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# IONOSPHERIC DATA IN JAPAN

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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 and Inubo Radio Wave Observatory.

	Latitude	Longitude	Site
Hiraiso	36°22.0'N.	140°37.5'E.	Isozaki-machi, Nakaminato-shi, Ibaraki-ken
Inubo	35°42.2'N.	140°51.5'E.	9912 Tennodai, Choshi-shi, Chiba-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.
$f_oEs$		The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
$f_bEs$		The lowest ordinary wave frequency at which the $Es$ layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.
$f$ -min		The frequency below which no echoes are observed.
$M(3000)F2$		The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.
$M(3000)F1$		The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.
$h'F2$		The minimum virtual height, $h'F2$ , refers to the highest, most stable stratification observed in the $F$ region and can only be scaled when such stratification is present.
$h'F$		The natural and most significant $F$ region virtual height parameter is that for lowest $F$ region stratification. This will be denoted by $h'F$ . Thus $h'F$ is identical with the current $h'F2$ when $F$ region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.
$h'Es$		The lowest virtual height of the trace used to give the $f_oEs$ .
$hpF2$		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 *Es*

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

*F* An *Es* trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat *Es* traces observed in the daytime are classified according to their virtual height: *H* or *L*.

*L* A flat *Es* trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.

*C* An *Es* trace showing a relatively symmetrical cusp at or below  $f_oE$ . This is usually continuous with the normal *E* trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)

*H* An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above  $f_oE$ . The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

*Q* An *Es* trace which is diffuse and non-blanketing over a wide

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

**R** An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation but which is nonblanketing over part or all of its frequency range. This is distinguished from the usual group retardation (as in the case of an occulting thick *E* layer) by the lack of group retardation in the *F* layer traces at corresponding frequencies and the lack of complete blanketing.

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

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

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

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

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

## B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 200 and 500 MHz at Hiraïso 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. Bracket 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



$\pm 40$  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	$\pm 40$ 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 atmospheric.
- U : Inaccurate measurement influenced by interferences, atmospheric, or non-propagational reasons.
- E : Less than the following figure.

#### b. Radio Propagation Quality Figures

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

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

The tabulated circuits contain Hamburg (commercial circuit), WWV (10, 15 and 20 MHz frequencies broadcast from Fort Collins, Colorado), Lima (commercial circuit) and WWVH (10 and 15 MHz 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's.)

#### (i) SWF

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.

#### (ii) SPA

The data of sudden phase anomaly (SPA) are prepared from the records of phase measurement of VLF radio wave propagation received at Inubo Radio Wave Observa-

tory. Characteristics of the VLF radio wave propagation are as the following table. In the last column, a spherical earth with a radius of 6371.2 km is assumed.

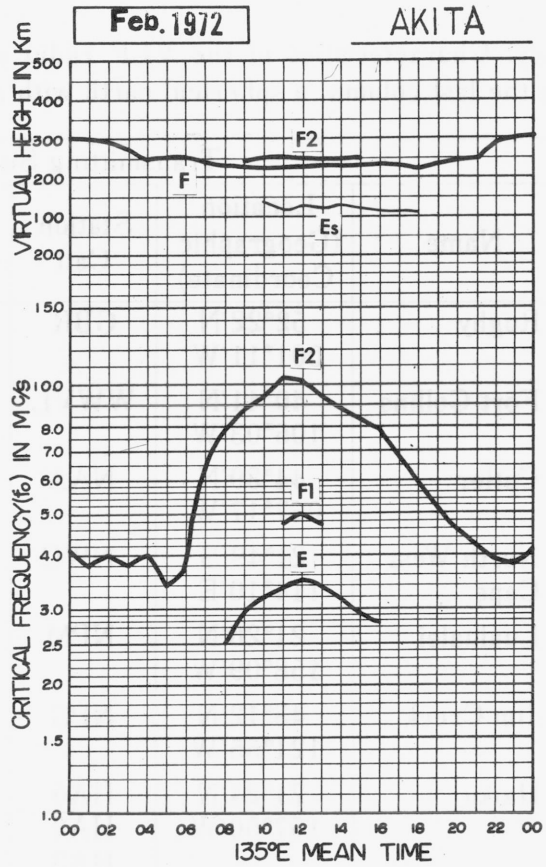
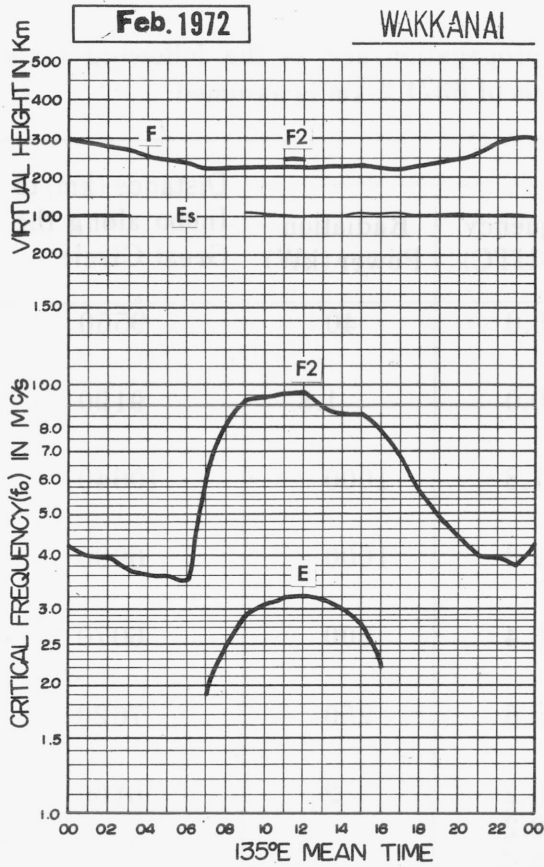
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22'N 001°11'W	GBR	16.0	40	9550
Fort Collins	40°41'N 105°03'W	WWVL	20.0	1.8	9190
Cutler	44°39'N 067°17'W	NAA	17.8	1000	10640
North West Cape	21°49'S 114°10'E	NWC	22.3	1000	6990
Lualualei	21°26'N 158°09'W	NPM	23.4	300	6070
Jim Creek	48°12'N 121°55'W	NPG	18.6	250	7620
Haiku	21°24'N 157°50'W	HA0 HA2 HA3	10.2 12.2 13.6	2	6100
Aldra	66°25'N 013°09'E	AL0 AL2 AL3	10.2 12.2 13.6	4	7820

The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

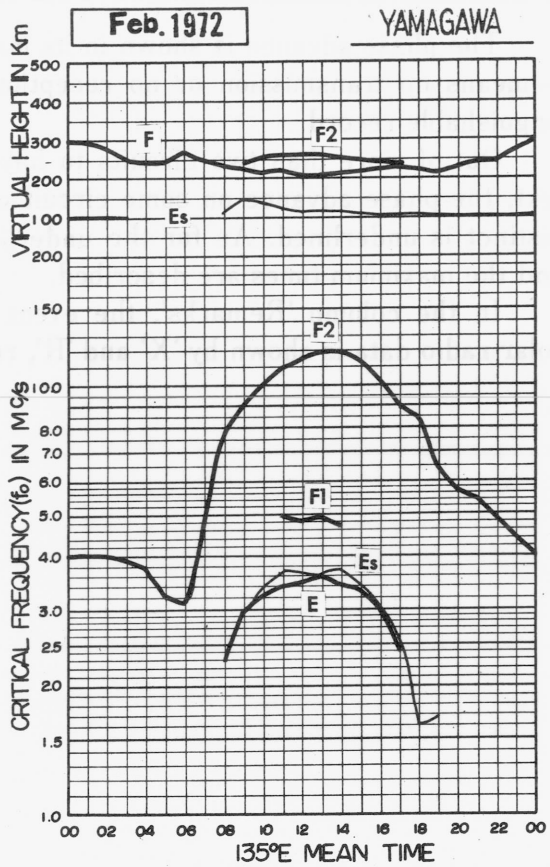
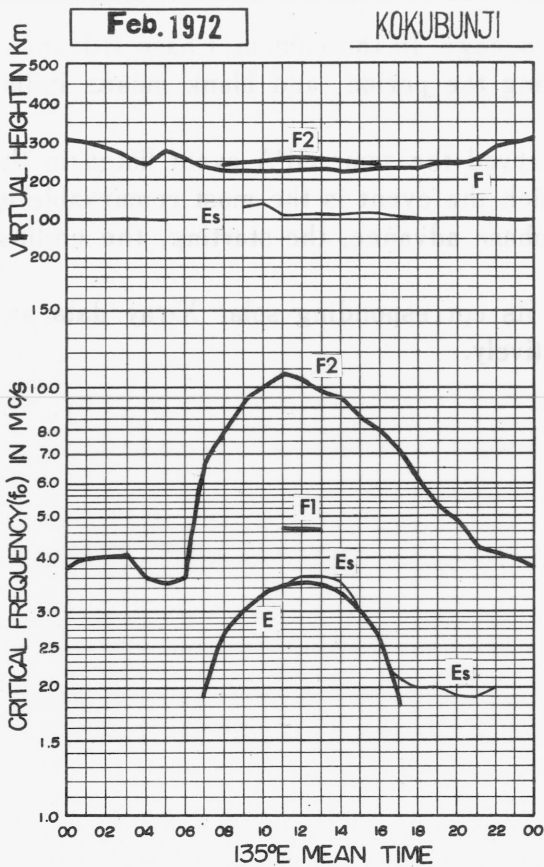
Out of more than two circuits to have observed the same SPA event listed in the text, the phase advance on some circuit on which the event is the most remarkable or distinct is underlined. As for the underlined phase advance, the starting, the ending, and the maximum times are described.

In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA

FEB. 1972

FOF2 (0.1 MHZ)

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

Station WAKKANAI Lat. 45 23.6' N. Long. 141 41.1' E Sweep 1 MHz to 20 MHz 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	F <sub>44</sub>	F <sub>43</sub>	F	F	F <sub>36</sub>	F <sub>34</sub>	55	61	R	90	82	85	82	73	71	63 <sup>H</sup>	43	30	38	32	28	28	30
2	31	32	33	35	30	27	28	46	60	69	78	81	89	89	74	85	61	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	96	90	80	78	82	68	66	60	43	35	34	34	34	35
4	34	33	33	33	34	35	30	50	C	76	79	81	83	73	88	70	60	52	45	35	36	31	33	34
5	36	36	35	36	36	34	32	53	65	73	88	86	85	83	75	70	63	53	46	41	36	33	34	33
6	33	36	33	33	32	33	27 <sup>H</sup>	48	66	73	78	96	81	83	71	75	76	53	44	36	39	37	42	41
7	43	45	44	45	S	41	35	53	66	67	78	84	80	81	81	78	73	57	51	40	38	36	S	S
8	U <sub>37</sub>	S	40	40	S	S	F	45	63	79	79	92	97	79	78	92	88	54	40	45	48	47	51	S
9	U <sub>50</sub>	S	S	S	S	51	S <sub>53</sub>	U <sub>64</sub>	69	81	76	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	81	83	83	87	86	80	64	56	45	47	46	F	F	F
11	F	F	F	F	F	F	F <sub>43</sub>	S	73	85	81	87	82	83	76	78	76	63	56	54	48	47	49	48
12	F <sub>50</sub>	49	48	44	F	F	F	56	84	80	93	88	87	80	73	73	68	55	46	43	41	40	37	36
13	39	S	40	41	40	38	S	55	77	82	83	86	86	82	75	71	66	54	46	45	42	40	39	36
14	38	39	38	30	F <sub>33</sub>	33	32	53	96	97	97	107	111	83	78	76	70	60	53	I <sub>45</sub>	39	34	33	33
15	35	34	35	36	34	33	U <sub>34</sub>	S	83	84	87	95	88	81	85	82	76	74	60	50	45	33	34	33
16	34	34	I <sub>34</sub>	36	36	31	34	63	81	87	93	92	90	84	80	82	79	64	50	48	43	34	32	33
17	34	33	35	36	I <sub>36</sub>	34	35	57	81	93	93	96	103	93	83	89	79	67	48	46	40	40	40	37
18	S	C	C	U <sub>33</sub>	30	32	S	64	91	93	127	I <sub>17</sub>	113	99	98	95	I <sub>86</sub>	76	61	56	S	S	S	S
19	S	C	S	S	60	57	60	73	83	100	119	111	116	115	103	88	78	76	76	71	58	50	I <sub>46</sub>	44
20	S	C	43	44	S <sub>50</sub>	C	C	58	83	102	103	C	108	101	110	96	90	77	66	59	50	48	49	S
21	43	S	S	S	S	F	S	88	96	98	98	102	110	102	103	100	91	82	73	57	50	45	43	45
22	45	45	45	43	43	43	47	81	96	96	112	108	111	I <sub>107</sub>	103	100	100	89	74	61	51	43	39	U <sub>38</sub>
23	40	40	41	42	43	39	45	I <sub>68</sub>	88	103	107	111	114	106	104	105	96	82	72	64	51	44	44	I <sub>44</sub>
24	46	C	C	C	47	43	50	U <sub>78</sub>	97	107	113	114	118	119	105	94	99	90	75	68	63	53	50	I <sub>52</sub>
25	46	U <sub>44</sub>	31	30	33	31	33	64	93	123	111	110	103	105	96	96	91	85	73	65	61	56	50	48
26	U <sub>44</sub>	C	C	44	41	36	I <sub>43</sub>	66	76	95	105	110	105	111	108	91	86	85	63	41	40	41	U <sub>36</sub>	S
27	43	C	43	37	40	33	C	C	81	93	R	C	C	106	95	93	83	74	66	54	43	43	44	43
28	44	43	41	37	37	37	S	71	94	106	103	108	107	104	98	91	90	90	78	66	53	S	S	S <sub>43</sub>
29	S <sub>43</sub>	I <sub>42</sub>	42	43	43	36	S <sub>43</sub>	70	85	93	105	120	113	104	91	90	86	73	62	51	45	46	44	I <sub>46</sub>
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	22	16	20	21	20	22	19	24	26	26	28	26	27	28	28	28	28	27	27	27	26	24	23	21
MED	42	40	40	37	36	36	35	60	82	93	93	96	97	88	86	86	78	67	56	48	44	40	40	38
UQ	44	44	43	43	43	39	44	69	91	98	105	110	110	104	100	94	89	80	69	58	50	46	45	44
LQ	35	34	34	35	34	33	32	53	69	80	81	86	85	82	77	76	67	56	46	42	39	34	34	34

FEB. 1972

FOF2 (0.1 MHZ)



# IONOSPHERIC DATA

FEB. 1972

FOF1 (0.01 MHZ)

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

Station **WAKKANAI** Lat.  $45^{\circ} 23.6' N$ , Long.  $141^{\circ} 41.1' E$  Sweep 1 MHz to 20 MHz 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											420	420												
2																								
3										C	390	420												
4													L											
5													L		L									
6												L	L	L										
7															L									
8												L	430	L										
9												C	C	C	C	C								
10												L												
11														L										
12												L	L											
13														L	L									
14											400													
15															L									
16																								
17																								
18													C											
19																								
20																								
21																								
22															C									
23																								
24															L									
25												400												
26															L									
27																								
28																								
29																								
30																								
31																								
CNT											2	2	2	1										
MED										400	405	420	430											
UQ																								
LQ																								

FEB. 1972

FOF1 (0.01 MHZ)



# IONOSPHERIC DATA

FEB. 1972

FOE (0.01 MHZ)

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

Station **WAKKANAI** Lat. **45° 23.6' N.** Long. **141° 41.1' E** Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	205	265	295	300	300	300	R	245	A	S						
2								S	B	B	B	B	B	B	B	B	B							
3								C	C	C	B	300	B	B	270	A	S	S						
4								A	C	270	I A 280	295	I A 300	295	280	250	200	S						
5								S	220	270	295	300	305	300	285	245	A	S						
6								S	215	275	285	300	300	300	280	245	195	S						
7								S	215	270	300	300	305	300	285	235	200	S						
8								S	220	275	300	300	305	300	285	245	195	S						
9								S	225	285	300	C	C	C	C	C	C	C						
10								C	C	C	300	305	305	305	295	275	215	S						
11								S	245	295	310	325	335	325	300	270	190	E						
12								S	235	290	305	320	320	310	300	265	A	S						
13								S	240	290	300	320	320	315	300	270	215	S						
14								S	255	295	315	320	320	I B 310	300	280	A	S						
15								C	250	295	320	325	330	330	320	275	200	A						
16								160	250	300	310	325	325	315	300	285	215	S						
17								180	270	300	310	330	325	315	305	280	230	E						
18								A	A	295	310	I C 320	330	330	310	290	225	S						
19								190	A	A	A	325	325	330	315	285	230	A						
20								185	260	A	A	C	340	330	310	295	A	C						
21								185	270	310	315	335	345	335	325	290	230	S						
22								E	195	265	300	325	335	340	I C 330	320	290	215	S					
23								C	270	305	325	330	330	325	310	300	245	A						
24								S	205	265	300	310	335	I B 330	325	315	295	225	S					
25								S	200	250	290	300	I A 310	325	330	305	295	225	S					
26								S	200	260	295	310	325	325	315	300	I A 290	220	A					
27								C	C	265	300	R	C	C	325	305	280	240	S					
28								S	180	260	300	310	310	325	315	305	290	235	S					
29								S	205	265	295	315	350	340	320	315	290	235	S					
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							1	11	23	24	24	25	25	26	26	26	21	2						
MED							E	190	250	295	310	320	325	315	302	280	220	E						
UQ								200	265	300	312	325	330	330	310	290	230							
LQ								182	230	280	300	300	305	305	295	265	200							

The Radio Research Laboratories, Japan

FEB. 1972

FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 1972

FOES (0.1 MHz)

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

Station WAKKANAI Lat. 45 23.6 N, Long. 141 41.1 E Sweep 1 MHz to 20 MHz 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	E	E <sub>17</sub>	24	G	G	G <sub>30</sub>	G	G	G	G <sub>21</sub>	21	E <sub>14</sub>	14	J <sub>24</sub>	J <sub>38</sub>	24	J <sub>23</sub>	J <sub>24</sub>	
2	E	E	E	15	15	14	J <sub>28</sub>	J <sub>23</sub>	E <sub>24</sub>	E <sub>30</sub>	E <sub>35</sub>	E <sub>38</sub>	E <sub>35</sub>	E <sub>36</sub>	E <sub>36</sub>	E <sub>27</sub>	E <sub>21</sub>	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	E <sub>32</sub>	G	E <sub>35</sub>	E <sub>34</sub>	G	33	J <sub>36</sub>	22	E	J <sub>20</sub>	J <sub>30</sub>	J <sub>35</sub>	J <sub>26</sub>	J <sub>33</sub>	
4	J <sub>24</sub>	J <sub>24</sub>	J <sub>28</sub>	14	15	15	J <sub>33</sub>	J <sub>21</sub>	C	25	33	J <sub>33</sub>	J <sub>39</sub>	30	32	20	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	E <sub>16</sub>	
5	E <sub>15</sub>	E <sub>17</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>18</sub>	G	G	G	G <sub>23</sub>	G <sub>20</sub>	G <sub>22</sub>	G	G	J <sub>25</sub>	18	J <sub>23</sub>	J <sub>25</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	J <sub>25</sub>	
6	25	J <sub>23</sub>	25	24	J <sub>25</sub>	E <sub>15</sub>	E <sub>15</sub>	21	26	27	29	21	G	G	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	
7	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	J <sub>23</sub>	E	E <sub>15</sub>	E <sub>15</sub>	G	G	J <sub>31</sub>	G	J <sub>33</sub>	G	G	G	G	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	
8	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	G	G	G	22	G	19	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	21	20	E <sub>17</sub>	
9	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E	E	E <sub>14</sub>	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C	
10	C	C	C	C	C	C	C	C	C	C	G	G	G	G <sub>24</sub>	G	G	G	E <sub>14</sub>	22	E <sub>14</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	
11	24	20	E <sub>15</sub>	E	E	E	E <sub>14</sub>	G	G	G	G	G	G	35	G	30	29	19	23	J <sub>25</sub>	J <sub>26</sub>	J <sub>40</sub>	E <sub>15</sub>	E <sub>15</sub>	
12	J <sub>21</sub>	E <sub>16</sub>	23	E	16	E	E <sub>15</sub>	G	G	30	G	35	G	G	29	31	23	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	J <sub>23</sub>	26	20	J <sub>23</sub>	
13	J <sub>21</sub>	E <sub>15</sub>	E	E	E	E <sub>14</sub>	E <sub>15</sub>	G	G	23	G	G	G	G	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>17</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	J <sub>24</sub>	
14	J <sub>23</sub>	23	16	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>16</sub>	G	24	G	G	G	G	E <sub>54</sub>	G	G	24	E <sub>14</sub>	E <sub>15</sub>	20	J <sub>23</sub>	J <sub>23</sub>	24	J <sub>23</sub>	
15	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>25</sub>	G	G	G	J <sub>33</sub>	G <sub>23</sub>	G <sub>26</sub>	G <sub>30</sub>	30	21	J <sub>26</sub>	J <sub>21</sub>	J <sub>20</sub>	E <sub>15</sub>	E <sub>15</sub>	24	22	
16	23	23	E <sub>15</sub>	E	E	E <sub>15</sub>	E <sub>15</sub>	G	21	G	G	G	G	G	22	G	G	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	22	21	
17	J <sub>26</sub>	E <sub>15</sub>	J <sub>21</sub>	J <sub>23</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	22	32	G <sub>24</sub>	G <sub>26</sub>	G	G	G	G	G	15	22	22	E <sub>15</sub>	24	E <sub>15</sub>	E <sub>15</sub>	
18	E <sub>16</sub>	C	C	E <sub>15</sub>	E <sub>16</sub>	23	27	J <sub>29</sub>	J <sub>33</sub>	G	G	C	G	G	34	G	27	18	E	20	J <sub>33</sub>	27	E <sub>15</sub>	E <sub>16</sub>	
19	E <sub>16</sub>	C	E	E	E	E	E <sub>12</sub>	G	J <sub>33</sub>	J <sub>31</sub>	J <sub>33</sub>	J <sub>40</sub>	J <sub>35</sub>	33	34	21	J <sub>30</sub>	30	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	J <sub>40</sub>	J <sub>33</sub>	
20	J <sub>23</sub>	C	20	E	E	E <sub>15</sub>	C	G	G	34	38	30	G <sub>27</sub>	G <sub>23</sub>	G <sub>22</sub>	35	J <sub>33</sub>	E <sub>20</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	24	21	E <sub>15</sub>	
21	23	E <sub>16</sub>	E	E	E	E	E <sub>15</sub>	G	G	33	G	G	G	38	34	36	34	J <sub>31</sub>	17	J <sub>33</sub>	J <sub>30</sub>	J <sub>20</sub>	J <sub>33</sub>	27	
22	E <sub>15</sub>	20	E	E	E	E	E	G	31	G	G	G	42	C	G	33	J <sub>38</sub>	J <sub>36</sub>	J <sub>40</sub>	J <sub>30</sub>	J <sub>28</sub>	J <sub>25</sub>	E <sub>16</sub>	E <sub>15</sub>	
23	E	E <sub>16</sub>	E	E	E	E	E <sub>15</sub>	C	G	G	G <sub>24</sub>	G	G	G	G	G	32	J <sub>25</sub>	J <sub>30</sub>	J <sub>25</sub>	J <sub>23</sub>	E <sub>13</sub>	22	18	
24	E <sub>15</sub>	20	J <sub>23</sub>	21	E	E	E <sub>14</sub>	G	G	25	36	30	E <sub>37</sub>	24	G	G	G	G	18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
25	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	33	G	G	G	G	G	E <sub>17</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
26	E <sub>15</sub>	E <sub>15</sub>	C	22	E	E	E <sub>17</sub>	G	G	G	G	28	G	18	27	J <sub>33</sub>	19	J <sub>24</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	
27	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E	E	C	E <sub>20</sub>	G	G	G	C	C	42	G	41	G	E <sub>18</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
28	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>16</sub>	G	22	25	24	G	G	20	23	G	15	G	18	E <sub>15</sub>	E	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	
29	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	G	G	G	G	40	34	G	E <sub>16</sub>	E	E <sub>12</sub>	J <sub>21</sub>	21	E <sub>15</sub>	
30																									
31																									
CNT	27	24	25	27	27	27	25	26	26	27	29	26	27	27	28	28	28	28	27	27	27	27	27	27	27
MED	E <sub>16</sub>	E <sub>15</sub>	15	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>15</sub>	G	G	G	G	22	G	E <sub>22</sub>	G	16	21	E <sub>17</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	
UQ	23	20	16	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>18</sub>	G	24	27	G <sub>24</sub>	32	U <sub>22</sub>	U <sub>28</sub>	27	32	28	21	20	J <sub>21</sub>	J <sub>23</sub>	24	22	
LQ	E <sub>15</sub>	E <sub>15</sub>	E	E	E	E	E <sub>15</sub>	G	G	G	G	G	G	G	G	G	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	

The Radio Research Laboratories, Japan

FEB. 1972

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1972

FBES (0.1 MHz)

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

Station WAKKANAI Lat. 45 23.6 N. Long. 141 41.1 E Sweep 1 MHz to 20 MHz 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	E	E <sub>17</sub>	G	G	G	26	G	G	G	G <sub>20</sub>	20	E <sub>14</sub>	E	20	20	E	20	17	
2	E	E	E	E	E	E	17	E	E <sub>24</sub>	E <sub>30</sub>	E <sub>35</sub>	E <sub>38</sub>	E <sub>35</sub>	E <sub>36</sub>	E <sub>36</sub>	E <sub>27</sub>	E <sub>21</sub>	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	E <sub>32</sub>	G	E <sub>35</sub>	E <sub>34</sub>	G	25	34	19	E	E	E	26	14	24	
4	20	23	E	E	E	E	23	16	C	G <sub>20</sub>	31	25	32	20	24	G <sub>20</sub>	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	E <sub>16</sub>	
5	E <sub>15</sub>	E <sub>17</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>18</sub>	G	G	G	G <sub>22</sub>	G <sub>20</sub>	G <sub>20</sub>	G	G	22	17	E	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	20	
6	E	E	E	E	E	E <sub>15</sub>	E <sub>15</sub>	G	G	G <sub>24</sub>	25	G <sub>20</sub>	G	G	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	
7	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	E <sub>15</sub>	G	G	22	G	22	G	G	G	G	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	
8	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	G	G	G	G <sub>18</sub>	G	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E <sub>17</sub>	
9	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E	E	E <sub>14</sub>	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C	
10	C	C	C	C	C	C	C	C	C	C	G	G	G	G <sub>24</sub>	G	G	G	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	
11	E	14	E <sub>15</sub>	E	E	E	E <sub>14</sub>	G	G	G	G	G	G	G	G	G	G	15	22	24	22	17	E <sub>15</sub>	E <sub>15</sub>	
12	E	E <sub>16</sub>	E	E	16	E	E <sub>15</sub>	G	G	24	G	G	G	G	G <sub>22</sub>	G <sub>22</sub>	G <sub>22</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E	E	
13	E	E <sub>15</sub>	E	E	E	E <sub>14</sub>	E <sub>15</sub>	G	G	G	G	G	G	G	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	19	
14	19	E	16	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>16</sub>	G	G	G	G	G	G	E <sub>54</sub>	G	G	G	E <sub>14</sub>	E <sub>15</sub>	E	E	22	E	23	
15	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>25</sub>	G	G	G	27	G <sub>21</sub>	G <sub>24</sub>	G <sub>22</sub>	G <sub>20</sub>	16	15	17	E	E <sub>15</sub>	E <sub>15</sub>	E	E	
16	E	E	E <sub>15</sub>	E	E	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	G	G	G	G <sub>22</sub>	G	G	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	
17	20	E <sub>15</sub>	E	20	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G <sub>21</sub>	G <sub>27</sub>	G <sub>22</sub>	G <sub>23</sub>	G	G	G	G	E	E	E	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	
18	E <sub>16</sub>	C	C	E <sub>15</sub>	E <sub>16</sub>	E	20	23	27	G	G	C	G	G	G	G	G	G	E	16	E <sub>33</sub>	18	E <sub>15</sub>	E <sub>16</sub>	
19	E <sub>16</sub>	C	E	E	E	E	E <sub>12</sub>	G	30	30	32	27	26	23	20	G <sub>20</sub>	19	19	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	27	30	
20	E	C	E	E	E	E <sub>15</sub>	C	G	G	30	33	E <sub>30</sub>	G <sub>24</sub>	G <sub>22</sub>	G <sub>21</sub>	24	24	E <sub>20</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	
21	E	E <sub>16</sub>	E	E	E	E	E <sub>15</sub>	G	G	28	G	G	G	G	G	G	33	26	E	27	16	16	17	E	
22	E <sub>15</sub>	E	E	E	E	E	E	G	18	G	G	G	G	C	G	G	38	32	38	21	E	E	E <sub>16</sub>	E <sub>15</sub>	
23	E	E <sub>16</sub>	E	E	E	E	E <sub>15</sub>	C	G	G	G <sub>23</sub>	G	G	G	G <sub>24</sub>	G	20	20	15	17	17	E <sub>13</sub>	E	E	
24	E <sub>15</sub>	18	16	18	E	E	E <sub>14</sub>	G	G	G <sub>24</sub>	29	30	E <sub>37</sub>	G <sub>23</sub>	G	G	G	G	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
25	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	33	G	G	G	G	G	E <sub>17</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
26	E <sub>15</sub>	E <sub>15</sub>	C	E	E	E	E <sub>14</sub>	G	G	G	G	G <sub>24</sub>	G	G <sub>18</sub>	G <sub>25</sub>	29	16	18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	
27	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E	E	C	E <sub>20</sub>	G	G	G	C	C	G <sub>20</sub>	G	40	G	E <sub>18</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
28	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>16</sub>	G	G	G <sub>21</sub>	G <sub>24</sub>	G <sub>24</sub>	G	G <sub>20</sub>	G <sub>22</sub>	G	15	G	E <sub>15</sub>	E	E <sub>14</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	
29	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	G	G	G	G	G	G	E <sub>16</sub>	E	E <sub>12</sub>	E	E	E <sub>15</sub>	E <sub>15</sub>	
30																									
31																									
CNT	27	24	25	27	27	27	25	26	26	27	29	26	27	27	28	28	28	27	27	27	27	27	27	27	
MED	E <sub>15</sub>	E <sub>15</sub>	E	E	E	E	E <sub>15</sub>	G	G	G	G	E <sub>20</sub>	G	G	G	G	16	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
UQ	E <sub>16</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	19	24	23	25	E <sub>20</sub>	G <sub>21</sub>	G <sub>21</sub>	20	22	17	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	E <sub>16</sub>	
LQ	E	E	E	E	E	E	E <sub>15</sub>	G	G	G	G	G	G	G	G	G	G	E <sub>14</sub>	E	E <sub>13</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	

FEB. 1972

FBES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1972

F-MIN (0.1 MHz)

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

Station WAKKANAI Lat. 45° 23.6' N. Long. 141° 41.1' E Sweep 1 MHz to 20 MHz 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	E	E <sub>17</sub>	17	20	17	18	23	20	21	17	18	E <sub>14</sub>	E	E	E	E <sub>15</sub>	E <sub>16</sub>	E	
2	E	E	E	E	E	E	E	E <sub>15</sub>	24	30	35	38	35	36	36	27	21	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	32	25	35	34	20	18	E <sub>18</sub>	E <sub>14</sub>	E	E	E <sub>14</sub>	E	E	E <sub>16</sub>	
4	E	E	E	E	E	E	E	E	C	E	14	11	11	12	15	15	16	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	E <sub>16</sub>	
5	E <sub>15</sub>	E <sub>17</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>18</sub>	17	15	12	16	16	16	18	18	15	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
6	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	16	11	15	15	13	13	15	13	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	
7	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	11	15	12	16	16	13	E	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	
8	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	17	20	21	20	20	15	18	E	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>17</sub>	
9	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E	E	E <sub>14</sub>	E <sub>15</sub>	11	16	17	C	C	C	C	C	C	C	C	C	C	C	C	C	
10	C	C	C	C	C	C	C	C	C	C	20	20	19	17	20	14	13	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	
11	E	E	E <sub>15</sub>	E	E	E	E <sub>14</sub>	E <sub>15</sub>	12	20	22	25	20	23	20	20	14	E	E <sub>15</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	E <sub>15</sub>	
12	E	E <sub>16</sub>	E <sub>15</sub>	E	E	E	E <sub>15</sub>	E <sub>15</sub>	15	18	20	21	23	22	18	16	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
13	E	E <sub>15</sub>	E	E	E	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	15	16	16	24	20	22	20	16	12	E <sub>15</sub>	E <sub>15</sub>	E <sub>17</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	
14	E	E <sub>15</sub>	E	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E	18	20	20	18	54	19	17	12	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
15	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>25</sub>	11	16	17	17	15	20	15	12	E	E	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
16	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	E <sub>15</sub>	E	11	12	17	17	17	15	15	15	11	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
17	E <sub>15</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	11	14	16	16	17	15	15	15	11	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
18	E <sub>16</sub>	C	C	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	15	11	15	16	C	17	20	16	15	16	E <sub>13</sub>	E	E	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>16</sub>	
19	E <sub>16</sub>	C	E	E	E	E	E <sub>12</sub>	E	E	E	15	15	17	16	11	E	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	
20	E <sub>15</sub>	C	E	E	E	E <sub>15</sub>	C	E	E	11	15	20	17	16	16	E	E	E <sub>20</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	
21	E <sub>15</sub>	E <sub>16</sub>	E	E	E	E	E <sub>15</sub>	14	E	11	17	16	17	13	14	11	12	E <sub>12</sub>	E	E	E	E	E <sub>15</sub>	E <sub>15</sub>	
22	E <sub>15</sub>	E <sub>14</sub>	E	E	E	E	E	14	E	15	16	16	17	C	17	17	15	E <sub>13</sub>	E	E	E <sub>15</sub>	E <sub>12</sub>	E <sub>16</sub>	E <sub>15</sub>	
23	E	E <sub>16</sub>	E	E	E	E	E <sub>15</sub>	C	16	15	18	11	20	18	18	16	16	12	E	E	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E	
24	E <sub>15</sub>	E <sub>15</sub>	E	E	E	E	E <sub>14</sub>	17	16	17	20	20	37	17	17	17	15	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
25	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	14	13	16	16	17	17	15	12	11	E <sub>17</sub>	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
26	E <sub>15</sub>	E <sub>15</sub>	C	E	E	E	E <sub>17</sub>	12	11	13	16	16	17	15	12	11	E	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>16</sub>	
27	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E	E	C	E <sub>20</sub>	11	18	17	C	C	12	18	16	15	E <sub>16</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
28	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>16</sub>	14	11	E	15	16	14	16	16	E	14	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>14</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	
29	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	14	12	12	17	17	16	15	16	15	11	E <sub>16</sub>	E	E <sub>12</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
30																									
31																									
CNT	27	24	25	27	27	27	25	26	26	27	29	26	27	27	28	28	28	27	27	27	27	27	27	27	
MED	E <sub>15</sub>	E <sub>15</sub>	E	E	E	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	11	15	17	17	17	17	16	15	12	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
UQ	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	17	20	20	20	20	18	17	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
LQ	E	E <sub>14</sub>	E	E	E	E	E <sub>14</sub>	E <sub>14</sub>	11	12	16	16	16	15	15	12	11	E <sub>12</sub>	E	E <sub>12</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	

FEB. 1972

F-MIN (0.1 MHz)



# IONOSPHERIC DATA

FEB. 1972

M(3000)F2 (0.01)

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

Station WAKKANAI Lat. 45° 23.6' N. Long. 141° 41.1' E Sweep 1 MHz to 20 MHz 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	F <sub>285</sub>	F <sub>280</sub>	F	F	F <sub>305</sub>	F <sub>320</sub>	F <sub>345</sub>	320	R	355	340	330	340	335	345	365	345	320	325	315	305	280	265
2	275	280	295	315	310	295	325	350	350	360	335	320	335	335	310	350	350	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	340	335	330	335	330	335	335	325	325	315	300	280	275	280
4	275	285	280	275	295	315	300	340	C	340	330	330	335	325	355	355	325	345	335	315	335	290	280	280
5	290	280	285	285	305	305	320	335	340	355	335	340	345	345	345	355	340	330	330	325	315	320	290	295
6	295	305	295	295	290	305	305 <sup>H</sup>	340	355	350	345	355	335	350	350	345	355	355	320	320	325	285	275	275
7	295	290	295	300	S	360	335	340	350	360	345	325	335	325	340	340	340	320	325	315	325	335	S	S
8	U <sub>285</sub>	S	300	285	S	S	F	335	350	330	320	320	345	345	330	325	365	350	300	300	315	275	280	S
9	U <sub>270</sub>	S	S	S	S	295	305 <sup>S</sup>	U <sub>345</sub>	330	335	350	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	345	335	315	345	345	350	360	320	310	300	305	F	F	F
11	F	F	F	F	F	F	F <sub>315</sub>	S	350	355	335	350	335	360	340	345	355	335	320	325	300	305	290	F <sub>285</sub>
12	285	285	290	295	F	F	F	340	360	350	345	340	345	345	340	350	355	325	310	310	310	310	325	300
13	280	S	295	295	305	325	S	325	350	340	350	335	345	340	345	340	335	335	315	310	300	285	260	265
14	270	305	320	300	290 <sup>F</sup>	260	295	325	335	350	330	320	310	335	340	340	345	310	320	320 <sup>S</sup>	310	325	285	295
15	280	295	285	305	320	285	U <sub>310</sub>	S	350	345	335	320	335	320	330	330	335	335	315	320	320	295	290	290
16	290	295	U <sub>290</sub>	285	310	315	300	350	345	345	330	325	315	335	330	330	340	330	310	320	315	325	290	280
17	290	280	270	280	U <sub>300</sub>	305	325	340	345	345	305	325	320	330	330	335	340	325	310	315	320	320	300	305
18	S	C	C	U <sub>280</sub>	280	255	S	340	335	310	325	U <sub>325</sub>	325	335	350	325	U <sub>335</sub>	320	310	305	S	S	S	S
19	S	C	S	S	300	300	310	335	330	310	325	315	310	315	330	335	335	305	310	325	310	285	U <sub>290</sub>	295
20	S	C	255	265	280 <sup>S</sup>	C	C	330	345	335	330	C	315	295	320	335	320	330	305	300	290	290	290	S
21	290 <sup>S</sup>	S	S	S	S	F	S	340	355	335	330	310	325	305	325	320	325	320	315	305	295	280	275	260
22	275	285	285	270	265	280	320	345	360	360	320	320	325	U <sub>315</sub>	330	315	340	330	310	310	320	295	280	U <sub>285</sub>
23	275	275	285	280	290	305	320	U <sub>350</sub>	365	335	335	325	335	330	325	325	345	315	305	305	325	295	280	U <sub>280</sub>
24	260	C	C	C	290	290	320	U <sub>345</sub>	355	335	335	300	315	320	325	310	330	310	310	290	285	265	240	U <sub>255</sub>
25	265	U <sub>295</sub>	250	255	265	250	285	295	325	330	325	325	330	325	335	330	325	325	315	295	295	295	280	290
26	U <sub>275</sub>	C	C	275	300	280	U <sub>300</sub>	325	330	325	335	325	325	325	335	335	330	335	315	295	290	290	U <sub>280</sub>	S
27	275	C	290	295 <sup>S</sup>	300	305	C	C	345	340	R	C	C	320	325	330	335	325	330	300	280	285	275	280
28	285	285	305	305	295	270	S	330	320	340	310	320	320	325	345	325	325	325	335	325	320	S	S	280 <sup>S</sup>
29	285 <sup>S</sup>	U <sub>290</sub>	285	290	295	305	280 <sup>S</sup>	345	340	325	315	325	330	330	320	335	340	335	320	315	290	285	285	U <sub>290</sub>
30																								
31																								
CNT	22	16	20	21	20	22	19	24	26	26	28	26	27	28	28	28	28	27	27	27	26	24	23	21
MED	280	285	288	285	295	302	310	340	345	340	335	325	330	330	332	335	340	325	315	315	310	292	280	280
UQ	290	295	295	295	302	305	320	345	350	350	342	335	335	340	342	345	348	335	320	320	320	308	290	290
LQ	275	282	282	280	290	280	300	332	335	335	325	320	320	322	328	328	332	320	310	302	295	285	278	280

FEB. 1972

M(3000)F2 (0.01)

### IONOSPHERIC DATA

FEB. 1972
M(3000)F1 (0.01)
135 E Mean Time (G. M. T. + 9h)

Station WAKKANAI Lat. 45° 23.6' N. Long. 141° 41.1' E Sweep 1 MHz to 20 MHz 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											380	380												
2																								
3										C	385	405												
4													L											
5													L		L									
6												L	L	L										
7															L									
8												L	390	L										
9											C	C	C	C	C									
10											L													
11														L										
12												L	L											
13														L	L									
14											410													
15															L									
16																								
17																								
18												C												
19																								
20																								
21																								
22															C									
23																								
24																L								
25												375												
26															L									
27																								
28																								
29																								
30																								
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										2	2	2	1											
MED										392	382	392	390											
UQ																								
LQ																								

FEB. 1972
M(3000)F1 (0.01)



# IONOSPHERIC DATA

FEB. 1972

H<sup>o</sup>F2 (KM)

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

Station	WAKKANAI																							
Lat.	45° 23.6' N. Long. 141° 41.1' E																							
Sweep	1 MHz to 20 MHz 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											240	255												
2																								
3											C	250	250											
4													245											
5													240		230									
6												250	240	250										
7															245									
8												260	245	235										
9												C	C	C	C	C								
10												230												
11														250										
12												245	245											
13														250	245									
14										225														
15															260									
16																								
17																								
18												C												
19																								
20																								
21																								
22															C									
23																								
24															235									
25										260														
26															L									
27																								
28																								
29																								
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										2	2	6	5	4	5									
MED										242	245	250	245	250	245									
UQ											255	245	250	245										
LQ											245	240	242	235										

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H<sup>o</sup>F2 (KM)

### IONOSPHERIC DATA

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H<sup>o</sup>F (KM)

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

Station WAKKANAI Lat. 45 23.6 N. Long. 141 41.1 E Sweep 1 MHz to 20 MHz 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	285	280	265	235	240	245	225	220	200	235	220	205	200	230	215	215	240	260	255	260	360	355	
2	310	300	285	250	235	300	260	225	220	220	240	250	250	250	245	240	220	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	220	235	235	245	215	225	235	200	225	250	260	335	315	345
4	340	325	325	320	295	255	290	225	C	220	220	220	220	220	225	210	205	205	220	250	235	265	300	305
5	275	290	305	290	250	250	225	210	210	210	200	220	230	210	215	220	210	220	220	215	240	250	285	310
6	300	260	270	270	300	290	200	210	210	220	200	240	225	225	210	215	220	200	230	225	240	290	300	310
7	275	265	260	260	230	200	225	215	210	215	225	225	225	220	210	225	225	210	220	235	230	250	295	320
8	300	275	270	275	255	210	220	210	215	225	235	240	220	220	220	220	215	200	245	260	225	285	270	255
9	275	275	270	265	250	220	230	215	205	225	220	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	225	205	230	215	235	220	205	210	220	250	245	270	250	270
11	290	275	295	285	260	225	210	220	220	225	225	240	230	230	225	245	220	210	225	250	265	250	275	295
12	270	255	270	270	275	245	250	225	220	220	225	220	225	220	215	225	220	210	225	240	250	255	260	295
13	310	310	275	270	245	225	240	215	220	220	220	210	215	215	210	230	210	210	230	245	245	275	325	345
14	320	265	235	280	275	345	290	230	235	205	220	225	225	220	230	240	220	215	225	225	250	275	280	345
15	300	300	300	270	230	270	240	230	225	220	230	225	230	225	235	245	245	225	225	230	230	260	295	300
16	300	295	300	280	250	240	250	220	220	210	210	225	225	230	240	240	225	215	220	225	235	250	260	310
17	320	305	305	310	260	250	230	210	225	230	210	225	220	225	225	225	230	220	245	250	250	260	275	300
18	300	C	C	305	295	345	305	225	220	210	250	230	225	225	220	225	220	220	220	245	260	270	260	295
19	300	C	260	260	250	245	220	220	220	220	205	225	230	220	225	225	225	245	245	225	230	245	300	310
20	320	C	325	305	260	280	C	210	215	230	215	C	205	220	235	225	220	210	235	230	250	250	260	285
21	270	275	275	270	250	260	250	215	210	210	220	200	225	225	225	245	225	215	215	240	250	260	300	310
22	300	280	260	290	285	275	225	220	220	220	210	220	235	225	230	235	225	220	245	235	225	250	275	300
23	300	300	285	270	260	245	215	205	220	230	225	230	220	225	225	220	220	215	215	215	225	250	280	300
24	310	310	300	295	245	240	245	220	220	205	220	230	225	220	210	220	230	225	220	250	250	285	365	320
25	275	265	305	370	335	350	300	250	225	220	225	210	225	230	220	230	220	220	225	235	250	250	265	280
26	300	305	C	290	245	265	250	230	220	230	220	205	210	215	220	230	230	220	205	235	265	260	295	310
27	300	275	260	265	250	245	240	220	220	220	235	C	C	245	220	245	225	215	215	215	225	290	295	275
28	275	250	245	260	260	305	260	225	225	225	225	205	230	225	230	245	245	245	215	225	220	245	270	275
29	275	285	275	270	250	250	225	220	220	225	235	245	230	225	240	235	225	220	210	225	275	275	290	280
30																								
31																								
CNT	27	24	25	27	27	27	26	27	26	27	29	26	27	28	28	28	28	27	27	27	27	27	27	27
MED	300	282	275	270	250	250	240	220	220	220	220	225	225	225	225	228	220	215	225	235	245	260	285	300
UQ	305	300	300	290	268	278	250	225	220	225	225	230	230	225	230	240	225	220	230	250	250	275	300	310
LQ	275	270	270	268	248	240	225	215	215	212	220	220	220	220	215	222	220	210	220	225	230	250	270	290

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H<sup>o</sup>F (KM)

# IONOSPHERIC DATA

FEB. 1972

H<sup>o</sup>ES (KM)

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

Station WAKKANAI Lat. 45° 23.6' N, Long. 141° 41.1' E Sweep 1 MHz to 20 MHz 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	E	S	140	G	G	105	G	G	G	110	110	S	115	110	105	110	105	110
2	E	E	E	110	110	110	110	110	B	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	B	G	B	B	G	105	105	115	E	110	110	110	110	105
4	105	100	100	100	105	105	110	110	C	105	100	100	100	100	100	100	G	S	S	S	S	S	S	S
5	S	S	S	E	S	S	S	S	G	G	G	105	100	100	G	G	110	100	100	100	S	S	S	100
6	100	100	100	100	100	S	S	150	155	110	110	105	G	G	G	G	G	S	S	S	S	S	S	S
7	S	S	S	100	E	S	S	G	G	110	G	110	G	G	G	G	105	S	S	S	S	S	S	S
8	S	S	S	E	S	S	S	G	G	G	G	G	G	G	100	G	100	S	S	S	S	105	100	S
9	S	S	S	S	E	E	S	G	G	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	G	G	G	100	G	G	G	S	110	S	S	E	E	S
11	100	100	S	E	E	E	S	G	G	G	G	G	G	125	G	125	115	110	110	110	105	105	S	S
12	100	S	100	E	100	E	S	G	G	110	G	125	G	G	100	115	100	S	S	S	110	110	105	105
13	100	S	E	E	E	S	S	G	G	110	G	G	G	G	G	G	G	S	S	S	S	S	S	105
14	100	100	100	S	E	S	S	G	110	G	G	G	G	B	G	G	110	S	S	105	105	105	100	100
15	S	S	S	S	S	S	S	C	G	G	G	105	105	105	100	100	100	100	100	100	S	S	100	100
16	100	100	S	E	E	S	S	G	110	G	G	G	G	G	105	G	G	S	E	S	S	S	100	100
17	100	S	100	105	S	S	S	G	110	110	110	105	G	G	G	G	G	100	100	100	S	105	S	S
18	S	C	C	S	S	110	110	110	105	G	G	C	G	G	135	G	120	120	E	105	105	105	S	S
19	S	C	E	E	E	E	S	G	105	105	105	105	100	100	100	100	100	100	S	S	S	S	105	100
20	100	C	105	E	E	S	C	G	G	105	105	105	100	100	100	100	100	C	S	S	S	105	105	S
21	100	S	E	E	E	E	S	G	G	110	G	G	G	155	150	125	115	110	110	105	105	105	105	105
22	S	100	E	E	E	E	E	G	105	G	G	G	125	C	G	120	110	110	105	105	105	105	S	S
23	E	S	E	E	E	E	S	C	G	G	105	G	G	G	105	G	105	105	105	105	105	S	105	100
24	S	110	110	105	E	E	S	G	G	110	110	110	B	105	G	G	G	G	100	S	S	S	S	S
25	S	S	S	S	S	S	S	G	G	G	G	105	G	G	G	G	G	S	S	S	S	S	S	S
26	S	S	C	105	E	E	S	G	G	G	G	105	G	105	100	100	105	100	S	S	S	S	S	S
27	S	S	E	S	E	E	C	C	G	G	G	C	C	120	G	115	G	S	S	S	S	S	S	S
28	S	S	S	S	E	S	S	G	105	105	105	G	105	100	G	100	G	140	S	E	S	S	S	S
29	S	E	S	S	S	S	S	G	G	G	G	G	G	G	120	125	110	S	E	S	105	100	S	S
30																								
31																								
CNT	10	7	7	7	4	3	3	4	9	11	8	13	7	12	12	14	17	12	10	11	10	12	11	11
MED	100	100	100	105	102	110	110	110	110	110	105	105	100	102	100	108	105	108	105	105	105	105	105	100
UQ	100	100	102	105	108	110	110	130	110	110	110	105	105	112	112	120	110	112	110	108	105	108	105	105
LQ	100	100	100	100	100	108	110	110	105	105	105	105	100	100	100	100	100	100	100	102	105	105	100	100

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H<sup>o</sup>ES (KM)

### IONOSPHERIC DATA

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TYPES OF ES

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

Station WAKKANAI Lat. 45° 23.6' N. Long. 141° 41.1' E Sweep 1 MHz to 20 MHz 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									H			t				t	t		F	F	F	F	F	F	
2				F	F	F	F	t																	
3															t	t	t		F	F	F	F	F	F	
4	F	F	F	F	F	F	F	t		t	t	t	t	t	t	t									
5												t	t	t			t	t	F	F				F	
6	F	F	F	F	F			H	H	t	t	t													
7				F						t	t						t								
8															t		t					F	F		
9																									
10														t					F						
11	F	F											F		F	F	F	t	F	F	F	F			
12	F		F		F					t		F		t	F	t					F	F	F	F	
13	F									t														F	
14	F	F	F						t								t		F	F	F	F	F	F	
15											t	t	t	t	t	t	t	t	F	F			F	F	
16	F	F							t						t									F	F
17	F		F	F					t	t	t	t						t	F	F		F			
18					F	F	t		t						H		F	F		F	F				
19									t	t	t	t	t	t	t	t	t	t					F	F	
20	F		F						t	t	t	t	t	t	t	t	t					F	F		
21	F								t				H	H	F	F	F	F	F	F	F	F	F	F	
22		F							t				F		F	F	F	F	F	F	F	F	F	F	
23										t					t		t	t	F	F	F		F	F	
24		F	F	F					t	t	t				t				F						
25											t														
26				F							t		t	t	t	t	t	t							
27													F	F	F	F									
28									t	t	t		t	t		t		H							
29														F	F	t					F	F			
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																									
MED																									
UQ																									
LQ																									

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TYPES OF ES



# IONOSPHERIC DATA

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FOF2 (0.1 MHz)

135° E Mean Time (G. M. T. + 9h)

Station	AKITA																							Lat. 39° 43.5' N.	Long. 140° 08.2' E	Sweep 1 MHz to 20 MHz 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	33	F <sub>34</sub>	F	F	F	F	F	58	72	76	85 <sub>H</sub>	90	79	91	79 <sub>H</sub>	77 <sub>H</sub>	70	55	35	31	38	28	26	27																								
2	28	30	33	34	26	27	29	64	69	74 <sub>H</sub>	70 <sub>H</sub>	86	91	88	85	76	72	54	52	34	33	30	34 <sub>F</sub>	35 <sub>F</sub>																								
3	38	35	F <sub>38</sub>	F	47	42	29	55	72	81	82	96	93	80	79	69	63	67	53	39	35	36	33	34																								
4	35	35	36	34	36	31	32	53	68	77	86	91	84	93	84	79	67	51	41	45	36	31	31	33																								
5	36	34	36	36	38	36	38	57	64	75	81	105	95	82	76	78	65	54	51	51	40	F	F	F																								
6	F	33	34	32	31	31	36	49	60	76	80	96	102	86	76	78	73	59	33	41	38	36	38	F <sub>37</sub>																								
7	F	F <sub>38</sub>	40	41	48	27	27	57	63	I <sub>71</sub> C	76	83	93	89	86	75	69	59	56	46	40	35	32	F <sub>36</sub>																								
8	40	F	F	F	F	F <sub>33</sub>	26	51	61	67	81	92	105	88	77	83	83	61	37	39	42	37	F	F																								
9	F	38	41	40	44	36	37	58	70	84	88	86	86	74	79	70	65	58	46	46	53	42	F	38																								
10	F	F	F <sub>45</sub>	49	F	F	F <sub>40</sub>	57	74	78	84	87	89	93	91	87	69	53	47	44	48	46	45	44																								
11	46	47	46	48	46	47	41	61	74	87	94	81	91	79	84	78	79	64	61	51	47	46	43	47																								
12	48	F	F	49	46	48	45	72	77	85	90	103	99	78	74	76	71	63	47	47	46	41	37	34																								
13	33	35	34	36	36	36	33	57	74	81	82	96	91	79	76	71	69	64	49	48	43	39	38	37																								
14	39	44	35	26	29	29	30	58	89	98	96	110	116	88	81	77	70	67	58	46	38	35	33	32																								
15	32	34	34	37	33	30	32	58	79	88	98	94	100	89	86	84	77	74	63	56	39	35	34	32																								
16	34	36	37	36	36	30	33	67	92	89	88	90	93	90	88	81	76	66	55	52	44	38	33	33																								
17	36	37	36	36	37	33	36	68	81	98	93	89	99	102	91	80	83	64	55	48	48	42	37	35																								
18	38	37	37	38	32	32	37	62	96	97	I <sub>22</sub> B	132	119	103	96	96	83	75	61	60	55	48	50	48																								
19	45	46	47	46	46	45	43	67	89	107	127	115	116	113	102	94	81	75	80	78	57	53	49	49																								
20	45	F <sub>44</sub>	44	45	44	F	46	70	79	100	112	110	107	101	105	111	89	83	65	65	56	48	F	F																								
21	59	F	F	F	F	F	F <sub>58</sub>	85 <sub>B</sub>	101	103	100	108 <sub>R</sub>	107	115	107	100	100	86	73	62	49	47	45	46																								
22	F <sub>47</sub>	50	49	44	F <sub>46</sub>	F <sub>46</sub>	52	84	97	97	105	116	112	108	108	101	106	98	82	67	56	45	40	40																								
23	41	40	41	43	42	39	40	75	96	95	108	111	112	113	101	100	99	82	69	70	56	46	42	43																								
24	45	44	45	45	46	44	50	78	101	104	106	113	117	121	115	101	98	88	80	73	71	61	50	57																								
25	58	52	38	37	40	36	40	72	120	115	131	120	114	106	104	99	96	90	78	75	75	67	58	53																								
26	52	50	49	50	46	42	47	71	87	110	119	114	112	112	115	104	92	85	68	45	42	42	40	39																								
27	41	43	42	38	34	31	37	69	85	87	100	111	112	109	105	92	84	79	69	55	46	F <sub>46</sub>	F	49																								
28	46	45	42	36	35	33	37	70	94	101	103	111	122	113	100	94	90	87	82	58	51	46	45	45																								
29	47	47	46	45	43	F	F <sub>49</sub>	F <sub>71</sub>	92	96	99	116	124	110	94	95	90	80	60	52	48	47	46	46																								
30																																																
31																																																
CNT	25	25	25	25	25	24	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	24	26																								
MED	41	38	40	38	40	34	37	64	79	88	94	103	102	93	88	83	79	67	58	51	46	42	39	38																								
UQ	46	45	45	45	46	42	44	71	92	98	105	111	112	109	102	96	90	82	69	60	53	46	45	46																								
LQ	36	35	36	36	35	31	32	57	72	78	84	90	93	88	79	77	70	59	49	45	40	36	34	34																								

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FOF2 (0.1 MHz)

### IONOSPHERIC DATA

FEB. 1972

FOF1 (0.01 MHZ)

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

Station	AKITA																							
Lat. 39° 43.5' N. Long. 140° 08.2' E	Sweep 1 MHz to 20 MHz 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	450	L	500	L	L								
2										L	L	L	L	410	L	L								
3										L	L	L	L	L	L	L								
4										L	L	L	A	L	L	L								
5										L	L	440	L	L	L	L								
6										350	L	U 470	L	L	L	L								
7										C	L	L	L	L	L	L								
8											L	L	L	L	L	L								
9											L	L	L	L	L	L								
10											L	L	U 500	L	L	L								
11											L	L	L	L	L	L								
12											L	500	L	L	L	L								
13											L	L	480	L	L	U 400								
14											L	L	510	L	L	L								
15											L	L	U 450	U 500	L	L	L							
16											L	L	L	L	L	L								
17											L	L	L	U 500	500	L								
18									300	L	L	500	L	L	L									
19									320	L	L	450	L	L	L									
20										L	L	L	L	L	L	L								
21									320	L	L	L	460	L	L	L								
22											450	L	L	460	L									
23											L	U 500	420	500	L	L	L							
24											430	500	L	L	L	L								
25										L	L	L	L	L	L	L								
26											L	L	L	500	470	L	L							
27											L	L	490	L	L	L								
28									L	L	410	L	L	L	L	L								
29									250	310	L	L	U 450	L	U 460	L	L							
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							1	4	1	3	12	7	7	1										
MED							250	315	350	430	475	500	470	U 400										
UQ							320			440	500	500	500											
LQ							305			420	450	475	460											

FEB. 1972

FOF1 (0.01 MHZ)



# IONOSPHERIC DATA

FEB. 1972

FOE (0.01 MHz)

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

Station **AKITA** Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz 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								B	250	290	320	I <sup>A</sup> 325	335	320	295	260	215	A						
2								B	230	290	310	I <sup>A</sup> 320	330	R	330	305	280	235	S					
3								B	250	290	305	A	A	330	315	280	A	A						
4								B	255	I <sup>A</sup> 290	310	325	335	I <sup>A</sup> 325	I <sup>A</sup> 310	285	A	S						
5								B	235	290	310	315	335	A	A	I <sup>A</sup> 285	I <sup>A</sup> 225	B						
6								B	250	I <sup>A</sup> 285	I <sup>A</sup> 310	320	335	325	310	285	230	B						
7								B	250	I <sup>C</sup> 285	310	325	335	325	305	I <sup>A</sup> 265	215	B						
8								A	245	290	315	I <sup>A</sup> 325	I <sup>A</sup> 330	325	305	275	235	B						
9								B	250	290	310	I <sup>A</sup> 320	335	330	310	290	A	B						
10								B	250	I <sup>A</sup> 290	A	A	A	I <sup>A</sup> 330	I <sup>A</sup> 320	285	240	B						
11								B	260	B	B	B	345	345	335	I <sup>A</sup> 310	265	B						
12								B	255	295	I <sup>A</sup> 320	340	I <sup>A</sup> 345	I <sup>A</sup> 340	330	295	255	B						
13								200	I <sup>A</sup> 255	300	320	340	350	340	325	290	250	B						
14								B	265	295	320	340	350	340	320	295	250	B						
15								A	255	300	325	345	350	I <sup>B</sup> 345	335	300	255	A						
16								B	265	305	325	345	355	345	330	310	255	A						
17								210	275	305	320	340	340	335	330	295	A	S						
18								B	260	305	I <sup>A</sup> 315	335	345	350	325	305	255	S						
19								B	260	305	I <sup>A</sup> 320	340	350	350	330	290	250	S						
20								B	235	300	320	345	A	A	330	A	A	B						
21								B	255	300	320	340	I <sup>A</sup> 350	350	325	300	255	150						
22								B	255	300	320	335	355	350	330	305	250	S						
23								B	280	310	340	350	360	350	320	I <sup>A</sup> 260	195	S						
24								195	275	305	320	340	350	350	315	305	250	160						
25								B	260	300	310	335	I <sup>A</sup> 345	350	320	300	250	B						
26								195	270	305	330	345	355	345	325	300	250	B						
27								B	255	295	315	340	350	340	330	295	A	B						
28								195	H 255	300	310	320	350	330	310	290	255	B						
29								B	270	305	330	350	355	340	315	295	A	S						
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								5	29	28	27	26	26	27	28	28	22	2						
MED								195	255	300	320	340	348	340	320	292	250	155						
UQ								200	260	305	320	340	350	348	330	300	255							
LQ								195	250	290	310	325	335	330	310	285	235							

FEB. 1972

FOE (0.01 MHz)

IONOSPHERIC DATA

FEB. 1972

FOES (0.1 MHz)

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

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz 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 <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E	E	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	G	J <sub>38</sub>	34	G	G	G	G	26	J <sub>21</sub>	E <sub>14</sub>	J <sub>23</sub>	E <sub>14</sub>	J <sub>23</sub>	E <sub>14</sub>	E <sub>14</sub>
2	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>13</sub>	J <sub>23</sub>	M <sub>21</sub>	J <sub>21</sub>	26	G	G	34	G	G	G	G	G	E <sub>17</sub>	J <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>36</sub>
3	E <sub>14</sub>	E	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	G	G	J <sub>34</sub>	J <sub>44</sub>	J <sub>36</sub>	G	G	29	J <sub>27</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
4	J <sub>43</sub>	J <sub>41</sub>	J <sub>23</sub>	J <sub>18</sub>	J <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	30	37	J <sub>28</sub>	J <sub>53</sub>	J <sub>43</sub>	J <sub>42</sub>	J <sub>28</sub>	J <sub>25</sub>	J <sub>32</sub>	J <sub>20</sub>	J <sub>17</sub>	J <sub>17</sub>	J <sub>18</sub>	J <sub>39</sub>	E <sub>14</sub>
5	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>18</sub>	G	G	G	G	32	34	32	30	24	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>26</sub>	E <sub>14</sub>
6	E <sub>14</sub>	E	E <sub>14</sub>	J <sub>17</sub>	J <sub>17</sub>	E	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	29	33	J <sub>33</sub>	35	G	G	G	G	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
7	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	J <sub>26</sub>	C	G	G	J <sub>41</sub>	J <sub>33</sub>	J <sub>32</sub>	J <sub>32</sub>	G	E <sub>19</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
8	E <sub>14</sub>	J <sub>17</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	23	27	G	33	J <sub>43</sub>	35	G	G	G	J <sub>24</sub>	E <sub>18</sub>	E <sub>14</sub>	J <sub>19</sub>	E <sub>14</sub>	J <sub>19</sub>	E <sub>14</sub>	J <sub>26</sub>
9	J <sub>24</sub>	M <sub>19</sub>	J <sub>25</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	G	J <sub>33</sub>	J <sub>34</sub>	G	G	G	G	J <sub>24</sub>	E <sub>18</sub>	J <sub>25</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
10	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>21</sub>	J <sub>26</sub>	32	33	34	35	35	33	G	G	E <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
11	E <sub>14</sub>	E <sub>14</sub>	M <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>22</sub>	G	E <sub>33</sub>	E <sub>37</sub>	40	39	G	G	35	G	E <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>26</sub>	J <sub>38</sub>
12	J <sub>29</sub>	J <sub>38</sub>	J <sub>27</sub>	J <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>22</sub>	G	J <sub>38</sub>	36	G	J <sub>40</sub>	42	G	G	G	E <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>18</sub>	M <sub>21</sub>	E <sub>14</sub>	E <sub>14</sub>
13	M <sub>21</sub>	J <sub>18</sub>	J <sub>19</sub>	M <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	G	30	32	G	G	G	G	G	G	G	E <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
14	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>22</sub>	G	33	G	G	G	G	G	G	G	E <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>23</sub>	J <sub>25</sub>	J <sub>24</sub>	J <sub>33</sub>
15	J <sub>26</sub>	J <sub>17</sub>	E <sub>14</sub>	J <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	25	28	G	G	G	G	E <sub>37</sub>	G	G	G	J <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
16	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>21</sub>	G	G	G	G	G	G	G	J <sub>37</sub>	28	24	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
17	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	G	G	34	33	J <sub>40</sub>	J <sub>29</sub>	J <sub>20</sub>	J <sub>40</sub>	J <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
18	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	G	J <sub>33</sub>	G	41	41	42	41	J <sub>53</sub>	J <sub>46</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>31</sub>	J <sub>15</sub>	E <sub>14</sub>
19	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>20</sub>	G	G	34	G	G	G	30	30	23	J <sub>24</sub>	J <sub>22</sub>	J <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
20	E <sub>14</sub>	E <sub>14</sub>	J <sub>26</sub>	J <sub>23</sub>	J <sub>19</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	34	42	41	J <sub>42</sub>	J <sub>60</sub>	G	34	32	J <sub>27</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>28</sub>	E <sub>14</sub>	E <sub>14</sub>	M <sub>23</sub>
21	M <sub>22</sub>	J <sub>18</sub>	E <sub>14</sub>	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>18</sub>	G	G	G	39	40	G	42	G	33	J <sub>28</sub>	J <sub>23</sub>	J <sub>19</sub>	J <sub>29</sub>	J <sub>28</sub>	E <sub>14</sub>	J <sub>28</sub>
22	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>18</sub>	G	G	G	44	48	40	35	41	34	J <sub>28</sub>	J <sub>25</sub>	J <sub>21</sub>	J <sub>18</sub>	J <sub>25</sub>	J <sub>20</sub>	J <sub>39</sub>
23	J <sub>23</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>20</sub>	G	34	40	42	40	39	37	J <sub>46</sub>	25	20	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	J <sub>19</sub>	E <sub>14</sub>
24	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	32	G	G	G	G	G	G	J <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
25	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>21</sub>	G	G	G	G	39	G	G	G	G	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
26	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	M <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	G	G	G	G	G	E <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
27	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	G	G	37	G	37	35	33	27	20	M <sub>22</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
28	E <sub>14</sub>	E <sub>14</sub>	E	E	E	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	G	G	G	39	34	29	J <sub>25</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
29	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E	E <sub>13</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>20</sub>	G	G	G	G	39	36	34	34	25	20	17	E <sub>14</sub>	M <sub>21</sub>	E <sub>14</sub>	E <sub>14</sub>	M <sub>21</sub>
30																								
31																								
CNT	29	29	29	29	29	29	29	29	29	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29
MED	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>19</sub>	G	G	G	28	35	G	G	G	26	24	20	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
UQ	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>21</sub>	G	30	33	34	40	37	34	34	28	J <sub>27</sub>	J <sub>20</sub>	E <sub>14</sub>	17	18	E <sub>14</sub>	21
LQ	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>B</sub> <sub>18</sub>	G	G	G	G	G	G	G	G	G	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>

The Radio Research Laboratories, Japan

FEB. 1972

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1972

FBES (0.1 MHz)

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

Station	AKITA																								
	Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz 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 <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E	E	E <sub>14</sub>	E <sub>19</sub>	G	G	30	34	G	G	G	G	26	20	E <sub>14</sub>	E	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	
2	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	13	E	E	20	26	G	G	34	G	G	G	G	G	E <sub>17</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	2U	
3	E <sub>14</sub>	E	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>19</sub>	G	G	G	34	37	27	G	G	28	18	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	
4	25	27	17	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>19</sub>	G	30	37	27	46	40	35	24	24	27	18	E	E	E	24	E <sub>14</sub>	
5	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>18</sub>	G	G	G	G	32	34	32	29	24	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	19	E <sub>14</sub>
6	E <sub>14</sub>	E	E <sub>14</sub>	E	15	E	E <sub>14</sub>	E <sub>19</sub>	G	29	32	29	35	G	G	G	G	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
7	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>19</sub>	22	C	G	G	29	28	25	30	G	E <sub>19</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
8	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	23	27	G	33	36	35	G	G	G	20	E <sub>18</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E	E <sub>14</sub>	26	
9	E	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>19</sub>	G	G	29	34	G	G	G	G	24	E <sub>18</sub>	18	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
10	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>21</sub>	22	32	33	34	35	35	33	G	G	E <sub>19</sub>	E <sub>12</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
11	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>22</sub>	G	E <sub>33</sub>	E <sub>37</sub>	39	39	G	G	35	G	E <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	22	E	
12	20	20	19	15	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>22</sub>	G	27	35	G	37	40	G	G	G	E <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E	E <sub>14</sub>	E <sub>14</sub>	
13	E	E	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	G	29	32	G	G	G	G	G	G	G	E <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
14	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>22</sub>	G	32	G	G	G	G	G	G	G	E <sub>20</sub>	E <sub>14</sub>	E <sub>14</sub>	18	19	20	22	
15	20	E	E <sub>14</sub>	15	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	24	28	G	G	G	G	E <sub>37</sub>	G	G	G	18	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
16	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>21</sub>	G	G	G	G	G	G	G	21	28	23	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
17	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	G	G	34	31	40	25	19	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
18	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>19</sub>	G	G	35	G	41	40	39	37	37	40	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	20	15	E <sub>14</sub>	E <sub>14</sub>
19	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>20</sub>	G	G	34	G	G	G	27	22	21	23	21	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
20	E <sub>14</sub>	E <sub>14</sub>	E	16	E	E <sub>13</sub>	E <sub>14</sub>	E <sub>19</sub>	G	33	40	39	40	39	G	34	32	23	E <sub>14</sub>	E <sub>14</sub>	25	E <sub>14</sub>	E <sub>14</sub>	18	
21	E	E	E <sub>14</sub>	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>18</sub>	G	G	G	35	38	G	38	G	31	23	18	17	24	27	E <sub>14</sub>	E	
22	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>18</sub>	G	G	G	42	42	39	35	35	31	28	25	20	18	21	18	21	
23	23	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>20</sub>	G	34	39	40	G	G	33	35	25	20	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>
24	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	30	G	G	G	G	G	G	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
25	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>21</sub>	G	G	G	G	36	G	G	G	G	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
26	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	G	G	G	G	G	E <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
27	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>19</sub>	G	G	G	36	G	36	35	32	27	20	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
28	E <sub>14</sub>	E <sub>14</sub>	E	E	E	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	G	G	G	32	31	23	25	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
29	E <sub>14</sub>	E <sub>14</sub>	E	E <sub>14</sub>	E	E <sub>13</sub>	E <sub>14</sub>	E <sub>20</sub>	G	G	G	G	39	36	34	33	25	20	17	E <sub>14</sub>	E	E <sub>14</sub>	E <sub>14</sub>	E	
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	29	29	29	29	29	29	29	29	29	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
MED	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>19</sub>	G	G	G	G	G	G	G	G	24	20	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
UQ	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>21</sub>	G	29	33	34	37	36	33	32	28	23	17	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>
LQ	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>18</sub>	G	G	G	G	G	G	G	G	G	E <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>

The Radio Research Laboratories, Japan

FEB. 1972

FBES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1972

F-MIN (0.1 MHZ)

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

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz 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 <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E	E	E	E <sub>14</sub> S	19	19	19	19	19	22	19	19	19	14	14	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
2	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E	E	E <sub>14</sub> S	19	17	19	22	22	15	21	22	18	14	E <sub>17</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
3	E <sub>14</sub> S	E	E <sub>14</sub> S	E	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	19	19	20	21	18	19	16	18	17	16	14	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
4	E <sub>14</sub> S	E	E	E <sub>14</sub> S	E	E <sub>14</sub> S	E <sub>14</sub> S	21	18	19	18	20	15	14	14	15	15	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>13</sub> S	E <sub>14</sub> S
5	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	18	18	19	19	19	21	19	19	18	18	18	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
6	E <sub>14</sub> S	E	E <sub>14</sub> S	E <sub>14</sub> S	E	E	E <sub>14</sub> S	19	18	17	19	18	19	18	19	18	16	18	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
7	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E	E <sub>14</sub> S	E <sub>14</sub> S	19	19	C	18	19	19	18	18	18	17	19	E <sub>15</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
8	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	15	16	19	22	21	21	19	18	18	18	18	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
9	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	19	18	19	21	21	21	18	21	15	15	18	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
10	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	21	20	22	19	23	26	21	19	18	16	19	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
11	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	22	19	33	37	37	27	24	23	21	20	20	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
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21	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E	E	E <sub>14</sub> S	E <sub>14</sub> S	18	19	22	22	21	26	22	18	16	15	14	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
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30																								
31																								
CNT	29	29	29	29	29	29	29	29	29	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29
MED	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	19	18	20	21	21	21	20	19	18	16	17	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
UQ	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	20	19	22	22	22	23	22	22	19	18	19	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S
LQ	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E	E	E <sub>14</sub> S	E <sub>14</sub> S	18	18	19	19	20	19	18	18	16	16	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S	E <sub>14</sub> S

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F-MIN (0.1 MHZ)



IONOSPHERIC DATA

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M(3000)F2 (0.01)

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

Station	AKITA																							
	Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz 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	305	290 <sup>F</sup>	F	F	F	F	F	340	350	330	310 <sup>H</sup>	320	330	320	305 <sup>H</sup>	330 <sup>H</sup>	355	330	310	295	340	305	250	275
2	270	285	290	325	290	295	315	350	360	325 <sup>H</sup>	330 <sup>H</sup>	335	320	335	325	330	360	325	325	335	320	280	300 <sup>F</sup>	275 <sup>F</sup>
3	300	290	300 <sup>F</sup>	F	315	335	300	325	335	325	325	320	330	340	330	325	340	335	335	335	315	310	295	290
4	280	285	280	295	305	315	325	345	355	340	335	320	330	335	320	335	345	335	310	325	310	295	300	295
5	285	295	290	305	320	310	320	335	360	340	330	335	325	345	330	345	340	335	320	335	330	F	F	F
6	F	290	325	325	315	290	335	355	350	325	320	315	335	335	330	335	330	360	305	310	320	310	285	280 <sup>F</sup>
7	F	295 <sup>F</sup>	295	305	355	310	315	340	350	335 <sup>I</sup>	320	325	330	325	335	365	350	340	320	335	325	305	305	290 <sup>F</sup>
8	290	F	F	F	F	335 <sup>E</sup>	310	340	345	330	310	325	335	345	325	325	330	345	320	300	300	300	F	F
9	F	290	295	305	320	315	310	345	355	345	335	325	330	335	345	340	340	350	335	300	330	315	F	310
10	F	F	300 <sup>F</sup>	300	F	F	325 <sup>E</sup>	345	330	350	335	335	325	335	340	340	350	335	320	300	310	305	295	300
11	285	290	285	290	295	325	300	340	335	330	335	320	335	335	330	335	345	345	320	310	305	305	300	280
12	305	F	F	305	300	315	300	345	340	345	330	330	345	335	325	325	335	340	310	305	310	310	305	295
13	290	290	295	295	320	310	305	335	340	340	335	335	335	315	330	330	325	340	325	325	300	290	255	265
14	275	305	330	275	280	270	265	315	325	325	315	295	325	325	320	335	320	330	335	320	295	325	310	290
15	280	285	295	305	325	295	305	340	330	335	325	325	330	325	325	320	330	320	320	320	305	285	295	295
16	285	290	285	305	315	295	305	335	335	345	330	320	320	310	325	330	345	325	315	310	315	315	305	290
17	280	280	290	295	310	295	310	340	335	345	330	310	320	315	335	320	335	325	305	310	310	310	280	275
18	270	270	260	280	310	265	280	310	320	340	310 <sup>I</sup>	315	310	315	320	320	320	325	320	310	305	295	280	280
19	275	275	285	290	295	300	305	325	320	310	315	320	300	310	305	310	315	300	305	315	290	295	300	280
20	270	255 <sup>F</sup>	260	270	290	F	290	345	330	330	325	315	320	300	300	320	325	330	300	305	305	305	F	F
21	300	F	F	F	F	F	320 <sup>F</sup>	350 <sup>B</sup>	350	330	330	315 <sup>B</sup>	300	310	315	320	320	320	300	315	290	290	280	270
22	260 <sup>F</sup>	300	300	270	270 <sup>F</sup>	275 <sup>F</sup>	330	360	355	355	330	315	315	305	305	310	310	320	310	310	315	295	285	265
23	280	275	275	295	300	300	305	340	355	320	325	320	310	315	320	310	330	325	300	315	320	295	285	270
24	270	275	265	270	285	285	310	335	325	335	320	315	305	305	310	315	310	320	310	295	295	295	240	250
25	280	290	270	245	265	265	270	300	340	315	325	320	315	315	320	315	320	335	300	295	300	310	285	285
26	275	275	270	300	290	275	300	330	335	320	320	315	315	315	310	330	335	325	325	315	295	285	285	265
27	275	300	300	320	295	290	305	350	345	315	325	325	315	320	330	340	335	335	310	305	300	270 <sup>F</sup>	F	280
28	290	305	325	310	295	275	290	340	335	330	315	315	310	320	320	320	320	325	335	295	300	295	275	275
29	285	290	295	300	290	F	315 <sup>F</sup>	335 <sup>F</sup>	335	330	325	310	315	330	325	330	325	340	315	300	295	285	280	285
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	25	25	25	25	25	24	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	24	26
MED	280	290	290	300	300	295	305	340	340	330	325	320	320	320	325	330	330	330	315	310	305	298	285	280
UQ	290	290	300	305	315	312	315	345	350	340	330	325	330	335	330	335	340	340	320	320	315	310	300	290
LQ	275	280	280	290	290	280	300	335	335	325	320	315	315	315	320	320	320	325	310	300	300	292	280	275

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M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 1972

M(3000)F1 (0.01)

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

Station AKITA Lat. 39 43.5 N. Long. 140 08.2 E Sweep 1 MHz to 20 MHz 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	385	L	355	L	L									
2										L	L	L	L	385	L	L									
3										L	L	L	L	L	L	L									
4										L	L	L	A	L	L	L									
5										L	L	385	L	L	L	L									
6										430	L	U 370	L	L	L	L									
7										C	L	L	L	L	L	L									
8											L	L	L	L	L	L									
9										L	L	L	L	L	L										
10											L	L	U 360	L	L	L									
11											L	L	L	L	L	L									
12											L	340	L	L	L	L									
13										L	L	355	L	L	U 380										
14										L	L	355	L	L	L										
15										L	L	U 365	U 355	L	L	L									
16										L	L	L	L	L	L										
17										L	L	L	U 380	365	L										
18									420	L	L	375	L	L	L										
19									395	L	L	395	L	L	L										
20										L	L	L	L	L	L	L									
21									400	L	L	L	405	L	L	L									
22											405	L	L	395	L										
23											L	U 395	405	385	L	L	L				L				
24											410	395	L	L	L	L									
25										L	L	L	L	L	L	L									
26										L	L	L	385	390	L	L									
27											L	L	385	L	L	L									
28									L	L	415	L	L	L	L	L									
29									400	425	L	L	U 380	L	U 390	L	L								
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								1	4	1	3	12	7	7	1										
MED								400	410	430	410	378	385	385	380										
UQ								422		412	390	395	390												
LQ								398		408	360	U 370	375												

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M(3000)F1 (0.01)



# IONOSPHERIC DATA

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H<sup>o</sup>F<sub>2</sub> (KM)

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

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz 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										250	240	245	215	290	220	235								
2										225	220	255	250	250	245	235								
3										270	255	255	250	245	240	235								
4										240	245	255	245	250	255	245								
5										235	255	255	250	235	245	245								
6										240	250	270	250	250	250	250								
7										C	250	255	260	250	240	235								
8										255	250	250	250	250	240	250								
9										245	250	255	250	230	245									
10										245	250	280	250	250	240									
11										250	250	255	255	250	250									
12										245	270	245	250	235	245									
13										235	250	255	250	245	245									
14										240	250	280	250	245	245									
15										245	255	250	270	260	265	250								
16										235	245	255	260	255	255									
17										250	245	240	280	280	250									
18									230	245	280	275	265	260	265									
19									230	260	250	265	260	260	250									
20										250	250	245	260	255	260	255								
21									240	235	235	250	250	280	250	245								
22										240	250	250	250	245										
23										250	255	250	260	250	240	235								
24										235	255	260	260	240	240									
25										240	260	245	250	250	245	240								
26										245	245	250	265	260	255	245								
27										260	260	275	250	250	240									
28									235	235	250	260	270	245	270	235								
29								230	235	245	245	270	270	245	250	250								
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								1	5	20	29	29	29	29	29	21	1							
MED							230	235	242	250	255	250	250	250	245	235								
UQ								235	248	250	260	265	260	250	250									
LQ								230	235	245	250	250	250	245	240									

The Radio Research Laboratories, Japan

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H<sup>o</sup>F<sub>2</sub> (KM)

IONOSPHERIC DATA

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H<sup>o</sup>F (KM)

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

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz 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	290	305	290	245	215	250	285	230	230	225	230	210	215	200	220	180 <sup>H</sup>	215	215	245	260	235	260	370 <sup>S</sup>	370 <sup>S</sup>
2	330	315	280	240	230	290	250	225	215	210	200	190 <sup>H</sup>	180 <sup>H</sup>	190	240	200	215	235	230	230	260	300	295	305 <sup>A</sup>
3	285	300	295	255	245	210	250	235	220	195 <sup>H</sup>	220	235	230	210	235	235	215	230	215	230	245	245	295	300
4	A	A	300	295	280	245	230	235	225	230	235	230	A	A	A	235	230	230	245	230	245	250	305 <sup>A</sup>	295
5	300	290	295	270	250	245	245	220	210	205	180 <sup>H</sup>	185	240	235	215	230	230	215	235	215	230	245	300 <sup>A</sup>	345
6	300	295	245	250	255	300	235	210	215	190	190 <sup>H</sup>	230	235	230	230	230	225	205	215	255	245	255	290	305
7	320	290	285	245	210	290 <sup>S</sup>	240	225	210	205	185 <sup>H</sup>	200 <sup>H</sup>	215 <sup>H</sup>	235	235	220	235	225	235	215	245	250	255	330
8	305	285	295	295	225	220	230	225	230	235	230	240	245	240	210	235	230	210	220	255	255	245	300	275
9	300	290	285	260	245	245	255	235	215	235	235	220	230	220	215	230	230	215	215	250	230	230	250	250
10	270	290	270	250	230	215	215	235	220	230	235	230	215	230	220	230	220	205	215	245	250	245	255	290
11	295	280	295	270	270	225	245	230	230	240	240	240	230	230	220	235	230	215	220	210	240	245	300	295
12	285	270	290	255	265	245	270	225	225	235	220	205	230	230 <sup>A</sup>	220	230	230	215	220	245	245	245	250	275
13	295	295	295	290	245	240	250	240	230	220	215	215	230	210	210	230	235	220	220	235	245	280	320	320
14	325	250	220	295	310	365	310	245	235	220	230	210	220	210	235	240	220	235	215	230	255	245	280	320 <sup>A</sup>
15	315 <sup>A</sup>	300	290	255	220	270	250	225	230	235	230	210	215	240	230	235	235	235	225	230	245	245	285	300
16	340	290	280	270	245	270	255	240	230	230	225	220	230	240	240	235	225	225	225	245	225	245	225	295
17	310	295	290	290	250	265	260	225	230	240	240	225	230	220	235	240	245	220	280	245	250	240	295	295
18	320	295	335	285	255	310	295	210	215	240	250	240	230 <sup>A</sup>	235	245	250	240	245	230	245	230	270	280	280
19	290	290	275	270	245	255	230	230	225	240	225	205	230	220	225	240	240	245	255	235	230	240	255	270
20	305	325	310	300	245	295	225	225	230	240	235	225	210	220	245	235	235	230	225	245	245	245	255	290
21	250	260	270	275	255	275	240	220	220	230	225	185 <sup>H</sup>	210	195 <sup>H</sup>	240	235	240	230	235	230	250 <sup>A</sup>	280 <sup>A</sup>	275	305
22	325	265	245	275	295	300	230	220	230	230	215	240	245	220	230	240	245	230	230	230	230	250	260	320 <sup>A</sup>
23	320	290	290	275	255	240	210 <sup>H</sup>	230	230	230	230	225	230	240	230	235	235	220	225	240	220	240	270	300
24	315	300	300	290	270	245	255	220	235	225	220	220	220	240	235	220	240	235	230	260	245	245	360	340
25	270	270	245	330	310	300	305	245	235	225	220	225 <sup>H</sup>	235	225	230	235	240	235	235	240	240	240	255	260
26	275	295	295	260	240	255	260	230	230	240	240	225	230	230	245	240	235	220	205	230	250	275	275	320
27	305	260	255	235	240	245	270	230	235	220	220	240	220	220 <sup>H</sup>	240	235	240	235	225	235	240	300	290	290
28	270	255	225	240	245	310	280	235	220	210	215	190 <sup>H</sup>	230	220	230 <sup>H</sup>	220	250	235	225	225	230	240	270	290
29	285	265	245	245	235	265	245	225	200	240	230	235	245	240	235	245	235	230	210	230	260	280	285	290
30																								
31																								
CNT	28	28	29	29	29	29	29	29	29	29	29	29	28	28	28	29	29	29	29	29	29	29	29	29
MED	300	290	290	270	245	255	250	230	230	230	225	225	230	228	230	235	235	230	225	235	245	245	280	295
UQ	318	295	295	290	255	290	260	235	230	235	235	230	230	235	238	235	240	235	235	245	250	260	295	312
LQ	285	270	270	250	240	245	235	225	220	220	220	210	218	220	220	230	230	215	220	230	230	245	255	290

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H<sup>o</sup>F (KM)

# IONOSPHERIC DATA

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H<sup>o</sup>ES (KM)

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

Station	AKITA																							Lat.	39° 43.5' N.	Long.	140° 08.2' E	Sweep 1 MHz to 20 MHz in 20 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																										
1	S	S	S	E	E	E	S	B	G	G	110	110	G	G	G	G	140	105	S	105	S	105	S	S																										
2	S	S	S	S	105	105	110	110	140	G	G	105	G	G	G	G	G	S	100	S	S	S	S	105																										
3	S	E	S	E	S	S	S	B	G	G	G	105	105	100	G	G	130	120	S	S	S	S	S	S																										
4	105	105	105	105	100	S	S	B	G	115	155	110	120	120	100	100	100	100	100	100	100	105	105	S																										
5	S	S	S	S	S	S	S	B	G	G	G	G	115	120	120	120	115	B	S	S	S	S	110	S																										
6	S	E	S	110	110	E	S	B	G	120	110	110	140	G	G	G	G	B	S	S	S	S	S	S																										
7	S	S	S	S	E	S	S	B	110	C	G	G	105	105	105	105	G	B	S	S	S	S	S	S																										
8	S	100	S	S	S	S	S	150	150	G	140	125	130	G	G	G	100	B	S	110	S	100	S	100																										
9	100	100	100	S	S	S	S	B	G	G	110	110	G	G	G	G	100	B	100	S	S	S	S	S																										
10	S	S	S	S	S	S	S	B	110	165	140	125	120	120	120	G	G	B	S	S	S	S	S	S																										
11	S	S	100	S	S	S	S	B	G	B	B	140	145	G	G	120	G	B	S	S	S	S	105	105																										
12	100	100	100	100	S	S	S	B	G	110	140	G	110	120	G	G	G	B	S	S	100	100	S	S																										
13	100	100	100	100	S	S	S	G	140	150	G	G	G	G	G	G	G	B	S	S	S	S	S	S																										
14	S	S	S	S	S	S	S	B	G	120	G	G	G	G	G	G	G	B	S	S	110	105	105	100																										
15	100	100	S	100	S	S	S	150	155	G	G	G	G	B	G	G	G	100	S	S	S	S	S	S																										
16	S	S	S	S	E	S	S	B	G	G	G	G	G	G	G	105	140	130	S	S	S	S	S	S																										
17	S	S	S	S	S	S	S	G	G	G	G	G	G	G	135	120	115	115	110	120	110	S	S	S																										
18	S	S	S	S	S	S	S	B	G	G	105	G	135	135	130	130	120	120	S	S	S	105	105	S																										
19	S	S	S	S	S	S	S	B	G	G	110	G	G	G	100	100	100	100	100	100	S	S	S	S																										
20	S	S	100	105	100	S	S	B	G	150	135	140	105	105	G	120	115	110	S	S	110	S	S	105																										
21	100	100	S	E	E	S	S	B	G	G	G	115	145	G	150	G	140	120	120	115	115	110	S	105																										
22	S	S	S	S	E	S	S	B	G	G	G	135	130	135	145	120	115	110	110	110	105	100	100	100																										
23	105	S	S	S	S	S	S	B	G	150	135	135	130	130	120	115	115	115	S	S	S	S	105	S																										
24	S	S	S	S	E	S	S	G	G	G	G	110	G	G	G	105	G	G	100	S	S	S	S	S																										
25	S	S	E	S	S	S	S	B	G	G	G	G	115	G	G	G	G	B	S	S	S	S	S	S																										
26	S	S	S	S	105	S	S	G	G	G	G	G	G	G	G	G	G	B	S	S	S	S	S	S																										
27	S	S	S	E	S	E	S	B	G	G	G	150	G	140	130	120	115	120	110	S	S	S	S	S																										
28	S	S	E	E	E	S	S	G	G	G	G	G	G	G	G	140	135	130	120	S	S	S	S	S																										
29	S	S	E	S	E	S	S	B	G	G	G	G	150	130	130	130	120	115	110	S	110	S	S	110																										
30																																																		
31																																																		
CNT	7	7	6	6	5	1	1	3	6	8	11	15	16	12	12	15	17	15	11	7	8	8	7	8																										
MED	100	100	100	102	105	105	110	150	140	135	135	115	125	120	125	120	115	115	110	110	110	105	105	105																										
UQ	102	100	100	105	105			150	150	150	140	135	138	132	132	120	130	120	110	112	110	105	105	105																										
LQ	100	100	100	100	100			130	110	118	110	110	112	112	112	105	115	108	100	102	102	100	105	100																										

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H<sup>o</sup>ES (KM)

# IONOSPHERIC DATA

FEB. 1972

TYPES OF ES

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

Station **AKITA** Lat. **39° 43.5' N.** Long. **140° 08.2' E** Sweep **1 MHz to 20 MHz** 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	F					H	F		F				
2					F	F	F	F	H			F							F					F
3											F	F					H	F						
4	F	F	F	F	F				F	H	F	F	F	F	F	F	F	F	F	F	F	F	F	F
5													F	F	F	F	F							F
6				F	F				F	F	F	F												
7									F				F	F	F	F								
8		F						H	H		H	H	H				F			F		F		F
9	F	F	F								F	F					F			F				
10									F	H	H	H	F	F	F									
11				F								H	H			F							F	F
12	F	F	F	F						F	H		F	F							F	F		
13	F	F	F	F					H	H														
14										F												F	F	F
15	F	F		F				H	H										F					
16																F	H	H						
17															H	F	F	F	F	F	F	F		
18											F		H	H	H	H	F	F	F	F		F	F	
19										F					F	F	F	F	F	F	F			
20			F	F	F					H	H	H	F	F		F	F	F	F	F	F		F	
21	F	F									F	H	H	H	H		H	F	F	F	F	F	F	F
22											H	H	H	H	F	F	F	F	F	F	F	F	F	F
23	F									H	H	H	H	H	F	F	F	F						F
24											F					F				F				
25													F											
26				F																				
27											H		H	H	F	F	F	F	F	F				
28															H	H	H	F						
29											H	H	H	H	F	F	F	F	F	F	F	F	F	F
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																								
MED																								
UQ																								
LQ																								

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FEB. 1972

TYPES OF ES



IONOSPHERIC DATA

FEB. 1972

FOF2 (0.1 MHz)

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz 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	35	35	36	36	33	25	26	56	J <sup>R</sup> <sub>79</sub>	71	89	109	105	J <sup>R</sup> <sub>90</sub>	J <sup>R</sup> <sub>100</sub>	81	71	60	42	37	39	31	26	30	
2	31	31	36	33	28	29	29	61	73	J <sup>B</sup> <sub>75</sub>	88	81	91	91	89	81	73	57	53	45	30	30	34	35	
3	35	36	38	42	46	25	30	56	81	J <sup>R</sup> <sub>89</sub>	J <sup>B</sup> <sub>85</sub>	98	J <sup>B</sup> <sub>105</sub>	86	72	71	68	61	55	31	35	35	33	35	
4	36	35	36	36	36	32	36	56	69	J <sup>R</sup> <sub>79</sub>	99	J <sup>B</sup> <sub>105</sub>	96	97	86	85	72	58	A	J <sup>R</sup> <sub>47</sub>	36	35	35	36	
5	36	J <sup>B</sup> <sub>35</sub>	37	38	36	35	35	62	66	72	84	98	106	86	79	82	75	63	51	56	40	28	J <sup>B</sup> <sub>30</sub>	J <sup>B</sup> <sub>31</sub>	
6	J <sup>F</sup> <sub>34</sub>	F	35	34	32	29	29	55	63	63	91	100	108	94	85	80	74	57	40	36	38	38	34	37	
7	36	37	J <sup>S</sup> <sub>40</sub>	40	33	25	29	56	64	C	C	C	C	C	C	C	J <sup>R</sup> <sub>68</sub>	55	46	34	31	29	31		
8	32	F	F	F	35	22	26	50	66	66	86	110	96	97	80	81	81	70	45	36	J <sup>R</sup> <sub>42</sub>	J <sup>R</sup> <sub>43</sub>	36	J <sup>R</sup> <sub>39</sub>	
9	J <sup>R</sup> <sub>38</sub>	40	39	41	40	35	35	60	71	77	84	86	89	79	74	73	71	60	48	44	50	42	33	33	
10	J <sup>F</sup> <sub>34</sub>	35	J <sup>F</sup> <sub>40</sub>	J <sup>S</sup> <sub>48</sub>	J <sup>F</sup> <sub>41</sub>	J <sup>F</sup> <sub>37</sub>	33	56	79	75	89	94	90	94	86	87	73	60	50	45	48	49	43	41	
11	40	40	J <sup>R</sup> <sub>40</sub>	41	38	35	39	57	68	83	91	96	84	88	80	82	69	64	60	50	44	41	J <sup>S</sup> <sub>40</sub>	J <sup>R</sup> <sub>44</sub>	
12	46	45	47	46	44	J <sup>H</sup> <sub>42</sub>	45	70	J <sup>R</sup> <sub>75</sub>	J <sup>R</sup> <sub>88</sub>	89	99	101	87	80	80	74	69	51	49	46	40	41	39	
13	34	35	36	36	35	31	28	59	J <sup>R</sup> <sub>74</sub>	83	J <sup>R</sup> <sub>89</sub>	100	94	87	J <sup>B</sup> <sub>75</sub>	72	J <sup>B</sup> <sub>75</sub>	70	54	46	45	41	39	41	
14	42	50	31	25	29	29	28	J <sup>B</sup> <sub>65</sub>	80	J <sup>B</sup> <sub>102</sub>	109	111	127	J <sup>B</sup> <sub>102</sub>	83	79	J <sup>R</sup> <sub>77</sub>	71	63	46	40	37	31	31	
15	33	35	35	36	32	26	29	J <sup>B</sup> <sub>65</sub>	73	96	J <sup>B</sup> <sub>101</sub>	107	100	97	95	85	85	73	J <sup>B</sup> <sub>68</sub>	56	R	40	J <sup>B</sup> <sub>40</sub>	36	
16	36	J <sup>B</sup> <sub>40</sub>	38	35	35	29	33	66	J <sup>R</sup> <sub>85</sub>	101	93	95	95	96	97	J <sup>R</sup> <sub>86</sub>	72	67	56	50	46	41	36	36	
17	35	38	38	38	36	33	37	J <sup>R</sup> <sub>72</sub>	J <sup>R</sup> <sub>90</sub>	97	J <sup>R</sup> <sub>100</sub>	95	100	98	J <sup>R</sup> <sub>101</sub>	83	J <sup>R</sup> <sub>76</sub>	73	56	53	J <sup>A</sup> <sub>50</sub>	47	J <sup>B</sup> <sub>42</sub>	38	
18	37	40	37	41	37	37	J <sup>R</sup> <sub>39</sub>	R	J <sup>R</sup> <sub>98</sub>	J <sup>R</sup> <sub>104</sub>	115	124	120	108	96	91	86	J <sup>R</sup> <sub>79</sub>	66	A	61	46	46	J <sup>B</sup> <sub>45</sub>	
19	44	44	46	46	46	36	40	71	J <sup>R</sup> <sub>92</sub>	107	127	115	118	117	113	103	91	84	J <sup>R</sup> <sub>81</sub>	J <sup>R</sup> <sub>78</sub>	J <sup>B</sup> <sub>65</sub>	54	50	49	
20	45	43	J <sup>R</sup> <sub>41</sub>	44	37	39	45	73	80	92	118	114	110	108	116	112	97	83	69	68	61	49	J <sup>S</sup> <sub>46</sub>	48	
21	54	50	47	47	47	J <sup>F</sup> <sub>46</sub>	57	80	91	J <sup>B</sup> <sub>104</sub>	101	108	112	113	116	111	J <sup>B</sup> <sub>103</sub>	93	J <sup>B</sup> <sub>75</sub>	66	56	J <sup>B</sup> <sub>47</sub>	J <sup>A</sup> <sub>46</sub>	46	
22	46	47	51	J <sup>R</sup> <sub>40</sub>	45	J <sup>R</sup> <sub>41</sub>	J <sup>R</sup> <sub>56</sub>	J <sup>R</sup> <sub>82</sub>	J <sup>R</sup> <sub>89</sub>	106	111	113	119	112	122	111	111	110	J <sup>R</sup> <sub>102</sub>	J <sup>R</sup> <sub>89</sub>	J <sup>R</sup> <sub>69</sub>	J <sup>R</sup> <sub>54</sub>	50	40	
23	J <sup>R</sup> <sub>41</sub>	J <sup>R</sup> <sub>41</sub>	41	46	41	37	42	J <sup>R</sup> <sub>75</sub>	J <sup>R</sup> <sub>92</sub>	93	105	111	113	115	111	J <sup>R</sup> <sub>108</sub>	J <sup>R</sup> <sub>100</sub>	J <sup>R</sup> <sub>90</sub>	72	J <sup>R</sup> <sub>67</sub>	58	R	J <sup>R</sup> <sub>43</sub>	J <sup>R</sup> <sub>42</sub>	
24	45	46	43	43	43	43	48	J <sup>R</sup> <sub>89</sub>	J <sup>R</sup> <sub>102</sub>	108	107	116	117	125	120	111	103	95	J <sup>B</sup> <sub>85</sub>	J <sup>R</sup> <sub>80</sub>	J <sup>R</sup> <sub>83</sub>	R	54	R	
25	61	50	42	J <sup>R</sup> <sub>41</sub>	46	43	41	J <sup>R</sup> <sub>81</sub>	126	109	120	123	124	110	111	105	J <sup>R</sup> <sub>101</sub>	J <sup>R</sup> <sub>86</sub>	R	J <sup>R</sup> <sub>85</sub>	J <sup>R</sup> <sub>87</sub>	J <sup>R</sup> <sub>76</sub>	61	50	
26	J <sup>R</sup> <sub>51</sub>	51	49	J <sup>R</sup> <sub>51</sub>	45	43	46	J <sup>R</sup> <sub>75</sub>	90	113	124	119	118	114	115	114	100	J <sup>R</sup> <sub>89</sub>	71	56	50	42	43	42	
27	43	J <sup>S</sup> <sub>46</sub>	47	44	29	29	J <sup>R</sup> <sub>38</sub>	J <sup>S</sup> <sub>74</sub>	81	100	C	C	C	C	C	C	84	80	J <sup>C</sup> <sub>70</sub>	55	J <sup>C</sup> <sub>54</sub>	47	J <sup>C</sup> <sub>45</sub>	J <sup>C</sup> <sub>44</sub>	
28	J <sup>C</sup> <sub>51</sub>	J <sup>C</sup> <sub>49</sub>	46	43	34	31	36	J <sup>C</sup> <sub>73</sub>	J <sup>C</sup> <sub>93</sub>	J <sup>C</sup> <sub>105</sub>	C	C	C	121	107	101	96	93	86	57	56	50	43	J <sup>R</sup> <sub>46</sub>	
29	47	J <sup>R</sup> <sub>46</sub>	51	46	35	36	46	71	93	113	105	116	125	125	109	C	91	89	68	56	54	50	49	51	
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	29	27	28	28	29	29	29	28	29	28	26	26	26	27	27	26	28	29	27	28	28	27	29	28	
MED	38	40	40	41	36	35	36	66	80	94	100	108	106	97	96	85	79	71	60	52	49	42	41	40	
UQ	45	46	46	45	43	37	42	J <sup>R</sup> <sub>74</sub>	91	104	109	114	118	112	111	105	96	86	70	62	57	48	46	44	
LQ	35	36	36	36	34	29	29	56	73	78	89	98	96	90	82	81	73	63	52	46	40	38	34	36	

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FOF2 (0.1 MHz)



IONOSPHERIC DATA

FEB. 1972

FOF1 (0.01 MHZ)

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz 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	U 470	L	A	L								
2										L	L	L	L	L	L	L								
3									U 280	U 430	L	L	L	L	L	L	L							
4										L	L	L	L	U 440	U 380	L	L							
5									L	L	L	U 460	U 470	L	L	L	L							
6											U 470	L	L	U 460	L	L	L	L						
7										C	C	C	C	C	C	C	C	C						
8										L	L	L	L	L	L	L	L	L						
9									L	L	L	U 460	L	L	L	L	L							
10									L	L	L	L	U 480	U 470	L	L	L							
11									L	L	L	L	L	U 470	L	L	L							
12									L	L	L	U 480	L	L	L	L	L							
13									L	L	L	U 490	U 500	U 470	L	L	L							
14									L	L	L	L	U 450	L	L	L	L	L						
15									L	L	L	L	L	L	L	L	L							
16									L	L	L	L	L	L	L	L	L							
17									L	L	L	L	U 460	L	L	L	A	L						
18									L	L	L	U 510	U 450	L	A	A	A							
19									L	L	U 460	L	L	L	L	L	L							
20									L	L	L	A	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	L	L	L	L	L	L	L						
25									L	L	L	U 450	L	L	L	L	L	L						
26									L	L	L	L	U 500	L	L	L	L	L						
27									L	C	C	C	C	C	C	C	C							
28									L	C	C	C	C	L	L	L	L							
29									L	L	L	L	U 500	L	L	L	C	L						
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									1	1	2	6	9	5	1									
MED									U 280	U 430	U 465	U 470	U 470	U 470	U 380									
UQ												U 490	U 500	U 470										
LQ												U 460	U 460	U 460										

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FOF1 (0.01 MHZ)

# IONOSPHERIC DATA

FEB. 1972

FOE (0.01 MHZ)

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz 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								B	I <sub>240</sub> A	I <sub>270</sub> A	R <sub>325</sub>	A	A	A	A	A	210	B							
2								B	I <sub>240</sub> A	300	A	A	I <sub>325</sub> A	I <sub>320</sub> A	300	260	230	A							
3								B	230	250	310	335	330	330	I <sub>300</sub> R	I <sub>270</sub> R	225	R							
4								B	250	290	I <sub>320</sub> R	I <sub>320</sub> R	I <sub>330</sub> R	I <sub>320</sub> A	I <sub>310</sub> A	I <sub>280</sub> A	R	A							
5								B	R <sub>240</sub>	260	I <sub>300</sub> A	I <sub>320</sub> A	I <sub>330</sub> A	I <sub>330</sub> A	A	A	A	175							
6								A	255	290	320	I <sub>330</sub> A	I <sub>330</sub> A	335	320	290	245	170							
7								160	265	C	C	C	C	C	C	C	C	C	B						
8								B	250	295	315	320	I <sub>320</sub> A	I <sub>330</sub> A	310	280	I <sub>220</sub> A	B							
9								150	R <sub>250</sub>	300	335	340	350	340	330	305	255	A							
10								175	U <sub>245</sub> S	I <sub>300</sub> A	340	345	330	A	R	A	240	170							
11								190	260	320	B	B	B	B	335	305	265	A							
12								175	265	315	A	A	A	350	335	305	260	160							
13								200	265	300	I <sub>320</sub> A	350	365	355	330	300	255	200							
14								180	270	I <sub>300</sub> A	330	350	350	I <sub>340</sub> R	I <sub>330</sub> R	I <sub>310</sub> R	I <sub>260</sub> R	B							
15								170	I <sub>270</sub> R	I <sub>310</sub> A	I <sub>330</sub> R	R	R	A	A	A	260	A							
16								190	I <sub>260</sub> R	300	I <sub>320</sub> R	I <sub>330</sub> R	350	355	340	305	A	A							
17								190	280	310	330	360	I <sub>350</sub> A	I <sub>360</sub> R	A	A	A	A							
18								160	290	315	350	345	I <sub>360</sub> A	I <sub>360</sub> A	I <sub>340</sub> A	320	A	A							
19								190	275	R <sub>305</sub>	350	I <sub>365</sub> A	I <sub>370</sub> A	375	350	I <sub>320</sub> A	265	190							
20								200	275	325	350	365	375	360	I <sub>355</sub> A	A	A	A							
21								180	280	300	330	R	I <sub>360</sub> R	A	A	A	A	A							
22								180	I <sub>270</sub> R	305	350	350	B	B	350	A	A	A							
23								210	305	340	A	A	360	R	R	R	R	R							
24								190	I <sub>280</sub> R	330	I <sub>325</sub> R	I <sub>345</sub> A	R	R	R	I <sub>320</sub> R	270	I <sub>200</sub> A							
25								I <sub>220</sub> R	250	295	330	B	A	R	A	A	260	180							
26								210	280	325	345	345	360	365	I <sub>350</sub> R	340	I <sub>260</sub> A	180							
27								205	275	305	C	C	C	C	C	C	A	A							
28								220	R <sub>280</sub>	I <sub>310</sub> R	C	C	C	R <sub>350</sub>	I <sub>330</sub> R	305	270	A							
29								210	280	325	345	350	360	345	300	C	A	A							
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								22	29	28	22	18	19	18	18	16	17	9							
MED								190	265	302	330	345	350	348	330	305	260	180							
UQ								205	280	315	345	350	360	360	340	315	260	190							
LQ								175	250	298	320	330	330	330	310	285	240	170							

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FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 1972

FOES (0.1 MHZ)

135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N, Long. 139° 29.3' E Sweep 1 MHz to 20 MHz 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 <sub>13</sub>	20	20	E <sub>13</sub>	E <sub>13</sub>	E <sub>12</sub>	E <sub>13</sub>	G	25	35	G	J <sub>35</sub>	J <sub>36</sub>	J <sub>36</sub>	J <sub>46</sub>	34	25	20	E <sub>13</sub>	J <sub>20</sub>	21	19	21	22	
2	E <sub>15</sub>	E <sub>15</sub>	20	21	20	22	22	22	J <sub>29</sub>	35	35	36	35	37	G	30	20	J <sub>25</sub>	J <sub>21</sub>	22	21	18	E <sub>13</sub>	E <sub>15</sub>	
3	E <sub>13</sub>	20	E <sub>13</sub>	E <sub>13</sub>	20	E <sub>13</sub>	20	G	G	G	G	G	G	G	35	G	20	G	22	J <sub>25</sub>	J <sub>25</sub>	J <sub>29</sub>	21	E <sub>15</sub>	
4	E <sub>16</sub>	E <sub>13</sub>	E <sub>13</sub>	20	20	E <sub>13</sub>	22	G	G	G	G	35	G	39	35	36	31	J <sub>35</sub>	45	J <sub>21</sub>	J <sub>25</sub>	J <sub>29</sub>	J <sub>28</sub>	J <sub>29</sub>	
5	21	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	G	28	33	37	36	36	35	31	26	G	E <sub>15</sub>	E <sub>14</sub>	M <sub>19</sub>	J <sub>18</sub>	E <sub>14</sub>	E <sub>14</sub>	
6	E <sub>14</sub>	E <sub>14</sub>	E <sub>12</sub>	M <sub>18</sub>	E <sub>14</sub>	M <sub>19</sub>	E <sub>12</sub>	23	30	35	37	J <sub>41</sub>	J <sub>40</sub>	G <sub>2</sub>	G	G	G	G	E <sub>12</sub>	E <sub>14</sub>	M <sub>21</sub>	M <sub>21</sub>	M <sub>23</sub>	24	
7	E <sub>15</sub>	E <sub>14</sub>	24	J <sub>30</sub>	32	J <sub>23</sub>	J <sub>20</sub>	G	G	C	C	C	C	C	C	C	C	C	21	21	20	E <sub>15</sub>	E <sub>15</sub>	21	E <sub>15</sub>
8	E <sub>13</sub>	17	20	21	21	E <sub>13</sub>	E <sub>15</sub>	G	G	33	35	39	J <sub>39</sub>	38	19	G <sub>20</sub>	J <sub>25</sub>	G	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	19	20	19	
9	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	20	E <sub>15</sub>	G	G	G	35	G	31	36	J <sub>27</sub>	J <sub>30</sub>	20	J <sub>21</sub>	J <sub>18</sub>	M <sub>20</sub>	M <sub>20</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	
10	M <sub>21</sub>	E <sub>12</sub>	E <sub>14</sub>	E <sub>12</sub>	E <sub>12</sub>	E <sub>12</sub>	E <sub>14</sub>	G	G	J <sub>31</sub>	37	G	37	36	G	30	22	G	E <sub>14</sub>	E <sub>14</sub>	M <sub>20</sub>	J <sub>24</sub>	22	M <sub>21</sub>	
11	E <sub>13</sub>	E <sub>14</sub>	E <sub>12</sub>	J <sub>18</sub>	E <sub>14</sub>	J <sub>24</sub>	J <sub>15</sub>	G	28	G	E <sub>39</sub>	E <sub>39</sub>	E <sub>36</sub>	36	33	18	G	19	J <sub>22</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>15</sub>	J <sub>19</sub>	E <sub>15</sub>	
12	E <sub>15</sub>	J <sub>38</sub>	J <sub>33</sub>	36	J <sub>24</sub>	E <sub>13</sub>	E <sub>13</sub>	G	G	G	37	J <sub>40</sub>	36	G	G	G	G	G	J <sub>19</sub>	J <sub>22</sub>	M <sub>22</sub>	M <sub>19</sub>	E <sub>15</sub>	E <sub>15</sub>	
13	M <sub>20</sub>	E <sub>14</sub>	E <sub>12</sub>	E <sub>12</sub>	M <sub>21</sub>	18	E <sub>13</sub>	G	31	35	35	G	G	G	G	G	17	J <sub>20</sub>	M <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	19	
14	E <sub>15</sub>	E <sub>12</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>12</sub>	G	G	J <sub>35</sub>	G	G	G	G	G	G	G	E <sub>21</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	
15	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	20	E <sub>13</sub>	E <sub>15</sub>	G	G	36	G	G	G	39	35	J <sub>31</sub>	30	J <sub>28</sub>	J <sub>25</sub>	J <sub>26</sub>	J <sub>39</sub>	21	E <sub>15</sub>	E <sub>16</sub>	
16	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	G	G	G	G	G	G	38	40	J <sub>43</sub>	J <sub>34</sub>	J <sub>35</sub>	J <sub>23</sub>	E <sub>13</sub>	J <sub>24</sub>	E <sub>13</sub>	E <sub>15</sub>	
17	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	31	G	G	G	38	G	40	J <sub>54</sub>	31	J <sub>25</sub>	21	22	J <sub>54</sub>	19	E <sub>15</sub>	E <sub>15</sub>	
18	22	20	E <sub>15</sub>	20	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	35	G	30	40	J <sub>58</sub>	J <sub>63</sub>	J <sub>41</sub>	J <sub>37</sub>	J <sub>25</sub>	J <sub>29</sub>	J <sub>70</sub>	22	23	J <sub>20</sub>	23	
19	19	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	20	E <sub>15</sub>	E <sub>15</sub>	G	G	33	G	39	J <sub>40</sub>	J <sub>31</sub>	30	37	G	22	20	19	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	
20	18	E <sub>14</sub>	E <sub>15</sub>	M <sub>19</sub>	M <sub>21</sub>	J <sub>16</sub>	E <sub>12</sub>	G	31	37	39	49	45	40	39	39	J <sub>30</sub>	J <sub>30</sub>	E <sub>14</sub>	J <sub>22</sub>	M <sub>21</sub>	J <sub>30</sub>	M <sub>31</sub>	M <sub>22</sub>	
21	M <sub>20</sub>	M <sub>20</sub>	M <sub>19</sub>	M <sub>20</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	G	G	G	44	44	38	35	35	22	J <sub>19</sub>	J <sub>24</sub>	E <sub>15</sub>	J <sub>29</sub>	J <sub>61</sub>	20	
22	J <sub>38</sub>	J <sub>24</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	G	40	42	43	50	41	J <sub>54</sub>	J <sub>45</sub>	J <sub>34</sub>	J <sub>22</sub>	J <sub>21</sub>	21	20	21	21	
23	E <sub>15</sub>	J <sub>23</sub>	J <sub>21</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	G	43	46	39	G	G	G	G	G	J <sub>23</sub>	J <sub>25</sub>	J <sub>19</sub>	E <sub>13</sub>	23	E <sub>13</sub>	
24	J <sub>19</sub>	20	21	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	J <sub>39</sub>	33	31	G	G	G	21	E <sub>15</sub>	21	E <sub>15</sub>	25	21	21	
25	E <sub>15</sub>	E <sub>15</sub>	21	21	21	21	J <sub>21</sub>	G	G	G	G	E <sub>39</sub>	38	G	J <sub>41</sub>	35	G	G	21	E <sub>13</sub>	19	19	E <sub>15</sub>	E <sub>13</sub>	
26	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	20	21	G	G	G	G	G	G	G	G	G	J <sub>29</sub>	G	E <sub>13</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	24	M <sub>19</sub>	
27	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>16</sub>	G	G	G	C	C	C	C	C	C	C	34	J <sub>33</sub>	18	M <sub>24</sub>	J <sub>30</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>
28	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	C	C	C	G	G	G	30	25	23	19	E <sub>13</sub>	E <sub>13</sub>	19	21	
29	J <sub>24</sub>	22	J <sub>25</sub>	21	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	37	37	39	38	37	36	C	J <sub>34</sub>	J <sub>26</sub>	J <sub>22</sub>	J <sub>18</sub>	J <sub>18</sub>	M <sub>19</sub>	M <sub>24</sub>	J <sub>18</sub>	
30																									
31																									
CNT	29	29	29	29	29	29	29	29	29	28	26	26	26	27	27	26	28	29	29	29	29	29	29	29	29
MED	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	E <sub>33</sub>	U <sub>34</sub>	36	36	35	30	25	21	20	20	19	19	20	E <sub>16</sub>	
UQ	19	20	20	20	20	18	E <sub>15</sub>	G	G	35	37	39	39	38	38	36	31	J <sub>25</sub>	J <sub>22</sub>	J <sub>22</sub>	21	23	22	21	
LQ	E <sub>15</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	G	G	G	G	G	G	G	G	G	E <sub>17</sub>	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	

FEB. 1972

FOES (0.1 MHZ)

# IONOSPHERIC DATA

FEB. 1972

FBES (0.1 MHZ)

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz 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 <sub>13</sub>	E	E	E <sub>13</sub>	E <sub>13</sub>	E <sub>12</sub>	E <sub>13</sub>	G	25	31	G	32	35	33	44	29	24	18	E <sub>13</sub>	16	E	E	E	E	
2	E <sub>15</sub>	E <sub>15</sub>	E	E	E	15	E	G	25	32	33	32	32	34	G	29	17	21	15	E	E	E	E <sub>13</sub>	E <sub>15</sub>	
3	E <sub>13</sub>	E	E <sub>13</sub>	E <sub>13</sub>	E	E <sub>13</sub>	E	G	G	G	G	G	G	G	35	G	19	G	E	E	E	E	E	E <sub>15</sub>	
4	E <sub>16</sub>	E <sub>13</sub>	E <sub>13</sub>	E	E	E <sub>13</sub>	E	G	G	G	G	34	G	36	32	G	26	15	A	17	16	17	23	17	
5	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	G	28	32	37	36	36	34	29	25	G	E <sub>15</sub>	E <sub>12</sub>	E	17	E <sub>14</sub>	E <sub>14</sub>	
6	E <sub>14</sub>	E <sub>14</sub>	E <sub>12</sub>	E	E <sub>14</sub>	E	E <sub>12</sub>	22	29	34	35	38	40	30	G	G	G	G	E <sub>12</sub>	E <sub>14</sub>	E	E	17	17	
7	E <sub>15</sub>	E <sub>14</sub>	E	19	27	20	16	G	G	C	C	C	C	C	C	C	C	G	E	E	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	
8	E <sub>13</sub>	E	E	E	E	E <sub>13</sub>	E <sub>15</sub>	G	G	30	34	38	38	35	18	18	25	G	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E	
9	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E	E <sub>15</sub>	G	G	G	35	G	28	30	26	26	19	20	16	E	E	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	
10	E	E <sub>12</sub>	E <sub>14</sub>	E <sub>12</sub>	E <sub>12</sub>	E <sub>12</sub>	E <sub>14</sub>	G	G	31	37	G	36	35	G	30	22	G	E <sub>14</sub>	E <sub>14</sub>	E	16	17	E	
11	E <sub>13</sub>	E <sub>14</sub>	E <sub>12</sub>	E	E <sub>14</sub>	E	E	G	27	G	E <sub>39</sub>	E <sub>39</sub>	E <sub>39</sub>	E <sub>36</sub>	36	31	E <sub>18</sub>	18	16	E <sub>14</sub>	E <sub>13</sub>	E <sub>15</sub>	E	E <sub>15</sub>	
12	E <sub>15</sub>	30	25	28	16	E <sub>13</sub>	E <sub>13</sub>	G	G	G	36	37	36	G	G	G	G	15	17	20	E	E	E <sub>15</sub>	E <sub>15</sub>	
13	E	E <sub>14</sub>	E <sub>12</sub>	E <sub>15</sub>	E	E	E <sub>13</sub>	G	30	35	35	G	G	G	G	G	17	17	E	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E	
14	E <sub>15</sub>	E <sub>12</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>12</sub>	G	G	35	G	G	G	G	G	G	G	E <sub>21</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	
15	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E	E <sub>13</sub>	E <sub>15</sub>	G	G	35	G	G	G	35	35	31	29	25	E	16	27	E	E <sub>15</sub>	E <sub>16</sub>	
16	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	G	G	G	G	G	G	32	36	40	25	24	14	E <sub>13</sub>	19	E <sub>13</sub>	E <sub>15</sub>	
17	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	31	G	G	G	37	G	36	51	30	23	E	E	A	E	E <sub>15</sub>	E <sub>15</sub>	
18	E	E	E <sub>15</sub>	E	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	35	G	26	39	53	60	40	33	25	25	A	E	E	16	15	
19	E	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E	E <sub>15</sub>	E <sub>15</sub>	G	G	E <sub>33</sub>	G	38	40	31	30	35	G	16	E	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	
20	E	E <sub>14</sub>	E <sub>15</sub>	E	E	E	E <sub>12</sub>	G	31	37	38	49	45	40	38	37	28	22	E <sub>14</sub>	18	E	25	29	E	
21	E	E	E	E	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	G	G	G	40	42	38	34	G	22	15	E	E <sub>15</sub>	22	A	E	
22	16	16	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	G	32	41	41	48	40	50	35	31	22	19	E	E	E	E	
23	E <sub>15</sub>	19	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	G	41	43	38	G	G	G	G	G	17	15	15	E <sub>13</sub>	22	E <sub>15</sub>	
24	16	E	E	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	31	E <sub>33</sub>	E <sub>31</sub>	G	G	G	21	E <sub>15</sub>	E	E <sub>15</sub>	E	E	E <sub>21</sub>	
25	E <sub>15</sub>	E <sub>15</sub>	E	E	E	E	16	G	G	G	G	E <sub>39</sub>	37	G	41	35	G	G	E	E <sub>13</sub>	E	E	E <sub>15</sub>	E <sub>13</sub>	
26	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>13</sub>	E	E	G	G	G	G	G	G	G	G	G	27	G	E <sub>13</sub>	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	20	E	
27	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>16</sub>	G	G	G	C	C	C	C	C	C	33	33	18	E	29	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	
28	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	C	C	C	G	G	G	28	23	16	E	E <sub>13</sub>	E <sub>13</sub>	E	E	
29	15	E	22	E	E <sub>13</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	37	37	39	38	37	36	C	33	24	20	14	E	E	20	E	
30																									
31																									
CNT	29	29	29	29	29	29	29	29	29	28	26	26	26	27	27	26	28	29	29	29	29	29	29	29	29
MED	E <sub>15</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	G	G	G	E <sub>32</sub>	U <sub>30</sub>	36	30	32	29	23	18	15	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	15	E <sub>15</sub>	
UQ	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	34	35	38	39	36	36	35	28	23	17	15	E <sub>15</sub>	E <sub>15</sub>	17	E <sub>15</sub>	
LQ	E <sub>15</sub>	E <sub>12</sub>	E	E	E	E <sub>12</sub>	E <sub>12</sub>	G	G	G	G	G	G	G	G	G	G	G	E <sub>12</sub>	E	E	E	E	E	

FEB. 1972

FBES (0.1 MHZ)



IONOSPHERIC DATA

FEB. 1972

F-MIN (0.1 MHZ)

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

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz 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	13	13	13	13	12	13	15	15	15	15	15	19	15	15	14	14	15	13	13	E <sub>15</sub> S	13	E <sub>15</sub> S	E <sub>15</sub> S	
2	E <sub>15</sub> S	E <sub>15</sub> S	13	13	13	13	13	15	13	15	16	15	15	15	15	15	13	13	13	13	E <sub>15</sub> S	E <sub>15</sub> S	13	E <sub>15</sub> S	
3	13	13	13	13	13	13	13	15	15	13	15	15	15	15	15	15	15	13	13	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
4	E <sub>16</sub> S	13	13	E <sub>15</sub> S	E <sub>15</sub> S	13	13	15	15	14	15	15	15	15	15	15	15	13	13	13	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
5	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	13	15	13	14	15	15	16	16	14	15	14	14	E <sub>15</sub> S	14	E <sub>15</sub> S	E <sub>15</sub> S	14	14	
6	14	14	12	12	14	14	12	15	15	14	15	15	16	19	16	15	14	14	12	14	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
7	E <sub>15</sub> S	14	E <sub>15</sub> S	12	12	12	E <sub>15</sub> S	14	14	C	C	C	C	C	C	C	C	15	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
8	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	13	E <sub>15</sub> S	15	14	13	15	15	15	15	15	13	13	15	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	13	E <sub>15</sub> S	
9	E <sub>15</sub> S	13	E <sub>15</sub> S	13	13	13	E <sub>15</sub> S	13	14	15	15	16	15	19	15	14	13	12	12	E <sub>15</sub> S	E <sub>15</sub> S	13	E <sub>15</sub> S	13	
10	12	12	14	12	12	12	14	13	14	14	15	16	16	15	18	16	14	14	14	14	14	14	13	13	
11	13	14	12	13	14	14	13	15	14	24	39	39	39	36	26	15	14	14	13	14	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
12	E <sub>15</sub> S	14	14	14	14	13	13	14	14	16	15	15	18	15	16	16	15	14	E <sub>15</sub> S	14	E <sub>15</sub> S	13	E <sub>15</sub> S	E <sub>15</sub> S	
13	E <sub>15</sub> S	14	12	12	14	14	13	15	14	15	15	17	28	19	16	15	13	14	14	14	14	E <sub>15</sub> S	14	E <sub>15</sub> S	
14	E <sub>15</sub> S	12	14	13	13	14	12	13	13	14	15	15	26	25	26	15	16	21	13	13	E <sub>15</sub> S	13	13	E <sub>15</sub> S	
15	E <sub>15</sub> S	E <sub>15</sub> S	13	13	13	13	E <sub>15</sub> S	13	15	15	21	26	25	25	25	14	15	15	13	13	13	13	E <sub>15</sub> S	E <sub>16</sub> S	
16	13	E <sub>15</sub> S	13	13	E <sub>15</sub> S	E <sub>15</sub> S	13	13	15	15	19	22	25	25	23	15	15	14	13	13	13	13	13	E <sub>15</sub> S	
17	E <sub>15</sub> S	13	13	14	E <sub>15</sub> S	E <sub>15</sub> S	13	13	15	15	25	25	25	25	15	15	15	13	13	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
18	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	13	E <sub>15</sub> S	E <sub>15</sub> S	13	14	15	15	16	15	25	23	19	15	13	13	E <sub>15</sub> S	13	E <sub>15</sub> S	E <sub>15</sub> S	13	
19	13	E <sub>15</sub> S	13	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	13	13	14	15	26	19	15	18	15	15	15	E <sub>15</sub> S	14	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	13	
20	12	14	E <sub>15</sub> S	14	13	E <sub>15</sub> S	12	14	14	14	15	17	26	26	17	15	15	15	14	13	E <sub>15</sub> S	14	E <sub>15</sub> S	E <sub>15</sub> S	
21	E <sub>15</sub> S	14	14	14	E <sub>15</sub> S	13	E <sub>15</sub> S	13	14	15	15	15	26	15	15	15	15	13	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
22	13	E <sub>15</sub> S	E <sub>15</sub> S	13	13	13	E <sub>15</sub> S	15	13	15	19	16	40	38	25	19	15	15	13	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
23	E <sub>15</sub> S	13	13	E <sub>15</sub> S	E <sub>15</sub> S	130	15	14	15	14	15	25	25	26	25	15	19	15	E <sub>15</sub> S	13	13	13	13	E <sub>15</sub> S	
24	13	E <sub>15</sub> S	E <sub>15</sub> S	13	13	E <sub>15</sub> S	15	15	15	15	25	25	25	25	25	15	15	13	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
25	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	15	15	15	15	39	15	15	15	15	15	15	E <sub>15</sub> S	13	E <sub>15</sub> S	13	E <sub>15</sub> S	13	
26	E <sub>15</sub> S	13	E <sub>15</sub> S	13	13	E <sub>15</sub> S	E <sub>15</sub> S	15	14	15	16	19	25	26	19	15	15	14	13	E <sub>15</sub> S	E <sub>16</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
27	14	E <sub>15</sub> S	14	14	14	14	16	13	14	15	C	C	C	C	C	C	15	15	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
28	E <sub>15</sub> S	E <sub>15</sub> S	13	E <sub>15</sub> S	14	E <sub>15</sub> S	E <sub>15</sub> S	15	15	E <sub>25</sub> C	C	C	C	25	15	15	14	14	13	13	13	13	13	E <sub>15</sub> S	
29	13	13	13	13	13	13	15	13	15	14	15	15	20	16	18	C	15	13	14	12	14	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
30																									
31																									
CNT	29	29	29	29	29	29	29	29	29	28	26	26	26	27	27	26	28	29	29	29	29	29	29	29	29
MED	E <sub>15</sub> S	14	14	13	14	14	15	14	14	15	15	16	20	19	16	15	15	14	13	14	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
UQ	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	14	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	15	15	15	16	25	25	25	23	15	15	15	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	E <sub>15</sub> S	
LQ	13	13	13	13	13	13	13	13	14	14	15	15	15	15	15	15	14	13	13	13	14	13	14	E <sub>15</sub> S	

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F-MIN (0.1 MHZ)



IONOSPHERIC DATA

FEB. 1972

M(3000)F2 (0.01)

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz 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	280	280	300	335	365	285	275	340	345 <sup>R</sup>	350	325	330	340	310 <sup>R</sup>	320 <sup>R</sup>	310	325	325	330	310	310	325	275	265
2	260	260	310	310	290	295	315	330	330	345 <sup>R</sup>	350	310	340	310	325	335	330	335	305	335	305	280	275	265
3	290	280	290	310	365	290	300	325	335 <sup>R</sup>	335 <sup>R</sup>	320 <sup>R</sup>	330	330	325	335	340	340	330	345	325	305	315	285	285
4	295	275	280	285	310	290	330 <sup>R</sup>	340	335	330 <sup>R</sup>	335	315 <sup>R</sup>	345	320	325	330	350 <sup>R</sup>	360	A	335 <sup>R</sup>	315	325	280	280
5	285	295 <sup>R</sup>	300	315	310	275	310	340	300	280 <sup>R</sup>	310	335	340	325	340	335	345	325	315	340	335	320	265 <sup>F</sup>	265 <sup>F</sup>
6	260 <sup>F</sup>	F	295	310	305	275	310	355	365	325	330	320	335	330	335	335	350	350	325	295	305	315	295	290
7	275	295	290 <sup>S</sup>	310	340	280	295	350	360	C	C	C	C	C	C	C	C	315 <sup>R</sup>	310	330	325	315	280	285
8	280	F	F	F	355	325	275	330	335	315	330	330	325	330	325	320	320	330	335	310	290 <sup>R</sup>	340 <sup>R</sup>	285	285 <sup>R</sup>
9	270 <sup>R</sup>	280	285	295	310	310	295	340	325 <sup>R</sup>	300	335	330	350	340	325	345	340	350	315	300	310	340	285	285
10	275 <sup>F</sup>	285	290 <sup>F</sup>	320 <sup>S</sup>	330 <sup>F</sup>	350 <sup>F</sup>	320	340	330	345	335	330	335	330	335	345	350	350	340	290	295	305	295	290
11	290	280	280 <sup>R</sup>	300	310	325	300	345	335	325	330	335	325	330	325	340	345	330	335	335	310	300	300 <sup>R</sup>	295 <sup>R</sup>
12	305	300	295	305	300	290 <sup>H</sup>	305	340 <sup>R</sup>	360 <sup>R</sup>	335 <sup>R</sup>	335	325	325 <sup>R</sup>	330	335	335	330	335	320	310	315	315	305	290
13	275	285	290	295	315	320	290	335	350 <sup>R</sup>	325	330 <sup>R</sup>	330 <sup>R</sup>	345	340	330 <sup>R</sup>	320	330 <sup>R</sup>	340	330	315	325	285	270	275
14	270	320	330	275	260	240	280	350 <sup>R</sup>	310	325 <sup>R</sup>	325	315	335	325 <sup>R</sup>	330	330	330 <sup>R</sup>	325	335	310	305	315	325	295
15	255	265	300	310	315	300	315	335 <sup>R</sup>	320	335	315 <sup>R</sup>	300	310	320	295	320	320	315	325 <sup>R</sup>	305	R	300	300 <sup>R</sup>	285
16	290	295 <sup>R</sup>	310	330	320	280	290	335	335 <sup>R</sup>	335	340	315	315	315	320	335 <sup>R</sup>	335	330	325	300	310	320	330	290
17	285	290	290	290	310	275	295	330 <sup>R</sup>	340 <sup>R</sup>	330	330 <sup>R</sup>	315	310	310	330 <sup>R</sup>	325	315 <sup>R</sup>	300	325	305	310	300	280 <sup>R</sup>	290
18	275	285	250	295	270	270	280 <sup>R</sup>	R	315 <sup>R</sup>	300 <sup>R</sup>	290	305	300	305	315	320	320	320 <sup>R</sup>	320	A	315	305	260	290 <sup>R</sup>
19	280	275	285	285	285	305	300	325 <sup>R</sup>	325	300	320	310	305	300	305	305	315	305	300 <sup>R</sup>	320 <sup>R</sup>	315 <sup>R</sup>	295	300	290
20	280	265	285 <sup>R</sup>	295	310	280	300	330	340	325	325	315	310	295	305	305	325	320	315	300	320	305	290 <sup>R</sup>	290
21	295	300	295	275	285	295 <sup>F</sup>	330	345	340	320 <sup>R</sup>	315	300	305	295	300	300	310 <sup>R</sup>	325	295 <sup>R</sup>	305	300	300 <sup>R</sup>	280 <sup>R</sup>	270
22	265	285	315	280 <sup>R</sup>	265	270 <sup>R</sup>	325	340 <sup>R</sup>	330 <sup>R</sup>	330	325	295	305	285	305	300	290	320	295 <sup>R</sup>	305 <sup>R</sup>	305 <sup>R</sup>	300 <sup>R</sup>	275	280
23	270 <sup>R</sup>	295 <sup>R</sup>	270	285	300	280	310 <sup>R</sup>	335 <sup>R</sup>	315 <sup>R</sup>	325	315	320	300	305	315	310 <sup>R</sup>	320 <sup>R</sup>	315 <sup>R</sup>	305 <sup>R</sup>	320 <sup>R</sup>	315	R	290 <sup>R</sup>	280 <sup>R</sup>
24	275	280	265	260	280	285	300	360 <sup>R</sup>	315 <sup>R</sup>	325	335	305	300	305	300	305	310	315	305 <sup>R</sup>	275 <sup>R</sup>	300 <sup>R</sup>	R	245	R
25	295	280	265	270 <sup>R</sup>	265	275	290	305 <sup>R</sup>	325	330	310	310	315	305	305	320	320 <sup>R</sup>	315 <sup>R</sup>	R	305 <sup>R</sup>	310 <sup>R</sup>	320 <sup>R</sup>	300	280
26	275 <sup>R</sup>	280	290	315 <sup>R</sup>	270	290	300	335 <sup>R</sup>	315	315	325	320	315	310	310	320	340	325 <sup>R</sup>	330	310	295	295	300	285
27	265	300 <sup>R</sup>	320	335	295	280	300 <sup>R</sup>	335 <sup>R</sup>	340	350	C	C	C	C	C	C	335	335	335	320	325 <sup>R</sup>	290	280 <sup>R</sup>	285
28	295 <sup>U</sup>	305 <sup>U</sup>	330	320	300	275	280	340 <sup>U</sup>	340 <sup>U</sup>	335 <sup>U</sup>	C	C	C	315	310	325	315	325	280	300	305	280	280 <sup>R</sup>	285
29	300	300 <sup>R</sup>	295	330	265	280	305	325	335	325	335	310	320	325	325	C	330	335	325	295	295	290	290	295
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	29	27	28	28	29	29	29	28	29	28	26	26	26	27	27	26	28	29	27	28	28	27	29	28
MED	280	285	290	302	305	285	300	338	335	325	328	315	322	315	325	322	330	325	325	310	310	305	285	285
UQ	290	295	300	315	315	295	310	340	340	335	335	330	335	328	330	335	340	335	330	320	315	318	300	290
LQ	270	280	285	285	285	275	290	330	325	322	320	310	310	305	308	310	320	320	308	300	305	298	280	280

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M(3000)F2 (0.01)

IONOSPHERIC DATA

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M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz 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	U 380	L	A	L									
2										L	L	L	L	L	L	L									
3									U 420	U 330	L	L	L	L	L		L								
4										L	L	L	L	U 390	U 420	L									
5									L	L	L	U 370	380	L	L	L									
6										U 350	L	L	L	390	L	L	L								
7									C	C	C	C	C	C	C	C	C								
8									L	L	L	L	L	L	L	L	L								
9									L	L	L	380	L	L	L	L									
10									L	L	L	L	U 400	U 380	L	L									
11									L	L	L	L	L	370	L	L									
12									L	L	L	U 380	L	L	L	L									
13									L	L	L	370	360	U 400	L										
14									L	L	L	L	U 400	L	L	L	L								
15									L	L	L	L	L	L	L	L									
16									L	L	L	L	L	L	L										
17									L	L	L	L	U 390	L	L	A	L								
18									L	L	U 390	380	A	A	A										
19									L	L	380	L	L	L	L										
20									L	A	L	L	L	L	L	L									
21									L	L	L	L	L	L	L	L									
22									L	L	L	L	L	L	L										
23									L	L	L	L	L	L	L	L									
24									L	L	L	L	L	L	L	L									
25									L	L	L	U 400	L	L	L	L	L								
26									L	L	L	L	U 380	L	L	L	L								
27									L	C	C	C	C	C	C	C									
28									L	C	C	C	L	L	L										
29									L	L	L	L	U 380	L	L	C	L								
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									1	1	2	6	9	5	1										
MED									U 420	U 330	365	U 380	U 380	U 390	U 420										
UQ												U 390	U 390	U 390											
LQ												U 370	380	380											

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M(3000)F1 (0.01)

# IONOSPHERIC DATA

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H<sup>o</sup>F<sub>2</sub> (KM)

135° E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz 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	250	270	250	240	215	240								
2										240	250	250	260	250	250	245								
3									245	245	250	250	250	245	240		235							
4										260	260	260	250	265	250	250	250							
5									225	230	245	250	250	255	245	250								
6										275	255	260	255	250	240	230								
7										C	C	C	C	C	C	C								
8										240	280	255	260	265	250	250	250							
9									230	230	240	255	245	250	240	240								
10									230	230	260	260	245	260	240	240								
11										260	250	250	250	265	255	250								
12									220	245	250	260	260	255	250	245								
13										250	260	255	250	250	250									
14									240	250	255	270	255	250	250	250	250							
15										250	260	265	270	270	270	250								
16									250	250	250	260	260	275	265									
17										250	250	230	260	270	250	255	255							
18										250	260	290	270	275	270	250								
19									250	275	245	275	275	255	260									
20										270	250	260	260	280	250	240								
21										250	250	250	260	250	250	260	250	250						
22										250	245	260	255	250	265									
23										240	250	250	255	285	260	250	250							
24									240	245	245	255	260	250	250	240								
25									250	240	250	255	250	250	250	240	240							
26									250	260	250	255	260	265	255	245	230							
27										250	C	C	C	C	C	C								
28										245	C	C	C	250	250	250								
29									250	250	235	270	270	250	240	C	230							
30																								
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									12	26	26	26	26	27	27	21	12	1						
MED									242	250	250	255	260	255	250	250	245	250						
UQ									250	250	260	260	260	265	258	250	250							
LQ									230	240	250	250	250	250	250	240	232							

The Radio Research Laboratories, Japan

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H<sup>o</sup>F<sub>2</sub> (KM)

IONOSPHERIC DATA

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H<sup>o</sup>F (KM)

135° E Mean Time (G. M. T. + 9<sup>h</sup>)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz 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	305	300	275	250	205	300	280	250	235	215	210	210	210	200	210	200	215	210	240	250	245	240	290	340
2	340	330	260	250	255	300	250	240	220	220	210	210	200	240	210	210	225	235	240	210	250	285	300	340
3	310	300	300	260	215	210	270	240	200	200	220	240	200	220	220	230	210	240	200	210	260	250	300	310
4	280	300	310	290	260	250	240	235	230	200	210	230	220	200	200	230	210	210	250	250	245	255	340	300
5	275	290	290	255	250	260	250	240	210	195	195	230	220	225	205	210	220	220	230	220	200	255	300	340
6	305	300	260	245	245	290	255	205	220	230	225	225	220	220	210	220	225	205	220	260	250	230	250	270
7	305	290	290	255	220	A	270	220	220	C	C	C	C	C	C	C	C	240	230	220	205	245	290	300
8	335	300	300	260	205	200	300	230	240	220	240	250	240	240	210	200	240	210	205	260	250	240	290	280
9	300	300	275	265	240	250	255	240	220	225	225	205	220	205	200	220	230	220	220	245	240	205	230	290
10	300	280	290	240	210	205	220	230	220	200	240	220	230	205	220	205	220	220	210	225	250	250	250	270
11	290	290	295	270	250	220	260	220	220	220	240	245	230	225	220	225	220	220	210	210	240	250	290	275
12	260	300	290	280	260	250	260	230	210	225	220	220	210	220	225	225	230	220	210	250	230	245	255	255
13	305	295	280	265	240	225	270	240	230	225	220	220	220	220	200	230	240	230	205	240	240	285	305	310
14	320	230	220	300	305	370	320	230	225	220	210	220	225	210	240	240	240	230	210	240	240	250	250	300
15	350	300	280	260	210	290	280	230	230	235	210	210	250	240	255	240	240	225	230	230	260	255	260	280
16	310	290	255	250	245	300	285	245	200	220	210	200	240	250	250	250	235	240	230	245	245	250	250	290
17	305	290	290	250	240	300	280	240	245	240	240	210	210	250	240	240	245	230	210	240	260	250	290	290
18	330	300	350	290	250	330	295	225	250	240	240	240	240	250	250	240	250	245	290	260	230	240	290	295
19	300	290	275	260	250	240	260	235	240	200	230	220	230	225	220	240	230	245	245	240	220	245	255	255
20	295	320	300	260	220	305	255	220	230	230	230	240	240	230	230	225	225	220	220	250	240	270	310	285
21	265	250	255	300	275	260	230	220	230	240	240	200	250	240	240	210	240	235	210	240	240	290	A	310
22	340	300	240	255	300	300	240	230	225	230	220	225	210	240	240	245	250	230	235	210	205	235	245	290
23	295	295	290	255	250	230	250	225	230	220	240	230	210	205	230	220	220	215	225	240	205	240	270	300
24	305	295	300	300	265	250	260	230	210	210	210	210	240	240	210	235	240	235	225	245	245	240	330	360
25	260	250	260	315	305	300	300	240	240	220	235	205	220	220	230	220	230	235	245	250	240	220	240	255
26	295	290	285	250	240	265	260	220	220	225	205	210	200	220	210	220	225	220	200	225	245	250	270	295
27	305	270	245	220	220	285	270	220	220	230	C	C	C	C	C	C	230	220	220	220	260	260	300	300
28	275	255	220	225	230	320	290	230	230	200	C	C	C	205	200	230	220	240	210	205	240	250	250	295
29	240	250	250	240	205	290	260	230	240	230	225	220	205	235	220	C	230	220	205	245	240	275	300	275
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	29	29	29	29	29	28	29	29	29	28	26	26	26	27	27	26	28	29	29	29	29	29	28	29
MED	305	295	280	260	245	275	260	230	225	220	222	220	220	225	220	225	230	225	220	240	240	250	290	295
UQ	310	300	290	270	255	300	280	240	230	230	240	230	240	240	235	240	240	235	230	250	250	255	300	300
LQ	290	290	260	250	220	245	255	225	220	212	210	210	210	215	210	220	220	220	210	220	240	240	250	280

FEB. 1972

H<sup>o</sup>F (KM)



### IONOSPHERIC DATA

FEB. 1972

H<sup>o</sup>ES (KM)

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz 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	B	100	100	B	B	B	B	G	130	120	G	110	110	110	105	105	160	150	B	100	100	100	100	100
2	S	S	100	100	100	100	100	100	100	130	110	110	110	110	G	120	100	100	100	100	100	100	B	S
3	B	115	B	B	100	B	100	G	G	G	G	G	G	G	E G 180	G	100	G	110	110	110	100	100	S
4	S	B	B	100	100	B	100	G	G	G	G	170	G	120	110	105	150	100	100	100	100	100	100	100
5	100	S	S	S	S	S	B	G	G	130	110	160	110	110	110	110	110	G	S	B	100	100	B	B
6	B	B	B	110	B	105	B	150	155	155	145	105	105	105	G	G	G	G	B	B	100	100	100	100
7	S	B	100	100	100	100	100	G	G	C	C	C	C	C	C	C	C	100	100	100	S	S	100	S
8	B	100	100	100	100	B	S	G	G	155	150	120	110	110	100	100	100	G	B	S	S	100	100	110
9	S	B	S	B	B	100	S	G	G	G	150	G	100	100	100	100	100	100	100	100	100	B	S	B
10	100	B	B	B	B	B	B	G	G	110	150	G	115	110	G	110	105	G	B	B	100	100	100	100
11	B	B	B	100	B	100	100	G	175	G	B	B	B	B	130	125	100	100	100	B	B	S	100	S
12	S	100	100	100	100	B	B	G	G	G	115	110	110	G	G	G	G	105	105	100	100	100	S	S
13	100	B	B	B	100	100	B	G	145	130	120	G	G	G	G	G	100	100	100	B	B	S	B	100
14	S	B	B	B	B	B	B	G	G	115	G	G	G	G	G	G	G	B	B	B	S	B	B	S
15	S	S	B	B	100	B	S	G	G	155	G	G	G	110	105	110	140	115	100	100	100	100	S	S
16	B	S	B	B	S	S	B	G	G	G	G	G	G	G	150	130	115	110	105	100	B	100	B	S
17	S	B	B	B	S	S	B	G	150	G	G	G	140	G	120	110	110	105	100	100	100	100	S	S
18	100	100	S	100	B	S	S	G	G	150	G	100	140	120	110	110	110	110	100	100	100	100	100	100
19	100	S	B	B	100	S	S	G	G	130	G	110	105	100	105	115	G	100	100	100	S	S	S	B
20	100	B	S	100	100	105	B	G	170	150	150	125	125	125	125	110	110	105	B	105	105	100	100	100
21	100	100	100	100	S	B	S	G	G	G	G	G	150	130	110	110	110	135	105	110	S	100	100	100
22	100	100	S	B	B	B	S	G	G	G	140	140	130	110	120	110	110	105	100	100	100	100	100	100
23	S	100	100	S	S	B	B	G	G	G	140	115	140	G	G	G	G	G	100	100	100	B	100	S
24	100	100	100	B	B	S	B	G	G	G	G	100	100	100	G	G	G	140	S	100	S	100	140	100
25	S	S	100	100	100	100	100	G	G	G	G	B	115	G	110	110	G	G	100	B	100	100	S	B
26	S	B	S	B	B	100	100	G	G	G	G	G	G	G	G	G	110	G	B	S	S	S	110	110
27	B	S	B	B	B	B	B	G	G	G	C	C	C	C	C	C	110	125	105	100	100	S	S	S
28	S	S	B	S	B	S	S	G	G	G	C	C	C	G	G	G	130	140	105	105	B	B	100	100
29	110	110	110	110	B	B	B	G	G	150	150	120	120	125	120	C	110	105	105	100	100	100	100	100
30																								
31																								
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	10	10	12	11	9	7	2	7	13	12	14	18	16	17	17	21	20	20	20	18	19	17	14
MED	100	100	100	100	100	100	100	125	150	130	142	112	112	110	110	110	110	105	100	100	100	100	100	100
UQ	100	100	100	100	100	100	100		162	150	150	125	130	120	120	110	110	120	105	100	100	100	100	100
LQ	100	100	100	100	100	100	100		138	130	118	110	110	108	105	110	100	100	100	100	100	100	100	100

FEB. 1972

H<sup>o</sup>ES (KM)



IONOSPHERIC DATA

FEB. 1972

TYPES OF ES

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

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz 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	F1						H1	H1		F1	F1	F1	F1	F1	H1	H1		F1	F1	F1	F1		
2			F1	F1	F1	F2	F2	F1	F1	F1	F1	F1	F1	F1		H1	F1	F1	F1	F1	F1	F1			
3		F1			F1		F1								H1		F1		F1	F1	F1	F1	F1		
4				F2	F1		F1				H1		H1	F1	F1	H1	H1	F1	F1	F1	F1	F1	F1	F1	
5	F1									H1	F1	F1	F1	F1	F1	F1	F1					F1	F1		
6				F1		F1		F1	H1	F1	F1	F1	F1	F1								F1	F1	F1	F1
7			F1	F1	F1	F1	F1	F1										F1	F1	F1			F1		
8		F1	F1	F1	F1				H1	H1	H1	F1	F1	F1	F1	F1						F1	F1	F1	
9					F1					H1		F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1		
10	F1								F1	H1		F1	F1	F1	F1	F1	F1				F1	F1	F1	F1	
11				F1		F1	F1		H1						H1	H1	F1	F1	F1				F1		
12		F1	F1	F1	F1						F1	F1	F1					F1	F1	F1	F1	F1	F1		
13	F1				F1	F1			H1	H1	H1						F1	F1	F1					F1	
14									F1									F1	F1	F1					
15					F1				H1			F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	
16															H1	H1	F1	F1	F1	F1	F1	F1	F1	F1	
17									H1						H1	H1	F1	F1	F1	F1	F1	F1	F1	F1	
18	F1	F1		F1					H1		F1	H1	H1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	
19	F1				F1				H1		F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	F1	
20	F1			F1	F1	F1			H1	H1	H1	H1	H1	H1	H1	F1	F1	F1	F1	F1	F1	F1	F1	F1	
21	F1	F1	F1	F1							H1	H1	F1	F1	F1	F1	H1	H1	F1	F1	F1	F1	F1	F1	
22	F1	F1									H1	H1	H1	F1	H1	F1	F1	F1	F1	F1	F1	F1	F1	F1	
23		F1	F1								H1	F1	H1					F1	F1	F1	F1	F1	F1	F1	
24	F1	F1	F1								F1	F1	F1					H1		F1	F1	F1	F1	F1	
25			F1	F1	F1	F1	F1					F1		F1	F1				F1		F1	F1			
26					F1	F1											F1						F1	F1	
27																	F1	H1	F1	F1	F1	F1	F1	F1	
28																	H1	H1	F1	F1	F1	F1	F1	F1	
29	F1	F1	F1	F1					H1	H1	H1	H1	H1	H1			F1	F1	F1	F1	F1	F1	F1	F1	
30																									
31																									
CNT																									
MED																									
UQ																									
LQ																									

FEB. 1972

TYPES OF ES

# IONOSPHERIC DATA

FEB. 1972

HPF2 (KM)

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

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz 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	380	390	350	290	245	280	350	280	255 <sup>B</sup>	290	290	290	280	300 <sup>B</sup>	300 <sup>B</sup>	300	290	280	290	290	300	290	350	400
2	400	390	350	290	350	340	300	280	250	270 <sup>B</sup>	255	300	280	300	290	290	290	290	300	250	300	360	385	390
3	350	360	350	330	250	340	350	300	260 <sup>B</sup>	285 <sup>B</sup>	300 <sup>B</sup>	290	290 <sup>B</sup>	290	290	280	255	290	250	280	340	300	360	360
4	350	360	380	350	305	350	290 <sup>B</sup>	260	290	290 <sup>B</sup>	290	290 <sup>B</sup>	270	300	290	290	250 <sup>B</sup>	255	A	290 <sup>B</sup>	290	300	390	350
5	350	350 <sup>R</sup>	350	300	300	350	295	250	250	355 <sup>H</sup>	290	275	275	280	260	280	250	260	300	260	250	295	375 <sup>F</sup>	395 <sup>F</sup>
6	395 <sup>F</sup>	F	320	305	305	350	300	240	230	270	290	295	275	280	265	270	245	250	280	340	310	300	320	340
7	360	330	350 <sup>S</sup>	305	250	365	300	250	240	C	C	C	C	C	C	C	C	290 <sup>B</sup>	290	290	280	295	350	380
8	390	F	F	F	250	290	350	290	250	300	290	290	300	290	300	300	300	290	280	290	350 <sup>B</sup>	280 <sup>B</sup>	350	390 <sup>B</sup>
9	390 <sup>B</sup>	390	350	355	290	290	300	280	290 <sup>B</sup>	305	260	280	255	255	290	255	260	250	300	305	290	250	305	350
10	365 <sup>E</sup>	340	355 <sup>E</sup>	290 <sup>S</sup>	265 <sup>E</sup>	250 <sup>E</sup>	280	255	250	260	280	290	265	285	270	260	250	250	280	310	320	315	330	340
11	355	375	355 <sup>B</sup>	320	300	275	305	250	250	290	280	270	280	290	285	260	250	265	270	260	300	305	350 <sup>S</sup>	320 <sup>B</sup>
12	310	315	340	305	325	350 <sup>H</sup>	310	260 <sup>B</sup>	250 <sup>B</sup>	270 <sup>B</sup>	275	295	280 <sup>B</sup>	275	275	275	265	260	285	300	290	305	305	310
13	360	350	350	330	295	285	330	270	250 <sup>B</sup>	280	290 <sup>B</sup>	280 <sup>B</sup>	255	265	275 <sup>B</sup>	280	270 <sup>B</sup>	260	280	300	290	350	390	390
14	395	290	260	355	375	430	380	250 <sup>B</sup>	295	300 <sup>B</sup>	300	300	290	300 <sup>B</sup>	290	290	290 <sup>B</sup>	290	290	300	290	290	290	355
15	390	360	350	300	290	350	320	280 <sup>B</sup>	300	290	300 <sup>B</sup>	290	300	300	290	290	290	290	300 <sup>B</sup>	290	R	350	350 <sup>B</sup>	350
16	390	350 <sup>B</sup>	330	290	290	360	350	290	280 <sup>B</sup>	290	280	300	300	300	300	290 <sup>B</sup>	290	290	290	300	300	300	290	350
17	350	370	360	350	300	390	350	290 <sup>B</sup>	280 <sup>B</sup>	290	290 <sup>B</sup>	300	330	330	290 <sup>B</sup>	290	300 <sup>B</sup>	290	300	290	320 <sup>B</sup>	290	360 <sup>B</sup>	360
18	400	360	400	350	350	400	390 <sup>B</sup>	R	300 <sup>R</sup>	350 <sup>UR</sup>	350	315	340	300	300	300	300	300 <sup>B</sup>	300	A	300	300	390	350 <sup>B</sup>
19	390	390	350	350	350	300	350	300 <sup>B</sup>	300	320	290	305	305	310	310	315	300	300	300 <sup>B</sup>	300 <sup>B</sup>	300 <sup>B</sup>	320	320	330
20	355	405	370 <sup>R</sup>	330	300	385	330	250	255	290	295	300	305	320	320	310	270	295	300	320	295	305	340 <sup>S</sup>	355
21	330	325	340	385	355	335 <sup>E</sup>	270	250	255	300 <sup>B</sup>	290	350	300	350	345	300	330 <sup>B</sup>	300	350 <sup>B</sup>	340	350	350 <sup>B</sup>	380 <sup>A</sup>	390
22	400	380	300	360 <sup>UR</sup>	400	390 <sup>B</sup>	295	270 <sup>B</sup>	290 <sup>B</sup>	290	290	340	300	350	305	300	340	300	330 <sup>B</sup>	300 <sup>B</sup>	300 <sup>B</sup>	350 <sup>B</sup>	350	390
23	390 <sup>B</sup>	350 <sup>B</sup>	390	340	300	350	300 <sup>B</sup>	260 <sup>B</sup>	300 <sup>B</sup>	295	300	300	350	300	300	300 <sup>B</sup>	300 <sup>B</sup>	300 <sup>B</sup>	310 <sup>UR</sup>	300 <sup>UR</sup>	300	R	350 <sup>UR</sup>	350 <sup>UR</sup>
24	390	380	390	390	380	350	300	240 <sup>B</sup>	270 <sup>B</sup>	295	290	340	310	310	300	305	300	300	340 <sup>UR</sup>	390 <sup>UR</sup>	350 <sup>UR</sup>	R	450	R
25	350	350	360	400 <sup>UR</sup>	395	390	370	300 <sup>B</sup>	290	290	300	305	300	300	300	300	300 <sup>UR</sup>	305 <sup>UR</sup>	R	340 <sup>UR</sup>	300 <sup>UR</sup>	300 <sup>UR</sup>	300	390
26	390 <sup>B</sup>	370	350	300 <sup>R</sup>	390	350	300	260 <sup>B</sup>	300	300	290	300	300	305	305	290	270	270 <sup>B</sup>	270	290	320	325	320	360
27	380	330 <sup>S</sup>	295	250	300	345	305	255 <sup>S</sup>	250	265	C	C	C	C	C	C	265	265	260	290	265 <sup>UC</sup>	335	350 <sup>UC</sup>	340
28	345 <sup>UC</sup>	305 <sup>UC</sup>	275	270	300	380	355	255 <sup>UC</sup>	270 <sup>UC</sup>	300 <sup>UC</sup>	C	C	C	C	C	300	300	300	300	300	300	340	350	360 <sup>IR</sup>
29	350	300 <sup>IR</sup>	300	290	360	350	300	290	290	280	270	300	300	285	280	C	275	270	275	320	320	350	355	340
30																								
31																								
CNT	29	27	28	28	29	29	29	28	29	28	26	26	26	27	27	26	28	29	27	28	28	27	29	28
MED	380	360	350	325	300	350	305	260	270	290	290	300	300	300	290	290	290	290	290	300	300	305	350	355
UQ	390	378	358	350	350	365	350	285	290	300	295	300	300	302	300	300	300	300	300	308	320	338	360	390
LQ	350	335	335	298	290	335	300	250	250	280	280	290	280	288	288	280	262	265	280	290	290	298	320	345

FEB. 1972

HPF2 (KM)

# IONOSPHERIC DATA

FEB. 1972

YPF2 (KM)

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N. Long. 139 29.3 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	110	100	100	100	105	110	100	110	J <sub>95</sub> <sup>R</sup>	100	100	100	110	Y <sub>100</sub> <sup>R</sup>	J <sub>90</sub> <sup>R</sup>	90	100	100	100	100	90	100	100	90	
2	90	100	90	100	90	100	90	100	90	Y <sub>110</sub> <sup>R</sup>	95	90	110	100	90	90	90	90	90	100	90	90	95	100	
3	100	90	110	110	100	100	100	90	100	J <sub>95</sub> <sup>R</sup>	J <sub>90</sub> <sup>R</sup>	100	J <sub>90</sub> <sup>R</sup>	90	90	110	95	100	100	100	100	90	90	100	
4	100	100	110	100	85	90	100	110	90	Y <sub>100</sub> <sup>R</sup>	100	J <sub>85</sub> <sup>R</sup>	110	90	100	90	100	105	A	90	100	90	100	100	
5	100	Y <sub>100</sub> <sup>R</sup>	100	90	90	110	85	100	100	100	130	55	50	75	55	40	55	90	60	60	70	100	85	70	
6	100	F	F	85	95	70	95	60	60	55	75	45	65	50	55	50	60	55	60	90	65	90	70	80	80
7	85	85	J <sub>65</sub> <sup>S</sup>	65	65	100	100	100	45	C	C	C	C	C	C	C	C	Y <sub>100</sub> <sup>R</sup>	90	90	100	85	100	100	
8	100	F	F	F	100	90	100	90	100	90	100	100	90	100	90	90	90	90	100	100	Y <sub>100</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	100	Y <sub>100</sub> <sup>R</sup>	
9	J <sub>100</sub> <sup>R</sup>	100	100	105	100	100	90	100	95	95	95	70	45	50	65	50	60	55	100	95	65	55	110	100	
10	90	F	F	F	80	55	75	50	55	45	40	50	80	45	70	60	50	50	60	95	85	80	95	65	
11	90	70	J <sub>90</sub> <sup>R</sup>	75	70	70	90	70	55	55	60	75	75	65	70	60	50	80	75	85	75	75	100	J <sub>80</sub> <sup>R</sup>	
12	50	80	80	70	75	95	60	45	J <sub>45</sub> <sup>R</sup>	J <sub>60</sub> <sup>R</sup>	55	50	60	70	70	70	80	50	80	70	65	85	85	95	
13	90	95	95	75	70	70	115	60	J <sub>50</sub> <sup>R</sup>	65	J <sub>55</sub> <sup>R</sup>	70	50	55	J <sub>60</sub> <sup>R</sup>	75	60	50	70	65	60	90	70	65	
14	100	65	85	90	100	100	80	J <sub>50</sub> <sup>R</sup>	65	J <sub>90</sub> <sup>R</sup>	90	90	100	J <sub>90</sub> <sup>R</sup>	100	90	Y <sub>100</sub> <sup>R</sup>	100	90	90	100	100	100	105	
15	100	100	100	90	100	100	100	Y <sub>100</sub> <sup>R</sup>	90	100	J <sub>90</sub> <sup>R</sup>	100	90	90	90	100	100	100	J <sub>90</sub> <sup>R</sup>	100	R	100	J <sub>90</sub> <sup>R</sup>	100	
16	100	Y <sub>100</sub> <sup>R</sup>	100	100	100	100	100	100	Y <sub>100</sub> <sup>R</sup>	100	110	90	90	90	90	Y <sub>100</sub> <sup>R</sup>	90	100	100	90	90	90	100	110	
17	100	120	100	100	90	100	100	Y <sub>100</sub> <sup>R</sup>	110	Y <sub>100</sub> <sup>R</sup>	100	Y <sub>100</sub> <sup>R</sup>	90	100	100	Y <sub>100</sub> <sup>R</sup>	100	J <sub>90</sub> <sup>R</sup>	100	90	100	Y <sub>100</sub> <sup>R</sup>	100	90	
18	90	100	90	100	110	90	Y <sub>100</sub> <sup>R</sup>	R	Y <sub>100</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	100	85	100	90	100	90	90	J <sub>90</sub> <sup>R</sup>	90	A	90	90	100	Y <sub>100</sub> <sup>R</sup>	
19	100	100	100	100	100	90	100	90	90	80	80	90	100	95	90	85	70	95	J <sub>90</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	J <sub>55</sub> <sup>R</sup>	85	85	75	
20	90	90	J <sub>75</sub> <sup>R</sup>	75	95	65	70	70	50	65	60	80	110	100	80	85	85	70	65	80	70	100	I <sub>90</sub> <sup>S</sup>	90	
21	70	90	75	70	90	F	55	55	50	J <sub>90</sub> <sup>R</sup>	100	100	90	100	105	90	Y <sub>100</sub> <sup>R</sup>	90	Y <sub>100</sub> <sup>R</sup>	100	90	Y <sub>100</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	100	
22	90	100	90	Y <sub>90</sub> <sup>R</sup>	90	Y <sub>100</sub> <sup>R</sup>	95	Y <sub>100</sub> <sup>R</sup>	J <sub>90</sub> <sup>R</sup>	100	100	110	90	100	95	100	110	90	Y <sub>110</sub> <sup>R</sup>	J <sub>90</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	110	100	
23	Y <sub>100</sub> <sup>R</sup>	J <sub>100</sub> <sup>R</sup>	100	100	100	100	100	J <sub>90</sub> <sup>R</sup>	J <sub>90</sub> <sup>R</sup>	95	90	90	90	100	90	J <sub>90</sub> <sup>R</sup>	J <sub>90</sub> <sup>R</sup>	Y <sub>90</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	Y <sub>90</sub> <sup>R</sup>	90	R	Y <sub>100</sub> <sup>R</sup>	Y <sub>110</sub> <sup>R</sup>	
24	100	110	100	100	110	100	100	Y <sub>100</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	95	100	110	90	90	100	95	90	90	Y <sub>100</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	Y <sub>100</sub> <sup>R</sup>	R	100	R	
25	100	100	100	Y <sub>100</sub> <sup>R</sup>	95	100	120	J <sub>90</sub> <sup>R</sup>	100	100	90	85	90	90	90	90	J <sub>90</sub> <sup>R</sup>	Y <sub>85</sub> <sup>R</sup>	R	Y <sub>100</sub> <sup>R</sup>	J <sub>90</sub> <sup>R</sup>	I <sub>90</sub> <sup>R</sup>	90	100	
26	Y <sub>100</sub> <sup>R</sup>	90	110	90	100	110	90	Y <sub>110</sub> <sup>R</sup>	90	70	55	55	75	80	90	75	70	J <sub>60</sub> <sup>R</sup>	70	85	85	75	75	85	
27	75	I <sub>80</sub> <sup>S</sup>	60	70	95	100	75	Y <sub>50</sub> <sup>S</sup>	60	40	C	C	C	C	C	C	80	60	J <sub>60</sub> <sup>R</sup>	60	Y <sub>80</sub> <sup>C</sup>	70	Y <sub>75</sub> <sup>C</sup>	J <sub>75</sub> <sup>C</sup>	
28	Y <sub>60</sub> <sup>C</sup>	Y <sub>65</sub> <sup>C</sup>	45	75	95	65	90	Y <sub>50</sub> <sup>C</sup>	J <sub>50</sub> <sup>C</sup>	J <sub>90</sub> <sup>C</sup>	C	C	C	90	90	90	90	90	60	90	90	100	100	Y <sub>100</sub> <sup>R</sup>	
29	100	Y <sub>100</sub> <sup>R</sup>	90	100	90	100	90	100	100	65	85	75	55	70	95	C	70	75	70	125	85	95	90	65	
30																									
31																									
CNT	29	27	28	28	29	29	29	28	29	28	26	26	26	27	27	26	28	29	27	28	28	27	29	28	
MED	100	100	92	92	95	100	95	90	90	92	90	88	90	90	90	90	90	90	90	90	90	90	100	100	
UQ	100	100	100	100	100	100	100	100	100	100	100	100	100	100	95	90	92	100	100	100	100	100	100	100	
LQ	90	88	85	75	90	90	85	60	55	68	60	70	75	72	75	75	70	70	70	82	78	85	90	80	

The Radio Research Laboratories, Japan

FEB. 1972

YPF2 (KM)

# IONOSPHERIC DATA

FEB. 1972

FOF2 (0.1 MHz)

135° E Mean Time (G. M. T. + 9h)

Station	YAMAGAWA																							Lat.	31° 12.1' N.	Long.	130° 37.1' E	Sweep 1 MHz to 20 MHz 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	33	32	34	32	35	28	28	36	78	91	96	104	132	137	140	145	132	115	106	J82	58	J63	J42	36																										
2	36	35	39	32	31	32	28	39	68	78	77	84	95	103	96	84	88	80	67	60	36	34	30	31																										
3	34	34	34	38	39	27	28	37	78	85	82	99	113	97	79	81	81	69	79	53	49	54	48	38																										
4	35	34	35	38	37	32	33	49	69	79	92	114	127	116	105	103	J92	70	53	45	55	J46	41	38																										
5	39	36	35	39	34	32	32	44	70	70	70	91	106	96	89	86	88	75	59	55	58	34	34	36																										
6	35	36	40	39	44	29	31	48	68	68	76	108	118	118	130	134	107	70	57	39	41	I44	48	36																										
7	34	35	F	40	40	24	25	45	68	66	62	88	109	107	106	91	74	73	66	55	U52	39	30	28																										
8	30	32	34	41	I38	22	23	37	56	68	79	91	90	94	96	90	82	78	66	52	46	51	42	38																										
9	38	35	36	36	37	32	28	40	73	69	82	96	92	78	80	76	76	72	J65	J53	41	J51	U43	32																										
10	32	32	33	36	38	30	J26	38	J65	74	77	98	95	I96	93	86	72	65	65	J53	46	48	45	35																										
11	34	35	35	35	37	32	32	41	65	73	89	93	100	85	94	89	79	74	81	60	49	47	42	39																										
12	36	39	38	39	38	37	39	49	71	78	92	101	105	102	106	103	95	U95	85	69	60	58	49	53																										
13	42	36	35	37	38	26	25	41	69	84	90	105	105	88	78	86	79	78	68	62	48	48	48	46																										
14	40	49	32	25	28	29	29	46	73	89	111	120	139	126	108	101	92	85	77	55	48	47	42	33																										
15	33	35	36	37	39	27	27	45	77	86	101	111	117	Y27	Y25	Y21	115	I94	I98	67	56	55	46	44																										
16	42	42	46	38	35	29	29	47	81	93	108	109	105	119	111	108	85	78	73	I54	44	I49	I46	I45																										
17	U40	42	40	J39	40	30	31	49	86	J94	101	121	130	140	141	122	94	89	85	J71	J61	54	50	44																										
18	44	41	37	39	39	37	36	51	81	106	128	138	148	145	128	113	102	88	87	67	67	J63	48	46																										
19	45	46	47	42	44	H38	32	53	86	95	130	121	114	134	135	136	137	I28	Y15	Y02	U88	76	59	54																										
20	51	45	45	48	45	37	36	62	84	97	108	121	112	118	128	127	118	107	95	79	69	63	56	J55																										
21	54	51	50	47	47	47	46	59	78	95	110	105	116	118	129	130	121	115	107	92	83	J73	J53	48																										
22	I46	47	54	37	45	43	44	63	91	100	118	112	123	124	135	137	136	146	160	R	R	R	80	73																										
23	64	52	47	47	46	36	34	56	82	95	111	115	122	Y22	Y21	Y22	Y18	109	106	Y01	U97	U89	J69	54																										
24	52	49	44	46	45	46	H42	J62	92	98	114	115	122	128	141	140	130	131	132	R	R	R	R	R																										
25	R	R	63	56	52	52	49	68	103	105	118	120	131	125	119	114	106	Y01	98	S	C	J98	75	60																										
26	57	54	56	52	42	42	42	58	82	108	130	122	122	122	136	130	123	108	107	98	J90	J79	I67	J56																										
27	48	47	49	54	33	27	27	51	90	98	103	110	136	129	118	113	102	99	90	67	67	61	56	53																										
28	55	62	61	65	36	27	30	56	92	93	101	117	137	132	121	114	106	97	92	82	56	54	50	J50																										
29	I49	I52	50	43	34	32	36	56	85	102	118	121	128	140	130	118	105	101	94	77	66	66	59	55																										
30																																																		
31																																																		
CNT	28	28	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	26	27	28	28																										
MED	40	40	40	39	38	32	31	49	78	91	101	110	116	119	119	113	102	89	85	64	56	54	48	44																										
UQ	48	48	48	46	44	37	36	56	85	97	111	120	128	128	130	127	118	107	98	79	67	63	58	54																										
LQ	34	35	35	37	36	28	28	41	69	78	82	99	105	102	96	90	85	75	67	54	48	48	42	36																										

FEB. 1972

FOF2 (0.1 MHz)



IONOSPHERIC DATA

FEB. 1972

FOF1 (0.01 MHz)

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

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz 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	U 490	L	L	L	L								240
2										L	L	L	L	460	420	L	L								
3										L	L	L	L	L	440	L	340								
4										L	L	L	480	480	L	L	L	290							
5										360	420	L	L	490	480	410	L								
6										L	L	490	480	500	L	450	L	270							
7										L	340	490	470	U 490	470	L	L	270							
8										L	L	L	L	L	480	L	L								
9										L	L	U 490	L	L	L	L	L								
10										L	L	L	480	450	L	L	L	290							
11										340	L	L	480	L	L	L	380	270							
12										L	L	L	L	490	490	L	L	L							
13										L	L	490	490	480	470	L	L								
14										L	L	L	L	L	L	L	L	L							
15										L	L	500	L	U 510	500	L	L								
16										L	L	L	L	L	500	470	L	L							
17										L	L	L	L	540	L	L	L	300							
18										L	L	L	L	430	L	L	L	L							
19										L	L	L	L	L	L	L	L	L							
20										L	L	L	L	L	L	L	L	L							
21										L	L	L	L	L	L	L	L	L							
22										L	L	L	L	L	L	L	L	L							
23										310	L	L	L	L	L	L	L	L	300						
24										L	L	L	L	L	L	L	L	L							
25										L	L	L	L	L	L	L	L	L							
26										L	L	L	L	L	L	L	L	L							
27										L	L	L	L	L	450	420	L	L							
28										L	L	L	510	L	L	L	L	L							
29										L	L	L	L	L	L	L	L	L							
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									1	2	2	5	9	12	9	3	2	8							
MED									310	350	380	490	480	490	470	420	360	280							
UQ												490	490	500	480	430		295							
LQ												U 490	480	470	450	410		270							

FEB. 1972

FOF1 (0.01 MHz)

### IONOSPHERIC DATA

FEB. 1972

FOE (0.01 MHz)

135° E Mean Time (G. M. T. + 9h) \*

Station **YAMAGAWA** Lat. **31 12.1 N**, Long. **130 37.1 E** Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	240 <sup>H</sup>	300	320	330	I 335 <sup>A</sup>	A	320	305	285	220	S					
2								S	200	270	300	320	320	320	320	290	280	235	S					
3								S	190	270	300	320 <sup>H</sup>	330	330	325	310	280	240	S					
4								S	220 <sup>H</sup>	280	310 <sup>H</sup>	325	330	340	330	300	285 <sup>H</sup>	230 <sup>H</sup>	S					
5								S	200	280	310 <sup>C</sup>	335	I 335 <sup>A</sup>	320	320	300	285	225	S					
6								S	210 <sup>H</sup>	290	320	330	340	I 340 <sup>A</sup>	I 330 <sup>A</sup>	320	290	220	S					
7								S	210 <sup>H</sup>	265	A	A	335	330	330	305	275	210	S					
8								S	215	280	320	320	I 325 <sup>A</sup>	330	I 320 <sup>A</sup>	310	280	235	S					
9								S	210	280	310	325	I 330 <sup>A</sup>	330	340 <sup>H</sup>	320	295 <sup>H</sup>	230	S					
10								S	195	290	315	330	A	A	330	305	I 285 <sup>A</sup>	230	S					
11								S	210	295	330	350	360	350	340	330	I 290 <sup>A</sup>	230	S					
12								S	230 <sup>H</sup>	290 <sup>H</sup>	315 <sup>H</sup>	320	A	350	350	340	300	I 245 <sup>A</sup>	S					
13								S	230	295	A	A	350	360	350	340	300	250 <sup>H</sup>	S					
14								S	230	300	310	I 330 <sup>A</sup>	330	360	350	330	300	250	S					
15								S	230	295	325 <sup>H</sup>	340	365	380 <sup>B</sup>	A	A	A	250	A					
16								B	235	285	320	340	360	360	350	340	300	250 <sup>H</sup>	S					
17								S	250	305	340	I 360 <sup>A</sup>	380	380	370	340	310	250	S					
18								S	270	310 <sup>H</sup>	335	350	370	370	I 365 <sup>A</sup>	350	315	240	B					
19								S	250	300	325	330	A	A	A	A	A	250	S					
20								S	250	300	340	360	365	370	360	340	310	240	B					
21								S	240	290	330	350	365	365	360	345	315	255	S					
22								S	240	300	330	350	I 355 <sup>A</sup>	370	365	340	300	200	S					
23								S	260	300	340	360	350	360	360	350	320	240	S					
24								S	260 <sup>H</sup>	310	340	360	360	370	350	330	I 300 <sup>A</sup>	A	A					
25								S	230	305 <sup>H</sup>	330	350	360	360	350	I 335 <sup>A</sup>	310	250	S					
26								S	250	300	I 325 <sup>A</sup>	350	350	350	340	I 335 <sup>A</sup>	I 305 <sup>A</sup>	I 255 <sup>A</sup>	S					
27								S	250	315	335	350	350	350	340	330 <sup>H</sup>	300	A	B					
28								S	250	300	330	340	360	345	330	330	310	240	S					
29								S	250	300	335	350	355	360	350	335	295	250	S					
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									29	29	27	27	26	26	27	27	27	27						
MED									230	295	325	340	350	355	340	330	300	240						
UQ									250	300	332	350	360	365	350	340	308	250						
LQ									210	285	315	330	335	340	330	310	285	230						

FEB. 1972

FOE (0.01 MHz)

IONOSPHERIC DATA

FEB. 1972

FOES (0.1 MHz)

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

Station YAMAGAWA Lat. 31 12.1 N. Long. 130 37.1 E Sweep 1 MHz to 20 MHz 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 <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	34	39	36	33	J <sub>31</sub>	J <sub>33</sub>	J <sub>35</sub>	J <sub>28</sub>	J <sub>30</sub>	22	24	J <sub>26</sub>	E <sub>15</sub>	E <sub>15</sub>	
2	27	E <sub>14</sub>	18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	22	E <sub>14</sub>	G	G	23	34	35	34	31	G	30	G	E <sub>14</sub>	J <sub>23</sub>	J <sub>23</sub>	21	E <sub>15</sub>	E <sub>15</sub>	
3	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	21	E <sub>15</sub>	G	G	G	17	22	20	19	G	G	G	E <sub>15</sub>	E <sub>15</sub>	24	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
4	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	37	42	J <sub>37</sub>	35	36	30	27	J <sub>26</sub>	J <sub>21</sub>	20	J <sub>21</sub>	20	23	
5	E <sub>15</sub>	J <sub>25</sub>	24	19	17	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	38	35	35	37	38	30	28	16	23	J <sub>28</sub>	J <sub>34</sub>	J <sub>26</sub>	E <sub>14</sub>	
6	J <sub>25</sub>	J <sub>28</sub>	E <sub>14</sub>	25	25	21	19	14	27	31	37	39	39	41	37	J <sub>34</sub>	J <sub>29</sub>	G	J <sub>24</sub>	21	20	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
7	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	J <sub>26</sub>	J <sub>32</sub>	J <sub>36</sub>	J <sub>37</sub>	38	J <sub>33</sub>	33	27	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>		
8	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	21	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	40	37	36	J <sub>35</sub>	30	G	18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	22	E <sub>15</sub>	
9	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>12</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	23	G	33	37	37	35	G	25	J <sub>31</sub>	J <sub>23</sub>	J <sub>22</sub>	J <sub>26</sub>	J <sub>24</sub>	J <sub>25</sub>	J <sub>17</sub>	20	
10	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	23	J <sub>21</sub>	20	E <sub>14</sub>	E <sub>15</sub>	G	31	J <sub>34</sub>	38	41	39	36	36	30	G	18	J <sub>41</sub>	23	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
11	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	20	E <sub>15</sub>	19	G	G	G	G	38	39	36	23	30	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	23	23	24	
12	22	18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	20	19	G	G	33	38	42	J <sub>35</sub>	G	31	22	25	21	E <sub>15</sub>	E <sub>15</sub>	24	21	E <sub>15</sub>	
13	E <sub>15</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	26	31	J <sub>36</sub>	35	19	18	G	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
14	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	23	G	J <sub>35</sub>	37	37	J <sub>35</sub>	38	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
15	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	36	37	G	G	G	42	34	32	J <sub>31</sub>	33	25	E <sub>15</sub>	32	J <sub>25</sub>	J <sub>26</sub>	
16	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>16</sub>	29	40	G	G	41	40	37	37	41	31	J <sub>33</sub>	C	J <sub>21</sub>	J <sub>26</sub>	23	E <sub>15</sub>	
17	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	32	37	39	43	G	G	J <sub>49</sub>	31	29	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	30	34	43	37	J <sub>29</sub>	20	J <sub>51</sub>	44	36	30	20	19	21	19	J <sub>21</sub>	E <sub>15</sub>	
19	J <sub>34</sub>	22	22	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	G	36	38	38	J <sub>52</sub>	J <sub>49</sub>	J <sub>45</sub>	J <sub>54</sub>	J <sub>31</sub>	J <sub>26</sub>	J <sub>25</sub>	E <sub>15</sub>	E <sub>15</sub>	17	E <sub>15</sub>	
20	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	21	20	36	41	46	44	42	39	40	33	27	E <sub>18</sub>	E <sub>15</sub>	E <sub>15</sub>	24	26	J <sub>21</sub>	
21	25	E <sub>15</sub>	17	E <sub>13</sub>	E <sub>11</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	43	41	G	G	25	E <sub>15</sub>	E <sub>15</sub>	J <sub>17</sub>	J <sub>20</sub>	J <sub>26</sub>	J <sub>26</sub>	
22	J <sub>37</sub>	J <sub>23</sub>	J <sub>18</sub>	J <sub>18</sub>	E <sub>15</sub>	J <sub>19</sub>	E <sub>15</sub>	E <sub>15</sub>	G	J <sub>34</sub>	38	42	43	G	41	40	35	24	16	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
23	E <sub>15</sub>	J <sub>26</sub>	J <sub>21</sub>	J <sub>24</sub>	J <sub>21</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	32	38	41	39	G	G	G	G	28	16	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	17	24	
24	E <sub>15</sub>	24	24	27	J <sub>26</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	G	G	G	G	J <sub>32</sub>	42	27	J <sub>37</sub>	J <sub>37</sub>	J <sub>20</sub>	20	E <sub>15</sub>	E <sub>15</sub>	J <sub>27</sub>	J <sub>17</sub>		
25	J <sub>33</sub>	J <sub>29</sub>	17	22	E <sub>15</sub>	24	23	E <sub>15</sub>	G	33	36	42	40	42	40	35	31	26	J <sub>24</sub>	J <sub>22</sub>	C	22	E <sub>14</sub>	E <sub>15</sub>	
26	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	34	35	37	39	37	36	31	26	22	E <sub>15</sub>	19	E <sub>15</sub>	E <sub>14</sub>	23	
27	J <sub>24</sub>	J <sub>29</sub>	26	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	35	39	40	42	41	39	38	34	28	20	25	22	17	E <sub>15</sub>	E <sub>15</sub>	
28	E <sub>15</sub>	21	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	32	G	G	G	37	35	G	G	26	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	23	18	J <sub>21</sub>	
29	J <sub>18</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	33	35	36	37	38	40	38	G	G	G	21	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	
30																									
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	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	29	29	29	
MED	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	29	34	37	37	36	37	34	30	25	16	17	E <sub>15</sub>	17	17	E <sub>15</sub>	
UQ	22	22	17	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	20	33	37	39	41	39	40	38	33	28	J <sub>22</sub>	22	22	23	22	21	
LQ	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	34	35	32	31	23	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	

The Radio Research Laboratories, Japan

FEB. 1972

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1972

FBES (0.1 MHz)

135° E Mean Time (G. M. T. + 9h)

Station	YAMAGAWA				Lat. 31 12.1' N. Long. 130° 37.1' E				Sweep 1 MHz to 20 MHz 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 <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	38	36	33	G <sub>29</sub>	27	23	18	27	17	17	22	E <sub>15</sub>	E <sub>15</sub>	
2	19	E <sub>14</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>14</sub>	G	G	G	G	35	G	G	G	G	G	E <sub>14</sub>	22	23	E	E <sub>15</sub>	E <sub>15</sub>	
3	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E	E <sub>15</sub>	G	G	G	G	17	G <sub>22</sub>	G <sub>20</sub>	G <sub>19</sub>	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	
4	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	36	41	31	30	G	G	26	23	17	E	E	E	E	
5	E <sub>15</sub>	16	E	E	E	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	37	34	G	36	35	G	G	16	E	16	22	22	E <sub>14</sub>	
6	E	22	E <sub>14</sub>	E	16	E	E	16	G	G	G	G	37	35	34	29	G <sub>21</sub>	G <sub>16</sub>	19	E	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
7	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	19	24	30	34	32	G	G	17	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
8	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	37	37	30	34	29	G <sub>24</sub>	G <sub>18</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E	E <sub>15</sub>	
9	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>12</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	G	G	G	G	35	E <sub>35</sub>	G	G <sub>24</sub>	22	18	19	20	21	23	E	E	
10	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	15	E	E <sub>14</sub>	E <sub>15</sub>	G	25	G	36	36	38	36	35	29	G	16	30	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
11	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	S	G	G	G	G	E <sub>38</sub>	37	G	G <sub>21</sub>	30	G	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E	
12	E	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	S	G	G	G	36	36	31	G	G	G <sub>21</sub>	25	S	E <sub>15</sub>	E <sub>15</sub>	E	E	E <sub>15</sub>	
13	E <sub>15</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	G	G	34	35	19	G	18	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
14	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	20	G	33	35	37	34	37	G	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
15	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	34	36	G	G	G	38	34	31	23	16	15	E <sub>15</sub>	17	19	22	
16	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>16</sub>	G	G	G	G	41	40	G	37	33	30	29	C	E	20	E	E <sub>15</sub>	
17	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	37	38	43	G	G	44	30	24	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	29	G	42	G	G <sub>24</sub>	G <sub>20</sub>	37	39	33	30	19	E	E	E	E	E <sub>15</sub>	
19	17	E	E	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	G	G	G	G	37	45	36	33	34	23	19	E	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	
20	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	39	45	43	41	G	39	G	G	E <sub>16</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	E	
21	19	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	G	G	G	G	G	43	E <sub>41</sub>	G	G	25	E <sub>15</sub>	E <sub>15</sub>	E	20	26	16	
22	35	E	E	E	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	G	G	38	38	42	G	38	39	33	G	G	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
23	E <sub>15</sub>	E	E	E	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	37	40	G	G	G	G	G	28	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	
24	E <sub>15</sub>	E	E	15	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	G	G	G	G	G	G	32	42	27	32	34	20	18	E <sub>15</sub>	E <sub>15</sub>	17	E
25	32	28	E	E	E <sub>15</sub>	24	E	E <sub>15</sub>	G	G	G	42	40	42	38	34	G <sub>29</sub>	23	19	E	C	E	E <sub>14</sub>	E <sub>15</sub>	
26	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	29	33	G <sub>37</sub>	G	G	36	31	26	S	E <sub>15</sub>	17	E <sub>15</sub>	E <sub>14</sub>	16	
27	E	E	E	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	38	39	40	E <sub>41</sub>	38	36	33	27	20	E	E	E	E <sub>15</sub>	E <sub>15</sub>	
28	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	G	G	37	35	G	G	26	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E	20	
29	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	33	35	G	G	G	40	37	G	G	G	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	
30																									
31																									
CNT	29	29	29	29	29	29	27	29	29	29	29	29	29	29	29	29	29	29	27	28	28	29	29	29	
MED	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	G	34	36	30	G <sub>32</sub>	29	G <sub>22</sub>	18	16	15	E <sub>15</sub>	15	15	E <sub>15</sub>	
UQ	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	G	G	35	37	38	37	37	36	31	26	19	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
LQ	E <sub>15</sub>	E <sub>14</sub>	E	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	G	G	G	G	G	G	G	G	G	G	E <sub>15</sub>	E <sub>14</sub>	E	E	E	E <sub>14</sub>	

FEB. 1972

FBES (0.1 MHz)



IONOSPHERIC DATA

FEB. 1972

F-MIN (0.1 MHZ)

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

Station YAMAGAWA Lat. 31 12.1' N. Long. 130 37.1' E Sweep 1 MHz to 20 MHz 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 <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	18	19	20	20	16	14	13	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
2	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	13	15	14	15	15	15	14	14	16	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
3	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	15	15	15	15	14	15	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
4	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	14	15	15	15	15	15	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	
5	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	13	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	13	15	15	17	15	15	14	15	15	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	
6	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	15	15	15	15	16	15	15	15	14	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
7	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	14	15	15	14	15	15	15	11	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
8	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	14	14	15	15	15	15	15	15	13	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	
9	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>12</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	15	15	14	15	16	16	15	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
10	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	13	15	15	15	16	17	16	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
11	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	21	24	24	21	17	14	15	15	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
12	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	15	15	15	15	15	16	16	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
13	E <sub>15</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	13	15	15	15	15	17	18	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
14	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	15	14	15	15	16	20	18	17	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
15	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	14	15	16	16	23	27	25	17	15	16	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	
16	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	16	E <sub>15</sub>	14	17	17	17	17	19	17	15	13	E <sub>15</sub>	C	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
17	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	14	14	15	16	16	16	17	15	16	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	
18	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	13	15	15	15	17	15	15	15	15	13	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
19	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	15	15	15	15	15	18	15	15	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
20	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	14	15	15	15	15	15	14	15	14	16	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
21	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	11	E <sub>14</sub>	E <sub>14</sub>	E <sub>14</sub>	15	14	14	15	17	15	15	15	17	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
22	E <sub>15</sub>	E <sub>15</sub>	E <sub>13</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	15	14	20	20	17	16	16	16	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
23	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	16	15	16	16	15	16	16	15	14	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
24	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	11	14	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	15	14	16	16	18	20	16	16	14	14	14	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	
25	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	15	15	15	15	16	15	15	15	14	E <sub>15</sub>	E <sub>15</sub>	C	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	
26	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	13	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	14	15	15	15	19	15	15	15	14	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	
27	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	14	15	15	15	18	16	15	15	14	14	16	15	E <sub>15</sub>	15	15	
28	15	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	E <sub>15</sub>	15	15	15	15	15	15	15	15	15	14	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
29	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	14	15	16	17	13	16	15	14	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	
30																									
31																									
CNT	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	28	29	29	29	
MED	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	15	15	15	16	15	15	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
UQ	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	15	15	15	17	18	17	16	15	15	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	
LQ	E <sub>15</sub>	E <sub>15</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>13</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	14	15	15	15	15	15	15	15	14	E <sub>14</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	E <sub>15</sub>	

The Radio Research Laboratories, Japan

FEB. 1972

F-MIN (0.1 MHZ)

### IONOSPHERIC DATA

FEB. 1972

M(3000)F2 (0,01)

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

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz 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	295	295	290	275	310	315	295	315	345	355	335	325	330	315	335	320	325	330	350	330	310	335	310	265
2	270	290	315	315	305	320	325	310	355	350	340	320	335	325	335	320	330	340	350	355	335	300	300	265
3	270	290	280	290	345	335	295	305	340	345	340	315	325	360	350	335	345	310	345	320	285	305	300	265
4	275	265	270	275	295	280	285	295	345	335	315	320	330	325	315	320	335	345	320	290	310	265	295	265
5	280	275	290	280	325	280	280	305	355	355	315	315	325	310	315	330	335	350	340	320	320	300	290	280
6	285	285	275	280	305	345	275	315	365	350	300	320	320	315	315	315	305	320	335	295	285	300	300	305
7	275	290	300	300	350	275	280	315	345	385	330	320	330	330	335	350	325	345	335	345	325	335	315	295
8	285	290	310	320	380	280	285	330	355	350	340	360	335	320	305	315	305	310	310	300	315	315	310	290
9	275	285	280	280	325	310	295	325	355	345	335	345	345	345	335	335	340	340	340	340	290	325	350	285
10	290	280	285	315	335	385	310	315	370	355	335	325	330	330	340	360	350	340	340	350	300	290	300	290
11	305	275	275	295	315	295	295	320	355	320	325	335	330	305	330	335	330	325	335	335	305	265	295	280
12	265	265	290	285	290	270	295	305	345	335	320	325	330	315	310	320	315	335	315	305	300	300	300	285
13	285	275	290	300	325	285	280	295	335	335	335	325	335	325	320	315	315	335	335	325	280	285	270	270
14	255	305	330	260	265	240	250	305	340	325	315	320	340	320	290	310	305	305	300	295	290	265	295	270
15	265	265	265	270	300	265	275	300	305	340	330	335	305	305	310	305	320	325	330	330	310	300	290	295
16	280	300	330	330	335	315	280	320	345	325	325	310	340	300	310	330	330	335	340	310	295	305	290	280
17	290	265	285	285	310	365	275	315	335	355	325	310	300	305	310	315	310	320	330	315	305	300	290	285
18	260	280	265	280	315	265	265	300	325	300	310	290	295	295	285	290	305	305	310	300	290	305	270	270
19	265	260	280	285	295	275	265	310	335	300	320	315	285	285	280	280	290	285	300	295	320	280	290	285
20	275	250	260	270	300	245	250	320	335	320	305	315	295	285	295	290	295	300	305	295	290	300	285	275
21	285	295	275	270	275	300	305	325	335	335	325	310	300	295	300	295	295	305	300	295	300	295	285	285
22	270	280	330	280	255	280	320	330	340	335	340	325	315	300	310	305	300	330	315	R	R	R	300	265
23	240	270	290	310	350	285	325	330	340	315	310	305	310	305	305	305	310	315	295	295	290	245	280	280
24	265	285	265	275	295	285	285	325	340	325	320	305	305	295	305	305	310	300	305	R	R	R	R	R
25	R	R	270	260	265	285	245	310	320	330	305	305	300	305	300	305	310	295	300	S	C	315	295	285
26	270	270	275	295	295	265	265	315	310	305	325	315	310	295	310	310	315	310	310	315	255	265	265	270
27	270	270	285	325	320	275	265	315	345	315	320	295	315	310	305	315	315	325	325	300	285	290	270	265
28	265	290	315	345	365	245	245	305	335	325	305	295	315	305	305	305	315	330	325	320	290	290	285	280
29	285	300	315	330	315	275	275	315	325	325	330	320	310	320	310	315	320	325	330	285	290	295	290	290
30																								
31																								
CNT	28	28	28	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	26	26	27	28	28
MED	275	280	285	285	310	280	280	315	340	335	325	320	320	310	310	315	315	325	325	312	298	300	292	280
UQ	285	290	300	310	325	310	295	320	345	350	335	325	330	320	320	320	330	335	335	330	310	305	300	285
LQ	265	270	275	275	295	275	265	305	335	325	315	310	305	300	305	305	305	310	310	295	290	288	288	270

FEB. 1972

M(3000)F2 (0,01)

### IONOSPHERIC DATA

FEB. 1972

M(3000)F1 (0.01)

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

Station **YAMAGAWA** Lat. **31° 12.1' N.** Long. **130° 37.1' E** Sweep 1 MHz to 20 MHz 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	U 370	L	L	L	L	460						
2										L	L	L	L	400	450	L	L							
3										L	L	L	L	L	420	L	425							
4										L	L	L	375	375	L	L	L	415						
5										415	405	L	L	375	360	390	L							
6										L	L	355	375	350	L	355	L	405						
7										L	470	U 360	385	U 370	U 360	L	L	410						
8											L	L	L	L	325	L	L							
9												U 365	L	L	L	L	L							
10										L	L	L	380	400	L	L	L	405						
11										395	L	L	375	L	L	L	395	390						
12										L	L	L	365	365	L	L	L							
13										L	L	365	385	385	380	L	L							
14										L	L	L	L	L	L	L	L	L						
15											L	370	U 370	U 385	L	L	L							
16										L	L	L	L	360	370	L	L							
17										L	L	L	L	360	L	L	L	415						
18										L	L	L	L	430	L	L	L							
19										L	L	L	L	L	L	L	L							
20										L	L	L	L	L	L	L	L							
21										L	L	L	L	L	L	L	L							
22											L	L	L	L	L	L	L							
23										420	L	L	L	L	L	L	L	L	375					
24										L	L	L	L	L	L	L	L							
25											L	L	L	L	L	L	L	L						
26										L	L	L	L	L	L	L	L	L						
27										L	L	L	L	L	400	415	L	L						
28										L	L	L	350	L	L	L	L							
29										L	L	L	L	L	L	L	L							
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									1	2	2	5	9	12	9	3	2	8						
MED									420	405	438	365	375	372	380	390	410	408						
UQ												365	380	392	400	402		415						
LQ												360	370	362	360	372		398						

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M(3000)F1 (0.01)

# IONOSPHERIC DATA

FEB. 1972

H<sup>o</sup>F<sub>2</sub> (KM)

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

Station YAMAGAWA Lat. 31 12.1 N. Long. 130 37.1 E Sweep 1 MHz to 20 MHz 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										235	240	260	245	250	225	245	225	220						
2										235	245	250	260	260	250	240	265							
3										230	235	290	250	225	230	260	230							
4										250	275	270	270	235	260	250	235	225						
5										230	240	275	255	255	260	250	245							
6										240	265	260	245	275	250	245	225	215						
7										225	230	295	265	260	260	240	235	240						
8											255	250	260	280	260	245	245							
9											255	255	250	250	250	250	250							
10										230	255	275	255	260	250	250	230	225						
11										240	265	250	255	275	260	240	245	225						
12										225	245	260	265	255	260	270	245	240						
13										245	245	245	240	250	250	275	225							
14										220	260	275	250	245	250	265	250	230						
15											260	260	290	255	260	250	245							
16										240	245	255	250	250	275	275	255	230						
17										245	250	270	270	290	265	250	235	235						
18										250	270	270	265	275	250	250	245							
19										275	250	260	265	265	245	270	250							
20										250	250	255	250	290	280	275	240							
21										245	255	250	270	270	275	255	240							
22											250	245	275	255	265	255	255							
23										225	250	250	260	265	280	255	260	245	240					
24										235	250	260	265	285	285	250	240							
25											260	245	255	255	255	250	250	230						
26										250	255	235	245	250	265	245	240	225						
27										250	250	280	265	255	245	250	235	240						
28										235	260	290	260	255	250	270	240							
29										240	260	260	280	265	250	250	245							
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									3	24	29	29	29	29	29	29	29	12						
MED									225	242	255	260	260	260	255	250	240	228						
UQ									232	250	260	270	265	275	265	255	245	238						
LQ									225	235	250	250	250	255	250	245	235	225						

FEB. 1972

H<sup>o</sup>F<sub>2</sub> (KM)



IONOSPHERIC DATA

FEB. 1972

H'F (KM)

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

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	270	290	295	250	235	300	270	225	235	220	230	205	190 <sup>H</sup>	185 <sup>H</sup>	200	220	185	205	205	200	215	210	340
2	340	295	245	250	265	240	250	245	230	215	190	170 <sup>H</sup>	195	185	225	215	215	235	220	205	250	240	250	340
3	340	290	305	290	225	235	305	275	240	185 <sup>H</sup>	180 <sup>H</sup>	195 <sup>H</sup>	180 <sup>H</sup>	190 <sup>H</sup>	200 <sup>H</sup>	205 <sup>H</sup>	200 <sup>H</sup>	220	210	190	215	230	230	275
4	300 <sup>S</sup>	300 <sup>S</sup>	310	295	250	225	250	250	225	215 <sup>H</sup>	190 <sup>H</sup>	200 <sup>H</sup>	200	205	175 <sup>H</sup>	230	225	215	200	250	225	250	240	300
5	265	275	290	255	230	210	280 <sup>S</sup>	250	220 <sup>H</sup>	205	190 <sup>S</sup>	200 <sup>H</sup>	180 <sup>H</sup>	195 <sup>H</sup>	200	215	220 <sup>H</sup>	225	210 <sup>H</sup>	215	225	220	300 <sup>A</sup>	280
6	300	340 <sup>H</sup>	280	255	240	215	290	245	220	230	220	230	215	200 <sup>H</sup>	205 <sup>H</sup>	205	210	210	215	210	260	240	240	230
7	300	300 <sup>H</sup>	275	245	210	310 <sup>S</sup>	300 <sup>S</sup>	240	220	220	175	210	200	225	210	215	200	200	215	210	230	225	250	290
8	305	300	285	245	200	380 <sup>S</sup>	315 <sup>S</sup>	230	220	230	210	220	200	195 <sup>H</sup>	210	220	200	230	215	225	240	245	240	290
9	290	295	300	290	240	245	280	250	230	220	220	205	200	210	210	195	220	230	220	220	240	250	210	290 <sup>S</sup>
10	300 <sup>S</sup>	300 <sup>S</sup>	300 <sup>S</sup>	255	235	205	280 <sup>S</sup>	250	225	205 <sup>H</sup>	190 <sup>H</sup>	220	205 <sup>H</sup>	205	200 <sup>H</sup>	210	205	200	220	230	240	250	235	265
11	275	305	305	275	250	255	265	240	220	215	225 <sup>H</sup>	240	220	210 <sup>H</sup>	225	220	205	220	225	195	215	250	245	270
12	300	300	275	275	250	295 <sup>S</sup>	275	245	230 <sup>H</sup>	200 <sup>H</sup>	190 <sup>H</sup>	190 <sup>H</sup>	210	200	210 <sup>H</sup>	225	210	230	210	200	230	230	245	240
13	245	300	275	250	225	250 <sup>S</sup>	300 <sup>S</sup>	255	225	210 <sup>H</sup>	220	220	210	200 <sup>H</sup>	220	200 <sup>H</sup>	220	230	220	215	225	240	265	275
14	325	250	225	335 <sup>S</sup>	320 <sup>S</sup>	355 <sup>S</sup>	350 <sup>S</sup>	255	230	210	210	205	200	225	225	200	225	225	220	205	225	240	235	275
15	305	300	275	280	240	260 <sup>H</sup>	300	240	225	225	215	200	200 <sup>H</sup>	225	235	235	245	235	220	210	235	235	260	290
16	295	290	240	240	235	240	300	250	220	210 <sup>H</sup>	200 <sup>H</sup>	200 <sup>H</sup>	230	220	225	245	225	230	225	C	255	250	250	250
17	270	285 <sup>S</sup>	270	270 <sup>S</sup>	235 <sup>S</sup>	280 <sup>S</sup>	310 <sup>S</sup>	250	235	235	225	220	225	220	205 <sup>H</sup>	250 <sup>A</sup>	220	225	220	210	220	240	235	275
18	295	300	325	300	250	325	320	255	225	230	245	230	225	220	230	240	235	240 <sup>A</sup>	230	215	240	225	250	275
19	290	285	255	250	250	220	295 <sup>S</sup>	255	230	230	225	225	225	250 <sup>A</sup>	225	225 <sup>H</sup>	240	240	240	225	215	215	230	250
20	260	305	300	265	225	280 <sup>S</sup>	330 <sup>S</sup>	235	225	230	230	245	225	220	225	230	230	230	220	220	230	245	255	250
21	270	250	250	280	250	245	230	225	210 <sup>H</sup>	220	195 <sup>H</sup>	200 <sup>H</sup>	185 <sup>H</sup>	240 <sup>A</sup>	240	225	220	230	220	205	220	220	270	290
22	350 <sup>A</sup>	290	230	245	305	300	230	230	225	230	220	220	210	210	205	225	220	240	220	205	200	200	210	245
23	285	290	275	255	240	290	245	230	225	225	230	220	210	210	225	225	235	220	220	220	220	205	225	250
24	285	270	290	285	250	240	245	240	225	215	205	185 <sup>H</sup>	200	200 <sup>H</sup>	250	225	225	240	220	225	245	205	230	300
25	270	240	270	245	300	300	335	260	225	225	225	240	225	230 <sup>H</sup>	215	220	225 <sup>H</sup>	225 <sup>H</sup>	240	245	230 <sup>S</sup>	205	220	250
26	280	295	260	230	250	275	275	250	225	200 <sup>H</sup>	210 <sup>H</sup>	230	225	200 <sup>H</sup>	200 <sup>H</sup>	235	215	230	220	210	215	240	270	260
27	285	295	250	230	200	250 <sup>S</sup>	300 <sup>S</sup>	250	230	225	230	220	235	225	200 <sup>H</sup>	195	225	235	215	210	230	245	280	300
28	305	260	235	225	200	340 <sup>S</sup>	350 <sup>S</sup>	255	230	220	210 <sup>H</sup>	185 <sup>H</sup>	200	190 <sup>H</sup>	215	225	210	230	225	215	205	250	260	300
29	290	255	230	225	210	285	295	250	230	225	230	225	190 <sup>H</sup>	220	235	220	215	235	220	200	245	245	245	275
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	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	29	29
MED	288	292	275	255	240	245 <sup>U</sup>	270	250	225	220	215	220	205	208	215	220	220	230	220	210	230	240	242	275
UQ	300	300	290	280	250 <sup>U</sup>	275	305 <sup>S</sup>	255	230	230	225	225	225	220	225	225	225	235	220	220	240	245	252	290
LQ	275	272	250	245	225	238	262	240	225	210	195 <sup>H</sup>	200 <sup>H</sup>	200	200 <sup>H</sup>	205 <sup>H</sup>	210	210	220	215	205	220	220	230	250

The Radio Research Laboratories, Japan

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H'F (KM)

IONOSPHERIC DATA

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H<sup>o</sup>ES (KM)

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

Station YAMAGAWA Lat. 31 12.1 N. Long. 303 71.E 1 Sweep 2 MHz to 02 MHz in 0 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	S	S	S	S	S	S	115	G	145	115	110	110	105	100	100	100	100	95	95	90	S	S
2	100	S	95	S	S	S	100	S	G	G	100	120	115	110	110	G	150	G	S	100	100	100	S	S
3	S	S	S	S	S	S	105	S	G	G	G	100	100	100	100	G	G	G	S	S	100	S	S	S
4	S	S	S	S	S	S	S	S	G	G	G	125	110	100	105	155	150	120	110	105	100	95	100	95
5	S	100	100	100	95	S	S	S	G	G	G	150	120	120	110	110	150	115	110	105	100	100	100	S
6	100	100	S	110	110	110	110	150	145	175	130	120	120	110	105	100	100	100	100	100	100	S	S	S
7	S	S	S	S	E	S	S	S	105	105	115	110	100	110	100	155	100	G	S	S	S	S	S	S
8	S	S	S	S	100	S	S	S	G	G	G	120	115	105	100	100	100	100	S	S	S	S	100	S
9	S	S	S	S	S	S	S	S	115	G	145	125	115	120	G	100	100	100	100	100	100	100	100	95
10	S	S	S	100	100	100	S	S	G	105	105	120	115	115	120	110	110	G	105	100	100	S	S	S
11	S	S	S	S	S	100	S	105	G	G	G	G	130	120	120	100	115	G	S	S	S	100	100	100
12	95	95	S	S	S	S	95	95	G	G	130	120	110	100	G	100	105	100	95	S	S	100	100	S
13	S	S	S	S	S	S	S	S	160	150	110	115	100	100	G	G	G	G	S	S	S	S	S	S
14	S	S	S	S	S	S	S	S	105	G	115	120	110	110	110	G	G	G	S	S	S	S	S	S
15	S	S	S	S	S	S	S	S	G	140	140	G	G	G	145	110	105	105	100	100	S	100	100	100
16	S	S	S	S	S	S	S	B	170	140	G	G	150	150	150	145	125	120	105	C	100	100	100	S
17	S	S	S	S	S	S	S	S	G	165	150	115	145	G	G	105	105	105	S	S	S	S	S	S
18	S	S	S	S	S	S	S	S	140	145	125	130	100	100	95	130	120	115	115	120	105	100	100	S
19	100	100	100	S	S	B	S	S	G	G	125	115	110	105	100	100	100	95	95	95	S	S	120	S
20	S	S	S	S	S	S	S	100	100	150	140	130	130	130	130	120	125	115	B	S	S	100	100	100
21	100	S	100	S	B	S	S	S	G	G	G	G	G	155	160	G	G	110	S	S	145	110	100	100
22	100	105	105	105	S	100	S	S	G	100	145	135	130	G	130	115	110	105	105	S	S	S	S	S
23	S	110	100	100	100	S	S	S	G	160	140	125	125	G	G	G	G	110	105	S	S	S	100	100
24	S	100	100	100	100	S	S	S	G	G	G	G	G	100	115	100	100	100	100	150	S	S	125	130
25	120	120	150	120	S	100	100	S	G	F G 175	155	130	125	115	115	110	105	105	100	100	C	95	S	S
26	S	S	S	S	B	S	S	S	G	115	110	100	120	115	115	F G 175	105	105	105	S	140	S	S	100
27	100	100	100	S	E	S	S	S	G	150	150	150	145	140	120	115	110	110	105	100	100	100	B	B
28	B	100	S	S	S	S	B	S	G	165	G	G	G	115	125	G	G	120	S	S	S	150	100	125
29	120	S	S	S	S	S	S	S	G	155	160	150	135	130	120	115	G	G	G	105	S	S	S	S
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	9	10	9	7	6	5	5	4	9	16	20	23	25	25	24	22	22	21	17	14	13	15	15	10
MED	100	100	100	100	100	100	100	102	115	149	135	120	115	110	115	110	105	105	105	100	100	100	100	100
UQ	100	105	100	108	100	100	105	128	145	160	145	130	130	120	122	118	120	115	105	105	100	100	100	100
LQ	100	100	100	100	100	100	100	98	105	128	115	115	110	105	105	100	100	100	100	100	100	100	100	100

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H<sup>o</sup>ES (KM)

IONOSPHERIC DATA

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TYPES OF ES

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

Station YAMAGAWA Lat. 31° 12.1' N. Long. 130° 37.1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

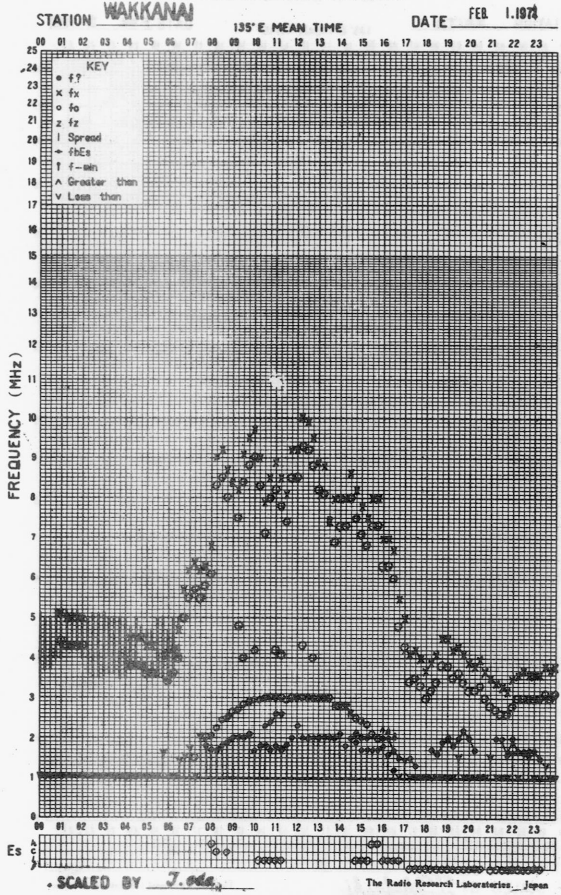
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									Y		H	F	F	F	F	F	F	F	F	F	F	F	F	
2	F		F				F				Y	H	F	F	F		H			F	F	F		
3							F				Y	F	F	F							F			
4											H	F	F	F	F	H	H	F	F	F	F	F	F	F
5		F	F	F	F						H	F	F	F	F	H	F	F	F	F	F	F	F	F
6	F	F		F	F	F	F	H	H	H	F	F	F	F	F	F	F	F	F	F	F			
7									F	F	F	F	F	F	F	F	F	F	F	F	F			
8				F							H	F	F	F	F	F	F	F	F	F			F	
9									F		H	H	F	F		F	F	F	F	F	F	F	F	F
10				F	F	F				Y	F	F	F	F	F	F	F	F	F	F	F			
11					F			Y					H	H	F	F	F					F	F	F
12	F	F					F	Y			H	F	F	F	F	F	F	F	F	F		F	F	
13									H	H	F	F	F	F	F	F	F	F	F	F	F			
14									F		F	F	F	F	F	F	F	F	F	F	F			
15									H	H				H	F	F	F	F	F	F	F	F	F	F
16									H	H			H	H	F	F	F	F	F	F	F	F	F	F
17									H	H	F	H	F	F	F	F	F	F	F	F	F	F	F	F
18									H	H	H	H	F	F	F	F	F	F	F	F	F	F	F	F
19	F	F	F								H	F	F	F	F	F	F	F	F	F	F		F	
20								Y	F	H	H	H	H	H	H	H	H	F				F	F	F
21	F		F										H	H			F				F	F	F	F
22	F	F	F	F		F			Y	H	H	H	F	F	F	F	F	F	F	F	F			
23		F	F	F	F				H	H	H	H					F	F	F	F	F		F	F
24		F	F	F	F								F	F	F	F	F	F	F	F	F		F	F
25	F	F	F	F		F	F		H	H	H	H	F	F	F	F	F	F	F	F	F		F	
26									F	F	F	H	F	F	F	F	F	F	F	F	F	F	F	F
27	F	F	F						H	H	H	H	H	H	H	F	F	F	F	F	F	F	F	F
28		F							H				F	F			F					F	F	F
29	F								H	H	H	H	H	F	F						F			
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																								
MED																								
UQ																								
LQ																								

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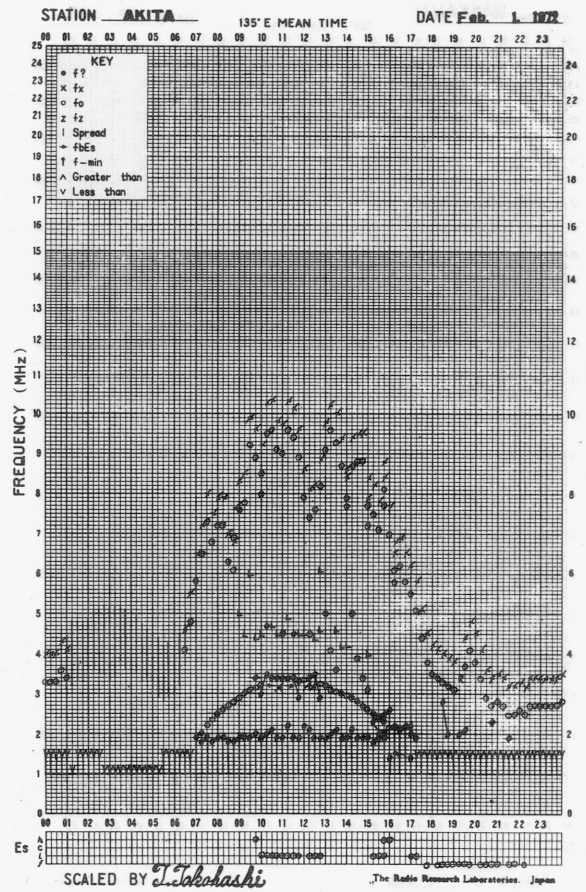
TYPES OF ES



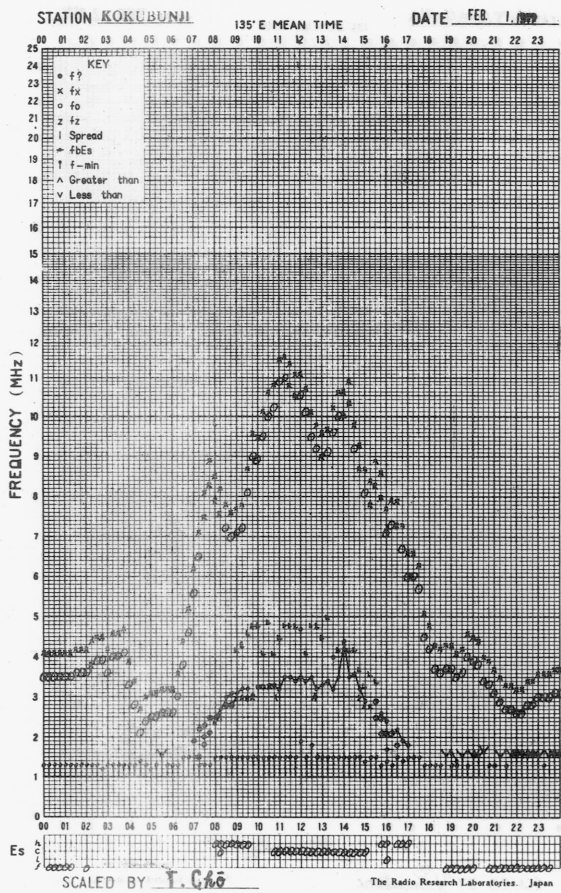
f-PLOT OF IONOSPHERIC DATA



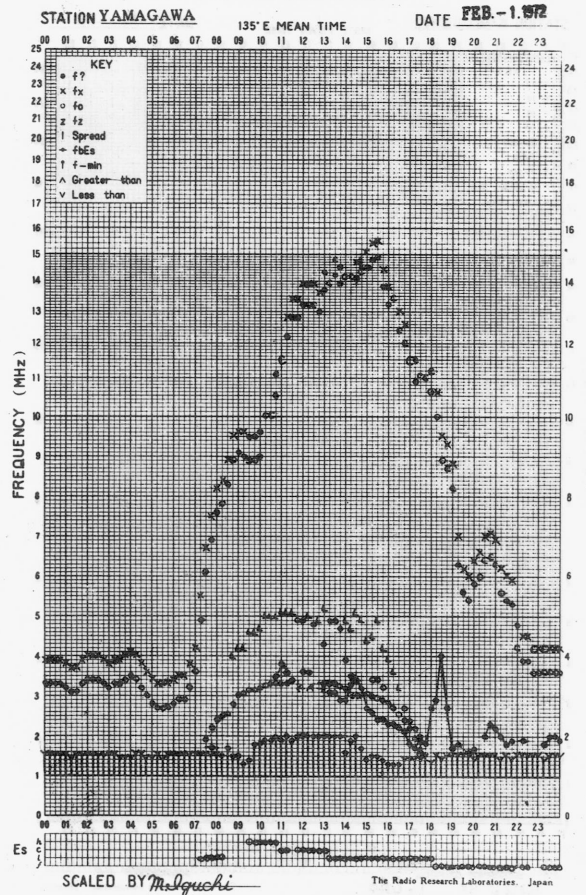
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



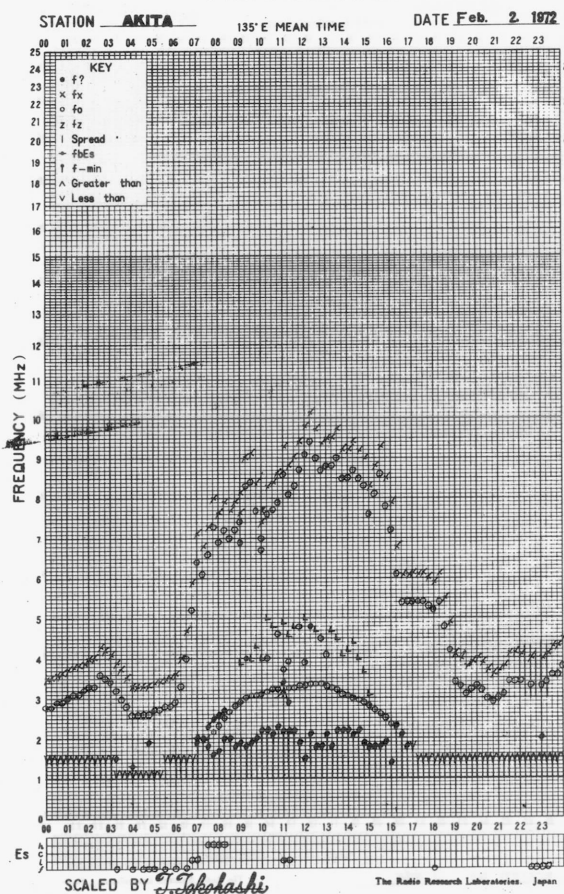
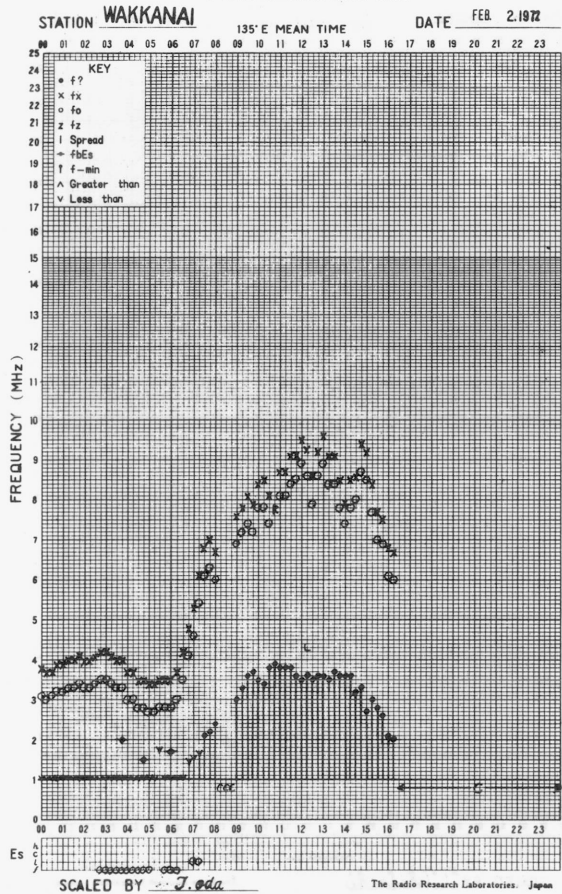
f-PLOT OF IONOSPHERIC DATA





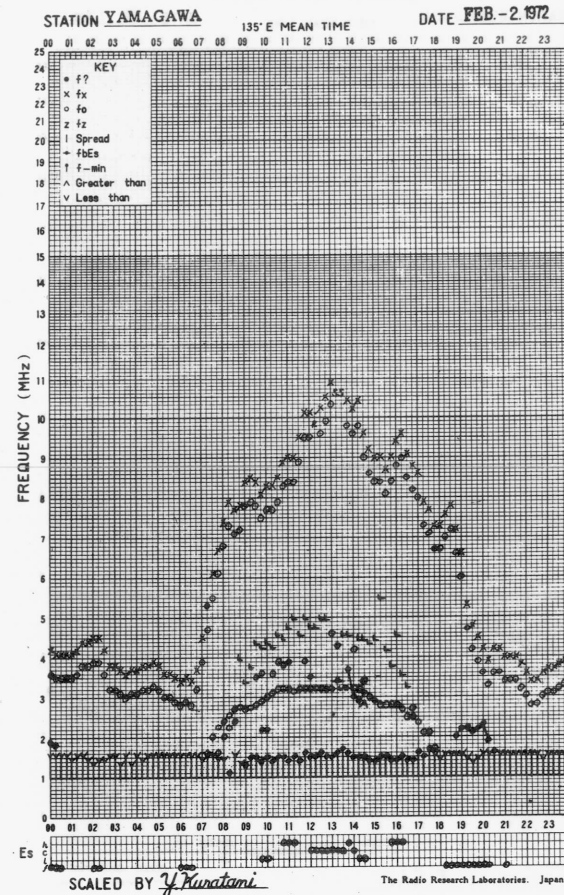
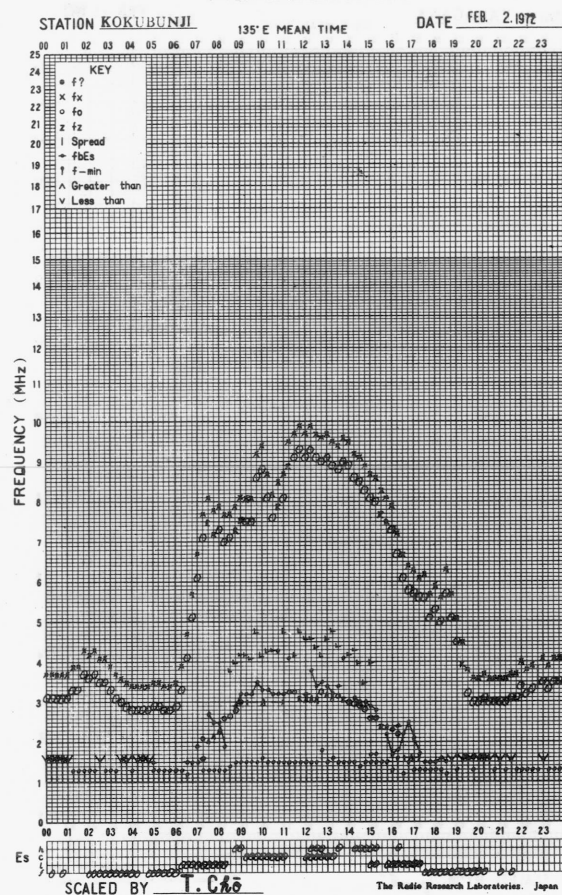
f-PLOT OF IONOSPHERIC DATA

f-PLOT OF IONOSPHERIC DATA

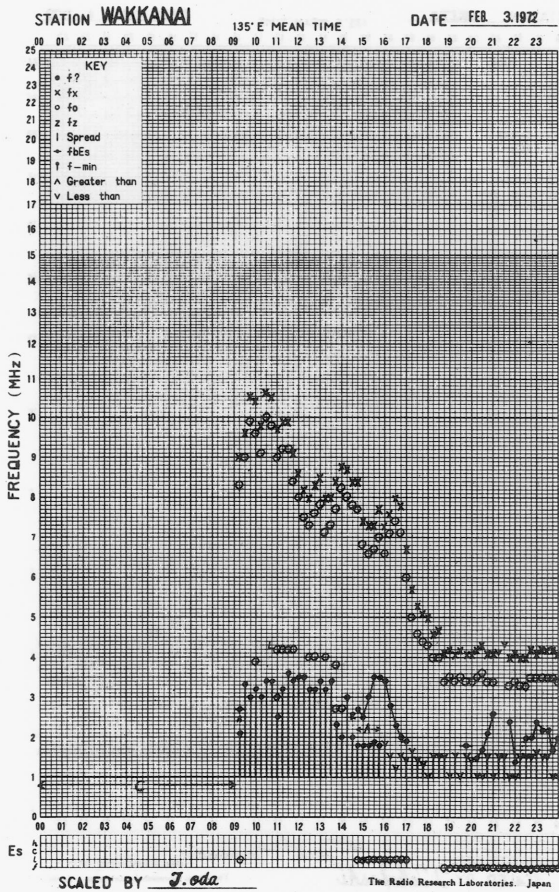


f-PLOT OF IONOSPHERIC DATA

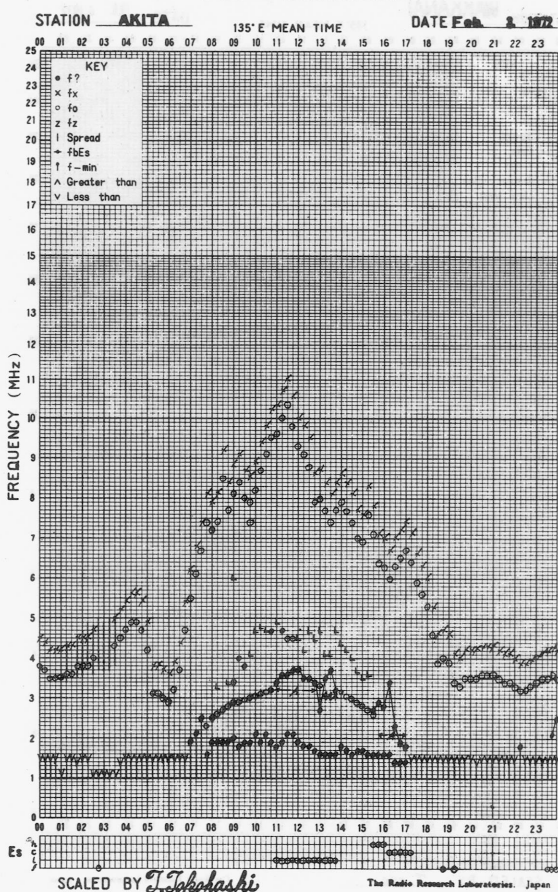
f-PLOT OF IONOSPHERIC DATA



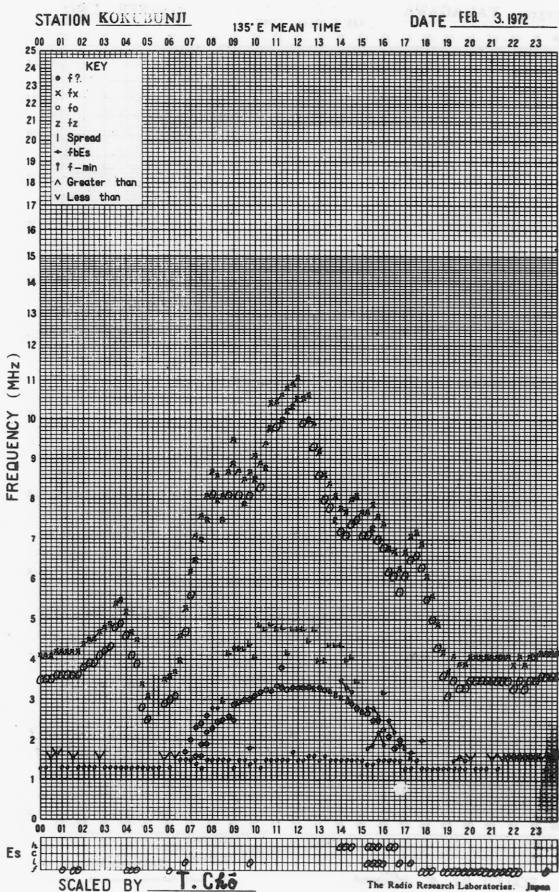
f- PLOT OF IONOSPHERIC DATA



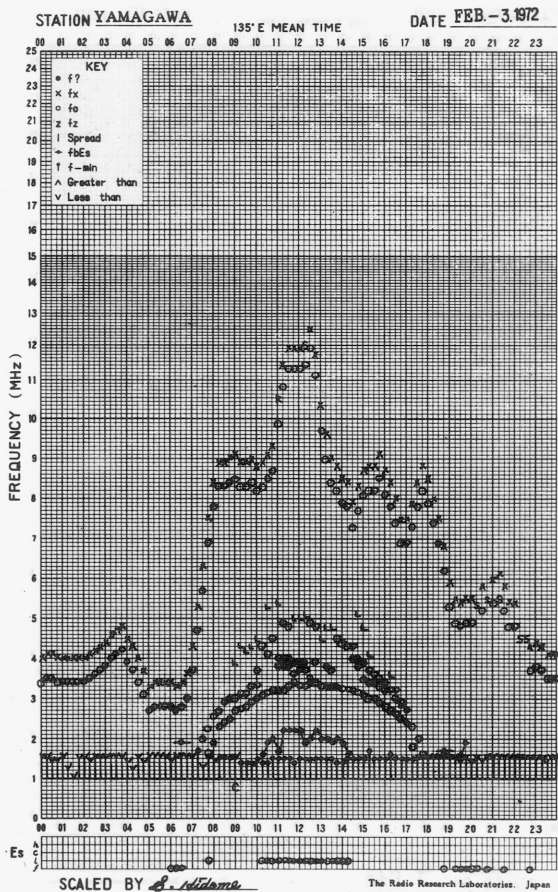
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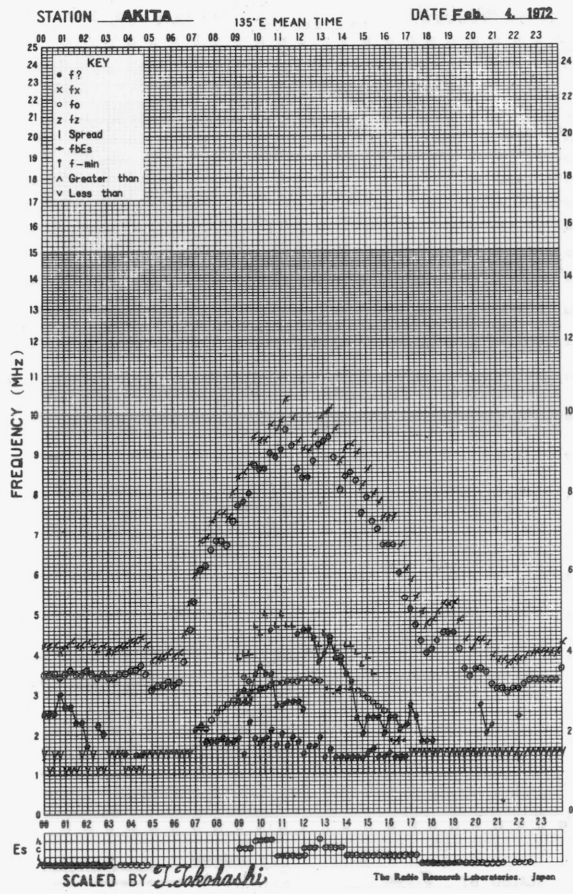
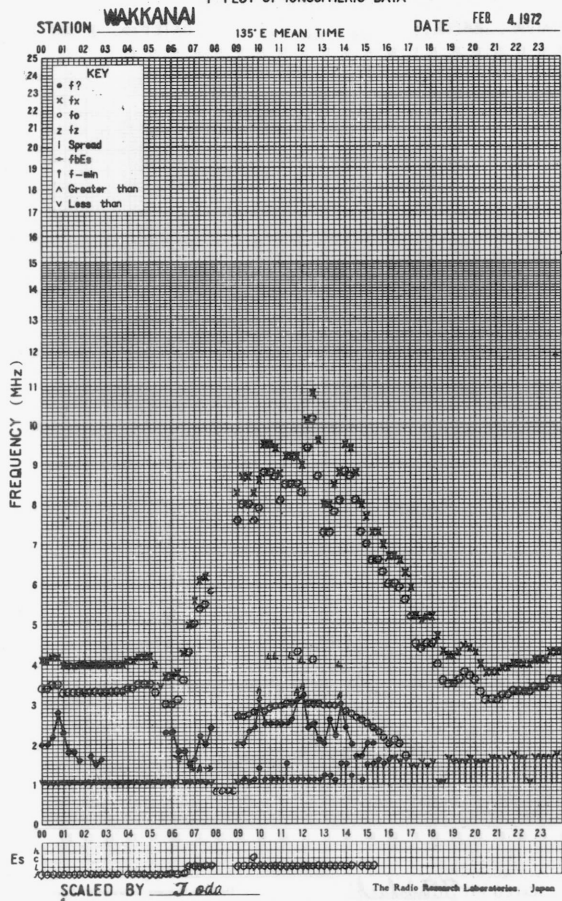
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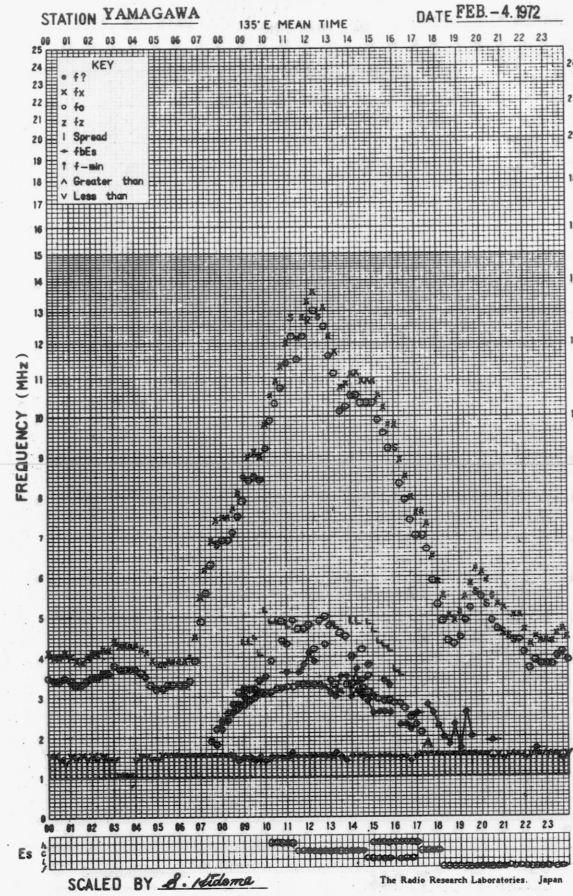
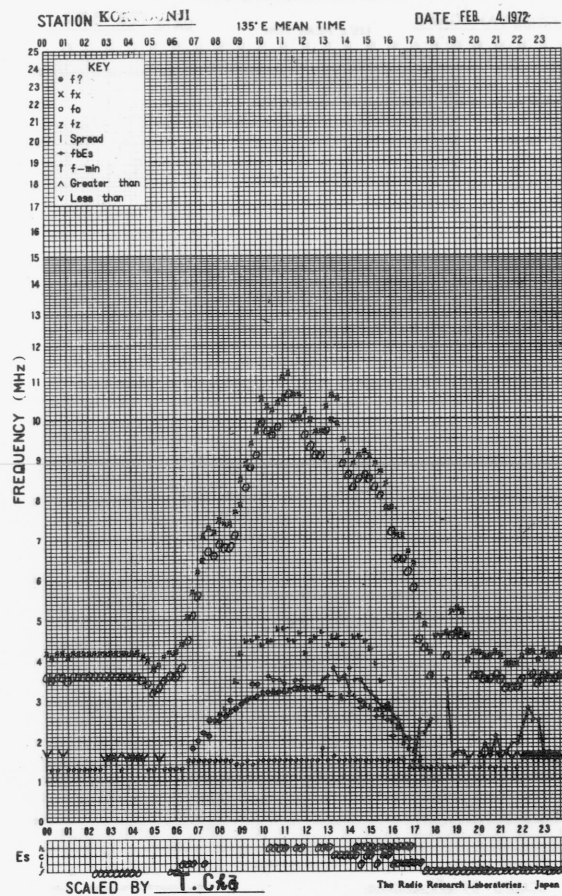
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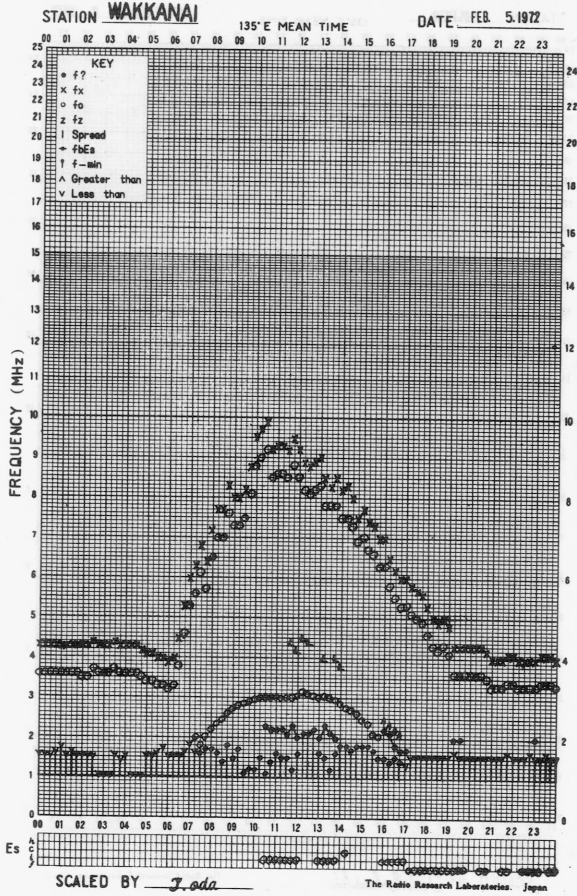


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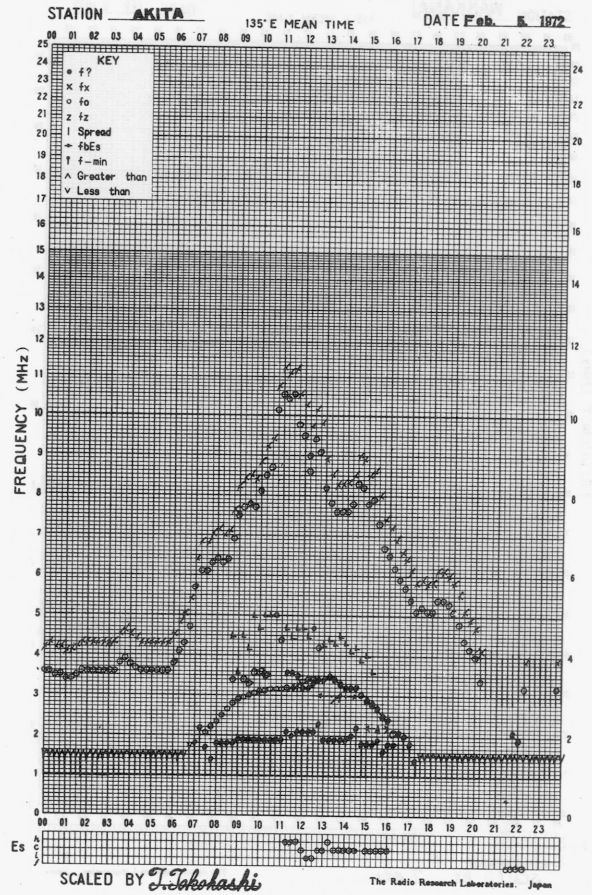
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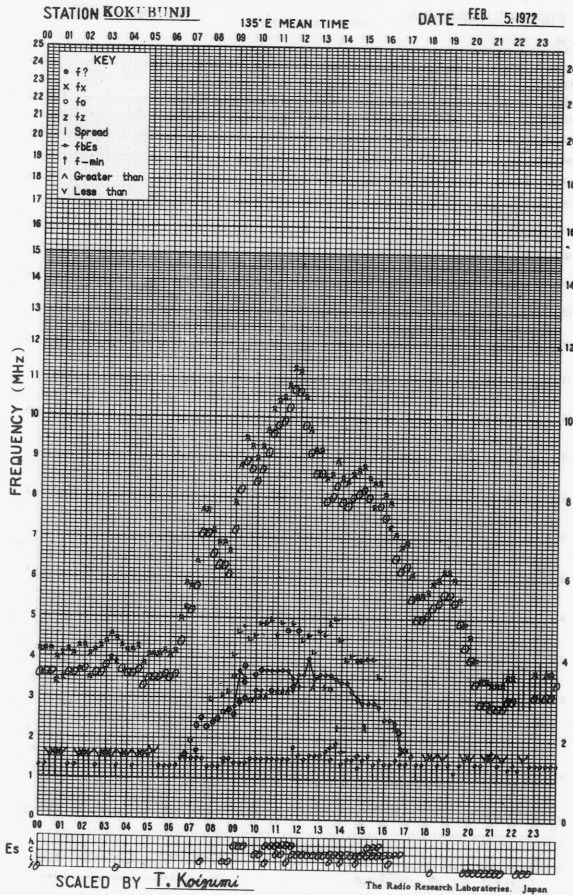
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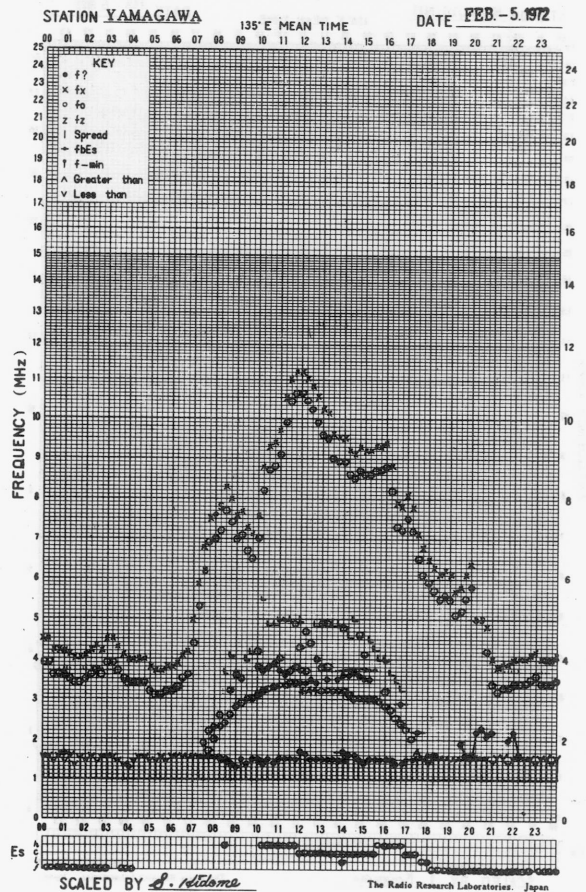
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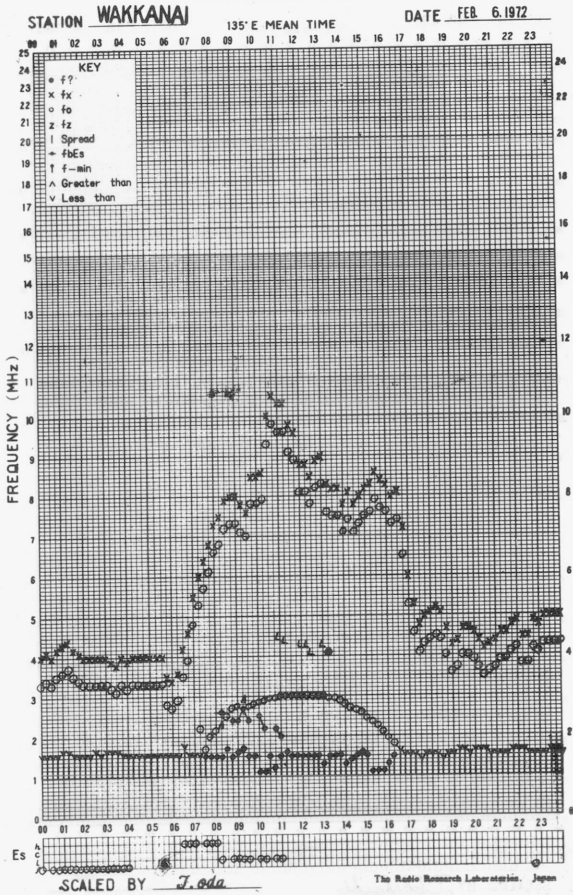


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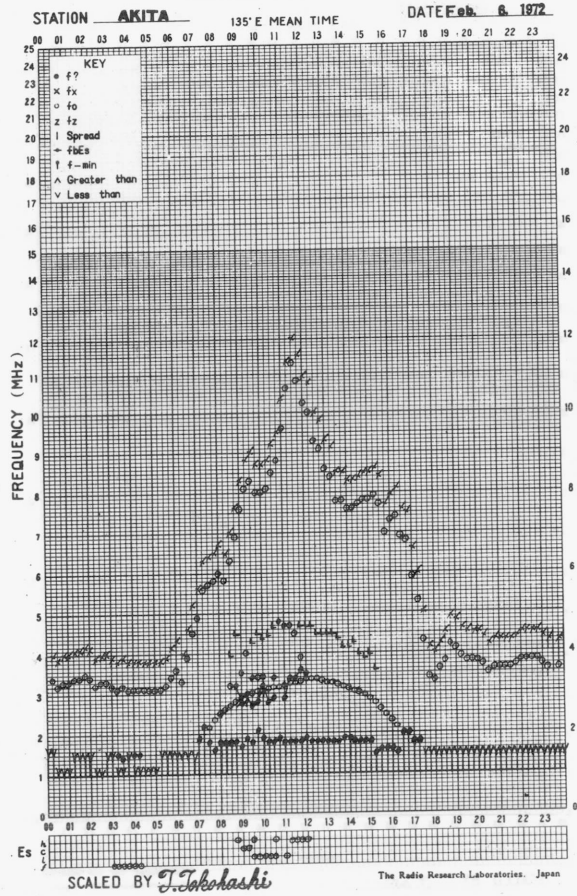




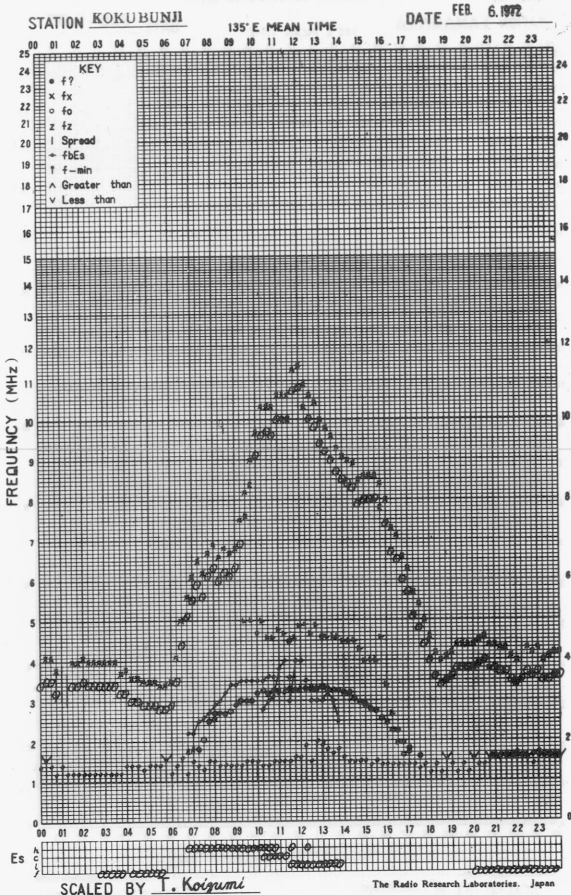
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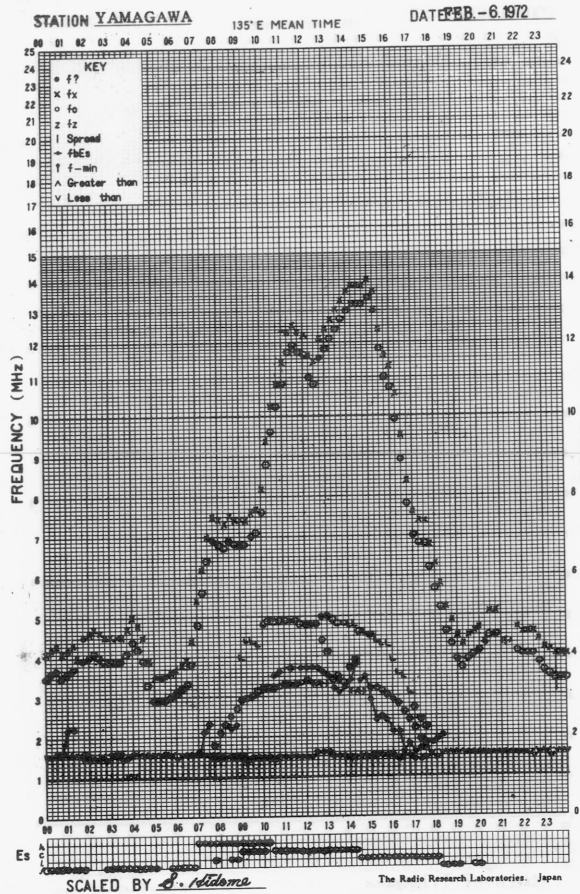
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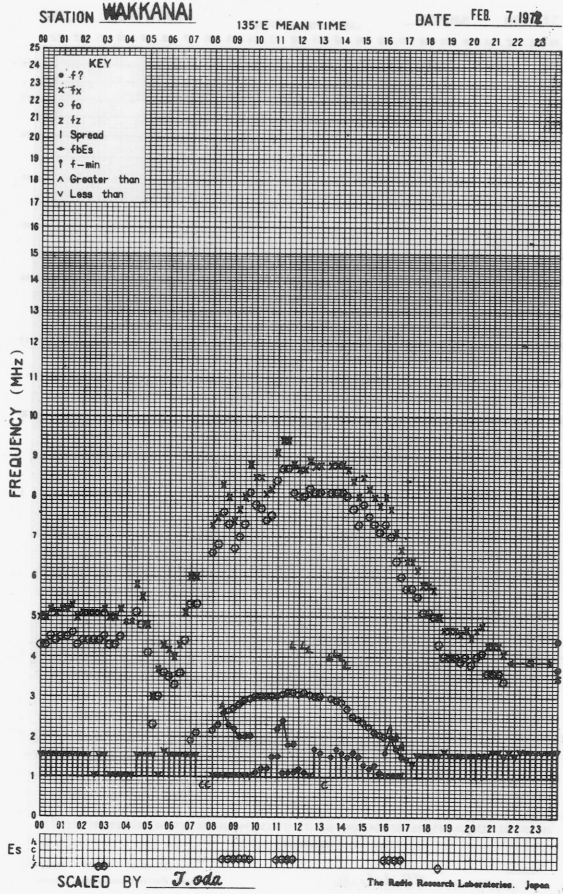
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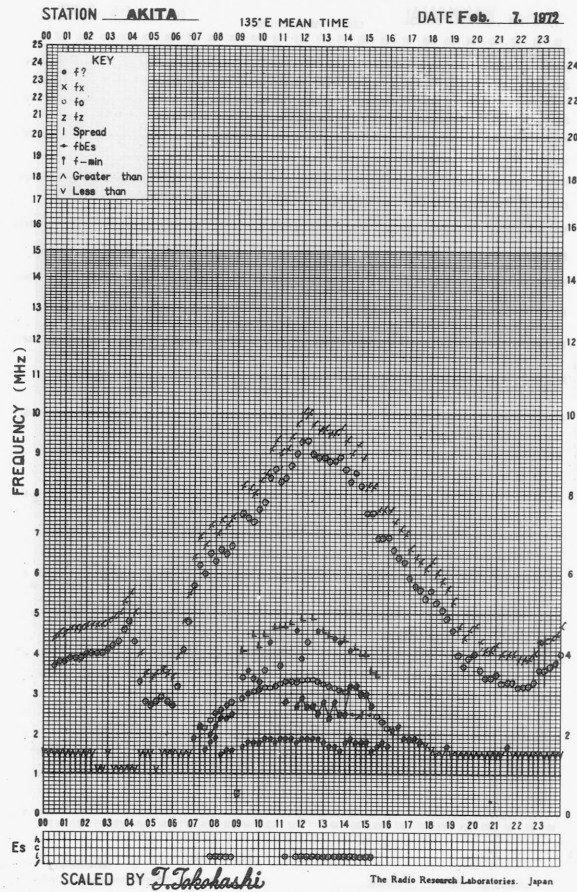
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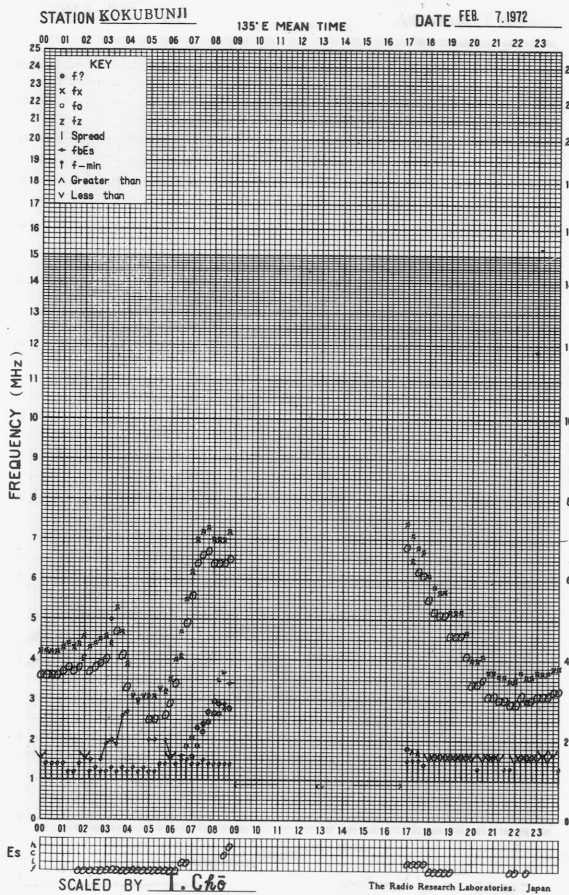
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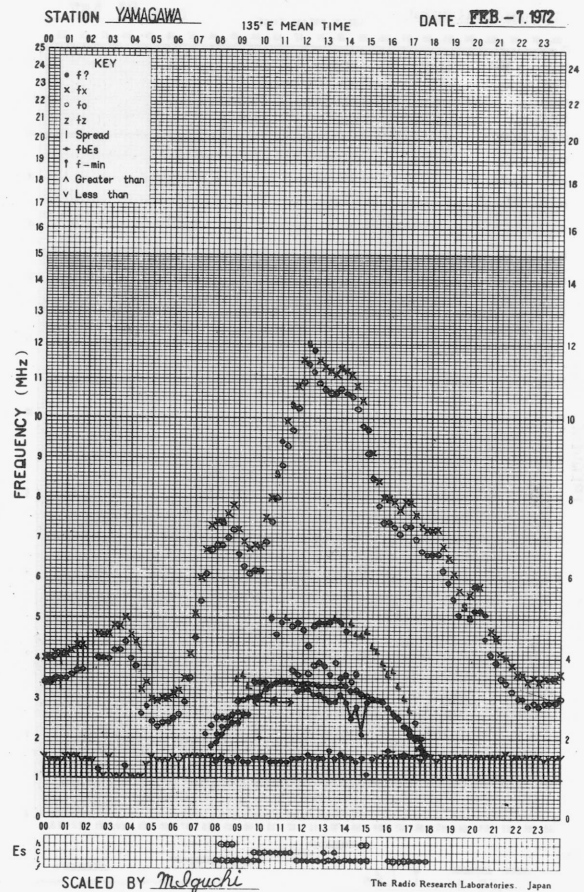
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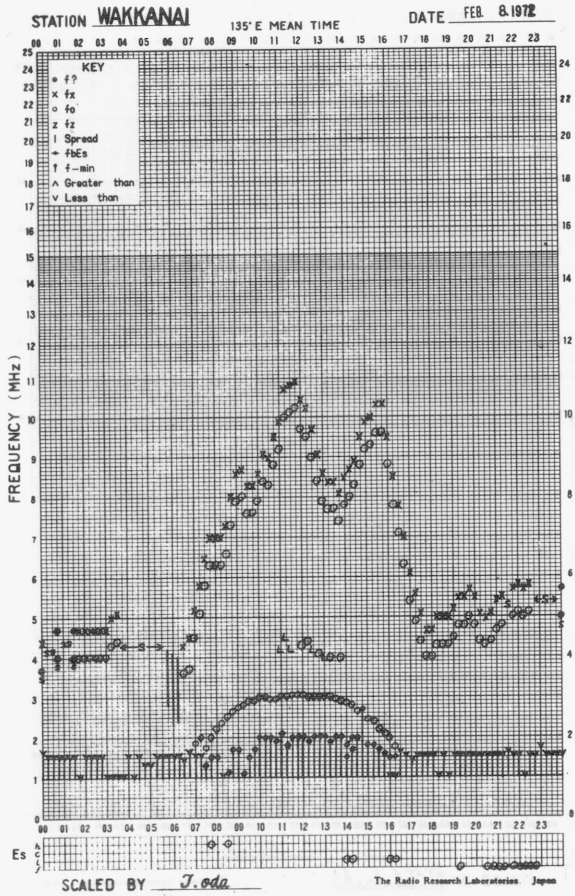


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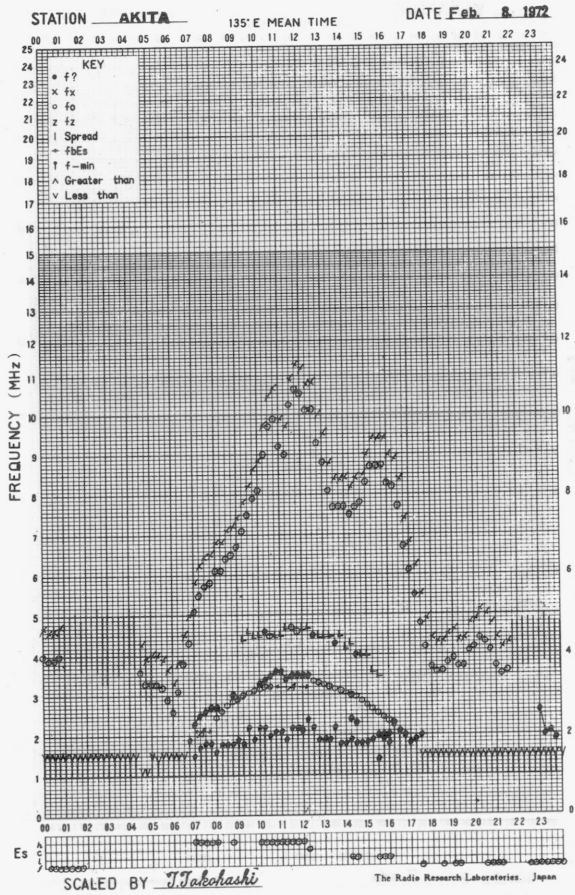




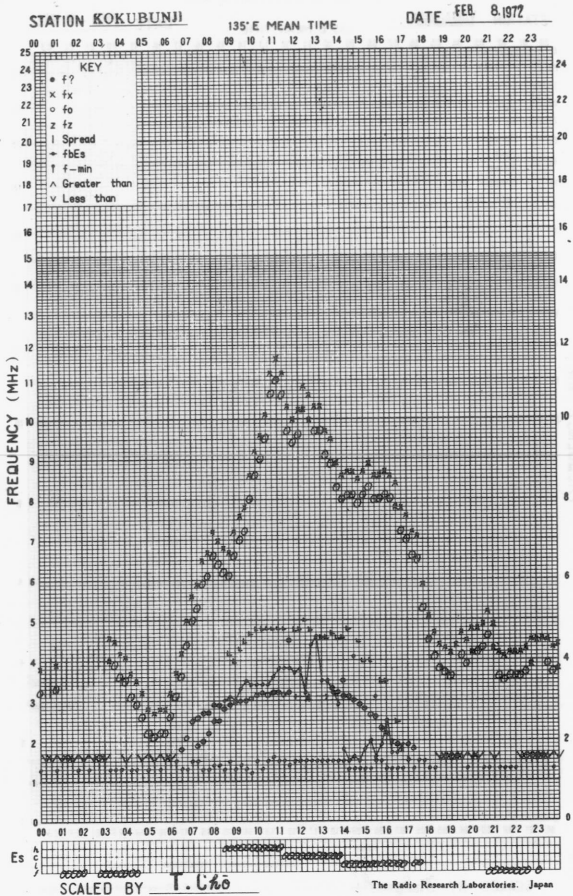
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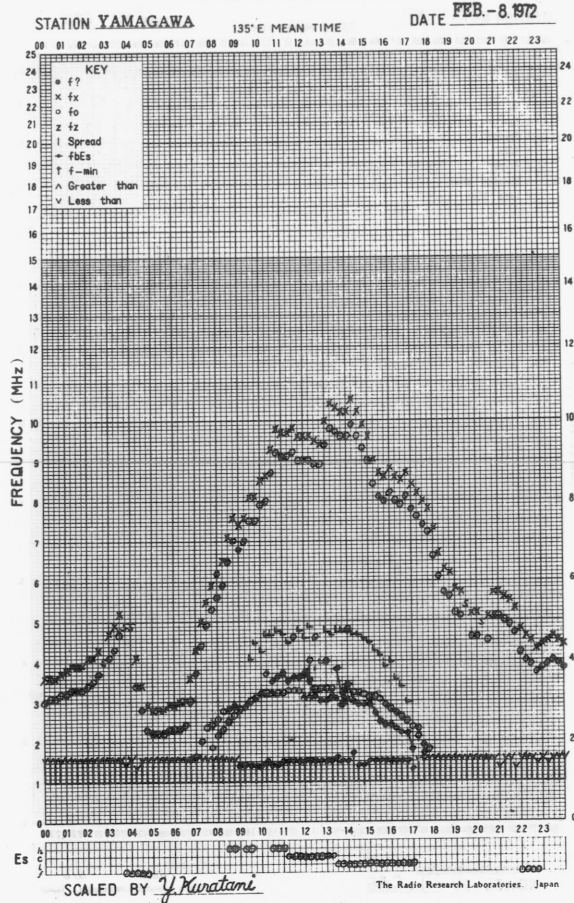
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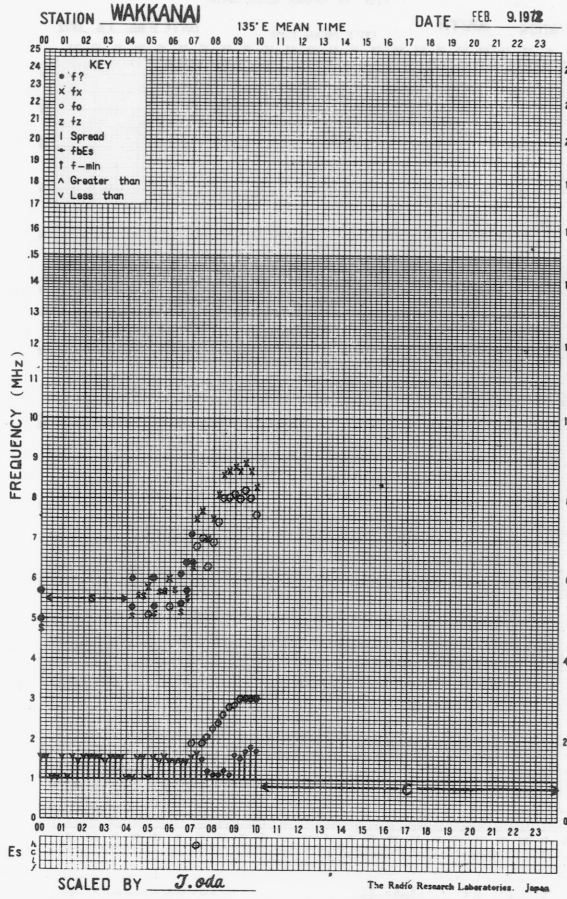
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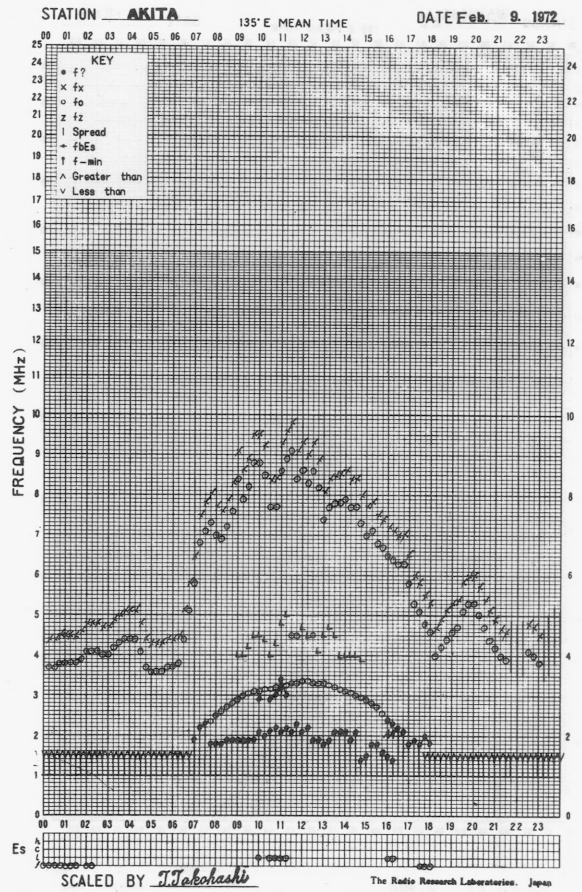
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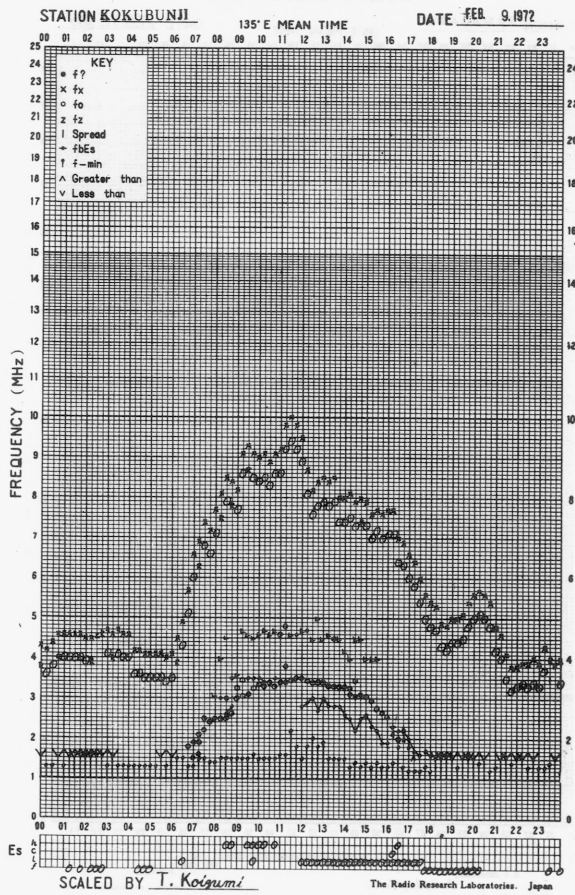
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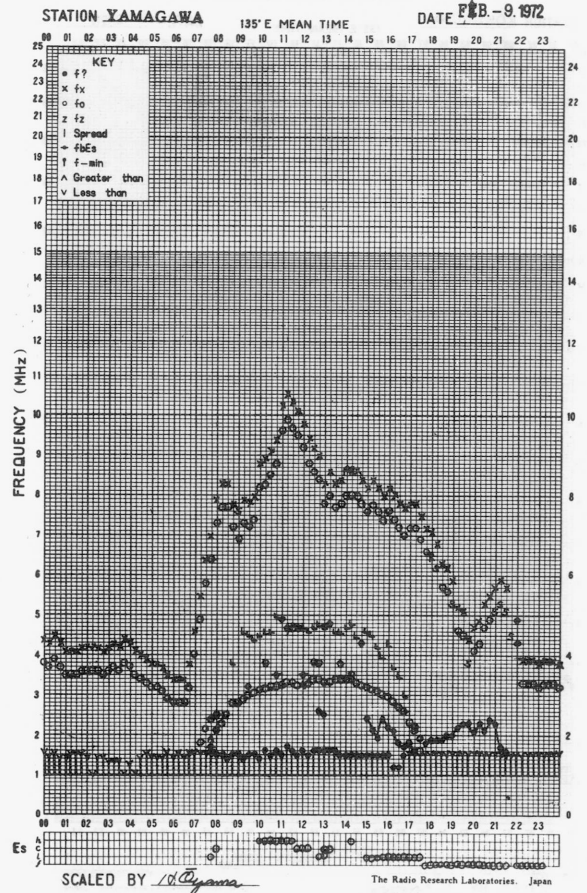
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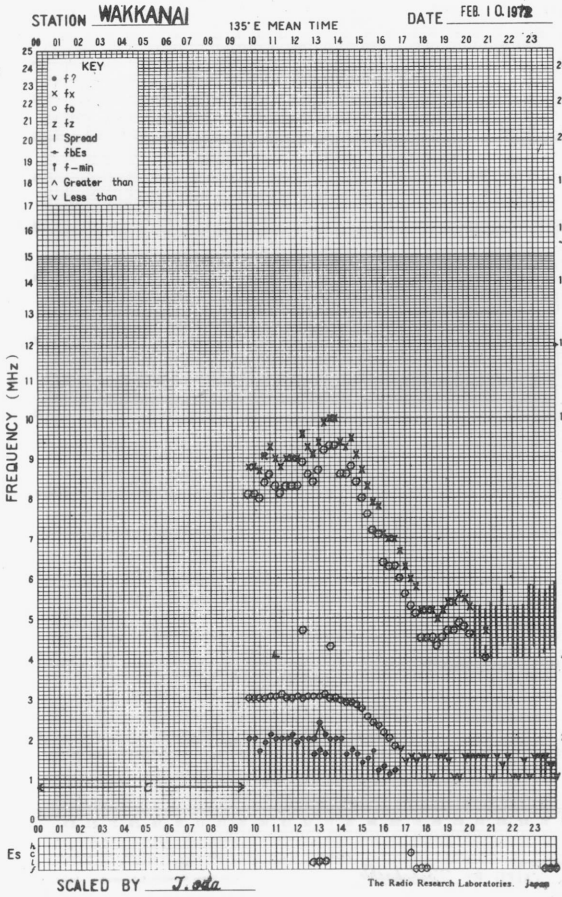


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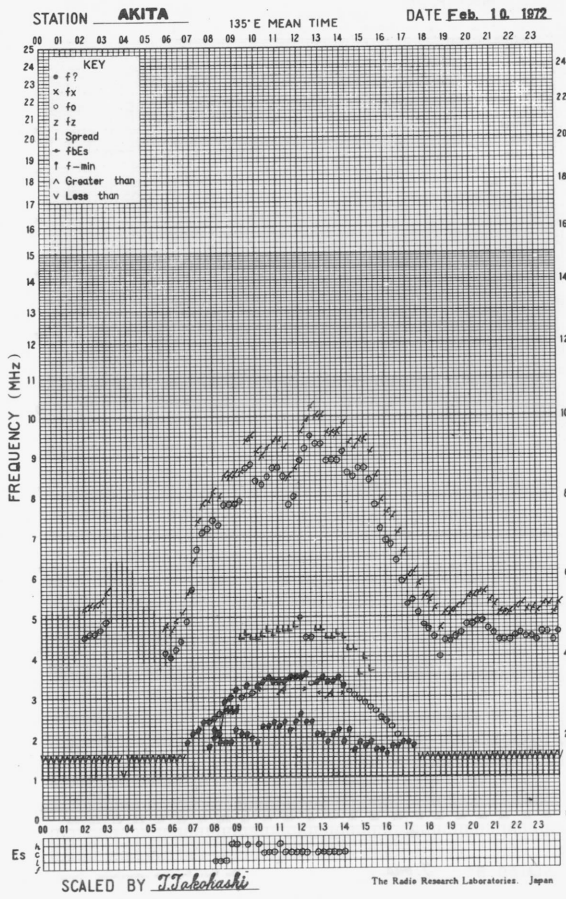




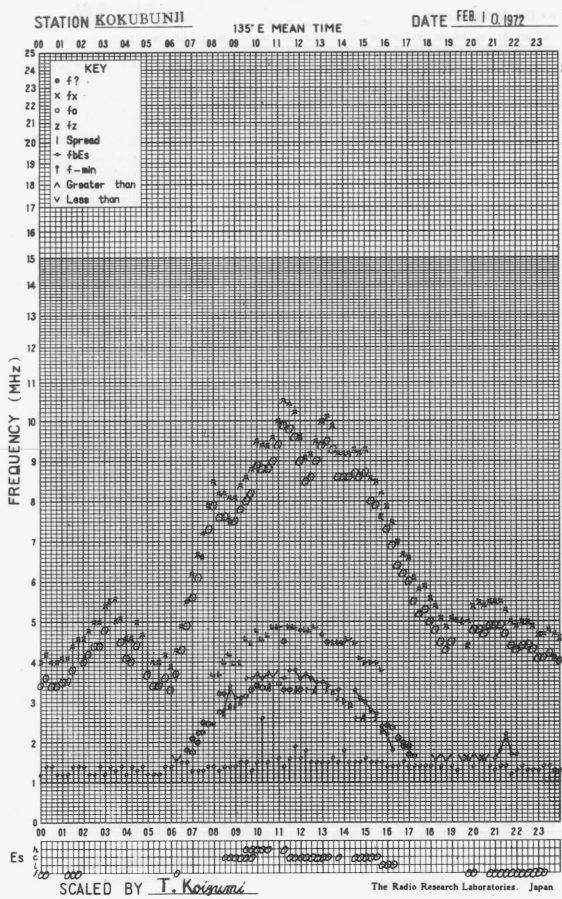
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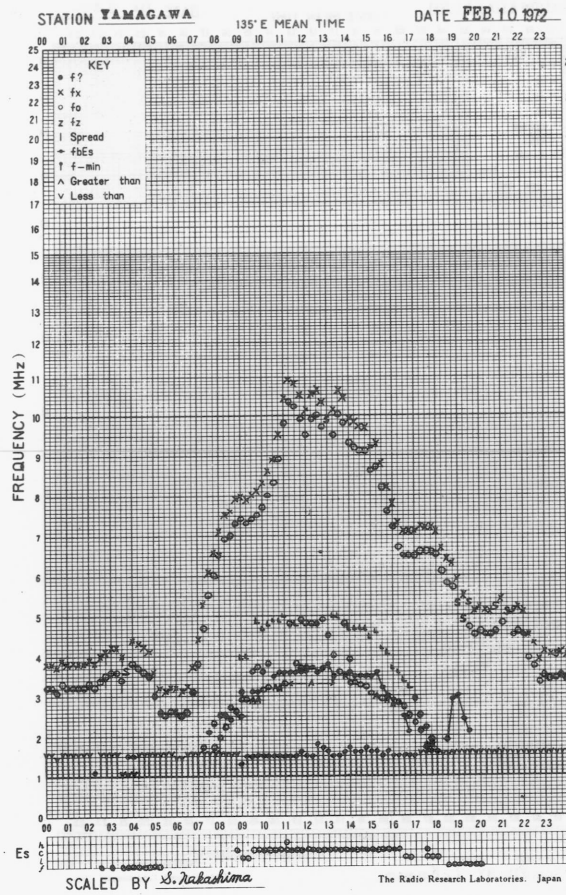
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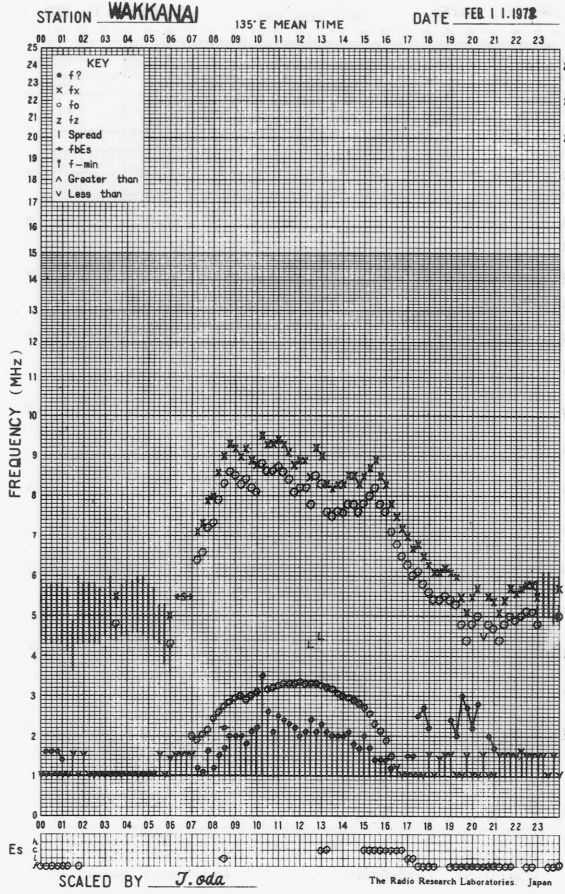
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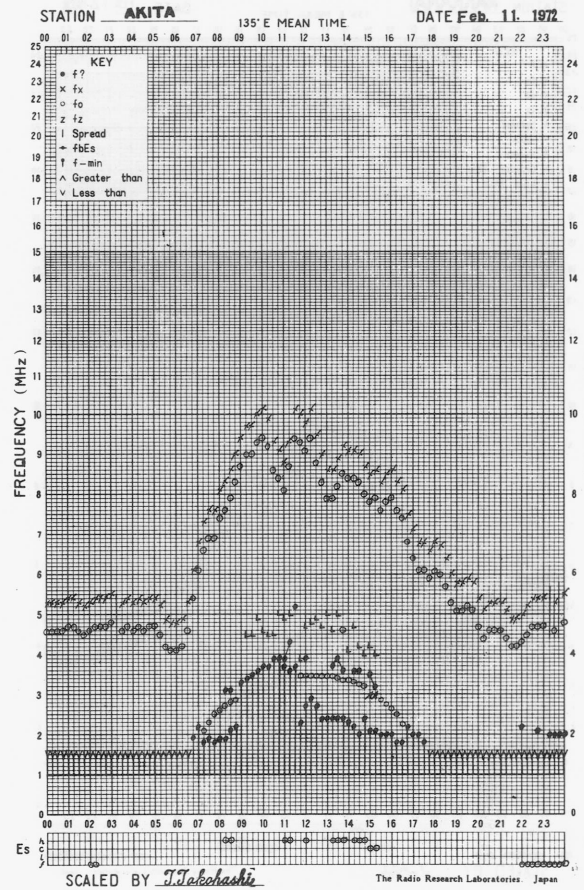
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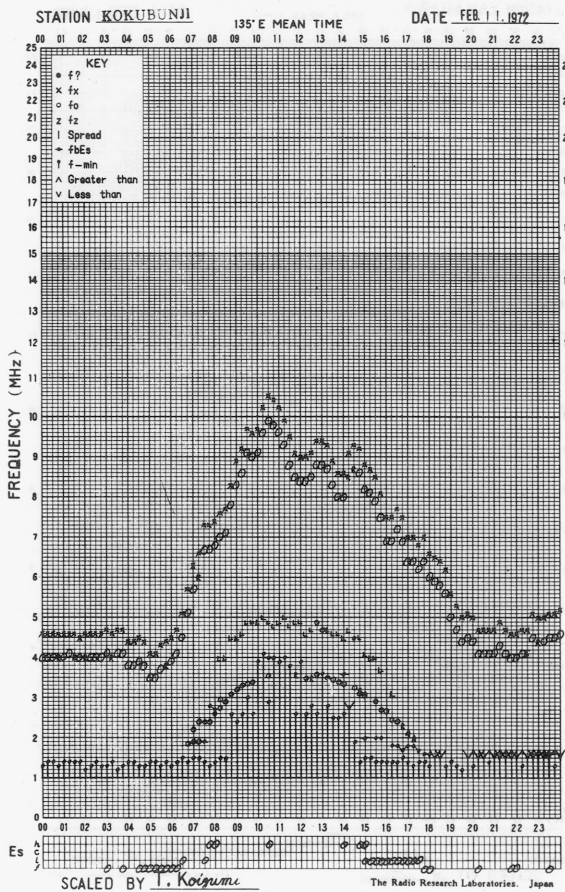
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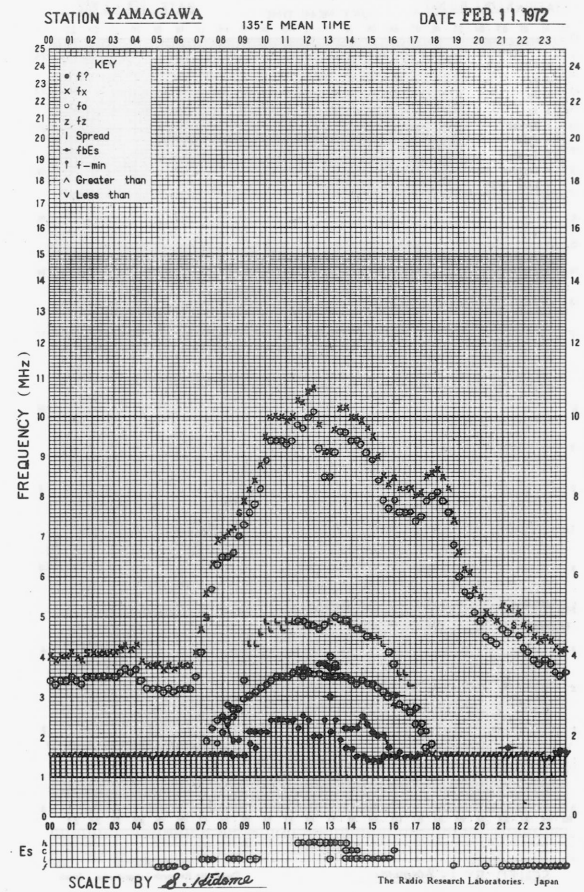
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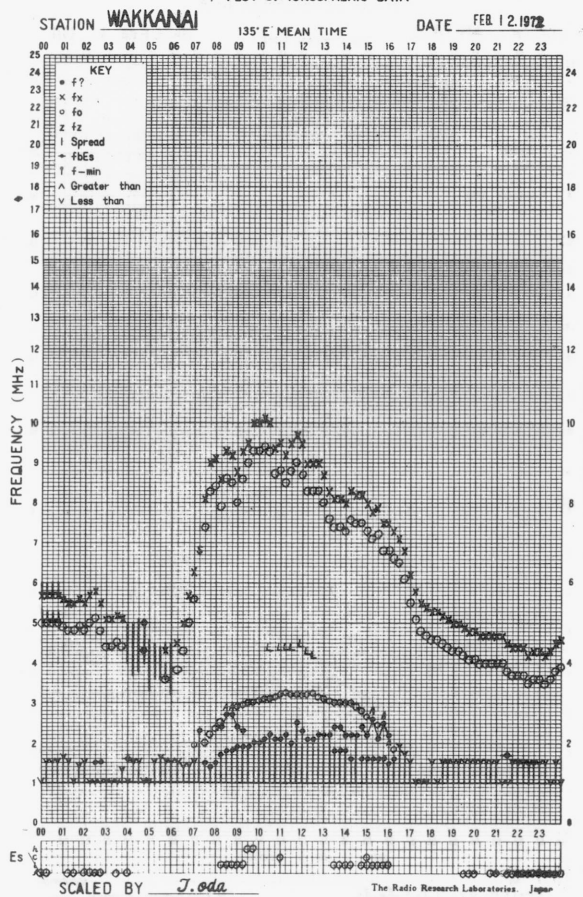


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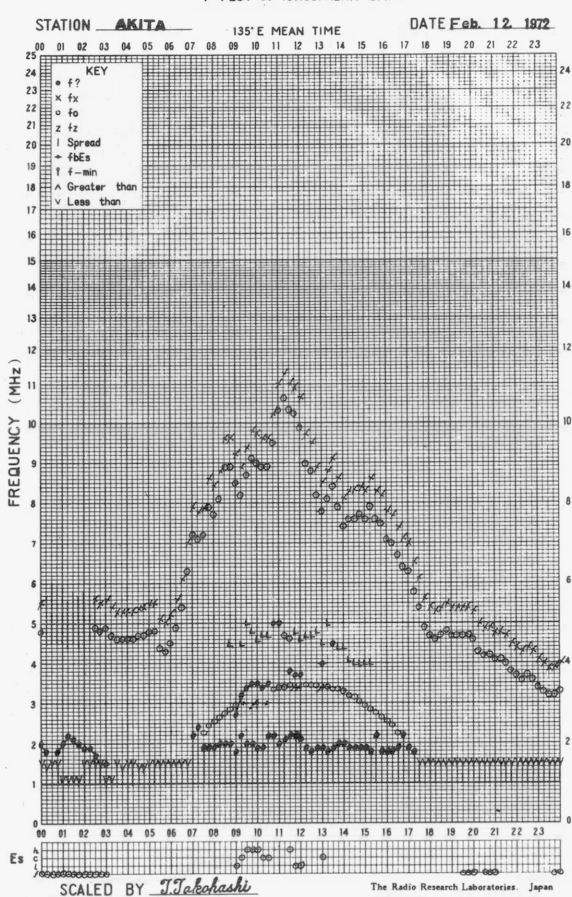




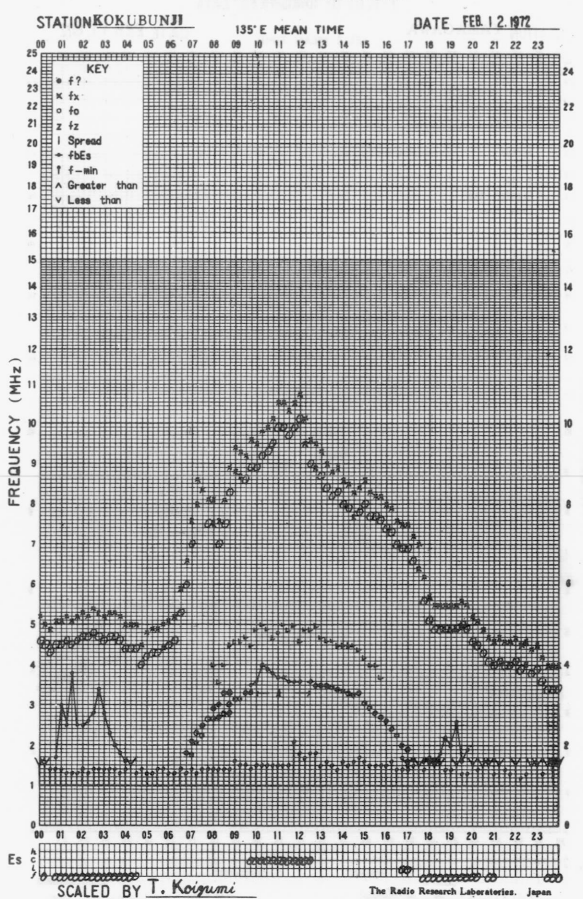
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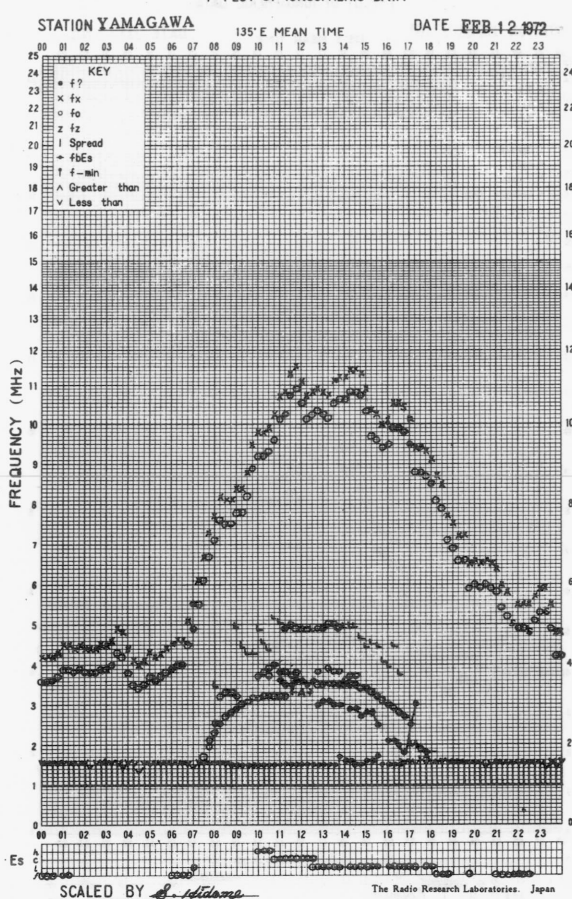
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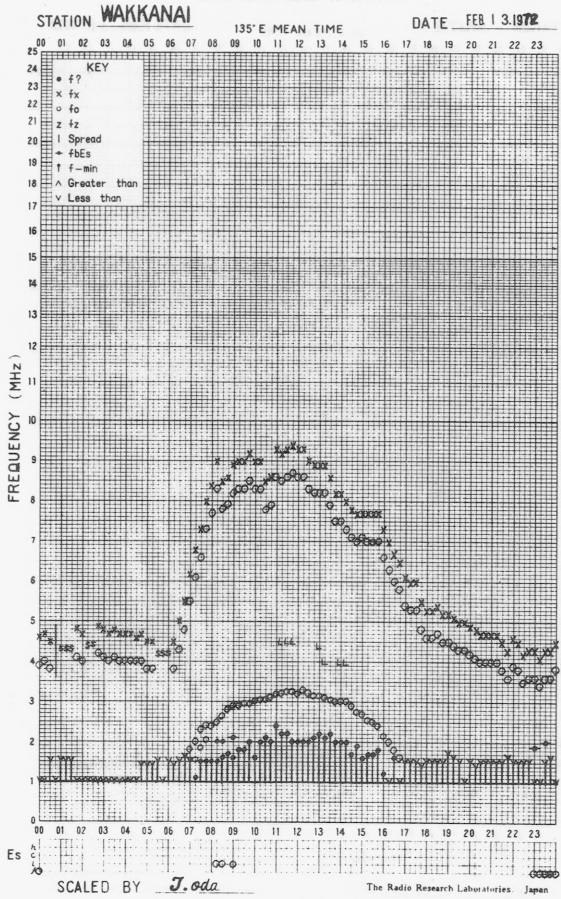
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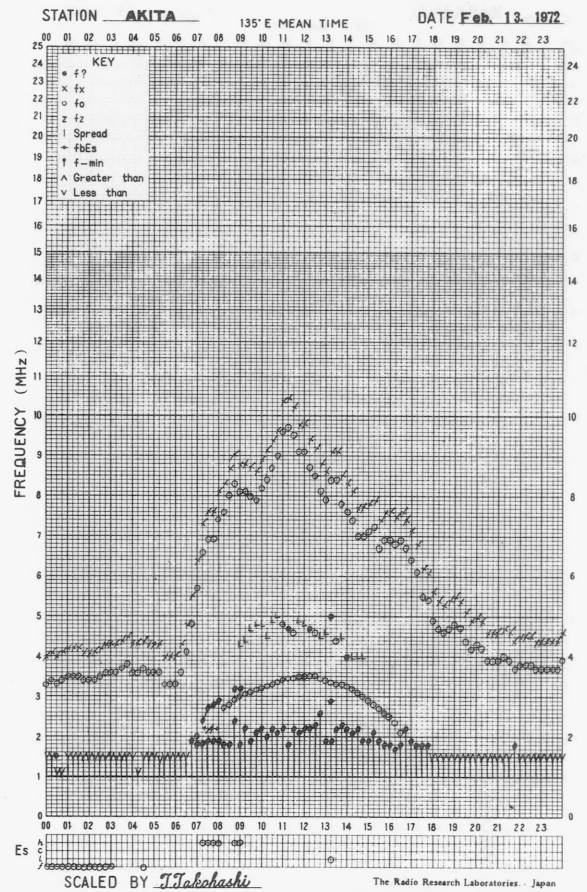
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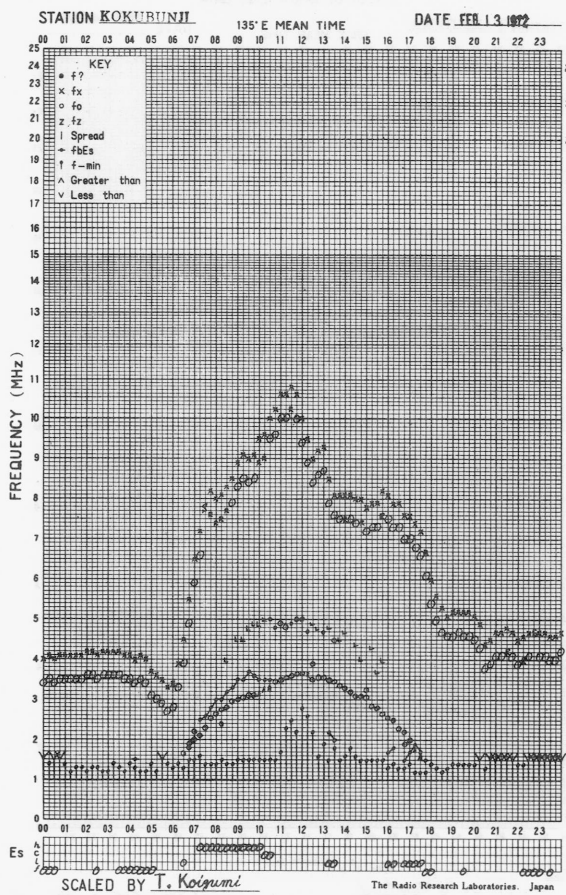
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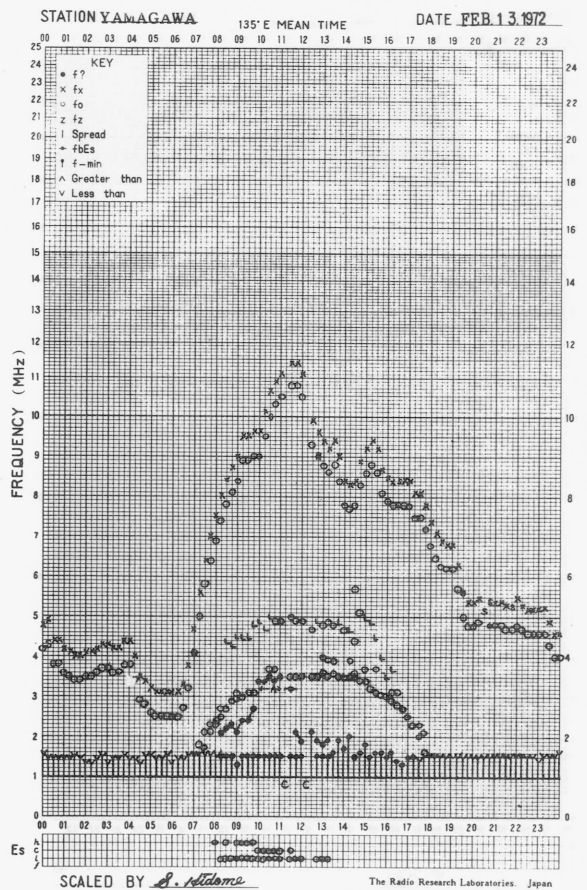
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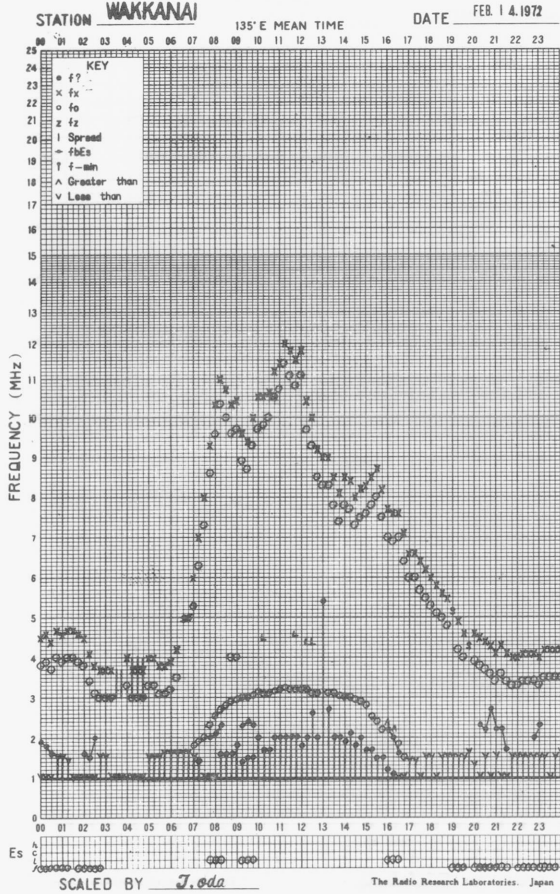


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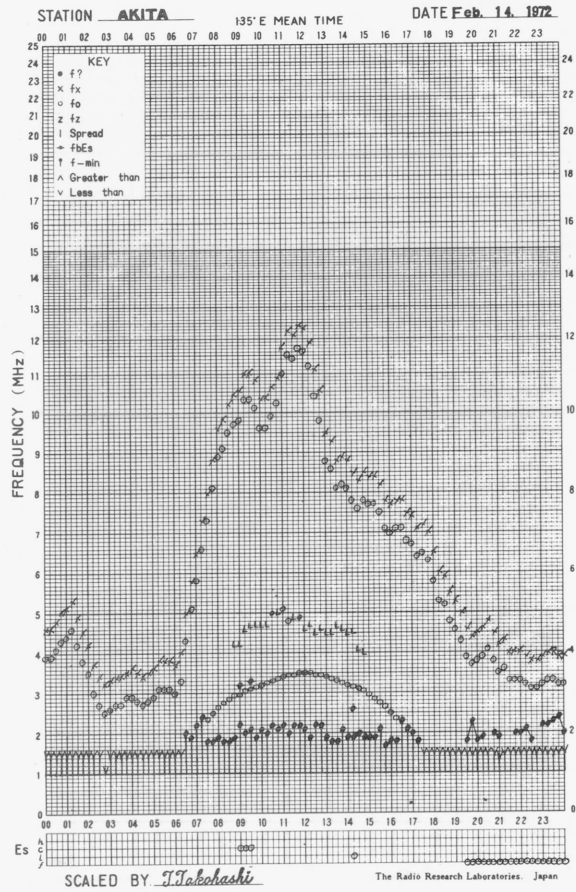




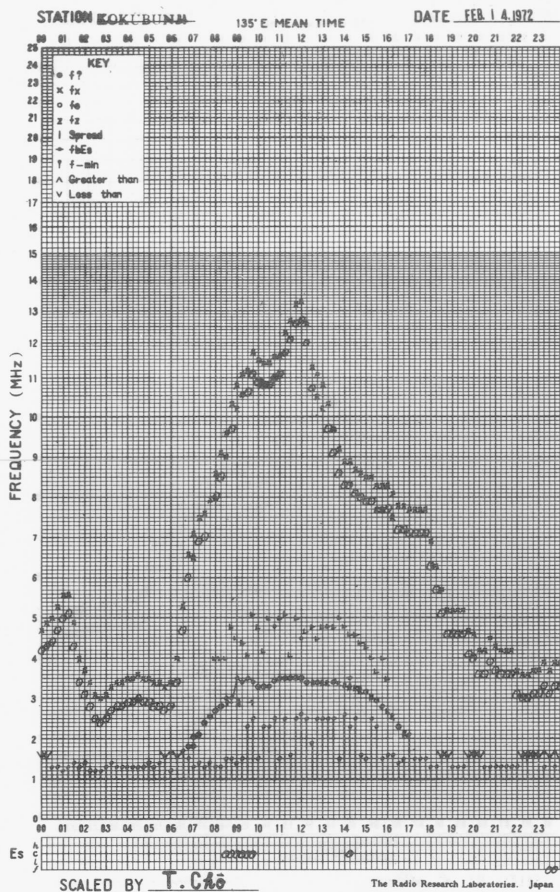
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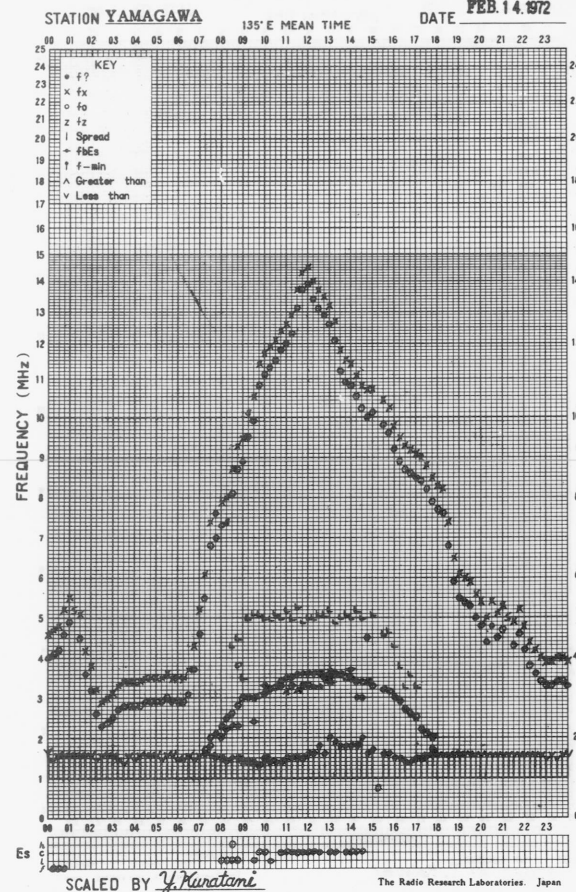
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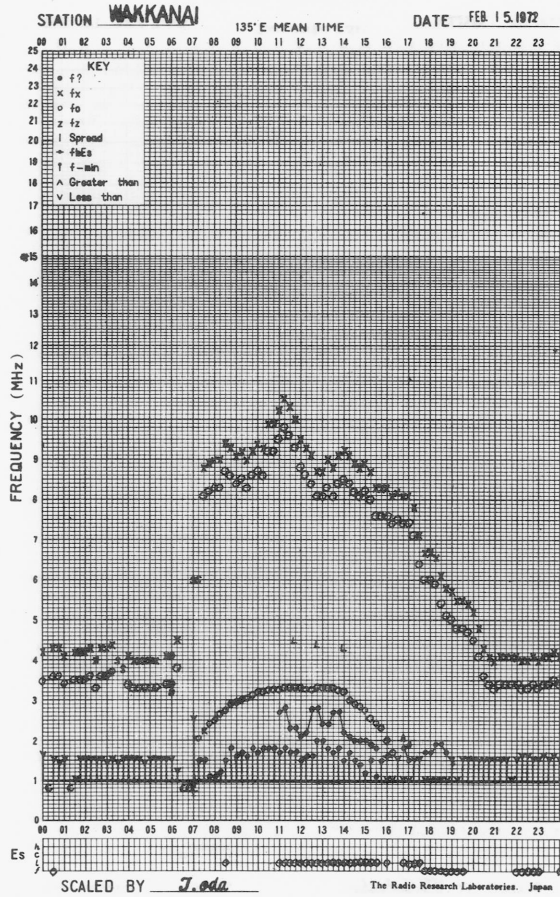
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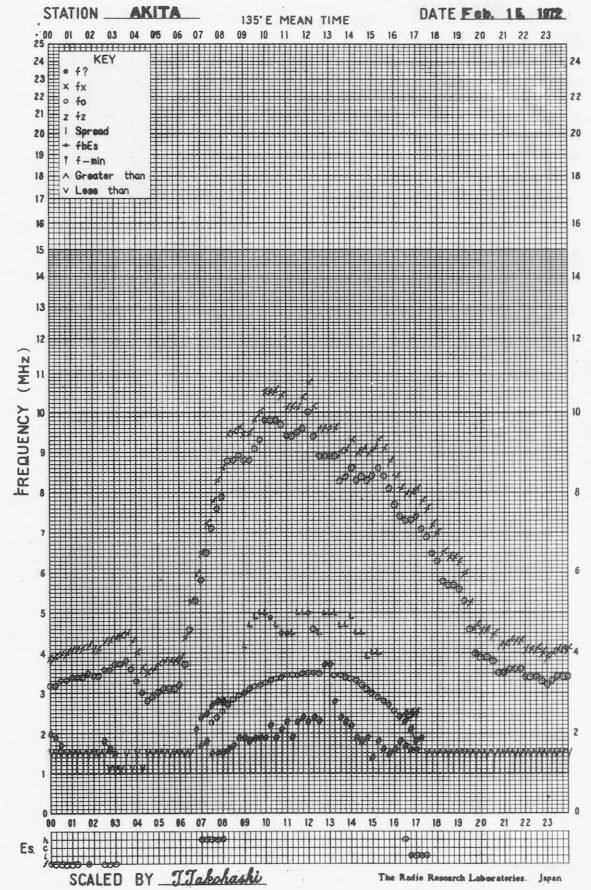
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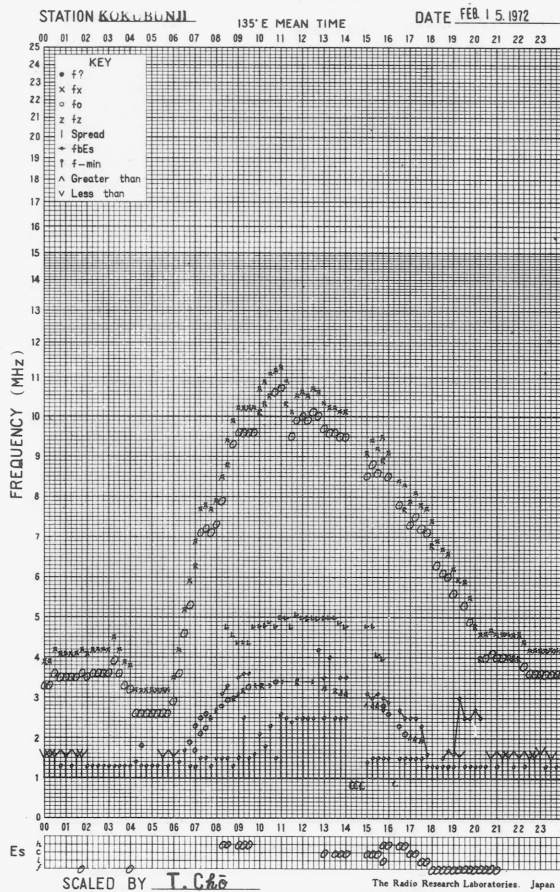
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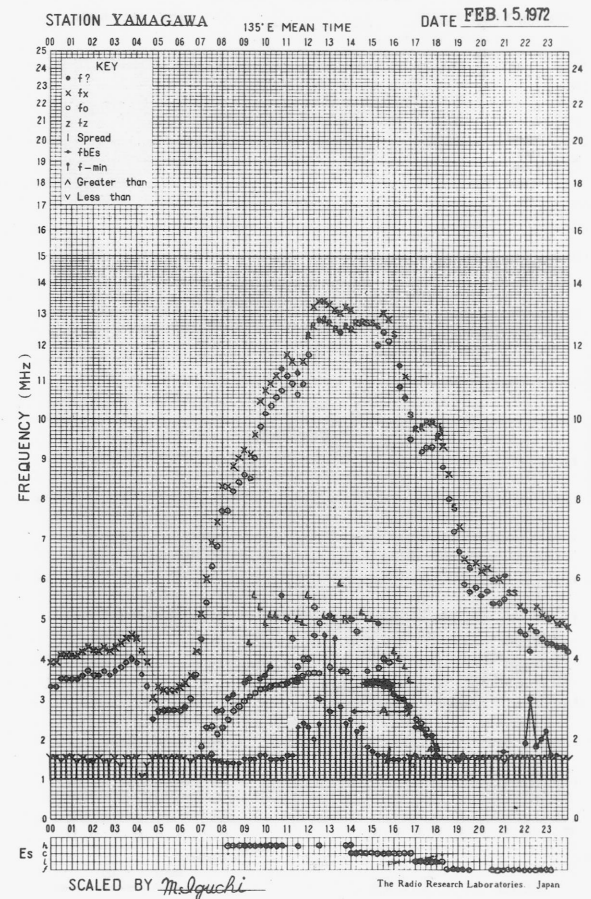
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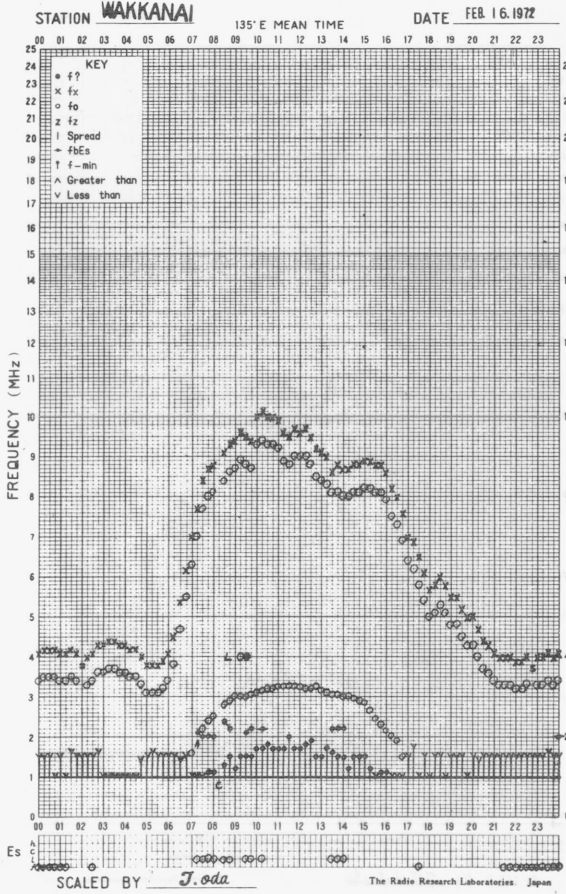


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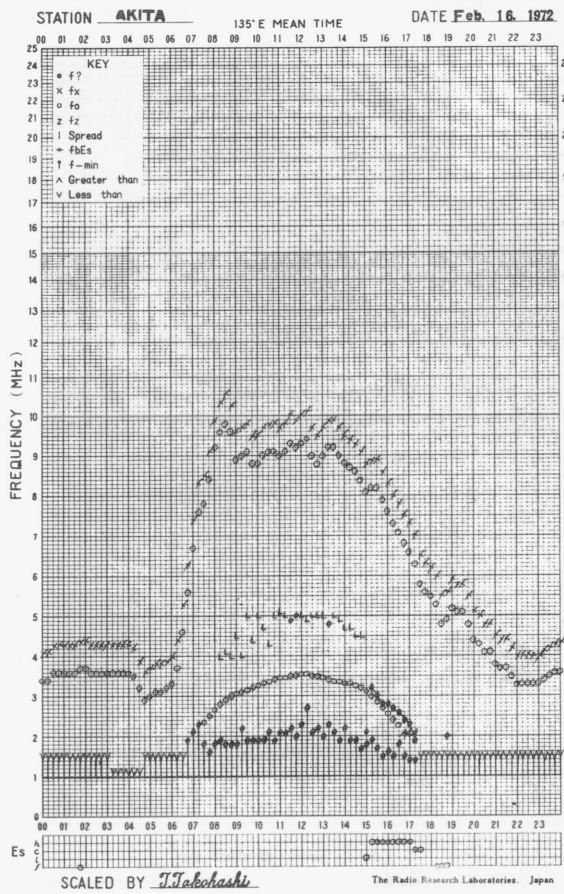




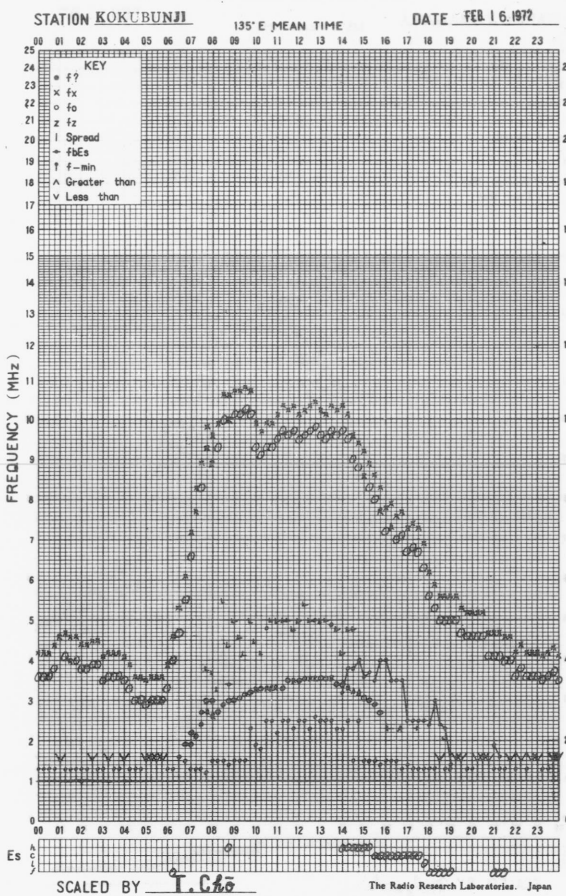
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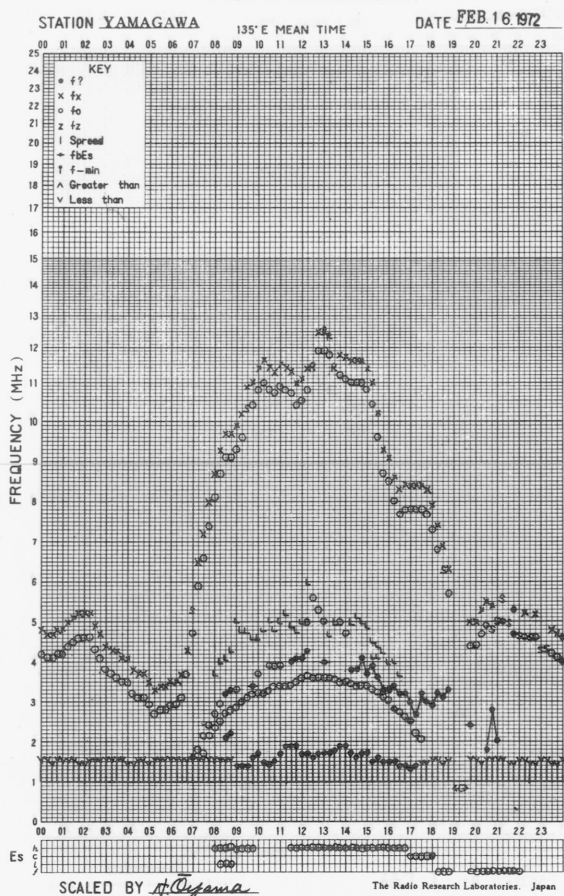
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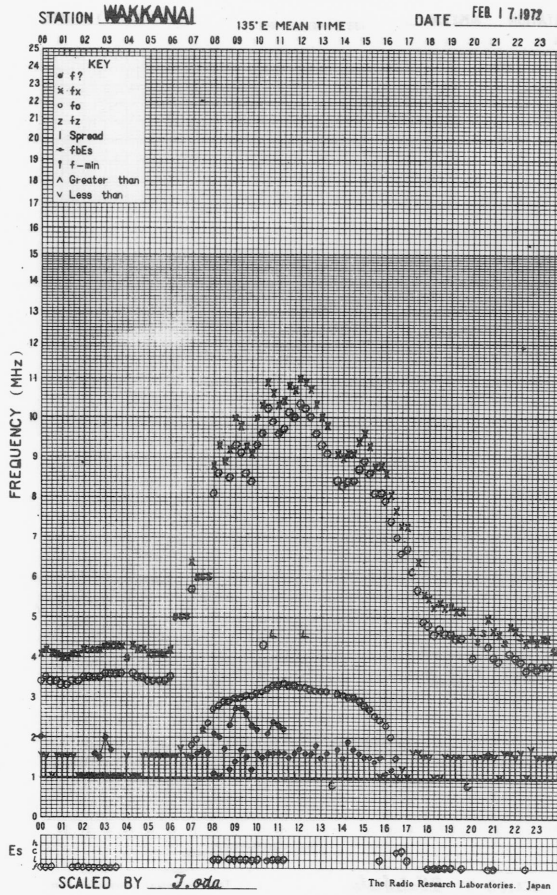
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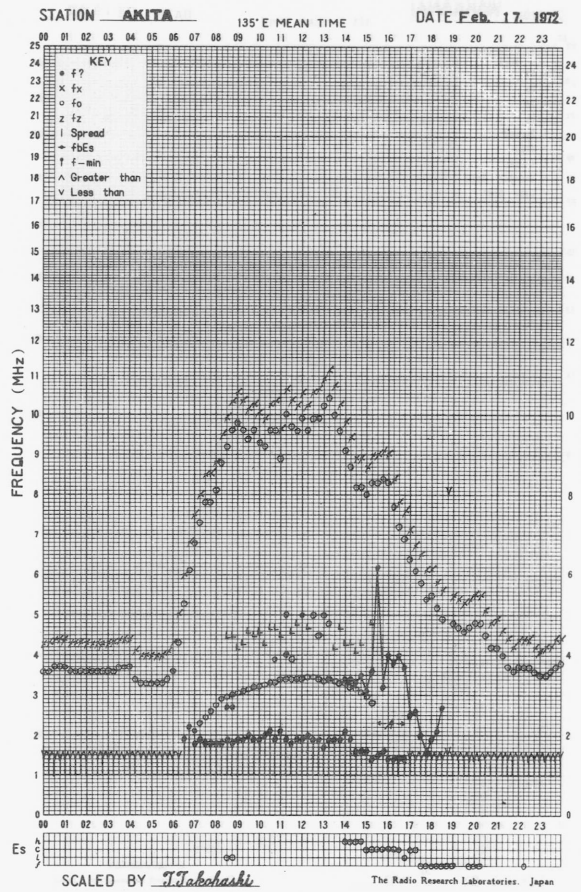
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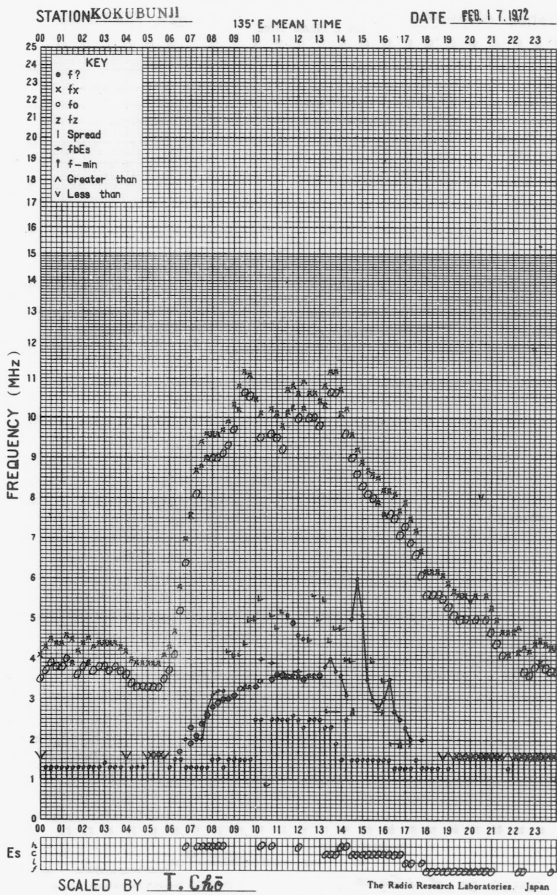
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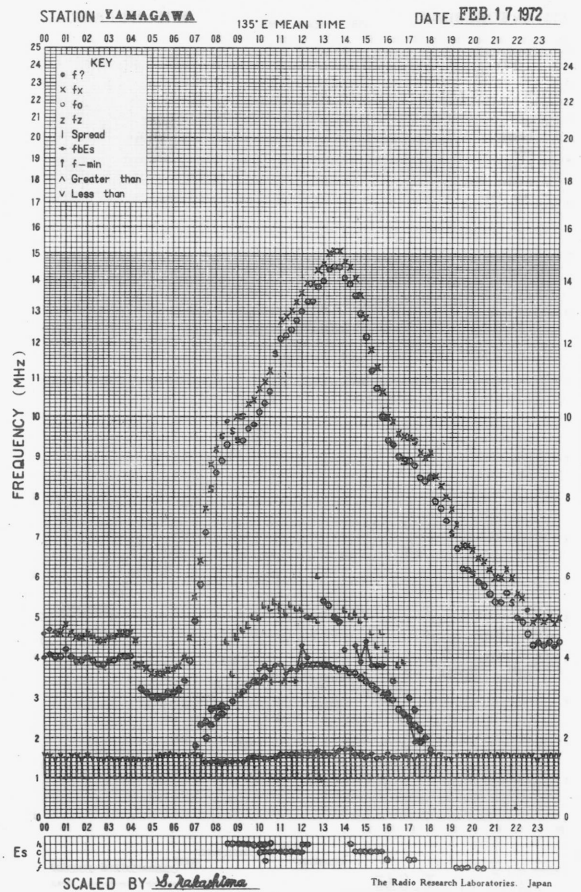
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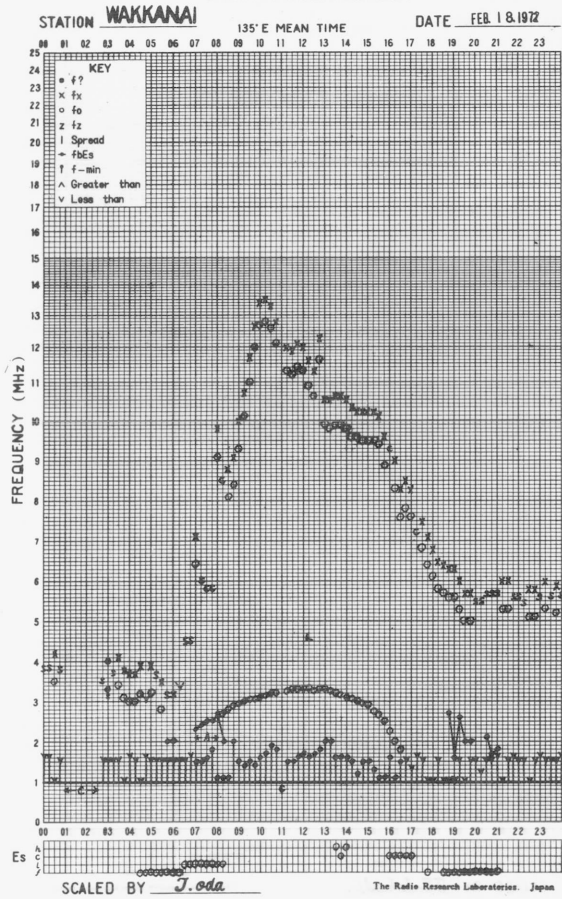


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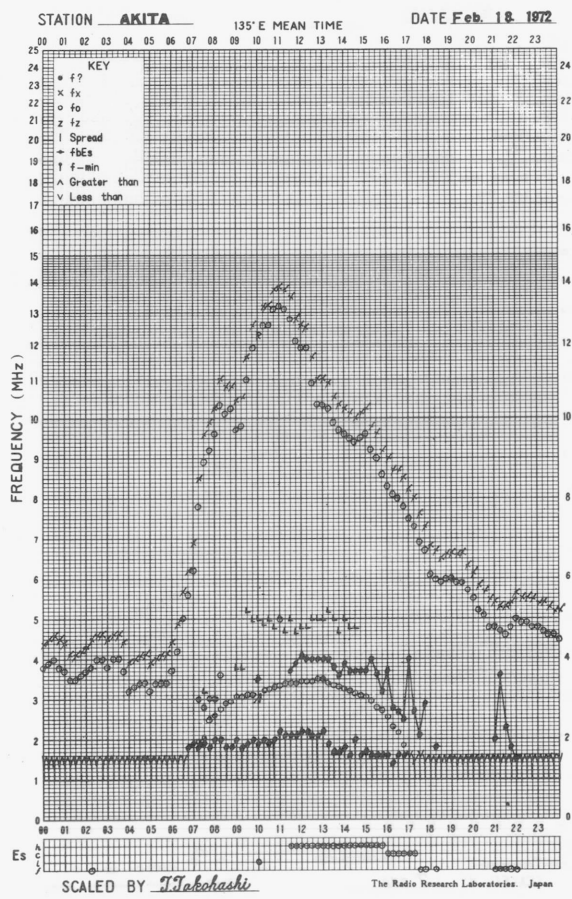




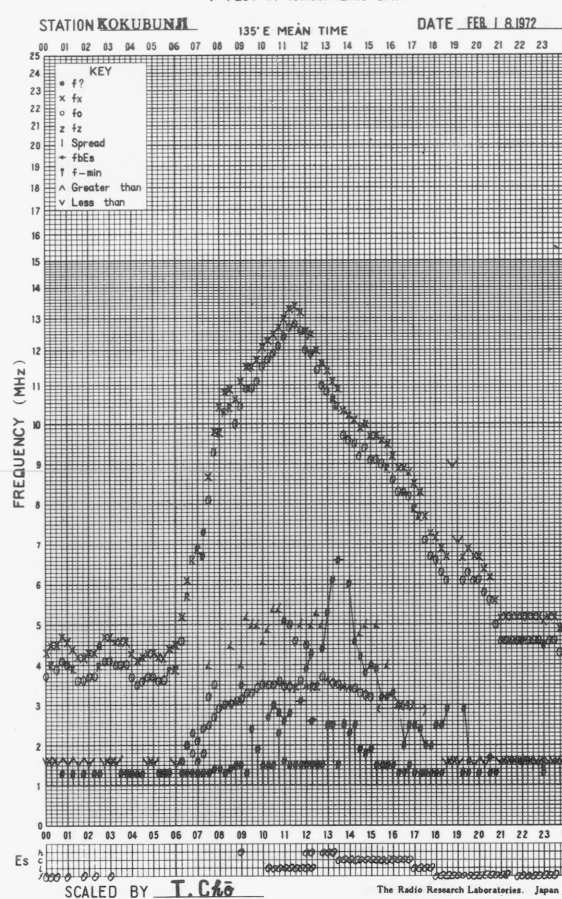
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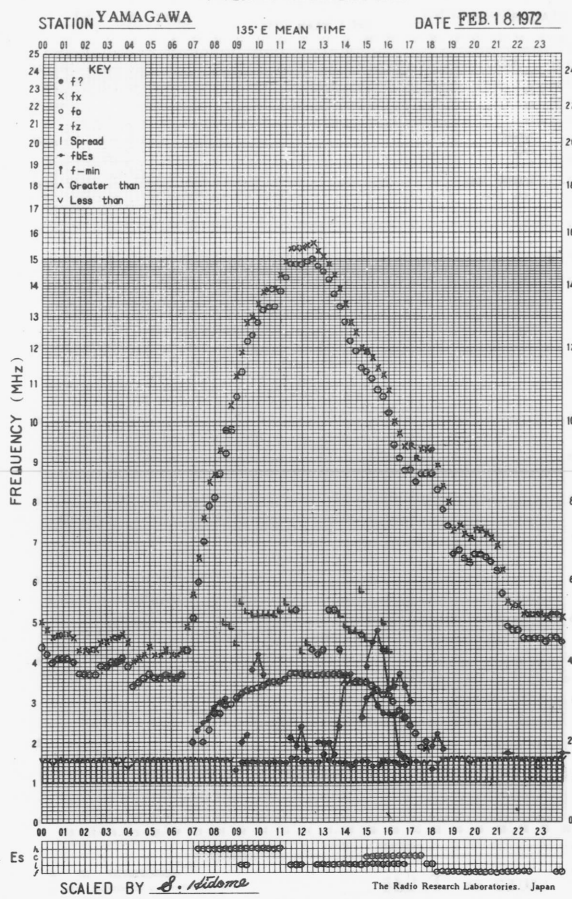
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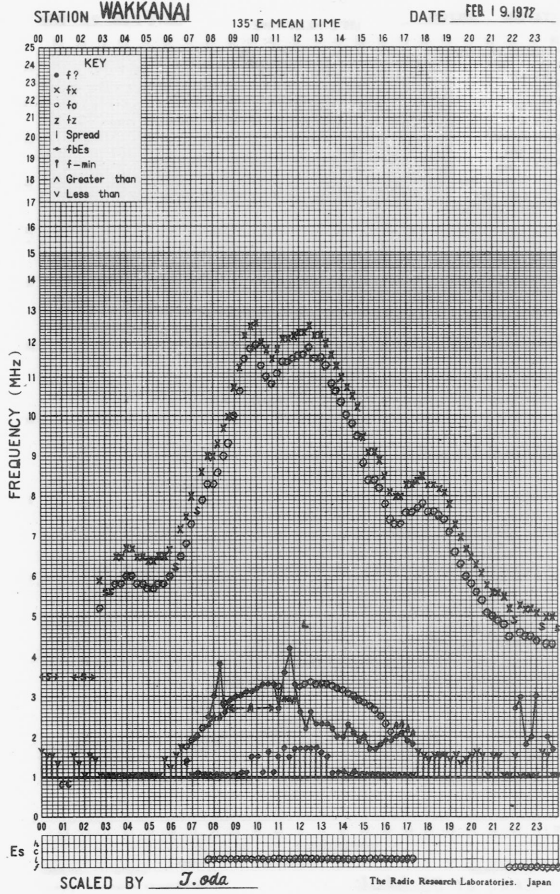
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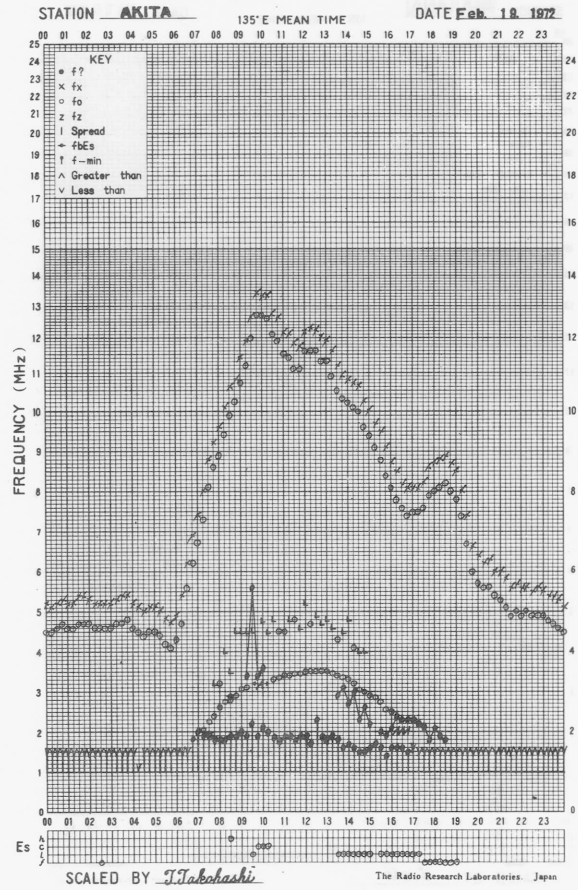
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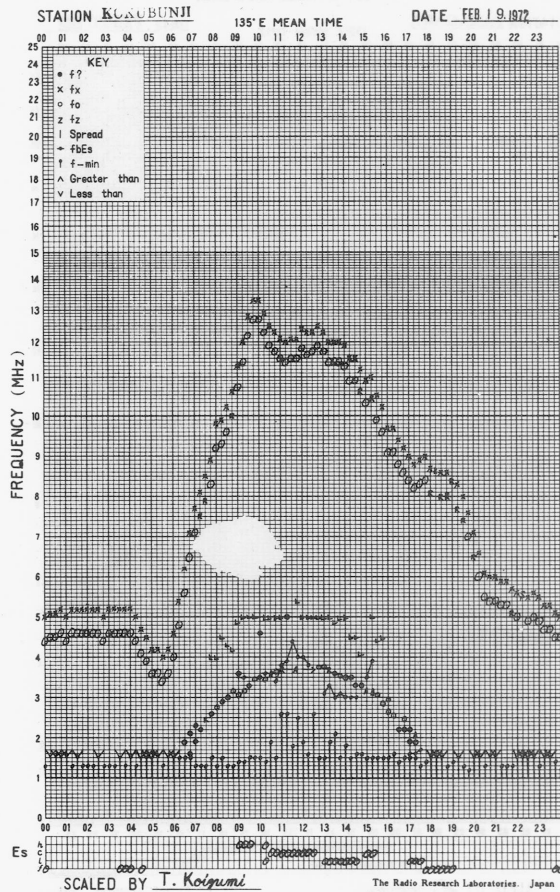
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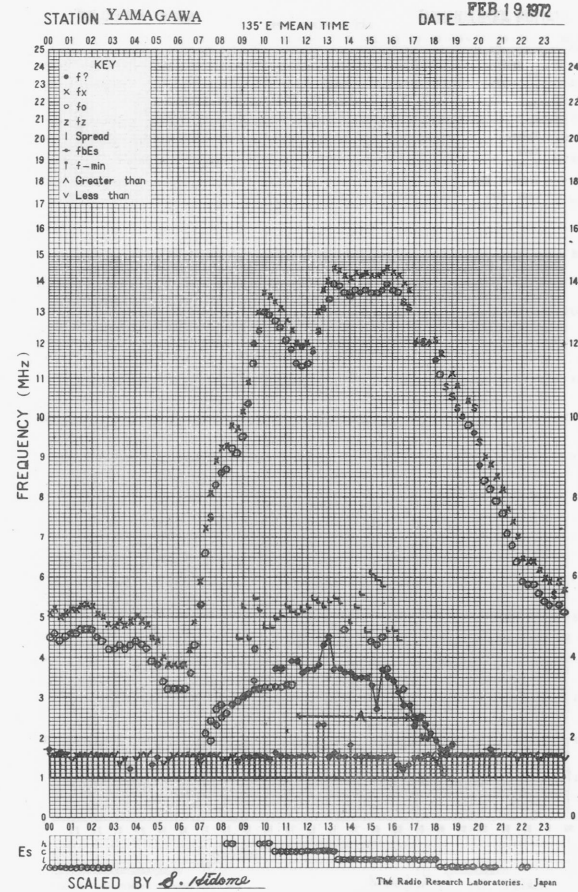
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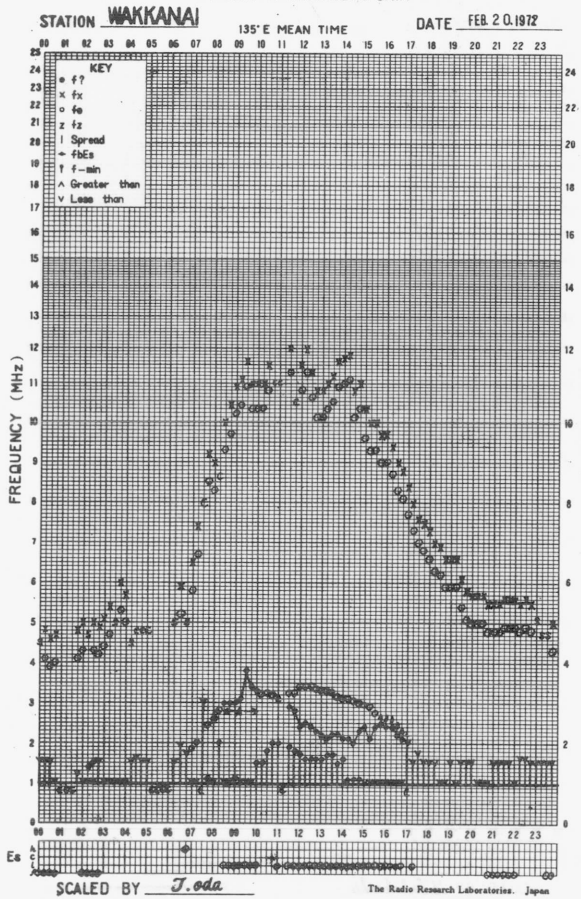


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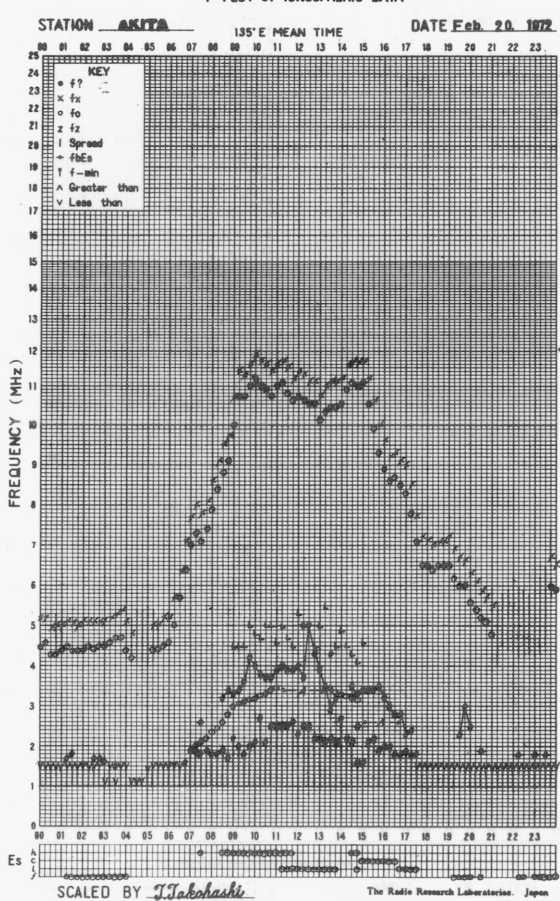




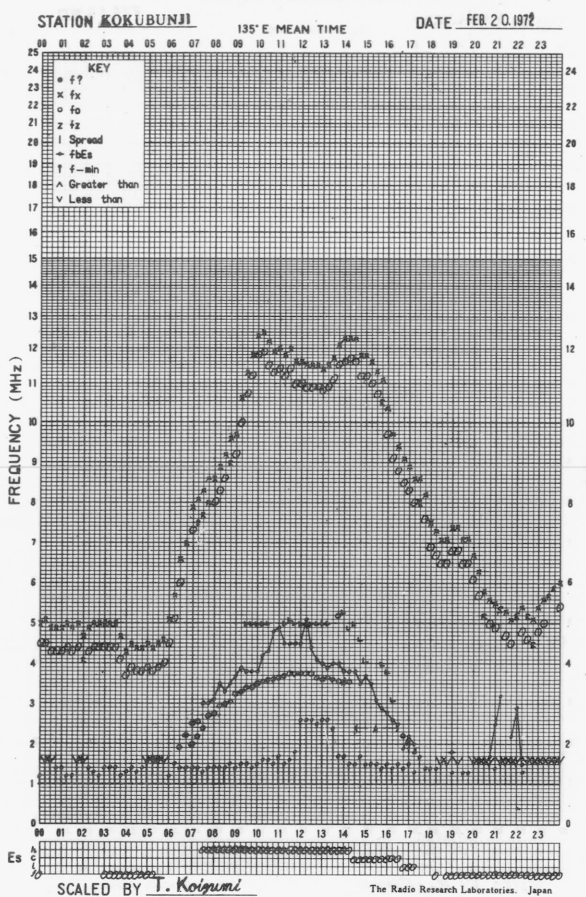
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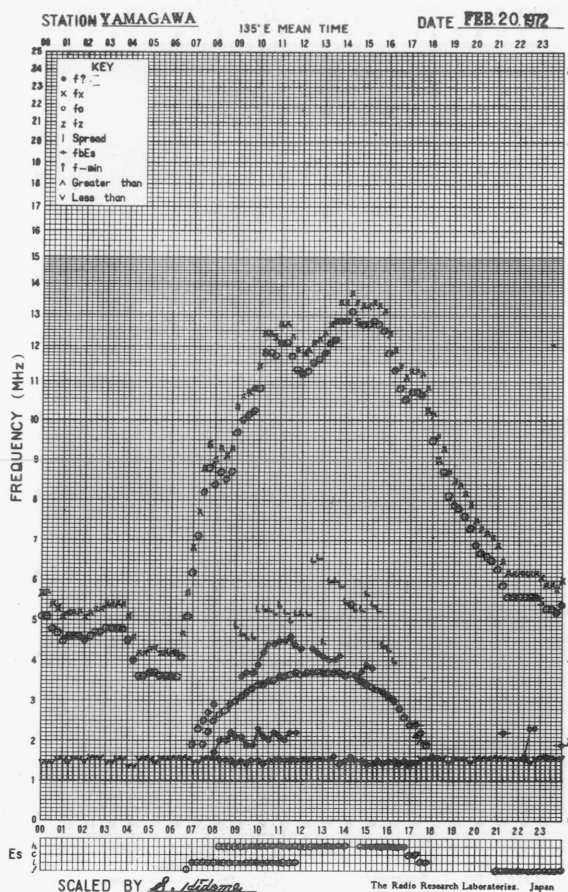
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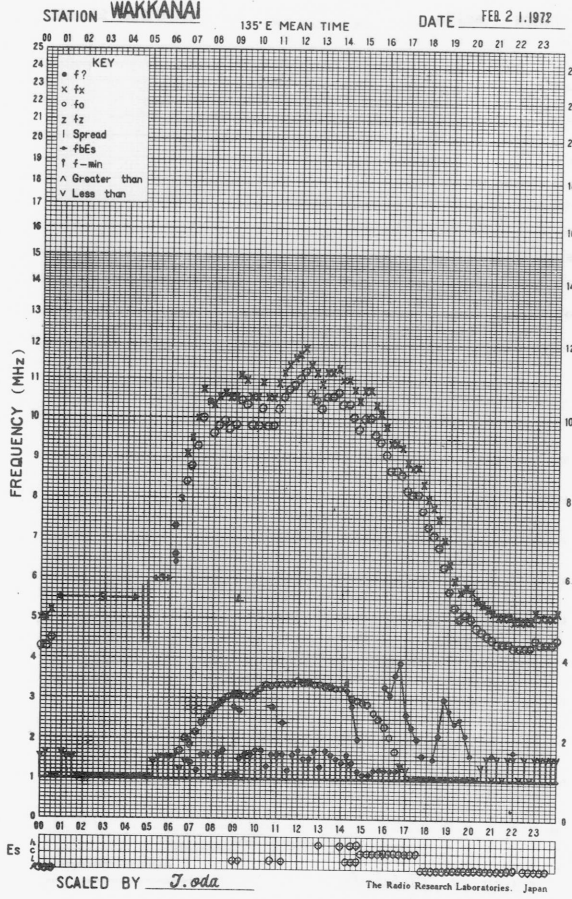
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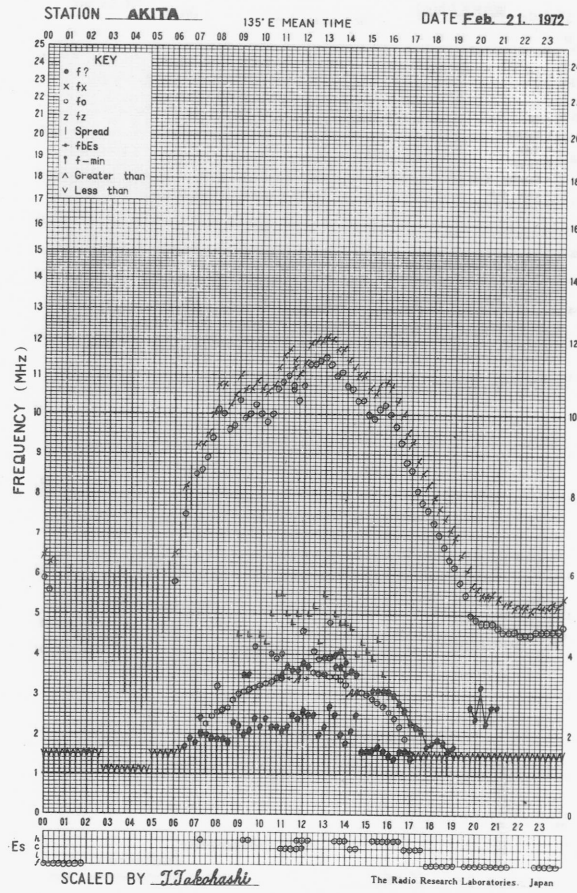
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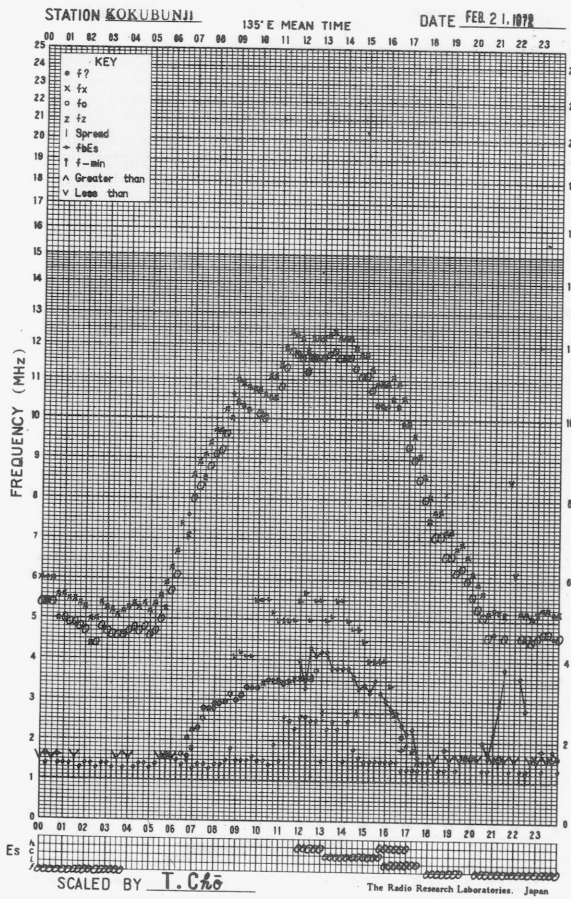
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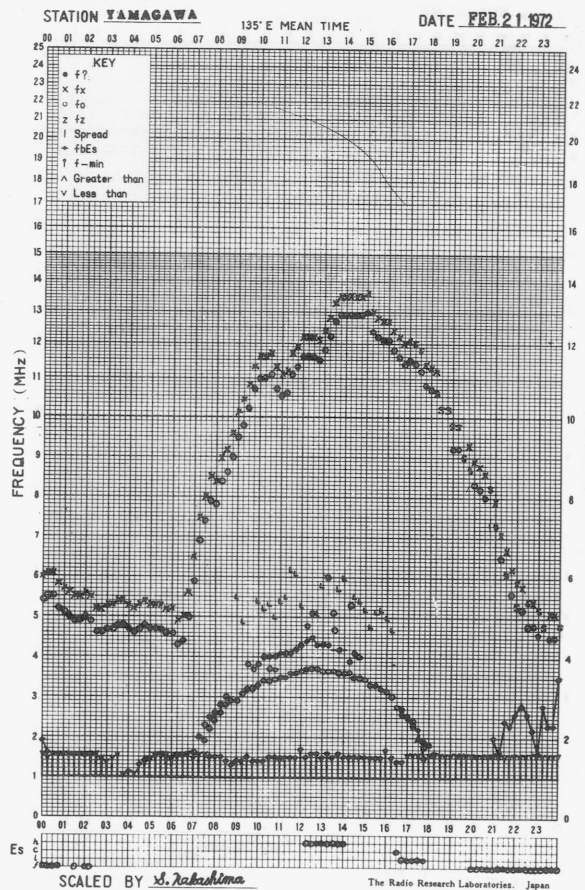
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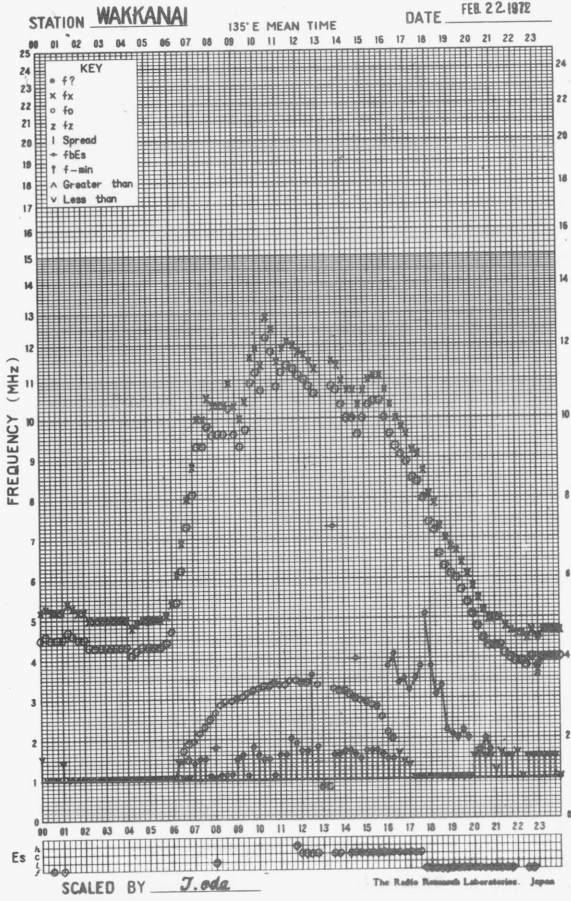


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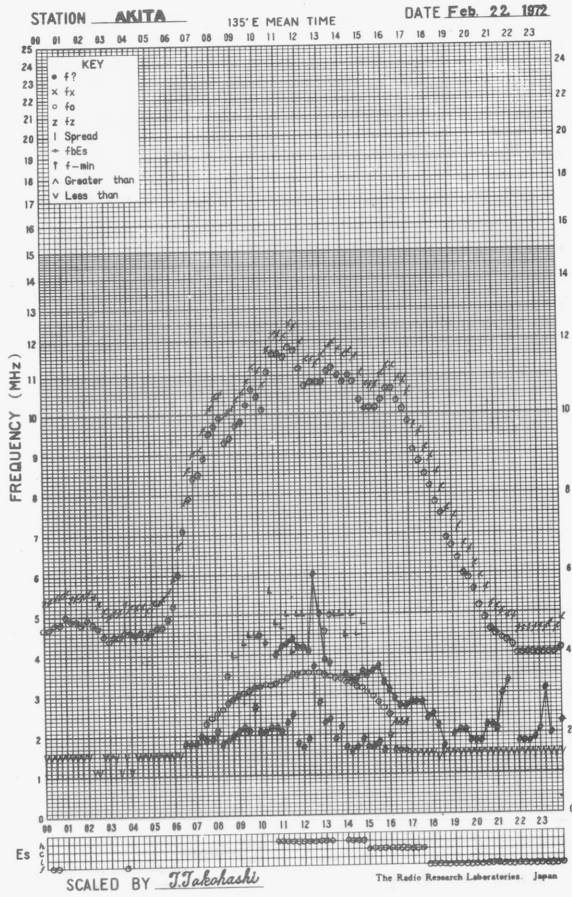




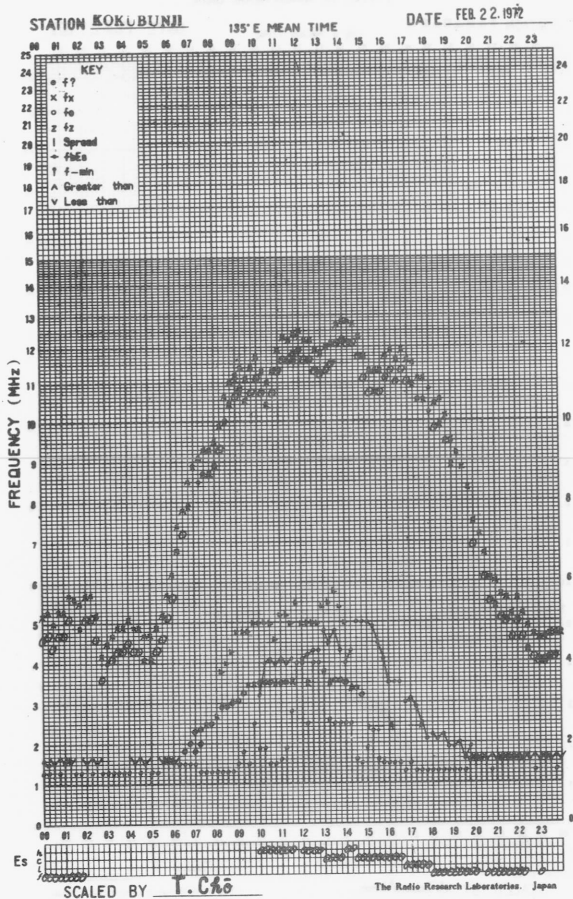
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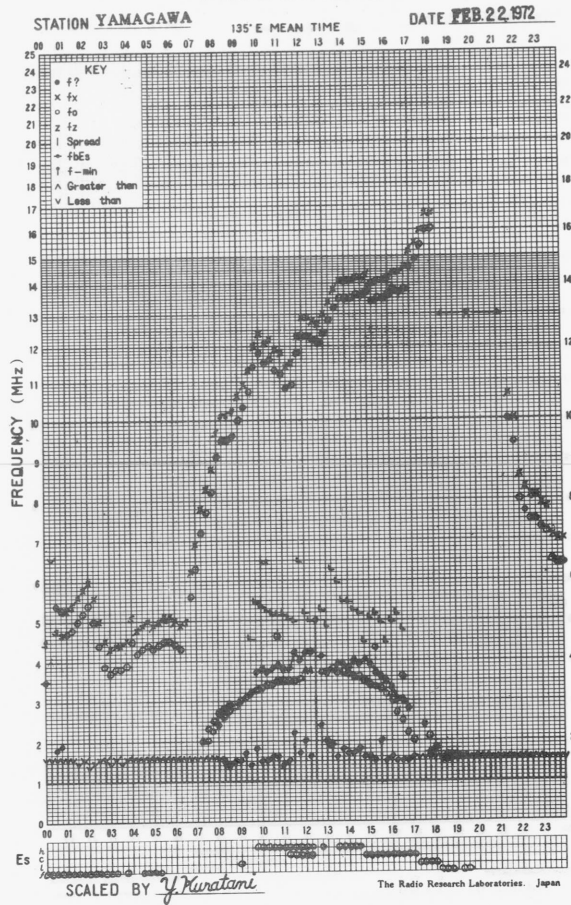
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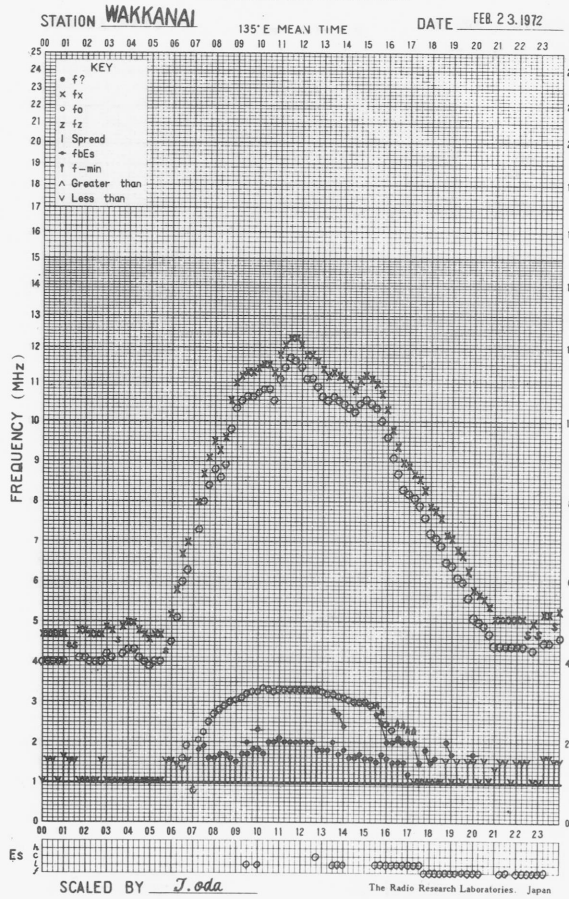
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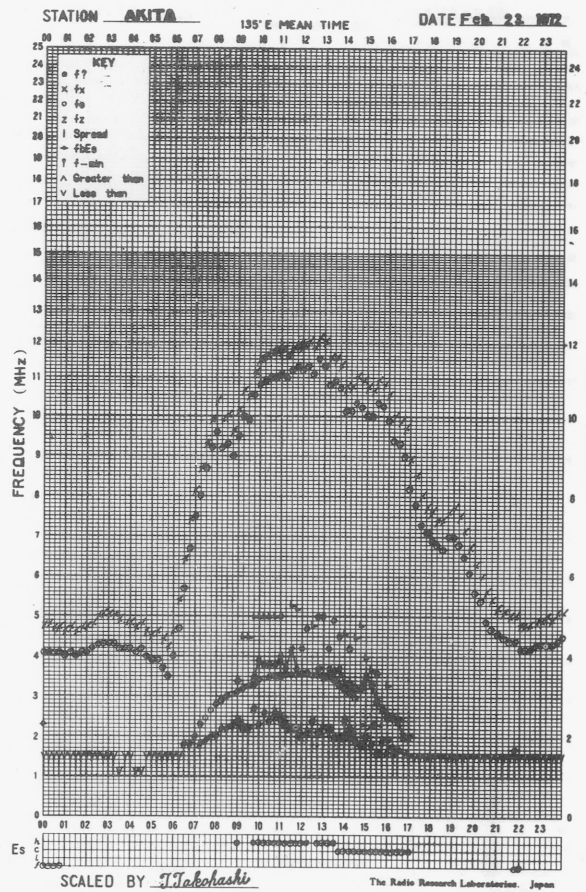
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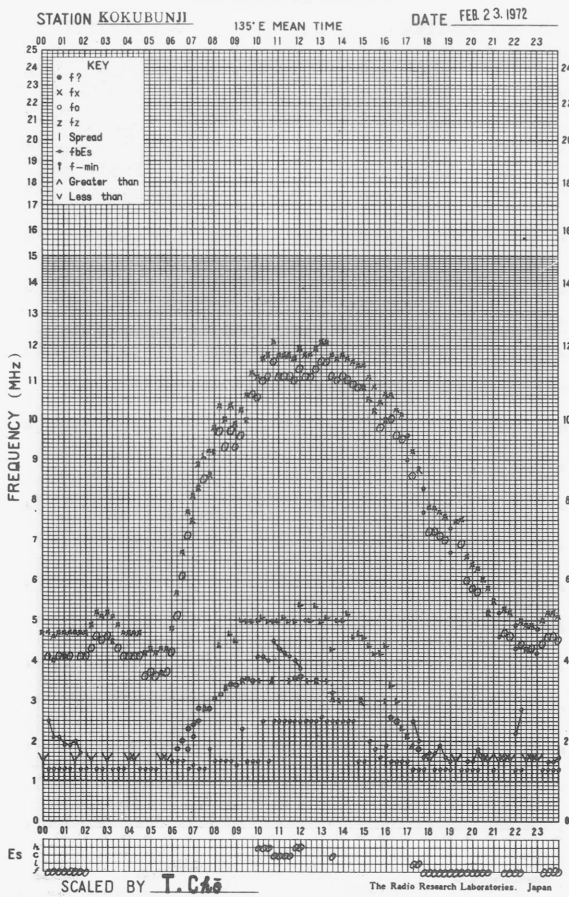
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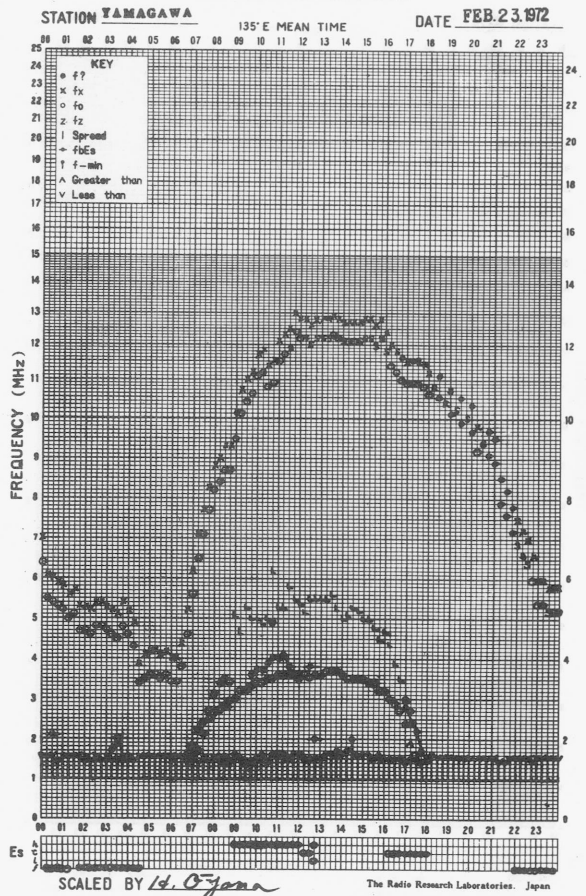
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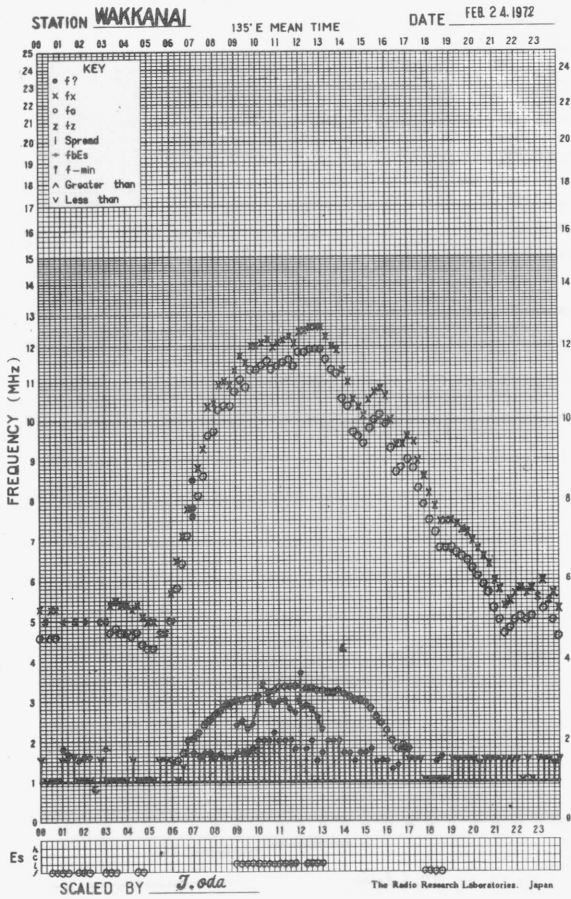


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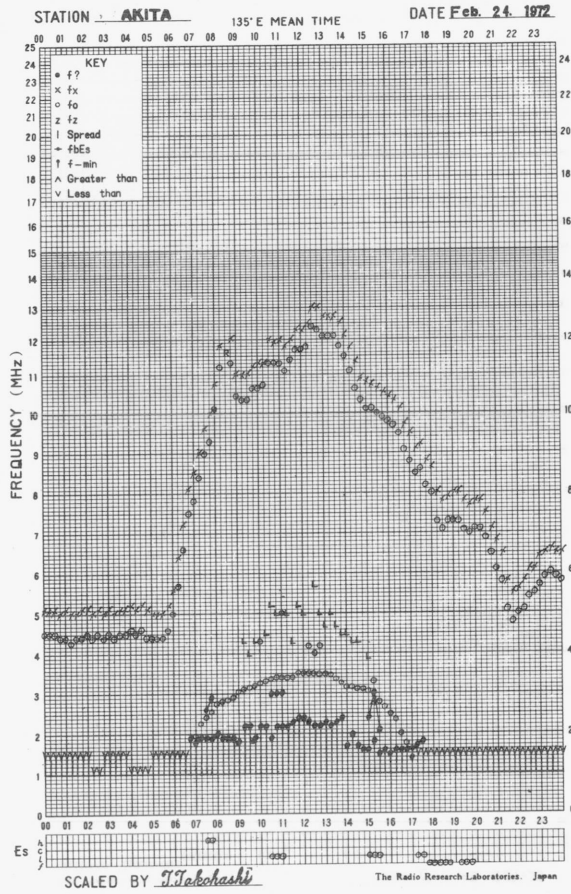




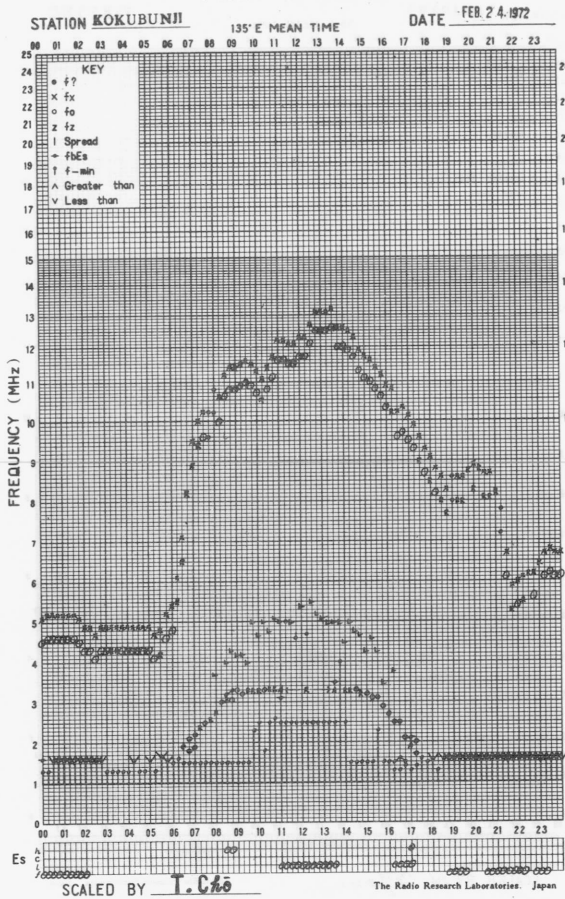
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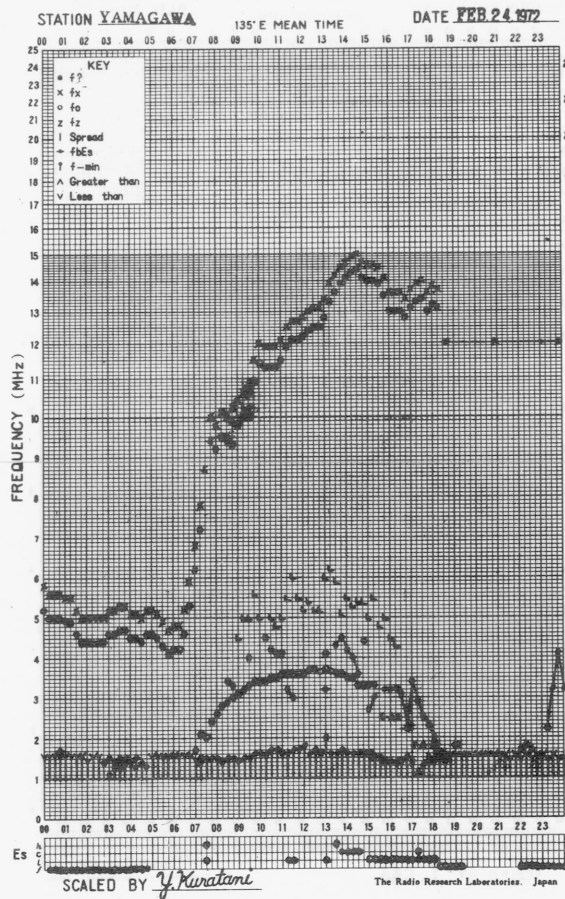
f-PLOT OF IONOSPHERIC DATA



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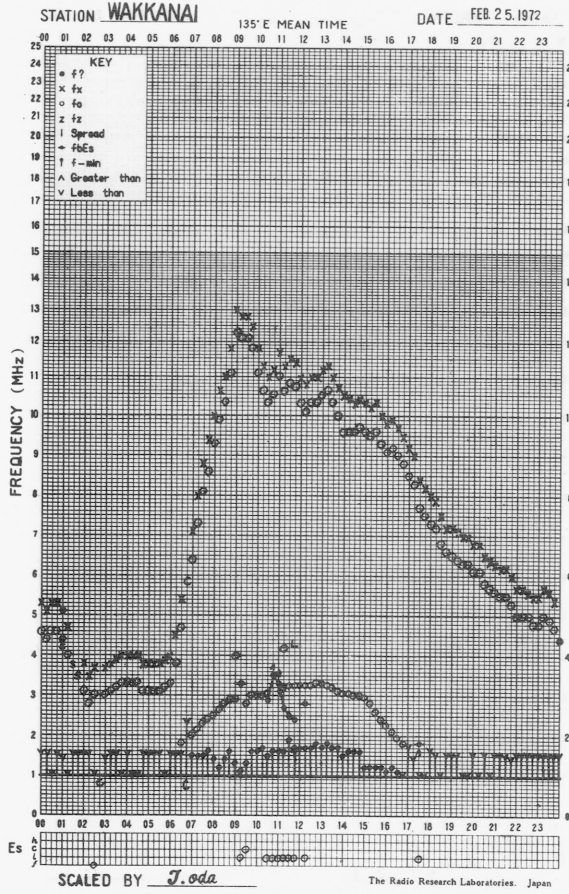


f-PLOT OF IONOSPHERIC DATA

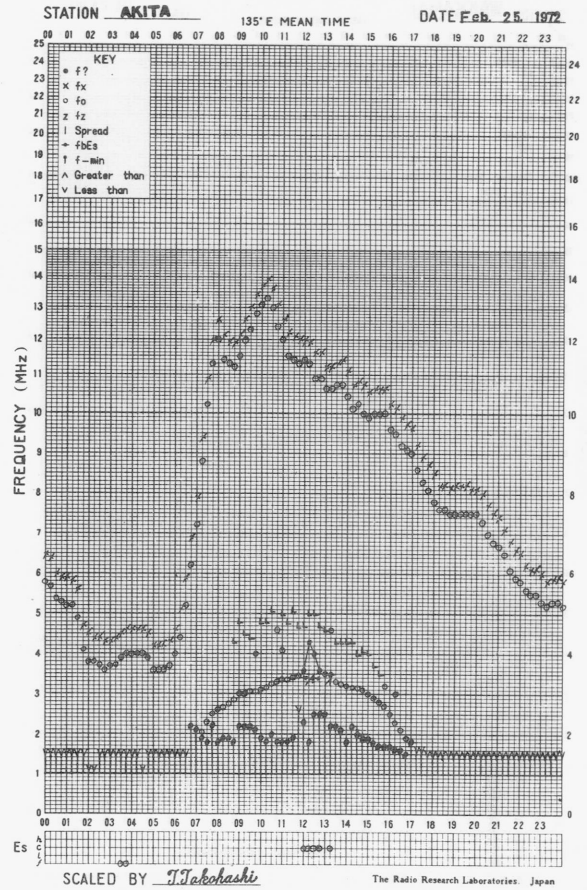




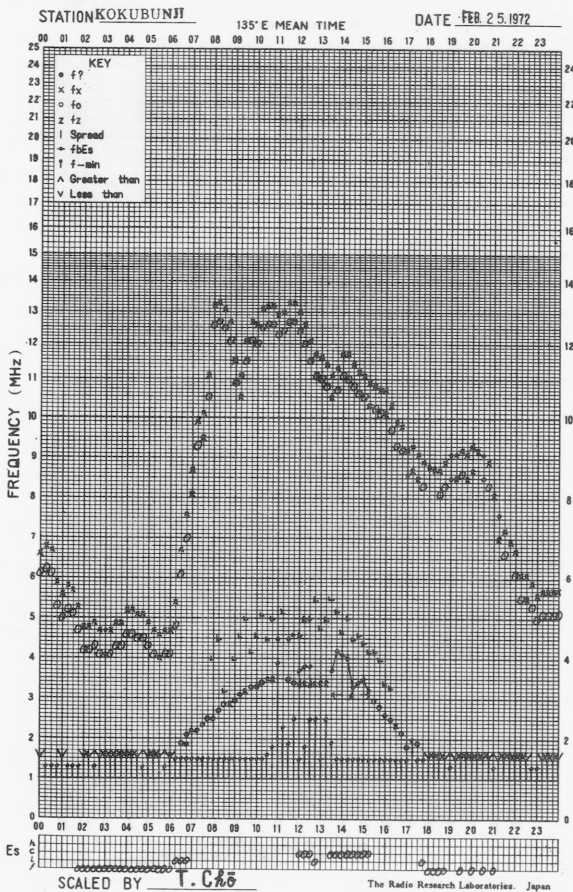
f-PLOT OF IONOSPHERIC DATA



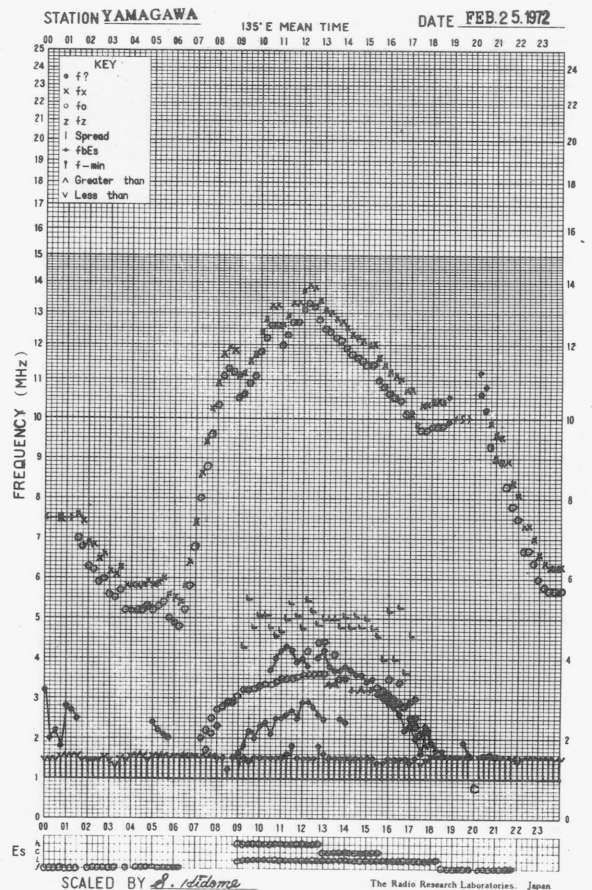
f-PLOT OF IONOSPHERIC DATA



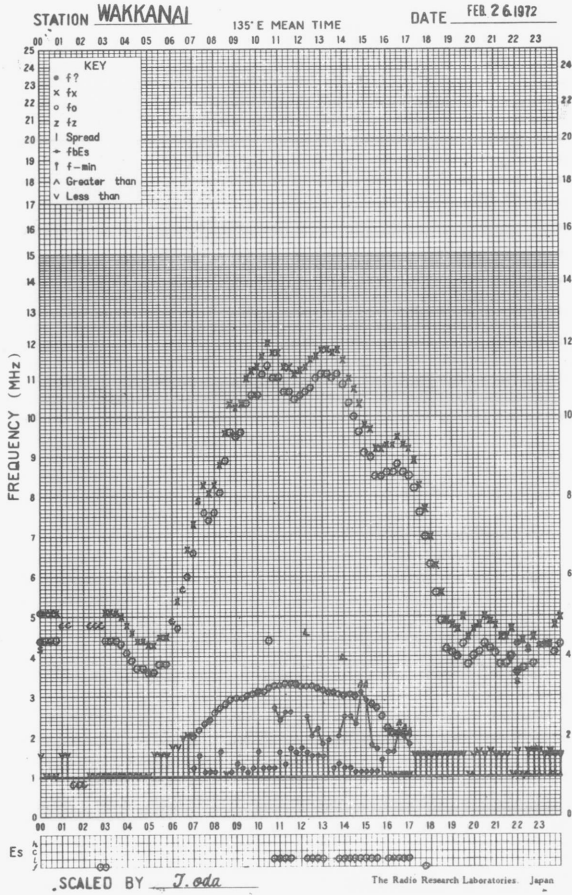
f-PLOT OF IONOSPHERIC DATA



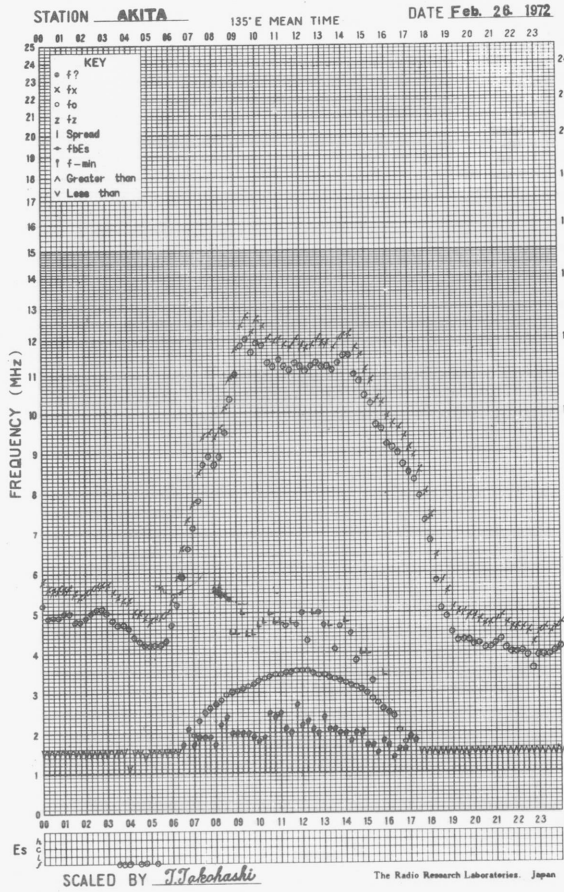
f-PLOT OF IONOSPHERIC DATA



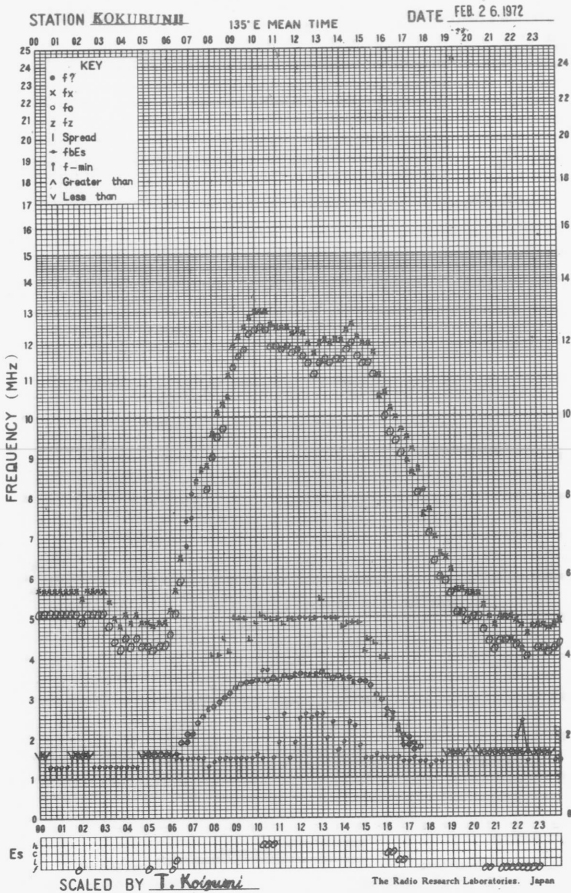
f-PLOT OF IONOSPHERIC DATA



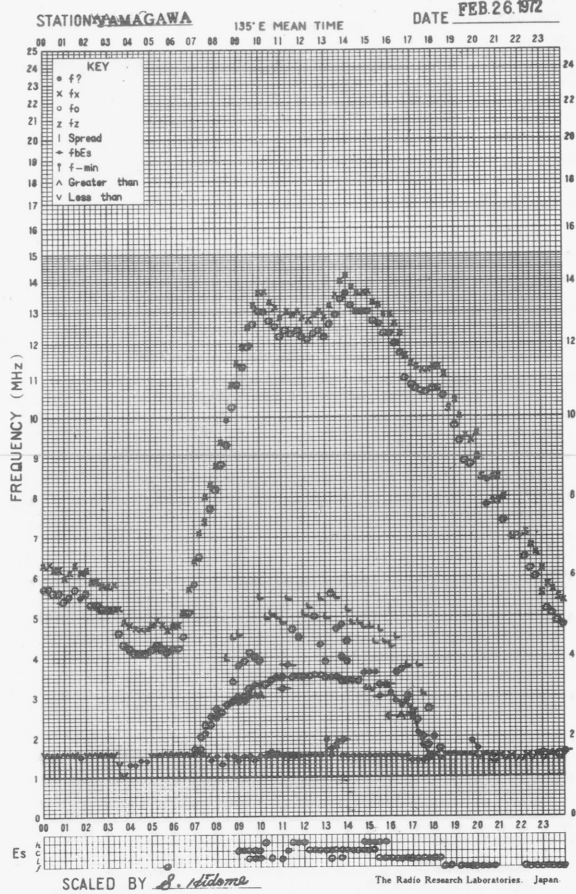
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

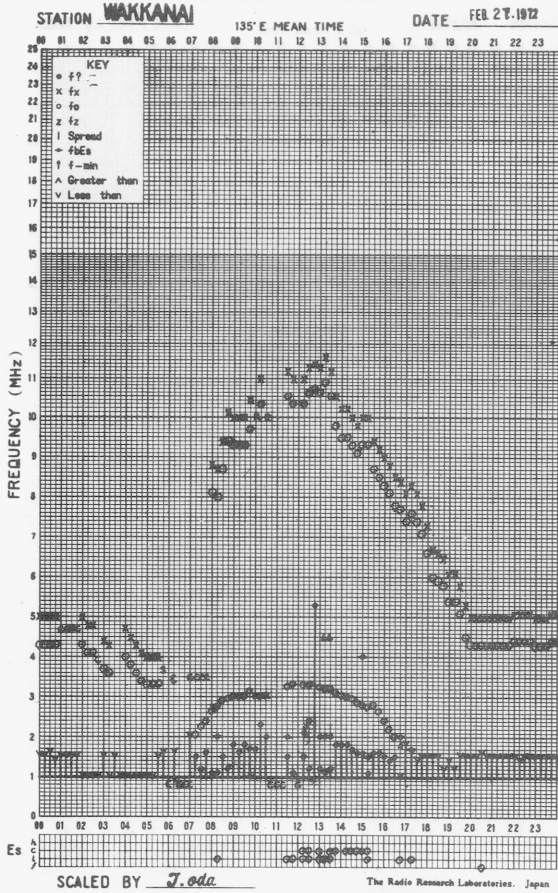


f-PLOT OF IONOSPHERIC DATA

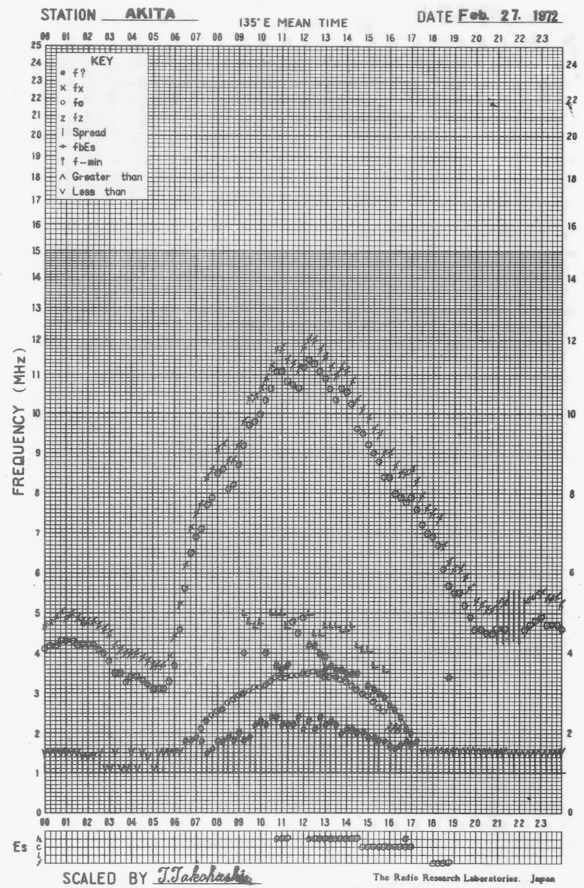




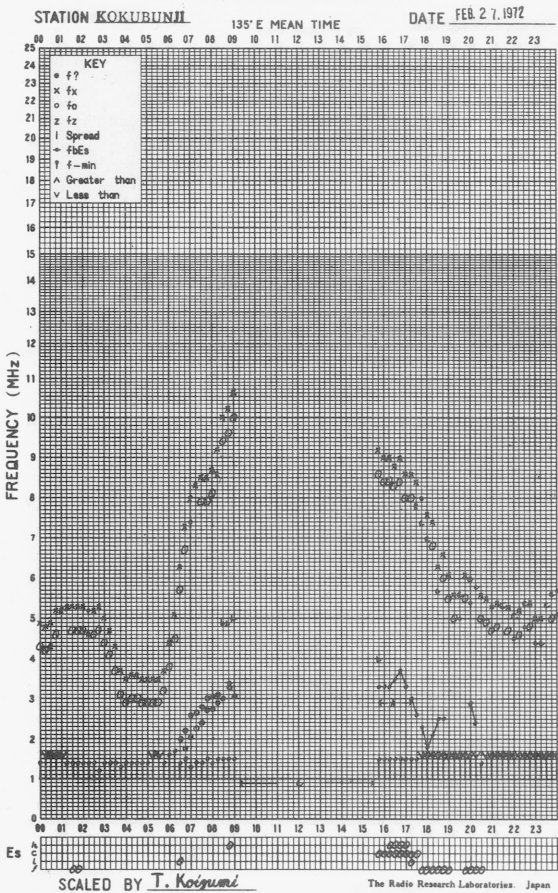
f-PLOT OF IONOSPHERIC DATA



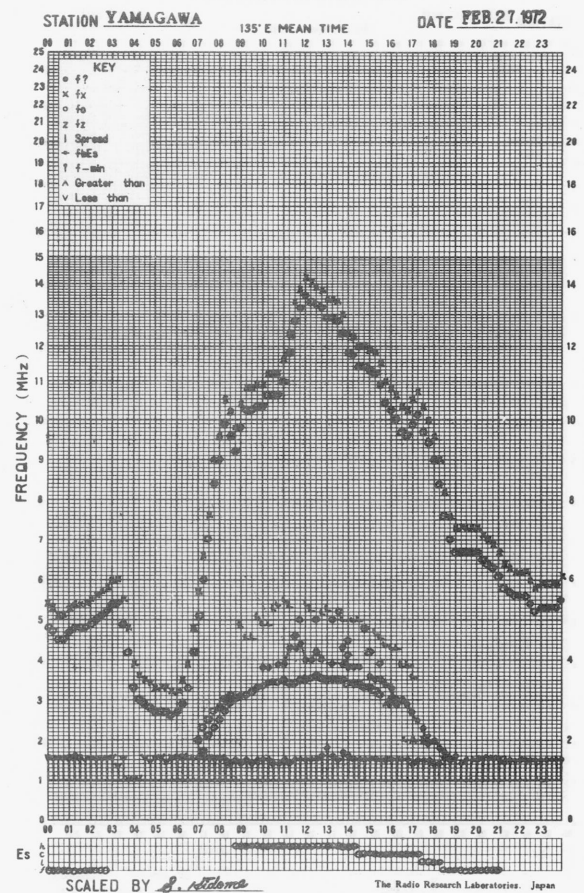
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

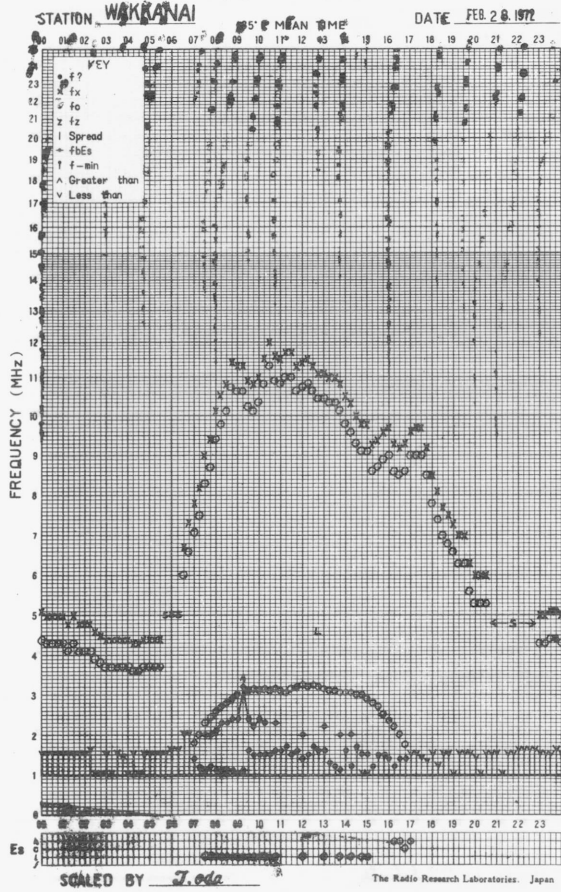


f-PLOT OF IONOSPHERIC DATA

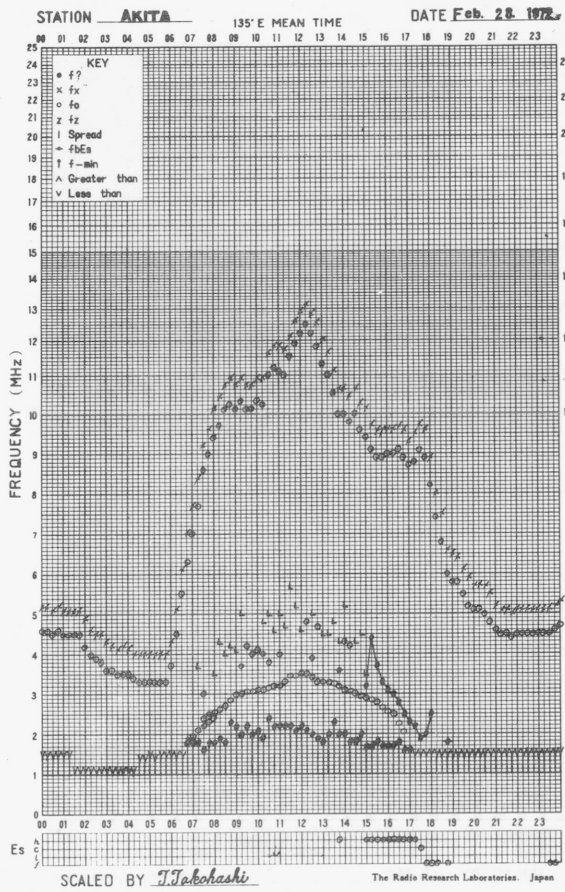




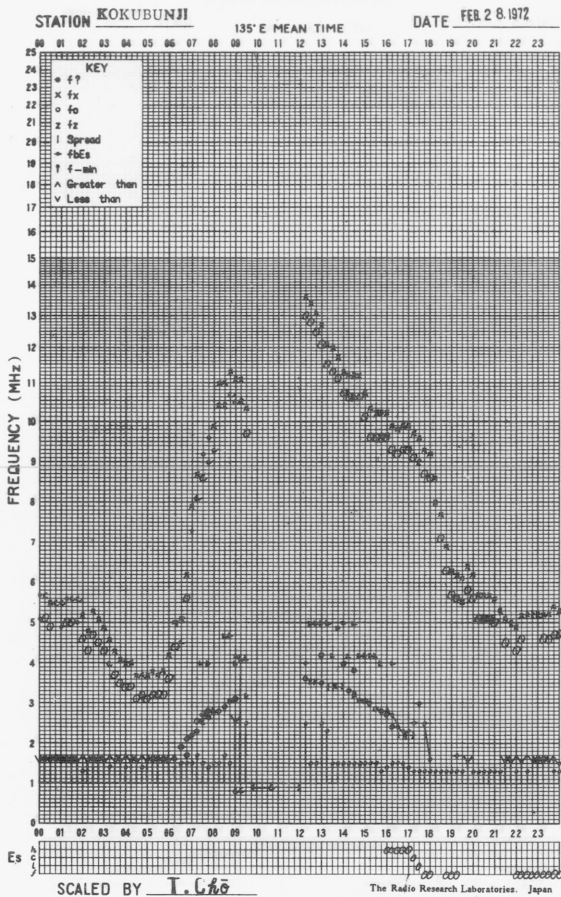
f-PLLOT OF IONOSPHERIC DATA



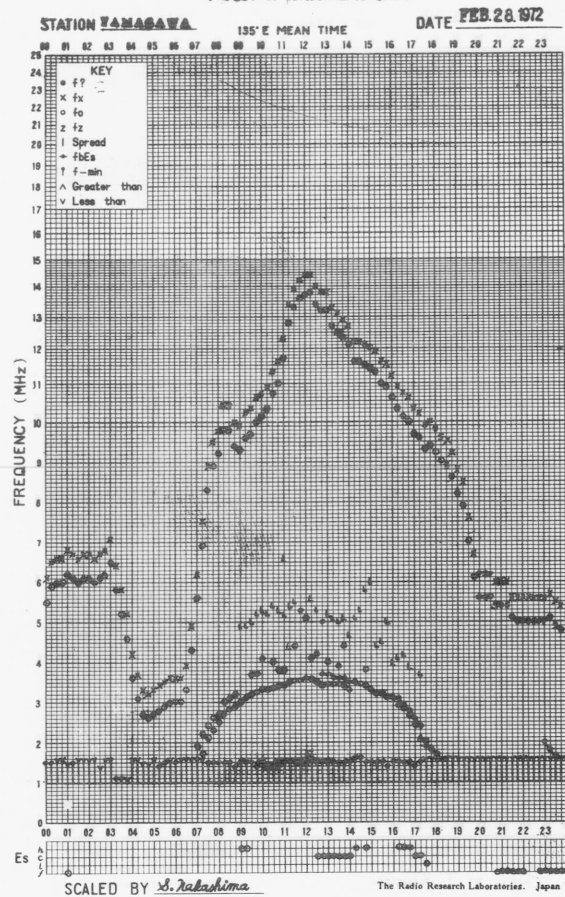
f-PLLOT OF IONOSPHERIC DATA



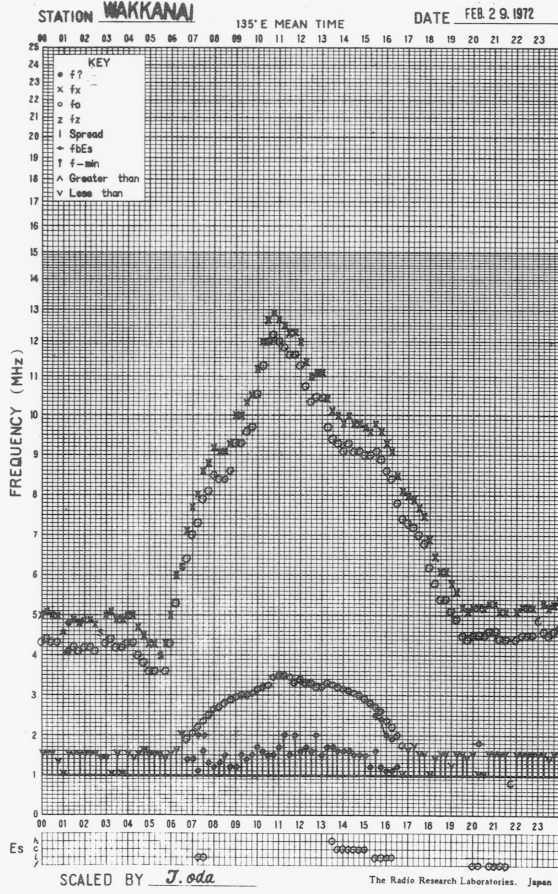
f-PLLOT OF IONOSPHERIC DATA



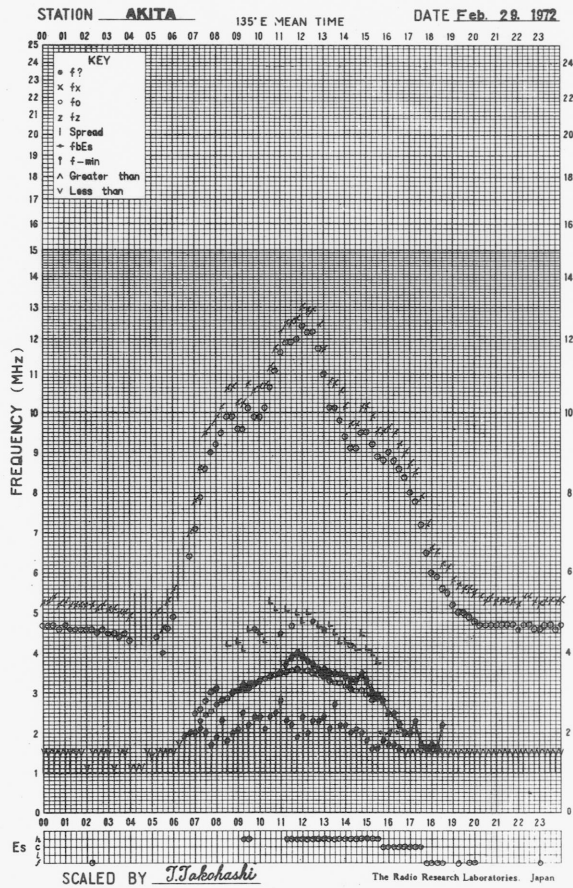
f-PLLOT OF IONOSPHERIC DATA



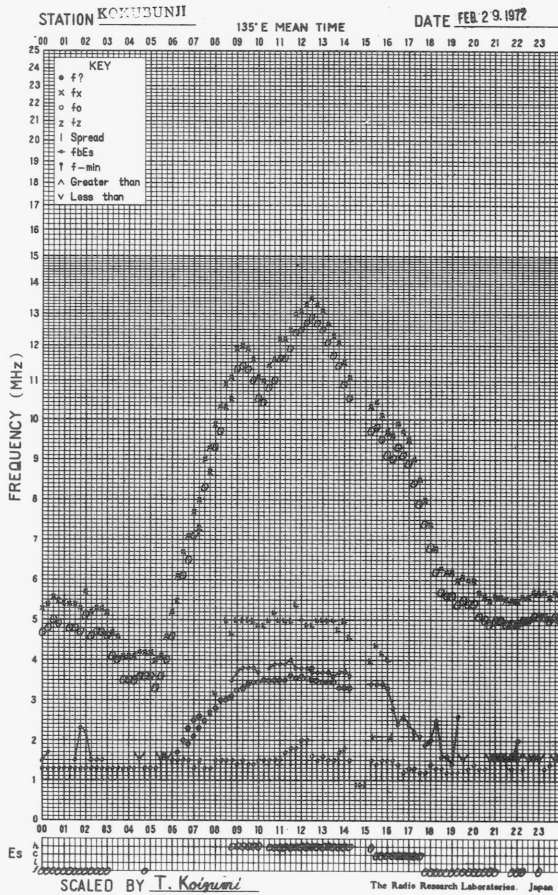
f-PLOT OF IONOSPHERIC DATA



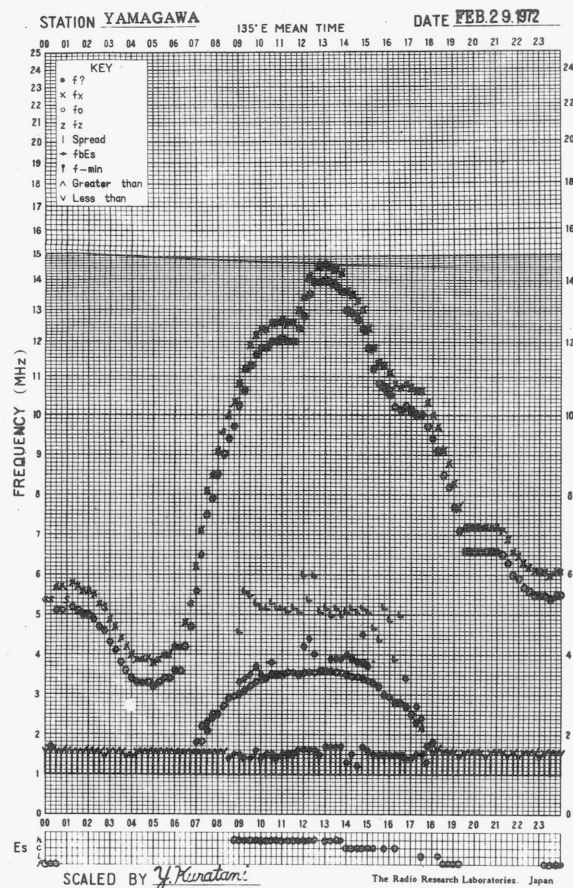
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



## SOLAR RADIO EMISSION

<u>Flux Density and Variability</u>										
Month: February 1972						Frequency: 200 MHz				
Observing station: Hiraiso										
Flux density $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$						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	(q)	5	6	0	0	(0)	0	0
2	5	6	(5)	6	6	0	0	(0)	0	0
3	6	6	(7)	7	6	0	0	(0)	0	0
4	7	6	(5)	6	6	0	0	(0)	0	0
5	6	6	(6)	6	6	0	0	(0)	0	0
6	6	6	(6)	5	6	0	0	(0)	0	0
7	5	6	(6)	6	5	0	0	(0)	0	0
8	6	6	6	7	6	0	0	0	0	0
9	6	6	6	6	6	0	0	0	0	0
10	6	5	5	7	6	0	0	0	0	0
11	7	6	6	7	7	1	0	0	0	0
12	7	6	7	6	6	0	0	0	0	0
13	7	8	9	-	8	0	0	1	-	0
14	7	6	7	7	7	0	0	0	*	0
15	7	7	7	8	7	0	0	0	0	0
16	8	9	9	10	9	0	0	0	1	0
17	12	13	33	13	16	0	1	1	0	1
18	10	10	10	7	10	1	1	1	0	1
19	8	10	10	7	9	1	0	0	1	0
20	7	7	8	7	7	1	1	1	0	1
21	10	9	9	8	9	1	1	1	1	1
22	8	10	11	8	9	1	1	1	0	1
23	8	8	11	25	9	0	1	1	1	1
24	18	-	(10)	7	19	1	-	(1)	1	1
25	7	7	7	8	7	0	0	*	1	0
26	7	6	6	-	7	0	0	1	-	0
27	(6)	7	7	7	7	(0)	0	1	0	1
28	7	8	7	7	7	0	1	1	1	1
29	7	8	7	8	7	0	0	1	0	0

Note No observations during the following periods:

13th 2120-	14th 0015	24th 0135-	0650
19th 0130-	0425	26th 2120-	27th 0200
23rd 0735-	0800		

q: quiet level, when radiometer is unstable.

\*: interference by atmospherics.



## SOLAR RADIO EMISSION

<u>Flux Density</u>					
Month: February 1972					
Observing station: Hiraiso			Frequency: 500 MHz		
Flux density $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	26	28	(28)	22	27
2	24	25	(23)	24	24
3	25	25	(24)	27	25
4	27	28	(27)	27	27
5	26	25	(24)	24	26
6	25	25	(24)	26	25
7	27	25	(25)	25	26
8	26	25	24	26	25
9	26	26	25	25	26
10	26	28	28	27	27
11	28	27	26	27	27
12	27	28	28	29	28
13	31	30	30	27	30
14	28	28	28	30	28
15	32	31	29	29	30
16	30	30	30	32	30
17	33	33	34	32	33
18	32	31	30	31	31
19	31	33	31	27	31
20	31	29	27	28	29
21	32	33	32	34	32
22	35	q	q	33	34
23	35	38	43	33	37
24	33	33	q	32	33
25	32	31	31	30	32
26	33	34	35	-	33
27	(36)	38	q	34	37
28	34	33	32	32	33
29	32	32	31	31	31

Note No observations during the following periods:

26th 2120- 27th 0145

q: quiet level, when radiometer is unstable.

<u>Distinctive Events</u>								
(single-frequency observations)								
Month: February 1972								
Observing station: Hiraiso								
Normal observing period: 2120 - 0820 (sunrise to sunset)								
Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density		Remarks
	MHz	UT	UT	minutes		$10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$	peak	
10	100	2332	(2336)	9.5	C	(120)	(20)	* 2334-35.5
11	200	0032.0	0039.0	14	C	10	5	
	500	0033.0	0057.8	47	RF	15	5	
15	100	0318.5	0322.3	5.5	C	190	50	
	500	0320.9	0322.6	4.0	C	80	10	
	200	0322.0	0322.0	2.0	C	440	70	
17	100	0517	(0701)	$\geq 173$		(90)	(40)	** noise storm
		2141.0	2142.0	3.0	C	80	20	
18	200	2133.0	(2134.0)	5.0	C	(350)	(90)	* 2134-36
	100	2133.4	(2133.5)	5.5	C	(140)	(50)	* 2134-36
		2233.3	(2234.7)	$\geq 1.7$	C	(130)	(30)	* 2234-36
19	500	0015.2	0016.2	1.2	C	30	10	
	100	0015.3	0016.2	1.5	C	170	90	
	200	0016.0	0016.0	1.0	C	440	170	
	100	0617.5	0619.1	5	F	200	-	
		0629.5	0630.0	1.0	C	140	30	
		0711.7	0732	30	F	90	-	
		2154.5	2155.7	5.0	C	200	80	
		2305.5	2306.6	2.5	C	>90	>50	
		2313.0	2314.2	2.5	C	>90	>60	
	200	2313.0	2314.5	2.5	C	85	25	
	500	2314.0	2316.8	3.0	C	50	10	
	100	2325.0	2325.5	1.5	C	>90	>50	
	20	100	0042.0	0058	40	F	180	-
200		0055.0	0055.2	1.0	C	220	20	
500		0055.5	0056.0	1.0	C	30	10	
200		0147.3	0147.8	1.0	C	80	20	
100		0147.5	0147.7	1.0	C	80	15	
		0337.0	0337.9	5.0	C	180	70	
		0425	0427.2	5	F	150	-	
		0507.3	0523.9	25	F	120	-	
200		0507.5	0507.8	0.5	C	230	70	
100		0555.5	0558.5	15	F	130	-	
200		0558.0	0558.0	1.0	C	210	20	
		0653.0	0653.1	6.0	C	230	20	
100		0653.0	0654.3	5.0	C	140	50	
		0739.0	0747.2	10.5	C	150	40	
200		0746.0	0746.5	3.0	C	500	60	
500		0748.0	0748.5	1.0	C	50	20	
100		2227.5	2230.3	4.0	C	80	20	
	2315.3	2315.6	0.5	C	130	50		
21	100	0118.8	0120.0	7	F	150	-	
	500	0134.0	0134.2	2.5	C	430	20	
	200	0134.0	(0134.1)	4.0	C	(110)	(20)	* 0135-36.5
	100	0142.0	0154.8	14	F	80	-	
		0220.5	0226.0	14	F	160	-	
200	0222.0	0226.0	9	F	390	-		

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density		Remarks
						$10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$	$10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$	
	MHz	UT	UT	minutes		peak	mean	
21	500	0239.0	0247.0	32.0	C	10	1	* 0500-01
	200	0244	0255.0	32	C	150	10	
	100	0254.0	0254.5	1.0	C	150	70	
		0417.0	0417.8	6	F	80	-	
		-	(0503.5)	$\geq 4.0$	C	(180)	(70)	
		0513.4	0514.5	2.0	C	160	80	
		0616.0	0616.2	1.5	C	140	50	
	200	0641.0	0646.0	10	C	920	50	
	100	0641.5	0646.0	9.5	C	200	90	
	500	0645.5	0645.5	1.0	C	65	40	
	100	0802.0	0805.7	8.5	C	200	70	
	200	0803.0	0806.5	17.0	C	610	30	
	100	2240.5	2241.4	2.0	C	150	80	
	200	2241.0	2241.0	1.0	C	280	50	
	100	2320.0	2324.8	6.5	C	130	50	
	200	2322	2324.5	4.0	C	760	90	
	500	2323.6	(2324.0)	$\geq 1.8$	C	(20)	(10)	
22	500	0031.0	0033.3	8.0	C	230	80	* 0034.2-36.0 1st part 2nd part * 0034.2-36.0 1st part 2nd part, pol. L
		0039.0	0059.5	70	Pi	30	10	
	200	0031.0	(0032.4)	7.0	C+	(1300)	(220)	
		0038	0122	255	C+	150	50	
	100	0031.5	-	15.0	C+	-	(100)	
		0046.5	0218	313	C+	80	40	
23	200	0149.5	0150.0	1.0	C	80	20	
	500	0653.6	0653.7	0.5	S	120	90	
	100	2133.5	2135.2	7.0	C	170	80	
24	100	0133.0	0133.5	1.0	C	150	80	
25	200	2358.0	2358.3	1.0	C	1300	860	
26	200	0632.0	0632.2	1.0	C	400	200	
	500	0632.2	0632.4	0.8	C	60	30	
	100	0809.0	0811.5	3.5	C	80	25	
	500	0813.0	0813.5	1.0	C	590	360	
28	200	0041.5	0042.0	3.5	C	150	40	

\*: interrupted by calibration.

\*\*\*: sunset.



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

FEB 1972		FREQUENCY 15 MHZ																	BANDWIDTH 80 HZ			RECEIVING ANTENNA ROD 4.5 M			MEASURED AT HIRAI50					
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	-5	4	4	3	ES -11	ES -11	ES -19	ES -11	ES -11	ES -3	ES -22	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-12	-7	-7						
2	-1	-3	0	-3	ES -11	ES -19	ES -18	ES -17	ES -18	ES -14	ES -25	ES -25	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-1	ES -26	-12	-8	-9					
3	-6	-3	2	ES -12	ES -22	ES -11	ES -13	ES -11	ES -6	ES -6	ES 0	ES -24	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -20	ES -17	-13					
4	-5	-5	5	ES -12	ES -5	ES -11	ES -11	ES 9	ES 8	ES 7	ES -7	ES -25	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27					
5	ES -6	-1	1	ES -9	ES -12	ES -1	ES -3	ES -1	ES -6	ES 1	ES -1	-5	ES 0	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -17	ES -10	-6					
6	ES -4	-6	ES -11	ES -6	ES -9	ES 0	ES 0	ES 0	ES 1	ES -13	ES -11	ES -26	ES -11	ES -17	ES -13	-6	-17	-17	-19	7	ES -26	ES -20	-11	-10						
7	-11	-8	2	ES -12	ES -17	ES -3	ES -8	ES -4	ES -2	ES -4	ES 0	ES -7	ES -27	ES -27	ES -27	-20	-21	-13	-14	-6	-12	-9	-12	-4						
8	-2	2	-7	ES -11	ES -12	ES -7	ES -6	ES -1	ES -2	ES -15	ES -12	ES -6	ES -15	ES 0	-12	1	2	-1	1	-15	-8	-11	-7	-17						
9	-11	-9	-9	-6	1	6	2	-7	1	-11	ES -11	ES 8	ES 8	ES 3	ES 2	ES -25	ES -25	ES -25	-5	-7	ES -25	-16	-9	-1						
10	-4	4	4	0	-1	ES -7	ES -4	ES -3	ES -1	ES -10	ES 4	ES -12	ES -26	ES -26	ES -26	6	-17	-8	3	-9	-7	-13	-7	-3						
11	-15	ES -6	0	0	ES -12	ES -6	ES -6	ES -2	ES -3	ES -3	ES -4	ES -3	ES -2	ES -12	-25	ES -27	ES -15	ES -15	ES -15	ES -21	C	C	C							
12	-3	5	ES -18	ES -12	ES -9	ES -7	ES -3	ES -3	ES -3	ES -3	ES -5	ES -9	ES -10	ES -8	ES -12	ES -15	ES -14	ES -14	-6	ES -27	ES -27	-7	-4	1						
13	-1	6	9	ES -7	ES -9	ES 8	ES 5	ES 4	ES 2	ES 8	ES 4	ES 2	ES 5	ES -21	ES -27	ES -27	-10	ES -21	ES -24	ES -5	ES -13	3	8	3						
14	8	5	11	9	ES -17	ES -7	ES 1	ES 1	ES 3	ES 2	ES -3	ES 1	ES -1	ES -27	ES -27	ES -27	ES -27	ES -27	C	C	C	C	C	C						
15	3	4	4	-1	ES -10	ES -7	ES -8	ES -4	ES -1	ES 1	ES -7	ES -2	ES -18	ES -14	ES -15	-21	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	4	6	3					
16	ES 4	9	14	5	ES 3	ES -12	ES -12	ES -22	ES -18	ES -18	ES -14	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	3	6	5					
17	9	8	8	3	ES -4	ES -5	ES -3	ES -3	ES 3	ES 2	ES -2	ES -4	ES -12	ES -17	ES -26	ES -26	ES -14	ES -10	ES -26	ES -26	ES -23	2	8	10						
18	12	14	15	11	15	ES -4	ES 2	ES 1	ES 2	ES 0	ES 5	ES 4	ES 0	ES 7	-17	-12	1	6	6	8	0	5	7	6						
19	9	7	10	10	ES -9	ES -3	ES -1	ES 2	ES 1	ES -2	ES 3	ES -3	ES 6	ES -5	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	-9	2	4	1					
20	2	4	10	6	-2	ES -11	ES -6	ES -5	ES -2	ES -10	ES -1	ES 0	ES 4	ES -2	-15	-15	-7	-15	-4	-18	-3	2	1	4						
21	3	5	13	9	7	ES -9	ES -9	ES -6	ES -4	ES -6	-6	ES -4	ES 3	ES -11	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	ES -23	-12	3	3	3					
22	-1	4	9	9	-3	ES -9	ES -9	ES -4	ES 0	ES -3	ES 0	ES 1	ES -2	ES -9	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-9	2	2	0					
23	1	1	5	9	ES 6	ES -12	ES -6	ES -9	ES -3	-1	ES -3	ES 1	ES 1	ES 3	ES -23	-9	ES -4	-10	-14	-5	-8	-1	-1	1						
24	0	3	10	10	13	ES -8	ES -8	ES 4	ES -3	ES -4	ES 3	ES 0	ES 5	ES -6	-17	ES -11	ES -23	ES -23	ES -23	ES -23	-17	11	7	6						
25	-1	9	13	ES -15	ES -4	ES -11	ES -6	ES -2	ES -7	ES -6	ES -6	ES 3	ES 9	ES 2	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-2	2	2					
26	7	8	9	8	0	ES -5	ES -8	ES -5	ES -3	ES -2	ES -16	ES -16	ES -24	ES -19	ES -24	ES -24	ES -15	-15	-18	ES -24	-11	0	2	3						
27	3	8	12	13	0	ES -2	ES -2	ES 0	ES -1	ES 3	ES -2	ES -24	ES -16	ES -6	-11	-13	-3	-6	ES -13	ES -24	-12	3	3	2						
28	4	3	7	11	12	3	ES 0	ES 2	ES -3	ES -3	ES 3	ES -3	ES -8	ES -23	-17	-17	-4	-10	-2	ES -23	0	4	7	5						
29	7	9	12	16	16	ES 1	ES -2	ES 1	C	C	-3	ES -1	ES -10	ES -1	-14	-17	-8	3	-8	ES -23	-11	-1	1	1						
CNT	29	29	29	29	29	29	29	29	28	28	29	29	29	29	29	29	29	29	29	28	28	28	27	27	27					
MED	US -1	4	7	3	ES -4	ES -7	ES -6	ES -3	ES -2	ES -4	ES -4	ES -4	ES -10	ES -14	ES -24	ES -23	ES -23	ES -21	ES -21	ES -23	US -15	-1	1	1						
UD	9	9	13	11	13	ES 1	ES 0	ES 2	ES 2	ES 2	ES 3	ES 1	ES 5	ES 2	ES -12	-6	-3	-1	1	-1	-3	4	7	6						
LD	ES -11	ES -6	-9	ES -12	ES -17	ES -12	ES -13	ES -11	ES -11	ES -14	ES -16	ES -25	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -17	ES -10						

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

FEB 1972 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAI SO

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

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Feb. 1972	Whole Day Index	W W V				L M				W W V H				Warning				Principal magnetic storms		
		00	06	12	18	00	06	12	18	00	06	12	18	00	06	12	18	Start	End	H
		06	12	18	24	06	12	18	24	06	12	18	24	06	12	18	24			
1	4-	(4)	-	-	(3)	4	3	(4)	4	4	(3)	-	4	N	N	N	N			
2	4-	(4)	-	-	(3)	4	4	(4)	4	4	(3)	-	5	N	N	N	N			
3	4-	(3)	-	-	(3)	4	4	(4)	4	4	(2)	-	4	N	N	N	N			
4	3+	(3)	-	-	(3)	4	3	(4)	4	4	(5)	-	4	N	N	N	N			
5	4-	(3)	-	-	(3)	4	4	(4)	-	4	(4)	-	4	N	N	N	N			
6	3+	(3)	-	(4)	(3)	3	-	-	-	4	(4)	-	4	N	N	N	N			
7	4°	(3)	-	(5)	(4)	4	4	(4)	4	3	(2)	-	4	N	N	N	N			
8	4°	(4)	-	(5)	(3)	4	4	(4)	4	4	(3)	(5)	3	N	N	N	N			
9	4-	(3)	(4)	-	(3)	4	4	(4)	4	3	(5)	-	4	N	N	N	N			
10	4°	(3)	-	(5)	(4)	4	3	(4)	4	4	(3)	-	4	N	N	N	N			
11	4-	(3)	-	-	(4)	4	4	(4)	4	4	(3)	-	(4)	N	N	N	N			
12	3+	(3)	-	-	(3)	4	3	(4)	-	4	(3)	-	4	N	N	N	N			
13	4-	(3)	-	-	(4)	4	-	-	-	4	(3)	-	4	N	N	N	N	09.40	---	65 <sup>Y</sup>
14	4-	(4)	-	-	(4)	4	3	(4)	4	4	(3)	-	4	N	N	N	N	---	12.00	
[15]	4-	(4)	-	-	(4)	4	3	(4)	4	4	(4)	-	4	N	N	N	N			
[16]	4-	(4)	-	-	(4)	4	4	(4)	3	4	(4)	-	4	N	N	N	N			
[17]	4-	(4)	-	-	(4)	4	4	(4)	(3)	4	(3)	-	3	N	N	N	N			
18	5-	(5)	-	(5)	(5)	5	4	(4)	4	4	(5)	(5)	4	N	N	N	N			
19*	4+	(5)	-	-	(4)	4	4	(4)	-	4	(5)	(5)	5	N	N	N	N			
20	4+	(4)	-	(5)	(4)	4	-	-	-	4	(5)	-	4	N	N	N	N			
21	4°	(5)	-	-	(4)	4	4	(4)	4	4	(4)	-	4	N	N	N	N			
22	4-	(4)	-	-	(4)	4	4	(4)	3	4	(5)	(4)	3	N	N	N	N			
23	4°	(4)	-	(5)	(4)	4	4	(4)	4	4	(4)	-	4	N	N	N	N			
24*	4-	(5)	-	-	(4)	4	4	(3)	3	4	(5)	-	4	N	N	U	U	06.41	24.00	142 <sup>Y</sup>
25*	4-	(3)	-	-	(4)	4	4	(4)	4	4	(4)	-	4	N	N	N	N			
26	4-	(4)	-	(4)	(4)	4	4	(3)	-	4	(3)	-	4	N	N	N	N			
27	4°	(4)	-	(5)	(4)	3	-	-	-	4	(3)	-	4	N	N	N	N			
28	4+	(5)	-	(5)	(5)	4	4	(3)	4	4	(5)	-	4	N	N	N	N			
29	4+	(5)	-	(5)	(5)	4	4	(3)	(4)	4	(4)	-	4	N	N	N	N			

GEOALERT

- " = PROTON FLARE
- \* = MAGSTORM
- ° = MAGCALME
- ' = COSMIC EVENT

- [ ] = Regular World Day
- = impossible to evaluate
- ( ) = inaccurate

- C = artificial accident
- = continuing magnetic storm



## SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Feb. 1972	S W F						Correspondence					
	Drop-out Intensities (db)					Start- time	Dura- tion	Type	Imp.	Flare	Solar Noise	Mag.
	CO	LM	HA	TO	SH							
10	×	17				23.30	29	G	1	23.23	×	
16		9				22.43	35	S	1-			
22		10				00.03	16	Slow	1-	00.12	×	
22		15				00.32	23	S	1	00.30	×	
22		14				03.23	20	S	1		×	

I N U B O

1972	S P A											Remarks
Feb.	Phase Advance (degrees)								Time (U.T.)			
DATE	GBR	WWVL	NAA	NWC	NPG	HA2	HA3	AL3	Start	End	Maximum	
8				40					0707	0825	0727	
10				8					0103	0110	0107	
10				72	58	<u>87</u>	87		2324	0004D	2357	X
11				80	60	<u>87</u>	88		0004E	0042D	0016	
11				<u>92</u>	69	83	85		0037E	0429	0122	X
13				72					0829	0924	0837	X
15				<u>12</u>	5	10	9		0007	0029	0009	
15				<u>8</u>		5			0220	0246	0224	
15				<u>16</u>	7	12	11		0250	0322	0253	
15		<u>84</u>	32	72	33	66*	53		0338	0504	0350	X
15				<u>16</u>		7			0619	0705	0625	X
16			12	<u>22</u>	12	20	19		0043	0113	0049	X
16				<u>12</u>		6	6		0318	0243	0220	
16				<u>48</u>		18	32		0537	0604	0552	X
16			13	26	44	<u>58</u>	54		2240	2333	2250	
17				<u>22</u>	13	17	13		0026	0048	0030	
17	—		—	8	—	—	—		0442	0500	0444	
17				21					0504	0544	0507	
17				<u>12</u>	5				0610	0638	0617	X
17				6					0654	0718	0658	
17					—	125	<u>126</u>		2033	2143D	2051	X
17					—	57	<u>59</u>		2143E	2242D	2150	
17				4	13	<u>28</u>	22		2242E	2342	2248	
18				<u>12</u>		7			0315	0336	0319	
18				<u>24</u>	6	16	16		0354	0440	0358	

1972	S P A												Remarks
Feb.	Phase Advance (degrees)								Time (U.T.)				
DATE	GBR	WWVL	NAA	NWC	NPG	HA2	HA3	AL3	Start	End	Maximum		
18				12		<u>14</u>			0447	0504	0448		
18			15*	—		10	<u>14</u>		0546	0614	0556		
18				12					0802	0829	0806	X	
18						17	<u>19</u>		2135	2154	2141	X	
19		—	6	<u>16</u>	13	18	17		0018	0038	0022	X	
19		—		10	7	<u>13</u>	12		0156	0227	0204	X	
19			14	<u>48</u>	25	33	32	31	0327	0448	0334	X	
19					18	<u>37</u>			2050	2126	2058		
19				16					2204	2255	2224		
19				6					2327	2343	2330		
20				14	11	<u>18</u>	15		0048	0141	0102	X	
21			15	<u>53</u>	20	40	40	24	0247	0401	0256	X	
21				<u>12</u>	3	7	8		0410	0442	0412		
21				<u>16</u>		7			0701	0727	0703		
21					—	<u>22</u>	11		2125	2146	2130	X	
22	16	-94*	30	<u>56</u>	40	55	56	20	0003	0032D	0007	X	
22	20		53	80	76	<u>105</u>	102	50	0032E	0206	0037	X	
22			6	<u>29</u>	15	18	21	16	0219	0252	0228	X	
22	30	90	51	<u>104</u>	64	95	97	45	0323	0503	0328	X	
22	24	14	34	<u>64</u>	17	22	14	37	0616	0717	0625		
22				8					0804	0827	0807		
22					40	<u>66</u>	50		2040	2128	2050		
22		-40			27	<u>33</u>	32		2200	2222	2204	X	
22		-45		8	14	<u>24</u>	26		2227	2312	2246		
23		-76*	14	16	15	16	14	9	0033	0106	0038	X	



1972	S P A										Remarks	
Feb.	Phase Advance (degrees)							Time (U.T.)				
DATE	GBR	WWVL	NAA	NWC	NPG	HA2	HA3	AL3	Start	End		Maximum
23				20	<u>7</u>	8	9		0128	0156	0141	
23			6	24	<u>8</u>	11	12		0157	0206	0200	
23			4	<u>16</u>	5				0447	0526	0452	
23			8	28	<u>10</u>				0639	0653	0641	
23			4	<u>35</u>					0655E	0744	0658	
23					<u>11</u>	10			2137	2147	2140	
24		<u>-48</u>		24*	18*	22*	—	—	0045	0114	0103	X
24				<u>8</u>	7				0253	0312	0258	
25			17	<u>36</u>	19	—	—		0336	0430	0342	X
26	—	-40			<u>25</u>				1917	1948	1928	X
26	—		14		<u>20</u>	22	21		2202	2221	2207	X

NOTES (1) : The letter E or D attached to a time shows that the pertinent time is earlier or more delayed than the given time, respectively.

(2) : The mark \* shows a multi-peak event.

(3) : The mark \*\* shows a time on the day before the pertinent day.

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IONOSPHERIC DATA IN JAPAN FOR FEBRUARY 1972

第 24 卷 第 2 号

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1972年7月25日 発 行

編 集 兼  
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裏表紙へ移す