

F-274

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1971

VOL. 23 No. 10

Issued in February 1972

Prepared by

THE RADIO RESEARCH LABORATORIES
MINISTRY OF POSTS AND TELECOMMUNICATIONS
TOKYO, JAPAN

F-274

IONOSPHERIC DATA IN JAPAN

FOR OCTOBER 1971

Vol. 23 No. 10

RADIO RESEARCH LABORATORIES

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN

CONTENTS

	Page
Site of the Radio Wave Observatories and Hiraiso branch	2
Symbols and Terminology	2
Graphs of Ionospheric Data	10
Tables of Ionospheric Data at Wakkanai	11
Tables of Ionospheric Data at Akita	23
Tables of Ionospheric Data at Kokubunji	35
Tables of Ionospheric Data at Yamagawa	49
<i>f</i> -plot of Ionospheric Data	61
Data on Solar Radio Emission	93
Radio Propagation Conditions	96

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	}	The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.
f_oF1		
f_oE		
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.
$f\text{-min}$		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.
$hF2$		The minimum virtual height, $hF2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.
hF		The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by hF . Thus hF is identical with the current $hF2$ when F region stratification is absent, e.g., at night, and with the current $hF1$ when $F1$ stratification is present.
hEs		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 atmospheric. |
| 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 hEs . 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 Hiraiso Branch. Antennas are two parabolic reflectors: 10 meter for 200 MHz and 5 meter for 500 MHz, each having the total power receiver. Observations are feasible almost from sunrise to sunset.

a. Time and Unit

The time is expressed as U.T.

The unit is $10^{-22} \text{W} \cdot \text{m}^{-2} \text{Hz}^{-1}$ for both components of polarization.

b. Daily Data

Flux density

The three-hourly and daily mean values are given.

Variability

The three-hourly and daily mean values are given at 200 MHz only.

Variability is expressed in the following four grades:

- 0 = Quiet or no burst,
- 1 = A few bursts,
- 2 = Many bursts,
- 3 = Very many bursts.

The number of bursts exceeding the flux level is counted. 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

± 40 Hz bandwidth.

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

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

Transmitter

	WWV	WWVH
Location	Fort Collins, Colorado Long. 105°02'W Lat. 40°41'N	Maui, Hawaii Long. 156°28'W Lat. 20°46'N
Power	3 kW for the upper side-band	0.5 kW* for the upper side-band
Antenna	$\lambda/2$ vertical	$\lambda/2$ vertical
Distance	9150 km	6270 km

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

Receiver

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

The meaning of *Descriptive symbols* is as follows:

- C : Measurement influenced by, or impossible because of, any non-propagational reasons.
- S : Measurement influenced by, or impossible because of, interferences or 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.

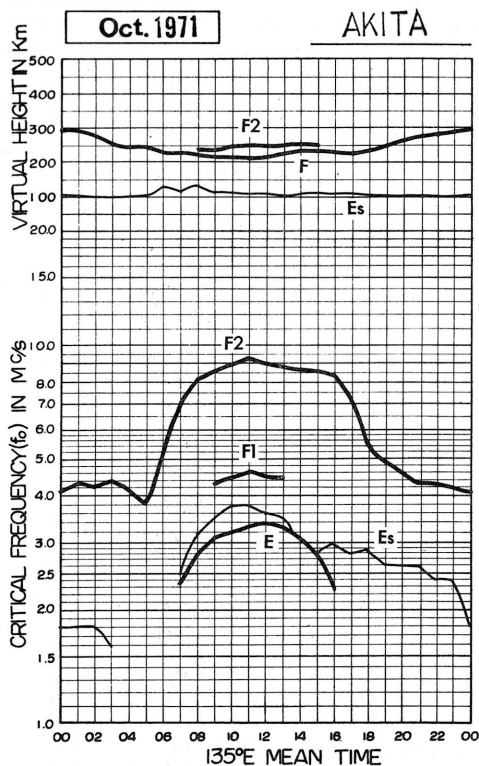
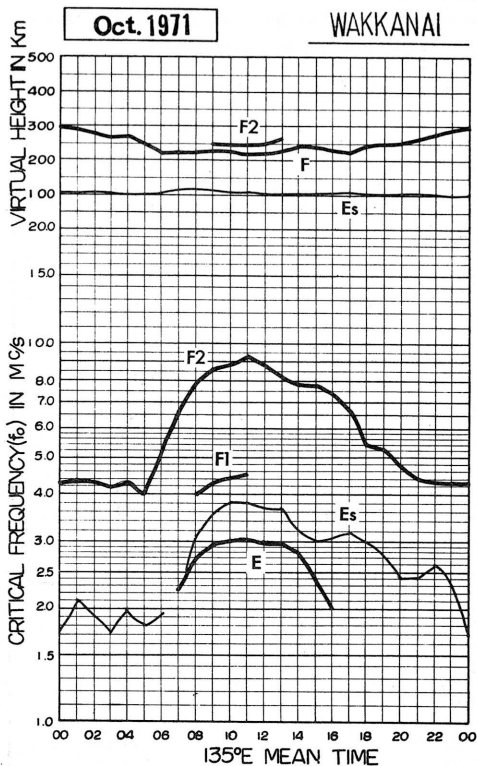
Name	Transmitting Site				Distance (km) to Inubo along the Great Circle
	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22'N 001°11'W	GBR	16.0	40	9550
Fort Collins	40°41'N 105°03'W	WWVL	20.0	1.8	9190
Cutler	44°39'N 067°17'W	NAA	17.8	1000	10640
North West 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.

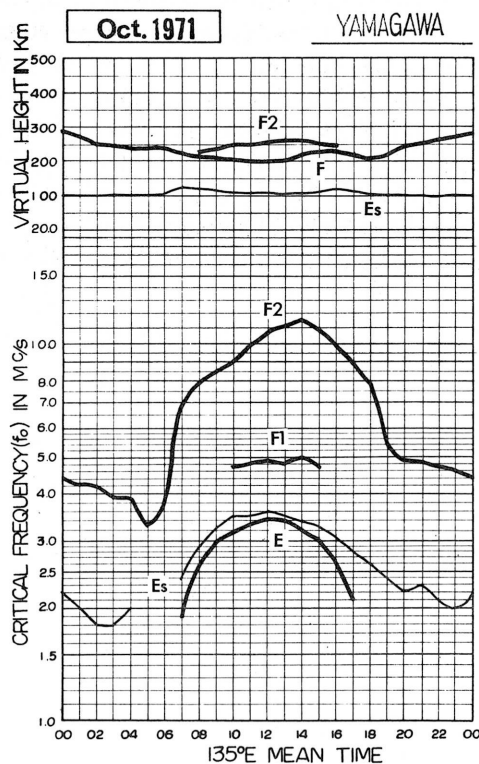
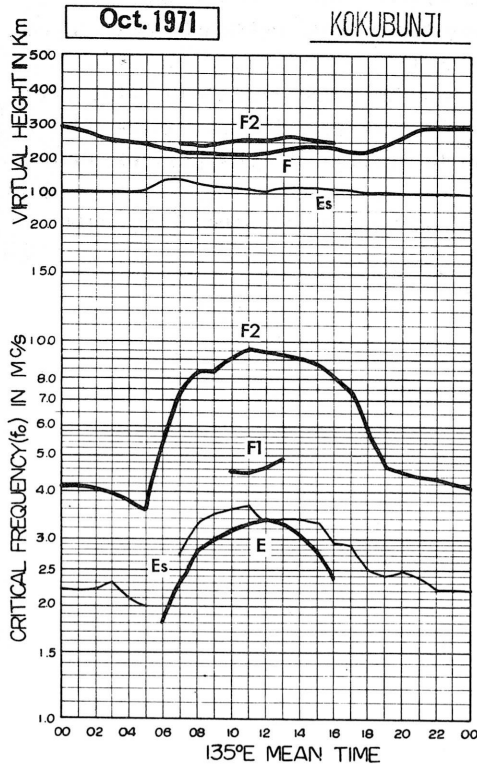
Out of more than two circuits to have observed the same SPA event listed in the text, the phase advance on some circuit on which the event is the most remarkable or distinct is underlined. As for the underlined phase advance, the starting, the ending, and the maximum times are described.

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

OCT. 1971

FOF2 (0.1 MHz)

135 E Mean Time (G. M. T. + ϕ^h)

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	45	46	F ₄₄	F ₄₁	F ₃₈ I ₄₀	A ₄₃	49	54	66	55	61	63	66	66	65	71	64	50	42	I ₄₄ A ₄₄	44	43	43		
2	S	A	43	40	43	44	44	56	62	74	75	77	81	73	70	75	73	67	64	58	F ₅₄	F ₄₃	F ₄₃	F	
3	F ₄₄	F ₄₅	F ₄₅	F	F	F	6A	64	67	77	76	77	83	82	77	75	76	67	63	63	60	50	45	44	
4	42	44	43	43	43	40	53	63	73	83	80	80	86	80	73	64	72	76	64	63	60	57	57	50	
5	47	46	50	48	43	F ₃₄	51	64	74	87	78	83	76	76	76	83	82	74	63	58	54	48	50	47	
6	46	46	47	46	44	39	54	63	78	86	90	83	75	90	91	76	70	68	64	67	63	59	55	47	
7	45	44	43	43	45	43	54	75	81	78	88	94	94	84	81	78	75	83	56	53	51	49	48	46	
8	47	46	46	45	45	41	64	56	71	94	92	91	86	73	78	85	93	79	59	53	50	49	47	44	
9	48	50	36	34	36	36	57	71	83	83	103	86	74	80	84	83	94	96	66	47	46	47	A	46	
10	47	51	43	42	40	33	56	76	85	I ₉₁ C	86	104	88	83	C	C	C	C	C	C	C	C	C	C	
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	77	75	77	71	67	54	56	46	40	41	S ₃₈
12	S ₃₆	S ₃₆	38	F ₄₁	32	33	54	61	A	68	94	107	90	86	82	A	73	67	53	53	50	43	43	43	
13	43	43	43	38	39	40	49	66	79	93	85	90	90	90	88	95	82	A	A	55	A	A	50	43	
14	36	A	32	33	37	43	53	73	78	A	R	103	94	J ₈₆ R	77	76	90	68	56	A	A	A	A	A	
15	A	A	34	38	33	33	52	67	83	88	92	98	103	84	78	78	83	71	53	54	45	40	35	37	
16	A	37	41	40	41	32	4A	63	74	90	89	95	86	83	75	76	75	68	63	50	44	36	38	F	
17	F	F	F	F	F	F	F	62	71	78	84	81	91	80	73	70	73	61	56	57	53	48	I ₄₇ S	51	
18	F	F	F	F	F ₄₆	F	F ₅₀	63	70	92	92	81	81	76	76	65	64	59	51	53	54	48	46	48	
19	44	44	43	F	F	F	F ₅₈	71	70	75	86	83	84	73	75	70	66	55	44	46	47	F ₄₉	49	48	
20	48	46	46	46	45	47	61	72	70	76	84	86	86	77	74	71	71	61	45	43	44	U ₄₃ S	42	43	
21	43	44	44	47	48	49	62	73	83	83	83	87	87	85	89	87	77	59	51	54	55	53	53	53	
22	46	F	F	F	F ₅₇	F ₄₆	56	77	80	98	102	80	88	78	85	80	76	74	60	51	51	46	45	43	
23	43	43	44	46	43	41	51	83	83	89	93	96	87	84	75	84	71	60	52	45	44	44	43	43	
24	42	42	42	42	43	40	47	67	78	93	104	103	94	88	83	86	73	68	68	55	43	42	43	40	
25	40	39	42	45	28	27	43	67	95	83	113	98	89	93	93	78	78	57	50	49	47	44	43	43	
26	42	43	43	40	43	43	51	73	83	95	89	95	95	78	73	86	69	55	53	54	47	40	41	43	
27	43	45	45	46	45	41	43	65	75	80	88	93	83	77	84	93	81	53	44	41	35	35	I ₃₈ S	40	
28	40	F ₄₀	40	38	37	33	43	70	80	93	76	96	81	81	90	89	66	61	48	43	35	33	33	33	
29	34	34	35	38	33	30	37	68	82	90	88	98	107	85	82	88	87	63	A	A	48	S	35	F ₃₆	
30	F ₄₃	F	F	F	43	S ₄₃	46	71	75	86	93	100	103	93	85	90	85	67	A	38	40	40	43	43	
31	45	47	45	44	43	A	41	63	82	94	105	96	96	82	81	75	64	61	43	38	37	33	35	36	
CNT	25	22	26	24	27	25	29	30	29	29	29	30	30	31	30	29	30	29	27	28	28	27	28	27	
MED	43	44	43	42	43	40	51	66	78	86	88	92	87	82	78	78	74	67	54	53	47	44	43	43	
UQ	46	46	45	46	44	43	56	72	82	92	93	98	94	85	84	86	82	68	63	56	54	48	48	46	
LQ	42	42	41	39	38	33	46	63	71	78	84	83	83	77	75	75	71	61	50	46	44	40	41	42	

The Radio Research Laboratories, Japan

OCT. 1971

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

FOF1 (0.01 MHZ)

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

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									400	410	430	440		A											
2										430	440	480	450												
3									400	450	440	450	A	A	A										
4											460		450												
5										430	440	460													
6									420				L												
7											430			400											
8												L													
9									410																
10										C	A		A												
11									C	C	C	C	C												
12									A		A	A	A	A	A	A									
13																									
14									A	A		A	A	A	A										
15												A	A	A											
16										L	A	A	I												
17												L	L												
18										A	440	A		A											
19												A	L												
20											L	L													
21												L													
22																400									
23											A		A												
24											L														
25											400	400													
26										A	A														
27																									
28											410														
29													A	A											
30																									
31												L													
CNT										3	5	9	5	2	1	1									
MED										400	430	440	450	450	400	400									
UQ										405	430	440	460												
LQ										400	420	430	440												

OCT. 1971

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1971

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							A	225	280	300	300	305	300	A	A	A	A	A						
2							A	235	280	300	300	310	305	305	300	285	230	S						
3							175	230	285	300	305	305	295	285	A	A	A	A						
4							A	A	270	290	300	270	A	A	A	230	220	S						
5							S	235	270	295	300	305	305	300	300	265	220	S						
6							S	225	280	300	300	305	305	300	290	265	215	S						
7							S	230	280	300	300	A	305	300	290	275	220	A						
8							S	225	270	295	295	300	A	A	A	270	A	A						
9							S	230	280	295	300	310	300	R	300	280	200	S						
10							S	230	275	C	B	310	295	305	C	C	C	C						
11							C	C	C	C	C	C	C	A	A	A	A	A						
12							S	225	275	300	300	300	295	A	A	A	A	S						
13							R	225	280	300	295	A	A	A	A	A	A	A						
14							S	230	270	300	300	280	A	A	A	A	A	S						
15							A	240	265	290	A	A	A	A	A	A	A	S						
16							S	210	265	290	290	A	A	A	A	A	A	S						
17							A	225	275	295	300	300	A	A	A	A	A	A						
18							S	220	270	300	300	300	A	A	A	A	A	S						
19							S	225	270	290	300	305	300	290	285	A	A	A						
20							A	220	270	300	305	315	310	295	285	240	190	A						
21							S	215	265	A	300	305	A	295	270	230	A	S						
22							S	A	260	290	300	300	300	290	270	230	190	S						
23							130	210	265	285	A	A	A	290	275	230	A	A						
24							S	210	255	300	300	300	300	300	280	230	S	S						
25							S	210	260	290	295	300	A	A	A	A	A	S						
26							S	200	250	280	A	A	A	300	280	240	A	A						
27							S	215	260	290	290	A	A	A	A	A	A	E						
28							S	200	265	295	295	A	A	A	A	240	170	E						
29							S	200	265	295	300	300	300	A	285	235	150							
30							S	A	A	270	A	A	A	A	280	250	A	A						
31							S	200	260	290	300	305	A	A	265	230	160	E						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	27	29	28	25	21	14	13	15	17	11	3						
MED							152	225	270	295	300	305	300	300	285	240	200	E						
UQ								230	275	300	300	305	305	300	290	265	220	E						
LQ								210	265	290	300	300	300	290	278	230	180	E						

The Radio Research Laboratories, Japan

OCT. 1971

FOE (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1971

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	15		21	41	J ₂₇ X	G ₂₀	G ₂₂	G ₂₃	G ₂₄	36	33	J ₄₅ X	J ₅₁ X	J ₃₅ X	J ₃₅ X	J ₂₈ X	E ₁₆ S	23	47	E ₁₆ S	J ₂₅ X	J ₃₁ X	
2	J ₄₃ X	J ₅₁ X	J ₃₅ X	J ₂₅ X	J ₂₅ X	J ₂₃ X	J ₃₅ X	G ₂₀	G ₂₁	G ₂₄	G	38	36	38	G	G	G	32	E ₁₇ S	E ₁₅ S	E ₁₅ S	19	E ₁₆ S	E ₁₇ S	
3	E ₁₇ S	E	E	E	E	J ₂₅ X	G	G	G	J ₄₁ X	41	37	J ₆₁ X	J ₆₃ X	J ₆₅ X	J ₄₁ X	J ₅₅ X	J ₅₅ X	J ₆₃ X	J ₆₁ X	J ₃₁ X	J ₂₄ X	J ₃₈ X	J ₃₃ X	
4	J ₃₃ X	J ₅₀ X	J ₁₀₀ X	J ₄₃ X	J ₃₅ X	J ₃₃ X	J ₂₃ X	27	G ₂₄	32	39	J ₅₉ X	J ₅₃ X	38	33	21	G	G	28	J ₃₃ X	J ₃₃ X	J ₃₃ X	35	E ₁₆ S	E ₁₅ S
5	E ₁₆ S	E ₁₅ S	E ₁₅ S	E	J ₃₀ X	E	20	G	G	41	37	35	36	37	36	30	G	20	E ₁₇ S	E ₁₆ S	E ₁₆ S	E ₁₆ S	E ₁₅ S	E ₁₆ S	
6	E ₁₆ S	E ₁₅ S	E ₁₄ S	J ₂₅ X	J ₂₄ X	16	E ₁₉ S	G	G	G	G	G	G	G	G	G	G	20	E ₁₈ S	E ₁₂ S	E ₁₅ S	E ₁₆ S	23	E ₁₅ S	
7	E ₁₆ S	E	E	E	E	E ₁₉ S	E ₁₉ S	G	34	34	G	41	G	G	G	G	25	J ₂₅ X	E ₁₉ S	J ₂₈ X	24	24	E ₁₇ S	E ₁₅ S	
8	E ₁₇ S	E ₁₅ S	E ₁₄ S	E ₁₅ S	E ₁₅ S	E ₁₅ S	E ₁₉ S	G	G	33	34	G	J ₃₈ X	J ₃₃ X	32	20	J ₃₀ X	J ₆₁ X	J ₃₆ X	J ₂₆ X	J ₂₃ X	J ₂₃ X	J ₃₁ X	E ₁₆ S	
9	E ₁₇ S	23	E ₁₅ S	14	E	E	19	29	36	35	G	G	G	G	G	33	39	J ₄₃ X	J ₄₈ X	J ₂₅ X	E ₁₆ S	J ₂₈ X	J ₆₁ X	18	
10	E ₁₆ S	E	J ₃₀ X	J ₄₀ X	22	E	20	G	31	C	43	43	J ₁₅ X	G	C	C	C	C	C	C	C	C	C	C	
11	C	C	C	C	C	C	C	C	C	C	C	C	C	J ₅₅ X	J ₃₆ X	J ₅₁ X	J ₃₅ X	J ₂₉ X	J ₃₁ X	J ₂₉ X	J ₃₁ X	J ₄₀ X	J ₄₀ X	J ₃₁ X	
12	24	J ₂₁ X	24	E ₁₅ S	E ₁₄ S	21	21	32	J ₇₃ X	J ₄₃ X	J ₇₄ X	J ₆₅ X	J ₇₉ X	J ₆₅ X	J ₇₁ X	J ₉₅ X	J ₇₅ X	J ₆₁ X	J ₄₃ X	J ₂₈ X	J ₂₀ X	J ₂₃ X	E ₁₅ S	E ₁₅ S	
13	J ₂₁ X	J ₄₄ X	J ₂₅ X	J ₂₉ X	E	E	G	G	36	J ₅₀ X	J ₇₃ X	J ₈₀ X	J ₆₅ X	J ₇₈ X	J ₇₀ X	J ₅₃ X	J ₆₅ X	J ₁₄₀ X	J ₁₀₀ X	J ₁₀₈ X	J ₁₃₀ X	J ₈₄ X	J ₅₁ X	J ₄₀ X	
14	J ₃₃ X	45	J ₂₄ X	16	J ₂₄ X	E ₁₅ S	24	41	J ₆₈ X	J ₁₃ X	J ₅₀ X	J ₇₆ X	J ₉₃ X	J ₆₈ X	J ₅₁ X	J ₃₃ X	30	24	J ₃₀ X	J ₇₄ X	J ₂₈ X	J ₆₃ X	J ₅₀ X	J ₅₁ X	
15	J ₇₀ X	J ₈₃ X	J ₂₃ X	J ₃₅ X	J ₃₃ X	J ₂₁ X	20	G	30	J ₄₈ X	J ₆₁ X	J ₆₃ X	J ₇₄ X	J ₈₃ X	J ₅₂ X	J ₅₃ X	J ₃₁ X	J ₃₅ X	J ₃₀ X	E ₂₀ S	J ₂₃ X	E ₂₀ S	J ₂₅ X	J ₃₀ X	
16	40	J ₂₁ X	J ₃₆ X	J ₂₅ X	18	J ₂₁ X	E ₁₆ S	G	32	J ₄₄ X	J ₆₇ X	J ₄₇ X	J ₇₀ X	J ₇₁ X	J ₅₁ X	34	J ₃₀ X	J ₄₁ X	J ₅₃ X	J ₃₁ X	E ₁₆ S	J ₂₅ X	20	E ₁₅ S	
17	E ₁₆ S	21	J ₂₃ X	J ₃₅ X	J ₃₃ X	J ₂₉ X	J ₃₀ X	G	J ₃₃ X	35	42	J ₄₃ X	J ₅₁ X	J ₃₃ X	J ₅₀ X	J ₃₃ X	J ₃₁ X	J ₅₃ X	J ₃₁ X	J ₃₀ X	E ₂₀ S	E ₁₅ S	E ₁₅ S	E ₁₇ S	
18	E ₁₅ S	J ₂₆ X	J ₃₅ X	J ₅₁ X	J ₄₄ X	E ₁₄ S	E ₁₆ S	26	35	J ₄₈ X	J ₄₁ X	J ₄₈ X	33	J ₆₂ X	J ₃₅ X	J ₃₁ X	J ₅₈ X	J ₅₃ X	J ₃₀ X	25	E ₁₇ S	J ₃₀ X	J ₃₁ X	E ₁₆ S	
19	E ₁₄ S	E ₁₅ S	E ₁₄ S	E ₁₅ S	E ₁₃ S	J ₅₈ X	E ₁₅ S	20	J ₃₃ X	J ₃₈ X	37	J ₅₀ X	32	G	32	J ₄₃ X	J ₄₀ X	J ₄₁ X	J ₃₀ X	J ₅₁ X	J ₅₃ X	J ₃₃ X	J ₂₈ X	J ₃₃ X	
20	E ₁₆ S	J ₂₄ X	20	J ₁₈ X	J ₂₁ X	24	J ₂₃ X	G	G	G	G	G	G	J ₃₂ X	G	G	20	J ₂₈ X	J ₄₃ X	E ₁₆ S	J ₃₅ X	J ₂₁ X	J ₃₃ X	J ₂₆ X	
21	21	20	E	E	E	E	E ₁₅ S	G	G	31	G	G	33	G	23	G	J ₂₁ X	J ₂₅ X	J ₂₅ X	J ₃₃ X	24	J ₂₅ X	23	E ₁₄ S	
22	E ₁₅ S	15	E	E	E ₁₅ S	19	E ₁₅ S	23	G	G	G	G	33	G	G	28	G	E ₁₃ S	21	E	19	J ₃₅ X	E	J ₂₅ X	
23	E ₁₄ S	E	E	E	16	E	21	33	34	J ₅₀ X	J ₆₈ X	J ₃₅ X	J ₅₁ X	33	G	G	25	J ₂₈ X	J ₂₈ X	23	J ₃₄ X	E ₁₆ S	J ₃₃ X	J ₂₃ X	
24	E ₁₄ S	E ₁₅ S	E ₁₅ S	E	E	E	E ₁₄ S	24	31	G	G	29	G	29	21	J ₃₀ X	J ₃₆ X	J ₉₆ X	J ₂₄ X	J ₃₄ X	J ₂₅ X	J ₂₅ X	E ₁₅ S	J ₂₃ X	
25	17	J ₂₄ X	J ₂₅ X	23	E	E	E ₁₅ S	G	33	35	38	36	39	J ₄₃ X	J ₅₀ X	J ₄₄ X	J ₃₈ X	J ₃₁ X	J ₄₅ X	J ₇₅ X	J ₄₁ X	J ₂₆ X	E ₁₇ S	J ₃₁ X	
26	J ₆₃ X	J ₂₈ X	J ₂₃ X	J ₄₃ X	J ₂₅ X	J ₃₀ X	24	29	J ₄₀ X	J ₅₂ X	J ₆₁ X	J ₃₃ X	33	J ₄₁ X	30	30	32	J ₂₈ X	J ₂₈ X	J ₂₅ X	E	20	E ₁₂ S	18	
27	23	E	E	E	E	E	E ₁₅ S	G	29	G	39	36	J ₅₀ X	J ₃₄ X	J ₃₁ X	30	J ₂₈ X	E	J ₂₃ X	E ₁₆ S	J ₂₈ X	J ₂₈ X	35	J ₃₀ X	
28	J ₄₃ X	J ₃₅ X	26	23	J ₂₅ X	22	E ₁₄ S	G	G	G	33	39	34	31	31	29	31	J ₄₅ X	J ₄₀ X	J ₅₀ X	J ₃₁ X	J ₃₅ X	J ₃₀ X	J ₂₄ X	
29	J ₄₁ X	24	24	E	15	23	E ₁₄ S	G	31	37	40	J ₇₅ X	J ₅₅ X	J ₄₁ X	G	31	J ₃₈ X	J ₅₃ X	J ₉₃ X	J ₈₉ X	J ₃₀ X	E ₁₅ S	J ₂₈ X	24	
30	J ₂₅ X	J ₂₅ X	18	18	J ₂₅ X	E	E ₁₅ S	27	34	34	J ₃₄ X	J ₅₄ X	J ₄₉ X	J ₆₃ X	24	32	28	J ₈₀ X	J ₈₃ X	J ₂₄ X	J ₂₃ X	J ₂₈ X	J ₃₁ X	J ₃₂ X	
31	E ₁₅ S	J ₃₀ X	E	J ₃₀ X	J ₅₀ X	J ₆₁ X	E ₁₅ S	G	J ₃₁ X	G	G	30	J ₃₆ X	J ₃₃ X	G	G	G	E	E	J ₆₃ X	E	J ₂₃ X	J ₃₀ X	J ₃₃ X	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	31	30	30	30	30	30	30	30	30	30	30	
MED	17	21	19	17	20	18	19	G	31	35	38	38	37	J ₃₇ X	32	30	J ₃₀ X	J ₃₂ X	J ₃₀ X	J ₂₈ X	J ₂₄ X	J ₂₄ X	J ₂₆ X	J ₂₄ X	
UQ	J ₃₃ X	J ₂₈ X	J ₂₅ X	J ₂₉ X	J ₂₅ X	J ₂₄ X	21	26	34	J ₄₃ X	J ₄₃ X	J ₅₀ X	J ₅₅ X	J ₅₈ X	J ₅₀ X	J ₃₅ X	J ₃₈ X	J ₅₃ X	J ₄₃ X	J ₅₀ X	J ₃₃ X	J ₃₀ X	J ₃₃ X	J ₃₁ X	
LQ	E ₁₆ S	15	E ₁₄ S	E	E	E	E ₁₅ S	G	G	29	G	30	33	27	G	20	21	J ₂₅ X	J ₂₃ X	23	E ₁₇ S	20	E ₁₆ S	E ₁₆ S	

OCT. 1971

FOES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

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

The Radio Research Laboratories, Japan

OCT. 1971

FBES (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1971

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 ₁₁	E	E	12	12	17	17	15	19	11	12	E	E	E	E ₁₆	E ₁₅	E	E ₁₆	E	E ₁₅
2	E ₁₅	E	E	E	E	E	E	11	17	17	17	19	18	17	16	16	12	E ₁₆	E ₁₇	E ₁₅	E ₁₅	E	E ₁₆	E ₁₇
3	E ₁₇	E	E	E	E	E	E	17	17	17	18	18	19	18	16	17	15	11	E ₁₅	E	E	E ₁₇	E ₁₅	E ₁₅
4	E ₁₅	E	E	E	E	E	E	E	17	17	20	18	18	16	E	E	16	E ₁₅	E ₁₄	E ₁₆	E	E ₁₄	E ₁₆	E ₁₅
5	E ₁₆	E ₁₅	E ₁₅	E	E	E	E ₁₅	16	12	16	14	20	18	17	16	15	11	E ₁₂	E ₁₇	E ₁₆	E ₁₆	E ₁₆	E ₁₅	E ₁₆
6	E ₁₆	E ₁₅	E ₁₄	E	E	E	E ₁₉	12	12	17	17	20	18	18	17	16	12	E ₁₂	E ₁₈	E ₁₂	E ₁₅	E ₁₆	E	E ₁₅
7	E ₁₆	E	E	E	E	E ₁₅	E ₁₉	15	17	17	15	18	19	18	17	17	11	E	E ₁₅	E ₁₆	E ₁₇	E ₁₇	E ₁₇	E ₁₅
8	E ₁₇	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₉	16	17	17	20	19	17	18	13	12	E	12	E ₁₅	E	E	E ₁₇	E ₁₆	E ₁₆
9	E ₁₇	E ₁₈	E ₁₅	E	E	E	E ₁₉	15	17	17	18	20	18	19	11	15	12	E ₁₅	E ₁₇	E ₁₅	E ₁₆	E ₁₅	E	E
10	E ₁₆	E ₁₄	E	E	E ₁₅	E	E ₁₇	12	16	C	35	19	19	17	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	16	17	15	E	E	E ₁₅	E ₁₂	E ₁₈	E ₁₅	E ₁₅	E
12	E ₁₇	E	E ₁₆	E ₁₅	E ₁₄	E ₁₅	E ₁₂	17	16	12	18	20	20	18	13	15	E	E ₁₅	E	E ₁₅	E ₁₅	E	E ₁₅	E ₁₅
13	E ₁₇	E ₁₅	E	E	E	E	E	15	16	16	17	17	17	18	16	15	11	E	E ₁₃	E ₁₅	E ₁₆	E	E ₁₅	E
14	E ₁₅	E	E	E	E	E ₁₅	E ₁₅	15	17	18	17	16	19	20	17	16	15	E ₁₅	E ₁₂	E ₁₅	E ₁₅	E	E ₁₅	E ₁₅
15	E ₁₅	E	E	E	E	E ₁₅	E	17	11	17	20	19	18	16	15	11	E	E ₁₅	E ₁₆	E ₂₀	E ₁₇	E ₂₀	E ₁₅	E ₁₅
16	E ₁₅	E ₁₅	E ₁₅	E	E ₁₃	E ₁₅	E ₁₆	15	15	11	17	19	18	16	16	15	11	16	E ₁₅	E ₁₉	E ₁₆	E ₁₅	E ₁₅	E ₁₅
17	E ₁₆	E ₁₆	E	E	E	E	E ₁₅	16	16	16	16	17	18	18	17	15	E	E	E ₁₆	E ₁₅	E ₂₀	E ₁₅	E ₁₅	E ₁₇
18	E ₁₅	E ₁₃	E	E	E	E ₁₄	E ₁₆	17	17	17	18	19	20	17	15	12	E	E ₁₇	E ₁₅	E ₁₆	E ₁₇	E	E ₁₄	E ₁₆
19	E ₁₄	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₅	12	15	15	18	19	20	18	17	17	11	E	E ₁₄	E ₁₅	E ₁₃	E ₁₅	E ₁₅	E ₁₅
20	E ₁₆	E ₁₅	E	E	E	E ₁₅	E	13	11	12	18	19	19	17	17	15	11	E	E ₁₅	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅
21	E ₁₅	E	E	E	E	E	E ₁₅	E	16	19	17	18	17	17	15	12	E	E ₁₅	E ₁₅	E ₁₅	E	E ₁₆	E ₁₅	E ₁₄
22	E ₁₅	E	E	E	E ₁₅	E	E ₁₅	11	12	17	17	16	15	16	12	12	12	E ₁₃	E	E	E	E	E	E
23	E ₁₄	E	E	E	E	E	E	11	11	13	17	22	17	16	13	17	E	E	E ₁₄	E	E	E ₁₆	E	E
24	E ₁₄	E ₁₅	E ₁₅	E	E	E	E ₁₄	E	11	12	16	17	16	16	E	E	E ₁₈	E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₅	E
25	E	E	E	E	E	E	E ₁₅	11	12	11	15	18	18	16	16	12	E	E ₁₅	E ₁₄	E ₁₇	E ₁₅	E ₁₅	E ₁₇	E
26	E ₁₅	E	E	E	E	E	E ₁₇	12	15	12	17	17	17	17	13	11	E	E	E	E	E	E	E ₁₂	E
27	E ₁₅	E	E	E	E	E	E ₁₅	15	15	11	16	17	17	18	16	15	E	E	E ₁₈	E ₁₆	E ₁₆	E ₁₅	E ₁₇	E ₁₅
28	E	E	E	E	E	E ₁₃	E ₁₄	12	12	15	12	17	12	12	17	13	15	E	E	E ₁₉	E	E	E	E
29	E ₁₆	E	E ₁₄	E	E	E ₁₅	E ₁₄	E	11	11	17	20	17	18	16	12	E	E	E	E	E ₁₆	E ₁₅	E ₁₅	E ₁₆
30	E ₁₅	E	E	E	E	E	E ₁₅	E	11	12	16	17	17	12	11	12	E	E	E ₁₄	E	E ₁₅	E	E	E ₁₅
31	E ₁₅	E	E	E	E	E ₁₄	E ₁₅	15	12	17	16	16	17	17	11	E	E	E	E	E ₁₅	E	E	E	E ₁₅
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	31	30	30	30	30	30	30	30	30	30	30
MED	E ₁₅	E	E	E	E	E	E ₁₅	12	15	16	17	18	18	17	16	15	E ₁₁	E ₁₂	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
UQ	E ₁₆	E ₁₅	E ₁₄	E	E	E ₁₅	E ₁₅	15	17	17	18	19	19	18	17	15	12	E ₁₅	E ₁₆	E ₁₆	E ₁₆	E ₁₆	E ₁₅	E ₁₅
LQ	E ₁₅	E	E	E	E	E	E	11	12	12	16	17	17	16	13	12	E	E	E ₁₄	E ₁₂	E	E	E	E

OCT. 1971

F-MIN (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

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	275	285	280	F	F	F	I	A	310	300	300	335	320	300	295	325	325	320	340	345	325	285	I	A	290	285	295	290
2	S	A	280	290	280	320	340	315	315	330	340	325	325	345	330	335	335	345	315	310	305	F	280	F	290	F	F	
3	F	F	F	F	F	F	F	330	365	345	325	330	340	320	330	340	335	350	345	310	295	320	300	295	290			
4	280	290	295	300	295	300	340	345	340	335	340	325	325	330	335	330	335	345	330	305	300	305	290	300				
5	285	290	290	315	300	295	F	340	330	340	345	340	325	330	335	330	330	340	340	315	315	305	290	300	300			
6	275	285	300	305	300	325	335	335	345	335	340	325	320	315	330	345	345	330	295	300	295	300	305	300				
7	285	275	285	280	290	300	340	345	345	325	330	325	330	320	325	330	335	350	305	310	315	300	290	285				
8	280	285	285	290	295	295	345	355	345	325	325	330	335	325	335	315	335	350	320	300	290	285	265	275				
9	285	320	335	290	285	280	315	330	330	325	355	345	330	315	315	310	330	335	345	305	295	280	A	275				
10	280	315	295	310	310	280	330	335	330	I	C	335	315	335	340	325	C	C	C	C	C	C	C	C	C			
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	315	335	345	340	330	310	320	320	300	295	265			
12	280	S	280	265	295	290	280	335	355	A	345	330	340	335	345	330	A	345	335	330	310	320	290	285	285			
13	280	300	300	280	285	310	345	355	335	365	340	330	330	320	325	345	355	A	A	300	A	A	295	300				
14	310	A	265	275	270	285	335	355	340	A	R	330	325	350	350	335	355	350	320	A	A	A	A	A				
15	A	A	295	315	305	295	340	360	350	340	325	330	340	340	340	340	335	350	305	330	320	315	285	295				
16	A	290	295	310	325	340	355	335	340	335	320	360	350	330	345	345	350	340	320	330	335	305	310	F				
17	F	F	F	F	F	F	F	F	355	355	345	345	335	345	350	340	330	350	325	320	315	330	315	I	S	315		
18	F	F	F	F	F	F	F	F	350	350	345	345	335	330	345	355	335	335	315	310	325	315	305	315				
19	320	295	300	F	F	F	F	F	345	370	350	355	350	330	335	335	345	350	350	335	315	305	285	300	F	305	305	
20	300	290	285	305	F	320	355	360	370	345	335	345	325	350	325	340	350	330	320	305	300	300	300	300				
21	290	305	300	310	345	325	355	360	335	335	335	345	335	330	345	345	350	330	310	295	305	310	310	315				
22	305	F	F	F	F	F	F	320	370	340	350	345	340	335	335	345	335	345	340	335	315	315	315	300	295			
23	290	285	295	300	290	295	335	355	340	355	345	335	345	345	335	355	355	350	330	300	295	300	295	290				
24	290	290	295	290	285	305	330	340	350	345	345	340	340	345	350	350	360	315	335	335	315	285	280	285				
25	285	285	290	340	280	335	345	360	340	320	350	360	340	345	355	345	345	335	310	300	305	295	300	295				
26	295	300	300	300	300	310	335	360	350	370	380	360	360	355	340	345	355	325	330	330	340	315	295	300				
27	295	290	310	320	330	335	340	355	365	370	350	340	335	340	350	355	365	355	325	320	320	305	I	S	300			
28	280	F	290	315	320	320	325	370	365	365	355	350	325	360	320	360	350	330	355	330	315	275	290	280				
29	295	285	290	320	280	265	300	355	345	335	330	325	335	320	330	340	355	335	A	A	315	S	330	300	F			
30	F	F	F	F	300	300	S	320	345	350	340	355	340	330	345	330	340	345	340	A	325	300	290	280	295			
31	290	300	290	295	280	A	335	350	340	350	350	355	355	340	345	360	350	355	305	325	325	295	285	295				
	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	22	26	24	27	25	29	30	29	29	29	30	30	31	30	29	30	29	27	28	28	27	28	27				
MED	285	290	292	300	295	300	335	355	345	340	340	338	335	335	335	340	348	340	320	310	315	300	295	295				
UQ	295	300	300	312	312	320	345	360	350	350	350	345	340	345	345	345	350	345	330	322	320	305	305	300				
LQ	280	285	285	290	285	290	330	340	340	335	330	330	325	325	330	335	340	330	310	300	300	290	290	288				

OCT. 1971

M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1971

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									350	355	360	370			A									
2										370	380	360	375											
3									400	A	385	380	A	A	A									
4											370		375											
5										A	385	390												
6										390			L											
7											390			405										
8												L												
9									390															
10										C	A		A											
11										C	C	C	C	C										
12										A		A	A	A	A	A								
13																								
14										A	A		A	A	A	A								
15													A	A	A									
16											L	A	A	L										
17													L	L										
18											A	385	A		A									
19													A	L										
20												L	L											
21													L											
22																375								
23												A		A										
24												L												
25												405	410											
26											A	A												
27																								
28												415												
29														A	A									
30																								
31													L											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									3	3	9	5	2	1	1									
MED									390	370	385	380	375	405	375									
UQ									395	380	390	390												
LQ									370	362	380	370												

OCT. 1971

M(3000)F1 (0.01)

IONOSPHERIC DATA

OCT. 1971

H^oF₂ (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									350	295	310	320		290										
2										280	255	290	260											
3									260	290	250	260	275	265	265									
4											250		265											
5										250	250	260												
6											250		260											
7												265		250										
8													245											
9									260															
10										C	235		250											
11									C	C	C	C	C											
12									A		270	260	A	265	A	A								
13																								
14									A	A		A	A	245	245									
15												250	A	A										
16										245	245	245	245											
17											245	245												
18										250	225	225		300										
19											250	225												
20											260	240												
21												250												
22															250									
23											A		250											
24											245													
25											250	245												
26										215	225													
27																								
28											215													
29													250	250										
30																								
31												225												
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	8	15	15	10	7	3										
MED								260	250	250	250	250	265	250										
UQ								305	285	258	260	260	278	258										
LQ								260	248	240	245	245	250	248										

OCT. 1971

H^oF₂ (KM)

IONOSPHERIC DATA

OCT. 1971

H'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	305	300	280	285	285	320	250	245	230	240	250	220	220	A	260	245	250	230	240	290	300	300	305	290
2	325	A	285	290	300	260	225	235	235	220	225	205	240	250	240	245	250	235	240	250	240	275	270	290
3	300	275	260	275	285	265	215	230	220	220	245	210	A	A	A	250	240	230	250	A	240	250	270	305
4	305	A	300	A	305	260	245	230	225	250	215	A	220	235	240	240	245	230	245	260	265	275	250	255
5	290	270	260	250	260	260	240	245	215	240	215	225	210	240	250	235	245	225	215	245	245	260	260	250
6	300	300	275	270	220	235	225	225	225	215	210	240	220	230	245	230	245	245	250	260	255	250	235	250
7	280	295	295	300	240	230	220	240	220	225	210	215	225	210	245	245	235	220	220	250	255	270	300	285
8	285	290	285	270	250	285	235	225	240	230	225	200	210	220	225	250	250	A	250	260	265	300	350	325
9	300	230	220	285	270	285	245	245	235	220	210	230	220	220	235	250	235	A	A	250	260	285	A	315
10	300	250	295	A	230	315	245	235	225	240	240	250	230	220	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	A	240	245	225	220	250	245	250	275	300	335
12	320	315	300	260	290	315	220	230	A	240	A	A	A	A	A	A	A	240	230	250	245	255	280	300
13	300	300	250	320	275	250	220	220	235	230	A	250	240	250	250	A	A	A	A	A	A	A	295	A
14	A	A	375	325	295	250	220	225	A	A	230	A	A	A	A	240	220	210	250	A	A	A	A	A
15	A	A	260	270	290	285	220	225	230	A	235	A	A	A	250	245	230	220	250	250	250	250	310	335
16	A	315	340	270	230	220	220	220	215	A	A	A	215	250	240	240	225	225	250	245	220	250	260	295
17	300	285	270	300	280	250	215	220	220	215	245	215	235	235	A	230	220	220	240	250	235	220	250	245
18	250	285	275	270	245	210	210	225	225	A	225	A	220	230	240	225	220	220	240	250	240	255	275	250
19	245	265	275	260	230	230	210	215	215	225	240	A	220	215	235	245	220	230	245	280	290	270	260	280
20	270	265	260	250	230	225	215	220	220	220	225	220	200	200	230	230	225	210	235	250	270	250	255	280
21	275	250	270	250	235	230	210	210	220	205	200	210	230	220	235	225	210	205	235	265	245	245	260	240
22	250	280	275	265	230	225	210	210	215	210	225	220	230	220	240	230	225	220	220	250	250	260	250	245
23	270	275	275	265	270	260	220	235	215	A	A	220	225	225	235	215	215	230	250	310	250	290	290	
24	285	280	270	255	270	240	210	215	220	215	200	220	220	235	240	230	225	250	225	230	230	260	290	300
25	295	300	290	225	235	250	210	230	245	210	245	205	225	250	235	225	225	210	A	A	250	270	275	295
26	A	275	255	265	265	225	220	215	225	A	A	200	230	225	220	230	215	220	245	240	215	245	265	280
27	295	295	255	235	225	210	205	210	215	220	220	230	220	210	240	250	215	200	230	230	255	275	325	290
28	320	305	270	250	255	240	210	210	215	225	200	190	215	225	220	235	210	220	235	250	265	330	310	325
29	305	300	280	250	295	350	260	225	230	230	250	A	A	230	240	235	225	A	A	A	250	250	215	290
30	270	320	300	300	285	230	240	230	215	225	230	A	A	230	235	245	220	210	A	235	275	300	285	300
31	275	270	260	265	285	A	225	210	200	225	225	215	225	215	215	225	210	210	215	250	225	275	305	305
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	26	30	28	30	29	30	30	28	24	25	21	24	25	26	28	28	26	25	25	28	28	28	28
MED	295	285	275	268	268	250	220	225	220	225	225	220	220	225	240	238	225	220	240	250	250	260	275	290
UQ	300	300	290	285	285	265	235	230	230	230	240	225	230	235	240	245	238	230	250	250	265	275	300	302
LQ	275	270	260	252	235	230	210	215	215	218	215	210	220	220	235	230	220	210	230	245	240	250	260	268

OCT. 1971

H'F (KM)

IONOSPHERIC DATA

OCT. 1971

H'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	100	100	100	100	100	100	100	100	100	110	115	105	105	105	105	105	S	120	115	S	110	110
2	105	105	105	105	105	105	105	105	105	105	G	120	120	120	G	G	G	125	S	S	S	115	S	S
3	S	E	E	E	E	105	G	G	G	120	120	115	110	110	110	110	105	105	105	100	100	110	110	110
4	105	110	105	105	105	100	100	100	105	120	115	110	105	100	100	100	G	115	110	110	110	105	S	S
5	S	S	S	E	100	E	130	G	G	120	115	115	115	115	115	115	G	125	S	S	S	S	S	S
6	S	S	S	105	110	105	S	G	G	G	G	G	G	G	G	G	G	125	S	S	S	S	100	S
7	S	E	E	E	E	S	S	G	125	120	G	110	G	G	G	G	145	110	S	105	105	105	S	S
8	S	S	S	S	S	S	S	G	G	125	115	G	105	105	105	105	100	100	100	100	100	100	105	S
9	S	105	S	105	E	E	140	130	120	120	G	G	G	G	G	150	120	110	105	105	S	110	105	105
10	S	E	120	110	125	E	160	G	140	C	120	120	115	G	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	105	105	105	105	105	105	105	105	105	105
12	105	105	105	S	S	120	160	135	115	115	110	110	105	105	105	100	100	100	105	105	105	105	S	S
13	105	105	105	105	E	E	G	G	140	120	110	105	105	105	105	105	105	110	110	110	110	110	105	105
14	100	100	105	105	100	S	160	120	110	110	110	110	105	105	105	110	110	135	105	115	115	110	110	110
15	105	100	100	100	100	100	105	G	125	115	110	105	105	100	105	100	100	100	100	S	100	S	105	105
16	105	100	100	100	105	100	S	G	120	115	110	110	105	105	105	105	105	100	100	100	100	S	100	100
17	S	105	105	105	100	100	100	G	110	120	115	110	110	110	105	105	105	105	105	105	105	S	S	S
18	S	115	105	105	105	S	S	160	120	115	110	110	110	105	105	105	100	110	110	100	S	105	105	S
19	S	S	S	S	S	100	S	100	105	100	115	110	110	G	100	110	110	110	110	105	100	105	100	105
20	S	100	100	100	100	100	100	G	G	100	G	G	G	105	G	G	105	105	105	S	105	100	105	100
21	100	105	E	E	E	E	S	G	G	110	G	G	100	G	100	G	100	100	100	100	100	105	100	S
22	S	100	E	E	S	115	S	110	G	G	G	G	100	G	G	140	G	S	110	E	105	105	E	110
23	S	E	E	E	120	E	155	135	120	110	105	105	100	105	G	G	125	100	110	110	110	S	105	100
24	S	S	S	E	E	E	S	110	115	G	G	105	G	100	100	100	120	120	110	110	110	110	S	110
25	100	105	105	105	E	E	S	G	110	115	115	110	110	105	105	105	105	105	110	110	105	100	S	105
26	110	105	105	100	100	100	105	125	115	110	110	105	105	105	105	125	120	100	105	110	E	100	S	105
27	105	E	E	E	E	E	S	G	120	G	110	110	105	105	105	105	100	E	100	S	100	100	100	105
28	105	105	105	105	100	100	S	G	G	G	115	105	105	105	105	145	120	115	110	110	110	105	105	105
29	105	100	100	E	100	100	S	G	145	135	120	110	110	110	G	135	115	110	105	105	105	S	110	100
30	100	105	105	100	100	E	S	110	110	110	105	105	105	105	105	120	110	110	105	105	105	105	105	100
31	S	100	E	110	110	115	S	G	105	G	G	110	105	100	G	G	G	E	E	105	E	105	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	19	17	18	18	16	13	13	22	23	21	24	25	24	21	23	24	27	24	23	21	23	20	19
MED	105	105	105	105	100	100	105	110	115	115	110	110	105	105	105	105	105	110	105	105	105	105	105	105
UQ	105	105	105	105	105	105	155	130	120	120	115	110	110	105	105	118	118	112	110	110	110	105	105	108
LQ	100	100	100	100	100	100	100	105	110	110	110	105	105	105	105	105	102	102	105	105	100	102	100	102

OCT. 1971

H'ES (KM)

IONOSPHERIC DATA

OCT. 1971

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			F1	F1	F1	F5	L	L	L	L	L	L	L	L	L	L	L	L	F1	F5		F5	F2	
2	F2	F5	F2	F2	F2	F2	L	L	L	L		F	L	F				F				F1		
3						F1				F	L	F	F	F	L	L	L	L	F2	F3	F1	F1	F2	F2
4	F2	F4	F4	F6	F4	F2	L	L	L	F	F	F	L	L	L	L		F	F2	F2	F2	F2		
5					F3		H			F	F	F	F	F	F	F		F						
6				F2	F1	F1												F						F1
7									F	F		L					H	L		F1	F1	F1		
8									F	F			L	L	L	L	L	L	F4	F2	F1	F1	F4	
9		F1					H	H	F	F						H	F	F	F4	F2		F1	F3	F1
10			F3	F4	F1		H	H			F	F	F											
11														L	L	L	L	L	F2	F1	F2	F2	F3	F2
12	F1	F2	F1			F1	H	H	F	F	F	F	F	L	L	L	L	L	F2	F1	F2	F2		
13	F1	F5	F1	F2					H	F	F	F	L	L	L	L	L	L	F4	F2	F3	F4	F5	F5
14	F3	F4	F2	F1	F2		H	F	F	F	F	F	L	L	L	L	L	H	F2	F3	F3	F3	F3	F6
15	F4	F3	F2	F2	F3	F1	L		F	F	L	L	L	L	L	L	L	L	F2		F1		F2	F2
16	F2	F2	F3	F2	F1	F1			F	F	F	L	L	L	L	L	L	L	F2	F1		F1	F1	
17		F1	F2	F3	F3	F3	L		F	F	F	F	L	L	L	L	L	L	F1	F2				
18		F1	F2	F3	F2			H	F	F	F	F	L	L	L	L	L	L	F2	F1		F1	F1	
19					F2			L	L	L	F	F	L		L	L	L	L	F1	F2	F2	F2	F3	F2
20		F3	F1	F1	F1	F1	L			L				L			L	L	F2		F2	F1	F2	F1
21	F1	F1							L				L		L		L	L	F1	F1	F1	F1	F1	F1
22		F1				F1		L					L		H				F1		F1	F3		F2
23					F1		H	H	F	F	L	L	L	L			F	L	F2	F2	F4		F2	F2
24							L	F			L		L	L	L	L	F	F	F1	F1	F1	F1		F2
25	F1	F2	F2	F1					L	F	F	F	L	L	L	L	L	L	F2	F2	F1	F1		F2
26	F3	F3	F2	F2	F2	F3	L	F	F	F	L	L	L	L	L	L	L	F	F	F		F1		F2
27	F1								F		F	L	L	L	L	L	L	L	F1		F1	F1	F1	F2
28	F2	F2	F1	F1	F2	F1				F	L	L	L	L	L	L	L	L	F2	F2	F2	F2	F2	F2
29	F2	F1	F1		F1	F1			H	H	F	F	F	L		H	F	F2	F2	F2	F2	F2	F1	F1
30	F1	F2	F1	F2	F3			L	L	F	L	L	L	L	L	L	L	L	F3	F2	F2	F2	F2	F2
31		F2		F2	F5	F2			L		L		L	L					F2		F2	F2	F2	F2
	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																								

OCT. 1971

TYPES OF ES

IONOSPHERIC DATA

OCT. 1971

FOF2 (0.1 MHz)

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

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	50	48	51	47	46	41	49	58	61	68	64	75	75	71	74	78	83	78	54	41	42	43	43	43
2	40	38	38	37	36	36	57	58	75	79	88	83	89	85	76	78	82	74	67	I A 58	I A 50	47	49	47
3	F 50	F	F	F	F	F 44	66	70	70	78	95	96	90	87	88	89	87	82	66	60	I R 57	I R 55	54	47
4	45	43	42	43	41	40	57	73	80	82	93	86	84	92	75	72	74	83	68	56	52	52	53	50
5	46	45	46	47	41	F 40	56	73	87	90	94	83	84	87	87	90	89	84	74	58	55	52	47	46
6	46	46	44	47	45	37	58	71	91	88	87	81	87	89	93	84	72	77	72	68	66	58	58	51
7	44	46	47	46	47	46	54	84	88	86	77	98	111	91	84	84	84	76	63	56	54	54	53	48
8	48	47	48	46	45	44	62	73	82	92	97	92	82	87	85	85	94	98	53	45	46	46	43	43
9	44	50	31	30	31	33	64	I B 92	84	82	87	96	88	77	86	91	116	95	71	38	41	43	47	48
10	47	49	54	48	34	37	65	92	87	86	94	97	90	90	89	88	96	88	53	42	I A 43	I R 42	45	43
11	44	43	44	43	40	37	48	70	78	94	98	C	C	85	C	C	C	86	60	55	I A 50	43	40	A
12	A	A	36	36	30	32	61	77	82	71	I C 86	108	119	86	81	I C 84	88	R	A	A	A	A	42	42
13	41	43	42	41	38	36	49	71	85	81	93	88	95	106	86	92	88	71	61	54	56	49	54	R
14	F	F 49	F	48	F	F	64	74	83	84	107	105	106	98	101	88	84	73	57	50	43	I A 34	34	I A 34
15	35	I A 35	F	42	I A 34	F	55	74	84	88	97	114	96	96	89	83	89	87	54	46	44	41	37	37
16	38	39	40	44	43	29	51	74	84	88	87	89	95	83	91	83	82	73	54	50	39	36	38	37
17	37	F	F	45	F	45	50	68	79	76	87	91	88	81	75	80	79	72	56	54	49	43	40	40
18	39	42	F	F	F	46	54	66	82	82	91	91	83	77	81	79	64	58	53	52	47	44	41	38
19	40	41	41	41	45	36	56	64	75	71	78	89	83	73	73	76	71	57	46	42	42	43	43	44
20	44	44	45	44	48	43	54	66	81	81	80	91	86	76	81	82	70	68	47	40	39	39	39	39
21	39	42	41	44	47	39	55	71	81	82	79	89	90	82	94	93	70	63	48	46	50	49	47	45
22	44	45	47	47	46	38	57	79	79	86	89	100	88	87	79	87	80	73	62	48	47	47	46	44
23	39	41	43	44	42	41	57	62	95	84	99	103	97	92	87	81	82	68	48	47	43	43	43	42
24	F	F 44	45	45	43	40	49	73	95	96	97	102	91	94	92	91	80	63	64	55	41	38	38	41
25	I C 40	42	42	48	37	I C 27	47	70	98	106	108	104	90	96	102	85	76	65	46	47	48	47	47	45
26	43	43	43	41	43	41	47	79	I B 90	92	94	89	88	91	90	I C 86	83	58	45	48	48	39	39	41
27	41	41	43	46	43	40	46	64	72	96	85	85	108	83	84	91	88	67	39	38	34	33	33	35
28	34	34	36	36	36	37	46	69	73	90	86	82	91	84	78	103	84	58	45	46	36	34	35	34
29	34	37	37	37	38	32	39	88	99	86	90	112	115	89	87	93	85	65	I A 50	I R 48	47	I A 38	45	36
30	37	35	36	37	41	38	48	72	93	94	88	96	97	88	94	94	101	70	41	36	35	I A 35	36	37
31	I A 35	41	41	41	41	38	47	69	73	97	99	115	97	90	83	85	73	48	48	48	39	I A 34	34	35
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	26	29	27	29	31	31	31	31	31	30	30	31	30	30	30	30	30	30	30	31	29	
MED	41	43	42	44	41	38	54	71	82	86	90	92	90	87	86	85	83	72	54	48	46	43	43	42
UQ	44	46	45	46	45	41	57	74	88	91	96	102	97	91	90	91	88	82	63	55	50	47	47	45
LQ	38	41	40	41	38	36	48	68	78	82	86	88	87	83	81	82	76	65	48	45	41	38	38	37

The Radio Research Laboratories, Japan

OCT. 1971

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

FOF1 (0.01 MHz)

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

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								U 390	420	450	460	480	470	L	L	L								
2								L	L	L	L	L	470	L										
3								380	L	A	L	L	L	450										
4								L	430	450	430	450	450	L	L									
5								L	450	450	L	L	L	L	A	A								
6								L	L	440	530	450	L	L	L									
7								L	450	460	460	450	L	L										
8								L	I 440	L	L	L	490	470	U 500	L								
9								L	L	U 450	440	L	L	L	L									
10								A	L	430	450	450	L	L	L									
11								L	470	L	C	C	A	C	C									
12								L	L	C	440	L	L	L	C									
13								L	L	U 450	L	520	L	L	L									
14								L	A	U 460	L	L	L	L	A									
15								L	L	U 490	470	L	440	L	L									
16								L	U 430	L	L	A	L	A	A									
17								L	L	430	L	450	U 450	L	L									
18								L	L	A	L	430	A	L	L									
19								L	440	410	L	L	L	L										
20								L	L	L	470	450	L	L										
21								L	L	L	470	440	L	L										
22								L	L	410	450	L	L	L										
23								L	L	L	L	L	A	A	A									
24								L	L	L	L	U 450	L	L	L									
25								L	410	L	L	L	L	L										
26								L	L	L	L	L	L											
27								L	L	480	450	L	L											
28								L	L	L	A	L	L											
29								L	L	450	I 510	L	L	A										
30								L	L	L	U 440	U 450	L	L										
31								L	L	L	U 480	L	L	L										
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								1	2	6	15	16	16	5	2									
MED								U 390	400	430	450	465	450	450	475									
UQ										450	450	480	465	450										
LQ										430	440	440	450	450										

OCT. 1971

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 1971

FOE (0.01 MHZ)

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

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	245	295	A	A	A	A	350	330	290	245	A							
2							B	255	290	310	320	325	320	325	310	280	240	S							
3							B	240	275	305	315	320	325	I A 320	320	280	245	S							
4							B	I A 230	270	295	310	I R 320	R	A	310	290	250	S							
5							B	235	275	310	325	A	A	A	A	A	A	A							
6								175	240	290	320	335	340	335	335	320	280	240	A						
7							B	240	290	315	330	335	B	345	335	320	290	245	A						
8							A	235	275	I C 310	I A 320	R 330	340	330	310	275	235	A							
9							B	240	285	A	A	A	A	335	315	280	225	S							
10							B	I A 235	285	I A 310	B	A	A	335	310	270	215	S							
11							B	A	285	A	A	C	C	A	C	C	C	S							
12							A	240	280	A	C	A	A	A	A	C	A	S							
13							B	235	280	A	A	A	325	315	295	275	235	S							
14							180	A	A	A	A	A	A	A	A	A	A	S							
15							190	245	A	A	A	A	335	325	295	275	A	S							
16							A	A	275	295	A	A	A	A	A	A	A	S							
17							S	240	275	I A 300	A	A	335	I A 330	I A 300	I A 265	230	B							
18							B	240	285	310	325	A	A	A	315	270	215	S							
19							B	225	I A 270	315	325	335	A	A	A	285	I A 220	S							
20							S	230	280	310	320	325	335	330	300	275	225	S							
21							S	230	I A 275	I A 305	325	330	335	325	305	275	A	S							
22							B	I A 230	280	310	320	330	340	330	310	270	210	S							
23							S	220	270	305	A	A	335	A	A	A	A	S							
24							S	240	A	A	A	A	335	I A 330	305	270	A	S							
25							S	230	270	A	A	A	A	335	I A 305	I A 260	I A 210	S							
26							B	I A 220	I A 265	A	A	A	I A 330	I A 330	I A 310	I C 260	I A 205	S							
27							S	215	265	310	I A 320	I A 325	335	I A 325	I A 295	260	215								
28							S	230	280	305	320	A	A	A	A	280	A								
29							S	235	280	I A 310	320	I A 330	335	330	305	265	A								
30							S	230	270	I A 300	I A 315	325	330	325	295	255	A								
31							S	240	I A 270	I A 300	320	325	330	320	290	255	200								
	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	28	28	21	17	14	18	21	23	25	19								
MED							180	235	278	310	320	328	335	330	310	275	225								
UQ							185	240	285	310	325	330	335	335	312	280	240								
LQ							178	230	270	305	320	325	330	325	300	265	215								

The Radio Research Laboratories, Japan

OCT. 1971

FOE (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1971

FOES (0.1 MHz)

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

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 ₁₃	J ₂₂	J ₁₇	J ₁₇	J ₂₀	E ₁₃	E ₁₉	G	33	36	43	J ₃₈	36	G	G	G	J ₂₃	J ₂₁	J ₂₁	J ₂₁	J ₂₀	J ₂₈	J ₂₁	J ₄₄	
2	J ₂₃	E ₁₃	J ₁₇	E ₁₃	E ₁₃	E ₁₃	E ₂₀	27	34	38	44	38	35	G	G	32	34	J ₃₃	J ₃₆	J ₈₃	J ₇₅	J ₂₈	E ₁₄	E ₁₄	
3	E ₁₄	E ₁₃	E ₁₄	E ₁₃	J ₂₃	J ₂₅	E ₁₈	27	J ₄₃	39	J ₅₃	40	40	38	G	J ₄₆	J ₄₃	J ₆₃	J ₃₁	J ₂₈	J ₄₀	J ₂₈	J ₂₃	E ₁₄	
4	J ₂₃	J ₁₈	M	M	J ₂₀	J ₂₁	E ₁₈	J ₃₇	30	32	G	G	G	J ₄₀	35	G	28	J ₂₈	J ₂₇	J ₃₈	J ₂₅	J ₃₉	J ₂₃	J ₂₈	
5	J ₂₁	J ₂₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₈	G	30	35	36	J ₄₃	J ₄₅	J ₄₇	J ₄₉	J ₄₃	J ₄₇	J ₂₉	J ₄₃	J ₃₈	J ₃₃	E ₁₃	J ₁₈	E ₁₃	
6	E ₁₃	E ₁₃	J ₂₅	J ₂₇	E ₁₃	J ₁₈	G	G	G	G	G	G	G	G	G	G	G	21	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	
7	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₈	G	32	G	G	J ₂₉	G	G	G	G	30	23	J ₂₈	J ₁₉	J ₂₃	J ₁₈	E ₁₃	E ₁₃	
8	E ₁₃	E ₁₃	J ₁₈	J ₁₈	E ₁₃	E ₁₃	25	26	31	E ₄₄	33	G	J ₂₈	G	G	G	G	23	J ₁₈	J ₁₈	J ₁₈	E ₁₃	J ₂₄	J ₂₄	
9	E ₁₃	J ₂₁	J ₁₈	E ₁₃	E ₁₃	E ₁₃	E ₁₈	27	33	39	J ₄₅	J ₄₇	39	G	G	G	30	J ₃₁	J ₁₇	J ₂₈	J ₂₇	J ₂₉	J ₃₅	J ₃₃	
10	J ₄₄	J ₂₅	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₈	26	J ₇₇	36	40	J ₄₀	J ₄₄	J ₄₃	G	31	J ₅₁	J ₅₃	J ₃₀	J ₂₃	J ₄₈	J ₄₀	J ₃₀	J ₃₆	
11	J ₁₈	J ₃₃	J ₂₆	J ₃₅	J ₁₈	J ₂₇	E ₁₆	31	34	34	35	C	C	J ₇₄	C	C	C	F	J ₂₉	J ₅₀	J ₁₀₃	J ₈₁	J ₄₃	J ₅₃	
12	J ₄₈	J ₅₅	J ₂₆	J ₃₁	J ₂₅	J ₁₉	23	30	35	J ₄₂	C	J ₅₃	J ₄₁	J ₄₃	J ₅₇	C	J ₉₆	J ₉₆	J ₉₅	J ₈₅	J ₆₉	J ₄₉	J ₄₃	J ₂₀	
13	J ₁₇	E ₁₃	J ₁₈	E ₁₃	J ₃₈	E ₁₃	E ₁₈	30	34	33	33	34	G	G	G	30	32	J ₂₈	E ₁₃	J ₂₁	J ₁₉	J ₁₈	J ₅₄	J ₅₃	
14	J ₃₈	J ₂₉	J ₁₈	J ₂₉	J ₂₆	J ₂₀	G	28	38	J ₆₃	J ₄₆	J ₄₆	J ₄₀	35	J ₃₆	J ₄₃	J ₃₈	J ₃₄	J ₂₃	J ₅₄	J ₅₃	J ₁₁₂	J ₄₄	J ₈₀	
15	J ₅₁	J ₅₈	J ₃₆	J ₄₁	J ₃₉	J ₂₄	G	G	33	J ₆₁	J ₅₀	J ₄₃	G	G	35	G	J ₂₉	J ₃₀	J ₄₄	J ₁₈	J ₃₉	J ₂₆	J ₂₈	J ₂₅	
16	E ₁₃	E ₁₄	J ₂₆	J ₂₂	J ₄₃	J ₂₈	J ₃₀	J ₂₈	33	34	34	J ₃₅	J ₉₁	J ₄₅	J ₅₈	J ₆₄	J ₇₄	J ₄₄	J ₃₀	J ₃₄	J ₃₈	J ₂₉	E ₁₄	E ₁₄	
17	E ₁₄	E ₁₄	J ₃₃	J ₁₈	J ₂₈	J ₁₉	J ₁₈	J ₂₅	32	38	J ₄₃	J ₄₀	G	35	J ₄₆	29	G	F	J ₂₄	J ₂₀	E ₁₃	E ₁₄	E ₁₃	E ₁₄	
18	E ₁₃	E ₁₄	E ₁₄	E ₁₃	J ₂₀	E ₁₃	E ₁₇	G	30	38	J ₅₀	J ₃₄	J ₆₄	J ₇₀	G	G	G	J ₂₀	J ₂₉	J ₂₃	E ₁₄	J ₂₀	J ₃₆	J ₂₈	
19	J ₂₈	J ₂₃	J ₁₈	E ₁₄	E ₁₄	E ₁₄	E ₁₈	G	J ₅₃	35	39	G	35	35	32	G	26	J ₂₇	J ₄₃	J ₄₁	J ₃₀	J ₂₆	E ₁₃	J ₂₆	
20	E ₁₄	J ₁₈	J ₂₅	J ₁₈	J ₁₈	E ₁₃	E ₁₈	G	33	33	G	G	G	G	J ₂₈	G	G	F	E ₁₈	E ₁₄	E ₁₄	E ₁₄	E ₁₄	J ₂₃	
21	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₅	G	29	J ₃₉	G	G	J ₃₆	G	G	J ₂₈	J ₃₆	J ₂₈	J ₂₈	J ₁₈	J ₂₃	J ₂₆	J ₁₇	J ₂₉	
22	J ₂₀	J ₁₇	J ₁₈	J ₁₈	E ₁₄	E ₁₃	E ₁₈	J ₂₈	G	G	G	G	G	G	G	29	25	F	J ₂₆	J ₂₇	J ₂₆	J ₂₆	J ₂₅	J ₂₃	
23	J ₂₈	J ₁₈	J ₁₇	E ₁₄	E ₁₄	E ₁₄	E ₁₆	G	30	G	J ₄₀	J ₄₈	J ₃₉	J ₆₃	J ₄₄	J ₄₁	32	J ₂₃	E ₁₄	E ₁₄	J ₂₄	J ₂₃	J ₂₇	J ₄₃	
24	J ₂₅	J ₁₈	J ₁₉	J ₁₈	J ₁₇	E ₁₄	E ₁₆	J ₂₄	J ₄₃	J ₆₃	J ₄₈	J ₃₃	J ₃₄	J ₅₈	J ₃₀	G	24	J ₃₃	J ₆₆	J ₄₀	J ₄₃	J ₄₃	J ₂₅	J ₁₈	
25	C	J ₂₄	J ₃₆	J ₁₆	J ₁₈	C	E ₁₂	28	31	J ₃₉	J ₃₈	J ₄₅	J ₄₅	J ₄₁	J ₃₃	J ₃₀	J ₂₉	J ₃₅	J ₃₇	J ₂₆	E ₁₃	J ₂₄	E ₁₃	J ₁₈	
26	J ₁₈	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₉	25	30	34	J ₄₁	J ₃₉	J ₃₈	J ₄₀	32	C	27	F	J ₂₉	J ₃₅	J ₄₃	J ₂₉	J ₂₁	E ₁₃	
27	J ₁₇	J ₂₀	J ₁₉	E ₁₃	E ₁₃	E ₁₄	E ₁₅	25	G	34	J ₄₃	35	G	J ₃₉	J ₃₀	J ₂₈	J ₃₀	J ₄₀	J ₂₉	J ₁₉	E ₁₄	E ₁₄	E ₁₄	E ₁₄	
28	E ₁₄	J ₂₆	J ₂₈	J ₃₉	J ₃₈	J ₂₄	E ₁₄	G	G	G	34	37	J ₅₇	35	36	G	32	J ₂₈	J ₂₈	E ₁₄	E ₁₄	E ₁₄	J ₂₇	J ₂₅	
29	J ₂₉	J ₂₄	J ₁₈	J ₁₈	E ₁₄	E ₁₄	E ₁₄	G	30	33	36	69	G	J ₂₄	J ₄₄	J ₄₄	J ₃₄	J ₄₄	J ₇₄	J ₄₅	J ₄₃	J ₉₄	J ₅₄	J ₃₄	
30	J ₁₇	J ₁₈	E ₁₄	E ₁₄	E ₁₄	J ₂₃	E ₁₄	23	G	35	J ₃₈	G	G	G	G	35	J ₃₂	J ₂₃	J ₃₃	E ₁₄	E ₁₄	J ₄₂	J ₂₆	J ₁₇	
31	J ₃₉	J ₁₈	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	23	J ₃₆	J ₃₃	35	42	37	G	J ₂₃	G	G	F	E ₁₄	J ₂₀	J ₃₉	J ₃₉	J ₂₅	J ₂₅	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	31	31	31	31	30	31	31	31	31	30	30	30	31	30	28	30	31	31	31	31	31	31	31	31
MED	J ₁₈	J ₁₈	J ₁₈	16	E ₁₄	E ₁₄	E ₁₈	25	32	35	38	38	36	35	G	29	28	30	J ₂₈	J ₂₉	J ₂₆	J ₂₆	J ₂₆	J ₂₄	J ₂₄
UQ	J ₂₈	J ₂₄	J ₂₅	J ₂₀	J ₂₂	J ₂₀	E ₁₈	28	34	38	J ₄₃	J ₄₃	J ₄₀	J ₄₂	J ₃₆	J ₃₄	J ₃₄	J ₃₃	J ₃₆	J ₃₈	J ₄₂	J ₃₉	J ₂₉	J ₃₁	
LQ	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₄	G	30	33	33	G	G	G	G	G	23	21	J ₂₂	J ₁₈	J ₁₈	J ₁₈	E ₁₄	E ₁₄	

The Radio Research Laboratories, Japan

OCT. 1971

FOES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

FBES (0.1 MHz)

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

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 ₁₃	E	E	E	E	E ₁₃	E ₁₉	G	33	36	40	36	35	G	G	G	G	21	20	20	20	E	20	20	26
2	20	E ₁₃	E	E ₁₃	E ₁₃	E ₁₃	E ₂₀		27	34	38	43	37	U ₃₅	G	G	32	34	32	27	A	A	E ₁₄	E ₁₄	E ₁₄
3	E ₁₄	E ₁₃	E ₁₄	E ₁₃	E	18	E ₁₈		25	33	35	53	37	38	33	G	38	38	55	18	18	37	25	19	E ₁₄
4	23	18	19	E	18	20	E ₁₈		33	U ₃₀	31	G	G	G	34	23	G	27	22	17	21	22	25	20	25
5	20	19	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₈		G	30	34	36	43	43	44	48	42	47	21	23	20	28	E ₁₃	E	E ₁₃
6	E ₁₃	E ₁₃	23	18	E ₁₃	E	G		G	G	G	G	G	G	G	G	G	19	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃
7	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₈		G	31	G	G	G	G	G	G	G	20	20	E	18	E	E ₁₃	E ₁₃	E ₁₃
8	E ₁₃	E ₁₃	E	E	E ₁₃	E ₁₃	24	26	30	E ₄₄	33	G	G	G	G	G	20	E	E	E	E ₁₃	24	E		
9	E ₁₃	19	18	E ₁₃	E ₁₃	E ₁₃	E ₁₈		27	33	37	34	40	39	G	G	G	28	30	E	19	27	20	27	27
10	30	23	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₈		26	40	36	37	35	38	25	G	31	47	53	28	20	A	34	24	23
11	E	24	23	19	15	21	E ₁₆		30	33	34	34	C	C	61	C	C	C	E ₁₄	E	22	A	E	20	A
12	A	A	23	E	19	E	22	28	33	40	C	39	37	40	39	C	70	58	A	A	A	A	A	20	20
13	E	E ₁₃	E	E ₁₃	E	E ₁₃	E ₁₈		30	G	33	33	34	G	G	G	30	28	18	E ₁₃	19	18	E	30	40
14	20	21	E	25	22	17	G		27	28	62	38	41	37	35	36	40	36	28	20	28	19	A	22	A
15	24	A	21	20	A	18	G		G	30	38	39	36	G	G	G	G	28	20	27	E	28	19	18	18
16	E ₁₃	E ₁₄	E	19	31	18	20	26	32	33	34	35	74	42	48	54	61	32	18	26	26	26	E ₁₄	E ₁₄	E ₁₄
17	E ₁₄	E ₁₄	18	E	18	E	E		18	30	33	36	34	G	34	32	28	G	E ₁₉	19	18	E ₁₃	E ₁₄	E ₁₃	E ₁₄
18	E ₁₃	E ₁₄	E ₁₄	E ₁₃	E	E ₁₃	E ₁₇		G	30	35	46	34	34	63	G	G	G	19	25	21	E ₁₄	19	22	25
19	24	18	E	E ₁₄	E ₁₄	E ₁₄	E ₁₉		G	30	34	35	G	35	34	32	G	24	E	20	19	19	19	E ₁₃	20
20	E ₁₄	18	22	E	E	E ₁₃	E ₁₈		G	33	33	G	G	G	G	G	28	G	E ₁₆	E ₁₈	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E
21	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₅		G	29	33	G	G	28	G	G	24	25	23	19	E	20	18	E	20
22	18	E	E	E	E ₁₄	E ₁₃	E ₁₈		25	G	G	G	G	G	G	G	29	24	E ₁₄	20	18	26	18	19	20
23	25	E	E	E ₁₄	E ₁₄	E ₁₄	E ₁₆		G	30	G	37	40	28	44	42	38	29	21	E ₁₄	E ₁₄	E	20	20	19
24	20	E	E	E	E	E ₁₄	E ₁₆		21	30	34	34	33	27	38	28	G	24	27	20	20	21	20	18	E
25	C	20	24	E	E	C	E ₁₂		28	31	35	37	40	36	29	32	29	25	26	36	21	E ₁₃	19	E ₁₃	E
26	E	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₉		25	29	33	35	36	37	37	32	C	27	E ₁₄	21	35	30	27	19	E ₁₃
27	E	20	E	E ₁₃	E ₁₃	E ₁₄	E ₁₅		24	G	34	36	35	G	34	30	20	19	28	29	27	E	E ₁₄	E ₁₄	E ₁₄
28	E ₁₄	E	20	20	25	E	E ₁₄		G	G	G	34	36	54	35	34	G	30	26	18	E ₁₄	E ₁₄	E ₁₄	21	21
29	19	E	E	E	E ₁₄	E ₁₄	E ₁₄		G	G	33	35	69	G	G	40	40	28	E	A	E ₄₄	26	A	34	27
30	E	E	E ₁₄	E ₁₄	E ₁₄	18	E ₁₂		19	G	31	36	G	G	G	G	32	28	21	33	E ₁₄	E ₁₄	A	21	17
31	A	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		20	30	32	35	37	37	G	G	G	G	F ₁₄	E ₁₄	20	32	A	20	20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	31	31	31	31	30	31	31	31	31	30	30	30	31	30	28	30	31	31	31	31	31	31	31	31
MED	14	14	14	E ₁₃	E ₁₄	E ₁₄	E ₁₇		21	30	34	35	35	31	29	22	G	22	27	21	20	20	20	19	19
UQ	20	19	18	E ₁₄	14	E ₁₄	E ₁₈		26	32	36	37	37	37	36	32	32	30	28	26	22	28	26	21	24
LQ	E ₁₃	E ₁₃	E	E	E ₁₃	E ₁₃	E ₁₂		G	28	32	33	G	G	G	G	G	19	18	18	14	14	14	E ₁₄	E ₁₄

OCT. 1971

FBES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

F-MIN (0.1 MHz)

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

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 ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	19	14	14	19	18	17	19	18	19	14	13	13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
2	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	20	14	14	18	17	19	18	20	20	19	14	F ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
3	E ₁₄	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₄	18	16	16	17	19	18	17	20	18	20	17	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
4	E ₁₄	E ₁₃	E ₁₄	E ₁₃	E ₁₄	E ₁₄	18	15	19	20	19	18	18	17	14	15	17	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
5	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	18	15	16	18	18	18	19	19	18	18	14	13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
6	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	15	14	16	15	19	19	19	17	18	14	14	14	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
7	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	18	15	15	15	20	18	18	18	14	14	14	13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
8	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	14	14	16	E ₄₄	19	19	18	18	15	14	13	14	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
9	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	18	14	17	14	18	18	18	18	13	15	14	F ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
10	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃	18	15	17	18	33	20	21	18	15	14	14	F ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
11	E ₁₃	E ₁₃	E ₁₃	E	E	E ₁₃	16	14	15	14	18	C	C	18	C	C	C	F ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
12	E ₁₃	E ₁₃	E	E ₁₃	E ₁₃	E ₁₃	13	14	15	17	C	18	15	14	15	C	13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
13	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	18	14	14	15	15	18	16	16	17	14	14	F ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
14	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E	E ₁₃	14	14	14	14	18	18	18	15	18	14	14	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₃	E ₁₃		
15	E ₁₃	E ₁₃	E ₁₃	E	E	E ₁₃	14	14	14	14	18	18	18	18	14	14	14	F ₁₄	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
16	E ₁₃	E ₁₄	E ₁₃	E	E ₁₃	E ₁₃	14	14	16	17	18	18	18	15	17	14	14	F ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
17	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃	14	15	17	18	14	15	17	18	16	14	19	E ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₃	E ₁₄	E ₁₄		
18	E ₁₃	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₃	17	15	16	14	15	18	16	14	14	13	16	F ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E ₁₃	E ₁₄		
19	E ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E ₁₄	19	14	14	14	14	17	18	18	15	16	14	E ₁₄	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃		
20	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	14	15	18	18	18	19	18	18	15	14	F ₁₆	18	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
21	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₃	14	15	18	18	17	16	16	16	14	14	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃		
22	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	18	14	16	18	18	18	18	17	15	17	14	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₄		
23	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₆	14	14	18	17	18	18	16	14	14	14	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃		
24	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₆	14	14	18	18	18	18	18	14	14	14	E ₁₄	E ₁₃	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₄		
25	C	E ₁₄	E ₁₃	E ₁₃	E ₁₄	C	E ₁₄	16	15	18	18	18	18	18	18	14	14	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₄		
26	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	19	15	13	17	15	15	16	14	15	C	14	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E ₁₃		
27	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₃	14	14	20	19	21	21	18	17	14	14	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
28	E ₁₄	E ₁₃	E ₁₄	E ₁₃	E ₁₃	E ₁₄	E ₁₄	14	18	18	18	18	17	20	18	15	14	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
29	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₂	14	15	17	18	18	18	18	18	14	14	F ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃		
30	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	14	17	14	18	17	18	16	18	16	14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
31	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	14	15	17	18	16	18	17	14	14	15	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	30	31	31	31	31	30	31	31	31	31	30	30	30	31	30	28	30	31	31	31	31	31	31	31		
MED	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	16	14	15	17	18	18	18	18	16	14	14	E ₁₄	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E ₁₃	E ₁₃		
UQ	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	18	14	16	18	18	18	18	18	18	16	14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
LQ	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₂	14	14	15	18	18	18	17	16	14	14	14	E ₁₄	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃	E ₁₃		

OCT. 1971

F-MIN (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

M(3000)F2 (0.01)

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

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	280	285	295	300	295	265	310	320	320	315	300	310	330	310	320	325	315	335	335	295	280	280	275	290												
2	290	290	290	300	285	305	335	345	335	325	340	325	320	335	325	315	345	340	320	I A 325	I A 295	280	290	285												
3	F 290	F	F	F	F	F 300	345	360	345	325	330	325	325	320	330	330	335	345	320	305	I R 290	I R 290	310	290												
4	305	270	290	315	295	290	345	355	350	335	340	315	320	335	330	330	325	335	335	305	310	280	305	300												
5	295	295	290	315	325	310	325	335	345	335	340	330	315	320	315	320	340	335	325	310	310	305	300	300												
6	290	290	300	305	320	315	325	345	350	360	335	320	330	310	320	330	330	330	320	310	305	315	315	310												
7	300	285	290	275	300	310	335	340	350	345	320	320	325	330	325	335	335	330	325	295	310	310	295	295												
8	290	295	290	295	290	300	330	350	340	320	340	325	320	315	310	300	315	345	315	295	295	280	275	270												
9	275	340	295	300	285	290	330	I R 345	350	345	315	340	330	320	310	315	330	340	345	290	290	290	290	280												
10	280	300	320	330	305	285	325	350	345	310	330	320	355	325	325	330	335	350	350	300	I A 300	I R 285	290	290												
11	295	295	295	305	325	320	355	345	340	340	330	C	C	325	C	C	C	340	335	315	I A 320	305	290	A												
12	A	A	315	295	315	290	340	330	345	340	I C 320	325	335	330	320	I C 330	340	R	A	A	A	A	295	295												
13	285	305	310	275	295	305	335	345	350	330	345	335	315	325	315	330	335	340	320	300	305	310	315	R												
14	F	F 310	F	285	F	F	345	345	350	320	335	320	320	325	335	335	335	350	325	325	330	I A 310	300	I A 290												
15	285	I A 285	F	325	I A 320	F	345	345	350	345	320	330	320	335	335	330	340	345	335	310	300	305	305	290												
16	290	290	295	325	325	325	340	350	350	345	335	320	330	325	335	330	335	350	325	340	320	300	300	305												
17	290	F	F	300	F	315	350	355	360	340	340	330	330	335	325	330	335	335	325	320	320	315	310	310												
18	300	310	F	F	F	325	340	365	345	345	335	340	340	335	330	340	345	335	325	325	320	310	305	295												
19	300	295	300	305	330	325	350	360	360	355	335	340	335	330	325	340	345	345	330	305	300	300	300	305												
20	305	295	270	295	330	325	335	365	360	345	340	330	335	310	325	345	345	350	340	315	300	310	300	300												
21	305	295	310	320	340	335	335	355	350	335	315	320	330	315	340	355	345	355	320	305	300	305	305	300												
22	290	295	300	300	320	295	345	355	355	335	335	330	325	330	330	345	345	330	345	310	305	310	310	300												
23	290	295	305	300	310	295	340	350	350	310	340	330	335	325	335	335	340	355	330	330	300	290	F 285	300												
24	F	F 300	F	300	310	300	325	350	350	330	340	320	325	330	335	345	355	335	330	325	320	305	290	300												
25	I C 290	300	295	335	335	I C 310	320	350	330	345	340	340	320	325	340	350	340	340	310	305	315	310	305	305												
26	300	315	305	310	320	325	335	360	I R 350	330	345	345	350	310	335	I C 345	340	350	310	320	330	315	300	300												
27	295	300	300	325	320	325	335	350	350	355	345	320	335	325	320	345	340	355	315	320	310	295	290	290												
28	295	305	310	300	315	325	340	350	345	350	335	320	330	325	330	335	345	345	325	320	325	305	300	295												
29	295	285	285	320	315	255	290	345	365	345	330	315	325	330	320	335	340	330	I A 305	I R 310	325	I A 300	305	305												
30	290	285	290	285	305	320	330	335	345	350	335	315	335	315	330	330	345	350	325	305	310	I A 295	300	310												
31	I A 295	295	300	310	310	315	330	350	340	340	345	330	340	335	340	340	355	315	315	320	315	I A 300	295	305												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23												
CNT	28	28	26	29	27	29	31	31	31	31	31	30	30	31	30	30	30	30	30	30	30	30	31	29												
MED	290	295	298	300	315	310	335	350	350	340	335	325	330	325	328	332	340	340	325	310	310	305	300	300												
UQ	298	300	305	315	322	325	342	355	350	345	340	330	335	330	335	340	345	350	335	320	320	310	305	305												
LQ	290	290	290	300	302	295	330	345	345	330	330	320	320	320	320	330	335	335	320	305	300	290	290	290												

OCT. 1971

M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1971

M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9^h)

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								U L 350	365	350	365	355	380	L	L	L								
2									L	L	L	L	380	L										
3								400	L	A	L	L	L	L	370									
4								L	400	380	400	380	375	L	L	L								
5								L	380	380	L	L	L	A	A									
6								L	L	390	360	380	L	L	L									
7									L	405	395	370	380	L	L	L								
8								L	C	L	L	L	370	345	U 340	L								
9								L	L	U L 390	I A 395	L	L	L	L									
10								A	L	380	380	U 390	L	L	L									
11									L	370	C	C	A	C	C									
12								L	L	C	380	L	L	L	C									
13								L	L	U L 380	L	H 360	L	L	L									
14									A	U L 370	L	L	L	L	A									
15								L	L	U L 370	U 375	L	380	L	L									
16								L	U 395	L	L	A	L	A	A									
17								L	L	390	L	380	U L 380	L	L									
18								L	L	A	L	395	A	L	L									
19									L	L	385	390	L	L	L	L								
20								L	L	L	375	360	L	L										
21								L	L	L	365	365	L	L										
22								L	L	385	360	L	L	L										
23								L	L	L	L	L	A	A	A									
24								L	L	L	L	U L 375	L	L	L									
25								L	390	L	L	L	L	L										
26								L	L	L	L	L	L	L										
27									L	L	375	360	L	L										
28									L	L	L	A	L	L										
29								L	L	380	I A 360	L	L	A										
30								L	L	L	U L 370	U L 355	L	L										
31									L	L	U L 365	L	L	L										
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								1	2	5	15	16	16	5	2									
MED								U L 350	382	390	380	375	372	380	355									
UQ									395	388	385	380	380											
LQ									380	375	362	360	375											

OCT. 1971

M(3000)F1 (0.01)

IONOSPHERIC DATA

OCT. 1971

H^oF₂ (KM)

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

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	300	300	305	295	255	265	270	280								
2									250	260	250	275	275	270										
3									245	260	275	270	250	280	270									
4									240	250	250	250	260	270	245	250								
5									255	250	250	240	255	270	260	255								
6									245	230	250	275	265	260	255	250								
7										240	240	280	255	250	255	250								
8									245	270	240	275	265	275	305	245								
9									230	235	250	255	250	255	280	275								
10									220	260	255	260	250	255	260	255								
11										250	255	C	C	260	C	C								
12									230	235	C	255	255	245	240	255	C	255						
13									225	235	250	235	295	265	240	240								
14										290	250	280	250	250	255	230								
15									220	250	270	245	250	245	245	245								
16									230	235	250	255	265	245	265	240								
17									230	230	250	255	250	255	250	250								
18									240	230	250	245	245	260	260	240								
19										225	260	250	250	240	255	250								
20									230	240	245	265	245	265	260									
21									220	240	250	280	255	250	250									
22									220	230	240	260	245	255	255									
23									245	240	250	245	260	260	240	240								
24									240	250	235	240	245	250	250	230								
25									245	235	250	250	250	255	245									
26										225	220	230	235	245	250									
27										230	225	260	255	250	255									
28										240	230	230	250	260	250									
29									230	230	250	280	240	240	245									
30									240	225	235	245	255	250	250									
31										245	240	255	250	250	250									
	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	23	31	31	30	30	31	29	18								
MED								290	240	240	250	255	250	255	255	250								
UQ									245	250	250	275	255	262	260	255								
LQ									230	230	240	245	250	250	250	240								

The Radio Research Laboratories, Japan

OCT. 1971

H^oF₂ (KM)

IONOSPHERIC DATA

OCT. 1971

H¹F (KM)

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

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	295	310	275	255	270	315	270	240	230	230	220	195	210	230	230	240	245	235	215	250	315	340	310	315
2	290	290	275	275	280	245	230	225	230	250	230	200	230	230	250	250	245	235	240	245	260	280	280	285
3	285	245	255	280	285	275	230	225	215	245	235	215	220	200	235	260	245	240	230	240	270	280	255	500
4	255	300	285	245	270	280	235	230	225	215	205	195	210	225	240	240	245	240	225	250	275	305	260	275
5	275	280	275	245	220	260	230	240	220	210	200	A	A	A	A	A	245	235	240	240	255	240	260	255
6	295	275	280	260	220	245	230	235	230	215	200	200	195	230	230	235	235	240	235	245	250	240	245	235
7	255	280	295	280	260	240	215	230	225	225	200	195	195	215	230	230	240	225	220	250	255	255	255	255
8	270	290	270	255	250	250	235	230	220	225	190	205	205	195	235	235	245	215	215	240	270	295	340	315
9	300	225	290	255	300	300	245	225	215	225	200	190	215	230	240	245	245	220	200	275	325	305	330	345
10	340	280	240	230	275	285	250	235	220	215	205	210	230	235	240	230	245	235	230	250	295	315	295	305
11	270	295	280	255	230	250	205	225	230	235	200	C	C	A	C	C	C	225	210	245	270	255	300	A
12	A	A	320	275	245	310	240	215	225	225	C	A	240	230	225	235	245	255	A	A	A	A	295	295
13	290	265	245	270	265	255	215	225	220	215	200	215	195	205	230	215	230	215	225	240	245	240	270	290
14	290	280	270	320	285	245	210	210	230	A	A	A	230	230	255	235	225	215	220	230	235	260	305	A
15	A	325	290	245	280	295	230	225	220	230	235	220	225	205	200	220	240	215	210	240	275	260	255	295
16	290	290	270	245	240	250	230	225	225	205	210	220	A	A	A	A	255	220	210	230	265	300	275	270
17	305	290	290	255	245	235	205	220	230	215	205	185	215	205	230	235	230	220	230	240	240	235	245	255
18	255	275	255	255	240	225	220	215	230	220	215	190	190	220	230	235	220	225	245	245	240	250	290	315
19	305	290	270	250	240	240	225	215	215	215	210	205	190	215	230	240	230	215	230	255	295	290	265	275
20	250	280	275	240	245	240	215	210	230	220	215	205	215	200	240	240	230	210	205	240	260	255	265	290
21	275	290	260	245	225	215	220	215	215	215	210	200	205	225	245	225	225	215	235	245	270	270	245	265
22	290	290	270	255	230	235	215	220	220	215	200	210	240	230	240	235	230	220	220	245	290	240	245	260
23	300	270	255	265	260	290	205	205	230	215	230	230	215	A	A	A	225	210	210	220	290	315	300	265
24	295	275	255	245	245	255	215	230	230	230	220	210	205	230	235	230	215	225	240	215	255	290	300	270
25	300	290	300	235	215	245	240	225	215	200	235	230	220	220	235	230	220	215	240	255	250	245	260	260
26	255	250	245	245	245	220	220	220	215	210	210	210	200	205	235	230	215	200	245	260	245	290	270	270
27	270	295	265	240	225	220	205	195	205	200	215	215	200	235	235	235	225	210	250	260	245	260	285	295
28	295	290	290	290	280	245	205	210	210	205	210	200	210	215	230	245	215	215	225	235	235	265	315	310
29	315	295	285	285	245	340	295	225	230	210	210	240	240	215	225	240	220	215	270	280	250	290	270	A
30	265	300	295	295	250	230	245	230	240	220	200	190	190	230	240	240	225	205	225	250	245	305	320	255
31	285	295	265	250	250	245	215	215	220	215	215	230	215	230	235	235	210	245	230	235	255	280	300	295
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	31	31	31	31	31	31	31	30	29	27	28	27	27	27	30	31	30	30	30	30	31	28
MED	290	290	275	255	245	245	225	225	225	215	210	205	212	225	235	235	230	220	228	245	258	275	275	280
UQ	295	295	288	272	270	278	235	230	230	225	215	215	222	230	240	240	245	235	240	250	275	295	300	300
LQ	270	275	262	245	240	240	215	215	218	215	200	198	200	210	230	230	225	215	215	240	245	255	260	262

The Radio Research Laboratories, Japan

OCT. 1971

H¹F (KM)

IONOSPHERIC DATA

OCT. 1971

H⁺ES (KM)

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

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	105	105	105	105	S	B	G	140	120	115	110	110	G	G	G	100	100	100	105	105	110	110	105	
2	105	S	105	S	S	S	B	150	135	140	125	130	130	G	G	150	135	135	125	120	125	120	S	S	
3	S	S	S	S	105	100	B	130	130	130	125	130	125	120	G	145	140	125	115	110	110	100	100	S	
4	105	105	105	105	105	105	B	105	135	125	G	G	G	100	105	G	135	120	115	110	115	110	110	110	
5	110	105	S	S	S	S	B	G	140	125	120	115	110	110	110	110	110	110	110	105	110	S	100	S	
6	S	S	105	105	S	105	G	G	G	G	G	G	G	G	G	G	G	140	S	S	S	S	S	S	
7	S	S	S	S	S	S	B	G	150	G	G	100	G	G	G	G	140	110	105	105	105	105	S	S	
8	S	S	110	105	S	S	150	150	140	C	120	G	100	G	G	G	G	130	110	100	100	S	105	105	
9	S	105	100	S	S	S	B	130	120	115	110	110	110	G	G	G	130	110	110	105	105	105	105	105	
10	105	100	S	S	S	S	B	115	120	120	110	110	110	100	G	155	130	120	110	110	110	110	105	105	
11	105	105	100	100	100	105	B	115	120	120	115	C	C	105	C	C	C	S	105	105	110	105	105	110	
12	105	105	105	105	105	105	150	145	130	115	C	110	110	105	105	C	100	100	100	100	100	100	100	100	
13	105	S	105	S	100	S	B	145	140	115	110	105	G	G	G	150	140	115	S	105	105	110	100	100	
14	100	100	100	100	100	105	G	115	110	110	110	110	110	110	110	110	110	105	105	105	110	110	110	110	
15	110	105	100	100	100	100	G	G	140	110	105	105	G	G	140	G	110	105	105	110	105	105	105	100	
16	S	S	125	100	100	100	100	100	130	115	115	110	105	105	105	105	100	105	100	100	100	100	S	S	
17	S	S	105	110	105	100	110	105	130	115	115	110	G	110	105	115	G	B	105	105	S	S	S	S	
18	S	S	S	S	125	S	B	G	130	120	110	110	105	100	G	G	G	100	100	100	S	100	100	100	
19	100	100	100	S	S	S	B	G	115	130	120	G	115	115	115	G	115	110	105	105	105	105	S	105	
20	S	100	100	100	115	S	S	G	115	140	G	G	G	G	110	G	G	S	B	S	S	S	S	100	
21	S	S	S	S	S	S	S	G	115	110	G	G	100	G	G	100	100	100	100	100	100	105	105	105	100
22	100	100	100	100	S	S	B	110	G	G	G	G	G	G	G	140	140	S	110	110	105	100	105	100	
23	105	105	105	S	S	S	S	G	150	G	110	110	105	100	100	100	100	100	S	S	105	105	105	105	
24	105	100	100	100	100	S	S	110	110	105	105	110	100	100	100	G	120	110	105	110	105	105	105	105	
25	C	100	100	100	100	C	S	140	140	110	110	110	110	110	110	110	110	110	105	105	S	100	S	100	
26	100	S	S	S	S	S	B	140	120	110	105	105	100	100	120	C	115	S	110	105	105	105	105	S	
27	100	100	100	S	S	S	S	140	G	120	110	110	G	105	105	105	100	100	100	100	100	100	S	S	S
28	S	105	105	100	105	105	S	G	G	G	140	115	110	110	110	G	120	110	110	S	S	S	100	100	
29	105	105	100	105	S	S	S	G	150	140	130	115	G	100	125	120	115	110	110	110	105	105	105	105	
30	100	100	S	S	S	100	S	110	G	110	110	G	G	G	G	120	115	110	110	S	S	105	105	105	
31	100	100	S	S	S	S	S	115	110	110	150	140	140	G	100	G	G	S	S	105	105	105	105	105	
CNT	18	20	22	16	15	11	4	19	26	25	24	22	19	18	17	15	24	25	26	26	24	24	22	22	
MED	105	102	102	100	105	105	130	115	130	115	112	110	110	105	110	115	115	110	105	105	105	105	105	105	
UQ	105	105	105	105	105	105	150	140	140	125	120	115	110	110	110	142	132	115	110	110	110	108	105	105	
LQ	100	100	100	100	100	100	105	110	120	110	110	110	105	100	105	108	105	105	105	105	105	102	100	100	

OCT. 1971

H⁺ES (KM)

IONOSPHERIC DATA

OCT. 1971

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

OCT. 1971

TYPES OF ES

IONOSPHERIC DATA

OCT. 1971

FOF2 (0.1 MHz)

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

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	50	48	49	49	44	44	60	68	69	62	72	87	86	74	81	83	96	88	55	41	40	45	45	44
2	43	I A 43	S 39	39	36	39	56	69	J R 76	80	93	89	90	91	81	83	87	90	70	57	46	45	48	S 46
3	48	45	40	40	38	40	64	80	71	76	95	105 ^R	96	90	95	98	96	94	67	60	57	54	55	50
4	49	40	44	45	36	38	60	80	84	78	91	100	98	93	85	79	81	88	J R 79	56	55	J R 49	55	51
5	49	47	46	50	41	36	60	79	90	83	91	93	85	95	95	96	86	84	I R 74	63	56	50	44	45
6	46	45	45	45	I R 40	36	55	85	88	101	79	81	91	90	J R 88	88	81	78	81	68	62	60	58	50
7	41	45	44	45	44	42	58	78	91	83	79	96	116	98	88	90	83	75	63	53	56	56	50	49
8	48	48	48	47	46	46	63	81	85	81	J R 102	I R 94	80	89	95	97	96	110	48	45	45	46	43	43
9	43	46	33	30	30	31	65 ^R	J R 99	R 90	87	74	99	98	87	92	96	120	95	65	35	38	39	41	40
10	40	42	50	35	33	36	65	100 ^S	92	75	93	98	108	99	99	93	98	90	58	36	I A 38	38	44	43
11	41	40	42	40	36	35	54	69	83	95	J R 102	96	92	J R 104	90	81	97	J R 100	67	47	48	48	46	46
12	43	I A 41	I A 40	40	36	35	56	90	95	82	88	112	121	J R 104	I A 88	88	90	85	67	40	I A 38	I A 40	41	42
13	43	41	38	36	36	36	56	71	J R 29	81	83	90	90	J R 105	113	81	80	80	65	57	55	51	51	48
14	48	51	45	45	45	47	59	71	83	85	104	101	116	112	108	106	82	J R 75	63	46	40	I R 39	36	I R 36
15	35	37	40	40	30	30	56	82	85	83	98	123	J R 105	J R 104	91	80	91	88	65	37	40	40	J R 39	40
16	41	41	38	46	26	24	53	J R 75	84	85	82	93	101 ^R	91	98	92	80	78	50	43	37	36	36	38
17	38	40	39	40	39	38	56	70	82	80	81	93	90	83	84	88	86	J R 75	57	48	47	44	38	37
18	39	39	40	41	38	F 40	56	J R 73	R 77	83	85	95	90	82	86	86	80	71	57	51	48	46	39	36
19	39	40	40	41	41	36	50	62	R 75	73	75	84	83	73	J R 77	80	66	60	50	40	40	41	43	42
20	42	42	42	38	40	36	J R 53	68	83	87	82	91	91	R 78	85	88	80	68	53	35	35	38	39	41
21	39	40	41	42	47	31	53	J R 75	81	75	85	91	95	95	93	81	81	71	52	51	53	56	51	48
22	43	43	45	45	43	37	52	73	83	89	97	101	101	91	80	88	77	70	68	46	45	48	46	42
23	41	42	42	40	38	39	58	64	72	100	109	J R 102	102	90	98	80	81	66	45	41	41	44	43	J R 43
24	43	43	41	40	38	F 30	51	74	90	93	108	108	96	92	100	96	76	61	59	55	43	37	I A 38	39
25	37	40	38	39	38	H 24	46	89	99	108	99	103	99	95	101	J R 89	73	63	I A 48	47	48	51	47	44
26	41	43	42	41	41	41	53	72	86	R 101	101	99	89	90	99	85	J R 80	J R 69	46	46	48	I R 42	40	41
27	40	40	41	41	41	33	48	66	J R 75	79	94	91	93	111	95	89	80	J R 80	48	38	36	33	34	35
28	35	37	36	36	39	36	48	63	83	83	95	86	85	93	91	86	101	58	46	45	J R 43	40	40	40
29	40	41	42	41	38	31	39	99	96	J R 86	J R 79	103	115	100	86	95	80	70	61	52	51	35	42	33
30	36	37	39	38	45	37	52	J R 75	92	97	90	87	91	98	J R 103	104	100	72	44	37	36	34	36	38
31	31	33	35	35	34	32	49	66	85	96	103 ^R	119	J R 104	R 102	90	93	71	50	48	50	36	31	34	35
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	41	41	41	40	38	36	56	74	84	83	91	96	95	93	91	88	81	75	58	46	45	44	43	42
UQ	43	44	44	45	41	39	58	80	90	91	98	102	102	100	98	94	94	88	66	52	50	48	46	46
LQ	39	40	39	39	36	32	52	69	79	80	82	91	90	90	86	83	80	70	49	40	39	38	39	38

The Radio Research Laboratories, Japan

OCT. 1971

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1971

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	480	490	L	L	A	A								
2									L	L	L	L	L	L	L	L	L							
3								L	L	L	L	L	L	L	L	L	L							
4									L	L	450	440	L	U	L	L	L							
5								L	L	L	440	L	L	L	L	L	L							
6								L	L	L	U	L	L	490	L	L	L	L						
7								L	L	L	L	L	490	L	L	L	L							
8									L	L	L	L	450	L	U	L	L	L						
9									L	L	L	L	L	L	L	L	L	L						
10								L	L	L	L	L	L	L	L	L	L							
11									L	L	L	A	L	L	L	L	L							
12									L	A	A	A	A	A	A	A								
13									L	L	L	L	L	L	L	L	L							
14									L	L	450	L	A	L	L	L	L							
15									L	L	L	L	L	L	L	L	L							
16									L	L	450	L	L	L	L	L	L							
17								L	L	L	L	L	L	L	U	L	L							
18									L	L	L	L	L	L	L	L	L							
19									L	L	L	L	L	L	L	L	L							
20										L	L	U	L	L	L	L	L							
21									L	L	L	L	L	L	L	L	L							
22									L	L	U	L	L	L	L	L	L	L						
23									L	U	L	L	L	L	L	L	L							
24									L	L	L	L	A	U	L	L	L							
25								L	L	L	L	L	L	L	L	L	L							
26								L	L	L	L	L	L	L	L	L	L							
27									L	L	L	L	L	L	L	L	L							
28									L	L	480	L	L	L	L	L	L							
29										L	L	A	L	L	L	L	L							
30								L	L	L	L	L	L	L	L	L	L							
31										L	L	L	L	L	L	L	L							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	8	5	2	3	1									
MED										U	410	450	450	470	U	490	U	450						
UQ										L	465	490	L	U	495	L								
LQ											450	450	L	450	L									

The Radio Research Laboratories, Japan

OCT. 1971

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 1971

FOE (0.01 MHZ)

135 E Mean Time (G. M. T. + 0^h)

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							195	230	285	310	315	A	A	350	325	320	A	A	B					
2							A	255	290	310	330	340	340	I A	330	295	255	A	B					
3							200	255	285	315	335	355	R	345	340	325	300	255	175	B				
4							170	250	285	300	R	R	R	340	340	330	300	A	A	A				
5							I A	180	245	290	315	320	330	A	A	A	295	I A	A	A				
6							190	245	290	I R	I R	I R	330	345	I R	I R	310	280	250	175	A			
7							175	260	I A	290	310	I A	I A	340	I R	330	300	285	I A	A	A			
8							R	235	275	315	R	A	R	310	310	275	240	A	A	A				
9							165	230	I A	280	300	I A	I A	350	330	320	280	A	A	B				
10							A	235	290	315	A	A	340	A	315	275	230	R						
11							170	255	275	300	A	A	I R	340	335	310	A	A	175					
12							I A	200	I A	240	I A	280	A	A	A	A	A	250	A					
13							B	250	A	A	I R	R	335	315	310	285	230	A						
14							R	230	265	300	A	A	A	A	A	A	A	A						
15							R	A	A	305	I A	I A	I A	I A	330	330	I A	I A	250	A				
16							160	235	A	305	330	340	345	325	320	290	250	A						
17							180	A	290	310	320	I A	I A	340	325	310	280	I A	B					
18							A	245	280	A	A	A	330	R	A	A	A	B						
19							B	245	290	I A	310	325	A	A	R	305	I R	230	C					
20							B	230	I A	290	315	I R	I R	I R	R	I R	275	220	B					
21							R	R	240	A	A	I R	I R	340	A	A	A	210	A					
22							175	A	A	A	A	A	I A	I A	330	325	295	280	A	A				
23							S	220	I R	280	I R	300	325	335	340	330	310	270	215	B				
24							B	A	A	A	A	A	I A	340	320	300	270	230	B					
25							A	210	275	285	A	A	A	A	A	A	A	A						
26							R	A	A	A	A	A	R	325	305	260	A	A						
27							R	220	A	A	R	A	I R	330	A	A	A	A	A					
28							R	200	255	290	325	325	I R	I R	330	330	I A	I A	A	A				
29							R	210	250	I A	I A	330	335	335	320	I A	I A	A	A					
30							R	210	250	295	I A	320	340	340	330	300	260	A	B					
31							B	220	270	300	310	325	325	A	300	265	220	B						
	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	23	23	19	18	23	20	24	24	18	3						
MED							178	235	280	305	320	330	340	330	310	280	235	175						
UQ							192	245	290	312	328	340	340	335	320	288	250	175						
LQ							170	220	275	300	320	I	330	330	325	300	272	220	175					

The Radio Research Laboratories, Japan

OCT. 1971

FOE (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1971

FBES (0.1 MHZ)

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

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 ₁₅ S	E	E	15	E	E	G	27	35	37	40	36	35	40	51	44	30	36	35	26	30	23	E ₁₅ S	40				
2	29	A	25	25	18	E	19	28	33	40	36	41	21	E ₃₅ R	G	17	33	26	20	21	20	18	E	26				
3	18	E	E	E	E ₁₂ B	E ₁₂ B	G	27	33	33	42	G	36	G	40	G	27	15	G	23	18	32	28	16	19			
4	21	20	20	16	17	15	13	26	30	33	G	G	G	G	35	34	31	25	G	19	23	25	20	19				
5	19	E	20	E	16	E	20	26	16	35	35	38	38	35	35	G	24	18	20	21	20	17	E	18				
6	E	E	E	E	25	15	16	G	G	G	G	G	G	G	G	G	G	G	G	E	E ₁₅ S	E ₁₃ B	E ₁₅ S	E ₁₂ B				
7	E ₁₅ S	E ₁₅ S	E ₁₅ S	E ₁₃ B	E ₁₃ B	E	G	27	31	33	G	G	G	G	G	32	28	19	25	20	E	E ₁₅ S	17	E				
8	E ₁₅ S	E ₁₅ S	E	16	E	E	24	28	33	32	E ₃₁ R	32	G	G	34	G	27	22	G	E	E	E	E	E				
9	E ₁₅ S	19	E	15	15	E	G	26	32	37	36	E ₃₄ R	G	33	35	G	34	27	25	16	E	E	18	17	16			
10	19	25	19	20	16	E ₁₃ B	23	27	G	34	38	E ₃₆ R	33	33	35	35	36	34	29	25	A	17	20	31				
11	17	15	E	E	E ₁₂ B	E ₁₂ B	G	G	30	32	35	37	G	G	33	30	24	G	G	E	19	E	E ₁₅ S	E				
12	25	A	A	29	15	E ₁₃ B	23	28	34	44	57	74	71	60	A	60	G	22	27	E ₁₃ B	E	A	A	20	E			
13	22	17	E	E	E	E	G	28	28	32	G	G	G	G	25	33	32	26	18	E	E	18	18	E	E			
14	E	15	E	19	21	16	19	25	31	33	34	43	65	38	35	29	24	25	25	25	18	23	27	25				
15	24	17	33	28	E	E	E ₁₃ B	24	29	33	32	35	35	G	G	35	26	25	G	21	20	25	E	15	E			
16	E	E ₁₃ B	E ₁₃ B	E ₁₃ B	E ₁₂ B	E	G	28	G	32	G	40	38	G	21	G	33	G	18	E ₁₅ S	16	E	17	E ₁₅ S	E ₁₅ S			
17	E ₁₅ S	E	E	18	22	16	17	26	31	35	36	36	34	G	29	G	17	27	24	17	18	19	16	E	E			
18	E	E ₁₄ B	E	E	E	E	18	26	30	33	35	36	G	G	25	33	29	38	20	16	E ₁₅ S	E ₁₅ S	E ₁₅ S	E	E			
19	20	20	17	16	E	E	E ₁₅ B	G	G	33	38	35	35	G	25	33	G	G	C	G	E	17	E	E	E			
20	17	E	E ₁₃ B	E ₁₃ B	E ₁₃ B	E ₁₅ S	E ₁₆ B	26	34	G	G	35	G	G	G	G	G	F	S	15	G	E	15	E ₁₅ S	E ₁₅ S	E		
21	E	E	E ₁₆ B	E	E ₁₃ B	E	E ₁₃ S	G	28	33	E ₃₂ R	G	24	G	34	34	29	16	G	G	15	19	21	E	16			
22	E	15	15	E	E	E	G	24	29	31	32	34	34	E ₃₅ R	G	25	G	24	23	19	23	17	E ₁₅ S	17	16	E		
23	E	E	E ₁₃ B	E ₁₃ B	E ₁₅ S	E ₁₃ B	E ₁₅ S	G	G	G	G	G	G	27	G	25	33	30	27	E ₁₄ B	E	E	E ₁₅ S	E	20	25		
24	22	24	16	20	E	17	E ₁₆ B	23	29	32	36	37	44	G	G	G	G	18	17	E	E	18	17	A	33			
25	17	17	30	17	18	E	17	26	28	32	35	41	36	35	33	33	29	23	A	25	24	22	19	E				
26	E	14	E	E	E	E ₁₃ B	E ₁₅ B	25	16	35	31	41	G	35	G	29	58	25	25	E ₁₃ B	19	25	20	E				
27	15	16	E	17	E	E	G	25	30	34	G	35	G	33	34	28	27	16	E	E ₁₃ B	E	E ₁₅ S	E	15				
28	E ₁₅ S	E ₁₃ B	E	E	E	E	E ₁₅ B	G	G	G	31	32	24	G	28	35	37	25	25	32	15	15	E	E	E			
29	16	14	E	13	E	E	E ₁₃ B	24	39	35	40	38	37	38	40	40	45	22	G	15	E	20	E	E				
30	25	15	E	E ₁₅ S	E	E	E ₁₅ B	G	G	G	26	41	37	G	37	G	33	44	22	28	16	16	E	17	17			
31	E	E	E	E	E ₁₆ B	E ₁₄ B	E ₁₅ B	G	G	36	36	G	25	E ₃₄ R	G	23	30	25	G	36	E ₂₀ C	25	17	E	26			
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31			
MED	15	15	E	E	E ₁₃ B	E ₁₂ B	E	E	26	29	33	35	35	G	U	G	33	30	27	21	16	15	18	17	15	E	E	12
UQ	20	17	16	17	16	E	E	27	32	35	36	38	36	35	35	34	30	25	25	20	22	20	18	19				
LQ	E	E	E	E	E	E	G	E ₂₃ G	E ₁₆ G	32	E ₃₁ U	26	G	E	G	E ₂₀ G	26	24	16	G	E	15	E	E	E			

OCT. 1971

FBES (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1971

F-MIN (0.1 MHZ)

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

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

The Radio Research Laboratories, Japan

OCT. 1971

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1971

M(3000)F2 (0.01)

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

Station	KOKUBUNJI TOKYO																								
Lat.	35 42.4 N.												Long.	139 29.3 E											
Sweep	1 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	270	285	295	290	270	325	330	345	315	315	325	330	315	320	325	335	350	335	295	280	285	280	I A 290	
2	305	I A 280	285	S 305	280	285	355	360	J R 345	315	325	325	315	320	315	325	335	355	330	355	285	280	285	280	
3	295	310	300	295	285	300	350	365	365	330	315	325	325	305	315	315	335	345	330	320	300	295	290	290	
4	310	290	295	320	305	305	365	340	355	325	330	315	345	325	320	315	335	330	J R 320	310	290	J R 280	295	300	
5	290	290	285	305	320	295	335	330	345	340	330	345	320	320	310	325	330	335	I R 310	320	305	320	275	290	
6	290	290	290	290	I R 300	300	325	355	345	350	330	320	310	310	J R 320	330	335	320	320	310	305	285	300	320	
7	290	285	270	285	280	305	350	335	350	340	315	310	330	330	320	335	335	325	330	290	305	305	300	290	
8	285	290	290	305	285	295	335	360	330	310	J R 325	I R 330	315	290	305	315	315	335	335	290	275	265	260	275	
9	275	325	305	295	280	295	340	J R 360	345	365	310	320	320	310	300	315	335	345	340	305	275	270	275	265	
10	285	295	345	340	275	310	330	S 350	350	335	325	315	315	310	320	325	345	355	350	295	I A 280	285	285	285	
11	300	305	295	305	305	340	355	345	335	325	J R 325	315	315	J R 325	325	325	320	J R 355	335	295	290	270	285	290	
12	280	I A 290	I A 290	290	305	270	310	325	325	340	320	315	330	J R 325	I A 320	320	335	350	330	335	I A 280	I A 280	290	285	
13	285	295	315	305	285	285	335	325	J R 335	345	315	305	305	J R 305	330	345	315	325	310	305	295	295	315	300	
14	280	310	295	265	280	320	340	355	335	320	310	315	325	320	320	340	330	J R 330	330	335	295	J R 290	290	I A 285	
15	285	275	300	325	315	265	325	340	330	330	315	335	J R 320	J R 320	340	325	345	345	350	275	285	280	J R 290	270	
16	290	295	265	325	345	285	360	J R 350	345	365	320	325	325	320	325	335	350	355	340	305	295	305	300	285	
17	285	280	305	315	320	305	355	355	365	365	335	330	335	325	315	340	350	J R 360	335	320	305	320	315	285	
18	295	310	310	320	315	310	365	J R 360	345	360	305	330	330	305	325	325	350	340	335	330	315	305	330	285	
19	275	285	300	300	315	335	330	355	340	340	340	325	305	320	J R 330	340	350	350	345	285	285	285	295		
20	295	305	330	300	325	315	J R 340	355	335	365	330	330	320	300	320	340	350	345	360	310	270	290	295	295	
21	280	275	300	335	335	305	340	J R 335	345	335	320	330	325	325	335	345	350	340	305	275	300	J R 320	295	300	
22	295	285	295	305	310	315	350	355	340	325	330	335	315	330	325	320	340	340	320	335	295	295	310	315	
23	310	295	310	295	310	290	345	300	325	340	325	J R 325	330	325	345	340	350	365	325	315	295	280	275	J R 290	
24	295	300	295	305	340	300	F 335	340	345	335	325	330	320	315	340	350	350	330	320	325	315	295	I A 300	280	
25	275	300	295	325	370	290	H 325	345	325	325	325	325	305	315	330	J R 335	340	340	I A 320	295	295	315	300	295	
26	300	300	310	300	320	310	325	335	330	340	345	345	325	310	335	320	J R 345	J R 335	305	305	315	J R 300	285	270	
27	295	285	270	300	320	310	355	365	J R 335	315	340	335	315	325	325	320	315	340	335	310	310	305	275	275	
28	290	290	295	285	310	335	340	340	360	340	340	325	330	325	340	305	350	360	310	305	J R 305	280	290	275	
29	275	295	270	295	310	260	275	335	355	J R 350	J R 295	305	330	320	315	345	300	320	330	305	310	290	285	280	
30	285	295	280	290	310	300	330	J R 345	315	340	335	335	320	315	J R 320	340	350	350	350	295	300	280	295	290	
31	305	285	295	315	295	315	345	365	335	350	J R 330	345	J R 335	345	340	365	365	350	305	350	315	305	290	285	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED	290	290	295	305	310	300	340	345	345	340	325	325	320	320	320	325	340	345	330	305	295	290	290	285	
UQ	295	300	302	315	320	310	350	355	345	348	330	330	330	325	330	340	350	350	335	320	305	305	300	292	
LQ	282	285	288	295	288	290	330	335	335	325	315	318	315	310	320	320	335	335	320	295	285	280	285	280	

OCT. 1971

M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1971

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	354	355	L	L	A	A								
2									L	L	L	L	L	L	L	L	L							
3								L	L	L	L	L	L	L	L	L	L							
4									L	L	L	L	U	L	L	L	L							
5								L	L	L	410	L	L	L	L	L	L							
6								L	L	L	U	L	L	L	L	L	L							
7								L	L	L	L	390	L	L	L	L	L							
8									L	L	L	L	L	U	L	L	L							
9									L	L	L	L	L	L	L	L	L							
10								L	L	L	L	L	L	L	L	L	L							
11									L	L	L	A	L	L	L	L	L							
12									L	A	A	A	A	A	A	A	A							
13									L	L	L	L	L	L	L	L	L							
14									L	L	L	L	L	A	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	L	L	L	U	L	L							
18									L	L	L	L	L	L	L	L	L							
19									L	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	L							
22									L	L	L	L	L	L	L	L	L							
23									L	L	L	L	L	L	L	L	L							
24									L	L	L	L	L	A	L	L	L							
25								L	L	L	L	L	L	L	L	L	L							
26								L	L	L	L	L	L	L	L	L	L							
27									L	L	L	L	L	L	L	L	L							
28									L	L	L	L	L	L	L	L	L							
29										L	L	L	A	L	L	L	L							
30								L	L	L	L	L	L	L	L	L	L							
31										L	L	L	L	L	L	L	L							
CNT											1	8	5	2	3	1								
MED										390	395	400	385	380	380									
UQ											415	400		410										
LQ											380	390		380										

OCT. 1971

M(3000)F1 (0.01)

IONOSPHERIC DATA

OCT. 1971

H⁺F₂ (KM)

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

Station KOKUBUNJI TOKYO		Lat. 35 42.4 N.		Long. 139 29.3 E		Sweep 1 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	250	270	300	280	250	260	290	270								
2									230	260	260	260	290	265	290	270	245							
3								220	240	255	290	260	250	270	280	260	235							
4									240	250	250	260	260	260	260	250								
5								250	250	260	260	250	270	280	260	250								
6								250	250	240	245	260	290	270	240	250	250							
7								250	250	240	255	290	260	260	250	245								
8									250	255	260	260	250	280	270	255	250							
9									250	230	240	275	260	260	280	270	255							
10								230	230	220	275	270	275	260	270	250								
11									230	250	250	250	250	250	250	255	250							
12									250	255	260	300	260	260	280	280								
13									250	240	240	250	255	290	250	240								
14									240	255	275	260	270	260	260	245								
15									240	250	290	255	250	270	250	250								
16									245	240	235	255	265	260	260	250								
17								230	230	230	240	255	255	250	275	240								
18									230	240	250	250	250	250	280	255								
19									240	245	250	260	250	250	260									
20										240	225	280	250	255	290	240								
21									250	220	280	255	255	275	255	245								
22									240	240	260	250	260	260	260	255	240							
23									250	260	270	255	260	260	250	235								
24									240	240	245	250	245	270	260	235								
25								250	255	240	250	260	250	255	250	250								
26								240	240	240	250	245	260	280	260									
27									240	240	255	255	255	275	265	245								
28									235	255	240	240	250	260	250									
29										240		260	255	250										
30								230	240	225		240	240	270	275	230								
31									240	250	250	245	255	240	220									
	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	28	31	29	31	31	31	30	27	7							
MED								245	240	240	250	255	255	260	260	250	250							
UQ								250	250	255	260	260	260	270	275	255	250							
LQ								230	240	240	245	250	250	258	250	242	242							

The Radio Research Laboratories, Japan

OCT. 1971

H⁺F₂ (KM)

IONOSPHERIC DATA

OCT. 1971

H¹F (KM)

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

Station KOKUBUNJI TOKYO Lat. 35° 42' 4" N Long. 139° 29' 3" E Sweep 1 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	310	290	255	280	300	260	240	230	210	210	205	200	205	A	A	250	220	220	280	A	390	305	300	I A 310
2	290	I A 300	310	300	290	280	210	240	230	240	220	220	205	H 195	H 235	245	240	240	220	220	290	300	300	300	
3	275	245	260	290	275	275	210	225	220	200	220	200	205	200	230	230	235	225	230	240	270	270	275	260	
4	255	300	270	250	240	275	225	230	225	210	205	200	200	200	H 240	240	250	240	210	230	260	360	250	265	
5	260	275	290	240	240	260	240	230	240	210	200	200	230	240	240	240	240	240	240	230	240	240	255	290	
6	290	290	280	240	280	250	230	240	240	205	200	210	210	210	230	240	245	240	240	240	250	240	240	240	
7	245	290	290	290	300	240	210	240	240	210	200	195	240	240	240	220	230	240	220	245	250	245	250	280	
8	290	290	260	250	255	250	240	210	210	210	205	200	200	H 200	200	240	220	240	210	200	240	290	300	330	340
9	310	340	245	250	300	300	245	240	240	220	200	180	220	220	230	A 260	250	220	200	245	305	340	330	340	
10	300	300	240	250	320	260	255	230	220	205	205	205	240	205	230	230	230	220	205	270	I A 320	290	300	I A 320	
11	280	260	255	250	220	205	205	220	205	240	200	I A 220	H 200	200	220	230	240	225	200	240	260	280	280	290	
12	335	I A 350	I A 335	I A 330	260	290	240	240	240	I A 240	A	A	A	A	A	A	245	230	215	200	A	A	300	300	
13	300	260	235	260	275	290	215	220	240	230	200	200	240	240	240	240	240	220	230	240	255	260	250	250	
14	300	255	250	330	300	250	210	210	210	250	200	240	I A 240	200	240	235	230	210	230	235	250	290	280	I A 300	
15	330	350	330	250	225	300	240	220	220	200	200	H 195	210	H 200	210	245	245	230	205	290	I A 310	290	300	300	
16	290	285	290	230	195	280	230	230	230	205	200	220	220	220	245	240	230	220	200	245	240	270	290	290	
17	300	300	260	260	250	250	220	225	225	225	220	205	H 195	H 205	H 210	240	240	220	220	240	250	240	240	270	
18	280	260	250	240	225	250	210	220	225	210	200	220	190	200	200	230	245	230	230	240	230	230	240	260	
19	310	300	280	270	240	235	200	210	220	210	240	210	200	200	240	250	230	210	215	240	300	300	290	270	
20	220	260	250	250	250	240	225	215	250	230	220	200	210	H 190	240	240	240	220	205	240	300	290	280	280	
21	290	300	265	240	210	240	220	230	220	H 210	210	200	200	220	240	240	235	215	210	250	280	250	260	275	
22	290	300	260	250	240	250	230	230	220	210	210	210	200	I A 240	230	240	240	210	235	240	290	290	265	240	
23	285	265	270	250	270	285	215	210	210	220	205	200	H 205	H 230	235	230	240	210	210	220	275	290	310	E A 340	
24	290	280	250	280	210	300	220	220	220	210	225	245	I A 220	220	220	240	220	230	220	220	230	290	I A 280	I A 290	
25	310	290	I A 260	240	220	H 220	250	245	230	230	210	250	240	240	230	240	240	210	I A 240	300	300	250	250	260	
26	260	250	250	250	250	240	230	220	210	240	200	240	220	240	220	245	245	210	250	250	250	270	300	290	
27	290	300	290	245	230	240	210	210	210	220	200	220	210	220	240	240	240	220	205	245	250	255	300	305	
28	300	290	260	270	250	240	225	205	210	H 210	200	200	200	240	210	245	240	210	250	240	230	285	290	280	
29	310	300	290	280	240	350	290	240	210	210	240	I A 240	240	240	250	245	255	240	230	250	210	290	270	270	
30	350	300	300	290	240	240	240	200	200	H 220	220	230	230	225	245	240	230	220	205	230	260	250	260	295	260
31	270	295	270	255	240	245	225	220	220	225	210	200	210	240	205	230	210	200	I A 210	220	270	280	300	I A 320	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	30	30	30	30	29	29	31	31	31	31	30	30	31	31	
MED	290	290	265	250	250	250	225	225	220	210	205	205	210	220	235	240	240	220	220	240	260	282	280	285	
UQ	300	300	290	275	275	282	240	235	230	228	220	220	225	240	240	240	245	230	230	248	290	290	300	300	
LQ	280	270	252	250	235	240	212	218	210	210	200	200	200	200	220	230	232	210	208	238	250	255	258	268	

The Radio Research Laboratories, Japan

OCT. 1971

H¹F (KM)

IONOSPHERIC DATA

OCT. 1971

H¹ES (KM)

135° E Mean Time (G. M. T.+ 9^h)

Station		KOKUBUNJI TOKYO										Lat.	35 42.4 N			Long.	139 29.3 E			Sweep 1 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	100	100	100	100	100	G	145	125	120	110	110	105	150	130	130	130	105	105	105	105	105	105	S	105			
2		100	105	100	100	100	100	145	155	130	120	145	115	100	115	100	100	125	115	105	105	105	100	105	100				
3		100	100	100	100	B	B	G	155	135	125	130	G	155	105	120	G	155	110	105	100	100	100	100	100				
4		100	100	100	100	100	100	145	135	130	G	G	G	G	G	160	140	120	105	100	100	100	105	100	100				
5		100	100	100	100	100	100	140	130	100	130	115	110	110	110	110	G	110	105	100	100	100	100	100	100				
6		100	100	100	100	100	100	G	G	G	G	G	G	G	G	G	G	G	G	100	100	S	B	S	B				
7		S	S	S	B	B	100	G	150	115	E G	140	G	G	G	G	140	130	125	100	100	100	S	100	100				
8		S	S	100	100	100	105	145	140	130	110	100	100	G	G	E G	180	G	140	130	110	100	100	100	100				
9		S	100	100	100	100	100	G	120	110	110	110	110	105	130	G	140	110	110	110	105	105	105	105	100				
10		100	100	100	100	100	B	130	140	130	120	115	110	100	110	155	145	130	120	115	105	105	105	105	105				
11		100	100	100	100	B	B	G	G	130	115	110	105	G	G	120	120	110	G	100	100	100	100	S	100				
12		100	100	100	100	100	B	160	120	110	110	110	105	105	105	105	100	100	100	B	100	100	100	100	100				
13		100	100	100	100	100	100	G	155	115	110	G	G	G	100	150	150	140	110	100	100	100	100	100	100				
14		100	100	100	100	100	140	120	110	110	110	110	110	105	110	110	110	110	100	100	100	100	100	100	100				
15		100	100	100	100	100	100	B	130	130	125	110	110	105	G	G	140	140	125	100	100	100	105	100	100				
16		100	B	B	B	B	100	G	140	110	150	170	130	130	100	120	155	G	110	S	105	110	110	S	S				
17		S	110	105	100	100	100	100	100	130	120	120	115	110	100	110	100	150	110	110	110	105	100	105	105				
18		100	B	100	100	100	100	145	145	130	115	110	105	100	100	100	100	100	100	100	S	S	S	100	100				
19		100	100	100	100	100	100	B	G	G	135	115	120	130	100	140	100	G	C	100	100	100	100	100	100				
20		100	100	B	B	B	S	B	140	110	G	G	130	G	G	G	G	G	B	100	100	100	S	S	100				
21		100	100	S	100	B	110	B	G	115	110	110	105	G	115	115	110	100	100	100	100	100	100	100	100				
22		100	100	100	100	100	100	100	110	110	115	110	110	110	100	100	105	110	105	100	100	S	100	100	100				
23		100	100	B	B	S	B	S	G	G	G	G	G	100	100	155	130	115	B	105	105	S	105	105	100				
24		100	100	100	100	100	100	B	115	110	110	105	100	105	120	100	100	100	100	100	105	105	105	105	105				
25		100	100	100	100	100	100	150	150	155	115	120	110	115	115	115	110	110	105	105	100	100	100	100	100				
26		100	100	100	100	100	B	B	130	100	110	110	110	G	110	G	120	105	105	100	B	100	100	100	100				
27		100	100	100	100	100	100	100	150	140	125	G	110	G	110	100	100	100	100	100	B	100	S	100	100				
28		S	B	100	100	100	100	B	G	G	G	130	130	100	100	100	155	150	110	105	100	100	100	100	100				
29		100	100	100	100	100	105	B	155	140	135	130	140	130	140	115	110	110	110	100	105	105	100	100	100				
30		100	100	100	S	100	100	B	G	G	100	100	170	G	E G	195	G	115	110	105	105	100	100	100	100				
31		100	100	100	100	B	B	B	G	G	145	150	G	100	100	100	180	155	115	115	110	100	100	100	100				
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT		25	26	26	26	23	23	13	23	25	27	24	24	20	24	24	26	27	26	29	28	27	26	26	29				
MED		100	100	100	100	100	100	130	140	125	118	110	110	105	109	114	118	110	108	100	100	100	100	100	100				
UQ		100	100	100	100	100	100	145	150	130	126	125	118	112	115	130	140	135	110	105	105	105	105	100	100				
LQ		100	100	100	100	100	100	100	125	110	110	110	108	100	100	100	100	110	105	100	100	100	100	100	100				

The Radio Research Laboratories, Japan

OCT. 1971

H¹ES (KM)

IONOSPHERIC DATA

OCT. 1971

TYPES OF ES

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

Station KOKUBUNJI TOKYO Lat. 35 42.4 N Long. 139 29.3 E Sweep 1 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	F2	F4	F1	F2		H2	HL22	H2	C2	C1	C1	H1	H2	HL32	HLL22	L4	FF31	F3	F5	F4		F4	
2	F6	F7	F5	F6	F4	F2	H2	HL12	HL22	H2	H1	CL11	L1	CL11	L1	L1	H2	C3	F4	F5	F5	F4	F5	F5	
3	F4	F2	F2	F2				H1	H2	H1	H2		HL11	L1	H2		H1	HL32	F4	F3	F6	F4	F3	F4	
4	F5	F6	F5	F4	F5	F2	L1	H1	H1	H1					H1	H1	H2	L3	L2	F2	F5	F3	F3	F3	
5	F3	F1	F4	F2	F4	F2	HL11	HL11	HL11	H1	C1	CL11	C1	C1	C1		CL11	L1	L3	F3	F4	F2	F2	F2	
6	F1	F1	F1	F1	F3	F2	L1												L1	F1					
7					F1		H1	C1	H1						H1	H1	H1	L4	L3	F1		F2	F1	F1	
8			F2	F3	F2	F1	H1	H1	H1	C1	L2	L2			H1		H1	H3	L1	F1	F1	F2	F2	F2	
9		F3	F1	F2	F2	F1		H1	C2	C2	C1	C1	L1	H1		H1	C2	C4	F2	F1	F2	F4	F4	F3	
10	F4	F5	F4	F4	F4		H2	H2	H1	H1	C1	C1	L1	C1	H1	H2	HL41	H5	FF31	F4	F4	F3	F5	F5	
11	F5	F3	F2	F1					H1	C1	C1	C2			H2	H2	C1		L1	F2	F5	F1		F2	
12	F5	F5	F5	F4	F3		H1	H1	C2	C2	C2	C2	C2	C2	C2	C3	L3	L3		F1	F3	F4	F3	F2	
13	F3	F2	F1	F1	F1	F1		H1	C2	C1				L1	H1	H1	H1	L3	F1	F2	F3	F3	F1	F2	
14	F1	F2	F2	F3	F3	F2	H1	H1	C1	C1	C1	C2	C2	C2	C2	C1	L2	L3	L4	F3	F2	F3	F2	F3	
15	F2	F3	F3	F5	F2	F1		H1	H1	H1	C1	C1	L2			H1	H1	HL11	L2	F4	F4	F2	F3	F2	
16	F2				F1		H1	HL11	HL12	CHL11	HL11	H1	L1	CHL11	H1		L2		F3	F2	F2				
17		F1	F1	F4	F4	F5	L2	L4	HL11	CL11	CL12	CL11	CL12	L2	HL11	L1	HL12	L3	F3	F3	F4	F2	F2	F1	
18	F2		F1	F1	F1	F1	H2	H1	H2	C1	C1	C2	L1	L1	L3	L2	L3	L2	F1			F1	F1	F1	
19	F3	F4	F2	F1	F1	F1			H1	C1	HL11	HL11	L1	H1	L1				L1	F1	F2	F1	F2	F2	
20	F2	F2						H1	C2		H1								L2	F1	F2			F1	
21	F1	F1		F2		F1			C1	C2	L1	L1		C1	C1	C2	HL11	L1	L1	F1	F5	F4	F2	F2	
22	F1	F2	F2	F2	F1	F1	L1	C1	C2	C1	C1	C1	C1	L2	L1	L1	C1	L2	L2	F2		F1	F2	F2	
23	F1	F1											L1	L1	H1	H2	C3		F2	F3		F2	F4	F4	
24	F4	F5	F4	F6	F2	F3		C2	C3	C2	C2	C2	L3	CL11	L2	L3	L3	L2	F1	F1	F3	F3	F3	F6	
25	F4	F4	F4	F5	F2	F2	H2	H1	H1	C1	H1	C2	C1	C1	C2	CL22	C2	L5	L4	F4	F4	F4	F3	F2	
26	F2	F2	F2	F1	F1			H1	HL11	C2	C2	C2		C1		HL11	C3	L1	L4		F3	F3	F3	F2	
27	F2	F3	F2	F3	F2	F2	L1	HL12	H1	H1		C1		C1	L3	L2	L4	L1	F1		F1		F1	F2	
28			F1	F1	F1	F1					H1	H1	L1	L2	L2	HC2	H1	L3	L3	F5	F2	F2	F2	F1	
29	F2	F2	F3	F2	F2	F1		H1	H2	H1	H2	HL11	HL11	H1	CL11	CL22	C3	L2	L1	F2	F1	F3	F2	F2	
30	F4	F2	F1		F1	F1				L1	L2	HL11		H1		C3	C3	C5	F5	F5	F4	F2	F2	F2	
31	F2	F2	F1	F2					H1	H1		L1	L2	L2	HL23	H1	C2	F5	F1	F4	F1	F1	F1	F3	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

The Radio Research Laboratories, Japan

OCT. 1971

TYPES OF ES

IONOSPHERIC DATA

OCT. 1971

HPF2 (KM)

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

Station **KOKUBUNJI TOKYO** Lat. 35 42.4 N Long. 139 29.3 E Sweep 1 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	370	385	360	315	370	380	300	255	255	300	305	300	290	305	300	290	280	255	250	320	390	355	360	350
2	305	I A 340	S 350	320	350	350	250	250	J R 250	300	290	290	310	295	305	300	275	250	285	250	350	360	365	S 350
3	320	300	325	350	350	350	250	250	250	290	305	295	290	315	300	300	275	255	275	290	315	330	350	345
4	295	350	320	300	310	340	250	260	250	280	290	300	300	300	295	290	280	280	J R 280	300	350	J R 390	350	350
5	350	350	360	340	300	350	280	290	255	280	290	270	300	300	330	300	290	290	I R 300	300	300	300	350	350
6	350	350	350	340	I R 320	350	290	250	260	250	280	300	330	300	J R 300	290	270	300	300	290	340	350	350	300
7	360	365	390	360	390	340	250	270	250	260	300	330	290	290	300	290	290	300	290	350	340	300	350	355
8	350	360	355	340	350	340	290	250	270	300	J R 300	I R 280	300	370	340	300	315	260	260	350	390	390	400	400
9	400	300	300	350	390	355	280	J R 255	J R 270	240	300	300	300	305	320	300	280	250	250	320	380	390	380	400
10	360	340	265	255	360	315	290	S 250	250	265	300	300	300	305	300	280	260	250	250	300	I A 360	350	355	330
11	320	310	315	300	300	250	240	250	265	300	J R 290	310	300	J R 300	290	300	300	J R 255	250	350	350	350	350	350
12	390	I A 370	I A 360	360	340	360	300	300	290	260	300	315	290	J R 290	I A 300	300	290	265	270	260	I A 380	I A 380	350	380
13	355	350	290	340	350	355	250	270	J R 255	255	300	340	330	J R 330	290	255	300	290	300	310	350	350	350	350
14	360	330	350	390	385	300	250	255	280	300	300	300	300	300	300	280	250	J R 290	290	280	350	I R 370	350	I R 380
15	380	390	350	300	300	380	290	270	260	270	310	290	J R 300	J R 300	280	295	260	250	255	350	350	360	J R 350	390
16	350	340	380	280	290	380	255	J R 250	250	245	270	280	295	300	290	270	250	250	255	300	320	330	350	350
17	365	360	320	305	290	305	250	250	250	250	270	285	280	285	300	270	260	J R 250	260	285	305	290	300	350
18	345	305	305	300	290	305	250	J R 250	250	250	330	290	280	310	300	290	250	250	280	290	300	300	290	340
19	380	355	350	340	280	270	285	245	250	250	265	290	290	290	J R 290	260	250	260	250	350	380	355	350	355
20	350	340	290	350	280	280	J R 255	250	280	250	290	290	300	290	R 300	255	250	255	250	290	385	355	360	355
21	350	360	325	290	245	315	255	J R 265	260	260	290	290	290	300	290	260	250	250	290	350	350	300	340	350
22	355	350	340	295	300	330	255	260	280	290	290	290	300	290	280	280	265	270	300	280	360	370	310	300
23	315	355	330	310	310	310	255	350	295	280	295	J R 290	285	300	270	260	250	235	285	290	330	335	370	J R 350
24	320	315	300	320	260	340	F 260	255	255	265	270	285	290	300	280	255	245	290	290	275	290	330	I A 330	I A 340
25	375	330	320	290	240	355	H 290	260	290	300	280	300	330	300	290	J R 285	280	260	I A 300	350	355	300	300	340
26	340	340	300	340	290	290	285	255	290	270	270	270	300	305	285	290	J R 250	J R 250	290	340	300	I R 320	355	350
27	355	350	350	300	280	290	255	245	J R 280	290	285	290	300	300	290	290	290	J R 255	250	315	330	300	355	380
28	355	355	350	350	310	280	265	250	250	280	270	280	290	300	280	310	255	250	300	340	J R 300	350	360	360
29	390	355	380	350	330	400	385	280	255	J R 255	J R 350	340	290	290	300	270	300	300	290	340	290	340	350	350
30	360	360	365	360	290	340	290	J R 255	290	255	260	260	295	300	J R 300	260	260	250	230	320	300	345	320	320
31	320	340	320	290	310	295	250	240	265	270	J R 290	265	J R 280	J R 270	270	250	245	250	315	265	270	315	325	340
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	355	350	340	320	310	340	255	255	260	270	290	290	300	300	300	290	265	255	280	300	350	350	350	350
UQ	362	358	352	350	350	352	290	262	280	290	300	300	300	302	300	298	285	275	290	340	358	358	355	355
LQ	342	340	318	300	290	302	250	250	250	255	280	285	290	292	290	265	250	250	252	290	302	318	345	342

The Radio Research Laboratories, Japan

OCT. 1971

HPF2 (KM)

IONOSPHERIC DATA

OCT. 1971

YPF2 (KM)

135° E Mean Time (G. M. T. + 9^h)

Station		KOKUBUNJI TOKYO							Lat.		35 42.4 N		Long.		139 29.3 E		Sweep		1 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		80	80	90	140	90	90	65	50	45	100	90	55	65	90	65	70	50	50	55	80	65	90	85	I A			
2		95	I A	80	95	80	95	65	50	50	J R	55	95	65	65	75	65	55	55	70	45	60	50	90	80	75	S	
3		85	60	75	95	95	65	50	45	35	60	65	60	65	100	70	60	50	45	70	80	90	90	100	100			
4		65	90	95	100	95	60	50	60	50	110	100	100	100	90	95	100	100	110	J R	100	90	90	J R	100	90	100	
5		100	100	90	100	100	100	100	90	100	100	100	110	100	140	110	100	100	100	I R	100	90	100	100	90	100		
6		100	100	90	100	I R	100	90	90	100	90	90	100	90	110	100	J R	90	100	100	90	90	100	100	100	90	100	
7		100	95	90	100	90	100	100	110	100	90	100	110	100	100	90	100	100	90	100	100	100	110	100	90	95		
8		100	90	95	110	100	100	90	90	90	90	J R	80	I R	90	90	120	100	100	95	90	90	100	100	100	90	90	
9		90	90	90	90	100	95	110	J R	85	110	40	100	50	60	95	85	75	65	55	65	130	90	105	85	95		
10		95	75	40	55	90	90	65	50	50	65	55	70	75	90	55	75	55	50	55	100	I A	100	75	90	75		
11		80	105	85	100	100	60	60	60	60	100	J R	90	100	90	J R	90	100	60	100	J R	95	100	100	100	100		
12		100	I A	100	100	100	90	100	90	90	90	100	105	90	J R	90	I A	90	90	100	85	90	90	I A	I A	100	110	
13		95	90	100	100	100	105	100	110	J R	95	95	90	110	120	100	100	95	90	90	90	100	100	100	100	100		
14		100	110	90	100	95	90	110	95	80	90	90	100	90	90	90	110	90	J R	100	90	100	I R	100	100	I R		
15		110	100	100	100	100	100	120	90	90	100	120	90	J R	80	J R	90	110	95	100	100	95	100	100	90	J R	100	
16		100	100	100	100	100	70	95	J R	100	90	35	100	75	60	70	60	50	50	50	100	70	100	80	55	95		
17		85	110	85	90	65	110	55	50	45	50	75	70	75	70	70	50	45	J R	50	60	70	95	70	85	70		
18		70	90	95	60	80	90	50	J R	30	60	100	100	100	110	110	90	100	100	100	100	100	100	90	100	90	100	
19		100	95	90	100	110	110	95	95	100	100	85	90	90	100	J R	90	90	90	100	100	100	100	110	95	100	85	
20		100	100	100	100	110	100	J R	95	80	90	100	90	100	100	J R	100	90	95	100	95	90	100	95	95	100	95	
21		100	100	95	90	95	95	95	J R	85	90	100	90	90	100	90	90	80	100	100	100	100	100	100	90	90	100	
22		95	100	100	105	90	110	95	90	100	100	100	100	90	100	80	70	85	90	80	100	90	90	90	90	100		
23		95	95	110	90	90	100	95	90	85	60	50	J R	60	75	55	40	60	50	45	70	70	75	85	80	J R	70	
24		80	85	65	90	95	105	F	80	60	55	65	85	70	65	60	65	50	55	65	70	80	65	90	I A	I A	90	
25		70	75	85	70	60	100	H	65	40	65	90	100	90	110	100	90	J R	95	100	90	I A	100	105	90	100	90	
26		100	100	100	100	100	90	95	85	100	80	80	110	80	95	95	100	J R	90	J R	100	100	100	90	I R	100	85	105
27		95	100	100	100	100	100	85	95	J R	100	100	95	100	90	90	90	90	90	J R	95	110	95	110	100	95	100	
28		95	95	100	100	90	100	105	90	90	100	80	100	100	90	100	90	95	100	90	100	J R	100	100	100	100	100	
29		100	105	100	100	110	90	105	100	85	J R	J R	90	100	90	100	90	90	90	100	100	100	100	100	90	100	100	
30		100	100	95	100	110	100	100	J R	95	100	55	90	80	75	60	J R	65	50	45	55	75	95	100	100	80	95	
31		85	80	110	50	90	85	70	70	60	80	75	45	J R	70	J R	50	55	50	65	65	80	85	80	85	80	100	
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT		31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED		95	95	95	100	95	95	95	90	90	90	90	90	90	90	90	90	90	90	90	90	100	100	95	90	100		
UQ		100	100	100	100	100	100	95	98	100	100	100	100	100	100	92	98	100	100	100	100	100	100	100	100	100	100	
LQ		85	90	90	90	90	90	65	60	60	72	80	70	75	90	68	60	60	55	72	88	90	90	85	90			

OCT. 1971

YPF2 (KM)

IONOSPHERIC DATA

OCT. 1971

FOF2 (0.1 MHz)

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

Station	YAMAGAWA				Lat. 31° 12' N	Long. 130° 37' 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 ₅₀	S ₄₈	48	45	44	43	S ₄₈	79	S ₈₄	68	79	98	R ₁₀₄	87	86	98	S ₁₀₂	94	68	S ₅₁	S ₄₈	51	S ₅₁	S ₅₂
2	J ₅₄	S ₅₁	S ₄₃	39	37	40	J ₄₇	J ₆₆	77	90	93	104	103	111	R ₉₇	S ₁₀₀	S ₁₀₆	S ₉₆	S ₉₈	S ₅₂	45	J ₄₇	S ₅₀	J ₅₂
3	J ₅₀	J ₄₉	46	42	37	39	48	69	73	76	90	110	117	S ₁₁₂	S ₁₁₃	117	S ₁₁₄	S ₁₀₈	89	70	63	58	58	60
4	S ₅₄	50	45	45	39	34	S ₄₃	70	79	86	80	106	S ₁₁₇	104	99	J ₉₇	90	86	89	66	49	J ₅₁	55	J ₅₂
5	49	46	45	48	38	30	41	73	J ₈₈	89	100	92	103	112	I ₁₂₀	120	S ₉₃	85	86	81	58	51	46	49
6	49	47	48	44	34	31	40	72	86	J ₁₀₀	R ₈₄	84	92	101	R ₉₇	R ₈₇	84	J ₈₅	U ₉₆	S ₉₀	J ₅₃	J ₅₃	J ₅₃	48
7	44	40	38	39	37	S ₃₈	S ₄₈	68	J ₉₀	95	84	108	112	105	94	102	90	I ₈₂	78	68	58	60	50	47
8	45	44	44	44	42	43	S ₄₇	79	85	85	94	C	C	116	C	110	S ₁₁₈	S ₁₂₃	S ₇₂	45	49	49	I ₅₀	I ₅₀
9	51	56	47	31	31	32	39	81	84	76	75	94	121	S ₁₁₄	S ₁₂₄	S ₁₂₇	S ₁₂₂	S ₁₁₉	S ₈₃	43	44	S ₄₅	44	48
10	48	45	45	35	32	37	37	83	S ₉₅	76	82	95	S ₁₁₅	126	131	123	S ₁₀₆	S ₉₈	S ₉₀	53	45	S ₄₈	47	47
11	I ₄₄	44	39	39	F ₃₇	33	35	64	90	U ₁₀₀	S ₁₀₅	I ₁₀₀	S ₁₁₁	126	J ₁₄₂	C	C	137	S	I ₉₃	J ₆₈	I ₆₆	C ₅₇	48
12	U ₄₆	41	39	40	40	F ₃₉	I ₄₈	S ₈₇	U ₉₅	S ₉₆	C	C	133	122	C	C	I ₉₅	S ₁₀₁	80	50	40	45	49	46
13	47	47	46	38	33	33	42	71	83	S ₈₃	81	J ₉₀	104	108	S ₁₁₉	89	80	89	84	67	56	S ₅₀	S ₅₀	46
14	U ₄₇	51	46	S ₃₉	39	41	37	68	88	92	U ₁₁₀	107	U ₁₁₉	136	144	R ₁₂₄	U ₉₇	108	94	57	45	42	38	35
15	S ₃₅	37	39	31	26	25	33	73	78	92	100	S ₁₁₅	S ₁₁₈	121	124	U ₁₁₈	S ₁₀₄	S ₁₀₆	S ₈₃	52	44	46	42	38
16	42	42	41	S ₄₃	35	20	32	J ₆₅	78	79	89	93	102	J ₁₁₀	S ₁₁₅	R ₁₂₇	S ₁₁₄	92	71	I ₄₃	42	I ₄₀	38	38
17	38	39	42	45	42	F ₂₈	37	62	72	77	79	86	96	103	S ₁₁₂	J ₁₁₅	S ₁₁₁	98	78	52	46	46	43	39
18	39	41	41	39	37	31	37	65	77	84	83	90	104	R ₉₉	110	S ₁₁₃	S ₁₁₀	88	S ₈₂	S ₆₂	S ₅₂	49	40	36
19	36	38	39	36	42	31	30	57	76	78	75	87	94	89	90	93	77	71	61	47	43	44	46	46
20	43	42	35	36	44	28	30	60	74	83	87	S ₉₆	R ₉₈	92	104	118	104	75	72	45	35	37	38	37
21	39	39	42	43	39	25	32	61	77	79	87	100	112	U ₁₁₆	106	97	87	78	56	54	S ₅₁	S ₅₀	S ₄₇	39
22	S ₄₁	41	S ₄₁	40	41	36	39	70	75	80	103	106	109	101	95	93	J ₁₀₀	80	S ₆₁	50	S ₄₈	S ₅₁	S ₅₀	S ₄₇
23	46	46	43	43	43	38	S ₄₅	57	67	92	U ₁₀₈	S ₁₀₅	U ₁₁₈	S ₁₁₆	105	91	H ₈₇	73	53	43	44	S ₄₇	46	S ₄₅
24	43	S ₄₂	S ₄₄	38	41	F ₃₅	S ₃₇	78	S ₈₉	89	104	107	107	S ₁₁₆	120	I ₁₁₃	87	70	I ₆₆	61	56	53	50	48
25	J ₄₅	I ₄₆	S ₄₉	34	32	25	S ₃₁	69	89	U ₁₀₆	110	96	122	102	104	S ₁₀₂	S ₈₉	76	62	48	S ₅₄	S ₅₄	50	46
26	S ₄₂	42	35	37	39	31	S ₃₈	62	74	89	106	107	90	S ₉₆	116	104	88	S ₇₆	58	43	45	47	44	40
27	I ₄₀	39	38	38	S ₄₃	32	30	J ₆₃	73	J ₆₆	89	109	S ₉₅	131	139	J ₁₄₁	J ₁₂₈	S ₁₁₅	S	U ₆₁	J ₅₆	J ₆₀	J ₅₇	I ₄₉
28	S ₄₅	44	42	40	41	39	S ₃₆	J ₆₁	71	78	93	101	R ₉₂	108	115	108	H ₁₁₄	S ₉₈	S ₆₄	51	49	48	48	43
29	39	I ₄₀	S ₃₈	41	41	34	S ₂₉	S ₈₄	S ₈₄	73	80	J ₁₀₁	J ₁₂₄	U ₁₂₃	S ₁₁₉	103	S ₈₄	S ₈₆	S ₈₉	J ₇₂	59	I ₄₈	S ₃₇	39
30	36	36	34	34	40	28	32	J ₆₃	80	S ₁₀₃	94	95	93	108	132	131	110	91	78	64	S ₅₂	S ₅₂	S ₄₆	45
31	39	37	38	44	49	29	S ₃₃	S ₆₃	S ₈₄	J ₁₀₂	107	116	J ₁₁₃	U ₁₁₆	J ₁₂₄	102	80	72	57	57	S ₄₆	37	S ₃₇	37
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	29	30	31	29	29	30	31	29	31	31	31	31	31
MED	44	42	42	39	39	33	37	68	80	85	90	100	108	111	115	108	S ₉₈	89	78	53	49	49	47	46
UQ	48	46	45	43	42	38	42	73	87	92	103	107	117	116	124	118	S ₁₁₀	S ₁₀₀	S ₈₆	65	55	S ₅₂	50	48
LQ	40	40	39	38	37	30	32	63	76	78	82	94	98	102	104	98	87	79	64	49	45	46	44	39

OCT. 1971

FOF2 (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 1971

FOF1 (0.01 MHz)

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

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	530	510	490	L	L	500	A	L						
2										L	L	L	500	500	L	470	L	L						
3									L	480	470	490	500	500	520	L	L							
4									L	L	L	480	L	L	L	L	L							
5									L	470	490	L	520	L	C	470	A	A						
6									L	L	L	480	L	L	L	L	L							
7									L	L	470	510	490	480	L	L	L							
8									L	470	L	C	C	530	C	L	L							
9									L	L	L	L	500	L	L	450	L							
10									L	L	470	L	530	480	500	L	L							
11									L	L	L	C	480	L	L	C	C							
12										L	C	C	A	L	C	C	C							
13									L	L	L	450	500	L	L	L	A							
14									L	L	L	L	L	L	L	L	L							
15										L	L	490	L	L	L	L	L							
16									L	L	490	470	L	500	L	L	L							
17										L	460	440	520	480	470	L								
18										L	470	460	480	480	L	L	L							
19									L	L	L	480	L	L	L	L	L							
20									L	L	U	470	490	480	L	L	L	L	L					
21									L	L	480	L	490	480	L	L	L							
22									L	L	480	480	490	480	L	L	L							
23									L	L	L	L	470	480	L	L	A							
24										L	440	L	470	L	L	L	L							
25									L	L	A	L	450	L	L	L	A							
26									L	L	L	L	L	A	A	A	L							
27									L		L	440	L	470	L	L	L							
28										L	L	L	460	L	L	A	A							
29											L	A	440	L	L	L								
30										L	L	L	L	L	L	L								
31									L	L	L	L	L	L	L	390	L	250						
	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	12	15	18	13	3	5				1				
MED										475	470	480	490	480	500	470				250				
UQ										480	490	500	500	510	470									
LQ										470	465	470	480	485	450									

The Radio Research Laboratories, Japan

OCT. 1971

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 1971

FOE (0.01 MHZ)

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

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	A	270	300	320	A	A	A	320	305	270	A	S						
2							S	A	I A 270	I A 300	320	330	I A 340	I A 340	330	310	H 290	230	S						
3							S		210	270	300	310	I A 330	350	340	330	320	280	H 230	S					
4							S	H	210	270	305	320	330	340	340	325	310	280	A	A					
5							S		210	260	300	320	H 335	340	335	I C 325	310	280	220	S					
6							S	A	260	300	325	335	340	340	325	305	260	220	S						
7							S		210	270	300	320	330	340	340	330	305	280	I C 220	S					
8							S	H	190	260	285	320	I C 325	I C 335	340	I C 330	305	270	220	S					
9							S		210	260	300	310	320	340	340	320	305	270	210	S					
10							B		190	260	290	330	I A 330	340	I A 325	H 320	305	270	215	S					
11							S		200	250	A	320	C	A	340	I A 330	C	C	A	A					
12							S	A	A	A	A	C	C	A	330	C	C	I C 265	H 210	S					
13							S	H	190	260	295	320	R 330	340	I A 340	320	300	A	A	S					
14							S		190	260	300	310	340	340	320	A	A	A	A	S					
15							S		190	260	295	320	330	330	335	I A 320	I A 305	265	H 205	S					
16							S		220	260	H 300	310	330	330	340	330	320	I A 270	220	S					
17							S	H	190	270	300	315	320	I A 330	330	I A 320	I A 310	A	A	S					
18							S		210	260	I A 290	300	320	330	335	330	300	270	190	S					
19							S		210	265	300	320	325	I A 325	I A 330	325	300	265	A	S					
20							S	A	A	280	H 330	340	340	340	315	I A 295	250	190	S						
21							S		180	I A 255	280	I A 310	R 330	340	330	315	295	260	A	S					
22							S		200	I A 260	I A 295	I A 320	330	340	340	330	300	260	A	S					
23							S	H	180	260	300	320	330	340	335	320	300	250	170	S					
24							S		190	240	280	320	R I A 330	335	340	320	300	260	A	S					
25							S		160	260	290	320	325	335	325	320	A	A	A	S					
26							S		160	250	H 300	I A 315	I A 325	335	340	330	300	I A 265	A	S					
27							S		200	270	295	320	320	I A 330	I A 330	325	305	265	170	S					
28							S		160	260	300	310	320	330	340	320	300	275	H 200	S					
29							S	H	170	250	295	320	335	335	335	320	R 300	250	A	S					
30							S		235	290	310	335	350	340	330	310	260	A	S						
31							S		240	300	I A 325	330	330	330	310	290	250	170	S						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								24	29	29	30	28	28	30	29	27	26	17							
MED								190	260	300	320	330	340	340	322	305	265	210							
UQ								210	265	300	320	330	340	340	330	308	270	220							
LQ								185	260	290	310	325	330	330	320	300	260	190							

The Radio Research Laboratories, Japan

OCT. 1971

FOE (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1971

FOES (0.1 MHZ)

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

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	J ₂₆ ₂₆	23	E ₁₂	17	21	E ₁₃	J ₁₈	J ₃₈	31	36	38	43	40	40	40	J ₅₁	33	J ₂₅	J ₃₀	J ₂₈	J ₃₃	J ₁₈	J ₃₇		
2	J ₂₇	J ₂₄	J ₂₆	J ₂₀	21	J ₂₀	J ₂₈	J ₂₉	J ₃₇	44	43	J ₄₈	42	35	38	33	31	25	18	J ₂₈	J ₂₉	J ₆₈	21	18	
3	E ₁₅	17	E ₁₃	E ₁₃	E ₁₃	E ₁₄	23	27	35	34	39	37	28	G ₂₈	35	34	31	24	E ₁₃	23	22	23	J ₄₁	J ₂₉	
4	J ₂₂	J ₂₃	17	J ₂₄	J ₂₄	22	18	25	35	J ₂₃	35	35	40	38	G	G	31	30	J ₄₉	J ₂₅	J ₂₉	J ₂₇	47	J ₃₇	
5	J ₂₅	J ₁₈	E ₁₃	E ₁₁	E ₁₃	E ₁₅	G	J ₃₀	33	35	39	38	37	C	44	J ₈₃	J ₇₁	J ₉₆	J ₅₃	J ₅₃	J ₈₂	J ₂₉	J ₂₂	J ₂₂	
6	21	E ₁₂	E ₁₄	E ₁₂	E ₁₅	E ₁₅	J ₄₀	J ₃₃	J ₂₅	G ₂₅	G	G	G	G	G	28	25	E ₁₅	E ₁₃	E ₁₃	E ₁₃	E ₁₅	E ₁₅	E ₁₅	
7	E ₁₄	E ₁₃	E ₁₃	E ₁₄	E ₁₃	E ₁₅	26	30	34	34	27	G ₂₅	G ₂₅	G ₂₅	G ₂₃	31	C	19	J ₂₈	J ₃₅	J ₃₄	J ₃₆	J ₂₈	J ₂₈	
8	J ₂₂	20	J ₁₈	E ₁₄	15	15	E ₁₅	27	30	31	30	C	C	G ₂₉	C	34	G	28	17	22	E ₁₂	E ₁₅	J ₂₅	J ₂₂	
9	J ₂₈	J ₂₁	22	18	E ₁₄	E ₁₄	E ₁₄	24	J ₃₀	33	39	42	38	40	G	G	31	28	J ₂₉	J ₃₄	J ₂₁	J ₂₉	J ₁₉	22	
10	E ₁₂	24	18	E ₁₁	E ₁₁	E ₁₉	14	25	33	J ₄₈	40	J ₅₉	36	36	34	33	30	34	J ₄₀	J ₃₃	J ₃₄	J ₆₈	J ₄₆	J ₃₃	
11	J ₆₉	J ₃₀	J ₄₂	J ₂₈	J ₂₁	J ₂₁	E ₁₅	22	29	30	J ₃₁	C	J ₃₆	J ₃₆	J ₄₆	C	C	J ₂₉	J ₂₆	J ₃₆	J ₃₁	J ₃₃	J ₂₉	E ₂₂	
12	J ₃₂	E ₂₁	E ₂₁	J ₂₄	J ₂₄	E ₂₀	E ₁₄	J ₃₁	J ₇₉	42	C	C	J ₆₂	G ₃₃	C	C	C	E ₂₀	E ₁₅	21	E ₁₄	E ₁₅	E ₁₅	E ₁₅	
13	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₃	E ₁₅	J ₁₅	25	29	27	J ₃₄	J ₃₂	J ₃₄	J ₄₉	J ₃₀	J ₄₀	J ₅₀	34	J ₂₉	J ₃₄	J ₂₁	J ₃₄	J ₃₆	J ₂₁	
14	J ₂₆	J ₂₃	E ₁₄	E ₁₅	E ₁₅	20	J ₂₅	24	29	33	36	G ₃₄	G ₃₃	34	34	31	28	25	20	E ₁₅	E ₁₅	E ₁₅	E ₁₅	J ₅₂	
15	J ₃₇	J ₃₂	J ₂₈	J ₃₃	J ₂₃	J ₁₈	19	25	29	31	J ₅₃	35	35	35	J ₃₈	J ₄₄	40	J ₄₅	J ₄₂	J ₃₄	J ₃₀	J ₂₂	J ₃₃	E ₁₄	
16	J ₂₆	E ₁₅	J ₂₂	20	J ₂₀	E ₁₄	E ₁₅	25	35	38	35	38	36	J ₅₅	40	36	35	27	J ₄₅	J ₄₇	J ₂₅	J ₄₈	J ₅₂	25	
17	E ₁₅	20	E ₁₅	E ₁₁	E ₁₅	E ₁₅	E ₁₄	G	G	35	J ₃₆	G ₂₉	36	28	35	J ₃₅	31	J ₃₉	J ₃₆	J ₄₅	J ₃₃	J ₂₃	E ₁₄	E ₁₅	
18	J ₂₁	J ₂₆	J ₂₂	J ₁₈	23	E ₁₃	E ₁₅	23	29	30	G ₃₀	G ₂₉	37	35	39	G ₁₆	G	24	E ₁₄	E ₁₄	E ₁₅	E ₁₅	J ₂₄	E ₁₅	
19	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₄	E ₁₅	J ₂₂	G ₁₈	35	34	35	35	J ₃₇	36	32	29	23	J ₁₉	J ₂₄	J ₃₇	J ₂₃	J ₂₁	J ₂₉	
20	22	J ₁₉	J ₂₃	J ₂₂	J ₂₀	E ₁₃	E ₁₅	24	29	32	G	G	G ₂₉	G ₂₈	34	J ₄₁	G	23	J ₁₈	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₄	
21	E ₁₄	E ₁₂	E ₁₃	E ₁₅	E ₁₄	E ₁₄	E ₁₅	24	29	32	34	G ₂₉	G ₂₇	G ₂₃	G	G ₂₄	J ₂₅	J ₂₄	J ₂₆	J ₂₁	22	24	21	J ₁₉	
22	J ₂₄	J ₂₄	21	16	E ₁₅	E ₁₃	E ₁₅	G	28	30	35	30	G ₂₅	J ₃₂	G ₂₉	G ₂₈	29	J ₂₄	J ₂₄	J ₂₃	E ₁₆	J ₃₁	J ₂₁	E ₁₅	
23	E ₁₅	E ₁₅	E ₁₄	E ₁₅	J ₂₄	E ₁₅	E ₁₅	G	G ₂₅	G ₂₅	G ₂₅	G ₂₄	G ₂₄	G	G ₁₉	G	J ₄₃	28	J ₂₈	21	E ₁₅	E ₁₅	E ₁₅	E ₁₅	
24	J ₁₉	J ₂₆	J ₂₉	J ₂₆	21	J ₂₇	J ₂₅	G ₁₈	28	31	31	35	36	J ₂₃	G	G	29	J ₄₀	J ₇₁	28	E ₁₄	J ₂₂	J ₂₂	J ₂₄	
25	J ₂₆	J ₆₄	J ₃₅	23	J ₂₁	17	22	G	30	39	J ₄₉	J ₇₀	42	38	36	36	J ₃₈	J ₂₇	J ₂₅	22	J ₃₀	E ₁₄	E ₁₅	23	
26	E ₁₅	E ₁₅	E ₁₅	22	21	21	E ₁₅	20	29	G	42	42	42	J ₆₂	J ₈₅	J ₅₂	J ₆₀	J ₄₂	J ₃₀	J ₂₄	J ₂₉	J ₂₁	J ₂₅	E ₁₄	
27	J ₂₄	E ₁₄	E ₁₄	J ₁₈	J ₂₃	E ₁₃	J ₁₇	G	G	33	22	35	35	35	34	32	31	25	18	E ₁₅	21	E ₁₅	23	19	
28	J ₂₁	17	17	E ₁₄	E ₁₃	E ₁₅	18	G	G ₂₅	32	35	41	G	43	39	J ₅₃	J ₆₉	26	J ₃₆	28	E ₁₅	E ₁₃	E ₁₅	20	
29	E ₁₄	J ₄₀	J ₃₀	18	J ₂₈	24	J ₂₄	G	29	41	44	J ₄₈	38	38	46	35	J ₃₇	47	J ₂₉	22	20	E ₁₅	E ₁₅	18	
30	19	E ₁₅	18	J ₂₁	20	20	E ₁₅	J ₂₆	J ₂₄	32	39	45	44	42	39	38	36	57	J ₄₄	J ₃₄	J ₃₂	J ₅₃	J ₃₃	25	
31	J ₂₇	J ₂₄	J ₂₄	20	E ₁₃	E ₁₂	E ₁₅	J ₂₅	J ₂₉	J ₅₁	36	36	34	J ₃₂	J ₂₁	J ₂₃	J ₁₉	G	18	J ₂₁	J ₂₁	E ₁₅	E ₁₄	E ₁₅	
CNT	31	31	31	31	31	31	31	31	31	31	30	28	30	31	28	29	29	30	31	31	31	31	31	31	31
MED	J ₂₂	20	18	18	20	E ₁₅	E ₁₅	24	29	33	35	35	36	35	34	33	31	28	J ₂₆	J ₂₄	J ₂₂	J ₂₃	J ₂₁	20	
UQ	J ₂₆	J ₂₄	J ₂₂	J ₂₂	J ₂₁	20	18	26	30	36	39	42	38	38	39	38	J ₃₈	34	J ₃₆	J ₃₄	J ₃₀	J ₃₃	J ₃₁	J ₂₅	
LQ	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₅	E ₁₈	28	30	G	G	G	G	G	G	G	25	18	21	E ₁₆	E ₁₅	E ₁₅	E ₁₅	

OCT. 1971

FOES (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1971

FBES (0.1 MHZ)

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

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	15	16	E ₁₂ S ₁₂	16	E ₁₃ E ₁₃	S ₁₃	15	30	29	34	37	41	38	38	39	40	44	28	25	22	22	21	17	22	
2	18	21	20	15	17	18	25	22	31	42	41	46	40	35	38	G	G	G	17	25	24	28	E	E	
3	E ₁₅ S ₁₅	E ₁₃ S ₁₃	E ₁₃ B ₁₃	E ₁₃ S ₁₃	E ₁₃ S ₁₃	E ₁₄ S ₁₄	S	G	G	G	36	35	G ₂₈	G ₂₇	G	G	G	G	E ₁₃ S ₁₃	15	E	E	20	20	
4	20	21	16	20	21	E	E	G	31	22	34	35	40	G	G	G	G	27	29	25	18	23	22	27	
5	21	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E ₁₁	E ₁₃ S ₁₃	E ₁₅ S ₁₅	G	20	G	G	38	36	36	C	35	44	54	29	21	24	31	15	19		
6	E ₁₂ B ₁₂	E ₁₄ B ₁₄	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E ₁₅ S ₁₅	E ₁₅ S ₁₅	22	20	G ₂₃	G ₂₄	G	G	G	G	G	G	G	E ₁₅ S ₁₅	E ₁₃ S ₁₃	E ₁₃ S ₁₃	E ₁₃ S ₁₃	E ₁₅ S ₁₅	E ₁₅ S ₁₅		
7	E ₁₄ S ₁₄	E ₁₅ B ₁₅	E ₁₃ B ₁₃	E ₁₄ B ₁₄	E ₁₃ B ₁₃	E ₁₅ S ₁₅	24	29	G	34	G ₂₇	G ₂₅	G ₂₅	G ₂₄	G ₂₂	G	C	16	23	20	22	20	E		
8	16	E	15	E ₁₄ B ₁₄	15	E ₁₅ S ₁₅	27	G	G	G ₂₈	C	C	G ₂₇	C	G	G	G	16	E ₁₂ B ₁₂	E ₁₅ S ₁₅	E ₁₅ S ₁₅	16	21		
9	16	E	E	E	E ₁₄ B ₁₄	E ₁₄ B ₁₄	E ₁₄ S ₁₄	G	G	G	36	37	37	G	G	G	G	20	23	15	22	E	E		
10	E ₁₂ S ₁₂	E	E	E ₁₁ B ₁₁	E ₁₁ B ₁₁	E ₁₉ B ₁₉	14	24	G	32	39	50	36	34	E ₃₄ R	G	G	33	37	31	16	34	24	15	
11	20	E	20	21	15	17	E ₁₅ S ₁₅	E ₂₂ R	G	E ₃₀ R	G ₂₁	C	36	30	38	C	C	23	22	29	23	24	23	E ₂₂ C	
12	28	E ₂₁ C	E ₂₁ C	23	E	E ₂₀ C	E ₁₄ S	28	54	32	C	C	53	G ₃₁	C	C	C	G	16	E ₁₅ S	E ₁₄ S	E ₁₅ S	E ₁₅ S		
13	E ₁₅ S ₁₅	E ₁₄ S ₁₄	E ₁₄ B ₁₄	E ₁₅ S ₁₅	E ₁₃ S ₁₃	E ₁₅ S ₁₅	S	G	G	G	27	30	G ₂₄	G ₄₂	G ₂₉	24	33	29	28	25	E	21	23	E	
14	16	16	E ₁₄ S ₁₄	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E	S	G	G	G	34	32	G ₃₃	G	33	30	28	25	18	E ₁₅ S	E ₁₅ S	E ₁₅ S	E ₁₅ S	28	
15	23	25	19	28	19	E	G	25	28	G	37	G	G	G	33	32	36	28	41	22	22	21	18	E ₁₄ S	
16	20	E ₁₅ S ₁₅	15	E	E	E ₁₄ S ₁₄	E ₁₅ S ₁₅	G	32	33	34	37	35	36	39	G	30	27	41	A	23	A	25	E	
17	E ₁₅ S ₁₅	E	E ₁₅ S ₁₅	E ₁₁ B ₁₁	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₄ S	G	G	33	34	29	34	G ₂₈	33	33	29	29	32	27	20	16	E ₁₄ S	E ₁₅ S	
18	E	21	20	E	E	E ₁₃ S ₁₃	E ₁₅ S ₁₅	G	G	30	G ₂₈	G ₂₈	37	35	39	G ₁₆	G	23	E ₁₄ S	E ₁₄ S	E ₁₅ S	E ₁₅ S	22	E ₁₅ S	
19	E ₁₄ S ₁₄	E ₁₃ S ₁₃	E ₁₃ S ₁₃	E ₁₃ S ₁₃	E ₁₃ S ₁₃	E ₁₄ S ₁₄	E ₁₅ S ₁₅	G	G	18	33	34	G	35	37	36	32	G	22	15	20	33	21	16	22
20	E	E	15	15	16	E ₁₅ S ₁₅	E ₁₅ S ₁₅	21	28	31	G	G	G ₂₈	G ₂₈	G	32	G	22	16	E ₁₅ S	E ₁₅ S	E ₁₅ S	E ₁₅ S	E ₁₄ S	
21	E ₁₄ S ₁₄	E ₁₂ S ₁₂	E ₁₃ S ₁₃	E ₁₅ S ₁₅	E ₁₄ S ₁₄	E ₁₄ S ₁₄	E ₁₅ S ₁₅	23	27	G	32	29	G ₂₇	G ₂₃	G	G ₂₄	G ₂₃	22	22	16	E	E	E	15	
22	20	E	E	E	E ₁₅ B ₁₅	E ₁₃ B ₁₃	E ₁₅ S ₁₅	G	27	30	34	30	G ₂₅	G ₃₀	G ₂₉	G ₂₈	G	20	20	21	E ₁₆ S	17	E	E ₁₅ S	
23	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₄ B ₁₄	E ₁₅ B ₁₅	15	E ₁₅ S ₁₅	E ₁₅ S ₁₅	G	G	23	25	25	G ₂₃	G ₂₂	G	19	G	41	27	15	E	E ₁₅ S	E ₁₅ S	E ₁₅ S	E ₁₅ S
24	E	18	17	21	E	17	S	G ₁₈	28	E ₃₁ R	30	E ₃₅ R	G	G ₂₁	G	G	29	37	A	20	E ₁₄ S	E	E	E	
25	18	A	22	14	E	E	S	G	G	G	47	44	40	G	G	33	36	25	21	E	E	E ₁₄ S	E ₁₅ S	E	
26	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E	E	E	E ₁₅ S ₁₅	19	G	G	41	42	40	59	40	46	32	27	29	22	20	E	16	E ₁₄ S	
27	E	E ₁₄ S ₁₄	E ₁₄ S ₁₄	16	19	E ₁₃ S ₁₃	G	G	G	G	G ₂₁	G	35	34	G	G	30	23	E	E ₁₅ S	E	E ₁₅ S	E	E	
28	19	16	E	E ₁₄ S ₁₄	E ₁₃ S ₁₃	E ₁₅ S ₁₅	G	G	G	G	35	G	41	38	53	66	G	33	E	E ₁₅ S	E ₁₃ S	E ₁₅ S	E	E	
29	E ₁₄ S ₁₄	E ₄₀	21	E	E	E	S	G	G	40	44	44	37	38	44	33	33	22	24	E	E	E ₁₅ S	E ₁₅ S	E	
30	E	E ₁₅ S ₁₅	E	15	14	E	E ₁₅ S ₁₅	G	21	G	39	45	40	37	37	G	33	35	34	E	E	E	22	E	
31	19	16	21	E	E ₁₃ S ₁₃	E ₁₂ B ₁₂	E ₁₅ S ₁₅	22	20	34	35	G	G	G ₂₂	G ₂₁	G ₂₂	G ₁₇	G	G	18	E	E ₁₅ S	E ₁₄ S	E ₁₅ S	
CNT	31	31	31	31	31	31	25	31	31	31	30	28	30	31	28	29	29	30	31	31	31	31	31	31	
MED	15	E ₁₅ S ₁₅	E ₁₄ S ₁₄	E ₁₄ S ₁₄	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	G	G	20	G ₂₄	34	32	35	30	30	G ₂₂	28	23	21	20	E ₁₅ S	15	15	E ₁₅ S
UQ	19	16	17	15	15	E ₁₅ S ₁₅	E ₁₅ S ₁₅	22	28	32	37	40	37	36	38	32	33	28	29	23	20	22	20	16	
LQ	E ₁₄ S ₁₄	E	E ₁₅ S ₁₅	E ₁₁ B ₁₁	E	E ₁₂ B ₁₂	E ₁₄ S ₁₄	G	G	G	G ₂₅	G ₂₅	G ₂₅	G ₂₂	G	G	G	G	16	E ₁₄ S	E	E ₁₄ S	E ₁₄ S	E	

OCT. 1971

FBES (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1971

M(3000)F2 (0.01)

135 E Mean Time (G. M. T. + ϕ^h)

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	280 ^S	275 ^S	285	290	275	280	295 ^S	345	345 ^S	340	310	295	315 ^R	315	305	305	325 ^S	350	335	295 ^S	280 ^S	280	280 ^S	295 ^S
2	300 ^S	305 ^S	290 ^S	280	270	275	295 ^S	340 ^S	335	335	300	315	300	325 ^R	300	310 ^S	320	335 ^S	335 ^S	370 ^S	260	275 ^S	260	290 ^S
3	300 ^S	300 ^S	305	280	270	280	290	335	355	320	300	310	315	300 ^S	310 ^S	315	325 ^S	335 ^S	325	305	295	290	285	290 ^S
4	290 ^S	300	290	310	335	265	305 ^S	355	355	350	300	310	315 ^S	315	315	320 ^S	335	340	345	350	290	290 ^S	295	305 ^S
5	300	295	290	315	325	300	305	345 ^S	340 ^S	335	335	310	300	300	305 ^S	325	335 ^S	320	325	320	320	280	285 ^S	275
6	285	285	295	295	310	320	300	345	345	370 ^S	340 ^R	315	305	300 ^R	315	335 ^S	320	330 ^S	355 ^S	355	315 ^S	285 ^S	300 ^S	295
7	320	285	265	270	270	290 ^S	320 ^S	355	345 ^S	355	320	305	330	310	305	315	330	325 ^S	330	315	295	315	300	275
8	270	275	275	275	285	280	320 ^S	355	360	340	340				295		310	310	340	345 ^S	290	275	270 ^S	270 ^S
9	255	295	340	265	285	275	305	370	355	375	335	300	315	305 ^S	290	315 ^S	310	330 ^S	340 ^S	275	260	265 ^S	260	265
10	280	285	320	290	280	315	280	335	350 ^S	370	330	290	305 ^R	310	310	325	320 ^S	325 ^S	345 ^S	330	270	295 ^S	285 ^S	290
11	290 ^S	305	295	280	295 ^F	310	300	345	345	320 ^S	340 ^S	325 ^S	305 ^S	310	305 ^S					330	315 ^S	260 ^S	280 ^S	295
12	285 ^U	280	280	280	300	275 ^F	300 ^S	350 ^S	345 ^S	345 ^H														
13	275	285	315	315	280	280	310	350	350	295 ^V	320	310	310	315	335 ^S	335	315	330	325	315	305	280 ^S	280 ^S	280 ^S
14	280 ^U	295	310	260 ^S	270	290	285	340	330	315	330	315	300 ^S	315	320 ^S	330 ^S	330 ^S	340	350 ^S	350	335	305	285	270
15	275 ^S	310	335	350	305	290	310	355 ^S	360	325	320	305 ^S	320 ^S	315	305 ^S	315 ^S	325 ^S	340 ^S	360 ^S	290	275	295	285	290 ^S
16	270	275	285	315 ^S	370	255	285	355 ^S	345	340	330	300	305	320 ^R	305 ^S	325 ^R	340 ^S	345	355	300 ^A	285	280	280	270
17	270	265	300	320	345	285 ^F	295	355	375	350	340	315	300	300 ^V	305 ^S	320 ^S	335 ^S	335	360	325	285	290	295	285
18	270	290	295	305	325	310	325	355	355	345	340	325	330	315 ^R	310	320 ^S	330 ^S	320	335 ^S	340 ^S	310	305	320	290
19	290	315	325	310	320	355	315	370	355	365	335	330	340	315	320	330	340	350	345	320	285	295	305	310
20	300	310	345	315	365	340	300	340	350	330	345	325 ^S	335 ^S	305	310	330	345	345	360	355	275	300	295	300
21	290	290	320	340	365	350	315	355	350	345	310	310	320	320 ^U	330	315	335	340	305	305	295 ^S	300 ^S	310 ^S	280
22	270 ^S	270	280 ^S	285	300	285	295	350	345	310	320 ^S	330	320	315	325	325	330 ^S	345	345 ^S	310	270 ^S	295 ^S	300 ^S	290 ^S
23	285	300	305	290	290	270	335 ^S	365	330	325	335 ^S	300 ^S	320 ^S	310 ^S	320	340	335 ^H	365	340	285	285	275 ^S	315	270 ^S
24	275	290 ^S	320 ^S	305	315	260 ^F	285 ^S	345	360 ^S	330	325	315	315	300 ^S	315	340 ^S	350	345	310 ^A	315	295	295	300	280
25	265 ^S	275 ^A	305 ^S	325	325	275	285 ^S	335	335	310 ^U	345	310	330	305	305 ^S	320 ^S	340 ^S	340	340	285	295 ^S	305 ^S	300	280
26	285 ^S	285	300	295	305	310	320 ^S	340	365	335	335	355	335	310 ^S	325	345	345	360 ^S	365	305	270	305	320	300
27	295 ^S	290	290	310	325 ^S	345	310	350 ^S	360	350 ^S	325	340 ^S	320	320	315	315 ^S	320 ^S	330 ^S		320 ^U	250 ^S	280 ^S	280 ^S	280 ^S
28	270 ^S	285	285	300	315 ^S	335	340 ^S	365 ^S	365	350	325	325 ^R	305	315	305	305 ^H	335 ^S	345 ^S	345 ^S	285	285	290	290 ^S	290
29	265	280 ^S	275 ^S	295	305	265	250 ^S	340 ^S	345 ^S	345	305	300 ^S	315	310 ^S	320 ^S	340	320	370 ^S	315 ^S	320 ^S	320	280 ^S	280 ^S	280
30	285	290	290	290	330	320	270	340 ^S	325	340 ^S	340	315	295	295	315	325	335	340	320	290 ^S	265 ^S	285 ^S	285 ^S	290
31	270	270	275	275	330	275	305	350 ^S	345	345 ^S	335	330	330	305 ^S	330 ^S	345	350	355	315	335	305 ^S	275	280 ^S	285
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	29	30	31	29	29	30	31	29	31	31	31	31	31
MED	280	290	295	295	305	285	300	350	350	340	330	315	315	310	310	325	330 ^S	340	340	315	285	290	290	290
UQ	290	298	312	312	325	312	312	355	355	350	340	325	325	315	320	330	335	345	345 ^S	332	295	295	300	290
LQ	270	280	285	280	285	275	292	340	345	328	320	305	305	305	305	315	320 ^S	330	325	298	270	280 ^S	280 ^S	280

OCT. 1971

M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1971

M(3000)F1 (0.01)

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

Station		YAMAGAWA								Lat. 31 12.1 N		Long. 130 37.1 E		Sweep 1		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	340	355	L	L	340	A	L							
2											L	L	L	380	360	L	365	L	L						
3										L	365	385	370	365	360	345	L	L							
4										L	L	L	395	L	L	L	L	L							
5											L	385	380	L	325	C	365	A	A						
6										L	L	L	395	L	L	L	L	L							
7										L	L	385	355	365	365	L	L	L							
8										L	365	L	C	C	L	C	L	L							
9										L	L	L	L	350	L	L	355	L							
10										L	L	390	L	340	375	340	L	L							
11										L	L	L	C	395	L	L	C	C							
12											L	C	C	A	L	C	C	C							
13										L	L	L	L	380	360	L	L	A							
14										L	L	L	L	L	L	L	L	L							
15											L	L	365	L	L	L	L	L							
16										L	L	365	380	L	340	L	L	L							
17											L	370	390	345	360	360	L								
18											L	405	390	375	370	L	L	L							
19										L	L	L	380	L	L	L	L	L							
20										L	L	365	365	365	L	L	L	L	L						
21										L	L	360	L	355	355	L	L	L							
22										L	L	350	355	360	355	L	L	L							
23										L	L	L	L	360	355	L	L	A							
24											L	385	L	375	L	L	L	L							
25										L	L	A	L	400	L	L	L	A							
26										L	L	L	L	L	A	A	A	L							
27										L		L	390	L	370	L	L	L							
28											L	L	L	435	L	L	A	A							
29												L	A	405	L	L	L								
30											L	L	L	L	L	L	L	L							
31										L	L	L	L	L	L	L	410	L	440						
	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	12	15	18	13	3	5		1						
MED											365	378	380	365	360	345	365		440						
UQ											385	390	380	365	352	365									
LQ											362	365	360	355	342	355									

OCT. 1971

M(3000)F1 (0.01)

IONOSPHERIC DATA

OCT. 1971

H^oF₂ (KM)

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

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									225	230	300	290	245	275	270	290	250	225						
2										255	285	260	275	255	270	265	255	225						
3									225	250	260	255	265	275	275	260	250							
4									225	245	250	275	250	255	255	250	245							
5									240	245	250	275	275	275	250	240	250							
6									240	235	240	250	295	280	260	260								
7									240	230	245	275	255	270	260	255	240							
8									240	245	240	C	C	310	C	250	265							
9									220	210	245	285	260	260	280	270	260							
10									215	225	250	335	280	275	275	245	240							
11									240	240	240	240	265	280	260	C	C							
12									240	C	C	C	270	250	C	C	C							
13									225	225	240	250	275	275	250	245	245							
14									245	250	250	245	280	265	250	235	235							
15									245	245	245	235	275	275	240	245								
16									225	250	260	275	255	280	260	255	235							
17									230	245	245	290	280	275	250									
18									240	245	250	260	275	275	255	245								
19									240	230	250	260	245	250	275	250	245							
20									225	245	255	265	250	290	285	270	230	220						
21									235	245	285	270	260	255	245	255	230							
22									225	230	260	250	270	270	255	250	240							
23									225	245	245	250	250	260	260	245	240							
24									245	245	250	255	265	260	240	230								
25									225	245	240	250	260	250	255	250	230							
26									215	250	260	235	240	285	270	235	235							
27									225	250	250	240	265	250	250	230								
28									240	255	240	255	270	255	250	240								
29									300	250	250	250	250	255	235									
30									245	230	240	255	265	270	240	225								
31									230	240	265	245	245	255	250	230	215	210						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									21	29	30	29	30	31	29	29	26	5						
MED									225	240	250	250	258	270	260	250	240	225						
UQ									240	245	260	265	270	275	275	255	245	225						
LQ									225	230	245	245	250	258	255	245	230	220						

The Radio Research Laboratories, Japan

OCT. 1971

H^oF₂ (KM)

IONOSPHERIC DATA

OCT. 1971

H⁺F (KM)

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

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	300	295	285	260	295	300	260	230	220	205	200 ^H	240	200 ^H	210 ^H	245	250	I ²³⁵ A	I ²³⁰ A	210	235	270	300	280	290
2	250	245	250	255	300 ^E	275	250	215	235	A	225 ^H	A	205	180 ^H	220	225	230	230	220	200	E ³¹⁵ A	E ³¹⁵ A	290	270
3	250	250	225	245	240	260	245	215	210	205	200	200 ^H	195 ^H	195 ^H	215	210	230	230	215	220	225	245	275	255
4	260	240	250	255	225	275	250	225	215	210	200 ^H	195	200	200 ^H	205 ^H	230	230	230	225	220	230	280	290	270
5	275	270	250	225 ^H	200	250	240	230	225	220	200	195	195 ^H	200	I ²²⁰ C	240	I ²³⁰ A	I ²²⁵ A	225	225	220	I ²⁴⁰ A	270	290
6	260	260	245	225	205	235	250	220	205 ^H	200 ^H	195 ^H	200	195	210	200 ^H	235	240	245	240	210	205	250	250	230
7	245	275	300	300	290	260	240	220	230	215	200	200	200	200	200 ^H	225 ^H	225	I ²²⁵ C	225	230	245	250	250	280
8	295	290	275	260	250	250	245	220	220	205	205	C	C	190 ^H	C	240	225	230	200	225	260	295	295	305
9	300	250	205	250	295	300	255	215	215	205	195	185 ^H	200 ^H	205 ^H	195 ^H	190 ^H	240	225	205	E ²⁵⁰ A	295	305	325	300
10	265	250	225	245	250	250	260	235	225	200	210	255	200	200	225	235	225	225	210	220	275	E ³⁰⁰ A	295	265
11	E ²⁷⁵ A	230	250	295	250	245	230	220	225	220	210	I ²⁰⁵ C	200	190	E ²⁴⁰ A	C	C	230	205	205	250	275	255	270
12	300	300	310	300	270	E ³⁰⁵ C	260	230	235	225 ^H	C	C	A	175 ^H	C	C	I ²¹⁰ C	230	205	200	280 ^H	280	250	250
13	280	250	225	220	250	280	240	210	225	200	210 ^H	200 ^H	200 ^H	250	230	210 ^H	A	235	215	225	240	280	275	275
14	300	255	230	315	295	240	225	225	225	210	205	205	195	190 ^H	185 ^H	230	235	245	205	200	235	250	235	E ³⁶⁰ A
15	E ³⁵⁰ A	300	245	E ²⁸⁰ A	E ²⁷⁰ A	E ³⁰⁵ A	255	225	215	210	230	220	200 ^H	180 ^H	200 ^H	230	250	230	205	225	295	250	280	275
16	310	275	250	230	200	E ³⁴⁰ A	250	220	220	200 ^H	200	195	180 ^H	200 ^H	250	245	235	225	210	A	270	I ²⁸⁰ A	E ³⁰⁵ A	300
17	300	290	250	230	210	250	240	210	220	215	200	200	195 ^H	195 ^H	215	250	245	230	210	225	250	245	245	260
18	290	295	275	250	225	235	215	215	220	210	200	180 ^H	210	190	265	240	235	220	210	200	220	240	260	270
19	295	270	245	250	240	220	240	215	220	220	205	200	190 ^H	185 ^H	190 ^H	235	235	225	215	220	E ³³⁰ A	300	280	270
20	260	245	230	255	225	210	250	225	220	210	200	200	200	190 ^H	190 ^H	235 ^H	230	235	210	200	280	300	255	285
21	280	290	245	230	200	225	255	220	215	200 ^H	195 ^H	205 ^H	200 ^H	200 ^H	200 ^H	220	225	225	200	230	250	235	240	250
22	295	290	275	260	240	215	245	225	215	210	200	200	210	205	225 ^H	205 ^H	230	220	200	240	295	265	245	245
23	260	250	250	250	265	300	220	205	210	225	200 ^H	205	205	225	225	230 ^H	I ²²⁰ A	215	200	225	250	280	240	240
24	280	280	235	240	225	330	265	225	225	225	210	225	205	200 ^H	220 ^H	225	230	215	I ²³⁵ A	215	240	235	245	255
25	290	I ²⁸⁰ A	245	225	215	300	265	240	225	220	I ²²⁵ A	235	205	235	220	220	I ²³⁰ A	225	200	240	250	235	240	270
26	260	245	230	250	245	205	215	210 ^H	205 ^H	210 ^H	240	A	210	A	A	I ²⁴⁰ A	I ²²⁵ A	210	205	230	300	250	250	260
27	275	285	275	255	245	210	245	205	205	220	205 ^H	200	205	200 ^H	215	220	230	235	200	195	240	240	250	275
28	300	290	265	255	250	220	200	205 ^H	210	200 ^H	190 ^H	175 ^H	190 ^H	225	240	I ²³⁵ A	I ²²⁵ A	220	205	200	250	250	250	250
29	275	A	E ³²⁰ A	255	250	E ³⁰⁰ S	E ³⁵⁰ S	245	205	220	250	I ²³⁵ A	210	E ²⁴⁰ A	I ²⁴⁰ A	225	230	230	235	205	210	210	275	275
30	270	280	285	300	245	205	260	230	225	220 ^H	230	I ²³⁰ A	200 ^H	195	250	230	E ²³⁰ A	210	230	205	255	250	280	250
31	265	295	295	250	220	240	240	225	215	230	210 ^H	210	205	180 ^H	205 ^H	210 ^H	210	200	200	225	220	245	275	275
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	31	31	31	30	30	27	29	30	28	29	29	31	31	30	31	31	31	31
MED	278	275	250	250	242	245	245	220	220	210	202	200	200	200 ^H	219	230	230	225	210	220	250	250	258	270
UQ	296	290	275	259	254 ^U	284	255	225	225	220	210	215	205	205	232	235	235	230	218	225	274	280	280	276
LQ	261	250	240	242	225	230	240	215	215	205	200	200	195 ^H	190 ^H	200 ^H	220	225	222	205	205	238	245	250	255

The Radio Research Laboratories, Japan

OCT. 1971

H⁺F (KM)

IONOSPHERIC DATA

OCT. 1971

H⁺ES (KM)

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

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	100	100	S	95	95	S	100	100	120	125	115	105	105	105	155	145	125	120	100	100	100	100	100	100
2	100	100	100	100	100	100	100	100	100	115	115	110	105	100	130	175	150	120	105	100	100	100	100	100
3	S	100	S	B	S	S	110	125	125	120	110	105	100	100	125	130	120	125	S	100	100	100	100	100
4	100	100	100	100	100	100	100	125	125	100	125	140	125	140	G	G	150	110	100	100	100	95	105	100
5	100	100	B	B	E	S	S	G	100	125	125	120	120	120	C	130	115	110	105	105	100	100	100	100
6	100	B	B	B	E	S	S	100	100	100	100	G	G	G	G	G	165	145	S	S	S	S	S	S
7	S	B	B	B	E	B	S	125	130	125	130	100	100	100	100	100	155	C	130	100	100	100	100	100
8	100	100	100	B	105	105	S	135	130	120	100	C	C	100	C	150	G	130	115	105	B	S	100	100
9	100	100	100	100	B	B	S	125	120	125	110	120	120	125	G	G	140	120	100	105	105	100	100	100
10	S	100	100	B	B	B	125	115	110	110	110	105	125	115	135	F G 170	155	120	105	105	100	100	100	100
11	100	100	100	100	100	100	S	120	120	110	100	C	100	100	100	C	C	100	100	100	100	100	100	C
12	100	C	C	100	100	C	S	110	105	105	C	C	100	100	C	C	C	135	100	S	100	S	S	S
13	S	S	B	S	S	S	S	135	130	100	100	100	100	100	100	100	120	115	105	100	100	100	100	100
14	100	100	S	S	S	100	100	125	125	110	110	110	105	110	110	105	105	130	120	S	S	S	S	100
15	100	100	100	100	100	100	100	140	135	135	125	150	170	145	100	105	130	135	115	105	100	100	100	S
16	100	S	100	95	95	S	S	150	125	125	125	125	125	125	165	175	150	145	105	105	105	100	100	105
17	S	100	S	B	S	S	S	G	G	125	115	105	105	100	110	100	150	105	100	100	100	100	S	S
18	100	95	95	95	95	S	S	150	130	110	100	100	160	150	170	100	G	150	S	S	S	S	100	S
19	S	S	S	S	S	S	S	105	100	125	125	125	125	95	120	125	120	115	105	105	100	100	100	100
20	100	100	100	100	100	S	S	120	120	120	G	G	100	100	120	105	G	155	95	S	S	S	S	S
21	S	S	S	S	S	S	S	145	115	110	105	100	100	100	G	100	100	100	100	100	100	100	100	100
22	95	95	95	100	B	B	S	G	120	110	100	100	100	100	100	105	160	110	100	95	S	100	100	S
23	S	S	B	B	105	S	S	G	110	100	100	100	100	G	100	G	125	110	105	105	S	S	S	S
24	100	100	100	100	100	100	100	110	F G 175	120	105	165	125	100	G	G	125	105	100	100	S	100	100	100
25	100	100	100	100	100	140	100	G	135	115	110	110	110	110	110	110	105	105	100	100	100	S	S	100
26	S	S	S	100	100	100	S	130	125	G	105	105	110	110	105	105	105	100	100	100	100	100	100	S
27	100	S	S	95	100	S	100	G	G	130	100	115	110	110	130	130	110	110	105	S	100	S	100	100
28	100	100	95	S	S	S	100	G	100	145	125	125	G	150	150	135	120	130	110	125	S	S	S	100
29	S	100	100	100	100	100	100	G	150	115	120	120	125	130	115	130	110	105	105	105	105	S	S	105
30	100	S	100	100	100	100	S	100	100	170	145	130	125	125	150	140	110	105	100	100	100	100	100	95
31	95	100	90	90	S	B	S	105	100	100	100	150	150	100	100	100	100	G	95	95	95	S	S	S
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	20	17	18	17	11	12	23	29	30	29	26	28	29	23	24	26	29	28	25	22	19	21	20
MED	100	100	100	100	100	100	100	125	120	118	110	110	110	105	115	113	122	115	102	100	100	100	100	100
UQ	100	100	100	100	100	100	100	132	128	125	125	125	125	125	132	135	150	130	105	105	100	100	100	100
LQ	100	100	100	95	100	100	100	108	105	110	100	105	100	100	100	102	110	105	100	100	100	100	100	100

The Radio Research Laboratories, Japan

OCT. 1971

H⁺ES (KM)

IONOSPHERIC DATA

OCT. 1971

TYPES OF ES

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

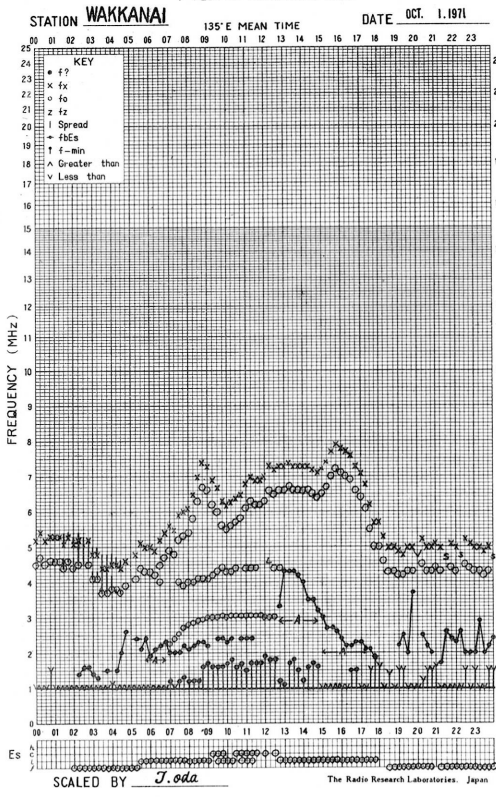
Station **YAMAGAWA** Lat **31 12.1 N** Long **130 37.1 E** Sweep **1** MHz to **20** MHz in **20** sec in automatic operation

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		F	F		F	F	H	H	F	F	F	F	HCL	HC	HC	HL	L	F	F	F	F	F
2	F	F	F	F	F	F	F	F	H	H	F	F	F	F	H	H	H	C	L	F	F	F	F	F
3		F					F	H	H	F	F	F	F	F	H	H	F	H		F	F	F	F	F
4	F	F	F	F	F	F	F	H	H	F	F	F	F	F			H	C	L	F	F	F	F	F
5	F	F							H	H	H	H	F	F			H	C	L	F	F	F	F	F
6	F							H	H	F	F						H	H						
7								F	H	H	H	F	F	F	F	F	H		H	F	F	F	F	F
8	F	F	F		F	F		H	H	H	F			F		H		H	F	F		F	F	F
9	F	F	F	F				F	F	H	F	F	H	H			H	H	H	F	F	F	F	F
10		F	F					F	F	F	F	F	F	F	H	H	H	H	F	F	F	F	F	F
11	F	F	F	F	F	F		F	F	F	F		F	F	F		F	F	F	F	F	F	F	F
12	F			F	F			F	F	F			F	F				H	L	F		F		
13								F	F	H	F	F	F	F	F	F	H	H	F	F	F	F	F	F
14	F	F			F	F		F	F	F	F	F	F	F	F	F	F	H	L	F				F
15	F	F	F	F	F	F	F	H	H	H	H	H	H	H	F	F	H	H	F	F	F	F	F	F
16	F		F	F	F			H	H	H	H	H	H	H	H	H	H	H	L	F	F	F	F	F
17		F							H	F	F	F	F	F	F	F	H	L	L	F	F	F	F	F
18	F	F	F	F	F			H	H	F	F	F	H	H	H	F								F
19								F	F	H	H	H	F	F	F	F	F	F	F	F	F	F	F	F
20	F	F	F	F	F			F	F	F			F	F	F	F		H	F					
21								H	F	F	F	F	F	F	F	F	F	F	L	L	F	F	F	F
22	F	F	F	F				F	F	F	F	F	F	F	F	F	F	F	L	F		F	F	F
23					F				F	F	F	F	F	F	F	F	F	F	F	F	F			
24	F	F	F	F	F	F	F	H	H	F	F	H	H	F			H	L	F	F		F	F	F
25	F	F	F	F	F	F	F	H	H	F	F	F	F	F	F	F	F	F	F	F	F			F
26				F	F	F		H	H		F	F	F	F	F	F	F	L	L	F	F	F	F	F
27	F			F	F				H	F	F	F	F	F	F	H	F	F	F		F		F	F
28	F	F	F					F	H	H	H		H	H	H	H	H	H	F	F				F
29		F	F	F	F	F	F	H	F	F	F	H	H	F	F	F	F	L	L	F	F			F
30	F		F	F	F	F		F	H	H	H	H	H	H	H	H	F	L	L	F	F	F	F	F
31	F	F	F	F				F	H	H	H	H	F	F	F	F	F	F	F	F	F			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

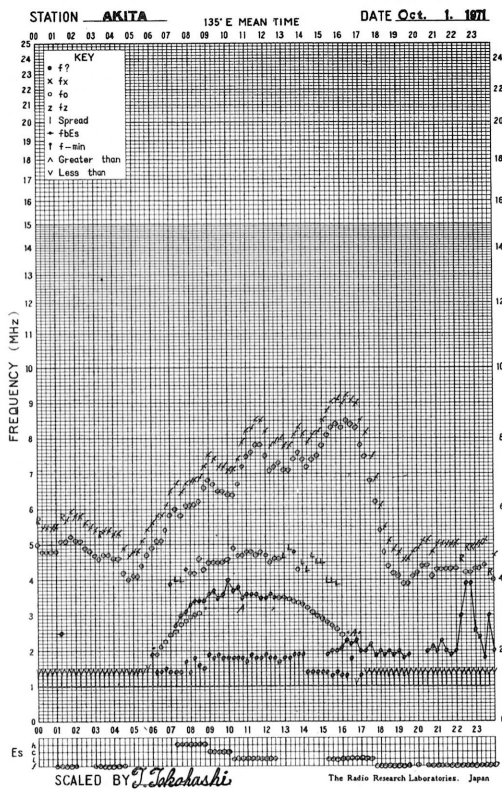
OCT. 1971

TYPES OF ES

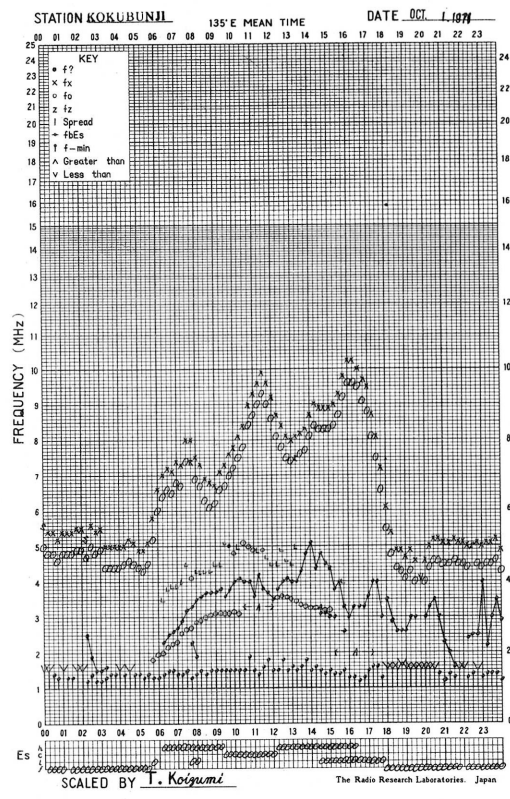
f- PLOT OF IONOSPHERIC DATA



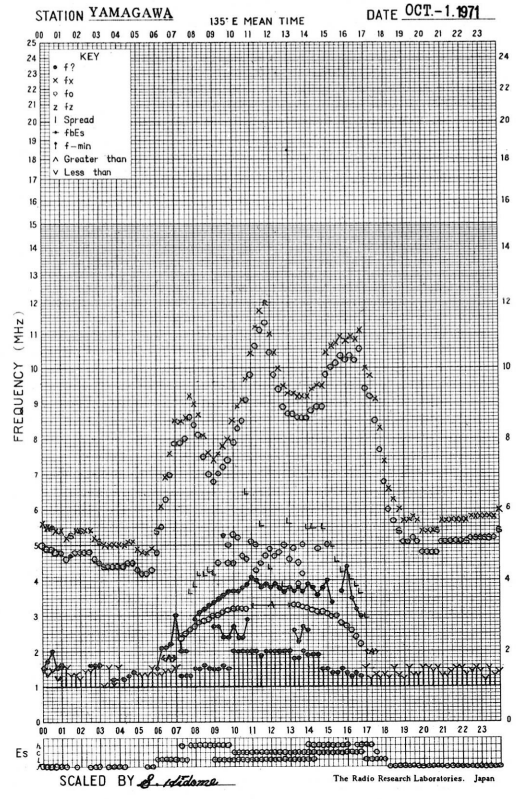
f- PLOT OF IONOSPHERIC DATA



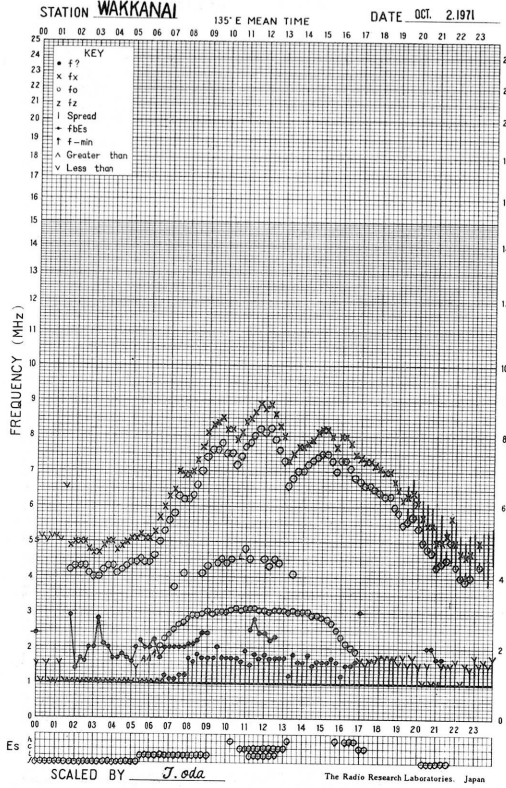
f- PLOT OF IONOSPHERIC DATA



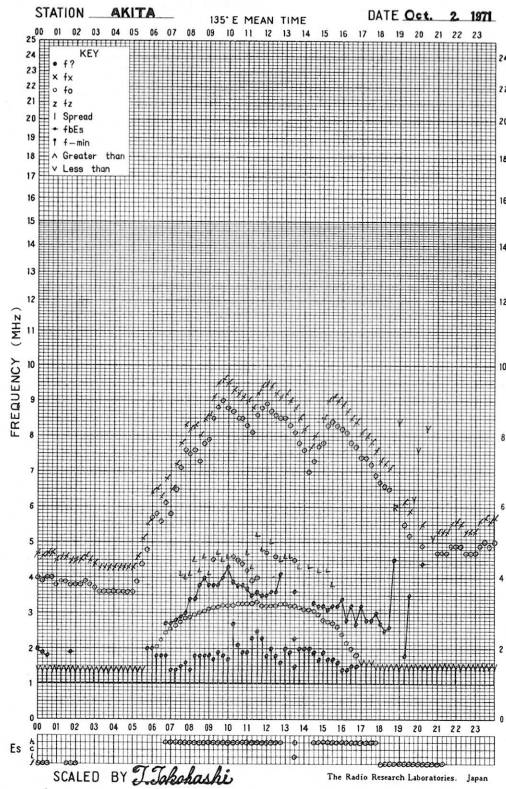
f- PLOT OF IONOSPHERIC DATA



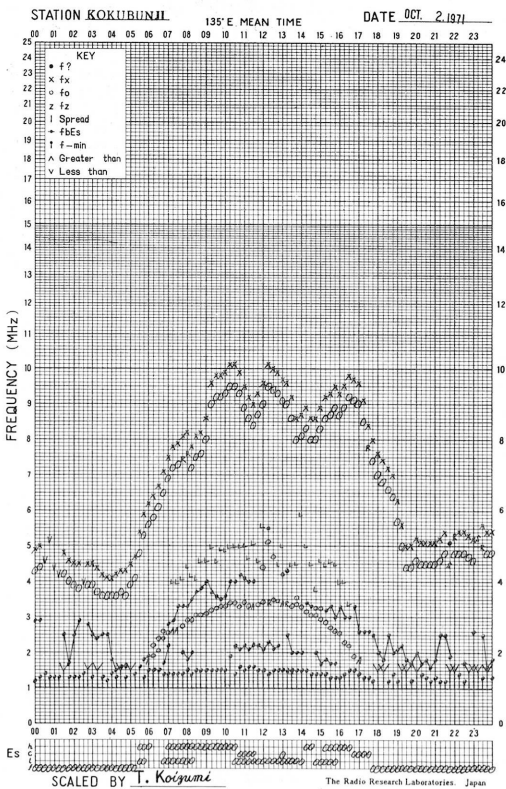
f-PLOT OF IONOSPHERIC DATA



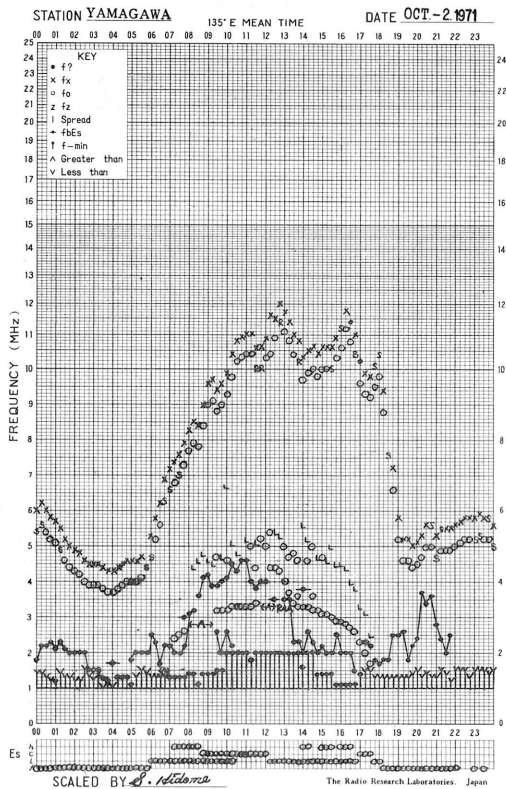
f-PLOT OF IONOSPHERIC DATA



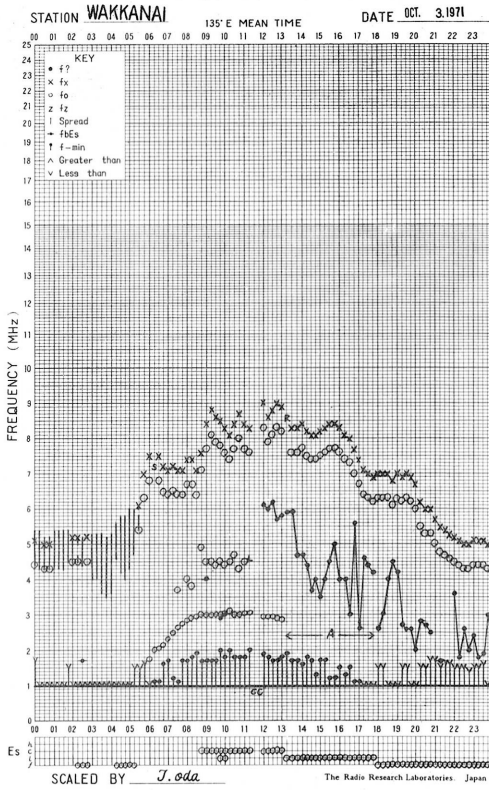
f-PLOT OF IONOSPHERIC DATA



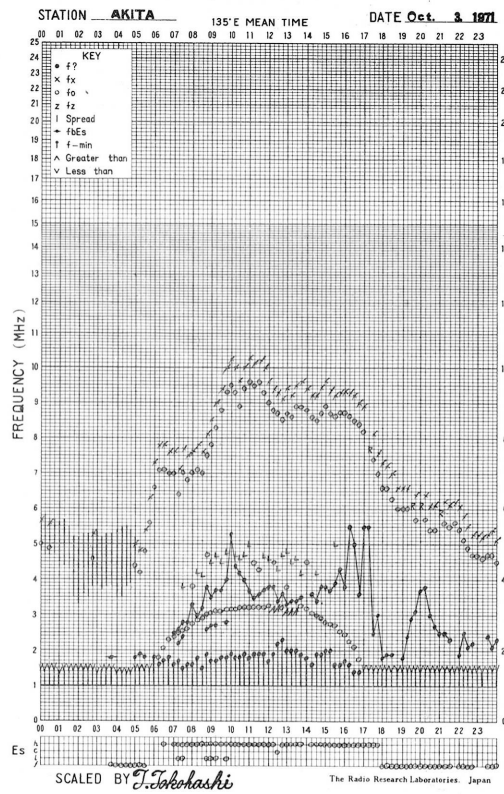
f-PLOT OF IONOSPHERIC DATA



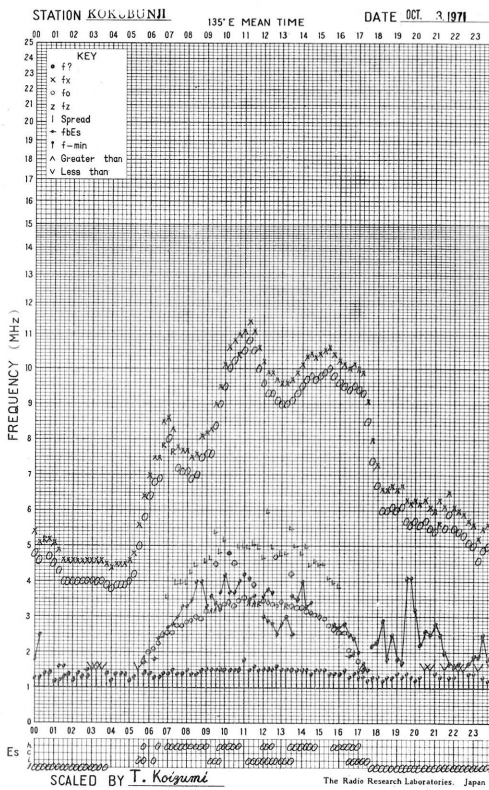
f-PLOT OF IONOSPHERIC DATA



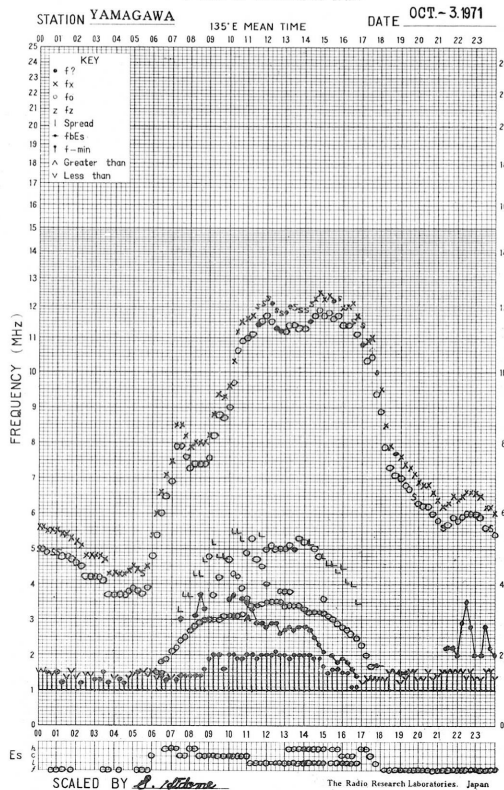
f-PLOT OF IONOSPHERIC DATA



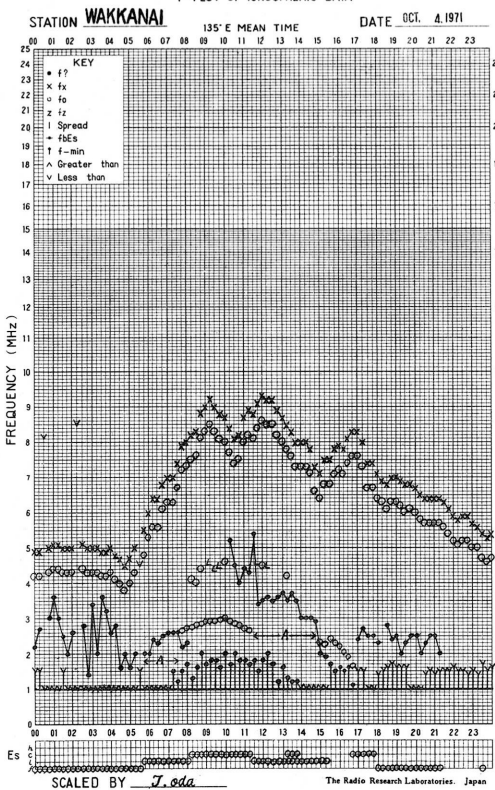
f-PLOT OF IONOSPHERIC DATA



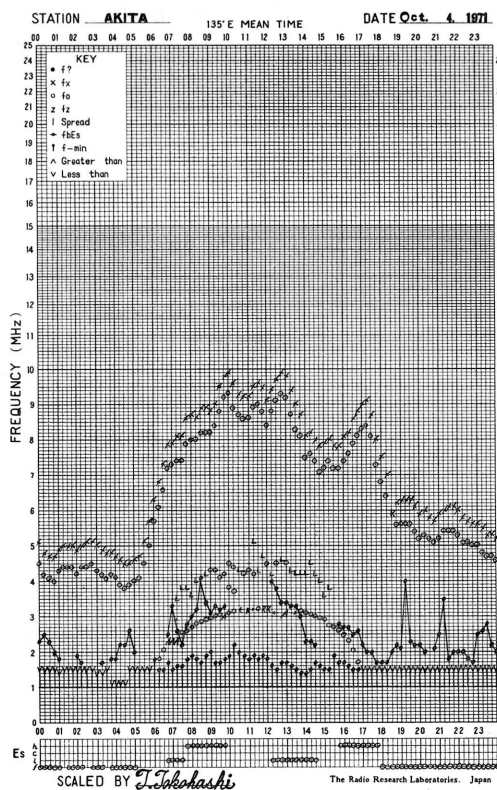
f-PLOT OF IONOSPHERIC DATA



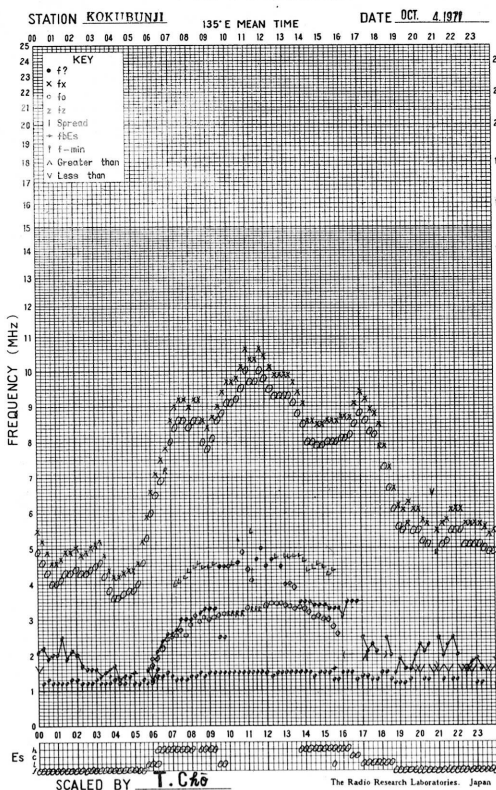
f-PLOT OF IONOSPHERIC DATA



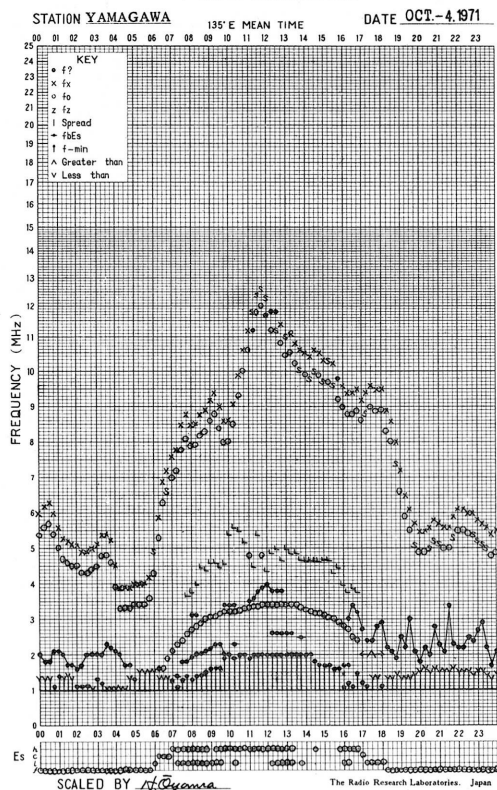
f-PLOT OF IONOSPHERIC DATA



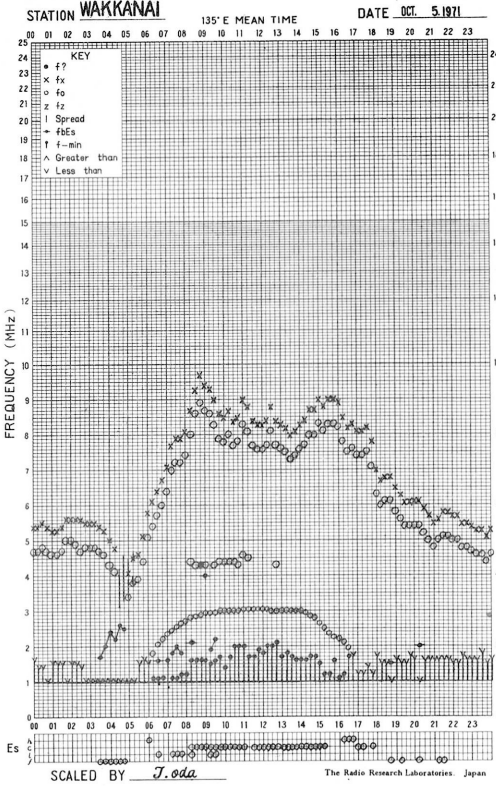
f-PLOT OF IONOSPHERIC DATA



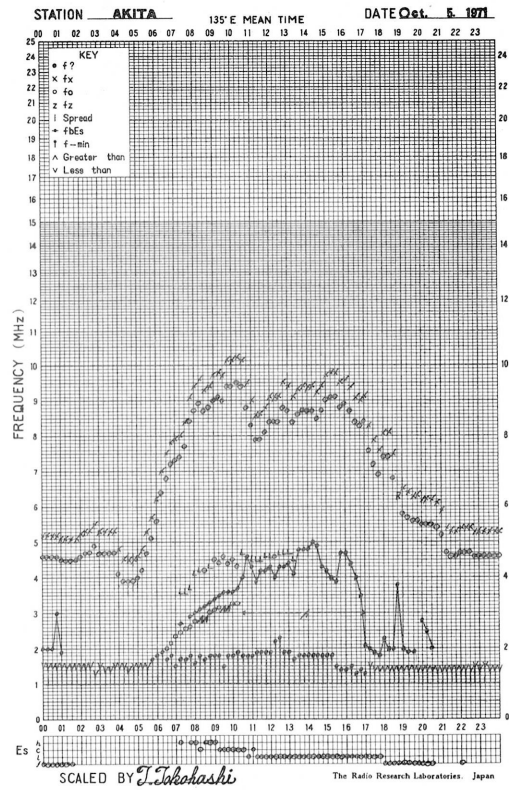
f-PLOT OF IONOSPHERIC DATA



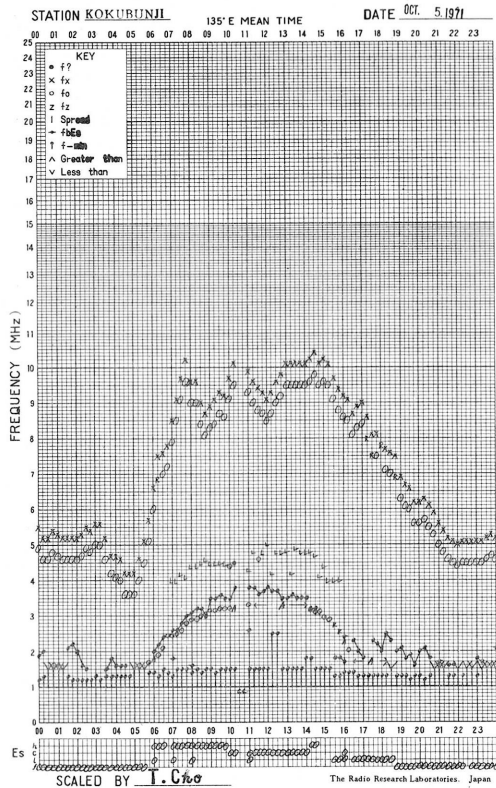
f-PLOT OF IONOSPHERIC DATA



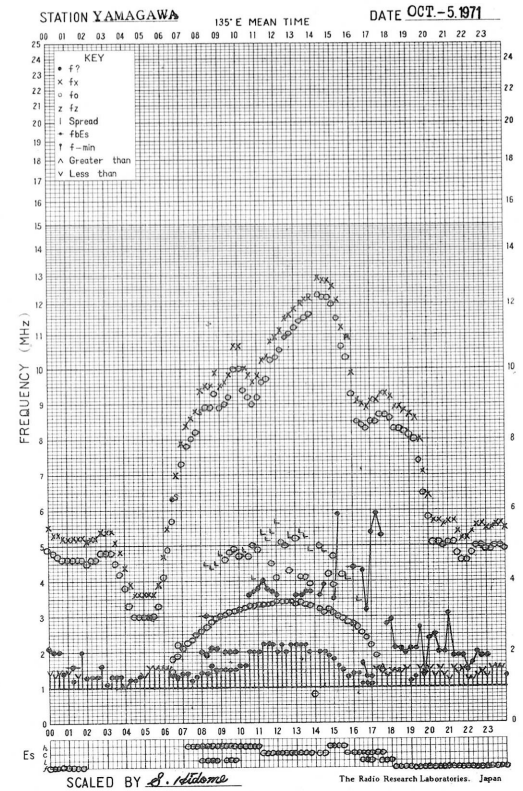
f-PLOT OF IONOSPHERIC DATA



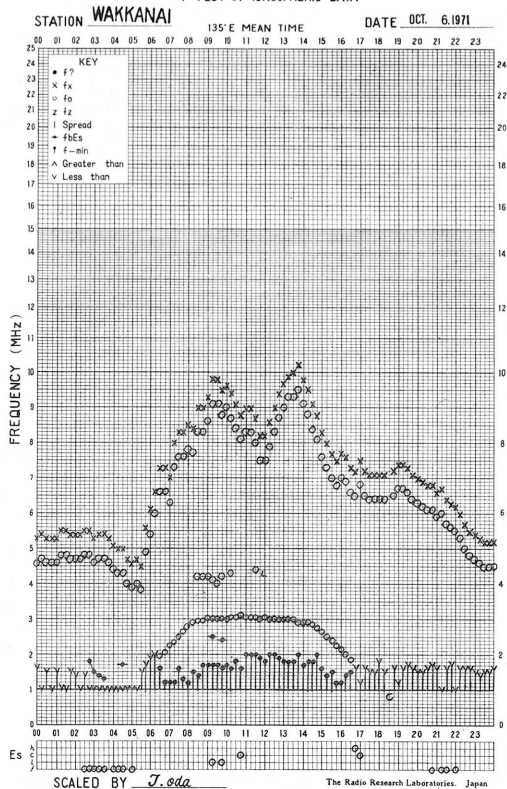
f-PLOT OF IONOSPHERIC DATA



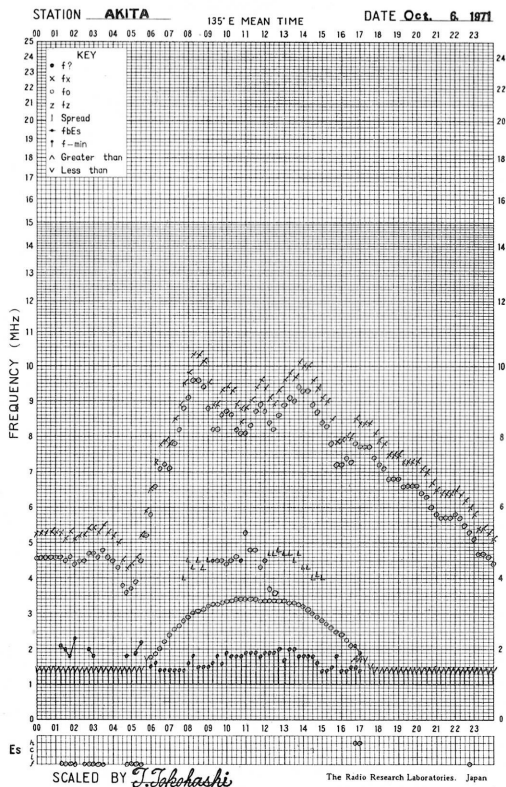
f-PLOT OF IONOSPHERIC DATA



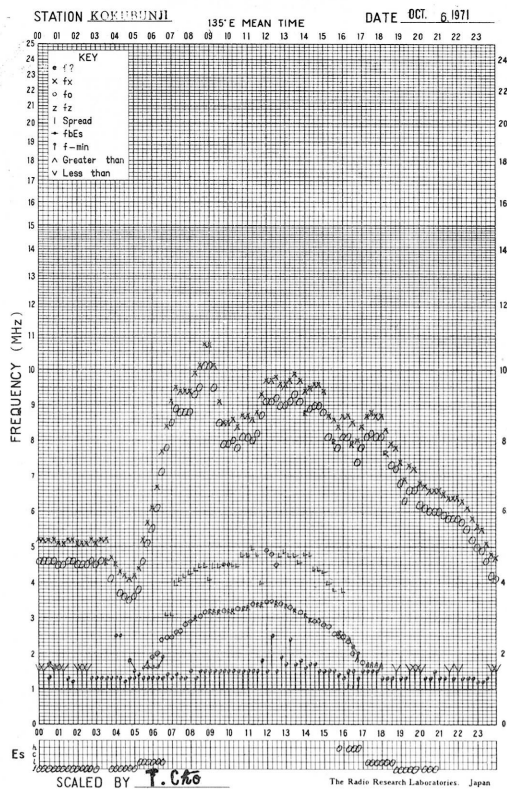
f-PLOT OF IONOSPHERIC DATA



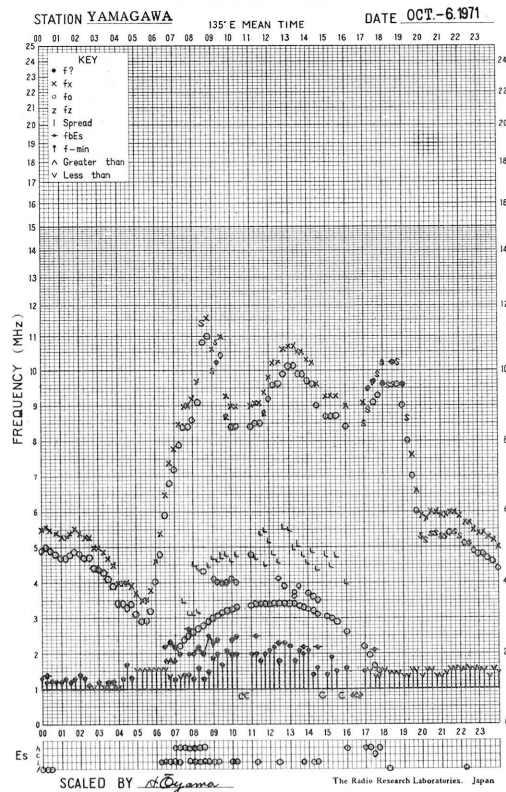
f-PLOT OF IONOSPHERIC DATA

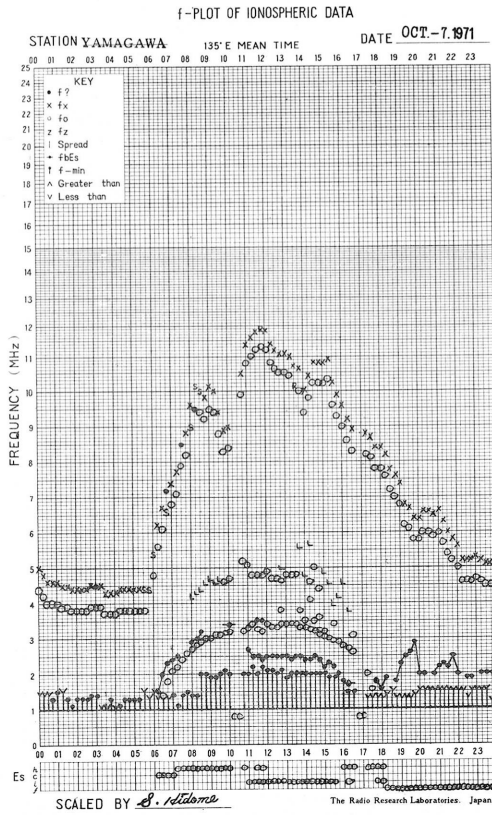
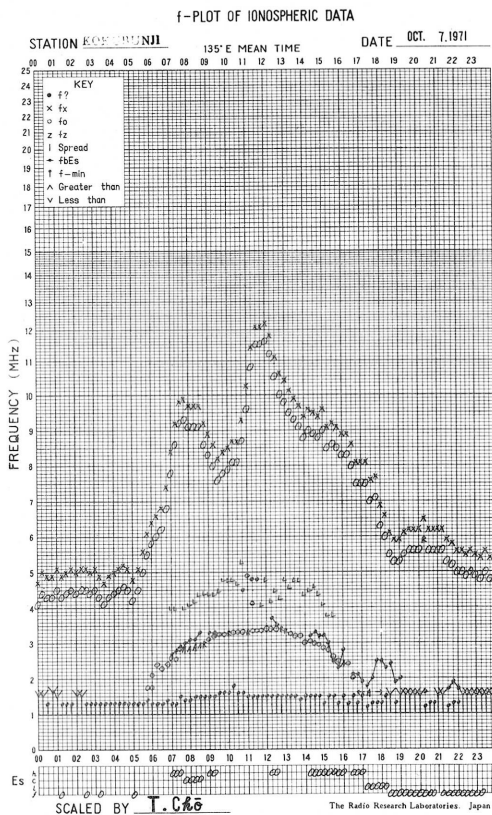
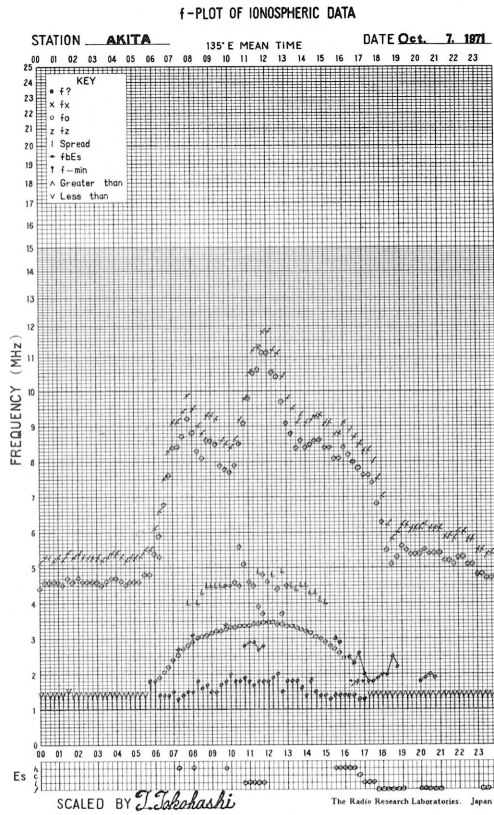
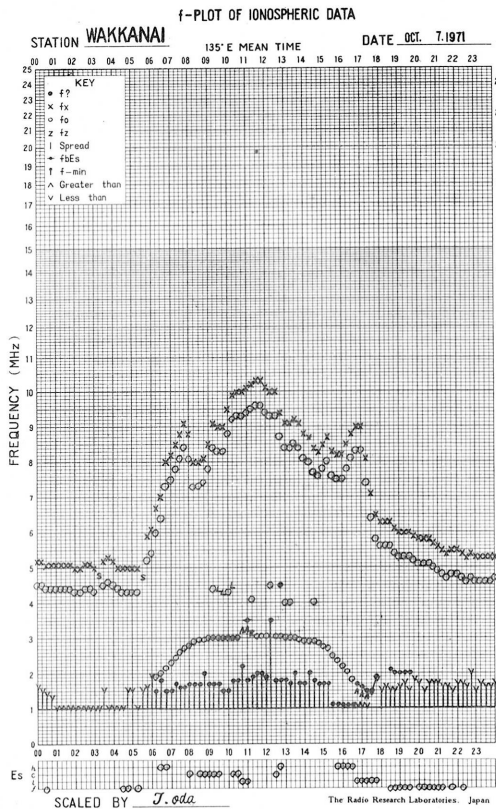


f-PLOT OF IONOSPHERIC DATA

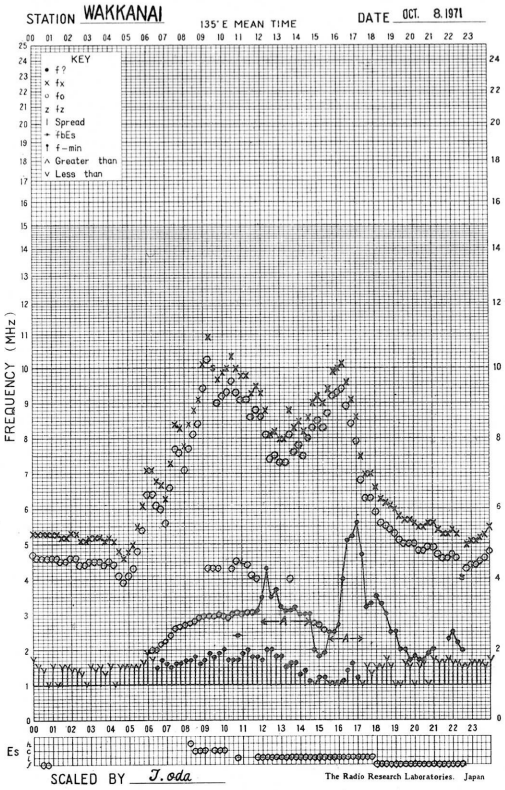


f-PLOT OF IONOSPHERIC DATA

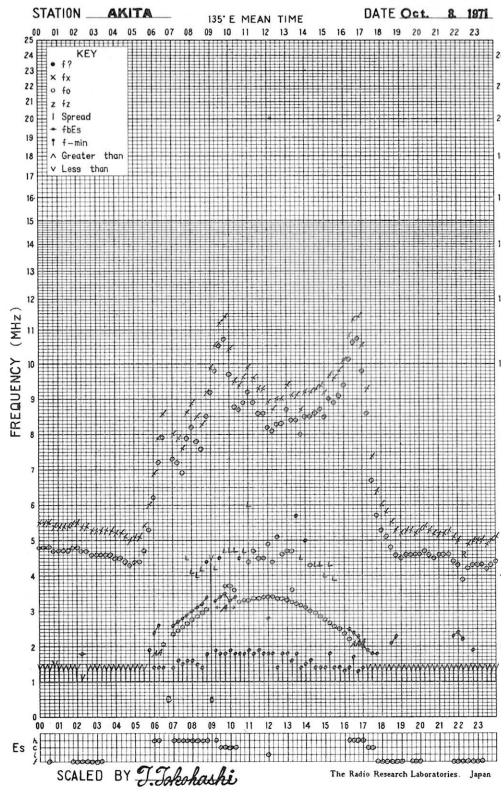




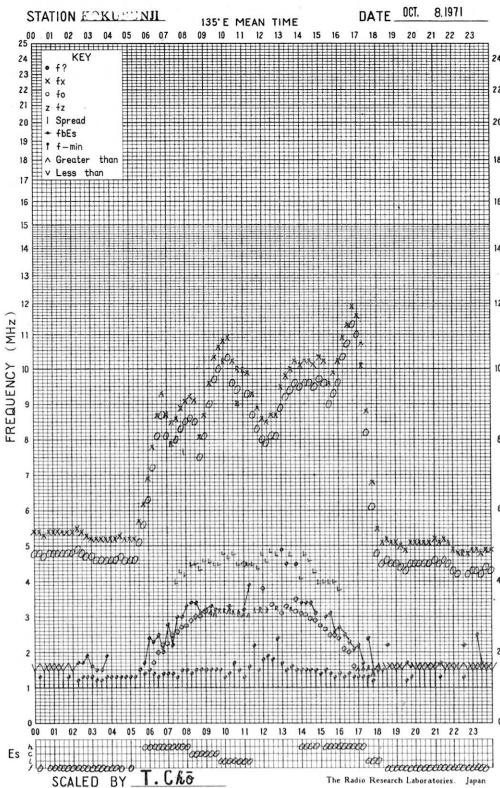
f-PLOT OF IONOSPHERIC DATA



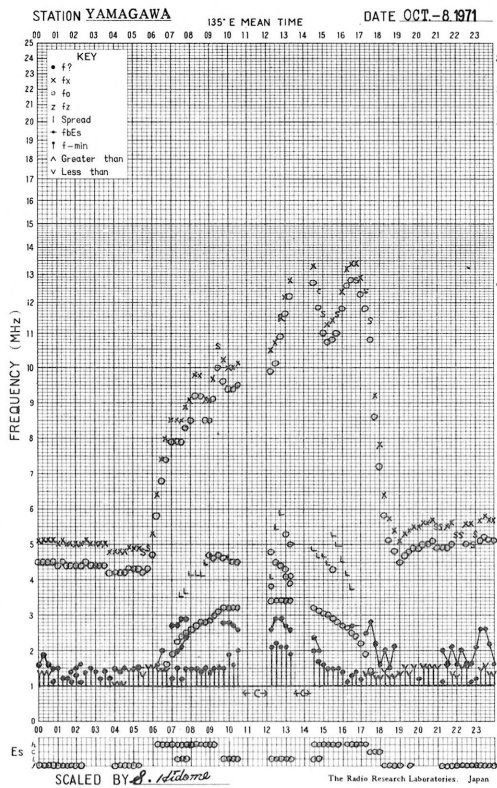
f-PLOT OF IONOSPHERIC DATA



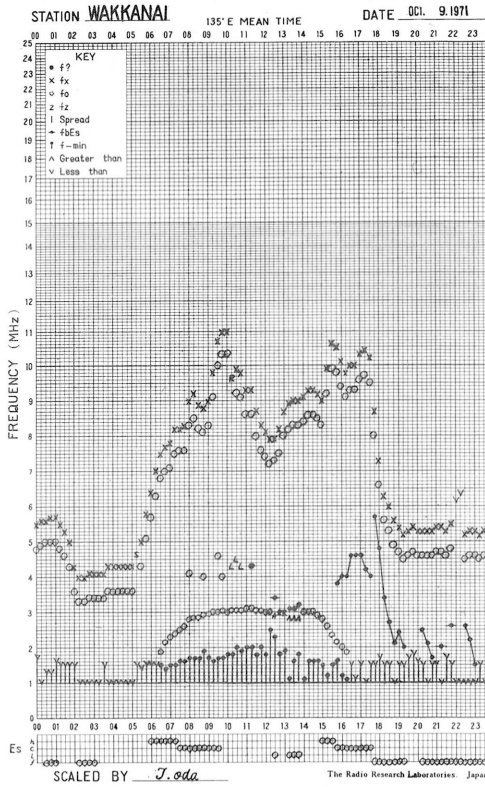
f-PLOT OF IONOSPHERIC DATA



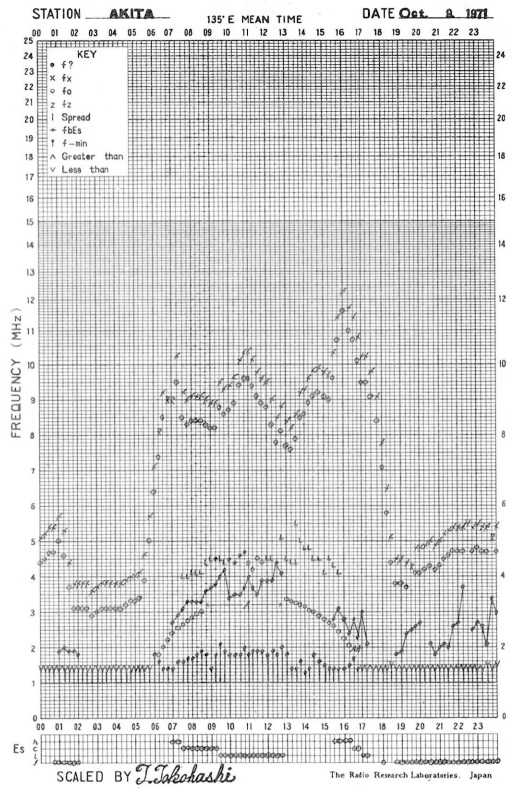
f-PLOT OF IONOSPHERIC DATA



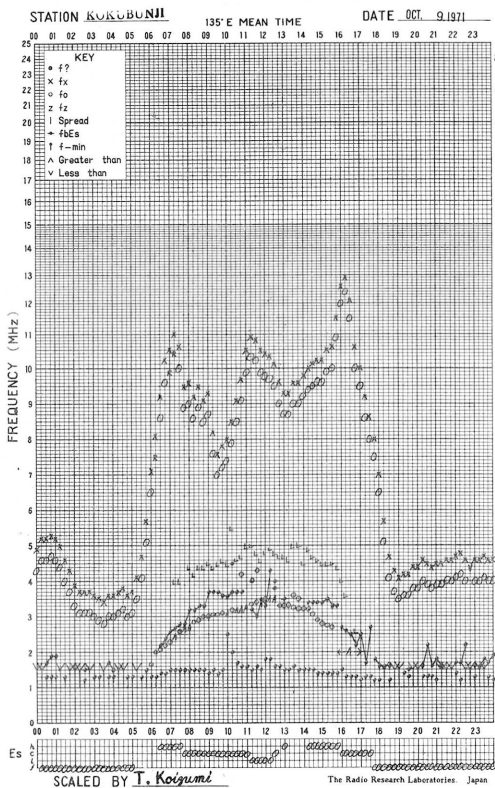
f- PLOT OF IONOSPHERIC DATA



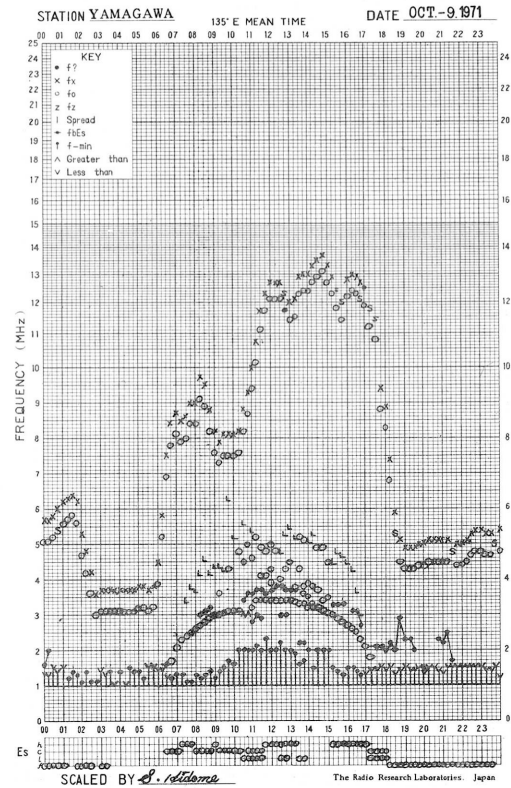
f- PLOT OF IONOSPHERIC DATA



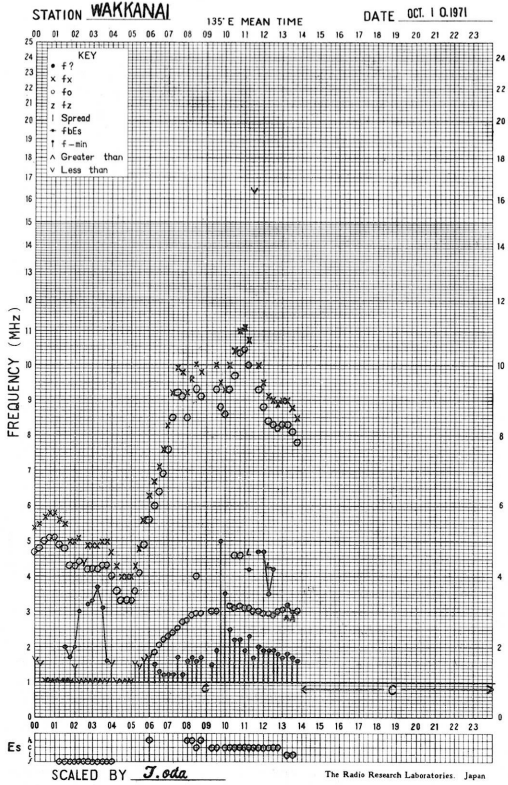
f- PLOT OF IONOSPHERIC DATA



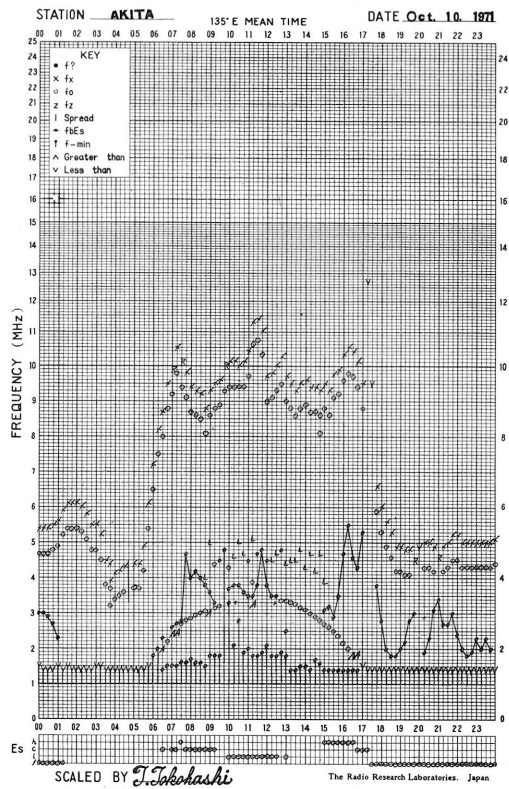
f- PLOT OF IONOSPHERIC DATA



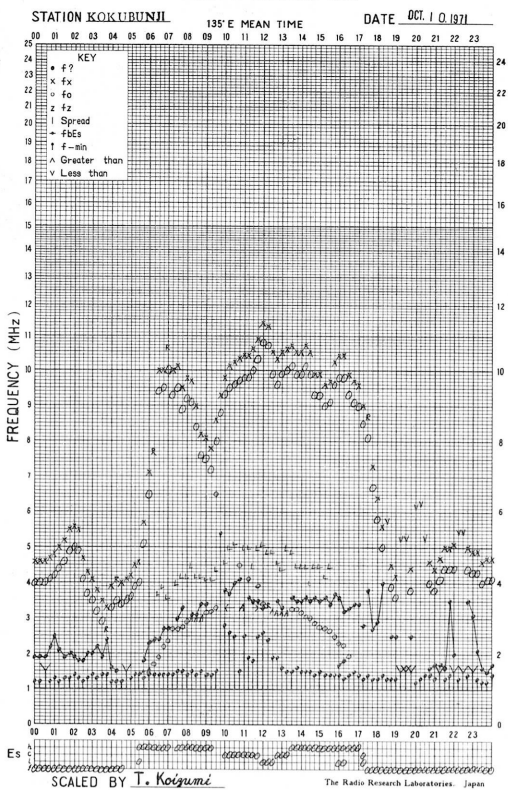
f-PLOT OF IONOSPHERIC DATA



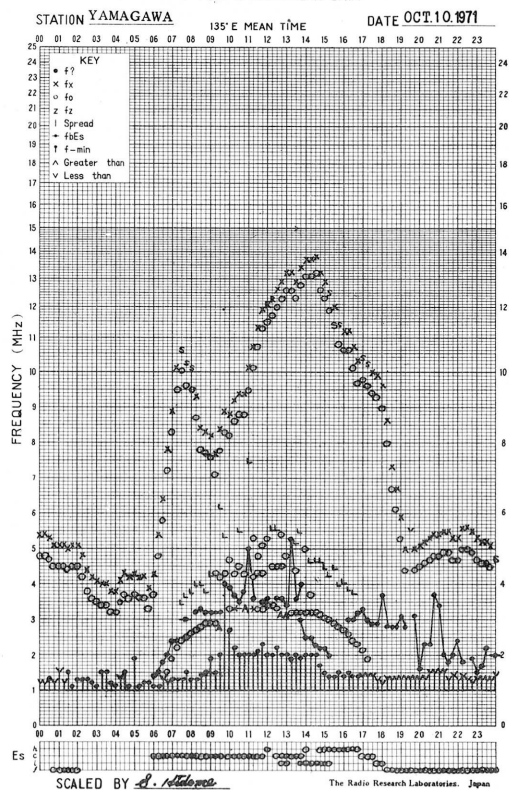
f-PLOT OF IONOSPHERIC DATA



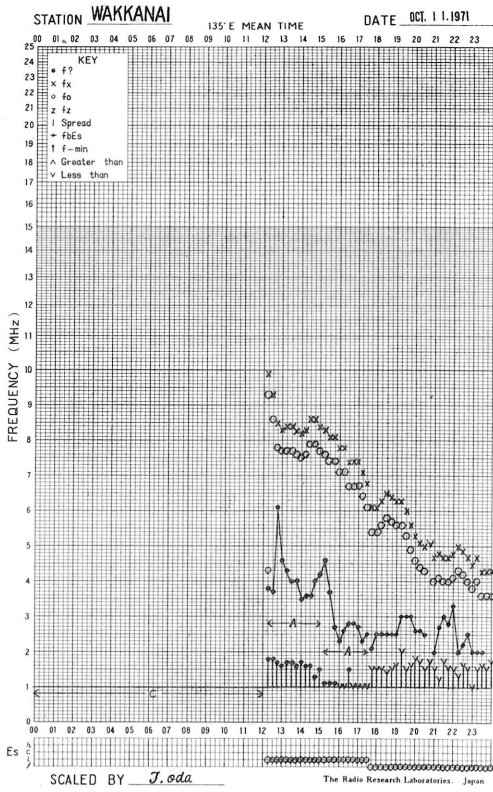
f-PLOT OF IONOSPHERIC DATA



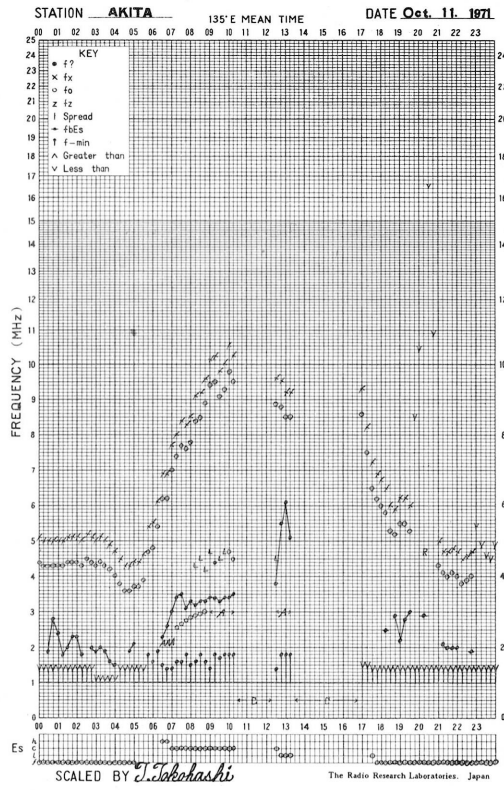
f-PLOT OF IONOSPHERIC DATA



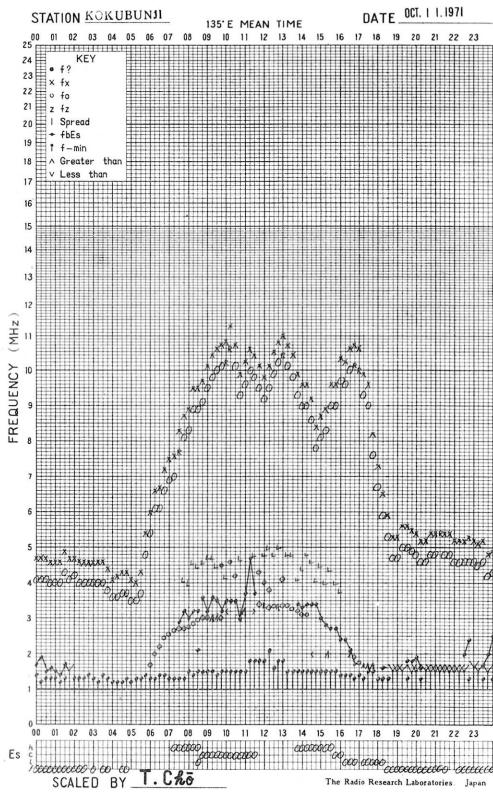
f-PLOT OF IONOSPHERIC DATA



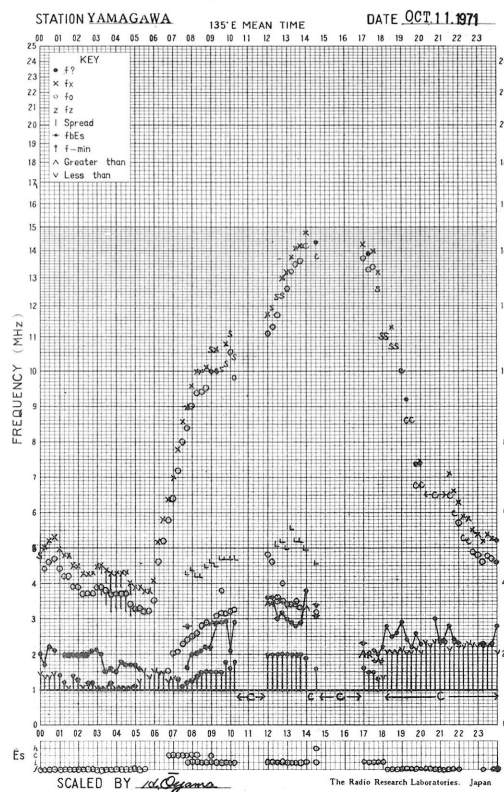
f-PLOT OF IONOSPHERIC DATA



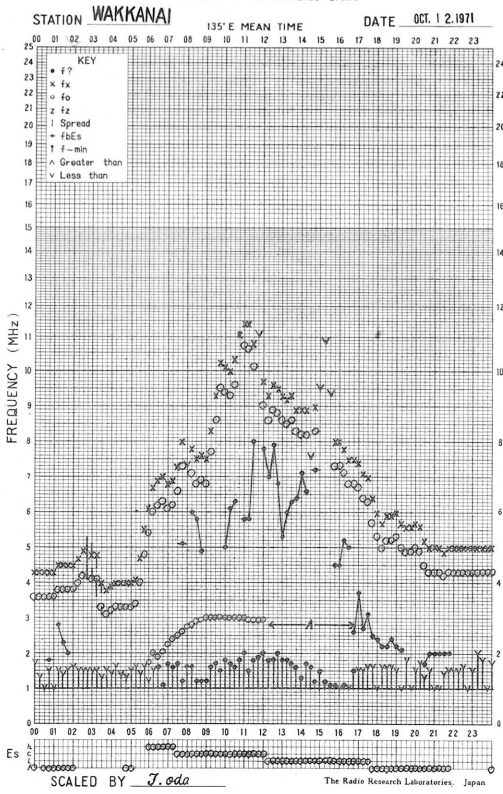
f-PLOT OF IONOSPHERIC DATA



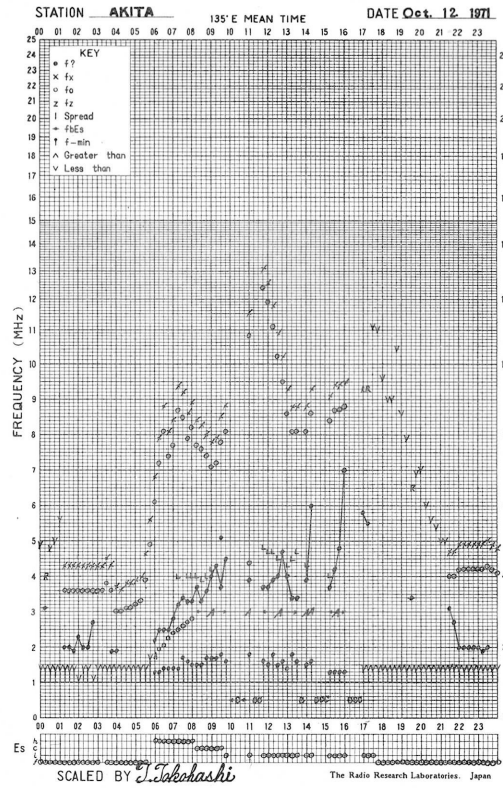
f-PLOT OF IONOSPHERIC DATA



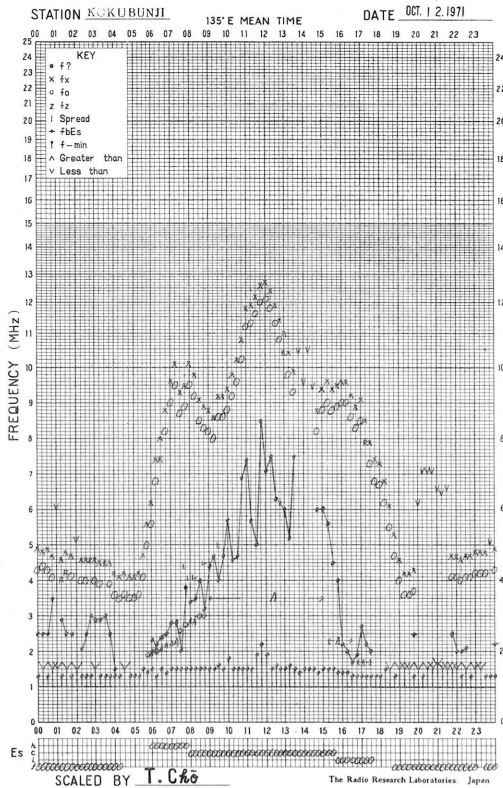
f-PLOT OF IONOSPHERIC DATA



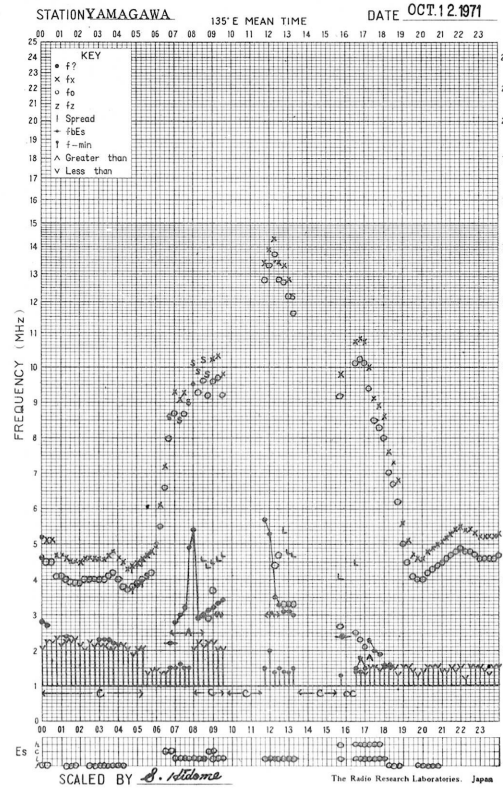
f-PLOT OF IONOSPHERIC DATA



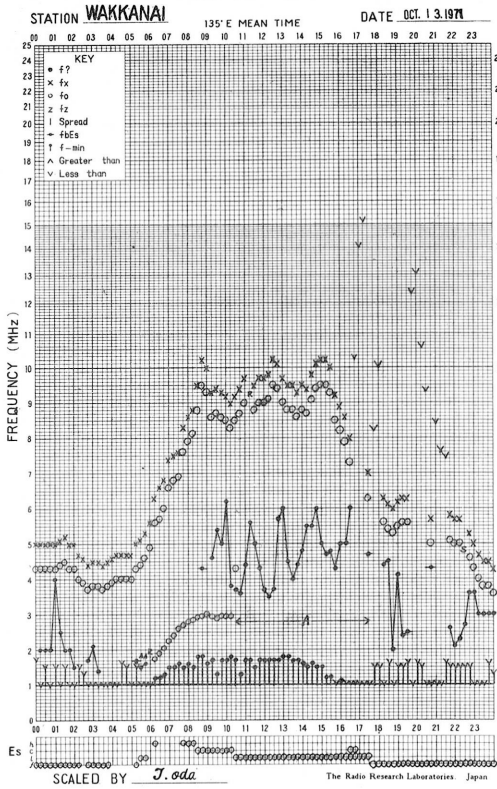
f-PLOT OF IONOSPHERIC DATA



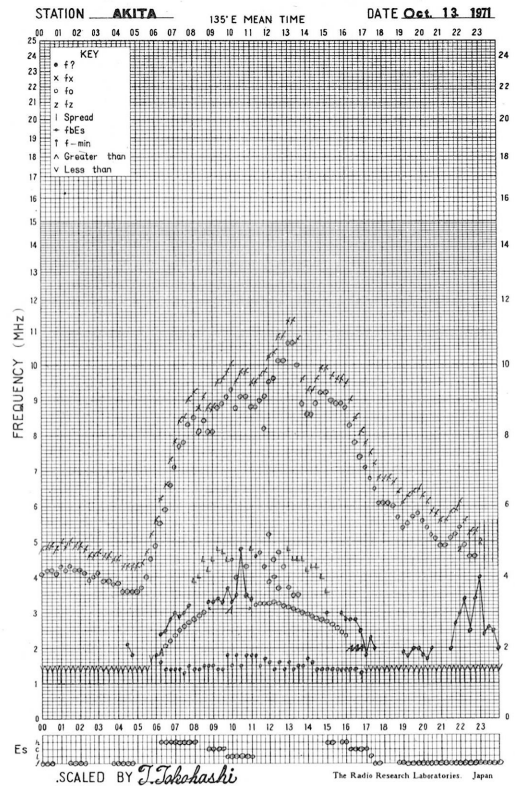
f-PLOT OF IONOSPHERIC DATA



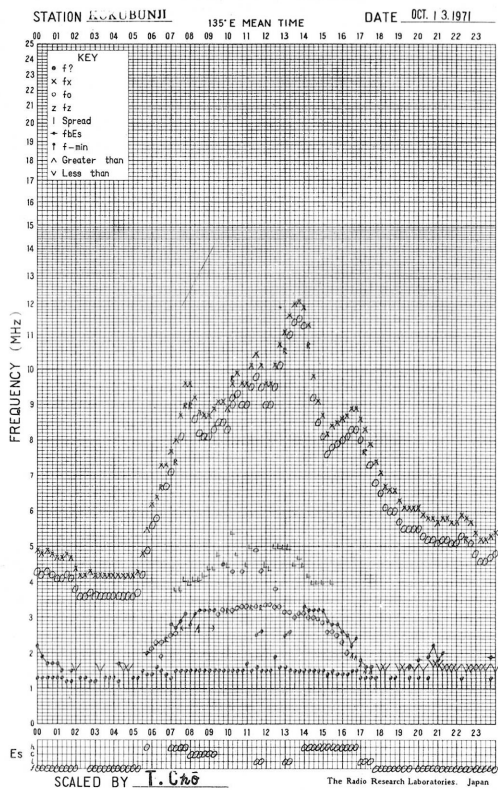
f- PLOT OF IONOSPHERIC DATA



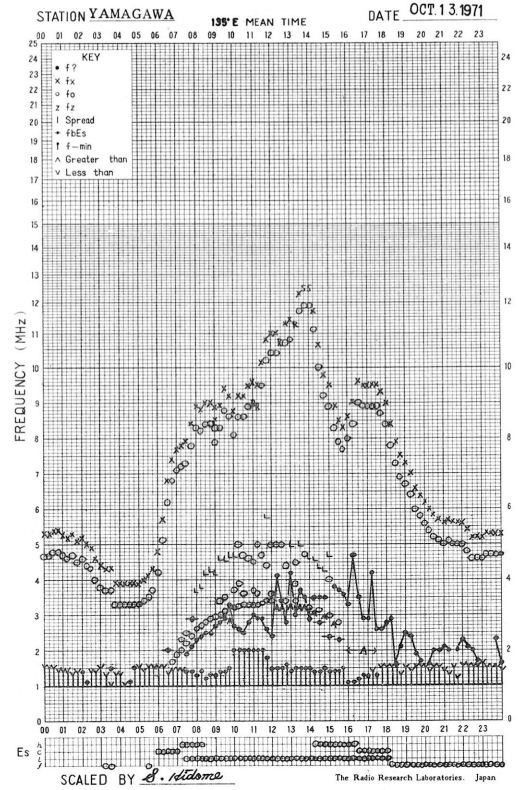
f- PLOT OF IONOSPHERIC DATA



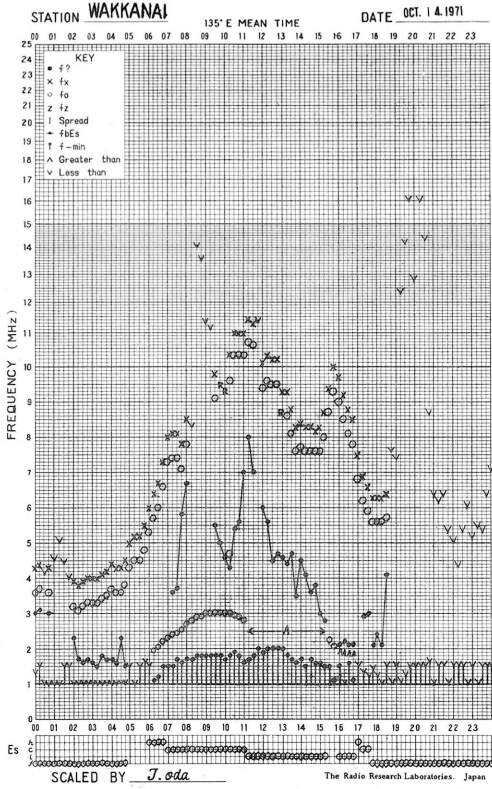
f- PLOT OF IONOSPHERIC DATA



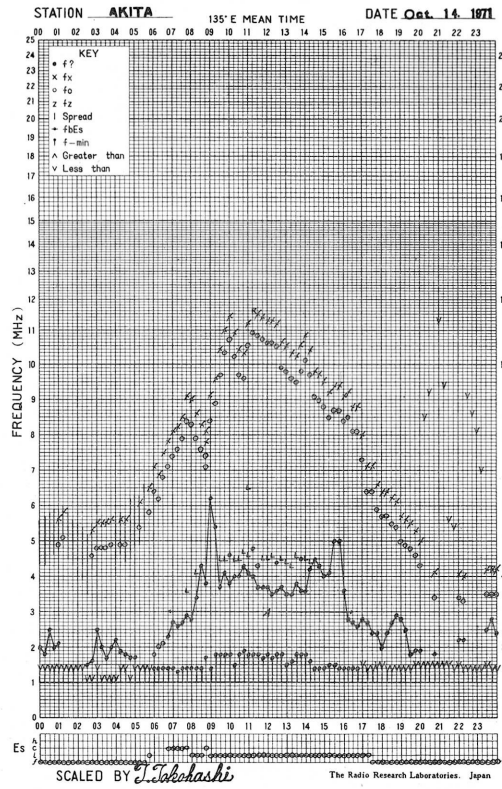
f- PLOT OF IONOSPHERIC DATA



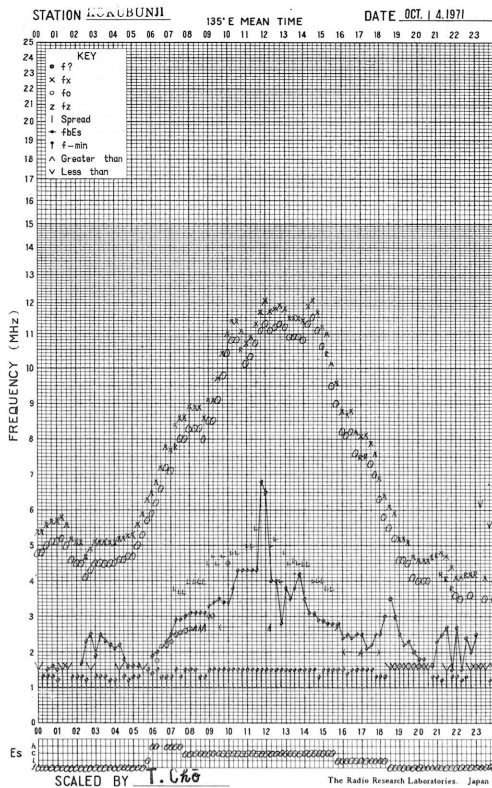
f-PLOT OF IONOSPHERIC DATA



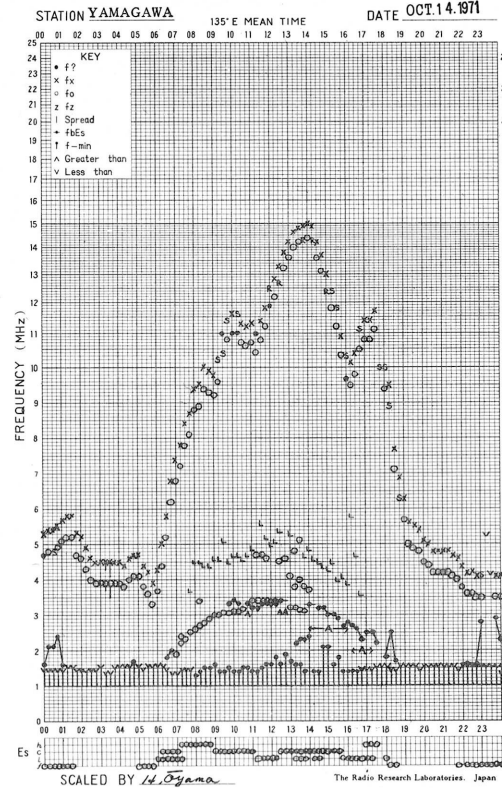
f-PLOT OF IONOSPHERIC DATA



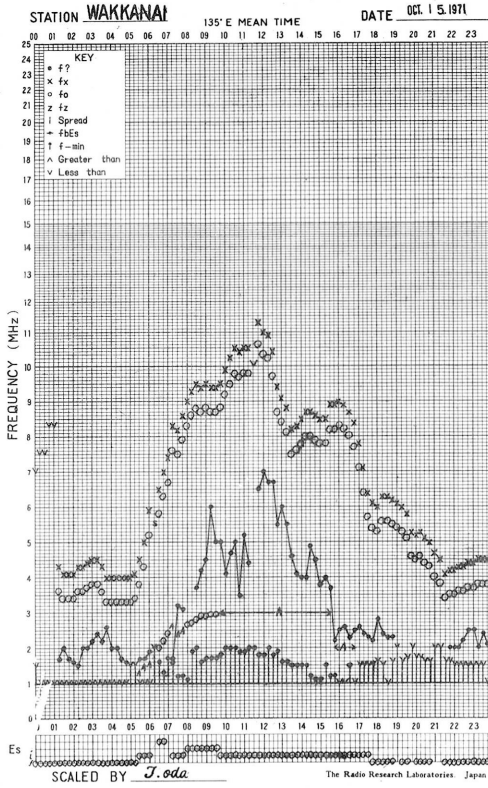
f-PLOT OF IONOSPHERIC DATA



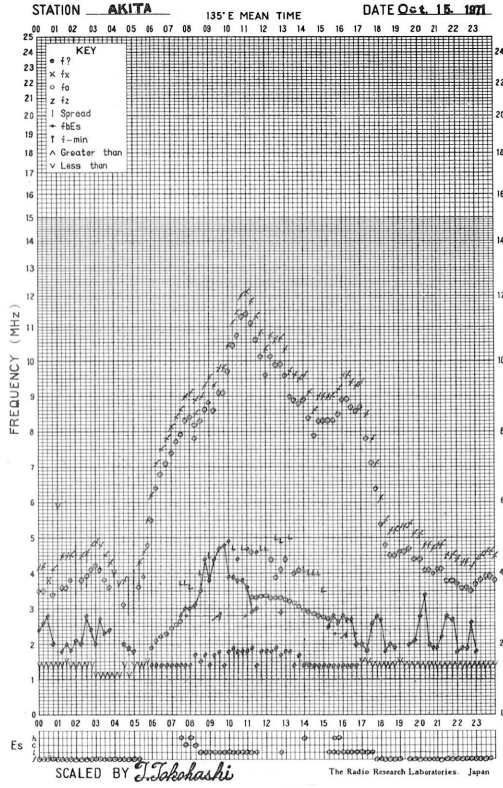
f-PLOT OF IONOSPHERIC DATA



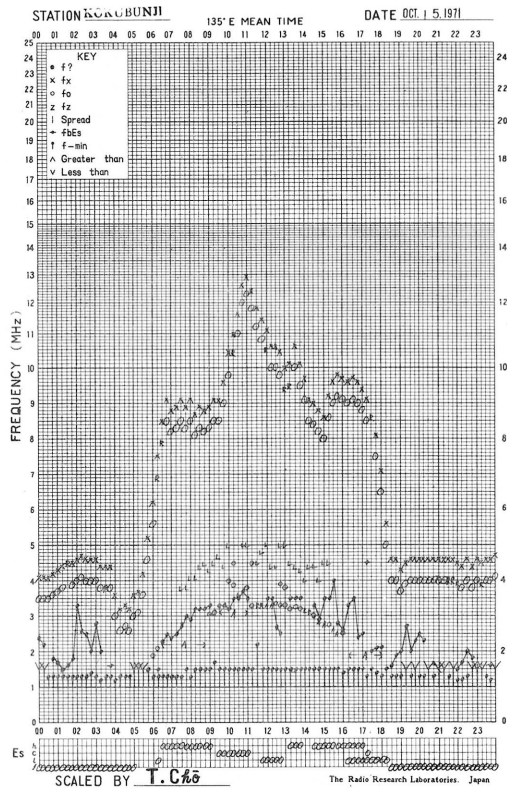
f-PLOT OF IONOSPHERIC DATA



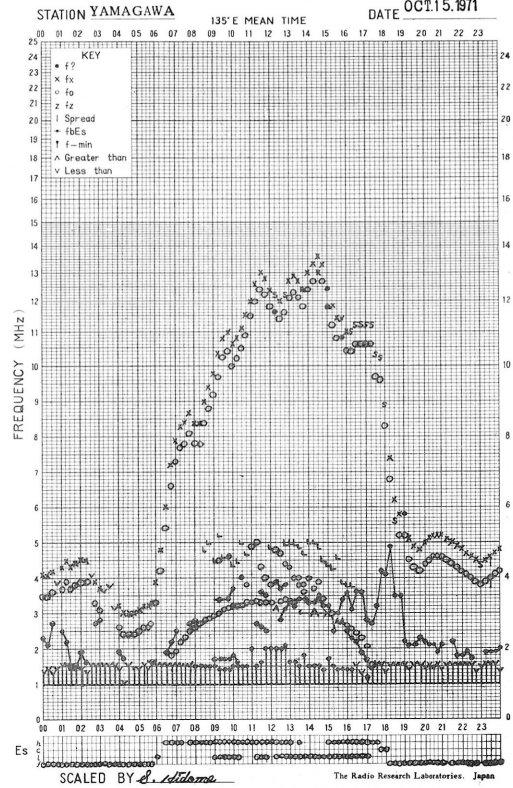
f-PLOT OF IONOSPHERIC DATA



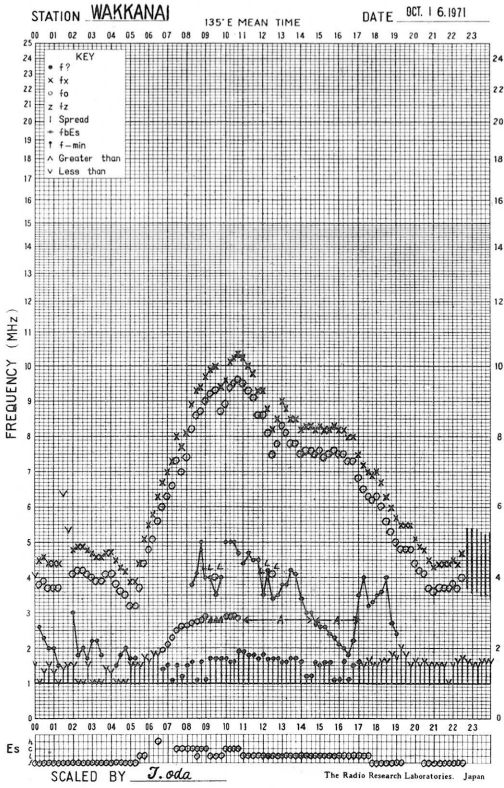
f-PLOT OF IONOSPHERIC DATA



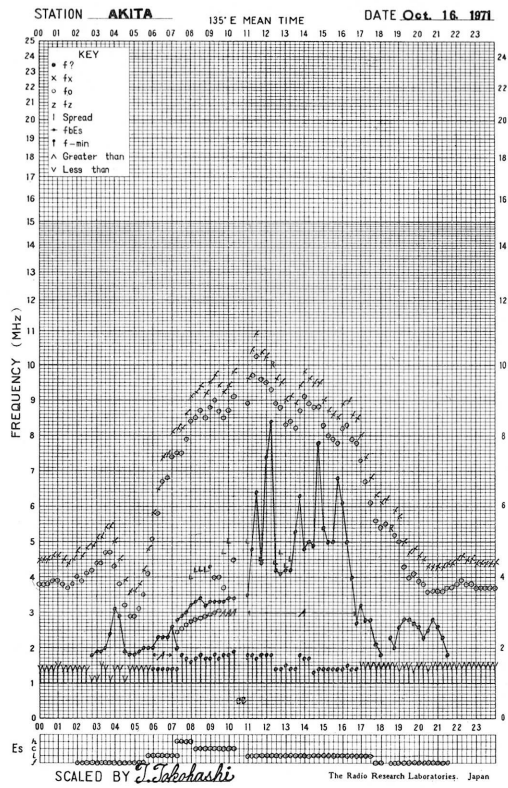
f-PLOT OF IONOSPHERIC DATA



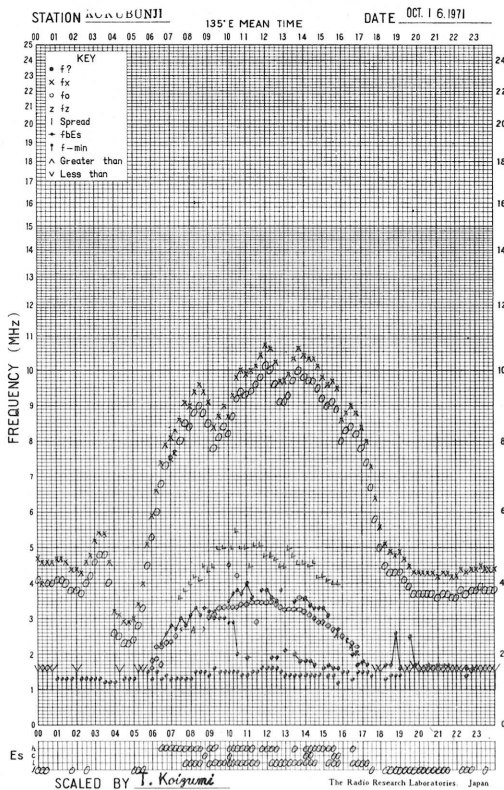
f-PLOT OF IONOSPHERIC DATA



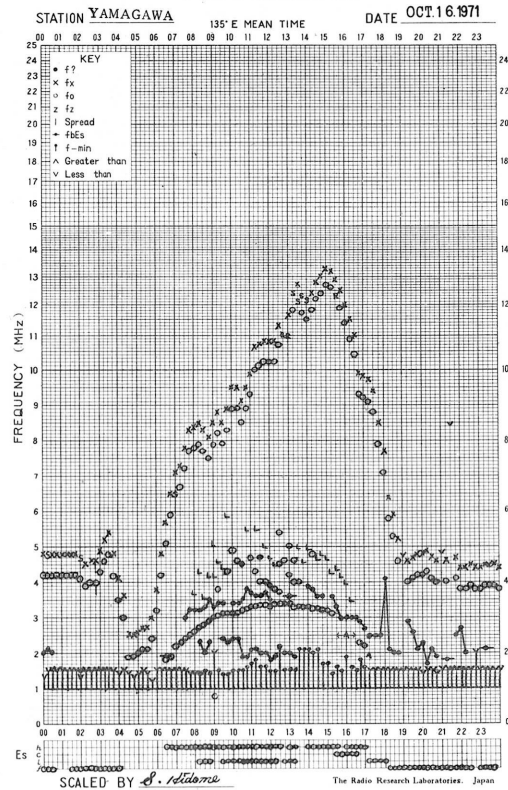
f-PLOT OF IONOSPHERIC DATA



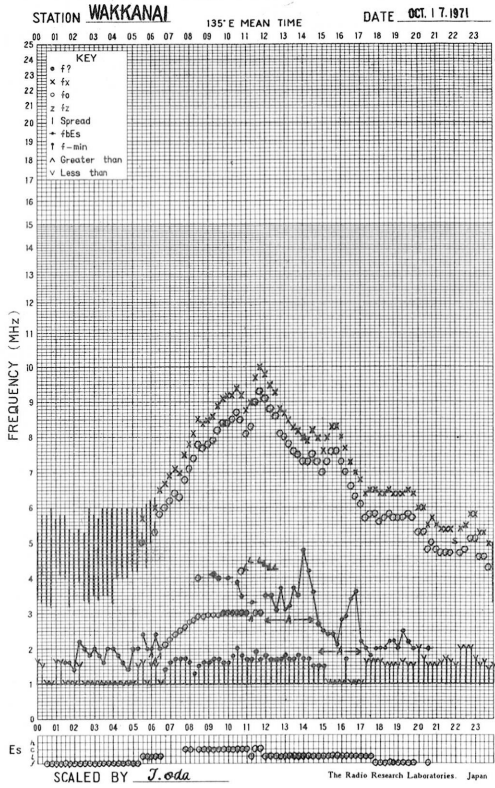
f-PLOT OF IONOSPHERIC DATA



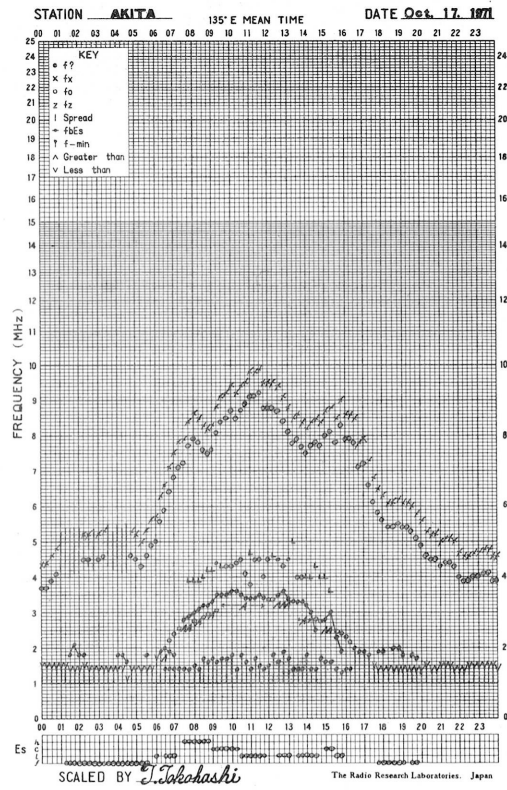
f-PLOT OF IONOSPHERIC DATA



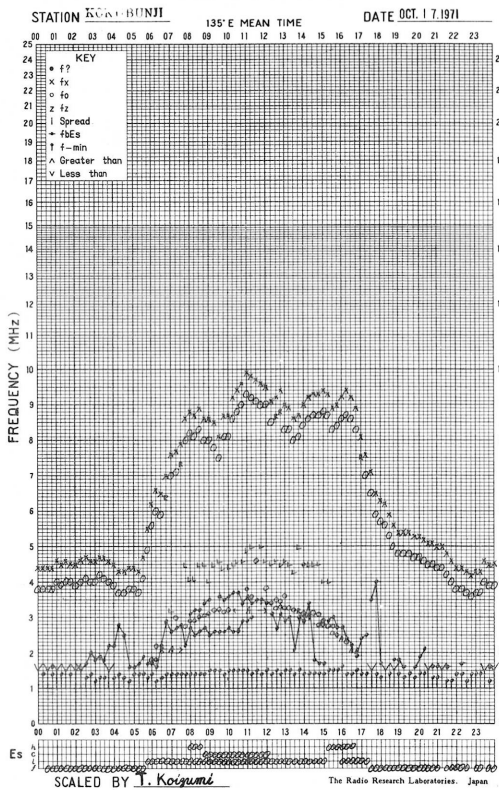
f-PLOT OF IONOSPHERIC DATA



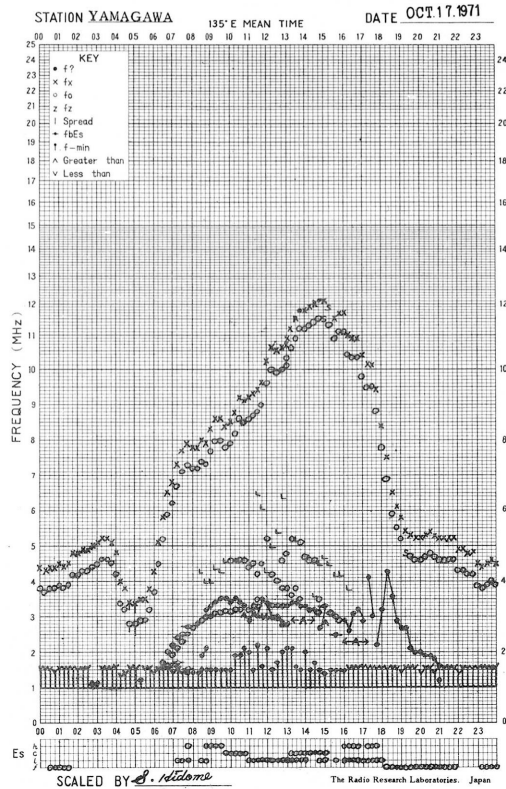
f-PLOT OF IONOSPHERIC DATA



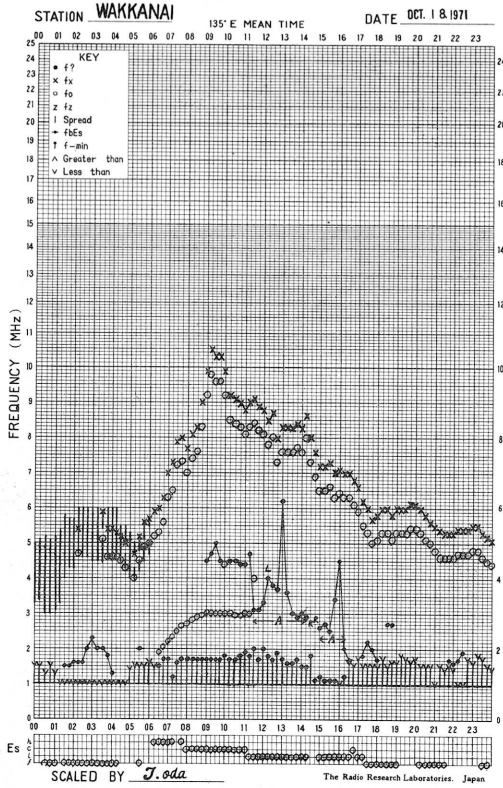
f-PLOT OF IONOSPHERIC DATA



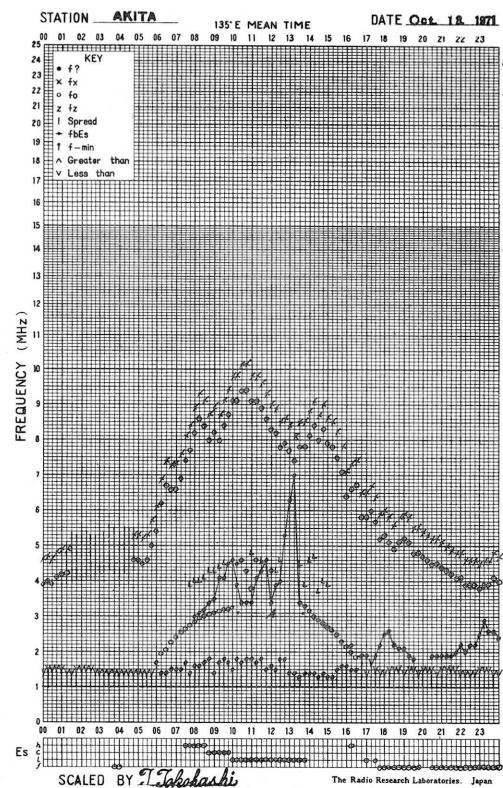
f-PLOT OF IONOSPHERIC DATA



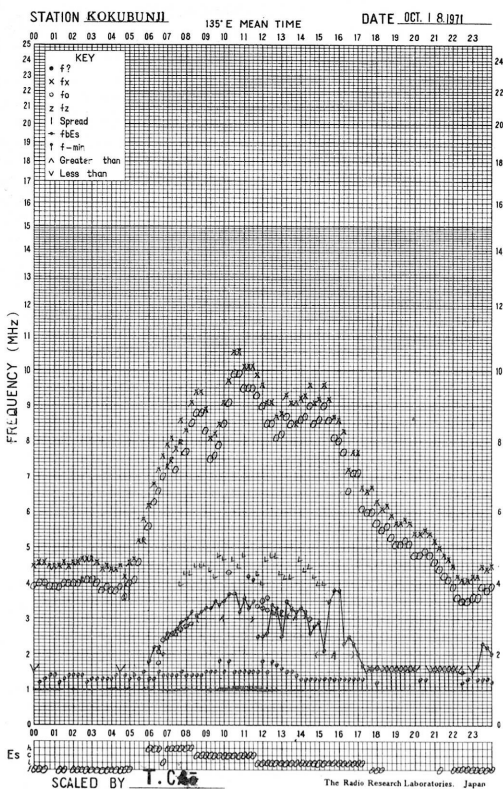
f-PLOT OF IONOSPHERIC DATA



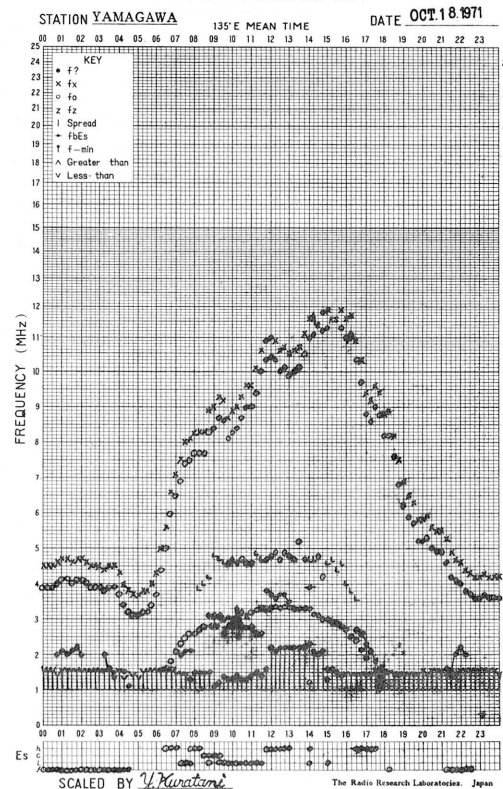
f-PLOT OF IONOSPHERIC DATA



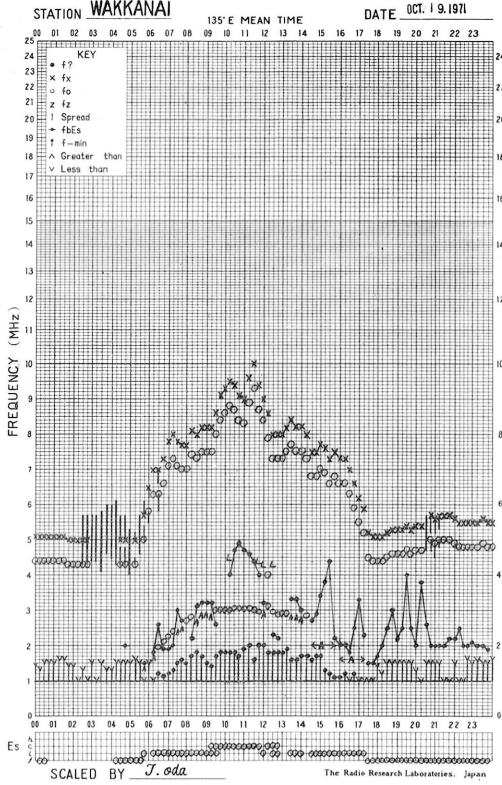
f-PLOT OF IONOSPHERIC DATA



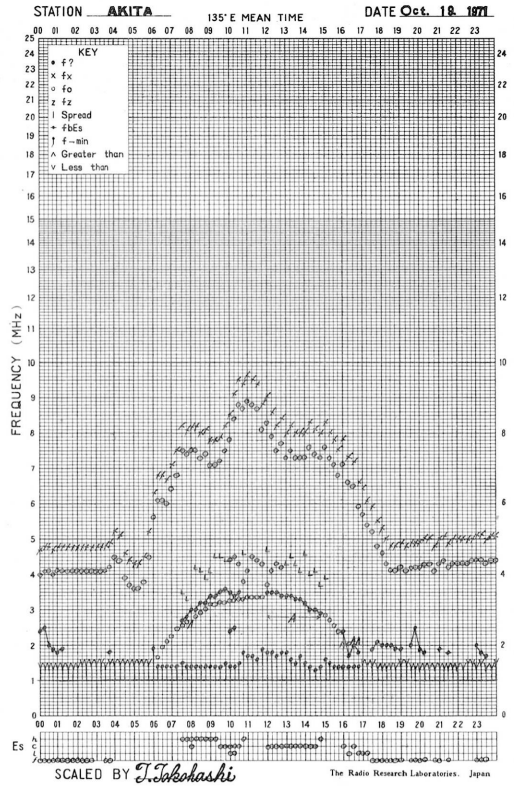
f-PLOT OF IONOSPHERIC DATA



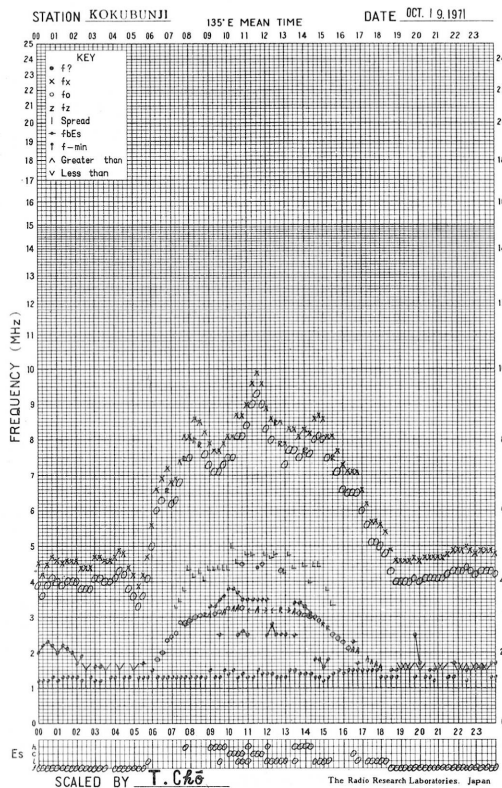
f- PLOT OF IONOSPHERIC DATA



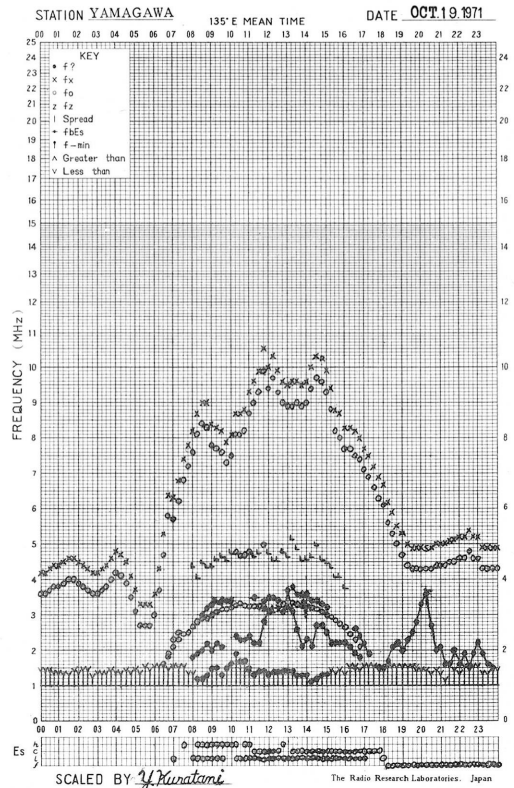
f- PLOT OF IONOSPHERIC DATA



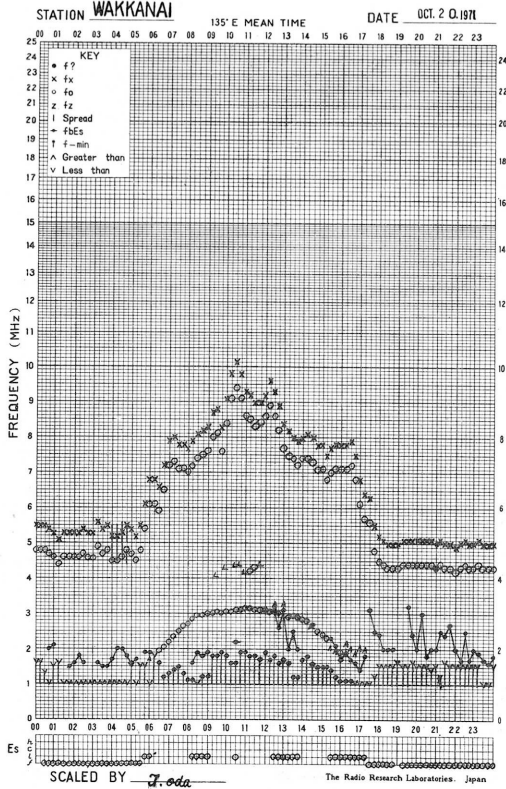
f- PLOT OF IONOSPHERIC DATA



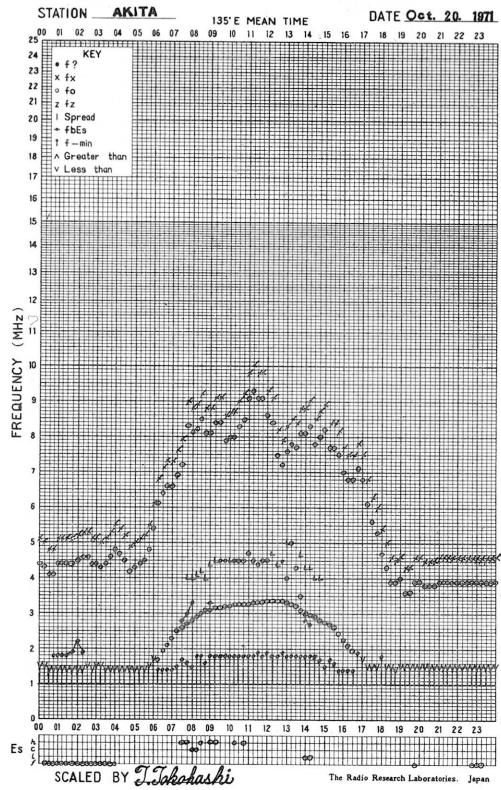
f- PLOT OF IONOSPHERIC DATA



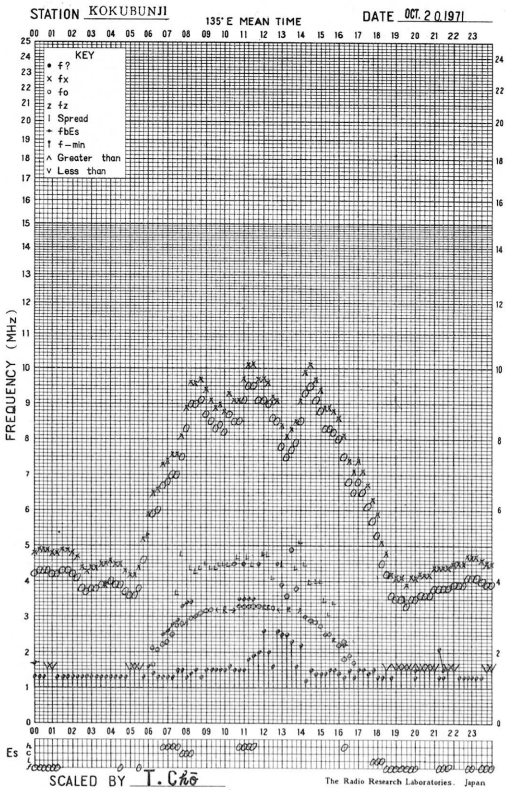
f-PLOT OF IONOSPHERIC DATA



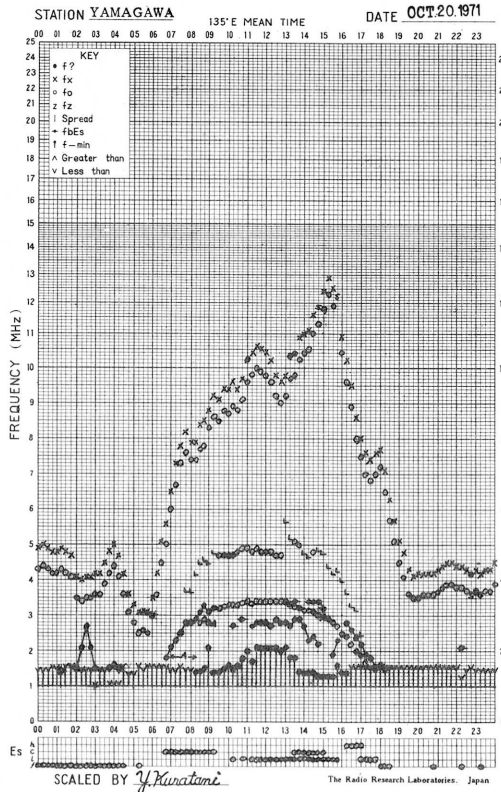
f-PLOT OF IONOSPHERIC DATA



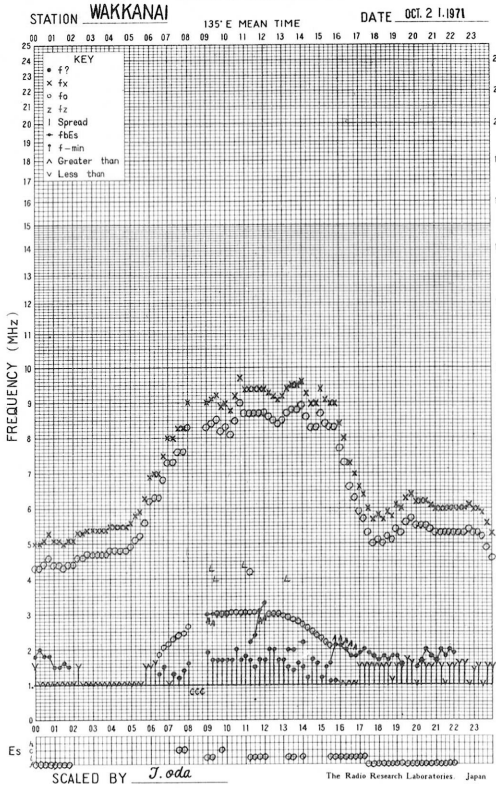
f-PLOT OF IONOSPHERIC DATA



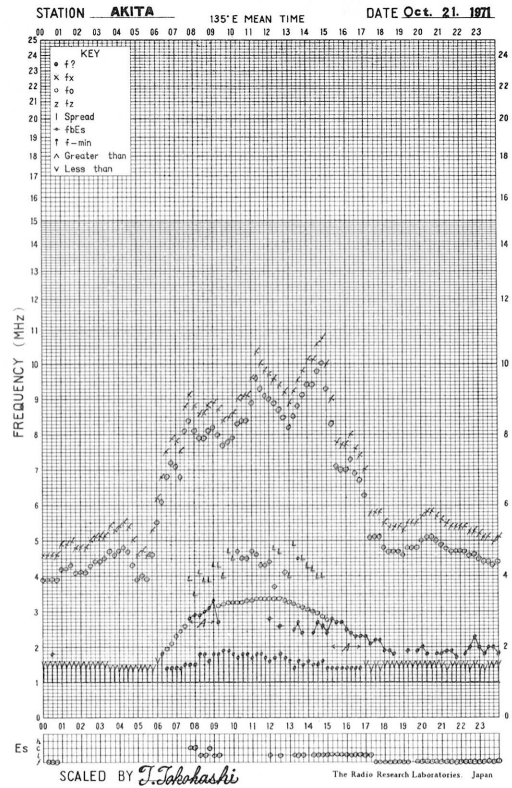
f-PLOT OF IONOSPHERIC DATA



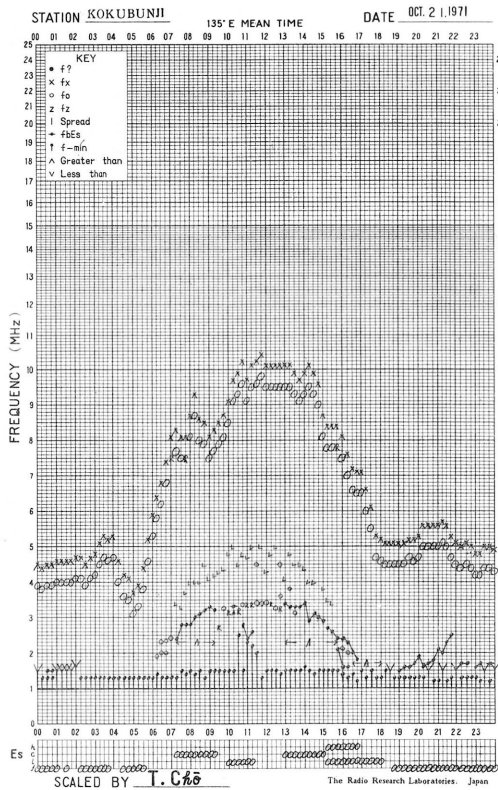
f-PLOT OF IONOSPHERIC DATA



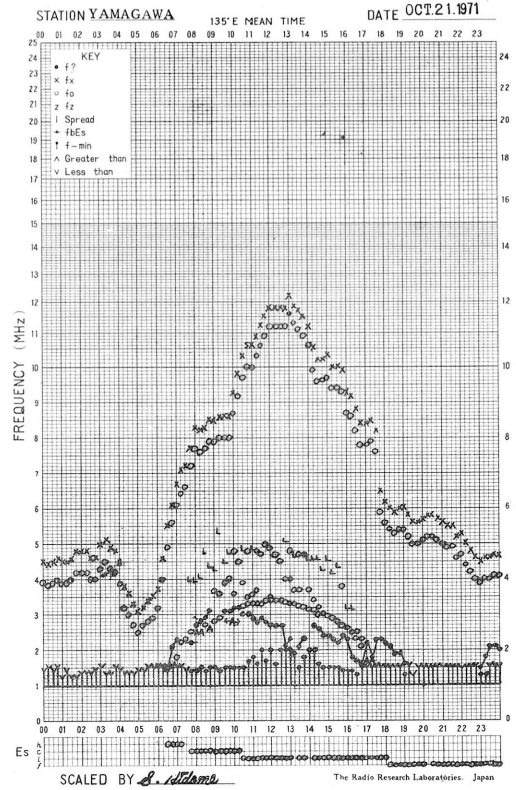
f-PLOT OF IONOSPHERIC DATA



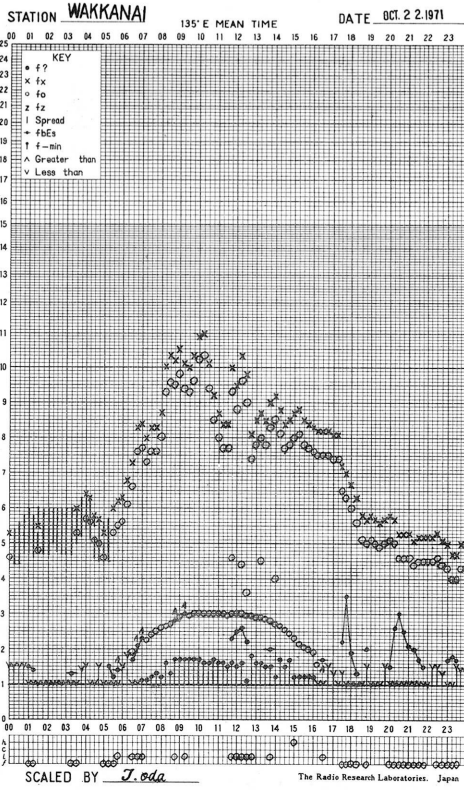
f-PLOT OF IONOSPHERIC DATA



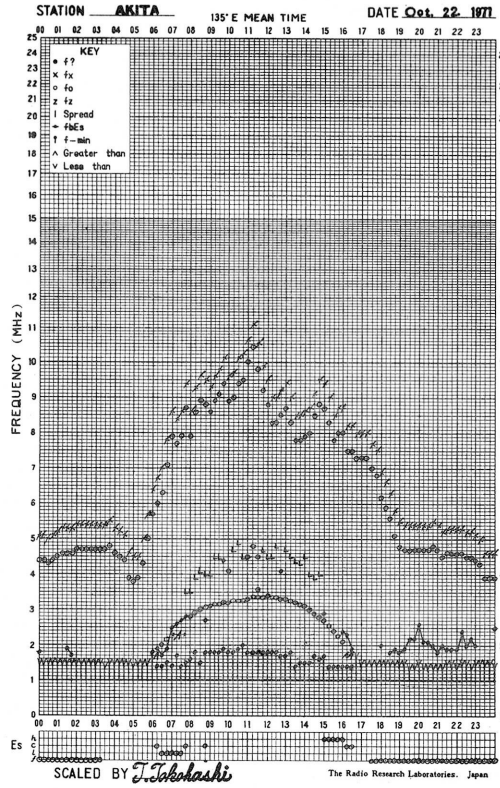
f-PLOT OF IONOSPHERIC DATA



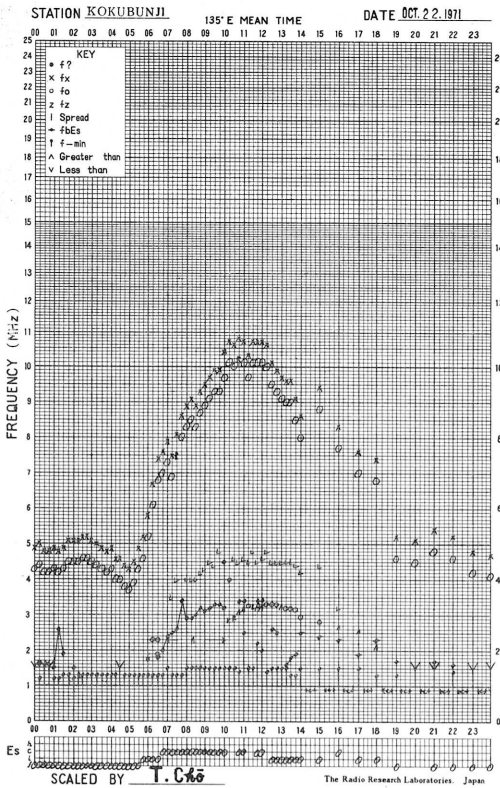
f-PLOT OF IONOSPHERIC DATA



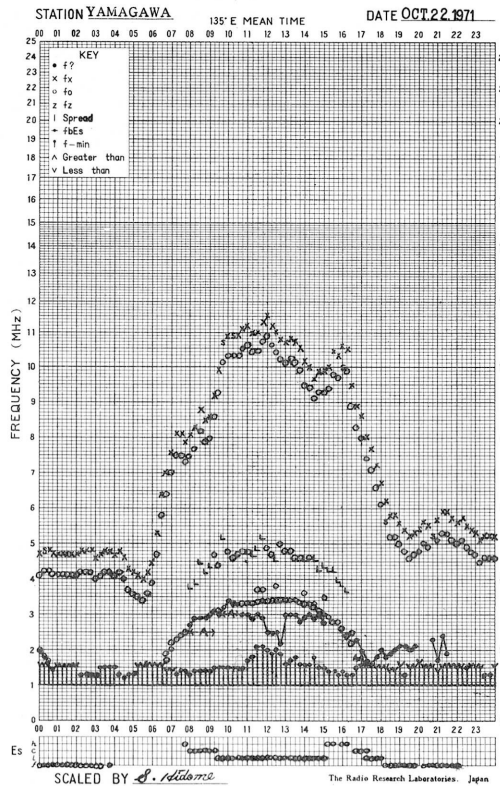
f-PLOT OF IONOSPHERIC DATA



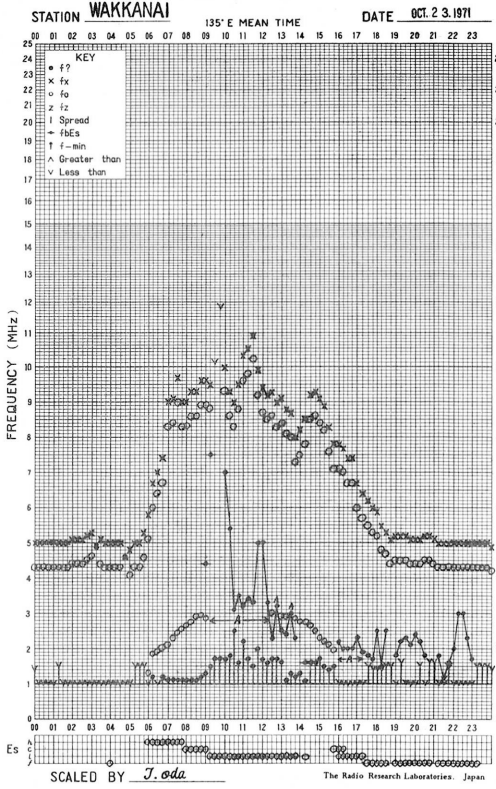
f-PLOT OF IONOSPHERIC DATA



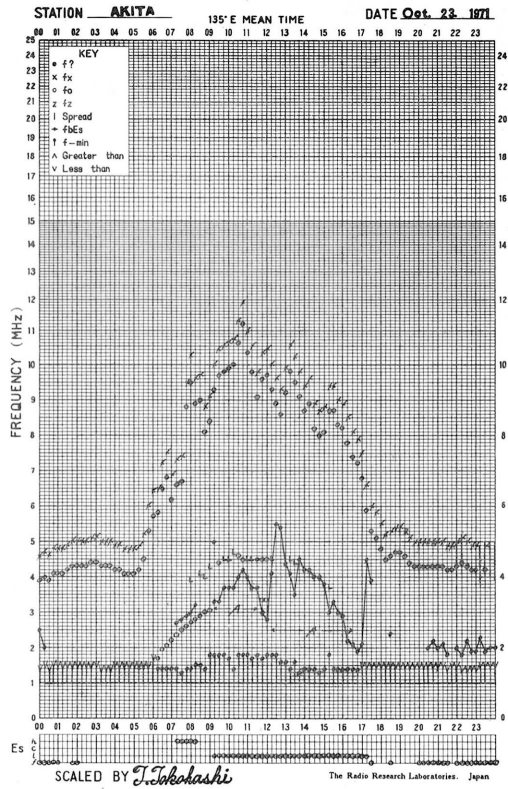
f-PLOT OF IONOSPHERIC DATA



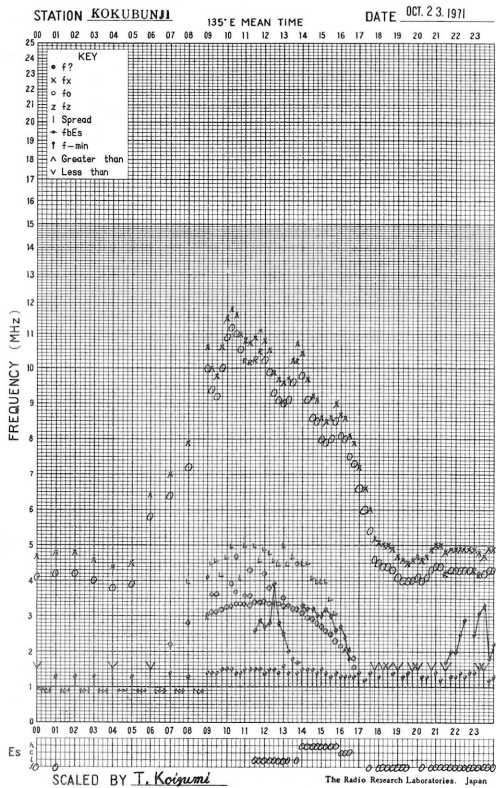
f-PLOT OF IONOSPHERIC DATA



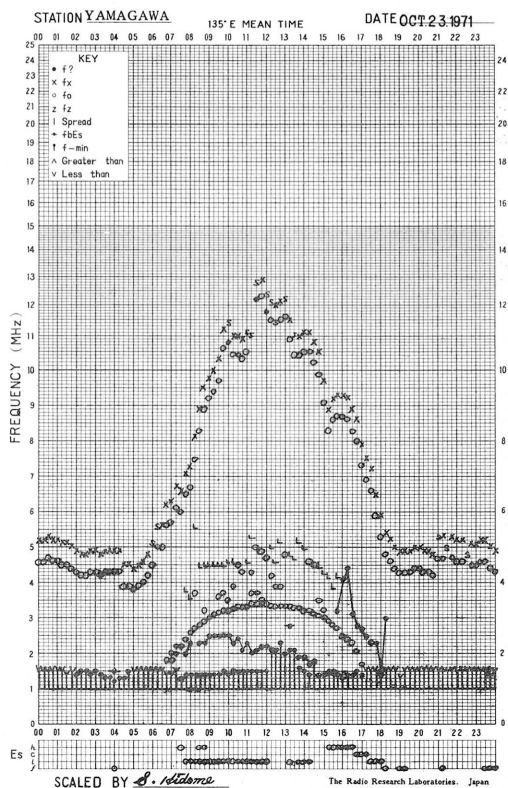
f-PLOT OF IONOSPHERIC DATA



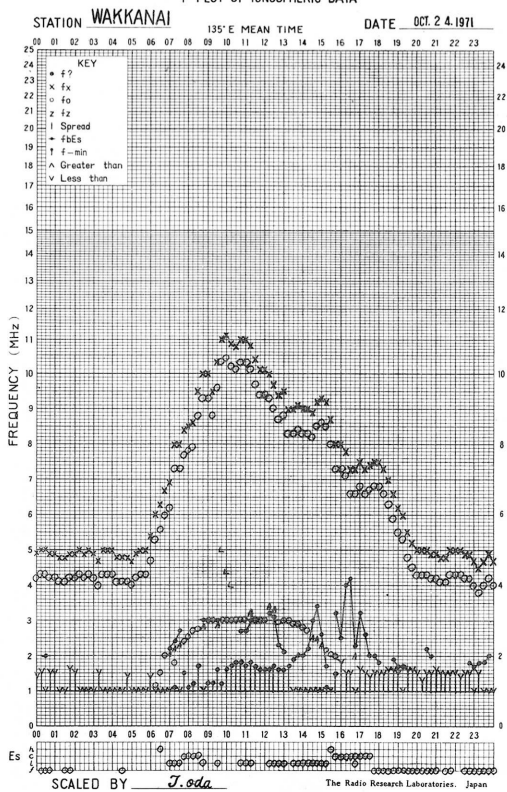
f-PLOT OF IONOSPHERIC DATA



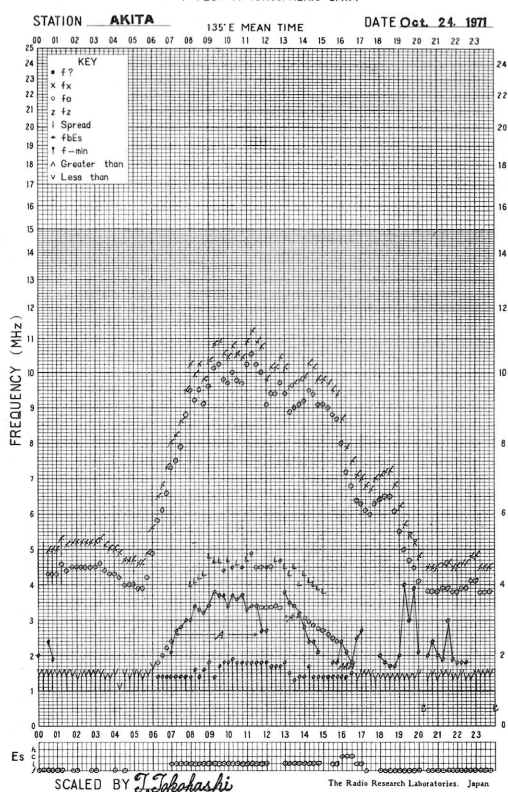
f-PLOT OF IONOSPHERIC DATA



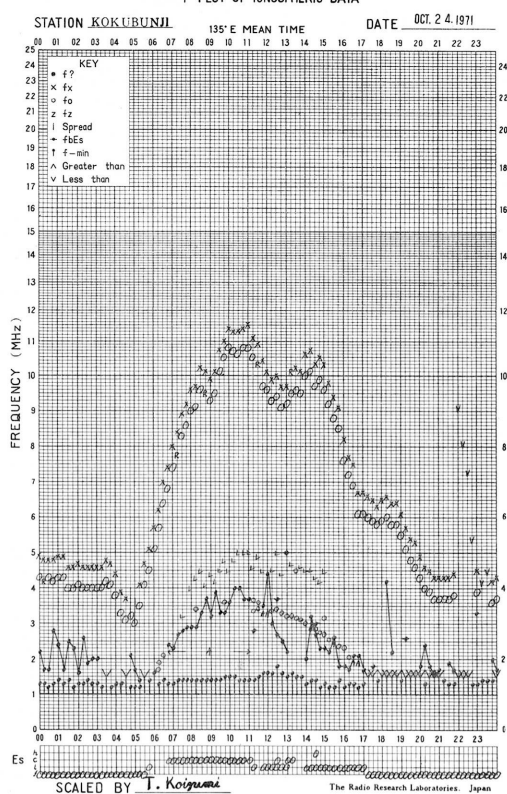
f- PLOT OF IONOSPHERIC DATA



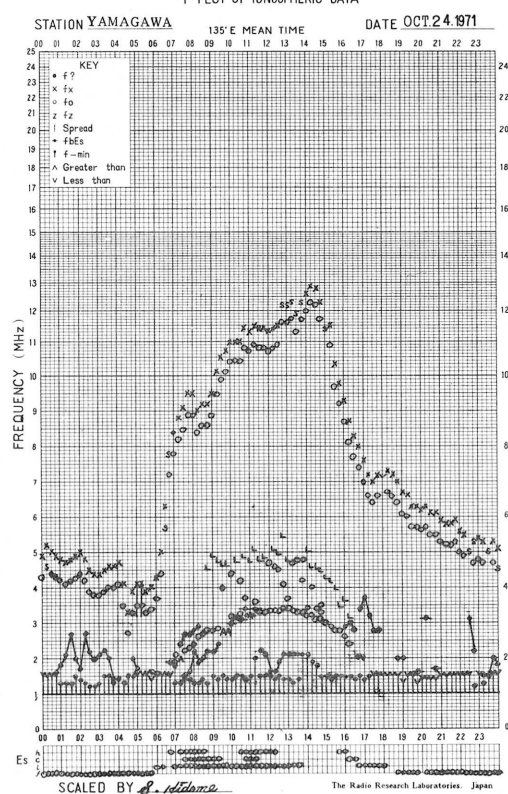
f- PLOT OF IONOSPHERIC DATA



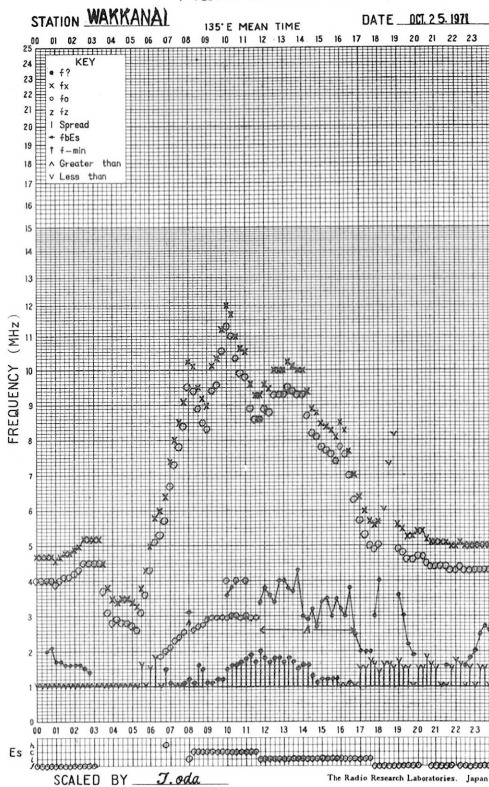
f- PLOT OF IONOSPHERIC DATA



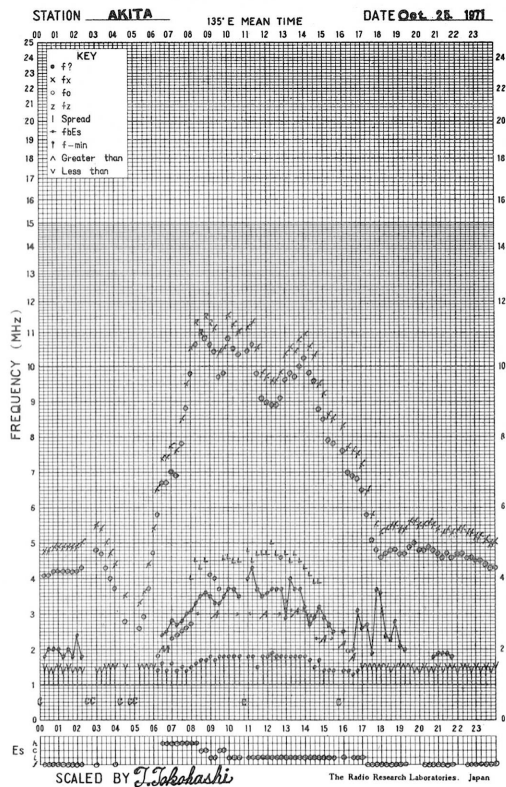
f- PLOT OF IONOSPHERIC DATA



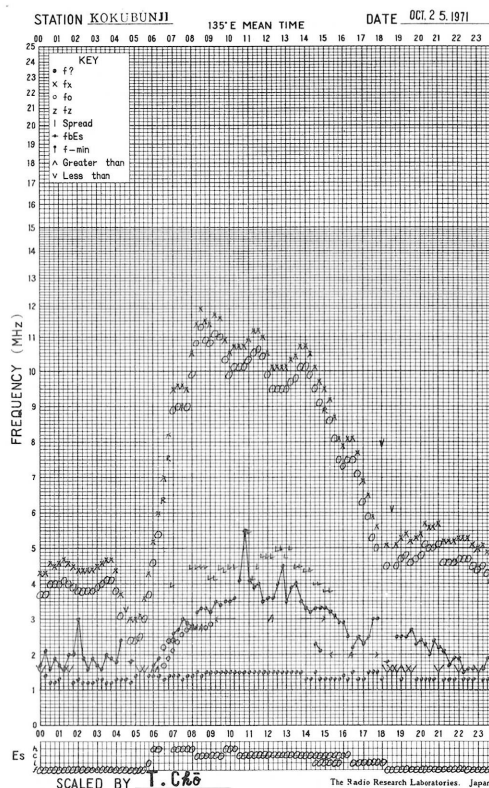
f-PLOT OF IONOSPHERIC DATA



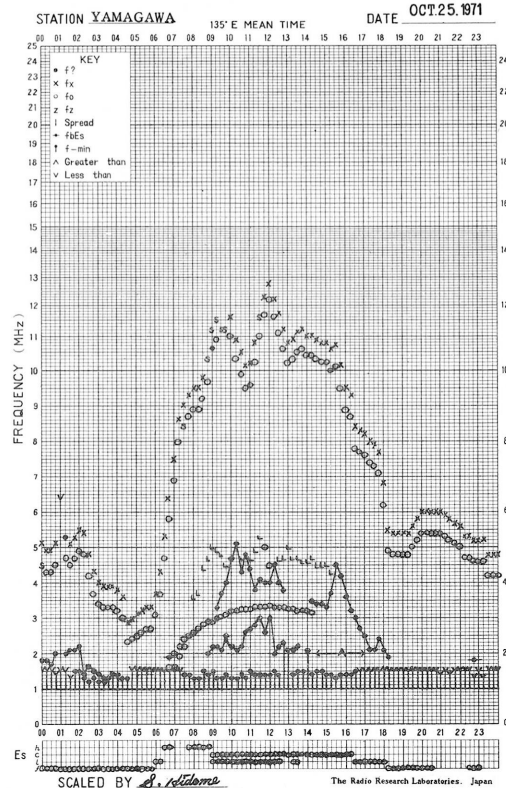
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



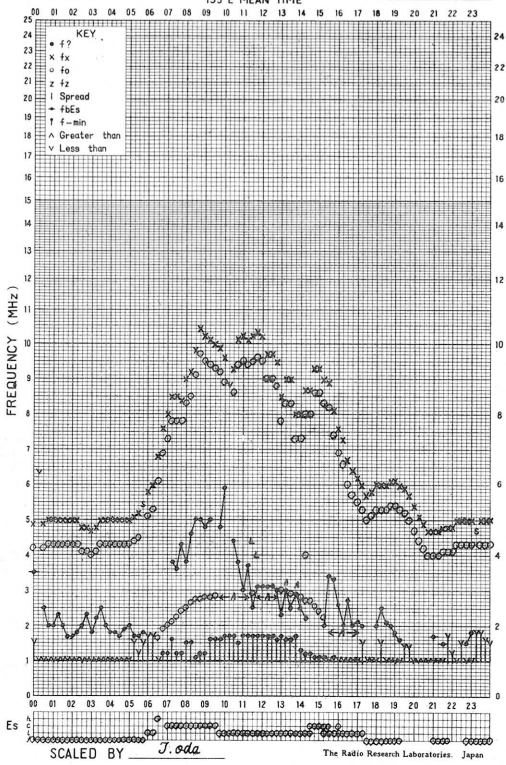
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI

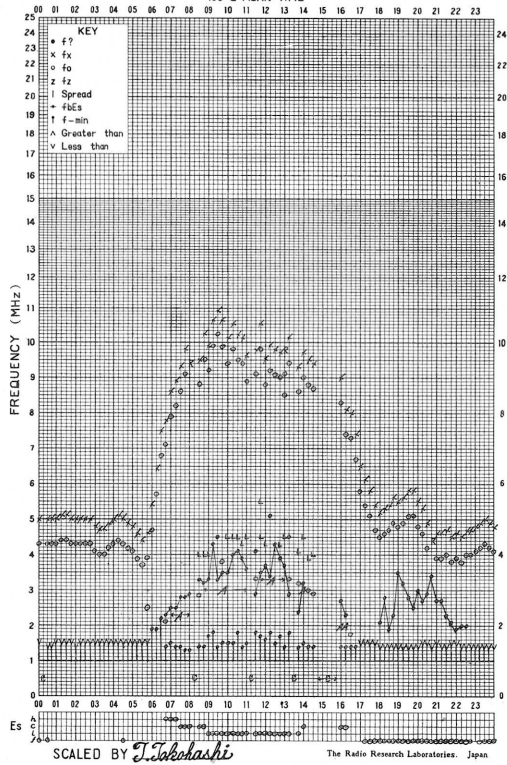
DATE Oct. 26, 1971



f-PLOT OF IONOSPHERIC DATA

STATION AKITA

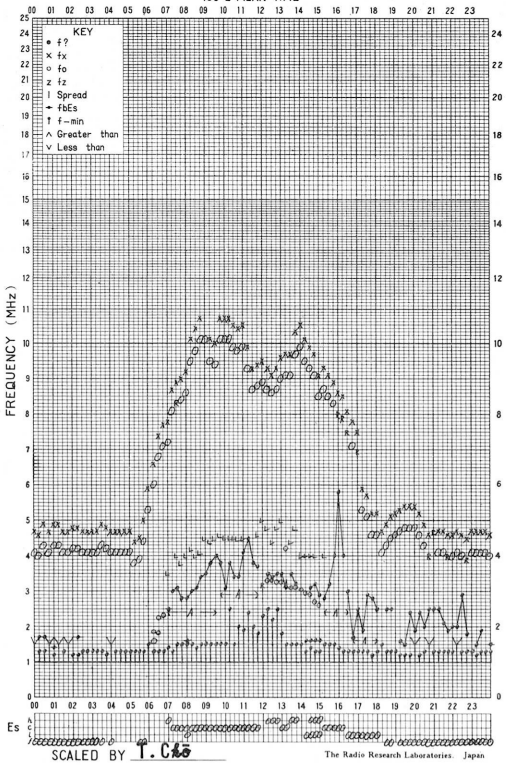
DATE Oct. 26, 1971



f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI

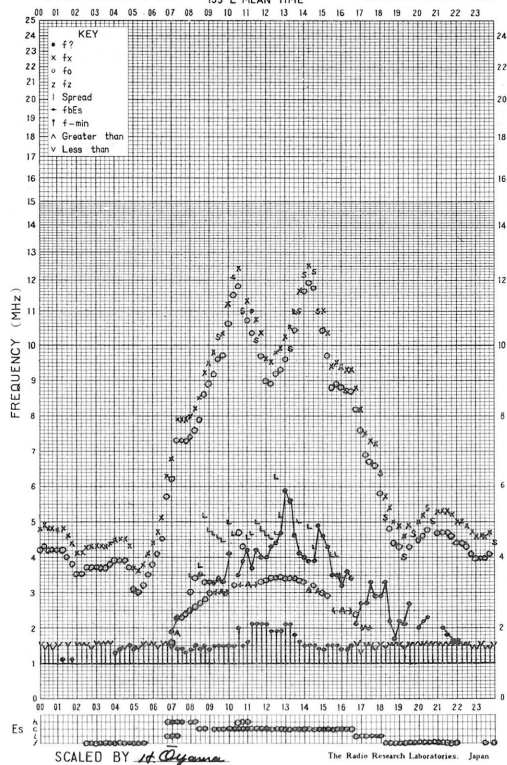
DATE Oct. 26, 1971

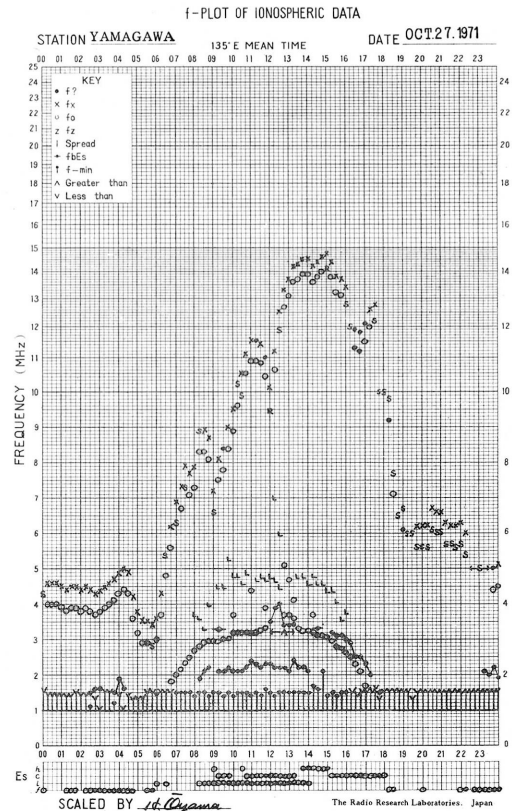
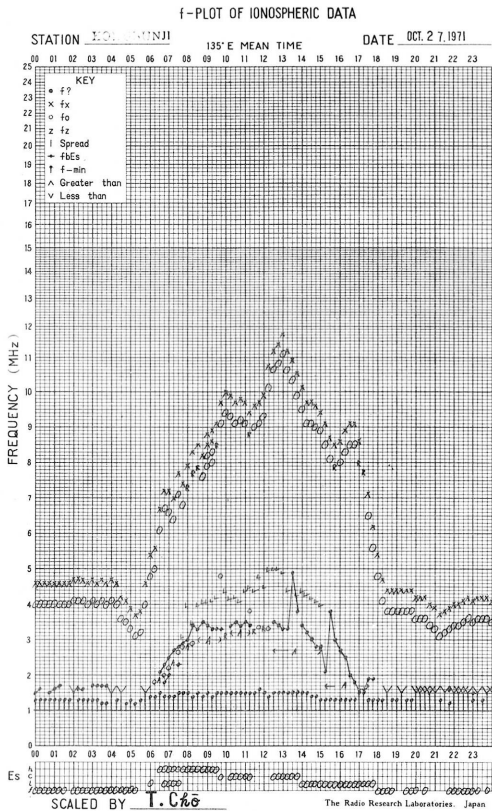
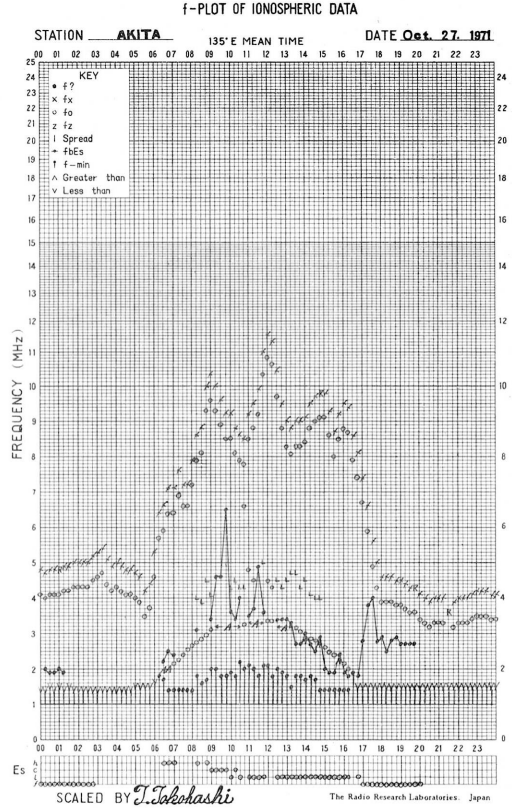
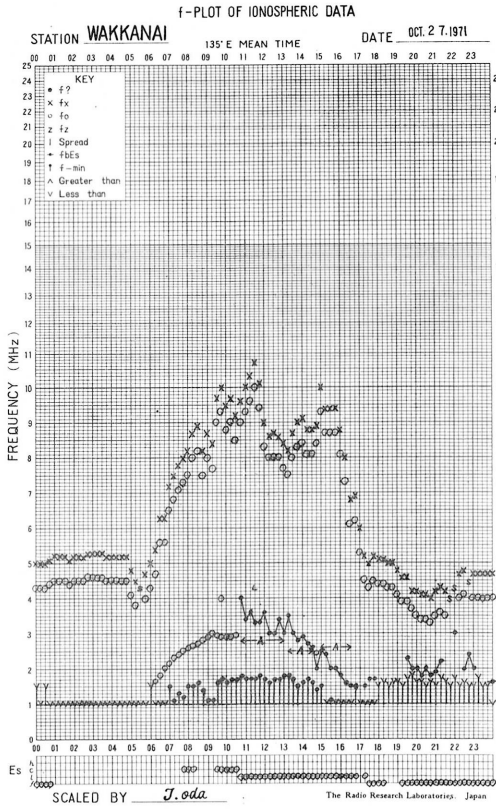


f-PLOT OF IONOSPHERIC DATA

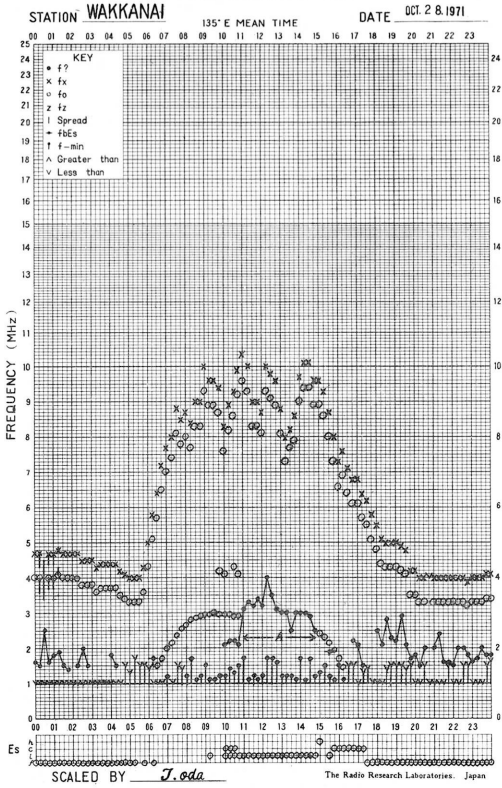
STATION YAMAGAWA

DATE OCT 26, 1971

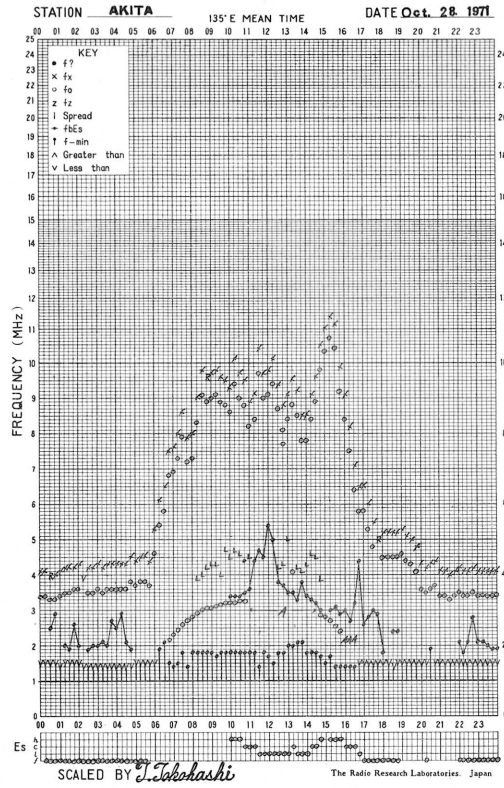




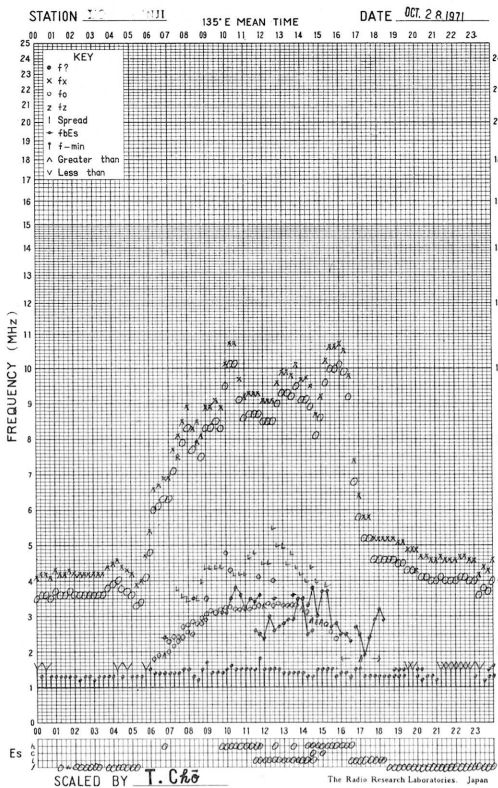
f-PLOT OF IONOSPHERIC DATA



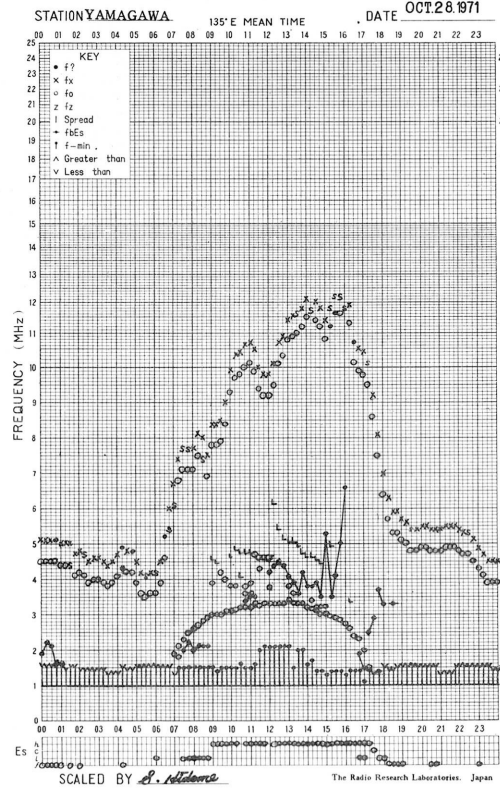
f-PLOT OF IONOSPHERIC DATA



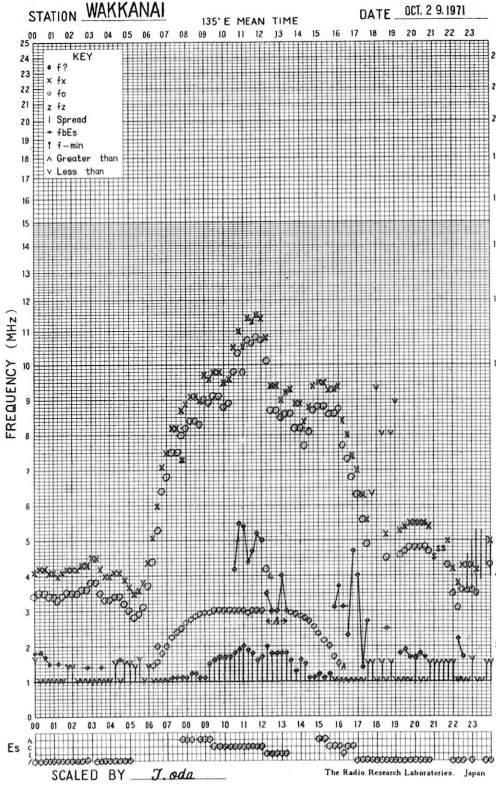
f-PLOT OF IONOSPHERIC DATA



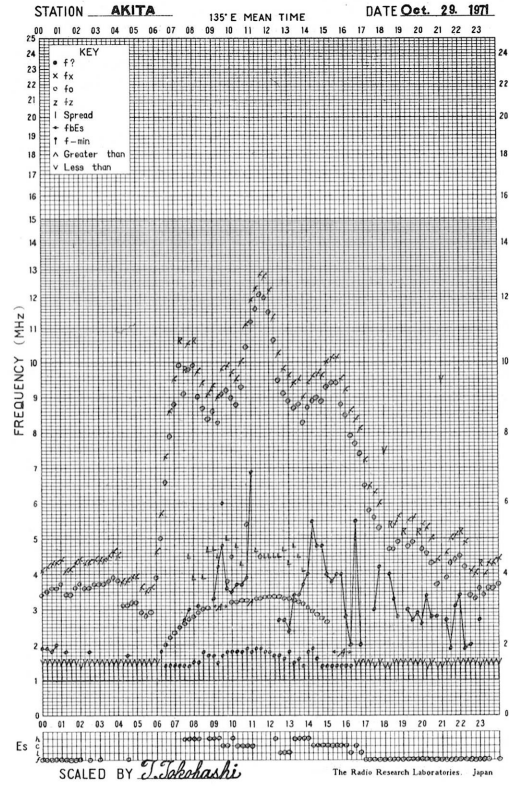
f-PLOT OF IONOSPHERIC DATA



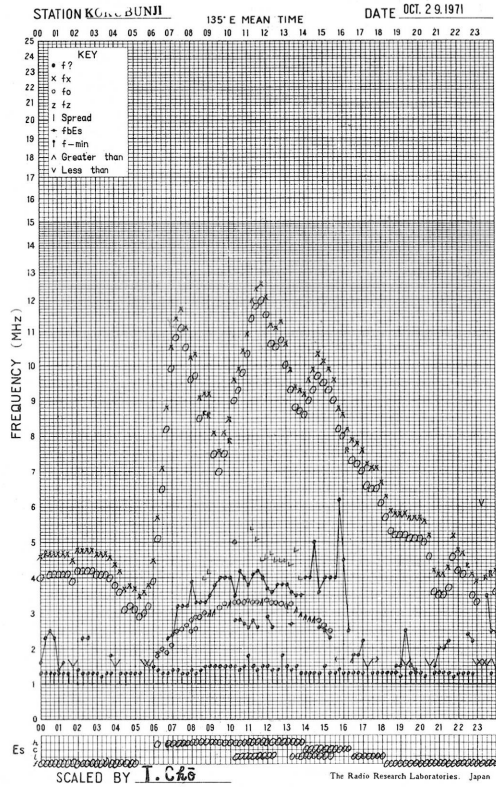
f-PLOT OF IONOSPHERIC DATA



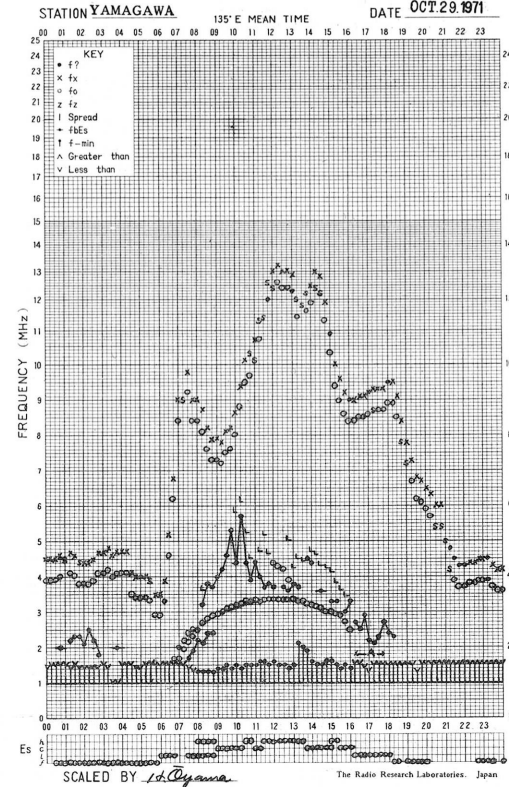
f-PLOT OF IONOSPHERIC DATA



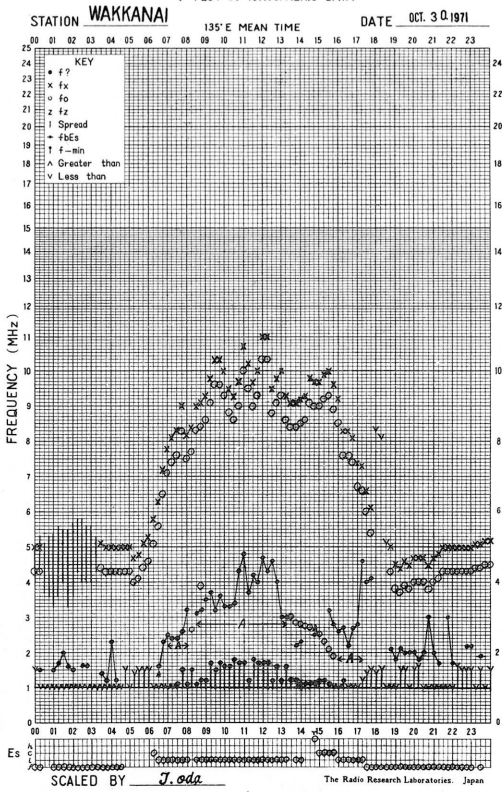
f-PLOT OF IONOSPHERIC DATA



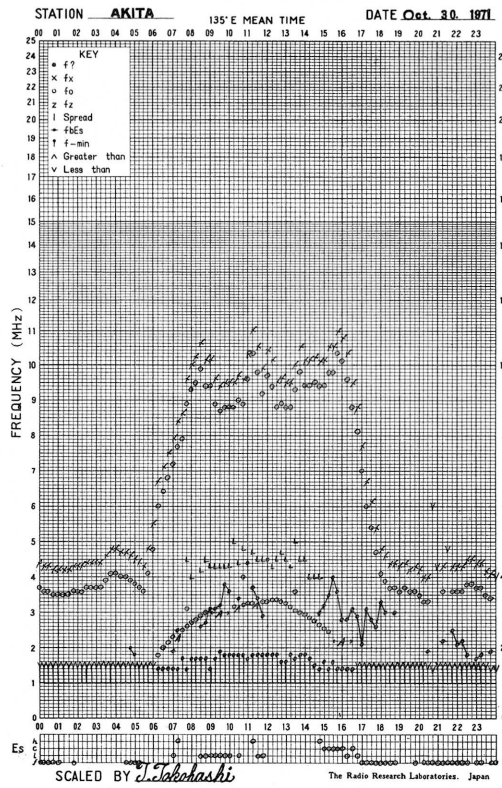
f-PLOT OF IONOSPHERIC DATA



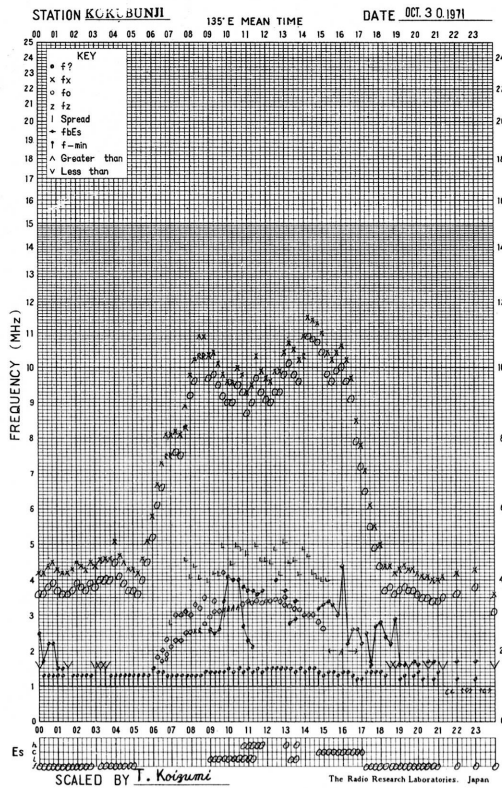
f-PLOT OF IONOSPHERIC DATA



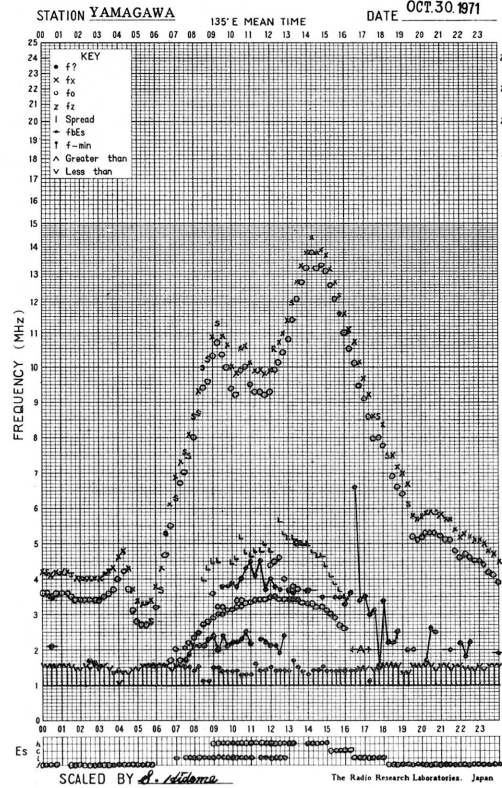
f-PLOT OF IONOSPHERIC DATA



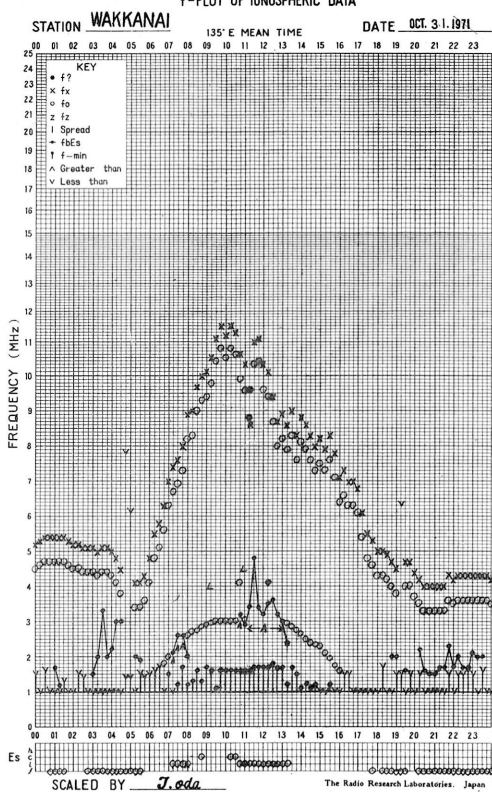
f-PLOT OF IONOSPHERIC DATA



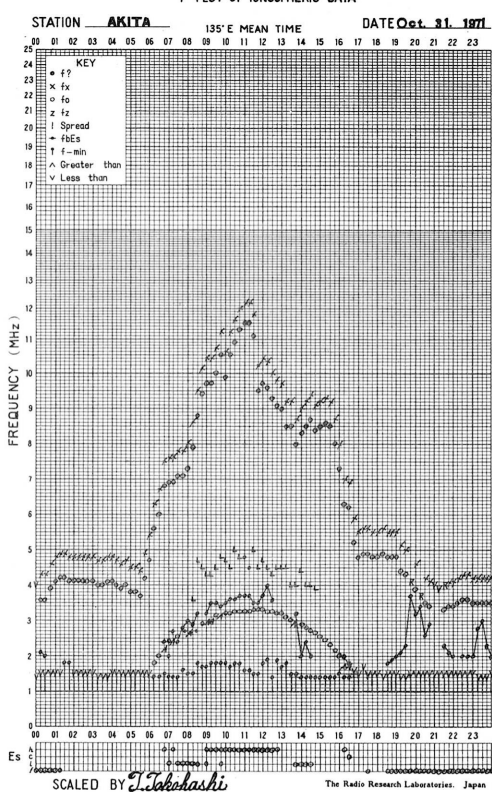
f-PLOT OF IONOSPHERIC DATA



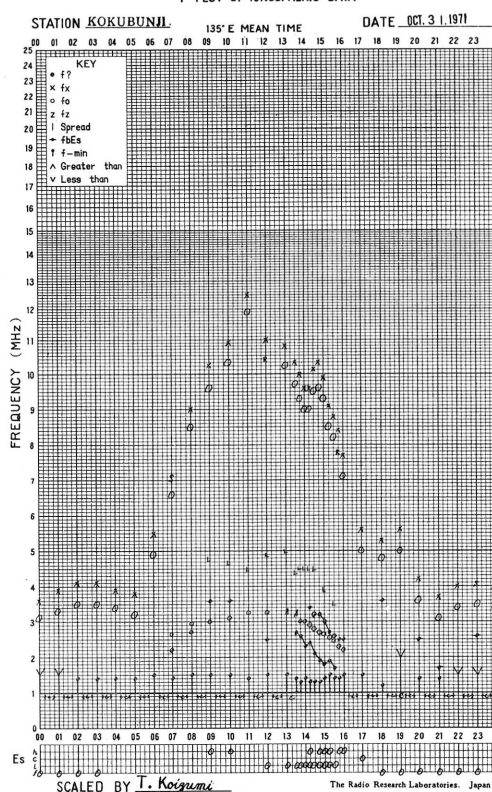
f-PLOT OF IONOSPHERIC DATA



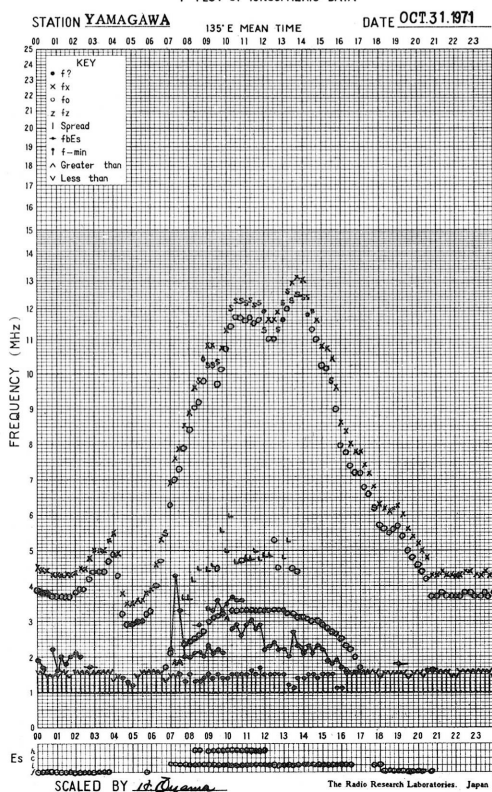
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



SOLAR RADIO EMISSION

<u>Flux Density and Variability</u>										
Month: October 1971						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	5	5	5	5	5	0	0	0	0	0
2	5	5	5	5	5	0	0	0	0	0
3	5	6	6	6	5	1	1	1	0	1
4	6	8	8	5	7	1	1	0	0	1
5	5	6	6	5	5	0	0	0	0	0
6	5	6	6	q	6	0	0	0	0	0
7	q	q	q	5	q	0	0	0	0	0
8	5	5	5	5	5	0	0	0	0	0
9	6	5	5	5	5	0	0	0	0	0
10	6	q	5	5	5	0	0	0	0	0
11	5	q	q	q	5	0	0	0	0	0
12	q	q	q	5	q	0	0	0	0	0
13	q	5	5	5	5	0	0	0	0	0
14	5	5	5	5	5	0	0	0	0	0
15	5	6	5	5	5	0	0	0	0	0
16	5	6	5	5	5	0	0	0	0	0
17	5	(5)	5	5	5	0	(0)	0	0	0
18	5	6	6	5	5	0	0	0	0	0
19	5	6	(5)	6	5	0	0	(0)	1	0
20	7	6	(7)	7	6	1	0	(0)	0	0
21	6	6	(6)	6	6	0	0	(0)	1	0
22	7	6	(6)	9	6	1	0	(0)	1	0
23	7	6	(5)	9	7	1	1	(1)	1	1
24	16	22	(42)	20	18	1	1	(1)	1	1
25	15	14	(18)	6	17	1	1	(1)	0	1
26	6	7	(7)	7	7	1	0	(1)	*	0
27	q	7	(7)	18	7	*	0	(0)	1	0
28	10	9	(8)	7	11	1	0	(0)	0	1
29	6	7	(9)	5	7	0	0	(0)	0	0
30	5	5	(5)	5	5	0	0	(1)	0	0
31	6	8	(8)	9	7	0	0	(0)	1	0

Note No observations during the following periods:

4th 0110- 0145 10th 0400- 0430
 8th 0450- 0620 17th 0310- 0430
 9th 0115- 0140

q: quiet level, when radiometer is unstable.

*: interference by atmospherics.

SOLAR RADIO EMISSION

<u>Flux Density</u>					
Month: October 1971					
Observing station: Hiraiso			Frequency: 500 MHz		
Flux density $10^{-22} \text{ Wm}^{-2} (\text{Hz})^{-1}$					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	23	22	23	22	23
2	23	23	24	23	23
3	23	23	24	24	23
4	24	25	25	23	24
5	23	22	23	22	23
6	23	23	23	23	23
7	23	23	24	24	23
8	24	22	23	23	23
9	22	22	23	23	22
10	22	23	22	22	22
11	22	22	22	25	22
12	25	24	24	24	24
13	23	23	24	26	24
14	24	23	23	24	24
15	24	24	23	24	24
16	24	23	23	24	24
17	23	23	23	25	23
18	25	25	25	23	25
19	23	22	(22)	27	23
20	25	26	(26)	32	26
21	30	28	(26)	(30)	29
22	32	32	(28)	27	31
23	26	(26)	-	30	26
24	31	30	(29)	29	30
25	29	28	(26)	27	28
26	28	27	(25)	29	27
27	29	30	(30)	28	29
28	27	27	(27)	27	27
29	27	27	(24)	24	27
30	25	25	(25)	25	25
31	24	24	(23)	25	24

Note No observations during the following periods:

11th	0150-	0300	21st	2300-	2400
18th	0730-	0810	23rd	0155-	0400
19th	0655-	0810	23rd	0455-	0645
21st	0534-	0545			

Distinctive Events

(single-frequency observations)

Month: October 1971

Observing station: Hiraiso

Normal observing period: 2050 - 0810 (sunrise to sunset)

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density		Remarks
						$10^{-22} \text{ Wm}^{-2} (\text{Hz})^{-1}$		
	MHz	UT	UT	minutes		peak	mean	
2	100	2059.6	2059.8	(0.5)	C	(150)	(15)	* 2100-01
20	100	0101.8	0102.2	1.0	C	320	70	
		0150.7	0151.0	2.0	C	400	100	
		0553.5	0555.5	3.0	C	100	30	
24	500	0253.4	0253.8	0.6	C	610	140	slight noise storm
	100	2100	0459	640		40	10	
25	100	0050.7	0057.0	6.8	C	160	70	
29	100	0430.0	0431.1	1.8	C	120	40	

*: interrupted by calibration.

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

OCT 1971	FREQUENCY 15 MHZ																				BANDWIDTH 80 HZ			RECEIVING ANTENNA ROD 4.5 M					MEASURED AT HIRAI SO				
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	-7	-1	-4	ES -14	ES -12	ES -5	ES -3	ES -5	ES -2	ES -1	ES -7	ES -3	ES 7	ES 3	ES -3	ES -26	ES -29	ES -29	ES -29	ES -29	ES -1	5	1	2									
2	2	3	3	ES -10	ES 6	ES 5	ES 5	ES -2	ES 0	ES 8	ES 8	ES 9	ES -3	ES -29	ES -29	-9	-13	-16	-7	-10	3	8	-1										
3	1	6	5	ES -5	ES -2	ES -2	ES -4	ES -2	ES 1	ES 4	ES 4	ES 6	ES 1	ES -26	ES -25	ES -28	-19	-5	-12	2	8	7	4										
4	2	9	2	ES 6	ES 7	ES 7	ES -2	ES -1	ES 2	ES 3	ES 6	ES 8	ES 10	ES -27	ES -27	ES -27	ES -27	-6	-18	5	7	5	3										
5	4	9	21	ES -8	ES 4	ES 4	ES -6	ES 0	ES 7	ES 9	ES 8	ES 13	ES 16	ES -26	ES -27	ES -27	-13	-14	ES -27	3	8	3	4										
6	3	11	9	ES -11	ES -17	ES -18	ES -18	ES -21	ES -21	ES -26	ES -17	ES -1	ES 14	ES -27	ES -27	ES -27	ES -27	ES -27	-7	-1	2	3	3										
7	5	3	5	3	6	0	ES -6	ES 2	ES 4	ES 6	ES 4	ES 3	ES 10	ES 9	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	7	3	4	7									
8	4	11	7	2	ES -5	ES -1	ES 4	ES 11	ES 12	ES 17	ES 14	ES 13	ES 19	ES 0	ES -28	-8	2	-6	ES -28	ES -28	-5	2	3	2									
9	5	8	13	1	ES 13	ES 17	ES 20	ES 21	ES 18	ES 20	ES 19	ES 16	ES 23	ES 18	ES -27	ES -27	ES -21	ES -27	-12	ES -19	-5	11	11	10									
10	ES 0	2	3	ES -4	ES -3	ES -2	ES 3	ES 3	ES 11	ES 3	ES 7	ES 6	ES 10	ES 9	ES -20	-21	-12	2	2	-19	4	7	10	4									
11	6	10	10	4	ES -4	ES -6	ES -1	ES 1	ES 7	ES 3	ES 3	ES 3	ES 14	ES 17	ES -19	ES -28	ES -10	-13	-12	ES -28	2	4	10	6									
12	10	10	8	5	ES -8	ES -7	ES -1	ES 0	ES 2	ES 4	ES 3	ES 7	ES 9	ES -8	ES -28	ES -28	ES -16	-20	-9	-2	2	8	3	3									
13	2	7	14	16	7	ES -2	ES 2	ES 2	ES -1	ES 3	ES 10	ES 10	ES 13	ES 12	ES -19	-20	ES -21	-22	-8	-8	14	10	8	3									
14	3	2	8	-2	4	ES -2	ES -4	ES 2	ES 0	ES 3	ES 9	ES 12	ES 12	ES 3	ES -20	ES -29	ES -18	-9	-4	ES -8	ES 0	6	5	5									
15	3	-1	6	ES -14	ES -8	ES -4	ES -2	ES 3	ES 3	ES 2	ES 7	ES 3	ES 3	ES -18	ES -29	ES -29	-22	-15	-14	-14	0	5	3	0									
16	3	1	11	1	ES -4	ES -3	ES -4	ES -9	3	ES 0	ES 6	ES -3	ES -25	ES -20	-12	1	7	4	11	2	-1	3	1	2									
17	6	5	-3	ES -13	ES 6	ES 4	-4	ES -1	ES 2	ES 2	ES 0	ES 12	ES 5	ES 2	3	-4	-3	0	2	-4	0	3	5	3									
18	3	2	-3	ES -18	ES -4	ES -3	ES -5	ES -1	ES -1	ES 1	ES -2	ES 1	ES 5	ES -11	-15	-20	-20	2	1	-2	-1	2	1	3									
19	2	3	ES -17	ES -13	ES -6	ES -8	ES -6	ES -4	ES -2	ES -2	ES -8	ES 2	ES 1	ES 7	6	2	3	-2	-2	-4	-6	0	1	4									
20	-2	2	2	ES -11	ES -15	ES -14	ES -23	ES -20	ES -22	ES -29	ES -29	ES -28	ES -7	-11	-25	-3	3	2	1	1	3	4	3										
21	2	3	3	1	ES -2	ES -2	ES 0	ES 0	ES -3	ES -2	ES 4	ES 4	ES 4	2	ES -25	ES -25	-16	-14	2	7	7	8	11										
22	9	11	8	ES -5	ES -2	ES 2	ES 3	ES 0	ES 1	ES 6	ES 1	ES 3	ES 9	ES 7	ES -29	ES -29	ES -29	-20	-21	ES -29	3	12	10	10									
23	5	6	6	-7	ES -7	ES -5	ES 0	ES 3	ES 4	ES 5	ES 4	ES 2	ES 7	ES 2	ES -14	ES -28	ES -20	ES -28	ES -20	-13	6	8	8	7									
24	7	10	8	ES -13	ES -2	ES 0	ES -1	ES 0	ES 3	ES 8	ES 11	ES 8	ES 11	ES 8	ES -28	-20	ES -28	-22	3	-23	-1	9	9	10									
25	9	10	4	ES -7	ES -2	ES -3	ES 1	ES 1	ES 5	ES -1	ES 3	ES 3	ES -2	ES -5	ES -28	ES -28	-8	-9	-17	-1	-1	7	5	6									
26	5	7	7	ES -15	ES -2	ES 2	ES -1	ES 2	ES 2	ES -3	ES 1	ES 2	ES 2	ES -8	-16	ES -28	ES -28	-22	4	ES -25	3	8	8	7									
27	4	7	5	2	ES -3	ES -5	ES 3	ES 3	ES 12	ES 12	ES 5	ES -4	ES -19	ES -4	-25	-19	-13	-19	-19	-15	-2	-9	4	6									
28	6	7	-5	-14	ES -3	ES -3	ES 0	ES 3	ES 1	ES 2	ES 8	ES 0	ES 3	ES 3	ES -11	ES -28	ES -16	ES -28	ES -25	ES -28	-14	14	13	15									
29	13	12	10	2	8	11	ES -1	ES 2	ES 3	ES -1	ES 2	ES 13	ES 8	ES 5	ES -8	-19	-7	0	12	0	0	12	10	8									
30	9	7	7	ES -13	ES -5	ES 2	ES 3	ES 6	ES 7	ES 2	ES 2	ES -2	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-3	7	8	3									
31	4	6	3	ES -13	ES -10	ES -4	ES 0	ES 0	ES 0	ES 1	ES 7	ES -4	ES -9	ES -28	ES -28	ES -7	ES -10	-26	-12	-23	-3	4	9	11									
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31									
MED	4	7	6	-2	ES -4	ES -3	ES -1	ES 0	ES 2	ES 2	ES 4	ES 3	ES 7	ES 3	ES -25	ES -27	ES -20	-19	-12	US -14	0	7	5	4									
UD	9	11	13	5	ES 7	ES 6	ES 4	ES 6	ES 12	ES 12	ES 11	ES 13	ES 14	ES 16	2	-4	2	2	4	1	7	12	10	11									
LD	ES 0	1	-4	ES -14	ES -10	ES -8	ES -7	ES -9	ES -3	ES -3	ES -8	ES -4	ES -25	ES -20	ES -29	ES -29	ES -28	ES -28	ES -28	ES -28	ES -6	2	1	2									

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

OCT 1971		FREQUENCY 15 MHZ										BANDWIDTH 80 HZ										RECEIVING ANTENNA ROD 4.5 M										MEASURED AT HIRAISSO									
UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M																	
1	1	1	5	6	16	11	13	14	13	-20	-9	ES -22	ES -17	ES -26	ES -10	ES -29	ES -29	-20	0	4	14	9	7	1																	
2	3	3	7	10	12	14	19	11	-3	-5	ES 0	ES -20	ES -3	ES -29	ES -29	ES -29	ES -29	-24	-7	16	20	10	2	2																	
3	2	8	6	15	15	19	21	ES 0	ES -4	ES -15	ES -3	-14	ES 4	ES -26	ES -26	-23	ES -28	-14	-23	11	16	6	4	3																	
4	3	9	9	13	14	15	18	-5	-4	-1	ES 2	-17	ES 5	ES -27	ES -27	ES -27	ES -27	-9	ES -27	12	9	10	10	3																	
5	4	9	12	13	21	19	5	-7	ES -1	-7	ES -2	ES -12	ES 12	ES -26	ES -10	ES -27	ES -27	ES -27	-7	11	12	11	8	4																	
6	5	3	5	17	17	8	-3	-3	ES -16	-12	-8	4	ES -7	ES 22	ES -27	ES -27	ES -27	ES -27	ES -27	12	9	9	4	2																	
7	9	7	10	16	20	14	0	-7	ES -1	-11	-13	-13	ES 0	ES -13	ES -27	ES -27	ES -27	ES -27	ES -27	4	12	8	4	6																	
8	2	6	13	15	17	22	20	24	ES 7	ES -19	ES 4	-19	ES -17	ES -28	ES -17	ES -20	ES -19	ES -28	ES -28	8	15	12	6	4																	
9	11	11	12	17	23	25	21	24	17	-7	ES 13	ES -19	ES 10	ES -27	ES -13	ES -24	ES -24	-3	-9	-3	8	10	13	7																	
10	-12	3	11	10	21	20	18	ES 3	20	-2	ES 3	ES -11	ES 8	ES 5	-12	ES -28	ES -21	ES -19	ES -21	10	10	10	4	6																	
11	7	11	13	14	19	25	3	ES -2	ES 7	ES -3	ES 0	ES -19	ES 7	ES 2	ES -10	ES -28	ES -28	-19	-12	11	5	8	6	6																	
12	11	11	9	15	18	23	19	3	ES 0	ES -17	ES 2	ES -25	ES 10	ES -3	ES -28	ES -28	ES -25	ES -28	-2	1	10	3	4	3																	
13	2	7	10	19	20	21	9	-8	ES -1	ES -6	ES 7	ES -8	ES 8	ES 10	ES -19	ES -28	ES -28	-22	-8	10	12	10	8	3																	
14	5	5	9	14	17	21	11	2	ES -8	ES -14	ES 7	ES -25	ES 11	ES -8	ES -8	ES -29	ES -29	-15	-20	1	7	9	7	3																	
15	2	8	9	11	14	15	8	2	ES -1	ES -4	ES 1	-26	ES 2	ES -29	ES -22	ES -29	ES -29	-18	-5	10	10	10	5	2																	
16	6	7	12	16	12	15	ES -13	ES -12	3	ES -14	ES -3	ES -28	ES -19	ES -28	ES -16	ES -28	-19	11	7	10	17	12	3	7																	
17	6	8	8	16	18	6	0	-1	8	ES -21	ES 2	ES -25	ES -9	ES -6	ES -24	ES -27	ES -27	-2	ES -12	2	12	13	6	3																	
18	3	4	9	13	16	16	1	4	7	ES -8	ES -4	ES -10	ES -11	ES -13	ES -16	ES -20	ES -26	-17	-17	5	16	4	0	2																	
19	3	2	4	10	4	18	ES -6	ES -7	ES -5	ES -28	ES -6	ES -28	ES 1	ES -3	ES -13	ES -29	-2	-20	-19	-7	15	3	2	6																	
20	5	10	8	11	17	15	-2	-12	-15	ES -20	ES -29	ES -29	ES -28	ES -15	ES -28	ES -28	ES -19	-5	1	9	5	8	2	1																	
21	2	11	11	20	9	-9	ES -5	-9	ES 1	ES -23	ES -6	ES 1	ES 1	ES -12	ES -25	ES -25	-19	-12	-6	14	14	15	10	12																	
22	7	7	7	16	12	11	1	-15	ES -1	-11	ES -7	ES -16	ES 5	ES -20	ES -29	ES -29	ES -29	ES -26	ES -29	9	13	9	9	9																	
23	5	8	10	16	16	23	15	-2	ES 2	-6	ES 1	-8	ES -3	ES -2	ES -12	-17	ES -28	-7	-8	-4	9	11	9	8																	
24	10	11	11	17	19	12	-1	-11	1	-2	ES 8	ES 13	ES 8	ES -10	ES -2	ES -28	-23	-12	-23	2	11	14	11	12																	
25	8	6	9	21	21	17	-4	-7	-4	ES -23	ES -4	ES -23	ES -8	ES -17	ES -23	ES -28	ES -28	-19	-16	2	11	12	8	2																	
26	3	8	9	12	16	10	6	-9	ES -4	ES -28	ES -6	ES -28	ES -11	ES -9	ES -28	ES -28	ES -28	-14	-19	5	9	8	8	5																	
27	2	10	13	16	16	6	ES -1	ES 0	ES 6	ES -13	ES 5	ES -21	ES -4	ES -28	ES -28	ES -19	ES -25	ES -28	ES -28	4	9	7	9	8																	
28	8	11	11	11	13	6	ES -4	-8	ES -1	-21	ES 2	ES -28	ES 3	ES -8	ES -10	ES -28	ES -28	-22	ES -25	ES -17	3	10	10	9																	
29	8	16	9	15	20	17	ES -2	7	9	2	ES 7	ES -16	ES 2	ES -8	ES -8	ES -25	ES -8	-6	0	2	16	13	10	7																	
30	7	7	10	17	20	21	ES 21	12	-11	ES -3	ES -22	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	3	16	14	4	3																	
31	5	9	8	13	11	11	ES -6	ES -3	ES 0	ES -18	ES 8	ES -27	ES -28	ES -28	ES -28	ES -7	ES -7	ES -28	ES -25	-22	-2	13	12	9	11																
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31																
MED	5	8	9	15	17	15	3	ES -2	ES 0	ES -12	ES 0	ES -19	ES 1	ES -13	ES -19	ES -28	ES -27	-19	US -17	5	12	10	7	4																	
UD	10	11	13	19	21	23	21	ES 21	13	-2	ES 8	ES 1	ES 10	ES 5	ES -8	ES -19	ES -19	-3	0	12	16	14	10	11																	
LD	2	3	5	10	11	6	ES -6	ES -12	ES -8	ES -23	ES -9	ES -28	ES -28	ES -28	ES -28	ES -29	ES -29	ES -28	ES -28	-4	5	4	2	2																	

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Oct. 1971	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*	3+	(3)	-	(2)	3	4	5	(4)	3	4	(4)	(4)	4	N	N	N	N			
2*	4°	(4)	-	(5)	3	4	5	(4)	-	4	(5)	(4)	4	N	N	N	N			
3*	4°	(4)	-	(4)	3	(5)	-	-	-	4	(4)	(4)	4	N	N	N	N			
4	4°	(4)	-	(4)	3	4	4	(4)	4	4	(4)	(4)	4	N	N	N	N			
5	4-	(4)	-	(4)	4	3	4	(3)	3	4	(4)	(4)	4	N	N	N	N	22.45	---	68 ^Y
6*	3°	(4)	-	(2)	3	4	3	(3)	3	4	(4)	(3)	4	N	N	N	N	---	19.00	
7*	3°	(4)	-	(2)	3	3	3	(3)	3	4	(4)	(3)	4	N	N	N	N			
8	4-	(4)	-	(4)	4	5	2	(2)	4	4	(5)	(3)	4	N	N	N	N	17.03	---	60 ^Y
9	4-	(4)	-	(3)	3	4	4	(4)	-	5	(5)	(5)	4	N	N	N	N	---	21.00	
10	4°	(3)	-	(5)	4	4	-	-	-	4	(5)	(4)	4	N	N	N	N			
11	4°	(4)	-	(4)	3	4	5	(4)	3	4	-	(4)	4	N	N	N	N			
12	4°	(3)	-	(4)	4	4	5	(4)	4	4	(4)	(4)	4	N	N	N	N			
13	4°	(5)	-	(3)	3	4	5	(4)	4	4	(4)	(4)	4	N	N	N	N			
14	4°	(3)	-	(5)	4	4	4	(4)	4	4	(4)	(4)	4	N	N	N	N			
15	4°	(4)	-	(4)	4	4	4	(4)	4	4	(3)	(4)	4	N	N	N	N			
16	4+	(4)	-	(5)	5	4	4	(4)	-	4	(3)	(5)	4	N	N	N	N			
17	4+	(4)	-	(5)	4	(4)	-	-	-	4	(4)	(4)	4	N	N	N	N			
18	4°	(4)	-	(5)	4	4	4	(4)	4	4	(5)	(4)	4	N	N	N	N			
[19]	4°	(4)	-	(5)	4	4	4	(4)	4	3	-	(4)	4	N	N	N	N			
[20]	4°	(4)	-	(5)	5	4	3	(4)	4	4	(3)	(5)	4	N	N	N	N			
[21]	4°	(4)	-	(4)	5	4	3	(3)	5	3	(3)	(5)	4	N	N	N	N			
22	3+	(4)	-	(3)	4	3	3	(3)	3	4	(4)	(3)	4	N	N	N	N			
23	4-	(3)	-	(3)	4	4	4	(4)	-	4	(5)	(5)	4	N	N	N	N			
24	4°	(4)	-	(4)	3	(5)	-	-	-	4	(4)	(4)	4	N	N	N	N			
25	4°	(4)	-	(4)	4	4	4	(4)	4	4	(3)	(4)	4	N	N	N	N			
26	4°	(4)	-	(5)	4	4	4	(4)	4	4	(3)	(4)	4	N	N	N	N			
27	4°	(4)	-	(4)	4	4	4	(3)	4	4	-	(3)	4	N	N	N	N			
28	4-	(3)	-	(3)	4	4	4	(3)	4	4	(3)	(3)	4	N	N	N	N			
29	4+	(4)	-	(5)	4	4	4	(4)	5	4	(4)	(5)	4	N	N	N	N			
30	4°	(4)	-	(2)	4	5	4	(4)	4	4	(5)	(3)	4	N	N	N	N			
31	3+	(4)	-	(3)	4	(3)	-	-	-	4	-	(3)	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.

Oct 1971	Drop-out Intensities (db)					S W F				Correspondence		
	CO	LM	HA	TO	SH	Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag
10	x	20	x			00.36	72	Slow	2	x		

I N U B O

1971	S P A									Remarks
OCT.	Phase Advance (degrees)						Time (U.T.)			
DATE	GBR	WWVL	NAA	NPG	NWC	HA2	Start	End	Maximum	
10	40	112	37	60	<u>116</u>	106	0027	0223	0045	
12			18				0033	0109	0042	
18		-	22				0531	0636	0537	
19			<u>13</u>	3			2101	2128	2107	
19				3		<u>9</u>	2208	2241	2222	
22				9	8	<u>11</u>	0003	0036	0009	
28		-		7			2124	2200	2134	
28	55	-	<u>24</u>				2314	0000	2329	
29		-	34*				0003	0136	0022	
29		-	61*	-		-	0204	0409	0257	
29		-	24	-			0413	0528	0430	
29		-	26				2205	2255	2216	

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.

IONOSPHERIC DATA IN JAPAN FOR OCTOBER 1971

第 23 卷 第 10 号

1972年2月10日 印 刷
1972年2月25日 發 行 (不許複製非売品)

編 集 兼
發 行 人

今 野 清 恒

東京都小金井市貫井北町4丁目2-1

發 行 所

郵 政 省 電 波 研 究 所

184 東京都小金井市貫井北町4丁目2-1

電話 国分寺 (0423) (21) 1 2 1 1 (代)

印 刷 所

有限会社 研 文 社

160 東京都新宿区四谷3丁目6

電話 (353) 8 3 5 8 • (351) 0 0 4 6
