F—266

IONOSPHERIC DATA IN JAPAN

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IONOSPHERIC DATA IN JAPAN

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RADIO RESEARCH LABORATORIES

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN

CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES AND HIRAISO BRANCH

Ionospheric observation is carried out at the following four observatories in Japan.

	Latitude	Longitude	Site
Wakkanai	45°23.6′N.	141°41.1′E.	Midori-cho, Wakkanai-shi, Hokkaido
Akita	39°43.5′N.	140°08.2′E.	Tegata Sumiyoshi-cho, Akita-shi, Akita-ken
Kokubunji	35°42.4′N.	139°29.3′E.	Nukui-Kitamachi, Koganei-shi, Tokyo-to
Yamagawa	31°12.1′N.	130°37.1′E.	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

Solar radio emission and radio propagation conditions are observed at Hiraiso Branch and Inubo Radio Wave Observatory.

	Latitude	Longitude	Site
Hiraiso	36°22.0′N.	140°37.5′E.	Isozaki-machi, Nakaminato-shi, Ibaraki-ken
Inubo	35°42.2′N.	140°51.5′E.	9912 Tennodai, Choshi-shi, Chiba-ken

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

f_oF2, f_oF1, f_oE — The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.

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

f_bEs — The lowest ordinary wave frequency at which the Es layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.

f-min — The frequency below which no echoes are observed.

$M(3000)F2$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.

$M(3000)F1$ — The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.

$h'F2$ — The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.

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

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

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

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

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

a. Descriptive Letters

The following letters are entered after or used to replace a numerical value on the monthly tabulation sheets.

A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example *Es*.

B Measurement influenced by, or impossible because of, absorption in the vicinity of f-min.

C Measurement influenced by, or impossible because of, any non-ionospheric reason.

D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.

E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.

F Measurement influenced by, or impossible because of, the presence of spread echoes.

G Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.

H Measurement influenced by, or impossible because of, the presence of a stratification.

L Measurement influenced or impossible because the trace has no sufficiently definite cusp between layers.

M Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

R Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.

S Measurement influenced by, or impossible because of, interference or atmospherics.

T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.

V Forked trace which may influence the measurement.

W Measurement influenced or impossible because the echo lies outside the height range recorded.

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Letters

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

the monthly tabulation sheets.

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

c. Definitions of the CNT, MED, UQ and LQ

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

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

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

d. Description of Standard Types of *Es*

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

F	An *Es* trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat *Es* traces observed in the daytime are classified according to their virtual hight: *H* or *L*.
L	A flat *Es* trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.
C	An *Es* trace showing a relatively symmetrical cusp at or below f_0E. This is usually continuous with the normal *E* trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)
H	An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above f_0E. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)
Q	An *Es* trace which is diffuse and non-blanketing over a wide

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

R An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation but which is 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_0Es and $h'Es$. The slant trace is sometimes observed to start at f_0E without echoes clearly identifiable as *Es* echoes being seen.

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

e. Multiple Reflections from *Es*

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

B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 200 and 500 MHz at Hiraiso Branch. Antennas are two parabolic reflectors: 10 meter for 200 MHz and 5 meter for 500 MHz, each having the total power receiver. Observations are feasible almost from sunrise to sunset.

a. Time and Unit

The time is expressed as U.T.

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

b. Daily Data

Flux density

The three-hourly and daily mean values are given.

Variability

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

Variability is expressed in the following four grades:

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

The number of bursts exceeding the flux level is counted. 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 atmospherics.

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

E : Less than the following figure.

b. Radio Propagation Quality Figures

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

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

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

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

N = normal
U = unstable
W = disturbed

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

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

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

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

(i) SWF

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

Circuits and Drop-out intensities

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

Start-time and Duration

Types

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

Importances

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

1−	1	1+
2−	2	2+
3−	3	3+

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

(ii) SPA

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

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

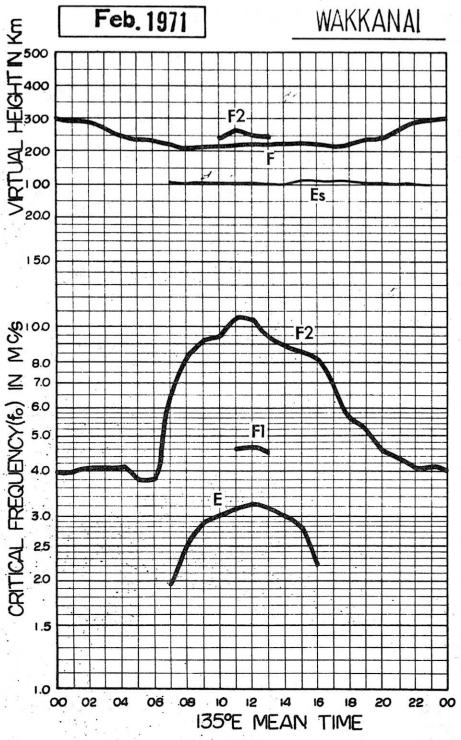
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West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

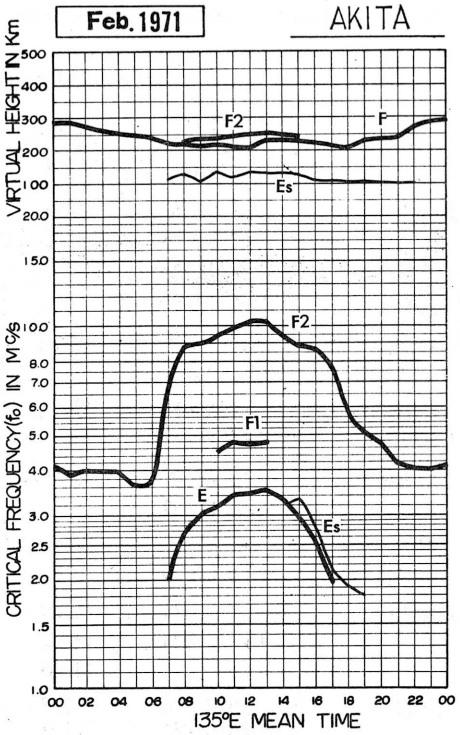
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

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

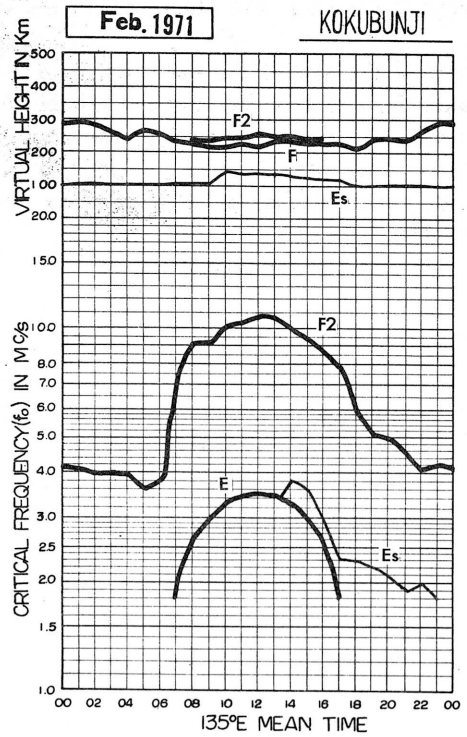
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

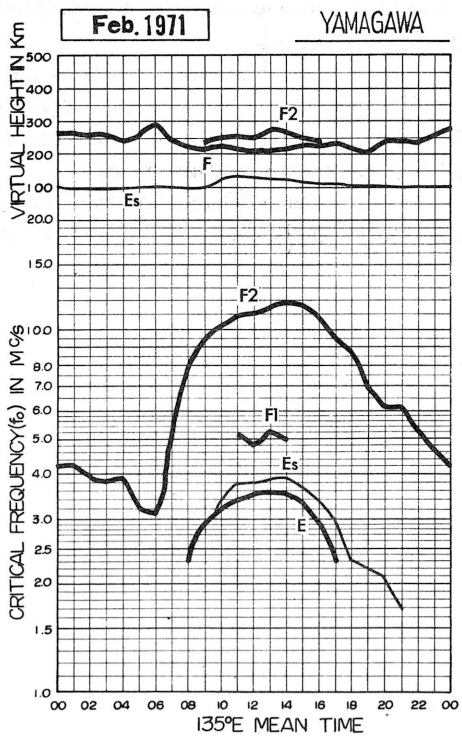
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

FEB. 1971 | FOF2 (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 40	F 38	F 38	F 40	38	36	36	56	83	100	105	106	98	H 94	90	86	75	70	50	40	34	33	36	34
2	35	35	35	36	40	35	34	53	73	93	104	105	107	103	90	84	81	60	45	42	37	35	37	37
3	37	38	34	35	37	35	35	61	78	96	98	96	97	96	91	83	87	60	50	50	38	28	30	32
4	34	34	36	34	35	34	34	64	C	C	C	C	C	C	88	84	75	60	50	44	37	33	36	35
5	37	40	38	42	37	35	38	63	80	81	94	123	111	88	91	82	75	64	55	53	40	41	43	42
6	43	44	43	42	41	38	36	63	76	88	80	98	C	103	I C 89	84	81	73	56	40	36	36	38	37
7	C	38	40	C	C	C	C	66	C	C	C	94	101	C	C	C	C	C	C	C	46	C	51	C
8	36	C	C	36	C	C	C	C	C	C	C	C	96	98	86	86	83	65	55	50	34	35	37	36
9	36	36	37	37	40	39	37	69	I C 84	78	90	106	103	93	93	76	87	66	53	50	47	35	42	40
10	37	36	39	40	41	36	36	C	C	103	90	97	91	87	88	79	72	62	50	43	40	36	36	36
11	36	35	35	38	40	33	30	58	92	92	104	112	97	82	79	78	81	61	53	48	43	35	38	40
12	38	43	41	42	C	C	C	C	C	C	94	88	104	90	88	80	78	54	54	50	I C 42	I C 34	34	37
13	35	I C 38	38	40	C	C	40	C	88	104	93	107	98	90	84	86	80	63	53	44	34	35	37	36
14	39	40	41	41	41	C	C	C	C	C	C	94	104	95	89	80	79	57	64	54	43	43	44	43
15	40	37	40	38	49	29	32	64	86	104	111	123	112	93	87	89	83	70	64	55	47	43	41	44
16	43	43	42	40	35	37	36	66	73	R	90	119	106	97	97	84	89	79	70	68	68	54	50	49
17	50	50	51	50	47	41	33	67	84	96	107	96	109	103	C 93	88	85	73	53	52	43	37	40	41
18	39	40	40	41	40	35	41	64	C	C	82	C	C	90	C	88	84	67	56	50	50	43	41	40
19	42	42	43	44	41	36	40	61	78	C	C	93	C	C	C 93	C	80	73	56	60	57	43	37	40
20	40	40	41	43	U S 44	40	C	C	C	87	C	C	C	C 88	C	C 90	81	72	52	56	53	45	41	43
21	43	46	44	43	45	43	47	58	85	91	81	C	C	C	C	C	C	C	I S 70	60	45	45	43	44
22	I C 43	43	44	45	47	43	41	I C 66	C	C	C	109	103	93	90	89	98	83	54	52	48	43	43	44
23	44	45	44	45	45	43	40	66	83	77	82	82	102	96	91	92	95	83	73	64	63	44	43	44
24	43	44	43	43	44	45	44	78	98	90	107	112	114	113	99	96	93	92	83	70	47	43	43	43
25	43	44	46	44	42	40	46	72	90	96	94	126	106	111	105	93	86	86	73	72	68	48	44	45
26	45	44	46	46	43	43	39	43	53	55	61	76	79	78	82	88	79	65	50	45	48	50	47	53
27	53	F	F 41	F	F 44	44	55	78	88	92	H 85	103	119	103	94	92	91	78	61	58	45	43	42	43
28	F	F	F	F	F 40	F 40	40	66	86	89	98	108	108	106	100	95	88	83	66	54	51	48	47	46
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	26	25	24	23	23	22	19	19	21	23	22	24	23	25	26	26	27	27	28	27	28	27
MED	40	40	41	41	41	38	38	64	84	92	94	105	104	94	90	86	82	68	55	52	45	43	41	41
UQ	43	44	43	43	44	42	40	66	87	96	104	110	108	103	93	89	87	78	64	57	49	44	43	44
LQ	37	38	38	38	40	35	36	61	78	88	85	95	98	90	88	83	79	62	52	46	39	35	37	37

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

FEB. 1971 | FOF1 (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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2													L											
3																								
4									C	C	C	C	C	C										
5																								
6													C	470	C									
7									C	C	C			C	C	C								
8									C	C	C	C												
9																								
10																								
11																								
12									C															
13												420												
14											420			L										
15											L	L												
16													L											
17															C									
18											L													
19													L											
20									C															
21												460	460	L										
22													L											
23															420									
24														420										
25											L					L								
26									420	440	460	500	470	450										
27													480	L	L									
28										L			450		L									
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	1	2	3	4	3	1									
MED									420	440	440	460	465	450	420									
UQ												480	475	460										
LQ												440	455	435										

The Radio Research Laboratories, Japan

FEB. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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								S	240	285	295	305	310	310	290	255	195	A						
2								A	220	285	300	310	320	310	300	IA 270	200	A						
3								S	230	280	300	320	320	305	300	260	A	S						
4								S	C	C	C	C	C	C	300	270	200	S						
5								S	225	270	300	315	320	315	300	270	A	A						
6								S	220	275	300	300	C	305	IC 300	270	A	A						
7								S	C	C	C	315	325	C	C	C	C	C						
8								C	C	C	C	C	320	315	300	275	A	S						
9								S	225	280	295	305	315	315	290	270	195	S						
10								S	235	280	295	300	305	305	305	275	A	S						
11								S	A	270	A	A	310	305	300	280	215	S						
12								C	C	285	300	315	320	310	295	275	210	S						
13								A	A	300	300	310	320	310	300	280	240	S						
14								S	245	290	305	310	330	320	IA 305	280	215	S						
15								A	250	290	300	315	320	315	295	280	220	S						
16								195	A	290	305	320	325	320	310	285	225	E						
17								195	A	300	310	330	330	325	C	290	210	S						
18								S	260	295	310	325	325	320	305	290	215	S						
19								195	A	295	A	315	320	315	300	280	210	S						
20							C	C	C	300	305	320	330	320	300	270	235	S						
21								S	250	295	310	315	325	330	305	290	220	S						
22								S	245	A	A	320	330	325	315	290	240	S						
23							E	195	270	300	320	330	330	325	310	290	240	150						
24							S	220	260	A	A	325	330	325	305	290	240	150						
25							E	190	275	300	315	330	340	330	315	290	230	S						
26				E	E	S	S	200	255	290	IA 305	325	330	320	305	295	240	S						
27							S	195	255	300	A	A	340	330	310	290	240	S						
28							S	200	265	300	310	330	335	330	310	295	245	S						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				1	1		2	9	18	23	20	24	26	26	26	27	22	3						
MED				E	E		E	195	248	290	302	315	325	318	300	280	220	150						
UQ								200	260	300	310	325	330	325	305	290	240	150						
LQ								195	230	280	300	310	320	310	300	270	210	E E 150						

FEB. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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 S 16	E S 15	E	E	E S 15	E	E S 18	G	G	G	G	32	G	G	G	G	J X 23	E	E S 15	E S 15	E S 15	E S 16	E S 15
2	J X 23	E	E	E	E	E	E S 15	J X 24	G	G	G	G	G	G	G	31	22	J X 25	J X 34	J X 29	E S 16	J X 23	J X 24	E S 16
3	E S 16	E S 16	E	E	E	E S 15	E	E S 16	G	G	G 29	G	G	G	G	G	J X 36	E S 15	E S 15	J X 24	E S 15	E S 16	E S 15	E
4	E	E	E S 16	E	E	E	E	G	C	C	C	C	C	C	G	G	G	E S 14	E S 16	E S 15	E	E S 15	E	E S 16
5	E	E	E	E	E	E S 15	E S 15	G	G	G	G	G	37	38	39	33	26	J X 35	E S 14	E S 14	J X 23	E S 15	E S 16	E S 16
6	24	E S 15	24	E S 14	E	E	E S 15	G	G	30	G	G	C	G	C	31	31	19	E	E S 13	E S 16	E S 15	E S 17	E S 15
7	C	E S 12	E	C	C	C	C	E S 19	C	C	C	G	36	C	C	C	C	C	C	C	E S 15	C	E S 16	C
8	E	C	C	E	C	C	C	C	C	C	C	C	35	G 28	G 24	31	27	E S 15	E S 12	E S 15	E	E S 15	E S 15	E
9	E S 16	E S 15	E S 15	E S 15	E	E	E S 15	E S 19	G	G 25	G	G	G 28	G	G	32	33	E S 14	E	E S 15	E S 16	E S 15	E S 15	E S 15
10	E S 16	E S 15	E S 16	E	E	E	E S 15	G	G	G	G	G	G	G	G	31	J X 31	E S 15	E	E S 15	J X 23	E S 16	29	26
11	25	E	E	E	E	E	E	G	36	G 25	J X 44	33	G	G	G	G	G	E S 15	E	E S 15	E S 16	26	25	J X 21
12	28	E	E	E	C	C	C	C	C	G 25	G 26	G 31	G	G	G	G 15	G	21	E S 15	E S 15	E S 14	E S 16	E S 15	E S 16
13	E S 16	E S 16	E	E S 15	E S 16	E S 14	E S 15	20	30	34	36	35	G 24	G	G	G 22	29	25	25	E	E S 15	23	26	E S 16
14	E S 16	E S 15	E	E	E	E S 15	E S 16	G	G	G	G	G	40	G	J X 36	G 28	G	E S 15	21	18	E S 16	E S 17	E S 15	E
15	E	E	E S 15	E	J X 63	E	E S 15	J X 25	G	G	G	G 23	38	39	G	G	G	E S 15	J X 24	E S 15	E S 14	E S 15	J X 28	E S 16
16	E S 16	E	E	E	E	E S 16	E S 14	G	28	G 25	G	G	G 27	G 32	G	G	30	J X 30	20	E	E S 13	E S 15	E S 16	E S 15
17	E S 17	E	E	E	E	E	E S 15	G	35	G 28	G	G	G	G	C	G	G	E S 16	J X 23	J X 30	J X 23	J X 25	25	E S 15
18	E S 16	E S 16	E S 18	E	E S 15	E S 15	E S 15	G	G	G	36	G	G	G	G	G	G	E S 17	E S 13	E S 16	E S 15	E S 16	E S 17	E S 15
19	E S 17	J X 30	E	E	E	E	E S 17	G	25	G	J X 44	G 25	G	G	G	G	G	E S 17	E S 12	E S 16	E S 16	E S 14	E S 16	E S 16
20	E S 16	E S 16	E S 15	E	E	E S 15	C	C	C	G	G	G	G	G	G	G	G	E S 17	E	E	E S 16	E S 15	E S 17	E S 16
21	E S 16	E S 15	E S 16	E	E	E S 13	E S 15	22	G	G	G	G	G	G	G	G	G	E S 20	E S 17	E S 16	E S 16	E S 15	E S 16	E S 16
22	C	E S 16	E S 16	E S 16	E S 15	E S 14	E S 15	G	G	31	38	G	G	G	G	G 15	G	E S 17	E	E S 15	E	E	E S 16	E S 15
23	E S 15	E S 15	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	15	J X 24	E S 15	E S 14	E	E
24	E	E	E	E	E	E	E S 15	G	34	36	39	G	G 32	G 27	G	G 16	G 18	G	15	J X 24	J X 20	E S 15	E S 14	25
25	E	E	E	E	E	E	E	26	G 25	G	G	G	G	G	G	G	G	E S 19	E S 15	E	E S 15	E	E	E S 15
26	E S 15	E	E S 15	E	E	E S 15	E S 15	G	G	G	35	G 28	G	G	G	G	G	20	E S 15	E S 15	E S 15	E S 11	E	E
27	E S 15	E S 14	E	E	E	E	E S 15	G	G	G	36	J X 40	G 32	G	J X 35	G	G	E S 20	E S 15	E S 15	E S 15	E S 15	E S 15	E
28	E	E	E	E	18	E	E S 15	G	G 25	G	G	G	G	G	G	G	G	E S 20	E S 15	E S 15	E S 15	E	E S 15	E S 15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	27	27	25	25	24	25	23	25	25	26	26	26	25	27	27	27	27	27	28	27	28	27
MED	E S 16	E S 14	E	E	E	E	E S 15	G	G	G	G	G	G	G	G	G	G	E S 17	E S 15	E S 15	E S 15	E S 15	E S 16	E S 15
UQ	E S 16	E S 16	E S 15	E	E	E S 15	E S 15	19	25	G 25	36	G 23	G 32	G	G	G 25	26	20	16	E S 16	E S 16	E S 16	E S 17	E S 16
LQ	E	E	E	E	E	E	E E 14	G	G	G	G	G	G	G	G	G	G	E S 15	E E 12	E S 15	E S 15	E S 15	E S 15	E S 15

IONOSPHERIC DATA

FEB. 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E S 16	E S 15	E	E	E S 15	E	E S 18	G	G	G	G	28	G	G	G	G	13	E	E S 15	E S 15	E S 15	E S 16	E S 15
2	E	E	E	E	E	E	E S 15	17	G	G	G	G	G	G	G	28	G	15	20	20	E S 16	E	E	E S 16
3	E S 16	E S 16	E	E	E	E S 15	E	E S 16	G	G	G 21	G	G	G	G	G	26	E S 15	E S 15	E	E S 15	E S 16	E S 15	E
4	E	E	E S 16	E	E	E	E	G	C	C	C	C	C	C	G	G	G	E S 14	E S 16	E S 15	E	E S 15	E	E S 16
5	E	E	E	E	E	E S 15	E S 15	G	G	G	G	G	G	G	G	G	25	14	E S 14	E S 14	E	E S 15	E S 16	E S 16
6	E	E S 15	E	E S 14	E	E	E S 15	G	G	22	G	G	C	G	C	G	25	16	E	E S 13	E S 16	E S 15	E S 17	E S 15
7	C	E S 12	E	C	C	C	C	E S 19	C	C	C	G	G	C	C	C	C	C	C	C	E S 15	C	E S 16	C
8	E	C	C	E	C	C	C	C	C	C	C	C	G 26	G 24	G 20	G 18	23	E S 15	E S 12	E S 15	E	E S 15	E S 15	E
9	E S 16	E S 15	E S 15	E S 15	E	E	E S 15	E S 19	G	G 19	G	G	G 18	G	G	G	G	E S 14	E	E S 15	E S 16	E S 15	E S 15	E S 15
10	E S 16	E S 15	E S 16	E	E	E	E S 15	G	G	G	G	G	G	G	G	G	26	E S 15	E	E S 15	18	E S 16	E	E
11	E	E	E	E	E	E	E	G	29	G 24	31	33	G	G	G	G	G	E S 15	E	E S 15	E S 16	E	E	E
12	E	E	E	E	C	C	C	C	C	G 25	G 23	G 21	G	G	G	G 15	G	G	E S 15	E S 15	E S 14	E S 16	E S 15	E S 16
13	E S 16	E S 16	E	E S 15	E S 16	E S 14	E S 15	15	21	24	G	26	G 21	G	G	G 21	G 15	23	20	E	E S 15	E	E	E S 16
14	E S 16	E S 15	E	E	E	E S 15	E S 16	G	G	G	G	G	21	G	31	G 21	G	E S 15	15	14	E S 16	E S 17	E S 15	E
15	E	E	E S 15	E	E	E	E S 15	21	G	G	G	G 22	G	G	G	G	G	E S 15	15	E S 15	E S 14	E S 15	17	E S 16
16	E S 16	E	E	E	E	E S 16	E S 14	G	27	G 23	G	G	G 24	G 25	G	G	G	27	14	E	E S 13	E S 15	E S 16	E S 15
17	E S 17	E	E	E	E	E	E S 15	G	31	G 26	G	G	G	G	C	G	G	E S 16	E	22	E	E	E	E S 15
18	E S 16	E S 16	E S 18	E	E S 15	E S 15	E S 15	G	G	G	G	G	G	G	G	G	G	E S 17	E S 13	E S 16	E S 15	E S 16	E S 17	E S 15
19	E S 17	20	E	E	E	E	E S 17	G	25	G	32	G 22	G	G	G	G	G	E S 17	E S 12	E S 16	E S 16	E S 14	E S 16	E S 16
20	E S 16	E S 16	E S 15	E	E	E S 15	C	C	C	G	G	G	G	G	G	G	G	E S 17	E	E	E S 16	E S 15	E S 17	E S 16
21	E S 16	E S 15	E S 16	E	E	E S 13	E S 15	G	G	G	G	G	G	G	G	G	G	E S 20	E S 17	E S 16	E S 16	E S 15	E S 16	E S 16
22	C	E S 16	E S 16	E S 16	E S 15	E S 14	E S 15	G	G	30	32	G	G	G	G	G 15	G	E S 17	E	E S 15	E	E	E S 16	E S 15
23	E S 15	E S 15	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	E	E	E S 15	E S 14	E	E
24	E	E	E	E	E	E	E S 15	G	22	30	32	G	G 27	G 24	G	G 16	G 17	G	16	19	17	E S 15	E S 14	E
25	E	E	E	E	E	E	E	G	G 18	G	G	G	G	G	G	G	G	E S 19	E S 15	E	E S 15	E	E	E S 15
26	E S 15	E	E S 15	E	E	E S 15	E S 15	G	G	G	33	G 28	G	G	G	G	G	G	E S 15	E S 15	E S 15	E S 11	E	E
27	E S 15	E S 14	E	E	E	E	E S 15	G	G	G	35	37	G 26	G	22	G	G	E 20	E S 15	E S 15	E S 15	E S 15	E S 15	E
28	E	E	E	E	E	E	E S 15	G	G 17	G	G	G	G	G	G	G	G	E 20	E S 15	E S 15	E S 15	E	E S 15	E S 15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	27	27	25	25	24	25	23	25	25	26	26	26	25	27	27	27	27	27	28	27	28	27
MED	E S 15	E S 14	E	E	E	E	E S 15	G	G	G	G	G	G	G	G	G	G	E S 15	E S 14	E S 15	E S 15	E S 15	E S 15	E S 15
UQ	E S 16	E S 16	E S 15	E	E	E S 15	E S 15	E G 15	20	G 23	G 23	G 21	G 21	G	G	E G 15	E G 15	E S 17	E S 15	E S 15	E S 16	E S 15	E S 16	E S 16
LQ	E	E	E	E	E	E	E E 14	G	G	G	G	G	G	G	G	G	G	E S 14	E	E E 14	E S 14	E E 11	E	E

FEB. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

The Radio Research Laboratories, Japan

FEB. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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 E	275 E	265 E	290 E	295	270	310	320	345	345	345	330	320	325 H	335	320	330	335	340	325	310	290	305	295
2	285	270	270	300	305	315	325	340	330	345	335	345	335	325	330	345	335	315	310	310	290	285	290	275
3	285	295	305	295	280	295	315	345	345	345	335	335	330	345	330	315	335	315	320	340	340	285	295	280
4	275	275	295	295	285	295	325	360	C	C	C	C	C	C	320	335	345	315	320	335	325	285	285	285
5	275	285	290	295	305	305	320	350	365	320	340	320	340	320	320	330	345	330	325	330	310	275	280	285
6	290	290	290	290	295	300	305	335	355	335	340	340	C	350	I C 330	335	335	330	320	305	285	305	290	290
7	C	290	280	C	C	C	C	350	C	C	C	320	330	C	C	C	C	C	C	C	315	C	295	C
8	320	C	C	310	C	C	C	C	C	C	C	C	345	325	330	325	330	295	330	330	320	275	290	290
9	280	285	285	285	290	310	325	350	I C 365	345	310	320	330	325	335	320	345	335	320	290	320	305	275	305
10	310	280	280	285	305	285	305	C	C	350	320	335	330	330	365	340	345	315	310	315	310	305	310	295
11	285	270	285	290	305	310	300	315	325	325	345	320	360	340	330	335	345	355	325	335	325	280	300	305
12	300	285	295	285	C	C	C	C	C	C	340	335	345	335	345	320	335	350	315	330	I C 320	I C 315	295	280
13	295	I C 285	280	260	C	C	315	C	345	355	345	330	315	305	325	320	340	350	320	320	310	305	295	290
14	280	300	295	295	300	C	C	C	C	C	C	320	330	330	325	345	340	335	315	335	300	275	295	280
15	255	260	265	275	345	330	290	350	340	345	325	315	325	325	345	335	330	325	330	315	315	295	285	290
16	280	285	280	280	285	285	320	365	340	R	335	335	325	335	330	320	335	345	290	310	340	300	295	275
17	280	280	265	280	300	330	285	360	355	345	345	315	330	300	C 340	320	340	290	325	300	280	270	300
18	275	285	280	295	300	285	325	360	C	C	350	C	C	335	C	340	350	330	320	310	320	290	295	270
19	280	270	275	295	300	285	310	330	335	C	C	310	C	C	C 325	C	340	355	300	295	335	310	300	295
20	285	285	290	285	J S 295	310	C	C	C	355	C	C	C	C 315	C	C 335	335	340	290	310	315	315	280	290
21	280	275	290	285	290	300	320	345	320	365	345	C	C	C	C	C	C	C	I S 325	300	300	295	290	280
22	I C 270	280	275	280	285	295	315	I C 345	C	C	C	320	340	335	320	310	335	335	320	325	300	290	280	285
23	285	280	280	290	310	325	320	365	355	365	335	315	315	320	330	315	325	330	315	300	315	290	275	280
24	280	275	265	290	285	290	295	340	320	355	320	320	320	335	315	335	325	315	315	330	305	275	265	280
25	280	280	285	295	285	275	305	345	355	355	300	325	310	315	335	330	315	315	295	295	330	295	285	280
26	270	255	265	260	255	250	255	275	255	260	260	305	330	320	315	335	345	305	335	290	290	280	275	265
27	270	F	F 270	F	F 270	275	310	345	340	340	295 H	295	315	330	330	310	325	345	300	310	305	280	290	280
28	F	F	F	F	F 300	F 270	305	330	340	335	325	335	315	330	320	315	330	325	335	300	290	290	280	275
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	26	25	24	23	23	22	19	19	21	23	22	24	23	25	26	26	27	27	28	27	28	27
MED	280	280	280	290	295	295	310	345	340	345	335	320	330	328	330	330	335	330	320	315	312	290	290	285
UQ	285	285	290	295	302	310	320	350	355	355	345	335	335	335	332	335	345	340	325	330	320	302	295	290
LQ	275	275	270	285	285	285	305	335	332	338	320	318	320	320	322	320	330	315	310	302	300	280	280	280

FEB. 1971 | M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 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																								
2													L											
3																								
4									C	C	C	C	C	C										
5																								
6													C	L 385	C									
7									C	C	C			C	C	C								
8									C	C	C	C												
9																								
10																								
11																								
12									C															
13												L 410												
14											405			L										
15											L	L												
16													L											
17															C									
18											L													
19													L											
20									C															
21												390	390	L										
22													L											
23															L 400									
24														L 380										
25											L					L								
26									300	350	350	345	L 385	L 390										
27													L 395	L										
28										L			340	L										
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	1	2	3	4	3	1									
MED									300	350	378	390	388	L 385	L 400									
UQ												400	392	L 388										
LQ												368	362	L 382										

The Radio Research Laboratories, Japan

FEB. 1971 | M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1971 | H'F2 (KM) | 135° E Mean Time (G. M. T.+ 9h)

Station WAKKANAI Lat. 45 23·6 N Long. 141 41·1 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2													260											
3																								
4									C	C	C	C	C	C										
5																								
6													C	250	C									
7									C	C	C			C	C	C								
8									C	C	C	C												
9																								
10																								
11																								
12									C															
13												235												
14											210			240										
15											260	250												
16													250											
17															C									
18											240													
19													245											
20									C															
21												280	245	250										
22													250											
23															235									
24														245										
25											235					245								
26									455	445	415	315	265	260										
27													250	230										
28										230			245	250										
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	2	5	4	8	7	1	1								
MED									455	338	240	265	250	250	235	245								
UQ											260	298	255	250										
LQ											235	242	245	242										

FEB. 1971 | H'F2 (KM)

IONOSPHERIC DATA

FEB. 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	300	300	305	260	235	300	250	210	210	220	225	240	210	210H	235	235	210	210	210	225	250	275	290	290
2	305	305	310	260	240	225	225	210	210	220	225	225	210	235	225	225	220	210	250	250	270	290	295	295
3	290	260	270	260	250	265	225	215	210	230	220	215	200	210	225	225	240	200	240	225	220	300	315	305
4	300	300	290	270	270	250	225	215	C	C	C	C	C	C	205	230	215	200	240	235	240	280	285	295
5	300	280	290	250	240	250	240	215	210	210	225	245	230	220	230	225	215	215	225	230	220	300	295	300
6	275	260	260	270	240	225	250	220	210	215	215	240	C	225	I C 235	225	220	210	205	225	265	270	270	265
7	C	280	285	C	C	C	C	215	C	C	C	215	230	C	C	C	C	C	C	C	240	C	270	C
8	250	C	C	265	C	C	C	C	C	C	C	C	225	225	225	210	215	200	220	220	245	290	280	275
9	310	310	300	300	265	235	225	220	205	195	195	200	225	220	235	225	220	215	225	250	225	265	270	250
10	295	305	300	275	250	225	250	225	220	215	220	210	225	210	245	225	215	205	220	240	245	260	270	270
11	295	305	300	270	250	210	250	230	230	205	200	230	225	220	220	220	220	205	225	230	230	250	290	260
12	275	260	250	295	C	C	C	C	C	210	225	210	225	225	210	225	220	200	240	220	220	235	275	300
13	305	310	300	305	275	260	235	225	215	220	210	200	220	210	220	225	215	205	215	205	230	275	270	295
14	300	265	275	250	250	240	235	220	210	210	205	225	230	210	225	225	220	205	225	220	245	300	275	275
15	310	320	310	300	215	200	250	210	220	225	210	210	220	220	205	225	220	220	210	240	235	250	300	295
16	280	265	290	275	245	300	220	215	205	205	225	245	210	225	225	225	240	215	250	235	225	225	250	290
17	290	260	300	250	245	210	240	210	215	210	210	200	235	230	C	220	220	215	220	240	240	300	300	260
18	300	270	280	255	260	250	240	215	210	215	210	215	225	210	220	240	220	220	230	245	250	260	280	310
19	300	310	285	270	245	255	230	210	215	215	220	215	220	225	225	235	225	215	245	260	225	225	270	275
20	280	295	285	275	250	230	C	C	C	230	210	215	225	220	240	230	215	215	200	250	240	240	280	295
21	285	290	275	275	260	235	215	205	215	210	210	225	220	215	225	225	230	225	210	220	230	265	260	290
22	I C 310	315	300	300	265	210	225	210	215	210	210	250	225	200	230	235	245	210	200	225	250	250	275	280
23	275	275	275	265	240	205	200	205	205	210	205	215	200	225	240	220	240	215	215	235	225	245	295	280
24	275	265	300	270	255	220	255	220	200	210	200	200	245	210	220	230	240	220	215	215	220	275	310	315
25	300	290	255	245	225	265	250	210	220	210	210	200H	220	215	225	230	225	225	220	250	220	220	250	290
26	305	325	315	300	275	320	300	255	285	245	220	250	245	225	225	245	220	210	220	275	270	280	290	295
27	280	270	270	275	290	290	225	210	225	220	205H	225	215	205	225	220	230	215	210	230	230	260	255	270
28	330	300	290F	250	250	275	260	225	210	205	195	185H	200	215	220	230	220	220	210	230	245	255	270	275
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	27	25	25	24	25	23	25	25	26	26	26	26	27	27	27	27	27	28	27	28	27
MED	300	290	290	270	250	240	238	215	210	210	210	215	225	220	225	225	220	215	220	230	238	265	278	290
UQ	302	305	300	275	260	265	250	220	218	220	220	230	225	225	230	230	228	215	228	242	245	280	292	295
LQ	280	268	275	260	240	225	225	210	210	210	205	210	215	210	220	225	218	205	210	225	225	250	270	275

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FEB. 1971 | H'F (KM)

IONOSPHERIC DATA

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

FEB. 1971 | H'ES (KM)

IONOSPHERIC DATA

FEB. 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

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

The Radio Research Laboratories, Japan

FEB. 1971 | TYPES OF ES

IONOSPHERIC DATA

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

FEB. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FOF1 (0.01 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39° 43.5' N Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	L	L 440	L	L	L										
2									280	L	L	L 470	L	L										
3										L	L	L	L 450	U L 450	L	L								
4										L	C	C	C	C	L	L								
5										L	L	L	L	L	A									
6										L	L	L	L	L	L									
7										L	L	L	L	L	A									
8									L	L	L	L	H 490	L	L									
9									L	J L 360	H 640	J L 480	L	L	L	L								
10										L	U L 420	L	L	L	L									
11										L	L	L	L	L	L	U L 360								
12										L	L	L	480	U L 440	L	A								
13									L	L	U L 430	U L 440	L	L	L									
14										L	U L 410	J L 460	H 560	L	L	L								
15										L	L	J L 480	U L 460	L 480	L	U L 390								
16										H 560	L	U L 500	L 450	L	U L 440	L								
17									L	L	U L 440	L	L	L	L									
18										L	L	L 450	L 430	L	L	L								
19										L	U L 480	L 480	L 480	L	L	L								
20										L	L 450	L	U L 500	L	L	L								
21										L	L	L	450	U L 480	U L 480	L								
22										L	U L 480	H 500	L	L	L	L								
23										L	L	L 480	L 480	L 480	L	L								
24										L	L	L	U L 580	L	L	L								
25										L	L	U L 500	L	L	L	L								
26										J L 500	510	500	L 450	L 450	L	L	L							
27										L	L	H 680	L	U L 500	L	L	L							
28										L	L 480	L	L 440	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	3	11	13	14	7	2	2								
MED									280	J L 500	U L 450	480	470	U L 480	U L 460	U L 375								
UQ										530	480	J L 500	490	480										
LQ										J L 430	U L 435	470	450	450										

FEB. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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								S	230	285	310	315	320	320	310	280	A	S						
2								A	I R 230	B	B	B	B	B	I R 310	270	A	S						
3								165	240	300	320	340	345	345	335	300	245	A						
4								175	250	295	C	C	C	C	325	285	230	A						
5								C	C	295	320	335	345	340	I A 310	285	A	S						
6								C	C	295	315	330	340	340	320	A 275	A	A						
7								180	250	300	320	335	345	340	320	280	A 240	A						
8								180	250	300	320	330	340	340	315	I A 285	I A 240	180						
9								185	250	295	315	335	345	S 350	335	290	230	A						
10								185	260	295	315	330	335	340	310	270	230	A						
11								190	250	300	320	330	340	340	330	295	I A 250	A						
12								C	C	300	320	335	345	340	315	285	230	A						
13								190	265	300	320	335	340	R 345	335	300	250	A						
14								200	265	305	320	335	345	350	335	295	250	180						
15								200	C	A	I A 320	I A 330	335	340	320	285	245	A						
16								220	A 270	305	325	345	350	345	330	295	250	180						
17								215	275	310	325	345	355	355	345	310	265	A						
18								215	270	305	325	345	345	355	335	305	265	200						
19								190	260	310	325	340	I A 350	345	325	295	I A 245	185						
20								205	265	305	325	345	355	350	330	305	260	A						
21								205	270	305	325	345	355	350	330	300	I A 250	A						
22								200	270	305	325	345	350	355	335	305	260	195						
23								210	275	305	325	345	355	355	340	310	260	A						
24								230	285	305	A	A	355	350	335	310	270	A						
25								220	275	310	330	345	350	360	340	310	260	200						
26								220	275	I A 305	325	345	360	350	330	300	250	A						
27								220	275	310	325	340	355	355	330	300	265	205						
28								225	R 275	310	335	345	355	355	335	310	260	205						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								23	24	26	25	25	26	26	28	28	24	9						
MED								200	265	305	320	340	345	348	330	295	250	195						
UQ								218	275	305	325	345	355	355	335	305	260	200						
LQ								188	250	300	320	335	340	340	320	285	242	180						

The Radio Research Laboratories, Japan

FEB. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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 S 14	E S 14	E S 14	E S 14	E	E S 14	J X 30	J X 25	G	G	G	G	G	G	35	35	J X 34	J X 28	J X 31	J X 18	E S 13	E S 13	E S 14	E S 14
2	E S 14	E S 15	E B 18	E B 16	J X 20	J X 24	E S 14	J X 20	E B 25	E B 31	E B 38	E B 35	E B 40	E B 39	G	J X 38	J X 29	J X 25	E S 14	J X 17	J X 24	J X 22	J X 20	E S 14
3	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14	E S 13	G	26	G 24	G	G	G	J G 28	G	33	28	29	J X 30	J X 21	E S 14	E S 14	E S 14	E S 14
4	E S 14	E S 14	E S 14	E S 13	E S 13	E S 14	E S 14	G	G	G	C	C	C	C	36	43	28	23	J X 20	J X 20	E S 14	E S 13	E S 14	E S 14
5	E S 13	C	C	C	C	C	C	C	C	G	G	37	43	43	J X 44	J X 44	32	20	J X 19	J X 29	J X 24	E S 14	E S 14	E S 14
6	E S 14	C	C	C	C	C	C	C	C	G	G	37	40	39	43	J X 43	28	J X 28	E S 13	J X 17	J X 16	E B 19	E B 21	E S 14
7	E S 14	E S 14	E S 14	E	E	E S 13	E S 14	G	G	G	36	G	39	42	46	41	29	J X 28	J X 26	J X 29	J X 37	J X 26	E S 14	E S 13
8	E S 14	E S 14	E S 14	E S 14	E	E S 13	E S 14	G	G	G	36	39	G	37	37	33	27	G	E B 19	J X 17	J X 16	J X 20	E S 14	E B 18
9	E S 13	E S 14	E	E	E S 13	E S 13	E S 13	G	G	G	G	G	G	G	G	34	28	22	E S 14	E S 14	E S 13	E S 13	E S 14	E S 13
10	E S 14	E S 14	E S 13	E S 13	E	E S 13	E S 13	G	G	G	G	G	37	36	37	38	J X 52	J X 34	E S 13	E	J X 20	J X 21	E S 13	E B 19
11	E S 14	E	E	E	E	E	E S 13	G	G	G	G	41	38	G	G	G	27	20	J X 20	E S 13	E S 13	E S 13	J X 21	E S 14
12	J X 25	J X 18	E S 14	C	E	E	E S 14	C	C	G	G	G	G	36	42	J X 47	G	28	J X 80	E S 13	E S 13	E S 14	E S 14	E S 14
13	E S 13	E S 13	C	C	E S 13	E S 14	E S 14	G	J X 27	J G 29	G	G	G	G	G	33	J G 20	J X 19	J X 21	E B 20	E S 14	E S 14	E S 14	E S 14
14	E S 14	E S 14	C	E S 13	E	C	E S 13	G	G	G	G	G	G	43	40	J X 36	G	G	J X 28	J X 26	E S 14	E S 14	E S 14	E S 14
15	E S 14	E B 20	E S 14	E	E	E	E S 14	G	C	J X 43	J X 63	J X 48	37	44	37	31	G	21	J X 25	J X 23	E S 14	E S 14	E S 13	E S 13
16	E S 14	E S 14	E	E	E	E S 13	E S 14	G	29	G	35	G	G	G	G	34	33	J X 20	J X 29	J X 25	J X 29	E S 13	J X 20	E S 13
17	E S 14	E	E	E	E	E	E S 14	G	G	G	G	G	G	G	G	G	28	21	E S 14	E S 14	E S 13	J X 20	J X 21	E S 14
18	E S 14	E S 14	E S 14	E S 13	E	E S 14	E S 14	G	G	35	G	G	J G 29	G	G	G	G	G	E S 14	E S 14	E S 13	E S 13	E S 14	E S 13
19	E S 13	C	C	C	C	E S 14	E S 14	25	28	G	G	G	J X 43	G	J X 38	G	27	G	E S 14	J X 23	E S 13	E S 14	E S 14	E S 14
20	E S 14	E S 14	E	E S 13	E S 13	E S 13	E S 14	G	G	G	G	G	G	G	G	G	G	20	E S 13	E S 13	E S 14	E S 14	E S 14	E S 14
21	E S 14	E S 13	E S 13	E	E	E	E S 14	G	G	G	G	G	G	G	34	35	30	J X 34	J X 33	J X 24	E S 13	E S 13	E S 14	E S 14
22	E S 14	E S 14	E	E S 14	E	E S 14	E S 14	G	G	J X 31	J X 33	J G 33	39	J G 29	G	G	G	G	J X 19	E S 13	E S 13	E S 14	J X 20	E S 14
23	E S 14	E S 13	E	E	E	E	E S 14	G	J X 28	35	35	G	G	G	G	33	G	21	J X 20	J X 19	J X 25	J X 26	J X 23	J X 23
24	J X 20	E	E S 13	E S 13	E	E S 14	E S 13	G	G	G	J X 34	J X 35	J G 29	G	G	35	J G 20	J X 22	J X 18	E S 14	J X 18	J X 25	J X 23	E S 14
25	E S 14	E S 13	E S 13	E S 13	E	E S 14	E S 14	G 21	G	G	G	G	G	G	G	G	G	G	E B 18	E B 18	E S 13	E S 14	E S 14	E S 14
26	E S 14	E S 14	E S 14	E S 14	E	E S 14	E S 14	G	G	J X 33	G	G	G	G	J G 27	G	G	J X 46	E S 14	J X 44	J X 20	E S 14	E S 14	J X 23
27	E S 14	E S 13	E	E	E	E S 14	E S 14	J G 20	G	G	G	G	J G 29	J X 39	G	G	G	G	E S 14	E S 14	E S 14	J X 28	E B 18	E S 14
28	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14	G 20	J X 30	G	G	G	G	G	G	G	G	G	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	25	23	23	25	25	26	25	24	28	27	27	27	27	28	28	28	28	28	28	28	28	28	28
MED	E S 14	E S 14	E S 13	E S 13	E	E S 14	E S 14	G	G	G	G	G	G	G	G	33	27	21	J X 19	J X 18	E S 14	E S 14	E S 14	E S 14
UQ	E S 14	E S 14	E S 14	E S 14	E S 13	E S 14	E S 14	G	26	G 25	34	34	38	37	37	37	28	J X 28	J X 26	J X 23	J X 19	J X 20	20	E S 14
LQ	E S 14	E S 13	E	E	E	E S 13	E S 14	G	G	G	G	G	G	G	G	G	G	G	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14

The Radio Research Laboratories, Japan

FEB. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FBES (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 14	E S 14	E S 14	E S 14	E	E S 14	18	17	G	G	G	G	G	G	35	G 22	26	17	20	E	E S 13	E S 13	E S 14	E S 14
2	E S 14	E S 15	E B 18	E B 16	E	18	E S 14	18	E B 25	E B 31	E B 38	E B 35	E B 40	E B 39	G	G	25	18	E S 14	E	16	17	18	E S 14
3	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14	E S 13	G	26	G 23	G	G	G	G 25	G	33	26	27	29	E	E S 14	E S 14	E S 14	E S 14
4	E S 14	E S 14	E S 14	E S 13	E S 13	E S 14	E S 14	G	G	G	C	C	C	C	36	43	28	21	18	E	E S 14	E S 13	E S 14	E S 14
5	E S 13	C	C	C	C	C	C	C	C	G	G	37	42	43	44	42	29	20	E	29	E	E S 14	E S 14	E S 14
6	E S 14	C	C	C	C	C	C	C	C	G	G	37	39	39	41	40	28	19	E S 13	E	E	E B 19	E B 21	E S 14
7	E S 14	E S 14	E S 14	E	E	E S 13	E S 14	G	G	G	35	G	38	42	46	36	26	22	25	21	29	21	E S 14	E S 13
8	E S 14	E S 14	E S 14	E S 14	E	E S 13	E S 14	G	G	G	36	39	G	36	34	31	26	G	E B 19	E	E	20	E S 14	E B 18
9	E S 13	E S 14	E	E	E S 13	E S 13	E S 13	G	G	G	G	G	G	G	G	33	27	22	E S 14	E S 14	E S 13	E S 13	E S 14	E S 13
10	E S 14	E S 14	E S 13	E S 13	E	E S 13	E S 13	G	G	G	G	G	37	36	36	35	39	22	E S 13	E	E	E	E S 13	E B 19
11	E S 14	E	E	E	E	E	E S 13	G	G	G	G	39	38	G	G	G	27	19	E	E S 13	E S 13	E S 13	E	E S 14
12	19	E	E S 14	C	E	E	E S 14	C	C	G	G	G	G	35	34	45	G	25	A	E S 13	E S 13	E S 14	E S 14	E S 14
13	E S 13	E S 13	C	C	E S 13	E S 14	E S 14	G	22	G 26	G	G	G	G	G	33	G 18	19	19	E B 20	E S 14	E S 14	E S 14	E S 14
14	E S 14	E S 14	C	E S 13	E	C	E S 13	G	G	G	G	G	G	42	38	31	G	G	21	19	E S 14	E S 14	E S 14	E S 14
15	E S 14	E B 20	E S 14	E	E	E	E S 14	G	C	33	43	39	37	36	36	30	G	21	24	18	E S 14	E S 14	E S 13	E S 13
16	E S 14	E S 14	E	E	E	E S 13	E S 14	G	29	G	35	G	G	G	G	34	31	16	22	21	20	E S 13	18	E S 13
17	E S 14	E	E	E	E	E	E S 14	G	G	G	G	G	G	G	G	G	G 28	21	E S 14	E S 14	E S 13	E	E	E S 14
18	E S 14	E S 14	E S 14	E S 13	E	E S 14	E S 14	G	G	34	G	G	G 25	G	G	G	G	G	E S 14	E S 14	E S 13	E S 13	E S 14	E S 13
19	E S 13	C	C	C	C	E S 14	E S 14	25	28	G	G	G	39	G	26	G	27	G	E S 14	E	E S 13	E S 14	E S 14	E S 14
20	E S 14	E S 14	E	E S 13	E S 13	E S 13	E S 14	G	G	G	G	G	G	G	G	G	G	20	E S 13	E S 13	E S 14	E S 14	E S 14	E S 14
21	E S 14	E S 13	E S 13	E	E	E	E S 14	G	G	G	G	G	G	G	34	34	29	31	25	E	E S 13	E S 13	E S 14	E S 14
22	E S 14	E S 14	E	E S 14	E	E S 14	E S 14	G	G	27	30	G 30	38	G 25	G	G	G	G	E	E S 13	E S 13	E S 14	17	E S 14
23	E S 14	E S 13	E	E	E	E	E S 14	G	23	34	34	G	G	G	G	33	G	21	20	E	20	18	17	18
24	E	E	E S 13	E S 13	E	E S 14	E S 13	G	G	G	34	35	G 29	G	G	34	G 19	21	E	E S 14	E	E	20	E S 14
25	E S 14	E S 13	E S 13	E S 13	E	E S 14	E S 14	G 18	G	G	G	G	G	G	G	G	G	G	E B 18	E B 18	E S 13	E S 14	E S 14	E S 14
26	E S 14	E S 14	E S 14	E S 14	E	E S 14	E S 14	G	G	32	G	G	G	G	G 26	G	G	37	E S 14	26	E	E S 14	E S 14	E
27	E S 14	E S 13	E	E	E	E S 14	E S 14	G 19	G	G	G	G	G 29	29	G	G	G	G	E S 14	E S 14	E S 14	21	E B 18	E S 14
28	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14	G 19	25	G	G	G	G	G	G	G	G	G	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	25	23	23	25	25	26	25	24	28	27	27	27	27	28	28	28	28	28	28	28	28	28	28
MED	E S 14	E S 14	E S 13	E S 13	E	E S 14	E S 14	G	G	G	G	G	G	G	G	31	26	20	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14
UQ	E S 14	E S 14	E S 14	E S 14	E	E S 14	E S 14	G	22	G 24	31	31	38	36	36	34	28	22	20	E E 18	E S 14	E S 14	E E 16	E S 14
LQ	E S 14	E S 13	E	E	E	E S 13	E S 14	G	G	G	G	G	G	G	G	G	G	G	E S 14	E	E S 13	E S 13	E S 14	E S 14

The Radio Research Laboratories, Japan

FEB. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | F-MIN (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39 43·5 N. Long. 140 08·2 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 14	E S 14	E S 14	E S 14	E	E S 14	E S 14	E S 14	17	18	18	18	19	18	17	15	16	E S 14	E S 13	E S 14	E S 13	E S 13	E S 14	E S 14
2	E S 14	E S 15	18	16	E	E S 14	E S 14	15	25	31	38	35	40	39	27	18	16	E S 14	E S 14	E S 14	E S 14	E S 13	E S 13	E S 14
3	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14	E S 13	15	15	15	16	21	18	15	16	16	14	13	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
4	E S 14	E S 14	E S 14	E S 13	E S 13	E S 14	E S 14	14	14	14	C	C	C	C	16	16	15	13	E S 14	E S 14	E S 14	E S 13	E S 14	E S 14
5	E S 13	C	C	C	C	C	C	C	C	15	18	23	23	22	23	19	15	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14	E S 14
6	E S 14	C	C	C	C	C	C	C	C	18	24	18	20	20	18	14	13	13	E S 13	E S 14	E S 14	19	21	E S 14
7	E S 14	E S 14	E S 14	E	E	E S 13	E S 14	14	13	15	16	15	15	19	18	15	14	13	E S 13	E S 13	E S 14	E S 14	E S 14	E S 13
8	E S 14	E S 14	E S 14	E S 14	E	E S 13	E S 14	15	14	15	15	16	16	19	16	14	15	14	19	E S 14	E S 14	E S 14	E S 14	18
9	E S 13	E S 14	E	E	E S 13	E S 13	E S 13	14	15	15	14	15	16	13	15	15	15	13	E S 14	E S 14	E S 13	E S 13	E S 14	E S 13
10	E S 14	E S 14	E S 13	E S 13	E	E S 13	E S 13	13	15	14	16	15	15	15	16	14	15	13	E S 13	E	E S 13	E S 13	E S 13	19
11	E S 14	E	E	E	E	E	E S 13	14	14	22	21	26	25	24	20	15	15	13	E S 14	E S 13	E S 13	E S 13	E S 14	E S 14
12	E S 13	E S 13	E S 14	C	E	E	E S 14	C	C	14	18	14	16	16	14	18	15	14	E S 13	E S 13	E S 13	E S 14	E S 14	E S 14
13	E S 13	E S 13	C	C	E S 13	E S 14	E S 14	14	14	15	16	16	18	15	15	16	14	13	E S 14	20	E S 14	E S 14	E S 14	E S 14
14	E S 14	E S 14	C	E S 13	E	C	E S 13	14	14	15	15	19	16	15	18	14	15	13	E S 13	E S 13	E S 14	E S 14	E S 14	E S 14
15	E S 14	20	E S 14	E	E	E	E S 14	15	C	15	15	18	16	18	15	15	14	13	E S 13	E S 14	E S 14	E S 14	E S 13	E S 13
16	E S 14	E S 14	E	E	E	E S 13	E S 14	15	15	14	18	19	19	20	19	15	14	13	E S 13	E S 13	E S 13	E S 13	E S 14	E S 13
17	E S 14	E	E	E	E	E	E S 14	14	14	15	18	18	22	20	18	16	14	13	E S 14	E S 14	E S 13	E S 13	E S 13	E S 14
18	E S 14	E S 14	E S 14	E S 13	E	E S 14	E S 14	14	14	15	16	19	16	17	18	15	15	14	E S 14	E S 14	E S 13	E S 13	E S 14	E S 13
19	E S 13	C	C	C	C	E S 14	E S 14	13	14	14	14	14	16	15	13	14	16	14	E S 14	E S 13	E S 13	E S 14	E S 14	E S 14
20	E S 14	E S 14	E	E S 13	E S 13	E S 13	E S 14	14	14	15	16	21	16	16	14	15	13	13	E S 13	E S 13	E S 14	E S 14	E S 14	E S 14
21	E S 14	E S 13	E S 13	E	E	E	E S 14	14	13	15	15	18	16	18	15	16	16	14	E S 13	E S 14	E S 13	E S 13	E S 14	E S 14
22	E S 14	E S 14	E	E S 14	E	E S 14	E S 14	14	14	15	16	15	16	16	14	16	14	15	E S 14	E S 13	E S 13	E S 14	E S 13	E S 14
23	E S 14	E S 13	E	E	E	E	E S 14	14	14	14	15	15	18	19	15	15	14	13	E S 14	E S 13	E S 13	E S 14	E S 14	E S 14
24	E S 13	E	E S 13	E S 13	E	E S 14	E S 13	14	14	16	16	16	18	16	16	15	13	14	E S 13	E S 14	E S 14	E S 14	E S 14	E S 14
25	E S 14	E S 13	E S 13	E S 13	E	E S 14	E S 14	13	14	15	15	16	18	18	17	16	17	14	18	18	E S 13	E S 14	E S 14	E S 14
26	E S 14	E S 14	E S 14	E S 14	E	E S 14	E S 14	15	14	15	17	18	18	16	14	13	14	14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
27	E S 14	E S 13	E	E	E	E S 14	E S 14	14	14	14	14	15	18	14	14	15	16	16	E S 14	E S 14	E S 14	E S 13	18	E S 14
28	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14	13	13	15	15	16	19	19	17	18	14	14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	25	23	23	25	25	26	25	24	28	27	27	27	27	28	28	28	28	28	28	28	28	28	28
MED	E S 14	E S 14	E S 13	E S 13	E	E S 14	E S 14	14	14	15	16	18	18	18	16	15	15	14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
UQ	E S 14	E S 14	E S 14	E S 14	E	E S 14	E S 14	14	14	15	18	19	19	19	18	16	15	14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
LQ	E S 14	E S 13	E	E	E	E S 13	E S 14	14	14	14	15	15	16	16	15	15	14	13	E S 13	E S 13	E S 13	E S 13	E S 14	E S 14

FEB. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | M(3000)F2 (0.01) | 135° E Mean Time (G. M. T.+ 9h)

Station AKITA Lat. 39° 43.5' N. Long. 140° 08.2' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	285	285 F	310	310	285	305	350 S	350	325	340	335	310	330 I R	325	320	330	325	335	295	310	300	285	285
2	275	275	275	295	305	300	305	340	345	330	345	320 I R	335	320	320	335	320	325	325	310	305	295	285	300
3	300	310	325	295	295	295	310	330	350	330	315 I R	345	320	310	325	330	325	330	320	325	330	335	295	280
4	285	295	305	315	300	280	315	350	345	335	C	C	C	C	340	335	340	315	320	335	325	300	290	290
5	285	C	C	C	C	C	C	C	C	335	320	330	330 I R	330	335	325	335	330	315	315 I R	310	300	295	290
6	290	C	C	C	C	C	C	C	C	325	350	330	325	330	320	335	330	315	330 I R	335	305	315	285	295
7	305	290	300	310	310	300	300	345	340	350	335	305	325	325	330	320	340	340	310	325	300	310	310	320
8	315	320	305	290	305	290	320	335	340	330	320	320	330	320	315	325	320	335	320	320	325	300	295	295
9	290	290	290	290	305	315	325	350	350	335	305	325	310	315	340	335	330	340	335	300	310	320	305	310
10	295	280	290	295	315	295	305	320	340 I R	340	350	305	330	325	325	325	335	330	320	335	310	325	315	305
11	295	280	290	305	325	305	315	330	340	345	335	325	335	340	335	335	325	350	335	320	345	310	305	305
12	310	305	305	295 I C	295	295	300	C	C	350	325	330	325	330 I R	340 I R	335	330	335	310 I A	325	320	315	305	285
13	280	285	290 I C	295 I C	300	295	280	340	350	345	335	315	305	320	330	325	335	340	320	315	320	305	295	290
14	290	295	300 I C	300	310	310 I C	310	325	350	350	325	335	305 I R	320	325	330	325	360	290	315	290	280	285	290
15	275	275	280	295	335	325	305	335 I R	330 I C	325 I R	330 I R	315 I R	325	330	325	340	340	335	320	310	325	305	280	290
16	290	295	300	295	295	290	325	340	350 S	320	315	320 I R	325	320	330	320	330	335	300	305	320	295	315	290
17	285	295	285	300	335	320	305	330	365	340	340	330	305	310	325	320 I R	330	330	310	315	310	315	285	300 I R
18	290	310	295	300	315	285	305	335	335 I R	330	330	325	330	330	325	325	340	340	315	300	310	320	300	290
19	295	C	C	C	C	285	305	340	345	320	340	330	320	320	310	315	330	335	315	305	305	345	290	290
20	300	305	300	295	310	315	310	340	350	325	340	335	325	320	310	335	335	345	320	305	305	300	310	295
21	280	280	295	290	300	315	315	340	315	330	330	340	310 I R	325	330	325	320	330	340	290	305	295	290	285
22	290	280	285	280	300	310	320	335 S	340	335	335	320	320 I R	320	325	325	325	345	345	285	310	300	290	295
23	295	290	290	295	320	325	335	340	345	350	340	320	310	305	335	315	325	330	310	315	320	305	290	290
24	285	290	270	290	305	300	315	330	320	340 R	315	320 I R	310 I R	305	315	320	335	315	315	320	320	300	275	280
25	280	285	305	305	310	280	300	330	345	330	325	310 I R	320	315	320	320	320	315	310	305	310	320	295	280
26	265	260	270	265	280	260	275	285	260	300	285	320	310	320	320	320	340	330	310	295	285	300	275	285
27	290	290	290	280	280	280	320	335	330	340 I R	325	320	320 I R	320	320	325	330	340	325	300	290	290	295	290
28	285 F	260 F	F	310 S	315	295	300	330	345	345	340	325	320 I R	315	320	325	325	335	330	305	295	295	305 F	F
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	25	24	25	25	26	26	25	25	28	27	27	27	27	28	28	28	28	28	28	28	28	28	27
MED	290	290	290	295	305	295	308	335	345	335	330	325	320	320	325	325	330	335	320	312	310	302	295	290
UQ	295	295	300	300	315	310	315	340	350	342	340	330	325	328	330	335	335	340	328	320	320	315	305	295
LQ	285	280	285	290	300	285	305	330	340	328	322	320	310	318	320	320	325	330	310	302	305	300	285	288

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FEB. 1971 | M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 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									L	L	L 395	L	L	L										
2									415	L	L	L 385	L	L										
3										L	L	L	L 400	U L 375	L	L								
4										L	C	C	C	C	L	L								
5										L	L	L	L	L	A									
6										L	L	L	L	L	L									
7										L	L	L	L	L	A									
8									L	L	L	L	H 370	L	L									
9									L	J L 415	H 340	U L 355	L	L	L	L								
10										L	U L 360	L	L	L	L									
11										L	L	L	L	L	L	U L 400								
12										L	L	L	375	U L 375	L	A								
13									L	L	U L 390	U L 415	L	L	L									
14										L	U L 385	U L 395	H 355	L	L	L								
15										L	L	U L 375	U L 380	L 360	L	U L 365								
16										H 370	L	U L 360	L 380	L	U L 370	L								
17									L	L	U L 385	L	L	L	L									
18										L	L	L 410	L 405	L	L	L								
19										L	U L 355	L 375	L 375	L	L	L								
20										L	L 380	L	U L 360	L	L	L								
21										L	L	L	400	U L 375	U L 355	L								
22										L	U L 365	H 380	L	L	L	L								
23										L	L	L 375	L 375	L 355	L	L								
24										L	L	L	U L 330	L	L	L								
25										L	L	U L 360	L	L	L	L								
26										U L 320	360	360	L 375	L 395	L	L	L							
27										L	L	H 340	L	U L 365	L	L	L							
28										L	L 375	L	L 390	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	3	11	13	14	7	2	2								
MED									415	U L 370	U L 375	L 375	L 375	U L 375	U L 362	U L 382								
UQ										392	L 385	L 385	L 390	U 375										
LQ										345	L 360	L 360	L 370	L 362										

The Radio Research Laboratories, Japan

FEB. 1971 | M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1971 | H'F2 (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									220	235	245	245	240	230										
2									210	230	240	275	240	265										
3										225	235	235	230	250	250	230								
4										215	C	C	C	C	250	235								
5										225	225	255	255	250	250									
6										225	230	240	260	255	250									
7										215	235	225	250	255	245									
8									220	215	240	230	265	255	245									
9									225	230	305	260	250	250	250	235								
10										220	240	225	245	255	250									
11										210	245	250	250	250	230	240								
12										215	250	250	265	250	220	250								
13									215	205	240	235	250	265	240									
14										230	235	235	290	250	240	230								
15										230	240	255	240	255	240	235								
16										275	245	265	240	250	260	240								
17									220	215	235	225	240	255	255									
18										240	230	250	240	245	255	240								
19										230	255	255	265	255	240	240								
20										235	240	245	270	245	245	245								
21										230	225	230	270	265	255	235								
22										235	250	270	255	240	265	250								
23										235	230	245	255	260	250	245								
24										225	245	235	280	250	250	240								
25										230	235	255	250	255	240	240								
26										305	290	280	240	260	245	250	230							
27										235	230	300	255	255	240	245	240							
28										230	250	245	245	250	245	230	230							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									6	28	27	27	27	27	26	19	3							
MED									220	230	240	245	250	255	248	240	230							
UQ									220	235	245	255	262	255	250	245	235							
LQ									215	218	235	235	240	250	240	235	230							

FEB. 1971 | H'F2 (KM)

IONOSPHERIC DATA

FEB. 1971 | H'F (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	280	300	260	230	275	275	220	220	205	205	200	195H	225	240	230	235	220	210	215	240	240	270	280
2	290	300	325D	270	240	250	250	220	220	210	230	200	235	I 240B	230	230	220	210	210	240	260	260	280	255
3	260	245	235	255	265	275	245	225	230	205	225	235	200	205	230	230	225	225	220	240	220	215	300	305
4	310	285	275	255	250	265	250	215	215	200	C	C	C	C	235	235	220	210	240	215	225	235	290	285
5	290	C	C	C	C	C	C	C	C	215	220	240	245	235	I A 230	235	210	205	210	235	225	250	280	270
6	270	C	C	C	C	C	C	C	C	200	225	230	245	230	240	230	215	225	195	205	245	255	290	275
7	265	265	270	255	245	245	250	205	215	200	225	205	235	245	I A 240	230	220	215	210	230	270	240	260	245
8	250	240	245	265	255	265	240	215	215	205	225	230	205H	240	230	230	220	205	205	230	225	250	290	270
9	290	290	290	290	245	215	230	210	210	200	200H	200	215	230	225	235	225	205	215	240	240	225	245	255
10	265	295	285	265	220	245	270	235	230	215	195	215	235	230	230	230	220	210	220	215	245	240	240	290
11	265	290	300	255	230	245	240	235	225	200	190H	230	235	230	225	205	215	205	210	230	220	230	270	280
12	270	250	270	I C 285	275	280	265	C	C	205	225	235	230	230	220	I 220B	225	210	I 250B	225	220	245	280	295
13	295	295	I C 295	I C 285	260	270	250	230	215	200	205	200	180H	195H	230	225	225	210	205	240	225	250	275	280
14	290	260	I C 260	250	240	I C 250	240	215	220	215	200	200	190H	I 240A	240	210	225	205	240	240	245	290	270	270
15	295	340	305	275	225	210	255	215	I C 220	230	230	210	215	200	225	210	225	215	240	240	215	240	280	290
16	260	270	240	265	250	305	215	215	210	210H	220	210	200	225	220	235	230	220	215	250	215	205	250	265
17	280	280	290	260	225	190	230	215	200	205	205	200	215	215	240	225	205	215	200	240	220	245	280	290
18	275	250	260	270	235	300	245	215	220	210	220	195	190	230	230	230	225	205	215	245	235	235	240	290
19	285	C	C	C	C	290	245	220	225	215	210	205	200	220	215	230	230	215	210	245	245	205	255	295
20	270	280	260	265	255	220	235	215	220	205	210	225	205	230	220	230	230	215	205	220	250	215	250	290
21	290	290	275	270	250	220	220	210	210	215	215	225	190	220	205	230	230	205	205	240	235	230	265	285
22	280	295	290	300	260	240	210	215	225	210	220	180H	240	225	205H	220	230	215	200	235	235	240	270	265
23	275	275	265	250	240	215	205	205	215	230	205	195	190	230	240	240	235	215	215	215	230	245	270	295
24	290	275	310	280	250	245	235	230	220	210	190H	200	215	230	230	240	230	215	215	215	205	250	300	310
25	290	285	250	240	230	290	255	215	220	215	215	200	200H	240	230	230	230	215	235	225	225	220	250	300
26	310	330	325	330	265	370	250	250	255	250	230	205	210	210	225	230	230	210	205	280	280	250	295	280
27	270	250	250	280	285	295	240	210	220	220	200	200H	190H	210	210	205	230	220	200	225	230	265	285	270
28	290	340	300	245	250	240	255	235	215	205	190	180H	205	230	220	210	220	225	205	205	245	255	260	280
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	25	25	25	25	26	26	25	25	28	27	27	27	27	28	28	28	28	28	28	28	28	28	28
MED	282	280	275	265	250	250	245	215	220	210	215	205	205	230	230	230	225	215	210	232	232	240	270	280
UQ	290	295	300	280	255	280	250	225	220	215	225	225	232	230	232	230	230	215	218	240	245	250	282	290
LQ	270	265	260	255	235	240	235	215	215	205	202	200	198	220	220	222	220	208	205	218	222	230	258	270

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FEB. 1971 | H'F (KM)

IONOSPHERIC DATA

FEB. 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	S	S	S	E	S	100	100	G	G	G	G	G	G	135	135	110	110	105	100	S	S	S	S
2	S	S	B	B	110	105	S	105	B	B	B	B	B	B	G	120	110	105	S	100	100	100	100	S
3	S	S	S	S	S	S	S	G	145	105	G	G	G	100	G	160	165	140	115	115	S	S	S	S
4	S	S	S	S	S	S	S	G	G	G	C	C	C	C	140	125	135	120	110	110	S	S	S	S
5	S	C	C	C	C	C	C	C	C	G	G	145	140	130	120	115	115	110	100	100	105	S	S	S
6	S	C	C	C	C	C	C	C	C	G	G	150	140	135	120	115	110	100	S	100	100	B	B	S
7	S	S	S	E	E	S	S	G	G	G	145	G	150	145	130	125	120	105	105	105	100	100	S	S
8	S	S	S	S	E	S	S	G	G	G	140	120	G	130	120	120	115	G	B	100	100	100	S	B
9	S	S	E	E	S	S	S	G	G	G	G	G	G	G	G	130	115	110	S	S	S	S	S	S
10	S	S	S	S	E	S	S	G	G	G	G	G	160	155	140	125	110	105	S	E	105	100	S	B
11	S	E	E	E	E	E	S	G	G	G	G	155	150	G	G	G	155	140	110	S	S	S	100	S
12	100	100	S	C	E	E	S	C	C	G	G	G	G	150	130	120	G	150	105	S	S	S	S	S
13	S	S	C	C	S	S	S	G	105	100	G	G	G	G	G	165	100	100	110	B	S	S	S	S
14	S	S	C	S	E	C	S	G	G	G	G	G	G	135	140	130	G	G	110	105	S	S	S	S
15	S	B	S	E	E	E	S	G	C	105	105	100	140	130	140	140	G	145	110	105	S	S	S	S
16	S	S	E	E	E	S	S	G	155	G	155	G	G	G	G	145	140	100	105	105	105	S	100	S
17	S	E	E	E	E	E	S	G	G	G	G	G	G	G	G	G	140	145	S	S	S	105	100	S
18	S	S	S	S	E	S	S	G	G	145	G	G	100	G	G	G	G	G	S	S	S	S	S	S
19	S	C	C	C	C	S	S	155	165	G	G	G	100	G	100	G	120	G	S	105	S	S	S	S
20	S	S	E	S	S	S	S	G	G	G	G	G	G	G	G	G	G	110	S	S	S	S	S	S
21	S	S	S	E	E	E	S	G	G	G	G	G	G	G	140	120	140	105	105	105	S	S	S	S
22	S	S	E	S	E	S	S	G	G	105	105	100	160	100	G	G	G	G	110	S	S	S	100	S
23	S	S	E	E	E	E	S	G	105	150	140	G	G	G	G	150	G	120	105	110	105	105	105	105
24	105	E	S	S	E	S	S	G	G	G	105	110	105	G	G	130	100	100	100	S	105	105	105	S
25	S	S	S	S	E	S	S	110	G	G	G	G	G	G	G	G	G	G	B	B	S	S	S	S
26	S	S	S	S	E	S	S	G	G	110	G	G	G	G	100	G	G	105	S	100	100	S	S	100
27	S	S	E	E	E	S	S	105	G	G	G	G	100	100	G	G	G	G	S	S	S	105	B	S
28	S	S	S	S	S	S	S	110	110	G	G	G	G	G	G	G	G	G	S	S	S	S	S	S
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	1			1	1	1	6	6	7	7	7	11	11	13	18	17	20	15	15	10	8	7	2
MED	102	100			110	105	100	108	128	105	140	120	140	130	130	128	115	110	105	105	102	102	100	102
UQ								110	155	128	142	148	150	140	140	140	140	130	110	105	105	105	102	
LQ								105	105	105	105	105	102	115	120	120	110	105	105	100	100	100	100	

FEB. 1971 | H'ES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

FEB. 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

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

The Radio Research Laboratories, Japan

FEB. 1971 | TYPES OF ES

IONOSPHERIC DATA

FEB. 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	30	34	34	35	33	32	33	J R 74	81	86	R 103	113	116	121	95	91	85	86	66	40	40	42	34	36
2	36	35	35	36	33	31	32	J R 75	J R 103	80	96	101	109	108	111	95	80	74	60	50	45	50	47	44
3	41	41	36	30	29	30	35	J R 70	89	97	111	J R 103	92	J R 102	J R 103	101	89	80	60	38	48	40	32	31
4	34	36	38	37	33	30	32	R 68	91	91	R 89	R 98	93	J R 103	95	91	R 75	60	51	51	46	41	36	39
5	40	41	43	45	40	38	R 38	65	99	I R 100	102	101	109	113	88	88	81	65	55	51	50	45	45	46
6	47	46	42	41	39	39	42	67	91	91	100	99	94	109	J R 106	99	82	70	72	47	41	37	36	37
7	38	41	41	43	41	35	39	75	80	100	98	101	96	102	J R 104	96	86	H 78	71	58	51	49	41	43
8	41	38	34	34	34	34	36	71	86	86	97	J R 103	107	109	106	87	82	80	56	51	50	40	36	36
9	38	39	39	39	41	36	36	87	R 85	90	100	101	108	96	95	90	82	81	55	45	50	51	36	37
10	36	38	38	40	35	33	32	J R 70	R 102	96	95	101	R 96	91	94	86	80	66	50	53	41	42	39	36
11	35	35	35	38	35	29	31	R 61	91	J R 103	96	88	89	88	95	84	86	73	51	46	45	J R 40	32	36
12	36	36	36	36	36	36	34	J R 81	R 96	87	95	93	101	111	97	76	76	70	56	40	45	37	31	33
13	35	36	37	37	38	39	42	R 83	R 101	86	99	J R 107	108	J R 115	116	96	83	87	54	44	46	37	37	39
14	39	40	39	39	36	32	35	68	79	84	91	96	78	97	96	91	82	78	47	52	J R 43	44	46	44
15	41	40	43	47	40	33	36	S 72	83	J R 105	103	108	120	101	92	83	81	74	61	61	56	46	43	46
16	42	42	41	38	40	39	48	R	80	79	J R 105	J R 107	116	J R 104	96	96	88	86	R 77	69	70	52	50	48
17	46	49	44	51	51	36	35	71	108	113	108	101	100	115	126	117	83	J R 73	J R 67	51	53	46	39	42
18	41	41	36	36	31	30	37	80	R 83	101	108	91	R 107	98	96	90	82	72	56	51	56	51	50	42
19	41	41	45	46	41	33	36	67	R 93	93	R 107	114	105	107	93	89	95	79	65	51	J R 52	56	H 35	37
20	S 39	39	40	40	42	34	39	68	79	80	99	J R 102	93	98	95	95	98	89	60	45	48	49	43	41
21	43	42	44	44	44	41	41	69	J R 78	91	119	99	94	I C 110	100	91	87	98	62	55	58	43	44	44
22	44	44	46	45	44	44	43	68	83	92	102	J R 105	120	128	R 101	97	96	89	70	48	51	47	47	46
23	45	46	44	44	45	37	38	64	C	90	90	R 83	98	J R 104	121	109	99	89	R 75	R 61	R 56	47	R 41	41
24	41	41	40	43	45	36	38	R 71	91	101	101	110	118	123	136	117	111	91	86	R	62	47	46	46
25	53	51	51	41	38	36	40	80	98	90	106	112	122	113	J R 105	I R 98	91	I C 86	R	73	63	56	46	43
26	42	42	40	38	40	38	40	62	73	89	121	121	134	121	112	94	96	J R 75	53	46	49	50	50	49
27	49	47	45	46	43	43	51	J R 80	95	91	114	110	119	118	116	101	100	93	80	51	53	51	J R 54	53
28	51	49	49	J R 53	R 55	40	45	87	J R 105	J R 104	91	104	C	134	130	114	109	96	J R 76	C	I C 45	44	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	27	27	28	28	28	27	28	28	28	28	28	27	26	28	28	27	27
MED	41	41	40	40	40	36	38	71	91	91	100	102	107	108	100	94	86	80	60	51	50	46	41	42
UQ	44	43	44	44	42	38	40	78	97	100	106	108	116	115	112	98	96	88	70	53	54	50	46	45
LQ	37	38	36	37	35	32	35	68	82	86	96	99	95	102	95	90	82	73	55	46	45	42	36	37

FEB. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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	L	L	L										
2										L	L	L	L	L	L									
3									L	L	L	L	L	L	L									
4									L	L	L	L	L	L										
5											L	L	L											
6										L	L	L	L	L	A	A								
7										L	L	L		L	L	L								
8									L	L	L	L	L	L	L	L	L							
9									L	L	L	L	L	L	L									
10									L	L	L	L	L		L									
11										L	L	L	L	L	L	L								
12									L	L	L	L	L	L										
13									L	L	L	L	L	L	L	L								
14										L	L	L	L	L	L	L	L							
15												L	U L 450	L		L								
16										L	L	L	L	L	L	L								
17										L	L	L	L	L	L									
18										L	L	L	L	L	L	L								
19									L	L	L 500	L	L	L	L	L								
20									L	L	L	L	L	L 540	L									
21										L	L 460	L	600	C	L									
22										L	L	L	L	L	L	L	L							
23									C	L	L	L	L	L	L	L	L							
24									L	L	L	L	L	L	L	L	L							
25									L	L	L	L	L	L	L	L								
26									L	L	L	L	L	L	L	L	L							
27										L	L	L	L	L	L	L	L							
28									L	L	L	L	C	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											2		2	1										
MED											480		525	540										
UQ																								
LQ																								

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FEB. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FOE (0.01 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								180	A	305	320	R	R	R	A	A	A	A						
2								A	I R 260	R	B	B	R	350	I A 330	300	A	A						
3								A	R 260	I R 285	I R 320	I R 340	350	I R 350	330	290	I R 250	A						
4								B	A	290	315	I R 345	I R 350	345	320	290	I A 250	A						
5								B	I R 255	300	335	R 345	345	340	325	A	A	A						
6							B	165	I R 260	300	345	R 350	355	340	335	300	I A 260	180						
7							B	170	260	305	330	355	360	350	340	I A 300	A	A						
8							B	185	255	290	330	345	345	345	330	I A 300	A	175						
9							B	175	260	300	325	I R 340	R 350	I R 340	I R 330	I A 290	250	A						
10							B	B	R 250	290	R 320	I R 335	345	340	315	290	A	A						
11							B	B	R	B	R 315	R 340	R 345	I R 340	R 335	300	255	A						
12							B	B	250	R 290	325	I R 330	R 345	R 345	325	300	A	A						
13							B	165	R	300	R 315	R 335	R 350	R 345	330	300	260	190						
14							B	190	265	305	340	350	355	360	325	310	I A 265	170						
15							B	180	265	I A 310	I A 320	R 340	I A 340	350	325	300	R	A						
16							B	170	I R 255	300	I A 340	I R 345	350	R 355	R	R	260	A						
17							B	R	R 275	305	B	R	I B 350	R 350	350	300	260	A						
18							B	180	I R 260	300	320	340	R	R	R	310	260	170						
19							B	180	I R 260	300	345	350	I R 345	350	335	305	260	A						
20							B	180	275	310	R 345	I R 360	360	355	340	305	270	A						
21							B	210	275	315	335	350	360	I C 355	345	305	I A 260	A						
22							B	190	275	I A 305	330	I R 350	365	360	330	305	270	A						
23							B	200	I C 290	R 325	R	R	R 350	I R 360	I R 350	R	R	190						
24							B	210	280	A	R	A	A	350	I R 330	I R 305	265	R						
25							B	R 210	265	R	R	I R 345	R 340	345	R	A	R	R						
26							B	R 220	290	R	A	A	R	R	A	A	A	R						
27							B	190	I R 270	310	345	350	360	350	A	A	A	180						
28							B	210	285	315	R 350	365	I C 365	R 365	345	330	I B 270	195						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								20	24	23	22	22	23	25	22	21	16	8						
MED								182	262	300	330	R 345	350	350	330	300	260	180						
UQ								205	275	308	340	350	358	355	340	305	265	190						
LQ								178	R 260	300	320	I R 340	345	345	325	300	258	172						

The Radio Research Laboratories, Japan

FEB. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FOES (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKJBJNJI 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	J X 19	J X 17	M 20	E B 13	J X 17	E B 12	E B 13	J X 24	J X 50	G	G	G	G	G 27	47	J X 44	38	J X 41	J X 79	J X 40	J X 20	22	21	24
2	22	E S 15	19	20	J X 19	J X 25	J X 26	J X 29	G	G	E B 39	E B 39	40	42	36	37	J X 39	J X 31	J X 29	J X 29	J X 25	J X 24	J X 24	21
3	20	20	E S 15	E B 13	E S 15	E S 15	20	20	G	G	G	G	G	G	43	37	31	32	37	J X 25	22	E S 15	E S 15	19
4	20	J X 19	20	21	E S 15	E S 15	19	22	32	J G 28	G	37	G	40	48	41	J X 39	J X 29	J X 35	J X 38	J X 25	J X 19	J X 21	J X 24
5	E S 15	E B 13	E S 15	E S 15	19	22	E S 15	E B 15	G	G	G	41	45	49	42	J X 42	J X 32	J X 24	J X 29	J X 28	22	20	20	20
6	E S 15	E B 13	E B 13	E S 15	E B 13	E B 13	E B 14	G	G	G	38	41	42	44	48	J X 49	J X 26	G	J X 26	J X 26	J X 26	22	J X 26	J X 18
7	E B 12	E B 13	E B 13	M 20	M 20	E B 14	E B 13	G	G	G	G	G	40	40	G	36	J X 42	20	J X 17	J X 17	J X 22	J X 30	J X 26	J X 19
8	N 21	M 20	E B 14	E B 13	E B 14	E B 14	E B 14	G	G	G	40	46	39	42	38	35	30	G	E B 13	E S 15	E B 13	E B 13	E S 15	E S 15
9	E S 15	E S 15	E S 15	E B 13	E B 14	E B 13	E B 15	19	G	G	G	G	G	G	38	J X 42	33	J X 22	19	20	E B 13	E S 15	E S 15	E S 16
10	E S 15	E S 15	E B 13	19	E S 15	E S 15	22	E B 16	G 22	G	G	G	40	45	45	J X 55	J X 69	J X 41	J X 38	J X 29	J X 24	22	19	20
11	E S 15	21	E S 15	22	E S 15	E B 13	E B 14	E B 15	G	E B 32	G	41	40	G	36	34	28	24	J X 31	19	20	J X 23	22	E S 15
12	E S 15	20	E S 15	E S 15	E B 14	18	E B 16	E B 15	G	G	38	42	G	39	45	46	J X 29	J X 29	J X 24	J X 52	J X 29	28	20	E S 15
13	E S 15	E S 15	E B 13	E B 13	E S 15	E B 13	E B 13	G	G	G	G	G	G	40	37	33	G	27	J X 29	J X 24	E B 14	M 19	E S 15	E S 15
14	E B 13	E B 14	E B 14	E B 14	E B 14	E B 13	J X 18	G	G 22	J G 26	G 26	38	38	43	42	J X 41	33	23	J X 25	J X 20	J X 41	M 22	M 22	J X 18
15	N 20	M 18	E B 13	E B 13	E B 12	E B 13	19	23	G	J X 65	42	J X 45	42	41	J X 42	36	G	21	J X 26	J X 60	J X 42	J X 36	J X 24	E S 15
16	E S 15	19	21	E S 15	E B 13	E S 15	22	G	G	G	39	39	G	G	G	G	37	J X 34	J X 21	J X 29	J X 28	J X 21	20	21
17	E S 15	E S 15	E B 13	E S 15	E B 12	E S 15	E B 15	G	G	G	E B 40	G	E B 40	G	G	36	36	25	J X 26	J X 29	22	E S 15	20	20
18	E S 16	20	E B 13	19	E B 13	E B 13	E B 13	G	G	G	37	38	G	G	G	G	G 18	21	21	E S 15	20	J X 29	21	18
19	E S 15	E S 15	E S 15	E B 13	E S 15	E B 13	E B 13	G	G	G	G	G 29	G 26	J G 29	35	G 20	G 17	21	J X 18	E S 15	E S 15	E S 15	E S 15	E B 13
20	E S 15	E B 13	17	E B 12	E S 15	E B 13	E B 13	G	G	G	G	G	G	G 20	G 17	34	J X 30	24	21	E S 15	E S 15	E B 14	18	M 23
21	20	E B 13	E B 14	E B 14	E B 14	E B 14	E B 16	G	G	G	37	39	38	C	45	37	34	J X 29	J X 17	J X 22	J X 23	E S 15	E S 15	E S 15
22	E S 16	E B 13	M 17	E B 14	E B 13	E B 14	E B 14	G	G	35	G	G 30	42	J G 29	G 17	G 16	G	23	E B 13	E B 13	E B 14	J X 18	E B 13	E S 15
23	J X 19	M 19	E S 15	E B 14	E B 13	E B 14	E B 14	G	C	G	G	G	G	G	G	G	G	23	J X 24	J X 25	J X 19	J X 19	20	J X 25
24	22	J X 29	J X 29	J X 19	21	E B 13	E B 15	G	G	34	G	41	40	G	G	G	28	G	22	E S 15	E B 13	E B 13	21	J X 26
25	J X 26	J X 25	20	21	20	E B 13	E B 16	G	31	G	G	G	G	G	G	36	G 19	G	J X 21	E S 15	E S 15	E S 15	E S 15	E S 16
26	20	19	E S 15	E S 15	E S 15	E S 15	E B 13	E B 16	G	G	G	J X 41	42	G	G	41	36	31	G 19	E S 15	E S 15	E S 15	E S 15	E S 15
27	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E B 15	G	G	G	38	37	G	G	J X 41	32	J X 28	G 17	18	E B 13	M 21	E S 15	J X 19	J X 17
28	E B 14	E B 13	E S 15	M 18	M 18	E B 14	E B 15	G	G	G	G 25	G 20	C	G	G	G	E B 40	G	17	C	C	E S 15	E S 15	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	28	28	28	27	27	28	28	28	28	28	27	27	28	28	27
MED	E E 15	E 15	E 15	E 15	E 15	E B 14	E B 15	G	G	G	G	36	E G 26	G 27	38	36	30	23	J X 23	J X 22	21	19	20	18
UQ	20	20	17	19	16	E 15	17	16	G	G	38	41	40	40	42	41	36	J X 29	J X 29	J X 29	J X 24	22	21	20
LQ	E S 15	E B 14	E B 14	E B 13	E B 14	E B 13	E B 14	G	G	G	G	G	G	G	G	26	22	20	18	E 15	E 15	E S 15	E S 15	E S 15

The Radio Research Laboratories, Japan

FEB. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FBES (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	16	E	E B 13	E	E B 12	E B 13	15	34	G	G	G	G	G 26	40	37	32	19	25	24	18	E	E	E
2	15	E S 15	15	E	E	16	25	26	G	G	E B 39	E B 39	40	40	36	35	38	22	16	24	E	19	16	E
3	E	E	E S 15	E B 13	E S 15	E S 15	E	19	G	G	G	G	G	G	42	36	30	31	33	20	E	E S 15	E S 15	E
4	E	E	E	E	E S 15	E S 15	E	G	25	G 25	G	E R 37	G	40	33	39	38	26	25	30	22	E	E	20
5	E S 15	E B 13	E S 15	E S 15	E	E	E S 15	E B 15	G	G	G	40	45	47	42	40	32	20	28	20	E	E	E	E
6	E S 15	E B 13	E B 13	E S 15	E B 13	E B 13	E B 14	G	G	G	38	41	41	40	48	46	26	G	E	21	16	E	E	E
7	E B 12	E B 13	E B 13	E	E	E B 14	E B 13	G	G	G	G	G	40	30	G	33	34	19	15	E	16	22	17	E
8	E	E	E B 14	E B 13	E B 14	E B 14	E B 14	G	G	G	38	45	38	42	36	32	29	G	E B 13	E S 15	E B 13	E B 13	E S 15	E S 15
9	E S 15	E S 15	E S 15	E B 13	E B 14	E B 13	E B 15	15	G	G	G	G	G	G	38	40	30	20	E	E	E B 13	E S 15	E S 15	E S 16
10	E S 15	E S 15	E B 13	E	E S 15	E S 15	G	E B 16	G 21	G	G	G	39	45	40	55	42	25	25	24	16	E	E	E
11	E S 15	E	E	E S 15	E	E S 15	E B 13	E B 14	E B 15	G	E B 32	G	40	39	G	36	33	28	23	22	16	15	20	E	E S 15
12	E S 15	E	E	E S 15	E S 15	E B 14	E	E B 16	E B 15	G	G	37	40	G	38	41	40	26	25	20	26	20	E	E	E S 15
13	E S 15	E S 15	E B 13	E B 13	E S 15	E B 13	E B 13	G	G	G	G	G	G	40	36	32	G	26	26	16	E B 14	E	E S 15	E S 15
14	E B 13	E B 14	E B 14	E B 14	E B 14	E B 13	G	G	G 21	G 26	G 26	38	38	42	38	32	27	20	15	E	25	E	E	E
15	E	E	E B 13	E B 13	E B 12	E B 13	G	23	G	53	38	45	38	40	40	34	G	20	24	33	26	26	19	E S 15
16	E S 15	E	E	E S 15	E B 13	E S 15	G	G	G	G	38	38	G	G	G	G	35	25	15	22	22	19	E	E
17	E S 15	E S 15	E B 13	E S 15	E B 12	E S 15	E B 15	G	G	G	E B 40	G	E B 40	G	G	33	33	23	20	25	E	E S 15	E	E
18	E S 16	E	E B 13	E	E B 13	E B 13	E B 13	G	G	G	E R 37	37	G	G	G	G	G 16	E R 19	E	E S 15	E	E	E	E
19	E S 15	E S 15	E S 15	E B 13	E S 15	E B 13	E B 13	G	G	G	G	G 26	E R 26	G 26	35	G 19	G 17	21	15	E S 15	E S 15	E S 15	E S 15	E B 13
20	E S 15	E B 13	E	E B 12	E S 15	E B 13	E B 13	G	G	G	G	G	G	E R 20	G 17	33	28	22	E	E S 15	E S 15	E B 14	E	E
21	E	E B 13	E B 14	E B 14	E B 14	E B 14	E B 16	G	G	G	37	39	39	C	43	37	32	25	E	17	19	E S 15	E S 15	E S 15
22	E S 16	E B 13	E	E B 14	E B 13	E B 14	E B 14	G	G	34	G	E R 30	42	G 26	E R 17	G 16	G	23	E B 13	E B 13	E B 14	E	E B 13	E S 15
23	E	E	E S 15	E B 14	E B 13	E B 14	E B 14	G	C	G	G	G	G	G	G	G	G	21	21	25	17	16	E	21
24	E	19	E	E	E	E B 13	E B 15	G	G	32	G	40	38	G	G	G	28	G	E	E S 15	E B 13	E B 13	16	E
25	24	17	E	E	E	E B 13	E B 16	G	28	G	G	G	G	G	G	34	E R 19	G	E	E S 15	E S 15	E S 15	E S 15	E S 16
26	E	E	E S 15	E S 15	E S 15	E B 13	E B 16	G	G	G	38	41	G	G	40	34	30	E R 19	E S 15	E S 15	E S 15	E S 15	E S 16	E S 15
27	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E B 15	G	G	G	38	37	G	G	40	32	27	G 17	E	E B 13	E	E S 15	17	E
28	E B 14	E B 13	E S 15	E	E	E B 14	E B 15	G	G	G	G 25	G 20	C	G	G	G	E B 40	G	E	C	C	E S 15	E S 15	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	28	28	28	27	27	28	28	28	28	28	27	27	28	28	27
MED	E 15	E 13	E 14	E 13	E 14	E B 13	E B 14	G	G	G	G	30	E G 26	G 26	36	33	28	20	15	16	15	15	E 14	E
UQ	E S 15	E 15	E S 15	E E 14	E S 15	E E 14	E B 15	E G 15	G	G	38	40	39	40	40	37	32	24	23	24	18	E S 15	E S 15	E S 15
LQ	E	E	E E 13	E	E E 12	E B 13	E B 13	G	G	G	G	G	G	G	G	26	22	19	E	E 15	E E 13	E	E	E

FEB. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | F-MIN (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	12	13	13	13	12	13	14	14	15	15	25	18	15	18	14	15	14	13	E S 15	13	E S 15	E S 15	E S 15
2	13	E S 15	13	13	13	12	E S 15	13	15	25	39	39	25	23	25	18	15	15	13	13	E S 15	13	13	E S 15
3	E S 15	E S 15	E S 15	13	E S 15	E S 15	13	14	15	15	15	25	15	15	26	15	14	15	E S 15	13	E S 15	E S 15	E S 15	E S 15
4	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	14	15	15	16	15	20	16	16	15	14	15	13	E S 15	13	E S 15	E S 15	E S 15
5	E S 15	13	E S 15	E S 15	E S 15	13	E S 15	15	14	15	15	19	25	25	15	15	15	14	E S 15	13	E S 15	E S 15	E S 15	E S 15
6	E S 15	13	13	E S 15	13	13	14	14	15	15	15	15	15	15	16	14	14	15	14	E S 15	13	E S 15	E S 15	E S 15
7	12	13	13	13	14	14	13	14	14	15	15	15	16	15	15	15	14	14	12	14	E S 15	13	13	14
8	13	14	14	13	14	14	14	16	15	15	14	15	15	14	15	15	15	15	13	E S 15	13	13	E S 15	E S 15
9	E S 15	E S 15	E S 15	13	14	13	15	13	15	14	15	15	15	15	15	15	15	15	E S 15	E S 15	13	E S 15	E S 15	E S 16
10	E S 15	E S 15	13	E S 15	E S 15	E S 15	13	16	15	15	15	15	15	15	15	15	15	14	14	13	13	E S 15	E S 15	E S 15
11	E S 15	13	E S 15	E S 15	E S 15	13	14	15	15	32	19	16	26	26	16	15	14	14	13	13	13	13	E S 15	E S 15
12	E S 15	13	E S 15	E S 15	14	13	16	15	13	15	15	22	15	15	15	13	15	13	13	13	E S 15	E S 15	E S 15	E S 15
13	E S 15	E S 15	13	13	E S 15	13	13	14	15	15	14	21	26	15	18	14	16	14	14	14	14	E S 15	E S 15	E S 15
14	13	14	14	14	14	13	13	14	14	14	15	15	14	15	14	15	15	14	13	E S 15	13	13	13	13
15	13	13	13	13	12	13	15	14	14	15	15	16	15	15	15	15	16	14	13	E S 15	E S 16	13	13	E S 15
16	E S 15	E S 15	E S 15	E S 15	13	E S 15	14	14	14	16	32	26	27	26	26	20	15	15	14	12	13	12	E S 16	E S 15
17	E S 15	E S 15	13	E S 15	12	E S 15	15	15	14	15	40	26	40	25	24	16	15	13	E S 15	13	E S 15	E S 15	E S 15	E S 15
18	E S 16	13	13	13	13	13	13	14	15	14	15	22	19	18	15	14	15	14	13	E S 15	E S 15	E S 15	E S 15	E S 15
19	E S 15	E S 15	E S 15	13	E S 15	13	13	14	14	15	15	15	15	14	15	15	14	14	13	E S 15	E S 15	E S 15	E S 15	13
20	E S 15	13	13	12	E S 15	13	13	14	15	15	25	26	15	15	15	13	14	14	E S 15	E S 15	E S 15	14	E S 15	E S 15
21	E S 15	13	14	14	14	14	16	16	14	15	15	25	26	C	18	15	14	14	14	E S 15	14	E S 15	E S 15	E S 15
22	E S 16	13	E S 15	14	13	14	14	14	14	14	16	15	18	15	14	14	16	15	13	13	14	13	13	E S 15
23	12	13	E S 15	14	13	14	14	14	C	15	14	25	26	16	15	15	15	14	12	13	13	12	E S 15	14
24	E S 15	E S 15	E S 15	E S 15	E S 15	13	15	14	14	15	24	25	16	26	22	16	14	14	13	E S 15	13	13	E S 15	E S 15
25	E S 15	13	E S 15	E S 15	E S 15	13	16	15	15	15	16	17	16	15	15	15	15	16	E S 15	E S 15	E S 15	E S 15	E S 15	E S 16
26	E S 15	E S 15	E S 15	E S 15	E S 15	13	16	12	14	16	15	15	16	25	26	15	15	14	E S 15	E S 15	E S 15	E S 15	E S 16	E S 15
27	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	15	14	12	15	15	15	16	26	25	15	15	13	E S 15	13	14	E S 15	14	E S 15
28	14	13	E S 15	13	14	14	E S 15	14	14	15	15	15	C	26	15	19	40	15	14	C	C	E S 15	E S 15	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	27	28	28	28	27	27	28	28	28	28	28	27	27	28	28	27
MED	E S 15	14	E S 15	14	13	13	14	14	14	15	15	16	16	15	15	15	15	14	14	E S 15	14	E S 15	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 15	E S 15	14	15	15	15	15	16	25	25	25	20	15	15	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
LQ	13	13	13	13	13	13	13	14	14	15	15	15	15	15	15	14	14	14	13	13	13	13	E S 15	E S 15

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FEB. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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	270	270	280	310	290	280	285	350 J R	360	355	315 R	315	300	315	315	320	320	330	350	330	295	310	270	280
2	280	275	265	280	330	290	290	335 J R	350 J R	350	315	330	310	295	325	320	325	310	320	290	335	305	300	295
3	300	300	335	300	275	280	270	330 J R	340	340	325	310 J R	330	300 J R	305 J R	320	330	315	320	290	315	310	305	260
4	265	285	295	310	290	275	295	325 R	340	340	335 R	330 R	315	320 J R	325	330	345 R	330	315	320	325	300	280	280
5	285	295	280	290	305	290	290 R	310	335	335 I R	345	325	295	335	335	330	335	335	300	320	300	305	280	290
6	300	305	320	300	310	275	305	340	350	340	320	345	290	315	320 J R	330	330	315	335	310	300	310	280	285
7	295	305	305	305	330	275	295	345	340	340	320	320	310	315	325 J R	330	325	320 H	340	325	305	310	305	305
8	320	315	295	280	285	285	310	340	350	335	320	310 J R	320	300	330	310	340	330	305	300	320	305	280	285
9	285	290	285	285	300	300	285	260	335 R	320	330	300	325	325	315	320	315	350	300	310	305	315	310	290
10	290	285	290	300	335	275	290	310 J R	345 R	345	340	325	315 R	320	330	335	325	340	300	310	300	290	310	270
11	285	280	260	275	315	275	295	330 R	330	320 J R	340	335	320	320	325	325	335	330	345	305	305	310 J R	275	270
12	310	310	285	280	270	270	290	320 J R	355 R	345	320	320	305	325	325	315	355	325	355	320	305	325	290	275
13	265	265	270	280	285	290	310	335 R	365 R	330	315	330 J R	295	310 J R	320	330	335	345	375	305	325	305	290	295
14	285	305	305	310	320	295	300	340	350	340	325	260	310	315	320	340	340	345	345	310	285 J R	285	295	300
15	280	265	270	315	340	290	295	350 S	315	335 J R	350	325	335	315	325	315	335	340	295	310	305	300	275	270
16	290	285	320	285	280	260	330	R	350	330	310 J R	315 J R	310	325 J R	315	320	330	315	325 R	295	315	325	310	290
17	265	285	295	300	355	280	295	315	350	355	325	335	300	295	315	340	300	325 J R	320 J R	295	305	310	305	285
18	295	300	280	280	315	275	320	340	335 R	345	330	320	335 R	325	325	335	340	335	305	300	295	305	310	290
19	265	290	285	325	310	275	290	345	335 R	335	325 R	315	305	325	315	315	330	330	330	305	305 J R	340	260 H	265
20	280 S	295	300	300	320	295	325	345	330	325	315	315 J R	325	315	315	305	325	340	340	315	290	315	300	280
21	280	285	295	285	315	320	305	350	325 J R	340	360	340	285	320 I C	330	330	325	345	310	290	315	300	290	265
22	285	285	275	275	300	320	340	340	335	325	325	315 J R	300	330	315 R	320	330	335	335	300	305	295	300	290
23	285	285	300	305	315	320	330	360	C	335	320	325 R	315	290 J R	315	320	325	335	310 R	335 R	285 R	300	270 R	280
24	275	290	275	280	310	305	315	315 R	320	330	310	295	290	295	315	310	325	330	315	R	325	300	285	260
25	260	275	295	300	295	255	305	330	345	305	335	305	320	300	315 J R	310 I R	320	315 I C	R	335	310	305	310	300
26	295	280	255	260	275	245	275	295	290	285	305	305	320	300	315	310	325	335 J R	320	280	265	280	280	280
27	300	310	290	280	280	280	295	340 J R	340	320	325	315	310	315	315	315	320	325	355	300	300	300	290 J R	285
28	280	265	280	305 J R	330 R	325	300	330	345 J R	355 J R	320	320	C	315	310	310	320	345	335 J R	C	290 I C	300	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	27	27	28	28	28	27	28	28	28	28	28	27	26	28	28	27	27
MED	285	285	288	295	310	280	295	335	340	335	325	320	310	315	318	320	328	330	320	308	305	305	290	285
UQ	295	300	298	305	320	295	310	342	350	342	332	328	320	322	325	330	335	340	340	320	315	310	305	290
LQ	278	280	278	280	288	275	290	322 R	335	328	318	312	300	300	315	315	325	325	310	300	298	300	280	272

IONOSPHERIC DATA

FEB. 1971 | M(3000)F1 (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									L	L	L	L	L	L										
2										L	L	L	L	L	L									
3									L	L	L	L	L	L	L									
4									L	L	L	L	L	L										
5											L	L	L											
6										L	L	L	L	L	A	A								
7										L	L	L		L	L	L								
8									L	L	L	L	L	L	L	L	L							
9									L	L	L	L	L	L	L									
10									L	L	L	L	L		L									
11										L	L	L	L	L	L	L								
12									L	L	L	L	L	L										
13									L	L	L	L	L	L	L	L								
14										L	L	L	L	L	L	L	L							
15												L	U L 420	L		L								
16										L	L	L	L	L	L	L								
17										L	L	L	L	L	L									
18										L	L	L	L	L	L	L								
19									L	L	L 370	L	L	L	L	L								
20									L	L	L	L	L	L 370	L									
21										L	L 380	L	350	C	L									
22										L	L	L	L	L	L	L	L							
23									C	L	L	L	L	L	L	L	L							
24									L	L	L	L	L	L	L	L	L							
25									L	L	L	L	L	L	L	L								
26									L	L	L	L	L	L	L	L	L							
27										L	L	L	L	L	L	L	L							
28									L	L	L	L	C	L	L	L								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											2		2	1										
MED											L 375		L 385	L 370										
UQ																								
LQ																								

The Radio Research Laboratories, Japan

FEB. 1971 | M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 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									225	240	245	250	285	250										
2										235	250	245	260	250	250									
3									240	235	250	245	240	270	250									
4									235	245	240	245	250	255										
5											250	250	275											
6										240	245	225	260	260	270	245								
7										250	245	250		255	260	245								
8									230	245	275	255	250	290	250	240	250							
9									240	250	245	265	250	250	250									
10									250	240	245	275	260		255									
11										240	250	250	250	255	250	250								
12									245	245	275	255	255	260										
13									240	230	250	230	290	250	250	230								
14										230	245	245	230	255	255	240	230							
15												260	275	250		235								
16										255	270	250	250	250	255	250								
17										240	240	240	260	260	275									
18										240	250	230	255	285	265	240								
19									250	240	275	260	245	255	245	275								
20									230	250	260	260	240	290	270									
21										245	245	260	350	I C 265	255									
22										245	260	275	275	270	250	260	245							
23									I C 230	240	250	250	290	260	285	250	250							
24									250	240	255	260	270	250	285	250	245							
25									245	240	270	260	260	260	245	255								
26									305	265	270	290	275	250	250	245	250							
27										240	245	260	260	255	260	245	240							
28									230	230	240	250	I C 265	260	255	240								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									15	26	27	28	27	26	23	17	7							
MED									240	240	250	250	260	255	255	245	245							
UQ									248	245	260	260	275	260	262	250	250							
LQ									230	240	245	245	250	250	250	240	242							

The Radio Research Laboratories, Japan

FEB. 1971 | H'F2 (KM)

IONOSPHERIC DATA

FEB. 1971 | H'F (KM) | 135° E Mean Time (G. M. T. + 9 h)

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 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	310	310	290	250	260	280	280	225	225	230	225	235	240	235	245	240	245	240	210	240	250	240	260	305
2	300	310	345	290	210	285	330A	245	240	215	215	230	220	240	240	240	245	210	210	250	245	240	240	260
3	255	250	240	250	260	310	265	235	210	220	205	210	220	210	240	245	235	245	230	250	245	230	250	340
4	345	290	270	250	245	260	265	240	200	230	200	225	240	240	245	245	230	210	250	265	250	250	290	300
5	290	290	290	260	245	250	280	240	245	245	240	240	250	250	245	245	240	210	250	245	250	250	290	275
6	250	245	250	245	240	290	240	215	230	225	230	230	230	250A	240IA	235IA	225	210	225	240	260	245	280	280
7	260	260	255	255	225	270	260	230	225	230	220	220	235	230	225	230	230	200H	210	230	240	260	270	250
8	245	240	255	270	260	300	250	230	225	220	240	245	240	225	240	220	240	215	210	245	225	230	295	295
9	295	300	290	295	245	240	250	240	210	240	230	230	230	240	240	245	235	215	215	215	250	225	245	280
10	285	300	290	260	210	290	290	240	240	205	230	250	240	250	250	250	250	210	235	245	210	245	245	295
11	290	295	340	315	230	245	280	240	245	210	240	240	240	240	240	240	230	235	210	240	240	240	280	300
12	275	250	285	265	260	300	290	235	240	230	215	205	205	250	245	225	225	235	210	315A	250	240	290	310
13	315	310	305	290	295	270	260	245	230	205	200H	210	205H	260	245	230	230	230	200	220	220	245	285	280
14	280	270	250	250	225	255	245	225	210	210	220	235	210	260	230	220	205	220	210	245	270A	275	275	260
15	290	320	305	250	205	260	255	235	225	240	235	250	200	240	250	220	235	225	215	270	245	290	300	290
16	270	280	240	295	290	300	215	240	215	215	250	240	240	240	240	240	240	245	220	245	240	240	240	270
17	295	290	300	260	210	240	230	240	240	220	210	205	210	240	240	245	210	240	235	255	250	240	250	290
18	285	245	250	285	240	300	290	245	235	215	240	220	205	205	240	225	235	235	215	250	245	260	245	285
19	310	290	260	240	215	300	260	215	240	230	205	200	225	220	225	220	240	215	210	210	245	240	205H	305
20	290	275	260	270	235	225	230	220	230	210	225	225	220	220	220	235	240	220	200	210	260	245	245	290
21	295	285	275	280	245	230	255	220	225	225	225	225	205	225IC	250A	240	240	240	200	250	240	240	275	300
22	285	285	295	300	255	245	220	225	230	205	230	205	245	245	225	210	225	230	210	210	245	260	255	255
23	275	275	270	260	220	220	210	210	200IC	220	215	220	205	240	240	230	240	230	235	215	240	240	270	310
24	295	300	315	300	240	235	215	240	210	200	210	240	205	240	240	240	220	245	215	230	215	240	290	315
25	305	290	245	240	240	295	275	240	230	210	220	210	215	205	230	215	245	235	230	230	235	240	240	250
26	275	340	340	325	320	340	290	245	250	245	220	220	200	235	245	210	240	210	215	245	295	260	275	285
27	260	245	255	275	295	285	245	210	225	210	230	200	205	210H	220	210	230	220	210	210	245	250	270	260
28	270	310	300	250	220	225	255	235	210	200	200	210	195IC	230	210	220	240	230	205	210IC	255IC	270	275	275IC
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	288	290	280	262	240	270	258	235	228	220	222	225	220	240	240	232	235	228	212	242	245	242	270	288
UQ	295	300	300	290	260	298	280	240	240	230	230	238	240	242	245	240	240	235	228	250	250	255	282	300
LQ	272	265	255	250	222	242	242	225	212	210	212	210	205	225	230	220	230	212	210	218	240	240	245	272

FEB. 1971 | H'F (KM)

IONOSPHERIC DATA

FEB. 1971 | H'ES (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	100	100	100	B	110	B	B	105	100	G	G	G	G	100	120	100	130	110	100	100	100	100	100	100
2	100	S	100	110	100	100	100	100	G	G	B	B	140	140	120	140	130	110	100	100	100	100	100	100
3	100	100	S	B	S	S	100	160	G	G	G	G	G	G	145	135	160	140	120	100	100	S	S	100
4	100	100	100	100	S	S	100	100	110	105	G	160	G	145	135	140	120	130	110	100	100	100	100	100
5	S	B	S	S	100	100	S	B	G	G	G	140	140	140	130	120	110	110	105	100	100	100	100	100
6	S	B	B	S	B	B	B	G	G	G	155	140	145	125	120	110	110	G	100	100	100	95	105	100
7	B	B	B	105	100	B	B	G	G	G	G	G	160	145	G	110	110	105	105	110	105	105	100	100
8	100	105	B	B	B	B	B	G	G	G	140	130	140	120	120	130	120	G	B	S	B	B	S	S
9	S	S	S	B	B	B	B	105	G	G	G	G	G	G	140	130	140	110	105	100	B	S	S	S
10	S	S	B	100	S	S	110	B	105	G	G	G	150	140	130	110	110	105	105	100	100	100	100	100
11	S	100	S	100	S	B	B	B	G	B	G	170	150	G	160	160	160	140	110	105	100	100	100	S
12	S	100	S	S	B	100	B	B	G	G	150	140	G	150	140	120	100	100	100	100	100	100	100	S
13	S	S	B	B	S	B	B	G	G	G	G	G	G	170	155	140	G	150	120	110	B	100	S	S
14	B	B	B	B	B	B	100	G	105	105	105	130	145	145	130	125	125	175	115	110	105	105	105	110
15	105	125	B	B	B	B	155	155	G	100	100	140	140	140	140	140	G	120	100	100	100	100	100	S
16	S	100	100	S	B	S	145	G	G	G	150	145	G	G	G	G	140	130	110	100	100	100	100	100
17	S	S	B	S	B	S	B	G	G	G	B	G	B	G	G	145	140	120	100	100	100	S	100	100
18	S	100	B	100	B	B	B	G	G	G	145	140	G	G	G	G	100	100	100	S	105	100	100	100
19	S	S	S	B	S	B	B	B	B	G	G	105	100	100	155	100	100	160	100	S	S	S	S	B
20	S	B	100	B	S	B	B	G	G	G	G	G	G	100	100	140	100	120	95	S	S	B	105	100
21	100	B	B	B	B	B	B	G	G	G	170	130	130	C	130	130	125	115	120	110	105	S	S	S
22	S	B	120	B	B	B	B	G	G	105	G	105	170	100	100	100	G	145	B	B	B	110	B	S
23	105	100	S	B	B	B	B	G	C	G	G	G	G	G	G	G	G	140	105	105	100	100	100	100
24	100	100	100	100	100	B	B	G	G	115	G	105	100	G	G	G	140	G	100	S	B	B	100	100
25	100	100	100	100	100	B	B	G	120	G	G	G	G	G	G	110	100	G	100	S	S	S	S	S
26	100	100	S	S	S	B	B	G	G	G	110	110	G	G	110	110	115	110	S	S	S	S	S	S
27	S	S	S	S	S	S	B	G	G	G	175	175	G	G	110	110	115	110	100	B	110	S	100	100
28	B	B	S	100	100	B	B	G	G	G	100	100	C	G	G	G	B	G	100	C	C	S	S	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	13	8	9	7	3	7	6	5	5	11	17	13	15	20	23	23	23	25	18	18	16	18	16
MED	100	100	100	100	100	100	100	105	105	105	145	140	140	140	130	125	120	120	100	100	100	100	100	100
UQ	100	100	100	100	100	100	128	155	110	105	152	140	150	145	140	140	135	140	110	105	105	100	100	100
LQ	100	100	100	100	100	100	100	100	105	105	108	110	140	110	120	110	110	110	100	100	100	100	100	100

The Radio Research Laboratories, Japan

FEB. 1971 | H'ES (KM)

IONOSPHERIC DATA

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

The Radio Research Laboratories, Japan

FEB. 1971 | TYPES OF ES

IONOSPHERIC DATA

FEB. 1971 | HPF2 (KM) | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	370	370	350	300	320	350	345	250 J R	230	250	300 J	300	330	310	310	300	300	290	250	280	335	300	380	380
2	390	390	400	350	280	350	350 I A	285 J R	250 J R	260	300	290	300	340	300	300	300	300	300	300	290	310	300	350
3	350	310	280	300	390	380	380	280 J R	280	260	300	340 J R	265	330 J R	350 J	300	290	300	290	355	300	300	310	400
4	400	360	350	350	320	380	350	280 R	280	280	285 R	270 R	300	300 J R	290	285	260 R	280	300	300	280	300	355	380
5	380	350	380	340	285	365	355 R	300	265	275 I R	270	280	320	290	290	290	270	280	300	300	300	300	380	350
6	345	300	300	300	305	390	340	260	250	265	290	250	340	300	295 J	275	260	295	275	300	310	300	345	350
7	325	315	315	305	270	360	320	250	250	280	300	290	305	300	290 J	275	270	280 H	250	280	305	300	310	300
8	290	290	310	330	330	350	300	255	260	280	300	330 J R	300	350	290	305	280	280	300	350	300	300	380	380
9	390	370	390	380	300	305	350	385	285 R	300	290	325	300	300	310	300	290	250	310	300	340	300	310	370
10	370	380	370	350	255	385	370	295 J R	260 R	285	280	300	320 R	300	290	290	290	280	310	300	300	355	300	390
11	380	380	400	390	285	390	350	290 R	290	270 R	265	270	300	300	295	300	290	290	260	300	300	295 J R	390	395
12	330	330	380	355	390	390	350	300 J R	250 R	285	300	300	300	300	300	330	250	300	265	300	300	300	360	385
13	390	390	390	380	380	370	330	290 R	250 R	270	300	270 R	325	295 J R	290	270	260	260	220	310	275	300	345	340
14	350	310	315	300	280	320	300	250	240	260	290	250	290	295	290	260	260	250	250	300	320 J R	345	320	315
15	370	410	380	305	250	330	320	250 S	300	290 J R	260	300	290	300	300	300	290	280	300	300	300	345	390	390
16	370	350	300	380	380	390	280	R	250	290	305 J	300 J	315	305 J R	320	300	290	300	300 R	350	300	300	340	380
17	390	385	360	350	260	350	350	300	260	250	300	290	340	350	310	260	350	300 J R	300 J R	340	315	295	350	385
18	360	300	350	360	300	390	310	260	270 R	280	290	300	290 R	300	300	290	280	290	300	350	310	310	300	370
19	400	370	380	280	285	390	370	280	290 R	260	300 J	300	310	290	295	300	275	260	275	300	300 J R	280	400 H	380
20	350 S	340	330	330	290	300	295	250	250	280	300	300 J R	285	305	310	300	290	255	275	285	340	295	305	360
21	355	355	335	350	295	290	305	250	280 J R	270	260	270	370	300 I C	285	285	275	260	305	330	300	315	335	400
22	355	350	360	370	320	295	250	255	280	285	290	300 J R	315	290	300 J	290	270	270	260	310	305	330	330	330
23	340	350	330	320	285	285	270	240	C	290	300	300 R	320	370 J R	315	300	300	290	300 R	290 R	350 R	300	360 R	390
24	390	370	400	390	305	300	290	300 R	300	285	340	340	370	355	315	315	300	290	300	R	300	320	390	400
25	400	390	315	350	300	390	340	265	260	340	270	310	310	340	300 J	320 I R	300	300 I C	R	270	320	305	310	320
26	360	410	410	425	400	440	380	360	370	360	315	335	305	335	300	315	300	290 J R	300	390	390	360	360	380
27	360	345	350	390	390	390	305	260 J R	270	290	280	300	300	300	300	300	290	270	250	300	310	315	330 J R	330
28	350	395	370	310 J R	270 R	290	310	260	250 J R	250 J R	285	290	C	310	305	310	290	260	260 J R	C	335 I C	320	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	27	27	28	28	28	27	28	28	28	28	28	27	26	28	28	27	27
MED	365	358	355	350	300	362	335	265	260	280	295	300	305	300	300	300	290	280	300	300	302	300	345	380
UQ	390	382	380	375	325	390	350	292 R	280	288	300	300	320	332	310	300	295	292	300	330	320	318	370	388
LQ	350	335	322	308	282	312	302	252	250	262	282	285	300	300	290	288	270	265	260	300	300	300	310	350

FEB. 1971 | HPF2 (KM)

IONOSPHERIC DATA

FEB. 1971 | YPF2 (KM) | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	90	100	95	60	95	95	80	J R 50	50	100	100	100	110	90	100	100	100	100	100	100	105	100	100	100
2	100	100	100	100	100	90	I A 95	J R 95	J R 90	100	100	90	100	90	90	100	80	100	90	100	110	100	100	90
3	90	110	100	100	100	100	100	J R 100	100	110	90	J R 90	105	J R 90	J R 90	100	100	100	100	95	100	100	100	100
4	100	90	100	90	110	100	90	R 100	100	100	R 105	R 90	100	J R 90	100	95	R 100	100	100	100	115	100	95	90
5	100	110	100	100	105	95	R 95	90	95	I R 85	90	100	90	90	90	90	90	80	100	100	100	100	100	110
6	95	100	100	100	105	100	100	100	100	55	60	95	105	65	J R 65	70	95	85	40	70	90	100	100	75
7	80	80	80	70	50	85	85	50	60	65	55	65	85	85	J R 60	70	70	H 70	60	65	95	55	90	70
8	65	65	90	80	80	65	65	45	45	100	100	J R 110	80	90	110	105	100	80	90	90	90	100	100	100
9	90	100	90	80	100	105	90	95	R 75	90	90	115	90	100	90	100	90	90	110	100	100	100	100	110
10	110	100	110	110	95	95	110	J R 85	R 100	85	80	90	80	90	90	110	100	90	95	100	100	90	90	105
11	100	100	90	90	95	100	100	R 90	90	J R 100	105	110	90	90	95	90	90	100	100	100	100	J R 85	90	95
12	110	110	100	105	100	100	100	J R 90	R 90	95	100	100	300	300	300	330	250	300	265	300	300	300	360	385
13	100	100	100	100	100	110	110	R 90	R 90	70	55	J R 90	75	J R 100	65	50	60	60	50	60	50	100	75	70
14	95	90	85	60	80	80	60	50	60	60	65	50	120	80	70	60	50	55	60	70	J R 90	80	80	80
15	80	90	80	70	65	80	90	S 50	75	J R 90	100	80	90	80	90	90	100	100	90	100	100	115	100	100
16	110	110	100	100	100	100	90	R	90	90	J R 95	J R 100	85	J R 95	80	90	100	90	R 100	100	80	100	100	100
17	100	105	110	90	90	110	90	100	80	110	90	90	100	100	90	110	100	J R 90	J R 90	100	95	95	90	105
18	100	100	90	90	100	100	90	110	R 90	100	90	80	R 100	90	90	90	100	90	90	90	100	100	100	110
19	100	110	110	100	95	100	110	100	R 90	65	R 55	70	85	60	65	55	45	85	80	100	J R 65	40	H 95	95
20	S 90	70	75	70	60	95	60	50	65	65	55	J R 60	70	50	65	105	55	60	55	75	65	65	70	90
21	100	70	70	75	65	65	90	50	J R 70	45	40	50	75	I C 70	70	70	85	50	90	85	100	85	80	90
22	90	65	85	80	75	65	55	45	45	70	65	J R 60	85	55	R 100	65	75	55	65	95	90	70	70	75
23	70	65	75	75	70	75	85	55	C	100	90	R 80	90	J R 100	85	100	90	90	R 90	R 100	R 110	105	R 100	100
24	100	110	90	90	95	100	100	R 100	100	95	90	100	90	105	95	105	100	110	100	R	100	120	100	100
25	100	100	95	100	100	100	80	95	90	110	110	105	100	80	J R 110	I R 100	80	I C 90	R	90	90	105	90	100
26	100	80	90	75	90	100	100	120	110	90	95	85	95	105	90	85	90	J R 90	90	100	100	100	100	100
27	100	95	90	100	100	100	95	J R 100	100	65	75	50	70	95	75	75	65	65	50	100	85	80	J R 80	80
28	95	80	80	J R 60	R 50	65	70	65	J R 50	J R 50	70	70	C	70	95	85	65	50	J R 50	C	I C 70	75	C	C
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	27	27	28	28	28	27	28	28	28	28	28	27	26	28	28	27	27
MED	100	100	90	90	95	100	90	90	90	90	90	90	90	90	90	90	90	90	90	100	100	100	100	100
UQ	100	102	100	100	100	100	100	100	98	100	100	100	100	98	95	100	100	100	100	100	100	100	100	100
LQ	90	80	85	75	78	82	82	50	68	65	65	70	85	80	72	72	72	68	62	90	90	82	90	90

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FEB. 1971 | YPF2 (KM)

IONOSPHERIC DATA

FEB. 1971 | FOF2 (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	29	31	32	32	34	36	S 35	50	90	98	S 104	116	U S 122	124	120 S	J R 124	108 S	U S 98	101 S	80	J S 52	S 59	40	37
2	J S 36	34	32	34	41	26	S 27	43	U S 90	95	99	109	110	U R 129	146	S 146	J S 138	I S 126	U S 118	J S 97	J S 86	J S 92	J S 87	J S 64
3	S 59	45	36	28	30	28	28	45	81	J S 102	127	111	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	103	105	109	114	S 93	S 85	74	58	57	I S 53	44	S 40
5	S 40	38	38	39	42	32	32	U S 42	76	107	S 124	106	99	116	S 103	106	95	93	72	J S 65	U S 65	J S 63	S 48	U S 48
6	S 50	43	39	38	38	35	S 33	47	79	S 97	107	105	96	115	118	131	J S 127	J S 109	I S 102	U S 92	S	J S 65	J S 56	44
7	S 37	36	39	S 33	39	32	34	J S 44	81	97	112	115	112	113	115	110	S 106	S 96	U S 94	77	71	U S 63	U S 51	U S 46
8	43	34	32	31	31	33	33	50	S 73	91	93	108	111	109	U S 118	108	S 100	92	82	S 62	64	S 69	J S 44	S 40
9	S 41	42	39	37	41	31	J S 30	44	U S 76	87	107	107	110	109	112	116	98	R 87	78	S 60	59	57	44	31
10	33	36	S 36	38	36	28	30	45	U S 90	98	100	107	112	101	110	111	I C 97	95	77	68	70	U S 69	58	S 51
11	43	42	37	38	46	27	S 29	S 43	85	90	100	96	87	99	107	109	91	82	76	55	51	44	37	S 36
12	38	39	33	33	32	I C 32	32	S 55	70	81	102	112	110	111	135	129	S 115	94	81	57	64	U S 76	45	37
13	S 34	31	32	33	34	34	S 36	S 58	77	S 90	88	100	117	119	133	131	S 106	S 112	104	J S 56	56	58	46	42
14	41	42	42	39	39	31	29	S 48	83	84	94	100	86	95	110	117	98	81	86	58	55	59	52	44
15	39	37	39	48	33	27	29	51	S 98	S 108	H 104	107	107	111	112	107	91	82	73	S 69	61	52	I A 51	47
16	46	47	43	33	33	34	S 39	57	73	81	S 100	S 119	107	106	106	99	88	92	106	S 74	64	61	57	46
17	46	50	I S 48	48	J S 59	29	S 31	S 51	89	I S 106	I S 110	126	H 140	149	169	R 172	S 154	I S 127	113	92	S 79	87	63	S 44
18	46	46	39	31	33	29	29	56	S 86	S 90	I S 102	107	H 104	U S 117	S 104	100	90	81	J S 75	58	U S 51	U S 61	S 63	S 48
19	S 37	38	40	36	35	27	S 27	J S 53	U S 76	U S 97	106	124	S 120	107	U S 99	99	100	90	92	74	J S 50	56	J S 54	37
20	U S 38	40	S 38	37	42	28	29	47	72	80	S 101	113	S 100	90	87	U S 98	102	J S 101	J S 87	S 64	J S 49	58	I S 54	U S 46
21	42	S 41	40	40	43	38	32	55	U S 75	S 95	109	I S 103	91	106	118	S 111	104	93	80	S 78	67	J S 61	J S 53	S 51
22	48	44	42	43	44	S 44	41	U S 53	U S 76	84	S 104	S 120	120	127	126	109	106	90	86	S 65	54	57	55	50
23	46	45	46	S 46	S 50	33	25	51	72	84	86	99	114	116	127	128	116	S 102	90	73	61	61	50	43
24	S 44	38	38	40	44	39	24	52	79	107	U S 101	97	S 115	126	141	142	139	120	107	R 112	S	S	S	S
25	S	64	55	46	45	34	34	61	79	86	S 101	124	120	104	119	116	107	106	S 97	84	69	69	60	S 50
26	S 44	S 42	42	43	39	39	44	58	H 79	106	146	147	149	158	149	124	S 114	102	83	S 64	64	66	63	54
27	48	S 47	45	42	42	37	38	68	97	103	S 126	128	108	124	138	134	125	I S 116	110	68	61	S 65	52	52
28	48	43	44	S 50	S 53	30	30	63	S 97	88	91	94	129	145	147	146	147	135	107	79	S 53	S 54	54	55
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	26	26	26
MED	42	42	39	38	39	32	31	51	79	95	102	108	110	113	118	116	106	95	87	68	61	61	52	46
UQ	46	44	42	42	44	34	34	56	88	100	108	118	118	124	134	130	S 116	S 108	103	78	65	S 68	57	S 50
LQ	S 38	38	36	33	34	28	29	46	76	86	100	104	104	106	110	108	98	90	79	61	54	57	46	40

FEB. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FOF1 (0.01 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	L	L	L	L							
2										L	L	L	L	U L 520	L									
3											L	L	C	C	C	C	C	C						
4										C	C	C	L	L	A	L								
5											L	L	L	U L 550	A	A								
6										L	L	L	L	L	L	L								
7										L	L	L	L	L	L	L 460	L							
8										L	L	L	A	L	A	L	L							
9										L	L	L	U L 490	L	A	A	A							
10									L	330	L	L	L 490	L	L	L	C							
11										L	L	L	L	L	L	L								
12										L	L	L	L	L 570	A	L 430	L							
13										L	L	L	L	L 490	L 530	L 450	L							
14										L	L	L	L	L 520	L	L	L							
15											L	L 500	L	L	L	A	L							
16											L	L	L 460	L	L	A								
17										L 420	L	L	L	L	L	L	L	L						
18											L	L 500	L	500	400	L	L							
19										L	L	L 510	L	L	L	L	L							
20										L	L	L	L	L	L	L	L							
21										L	L	L	U L 440	530	L	L	L							
22										L 350	L	U L 550	U L 480	L	L 500	L	L	L						
23										380	L	U L 530	L 520	L	U L 540	L	L							
24										L	L	L	L 600	L	L 530	L	L	L						
25										L	L	L	L 480	L	L 470	L	L							
26										L	L	L 500	L 470	L 540	L 420	L		300						
27											L	L	L	L	L 540	L	L							
28										L	L	L 610	L	L 500	L 440	L	L	340						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										4		7	9	9	9	3		2						
MED										365		510 L	480 L	520 L	500 L	450 L		320 L						
UQ										400		540 L	490 L	540 L	530 L	455 L								
LQ										340		500 L	470 L	500 L	440 L	440 L								

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FEB. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FOE (0.01 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								S	210	I C 285	320	325	350	355	335	320	290	A	S					
2								S	230	295	320	335	350	355	330	300	I A 275	A	S					
3								S	220	I C 285	315	335	C	C	C	C	C	C	C					
4								C	C	C	C	C	350	350	340	I A 320	I A 280	230	S					
5								S	210	280	315	340	350	355	350	320	285	205	S					
6								S	235	290	320	335	350	360	A	A	290	I A 220	S					
7								S	230	290	315	340	360	360	350	325	290	A	C					
8								S	235	290	330	345	350	355	340	320	295	220	S					
9								S	220	280	320	350	360	355	335	315	275	215	S					
10								S	210	280	310	340	345	350	335	315	I C 275	200	S					
11								S	H 220	280	310	335	345	340	335	320	290	230	S					
12								S	220	290	320	335	345	345	350	330	300	220	S					
13								S	A	280	315	330	345	345	335	320	295	230	S					
14								S	230	290	325	345	355	360	340	325	295	230	A					
15								S	230	295	320	340	350	350	340	330	295	230	S					
16								S	S 230	290	320	340	355	360	355	340	300	I A 225	A					
17								S	240	290	330	360	H 360	360	360	335	I A 300	250	S					
18								S	210	H 300	325	340	355	360	350	330	295	250	S					
19								S	235	280	320	340	340	350	350	330	300	230	S					
20								S	250	300	330	350	355	360	355	320	300	250	S					
21								S	H 240	295	325	350	355	360	350	I A 330	300	240	S					
22								S	230	295	I A 315	340	355	360	350	335	295	230	S					
23								S	H 250	290	330	H 340	350	I A 365	I A 365	340	310	250	A					
24								S	240	300	340	350	355	350	350	330	305	250	B					
25								S	250	H 300	325	340	340	H 350	350	330	305	I A 240	S					
26								160	260	300	340	345	360	360	350	330	305	240	A					
27								S	H 240	300	325	345	350	360	350	325	A	A	S					
28								H 170	H 250	300	330	340	360	370	350	335	310	250	A					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	26	27	27	27	27	27	26	26	26	23						
MED								165	230	290	320	340	350	355	350	328	295	230						
UQ									240	298	328	345	355	360	350	330	300	245						
LQ									220	285	318	338	350	350	340	320	290	222						

IONOSPHERIC DATA

FEB. 1971 | FOES (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E S 12	E	17	E	E S 14	E S 15	20	J X 23	J X 41	35	36	38	39	38	J G 24	G	J X 31	23	J X 25	J X 29	J X 36	J X 31	E S 15
2	J X 21	J X 25	J X 27	J X 31	J X 32	J X 21	E S 15	E S 15	J X 38	G	G	38	37	42	46	46	42	M 63	J X 26	J X 39	J X 39	J X 33	18	18
3	E S 15	E S 14	E B 11	E S 13	J X 19	18	18	E S 15	26	E C 38	34	39	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	39	43	J X 62	45	J X 53	J X 42	M 43	J X 24	J X 26	23	20	17
5	J X 21	E S 15	E B 16	18	E	E S 12	18	18	G	G	35	37	46	39	50	J X 50	J X 43	J X 28	J X 21	J X 38	E S 15	E S 15	E S 15	E S 15
6	21	E S 15	E S 15	E	E B 17	E B 16	E S 15	E S 15	G	G	38	41	40	43	36	37	J X 37	J X 30	J X 31	J X 21	21	E S 15	E S 15	20
7	18	E S 15	E S 15	E S 15	J X 20	21	22	19	G	G	35	39	38	37	43	39	J X 41	M 66	J X 47	J X 36	J X 51	J X 51	E S 15	E S 15
8	J X 24	E S 13	E S 15	E	E	E B 12	E S 15	E S 15	G	G	36	46	J X 53	J X 54	J X 49	36	G	G	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
9	E S 15	E S 15	E S 12	E	E	E S 15	E S 15	E S 15	G	G	G	G	37	40	47	50	J X 50	J X 51	J X 31	J X 42	J X 18	E S 15	E S 15	E S 15
10	E S 15	J X 19	J X 24	19	E B 11	E S 15	E S 15	E S 15	G	G 25	G 25	38	G 19	40	47	43	C	J X 37	19	J S 15	J X 19	25	E S 12	E S 14
11	E S 15	19	E B 12	E B 11	E	E S 13	E S 15	J X 19	G 13	G 16	J G 30	G	G 25	44	40	37	33	35	J X 36	J X 19	J X 22	18	E S 14	E S 15
12	E S 12	E S 14	E S 15	E	E	C	E S 14	E S 14	J X 23	J X 34	36	43	40	40	48	37	G	J X 34	18	J X 34	16	M 69	J X 32	J X 30
13	J X 44	24	18	E S 12	18	18	21	J X 25	J X 26	J X 33	G 21	G 25	G 23	38	39	40	37	25	17	E S 15	J X 26	17	19	E S 13
14	E S 15	21	J X 22	J X 28	J X 19	25	22	E S 15	G	J G 25	39	39	45	39	J X 53	39	40	31	28	22	J X 31	J X 34	E S 15	E S 15
15	E S 15	19	E S 14	E	E	E S 11	18	16	29	34	37	42	40	48	45	48	35	J X 40	25	J X 75	J X 42	M 42	J X 61	J X 22
16	E S 11	17	E S 12	E S 13	E	E	E S 15	E S 15	G	33	37	43	G 25	G 22	J X 70	57	33	30	J X 29	J X 84	J X 27	J X 21	J X 21	E S 15
17	E S 12	E S 15	E S 11	E S 14	E S 15	E S 15	E S 15	E S 15	G	G 24	G 29	G	G	G 31	G 35	G 32	J X 47	J X 39	J X 33	J X 25	J X 23	18	E S 13	E S 13
18	E S 15	E S 12	E S 13	E B 12	E S 14	E S 12	E S 15	E S 14	27	31	36	41	39	40	39	36	G	27	J X 24	21	21	E S 15	E S 15	E S 15
19	E S 15	E S 15	E S 15	E S 15	E	E S 15	E S 15	E S 15	G 20	G	G	G	G	G	G	J X 38	J G 26	G 18	E S 15	E S 14	E S 15	E S 15	E S 15	E S 15
20	E S 15	E S 15	E S 15	21	E S 15	E S 15	E S 15	E S 15	G	G	G	G	36	G	38	36	32	28	21	22	21	E S 15	E S 15	E S 15
21	E S 15	E S 15	E S 15	E S 13	E B 11	E S 14	E S 15	E S 15	G	G	38	37	37	G	G	37	32	J X 51	J X 37	17	J X 31	E S 14	E S 15	E S 15
22	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	G	J X 31	32	40	43	44	38	36	31	G	E S 15	E S 15	21	E S 15	17	E S 14
23	E S 15	J X 24	E S 14	E S 15	E S 11	E S 12	E S 14	E S 14	E S 14	G	35	37	38	39	44	34	G 29	G 24	21	22	19	E S 15	E S 14	E S 15
24	E S 15	17	E S 15	E S 14	E S 15	E S 15	E S 15	E S 13	G	G 25	G 26	39	38	42	G 25	G 20	J X 34	27	E B 17	E S 12	E S 14	E S 15	E S 15	E S 15
25	E S 15	E S 14	E S 14	E	E	E S 15	E S 15	E S 15	G	33	35	37	G 25	G 18	G 35	G 32	36	28	E S 15	J X 29	18	E S 15	E S 14	E S 15
26	19	E S 15	18	E S 15	E	E S 15	E S 15	E S 15	29	32	G	39	38	G	G	G	G	G 19	J X 24	E S 15	E S 14	E S 15	E S 15	E S 14
27	E S 15	E S 15	E S 15	E S 14	21	E S 15	E S 15	J X 21	G 18	33	J G 25	36	J G 30	G 23	J G 33	35	34	27	E S 15	E S 15	E S 15	23	E S 15	E S 15
28	E S 15	E S 15	E S 14	E S 12	E B 13	E B 13	E S 15	G	G	G 18	G 32	G 25	G 27	G 20	G 18	35	33	29	20	J X 22	J X 19	J X 24	J X 17	J X 28
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	27	27	26	27	27	27	27	27	27	27	27	27	27	26	27	27	27	27	27	27	27
MED	E S 15	E S 15	E S 15	E E 14	E E 11	E S 15	E S 15	E S 15	G	G 24	34	38	38	39	39	37	34	30	23	J X 22	J X 21	17	E S 15	E S 15
UQ	16	18	E S 15	E S 15	E E 16	E S 15	E S 15	16	23	32	36	40	40	42	47	42	J X 40	J X 38	J X 30	J X 30	J X 26	24	18	E S 15
LQ	E S 15	E S 15	E S 14	E E 12	E	E S 13	E S 15	E S 15	G	G	G 25	30	G 26	G 22	G 35	35	G 29	27	18	S 15	17	E S 15	E S 15	E S 15

The Radio Research Laboratories, Japan

FEB. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E S 12	E	E	E	E S 14	E S 15	S	15	C	G	36	37	38	37	G 23	G	27	23	24	29	24	25	E S 15
2	E	19	20	18	20	E	E S 15	E S 15	19	G	G	G	37	42	45	45	41	63	26	39	36	29	E	E
3	E S 15	E S 14	E B 11	E S 13	E	E	F	E S 15	G	E C 38	E R 34	39	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	G	42	62	44	52	41	42	23	23	E	E	E
5	19	E S 15	E B 16	16	E	E S 12	F	S	G	G	G	37	44	G	50	49	37	27	16	20	E S 15	E S 15	E S 15	E S 15
6	E	E S 15	E S 15	E	E B 17	E B 16	E S 15	E S 15	G	G	38	41	39	42	36	33	27	24	31	21	E	E S 15	E S 15	E
7	E	E S 15	E S 15	E S 15	15	E	F	S	G	G	30	38	G	G	39	39	38	39	44	33	37	31	E S 15	E S 15
8	E	E S 13	E S 15	E	E	E B 12	E S 15	E S 15	G	G	E R 36	44	52	52	46	35	G	G	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
9	E S 15	E S 15	E S 12	E	E	E S 15	E S 15	E S 15	G	G	G	G	E R 37	40	46	50	49	50	29	38	E	E S 15	E S 15	E S 15
10	E S 15	E	19	E	E B 11	E S 15	E S 15	E S 15	G	G 22	G 24	G	G 19	39	46	42	C	35	17	S	16	E	E S 12	E S 14
11	E S 15	E	E B 12	E B 11	E	E S 13	E S 15	S	G 13	G 14	G 20	G	G 25	43	39	G	32	33	36	15	E	E	E S 14	E S 15
12	E S 12	E S 14	E S 15	E	E	C	E S 14	E S 14	18	21	36	41	39	39	47	36	G	29	17	E	15	64	19	16
13	25	E	16	E S 12	E	E	E	19	24	20	G 20	G 23	G 23	G	38	38	32	G	16	E S 15	24	E	E	E S 13
14	E S 15	E	18	19	15	E	F	E S 15	G	G 24	38	G	44	G	45	38	G	G	27	20	19	24	E S 15	E S 15
15	E S 15	E	E S 14	E	E	E S 11	F	16	28	G	G	38	39	44	44	48	34	36	23	54	40	33	A	E
16	E S 11	E	E S 12	E S 13	E	E	E S 15	E S 15	G	G	36	42	G 24	G 22	42	49	G	29	19	53	20	E	17	E S 15
17	E S 12	E S 15	E S 11	E S 14	E S 15	E S 15	E S 15	E S 15	G	G 24	G 26	G	G	G 31	G 35	G 28	36	21	21	19	16	E	E S 13	E S 13
18	E S 15	E S 12	E S 13	E B 12	E S 14	E S 12	E S 15	E S 14	G	G	36	39	38	39	38	G	G	G	17	E	E	E S 15	E S 15	E S 15
19	E S 15	E S 15	E S 15	E S 15	E	E S 15	E S 15	E S 15	G 20	G	G	G	G	G	G	25	G 21	G 17	E S 15	E S 14	E S 15	E S 15	E S 15	E S 15
20	E S 15	E S 15	E S 15	E	E S 15	E S 15	E S 15	E S 15	G	G	G	G	E R 36	G	G	35	G	G	21	17	E	E S 15	E S 15	E S 15
21	E S 15	E S 15	E S 15	E S 13	E B 11	E S 14	E S 15	E S 15	G	G	38	G	G	G	G	35	G	49	37	17	23	E S 14	E S 15	E S 15
22	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	G	25	E R 32	38	42	44	G	G	G	G	E S 15	E S 15	E	E S 15	E	E S 14
23	E S 15	21	E S 14	E S 15	E S 11	E S 12	E S 14	E S 14	F S 14	G	35	G	38	37	40	G 31	G 29	G 22	19	E	E	E S 15	E S 14	E S 15
24	E S 15	E	E S 15	E S 14	E S 15	E S 15	E S 15	E S 13	G	G 25	G 26	38	38	41	G 24	G 20	25	27	E B 17	E S 12	E S 14	E S 15	E S 15	E S 15
25	E S 15	E S 14	E S 14	E	E	E S 15	E S 15	E S 15	G	G	G	G	G 25	G 18	G 29	G 31	34	26	E S 15	24	E	E S 15	E S 14	E S 15
26	E	E S 15	E	E S 15	E	E S 15	E S 15	E S 15	G	G	G	G	G	G	G	G	G	G 19	19	E S 15	E S 14	E S 15	E S 15	E S 14
27	E S 15	E S 15	E S 15	E S 14	E	E S 15	E S 15	S	G 18	G	G 24	G	G 30	G 23	G 30	G	32	25	E S 15	E S 15	E S 15	E	E S 15	E S 15
28	E S 15	E S 15	E S 14	E S 12	E S 13	E S 13	E S 15	G	G	G 18	G 32	G 25	G 25	G 20	G 18	G	G	27	19	20	15	21	15	24
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	27	27	26	27	22	27	26	27	27	27	27	27	27	26	27	27	26	27	27	27	27
MED	E S 15	E S 15	E S 15	E E 13	E	E E 14	E S 15	E S 15	G	G	U G 23	G 23	U 30	37	38	35	26	27	19	18	15	15	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 15	E E 15	E S 15	E S 15	E S 15	G 14	G 20	36	38	38	42	45	40	34	34	26	24	22	18	E S 15	E S 15
LQ	E S 12	E E 12	E S 12	E	E	E E 11	E S 14	E S 15	G	G	G	G	G 20	G	G 26	G 22	G	G 18	16	E S 15	E	E E 14	E S 14	E S 14

FEB. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | F-MIN (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E S 12	E	E	E	E 14	E S 15	E S 15	E 14	E C 35	11	15	15	16	15	15	11	E S 12	E S 12	E S 15	E S 15	E S 15	E S 15	E S 15
2	E S 15	E S 15	E S 15	E S 11	11	E	E S 15	E S 15	E S 15	15	16	20	20	20	20	16	E S 15	E S 12	E S 12	E S 15	E S 15	E S 15	E S 15	E S 15
3	E S 15	E S 14	11	E S 13	E S 13	E S 15	E S 15	E S 15	E S 15	E C 38	15	23	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	15	15	17	16	15	E S 15	E S 12	E S 15	E S 12	E S 15	E S 15	E S 14
5	E S 15	E S 15	16	E S 12	E	E S 12	E S 15	E S 15	F S 15	12	12	15	15	16	15	16	11	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
6	E S 15	E S 15	E S 15	E	17	16	E S 15	E S 15	E S 15	12	15	15	15	17	17	20	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
7	E S 15	E S 15	E S 15	E S 15	12	E S 15	E S 15	E S 15	E S 15	15	12	15	15	16	16	16	15	E S 15	E C 37	E S 12	E S 11	E S 15	E S 15	E S 15
8	E S 15	E S 13	E S 15	E	E	12	E S 15	E S 15	E S 15	E S 15	12	16	15	16	15	15	11	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
9	E S 15	E S 15	E S 12	E	E	E S 15	E S 15	E S 15	E S 15	15	15	15	15	15	18	16	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
10	E S 15	E S 15	E S 15	E S 14	11	E S 15	E S 15	E S 15	F S 15	15	15	15	15	15	15	15	C	11	E S 12	E S 15	E S 15	E S 15	E S 12	E S 14
11	E S 15	E S 14	12	11	E	E S 13	E S 15	E S 14	F S 11	11	11	15	15	16	19	15	11	E S 15	E S 13	E S 13	E S 15	E S 12	E S 14	E S 15
12	E S 12	E S 14	E S 15	E	E	C	E S 14	E S 14	F S 14	11	11	15	15	15	11	11	E S 12	E S 14	E S 13	E S 15	E S 14	E S 15	E S 15	E S 12
13	E S 14	E S 15	E S 15	E S 12	E	E S 13	E S 15	E S 15	E S 15	11	11	14	14	15	14	11	11	E S 15	E S 14	E S 15	E S 14	E S 14	E S 15	E S 13
14	E S 15	E S 15	E S 11	E	E	E S 13	E S 15	E S 15	E S 13	11	11	15	15	15	16	15	11	E S 11	E S 11	E S 11	E S 13	E S 11	E S 15	E S 15
15	E S 15	E S 15	E S 14	E	E	E S 11	E S 15	E S 14	F S 12	14	15	15	15	15	15	13	11	11	E S 15	E S 15	E S 15	E S 15	E S 14	E S 15
16	E S 11	E S 15	E S 12	E S 13	E	E	E S 15	E S 15	F S 11	11	14	14	19	19	19	16	15	13	12	E S 14	E S 13	E S 15	E S 15	E S 15
17	E S 12	E S 15	E S 11	E S 14	E S 15	E S 15	E S 15	E S 15	F S 15	14	19	21	21	23	21	15	14	E S 15	E S 14	E S 13	E S 14	E S 14	E S 13	E S 13
18	E S 15	E S 12	E S 13	12	E S 14	E S 12	E S 15	E S 14	E S 13	15	15	16	16	17	15	16	E S 15	E S 12	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
19	E S 15	E S 15	E S 15	E S 15	E	E S 15	E S 15	E S 15	E S 15	E S 15	15	20	15	15	20	15	15	11	E S 15	E S 14	E S 15	E S 15	E S 15	E S 15
20	E S 15	E S 15	E S 15	E S 13	E S 15	E S 15	E S 15	E S 15	F S 15	15	17	17	16	22	22	11	15	E S 15	E S 16	E S 15	E S 15	E S 15	E S 15	E S 15
21	E S 15	E S 15	E S 15	E S 13	11	E S 14	E S 15	E S 15	F S 14	14	15	15	16	19	17	16	16	E S 15	E S 15	E S 15	E S 15	E S 14	E S 15	E S 15
22	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	F S 15	13	15	15	19	15	15	13	11	E S 15	E S 15	E S 15	E S 13	E S 15	E S 15	E S 14
23	E S 15	E S 13	E S 14	E S 15	E S 11	E S 12	E S 14	E S 14	E S 14	14	15	16	15	20	15	15	14	E S 14	E S 14	E S 14	E S 14	E S 15	E S 14	E S 15
24	E S 15	E S 15	E S 15	E S 14	E S 15	E S 15	E S 15	E S 13	E S 13	15	15	17	15	15	15	15	11	E S 15	17	E S 12	E S 14	E S 15	E S 15	E S 15
25	E S 15	E S 14	E S 14	E	E	E S 15	E S 15	E S 15	E S 14	13	15	15	16	15	15	15	16	13	E S 15	E S 15	E S 13	E S 15	E S 14	E S 15
26	E S 15	E S 15	E S 15	E S 15	E	E S 15	E S 15	E S 15	E S 14	14	15	15	16	19	17	14	15	E S 13	E S 12	E S 15	E S 14	E S 15	E S 15	E S 14
27	E S 15	E S 15	E S 15	E S 14	E S 15	E S 15	E S 15	E S 14	E S 14	15	14	16	15	19	15	15	15	E S 14	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
28	E S 15	E S 15	E S 14	E S 12	13	13	E S 15	E S 15	F S 14	13	15	15	15	16	16	15	16	15	E S 14	E S 13	E S 12	E S 12	E S 13	E S 15
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	27	27	26	27	27	27	27	27	27	27	27	27	27	26	27	27	27	27	27	27	27
MED	E S 15	E S 15	E S 15	E S 12	E E 11	E S 14	E S 15	E S 15	F S 14	14	15	15	15	16	16	15	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 14	E S 14	E S 15	E S 15	E S 15	F S 15	15	15	16	16	19	18	16	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
LQ	E S 15	E S 14	E S 12	E	E	E S 12	E S 15	E S 14	E S 14	12	12	15	15	15	15	15	11	E S 12	E S 12	E S 14	E S 14	E S 15	E S 14	E S 14

FEB. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1971 | M(3000)F2 (0.01) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	275	280	280	295	275	290S	300	345	325	315S	320	U S 310	305	295S	J R 305	305S	U S 315	315S	345	J S 300	315S	315	270
2	J S 285	285	265	285	355	260	285S	310	U S 340	355	330	325	300	U R 300	305	310S	J S 290	I S 290	U S 305	J S 305	J S 280	J S 305	J S 290	J S 295
3	290S	310	325	295	290	295	290	315	355	J S 325	300	335	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	330	305	305	320	315S	340S	330	335	315	I S 300	325	290S
5	295S	290	285	295	330	305	280	U S 305	320	315	340S	340	290	310	305S	320	320	340	325	J S 310	U S 305	J S 315	305S	U S 285
6	315S	315	305	305	310	300	295S	315	330	295S	325	330	330	305	300	310	J S 305	J S 300	I S 310	325S	S	J S 285	285S	295
7	305S	285	325	320S	345	265	280	J S 315	330	345	325	325	310	305	310	310	315S	335S	U S 340	315	330	U S 305	U S 295	U S 305
8	330	330	300	295	285	295	300	325	345S	345	330	305	335	295	U S 320	315	325S	325	330	310S	305	325S	J S 295	285S
9	275S	300	305	280	315	355	J S 300	320	U S 345	320	330	315	335	305	310	330	335	330R	340	305S	300	330	335	280
10	290	285	285U	305	335	300	300	315	U S 335	330	320	335	320	290	305	325	I C 315	325	315	310	315	U S 305	305	295S
11	280	275	255	275	325	290	285S	300S	340	335	350	345	320	305	310	320	330	330	340	320	315	320	295	280S
12	290	305	280	285	295	I C 275	280	325S	370	320	325	320	325	295	320	310	305S	320	340	295	285	U S 315	290	275
13	265S	265	260	275	285	280	290S	310S	350	345S	320	300	310	300	300	310	310S	320S	355	J S 275	285	310	285	285
14	290	285	295	295	310	325	280	310S	360	355	330	335	325	305	305	325	325	335	340	345	280	305	310	295
15	260	250	260	310	365	265	280	315	340S	335S	310H	325	325	325	325	325	320	330	325	325S	295	270	I A 290	275
16	285	280	325	270	270	260	270S	315	340	360	300S	320S	315	310	310	315	320	300	330	315S	295	295	305	290
17	270	265	I S 280	290	J S 340	305	265S	310S	325	I S 310	I S 320	315	290H	295	295	305R	305S	I S 295	325	305	295S	315	300	295S
18	285	295	335	275	305	275	280	330	325S	330S	I S 340	330	305H	U S 330	305S	330	330	340	J S 335	330	U S 280	U S 300	335S	335S
19	280S	275	315	310	335	275	290S	J S 325	U S 325	U S 315	325	325	320S	330	U S 315	315	325	325	335	330	J S 270	305	J S 335	290
20	U S 280	290	305S	305	340	315	305	330	345	345	330S	330	345S	320	315	U S 310	305	J S 325	J S 350	345S	J S 270	300	I S 320	U S 315
21	295	285S	295	285	305	325	285	340	U S 350	340S	335	I S 340	335	305	310	325S	310	325	315	315S	295	J S 285	J S 285	290S
22	290	290	280	290	305	300S	335	U S 350	U S 330	330	305S	305S	310	300	310	315	320	315	335	310S	285	300	300	285
23	280	280	290	290S	320S	320	315	330	340	345	325	305	310	285	305	310	320	325S	320	315	275	310	280	280
24	275S	265	250	270	310	345	290	310	315	325	U S 310	300	285S	295	295	305	310	310	305	305R	S	S	S	S
25	S	295	310	295	315	280	270	315	345	325	305S	305	315	290	305	310	310	310	310S	310	290	295	310	280S
26	255S	245S	245	280	255	255	250	295	300H	295	305	305	305	300	300	310	305S	335	335	295S	265	285	300	295
27	290	295S	290	285	285	285	280	325	330	315	315S	325	305	290	305	300	305	I S 315	335	315	280	305S	300	290
28	290	260	270	305S	345S	310	265	325	350S	330	330	285	295	295	305	290	305	325	325	315	285S	275S	280	295
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	25	26	26	26
MED	285	285	290	290	310	295	285	315	340	330	325	325	315	305	305	310	315	325	330	315	290	305	300	290
UQ	290	295	305	300	335	308	292	325	345	345	330	330	325	305	310	320	320	330	338	325	300	315S	310	295S
LQ	275	275	275	280	295	275	280	310	330	320	312	305	305	295	305	310	305	315	318	308	280	295	290	280

FEB. 1971 | M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 1971 | M(3000)F1 (0.01)

135° E Mean Time (G. M. T. + 9h)

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	L	L	L	L	L	L							
2										L	L	L	L	U L 350	L									
3											L	L	C	C	C	C	C	C						
4										C	C	C	L	L	A	L								
5											L	L	L	U L 345	A	A								
6										L	L	L	L	L	L	L								
7										L	L	L	L	L	L	L 390	L							
8										L	L	L	A	L	A	L	L							
9										L	L	L	U L 365	L	A	A								
10									L 425		L	L	L 355	L	L	L	C							
11										L	L	L	L	L	L	L								
12										L	L	L	L	L 350	A	L 380	L							
13										L	L	L	L	L 365	L 340	L 390	L							
14										L	L	L	L	L 365	L	L	L							
15											L	L 370	L	L	L	A	L							
16											L	L	L 390	L	L	A								
17										L 370	L	L	L	L	L	L	L							
18											L	L 380	L	380	450	L	L							
19										L	L	L 355	L	L	L	L	L							
20										L	L	L	L	L	L	L	L							
21										L	L	L	U L 405	375	L	L	L							
22										L 440	L	U L 345	U L 375	L	L 360	L	L	L						
23										415	L	U L 340	L 355	L	U L 335	L								
24										L	L	L	L 350	L	L 360	L	L	L						
25										L	L	L	L 395	L	L 370	L	L							
26										L	L	L 380	415	355	405	L		400						
27											L	L	L	L	L 325	L	L							
28										L	L	L 345	L	L 365	L 410	L	L	L 385						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										4		7	9	9	9	3		2						
MED										420		L 355	L 375	L 365	L 360	L 390		L 392						
UQ										432		L 375	L 395	L 365	L 405	L 390								
LQ										392		L 345	L 355	L 350	L 340	L 385								

FEB. 1971 | M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1971 | H'F2 (KM) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											245	260	270	250	260	260	230							
2										230	250	250	240	280	275									
3											L	L	C	C	C	C	C	C						
4										C	C	C	235	270	260	250								
5											245	240	325	285	240	260								
6										240	255	250	250	275	270	275								
7										235	255	265	255	260	260	255	250							
8										250	255	265	250	300	250	240	230							
9										250	250	250	255	265	270	255	235							
10									240	225	250	245	265	245	270	250	C							
11										220	235	230	250	275	265	250								
12										230	260	255	230	315	270	240	215							
13										225	230	250	260	255	275	245	230							
14										230	255	255	240	295	280	245	235							
15											225	255	265	275	255	250	245							
16											275	240	250	270	265	245								
17										240	245	245	270	275	280	250	240							
18											250	255	285	270	250	240	230							
19										265	250	275	250	250	280	270	240							
20										225	270	250	240	260	240	250	240							
21										250	250	250	250	305	280	250	245							
22										225	265	275	250	265	260	245	245	230						
23										230	250	270	260	290	280	260	245							
24										240	240	260	300	290	300	275	245	220						
25										225	275	255	245	300	270	250	260							
26										265	255	255	250	275	245	240		220						
27											250	245	245	280	275	250	245							
28										210	245	300	295	270	255	280	250	230						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	20	26	26	27	27	27	26	19	4						
MED									240	230	250	255	250	275	270	250	240	225						
UQ										245	255	260	265	288	275	260	245	230						
LQ										225	245	250	248	265	258	245	232	220						

FEB. 1971 | H'F2 (KM)

IONOSPHERIC DATA

FEB. 1971 | H'F (KM) | 135 E Mean Time (G. M. T. + 9 h)

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	295	300	250	255	250	275	270	245	225	230	220	200H	210	225	210	205	230	235	230	200	260	250	250	275
2	285	300	350	305	225	350	310	265	235	225	225	225	210	240	255	250	235	240	210	230	250	250	225	230
3	250	230	225	260	285	300	310	250	225	E C 220	235	230	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	210	240	A	250	250	230	235	220	240	240	240	265
5	280	270	290	260	220	230	295	255	230	240	225	225	225H	215	A	A	E A 240	235	215	225	240	230	240	275
6	250	240	250	255	250	250	280	250	230	230	230	240	225	230	220	215	240	220	220	205	205	225	220	255
7	260	290	245	240	240	300	305	255	235	235	200H	225	220	230	225	215	240	235	225	240	240	255	220	250
8	245	230	250	255	255	270	260	240	220	230	225	E A 245	A	E A 270	A	225	215	220	205	200	230	220	215	290
9	300	260	260	295	250	210	255	250	230	225	225	200H	210	220	A	A	A	250	220	E A 275	240	210	225	270
10	300	300	300	260	220	260	295	255	225	200	200H	230	225	235	E A 250	I A 245	I C 240	230	205	210	220	205	225	220
11	270	270	300	275	210	240	285	250	230	200H	190H	190H	185H	250	230	230	230	220	220	200	230	205	250	280
12	255	245	255	275	245	C	300	240	200	205	235	225	225	210H	I A 230	225	225	225	210	200	255	E A 295	240	275
13	E A 330	315	340	300	255	275	285	245	220H	205H	200H	200H	190H	205	225	215	230	235	205	200	250	235	240	270
14	275	280	250	255	245	225	275	250	215	220	235	230	E A 230	205	265	235	215	230	225	200	280	250	235	250
15	300	345	305	240	200	E S 295	300	255	240	230	205	205	215	E A 250	I A 240	I A 220	225	230	225	250	E A 290	E A 300	I A 260	270
16	275	275	215	295	305	310	285	205	210	230	230	E A 240	210	200H	250	I A 230	230	245	230	250	250	230	240	245
17	290	300	265	275	270	200	280	245	225	200	220H	205H	205H	220H	220H	225	230	225	220	200	235	230	205	245
18	270	250	205	300	250	255	295	235	210	220	220	215	200H	205	190	220	205	220	220	205	260	250	220	220
19	280	295	250	230	220	280	350	240	220	205H	235	215	215	205	205	205	220	225	230	200	200	250	220	260
20	300	265	250	260	230	225	260	200H	200H	215	220	240	220	215H	220	205	225	225	220	205	260	260	225	250
21	265	265	270	280	255	215	290	225	220	190H	235	225	205	205	200	230	220	225	220	225	240	225	250	270
22	265	270	290	285	250	260	210	210	220	200	235	220H	225	E A 250	225	205H	205H	225	225	205	220	250	240	245
23	270	E A 300	265	250	225	200	220	225	210	200	220H	200	200H	180H	225	225	220	230	220	200	205	230	245	260
24	255	280	340	300	250	200	E S 245	245	240	230	230	240	225H	200H	225	235	225	225	220	215	215	220	225	265
25	260	260	230	225	225	255	295	230	220	215	205H	200H	210	190H	200	225H	210	230	220	240	200	245	205	245
26	295	350	350	280	290	300	325	240	225	225	225H	205	200	205H	195	215	230	220	220	200	250	265	250	240
27	240	255	250	255	255	250	270	240	225	230	215H	210	200	200H	200	230	230	230	220	195	250	240	225	250
28	270	300	300	250	205	230	325	240	220	200	200H	210	195H	210H	200H	225H	220H	225	210	200	200H	275	255	275
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	27	27	27	26	27	27	27	27	27	27	26	27	23	25	26	27	27	27	27	27	27	27
MED	270	272	260	260	245	254	285	245	225	220	225	218	210	210	222	225	226	230	220	205	240	238	235	260
UQ	290	300	300	282	252	278	300	250	230	230	230	228	222	227	229	230	230	232	225	224	250	250	242	270
LQ	260	260	250	255	222	225	270	238	220	201	210H	205	200	205H	202	215	220	225	218	200	220	228	222	245

FEB. 1971 | H'F (KM)

IONOSPHERIC DATA

FEB. 1971 | H'ES (KM) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S	S	E	110	E	S	S	100	100	100	150	130	130	125	125	100	G	105	145	100	100	100	100	S
2	105	105	105	100	100	105	S	S	100	G	G	160	145	165	140	140	125	105	105	100	95	95	100	100
3	S	S	B	S	100	100	100	S	130	C	120	170	C	C	C	C	C	C	C	C	C	C	C	C
4	C	C	C	C	C	C	C	C	C	C	C	C	165	145	125	125	120	110	110	105	100	100	100	100
5	110	S	B	105	E	S	100	100	G	G	150	150	125	145	120	115	115	105	105	100	S	S	S	S
6	95	S	S	E	B	B	S	S	G	G	150	135	130	125	105	105	105	100	100	100	100	S	S	130
7	100	S	S	S	100	100	100	100	G	G	100	155	160	170	120	120	110	105	105	105	100	105	S	S
8	100	S	S	E	E	B	S	S	G	G	150	125	120	115	115	115	G	G	S	S	S	S	S	S
9	S	S	S	E	E	S	S	S	G	G	G	G	175	155	135	125	120	115	110	105	105	S	S	S
10	S	100	100	100	B	S	S	S	G	100	100	165	100	145	125	125	C	105	105	S	100	100	S	S
11	S	100	B	B	E	S	S	100	100	100	95	G	100	150	145	145	150	125	105	100	100	100	S	S
12	S	S	S	E	E	C	S	S	100	100	155	130	130	125	130	130	G	110	105	100	105	100	100	100
13	100	100	95	S	100	100	100	100	95	100	100	100	100	150	130	120	120	120	145	S	105	100	95	S
14	S	100	95	100	100	100	100	S	G	100	150	150	135	150	125	125	125	125	150	110	100	100	S	S
15	S	105	S	E	E	S	105	150	150	150	130	120	130	125	120	115	125	110	110	100	100	95	100	100
16	S	95	S	S	E	E	S	S	G	160	145	130	100	100	145	135	150	140	110	100	100	100	95	S
17	S	S	S	S	S	S	S	S	G	100	100	G	G	100	100	100	100	95	95	110	105	95	S	S
18	S	S	S	B	S	S	S	S	155	160	140	125	130	135	115	120	G	140	105	100	100	S	S	S
19	S	S	S	S	E	S	S	S	105	G	G	G	G	G	G	100	95	100	S	S	S	S	S	S
20	S	S	S	100	S	S	S	S	G	G	G	G	140	G	150	145	150	130	110	95	90	S	S	S
21	S	S	S	S	B	S	S	S	G	G	150	130	120	G	G	105	150	115	115	100	100	S	S	S
22	S	S	S	S	S	S	S	S	G	100	100	160	145	140	150	150	125	G	S	S	100	S	100	S
23	S	95	S	S	S	S	S	S	S	G	170	140	120	115	145	100	105	105	100	100	100	S	S	S
24	S	100	S	S	S	S	S	S	G	100	100	165	140	120	100	100	95	125	B	S	S	S	S	S
25	S	S	S	E	E	S	S	S	G	125	125	125	100	100	100	100	110	145	S	100	100	S	S	S
26	130	S	125	S	E	S	S	S	130	130	G	110	125	G	G	G	G	100	100	S	S	S	S	S
27	S	S	S	S	100	S	S	100	100	175	100	160	100	100	100	115	105	110	S	S	S	100	S	S
28	S	S	S	S	B	B	S	G	G	100	105	100	100	100	100	130	125	115	105	100	100	100	100	95
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	9	5	6	6	5	6	7	11	16	22	22	25	23	24	26	21	25	21	19	21	14	9	6
MED	100	100	100	100	100	100	100	100	100	100	128	132	130	125	125	120	120	110	105	100	100	100	100	100
UQ	108	100	105	105	100	100	100	100	130	140	150	160	140	148	138	130	125	125	110	102	100	100	100	100
LQ	100	100	95	100	100	100	100	100	100	100	100	125	100	115	110	105	105	105	105	100	100	100	100	100

FEB. 1971 | H'ES (KM)

IONOSPHERIC DATA

FEB. 1971 | TYPES OF ES | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				F 1				L 1	L 2	L 2	HL 11	H 1	HL 11	HL 11	HL 12	L 2		L 6	HL 12	F 3	F 3	F 2	F 1	
2	F 1	F 1	F 3	F 2	F 3	F 1			L 2			H 1	H 1	HL 11	HC 11	HC 12	HL 32	L 5	L 4	F 7	F 4	F 2	F 1	F 1
3					F 1	F 1	F 1		H 2		C 1	H 1												
4													HL 11	H 1	HL 31	HL 22	CL 43	CL 51	L 7	F 3	F 3	F 2	F 1	F 1
5	FF 11			F 1			F 1	L 1			H 1	H 1	H 2	H 1	C 1	C 2	C 2	C 2	L 2	F 4				
6	F 1										H 2	H 1	H 1	H 1	L 1	L 2	L 2	L 3	L 3	F 3	F 1			F 1
7	F 1				F 2	F 2	F 1	L 1			L 1	H 1	H 1	H 1	C 1	C 1	C 4	L 3	L 2	F 7	F 4	F 4		
8	F 1										H 1	H 2	C 2	C 2	C 2	C 1								
9													H 1	H 1	H 2	H 2	C 3	C 5	L 7	F 4	F 1			
10		F 1	F 2	F 1						L 2	L 1	HL 11	L 1	H 1	HL 31	H 3		C 7	L 4	F 1	F 2	F 1		
11		F 1						L 1	L 1	L 1	L 2		L 1	H 1	H 1	H 1	H 2	H 6	L 4	F 5	F 1	F 1		
12									L 1	L 2	HL 12	HL 21	HL 11	HL 11	HL 21	HL 21		C 6	L 3	F 1	F 1	F 5	F 3	F 3
13	F 5	F 4	F 1		F 1	F 2	F 2	L 7	L 4	L 3	L 1	L 1	L 1	HL 11	HL 22	CL 22	CL 21	C 2	H 1		F 6	F 1	F 2	
14		F 1	F 4	F 2	F 1	F 1	F 1			L 2	HL 22	HL 11	HL 21	HL 11	HL 11	HL 11	H 5	HL 21	HCL 33	FF 41	F 5	F 4		
15		F 1					F 1	H 2	HL 32	HL 21	HL 11	HL 11	HL 11	HL 21	HL 11	CL 22	HL 12	CL 31	C 2	F 3	F 5	F 4	F 6	F 1
16		F 1								HL 11	HL 11	HL 12	L 1	L 1	H 3	H 2	HC 11	CL 23	L 2	F 4	F 5	F 1	F 3	
17										L 1	L 1			L 1	L 1	L 2	L 3	LH 42	L 4	FF 42	F 2	F 1		
18									H 2	H 1	HL 12	HL 11	HL 11	HL 11	C 1	C 1		HL 11	LL 11	F 1	F 1			
19									L 1							L 2	L 2	L 1						
20				F 1									H 1		H 1	HH 11	H 1	H 2	C 1	F 1	F 1			
21											HL 11	H 1	C 1			L 2	H 1	C 2	C 3	F 2	F 3			
22										L 2	L 2	HL 11	HL 11	HL 12	HL 13	HL 12	HL 12				F 1		F 1	
23		F 2									HL 11	HL 11	CL 11	CL 11	HC 11	L 1	L 2	L 3	L 3	F 1	F 1			
24		F 1								L 1	L 1	HHL 11	H 1	HL 11	L 2	L 1	L 4	H 2						
25										HL 22	H 1	HL 11	L 1	L 1	L 1	L 1	C 2	HL 13		F 4	F 1			
26	F 1		F 1						H 3	H 2		C 1	H 1					L 2	L 3					
27					F 1			L 1	L 2	HL 11	L 1	HL 11	L 1	L 1	L 1	C 1	L 2	L 3				F 1		
28										L 1	LL 11	L 1	L 1	L 1	L 1	HL 11	H 1	C 2	L 3	F 6	F 2	F 3	F 3	F 2
29																								
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UQ																								
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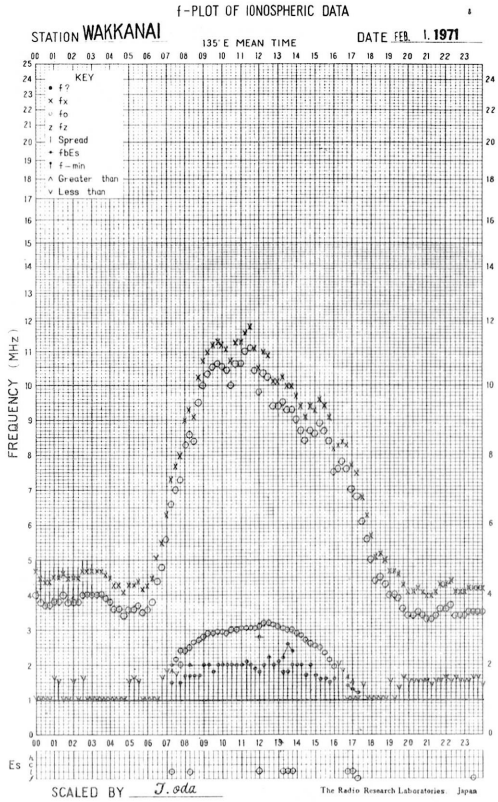
FEB. 1971 | TYPES OF ES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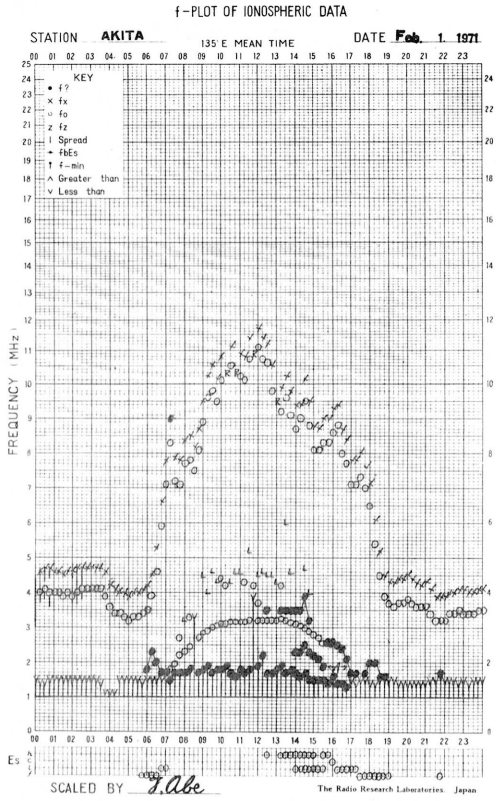
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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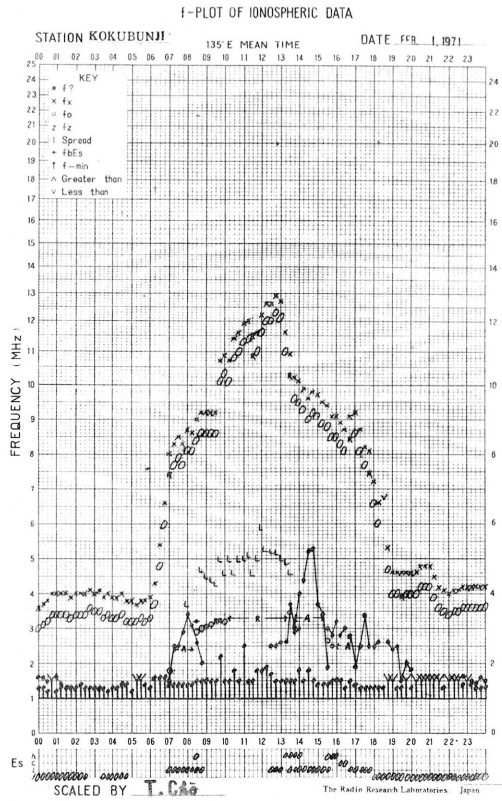
SCALED BY T. Abe
The Radio Research Laboratories. Japan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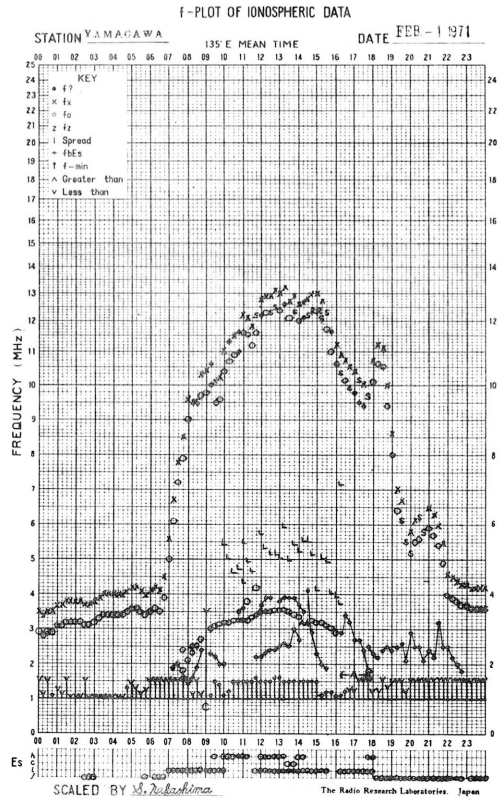
SCALED BY T. Ōta
The Radio Research Laboratories. Japan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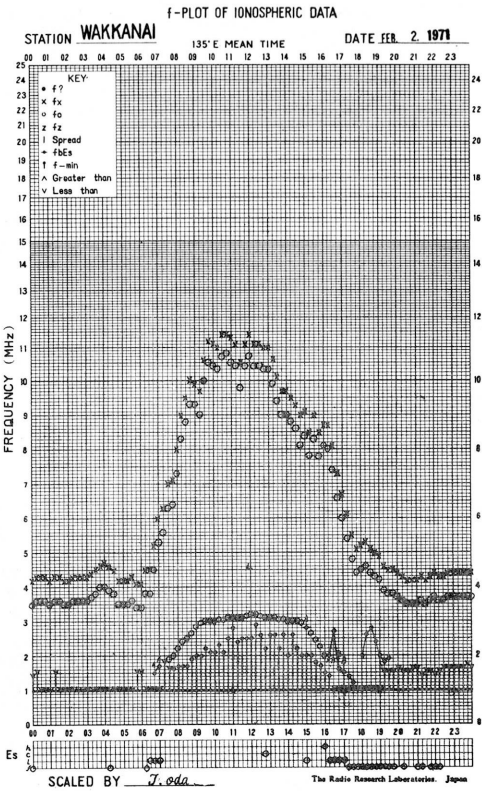
The Radio Research Laboratories. Japan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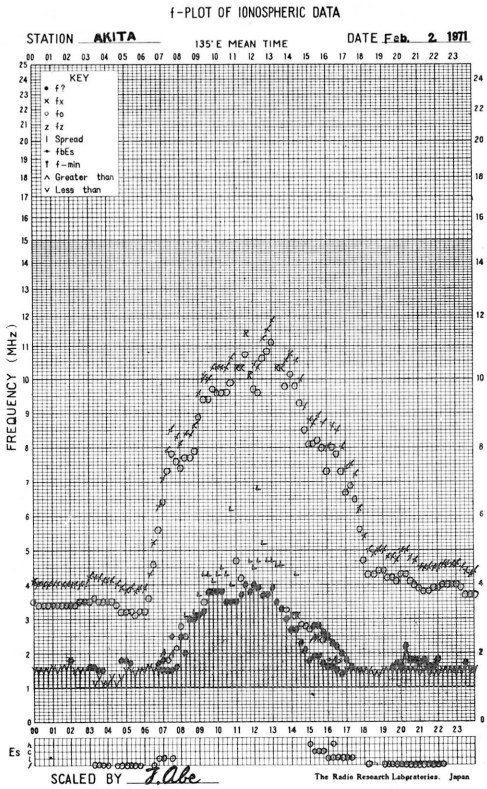
SCALED BY T. oda
The Radio Research Laboratories. Japan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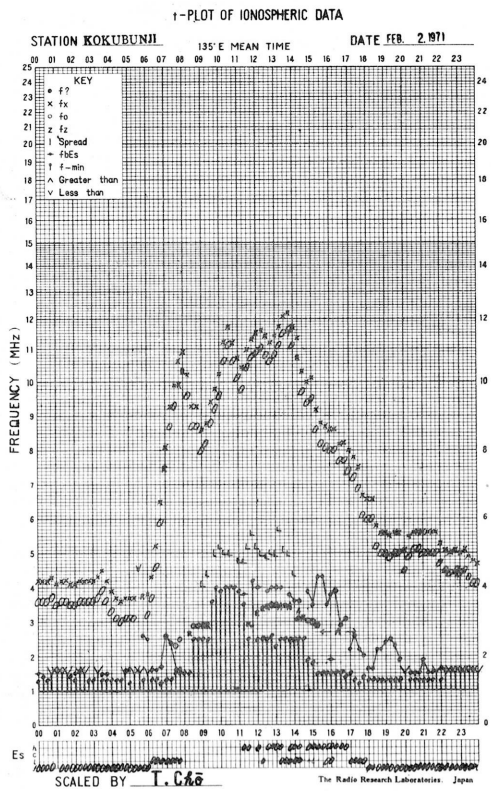
The Radio Research Laboratories. Japan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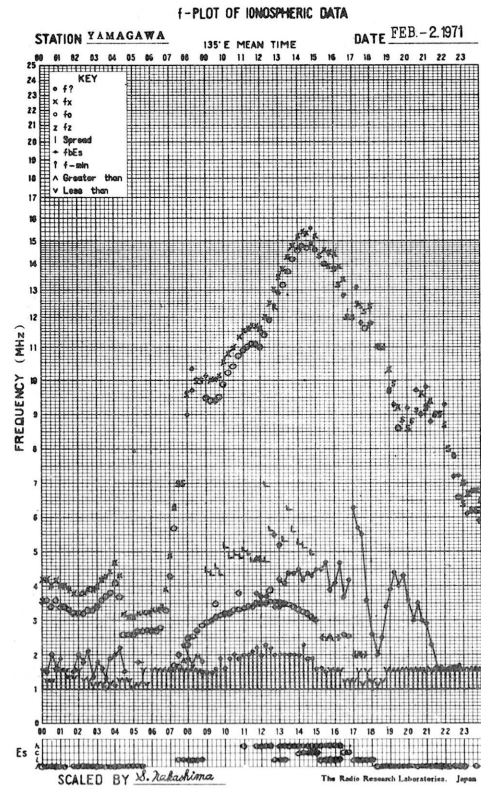
SCALED BY T. Cho
The Radio Research Laboratories. Japan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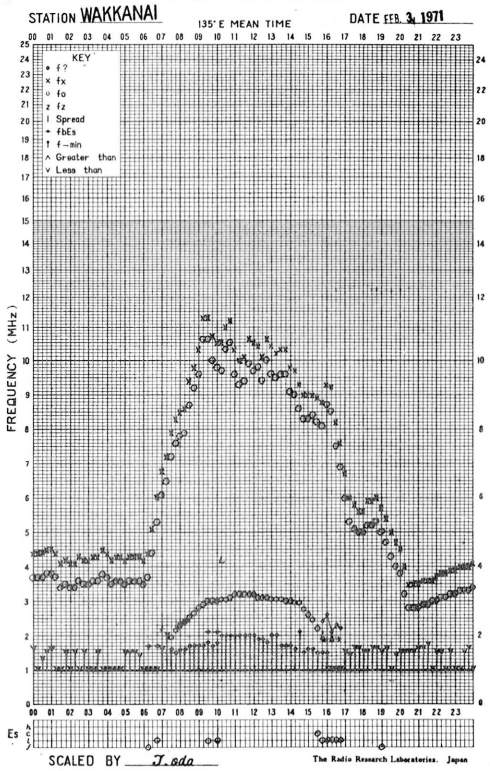
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE FEB. 3, 1971



SCALED BY T. oda

The Radio Research Laboratories. Japan

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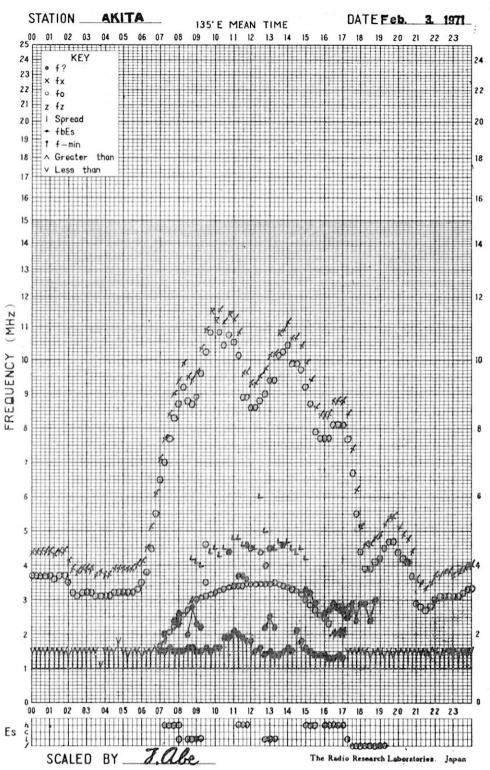

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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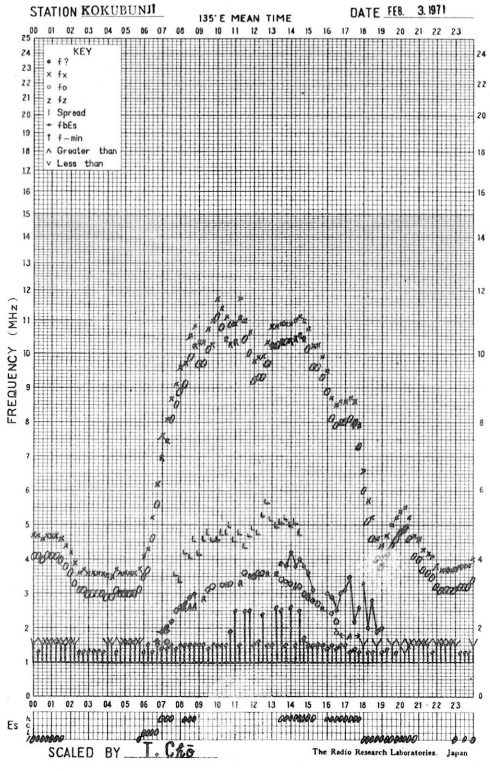

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The Radio Research Laboratories. Japan

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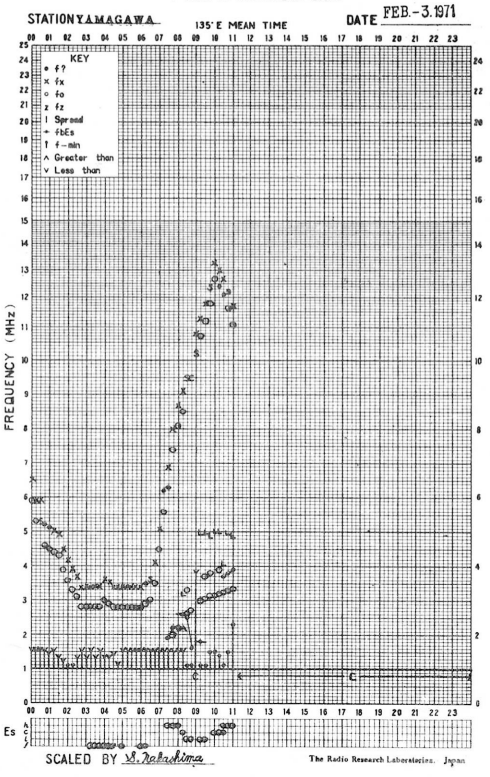

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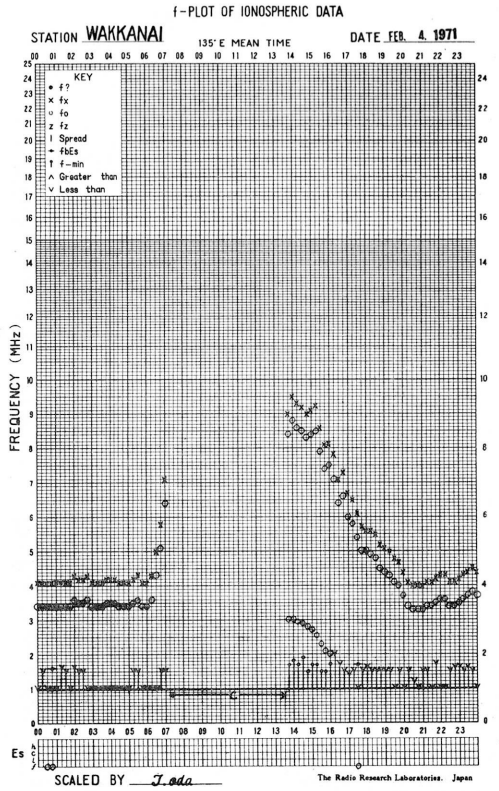
The Radio Research Laboratories. Japan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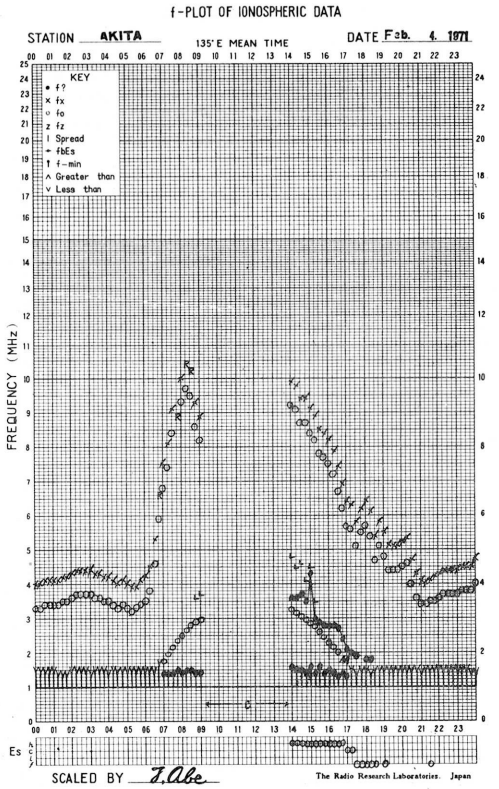
SCALED BY T. Oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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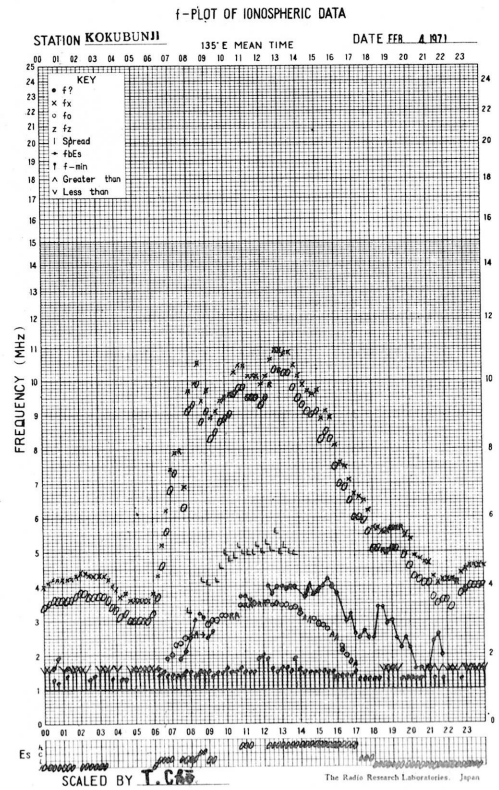
SCALED BY T. Abe
The Radio Research Laboratories. Japan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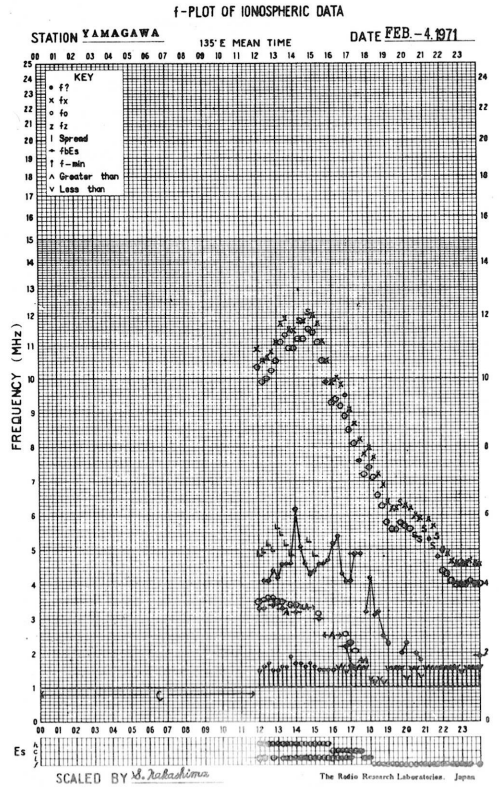
SCALED BY T. C&S
The Radio Research Laboratories. Japan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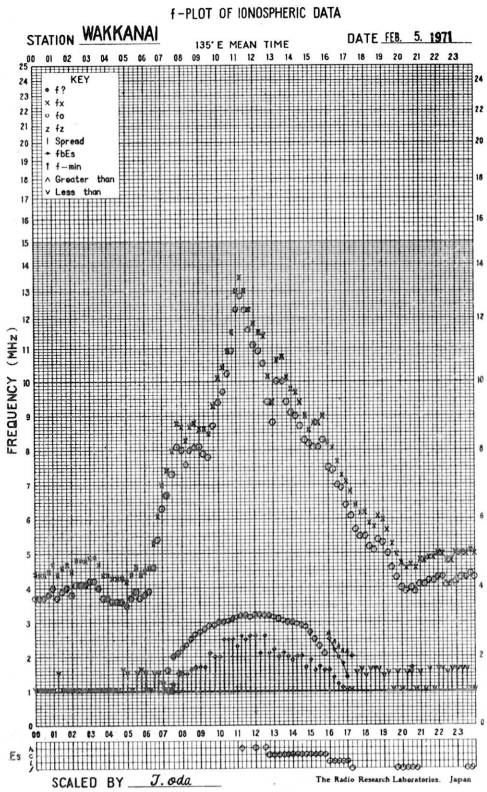
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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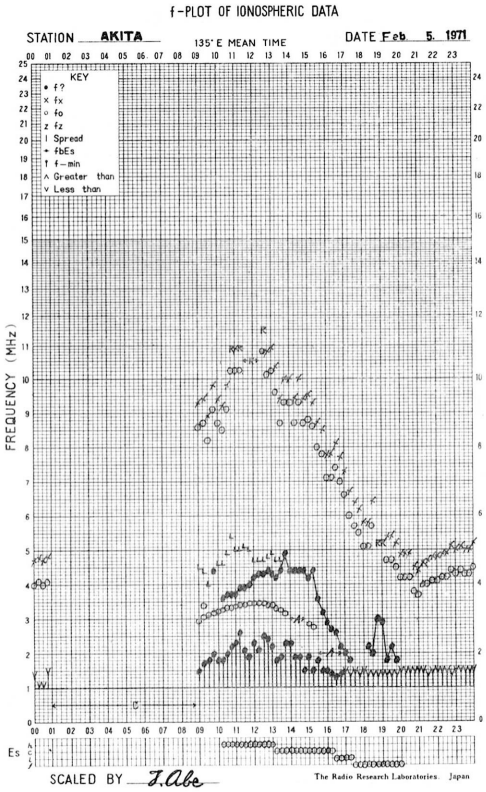
SCALED BY J. oda
The Radio Research Laboratories. Japan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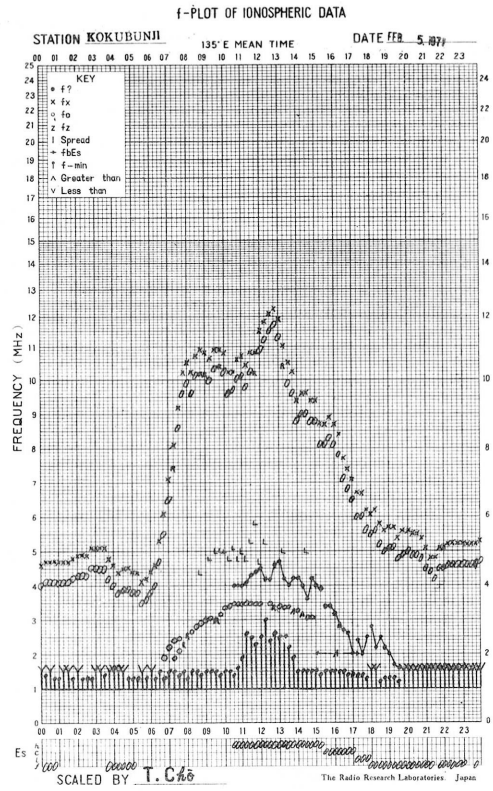
SCALED BY T. Abe
The Radio Research Laboratories. Japan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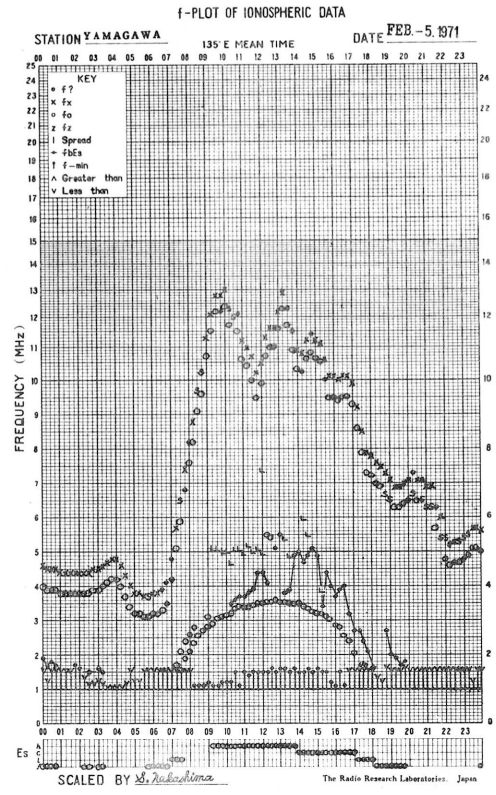
SCALED BY T. Cho
The Radio Research Laboratories. Japan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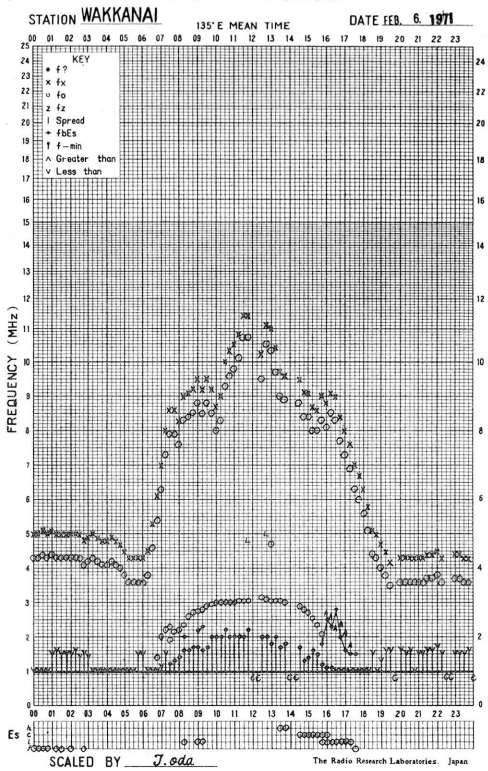
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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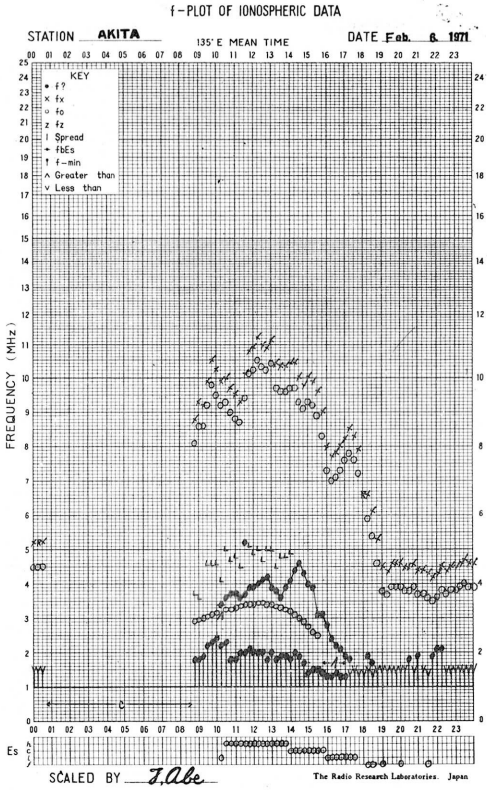
SCALED BY J. oda
The Radio Research Laboratories. Japan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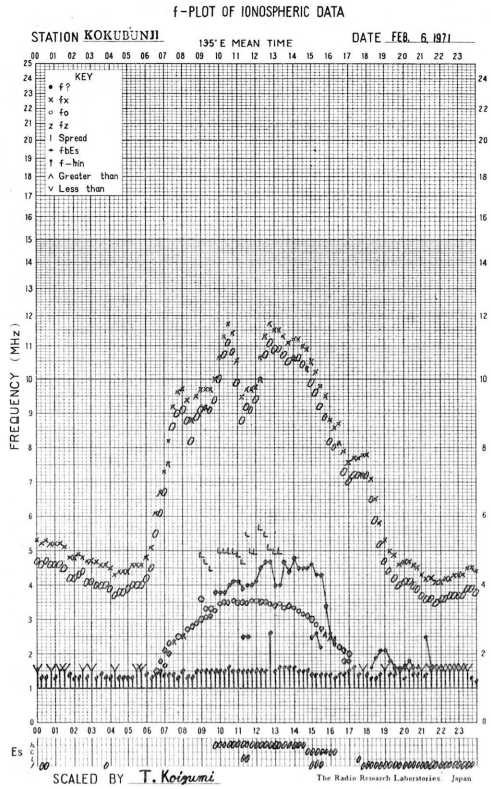
The Radio Research Laboratories. Japan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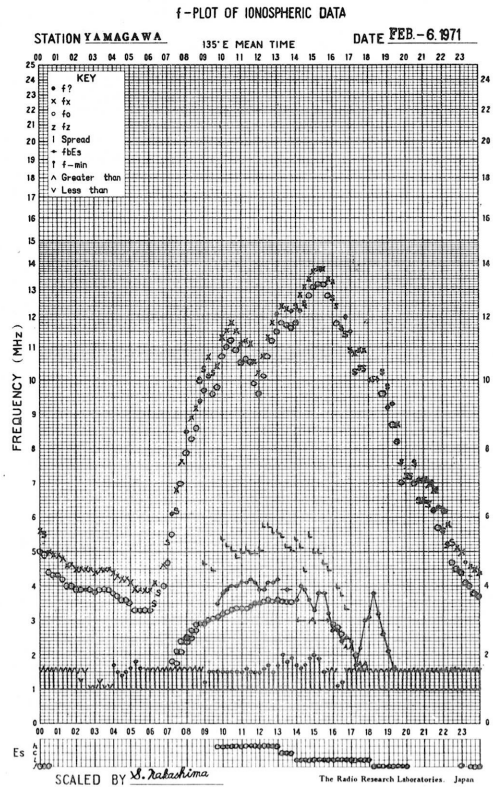
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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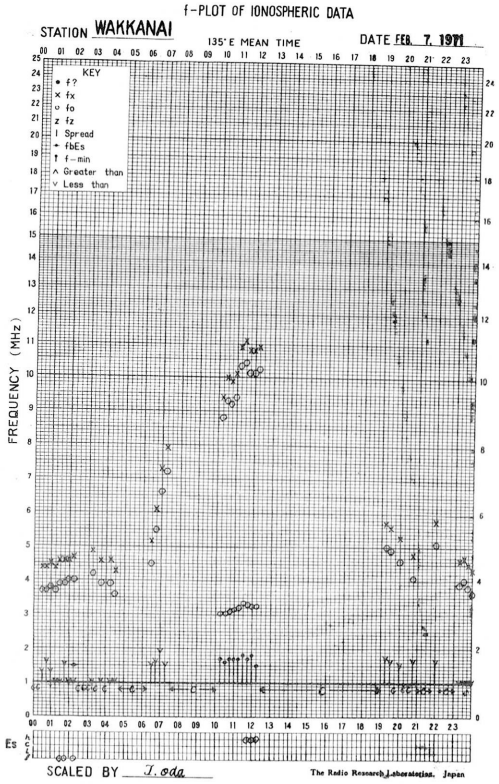
The Radio Research Laboratories. Japan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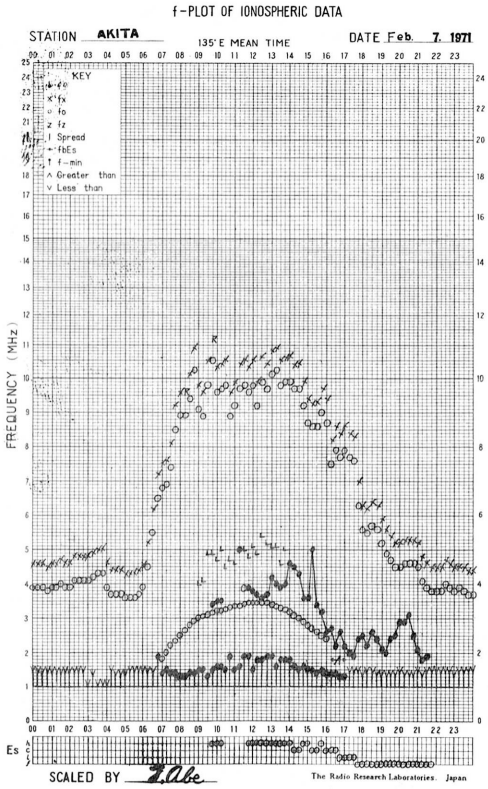
SCALED BY T. Oda
The Radio Research Laboratories. Japan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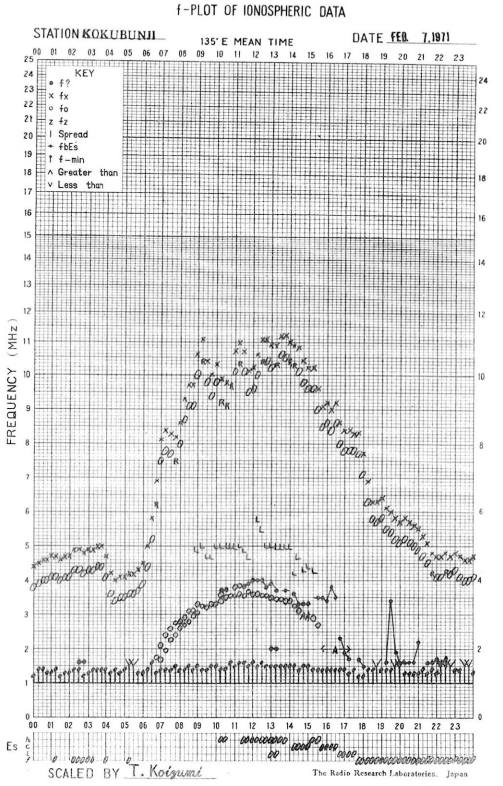
The Radio Research Laboratories. Japan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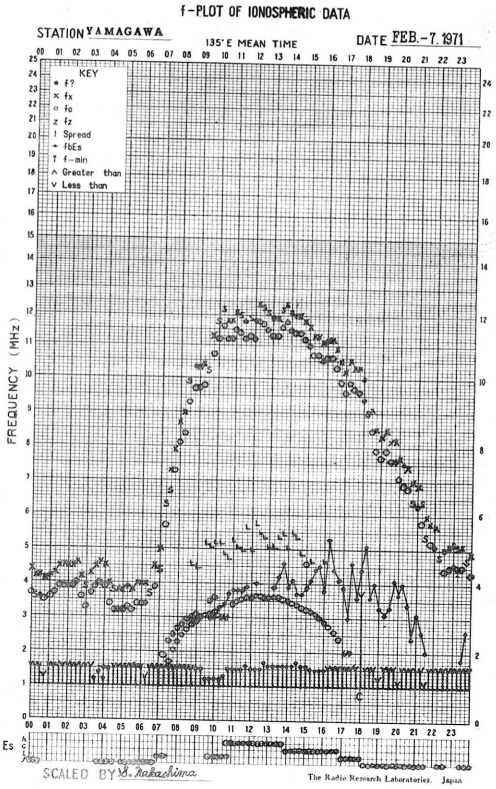
The Radio Research Laboratories. Japan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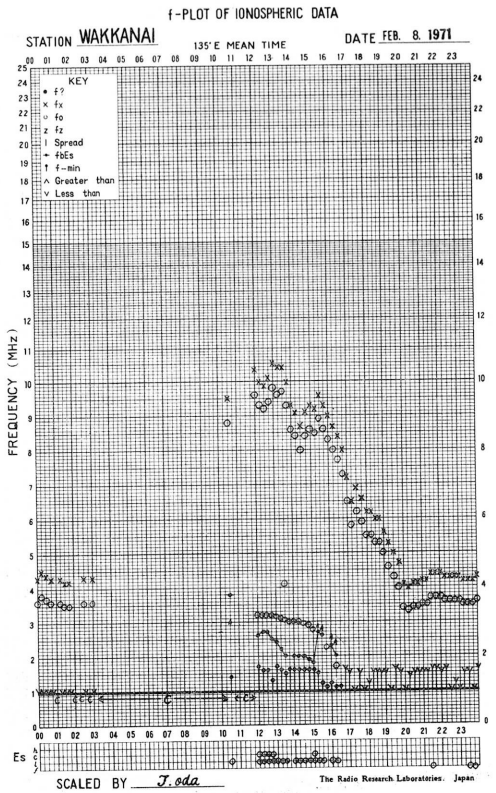
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan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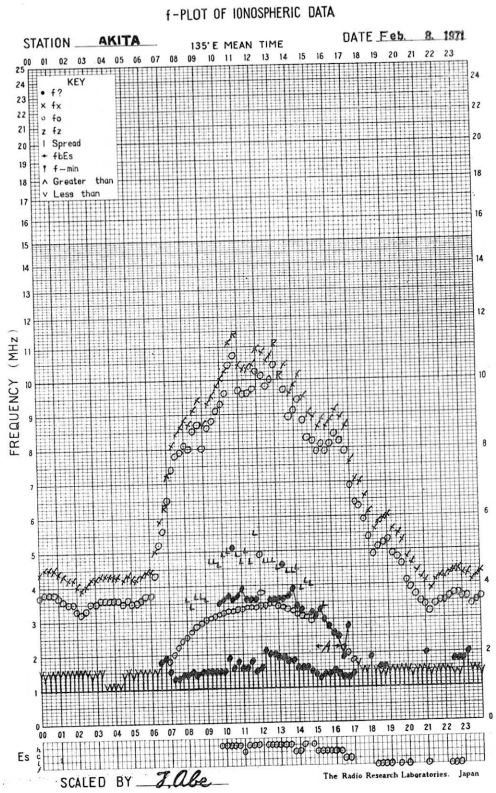
SCALED BY T. oda
The Radio Research Laboratories. Japan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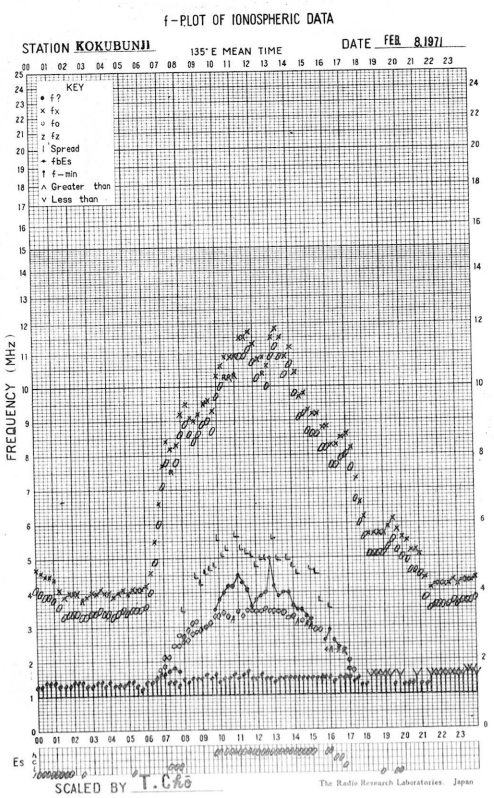
SCALED BY T. Abe
The Radio Research Laboratories. Japan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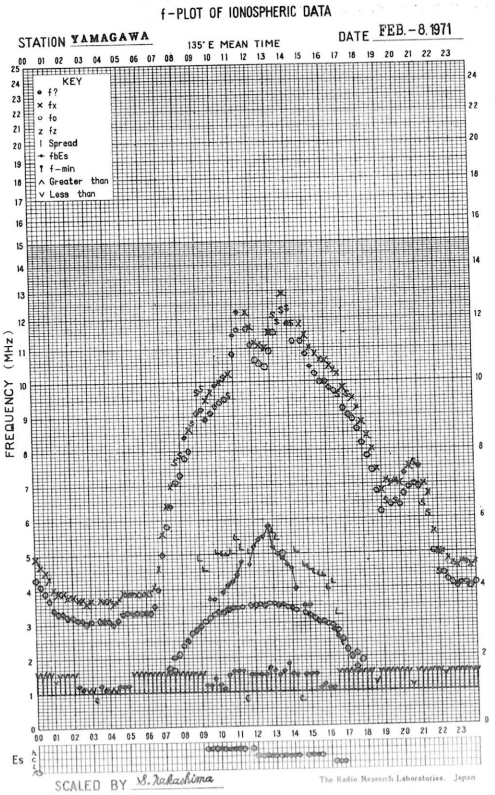
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
Es
SCALED BY S. Nakashima
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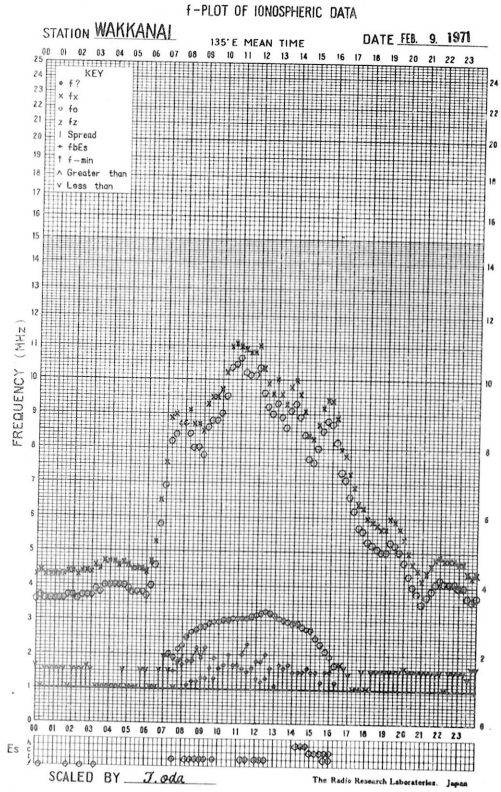
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FREQUENCY (MHz)
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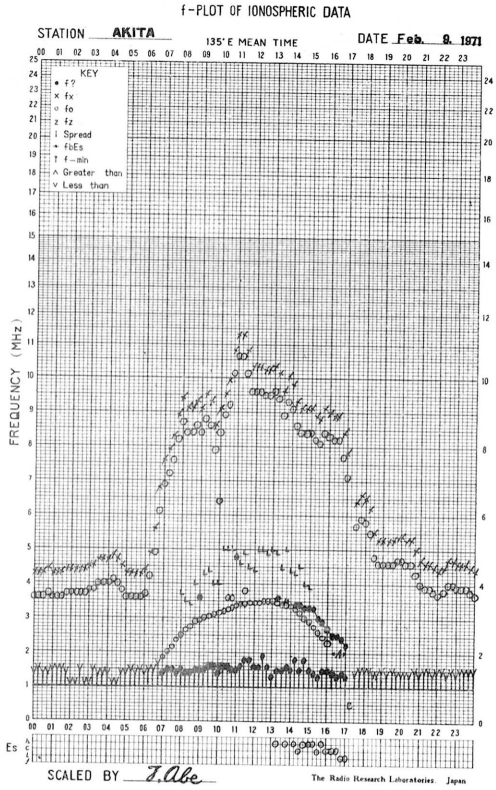
SCALED BY T. Oda
The Radio Research Laboratories. Japan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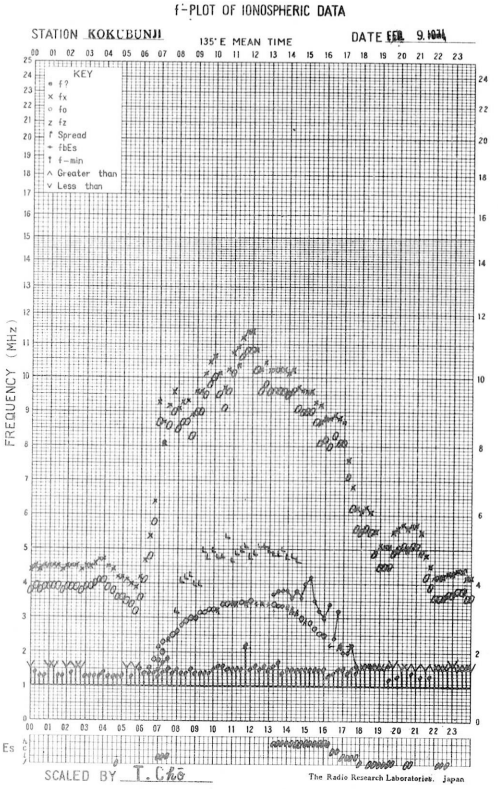
SCALED BY T. Abe
The Radio Research Laboratories. Japan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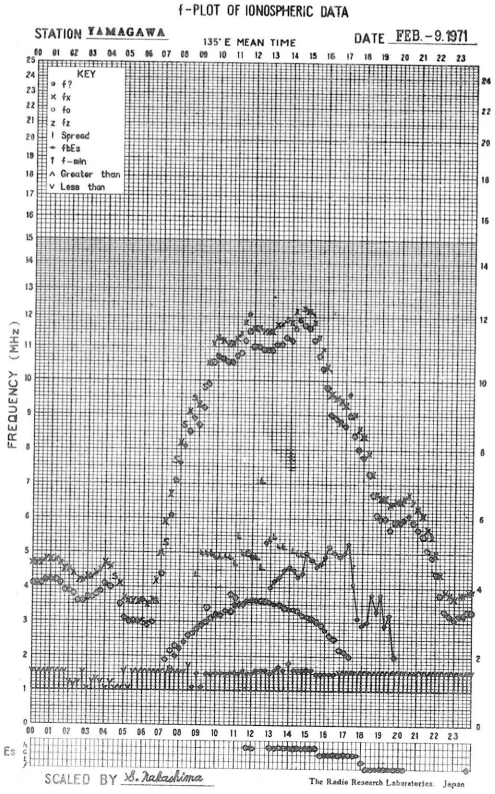
SCALED BY T. Cho
The Radio Research Laboratories. Japan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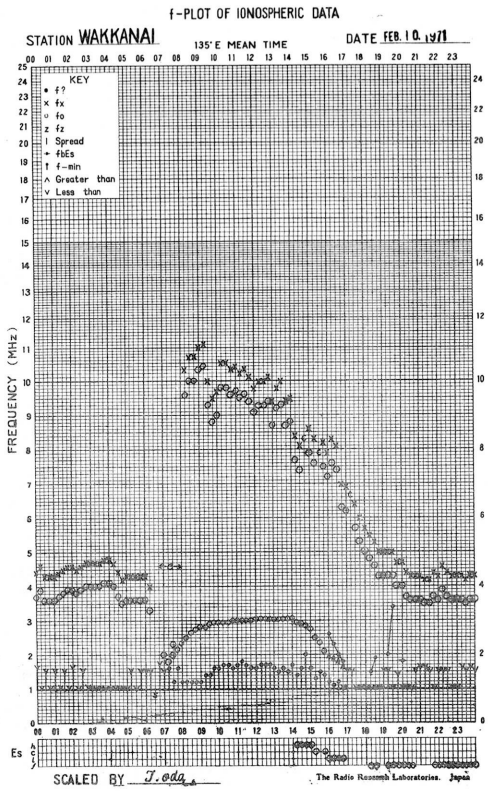
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan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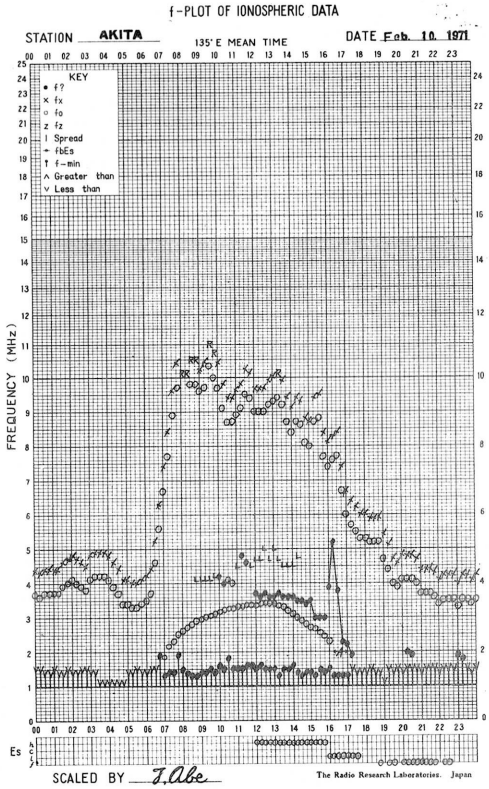
SCALED BY T. Oda
The Radio Research Laboratories. Japan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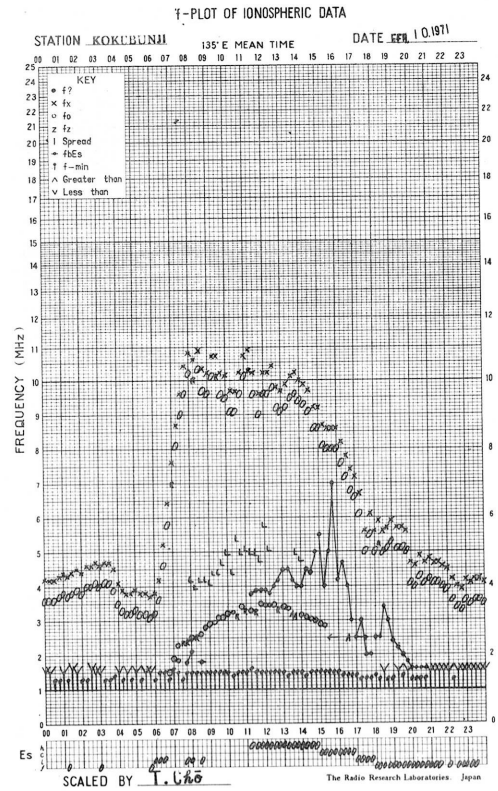
The Radio Research Laboratories. Japan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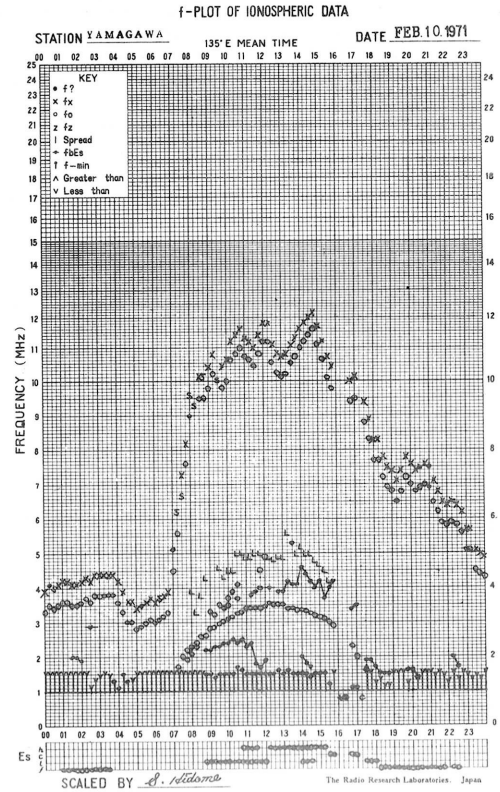
SCALED BY T. Uchō
The Radio Research Laboratories. Japan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SCALED BY S. Iidaka
The Radio Research Laboratories. Japan

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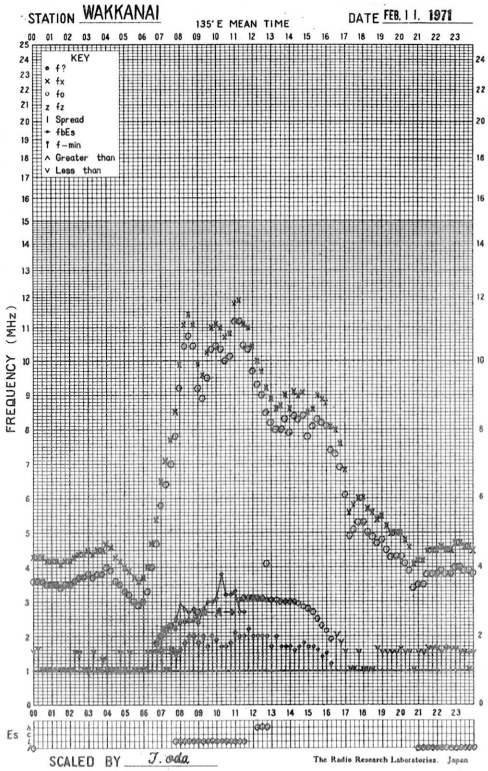
STATION WAKKANAI 135°E MEAN TIME DATE FEB. 11. 1971



SCALED BY T. oda

The Radio Research Laboratories. Japan

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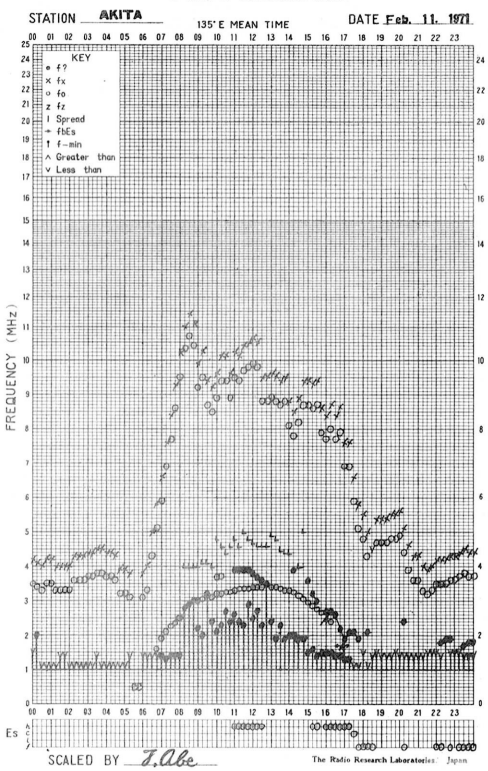

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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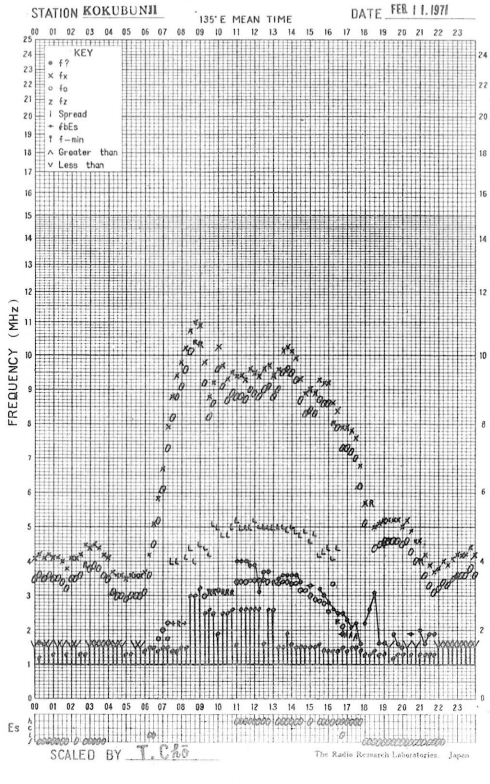

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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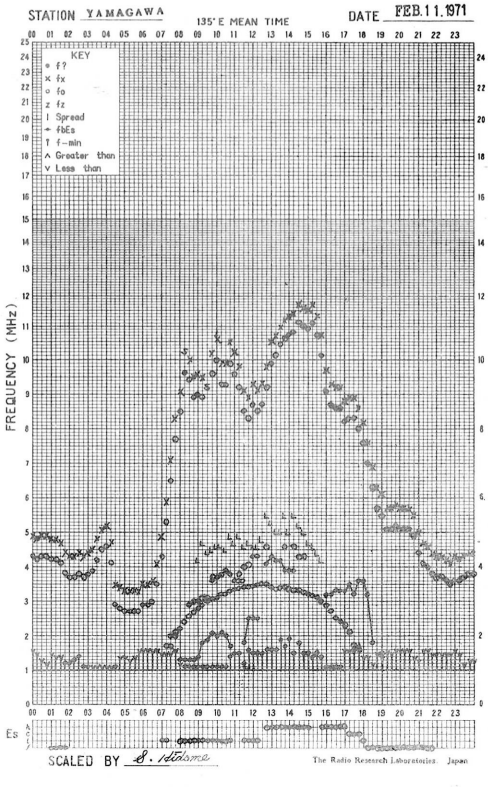
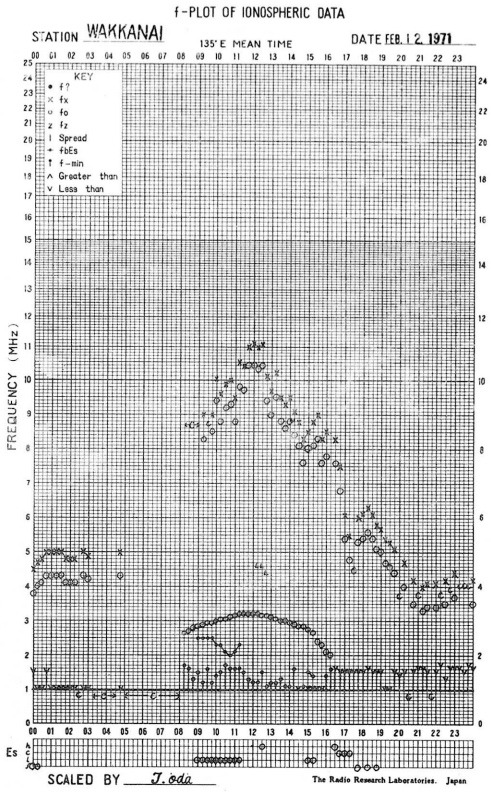


SCALED BY S. Iidaka

The Radio Research Laboratories. Japan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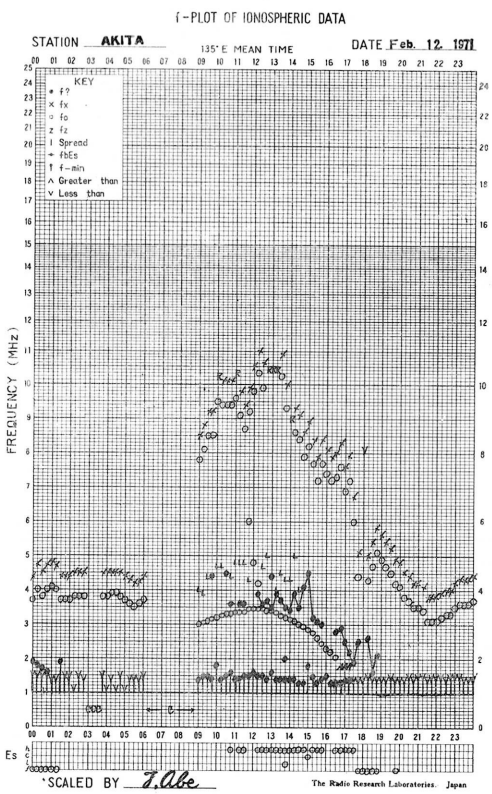
SCALED BY T. oda
The Radio Research Laboratories. Japan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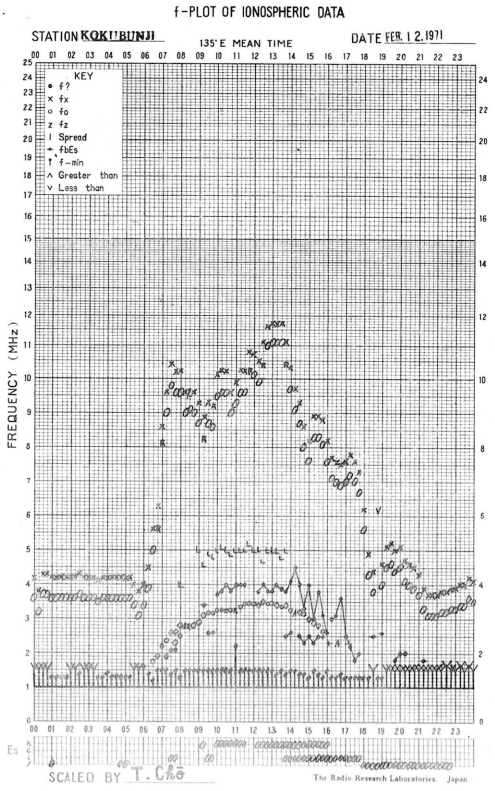
SCALED BY T. Abe
The Radio Research Laboratories. Japan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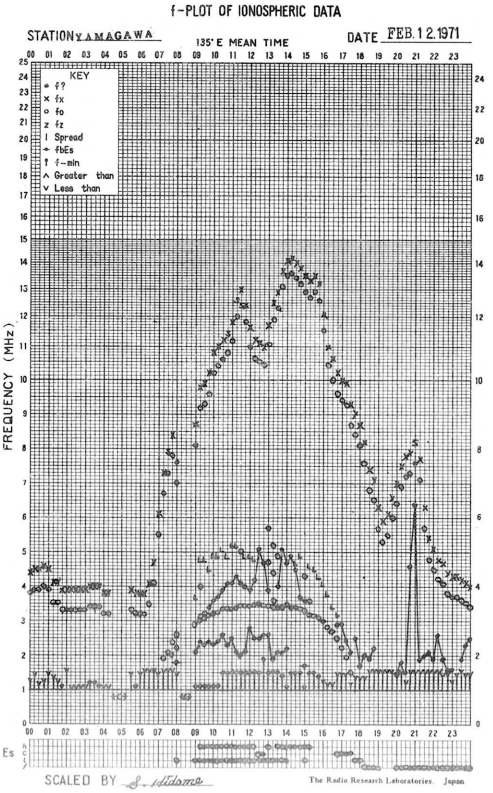
SCALED BY T. Cho
The Radio Research Laboratories. Japan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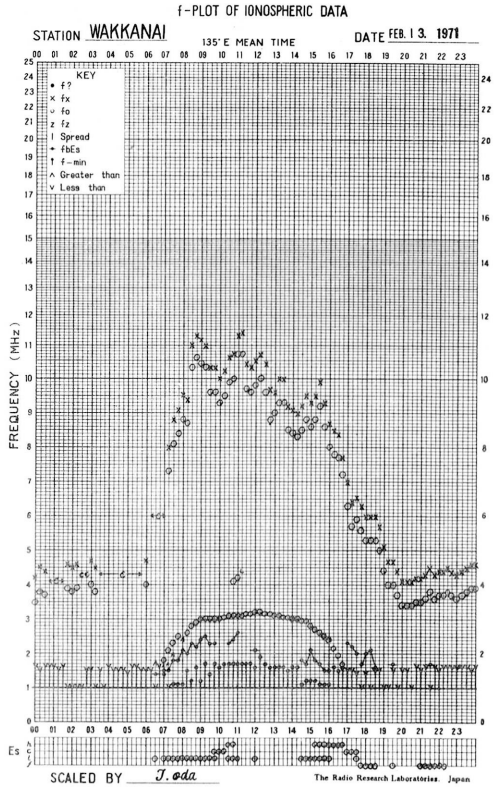
SCALED BY S. Hitoma
The Radio Research Laboratories. Japan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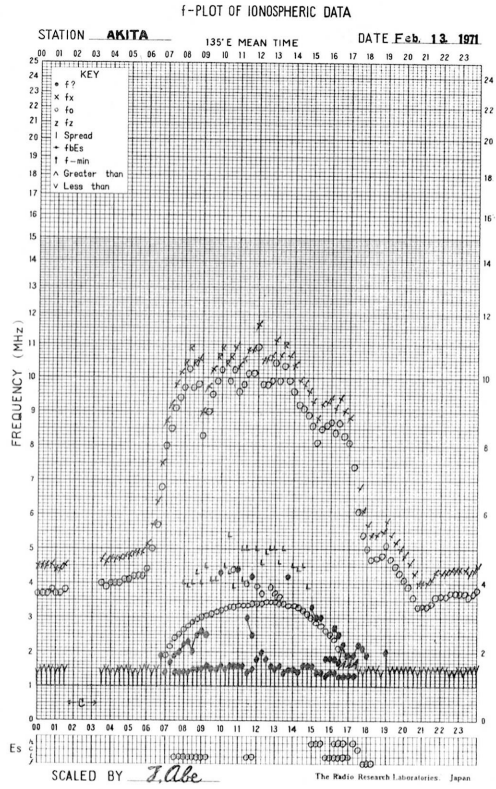
SCALED BY T. Oda
The Radio Research Laboratories. Japan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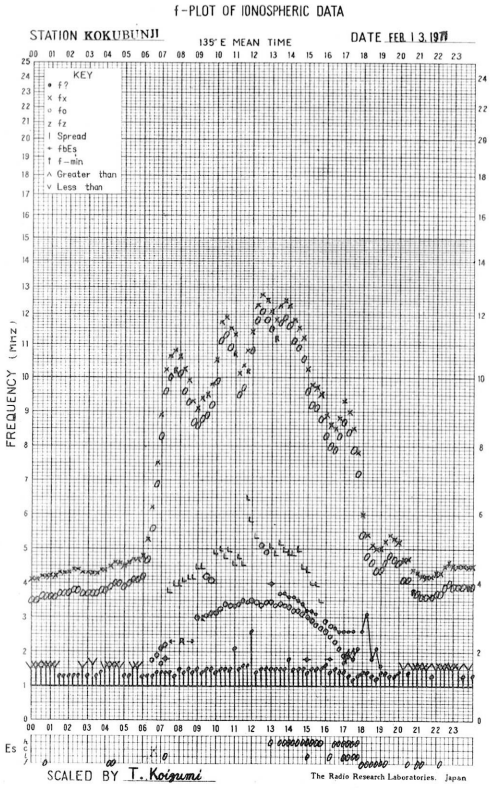
SCALED BY T. Abe
The Radio Research Laboratories. Japan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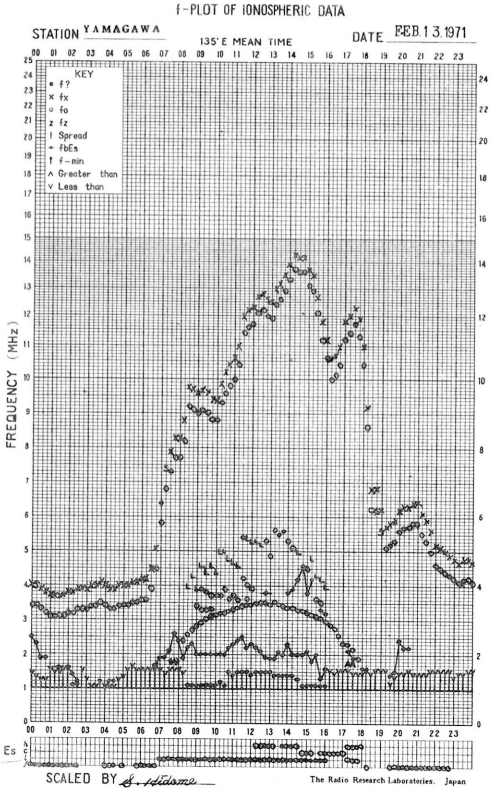
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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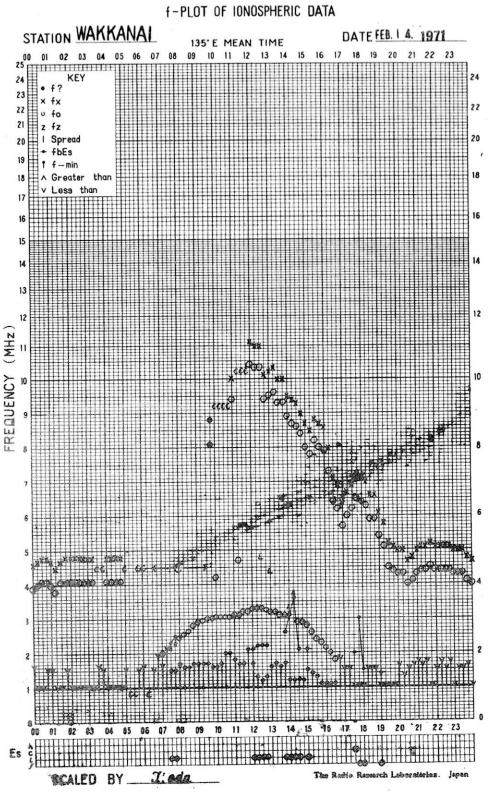
The Radio Research Laboratories. Japan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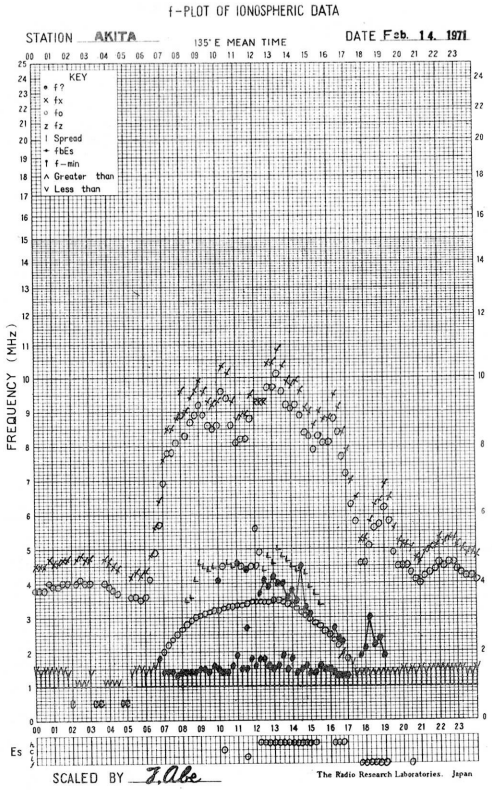
The Radio Research Laboratories. Japan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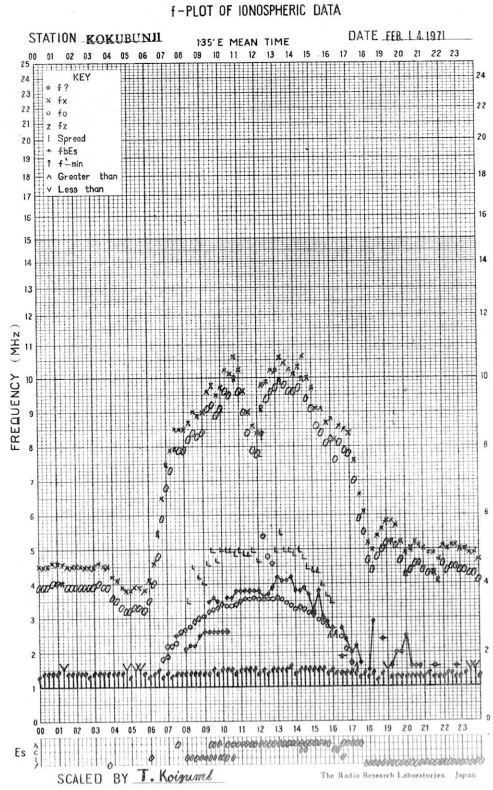
The Radio Research Laboratories. Japan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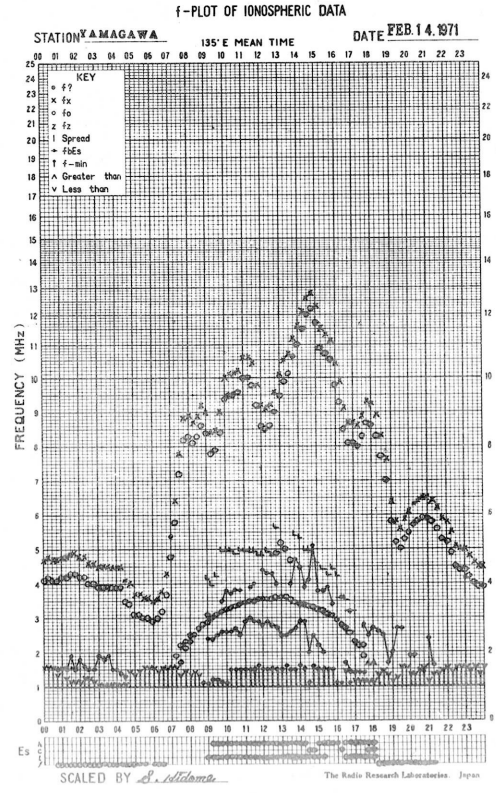
The Radio Research Laboratories. Japan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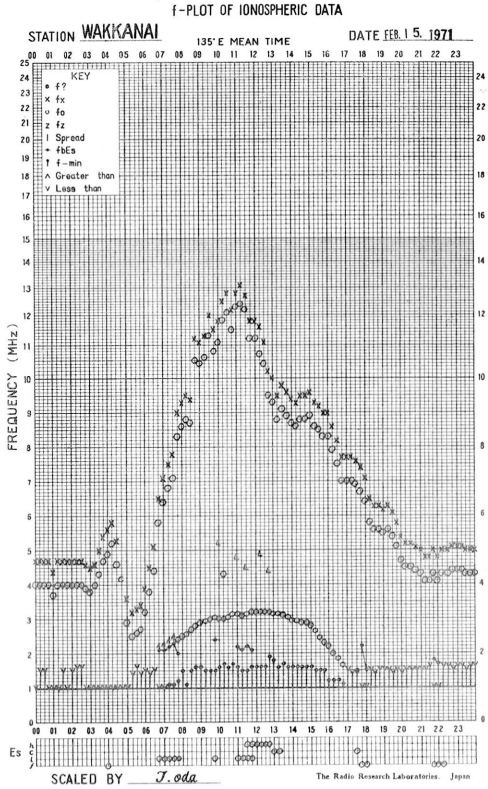
SCALED BY S. Ishikawa
The Radio Research Laboratories. Japan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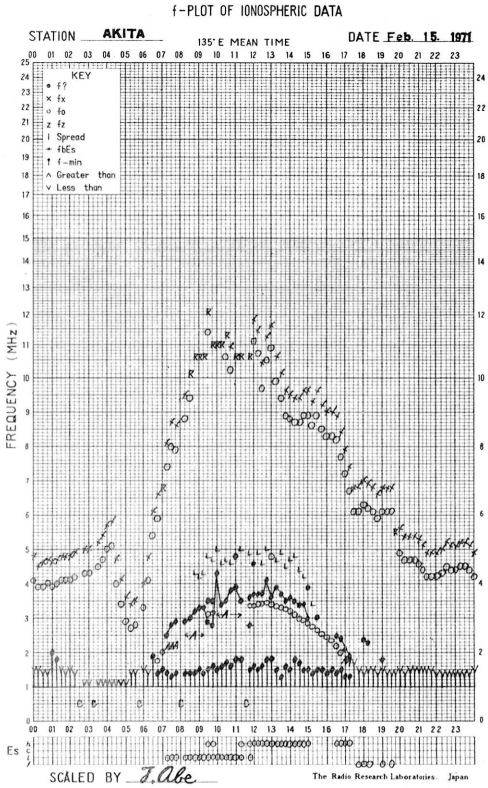
SCALED BY T. oda
The Radio Research Laboratories. Japan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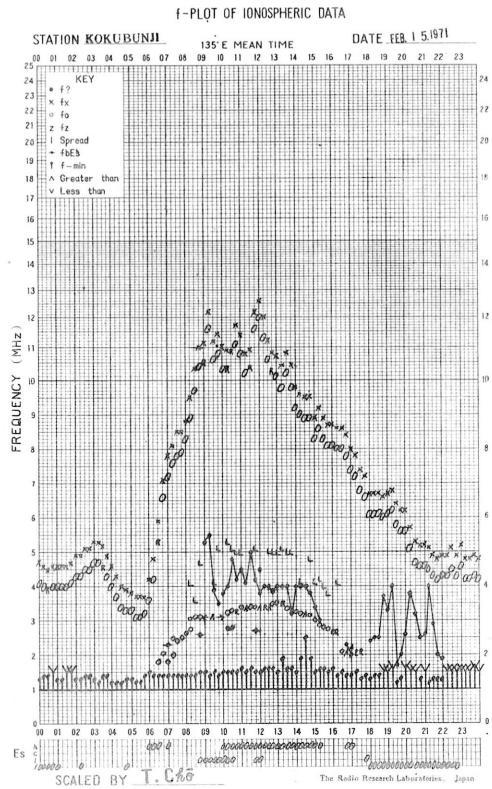
The Radio Research Laboratories. Japan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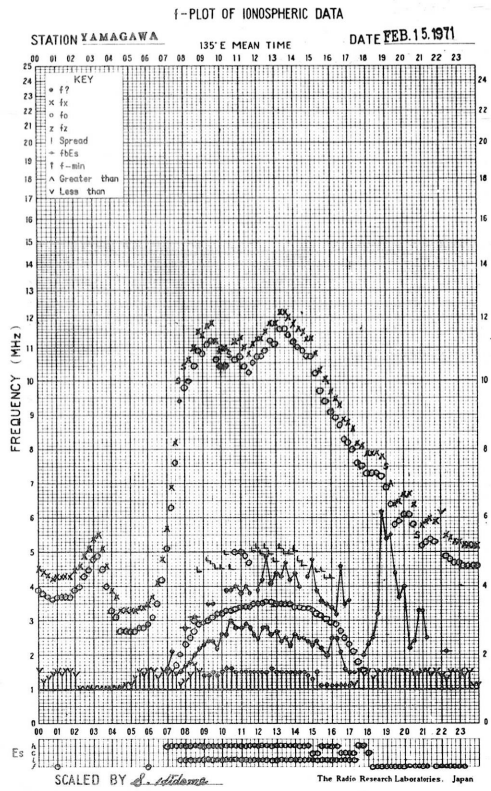
The Radio Research Laboratories. Japan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SCALED BY S. Shiomi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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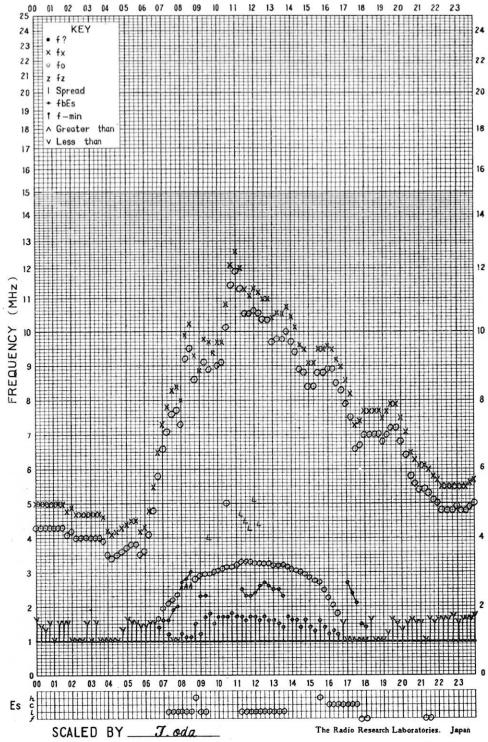

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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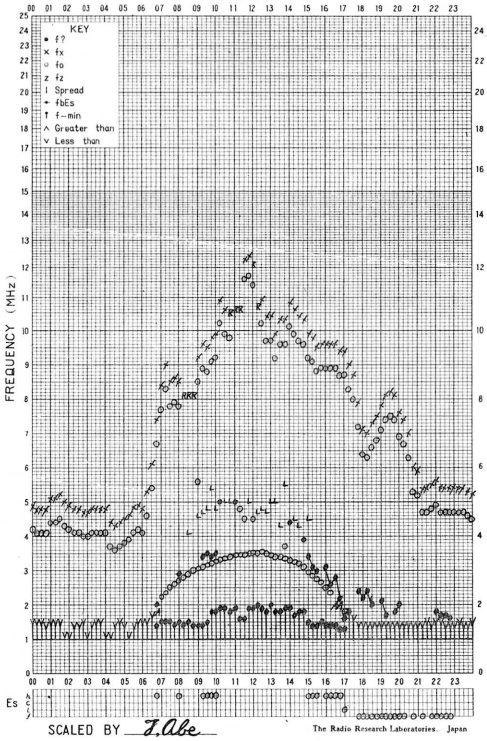

SCALED BY T. Abe

The Radio Research Laboratories. Japan

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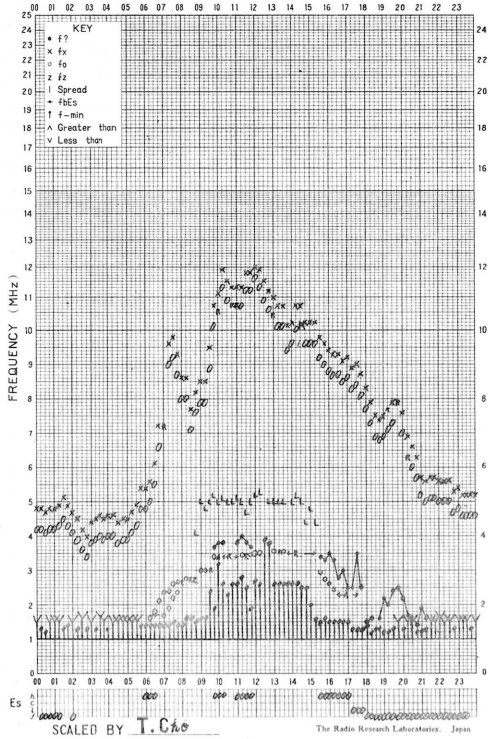

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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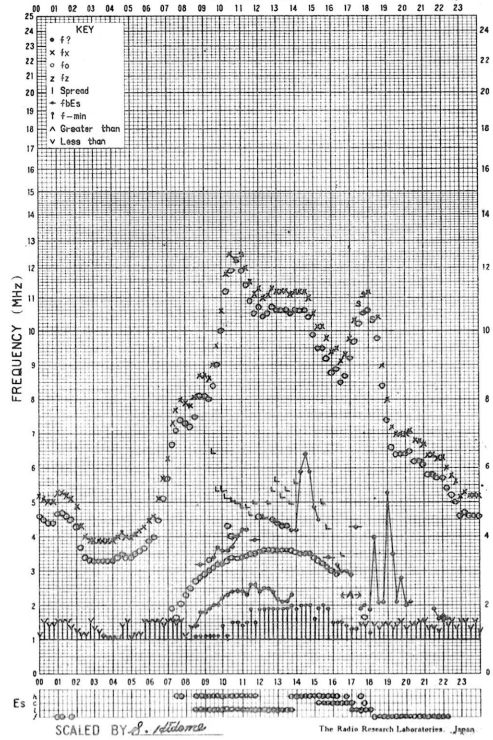
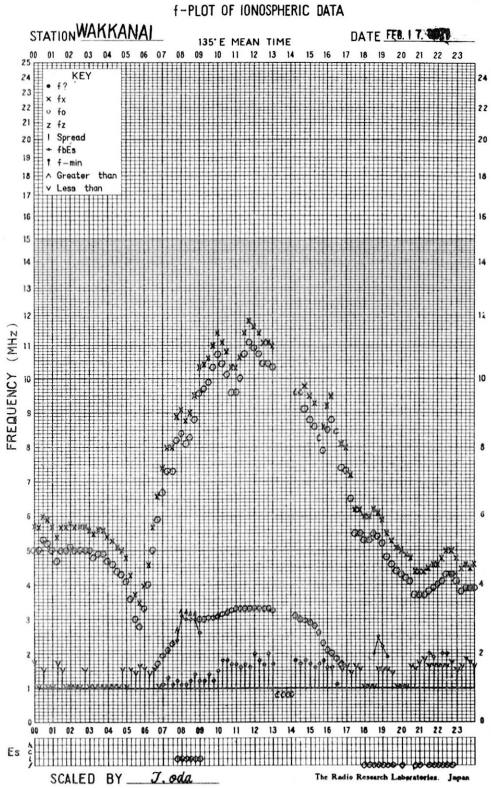


SCALED BY S. Hitoma

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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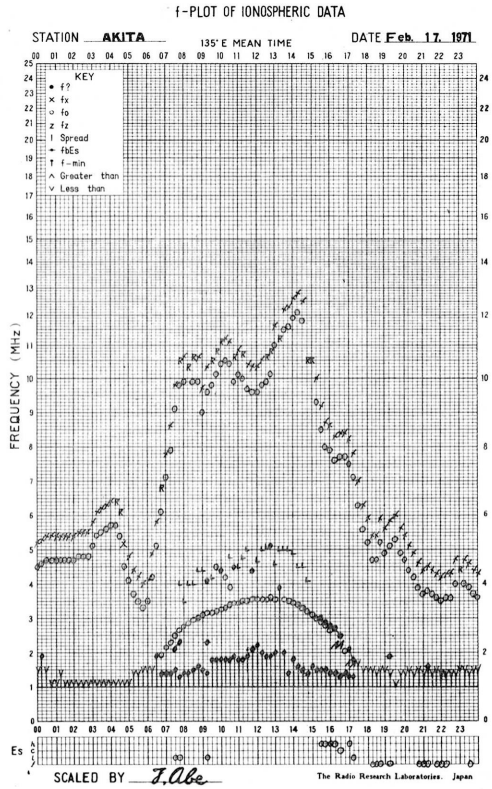
SCALED BY T. Oda
The Radio Research Laboratories. Japan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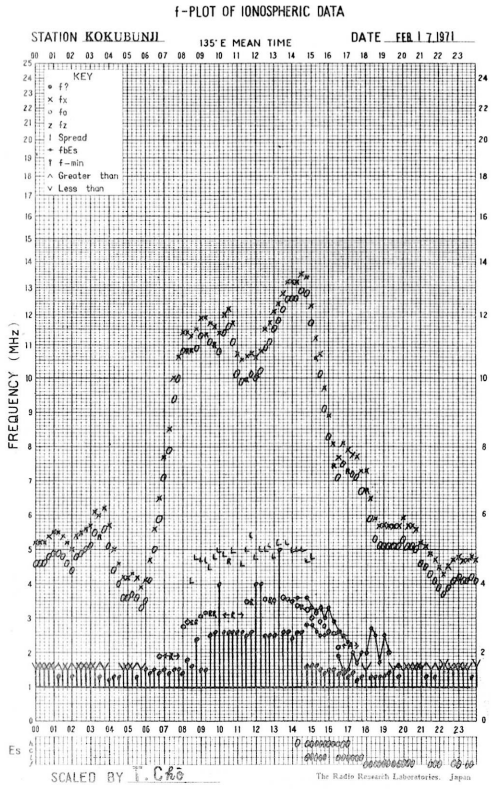
The Radio Research Laboratories. Japan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STATION KOKUBUNJI
135°E MEAN TIME
DATE FEB 17 1971
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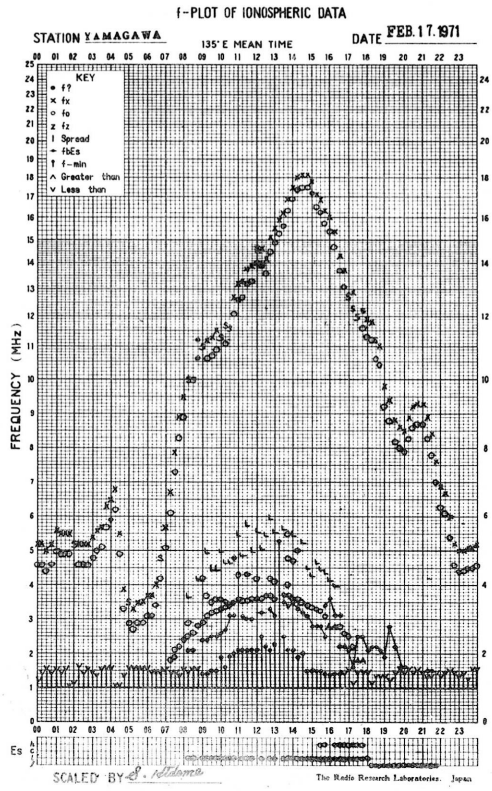
FREQUENCY (MHz)
Es
SCALED BY T. Ono
The Radio Research Laboratories. Japan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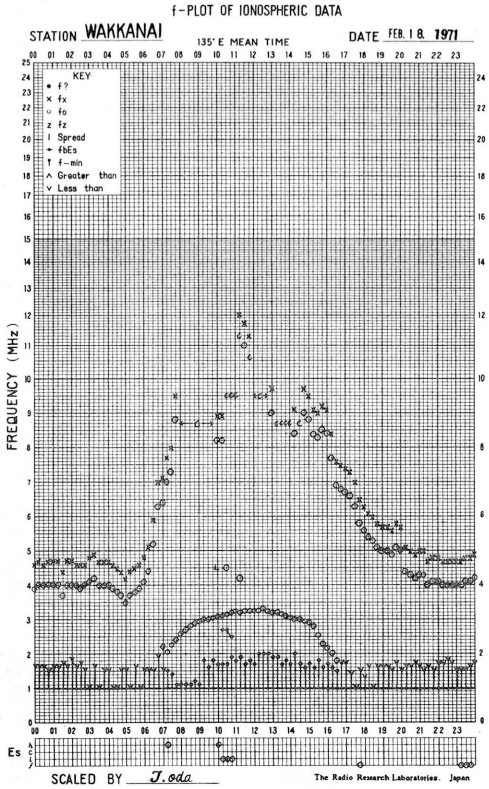
SCALED BY S. Kitamo
The Radio Research Laboratories. Japan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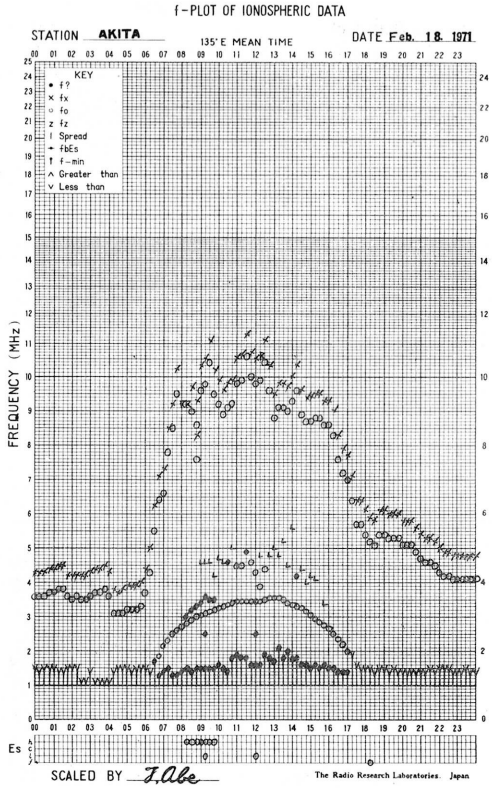
SCALED BY T. Oda
The Radio Research Laboratories. Japan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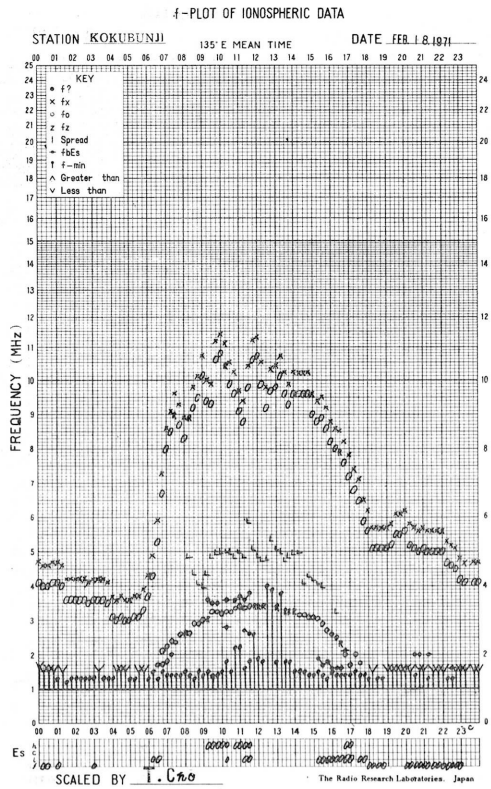
SCALED BY T. Abe
The Radio Research Laboratories. Japan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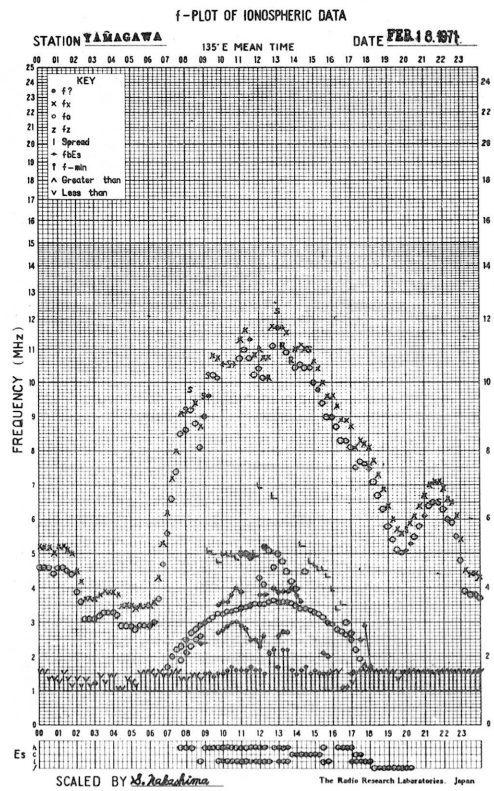
SCALED BY T. Ono
The Radio Research Laboratories. Japan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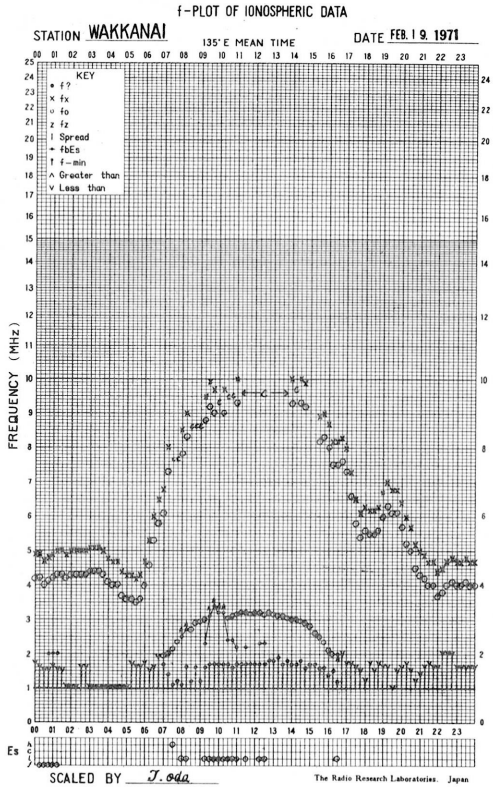
The Radio Research Laboratories. Japan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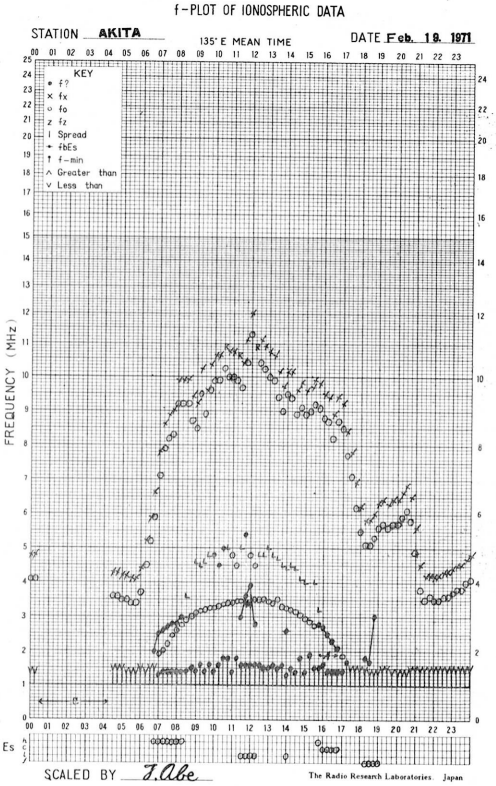
The Radio Research Laboratories. Japan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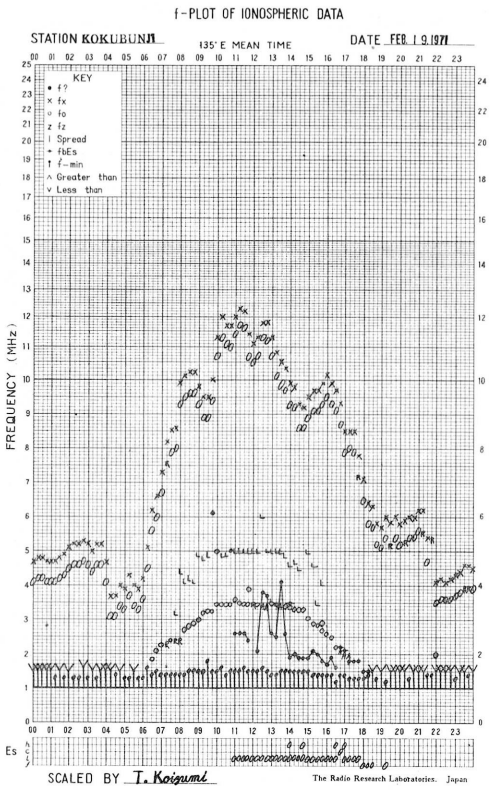
The Radio Research Laboratories. Japan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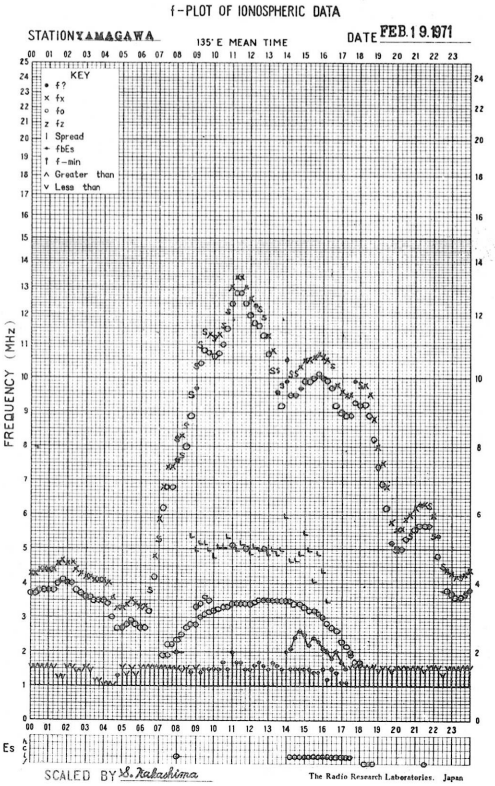
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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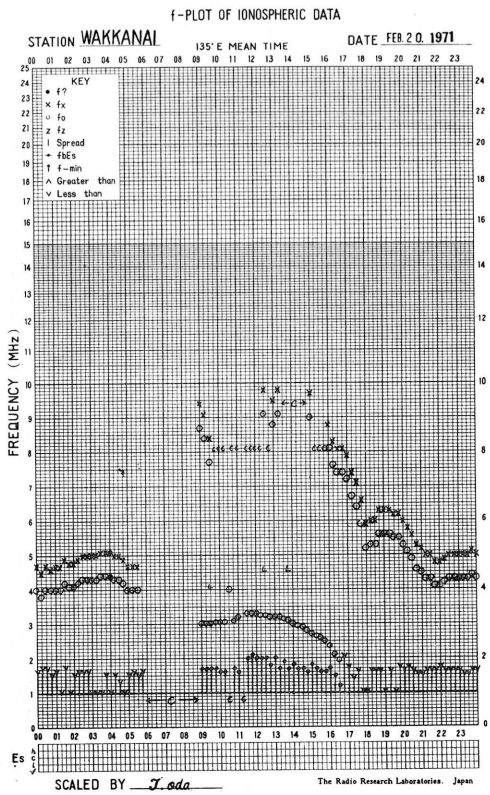
SCALED BY S. Takashima
The Radio Research Laboratories. Japan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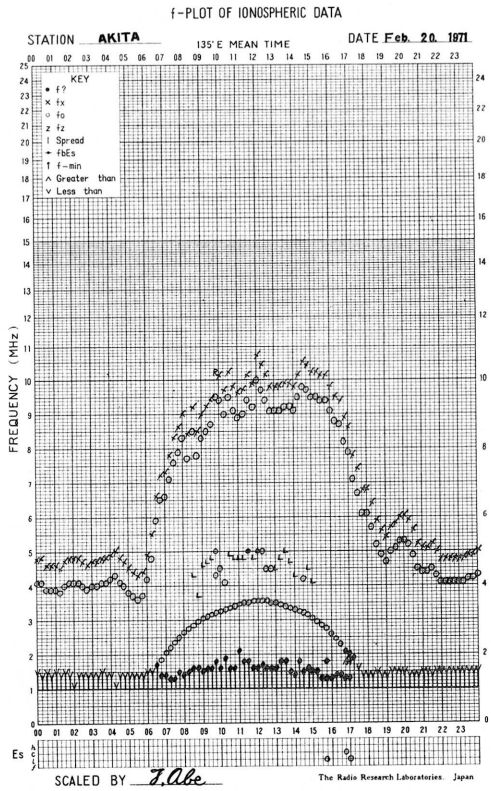
SCALED BY T. Oda
The Radio Research Laboratories. Japan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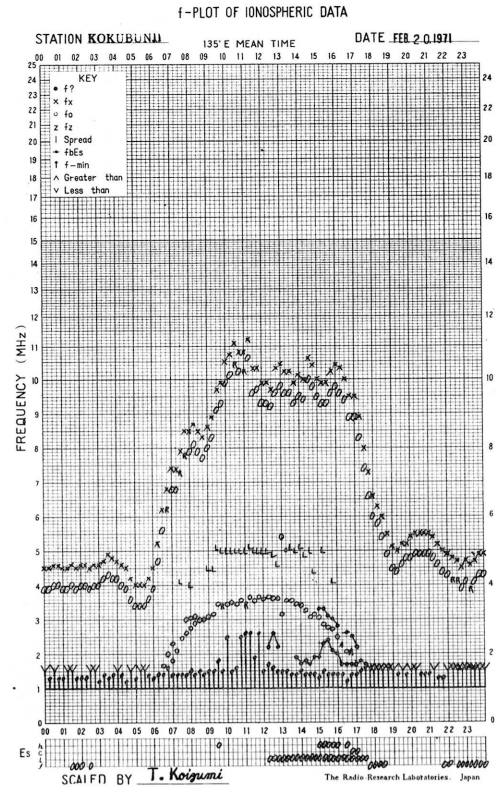
The Radio Research Laboratories. Japan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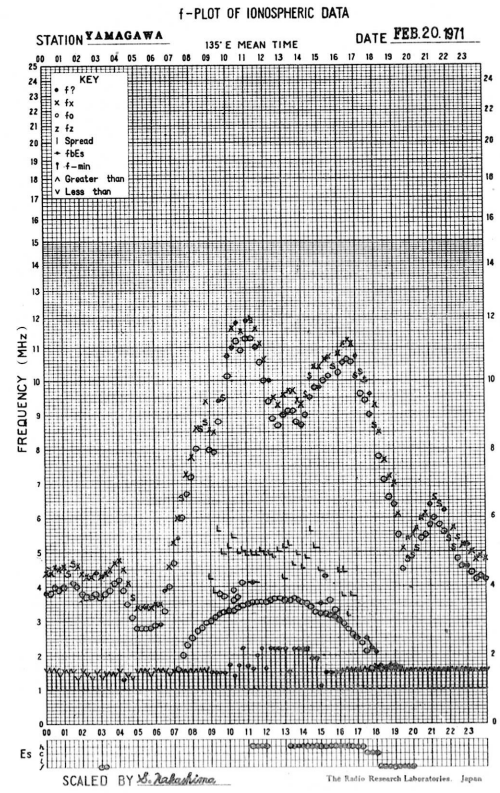
SCALED BY T. Koigumi
The Radio Research Laboratories. Japan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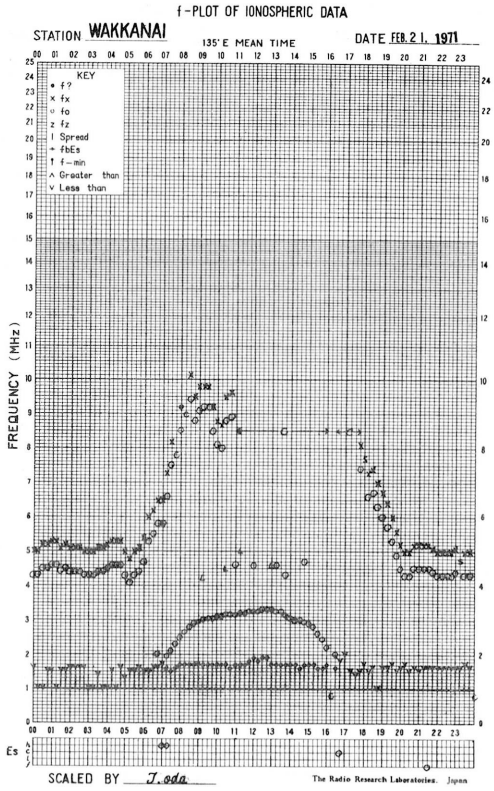
The Radio Research Laboratories. Japan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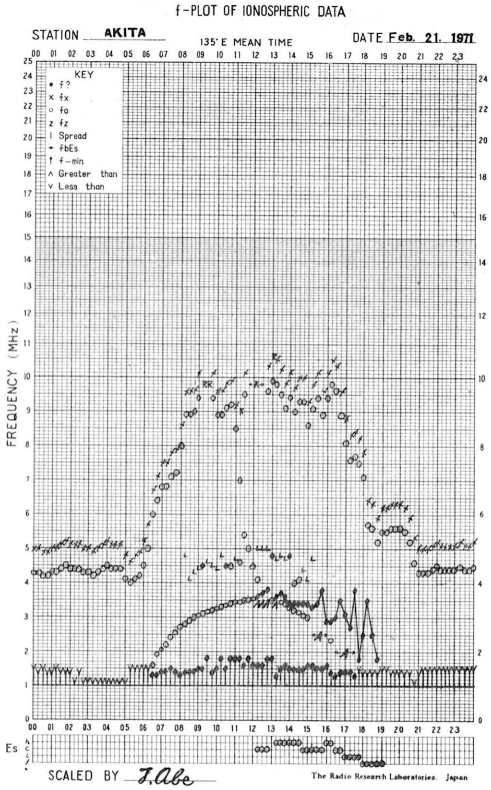
The Radio Research Laboratories. Japan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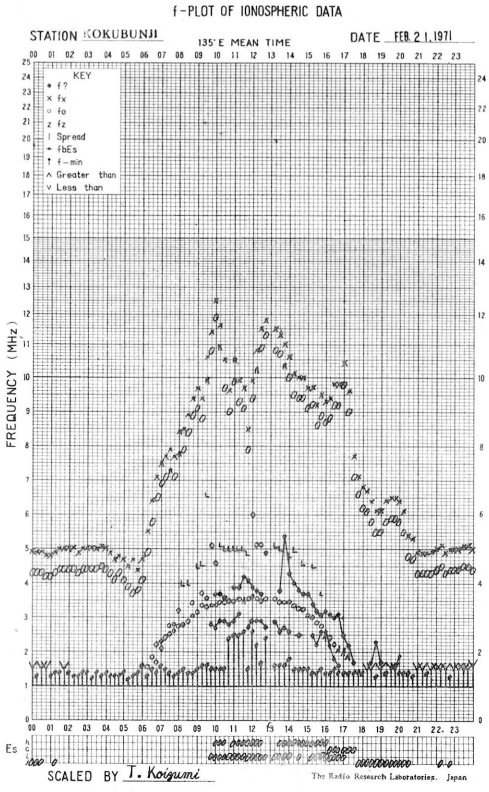
The Radio Research Laboratories. Japan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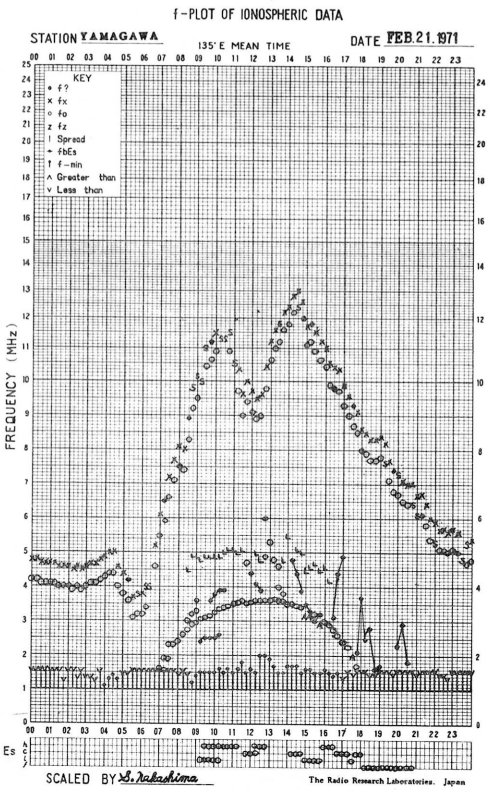
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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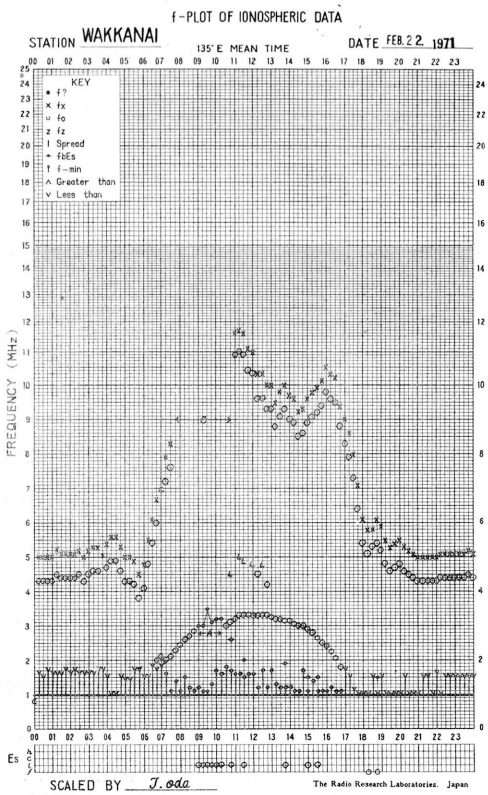
The Radio Research Laboratories. Japan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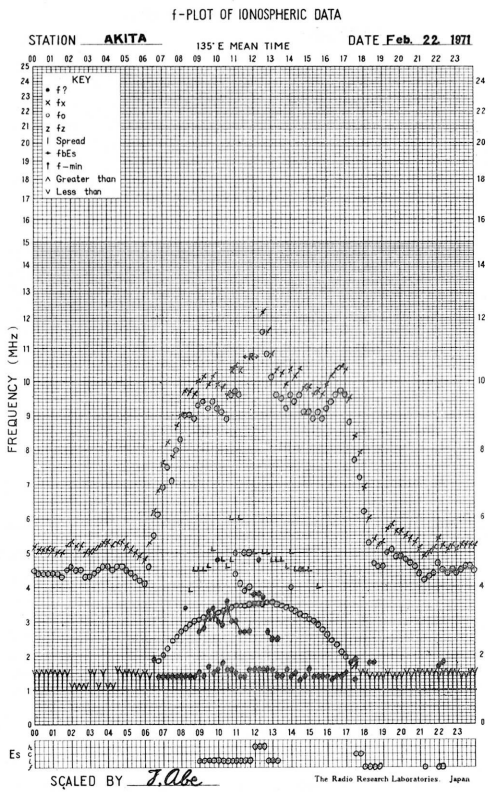
SCALED BY J. Oda
The Radio Research Laboratories. Japan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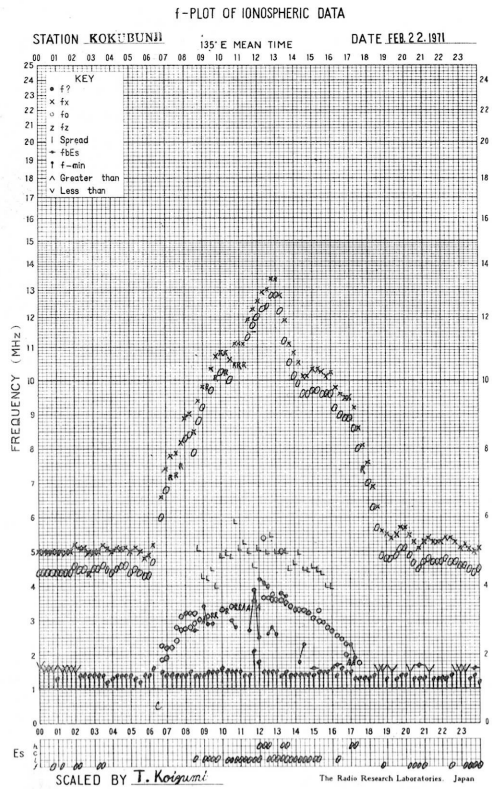
SCALED BY I. Abe
The Radio Research Laboratories. Japan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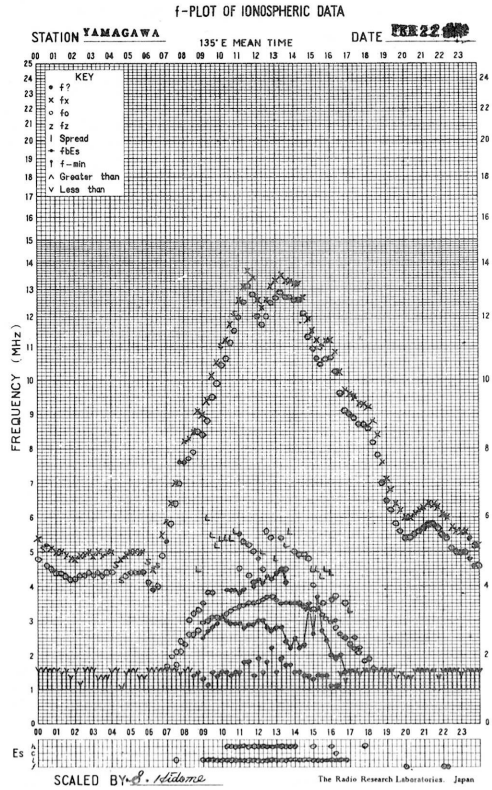
SCALED BY T. Koigumi
The Radio Research Laboratories. Japan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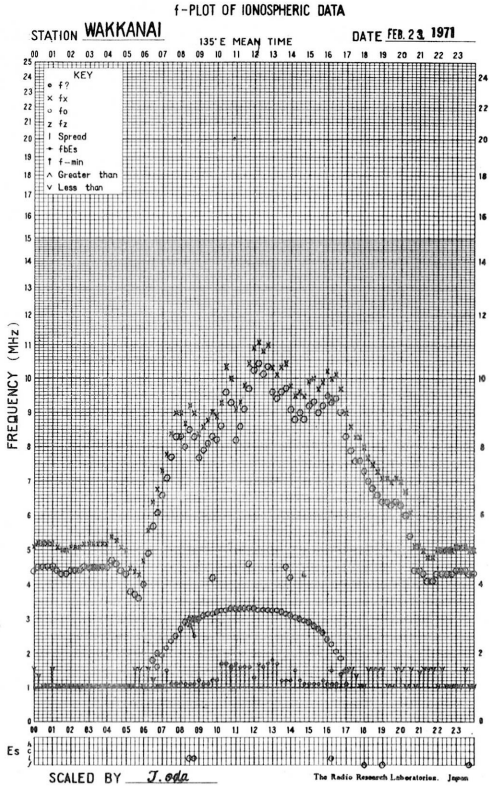
The Radio Research Laboratories. Japan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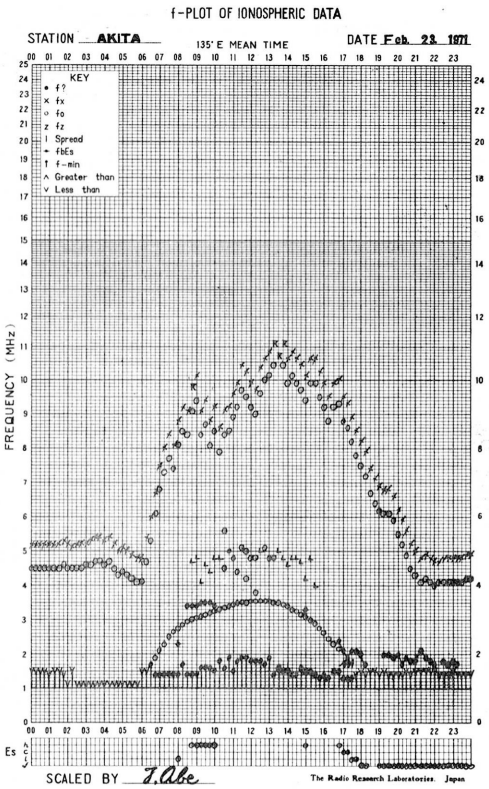
The Radio Research Laboratories. Japan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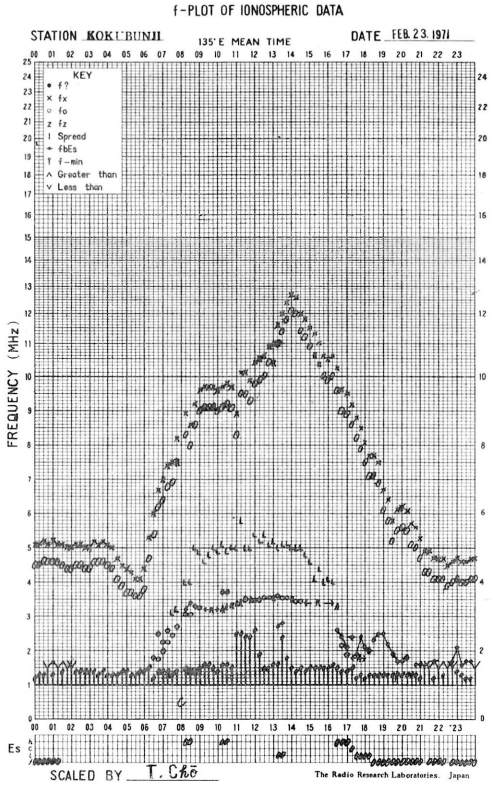
The Radio Research Laboratories. Japan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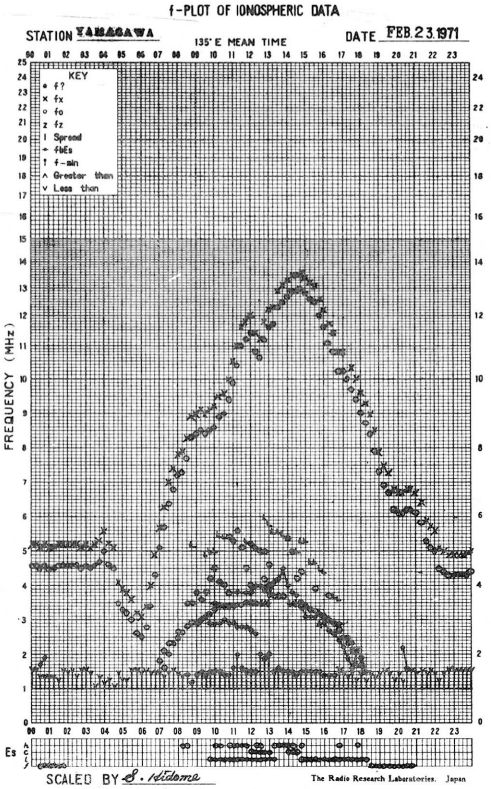
The Radio Research Laboratories. Japan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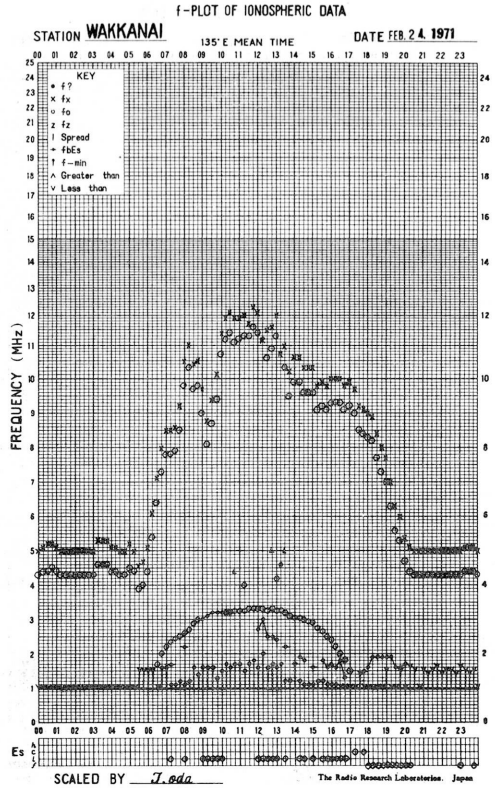
The Radio Research Laboratories. Japan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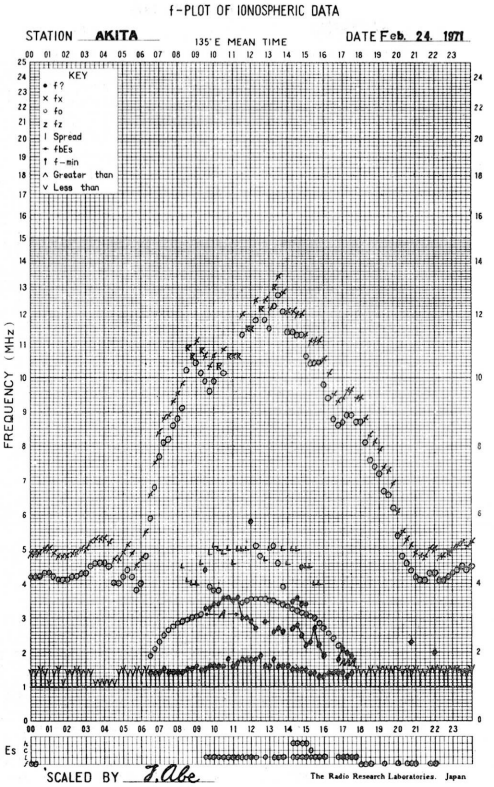
SCALED BY T. oda
The Radio Research Laboratories. Japan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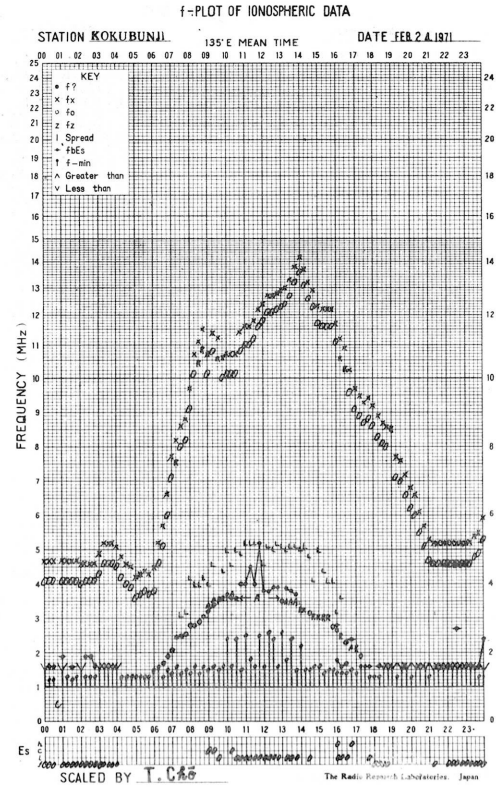
SCALED BY T. Abe
The Radio Research Laboratories. Japan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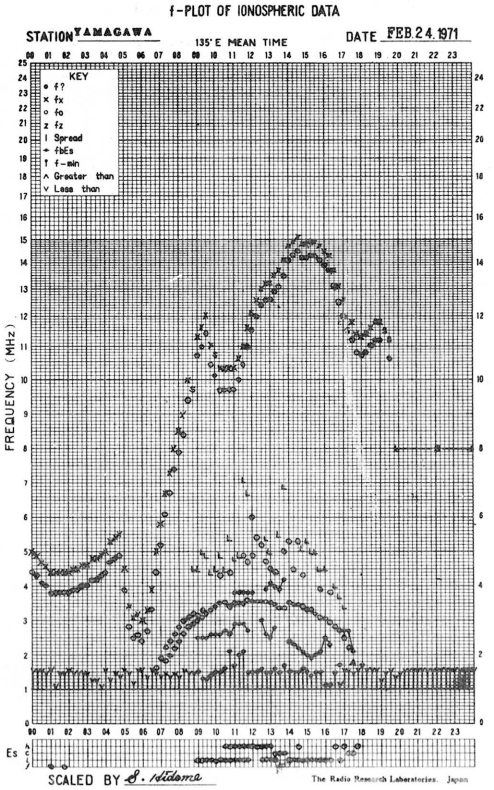
The Radio Research Laboratories. Japan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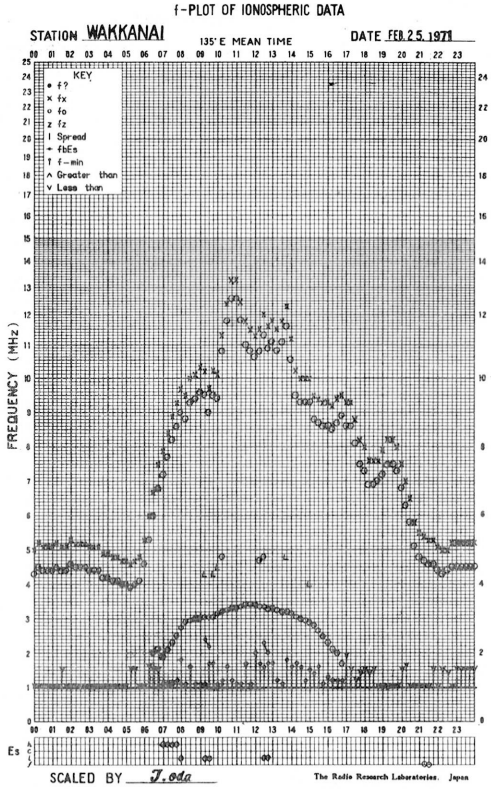
The Radio Research Laboratories. Japan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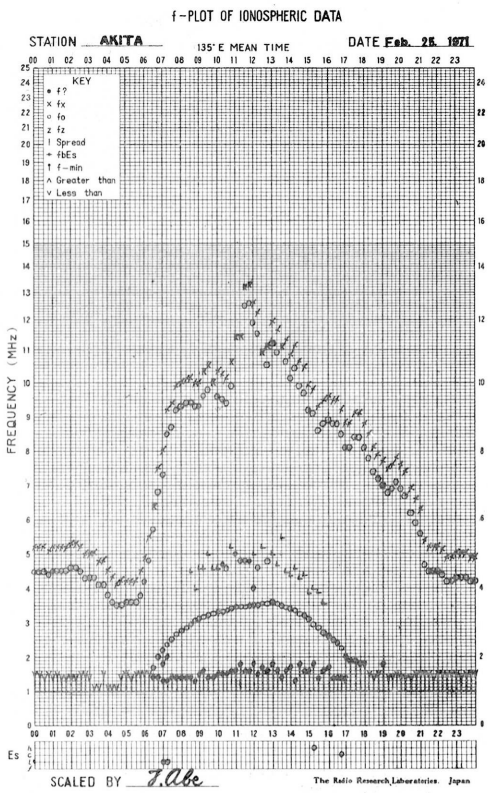
SCALED BY T. Oda
The Radio Research Laboratories. Japan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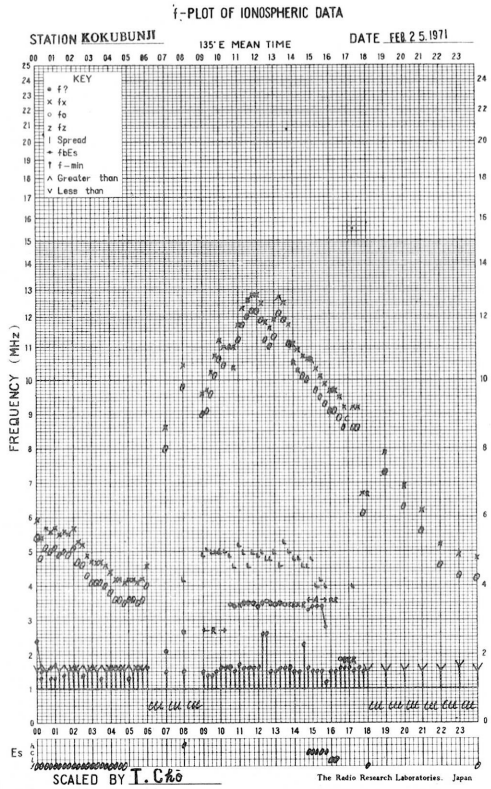
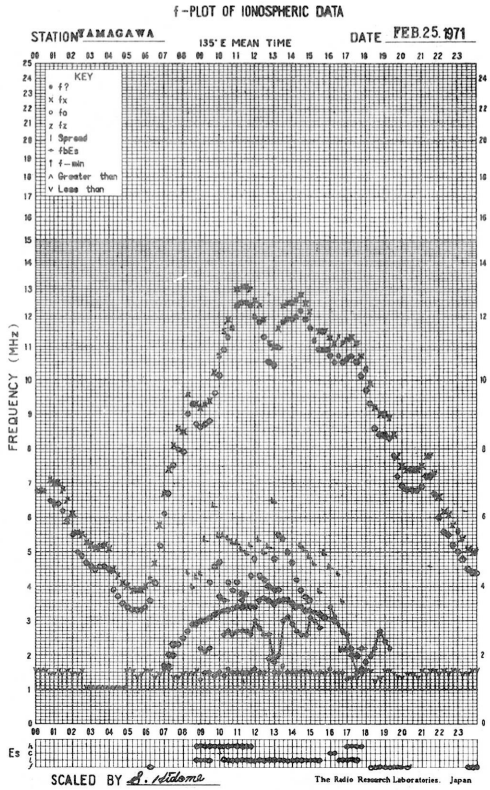
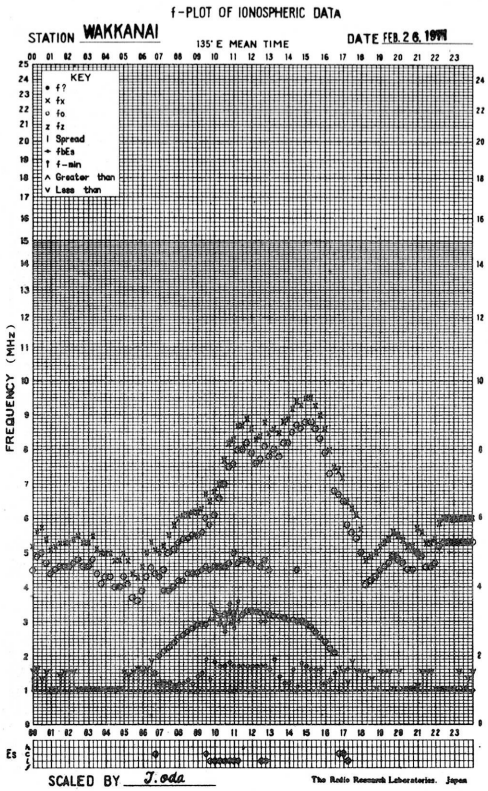
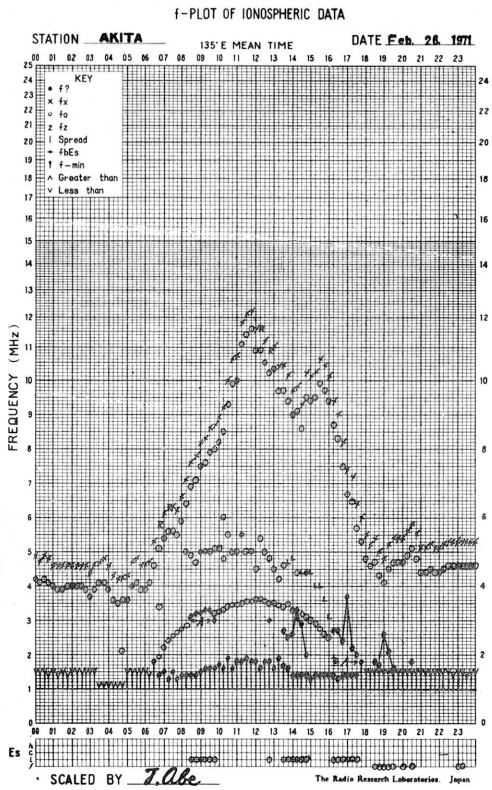
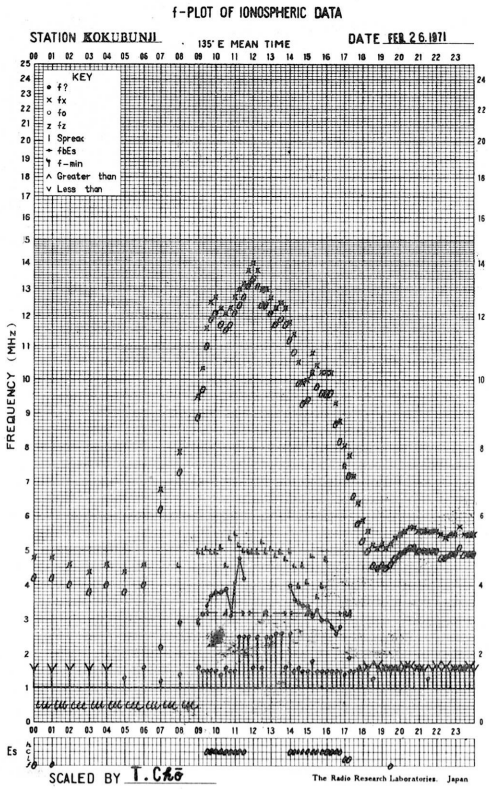
SCALED BY T. Abe
The Radio Research Laboratories. Japan

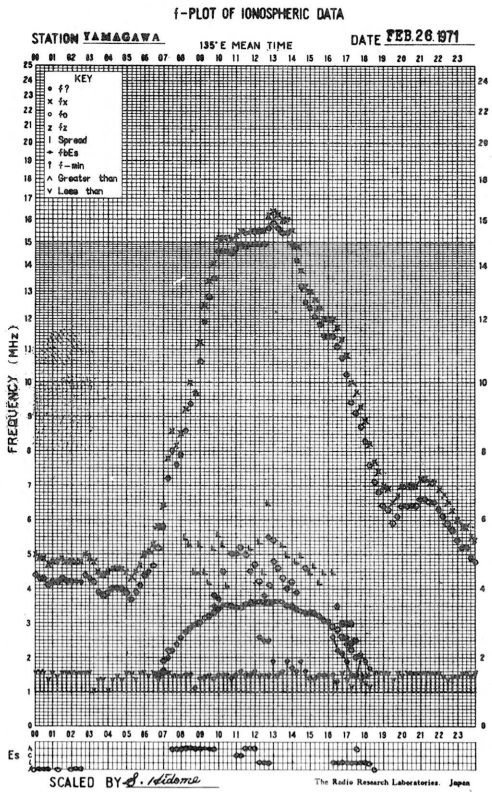

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE FEB. 25. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
= fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Cho
The Radio Research Laboratories. Japan

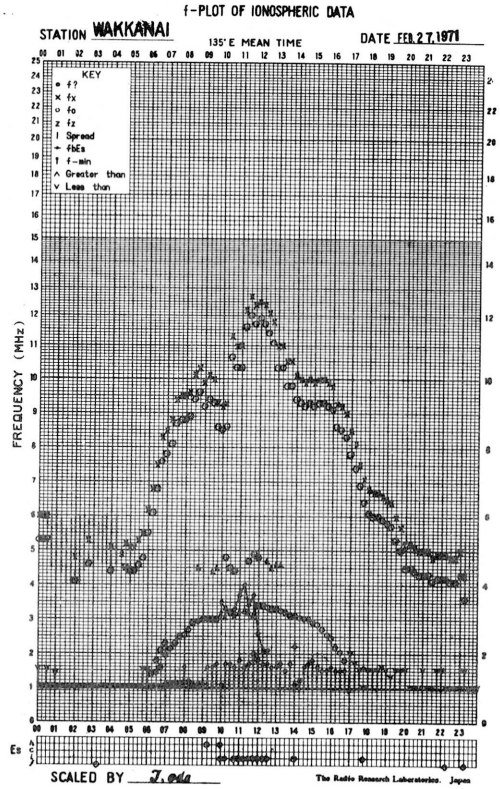

f-PLOT OF IONOSPHERIC DATA
STATION TAMAGAWA
135° E MEAN TIME
DATE FEB. 25. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
= fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY A. Ishidoya
The Radio Research Laboratories. Japan

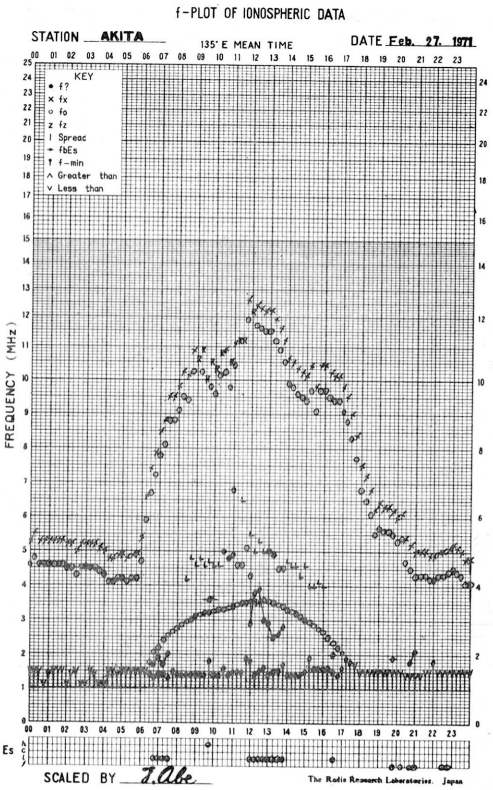

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE FEB. 26, 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan

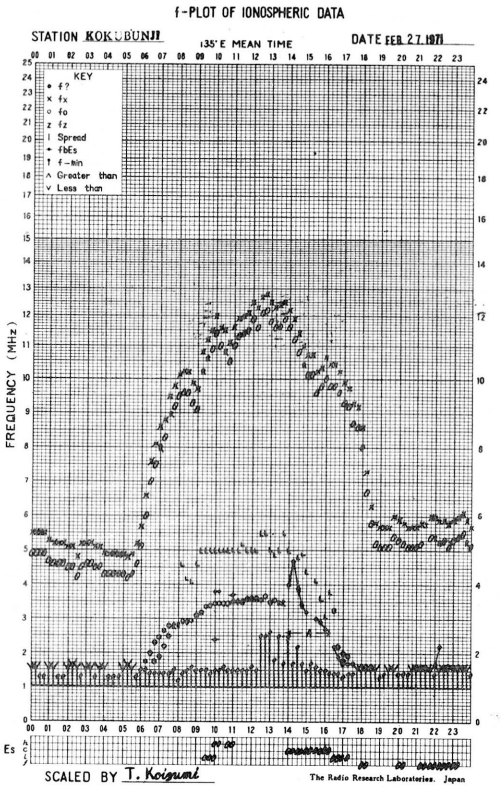

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Feb. 26, 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Abe
The Radio Research Laboratories. Japan

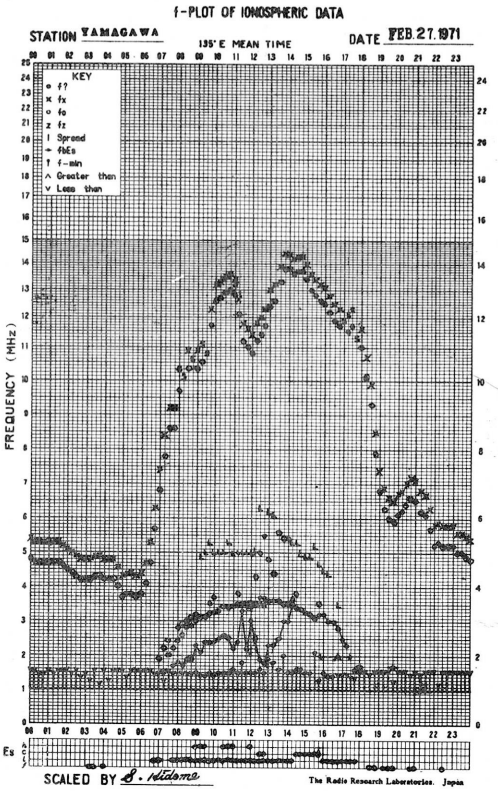

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE FEB. 26, 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Cho
The Radio Research Laboratories. Japan

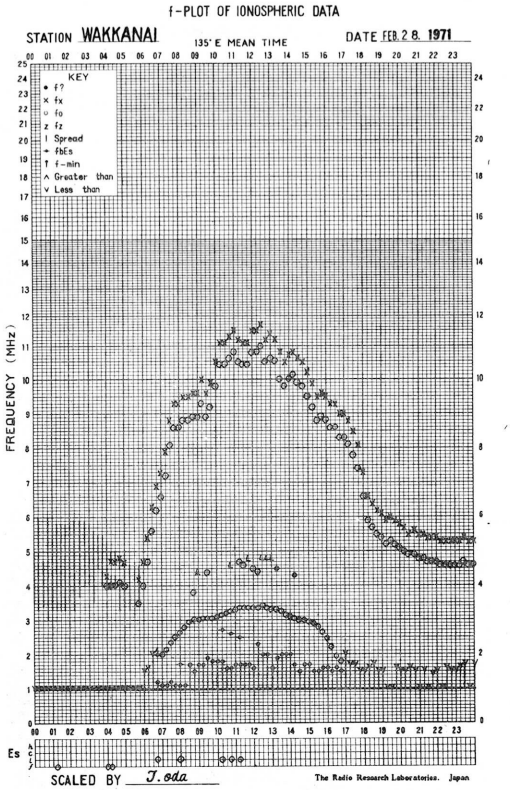

f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE FEB. 26, 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Iidaka
The Radio Research Laboratories. Japan

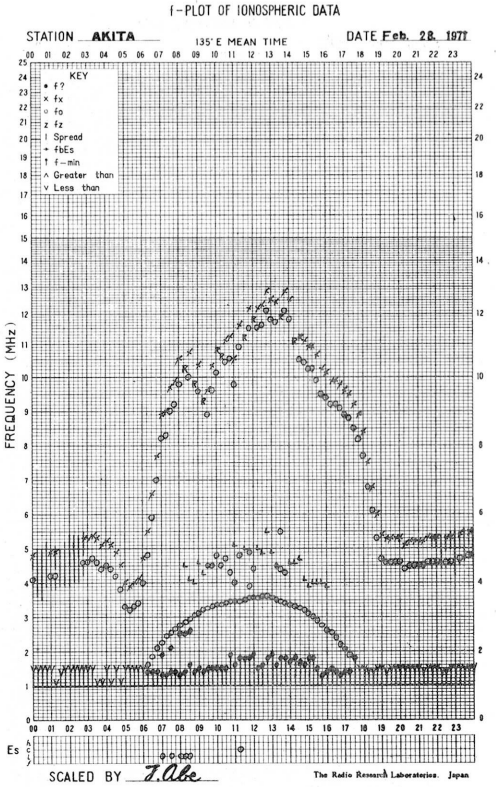

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE FEB.27.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
† f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T.oda
The Radio Research Laboratories. Japan

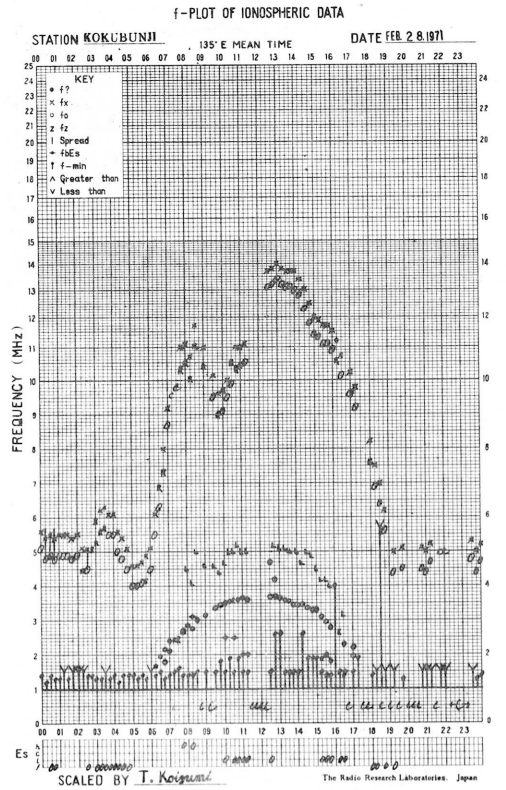

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Feb. 27. 1971
KEY
• f?
× fx
○ fo
z fz
| Spreac
⌁ fbEs
† f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T.Abe
The Radio Research Laboratories. Japan

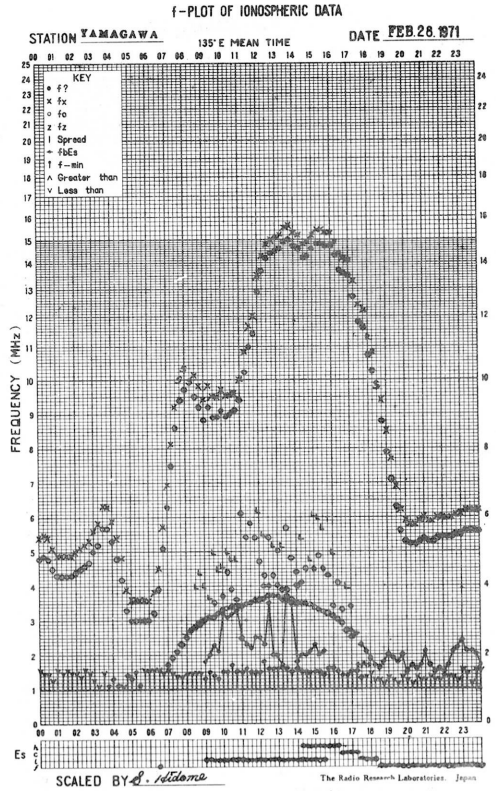

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE FEB.27.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
† f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koigumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE FEB.27.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
† f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Nidome
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE FEB 28 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Feb. 28. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Abe
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE FEB 28 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE FEB 28 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Ishioma
The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: February 1971
Observing station: Hiraiso
Frequency: 200 MHz

	Flux density $10^{-22}Wm^{-2}(Hz)^{-1}$					Variability 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	24	19	(17)	14	22	1	1	(0)	0	1
2	15	14	(14)	24	14	0	0	(0)	1	0
3	28	25	(23)	15	26	1	1	(1)	0	1
4	14	11	(10)	10	13	0	0	(0)	0	0
5	9	8	(7)	11	9	0	0	(0)	1	0
6	10	10	(9)	14	10	0	0	(0)	0	0
7	20	24	(23)	21	20	0	1	(1)	0	0
8	15	19	(12)	9	18	0	1	(1)	1	1
9	8	7	8	7	8	0	0	0	0	0
10	7	8	9	8	8	0	0	0	0	0
11	8	8	8	8	8	0	0	0	0	0
12	8	7	8	6	8	0	0	0	0	0
13	6	5	5	6	5	0	0	0	0	0
14	6	6	7	6	6	0	0	0	0	0
15	6	4	4	q	5	0	0	0	0	0
16	q	q	q	8	q	0	0	0	0	0
17	7	7	6	7	7	0	0	0	0	0
18	6	6	9	7	7	0	0	1	0	0
19	7	13	17	9	11	0	1	1	0	1
20	7	7	8	7	8	0	0	0	0	0
21	6	6	7	6	6	0	0	0	0	0
22	6	7	8	6	7	0	0	0	0	0
23	5	5	5	7	5	0	0	1	1	0
24	7	8	9	8	8	0	0	0	0	0
25	9	8	7	7	8	0	0	1	0	0
26	7	7	7	5	7	0	0	0	1	0
27	5	5	5	5	5	0	1	1	0	1
28	6	6	6	6	6	0	0	0	0	0

q: quiet level, when radiometer is unstable.

SOLAR RADIO EMISSION

Flux Density

Month: February 1971
Observing station: Hiraiso Frequency: 500 MHz

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

UT	00-03	03-06	06-09	21-24	Day
Date					
1	33	32	(31)	31	32
2	31	30	(27)	27	30
3	29	28	(28)	28	28
4	30	29	(29)	29	29
5	30	29	(30)	29	30
6	29	29	(29)	28	29
7	29	29	(27)	27	29
8	29	29	(28)	27	29
9	27	27	27	27	27
10	27	27	26	24	27
11	25	25	24	25	25
12	26	25	24	25	25
13	26	25	24	26	25
14	27	26	25	26	26
15	27	28	26	26	27
16	26	25	24	26	25
17	26	26	25	28	26
18	28	28	28	29	28
19	29	29	29	29	29
20	31	30	29	28	30
21	27	28	27	26	28
22	29	28	27	27	28
23	26	26	27	27	27
24	26	26	25	27	26
25	26	26	25	26	26
26	27	28	28	27	28
27	27	25	24	24	26
28	26	26	24	27	25

Note No observations during the following periods:

28th 0155- 0240

Distinctive Events

(single-frequency observations)

Month: February 1971
Observing station: Hiraiso
Normal observing period: 2120 - 0820 (sunrise to sunset)

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22}Wm^{-2}(Hz)^{-1}$		Remarks
	MHz	UT	UT	minutes		peak	mean	
1	500	0118.0	0119.0	3.0	C	60	5	
3	100	0527.0	0527.5	1.5	C	150	50	
5	200	0314.6	0314.8	1.0	C	690	10	
	100	0314.0	0314.8	2.5	C	800	200	
		2211.0	2211.0	1.5	C	700	140	
	500	2221.0	2224.2	6.0	C	45	10	
	200	2221.5	2222.5	9.0	C	640	90	
	100	2220.0	2221.0	2.0	C	700	250	
		2233.3	2323	137		70	20	noise storm
7	100	0315.0	0316.3	7.0	C	200	50	
14	100	2326.0	2326.7	6.0	C	150	20	
19	100	0201.2	0203.0	5.0	F	160	-	
		0253.0	0253.5	1.0	C	100	50	
		0518.5	0520.0	4.0	C	150	60	
23	500	0130.3	0132.5	3.5	C	50	10	
	200	0743.0	0744.0	1.0	C	280	30	
	100	0743.0	0744.0	2.0	C	> 100	> 80	
	200	2202.0	2202.5	1.0	C	1500	150	
	100	2202.1	2202.5	1.0	C	150	100	
25	100	0023.0	0023.0	1.0	C	160	100	
		0030.6	0031.0	1.0	C	180	110	
	500	0149.5	0150.0	1.0	C	3	2	
	200	0149.0	0149.5	2.0	C	1400	170	
	100	0149.0	0150.0	4.0	C	160	70	
		0452.0	0453.3	5.0	C	150	60	
	500	0719.6	0719.8	0.5	C	30	20	
	200	0719.5	0719.8	1.0	C	1400	280	
	100	0719.5	0720.3	2.0	C	160	70	
26	200	0032.0	0037.0	6.0	F	270	-	
	100	0036.0	0037.0	2.0	C	140	60	
	200	2325.5	2325.5	0.2	C	100	70	
	100	2340.0	2340.0	1.0	C	> 100	> 50	
		2341.3	2341.3	1.0	C	> 100	> 50	
27	200	0112.0	0112.0	0.5	C	160	150	
	100	0112.0	0112.3	0.8	C	170	110	
	200	0330.5	0331.0	1.0	C	30	15	
	100	0330.0	0330.5	1.5	C	130	30	
	200	0458.5	0458.9	0.5	C	110	15	
	100	0457.6	0457.6	2.4	C	90	10	
28	100	0230.0	0231.3	1.5	C	100	45	

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

FEB 1971 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

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	C	9	12	4	ES 3	ES -14	ES -8	ES -3	ES -8	ES -19	ES -28	ES -25	ES -28	ES -19	ES -28	ES -28	ES -28	ES -28	-28	ES -28	ES -9	2	-1	ES 5
2	3	4	10	0	ES -20	ES -25	ES -20	ES -22	ES -25	ES -27	ES -27	ES -27	ES -21	ES -27	-22	-25	ES -27	ES -27	ES -27	ES -27	ES -27	-5	-7	-4
3	-8	-4	-8	3	-19	ES -8	ES -10	ES -3	ES -21	ES -25	ES -28	ES -28	ES -19	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-6	5	7
4	3	11	6	13	ES -12	ES -19	ES -25	ES -23	ES -25	ES -25	ES -19	ES 7	ES -28	ES -28	ES -28	C	C	C	C	C	C	C	C	C
5	1	8	8	18	ES -6	ES -3	ES 0	ES -19	ES -9	ES -25	ES -20	ES 4	ES -28	ES -28	-26	-23	ES -34	ES -34	ES -34	ES -34	-26	6	6	10
6	4	5	15	20	ES -19	-19	ES -8	ES -3	ES -12	ES -14	-13	ES -8	ES -18	ES -24	ES -27	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-2	6	9
7	4	9	17	19	ES -17	-9	ES -19	ES -7	ES -10	ES -19	ES -13	ES -5	ES -27	ES -27	-24	-22	ES -27	ES -27	ES -27	ES -27	ES -27	7	8	8
8	14	7	16	20	13	ES -21	ES -17	-5	ES -6	-19	ES -22	ES 8	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -3	C	C	C
9	11	14	17	20	ES -12	ES -14	ES -14	ES -8	ES -14	ES -14	ES -23	ES 4	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	5	12	12
10	11	14	12	14	ES -14	ES -19	ES -22	ES -22	ES -22	ES -16	ES -25	ES 2	ES -28	ES -25	ES -19	ES -28	ES -28	ES -28	ES -28	ES -28	ES -25	0	9	10
11	7	7	5	-1	ES -25	ES -13	ES -3	ES -19	ES -8	ES -19	ES -19	ES 0	ES -28	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-3	5	10
12	10	12	19	17	ES -8	ES -8	ES -17	ES -13	ES -13	ES -17	ES -26	ES 1	ES -9	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-25	12	13	12
13	13	15	13	11	ES -22	ES -25	ES -6	ES -11	ES -5	ES -19	ES -16	ES -6	ES -11	ES -28	ES -25	-25	ES -28	ES -28	ES -28	ES -28	ES -28	7	9	9
14	8	15	18	28	-7	ES -19	ES -13	ES -2	ES -8	ES -14	ES -16	ES -7	ES -28	ES -28	ES -25	ES -28	ES -28	ES -28	ES -11	-11	ES -28	6	3	8
15	6	11	12	17	15	ES -17	-10	ES -8	ES -10	ES -15	ES -19	ES 12	ES -17	ES -8	ES -28	-25	ES -28	ES -28	ES -28	ES -28	ES -28	2	7	11
16	11	14	11	12	18	ES -12	6	ES -10	ES -12	ES -15	ES -16	ES 16	ES 23	-14	ES -28	ES -28	ES -28	ES -28	-25	ES -17	2	7	11	14
17	13	14	14	16	-1	ES -12	ES -18	ES -8	ES -8	ES -18	ES -17	ES 7	ES -13	ES -25	ES -25	-25	ES -28	ES -28	ES -28	ES -28	-22	9	15	13
18	8	14	15	15	ES -17	ES -17	ES -12	ES -19	ES -12	ES -14	ES -25	ES 3	ES -19	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-19	8	13	14
19	8	17	17	18	5	ES -18	ES -23	ES -16	ES -18	ES -20	ES -15	ES 3	ES -25	ES -25	ES -25	ES -28	ES -28	ES -28	-25	-14	-8	9	12	10
20	11	14	14	20	ES -5	ES -16	ES -6	ES 2	ES -8	ES -14	ES -9	ES 18	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES 4	8	8	10
21	7	11	10	16	12	-11	ES -14	ES -2	ES -12	ES -17	ES -19	ES 1	ES -25	ES -28	ES -28	-25	ES -28	ES -28	ES -28	ES -28	3	3	7	11
22	7	9	16	18	-7	ES -25	ES -14	ES -14	ES -9	ES -19	ES -25	ES 3	ES -19	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES 2	5	4	6
23	6	8	11	14	4	ES -21	ES -18	ES -15	ES -8	ES -18	ES -16	ES 6	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	4	7	11	16
24	10	11	13	14	2	-14	ES -19	-4	-8	ES -13	ES -13	ES 2	ES -19	ES -28	ES -8	-11	-13	-14	0	ES -28	-19	3	4	4
25	5	6	15	19	18	20	-3	ES -8	ES -8	ES -18	ES -3	ES 11	ES 10	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -9	-8	ES 0
26	8	7	7	6	-12	-8	-5	-6	ES -19	ES -19	ES -28	ES -6	ES -16	ES -28	-19	-6	-5	ES -28	-23	-19	-8	3	9	6
27	11	7	7	11	-6	ES -22	ES -8	ES 6	ES -12	ES -19	ES -28	ES -12	ES -25	ES -17	-19	ES -28	ES -28	ES -25	-19	ES -28	ES 2	8	7	8
28	8	10	8	12	ES -19	ES -21	ES -16	ES 3	ES -8	ES -25	ES -19	ES -7	ES -25	ES -19	ES -23	ES -28	ES -28	ES -28	ES -28	ES -28	-3	6	9	7

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

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

FEB 1971 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M
1	3	7	14	17	20	18	ES 4	21	21	10	-5	-1	-22	ES -28	ES -28	ES -28	ES -28	-28	-25	-11	10	13	7	5
2	4	1	11	13	17	20	14	18	8	-15	ES -1	ES -12	-12	-21	-25	ES -27	ES -27	ES -27	ES -27	ES -27	1	8	-3	4
3	7	10	4	14	17	22	-4	19	20	-8	-13	-10	ES -13	-26	ES -28	ES -28	ES -16	ES -28	ES -28	ES -28	-4	15	3	5
4	3	3	11	13	11	8	12	16	16	9	ES -3	ES 1	-19	ES -28	ES -28	C	C	C	C	C	C	C	C	C
5	3	7	12	10	18	14	-6	8	4	ES -8	ES -2	ES -8	-19	-16	ES -28	ES -34	ES -34	ES -34	ES -34	ES -34	0	10	-2	6
6	-1	3	12	13	19	20	6	24	4	-6	-8	ES -14	ES -21	ES -27	ES -27	ES -24	ES -24	ES -24	ES -24	ES -24	-2	4	3	3
7	4	8	10	17	19	19	8	13	9	ES -7	ES 4	ES -5	-11	0	-21	ES -27	ES -27	ES -27	ES -27	ES -27	5	4	1	0
8	-1	0	2	11	16	22	19	9	ES -2	ES -6	ES -4	ES 1	-16	-23	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	2	C	C	8
9	3	3	7	10	16	12	ES 7	7	ES 0	ES -8	ES -6	ES 3	-19	-14	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	2	4	2	7
10	5	-1	12	10	15	7	-4	14	1	ES -11	ES 2	ES 0	-22	ES -19	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	7	7	7	0
11	-4	-4	2	4	20	16	ES -3	-11	ES -5	ES -16	ES -8	ES -13	ES -25	ES -19	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -13	-3	-4	0
12	2	-1	8	10	15	7	ES -3	-5	7	-16	ES -6	ES -11	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-2	7	2	1
13	0	4	8	7	9	22	2	0	9	-6	ES -10	ES -6	ES -12	-19	ES -26	ES -28	ES -28	ES -28	ES -28	ES -28	-2	4	4	4
14	0	-2	8	9	14	1	-9	ES -8	15	ES -12	ES 0	ES -7	-25	ES -10	ES -28	ES -13	ES -28	ES -8	ES -25	-16	8	3	1	2
15	0	3	7	5	15	15	22	9	ES -1	-10	ES 15	ES 2	ES -14	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-16	2	0	0
16	-1	3	12	8	12	19	21	4	23	ES -4	ES 5	ES 0	ES 11	-14	ES -28	ES -28	ES -28	ES -28	ES -25	ES -17	0	0	-2	-1
17	-8	-6	2	7	12	18	-3	-2	10	-3	-7	ES 7	-13	ES -12	ES -25	ES -25	ES -28	ES -28	ES -28	ES -28	4	-1	-6	4
18	-3	-5	4	2	12	8	6	16	16	-10	ES -7	ES 0	ES -9	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	8	6	1	-2
19	-5	-1	6	11	12	17	6	21	-2	ES -7	ES 3	ES -3	-16	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	9	6	-3	-1
20	ES 8	-2	4	10	14	15	15	17	7	ES -14	ES 1	ES -2	ES -9	-22	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	0	-1	-7	1
21	-8	-1	3	9	13	13	3	-5	13	ES -6	ES -5	ES -5	ES -19	ES -25	ES -28	ES -28	ES -28	-25	ES -28	4	4	1	2	4
22	-3	0	-3	12	12	18	18	17	22	-9	ES 0	ES -2	-11	-16	ES -28	ES -28	ES -28	-25	ES -28	ES -28	-6	1	-7	3
23	-3	-1	5	8	17	18	ES -2	ES 0	-1	-10	ES -2	ES 1	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	5	6	-4	0
24	-5	-2	-2	9	14	19	18	18	21	17	ES 7	ES -2	-12	-12	ES -8	-12	ES -22	-17	ES -28	ES -28	-3	1	-8	1
25	-7	-3	-2	7	7	12	11	0	6	11	ES 2	ES 3	ES 0	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	-21	-2	-9	ES 2
26	-3	1	4	9	19	17	5	-5	ES -12	ES -19	ES -9	ES -6	ES -2	ES 2	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	2	-3	-1	-3
27	-5	-6	0	6	12	15	13	20	22	-3	-6	ES -12	ES 2	ES 14	ES -28	ES -28	ES -28	7	2	ES -28	ES 7	2	-7	6
28	-8	1	2	10	9	20	6	-6	19	-12	ES -9	ES -11	ES 2	ES -12	ES -19	ES -28	ES -28	ES -28	ES -28	ES -28	2	1	-3	-2
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	27	27	27	27	26	26	27
MED	US -1	0	6	10	14	17	US 6	9	8	ES -8	ES -4	ES -2	ES -14	ES -20	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	US 2	4	-2	US 2
UD	ES 5	7	12	14	19	22	19	21	22	10	ES 5	ES 3	ES 2	ES 0	ES -21	ES -24	ES -24	ES -17	ES -25	-16	8	10	4	6
LD	ES -8	-5	-2	5	9	7	ES -4	ES -6	ES -2	ES -16	ES -9	ES -12	ES -25	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -28	ES -13	-2	-7	ES -2

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Feb. 1971	Whole Day Index		W W V 00 06 12 18 06 12 18 24	L M 00 06 12 18 06 12 18 24	W W V H 00 06 12 18 06 12 18 24	Warning 00 06 12 18 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	4+		4 - (4) 4	5 5 (4) 4	4 5 (4) 5	N N N N			
2	3+		3 - - 3	3 4 (5) 3	4 4 (4) 4	N N N N			
3	3°		3 - - 3	4 4 (2) 3	4 4 (4) 4	N N N N			
4	3+		3 - C 4	4 4 (3) 3	4 4 (4) C	N N N N			
5	4°		4 (4)(4) 4	4 4 (4) 4	4 4 (4) 4	N N N N			
6	4-		4 - - 4	4 4 (3) 4	4 4 - 4	N N N N			
7	4-		4 (4)(4) 4	3 3 (3) 4	4 (4)(4) 4	N N N N			
8	4°		4 - - 4	4 4 (4) 4	4 (4)(4) 4	N N N N	20.37	---	59γ
[9]	4-		4 - - 4	4 4 (3) 3	4 (4)(4) 4	N N N N	---	1800	
[10]	3°		4 - - 4	3 3 (2) 3	4 4 (4) 4	N N N N			
[11]	3+		4 - - 4	4 3 (2) 4	4 (3) - (4)	N N N N			
12	3+		4 - - 4	3 4 (2) 4	4 3 - 4	N N N N			
13	4-		4 - (5) 4	3 3 (2) 4	4 4 (4) 4	N N N N			
14	3+		4 - - 4	3 3 (3) 4	4 (3)(3) 5	N N N N	01.00	2400	85γ
15	4+		4 (5)(5) 4	4 4 (5) 4	4 4 - 4	N N N N			
16	4+		4 (5)(5) 4	4 4 (4) 4	4 5 (4) 4	N N N N			
17	4°		4 - - 4	4 5 (4) 4	4 4 (4) 4	N N N N			
18	4°		4 - - 4	4 5 (4) 4	4 4 - 4	N N N N			
19	4°		4 - - 4	4 4 (5) 4	4 4 (4) 4	N N N N			
20	4°		4 - - 4	4 4 (5) 4	4 4 (4) 4	N N N N			
21	3+		4 - - 4	3 3 (3) 4	4 4 (4) 5	N N N N			
22	4°		4 - - 4	4 4 (4) 4	4 5 (4) 4	N N N N			
23	4-		3 - - 4	3 5 (4) 4	4 (4) - 4	N N N N	05.14	---	43γ
24	4+		4 (5)(5) 4	4 4 (4) 4	4 5 (5) 4	N N N N	---	0200	
25*	5-		4 (5) - 4	5 5 (5) 4	3 4 - 3	N N N N			
26*	4°		3 (4)(5) 4	4 4 (3) 4	4 (3) - 4	U U U U			
27*	4°		4 - (5) 4	4 4 (4) 4	3 4 (5) 5	N N N N			
28	4-		4 - - 4	3 3 - 4	4 4 - 4	N N N N			

GEOALERT

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

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

C = artificial accident
--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Feb 1971	S W F								Correspondence		
	Drop-put Intensities (db)					Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
	CO	LM	HA	TO	SH							
3		×				05.27	23	S	×		×	
5		5				22.23	20	S	1-		×	
17	18		×									
	×'		×'			04.03	37	G	1-			
18	×	×	×			03.28	22	S	×		×	
18		×				04.07	20	S	×		×	

I N U B O

1971	S P A							Remarks
Feb.	Phase Advance (degrees)				Time (U. T.)			
DATE	GBR	WWVL	NAA	NWC	Start	End	Maximum	
2			6	48	0506	0546	0515	
3	23	—	19	96	0528	0644	0533	
15	50				1809	1846	1815	
16				12	0830	0858	0835	X
16	50				0940	1005	0945	
17				16	0056	0132	0110	
17		—		8	0228	0246	0232	
17		—		12	0253	0330	0300	
17	60	40	38	88	0405	0542	0418	X
17				16	0628	0700	0631	X
17				56*	0834	0930	0840	
18				32	0143	0234	0153	X
18			36	60	0322	0407(D)	0337	X
18			40	56	0407(E)	0518	0414	
19	43				2214	2248	2219	
20				24	0155	0235	0207	
20		—	24		0314	0357	0325	
20		—		12	0418	0452	0424	
20				32	0819	0906	0833	X
21				8	0335	0415	0343	
22		—		8	0540	0622	0546	
23	60	—			1954	2100	1957	
23			19		2345	0030	0003	
24	40		14		1947	2048	1956	
25	60				1422	1535	1439	

1971 Feb.	S P A							Remarks
	Phase Advance (degrees)				Time (U. T.)			
DATE	GBR	WWVL	NAA	NWC	Start	End	Maximum	
25	20				1654	1725	1700	
25	45				1746	1837	1804	
25	30				1955	2019	2000	

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 FEBRUARY 1971

第 23 巻 第 2 号

1971年6月20日 印 刷
1971年6月25日 発 行

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