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IONOSPHERIC DATA IN JAPAN

FOR SEPTEMBER 1968

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RADIO RESEARCH LABORATORIES

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN

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SITE OF THE RADIO WAVE OBSERVATORIES AND HIRAIISO 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_oF2 f_oF1 f_oE	}	The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.
f_oE_s		The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
f_bE_s		The lowest ordinary wave frequency at which the E_s layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.
f -min		The frequency below which no echoes are observed.
$M(3000)F2$		The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.
$M(3000)F1$		The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.
$h'F2$		The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.
$h'F$		The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.
$h'E_s$		The lowest virtual height of the trace used to give the f_oE_s .
$hpF2$		The virtual height of the $F2$ layer measured on the ordinary

ypF2 wave component at a frequency equal to $0.834f_0F2$.

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

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 *E_s*.
- B Measurement influenced by, or impossible because of, absorption in the vicinity of *f*-min.
- C Measurement influenced by, or impossible because of, any non-ionospheric reason.
- D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.
- E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.
- F Measurement influenced by, or impossible because of, the presence of spread echoes.
- G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.
- H Measurement influenced by, or impossible because of, the presence of a stratification.
- L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.
- M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
- N Conditions are such that the measurement cannot be interpreted.
- O Measurement refers to the ordinary component.
- R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
- S Measurement influenced by, or impossible because of, interference or atmospherics.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- V Forked trace which may influence the measurement.
- W Measurement influenced or impossible because the echo lies outside the height range recorded.
- X Measurement refers to the extraordinary component.
- Y Intermittent trace.
- Z Third magneto-ionic component present.

b. Qualifying Letters

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

value on the monthly tabulation sheets.

D	greater than.
E	less than.
I	Missing value has been replaced by an interpolated value.
J	Ordinary component characteristic deduced from the extraordinary component.
O	Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)
T	Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
U	Uncertain or doubtful numerical value.
Z	Measurement deduced from the third magneto-ionic component.

c. 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 E_s

The eight standard types of E_s 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 E_s trace that does not correspond to any of the eight types.

- | | |
|----------|--|
| <i>F</i> | An E_s trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat E_s traces observed in the daytime are classified according to their virtual height: <i>H</i> or <i>L</i> . |
| <i>L</i> | A flat E_s trace at or below the normal <i>E</i> layer minimum virtual height in the day or below the night <i>E</i> layer minimum virtual height at night. |
| <i>C</i> | An E_s trace showing a relatively symmetrical cusp at or below f_oE . This is usually continuous with the normal <i>E</i> trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.) |
| <i>H</i> | An E_s trace showing a discontinuity in height with the normal <i>E</i> layer trace at or above f_oE . The cusp is not symmetrical, the low frequency end of the E_s trace lying clearly above the high frequency end of the normal <i>E</i> trace. (Usually a daytime type.) |
| <i>Q</i> | An E_s trace which is diffuse and non-blanketing over a wide |

frequency range. The spread is most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)

- R An E_s trace showing an increase in virtual height at the high frequency end similar to group retardation but which is non-blanketing over part or all of its frequency range. This is distinguished from the usual group retardation (as in the case of an occulting thick E layer) by the lack of group retardation in the F layer traces at corresponding frequencies and the lack of complete blanketing.
- A An E_s having a well defined flat or gradually rising lower edge with stratified and diffuse (spread) traces present above it. These sometimes extend over several hundred kilometers of virtual height.
- S A diffuse E_s trace which rises steadily with frequency and usually emerges from another type E_s trace. The rising trace alone is classified as 'S'; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal E_s trace such as E_s-L or E_s-F , at frequencies which greatly exceed the E layer critical frequency, whereas at low latitudes it usually rises from E_s-Q E_s-C or E_s-H at frequencies near the regular E critical frequency. Type S is never used to determine f_oE_s and $h'E_s$. The slant trace is sometimes observed to start at f_oE without echoes clearly identifiable as E_s echoes being seen.
- N The designation 'N' is used to denote an E_s trace which cannot be classified into one of the standard types. When a trace appears to be intermediate between any two classes a choice should be made whenever possible even if it is uncertain. 'N' should be used sparingly.

e. Multiple Reflections from E_s

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

B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 200 and 500 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 $10^{-22} \text{ W} \cdot \text{m}^{-2} \text{ Hz}^{-1}$ 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	$\lambda/2$ vertical	$\lambda/2$ 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)	4=normal
2=poor (disturbed)	5=good
3=rather poor (unstable)	

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

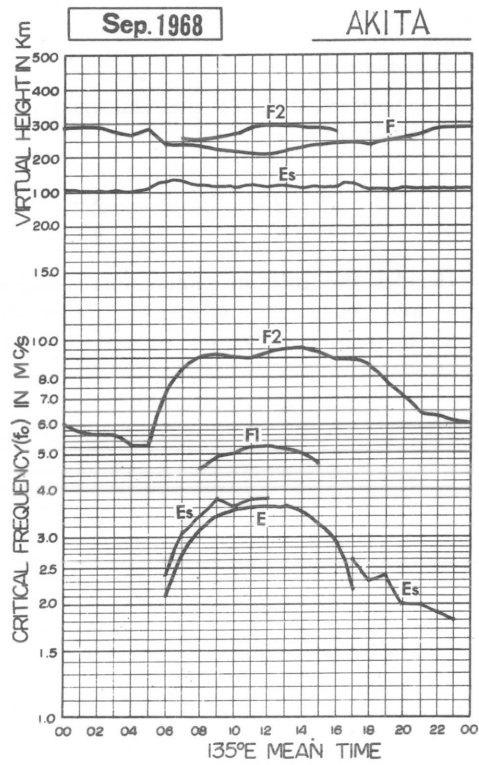
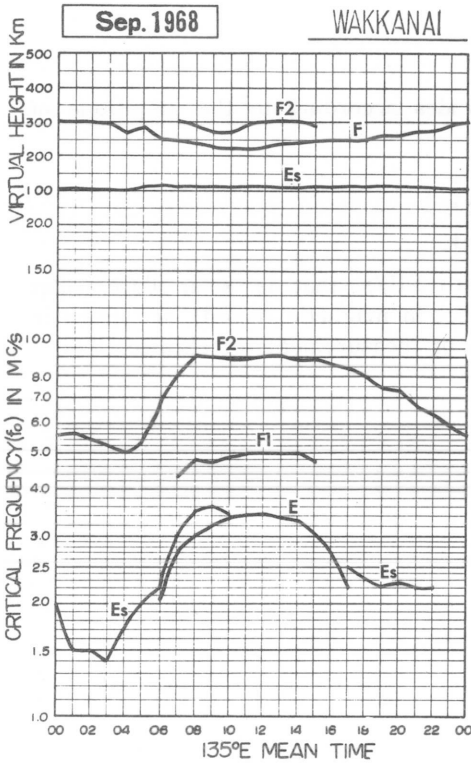
Importances

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

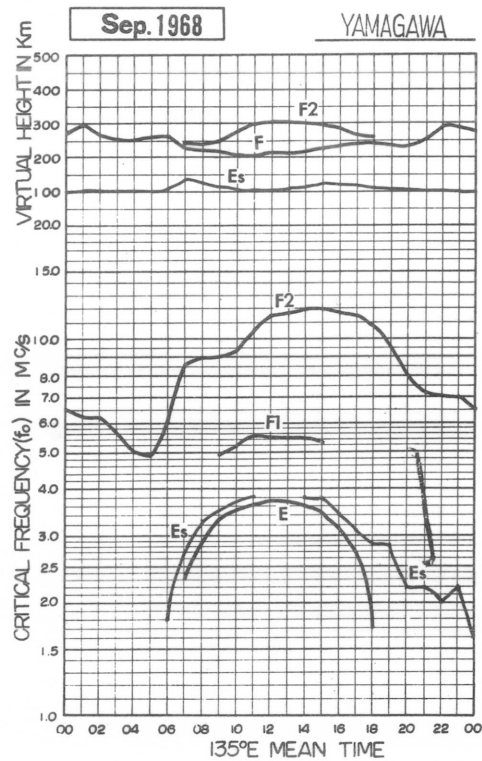
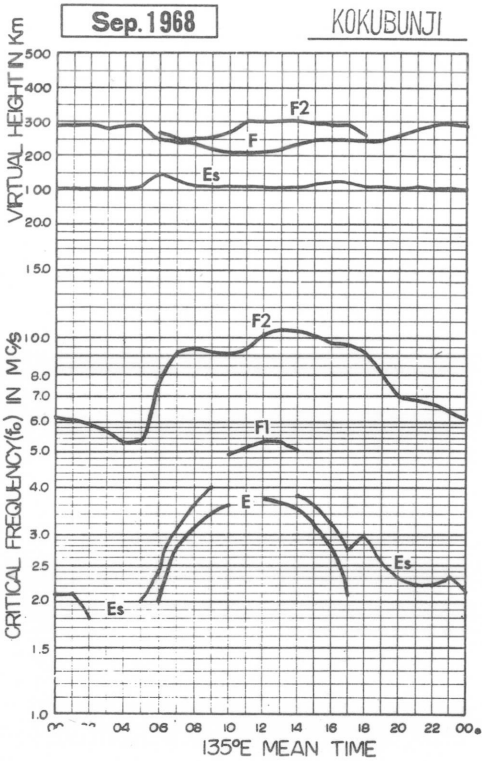
1-	1	1+
2-	2	2+
3-	3	3+

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

SEP. 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	F ₆₁	58	59	53	50	53	61	62	59	64	C	C	C	C	C	C	C	C	C	74	69	66	60	59	
2	56	56	54	53	48	51	55	60	56	56	59	58	66	63	63	67	68	67	73	73	73	68	64	57	
3	53	51	50	F ₅₀	48	49	59	69	67	70	68	71	75	74	77	72	73	70	75	89	83	80	72	68	
4	63	56	49	47	50	54	64	74	73	73	74	76	89	81	87	90	76	80	73	74	79	75	70	65	
5	62	58	54	54	53	49	60	76	78	72	74	74	76	H ₇₆	77	78	83	81	87	88	77	69	64	58	
6	5E	53	50	4E	47	53	74	86	85	84	77	81	83	90	86	76	72	79	89	85	82	70	60	57	
7	56	53	49	47	47	50	68	70	73	83	76	88	83	80	82	81	83	82	83	74	73	F ₇₀	64	63	
8	59	58	56	54	53	54	64	67	73	79	73	76	81	81	83	80	77	74	73	80	73	76	73	58	
9	56	45	43	37	34	37	54	71	94	94	86	88	96	93	84	79	78	78	79	74	75	74	66	61	
10	56	56	53	53	52	56	80	84	92	99	99	94	93	96	93	89	78	80	82	80	81	75	74	71	
11	67	61	58	57	56	60	80	95	103	88	89	H ₈₉	89	90	90	83	87	84	79	79	77	73	66	66	
12	63	61	60	60	57	59	84	97	96	97	94	94	90	86	86	84	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	69	52	60	54	53	51	
14	50	53	48	44	40	43	51	57	61	58	60	69	77	80	80	75	69	66	64	C	C	63	56	53	
15	52	53	54	47	46	50	64	73	77	88	95	75	83	83	84	80	83	83	80	78	73	62	55	53	
16	52	50	50	49	45	49	60	78	73	76	85	80	81	91	86	88	88	94	84	74	70	63	54	55	
17	55	53	54	52	49	53	68	83	96	90	83	93	92	94	90	88	90	93	I ₈₈	80	77	66	57	51	
18	52	53	52	51	49	50	77	90	98	91	86	88	H ₈₆	89	93	90	87	90	84	74	68	63	63	61	
19	57	54	52	51	51	54	80	93	102	96	89	93	96	93	84	83	90	C	C	C	C	C	C	C	
20	C	C	C	C	C	C	C	C	C	C	C	C	89	95	96	92	93	91	94	80	71	73	63	60	61
21	60	56	55	53	51	53	82	88	93	88	88	86	91	90	I ₉₅	99	93	84	81	75	77	63	60	57	
22	54	55	51	50	48	54	74	80	83	98	97	98	93	91	96	90	84	90	80	80	74	67	63	57	
23	56	56	55	5b	48	46	72	83	103	107	97	90	90	88	97	99	102	87	69	69	71	65	63	57	
24	55	50	50	51	56	53	62	80	97	96	98	103	91	82	83	87	84	86	82	74	70	60	53	50	
25	51	50	50	50	43	41	56	76	90	95	96	99	97	95	H ₉₅	91	91	84	68	63	63	63	56	56	
26	57	56	54	55	53	53	63	74	83	97	96	94	101	100	97	94	89	83	69	67	65	63	63	60	
27	58	57	57	56	57	57	73	83	94	99	101	104	100	99	96	87	86	78	72	70	67	68	64	61	
28	61	61	61	57	56	54	70	81	92	99	95	100	100	97	91	90	93	91	81	74	71	67	63	61	
29	60	60	60	61	61	54	74	87	99	107	109	111	95	97	101	97	100	94	85	74	64	63	61	60	
30	60	60	57	59	54	55	75	88	94	95	103	109	105	101	98	94	97	96	83	73	66	67	65	64	
31																									
	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	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	27	26	27	27	27	28	28	28	
MED	56	56	54	52	50	53	68	80	91	90	89	89	90	90	88	88	86	84	80	74	73	66	63	58	
UQ	60	58	56	55	54	54	74	86	96	97	96	96	96	96	95	90	90	90	83	80	77	70	64	61	
LQ	54	53	50	50	48	50	60	72	73	78	76	78	83	82	84	80	78	79	73	73	68	63	58	56	

IONOSPHERIC DATA

SEP. 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							405	410	450	470	C	C	C	C	C	C	C	C						
2							390	430	A	470	490	490	500	A	490	470	480	L						
3								430	480	U	L	530	520	L	U	L	490	A						
4								420	460	490	490	U	500	510		L	470							
5							380	430	480	490	470	500	520	L	510	U	L	470	L					
6								420	450	470	500	530	500	L	520	H	U	500	470					
7									L	480	540	U	510	490	510	500		A						
8									480	470	520	560	550			500								
9									480	500	L	490	L	570	500	U	500							
10									510	450	L	500	U	500	L	L		U	500					
11									470	480	500	490				L								
12									U	L	500	440	I	A	480	470	500	L	L	L	C			
13									C	C	C	C	C	C	C	C	C	C	C					
14									U	L	460	460	480	500	500	500	500	U	L	490	U	L	450	
15										L	500	510	500	530	L	500		420						
16									490		480	500		A	520		A	L						
17										L	490	430	410	L		U	L	500						
18										L	L	L	440		500	U	L	480						
19										L	U	L	480	480	440	500								
20										C	C	C	L	L			L							
21										L	450	460	U	L	480		C	L						
22											L	U	L	480	U	L	500	L	U	L				
23												470	450											
24										L	410	L	450	U	L	470	430	U	L	470	U	L	460	
25											L	L				L								
26												450	470	440	510	U	L	500	U	L				
27												U	L	L	L	U	L	500						
28												L	U	L	480	460	500	L	450					
29												430	460		480	450								
30												L												
31																								

	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	9	12	23	23	20	16	16	11	7									
MED							390	430	480	470	490	500	500	L	500	L	470								
UQ							395	430	L	485	485	500	505	515	L	500	L	475							
LQ							385	420	L	460	450	470	475	485	L	500	L	485	460						

IONOSPHERIC DATA

SEP. 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

Time 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						130	205	280	305	310	C	C	C	C	C	C	C	C							
2						130	220	290	305	315	310	340	370	350	340	325	300	225	115						
3						S	200	260	A	A	A	A	A	365	345	325	290	225	A						
4						120	200	250	295	I A 315	I A 360	365	I A 365	360	340	320	285	230	125						
5						E	205	265	290	300	340	380	345	345	340	320	295	230	A						
6						110	225	270	285	275	285	A	R	310	330	305	285	210	S						
7						A	170	245	290	285	320	305	320	305	340	330	290	195	F						
8						A	200	280	310	310	R	360	365	355	335	310	290	220	E						
9						S	220	285	320	330	I A 345	350	350	350	I R 335	I K 315	290	220	A						
10						A	215	285	310	330	350	370	360	345	330	315	290	220	A						
11						S	235	295	315	355	375	375	355	340	330	310	290	225	A						
12						E	210	280	305	315	310	365	360	345	335	305	C	C	C						
13						C	C	C	C	C	C	C	C	C	C	C	C	C	S						
14						E	215	280	300	320	335	340	335	I A 330	330	300	270	150	A						
15						E	210	280	310	330	330	330	320	305	A	A	A	A	E						
16						E	205	275	305	325	335	345	350	335	330	310	I A 265	200	A						
17						S	A	270	300	300	300	I R 335	I A 335	I A 335	330	310	270	200	C						
18						S	S	A	315	330	330	340	330	330	330	310	270	A	A						
19							200	270	300	325	340	330	325	320	320	305	250	C	C						
20						C	C	C	C	C	C	340	345	330	330	300	265	A							
21							210	250	305	325	335	355	345	325	C	300	260	200	E						
22							225	280	305	325	335	325	I A 325	335	325	300	250	A							
23						A	A	285	300	330	330	335	330	310	305	290	A								
24						A	A	I A 290	I A 330	335	335	340	330	315	300	255	165								
25						S	180	275	305	315	A	A	A	A	A	A	A	A							
26							200	270	305	325	340	345	365	345	330	310	A	A							
27							190	265	305	325	335	335	325	300	280	305	250	A							
28						A	A	300	300	305	B	350	335	315	300	255	A								
29							185	260	300	310	345	355	350	340	320	300	250	A							
30						A	260	310	330	345	330	345	330	310	300	245	A								
31																									

	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						9	22	24	27	27	24	24	25	27	25	26	24	15	6						
MED						E	205	272	305	320	335	340	345	335	330	308	270	220	E						
UQ						120	215	280	308	328	342	358	355	345	335	315	290	225	115						
LQ						E	200	262	300	310	325	332	335	330	320	300	255	200	E						

IONOSPHERIC DATA

SEI. 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)	Station																										
	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	E	J X 25	J X 25	J X 21	21	31	36	38	35	C	C	C	C	C	C	C	C	C	15	20	J X 43	J X 53	18			
2	J X 28	J X 40	J X 33	J X 23	16	23	29	37	J X 48	J X 43	40	41	J X 58	40	G	38	36	J X 43	J X 70	J X 40	J X 30	J X 30	J X 30	J X 30			
3	J X 30	E	E	E	J X 41	J X 41	J X 53	J X 63	J X 44	J X 41	40	J X 53	38	G	43	45	40	43	J X 51	J X 50	J X 35	J X 26	E	E			
4	J X 23	16	15	E	E	20	33	J X 40	38	42	40	G	42	G	G	G	G	G	23	J X 23	J X 23	E	E S 13	J X 20			
5	21	17	E	17	E	J X 33	33	33	33	37	G	G	G	G	G	G	G	30	20	E	J X 31	E S 15	E S 16				
6	E	E	E	E	19	G	G	48	36	J X 46	J X 45	J X 50	G	38	G	G	G	J X 43	J X 93	J X 113	J X 27	J X 33	J X 25	J X 33			
7	J X 33	E	16	19	20	21	J X 33	31	38	34	41	J X 53	44	J X 49	45	J X 51	J X 60	J X 70	34	E	J X 63	J X 80	J X 63	E			
8	E	15	J X 23	18	18	20	28	33	G	G	G	G	G	G	G	G	G	35	J X 43	J X 35	J X 26	E S 15	E S 15	E			
9	E	15	E	E	E	20	29	36	40	G	40	G	G	G	G	G	G	23	15	22	J X 33	J X 30	J X 20	J X 26			
10	J X 25	18	13	E	J X 21	18	G	G	40	37	27	G	26	G	G	G	G	20	24	G	J X 23	J X 23	E	E S 15	J X 23	J X 30	J X 25
11	J X 23	E	16	E	E S 15	G	G	G	G	G	G	G	G	G	G	G	G	25	G	21	G	20	J X 40	J X 23	18	J X 33	J X 24
12	E	16	16	E	E	E	G	G	34	37	J X 68	G	G	G	G	G	G	20	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E S 14	J X 30	E	E	E S 12	16		
14	E	E	E	15	E	15	G	G	32	40	40	38	39	39	41	37	G	G	J X 43	C	C	J X 28	15	E S 16			
15	J X 26	18	J X 30	15	J X 33	J X 23	23	J X 53	46	G	48	46	J X 58	J X 53	J X 44	35	J X 60	J X 65	J X 53	J X 43	J X 41	J X 23	E	E			
16	J X 20	15	E	E	J X 34	21	24	33	38	44	43	47	57	J X 48	J X 55	G	J X 33	28	18	J X 24	J X 35	J X 33	J X 21	E S 18			
17	J X 24	16	E	14	J X 20	E S 15	24	G	35	37	34	G	41	38	G	G	G	G	C	E	E S 15	E S 15	E S 15	E S 15			
18	E S 15	E	15	J X 23	14	E S 15	25	28	G	G	G	G	G	G	G	G	G	18	24	20	E	J X 30	J X 23	J X 25	J X 18		
19	J X 24	20	J X 23	J X 23	17	J X 25	25	G	G	G	G	G	G	G	G	G	G	G	C	C	C	C	C	C	C		
20	C	C	C	C	C	C	C	C	C	C	C	G	30	G	G	G	G	G	28	J X 45	E	E	J X 30	J X 25	E S 15		
21	E	J X 23	J X 23	E	E	E	G	G	G	G	G	G	G	G	C	G	G	G	33	30	21	21	24	E S 16	16		
22	J X 24	J X 33	J X 30	15	15	J X 43	G	24	G	38	40	39	40	37	36	34	31	26	J X 41	E S 15	J X 40	J X 33	J X 30	J X 33			
23	J X 53	J X 30	23	J X 33	J X 23	J X 26	J X 34	33	36	G	G	G	G	G	G	G	G	23	E	E S 17	E S 15	E S 15	E S 15	E S 15			
24	E	E	E	E	20	J X 25	24	J X 51	40	36	33	J X 73	G	G	G	G	G	21	31	21	E	J X 53	J X 25	J X 30	J X 30	J X 30	
25	J X 24	J X 23	J X 23	20	E	E S 12	24	32	J X 48	J X 40	J X 51	J X 43	J X 46	J X 38	J X 41	J X 43	J X 31	J X 24	J X 30	J X 30	J X 23	J X 25	J X 25	E			
26	E S 15	E	E	E	E	J X 20	J X 23	G	G	G	G	G	G	G	G	G	G	J X 43	J X 24	J X 20	J X 24	J X 23	18	J X 25	E S 15		
27	E	E	E	J X 23	J X 18	18	G	G	G	G	G	40	36	40	40	G	G	J X 26	E	E	E S 15	J X 23	E	E S 14			
28	E	E	E	E	E	E	20	30	35	40	J X 46	43	G	G	G	G	G	20	20	J X 21	J X 33	J X 30	J X 20	23	E S 14		
29	E S 15	E	E	E	J X 21	E	G	G	G	G	G	G	G	G	G	G	G	28	J X 61	J X 44	20	23	18	E S 15			
30	E	E	J X 24	J X 24	17	18	J X 31	23	G	40	G	G	G	G	G	G	G	15	J X 23	E S 12	J X 28	J X 43	J X 51	J X 35	J X 30		
31																											
	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	28	28	28	28	28	28	28	28	28	27	28	28	28	27	28	27	26	26	27	27	28	28	28	28		
MED	20	15	15	14	17	20	24	30	35	36	34	23	G	G	18	G	20	G	15	25	23	J X 24	J X 25	J X 24	E S 16		
UQ	J X 24	18	J X 23	22	J X 20	23	30	36	39	40	40	43	40	38	38	30	31	33	J X 43	J X 38	J X 32	J X 30	J X 30	J X 24			
LQ	E	E	E	E	E	15	G	G	G	G	G	G	G	G	G	G	G	G	23	18	E S 15	20	18	E S 14	E S 14		

IONOSPHERIC DATA

SEP. 1968

fbEs (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	13	E	17	17	15	G	C	25	G	C	C	C	C	C	C	C	C	C	C	14	17	26	36	E	
2	20	18	17	12	E	G	G	G	45	G	G	G	53	G	G	G	25	40	40	30	16	E	24	30	
3	17	E	E	E	40	40	40	G	40	35	37	40	38	G	G	44	38	36	49	41	32	26	E	E	
4	15	E	E	E	E	20	29	33	G	34	38	G	38	G	G	G	G	G	G	15	17	E	E	18	
5	E	16	E	E	E	28	G	G	G	G	G	G	G	G	G	G	G	G	15	E	15	E	E	E	
6	E	E	E	E	E	G	G	G	G	G	43	45	G	G	G	G	G	38	70	27	18	27	21	20	
7	19	E	E	15	E	18	29	G	G	G	G	45	G	58	G	45	51	64	15	E	18	50	E	E	
8	E	14	11	12	12	16	G	G	G	G	G	G	G	30	G	G	G	G	40	35	25	E	E	E	
9	E	E	E	E	E	G	G	G	G	G	37	G	G	G	G	C	G	20	15	19	30	20	19	20	
10	24	15	E	E	12	15	G	G	G	G	25	26	G	G	20	22	21	18	19	E	E	21	24	20	
11	16	E	17	E	E	E	G	G	G	G	31	G	G	G	G	G	25	19	16	18	20	16	14	20	21
12	E	15	16	E	E	E	G	G	G	G	50	G	G	G	G	G	20	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E	17	E	E	E	16	
14	E	E	E	E	E	G	G	G	G	G	G	G	G	39	G	G	G	G	26	C	C	20	14	E	
15	29	16	18	E	18	15	18	45	G	G	45	45	50	40	42	33	55	61	50	27	29	14	E	E	
16	15	12	E	E	12	17	G	G	G	G	24	24	47	57	47	51	G	23	17	17	20	34	30	16	E
17	16	E	E	E	12	E	21	G	G	G	G	G	38	35	G	G	G	G	C	E	E	E	E	E	
18	E	E	14	12	E	E	G	28	G	G	G	G	G	30	21	G	18	17	23	15	E	20	19	16	16
19	19	18	20	15	15	21	G	G	G	G	G	G	G	G	G	G	23	19	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	G	23	43	E	E	25	16	E	
21	E	E	12	E	E	E	G	G	G	G	G	G	20	G	G	C	G	G	31	28	18	18	20	E	15
22	21	22	14	E	E	13	G	21	G	G	G	G	38	G	G	G	G	21	17	E	27	31	27	20	
23	35	23	18	23	17	28	32	31	G	G	G	G	G	G	G	18	G	G	23	E	E	E	E	E	
24	E	E	E	E	16	14	21	30	31	34	32	G	G	G	G	24	20	G	E	20	14	20	17	24	
25	17	E	14	E	E	E	G	18	G	G	38	40	43	35	36	31	28	20	29	16	16	18	24	E	
26	E	E	E	E	E	16	15	G	G	24	22	G	G	G	G	G	40	21	15	16	16	16	18	E	
27	E	E	E	18	E	E	G	20	G	24	G	G	G	G	20	G	18	G	20	E	E	E	20	E	E
28	E	E	E	E	E	E	23	28	G	G	42	43	G	G	G	27	22	G	18	20	18	27	22	18	E
29	E	E	E	E	18	E	G	20	G	G	G	G	G	32	29	G	21	G	23	42	45	18	16	E	
30	E	E	E	16	12	13	22	22	G	G	G	G	G	30	G	G	G	15	18	E	19	30	24	16	18
31																									
CNT	28	28	28	28	29	28	28	28	28	28	28	28	28	28	28	27	28	26	26	27	27	28	28	28	28
MED	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	20	18	17	18	20	16	E	
UQ	18	15	15	12	14	16	21	24	G	G	37	34	38	30	G	22	23	23	40	24	24	24	20	19	
LQ	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	16	15	E	14	E	E	E	

IONOSPHERIC DATA

SEP. 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	E	E	E	E	E	12	12	12	17	C	C	C	C	C	C	C	C	E	E	E	E	S ₁₅	E					
2	E	E	E	E	E	E	12	12	17	19	18	18	19	18	18	16	12	E	E	E	E	E	E	E					
3	E	E	E	E	E	E	E	12	16	18	18	19	18	18	18	12	11	E	E	E	E	S ₁₄	E	E					
4	E	E	E	E	E	E	E	12	12	17	26	20	20	21	18	17	12	11	E	E	E	E	E	S ₁₃	E				
5	E	S ₁₅	E	E	E	E	E	16	16	16	17	20	22	20	17	17	17	E	11	E	E	E	S ₁₅	E	S ₁₆				
6	E	E	E	E	E	E	E	12	12	16	18	18	18	20	20	17	18	18	11	E	S ₁₂	E	E	E	E				
7	E	E	E	E	E	E	E	16	17	17	18	19	20	17	18	17	12	11	E	E	E	E	E	E	E				
8	E	E	E	E	E	E	E	11	12	13	16	20	20	20	19	20	17	12	12	E	E	E	S ₁₅	E	S ₁₅				
9	E	E	E	E	E	E	E	12	16	17	17	20	30	21	20	15	12	11	E	E	E	E	E	E	E				
10	L	E	E	E	E	E	E	13	12	17	19	18	20	18	17	12	11	E	E	E	E	S ₁₅	L	E	S ₁₂				
11	L	E	E	E	E	E	E	12	16	17	21	20	18	20	15	16	11	E	E	E	E	E	E	E	E				
12	L	E	E	E	E	E	E	15	12	17	18	18	20	19	16	17	12	C	C	C	C	C	C	C	C				
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E	S ₁₄	E	E	E	E	S ₁₂	E			
14	E	E	E	E	E	E	E	15	11	17	18	16	18	20	17	20	16	17	11	E	C	C	E	E	S ₁₆	E			
15	E	E	E	E	E	E	E	16	18	17	18	19	17	18	17	16	11	12	E	S ₁₅	E	S ₁₂	E	E	E				
16	E	E	E	E	E	E	E	12	12	12	16	17	18	20	18	18	15	16	12	E	E	E	E	E	S ₁₈	E			
17	L	E	E	E	E	E	E	12	15	17	18	18	18	18	16	15	17	17	11	C	E	E	E	S ₁₅	E	S ₁₅			
18	E	S ₁₅	E	E	E	E	E	15	15	18	17	18	19	21	18	15	15	11	E	E	E	E	E	S ₁₅	E	E			
19	E	E	E	E	E	E	E	12	12	12	15	18	17	17	11	E	E	11	C	C	C	C	C	C	C	C			
20	C	C	C	C	C	C	C	C	C	C	C	C	16	16	12	17	11	11	E	E	E	E	S ₁₂	E	S ₁₅	E			
21	E	E	E	E	E	E	E	15	12	16	17	16	13	19	18	C	12	12	15	E	S ₁₆	E	S ₁₅	E	S ₁₈	E	S ₁₄		
22	L	E	E	E	E	E	E	15	15	18	16	17	19	18	17	16	19	12	12	E	S ₁₄	E	S ₁₅	E	S ₁₂	E	S ₁₂		
23	E	S ₁₅	E	E	E	E	E	E	17	16	16	19	18	20	20	12	19	12	12	E	S ₁₇	E	E	S ₁₅	E	E	S ₁₅		
24	L	E	E	E	E	E	E	12	17	16	18	17	17	18	16	11	11	11	E	E	E	E	E	E	E	E	E		
25	E	E	E	E	E	E	E	11	11	16	17	18	20	17	13	11	11	11	E	12	E	E	E	E	S ₁₅	E			
26	E	S ₁₅	E	E	E	E	E	11	12	16	18	18	18	18	17	15	13	E	11	E	E	E	E	S ₁₇	E	S ₁₅	E		
27	E	E	E	E	E	E	E	12	12	12	17	16	17	18	11	E	E	16	E	E	E	E	S ₁₅	E	E	E	S ₁₄		
28	L	E	E	E	E	E	E	14	11	16	17	17	35	20	17	18	16	E	E	E	E	E	S ₁₅	E	S ₁₅	E	S ₁₄		
29	E	S ₁₅	E	E	E	E	E	12	12	16	17	17	17	17	17	17	16	11	12	E	S ₁₅	E	S ₁₅	E	E	S ₁₅	E	S ₁₅	
30	L	E	E	E	E	E	E	11	13	11	17	11	18	17	17	13	11	E	E	E	S ₁₂	E	S ₁₅	E	E	E	S ₁₆		
31																													
CNT	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	27	28	27	26	26	27	27	28	28	28	28			
MED	E	E	E	E	E	E	12	12	16	17	18	18	18	18	17	17	16	11	11	E	E	E	E	E	E	E	E		
UQ	E	E	E	E	E	E	13	15	17	18	18	20	20	20	18	18	17	12	12	E	E	E	S ₁₂	E	S ₁₄	E	S ₁₂	E	S ₁₅
LQ	E	E	E	E	E	E	E	12	12	16	17	18	18	18	16	14	11	11	E	E	E	E	E	E	E	E	E		

IONOSPHERIC DATA

SEP. 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 Sween 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	245 ^F	240	250	255	260	250	295	305	295	280	C	C	C	C	C	C	C	C	C	285	270	260	265	260	
2	255	270	265	265	255	265	295	290	290	285	270	280	315	285	295	285	310	300	305	290	270	265	275	260	
3	265	255	250	280 ^F	275	265	255	315	295	305	295	295	290	295	305	305	300	290	275	265	275	280	265	265	
4	270	260	245	255	270	295	295	325	325	310	310	305	305	300	285	320	300	310	300	365	275	275	275	270	
5	260	260	260	260	255	255	290	320	320	310	295	310	305	295 ^H	295	295	310	295	295	295	295	270	265	255	
6	275	260	275	270	260	275	300	315	295	310	295	290	290	300	300	300	280	290	290	290	285	295	270	260	
7	255	255	245	255	250	285	310	325	300	310	275	290	300	300	295	295	300	295	300	290	280	255 ^F	270	260	
8	255	255	250	255	265	300	285	285	295	305	300	265	270	275	290	285	285	300	275	280	245	265	250	240	
9	265	235	220	230	235	270	310	270	310	315	295	295	280	300	310	295	310	310	290	270	275	290	260	275	
10	265	270	260	255	260	270	315	335	295	305	320	295	290	290	290	300	300	305	295	285	285	275	260	270	
11	275	265	255	245	255	265	300	310	315	305	295	295 ^H	290	285	295	300	300	300	290	285	275	275	270	270	
12	265	260	265	275	265	255	310	310	325	320	285	285	290	285	290	295	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	310	245	265	250	245	235
14	235	260	265	245	245	265	280	265	280	285	255	265	280	285	295	305	305	305	285	C	C	260	245	245	
15	245	245	265	255	255	270	285	305	295	295	315	315	275	295	290	300	295	295	290	295	300	275	260	250	
16	250	245	245	250	270	265	295	310	305	305	315	305	275	295	290	295	300	310	310	285	285	285	260	260	
17	260	265	265	275	280	285	315	305	310	315	300	290	285	290	290	305	300	310	300	300	305	295	295	275	
18	260	265	260	275	265	280	330	320	330	320	310	300	295 ^H	285	310	295	300	300	300	295	285	275	270	260	
19	265	265	255	255	270	270	310	310	315	305	305	280	315	300	300	300	290	C	C	C	C	C	C	C	
20	C	C	C	C	C	C	C	C	C	C	C	C	295	295	290	295	300	295	310	315	280	300	290	265	275
21	280	285	270	275	280	285	330	340	335	320	320	315	295	300	300	315	315	320	310	290	320	285	285	265	
22	265	275	265	260	270	295	340	335	325	305	310	310	290	295	300	300	310	310	300	290	300	285	285	280	
23	270	265	265	290	285	290	310	315	300	320	315	300	290	285	290	290	315	310	280	260	280	280	285	280	
24	275	250	245	255	285	300	300	325	325	300	295	315	295	315	315	310	315	315	315	295	305	300	275	270	
25	275	275	280	265	280	295	320	330	315	320	300	305	310	300	305 ^H	300	310	315	310	285	285	295	270	270	
26	265	270	275	275	285	310	325	330	315	310	300	300	300	300	300	300	305	315	295	285	285	275	285	275	
27	260	265	260	265	280	280	325	325	320	325	305	300	300	285	300	310	305	320	290	275	270	275	260	270	
28	280	280	285	280	285	280	330	325	315	315	315	300	305	310	310	300	310	310	300	290	280	285	275	265	
29	265	265	275	280	310	280	315	320	315	305	315	315	295	300	305	300	310	310	315	300	280	275	260	275	
30	270	270	265	290	295	275	315	335	320	305	300	295	290	290	295	300	310	315	315	295	275	280	270	265	
31																									
	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	26	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	27	26	27	27	27	28	28	28	
MED	265	265	262	262	270	278	310	318	315	308	300	298	292	295	295	300	305	310	300	290	280	275	270	268	
UQ	270	270	265	275	280	288	318	325	320	315	312	305	300	300	302	302	310	310	310	295	290	285	280	275	
LQ	258	255	250	255	258	265	295	308	295	305	295	290	290	285	290	295	300	300	290	285	275	272	265	260	

IONOSPHERIC DATA

SEP. 1968

M(3000)F1(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							325	360	355	370	C	C	C	C	C	C	C	C						
2							315	330	A	360	365	365	I A 345	360	360	350	L							
3							350	340	U L 345	325	335		L U L 360	345	A									
4							380	365	365	365	U L 360	350			L	355								
5							325	350	340	360	390	360	345		345	U L 360	L							
6							380	380	380	360	340	360	360	360	U L 340	360								
7								L	365	335	I A 350	365	I A 360	350			A							
8								355	360	340	320	315			350									
9								365	360	375	L	335	360	U L 360										
10								355	390	360	U L 380	L	L			U L 350								
11								360	375	360	370				L									
12								U L 360	390	I A 380	385	360		L	L	L	C							
13								C	C	C	C	C	C	C	C	C	C							
14							U L 325	325	350	340	345	360	340	U L 350	U L 380									
15								L	350	A	A	A		355		380								
16							345		355	340			A	A	A	L								
17								355	395	420	L		U L 360											
18								L	L	L	425		360	U L 355										
19								L	U L 385	375	375	390	345											
20								C	C	C	L	L			L									
21								L	380	390	375	U L			C	L								
22									L	U L 375	U L 360	L	U L 370											
23										385	400													
24							365	L	380	U L 375	420	U L 375	U L 390											
25									L	L			L											
26										385	380	430	355	U L 360	U L 360									
27									U L 365	L	L	U L 365												
28									365	U L 375	365	390	360	380										
29									395	390		385	400											
30										L														
31																								
CNT							3	9	12	23	22	19	15	15	11	7								
MED							325	350	355	365	375	365	360	360	350	360								
UQ							345	365	364	382	380	382	370	360	360	370								
LQ							320	345	348	360	360	355	348	360	348	352								

IONOSPHERIC DATA

SEP. 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							320	300	310	370		C	C	C	C	C	C	C							
2							335	340	340	400	415	405	330	350	320	340	295								
3								300	320	300	340	320	315	320	300	280									
4								260	275	285	275	300	315		320	275									
5							320	300	300	290	300	300	315		320	300	290								
6								260	260	275	270	340	320	305	300	295									
7									300	285	360	300 ^L	295	310	310		285								
8									305	315	320	400	385		320										
9									280	270	260	265 ^L	335	285	275										
10									295	270	260	280 ^L	265 ^U	310		285									
11									260	275	300	265 ^H			300 ^U										
12									260	265	270 ^H	280	275	300	300	295			C						
13									C	C	C	C	C	C	C	C	C								
14									400 ^L	350	360	425	365	340	310	300	280								
15										270	295	280	275	330 ^L	305		270								
16									300		300	290		310	300	295	285								
17										290	245	240	275		280										
18										260	250	260	260		300	275									
19										255	240	260	300	280	295										
20										C	C	C	280	270		300									
21											245	250	260	260		280 ^L	275								
22												270	260	275	270	275									
23													270	260											
24												275 ^L	260	260	260	275	250	260							
25													250	250			270								
26													260	255	260	295	285	275							
27													260	275	275 ^L	270									
28													260	260	290	275	285	270							
29													260	250		260	260								
30														260											
31																									
CNT								3	9	19	26	27	24	21	19	17	11	3							
MED								320	300	280	270	270	280	295	300	300	285	290							
UQ								328	300	302	295	295	300	320	308	310	295	292							
LQ								320	275	260	260	260	270	270	282	280	278	288							

IONOSPHERIC DATA

SEP. 1968

***K'*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	340	325	325	300	260	295	255	270	250	215	C	C	C	C	C	C	C	C	C	265	260	300	320	290	
2	300	300	285	305	255	290	250	240	I ^A ₂₅₀	225	210	200	I ^A ₂₃₅	225	225	245	260	A	A	I ^A ₂₇₅	I ^A ₂₇₅	265	280	345 ^A	
3	300	310	300	285	A	A	I ^A ₃₀₅	245	260	220	210	215	220	240	265	I ^A ₂₆₅	260	265	I ^A ₂₉₅	I ^A ₃₀₀	I ^A ₃₀₀	300	280	260	280
4	275	275	315	300	280	265	250	245	220	210	210	200	215	240	220	250	240	250	250	290	290	260	270	290	
5	295	300	300	300	300	315	275	245	225	220	200	220	200	230	230	250	255	250	270	240	250	260	265	295	
6	285	300	275	270	290	275	240	250	230	205	250	260	240	220	H ^U ₂₂₅	235	240	290	I ^A ₂₆₀	I ^A ₂₆₀	260	260	290	310	
7	310	300	320	315	310	280	250	240	250	230	230	I ^A ₂₂₅	250	I ^A ₂₆₀	260	I ^A ₂₇₀	A	A	260	235	280	I ^A ₂₆₅	265	300	
8	300	305	310	310	275	270	250	250	250	235	245	225	240	240	240	250	260	260	I ^A ₃₀₀	I ^A ₃₀₀	310	290	290	270	
9	300	290	350	355	345	315	260	240	240	225	220	220	215	210	250	240	250	260	260	260	305	275	250	285	
10	300	295	300	300	300	290	250	240	225	215	215	215	210	210	240	225	240	260	260	250	270	275	300	280	
11	265	275	310	300	300	300	250	250	235	215	210	215	230	220	220	235	245	260	245	265	260	260	300	300	
12	290	300	290	290	300	300	240	230	230	225	I ^A ₂₂₅	200	230	235	225	245	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	240	265	300	300	325	345	
14	335	300	300	315	325	325	245	255	245	235	225	250	210	250	260	245	225	H ^U ₂₆₀	265	C	C	300	310	300	
15	360	340	290	295	305	300	250	260	250	220	A	A	A	260	275	230	A	A	A	275	260	260	290	300	
16	315	320	325	295	275	295	255	235	240	250	250	270	A	A	A	240	250	260	245	250	265	I ^A ₂₉₅	I ^A ₂₆₅	305	
17	310	300	280	260	270	275	240	245	230	210	200	235	245	225	235	245	240	260	I ^A ₂₄₀	I ^A ₂₄₅	245	240	250	280	
18	310	300	300	275	270	290	250	245	230	230	215	200	230	H ^U ₂₂₅	225	245	245	240	255	240	230	260	280	275	280
19	295	300	325	310	300	300	245	240	230	220	215	215	205	240	245	230	250	C	C	C	C	C	C	C	
20	C	C	C	C	C	C	C	C	C	C	C	215	215	230	245	235	250	245	I ^A ₂₅₀	260	250	265	300	280	
21	280	275	280	260	260	270	240	225	225	210	205	215	205	215	I ^A ₂₃₀	260	250	245	245	260	245	260	275	310	
22	315	300	300	295	260	260	245	225	235	230	230	210	235	235	230	H ^U ₂₄₀	245	245	250	240	255	260	270	275	285
23	I ^A ₃₅₀	310	305	260	250	280	250	245	240	210	H ^U ₂₁₀	205	200	H ^U ₂₄₅	250	250	250	240	235	290	260	260	260	250	
24	270	315	330	310	265	230	250	250	235	220	210	200	200	210	205	H ^U ₂₅₀	250	250	245	235	260	250	245	260	325
25	300	300	265	250	225	260	230	245	245	225	225	250	250	230	225	H ^U ₂₄₅	245	250	230	230	250	260	260	300	300
26	300	280	280	250	245	240	220	235	235	210	250	195	210	245	235	H ^U ₂₃₅	H ^U ₂₃₅	250	240	220	260	250	280	280	275
27	300	300	295	295	270	245	225	240	240	240	235	230	230	235	250	240	255	240	230	260	270	300	260	295	
28	280	270	260	260	260	260	220	240	225	240	245	260	215	235	230	245	245	245	245	270	260	260	260	280	
29	295	300	300	275	250	245	250	245	240	235	235	210	H ^U ₂₂₅	225	210	H ^U ₂₁₅	235	255	245	I ^A ₂₆₀	I ^A ₂₇₅	250	280	270	285
30	295	285	290	285	250	260	240	245	235	230	220	235	240	220	245	250	255	240	225	250	275	285	275	300	
31																									
	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	28	28	28	27	27	28	28	28	28	26	27	26	27	27	28	25	23	25	27	27	28	28	28	
MED	300	300	300	295	270	280	250	245	235	222	220	215	222	230	235	245	250	250	245	260	260	268	275	292	
UQ	310	302	312	302	300	298	250	248	245	230	235	232	235	240	248	250	255	260	260	272	275	282	295	300	
LQ	292	292	288	272	260	260	240	240	230	215	210	208	210	220	225	235	245	245	240	250	255	260	265	280	

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***R'*Es (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	Station																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	105	E	105	105	105	120	115	115	115	110	C	C	C	C	C	C	C	C	C	115	110	110	110	105	
2	105	105	105	105	110	135	125	125	110	115	120	120	115	115	G	120	140	115	110	110	110	110	110	100	
3	100	E	E	E	110	110	110	110	105	105	105	105	105	G	140	125	120	115	110	110	110	110	E	E	
4	105	100	100	E	E	120	115	110	115	110	110	G	105	G	G	G	G	G	120	115	115	E	S	110	
5	110	105	E	105	E	120	115	115	120	115	G	G	G	G	G	G	G	140	115	E	110	S	E	S	
6	E	E	E	E	110	G	G	110	115	110	110	105	G	120	G	G	G	120	115	110	110	110	110	110	
7	105	E	105	105	105	115	110	115	110	115	115	110	110	110	125	125	115	110	120	E	110	110	115	E	
8	E	105	105	100	100	105	120	120	G	G	G	G	G	105	G	G	G	135	115	115	110	S	S	E	
9	E	150	E	E	E	135	125	125	120	G	110	G	G	G	G	G	G	110	110	115	110	110	110	110	
10	110	110	110	E	105	105	G	G	120	120	105	105	G	G	100	100	100	100	100	E	S	105	105	100	
11	100	E	100	E	E	S	G	G	G	G	110	G	G	G	G	110	105	105	125	110	105	100	105	105	
12	E	100	100	E	E	E	G	G	120	115	110	G	G	G	G	100	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	S	100	E	E	S	100	
14	E	E	E	115	E	140	G	G	145	125	125	135	115	110	115	145	G	G	125	C	C	110	110	S	
15	110	110	110	110	105	105	105	125	120	G	110	110	110	110	110	110	110	115	115	110	110	115	E	E	
16	110	110	E	E	110	110	150	135	125	125	125	120	115	115	115	G	110	140	110	110	110	110	100	S	
17	105	105	E	100	100	S	110	G	115	110	110	G	105	105	G	G	G	G	C	E	E	S	E	S	
18	S	E	105	105	105	S	110	110	G	G	G	G	G	110	105	105	105	150	105	E	115	105	105	100	
19	100	110	110	105	105	105	150	G	G	G	G	G	G	G	100	100	G	C	C	C	C	C	C	C	
20	C	C	C	C	C	C	C	C	C	C	C	C	105	G	G	G	G	G	125	105	E	E	100	100	S
21	E	110	110	E	E	E	G	G	G	G	G	100	G	G	C	G	G	125	120	115	110	100	S	110	
22	100	105	110	100	105	100	G	105	G	125	120	115	115	120	120	120	115	120	110	S	110	110	110	110	
23	110	110	110	105	105	110	110	110	115	G	G	G	G	G	100	G	G	125	E	S	E	S	E	S	
24	E	E	E	E	110	110	110	110	110	110	110	110	G	G	100	105	140	120	E	110	110	110	110	110	
25	105	105	105	105	E	S	165	145	120	115	110	110	105	105	100	105	105	105	105	105	105	105	105	100	E
26	S	E	E	E	E	110	110	G	G	105	100	G	G	G	G	G	105	110	125	105	105	100	100	S	
27	E	E	E	105	105	105	G	105	105	G	G	115	115	110	110	100	G	100	E	E	S	105	E	S	
28	E	E	E	E	E	E	115	110	115	115	110	115	G	G	110	110	105	105	100	100	100	100	100	S	
29	S	E	E	E	105	E	G	110	G	G	G	G	110	110	G	105	G	120	110	110	110	100	100	S	
30	E	E	110	105	105	105	100	110	G	125	G	G	105	G	G	G	100	105	S	110	105	105	105	105	
31																									
CNT	15	15	16	15	18	19	19	20	19	18	18	15	13	13	14	16	14	23	21	18	21	22	18	13	
MED	105	105	105	105	105	110	115	110	115	115	110	110	110	110	110	108	108	115	110	110	110	108	105	105	
UQ	110	110	110	105	110	120	122	122	120	120	115	115	115	115	115	120	115	125	120	115	110	110	110	110	
LQ	102	105	105	105	105	105	110	110	112	110	110	105	105	110	100	102	105	108	110	110	110	100	100	100	

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Types of Es

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

IONOSPHERIC DATA

SEP. 1968

foF2 (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

Time 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		59	53	51	71	68	65	61	67	72	70	69	68	73	81	77	79	84	77	71	70	64																																																																							
2	67	61	61	54	54	55	61	67	67	66	63	66	72	75	72	71	73	76	83	77	70	68	70	67																																																																								
3	64	57	57	57	51	53	71	81	79	74	80	82	80	81	C	C	C	C	C	C	C	C	C																																																																									
4	C	C	C	C	C	C	C	C	C	75	76	84	87	91	91	89	92	83	75	74	75	77	69	63																																																																								
5	61	62	58	61	53	C	C	C	89	82	80	86	84	78	82	87	89	89	88	87	78	70	69	61																																																																								
6	62	61	57	54	53	55	78	86	91	79	79	83	I ₉₆ ^R	87	88	85	77	I ₈₄ ^R	91	86	80	63	59	59																																																																								
7	56	55	52	53	51	52	68	82	80	81	81	90	89	84	86	89	89	89	87	77	72	68	67	66																																																																								
8	61	61	58	57	57	57	77	83	87	92	86	83	86	96	93	89	84	85	80	77	72	74	71	67																																																																								
9	C	C	C	C	C	C	C	C	C	102	96	96	91	98	98	81	84	79	81	77	74	73	71	66																																																																								
10	61	60	54	55	53	56	87	I ₉₁ ^R	91	101	94	96	97	94	101	97	85	77	82	83	81	75	74	74																																																																								
11	71	61	59	59	57	58	83	I ₁₀₀ ^R	J ₁₀₇ ^R	93	91	96	93	I ₉₆ ^R	95	93	87	91	87	80	C	C	C	C																																																																								
12	67	62	61	59	57	57	81	R ₁₀₆	91	93	93	I ₉₂ ^C	91	86	89	94	I ₈₆ ^C	86	88	80	82	74	74	67																																																																								
13	62	61	59	58	62	56	66	72	71	63	74	80	82	96	91	85	83	83	78	61	55	57	54	52																																																																								
14	53	55	52	49	45	45	64	60	69	76	72	83	83	91	93	81	76	74	70	63	68	63	52	53																																																																								
15	52	52	55	40	45	47	71	78	90	91	86	82	84	91	99	95	89	91	I ₈₈ ^R	I ₈₂ ^A	I ₇₀ ^A	I ₅₈ ^A	52	47																																																																								
16	46	48	46	47	45	48	70	81	87	C	C	C	C	C	C	C	88	I ₉₀ ^R	91	79	69	58	56	56																																																																								
17	57	55	55	56	49	52	76	88	I ₉₆ ^R	H ₈₄	92	I ₉₈ ^R	104	97	101	101	99	96	97	78	77	61	55	52																																																																								
18	53	53	54	52	48	48	73	84	93	94	I ₈₆ ^C	85	92	94	96	93	94	I ₉₅ ^R	86	77	68	67	64	60																																																																								
19	61	56	56	56	54	57	79	I ₁₀₄ ^R	I ₁₁₆ ^R	96	90	84	96	99	96	86	100	95	I ₉₃ ^R	85	64	57	57	57																																																																								
20	54	56	51	51	48	52	85	I ₉₄ ^R	I ₉₅ ^R	93	91	84	94	94	96	101	101	I ₁₀₀ ^R	89	68	66	63	63	67																																																																								
21	65	64	61	58	56	57	85	I ₉₄ ^R	I ₉₂ ^R	88	86	90	96	95	96	101	104	96	82	81	74	60	61	59																																																																								
22	55	56	51	51	52	51	76	81	89	I ₁₀₀ ^R	I ₉₇ ^R	91	94	100	99	105	97	91	91	79	72	66	62	56																																																																								
23	53	55	53	59	48	45	69	88	I ₁₁₀ ^R	116	92	88	93	101	103	112	102	86	74	71	76	70	67	67																																																																								
24	54	50	48	51	51	44	64	I ₉₃ ^R	96	106	I ₁₀₄ ^R	101	96	88	85	95	98	98	87	67	66	61	57	54																																																																								
25	57	55	54	51	42	42	64	81	94	I ₉₂ ^R	90	99	112	102	99	96	101	88	69	61	60	62	62	61																																																																								
26	59	58	56	57	56	50	65	78	86	92	98	96	100	102	96	97	94	84	74	65	65	62	61	61																																																																								
27	58	56	56	55	55	56	74	83	94	101	101	I ₁₀₉ ^C	111	107	99	98	89	86	75	67	66	67	68	64																																																																								
28	62	65	63	54	52	53	77	86	92	101	96	92	99	104	96	91	92	95	80	73	71	63	60	61																																																																								
29	60	59	59	61	51	51	71	95	99	99	I ₁₀₆ ^R	109	96	96	96	106	I ₉₈ ^R	101	87	71	64	60	62	64																																																																								
30	61	60	59	59	51	53	75	85	90	96	I ₁₀₀ ^R	102	100	102	106	105	99	96	88	62	60	61	64	63																																																																								
31																																																																																																
CNT	27	27	27	26	28	27	27	27	28	29	29	29	29	29	29	28	28	29	29	29	29	28	28	28	28																																																																							
MED	60	57	56	56	52	52	73	84	91	92	90	90	93	95	96	94	89	89	86	77	70	63	62	61																																																																								
UQ	62	61	59	58	54	56	78	92	94	99	96	96	96	99	99	100	98	95	88	80	76	70	69	66																																																																								
LQ	54	55	54	52	48	49	68	81	86	81	80	83	86	88	90	86	85	84	79	68	66	61	58	56																																																																								

IONOSPHERIC DATA

SEP. 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								L	470	500	510	500	520	L	480	480	A								
2								420	460	480	L	530	530	500	L	460	L	L							
3								L	L	520	510	560	510	500	C	C	C	C							
4								C	C	L	L	530	510	510	500	450	L								
5								C	U	L	L	H	510	500	500	470	L	L							
6								L	L	480	540	530	520	580	500	L	A								
7								L	L	L	490	580	540	550	520	L	L	L							
8								L	440	480	530	580	500	560	L	L	L								
9								C	C	L	500	590	510	550	L	L	L								
10								L	L	500	L	520	520	500	500	L									
11								L	L	L	520	520	600	550	L	L	L	L							
12								L	L	L	500	500	510	520	550	500	C								
13							L	L	U	L	U	500	520	540	550	L	L	L	L						
14								L	L	U	L	A	560	500	550	470	A	L							
15								L	L	A	I	A	L	530	L	500	A	A							
16								U	L	C	C	C	C	C	C	C	A								
17								L	L	510	550	510	510	L	L	L	L	L							
18								L	L	I	C	500	540	L	L	L	L	L							
19								L	U	L	U	L	H	H	500	L	480	L							
20								L	L	500	500	510	480	L	L	L	L								
21								L	L	L	500	L	L	U	L	L	L	L							
22								L	L	L	500	550	L	L	L	L	L	L							
23								L	L	490	480	500	550	L	L	L	L	L							
24								L	500	500	470	L	L	460	L	L	L	L							
25								L	L	A	L	L	U	L	L	L	L	L							
26								L	L	U	L	500	560	510	400	L									
27								L	L	L	C	L	L	L	L	L									
28								L	L	470	L	550	460	480	L	L	L								
29								420	450	550	480	L	420	L	440										
30								460	550	H	460	430	480	500	L										
31																									
CNT								1	7	13	21	25	24	23	13	7									
MED								420	460	490	500	520	520	510	500	470									
UQ								470	500	520	550	545	550	500	480										
LQ								445	480	500	500	510	500	480	455										

IONOSPHERIC DATA

SEP. 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	A	A	A	A	A	S						
2						A	A	A	A	335	A	A	A	375	A	A	A	235	A						
3						A	R	275	315	I A	330	345	365	380	370	C	C	C	C	C					
4						C	C	C	C	A	A	A	A	A		355	330	290	245	B					
5						C	C	C	I A	I A	I A		370	375	I A	360	345	325	285	A	A				
6						S	A	A	A	A	A		360	365	380	365	325	300	A	A					
7						E	I A	A	A	A	A	A	A	A		355	335	300	R	A	A				
8						S	I A	295	A	A	A	A	A	380	370	I A	355	340	295	A	A				
9						C	C	C	C	A	A	A	A	A	A		330	I A	280	230	A				
10						A	I A	270	I A	325	I A	345	I A	360	I A	375	385	365	350	330	310	A	A		
11						S	I A	285	330	I A	350	I A	375	I A	380	I A	375	365	355	325	295	245	A		
12						E	I A	270	I A	315	I A	340	I A	365	I C	375	I A	380	I A	385	370	345	I C	I A	A
13						S	215	A	A	I A	340	A	A	A	A	370	350	320	280	220	S				
14						S	A	270	305	330	350	A	A	A	A		330	285	235	A					
15						S	A	270	A	A	A	A	A	A	A	A	A	A	A	A	A				
16						S	A	275	315	C	C	C	C	C	C	C	C	A	A	B					
17						B	I A	270	I A	315	340	350	355	360	I R	365	350	330	290	A	B				
18						B	210	265	305	I A	340	I C	355	360	370	360	345	310	275	A	S				
19						S	A	260	305	I A	340	355	360	365	355	340	315	270	A	S					
20						B	A	A	A	I A	335	350	360	365	365	345	310	280	A	B					
21						E	I A	270	310	I A	340	355	365	370	R	365	350	320	290	A	S				
22						S	210	I A	270	I A	315	I A	340	355	360	A	A	355	335	295	A	S			
23						S	A	A	A	A	R	345	350	360	360	370	350	330	285	A	S				
24						E	195	285	315	340	355	365	365	360	340	315	275	A	B						
25						E	205	270	325	A	A	A	A	A	A		310	260	A	S					
26						E	210	265	I A	320	345	360	370	355	345	325	310	290	A	S					
27						E	A	270	300	340	A	C	A	355	350	315	275	215	B						
28						S	I A	I A	270	315	345	350	I B	360	365	350	330	300	245	180	S				
29						S	170	255	310	335	350	360	360	355	330	300	265	A	S						
30						S	195	265	305	340	355	360	350	350	330	310	260	R	S						
31																									
CNT						7	16	20	19	21	18	18	18	21	22	25	25	9							
MED						E	210	270	315	340	355	360	365	365	350	325	285	235							
UQ						E	212	272	315	I A	340	355	370	375	370	355	330	295	245						
LQ						E	202	268	305	335	350	360	360	355	340	310	275	220							

IONOSPHERIC DATA

SEP. 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 44	J X 63	J X 61	J X 49	J X 25	J X 24	28	36	J X 43	J X 42	J X 47	37	J X 42	J X 53	J X 53	J X 44	J X 64	J X 39	J X 49	J X 44	J X 18	J X 17	J X 17	E S 13		
2	J X 29	J X 25	J X 22	J X 44	J X 29	J X 20	J X 38	38	J X 47	45	J X 67	J X 50	J X 58	J G 36	J X 40	J X 47	J X 44	30	27	J X 35	J X 54	J X 46	E S 13	E S 12		
3	J X 24	E	J X 22	J X 18	J X 23	J X 23	G	J G 27	36	J X 38	G	G	G	41	C	C	C	C	C	C	C	C	C	C		
4	C	C	C	C	C	C	C	C	C	J X 45	J X 43	J X 50	J X 43	J X 49	J X 39	G	G	G	E B 19	M 21	J X 18	J X 20	J X 19	J X 20		
5	J X 20	J X 16	J X 20	J X 20	J X 18	C	C	C	36	37	36	G	G	38	G	G	32	26	20	J X 19	E S 14	E S 14	J X 33	E S 14		
6	E S 13	E	E	J X 13	J X 15	E S 14	23	32	33	J X 40	J X 44	G	G	G	G	J X 78	J X 55	J G 63	J X 73	J X 64	J X 83	J X 64	J X 55	J X 65		
7	J X 29	J X 27	J X 29	J X 23	J X 20	E	25	30	34	37	39	41	38	41	G	35	G	J X 34	J X 24	E S 13	E S 12	E S 13	J X 25	E S 13		
8	J X 26	J X 29	J X 21	J X 13	E	E S 13	25	G	J X 59	J X 51	J X 40	J X 43	J X 43	G	40	G	G	35	J X 35	E S 13	J X 53	J X 42	J X 28	M 21		
9	C	C	C	C	C	C	C	C	C	37	37	39	39	41	39	36	J X 35	G 23	J X 29	J X 20	J X 20	J X 46	J X 19	J X 43		
10	J X 16	J X 18	J X 14	J X 27	J X 55	J X 27	G	J X 38	G	36	38	40	G	G	J G 28	G 25	G	27	J X 29	J X 38	E S 14	J X 18	J X 28	J X 28		
11	E S 14	J X 21	E	E	E	E S 13	26	32	39	39	G	39	38	G	G	G	G	G	18	18	J X 17	C	C	C		
12	J X 24	J X 19	J X 17	E	E	E	23	30	35	43	41	C	J X 39	40	G	G	C	J X 25	J X 20	J X 26	J X 23	E B 17	J X 19	E B 17		
13	E S 14	E B 17	E S 14	E	E	E S 14	G	33	38	40	41	J X 41	39	G	G	G	32	G	J X 27	J X 30	J X 16	J X 19	J X 20	E S 13		
14	E S 13	E S 13	E S 12	E B 18	J X 16	E S 13	27	34	J X 49	J X 50	J X 50	39	44	51	38	J X 56	34	28	J X 23	J X 48	J X 50	J X 33	J X 59	J X 59		
15	J X 54	J X 54	J X 55	J X 59	J X 25	J X 23	J X 39	33	41	J X 51	J X 55	J X 45	J X 43	J X 50	J X 49	J X 73	J X 78	27	J X 84	J X 87	J X 86	J X 73	J X 76	J X 53		
16	J X 54	E S 13	E S 12	J X 18	J X 14	J X 23	J X 25	J X 25	G	C	C	C	C	C	C	C	J X 64	J X 41	J X 23	J X 33	J X 24	E S 13	J X 24	M 21		
17	E S 13	J X 18	E S 13	E S 13	E	E B 14	G	28	33	G	G	G	G	G	G	35	31	25	E B 18	E S 14	E B 18	E S 14	E B 17	E B 18		
18	E S 18	E S 12	E	E S 13	E	E B 18	G	G	34	35	C	G	G	G	38	35	39	J X 73	J X 40	J X 24	M 21	E S 13	M 20	J X 25		
19	M 20	E S 13	J X 18	E	E S 13	E S 13	J X 30	28	G	J X 40	G	G	G	G	G	G	29	23	J X 24	J X 38	J X 44	J X 28	J X 29	J X 24		
20	E S 17	J X 20	J X 16	E	E	E B 17	25	38	J X 53	J X 71	J G 34	G	G	G	G	J G 21	J G 20	29	E B 18	J X 29	J X 20	J X 35	E S 13	E S 13		
21	E S 13	E S 13	J X 17	J X 24	J X 34	J X 23	24	30	G	G	G	G	G	G	G	G	G	23	J X 20	J X 18	J X 20	J X 20	J X 18	M 21		
22	E S 12	E	M 21	J X 23	J X 20	J X 18	J X 24	J X 48	G	36	G	G	39	38	36	G	G	J X 49	J X 25	J X 30	J X 59	J X 28	J X 19	J X 21		
23	J X 25	J X 17	J X 17	J X 18	J X 17	J X 18	J X 25	30	J X 38	G	G	G	G	G	G	G	G	24	J X 19	E S 13	E S 18	E S 13	E S 13	E S 13		
24	E S 13	E	E S 13	E	E	E	G	J X 33	G	G	G	G	G	G	G	G	G	23	E B 17	J X 25	E S 13	J X 28	J X 18	E S 13		
25	E S 14	E	E	E	E	E	G	31	G	42	J X 52	J X 46	J X 42	J X 43	J X 39	G	J X 29	J X 42	J X 32	J X 29	J X 27	J X 16	J X 20	M 19		
26	E S 13	J X 20	E S 13	E	E	E	G	30	J X 39	G	G	G	G	G	G	J G 25	J X 30	27	J X 19	J X 17	J X 31	J X 25	J X 18	E S 13		
27	E S 13	E S 13	E	E	E	J X 16	J X 28	31	34	39	42	C	37	J G 30	J G 33	G	G	G	J X 18	E S 13	J X 30	J X 24	E S 13	J X 18		
28	E S 13	E	E	E	E	E S 13	24	31	G	G	G	E B 49	G	G	G	G	G	20	J X 23	J X 23	J X 18	E S 16	E S 13	E S 15		
29	E S 14	E	E	E	E	E S 14	G	30	G	G	G	39	39	39	G	G	G	23	15	J X 19	E S 12	E S 12	E S 12	E S 13		
30	E S 15	E	E	E	E	E S 13	25	G	37	G	G	40	39	37	G	G	G	25	E S 13	J X 21	J X 14	E S 14	E S 12	E S 13		
31																										
CNT	28	28	28	28	28	27	27	27	28	29	28	27	29	29	28	28	28	28	29	29	29	29	28	28	28	28
MED	E 16	E 14	14	E 13	E 13	E 14	24	31	34	38	36	38	38	33	G	E G 21	24	26	J X 23	J X 24	J X 20	J X 20	J X 19	18		
UQ	J X 24	J X 20	J X 20	J X 22	J X 20	J X 19	26	33	39	J X 42	J X 42	40	39	41	38	35	J X 34	34	J X 29	J X 33	J X 38	J X 30	J X 26	J X 22		
LQ	E S 13	E	E	E	E	E S 13	G	29	G	G	G	G	G	G	G	G	G	23	19	J X 18	18	E S 14	E S 15	E S 13		

IONOSPHERIC DATA

SEP. 1968

f_oE_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	25	42	24	28	18	20	28	32	40	40	44	37	41	44	36	34	60	34	35	28	16	14	E	E ₁₃	
2	19	18	E	23	20	19	36	33	45	42	44	45	40	34 ^G	38	37	34	26	27	23	44	44	E ₁₃	E ₁₂	
3	E	E	18	15	21	17	G	G ₂₆	36	36	G	G	G	41	C	C	C	C	C	C	C	C	C	C	
4	N	N	N	N	N	N	N	N	N	38	42	39	39	40	32	G	G	G	E ₁₉	E	E	18	17	16	
5	18	12	17	17	18	C	C	C	35	37	36	G	G	38	G	G	32	25	18	17	E ₁₄	E ₁₄	24	E ₁₄	
6	E ₁₃	E	E	E	13	E ₁₄	23	30	33	36	39	G	G	G	G	48	43	62	67	54	34	38	25	22	
7	20	17	19	20	E	E	25	30	34	37	38	41	38	40	G	34	G	26	18	E ₁₃	E ₁₂	E ₁₃	24	E ₁₃	
8	18	18	15	E	E	E ₁₃	25	G	36	44	40	40	35	G	39	G	G	32	20	E ₁₃	17	17	17	E	
9	C	C	C	C	C	C	C	C	C	37	37	39	39	40	39	G	35 ^G	20	250	170	160	190	160	180	
10	16	17	13	23	19	20	G	30	G	36	38	40	G	G	G ₂₆	G ₂₅	G	24	28	35	E ₁₄	17	26	27	
11	E ₁₄	14	E	E	E	E ₁₃	24	32	36	39	G	39	38	G	G	G	G	G	17	17	C	C	C	C	
12	E	19	16	E	E	E	23	30	G	39	39	C	E ₃₉	40	G	G	C	23	19	21	18	E ₁₇	16	E ₁₇	
13	E ₁₄	E ₁₇	E ₁₄	E	E	E ₁₄	G	32	34	37	40	41	39	G	G ₃₂	G ₂₈	32	G	25	27	16	E ₂₀	E ₁₃	E ₁₃	
14	E ₁₃	E ₁₃	E ₁₂	E ₁₈	E	E ₁₃	27	33	42	47	48	39	42	38	38	55	33	28	21	41	41	30	31	43	
15	19	24	31	41	22	16	25	32	40	49	53	44	41	48	38	45	65	25	E ₈₄	A	A	A	34	40	
16	36	E ₁₃	E ₁₂	14	13	20	24	21	G	C	C	C	C	C	C	C	43	34	19	19	E	E ₁₃	E	E	
17	E ₁₃	16	E ₁₃	E ₁₃	E	E ₁₄	G	28	32	G	G	G	G	31	31	G	G	G	25	E ₁₈	E ₁₄	E ₁₈	E ₁₄	E ₁₇	E ₁₈
18	E ₁₈	E ₁₂	E	E ₁₃	E	E ₁₈	G	G	35	35	C	G	G	G	37	34	30	50	21	19	E	E ₁₃	E	23	
19	E	E ₁₃	E	E	E ₁₃	E ₁₃	24	28	G	37	G	G	G	G	G	G	29	23	23	24	20	18	18	18	
20	E ₁₇	18	U ₁₆	E	E	E ₁₇	24	31	35	35	G	G	G	G	G	G	19	19	26	E ₁₈	24	16	21	E ₁₃	E ₁₃
21	E ₁₃	E ₁₃	16	13	26	13	23	30	G	G	G	G	G	33	G	G	G	G	23	17	15	17	16	E	E
22	E ₁₂	E	E	E	13	15	18	34	G	36	G	G	38	38	G	G	G	40	18	23	24	18	18	17	
23	24	17	16	14	13	17	22	29	34	G	G	G ₂₅	G	G	G	G	G	22	19	E ₁₃	E ₁₈	E ₁₃	E ₁₃	E ₁₃	E ₁₃
24	E ₁₃	E	E ₁₃	E	E	E	G	25	G	G	G	G	G	G	G	G	G	23	E ₁₇	17	E ₁₃	21	15	E ₁₃	E ₁₃
25	E ₁₄	E	E	E	E	E	G	30	G	40	50	45	42	40	38	28	24	22	18	20	25	E	E	E	
26	E ₁₃	15	E ₁₃	E	E	E	G	30	39	G	G	G	G	G	G	G ₂₃	20	24	17	E	25	21	E	E ₁₃	E ₁₃
27	E ₁₃	E ₁₃	E	E	E	U ₁₆	24	30	34	37	40	C	37	G	G ₂₅	G	19	G	18	E ₁₃	18	22	E ₁₃	E	
28	E ₁₃	E	E	E	E	E ₁₃	24	29	G	G	G	E ₄₉	G	G	G	G	G	20	17	21	17	E ₁₆	E ₁₃	E ₁₅	E ₁₅
29	E ₁₄	E	E	E	E	E ₁₄	G	29	G	G	G	38	38	38	G	G	G	20	15	16	E ₁₂	E ₁₂	E ₁₂	E ₁₃	E ₁₃
30	E ₁₅	E	E	E	E	E ₁₃	22	G	35	G	G	40	39	37	G	G	G	21	E ₁₃	17	15	E ₁₄	E ₁₂	E ₁₃	E ₁₃
31																									
CNT	28	28	28	28	28	27	27	27	28	29	28	27	29	29	28	28	28	29	29	29	29	28	28	28	28
MED	E ₁₄	E ₁₃	E ₁₃	E	E	E ₁₄	23	30	34	37	36	38	36	31 ^G	G	G	G	19	24	18	19	16	17	E ₁₆	E ₁₃
UQ	18	17	16	15	16	16	24	32	36	39	40	40	39	40	36	31	32	26	22	24	24	21	22	18	
LQ	E ₁₃	E	E	E	E	E	G	28	G	G	G	G	G	G	G	G	G	21	18	15	14	E ₁₄	E ₁₂	E ₁₃	E ₁₃

IONOSPHERIC DATA

SEP. 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 ₁₃	E	E	E	E	12	18	17	18	18	21	23	20	19	18	18	17	13	E ₁₃	E ₁₃	E	E ₁₂	E ₁₂	E ₁₃
2	E ₁₃	E ₁₂	E	E	E	12	14	18	20	18	24	20	19	20	17	17	18	16	13	E ₁₂	E ₁₂	17	E ₁₃	E ₁₂
3	E ₁₃	E	E	E	E	E	14	18	18	18	18	18	21	18	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	18	26	23	18	19	18	19	18	17	19	E ₁₄	E ₁₃	E ₁₃	E ₁₂	E ₁₃
5	E ₁₃	E	E	E	E	C	C	C	18	18	19	20	21	19	18	18	21	18	13	E ₁₂	E ₁₄	E ₁₄	E ₁₃	E ₁₄
6	E ₁₃	E	E	E	E	E ₁₄	14	17	17	20	23	25	25	23	19	18	17	15	13	E ₁₄	E ₁₂	E ₁₃	E ₁₄	E ₁₂
7	E ₁₃	E	E	E	E	E	17	14	18	21	19	20	23	24	20	18	17	16	13	E ₁₃	E ₁₂	E ₁₃	E ₁₃	E ₁₃
8	E ₁₃	E	E	E	E	E ₁₃	17	17	17	22	22	24	24	23	19	18	17	18	12	E ₁₃	E ₁₃	E ₁₂	E ₁₂	E ₁₄
9	C	C	C	C	C	C	C	C	C	18	20	25	28	23	21	18	18	17	13	E ₁₃	E ₁₃	E ₁₂	E ₁₃	E ₁₄
10	E ₁₃	E ₁₃	E	E	E	13	18	18	18	20	21	22	18	18	18	14	19	13	13	E ₁₃	E ₁₄	E ₁₃	E ₁₂	E ₁₃
11	E ₁₄	E ₁₃	E	E	E	E ₁₃	15	14	18	17	21	24	23	19	18	17	18	13	12	E ₁₃	C	C	C	C
12	E ₁₄	E	E ₁₃	E	E	E	14	18	20	21	25	C	28	19	17	17	C	19	14	16	E ₁₃	17	17	17
13	E ₁₄	17	E ₁₄	E	E	E ₁₄	19	19	19	18	21	23	23	18	18	17	17	13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
14	E ₁₃	E ₁₃	E ₁₂	18	E ₁₃	E ₁₃	18	17	18	18	19	19	21	18	18	18	21	18	E ₁₃	E ₁₃	17	E ₁₃	E ₁₃	
15	E ₁₃	E	E	E ₁₂	E	E ₁₃	17	18	18	18	18	20	20	18	23	18	18	17	E	17	E ₁₃	E ₁₃	E ₁₃	
16	E ₁₃	E ₁₃	E ₁₂	E	E	E ₁₃	18	17	18	C	C	C	C	C	C	C	18	17	16	16	E ₁₄	E ₁₃	E ₁₃	
17	E ₁₃	E	E ₁₃	E ₁₃	E	E	14	18	17	18	18	25	24	22	20	17	19	20	17	18	E ₁₄	18	E ₁₄	
18	18	E ₁₂	E	E ₁₃	E	E	18	19	18	18	20	C	21	23	17	17	14	13	14	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
19	E ₁₃	E ₁₃	E ₁₃	E	E ₁₃	E ₁₃	13	17	18	17	20	18	22	18	18	18	13	13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
20	17	E	E	E	E	17	17	14	17	18	17	18	19	17	17	13	13	13	18	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
21	E ₁₃	E ₁₃	E	E	E	E	14	17	18	18	20	20	22	18	19	19	15	16	E ₁₃	E ₁₂	E ₁₃	E ₁₃	E ₁₃	
22	E ₁₂	E	E ₁₃	E ₁₂	E	E ₁₂	12	17	17	20	18	21	21	21	21	18	17	17	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₃	
23	E ₁₃	E	E	E	E	E ₁₃	16	17	17	18	23	17	18	21	20	20	18	14	E ₁₂	E ₁₃	18	E ₁₃	E ₁₃	
24	E ₁₃	E	E ₁₃	E	E	E	16	18	18	19	23	20	18	18	20	14	14	15	17	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
25	E ₁₄	E	E	E	E	E	14	18	18	20	21	24	25	21	20	17	14	14	E ₁₃	E	E	E ₁₃	E ₁₃	
26	E ₁₃	E	E ₁₃	E	E	E	17	14	18	18	25	20	24	22	18	17	15	14	E ₁₂	E ₁₄	E ₁₃	E ₁₃	E ₁₃	
27	E ₁₃	E ₁₃	E	E	E	E	14	19	18	18	19	C	20	17	17	19	14	14	18	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
28	E ₁₃	E	E	E	E	E ₁₃	14	17	17	16	20	49	24	21	16	16	16	12	E ₁₂	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
29	E ₁₄	E	E	E	E	E ₁₄	14	17	19	18	20	19	18	18	17	16	17	16	E ₁₃	E ₁₅	E ₁₂	E ₁₂	E ₁₃	
30	E ₁₅	E	E	E	E	E ₁₃	15	17	16	22	18	19	20	19	17	17	15	14	E ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₂	
31																								
CNT	28	28	28	28	28	27	27	27	28	29	28	27	29	29	28	28	28	29	29	29	29	28	28	28
MED	E ₁₃	E	E	E	E	E ₁₃	16	17	18	18	20	20	21	19	18	18	17	15	13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃
UQ	E ₁₄	E ₁₃	E ₁₂	E	E	E ₁₃	18	18	18	20	23	24	23	21	20	18	18	17	13	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃
LQ	E ₁₃	E	E	E	E	E	14	17	18	18	19	20	20	18	17	17	15	14	E ₁₃	E ₁₃	E ₁₃	E ₁₂	E ₁₃	

IONOSPHERIC DATA

SEP. 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	290	275	260	310	295	305	290	275	280	305	300	295	295	295	315	295	290	285	270	270	280
2	275	275	270	285	285	275	285	305	320	320	310	285	300	310	295	305	300	295	305	300	275	265	265	270	
3	275	270	285	285	270	275	300	315	340	300	305	295	300	300	C	C	C	C	C	C	C	C	C	C	
4	C	C	C	C	C	C	C	C	C	C	330	300	300	305	300	305	295	305	300	305	275	270	290	260	265
5	265	265	265	265	285	C	C	C	C	335	320	315	305	310	290	295	305	310	305	295	300	290	280	260	275
6	270	280	280	280	285	285	310	315	320	305	290	275	I _R 300	285	295	300	285	I _R 290	305	295	295	285	265	270	
7	275	275	270	265	260	290	315	320	315	295	310	285	300	295	290	305	315	315	305	300	285	275	270	275	
8	265	265	265	270	275	285	315	290	290	310	290	275	270	285	280	285	290	305	300	285	270	265	255	265	
9	C	C	C	C	C	C	C	C	C	C	300	325	295	290	300	300	300	305	315	305	285	285	285	290	
10	280	275	275	280	265	290	335	I _R 330	320	310	300	300	305	285	295	305	310	300	300	290	265	280	260	265	
11	285	275	265	265	265	265	300	I _R 320	J _R 325	330	295	300	285	I _R 290	290	300	300	305	310	285	C	C	C	C	
12	270	270	275	285	275	275	305	I _R 320	325	310	305	I _C 305	290	290	290	290	I _C 285	295	295	280	285	285	260	285	
13	270	260	250	260	275	285	290	315	315	300	290	290	285	285	300	295	295	305	305	300	270	265	260	245	
14	245	260	280	245	250	260	315	325	300	305	295	290	280	285	300	300	305	310	295	270	270	270	290	265	
15	250	250	275	285	260	275	325	315	310	310	305	285	285	285	295	295	295	305	I _R 300	I _A 305	I _A 300	I _A 290	I _A 290	275	
16	255	260	260	275	270	270	320	305	340	C	C	C	C	C	C	C	305	I _R 310	310	305	295	290	270	275	
17	275	280	275	295	280	275	315	320	I _R 320	H _R 320	305	I _R 300	290	295	290	295	310	315	320	310	310	320	265	275	
18	275	275	285	295	285	285	330	335	335	325	I _C 315	305	300	290	300	300	305	I _R 310	315	300	280	285	290	280	
19	280	275	265	270	270	280	300	I _R 305	I _R 315	325	325	285	285	290	290	285	300	295	I _R 315	305	315	270	260	280	
20	275	270	270	280	275	290	330	I _R 335	I _R 330	325	330	295	290	290	290	295	310	I _R 315	315	300	285	280	275	275	
21	280	280	285	295	295	290	335	I _R 345	I _R 340	325	315	305	305	300	300	305	305	315	305	295	310	285	280	290	
22	275	275	270	270	280	295	330	330	325	I _R 320	I _R 320	310	295	300	305	305	315	310	325	305	305	295	300	280	
23	275	275	275	305	320	290	320	325	I _R 315	320	320	305	300	290	290	305	305	315	300	285	290	285	275	315	
24	270	260	250	265	295	295	315	I _R 330	325	315	I _R 315	305	315	310	300	300	315	320	320	315	290	300	285	275	
25	280	280	295	300	285	295	330	320	I _R 320	I _R 330	335	305	305	300	305	315	315	330	320	290	285	280	260	290	
26	290	280	285	290	310	295	340	335	315	315	325	305	305	305	300	310	320	320	310	285	295	290	285	280	
27	285	280	265	270	275	290	325	335	325	315	310	I _C 310	290	300	295	305	315	315	305	300	290	270	285	280	
28	275	280	300	285	275	275	320	335	325	315	315	305	290	310	310	305	315	310	305	290	300	285	270	275	
29	270	270	275	295	295	275	310	325	325	315	I _B 310	305	305	300	285	300	I _R 305	315	315	295	285	270	275	275	
30	280	275	275	285	295	285	335	335	315	325	I _R 300	305	290	290	300	305	310	315	325	285	275	280	275	260	
31																									
CNT	27	27	27	28	28	27	27	27	28	29	29	29	29	29	29	28	28	29	29	29	29	28	28	28	28
MED	275	275	275	285	275	285	315	320	320	315	310	300	300	295	295	300	305	310	305	295	285	282	280	278	
UQ	280	278	280	290	285	290	330	332	325	325	315	305	305	300	300	305	310	315	315	300	295	288	285	282	
LQ	270	268	265	270	270	275	310	315	315	310	300	290	290	290	290	295	300	305	300	285	282	270	272	275	

IONOSPHERIC DATA

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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								L	360	355	355	355	345	L	355	335	A								
2								355	I A 350	355	L	360	345	360	L	U L 365	L	L							
3								L	L	365	355	340 ^H	375	355	C	C	C	C							
4								C	C	L	L	360	355	355	360	365	L								
5								C	U L 360	L 375	L 380	345	355	385	350	345	L	L							
6								L	L	380 ^H	355	355	350 ^H	335	335	L	A								
7								L	L	L	355	335 ^H	350	345	335	L	L								
8								L	370	355	345	325	360	335	L	L	L								
9								C	C	L	360	340	355	335	L	L									
10								L	L	370	L	370	365	365	355	L									
11								L	L	L	365	375	335 ^H	345	L	L	L								
12								L	L	L	370	370	375	365	325	335	C								
13						L	L	U L 350	U L 360	350	335	340	330	L	L	L	L								
14								L	L	U 345	A	340	370	345	360	A	L								
15								L	L	A	I A 355	L	345	L	340	A	A								
16								U L 375	C	C	C	C	C	C	C	C	A								
17								L	L	370	340	360	355	L	L	L	L								
18								L	L	I C 415	380	350	L	L	L	L	L								
19								L	U L 385	U L 420	420 ^H	345	360	L	350	L	L								
20								L	L	385	380	360	370	L	L	L	L								
21								L	L	L	360	L	L	U L 370	L	L	L								
22								L	L	L	365	345	L	L	L	L	L								
23								L	L	380	395	360	335	L	L	L	L								
24								L	L	360	360	385	L	375	L	L	L								
25								L	L	A	L	L	U L 360	L	L	L	L								
26								L	L	U L 380	370	355	365	425	L										
27								L	L	L	C	L	L	L	L										
28								L	L	390	L	360	380	365	L	L									
29								360	390	355	380	L	425	L	370										
30								385	360	360	390	420	380	355	L										
31																									
	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	7	13	21	25	24	23	13	7									
MED								355	U 360	365	360	360	355	360	355	350									
UQ									365	380	380	380	360	368	360	365									
LQ									U 355	355	355	340	345	345	340	340									

IONOSPHERIC DATA

SEP. 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							305	305	330	390	330	320	305	320	320	315								
2							295	295	300	290	350	345	315	320	310	290	290							
3							250	255	295	305	330	305	315	C	C	C	C							
4							C	C	255	265	315	295	295	290	275	270								
5							C		255	275	275	310	275	290	310	295	280	275						
6							240	255	270	305	320	300	350	295	290	270								
7							250	250	270	270	330	300	330	325	295	275								
8							300	280	280	340	320	305	325	310	300	300								
9							C	C	270	265	320	280	315	290	275									
10							235	250	270	270	275	280	295	290	270									
11							260	255	250	265	300	325	315	295	295	290								
12							250	250	265	270	I ₂ C ₂₉₅	305	290	320	310	I ₂ C ₂₈₀								
13						325	280	300	290	330	330	330	320	290	290	300								
14							265	290	305	270	345	295	325	290	280	270								
15							265	290	270	265	320	315	320	305	290	300								
16							250	C	C	C	C	C	C	C	C	275								
17							230	230	290	320	280	295	300	280	280									
18							220	260	I ₂ C ₂₄₅	270	300	310	300	285	280									
19							250	250	255	265	330	290	280	310	275									
20							245	245	255	270	275	280	300	290	260									
21							235	255	250	285	290	280	290	280	255									
22							250	270	250	260	315	280	280	280	260									
23							255	240	250	260	270	310	305	275	240									
24							230	275	255	250	265	260	265	300	260									
25							250	250	240	290	265	265	275	270	250									
26							255	250	270	275	300	300	250	280										
27							265	265	275	I ₂ C ₂₈₅	285	270	285	265										
28							260	260	250	270	290	285	290	260	260									
29							245	250	285	275	260	260	270	290										
30							250	290	260	250	280	295	280											
31																								
	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	12	27	29	29	29	29	29	28	28	23	2						
MED							325	262	255	265	270	295	295	295	292	288	275	282						
UQ							288	262	275	290	320	305	315	305	295	285								
LQ							250	250	250	255	270	280	280	288	278	260								

IONOSPHERIC DATA

SEP. 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

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	320	I A 330	330	280	250	330	280	245	240	230	240	215	230	I A 230	220	230	I A 255	270	280	280	245	260	270	280		
2	280	290	290	275	290	290	290	240	I A 250	240	I A 230	230	200	205	230	230	245	240	265	245	290	I A 310	290	280		
3	270	290	290	275	290	290	240	240	230	210	200	200	210	230		C	C	C	C	C	C	C	C	C		
4	C	C	C	C	C	C	C	C	C		C	225	215	200	205	235	225	225	230	245	240	270	285	265	270	290
5	290	290	295	275	245		C	C			230	210	180	H 205	215	225	230	235	255	245	255	240	235	250	275	270
6	305	270	265	265	285	280	240	215	220	200	H 185	190	185	H 230	230	I A 250	A	305	290	290	250	285	290	315		
7	300	300	320	310	295	270	230	240	240	220	210	230	220	230	230	230	240	250	250	240	240	270	300	275		
8	300	315	300	300	275	275	240	235	215	I A 225	230	225	230	230	235	240	245	265	260	265	280	305	300	255		
9	C	C	C	C	C	C	C	C	C		230	230	220	225	215	240	240	250	245	255	260	280	275	270	275	
10	270	280	280	300	325	295	245	235	220	220	210	210	205	215	220	240	230	235	250	275	255	265	290	285		
11	260	275	295	290	290	305	245	240	230	235	210	200	200	H 220	215	230	235	255	245	250		C	C	C	C	
12	285	290	290	265	275	295	235	230	230	235	220	I C 210	I A 210	200	H 215	225	I C 240	270	255	255	285	270	280	255		
13	280	330	320	300	290	255	280	255	240	225	220	220	215	205	235	235	245	255	245	245	305	305	340	340		
14	340	315	275	290	310	330	265	A	A	A	I A 235	220	225	215	220	I A 240	245	250	260	I A 305	I A 320	295	285	I A 340		
15	315	355	325	I A 335	330	280	250	245	245	I A 230	I A 235	230	230	I A 240	230	A	A	265	I A 265	I A 270	I A 265	I A 260	290	I A 295		
16	I A 325	335	330	280	270	310	255	240	220	C	C	C	C	C	C	C	A	265	240	245	245	240	290	290		
17	290	290	290	255	250	290	240	245	215	215	200	H 195	180	H 225	240	230	250	255	235	225	255	240	255	280		
18	300	290	265	250	260	290	240	230	220	230	I C 190	190	190	H 240	230	230	240	240	240	235	245	270	255	290		
19	275	280	290	290	290	280	250	250	230	210	190	H 175	190	H 230	230	225	245	245	240	255	235	280	290	280		
20	280	280	280	275	260	280	250	245	235	225	190	215	205	210	230	240	240	245	230	245	270	290	290	290		
21	270	275	265	265	270	270	235	230	230	215	220	215	220	225	230	230	250	250	230	250	230	245	275	275		
22	290	280	280	280	270	240	225	230	230	230	230	220	200	230	230	235	250	240	230	250	255	240	245	280		
23	300	295	290	255	230	270	245	230	230	220	210	200	205	190	H 255	250	240	230	235	270	270	255	265	235		
24	270	300	340	290	240	225	250	250	230	215	200	210	215	210	200	240	250	245	230	225	250	250	265	275		
25	290	270	255	240	210	270	230	230	230	230	I A 230	230	225	215	230	230	230	230	230	250	280	275	270	280		
26	270	280	270	260	230	245	220	230	I A 240	230	210	220	200	H 215	200	230	245	235	230	245	265	270	280	270		
27	270	290	300	280	260	280	230	230	235	235	230	I C 205	235	215	235	230	240	240	230	250	270	295	270	270		
28	280	270	245	245	255	270	235	230	230	220	235	I B 220	220	H 200	240	245	250	255	235	255	250	255	300	285		
29	290	290	290	260	215	290	230	245	225	200	I C 235	215	200	200	220	235	245	245	230	240	240	270	280	285		
30	280	270	275	270	235	280	235	235	235	200	200	H 230	205	205	235	250	260	245	230	230	270	280	295	280		
31																										
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	28	28	28	28	27	27	26	27	28	29	29	29	29	28	27	26	29	29	29	28	28	28	28		
MED	288	290	290	275	270	280	240	238	230	225	215	215	210	220	230	235	245	245	240	250	260	270	280	280		
UQ	300	300	300	290	290	290	250	245	235	230	230	220	220	230	235	240	250	255	255	265	280	282	290	290		
LQ	272	280	275	262	248	270	235	230	228	215	200	200	200	210	220	230	240	240	230	245	245	255	270	275		

IONOSPHERIC DATA

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h'Es (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	110	105	105	105	105	105	125	120	120	120	115	110	110	105	105	105	115	110	105	105	105	105	105	S	
2	110	105	105	105	105	100	135	130	120	120	115	115	115	105	115	105	105	130	120	110	110	115	S	S	
3	120	E	115	115	105	110	G	105	130	115	G	G	G	160	C	C	C	C	C	C	C	C	C	C	
4	C	C	C	C	C	C	C	C	C	115	110	105	105	105	105	G	G	G	B	125	120	115	115	100	
5	105	110	105	105	105	C	C	C	115	115	115	G	G	120	G	G	140	130	120	100	S	S	110	S	
6	S	E	E	105	110	S	115	120	115	115	110	G	G	G	G	130	125	120	115	115	115	115	110	115	
7	110	110	105	105	105	E	120	125	120	120	120	120	120	120	G	140	G	115	115	S	S	S	110	S	
8	105	105	105	105	E	S	155	G	115	115	115	110	105	G	115	G	G	125	120	S	115	115	110	105	
9	C	C	C	C	C	C	C	C	C	120	120	120	120	115	115	130	110	105	110	105	105	115	115	115	
10	110	115	115	110	105	105	G	105	G	120	130	120	G	G	100	100	G	140	120	115	S	105	100	100	
11	S	100	E	E	E	S	155	130	125	130	G	125	125	G	G	G	G	105	140	105	C	C	C	C	
12	100	100	100	E	E	E	140	140	140	130	130	C	110	120	G	G	C	120	110	110	115	B	105	B	
13	S	B	S	E	E	S	G	140	140	125	120	120	120	G	110	110	145	G	110	105	100	105	100	S	
14	S	S	S	B	110	S	140	140	130	130	125	130	130	120	130	120	135	E G	170	140	120	115	115	115	120
15	115	110	115	105	105	105	115	140	130	115	120	120	115	110	120	115	120	155	120	115	115	120	120	115	
16	115	S	S	110	115	115	115	115	G	C	C	C	C	C	C	C	110	120	115	115	115	S	115	110	
17	S	105	S	S	E	B	G	130	110	115	G	G	115	105	G	150	150	120	B	S	E	S	B	B	
18	B	S	E	S	E	B	G	G	140	120	C	G	G	G	E G	145	150	140	120	130	100	105	S	100	100
19	100	S	110	E	S	S	E G	150	G	115	G	G	G	G	G	E G	170	150	130	115	115	115	115	115	
20	B	100	100	E	E	B	140	130	105	105	105	G	G	G	G	100	100	140	B	120	115	105	S	S	
21	S	S	110	115	115	110	155	E G	150	G	G	G	G	110	G	G	G	G	140	120	120	120	115	105	105
22	S	E	100	120	110	110	110	105	G	130	G	G	G	130	130	140	G	G	115	110	110	115	105	100	110
23	105	105	100	100	100	110	105	120	110	G	G	105	G	G	G	G	G	130	100	S	B	S	S	S	
24	S	E	S	E	E	E	G	115	G	G	G	G	G	G	G	G	G	140	B	110	S	110	110	S	
25	S	E	E	E	E	E	G	150	G	115	110	110	110	105	110	105	105	110	105	105	105	105	105	100	
26	S	105	S	E	E	E	G	150	105	G	G	G	G	G	G	G	105	100	130	110	105	110	105	105	S
27	S	S	E	E	E	105	105	155	150	140	120	C	130	100	105	G	100	G	100	S	120	120	S	105	
28	S	E	E	E	E	S	155	155	G	G	G	B	G	G	G	G	G	145	100	100	100	S	S	S	
29	S	E	E	E	E	S	G	130	G	G	G	150	145	140	G	G	G	130	120	115	S	S	S	S	
30	S	E	E	E	E	S	150	G	140	G	G	140	130	135	G	G	G	145	S	120	100	S	S	S	
31																									
CNT	12	13	14	13	13	10	18	24	19	22	16	15	18	16	13	14	16	26	24	24	21	18	20	14	
MED	110	105	105	105	105	108	130	130	120	120	118	120	118	118	112	112	115	129	115	110	115	115	110	108	
UQ	112	110	110	110	110	110	150	142	135	125	120	122	130	125	118	130	139	140	120	115	115	115	115	115	
LQ	105	105	100	105	105	105	115	120	115	115	112	110	110	105	105	105	105	120	110	105	105	105	105	100	

IONOSPHERIC DATA

SEP. 1968

Types of Es

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

SEP. 1968

foF2 (0.1)

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

Station KCKUBUNJI 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	J ₇₄ ^K	74	74	70	68	66	84	81	71	64	74	82	83	78	79	81	87	91	84	84	74	75	79	I ₇₆ ^A
2	68	68	67	J ₆₀ ^K	54	55	75	80	88	68	I ₇₃ ^A	J ₇₄ ^R	73	80	79	76	80	86	94	88	65	69	69	69
3	67	61	62	56	53	51	80	85	80	68	78	92	90	84	88	87	81	86	88	93	80	J ₇₃ ^K	72	68
4	69	J ₆₆ ^R	59	55	54	56	79	82	83	77	82	88	95	101	98	100	101	94	86	80	75	78	69	I ₆₃ ^R
5	62	62	63	63	H ₅₂	55	82	94	92	90	88	92	103	88	91	95	94	97	93	88	78	72	72	I ₆₄ ^R
6	62	63	61	56	57	57	80	91	86	73	80	95	103	97	96	96	90	92	95	88	76	62	F ₆₄	I ₅₇ ^F
7	R	F	F	F ₅₄	F ₅₁	51	75	88	82	82	98	92	92	91	86	98	96	102	91	I ₈₂ ^R	70	70	69	67
8	64	64	60	59	59	60	78	92	94	94	91	94	98	108	103	98	95	95	87	S ₇₄	73	70	69	69
9	62	63	62	60	57	62	74	84	95	110	111	105	111	106	108	96	88	90	86	J ₇₄ ^R	71	73	K	70
10	63	58	56	54	52	55	94	102	102	91	97	101	109	108	106	102	93	85	88	J ₈₈ ^R	I ₈₀ ^K	77	72	74
11	69	63	60	60	57	58	92	118	105	90	95	96	102	108	108	102	95	96	100	I ₈₂ ^R	73	73	74	68
12	68	62	60	60	56	56	85	J ₁₀₉ ^R	95	97	93	97	91	91	95	92	91	88	92	91	81	72	77	70
13	63	61	60	61	62	63	68	80	77	68	80	91	97	98	106	93	87	87	96	73	56	59	56	52
14	55	55	56	53	48	49	75	83	74	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	85	88	91	102	112	114	104	100	98	88	66	U ₆₇ ^h	52	A
16	A	I ₄₈ ^A	47	50	42	47	72	95	83	88	87	98	110	108	105	101	102	107	102	R	68	58	59	59
17	59	58	55	56	46	47	79	106	93	80	90	102	113	105	115	111	105	101	99	82	74	57	52	53
18	52	53	58	50	45	45	73	90	99	90	85	89	98	98	98	96	99	102	95	76	69	70	68	63
19	61	58	56	57	55	55	77	119	121	101	84	86	102	110	104	96	105	106	103	R	63	58	58	59
20	56	53	51	50	49	53	85	J ₉₉ ^R	91	94	83	93	95	101	101	111	115	111	93	68	64	64	64	I ₆₈ ^R
21	66	I ₆₄ ^C	I ₆₃ ^C	62	57	53	J ₇₈ ^R	96	96	86	95	104	106	108	108	107	106	J ₁₀₁ ^R	89	I ₈₂ ^R	69	60	61	58
22	53	J ₅₄ ^R	53	50	52	49	73	82	103 ^R	107	102	89	94	110	108	108	109	102	97	U ₇₅ ^R	68	69	59	56
23	54	56	55	59	48	44	70	98	113	100	89	94	108	110	115	121	112	96	J ₈₆ ^R	I ₈₀ ^R	I ₇₆ ^R	72	U ₇₅ ^R	74
24	52	49	49	J ₅₂ ^K	48	43	69	99	115	96	108	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	102	101	105	120	115	106	108	100	90	73	60	I ₅₆ ^R	58	63	64
26	5b	58	53	54	48	41	72	84	89	96	96	109	104	104	103	101	98	90	U ₈₀ ^R	64	65	61	59	59
27	56	52	50	51	50	50	74	90	94	101	105	114	119	119	110	105	93	88	80	68	63	66	69	66
28	62	63	59	49	48	49	73	94	94	96	99	99	106	108	101	104 ^R	96	96	86	72	69	64	58	62
29	62	59	60	59	48	49	S ₇₁	92	100	102	112	106	105	104	106	108	112	106	94	72	68	62	67	64
30	67	63	60	59	55	53 ^R	J ₇₆ ^R	94	93	95	99	111	100	109	111	114	108	106	88	63	63	62	66	67
31																								
	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	26	27	27	28	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28	26	28	28	27	27
MED	62	61	59	56	52	53	76	92	94	92	91	94	102	104	104	101	97	96	92	80	69	68	67	64
UQ	67	63	60	60	56	56	80	98	100	98	99	103	107	108	108	108	105	102	96	88	74	72	70	68
LQ	56	56	55	52	48	49	73	84	84	81	84	90	94	98	97	96	92	90	86	72	65	62	59	59

IONOSPHERIC DATA

SEP. 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	L	L ₄₇₀	A	A	A	A	L	L	L	A	A							
2							L	A	A	A	A	L	U ₅₃₀	L	U ₅₀₀	L	L	L	A	A					
3							L	L	L	L	L	U ₅₃₀	L	L	L	L	L	A	A						
4								L	L	U ₅₁₀	L	L	U ₅₂₀	U ₅₀₀	L	L	A								
5							L	L	L	L	L	U ₅₀₀	U ₅₃₀	L	L	L	L	A	A						
6							L	L	A	L	L	L	A	A	L	A	L	A	A						
7								A	L	L	L	L	A	L	U ₅₉₀	L	L	L							
8							L	L	L	A	R	L	U ₅₆₀	L	L	L									
9							L	L	L	L	L	L	L	L	L	L	A	A	A						
10								L	L	L	L	L	U ₅₃₀	L	L	A	A	A							
11								L	L	L	L	L	L	L	L	L	L	L							
12							L	L	L	L	L	L	L	L	L	A									
13							L	L	L	L	L	A	L	A	A	L	A								
14							L	A	C	C	C	C	C	C	C	C	C	C	C						
15						C	C	C	C	C	L	A	A	L	L	L	L	L							
16							L	L	L	L	L	U ₅₁₀	L	L	L	L	A								
17							L	L	L	L	L	U ₄₉₀	L	U ₅₃₀	L	L	L	L							
18							L	L	L	L	U ₄₂₀	U ₄₃₀	U ₅₂₀	L	L	L	L								
19								L	L	L	L	L	L	L	U ₅₀₀	L	L								
20							L	L	L	L	L	L	L	L	L	L	L								
21								L	L	L	L	U ₅₁₀	L	L	L	L	L								
22								L	L	L	L	L	L	U ₅₅₀	L	L	L								
23								L	L	L	L	L	L	L	L	L	L								
24								L	L	L	L	C	C	C	C	C	C	C	C						
25						C	C	C	C	L	L	L	L	L	L	L									
26							L	L	L	L	L	L	L	L	L	L									
27							L	L	L	L	L	L	U ₅₂₀	L	L	L									
28							L	L	L	L	B	L	L	L	L	L									
29							L	L	L	L	U ₅₂₀	L	L	L	L	L									
30								L	L	L	L	L	L	U ₅₃₀	L	L	L								
31																									
CNT									1	1	7	5	5	7	3										
MED								L ₄₇₀	L ₄₅₀	L ₄₉₀	L ₅₁₀	U ₅₃₀	U ₅₃₀	U ₅₀₀											
UQ									L ₅₁₅	U ₅₁₀	U ₅₃₀	U ₅₄₀	U ₅₄₅												
LQ									L ₄₇₅	U ₅₀₀	U ₅₂₀	U ₅₂₀	U ₅₀₀												

IONOSPHERIC DATA

SEP. 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

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							B 210	280	320	345	A	A	A	A	A	A	310	A	A						
2							B I 230	A 280	320	I 330	A	A	A	A	A	A	A	A	A	A					
3							B 205	285	A	R	R	R	I 395	R 385	U 370	R 330	R 300	A	A						
4							B R 220	A 300	A	A	A	A	A	A	A	A	A	A	A	A					
5							A A	U 275	A	A	A	R	R	R	I 350	R	R 290	A	A						
6							A A	A A	A A	A A	A A	A A	A A	A A	A 335	U 335	300	A	A						
7							B A	A A	A A	A A	A A	A A	A A	A A	355	325	A	A	B						
8							B 210	290	A	A	A	A	R 380	A	A	A	A	240	A						
9							B A	A A	A A	A A	A A	A R	R R	A A	A A	A A	A A	A A	A A						
10							B A	A A	A R	R R	R R	R R	R R	A A	A A	A A	A A	A A	A A						
11							B A	A A	A U 350	R 350	A A	A R	R R	A A	330	305	A B								
12							B U 200	R 265	I 310	A 340	A A	A A	A A	A A	A A	A A	A R	B							
13							B 200	A A	A 340	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A						
14							B I 215	A 260	310	C C	C C	C C	C C	C C	C C	C C	C C	C C	C C						
15							C C	C C	C C	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A						
16							B 210	280	315	345	365	A A	A A	A A	340	A A	A A	A B							
17							B B	270	A A	R R	R R	R R	R R	355	R 320	280	200	B							
18							B 200	280	I 310	R 350	I 360	R R	R R	I 365	350	325	270	B B							
19							B 190	I 270	A R	340	R R	R R	R R	350	R 315	270	210	B							
20							B A	A A	A A	A A	A R	R R	R 375	R 360	R 330	275	B B								
21							B I 210	A 270	R 300	R A	R 365	355	345	320	270	205	B								
22							B 200	280	315	335	I 360	R A	365	350	330	A A	A S								
23							S 190	280	320	I 340	R 365	I 370	370	350	355	340	280	I 210	A						
24							B 190	290	A A	R C	C C	C C	C C	C C	C C	C C	C C	C C							
25							C C	C C	C R 330	R A	A R	A R	340	I 310	250	A B									
26							B A	A 340	I 370	R 385	I 370	365	345	315	280	210									
27							190	275	325	340	I 350	R A	I 340	340	R 320	I 260	I 200								
28							180	270	I 310	R 340	360	B B	365	350	315	265	A								
29							180	270	320	340	R 360	380	380	I 360	350	320	270	I 200							
30							200	I 270	330	I 360	380	I 385	R R	U 350	I 315	285	A								
31																									
CNT							19	19	14	16	9	4	6	10	17	17	17	8							
MED							200	275	315	340	R 360	U 382	375	365	350	R 320	280	208							
UQ							210	280	320	345	R 365	U 385	380	R 365	355	330	290	210							
LQ							190	270	310	340	U 360	375	370	355	345	R 315	270	200							

IONOSPHERIC DATA

SEP. 1968

foEs (0.1)

135° E Mean Time (G. M. T. + 9^h)

Station KCKUBUNJI 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	J 42	J 73	J X 28	J X 28	J X 18	21	J X 27	32	J X 41	J X 53	J X 57	J X 53	J X 60	J X 41	J X 38	J X 58	47	58	J X 30	J X 34	J X 58	58	J X 41	115	
2	J X 70	J X 42	J X 53	J X 36	M 30	22	26	56	66	J X 61	J X 145	J X 53	42	J X 43	47	J X 43	J X 39	J X 48	J X 38	J X 29	J X 59	J X 36	J X 33	J X 29	
3	E S 16	E S 16	E S 16	E S 16	E B 12	20	25	M 35	J X 37	G 32	G	44	41	42	44	J X 50	J X 43	M 43	M 31	21	J X 29	J X 62	J X 61	J X 23	
4	21	21	21	17	21	23	25	31	J X 36	J X 43	J X 42	J X 42	M 47	J X 42	40	J X 51	36	58	23	E S 15	21	22	21	J X 30	
5	23	21	21	21	20	21	J X 29	M 35	M 47	J X 60	39	G	G	G	G	35	M 44	M 63	J X 41	24	21	J X 51	23	J X 29	
6	E L 14	E S 15	E S 15	21	21	24	25	J X 36	J X 41	J X 53	J X 41	J X 53	J X 85	J X 95	47	J X 70	J X 56	J X 65	J X 38	J X 76	J X 61	J X 71	J X 61	J X 82	
7	J X 61	J X 29	J X 21	E b 11	21	23	J X 29	39	J X 37	J X 42	39	J X 42	J X 53	44	38	37	32	J X 28	J X 25	J X 29	24	J X 19	J X 36	23	
8	24	22	22	22	J X 16	E B 13	28	G	34	J X 43	J X 59	48	G	J X 37	40	36	J X 35	28	49	J X 52	J X 29	J X 39	M 31	J X 30	
9	L C 16	L C 25	J X 21	E	M 20	21	J X 29	J X 30	36	M 44	J X 41	46	G	G	41	J X 48	J X 67	J X 42	J X 37	J X 38	J X 29	21	21	21	
10	22	24	22	21	M 30	J X 24	J X 28	31	36	G	G	G	G	G	39	J X 38	J X 51	J X 33	J X 49	J X 29	J X 41	J X 29	J X 29	J X 27	
11	20	E S 16	21	E S 15	E B 16	24	35	J X 36	40	J X 41	43	G	G	41	35	J G 29	24	20	22	J X 23	21	22	23		
12	21	21	18	E S 16	E B 14	E B 15	24	30	34	40	J X 41	J X 50	J X 51	42	42	J X 36	J X 49	G	J X 33	20	23	23	E S 16	E S 16	
13	E S 16	E S 16	21	29	21	E B 16	24	30	36	J X 41	M 46	J X 53	72	J X 41	J X 51	J X 60	J X 36	47	J X 41	J X 28	J X 25	22	20	21	
14	L S 16	L S 15	E B 12	E B 12	E	21	27	35	44	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	C	C	C	C	C	C	J X 41	J X 84	J X 127	J X 71	J X 43	42	J X 29	24	J X 41	J X 64	J X 51	J X 83	J X 43	J X 93	
16	J X 53	J X 52	J X 29	E B 12	20	J X 29	G	J X 29	J G 29	36	G	41	42	41	41	M 57	J X 60	J X 58	J X 51	J X 36	J X 25	J X 26	23	M 23	
17	21	21	E B 12	E B 11	E B 12	20	23	G 25	30	42	31	G 34	G 32	G 30	G	G	30	24	21	21	20	21	21	E S 16	
18	E S 15	18	E S 15	E S 15	E	22	25	J X 29	J G 30	G	G	G	G	G	30	35	33	29	J X 25	31	21	E S 16	21	21	
19	21	21	E S 16	E S 16	E S 16	E B 16	23	36	30	G	G	G	G	G	M 42	40	30	23	23	21	J X 23	J X 19	22	22	
20	J X 22	24	22	E S 16	E S 16	21	29	31	J X 38	J X 41	44	22	G 21	G	G	G	31	24	J X 36	J X 25	23	21	J X 29	23	
21	21	C	C	E L 12	E B 12	21	21	29	32	G	37	31	G	G	G	G	30	24	E B 14	E S 15	E B 14	E B 14	E S 15	22	
22	21	E S 15	E B 12	E B 11	E B 11	E B 13	25	32	J X 35	37	35	G	39	28	38	36	J X 30	J X 40	J X 52	J X 30	28	J X 41	J X 37	E B 14	
23	E S 15	J X 24	E S 15	E	E	20	G	30	G 32	J X 42	G 34	J X 41	25	G 23	G	36	32	22	16	J X 25	21	J X 24	E S 15	E S 16	
24	E S 15	E B 14	E B 14	E B 12	E	J X 16	21	J G 25	J X 33	47	G	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	41	G	J X 45	43	G 35	G 31	G	G	23	29	J X 23	22	23	22	E S 16	
26	E S 16	E S 16	E S 15	E S 15	E B 12	E B 13	23	34	J X 33	G	G	G 32	43	G 31	G 28	G 25	J G 26	J X 24	J X 25	M 21	21	19	M 23		
27	E B 13	J X 25	E B 14	E B 13	E B 12	M 20	24	31	38	38	J G 32	42	35	G 34	G	G	31	23	E S 16	23	23	23	J X 28	22	
28	21	21	21	E S 16	E S 12	E S 16	24	30	G	G	G	E B 55	E B 39	G	G 28	G 29	28	J X 23	J X 29	M 21	M 21	21	E S 15	E S 15	
29	E S 15	E B 12	E B 12	E	E	J X 17	G	30	G	35	G	G	G	39	G	G	G	20	22	M 22	M 22	M 21	M 17	E S 15	18
30	E B 14	E B 12	E B 12	E	E	E B 13	24	31	36	36	G	G	G	G	G 34	G 25	31	24	E S 16	M 21	E S 16	E S 16	E S 16	J X 36	
31																									
CNT	28	27	27	28	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	21	21	18	E S 15	E S 13	20	24	31	36	40	G 35	42	36	G 32	38	36	32	27	J X 30	J X 25	23	22	22	23	
UQ	22	24	21	19	20	22	27	35	38	J X 43	J X 41	J X 48	45	42	42	J X 46	J X 44	45	J X 40	J X 30	J X 29	J X 38	J X 32	J X 29	
LQ	E S 16	E 16	E 14	E B 12	E B 11	E B 16	23	30	32	34	G	E G 22	G	G	E 28	G 25	30	24	22	21	21	21	20	20	

IONOSPHERIC DATA

SEP. 1968

fbEs (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	25	40	15	15	15	G	26	32	40	53	55	53	52	40	38	42	45	53	21	26	30	49	34	A		
2	49	25	20	E	14	18	26	52	58	56	A	46	42	40	46	40	33	46	34	28	34	25	18	21		
3	E S 16	E S 16	E S 16	E S 16	E B 12	G	25	30	36	E R 32	G	43	41	41	40	46	42	38	26	L	18	53	28	19		
4	E	E	E	E	E	G	25	31	35	39	41	41	46	40	38	47	34	53	19	E S 15	E	17	E	26		
5	16	E	E	E	E	G	25	30	43	40	38	G	G	G	E R 35	40	61	38	24	19	41	E	E			
6	E B 14	E S 15	E S 15	19	E	16	25	27	40	50	38	45	70	51	46	53	34	52	36	75	E	26	18	25		
7	31	23	16	E B 11	E	G	26	34	33	38	39	40	53	44	38	36	30	26	18	L	18	E	L	16		
8	19	16	19	E	E E B 13	25	G	34	40	53	E R 48	G	37	40	36	34	27	46	25	E	19	17	26			
9	E S 16	E	E	E	E	G	25	29	33	40	40	46	G	G	40	41	54	28	33	27	28	E	L	17		
10	E	E	16	16	26	23	25	31	34	G	G	G	G	G	39	38	46	26	32	18	32	25	27	25		
11	E	E S 16	E	E S 15	E	E B 16	24	29	34	39	40	41	G	G	38	35	26	G	24	20	17	E	L	17	L	
12	E	E	E	E	E B 14	E B 15	E R 24	30	34	38	40	46	47	41	40	34	46	G	32	E	19	E	E S 16	E S 16		
13	E S 16	E S 16	E	E	E	E B 16	22	29	34	41	45	40	70	40	50	56	33	44	40	22	20	E	E	E		
14	E S 16	E S 15	E B 12	E B 12	E	G	25	32	40	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
15	C	C	C	C	C	C	C	C	C	C	41	75	62	54	40	41	29	24	29	53	40	40	40	A		
16	A	A	E	E B 12	E	18	G	21	G E R 29	E R 36	G	41	41	40	40	44	38	36	38	21	E	25	E	17		
17	L	E	E B 12	E B 11	E B 12	G	23	22	E R 30	37	29	E R 34	G	32	30	G	G	30	E R 24	G	E	E	E	E S 16		
18	E S 15	E	E S 15	E S 15	E	G	25	29	G	G	G	G	G	G	G	G	E R 30	E R 35	33	26	25	28	18	E S 16	L	E
19	F	E	E S 16	E S 16	E S 16	E B 16	E R 23	30	E R 30	G	G	G	G	G	42	40	28	E R 23	19	E	20	E	16	E		
20	L	E	E	E S 16	E S 16	G	28	29	33	40	41	E R 22	E R 21	G	G	G	31	E R 24	20	20	E	19	25	17		
21	E	C	C	E B 12	E B 12	E	21	29	E R 32	G	E R 37	E R 31	G	G	G	G	30	24	E B 14	E S 15	E B 14	E B 14	E S 15	E		
22	F	E S 15	E B 12	E B 11	E B 11	E B 13	25	31	30	37	E R 35	G	39	28	G	37	34	29	39	50	22	20	22	20	E B 14	
23	E S 15	15	E S 15	E	E	G	G	29	G	40	27	G	40	E R 25	E R 23	G	36	32	E R 22	15	19	E	E	E S 15	E S 16	
24	E S 15	E B 14	E B 14	E B 12	E	G	G	G	25	33	45	G	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	37	G	40	40	E R 35	G	31	G	E R 23	21	20	E	E	E	E S 16		
26	E S 16	E S 16	E S 15	E S 15	E B 12	E B 13	E R 23	30	33	G	G	G	32	38	31	G	26	G	25	G	26	E	20	E	E	E
27	E L 13	E	E B 14	E B 13	E B 12	E	24	31	37	37	29	G	40	E R 35	29	G	G	27	E R 23	E S 16	E	E	E	25	E	
28	E	E	E	E S 16	E B 12	E S 16	E R 24	29	G	G	G	E B 55	E B 39	G	G	28	G	29	28	E R 23	19	17	E	E	E S 15	E S 15
29	E S 15	E B 12	E B 12	E	E	E	G	30	G	35	G	G	G	38	G	G	G	20	21	15	E	E	E	E S 15	E	
30	E B 14	E B 12	E B 12	E	E	E B 13	21	31	G	36	G	G	G	G	G	G	25	G	24	E S 16	E	E S 16	E S 16	E S 16	27	
31																										
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		
CNT	28	27	27	28	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
MED	E S 15	E 14	E 12	E 12	E	G	24	30	33	38	U 32	40	U 34	30	38	36	32	26	21	20	E 15	E 15	16	16		
UQ	E S 16	E 16	E 15	E S 16	E B 12	E B 16	25	31	36	40	40	U 44	44	40	40	41	36	38	34	24	20	25	19	23		
LQ	E	E	E	E	E	G	E G 22	29	29	E G 34	G	E G 22	G	G	E G 26	E G 25	28	24	17	E	E	E	E	E		

IONOSPHERIC DATA

SEP. 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 ₁₅	14	12	10	10	14	15	14	14	16	19	19	22	22	19	15	15	15	10	E ₁₅	11	E ₁₅	E ₁₅	E ₁₅	
2	14	10	14	10	E	12	15	14	18	25	29	26	27	25	26	26	16	12	14	E ₁₆	E ₁₆	E ₁₆	E ₁₆	14	
3	E ₁₆	E ₁₆	E ₁₆	E ₁₆	12	16	16	15	15	16	26	26	26	26	16	16	16	16	15	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
4	E ₁₆	E ₁₆	E ₁₅	14	E ₁₆	15	16	16	18	25	30	27	26	26	26	18	16	14	16	E ₁₅	E ₁₆	E ₁₆	13	E ₁₆	
5	12	E ₁₆	E ₁₆	14	12	16	15	15	16	19	26	25	26	26	19	16	16	11	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
6	14	E ₁₅	E ₁₅	E ₁₆	12	12	15	16	16	25	26	26	27	18	25	19	16	16	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
7	E ₁₆	E ₁₅	E ₁₅	11	12	15	16	15	16	16	16	26	19	26	16	16	16	16	15	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	
8	E ₁₅	13	10	14	12	13	16	14	16	16	26	28	26	19	26	25	16	16	16	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	
9	E ₁₆	14	11	10	10	14	14	14	15	18	26	26	28	25	18	26	16	14	12	E ₁₅	E ₁₆	E ₁₆	13	E ₁₆	
10	E ₁₆	E ₁₅	12	10	11	15	16	14	15	17	16	27	26	26	16	16	15	12	14	14	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
11	E ₁₆	E ₁₆	E ₁₅	E ₁₅	10	16	16	16	16	16	20	27	26	26	18	16	15	16	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
12	E ₁₆	E ₁₆	E ₁₆	E ₁₆	14	15	17	18	16	18	28	28	26	20	18	16	16	16	16	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
13	E ₁₆	E ₁₆	E ₁₆	E ₁₅	E ₁₆	16	16	16	16	16	26	27	26	27	22	16	16	12	16	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
14	E ₁₆	E ₁₅	12	12	10	15	18	16	16	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	C	C	C	C	C	C	26	27	26	26	18	15	15	16	16	E ₁₆	E ₁₆	E ₁₆	E ₁₇	E ₁₆	
16	E ₁₆	E ₁₅	12	12	12	15	16	15	16	26	26	27	19	26	18	16	17	14	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
17	E ₁₆	E ₁₆	12	11	12	15	16	18	16	16	18	26	26	25	18	16	18	16	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
18	E ₁₅	E ₁₆	E ₁₅	E ₁₅	10	16	16	15	16	18	26	25	26	27	17	16	16	16	15	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
19	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	16	16	16	16	16	19	18	16	26	27	25	17	16	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₅	E ₁₆	
20	E ₁₆	13	E ₁₆	E ₁₆	E ₁₆	16	16	16	16	17	16	19	16	26	16	17	15	16	16	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
21	E ₁₅	C	C	12	12	16	16	17	18	19	19	26	25	20	25	16	15	16	14	E ₁₅	14	14	E ₁₅	E ₁₆	
22	12	E ₁₅	12	11	11	13	13	15	16	16	18	25	25	20	18	16	16	15	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	
23	E ₁₅	12	E ₁₅	10	10	E ₁₅	15	15	16	16	17	16	16	16	26	26	19	16	10	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	
24	E ₁₅	14	14	12	10	12	15	16	15	26	26	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	16	26	26	26	26	19	20	16	15	11	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
26	E ₁₆	E ₁₆	E ₁₅	E ₁₅	12	13	16	16	16	17	28	25	25	19	16	14	15	16	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	
27	13	E ₁₅	14	13	12	14	13	15	16	18	20	25	19	17	16	12	16	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
28	E ₁₆	E ₁₅	E ₁₆	E ₁₆	12	E ₁₆	15	15	16	26	26	55	39	25	18	15	15	10	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	
29	E ₁₅	12	12	10	10	15	15	16	15	16	25	25	26	23	16	16	15	14	13	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
30	14	12	12	10	10	13	15	15	16	26	27	25	25	18	17	15	16	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
31																									
CNT	28	27	27	28	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E ₁₆	E ₁₅	E ₁₅	11	11	15	16	15	16	17	26	26	26	25	18	16	16	16	16	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
UQ	E ₁₆	E ₁₆	E ₁₆	E ₁₅	12	16	16	16	16	22	26	27	26	26	24	18	16	16	16	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₆	
LQ	E ₁₅	13	12	10	10	14	15	15	16	16	19	25	24	20	16	16	15	14	13	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	

IONOSPHERIC DATA

SEP. 1968

M(3000)F₂(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	J ^R 270	270	270	275	270	270	310	315	335	305	290	300	310	295	305	295	300	315	300	300	280	260	265	I ^A 270	
2	275	265	285	J ^R 290	265	275	295	315	340	310	I ^A 300	J ^R 310	295	300	310	305	300	310	305	305	280	260	275	275	
3	285	265	290	270	270	280	315	330	355	300	275	305	305	295	300	310	310	300	305	300	290	J ^R 270	280	270	
4	270	J ^R 290	270	275	275	295	335	340	335	330	295	305	300	300	295	295	295	310	305	295	275	285	260	R ^K 260	
5	270	275	285	290	H ^H 275	285	295	330	330	310	305	295	305	300	295	295	300	305	305	285	295	280	290	I ^R 280	
6	270	295	290	275	285	295	325	340	335	345	275	285	300	280	295	305	290	295	305	300	310	285	F ^F 265	F ^F 260	
7	R ^R	F ^F	F ^F	F ^F 265	F ^F 275	295	310	325	335	305	295	295	300	310	290	305	305	305	300	I ^R 300	285	275	280	275	
8	265	265	275	270	280	295	305	325	315	300	310	275	275	285	290	295	290	305	305	S ^S 300	275	265	270	275	
9	255	260	250	265	245	265	320	310	295	300	305	290	295	290	295	300	305	310	300	J ^R 300	270	275	R ^R	290	
10	285	280	280	280	275	280	320	325	335	310	305	295	295	290	290	305	305	310	300	J ^R 300	I ^R 290	275	270	270	
11	285	280	270	270	285	265	310	335	325	300	300	290	285	285	295	295	295	310	310	I ^R 310	290	260	265	275	
12	285	275	270	285	275	280	315	J ^R 340	325	320	295	300	285	300	285	290	290	285	285	295	300	280	275	265	
13	270	250	260	260	280	285	290	300	330	310	280	290	300	285	295	295	300	285	300	315	255	260	255	265	
14	250	265	270	270	265	265	305	335	300	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	C	C	C	C	C	C	C	295	295	285	275	265	300	300	300	300	310	315	U ^U 285	A	
16	A	I ^A 275	260	290	270	290	315	335	320	305	290	285	300	295	290	295	305	310	315	R ^R	295	280	270	275	
17	275	285	290	300	290	290	310	330	345	315	270	285	290	275	290	295	295	315	315	305	295	300	275	270	
18	280	275	295	300	270	280	320	325	335	320	305	290	295	300	305	300	305	310	305	305	285	290	260	305	
19	280	280	275	285	275	280	300	315	330	340	300	285	280	290	290	275	300	310	300	R ^R	305	270	275	290	
20	290	295	295	285	290	305	320	J ^R 355	345	320	290	305	275	290	280	295	305	320	320	320	285	280	270	I ^R 275	
21	280	I ^C 280	I ^C 285	295	310	290	J ^R 310	330	335	315	305	300	290	290	295	300	300	J ^R 315	315	I ^R 305	305	300	295	290	
22	270	J ^R 280	270	280	290	300	330	320	320	320	315	295	280	300	295	295	315	325	R ^R 320	U ^U 320	295	305	265	265	
23	275	270	275	305	315	295	315	335	335	300	305	285	290	285	290	305	320	315	J ^R 280	I ^R 290	I ^R 290	290	U ^U 290	295	
24	290	275	265	J ^R 280	290	300	335	320	350	310	300	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	C	315	305	285	300	295	295	305	320	315	315	315	I ^R 275	280	275	280
26	290	290	285	295	335	285	305	335	330	315	305	305	315	300	295	305	305	320	U ^U 310	300	290	295	295	290	
27	285	275	280	275	285	300	310	335	320	315	295	290	290	295	295	295	305	305	305	285	285	275	275	290	
28	275	300	300	285	285	285	340	330	330	315	315	295	290	290	295	R ^R 315	310	325	315	305	290	295	270	275	
29	280	275	285	320	285	285	S ^S 340	325	320	325	315	300	295	290	290	295	305	320	320	305	290	275	270	290	
30	295	295	295	285	290	300	R ^R 330	J ^R 330	340	335	310	305	305	280	290	290	295	305	310	305	305	275	275	265	260
31																									
	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	26	27	27	28	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28	28	26	28	28	27	27
MED	278	275	280	282	280	285	315	330	332	312	300	295	295	290	295	295	305	310	305	302	290	280	275	280	
UQ	285	282	288	290	290	295	322	335	335	320	305	300	300	300	295	305	305	315	315	305	295	288	282	290	
LQ	270	270	270	272	272	280	308	322	322	305	295	288	285	288	290	295	300	305	300	300	280	272	270	275	

IONOSPHERIC DATA

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M(3000)F1(0.01)

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

Station **KCKUUNJI 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	L	L	A	A	A	A	L	L	L	A	A							
2							L	A	A	A	A	L	L	U L	L	L	L	A	A						
3							L	L	L	L	L	U L	L	L	L	L	L	A	A						
4									L	L	U L	L	L	U L	U L	L	L	A							
5							L		L	L	L	L	U L	L	L	L	L	A	A						
6								L	L	A	L	L	A	A	L	A	L	A	A						
7								A	L	L	L	L	A	L	U L	L	L	L							
8								L	L	L	A	R	L	U L	L	L	L								
9							L		L	L	L	L	L	L	L	L	A	A	A						
10									L	L	L	L	L	U L	L	L	A	A	A						
11									L	L	L	L	L	L	L	L	L	L							
12								L	L	L	L	L	L	L	L	L	L	A							
13								L	L	L	L	L	A	L	A	A	L	A							
14								L	A	C	C	C	C	C	C	C	C	C	C						
15							C	C	C	C	C	L	A	A	L	L	L	L	L						
16								L	L	L	L	L	L	U L	L	L	L	L	A						
17								L	L	L	L	L	L	U L	L	L	L	L							
18								L	L	L	L	L	L	U L	L	L	L	L							
19									L	L	L	L	L	L	L	L	L	L							
20								L	L	L	L	L	L	L	L	L	L	L							
21									L	L	L	L	L	L	L	L	L	L							
22									L	L	L	L	L	L	L	L	L	L							
23									L	L	L	L	L	L	L	L	L	L							
24									L	L	L	C	C	C	C	C	C	C	C						
25							C	C	C	C	L	L	L	L	L	L	L	L							
26									L	L	L	L	L	L	L	L	L	L							
27									L	L	L	L	L	L	L	L	L	L							
28									L	L	L	B	L	L	L	L	L	L							
29									L	L	L	L	L	L	L	L	L	L							
30									L	L	L	L	L	L	L	L	L	L							
31																									
CNT										1	1	7	5	5	7	3									
MED										L	L	L	L	L	L	L									
UQ											L	L	L	L	L	L									
LQ											L	L	L	L	L	L									

IONOSPHERIC DATA

SEP. 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							275	270	270	300	345	310	285	320	310	320	290	265						
2							290	260	255	300	320	315	315	325	305	300	300	265	270					
3							265	260	250	315	350	300	300	315	305	295	290	290	275					
4									250	250	270	310	315	315	295	300	285	255						
5							265		250	285	300	300	305	300	325	300	285	285	250					
6									255	255	250	350	315	305	300	320	305	300	300	250				
7									250	250	265	310	305	290	290	340	300	270	260					
8									250	255	280	300	300	340	305	300	290	290						
9							260		255	295	295	305	300	325	295	295	310	250	255					
10									250	250	280	305	300	300	300	300	270	250	265					
11									250	260	300	315	335	305	300	300	300	265						
12									250	250	285	265	300	300	340	330	300	280						
13									290	260	285	350	300	300	345	295	295	285	285					
14									250	250	C	C	C	C	C	C	C	C	C					
15							C	C	C	C	C	250	E A 335	320	325	305	300	260	250					
16									250	250	260	265	320	300	300	285	285	275	265					
17									250	250	245	350	285	310	305	300	275	275						
18									250	250	250	255	290	300	290	285	285	285						
19									250	245	250	265	340	300	300	275	285							
20									250	250	255	250	300	285	260	315	290	275						
21									250	245	260	290	290	290	260	280	260							
22									260	255	250	250	300	295	290	270	250							
23									240	245	255	270	290	300	295	275	245							
24									245	250	265		C	C	C	C	C	C	C					
25							C	C	C	C	250	255	275	300	280	260	275							
26									250	250	255	295	270	270	300	270								
27									250	285	280	300	290	285	290	275	255							
28									250	260	260	260	285	280	270	270								
29									250	250	270	255	290	300	270	260								
30									240	250	270	285	255	305	300	285	260							
31																								
	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							5	13	28	28	29	28	28	28	28	28	24	13	6					
MED							265	250	250	254	270	300	300	300	300	290	282	285	260					
UQ							275	260	252	284	300	306	308	315	305	300	290	285	270					
LQ							265	250	250	250	255	285	290	290	290	275	265	255	250					

IONOSPHERIC DATA

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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	300	A 350	290	255	280	300	260	245	250	A	A	A	I 210	210	205	270	A	A	250	250	260	A	320	I 310	
2	E 350	A 310	280	245	295	305	245	A	A	A	A	250	225	220	I 220	A 250	250	I 250	I 255	A 250	285	335	310	290	
3	280	300	260	270	290	300	250	235	225	210	H 200	H 245	210	235	250	I 255	A	A	A	250	240	E 375	A 265	300	
4	295	285	290	300	285	275	250	250	225	220	210	215	I 205	A 225	240	I 240	240	I 250	A	250	255	270	275	260	305
5	300	300	290	265	240	300	250	250	A	200	200	205	210	230	230	250	A	A	A	250	235	300	265	280	
6	310	265	255	300	285	265	250	235	225	I 225	A 200	I 210	A	A	I 240	I 250	230	A	A	I 265	245	300	295	300	
7	A	305	305	300	300	280	245	I 220	A 235	240	210	220	I 220	I 230	210	225	240	245	245	245	250	275	260	280	
8	310	300	310	300	280	260	245	245	210	205	A	A	220	210	220	245	240	260	E 260	260	260	310	295	275	
9	325	310	345	310	345	305	250	240	210	220	210	225	I 215	R 245	235	A	A	A	A	250	300	295	275	260	
10	250	285	285	285	335	300	250	240	225	205	210	205	200	225	225	250	I 250	I 250	I 260	250	265	275	300	295	
11	260	275	300	295	300	315	250	250	225	215	215	225	200	200	225	235	250	250	255	240	260	265	270	285	
12	285	285	290	270	255	295	250	235	230	230	205	215	240	215	230	225	A 240	250	255	250	250	250	260	260	
13	265	340	340	325	290	260	250	250	235	215	220	230	I 225	A 220	A	A	250	I 250	250	235	300	325	325	350	
14	340	310	285	300	310	345	265	I 250	I 250	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	C	C	C	C	C	C	225	A	A	A	230	I 240	235	225	250	265	250	300	A 300	A	
16	I 350	A 315	290	250	300	245	230	220	225	200	215	220	220	I 240	I 250	250	A	A	250	235	240	265	300	300	
17	300	290	280	250	235	295	250	240	225	205	200	195	200	250	225	245	235	250	245	235	240	225	275	300	
18	300	300	265	245	250	295	240	230	230	215	195	200	H 200	235	235	245	240	250	245	240	260	265	260	260	
19	285	290	300	295	275	295	245	250	235	210	200	190	235	250	I 250	250	235	250	245	230	240	285	295	265	
20	285	265	265	265	275	260	250	235	230	200	225	205	H 200	220	220	240	250	240	250	240	240	260	290	310	300
21	275	I 275	C 265	250	240	260	235	235	230	225	220	205	220	210	205	210	245	250	230	245	225	245	280	255	
22	300	290	260	280	280	245	220	240	240	220	205	205	205	220	220	240	240	250	A 250	E 250	240	245	250	275	
23	290	295	290	250	220	255	245	240	225	210	205	200	200	200	250	250	245	245	240	255	255	255	260	240	
24	245	310	345	260	220	250	245	245	245	230	195	C	C	C	C	C	C	C	C	C	C	C	C	C	
25	C	C	C	C	C	C	C	C	C	215	215	200	240	230	240	230	250	250	240	240	285	290	295	285	
26	275	275	265	265	230	240	240	240	240	220	230	200	205	210	210	220	250	240	220	245	255	250	280	280	
27	255	290	300	285	255	255	245	245	245	225	215	215	205	230	215	245	245	250	235	245	280	295	300	265	
28	285	260	245	245	290	290	250	245	235	225	205	I 205	B 210	235	240	240	245	245	230	245	250	245	290	295	
29	285	290	295	245	220	H 275	230	240	220	220	210	210	210	210	205	225	250	245	225	220	250	270	295	280	
30	275	270	255	255	245	250	245	240	225	210	H 205	205	H 200	220	230	250	250	250	230	230	285	290	300	300	
31																									
CNT	26	28	28	28	28	28	28	27	26	26	26	25	26	26	27	26	24	22	24	28	28	27	28	27	
MED	285	290	290	275	278	285	248	240	230	218	208	205	210	220	230	245	245	250	245	245	255	275	292	285	
UQ	300	308	300	298	290	300	250	245	235	225	215	215	220	230	240	250	250	250	250	250	268	296	300	300	
LQ	275	275	265	252	242	260	245	235	225	210	200	205	200	210	220	235	240	245	238	240	245	260	272	270	

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*h'*E_s (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	105	105	100	105	105	155	140	130	125	115	110	110	110	110	115	115	115	110	115	100	110	110	110	105
2	105	105	105	105	105	105	140	125	115	115	110	110	110	110	110	135	135	125	110	100	110	110	110	105
3	S	S	S	S	B	105	160	110	115	110	G	190	190	165	145	130	125	125	110	110	110	110	105	110
4	105	105	100	100	100	100	145	125	115	110	110	110	105	105	110	105	100	130	115	S	110	110	110	105
5	105	100	105	100	125	125	110	110	115	110	110	G	G	G	G	150	130	115	110	110	100	110	100	110
6	B	S	S	110	110	125	125	120	110	110	110	110	105	110	145	130	130	125	115	110	110	115	110	110
7	110	110	105	B	110	110	115	115	110	120	115	110	110	115	130	115	115	110	105	105	105	105	105	105
8	100	100	105	100	100	B	150	G	115	110	110	105	G	110	110	115	115	140	115	115	110	105	105	105
9	S	115	105	E	105	100	115	110	115	110	115	110	G	G	110	110	110	110	110	105	105	110	105	100
10	110	110	110	115	115	115	115	115	115	G	G	G	G	G	115	115	110	115	110	110	110	105	100	105
11	105	S	100	S	E	B	130	125	125	115	115	115	G	G	115	160	110	105	130	100	100	100	100	100
12	100	100	100	S	B	B	150	130	125	115	115	110	110	110	110	100	110	G	115	115	115	110	S	S
13	S	S	100	110	110	B	130	130	130	115	115	110	110	110	110	110	110	105	100	100	100	100	100	100
14	S	S	B	B	E	110	145	135	130	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	115	110	110	110	110	125	125	110	110	110	110	110	110	110
16	110	110	110	B	105	110	G	105	105	145	G	130	125	125	125	115	110	110	110	105	100	100	100	100
17	100	100	B	B	B	110	175	110	110	110	110	110	105	105	G	G	150	130	100	100	100	100	100	S
18	S	100	S	S	E	110	145	140	110	G	G	G	G	G	110	150	140	130	100	100	100	S	100	100
19	100	100	S	S	S	B	150	115	110	G	G	G	G	G	150	145	145	150	130	125	115	110	110	110
20	105	105	105	S	S	110	145	130	115	100	100	100	100	G	G	G	130	140	115	110	110	110	100	100
21	110	C	C	B	B	110	110	140	125	G	115	110	G	G	G	G	175	145	B	S	B	B	S	105
22	105	S	B	B	B	B	155	145	110	140	105	G	115	105	145	140	115	110	110	110	105	110	105	B
23	S	105	S	E	E	115	G	175	105	100	100	100	100	100	G	150	135	115	100	105	100	105	S	S
24	S	B	B	B	E	105	105	105	105	110	G	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	115	G	110	110	110	110	G	G	150	105	105	100	100	100	S
26	G	S	S	S	B	B	170	115	110	G	G	105	105	105	105	100	100	145	115	105	100	100	100	105
27	B	105	B	B	B	105	150	155	145	140	105	125	100	100	G	G	125	140	S	130	130	110	100	100
28	100	110	105	S	B	S	160	160	G	G	G	B	B	G	105	105	155	100	100	100	100	100	S	S
29	S	B	B	E	E	125	G	180	G	125	G	G	G	150	G	G	105	115	115	110	105	105	S	105
30	E	B	B	E	E	B	150	125	130	110	G	G	G	G	110	105	150	130	S	110	S	S	S	105
31																								
CNT	16	17	14	8	11	19	25	27	26	22	18	20	17	18	21	22	27	27	25	26	26	25	22	22
MED	105	105	105	105	105	110	145	125	115	112	110	110	110	110	110	115	125	125	110	108	105	110	102	105
UQ	108	110	105	110	110	115	150	138	125	115	115	110	110	110	125	140	135	135	115	110	110	110	110	105
LQ	100	100	100	100	105	105	125	115	110	110	110	110	105	105	110	110	110	110	105	100	100	100	100	100

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Types of Es

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

Station **KUKUBUNJI 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

Time 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 ₃	F ₂	F ₂	F ₁	H ₁	H ₁	H ₁	H ₂	C ₂	C ₂	C ₂	C ₂	C ₁	C ₁	C ₁	C ₃	C ₄	CL ₂₂	F ₃	F ₄	F ₃	F ₃	F ₄	
2	F ₄	F ₃	F ₂	F ₃	F ₃	L ₂	H ₁	H ₃	C ₂	C ₂	C ₂	C ₂	C ₁	C ₂	C ₂	HL ₁₂	HL ₁₁	H ₃	LL ₂₂	F ₄	FF ₂₂	FF ₁₂	F ₂	F ₃	
3						L ₁	HL ₁₁	LH ₂₁	C ₁	L ₁		H ₁	H ₁	H ₁	H ₁	H ₂	H ₂	H ₃	L ₃	F ₁	F ₃	F ₃	F ₃	F ₂	
4	F ₂	F ₁	F ₁	F ₁	F ₁	L ₁	H ₁	H ₁	C ₁	C ₁	C ₂	C ₁	L ₂	C ₁	C ₁	L ₂	L ₂	HL ₁₁	L ₂	F ₂	F ₂	F ₂	F ₂	F ₃	
5	F ₂	F ₁	F ₂	F ₁	F ₁	H ₁	L ₃	LH ₁₁	C ₂	C ₁	C ₁					H ₁	H ₁	CL ₂₁	LL ₃₂	F ₂	F ₂	F ₂	F ₂	F ₂	
6				F ₁	F ₁	H ₁	H ₁	H ₁	C ₂	C ₁	C ₁	C ₁	L ₂	L ₂	H ₁	H ₁	H ₂	H ₃	L ₄	FF ₃₃	FF ₃₂	F ₂	F ₂	F ₂	
7	F ₃	F ₃	F ₃		F ₁	L ₂	L ₂	C ₂	C ₂	C ₁	C ₁	C ₁	CL ₂₁	C ₂	HL ₁₁	CL ₁₁	C ₁	C ₂	L ₂	F ₂	F ₂	F ₂	F ₂	F ₂	
8	F ₂	F ₂	F ₃	F ₁	F ₁		H ₂		C ₁	C ₁	C ₂	L ₁		CL ₁₁	C ₁	C ₁	C ₁	H ₁	C ₄	F ₃	F ₁	F ₃	F ₂	F ₃	
9		FF ₂₂	F ₁		F ₁	L ₂	C ₂	C ₁	C ₁	C ₁	C ₁	C ₁			C ₁	C ₂	C ₂	L ₂	L ₄	F ₃	F ₄	F ₂	F ₁	F ₁	
10	F ₂	F ₁	F ₂	F ₁	F ₄	L ₂	CL ₁₁	C ₂	C ₁						L ₁	C ₂	C ₂	HL ₁₁	L ₃	F ₅	F ₂	F ₃	F ₄	F ₂	
11	F ₁		F ₁				H ₁	H ₁	H ₁	C ₁	C ₁	C ₁			C ₁	H ₁	L ₁	L ₁	H ₂	F ₂	F ₂	F ₂	F ₁	F ₂	
12	F ₁	F ₁	F ₁				H ₁	H ₁	H ₁	C ₁	C ₁	C ₁	C ₂	C ₁	L ₁	L ₂	C ₂		C ₃	F ₁	F ₂	F ₂	F ₂		
13			F ₂	F ₁	F ₁		H ₁	H ₁	H ₁	C ₁	C ₁	C ₁	C ₂	L ₁	L ₂	L ₃	L ₃	L ₂	F ₅	F ₃	F ₃	F ₁	F ₁	F ₁	
14					L ₁	H ₁	H ₂	HL ₁₁																	
15										C ₁	C ₂	C ₂	L ₂	L ₁	H ₁	H ₁	C ₁	L ₃	F ₄	F ₃	F ₃	F ₄	FF ₄₁		
16	F ₃	F ₃	F ₂		F ₁	L ₃		L ₁	L ₁	H ₁		H ₁	H ₁	H ₁	H ₁	C ₂	L ₂	L ₃	L ₃	F ₄	F ₃	F ₃	F ₂	F ₂	
17	F ₁	F ₁				L ₁	H ₁	L ₁	L ₁	L ₁	L ₁	L ₁	L ₁	L ₁			HL ₁₁	HL ₁₁	L ₁	F ₁	F ₁	F ₁	F ₁		
18		F ₁				L ₂	H ₁	H ₁	L ₁						L ₁	HL ₁₁	HL ₁₁	HL ₁₁	L ₃	F ₂	F ₂		F ₁	F ₁	
19	F ₂	F ₁					H ₁	C ₂	L ₁						H ₁	H ₁	H ₁	H ₁	H ₁	F ₁	F ₂	F ₃	F ₂	F ₂	
20	F ₂	F ₂	F ₂			L ₁	H ₂	H ₁	CL ₁₁	L ₂	L ₁	L ₁	L ₁			H ₁	H ₁	L ₃	F ₃	F ₂	F ₂	F ₂	F ₂	F ₁	
21	F ₁					L ₁	L ₂	HL ₁₁	H ₁		L ₁	L ₁				H ₁	H ₁							F ₁	
22	F ₁						HL ₁₁	HL ₂₁	LH ₂₁	HL ₁₁	L ₁		C ₁	L ₁	HL ₁₁	H ₁	C ₁	C ₃	L ₄	F ₃	F ₃	F ₃	F ₃		
23		F ₂				L ₁		HL ₁₁	L ₁	L ₂	L ₁	L ₂	L ₁	L ₁		H ₁	H ₁	C ₁	L ₁	F ₃	F ₁	F ₂			
24						L ₁	L ₁	L ₁	L ₂	L ₂															
25									C ₁		L ₁	L ₁	L ₁	L ₁	L ₁			HL ₁₁	L ₃	F ₈	F ₂	F ₂	F ₁		
26							H ₁	L ₁	L ₁		L ₁	L ₁	L ₁	L ₁	L ₁	L ₁	L ₂	H ₁	F ₁	F ₃	F ₁	F ₂	F ₁	F ₂	
27		F ₁				F ₁	H ₂	H ₁	HL ₂₂	HL ₁₁	L ₁	HL ₁₁	L ₁	L ₁			H ₁	H ₁		F ₁	F ₁	F ₂	F ₃	F ₂	
28	F ₁	F ₁	F ₁				H ₁	HL ₁₁							L ₁	L ₁	HL ₁₁	LH ₂₁	F ₂	F ₃	F ₁	F ₁	F ₁		
29						F ₁		H ₁		H ₁				H ₁			L ₁	L ₂	F ₁	F ₁	F ₁	F ₁		F ₁	
30							H ₁	H ₂	H ₁	L ₁					L ₁	L ₁	H ₁	H ₂		F ₁				F ₄	
31																									
	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

SEP. 1968

hpF2 (km)

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

Station KOKUFUNJI 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	J ^R 385	370	380	375	380	395	300	300	280	305	350	325	300	345	310	340	310	300	310	310	350	400	390	I ^A 390	
2	365	390	345	J ^R 350	395	380	340	290	260	310	I ^A 325	J ^R 315	325	335	320	320	330	310	310	310	355	410	390	380	
3	375	410	350	390	400	400	300	280	255	340	360	310	320	350	325	310	305	330	330	330	J ^R 400	360	405		
4	395	J ^R 340	400	400	395	340	280	255	260	265	340	335	340	340	340	345	325	300	320	340	365	350	360	R 405	
5	400	400	370	355	J ^R 390	370	305	280	280	310	320	345	335	325	345	335	325	320	320	345	315	360	350	I ^A 380	
6	400	355	360	390	370	350	290	275	260	250	370	350	330	350	345	320	345	325	315	I ^A 315	315	365	415	F 370	
7	R	F	F	F 400	F 400	360	300	285	255	300	330	340	320	305	350	325	305	305	305	J ^R 310	345	375	360	360	
8	400	405	395	395	380	340	300	270	290	320	310	355	365	350	345	350	330	310	310	320	S 355	410	390	350	
9	440	420	445	410	460	390	300	280	310	320	315	350	345	355	335	320	330	310	315	J ^R 335	395	390	K 350		
10	350	380	380	390	400	380	290	275	270	300	315	345	340	350	345	325	310	310	325	J ^R 325	I ^F 340	370	400	360	
11	350	370	400	395	380	405	300	275	290	325	325	345	355	355	340	345	330	325	310	J ^R 300	350	380	350	370	
12	365	385	380	380	380	380	290	J ^R 270	285	290	320	330	340	340	350	335	335	355	335	335	315	325	360	365	360
13	395	435	415	415	380	360	345	315	270	310	365	345	325	365	330	325	330	345	310	300	435	420	440	430	
14	450	415	385	405	415	410	310	265	305	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	C	C	C	C	C	C	C	I ^A 320	I ^A 340	355	370	355	325	320	320	330	300	300	U ^R 355	330	A
16	A	I ^A 415	410	360	390	360	300	260	300	325	340	355	345	340	340	330	330	330	300	R	335	365	400	390	
17	390	360	360	335	355	360	290	260	260	290	375	330	330	365	350	320	325	300	300	300	315	320	400	385	
18	380	390	335	330	375	375	280	275	260	295	305	330	330	320	315	330	330	290	310	315	340	350	360	300	
19	380	365	400	385	390	360	335	300	275	265	300	335	355	340	335	375	330	290	315	R	315	390	385	365	
20	360	360	360	365	355	345	290	J ^R 280	260	285	320	315	365	355	355	340	310	290	300	300	355	380	395	I ^R 370	
21	355	I ^C 365	I ^C 360	335	305	345	J ^R 285	275	265	280	305	320	340	340	320	315	315	J ^R 295	295	I ^R 300	305	315	345	340	
22	390	J ^R 370	385	380	355	315	260	290	295	R 295	295	300	320	355	320	325	340	300	295	R 295	U ^R 290	310	300	345	355
23	380	380	365	315	295	340	300	265	260	305	295	340	340	350	340	310	290	300	J ^R 340	I ^R 330	I ^R 325	345	U ^R 340	310	
24	315	390	420	J ^R 365	350	320	285	300	260	300	325	C	C	C	C	C	C	C	C	C	C	C	C	C	C
25	C	C	C	C	C	C	C	C	C	C	300	305	350	335	330	330	325	295	295	295	300	I ^R 380	380	360	385
26	365	365	375	350	275	355	300	275	275	300	305	310	330	320	340	305	305	290	U ^R 300	305	340	320	355	350	
27	350	380	395	360	380	345	300	280	295	300	330	345	345	345	350	315	305	310	300	365	375	385	365	340	
28	390	330	330	355	375	370	275	270	285	295	300	340	340	340	320	R 305	300	290	295	300	320	325	385	360	
29	375	370	365	300	350	360	S 255	270	290	290	300	310	325	350	340	325	305	285	285	300	340	385	365	360	
30	340	345	355	355	335	R 320	J ^R 265	260	260	300	310	315	370	350	345	335	310	300	300	310	385	390	400	360	
31																									
CNT	26	27	27	28	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28	28	26	28	28	27	27
MED	380	380	380	378	380	360	300	275	272	300	320	338	340	345	340	325	318	302	310	310	340	372	385	370	
UQ	395	395	398	392	392	380	300	282	290	310	330	345	350	350	345	338	330	320	318	325	355	390	392	382	
LQ	360	365	360	352	355	345	285	270	260	290	305	320	330	338	328	320	305	295	300	300	318	350	358	352	

IONOSPHERIC DATA

SEP. 1968

ypF2 (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	J ^R 100	85	115	85	90	100	95	65	65	140	95	100	95	100	85	60	90	70	90	90	105	100	105	I ^A 100		
2	90	105	100	J ^R 95	100	75	60	90	85	90	I ^A 80	J ^R 85	90	65	80	90	95	90	110	130	135	90	95	95		
3	90	95	100	110	95	100	100	70	95	120	130	135	110	80	110	90	95	105	105	105	150	J ^R 90	125	95		
4	75	J ^R 100	85	90	95	70	85	70	70	95	85	75	75	80	70	105	120	110	80	110	115	100	90	R ^S 95		
5	80	90	115	95	H ¹⁰⁰	115	130	85	80	120	100	75	75	90	90	105	110	110	120	100	135	105	110	I ^R 90		
6	90	85	90	100	80	85	90	90	95	65	115	100	100	120	90	110	105	105	120	I ^A 120	155	75	F ⁸⁵	F ⁹⁵		
7	R	F	F	F	F ¹⁰⁰	F ¹⁰⁰	105	100	95	80	100	115	105	125	95	95	75	95	90	95	I ^R 90	100	90	85	95	
8	95	90	85	100	75	80	95	65	105	80	85	145	130	105	100	95	90	95	105	S ⁷⁵	90	90	105	105		
9	75	80	100	85	85	105	70	90	90	105	85	100	95	95	95	115	105	105	90	J ^R 140	95	105	R	125		
10	125	105	115	95	95	95	105	125	120	100	85	75	90	100	105	105	100	120	125	J ^R 115	I ^R 105	115	90	115		
11	100	80	100	90	110	95	115	70	70	125	105	90	105	110	95	100	105	120	105	I ^R 110	100	105	135	95		
12	85	105	110	105	105	105	75	J ^R 130	130	75	110	105	120	105	100	110	115	95	115	110	80	90	115	105		
13	95	105	90	80	100	90	105	115	80	80	85	95	125	85	110	115	110	105	130	125	105	110	75	75		
14	90	85	110	95	100	90	115	130	120	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
15	C	C	C	C	C	C	C	C	C	C	C	C	120	I ^A 105	95	100	90	115	120	120	95	120	110	U ^R 105	70	A
16	A	I ^A 90	90	90	90	110	90	100	150	105	105	95	100	105	110	110	110	110	110	R	115	95	85	100		
17	100	90	100	90	105	90	110	110	90	95	135	120	110	105	85	90	110	90	105	100	115	105	70	105		
18	95	95	125	95	110	90	85	85	90	65	105	115	110	110	100	110	100	110	130	125	100	95	120	100		
19	100	95	95	110	100	80	130	120	90	65	115	125	95	105	115	105	115	105	125	R	95	110	100	85		
20	90	90	105	100	95	75	125	J ^R 120	105	105	130	125	105	85	105	100	90	70	110	100	85	70	95	I ^R 95		
21	95	I ^C 75	I ^C 90	105	95	85	J ^R 130	75	75	80	90	125	105	100	100	95	85	J ^R 75	100	I ^R 90	90	85	55	105		
22	105	J ^R 75	110	90	85	80	85	65	R ⁶⁰	55	70	125	110	80	120	70	65	65	R ⁶⁰	60	U ^R 65	90	95	60	90	
23	75	85	90	60	105	70	95	60	60	95	110	115	115	120	100	90	60	80	J ^R 105	I ^R 90	I ^R 75	60	U ^R 70	70		
24	95	70	75	J ^R 100	105	75	60	50	45	85	85	C	C	C	C	C	C	C	C	C	C	C	C	C		
25	C	C	C	C	C	C	C	C	C	C	100	75	100	85	100	120	100	55	85	95	100	I ^R 115	110	80	105	
26	115	85	105	90	105	95	110	75	65	95	90	90	90	120	75	90	85	105	U ^R 95	90	60	80	90	95		
27	95	75	100	85	75	65	85	75	80	90	90	95	105	95	95	105	95	105	100	95	65	95	95	110		
28	100	70	120	125	115	85	85	90	75	65	55	70	100	105	100	95 ^R	95	65	80	75	75	75	75	85		
29	80	80	80	55	95	85	S ⁶⁰	85	65	65	70	90	80	95	105	80	90	80	70	95	85	80	90	85		
30	65	65	80	100	110	R ⁸⁰	J ^R 60	55	85	110	120	100	90	90	95	105	90	120	150	110	105	95	90	90		
31																										
	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	26	27	27	28	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28	28	26	28	28	27	27	
MED	95	85	100	95	100	88	95	85	82	95	95	100	100	100	100	100	95	105	105	100	100	95	90	95		
UQ	100	95	110	100	105	98	110	105	95	105	115	118	110	105	105	108	110	110	118	115	115	105	102	105		
LQ	85	80	90	90	92	80	85	70	70	78	85	90	90	90	90	90	90	82	95	90	88	88	78	90		

IONOSPHERIC DATA

SEP. 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

Month Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L					A	A	A	A	A					
2								L	L	U 630	L 520	L	H 530	560	520	U 530	U 490	A						
3								L	L	U 550	U 570	L 550	U 550	U 570	L	U 530	L	L	A					
4									L	C	U 550	L 570	L	560	520	540	A	L	A					
5							L	L	L	L	L	L	L	540	540	530	560	L	A	A	A			
6								L	L	L	L	H 550	L	570	L	L	520	480	L	A				
7									L	L	L	L	L	L	560	L	L	L	L					
8								L	L	L	L	L	L	U 600	570	L	L	L	L	A				
9								L	L	L	L	L	L	L	A	A	L	A	A					
10									L	U 520	U 510	L 650	L	550	520	L	U 580	L	L					
11								L	L	L	L	L	U 570	L 560	U 580	L 530	L	L	L	L				
12									L	L	L	L	L	L	L	U 550	A	L	C					
13									L	L	L	L	L	L	550	580	L	L	L					
14								L	L	L	L	L	L	L	590	540	L	L	L					
15									L	L	L	L	L	L	L	580	570	540	L	L				
16									L	L	L	L	L	L	L	U 550	L	L	L					
17									L	L	L	L	L	L	L	540	520	L	A					
18									L	L	L	L	L	L	L	520	L	480	L	A				
19									L	L	L	L	L	L	L	540	540	L	520	L	L			
20									L	L	L	L	L	L	L	U 550	L	L	L	L				
21									L	L	L	L	L	L	L	L	L	L	L	L				
22									L	L	L	L	L	L	L	540	530	L	L	L				
23								L	L	L	L	L	L	L	L	H 540	U 580	L	L	L				
24									L	L	L	L	L	L	L	L	U 550	L	L	L				
25									L	L	L	L	L	L	L	L	540	550	L	L				
26									L	L	L	L	L	L	L	L	520	L	L	L				
27									L	L	L	L	L	L	L	L	L	L	L	L				
28									L	L	L	L	L	L	L	L	L	L	L	L				
29									L	L	L	L	L	L	L	L	L	L	L	L				
30									L	L	L	L	L	L	L	L	L	L	L	L				
31																								
CNT											7	12	12	16	20	11	9	2						
MED										490	515	550	550	545	540	530	485							
UQ										U 535	560	580	585	560	U 550	U 540								
LQ										475	480	530	540	535	535	520								

IONOSPHERIC DATA

SEP. 1968

foE (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

Time Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	250	300	325	350	360	360	360	340	350	320	280		A				
2							B	240	300	330	I A 350	A	A	A	A	355	330	275	190					
3							S	245	300	330	355	370 ^R	375	380	370	350	320	285	200					
4							S	240	290 ^H	I C 320	360 ^R	355	I A 370	370 ^R	R	A	A	285	A					
5							S	235	275	320	A	A	365	370	370	350	315	270	170					
6							S	230	A	A	A	A	A	A	380	350	320	275	A					
7							S	230 ^H	280	310	335	360	380	380	370	345	310	260	140					
8							S	240	290	I A 335	360	A	A	360	360	A	A	280	205					
9							S	230 ^H	280	320	I A 340	I R 365	380 ^R	370	375	350	310	A	A					
10							S	215	295	A	A	375	380 ^R	I A 380	375 ^H	360	335	280	150					
11							S	240	295	345	I A 355	I A 365	375 ^R	I R 370	365 ^R	345	320	280	180					
12							S	230	280	I A 315	330	A	A	A	A	I A 355	320	I C 270	170					
13							S	250	290	320	350	360	350	I B 345	340	A	A	270	A					
14							S	250 ^H	290 ^H	325	340	340	I A 340	360	360	345	315	270	160					
15							B	230	280	A	A	A	A	A	A	350	310	270	A					
16							B	230	290	335	355	365	I A 370	375	I A 365	335	310 ^H	265	A					
17							S	230	295	330	340	355	I A 360	380	370	350	315	260	B					
18							S	230 ^H	300	335 ^H	350	370	380	370 ^H	360	340	310	260	B					
19							S	220 ^H	280	320	I A 345	360	360	360	350	330	300 ^H	260	170					
20							S	220	270	320	I A 350	360	365 ^R	360	350	I A 330	300	260	A					
21							S	220	270	330	350	370	370	370	360	330	305 ^H	260	160					
22							S	240 ^H	300 ^H	320 ^H	340	370	370 ^H	370 ^H	360 ^H	340 ^H	315	I A 270	A					
23							S	240	300	335	350	355	380	380	370 ^R	360	315	250 ^H	S					
24							S	I A 225	300	330	350	360	365 ^K	370	360	340	315	245	A					
25							S	A	A	A	360	370	370	375 ^R	360	I A 330	300	A	A					
26							S	230	290	330	370	370	370	360 ^R	370 ^H	340	320	260	A					
27							S	240	300	330	350	360	360	360	340	340	300	260	B					
28							S	220	300 ^H	330	350	I B 370	380 ^R	380 ^R	360	335	300	250	A					
29							S	200	300	330	350	370 ^H	370 ^H	370 ^H	365 ^H	335	300	240	A					
30							S	220	290	335	350	360	365 ^R	350 ^R	340	330	310 ^H	250	A					
31																								
CNT								29	28	26	26	24	25	26	26	27	27	28	11					
MED								230	290	330	350	362	370	370	360	345	315	268	170					
UQ								240	300	330	355	370	375	375	370	350	320	275	185					
LQ								225	280	320	345	360	365	360	360	335	308	260	160					

IONOSPHERIC DATA

SEP. 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 17	E B 23	E B 13	E B 15	E B 11	J X 21	21	38	41	45	46	48	52	J X 64	J X 74	J X 85	J X 75	J X 64	J X 50	J X 101	J X 64	J X 49	E B 14	J X 26	
2	E S 13	E B 14	E B 14	J X 27	J X 25	J X 28	20	27	36	39	38	38	38	43	87	45	43	J X 53	J X 69	J X 28	J X 50	19	J X 32	J X 21		
3	E S 15	21	E B 15	E B 13	E B 12	E B 13	20	30	37	38	G	42	46	49	49	43	39	42	J X 37	20	J X 16	J X 17	J X 61	J X 63		
4	J X 64	J X 27	J X 20	J X 19	J X 22	J X 21	24	28	34	C	40	41	39	34	44	J X 73	J X 72	60	J X 48	J X 62	24	19	J X 36	J X 22		
5	E S 15	E B 15	E B 15	E B 11	E	E B 13	16	24	30	30	J X 39	54	33	G 25	G 22	44	J X 82	J X 87	J X 76	E B 14	24	19	E B 12	E B 15		
6	J X 20	E B 14	22	17	19	J X 22	22	G	38	37	38	39	40	42	41	41	42	J X 38	J X 33	J X 38	J X 33	J X 61	44	58		
7	70	J X 39	J X 66	J X 34	J X 21	27	J X 17	25	32	35	38	40	42	42	42	39	40	35	J X 33	J X 44	20	J X 32	J X 25	J X 35		
8	J X 36	J X 30	J X 30	J X 24	24	J X 17	23	27	34	35	G 34	38	42	42	44	38	34	30	J X 50	J X 33	J X 29	J X 50	43	33		
9	J X 38	J X 37	J X 22	J X 16	J X 21	J X 16	22	25	35	35	38	46	48	J X 67	J X 77	J X 50	J X 59	J X 57	J X 61	J X 51	J X 36	J X 24	J X 35	24		
10	20	18	20	E B 15	E B 14	E B 14	23	30	36	39	36	G	G	39	J X 57	38	34	30	28	J X 50	J X 67	J X 40	J X 18	21		
11	J X 17	J X 19	E B 15	E B 16	E B 15	E B 15	E S 15	26	33	G	38	38	33	G 33	G	G	32	J X 35	20	22	20	E S 15	E B 17	E S 15		
12	E S 15	E B 12	E B 14	E B 13	E B 11	E B 15	E S 15	27	34	35	37	37	36	37	38	91	G	C	29	J X 54	J X 50	J X 20	E S 13	19		
13	20	20	21	E B 12	E	E B 13	E S 14	G	32	44	37	38	51	E 46	38	38	J X 37	J X 29	J X 28	J X 25	23	E B 15	19	23		
14	20	E B 14	E B 13	E	19	20	17	30	35	39	41	42	38	40	41	40	G	G	20	15	E B 14	J X 63	30	23		
15	20	E B 12	E B 11	E B 15	22	E B 15	E B 13	28	31	35	36	37	J X 43	44	J X 49	G 24	G 21	21	J X 27	21	J X 30	J X 92	50			
16	J X 67	J X 52	21	J X 34	J X 20	23	J X 25	34	35	38	41	40	39	40	39	35	41	35	M 71	J X 61	J X 36	J X 28	J X 20	J X 22		
17	19	22	E B 12	E B 13	E B 14	E B 13	J X 18	24	G	G 30	36	33	36	32	J 35	36	35	J 57	J X 34	J X 32	22	23	20	23		
18	24	23	E B 11	19	23	17	20	28	34	G	G	G 25	G 35	G	40	38	J X 46	J X 45	J X 33	E B 14	20	21	J X 22	J X 21		
19	E S 14	E B 15	E	E B 12	E	J S 13	18	26	30	G 26	54	33	G 24	G 25	G	36	34	29	25	E B 13	E B 12	E B 14	E B 14	23		
20	21	E B 12	J X 19	J X 17	J X 17	E B 14	E S 15	28	34	38	J X 47	G 29	G 31	G 29	G 29	J X 37	J G 28	J G 25	J X 21	J X 44	23	E S 15	E S 15	J X 24		
21	E S 13	E S 14	E B 11	E	E	E B 12	E S 14	24	30	33	34	G 28	J 29	G 24	G	G	G	G 17	G	19	E B 13	E B 15	E B 14	E B 15		
22	E S 14	E B 12	E B 11	E B 12	E B 11	E B 13	E S 13	28	32	36	G	G 29	G 27	G 23	G 31	35	47	J X 33	J X 29	J X 41	J X 30	J X 22	22	E S 15		
23	E S 15	J X 26	21	E B 13	E	E S 14	E S 15	30	G 30	G	G 34	37	G	G	G	G	G	33	J X 26	J X 29	22	22	E S 15	E S 15		
24	E S 15	21	E B 11	20	J X 22	J X 17	22	25	G 28	G	G	G	G	G	G	G	G	26	20	J X 22	J X 28	J X 21	E S 15	E S 15		
25	E S 15	E B 15	E B 14	E B 14	E B 12	E B 14	E S 15	J X 26	J X 31	J X 34	G 34	G	G	G	G 33	J X 53	J X 35	J X 31	J X 27	J X 28	E S 15	21	18	23		
26	E S 15	E S 15	E B 12	E	E B 11	E B 14	J X 18	28	33	G	43	G	G	G	G	G	G	29	23	E B 13	J X 22	E B 15	E S 15	E B 14		
27	E B 15	E B 13	E B 14	E	E	E B 14	E S 13	G	39	42	40	41	41	41	47	G 17	32	G	24	18	J X 22	J X 43	23	22		
28	E B 15	E B 13	16	E B 11	E	E B 11	23	J X 26	32	G	G 32	E B 50	G 34	J G 31	G 28	G 25	32	28	J X 24	J X 35	J X 17	E S 15	E S 15	E S 14		
29	E B 14	E B 14	E	E B 11	E	E S 14	E S 13	26	32	35	G	G 28	39	G 25	G	G	G	G 20	J X 30	J X 29	J X 26	J X 26	J X 24	E S 15		
30	E B 16	E B 14	E B 13	E B 11	E B 13	E B 12	E S 13	28	J X 29	35	G 30	G	G	G	G	G	G	33	27	21	21	E S 14	J X 36	J X 19	17	
31																										
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	
MED	16	E 15	E B 14	E B 14	E E 14	E B 14	18	27	33	35	37	38	36	G 33	38	38	34	31	J X 28	J X 28	22	J X 22	20	22		
UQ	20	J X 23	20	17	21	17	22	28	35	38	40	40	41	42	44	43	42	J X 42	J X 37	J X 44	J X 30	J X 32	J X 30	24		
LQ	E S 15	E B 14	E B 12	E B 11	E	E B 13	E S 15	25	31	30	G 34	G 29	G 27	G 25	G	G	G	17	G	27	23	20	20	17	E 15	E 15

IONOSPHERIC DATA

SEP. 1968

fbEs (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																
Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	E		E ₁₆	E ₁₃	E ₁₅	E ₁₁	E	17	37	39	42	44	46	52	56	69	69	73	44	43	49	33	25	E ₁₄	18	
2	E ₁₃	E ₁₄	E ₁₄	E ₁₄	22	22	18	18	G	33	38	38	E ₃₈	E ₃₈	43	46	44	42	53	54	28	35	17	19	18	
3	E ₁₅	E	E ₁₅	E ₁₃	E ₁₂	E ₁₃	18	29	G	36	37	G	G	45	49	49	43	39	40	36	17	E	15	19	36	
4	26	23	17	17	19	18	18	G	G	C	E ₄₀	41	E ₃₉	G ₃₄	44	68	38	53	37	62	18	E	18	E		
5	E ₁₅	E ₁₅	E ₁₅	E ₁₁	E	E ₁₃	15	23	E ₃₀	G ₃₀	38	46	G ₃₂	G ₂₅	G ₂₂	43	82	87	76	E ₁₄	E	E	E ₁₂	E ₁₅		
6	16	E ₁₄	13	11	13	17	S	G	31	34	38	39	E ₄₀	E ₄₂	E ₄₁	40	37	30	28	33	19	22	25	20		
7	25	18	31	26	16	16	S	G	G	G	37	40	42	42	41	G	40	33	29	42	19	29	22	31		
8	27	22	22	19	15	15	S	G	31	33	34	E ₃₈	41	41	43	34	32	G	50	32	25	24	E	E		
9	32	32	19	14	17	E	17	G	34	34	38	E ₄₆	48	59	76	49	57	50	53	32	27	19	29	E		
10	E	E	E	E ₁₅	E ₁₄	E ₁₄	G	28	34	38	E ₃₆	G	G	E ₃₉	55	G	32	G	28	34	28	E ₄₀	E	19		
11	E	16	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	G	G	G	38	E ₃₈	G ₃₃	G ₃₃	G	G	G	25	E ₂₀	E	E	E ₁₅	E ₁₇	E ₁₅		
12	E ₁₅	E ₁₂	E ₁₄	E ₁₃	E ₁₁	E ₁₅	E ₁₅	G	G	34	E ₃₇	E ₃₇	E ₃₆	E ₃₇	E ₃₈	E ₉₁	G	C	29	48	25	20	E ₁₃	E		
13	E	E	E	E ₁₂	E	E ₁₃	E ₁₄	G	G	43	G	E ₃₈	48	E ₄₆	38	38	35	21	23	19	E	E ₁₅	16	16		
14	16	E ₁₄	E ₁₃	E	E	E	15	G	33	37	40	41	E ₃₈	40	41	39	G	G	G	13	E ₁₄	25	22	E		
15	E	E ₁₂	E ₁₁	E ₁₅	15	E ₁₅	E ₁₃	G	G	27	33	36	E ₃₇	40	38	45	G ₂₄	G	G	21	20	18	16	26	48	23
16	50	25	E	21	12	13	18	31	33	37	40	40	E ₃₉	E ₄₀	39	33	39	30	50	36	28	16	16	19		
17	17	E	E ₁₂	E ₁₃	E ₁₄	E ₁₃	15	21	G	G	30	32	33	E ₃₆	G ₃₂	G ₂₇	27	G ₂₆	57	26	23	E	E	E	E	
18	E	E	E ₁₁	E	E	E	S	G	G ₂₃	G	G	G	G ₂₅	G ₃₅	G	39	37	41	43	31	E ₁₄	E	E	E	16	
19	E ₁₄	E ₁₅	E	E ₁₂	E	S	S	G	G	G	26	45	30	G ₂₄	G ₂₅	G	G	G	G	24	E ₁₃	E ₁₂	E ₁₄	E ₁₄	E	
20	E	E ₁₂	15	13	13	E ₁₄	E ₁₅	G	G	G	37	29	G	31	G	28	36	G ₂₆	G	17	19	20	E	E ₁₅	E ₁₅	17
21	E ₁₃	E ₁₄	E ₁₁	E	E	E ₁₂	E ₁₄	E ₂₄	G ₂₃	32	32	G ₂₈	G ₂₈	G ₂₄	G	G	G	G	15	G	18	E ₁₃	E ₁₅	E ₁₄	E ₁₅	
22	E ₁₄	E ₁₂	E ₁₁	E ₁₂	E ₁₁	E ₁₃	E ₁₃	G	G	G	30	G	G ₂₉	G ₂₇	E ₂₃	31	G	42	28	23	24	21	17	E	E ₁₅	
23	E ₁₅	19	17	E ₁₃	E	E ₁₄	E ₁₅	23	G ₂₉	G	34	G	G	G	G	G	G	G	32	18	18	E	E	E ₁₅	E ₁₅	
24	E ₁₅	E	E ₁₁	E	E	E	G	24	G ₂₈	G	G	G	G	G	G	G	G	G	G	18	19	21	16	E ₁₅	E ₁₅	
25	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₂	E ₁₄	E ₁₅	25	30	34	33	G	G	G	G ₃₃	34	27	28	27	20	E ₁₅	E	E	E		
26	E ₁₅	E ₁₅	E ₁₂	E	E ₁₁	E ₁₄	G	27	G	G	42	G	G	G	G	G	G	G	G	22	E ₁₃	E	E ₁₅	E ₁₅	E ₁₄	
27	E ₁₅	E ₁₃	E ₁₄	E	E	E ₁₄	E ₁₃	G	32	37	G	41	40	40	42	G ₁₇	G	G	20	E	E	E ₄₃	E	E		
28	E ₁₅	E ₁₃	E	E ₁₁	E	E ₁₁	E	20	G	G	32	E ₅₀	G ₃₄	G ₃₀	G ₂₈	G ₂₄	G ₂₂	G ₂₂	G ₂₂	28	E	E ₁₅	E ₁₅	E ₁₄		
29	E ₁₄	E ₁₄	E	E ₁₁	E	E ₁₄	E ₁₃	G	G	G	24	G	E ₃₉	G ₂₅	G	G	G	G	19	24	E	E	18	21	E ₁₅	
30	E ₁₆	E ₁₄	E ₁₃	E ₁₁	E ₁₃	E ₁₂	E ₁₃	G	26	35	30	G ₃₁	G	G	G	G	G	G	G	17	E	E ₁₄	25	E	E	
31																										
	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	29	25	30	30	29	30	30	30	30	30	30	30	29	30	30	30	30	30	30		
MED	E ₁₅	E ₁₄	E ₁₃	E ₁₃	E ₁₂	E ₁₄	15	G	G ₂₅	33	35	U ₃₂	U ₃₁	U ₃₀	U ₃₅	U ₂₈	29	25	25	20	E ₁₄	E ₁₆	E ₁₅	15		
UQ	16	16	E ₁₅	E ₁₅	14	E ₁₅	15	24	32	37	38	40	40	40	43	40	39	40	36	32	21	U ₂₂	19	18		
LQ	E ₁₃	E ₁₂	E ₁₁	E ₁₁	E	E ₁₂	E ₁₃	G	G	G	E ₃₀	G ₂₆	G ₂₆	G ₂₅	G	G	G	G	G	20	14	E	15	E		

IONOSPHERIC DATA

SEP. 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	14	14	13	15	11	14	14	12	15	15	21	21	21	20	18	18	15	15	11	13	14	12	14	12	
2		13	14	14	E	E	12	12	14	15	18	23	22	23	24	22	18	18	15	15	E S ₁₅	E S ₁₅	E S ₁₃	E S ₁₅	E S ₁₅
3	E S ₁₅	15	15	13	12	13	E S ₁₅	E S ₁₅	14	15	16	18	19	18	23	19	17	14	13	E S ₁₅	E S ₁₅	E S ₁₂	E S ₁₅	E S ₁₅	
4	E S ₁₅	13	15	E	11	14	E S ₁₄	15	15	C	28	28	18	25	23	18	15	12	15	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	
5	E S ₁₅	15	15	11	E	13	E S ₁₄	E S ₁₄	15	15	17	25	24	17	16	15	15	15	E	14	15	14	12	15	
6	12	14	E	E	E	11	E S ₁₅	15	14	16	16	16	21	18	19	23	15	11	E	13	E S ₁₅	E S ₁₅	E S ₁₅	13	
7	15	12	12	E	E	13	E S ₁₅	14	13	15	17	17	18	18	17	17	18	15	E S ₁₃	15	15	11	14	14	
8	15	15	12	13	E	13	E S ₁₅	14	14	15	18	20	17	15	23	18	15	14	14	E S ₁₄	E S ₁₄	E S ₁₅	13	14	
9	12	12	E	E	14	14	E S ₁₁	12	15	16	17	19	30	22	25	19	16	12	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	
10	E S ₁₅	15	15	15	14	14	C S ₁₅	11	15	18	18	19	28	23	24	17	18	11	14	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	
11	E S ₁₅	11	15	16	15	15	E S ₁₅	14	15	17	18	19	19	18	24	17	15	11	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	17	E S ₁₅	
12	E S ₁₅	12	14	13	11	15	E S ₁₅	E S ₁₅	14	15	16	18	18	17	17	15	15	C	14	E S ₁₄	E S ₁₃	E S ₁₄	E S ₁₃	E S ₁₄	
13	14	12	14	12	E	13	E S ₁₄	14	15	15	16	16	17	46	15	16	15	11	E	13	E S ₁₃	15	15	15	
14	14	14	13	E	E	14	E S ₁₄	14	15	15	16	17	17	17	15	15	15	14	11	E	14	15	13	16	
15	14	12	11	15	E	15	13	13	14	15	16	16	16	16	16	16	16	14	12	12	14	13	14	14	
16	12	12	11	E	E	E	11	13	14	15	18	18	23	20	19	17	16	12	12	15	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	
17	E S ₁₅	15	12	13	14	13	E S ₁₄	E S ₁₅	11	15	14	16	14	22	15	15	13	11	15	15	15	14	15	14	
18	14	12	11	11	11	E	E S ₁₅	11	14	15	15	15	15	16	15	15	12	12	14	14	15	13	E S ₁₄	E S ₁₄	
19	E S ₁₄	15	L	12	E	E S ₁₃	E S ₁₄	15	14	15	17	15	18	15	17	18	15	14	15	13	12	14	14	14	
20	15	12	E	E	E	14	E S ₁₅	14	15	15	18	22	19	20	19	16	15	11	E S ₁₅	E S ₁₄	E S ₁₄	E S ₁₅	E S ₁₅	E S ₁₅	
21	E S ₁₃	E S ₁₄	11	E	E	12	E S ₁₄	E S ₁₄	15	15	16	16	18	16	16	15	14	E	15	12	13	15	E S ₁₄	15	
22	E S ₁₄	12	11	12	11	13	E S ₁₃	14	13	14	18	20	19	19	17	19	18	E S ₁₄	12	11	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	
23	E S ₁₅	12	11	13	E	E S ₁₄	E S ₁₅	13	14	15	16	19	17	25	18	26	15	15	E S ₁₅	E S ₁₅	16	E S ₁₅	E S ₁₅	E S ₁₅	
24	E S ₁₅	13	11	15	11	15	E S ₁₅	15	15	18	19	19	19	18	19	19	15	15	15	E S ₁₃	14	E S ₁₅	E S ₁₅	E S ₁₅	
25	E S ₁₅	15	14	14	12	14	E S ₁₅	15	15	16	20	16	20	23	18	15	15	15	14	12	E S ₁₅	E S ₁₅	E S ₁₄	E S ₁₅	
26	E S ₁₅	E S ₁₅	12	E	11	14	E S ₁₅	E S ₁₅	14	15	28	16	16	17	16	15	15	14	11	13	11	15	E S ₁₅	14	
27	15	13	14	E	E	14	E S ₁₃	E S ₁₅	13	15	16	17	17	16	15	14	15	13	15	E S ₁₃	E S ₁₅	E S ₁₂	E S ₁₅	13	
28	15	13	11	11	E	11	E S ₁₅	E S ₁₅	11	15	15	50	26	15	17	15	14	12	11	E S ₁₄	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₄	
29	14	14	E	11	E	E S ₁₄	E S ₁₃	E S ₁₅	15	16	16	16	17	16	17	15	15	12	11	E S ₁₄	E S ₁₃	E S ₁₃	E S ₁₄	E S ₁₅	
30	16	14	13	11	13	12	E S ₁₃	12	15	15	15	19	20	17	16	16	14	15	E S ₁₅	E S ₁₅	E S ₁₄	E S ₁₅	E S ₁₅	E S ₁₅	
31																									
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	
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	29	30	30	30	30	30	30	
MED	15	14	12	11	E	14	E S ₁₄	14	14	15	17	18	18	18	17	16	15	12	13	E S ₁₄	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	
UQ	E S ₁₅	15	14	13	11	14	E S ₁₅	15	15	16	18	20	21	22	19	18	15	15	15	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	E S ₁₅	
LQ	13	12	11	E	E	13	E S ₁₃	13	14	15	16	16	17	16	16	15	15	12	11	12	E S ₁₄	E S ₁₄	E S ₁₄	14	

IONOSPHERIC DATA

SEP. 1968

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	255	265	255	275 ^S	280	265	285	335	325 ^H	320	285	280	295	295	285	290	300	305	315	305	290	260	265	285
2	270	275	295	280	265	255 ^S	305 ^S	345 ^S	345	275	325	310	310	295	305	305	300	295 ^{J S}	315	310	295 ^{U S}	275 ^S	270 ^S	275 ^S
3	285	265	285	300	280	265	310 ^S	360 ^S	360	305	290	310	300	290	295 ^R	300	300	305 ^S	300 ^{J S}	310 ^{J S}	315	280	265	255 ^{J S}
4	280	295 ^{J S}	305 ^S	265	275	315	330	350	330	325 ^{I C}	320	305 ^R	295	285	290	285 ^{J R}	290 ^{U S}	300	300	300	315 ^S	275	275 ^{U S}	270 ^S
5	270	275	300 ^{U S}	300 ^{J S}	290	295	310	335	325	325	285	275	290	295	280	280	295	305	310	300	330 ^{U S}	270	270	275
6	250	270	285	280	285	285	315	355	350	305	280	280	280	275	275	275	295 ^S	310	305	315	290 ^{U S}	255	280	265 ^{F I S}
7	260 ^{J S}	275 ^F	275 ^S	265 ^F	265	280	320	345	310	295	305	305	285	300	290	285	295 ^S	305	310	310	280	270	275	275
8	265	260	265	255	260	285	305 ^S	340	355	320	290	285	270	275	275	275	290	285	305	285	310	240	250	270
9	235 ^S	255	245	245	240	260	265	305	315	310 ^S	300	285	295	285	285	295 ^{U R}	290 ^{J S}	305 ^{J S}	325 ^R	295 ^R	270	275	280	295
10	285	270	275	280	275	275	310	360 ^S	345 ^{U R}	335	315	265	285	290 ^{J R}	280 ^{J S}	275 ^{J R}	290	295 ^S	310 ^{J S}	305	300	285	275	265
11	280 ^S	285	275	275	270	265	310 ^S	355	330	320	300	290	285	285 ^R	285	285	295 ^S	295	300	300	310	280	280	285
12	285	275	275	285	285	275	295 ^S	355 ^S	345 ^{J S}	330	295	300	275	280	285	275	285	280	285	315 ^{I C}	285	295	295	260
13	270 ^S	250	265	260	270	295	280	335 ^S	335	310	290	290	285	275	290	300	270 ^S	265	310	315 ^{J S}	290	260	250	240
14	250 ^S	255	280	285	275	275	300	330	325	305	290	280	280	280	280	295	305	305	310	295	300	280	260	250
15	260	270	265	305	300	285	295	350	335	325	325	300	265	265	280	290	290	300	300	300	315	285	270	255 ^F
16	275 ^{J S}	250	280	275	265	285	295	330	335	340	280	285	295	290	300 ^R	295 ^R	295 ^S	305	310	325	325	260	260	260 ^R
17	280 ^{U S}	280 ^{J R}	310	355	270	305	355 ^{U S}	355	315	290	270	275	285	295	290	300	290	320 ^{J S}	320	315	265	265	260	260
18	255	255	290	310	285	270	300	330 ^S	340 ^S	335	305	285	280	290	290	290	295	310 ^S	310	310	285	280	280	265
19	280	280	275	290	290	280	285	325 ^S	345 ^S	330	285	280	275	285	280	285	290	315	305 ^S	315	305	265	260	290
20	285	285	300	265	285	300	315 ^S	365 ^S	350	310	320	290	280	280	285	300	305 ^{J S}	315 ^S	315	320 ^{I S}	290	270	280	275
21	280	290	295	315	355	300	310	340	345 ^S	315 ^S	285	285	285	290	285	280	285	295 ^{J S}	310 ^S	320	305	285	290	290
22	270	270	300	275	280 ^S	310	320	315	325 ^S	325	325	290	275	285	295	295	300	310	325 ^{U S}	290	290	295	275	275
23	260 ^S	275	300	300	320	290	300	330	345 ^S	350	290	285	290	290	285	295 ^R	295 ^S	290	315 ^{U R}	305 ^{J R}	310	275	290	305
24	315	265 ^{J S}	260	270	295 ^{J S}	280	330	345 ^S	345 ^S	330	285	295 ^{J S}	300	295	290	300	305	320	325	315	300	275	285	290 ^{J S}
25	295	295 ^S	295	325	320	290	310	335	330 ^{J S}	345	310	285 ^R	300	300	290	300	305	315	325 ^{J S}	310 ^R	280	275	285	290
26	290 ^{J S}	310	300 ^S	325	290	295	310	335	335 ^S	315	300	290 ^S	285	280	285	290	290	305 ^S	310 ^S	300	295	285	290	290
27	290	270 ^S	255	275	275	290	305	335	315	315	295	285	290	285	285	285	285	315 ^S	315	295	280	275	285	295 ^S
28	285	300	290	300	275	270	305	335 ^S	335 ^S	315	300	290	300	285	280	285	295	310	310	300	300	290	270	265
29	275	275	285	300	290	285	300	330 ^S	320 ^S	325	315	290	280	285	295	275	290 ^S	310	310 ^{I S}	315	280	260	260	275
30	285	295	300	285	305	300	295	335	345	320	310	315	280	285	285	295 ^S	300 ^S	320 ^S	315	300	270 ^S	265	270	280
31																								
CNT	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	28
MED	275	275	282	285	282	285	305	335	335	320	298	288	285	285	285	290	295	305	310	310	295	275	270	275
UQ	285	285	295	300	290	295	310 ^S	350 ^S	345	330	310	295	295	290	290	295	300	310	315	315 ^S	310 ^S	280	280	290
LQ	260	265	275	275	275	270	295	330	325	310	290	285	280	280	280	285	290	295	305 ^S	300	290	265	265	265

IONOSPHERIC DATA

SEP. 1968

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									L	L	365	L	L	L	A	A	A	A	A					
2								L	L	U L 340 380	L	355	H 340	345	U L 340 345	U L 345	A							
3								L	L	U L 375 350	U L 360	U L 355	U L 335	L	U L 335	L	L	A						
4								L	L	C 365	355	350	370	350	L	A	L	A						
5						L	L	L	L	L	L	L	350	350	360	325	L	A	A	A				
6								L	L	L	L	H 360	335	L	L	345	350	L	A					
7								L	L	375	L	L	L	345	L	L	L	L						
8								L	L	L	L	L	U L 315	340	L	L	L	L	A					
9								L	L	385	395	L	340	A	A	L	A	A						
10								L	L	U L 370 385	335	360	390	L	U L 335	L	L							
11								L	L	L	350	360	U L 335	385	L	L	L	L						
12								L	L	L	L	355	L	L	U L 345	A	L	C						
13								L	L	L	L	L	345	335	L	L	L	L						
14								L	L	L	L	L	340	355	L	L	L	L						
15								L	L	365	390	365	L	330	325	335	L	L						
16								L	L	L	335	320	L	L	U L 355	L	L	L						
17								L	L	L	L	L	320	L	335	350	L	A						
18								L	L	L	L	L	L	365	L	365	L	A						
19								L	L	L	L	L	355	350	L	345	L	L						
20								L	L	410	L	L	L	U L 345	L	L	L	L						
21								L	L	L	L	L	L	L	L	L	L	L						
22								L	L	L	L	L	L	355	360	L	L	L						
23								L	L	L	L	U L 350	365	355	U L 345	L	L	L						
24								L	L	U L 395	L	L	L	L	U L 335	L	L	L						
25								L	L	395	L	360	U L 355	L	L	L	L							
26								L	L	L	380	L	365	L	L	L	L							
27								L	L	L	L	L	L	L	L	L	L							
28								L	L	L	L	L	U L 355	L	L	L	L	L						
29								L	L	L	400	L	345	355	L	L	L							
30								L	L	L	390	L	345	L	L	L	L							
31																								
	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	12	12	16	20	11	9	2							
MED										375	378	360	350	350	345	340	348							
UQ										388	392	372	355	360	355	345								
LQ										U L 368	358	352	338	342	340	335								

IONOSPHERIC DATA

SEP. 1968

h'F2 (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									230	255	325	330	300	305	325	330	305	275	260					
2								245	225	415	285	295	305	330	305	305	305	295						
3								240	230	310	320	295	305	320	305	305	285	285	265					
4								245	I C 245	275	295	320	315	305	290	300	285							
5							285	230	235	250	315	325	295	280	285	325	310	285	280					
6								225	225	250	320	325	330	305	325	325	290	270	255					
7								275	245	250	290	305	305	310	325	280	255							
8								240	225	255	330	310	325	310	320	300	295	270	250					
9								255	250	260	255	290	300	290	305	290	285	265						
10								220	255	260	350	305	285	300	320	290	265							
11								230	230	245	295	310	300	305	305	305	285	275						
12								230	235	280	290	290	325	295	I A 320	305	I C 290							
13								230	275	305	290	305	325	305	275	320	300							
14								240	245	255	275	300	330	285	300	300	275	255						
15								255	260	240	305	350	350	325	290	280	255							
16								235	250	360	330	295	300	290	300	285	265							
17								230	245	285	280	330	315	305	280	270	260							
18								240	245	230	330	300	300	280	285	280	270							
19								230	230	350	330	315	305	300	300	280	245							
20								230	235	270	290	320	310	300	295	270	250							
21								230	230	250	300	295	305	300	275	280	260							
22								245	250	250	300	300	320	290	270	280	260							
23								250	240	230	300	300	285	305	295	275	265	250						
24								240	250	250	290	275	295	290	285	270	255							
25								245	240	255	300	305	285	280	265	260								
26								250	240	275	280	255	280	300	275	275	260							
27								255	250	270	295	290	300	280	290	280	270							
28								245	250	280	290	295	300	300	300	275	250							
29								245	260	260	260	260	290	285	295	280	255							
30								230	250	265	275	340	300	295	290	265	250							
31																								
CNT							1	9	30	30	30	30	30	30	30	30	29	5						
MED							285	240	235	250	275	298	302	305	300	295	280	265	260					
UQ							245	245	255	305	310	320	315	305	305	290	275	265						
LQ							230	230	245	255	290	295	295	290	285	275	255	255						

IONOSPHERIC DATA

SEP. 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	310	305	300	285	255	245	275	240	245	220	230	250	A	A	A	A	A	A	I _A 250	250	250	275	295	270
2	250	280	250	280	300	330	270	240	220	225	205	185	H 210	H 230	E 260	E 255	E 250	A	255	240	255	270	300	290
3	255	295	275	250	280	310	265	240	230	H 200	H 200	215	E 235	A	A	E 250	245	A	A	245	235	250	295	E 360
4	290	270	260	300	290	240	240	230	220	I _C 215	220	210	210	210	E 240	A	E 235	A	270	265	230	255	285	285
5	300	300	260	200	255	260	255	225	215	H 210	200	250	205	210	220	250	A	A	A	235	210	245	290	280
6	310	295	250	250	250	255	250	225	205	H 195	H 195	200	215	H 200	H 240	225	235	H 230	I _A 250	245	245	255	300	305
7	320	300	350	315	305	260	230	225	220	220	200	225	240	220	230	H 230	270	245	240	250	245	290	290	290
8	320	320	315	300	300	265	255	240	225	205	200	220	230	215	240	230	240	245	I _A 245	265	225	E 340	295	275
9	365	350	340	305	350	300	270	230	225	215	205	E 250	E 250	A	A	A	A	A	245	250	275	295	300	265
10	260	280	285	300	295	310	265	220	215	205	205	205	220	215	A	215	220	240	255	250	250	300	270	310
11	275	275	295	265	300	315	265	225	215	220	H 200	205	215	210	H 220	H 220	H 220	230	250	225	230	250	255	260
12	265	295	290	265	250	295	255	225	220	H 190	H 210	H 200	H 190	225	210	I _A 245	220	C	260	250	250	230	290	270
13	255	300	300	300	260	255	270	225	210	245	H 210	205	I 220	E 250	E 210	H 225	245	245	255	225	225	295	300	350
14	325	300	280	250	290	280	250	230	220	220	205	215	215	205	215	H 240	230	250	245	240	250	250	300	325
15	300	295	255	230	265	290	265	230	235	220	205	200	H 200	210	E 250	240	220	245	250	230	210	240	A	350
16	E 360	350	290	275	H 210	315	275	220	240	220	215	215	E 225	H 235	225	H 215	250	240	260	250	230	250	295	280
17	275	265	260	245	H 200	275	265	235	220	200	H 195	H 195	H 225	I 245	220	H 240	230	I 230	245	225	205	230	250	270
18	280	295	260	220	200	265	275	230	225	210	210	H 190	H 200	205	240	220	250	H 260	240	225	240	260	255	290
19	290	280	280	260	245	265	270	240	215	H 205	H 220	H 195	200	210	210	220	H 240	245	240	210	220	275	300	270
20	255	270	255	250	275	250	250	225	225	210	200	200	200	205	H 200	H 205	235	230	240	245	240	270	275	H 290
21	275	285	260	240	200	225	255	225	225	210	H 215	210	215	220	H 215	H 205	225	250	245	225	220	240	255	255
22	285	300	250	285	270	240	240	225	230	225	210	H 205	H 200	205	235	235	250	240	245	225	225	235	245	285
23	305	300	260	245	220	260	275	235	220	220	H 205	H 200	205	H 205	H 210	250	240	240	250	235	220	240	250	230
24	220	295	315	290	210	250	245	230	235	215	205	H 200	200	205	210	215	245	245	230	220	235	265	270	280
25	255	245	250	230	210	275	265	245	225	205	205	H 205	195	H 200	H 205	H 205	230	245	235	220	225	280	270	270
26	260	255	250	245	H 200	255	260	235	235	230	H 225	210	H 200	200	H 210	H 205	235	250	230	240	225	240	245	255
27	255	275	305	290	250	255	250	225	235	230	215	H 205	H 200	H 190	230	220	H 225	250	230	225	235	I 280	255	250
28	270	250	230	250	250	280	280	230	240	230	H 200	I 205	H 225	H 200	H 200	H 200	245	245	240	240	230	240	250	260
29	245	275	270	235	210	250	275	225	230	225	220	220	H 200	200	205	H 210	240	H 250	240	225	220	270	300	290
30	260	250	250	250	235	230	255	230	225	H 220	215	200	H 210	H 200	H 195	H 235	230	245	220	230	250	315	300	290
31																								
CNT	30	30	30	30	30	30	30	30	30	30	30	30	29	27	26	27	27	23	28	30	30	30	29	30
MED	275	295	265	255	252	262	265	230	225	218	205	205	208	208	214	222	235	245	245	238	230	256	290	280
UQ	302	300	295	290	290	290	270	235	230	220	215	215	218	216	230	238	245	248	250	250	245	278	300	290
LQ	255	275	255	245	210	250	250	225	220	205	200	H 200	H 200	202	H 210	H 215	229	240	240	225	225	240	255	270

IONOSPHERIC DATA

SEP. 1968

***K*'Es (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

Time Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	100	100	B	B	B	100	130	120	120	120	115	115	110	110	110	120	115	115	105	100	100	100	B	100
2	B	B	B	100	100	100	145	140	125	115	115	105	105	145	100	125	120	120	115	105	105	105	110	100
3	S	95	B	B	B	B	135	130	125	125	G	E F G 175	150	140	125	135	140	120	115	115	110	105	105	105
4	105	100	100	100	100	100	100	135	120	C	115	115	105	105	140	120	125	120	120	115	95	100	105	105
5	S	B	B	B	E	B	120	110	135	100	105	100	100	100	100	140	115	110	105	B	105	100	B	B
6	100	B	100	100	100	100	100	G	105	110	110	105	105	105	155	140	125	100	95	95	115	105	105	105
7	105	105	105	100	100	100	100	130	120	115	120	125	125	120	120	125	120	115	105	105	100	100	100	95
8	95	95	95	95	95	95	100	120	115	105	100	110	105	105	110	110	110	145	110	110	105	105	105	100
9	100	100	100	100	100	100	115	125	115	115	120	130	120	110	105	110	105	105	105	105	100	100	100	100
10	100	100	100	B	B	B	105	115	115	115	105	G	G	115	110	120	105	140	130	110	105	100	105	100
11	95	95	B	B	B	B	S	130	120	G	105	105	105	105	G	G	105	100	145	120	100	S	B	S
12	S	B	B	B	B	B	S	120	115	110	115	110	120	115	105	100	G	C	120	110	105	105	S	100
13	100	100	100	B	E	B	S	G	125	115	140	125	110	B	110	105	105	100	100	100	95	B	95	95
14	95	B	B	E	100	100	145	135	125	125	120	110	100	120	125	125	G	G	120	105	B	100	100	105
15	100	B	B	B	95	B	B	150	135	105	105	105	100	100	100	100	G	100	120	105	100	100	100	105
16	100	100	100	100	100	100	100	120	125	125	120	120	105	120	120	135	130	125	105	105	105	100	100	100
17	100	100	B	B	B	B	115	110	G	105	100	100	100	100	100	100	140	120	115	110	100	100	100	95
18	95	100	B	100	105	105	105	150	150	G	G	100	100	G	150	145	125	120	110	B	110	105	100	100
19	S	B	E	B	E	S	150	140	140	100	100	100	100	100	G	150	130	160	125	B	B	B	B	100
20	100	B	100	100	100	B	S	130	130	125	105	105	100	100	100	100	100	100	100	105	110	S	S	100
21	S	S	B	E	E	B	S	140	130	130	105	100	100	100	G	G	G	100	G	105	B	B	S	B
22	S	B	B	B	B	B	S	140	140	125	G	100	100	100	100	140	120	110	105	105	105	105	105	S
23	S	100	100	B	E	S	S	150	105	G	100	E F G 125	G	G	G	G	G	115	115	105	100	95	S	S
24	S	100	B	100	100	100	100	130	105	G	G	G	G	G	G	G	G	150	110	105	105	100	S	S
25	S	B	B	B	B	B	S	105	105	105	105	G	G	G	G	G	105	105	105	100	S	100	100	100
26	S	S	B	E	B	B	105	150	145	G	145	G	G	G	G	G	G	150	110	B	105	B	S	E
27	B	B	B	E	E	B	S	G	140	125	125	120	125	115	110	100	130	G	130	120	105	100	100	100
28	B	B	100	B	E	B	100	110	E G 170	G	100	B	105	100	100	100	160	150	100	100	100	S	S	S
29	B	B	E	B	E	S	S	150	155	150	G	105	150	100	G	G	G	100	100	100	100	100	100	S
30	B	B	B	B	B	B	S	125	105	155	105	105	G	105	G	G	145	130	100	100	S	105	115	105
31																								
	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	15	14	11	10	12	11	18	27	29	23	25	25	24	24	22	23	22	27	29	26	25	23	19	21
MED	100	100	100	100	100	100	105	130	125	115	105	105	105	105	110	120	120	115	110	105	105	100	100	100
UQ	100	100	100	100	100	100	130	140	135	125	120	118	115	115	120	135	130	128	120	110	105	105	105	105
LQ	98	100	100	100	100	100	100	120	115	108	105	105	100	100	100	102	105	102	105	100	100	100	100	100

IONOSPHERIC DATA

SEP. 1968

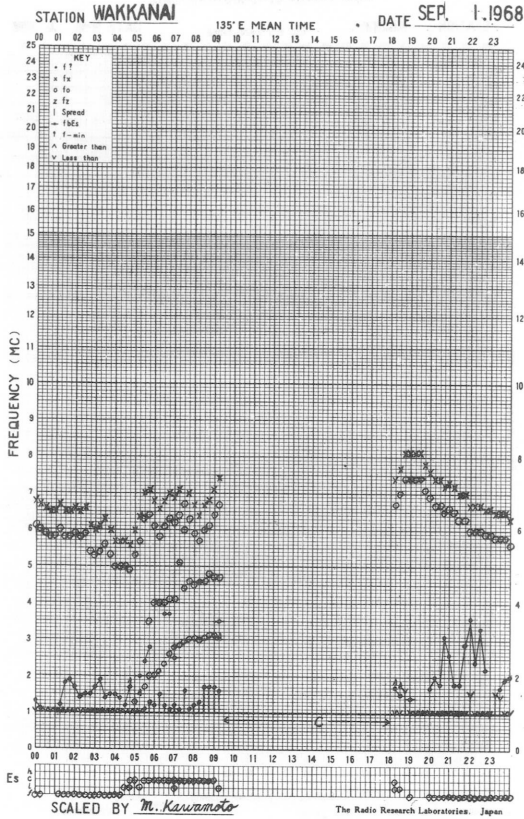
Types of Es

135° E Mean Time (G. M. T. + 9^h)

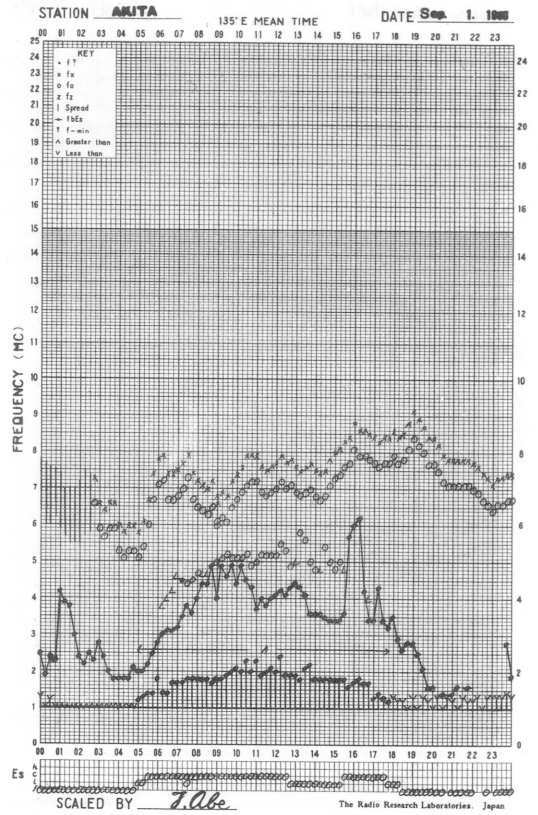
Station **YAMAGAWA** Lat. $31^{\circ} 12.1' N$. Long. $130^{\circ} 37.1' E$ Sweep 1.0 Mc to 20.0 Mc in 20 sec in automatic operation

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	F1	FF11			F2	HL31	H4	C3	C1	CL11	CL11	CL11	CL21	CL21	CL31	CL41	C3	L4	F3	F4	F3		F3		
2			F2	F4	F7	HL33	H2	H2	CL11	CL11	L1	L1	HL11	L1	HL12	HL12	CL31	C4	F2	F3	F2	FF21	F2		
3		F1				H2	H2	HL22	HL11		H1	H1	H1	H1	H1	H1	C2	C3	FF21	F1	F2	F3	F4		
4	F3	F3	F1	F1	F2	F1	L1	HH11	C1		C1	C1	L2	L1	HC11	HL31	HL21	CL23	CL22	FF23	F2	F1	FF22	F1	
5							C1	L1	H1	L1	L1	L2	L1	L1	L1	HL11	C6	C5	C5		F1	F1			
6	F2		F2	F1	F2	F4	L1		C2	C2	C1	C1	C1	C1	H1	HL11	HL11	LH12	L3	F5	FF12	FF22	F2	F3	
7	F3	F2	F3	F5	F2	F3	L1	HL21	H1	C1	C1	H1	H1	H1	C1	C1	C1	C2	C3	F5	F2	F4	F4	F4	
8	F7	F2	F4	F3	F2	F2	L1	C1	C1	L1	L1	C1	C1	C1	C1	C1	C1	H1	C5	F5	F6	F4	F2	F3	
9	F7	F5	F7	F3	F1	F1	C6	H1	C1	CL11	CL11	H1	C1	C2	C3	C1	C3	C3	L3	F3	F2	F2	F3	F1	
10	F1	F1	F1				L1	C2	C2	C2	L1			C1	C2	C1	L1	H1	HC11	F3	F5	F4	F1	F1	
11	F1	F2					H2	C1		L2	L1	L1	L1				L2	L4	H1	F1	F1				
12							C1	C2	C1	C1	C1	C1	C1	CL11	C1	L3			C1	F7	F3	F3		F1	
13	F1	F1	F1					H2	C1	H1	H1	C1		C1	C1	L2	L2	L2	L2	F3	F2		F1	F2	
14	F2				F1	F1	H1	H3	H2	H1	C1	C1	L1	CL11	H1	H1			C1	F3		F3	F3	F1	
15	F1				F1		H2	HL11	LH11	L1	L1	L1	L2	L2	L1		L1	C1	F2	F1	F3	F3	F3	F3	
16	F4	F3	F1	F5	F2	F3	L3	CL32	CL22	HL11	C1	CL11	L1	CL11	C1	HL11	H1	H2	L1	F3	F3	F2	F1	F1	
17	F1	F1					L1	L2		L1	L2	L1	L1	L1	L1	L1	HL23	CL31	C3	FF42	F1	F1	F1	F2	
18	F1	F1		F1	F1	F1	LH11	HL22	HL22			L1	L1		HL11	H1	H2	C5	C5		F1	F1	F2	F2	
19					F1	H1	H2	H1	L1	L2	L1	L1	L1	L1	H1	H1	H2	H2						F1	
20	F1		F3	F2	F2		H3	H2	H1	C1	L1	L1	L1	L1	L1	L2	L2	L1	L1	FF22	F1			F2	
21							HL23	HL11	C1	L1	L1	L1	L1	L1				L1		F3					
22							H2	H1	HL12		L1	L1	L1	L1	H1	C1	C2	L2	F4	F2	F2	F1			
23		F2	F1				HL13	L1		L1	C1						C2	C1	F2	F1	F1				
24		F1		F2	F1	F1	L1	HC21	L1									H1	C2	F3	F2	F1			
25							L2	L2	L1	L1					L1	L1	L2	L3	L1	F7		F1	F1	F1	
26							L1	HL22	H1	H1								H1	C3		F1				
27							H2	H2	H1	HL11	HL11	CL11	CL21	L1	H1		H3	F1	F2	F5	F1	F2			
28			F1				L1	L1	H1		L1	L1	L1	L1	L1	HL11	HL12	L2	F3	F2					
29							H2	HL11	HL11		L1	H1	L1				L2	L3	F1	F1	F3	F2			
30							H2	L1	H1	L1	L1						H1	H1	LC11	F1		F3	F1	F1	
31																									
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	
CNT																									
MED																									
UQ																									
LQ																									

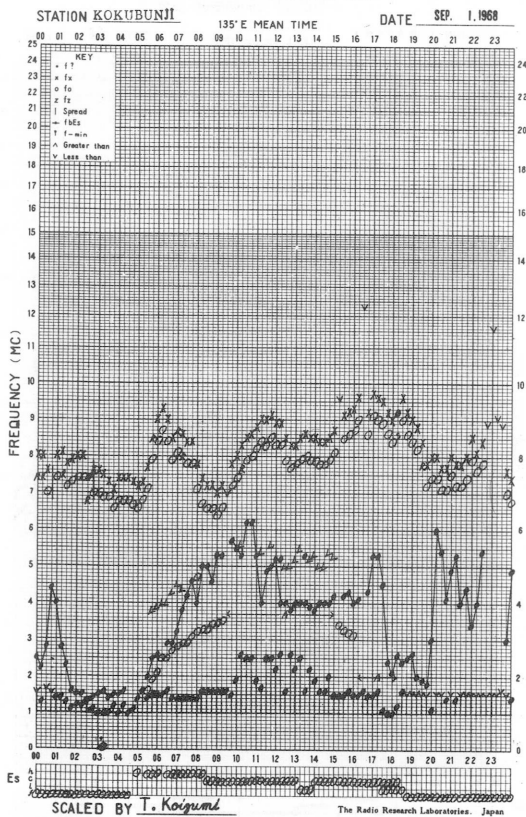
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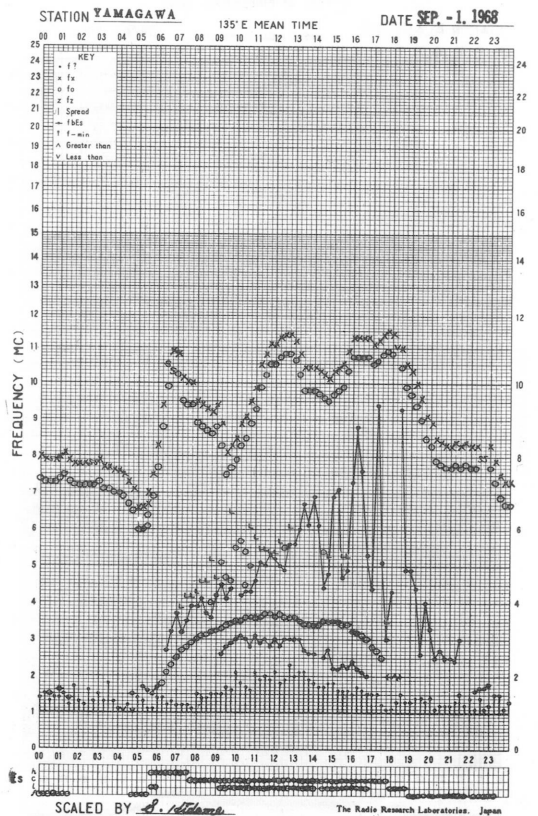
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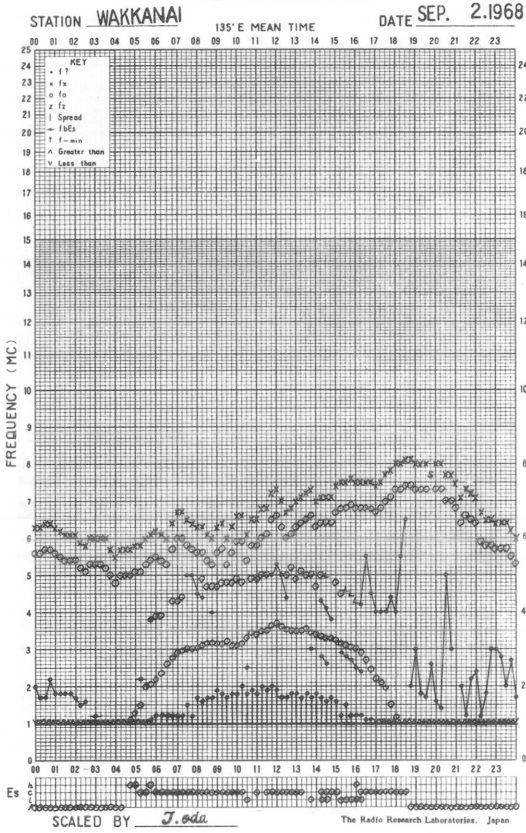
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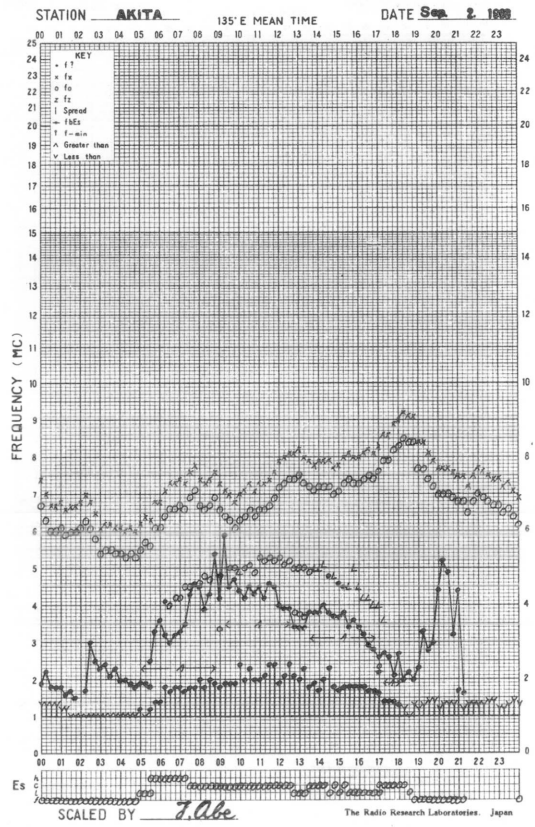
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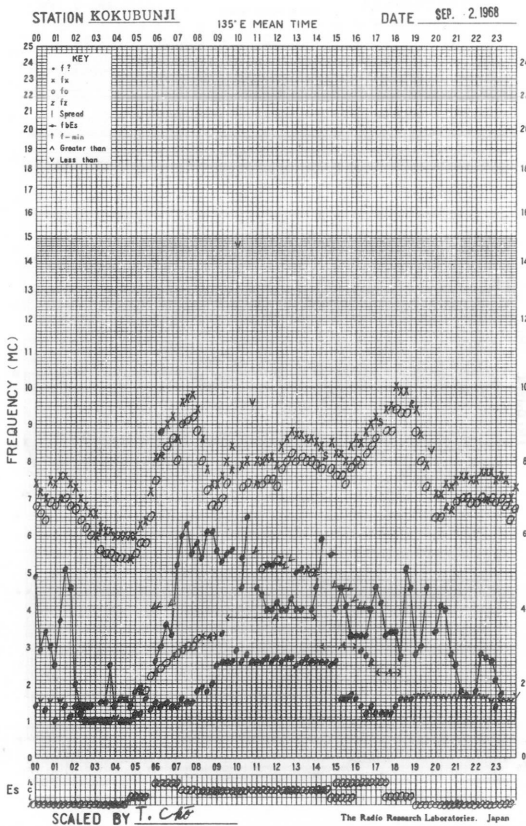
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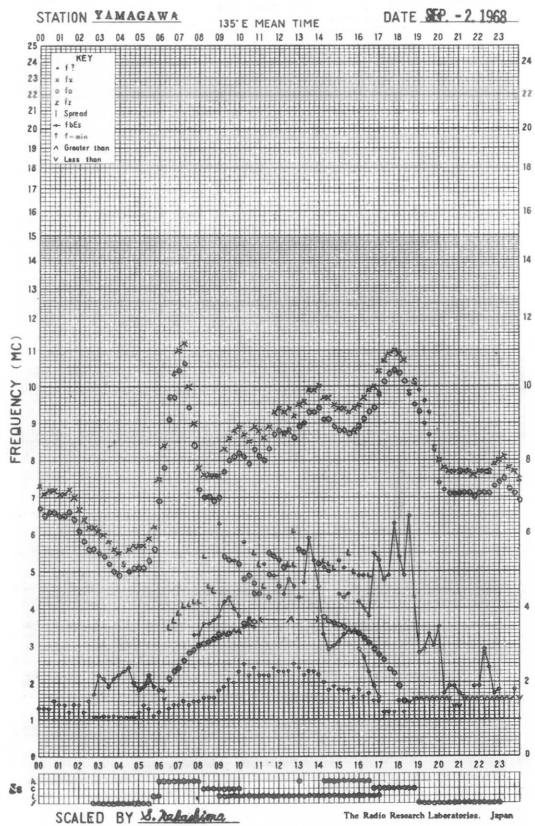
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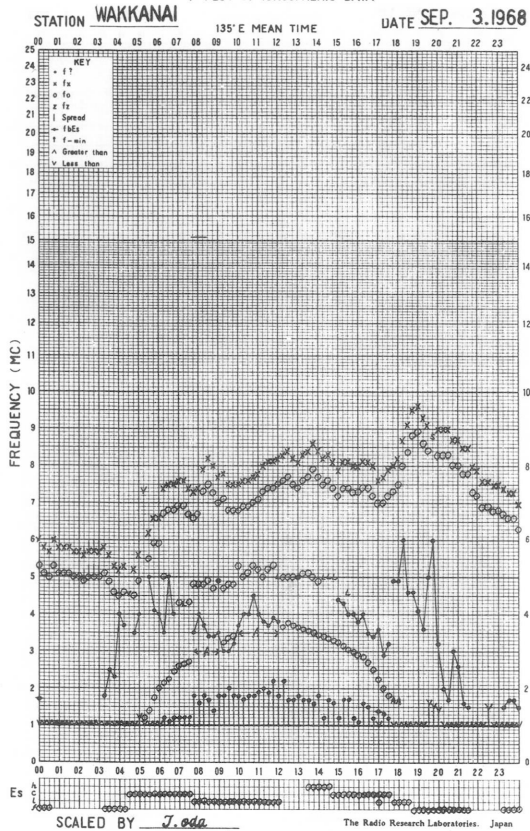
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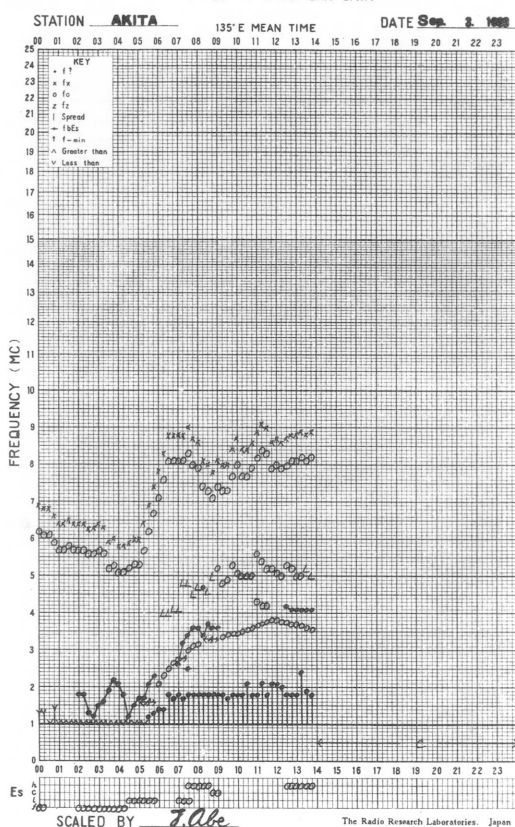
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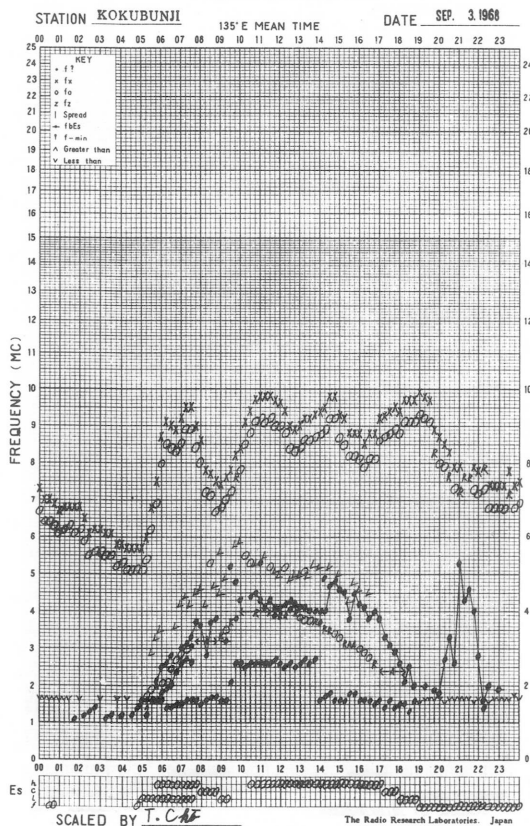
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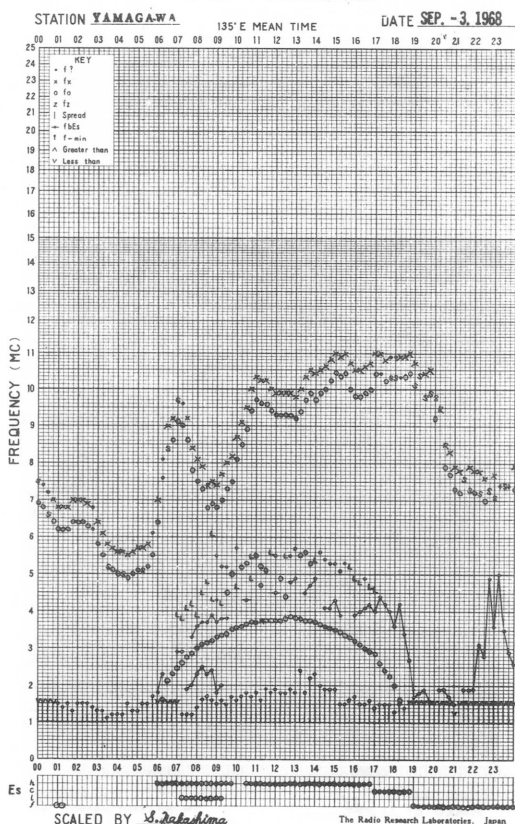
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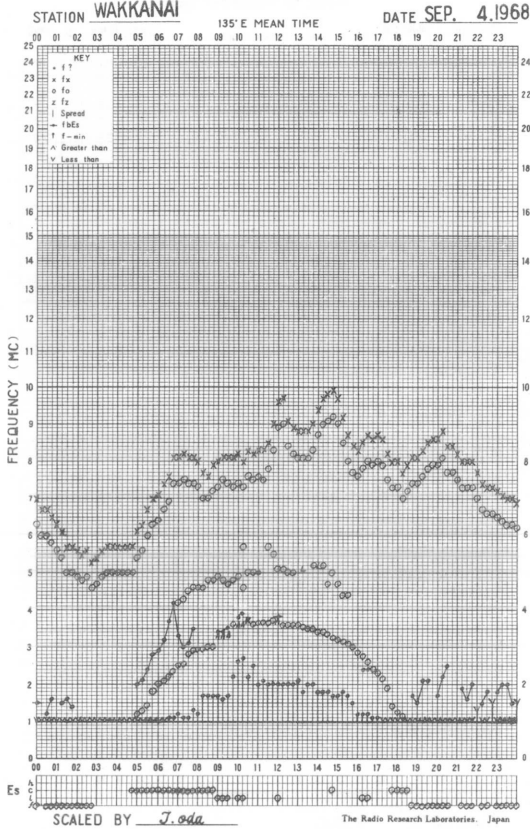
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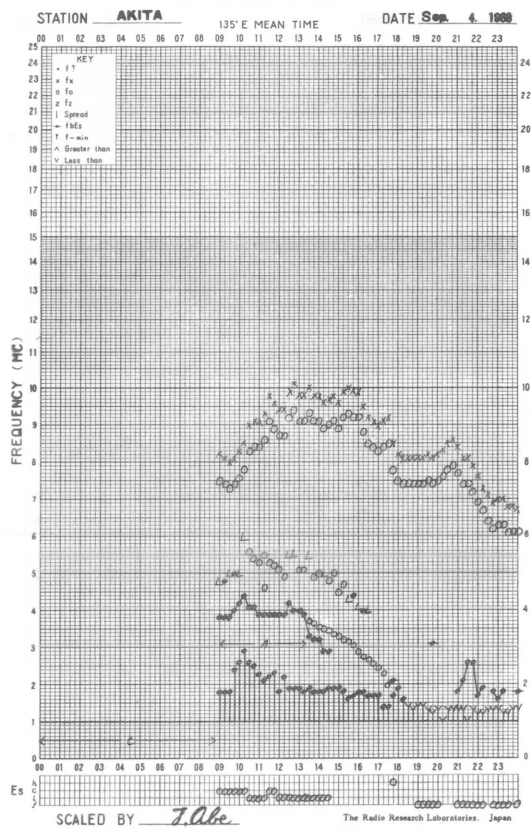
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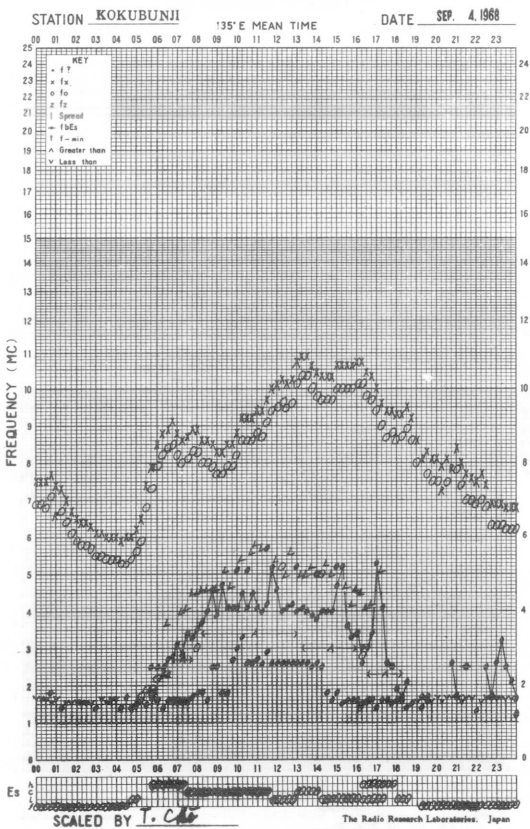
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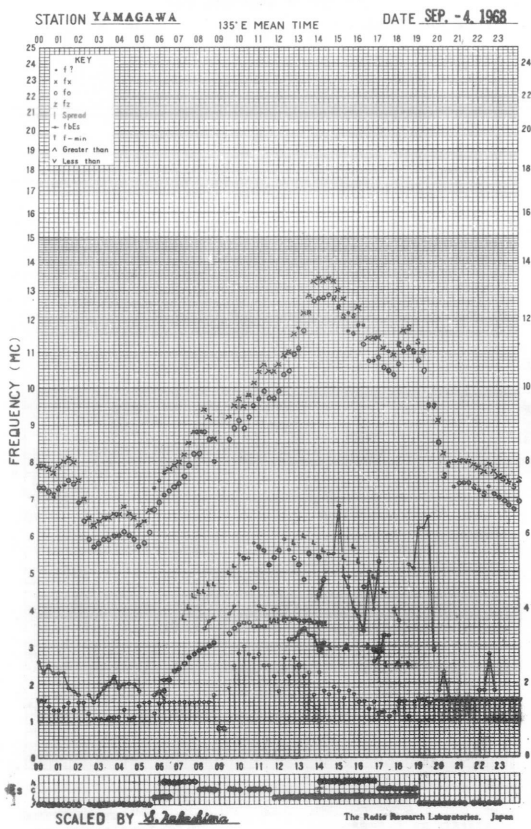
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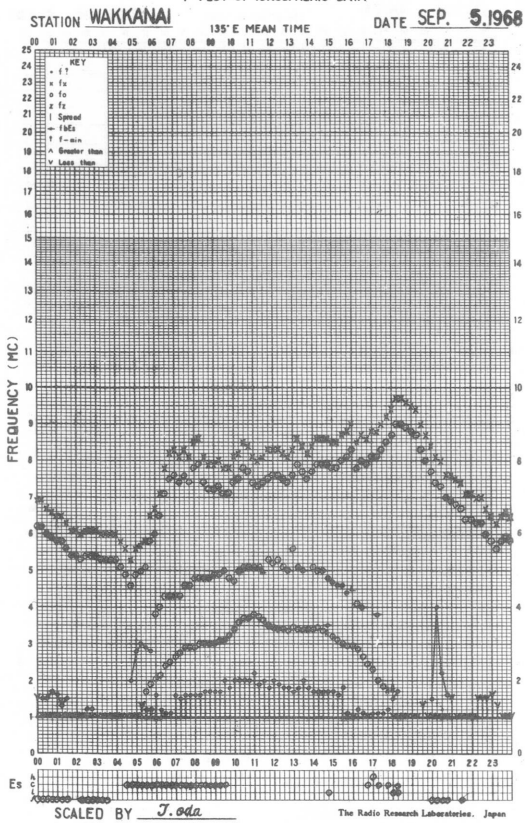
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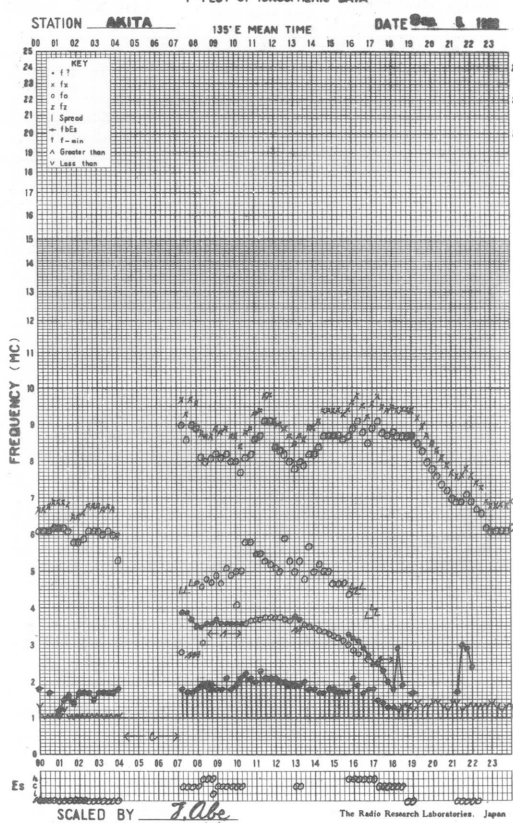
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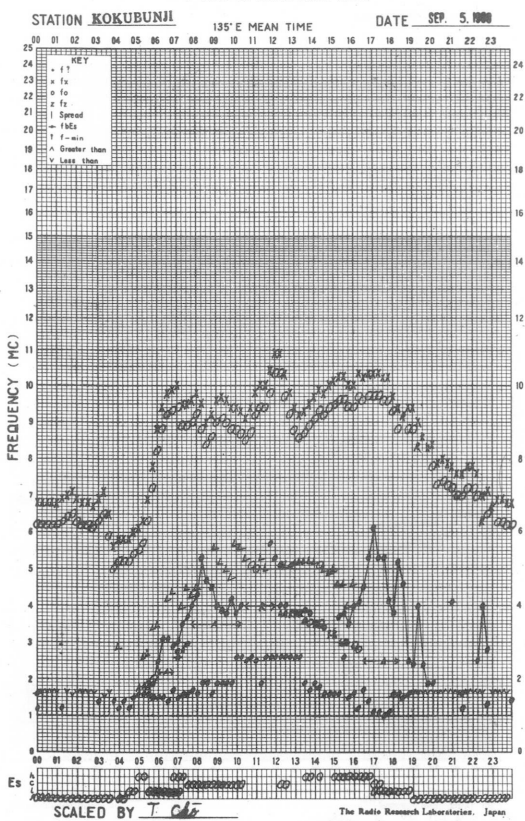
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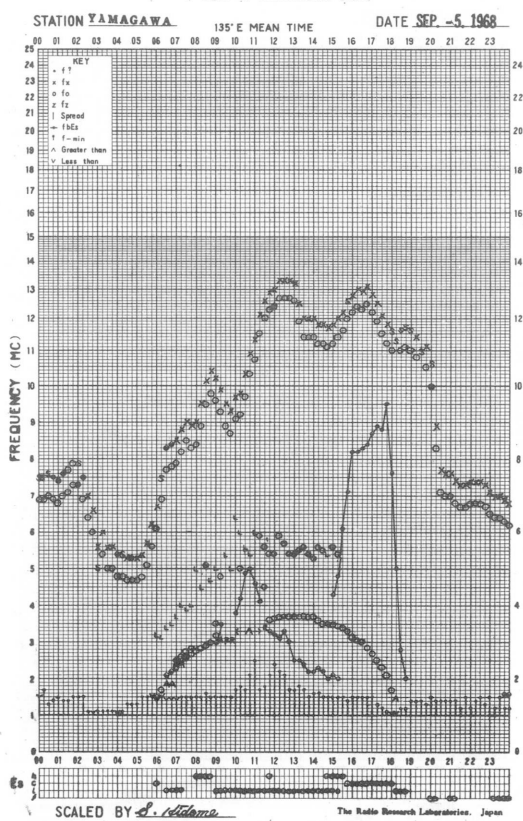
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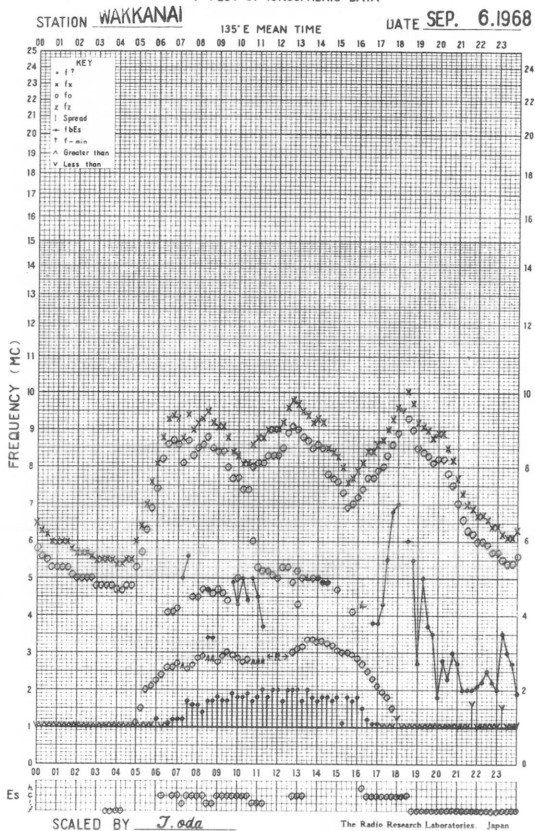
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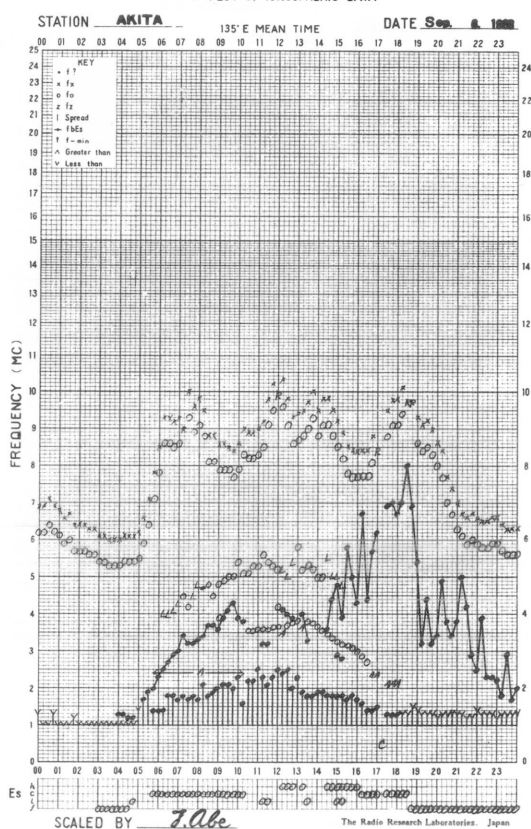
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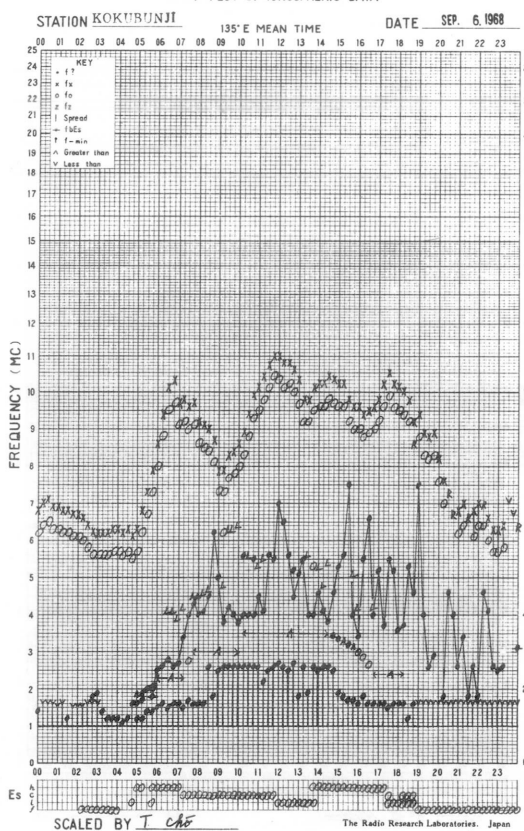
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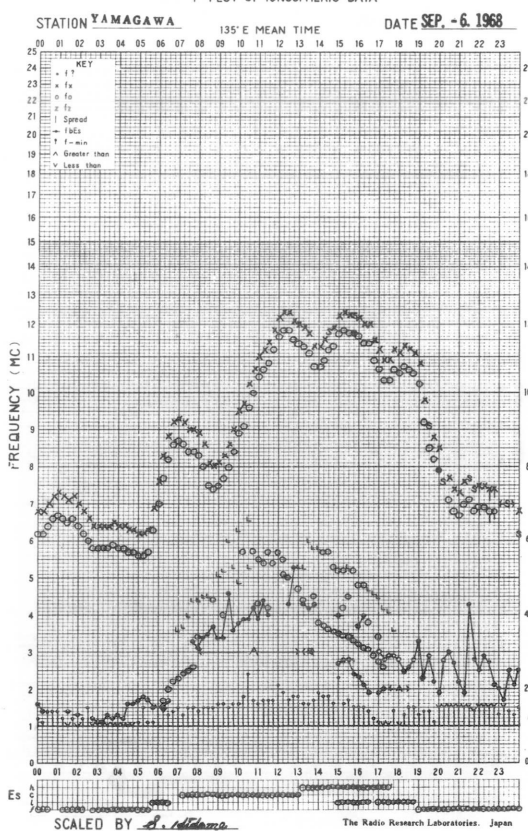
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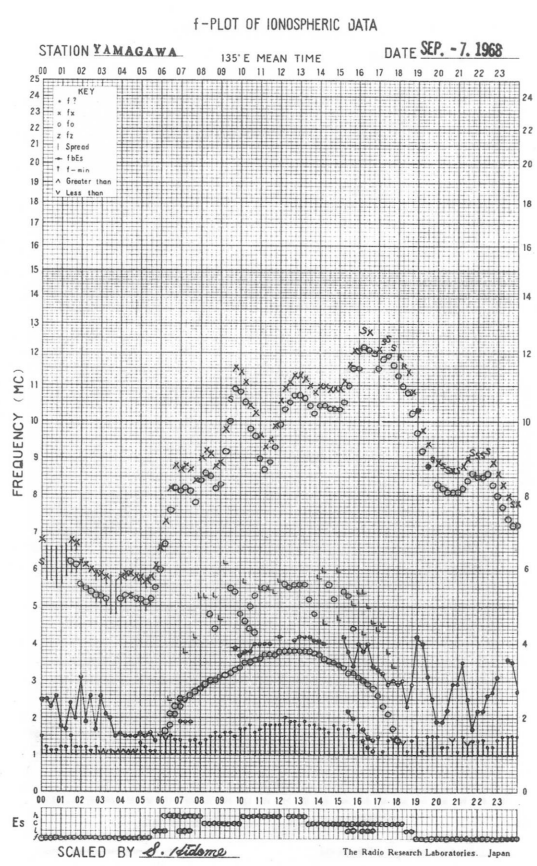
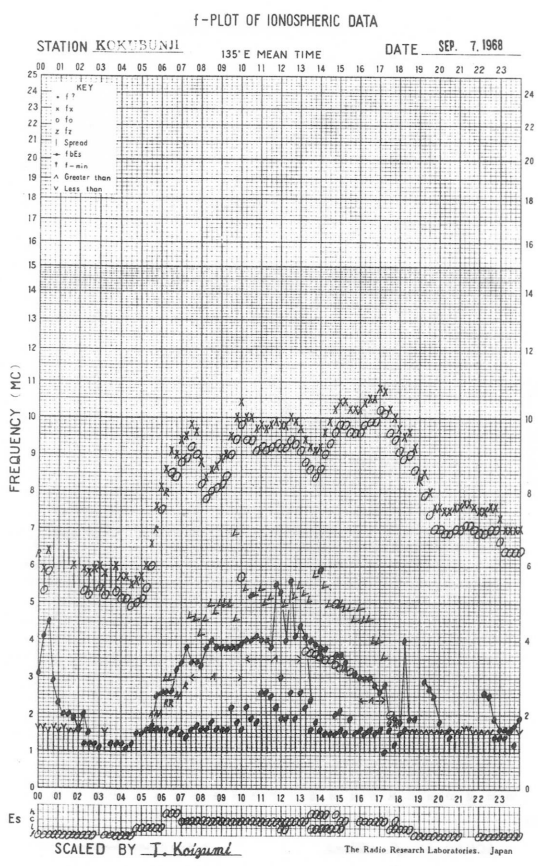
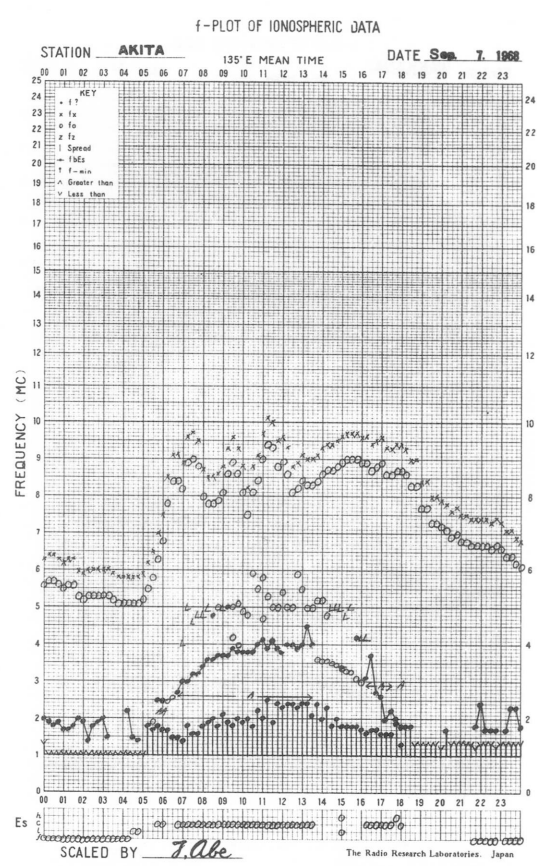
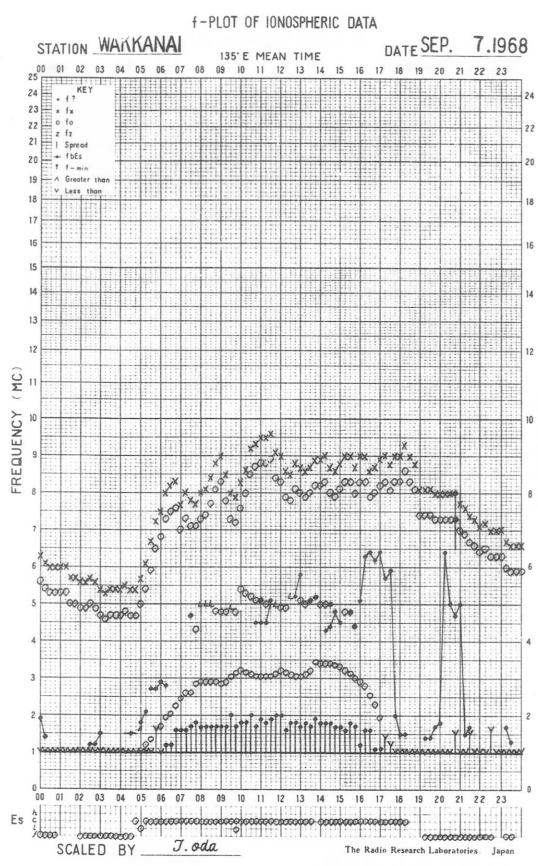


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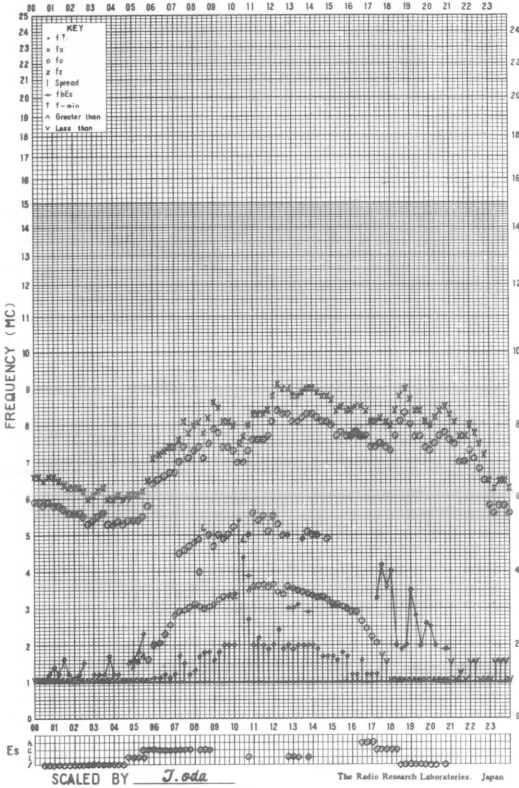
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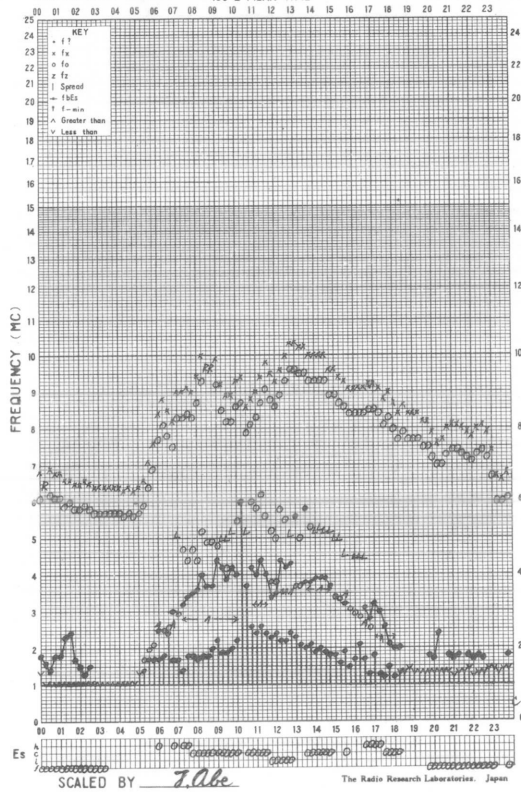
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STATION WAKKANAI 135° E MEAN TIME DATE SEP. 8, 1968



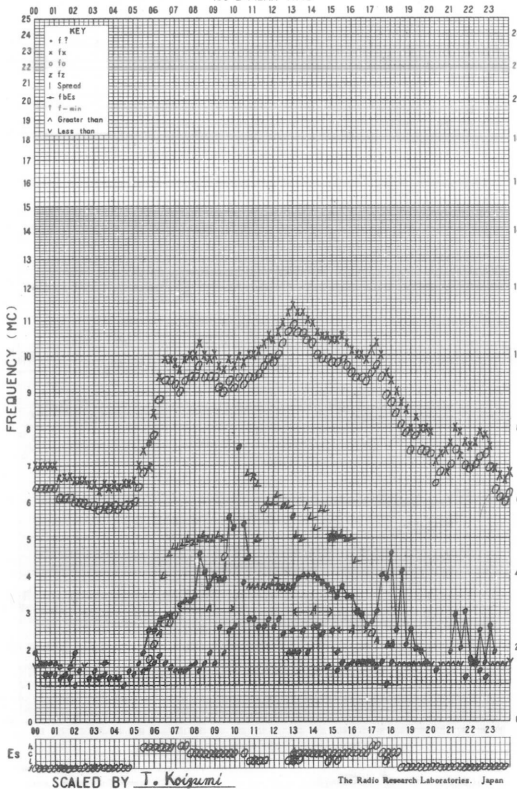
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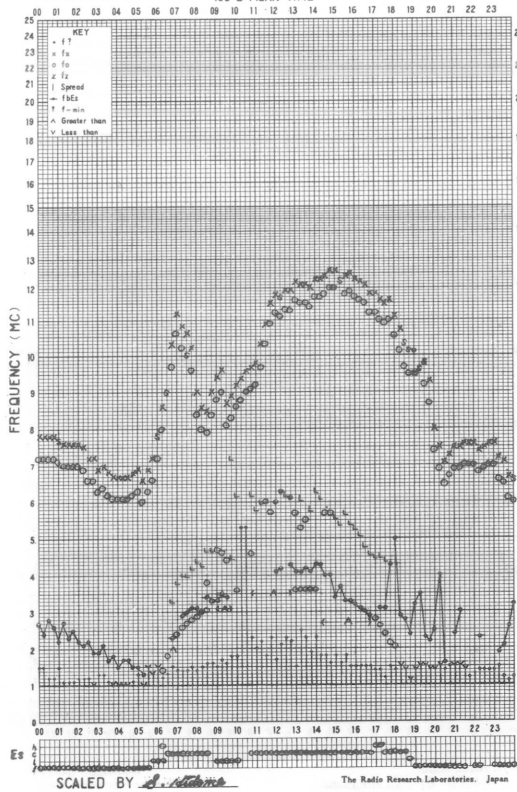
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STATION KOKUBUNJI 135° E MEAN TIME DATE SEP. 8, 1968

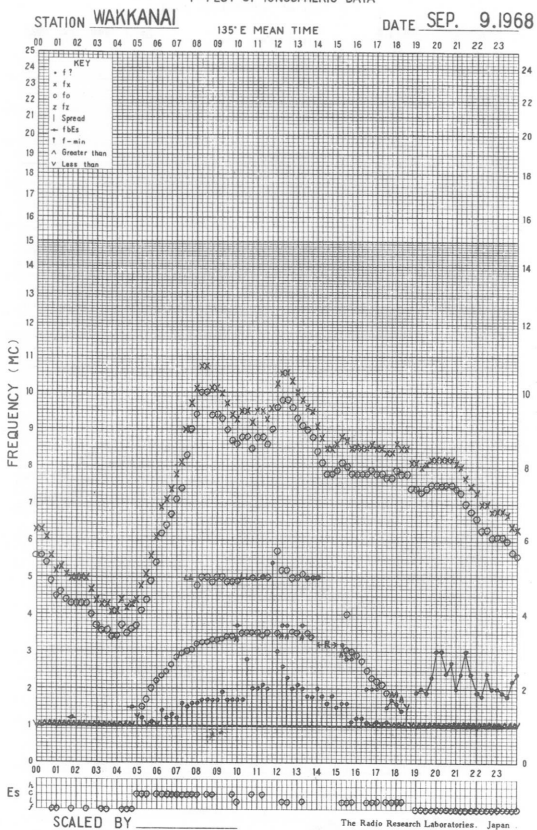


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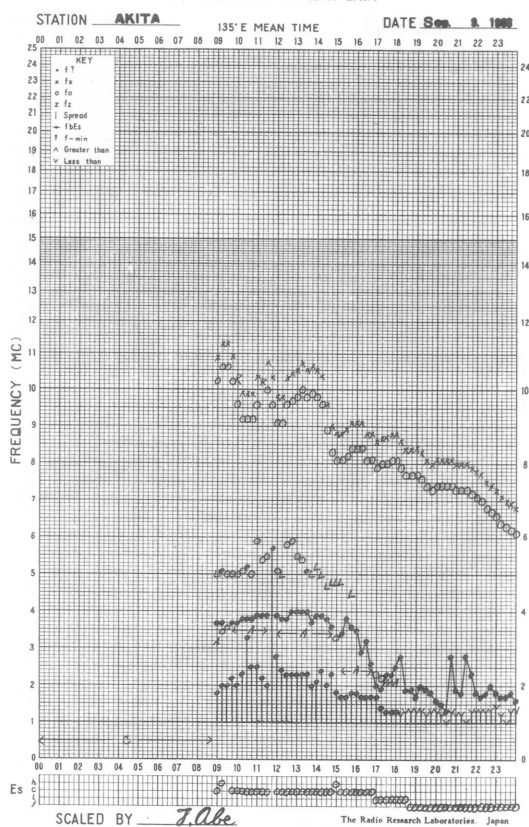
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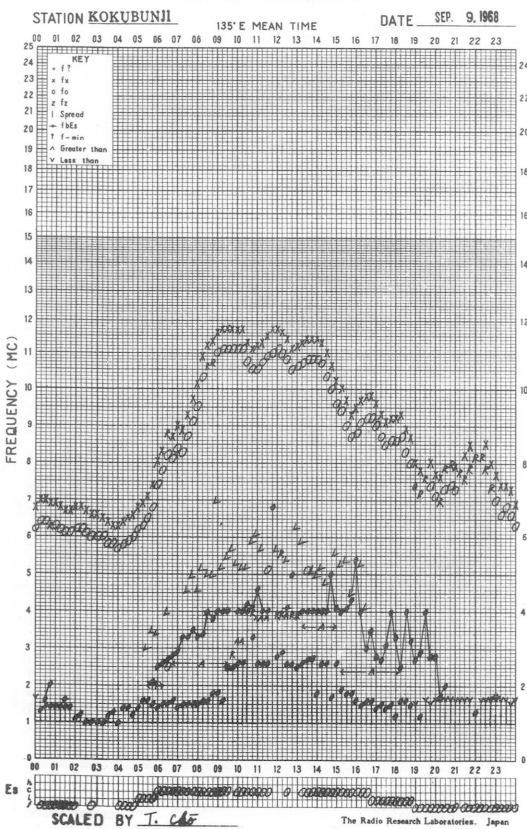
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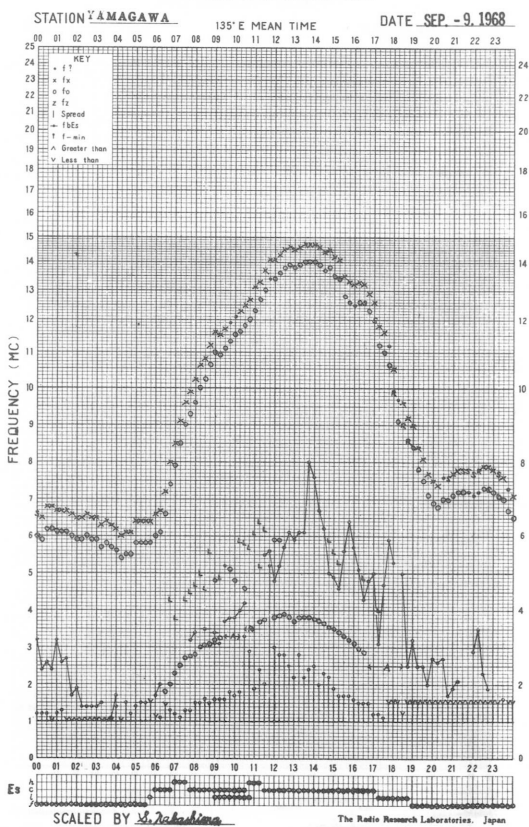
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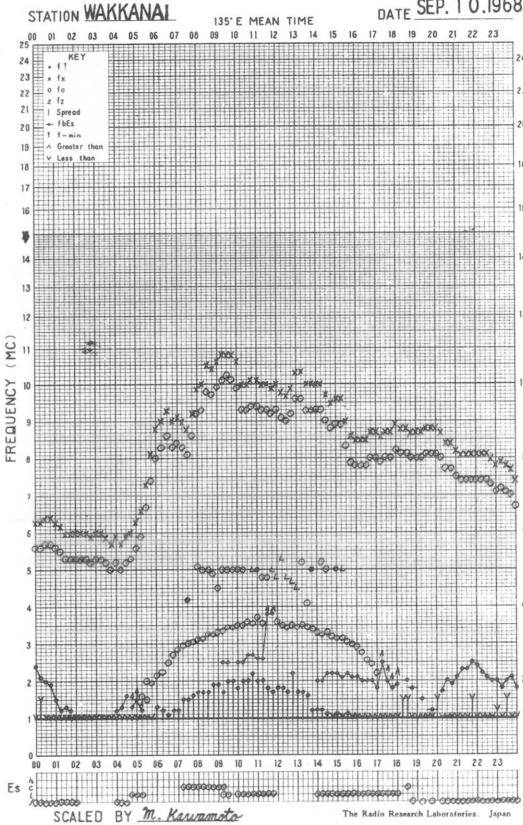
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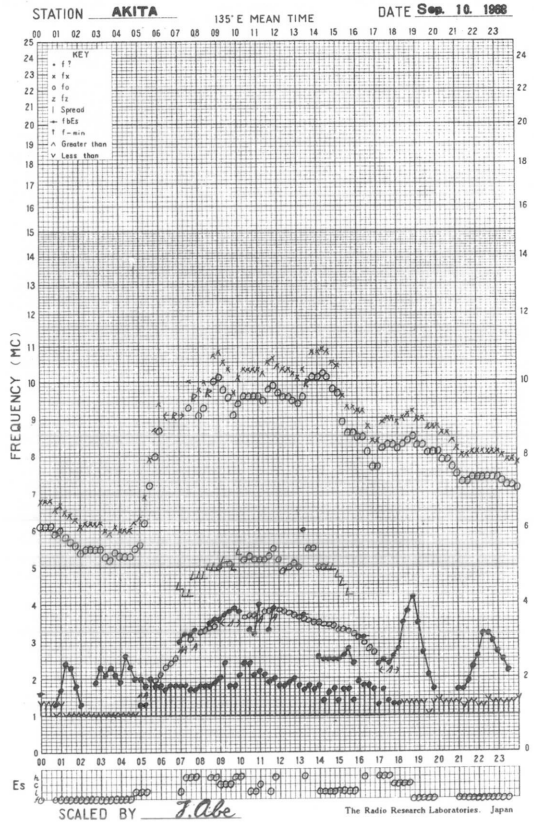
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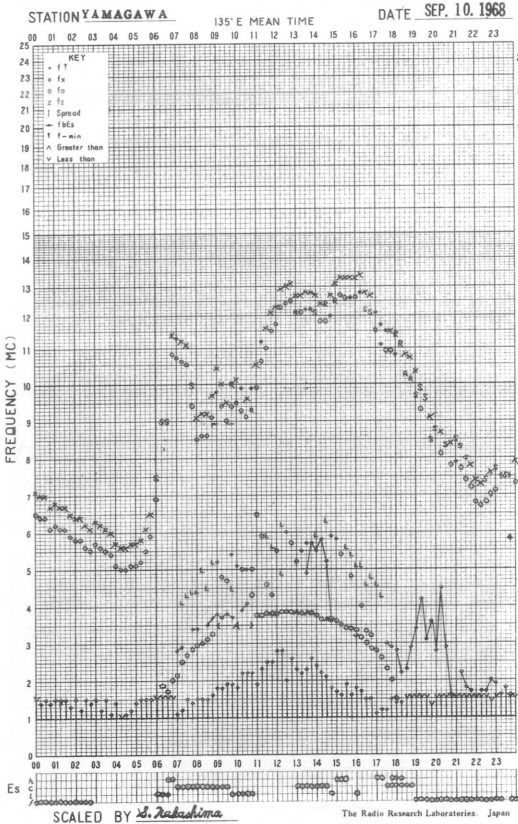
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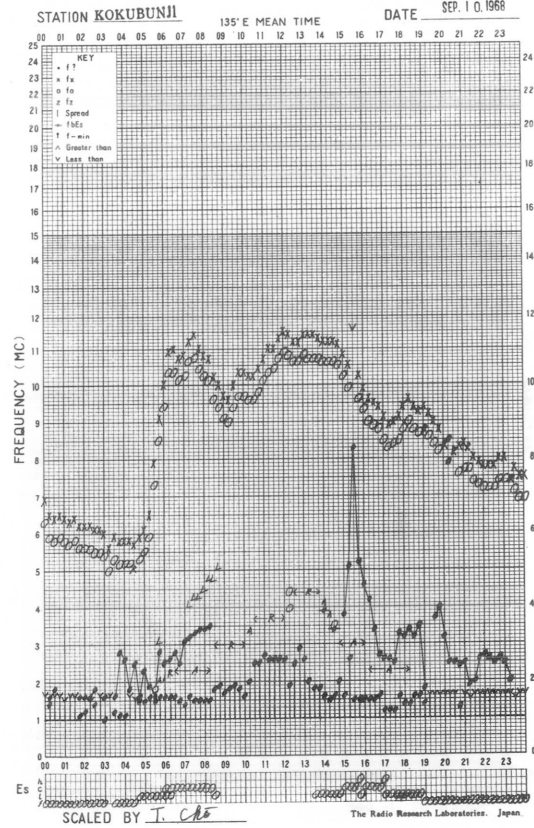
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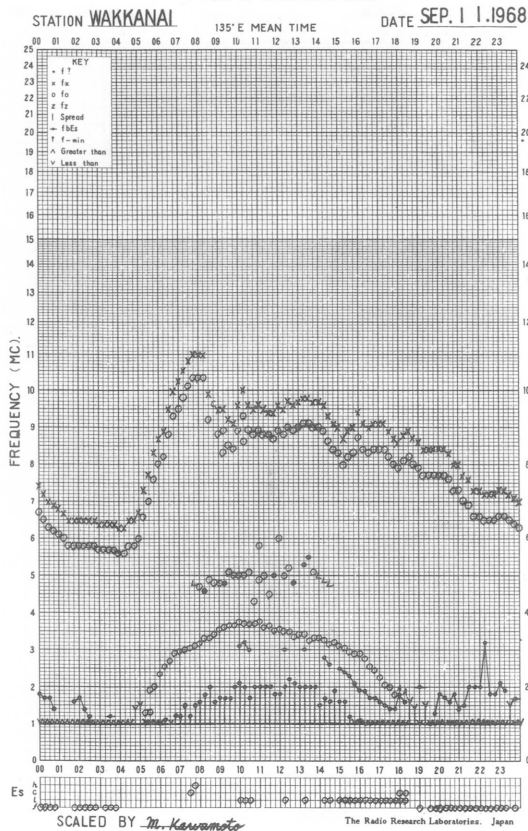
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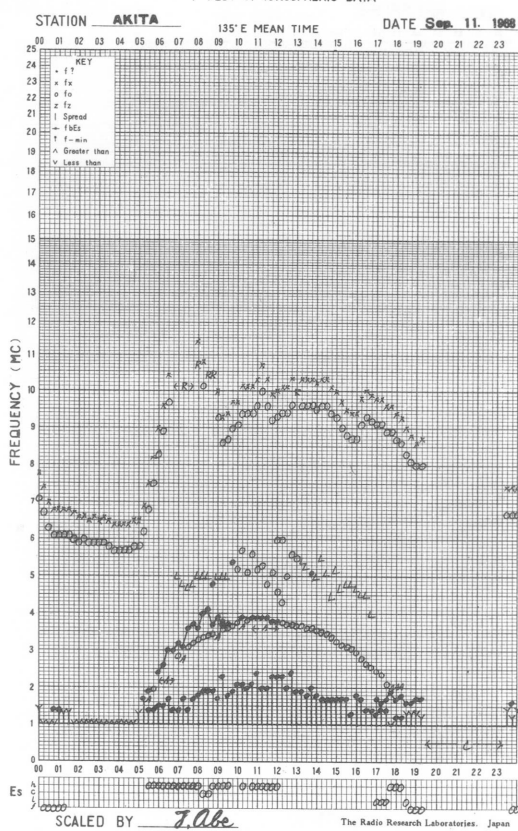
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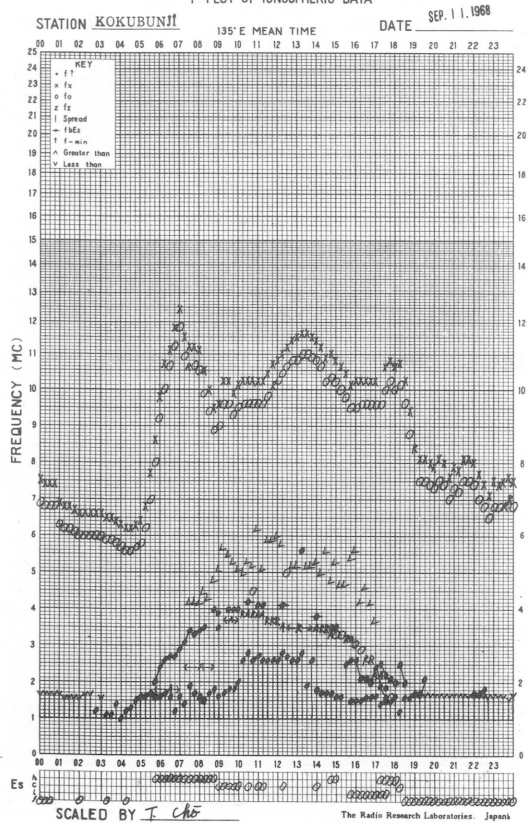
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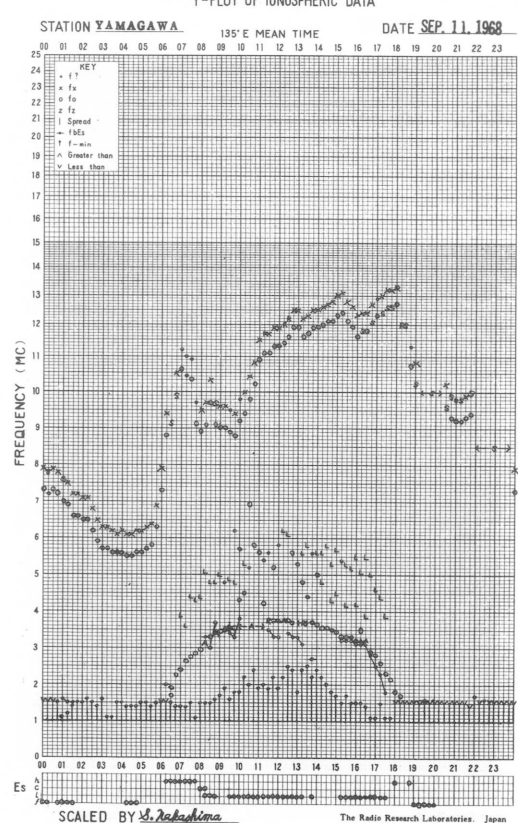
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f-PLOT OF IONOSPHERIC DATA

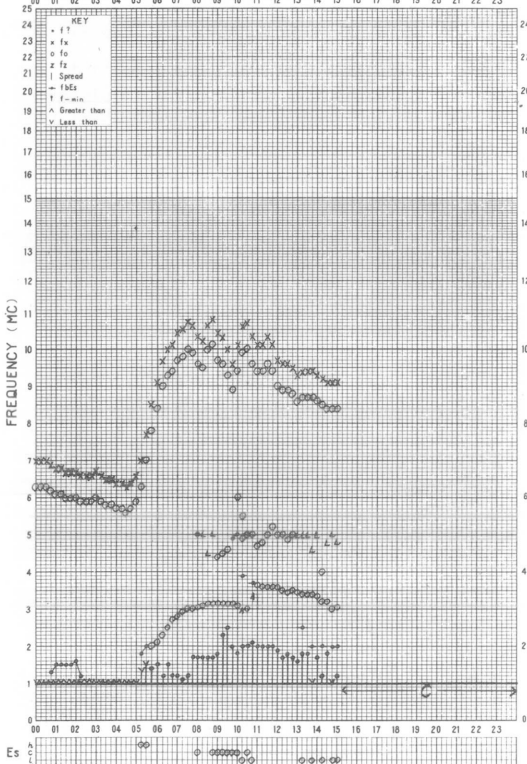


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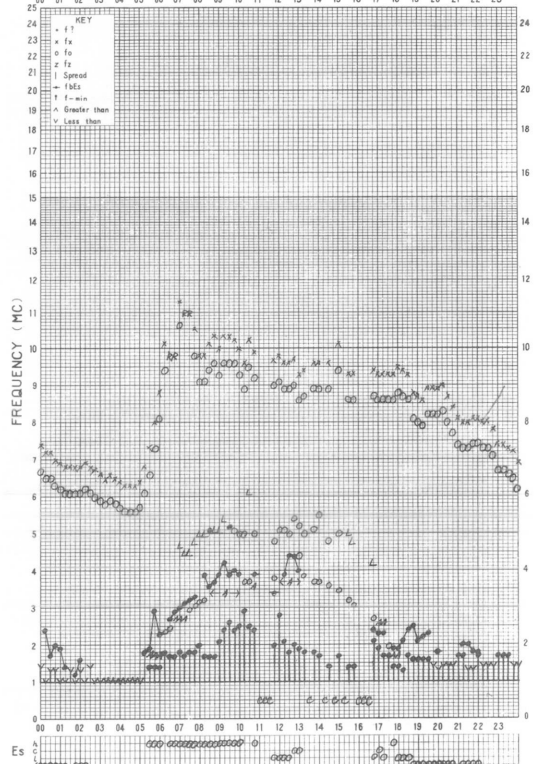
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STATION WAKKANAI 135° E MEAN TIME DATE SEP. 12, 1968



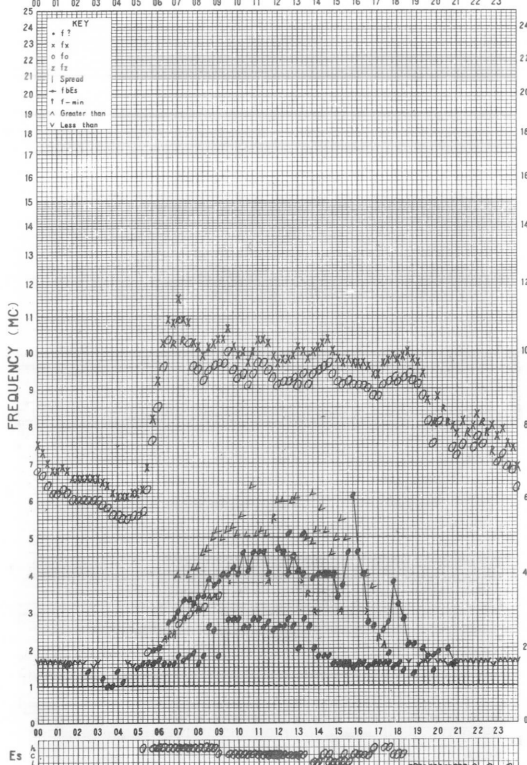
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STATION AKITA 135° E MEAN TIME DATE SEP. 12, 1968



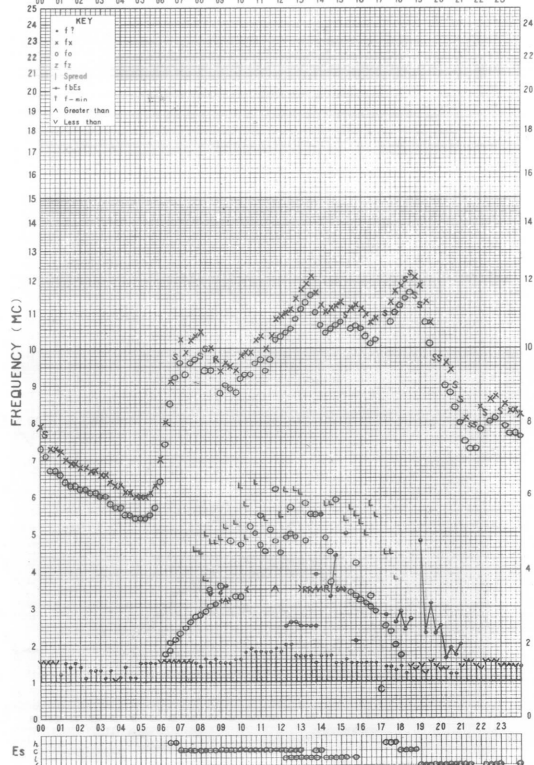
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STATION KOKUBUNJI 135° E MEAN TIME DATE SEP. 12, 1968

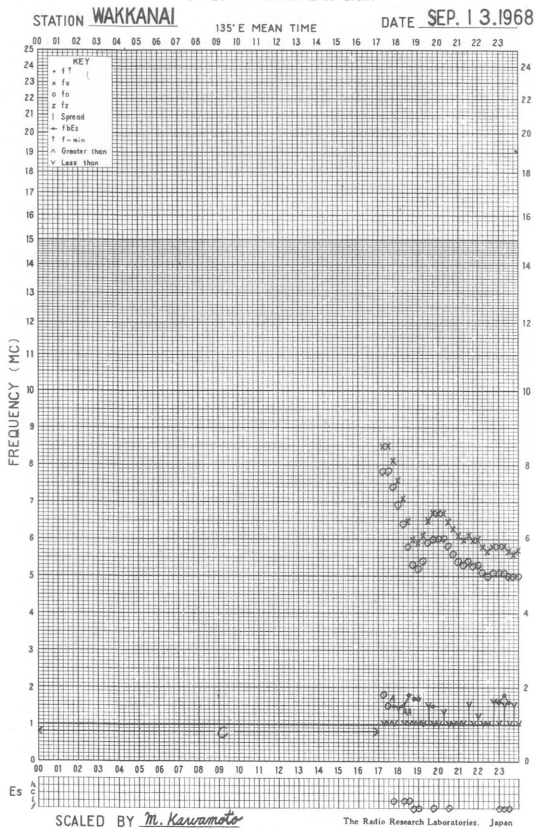


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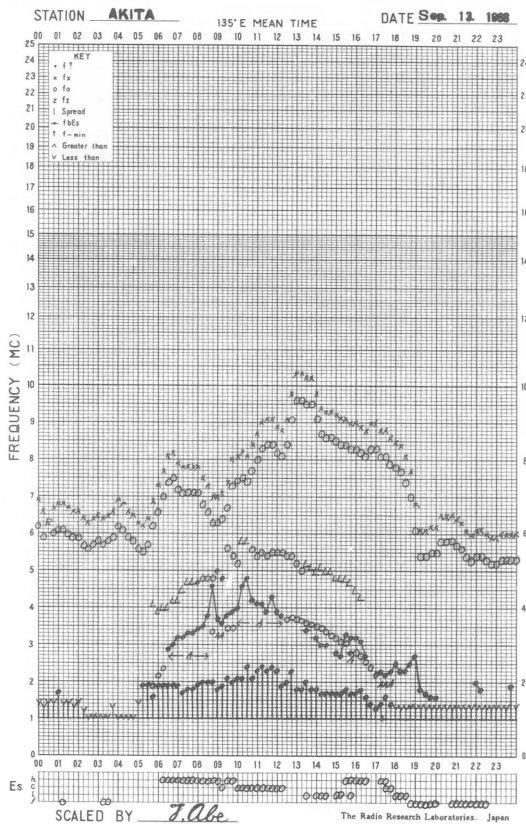
STATION YAMAGAWA 135° E MEAN TIME DATE SEP. 12, 1968



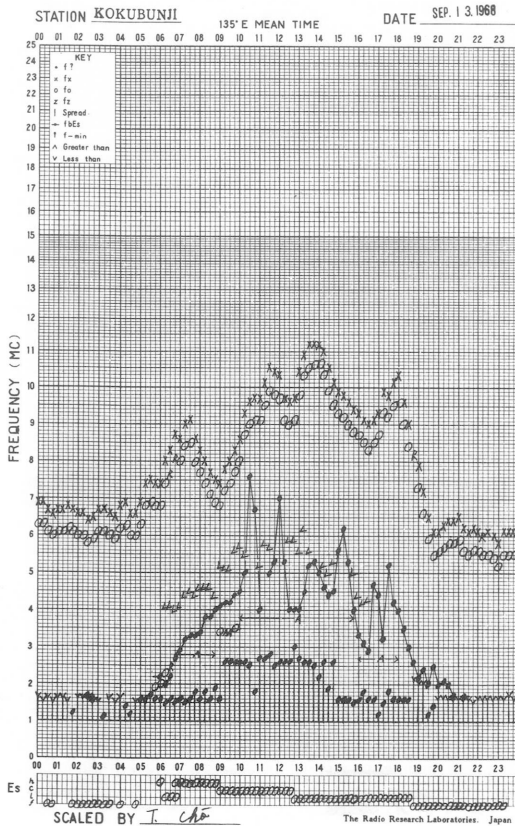
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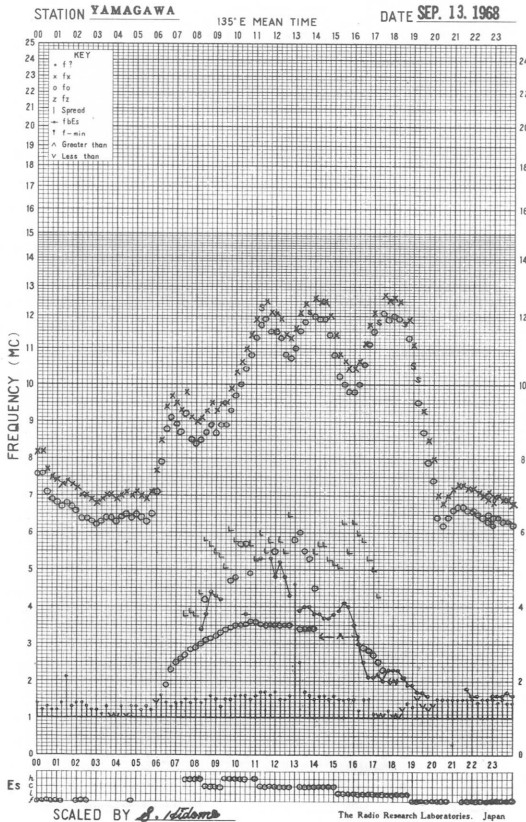
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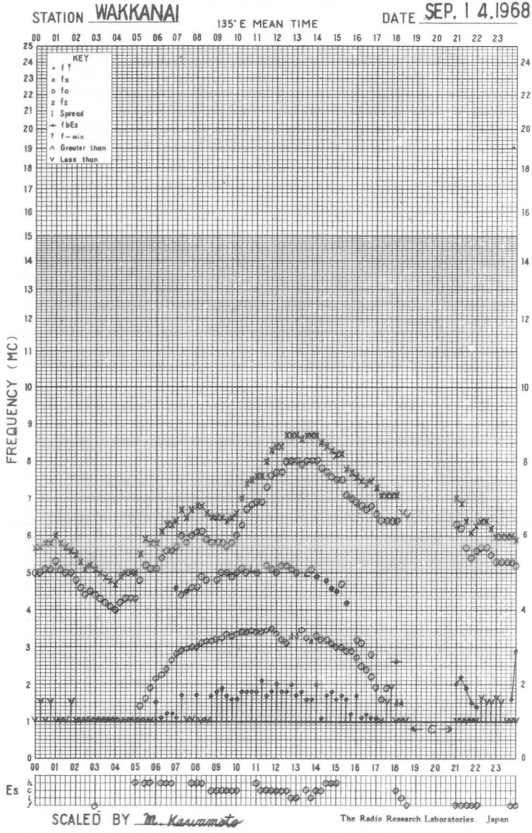
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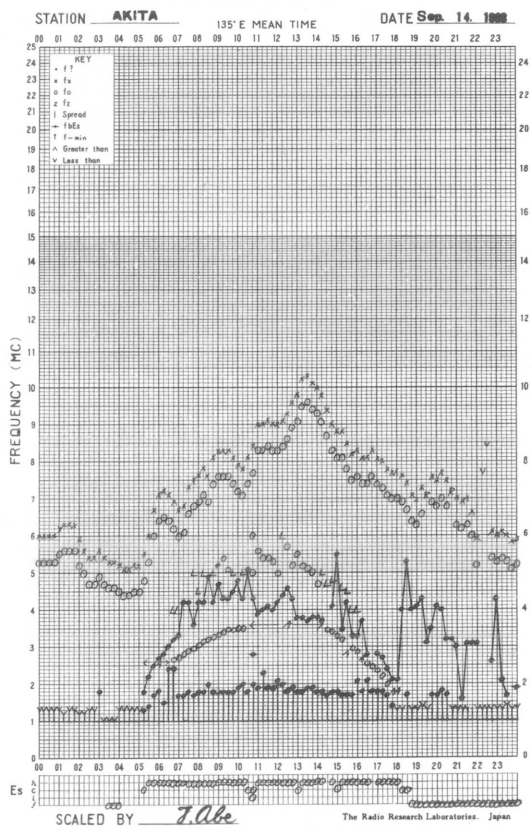
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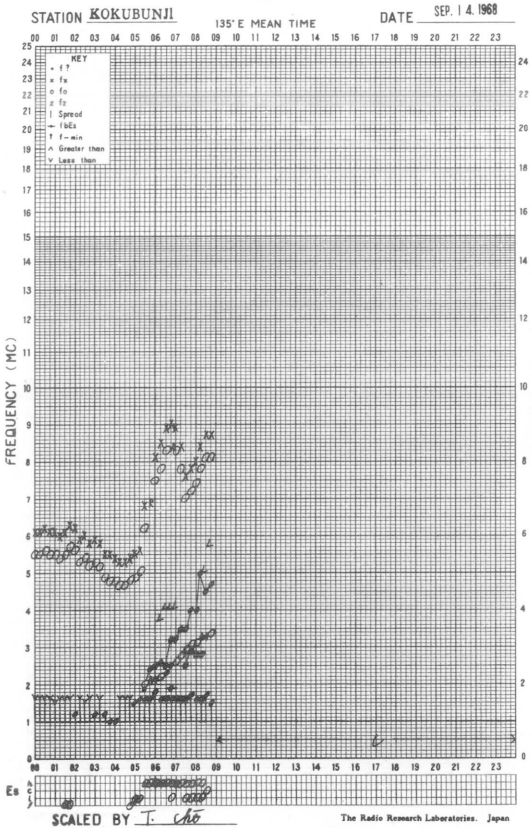
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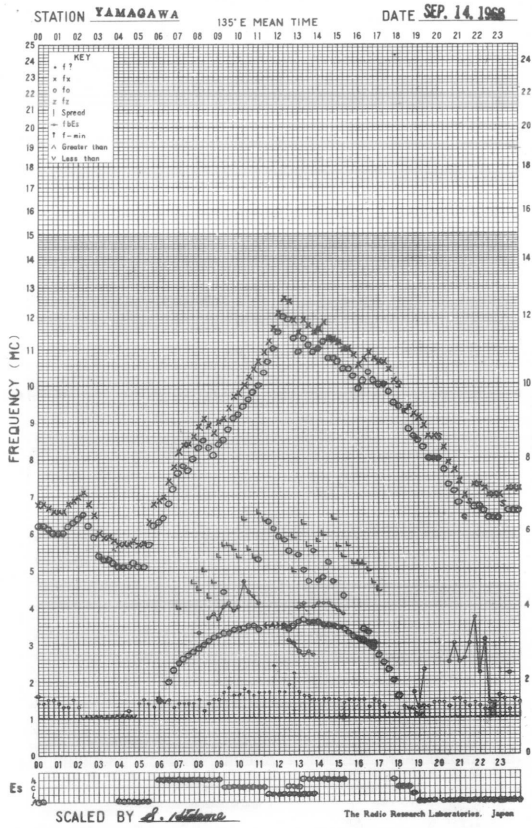
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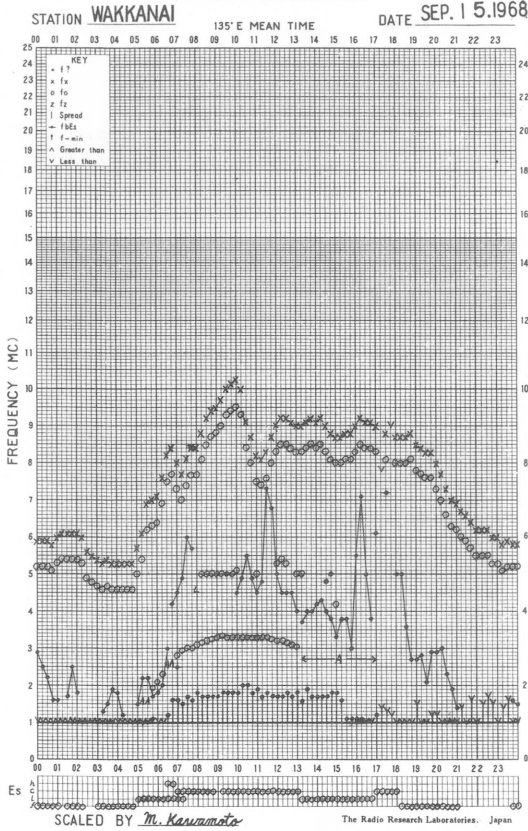
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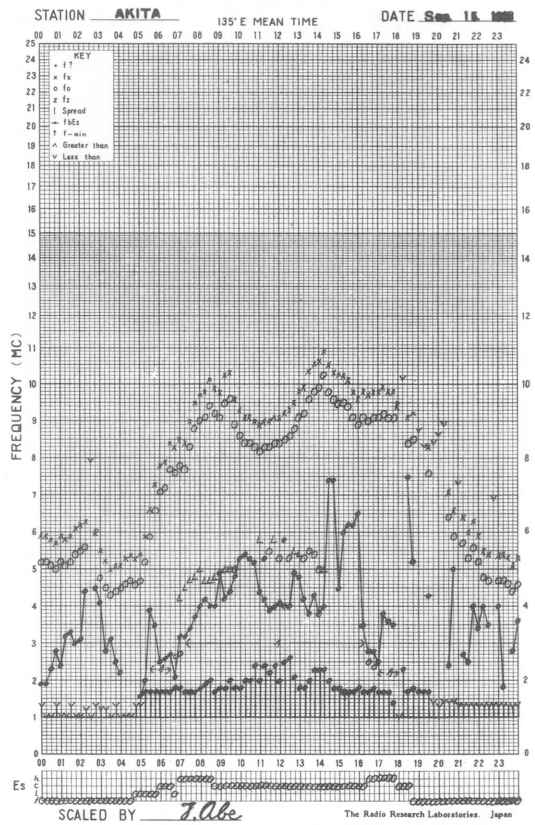
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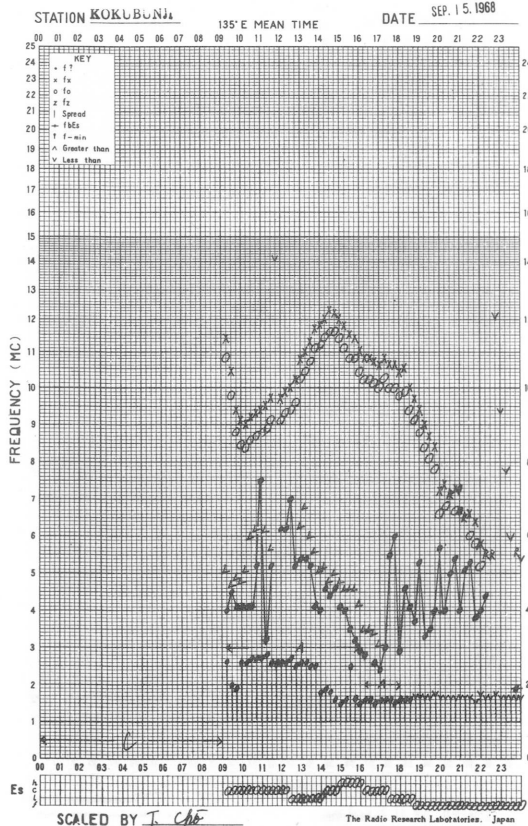
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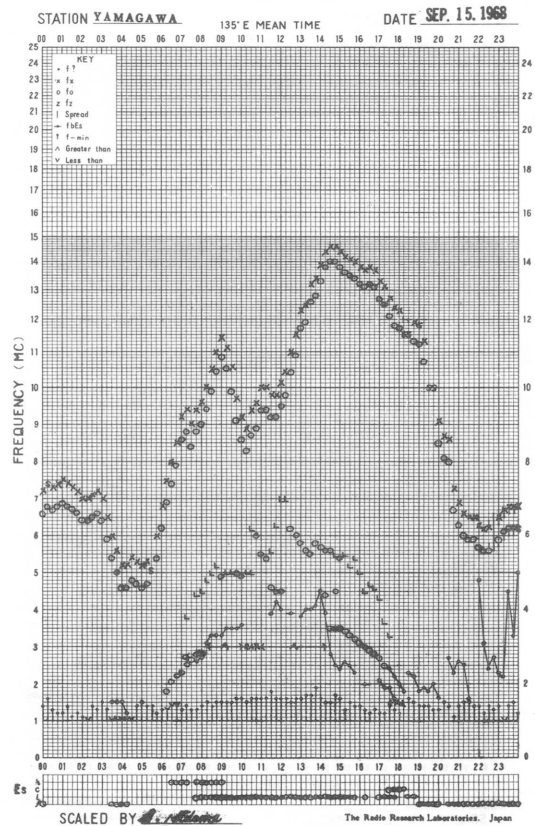
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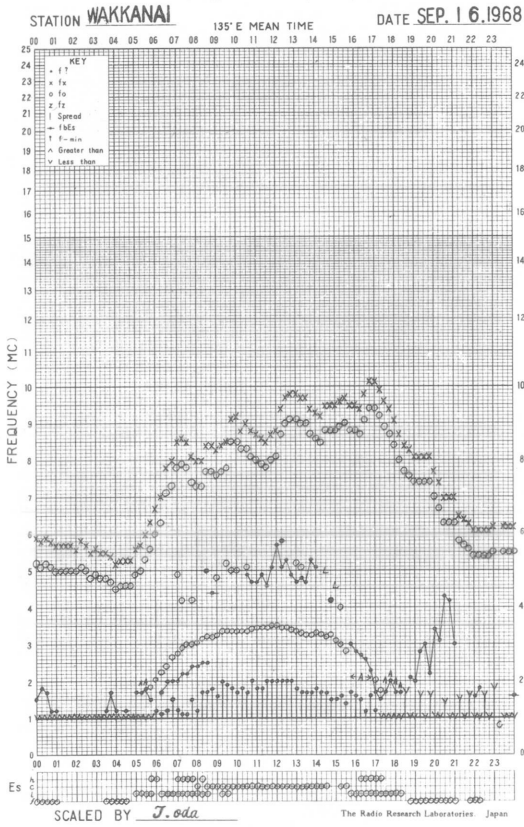
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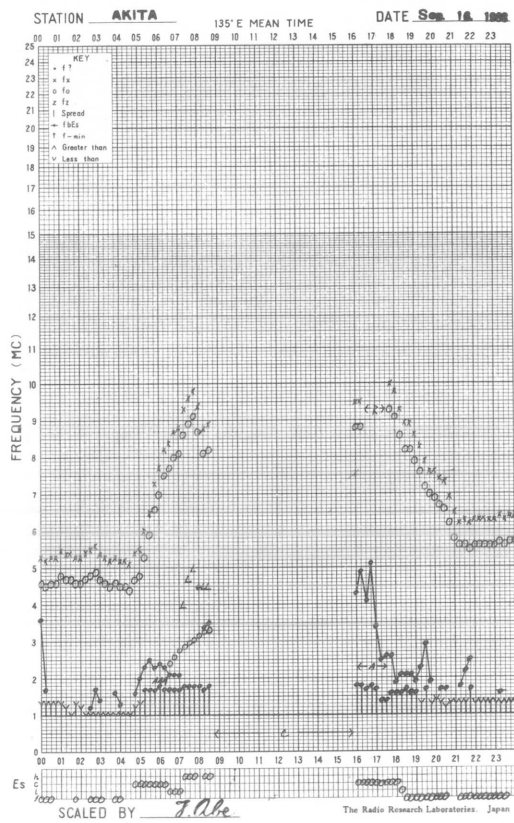
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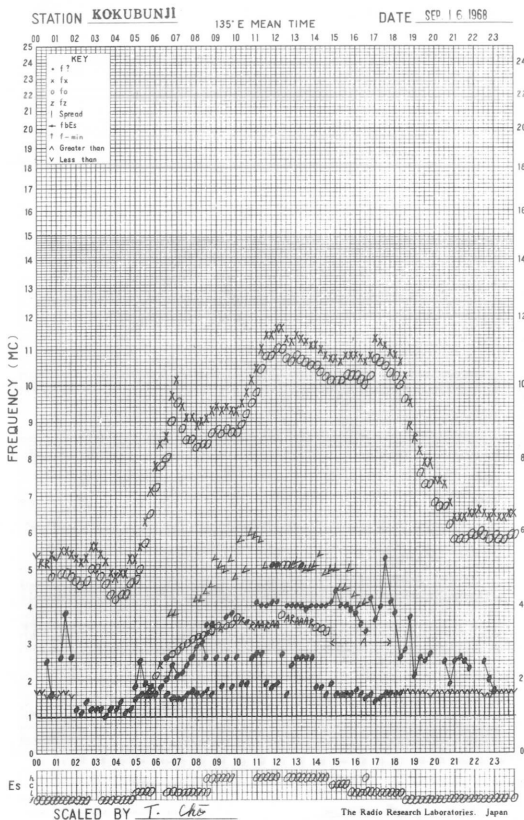
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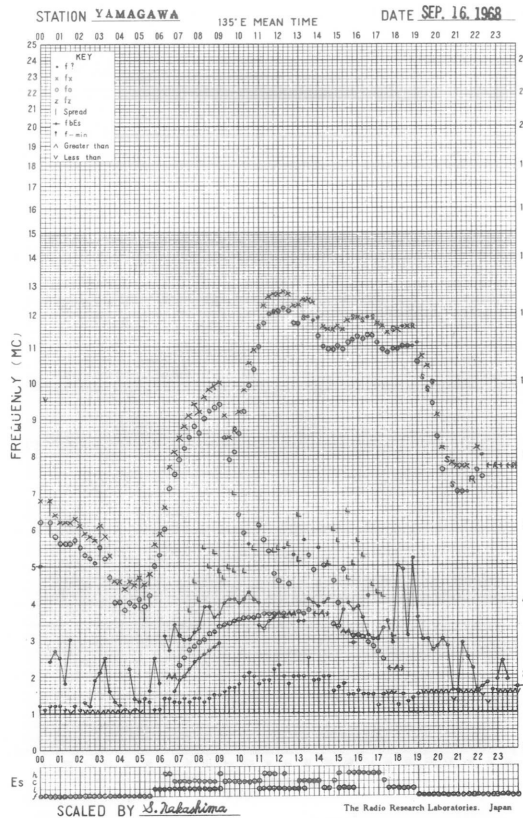
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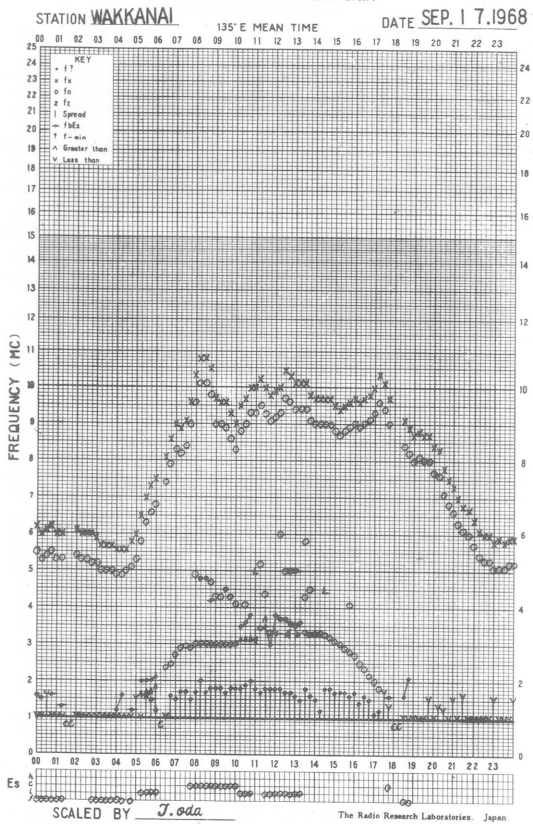
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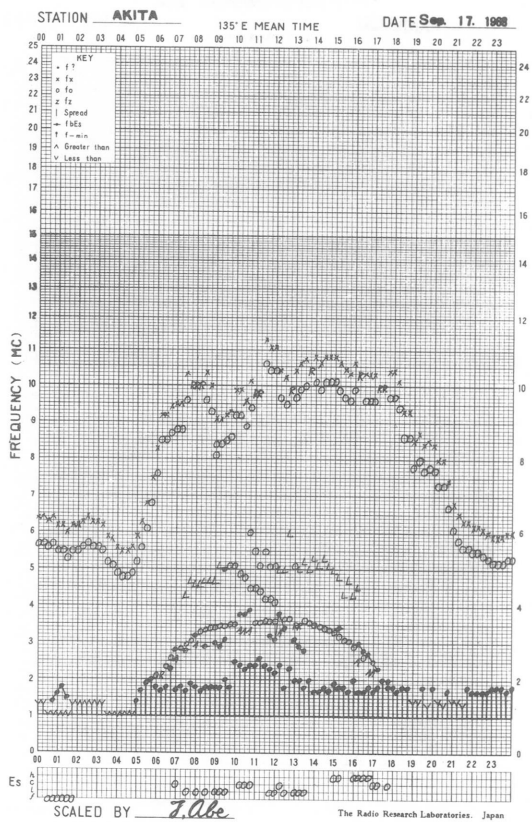
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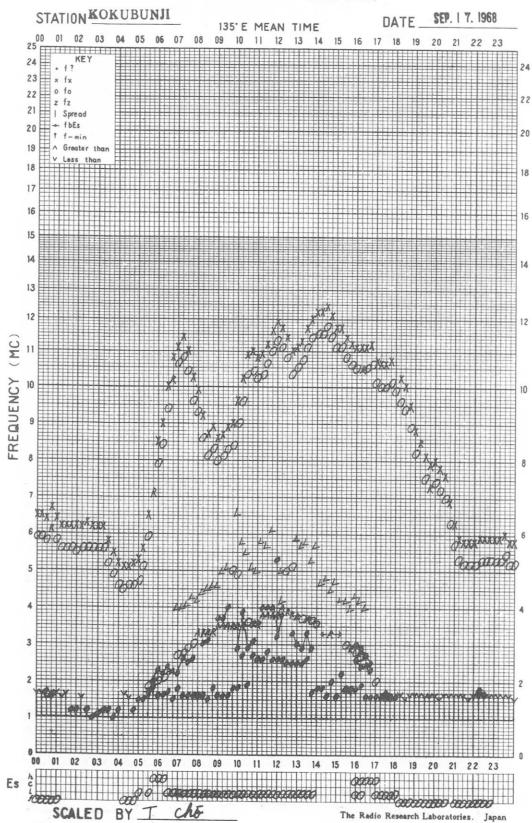
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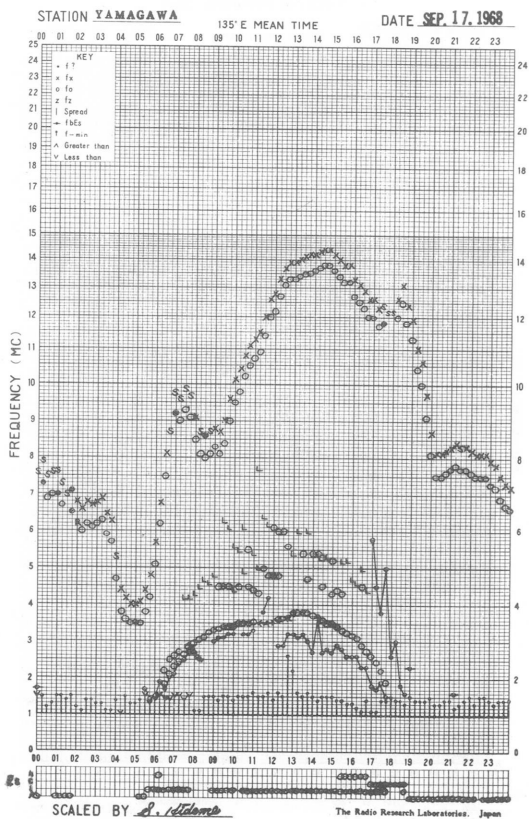
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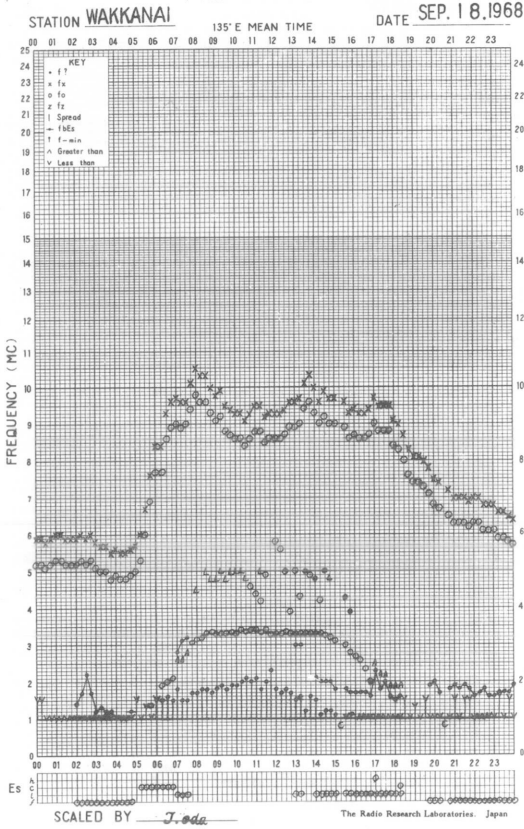
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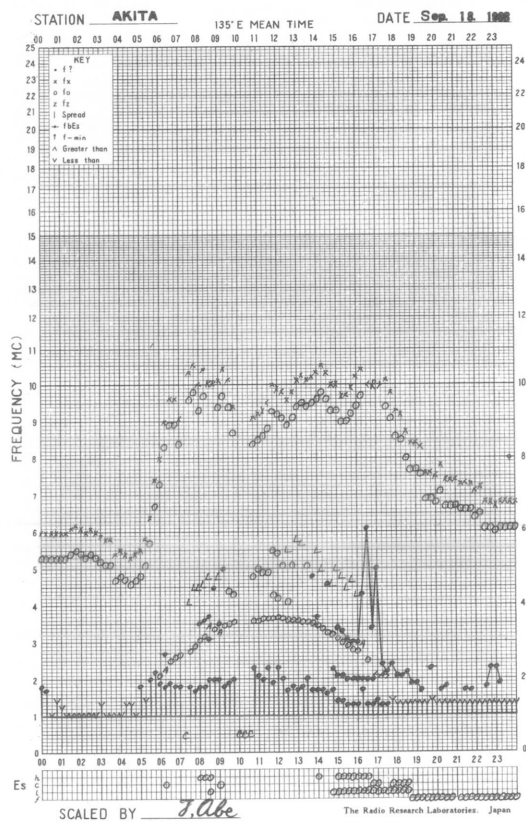
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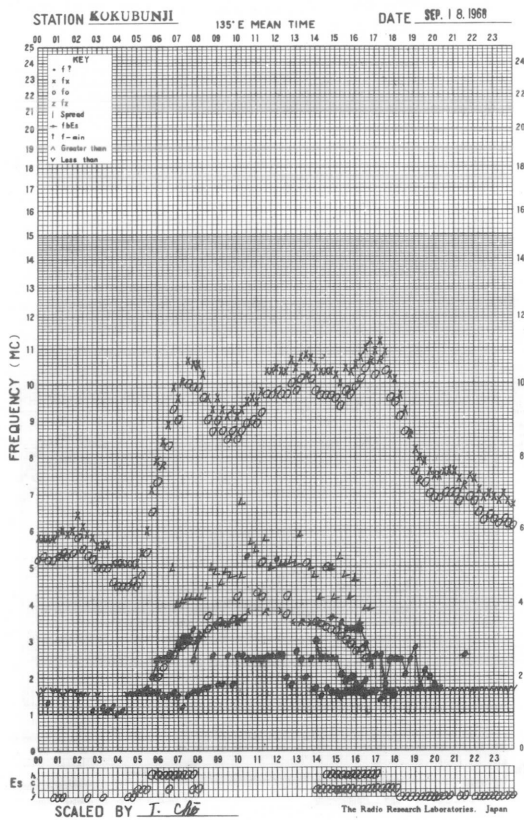
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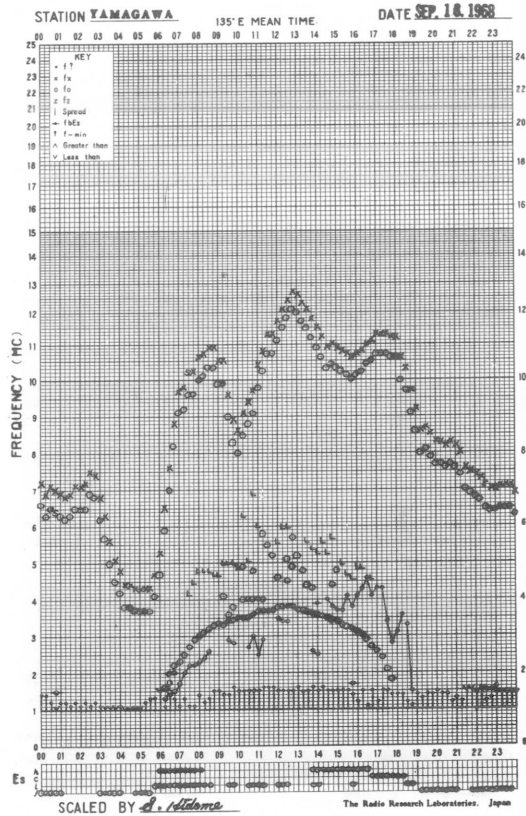
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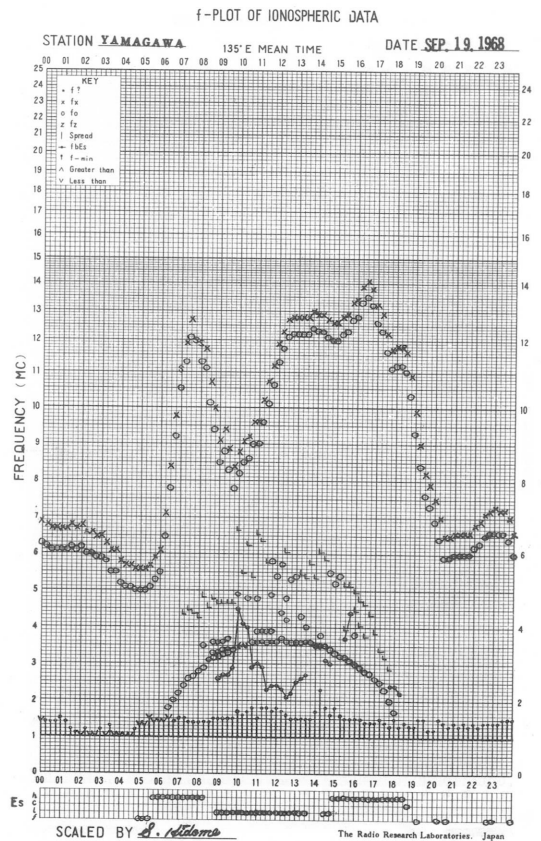
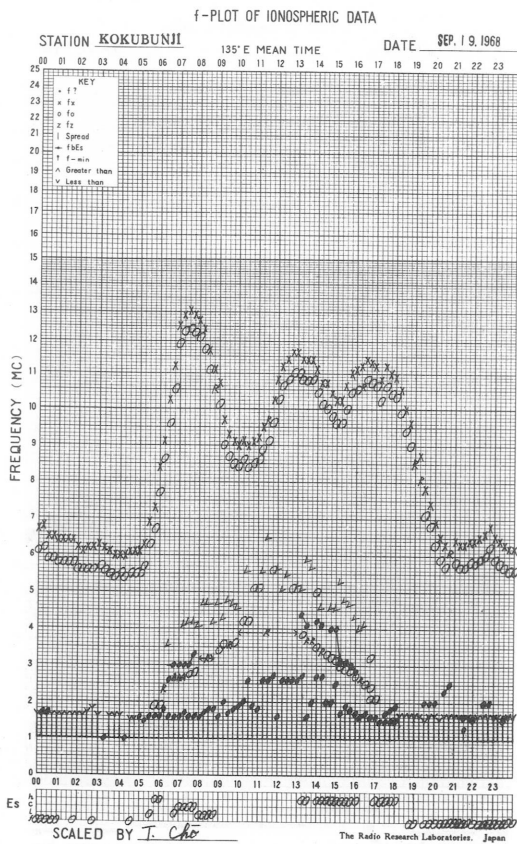
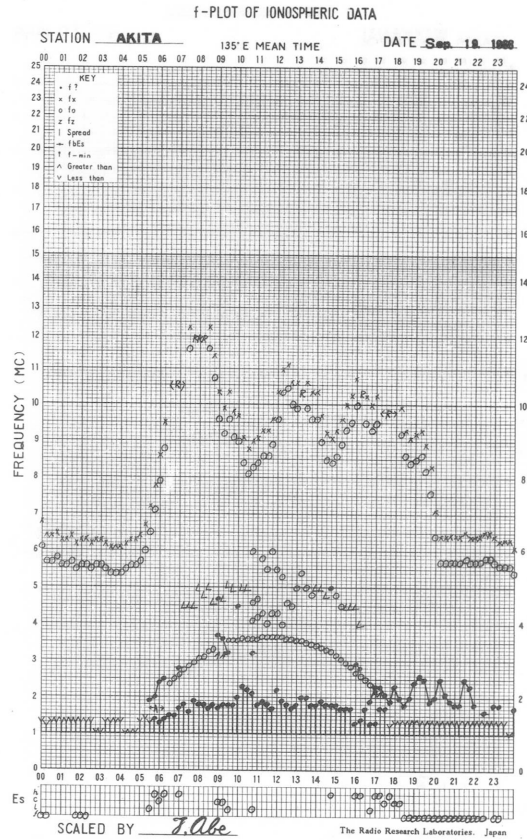
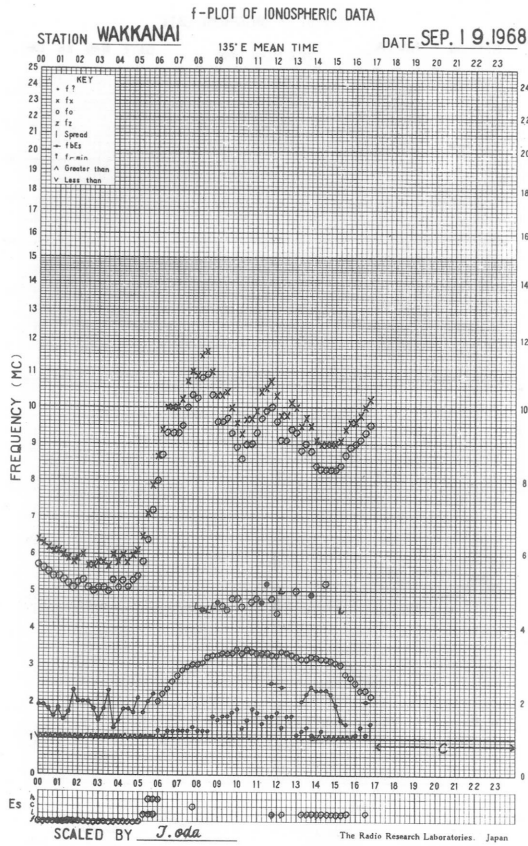


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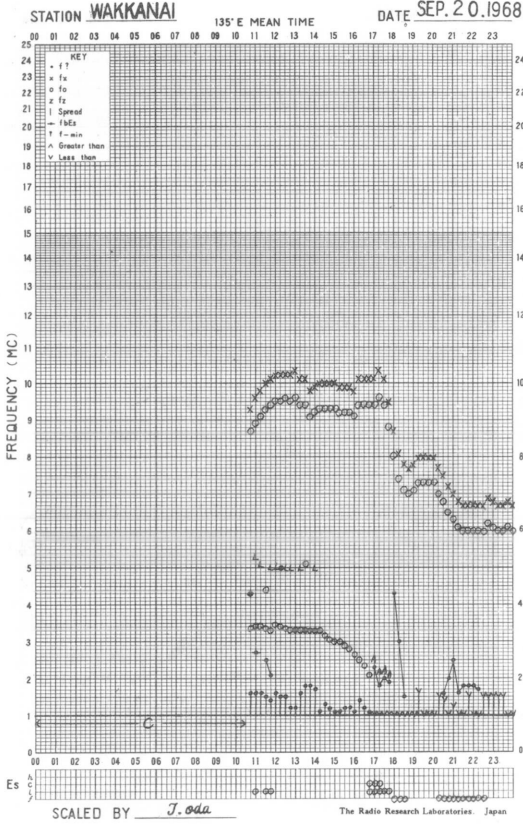


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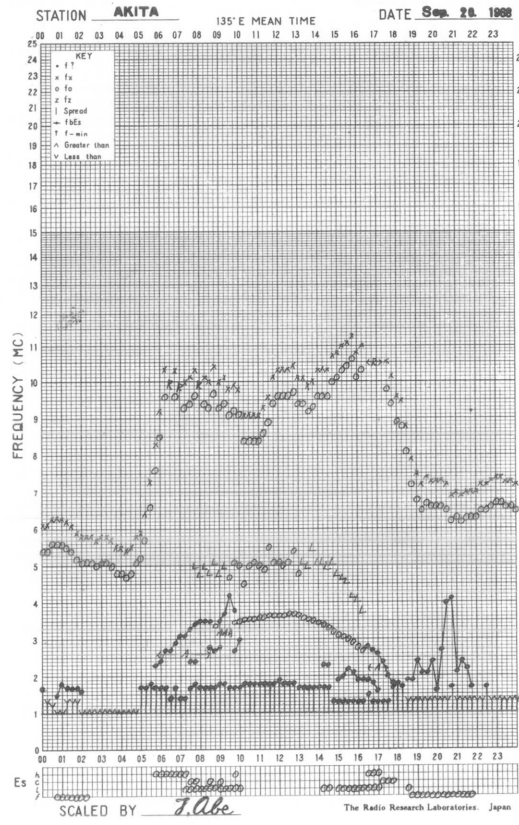




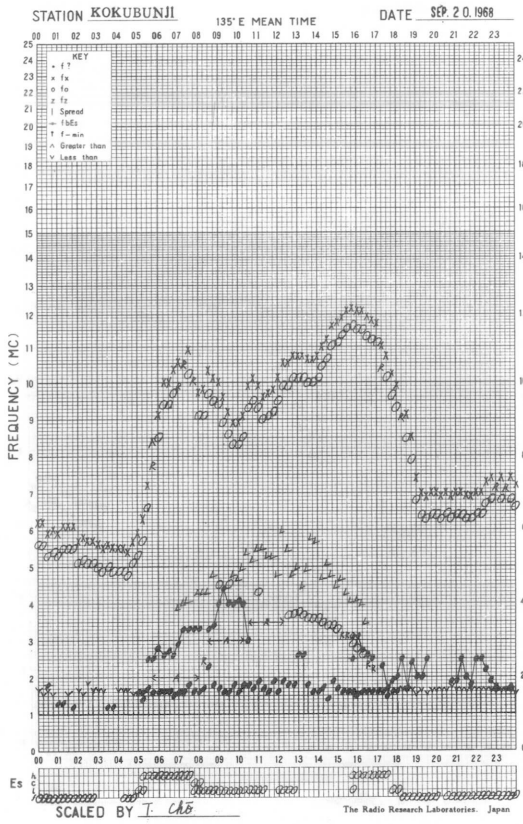
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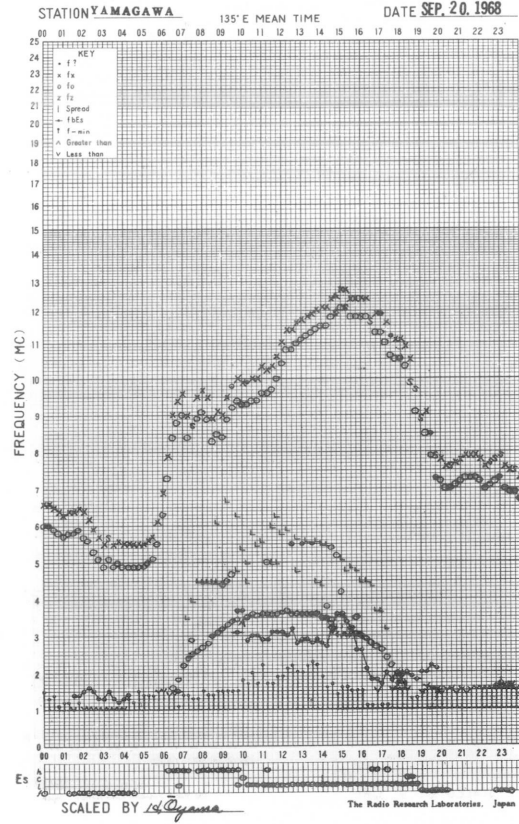
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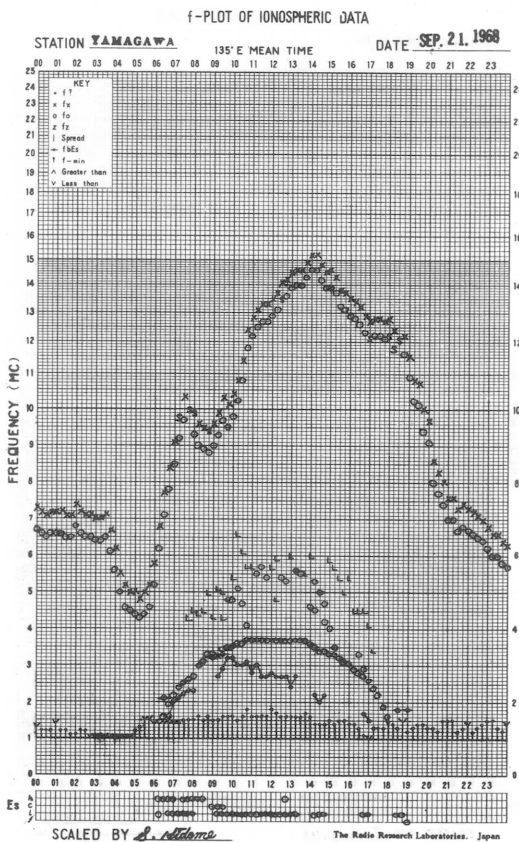
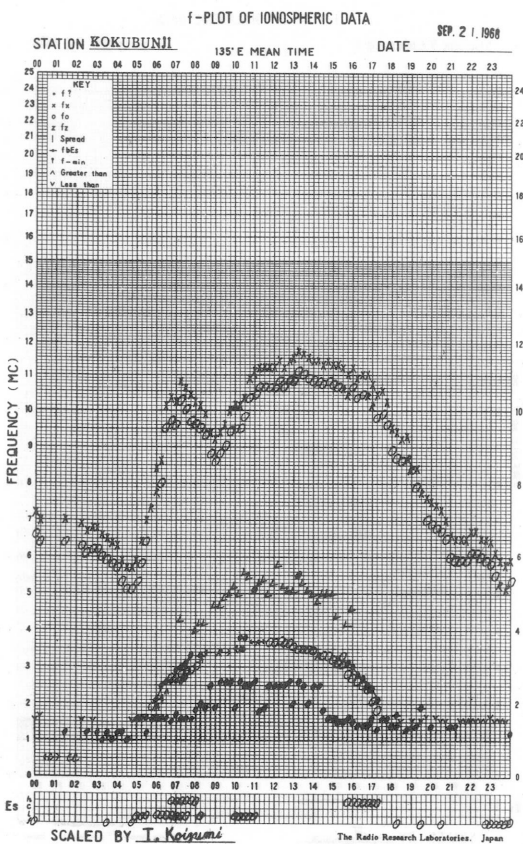
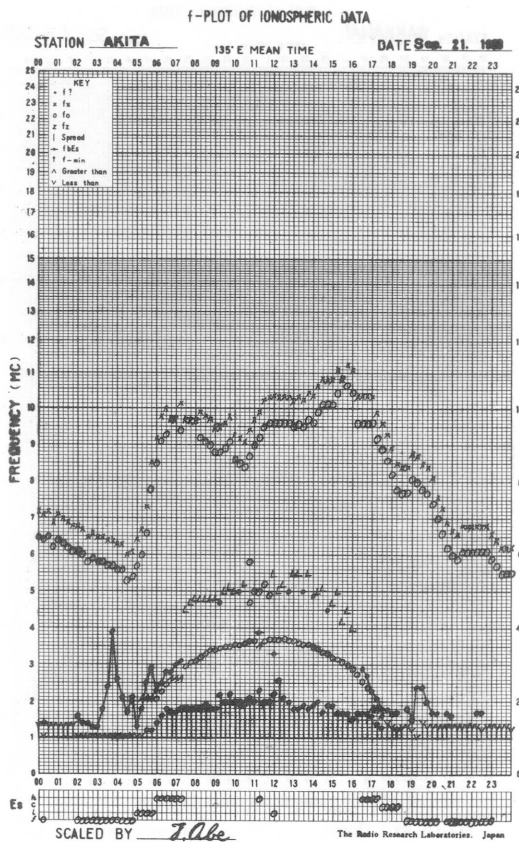
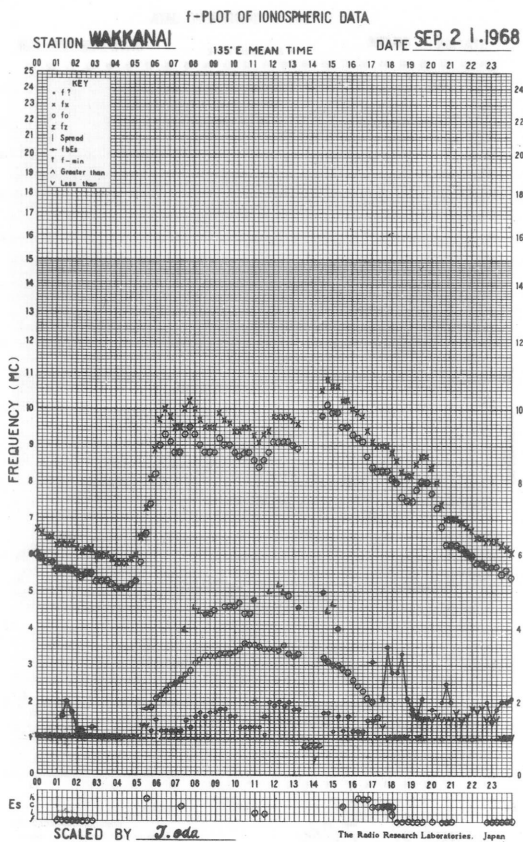


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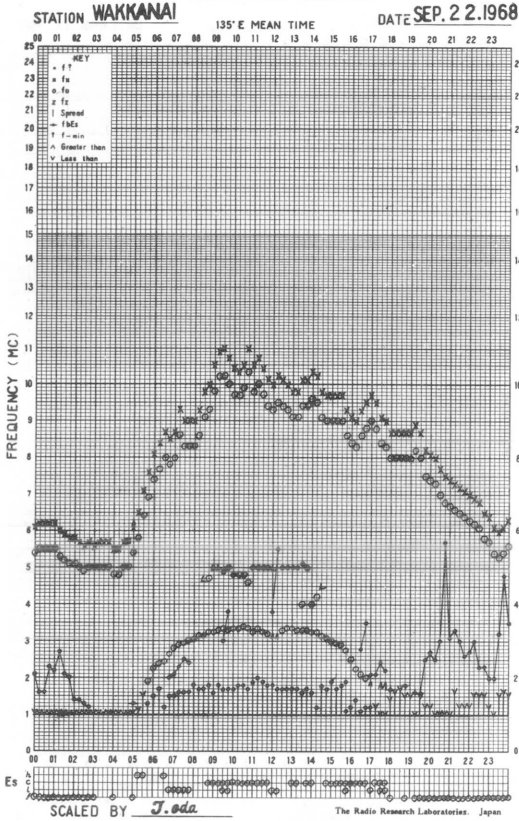


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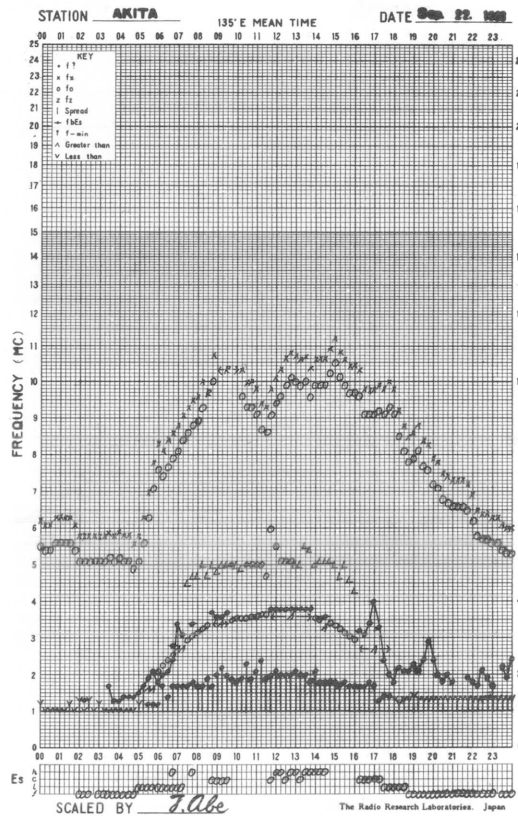




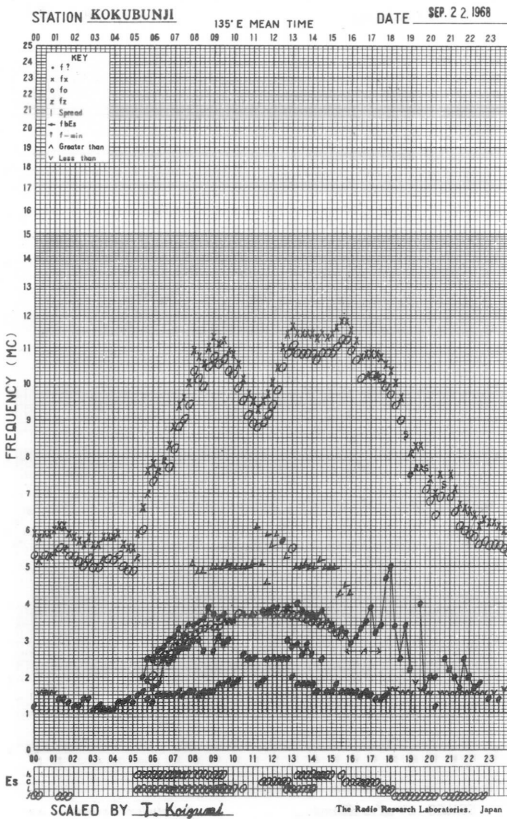
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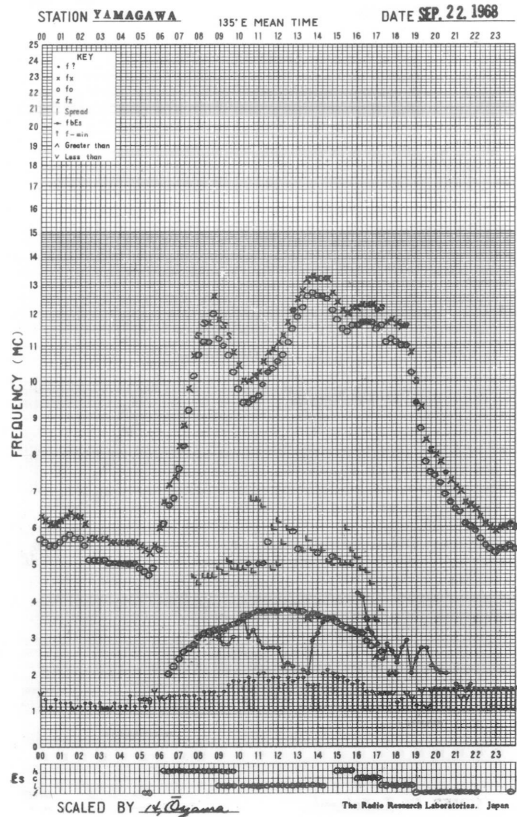
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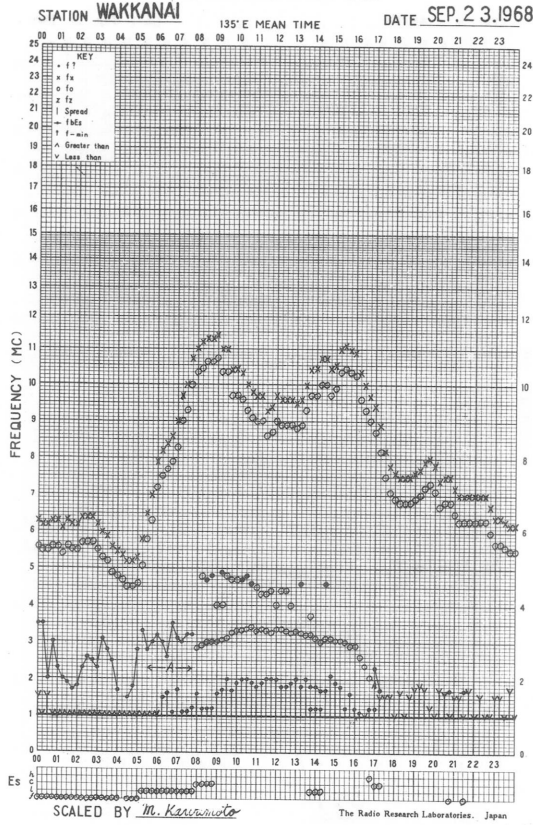
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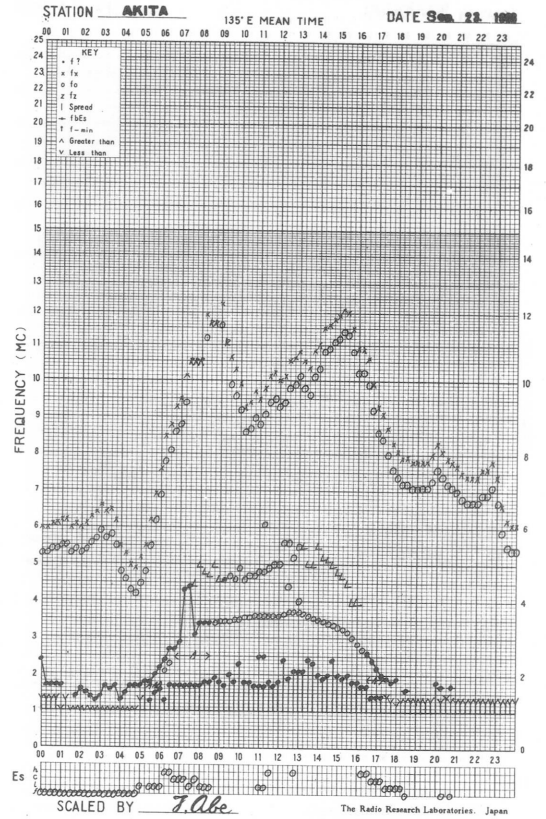
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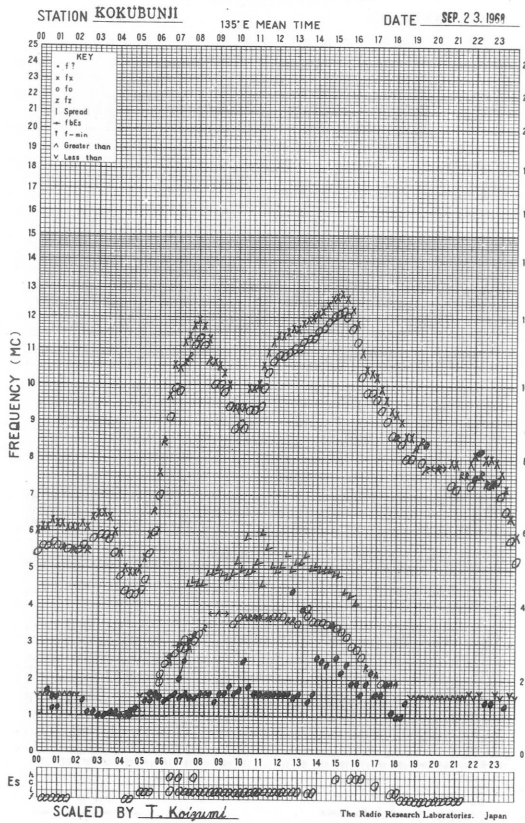
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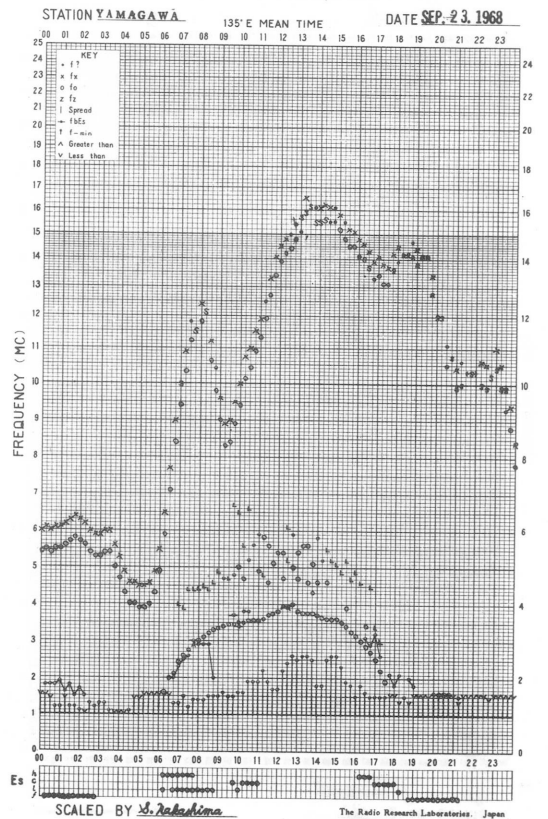
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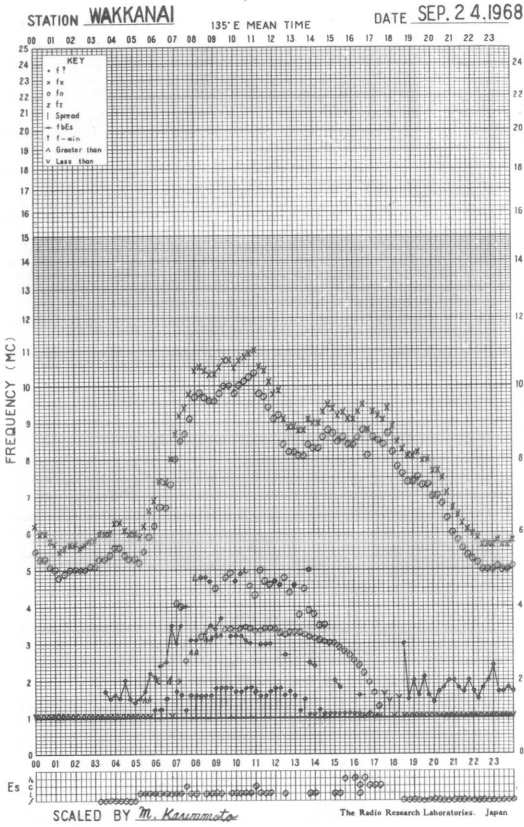
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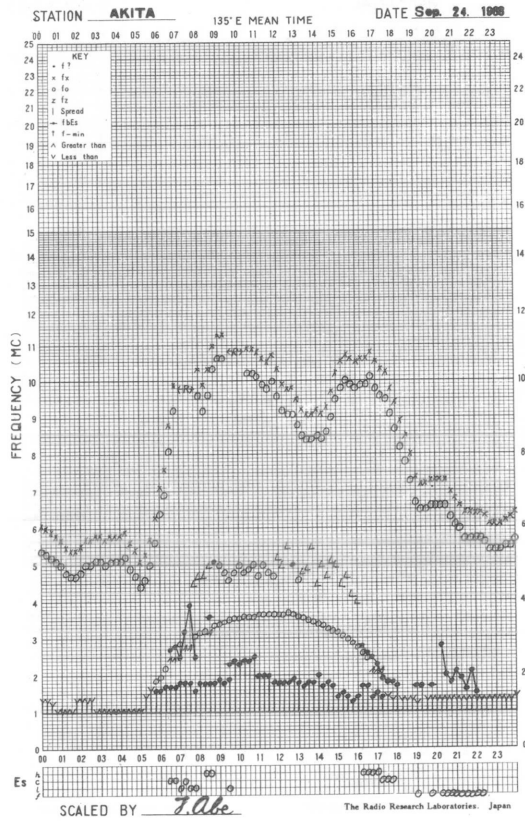
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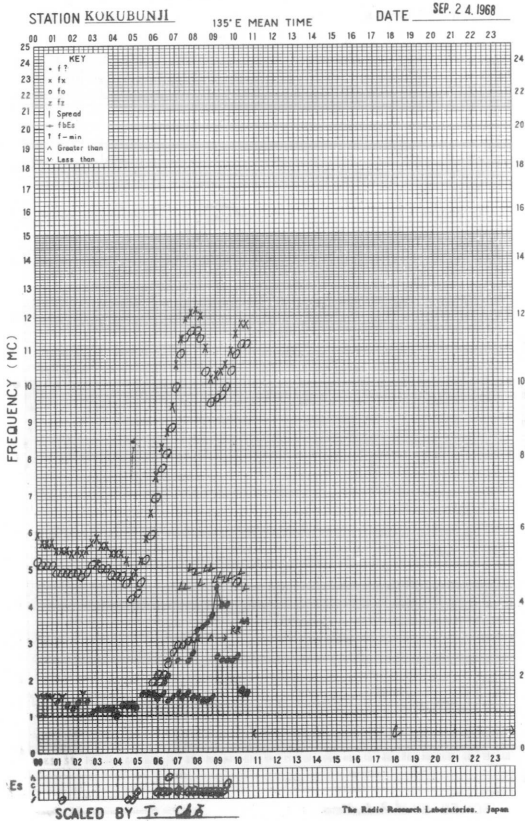
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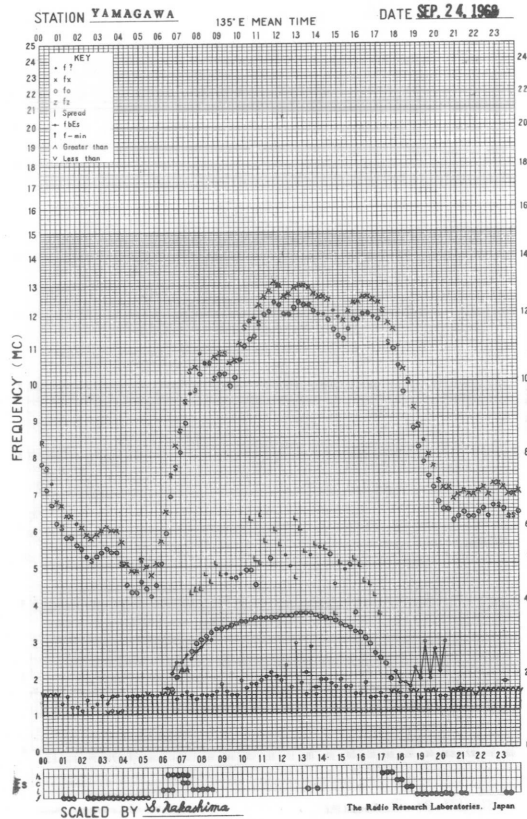
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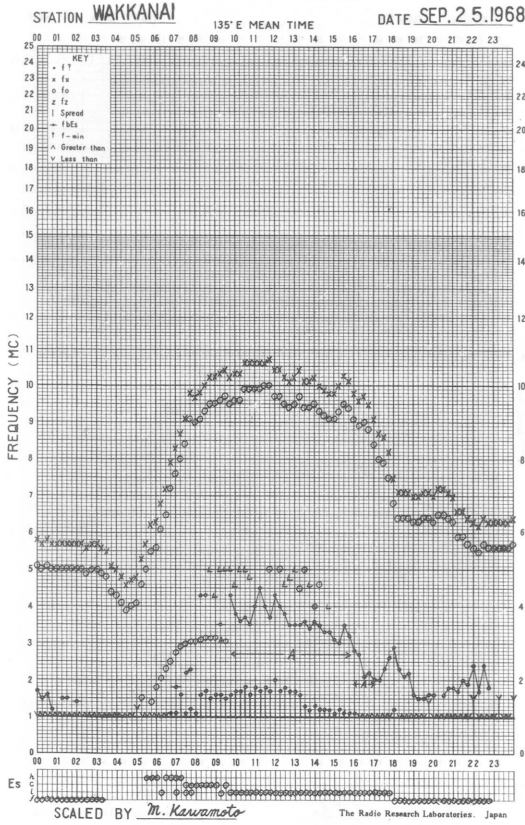
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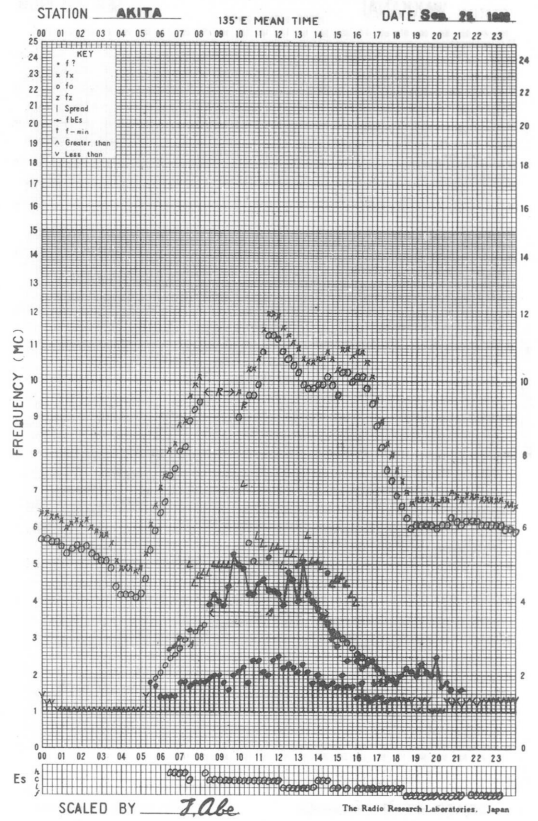
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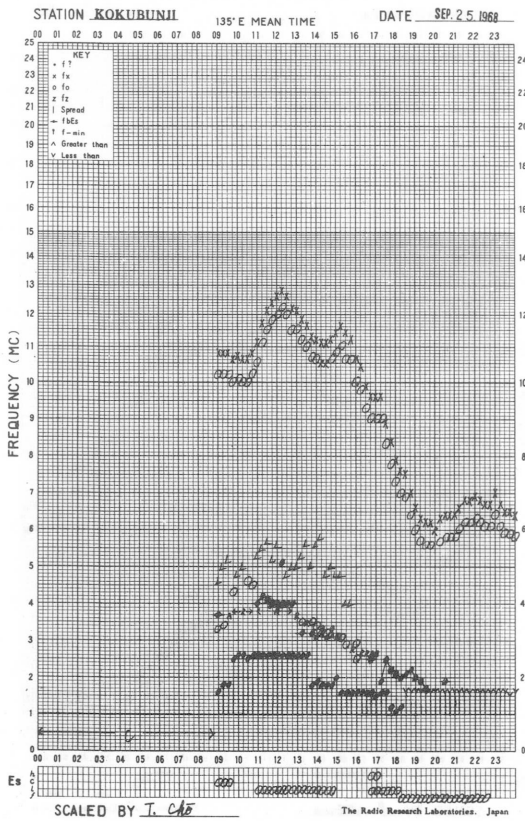
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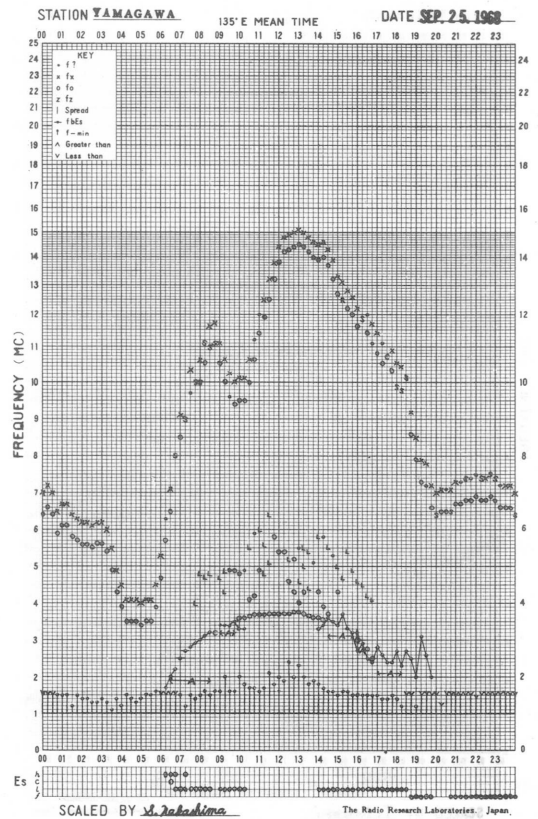
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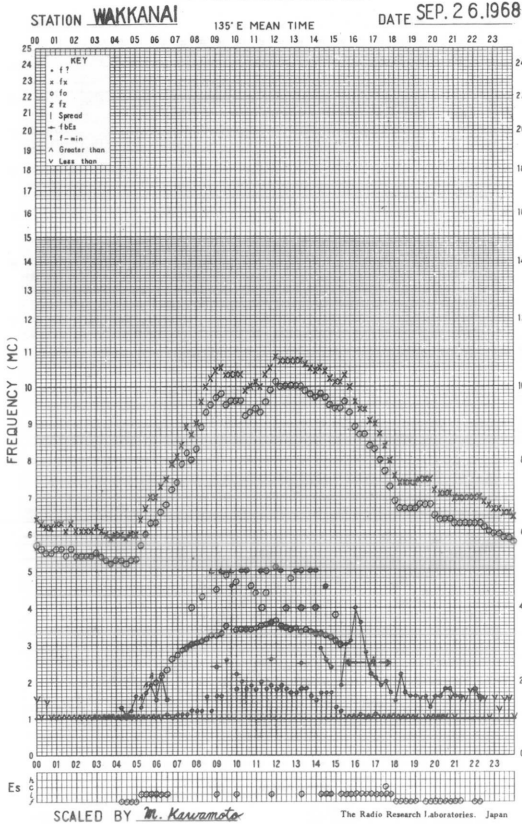
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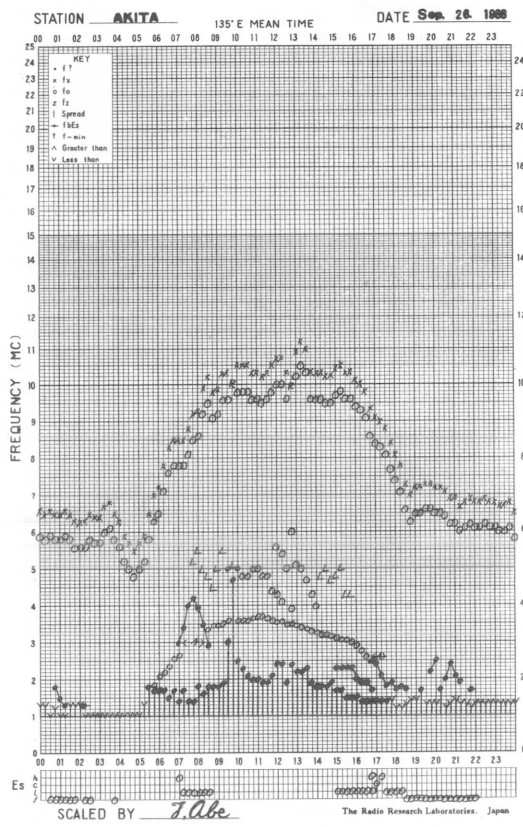
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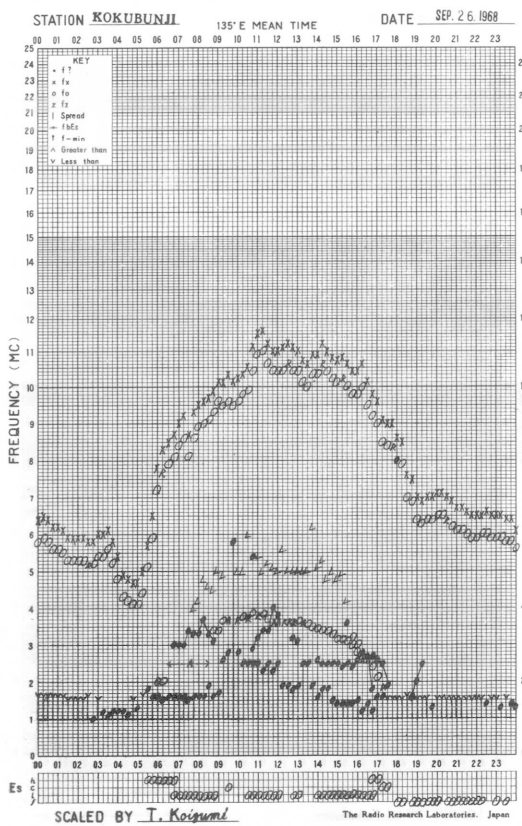
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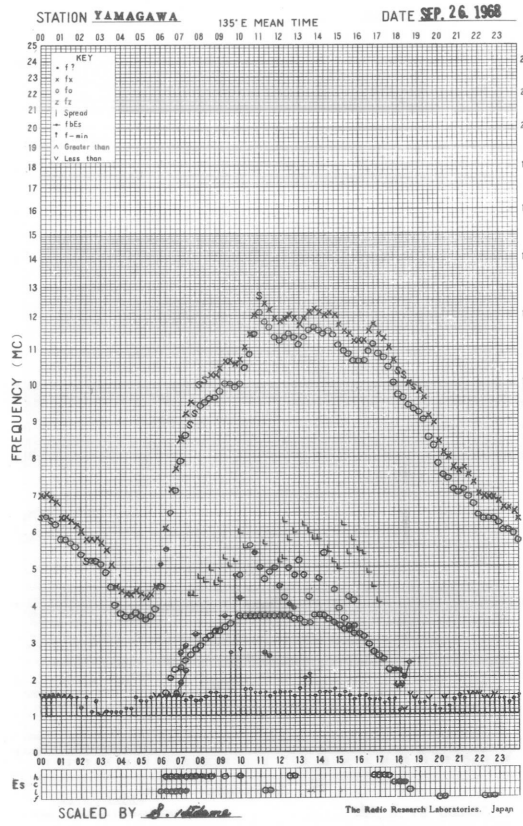
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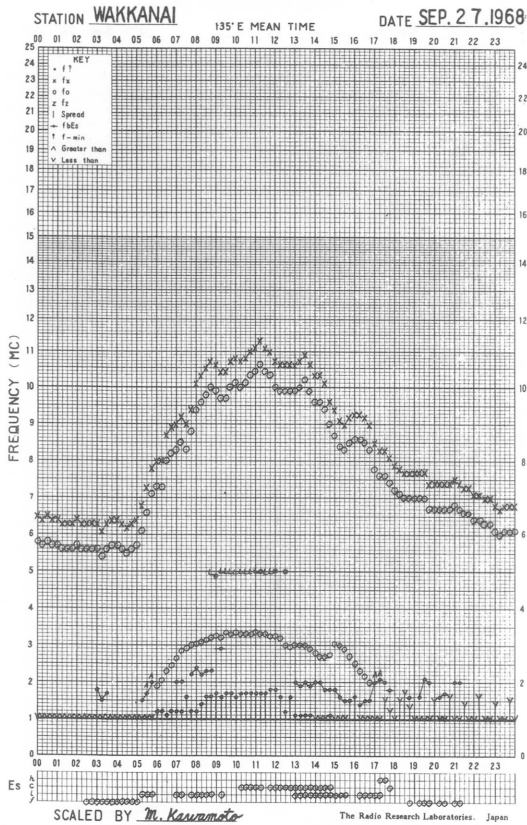
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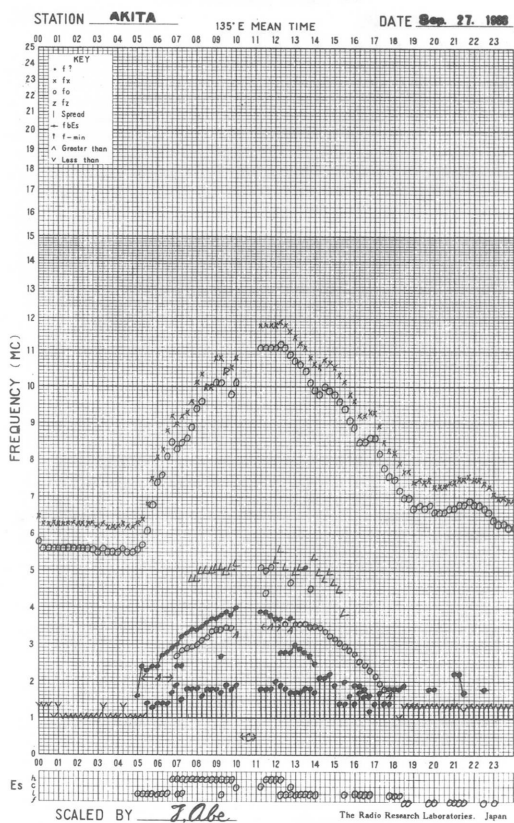
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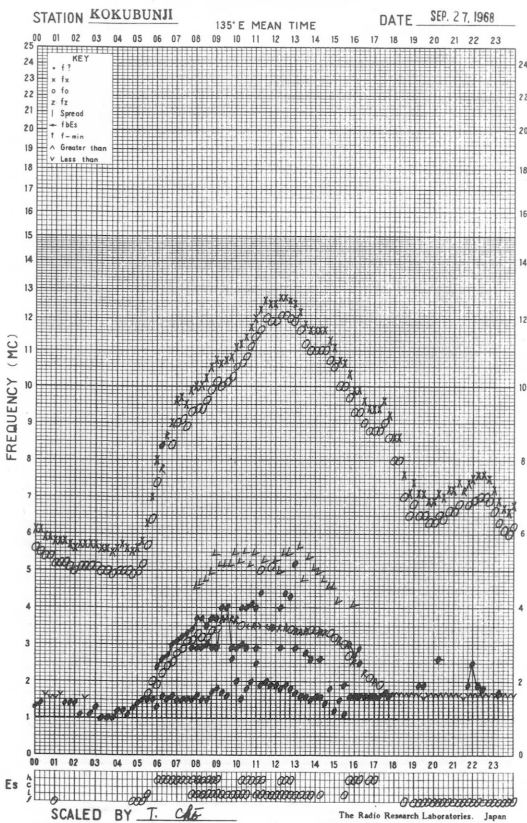
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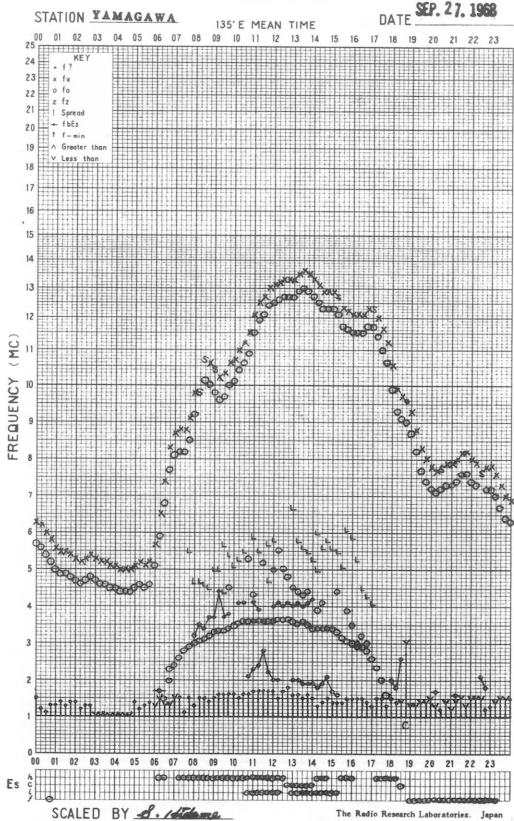
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f-PLOT OF IONOSPHERIC DATA

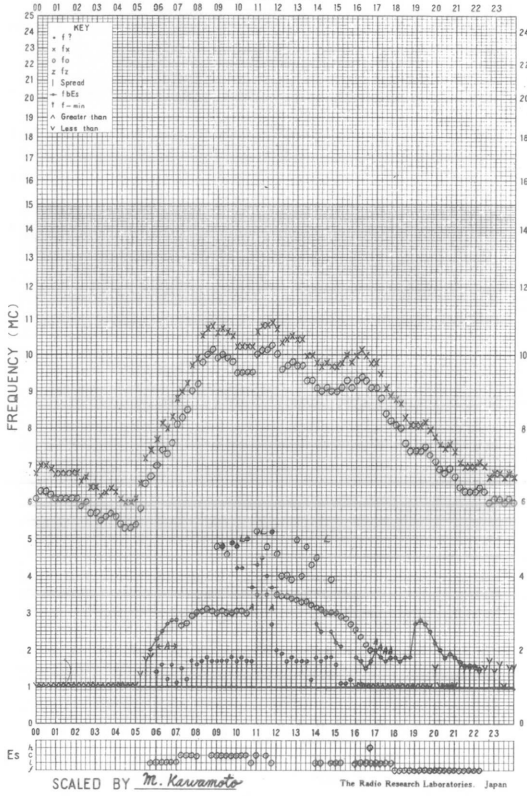


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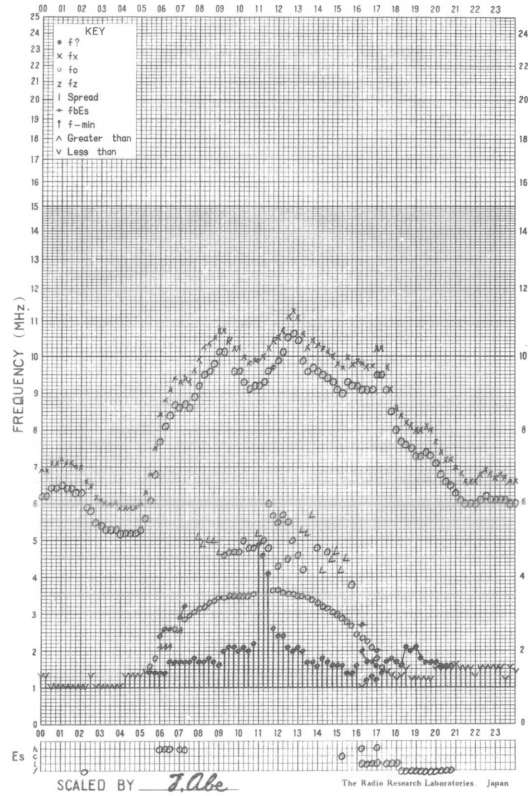
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STATION **WAKKANAI** 135°E MEAN TIME DATE **SEP. 28, 1968**



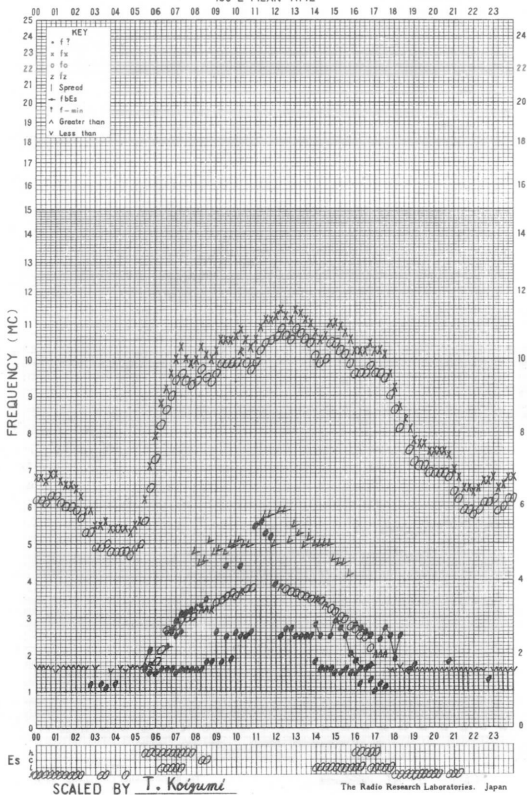
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STATION **AKITA** 135°E MEAN TIME DATE **SEP. 28, 1968**



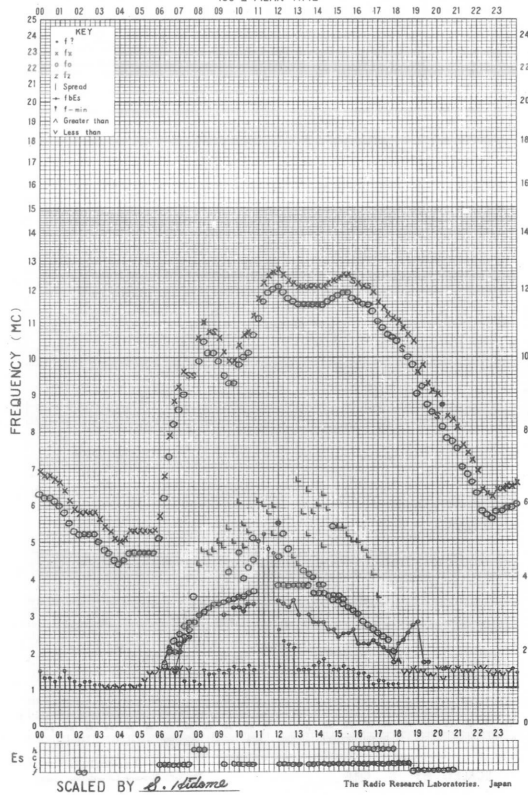
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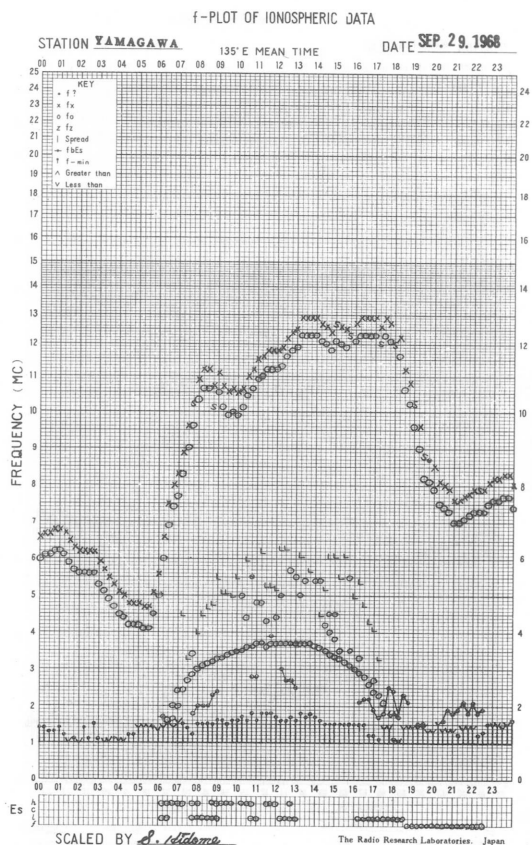
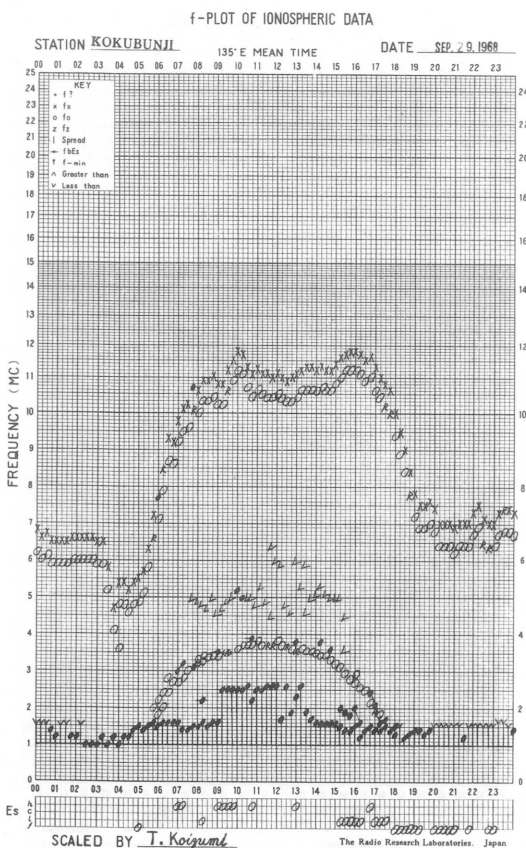
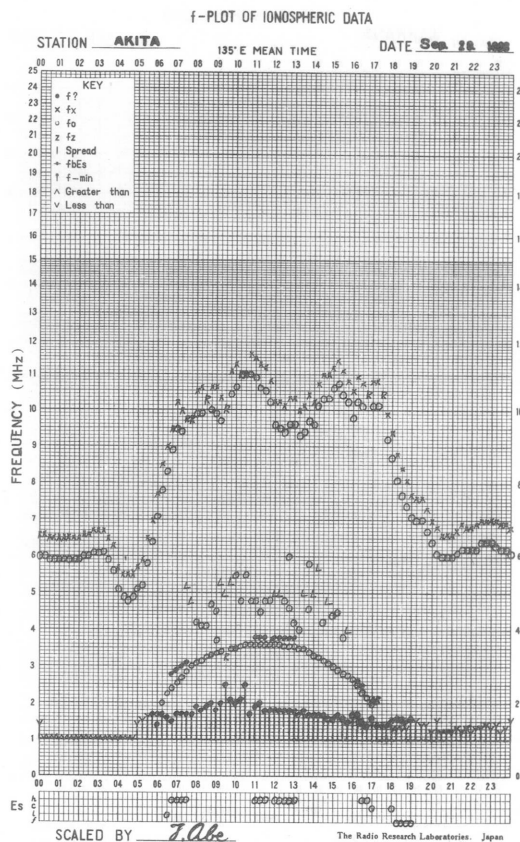
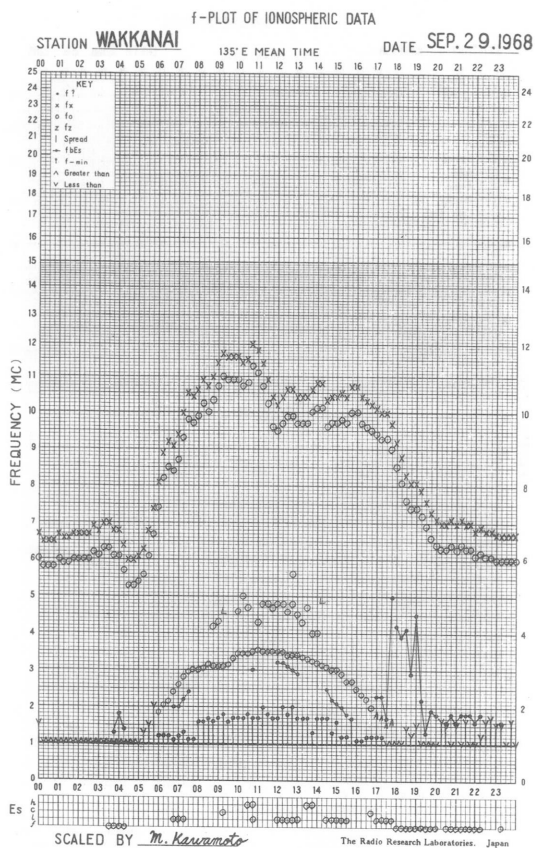
STATION **KOKUBUNJI** 135°E MEAN TIME DATE **SEP. 28, 1968**



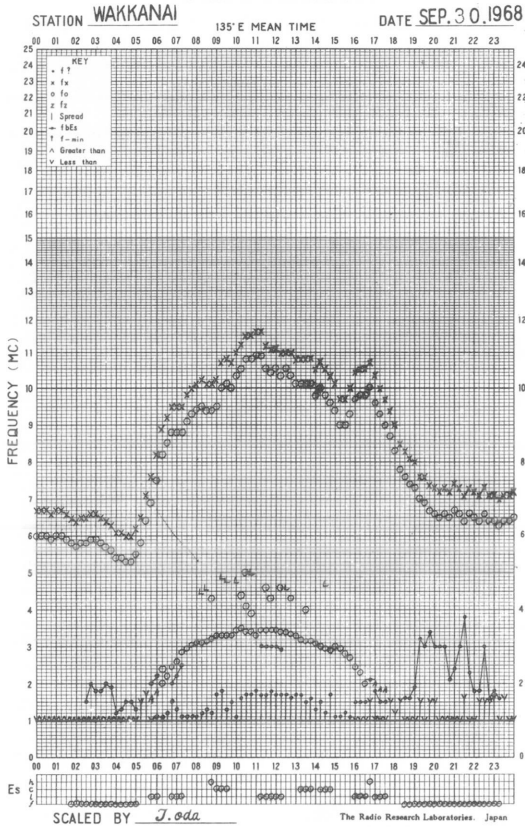
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STATION **TAMAGAWA** 135°E MEAN TIME DATE **SEP. 28, 1968**

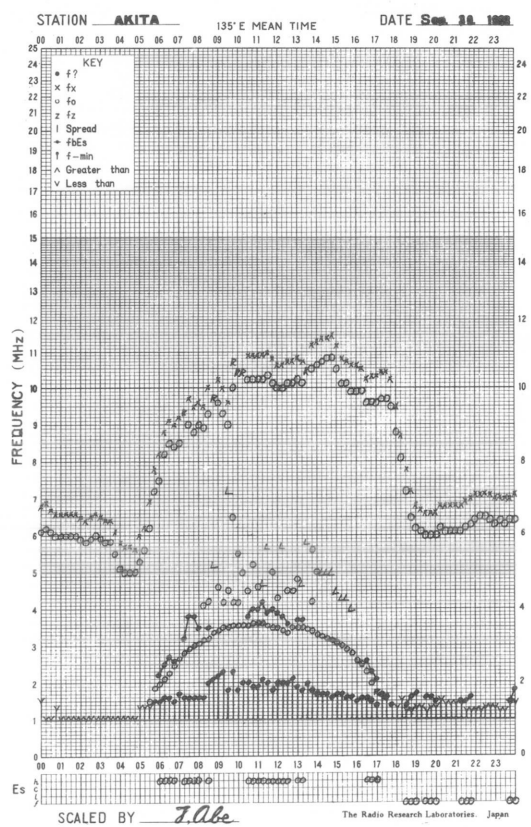




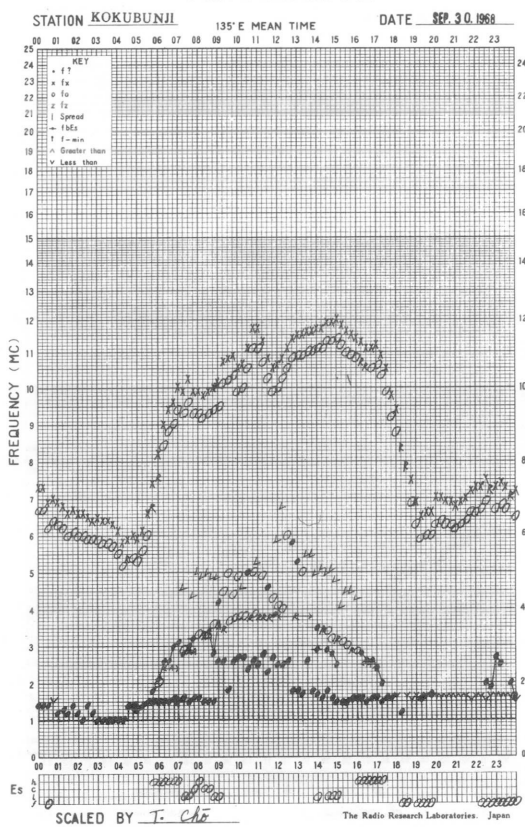
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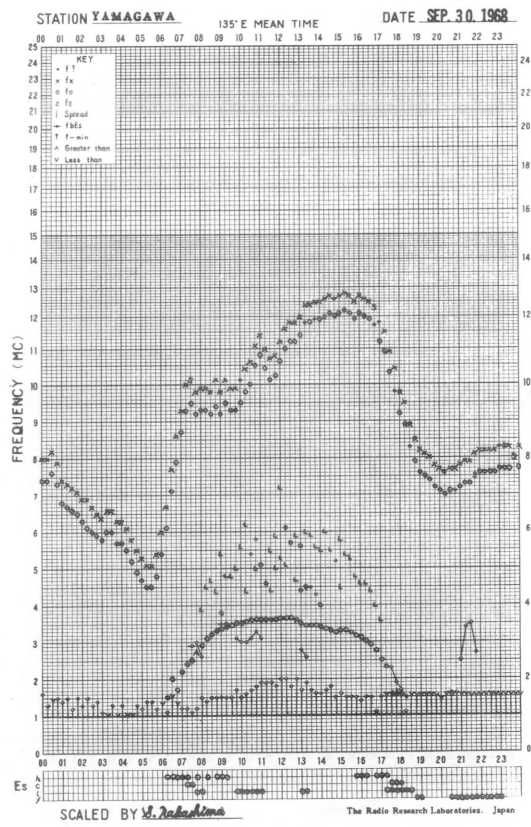
f- PLOT OF IONOSPHERIC DATA



f- PLOT OF IONOSPHERIC DATA



f- PLOT OF IONOSPHERIC DATA



SOLAR RADIO EMISSION

<u>Flux Density and Variability</u>										
Month: September 1968						Frequency: 200 MHz				
Observing station: Hiraiso										
Flux density $10^{-22} W_m^{-2} (Hz)^{-1}$						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	6	6	6	6	0	0	1	1	0
2	8	8	8	11	7	1	1	1	1	1
3	14	17	31	15	17	1	1	1	1	1
4	24	16	50	-	24	1	1	2	-	1
5	94	66	50	21	73	1	1	1	1	1
6	27	9	11	17	17	2	1	1	1	1
7	10	18	88	8	28	1	1	1	1	1
8	8	9	8	6	9	1	1	1	1	1
9	7	7	6	(6)	7	1	1	1	(0)	1
10	6	6	7	-	6	0	0	0	-	0
11	7	7	7	6	7	0	1	0	1	0
12	7	7	8	6	8	1	1	1	1	1
13	9	7	7	7	7	1	1	1	0	1
14	7	-	(7)	6	7	1	-	(1)	0	1
15	6	6	5	6	6	0	0	0	0	0
16	6	6	6	6	6	0	0	0	0	0
17	6	6	6	-	6	0	0	0	-	0
18	6	6	6	6	6	0	0	0	1	0
19	7	7	6	7	7	1	1	0	1	1
20	7	9	7	7	7	1	1	1	1	1
21	7	7	10	6	7	1	1	1	0	1
22	6	7	7	-	6	0	1	1	-	1
23	6	6	7	8	7	0	1	0	1	0
24	8	7	7	7	7	1	1	1	1	1
25	6	6	7	6	6	0	0	1	1	1
26	9	18	39	8	15	1	2	2	1	2
27	9	8	9	8	8	1	1	1	1	1
28	7	9	13	6	9	1	1	1	1	1
29	7	7	7	7	7	0	1	1	0	1
30	(7)	7	7	8	7	(0)	0	1	1	0

Note No observations during the following periods:

1st	0000-	0050	22nd	0400-	0530
4th	2020-	2400	22nd	2020-	23rd 0010
9th	2020-	2300	24th	0100-	0140
10th	2020-	2400	27th	0220-	0240
14th	0225-	0700	30th	0110-	0245
17th	2020-	2400			

SOLAR RADIO EMISSION

Flux Density					
Month: September 1968					
Observing station: Hiraiso			Frequency: 500 MHz		
Flux density $10^{-22} \text{ Wm}^{-2} (\text{Hz})^{-1}$					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	36	34	34	33	35
2	35	36	38	37	35
3	41	43	42	40	40
4	44	45	(49)	39	44
5	49	45	35	33	42
6	40	33	32	37	34
7	34	36	40	34	36
8	33	33	32	30	33
9	32	34	33	-	32
10	32	31	31	33	32
11	-	-	-	32	(33)
12	(33)	30	30	29	31
13	32	31	30	34	31
14	(35)	(37)	35	34	35
15	32	31	30	31	32
16	31	32	32	31	31
17	30	30	30	29	30
18	30	30	30	29	30
19	28	28	28	31	28
20	31	31	32	31	31
21	33	33	33	32	32
22	32	(33)	-	30	32
23	29	28	29	31	29
24	29	28	29	30	29
25	30	28	29	31	29
26	32	34	36	32	33
27	33	32	31	-	32
28	32	32	31	33	32
29	32	31	29	31	31
30	32	32	33	31	32

Note No observations during the following periods:

1st	0000-	0100	12th	0000-	0200
4th	0700-	0820	12th	0400-	0500
8th	0000-	0100	14th	0100-	0400
8th	0300-	0400	14th	0500-	0600
8th	0620-	0710	22nd	0400-	0850
9th	0100-	0210	26th	0010-	0030
9th	2020-	2400	27th	0220-	0250
10th	2200-	2300	27th	2020-	2400
11th	0000-	0850	30th	0755-	0850

Distinctive Events (single-frequency observations)								
Month: September 1968								
Observing station: Hiraiso								
Normal observing period: 2020 - 0850 (sunrise to sunset)								
Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22} \text{ Wm}^{-2} (\text{Hz})^{-1}$		Remarks
	MHz	UT	UT	minutes		peak	mean	
1	200	2126.7	2127.3	2.0	C	190	80	
3	500	0703.5	0812.0	107.5	RF	30	10	
4	500	0024.0	-	191.0	RF	-	5	
		0032.0	0042.0	54.0	C	190	50	
5	500	0320.0	0444.5	340.0	C	245	20	
6	500	2050.0	2133.0	120.5	RF	50	10	
	200	2051.2	2056.5	1.0	C	440	120	
7	500	0538.0	0646.3	142.0	RF	40	20	
	200	0607.0	0607.5	1.0	C	520	150	
11	500	0013.0	0013.0	1.5	C	130	15	*
	200	0015.0	0015.0	1.0	C	370	50	
12	500	0010.0	0011.4	2.5	C	180	20	*
	200	0011.2	0011.4	1.0	C	220	20	
26	500	-	-	>8.0	C	-	-	**
	200	0027.0	0030.0	12.5	C	250	10	
	500	0058.0	0101.5	7.0	C	295	6	
	200	0058.0	0059.0	7.5	C	320	4	
27	500	0154.4	0154.9	1.0	C	360	45	
	200	0154.2	0155.0	1.0	C	670	150	
28	500	0152.0	0236.3	56.0	C	1100	140	
	200	0149.0	0157.5	28.0	C	330	30	
	500	0727.0	0730.4	59.0	C	280	30	
29	500	0406.0	0406.4	1.5	C	250	70	
30	500	0645.3	0704.5	34.5	C	440	105	
	200	0638.0	0653.0	60.0	RF	25	5	
		0656.0	-	11.0	C	(440)	(170)	***

* Receiver unstable
 ** End: 0039, Preceding part missing
 *** Excepting missed period of 0700 - 0702

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

SEP 1968 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M
MEASURED AT HIRAIKO

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	2	7	5	9	15	11	13	-4	-4	ES-8	ES-3	ES-7	0	C	C	C	C	0	-3	-18	-7	-9	-3	-6	
2	2	6	-5	10	13	13	-6	-10	ES-9	ES-10	ES-6	ES-10	ES-3	ES-12	-7	-9	-10	10	9	12	7	7	-2	6	
3	-4	-5	-7	2	5	5	ES-22	ES-20	ES-18	ES-8	ES-9	ES-5	C	ES-4	2	1	5	-8	-19	1	4	2	5	-1	
4	-3	-8	-1	-2	6	-6	ES-4	ES-9	-6	ES-4	ES-9	ES-4	ES-6	8	8	-8	1	11	15	1	-8	2	-5	0	
5	-5	-1	4	5	9	7	-2	ES-4	ES-6	ES-5	ES-2	ES-2	ES-1	ES-3	ES-8	ES-17	-4	-11	ES-23	-7	5	6	5	-3	
6	-3	9	-5	C	4	3	C	ES-16	ES-14	C	ES-4	ES-5	C	ES-4	-1	C	-6	ES-12	ES-6	-12	6	7	4	9	
7	C	1	-2	C	14	1	C	-2	-4	C	ES-3	ES-5	C	ES-4	0	8	12	-8	ES-8	4	10	5	6	-3	
8	7	ES-26	-3	-13	ES-12	ES-5	ES-15	5	ES-3	ES-5	-2	ES-14	-7	ES-10	-9	ES-10	ES-12	ES-17	-19	-16	-8	-10	-14	-5	
9	-7	ES-12	-6	-12	ES-9	ES-12	ES-13	ES-11	ES-6	ES-6	ES-5	ES-12	ES-7	ES-6	-11	-12	8	-6	C	C	C	C	C	C	
10	-4	-3	-3	3	5	2	8	ES-20	ES-13	ES-16	ES-5	ES-7	ES-5	ES-7	3	-9	2	0	2	-14	-2	-1	-4	-6	
11	1	-2	5	7	11	19	-3	-4	ES-2	ES-1	ES-4	ES-2	ES-5	-5	-16	-3	5	5	5	ES-16	-10	-2	-6	-5	
12	ES-8	-3	4	12	17	18	3	ES-6	ES-4	ES-5	ES-0	ES-1	ES-3	2	-9	-3	-5	ES-9	ES-17	ES-28	ES-13	5	-1	6	
13	2	2	3	11	6	6	-5	-2	-3	ES-4	ES-17	ES-8	ES-10	ES-16	ES-13	ES-20	ES-20	ES-20	ES-20	-7	2	-7	-7		
14	8	3	5	6	-10	ES-8	ES-8	ES-7	ES-1	ES-6	ES-3	ES-4	ES-5	ES-5	ES-2	ES-9	-7	-2	-6	3	12	10	2	9	
15	26	9	9	5	-5	-7	-5	ES-2	ES-0	ES-5	ES-2	ES-0	ES-2	-6	ES-28	ES-28	ES-28	ES-12	-18	6	4	5	-1		
16	1	5	-1	7	-3	ES-6	ES-6	-5	ES-2	ES-2	ES-3	ES-2	ES-8	ES-27	ES-17	ES-27	-5	-6	-12	-18	3	7	3	-1	
17	3	4	11	11	14	1	ES-16	ES-14	ES-8	ES-4	ES-5	ES-1	ES-4	0	ES-27	ES-27	ES-27	-15	ES-3	ES-27	1	US-3	-2	-1	
18	1	3	3	10	8	8	-5	ES-7	ES-1	ES-4	ES-6	ES-2	ES-1	ES-7	-8	-1	-9	ES-13	ES-11	-18	2	ES-18	ES-11	ES-17	
19	5	1	7	15	14	6	5	ES-1	ES-1	ES-4	ES-4	ES-5	ES-2	ES-5	-4	-11	17	ES-6	-7	-6	3	0	1	2	
20	3	3	6	20	14	4	2	ES-4	ES-1	ES-3	ES-5	ES-3	ES-5	ES-15	5	0	13	1	ES-2	-3	4	1	-1	1	
21	2	8	6	12	13	20	ES-12	ES-7	ES-4	ES-2	ES-2	ES-3	ES-7	ES-2	2	ES-7	ES-7	ES-28	ES-28	-5	2	-1	2	6	
22	3	5	2	7	C	5	ES-5	ES-4	ES-3	-1	ES-2	ES-5	ES-7	ES-2	-2	8	4	5	1	-8	1	3	6	1	
23	1	7	7	9	-5	ES-4	ES-5	-1	-2	ES-2	ES-8	ES-0	ES-6	ES-0	9	4	ES-26	ES-26	-15	8	0	3	2	2	
24	2	6	12	12	6	-3	ES-8	-6	ES-1	ES-3	ES-7	ES-5	ES-6	ES-3	ES-9	ES-18	ES-14	ES-18	ES-7	-5	2	5	1	ES-1	
25	6	7	6	15	11	-5	ES-7	ES-6	ES-1	ES-7	ES-10	ES-12	ES-0	ES-2	-4	-5	4	-7	1	-2	0	6	-1	3	
26	3	5	6	11	12	12	ES-4	ES-3	ES-3	ES-3	ES-2	ES-5	ES-1	-8	-2	6	12	7	4	1	2	6	3	4	
27	4	7	7	14	17	-4	-3	ES-3	ES-1	ES-3	8	ES-8	ES-6	ES-3	5	-3	5	12	ES-1	-3	5	5	5	2	
28	6	7	ES-29	9	16	-4	ES-7	ES-10	ES-26	ES-5	ES-14	ES-7	ES-11	3	11	-2	14	13	7	2	1	4	-1	0	
29	6	10	8	11	13	5	ES-2	ES-0	ES-10	ES-2	ES-2	ES-5	ES-5	ES-6	3	5	3	1	5	1	1	2	6	3	
30	3	3	9	12	18	17	2	-7	ES-2	-3	ES-1	ES-12	ES-7	-5	7	2	1	7	4	2	3	0	3	1	
CNT	29	30	30	28	29	30	28	29	30	28	30	30	27	29	29	28	29	30	29	29	29	29	29	29	29
MED	2	4	4	10	11	4	ES-5	ES-5	ES-2	ES-4	ES-4	ES-4	ES-5	ES-4	US-2	US-6	1	US-6	ES-6	-5	2	US-3	US-2	US-1	
UD	7	9	9	15	17	18	5	ES-1	ES-2	ES-3	ES-1	ES-5	ES-3	ES-3	8	6	13	11	7	4	7	ES-7	ES-6	ES-9	
LD	-5	-8	-6	-2	ES-9	ES-7	ES-15	ES-16	ES-14	ES-8	ES-9	ES-12	ES-8	ES-12	ES-16	ES-27	ES-26	ES-26	ES-20	ES-20	-8	ES-2	ES-6	ES-6	

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

SEP 1968	FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M																							MEASURED AT HIRAISSO		
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	-10	-7	-2	0	9	12	18	18	18	14	14	12	10	C	C	C	12	12	-1	-8	-3	-5	-11	-12		
2	-17	-10	-6	-4	8	13	16	18	12	20	9	ES-10	ES-0	13	17	2	ES-11	19	US-11	-6	6	-4	-11	ES-9		
3	-1	-3	ES-8	-6	6	8	10	8	15	14	24	1	19	10	-4	ES-17	-17	-2	-10	-1	-4	-1	-8	-10		
4	ES-22	-20	-6	-1	4	17	22	20	23	20	17	19	8	7	3	7	20	6	-3	1	1	-3	-8	-9		
5	-11	-10	-4	5	11	15	15	24	20	26	18	18	ES-17	ES-3	ES-11	ES-15	-9	13	ES-23	0	-4	-2	-8	-10		
6	-14	-9	-8	0	3	13	16	17	21	14	16	15	13	-8	ES-10	ES-5	ES-12	ES-25	ES-8	-1	3	-2	-1	ES-10		
7	UC-1	-7	-2	6	6	12	13	10	18	20	15	ES-1	ES-5	ES-12	ES-11	ES-10	ES-13	7	-1	0	5	-5	-9	ES-12		
8	-8	ES-12	-5	5	7	15	22	S	19	30	19	9	17	17	15	12	9	17	-16	-2	1	-6	-9	ES-11		
9	ES-9	ES-8	ES-25	0	7	13	14	19	22	25	19	20	5	-9	ES-11	ES-12	10	10	C	C	C	C	C	-8		
10	-9	-10	-8	-2	5	10	16	17	14	14	14	12	11	10	5	ES-11	-12	15	ES-8	3	7	-2	-5	ES-14		
11	-8	-7	-8	-2	13	18	20	21	17	26	18	9	15	-2	ES-20	ES-7	22	23	ES-6	-2	4	-3	-5	-6		
12	ES-9	-2	-4	5	14	15	26	19	20	8	9	9	11	6	ES-17	ES-9	-1	ES-27	ES-11	0	8	-1	-2	ES-7		
13	-7	-12	-3	2	7	17	18	-3	15	9	2	-6	ES-9	ES-16	ES-5	ES-16	ES-20	ES-20	ES-20	-1	-4	0	-7	-6		
14	ES-8	-6	-2	5	9	18	15	16	-5	ES-2	ES-11	ES-8	ES-4	ES-11	ES-8	ES-17	-6	12	2	-3	1	0	-3	3		
15	ES-3	-4	2	7	10	15	22	21	19	19	5	ES-5	ES-2	ES-5	ES-28	ES-28	ES-28	-18	5	6	6	1	-6	ES-5		
16	-9	-9	-2	3	4	13	15	15	18	10	ES-2	ES-1	ES-8	ES-15	ES-17	ES-10	-5	14	ES-28	-3	4	-2	-7	ES-9		
17	-4	0	-4	6	7	16	19	19	20	17	-2	ES-3	ES-6	ES-27	ES-27	ES-27	ES-27	-6	ES-27	-4	-4	-5	-7	ES-4		
18	ES-12	-6	-2	8	10	16	20	19	25	19	4	2	ES-3	-13	4	ES-11	ES-13	11	ES-28	-2	5	ES-13	ES-7	ES-13		
19	ES-9	-4	-2	6	13	16	24	21	19	21	21	ES-3	ES-3	ES-3	ES-10	ES-6	ES-7	ES-27	-2	-1	7	0	-7	-5		
20	-2	-6	-2	8	15	17	18	20	13	26	-3	ES-4	ES-5	ES-15	ES-5	ES-25	0	13	6	2	1	-5	-3	ES-1		
21	ES-9	-9	1	8	14	19	19	1	ES-1	18	19	ES-3	ES-7	ES-5	1	ES-2	ES-7	ES-28	ES-28	4	2	-3	-1	ES-11		
22	-1	-6	2	8	C	21	22	21	18	23	17	ES-3	ES-1	ES-28	ES-18	ES-6	-4	14	7	3	2	-2	-5	ES-6		
23	-10	-5	-1	6	12	15	22	21	15	17	14	21	9	22	ES-26	ES-26	ES-26	ES-26	-11	-1	1	1	-5	-3		
24	-6	-2	1	8	16	18	17	-1	14	13	5	19	ES-3	ES-9	ES-17	ES-12	ES-5	-8	-11	-1	5	4	1	ES-1		
25	-4	-1	-1	10	16	15	20	21	5	16	15	ES-7	ES-3	ES-7	ES-5	-5	ES-9	-4	1	-1	1	-4	-5	-3		
26	ES-20	4	1	12	15	22	19	20	22	7	22	ES-5	ES-4	-6	ES-8	ES-19	-16	12	12	5	2	1	0	ES-1		
27	ES-6	1	-1	5	14	16	14	27	11	22	-3	-3	-2	-6	ES-19	ES-13	-1	-3	ES-1	-1	4	2	-2	ES-1		
28	ES-6	-4	-14	8	14	25	18	15	2	11	10	ES-7	ES-6	ES-11	ES-4	ES-28	ES-16	22	9	0	0	-2	-5	ES-4		
29	0	ES-1	-3	7	16	20	17	18	20	27	2	ES-5	ES-4	ES-6	ES-9	0	-11	28	13	0	2	1	5	ES-2		
30	-8	ES-4	-1	4	14	14	15	15	17	17	10	-3	ES-7	-8	ES-29	ES-5	ES-17	12	7	0	1	-4	1	-1		
CNT	30	30	30	30	29	30	30	29	30	30	30	30	30	29	29	29	30	30	29	29	29	29	29	30		
MED	ES-8	US-6	-2	5	10	16	18	19	18	18	14	ES-3	ES-2	ES-6	ES-10	ES-11	ES-9	10	US-6	-1	2	US-2	US-5	ES-6		
UD	-1	0	1	8	16	21	22	21	22	26	21	19	ES-17	13	5	2	12	22	9	4	7	ES-2	ES-1	ES-2		
LD	ES-17	ES-12	ES-8	-2	4	12	14	1	2	8	ES-3	ES-7	ES-7	ES-16	ES-27	ES-27	ES-26	ES-27	ES-28	-4	-4	ES-5	ES-9	ES-12		

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Sept. 1968	Whole Day Index	H B			W W V			L M			W W V H			Warning			Principal magnetic storms		
		06 12 18 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	00 06 12 18 06 12 18 24	Start	End	ΔH				
1	4-	C (4) C	(4) 4 (4) 3	(4) - - -	4 (4) 4 -	N N N N													
2	4o	4 4 4 4	4 4 4 4	4 4 - C	4 4 3 -	N N N N													
3	4-	4 4 3	4 4 4 3	4 4 - (4)	4 4 3 -	N N N N													
4	4-	4 4 4	(3) 4 4 4	3 4 - C	4 5 4 (4)	N N N N													
5	4o	4 4 4	4 4 4 4	4 4 - 4	4 4 4 -	N N N N													
6	4o	4 4 4	4 (3) 4 4	4 4 - (4)	4 4 4 -	N N N N	14.39	---	122 ^Y										
7	4o	4 5 4	4 3 4 4	4 (3) - -	4 4 3 -	N N N N	---	---											
8	3-	3 2 3	3 2 3 2	(4) - - -	4 5 5 -	N U U U	---	21xx											
(9)	3-	(3)(3) C	2 2 3 (3)	3 3 - (3)	4 4 4 C	U U U U													
(10)	4o	4 4 4	(4) 4 4 4	4 (4) - C	4 4 4 -	U N N N													
(11)	4o	4 C 4	4 4 4 4	4 (4) - 4	4 4 4 -	N N N N													
12	4-	4 C 4	(4) 4 3 3	4 (3) - 3	4 4 4 -	N N N N													
13	3+	3 4 3	4 4 3 2	4 (4) - (2)	4 3 4 -	N N N N													
14	4-	3 4 4	(3) 3 3 4	4 (4) - -	(4) 4 4 -	N N U U													
15	4-	5 4 4	3 3 3 4	(4) - - -	4 4 3 -	U U N N													
16	4-	3 4 4	(3) 4 3 4	4 (3) - 4	C 4 4 -	N N N N													
17	4-	4 4 4	4 3 3 4	4 3 - 4	4 4 4 -	N N N N													
18	4o	4 5 4	4 4 4 4	4 3 - C	4 4 4 -	N N N N													
19	4o	(3) 4 4	5 5 4 4	4 4 - 4	4 4 3 -	N U U U													
20	4o	4 4 4	4 3 4 5	4 3 - C	4 4 4 -	N N N N													
21	4o	4 (4)(+)	4 4 4 4	4 4 - -	4 3 3 -	N N N N													
22	4+	C C C	4 4 5 4	(4) - - C	4 4 4 -	N N N N													
23	4o	C C C	4 4 4 4	C C - (4)	4 4 4 -	N N N N													
24	4-	5 5 4	4 2 2 4	4 (3) - 4	4 4 3 -	N N N N													
25	4+	5 5 5	4 3 4 4	4 (4) - C	4 4 3 -	N N N N													
26	4+	5 5 5	4 4 4 5	4 C - 4	4 4 4 -	N N N N													
27	5-	5 5 4	5 4 4 5	5 C - (4)	4 4 4 -	N N N N													
28	4o	4 4 4	4 3 5 5	4 C - -	4 4 4 (4)	N N N N													
29	4+	4 4 (4)	5 4 4 5	(4) - - -	4 4 4 (4)	N N N N													
30	5-	5 5 4	5 5 5 4	4 (4) - 4	4 4 5 4	N N N N	23.45	---											

IQSY GEOALERT and ADALERT (Western Pacific Region)

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

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

IONOSPHERIC DATA IN JAPAN FOR SEPTEMBER 1968

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