C 2	C 3	F 3	F 4	F 6	F 3	
9	F 1	F 1	F 2	F 2			H 3	C 5	C 5	C 3	C 3	C 3	C 1	C 2	C 2			CL 41	C 4			F 3	F 4	F 4
10	F 3		F 3	F 2		C 2		H 2	C 2	C 3	C 3	C 2	C 3	C 4	C 4	C 4	H 2	C 2	C 3	F 3	F 4	F 3	F 3	F 2
11	F 2	F 4	F 3	F 2	F 1		C 4	C 3	C 2	C 3	C 2	C 1	C 1	C 2	C 2	C 1		C 2	CL 22	F 3	F 2	F 2	F 1	F 1
12	F 2	F 2	F 2	F 3	F 2	L 2	C 3	C 2	C 2	C 2	H 2	C 2	C 2	C 3	C 1									
13													H 1	H 1	C 2	H 1	H 1	C 1	L 3	F 1	F 2	F 2	F 2	F 2
14	F 2	F 2		F 3	F 3	L 1	L 1		H 2	C 2	C 3	C 3	C 1	C 2	C 3	C 3	C 2	C 1	C 2	F 4	F 3	F 3	F 3	
15	F 2	F 4	F 2	F 1	F 3			C 2	C 2	C 2			C 1	C 2	C 2	H 2	C 2	C 3	C 3	F 3	F 2	F 2	F 3	F 1
16	F 2	F 4	F 2	F 5	F 5	C 1	H 2																F 4	F 4
17	F 2	F 2	F 2			H 1	H 2	C 2	C 2	C 3	C 2	C 1	H 2	H 2	H 2	C 2	C 5	C 3	C 4	F 5	F 4	F 4	F 2	F 2
18	F 2	F 2	F 3	F 3	F 2	H 3	C 2	H 2	C 3	C 3	C 3	C 2	C 2		C 2		H 1	H 1	H 2	F 5	F 3	F 5	F 3	F 5
19	F 4	F 5	F 4	F 3	F 3	C 1	C 3	H 1	C 2	C 2	C 2	C 2	C 1		H 1	H 2	H 3	H 3	C 4	F 3		F 3	F 1	F 2
20	F 3	F 3	F 2	F 2		C 2	C 3	C 3	C 3	C 2	C 3	C 3	L 3	L 4	L 4	L 3	L 3	L 2	L 2	F 4	F 3	F 6	F 5	F 2
21	F 2	F 2	F 2	F 2		L 2	C 4	C 2	C 2	C 2	C 3	C 2	C 2		C 2	H 1	L 2	L 2	L 2	F 4	F 2	F 3	F 3	F 2
22	F 3	F 2	F 4	F 2	F 2	L 2	C 1	C 3	C 2	C 1	C 2	C 2	C 2	C 3	C 2	C 2	C 2	H 2	L 3	F 3	F 3	F 2	F 2	F 3
23	F 1	F 2	F 1			C 2	C 3	C 2	C 2	C 2	L 3	C 2		L 1		H 1	H 2	C 3	C 3	F 3	F 3	F 3	F 4	F 5
24	F 4	F 4	F 5	F 2	F 1	C 1	H 3	C 4	C 5	C 1	C 2	C 2	C 1	C 1	C 2	C 1	HL 22	HL 32	C 3	F 4	F 4	F 3	F 2	F 4
25	F 4	F 2	F 3	F 1	F 3	C 2	C 3	C 3	C 3	C 2	L 3	C 1	L 2	L 2	C 2	HL 32	C 3	C 2	C 3	F 6	F 4	F 6	F 6	F 4
26	F 4	F 3	F 4	F 3	F 2		C 3	C 3	C 3	C 4	C 2	C 2	C 2	C 2	C 3	C 2	H 3	H 2	C 4	F 5	F 3	F 6	F 4	F 4
27	F 4	F 2	F 2	F 2	F 2		H 2	H 3	H 3	C 3	C 3	C 2	C 2	L 3	C 5	C 2	C 2		C 3	F 3	F 3	F 2	F 3	F 2
28	F 2	F 2	F 2	F 2	F 3	L 1	C 1	L 2	C 2	C 2	C 2	C 2	C 2	C 2	L 1	HL 12	L 1	L 2	L 4	F 4	F 4	F 5	F 3	F 3
29	F 2		F 1	F 2	F 2	L 1	H 2	C 2	C 3	C 2	C 1	C 1	C 2	C 2	L 2	H 1	H 2	C 2	C 4	F 3	F 5	F 3	F 4	F 4
30	F 4	F 4	F 3	F 2	F 1	L 1	C 2	C 3	C 3	C 3	C 2	C 2	C 2	H 1	C 2	H 2	H 1	H 2	C 5	F 6	F 4	F 4	F 4	F 4
31	F 1	F 1					H 1	H 2	H 2	C 2	C 2	C 1		L 2	L 2		C 2	C 2	C 3	F 3	F 3	F 3	F 4	F 5

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

IONOSPHERIC DATA

AUG. 1968 | foF2 (0.1) | 135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N, Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R	R 68	65	F	F	R 65	J R 77	92	I A 100	88	I A 86	I A 82	85	84	I A 88	84	I A 87	I A 96	91	88	80	I R 79	U R 80	75
2	J R 78	J R 79	I C 82	J R 85	J F 75	74	S 77	95	84	86	80	76	74	80	85	90	I A 84	80	78	75	73	F	J S 86	U S 74
3	U S 80	J R 74	68	61	56	55	76	109	92	80	A	68	75	84	86	81	90	88	93	93	I C 71	I C 72	76	I C 72
4	72	I C 70	64	61	57	56	62	60	65	60	A	C	I C 57	60	I C 59	C	A	I C 67	I C 68	I C 68	I C 68	F 64	68	F 63
5	I R 60	F 58	56	F 56	53	52	71	85	58	60	68	A	77	J R 74	75	78	77	78	75	76	C	C	C	68
6	64	I C 56	I C 62	68	63	59	68	78	74	A	A	80	84	85	85	90	97	101	100	R	69	71	F	R
7	F	F	F	F 67	F 58	59	R 83	94	75	I A 72	73	78	I A 80	I C 84	98	102	92	86	89	100	89	J R 78	R 68	F
8	U F 60	F	F	F 60	60	F 59	80	79	68	I A 67	70	A	A	A	A	87	85	87	90	84	I C 85	C	74	61
9	62	R 61	I C 62	63	51	F 57	79	I A 85	92	98	83	85	99	100	103	95	96	90	86	87	76	F 72	F 68	U F 65
10	69	69	F 63	62	F 54	F 57	75	81	78	65	66	76	85	96	90	79	80	75	73	I A 72	J F 75	F	J R 87	J R 69
11	68	61	65	64	58	59	69	90	88	68	A	82	88	96	104	101	94	87	85	87	81	80	I R 81	79
12	70	69	66	63	62	62	80	94	103	80	79	79	94	104	112	R 102	88	85	84	I A 85	J F 79	J R 82	R	A
13	60	64	F 60	F 58	58	S 67	78	74	90	79	87	84	89	86	96	103	J R 105	107	104	91	85	84	81	75
14	J R 70	71	68	66	63	71	85	82	71	71	80	95	95	92	90	83	85	93	94	94	R	74	A	J R 93
15	83	80	81	58	45	47	56	57	65	I A 65	66	78	84	80	84	I A 81	82	76	78	J R 79	76	69	71	68
16	67	64	63	65	60	61	60	73	94	95	105	102	102	103	100	101	85	87	96	104	85	J R 69	70	J R 72
17	I R 73	72	63	56	52	57	76	73	90	98	91	88	83	104	102	80	76	94	99	74	64	64	64	59
18	54	54	55	50	I A 50	52	59	I C 60	64	64	64	67	78	74	77	76	78	82	79	81	58	62	63	59
19	60	59	58	57	52	54	75	79	79	74	77	78	80	93	91	77	71	70	80	81	76	I A 69	62	59
20	F 58	57	55	52	53	55	77	73	70	62	65	72	75	76	A	J R 78	75	76	81	75	68	67	A	R
21	I F 69	62	F	F 52	61	60	72	72	74	79	77	77	83	85	86	97	96	97	90	81	75	70	I A 66	J R 69
22	63	57	F 58	F 57	56	62	85	86	78	78	79	J R 82	80	87	89	90	91	83	J R 89	93	92	91	76	62
23	61	64	60	58	56	58	76	90	95	78	77	74	82	86	85	87	89	90	91	95	92	78	70	J R 69
24	J R 63	F	F 61	F 58	F 64	57	76	80	101	I A 76	74	87	I A 75	80	95	94	86	94	110	101	69	A	69	58
25	F	U F 58	59	J R 56	F 55	60	88	70	I A 81	78	76	90	94	97	101	99	J A 103	99	103	S 98	83	A	F	J R 71
26	J F 65	F 55	F	J F 53	44	44	65	88	94	86	81	93	103	96	100	100	100	101	101	85	R	A	A	A
27	R	R	R 55	F	F	59	72	74	91	A	83	82	83	86	88	94	89	89	84	85	87	70	63	46
28	49	I R 48	49	F 48	46	J R 54	74	82	92	72	72	65	J R 66	78	83	87	89	93	98	94	J R 81	U S 80	73	61
29	55	J R 55	56	F 54	F 52	51	69	88	99	84	72	78	82	77	R 79	80	83	85	101	J R 102	97	I R 84	74	J R 56
30	48	F	F	F 48	J F 48	J F 49	80	88	94	87	78	77	80	77	78	86	93	83	79	I R 81	82	77	76	73
31	73	71	70	73	64	61	76	84	91	91	89	86	83	89	92	94	96	96	93	92	I S 82	81	81	79
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	26	29	29	31	31	31	31	29	27	28	30	30	29	30	30	31	31	30	28	24	24	26
MED	64	63	62	58	56	58	76	82	88	78	77	80	83	86	89	88	88	87	90	86	80	73	72	68
UQ	70	70	65	63	60	60	78	88	93	86	82	86	88	96	98	97	94	94	97	94	85	80	78	73
LQ	60	57	58	F 56	52	54	70	74	74	68	72	76	78	80	85	81	83	82	80	81	72	69	68	61

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IONOSPHERIC DATA

AUG. 1968 | foF1 (0.01) | 135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	A	A	A	A	540	A	A	A	A	A	A					
2								L 450	A	L 520	L 520	A	A	A	A	A	A	A	A					
3						L	L	A	A	A	A	A	540	550	A	A	A	A	L					
4						L	L	460	L 520	A	A	C	C	A	C	C	A	C	C					
5							L	430	L	490	500	A	A	A	K	R	A	A	A					
6							L	L	A	A	A	A	510	520	A	A	L 470	A	A					
7							L	A	A	A	A	A	A	C	L 530	490	A	L	A					
8							A	L	U L 470	A	A	A	B	A	A	L 510	U L 470	A	A					
9								A	A	A	L 480	L 540	A	U R 550	510	L 500	L	A	A					
10								A	A	A	A	A	A	L 530	510	L 510	U L 450	A	A					
11								A	A	A	A	A	A	A	L 530	A	L	L						
12							L	A	A	A	A	A	L 560	A	520	U L 530	L 470	L	A					
13									L	L	520	U L 530	U L 530	A	A	U L 500	L	A	A					
14								L	510	L	U L 510	U L 530	R	L	L	L	L	A	A					
15						L	L	500	R	A	A	U L 550	R	L 550	A	A	A	A	A					
16								L	L	A	A	A	A	A	A	U L 510	U L 510	L	L					
17									L 510	L	L	A	U L 570	A	L 540	L	A	L						
18						A	A	C	480	A	A	L 560	L 530	U L 530	L 530	L 520	L	A	A					
19						A	L	L	U L 490	L	L	L	550	L 550	L 540	U L 510	L	L						
20							A	L	L 470	L 500	A	A	A	A	A	A	L	L						
21								L	A	L	U R 490	A	L	530	L	U L 510	L	L	A					
22									A	A	A	A	A	L 510	U L 510	A	A	L						
23								L	U L 470	A	U L 500	U L 550	L 530	L	R	L 500	L	A	A					
24								L	L	A	A	L	A	560	U L 540	A	A	A	A					
25								A	A	A	L	A	A	A	540	A	A	A	A					
26							A	A	A	A	L	L	L	U L 500	L	L	L	L						
27								L	A	A	L 520	A	U L 510	L 540	U L 530	L	L	L						
28								L	L	L	A	R	A	U L 530	U L 520	A	A	A	A					
29								L	L	A	A	L 560	L	L	R	L 510	L	A	A					
30							L	L	A	A	L	A	U L 530	A	L 540	L	L	L						
31									L	U L 500	L 540	L	h 600	U L 560	L 510	U L 490	L	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								4	8	4	9	7	12	14	15	13	5							
MED								455	L 485	L 500	L 510	U L 550	L 535	L 535	L 530	L 510	U L 470							
UQ								480	L 510	L 510	L 520	L 555	555	L 550	L 535	U L 510	U L 470							
LQ								440	L 470	495	U L 500	U L 535	L 530	L 530	L 515	L 500	U L 470							

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IONOSPHERIC DATA

AUG. 1968 | foE (0.01) | 135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	A	U R 285	A	A	A	A	A	400	375	350	310	I A 280	A					
2						B	A	A	320	350	A	A	A	A	A	A	A	A	A					
3						B	A	A	320	A	A	A	390	B	385	355	315	280	A					
4						B	240	300	350	A	370	C	C	A	C	C	A	C	C					
5						A	A	A	A	A	A	A	B	A	A	A	A	A	A					
6						A	R	A	A	A	A	A	A	A	A	A	A	A	A					
7						A	A	285	A	A	A	A	A	C	A	350	I A 320	A	A					
8						A	A	A	A	A	A	A	B	A	A	A	A	A	A					
9						A	A	A	A	A	A	A	A	A	A	A	325	280	A					
10						140	245	285	A	A	A	A	A	A	A	A	330	275	A					
11						B	A	A	A	A	A	A	A	A	A	A	A	280	A					
12						A	240	A	A	A	A	A	A	A	A	A	A	275	A					
13						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
14						A	A	295	A	A	A	A	R	A	R	A	A	U R 280	A					
15						A	A	A	A	A	A	A	A	A	A	A	A	U R 265	A					
16						B	A	A	A	A	R	A	A	A	A	A	A	A	190					
17						A	A	A	A	A	A	I A 395	395	A	385	370	A	A	A					
18						A	A	C	A	A	A	A	A	A	A	A	315	260	A					
19						A	A	285	320	340	A	A	390	I A 390	370	350	320	270	A					
20						B	A	A	A	A	A	A	A	A	A	A	A	I R 270	R					
21						A	A	A	A	A	A	A	R	A	A	R	U R 330	A	A					
22						B	A	A	A	A	A	A	A	A	A	A	A	A	A					
23						B	A	A	A	A	A	A	A	A	A	A	U R 310	A	A					
24						R	A	A	A	A	A	A	A	A	360	A	305	A	A					
25						B	205	A	A	A	A	A	A	375	370	340	310	A	A					
26						B	A	A	A	A	A	A	A	A	A	345	300	A	A					
27						A	A	A	A	A	A	A	A	A	A	A	A	A	U A 200					
28						A	A	A	A	R	A	A	A	A	A	A	A	A	A					
29						B	215	A	A	A	A	A	A	A	A	A	U R 300	U R 250	A					
30						B	R	A	A	A	A	A	A	A	A	340	A	R	A					
31						B	A	A	A	A	A	A	A	A	350	350	300	I R 250	R					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	5	6	4	2	1	1	3	3	7	9	14	13	2					
MED						140	240	285	320	345	370	U A 395	390	390	370	350	312	270	195					
UQ							240	295	335				392	395	380	350	320	280						
LQ							215	285	320				390	382	365	345	305	U R 260						

IONOSPHERIC DATA

AUG. 1968

foEs (0.1)

135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N, Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	JX 22	JX 29	JX 36	JX 40	22	JX 43	JX 41	JX 41	JX 123	Y 102	M 154	JX 130	JX 54	JX 82	JX 131	M 113	M 112	M 126	JX 67	49	JX 60	JX 73	JX 63	M 35
2	35	JX 42	C	43	M 35	25	JX 65	44	JX 51	JX 46	JX 51	JX 52	68	M 79	86	79	M 91	JX 72	68	JX 68	JX 29	M 35	JX 51	JX 52
3	56	JX 24	23	23	JX 29	JX 43	JX 42	JX 74	JX 66	JX 119	JX 143	JX 83	45	E B 49	M 81	65	M 110	JX 87	60	20	C	C	JX 25	JX 29
4	JX 28	JX 25	21	21	M 21	21	30	JX 44	JX 43	JX 64	JX 107	C	C	JX 57	C	C	JX 94	C	C	C	C	JX 53	JX 44	JX 50
5	JX 52	JX 36	JX 30	M 21	21	23	29	JX 36	36	JX 53	48	JX 78	JX 63	JX 62	47	47	JX 88	57	45	JX 50	C	C	C	JX 72
6	JX 50	C	C	JX 24	20	21	G	JX 43	M 60	JX 134	JX 122	JX 146	46	57	M 67	57	M 42	JX 66	JX 89	JX 82	JX 43	JX 36	JX 42	M 57
7	M 57	JX 25	JX 27	JX 36	21	JX 30	32	48	JX 66	M 89	JX 110	JX 73	JX 95	C	44	45	68	JX 125	JX 89	M 60	JX 61	JX 71	JX 63	JX 96
8	JX 52	JX 42	JX 31	JX 26	M 23	M 36	JX 42	JX 42	JX 43	JX 104	JX 76	JX 103	E B 81	JX 122	JX 89	JX 41	47	JX 83	JX 87	JX 63	C	C	JX 29	22
9	JX 26	24	C	24	JX 24	30	JX 40	JX 84	JX 63	JX 104	JX 48	43	58	49	44	JX 38	39	JX 76	M 73	M 79	M 46	JX 63	JX 63	JX 51
10	58	35	JX 29	JX 31	M 21	21	36	JX 51	JX 81	69	JX 111	JX 110	66	44	JX 41	48	38	JX 48	49	90	JX 55	JX 63	JX 42	M 35
11	JX 37	JX 28	M 31	M 31	JX 24	44	36	JX 84	JX 74	JX 134	JX 119	M 79	JX 108	57	48	64	JX 37	JX 30	JX 30	JX 35	JX 36	JX 25	23	24
12	23	19	19	JX 28	JX 26	JX 30	30	JX 48	JX 54	JX 63	90	JX 96	M 61	JX 66	JX 41	44	JX 49	34	JX 59	JX 122	JX 130	JX 49	JX 52	JX 89
13	JX 128	JX 58	JX 29	23	22	E B 16	JX 30	JX 50	48	JX 55	43	45	43	JX 60	JX 93	JX 41	JX 41	JX 51	JX 52	JX 22	29	JX 25	JX 30	22
14	JX 43	JX 26	M 32	JX 36	JX 37	JX 26	JX 29	31	36	JX 40	44	43	46	46	47	JX 42	JX 63	JX 42	JX 41	JX 29	68	JX 52	90	JX 93
15	JX 51	JX 53	JX 52	JX 53	21	27	JX 29	JX 40	46	JX 80	73	48	48	49	77	JX 80	JX 108	JX 104	JX 41	JX 29	JX 93	JX 51	JX 55	JX 42
16	JX 54	JX 42	JX 37	JX 29	JX 41	31	32	JX 43	JX 51	59	JX 57	JX 104	77	JX 83	JX 61	48	35	35	G	JX 23	JX 35	JX 76	JX 25	JX 52
17	JX 51	JX 73	JX 53	JX 25	JX 22	31	M 60	JX 56	JX 41	JX 41	49	M 63	46	60	48	JX 51	JX 71	JX 84	JX 61	JX 89	JX 63	JX 42	M 30	23
18	JX 26	JX 24	JX 43	JX 31	JX 52	46	JX 58	C	JX 51	JX 51	57	JX 83	JX 93	JX 51	60	46	40	JX 42	JX 62	35	JX 29	JX 36	JX 53	JX 41
19	JX 53	JX 42	31	JX 27	16	JX 41	JX 30	37	37	JX 58	39	44	43	44	43	39	JX 45	JX 43	JX 33	37	JX 85	JX 118	JX 48	JX 52
20	M 58	JX 33	M 29	JX 21	JX 27	JX 25	JX 61	JX 54	JX 119	JX 127	JX 73	JX 71	JX 57	JX 61	JX 106	JX 62	M 39	JG 25	M 31	JX 36	JX 30	JX 63	JX 83	72
21	JX 29	JX 41	JX 42	JX 29	JX 38	JX 29	36	JX 44	M 54	JX 43	42	59	G	39	41	G	G	44	JX 41	JX 36	JX 84	JX 53	JX 74	JX 29
22	JX 29	JX 37	JX 41	29	JX 24	21	31	JX 36	54	JX 56	JX 109	JX 65	JX 57	JX 43	41	JX 63	48	30	JX 36	JX 43	JX 44	JX 29	JX 25	JX 23
23	JX 22	JX 21	21	23	21	E B 16	26	JX 41	JX 41	JX 66	JX 73	JX 63	JX 54	47	47	JX 42	JX 35	JX 51	JX 33	21	21	21	JX 29	JX 82
24	JX 29	22	M 23	M 21	E B 12	22	30	44	JX 43	JX 95	JX 58	JX 43	M 84	JX 41	JG 30	54	JX 63	M 58	JX 54	JX 40	JX 54	M 69	JX 85	JX 62
25	JX 58	M 35	JX 29	JX 41	JX 43	JX 70	JX 41	JX 78	JX 166	JX 182	JX 70	JX 93	JX 74	JX 79	JX 110	JX 81	103	68	M 93	M 75	JX 51	M 79	M 69	JX 29
26	JX 43	JX 42	JX 29	JX 29	JX 42	30	JX 42	JX 51	64	JX 62	JX 79	JX 84	JX 76	JX 42	M 42	JG 31	35	JX 29	JX 27	30	JX 84	JX 137	JX 88	JX 90
27	JX 53	JX 51	JX 28	JX 41	JX 42	21	JX 41	JX 51	M 67	JX 102	M 45	M 57	JX 56	47	JX 41	JX 51	JX 42	JX 51	25	JX 41	JX 26	JX 78	JX 75	JX 118
28	JX 64	JX 86	G	22	22	23	M 35	JX 42	35	G 36	55	48	60	48	J 40	M 58	60	60	JX 62	JX 52	JX 30	JX 30	JX 41	JX 29
29	JX 54	JX 37	JX 42	JX 30	21	E B 12	30	JX 37	JX 62	JX 88	JX 116	M 44	M 47	JX 64	43	38	41	JX 58	M 42	M 35	JX 51	JX 51	31	JX 29
30	21	21	E S 15	JX 36	JX 36	21	G	JX 29	JX 58	JX 61	45	56	47	JX 60	46	38	35	JX 41	M 42	JX 36	JX 51	JX 41	JX 52	JX 62
31	JX 53	JX 33	23	21	E B 12	E B 16	27	32	JX 42	41	JX 40	JX 74	43	44	G 31	G	G	G	JX 29	JX 29	JX 29	JX 52	JX 30	JX 42
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	28	31	31	31	31	30	31	31	31	30	30	30	30	30	31	30	30	30	27	28	30	31
MED	JX 51	JX 35	JX 29	JX 29	23	26	32	JX 44	JX 54	JX 64	JX 70	JX 68	56	54	47	48	45	JX 51	JX 47	JX 38	JX 51	JX 52	JX 50	JX 50
UQ	JX 54	JX 42	JX 36	JX 34	JX 36	31	JX 41	JX 51	JX 65	JX 102	JX 108	JX 84	U 71	JX 62	77	62	70	JX 72	JX 62	JX 63	JX 62	JX 70	JX 63	JX 67
LQ	JX 29	JX 25	23	23	21	21	30	JX 40	JX 43	JX 54	48	48	46	45	41	41	38	JX 41	JX 33	JX 30	JX 30	JX 36	JX 30	JX 29

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IONOSPHERIC DATA

AUG. 1968 | foEs (0.1) | 135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	26	34	16	15	29	40	40	A	65	A	A	47	65	A	78	A	A	42	42	39	55	50	19
2	25	29	C	29	19	19	38	35	46	46	48	52	68	64	80	75	A	61	61	48	20	17	18	17
3	24	15	14	15	22	24	33	62	65	70	A	62	45	E B 49	74	59	52	55	25	17	C	C	19	17
4	18	22	E	E	15	17	27	39	43	50	A	C	C	54	C	C	A	C	C	C	C	40	39	32
5	41	31	26	15	17	G	27	32	34	41	42	A	55	55	E R 47	E R 47	56	54	40	45	C	C	C	18
6	37	C	C	18	E	G	G	38	54	A	A	72	41	51	61	52	40	63	66	47	39	29	23	28
7	23	19	22	28	E	28	31	43	52	A	54	49	A	C	40	45	58	35	73	29	19	40	40	44
8	38	16	15	12	15	28	40	38	40	A	66	A	E B 81	A	A	40	40	70	67	52	C	C	20	E
9	25	17	C	17	16	18	26	A	56	63	46	43	53	44	40	37	39	66	64	78	40	25	39	29
10	25	20	20	24	14	18	28	46	70	60	62	65	65	44	41	45	37	42	46	A	40	55	26	26
11	28	24	19	19	E	35	29	84	62	52	A	75	75	54	46	58	36	25	27	21	E	E	E	E
12	E	E	16	20	19	17	27	45	53	55	56	69	48	62	41	44	42	29	53	A	19	29	31	A
13	17	45	14	16	12	E B 16	29	45	40	39	40	42	42	56	53	40	38	45	47	20	23	23	27	E
14	E	25	25	25	25	20	27	30	33	38	E R 44	42	E R 46	45	45	41	39	41	37	27	66	40	A	26
15	32	40	39	20	16	21	26	37	E R 46	A	57	46	E R 48	44	71	A	62	52	31	26	40	46	42	41
16	32	38	26	25	32	16	29	42	47	54	53	78	70	65	59	43	33	33	G	20	33	53	20	20
17	31	39	33	19	18	21	56	40	38	40	49	59	43	55	46	45	45	33	25	41	40	26	20	19
18	16	17	21	19	A	45	45	C	44	51	52	54	45	45	45	40	39	41	58	30	18	19	29	30
19	31	34	20	16	14	41	26	33	37	50	39	44	42	44	42	38	42	38	32	33	40	A	40	31
20	45	24	20	17	16	21	50	40	40	40	41	61	50	59	A	61	33	G 21	25	26	29	26	A	18
21	19	26	29	20	36	23	33	40	52	40	E R 42	56	G	E R 39	40	G	G	30	40	34	25	19	A	23
22	25	25	27	25	17	G	25	25	50	55	53	54	55	40	40	53	46	27	29	28	31	26	22	17
23	19	20	17	16	E	E B 16	25	36	40	64	40	44	44	E R 47	E R 47	41	34	50	33	E	E	E	20	17
24	26	17	16	E	E B 12	16	25	40	41	A	52	40	A	40	G 30	53	59	52	40	25	34	A	54	44
25	38	26	20	17	E	29	41	55	A	52	54	72	65	75	40	75	A	62	85	73	37	A	41	24
26	16	17	20	15	30	24	41	48	56	59	52	53	53	40	40	E R 31	31	27	26	26	40	A	A	A
27	20	20	16	20	E	G	26	46	62	A	45	55	41	44	40	40	37	29	25	20	20	30	25	28
28	E	18	G	E	E	G	30	31	32	E R 36	52	E R 48	59	45	38	52	50	40	48	22	19	20	19	19
29	20	37	20	18	15	E B 12	26	36	38	70	56	40	44	46	E R 43	36	40	53	37	32	28	51	29	27
30	E	E	E S 15	E	16	G	G	27	52	60	42	53	46	56	40	38	32	25	21	16	25	26	33	46
31	17	26	21	E	E B 12	E B 16	25	32	37	40	40	46	40	40	G 30	G	G	G	16	25	17	18	25	25
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	28	31	31	31	31	30	31	31	31	30	30	30	30	30	31	30	30	30	27	28	30	31
MED	24	24	20	17	15	18	28	40	46	55	52	54	47	47	42	44	40	41	38	28	29	29	29	25
UQ	31	29	26	20	18	24	36	45	55	68	56	69	U 62	56	59	53	54	54	53	45	40	52	41	30
LQ	17	17	16	15	12	16	26	35	40	44	42	45	43	44	40	40	36	29	26	22	20	22	20	18

IONOSPHERIC DATA

AUG. 1968

f-min (0.1)

135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4' N. Long. 139°29.3' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 16	E S 16	E S 15	14	10	15	14	16	17	15	19	22	26	25	25	19	16	15	15	E S 15	E S 16	13	E S 15	E S 15
2	E S 15	E S 15	C	12	12	14	15	15	16	18	17	26	25	25	25	20	18	15	11	E S 15	E S 15	14	E S 15	E S 15
3	13	11	12	12	11	15	15	16	16	16	26	25	25	49	27	19	16	19	14	13	C	C	E S 16	E S 15
4	E S 15	11	14	14	10	15	15	15	16	25	25	C	C	25	C	C	16	C	C	C	C	E S 15	E S 15	E S 15
5	E S 15	E S 15	14	E	10	16	15	16	15	16	16	16	32	25	17	19	16	16	16	E S 19	C	C	C	E S 15
6	13	C	C	11	E S 16	16	16	15	15	19	27	28	25	27	25	26	18	18	17	E S 16	E S 17	E S 16	E S 15	E S 16
7	E S 16	14	12	12	11	11	13	18	18	16	25	28	26	C	25	16	15	15	14	13	E S 15	E S 15	E S 15	E S 15
8	14	12	10	10	E	12	15	16	16	26	22	26	81	28	25	19	26	15	16	14	C	C	E S 15	E S 15
9	E S 16	E S 15	C	14	10	12	16	15	16	16	16	22	25	25	25	18	19	15	15	E S 15	E S 15	E S 15	E S 15	13
10	14	14	12	14	10	11	15	16	16	25	25	26	26	23	26	18	17	16	14	12	E S 15	13	E S 15	13
11	E S 15	E S 15	11	12	11	15	16	14	16	17	18	25	25	26	25	16	16	14	12	E S 15	E S 16	E S 15	E S 15	E S 15
12	E S 15	E S 15	14	11	12	12	14	12	15	20	25	25	26	26	24	18	16	15	13	13	14	E S 15	E S 15	E S 15
13	E S 16	14	10	12	11	16	15	14	15	18	26	26	26	26	26	25	16	15	16	14	E S 16	E S 16	E S 16	E S 16
14	E S 16	E S 15	E S 15	12	15	12	14	15	14	17	27	26	26	28	27	27	17	16	14	E S 16	E S 16	E S 16	E S 16	E S 16
15	E S 15	E S 15	E S 15	14	12	16	15	15	12	16	28	18	26	28	25	26	17	16	16	12	E S 16	E S 16	E S 16	E S 16
16	E S 15	E S 16	14	14	11	15	15	16	25	15	26	26	27	26	25	26	17	15	14	E S 16	E S 16	E S 16	E S 16	E S 16
17	E S 16	E S 16	13	10	12	15	16	15	18	15	19	29	25	26	26	26	15	16	13	E S 15	E S 15	E S 16	11	E S 16
18	12	13	13	11	13	13	14	C	26	25	26	24	26	26	26	16	19	15	14	E S 15	E S 15	E S 15	E S 15	E S 15
19	E S 16	14	14	11	10	13	14	15	15	17	25	24	28	25	25	18	16	15	16	E S 16	E S 15	12	E S 15	E S 15
20	E S 15	11	14	12	10	13	15	16	16	25	26	26	26	26	19	19	16	16	16	E S 16	E S 16	E S 16	E S 16	E S 16
21	E S 16	E S 16	E S 15	E S 15	14	16	15	15	16	19	26	29	27	26	19	27	27	12	14	E S 15	E S 16	E S 16	E S 16	E S 15
22	E S 16	E S 16	E S 15	14	10	15	16	16	26	26	25	29	25	26	16	19	18	16	16	E S 16	E S 16	E S 16	E S 16	E S 16
23	E S 16	E S 15	E S 16	12	E S 16	16	14	16	18	19	26	26	26	29	26	20	16	16	15	E S 16	E S 16	E S 16	E S 16	E S 16
24	E S 16	E S 15	E S 15	12	12	14	14	18	16	26	25	25	26	25	19	25	14	12	11	E S 15	E S 15	E S 16	E S 15	E S 15
25	E S 15	E S 15	E S 15	14	14	14	14	14	15	16	25	25	25	16	25	18	16	14	14	E S 15	E S 15	E S 15	E S 15	E S 15
26	E S 15	14	14	10	10	14	16	15	16	15	26	27	26	25	26	25	16	15	15	E S 16	E S 16	14	E S 16	E S 16
27	E S 16	E S 16	12	E S 15	11	16	16	18	26	16	27	27	27	26	18	27	16	14	15	E S 15	E S 16	E S 16	E S 16	E S 16
28	E S 16	E S 16	12	13	12	16	16	15	18	27	26	26	18	26	25	17	16	15	12	E S 15	E S 15	E S 15	13	E S 15
29	E S 15	E S 15	14	14	12	12	14	15	16	16	29	26	25	26	28	26	16	15	16	E S 17	E S 16	E S 16	E S 16	E S 15
30	E S 16	E S 16	E S 15	E S 16	12	14	16	16	16	16	27	28	26	26	17	18	17	16	15	13	E S 16	E S 16	E S 16	E S 16
31	E S 16	E S 16	E S 15	E S 16	12	16	16	16	16	18	25	25	27	26	16	19	16	16	14	12	E S 15	13	E S 15	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	28	31	31	31	31	30	31	31	31	30	30	30	30	30	31	30	30	30	27	28	30	31
MED	E S 15	E S 15	13	12	11	15	15	15	16	17	25	26	26	26	25	19	16	15	14	E S 15	E S 16	E S 16	E S 15	E S 15
UQ	E S 16	E S 16	E S 15	14	12	16	16	16	18	22	26	27	26	26	26	26	17	16	16	E S 16	E S 16	E S 16	E S 16	E S 16
LQ	E S 15	U 12	12	12	10	13	14	15	16	16	25	25	25	25	19	18	16	15	14	13	E S 15	E S 15	E S 15	E S 15

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IONOSPHERIC DATA

AUG. 1968

M(3000)F2 (0.01)

135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R	R 265	275	F	F	R 295	J R 300	305	I A 300	305	I A 310	I A 290	290	285	I A 290	285	I A 270	I A 300	300	305	275	I R 270	U R 285	295
2	J R 285	J R 290	I C 280	J R 275	J F 280	295	S 295	325	320	300	300	305	295	285	280	290	I A 300	295	305	290	300	F	J S 290	U S 285
3	U S 275	J R 285	295	295	275	275	290	320	330	A	A	A	275	285	280	280	290	270	310	335	I C 275	I C 270	280	I C 270
4	280	I C 295	280	290	315	315	310	290	275	C	A	C	C	A	C	C	A	I C 315	I C 295	I C 295	I C 280	F 270	280	F 270
5	I R 285	F 280	270	F 285	285	290	310	340	300	270	305	A	290	J R 290	290	290	300	305	310	290	C	C	C	290
6	270	I C 270	I C 275	275	300	290	310	310	310	A	A	275	270	255	280	280	270	290	315	R	275	270	F	R
7	F	F	F	F 280	F 290	280	R 300	330	330	I A 310	290	280	I A 275	I C 275	275	295	295	300	280	300	305	J R 280	R 270	F
8	U F 275	F	F	F 280	280	F 305	300	330	335	I A 310	A	A	A	A	A	275	295	285	300	280	I C 285	C	285	280
9	260	R 265	I C 280	290	290	F 280	320	I A 290	295	325	280	265	270	265	280	275	295	290	300	300	290	F 290	F 265	U F 265
10	280	280	F 265	270	F 265	F 300	320	310	330	A	A	A	280	275	300	290	300	305	300	I A 300	J F 280	F	J R 285	J R 275
11	270	285	275	300	290	315	305	300	340	315	A	280	270	275	285	290	290	300	295	290	280	275	I R 280	275
12	280	275	285	280	280	285	300	310	320	315	290	I A 260	265	270	285	295	R 295	295	300	I A 295	J F 275	J R 265	R	A
13	280	280	F 280	F 290	295	S 310	310	295	310	300	305	305	285	275	280	285	J R 290	295	295	295	280	275	285	280
14	J R 270	260	270	275	280	290	330	325	305	270	280	290	275	270	290	275	280	280	285	285	R	265	A	J R 265
15	265	270	285	285	275	270	300	260	290	I A 295	260	280	305	280	290	I A 285	295	290	285	J R 300	265	260	255	260
16	260	265	260	265	285	295	305	245	275	265	285	265	280	290	280	295	270	285	280	290	295	J R 260	260	J R 265
17	I R 260	250	260	270	265	265	305	275	265	295	265	285	295	295	295	300	290	290	310	295	270	260	280	275
18	255	255	255	260	I A 270	270	285	I C 280	275	270	310	260	290	300	300	305	305	305	305	320	260	270	270	260
19	265	270	270	270	285	260	310	305	295	270	285	280	275	295	300	305	310	285	300	300	270	I A 280	275	280
20	F 275	265	265	270	275	270	305	315	315	285	270	270	285	290	A	J R 290	295	300	300	295	280	270	A	R
21	I R 265	270	F	F 265	260	315	340	325	300	305	305	285	285	285	280	290	295	305	310	310	290	275	I A 270	J R 290
22	270	275	F 265	F 265	285	300	330	335	320	320	305	J R 280	290	285	275	285	300	290	J R 300	290	290	295	305	265
23	265	280	285	290	280	295	305	320	325	345	320	270	290	295	280	290	290	300	285	295	290	300	285	J R 280
24	J R 280	F	F 270	F 285	F 275	310	330	300	330	I A 330	300	300	I A 305	270	285	295	290	275	300	315	305	A	275	280
25	F	U F 275	285	J R 275	F 280	300	345	330	I A 330	320	270	300	285	290	290	290	I A 300	290	300	S 320	300	A	F	J R 310
26	J F 285	F 275	F	J F 325	300	275	315	330	330	325	280	280	305	285	290	290	300	295	305	330	R	A	A	A
27	R	R	R 280	F	F	285	300	310	320	A	300	310	285	285	290	300	315	300	290	295	310	300	300	285
28	270	I R 255	275	F 295	295	J R 285	325	340	345	320	295	330	J R 280	285	290	290	290	290	305	305	J R 310	U S 310	320	300
29	280	J R 285	305	F 295	F 310	310	325	330	340	325	310	290	295	285	R 285	295	295	285	285	J R 305	305	I R 300	310	J R 285
30	290	F	F	F 275	J F 270	J F 270	315	325	335	310	300	295	295	300	290	290	305	310	295	I R 290	280	285	280	265
31	290	295	285	290	290	290	315	325	310	340	305	300	285	285	285	285	295	300	300	305	I S 300	270	290	275
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	26	29	29	31	31	31	31	26	25	26	29	29	28	30	30	31	31	30	28	24	24	26
MED	275	275	275	280	280	290	310	315	320	310	300	282	285	285	285	290	295	295	300	298	282	272	280	278
UQ	280	280	285	F 290	290	300	320	328	330	320	305	300	290	290	290	295	300	300	305	305	300	288	288	282
LQ	265	265	270	270	275	278	300	300	300	295	280	275	275	275	280	285	290	290	295	290	275	270	272	265

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IONOSPHERIC DATA

AUG. 1968 | M(3000)F1 (0.01) | 135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	A	A	A	A	360	A	A	A	A	A	A					
2								L 355	A	L 365	A	A	A	A	A	A	A	A	A					
3						L	L	A	A	A	A	A	360	365	A	A	A	A	L					
4						L	L	330	A	A	A	C	C	A	C	C	A	C	C					
5							L	400	L	390	375	A	A	A	R	R	A	A	A					
6							L	L	A	A	A	A	370	R	A	A	L 355	A	A					
7							L	A	A	A	A	A	A	C	L 340	345	A	L	A					
8							A	L	U L 390	A	A	A	B	A	A	L 350	U L 380	A	A					
9								A	A	A	L 400	L 355	A	U R 325	355	L 350	L	A	A					
10								A	A	A	A	A	A	L 340	350	L 345	U L 360	A	A					
11								A	A	A	A	A	A	A	L 340	A	L	L						
12							L	A	A	A	A	A	L 330	A	345	U L 330	L 365	L	A					
13									L	L	380	U L 340	U L 360	A	A	U L 360	L	A	A					
14								L	360	L	U L 375	U L 360	R	L	L	L	L	A	A					
15						L	L	320	R	A	A	U L 350	R	L 345	A	A	A	A	A					
16								L	L	A	A	A	A	A	A	U L 355	U L 335	L	L					
17									L 320	L	L	A	U L 335	A	L 350	L	A	L						
18						A	A	C	325	A	A	A	L 355	U L 340	L 325	L 330	L	A	A					
19						A	L	L	U L 365	L	L	L	350	L 335	L 350	U L 355	L	L						
20							A	L	L 380	L 375	A	A	A	A	A	A	L	L						
21								L	A	L	R	A	L	360	L	U L 350	L	L	A					
22									A	A	A	A	A	L 370	U L 355	A	A	L						
23								L	U L 370	A	U L 385	U L 360	L 360	L	R	L 345	L	A	A					
24								L	L	A	A	L	A	340	U L 335	A	A	A	A					
25								A	A	A	A	L	A	A	A	340	A	A	A					
26							A	A	A	A	A	L	L	L	U L 380	L	L	L	L					
27								L	A	A	L 365	A	U L 390	L 355	U L 340	L	L	L						
28								L	L	L	A	R	A	A	U L 345	A	A	A	A					
29								L	L	A	A	L 345	L	L	R	L 335	L	A	A					
30							L	L	A	A	L	A	U L 370	A	L 335	L	L	L						
31									L	U L 370	L 370	L	H 365	U L 340	L 355	U L 355	L	L						

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								4	7	4	7	6	12	12	15	13	5							
MED								342	L 365	L 372	L 375	U L 352	L 360	L 342	L 345	L 350	U L 360							
UQ								378	U L 375	382	382	U L 360	368	L 362	L 350	U L 355	U L 365							
LQ								325	342	L 368	L 372	U L 345	L 352	L 340	L 340	L 345	U L 355							

IONOSPHERIC DATA

AUG. 1968 | h'F2 (km) | 135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								265	I A 290	290	I A 300	A	330	340	A	A	A	A	A 270					
2								260	255	305	310	305	E A 350	A 350	I A 365	A 350	I A 320	A 310	E A 300					
3						355	295	255	260	A 300	A	A	400	355	370	350	310	300	260					
4						270	310	380	395	375	A	C	C 455		C	C	A	I C 330	C					
5							300	255	320	420	330	A	340	350	350	355	320	300	275					
6							310	265	300	A	A	360	365	365	350	345	315	300	270					
7							280	240	265	I A 305	350	345	I A 360	I C 375	340	300	300	295	E A 360					
8							280	255	260	I A 310	A 380	A	B	A	A	345	300	350	305					
9								I A 300	290	260	355	355	345	355	325	310	300	300	A 300					
10								260	I A 260	A	A	A	350	335	300	340	300	300	A 280					
11								I A 280	250	270	A	A	E A 390	345	330	310	290	270						
12							255	260	260	265	310	I A 405	360	345	310	300	300	290	290					
13									280	295	315	300	345	360	340	330	305	295	275					
14								255	310	400	325	350	310	360	335	350	345	310	290					
15						400	340	L 450	355	I A 350	490	375	310	375	350	A	A 320	285	285					
16								450	325	310	320	E A 365	350	345	315	300	345	300	300					
17									345	270	350	320	360	330	300	300	300	300						
18						A	350	C	405	415	325	420	340	330	340	330	305	290	A 300					
19						A	260	260	305	410	335	320	370	325	305	300	295	280						
20							A 300	300	290	395	425	E A 400	360	360	A	340	315	300						
21								275	275	295	300	A 300	340	340	350	320	300	280	250					
22									270	290	300	320	330	345	325	330	300	265						
23								250	260	250	300	405	345	335	330	335	315	275	270					
24								275	260	I A 255	310	310	I A 305	400	325	295	A 300	305	260					
25								A 260	I A 265	270	400	A 320	A 340	A 345	305	320	I A 305	A 300	I A 265					
26							260	270	250	260	315	330	295	310	335	300	300	285						
27								275	E A 275	A	300	285	315	340	335	300	285	285						
28								270	245	250	A 295	275	405	345	345	315	305	290	270					
29								255	245	290	A 275	355	335	340	310	315	300	300	280					
30							260	250	250	275	275	265	335	315	350	315	295	255						
31									285	255	295	300	350	345	340	290	305	260						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	13	26	31	28	26	24	29	30	27	28	29	30	21					
MED						355	295	264	275	292	315	322	342	345	335	318	300	298	278					
UQ						378	310	275	302	330	350	358	360	360	348	340	315	300	295					
LQ						312	260	255	260	268	300	302	335	340	320	300	300	285	270					

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968 | h'F (km) | 135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	A 300	A 310	285	290	290	260	250	A	A	A	A	240	A	A	A	A	A	A	A 250	290	E A 350	E A 340	250
2	295	300	I C 290	280	270	270	260	240	A	A 240	I A 230	A	A	A	A	A	A	A	A	E A 290	250	350	260	270
3	305	260	250	250	310	A 300	A 250	A	A	A	A	A	220	240	A	A	A	A	A 250	230	I C 250	I C 290	290	300
4	295	270	240	255	250	255	245	270	A	A	A	C	C	A	C	C	A	C	C	C	C	E A 350	305	320
5	E A 350	310	310	300	260	260	240	210	200	210	215	A	A	A	A	A	A	A	A	265	C	C	C	275
6	A 350	I C 320	I C 345	295	260	250	225	250	A	A	A	A	215	230	A	A	220	A	A	260	E A 300	A 310	A 310	260
7	260	295	285	275	275	290	245	A	A	A	A	A	A	C	240	A	A	E A 260	A	A 250	245	A 270	A 310	E A 400
8	300	295	295	305	295	300	I A 260	I A 240	210	A	A	A	B	A	A	250	220	A	A	A 290	C	I C 310	250	250
9	325	325	I C 300	250	245	265	250	A	A	A	A 240	210	A	245	220	225	A	A	A	A	270	260	A	A 350
10	295	260	305	300	310	255	245	A	A	A	A	A	A	250	240	A 260	245	I A 255	A	A	A 320	I A 330	255	290
11	325	300	300	255	250	250	250	A	A	A	A	A	A	A	E A 260	A	250	245	A 270	255	250	280	260	255
12	255	290	260	260	290	280	240	I A 250	I A 230	I A 200	I A 230	I A 240	250	A	235	A 250	250	250	I A 270	I A 285	290	305	255	A
13	260	E A 350	295	275	255	250	240	E A 260	220	200	195	E A 250	225	A	A	230	235	A	A	250	260	275	285	260
14	310	335	310	305	310	270	240	240	220	M 200	A	215	E A 245	A 245	I A 255	250	E A 250	A	I A 270	265	A	E A 300	A	305
15	315	315	275	250	260	345	250	250	A	A	A	A 250	A	245	A	A	A	A	A	270	A 305	E A 340	355	355
16	350	355	340	300	290	265	250	I A 240	I A 245	A	A	A	A	A	A	250	245	260	265	250	250	A	290	310
17	350	350	A 350	280	325	300	300	A 250	235	210	240	I A 240	220	I A 240	E A 250	E A 250	A	A 270	250	A 255	E A 350	A 350	280	300
18	340	345	340	350	I A 330	A	A	C	A	A	A	A	245	A 250	I A 240	245	E A 250	A	A	245	250	305	310	A 355
19	A 350	A 350	300	290	270	A	240	220	200	A	M 200	E A 250	240	A 250	245	230	A 260	A 250	A 270	260	A 300	A	A 320	310
20	A	310	310	300	300	300	I A 260	A	225	215	A	A	A	A	A	A	235	235	265	250	290	290	I A 310	350
21	300	340	350	315	320	250	250	240	A	A 200	E R 250	A	225	220	240	230	250	250	I A 250	255	250	260	I A 340	280
22	310	300	315	310	280	275	250	235	A	A	A	A	A	220	225	A	A	250	280	275	270	260	240	265
23	325	295	280	275	280	260	250	240	235	A	200	210	210	I A 240	I A 230	250	240	A	A	250	245	240	250	275
24	300	300	300	275	250	250	245	250	250	I A 210	I A 240	205	I A 210	210	220	A	I A 250	A	A	220	A 240	A	A	A
25	A	300	295	290	270	270	245	A	A	A	A	A	A	A	250	A	A	A	A	E A 290	250	A	E A 360	245
26	305	275	300	250	E A 350	295	I A 250	I A 245	A	A	260	A	A	225	245	240	235	250	250	225	300	I A 300	A	A
27	300	300	285	310	295	260	235	A	A	A	A 250	I A 220	200	220	210	215	I A 250	A 240	250	250	250	250	250	275
28	280	330	300	265	265	260	250	235	225	205	I A 220	A	A	I A 210	220	A	A	A	A	250	250	250	220	250
29	260	A 340	270	280	250	250	245	245	E A 250	A	A	200	A 250	E A 250	A	230	A	A	A	250	250	260	245	270
30	270	300	285	250	300	290	240	230	A	A	200	I A 215	A 230	I A 220	225	235	225	245	260	260	270	260	280	340
31	285	285	265	250	250	260	235	245	235	220	200	245	H 195	200	205	230	230	240	255	250	255	285	295	300
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	31	31	31	31	29	30	22	14	11	15	13	16	19	19	17	18	14	14	28	27	26	26	28
MED	302	300	300	280	278	265	248	241	226	210	225	A 218	224	235	235	238	242	250	262	251	252	281	264	282
UQ	325	330	310	300	299	290	250	250	235	212	A 240	A 242	241	A 245	242	250	A 250	A 252	A 270	262	285	A 308	A 310	312
LQ	285	295	285	258	260	255	240	240	220	200	200	210	212	220	222	230	235	245	250	250	250	260	255	262

IONOSPHERIC DATA

AUG. 1968 | h'Es (km) | 135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	100	110	110	115	115	115	110	110	105	105	105	125	120	120	115	115	115	110	110	105	105	100
2	100	100	C	100	100	105	110	110	115	110	110	110	110	110	105	105	105	105	105	105	105	110	110	110
3	110	105	105	105	105	105	115	115	115	110	110	110	135	B	120	125	115	115	110	105	C	C	105	100
4	100	100	105	100	100	105	145	120	115	120	155	C	C	115	C	C	110	C	C	C	C	105	105	100
5	100	100	100	100	100	100	110	110	110	110	110	105	110	130	135	100	115	115	115	110	C	C	C	110
6	100	C	C	100	100	120	G	115	110	110	110	130	115	110	110	105	110	105	105	100	100	100	115	110
7	110	100	105	110	125	125	125	115	110	110	110	110	110	C	150	130	115	120	110	105	105	105	105	110
8	105	110	110	110	120	120	110	110	110	110	110	110	B	110	110	110	110	105	110	105	C	C	110	110
9	105	100	C	100	100	145	125	120	110	105	105	110	105	140	105	100	140	120	110	110	110	110	110	105
10	105	105	100	100	105	130	145	115	115	110	110	125	105	105	105	105	140	120	110	110	110	110	105	105
11	100	100	100	105	100	105	105	110	105	105	105	105	105	105	105	105	105	105	100	105	100	100	100	105
12	105	100	105	105	110	105	120	115	110	110	110	110	110	110	110	140	105	140	115	120	115	110	105	105
13	105	105	105	100	100	B	105	105	105	110	110	115	135	125	125	115	110	115	110	110	100	110	110	110
14	110	105	100	105	105	105	105	150	135	110	115	120	125	125	115	115	115	115	110	110	110	110	110	110
15	135	130	120	110	100	120	115	110	110	110	125	130	125	115	115	110	115	110	110	105	105	105	105	100
16	100	100	105	105	110	140	135	130	125	130	120	115	115	110	110	120	110	115	G	100	110	115	100	110
17	105	110	110	105	115	150	110	115	110	110	110	120	140	100	140	120	115	110	110	105	105	105	105	105
18	105	105	105	115	115	120	115	C	110	110	110	110	110	105	105	105	140	120	115	100	100	115	110	105
19	110	110	100	105	110	115	115	120	125	110	120	110	155	150	145	145	125	125	115	110	110	105	105	105
20	100	100	100	100	100	115	115	110	115	115	110	110	110	110	105	105	105	105	115	115	100	115	115	110
21	110	110	105	105	100	105	115	110	110	110	110	110	G	110	110	G	G	100	100	100	120	110	100	100
22	100	100	100	100	100	100	140	110	115	110	110	110	110	110	110	105	110	140	100	100	110	100	100	100
23	100	100	100	100	100	B	145	115	110	110	105	105	105	105	110	105	145	115	115	110	100	100	105	110
24	105	100	100	100	B	145	135	125	115	110	110	110	110	110	105	105	125	120	115	105	105	110	110	105
25	105	105	100	120	110	115	115	115	110	110	105	105	110	125	150	120	115	110	110	110	110	110	105	105
26	105	105	100	100	105	105	115	110	110	110	110	110	110	110	110	105	140	100	100	100	115	115	115	110
27	110	110	110	110	100	115	115	115	115	110	110	110	110	110	110	110	110	105	125	110	110	110	110	110
28	110	110	G	110	110	110	110	110	110	110	105	105	105	105	105	100	100	100	100	100	100	100	110	105
29	105	105	110	100	100	B	125	115	115	110	110	110	110	110	110	115	135	115	110	110	110	110	110	100
30	100	100	S	110	110	105	G	145	110	110	115	110	110	110	115	150	130	115	115	110	110	110	110	110
31	115	100	100	100	B	B	150	125	110	120	110	110	105	105	105	G	G	G	110	100	105	105	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	26	31	29	27	29	30	31	31	31	30	28	29	30	28	29	29	29	30	27	28	30	31
MED	105	102	102	105	105	115	115	115	110	110	110	110	110	110	110	110	115	115	110	105	110	110	105	105
UQ	110	105	105	110	110	120	125	120	115	110	110	110	115	115	120	120	125	120	115	110	110	110	110	110
LQ	100	100	100	100	100	105	110	110	110	110	110	110	108	110	105	105	110	105	110	100	102	105	105	102

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Types of Es

135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N, Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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 1	F 5	F 4	F 2	F 2	C 3	C 3	C 2	C 2	C 3	L 2	L 2	L 1	H 2	H 4	H 2	C 2	C 4	C 3	F 4	F 5	F 4	F 3	F 3
2	F 4	F 3		F 3	F 3	L 3	C 3	C 3	C 3	C 2	C 2	C 2	C 2	C 3	L 3	L 3	L 3	L 3	L 3	F 4	F 3	F 2	F 3	F 2
3	F 3	F 2	F 2	F 2	F 3	L 2	C 2	C 3	C 2	C 2	C 2	C 2	H 1		H 2	H 2	C 3	C 2	C 2	F 2			F 2	F 2
4	F 2	F 3	F 1	F 1	F 2	L 1	H 1	H 2	C 3	C 2	HC 11			C 1			C 4					F 3	F 3	F 4
5	F 3	F 4	F 3	F 3	F 3	L 1	L 2	C 2	C 1	C 1	C 2	C 2	C 2	HL 12	HL 11	L 2	C 2	C 2	C 3	F 3				F 3
6	F 4			F 2	F 1	H 1		C 2	C 1	C 3	C 2	HL 11	C 1	C 1	C 2	C 2	C 1	C 2	L 3	F 5	F 6	F 4	FF 22	F 2
7	F 2	F 2	F 3	F 4	F 1	H 2	H 2	C 4	C 2	C 2	C 2	C 2	C 2		HC 11	H 1	C 2	C 2	C 5	F 3	F 3	F 3	F 3	FF 24
8	F 3	F 2	F 2	F 2	F 1	C 3	C 4	C 3	C 2	C 2	C 2	C 2		C 3	C 2	C 1	C 1	L 2	L 3	F 3			F 3	F 2
9	F 5	F 2		F 2	F 2	HL 11	H 1	C 3	C 3	L 3	L 2	C 2	L 2	HL 12	L 1	L 2	H 2	CL 32	C 4	F 3	F 4	F 3	F 4	F 3
10	F 3	F 4	F 3	F 3	F 1	C 2	H 2	C 3	C 2	C 2	C 2	HL 22	L 2	L 2	L 2	L 2	H 1	H 3	C 3	F 5	F 4	F 4	F 4	F 3
11	F 3	F 3	F 4	F 5	F 1	L 4	L 3	C 2	C 2	L 2	L 2	L 2	L 2	L 2	L 3	L 3	L 2	L 1	L 3	F 4	F 3	F 2	F 1	F 1
12	F 2	F 1	F 1	F 3	F 4	L 2	C 1	C 3	C 3	C 2	C 2	C 2	C 2	C 3	C 1	HL 11	L 3	HL 12	C 4	F 4	F 3	F 4	F 4	F 4
13	F 2	F 4	F 2	F 1	F 1		L 3	L 4	L 2	L 1	L 1	C 1	H 1	H 1	H 2	C 1	C 1	C 2	C 5	F 3	F 2	F 4	F 4	F 2
14	F 2	F 3	F 3	F 3	F 4	L 3	L 2	HL 21	H 1	C 1	C 1	C 1	H 1	H 1	C 1	C 1	C 1	C 1	C 3	F 4	F 5	F 3	F 4	F 3
15	FF 22	FF 43	FF 22	FF 22	F 2	L 2	C 2	C 2	C 1	C 2	HC 11	H 1	H 1	C 1	C 2	C 2	C 2	C 3	C 3	F 3	F 2	F 3	F 3	F 2
16	F 4	F 4	F 2	F 3	F 6	H 1	H 1	H 1	H 2	H 1	H 1	C 2	C 2	C 2	C 2	C 1	C 2	C 1		F 2	F 5	F 3	F 3	F 4
17	F 3	F 3	F 3	F 2	F 3	H 2	C 3	C 2	C 2	C 1	C 1	CL 11	H 1	L 1	H 1	C 2	C 2	C 3	C 2	F 3	F 3	F 3	F 4	F 3
18	F 3	F 3	F 2	F 2	F 4	C 3	C 3		C 2	C 2	C 2	C 1	C 2	L 2	L 2	L 2	H 1	H 2	CL 41	F 4	F 3	FF 23	F 3	F 3
19	F 3	F 4	F 4	F 3	F 4	C 4	C 1	C 2	H 1	C 2	C 1	C 2	H 1	HL 11	H 1	H 1	H 2	H 3	C 3	F 5	F 4	F 4	F 4	F 3
20	F 3	F 3	F 3	F 2	F 1	C 3	C 3	C 3	C 2	C 1	C 2	C 2	C 2	C 2	C 2	L 2	L 2	L 1	L 1	F 3	F 3	F 2	F 5	F 4
21	F 4	F 3	F 4	F 2	F 2	L 3	C 2	C 2	C 2	L 2	C 1	L 1		C 1	C 1			L 3	L 3	F 4	FF 32	F 2	F 2	F 2
22	F 3	F 2	F 3	F 3	F 2	LH 11	HL 32	C 1	C 2	C 2	C 1	C 2	C 2	C 1	C 1	L 2	L 2	HL 11	L 2	F 2	FF 24	F 2	F 3	F 2
23	F 3	F 3	F 1	F 1	F 1		H 1	C 2	C 1	C 2	L 2	L 2	L 2	L 2	L 2	L 2	HL 11	C 3	L 3	F 1	F 1	F 1	F 3	F 2
24	F 2	F 2	F 2	F 1		H 1	H 1	H 2	C 2	C 4	C 2	C 1	C 3	C 1	L 1	L 3	HL 32	HL 24	CL 42	F 4	F 3	F 4	F 3	F 3
25	F 3	F 3	F 1	F 2	F 2	C 3	C 4	C 3	C 3	C 2	L 2	L 3	C 2	H 2	HH 22	H 2	C 3	C 4	C 4	F 3	F 4	F 4	F 4	F 4
26	F 3	F 3	F 2	F 2	F 3	LH 22	C 4	C 4	C 4	C 2	C 2	C 2	C 1	C 1	C 1	L 1	HL 11	L 2	L 3	F 3	F 3	F 6	F 3	F 4
27	F 2	F 3	F 2	F 2	F 2	L 1	C 1	C 1	C 2	C 2	C 2	C 1	C 1	C 1	C 1	C 2	L 2	L 2	HL 22	F 3	F 2	F 3	F 2	F 3
28	F 2	F 2		F 1	F 2	L 3	L 2	L 2	C 2	L 2	L 2	L 2	L 2	L 2	L 1	L 3	L 4	L 2	L 4	F 2	F 2	F 2	F 2	F 3
29	F 2	F 4	FF 22	F 2	F 1		H 2	C 2	C 2	C 2	C 1	C 1	L 1	L 2	L 1	L 1	H 2	C 3	L 2	F 4	F 2	F 3	F 3	F 4
30	F 1	F 1		F 2	F 1	L 1		H 1	C 2	C 2	C 1	C 2	C 2	L 2	C 1	H 1	H 1	C 1	L 2	F 2	F 3	F 3	F 3	F 2
31	F 2	F 2	F 1	F 1			H 1	H 1	C 1	C 1	C 1	C 2	L 1	L 1	L 1				L 1	F 3	F 3	F 3	F 4	F 3

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

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IONOSPHERIC DATA

AUG. 1968

hpF2 (km)

135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N, Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R	R 390	375	F	F	R 325	J R 315	310	I A 315	340	I A 340	I A 360	350	350	A	A	A	I A 320	315	305	370	I R 375	U R 350	310
2	J R 350	J R 355	I C 355	J R 355	J F 355	310	S 320	290	280	315	310	310	I A 365	355	I A 365	350	I A 320	330	305	320	320	F	J S 350	U S 350
3	U S 365	J R 350	320	310	380	380	335	270	285	A	A	A	400	360	A	355	350	370	305	270	I C 350	I C 375	355	I C 380
4	355	I C 330	365	350	300	300	310	G	395	C	A	C	C	A	C	C	A	C	C	C	C	F 385	355	F 385
5	I F 365	F 360	380	F 355	350	320	310	265	320	420	330	A	345	J R 355	350	365	335	315	305	320	C	C	C	340
6	400	I C 395	C	365	325	350	310	300	300	A	A	370	385	400	360	365	370	335	300	R	365	390	F	R
7	F	F	F	F 350	F 350	350	R 310	265	275	I A 340	355	355	I A 380	I C 400	360	320	320	310	360	315	305	J R 340	R 375	F
8	U F 395	F	F	F 390	370	F 345	300	270	260	I A 310	A	A	A	A	A	365	335	350	335	350	I C 335	C	340	385
9	400	R 410	I C 370	345	360	F 360	295	I A 320	320	285	360	385	375	400	360	355	335	325	310	I A 310	320	F 350	F 395	U F 405
10	350	340	F 390	380	F 405	F 310	290	290	I A 265	A	A	A	370	365	305	350	315	310	315	I A 320	U F 350	F	J R 320	J R 350
11	380	345	375	320	320	295	300	I A 290	260	295	A	A	A	360	355	345	320	305	325	320	350	365	I R 350	345
12	350	370	350	360	360	350	305	300	295	290	320	I A 415	390	375	345	R 325	340	320	320	I A 320	U F 355	J R 380	R	A
13	380	350	F 355	F 340	340	S 300	280	310	305	305	315	315	355	370	360	360	J R 350	335	325	325	350	365	360	360
14	J R 390	410	400	370	370	320	260	265	310	390	345	360	355	390	360	370	355	350	350	350	R	380	A	J R 400
15	400	365	340	350	380	400	340	G	355	A	A	380	315	380	I A 350	I A 350	340	345	350	J R 315	400	390	415	440
16	430	420	405	395	365	330	330	450	355	380	350	400	365	350	355	340	360	340	360	330	320	J R 390	400	J R 400
17	I R 400	420	420	385	430	425	330	375	390	315	360	350	380	345	320	320	345	350	295	315	380	420	355	380
18	440	445	410	445	I A 405	A	355	I C 380	410	G	325	420	350	340	350	340	320	305	305	290	400	400	395	405
19	405	400	385	385	360	400	300	300	320	415	350	350	380	345	315	305	305	345	320	310	355	I A 330	390	365
20	F 400	390	395	390	380	375	310	305	300	395	430	A	360	360	A	J R 360	345	335	315	315	365	395	A	R
21	I R 400	410	F	F 400	400	300	265	295	300	300	315	340	350	350	370	350	330	315	300	320	335	380	I A 390	J R 340
22	400	390	F 400	F 400	365	320	280	260	300	305	310	J R 370	350	350	365	350	325	330	J R 330	350	330	325	315	405
23	400	370	365	360	380	340	310	275	290	260	300	410	350	345	350	350	350	325	340	340	335	320	345	J R 360
24	J R 375	F	F 400	F 375	F 385	315	275	315	285	I A 275	320	330	I A 325	400	355	325	325	355	320	300	295	A	370	390
25	F	U F 385	355	J R 365	F 360	310	255	260	I A 275	285	400	335	360	350	345	345	I A 320	340	320	S 295	305	A	F	J R 305
26	J F 385	F 360	F	J F 300	355	350	300	290	260	290	360	355	315	350	350	340	335	325	310	280	R	A	A	A
27	R	R	R 380	F	F	360	315	315	300	A	315	300	350	355	350	325	310	315	320	325	300	335	300	355
28	390	I R 420	395	F 350	345	J R 365	280	270	260	295	320	275	A	350	355	345	350	340	305	305	J R 300	U S 300	290	315
29	355	J R 355	310	F 345	F 305	310	285	285	255	290	300	360	345	350	R 340	340	345	335	345	J R 320	320	I R 325	300	J R 340
30	360	F	F	F 390	J F 395	J F 400	295	280	265	300	310	325	345	345	360	345	315	305	325	I R 350	355	350	350	380
31	355	350	345	345	350	355	290	275	310	265	310	315	355	355	355	340	340	310	320	300	I S 320	360	350	355
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	25	29	29	30	31	29	31	24	24	24	27	29	26	29	29	30	30	29	27	24	24	26
MED	390	378	375	360	360	342	300	290	300	302	322	355	355	355	355	345	335	330	320	320	335	370	352	362
UQ	400	410	395	385	380	360	312	310	318	330	352	375	372	370	360	355	345	340	330	325	355	388	382	390
LQ	362	355	355	350	350	310	288	270	275	290	312	328	350	350	350	340	320	315	305	305	320	338	342	345

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IONOSPHERIC DATA

AUG. 1968 | ypF2 (km) | 135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35°42.4'N. Long. 139°29.3'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R	R 110	120	F	F	R 115	J R 135	140	I A 150	105	I A 90	I A 70	95	95	A	A	A	I A 95	85	90	125	I R 95	U R 65	90
2	J R 95	J R 60	I C 80	J R 100	J F 100	90	S 80	55	80	80	85	85	I A 80	105	I A 90	105	I A 85	75	95	125	75	F	J S 70	U S 95
3	U S 90	J R 95	85	90	85	75	105	75	60	A	A	A	70	95	A	115	95	75	90	80	I C 110	I C 95	100	I C 90
4	90	I C 80	80	95	95	100	85	G	75	C	A	C	C	A	C	C	A	C	C	C	C	F 70	110	F 70
5	I R 80	F 95	95	F 100	105	85	60	60	75	80	105	A	120	J R 100	115	95	115	95	140	140	C	C	C	110
6	90	I C 110	C	135	115	95	90	150	100	A	A	90	115	65	105	95	140	90	75	R	100	110	F	R
7	F	F	F	F 90	F 85	110	R 80	80	105	I A 85	90	100	I A 95	I C 100	100	100	125	90	100	85	90	J R 100	R 80	F
8	U F 100	F	F	F 85	100	F 55	95	75	85	I A 85	A	A	A	A	A	120	115	130	130	115	I C 160	C	160	105
9	110	R 90	I C 105	105	120	F 100	105	I A 130	125	65	115	115	105	100	100	130	110	120	90	I A 90	100	F 95	F 85	U F 90
10	95	105	F 105	115	F 95	F 95	65	75	I A 70	A	A	A	125	105	100	95	90	75	85	I A 100	J F 95	F	J R 95	J R 95
11	75	100	80	75	85	90	100	I A 65	85	100	A	A	A	110	100	110	120	100	120	85	95	95	I R 80	100
12	110	85	95	95	95	95	95	80	60	90	125	I A 105	110	100	95	R 80	110	100	80	I A 80	J F 115	J R 115	R	A
13	75	105	F 100	F 80	60	S 95	75	95	95	130	85	135	105	105	105	100	J R 110	115	130	135	115	100	125	125
14	J F 120	90	85	90	85	125	105	130	120	140	145	125	145	95	140	95	95	110	110	110	R	140	A	J R 125
15	115	135	150	140	140	100	100	G	70	A	A	95	85	90	I A 80	I A 90	105	105	130	J R 170	105	135	95	100
16	90	80	95	95	120	125	160	140	110	130	110	115	120	100	100	140	125	115	105	130	140	J R 100	100	J R 105
17	I R 110	115	85	115	80	85	135	125	170	140	135	105	110	60	80	80	105	95	75	95	90	85	100	105
18	65	100	95	100	I A 95	A	90	I C 100	90	G	40	80	95	60	55	60	75	90	90	70	95	95	100	90
19	95	95	85	110	95	95	95	95	90	80	95	105	115	95	80	90	70	100	80	85	100	I A 115	105	90
20	F 70	105	105	105	90	85	75	95	95	35	45	A	85	75	A	J R 140	105	95	115	125	115	100	A	R
21	I R 110	100	F	F 140	140	140	100	105	110	150	95	110	130	100	80	100	120	85	100	125	145	110	I A 110	J R 140
22	100	90	F 95	F 100	120	105	75	95	100	95	115	J R 130	135	110	105	110	95	115	J R 120	100	120	125	125	95
23	95	105	120	105	105	95	90	125	60	140	75	55	90	85	100	90	105	120	120	115	125	140	145	J R 130
24	J R 115	F	F 90	F 110	F 105	90	125	100	115	I A 75	75	65	I A 135	95	110	100	120	115	80	85	100	A	85	105
25	F	U F 110	90	J R 90	F 95	70	50	85	I A 60	70	55	120	95	105	80	75	I A 95	105	80	S 60	95	A	F	J R 90
26	J F 60	F 95	F	J F 85	60	105	60	65	95	100	105	110	115	110	105	120	110	130	135	115	R	A	A	A
27	R	R	R 120	F	F	135	125	90	75	A	85	100	90	105	85	85	150	140	125	125	160	105	115	130
28	95	I R 70	95	F 90	125	J R 125	120	75	75	100	95	80	A	95	90	110	105	105	90	95	J R 100	U S 95	70	90
29	100	J R 100	85	F 100	F 90	90	60	65	85	70	100	90	105	100	R 110	110	55	115	110	J R 140	130	I R 105	100	J R 120
30	100	F	F	F 100	J F 105	J F 100	105	90	135	90	110	140	65	90	85	95	85	115	115	I R 95	135	105	100	110
31	105	85	105	115	130	105	120	85	90	75	90	85	100	100	110	105	100	105	85	95	I S 90	95	65	90
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	25	29	29	30	31	29	31	24	24	24	27	29	26	29	29	30	30	29	27	24	24	26
MED	95	98	95	100	95	95	95	90	90	90	95	102	105	100	100	100	105	105	100	100	105	100	100	100
UQ	108	105	105	110	110	105	105	105	108	118	110	115	118	105	105	110	115	115	120	125	125	112	110	110
LQ	90	90	85	F 90	90	90	76	75	75	78	85	85	92	95	85	90	95	95	85	85	95	95	82	90

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IONOSPHERIC DATA

AUG. 1968 | foF2 (0.1) | 135° E Mean Time (G. M. T. +9h)

Station YAMAGAWA Lat. 31°12.1'N. Long. 130°37.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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 73	69	68	67	S 65	S 59	C	C	C	C	I C 68	75	83	77	82	87	96	104	99	89	I C 78	S 76	U S 75	S 72
2	S 73	S 73	70	F 67	F 70	V 68	S 79	73	78	78	76	75	79	79	I A 88	98	105	S 101	94	I C 86	I S 85	75	S 69	S
3	F	F	F 75	F 58	F	F	66	I C 97	I C 79	I A 71	64	71	77	I C 84	92	96	106	I S 110	104	S 86	S 77	80	J S 85	S 76
4	U S 76	U S 80	I S 85	74	48	43	50	79	82	65	60	60	61	63	62	63	70	75	S 64	53	61	S 60	S	F
5	F	F	F 67	F 56	S 45	F	F 60	S 67	63	S 72	I C 74	83	I A 80	R 84	90	87	J R 85	I A 81	U R 81	78	J S 80	80	R 72	U S 91
6	S	S	F	F	F 70	F 57	62	72	H 67	74	71	77	89	R 99	R 98	R 98	107	119	S 105	R 90	76	S 73	74	S 73
7	72	73	U S 75	71	F 60	F	74	79	73	I A 75	75	81	91	R 95	104	109	99	I R 96	J S 95	J S 101	S 99	I A 72	66	63
8	F 59	58	F 58	65	S 64	60	73	89	66	66	73	74	I C 82	85	94	102	113	106	99	U S 103	S 104	S 61	F	F
9	F	F	F	F 68	58	55	72	75	81	82	71	81	92	96	107	S 120	S 120	112	S 106	107	S 87	F 73	F	S
10	F	F	S	F 55	F	F	S 85	80	72	68	68	82	97	105	107	94	98	93	J S 90	I S 88	81	73	S 72	I S 80
11	S 73	74	F 70	F 65	F 51	F 49	57	75	79	71	74	78	91	99	110	115	105	100	S 97	I A 89	J S 84	S 84	U S 83	S 82
12	76	73	F 69	F 68	63	F 61	70	96	95	65	I A 70	76	90	110	I C 116	114	I C 107	S 102	104	102	S 93	77	S 71	F
13	S 77	F 69	U F 67	S 69	F	I A 60	56	75	77	80	81	V 90	94	94	99	104	112	S 115	S 109	106	U S 98	90	I S 87	J S 83
14	R 82	I S 92	F	F	F	F	74	57	67	82	87	88	94	101	103	103	110	106	S 106	100	I S 87	S 74	J S 79	I S 92
15	S 89	I S 84	F 84	S 58	S 61	55	S 56	66	67	68	I A 68	85	97	105	93	87	89	95	R 92	S 96	F 79	S 73	U S 74	71
16	69	F 66	F	F 68	56	45	47	66	90	S 90	95	104	109	104	102	104	108	S 117	S 118	123	89	69	F 69	F 68
17	I S 72	I S 71	F	F 60	54	55	61	68	91	I C 94	H 82	91	90	108	113	94	87	96	106	S 108	S 77	F	S 79	F 67
18	63	F 58	F 56	51	59	53	57	59	59	R 62	I A 66	73	R 86	H 90	91	81	83	89	R 86	80	67	S 63	64	64
19	64	61	53	53	S 51	47	S 58	I A 75	69	76	91	99	R 107	S 116	U S 116	100	90	86	R 94	102	J R 90	J S 75	J S 72	F 68
20	F	F 55	S 53	J S 51	48	S 50	55	S 75	77	65	74	76	89	R 95	90	R 83	88	96	93	79	64	J S 62	F 61	J S 68
21	S 71	I S 70	F 62	F 61	S 59	U S 49	50	65	76	80	71	82	R 86	90	102	112	116	107	S 96	92	83	68	I A 66	67
22	S	S 64	S 63	59	56	J S 52	57	75	76	86	90	J S 99	110	U S 125	128	123	118	S 114	124	J S 125	S 117	I S 106	S 95	S 80
23	83	75	79	F 65	67	62	73	S 82	81	I C 75	72	82	I C 95	99	94	99	103	S 106	J S 102	102	98	J S 89	S 88	70
24	56	F 57	F 59	F 61	57	F 52	F 64	87	90	82	70	87	97	88	101	110	103	101	I S 116	110	S 68	64	I S 63	S 65
25	S 63	F	S	S	S	S 64	S 62	83	71	A	88	102	110	114	107	S 116	117	122	S	I A 106	88	S 77	F	S
26	S	S	F	S	F	S 50	F 50	76	90	R 78	C	C	A	98	R 103	S 117	J S 119	U S 121	U R 112	107	83	68	67	S
27	C	C	F	F	60	F	F	80	U S 97	R 81	88	84	107	114	U S 119	J S 121	J S 134	J S 126	J S 121	J S 118	97	J S 81	I S 64	S
28	F	I S 52	C	C	37	36	S 51	70	84	78	69	68	74	81	84	92	104	R 111	108	R 109	S 104	I C 88	73	I C 60
29	54	53	55	J S 51	J S 51	R 45	58	72	84	83	77	88	85	89	87	90	93	104	S 112	S 117	J S 106	80	I S 74	65
30	S 49	U S 48	S	52	49	J S 47	S 59	J S 96	88	80	I C 85	83	91	86	90	88	93	91	95	I S 97	I S 91	80	80	83
31	80	74	73	69	60	51	63	78	89	90	86	80	85	92	98	104	104	104	105	S 106	S 88	86	I S 86	77
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	23	20	25	25	25	29	30	30	29	30	30	30	31	31	31	31	31	30	31	31	30	27	23
MED	72	69	68	61	58	52	60	75	78	78	74	82	90	95	99	100	104	104	103	102	S 87	75	S 73	71
UQ	S 76	74	74	F 68	61	59	70	80	88	82	85	88	97	104	107	111	111	112	S 108	106	S 95	80	S 80	S 80
LQ	63	58	F 58	56	51	49	56	70	71	71	70	76	85	87	90	91	93	96	94	89	78	S 69	68	67

IONOSPHERIC DATA

AUG. 1968 | foF1 (0.01) | 135° E Mean Time (G. M. T. + 9 h)

Station YAMAGAWA Lat. 31°12.1'N. Long. 130°37.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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							C	C	C	C	C	A 500		A	I A 520	I A 500	A	A	A					
2								L	U L 450	L	490	R 520	A	A	A	A	480	A	L					
3							L	C	C	A	L	530	A	C	A	A	490	A	A					
4							L	L	450	M 570	500	490	R 490	500	I C 490	H 480	450	440	A					
5							A	A	A	A	C	A	A	A	510	490	I A 470	A	A					
6							L	U L 390	L 420	L 480	L	H 560	H 530	H 520	A	A	L	450	L					
7								A	A	A	L	L 560	L	A	530	L 510	A	A	A					
8							L	L	A	A	520	A	C	A	510	H 500	H 490	A	L					
9								A	A	510	L	A	550	530	520	510	490	A	A					
10								A	L	A	L	530	540	540	520	I A 520	490	A	A					
11								L	L	A	H 550	540	I A 530	I A 530	520	510	A	A	A					
12							L	L	450	A	A	550	530	A	C	A	C	U L 470	L					
13								L	L	U L 530	L 530	L 570	H 570	L 560	L 550	L 520	U L 510	A	L					
14								U L 350	L	U L 490	L 550	H 530	590	560	H 560	530	500	L 480	A					
15							L	L	A	A	A	A	570	A	A	I A 550	A	L	A					
16								L	490	L	540	530	R 540	H 550	I A 540	520	510	L	A					
17								L	510	C	490	H 530	560	H 540	560	530	550	U L 440	A					
18								A	450	A	A	A	530	L 540	I A 530	I A 510	U L 510	U L 460	A					
19								A	A	L	L 580	L 530	550	530	L 510	L	L 530	L	L					
20								A	A	U L 460	510	L 520	A	I A 520	H 520	L	500	U L 450	L					
21								L	U L 470	A	L	A	L 550	L 540	540	L 530	490	A	A					
22								L	L	L 500	H 520	540	H 540	570	540	510	A	A	A					
23								L	L	C	L	U L 590	I C 560	A	550	H 530	L 520	L	A					
24								L	L	L	L	550	540	A	A	H 520	500	A	A					
25								A	A	A	530	520	A	520	560	A	A	A	A					
26								L	A	A	C	C	A	540	A	A	L 480	L 440	L					
27								A	L	A	L 500	L	H 530	U L 500	520	L 520	A	A	A					
28									L	U L 480	U L 520	U L 570	L 540	540	520	U L 500	L 490	U L 450	L					
29								L	L	470	500	L	510	H 540	L	L 540	L 500	L 450	L					
30								L	L	470	C	L	A	530	530	L	L	L	A					
31									L	500	L 500	L	L 540	A	540	H 530	H 500	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	8	11	16	19	22	20	23	22	21	10						
MED								U L 370	450	L 490	520	530	540	540	530	520	500	L 450						
UQ									480	505	535	555	550	540	540	530	510	U L 460						
LQ									450	L 475	500	530	530	525	520	510	490	L 440						

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IONOSPHERIC DATA

AUG. 1968 | foE (0.01) | 135° E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31°12.1'N. Long. 130°37.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	C	C	C	C	I C 340	360	H 390	A	A	A	A	H 295	240	S				
2						S	B	250	290	330	350	360	370	365	340	A	A	A	A	C				
3						S	170	I C 250	I C 300	330	350	360	360	C	A	R	345	310	220	B				
4						S	165	260	310	335	R 360	R 370	380	R 390	I C 380	A	A	A	A	B				
5						B	S	240	280	A	C	A	A	A	A	355	335	295	A	B				
6						B	B	245	295	A	R	A	A	A	A	A	A	A	A	A				
7						B	170	235	290	320	A	A	A	A	A	365	H 335	300	230	A				
8						S	A	A	A	A	A	360	I C 360	350	350	350	A	A	A	A				
9						S	160	240	270	A	A	A	A	A	A	A	A	295	H 240	S				
10						B	170	250	300	320	I A 355	390	R 400	A	A	A	A	A	A	S				
11						B	160	250	300	320	I A 345	R	R	R 390	A	A	A	A	A	A				
12						B	160	250	300	I A 325	350	A	A	A	C	A	C	A	A	A				
13						B	A	I A 250	280	A	A	A	A	A	A	360	340	290	A	A				
14						B	B	250	300	340	I A 375	R	R	R	R	375	340	H 300	240	A				
15						E	190	H 270	310	340	360	360	360	A	A	I C 365	345	305	225	B				
16						E	A	H 270	320	330	H 380	I A 380	H 390	R 390	375	360	335	290	A	S				
17						B	A	250	290	I C 335	I R 365	I R 380	R 380	R 400	400	370	330	290	225	B				
18						S	A	240	290	325	345	360	360	360	A	A	A	A	A	S				
19						B	S	225	275	I A 315	I A 335	I A 350	350	I A 360	375	H 355	330	285	230	S				
20						S	A	A	A	335	I A 350	370	R 380	I R 380	H 370	R 340	330	I A 290	A	A				
21						B	A	A	A	A	350	R 360	370	I R 370	370	360	350	295	225	B				
22						B	S	A	295	315	355	350	360	A	A	A	A	A	A	B				
23						B	S	H 250	300	C	A	365	I C 360	360	I A 350	I A 340	A	A	A	C				
24						B	S	240	295	345	355	I A 350	350	I A 340	I A 340	350	I R 330	H 290	225	S				
25						C	C	220	290	300	I A 335	H 370	A	A	370	350	320	280	205	E				
26						B	S	240	280	320	C	C	A	A	A	A	A	285	A	B				
27						B	S	245	310	330	A	A	A	R	A	350	335	290	210	B				
28						B	S	A	A	A	A	A	A	A	A	350	I A 320	285	A	B				
29						B	S	235	285	320	370	A	A	R	A	I A 350	320	280	220	E				
30						B	S	250	300	325	I C 345	345	360	355	I A 350	I A 345	325	280	205	B				
31						B	S	H 240	H 290	305	A	A	370	A	A	A	320	260	220	S				

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	8	25	26	22	20	18	18	13	12	18	18	21	15	2				
MED						E	168	250	295	325	350	360	365	365	370	352	332	290	225	E				
UQ							170	250	300	335	360	370	380	R 390	375	360	340	295	230					
LQ							160	240	290	320	U 345	360	360	360	350	350	325	285	220					

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1968

foEs (0.1)

135° E Mean Time (G. M. T. + 9 h)

Station YAMAGAWA Lat. 31°12.1'N. Long. 130°37.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 29	J X 24	J X 21	J X 22	J X 29	J X 25	C	C	C	C	C	J X 88	77	J X 76	J X 70	58	56	J X 55	J X 47	J X 66	C	74	65	J X 65
2	35	J X 36	J X 40	22	21	22	J X 28	J X 35	38	38	51	J X 59	81	107	95	102	51	J X 64	J X 34	C	24	24	23	J X 36
3	J X 41	59	J X 52	J X 50	J X 59	35	30	C	C	J X 111	59	61	95	C	J X 68	J X 73	50	J X 137	J X 129	100	J X 64	45	49	33
4	J X 21	J X 26	E B 15	E B 13	18	17	22	34	J X 53	40	42	46	G	G	E C 50	42	J X 65	73	J X 102	J X 66	J X 54	J X 39	47	J X 63
5	J X 40	J X 39	J X 32	J X 40	J X 60	J X 39	J X 45	J X 64	72	J X 72	C	82	96	J X 61	J X 42	49	J X 98	M 104	J X 163	71	J X 36	48	J X 60	J X 53
6	J X 50	55	J X 26	J X 21	J X 18	E B 16	21	28	32	37	G 36	38	37	41	J X 97	J X 64	J X 44	J X 44	J X 32	J X 29	J X 28	J X 36	J X 30	J X 28
7	J X 31	J X 32	J X 26	J X 21	18	J X 25	J X 34	J X 51	J X 71	106	110	M 94	J X 52	J X 54	J X 49	45	J X 62	J X 89	J X 41	J X 49	59	J X 100	J X 64	J X 61
8	J X 28	18	J X 21	J X 27	J X 32	J X 35	J X 33	J X 38	J X 99	63	75	J X 91	C	J X 74	75	G	51	J X 63	46	J X 26	J X 24	J X 41	J X 40	J X 54
9	J X 22	J X 30	J X 24	J X 26	J X 34	J X 42	J X 36	J X 84	J X 65	J X 70	72	J X 91	J X 88	58	55	64	45	J X 70	J X 55	26	23	J X 63	90	J X 63
10	J X 101	J X 46	J X 49	E B 16	22	J X 26	26	J X 43	40	61	42	50	47	40	J X 49	67	J X 75	J X 88	J X 66	J X 64	J X 68	32	J X 50	J X 41
11	J X 42	J X 29	18	J X 40	16	16	29	30	43	J X 68	J X 51	55	J X 83	60	52	57	J X 72	J X 50	84	178	J X 47	J X 56	E B 12	E S 15
12	20	J X 45	J X 31	J X 26	24	23	23	32	J X 50	J X 69	J X 119	47	J X 61	60	C	J X 127	C	J X 44	J X 28	J X 48	J X 28	J X 43	79	J X 65
13	70	43	J X 42	J X 65	J X 62	J X 83	23	29	J X 78	J X 84	41	M 46	46	48	45	46	48	59	J X 67	J X 36	J X 37	J X 26	M 67	M 57
14	J X 28	E B 13	E B 15	E B 12	E B 11	E B 14	E B 15	G	G	36	38	G 38	G 38	G 38	G 35	41	42	42	J X 49	J X 48	J X 92	J X 51	J X 89	J X 50
15	J X 69	J X 58	31	J X 18	J X 18	22	22	J X 65	J X 62	67	97	77	J X 58	74	J X 62	J X 78	J X 70	J X 82	68	J X 42	J X 62	J X 67	80	J X 57
16	J X 51	J X 41	J X 40	33	J X 21	J X 32	J X 43	29	43	39	50	J X 57	60	42	J X 65	47	47	J X 46	J X 45	J X 28	J X 27	J X 42	J X 51	J X 44
17	50	J X 48	J X 41	J X 58	J X 40	J X 21	J X 34	30	37	C	G 35	G 36	G 34	G 26	G	45	40	J X 60	J X 40	J X 100	92	78	J X 63	J X 34
18	J X 30	J X 27	J X 29	J X 36	J X 28	J X 34	J X 64	69	J X 54	70	84	J X 61	J X 59	48	J X 66	J X 85	J X 53	J X 61	J X 67	J X 64	J X 72	J X 85	J X 29	J X 33
19	J X 37	J X 61	J X 36	J X 25	22	E B 15	20	J X 95	85	168	J X 83	J X 124	44	40	G 34	39	40	37	30	35	J X 24	J X 76	J X 30	J X 84
20	J X 63	J X 27	J X 33	J X 36	J X 23	J X 23	J X 29	J X 95	J X 53	J X 72	J X 63	G 36	55	J X 85	40	43	G 30	J X 54	J X 30	J X 29	J X 32	44	J X 27	J X 40
21	J X 64	J X 37	J X 83	J X 27	J X 18	J X 26	J X 26	J X 41	J X 46	J X 59	49	54	J X 54	46	44	40	G 29	J X 50	J X 65	J X 54	J X 28	21	M 93	J X 86
22	35	J X 34	J X 37	49	J X 28	J X 17	19	J X 35	J X 62	J X 79	42	43	47	40	J X 60	J X 64	J X 68	J X 54	J X 52	J X 87	J X 85	J X 63	J X 40	J X 36
23	J X 26	J X 18	22	E B 11	E	E B 11	20	28	35	C	44	43	C	J X 57	J X 52	40	34	J X 45	J X 40	J X 36	J X 33	34	J X 27	J X 42
24	J X 22	J X 23	19	E B 14	J X 18	J X 50	25	35	43	45	J X 83	J X 100	50	J X 92	J X 59	G 30	45	J X 74	J X 108	J X 54	J X 86	70	J X 74	J X 109
25	J X 89	J X 64	J X 59	43	J X 42	J X 81	69	132	J X 140	116	62	39	J X 90	85	54	J X 62	J X 97	J X 59	J X 73	J X 119	91	J X 26	J X 81	80
26	71	53	J X 62	56	J X 37	J X 40	J X 26	32	J X 63	J X 94	C	C	J X 136	J X 65	J X 102	J X 74	J X 48	J X 39	J X 34	J X 51	92	J X 67	J X 88	101
27	C	C	J X 65	J X 61	J X 54	J X 27	J X 30	J X 103	J X 54	167	131	J X 53	42	G 35	43	43	J X 107	129	J X 94	J X 82	J X 98	53	J X 42	J X 61
28	C 67	D C 70	C	C	J X 61	J X 37	J X 35	J X 36	J X 53	J X 42	39	J X 47	J X 45	43	J X 43	38	J X 42	30	J X 28	J X 27	J X 18	C	E S 15	C
29	E S 15	E B 16	E B 15	E B 16	E B 15	E B 12	21	32	J X 62	46	G 30	J X 43	J X 41	G 35	61	38	37	34	35	J X 30	J X 33	J X 34	J X 64	J X 40
30	J X 28	22	20	E B 13	E B 11	E B 13	22	27	35	J X 74	C	73	J X 102	69	53	J X 62	36	34	J X 71	J X 65	J X 63	J X 29	J X 52	J X 40
31	J X 77	23	J X 32	21	E	E B 11	E S 15	27	33	41	51	37	G 28	J X 62	J X 46	J X 53	J X 40	28	22	E S 14	E S 14	23	E B 15	J X 35
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	31	31	30	29	29	28	27	30	29	30	30	31	30	31	31	30	30	30	31	30
MED	J X 38	J X 35	J X 32	J X 26	J X 22	J X 25	26	35	J X 53	68	51	54	52	56	52	49	48	J X 55	J X 49	J X 50	J X 42	J X 44	J X 51	J X 52
UQ	J X 64	J X 48	J X 41	J X 40	J X 36	J X 35	J X 34	J X 64	J X 63	J X 82	79	J X 77	J X 81	J X 69	J X 65	J X 64	J X 65	J X 67	J X 70	J X 66	J X 72	J X 67	J X 70	J X 63
LQ	J X 28	J X 24	21	18	18	16	22	30	40	44	42	43	44	40	44	42	40	J X 44	J X 34	J X 30	J X 28	J X 34	J X 30	J X 36

IONOSPHERIC DATA

AUG. 1968 | f_bEs (0.1) | 135° E Mean Time (G. M. T. +9h)

Station YAMAGAWA Lat. 31°12.1'N. Long. 130°37.1'E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	21	E	E	19	26	20	C	C	C	C	C	52	45	56	70	47	53	54	45	E S 66	C	20	31	63
2	23	26	32	16	15	S	27	G	33	G	40	47	76	64	A	87	44	60	31	C	E	16	E	E
3	17	18	17	20	16	E	25	C	C	A	50	46	72	C	65	60	46	76	65	36	54	36	41	17
4	E S 21	E	E B 15	E B 13	E	E	19	30	G	G	39	40	G	G	E C 50	40	39	37	43	33	50	23	30	30
5	29	26	19	26	31	21	40	51	54	66	C	69	A	58	E R 42	40	50	A	64	30	20	32	54	51
6	24	51	17	18	15	E B 16	G	16	G	36	E R 36	E R 38	E R 37	E R 41	62	61	43	41	30	28	25	28	20	20
7	18	17	19	17	16	15	30	49	57	A	50	41	50	53	49	41	50	E R 89	41	44	53	A	51	16
8	E	E	E	20	28	25	24	35	49	55	43	42	C	72	47	G	42	47	34	20	18	31	30	48
9	E	16	16	20	17	39	31	51	47	47	48	54	52	41	42	46	43	66	54	19	E	51	20	38
10	27	17	E S 49	E B 16	14	20	24	40	40	61	42	45	46	E R 40	48	57	40	62	59	51	64	25	31	E S 41
11	23	25	E	E	E	G	28	G	40	68	46	50	80	58	45	48	54	45	68	A	30	17	E B 12	E S 15
12	16	25	12	19	15	E	G	G	44	50	A	42	43	54	C	57	C	40	27	46	26	29	16	30
13	23	23	33	45	46	A	19	28	41	42	37	44	45	47	43	46	47	48	34	34	32	16	18	53
14	E	E B 13	E B 15	E B 12	E B 11	E B 14	E B 15	G	G	31	E R 38	E R 38	E R 38	E R 38	G 33	E R 41	41	41	47	46	62	42	30	37
15	41	46	E	12	13	14	17	39	49	56	A	65	50	60	57	60	53	39	64	39	18	51	50	45
16	29	21	18	16	14	28	37	G	36	38	45	46	51	E R 42	60	46	44	44	40	17	24	30	40	29
17	29	46	37	30	18	13	21	G	35	C	E R 35	G 33	G 34	G 26	G	42	40	39	38	49	26	51	53	30
18	25	19	23	22	16	23	32	50	44	57	A	54	52	48	59	67	34	36	62	52	53	31	20	23
19	20	28	22	18	13	E B 15	19	A	59	46	43	50	43	E R 40	G 34	E R 39	40	35	27	19	E	47	22	18
20	25	25	24	30	15	E	21	43	47	30	45	G 36	54	84	E R 40	43	G 29	37	27	18	26	44	22	32
21	18	29	17	18	15	23	24	30	35	57	49	52	52	46	44	40	G 29	49	64	53	27	E	A	31
22	32	29	29	35	18	15	17	33	38	40	40	42	44	E R 40	53	43	50	49	50	64	51	53	31	E S 36
23	21	18	15	E B 11	E	E B 11	G	G	G 27	C	42	42	C	54	50	E R 40	34	40	40	32	29	30	21	26
24	16	17	E	E B 14	14	22	25	34	42	43	43	48	47	59	58	G 30	E R 45	74	E S 108	52	52	24	50	60
25	16	27	E S 59	E	E	44	50	71	43	A	42	39	66	48	51	52	90	57	E S 73	A	18	E	51	64
26	33	25	50	35	26	25	24	30	51	72	C	C	A	46	100	54	41	36	32	44	43	30	41	53
27	C	C	30	37	37	15	28	64	44	54	44	41	E R 42	G 35	43	42	102	62	88	24	52	52	42	43
28	29	28	C	C	23	25	30	28	34	40	38	46	43	43	43	38	39	G 26	28	25	15	C	E S 15	C
29	E S 15	E B 16	E B 15	E B 16	E B 15	E B 12	20	30	38	39	G 30	42	40	G 35	44	36	37	G	28	29	32	24	54	28
30	18	16	E	E B 13	E B 11	E B 13	16	G	G 25	37	C	46	52	52	46	45	G 26	32	60	65	47	25	19	26
31	18	15	21	E	E	E B 11	E S 15	G	G	41	40	E R 37	G 28	51	45	37	28	G 18	21	E S 14	E S 14	15	E B 15	18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	31	30	30	29	29	28	27	30	29	30	30	31	30	31	31	30	30	30	31	30
MED	21	22	18	18	15	15	24	30	40	46	43	44	47	48	47	43	42	42	42	36	28	30	30	30
UQ	27	27	U 26	22	18	23	28	43	47	59	47	50	52	56	58	53	50	57	62	52	51	44	46	45
LQ	16	16	15	E E 13	E E 13	E E 12	17	G	34	38	40	41	43	U 33	43	40	39	37	32	25	18	23	20	23

IONOSPHERIC DATA

AUG. 1968 | f-min (0.1) | 135° E Mean Time (G. M. T. + 9 h)

Station YAMAGAWA Lat. 31° 12.1' N, Long. 130° 37.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 14	E S 15	14	11	11	E S 13	C	C	C	C	C	18	18	18	16	18	15	14	12	E S 14	C	E S 15	E S 12	E S 14
2	E S 15	15	15	L	E	E S 15	14	14	15	12	15	18	18	19	17	15	15	15	13	C	E S 15	E S 12	E S 15	E S 14
3	E S 13	E S 14	13	E	E	E S 14	E S 15	C	C	15	16	17	E C 24	C	E C 28	18	15	15	14	14	E S 14	E S 12	E S 15	E S 15
4	E S 15	E S 13	15	13	11	E S 14	14	14	15	15	17	16	20	20	E C 50	16	15	12	E S 14	11	E S 14	E S 13	E S 13	E S 15
5	E S 13	E S 13	E	E	E	14	E S 14	13	13	15	C	17	18	18	18	22	16	15	15	15	E S 14	E S 15	E S 15	E S 13
6	E S 15	15	14	14	E	16	16	E S 15	15	18	19	19	28	23	20	18	18	15	14	14	14	E S 15	E S 15	E S 15
7	E S 14	15	13	15	11	11	14	E S 15	16	15	17	21	23	21	22	18	18	15	15	11	E S 15	E S 15	E S 15	E S 15
8	E S 15	E S 15	15	14	11	E S 15	E S 15	E S 14	16	17	16	18	C	22	18	18	21	15	E	E	E S 12	E S 14	E S 14	E S 12
9	E S 14	11	12	L	E	E S 12	E S 14	15	13	15	16	15	17	18	16	15	15	14	11	E S 14	E S 15	E S 15	E S 14	E S 15
10	14	12	12	16	13	11	14	14	13	15	17	25	23	19	17	17	14	14	15	E S 15	E S 14	E S 12	E S 14	E S 14
11	E S 15	11	14	12	E	11	14	11	13	15	15	17	18	17	17	17	15	15	14	E	E S 15	E S 15	14	E S 15
12	E S 14	11	11	E	E	13	E S 14	14	13	E C 26	18	23	20	22	C	21	C	15	13	12	E S 15	E S 15	E S 15	E S 15
13	E S 15	E S 15	E S 15	13	E	13	E S 15	E S 15	15	16	18	20	19	19	20	17	15	12	15	11	E S 15	E S 15	E S 15	E S 15
14	E S 15	13	15	12	11	14	15	15	15	15	16	17	25	22	19	16	15	14	13	E	E S 15	E S 15	E S 14	E S 12
15	E S 14	E S 14	13	E	E	E	E S 15	14	15	15	16	17	16	24	17	E C 55	15	15	12	12	E S 13	E S 14	E S 14	E S 14
16	E S 12	12	E	E	11	E	E S 14	15	14	15	18	18	18	22	18	17	15	12	11	E S 12	E S 12	E S 13	E S 13	E S 12
17	E S 14	12	12	L	E	11	14	14	13	C	18	22	26	24	24	18	17	14	14	11	E S 15	E S 12	E S 15	E S 14
18	E S 14	E S 13	E	L	E	E S 13	E S 13	14	15	18	20	24	24	24	24	18	17	13	15	E S 15	E S 15	E S 14	E S 15	E S 14
19	E S 15	13	15	E	11	15	E S 14	15	15	15	18	25	20	22	19	18	15	15	14	E S 15	E S 15	E S 15	E S 15	E S 15
20	E S 15	13	14	13	11	E S 15	E S 14	E S 14	15	16	18	20	22	20	20	19	19	15	15	12	E S 15	E S 15	E S 15	E S 15
21	E S 15	E S 13	14	16	12	14	E S 14	11	15	19	18	29	28	28	24	20	18	15	16	11	E S 15	E S 15	E S 15	E S 15
22	E S 15	E S 15	15	13	11	13	E S 15	E S 15	16	15	17	17	21	23	18	16	15	14	14	15	E S 12	E S 15	E S 15	E S 15
23	E S 12	12	E	11	E	11	E S 15	14	18	C	16	22	C	E C 30	18	17	15	17	E C 15	E C 16	E C 15	E C 15	E S 15	E S 15
24	E S 12	12	13	14	E	13	E S 15	14	14	15	17	16	19	21	19	19	17	15	11	E S 15	E S 15	E C 15	E S 15	E S 15
25	E S 14	E S 14	12	E C 15	E C 15	E C 15	E C 13	14	15	15	17	23	17	21	19	16	14	15	11	E	E S 14	E S 15	E S 15	E S 15
26	13	12	12	L	E	13	E S 13	15	15	15	C	C	21	20	18	16	15	15	12	13	E S 14	E S 15	E S 15	E S 15
27	C	C	12	16	15	13	E S 15	15	17	19	17	19	20	18	20	20	17	15	15	14	E S 15	E S 15	E S 15	E S 15
28	11	E S 13	C	C	13	15	E S 15	15	15	17	20	18	24	19	18	17	15	15	12	13	E S 12	C	E S 15	C
29	E S 15	16	15	16	15	12	E S 15	E S 15	15	15	20	16	22	24	23	16	15	12	14	E	E S 12	E S 15	E S 13	E S 15
30	E S 12	12	13	13	11	13	E S 15	14	15	15	C	16	19	23	16	15	15	11	11	15	15	14	12	E S 15
31	15	12	13	14	E	11	E S 15	15	15	15	18	19	24	19	18	15	15	13	12	E S 14	E S 14	12	15	12
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	31	31	30	29	29	28	27	30	29	30	30	31	30	31	31	30	30	30	31	30
MED	E S 14	12	13	12	E E 11	12	E S 14	14	15	15	17	18	20	21	18	17	15	15	14	12	E S 15	E S 15	E S 15	E S 15
UQ	E S 15	E S 15	15	14	11	14	E S 15	15	15	16	18	22	24	23	20	18	17	15	15	E E 15	E S 15	E S 15	E S 15	E S 15
LQ	E S 13	12	12	E	E	12	E S 14	14	14	15	16	17	18	19	18	16	15	14	12	11	E S 14	E S 14	E S 14	E S 14

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M(3000)F2 (0.01)

135° E Mean Time (G. M. T. + 9 h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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 280	275	280	295	S 290	S 300	C	C	C	C	I C 300	280	290	275	270	270	275	290	305	300	I C 280	S 265	U S 265	S 265
2	S 265	S 250	275	F 285	F 285	V 295	S 310	340	310	295	315	300	A	265	I A 270	265	285	S 285	295	I C 290	I S 295	295	S 250	S
3	F	F	F 315	F 280	F	F	305	I C 345	I C 340	I A 320	295	275	270	C	265	270	285	I S 300	300	S 300	S 260	265	U S 250	S 275
4	U S 290	U S 290	I S 295	325	335	265	280	330	325	270	235	240	240	260	260	260	285	320	S 320	305	275	S 270	S	F
5	F	F	F 305	F 305	S 290	F	F 315	S 330	285	S 295	I C 280	305	A	K 280	285	295	J R 295	I A 295	U R 305	275	S	255	F 275	U S 270
6	S	S	F	F	F 290	F 330	335	340	H 285	315	305	255	270	R 275	R 275	R 270	275	310	S 320	R 305	290	S 290	265	S 265
7	265	265	U S 290	305	F 290	F	320	345	330	A	305	270	270	R 255	265	290	295	I R 290	J S 285	J S 300	S 315	I A 295	265	270
8	F 265	275	F 270	285	S 295	310	335	325	335	305	295	285	I C 280	260	260	275	275	290	295	U S 275	S 305	S 295	F	F
9	F	F	F	F 270	290	290	335	320	330	305	300	260	265	245	265	S 275	S 290	295	S 275	310	S 305	F 265	F	S
10	F	F	S	F 275	F	F	S 330	325	320	310	265	275	270	275	290	280	290	290	J S 290	I S 300	285	280	S 250	I S 265
11	S 280	270	F 285	F 310	F 285	F 305	325	335	355	A	275	265	265	265	275	285	290	290	S 290	I A 290	J S 270	S 275	U S 265	S 280
12	270	280	F 285	F 280	275	F 280	315	325	370	315	I A 290	280	260	285	I C 290	290	I C 285	S 290	295	325	S 300	310	S 275	F
13	S 275	F 280	U F 270	S 305	F	I A 300	310	340	325	300	310	V 270	280	270	275	275	285	S 295	S 290	305	U S 295	290	I S 270	J S 285
14	F 275	I S 270	F	F	F	F	365	350	300	295	290	290	255	265	270	275	285	285	S 290	290	I S 290	S 255	J S 240	I S 275
15	S 295	I S 285	F 310	S 300	S 280	255	S 290	305	300	295	I A 280	280	285	290	290	280	275	285	R 285	S 280	F 290	S 265	U S 260	255
16	260	F 265	F	F 285	290	290	265	275	300	S 270	265	270	280	285	275	270	260	S 275	S 285	310	315	250	F 255	F 250
17	I S 265	I S 275	F	F 270	260	255	295	280	275	I C 315	H 280	290	270	280	290	300	280	280	300	S 315	S 270	F	S 285	F 250
18	255	F 250	F 260	260	265	275	305	290	295	R 275	I A 290	280	R 300	H 275	315	305	290	295	R 315	300	285	S 260	255	260
19	260	275	265	260	S 295	270	S 310	I A 325	305	295	285	270	R 275	S 290	U S 310	290	290	300	R 300	305	J R 310	J S 315	J S 265	F 265
20	F	F 290	S 270	J S 275	275	S 295	310	S 325	320	315	295	285	275	R 290	290	R 285	300	310	320	320	295	J S 270	F 255	J S 240
21	S 280	I S 280	F 265	F 295	S 315	U S 325	330	325	325	315	280	290	R 280	285	265	295	300	305	S 310	310	310	305	I A 280	275
22	S	S 270	S 285	265	300	J S 325	325	340	320	315	295	J S 275	260	U S 265	260	270	280	S 275	285	J S 300	S 300	I S 295	S 285	S 275
23	255	275	310	F 285	285	300	330	S 320	345	I C 310	280	270	I C 280	290	270	275	280	S 295	J S 295	305	300	J S 305	S 290	285
24	270	F 250	F 265	F 280	280	F 295	F 315	320	320	345	285	280	290	275	275	290	295	285	I S 300	320	S 235	265	I S 255	S 275
25	S 245	F	S	S	S	S 305	S 345	350	350	A	305	285	285	275	270	S 280	290	285	S	I A 315	295	S 260	F	S
26	S	S	F	S	F	S 300	F 310	330	335	K 300	C	C	A	275	A	S 290	J S 290	U S 305	U R 310	325	315	305	285	S
27	C	C	F	F	285	F	F	325	U S 325	K 315	330	300	290	285	U S 280	J S 280	J S 285	J S 290	J S 310	J S 300	335	J S 305	I S 280	S
28	F	I S 265	C	C	335	320	S 345	335	360	355	340	285	280	280	285	275	285	K 300	300	K 310	S 320	I C 310	320	I C 280
29	275	275	290	J S 290	J S 315	R 325	350	340	335	335	300	295	295	270	270	265	275	280	S 295	S 315	J S 315	295	I S 300	295
30	S 275	U S 270	S	290	285	J S 275	S 305	J S 345	365	320	I C 305	290	300	290	280	285	290	290	285	I S 295	I S 300	285	275	275
31	290	285	290	305	300	275	310	340	350	335	315	290	270	285	275	280	280	300	295	S 300	S 285	275	I S 280	275
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	23	20	25	25	25	29	30	30	27	30	30	28	30	30	31	31	31	30	31	30	30	27	23
MED	270	275	285	285	290	295	315	330	325	310	295	280	278	275	275	280	285	290	295	305	S 295	284	S 265	275
UQ	S 280	280	292	300	295	305	330	340	340	315	305	290	285	285	285	290	290	300	305	310	S 310	295	S 280	275
LQ	265	268	270	F 280	285	275	310	325	305	295	280	270	270	265	270	272	280	285	S 290	S 300	285	S 265	S 255	265

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M(3000)F1 (0.01)

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

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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							C	C	C	C	C	A	380	A	I A 340	I A 345	A	A	A					
2								L	U L 380	L	400	R 365	A	A	A	A	355	A	L					
3							L	C	C	A	L	360	A	C	A	A	A	A	A					
4							L	L	360	H 335	350	380	K 365	360	I C 355	H 355	390	340	A					
5							A	A	A	A	C	A	A	A	375	365	I A 360	A	A					
6							L	U L 385	L 400	L 350	L	H 320	H 360	H 355	A	A	L	A	L					
7								A	A	A	L	L 335	L	A	A	L 320	A	A	A					
8							L	L	A	A	350	A	C	A	355	H 360	H 350	A	L					
9								A	A	360	A	A	A	360	350	A	A	A	A					
10								A	L	A	L	340	335	345	A	A	340	A	A					
11								L	L	A	H 335	A	A	I A 350	345	A	A	A	A					
12							L	L	A	A	A	355	375	A	C	A	C	U L 340	L					
13								L	L	U L 350	L 350	L 335	H 330	L 355	L 350	L 345	A	A	L					
14								U L 370	L	U L 375	L 345	H 375	340	355	H 340	330	340	L 335	A					
15							L	L	A	A	A	A	335	A	A	A	A	L	A					
16								L	335	L	365	360	K 350	H 360	I A 350	345	335	L	A					
17								L	315	C	410	H 395	325	H 350	340	350	325	U L 350	A					
18								A	335	A	A	A	A	L 350	A	A	U L 330	U L 355	A					
19								A	A	L	L 330	A	350	360	L 365	L	L 355	L	L					
20								A	A	U L 370	365	L 370	A	A	H 365	L	345	U L 335	L					
21								L	U L 360	A	L	A	A	L 345	345	L 330	350	A	A					
22								L	L	L 360	d 400	370	H 370	335	A	355	A	A	A					
23								L	L	C	L	U L 320	C	A	325	H 340	L 325	L	A					
24								L	L	L	L	325	345	A	A	H 345	A	A	A					
25								A	A	A	350	350	A	A	A	A	A	A	A					
26								L	A	A	C	C	A	360	A	A	L 355	L 365	L					
27								A	L	A	L 380	L	H 345	U L 380	355	L 340	A	A	A					
28									L	U L 375	U L 365	U L 340	L 345	335	355	U L 315	L 335	U L 325	L					
29								L	L	385	380	L	370	H 365	L	L 320	L 320	L 340	L					
30								L	L	385	C	L	A	A	355	L	L	L	A					
31									L	370	L 390	L	L 370	A	325	H 340	H 360	L	L					

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	7	11	16	17	17	17	18	17	17	9						
MED								U L 378	360	L 370	365	355	350	355	350	345	345	U L 340						
UQ									L 370	375	385	370	370	360	355	350	355	U L 350						
LQ									335	355	350	335	340	350	340	L 330	335	U L 335						

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IONOSPHERIC DATA

AUG. 1968 | h'F2 (km) | 135° E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31° 12.1' N, Long. 130° 37.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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							C	C	C	C	C	345	340	380	E A 400	350	330	300	265					
2								230	250	270	305	325	I A 350	385	A	A	310	300	270					
3							275	I C 265	C	A	360	360	A	C	360	350	330	305	275					
4							325	255	275	420	530	505	510	450	445	430	355	295	280					
5							260	265	E A 350	E A 355	I C 380	335	A	355	340	330	310	A	310					
6							250	250	250	305	290	435	370	360	340	355	340	295	255					
7								225	260	A	310	355	370	355	360	310	290	I A 310	300					
8							255	235	260	E A 300	310	375	I C 350	E A 400	370	330	320	290	275					
9								275	250	290	290	385	350	395	360	325	295	280	290					
10								235	230	E A 325	325	355	340	340	320	330	310	300	300					
11								245	255	A	395	345	E A 425	370	350	315	300	280	300					
12							255	260	225	260	A	365	400	340	I C 320	300	I C 310	300	285					
13								250	250	300	300	355	345	355	345	330	315	300	270					
14								215	310	285	325	325	400	345	345	340	310	300	280					
15							300	330	300	295	A	360	330	305	320	350	345	295	300					
16								360	310	325	345	310	350	325	325	345	345	300	290					
17								270	330	I C 270	250	325	375	320	300	310	345	300	275					
18								350	345	E A 440	A	390	325	310	330	320	340	295	280					
19								I A 275	E A 310	300	340	300	330	315	285	310	320	290	290					
20								260	270	250	350	340	350	E A 370	325	330	315	290	260					
21								240	280	280	350	320	355	330	350	310	295	270	270					
22								250	250	275	310	330	325	340	325	325	300	300	275					
23								230	235	C	405	370	I C 345	310	345	340	325	275	C 260					
24								245	255	255	350	345	305	350	340	310	290	310	I A 295					
25								255	240	A	335	320	320	305	330	315	E A 340	280	275					
26								245	250	E A 350	C	C	A	360	I A 350	315	290	265	250					
27								E A 285	255	270	270	290	320	300	315	325	E A 325	290	300					
28									230	250	275	350	360	370	355	350	325	285	265					
29								240	255	245	275	310	300	345	345	345	325	295	280					
30								230	225	260	I C 275	275	300	330	325	315	310	275	E A 300					
31									255	265	285	310	330	330	340	325	310	280	270					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							7	28	29	25	26	30	28	30	30	30	31	30	31					
MED							260	250	255	278	318	345	346	342	340	328	312	295	278					
UQ							288	266	275	298	350	360	362	365	350	345	329	300	291					
LQ							255	238	250	265	290	320	328	325	325	315	310	280	270					

IONOSPHERIC DATA

AUG. 1968 | h'F (km) | 135° E Mean Time (G. M. T. + 9 h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / 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	300	280	275	265	240	C	C	C	C	I C 200	A	230	I A 245	A	A	A	A	A	A	C	275	310	A
2	305	315	325	275	285	260	230	H 215	205	210	195	250	A	A	A	A	A	A	245	I C 255	250	240	250	310
3	250	270	235	250	290	290	200	C	C	A	A	E A 250	A	C	A	A	A	A	A	240	E A 350	330	330	300
4	300	285	250	230	220	300	280	245	230	H 210	220	205	H 205	225	I C 250	H 240	250	A	A	E A 290	E A 355	270	E A 370	350
5	320	320	265	250	E A 320	305	A	A	A	A	C	A	A	A	220	220	A	A	A	265	275	310	E A 390	325
6	285	E A 410	285	245	250	240	235	210	200	H 195	H 180	H 220	H 205	H 210	A	A	E A 255	A	255	255	250	300	305	275
7	310	325	275	245	255	260	270	A	A	A	A	215	A	A	A	225	A	A	I A 270	275	255	A	E A 375	310
8	335	305	325	265	260	265	255	E A 245	A	A	E A 230	A	C	A	A	H 205	E A 250	A	A	260	230	230	375	380
9	285	300	295	240	250	E A 305	245	I A 230	I A 230	A	A	A	A	220	230	A	A	A	A	240	220	I A 275	300	320
10	310	325	I A 340	300	295	280	240	I A 225	A	A	H 200	E A 250	E A 250	245	I A 240	A	E A 250	A	A	270	E A 340	250	E A 370	E S 330
11	280	300	260	230	240	245	245	235	250	A	E A 250	A	A	A	A	A	A	A	A	A	320	280	290	270
12	290	300	270	260	280	275	250	230	A	A	I A 210	200	200	A	C	A	C	E A 275	250	255	240	245	280	350
13	285	305	325	C 305	280	A	220	240	235	E A 225	H 185	240	H 230	E A 235	210	E A 280	A	A	255	245	250	245	270	E A 305
14	295	295	270	260	250	200	220	210	H 205	H 205	H 200	H 180	225	210	H 230	250	250	E A 275	A	275	275	E A 345	345	E A 370
15	300	300	250	215	255	310	H 240	A	A	A	A	A	A	A	A	A	I A 250	255	I A 270	270	240	E A 340	E A 360	E A 365
16	350	300	340	260	265	265	E A 350	250	245	240	230	E A 250	A	H 205	A	E A 265	A	A	A	245	225	E A 300	350	350
17	325	E A 345	350	340	290	320	255	225	225	I C 240	205	H 200	E K 250	H 250	240	230	245	A	I A 255	250	250	A	325	300
18	320	350	340	340	305	300	265	A	A	A	A	A	A	E A 275	A	A	220	E A 250	A	280	E A 300	325	320	330
19	325	320	300	300	255	300	255	A	A	E A 255	H 220	I A 210	220	210	205	250	225	E A 250	250	265	240	E A 270	280	300
20	285	295	320	340	275	255	245	A	A	205	E A 250	200	A	A	H 220	E A 250	225	E A 250	245	240	240	E A 350	330	350
21	295	295	305	250	245	205	230	225	225	A	E A 260	A	A	E A 255	230	235	250	A	A	270	250	225	A	305
22	305	300	310	320	260	245	240	E A 240	230	225	H 210	200	H 200	210	A	E A 250	A	A	I A 255	275	265	265	260	E S 330
23	300	290	245	250	250	245	245	225	220	I C 210	H 210	205	C	A	I A 255	H 255	210	E A 250	A	240	250	250	255	245
24	270	325	310	270	295	275	245	245	I A 240	240	225	E A 250	A	A	A	H 235	A	A	A	250	A	305	E A 350	I A 275
25	310	280	A	350	300	275	250	A	A	A	210	220	A	A	A	A	A	A	A	A	230	230	E A 350	E A 350
26	330	300	300	245	225	290	250	240	A	A	C	C	A	230	A	A	E A 255	225	250	245	250	255	310	I A 280
27	I C 300	C	325	330	310	240	250	A	E A 255	A	220	H 200	H 195	200	240	255	A	A	A	245	240	255	300	315
28	305	E A 340	C	C	255	275	225	235	230	220	200	H 245	220	E A 240	230	H 220	250	230	250	250	225	I C 220	225	I C 240
29	265	300	285	255	255	230	225	230	235	220	205	185	200	200	H E A 250	230	240	240	265	245	235	225	300	250
30	270	300	285	250	255	285	250	235	225	205	I C 190	E A 250	A	A	E A 250	A	225	235	I A 255	290	255	245	290	290
31	230	275	275	250	225	270	255	230	230	220	250	215	H 180	I A 215	E A 250	H 220	H 215	H 225	235	245	230	260	275	260
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	29	30	31	30	29	21	18	16	24	22	14	18	16	18	17	12	15	28	29	29	30	30
MED	300	300	295	260	255	270	245	230	230	215	206	208	207	216	232	233	U 238	U E 238	255	254	245	258	298	302
UQ	310	312	325	300	281	290	252	238	235	227	222	250	225	A 235	A 250	245	A 250	E A 252	U A 255	270	258	288	U 330	335
LQ	285	295	270	250	250	245	235	225	225	208	200	200	H 200	210	225	225	225	230	250	245	240	245	280	278

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IONOSPHERIC DATA

AUG. 1968 | h'Es (km) | 135° E Mean Time (G. M. T. + 9h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	105	110	110	110	105	C	C	C	C	C	105	150	105	100	105	125	120	120	110	C	110	110	110
2	105	100	100	95	95	120	110	125	110	120	110	105	105	105	105	100	105	100	100	C	100	100	100	110
3	105	115	105	105	105	105	125	C	C	110	110	110	105	C	125	120	120	110	110	100	100	100	100	100
4	95	105	B	B	100	100	100	140	125	130	150	130	G	G	C	105	120	100	105	105	105	100	110	100
5	100	100	100	95	120	110	125	110	110	105	C	105	100	120	105	130	120	115	105	105	105	100	100	100
6	100	95	100	100	95	B	145	150	115	105	105	105	105	105	100	100	105	100	100	100	100	115	120	100
7	120	105	105	105	105	105	115	115	110	105	105	105	105	105	105	135	120	115	120	120	105	110	110	105
8	105	100	100	100	105	105	105	105	105	105	105	105	C	105	105	G	100	100	100	100	100	100	110	105
9	110	100	100	105	105	125	120	110	105	105	100	100	100	100	105	100	135	120	120	115	100	105	120	105
10	100	105	105	B	105	105	130	120	115	110	125	125	140	105	105	100	100	100	100	100	100	100	110	105
11	100	100	95	100	100	100	135	150	120	110	110	150	130	135	105	100	100	100	115	110	110	110	B	S
12	100	100	100	95	95	95	130	125	115	115	110	135	105	150	C	105	C	100	100	120	115	110	105	105
13	105	105	100	100	105	105	100	160	105	105	105	105	140	125	125	120	120	110	105	105	100	95	105	105
14	100	B	B	B	B	B	B	G	G	160	105	105	105	105	105	145	120	125	120	105	105	105	110	105
15	100	100	100	100	100	100	170	120	115	110	110	105	105	100	130	120	120	120	110	105	100	110	105	105
16	110	105	105	105	105	105	105	155	130	130	120	115	110	E G 130	110	110	110	110	110	100	115	110	100	100
17	105	100	100	100	100	100	100	110	105	C	105	105	100	100	G	135	130	120	110	105	100	100	100	100
18	100	100	100	100	100	110	110	110	110	110	105	105	105	105	105	100	100	100	100	95	95	110	110	100
19	105	105	105	105	110	B	115	105	105	105	105	130	110	105	105	150	135	125	120	105	105	100	100	110
20	105	100	100	100	105	110	105	105	105	105	120	105	140	125	E G 150	135	105	100	100	100	95	105	95	105
21	110	105	105	105	95	105	100	100	100	110	110	110	110	120	120	130	105	125	115	110	110	100	105	105
22	100	100	95	100	105	105	120	115	115	125	115	110	105	110	105	105	105	100	100	100	100	100	100	100
23	100	95	95	B	E	B	165	130	125	C	110	110	C	105	105	105	100	100	100	100	100	100	100	105
24	105	95	95	B	100	105	125	120	115	115	110	105	105	105	105	100	125	120	110	110	110	110	110	110
25	105	105	105	C	105	105	110	110	110	105	105	145	105	105	130	120	120	115	110	110	105	100	105	105
26	105	105	100	100	105	105	120	120	110	105	C	C	100	105	100	100	105	100	120	115	115	115	110	105
27	C	C	100	100	100	110	125	115	115	110	105	105	105	105	170	150	120	115	110	105	100	95	95	110
28	110	110	C	C	105	105	100	100	100	105	105	105	105	150	105	140	100	140	100	100	100	C	S	C
29	S	B	B	B	B	B	135	120	110	110	105	100	100	105	105	150	130	125	120	105	105	105	105	105
30	100	100	100	B	B	B	125	130	130	115	C	110	105	105	110	100	145	125	115	110	105	105	105	105
31	105	100	95	110	E	B	S	130	125	110	105	100	100	100	100	100	100	120	110	S	S	100	B	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	27	22	26	24	28	28	28	28	27	30	28	29	28	30	30	31	31	29	29	30	28	29
MED	105	100	100	100	105	105	120	120	110	110	105	105	105	105	105	108	120	115	110	105	100	102	105	105
UQ	105	105	105	105	105	108	126	130	115	115	110	110	110	U 115	112	135	120	120	115	110	105	110	110	105
LQ	100	100	100	100	100	105	105	110	105	105	105	105	105	105	105	100	105	100	100	100	100	100	100	100

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IONOSPHERIC DATA

AUG. 1968 | Types of Es | 135° E Mean Time (G. M. T. + 9 h)

Station YAMAGAWA Lat. 31° 12.1' N, Long. 130° 37.1' E Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

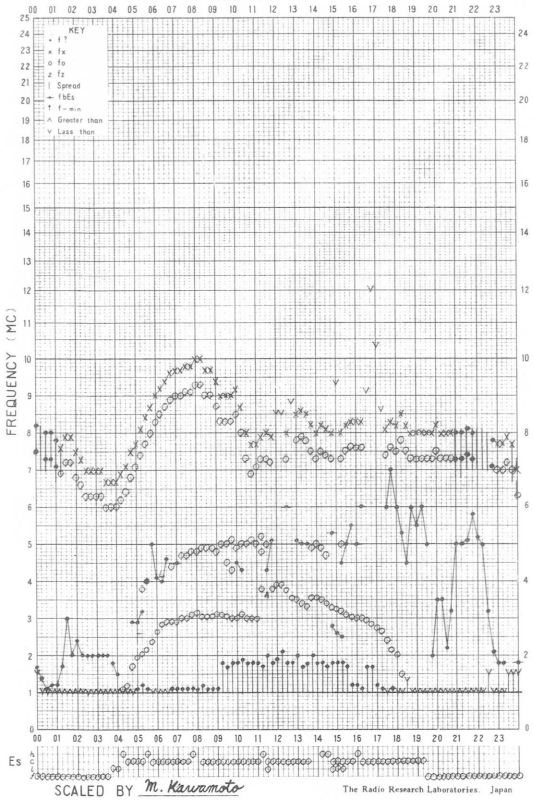
Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	FF 23	FF 21	F 2	F 3	F 6	L 3						C 2	H 1	L 2	L 3	L 2	HL 22	H 2	CL 54	CL 55		FF 22	FF 64	FF 33
2	FF 22	FF 34	F 5	F 1	F 1	CL 11	C 3	H 2	C 2	C 2	C 1	C 2	C 3	C 2	C 4	C 3	L 4	L 5	L 5		F 1	F 6	F 3	F 4
3	F 5	FF 12	FF 22	FF 33	FF 32	CL 21	HL 31			C 4	C 3	C 1	C 4		HC 21	H 4	C 2	C 3	C 3	L 4	F 5	F 4	F 6	F 2
4	F 3	FF 11			F 1	L 1	L 1	H 3	H 1	H 1	H 1	H 1				C 1	CL 22	L 4	CL 23	L 5	FF 35	F 3	FF 24	F 4
5	F 6	F 5	F 4	F 5	FF 17	LL 24	HL 32	C 3	C 6	C 3		C 4	L 2	CL 21	L 1	HL 11	CL 21	CL 51	C 2	C 2	F 4	F 5	F 4	F 3
6	F 5	F 2	F 1	F 1	F 2		H 1	HL 11	C 1	L 2	L 2	C 1	C 1	C 1	L 4	L 2	L 3	L 3	L 2	L 3	F 3	FF 25	FF 12	F 3
7	FF 12	F 1	FF 23	FF 11	F 2	L 2	C 4	C 4	C 5	C 4	C 2	C 2	C 1	C 1	C 1	H 1	C 2	C 2	CL 12	CL 13	FF 44	FF 32	F 3	F 2
8	F 1	F 1	F 1	F 2	F 5	L 4	L 2	L 3	C 3	C 2	C 2	C 2		C 3	C 2		L 1	L 4	L 4	L 1	F 6	F 7	FF 51	F 4
9	FF 11	F 2	F 1	FF 21	FF 32	HL 61	C 5	C 5	C 4	L 2	L 3	L 2	L 3	L 2	L 2	L 3	HL 24	CL 23	CL 41	C 3	F 1	F 3	FF 12	F 3
10	F 3	F 2	FF 22		F 2	L 4	H 4	H 3	C 2	C 3	HC 11	H 1	H 1	C 1	L 2	L 4	L 2	L 4	L 5	L 5	F 6	F 7	FF 36	F 4
11	F 5	F 5	FF 12	F 1	F 1	L 1	H 6	H 2	C 2	C 2	C 2	H 1	H 3	HC 21	L 2	L 2	L 3	L 3	CL 53	CL 32	FF 42	FF 32		
12	F 2	F 2	F 1	F 2	F 1	F 1	H 4	H 3	C 3	C 2	C 3	HL 11	L 1	HL 11		L 2		L 3	L 3	CL 14	FF 23	FF 22	F 2	F 3
13	F 4	F 4	F 2	F 4	F 4	L 3	L 2	HL 13	C 2	L 2	L 1	L 1	HL 11	HL 11	HL 11	C 1	C 2	C 3	L 3	L 4	F 3	F 2	FF 31	F 3
14	F 2									HL 11	L 1	L 1	L 1	L 1	L 1	HL 11	HL 11	H 2	C 4	C 6	F 6	F 5	FF 16	F 5
15	F 5	F 6	F 2	F 3	F 1	L 1	HL 11	H 3	C 2	C 4	C 3	C 3	C 2	C 2	HL 22	H 2	H 3	C 4	C 4	L 4	F 3	FF 13	FF 23	FF 23
16	FF 32	FF 25	FF 22	FF 12	F 1	L 5	L 4	H 1	H 2	H 1	C 1	CC 11	C 1	C 1	C 2	C 1	CL 22	CL 31	LL 31	L 1	F 3	F 3	F 5	F 4
17	FF 33	F 5	F 8	F 7	F 5	L 3	L 4	C 3	C 3		L 1	L 1	L 1	L 1		H 1	H 2	C 2	C 4	C 3	F 3	F 3	F 4	F 3
18	F 4	F 3	F 2	F 3	FF 11	C 6	C 5	C 5	C 2	C 3	C 4	C 2	C 2	C 1	C 2	L 3	L 2	L 3	L 2	L 5	F 4	FF 34	FF 23	F 3
19	F 4	F 3	F 4	FF 21	FF 21		C 3	C 3	C 3	C 2	C 2	HC 12	C 1	C 1	L 1	H 1	HL 12	H 2	C 3	L 2	F 2	F 3	F 2	FF 12
20	F 3	F 2	F 3	F 3	F 2	L 1	L 3	L 4	L 4	L 2	CL 12	L 1	H 1	H 3	HL 11	HL 11	L 1	L 3	L 2	L 3	F 4	FF 42	F 3	FF 22
21	FF 21	F 4	F 2	F 2	F 1	L 3	L 4	L 4	L 4	CL 32	CL 11	CL 11	CL 11	CL 11	CL 11	HL 11	L 1	H 2	C 5	C 4	FF 31	FF 11	FF 31	F 4
22	F 2	F 2	F 2	F 3	F 3	L 1	C 1	C 3	C 3	HC 12	C 1	C 1	C 1	CL 11	CL 11	C 2	L 3	L 3	L 4	L 6	F 4	F 4	F 4	F 4
23	F 3	F 2	F 1				H 1	H 2	HL 21		CL 21	C 1		C 1	C 1	C 2	L 2	L 6	L 4	L 6	F 8	F 5	F 3	FF 42
24	FF 11	F 2	F 1		F 1	L 3	H 4	C 3	C 2	C 2	C 2	C 2	CL 21	C 2	CL 21	L 1	HL 11	CL 72	CL 11	CL 66	FF 25	FF 32	FF 22	FF 31
25	FF 22	F 3	FF 52	F 2	F 5	L 4	C 4	C 3	C 3	C 2	C 2	H 1	L 3	L 1	HL 11	H 3	HL 41	CL 21	CL 21	CL 62	FF 21	F 3	FF 41	F 4
26	FF 12	FF 13	FF 33	F 4	F 4	L 4	C 4	C 3	C 3	C 4			L 4	L 2	L 3	L 2	L 2	LH 21	CL 22	CL 23	FF 25	FF 23	FF 23	F 3
27			F 2	F 2	F 2	L 1	H 2	C 3	C 2	C 2	L 1	L 1	L 1	L 1	HL 11	H 1	C 4	C 3	C 3	L 2	F 2	F 3	F 3	FF 25
28	FF 22	F 3			FF 22	L 3	L 5	L 3	LH 21	L 2	L 1	L 1	L 1	HL 12	LH 21	HL 12	L 3	HL 13	L 2	L 3	F 1			
29							H 2	C 3	C 2	C 2	L 1	L 1	L 1	L 1	L 1	HL 12	HL 11	H 2	C 3	L 4	FF 32	FF 32	FF 51	F 4
30	F 2	F 1	F 1				H 3	H 2	HL 31	C 2		C 2	C 2	C 2	CL 11	L 2	HL 12	HL 23	CL 51	L 4	FF 41	FF 21	FF 33	FF 32
31	F 3	FF 11	F 2	FF 11				H 2	H 4	C 2	C 2	L 2	L 1	L 3	L 2	L 2	LH 21	HL 11	C 1			F 2		F 3

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

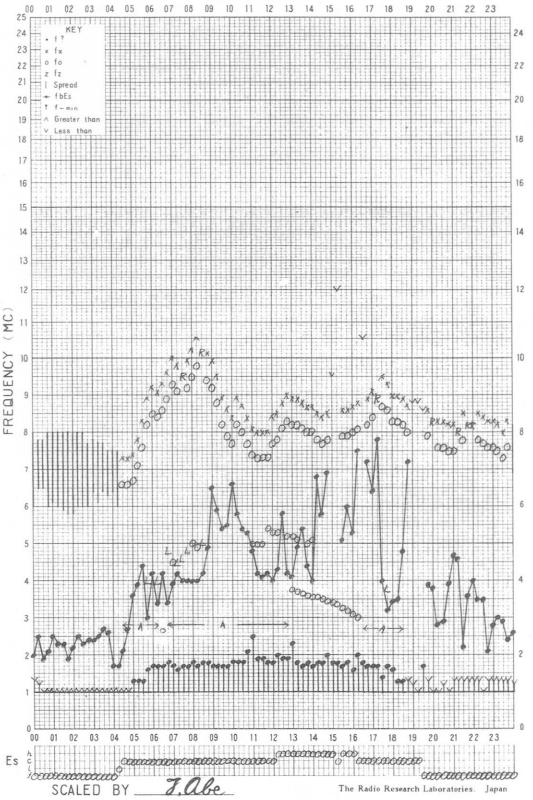
STATION WAKKANAI 135° E MEAN TIME DATE AUG. 1.1968



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

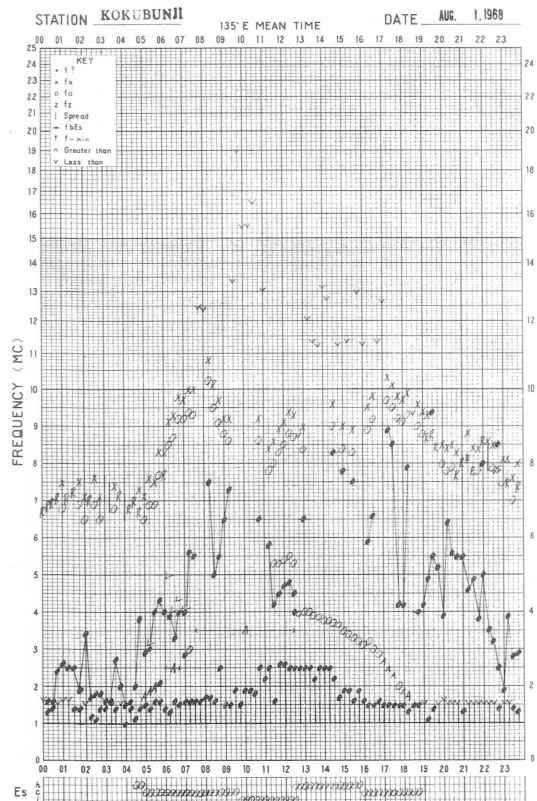
STATION AKITA 135° E MEAN TIME DATE Aug. 1. 1968



SCALED BY T. Abe The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

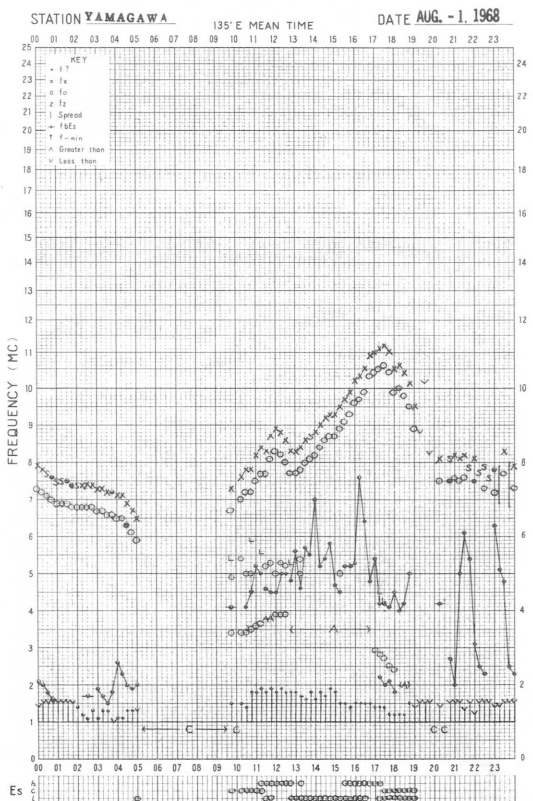
STATION KOKUBUNJI 135° E MEAN TIME DATE AUG. 1.1968



SCALED BY T. Koizumi The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

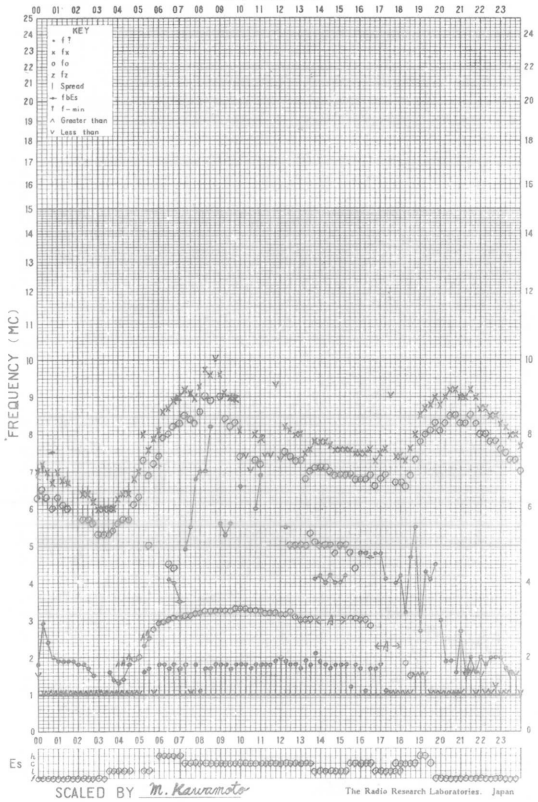
STATION YAMAGAWA 135° E MEAN TIME DATE AUG. - 1. 1968



SCALED BY S. Ishitomo The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE AUG. 2, 1968

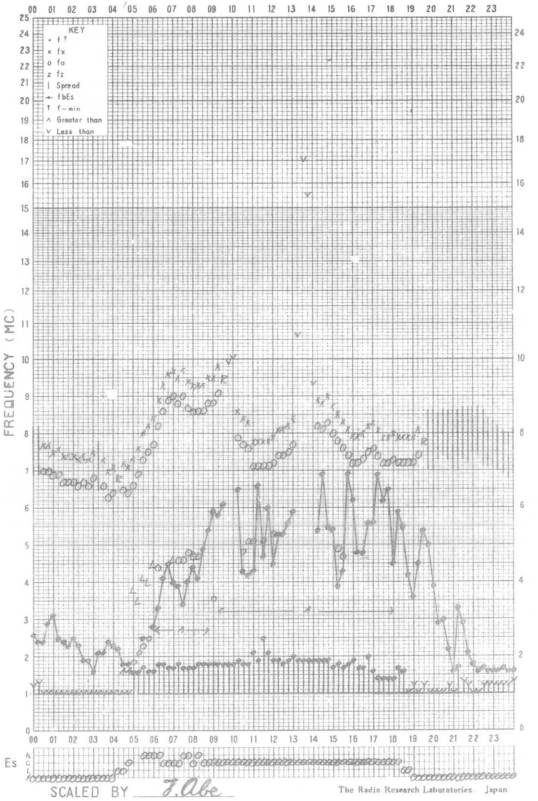


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Aug. 2, 1968

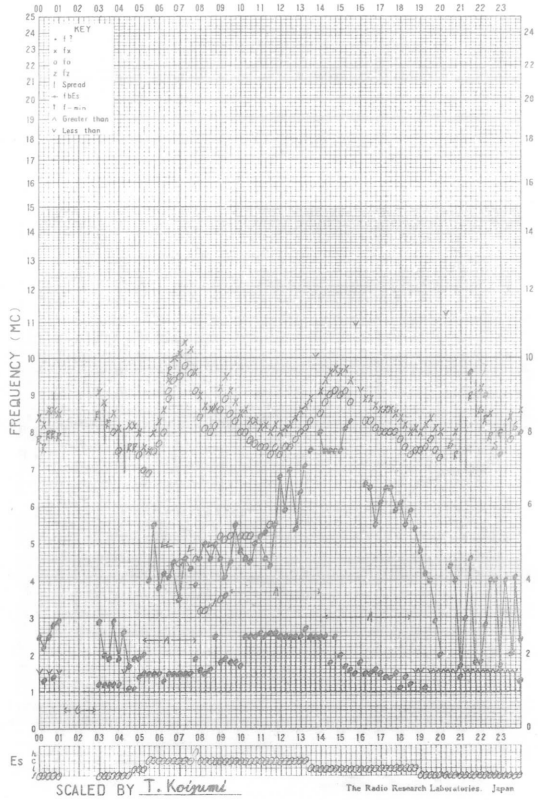


SCALED BY T. Abe

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 2, 1968

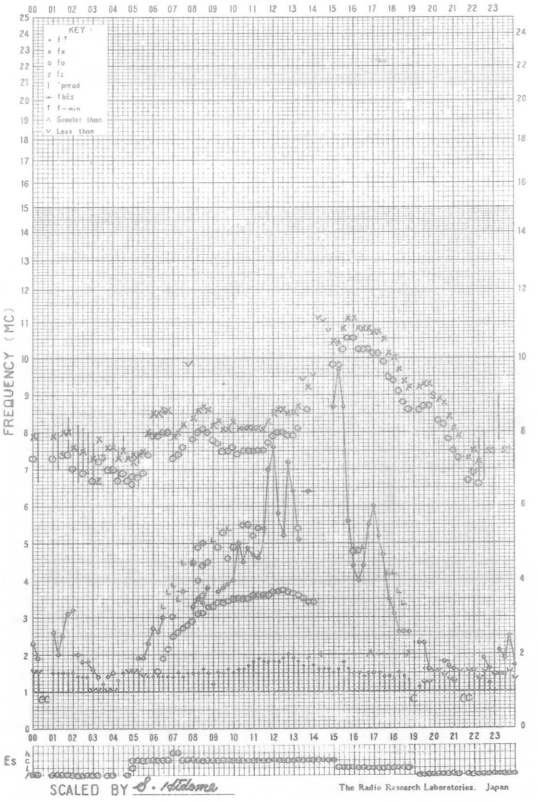


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE AUG. - 2, 1968

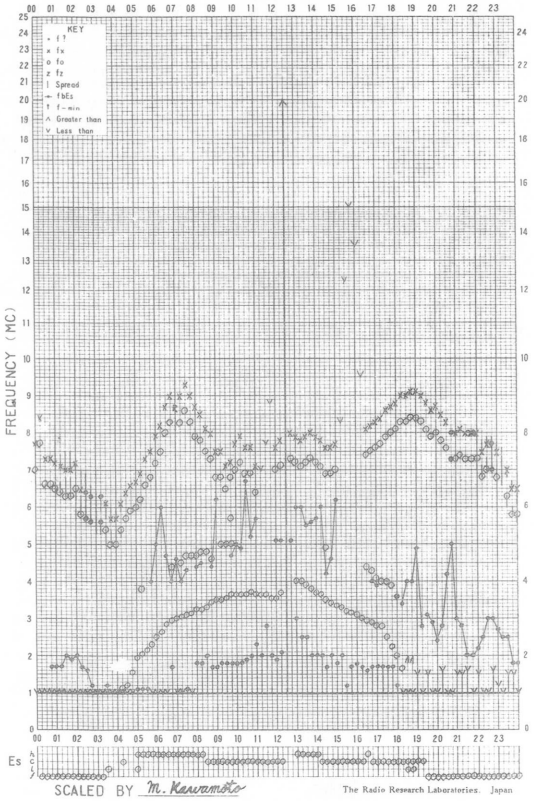


SCALED BY S. Hidaka

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

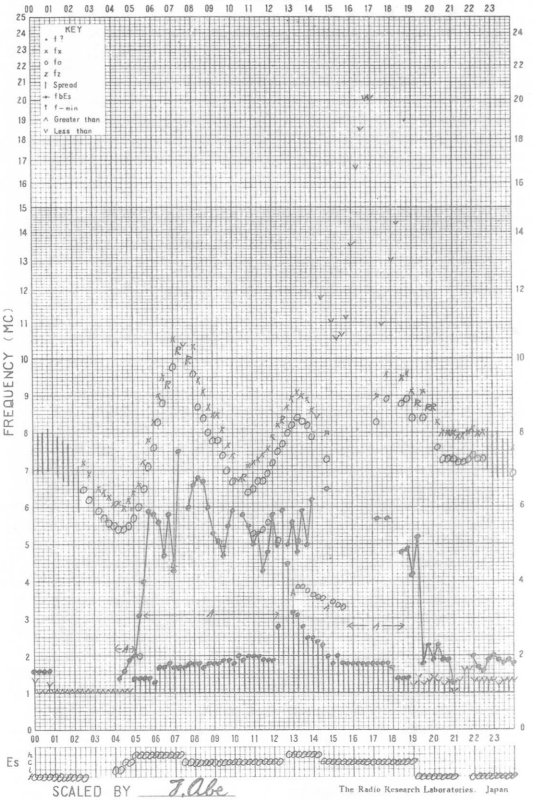
STATION WAKKANAI 135°E MEAN TIME DATE AUG. 3.1968



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

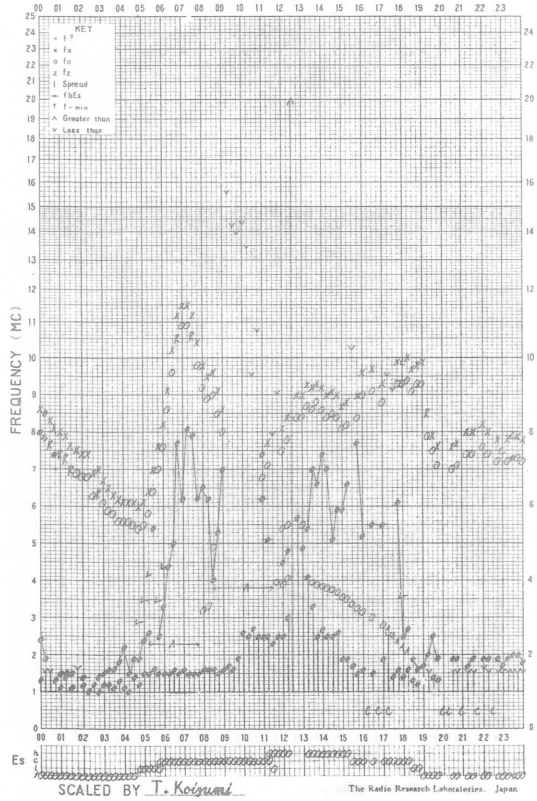
STATION AKITA 135°E MEAN TIME DATE Aug. 3. 1968



SCALED BY T. Abe The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 3.1968



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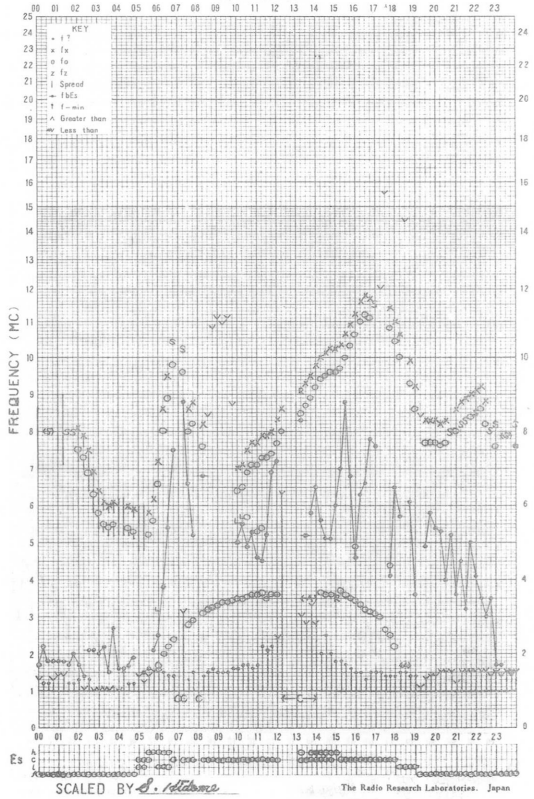
f-PLOT OF IONOSPHERIC DATA

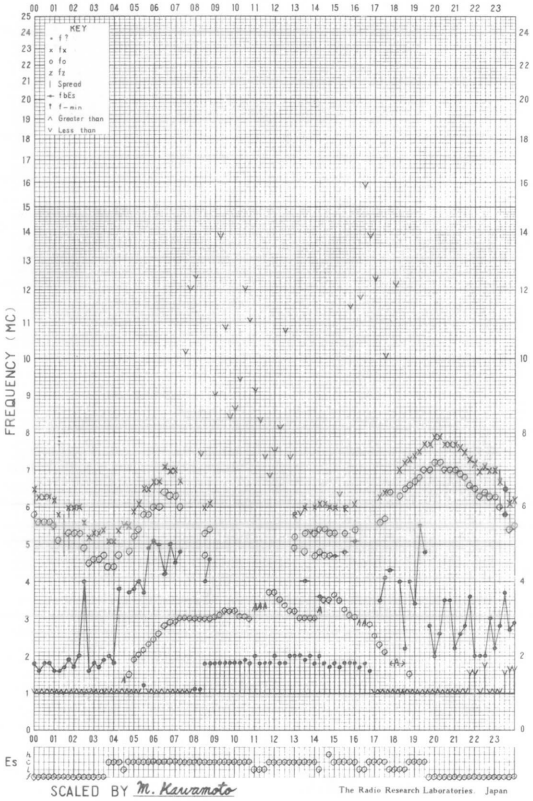
STATION YAMAGAWA 135°E MEAN TIME DATE AUG. - 3. 1968



SCALED BY S. Ishimoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE AUG. 4. 1968

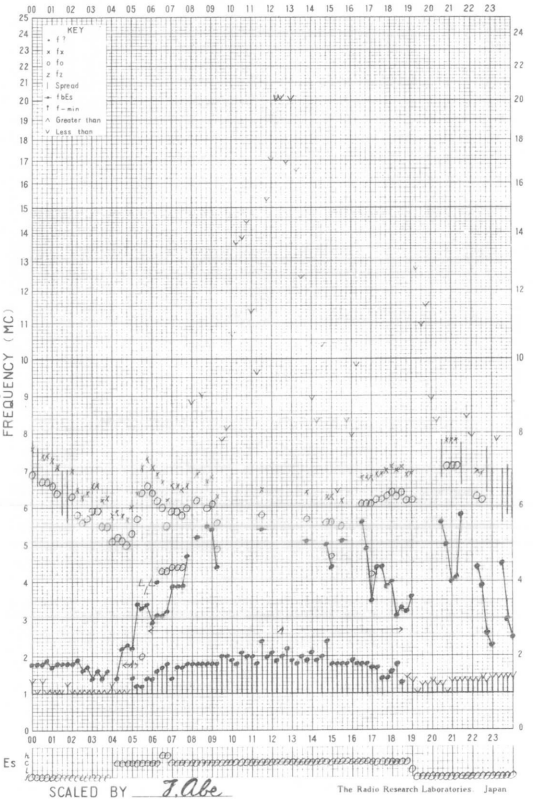


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135° E MEAN TIME DATE Aug. 4. 1968

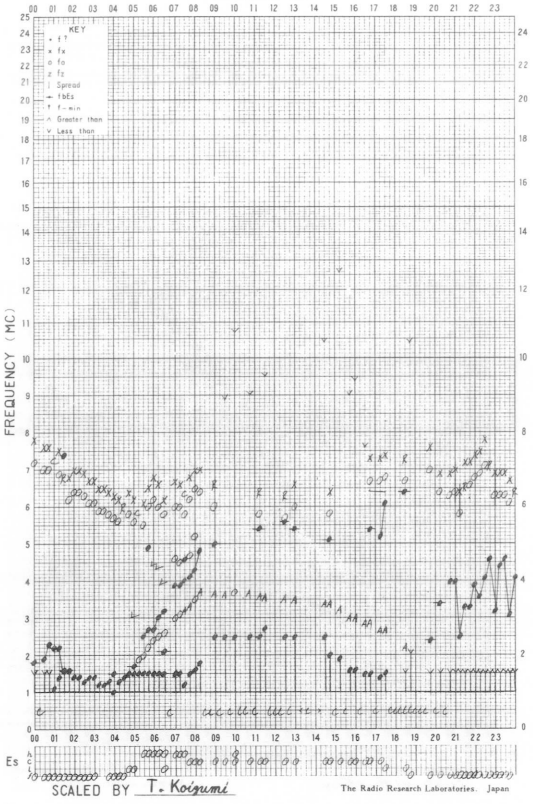


SCALED BY T. Abe

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE AUG. 4. 1968



SCALED BY T. Koizumi

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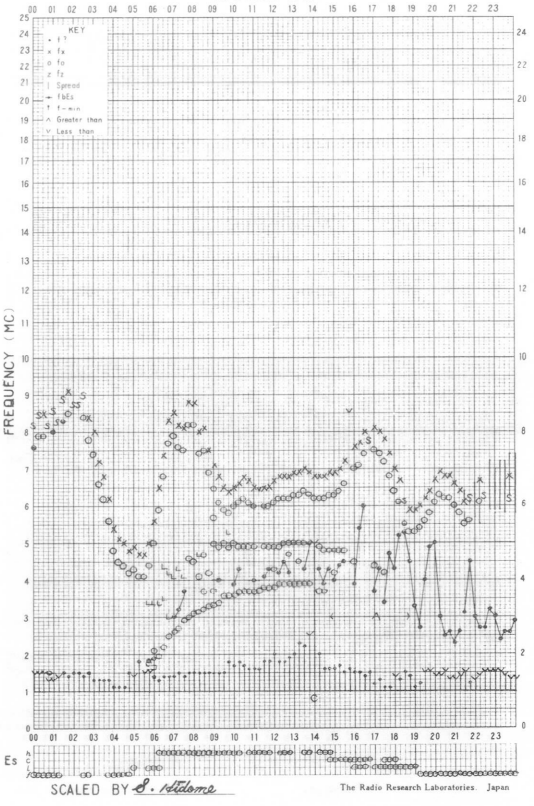
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135° E MEAN TIME DATE AUG. - 4, 1968

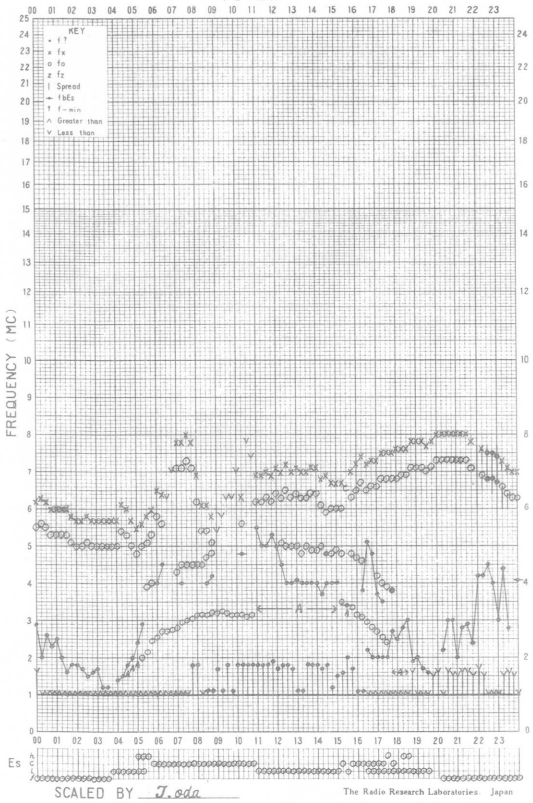


SCALED BY S. Ishikawa

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE AUG. 5.1968



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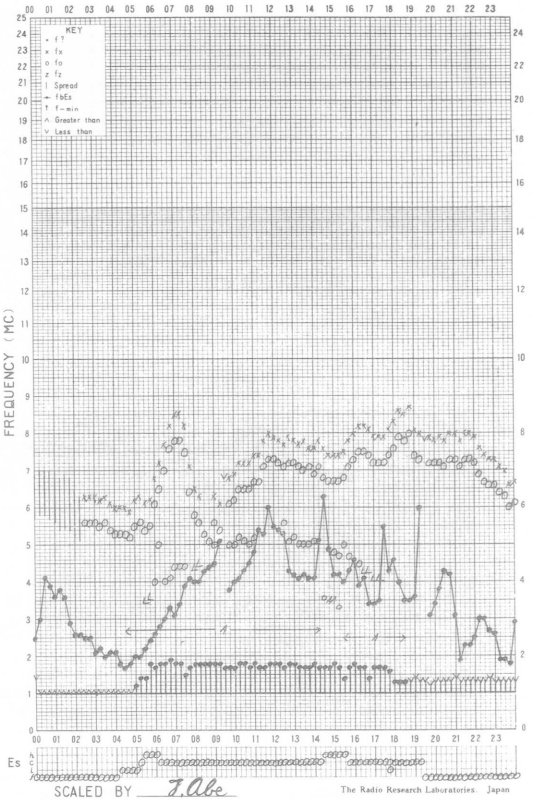
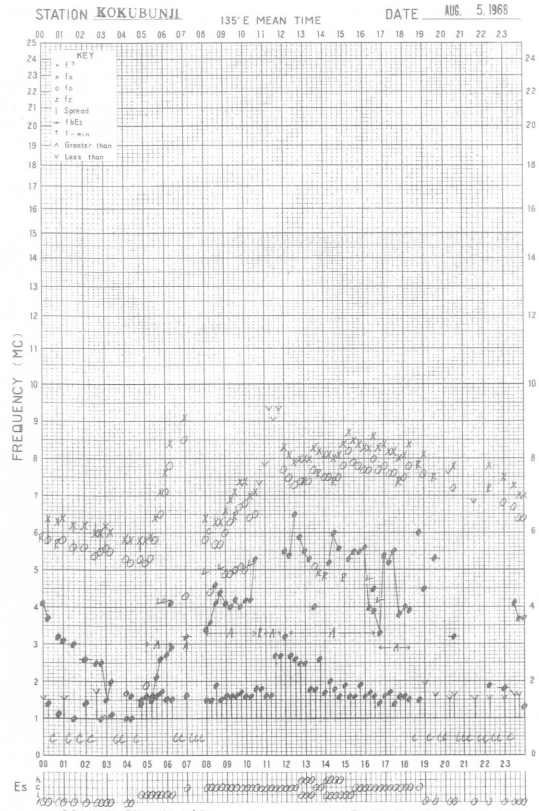
STATION AKITA 135°E MEAN TIME DATE Aug. 5. 1968



f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 5.1968



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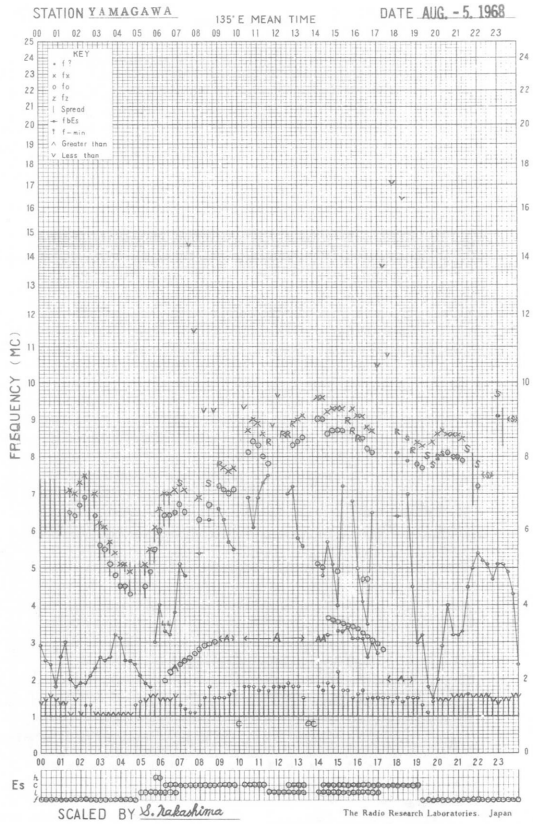
STATION YAMAGAWA 135°E MEAN TIME DATE AUG. - 5. 1968



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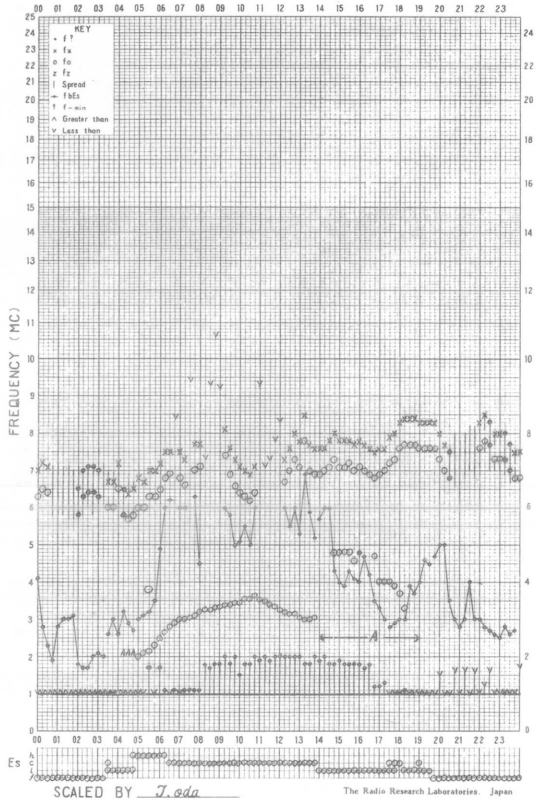
STATION WAKKANAI 135°E MEAN TIME DATE AUG. 6.1968



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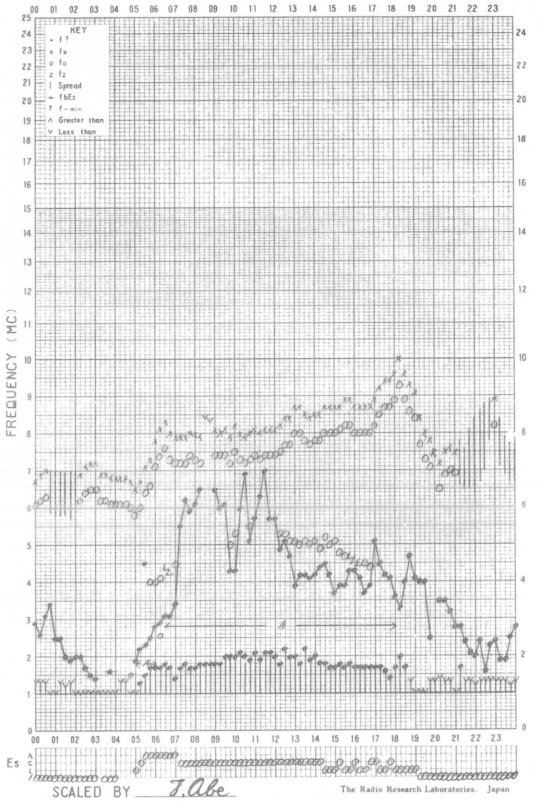

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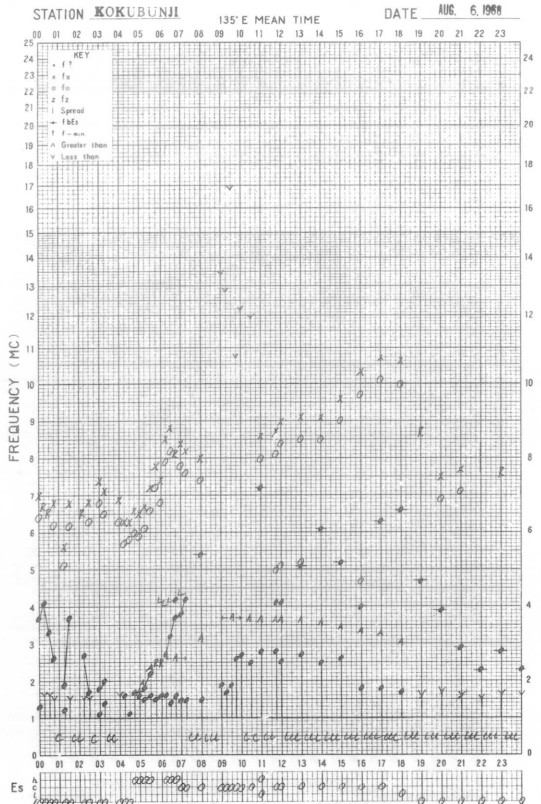

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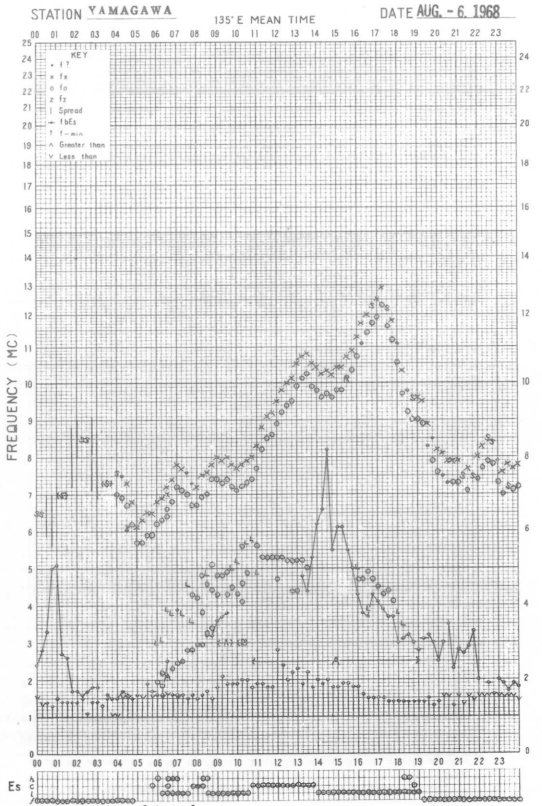

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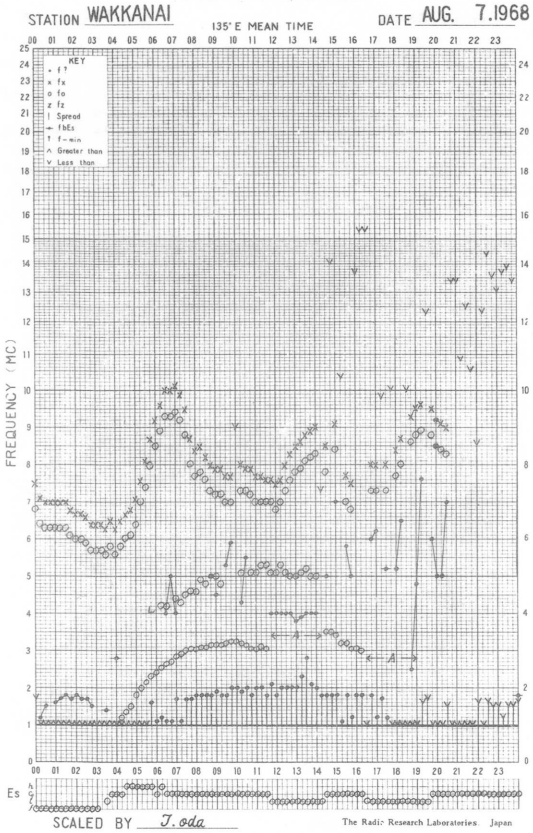

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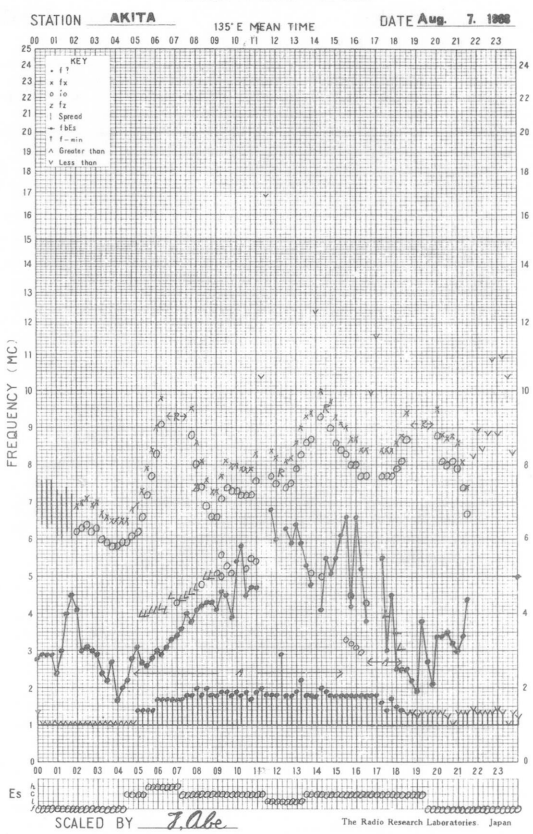

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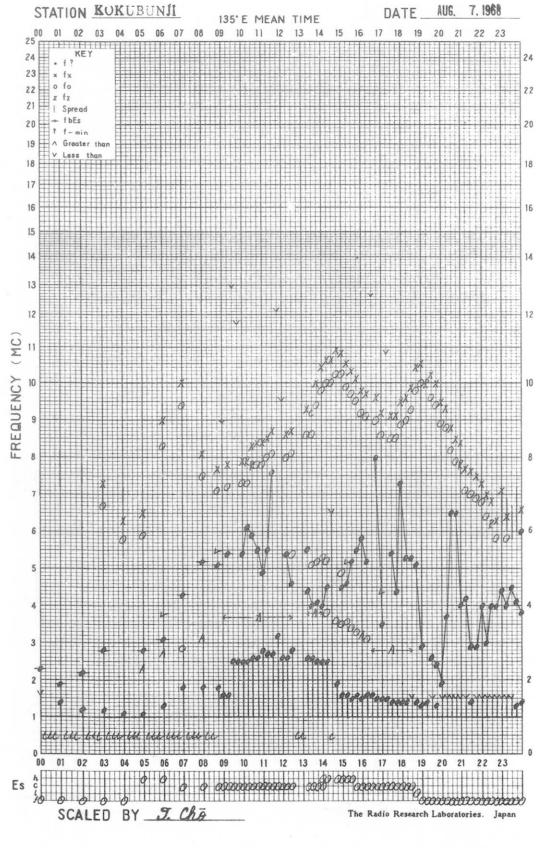

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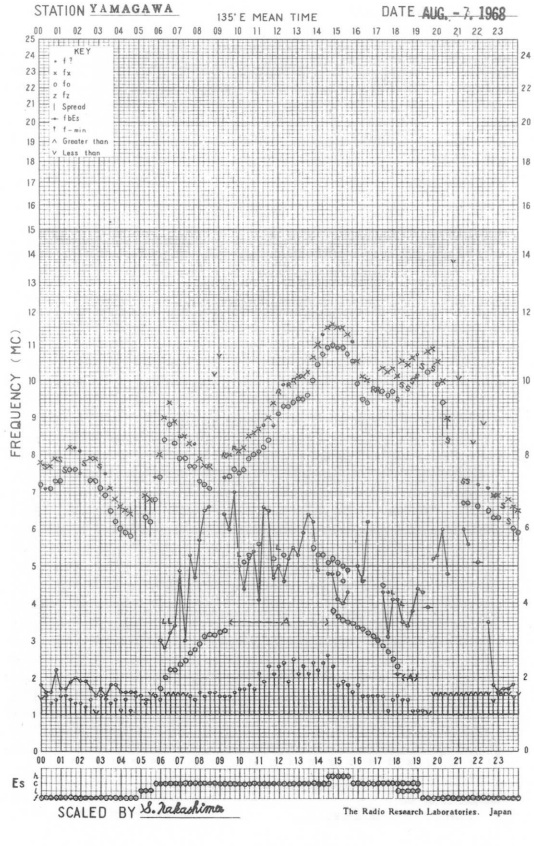

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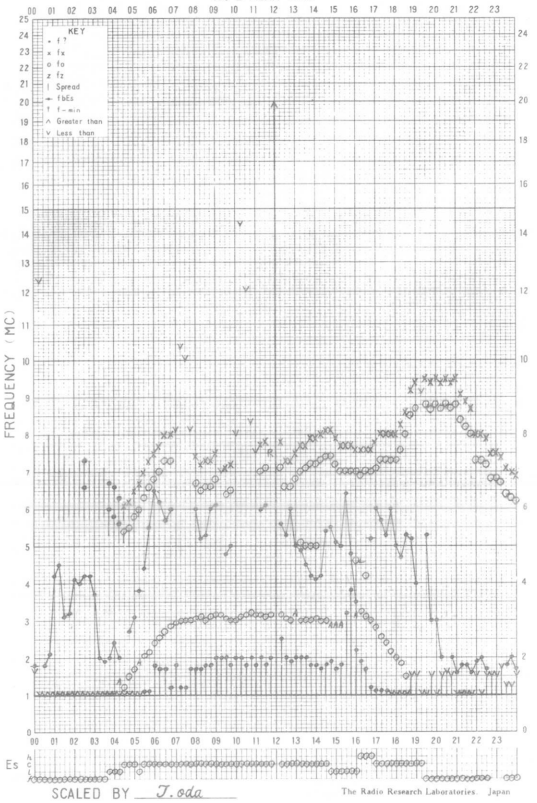

SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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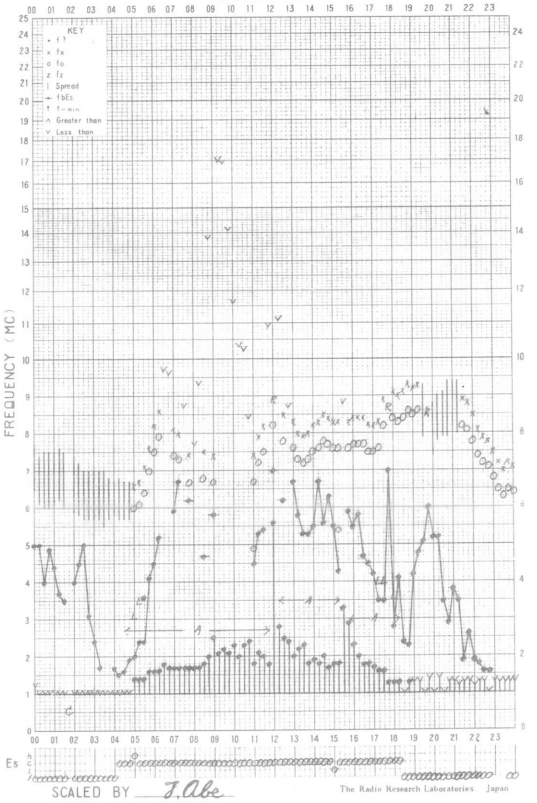

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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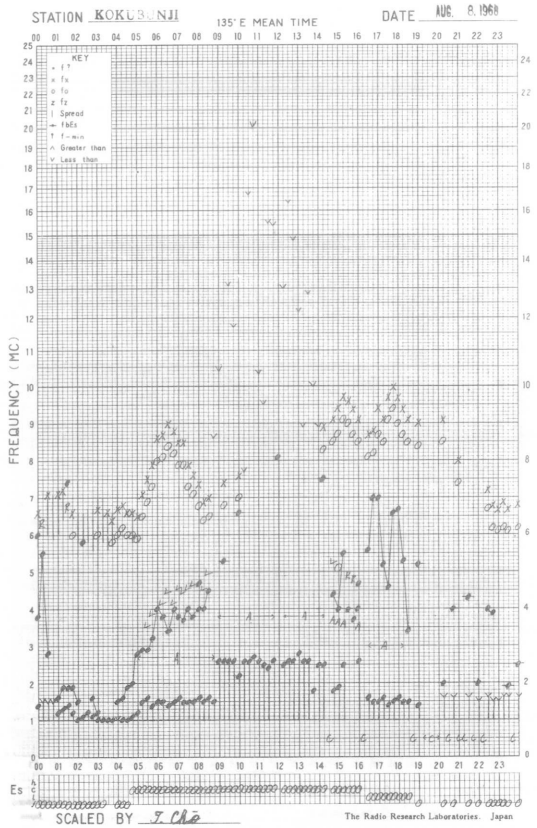

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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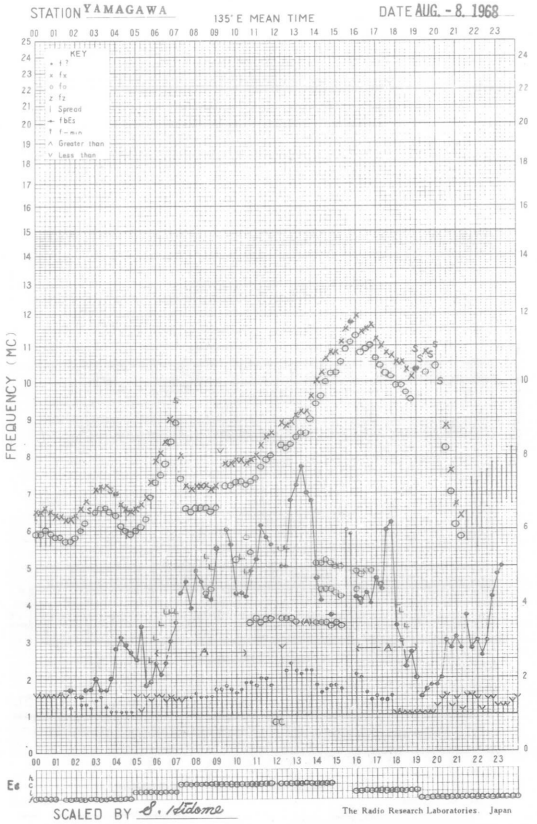

SCALED BY S. Iidaka

The Radio Research Laboratories. Japan

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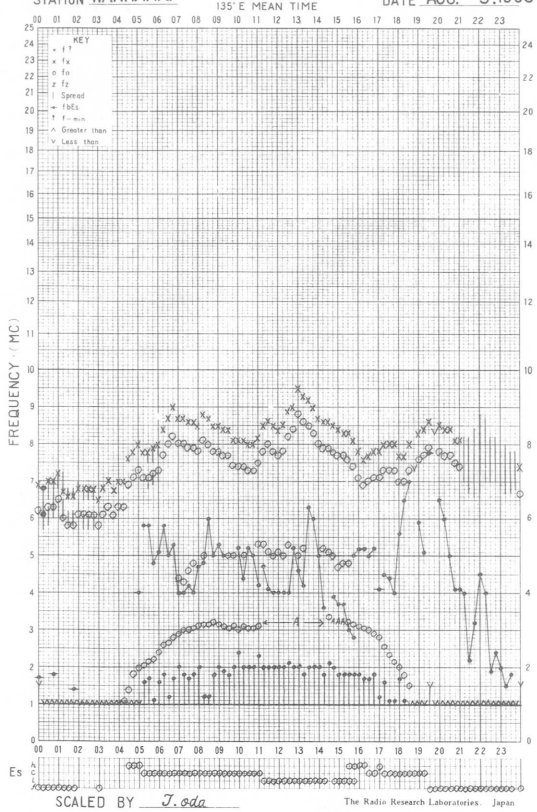

SCALED BY T. oda

The Radio Research Laboratories. Japan

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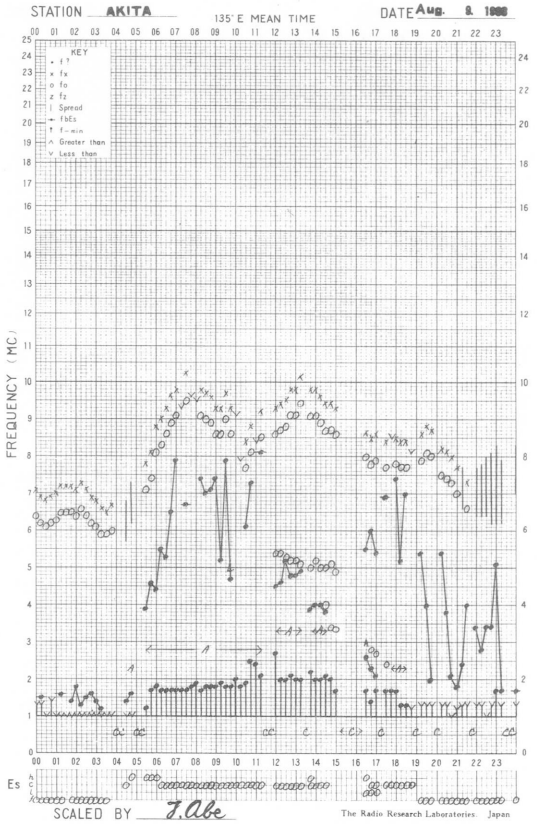

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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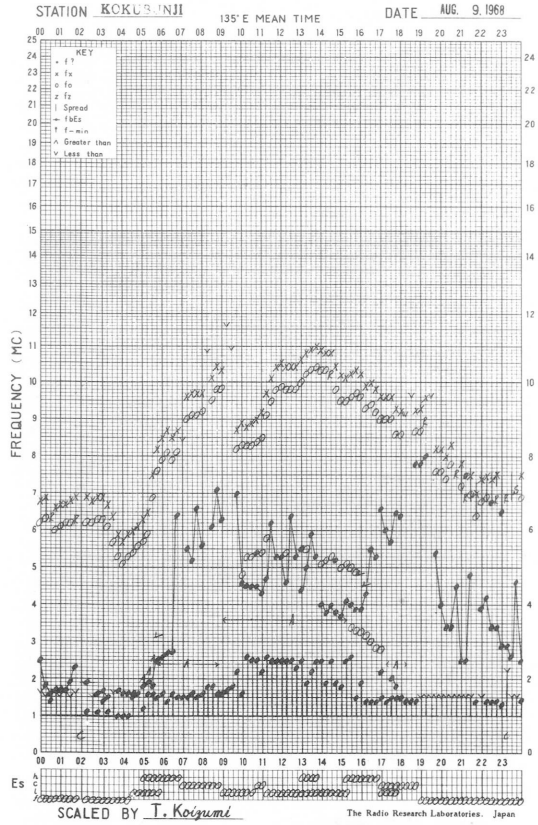

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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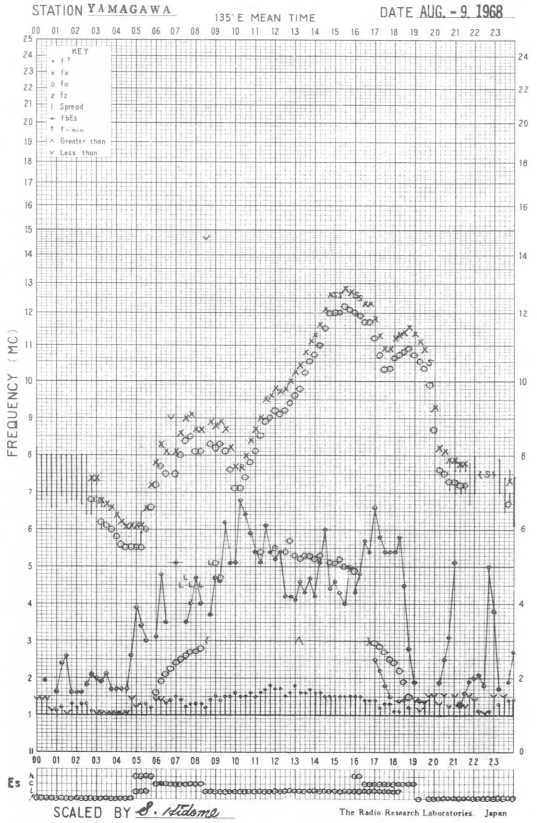

SCALED BY S. Kidoma

The Radio Research Laboratories. Japan

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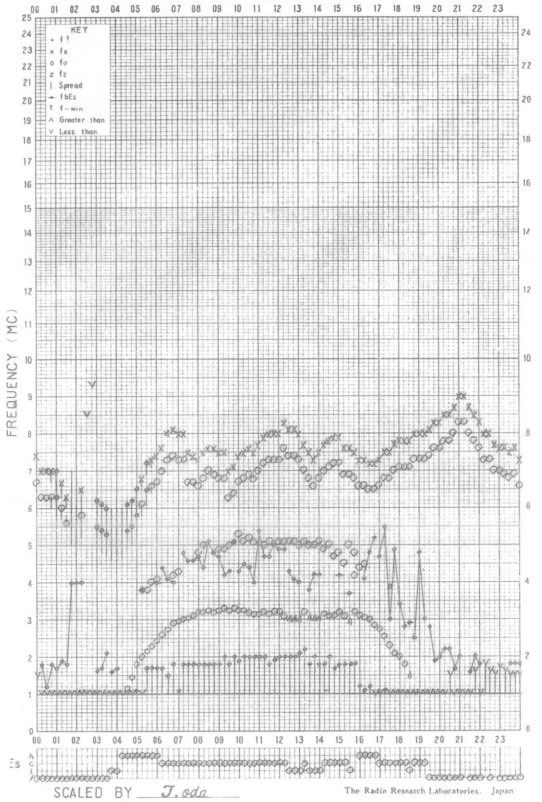

SCALED BY T. oda

The Radio Research Laboratories. Japan

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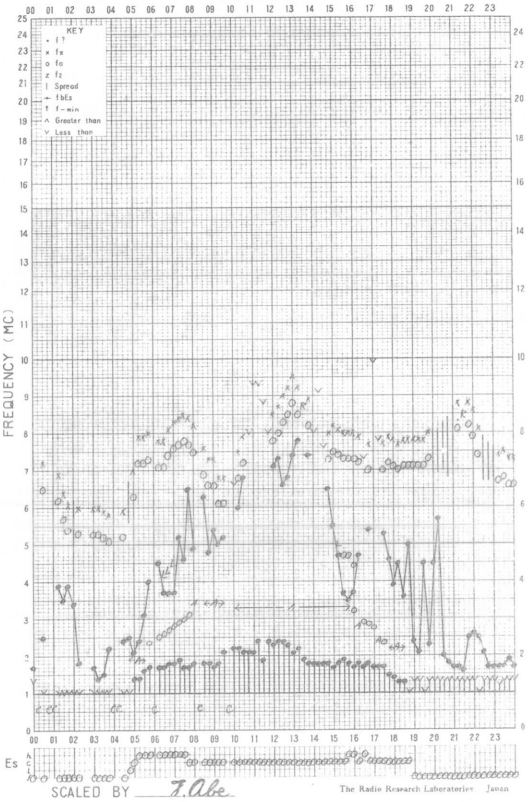

SCALED BY T. Abe

The Radio Research Laboratories Japan

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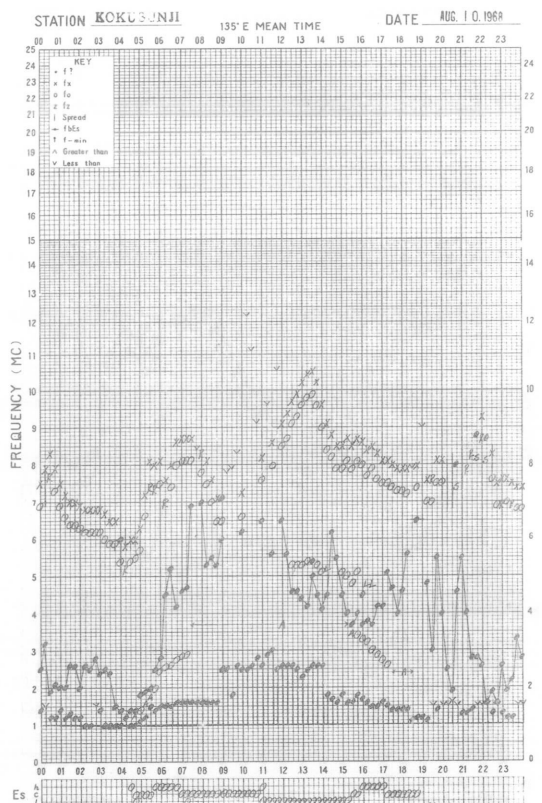

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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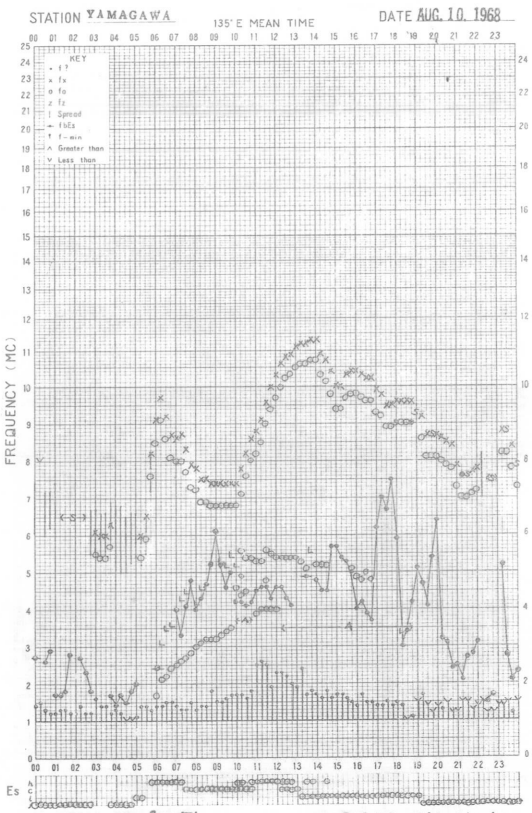

SCALED BY S. Hitomi

The Radio Research Laboratories. Japan

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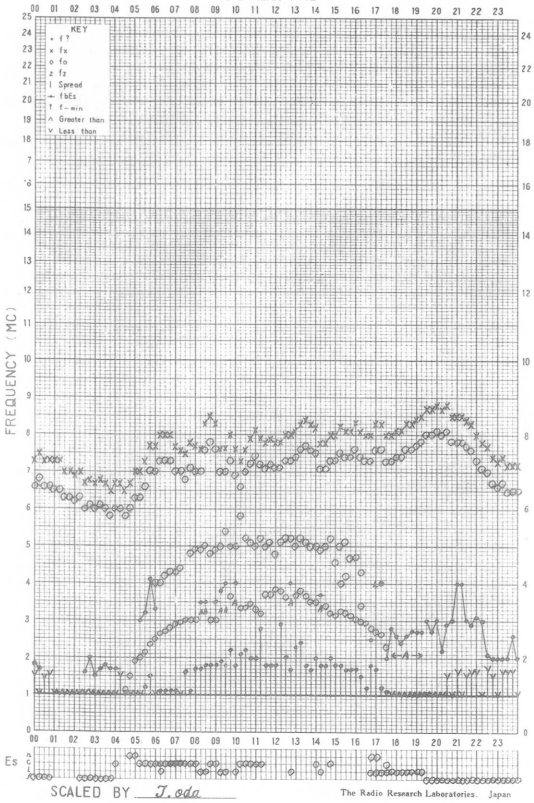

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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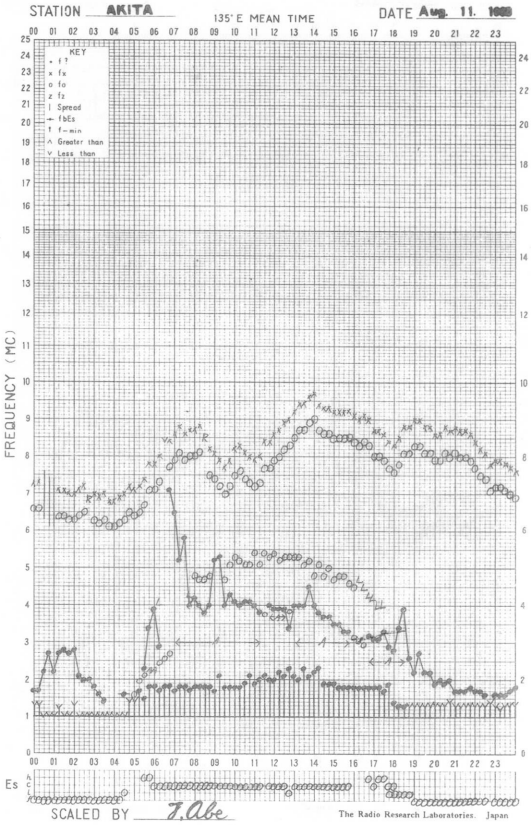

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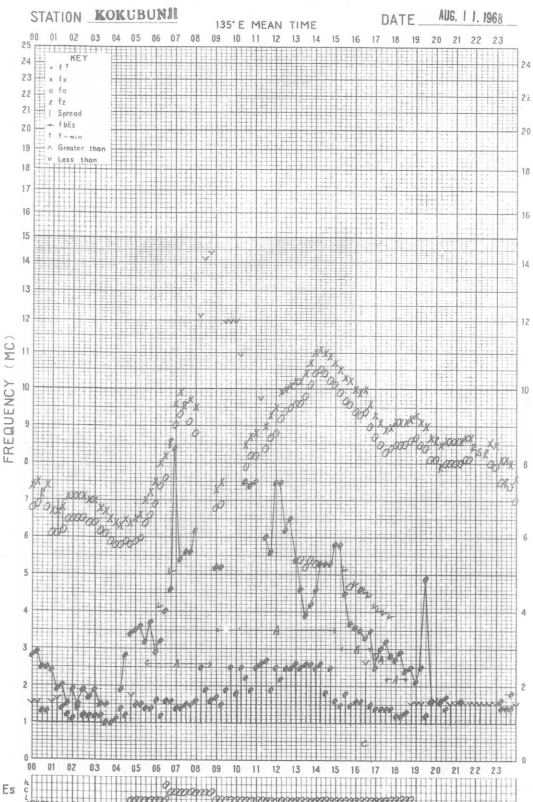

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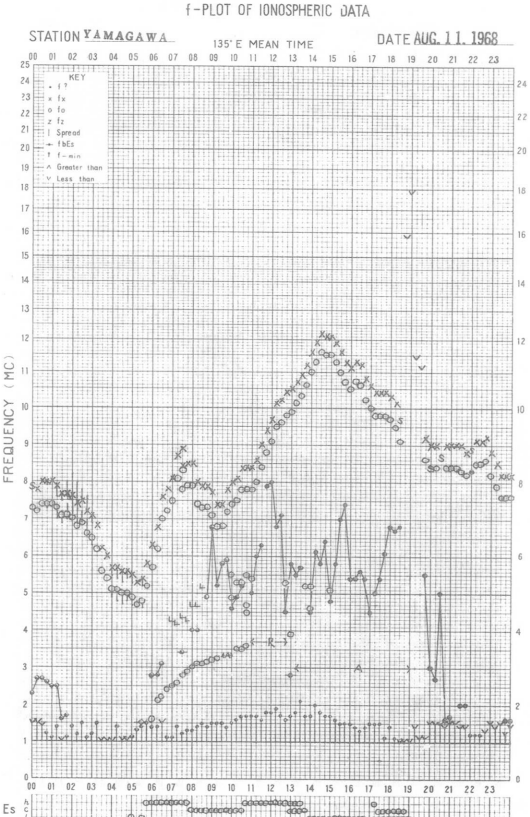
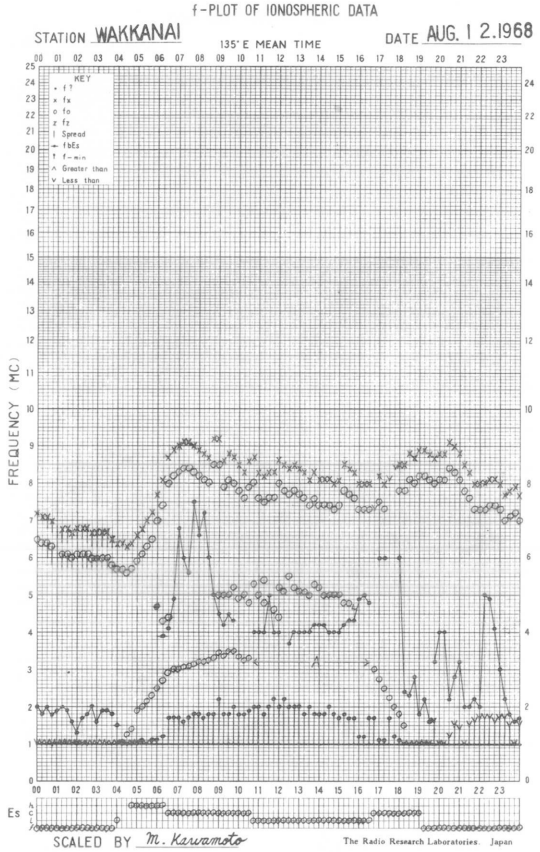


SCALED BY S. Ishitomo

The Radio Research Laboratories. Japan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STATION WAKKANAI
135° E MEAN TIME
DATE AUG. 12.1968
KEY
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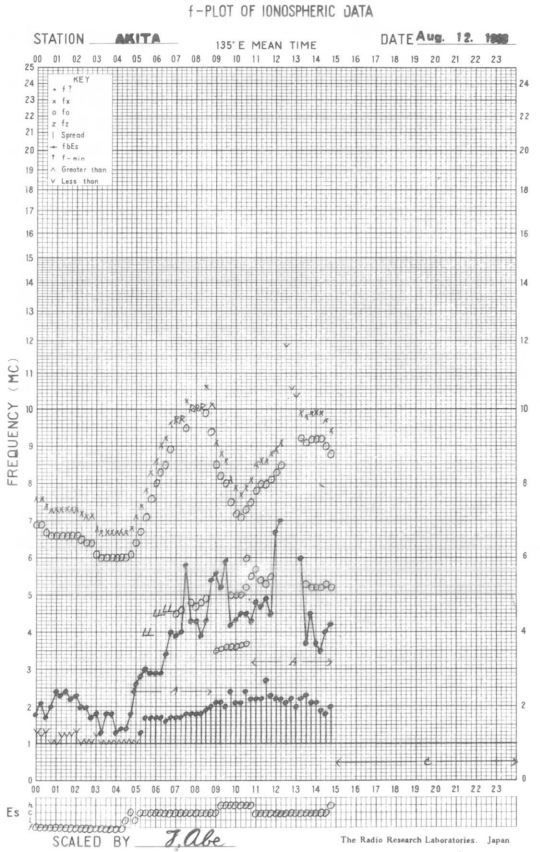
FREQUENCY (MC)
Es
SCALED BY M. Kuwamoto
The Radio Research Laboratories. Japan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135° E MEAN TIME
DATE Aug. 12. 1968
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o fo
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FREQUENCY (MC)
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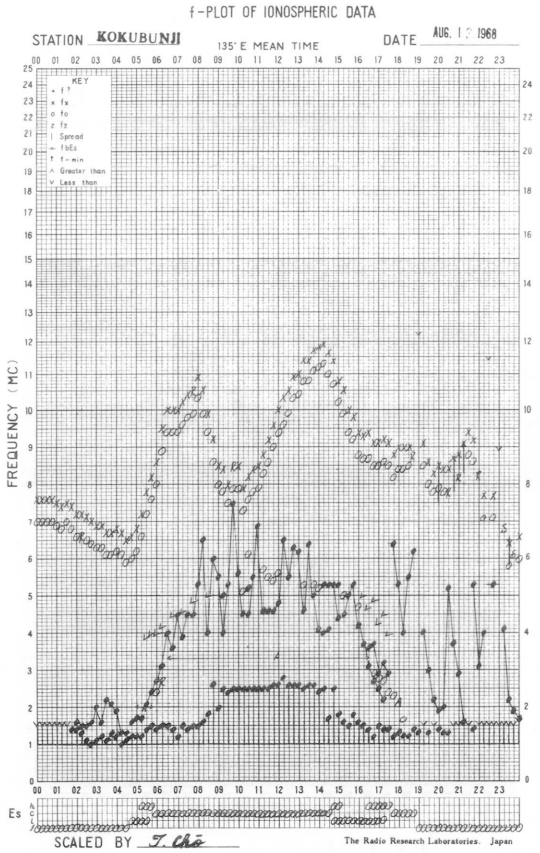
SCALED BY T. Abe
The Radio Research Laboratories. Japan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DATE AUG. 12. 1968
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FREQUENCY (MC)
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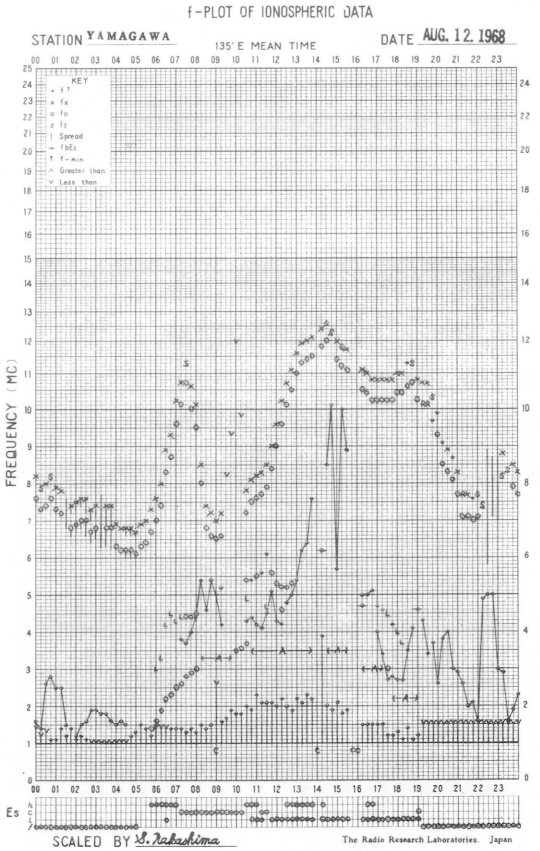
SCALED BY T. Chō
The Radio Research Laboratories. Japan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135° E MEAN TIME
DATE AUG. 12. 1968
KEY
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The Radio Research Laboratories. Japan

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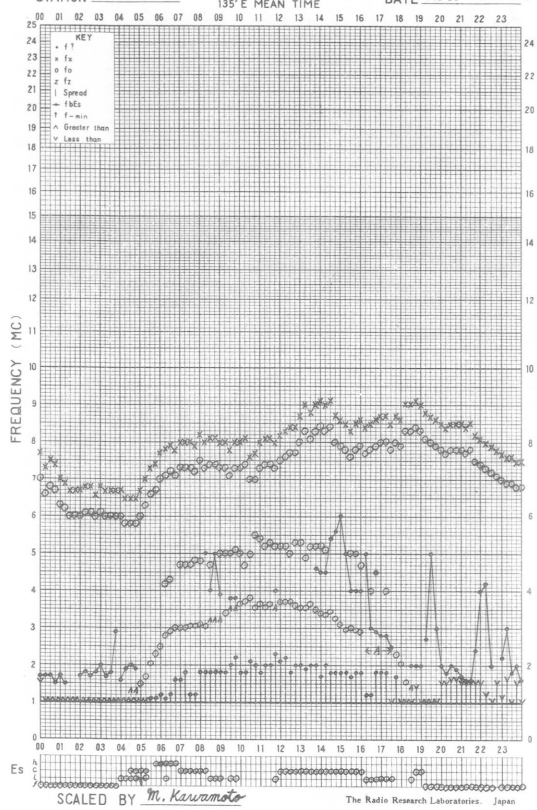

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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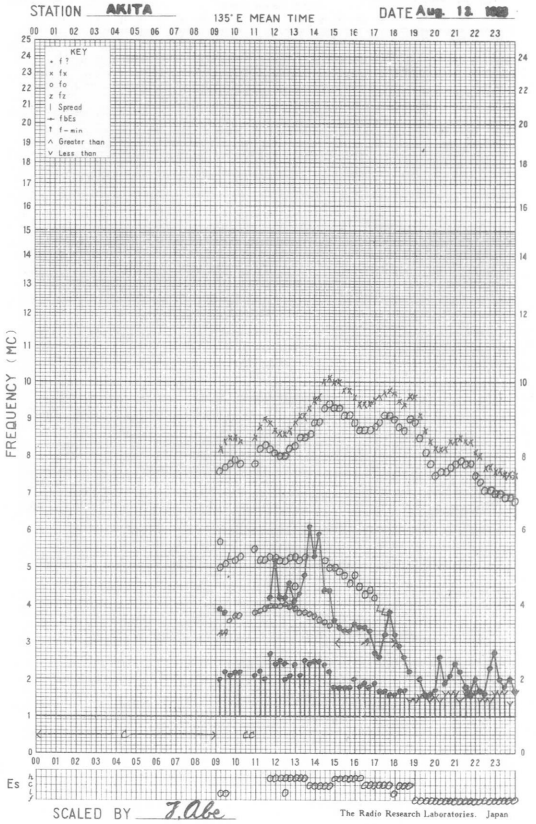

SCALED BY T. Abe The Radio Research Laboratories. Japan

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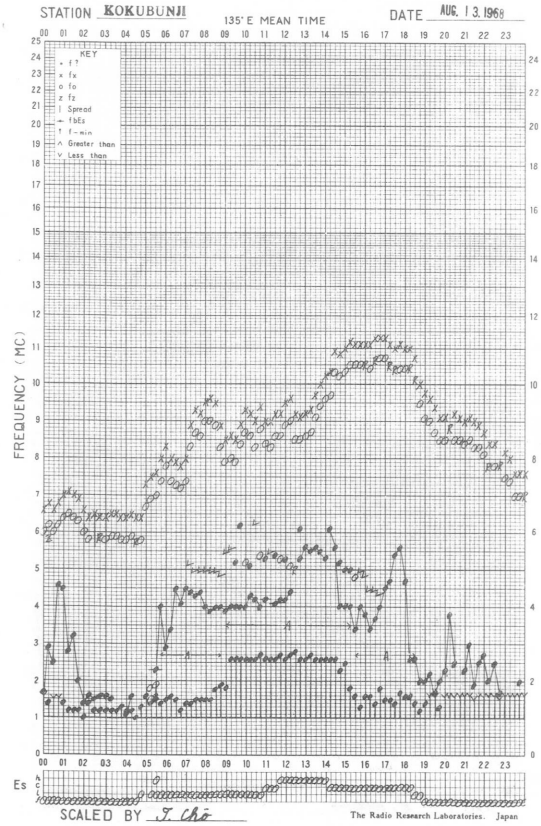

SCALED BY T. Chō The Radio Research Laboratories. Japan

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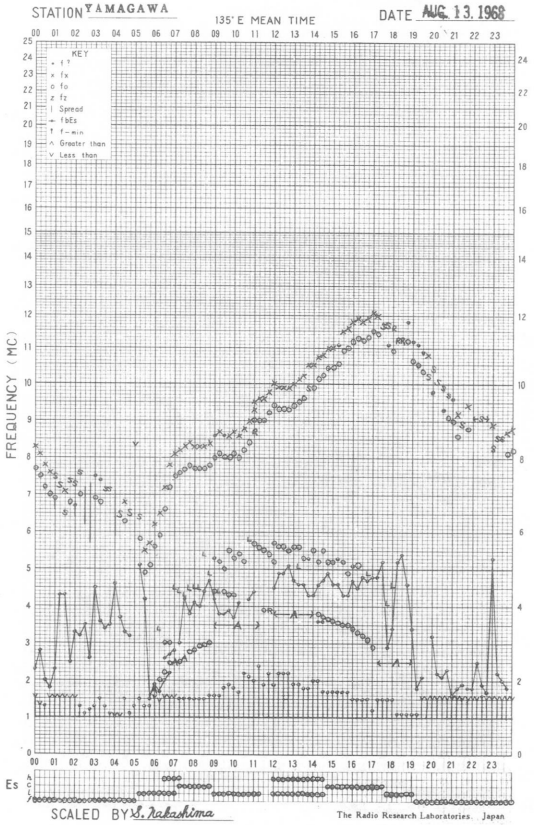

SCALED BY S. Takashima The Radio Research Laboratories. Japan

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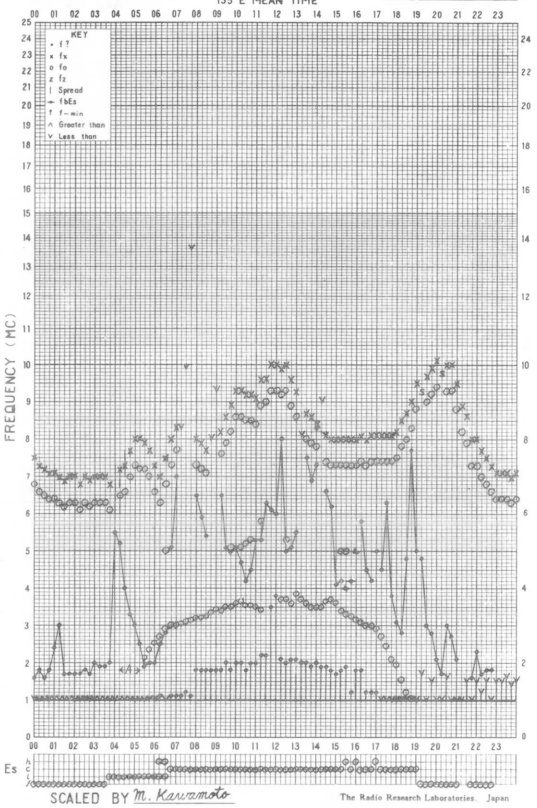

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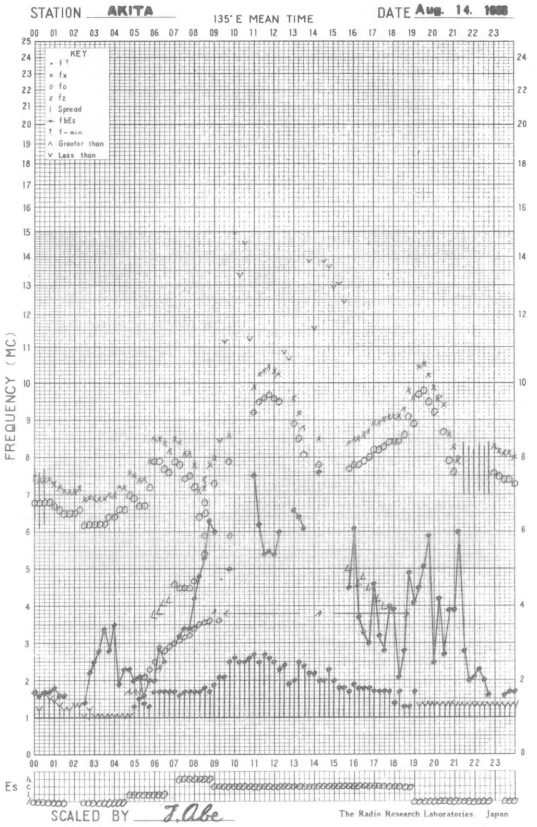

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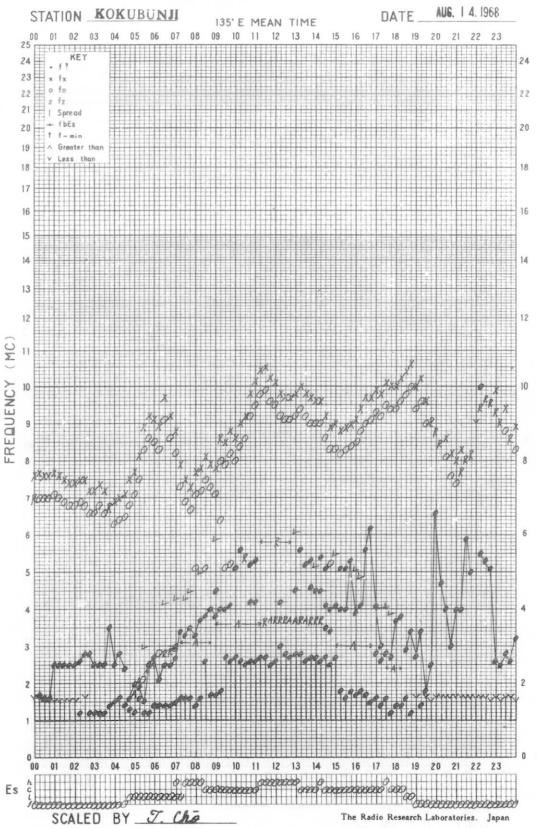

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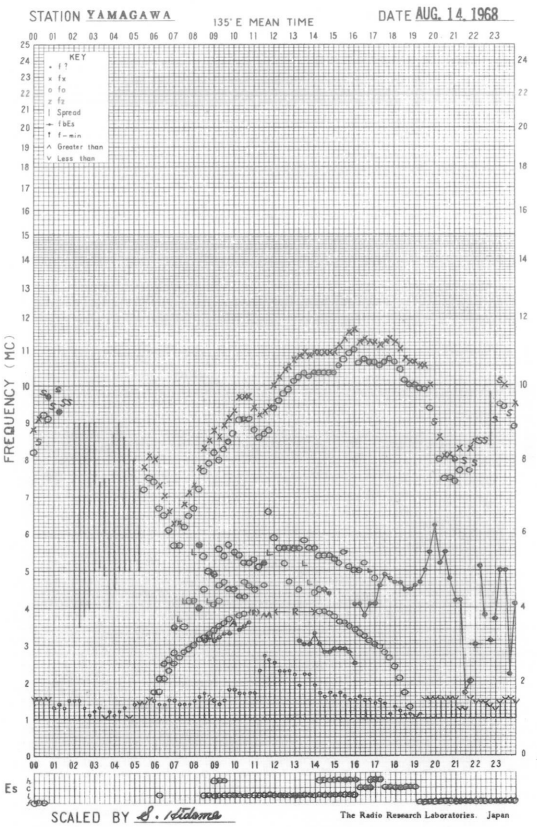

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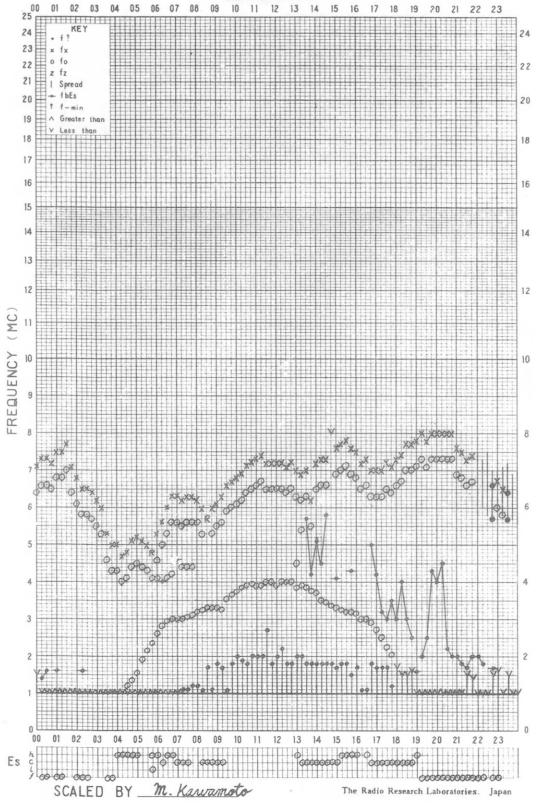

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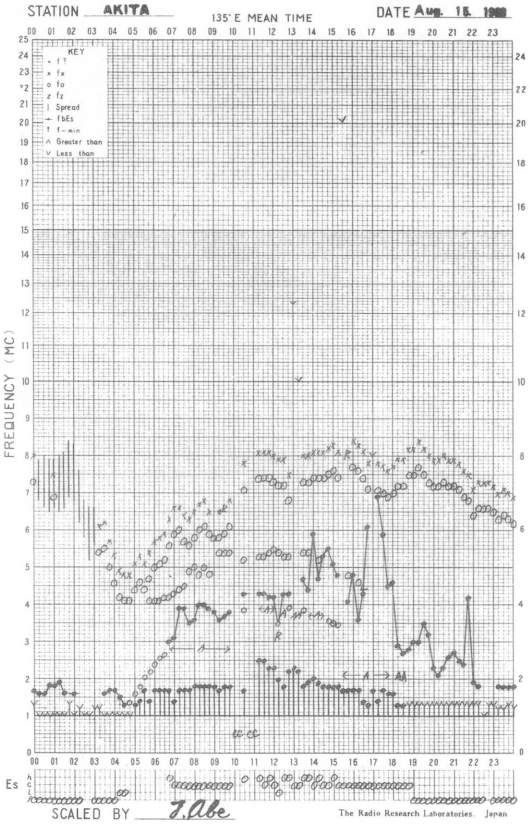

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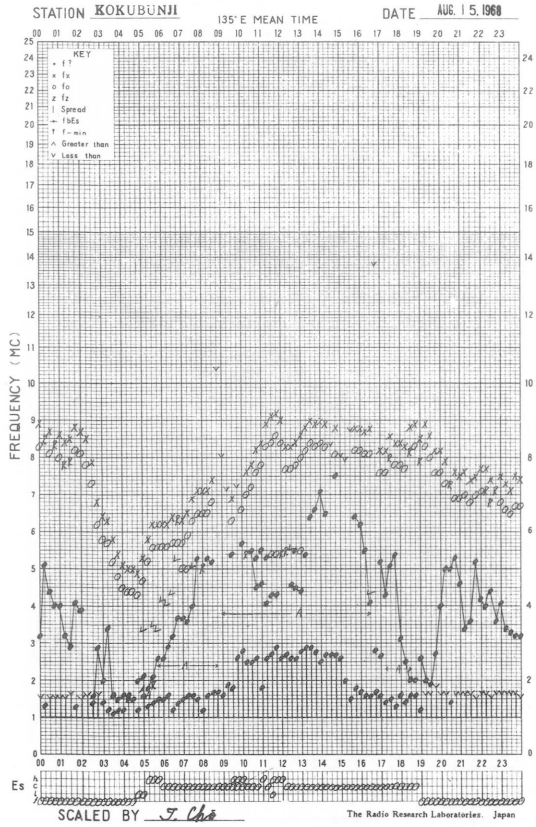

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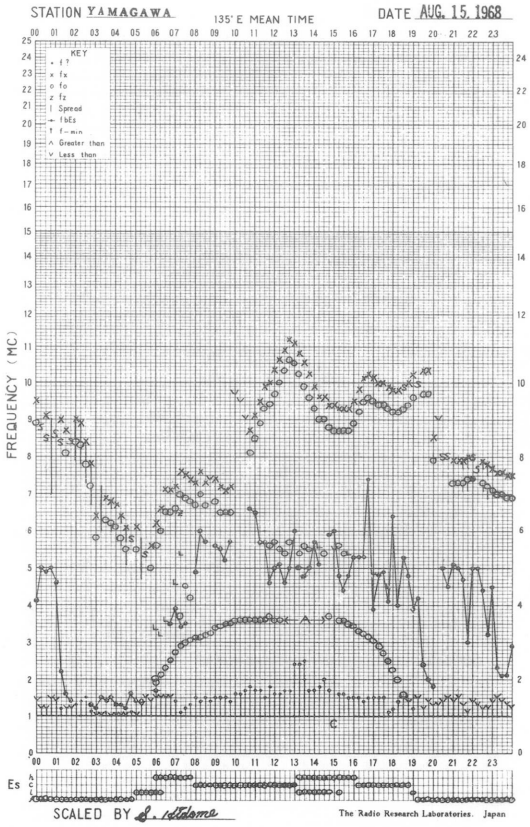

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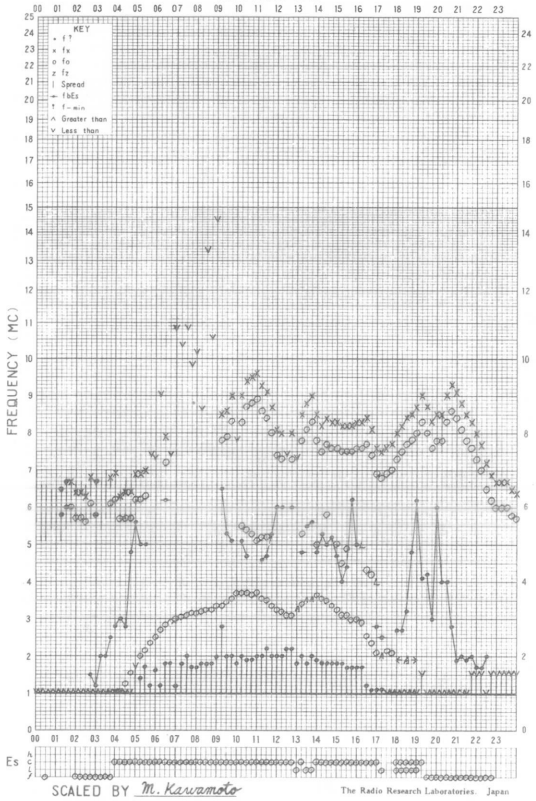

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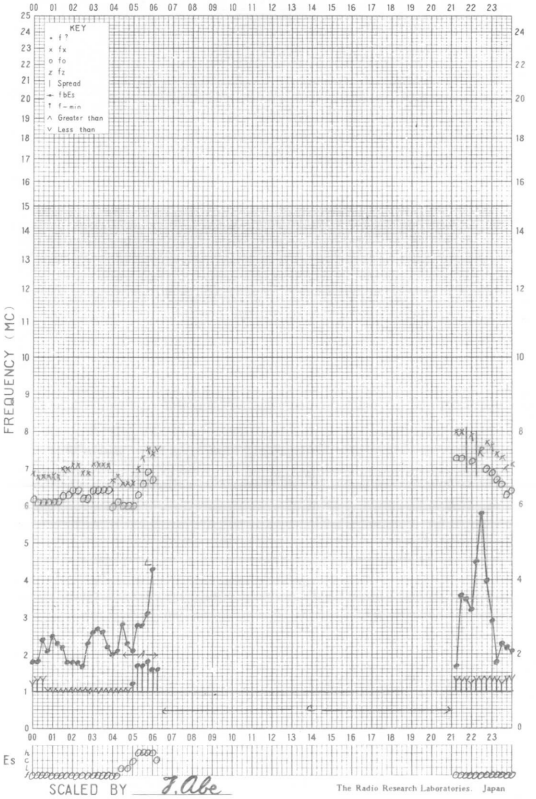

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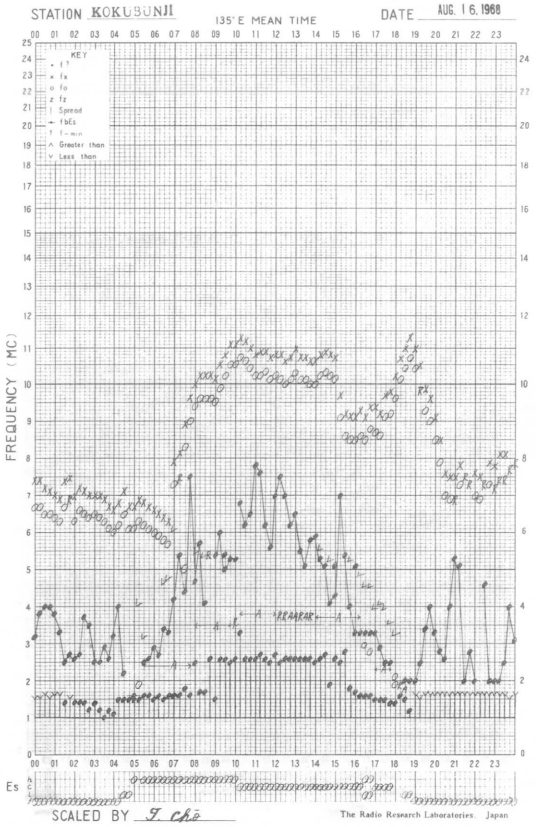

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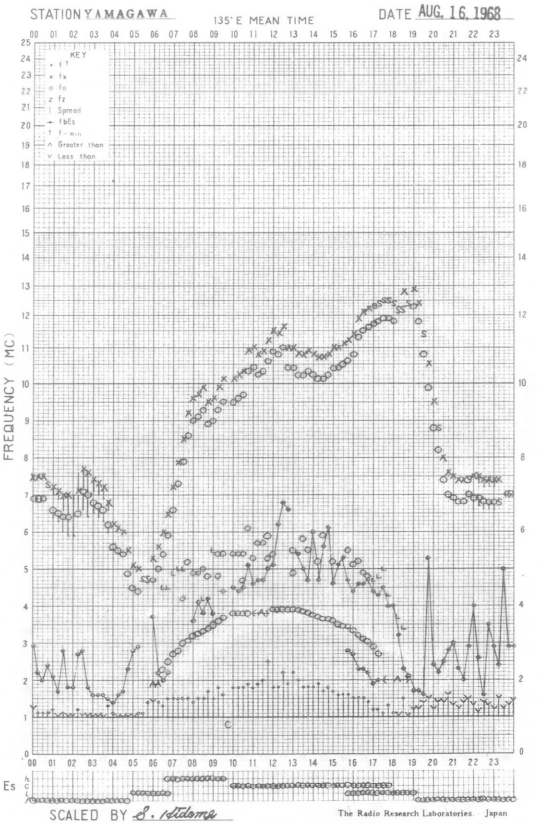

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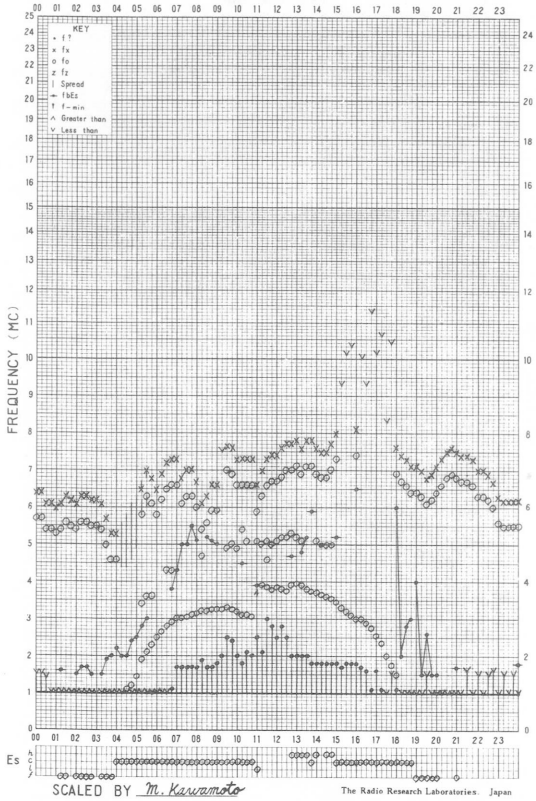

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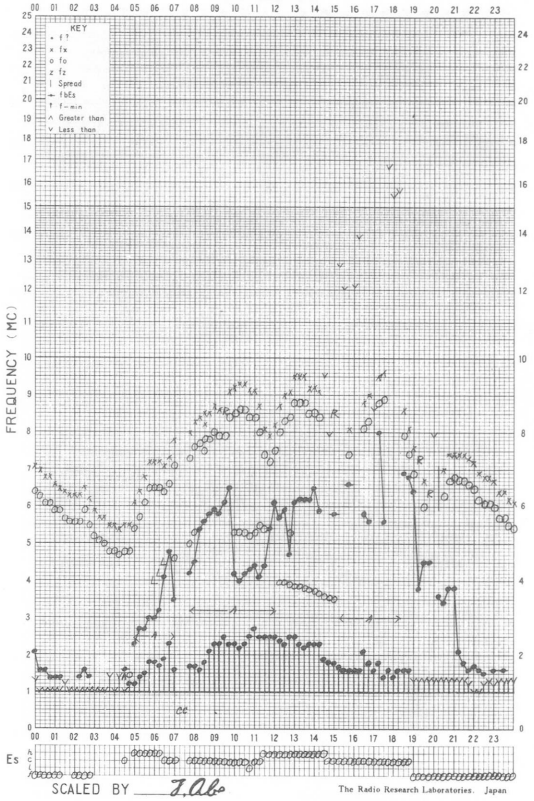
STATION AKITA 135°E MEAN TIME DATE Aug. 17. 1968



SCALED BY T. Abe

The Radio Research Laboratories. Japan

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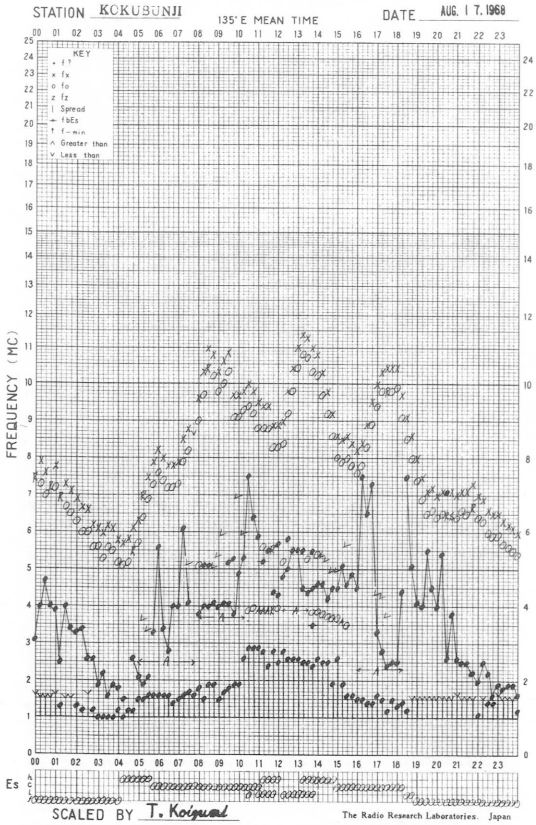
STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 17. 1968



SCALED BY T. Koigwai

The Radio Research Laboratories. Japan

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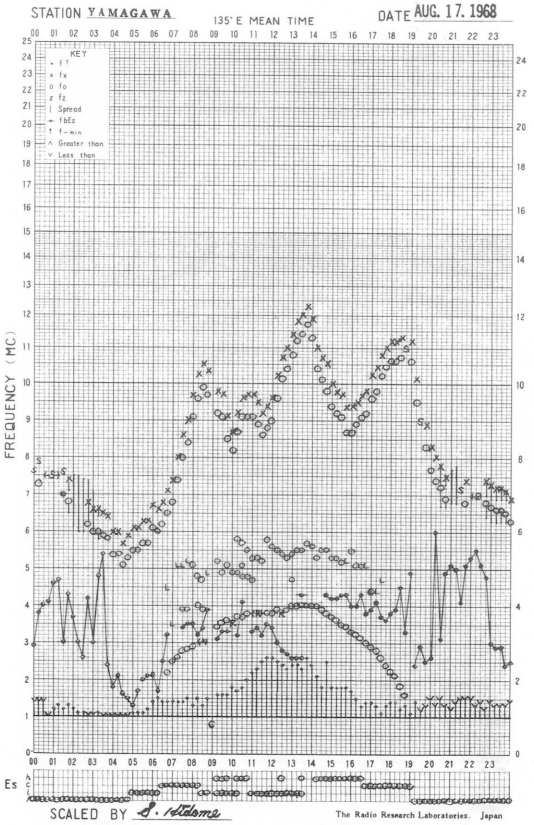

SCALED BY S. Hitotsuma

The Radio Research Laboratories. Japan

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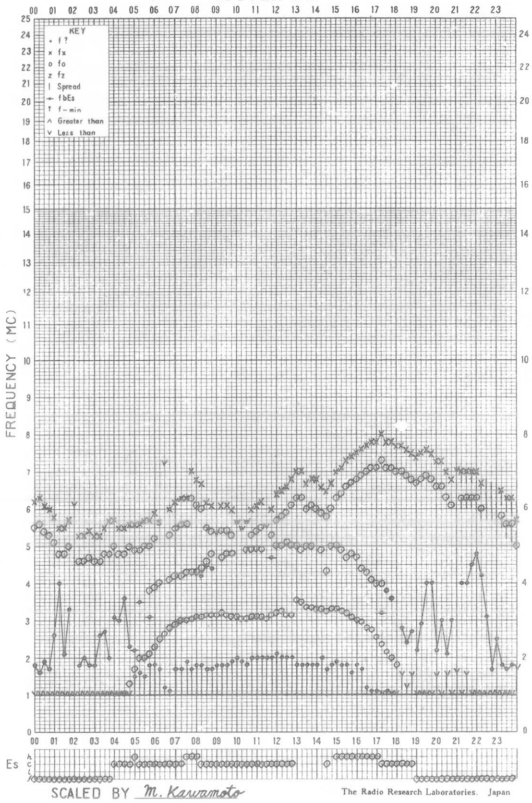

SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

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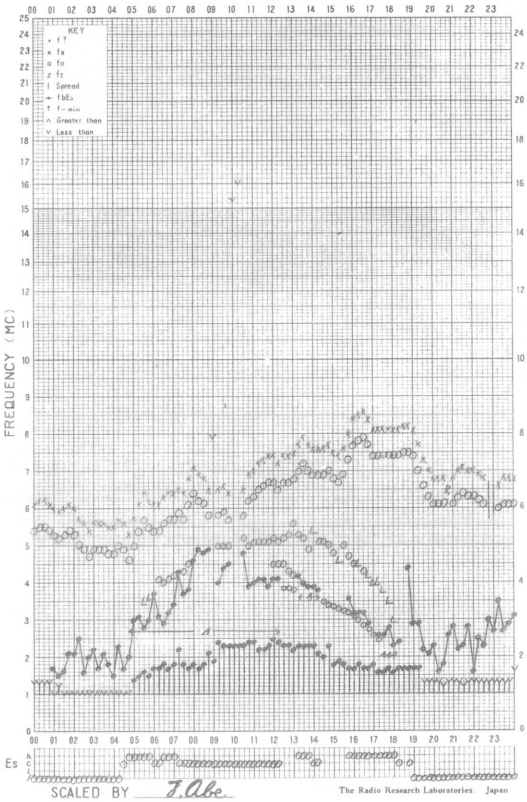

SCALED BY T. Abe The Radio Research Laboratories. Japan

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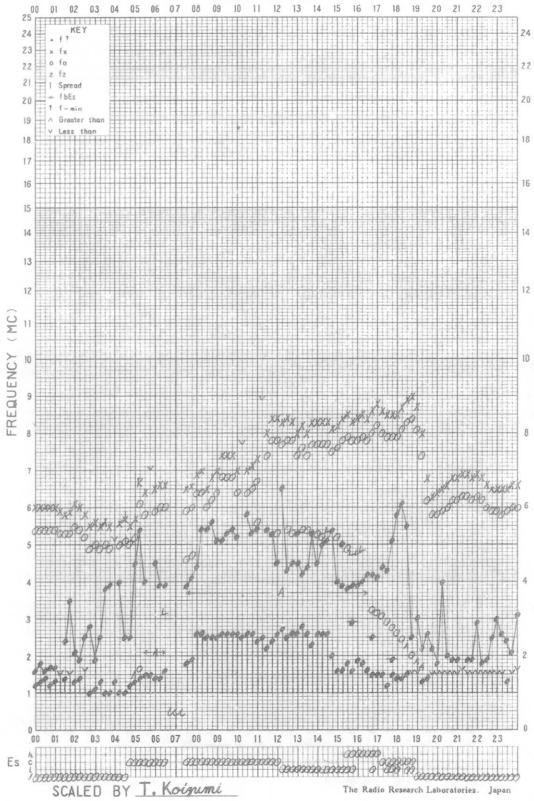

SCALED BY I. Koinumi The Radio Research Laboratories. Japan

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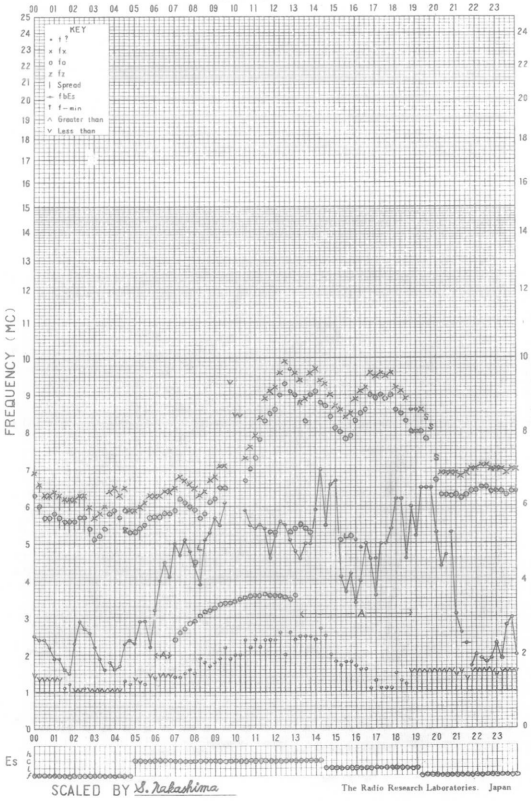

SCALED BY S. Takashima The Radio Research Laboratories. Japan

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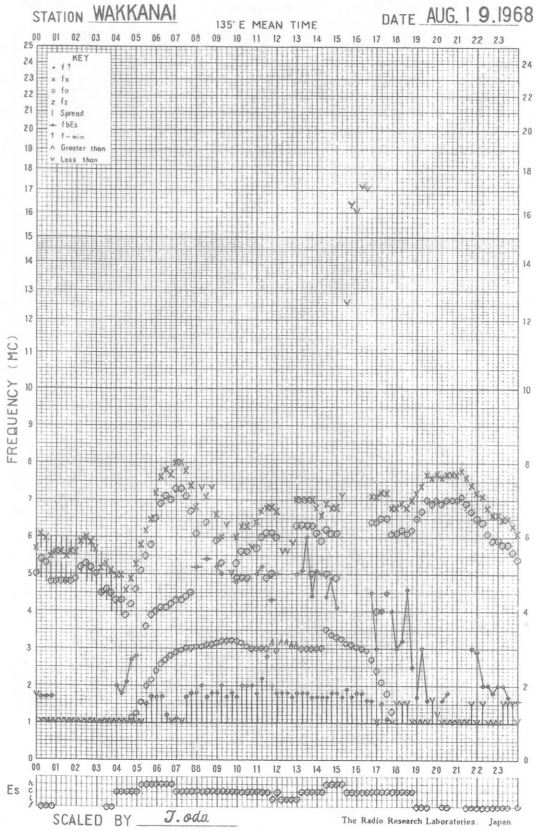

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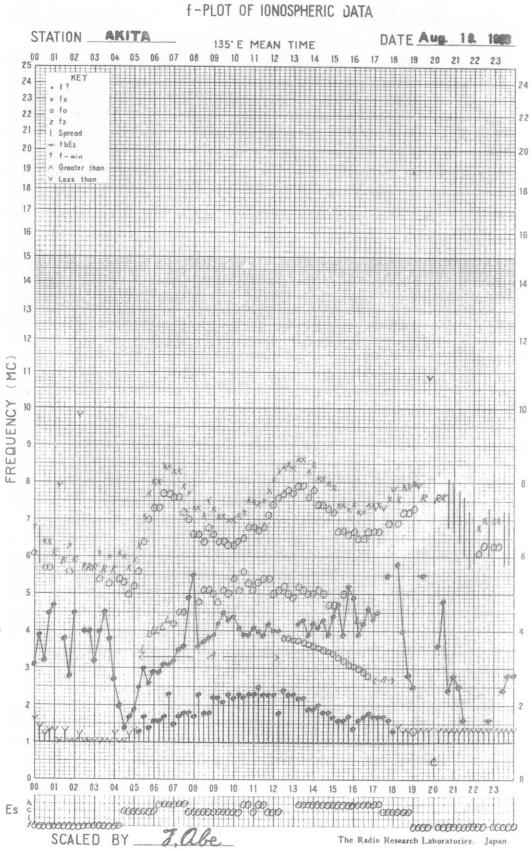

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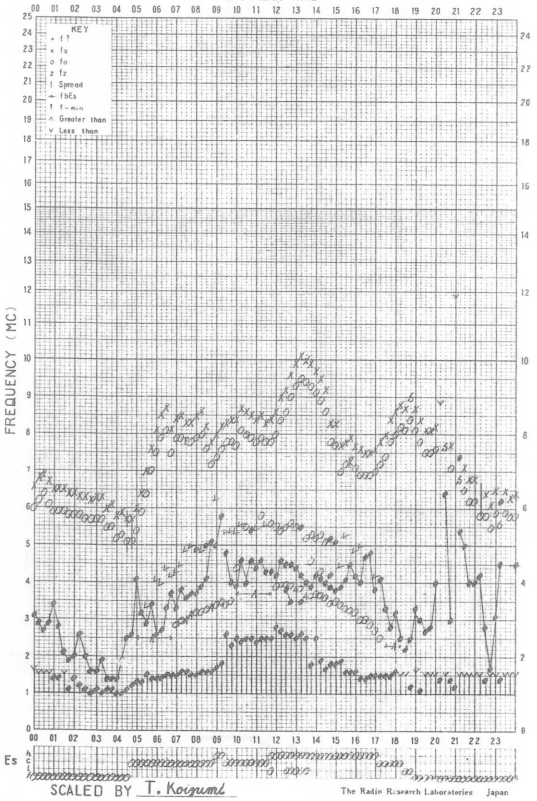

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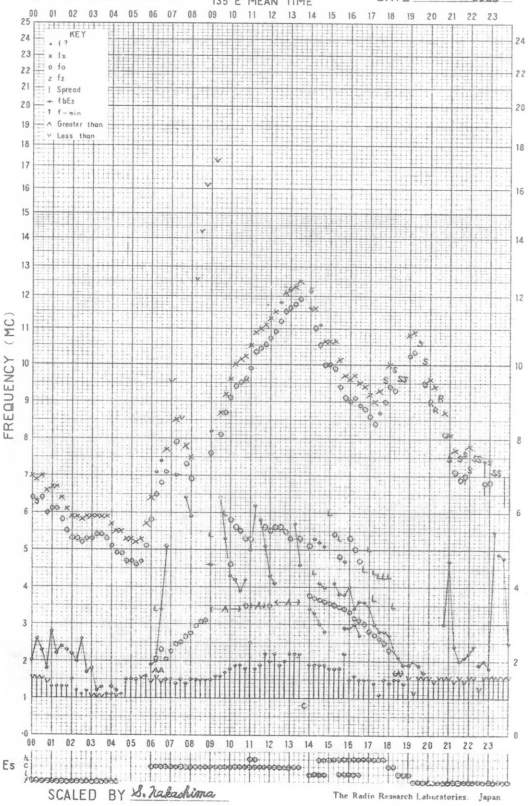

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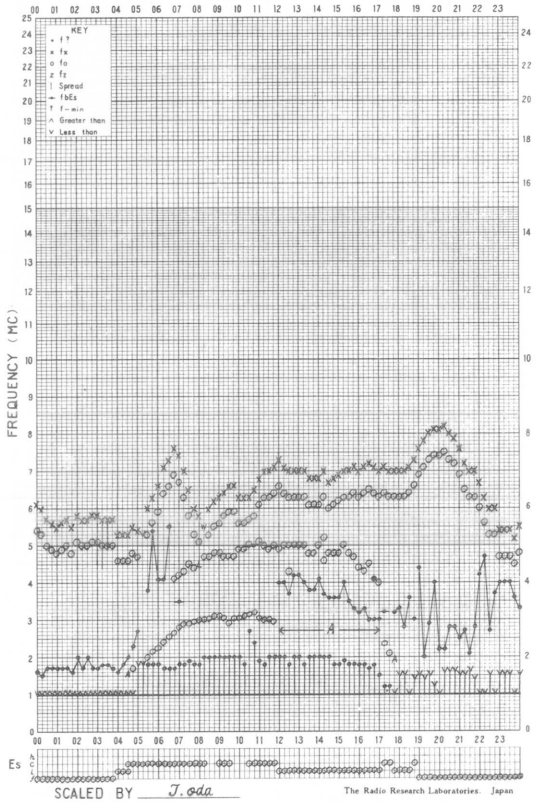

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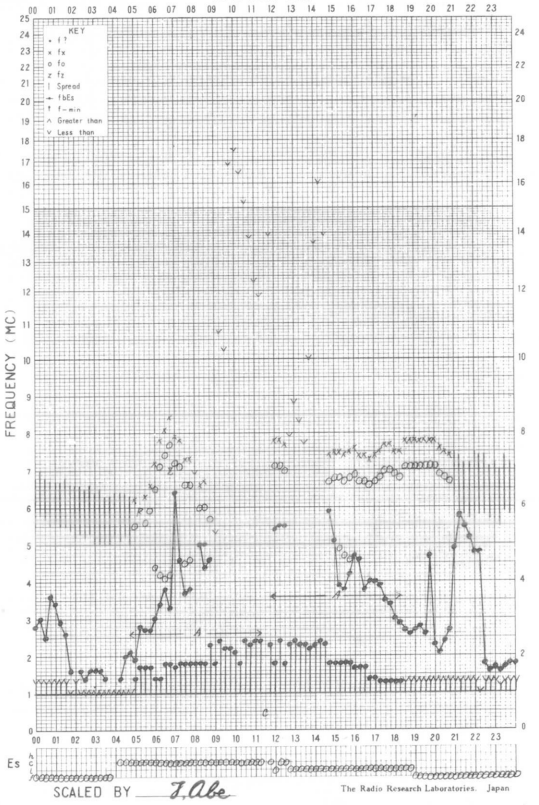

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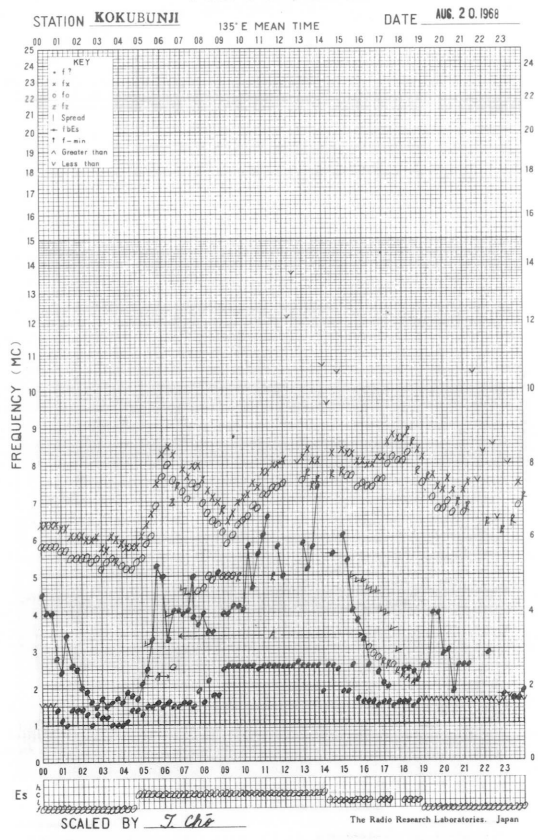

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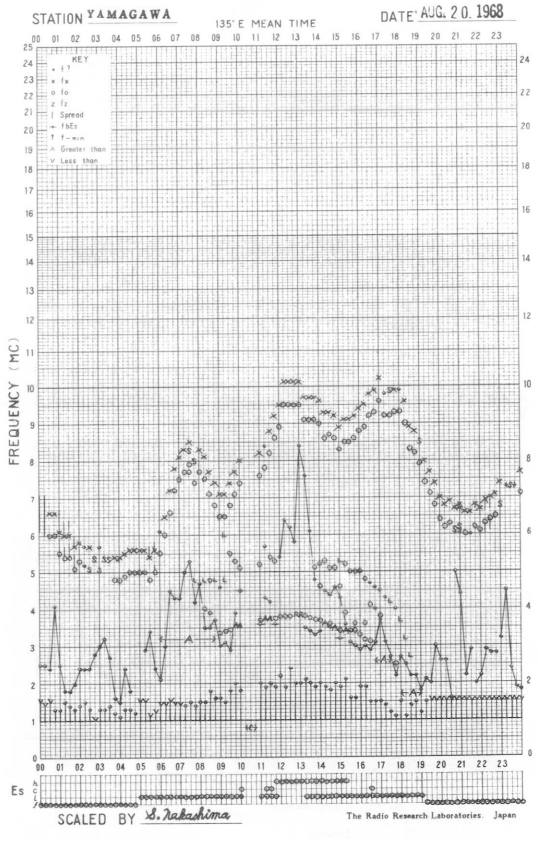

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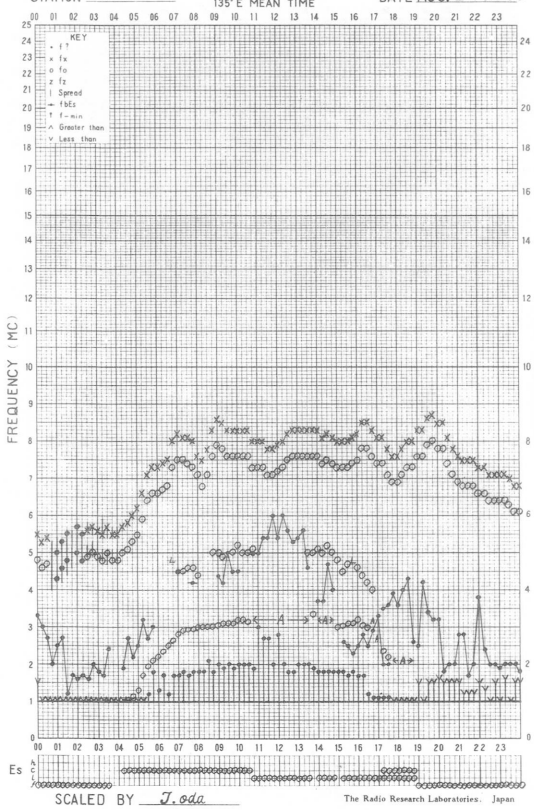

SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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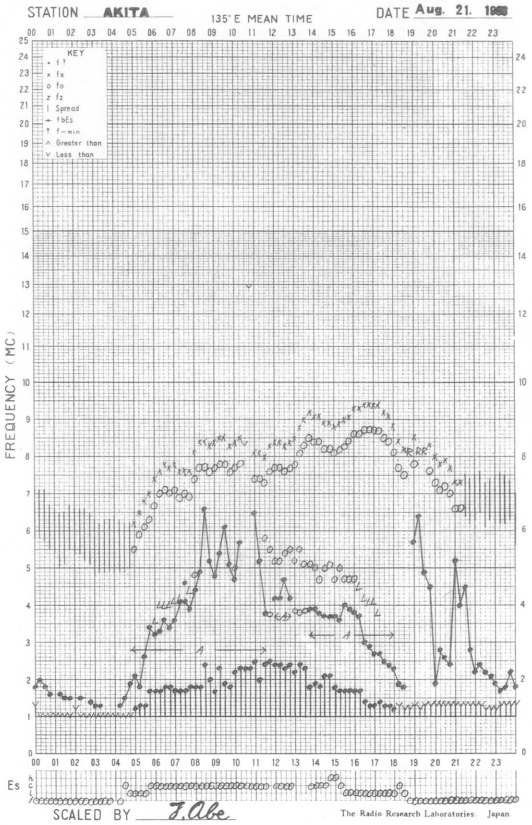

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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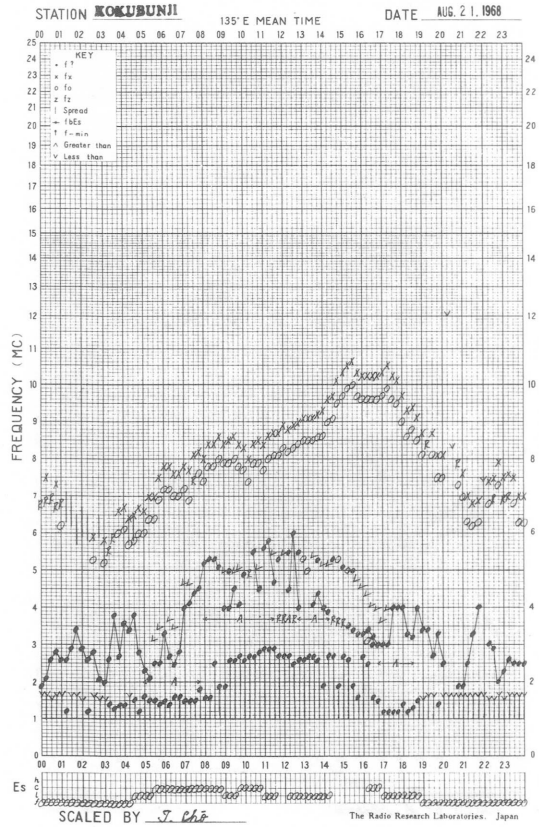

SCALED BY T. Ichō

The Radio Research Laboratories. Japan

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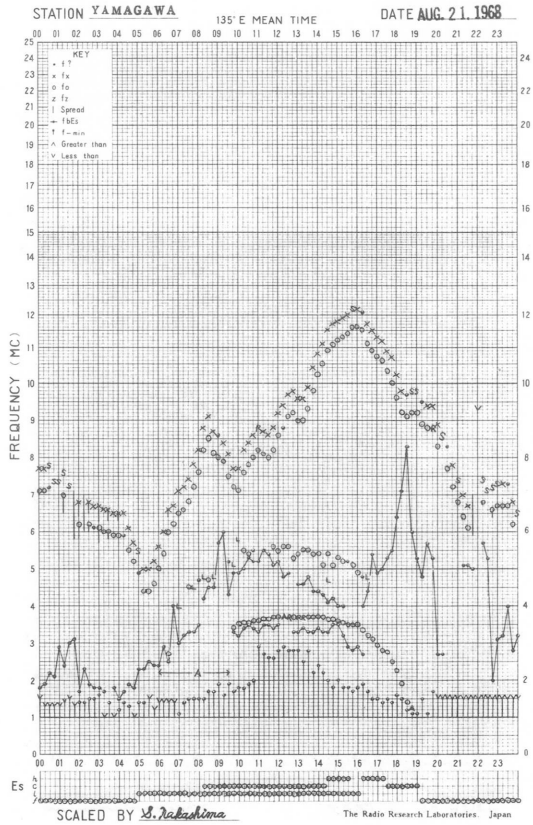
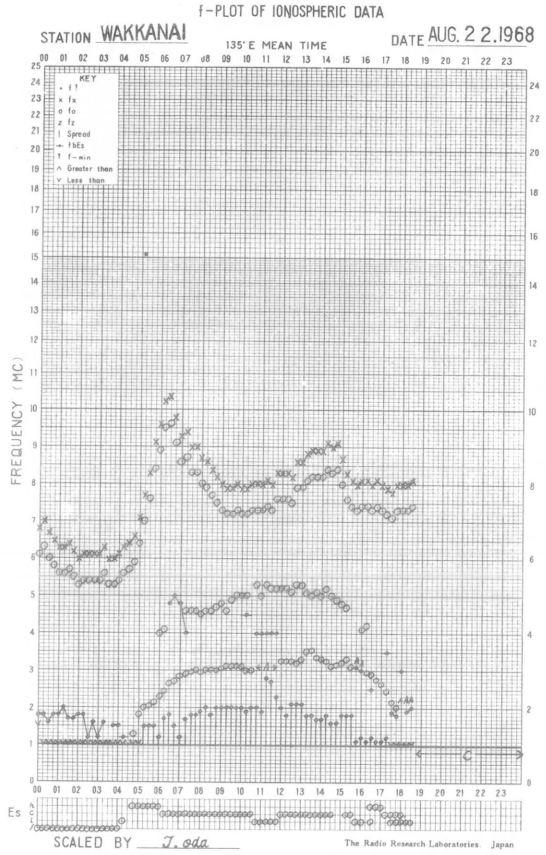


SCALED BY S. Takashima

The Radio Research Laboratories. Japan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STATION WAKKANAI
135° E MEAN TIME
DATE AUG. 22, 1968
KEY
+ f?
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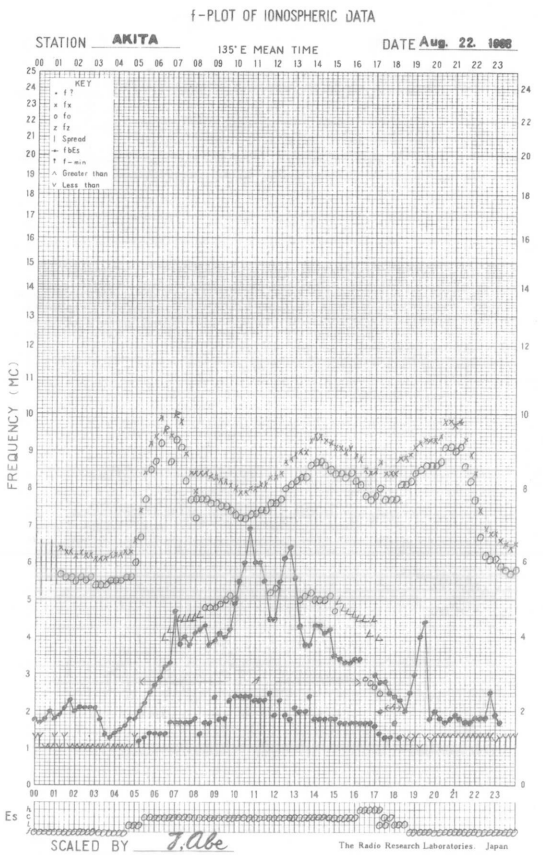
v Less than
FREQUENCY (MC)
Es
SCALED BY T. Oda
The Radio Research Laboratories. Japan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STATION AKITA
135° E MEAN TIME
DATE Aug. 22. 1968
KEY
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o fo
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↑ f-min
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FREQUENCY (MC)
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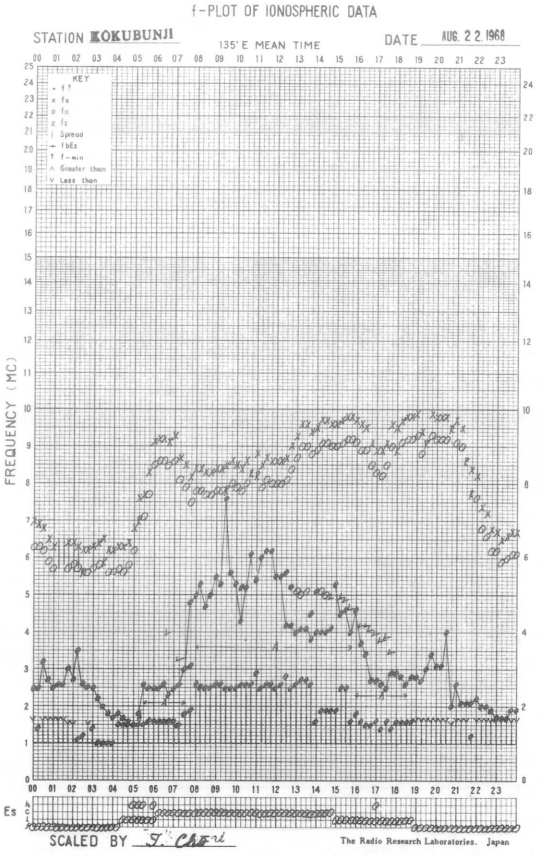
SCALED BY T. Abe
The Radio Research Laboratories. Japan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DATE AUG. 22 1968
KEY
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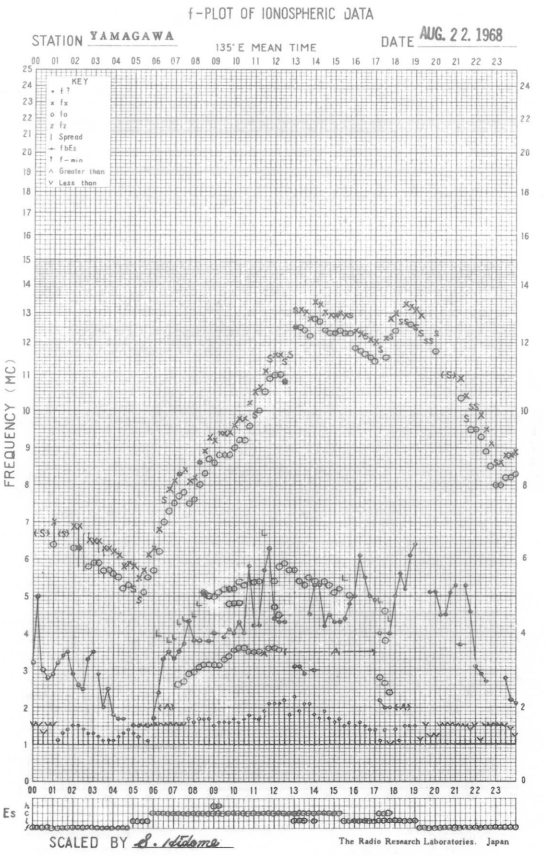
SCALED BY T. Chiba
The Radio Research Laboratories. Japan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FREQUENCY (MC)
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SCALED BY S. Hidaka
The Radio Research Laboratories. Japan

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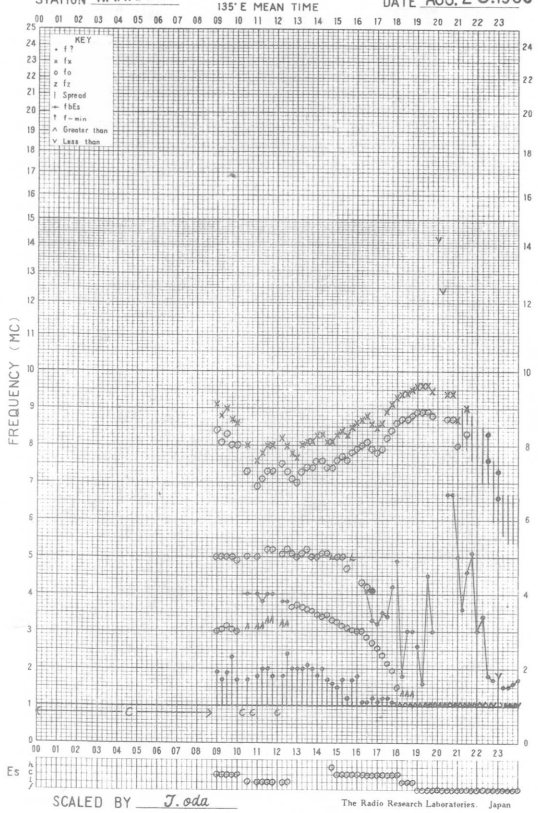

SCALED BY T. oda

The Radio Research Laboratories. Japan

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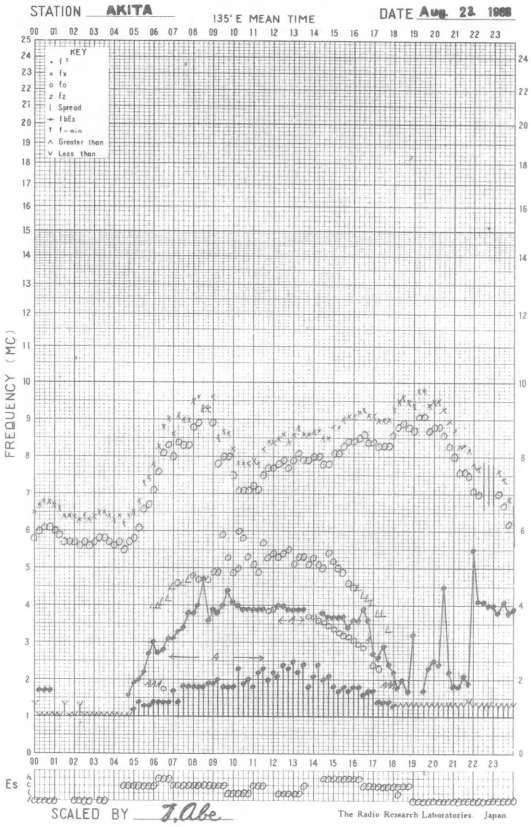

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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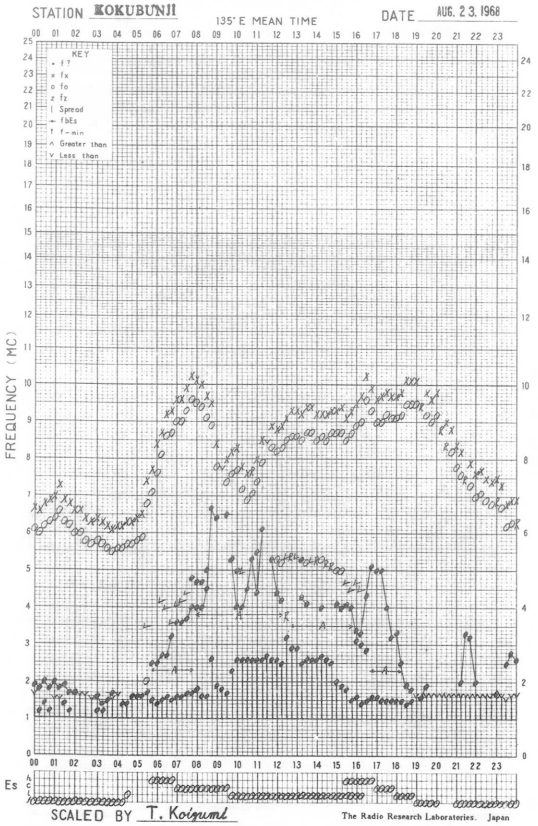

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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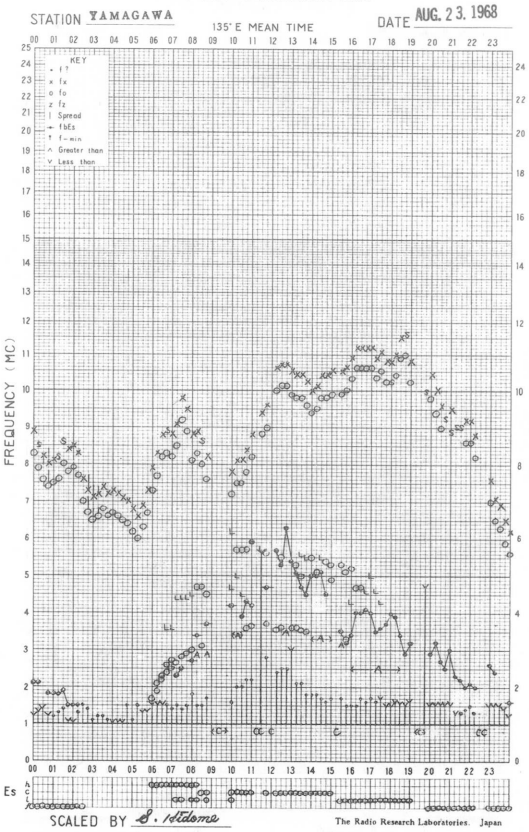

SCALED BY S. Hidoma

The Radio Research Laboratories. Japan

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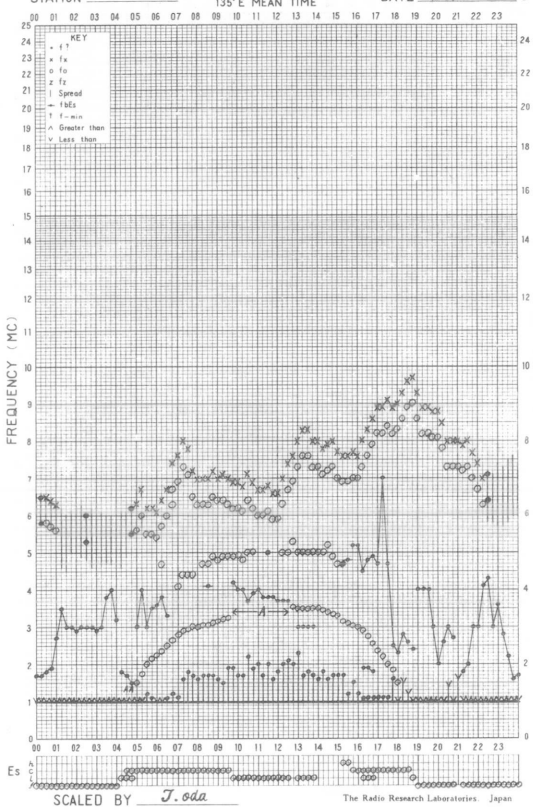

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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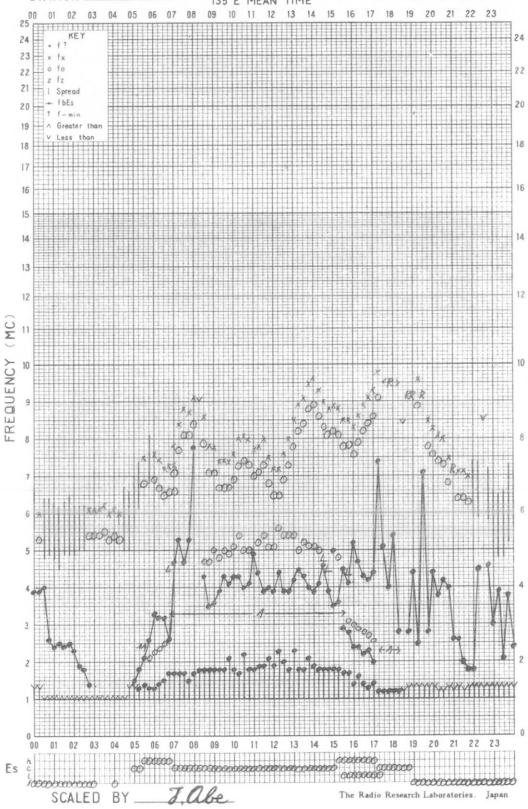

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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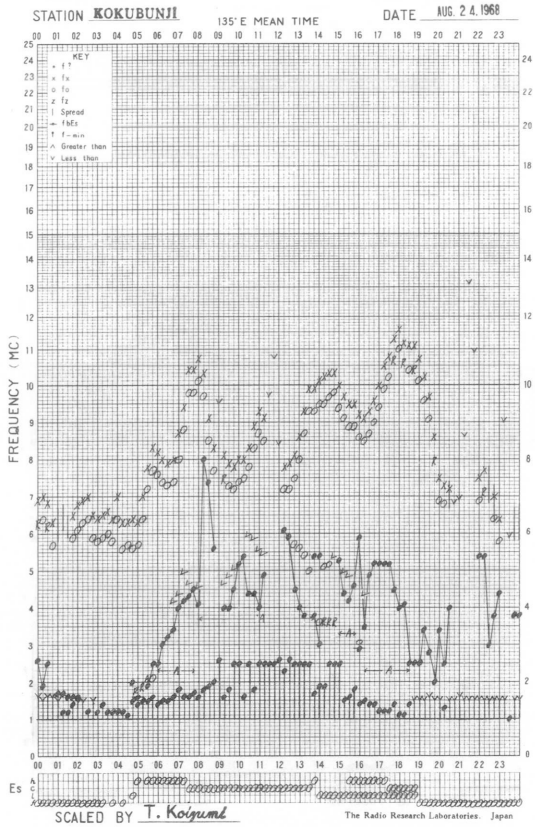

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The Radio Research Laboratories. Japan

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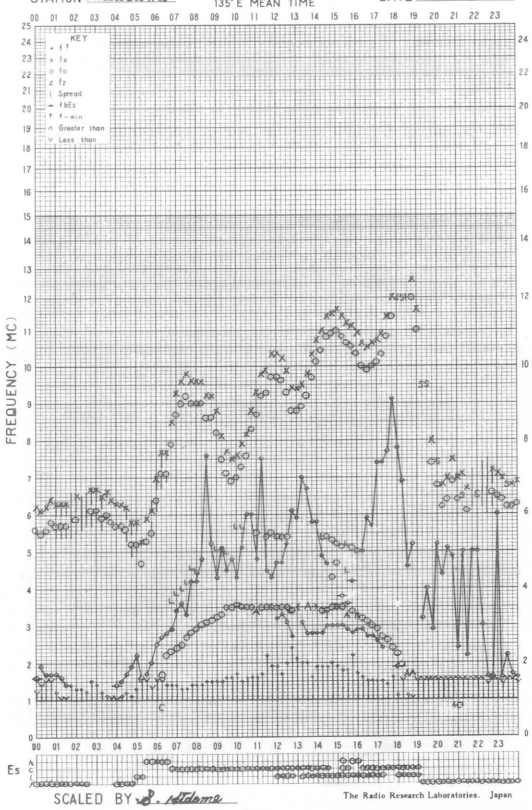

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The Radio Research Laboratories. Japan

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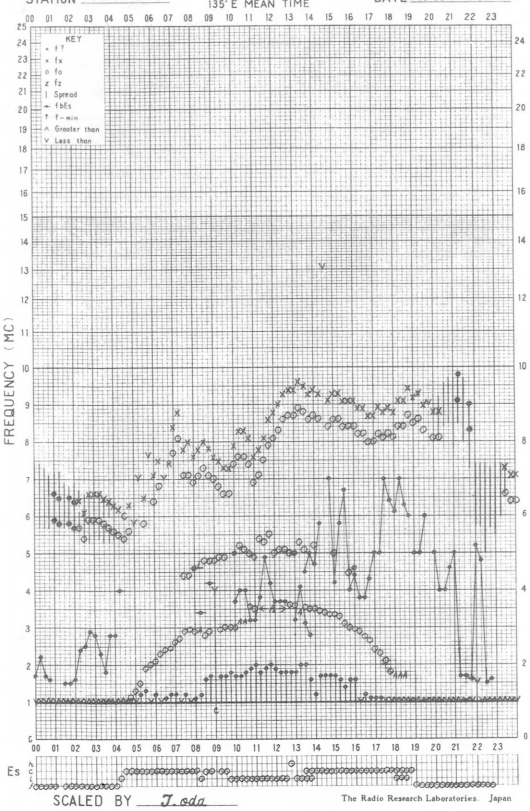

SCALED BY T. oda

The Radio Research Laboratories. Japan

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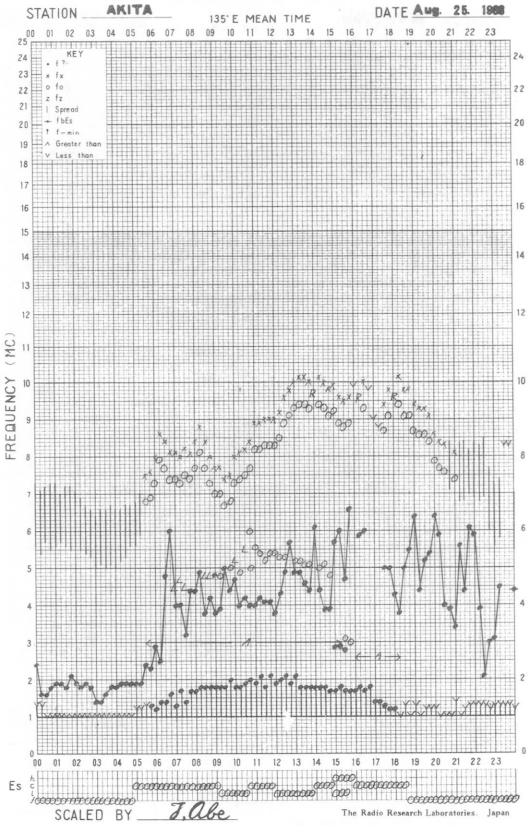

SCALED BY J. Abe

The Radio Research Laboratories. Japan

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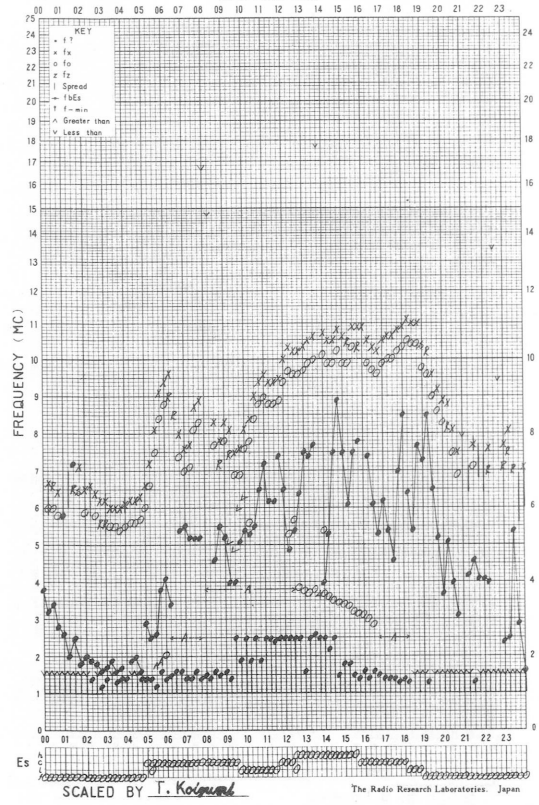

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The Radio Research Laboratories. Japan

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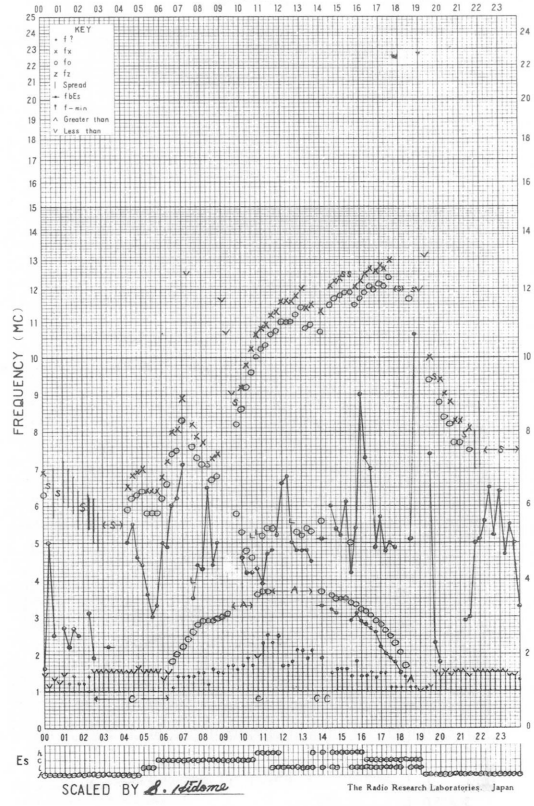

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The Radio Research Laboratories. Japan

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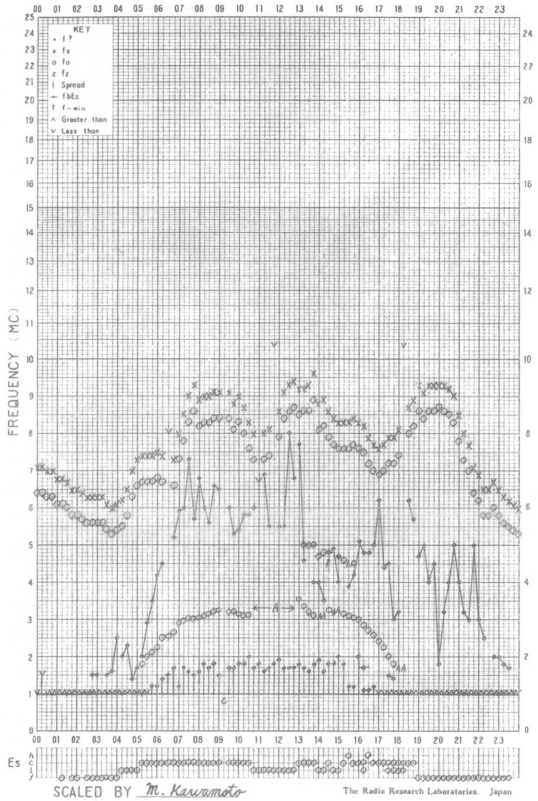

SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

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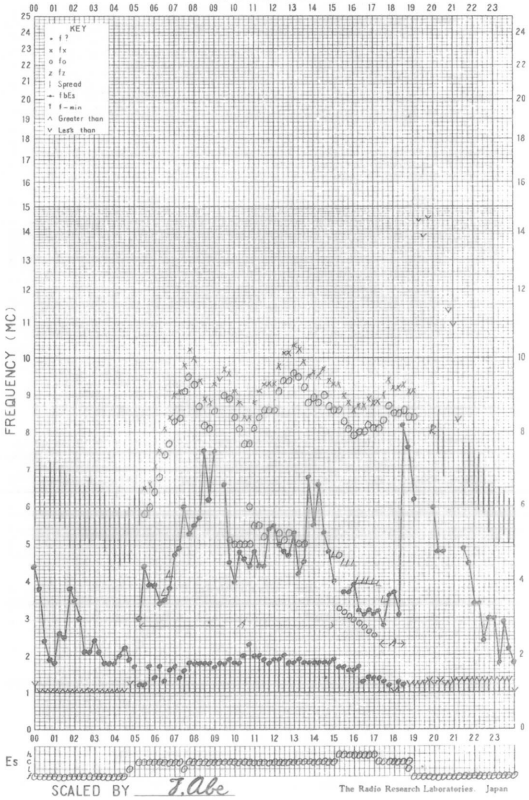

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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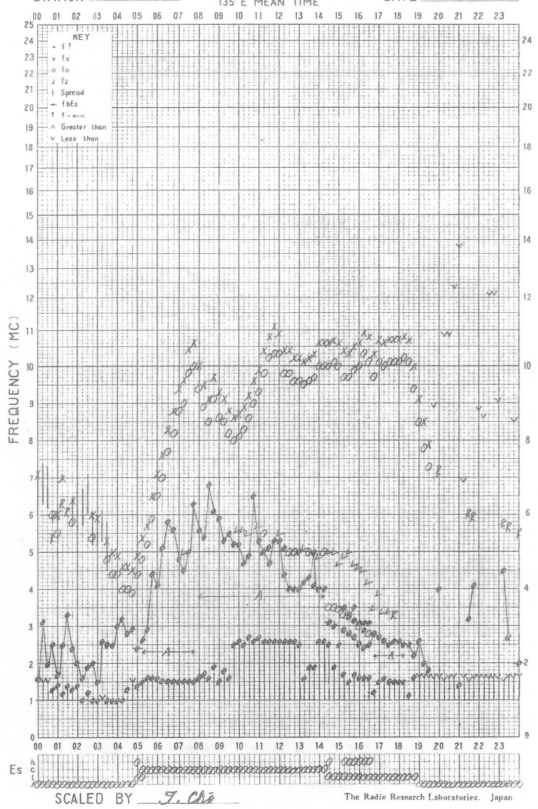

SCALED BY T. Chê

The Radio Research Laboratories. Japan

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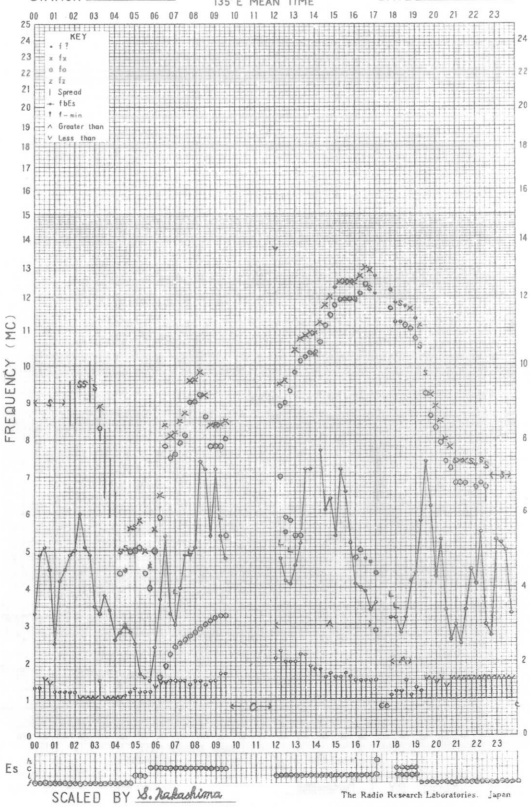

SCALED BY S. Takashima

The Radio Research Laboratories. Japan

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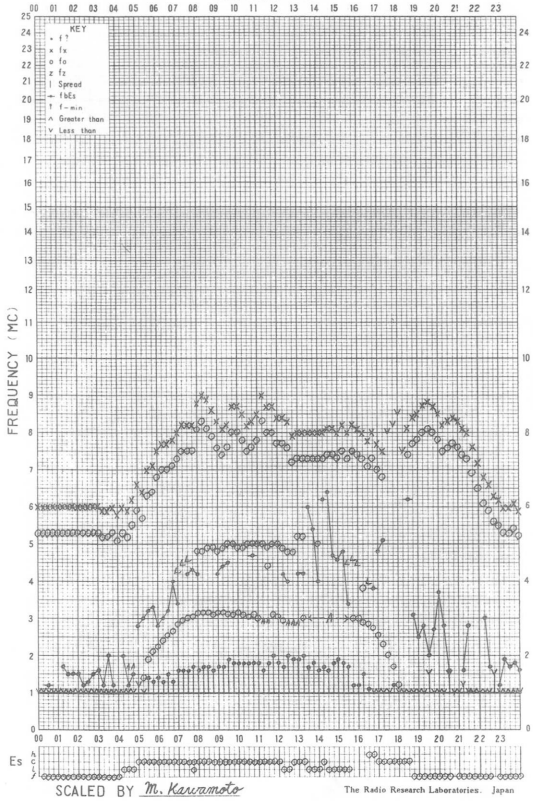

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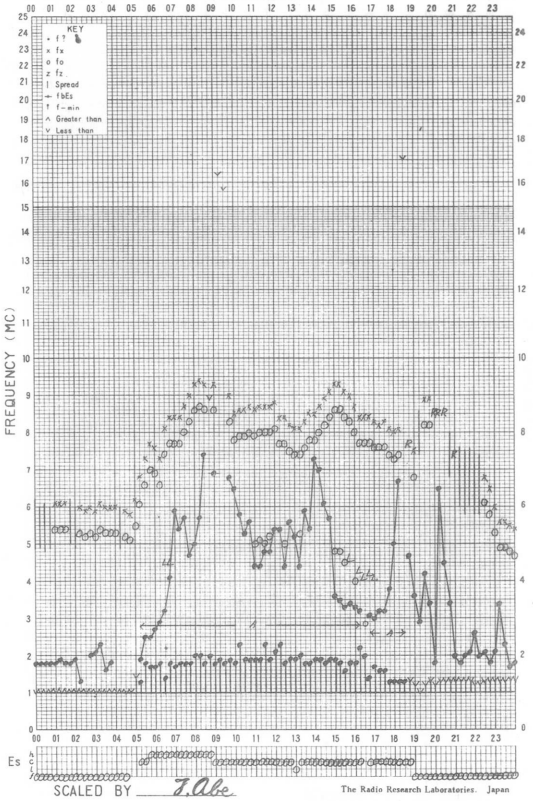

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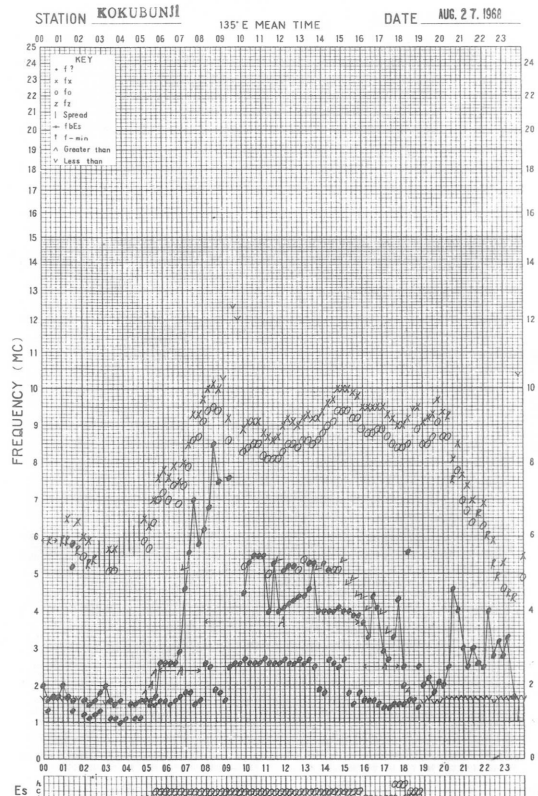

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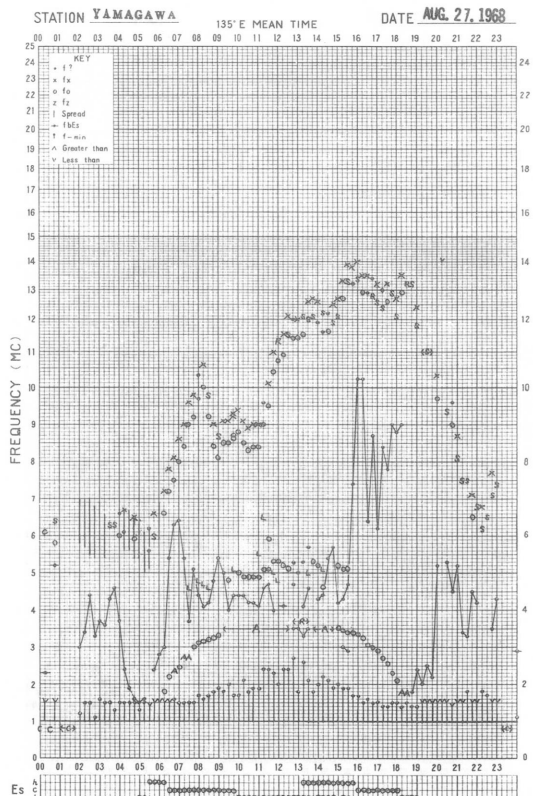

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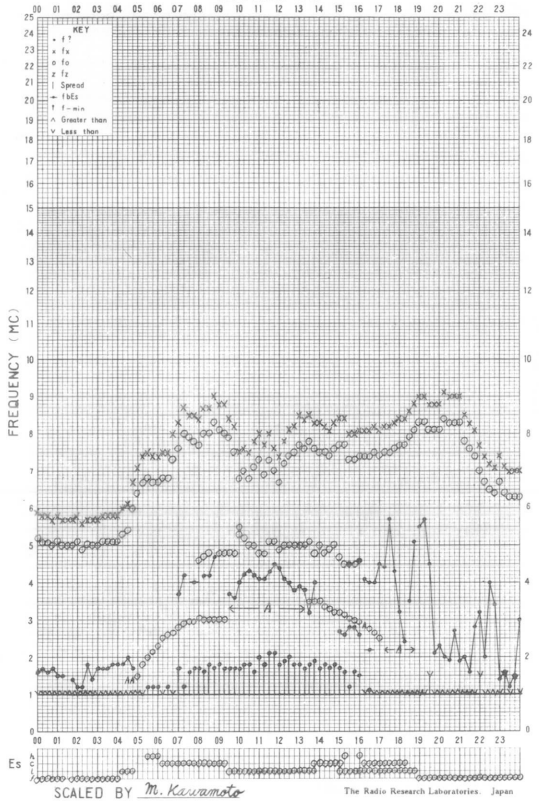
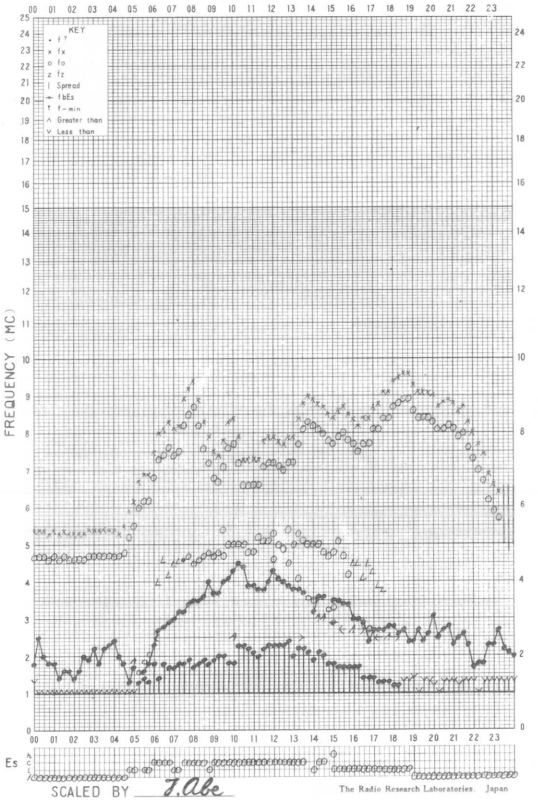


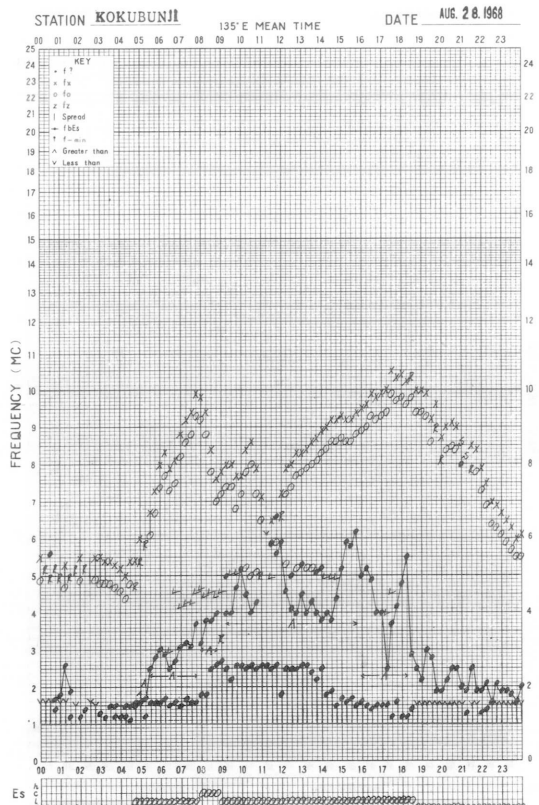
f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Aug. 28. 1968



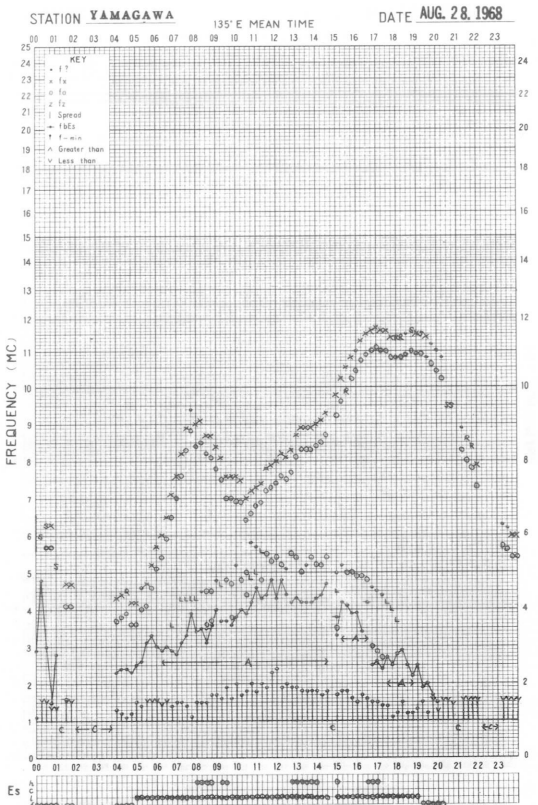
f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 28. 1968



f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE AUG. 28. 1968



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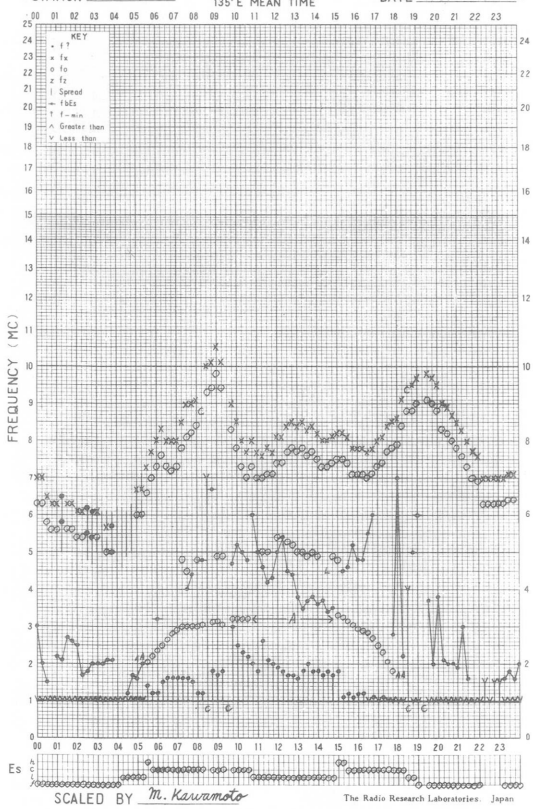
STATION WAKKANAI 135°E MEAN TIME DATE AUG. 29, 1968

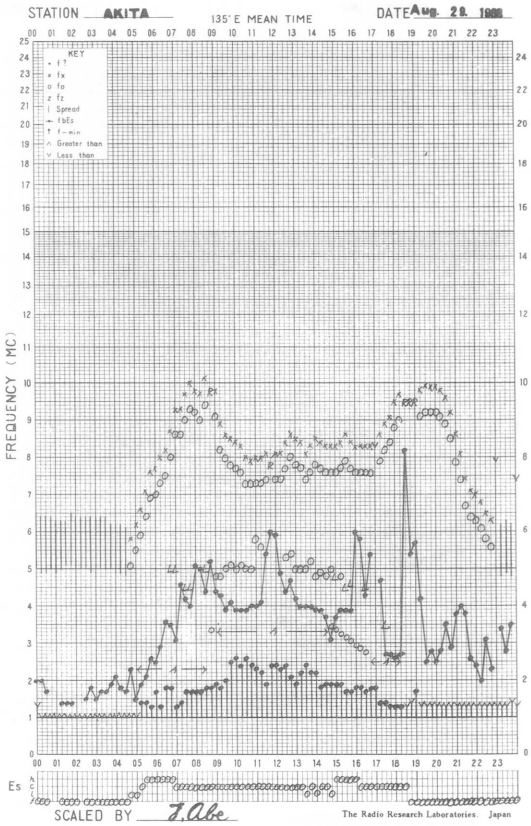


SCALED BY M. Kawamoto

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Aug. 29, 1968

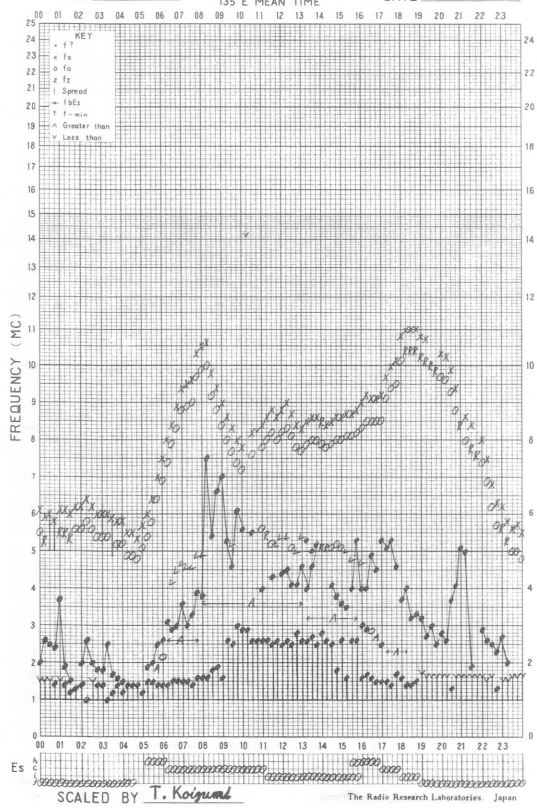


SCALED BY T. Abe

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 29, 1968



SCALED BY T. Koizumi

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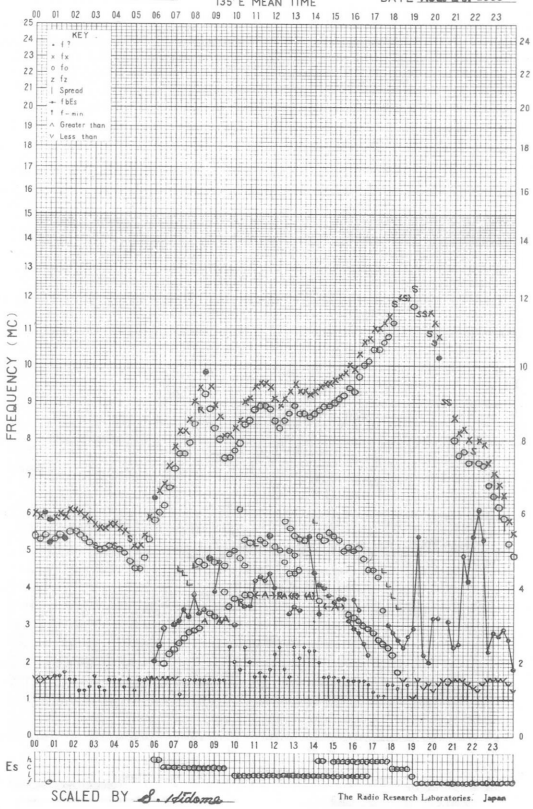
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE AUG. 29, 1968

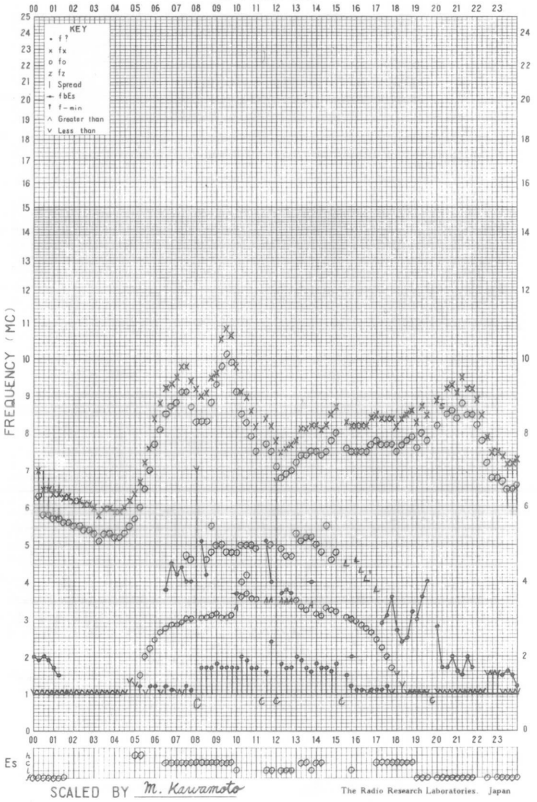


SCALED BY S. Ishidome

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

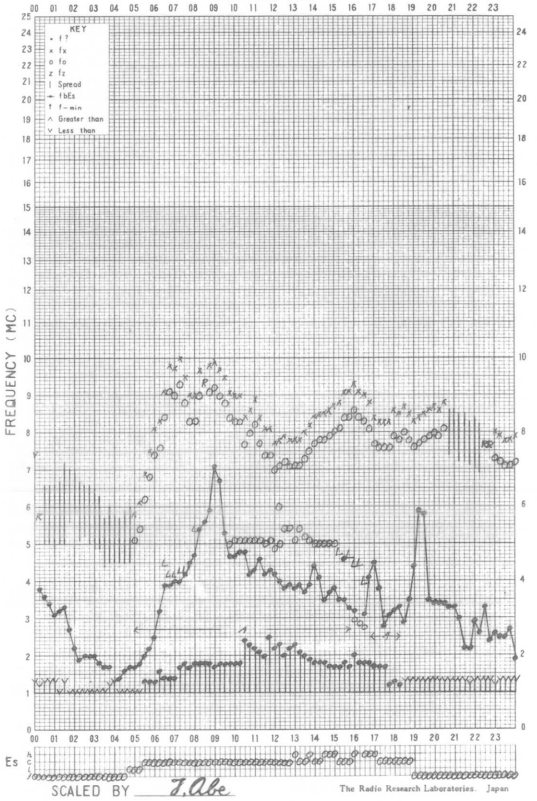
STATION WAKKANAI 135° E MEAN TIME DATE AUG. 30. 1968



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

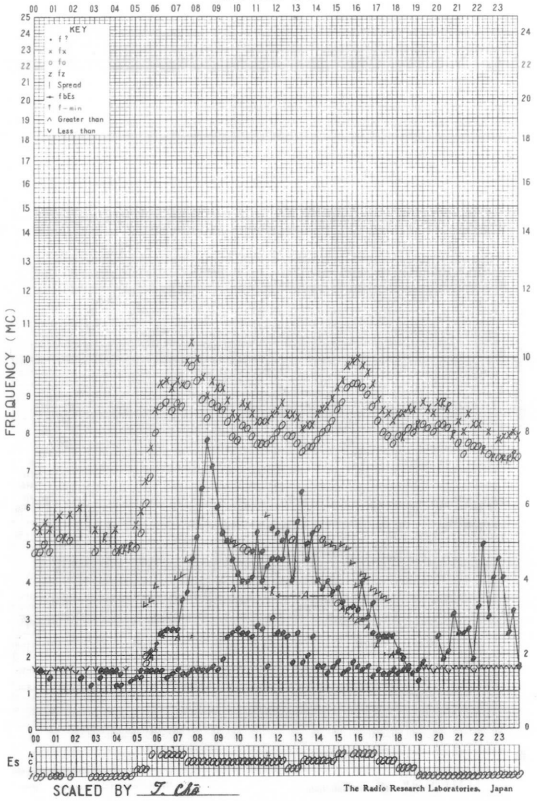
STATION AKITA 135° E MEAN TIME DATE Aug. 30. 1968



SCALED BY T. Abe The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE AUG. 30. 1968



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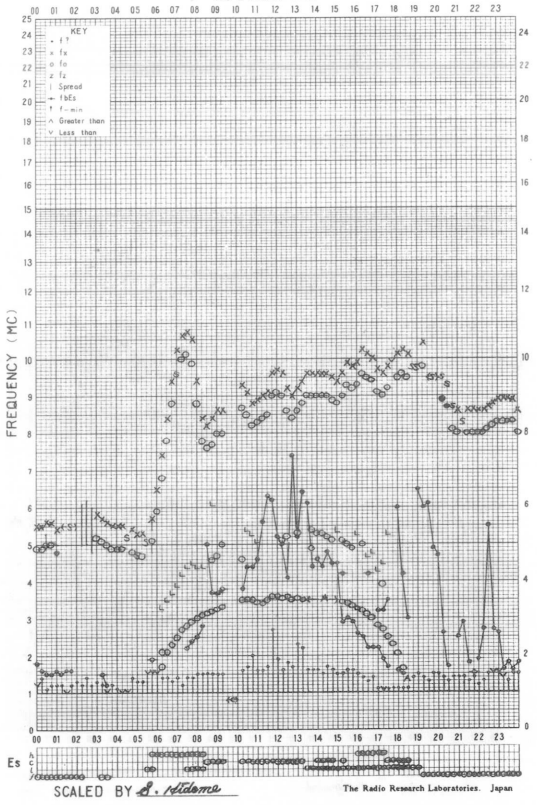
f-PLOT OF IONOSPHERIC DATA

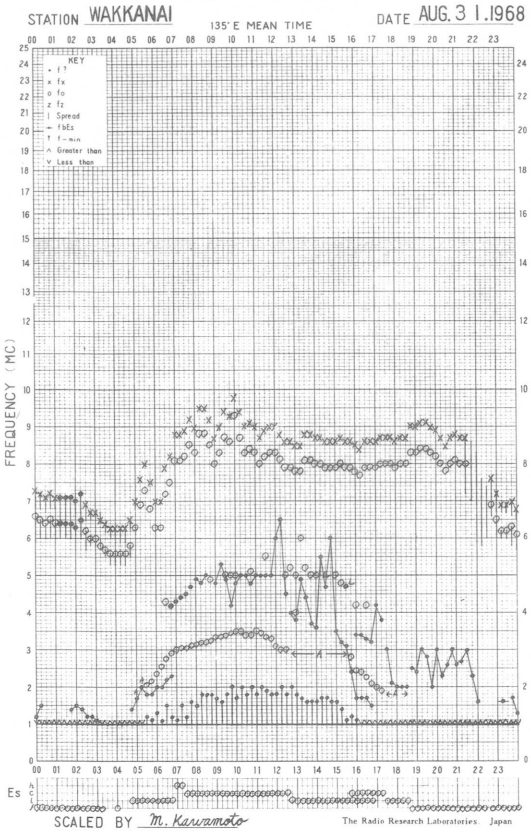
STATION YAMAGAWA 135° E MEAN TIME DATE AUG. 30. 1968



SCALED BY S. Kitsuma The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

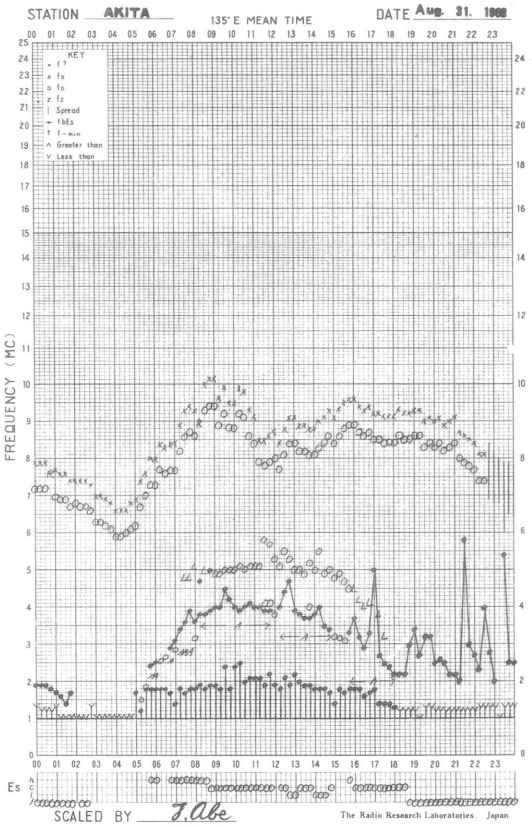
STATION WAKKANAI 135°E MEAN TIME DATE AUG. 31.1968



SCALED BY M. Kawamoto The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

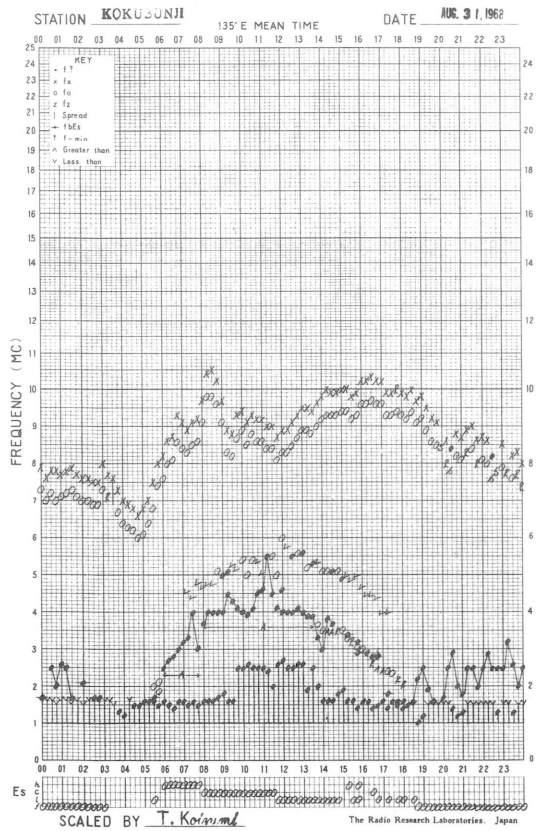
STATION AKITA 135°E MEAN TIME DATE Aug. 31. 1968



SCALED BY T. Abe The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

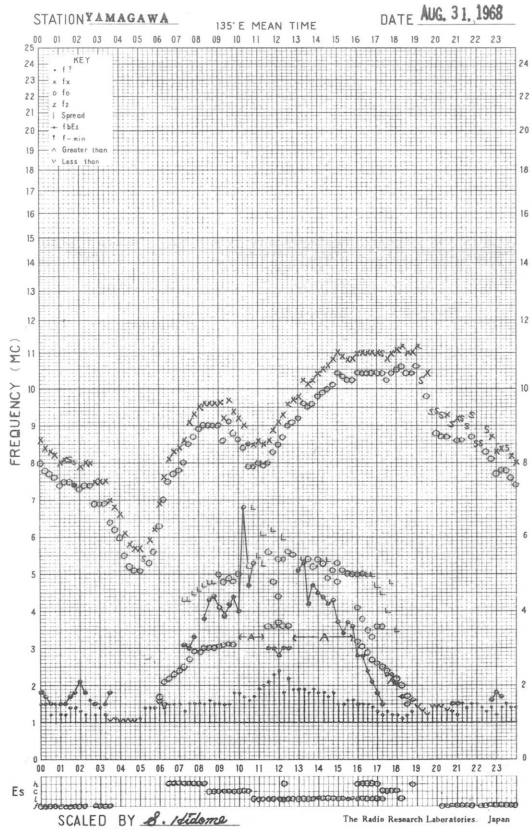
STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 31. 1968



SCALED BY T. Koinuma The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE AUG. 31, 1968



SCALED BY S. Ichidome The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: August 1968
Observing station: Hiraiso
Frequency: 200 MHz

	Flux density $10^{-22}Wm^{-2}(Hz)^{-1}$					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	7	7	-	6	1	1	0	-	1
2	11	-	-	-	(11)	1	-	-	-	(1)
3	-	7	8	7	(7)	-	1	1	1	(1)
4	7	7	7	11	7	1	0	0	2	1
5	9	9	9	6	9	1	1	*	1	1
6	6	7	6	7	6	1	1	*	*	1
7	6	6	6	6	6	1	0	0	0	1
8	6	6	6	5	6	0	0	*	0	0
9	6	6	6	6	6	0	0	*	0	0
10	6	6	6	6	6	0	0	0	1	0
11	6	6	7	6	6	1	1	1	1	1
12	6	6	7	-	6	1	1	1	-	1
13	11	11	10	-	11	2	1	1	-	1
14	9	11	15	(20)	11	1	2	1	(2)	1
15	17	13	12	14	15	1	1	*	2	1
16	14	14	18	16	14	2	2	2	2	2
17	17	31	35	186	24	2	2	2	2	2
18	156	125	83	49	143	2	2	2	2	2
19	60	94	100	107	74	2	2	2	2	2
20	109	108	96	71	106	2	2	2	1	2
21	61	63	104	15	72	1	1	1	2	1
22	17	16	14	8	16	2	2	2	1	2
23	8	7	7	7	7	1	1	1	1	1
24	6	6	6	6	6	0	1	0	0	1
25	6	6	6	6	6	0	0	0	1	0
26	6	6	6	7	6	0	0	1	1	1
27	6	6	6	6	6	0	0	0	1	0
28	6	6	(6)	6	6	0	0	(0)	0	0
29	6	7	7	-	6	0	0	0	-	0
30	6	6	6	-	6	0	0	0	-	0
31	6	6	6	-	6	0	0	0	-	0

Note No observations during the following periods:

1st	1950-		2400	14th	1950-		2230
2nd	0300-	3rd	0300	28th	0515-		0630
4th	0500-		0700	29th	1950-		2400
8th	0500-		0600	30th	1950-	31st	0010
12th	1950-	13th	0100	31st	1950-		2400
13th	1950-		2400				

* interference by atmospherics

SOLAR RADIO EMISSION

Flux Density

Month: August 1968
Observing station: Hiraiso Frequency: 500 MHz

Flux density 10^{-22} $Wm^{-2}(Hz)^{-1}$

UT	00-03	03-06	06-09	21-24	Day
Date					
1	29	30	30	29	30
2	31	31	-	32	30
3	33	35	36	35	34
4	34	34	38	35	35
5	35	33	32	36	34
6	33	-	-	-	(35)
7	-	-	-	40	-
8	36	34	35	35	36
9	34	33	33	34	34
10	33	31	34	34	33
11	32	31	31	34	32
12	35	36	34	-	35
13	38	40	38	39	39
14	42	41	41	41	41
15	42	41	40	44	41
16	43	41	41	41	42
17	42	44	42	63	42
18	56	48	49	48	54
19	47	50	50	43	48
20	42	39	40	41	41
21	39	37	41	35	39
22	37	36	36	36	36
23	35	36	36	36	36
24	37	35	34	34	36
25	33	32	32	35	33
26	34	34	33	35	34
27	32	32	33	31	33
28	32	33	33	32	32
29	36	35	35	-	34
30	35	35	35	-	35
31	37	35	35	-	35

Note No observations during the following periods:

2nd	0500-		0930	27th	0210-		0226
6th	0200-	7th	0930	29th	1950-	30th	0010
10th	0400-		0500	30th	1950-	31st	0100
12th	1950-		2400	31st	1950-		2400

Distinctive Events

(single-frequency observations)

Month: August 1968
Observing station: Hiraiso
Normal observing period: 1950 - 0930 (sunrise to sunset)

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22}Wm^{-2}(Hz)^{-1}$		Remarks
	MHz	UT	UT	minutes		peak	mean	
3	500	0310.0	0317.8	40.0	C	480	60	
	200	0315.0	0319.0	20.0	C	~ 200	~ 10	receiver unstable
13	200	0212.0	0213.8	2.0	C	1580	60	
17	200 MHz enhancement was observed from 17th to 21st sunset.							
20	500	0725.5	0726.0	1.0	C	530	125	
		2108.0	2131.3	38.0	C	25	5	
		2215.0	2215.5	1.0	C	375	110	
21	500	0147.5	0149.0	8.0	C	395	25	
	200	0147.0	0148.0	2.0	C	480	120	
		0153.8	0154.0	1.5	C	360	80	
	500	0536.0	0624.0	122.0	RF	65	20	
		0659.0	0659.7	2.0	C	175	55	
	200	0659.2	0659.5	0.8	C	320	100	

MEASUREMENT OF H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWV)

AUG 1968 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIKAISO

UT DAY	00H 15M	01H 15M	02H 15M	03H 15M	04H 15M	05H 15M	06H 15M	07H 15M	08H 15M	09H 15M	10H 15M	11H 15M	12H 15M	13H 15M	14H 15M	15H 15M	16H 15M	17H 15M	18H 15M	19H 15M	20H 15M	21H 15M	22H 15M	23H 15M
1	1	-1	3	0	8	13	13	10	16	8	9	6	3	20	21	13	8	8	ES 1	5	4	4	5	2
2	-1	0	-1	-3	7	13	16	20	5	-2	ES -3	ES -3	0	5	20	4	9	10	12	5	2	5	0	ES 0
3	1	-1	-7	-14	2	6	15	11	10	9	10	8	ES 10	4	5	-4	2	-1	-8	-6	6	2	-5	ES -5
4	-17	-12	-6	-4	-3	2	4	-5	-6	-11	ES -11	ES -11	ES -9	2	11	10	10	14	3	6	-2	6	5	-6
5	-4	-9	-3	-1	10	10	13	21	7	ES -4	ES -4	4	4	4	19	0	3	9	1	4	7	7	0	-4
6	-3	-3	1	0	4	11	9	-5	-3	-3	ES -4	ES -6	ES 9	3	13	18	14	14	5	8	10	6	7	-1
7	2	4	11	5	9	10	10	12	19	11	4	-1	6	11	13	15	7	5	3	-9	2	-2	-3	-2
8	-10	4	7	-7	4	8	12	ES 0	ES -2	ES -1	ES -3	ES -1	ES 13	15	14	5	9	10	10	5	9	7	4	0
9	5	0	3	8	8	10	3	8	5	9	ES 4	ES 3	ES 0	13	12	12	12	13	0	2	6	5	1	-2
10	-4	-1	-1	6	14	13	16	16	19	11	-3	-6	ES 9	16	10	15	7	15	15	2	5	-2	-1	0
11	-4	-1	0	0	10	9	-4	ES -12	-8	-7	ES 0	ES 5	ES 4	21	13	9	9	8	3	0	3	0	-4	-3
12	-3	-5	0	3	5	10	9	12	4	-7	ES -9	ES -7	ES 5	24	13	15	9	11	7	1	3	C	C	C
13	C	-5	-3	5	2	9	11	9	17	10	10	5	ES 6	22	14	11	0	3	-3	1	-1	-2	-4	-7
14	-1	-8	3	4	10	15	17	6	-3	-1	ES 0	1	ES 7	-1	1	14	-3	9	1	-20	1	3	4	1
15	0	-7	4	-4	2	-10	ES -15	0	-3	-2	-2	ES 5	ES -7	-4	-5	ES -7	-5	-1	ES -14	-11	-1	ES -15	ES -15	ES -11
16	1	1	-2	-9	4	0	ES -9	ES -5	ES -8	ES -11	ES -7	ES -3	ES -4	ES -5	ES -1	ES -2	ES -12	ES -8	ES -9	-5	-4	ES -17	2	2
17	-8	ES -8	5	-1	5	ES -13	-17	-11	-9	ES -2	ES -3	ES -4	-6	-9	ES -10	ES -16	ES -13	ES -16	ES -6	ES -31	-20	ES -31	ES -14	ES -15
18	-5	8	-7	1	-14	ES -14	ES -8	ES -9	ES -8	ES -17	ES -4	ES -6	ES -12	ES -3	ES -9	ES -2	ES -17	ES -12	ES -6	1	17	-2	-6	-4
19	-4	-8	ES -15	1	14	7	-9	-8	-6	ES -10	-2	ES 5	ES -5	ES -10	-5	-3	ES -6	-12	9	S	-3	-4	-2	-1
20	2	-6	-3	0	10	5	9	-2	-9	ES -5	ES -3	ES 5	ES -2	4	-6	-10	ES -17	ES -22	ES -16	-6	-5	-6	-2	-11
21	-8	-6	-14	-3	7	9	9	13	ES -15	ES -6	ES -5	ES 2	ES 1	3	1	10	11	7	-3	-1	-4	1	-2	-5
22	-5	-4	1	5	14	20	21	14	16	18	6	7	ES -4	15	11	-3	C	C	C	C	C	C	C	C
23	-6	-1	-1	8	8	12	13	12	12	-4	-7	0	ES 11	22	9	5	-4	8	2	5	-1	-6	-4	-4
24	1	-1	5	-1	0	14	-5	ES -20	ES -14	-1	14	12	7	7	10	-1	0	-8	-8	0	3	10	5	3
25	-2	1	-2	-1	9	9	13	8	ES 3	ES -1	ES 0	4	US 1	18	10	6	10	5	-1	-3	-2	-1	-2	-6
26	-6	-4	-2	9	6	13	16	16	1	-6	ES -8	ES -4	ES 2	16	1	18	6	7	-3	-6	3	1	-3	-3
27	-2	3	6	8	11	16	10	10	8	ES -3	ES -4	ES -1	ES 0	9	3	-2	19	2	0	-3	3	-2	-3	-4
28	6	-2	1	10	20	16	18	19	17	15	5	8	ES 8	16	9	7	10	1	-8	0	3	6	-3	0
29	-3	-9	6	12	14	15	12	-1	ES -8	ES -6	ES -1	ES 4	ES 4	16	6	8	4	2	1	-1	-3	-2	-1	-3
30	-4	ES 1	1	2	9	16	6	-2	-10	ES -3	ES 5	ES 2	ES -3	19	13	7	-4	7	13	-1	4	0	4	-3
31	2	-3	1	8	13	19	16	19	16	13	ES -3	ES -6	ES 3	ES 3	8	13	23	C	C	C	C	C	C	C
CNT	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	30	29	29	28	29	28	28	28
MED	-3	US -2	0	1	8	10	10	8	US 1	ES -2	ES -3	ES 2	ES 3	9	10	7	6	7	US 1	0	3	0	-2	US -3
UD	2	4	6	9	14	16	17	19	17	13	10	8	ES 10	22	19	15	14	14	12	5	9	7	5	2
LD	-8	ES -9	-7	-7	0	-10	ES -9	ES -11	ES -10	ES -11	ES -8	ES -6	ES -7	ES -5	ES -6	ES -7	ES -13	ES -12	ES -9	-11	-4	ES -15	-6	ES -11

MEASUREMENT OF H.F. FIELD STRENGTH (UPPER SIDE-BAND OF WWVH)

AUG 1968 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M
1	-5	-5	-2	0	5	11	18	20	24	19	18	22	12	20	8	1	19	10	ES 2	8	5	3	1	-2
2	1	-4	-3	2	7	13	20	20	20	21	18	20	17	12	14	9	10	17	14	7	0	1	0	-3
3	-9	-15	-1	ES -26	5	10	17	20	19	17	12	17	17	12	ES 0	-12	ES -8	1	ES -8	-6	-1	-6	ES -17	ES -6
4	-11	-12	-5	3	9	4	13	14	20	22	11	7	14	15	15	10	2	4	ES -27	6	10	-1	ES -16	ES -17
5	-3	-5	-4	1	4	15	15	17	18	18	9	11	15	13	14	7	3	4	13	6	2	-1	-11	-13
6	-12	-7	-5	-2	5	12	16	17	23	20	18	14	12	23	21	20	18	16	5	11	9	4	-1	-6
7	-6	-8	4	6	9	13	20	20	20	15	0	17	20	13	ES 1	5	8	15	-6	2	2	0	-10	-8
8	-11	-12	-7	0	7	15	13	19	22	22	16	18	22	-5	ES -7	-15	3	16	1	5	0	2	-3	-2
9	-9	-8	-3	6	5	11	19	19	13	20	13	13	ES 6	-2	5	9	12	8	-6	5	3	-4	-5	ES -11
10	-10	ES -7	-1	4	10	11	16	19	19	20	14	18	23	20	-6	-2	15	15	15	4	-1	-2	-7	-6
11	-8	ES -9	-5	0	6	12	18	15	20	16	24	15	4	14	13	13	13	9	3	4	0	1	-6	-10
12	-10	-7	-3	3	10	18	19	17	22	18	16	16	18	17	12	10	13	11	1	0	-6	C	C	C
13	-9	-9	-11	-2	6	14	16	13	17	20	20	14	21	15	8	10	15	13	-1	3	0	-2	-8	-12
14	-11	-11	-17	1	5	14	17	19	21	20	20	19	19	18	15	12	11	14	-9	-9	2	-1	-11	-20
15	-20	-14	-11	-4	2	4	13	15	15	18	14	17	15	13	12	15	24	12	4	6	1	ES -11	ES -11	ES -6
16	-10	-12	-5	0	4	13	15	16	19	18	14	16	13	10	5	ES -12	-2	4	0	2	-2	-5	-7	-5
17	ES -11	ES -11	-10	1	4	13	15	13	19	9	9	5	13	-2	ES -10	ES -9	ES -5	-20	ES -6	-15	-10	-5	ES -19	-15
18	-13	-13	-12	0	6	12	18	17	17	20	19	12	11	9	1	ES -5	6	3	4	5	12	2	ES -3	ES 0
19	-11	ES -14	-4	3	5	11	14	2	14	15	17	6	ES -4	ES -8	1	ES -7	ES -17	5	-7	-2	3	-4	ES -6	ES -11
20	-14	-9	-10	-4	3	8	14	15	19	17	12	12	16	2	ES -10	ES -11	ES -17	ES -22	-6	9	-5	-6	-8	ES -8
21	-9	ES -6	-6	0	4	9	15	18	12	16	7	15	13	3	-6	ES -13	8	9	-6	ES -5	-3	-3	-10	ES -11
22	-12	-11	-1	5	8	15	20	21	23	20	13	18	18	18	-3	ES -21	C	C	C	C	C	C	C	-12
23	-9	-2	-4	-1	6	12	13	16	17	14	15	19	16	14	10	-5	1	17	ES 0	3	6	-2	-6	ES -13
24	ES -13	-12	-4	0	14	14	16	21	19	22	20	21	15	14	15	11	14	4	3	3	4	-3	-6	-9
25	-9	-7	-5	3	9	14	23	19	19	17	7	4	11	11	ES 0	ES 0	11	7	6	-2	3	-2	-4	-6
26	-11	-7	-2	3	12	19	21	21	17	16	1	8	11	1	ES -1	ES -14	-1	-1	ES -13	1	6	-1	-8	-5
27	-10	-4	-4	5	7	14	18	14	17	16	14	16	13	ES 0	ES -4	-16	11	12	-12	3	0	-4	-5	-6
28	-5	-5	-5	2	13	17	19	24	24	19	17	14	16	16	US 1	ES -12	-10	12	-5	1	-2	-2	-3	ES -3
29	ES -29	-12	-1	4	8	12	18	18	22	17	ES -2	ES -1	ES 5	ES -1	ES 7	0	10	13	-25	1	2	-2	-5	-6
30	-8	ES -8	ES -14	5	10	12	16	19	19	19	3	12	11	14	12	4	11	15	-5	1	0	-2	-5	-10
31	-10	-4	-3	3	12	14	18	22	22	21	26	11	ES -2	ES -16	ES 2	ES -11	16	C	C	C	C	C	C	C
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	29	29	29	29	28	28	29
MED	-10	ES -8	-4	1	6	13	17	18	19	18	14	15	14	13	US 5	US 0	10	10	US -1	3	1	-2	US -6	ES -8
UD	-5	-4	-1	5	12	17	20	21	23	22	20	20	21	20	15	13	18	16	13	8	9	2	-1	ES -2
LD	ES -14	ES -14	-12	-4	4	8	13	13	14	15	1	5	ES 4	ES -5	ES -7	ES -15	ES -10	-1	ES -13	ES -6	-5	-6	ES -16	ES -15

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 1968	Whole Day Index	H B 06 12 18 / 12 18 24	W W V 00 06 12 18 / 06 12 18 24	L M 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	4+	4 4 5	5 5 4 5	4 (3) - 4	4 4 4 4	N N N N			
2	4+	4 4 5	4 4 5 4	4 4 - 4	4 4 4 4	N N N N			
3	3+	4 4 4	3 4 3 3	3 C - -	4 4 3 3	N N N N			
4	4-	4 4 (4)	3 4 4 4	(3) - - -	4 4 4 4	N N N N			
5	4o	4 4 4	4 4 4 4	4 4 - 4	4 4 5 5	N N N N			
6	4o	5 4 3	4 4 4 4	4 5 - 3	5 4 5 5	N N N N			
7	4o	4 4 4	5 5 4 3	3 (3) - 4	5 4 4 4	N N N N			
8	4-	4 4 4	3 3 4 4	4 3 - 4	4 4 3 4	N N N N			
9	4o	5 5 4	4 4 4 4	4 (3) - (4)	4 4 4 4	N N N N			
10	4-	4 3 4	4 4 4 4	4 (3) - -	4 4 4 4	N N N N			
11	4o	4 4 5	4 3 4 4	(4) - - -	4 4 4 4	N N N N			
12	4+	4 5 (5)	4 4 4 (4)	4 (3) - 5	4 4 5 (5)	N N N N			
[13]	4+	5 5 4	4 5 4 4	5 4 - 4	4 4 4 4	N N N N			
[14]	3+	4 3 3	4 4 C (3)	3 4 - 3	4 4 C C	N N N N			
[15]	3o	3 3 3	3 3 3 2	(4) 4 - 3	3 4 4 4	N U U U			
16	3-	3 3 2	3 3 3 2	3 3 - 2	4 4 3 4	U U U U			
17	3-	3 3 2	3 3 2 2	3 (3) - -	3 3 3 3	U U U U			
18	3-	3 3 3	2 3 3 2	(2) - - -	3 4 3 3	U U U U			
19	3o	3 3 4	3 3 3 3	(2)(3) - 3	3 3 3 3	U U U U			
20	3+	4 4 3	4 3 2 3	4 (4) - 3	4 4 3 3	N N N N			
21	4-	3 3 4	3 4 4 4	4 (4) - 4	4 4 (4) C	N N N N			
22	4+	4 4 4	5 5 C 5	4 4 - 5	4 (4) C C	N N N N			
23	4o	3 4 2	5 4 4 4	5 4 - 4	4 4 4 4	N N N N	17.14	---	61γ
24	3+	3 3 3	4 3 3 3	4 4 - -	4 4 4 4	N N N N	---	---	
25	4o	4 4 (4)	3 4 4 4	(4) - - -	4 4 (4) 4	N N N N	---	03xx	
26	4+	4 4 4	5 4 4 4	5 4 - 4	4 4 (4) 4	N N N N			
27	4+	4 4 5	4 4 4 4	5 4 - (5)	4 4 3 4	N N N N			
28	5-	5 5 5	5 5 4 4	5 4 - 4	4 5 4 (4)	N N N N			
29	4o	4 4 4	3 4 4 4	5 4 - 4	4 3 3 (4)	N N N N			
30	4o	4 4 4	4 3 4 5	4 4 - 4	4 4 4 4	N N N N			
31	4+	4 4 C	5 4 4 C	5 4 - C	4 4 4 C	N N N N			

IQSY GEOALERT and ADALERT (Western Pacific Region)

* = MAGSTORM

o = MAGCALME

△ = COSMIC EVENT

[ ] = Regular World Day

\- = impossible to evaluate

( ) = inaccurate

C = artificial accident

--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Aug. 1968	S W F										Correspondence		
	Drop-out Intensities (db)						Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
	CO	LM	HA	TO	HB	SH							
3	30	15				28	03.14	58	S	3-	x	x	
8	23	30					02.53	30	Slow	2	x	x	
8					24		06.18	47	G	2	x	x	
8	12		18				18.16	30	Slow	2	x		
21	>23	22		> 23			01.47	30	S	2+	x	x	
21	20'				14		07.00	20	S	1	x	x	
29		> 23					00.37	33	S	2-	x	x	

NOTE LM: Commercial circuit (Lima) with various frequencies.
LM-circuit is monitored in place of SF-circuit since August 1968.

IONOSPHERIC DATA IN JAPAN FOR AUGUST 1968
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