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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 extra-ordinary 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.

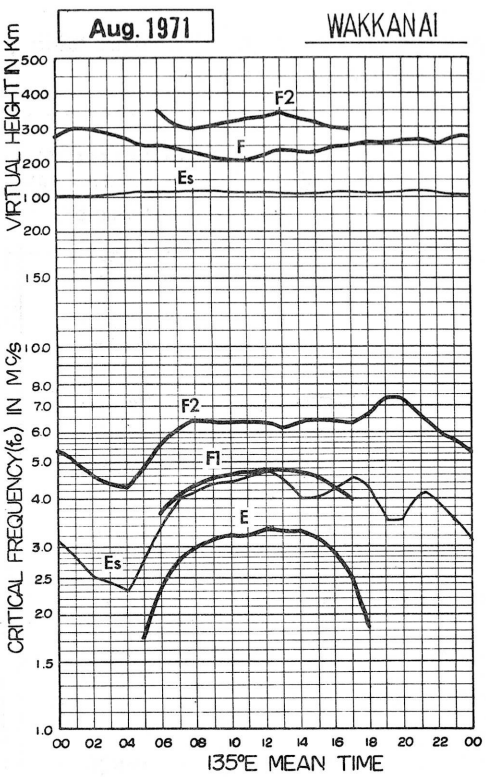
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West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

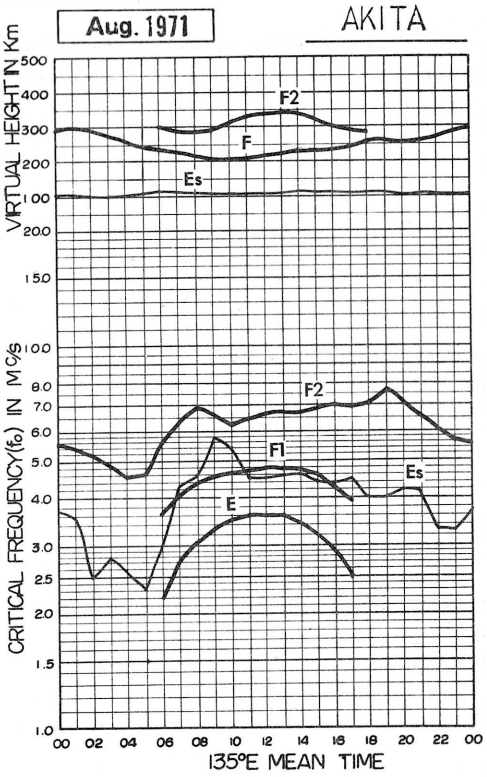
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

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.

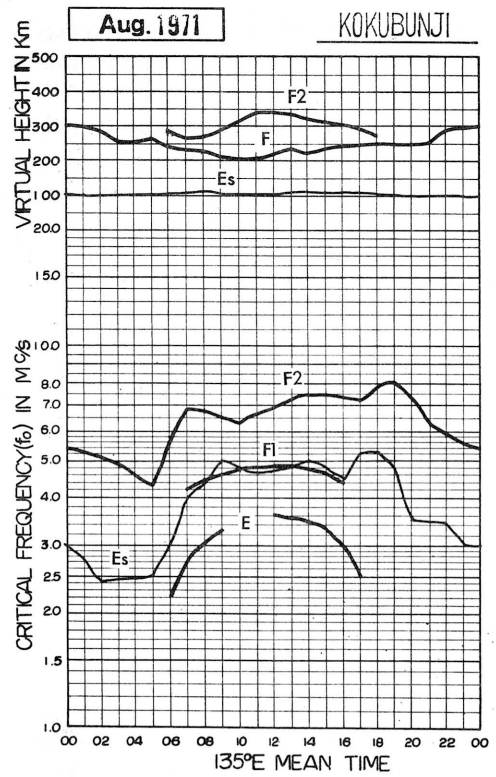
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

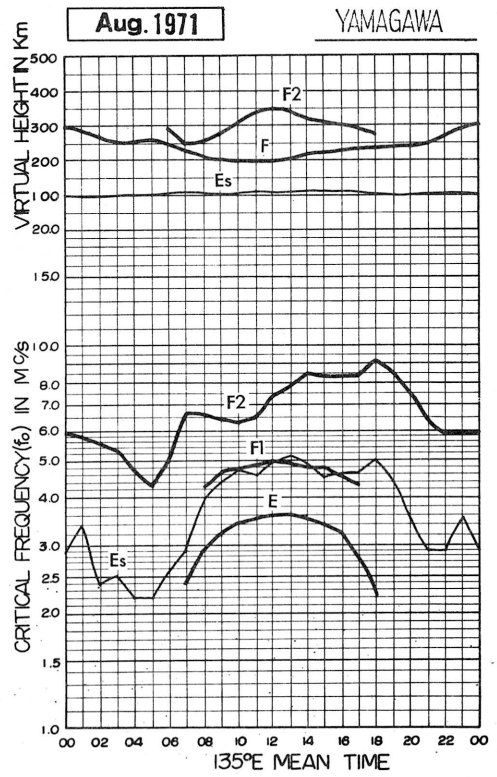
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

AUG. 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	F 50	48	I A 47	F 43	50	60	I A 66	65	I R 62	R 58	A	67	63	64	66	64	59	60	63	68	F	F	A
2	F 58	F 56	F	F	F	F 51	61	63	64	66	66	70	75	73	76	81	74	74	75	79	85	77	71	61
3	61	61	58	53	52	58	67	66	65	68	I A 74	75	73	66	66	67	72	71	74	81	I S 83	78	68	63
4	60	F	F 58	48	50	55	69	63	64	65	66	69	64	62	62	66	64	64	70	81	86	78	68	60
5	58	60	58	53	50	53	66	I A 72	63	61	60	58	A	70	75	74	77	84	81	A	A	F	F	F 63
6	53	49	45	F	F 41	53	63	69	73	A	76	R	A	59	65	68	68	64	63	75	75	F 71	F	A
7	F	F 48	F	A	F 44	F 48	56	I A 64	73	A	A	62	60	A	A	60	63	A	78	83	78	70	F 63	55
8	44	43	43	43	F 43	51	62	62	66	61	60	56	60	66	68	67	73	71	74	83	83	84	74	66
9	56	54	48	53	50	46	50	48	59	59	63	55	62	62	H 55	62	61	63	66	72	73	76	63	53
10	53	53	47	41	37	40	52	62	53	52	55	54	R 57	61	60	64	63	63	A	A	58	58	58	53
11	53	50	46	43	41	41	A	A	A	A	A	A	55	56	53	50	54	A	58	56	66	F 73	F 60	56
12	53	46	43	43	45	48	58	68	83	63	57	59	59	60	66	60	56	63	73	81	I S 74	66	56	A
13	A	F	F 43	F 40	F 37	40	46	A	51	A	A	A	A	53	54	55	56	58	54	53	F 55	A	F 53	F
14	F	F	F	F	F	48	55	63	68	67	59	59	55	57	55	56	56	58	62	65	64	F 63	F 63	F 63
15	F 54	F 53	F 50	F 48	43	A	59	65	65	66	66	61	A	A	64	56	63	63	60	67	70	S	64	F 57
16	49	43	43	42	38	47	63	74	82	65	I A 62	63	61	60	57	60	70	73	74	75	73	63	F 60	55
17	49	44	44	44	44	58	54	58	61	67	68	67	68	64	61	64	63	60	65	77	76	75	58	51
18	54	A	F	F 48	F 43	A	A	64	73	56	A	70	83	A	A	69	73	67	70	77	74	75	68	63
19	52	A	44	44	43	53	55	69	71	70	63	64	64	63	64	61	63	62	61	71	F 72	F	F 66	F
20	F 46	F 46	F 48	F	F 45	F 53	57	67	A	65	63	63	61	65	63	67	66	63	67	75	75	73	56	F 50
21	F 48	F	F 46	F 43	F 43	43	50	A	A	60	65	73	62	56	63	66	67	69	75	81	73	S 67	63	58
22	53	50	50	43	39	40	45	49	A	53	49	A	50	52	51	A	50	52	A	A	59	54	F 51	F 50
23	47	44	46	43	43	39	50	49	58	63	A	A	A	61	60	63	60	59	57	64	68	F 65	A	F
24	F	F 46	46	F 43	40	42	51	57	58	58	56	63	58	61	58	56	56	54	57	63	67	61	60	60
25	55	54	52	51	48	50	57	56	66	67	71	67	68	68	64	66	63	66	70	79	I S 78	70	58	54
26	51	48	F	F	F 49	F 47	58	52	60	66	62	61	64	64	60	60	64	66	64	73	70	66	F 60	F
27	F 56	F 56	F 53	F 47	44	45	46	53	62	62	54	58	60	61	63	64	61	63	60	65	65	63	53	50
28	F	F	A	F 43	F	F 50	50	53	63	65	67	67	64	68	65	66	65	64	60	64	64	F 63	F	F
29	F	F	F	F	F	S 43	53	59	67	73	66	66	70	65	65	I A 61	59	65	65	73	74	F	F	F
30	F	F	F	F 44	F 43	F 43	52	55	64	58	61	57	65	65	59	60	66	72	68	73	71	65	53	F 50
31	F 50	F 49	F	F 50	F	F 45	50	54	60	55	64	68	69	67	69	74	74	62	66	69	68	63	55	53
	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	22	22	24	26	29	29	28	27	27	26	25	26	28	29	30	31	29	29	28	30	25	25	26
MED	53	50	46	44	43	48	55	62	64	63	63	63	63	62	63	64	64	63	66	73	72	67	60	56
UQ	56	54	50	48	45	51	60	66	68	66	66	67	68	65	65	67	69	67	73	79	75	75	64	61
LQ	50	46	44	43	41	43	50	54	60	60	59	59	60	60	59	60	61	62	60	65	67	63	56	53

AUG. 1971 | FOF2 (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						340	A	A	450	A	460	A	A	A	490	450	A	380						
2								430	450	A	A	470	480	480	480	450	440	A						
3									A	470	A	490	490	A	480	470	430	400						
4							A	420	460	500	500	490	480	510	490	460	430	410						
5								A	A	470	A	A	A	A	470	450	A	400						
6								A	A	A	A	480	A	490	450	460	430	400						
7								A	A	A	A	A	A	A	A	450	A	A						
8								440	440	470	470	500	470	460	470	460	440	A						
9							360	410	430	460	460	490	460	480		430	440	390						
10						300	370	400	430	450	450	470	480	480	430	A	410	A						
11								A	A	A	A	A	A	A	450		A	A						
12						310	380	430	430	450	440	A	470	480	A	A	A	A						
13							A	A	A	A	A	A	A	A	A	440	430	380						
14								430	430	450	460	470	470	470	470	440	410	400L						
15								420	450	430	450	480	A	A	460	430	A	A						
16								420	A	A	A	480	A	480	L	460	420	A						
17									410	460	480	470	460	480	470	430								
18								410	A	A	A	A	A	A	A	450	A	A						
19								410	440L	460	450	470	480	480	470	450								
20								A	A	A	470	470	A	470	480	450	430							
21								A	A	460	460	470	480		470	460	420L	380UL						
22						290	400	410	A	430	440	A	A	450	460	A	A	A						
23							A	410	420	A	A	A	A	A	A	A	430L							
24								410	430	460	A	470	470	470	460	460								
25									440	470	460	480	480	470	450	430L								
26									430	440	460	470	470	480	470	430	430L	L						
27							340	A	A	440	460	470	470	470	440	440	440L							
28									450	450	470	450	500	470	480	450	A							
29									430	450	460	490	480	480	460	A	420							
30									430	A	A	A	490	470	460	470L	410L	L						
31									450		470	460	470	490	470	440								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	5	14	19	19	19	21	19	21	24	25	17	9						
MED						305	370	415	430	460	460	470	480	480	470	450	430	400						
UQ						325	380	430	450	465	470	480	480	480	475	460	430	400						
LQ						295	360	410	430	450	455	470	470	470	460	440	420	380						

The Radio Research Laboratories, Japan

AUG. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	240	290	300	315	330	A	A	A	A	A	A	A	A	A				
2						A	240	295	310	320	325	340	A	K	A	A	300	265	A	A				
3						180	A	A	310	325	330	340	350	330	300	A	A	A	A	A				
4						150	240	290	305	315	325	320	310	I A 310	325	325	300	245	195	S				
5						A	240	290	310	320	330	330	325	325	325	A	A	A	A	A				
6						A	230	295	305	315	310	310	A	A	A	A	A	A	A	A				
7						A	245	280	305	320	310	315	A	A	A	320	295	250	A	A				
8						185	245	295	300	300	310	310	A	350	340	325	290	250	200	E				
9						180	240	290	305	325	320	A	335	315	315	325	295	255	185	S				
10						190	235	280	300	310	310	300	360	A	330	A	300	255	190	E				
11						175	235	290	305	310	315	325	320	320	305	305	290	A	180	E				
12					E	195	235	280	295	300	305	315	A	335	340	320	295	250	180	E				
13						185	225	280	300	315	325	330	320	305	A	A	A	A	A	A				
14						170	240	285	300	310	325	315	335	R	330	330	290	230	190	A				
15						A	A	A	A	A	R	A	A	A	A	325	295	245	S	E				
16						A	215	265	290	300	A	A	A	A	340	325	290	240	A	E				
17						A	A	240	295	320	I A 335	345	350	330	330	320	290	240	S	S				
18						S	205	265	290	A	A	A	A	360	340	310	290	210	S					
19						125	220	275	295	300	315	A	A	A	K	R	310	270	190					
20						A	205	255	285	300	300	A	A	A	A	A	A	250	150					
21						A	A	250	285	300	330	A	350	345	330	320	295	240	150					
22						150	225	285	285	295	A	325	335	340	335	300	A	260	S					
23					A	175	230	255	300	300	A	A	A	A	A	A	A	250	S					
24						165	215	285	300	310	320	300	A	A	A	A	290	240	160					
25						A	240	290	300	320	330	315	335	A	A	A	A	A	A					
26						A	215	A	300	320	325	A	R	A	A	A	A	A	A					
27						E	A	A	A	315	320	A	325	360	335	310	A	A	A					
28						A	235	A	300	I A 315	340	335	I B 320	A	A	A	A	A	A					
29						A	240	290	305	A	A	A	A	A	A	A	285	A	A					
30						A	225	280	300	315	325	325	310	330	325	320	A	A	A					
31						A	195	250	295	A	300	A	A	R	R	300	275	205	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	14	26	26	29	27	25	18	15	14	16	16	18	19	11	6				
MED					E	175	235	282	300	315	325	322	335	330	330	320	292	250	185	E				
UQ						185	240	290	305	320	330	330	342	345	338	325	295	252	190	E				
LQ						150	220	265	295	300	310	315	320	320	325	310	290	240	170	E				

AUG. 1971 | FOE (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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	J X 48	J X 34	J X 53	J X 59	J X 61	35	J X 45	J X 76	J X 115	50	45	J X 63	J X 63	58	J X 55	J X 53	J X 50	39	43	J X 63	J X 63	51	J X 39	J X 73
2	J X 31	J X 26	J X 33	J X 61	J X 70	22	30	J X 42	38	J X 46	J X 53	48	40	G	40	35	38	J X 61	J X 55	J X 44	J X 73	J X 73	J X 30	E S 16
3	19	E	23	J X 25	J X 31	J X 41	J X 53	J X 55	J X 51	J X 53	J X 84	J X 60	44	J X 63	J X 53	J X 48	J X 38	J X 55	J X 53	J X 33	J X 40	J X 63	J X 40	J X 40
4	J X 45	J X 33	24	19	J X 23	38	J X 43	40	39	44	45	39	J X 58	J X 48	G	G	42	J X 53	J X 55	J X 64	J X 30	J X 35	J X 23	J X 29
5	J X 23	E	J X 34	J X 33	J X 23	J X 43	J X 51	J X 103	J X 51	J X 53	J X 56	J X 55	J X 85	J X 66	40	J X 44	J X 48	J X 51	J X 123	J X 111	J X 111	J X 35	J X 83	J X 65
6	31	J X 38	J X 33	J X 33	J X 28	33	J X 58	J X 47	J X 65	J X 78	J X 69	J X 52	J X 74	40	J X 38	J X 35	J X 46	J X 40	50	J X 83	J X 41	J X 53	J X 30	J X 66
7	J X 41	J X 26	18	J X 63	J X 25	J X 33	34	J X 76	J X 65	J X 71	J X 86	J X 52	J X 53	J X 60	J X 86	40	J X 55	120	J X 78	30	J X 25	33	J X 25	23
8	J X 28	J X 23	J X 23	J X 25	J X 23	26	32	31	40	J X 44	J X 43	41	40	G	39	43	38	J X 45	30	J X 28	20	E S 16	E S 12	E S 15
9	23	J X 23	16	E	13	27	J X 38	37	41	43	J X 43	38	G	G	G 25	40	J X 48	J X 63	J X 45	E S 15	J X 23	28	J X 55	J X 51
10	J X 24	E S 15	E S 13	E	E	G	32	37	39	38	36	36	44	45	43	53	J X 80	J X 58	J X 90	J X 80	J X 23	J X 21	J X 21	J X 24
11	J X 29	J X 31	J X 25	E	E S 14	42	J X 53	M 58	J X 124	J X 128	J X 74	J X 66	J X 61	J X 50	43	J X 46	J X 53	103	J X 53	J X 53	J X 60	J X 63	J X 33	E S 15
12	J X 26	J X 23	17	18	13	25	J X 38	36	40	J X 44	43	J X 74	J X 52	50	J X 63	J X 56	J X 100	J X 45	J X 39	J X 33	J X 45	J X 41	J X 30	J X 51
13	J X 51	J X 33	J X 28	J X 41	J X 33	43	J X 48	J X 50	J X 50	J X 63	J X 60	J X 64	J X 68	44	J X 55	43	J X 55	J X 34	J X 43	J X 60	63	J X 64	J X 63	J X 75
14	J X 63	J X 41	J X 33	J X 30	J X 25	24	30	40	J X 64	44	J X 45	38	G	G	G 28	G	35	28	G	J X 25	J X 35	J X 30	J X 30	E S 13
15	J X 40	J X 28	J X 56	J X 63	J X 53	J X 60	J X 40	J X 53	J X 41	41	G	41	M 56	M 65	40	40	J X 48	J X 51	J X 73	J X 42	23	43	J X 65	E S 15
16	E S 17	J X 26	J X 26	19	E S 15	28	J X 60	J X 43	J X 80	J X 73	J X 67	J X 51	J X 70	J X 44	G	G	35	J X 73	J X 33	J X 63	J X 63	J X 62	E S 16	E S 15
17	E	E	25	E	E S 15	24	J X 34	J X 36	38	G	36	G	G	G	G	37	36	37	J X 32	22	J X 45	J X 33	E	J X 80
18	71	J X 63	J X 31	J X 63	J X 61	J X 103	J X 73	35	J X 53	J X 63	J X 91	J X 64	J X 66	J X 104	J X 130	J X 64	J X 73	J X 90	J X 43	J X 25	J X 25	E S 15	J X 80	J X 63
19	J X 53	J X 64	E	J X 23	E	24	30	33	36	J X 43	39	J X 43	J X 43	J X 53	G	G	32	37	30	J X 31	J X 35	J X 53	J X 63	J X 73
20	J X 33	J X 33	J X 23	E S 15	20	J X 28	33	J X 58	J X 65	J X 48	39	40	J X 48	J X 65	J X 43	J X 36	30	G 20	21	J X 63	J X 40	J X 63	J X 41	J X 31
21	24	J X 26	J X 24	J X 24	J X 30	J X 33	25	J X 60	J X 58	J X 44	G	37	G	G	G	G	34	30	30	J X 25	23	J X 31	J X 30	J X 24
22	J X 24	J X 25	E	E S 15	E S 13	20	33	33	J X 80	41	41	M 63	J X 50	G	G	M 51	J X 42	J X 43	J X 63	J X 73	J X 61	J X 64	J X 60	J X 23
23	J X 24	J X 30	J X 24	J X 24	28	24	J X 43	J X 53	J X 41	J X 64	J X 75	J X 93	J X 111	J X 65	J X 45	J X 61	J X 45	51	J X 43	J X 21	J X 25	J X 63	J X 96	J X 61
24	J X 51	J X 33	J X 29	J X 24	J X 21	G	34	34	35	41	J X 49	J X 46	J X 65	J X 66	J X 45	J X 39	G 24	G	20	E S 16	J X 40	J X 33	J X 43	J X 31
25	J X 40	J X 25	23	18	20	J X 28	G	G	36	40	39	40	G	43	43	34	J X 38	J X 51	J X 68	J X 56	J X 33	J X 25	E S 16	J X 33
26	J X 30	26	J X 40	J X 30	J X 43	J X 23	32	37	G	41	41	41	G	J X 41	J X 43	J X 43	J X 33	29	J X 25	J X 33	J X 33	J X 53	J X 33	J X 33
27	J X 23	J X 35	J X 25	J X 33	J X 38	J X 33	32	J X 41	J X 61	G	J X 44	J X 34	G	40	40	G	J X 56	J X 55	J X 48	J X 61	J X 44	J X 25	J X 63	J X 61
28	J X 40	J X 46	J X 58	J X 63	41	36	40	39	44	J X 43	40	40	40	39	35	J X 53	J X 53	30	J X 71	J X 53	53	J X 41	J X 53	J X 80
29	J X 51	J X 48	J X 33	17	18	21	24	34	38	44	J X 43	J X 41	38	J X 45	J X 53	J X 63	34	32	J X 34	J X 20	J X 28	J X 80	J X 55	J X 53
30	J X 63	J X 19	J X 25	J X 26	19	28	G 18	34	40	J X 53	50	J X 64	J X 50	46	G	G	31	26	25	31	31	E S 15	J X 23	J X 35
31	J X 40	J X 43	J X 40	E	J X 41	J X 33	J X 53	38	39	J X 41	37	J X 50	40	G	G	G	G	G 18	J X 21	J X 35	J X 31	J X 33	J X 71	J X 95
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J X 31	J X 28	J X 25	J X 24	J X 23	28	34	40	J X 41	J X 44	J X 44	J X 46	J X 48	45	40	40	J X 42	J X 45	J X 43	J X 35	J X 35	J X 41	J X 39	J X 35
UQ	J X 46	J X 34	J X 33	J X 33	J X 36	J X 36	J X 46	J X 53	J X 62	J X 53	J X 58	J X 62	J X 62	J X 59	J X 45	J X 50	J X 52	J X 55	J X 55	J X 62	J X 49	J X 62	J X 62	J X 64
LQ	J X 24	J X 24	23	18	16	24	32	36	39	41	40	40	39	E G 39	E G 29	E G 34	34	31	J X 30	J X 26	J X 26	J X 30	J X 28	J X 24

AUG. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	32	29	30	A	20	25	43	A	G	45	G	A	63	50	40	38	42	33	26	42	55	41	36	A
2	19	16	17	21	19	20	G	38	G	45	48	G	40	G	36	33	G 25	52	42	30	43	25	18	E S 16
3	E	E	E	18	31	40	32	43	49	G	A	43	44	55	42	38	35	35	36	25	27	32	22	E
4	32	16	E	16	16	35	41	38	38	G	44	39	42	39	G	G	G	40	53	36	24	33	20	27
5	15	E	16	23	16	25	50	A	48	43	47	53	A	62	40	40	47	37	46	A	A	30	50	29
6	E	32	24	27	23	29	48	45	65	A	59	40	A	39	38	34	37	32	47	44	22	32	23	A
7	20	16	15	A	15	20	G	A	60	A	A	50	40	A	A	27	50	A	48	25	20	20	20	18
8	20	15	E	19	14	20	G	G	G	G	G	G	40	G	G	G	G	42	G	28	14	E S 16	E S 12	E S 15
9	E	17	16	E	G	G	G	G	39	G	G	37	G	G	G 24	G	38	35	25	E S 15	18	19	28	31
10	E	E S 15	E S 13	E	E	G	G	G	G	G	G	41	42	43	39	44	38	57	A	A	20	19	20	19
11	25	20	21	E	E S 14	36	A	A	A	A	A	A	49	50	G	40	47	A	48	41	47	17	21	E S 15
12	20	E	E	12	G	G	G	G	G	40	43	50	40	G	46	47	50	42	38	30	45	30	22	A
13	A	20	20	28	19	23	40	A	48	A	A	A	A	44	45	41	37	30	36	45	28	A	18	20
14	18	28	20	16	E	G	G	G	G	42	G	G	G	G	G 28	G	G	G	G	18	28	19	17	E S 13
15	17	E	20	30	15	A	28	33	35	35	G	40	A	A	37	G 21	45	51	50	36	23	43	18	E S 15
16	E S 17	E	20	E	E S 15	20	40	G	61	50	A	46	55	40	G	G	G	42	25	40	43	E	E S 16	E S 15
17	E	E	E	E	E S 15	20	38	G	38	G	36	G	G	G	G	G	G	G	29	19	43	28	E	24
18	22	A	25	25	28	A	A	G	50	46	A	48	49	A	A	G	57	37	20	18	E	E S 15	43	42
19	45	A	E	E	E	23	G	G	G	G	G	39	38	41	G	G	25	G	27	20	25	50	19	26
20	24	25	17	E S 15	17	26	30	57	A	46	G	40	48	37	35	36	30	G 20	G	61	28	45	18	22
21	E	17	20	21	24	30	24	A	A	G	G	37	G	G	G	G	G	G	G	18	E	20	28	21
22	20	20	E	E S 15	E S 13	G	G	G	A	40	38	A	46	G	G	51	43	42	A	A	26	23	E	E
23	16	25	16	18	20	G	40	G	G	45	A	A	A	56	45	46	36	32	23	20	19	53	A	46
24	22	17	21	21	15	G	33	G	G	G	48	45	37	43	45	37	G 22	G	G	E S 16	31	27	32	21
25	28	18	16	15	E	20	G	G	G	G	G	G	G	38	36	33	35	48	30	38	32	20	E S 16	25
26	E	E	22	24	20	17	G	34	G	G	G	40	G	33	35	33	29	27	25	22	28	28	E	22
27	18	29	23	21	26	22	25	40	47	G	G	36	G	G	G	G	32	32	44	50	43	20	18	22
28	25	30	A	24	17	26	35	34	43	38	G	G	G	36	35	40	42	26	35	27	19	30	42	17
29	E	18	20	17	15	20	20	24	28	40	40	37	38	46	38	A	25	24	32	19	30	52	47	18
30	17	18	E	16	E	21	G 17	G 22	G	51	46	48	G	40	G	G	30	25	22	25	20	E S 13	E	26
31	38	32	16	E	30	26	46	37	35	39	G	39	36	G	G	G	G	G 17	21	32	25	30	41	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	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	19	18	17	18	15	21	28	33	38	40	38	40	40	39	35	33	35	33	30	30	27	28	20	22
UQ	24	26	20	24	20	26	40	44	50	46	54	49	49	48	40	40	42	42	45	42	38	32	30	28
LQ	E E 15	15	E E 13	E E 14	E E 14	18	G	G	G	G	G	37	G	G	G	G	G 24	24	22	20	20	20	18	16

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IONOSPHERIC DATA

AUG. 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 15	E	E	E	12	13	20	17	20	22	20	20	20	20	18	16	E	E	E	E	E	E	E S 18
2	E S 16	E	E	E	E	E	11	16	17	18	18	22	20	20	18	18	16	11	E	E S 14	E	E	E	E S 16
3	E	E	E	E	E	11	11	15	19	22	18	22	22	25	18	19	19	E	11	E	E	E S 15	E S 12	E S 15
4	E	E	E	E	E	E	17	17	17	20	20	23	27	26	22	19	18	11	12	E S 14	E	E	E	E S 16
5	E	E	E	E	E	E	16	16	20	19	20	26	24	22	20	20	17	13	E	E	E S 15	E	E S 15	E S 16
6	E S 16	E	E	E	E	E	17	17	22	19	20	22	20	23	19	18	17	E	E	E	E	E S 16	E S 15	E
7	E S 15	E	E	E	E	E	12	18	20	17	20	20	20	20	19	20	12	E	E	E	E S 15	E	E S 15	E S 15
8	E	E	E	E	E	E	13	17	18	19	20	20	30	26	20	19	18	13	12	E	E	E S 16	E S 12	E S 15
9	E S 17	E	E	E	E	E	11	11	17	19	17	20	18	23	18	15	12	E	E	E S 15	E	E S 15	E S 15	E S 12
10	E	E S 15	E S 13	E	E	E	14	12	18	18	20	19	20	16	19	11	12	11	17	E	E S 15	E S 15	E	E S 15
11	E	E S 15	E	E	E S 14	E	11	18	20	20	21	20	20	23	17	17	16	E	E	E	E	E	E S 15	E S 15
12	E	E	E	E	E	E	11	17	16	19	20	21	23	20	20	18	17	16	12	E	E	E	E	E
13	E	E	E	E	E	E	16	17	18	20	25	22	27	20	20	23	20	16	12	E	E S 16	E	E S 15	E S 15
14	E S 15	E S 15	E	E	E	E	17	17	20	17	22	21	22	20	20	18	17	14	12	E	E	E	E	E S 13
15	E S 15	E	E	E	E	E	E	16	17	20	20	20	20	20	18	13	18	19	E S 17	E	E S 16	E S 15	E S 14	E S 15
16	E S 17	E S 15	E	E	E S 15	E	11	18	12	20	18	19	25	23	20	18	16	13	E	E	E S 15	E S 15	E S 16	E S 15
17	E	E	E S 15	E	E S 15	11	17	13	19	17	20	22	19	18	20	20	17	12	E S 15	E S 14	E S 15	E S 15	E	E S 15
18	E S 16	E	E	E	E	E S 15	12	16	18	18	20	20	20	22	20	16	11	14	E S 12	E	E S 15	E S 15	E S 16	E S 16
19	E	E	E	E	E	E	13	16	18	20	17	20	20	30	20	20	12	17	16	E S 16	E	E S 15	E S 15	E S 15
20	E S 15	E S 15	E	E S 15	E	E	12	12	16	20	20	25	27	20	20	17	16	12	E	E	E	E S 15	E	E
21	E S 16	E	E	E	E	E	12	16	17	18	20	27	26	20	20	21	12	11	E	E	E S 16	E	E	E S 15
22	E	E	E	E S 15	E S 13	E	12	12	17	18	20	24	23	22	18	18	17	17	E S 16	E	E	E	E S 17	E S 16
23	E	E	E	E	E	E	16	16	17	18	19	20	19	19	20	16	17	E	E S 15	E	E S 16	E	E	E
24	E	E	E	E	E	12	E	11	18	19	20	22	20	18	20	18	15	11	E	E S 16	E S 16	E S 15	E	E S 13
25	E S 15	E	E	E	E	E	12	13	17	19	20	19	24	22	18	18	16	11	E	E	E	E	E S 16	E S 18
26	E S 15	E S 17	E	E	E	E	11	14	17	18	19	22	22	19	19	17	18	12	16	E S 16	E S 15	E S 17	E S 15	E S 17
27	E	E	E	E	E	E	11	11	11	19	19	20	20	20	18	18	16	11	16	E	E S 16	E	E S 15	E S 15
28	E	E	E	E	E	E	13	E	17	16	30	20	34	22	21	12	17	17	12	E	E	E	E S 16	E
29	E	E	E	E	E	E	E	11	18	17	19	20	20	24	18	18	16	12	15	E	E	E	E S 14	E
30	E S 15	E	E	E	E	E	11	16	13	18	20	19	20	20	27	19	17	11	E	E	E	E S 15	E S 17	E S 15
31	E	E	E	E	E	E	E	17	17	18	19	20	20	18	20	16	15	E	E	E	E S 15	E	E	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E	E	E	E	E	E	12	16	17	19	20	20	20	20	20	18	16	11	E E 12	E	E	E	E S 14	E S 15
UQ	E S 15	E	E	E	E	E	14	17	18	20	20	22	24	23	20	19	17	14	14	E	E S 15	E S 15	E S 15	E S 16
LQ	E	E	E	E	E	E	11	12	17	18	19	20	20	20	18	17	16	E E 11	E	E	E	E	E	E S 12

AUG. 1971 | F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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	F	F 295	275	I A 275	F 275	280	300	I A 300	310	I R 305	R 320	A	285	285	290	295	330	300	290	295	290	F	F	A
2	F 295	F 265	F	F	F	F 300	320	315	340	320	305	315	295	285	290	300	300	290	290	285	300	300	280	280
3	280	295	300	285	290	315	340	320	325	310	I A 300	315	305	295	290	290	300	285	295	285	I S 300	310	295	285
4	280	F	F 295	290	280	295	320	335	305	290	295	315	305	280	290	305	300	290	275	285	300	315	280	280
5	285	275	295	285	290	285	295	I A 340	300	330	305	285	A	285	305	285	300	310	295	A	A	F	F	F 295
6	300	295	280	F	F 295	310	305	315	315	A	330	R	A	290	310	295	325	300	280	295	295	F 325	F	A
7	F	F 290	F	A	F 305	F 305	305	I A 305	330	A	A	290	320	A	A	290	285	A	315	300	320	300	F 305	315
8	280	280	280	290	F 290	315	320	305	350	315	305	285	280	290	295	275	290	280	300	290	290	295	300	290
9	275	270	270	275	295	275	290	265	290	275	335	265	320	305	H 310	305	300	300	290	305	290	305	300	280
10	280	285	285	270	270	270	265	315	310	280	295	295	R 280	300	295	295	300	310	A	A	285	285	295	300
11	280	285	305	300	295	270	A	A	A	A	A	A	275	300	270	295	280	A	310	290	275	F 275	F 300	290
12	290	285	280	280	280	275	285	295	315	300	280	300	295	285	305	305	295	295	295	310	I S 300	290	290	A
13	A	F	F 280	F 275	F 295	305	310	A	315	A	A	A	A	275	300	290	305	315	320	295	F 275	A	F 285	F
14	F	F	F	F	F	325	290	290	330	345	345	290	300	295	275	305	305	295	300	310	280	F 285	F 295	F 285
15	F 280	F 270	F 295	F 290	290	A	305	310	325	365	335	300	A	A	305	320	300	305	300	285	295	S	295	F 305
16	295	280	280	295	300	310	290	330	330	330	I A 300	300	310	295	290	295	315	315	310	310	300	300	F 285	300
17	290	290	285	300	305	360	335	320	315	315	320	330	310	315	300	315	295	305	290	310	320	320	300	280
18	280	A	F	F 300	F 300	A	A	345	335	320	A	280	325	A	A	290	310	305	285	315	295	295	310	290
19	285	A	275	280	300	320	310	335	325	335	305	300	310	295	295	295	305	310	295	295	F 275	F	F 300	F
20	F 285	F 275	F 270	F	F 290	F 320	315	340	A	310	315	310	310	310	300	315	320	300	300	305	305	320	305	F 295
21	F 280	F	F 275	F 295	F 280	255	330	A	A	300	310	330	325	305	300	305	315	310	305	310	295	S 285	280	285
22	300	280	290	305	295	290	275	270	A	285	265	A	255	290	280	A	310	290	A	A	295	285	F 295	F 280
23	285	280	275	285	275	280	300	290	315	340	A	A	A	295	295	315	305	305	295	280	280	F 280	A	F
24	F	F 280	295	F 300	295	305	290	325	300	315	290	310	300	300	305	315	305	310	300	290	285	285	285	305
25	290	280	285	290	290	300	325	305	320	320	325	315	295	310	305	320	300	295	300	290	I S 300	315	295	295
26	280	280	F	F	F 300	F 305	305	335	315	335	300	295	310	315	295	315	305	320	300	290	295	290	F 285	F
27	F 270	F 270	F 300	F 300	290	325	300	310	325	330	325	295	300	330	315	335	320	305	305	290	280	295	285	280
28	F	F	A	F 285	F	F 350	365	315	330	340	325	340	300	315	310	320	325	330	310	295	280	F 290	F	F
29	F	F	F	F	F	S 325	320	320	330	325	325	290	315	300	310	I A 315	310	310	295	300	305	F	F	F
30	F	F	F	F 280	F 290	F 300	325	335	350	340	305	290	310	335	315	290	310	320	310	305	280	325	270	F 280
31	F 275	F 265	F	F 285	F	F 330	A	330	315	315	315	310	315	285	290	310	315	305	305	285	280	295	275	285
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	22	22	24	26	29	28	28	27	27	26	25	26	28	29	30	31	29	29	28	30	25	25	22
MED	280	280	282	288	290	305	305	315	320	320	308	300	305	295	300	305	305	305	300	295	295	295	295	288
UQ	290	285	295	298	295	320	320	332	330	332	325	315	310	308	305	315	312	310	305	305	300	310	300	295
LQ	280	F 275	275	280	290	285	292	305	315	308	300	290	295	288	290	295	300	295	295	290	280	285	285	280

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

IONOSPHERIC DATA

AUG. 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

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						340	A	A	370	A	390	A	A	A	350	375	A	370						
2								380	370	A	A	405	395	365	360	360	365	A						
3									A	375	A	A	A	A	A	355	345	360						
4							A	A	360	340	A	375	390	340	345	370	345	A						
5								A	A	A	A	A	A	A	A	A	A	A						
6								A	A	A	A	385	A	365	375	370	350	375						
7								A	A	A	A	A	A	A	A	365	A	A						
8								370	385	365	390	360	370	370	350	360	340	A						
9							340	335	A	370	370	380	395	360		385	340	A						
10						310	345	370	385	400	405	A	345	A	385	A	A	A						
11								A	A	A	A	A	A	A	375		A	A						
12						325	345	335	380	400	A	A	365	355	A	A	A	A						
13							A	A	A	A	A	A	A	A	A	A	A	330						
14								345	370	A	390	385	380	350	365	365	365	350L						
15								370	375	425	390	375	A	A	365	385	A	A						
16								370	A	A	A	A	A	355	L	350	350	A						
17									390	370	360	385	390	350	360	390								
18								390	A	A	A	A	A	A	A	370	A	A						
19								365	385L	380	390	405	360	360	360	355								
20								A	A	A	380	395	A	380	350	355	350							
21								A	A	380	395	370	375		360	350	350L	UL355						
22						325	310	340	A	390	405	A	A	375	360	A	A	A						
23							A	365	395	A	A	A	A	A	A	A	350L							
24								360	380	355	A	A	385	370	A	355								
25									365	360	390	385	370	370	370	370L								
26									385	395	375	380	365	370	365	370	350L	L						
27							355	A	A	410	375	380	390	355	385	365	370L							
28									A	400	405	420	360	380	355	A	A							
29									370	A	380	375	360	A	360	A	355							
30									380	A	A	A	365	A	370	350L	365L	L						
31									360		390	370	355	350	355	340								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	5	13	17	16	17	17	18	18	21	22	15	6						
MED						325	345	365	380	380	390	380	370	362	360	365	350	358						
UQ						332	345	370	385	400	390	385	390	370	370	370	360	370						
LQ						318	340	345	370	368	380	375	360	355	355	355	348	350L						

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

IONOSPHERIC DATA

AUG. 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						350	300	I A 305	295	320	300	A	A	350	350	330	290	290						
2								285	270	285	325	300	325	360	320	310	305	310						
3									300	310	I A 330	300	320	335	350	350	305	290						
4							270	250	305	370	345	325	340	400	355	320	305	310						
5								A	320	290	320	A	A	A	310	315	300	275						
6								275	A	A	275	535	A	390	325	325	300	285						
7								A	A	A	A	360	300	A	A	360	350	A						
8								305	260	300	340	400	390	360	325	355	320	310						
9							345	450	350	380	290	460	310	330		320	320	300						
10						420	410	310	330	370	365	360	405	350	320	325	300	A						
11								A	A	A	A	A	410	360	425		A	A						
12						355	350	320	280	290	325	360	360	375	330	315	A	315						
13							A	A	A	A	A	A	A	420	375	360	320	300						
14								330	270	265	295	380	370	380	375	325	310	300						
15								300	270	270	280	325	A	A	315	315	315	310						
16								260	275	275	A	325	A	370	U L 385	350	300	275						
17									265	300	300	290	315	300	320	305								
18								260	265	300	A	375	290	A	A	320	A	280						
19								275	270	285	275	325	325	350	330	320								
20								A	A	300	305	320	315	320	335	300	295							
21								A	A	350	305	280	300		325	315	300	290						
22						370	425	420	A	375	470	A	500	385	400	A	330	345						
23							320	390	325	300	A	A	A	A	305	280	295							
24								300	360	300	390	320	350	340	345	315								
25									295	275	290	310	340	300	300	300								
26									300	270	320	310	325	315	325	305	300	285						
27							360	350	295	300	320	375	360	305	325	285	270							
28									295	275	310	285	350	315	300	300	275							
29									275	285	280	350	310	315	305	A	300							
30									265	A	315	350	315	300	310	350	300	265						
31									385		310	310	300	350	340	300								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	8	17	24	25	25	25	24	25	28	28	23	18						
MED						362	348	305	295	300	310	325	325	350	325	318	300	295						
UQ						395	385	330	312	310	325	360	360	370	350	328	312	310						
LQ						352	310	275	270	285	295	310	312	315	318	305	300	285						

AUG. 1971 | H'F2 (KM)

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IONOSPHERIC DATA

AUG. 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	320	300	315	I A 310	300	250	A	A	235	I A 220	210	A	A	A	240	225	A	225	225	A	A	A	A 300	A
2	265	300	295	275	245	240	225	240	205	A	A	200	205	205	200	220	250	A	A	275	A	260	260	270
3	280	255	250	260	285	I A 255	250	I A 225	A	215	A	A	A	A	A	215	230	260	A 260	260	265	250	270	250
4	I A 300	300	260	260	295	A	A	A	210	210	A	210	215	230	205	210	255	I A 250	A	A	260	250	250	300
5	260	285	270	270	285	260	A	A	A	A	A	A	A	A	I A 245	A	A	A	A	A	A	310	A	315
6	270	300	290	300	275	270	A	A	A	A	A	205	A	215	220	215	235	245	A	A	265	255	245	A
7	320	265	265	I A 270	250	250	250	A	A	A	A	A	A	A	A	250	A	A	A	250	225	260	235	230
8	285	300	295	285	260	245	240	240	220	215	200	210	215	225	245	250	250	A	270	275	255	260	235	245
9	250	300	300	285	275	270	250	210	A	230	215	200	195	235	H 240	225	260	A	260	250	270	255	265	315
10	275	270	270	290	300	275	260	230	225	200	200	A	260	I A 240	240	A	A	A	A	A	255	285	265	250
11	300	290	265	270	285	A	A	A	A	A	A	A	A	A	230	A	A	A	A	A	A	270	250	250
12	270	275	280	290	290	270	250	245	225	220	A	A	240	240	A	A	A	A	A	255	A	265	260	A
13	A	310	300	315	265	265	A	A	A	A	A	A	A	A	A	A	A	260	A	A	275	A	250	300
14	275	350	300	280	250	250	240	250	230	I A 240	210	200	200	250	240	235	225	240	250	250	300	290	260	265
15	275	280	275	290	280	A	270	230	225	200	200	200	A	A	215	230	A	A	A	A	265	A	250	230
16	240	275	300	250	270	250	A	235	A	A	A	A	A	235	220	225	260	A	250	A	A	220	250	250
17	255	270	290	250	250	225	265	225	240	190	225	215	200	230	215	215	215	245	275	250	I A 245	250	220	295
18	325	A	300	270	300	A	A	230	A	A	A	A	A	A	A	215	A	A	250	255	260	255	A	A
19	A	A	295	280	275	250	230	210	200	210	215	190	225	240	200	235	245	265	265	260	295	A	245	265
20	300	320	290	270	260	250	230	A	A	A	205	205	A	200	220	230	210	225	240	I A 250	260	I A 240	225	280
21	275	305	300	290	315	A	225	A	A	205	200	200	200	200	215	230	235	245	260	240	250	260	280	290
22	260	290	260	250	275	260	260	240	A	225	210	A	A	225	225	A	A	A	A	A	275	290	270	275
23	260	310	300	280	300	260	A	220	225	A	A	A	A	A	A	A	260	250	270	265	280	A	A	A
24	305	280	295	275	290	265	255	240	230	250	A	A	220	225	A	240	230	250	265	255	295	275	300	260
25	295	280	270	260	270	250	250	220	215	240	200	205	210	200	225	220	250	A	A 275	A	A 270	235	250	275
26	270	285	325	305	270	240	245	245	210	200	210	200	225	215	200	215	230	230	260	260	270	270	250	295
27	285	325	275	275	315	270	240	A	A	200	245	215	195	250	225	225	250	265	A	A	A	265	250	275
28	310	335	A	315	265	225	230	250	I A 230	205	205	205	215	215	230	A	A	250	260	275	270	290	I A 300	270
29	275	335	320	280	265	240	240	240	220	A	230	200	220	I A 230	250	A	250	245	260	250	265	A	A	260
30	280	295	300	300	280	260	235	250	250	A	A	A	200	A	240	240	240	240	250	250	260	230	275	300
31	A	A 340	300	265	280	250	A	A	230	220	200	215	210	230	225	230	235	235	260	A 275	275	260	I A 270	305
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	30	31	31	26	21	20	18	19	17	17	18	21	24	22	20	18	19	19	24	25	27	26
MED	275	300	295	280	275	250	245	238	225	215	210	205	212	230	225	225	242	245	260	255	265	260	250	272
UQ	300	310	300	290	290	265	250	242	230	222	215	210	220	235	240	235	250	250	265	262	275	270	270	295
LQ	268	280	270	270	265	250	235	225	215	202	200	200	200	215	215	215	230	240	250	250	260	250	250	250

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AUG. 1971 | H'F (KM)

IONOSPHERIC DATA

AUG. 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

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

AUG. 1971 | H'ES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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

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

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

The Radio Research Laboratories, Japan

AUG. 1971 | TYPES OF ES

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	49	44	46	56	I A 62	I A 64	63	I A 60	59	I A 63	67	73	74	71	62	62	66	68	62	F	I A 61
2	F	F	F	F	F 51	55	54	I R 69	69	72	69	72	81	79	85	92	77	I A 76	I A 78	I A 84	91	67	66	62
3	F	F 63	59	53	50	50	I A 64	73	65	I A 66	76	I A 77	I A 79	80	70	I A 78	80	80	76	86	79	74	66	64
4	F	F	55	47	47	53	61	65	I A 62	I R 61	70	81	68	69	68	I A 66	70	69	I A 73	90	90	69	A	F
5	F	F 63	I A 59	57	F	56	62	78	79	A	A	A	66	A	A	A	87	95	96	89	67	63	F	F
6	F	A	F	F	F 40	47	60	I A 64	V 71	73	I A 76	I A 74	I A 65	I A 65	65	72	74	71	74	76	77	74	65	F
7	R	F	F	F	44	F 44	53	75	90	63	63	I A 60	I A 64	I A 66	62	61	72	87	94	84	71	F	F	F
8	F	F	F 46	45	42	48	63	72	72	63	59	58	58	67	73	75	78	72	80	86	94	85	69	62
9	I R 62	57	56	53	54	47	47	53	68	66	73	65	61	64	61	63	69	71	71	74	77	78	58	54
10	56	56	54	45	42	39	51	59	63	54	56	57	68	66	63	I A 66	65	76	68	63	58	58	I A 56	55
11	49	48	51	46	43	39	48	59	I A 62	I A 60	56	60	I A 64	69	63	55	61	68	68	69	F	F	F	F 66
12	57	54	53	48	46	44	61	77	71	I A 66	62	71	62	64	67	69	62	65	74	82	78	I R 64	62	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	67	I A 66	I A 65	65	65	I R 64	58	51	F	F 46
14	F 46	48	F	F 47	F	46	47	65	72	72	I A 60	I A 57	I A 56	I A 58	62	61	60	61	61	65	65	I R 64	61	I R 60
15	R	F	F	F	F	45	57	76	67	61	61	67	64	63	66	67	I A 61	64	I A 64	78	73	68	68	62
16	54	47	43	43	41	41	63	84	83	69	58	65	65	I A 64	62	68	82	74	76	I A 78	69	F	F	F
17	55	52	48	48	45	45	54	63	69	71	77	67	66	67	68	65	70	62	70	87	84	F	A	F
18	F	F 45	46	46	45	48	62	73	68	64	57	69	87	79	82	74	72	74	72	87	79	77	75	54
19	50	51	51	46	45	53	62	70	64	68	59	68	73	69	66	69	68	67	66	72	71	62	F	57
20	52	52	F	F	F	46	62	I A 68	71	68	65	I A 61	I A 62	64	70	69	68	73	70	77	71	I R 68	64	57
21	49	46	46	46	44	41	56	59	64	67	67	71	66	65	65	68	75	78	86	86	71	66	65	65
22	62	58	59	58	38	36	46	55	I A 56	I A 57	54	I A 51	I A 54	57	I R 55	I R 53	54	54	I A 56	I A 58	I R 58	51	54	50
23	49	44	44	43	41	41	46	57	65	66	62	62	68	71	70	69	64	65	59	67	I R 68	71	72	F
24	F	F	52	52	44	42	57	I R 62	68	I R 61	61	I C 66	68	62	61	61	59	60	59	72	71	65	56	57
25	56	I R 56	55	53	46	45	58	68	69	75	74	65	72	75	73	67	68	68	78	87	85	I R 74	51	56
26	55	55	50	49	47	46	I R 54	56	65	68	I R 61	74	69	74	65	68	70	72	75	I R 76	72	71	58	I R 56
27	I R 56	55	I R 56	51	45	43	58	64	67	66	60	74	64	65	67	75	70	65	65	71	69	I R 61	54	51
28	48	F	F	F	43	43	51	64	77	69	64	59	67	78	83	69	74	69	66	67	65	61	54	55
29	56	F	A	F	F	54	59	64	64	77	75	71	68	68	I A 70	71	69	66	69	I R 75	I R 70	65	56	I R 56
30	57	I R 57	F	52	F 45	46	57	69	64	70	I A 65	I A 65	65	64	67	63	68	76	73	71	71	58	51	51
31	48	48	48	47	51	42	54	57	62	66	72	64	71	71	77	76	81	72	C	C	C	C	C	56
	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	19	20	20	23	25	30	30	30	30	29	29	29	30	29	30	30	31	31	30	30	29	26	21	23
MED	55	53	52	48	45	46	57	64	68	66	62	65	66	67	67	68	70	69	70	76	71	66	61	56
UQ	56	56	56	52	46	48	61	72	71	69	70	71	68	71	70	72	74	74	76	86	78	71	66	62
LQ	49	48	47	46	43	42	53	59	64	63	60	60	64	64	63	65	65	65	65	69	68	62	56	54

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AUG. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							380	A	A	450	I A 470	480	A	A	A	440	430	A						
2							L	420	I A 440	A	A	H 480	470	480	460	450	A	A	A					
3							A	L	A	A	A	A	A	A	470	I A 440	420	400	A					
4						L	L	L	A	A	480	480	H 480	470	460	I A 460	L 450	A	A					
5							L	A	A	A	A	A	A	A	A	A	A	400	L					
6							L	A	A	A	A	A	A	A	460	450	430	A	A					
7							L	I A 420	I A 440	500	470	A	A	A	A	460	430	I A 400	A					
8							L	U L 420	A	I A 460	460	490	480	470	470	470	U L 440	L	A					
9							360	410	A	450	480	470	490	470	480	I A 470	430	400	L					
10							360	410	440	460	490	480	470	470	470	I A 430	I A 410	390	A					
11							370	410	A	A	450	460	I A 460	I A 460	I A 450	450	430	A	L					
12							A	A	A	A	A	A	470	480	470	460	L 430	A	A					
13							C	C	C	C	C	C	C	C	A	A	A	U L 390						
14							L 400	A	A	A	A	A	I A 460	I A 460	440	450	420	380	L					
15							L	380	430	460	470	470	490	A	470	A	A	L	A					
16							L	U L 420	440	460	470	470	490	I A 490	470	I A 450	420	L						
17								A	I A 450	I A 460	480	460	510	480	480	460	420	L	A					
18								A	430	470	I A 460	470	480	480	460	440	U L 440	U L 390	L					
19							L	L	440	460	460	480	480	470	460	440	410	L	A					
20								A	L 450	A	A	A	A	L 500	I A 470	460	420	L	L					
21								L	440	450	470	I A 480	I A 500	490	480	460	440	L						
22							350	A	A	A	I A 460	I A 460	A	A	480	450	420	A						
23							U L 360	400	440	A	I A 470	500	470	470	470	460	L	A						
24							L	A	430	460	470	I C 460	480	480	480	470	U L 450	L						
25								L	L 450	460	480	I A 480	470	470	I A 460	460	420	L						
26								L	H 450	450	470	470	A	460	I A 470	450	L	L						
27							370	I A 410	450	460	450	470	510	460	480	A	A	A						
28								L	440	460	470	470	470	480	470	I A 460	L	L						
29								L	L	I A 450	A	470	A	A	A	A	410	L						
30							L	340	440	460	A	A	A	470	460	460	420	L						
31								A	U L 440	I A 460	470	510	470	490	I A 460	460	U L 410	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							8	11	18	19	21	22	20	22	26	26	23	8						
MED							365	410	440	460	470	470	480	470	470	460	420	395						
UQ							375	420	450	460	470	480	490	480	470	460	430	400						
LQ							360	405	440	455	460	470	470	470	460	450	420	390						

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AUG. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	260	280	315	IA 345	360	A	A	360	350	330	300	260	A	S				
2					E	A	240	290	310	IA 340	355	360	A	A	A	A	A	A	A	S				
3					S	A	IA 220	265	305	IA 325	IA 350	IA 360	360	A	A	A	A	A	A	S				
4					E	160	220	275	300	IA 330	350	360	IA 360	360	355	330	310	A	A	S				
5						B	235	270	305	A	A	A	A	355	A	A	A	A	A					
6						B	235	IA 280	310	IA 325	A	A	A	A	345	A	A	A	A					
7						B	215	270	305	335	A	A	A	A	343	325	295	A	A					
8						B	A	A	A	A	A	A	IA 370	370	360	335	295	A	A					
9						B	225	A	A	A	A	365	IA 375	365	345	325	295	IA 255	A					
10						A	A	A	A	A	A	375	375	IA 360	335	315	290	A	A					
11						A	A	A	A	A	A	A	A	A	A	A	A	A	S					
12						S	A	A	A	A	A	A	360	360	340	320	285	250	A					
13						C	C	C	C	C	C	C	C	C	A	A	A	A	B					
14						E	A	A	A	A	A	A	A	A	A	315	290	235	A					
15						S	A	A	A	A	A	A	355	365	340	315	IA 290	A	A					
16						S	IA 225	A	A	A	A	A	A	A	A	A	A	A	A					
17						S	A	A	A	A	A	355	IA 360	IA 360	350	IA 330	295	A	S					
18						S	A	A	A	A	A	A	365	360	340	320	295	A	S					
19						A	235	A	A	A	340	IA 350	360	IA 360	345	325	305	275	A					
20						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						E	A	A	A	A	A	A	A	360	345	325	305	A	S					
22						S	A	A	A	A	A	A	A	A	A	A	A	225	S					
23						S	IA 215	A	A	A	A	A	IA 360	365	IA 350	335	290	250	S					
24						B	215	A	A	A	A	C	A	365	355	IA 330	300	IA 255	E					
25						S	225	285	305	325	A	A	A	A	A	330	IA 295	A	S					
26						E	215	270	305	A	A	A	A	A	A	A	A	A	S					
27						S	R 220	275	A	A	A	355	365	R 360	350	330	IA 295	A	E					
28						E	A	A	305	335	IB 350	355	A	A	A	A	A	A	S					
29						S	220	270	305	A	A	A	A	A	A	A	A	A	S					
30						E	A	A	A	330	A	A	A	A	A	A	A	A	B					
31						E	A	A	A	A	A	A	A	A	A	A	A	A	C					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					2	7	16	11	11	9	6	9	12	15	16	17	17	8	2					
MED					E	E	222	275	305	IA 330	350	360	360	360	345	325	295	252	E					
UQ						E	235	280	308	IA 335	355	360	368	365	350	330	300	258						
LQ						E	218	270	305	IA 325	350	355	360	360	342	320	290	242						

AUG. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 64	J X 52	J X 58	J X 50	J X 53	J X 31	35	J X 68	J X 81	J X 90	J X 88	J X 43	J X 74	J X 61	J X 65	J X 38	J X 69	J X 73	J X 39	J X 85	J X 50	J X 75	J X 26	J X 68
2	J X 50	J X 80	J X 85	J X 28	J X 23	J X 24	J X 29	J X 68	J X 73	J X 58	J X 75	J X 41	J X 43	J X 64	J X 46	J X 41	J X 53	J X 83	J X 120	J X 115	J X 28	J X 78	J X 65	J X 53
3	E S 14	J X 80	J X 45	J X 41	J X 25	19	J X 66	J X 43	J X 65	J X 80	J X 90	J X 133	J X 99	J X 90	J X 81	J X 88	J X 41	J X 39	J X 48	J X 28	J X 48	J X 43	J X 67	J X 60
4	J X 49	J X 71	J X 26	J X 28	J X 26	G	28	J X 40	J X 66	J X 68	46	45	43	44	42	J X 81	J X 60	J X 90	J X 73	J X 83	J X 35	J X 80	J X 97	J X 58
5	J X 63	J X 81	J X 98	J X 88	J X 44	18	35	J X 54	J X 102	J X 77	J X 85	J X 66	J X 60	J X 85	J X 108	J X 106	J X 88	J X 81	J X 46	J X 29	J X 42	J X 42	J X 51	J X 78
6	J X 85	J X 70	J X 43	J X 36	J X 41	J X 31	32	J X 85	J X 60	J X 78	J X 123	J X 164	J X 144	J X 114	G	J X 40	J X 37	J X 61	J X 64	J X 40	J X 39	J X 28	J X 28	J X 48
7	J X 78	J X 46	J X 43	J X 34	J X 43	21	30	J X 45	J X 49	38	J X 67	J X 74	J X 117	J X 79	J X 49	46	J X 48	J X 84	J X 47	J X 50	J X 81	J X 58	J X 18	J X 28
8	J X 35	J X 42	J X 24	J X 43	J X 23	E B 18	30	37	J X 44	J X 56	J X 50	J X 40	J X 40	G	G	G	38	36	J X 38	J X 23	E S 13	J X 19	J X 68	J X 21
9	E S 13	E	J X 19	E S 13	E	E B 19	27	J X 40	J X 59	J X 59	J X 44	G	J X 43	G	38	J X 60	J X 46	35	28	J X 46	J X 56	J X 44	J X 28	J X 27
10	J X 26	E S 13	J X 25	J X 23	J X 17	J X 33	29	31	J X 42	J X 48	J X 45	46	40	J X 93	38	J X 64	J X 73	J X 88	J X 78	J X 58	J X 43	J X 43	J X 57	J X 33
11	J X 53	J X 38	J X 20	E	E	J X 30	30	40	J X 80	J X 67	J X 59	44	J X 69	J X 61	J X 47	J X 64	J X 58	J X 40	J X 20	J X 79	J X 37	J X 69	J X 23	J X 27
12	J X 28	J X 20	J X 20	J X 28	J X 61	22	J X 50	J X 43	J X 60	J X 78	J X 58	J X 68	G	43	40	J X 46	J X 45	J X 58	J X 38	J X 35	J X 31	J X 41	J X 33	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	J X 48	J X 78	J X 83	J X 58	J X 28	J X 59	J X 53	J X 46	J X 48	J X 64
14	J X 84	J X 89	J X 59	J X 69	J X 33	J X 40	32	J X 57	J X 57	J X 80	J X 93	J X 133	J X 71	J X 60	40	G 30	J X 43	26	21	E S 13	22	M 21	E S 14	J X 17
15	J X 36	J X 39	J X 25	J X 29	J X 40	J X 44	J X 81	J X 36	J X 33	J X 49	J X 43	J X 42	42	47	47	J X 68	J X 83	J X 46	J X 68	J X 63	J X 48	J X 29	J X 18	J X 33
16	J X 43	J X 31	J X 27	E S 13	E S 13	E S 13	J X 33	J X 34	J X 39	J X 38	J X 44	J X 45	J X 58	J X 67	J X 50	J X 60	J X 46	J X 53	J X 53	J X 79	J X 68	J X 53	J X 74	J X 34
17	J X 28	J X 21	E S 13	J X 21	J X 29	J X 36	J X 46	J X 58	J X 47	J X 86	J X 78	G	44	J X 46	38	42	36	J X 34	J X 39	J X 32	J X 45	J X 113	J X 88	J X 86
18	J X 58	J X 28	J X 28	J X 39	J X 28	J X 29	J X 44	J X 91	J X 74	J X 61	J X 68	J X 77	40	46	J X 47	38	J X 43	37	J X 59	J X 83	J X 34	J X 21	J X 18	E S 13
19	E S 14	E S 13	E S 13	E	E	J X 23	G	35	36	35	G	J X 42	G	J X 39	42	G	33	J X 38	J X 44	J X 40	J X 49	J X 40	J X 58	J X 58
20	J X 40	J X 53	J X 28	J X 27	J X 41	J X 30	J X 38	J X 71	J X 43	J X 68	J X 64	J X 79	J X 88	J X 39	J X 53	J X 46	J X 34	J X 38	J X 30	J X 19	J X 19	J X 33	J X 49	J X 23
21	J X 23	E S 13	E S 13	J X 25	J X 34	J X 39	J X 29	J X 29	39	39	J X 48	J X 71	J X 59	G	G	G	33	J X 38	J X 40	J X 29	J X 41	J X 39	E S 13	J X 27
22	J X 20	J X 19	J X 17	J X 18	E S 13	20	33	J X 48	J X 80	J X 79	J X 70	J X 64	J X 56	J X 49	45	J X 43	J X 43	J X 46	J X 70	J X 79	J X 43	J X 73	J X 38	J X 23
23	J X 29	J X 38	J X 33	J X 24	J X 23	E S 13	30	J X 43	J X 42	J X 69	J X 63	37	J X 38	J X 38	J X 38	G	J X 50	J X 58	J X 39	J X 38	J X 41	J X 47	J X 27	J X 83
24	J X 43	J X 33	E	J X 25	E S 13	E B 18	G	J X 43	J X 43	37	39	C	J X 40	G	G	J X 39	J X 33	J X 45	J X 40	E S 13	E S 13	J X 43	J X 45	J X 29
25	E S 13	J X 49	E S 13	J X 23	J X 23	E S 13	27	32	38	36	42	J X 49	41	J X 44	J X 69	G	32	27	J X 33	J X 58	J X 44	J X 36	J X 23	E S 13
26	J X 23	J X 20	J X 23	J X 27	J X 19	J X 23	G	G	J G 29	35	38	J X 42	J X 45	J X 66	J X 50	J X 44	J X 41	28	J X 27	E S 13	J X 43	J X 38	J X 33	J X 33
27	J X 28	J X 27	E S 13	J X 21	J X 25	E S 13	G	J X 50	37	J X 42	45	G	G	G	J X 47	J X 70	J X 58	J X 54	J X 33	J X 23	J X 18	J X 26	J X 30	J X 36
28	J X 44	J X 24	J X 23	J X 43	J X 33	J X 24	J X 60	J X 55	43	42	E B 39	47	45	45	J X 40	J X 49	J X 43	J X 44	J X 64	J X 74	J X 65	J X 20	J X 31	J X 63
29	J X 38	J X 33	J X 65	J X 44	J X 25	E S 13	G	34	38	J X 48	47	J X 38	J X 63	J X 59	J X 83	J X 71	39	J X 61	J X 23	J X 41	J X 59	J X 29	J X 48	J X 47
30	J X 46	J X 43	J X 43	J X 28	J X 43	J X 36	J X 22	J X 33	J X 39	43	J X 80	J X 81	J X 61	40	42	35	J X 43	J X 29	E B 19	J X 25	J X 29	J X 20	J X 33	J X 25
31	E S 13	E S 13	E S 13	J X 24	J X 47	J X 37	J X 34	J X 59	J X 53	J X 60	36	J X 40	J X 69	J X 43	J X 47	J X 39	J X 33	J X 39	C	C	C	C	C	J X 28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	30	30	31	31	31	31	30	30	30	30	30	30
MED	J X 37	J X 36	J X 25	J X 28	J X 26	J X 23	30	J X 43	J X 46	J X 58	J X 54	J X 45	J X 45	J X 46	J X 46	J X 44	J X 43	J X 45	J X 40	J X 40	J X 42	J X 42	J X 33	J X 33
UQ	J X 50	J X 52	J X 43	J X 39	J X 41	J X 31	J X 35	J X 57	J X 65	J X 77	J X 75	J X 71	J X 69	J X 64	J X 50	J X 64	J X 56	J X 60	J X 59	J X 74	J X 49	J X 53	J X 57	J X 58
LQ	J X 23	J X 20	J X 17	J X 23	J X 19	E E 18	27	J X 35	J X 39	42	44	J X 41	40	39	39	38	J X 38	J X 38	J X 30	J X 28	J X 31	J X 29	J X 26	J X 27

The Radio Research Laboratories, Japan

AUG. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	42	37	28	25	33	25	33	A	A	38	A	38	A	60	48	34	38	40	33	21	25	22	24	A
2	40	26	35	18	16	18	26	30	54	57	59	37	38	38	39	35	44	A	A	A	21	46	29	26
3	E_{14}^{S}	20	21	35	18	U_{19}^{R}	A	37	52	A	59	A	A	67	40	A	35	38	35	23	32	37	42	42
4	28	17	20	22	17	G	26	40	A	52	38	42	41	40	40	A	40	52	A	52	20	30	A	35
5	29	39	A	38	24	18	28	54	70	A	A	A	60	A	A	A	68	28	26	24	27	23	32	42
6	15	A	20	20	16	26	27	A	57	56	A	A	A	A	G	40	37	60	56	36	31	20	22	39
7	38	39	30	21	22	19	25	U_{45}^{R}	49	29	40	A	A	A	49	40	40	42	40	50	60	22	E	23
8	27	20	20	26	18	E_{18}^{B}	28	36	43	47	40	38	39	G	G	G	34	33	38	19	E_{13}^{S}	19	34	E
9	E_{13}^{S}	E	19	E_{13}^{S}	E	E_{19}^{B}	26	36	47	43	39	G	38	G	37	55	34	30	27	36	35	42	23	23
10	21	E_{13}^{S}	21	20	E	30	27	30	42	38	42	40	39	44	38	A	55	33	60	45	20	37	A	25
11	18	36	E	E	E	30	26	36	A	A	41	42	A	53	47	38	36	39	20	27	28	33	E	20
12	20	E	E	22	E	21	47	43	57	A	56	67	G	40	39	43	39	47	38	31	26	26	25	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	48	A	A	28	28	58	39	27	27	18
14	30	35	26	25	20	27	31	53	U_{57}^{R}	58	A	A	A	A	35	G 30	30	26	21	E_{13}^{S}	21	18	E_{14}^{S}	16
15	16	23	16	23	35	36	25	27	32	36	43	39	40	47	40	46	A	33	A	21	29	21	18	21
16	30	24	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	30	30	36	37	43	39	40	A	41	48	34	35	37	A	54	34	38	E
17	18	E	E_{13}^{S}	16	E	29	38	44	46	58	40	G	42	40	G	38	31	31	37	25	39	34	A	27
18	38	21	21	25	19	21	33	39	39	37	49	45	40	46	39	37	G	30	26	E	20	18	E	E_{13}^{S}
19	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	20	G	34	35	35	G	40	G	39	40	G	33	35	43	30	31	20	30	34
20	21	39	20	20	30	25	37	A	35	64	60	A	A	38	49	43	31	32	21	19	E	25	34	19
21	21	E_{13}^{S}	E_{13}^{S}	E	28	22	28	29	39	38	40	53	59	G	G	G	33	37	38	24	30	20	E_{13}^{S}	19
22	E	17	E	E	E_{13}^{S}	18	30	43	A	A	47	A	A	49	40	40	33	46	A	A	24	37	23	E
23	20	E	23	E	E	E_{13}^{S}	28	38	38	45	49	37	38	34	38	G	42	50	37	27	31	21	E	24
24	27	17	E	18	E_{13}^{S}	E_{18}^{B}	G	43	35	37	38	C	40	G	G	37	27	30	30	E_{13}^{S}	E_{13}^{S}	20	E	20
25	E_{13}^{S}	22	E_{13}^{S}	E	21	E_{13}^{S}	27	32	37	36	40	49	40	41	69	G	31	27	32	31	26	22	21	E_{13}^{S}
26	18	20	18	20	E	19	G	G	G 28	35	37	40	U_{45}^{R}	44	50	38	36	26	26	E_{13}^{S}	32	24	20	25
27	U_{28}^{R}	21	E_{13}^{S}	21	17	E_{13}^{S}	G	46	36	40	41	G	G	G	45	61	57	42	30	20	17	23	21	20
28	21	22	18	21	20	24	32	35	43	41	E_{39}^{B}	44	44	42	38	48	40	30	51	59	58	E	E	E
29	21	20	A	28	17	E_{13}^{S}	G	30	37	48	47	38	60	58	A	59	38	32	18	35	25	25	26	35
30	33	20	21	19	19	27	22	30	37	41	A	A	54	38	40	34	30	25	E_{19}^{B}	23	19	18	25	20
31	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	19	28	25	25	45	37	50	36	38	39	39	47	38	29	31	C	C	C	C	C	25
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	30	30	31	31	31	31	30	30	30	30	30	30
MED	21	20	20	20	17	20	27	38	42	44	42	42	42	42	40	40	36	33	36	27	26	23	24	22
UQ	29	26	21	23	21	25	31	45	57	58	59	A	A	58	48	52	40	41	43	45	32	33	32	27
LQ	16	13	13	13	E	E_{18}^{E}	25	30	37	37	40	38	39	38	38	34	32	30	26	21	20	20	14	18

AUG. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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_{14}^{S}	E_{14}^{S}	E	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	15	19	17	18	20	20	19	21	20	18	17	16	13	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
2	E_{14}^{S}	E_{14}^{S}	E	E	E	12	15	15	17	18	25	26	30	19	25	19	16	17	13	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}
3	E_{14}^{S}	E_{12}^{S}	E_{13}^{S}	E	E_{14}^{S}	13	16	17	16	20	21	24	22	20	20	17	16	15	14	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}
4	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	15	14	18	15	19	18	19	24	24	30	17	18	17	14	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}
5	E_{14}^{S}	E_{14}^{S}	E_{12}^{S}	E	E_{13}^{S}	16	18	16	19	22	21	20	28	22	21	16	16	15	14	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{12}^{S}
6	E_{13}^{S}	E_{14}^{S}	E_{12}^{S}	E_{13}^{S}	E_{13}^{S}	17	16	18	17	20	23	24	25	27	21	20	18	17	15	E_{12}^{S}	E_{12}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
7	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{12}^{S}	E_{13}^{S}	16	15	18	19	18	19	22	19	18	18	16	13	14	14	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
8	E_{13}^{S}	E	E_{13}^{S}	E	E	18	13	16	14	18	19	20	18	23	19	19	14	13	14	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
9	E_{13}^{S}	E	E_{13}^{S}	E_{13}^{S}	E	19	14	14	14	15	16	23	19	14	18	18	14	E	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
10	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E_{13}^{S}	E	17	14	14	15	19	20	20	19	20	14	17	13	13	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
11	E_{13}^{S}	E	E	E	E	12	14	18	14	18	21	20	21	19	18	17	14	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
12	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E_{13}^{S}	14	14	18	18	21	19	20	21	21	17	13	14	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	21	16	19	13	18	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
14	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	13	14	14	19	20	24	20	18	20	18	16	12	12	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
15	E_{13}^{S}	E_{13}^{S}	E	E	E_{13}^{S}	E_{13}^{S}	13	15	17	18	19	19	18	12	18	14	13	14	E_{13}^{S}	E	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
16	E_{13}^{S}	E	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	14	13	14	15	19	19	18	19	19	14	14	13	13	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
17	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E_{13}^{S}	E_{13}^{S}	13	13	13	18	15	19	19	19	19	15	14	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
18	E_{13}^{S}	E	E	E	E	E_{13}^{S}	14	17	16	18	19	19	21	19	19	16	16	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
19	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	E	14	13	17	18	18	19	20	20	19	19	19	14	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
20	E_{13}^{S}	E_{13}^{S}	E	E	E	E_{13}^{S}	14	17	15	18	18	23	20	19	18	19	14	13	E	E	E_{13}^{S}	E	E_{13}^{S}	E_{13}^{S}
21	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	E	13	15	16	19	20	23	19	21	19	17	14	15	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
22	E_{13}^{S}	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	15	14	15	19	18	20	20	20	20	16	14	15	E_{13}^{S}	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
23	E_{13}^{S}	E	E_{13}^{S}	E	E	E_{13}^{S}	13	13	15	15	15	18	19	19	19	17	15	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E
24	E	E	E	E	E_{13}^{S}	18	14	15	16	18	19	C	23	20	20	18	14	13	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
25	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	E_{13}^{S}	14	14	18	20	20	21	21	20	18	19	14	14	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E_{13}^{S}
26	E	E	E_{13}^{S}	E	E	E	14	14	19	20	21	19	20	20	21	18	13	14	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
27	E_{13}^{S}	E	E_{13}^{S}	E	E_{13}^{S}	13	17	13	18	19	20	20	21	21	17	17	18	13	E	E_{13}^{S}	E	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
28	E_{13}^{S}	E	E	E	E	E	E	13	16	18	39	20	26	24	18	18	15	14	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
29	E	E	E_{13}^{S}	E	E	E_{13}^{S}	14	13	16	18	21	18	19	18	19	15	14	13	E_{13}^{S}	18	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
30	E_{13}^{S}	E	E	E	E	E	13	13	14	15	18	19	13	19	28	14	15	13	19	E	E	E	E	E_{13}^{S}
31	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	E	13	14	15	14	18	19	19	19	14	14	E	E	C	C	C	C	C	E_{13}^{S}
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	29	30	30	31	31	31	31	30	30	30	30	30	30
MED	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	E_{13}^{E}	14	14	16	18	19	20	20	20	19	17	14	13	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
UQ	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	14	15	17	17	19	21	22	21	21	20	18	16	14	14	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
LQ	E_{13}^{S}	E	E	E	E	E	13	13	14	18	18	19	19	19	18	16	14	13	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}

AUG. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	F	F	290	285	305	295	I A 290	I A 295	315	I A 310	280	I A 290	300	305	300	315	315	315	295	305	285	F	I A 280
2	F	F	F	F	F 295	330	290	I R 310	330	295	290	295	290	275	275	290	290	I A 280	I A 280	I A 280	315	280	285	270
3	F	F 295	310	295	325	320	I A 320	320	320	I A 305	295	I A 285	I A 285	300	290	I A 300	305	320	290	310	300	295	300	295
4	F	F	305	295	290	300	315	320	I A 325	I R 295	290	325	300	300	310	I A 300	305	295	I A 285	310	320	310	A	F
5	F	F 285	I A 300	305	F	305	285	315	350	A	A	A	285	A	A	A	285	295	305	320	295	280	F	F
6	F	A	F	F	F 295	330	315	I A 310	V 305	330	I A 310	I A 325	I A 305	I A 305	290	300	305	305	300	290	305	295	300	F
7	R	F	F	F	325	310	290	320	355	305	335	I A 310	I A 305	I A 300	295	280	290	300	310	325	295	F	F	F
8	F	F	F 290	280	295	320	330	330	340	315	295	270	280	290	285	290	300	285	285	290	310	300	305	275
9	I R 270	270	270	275	285	285	285	265	300	320	315	315	310	320	300	285	305	310	310	300	295	310	275	295
10	275	285	290	280	285	265	285	300	320	315	295	280	315	300	290	I A 290	295	310	315	320	275	275	I A 290	280
11	290	280	310	300	280	275	265	300	I A 305	I A 300	250	280	I A 290	300	310	265	285	305	310	305	F	F	F	F 295
12	290	280	285	295	300	290	290	300	310	I A 305	325	315	295	300	295	305	295	305	295	305	310	I R 300	280	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	300	I A 305	I A 310	320	315	I R 310	290	290	F	F 300
14	F 285	295	F	F 330	F	320	310	315	320	340	I A 330	I A 300	I A 285	I A 285	310	305	325	315	310	290	290	I R 290	295	I R 300
15	R	F	F	F	F	305	305	325	310	340	300	320	300	290	315	320	I A 300	300	I A 295	300	300	300	300	330
16	295	280	290	295	290	295	300	320	335	315	310	310	295	I A 290	275	290	310	305	310	I A 310	295	F	F	F
17	285	280	300	320	320	325	340	315	325	295	320	330	295	295	310	315	315	315	300	315	320	F	A	F
18	F	F 300	290	305	325	330	310	330	340	315	290	270	300	275	310	320	310	300	290	305	295	290	310	300
19	275	280	285	285	295	320	310	315	325	325	310	300	295	305	305	310	305	310	320	305	310	280	F	290
20	290	275	F	F	F	330	325	I A 320	340	325	325	I A 300	I A 295	290	300	310	310	315	310	300	300	I R 310	290	285
21	320	300	285	285	290	280	320	320	330	310	330	295	320	310	290	305	295	305	305	315	300	290	275	295
22	290	285	290	330	295	270	270	290	I A 280	I A 275	310	I A 250	I A 280	280	I R 290	I R 290	310	300	I A 290	I A 295	I R 300	280	280	290
23	290	290	280	280	300	295	300	300	325	330	325	285	305	310	305	315	310	305	295	295	I R 285	290	305	F
24	F	F	290	305	300	295	305	I R 300	325	I R 305	300	I A 310	310	290	295	300	305	300	290	295	310	295	290	300
25	280	I R 290	290	300	300	295	330	320	335	330	320	305	315	305	310	305	310	295	290	310	310	I R 320	295	275
26	280	285	290	305	300	315	I R 340	290	310	325	I R 310	310	310	320	315	310	310	290	305	I R 300	290	305	295	I R 275
27	I R 275	275	I R 285	300	285	285	310	320	295	300	295	325	270	315	295	320	330	310	310	310	305	I R 300	275	290
28	290	F	F	F	330	325	320	315	340	330	330	320	295	305	300	300	310	320	315	310	300	300	305	285
29	285	F	A	F	F	310	325	325	315	320	320	310	290	310	I A 305	325	320	310	300	I R 300	I R 305	315	285	I R 280
30	280	I R 290	F	290	F 290	305	335	335	335	320	I A 320	I A 310	300	320	310	290	305	315	305	310	310	310	295	290
31	280	285	285	285	335	315	335	340	335	325	305	295	300	295	300	295	300	310	C	C	C	C	C	280
	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	19	20	20	23	25	30	30	30	30	29	29	29	30	29	30	30	31	31	30	30	29	26	21	23
MED	285	285	290	295	295	305	310	315	325	315	310	305	295	300	300	300	305	305	305	305	300	295	295	290
UQ	290	290	295	305	300	320	325	320	335	325	320	315	305	305	310	310	310	312	310	310	310	305	300	295
LQ	280	280	285	285	290	295	290	300	310	305	295	285	290	290	290	290	300	300	290	295	295	290	285	280

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

IONOSPHERIC DATA

AUG. 1971 | M(3000)F1 (0.01) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							345	A	A	395	IA 390	385	A	A	A	370	365	A						
2							L	340	IA 370	A	A	H 390	425	380	355	335	A	A	A					
3							A	L	A	A	A	A	A	A	360	IA 360	365	IA 370	A					
4						L	L	L	A	A	365	380	H 365	385	380	IA 355	L 345	A	A					
5							L	A	A	A	A	A	A	A	A	A	A	340	L					
6							L	A	A	A	A	A	A	A	385	360	350	A	A					
7							L	IA 340	IA 370	380	385	A	A	A	A	365	IA 345	IA 350	A					
8							L	UL 375	A	IA 390	415	395	395	380	360	345	UL 350	L	A					
9							360	310	A	A	365	385	370	385	365	IA 350	365	350	L					
10							340	350	IA 375	370	370	400	375	385	360	A	A	345	A					
11							350	350	A	A	330	365	IA 380	IA 380	IA 370	365	350	A	L					
12							A	A	A	A	A	A	385	355	360	IA 355	L 350	A	A					
13							C	C	C	C	C	C	C	C	A	A	A	UL 360						
14							L 340	A	A	A	A	A	IA 385	IA 375	360	355	355	365	L					
15							L	380	390	375	390	395	365	A	365	A	A	L	A					
16							L	UL 365	385	385	370	385	365	IA 355	360	IA 365	355	L						
17								A	IA 380	IA 375	395	415	365	375	375	370	365	L	A					
18								A	410	405	IA 410	IA 380	355	IA 370	355	385	UL 350	UL 355	L					
19							L	L	390	395	390	365	375	365	355	370	365	L	A					
20								A	L 380	A	A	A	A	L 360	IA 370	350	365	L	L					
21								L	365	385	395	IA 380	IA 365	385	355	350	340	L						
22							335	A	A	A	IA 375	IA 380	A	A	355	330	340	A						
23							UL 355	IA 365	370	A	IA 390	370	385	365	365	350	L	A						
24							L	A	375	385	400	IC 370	370	360	355	350	UL 340	L						
25								L	L 360	370	375	IA 380	385	375	IA 360	345	350	L						
26								L	H 360	380	385	395	A	IA 365	IA 360	355	L	L						
27							335	IA 345	360	385	370	385	335	375	375	A	A	A						
28								L	IA 380	390	405	385	385	340	360	IA 360	L	L						
29								L	L	IA 375	A	365	A	A	A	A	A	L						
30							L	430	385	370	A	A	A	370	355	350	L 365	L						
31								A	UL 380	IA 370	360	370	385	365	IA 350	345	UL 345	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							8	11	18	18	21	22	20	22	26	25	21	8						
MED							342	350	378	382	385	382	375	372	360	355	350	352						
UQ							352	370	385	390	395	390	385	380	365	365	365	362						
LQ							338	342	370	375	370	370	365	365	355	350	345	L 348						

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

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							340	I A 300	I A 290	300	A	400	A	350	330	325	290	280						
2							240	285	280	A	I A 330	345	345	370	350	300	285	I A 310	I A 300					
3							I A 275	270	315	A	335	A	A	A	330	I A 320	290	285	275					
4						285	250	275	A	A	360	290	345	340	325	I A 345	305	330	I A 310					
5							300	290	270	A	A	A	A	A	A	A	A	300	260					
6							250	A	310	280	I A 325	I A 290	I A 315	I A 345	360	320	300	I A 295	A					
7							330	290	240	330	280	I A 340	I A 340	I A 340	350	390	330	300	265					
8							255	270	255	290	300	410	390	350	340	340	295	315	300					
9							350	425	325	290	290	300	340	315	340	I A 330	320	290	260					
10							355	325	290	325	355	380	305	360	350	I A 360	340	275	A					
11							435	320	A	A	450	400	I A 370	330	315	450	350	305	270					
12							330	295	290	A	300	I A 330	355	350	330	320	315	310	280					
13							C	C	C	C	C	C	C	C	340	I A 325	I A 300	280						
14							345	295	290	280	A	A	I A 395	I A 390	330	320	305	300	280					
15							275	250	280	260	345	305	340	355	315	305	I A 300	300	A					
16							300	260	245	255	310	320	360	A	400	345	280	280						
17								290	290	340	295	285	355	335	325	305	285	265	285					
18								250	245	315	350	400	320	330	295	280	290	290	290					
19							255	240	265	280	305	340	340	305	315	300	300	280	270					
20								I A 255	260	I A 265	A	A	A	345	340	315	300	270	265					
21								255	275	285	285	325	305	315	360	325	315	290						
22							440	350	I A 390	I A 400	340	I A 525	A	405	380	I R 370	340	330						
23							300	330	300	275	295	400	340	305	320	305	290	300						
24							290	290	290	330	350	I C 300	315	345	325	330	300	300						
25								270	265	270	280	340	300	305	I A 300	310	300	300						
26								260	305	270	300	315	310	295	315	300	290	275						
27							300	280	340	285	305	290	390	300	340	290	280	290						
28								290	255	255	260	290	360	310	305	290	290	250						
29								255	290	265	280	300	I A 325	310	I A 320	295	280	270						
30							250	250	275	280	I A 285	I A 305	330	315	310	315	295	265						
31								255	260	290	305	350	330	340	310	310	270	260						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	21	29	28	24	26	26	25	27	30	30	30	31	14					
MED						285	300	280	285	282	305	328	340	340	330	320	300	290	278					
UQ							340	295	295	308	340	380	355	350	340	330	305	300	290					
LQ							255	255	262	270	290	300	320	312	315	305	290	278	265					

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AUG. 1971 | H'F2 (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	305	270	305	I A 295	295	A	A	A	220	I A 230	200	A	A	A	230	I A 245	I A 240	285	270	255	260	310	A
2	A	290	I A 290	245	255	240	215	210	I A 235	A	A	H 195	195	220	230	235	A	A	A	A	240	I A 250	280	300
3	280	305	245	I A 270	245	245	I A 250	A	A	A	A	A	A	A	235	I A 230	230	I A 240	I A 260	250	255	280	I A 280	I A 280
4	A 280	280	255	A 280	290	260	235	A	A	A	225	220	I A 220	220	235	A	A	A	A	280	240	250	A	A
5	315	A	A	I A 260	A 290	255	240	A	A	A	A	A	A	A	A	A	A	225	I A 230	235	245	290	300	I A 290
6	245	I A 280	300	275	275	255	235	A	A	A	A	A	A	A	230	I A 215	I A 220	A	A	270	255	245	240	I A 265
7	A	A	A	275	265	240	245	I A 240	I A 230	195	205	A	A	A	A	A	A	A	I A 245	250	I A 275	290	260	255
8	310	315	295	325	285	250	235	A	A	A	200	190	190	220	230	230	250	I A 235	I A 260	260	240	245	240	260
9	280	300	300	300	255	260	235	A	A	A	210	200	200	190	215	I A 245	240	240	I A 265	265	280	260	240	290
10	315	275	280	270	295	400	240	230	I A 210	215	230	195	210	I A 235	230	A	A	A	A	275	290	I A 325	I A 310	305
11	295	I A 345	250	255	245	I A 275	245	I A 230	A	A	A	A	A	A	A	240	240	I A 230	250	270	320	315	245	265
12	275	285	275	295	265	260	A	A	A	A	A	A	210	240	235	A	A	A	A	245	245	250	285	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	230	265	I A 290	310	315	310	290
14	340	A 320	295	255	255	255	240	A	A	A	A	A	I A 200	I A 215	225	230	235	235	245	255	265	270	255	250
15	295	295	285	280	A	A	245	230	220	220	I A 200	200	215	I A 225	230	I A 220	I A 230	A	A	260	250	265	250	225
16	280	310	290	270	270	250	I A 240	230	205	215	I A 200	210	210	I A 215	240	I A 240	I A 230	I A 340	265	I A 250	I A 280	310	320	245
17	270	285	270	245	225	240	240	I A 240	I A 225	I A 210	190	190	230	200	195	230	215	240	I A 265	240	235	250	A	350
18	345	300	300	275	245	245	250	I A 225	200	190	I A 190	I A 220	240	I A 230	230	220	220	235	A	250	255	250	240	215
19	255	290	285	290	260	255	225	215	205	195	190	215	220	225	245	215	240	I A 260	I A 275	250	255	290	310	270
20	290	I A 300	300	290	280	255	255	I A 230	215	A	A	A	A	210	A	A	225	245	240	250	240	245	290	245
21	270	265	290	290	315	285	235	230	230	215	205	I A 210	I A 220	225	220	210	240	I A 250	260	240	250	270	290	270
22	255	280	265	225	245	290	A	A	A	A	I A 230	I A 215	A	A	240	I A 245	I A 240	A	A	A	250	I A 315	295	275
23	300	290	320	265	290	245	255	I A 240	230	I A 205	I A 215	205	200	210	230	230	A	A	285	275	300	270	250	300
24	330	275	260	255	250	260	245	I A 225	215	205	190	I C 220	230	215	220	220	225	250	270	260	240	250	245	295
25	290	280	255	240	270	260	245	235	240	215	200	I A 210	215	230	I A 215	230	230	245	275	260	250	235	250	300
26	290	280	280	275	245	220	215	230	H 200	205	190	205	A	A	A	240	I A 235	240	265	250	265	240	250	345
27	325	300	285	270	290	290	250	I A 240	230	235	I A 225	210	230	220	A	A	A	A	255	245	245	250	265	290
28	315	295	290	280	240	260	250	A	A	215	200	I A 210	I A 225	I A 220	230	I A 240	I A 230	I A 240	290	I A 280	I A 280	245	240	280
29	290	300	I A 335	350	300	250	240	230	240	I A 215	I A 210	225	A	A	A	A	I A 230	I A 240	260	260	250	250	290	320
30	330	295	295	290	290	280	230	215	215	235	A	A	A	215	I A 240	235	240	240	235	255	235	230	295	295
31	295	300	290	285	240	260	230	I A 230	I A 220	I A 210	200	205	200	200	I A 225	I A 240	230	I A 255	C	C	C	C	C	315
	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	28	28	30	29	29	27	19	18	18	21	21	19	21	22	22	22	21	22	28	30	30	28	28
MED	290	295	288	275	265	255	240	230	220	215	200	210	215	220	230	230	230	240	262	258	252	255	272	285
UQ	315	300	295	290	290	260	245	I A 232	230	215	215	I 215	222	225	235	I A 240	240	I A 245	270	270	275	290	295	300
LQ	280	280	270	260	245	250	235	228	210	205	200	200	200	215	225	220	230	235	250	250	245	250	248	262

The Radio Research Laboratories, Japan

AUG. 1971 | H'F (KM)

IONOSPHERIC DATA

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

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

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

AUG. 1971 | H'ES (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F4	F3	F3	F3	F3	F2	H2	H2	C3	C1	C3	C1	C2	C2	C2	H1	H2	H2	H2	H2	F3	F2	F2	F3
2	F4	F2	F4	F2	L2	C1	H1	H2	H3	H2	C2	H1	C1	C1	C2	C2	C2	H3	H2	C3	F1	F3	F2	F2
3		F2	F2	F3	L1	L1	C2	H2	C2	C3	C2	C2	C3	C3	C2	C3	C3	L3	L2	L2	F2	F3	F3	F6
4	F2	F2	F2	F2	L2		H1	C2	H3	C3	C2	H1	C1	H1	H1	H2	H2	C2	H2	C4	F2	F4	F5	F3
5	F3	F4	F4	F3	F2	H1	H1	H3	C2	C3	C2	C2	C2	C3	C5	C2	C3	L2	L2	F2	F2	F2	F4	F3
6	F2	F2	F2	F1	F2	C2	C1	C3	C3	C2	C2	C2	C3	L2		L2	L2	L2	L2	F2	F2	F1	FF11	F3
7	F2	F4	F3	F2	F2	H1	C1	H3	H2	L1	L1	L3	L2	L3	C1	H2	HL22	C2	L2	F3	F4	F2	F1	F2
8	F3	F2	F2	F3	F2		C2	C2	C2	L2	L2	L1	C1				H1	C3	L2	F2		F2	F3	F1
9			F1				H1	C2	L2	L2	L2		L2		H1	H2	H1	C1	C3	F3	F3	F3	F2	F2
10	F2		F2	F2	F1	L2	C2	C2	L2	L2	L2	H1	H1	H1	H1	C2	C2	C2	C2	F3	F2	F4	F4	F3
11	F2	F2	F1			C2	C1	H3	C3	L2	L2	C2	L3	L2	L2	L2	L3	L4	L2	F2	F3	F3	F2	F3
12	F3	F1	F1	F3	F2	C1	C3	L2	L3	L2	L2	L2		H1	H1	H2	C3	C3	L3	F2	F2	F3	F2	
13															L2	L3	L4	L3	L2	F4	F3	F2	F2	F2
14	F3	F3	F2	F2	F2	L2	C2	C3	C2	L2	L2	L3	L2	L2	L2	L2	CL11	H1	C1		F2	F1		F1
15	F2	F2	F2	F2	F3	L3	L1	L1	C1	L2	L2	L2	H1	H1	HL11	H2	C2	C3	L2	F2	F2	F2	F2	F1
16	F2	F2	F1				L3	L2	L2	L2	L2	L1	L2	L2	L3	L3	L2	L2	L3	F3	F4	F4	F3	F2
17	FF11	F1		F1	F1	L2	L2	L3	L2	L2	L2		C2	L1	H1	L1	H1	L2	L2	F2	F2	F2	F3	F2
18	F2	F2	F1	F2	F1	L2	L2	L4	L2	L1	L2	L2	H1	H2	C1	H1	C1	C2	L2	F2	F2	F1	F2	
19						L1		L2	L2	L1		L2		L1	H1		H1	C2	L3	F3	F4	F3	F2	F3
20	F2	F2	F2	F2	F4	L3	L2	L3	L2	L2	L2	L3	L3	L1	L2	L2	L2	L3	L1	F1	F1	F1	F3	F1
21	F2			F2	F3	L2	L2	L2	L2	L2	L1	L2	L2				H1	C3	L2	F3	F2	F2		F1
22	F1	F2	F1	F1		H1	C2	C3	L2	L2	L2	L2	L2	L2	C1	C2	L2	H3	C3	F4	F2	F3	F3	F2
23	F1	F2	F2	F1	F1		C1	C2	C2	L2	L2	L1	L1	L1	L1		C2	C2	C3	F2	F3	F2	F2	F2
24	F2	F2		F1				C3	C2	C1	C1		L1			L2	L2	L2	L2			F2	F2	F1
25		F1		F1	F1		H1	H1	H1	H1	C1	L2	C1	L1	C2		C1	H1	L2	F2	F2	F2	F2	
26	F1	F1	F1	F1	F1	L1			L1	L1	L1	L2	L2	L2	L2	L2	L2	C1	L1		F3	F2	F1	F2
27	F2	F2		F1	F1			C2	C2	C1	C2				H1	C2	C2	C2	L2	F2	F1	F2	F1	F2
28	F2	F2	F2	F3	F2	L2	L2	L2	C2	C1		C1	C1	C2	L1	L2	L2	L2	L3	F3	F4	F1	F1	F1
29	F3	F2	F3	F4	F2			C1	C1	L2	L2	L1	L2	L3	L3	L2	C2	C3	L1	F2	F2	F2	F2	F3
30	F3	F3	F2	F2	F2	L2	L2	LH21	L1	C2	C2	L2	L2	C1	C1	C1	L2	L1		F2	F1	F1	F2	F1
31				F1	F2	L2	L1	L2	L2	L3	L1	L1	L2	L2	L3	L2	L2	L2						F2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

AUG. 1971 | TYPES OF ES

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	58	F	61	F	F	F	52	60	R	A	58	A	68	I A 77	I A 80	80	80	71	68	73	68	F	F	F
2	F	F	F	F	F	F	71	76	I A 72	I A 68	73	78	86	88	93	J R 103	92	A	A	A	A	F	F	F
3	J R 69	F	F	F 56	F	50	63	78	J R 75	65	A	I A 83	I A 86	90	I R 86	85	87	81	81	89	80	R 75	F	F
4	F	F	F	51	47	49	68	65	70	60	I A 76	81	/78	71	75	71	I A 74	73	A	I R 96	R	R 65	I A 60	F
5	C	C	C	C	C	C	C	C	C	A	A	A	A	75	I A 82	J R 93	79	J R 102	106	92	A	69	R	S
6	F	F	F	F	F	46	56	64	70	I A 73	68	74	A	A	72	80	82	91	87	81	F 74	J R 72	J R 62	57
7	S 53	A	A	A	A	I A 43	56	88	78	63	61	56	61	70	70	71	83	99	102	82	71	63	F	F
8	F 43	F	F	A	F	F	J S 62	79	66	65	56	56	64	67	78	81	80	77	86	95	S 96	S 80	64	60
9	60	59	56	51	49	46	47	61	72	67	81	66	60	61	63	68	73	81	I A 80	I A 82	J R 92	F	F	F
10	56	F	J R 55	F	45	37	51	61	64	52	61	61	72	61	66	I A 67	I A 78	I A 81	76	61	F	F	F	A
11	F	F	F	F 41	F	J R 42	51	71	61	I A 58	58	67	67	76	66	61	67	71	J R 79	81	66	A	F	F
12	F	F	F 57	51	F	42	60	82	62	57	64	68	68	71	75	75	75	71	80	81	I R 74	61	63	F
13	F	F	F	55	46	39	51	61	I A 62	A	A	A	68	I A 75	82	80	69	70	76	68	56	49	45	F 45
14	F 47	F	S 48	S 45	F	S 40	53	63	68	65	63	59	56	62	68	68	68	64	60	67	70	65	64	58
15	J R 54	F	U F 54	50	F 48	45	62	J R 75	65	56	61	63	69	70	64	69	61	63	I A 70	I R 81	75	65	66	58
16	55	50	48	43	40	40	59	92	81	55	61	67	68	70	70	76	83	R 78	J R 79	84	68	F 60	F	F
17	F	J F 59	F	F	48	S 44	50	65	74	75	73	71	61	69	73	71	70	67	81	88	81	50	A	R
18	F	F	F	46	40	40	60	83	65	55	61	69	91	95	87	75	71	73	81	88	80	75	71	59
19	55	52	51	49	46	53	J R 73	72	63	63	62	74	J R 79	79	71	73	70	71	75	75	R 67	64	F	F
20	F 58	F	F	50	48	46	61	J R 78	67	A	A	A	65	I A 66	69	75	75	77	75	I R 75	R 74	60	F	F
21	F	52	F 50	48	46	45	61	65	J R 78	82	72	66	75	74	69	71	78	86	90	J R 84	70	F 61	F 62	F
22	J F 62	F	61	J F 56	J F 34	34	I A 45	57	57	J R 58	55	55	R 57	R 60	60	56	57	54	60	61	55	I A 46	F 48	49
23	45	43	42	43	40	41	51	60	68	I R 68	63	60	68	J R 77	77	77	63	I A 64	I A 65	73	73	S	S	J S 52
24	48	F	F	F 45	F	43	58	68	68	63	71	65	71	70	65	67	62	I A 61	66	I R 70	R 75	61	56	F
25	F	F	F	F	F	37	59	71	71	70	73	72	75	71	J R 79	75	71	72	84	R 98	R	R 64	50	53
26	51	56	50	48	48	I R 46	58	68	77	J R 74	62	73	77	73	J R 77	J R 75	74	75	85	I R 84	J R 77	J S 66	58	55
27	56	54	J R 56	50	44	47	65	72	65	74	81	J R 75	65	75	J R 72	78	75	A	70	78	71	62	57	J R 55
28	J R 53	51	51	J R 52	38	39	55	79	J R 80	74	58	60	69	86	91	85	76	I A 72	S 76	I A 72	I R 70	58	58	54
29	53	52	49	F 45	F 46	54	54	62	65	73	72	73	68	I A 76	86	81	68	68	74	J S 75	70	61	55	50
30	50	F 50	U F 60	F 54	F 53	F	61	68	62	69	66	67	A	67	76	77	J R 73	72	J R 83	I R 80	74	59	J R 55	54
31	55	52	51	50	50	43	53	61	63	63	74	72	70	76	89	87	R	81	83	81	I R 68	J R 60	57	57
	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	12	17	22	19	26	30	30	29	27	27	27	28	30	31	31	30	29	29	30	26	25	18	15
MED	54	52	51	50	46	43	58	68	68	65	63	67	68	72	75	75	74	72	79	81	72	62	58	55
UQ	57	55	56	51	48	46	61	78	72	72	72	73	75	76	81	80	79	81	83	84	75	65	63	58
LQ	50	50	50	45	42	40	52	62	64	59	61	62	65	69	69	71	69	70	74	73	68	60	55	52

AUG. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	A	A	A	A	A	A	A	A	A	L	A	A					
2							L	L	A	A	A	490	A	A	A	A	A	A	A					
3						L	L	420	480	480	A	A	A	A	A	A	A	A						
4							L	L	L	A	A	510	A	A	A	A	A	A	A					
5						C	C	C	C	A	A	A	A	A	A	A	A	A	A					
6							A	A	A	A	A	A	A	A	A	A	A	A	A					
7						A	L	420	450	A	500	R	490	A	A	A	A	A	L					
8								420	U 460	A	A	A	A	490	490	460	L	430	L					
9								410	A	L	480	480	L	480	490	480	A	A	A					
10						280	360	410	430	L	490	480	460	470	A	A	A	A	A					
11							340	410	A	A	A	A	A	460	A	450	A	A	A					
12							380	A	430	460	L	490	480	480	480	450	A	A	A					
13								A	A	A	A	A	A	A	A	A	440	A	L					
14							L	L	450	440	470	480	L	A	A	L	L	L						
15							L	U 420	450	460	A	480	490	480	A	A	A	A	A					
16							L	400	440 H	L	L	480	500	490	480	460	430	A	A					
17								L	450	460	A	450	470	480	460	480	L	A	A					
18							L	A	480	460	480	480	R	490	L	L	440	L	A					
19							L	L	L	460	490	480	480	490	A	450	L	L	A					
20							L	A	L	A	A	A	A	A	A	A	430	L	L					
21								420	450	L	U 450	U 500	A	L	480	480	U 460	L						
22								A	A	460	470 H	470 R	490 R	490 H	480	460	440	L						
23							L	A	450 H	A	480	A	520	500	490	480	L	A	A					
24								L	A	460	480	480	A	A	490	A	A	A	A					
25								L	L	L	480	490	460	510	490	480	410	L	L					
26								L	L	460	L	520	500	480	480	480	L	A						
27							L	L	A	450	480	480	490	480	460	450	L	A	A					
28								L	L	460	480	480	A	A	480	460	A	A	A					
29								L	L	470	U 490	L	520	A	A	440	L	A						
30								L	L	480	A	A	A	A	480	450	A	A						
31								L	420	L	460	480	510	490	480	460	L	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	3	9	13	14	15	19	14	16	15	17	7	1						
MED						280	360	420	450	460	480	480	490	485	480	460	440	430						
UQ							370	420	450	460	485	490	500	490	490	480	440							
LQ							350	410	440	460	475	480	480	480	480	450	430							

AUG. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	A	I A 270	A	A	A	A	A	A	A	340	300	260	A					
2						A	A	A	305	A	A	A	A	A	A	A	A	A	A					
3						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
4						A	A	A	I A 300	325	A	A	A	I A 350	350	345	300	A	A					
5						C	C	C	C	A	A	A	A	A	A	A	A	A	A					
6						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
7						B	A	A	A	A	A	A	U R 380	365	345	330	300	250	A					
8						B	A	A	A	A	A	A	A	A	A	340	315	255	170					
9						B	I A 220	265	A	A	R	A	A	365	I R 340	I R 325	I A 300	A	A					
10						B	A	A	A	A	A	A	365	360	350	I A 330	A	A	A					
11						A	210	A	I A 300	315	A	A	A	A	A	A	A	A	A					
12						A	A	A	A	R	A	R	R	R	R 350	325	300	250	A					
13						A	A	265	300	330	A	A	A	A	A	A	A	A	A					
14						B	A	A	A	A	A	A	A	A	A	A	300	A	A					
15						B	A	A	A	A	A	385	A	I A 380	355	330	295	250	A					
16						B	220	I A 260	315	A	A	A	A	A	350	330	295	A	A					
17						B	230	280	A	A	A	A	A	I R 360	I A 350	A	300	A	A					
18						B	A	A	A	A	350	I R 365	I R 360	I R 350	I A 345	325	300	A	A					
19						B	A	A	A	R	A	A	A	R	R	I A 340	I A 300	R	A					
20						B	A	A	A	A	A	A	A	A	A	A	300	250	A					
21						B	210	A	A	A	A	A	A	A	355	340	300	A	A					
22						B	220	275	300	A	A	A	A	A	355	A	300	A	A					
23						B	215	I A 260	A	A	A	A	A	R	360	330	300	250	A					
24						B	210	270	300	330	A	A	A	A	A	A	A	A	A					
25						B	A	A	A	R	A	R	A	A	345	335	290	R	A					
26						B	A	280	A	A	A	A	A	A	A	330	300	A	A					
27						B	225	270	295	A	A	A	360	R	340	320	290	A	A					
28						B	235	I A 270	A	340	I A 355	370	365	A	A	A	A	A	B					
29						B	205	280	310	325	A	A	A	A	A	330	300	A	A					
30						B	A	A	305	330	A	A	A	A	A	A	A	A	A					
31						B	A	A	A	A	A	A	A	R	R 340	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							11	12	10	7	2	3	5	7	15	17	20	7	1					
MED							220	270	300	330	352	370	365	I 360	350	330	300	250	170					
UQ							220	280	310	330		378	365	365	352	340	300	252						
LQ							210	265	300	325		368	360	I 355	345	330	300	250						

The Radio Research Laboratories, Japan

AUG. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 44	J X 42	J X 71	J X 41	J X 41	J X 24	30	J X 45	J X 89	J X 82	J X 61	J X 69	70	J X 80	J X 81	J X 54	J X 43	J X 42	J X 63	J X 51	J X 42	J X 52	J X 51	J X 55
2	J X 41	J X 51	J X 54	J X 45	J X 25	J X 51	J X 36	J X 39	J X 90	J X 89	J X 99	J X 46	J X 74	Y X 164	Y X 134	J X 84	Y X 164	Y X 144	D	D	D	J X 54	J X 71	J X 81
3	J X 81	J X 38	J X 32	J X 26	J X 21	J X 25	J X 45	31	41	J X 61	Y X 104	Y X 138	J X 89	J X 74	96	J X 85	J X 75	J X 45	J X 51	J X 42	J X 32	J X 24	J X 35	J X 54
4	J X 53	J X 25	J X 24	J X 41	J X 40	J X 45	J X 29	36	J X 54	J X 65	J X 89	45	J X 61	J X 55	J X 47	57	J X 82	J X 68	81	J X 85	J X 59	J X 84	J X 92	J X 51
5	C	C	C	C	C	C	C	C	C	Y X 145	Y X 194	Y X 173	Y X 184	J X 54	J X 91	J X 84	Y X 136	Y X 119	Y X 119	Y X 101	85	J X 35	J X 74	J X 69
6	J X 52	J X 35	J X 51	J X 85	J X 64	J X 34	J X 35	J X 52	J X 81	Y X 121	J X 76	Y X 164	Y X 133	Y X 121	J X 61	J X 70	J X 47	J X 76	J X 77	J X 82	J X 43	J X 57	J X 72	J X 51
7	J X 43	J X 57	J X 89	J X 74	49	J X 49	J X 36	J X 46	J X 41	J X 50	J X 76	J X 42	47	J X 54	J X 76	J X 74	Y X 191	Y X 123	J X 86	J X 25	J X 84	J X 29	J X 30	J X 40
8	J X 41	J X 28	J X 43	J X 43	J X 52	J X 49	J X 38	J X 49	36	J X 54	J X 54	J X 56	J X 50	41	37	G	35	37	J X 33	J X 28	E B 14	J X 29	J X 30	J X 30
9	J X 30	J X 26	J X 30	J X 26	J X 19	M 22	30	J X 38	J X 54	J X 56	G	43	J X 46	44	41	J X 50	J X 64	J X 92	90	J X 94	J X 41	J X 42	J X 51	22
10	J X 29	J X 24	J X 22	J X 41	J X 29	J X 25	J X 30	J X 94	J X 89	J X 43	44	45	41	J X 70	J X 50	D	Y X 141	Y X 160	70	J X 54	J X 61	J X 51	J X 58	Y X 109
11	21	21	J X 20	22	J X 24	J X 41	J X 30	J X 52	J X 61	61	J X 71	J X 54	J X 74	J X 46	J X 42	J X 41	70	J X 50	J X 53	J X 35	J X 24	67	J X 78	J X 25
12	J X 24	J X 54	J X 24	21	J X 21	25	J X 35	J X 61	J X 45	G	44	G	44	G	38	Y X 141	J X 54	J X 59	J X 57	J X 42	J X 35	J X 25	J X 35	J X 41
13	J X 21	J X 24	J X 21	J X 25	J X 24	23	J X 35	J X 50	J X 75	M 64	J X 74	D	J X 58	Y X 120	57	J X 61	Y X 121	J X 90	J X 29	20	J X 28	J X 28	J X 25	J X 28
14	J X 30	J X 24	M 20	J X 24	J X 30	J X 50	J X 41	J X 40	J X 43	J X 46	J X 54	J X 46	42	J X 58	J X 53	37	39	J X 34	24	J X 18	J X 24	J X 18	J X 19	J X 30
15	J X 29	J X 25	J X 24	J X 40	J X 49	J X 40	36	J X 40	J X 43	36	J X 50	42	43	45	J X 50	J X 53	J X 44	47	J X 90	J X 59	J X 25	J X 60	J X 28	J X 26
16	J X 28	J X 24	J X 16	J X 16	19	22	G	J X 28	G 29	35	36	36	J X 38	J X 39	37	35	36	74	J X 52	J X 41	J X 25	J X 57	J X 50	J X 41
17	20	J X 52	J X 54	J X 60	J X 62	M 47	J X 30	J X 30	37	J X 61	J X 66	J X 75	J X 51	J X 61	J X 51	J X 41	J X 46	J X 45	J X 75	J X 54	J X 64	J X 29	J X 61	J X 84
18	J X 91	J X 29	J X 21	J X 20	J X 22	21	J X 41	J X 41	J X 55	J X 91	G	G	46	40	J X 56	J X 42	35	J X 39	J X 41	J X 22	J X 39	J X 29	24	E B 13
19	E S 15	18	22	21	E B 13	22	J X 29	J X 31	35	G 31	42	44	41	G 31	48	42	36	31	J X 30	J X 29	J X 29	J X 64	J X 41	J X 29
20	J X 29	J X 24	J X 25	J X 24	J X 51	J X 28	J X 31	J X 41	J X 46	Y X 104	J X 89	J X 84	81	Y X 100	J X 54	J X 52	33	31	J X 24	J X 24	21	20	J X 31	21
21	J X 51	21	21	21	20	E S 15	25	35	42	J X 51	J X 42	J X 52	J X 89	45	37	37	36	45	J X 40	J X 39	J X 26	J X 74	J X 30	J X 30
22	J X 38	J X 30	J X 30	J X 30	E B 14	21	M 50	J X 50	J X 74	40	37	J X 41	38	40	G	J X 48	36	34	J X 41	J X 54	J X 51	J X 72	J X 30	J X 45
23	M 23	J X 30	J X 25	J X 20	J X 25	19	25	J X 40	34	56	J X 42	J X 56	J X 40	48	44	37	37	J X 77	Y X 106	J X 40	J X 84	J X 74	J X 36	J X 52
24	J X 25	J X 41	J X 30	J X 22	M 20	19	24	33	J X 49	36	J X 44	J X 45	J X 51	J X 49	J X 51	J X 50	J X 49	63	J X 48	J X 54	J X 46	23	J X 54	J X 50
25	J X 39	21	J X 25	J X 23	22	22	J X 27	35	38	G 33	43	G 34	44	45	G 32	G	G	G	J X 21	J X 23	J X 23	22	J X 26	J X 21
26	J X 54	J X 51	J X 24	22	23	J X 28	J X 29	31	35	J X 38	40	J X 54	J X 42	42	40	37	J X 40	J X 53	J X 50	J X 61	J X 24	J X 29	J X 17	J X 26
27	J X 29	M 24	J X 18	19	E B 13	E B 14	25	30	J X 47	J X 41	45	42	G	G 31	38	31	J X 39	J X 155	J X 85	J X 49	J X 28	J X 35	21	E S 15
28	J X 23	J X 30	J X 29	J X 20	J X 24	J X 24	G	J X 41	37	43	42	50	J X 54	J X 55	J X 50	47	Y X 109	Y X 104	65	J X 76	48	J X 28	J X 26	J X 30
29	J X 28	J X 32	J X 20	J X 30	J X 22	J X 19	J X 29	G 19	33	46	47	50	J X 40	J X 82	J X 52	40	41	J X 62	Y X 110	J X 35	J X 30	E S 15	E S 15	J X 61
30	J X 30	J X 42	J X 44	J X 53	J X 42	J X 50	J X 40	31	J X 41	43	J X 56	J X 48	J X 80	J X 74	42	J X 54	J X 58	J X 40	J X 29	J X 51	J X 21	J X 25	J X 25	J X 26
31	J X 29	J X 28	M 22	E S 15	J X 21	J X 29	J X 29	35	35	36	45	45	45	G	G	36	J X 40	J X 34	J X 30	J X 56	J X 44	50	J X 35	J X 25
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J X 30	J X 28	J X 24	J X 24	J X 24	J X 25	J X 30	J X 40	J X 43	J X 50	J X 49	J X 46	J X 49	J X 49	J X 50	J X 48	J X 44	J X 53	J X 53	J X 49	J X 35	J X 35	J X 35	J X 30
UQ	J X 43	J X 41	J X 32	J X 41	J X 41	J X 41	J X 36	J X 46	J X 55	J X 62	J X 72	J X 56	J X 72	J X 72	J X 55	J X 59	J X 72	J X 84	J X 83	J X 58	J X 50	J X 57	J X 52	J X 52
LQ	J X 25	J X 24	J X 21	J X 21	21	22	J X 29	31	37	39	42	42	42	42	39	37	36	J X 40	J X 36	J X 32	J X 25	J X 26	J X 26	J X 26

AUG. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	20	20	40	E	20	17	28	44	45	A	53	A	64	A	A	42	40	40	46	43	28	25	25	33
2	35	40	35	23	17	25	29	36	61	A	58	41	65	58	75	50	83	A	A	A	A	23	35	18
3	24	25	27	20	20	21	21	30	38	40	A	A	A	70	80	75	50	41	40	23	24	17	E	20
4	41	17	E	30	25	39	25	31	40	58	A	43	51	54	47	51	A	45	A	75	57	25	A	30
5	C	C	C	C	C	C	C	C	C	A	A	A	A	53	A	76	75	85	35	42	A	30	42	47
6	26	25	30	15	24	25	34	48	55	A	54	70	A	A	61	66	46	70	45	61	29	30	27	25
7	41	A	A	A	A	A	34	37	40	50	41	41	40	51	54	47	51	51	26	17	29	23	E	19
8	22	25	24	A	16	29	29	35	34	50	50	51	50	39	37	G	35	35	26	16	E B 14	24	25	19
9	25	19	25	E	15	G	27	36	50	43	G	34	43	41	40	40	40	71	A	A	32	25	47	E
10	24	E	E	E	E	18	25	35	38	38	40	G	40	44	48	A	A	A	62	44	19	22	40	A
11	E	E	E	E	15	32	25	32	50	A	48	48	51	40	35	40	63	44	46	30	24	A	20	17
12	18	40	E	E	15	18	31	60	30	G	30	G	40	G		38	16	46	52	40	25	20	28	35
13	21	15	18	17	17	16	25	48	A	A	A	A	55	A	55	51	36	50	20	E	17	24	18	E
14	16	17	E	16	21	34	26	34	40	40	40	43	42	57	48	36	37	33	24	16	17	E	E	18
15	19	E	15	19	17	29	28	29	35	35	47	42	43	45	47	46	40	40	A	44	17	20	19	17
16	20	20	E	E	E	G	G	28	G 29	35	36	E R 36	38	36	36	34	35	71	45	25	18	E	30	E
17	E	E	28	39	29	34	20	26	35	37	48	40	42	40	41	35	40	38	70	30	21	22	A	30
18	31	17	E	17	E	14	25	35	35	35	G	G	E R 46	39	45	41	31	35	35	21	22	25	E	E B 13
19	E S 15	E	E	E	E B 13	G	25	22	33	E R 31	39	39	39	E R 31	47	38	34	28	25	19	20	38	28	22
20	17	17	17	15	25	25	25	39	46	A	A	A	56	A	50	50	32	30	22	20	E	E	20	E
21	25	E	E	E	E	E S 15	23	35	36	42	42	46	50	45	37	36	33	38	25	33	26	31	17	28
22	26	20	26	25	E B 14	17	A	45	48	40	37	40	E R 38	39	G	40	35	32	25	33	40	A	24	24
23	E	24	17	15	16	16	24	40	34	52	40	48	40	47	43	36	36	A	A	27	27	40	17	29
24	E	16	25	15	E	G	24	33	44	E R 36	41	40	50	48	44	46	40	A	47	40	28	19	E	E
25	25	E	E	20	E	G	G	G	35	E R 33	38	E R 34	42	41	G 31	G	G	G	19	20	17	E	25	16
26	25	22	17	E	17	18	22	21	25	38	40	50	42	42	39	35	36	40	40	30	18	E	E	19
27	27	20	17	E	E B 13	E B 14	25	28	45	41	42	36	G	E R 31	38	30	35	A	42	23	17	25	17	E S 15
28	17	21	17	17	17	17	G	35	35	40	42	40	53	51	44	38	51	A	64	A	46	27	19	25
29	17	20	16	16	E	16	17	G 19	33	37	40	46	40	A	52	39	40	45	24	20	18	E S 15	E	E
30	25	25	18	19	24	27	30	30	40	41	53	47	A	50	40	38	45	39	21	25	22	20	18	20
31	20	22	16	E S 15	19	20	23	30	32	36	31	42	41	G	G	33	33	22	28	40	35	50	25	22
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31
MED	22	20	17	16	16	18	25	34	38	40	42	42	43	45	44	40	40	44	40	30	24	24	20	19
UQ	25	24	25	20	20	27	28	37	45	55	53	49	54	56	52	48	48	71	57	42	29	28	28	26
LQ	17	15	E	E	E E 13	15	23	29	34	36	40	40	40	40	38	36	35	36	25	20	18	20	17	16

AUG. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	13	13	13	13	13	13	15	13	20	25	25	23	25	24	18	15	14	13	13	13	E S 15	13	13
2	13	13	13	13	12	13	13	13	15	15	15	20	23	25	25	15	15	15	13	13	E S 15	13	13	13
3	13	13	13	E S 15	13	13	13	13	15	15	23	23	24	23	15	13	14	13	13	13	12	E S 15	E S 15	E S 15
4	13	13	E S 15	13	13	13	13	13	14	15	25	25	19	20	15	15	15	14	13	13	13	13	13	E S 15
5	C	C	C	C	C	C	C	C	C	15	24	25	25	25	25	15	14	13	13	13	13	12	E S 15	E S 15
6	E S 15	E S 15	13	13	13	13	13	14	15	15	15	19	27	26	16	15	14	13	12	14	12	13	14	14
7	E S 15	14	13	14	14	12	13	14	15	19	25	25	36	19	19	15	14	14	14	14	E S 15	13	13	12
8	E S 15	13	14	E S 15	12	14	13	14	14	16	26	19	18	15	15	24	15	14	14	13	14	E S 15	14	13
9	13	14	14	13	12	15	13	14	14	15	15	33	22	15	16	25	15	13	14	13	E S 15	E S 15	13	E S 15
10	14	13	E S 15	13	13	15	14	13	14	15	15	15	20	15	15	15	15	14	14	13	E S 15	13	14	E S 15
11	13	13	E S 15	13	13	13	13	15	15	15	15	25	25	25	15	15	15	15	12	13	E S 15	13	13	13
12	13	13	E S 15	E S 15	13	13	13	14	15	15	15	25	24	25	25	15	16	15	13	13	E S 15	E S 15	E S 15	E S 15
13	E S 15	13	13	14	E S 15	13	15	15	15	25	25	25	25	25	28	26	15	15	13	E S 15	E S 15	E S 15	E S 15	E S 15
14	14	E S 15	14	E S 15	12	13	12	14	15	15	15	25	25	25	19	15	15	14	13	12	13	E S 15	E S 15	E S 15
15	12	14	12	13	E S 15	14	13	14	15	15	19	25	25	15	16	15	15	14	13	13	14	E S 15	13	E S 15
16	E S 15	13	E S 15	13	13	14	13	14	15	15	15	22	25	22	15	15	14	13	13	12	E S 15	E S 15	E S 15	E S 15
17	14	13	14	13	14	16	14	13	14	15	15	15	25	15	25	15	15	15	15	13	13	E S 15	E S 15	E S 15
18	13	E S 15	13	12	13	12	13	15	15	15	25	25	24	25	15	15	15	15	14	13	E S 15	E S 15	13	E B 13
19	E S 15	E S 16	E S 15	E S 15	E B 13	15	13	15	15	23	25	24	25	25	16	25	21	15	13	13	13	E S 15	E S 16	E S 15
20	E S 15	E S 15	13	13	13	13	13	15	15	15	19	25	25	25	25	16	15	15	13	13	E S 15	E S 15	E S 15	E S 15
21	E S 15	E S 15	E S 15	E S 15	13	15	15	15	15	15	17	25	26	25	18	15	14	15	12	E S 15	E S 15	E S 15	E S 15	13
22	E S 15	14	14	14	14	13	12	13	14	15	15	25	26	25	20	15	14	15	13	13	E S 15	14	13	14
23	E S 15	14	12	12	13	13	14	15	15	15	15	25	24	22	26	16	15	14	13	E S 15	14	E S 15	E S 15	E S 15
24	E S 15	13	14	14	13	13	14	15	14	20	25	25	25	25	24	14	15	13	13	E S 15	E S 16	13	E S 15	E S 15
25	E S 15	E S 15	13	13	E S 15	15	15	15	14	13	25	25	24	20	15	15	15	15	13	13	13	E S 15	E S 15	12
26	E S 15	E S 15	E S 15	13	13	13	14	15	15	15	25	25	19	25	25	15	13	15	16	E S 15	E S 15	E S 15	E S 15	E S 15
27	E S 15	E S 15	14	E S 15	13	14	16	14	14	15	25	25	23	25	15	15	15	14	13	13	E S 15	E S 15	E S 15	E S 15
28	E S 15	13	13	13	13	13	140	14	15	15	26	26	25	19	15	18	15	15	15	13	13	E S 15	E S 15	E S 15
29	14	12	13	13	14	14	13	14	15	23	25	25	25	26	26	19	15	14	14	E S 15	14	E S 15	14	E S 15
30	E S 15	13	13	13	13	14	15	14	15	18	18	25	22	25	21	25	15	15	15	13	E S 15	E S 15	E S 15	E S 15
31	E S 15	E S 15	E S 15	E S 15	E S 15	14	15	14	14	16	25	25	19	23	23	15	12	14	13	E S 15	E S 15	E S 15	E S 15	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E S 15	14	14	13	13	13	13	14	15	15	23	25	25	25	19	15	15	14	13	13	E S 15	E S 15	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 15	14	14	14	15	15	16	25	25	25	25	25	17	15	15	14	14	E S 15	E S 15	E S 15	E S 15
LQ	13	13	13	13	13	13	13	14	14	15	15	24	23	20	15	15	14	14	13	13	13	13	13	13

AUG. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	F	295	F	F	F	290	290	R	A	300	A	310	I A 300	I A 300	280	300	310	310	305	310	F	F	F
2	F	F	F	F	F	F	290	315	I A 330	I A 310	290	280	280	275	270	J R 295	300	A	A	A	A	F	F	F
3	J R 290	F	F	F 305	F	305	305	325	J R 335	295	A	I A 285	I A 280	295	I A 290	300	310	300	295	290	295	290	F	F
4	F	F	F	280	295	290	330	310	315	275	I A 290	300	300	310	305	285	I A 300	290	A	I R 320	R	300	I A 280	F
5	C	C	C	C	C	C	C	C	C	A	A	A	A	285	I A 280	J R 285	290	J R 290	330	305	A	290	R	S
6	F	F	F	F	F	325	310	300	310	I A 320	310	320	A	A	285	300	300	310	320	305	F 295	J R 315	J R 325	305
7	S 300	A	A	A	A	I A 300	295	330	345	355	310	300	280	300	285	295	285	310	335	330	310	305	F	F
8	F 270	F	F	A	F	F	J S 310	350	325	350	305	310	290	275	280	300	295	280	285	305	S 335	S 310	295	270
9	275	270	290	285	295	295	300	295	320	315	315	335	300	295	290	295	300	290	I A 310	I A 300	J R 315	F	F	F
10	285	F	J R 300	F	285	270	290	315	315	335	300	295	310	285	300	I A 280	I A 280	I A 310	310	330	F	F	F	A
11	F	F	F	F 295	F	J R 265	295	300	305	I A 300	285	295	285	305	305	280	300	305	J R 305	315	300	A	F	F
12	F	F	F 290	295	F	290	290	345	340	300	330	285	300	295	300	300	310	310	295	320	I R 310	280	285	F
13	F	F	F	300	305	320	315	315	I A 340	A	A	A	285	I A 300	310	315	320	315	320	325	300	280	275	F 275
14	F 280	F	S 300	S 295	F	S 305	320	325	340	315	320	305	290	I A 300	305	310	310	320	330	295	315	290	300	295
15	J R 290	F	U F 295	315	F 290	305	335	J R 335	325	340	310	305	315	325	300	305	325	300	I A 300	I R 300	315	310	285	310
16	300	285	290	300	300	300	295	350	360	340	320	315	265	300	305	300	325	A	J R 300	310	310	F 285	F	F
17	F	J F 285	F	F	330	S 320	340	330	340	320	315	315	295	300	300	310	315	300	310	320	360	290	A	R
18	F	F	F	315	325	305	320	350	310	345	280	260	275	305	305	310	285	305	285	295	295	295	295	290
19	275	275	285	270	290	320	J R 340	350	335	305	275	300	J R 290	305	295	305	315	310	310	310	R 305	290	F	F
20	F 295	F	F	290	300	325	335	J R 350	330	A	A	A	290	I A 310	305	305	305	285	305	I R 300	R 300	285	F	F
21	F	290	F 280	295	290	290	330	310	J R 340	335	335	280	305	305	320	305	305	310	320	J R 315	315	F 275	F 280	F
22	J F 280	F	315	J F 325	J F 275	285	I A 280	280	305	J R 285	275	270	R 280	R 300	315	315	305	320	315	295	305	I A 300	F 265	285
23	285	280	275	275	300	315	295	335	325	I R 330	315	315	280	J R 300	310	315	315	I A 310	I A 300	285	290	S	S	J S 310
24	290	F	F	U F 290	F	290	315	310	340	325	310	290	310	315	300	305	310	I A 295	305	I R 310	R 295	285	280	F
25	F	F	F	F	F	275	320	325	315	300	330	280	310	295	J R 305	310	295	295	290	310	R	R 295	280	280
26	280	285	290	300	290	I R 300	335	325	325	J R 340	305	305	325	345	J R 315	J R 320	310	305	315	I R 310	J R 290	J S 290	275	290
27	270	285	J R 300	300	285	290	325	325	310	310	310	J R 335	290	310	J R 310	315	310	A	300	295	300	290	300	J R 285
28	J R 280	295	310	J R 310	305	305	310	330	J R 340	355	370	295	295	300	320	325	315	I A 320	J S 310	I A 310	I R 310	290	280	280
29	275	290	275	F 290	F 285	300	330	330	330	320	320	315	290	I A 310	320	330	340	320	310	S 320	320	305	280	290
30	280	F 270	U F 280	F 280	F 300	F	330	330	340	315	330	330	A	295	305	315	J R 315	315	J R 310	I R 310	310	275	J R 290	280
31	285	280	280	300	315	330	360	325	335	310	310	310	275	290	290	300	R	315	305	320	I R 300	J R 285	270	275
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	12	17	22	19	26	30	30	29	27	27	27	28	30	31	31	30	28	29	30	26	25	18	15
MED	280	285	290	295	295	300	315	325	330	320	310	300	290	300	305	305	308	310	310	310	308	290	280	285
UQ	290	288	300	300	302	315	330	335	340	338	320	315	302	305	308	312	315	312	315	320	315	300	295	292
LQ	275	278	280	290	290	290	295	310	315	308	300	288	280	295	292	298	300	298	300	300	300	285	280	280

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

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IONOSPHERIC DATA

AUG. 1971 | M(3000)F1 (0.01) | 135 E Mean Time (G. M. T. + 9)

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	A	A	A	A	A	A	A	A	A	L	A	A					
2							L	L	A	A	A	L 370	A	A	A	A	A	A	A					
3						L	L	L 380	360	L 380	A	A	A	A	A	A	A	A						
4							L	L	L	A	A	L 360	A	A	A	A	A	A	A					
5						C	C	C	C	A	A	A	A	A	A	A	A	A	A					
6							A	A	A	A	A	A	A	A	A	A	A	A	A					
7						A	L	360	L 390	A	390	R	390	A	A	A	A	A	L					
8								L 450	U L 370	A	A	A	A	370	350	370	L	L 340	L					
9								360	A	L	380	380	L	L 400	350	360	A	A	A					
10						290	480	340	380	L	390	400	400	350	A	A	A	A	A					
11							530	350	A	A	A	A	A	380	A	340	A	A	A					
12							340	A	380	420	L	390	370	370	360	360	A	A	A					
13								A	A	A	A	A	A	A	A	A	360	A	L					
14							L	L	380	430	410	380	L	A	A	L	L	L						
15							L	U 380	380	410	A	360	370	A	A	A	A	A	A					
16							L	380	H 380	L	L	410	370	370	350	370	370	A	A					
17								L	360	370	A	430	410	380	400	350	L	A	A					
18							L	A	390	390	340	360	R	390	L	L	370	L	A					
19							L	L	L	400	390	400	380	350	A	370	L	L	A					
20							L	A	L	A	A	A	A	A	A	A	360	L	L					
21								390	360	L	U 370	U 360	A	L	360	360	U 360	L						
22								A	A	350	380	H 370	R 370	H 400	360	370	350	L						
23							L	A	H 390	A	400	A	340	A	350	360	L	A	A					
24								L	A	380	380	380	A	A	360	A	A	A	A					
25								L	L	L	400	390	400	360	370	A	370	L	L					
26								L	L	400	L	A	370	380	380	350	L	A						
27							L	L	A	360	360	360	390	380	390	370	L	A	A					
28								L	L	390	410	420	A	A	A	360	A	A	A					
29								L	L	380	U 410	L	350	A	A	380	L	A						
30								L	L	375	A	A	A	A	340	340	A	A						
31								L	385	L	380	360	360	340	350	350	L	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	3	9	13	14	15	18	14	14	14	16	7	1						
MED						290	480	380	380	385	390	380	370	375	360	360	360	340						
UQ							505	380	385	400	400	400	390	380	375	370	370							
LQ							410	360	370	375	380	360	370	360	350	350	360							

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

IONOSPHERIC DATA

AUG. 1971 | H'F2 (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							330	300	320	I A 320	I A 320	I A 340	I A 340	I A 340	I A 340	300	300	290	280					
2							290	265	I A 270	I A 310	340	345	355	345	375	295	A	A	A					
3						270	290	260	270	340	I A 330	I A 345	I A 340	310	E A 400	330	300	280	290					
4							250	250	280	E A 450	330	340	305	330	310	340	I A 340	300	A					
5						C	C	C	C	A	A	A	A	350	I A 360	A 350	340	340	260					
6							280	310	310	I A 290	300	A 340	I A 350	I A 355	A 370	340	300	300	260					
7						A	315	270	240	255	350	355	410	340	375	345	325	280	250					
8								245	270	250	A	A 350	360	410	360	320	315	330	300					
9								345	300	315	305	280	340	360	350	340	305	E A 360	A					
10						400	360	310	300	290	350	380	305	355	345	I A 360	I A 340	I A 300	A					
11							295	310	335	A	410	350	380	315	330	380	E A 375	300	280					
12							340	265	260	350	290	375	340	350	350	315	300	300	265					
13								295	I A 290	A	A	I A 375	370	I A 340	305	295	300	295	250					
14							290	285	255	280	320	355	320	L A 380	340	310	300	280						
15							275	250	270	270	330	315	320	300	350	310	280	300	I A 300					
16							310	250	240	260	310	330	380	350	320	330	280	A	A 260					
17								280	255	270	300	290	315	340	315	310	280	300	320					
18							260	240	290	270	375	400	350	300	310	290	305	290	290					
19							250	240	250	305	395	330	320	310	325	305	280	280	260					
20							250	240	270	A	A	A	350	I A 330	315	300	295	290	260					
21								310	250	270	270	375	325	305	300	320	300	275						
22								360	340	375	440	450	410	350	320	355	340	280						
23							320	270	280	270	305	310	390	330	300	285	290	A	A					
24								280	275	280	330	365	320	300	350	310	300	I A 310	290					
25								260	280	280	280	350	300	350	305	280	295	290	280					
26								260	245	260	305	330	280	305	290	285	285	290						
27							260	255	270	280	290	280	305	310	300	290	280	A	260					
28								250	250	250	245	330	360	320	290	275	290	I A 280	I A 270					
29								280	275	280	300	290	360	I A 320	280	275	260	270						
30								240	260	270	285	290	I A 320	350	320	285	290	290						
31								255	270	270	300	300	390	340	310	300	280	265	280					
	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	17	30	30	27	27	29	30	31	31	31	30	27	20					
MED						335	290	265	270	280	310	340	340	340	320	310	300	290	275					
UQ							315	295	290	303	335	355	360	350	350	335	305	300	290					
LQ							260	250	255	270	300	315	320	312	308	292	285	280	260					

AUG. 1971 | H'F2 (KM)

IONOSPHERIC DATA

AUG. 1971 | H'F (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	310	300	310	270	290	270	240	A	A	A	A	A	A	A	A	I A 240	I A 240	A	A	260	250	270	300	300
2	310	350	300	260	290	240	240	230	A	A	I A 230	240	A	A	A	A	A	A	A	A	A	300	290	300
3	290	260	245	245	250	240	230	200	240	220	A	A	A	A	A	A	A	A	A	245	240	250	270	240
4	360	250	240	295	310	A 300	240	240	250	I A 240	I A 320	240	I A 220	I A 210	I A 240	I A 220	I A 240	A	A	A 290	250	240	A	300
5	C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	I A 250	A	A	A	260	I A 280	300	290	320
6	270	290	300	250	260	255	A	A	A	A	A	A	A	A	A	A	A	A	A	I A 260	260	250	260	290
7	I A 290	I A 320	I A 290	I A 270	I A 260	I A 255	A 260	250	240	I A 200	200	H 180	205	I A 260	I A 255	I A 260	A	I A 250	A 250	210	260	245	275	240
8	A 320	A 300	340	I A 320	300	250	A 250	240	205	A	A	A	A	225	210	220	225	A 250	260	260	220	240	250	300
9	300	310	300	300	260	270	250	A 250	I A 240	I A 250	200	240	250	200	260	I A 240	A	A	A	A	240	240	350	300
10	300	280	250	280	305	285	230	I A 230	230	200	205	210	205	I A 250	I A 250	A	A	A	A	260	290	335	E A 340	A
11	290	290	250	260	300	E A 310	240	240	I A 220	I A 210	A	A	A	240	I A 220	A	A	A	A	240	260	I A 340	290	250
12	260	340	250	245	250	280	250	A	200	195	200	200	205	230	230	240	A	A	A	240	250	250	290	300
13	300	290	290	265	250	250	250	A	A	A	A	A	A	A	A	A	240	A 250	250	220	220	295	310	295
14	290	300	260	250	255	I A 270	250	240	245	200	200	240	250	A 230	I A 220	220	250	240	255	260	245	255	250	245
15	270	300	250	250	270	280	250	220	210	190	H 210	I A 230	230	I A 240	A	A	A	A	I A 255	A 270	230	250	260	250
16	270	300	270	260	250	250	240	220	H 185	200	180	180	220	220	220	220	H 220	A	I A 250	240	220	255	340	310
17	255	290	280	E A 290	250	280	220	210	220	210	I A 200	190	210	200	240	220	I A 250	I A 260	I A 260	250	205	240	I A 310	A 340
18	350	300	290	240	230	200	230	I A 240	205	205	H 195	210	A	240	I A 220	I A 220	H 200	240	I A 260	240	250	270	240	240
19	300	300	290	290	260	260	240	220	210	200	200	195	200	240	I A 210	240	250	250	I A 255	240	250	A 290	350	260
20	260	280	300	280	250	250	240	I A 210	250	A	A	A	A	A	A	A	240	240	250	250	240	230	290	280
21	300	250	280	280	280	285	240	220	240	I A 220	250	A 260	I A 250	I A 230	220	220	245	I A 230	250	245	240	A 330	290	280
22	330	300	260	220	250	300	I A 260	A	A	A	H 195	220	210	H 180	220	A 250	245	A 250	270	270	I A 255	A	320	300
23	285	320	320	305	290	260	245	I A 220	H 205	I A 200	H 220	I A 230	220	I A 260	245	225	230	A	A	280	280	A 310	240	270
24	270	320	300	250	250	275	240	225	I A 250	210	210	210	A	A	A	A	A	A	A	290	250	250	280	290
25	310	280	250	240	270	280	250	230	230	230	210	210	200	240	210	I A 220	210	240	260	250	240	220	300	280
26	300	280	290	260	250	250	215	240	200	205	195	I A 220	240	205	230	210	250	I A 260	260	245	240	200	240	245
27	310	300	250	245	240	280	245	220	I A 240	I A 240	I A 220	I A 240	210	210	220	230	250	A	A 260	250	280	260	280
28	300	300	280	250	250	290	250	I A 240	I A 230	220	220	195	I A 230	A	A	240	A	A	A	A	A 270	260	250	300
29	295	300	300	290	310	250	220	205	205	205	180	A	240	A	A	A 245	I A 240	I A 250	255	245	230	200	245	280
30	315	300	270	300	260	270	220	210	245	A	A	A	A	A	A	I A 235	I A 250	I A 250	250	250	240	250	280	300
31	300	305	295	275	230	230	240	230	220	210	210	210	200	200	210	230	240	A	A	250	250	E A 350	300	310
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	29	25	25	22	22	21	19	20	19	22	19	14	16	28	30	30	30	30
MED	300	300	285	261	260	268	240	230	230	208	202	210	220	230	220	230	240	A 250	255	250	250	251	288	290
UQ	310	300	300	290	290	280	250	240	240	220	220	240	235	240	240	A 240	250	I A 250	260	260	255	292	300	300
LQ	285	290	250	250	250	250	240	220	205	200	200	200	205	208	220	220	235	240	250	242	240	240	260	260

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AUG. 1971 | H'F (KM)

IONOSPHERIC DATA

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

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N Long. 139° 29.3' E Sweep 1 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	100	100	100	110	110	105	105	105	105	105	105	110	140	140	130	110	100	100	100	100	100
2	100	100	100	100	100	105	110	105	110	105	110	105	105	105	100	100	110	105	105	100	100	100	100	100
3	100	100	100	100	100	100	110	110	140	110	110	110	110	110	105	100	105	100	100	100	100	100	100	100
4	100	100	100	100	100	100	110	110	110	110	105	105	105	110	115	130	105	110	105	105	100	100	100	100
5	C	C	C	C	C	C	C	C	C	105	105	105	105	110	110	110	100	105	100	100	100	100	100	100
6	100	100	115	115	110	105	105	110	105	105	105	105	100	100	100	100	125	100	100	100	100	100	115	110
7	100	100	100	100	100	100	105	110	110	105	105	105	130	115	115	125	110	110	110	100	105	105	105	100
8	100	100	140	125	120	100	100	110	105	105	105	105	105	110	105	G	130	120	110	105	B	100	100	100
9	100	100	100	100	100	100	110	110	110	110	G	140	130	140	140	140	110	110	110	105	100	100	100	100
10	100	100	100	110	110	110	110	105	105	110	115	100	140	140	120	110	110	105	110	105	100	100	100	100
11	105	100	100	105	100	105	140	110	110	110	110	105	105	110	105	110	105	100	100	100	100	100	100	100
12	100	100	100	100	100	130	110	105	105	G	105	G	140	G	140	100	110	110	100	100	100	100	100	100
13	100	100	100	100	100	130	120	110	110	110	110	105	105	105	105	105	105	100	100	100	100	100	100	110
14	110	100	100	100	100	100	110	105	105	105	100	100	100	100	100	125	115	110	105	110	100	100	100	100
15	100	100	100	100	100	100	100	100	100	100	100	150	135	130	125	120	120	115	110	105	100	100	100	100
16	100	100	100	100	100	130	G	110	105	100	100	100	105	105	150	150	125	100	100	100	100	100	100	100
17	100	100	100	100	100	100	100	100	110	110	105	105	110	110	110	110	110	110	105	100	100	100	100	100
18	100	100	100	100	100	100	100	105	105	105	G	G	140	140	120	120	130	110	105	100	100	100	100	B
19	S	100	115	100	B	100	105	105	105	100	100	100	100	100	130	140	140	120	100	100	100	100	100	100
20	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	140	120	100	100	100	100	100	100
21	100	100	100	100	100	S	140	105	105	110	105	100	100	100	145	130	125	110	110	100	100	100	100	100
22	100	100	100	100	B	125	115	115	110	110	105	100	105	115	G	105	125	110	110	105	105	105	105	105
23	105	100	100	100	100	110	130	110	105	105	100	100	190	130	130	150	130	115	105	105	105	105	105	100
24	100	100	100	100	110	105	150	125	110	120	100	105	100	100	100	100	100	100	100	100	100	100	100	100
25	100	100	100	100	100	100	100	100	130	100	100	100	100	115	100	G	G	G	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	100	100	105	105	110	110	110	110	115	110	105	105	100	100	100	100
27	100	100	100	100	B	B	140	130	110	110	105	120	G	100	140	130	120	100	100	100	100	100	100	S
28	100	100	100	100	100	100	G	120	120	120	115	120	115	110	105	105	105	105	105	105	100	100	100	100
29	100	100	100	100	100	100	100	100	130	110	100	100	100	100	100	130	125	110	105	100	100	S	105	100
30	100	100	100	105	100	100	100	140	125	120	110	110	105	105	110	105	105	100	100	100	100	100	100	100
31	100	100	100	S	100	100	100	100	100	100	100	100	100	G	G	100	100	100	100	100	100	100	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	29	27	28	28	30	30	30	29	29	30	29	29	29	30	30	31	31	30	30	31	29
MED	100	100	100	100	100	100	108	110	108	105	105	105	105	110	110	110	112	110	105	100	100	100	100	100
UQ	100	100	100	100	100	105	112	110	110	110	105	105	110	115	125	130	125	110	108	105	100	100	100	100
LQ	100	100	100	100	100	100	105	105	105	105	100	100	100	100	105	105	105	100	100	100	100	100	100	100

AUG. 1971 | H'ES (KM)

IONOSPHERIC DATA

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

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

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	F1	F2	F3	F4	F3	L3	C2	C2	C2	C3	C2	C2	C2	C2	C2	H1	H1	H2	CL32	F3	F3	F3	F3	F4
2	F6	F4	F4	F4	F4	L3	C2	C3	C2	C2	C2	C2	C2	C2	C2	C2	C2	L2	L3	F3	F3	F5	F6	F3
3	F4	F3	F3	F4	F2	L2	C1	C1	H1	C1	C3	C2	C3	C2	C2	C2	L3	L3	L3	F2	F4	F2	F2	F2
4	F3	F2	F1	F1	F3	L3	C2	C1	C2	C2	C2	C1	C2	C2	C2	H1	C3	C2	L4	F3	F3	F3	F4	F3
5										C2	C2	C2	C2	C2	C2	C1	C2	L2	L3	F3	F3	F4	F3	F3
6	F3	F2	FF23	FF21	F4	L3	C3	C3	C2	C3	C2	C3	L2	L3	L3	L3	HL23	L4	L3	F3	F3	F2	F2	F3
7	F4	F4	F5	F5	F5	L3	C3	C3	C2	C2	C2	C1	H1	CL21	CL21	HL21	C2	C3	C2	F2	F5	F4	F4	F3
8	F3	F4	FF24	FF25	FF25	L3	L4	C2	C2	C3	C2	C2	C2	C1	C2		H2	H2	C2	F4		F3	F4	F3
9	F3	F4	F3	F2	F2	L1	C2	C4	C3	C2		H1	H1	H1	H1	H1	C1	C3	C3	F4	F4	F4	F4	F2
10	F3	F2	F2	FF21	FF21	L2	C2	C3	C2	C1	C1	LH11	H1	H1	H1	C2	C2	C2	C3	F4	F4	F3	F3	F5
11	F1	F1	F2	F1	F2	L6	H1	C1	C2	C3	C2	C2	C2	C1	C2	C2	L3	L3	L3	F4	F4	F3	F3	F4
12	F2	F4	F1	F1	F1	H1	C2	C3	C1		C1		H1		H1	LH11	C2	C3	C4	F4	F4	F3	F4	F3
13	F3	F2	F2	F2	F2	H1	H2	C2	C3	C2	C2	C2	C2	C3	C2	C3	C2	C3	L2	F1	F2	F2	F3	F1
14	F2	F4	F2	F2	F5	L4	L3	L2	C2	C2	L2	L2	L2	L2	L2	HL11	CL11	CL32	L2	F2	F3	F2	F3	F3
15	F6	F4	F3	F4	F3	L3	L3	L2	L2	L1	L2	HL11	HL11	HL23	HL22	HL32	CL32	CL32	C3	F6	F2	F4	F4	F3
16	F4	F3	F2	F2	F2	H1		C1	L1	L1	L1	L1	L1	L1	H1	H1	H2	L3	L4	F4	F5	F3	F4	F3
17	F1	F2	F4	F4	F4	L4	L3	L2	C2	C1	L2	C1	C1	C1	C1	C1	C2	C3	L3	F3	F3	F3	F3	F3
18	F2	F2	F2	F2	F1	L1	L2	C2	C2	C1			H1	H1	H1	H1	H1	C3	L3	F4	F3	F3	F1	
19		F1	F1	F2		L1	C1	C1	C1	L1	L1	L1	L1	L1	H1	H1	H1	H1	L3	F3	F4	F3	F4	F4
20	F4	F3	F2	F2	F4	L5	L3	C2	C2	C1	C2	C2	L2	L2	L2	L3	HL11	HL11	L5	F3	F1	F2	F3	F2
21	F3	F2	F2	F1	F1		HL11	L1	L2	C2	C1	L2	L2	L2	HL12	H1	H1	CL32	LL34	F6	F4	F3	F5	F5
22	F4	F5	F4	F3		H4	C3	C3	C3	C2	L1	L2	L1	C1		C2	H1	C1	C5	F6	F5	F6	F5	F5
23	F2	F3	F4	F2	F2	C2	H1	C2	C2	C2	L2	L2	L1	HL21	H1	H1	H2	C4	C4	F5	F6	F5	F3	F3
24	F2	F3	F3	F3	F2	L1	H1	H2	C3	H1	C1	C1	L2	L2	L2	L2	L2	L3	L4	F4	F3	F3	F2	F2
25	F4	F1	F2	F4	F2	L2	LH11	LH11	HL11	L1	L1	L1	L1	CL11	L1				L4	F3	F3	F3	F2	F2
26	F3	F3	F3	F2	F2	L3	L2	L1	L1	L1	L1	L2	C2	C2	C1	C2	CL21	CL22	C4	F4	F4	F3	F2	F2
27	F4	F4	F2	F1			H1	H1	C3	C1	C1	H1		L1	H1	H1	H1	C3	L4	F2	F2	F3	F1	
28	F1	F4	F2	F3	F3	L1		H2	H1	H2	C1	H1	C2	C2	C2	C2	C3	L3	L5	F5	F5	F4	F3	F6
29	F2	F6	F2	F4	F2	L1	L2	L1	H1	C1	L2	L2	L1	L3	L3	HL22	H2	C4	C2	F2	F3		F1	F4
30	F4	F4	F4	F3	F6	L4	L4	HL13	HL23	HL11	CL22	C1	C2	C2	C1	C2	C2	L4	L2	F4	F3	F4	F2	F2
31	F2	F3	F1		F2	L2	L2	L1	L2	L1	L1	L1				L1	L2	L3	L3	F2	F3	F3	F3	F3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

AUG. 1971 | TYPES OF ES

IONOSPHERIC DATA

AUG. 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

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	400	F	350	F	F	F	370	350	R	A	I A 350	A	A	I A 350	I A 350	390	350	330	330	340	330	F	F	F
2	F	F	F	F	F	F	340	300	I A 290	I A 320	360	390	390	400	400	J R 360	A	A	A	A	A	F	F	F
3	J R 370	F	F	F 340	F	340	340	300	J R 290	350	A	I A 380	I A 360	360	I R 370	A	330	340	345	350	350	R 365	F	F
4	F	F	F	350	360	350	290	350	300	A	I A 370	350	350	330	340	380	I A 350	370	A	I R 300	R	R 350	I A 380	F
5	C	C	C	C	C	C	C	C	C	A	A	A	A	380	I A 390	J R 380	370	J R 370	290	340	A	370	R	S
6	F	F	F	F	F	300	330	350	330	I A 300	310	A	A	A	375	340	320	305	295	320	320 F	J R 300	J R 295	310
7	S 330	A	A	A	A	I A 320	350	290	250	255	G	G	G	340	380	350	350	305	290	270	310	305	F	F
8	F 380	F	F	A	F	F	J S 290	250	290	255	A	A	360	410	360	350	350	360	350	305	280 S	305 S	330	380
9	380	390	355	360	330	330	300	350	300	320	320	290	350	360	360	360	350	A	I A 330	I A 350	J R 340	F	F	F
10	380	F	J F 350	F	380	410	370	320	320	290	350	G	330	360	350	I A 390	I A 380	I A 330	I A 300	290	F	F	F	A
11	F	F	F	F 350	F	J R 410	340	350	340	I A 340	G	360	380	340	340	390	I F 380	340	J R 340	320	350	A	F	F
12	F	F	F 350	340	F	350	350	265	260	350	390	385	350	360	350	350	330	330	350	300	I R 330	360	380	F
13	F	F	F	350	340	290	320	300	I A 280	A	A	A	375	I A 350	310	305	300	305	285	295	290	360	380	385 F
14	F 360	F	S 315	S 395	F	A	300	295	260	300	320	G	320	I A 350	345	310	305	300	290	330	305	345	330	315
15	J R 320	F	U F 320	300	F 350	300	280	J R 255	290	275	330	315	320	300	350	315	300	330	I A 340	I R 300	300	305	340	310
16	330	355	355	330	320	320	330	260	250	260	310	330	380	350	325	330	290	I R 300	J R 305	300	300	360	F	F
17	F	J F 355	F	F	270	S 295	275	280	260	300	320	320	350	350	350	330	320	350	I A 330	300	250	350	A	R
18	F	F	F	320	280	340	300	260	310	270	390	420	400	340	340	330	355	340	370	350	350	350	360	350
19	390	400	380	390	360	300	J R 280	260	280	340	400	350	J R 350	340	350	340	300	330	330	330	340	355	F	F
20	F 350	F	F	370	350	300	290	J R 250	290	A	A	A	I A 350	I A 330	340	330	340	340	340	I R 350	340 R	350	F	F
21	F	350	F 360	360	350	350	290	330	J R 260	280	280	380	330	315	300	330	315	300	300	J R 295	300	370 F	370 F	F
22	J F 370	F	300	J F 275	J F 340	350	I A 390	370	A	G	G	G	G	G	320	G	340	300	305	310	310	I A 350	400 F	350
23	350	360	385	380	320	300	340	280	290	I R 280	305	310	390	J R 335	305	300	305	I A 330	I A 330	350	350	S	S	J S 305
24	345	F	F	U F 350	F	340	300	300	275	300	330	370	330	320	350	340	330	I R 340	340	I R 330	350	350	380	F
25	F	F	F	F	F	370	300	300	310	350	290	360	330	360	J R 340	330	350	350	350	330	R	350 R	390	390
26	390	350	350	350	340	I R 340	280	300	280	J R 260	310	330	300	305	J R 300	J R 300	300	300	295	I R 300	J R 300	J R 300 S	340	330
27	360	360	J R 310	310	350	340	290	285	300	330	300	J R 290	340	330	J R 330	305	330	A	350	350	330	350	350	J R 360
28	J R 390	350	330	J R 330	340	340	330	270	J R 255	250	250	340	360	330	300	295	300	I A 300	305 S	I A 300	I R 300	310	350	350
29	370	375	375	350 F	375 F	310	270	290	280	290	300	300	365	I A 330	300	285	270	300	300	J S 290	300	315	345	350
30	380	370 F	U F 340	355 F	305 F	F	270	250	260	270	290	290	A	355	340	305	J R 300	320	J R 310	J R 310	310	350	J R 360	380
31	360	390	360	350	300	250	250	290	270	330	330	330	400	370	350	350	R	305	340	300	I R 340	I A 370	390	381
	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	12	17	22	19	25	30	30	28	25	23	21	25	29	31	29	29	28	29	30	26	25	18	15
MED	370	360	350	350	340	340	300	292	285	300	320	340	350	350	345	330	330	330	330	310	315	350	360	350
UQ	380	382	360	360	350	350	340	320	300	330	350	370	375	360	350	350	350	340	340	340	340	360	380	380
LQ	350	352	330	330	320	300	290	265	260	270	302	315	330	330	328	310	300	302	300	300	300	315	340	322

AUG. 1971 | HPF2 (KM)

IONOSPHERIC DATA

AUG. 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	F	110	F	F	F	120	100	R	A	I A 100	A	A	I A 100	I A 120	90	100	110	120	110	110	F	F	F
2	F	F	F	F	F	F	100	100	I A 100	I A 80	100	100	110	100	100	J R 90	A	A	A	A	A	F	F	F
3	J R 110	F	F	F 110	F	100	110	100	J R 100	100	A	I A 100	I A 100	100	I R 100	A	120	100	105	100	100	R 95	F	F
4	F	F	F	100	100	90	90	90	100	A	I A 100	100	100	130	110	100	I A 100	110	A	I R 100	R	100	I A 100	F
5	C	C	C	C	C	C	C	C	C	A	A	A	A	100	I A 100	J R 110	120	J R 90	100	110	A	120	R	S
6	F	F	F	F	F	100	110	100	120	I A 100	90	A	A	A	80	80	120	95	80	80	F 100	J R 100	J R 60	95
7	S 85	A	A	A	A	I A 90	95	60	55	45	G	G	G	60	95	95	110	95	60	80	90	95	F	F
8	F 80	F	F	A	F	F	J S 65	50	75	45	A	A	85	85	95	70	95	110	100	100	S 40	S 90	90	100
9	90	100	90	100	70	75	110	70	70	110	110	110	110	120	100	120	110	A	I A 120	I A 100	J R 100	F	F	F
10	100	F	J R 100	F	110	110	110	110	130	100	110	G	110	90	110	I A 100	I A 100	I A 100	I A 140	110	F	F	F	A
11	F	F	F	F 100	F	J R 100	120	90	100	I A 100	G	120	110	110	110	100	I A 100	110	J R 100	100	100	A	F	F
12	F	F	F 100	100	F	100	100	85	100	100	110	115	120	120	120	100	110	120	100	100	I R 100	100	100	F
13	F	F	F	100	100	110	120	100	I A 100	A	A	A	120	I A 70	85	90	70	95	75	70	110	110	80	F 75
14	F 85	F	S 110	S 30	F	A	100	65	60	105	55	G	140	I A 90	55	90	95	60	70	70	95	100	80	85
15	J R 95	F	U F 90	60	F 95	100	60	J R 45	65	95	70	85	50	110	50	60	60	75	I A 70	I R 80	60	90	105	80
16	75	90	90	70	80	85	75	45	50	85	75	65	115	95	80	80	70	I A 80	J R 95	100	100	F 90	F	F
17	F	J F 100	F	F	80	S 60	70	70	50	100	130	120	100	110	100	120	120	100	I A 120	140	100	100	A	R
18	F	F	F	120	100	100	100	120	100	100	100	110	90	110	110	110	95	100	100	90	90	100	90	110
19	100	90	110	100	90	140	J R 90	90	80	110	100	100	J R 100	100	100	100	100	110	110	110	R 100	105	F	F
20	F 100	F	F	80	100	100	100	J R 90	110	A	A	A	I A 100	I A 120	110	100	100	100	100	I R 90	R 100	100	F	F
21	F	90	F 100	100	100	100	110	120	J R 80	65	70	70	70	85	70	75	85	85	60	J R 65	70	F 90	F 75	F
22	J F 85	F	65	J F 70	J F 80	100	I A 80	80	A	G	G	G	G	G	90	G	60	100	95	95	90	I A 100	F 100	100
23	95	90	70	75	80	55	110	80	65	I R 70	50	95	80	J R 70	90	60	90	I A 70	I A 90	100	90	S	S	J S 90
24	75	F	F	U F 100	F	80	95	100	35	100	110	120	110	110	110	110	120	I A 110	110	I R 100	R 100	100	100	F
25	F	F	F	F	F	90	100	90	90	100	100	100	110	100	J R 100	110	100	100	100	R 110	R	R 90	100	100
26	100	100	100	100	100	I R 100	100	120	100	J R 60	90	70	55	65	J R 60	J R 55	80	95	65	I R 80	J R 50	J S 60	120	75
27	90	100	J R 85	90	95	105	60	70	100	110	100	J R 100	100	110	J R 110	95	110	A	90	90	110	100	100	J R 90
28	J R 100	110	120	J R 110	110	100	110	90	J R 95	45	50	80	60	70	70	65	75	I A 60	S 90	I A 80	I R 70	95	100	100
29	70	70	70	F 100	F 75	100	85	65	50	70	70	75	50	I A 70	60	80	50	55	90	J S 70	95	90	100	100
30	70	F 90	U F 60	F 90	F 100	F	75	50	85	90	90	100	A	105	100	90	J R 100	120	J R 90	I R 100	90	100	J R 90	110
31	90	100	100	90	100	100	100	100	90	120	110	110	100	110	100	100	R	35	100	90	I R 100	I A 80	90	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	12	17	22	19	25	30	30	28	25	23	21	25	29	31	29	29	28	29	30	26	25	18	15
MED	90	95	100	100	100	100	100	90	90	100	100	100	100	100	100	95	100	100	100	100	100	100	100	100
UQ	100	100	100	100	100	100	110	100	100	100	105	110	110	110	110	100	110	110	100	100	100	100	100	100
LQ	82	90	85	80	80	90	85	70	65	70	72	85	85	85	82	80	85	82	90	80	90	90	90	88

AUG. 1971 | YPF2 (KM)

IONOSPHERIC DATA

AUG. 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	67	69	69	66	57	52 S	47	61	60	60	55	61	67	73	78	76	78	83	86	82 S	65	I 62 A	60 S	I 64 S
2	I 62 S	62 S	F	54 S	F	I 50 S	56 S	70	76	70	61	73	88	U 100 S	108	110	U 108 S	104	I 114 S	A	A	66	66	67
3	S	S	F 80	60	48	45	55	67	A	A	A	81	89	92	106	104	I 95 A	96 S	I 99 S	92 S	76 S	82 S	U 80 S	J 75 S
4	57 S	F	54 S	F 56	F	F	J 54 S	69	64	71 V	79	82 R	79	72	82	81	U 85 S	J 86 S	U 96 S	I 108 S	I 94 C	68	73	S
5	S	F	67	F	F	F	57 S	77	S	59	58 H	62	65	73	89	90	101	U 101 S	U 108 S	92	65	60 S	59	59
6	59	U 59 S	U 62 S	F	F	45	50	70 S	76	I 64 A	A	70	77	I 75 A	I 77 A	87	90 R	100 S	J 100 S	86	93 S	I 72 S	64 S	I 62 S
7	S	F	S	S	S	S	62 S	U 95 S	75	60	60	59	68	72	75	84	87	102 S	J 106 S	95	82	67 S	58 S	55 F
8	F	C	C	C	C	C	C	C	C	C	C	62	61	66	72	79	83	88	100 S	112 S	J 101 S	67	56	52
9	54 S	52 S	54 S	56 S	51	49	45 S	62 S	69	67	71	64	60	I 63 R	65	74	77	A	A	A	A	A	51 S	I 51 A
10	J 52 S	J 53 S	U 54 S	U 51 S	47	43 S	44	59	59	55	I 62 A	I 60 A	69 S	I 63 A	65	70	85	84	71	U 61 S	55	56	J 55 S	59
11	55	J 53 S	53 S	U 50 S	47	39 F	U 52 S	76	64	55 H	64	68	75	81	87	87 R	86	91	91	89 S	71 S	59	S	S
12	S	F	F	A	46 S	46 S	52 S	66 S	55	54	61	63	70	68	85	87	88	81	80 S	85	72	58	57	60
13	59 S	60 S	60	49	41 F	32	46	69	71	62	I 60 A	I 66 A	I 80 A	104	128	J 135 S	U 121 R	114	117 S	J 116 S	J 87 S	J 66 S	I 64 S	62 S
14	J 62 S	61 S	58 S	53 S	44 S	34	43	55	73	61	I 60 A	55	60	67	85	91	80	67	I 61 A	69	82	63 S	61	59 S
15	J 62 S	S	S	61	54 S	48 S	55 S	62	63	55	62	67	74	69	70	68	69	67	77	83	88	82	54 S	I 52 S
16	49	46	47	48	45	40	44	78	72	62	59	63	73	83	85	91	89	80	78 S	J 87 S	J 73 S	66	J 62 S	I 60 S
17	59	I 60 S	55	I 53 S	46	40	45	67	74	65	60	64	68	74	84	79	72	81	U 99 S	I 99 S	72	48	46	I 45 S
18	45 S	45 S	F	44 F	34 F	34 F	51	69	56	60	64	65	91 R	U 99 R	81	80	74	76	88 S	86 S	92 S	68	57	59 S
19	U 62 S	J 61 S	58	53	51 S	U 52 S	U 61 S	63	69	58	63	71	80	86	86	83	82	81	81 S	73	J 63 S	61 S	J 53 S	J 53 S
20	F	S	J 53 S	J 51 S	50 S	45 S	50 S	U 71 S	66	66	66	64	A	A	74	I 76 A	74	76	78	81	70	61	62	60
21	I 59 S	J 55 S	50 S	50 S	47 S	43 S	49	79	75	76	71	64	88	89	86	83	87	85	91	85	81 S	66 S	61	I 63 S
22	J 64 S	63	63	59	40 S	37 S	46	56	72	61	58	61	61	66	62	58	58	61	66 S	71 S	52 S	47 S	S	S
23	S	S	47 S	44 S	45 S	44 S	52	66	63	61	U 62 C	63	68	79	U 87 C	73	63	64	67	77 S	I 78 S	U 72 S	J 63 S	I 61 S
24	S	S	S	J 56 S	48 S	I 42 S	48	70 S	65	70	75	67	75	77	80 C	87	86	J 90 R	94 S	104	I 91 S	J 68 S	56 S	A
25	S	S	S	F	F	S	53	61	64	69	71	68	70	78	84	81	80	83	94 S	110 S	102 S	59 S	55	56
26	55	59	58	51	47	39	48	70	69	64	72	71	76	79	86	92	81	84	93	U 98 S	98	70	60	60
27	J 60 S	60	59	57	50	40	56	59	62	77	96	76	74	91	89	73	79	78	74 S	83	73	60 S	60	60
28	60	59 S	57 S	J 56 S	37 S	38 S	C	84	72	67	59	65	73	78	99	94	83	78	83 S	78 S	68 S	59	J 55 S	49 S
29	50 S	49 S	47	C	C	C	C	C	C	71 H	74	68	72	90	99	87	72	78	83 S	80	66 S	57	55 S	J 58 S
30	53 S	52 S	52 S	52 F	49	50 S	62 S	62	65	65	63	68	74	76	89	84	71	73	I 97 S	I 106 S	J 68 S	52 S	I 51 S	J 51 S
31	J 50 S	48 S	48	48 S	57	I 41 S	42	57	62 C	73	72	78	79	I 92 C	106	I 105 C	I 99 C	91 C	92 S	U 95 S	I 72 S	J 53 S	J 51 S	J 49 S
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	20	23	24	23	25	28	29	27	29	28	31	30	30	31	31	31	30	30	29	29	30	29	27
MED	59 S	59 S	55	53	47	43 S	50	67	66	64	62	65	74	78	85	84	83	83	91 S	86 S	73 S	62	58 S	59 S
UQ	62 S	60 S	60	56	50	46 S	55 S	70	72	69	71	69	79	89	89	90	88	91	99 S	98 S	88 S	67 S	62	60
LQ	53 S	52 S	52 S	50	45	39	46	62	63	60	60	63	68	72	78	78	76	78	78 S	81	68 S	59	55 S	52 S

AUG. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 450	H 520	L	H 480	I A 480	H 490	H 490	A	H 450	H 440	L					
2								L	L 440	470	H 560	I A 500	A	I A 500	K 490	H 490	U L 480	A	A					
3									A	A	A	A	H 510	L	H 500	I A 470	A	A	A	A				
4								L	L	L 470	460	510	510	480	490	H 470	I A 460	430	A	A				
5							L	L	440	H 510	L 460	470	A	I A 500	H 480	I A 470	450	A	L					
6								A	A	A	A	A	A	A	A	A	A	A	A					
7							L	A	430	A	I A 470	L 500	H 480	480	490	490	450	A	A					
8							C	C	C	C	C	470	L	500	H 490	H 470	L 430	L	L					
9							L	L	A	L 480	470	490	U L 530	I A 490	500	H 490	A	A	A					
10								L	I A 430	480	A	A	U R 480	I A 470	460	480	460	420	U L 360					
11							L	L	A	440	450	L 500	480	480	470	L 480	440	440	L					
12							L	L	L	L 480	470	470	490	490	470	470	450	L	L					
13								L	A	A	A	A	A	490	A	A	A	430	A					
14								L	420	440	A	500	A	A	470	470	450	A	A					
15								L	420	L	H 480	490	480	A	470	470	A	L	A					
16								L	L 440	L 470	L	L	H 490	480	480	470	450	L	A					
17								L	L	L	L 490	L 480	500	A	A	A	A	A	L	A				
18							L	L	L	H 480	U L 510	490	480	490	480	I A 480	460	450	U L 380					
19								L	U L 430	U L 460	480	490	480	500	490	480	L 460	A	A					
20								L	A	460	490	A	A	A	A	A	A	L	A					
21								L	440	430	480	H 530	490	500	500	470	470	A	A					
22								L 410	420	450	H 460	A	H 500	A	490	L 460	H 450	H 450	350					
23								L	420	510	L	I C 510	I A 500	500	I C 480	480	A	A	A					
24								L	L	H 470	A	490	500	A	A	H 500	H 460	H 430	L					
25									L 440	L	480	500	500	L 520	L	L 490	L 470	L	L					
26								L	L	L	520	H 480	520	500	490	I A 490	L 460	L 450	L					
27									L	H 480	480	500	A	A	A	480	L 470	L	L					
28								L	L	L	480	H 470	I A 500	I A 520	H 470	470	450	L 420	L					
29							C	C	C	450	H 500	L 520	H 510	I A 490	H 480	480	I A 450	L 420	L					
30									L	L 460	470	L 500	490	A	A	A	A	A	A					
31								L	L	L 460	470	U C 480	C 530	490	470	470	L 440	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	13	21	21	24	23	21	23	25	22	11	3					
MED								410	430	470	480	490	500	490	480	480	450	430	U L 360					
UQ									L 440	480	490	500	505	500	490	480	460	445	U 370					
LQ									420	460	470	480	480	490	470	470	450	425	L 355					

AUG. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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	180	A	A	330	I A 345	360	365	360	R 370	I A 345	I A 320	H 300	A	A				
2						B	A	I A 250	I A 305	330	350	350	360	360	365	350	330	295	230	S				
3						S	A	260	A	330	I A 345	I A 360	370	350	365	330	A	A	A	A				
4						S	A	250	305	320	I A 345	A	A	A	350	320	I A 305	285	230	S				
5						S	150	240	290	I A 310	340	355	370	I A 370	360	I A 345	305	I A 275	240	S				
6						S	A	245	300	A	A	A	A	A	A	A	A	A	A	A				
7						S	A	A	A	A	A	A	A	R 370	360	340	310	280	A	B				
8						C	C	C	C	C	C	I A 370	365	A	A	A	320	290	215	S				
9						S	A	230	I A 270	300	355	A	A	A	A	340	315	285	230	A				
10						S	S	220	270	A	A	A	A	380	350	330	315	270	215	B				
11						S	S	245	290	315	330	A	A	350	A	A	A	280	A	B				
12						S	A	A	280	310	325	I A 340	355	R 365	355	335	310	270	220	S				
13						S	175	250	290	A	A	A	A	350	350	H 330	315	A	A	A				
14						S	S	230	290	A	A	350	A	A	A	A	A	A	A	A				
15						S	S	220	290	I A 315	330	360	I A 370	I A 370	I A 355	I A 335	315	280	220	A				
16						S	S	240	290	A	A	A	A	A	R 350	340	A	A	A	S				
17						S	A	240	290	320	340	350	360	H 365	H 365	340	320	270	205	S				
18						S	S	230	280	315	350	A	R	R	350	335	315	285	235	S				
19						S	S	255	295	I A 315	350	R 370	370	370	365	350	330	290	A	S				
20						S	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
21						B	B	250	300	A	A	A	A	380	A	A	A	A	A	S				
22						S	S	240	290	320	A	A	A	A	A	340	H 320	290	210	S				
23						S	A	240	H 280	I C 300	I C 320	C	C	A	C	340	320	280	A	S				
24						S	150	H 240	H 285	H 320	340	A	A	A	A	350	325	285	210	S				
25						S	S	250	I A 290	325	340	345	355	355	345	335	A	A	A	S				
26						S	S	A	280	320	335	350	355	350	340	335	315	H 270	A	S				
27						S	S	230	280	H 310	H 320	I A 345	I A 355	360	355	340	315	270	160	S				
28						S	C	A	280	310	I A 340	360	360	350	A	A	300	A	A	S				
29						C	C	C	C	310	330	330	I A 355	I A 365	360	340	320	280	A	S				
30						S	S	A	290	320	340	R 350	355	355	R 360	330	300	A	A	S				
31						S	A	A	I A 275	I A 310	325	I A 340	I C 355	I C 355	340	I A 325	305	A	A	S				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							4	21	25	22	21	17	16	20	20	24	23	20	13					
MED							162	240	290	315	340	350	360	360	355	340	315	280	220					
UQ							178	250	290	320	345	360	368	370	362	340	320	288	230					
LQ							150	230	280	310	330	345	355	352	350	332	310	272	210					

AUG. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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	J X 27	J X 22	22	21	E S 13	E S 13	G	J X 32	J X 51	J X 138	41	53	J X 55	41	44	50	44	G 25	J X 34	J X 60	J X 44	J X 68	J X 52	J X 34
2	21	J X 84	J X 61	J X 31	J X 33	J X 52	J X 44	J X 51	J X 46	J X 49	41	J X 65	J X 74	J X 60	J X 83	G	G	J X 66	99	J X 139	J X 129	J X 51	J X 43	J X 42
3	J X 72	83	J X 43	J X 35	J X 24	J X 27	28	J X 52	J X 157	J X 132	D	J X 99	G	J X 61	51	J X 88	J X 122	J X 81	J X 138	J X 61	J X 82	J X 44	J X 40	J X 82
4	J X 86	J X 64	J X 22	J X 21	J X 37	J X 42	J X 23	J X 42	J X 61	J X 83	J X 61	J X 65	J X 72	J X 64	44	J X 41	J X 58	38	J X 86	J X 51	C	J X 22	J X 26	J X 52
5	J X 24	J X 25	J X 78	J X 25	E S 15	E S 14	24	29	J X 54	J X 64	J X 66	J X 55	J X 52	J X 104	J X 59	J X 83	38	J X 107	J X 31	J X 84	J X 51	J X 23	J X 29	J X 25
6	J X 52	J X 40	J X 52	J X 43	J X 28	J X 25	J X 31	J X 49	J X 74	152	J X 100	159	J X 104	141	100	J X 64	J X 86	80	144	J X 38	J X 61	J X 33	J X 34	J X 51
7	J X 62	J X 41	J X 96	J X 66	J X 33	J X 51	J X 59	J X 64	J X 86	D	J X 52	J X 50	J X 52	44	48	44	J X 66	J X 98	M 72	J X 52	J X 85	J X 97	J X 71	J X 51
8	J X 43	C	C	C	C	C	C	C	C	C	C	44	50	44	J X 49	40	42	45	J X 44	J X 33	J X 85	J X 42	J X 29	J X 42
9	J X 28	J X 23	21	J X 39	J X 31	J X 24	J X 22	32	J X 45	J X 59	J X 69	38	J X 51	J X 63	J X 45	42	77	J X 83	153	J X 110	J X 132	J X 97	J X 50	J X 72
10	J X 60	J X 42	J X 33	J X 53	22	17	19	29	J X 65	J X 53	J X 141	J X 85	J X 52	J X 99	58	J X 61	J X 83	J X 40	28	J X 28	J X 52	20	J X 18	J X 24
11	J X 24	J X 27	E S 14	E S 15	E S 14	E S 14	27	36	J X 52	J X 43	J X 49	J X 40	41	40	J X 84	J X 50	J X 44	J X 43	J X 37	J X 29	J X 31	J X 16	J X 61	J X 62
12	J X 51	J X 51	J X 20	J X 73	J X 86	J X 33	J X 26	J X 32	35	37	39	43	45	40	38	38	38	32	32	J X 42	J X 28	J X 43	J X 34	J X 41
13	J X 50	J X 41	J X 42	J X 35	J X 30	J X 25	28	J X 37	J X 51	J X 85	M 138	100	150	J X 63	J X 88	J X 77	J X 53	J X 46	J X 45	26	J X 24	J X 22	18	E S 15
14	J X 22	E S 15	J X 21	J X 25	J X 29	J X 27	J X 27	J X 26	33	J X 42	J X 108	95	J X 59	48	J X 44	42	J X 50	60	80	J X 32	22	J X 30	22	E S 15
15	E S 15	22	20	22	J X 30	J X 22	J X 28	J X 29	33	J X 50	G 33	43	45	51	43	45	46	43	J X 50	J X 39	24	18	J X 22	41
16	J X 28	22	E S 15	E	E	E S 14	22	J G 22	G 29	J X 32	34	J X 38	39	43	43	44	42	J X 42	J X 64	J X 65	J X 29	J X 25	21	22
17	J X 39	J X 64	J X 32	J X 52	J X 32	J X 22	J X 28	29	J X 45	J X 51	44	J X 61	45	51	50	J X 80	J X 62	J X 62	30	J X 52	J X 57	J X 54	J X 24	J X 29
18	J X 41	J X 27	J X 29	J X 37	J X 22	J X 26	22	J X 22	33	41	G 34	41	43	40	60	J X 72	42	J X 50	J X 39	39	J X 26	J X 33	J X 42	J X 36
19	J X 36	J X 29	21	13	E	21	22	J X 29	J X 40	J X 38	G 32	G 31	43	40	43	43	45	J X 63	J X 67	J X 42	J X 24	25	J X 21	J X 29
20	J X 29	J X 39	J X 28	J X 42	J X 26	J X 30	21	J X 36	J X 52	J X 37	J X 48	J X 60	111	J X 130	J X 130	94	60	J X 46	J X 85	J X 54	J X 54	J X 28	21	E S 13
21	J X 49	J X 40	J X 29	J X 29	J X 22	J X 22	J X 27	29	J X 32	J X 42	J X 49	J X 44	J X 65	J X 63	J X 86	J X 50	43	J X 45	J X 54	J X 34	J X 29	J X 21	J X 35	J X 51
22	J X 56	E S 14	18	17	17	19	17	27	J X 42	J X 51	J X 48	J X 48	J X 40	J X 49	J X 36	G 30	35	36	24	J X 44	J X 100	J X 29	J X 33	J X 42
23	J X 52	J X 42	41	J X 34	J X 29	J X 20	16	26	39	46	34	46	57	J X 50	45	45	J X 56	55	J X 50	J X 29	J X 51	58	J X 51	J X 52
24	J X 33	J X 52	J X 38	J X 20	20	17	18	26	34	36	51	47	J X 44	J X 61	J X 54	G 26	G 22	G	26	J X 44	J X 33	J X 50	J X 33	90
25	J X 26	J X 43	25	E S 14	E S 15	E S 15	27	28	31	35	37	42	44	41	42	38	J X 37	J X 37	J X 32	J X 30	J X 26	J X 28	J X 29	E S 15
26	J X 26	J X 25	J X 19	J X 35	20	J X 34	J X 32	J X 30	31	35	38	40	41	42	41	J X 58	41	J X 43	J X 40	J X 50	J X 22	E S 15	E S 15	16
27	E S 15	J X 44	J X 27	E S 12	16	19	E S 15	G	32	40	J X 65	J X 69	J X 105	82	J X 63	J X 95	85	J X 73	J X 44	18	J X 27	J X 61	J X 36	J X 35
28	J X 21	J X 22	J X 18	22	J X 20	J X 22	C	J X 51	J X 33	J X 44	38	40	J X 61	J X 88	J X 100	J X 86	J X 72	J X 79	J X 84	M 75	J X 32	22	J X 21	J X 24
29	19	17	21	C	C	C	C	C	C	35	39	37	38	J X 69	39	39	J X 52	39	J X 64	J X 40	38	J X 29	23	J X 21
30	J X 27	21	18	J X 24	J X 33	J X 41	J X 35	J X 34	J X 40	J X 40	J X 49	46	47	J X 77	J X 59	J X 56	J X 61	J X 74	63	J X 51	J X 37	J X 20	J X 17	J X 24
31	J X 27	20	19	19	J X 20	35	J X 29	27	33	35	37	38	G	G	37	35	34	J X 53	J X 65	J X 48	J X 33	J X 32	J X 24	J X 18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	30	29	29	29	28	29	29	30	30	31	31	31	31	31	31	31	31	31	30	31	31	31
MED	J X 29	J X 34	J X 24	J X 25	J X 22	J X 22	26	J X 29	J X 40	J X 44	48	46	50	51	49	45	46	J X 46	J X 50	J X 44	J X 35	J X 29	J X 29	J X 39
UQ	J X 50	J X 43	J X 38	J X 37	J X 30	J X 30	J X 28	J X 36	J X 52	J X 59	J X 65	J X 63	J X 60	J X 66	J X 62	J X 68	J X 62	J X 70	J X 76	J X 53	J X 57	J X 47	J X 38	J X 51
LQ	J X 25	J X 22	20	20	17	19	22	27	33	37	38	40	43	42	43	40	42	41	J X 36	J X 34	J X 27	J X 22	J X 22	J X 23

The Radio Research Laboratories, Japan

AUG. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	E	E	E	E S 13	E S 13	G	27	38	G	40	45	51	39	G	49	38	G 24	32	60	29	A	30	22
2	E	E	20	15	13	31	35	30	38	36	39	64	52	54	40	G	G	57	76	A	A	21	16	23
3	54	31	33	21	20	25	22	39	A	A	A	60	G	G	43	87	A	68	A	56	40	29	25	19
4	54	52	16	16	20	28	21	35	40	41	39	40	45	39	43	38	55	33	54	36	C	19	21	28
5	15	21	22	E	E S 15	E S 14	22	G	38	38	36	44	50	60	42	66	36	86	22	30	30	19	28	18
6	26	30	27	39	19	19	28	46	46	A	A	51	66	A	A	62	86	69	77	26	33	24	20	21
7	53	26	17	48	23	22	23	52	40	50	50	38	41	43	47	44	43	89	48	44	29	52	24	18
8	26	C	C	C	C	C	C	C	C	C	C	43	45	42	44	39	41	36	32	30	32	36	19	27
9	19	E	E	21	18	22	18	30	42	46	34	38	46	E R 63	42	39	61	A	A	A	A	A	34	A
10	50	E	22	43	E	S	18	28	54	41	A	A	40	A	43	42	42	G	G	G	30	E	E	16
11	20	21	E S 14	E S 15	E S 14	E S 14	25	33	48	40	41	39	38	G	43	39	35	25	28	27	29	16	30	53
12	41	43	15	A	30	22	22	26	32	35	38	42	43	39	G	37	38	31	30	36	26	29	28	30
13	35	23	42	21	21	18	25	33	43	48	A	A	A	39	74	70	46	40	42	22	21	19	E	E S 15
14	E	E S 15	15	21	19	16	19	20	G	37	A	45	50	E R 48	38	42	43	41	A	28	E	18	E	E S 15
15	E S 15	E	E	E	20	S	20	21	G	38	G 30	42	44	49	43	42	45	40	50	35	E	E	E	E
16	E	E	E S 15	E	E	E S 14	S	G 21	G 25	32	34	36	38	42	42	43	39	37	40	37	16	22	E	E
17	21	26	20	23	22	15	21	29	40	45	41	42	G	50	50	54	61	45	28	48	54	28	20	20
18	21	15	15	27	15	E	15	21	G	31	G 32	41	41	G	G	71	42	44	31	29	23	22	21	20
19	30	29	15	13	E	16	G	19	25	33	G 31	G 31	43	40	42	38	36	54	48	33	22	16	E	17
20	E	22	E	22	21	22	20	28	41	35	44	54	A	A	61	A	48	36	41	49	54	23	E	E S 13
21	22	19	20	19	14	15	18	G	27	34	37	40	45	34	41	39	38	44	44	27	20	17	E	28
22	21	E S 14	E	E	16	S	17	G	35	43	41	48	39	E R 49	E R 36	G 30	E R 35	G	24	40	34	17	28	25
23	27	E S 42	27	E	20	S	16	G	36	46	E C 34	G	57	49	E C 45	43	46	52	38	26	E S 51	53	29	19
24	15	E S 52	E S 38	E	E	E	G	G	G	G	51	46	42	53	52	G 26	G 22	G	25	40	30	27	28	A
25	E	E	E	E S 14	E S 15	E S 15	25	G	31	G	37	41	44	40	40	38	36	34	29	27	20	21	E	E S 15
26	16	21	15	20	E	18	18	27	31	G	37	40	39	40	37	50	38	37	26	22	E	E S 15	E S 15	E
27	E S 15	31	18	E S 12	13	S	E S 15	G	G	34	38	36	51	55	50	40	36	37	25	S	E	E	20	23
28	E	E	E	E	E	16	C	28	25	37	37	G	53	54	39	40	33	29	22	45	19	E	18	E
29	E	E	E	C	C	C	C	C	C	35	38	G	37	53	38	G	50	33	29	29	29	20	E	E
30	E	E	E	17	21	26	27	31	25	29	27	42	45	60	52	54	55	54	34	40	37	16	16	23
31	26	E	E	E	13	E S 35	22	26	33	35	36	E C 38	G	G	36	35	33	52	62	41	30	29	20	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	30	29	29	24	27	29	29	30	30	31	31	31	31	31	31	31	31	30	30	31	31	31
MED	20	U 18	15	16	15	16	20	27	35	36	38	42	44	U 45	42	42	41	40	34	36	29	21	20	19
UQ	26	28	20	21	20	22	22	30	40	43	44	46	50	54	46	52	47	53	49	44	34	28	26	24
LQ	E	E	E	E	E E 13	E E 14	18	G 19	25	33	36	38	40	39	38	38	36	33	28	27	20	16	E	15

AUG. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

AUG. 1971 | F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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	245	260	290	305	305	310S	320	310	315	270	280	280	290	290	305	300	295	305	315	310S	295	270A	275S	260S
2	265IS	275S	F	305S	F	290IS	340S	330	345	335	260	275	270	275US	280	285	290US	290	315IS	A	A	275	275	285
3	S	S	320F	335	290	290	325	330	A	A	A	275	255	285	300	A	300IA	290S	315IS	315S	290S	280S	300US	295JS
4	300S	F	270S	300F	F	F	315JS	325	315	315V	315	300R	305	285	290	290	300US	295JS	295US	320IS	335IC	285	275	S
5	S	F	320	F	F	F	315S	320	S	325	225H	315	280	255	280	290	300	295US	335US	335	300	285S	280	285
6	275	310US	290US	F	F	305	320	330S	345	355IA	A	285	310	285IA	275IA	280	A	300S	310JS	290	310S	295IS	280S	280IS
7	S	F	S	S	S	S	305S	345US	380	315	315	285	305	305	280	275	275	285S	315JS	325	310	290S	280S	285r
8	F	C	C	C	C	C	C	C	C	C	C	305	265	270	270	270	265	265	270S	305S	340JS	300	275	275
9	280S	280S	280S	285S	290	275	280S	310S	330	310	330	330	300	305IR	290	305	305	A	A	A	A	A	270S	275IA
10	A	280JS	295US	300US	275	285S	295	325	335	300	330IA	305IA	330S	300IA	290	280	315	335	345	315JS	280	275	265JS	290
11	285	285JS	295S	245US	285	275F	320US	350	390	320H	310	290	285	285	285	285R	295	300	320	320S	310S	270	S	S
12	S	F	F	A	270S	270S	310S	380S	355	295	300	305	300	280	310	305	320	310	310S	325	315	285	270	300
13	285S	290S	285	330	295F	315	325	335	365	355	310IA	290IA	285IA	290	295	290JS	280UR	305	305S	325S	310JS	275JS	245IS	265S
14	260JS	275S	275S	290S	285S	295	330	330	350	345	330IA	270	285	275	285	305	310	335	300IA	290	315	335S	295	280S
15	275JS	S	S	280	295S	295S	345S	340	365	280	295	290	320	310	305	300	320	300	300	290	300	330	285S	285IS
16	275	280	275	290	305	280	285	360	355	345	310	275	295	300	295	305	320	315	305S	315JS	310JS	280	300JS	300IS
17	300	300IS	315	320IS	320	305	315	345	360	355	325	300	295	300	310	305	290	310	320US	340IS	350	300	280	285IS
18	275S	275S	F	340F	300F	325F	340	370	360	320	300	250	280R	320UR	310	300	310	305	310S	280S	325S	320	270	275S
19	280US	280JS	290	290	305S	330US	350US	350	355	355	315	290	305	295	300	305	305	315	335S	325	290JS	305S	285JS	295JS
20	F	S	285JS	295JS	300S	355S	350S	365US	345	350	320	295	A	A	290	310IA	310	305	310	310	300	295	285	285
21	280IS	275JS	270S	270S	285S	280S	295	355	335	340	335	250	295	310	295	295	300	300	315	305	310S	275S	280	270S
22	270JS	270	290	305	270S	275S	310	290	280	295	265	295	280	285	315	310	310	300	305S	310S	305S	280S	S	S
23	S	S	255S	285S	285S	300S	330	350	355	345	310UC	320	280	295	330UC	330	320	305	300	300	310IS	310US	305JS	305IS
24	S	S	S	310JS	290S	285IS	315	350S	340	325	325	315	305	305	285C	290	280	285JR	300S	320IS	320IS	295JS	285S	A
25	S	S	S	F	F	S	340	365	345	335	340	325	290	290	300	295	295	290	300S	350S	350S	290S	275	275
26	280	305	310	335	300	310	310	360	360	315	305	300	300	310	305	310	310	285	295	310US	305	300	280	275
27	285JS	280	280	315	300	275	325	340	315	310	330	315	300	310	325	315	315	335	310S	315	315	290S	265	270
28	285	280	300S	320JS	300S	290S	C	370	360	355	340	305	290	285	305	320	310	315	315S	305S	310S	300	290JS	275S
29	260S	285S	260	C	C	C	C	C	C	340H	315	310	285	300	310	335	320	320	315S	325	305S	285	275S	275JS
30	280S	270S	275S	280F	300	300S	340S	355	355	340	350	315	320	305	315	330	325	290	310IS	325S	345S	290S	275IS	280S
31	295JS	280S	285	305S	350	360IS	345	350	340C	340	335	310	280	285IC	300	310IC	310IC	310C	305S	320US	325IS	300JS	285JS	265JS
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	20	23	24	23	25	28	29	27	29	28	31	30	30	31	30	30	30	30	29	29	30	29	27
MED	280S	280S	285	302	295	295S	320	345	350	335	315	300	292	292	300	302	308	302	310S	315S	310S	290	280S	280S
UQ	285S	285S	295	318	300	310S	340	355	360	345	330	310	305	305	308	310	315	310	315S	325S	320S	300S	285S	285S
LQ	275S	275S	275S	288S	285S	280S	310	330	338	315	302	285	280	285	288	290	295	290	300S	305S	305S	280	275	275S

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

IONOSPHERIC DATA

AUG. 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 365	H 325	L	H 345	I A 380	H 370	H 365	A	H 375	H 345	L					
2								L	L 370	375	H 335	I A 380	A	I A 365	K 370	H 370	U L 350	A	A					
3									A	A	A	A	H 365	L	H 380	I A 375	A	A	A	A				
4								L	L	L 370	410	365	365	415	400	H 375	I A 360	345	A	A				
5							L	L	375	H 395	L 415	395	A	A	H 335	A	370	A	L					
6								A	A	A	A	A	A	A	A	A	A	A	A					
7							L	A	A	A	I A 405	L 380	H 405	375	A	A	A	A	A					
8							C	C	C	C	C	385	L	360	A	H 360	A	L	L					
9							L	L	A	A	365	380	U L 335	I A 370	360	H 330	A	A	A					
10								L	I A 375	360	A	A	U R 390	A	A	340	A	345	U L 395					
11							L	L	A	400	400	L 355	395	385	A	L 355	365	330	L					
12							L	L	L	L 370	405	395	370	370	385	360	365	L	L					
13								L	A	A	A	A	A	365	A	A	A	A	A					
14								L	380	400	A	360	A	A	380	360	A	A	A					
15								L	385	L	H 385	365	A	A	385	375	A	L	A					
16								L	L 375	L 390	L	L	H 365	375	360	A	375	L	A					
17								L	L	L	L 380	L 415	365	A	A	A	A	A	L	A				
18							L	L	L	H 385	U L 375	375	375	370	375	I A 360	395	A	U L 355					
19								L	U L 395	U L 390	395	400	A	355	380	355	L 360	A	A					
20								L	A	385	365	A	A	A	A	A	A	L	A					
21								L	370	395	395	H 360	A	360	360	365	345	A	A					
22								L 320	L 365	A	H 390	A	H 360	A	365	L 380	H 355	H 335	L 360					
23								L	370	355	L	I C 375	I A 345	A	I C 390	365	A	A	A					
24								L	L	H 350	A	365	380	A	A	H 340	H 360	H 350	L					
25									L 365	L	385	380	380	L 355	L	L 330	L 340	L	L					
26								L	L	L	355	H 375	350	360	355	I A 350	L 350	L 335	L					
27									L	H 355	355	360	A	A	A	355	L 340	L	L					
28								L	L	L	395	H 390	I A 375	I A 355	H 385	360	360	L 355	L					
29							C	C	C	395	H 360	L 375	H 355	I A 380	H 355	360	A	L 355	L					
30									L	L 370	385	L 380	A	A	A	A	A	A	A					
31								L	L	L 345	385	U C 395	C 360	390	385	360	L 365	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	12	19	21	24	19	18	19	22	17	9	3					
MED								L 320	372	375	385	378	365	370	375	360	360	345	U 360					
UQ									378	392	395	388	380	375	385	365	365	350	L 378					
LQ									368	358	365	365	360	360	360	355	L 350	335	L 358					

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

IONOSPHERIC DATA

AUG. 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								295	290	430	350	395	350	345	295	325	320	295	275					
2								265	255	265	500	E A 400	365	350	340	320	290	300	280					
3									A	A	A	370	320	330	305	I A 295	I A 290	305	I A 270	250				
4								250	260	300	295	300	315	345	340	315	305	310	300	250				
5							280	275	220	315	250	305	400	E A 440	350	330	300	E A 310	260					
6								250	250	A	A	355	315	A	A	340	I A 350	295	290					
7							300	245	220	260	310	375	345	330	345	340	325	E A 350	270					
8							C	C	C	C	C	325	440	400	355	355	315	340	310					
9							350	270	225	325	290	280	370	I A 345	370	330	325	A	A					
10								270	300	370	A	A	300	A	385	375	290	270	250					
11							275	245	250	295	330	340	355	335	325	335	300	300	255					
12							280	220	250	370	350	330	350	370	300	300	290	280	255					
13								260	250	250	A	I A 380	I A 340	320	305	280	280	270	255					
14								275	250	255	A	450	395	400	340	295	290	280	A					
15								250	230	420	345	340	305	315	335	310	280	315	300					
16								240	240	270	300	380	340	325	310	300	270	265	270					
17								250	250	255	305	340	345	330	295	295	I A 315	300	255	240				
18							250	240	220	320	345	470	345	280	290	E A 340	315	300	280					
19								240	245	250	310	355	315	300	320	305	290	280	260					
20								230	250	260	295	340	A	A	345	A	295	295	255					
21								245	250	265	270	480	330	290	310	310	290	285	260					
22								325	280	350	420	365	400	350	325	335	310	330	280					
23								235	250	300	320	E C 350	390	335	290	285	295	E A 370	285					
24								240	250	285	295	295	325	300	335	325	310	300	275					
25									255	275	280	300	335	340	300	320	310	290	285					
26								240	240	230	320	295	320	310	305	285	290	295	270					
27									255	300	275	295	295	295	275	295	295	260	255					
28								230	230	245	255	305	345	335	295	270	275	275	255					
29							C	C	C	245	295	325	350	315	280	270	290	275	260					
30									225	270	250	305	300	310	300	280	290	320	260					
31								240	250	255	270	280	350	345	300	290	260	260	295					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							6	25	28	28	25	30	30	28	30	30	31	30	29	3				
MED							280	245	250	272	300	338	345	331	310	309	295	294	270	250				
UQ							300	265	252	318	330	372	355	345	340	330	310	305	280	250				
LQ							275	240	235	255	280	305	320	312	300	295	290	280	255	245				

IONOSPHERIC DATA

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

Station YAMAGAWA Lat. 31° 12·1' N Long. 130° 37·1' E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	310	300	260	250	235	225	250	230	230	200H	200H	I200A	A	200H	210H	I220A	210H	225H	A	E260A	250	I295A	E300A	300
2	290	305	270	230	245	E320A	250	240	E245A	210	200H	A	I210A	A	220	210H	220H	A	A	A	A	265	295	300
3	E350A	280	250	215	265	275	250	250	A	A	A	A	200H	205H	235H	A	A	A	A	A	260	285	250	240
4	A	A	290	240	270	265	230	I225A	I210A	E240A	195	190	E245A	195	E210A	200H	A	240	A	A	I225C	200	E290A	E330A
5	295	265	240	230	230	270	240	235	E230A	200H	190	E225A	I225A	I215A	220H	I210A	225	I230A	225	220	245	260	300	270
6	300	275	300	285	255	250	250	A	A	A	A	A	A	A	A	A	A	A	A	225	245	240	250	290
7	A	300	280	I300A	250	290	250	I215A	A	A	I180A	185H	175H	A	A	A	A	A	A	225	220	I225A	240	250
8	E300A	C	C	C	C	C	C	C	C	C	C	E250A	E265A	240	I215A	240H	I220A	I235A	I245A	250	240	250	265	E340A
9	300	300	285	290	255	265	240	225	I220A	A	200	200	E260A	A	E240A	225H	A	A	A	A	A	A	300	A
10	A	280	270	E340A	305	295	250	220	I225A	E230A	A	A	195H	A	A	A	A	220	235	240	E285A	295	300	290
11	295	295	280	255	275	300	250	A	A	215	220	230	200	200	A	215	230	230	240	240	240	260	A	A
12	290	I265A	245	I320A	330	300	250	210	200	195	180	205	E240A	210	200	220	225	230	255	250	235	E255A	325	270
13	305	270	E300A	230	240	250	255	E250A	A	I200A	I200A	A	A	205	A	A	A	A	A	215	210	240	275	295
14	280	280	275	260	250	250	245	215	205	200	I215A	230	A	A	210	E250A	I230A	A	A	275	230	215	250	270
15	275	290	250	250	245	230	230	200H	210	200	180H	225	A	A	235	E250A	A	A	A	255	230	210	245	250
16	285	300	295	250	230	250	240	220	210	200	175	180	185H	E240A	E250A	E250A	240	E250A	I230A	250	215	250	255	260
17	255	275	240	255	225	250	250	225	E250A	A	200	195	190	I205A	A	A	A	I250A	220	I230A	235	E250A	300	300
18	315	300	265	250	240	250	240	215	190	180H	175H	210	E220A	230	220	A	210	A	E255A	250	230	225	285	310
19	310	305	285	270	260	245	230	210	200H	205	185	180	A	250	220	220	235	A	A	250	225	235	250	275
20	305	315	285	260	250	225	240	225	A	200	E250A	A	A	A	A	A	A	E260A	A	250	E300A	250	275	270
21	280	290	300	295	250	295	250	235	220	200	200	200H	I245A	235	225	220	245	A	A	240	235	245	270	365
22	300	270	250	200	250	300	255	225	E250A	A	205H	I185A	175H	A	210	210	225H	220H	250	250	265	265	E360A	E335A
23	300	A	300	275	275	245	245	225	E240A	I210A	200H	180	A	A	A	250	A	A	A	260	280	E280A	260	250
24	300	I315A	I300A	230	250	290	245	220	210	225H	I225A	I215A	210	I195A	I205A	205H	215H	205H	245	250	230	220	E285A	A
25	260	290	270	220	250	285	230	220	220	210H	210	205	205	200H	200H	230	230H	250	250	245	205	215	290	300
26	285	270	250	240	245	250	245	235	210	205	200	195H	210	205	200	I225A	E245A	E250A	245	240	225	205	250	290
27	290	305	270	225	240	245	240	210	210H	200H	215	215	A	A	A	E245A	225	A	240	240	220	250	290	280
28	255	265	245	220	250	275	I265C	240	220	230	195	195H	I200A	I215A	200H	215	210	220	240	250	240	225	250	280
29	300	295	300	C	C	C	C	C	C	200	185H	175H	170H	I190A	230H	230	I215A	E240A	E225A	225	240	250	250	275
30	290	300	295	275	250	265	230	225	215	200	220	225	A	A	A	A	A	A	A	240	220	240	295	315
31	300	290	295	255	210	A	235	210	230	210H	200	200	190H	200	195	220	230	A	A	240	235	E260A	295	315
	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	30	29	29	28	29	27	23	24	27	25	21	19	21	22	19	16	15	27	29	30	30	28
MED	295	290	275	250	250	262	245	225	215	200	200	200	198	205	212	219	225	227	240	242	232	245	271	284
UQ	300	300	295	272	255	289	250	230	225A	210	205	212	215A	218	222	232A	230	242A	246	250	242	255	295	302
LQ	285	275	250	230	240	250	240	215	210	200	188	190	190H	200	202	215	218	222	232	240	225	225	250	270

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AUG. 1971 | H'F (KM)

IONOSPHERIC DATA

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

AUG. 1971 | H'ES (KM)

IONOSPHERIC DATA

AUG. 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 1	F 1	F 1	F 1				LH 21	L 4	C 2	L 2	C 2	C 2	CH 11	H 1	HL 11	HL 22	L 2	L 3	HL 44	FF 54	FF 41	F 4	F 3
2	F 2	FF 13	F 3	F 3	F 3	L 4	L 4	L 5	L 4	HL 12	C 1	C 2	C 1	HH 11	H 1			C 4	C 6	C 6	F 4	F 2	F 2	F 3
3	F 2	FF 23	F 3	F 2	F 2	L 2	CL 12	C 4	C 5	C 4	C 4	C 3		HC 11	H 2	C 3	L 5	L 6	L 5	L 8	F 4	F 4	F 3	F 4
4	FF 31	F 2	F 2	FF 11	FF 31	LL 31	L 2	C 4	C 3	C 2	HC 12	C 1	C 2	C 1	CL 11	C 2	C 5	HL 22	CL 42	CL 53		F 2	F 3	F 3
5	F 1	F 3	F 2	F 1			C 2	C 2	C 2	C 2	C 1	C 1	HL 11	L 2	HL 11	CL 21	C 3	L 4	L 3	L 4	F 3	F 2	F 2	F 2
6	F 2	F 3	FF 13	FF 62	F 4	L 2	C 4	C 1	C 3	C 3	L 5	L 3	L 3	L 4	L 5	L 5	CL 35	CL 35	LL 25	L 7	FF 18	FF 12	FF 21	FF 31
7	F 7	F 7	F 3	F 5	F 6	L 3	L 2	L 4	L 4	L 2	L 3	L 1	L 1	H 1	HL 11	HL 21	CL 21	C 4	C 6	LL 51	FF 32	FF 22	FF 32	F 3
8	FF 41											HCL 11	CL 22	C 2	C 2	HL 12	HL 11	H 3	C 5	L 8	F 4	F 5	F 2	FF 42
9	F 2	F 2	F 1	FF 31	F 3	L 5	L 2	C 5	C 3	C 3	L 2	LH 11	L 2	L 2	L 2	HL 11	C 3	C 4	C 4	L 7	F 3	F 3	F 4	F 4
10	F 6	F 3	F 5	F 4	F 1	L 1	C 2	C 4	C 3	C 3	C 5	C 2	C 2	H 3	H 2	H 3	H 4	C 3	C 2	C 1	F 6	F 1	F 1	F 2
11	F 2	F 2					C 3	C 3	C 3	CL 21	C 2	HC 11	C 1	C 1	C 2	C 3	L 4	L 4	L 4	L 5	F 6	F 2	FF 32	F 3
12	F 6	F 7	F 2	F 5	F 7	L 5	L 4	L 3	HL 22	HL 22	HL 11	HL 12	HL 11	HL 11	HL 11	HL 11	HL 21	H 1	C 4	C 5	FF 62	FF 51	F 3	F 3
13	F 4	F 2	F 2	F 2	F 3	L 2	C 4	C 3	C 5	C 3	C 5	C 3	L 4	C 1	C 3	C 2	C 2	C 3	L 4	L 3	F 2	F 2	F 1	
14	F 2		F 2	F 7	F 3	L 3	L 1	L 3	HL 22	LH 22	CL 22	C 2	CL 21	CL 11	L 2	HL 11	L 4	L 6	CL 25	L 8	F 2	F 2	F 1	
15		F 1	F 1	F 1	F 4	L 3	L 4	L 4	HL 12	L 4	L 2	HL 11	HL 12	HL 12	HL 12	HL 12	H 2	CL 32	C 5	L 4	F 2	F 1	F 1	FF 11
16	FF 12	F 2					L 1	L 2	L 2	L 1	L 1	L 1	L 2	HL 12	HL 11	HL 11	CL 24	L 3	L 6	L 4	F 2	F 4	F 1	F 3
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The Radio Research Laboratories, Japan

AUG. 1971 | TYPES OF ES

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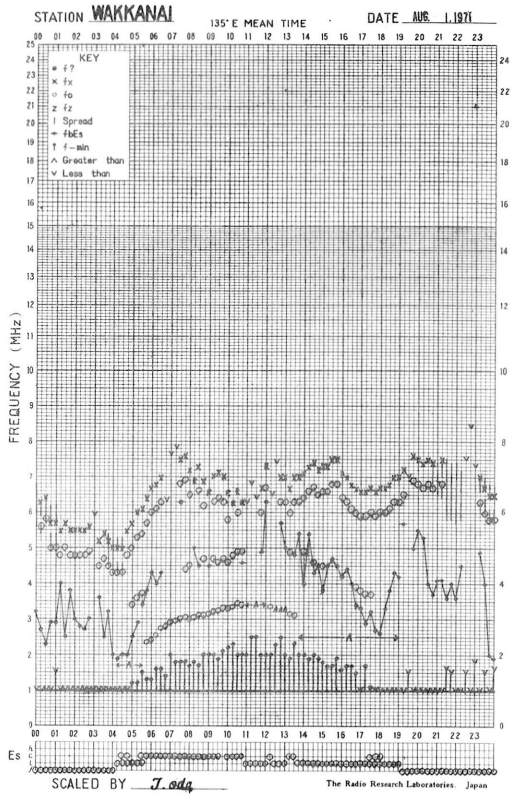
STATION WAKKANAI 135°E MEAN TIME DATE AUG. 1, 1971



SCALED BY T. oda

The Radio Research Laboratories. Japan

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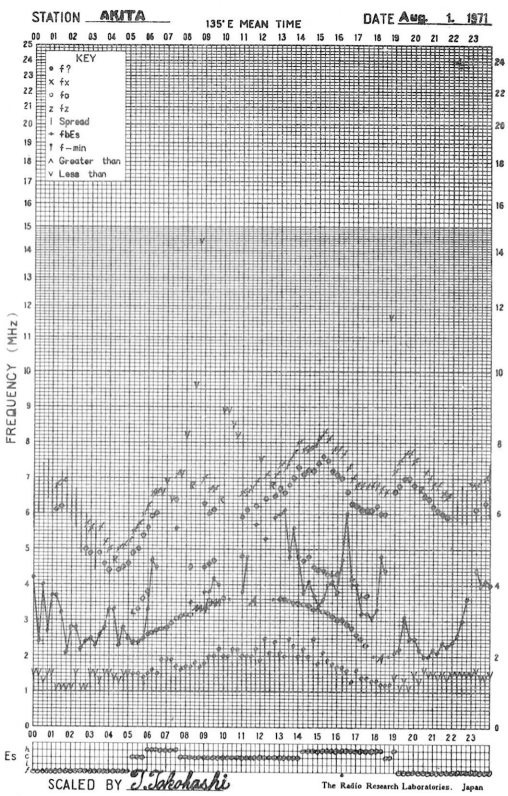

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The Radio Research Laboratories. Japan

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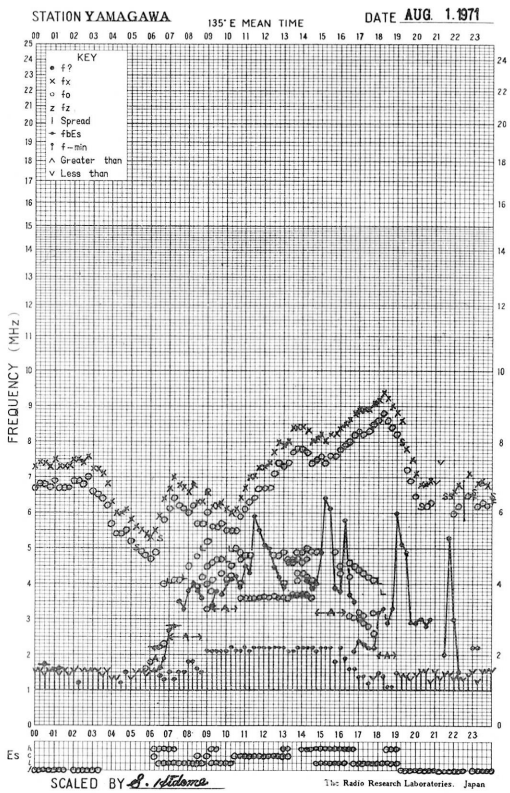

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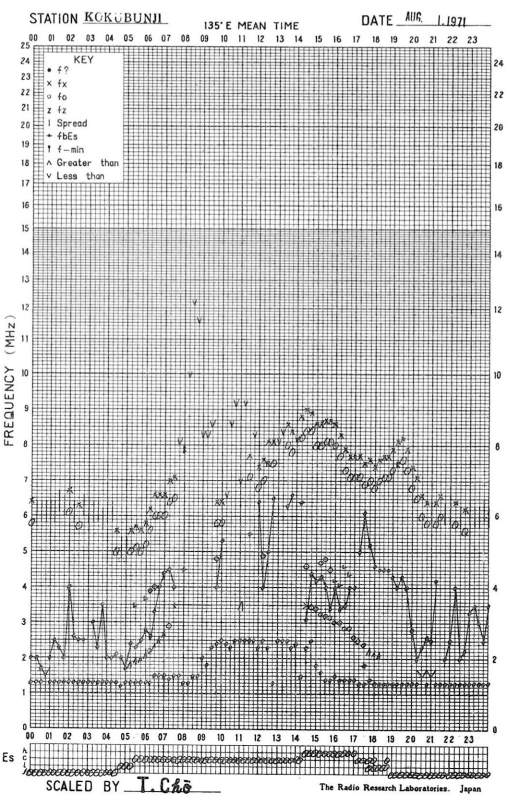

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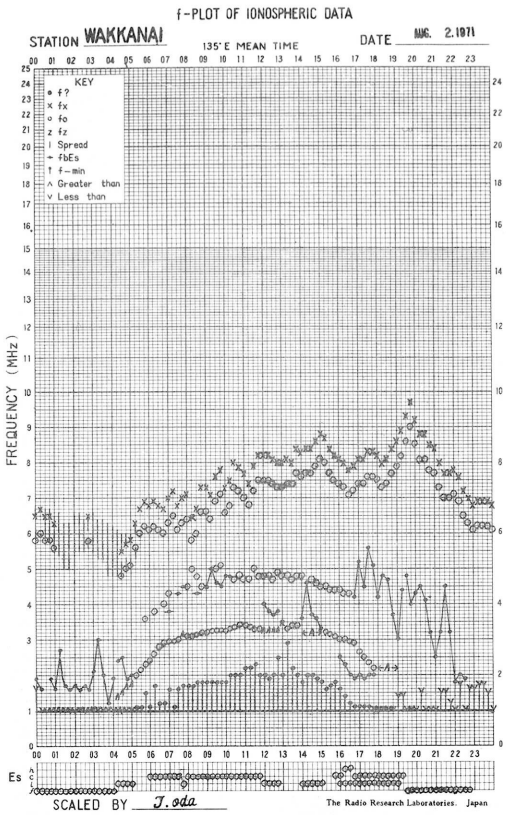
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FREQUENCY (MHz)
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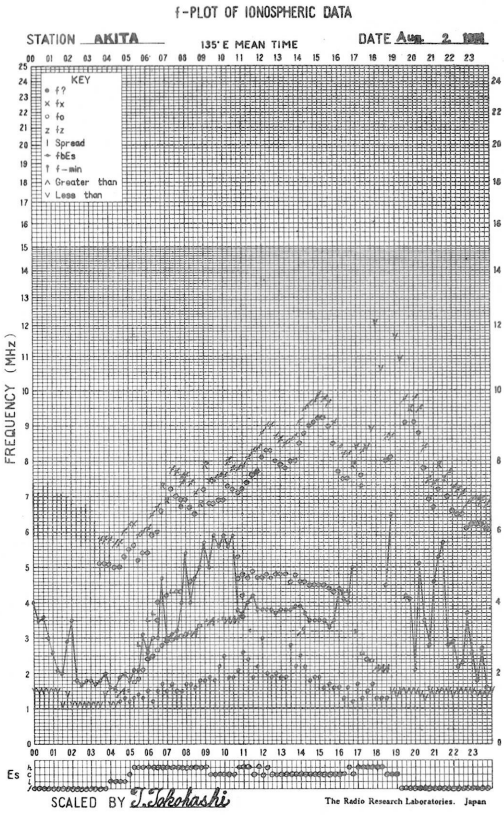
SCALED BY T. oda
The Radio Research Laboratories. Japan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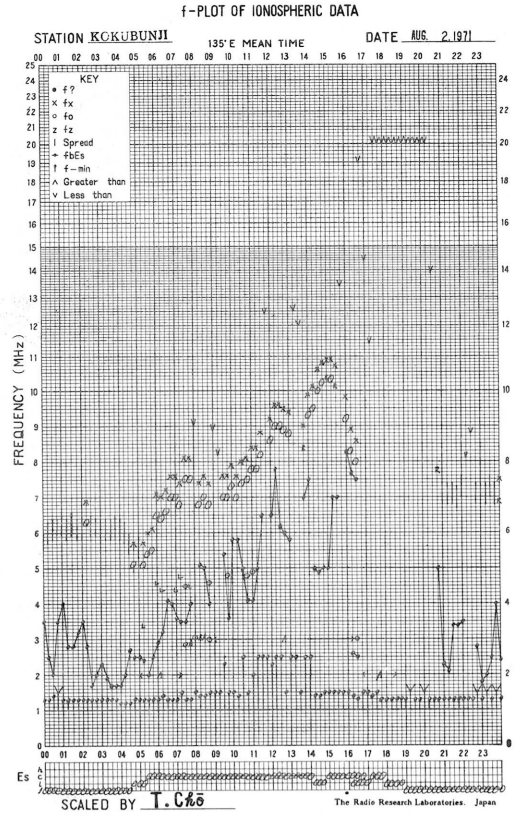
The Radio Research Laboratories. Japan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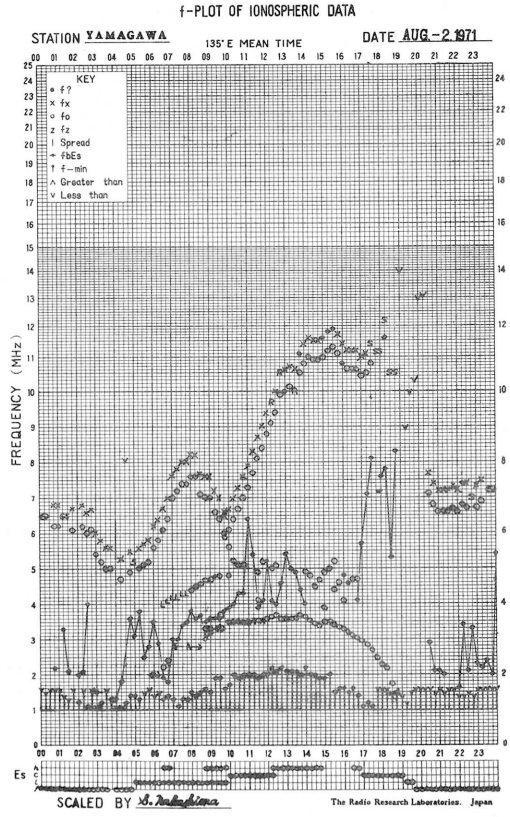
The Radio Research Laboratories. Japan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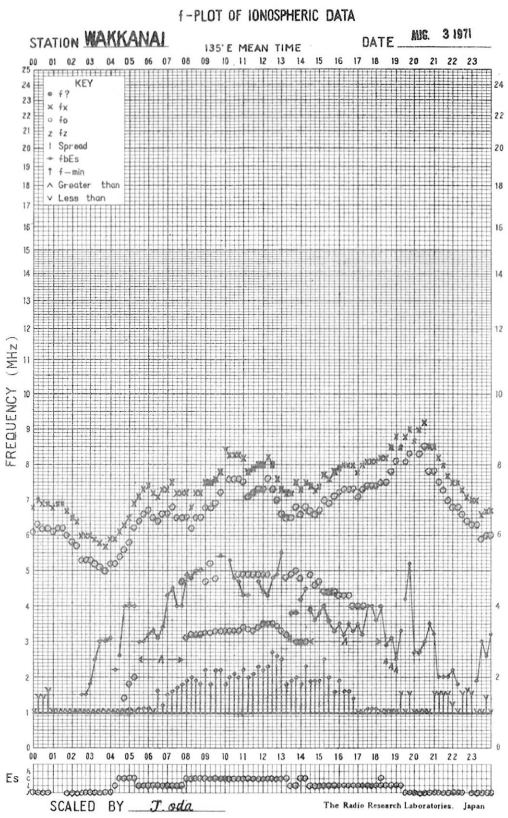
The Radio Research Laboratories. Japan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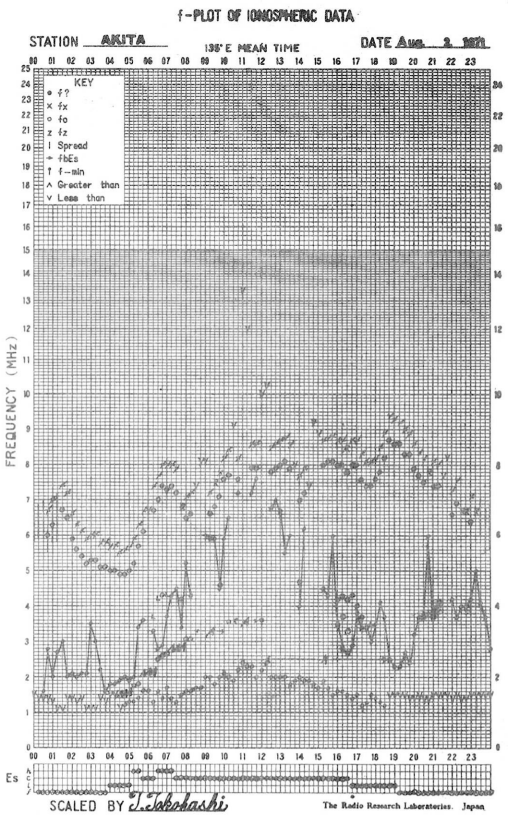
The Radio Research Laboratories. Japan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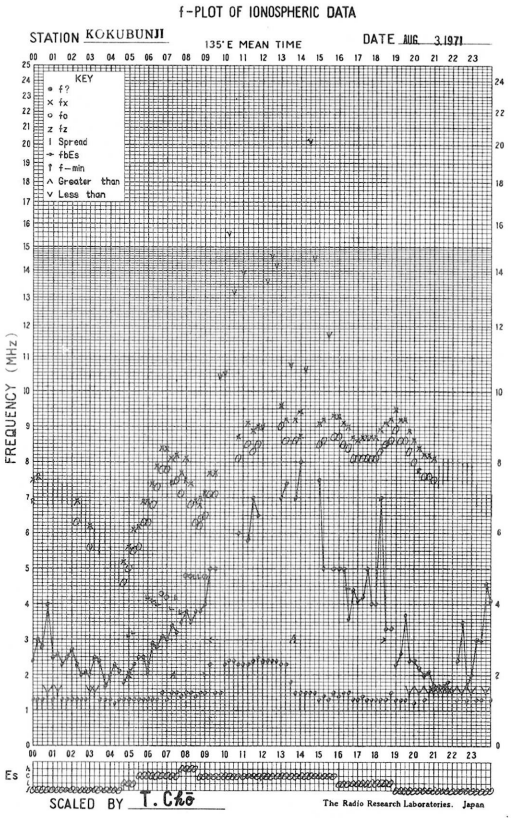
The Radio Research Laboratories. Japan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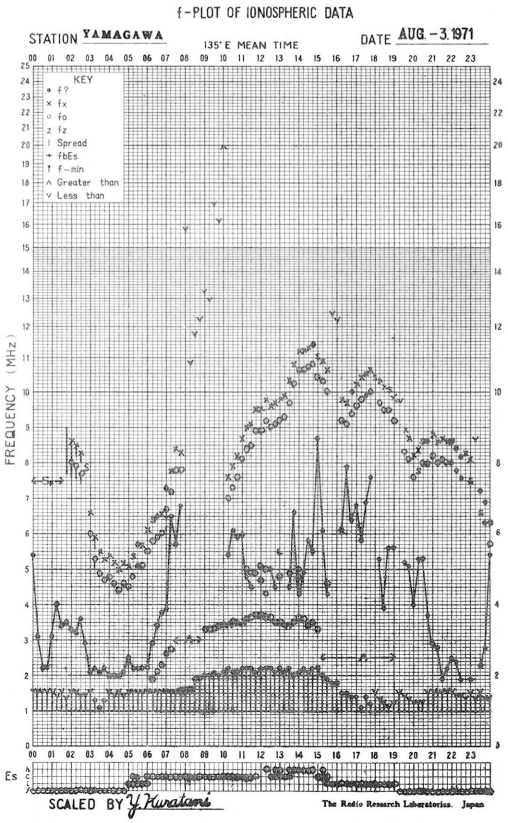
The Radio Research Laboratories. Japan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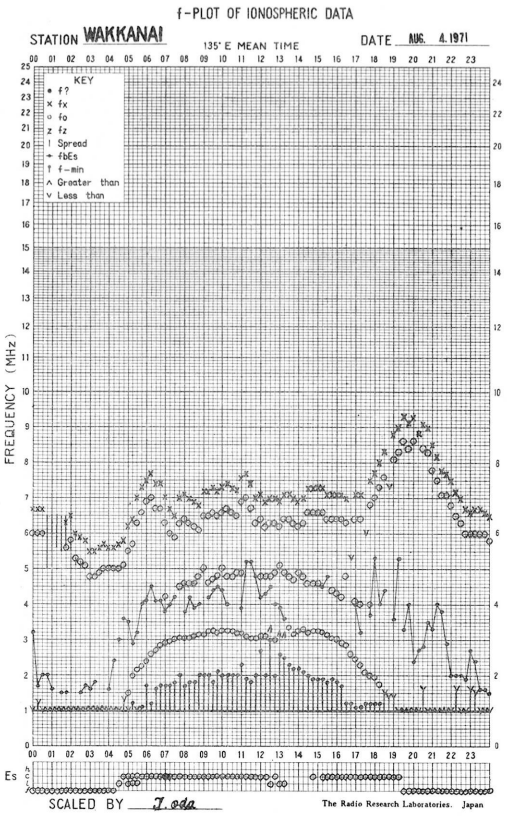
The Radio Research Laboratories. Japan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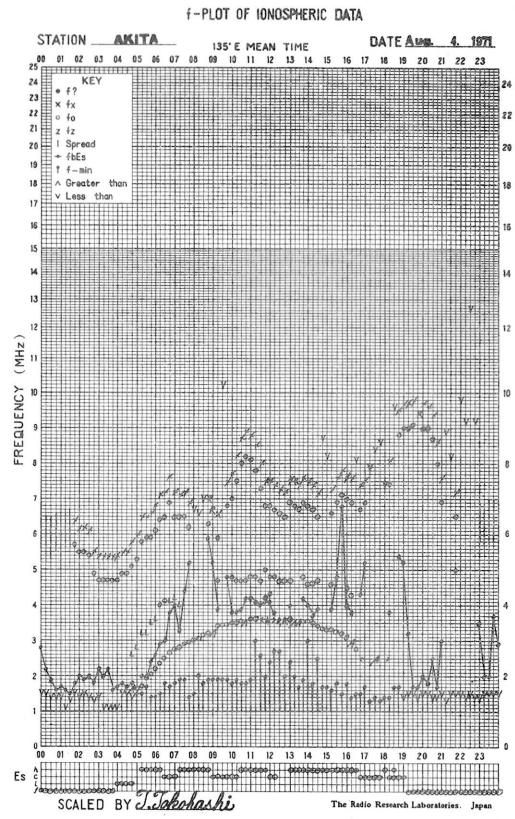
SCALED BY T. oda
The Radio Research Laboratories. Japan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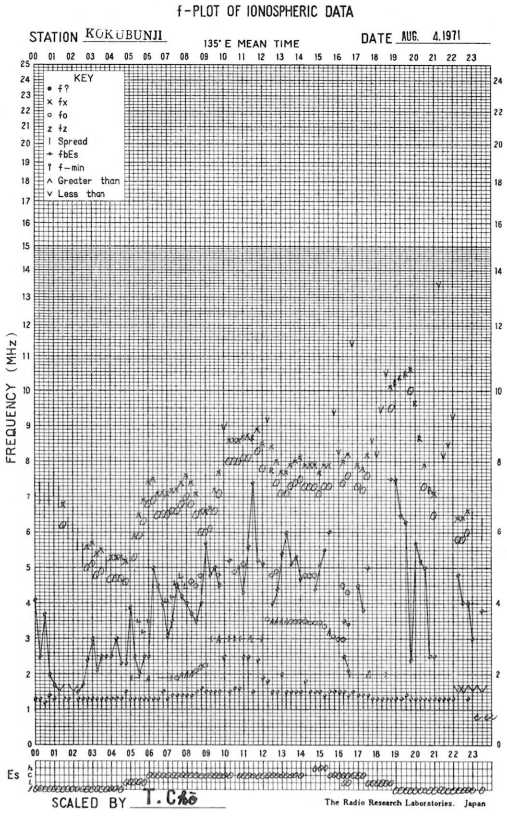
The Radio Research Laboratories. Japan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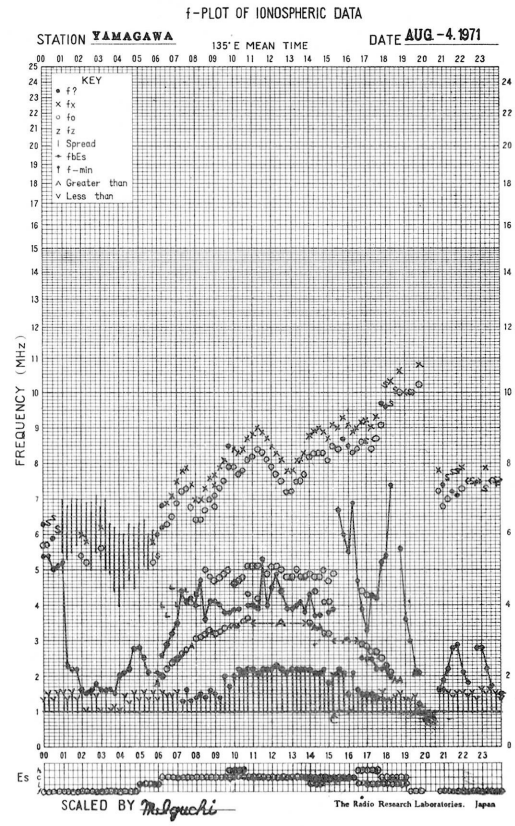
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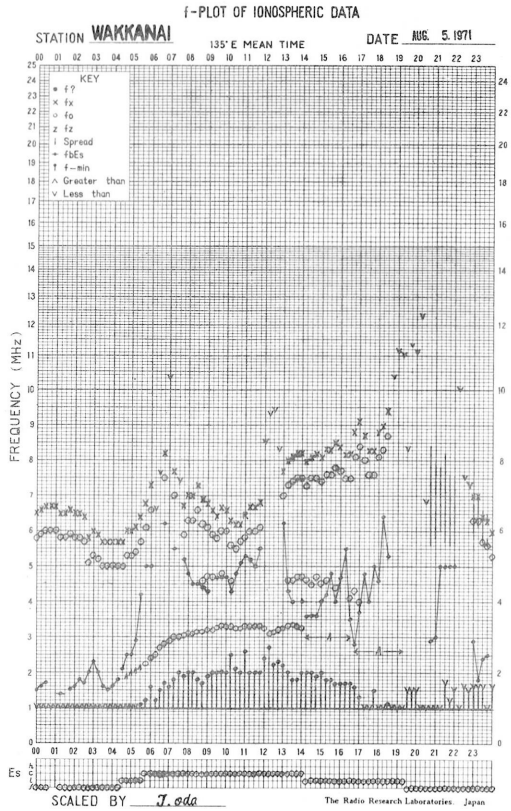
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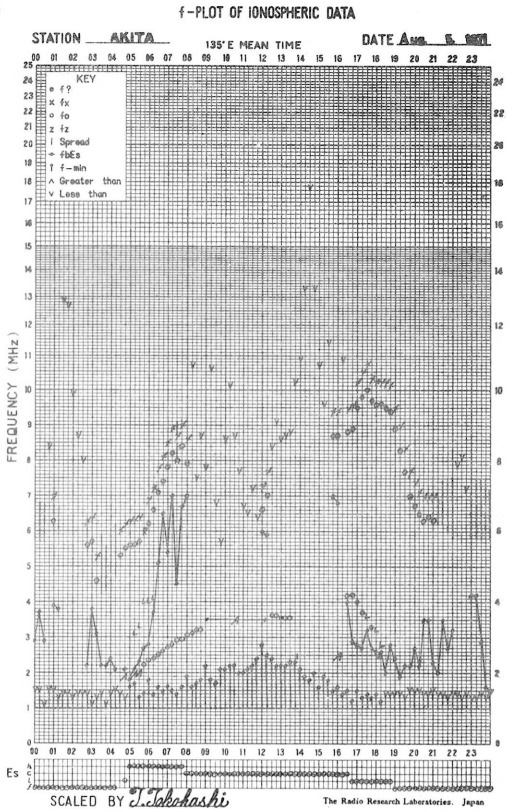
The Radio Research Laboratories. Japan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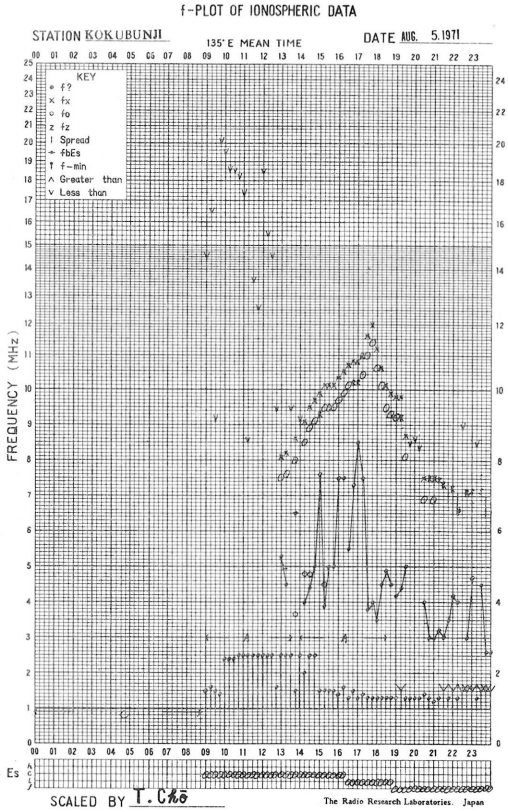
The Radio Research Laboratories. Japan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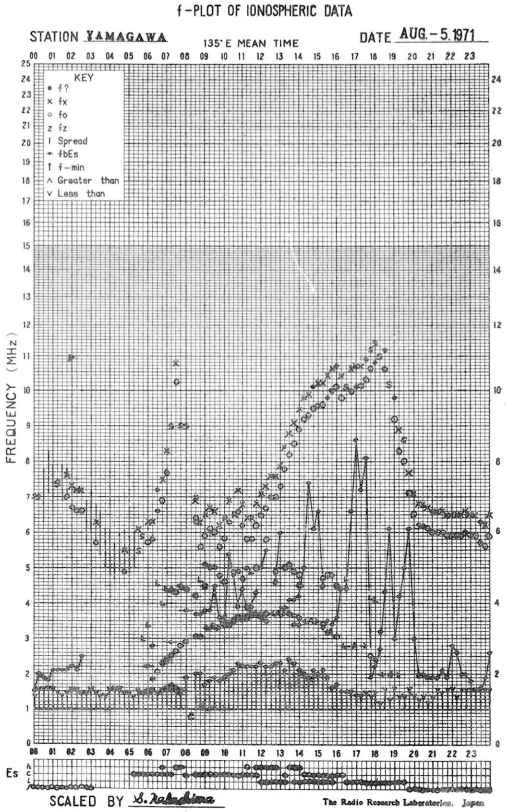
The Radio Research Laboratories. Japan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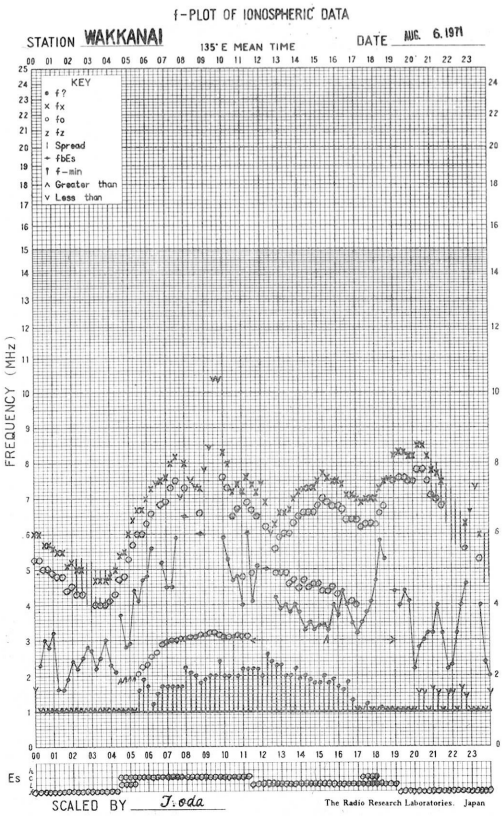
The Radio Research Laboratories. Japan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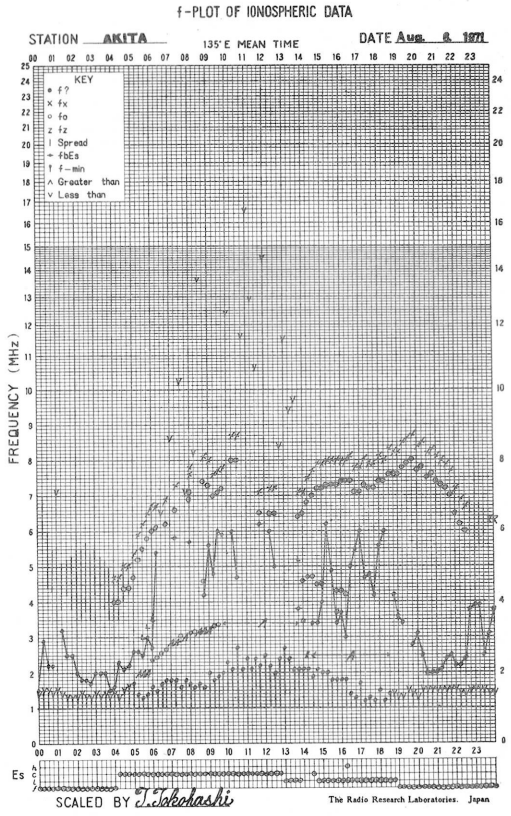
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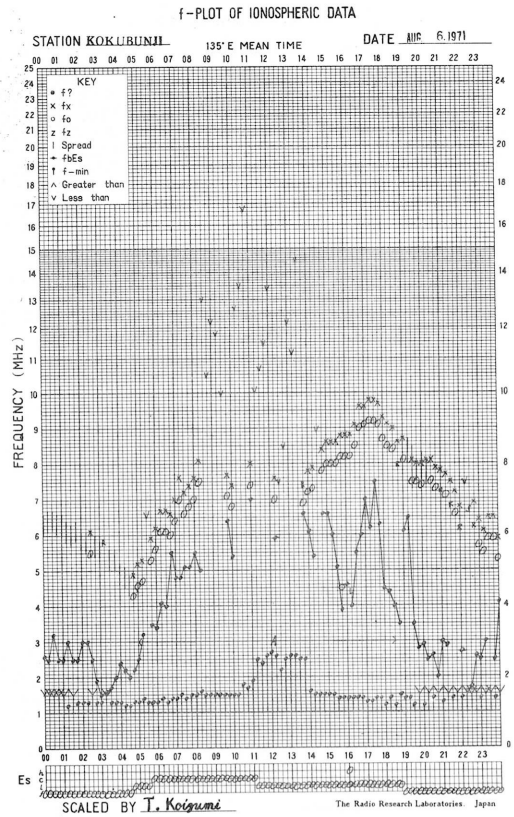
The Radio Research Laboratories. Japan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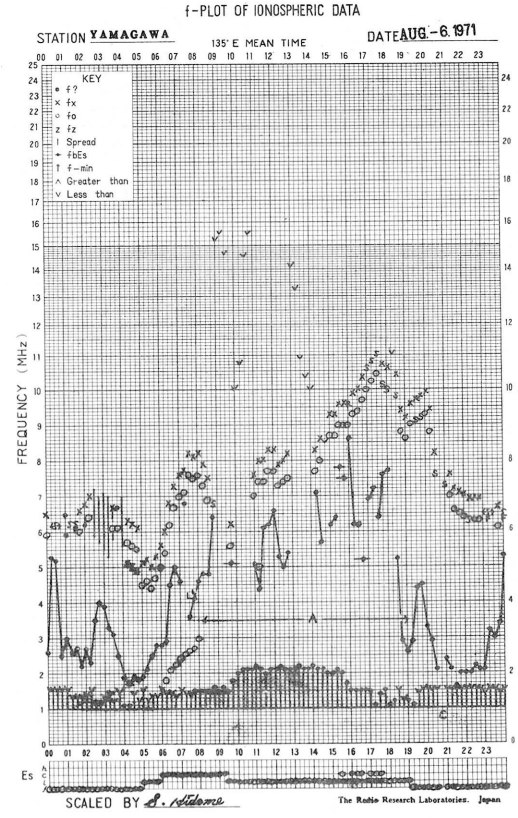
The Radio Research Laboratories. Japan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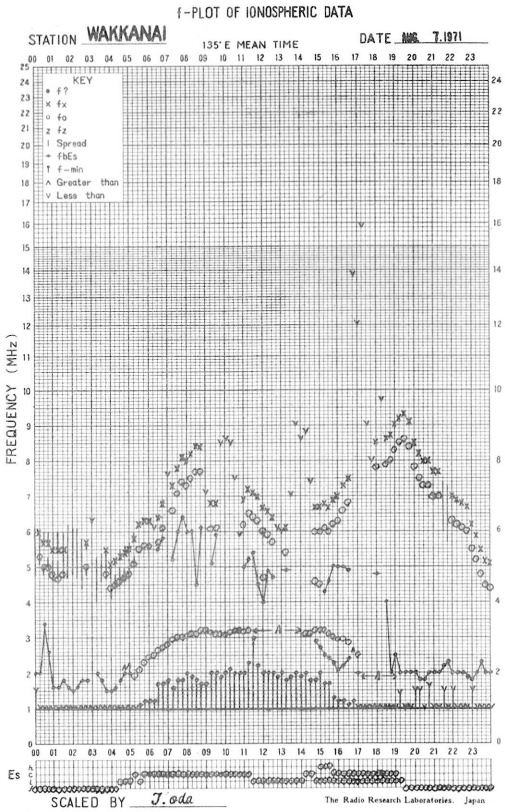
The Radio Research Laboratories. Japan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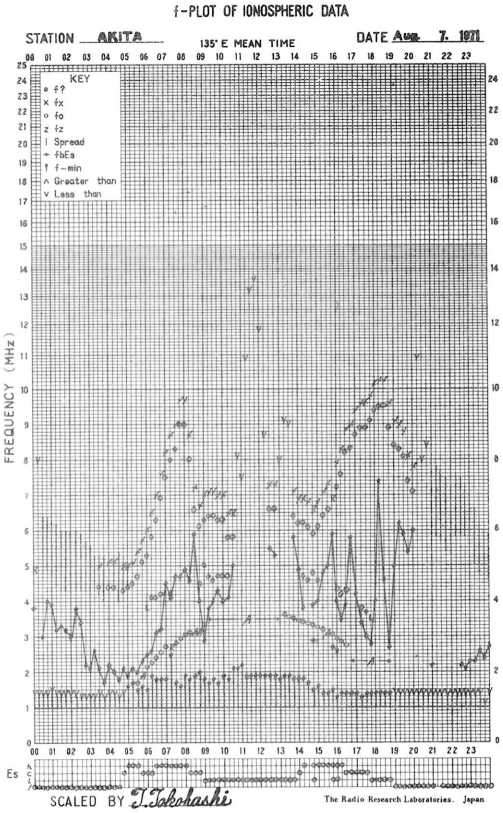
SCALED BY J. oda
The Radio Research Laboratories. Japan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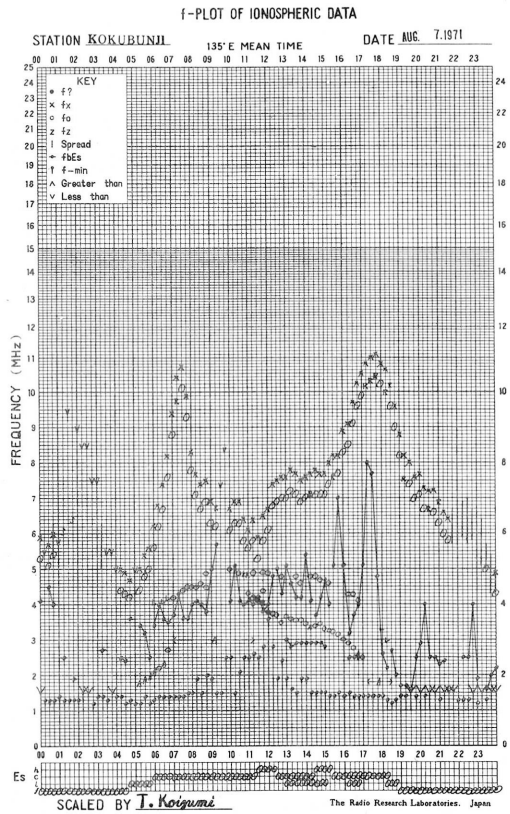
The Radio Research Laboratories. Japan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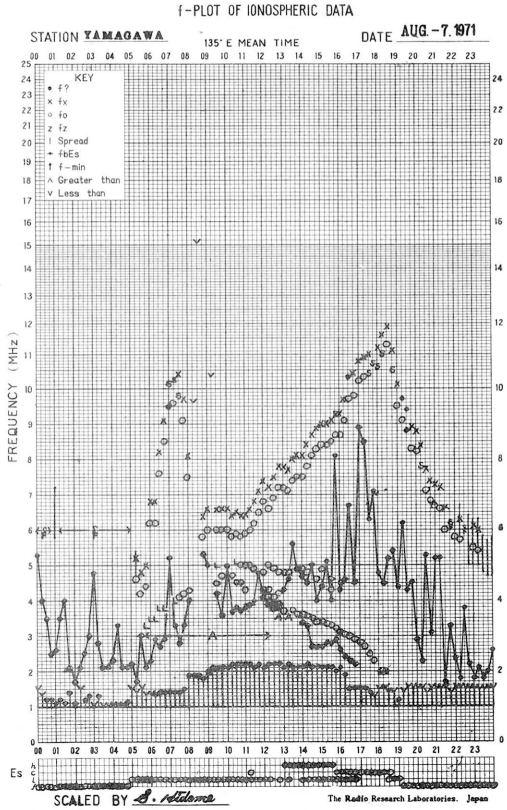
The Radio Research Laboratories. Japan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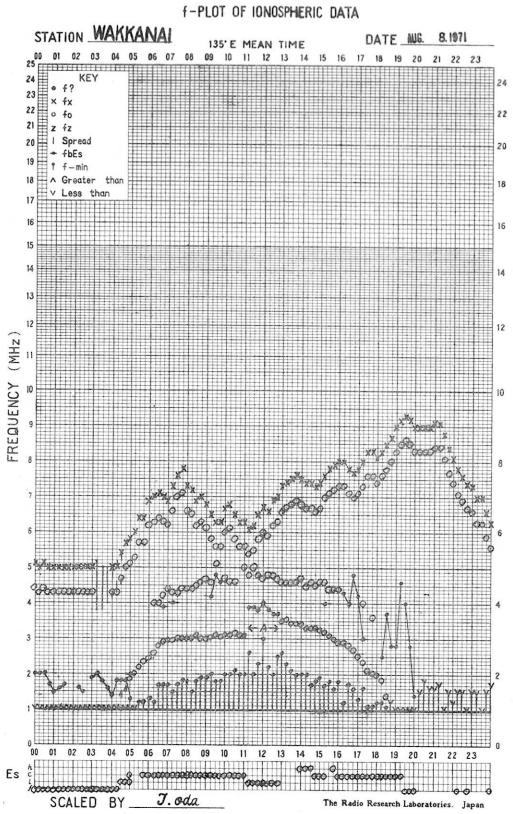
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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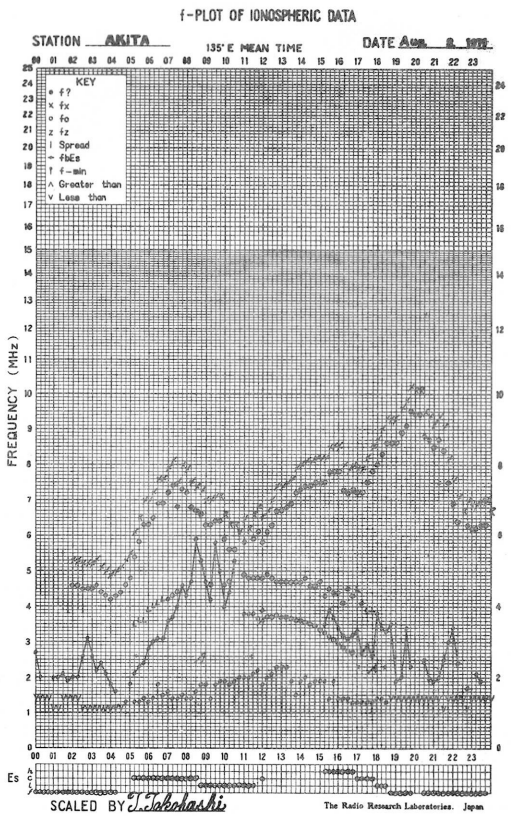
SCALED BY J. oda
The Radio Research Laboratories. Japan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DATE Aug. 8. 1971
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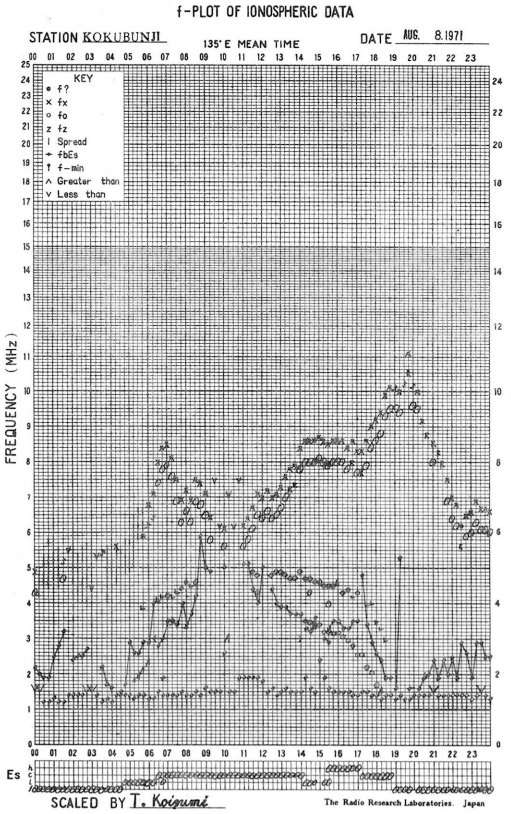
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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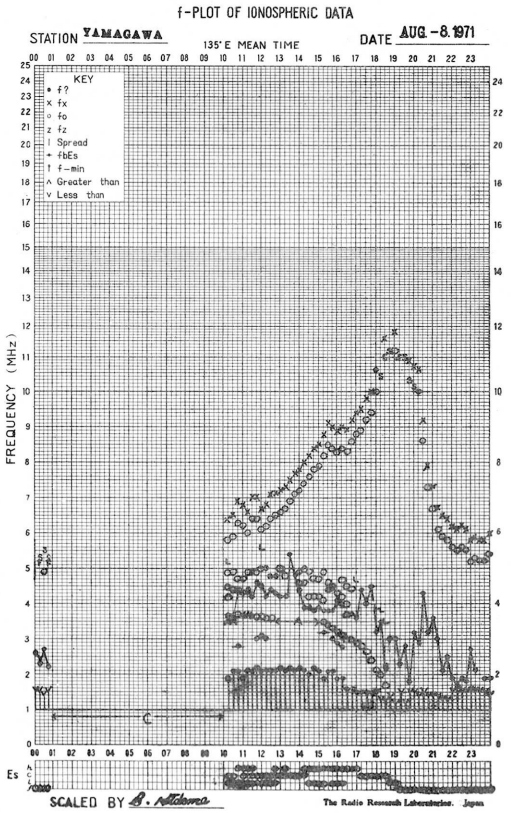
SCALED BY I. Koizumi
The Radio Research Laboratories. Japan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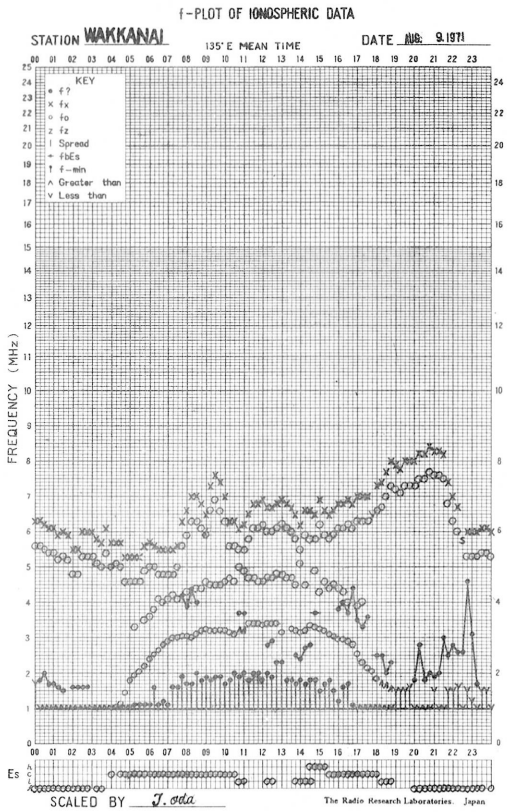
SCALED BY S. Nishioma
The Radio Research Laboratories. Japan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DATE AUG. 9.1971
KEY
FREQUENCY (MHz)
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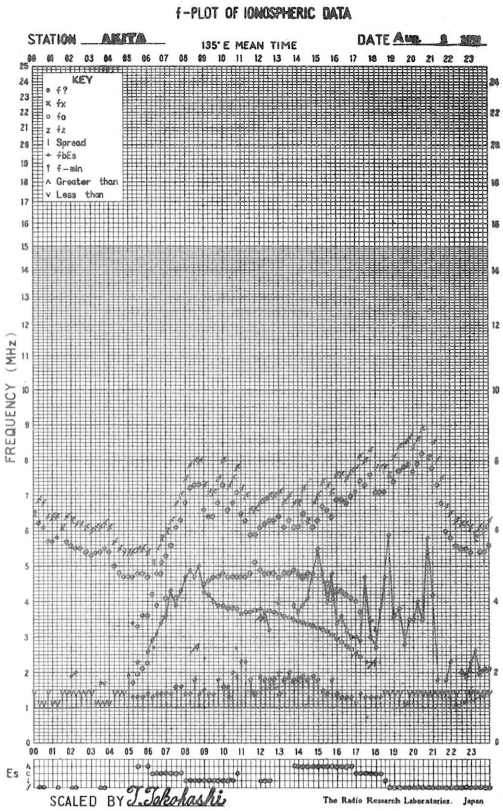
SCALED BY J. oda
The Radio Research Laboratories. Japan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DATE Aug. 9
KEY
FREQUENCY (MHz)
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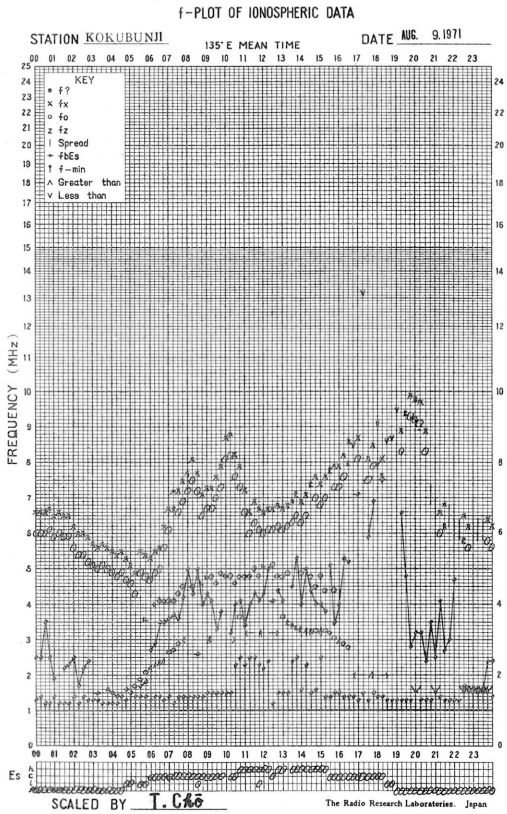
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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DATE AUG. 9.1971
KEY
FREQUENCY (MHz)
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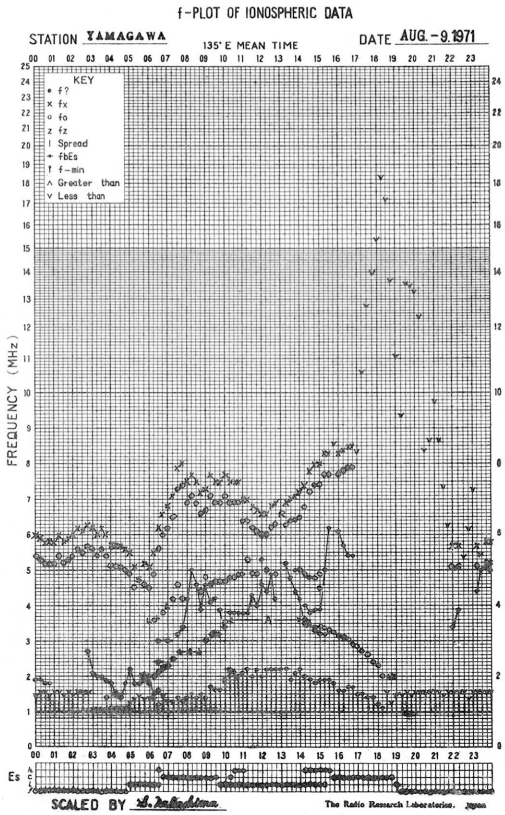
SCALED BY T. Ono
The Radio Research Laboratories. Japan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135° E MEAN TIME
DATE AUG.-9.1971
KEY
FREQUENCY (MHz)
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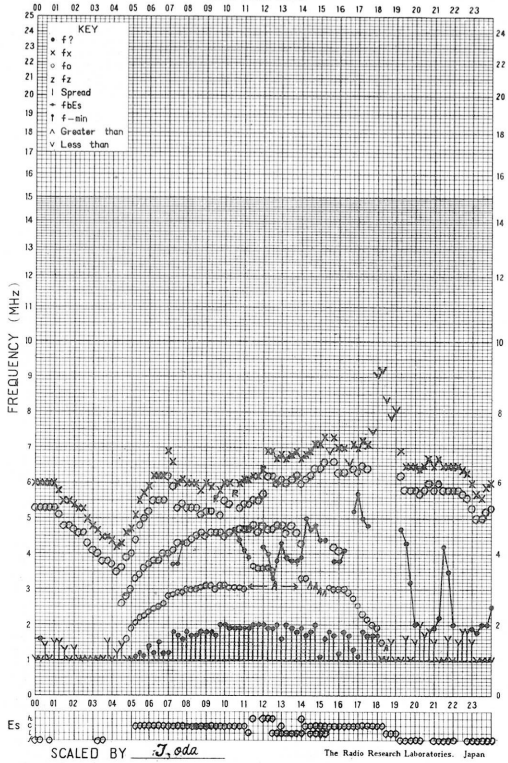
SCALED BY S. Sakashima
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE AUG. 10.1971



SCALED BY T. Oda

The Radio Research Laboratories. Japan

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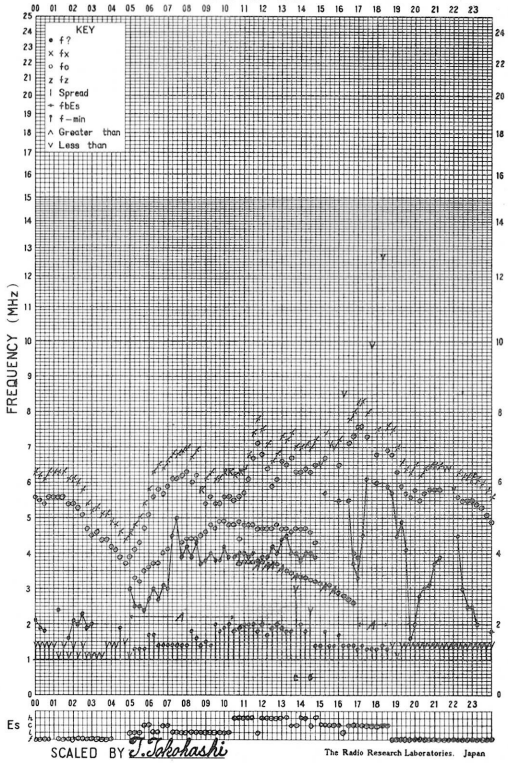

SCALED BY T. Tokohashi

The Radio Research Laboratories. Japan

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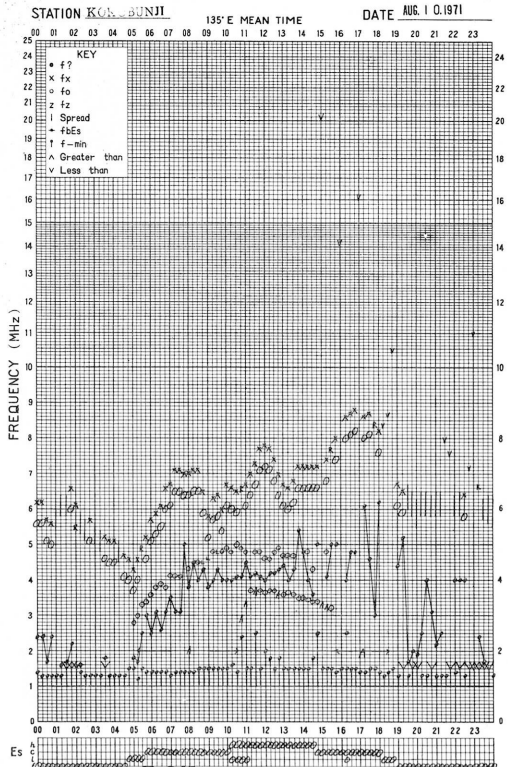

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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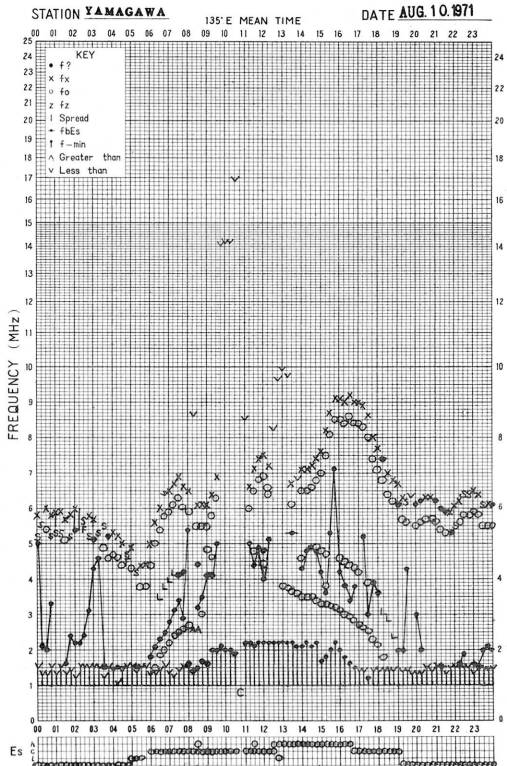

SCALED BY Miyuchi

The Radio Research Laboratories. Japan

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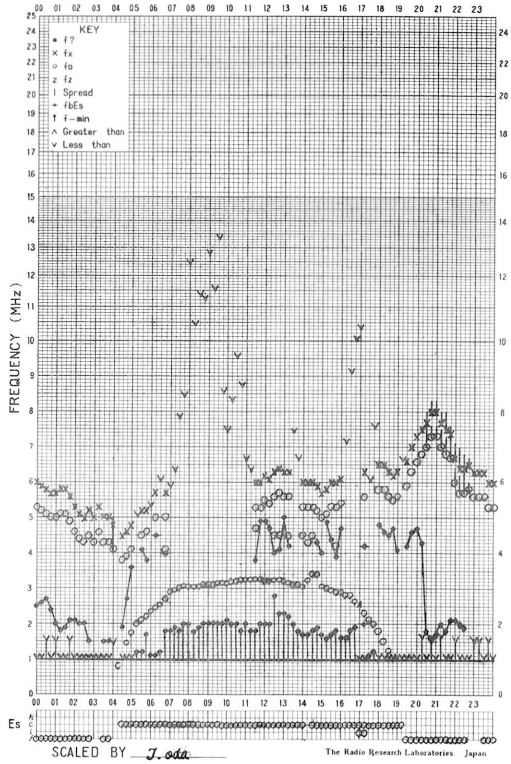

SCALED BY T. oda

The Radio Research Laboratories Japan

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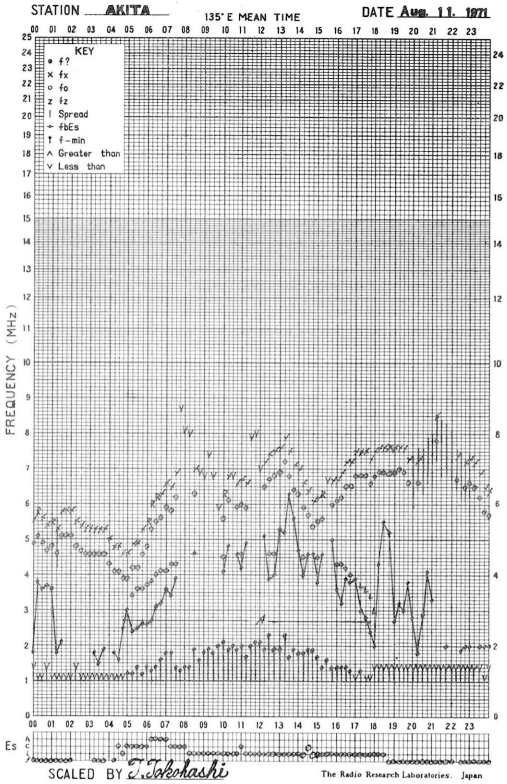

SCALED BY T. Sakahashi

The Radio Research Laboratories Japan

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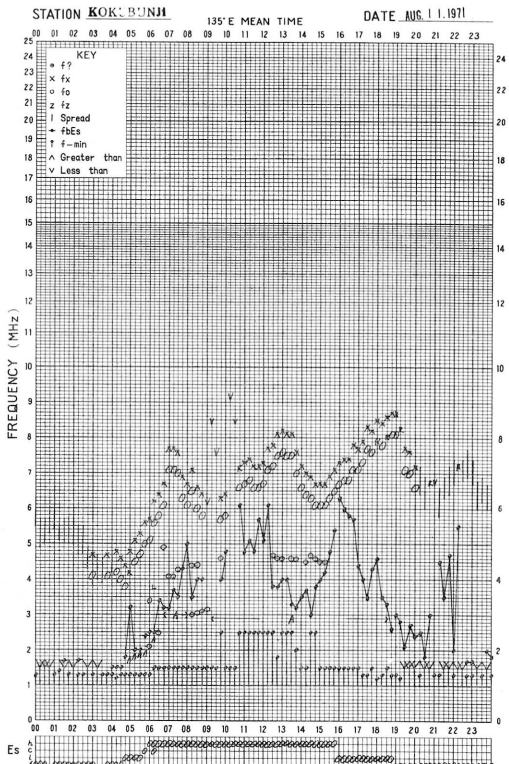

SCALED BY T. Cho

The Radio Research Laboratories Japan

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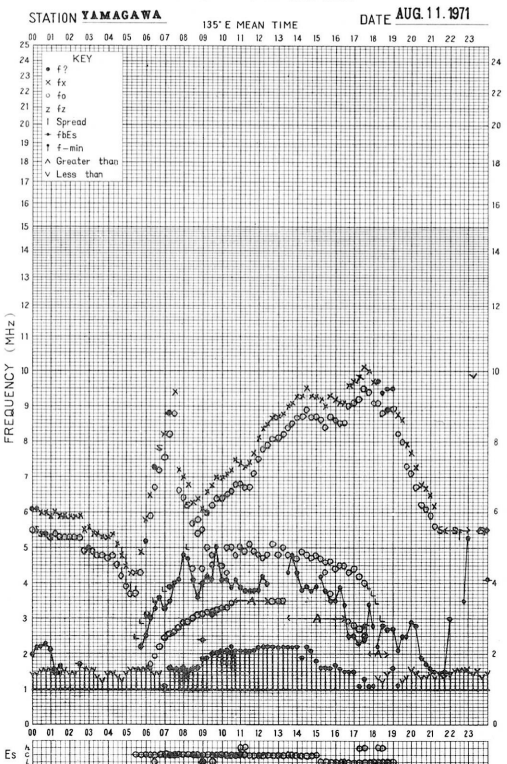

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The Radio Research Laboratories Japan

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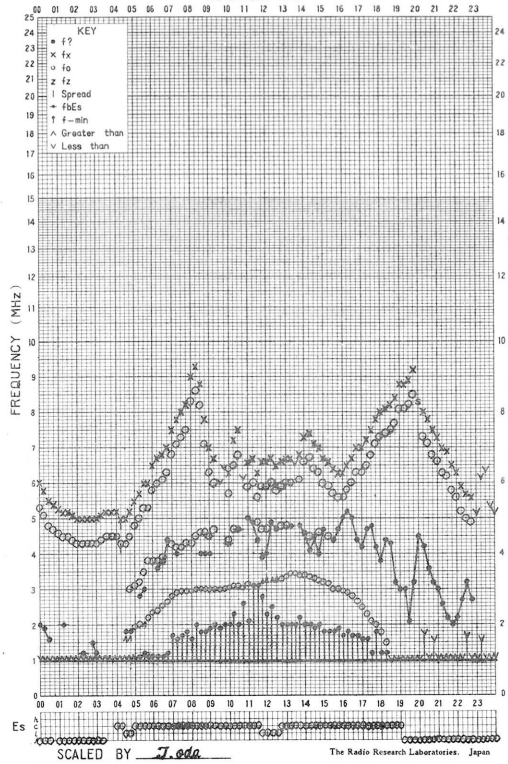

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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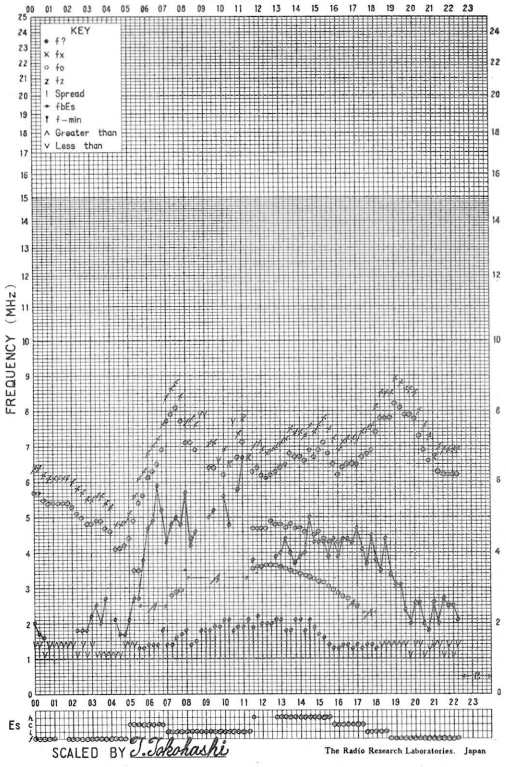

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The Radio Research Laboratories. Japan

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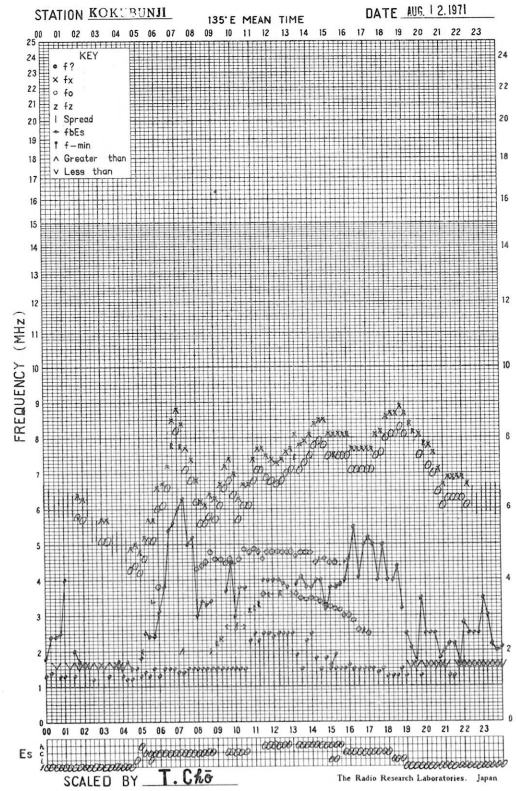

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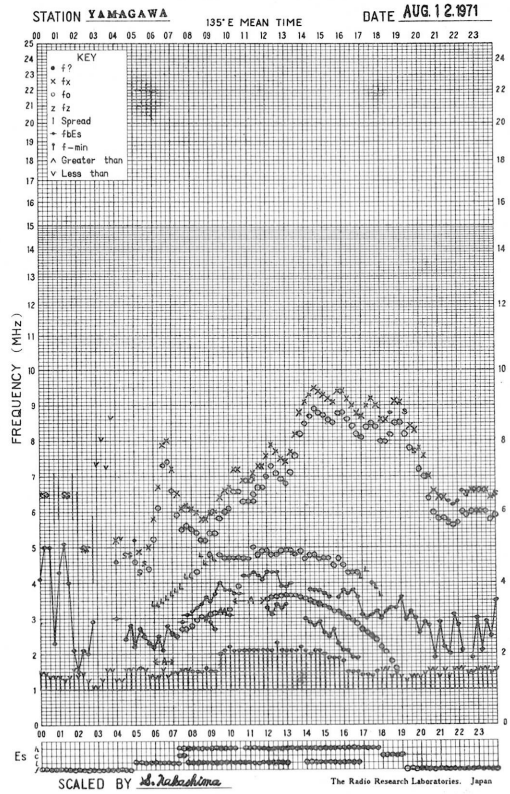

SCALED BY S. Takashima

The Radio Research Laboratories. Japan

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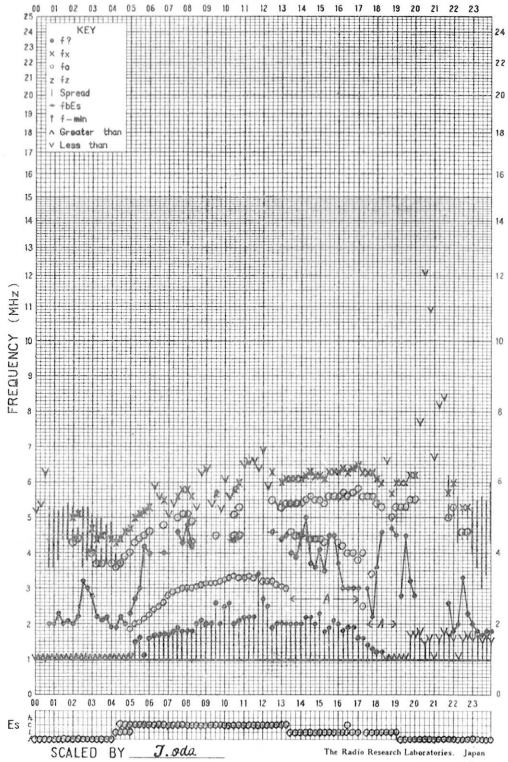

SCALED BY J. Oda

The Radio Research Laboratories. Japan

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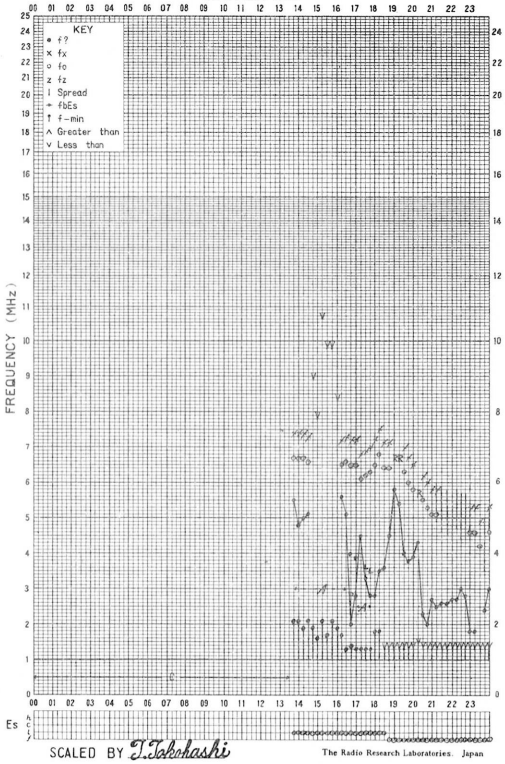

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The Radio Research Laboratories. Japan

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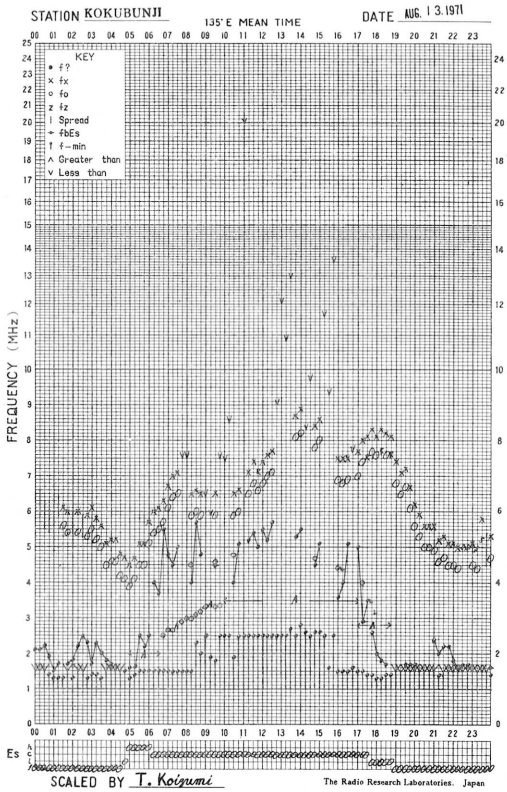

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The Radio Research Laboratories. Japan

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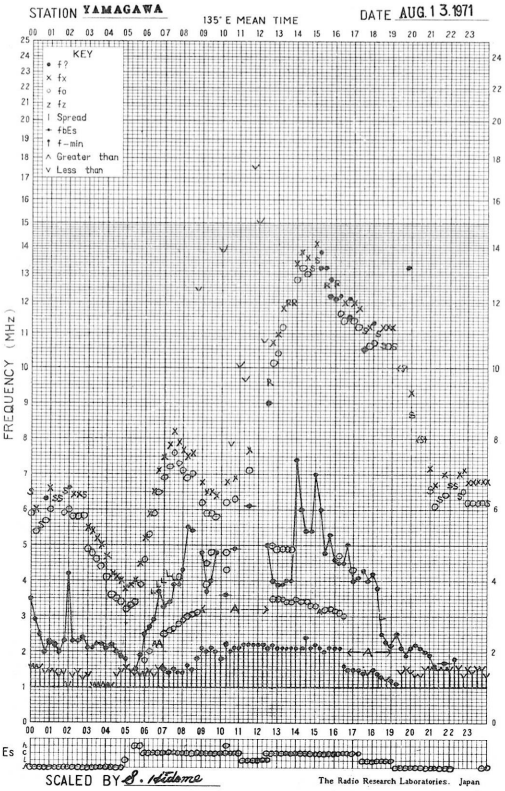

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The Radio Research Laboratories. Japan

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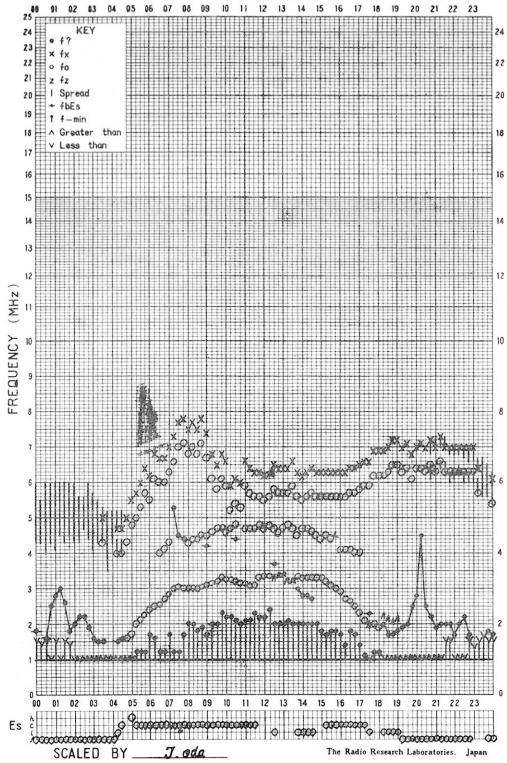

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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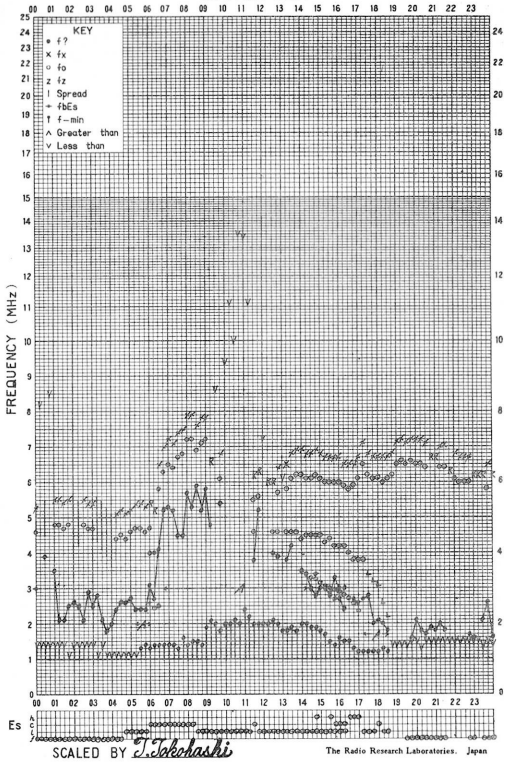

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The Radio Research Laboratories. Japan

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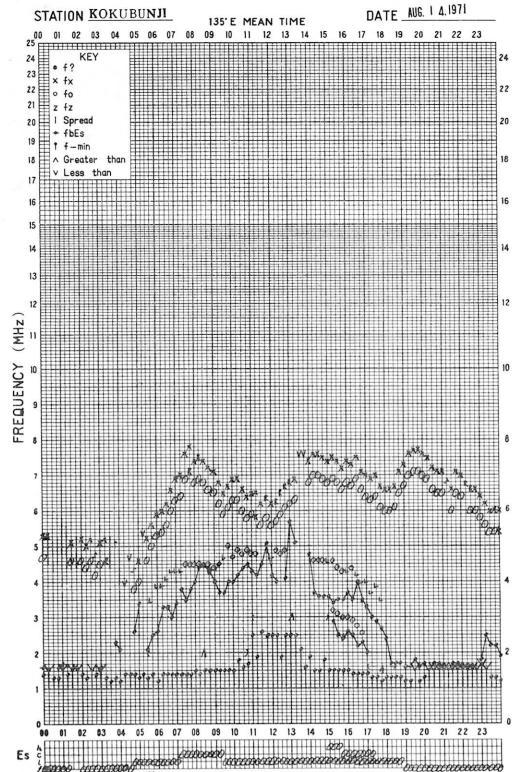

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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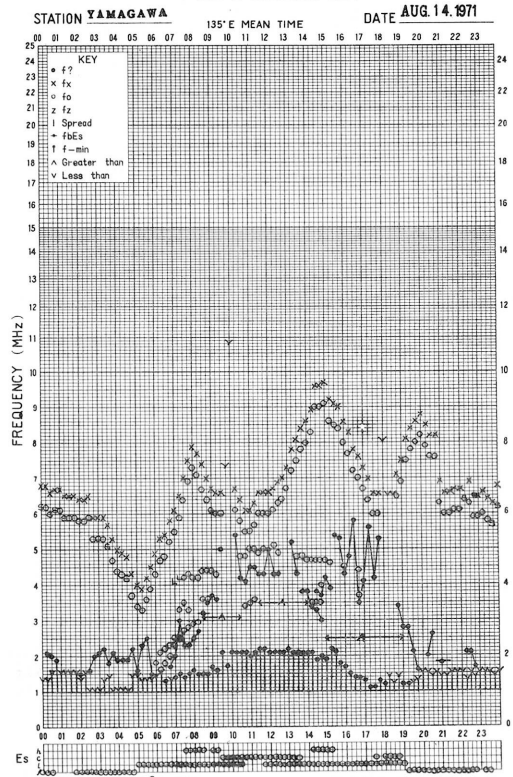

SCALED BY S. Ichidama

The Radio Research Laboratories. Japan

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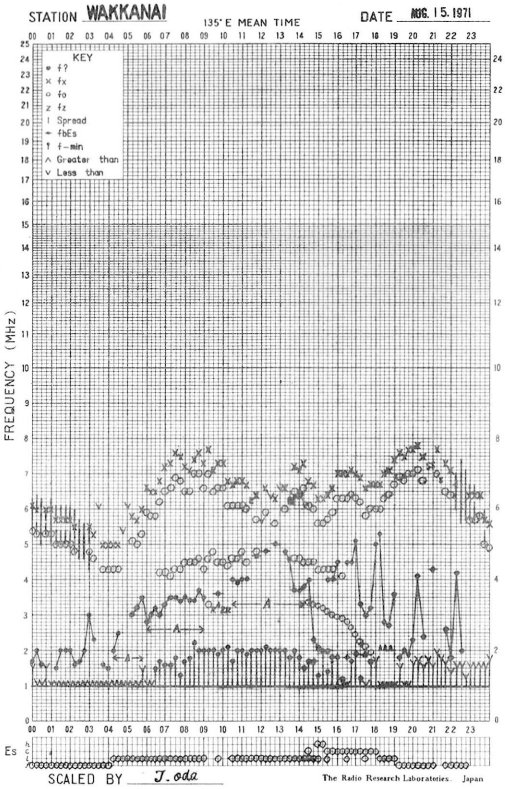

SCALED BY J. oda

The Radio Research Laboratories. Japan

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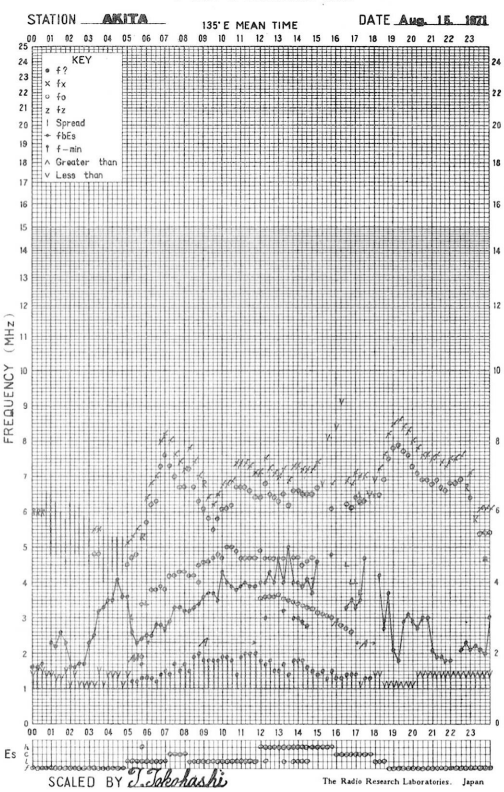

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The Radio Research Laboratories. Japan

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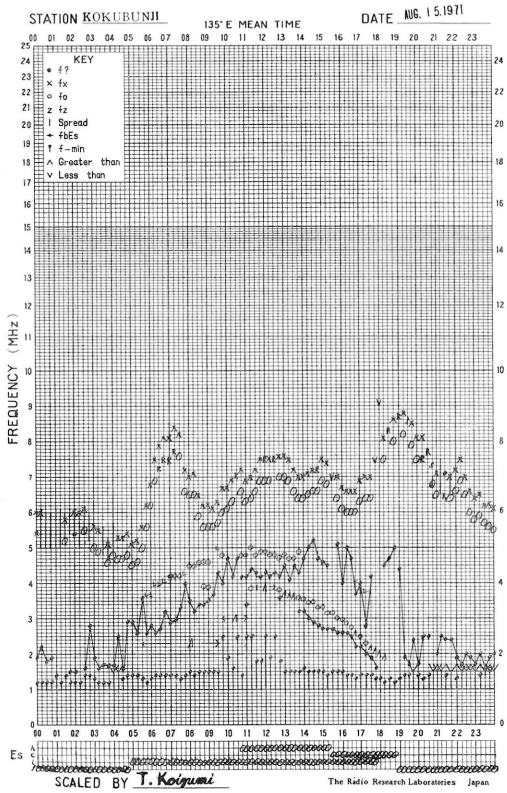

SCALED BY T. Koigumi

The Radio Research Laboratories Japan

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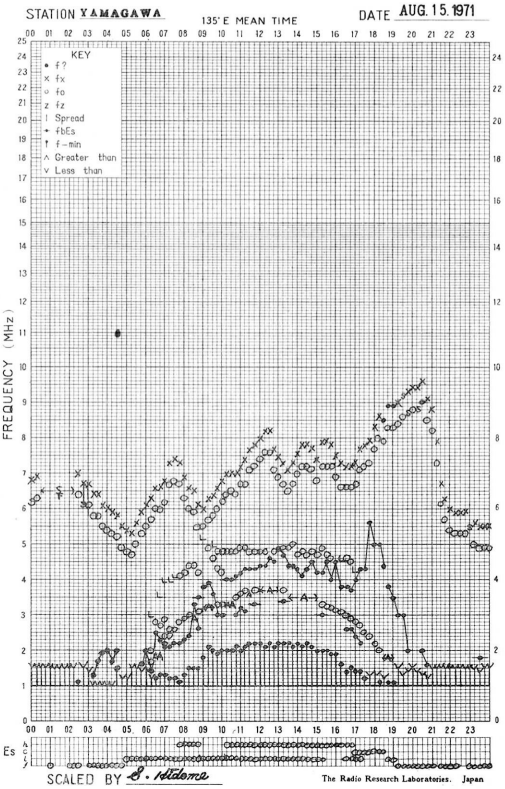

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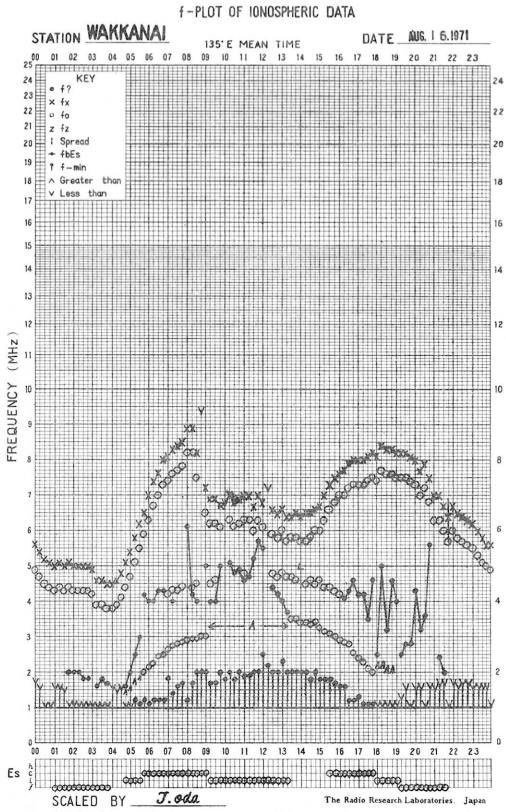
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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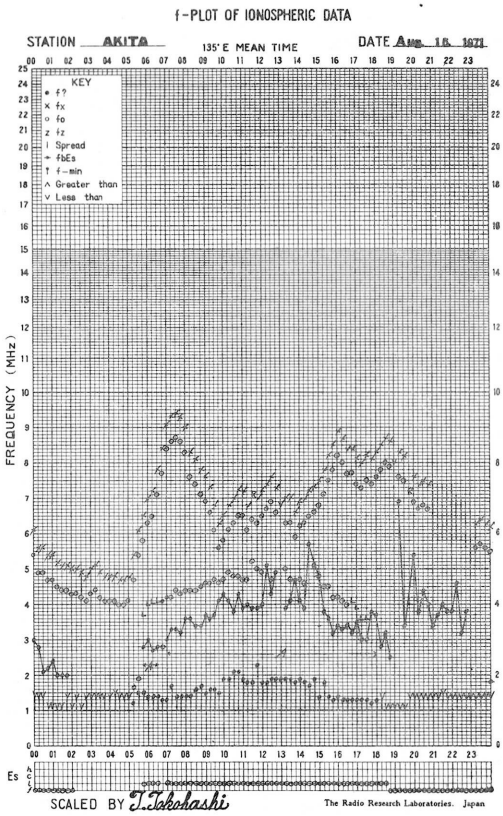
SCALED BY T. oda
The Radio Research Laboratories. Japan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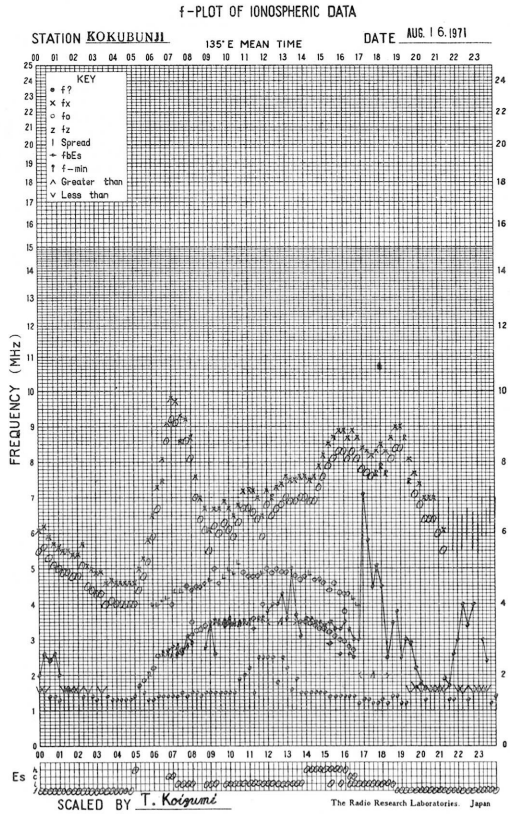
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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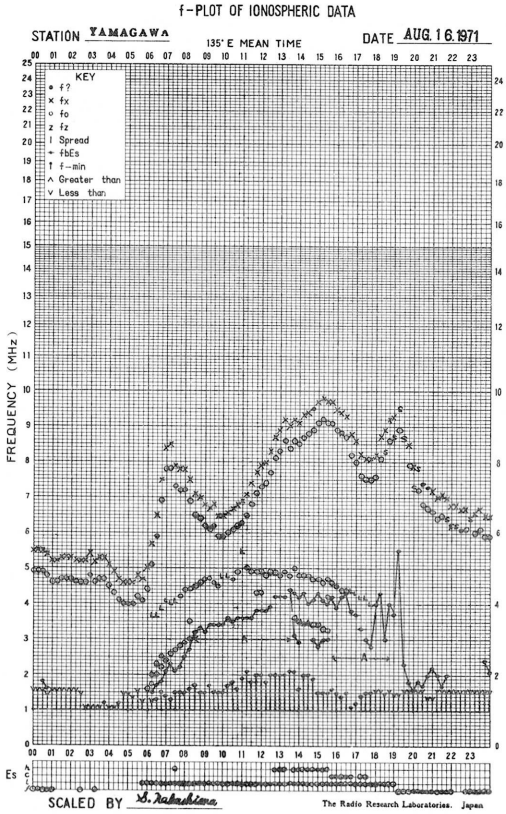
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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SCALED BY S. Takashima
The Radio Research Laboratories. Japan

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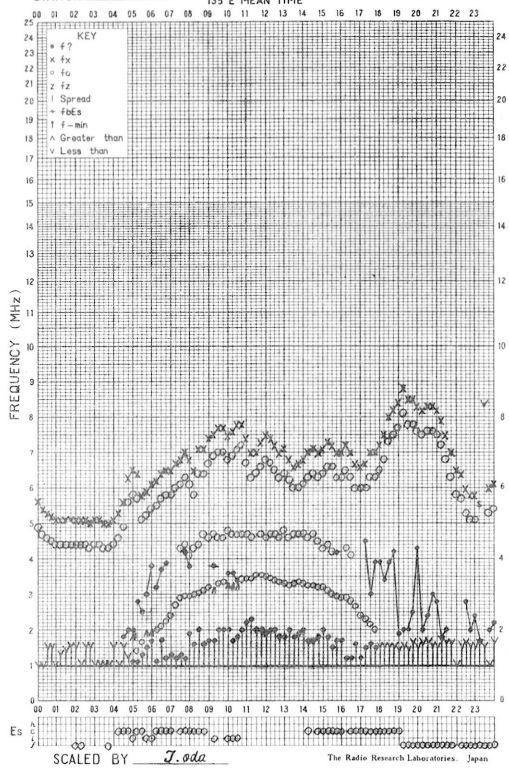

SCALED BY T. oda

The Radio Research Laboratories. Japan

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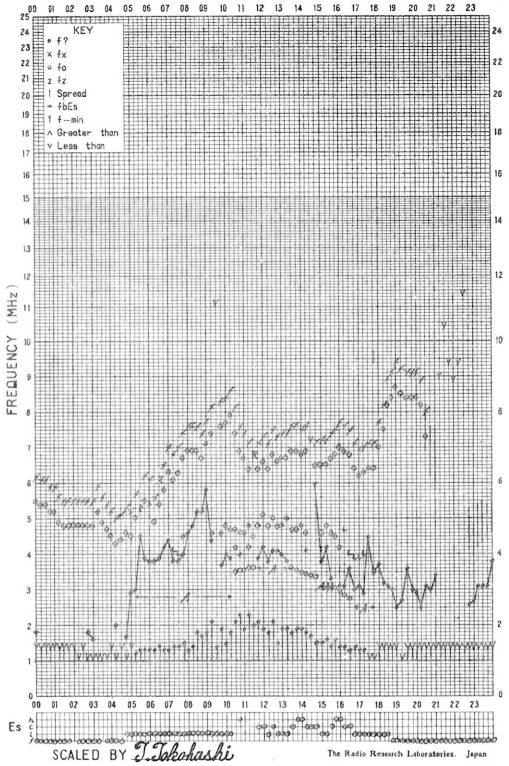

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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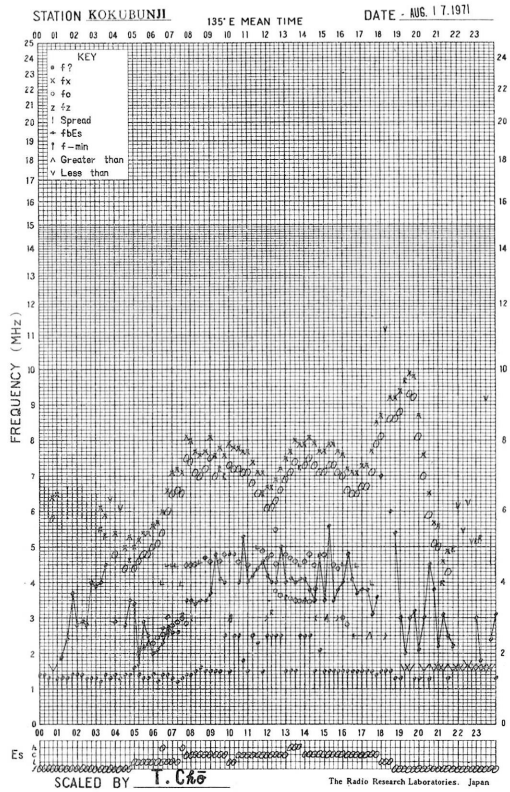

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The Radio Research Laboratories. Japan

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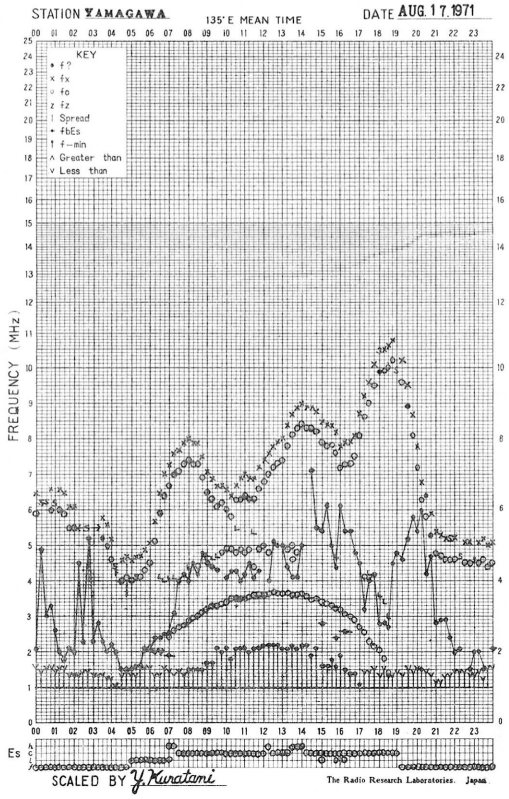
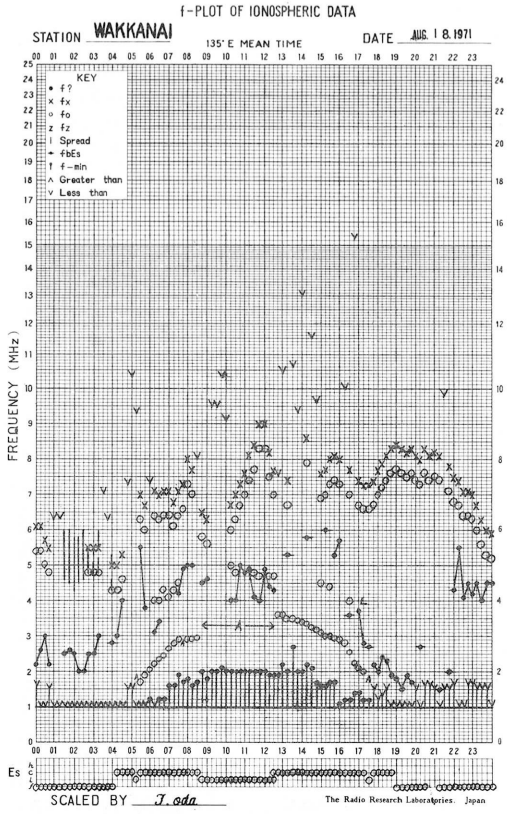


SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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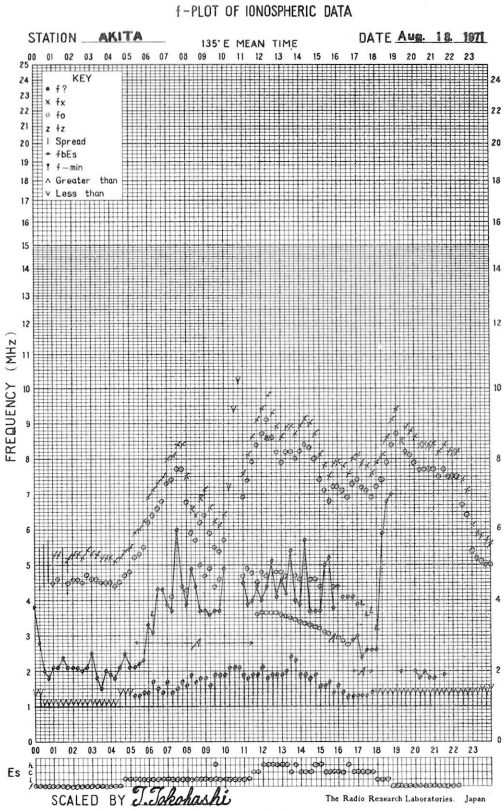
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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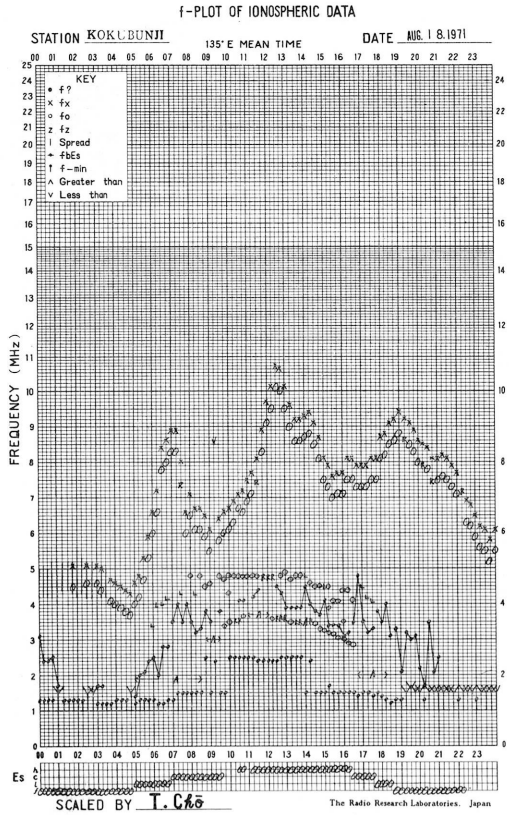
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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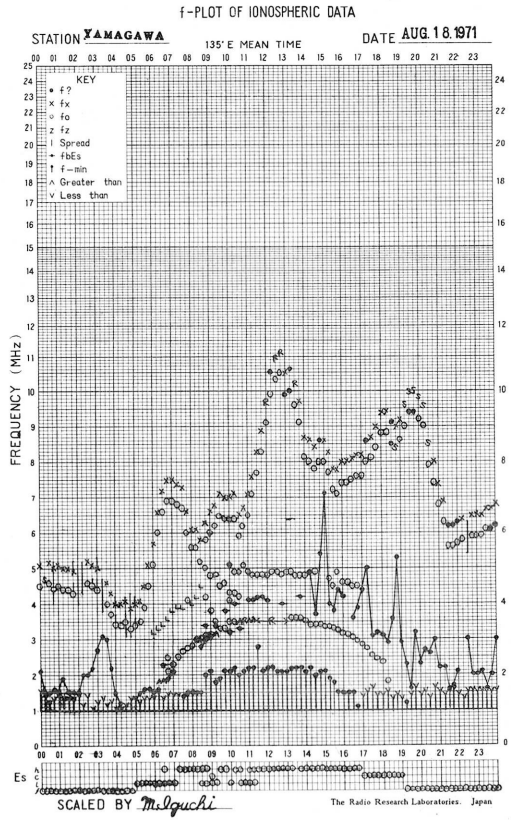
SCALED BY T. Chō
The Radio Research Laboratories. Japan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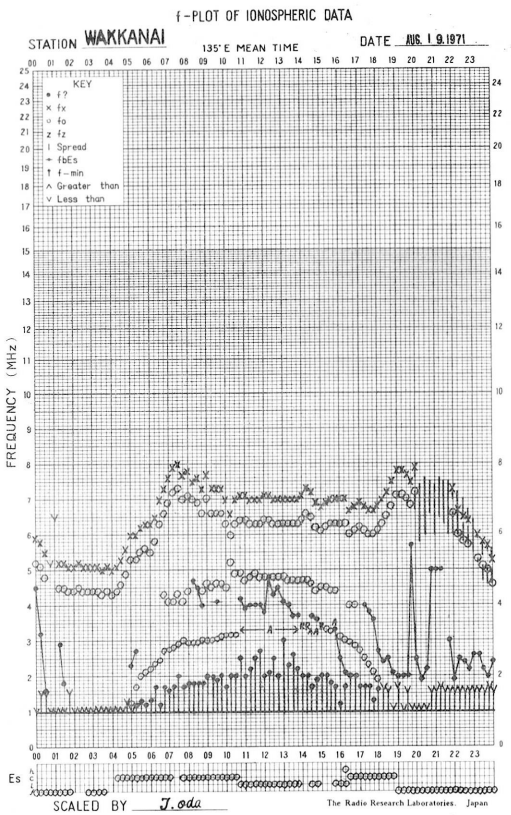
The Radio Research Laboratories. Japan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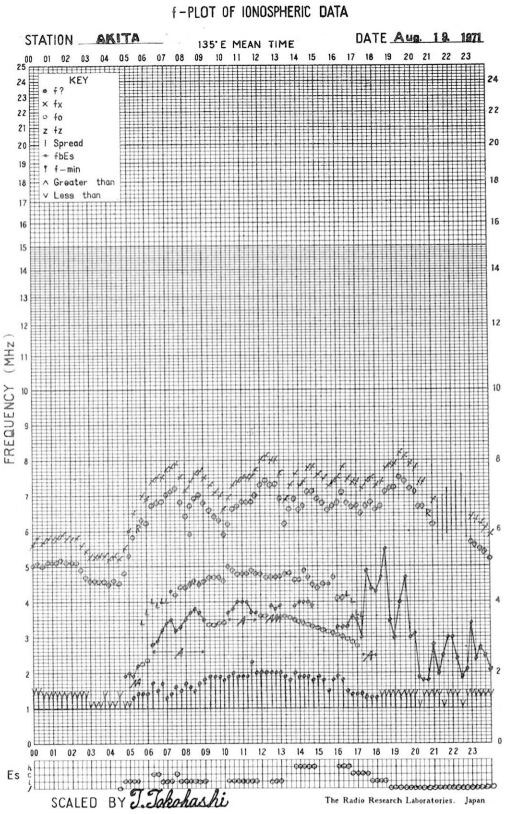
SCALED BY J. Oda
The Radio Research Laboratories. Japan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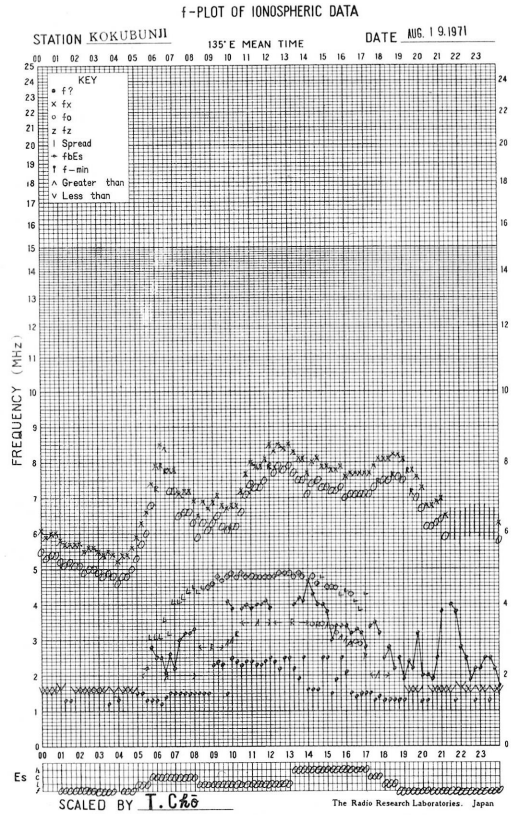
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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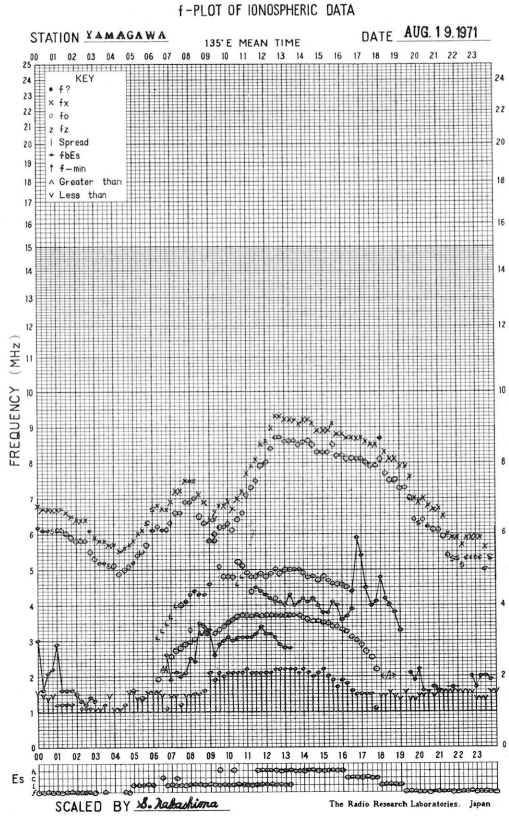
SCALED BY T. Chō
The Radio Research Laboratories. Japan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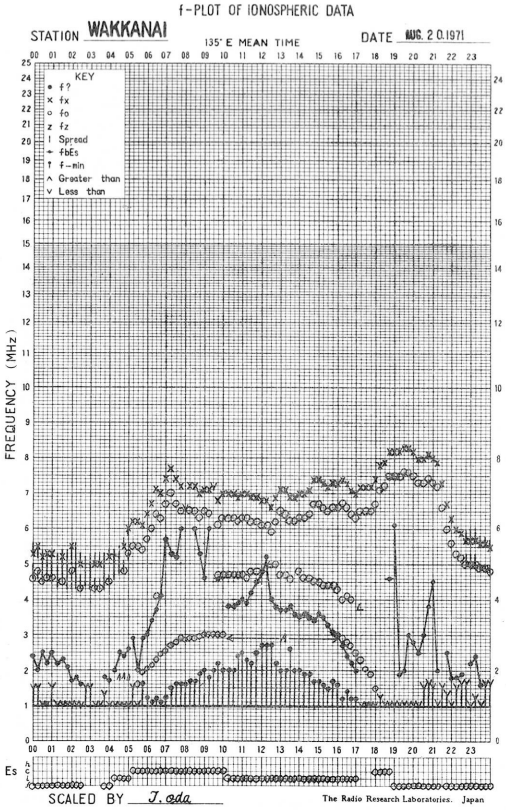
The Radio Research Laboratories. Japan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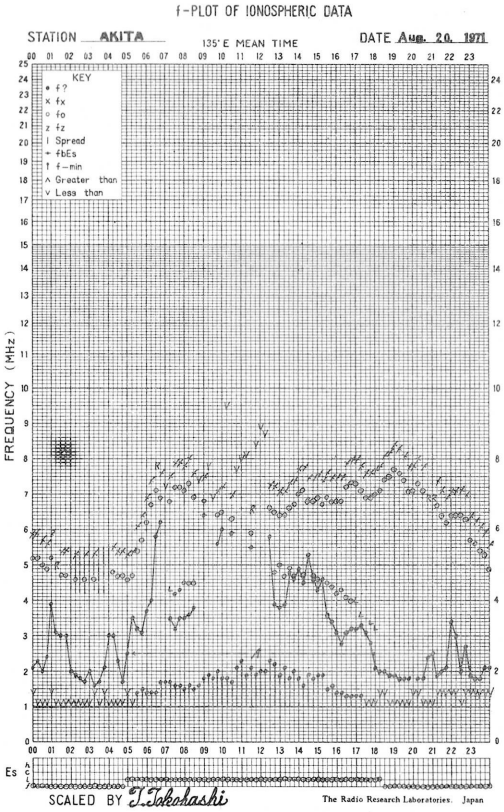
SCALED BY T. oda
The Radio Research Laboratories. Japan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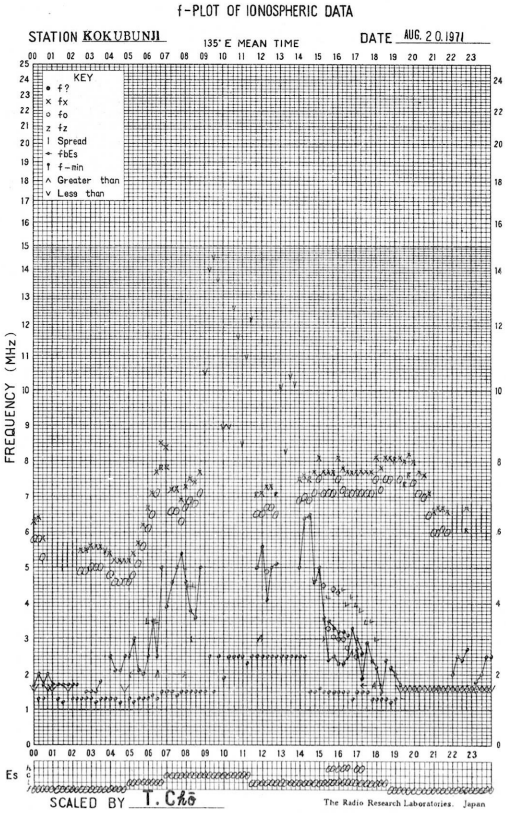
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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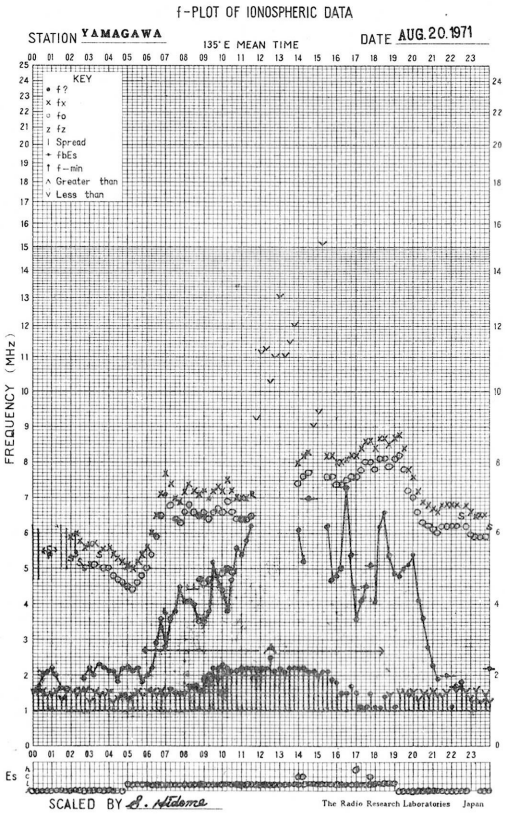
SCALED BY T. Cho
The Radio Research Laboratories. Japan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The Radio Research Laboratories Japan

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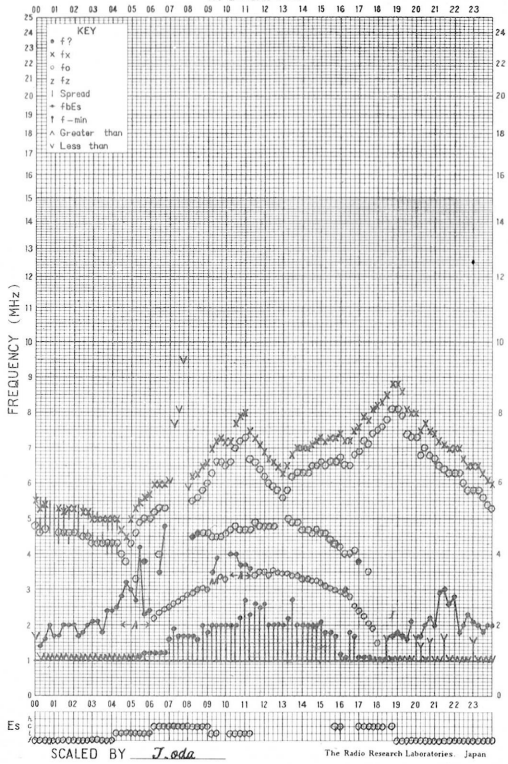

SCALED BY T. oda

The Radio Research Laboratories. Japan

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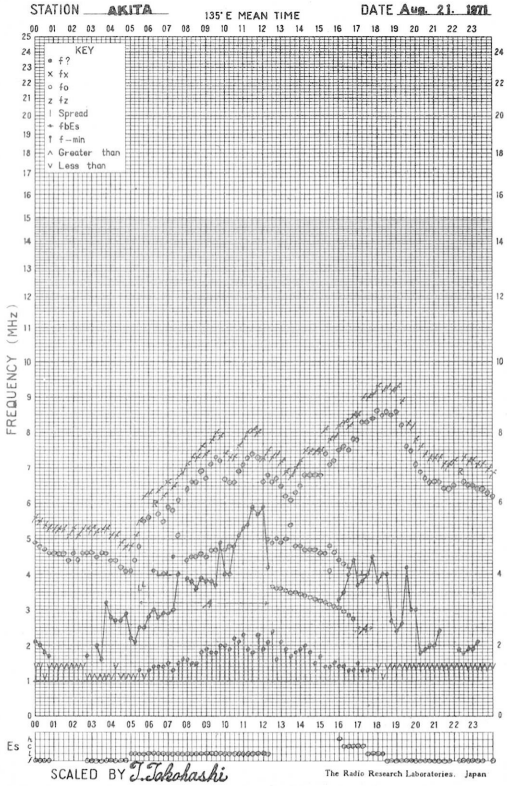

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The Radio Research Laboratories. Japan

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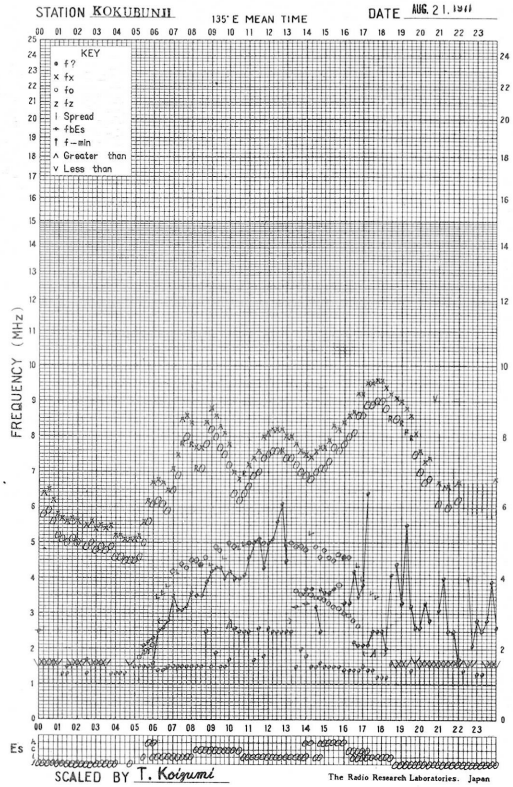

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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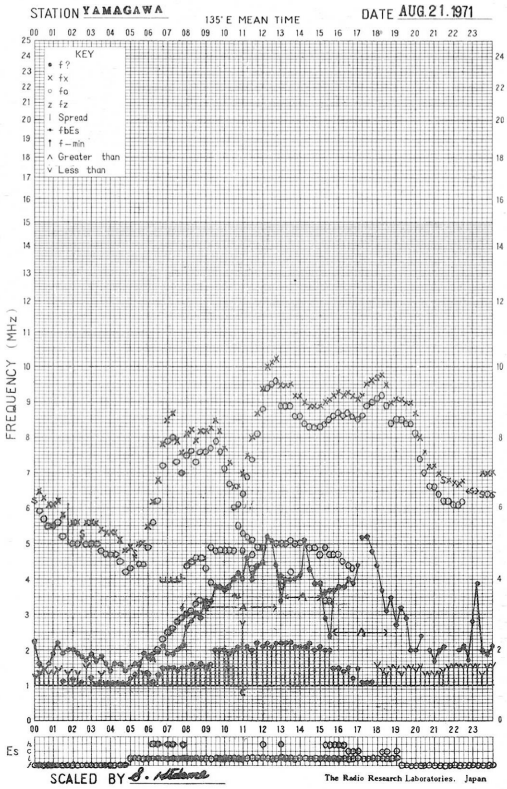
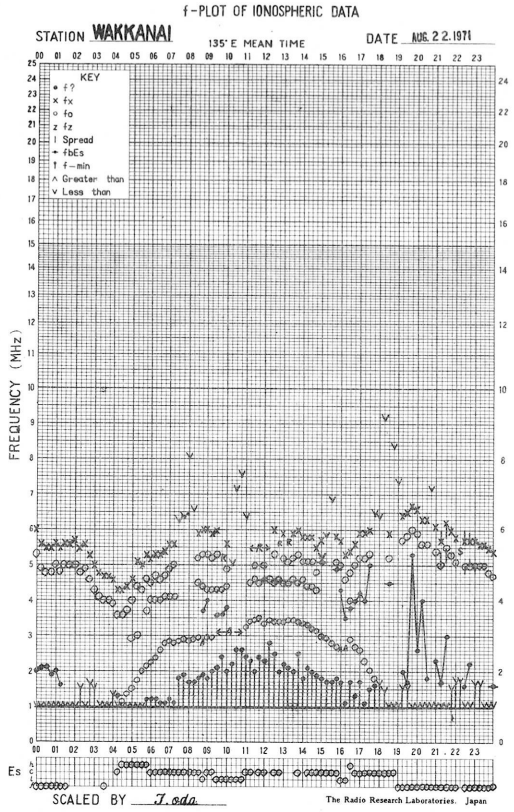


SCALED BY S. Matsuura

The Radio Research Laboratories. Japan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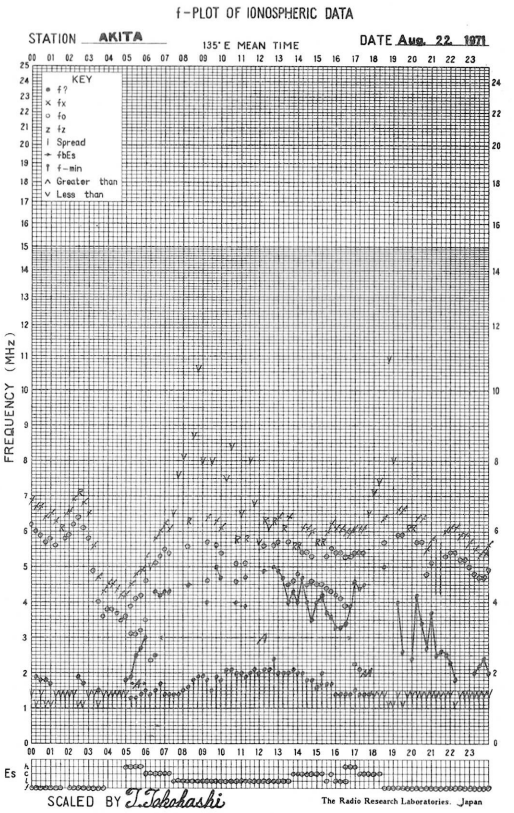
SCALED BY T. oda
The Radio Research Laboratories. Japan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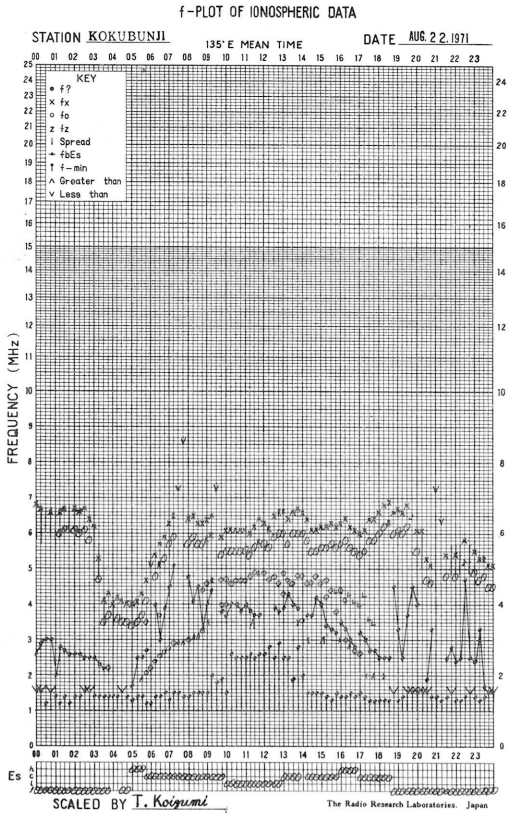
The Radio Research Laboratories. Japan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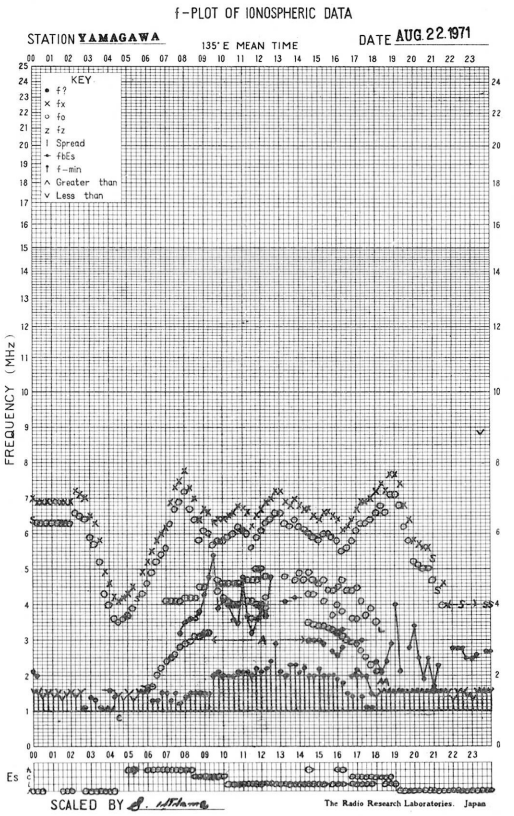
SCALED BY T. Koigumi
The Radio Research Laboratories. Japan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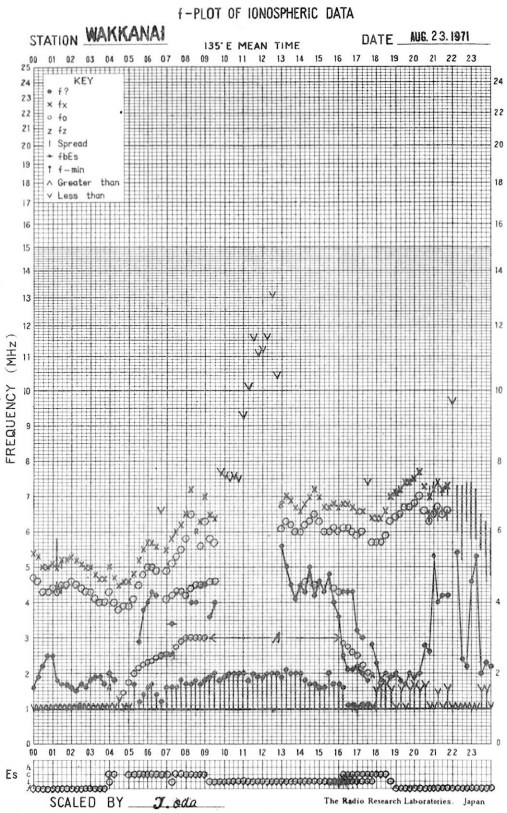
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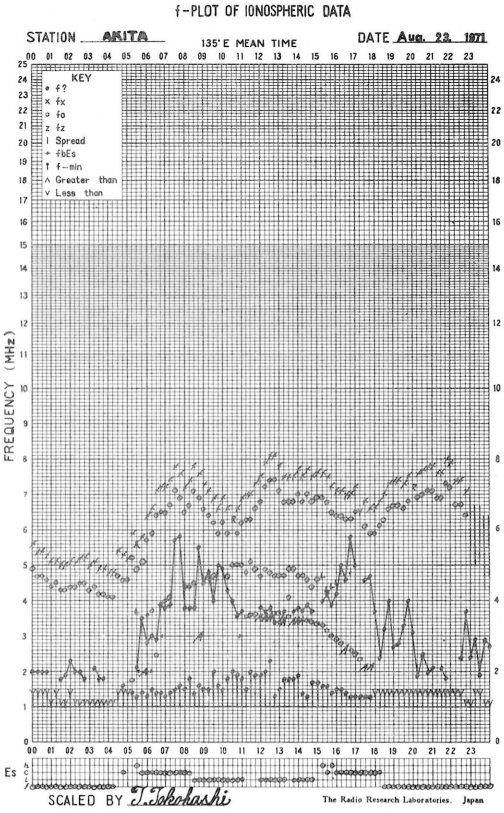
The Radio Research Laboratories. Japan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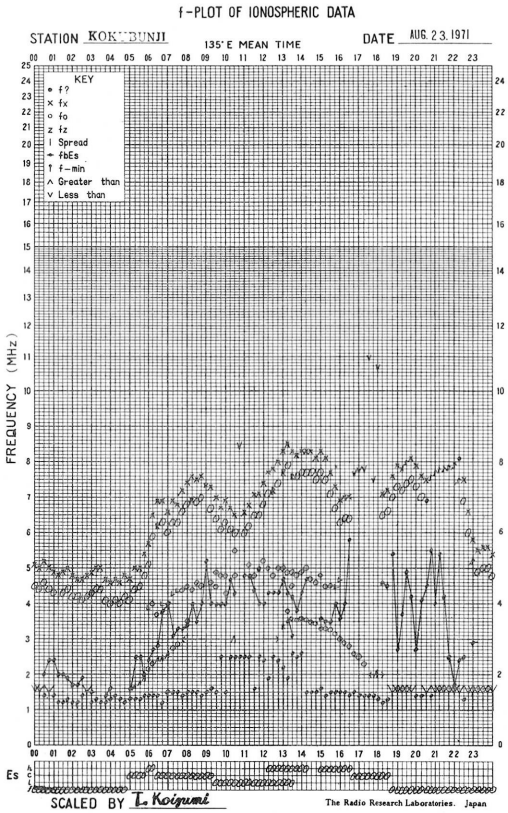
The Radio Research Laboratories. Japan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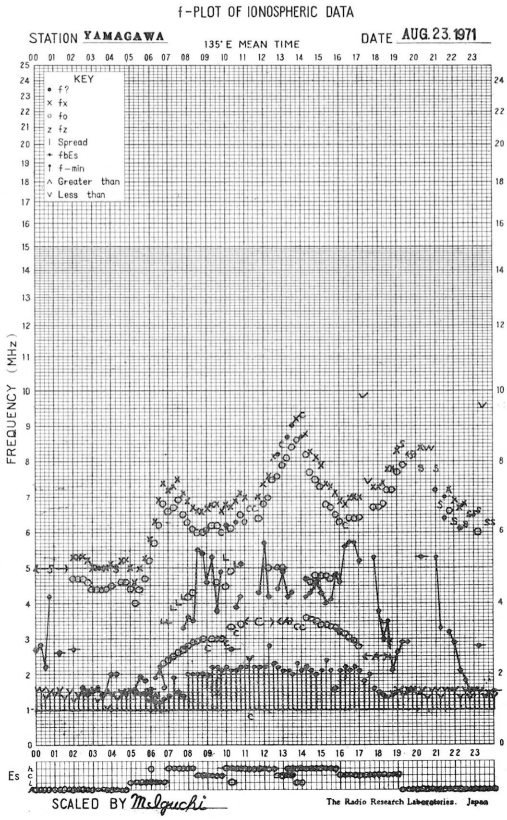
The Radio Research Laboratories. Japan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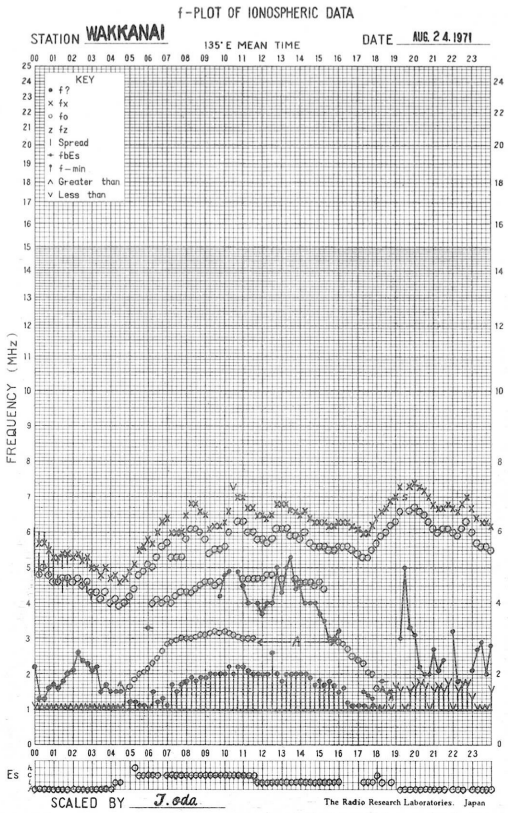
The Radio Research Laboratories. Japan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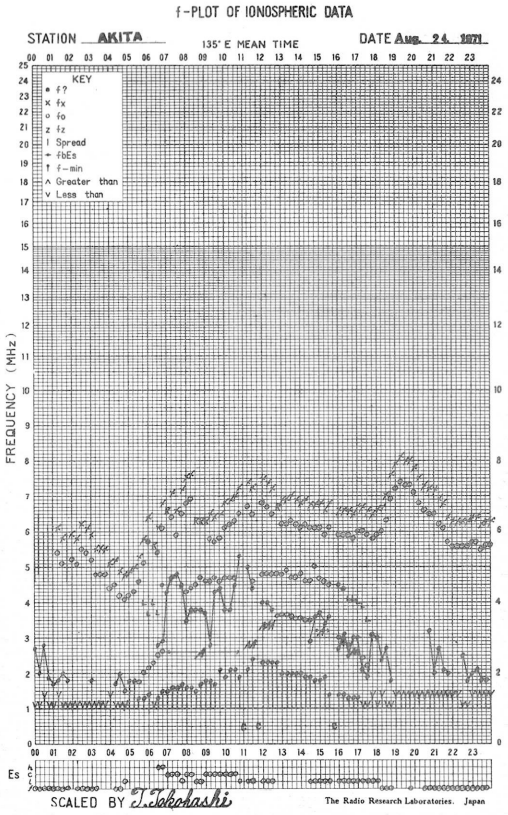
The Radio Research Laboratories. Japan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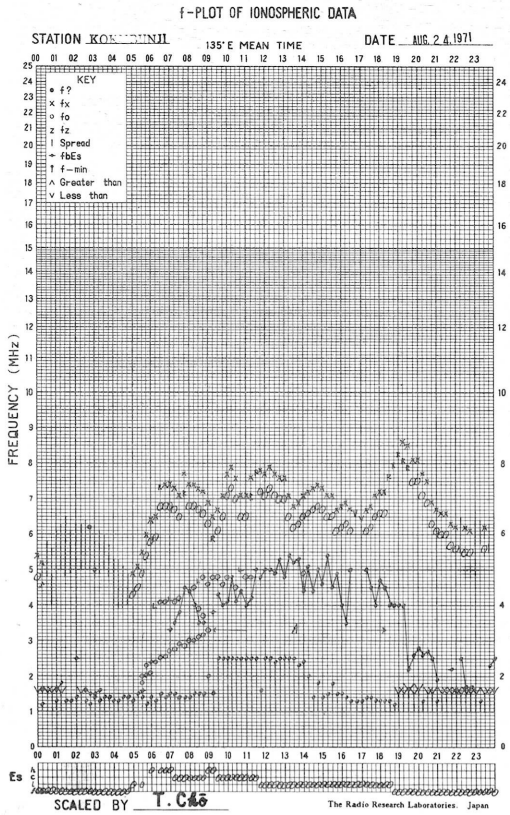
The Radio Research Laboratories. Japan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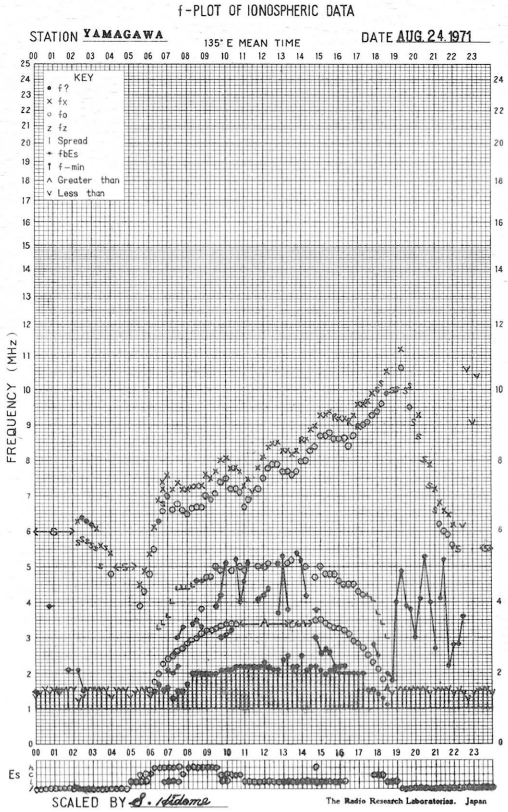
The Radio Research Laboratories. Japan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SCALED BY S. Iidama
The Radio Research Laboratories. Japan

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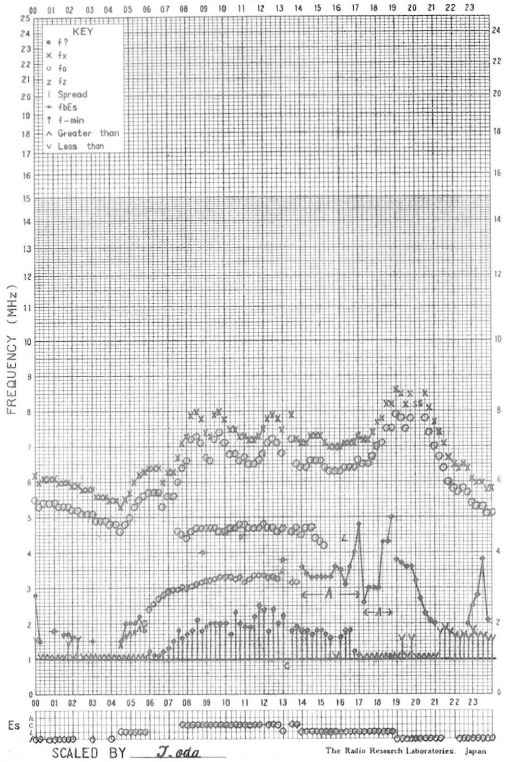

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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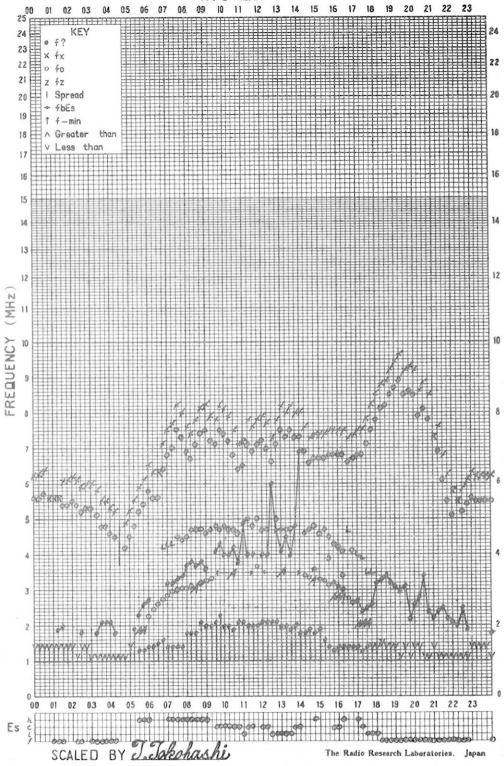

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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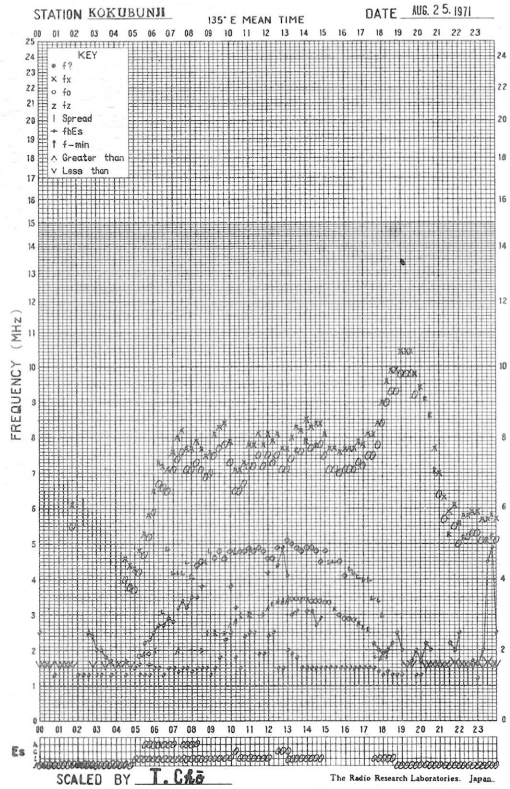

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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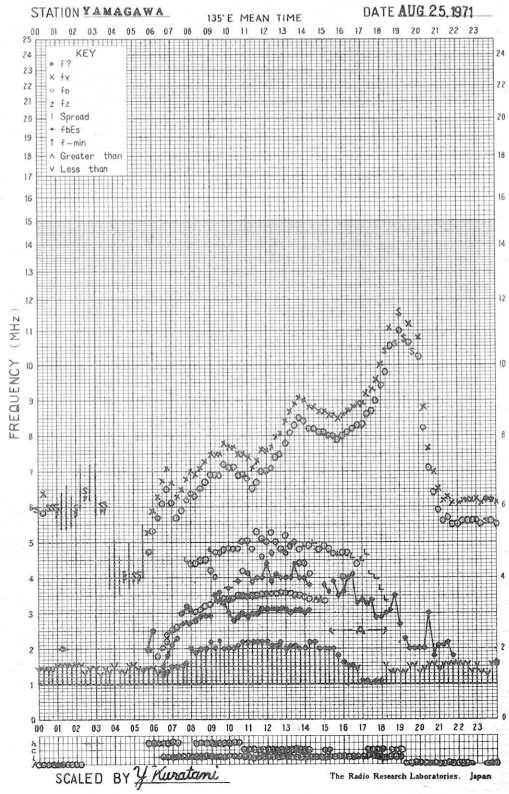
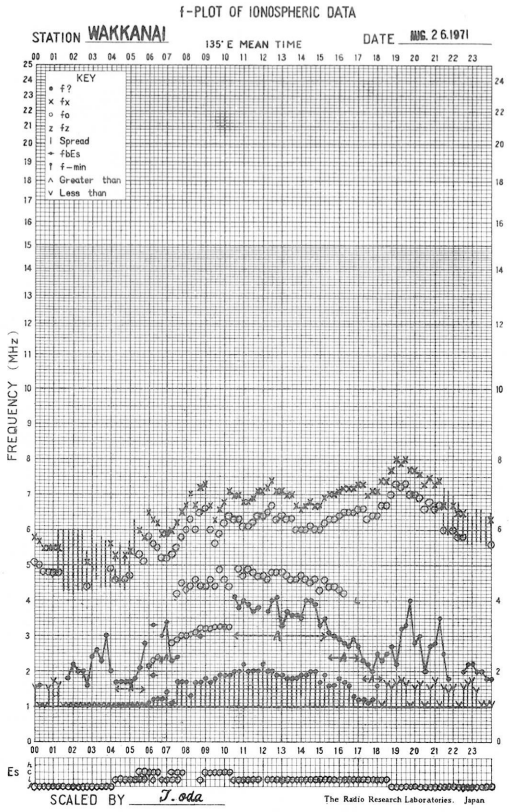


SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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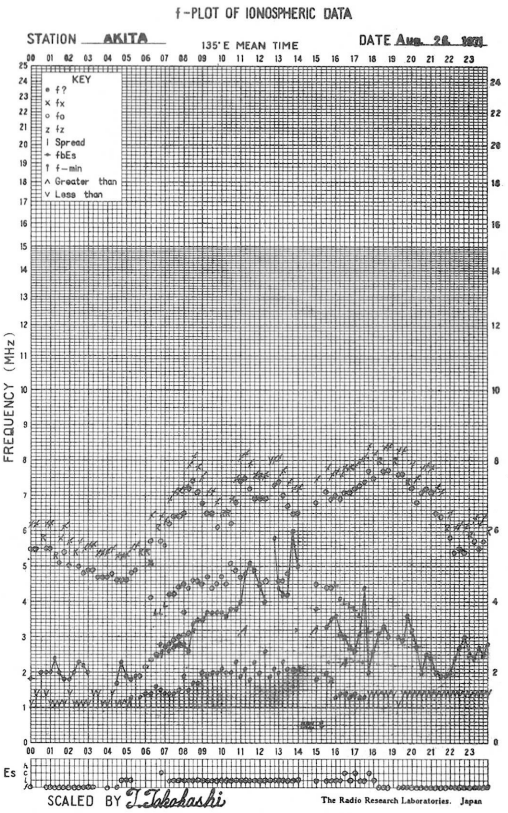
SCALED BY T. oda
The Radio Research Laboratories. Japan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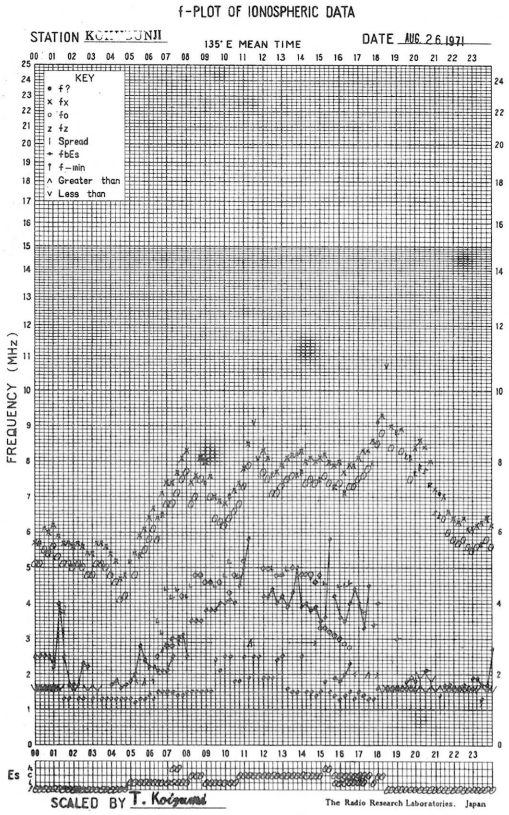
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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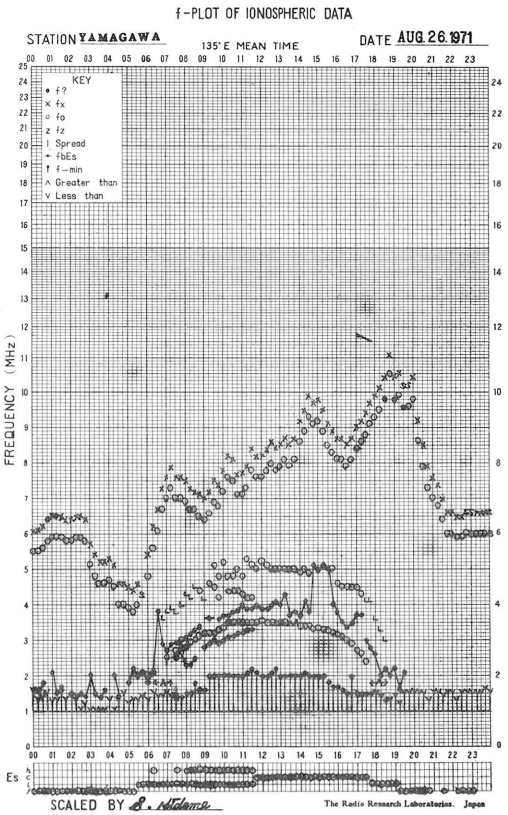
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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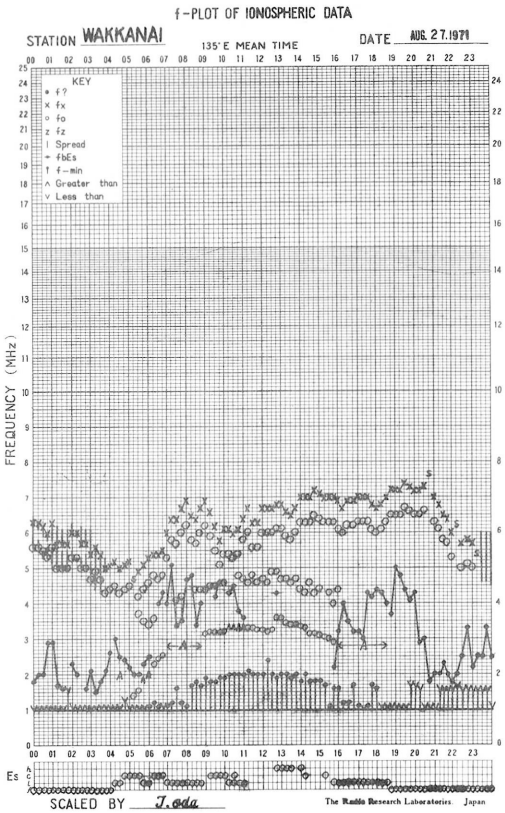
SCALED BY S. Nitadori
The Radio Research Laboratories. Japan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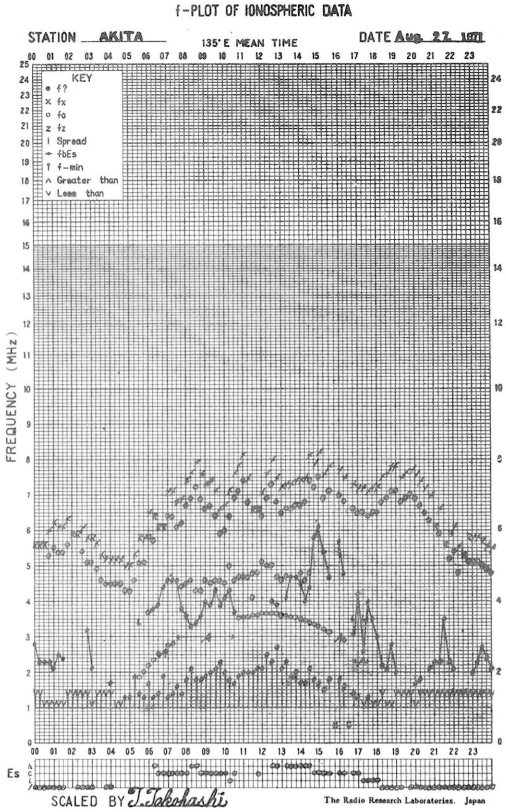
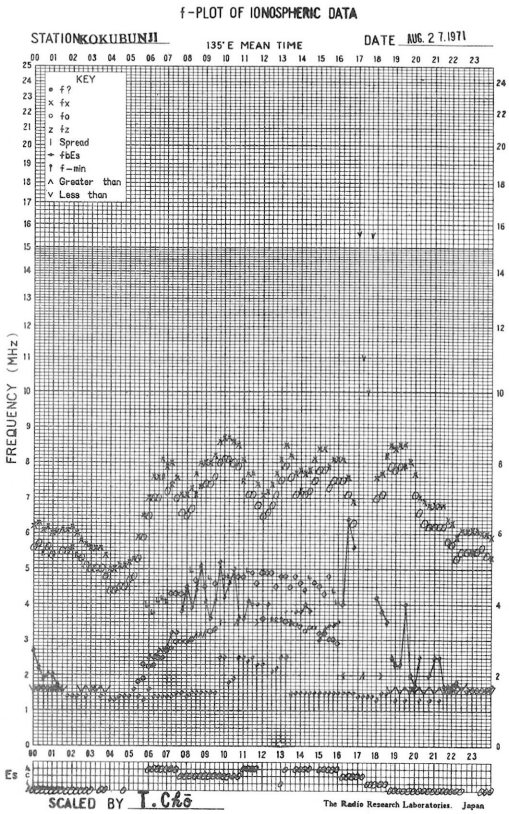
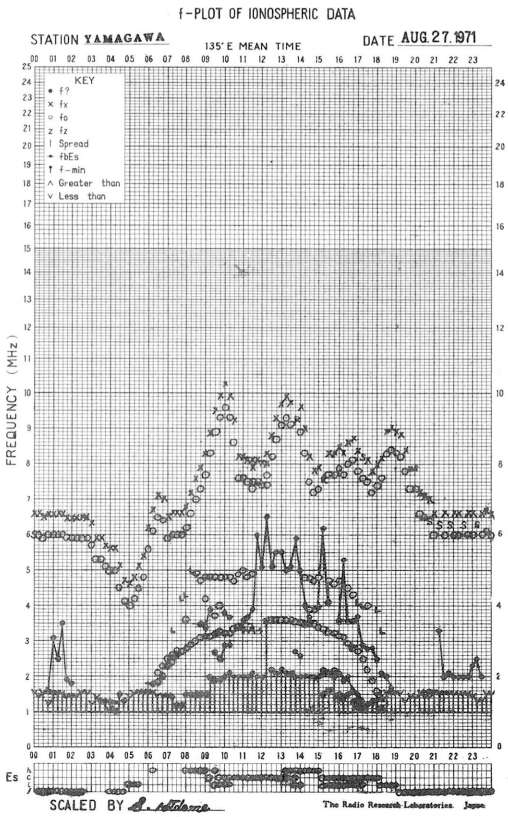
SCALED BY T. Oda
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Aug. 27. 1971
KEY
FREQUENCY (MHz)
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE AUG. 27.1971
KEY
FREQUENCY (MHz)
SCALED BY T. Chō
The Radio Research Laboratories. Japan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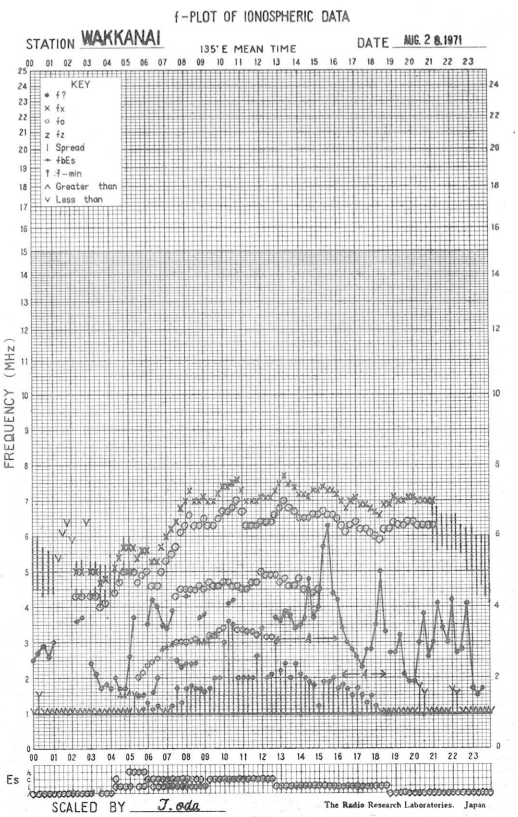
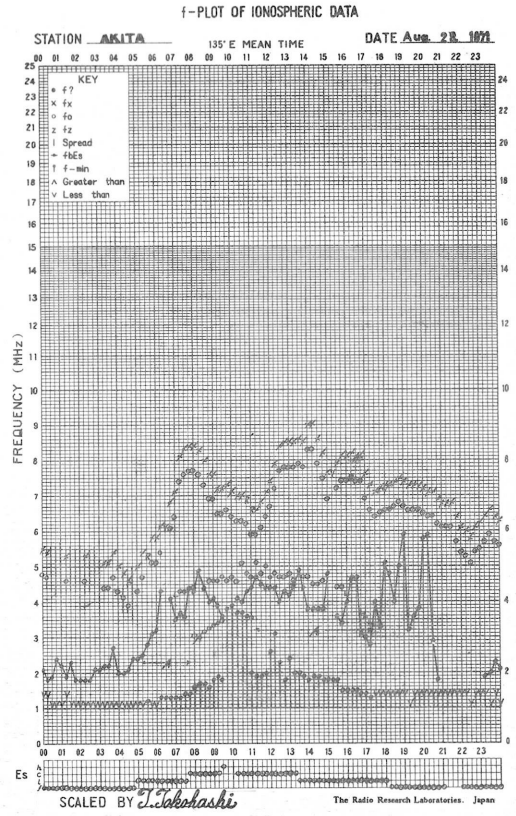
135°E MEAN TIME
DATE AUG. 27.1971
KEY
FREQUENCY (MHz)
SCALED BY S. Matsuno
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE AUG. 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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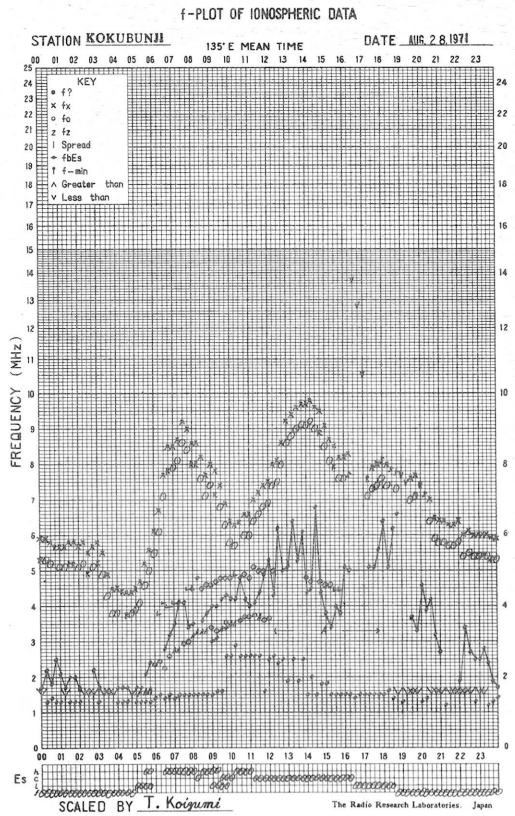
STATION AKITA
135° E MEAN TIME
DATE Aug. 28. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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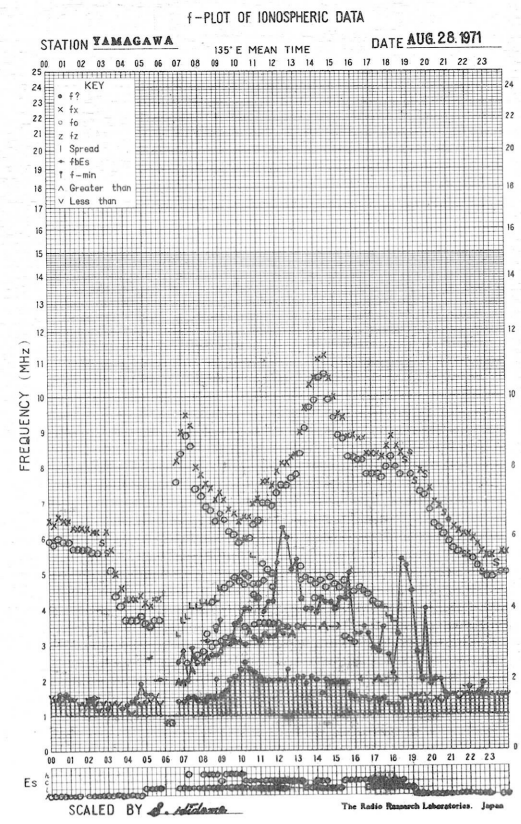
STATION KOKUBUNJI
135° E MEAN TIME
DATE AUG. 28.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koigumi
The Radio Research Laboratories. Japan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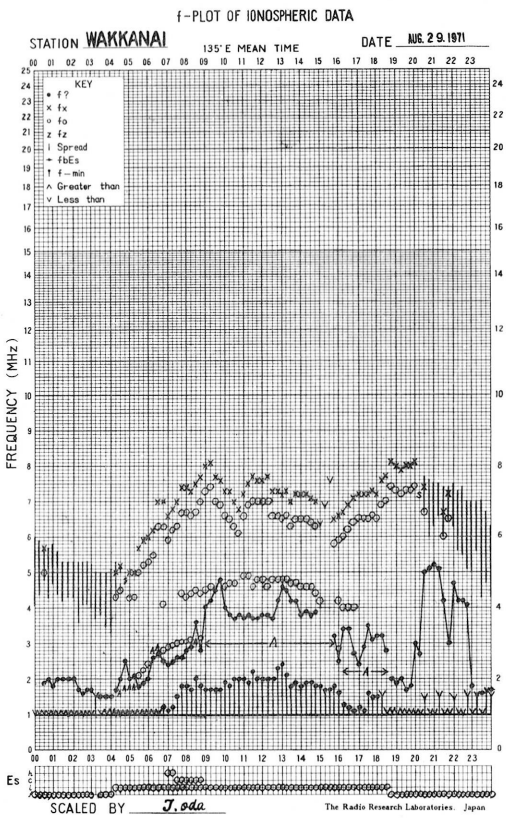
STATION YAMAGAWA
135° E MEAN TIME
DATE AUG. 28. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Ichiara
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
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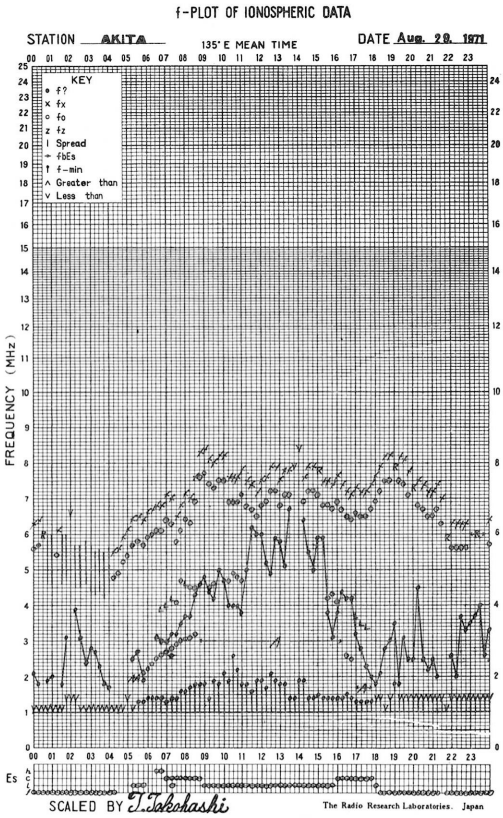
135°E MEAN TIME
DATE AUG. 29. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
= fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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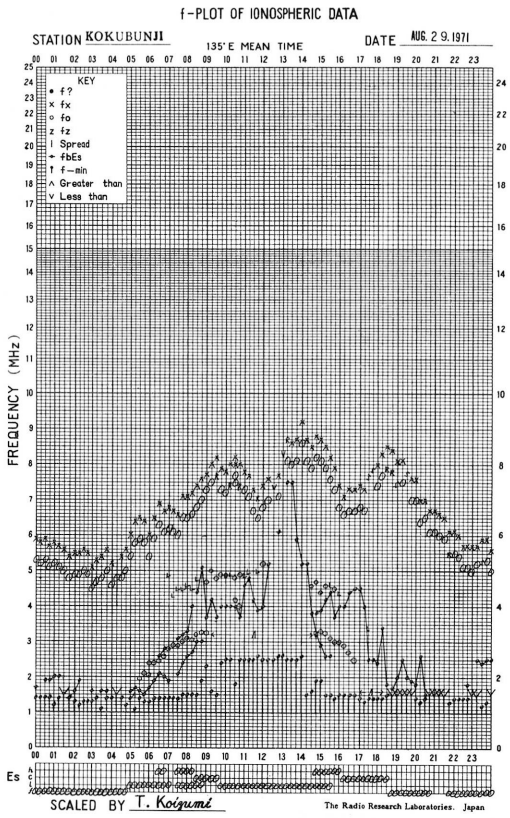
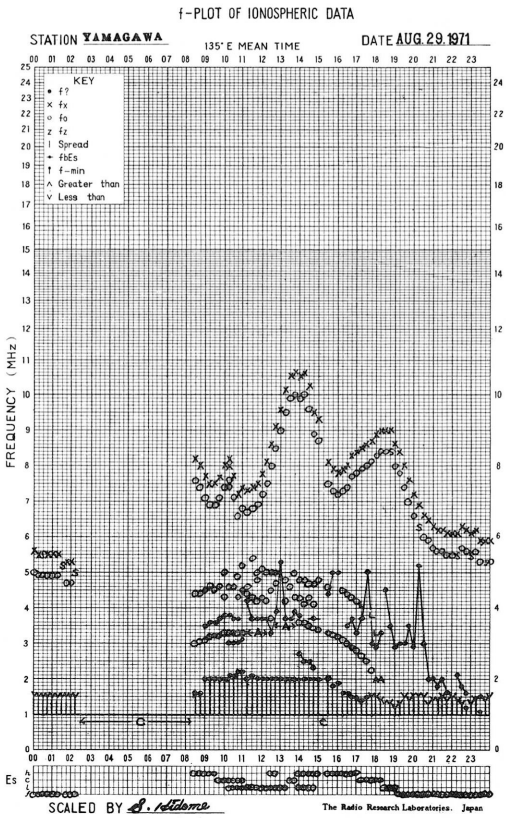
135°E MEAN TIME
DATE Aug. 29. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
= fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE AUG. 29. 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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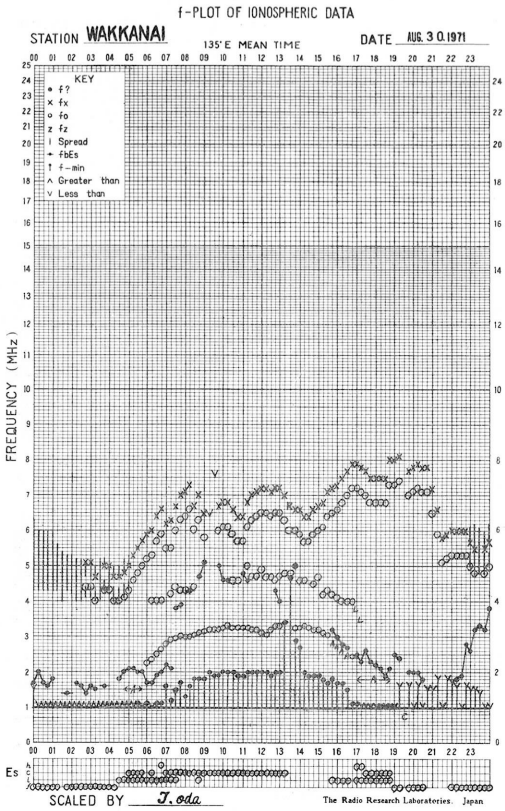
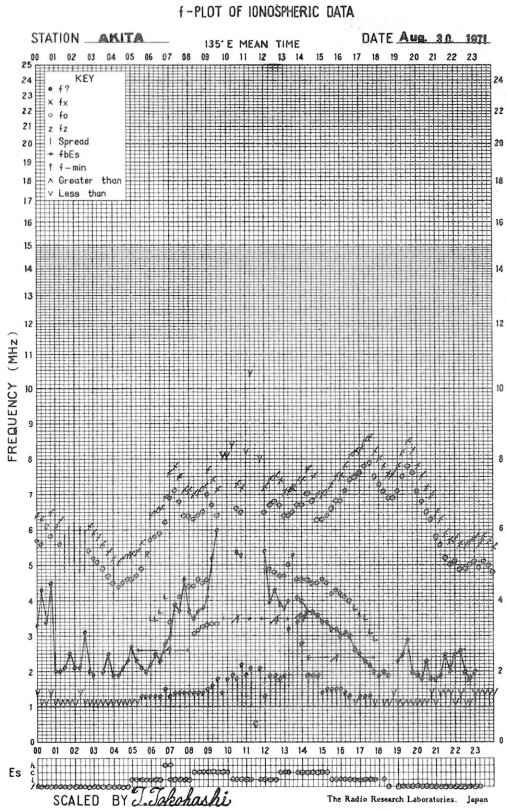
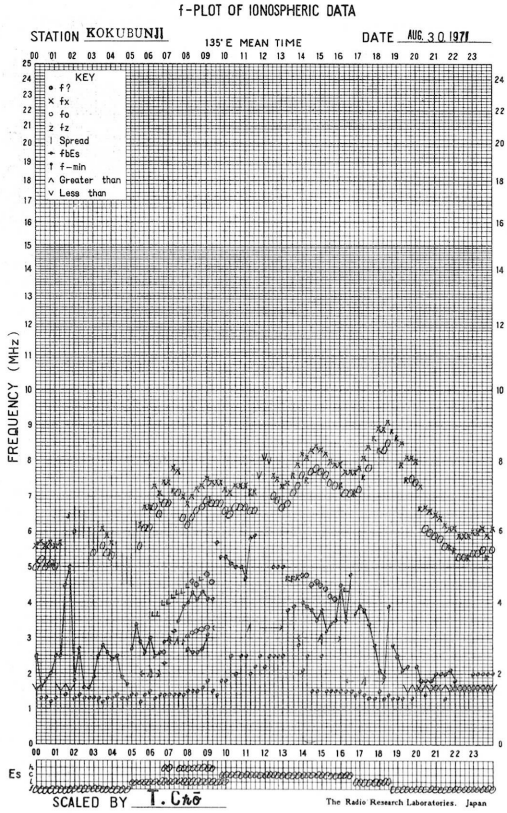
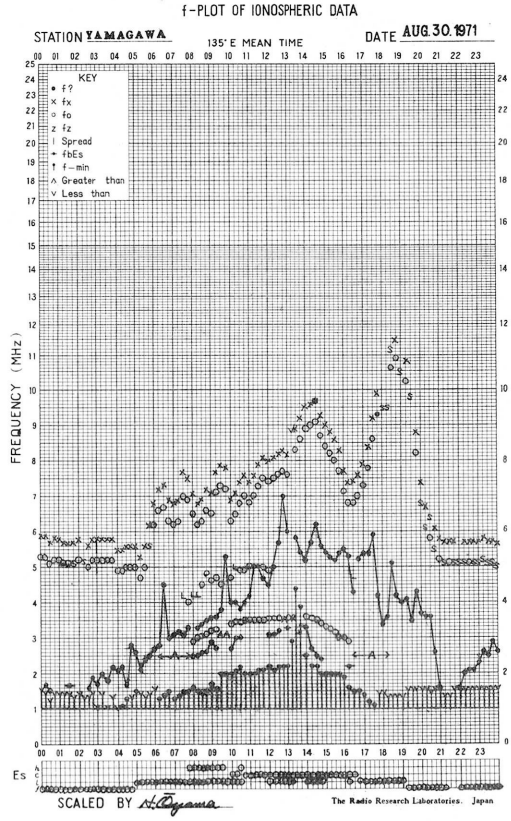
STATION YAMAGAWA
135°E MEAN TIME
DATE AUG. 29. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
= fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Ichidome
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE AUG. 30. 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

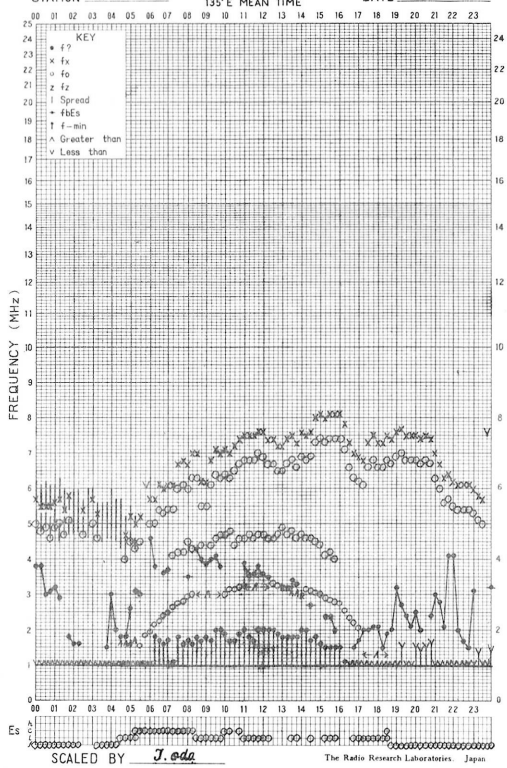

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Aug. 30. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE AUG. 30. 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 AUG. 30. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY H. Oyama
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE AUG. 31. 1971

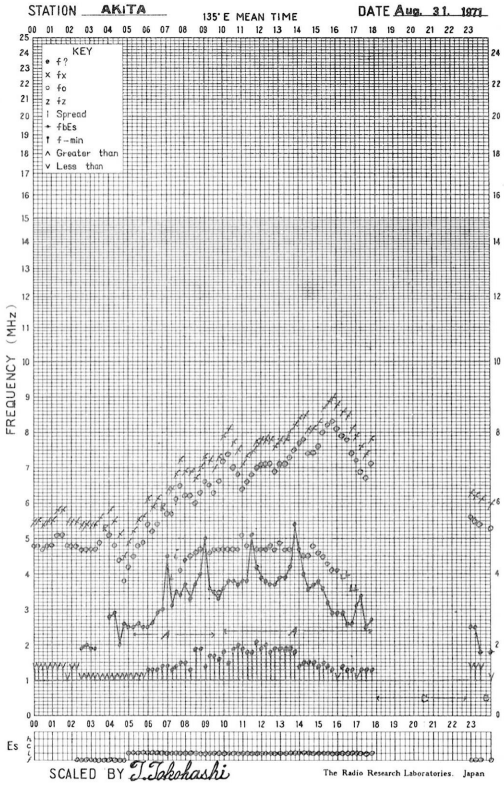


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Aug. 31. 1971

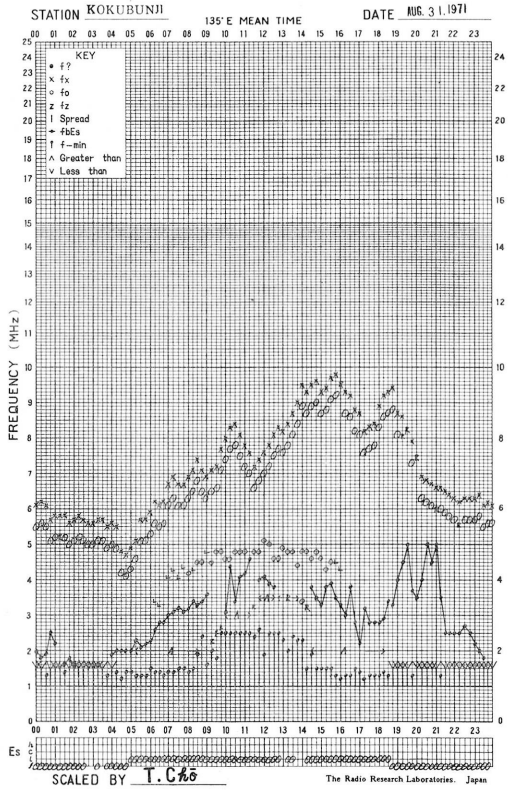


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE AUG. 31. 1971

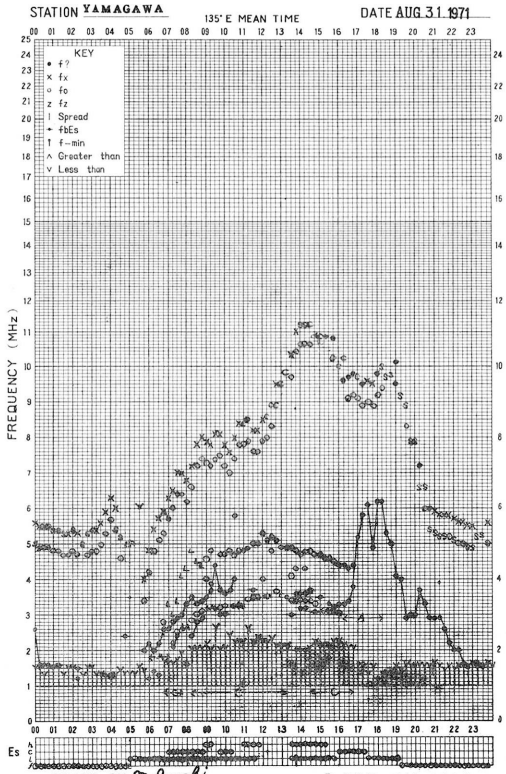


SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE AUG. 31. 1971



SCALED BY M. Iguchi

The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

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

	Flux density 10^{-22} Wm^{-2}(Hz)$^{-1}$					Variability 0 to 3				
UT Date	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	6	6	5	5	5	0	0	0	0	0
2	6	6	5	5	5	0	0	0	0	0
3	5	5	5	5	5	0	0	0	0	0
4	6	5	5	5	5	0	0	0	0	0
5	5	5	5	6	5	0	0	0	0	0
6	6	6	6	6	6	0	0	0	0	0
7	5	6	7	11	6	0	0	*	1	0
8	11	10	q	6	11	1	*	*	0	1
9	6	6	8	8	6	0	*	*	0	0
10	7	5	5	6	6	0	0	0	0	0
11	5	5	6	5	5	0	0	0	0	0
12	5	6	6	5	5	0	0	*	0	0
13	5	4	4	5	5	0	0	0	0	0
14	5	4	4	5	5	0	0	0	0	0
15	5	5	5	5	5	0	0	0	0	0
16	5	5	6	7	5	0	0	0	0	0
17	6	6	6	6	6	0	0	0	0	0
18	6	6	7	13	6	0	0	0	0	0
19	12	16	13	15	13	0	0	0	1	0
20	21	30	38	40	26	1	1	1	1	1
21	43	65	65	128	53	1	1	1	1	1
22	167	185	155	150	159	1	1	1	1	1
23	194	219	163	74	182	1	1	1	0	1
24	77	103	135	120	97	1	0	1	0	0
25	76	62	51	12	77	0	0	0	0	0
26	18	13	11	8	13	1	1	0	0	0
27	8	9	10	5	9	1	1	1	0	1
28	5	6	6	5	5	0	1	0	0	0
29	5	5	6	4	5	0	0	0	0	0
30	5	5	5	q	5	0	0	0	0	0
31	q	q	q	-	q	0	0	0	-	0

Note No observations during the following periods:

16th 0620- 0720
31st 1950- 2400

q: quiet level, when radiometer is unstable.

*: interference by atmospherics.

SOLAR RADIO EMISSION

Flux Density

Month: August 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	26	26	27	25	26
2	25	25	25	26	25
3	25	26	25	26	25
4	25	25	23	26	25
5	26	29	27	26	27
6	25	25	25	25	25
7	24	28	26	31	26
8	29	28	27	25	29
9	26	26	27	24	26
10	27	27	26	24	26
11	24	24	26	24	25
12	24	24	24	24	24
13	23	23	23	23	23
14	24	25	25	23	24
15	24	25	25	23	24
16	23	24	24	24	24
17	24	24	23	-	23
18	23	23	23	24	23
19	24	25	27	27	25
20	28	q	q	-	27
21	37	39	46	43	41
22	45	39	37	33	41
23	31	30	32	30	31
24	30	31	37	28	32
25	29	29	29	26	29
26	26	27	26	29	26
27	29	29	27	26	28
28	26	28	27	28	27
29	28	28	28	29	28
30	27	27	26	26	27
31	26	27	27	29	27

Note No observations during the following periods:

17th 1950- 18th 0035
20th 1950- 21st 0020

q: quiet level, when radiometer is unstable.

Distinctive Events

(single-frequency observations)

Month: August 1971
Observing station: Hiraiso
Normal observing period: 1950 - 0930 (sunrise to sunset)

Date	Frequency	Starting time	Time of maximum	Duration	Type	Flux density 10^{-22} Wm^{-2}(Hz)$^{-1}$		Remarks
	MHz	UT	UT	minutes		peak	mean	
3	200	0038.0	0039.5	5.0	C	490	20	
		0725.5	0725.8	0.5	C	400	200	
5	100	0323.0	0323.4	1.8	C	450	160	
		0328.0	0340.0	20	C	1000	100	
19	100	2200	0020	670		100	70	noise storm
20	200	0009.6	0010.0	0.5	C	160	50	
	100	0009.6	0010.0	1.0	C	300	100	
	200	0257.5	0257.8	0.5	C	2000	530	
	100	0257.5	0257.6	0.8	C	700	120	
	200	0324.0	0324.0	0.5	C	2600	620	
	100	0323.0	0323.6	1.5	C	800	400	
		0335.0	0335.4	1.0	C	>1000	>600	
	200	0338.8	0339.0	0.5	C	1600	450	
		0350.2	0350.5	0.5	C	370	170	
	100	0350.0	0350.3	1.0	C	800	500	
		0352.0	0352.5	1.0	C	800	300	
	200	0448.0	0448.5	1.0	C	1300	450	
	100	0447.6	0448.6	1.6	C	500	300	
	200	0743.5	0743.5	0.5	C	350	250	
		2033.0	2033.0	0.7	C	1700	580	
	100	2032.5	2033.3	2.0	C	>1000	>700	
	200	2154.0	2154.0	0.8	C	2400	820	
	100	2154.0	2154.5	1.5	C	>1000	>600	
		2249.5	2250.7	2.3	C	700	100	
21	500	0058.0	0413	240	RF	70	20	
	200	2000	0450	790		240	160	noise storm *
	100	2000	0515	790		200	60	noise storm
		2235.5	2236.3	2.0	C	600	250	
		2255.6	2256.0	2.0	C	400	100	
22	100	0212.3	0212.5	1.0	C	850	250	
	500	0303.0	0303.5	4.0	C	100	10	
	200	0303.0	0303.2	1.0	C	2500	690	
	100	0303.2	0303.8	2.5	C	>1000	>700	
		0327.6	0328.2	1.0	C	800	500	
		0333.3	0333.5	1.0	C	750	200	
	500	0337.5	0339.6	7.0	C	70	10	
	100	0338.0	0338.2	1.0	C	800	250	
	200	0341.0	0341.4	0.8	C	1300	630	
	100	0341.0	0341.3	1.0	C	800	300	
	500	0507.0	0507.5	1.5	C	380	60	
	200	0733.0	0733.5	1.5	C	990	340	
		0735.5	0736.0	1.0	C	1300	490	
	100	0735.0	0735.3	1.0	C	1000	500	
22	500	0748.5	0751.0	6.0	C	480	100	
	200	0750.0	0750.8	4.0	C	2300	780	
	100	0750.0	0751.0	4.0	C	>1000	>700	
	200	2000	0355	790		360	180	noise storm *
	100	2000	0755	790		250	90	noise storm
23	100	2010	0650	715		100	60	noise storm
		2219.0	2219.3	1.0	C	1000	300	
24	100	2010	2300	715		400	200	noise storm
27	500	0308.0	0309.0	6.0	C	500	15	
	200	0309.5	0309.5	0.5	C	550	300	
28	500	0341	0517	220	RF	60	25	
	200	0405	0456	84	RF	20	15	
	100	0440	0512	140	RF	35	15	

*: flux duplicates with Steady Flux.

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

AUG 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	-8	ES -8	ES -9	ES -15	1	9	6	2	ES -6	ES -2	ES -7	ES -1	ES -3	ES 10	ES 12	ES 11	3	2	7	1	6	-3	-2	-8
2	-10	-5	ES -6	ES -5	5	5	ES -8	ES -4	ES -4	ES 0	ES -1	ES 2	ES 0	ES 9	ES 11	ES 12	1	-7	-11	ES -15	1	0	-8	-8
3	3	-6	ES -9	ES -14	-6	5	-2	2	1	ES -3	3	4	ES 5	ES 12	ES 13	ES 11	2	-3	-2	-7	-8	-3	-11	-11
4	-11	-6	ES -11	ES -9	-1	6	-2	1	8	-2	1	ES -13	ES -10	ES 8	ES 10	ES 8	6	-8	-9	-8	-2	-7	-8	-9
5	ES -12	ES -10	-8	ES -9	2	-2	ES -10	ES -7	ES -2	ES -7	ES -1	ES 3	ES 6	ES 12	ES 17	ES 17	-20	-6	-7	-14	-1	-8	-2	-8
6	-11	ES -8	ES -7	ES -6	5	-2	-8	-7	ES -10	ES -6	ES -6	ES -1	ES 4	ES 6	ES -2	ES 4	-9	-4	-9	-4	-4	-8	-4	-5
7	-5	-14	-19	-13	3	7	3	-1	ES -7	ES -7	ES -3	ES -1	ES -2	ES 6	ES 7	ES -2	ES -20	-5	-13	ES -13	4	-5	-5	-5
8	-7	-10	-2	3	-1	4	ES -7	ES -8	ES -7	ES -2	ES -2	ES 2	ES 8	ES 2	ES -4	ES 2	ES -11	ES -19	ES -16	-14	-11	ES -28	-11	-7
9	-7	-4	-2	ES -3	-2	1	ES -7	-2	ES -8	ES -7	ES -5	ES 3	ES 4	6	7	ES 7	-18	-9	ES -27	ES -27	ES -27	ES -24	ES -18	-1
10	-4	ES -17	ES -12	ES -3	0	0	1	ES -7	ES -4	ES -3	ES 1	ES 4	ES 1	ES 10	ES 2	ES 16	-14	ES -28	ES -28	ES -28	-19	ES -14	-4	ES -25
11	ES -14	ES -20	ES -11	-8	ES 1	-7	ES -13	ES -7	ES -12	ES -7	ES 2	ES -1	ES -16	ES -18	ES -11	14	-16	ES -25	ES -25	ES -14	ES -25	ES -17	-18	-10
12	-19	-11	ES -16	ES -19	ES -11	-2	-2	ES -11	ES -7	ES -2	ES -4	ES 3	ES 2	ES -1	ES 12	-8	ES -24	ES -27	ES -12	ES -24	-15	-18	ES -20	ES -18
13	ES -18	ES -22	ES -11	ES 2	2	-7	ES -11	ES -12	ES -10	ES -9	-2	ES -4	ES -3	ES 1	ES -5	ES 2	ES -28	ES -28	ES -19	-13	-19	-9	-8	-13
14	-7	ES -18	-16	-12	-2	8	3	3	-1	ES -10	ES -10	ES -2	0	ES 11	ES 10	ES -2	ES -27	ES -27	-7	-7	-1	-3	-1	-7
15	-11	-10	-10	ES 7	1	3	3	5	3	3	5	ES -1	ES -2	ES 4	ES 7	ES 2	-18	ES -27	ES -27	-10	-1	-1	-1	-7
16	-18	-7	-12	-10	3	5	ES -12	ES -10	7	-1	ES 1	ES -1	ES 5	ES 2	ES 3	ES 5	ES -24	ES -27	ES -13	ES -12	-4	ES -12	-12	-2
17	-13	-8	-3	-8	2	2	0	ES -10	ES -10	ES -7	ES -6	ES -3	ES 0	ES 6	ES 2	ES 8	ES -20	-6	-2	-3	-2	-7	-6	-12
18	-12	-11	-3	ES -1	8	1	-10	ES -24	ES -20	ES -24	ES -21	ES -18	ES -16	ES 12	ES 5	ES -18	ES -27	ES -27	ES -27	ES -27	-4	0	-5	-7
19	-16	-7	-11	-9	-3	-2	1	-2	ES -8	ES -7	ES -3	ES 0	ES 4	ES 5	ES 8	ES 13	ES -18	-6	-15	-4	-10	-7	-12	-7
20	-7	-13	-10	-11	9	-2	-9	ES -11	ES -11	ES -8	ES -7	ES -2	ES 5	ES 8	ES -18	ES 7	ES -16	ES -24	ES -24	-7	-5	-2	-10	-10
21	-12	-8	-8	ES -8	7	10	-1	ES -6	-4	ES -4	ES -11	ES -2	ES 2	ES 0	ES 6	ES 9	ES -23	-17	ES -26	ES -26	-4	-19	ES -15	ES -2
22	-6	-15	-7	1	-2	-8	ES -18	ES -7	ES -12	ES -2	ES 3	ES 5	ES 1	ES 4	ES 12	ES 3	ES -27	ES -27	ES -27	ES -27	ES -18	ES -24	-11	-5
23	-6	0	-21	-6	-7	-8	ES -15	ES -12	ES -7	ES 3	ES 7	ES 4	ES 2	ES 16	ES 16	ES 12	ES -24	ES -12	ES -27	ES -27	-3	-7	-4	-4
24	-9	-7	-5	-8	0	1	-11	ES -13	ES -7	ES -12	ES -12	ES 4	ES 1	ES -3	ES 2	ES -1	ES -12	-7	-18	-7	-7	-2	-2	-9
25	-7	-13	-11	-3	4	-8	ES -16	13	-5	-2	4	12	ES 3	ES -3	ES 4	ES 4	0	-14	-20	-6	-2	-5	-10	-6
26	-6	-9	-5	-7	ES 2	-1	ES -9	ES -7	ES -7	ES -7	ES -7	ES -3	ES 7	ES 4	ES 3	ES 3	-3	-12	-7	-14	-5	ES -3	2	ES -7
27	22	-7	-3	ES -20	ES -12	ES 0	ES -1	ES -7	ES -3	ES -2	ES 1	ES 3	ES 1	ES 7	ES 4	ES 8	ES -18	-18	-9	-13	-8	-8	-11	-8
28	-14	ES -27	-12	-9	-6	ES -3	ES -10	ES -5	ES -10	ES -10	ES -3	ES -1	ES 13	ES 12	ES 11	ES 15	ES -24	-18	-18	-18	1	-2	-6	-8
29	-10	ES -13	-10	ES 4	1	-2	ES -7	ES -7	C	ES -7	ES -4	ES 0	ES 7	ES 7	ES 8	ES 7	ES -18	-14	-6	-15	-3	ES -16	-2	-8
30	-11	-19	-6	-6	-11	-11	-12	ES -12	ES -7	ES -5	ES -7	ES 1	ES 7	ES 1	ES 3	ES 2	ES -19	-13	ES -28	-13	-5	-11	-13	-6
31	-10	1	-3	0	10	5	-5	ES -8	ES -3	ES -2	ES -1	ES 5	ES 12	ES 6	ES 14	ES 2	ES -19	-12	ES -28	ES -11	6	0	-6	-9
CNT	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	-10	US -10	ES -9	ES -8	US 1	0	ES -7	ES -7	ES -7	ES -5	ES -3	ES 0	ES 2	ES 6	ES 7	ES 7	ES -18	US -14	ES -16	US -13	-4	US -7	-8	US -8
UD	-4	-4	-3	ES 3	8	8	3	3	3	ES 0	ES 4	ES 5	ES 8	ES 12	ES 14	ES 15	2	-4	-2	-4	4	0	-1	ES -2
LD	ES -18	ES -20	ES -16	ES -15	ES -11	ES -8	ES -15	ES -12	ES -12	ES -10	ES -11	ES -4	ES -10	ES -3	ES -5	ES -2	ES -27	ES -27	ES -28	ES -27	ES -19	ES -24	ES -18	ES -13

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

AUG 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	-1	2	-3	5	7	18	21	22	21	15	13	17	9	7	21	-9	6	13	12	9	9	3	2	-1
2	1	1	1	1	11	19	21	23	17	20	21	23	19	9	ES 3	-6	16	15	2	3	4	2	-7	0
3	-2	7	1	7	14	15	16	22	22	14	17	16	ES 3	4	ES 6	-2	-16	15	2	7	5	7	3	-7
4	-1	-1	8	3	13	17	17	23	22	19	19	7	12	4	ES 3	-12	9	5	7	10	7	9	-1	-5
5	ES -5	-5	2	9	9	17	22	23	20	14	-2	12	16	14	15	ES -11	ES -22	12	-3	4	8	6	7	-2
6	1	-3	0	8	8	19	19	19	18	11	14	14	17	11	2	-3	-3	10	4	7	9	11	1	1
7	1	-3	1	9	9	16	19	22	25	24	11	2	17	2	ES 4	8	-2	-5	-8	3	5	18	3	1
8	1	1	2	4	10	15	10	21	25	23	20	24	22	9	13	17	17	16	18	-14	3	12	2	9
9	3	-1	2	3	7	16	21	19	22	18	22	14	10	3	6	18	11	10	-11	0	5	9	6	1
10	-7	-3	3	5	8	12	19	19	7	19	ES 2	2	11	4	ES 8	-8	ES -25	-2	-19	12	8	18	11	-3
11	-2	4	4	7	14	5	18	15	15	16	12	11	-2	4	5	ES -25	ES -25	-19	ES -25	0	5	7	-4	-2
12	-2	2	3	4	15	10	17	19	20	19	11	20	13	-1	-4	ES -27	ES -27	5	-7	-1	3	-13	-7	-10
13	2	-1	2	6	10	16	14	16	8	17	11	2	ES 2	-7	ES 2	-8	-19	12	7	2	0	6	0	1
14	0	-3	-2	2	14	18	13	20	21	10	-7	ES -15	0	-1	ES 7	-11	-5	-11	-10	8	5	4	7	-6
15	3	-2	-2	11	11	13	17	14	13	14	16	6	6	15	ES 4	ES -27	ES -27	-12	ES -27	9	13	9	0	2
16	-3	-7	3	7	17	14	20	19	15	-3	ES -1	ES -10	ES -2	ES -20	ES 0	ES -24	ES -27	-7	3	-5	4	-2	3	0
17	-4	-1	3	4	10	16	17	18	22	9	0	ES -10	4	-12	ES 0	-18	-12	8	-7	3	2	5	3	-7
18	-7	4	4	10	9	13	17	11	-3	-10	7	6	1	-5	-8	ES -27	ES -27	ES -27	ES -27	13	11	2	0	-16
19	4	-7	0	5	12	16	17	17	20	14	22	8	7	7	3	ES -27	-5	-2	8	7	-2	9	0	-7
20	-8	-5	-3	0	7	11	17	14	16	13	5	5	13	14	10	-6	-13	-7	-11	-7	1	0	-2	-1
21	1	-5	-2	7	6	17	21	21	20	19	15	4	2	0	ES 6	-1	-13	0	ES -26	-8	-6	-6	-3	1
22	-7	-8	-1	-4	6	13	13	12	13	20	20	5	8	8	ES -2	ES -27	-7	ES -27	ES -27	3	9	-1	-3	3
23	-3	-7	1	4	-1	17	17	18	11	14	9	10	ES 7	8	ES 9	-19	-2	-10	ES -27	-12	-7	10	4	2
24	-6	2	2	2	10	15	11	20	10	2	2	7	0	ES 2	ES 3	-2	-2	-3	-7	-4	2	-2	-2	-1
25	-7	-3	-2	5	10	17	13	9	-3	ES -10	8	9	12	-9	ES 3	-18	ES -21	-18	-18	3	3	-5	-3	-2
26	-6	-7	4	4	22	14	11	19	20	12	17	18	15	8	ES 5	4	2	12	ES -24	1	12	8	3	-1
27	-1	-2	3	0	7	12	17	18	17	20	14	ES 3	ES -2	3	ES 4	ES -27	-11	-1	-5	4	-4	3	1	-6
28	-18	-3	-8	-1	8	19	23	16	9	0	12	1	8	4	ES 6	-6	-7	1	-18	10	7	1	C	-1
29	0	0	3	ES 9	10	18	21	7	ES -7	7	17	11	11	ES -3	ES 8	ES -7	-7	10	-5	9	8	4	-1	-1
30	-3	-3	2	2	-3	13	13	13	19	16	6	3	ES -2	ES -13	ES -4	ES -22	ES -16	7	10	10	4	-4	-5	-4
31	0	5	4	8	11	14	20	23	12	11	12	14	9	0	ES 5	12	-12	10	ES -19	6	10	-1	-5	2
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31
MED	-2	-2	2	US 5	10	16	17	19	17	14	12	7	8	4	ES 4	US -9	-11	1	-7	3	5	4	0	-1
UD	3	4	4	9	15	19	21	23	22	20	21	20	17	14	13	12	11	15	10	10	11	12	7	2
LD	ES -7	-7	-3	ES 0	6	11	11	11	-3	-3	ES -1	ES -10	ES -2	ES -12	ES -4	ES -27	ES -27	-19	ES -27	-8	-4	-5	-5	-7

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 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	H
1	5-		(4)(5)(5) 5	4 - - -	4 4 5 4	N N N N			
2	4-		4 - (5) 4	3 3 (3) 4	4 5 5 4	N N N N	00.21	16.0	70γ
3	4°		4 (5)(5) 4	4 4 (3) 4	4 4 4 4	N N N N			
4	4°		4 (4)(5) 4	4 4 (4) 4	4 4 4 4	N N N N			
5	4°		(4) - (5) 4	4 4 (4) 4	4 4 4 4	N N N N			
6	4°		(4)(4)(5) 4	4 4 (4) 4	4 4 5 4	N N N N			
7	4°		4 (5)(4) 4	4 3 (3) -	4 4 4 4	N N N N			
8	3+		4 - - 3	3 - - -	4 5 5 5	N N N N			
9	4°		4 - (4)(3)	4 4 (4) 4	4 4 4 4	N N N N			
10	4-		(4) - (3)(3)	4 4 (4) 4	4 4 4 4	N N N N			
11	4-		(4) - (4)(3)	3 4 (4) 4	4 4 3 4	N N N N			
12	3+		(4) - (2)(3)	4 4 (4) C	4 4 4 3	N N N N			
13	3+		(3) - - 3	4 3 (4) 4	4 4 4 4	N N N N			
14	4°		(4)(5)(4) 4	4 3 (4) -	4 3 4 4	N N N N			
15	4°		(4)(5)(3) 4	4 - - -	4 4 (3) 4	N N N N			
16	4°		3 (4) - 4	4 4 (4) 4	4 3 (3) 4	N N N N			
[17]	4°		4 - (5) 4	4 4 (4) 4	4 3 4 4	N N N N			
[18]	4°		4 - - 4	4 4 (4) 4	4 3 (3) 4	N N N N			
[19]	4°		4 (4)(4) 4	(3) 4 (4) 4	4 4 4 4	N N N N			
20	4°		4 - - 4	4 4 (4) 4	4 4 4 4	N N N N			
21	4°		4 (4) - 4	4 5 (4) -	4 4 4 3	N N N N			
22	3+		3 - - (3)	4 - - -	4 4 (3) 4	N N N N			
23	4-		4 - - 4	4 4 (4) 3	4 4 3 3	N N N N			
24	4-		4 - (4) 4	3 4 (3) 4	4 3 4 4	N N N N			
25	4-		3 (5)(3) 4	3 4 (4) 4	4 4 3 4	N N N N			
26	4°		(4) - (5) 4	4 4 (4) 3	4 4 4 4	N N N N			
27	4°		(4) - (4) 4	4 4 (4) 4	4 4 3 3	N N N N			
28	4-		(3) - (4) 4	4 4 (3) -	4 4 4 4	N N N N			
29	4°		(4) - (4) 4	4 - - -	4 3 4 4	N N N N			
30	4-		3 - - 4	4 4 (4) 4	4 4 3 4	N N N N	23.03		
31	4°		4 - - 4	4 4 (4) 4	4 4 4 3	N N N N		24.0	40γ

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.

Aug 1971	S W F							Correspondence		
	Drop-out Intensities (db)					Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
	CO	LM	HA	TO	SH							
22		10				03.36	21	Slow	1			
30		14				04.08	52	Slow	2			

I N U B O

1971 AUG.	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
DATE	GBR	WWVL	NAA	NPG	NWC	HA2	Start	End	Maximum	
4				7	16	7	0156	0233	0206	
12					8		0226	0241	0230	
13					16		0642	0722	0652 X	
15					8		0220	0241	0226	
18				10	28	15	0226	0255	0230 X	
18				5	12	13	0257	0335	0303	
18					8		0430	0525	0440	
18					8		0553	0634	0556	
18		43	31	40	64	59	2346	0053	2353	
19				6	24*	11	0303	0335	0318 X	
19				10	28	15	0347	0434	0356 X	
19					28		0544	0637	0557	
19					12		0654	0736	0703 X	
19			13	20		26	2206	2246	2211	
20			6	13	36	23	0317	0412	0324	
21					8		0313	0348	0320	
22				8	16	9	0304	0326	0308	
22			12	13	36	26	0340	0441	0344 X	
22	25				64		0752	0910	0757 X	
23				8		18	2029	2105	2036	
24					12		0553	0640	0558	
25		–	10	7	16	11	0028	0102	0037	
27			19	31	64	57	0309	0443	0314 X	
28		34	35*	33*	80*	53*	0031	0225	0110	
30				7	—	20	0107	0149	0116	

1971 AUG.	S P A									Remarks
	Phase Advance (degees)					Time (U.T.)				
DATE	GBR	WWVL	NAA	NPG	NWC	HA2	Start	End	Maximum	
30			30	27	104*	66*	0342	0600	0426	
30				12		26	2111	2226	2125	X

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

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

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

IONOSPHERIC DATA IN JAPAN FOR AUGUST 1971

第 23 巻 第 8 号

1972年1月20日 印 刷
1972年1月25日 発 行

（不許複製非売品）

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