F—273

IONOSPHERIC DATA IN JAPAN

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F−273

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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	λ/2 vertical	λ/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.

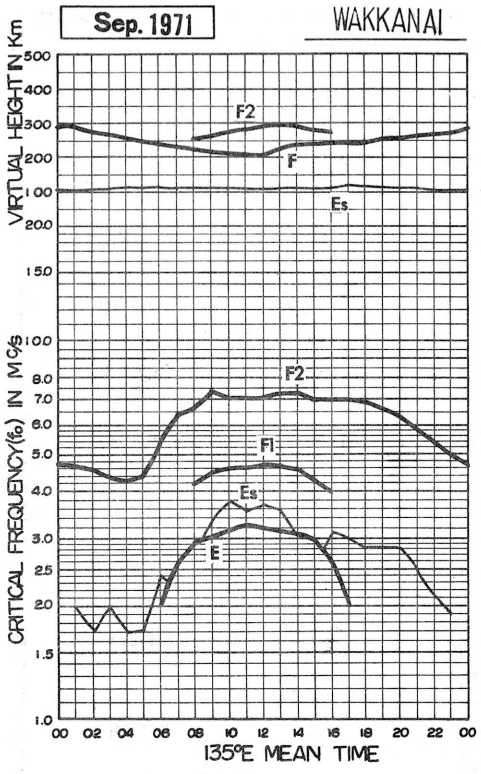
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West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

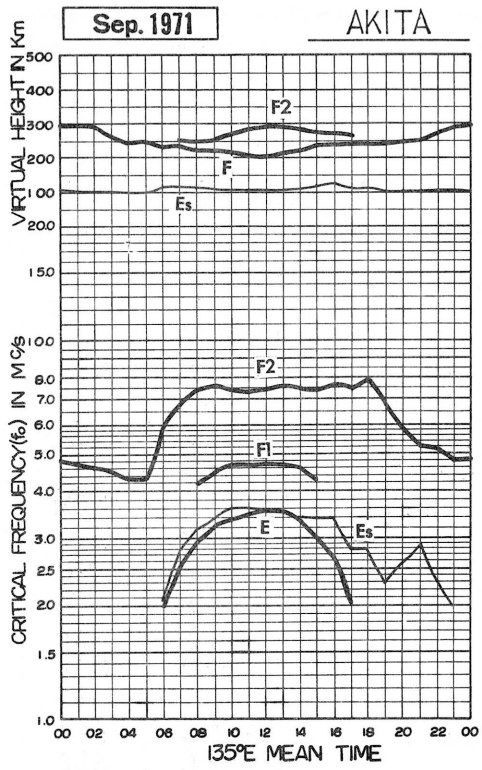
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

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.

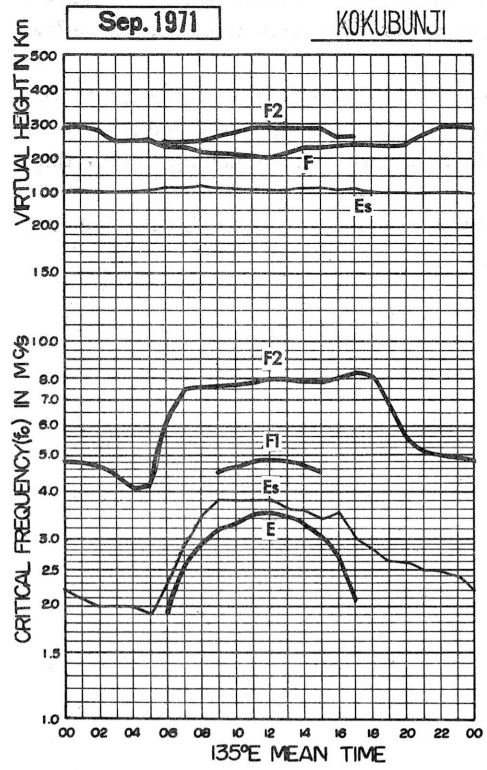
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

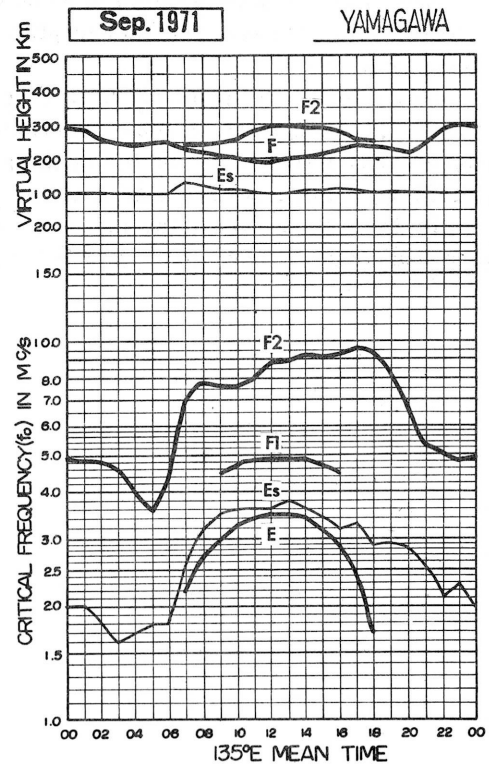
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

SEP. 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 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	A	F 50	F	F 43	45	44	46	I C 56	53	70	63	66	65	64	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	65	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	66	66	69	63	73	75	73	66	60	51
4	48	48	47	46	43	49	54	70	68	83	70	65	67	64	66	63	63	65	66	72	74	68	59	48
5	46	C	C	C	C	C	C	C	C	C	C	72	66	62	63	66	81	75	79	83	75	66	45	42
6	39	38	37	40	39	50	70	70	73	I R 73	70	68	71	68	66	66	62	60	64	73	69	63	54	50
7	36	34	36	35	35	33	52	56	64	56	62	62	60	60	64	64	56	55	50	57	54	53	50	44
8	36	34	36	35	35	33	52	56	64	56	62	62	60	60	64	64	56	55	50	57	54	53	50	44
9	43	43	44	46	47	40	50	58	60	62	65	58	64	67	68	67	A	60	63	65	63	54	50	46
10	44	46	43	44	F	44	54	55	63	70	60	64	70	64	62	60	58	A	64	63	60	F	F	F
11	48	F 47	F 44	45	38	43	54	57	54	65	66	68	68	73	68	65	64	68	69	66	66	61	50	51
12	48	50	46	47	44	42	51	63	65	71	76	66	70	66	72	66	64	70	74	70	64	58	53	51
13	44	41	41	40	41	45	63	65	65	74	69	66	68	65	73	70	80	76	83	70	66	69	60	54
14	47	40	37	37	37	39	48	53	62	56	61	75	70	67	72	75	71	66	70	74	70	58	47	41
15	40	40	41	40	41	44	57	57	65	66	71	64	68	73	73	73	73	72	68	71	71	66	55	52
16	50	48	48	45	43	46	66	73	70	70	67	64	70	70	71	70	60	68	73	65	63	60	53	50
17	46	46	46	45	47	51	59	64	66	74	73	72	73	74	74	67	68	75	74	69	63	58	51	47
18	44	46	46	47	46	45	52	60	74	82	85	88	88	95	94	96	83	76	71	73	56	60	53	51
19	54	56	53	44	45	A	47	58	61	62	65	65	71	72	71	71	67	72	76	65	61	57	55	49
20	I S 48	47	47	I S 44	41	S 41	60	64	72	73	74	74	76	74	76	72	75	74	64	58	57	54	50	47
21	45	47	48	44	33	36	53	63	76	74	71	74	68	72	67	67	66	71	69	63	61	55	51	48
22	47	S	45	43	42	43	54	71	67	85	73	74	73	74	77	73	73	74	63	53	53	53	53	53
23	53	53	50	46	44	44	57	79	I R 76	77	78	76	77	80	73	66	71	78	73	65	63	F	I S 56	54
24	53	53	50	51	48	53	65	70	R	80	77	81	78	74	77	74	71	76	73	63	62	60	58	57
25	54	53	53	52	50	48	72	66	80	81	85	80	73	80	87	93	98	93	86	C	74	65	63	60
26	51	48	44	48	41	43	58	70	84	76	76	83	87	80	80	710	73	77	75	66	60	60	59	54
27	54	53	50	46	44	S 45	52	64	73	73	67	77	80	74	75	83	77	69	67	70	63	54	53	50
28	F	F	F	F	F	F	63	70	74	75	76	80	74	74	75	74	70	67	59	59	56	53	48	50
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	76	80	77	80	73	75	69	57	58	57	54	50	51
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	24	23	23	24	23	23	25	25	24	25	25	28	27	27	27	27	26	26	27	26	27	25	26	26
MED	47	47	46	44	43	44	54	64	66	73	70	70	70	72	72	70	70	70	69	66	63	58	53	50
UQ	50	50	48	46	45	46	60	70	74	76	76	76	75	74	76	74	75	75	74	71	68	63	56	52
LQ	44	42	42	42	40	42	52	57	64	66	65	65	68	66	66	66	64	66	64	63	58	54	50	47

SEP. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 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									440	440	A	460	470	460	C	C	C	C						
2									C	C	C	460	C	C	C	C								
3									C	C	C	C	C	C	470	430								
4									A	450	470	470	480	450	480	410	400							
5									C	C	C	A	480	470	460	460	410							
6									410	440	440	470	450	470	460	A	A							
7							350	400	420	440	460	460	440	460	440	430								
8							350	400	420	440	460	460	440	460	440	430								
9									410	460	440	440	A	A	A	440	A							
10									420	450	460	450	A	A	A	A								
11										420	440	450	480	460	450	430	400							
12								A	420	U 450	480	460	470	470	430	A								
13										440	460	460	450	460	470	440	400							
14											A	A	A	A	460	430	A							
15									410	450	460	460	460	B	470	420								
16									420	450	450	470	470	450	460	410								
17										460	460	430	500	U 470	L									
18									450	460	500	480	460		480	430	U 400							
19							360	420	430	440	470	450	460	470	470									
20									430	440	460	480	490	480										
21									A	450	A	470	480	470										
22										460	470	480	450	480		400								
23									450	U 450	450	490	470	470										
24										450	460	500	480	440	470									
25									420		470	U 460		480										
26									430	450		A	A	A										
27										440		480				400								
28									400	440	450	450	460	430	L									
29									C	C	C	C	C	C	C	C								
30									C	C	C	430	460											
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	3	16	23	20	25	21	19	15	14	5							
MED							350	400	420	450	460	460	470	470	460	430	400							
UQ							355	410	430	450	470	470	480	470	470	430	400							
LQ							350	400	415	440	450	450	460	460	455	410	400							

SEP. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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 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						E	195	I C 250	285	300	295	300	A	315	C	C	C	C	C					
2						C	C	C	C	C	C	325	C	C	C	C	C	C	C					
3						C	C	C	C	C	C	C	C	C	305	295	285	200	E					
4						S	205	270	295	300	A	R	320	325	310	300	260	205	S					
5						C	C	C	C	C	C	A	A	315	I A 305	300	260	205	S					
6						E	170	240	265	300	320	335	320	310	330	300	270	200	S					
7						E	200	255	290	300	300	305	300	300	320	300	260	205	S					
8						E	200	255	290	300	300	305	300	300	320	300	260	205	S					
9						A	A	A	295	A	A	A	305	305	A	A	A	A	A					
10						S	200	260	300	305	320	320	315	305	A	A	A	A	A					
11						E	200	250	300	310	325	330	A	315	305	290	250	A	A					
12						A	205	270	A	A	A	A	A	A	A	A	260	205	E					
13						S	210	270	300	315	325	335	335	320	300	A	A	215	A					
14						S	I A 190	250	300	310	335	335	340	320	295	A	A	A	A					
15						A	200	270	300	315	315	320	305	B	310	305	265	A	S					
16						A	205	270	300	300	315	A	A	A	315	300	A	200	S					
17						S	205	A	A	305	315	310	320	320	315	305	265	185	S					
18						S	195	260	300	305	310	325	315	A	A	A	265	A	S					
19							A	260	290	305	325	330	A	A	A	300	250	S						
20						S	S	260	300	310	315	A	A	A	305	290	245	190	S					
21							S	I B 240	280	300	B	A	R	320	310	A	265	S						
22							S	235	280	R	305	R	R	325	310	300	250	R						
23							S	260	300	300	295	A	B	B	305	295	250	S						
24							205	250	R	R	315	325	A	A	A	295	250	190						
25							210	265	300	315	320	330	330	315	310	295	R	A	E					
26							A	A	295	A	320	325	320	300	310	A	230	160						
27							195	260	290	300	300	305	305	320	310	290	240	S						
28							195	250	285	300	305	320	A	A	A	A	220	B						
29							C	C	C	C	C	C	C	C	C	C	C	C	C					
30							C	C	C	C	C	305	R	310	300	280	225	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						5	18	22	22	20	21	19	14	18	20	18	21	13	3					
MED						E	200	260	295	302	315	325	318	315	310	300	260	200	E					
UQ						E	205	265	300	310	320	330	320	320	312	300	265	205	E					
LQ						E	195	250	290	300	305	308	305	305	305	295	250	190	E					

The Radio Research Laboratories, Japan

SEP. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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 65	J X 24	J X 18	E	15	31	28	C	J X 44	J X 66	J X 53	38	J X 40	J X 43	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	G 29	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	G	34	31	J X 25	20	J X 23	J X 28	20	J X 34
4	E S 15	E	E S 15	E	E	E S 17	25	G	43	35	39	G	G 29	G	G	G	G 23	J X 23	J X 26	E S 16	J X 21	E S 17	J X 25	J X 25
5	J X 26	C	C	C	C	C	C	C	C	C	C	J X 75	40	G	32	G	38	34	J X 48	J X 31	J X 30	J X 25	E S 16	E
6	J X 33	E S 17	E	15	E	23	J X 34	J X 61	J X 36	34	G	G	G	G	G	J X 63	J X 60	J X 63	J X 63	J X 100	J X 28	J X 51	J X 30	E S 16
7	J X 23	J X 23	E	E	J X 21	21	29	31	34	35	41	36	35	43	G	G	G	26	J X 33	30	J X 33	J X 63	J X 21	E
8	J X 23	J X 23	E	E	J X 21	21	29	31	34	35	41	36	35	43	G	G	G	26	J X 33	30	J X 33	J X 63	J X 21	E
9	J X 30	J X 33	J X 21	J X 23	J X 23	J X 33	J X 33	J X 31	G	33	35	41	J X 58	J X 62	J X 44	41	J X 81	J X 53	J X 43	J X 28	J X 34	J X 50	J X 26	J X 23
10	J X 28	J X 24	J X 33	J X 65	17	E S 16	G	G 21	G	35	41	44	J X 49	J X 55	J X 64	J X 58	J X 61	J X 65	J X 55	J X 63	J X 36	20	J X 33	J X 23
11	21	E S 15	J X 21	J X 35	J X 30	20	30	G	36	G	G	G	40	G	G 20	G 25	G 20	21	18	J X 25	E S 17	J X 25	19	J X 23
12	J X 25	J X 33	J X 30	J X 33	16	28	G	43	J X 36	J X 38	J X 40	34	34	35	42	55	42	J X 46	J X 35	64	63	J X 41	J X 42	J X 29
13	E S 16	E S 17	E	J X 21	J X 33	E S 15	30	G 20	G	40	41	40	40	G	39	J X 78	J X 41	J X 38	J X 45	J X 35	J X 33	J X 30	24	J X 25
14	27	J X 25	J X 25	20	17	E S 16	22	G	G	G	45	J X 52	J X 51	J X 56	J X 44	J X 35	J X 44	J X 38	J X 51	J X 25	J X 25	J X 25	16	E S 15
15	E S 15	E S 15	17	E	J X 31	J X 24	23	G	G	G	38	36	42	E B 47	G	G	40	40	33	J X 41	J X 42	J X 33	J X 30	E S 17
16	E S 17	J X 23	18	J X 33	J X 31	J X 23	G	G	G	G	38	37	38	40	G 30	G 25	J X 31	25	24	E S 17	J X 25	25	E S 16	E S 17
17	E S 15	E S 16	E S 13	E S 15	E	E S 15	G	J X 33	J X 34	G 26	G	G 26	G	G	G	34	33	34	E S 16	J X 22	E S 16	E S 17	E S 15	E S 16
18	E S 15	23	E S 16	21	E	E S 15	G	G 22	G 30	G	G	G	G 24	35	34	31	G 23	26	J X 26	23	E S 16	E S 18	E S 16	E S 16
19	E S 16	21	E	E	E	J X 63	J X 32	39	28	40	G	G	38	35	40	G	J X 41	J X 31	E S 16	J X 35	E S 17	E S 16	J X 21	24
20	E S 15	E S 15	E	E	E	E S 14	E S 21	G 15	G	G	G	40	J X 45	43	33	33	G	23	J X 33	J X 63	J X 78	J X 33	J X 53	J X 28
21	J X 40	J X 24	J X 28	J X 32	J X 61	J X 23	J X 56	J X 61	J X 53	44	44	36	G	G	G 25	33	G	J X 35	J X 25	J X 38	J X 53	21	J X 25	21
22	E S 19	20	J X 23	20	20	E S 15	21	G	G	G	G 27	G	G	G	G	G	G	G	E S 15	E S 17	J X 55	J X 33	26	E S 16
23	E S 17	E S 17	E S 15	E S 14	E S 15	E S 16	25	31	G	G	J X 43	J X 50	E B 37	E B 38	G	G	G	24	E S 20	23	E S 17	J X 44	31	E S 19
24	E S 16	E S 15	E S 15	E	E S 15	E S 15	G	G	G	G	G	G	35	40	33	G	33	30	J X 29	E S 15	22	E S 18	J X 23	22
25	E S 16	E S 17	E	J X 24	E	E S 15	G	G	G	G	36	G	G	G	G 30	G	G	J X 30	E	C	E S 15	E S 15	E S 15	E S 15
26	E S 15	E S 16	22	21	18	E S 16	J X 31	27	G	J X 51	40	J X 60	J X 58	J X 63	39	39	38	32	J X 33	20	J X 45	J X 33	E S 15	E S 15
27	20	J X 21	J X 23	15	J X 23	J X 33	23	G	G	33	J X 43	34	G	39	G	33	30	26	J X 28	J X 35	J X 34	E S 15	E	E S 13
28	E S 17	18	J X 24	J X 25	J X 30	E	24	30	39	39	38	G	J X 51	J X 43	J X 34	28	G	E B 18	23	J X 28	J X 28	J X 33	J X 21	J X 25
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	G	G 18	J X 23	24	25	27	21	20	J X 30
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	25	25	25	25	24	25	25	25	28	27	27	27	27	27	27	27	26	27	27	27	27
MED	E S 18	20	17	20	17	17	24	G 22	G	33	38	35	37	36	G 30	G 25	31	30	J X 28	J X 28	J X 28	J X 25	21	19
UQ	J X 26	J X 23	J X 23	J X 24	J X 23	23	30	31	36	38	41	40	41	43	36	34	40	J X 36	J X 34	J X 35	J X 35	J X 33	J X 26	J X 24
LQ	E S 16	E S 16	E	E	E	E S 15	G	G	G	G	G	G	E G 24	G	G	G	G	24	24	22	22	19	16	E S 16

The Radio Research Laboratories, Japan

SEP. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 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	A	14	14	E	E	24	27	C	G	G	44	G	37	40	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	G 29	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	G	G	29	25	18	20	20	20	16
4	E S 15	E	E S 15	E	E	E S 17	G	G	42	G	38	G	G 29	G	G	G	G 20	18	20	E S 16	E	E S 17	25	22
5	27	C	C	C	C	C	C	C	C	C	C	60	38	G	32	G	38	32	48	26	27	23	E S 16	E
6	25	E S 17	E	13	E	17	33	50	35	G	G	G	G	G	G	50	44	40	60	30	E	30	20	E S 16
7	17	19	E	E	19	G	G	G	G	G	G	G	G	G	G	G	G	G	28	20	31	20	19	E
8	17	19	E	E	19	G	G	G	G	G	G	G	G	G	G	G	G	G	28	20	31	20	19	E
9	25	20	17	14	E	27	24	30	G	33	35	37	48	58	44	40	A	22	40	27	26	E	18	E
10	25	19	25	27	16	E S 16	G	G 20	G	G	G	43	47	47	58	51	53	A	50	36	27	18	22	19
11	E	E S 15	18	20	24	G	30	G	G	G	G	G	34	G	G 20	G 25	G 20	21	17	18	E S 17	E	17	20
12	22	27	22	30	16	16	G	43	33	34	34	34	34	35	40	55	40	44	28	34	50	19	20	22
13	E S 16	E S 17	E	20	20	E S 15	18	G 20	G	G 20	G	G	G	G	G	37	34	38	45	30	20	26	E	17
14	E	18	17	18	E	E S 16	22	G	G	G	45	50	48	53	42	32	42	25	20	19	18	18	E	E S 15
15	E S 15	E S 15	17	E	24	20	18	G	G	G	G 29	G 24	42	E B 47	G	G	G	30	35	20	36	22	25	E S 17
16	E S 17	17	17	22	24	16	G	G	G	G	G	37	37	36	G 25	G 25	27	G	G	E S 17	20	E	E S 16	E S 17
17	E S 15	E S 16	E S 13	E S 15	E	E S 15	G	31	34	G 24	G	G 25	G	G	G	G	G 15	G 15	E S 16	20	E S 16	E S 17	E S 15	E S 16
18	E S 15	E	E S 16	E	E	E S 15	G	G 22	G 27	G	G	G	G 24	35	34	30	G 23	22	24	E	E S 16	E S 18	E S 16	E S 16
19	E S 16	E	E	E	E	A	23	37	G	G	G	G	37	35	35	G	38	24	E S 16	32	E S 17	E S 16	E	20
20	E S 15	E S 15	E	E	E	E S 14	E S 21	G 15	G	G	G	38	44	40	G	G	G	G	30	30	43	30	27	25
21	30	20	22	18	20	20	36	G	48	41	44	36	G	G	G 25	30	G	34	E	28	42	20	20	20
22	E S 19	18	20	E	E	E S 15	G	G	G	G	G 27	G	G	G	G	G	G	G	E S 15	E S 17	20	32	E	E S 16
23	E S 17	E S 17	E S 15	E S 14	E S 15	E S 16	G	G	G	G	G	44	E B 37	E B 38	G	G	G	G	E S 20	E	E S 17	31	29	E S 19
24	E S 16	E S 15	E S 15	E	E S 15	E S 15	G	G	G	G	G	G	35	37	33	G	20	G	18	E S 15	E	E S 18	20	18
25	E S 16	E S 17	E	20	E	E S 15	G	G	G	G	G	G	G	G	G 29	G	G	20	E	C	E S 15	E S 15	E S 15	E S 15
26	E S 15	E S 16	E	E	14	E S 16	28	27	G	35	G	48	54	62	G 30	35	G	31	33	19	30	25	E S 15	E S 15
27	E	17	17	E	18	24	G	G	G	G	43	G	G	G	G	G	G	G	27	35	30	E S 15	E	E S 13
28	E S 17	16	17	17	18	E	G	G	G	G	G	G	40	36	30	27	G	E B 18	E	24	20	18	E	17
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	G	G 17	18	E	E	20	18	E	20
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	25	25	25	25	24	25	25	25	28	27	27	27	27	27	27	27	26	27	27	27	27
MED	E S 16	17	E S 15	E F 13	15	E F 16	G	G	G	G	G	G	34	E G 35	G 20	G	G 17	21	24	20	20	18	17	E F 17
UQ	22	18	17	18	19	17	23	24	G	G	34	37	39	38	32	31	36	30	32	30	30	22	20	20
LQ	E S 15	E S 15	E	E	E	E S 15	G	G	G	G	G	G	G	G	G	G	G	G	E F 16	17	17	E F 17	E F 15	E S 15

SEP. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 S 14	E	E	E	E	E	E	C	16	17	20	20	20	18	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	19	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	19	17	15	12	E	E S 15	E S 15	E S 15	E S 15	E S 15
4	E S 15	E	E S 15	E	E	E S 17	E	12	18	19	19	20	20	19	18	18	12	E	E S 16	E S 16	E S 15	E S 17	E S 15	E S 17
5	E S 15	C	C	C	C	C	C	C	C	C	C	24	18	19	20	16	12	12	E S 15	E S 15	E S 15	E	E S 16	E
6	E S 15	E S 17	E	E	E	E	11	12	18	19	20	27	20	20	18	17	11	14	E S 11	E S 17	E S 15	E	E S 16	E S 16
7	E S 16	E	E	E	E	E	12	18	20	15	20	20	19	19	17	17	12	11	E S 12	E S 15	E	E	E S 17	E
8	E	E	E	E	E	E	11	15	17	17	17	20	23	18	20	18	16	14	E S 12	E S 12	E	E	E S 15	E
9	E	E	E S 13	E	E	E	12	13	18	18	19	20	21	20	19	19	16	11	E	E S 16	E S 15	E S 14	E S 18	E S 17
10	E S 15	E	E	E	E	E S 16	11	13	17	18	17	19	20	19	19	11	16	E	E	E	E	E	E S 16	E
11	E S 16	E S 15	E	E	E S 13	E	15	15	18	17	20	18	19	18	13	11	16	11	E	E S 15	E S 17	E S 15	E	E
12	E S 13	E	E	E	E	E	11	12	17	17	20	18	20	20	12	17	12	17	E	E	E S 15	E S 16	E S 15	E S 15
13	E S 16	E S 17	E	E	E	E S 15	11	12	11	17	18	18	20	21	17	16	15	12	E	E S 15	E	E S 15	E S 17	E
14	E S 16	E	E	E	E	E S 16	12	16	17	20	20	18	20	17	19	17	16	11	E	E	E S 15	E S 15	E	E S 15
15	E S 15	E S 15	E	E	E	E	11	12	16	20	18	19	18	47	20	17	17	11	E S 17	E S 16	E S 16	E S 17	E S 16	E S 17
16	E S 17	E	E	E	E	E	14	12	18	19	20	19	20	16	18	16	11	17	E S 15	E S 17	E S 15	E S 18	E S 16	E S 17
17	E S 15	E S 16	E S 13	E S 15	E	E S 15	12	11	17	17	18	20	20	21	18	18	E	E	E S 16	E S 13	E S 16	E S 17	E S 15	E S 16
18	E S 15	E S 15	E S 16	E S 16	E	E S 15	15	17	18	18	20	20	18	18	17	18	12	12	E S 15	E	E S 16	E S 18	E S 16	E S 16
19	E S 16	E S 16	E	E	E	E S 15	E	17	17	17	21	19	20	18	18	15	13	E S 16	E S 16	E	E S 17	E S 16	E S 15	E S 16
20	E S 15	E S 15	E	E	E	E S 14	E S 21	11	19	20	20	20	20	20	20	20	19	18	E S 13	E S 15	E S 15	E S 15	E S 16	E S 16
21	E S 16	E S 14	E S 13	E S 15	E S 15	E S 15	E S 18	25	17	20	29	27	27	24	19	17	20	E S 19	E	E S 17	E S 17	E S 16	E S 15
22	E S 19	E	E	E S 17	E S 16	E S 15	E S 18	16	20	20	19	17	17	22	22	22	20	12	E S 15	E S 17	E S 17	E S 17	E S 17	E S 16
23	E S 17	E S 17	E S 15	E S 14	E S 15	E S 16	E S 20	17	18	26	21	22	37	38	20	19	17	E S 20	E S 20	E S 19	E S 17	E S 15	E S 17	E S 19
24	E S 16	E S 15	E S 15	E	E S 15	E S 15	17	17	18	21	20	20	20	20	23	18	17	16	E	E S 15	E S 17	E S 18	E S 15	E S 16
25	E S 16	E S 17	E	E S 15	E	E S 15	15	17	17	19	19	20	20	19	18	17	16	12	E	C	E S 15	E S 15	E S 15	E S 15
26	E S 15	E S 16	E S 15	E S 17	E	E S 16	E	12	17	17	20	20	19	20	17	15	11	12	E S 14	E S 12	E S 15	E S 15	E S 15	E S 15
27	E S 15	E S 15	E	E	E	E	15	11	17	20	18	20	18	18	20	18	17	E S 15	E S 15	E S 15	E	E S 15	E	E S 13
28	E S 17	E	E	E	E	E	12	17	17	17	17	19	17	16	18	17	12	18	E	E	E	E	E	E
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	18	26	18	16	17	12	E	E S 15	E S 15	E S 15	E S 15	E S 16	E
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	25	25	25	25	25	24	25	25	25	28	27	27	27	27	27	27	27	26	27	27	27	27
MED	E S 15	E S 15	E	E	E	E S 15	12	14	17	18	20	20	20	19	18	17	15	12	E S 12	E S 15	E S 15	E S 15	E S 16	E S 15
UQ	E S 16	E S 16	E S 13	E S 14	E	E S 15	14	17	18	20	20	20	20	20	20	18	16	14	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16
LQ	E S 15	E	E	E	E	E	11	12	17	17	18	19	19	18	18	16	12	11	E	E S 12	E S 15	E S 14	E S 15	E

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SEP. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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	A	F 280	F	F 275	290	295	315	I C 310	285	330	345	335	285	310	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	340	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	310	300	300	295	295	300	300	300	300	290
4	280	290	300	295	300	315	310	360	325	350	345	295	300	315	295	305	315	310	290	295	300	310	315	300
5	285	C	C	C	C	C	C	C	C	C	C	335	320	305	300	290	310	305	305	315	320	320	310	275
6	270	275	290	300	285	230	365	335	330	I R 345	330	325	325	310	315	335	300	310	I A 290	295	305	300	300	280
7	275	270	275	295	295	A	A	A	A	315	280	305	315	305	315	335	325	310	305	295	285	290	295	295
8	280	270	280	265	260	275	290	305	350	320	305	285	290	315	335	330	315	320	295	280	280	285	290	285
9	285	280	285	305	330	320	340	315	325	295	335	310	295	320	325	330	A	310	295	290	295	310	285	285
10	280	285	280	280	F	315	335	310	310	335	315	300	330	300	I A 300	300	305	A	315	295	310	F	F	F
11	280	F 275	F 295	310	310	320	335	345	335	330	320	315	315	315	325	325	330	325	330	290	295	310	280	280
12	275	280	285	300	340	315	340	335	325	315	335	340	330	330	340	305	305	315	325	310	310	285	285	295
13	295	280	275	285	280	315	315	335	330	335	320	290	310	290	305	310	315	305	325	285	285	290	280	275
14	260	260	270	280	270	290	315	320	340	320	285	335	320	300	310	320	325	320	300	300	315	295	290	275
15	280	280	290	290	295	300	340	335	330	335	340	330	290	320	310	315	325	320	305	280	285	305	275	280
16	280	270	285	280	280	295	350	340	345	345	345	325	315	330	325	335	315	325	330	310	290	295	310	290
17	285	285	295	295	315	335	360	345	335	340	350	330	305	315	330	345	320	335	325	320	300	305	290	285
18	280	280	285	295	325	320	335	335	320	330	310	315	295	285	290	315	315	325	315	320	260	275	270	265
19	275	300	300	275	280	A	300	305	310	340	320	300	325	320	330	325	330	315	330	305	295	305	300	290
20	I S 285	285	280	I S 280	295	295	315	330	320	335	325	330	330	325	315	320	330	340	330	285	300	295	285	280
21	265	275	300	300	305	285	305	335	330	340	340	325	330	335	330	330	325	335	320	290	310	310	280	290
22	295	S	290	300	290	300	335	340	345	345	340	330	315	325	325	325	330	335	315	285	285	285	280	285
23	285	300	300	305	325	320	335	340	I R 330	340	335	330	340	330	335	335	325	335	330	295	300	F	I S 290	295
24	285	300	280	290	300	300	340	345	R	340	345	320	335	315	325	340	315	335	335	300	300	290	290	300
25	295	285	285	290	320	300	370	340	335	335	340	325	315	300	305	300	315	325	320	C	300	275	275	285
26	280	280	280	290	295	300	315	335	345	305	320	300	330	325	330	345	325	340	335	385	285	285	270	280
27	275	285	285	285	300	S 320	325	325	345	315	315	310	320	310	320	325	340	340	300	290	285	295	270	280
28	F	F	F	F	F	F	335	335	355	335	340	325	350	325	330	330	350	345	305	300	305	300	290	290
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	330	335	325	345	340	335	340	315	295	305	305	285	280
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	23	23	24	23	22	24	24	23	25	25	28	27	27	27	27	26	26	27	26	27	25	26	26
MED	280	280	285	290	295	300	335	335	330	335	335	325	320	315	325	325	322	325	315	295	300	295	288	285
UQ	285	285	292	300	312	320	340	340	342	340	340	330	330	325	330	335	330	335	328	305	305	305	295	290
LQ	275	275	280	280	288	295	315	322	325	320	320	308	308	308	310	312	315	310	302	290	285	290	280	280

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

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									365	370	A	390	365	370	C	C	C	C						
2									C	C	C	370	C	C	C	C								
3									C	C	C	C	C	C	345	350								
4									A	365	375	380	355	375	335	365	365							
5									C	C	C	A	360	360	355	330	A							
6									415	385	410	380	375	365	370	A	A							
7							335	340	385	385	385	380	385	360	365	350								
8							335	340	385	385	385	380	385	360	365	350								
9									380	360	390	380	A	A	A	A	A							
10									355	365	365	A	A	A	A	A								
11										405	395	400	355	375	365	375	355							
12								A	380	375	350	370	380	370	A	A								
13										385	390	395	400	370	345	A	A							
14											A	A	A	A	A	360	A							
15									390	375	365	380	A	B	355	380								
16									395	375	385	380	365	370	370	390								
17										370	385	420	350	365	L									
18									365	385	340	355	370		355	360	350							
19							310	380	370	380	370	375	370	370	365									
20									380	390	370	360	A	360										
21									A	A	A	370	360	360										
22										370	380	375	380	355		375								
23									375	375	400	365	370	365										
24										380	390	360	375	390	360									
25									405		375	380		355										
26									370	395		A	A	A										
27										370		355				375								
28									420	380	375	375	370	385	L									
29									C	C	C	C	C	C	C	C								
30									C	C	C	390	370											
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	3	16	22	20	24	19	19	13	12	3							
MED							335	340	380	378	382	380	370	365	360	362	355							
UQ							335	360	392	385	390	380	378	370	365	375	360							
LQ							322	340	370	370	370	370	362	360	355	350	352							

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

IONOSPHERIC DATA

SEP. 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	275	260	290	310	305	C	C	C	C						
2									C	C	C	280	C	C	C	C								
3									C	C	C	C	C	C	290	285								
4									265	245	270	285	300	280	315	280	275							
5									C	C	C	A	305	290	310	325	280							
6									250	245	275	295	300	300	290	275	300							
7							320	320	245	300	295	320	290	305	300	285								
8							320	320	245	300	295	320	290	305	300	285								
9									270	300	275	300	330	310	300	275	A							
10									300	275	300	320	280	310	A	A								
11										280	280	290	300	300	275	280	275							
12								265	265	275	270	265	300	275	270	A								
13										270	260	265	290	280	300	275	275							
14											300	275	300	315	300	270	265							
15									250	265	270	260	305	295	300	265								
16									240	250	260	270	295	280	295	260								
17										270	250	275	315	275	280									
18									280	260	300	275	280		295	260	270							
19							370	320	305	260	290	270	295	295	290									
20									275	260	270	295	290	290										
21									265	260	270	300	295	275										
22										255	250	270	270	295		260								
23									250	250	265	265	270	275										
24										250	260	270	265	260	275									
25									240		260	260		315										
26									250	255		275	265	295										
27										295		305				270								
28									225	270	270	270	250	280	265									
29									C	C	C	C	C	C	C	C								
30									C	C	C	260	260											
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	4	18	23	23	27	25	24	18	15	7							
MED							320	320	258	265	270	275	295	295	295	275	275							
UQ							345	320	275	275	285	295	300	305	300	282	278							
LQ							320	292	245	255	260	270	280	280	280	268	272							

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SEP. 1971 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 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 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	A	280	260	260	275	255	250	I C 250	215	225	A	200	210	250	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	205	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	210	225	250	235	260	240	250	245	245	275
4	275	250	250	250	240	230	230	230	I A 230	245	215	210	200	205	200	210	230	250	255	250	250	225	230	250
5	305	C	C	C	C	C	C	C	C	C	C	A	230	210	225	245	A	260	A	245	230	225	215	275
6	335	300	260	265	250	245	230	A	205	225	195	210	210	230	240	A	A	A	A	275	230	260	260	265
7	275	320	300	320	320	300	275	250	230	215	225	205	210	230	225	240	220	250	260	270	310	270	250	270
8	275	320	300	320	320	300	275	250	230	215	225	205	210	230	225	240	220	250	260	270	310	270	250	270
9	300	300	265	250	225	250	210	235	210	215	210	230	A	A	A	A	A	245	A	260	250	250	270	295
10	310	295	315	A 315	260	250	240	220	230	235	240	A	A	A	A	A	A	A	A	A 275	265	290	300	270
11	280	270	260	270	270	230	240	230	235	200	200	200	195	200	200	205	225	245	230	260	245	235	265	290
12	300	295	290	285	225	235	245	I A 240	230	215	210	220	210	240	I A 215	A	A	A	250	A 255	A	265	285	250
13	250	275	290	290	275	250	230	225	220	220	215	205	200	200	240	A	A	A	A	A 270	270	260	260	265
14	275	300	305	290	290	260	240	200	240	220	A	A	A	A	A	250	A	255	260	250	240	235	250	270
15	300	300	295	270	280	250	235	225	210	225	210	210	A	B	225	250	250	245	I A 250	270	A	250	250	260
16	275	285	275	295	300	260	235	235	230	215	205	210	200	215	225	235	225	260	245	225	265	255	235	265
17	265	295	275	275	245	230	215	225	245	230	220	195	200	245	235	230	250	250	225	240	250	235	250	270
18	300	295	290	270	225	250	215	230	205	235	205	225	205	230	250	245	235	245	250	240	275	290	275	305
19	300	260	250	295	300	A	275	240	230	205	210	200	230	235	250	240	A	250	235	250	250	260	260	290
20	270	285	295	270	260	295	255	235	215	210	200	220	A	235	250	250	250	245	240	300	A	290	305	320
21	360	305	275	250	250	295	A	225	A	A	I A 210	200	250	210	240	240	250	245	235	265	I A 270	250	280	300
22	300	295	300	250	260	250	240	230	225	215	210	195	200	235	245	220	245	240	215	245	275	A 320	295	290
23	285	270	260	265	240	250	230	245	225	240	200	250	200	225	235	235	245	250	225	255	250	310	320	275
24	290	270	290	270	260	260	235	230	225	225	190	215	230	220	240	250	225	245	235	240	250	260	270	260
25	275	280	270	265	225	260	225	225	210	215	210	210	210	205	245	250	250	245	230	C	245	260	265	255
26	250	280	250	275	240	240	245	250	250	220	225	A	A	A	260	245	250	245	230	235	300	300	275	260
27	300	285	280	270	260	270	230	240	220	210	I A 235	205	235	255	240	245	245	230	250	A 300	300	250	300	275
28	300	295	275	255	280	265	250	240	225	215	210	215	240	200	220	250	240	230	230	260	260	270	265	275
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	200	205	205	215	230	240	220	225	260	260	250	295	300
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	25	25	25	25	24	24	24	24	24	23	24	21	22	24	22	19	23	22	26	24	27	27	27
MED	290	295	275	270	260	250	238	232	225	218	210	208	210	228	235	240	245	245	238	258	255	260	265	270
UQ	300	300	295	290	280	262	248	240	230	225	218	215	230	235	242	250	250	250	250	270	272	270	282	290
LQ	275	280	260	265	240	248	230	225	215	215	205	200	200	205	222	230	228	245	230	245	250	250	250	265

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SEP. 1971 | H'F (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	100	110	E	110	115	115	C	115	110	105	110	105	110	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	105	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	G	G	125	115	110	110	105	100	105	100
4	S	E	S	E	E	S	120	G	110	110	105	G	100	G	G	G	105	100	100	S	110	S	105	105
5	105	C	C	C	C	C	C	C	C	C	C	105	105	G	105	G	120	120	110	110	110	110	S	E
6	105	S	E	100	E	115	110	110	110	115	G	G	G	G	G	120	115	115	115	110	110	105	105	S
7	105	105	E	E	120	120	120	120	120	115	110	110	110	115	G	G	G	120	115	115	110	110	110	E
8	105	105	E	E	120	120	120	120	120	115	110	110	110	115	G	G	G	120	115	115	110	110	110	E
9	105	105	105	100	105	100	105	105	G	110	105	115	110	110	110	110	105	105	105	105	105	110	110	105
10	105	100	100	105	100	S	G	110	G	125	120	110	110	110	110	110	105	105	105	105	110	120	110	105
11	100	S	105	120	120	125	120	G	120	G	G	G	110	G	105	105	105	100	100	110	S	110	105	105
12	100	100	100	105	100	100	G	120	110	110	105	105	105	105	105	120	125	125	115	115	110	115	105	100
13	S	S	E	100	100	S	100	105	G	125	120	115	115	G	115	110	110	125	115	110	115	110	100	110
14	100	100	105	105	110	S	110	G	G	G	125	115	115	110	110	105	100	100	105	100	100	100	100	S
15	S	S	105	E	105	105	105	G	G	G	120	120	115	B	G	G	140	125	120	115	110	110	105	S
16	S	100	100	100	100	100	G	G	G	G	115	105	105	105	105	105	105	150	125	S	100	100	S	S
17	S	S	S	S	E	S	G	105	100	100	G	105	G	G	G	145	135	120	S	100	S	S	S	S
18	S	100	S	100	E	S	G	110	110	G	G	G	105	105	105	105	105	100	115	100	S	S	S	S
19	S	100	E	E	E	110	105	115	115	120	G	G	110	110	110	G	120	120	S	110	S	S	100	100
20	S	S	E	E	E	S	S	105	G	G	G	110	110	105	120	150	G	140	120	110	110	105	105	105
21	100	105	105	105	110	115	120	115	110	115	110	110	G	G	105	105	G	120	115	115	110	110	105	105
22	S	105	100	100	100	S	120	G	G	G	100	G	G	G	G	G	G	G	S	S	115	110	105	S
23	S	S	S	S	S	S	150	150	G	G	110	105	B	B	G	G	G	140	S	110	S	110	100	S
24	S	S	S	E	S	S	G	G	G	G	G	G	105	105	105	G	105	100	105	S	100	S	100	100
25	S	S	E	100	E	S	G	G	G	G	120	G	G	G	110	G	G	105	E	C	S	S	S	S
26	S	S	115	110	110	S	110	105	G	105	120	110	110	110	150	105	120	120	110	105	105	105	S	S
27	105	110	110	110	110	105	150	G	G	115	110	115	G	125	G	145	125	120	115	110	110	S	E	S
28	S	125	115	115	110	E	145	125	115	115	110	G	110	105	105	105	G	B	115	110	110	110	110	105
29	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
30	C	C	C	C	C	C	C	C	C	C	C	G	G	G	G	G	100	100	100	100	100	100	110	110
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	12	14	13	15	16	12	17	15	12	15	18	18	19	15	16	15	19	25	22	22	21	20	20	13
MED	105	102	105	105	110	112	120	110	112	115	110	110	110	110	108	110	110	120	115	110	110	110	105	105
UQ	105	105	110	108	110	118	120	120	118	115	120	115	110	110	110	120	122	120	115	110	110	110	110	105
LQ	100	100	100	100	100	102	110	105	110	110	105	105	105	105	105	105	105	105	105	105	105	105	102	100

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SEP. 1971 | H'ES (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1	F2	F2		F1	C2	C2		C1	C2	C2	C1	L2	C2										
2												L1												
3																	C1	C2	C2	F1	F1	F2	F1	F1
4							C1		C2	C1	L2		L1				L1	L1	L1		F1		F2	F2
5	F2											L2	L3		L1		CL11	CL21	C3	F3	F2	F2		
6	F3			F1		C1	C2	C4	C2	C1						C2	C4	C4	C3	F3	F1	F3	F3	
7	F2	F3	F2	F4	F4	L2	C3	C3	C2	L2	L1	L1	L1	C2		C1	L1	L1	C2	F3	F3	F1	F2	F1
8	F2	F3			F2	C1	C2	C1	C1	C1	C2	C1	C1	C1				C1	C2	F2	F3	F2	F1	
9	F2	F2	F2	F2	F1	L3	L1	L1		L1	L2	CL11	C1	C3	L2	L2	L4	L1	L4	F3	F2	F2	F2	F1
10	F2	F1	F3	F3	F2			L1		C1	C1	C2	C2	C2	L3	L3	L3	L6	L3	F4	F2	F1	F3	F2
11	F2		F1	FF11	F3	C1	C3		C1				L1		L1	L1	L1	L3	L1	F2		F1	F1	F2
12	F2	F2	F3	F3	F1	L1		C2	L1	L1	L1	L1	L1	L1	L2	CL12	C2	C4	C2	FF12	FF23	F1	F2	F2
13				F1	F2		LH11	L1		CL11	C1	C1	C1		C1	L2	L2	C2	CL51	F2	F2	F2	F1	F2
14	F1	F1	F2	F1	F1		L1				C1	C2	C2	C2	C2	L2	L2	L2	L1	F1	F1	F1	F1	
15			F1		F3	L1	L1				CL11	CL12	C1				H1	CL11	CL31	F2	F2	F3	F2	
16		F2	F1	F2	F2	L1					C1	L1	L1	L2	L1	L1	L2	H1	C1		F1	F1		
17								L2	L1	L1		L1				H1	HL11	CL21		F1				
18		F1		F1				L1	L1				L1	L1	L1	L2	L1	L1	C2	F1				
19		F1				F2	L2	CL12	C2	C1			L1	L1	L1		C3	C1		F2			F1	F1
20								L1				L1	L2	L1	C1	H1		H1	C4	F3	F3	F2	F2	F1
21	F2	F2	F2	F2	F2	F2	C2	C2	C2	C2	C1	L1			L1	L1		C2	F2	F2	F3	F1	F1	F1
22		F1	F2	F1	F1		C1				L1										F1	F3	F1	
23							H1	H1			C1	L2						H1		F1		F2	F1	
24													L1	L1	L1		L1	L1	F1		F1		F2	F1
25				F2							C1							L2						
26			F1	F1	F1		L2	L2		L1	C1	C2	C2	C3	HL11	L2	C1	C3	F3	F2	F2	F3		
27	F1	F1	F2	F1	F2	F3	H1			C1	C2	C1		C1		H1	C1	C1	F2	F3	F3			
28		F1	F2	F2	F2		H1	C1	C1	C1	C1		L1	L2	L1	L1			F1	F3	F2	F2	F1	F3
29																								
30																	L1	L1	F1	F1	F1	F1	F1	F2
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

SEP. 1971 | TYPES OF ES

IONOSPHERIC DATA

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

SEP. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 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								C	A	C	L 450	C	C	C	C	C	C	A						
2								L	L 430	L	470	I C 480	470	470	I C 460	420	L 410	L						
3								A	L 420	450	470	480	480	470	470	430	L	A						
4								L	410	460	C	C	C	C	C	C	A	L						
5								C	C	450	450	I A 460	470	460	460	450	420	L						
6								L	A	H 510	460	H 470	I C 480	470	I C 460	430	L	C						
7								410	A	A	A	I A 460	470	460	440	I C 420	U L 460							
8							L	A	410	450	460	I C 490	I C 470	500	C	C	C							
9									400	470	460	C	C	480	450	440	L	C						
10								L	430	450	460	I A 460	I A 470	450	470	420	L	L						
11									L 460	I A 460	460	480	450	H 490	440	L	L							
12								L	L	460	470	460	460	450	460	430	L 410	L						
13									U L 440	450	450	470	H 510	H 470	470	440	L	L						
14								L	L	440	450	500	510	470	470	A	A	A						
15									U L 410	450	470	470	470	480	U L 490	U L 450	L	L						
16									L	440	470	470	480	480	470	L	L							
17									L	460	450	480	470	490	450	L	L							
18								L	U L 460	L	500	490	500	L 520	H 470	U L 440	L							
19								390	430	480	L	470	470	500	470	A	L							
20									L	L	L 490	480	500	L 500	L	L 460	A							
21								L	L 430	L	470	460	L 470	L 480	470	430	L							
22								L	410	L 460	L	L	H 470	470	450	L	L							
23								L	L	U L 460	480	470	470	470	L 460	L	L							
24									L	L	490	480	490	500	L	L	L							
25									C	C	C	C	C	C	C	C	L							
26									L	L	U L 580	500	L	470	L	L	L							
27									U L 400	U L 450	L 450	C	C	C	C	C	C							
28									C	L 450	490	470	470	480	450	U L 400	L							
29									L	L	460	L 470	470	450	U L 450	L	L							
30									L	430	480	L 510	480	460	L	L								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	13	20	25	24	24	26	21	15	4							
MED								400	L 420	450	470	470	470	470	460	430	L 415							
UQ									L 430	460	480	480	480	480	470	440	440							
LQ									410	450	460	465	470	460	450	425	L 410							

SEP. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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						C	C	C	285	C	A	C	C	C	C	C	C	225	S					
2							A	A	A	A	A	I C 365	370	350	I C 330	300	I A 270	A	S					
3							A	A	A	A	335	345	A	A	340	305	A	A	S					
4							200	I A 265	I A 295	325	C	C	C	C	C	C	A	A	S					
5							C	C	C	A	A	A	360	I A 350	330	290	260	A	S					
6							A	A	A	A	A	355	I C 360	I A 360	I C 340	300	260	C	S					
7							A	A	285	A	A	A	A	A	345	C	A	A	S					
8							A	A	A	A	A	C	C	A	C	C	C	A	S					
9							205	250	I A 290	315	I A 340	C	C	A	A	A	A	C	S					
10							A	I A 270	A	A	A	I A 345	I A 355	I A 355	340	I A 310	275	215	S					
11							210	260	300	325	I A 335	I A 340	I A 350	355	335	300	260	A	B					
12							205	I A 255	305	A	A	A	A	345	325	290	250	205	S					
13							A	255	295	320	335	340	345	355	335	I A 310	270	A	S					
14							200	260	305	330	340	A	A	A	A	A	A	A	S					
15							A	255	300	I A 325	335	345	355	I B 350	345	I A 310	270	A	S					
16							A	255	300	325	A	A	I A 345	355	I A 345	I A 315	265	215	S					
17							B	255	295	330	335	345	355	350	335	305	265	A	S					
18							B	250	295	I A 330	I A 340	345	I A 355	355	335	300	270	A	S					
19							B	A	I A 290	I A 315	335	345	350	355	340	310	A	A	S					
20							B	I A 250	295	325	335	350	I A 355	I A 350	I A 330	310	260	A	S					
21							A	A	305	A	A	A	I R 350	350	325	305	270	A	S					
22							R	255	A	A	I R 315	I A 335	340	350	I A 325	300	255	190	S					
23							B	240	295	330	340	345	R 350	355	340	320	265	A						
24							175	250	295	325	I A 340	350	355	350	I A 330	I A 300	265	A						
25							185	260	C	C	C	C	C	C	C	C	A	A						
26							S	255	305	325	340	350	I A 355	350	330	290	I A 250	A						
27							A	I A 245	I A 295	325	340	C	C	C	C	C	C	C						
28							C	C	C	A	A	A	355	350	A	A	A	A						
29							B	250	300	320	335	345	350	350	330	I A 300	I A 265	200						
30							A	255	290	315	I A 330	R 340	350	340	325	300	260	200						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							7	20	21	17	17	17	20	21	22	21	19	7						
MED							200	255	295	325	335	345	355	350	335	300	265	205						
UQ							205	258	300	325	340	350	355	355	340	310	270	215						
LQ							192	250	295	320	335	345	350	350	330	300	260	200						

SEP. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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

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	J_{20}^{X}	C	C	C	C	C	C	C	J_{47}^{X}	C	J_{44}^{X}	C	C	C	C	C	C	J_{54}^{X}	J_{48}^{X}	J_{87}^{X}	J_{91}^{X}	J_{81}^{X}	J_{75}^{X}	J_{79}^{X}
2	J_{35}^{X}	J_{37}^{X}	J_{38}^{X}	J_{25}^{X}	J_{30}^{X}	J_{38}^{X}	30	33	J_{44}^{X}	J_{41}^{X}	37	C	G	G	C	35	35	J_{29}^{X}	J_{48}^{X}	E_{13}^{S}	J_{29}^{X}	J_{34}^{X}	J_{21}^{X}	E_{13}^{S}
3	J_{29}^{X}	J_{19}^{X}	J_{19}^{X}	J_{20}^{X}	J_{19}^{X}	E_{13}^{S}	24	J_{38}^{X}	38	34	G	G	J_{38}^{X}	J_{49}^{X}	J_{47}^{X}	39	J_{44}^{X}	J_{58}^{X}	J_{63}^{X}	J_{43}^{X}	J_{43}^{X}	J_{29}^{X}	J_{26}^{X}	J_{28}^{X}
4	J_{24}^{X}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E_{13}^{S}	G	J_{28}^{X}	32	33	C	C	C	C	C	C	J_{51}^{X}	J_{28}^{X}	J_{28}^{X}	J_{20}^{X}	J_{26}^{X}	E_{13}^{S}	J_{24}^{X}	J_{21}^{X}
5	J_{25}^{X}	J_{27}^{X}	C	J_{18}^{X}	C	C	C	C	C	34	J_{45}^{X}	J_{56}^{X}	G	40	J_{29}^{G}	34	36	J_{29}^{X}	J_{20}^{X}	J_{26}^{X}	J_{69}^{X}	J_{63}^{X}	J_{37}^{X}	E_{13}^{S}
6	E_{13}^{S}	E_{13}^{S}	J_{21}^{X}	J_{21}^{X}	J_{17}^{X}	E_{13}^{S}	23	J_{38}^{X}	J_{47}^{X}	J_{42}^{X}	38	G	C	J_{37}^{X}	C	J_{47}^{X}	38	C	J_{30}^{X}	J_{83}^{X}	J_{96}^{X}	J_{54}^{X}	J_{24}^{X}	J_{33}^{X}
7	J_{40}^{X}	J_{24}^{X}	E_{13}^{S}	J_{19}^{X}	E_{13}^{S}	J_{34}^{X}	25	J_{43}^{X}	J_{58}^{X}	J_{67}^{X}	J_{99}^{X}	J_{64}^{X}	J_{54}^{X}	J_{48}^{X}	J_{33}^{G}	C	J_{35}^{X}	J_{40}^{X}	J_{44}^{X}	J_{43}^{X}	J_{68}^{X}	J_{67}^{X}	J_{83}^{X}	J_{59}^{X}
8	J_{93}^{X}	J_{43}^{X}	J_{29}^{X}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	J_{29}^{X}	J_{54}^{X}	J_{43}^{X}	35	35	C	C	38	C	C	C	J_{43}^{X}	J_{74}^{X}	J_{42}^{X}	J_{23}^{X}	J_{30}^{X}	J_{55}^{X}	J_{43}^{X}
9	J_{43}^{X}	J_{29}^{X}	J_{25}^{X}	J_{26}^{X}	J_{19}^{X}	E_{13}^{S}	G	29	J_{33}^{X}	G	J_{43}^{X}	C	C	J_{48}^{X}	J_{43}^{X}	J_{34}^{X}	J_{29}^{X}	C	J_{38}^{X}	J_{38}^{X}	J_{37}^{X}	J_{19}^{X}	E_{14}^{S}	E_{14}^{S}
10	E_{14}^{S}	E_{13}^{S}	J_{23}^{X}	J_{21}^{X}	J_{29}^{X}	E_{14}^{S}	J_{28}^{X}	30	34	36	43	52	J_{50}^{X}	J_{43}^{X}	G	31	G	G	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	J_{29}^{X}	J_{29}^{X}	J_{26}^{X}
11	J_{21}^{X}	J_{20}^{X}	E_{13}^{S}	E_{13}^{S}	J_{18}^{X}	E_{13}^{S}	G	31	G	J_{44}^{X}	J_{54}^{X}	37	J_{43}^{X}	34	G	G	G	J_{23}^{X}	E_{20}^{B}	J_{23}^{X}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
12	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	J_{23}^{X}	J_{24}^{X}	G	29	G	34	36	41	J_{44}^{X}	G	35	36	36	27	J_{27}^{X}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	J_{28}^{X}	E_{14}^{S}
13	E_{14}^{S}	J_{19}^{X}	J_{18}^{X}	J_{19}^{X}	J_{18}^{X}	E_{13}^{S}	29	30	31	36	35	36	G	G	G	32	G	25	J_{59}^{X}	J_{46}^{X}	J_{53}^{X}	J_{36}^{X}	J_{43}^{X}	J_{33}^{X}
14	J_{21}^{X}	J_{19}^{X}	J_{18}^{X}	J_{28}^{X}	J_{21}^{X}	J_{21}^{X}	G	28	G	G	37	37	42	J_{46}^{X}	J_{43}^{X}	J_{50}^{X}	J_{86}^{X}	J_{57}^{X}	J_{44}^{X}	J_{28}^{X}	J_{24}^{X}	J_{29}^{X}	J_{24}^{X}	E_{14}^{S}
15	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	35	G	G	36	37	J_{37}^{X}	G	E_{38}^{B}	G	36	32	30	23	E_{13}^{S}	J_{25}^{X}	J_{33}^{X}	E_{13}^{S}	J_{58}^{X}
16	J_{49}^{X}	J_{21}^{X}	J_{20}^{X}	J_{19}^{X}	J_{23}^{X}	J_{30}^{X}	J_{29}^{X}	28	35	35	36	36	37	G	J_{36}^{X}	J_{34}^{X}	G	G	J_{28}^{X}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
17	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{21}^{B}	30	32	G	G	G	G	38	38	34	36	29	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}
18	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{22}^{B}	G	G	35	J_{40}^{X}	G	J_{39}^{X}	G	G	G	31	26	J_{25}^{X}	J_{21}^{X}	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}
19	E_{14}^{S}	J_{20}^{X}	E_{13}^{S}	J_{23}^{X}	E_{13}^{S}	E_{13}^{S}	E_{21}^{B}	27	36	33	G	G	G	G	36	J_{51}^{X}	36	J_{43}^{X}	J_{28}^{X}	J_{38}^{X}	E_{13}^{S}	J_{25}^{X}	E_{14}^{S}	E_{14}^{S}
20	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{23}^{B}	28	36	41	38	G	36	38	J_{42}^{X}	G	J_{44}^{X}	J_{53}^{X}	J_{29}^{X}	J_{29}^{X}	J_{79}^{X}	E_{13}^{S}	E_{13}^{S}	J_{17}^{X}
21	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E_{13}^{S}	23	31	J_{50}^{X}	J_{55}^{X}	J_{40}^{X}	J_{43}^{X}	G	G_{28}	G	35	J_{46}^{X}	J_{40}^{X}	J_{60}^{X}	J_{26}^{X}	J_{81}^{X}	J_{35}^{X}	J_{35}^{X}	J_{23}^{X}
22	J_{28}^{X}	J_{24}^{X}	J_{21}^{X}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	G	G	J_{36}^{X}	J_{38}^{X}	G	36	G	G	35	G	G	G	E_{14}^{S}	J_{23}^{X}	J_{25}^{X}	J_{23}^{X}	J_{18}^{X}	J_{20}^{X}
23	E_{18}^{B}	J_{22}^{X}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	E_{14}^{S}	22	28	32	G	G	35	G	G	G	G	30	25	J_{21}^{X}	J_{28}^{X}	J_{26}^{X}	E_{13}^{S}	J_{29}^{X}	J_{20}^{X}
24	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	G	G	G	G	35	G	G	G	36	31	J_{28}^{X}	J_{23}^{X}	J_{39}^{X}	J_{30}^{X}	J_{39}^{X}	J_{29}^{X}	E_{13}^{S}	J_{23}^{X}
25	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E	E	J_{19}^{X}	G	G	C	C	C	C	C	C	C	C	J_{34}^{X}	J_{29}^{X}	E_{13}^{S}	J_{23}^{X}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
26	E_{14}^{S}	J_{20}^{X}	J_{19}^{X}	E_{13}^{S}	J_{23}^{X}	J_{23}^{X}	J_{23}^{X}	G	G	G	G	G	40	G	36	36	J_{38}^{X}	J_{27}^{X}	J_{28}^{X}	E_{13}^{S}	J_{21}^{X}	J_{29}^{X}	J_{23}^{X}	J_{33}^{X}
27	E_{13}^{S}	J_{29}^{X}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	20	J_{41}^{X}	32	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	38	36	S_{38}	G	G	34	J_{37}^{X}	J_{28}^{X}	J_{23}^{X}	E_{13}^{S}	E_{13}^{S}	J_{37}^{X}	J_{37}^{X}	J_{36}^{X}	J_{38}^{X}
29	E_{13}^{S}	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{21}^{B}	G	G	G	G	G	G	G	G	36	27	G	E_{13}^{S}	E_{13}^{S}	J_{29}^{X}	E_{13}^{S}	E_{14}^{S}	E_{13}^{S}
30	E_{13}^{S}	E_{13}^{S}	J_{28}^{X}	J_{23}^{X}	E_{13}^{S}	E_{13}^{S}	22	G	G	33	35	G	G	G	G	G	G	G	E_{14}^{S}	J_{19}^{X}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	27	28	27	27	27	27	27	28	28	23	23	26	23	24	27	27	29	29	29	29	29	29
MED	E_{14}^{S}	J_{19}^{X}	E_{14}^{S}	E_{14}^{S}	14	E_{13}^{S}	21	28	32	34	36	36	G	E_{28}^{G}	34	34	34	J_{28}^{X}	J_{28}^{X}	J_{23}^{X}	J_{26}^{X}	J_{29}^{X}	J_{23}^{X}	J_{20}^{X}
UQ	J_{25}^{X}	J_{23}^{X}	J_{20}^{X}	J_{20}^{X}	J_{19}^{X}	16	24	31	J_{37}^{X}	38	40	38	40	38	36	36	J_{37}^{X}	J_{40}^{X}	J_{44}^{X}	J_{38}^{X}	J_{43}^{X}	J_{34}^{X}	J_{29}^{X}	J_{33}^{X}
LQ	E_{14}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	E_{13}^{S}	G	G	G	G	G	G	G	G	G	E_{31}^{G}	28	23	E_{20}	E_{14}^{S}	E_{14}^{S}	E_{13}^{S}	E_{14}^{S}	E_{14}^{S}

SEP. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 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	18	C	C	C	C	C	C	C	46	C	39	C	C	C	C	C	C	49	U R 48	59	A	A	33	A
2	30	26	A	20	23	21	30	29	32	40	37	C	G	G	C	G	29	24	24	E S 13	23	23	18	E S 13
3	E	E	E	17	18	E S 13	23	36	36	34	G	G	38	37	39	33	35	45	20	23	21	E	21	20
4	21	E S 13	E S 13	E S 13	E	E S 13	G	28	30	31	C	C	C	C	C	C	47	26	22	18	26	E S 13	21	19
5	18	E	C	E	C	C	C	C	C	34	38	53	G	37	G 29	33	32	29	20	20	U R 69	21	25	E S 13
6	E S 13	E S 13	E	E	E	E S 13	23	32	46	34	35	G	C	35	C	42	30	C	28	A	30	35	17	21
7	19	E	E S 13	E	E S 13	22	25	38	50	63	A	57	40	37	G 32	C	33	30	42	43	36	A	A	A
8	A	A	25	E S 13	E S 13	E S 13	28	46	38	34	35	C	C	36	C	C	C	40	A	40	25	30	A	21
9	27	23	20	21	E	E S 13	G	29	31	G	38	C	C	36	38	34	28	C	25	24	U R 37	E	E S 14	E S 14
10	E S 14	E S 13	19	18	24	E S 14	28	30	33	36	42	52	50	42	G	31	G	G	E S 13	E S 13	E S 13	20	26	19
11	17	18	E S 13	E S 13	E	E S 13	G	30	G	37	54	37	40	G 34	G	G	G	23	E B 20	23	E S 13	E S 14	E S 14	E S 14
12	E S 14	E S 14	E S 14	E S 14	20	24	G	29	G	34	36	39	44	G	35	36	35	26	24	E S 14	E S 14	E S 14	E	E S 14
13	E S 14	E	E	E	E	E S 13	29	29	31	35	35	36	G	G	G	32	G	25	19	20	25	20	18	18
14	18	E	E	24	19	20	G	28	G	G	37	37	40	42	38	47	62	43	30	24	24	26	24	E S 14
15	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14	31	G	G	36	36	29	G	E B 38	G	34	30	27	18	E S 13	20	E	E S 13	E
16	27	18	20	E	19	27	23	G	33	34	37	36	36	G	35	33	G	G	21	E S 13	E S 13	E S 13	E S 13	E S 13
17	E S 13	E S 14	E S 14	E S 14	E S 13	E S 14	E B 21	30	32	G	G	G	G	38	36	34	33	28	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
18	E S 14	E S 14	E S 14	E S 14	E S 13	E S 14	E B 22	G	G	35	40	G	38	G	G	G	G	25	23	E	E S 13	E S 13	E S 14	E S 14
19	E S 14	20	E S 13	21	E S 13	E S 13	E B 21	27	36	33	G	G	G	G	36	47	30	40	28	33	E S 13	23	E S 14	E S 14
20	E S 14	E S 14	E S 14	E S 13	E S 13	E S 13	E B 23	28	36	40	38	G	36	38	38	G	44	50	26	25	41	E S 13	E S 13	E
21	E S 13	E S 13	E S 13	E S 13	E	E S 13	23	28	G	38	37	35	G	G 28	G	32	29	25	58	26	A	20	35	18
22	24	22	20	E S 14	E S 14	E S 14	G	G	32	37	G	36	G	G	33	G	G	G	E S 14	22	25	22	18	17
23	E B 18	18	E S 14	E S 14	E S 14	E S 14	22	28	32	G	G	32	G	G	G	G	29	24	E	19	20	E S 13	20	E
24	E S 14	E S 13	E S 13	E S 13	E S 13	E S 13	G	G	G	G	35	G	G	G	35	31	25	22	29	24	21	21	E S 13	E
25	E S 13	E S 13	E S 13	E	E	E	G	G	C	C	C	C	C	C	C	C	28	25	E S 13	19	E S 13	E S 13	E S 13	E S 13
26	E S 14	E	E	E S 13	E	22	23	G	G	G	G	G	38	G	36	34	30	26	27	E S 13	E	22	20	25
27	E S 13	25	E S 13	E S 13	E S 13	E S 13	20	28	32	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	38	36	38	G	G	34	32	28	21	E S 13	E S 13	34	23	20	20
29	E S 13	E S 13	E S 14	E S 13	E S 13	E S 13	E B 21	G	G	G	G	G	G	G	G	35	27	G	E S 13	E S 13	24	E S 13	E S 14	E S 13
30	E S 13	E S 13	20	20	E S 13	E S 13	22	G	G	33	35	G	G	G	G	G	G	G	E S 14	E	E S 13	E S 13	E S 13	E S 13
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	27	28	27	27	27	27	27	28	28	23	23	26	23	24	27	27	29	29	29	29	29	29
MED	E S 14	14	E S 14	E S 13	E E 13	E S 13	21	28	32	34	36	32	G	E G 28	33	32	29	25	22	20	23	20	18	14
UQ	18	18	16	16	E S 14	E S 14	23	30	34	36	38	37	38	37	36	34	32	30	28	24	30	23	21	19
LQ	E S 13	E S 13	E S 13	E S 13	E	E S 13	G	G	G	G	G	G	G	G	G	G	E G 25	22	E E 14	E S 13	E S 13	E S 13	E S 14	E S 13

SEP. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

The Radio Research Laboratories, Japan

SEP. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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	285	C	C	C	C	C	C	C	325	IC 330	320	C	C	C	C	C	C	310	310	315	A	A	R	IA 310
2	R 295	280	IA 300	310	300	310	320	335	315	315	325	IC 315	330	325	IC 320	315	325	320	310	310	325	IR 335	335	300
3	305	300	300	310	310	315	S 335	350	330	330	330	320	310	315	305	300	305	IR 310	310	310	320	315	295	295
4	IR 315	305	315	305	305	310	350	325	340	330	C	C	C	C	C	C	325	315	325	IR 310	340	325	IR 320	310
5	295	295	IC 295	295	C	C	C	C	C	325	335	305	310	310	310	305	295	310	330	325	IR 325	IR 310	285	305
6	300	295	295	300	315	330	350	335	325	305	325	345	IC 310	320	IC 310	325	330	IC 320	315	IA 300	IR 310	IR 325	305	285
7	290	F	290	290	320	310	330	300	325	330	IA 320	310	295	325	320	IC 330	300	315	IR 320	IR 320	IR 320	IA 310	IA 310	IA 305
8	IA 295	IA 280	275	285	285	285	IR 310	320	IR 315	335	320	C	C	300	C	C	C	330	IA 315	IR 295	IR 290	310	IA 300	290
9	295	275	290	320	320	335	IR 340	340	310	315	335	C	C	305	310	320	320	IC 330	315	320	IR 320	305	300	285
10	295	280	280	290	310	320	305	305	IR 320	335	315	310	325	315	315	310	315	325	315	315	305	300	IR 285	295
11	295	290	290	320	295	310	340	340	340	325	IR 315	325	310	320	305	310	325	310	IR 310	320	IR 320	295	290	IR 290
12	285	300	290	295	315	320	325	325	320	320	320	330	320	325	315	330	310	320	320	335	325	IR 310	290	285
13	290	290	290	300	305	305	330	330	330	345	330	340	310	310	305	315	315	325	310	305	S 310	S 310	300	295
14	290	285	290	290	290	305	320	330	325	340	330	310	300	305	310	330	320	330	IR 315	320	IR 320	310	295	295
15	280	295	295	300	IR 310	320	350	350	340	335	325	310	320	315	315	315	315	325	325	IR 310	310	310	310	290
16	300	IR 290	300	315	295	310	340	345	355	335	325	320	320	315	320	335	325	315	330	340	300	285	295	295
17	295	300	295	300	300	325	350	350	350	340	330	330	325	300	325	320	325	325	330	340	290	300	300	300
18	290	295	300	315	320	310	340	340	325	330	300	310	280	275	305	305	315	325	320	305	295	285	285	280
19	290	IR 295	310	290	275	IR 290	325	320	320	325	315	300	325	315	335	320	320	325	325	315	310	295	290	IR 295
20	295	290	300	295	295	295	330	340	310	335	315	305	315	310	315	315	335	335	340	320	IR 295	280	295	285
21	285	295	300	320	320	295	330	330	335	350	320	315	335	320	315	320	330	IR 325	330	330	IA 300	285	285	IR 290
22	290	295	300	295	300	295	350	IR 340	340	345	345	315	320	315	320	325	325	330	325	320	IR 295	285	270	280
23	300	300	300	300	310	315	340	350	340	335	330	320	320	325	315	330	325	325	330	IR 320	305	310	F	300
24	300	300	300	300	300	310	330	350	330	330	335	320	330	315	325	330	325	330	335	325	310	310	300	295
25	295	305	290	305	330	305	340	350	C	C	C	C	C	C	C	C	325	335	320	310	310	285	285	295
26	305	290	300	285	300	295	340	320	IR 340	330	310	310	320	320	310	315	315	330	335	335	285	280	280	290
27	290	300	295	300	295	300	345	325	360	310	310	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	340	325	330	330	320	320	330	340	325	325	300	305	285	300	290
29	290	290	290	300	305	310	340	345	335	330	340	325	320	330	335	320	320	325	330	320	305	310	300	305
30	290	IR 280	285	295	315	305	335	350	345	345	340	320	325	340	325	330	330	340	340	295	295	295	285	285
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	27	28	28	27	27	27	27	27	29	28	24	24	26	25	25	27	29	29	29	28	28	27	29
MED	295	295	295	300	305	310	340	340	330	330	325	318	320	315	315	320	325	325	325	320	310	308	295	295
UQ	295	300	300	308	315	315	340	348	340	335	330	325	325	320	320	330	325	330	330	320	320	310	300	300
LQ	290	290	290	295	298	302	330	325	322	325	318	310	310	310	310	315	315	320	315	310	298	285	285	290

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

IONOSPHERIC DATA

SEP. 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 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								C	A	C	L 380	C	C	C	C	C	C	A						
2								L	L 390	L	370	I C 375	375	385	I C 360	375	L 365	L						
3								A	L 390	415	385	380	375	365	345	365	L	A						
4								L	385	355	C	C	C	C	C	C	A	L						
5								C	C	390	400	I A 390	360	365	350	340	340	L						
6								L	A	H 355	390	H 385	I C 360	360	I C 360	I A 365	L	C						
7								A	A	A	A	I A 370	365	365	355	I C 360	U L 325							
8							L	A	370	360	375	I C 365	I C 360	340	C	C	C							
9									385	360	370	C	C	365	350	360	L	C						
10								L	350	385	385	A	A	385	360	355	L	L						
11									L	L 365	I A 380	390	350	380	H 355	355	L	L						
12								L	L	370	370	370	I A 360	375	370	360	L 360	L						
13									U L 365	370	390	385	H 355	H 385	355	335	L	L						
14								L	L	370	395	355	360	360	360	A	A	A						
15									U L 395	385	405	390	365	360	U L 340	U L 360	L	L						
16									L	395	385	385	370	365	355	L	L							
17									L	380	400	375	385	365	375	L	L							
18								L	U L 350	L	360	370	360	L 330	H 350	U L 350	L							
19								360	365	360	L	385	370	350	360	A	L							
20									L	L	L 365	375	360	L 340	L	L 355	A							
21								L	L 370	L	390	415	L 370	L 370	370	370	L							
22								L	385	L 375	L	L	H 375	370	355	L	L							
23								L	L	U L 375	375	385	385	385	L 370	L	L							
24									L	L	370	380	370	360	L	L	L							
25									C	C	C	C	C	C	C	C	L							
26									L	L	U L 345	360	L	380	L	L	L							
27									U L 380	U L 385	L 370	C	C	C	C	C	C							
28									C	L 360	360	375	380	355	L 360	U L 380	L							
29									L	L	395	L 385	L 385	380	U L 360	L	L							
30									L	390	375	L 370	370	370	L	L								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	13	20	25	23	23	26	21	15	4							
MED								360	L 380	372	380	380	370	365	360	360	L 350							
UQ									L 385	385	390	385	375	380	360	365	L 362							
LQ									L 365	360	370	370	360	360	355	355	332							

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

IONOSPHERIC DATA

SEP. 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 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								C	280	I C 290	255	C	C	C	C	C	C	265						
2								255	290	275	260	I C 285	260	290	I C 300	290	275	280						
3								235	245	265	290	300	300	305	315	290	300	280						
4								270	245	255	C	C	C	C	C	C	275	265						
5								C	C	260	250	320	300	285	295	305	300	265						
6								245	270	300	265	280	I C 320	290	I C 295	270	260	I C 270						
7								340	280	310	I A 300	I A 325	355	295	295	I C 285	330							
8							295	265	260	270	275	I C 310	I C 300	340	C	C	C							
9									250	290	280	C	C	325	300	275	290	I C 260						
10								255	265	265	305	295	290	305	305	280	290	260						
11									250	280	290	290	305	285	305	300	255	255						
12								250	250	280	290	275	290	290	300	265	300	275						
13									260	250	265	275	340	305	305	300	275	250						
14								250	255	255	280	325	335	295	300	280	300	250						
15									250	265	280	295	280	295	285	290	275	245						
16									245	250	255	295	295	290	290	260	265							
17									245	250	265	280	290	325	280	270	260							
18								250	275	240	305	280	300	340	290	280	250							
19								290	280	290	255	265	285	305	295	280	270							
20									260	245	285	285	290	295	285	275	245							
21								255	255	245	270	275	275	285	285	280	270							
22								230	250	255	245	295	295	290	280	270	250							
23								245	250	250	260	260	280	275	270	255	250							
24									235	255	255	270	275	290	260	260	255							
25									C	C	C	C	C	C	C	C	260							
26									250	245	305	280	270	250	265	270	255							
27									235	255	255	C	C	C	C	C	C							
28									C	255	280	260	275	285	260	250	240							
29									245	250	255	260	270	255	255	255	255							
30									240	245	250	280	275	245	255	250								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	14	27	29	28	25	25	26	25	25	26	13						
MED							295	252	250	255	268	280	290	290	290	275	268	265						
UQ								265	262	275	288	295	300	305	300	285	290	270						
LQ								245	245	250	255	275	275	285	280	265	255	255						

SEP. 1971 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 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 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	290	C	C	C	C	C	C	C	A	C	A	C	C	C	C	C	C	A	290	290	I A 270	I A 290	270	I A 265
2	305	300	I A 300	250	290	255	250	235	215	I A 215	230	I C 200	230	195	I C 200	200	230	235	245	240	235	225	215	265
3	255	265	250	245	240	245	235	I A 230	215	205	190	195	215	210	240	225	260	I A 250	245	245	240	220	245	295
4	250	250	255	250	250	250	235	205	200	195	C	C	C	C	C	C	A	240	255	240	220	210	230	230
5	285	290	I C 295	260	C	C	C	C	C	200	200	I A 200	200	230	225	240	245	245	240	230	I A 220	225	285	255
6	260	300	285	260	245	235	205	225	I A 210	190 H	185	190 H	I C 230	240	I C 230	I A 230	245	I C 255	250	I A 250	250	250	220	290
7	305	300	295	255	250	290	240	A	A	A	A	A	230	240	220	I C 230	245	255	270	I A 270	265	I A 240	I A 255	I A 270
8	I A 300	I A 335	I A 340	320	305	300	A	A	A	210	220	I C 210	I C 230	220	C	C	C	265	A	I A 300	290	290	I A 260	300
9	320	300	300	250	215	240	220	235	200	200	215	C	C	195	I A 210	230	240	I C 240	245	245	I A 250	240	270	280
10	290	295	300	300	255	220	240	230	215	215	220	A	A	230	220	200	250	245	245	230	220	275	320	300
11	275	290	265	235	240	245	230	240	215	230	I A 205	200	I A 210	210	200 H	215	240	230	245	245	235	230	255	285
12	290	270	250	250	250	250	215	230	230	220	210	A	A	215	230	I A 240	I A 235	250	240	220	220	245	290	290
13	260	290	295	260	255	250	235	235	220	215	205	195	195 H	190 H	180	240	235	245	245	255	255	250	270	310
14	265	295	290	305	285	260	240	230	220	205	205	215	220	I A 235	240	A	A	A	250	245	230	250	285	280
15	295	290	275	250	245	245	225	230	205	205	190	190	230	230	240	235	245	245	235	250	240	230	240	280
16	320	280	290	245	250	280	235	230	230	205	205	195	200	215	205	240	230	240	240	215	245	290	265	270
17	280	275	290	260	245	240	220	220	210	215	200	200	200	220	230	245	240	255	240	210	240	255	260	280
18	305	295	285	250	210	260	230	235	225	240	210	215	205	215	215 H	240	245	250	235	210	265	305	290	300
19	305	270	245	275	305	300	250	240	I A 220	205	240	225	190	240	225	I A 240	250	250	240	245	225	290	270	290
20	295	290	285	260	270	290	250	235	215	I A 215	235	200	200	240	I A 240	235	I A 245	240	225	225	I A 190	280	280	295
21	295	275	280	235	220	290	240	230	215	I A 230	220	190	225	220	220	225	240	255	I A 245	240	I A 225	310	I A 310	280
22	290	290	275	250	245	260	240	235	230	210	205	200	190 H	205	200	235	240	240	230	235	I A 260	300	330	300
23	280	265	250	255	245	245	235	230	230	230	210	205	200	200	215	230	230	250	225	210	255	250	330	265
24	280	255	285	270	250	250	225	230	230	220	205	195	190	215	230	230	240	245	235	230	255	255	285	280
25	280	290	285	255	220	245	210	230	C	C	C	C	C	C	C	C	240	230	240	245	250	275	280	245
26	250	290	245	290	255	270	220	240	235	225	220	210	235	185	230	250	I A 255	245	230	215	250	320	315	300
27	290	300	280	265	240	255	225	240	200	215	220	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	I A 215	230	200	200	200	230	220	240	225	215	240	255	290	275	285
29	275	275	290	270	240	250	225	230	210	200 H	205	205	195	215	215	240	235	245	220	210	265	240	240	240
30	250	295	305	300	240	240	220	230	215	210	215	205	200	200	215	230	240	240	215	240	260	245	290	295
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	28	28	27	27	26	25	24	27	26	22	23	26	25	24	25	27	28	29	29	29	29	29
MED	290	290	285	258	245	250	232	230	215	215	210	200	200	215	220	232	240	245	240	240	250	250	270	280
UQ	295	295	295	270	255	265	240	235	228	218	220	205	228	230	230	240	245	250	245	245	260	290	290	295
LQ	275	275	270	250	240	245	220	230	210	205	205	195	200	200	215	228	240	240	232	225	235	240	255	270

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SEP. 1971 | H'F (KM)

IONOSPHERIC DATA

SEP. 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	100	C	C	C	C	C	C	C	115	C	100	C	C	C	C	C	C	120	115	110	110	110	110	105
2	105	100	100	100	105	105	120	115	115	110	105	C	G	G	C	130	125	110	105	S	105	100	105	S
3	105	100	100	100	100	S	115	110	110	110	G	G	105	115	115	140	125	115	110	105	105	100	100	100
4	100	S	S	S	E	S	G	115	115	105	C	C	C	C	C	C	100	105	100	100	100	S	105	100
5	105	100	C	100	C	C	C	C	C	115	105	105	G	100	100	145	130	110	100	100	105	105	110	S
6	S	S	100	100	100	S	120	115	110	110	105	G	C	105	C	125	130	C	115	110	110	105	105	100
7	100	100	S	100	S	120	120	115	115	110	110	110	115	105	105	C	110	110	120	110	110	110	105	105
8	105	105	105	S	S	S	115	115	115	115	110	C	C	110	C	C	C	115	110	110	110	110	110	105
9	100	100	100	100	100	S	G	140	105	G	100	C	C	110	110	100	105	C	105	110	110	105	S	S
10	S	S	105	100	105	S	105	115	115	120	115	120	115	110	G	110	G	G	S	S	S	105	105	110
11	105	100	S	S	100	S	G	140	G	115	110	110	110	110	G	G	G	100	B	100	S	S	S	S
12	S	S	S	S	100	100	G	120	G	120	115	110	110	G	145	140	125	125	115	S	S	S	100	S
13	S	100	100	100	100	S	135	140	150	120	130	125	G	G	G	115	G	140	110	105	105	110	105	105
14	105	100	100	100	105	100	G	165	G	G	125	115	115	110	110	105	105	100	105	100	100	100	100	S
15	S	S	S	S	S	S	105	G	G	120	115	100	G	B	G	115	150	130	110	S	105	105	S	105
16	105	100	100	100	100	100	100	140	120	125	110	110	110	G	110	110	G	G	110	S	S	S	S	S
17	S	S	S	S	S	S	B	155	150	G	G	G	G	150	150	140	140	125	S	S	S	S	S	S
18	S	S	S	S	S	S	B	G	G	115	110	G	105	G	G	G	130	115	110	110	S	S	S	S
19	S	105	S	100	S	S	B	110	110	110	G	G	G	G	145	125	120	110	105	105	S	105	S	S
20	S	S	S	S	S	S	B	140	125	115	120	G	115	110	110	G	130	115	110	110	105	S	S	105
21	S	S	S	S	E	S	120	120	115	110	110	105	G	100	G	140	120	115	110	110	110	120	105	110
22	100	100	100	S	S	S	G	G	105	100	G	100	G	G	100	G	G	G	S	110	110	110	110	105
23	B	100	S	S	S	S	145	150	145	G	G	110	G	G	G	G	155	140	110	105	105	S	105	100
24	S	S	S	S	S	S	G	G	G	G	115	G	G	G	115	110	105	105	100	100	110	105	S	105
25	S	S	S	E	E	100	G	G	C	C	C	C	C	C	C	C	110	105	S	100	S	S	S	S
26	S	100	100	S	100	100	100	G	G	G	G	G	120	G	150	140	125	120	110	S	105	105	110	100
27	S	100	S	S	S	S	110	110	110	G	G	C	C	C	C	C	C	C	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	115	115	115	G	G	110	110	110	110	S	S	105	105	105	105
29	S	S	S	S	S	S	B	G	G	G	G	G	G	G	G	120	115	G	S	S	105	S	S	S
30	S	S	105	105	S	S	155	G	G	120	120	G	G	G	G	G	G	G	S	105	S	S	S	S
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	12	15	12	12	11	7	14	19	18	20	20	13	10	12	14	18	21	22	21	20	20	18	17	16
MED	105	100	100	100	100	100	118	120	115	115	110	110	112	110	110	122	125	115	110	105	105	105	105	105
UQ	105	100	102	100	102	102	120	140	120	120	115	115	115	110	145	140	130	120	110	110	110	110	110	105
LQ	100	100	100	100	100	100	105	115	110	110	108	105	110	105	110	110	110	110	105	100	105	105	105	100

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SEP. 1971 | H'ES (KM)

IONOSPHERIC DATA

SEP. 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	F2								C3		L2							C2	C2	F3	F3	F3	F2	F3
2	F3	F2	F1	F1	F2	F1	C1	C1	C1	L2	L2					H1	H1	L2	L2		F2	F2	F1	
3	F1	F2	F2	F2	F1		C1	L2	L2	L1			L1	C1	C2	H1	H2	C2	L2	F2	F2	F1	F2	F2
4	F2							C2	C1	L1							L2	L2	L2	F2	F2		F2	F2
5	F1	F2		F1						C1	L2	L2		L2	L1	HL 11	H2	L2	L1	F1	F3	F2	F2	
6			F2	F1	F1		C2	C2	L2	L1	L1			L1		H2	HL 11		C2	F3	F3	F2	F2	F2
7	F2	F1		F1		F3	C1	C2	C2	L2	L2	L2	C2	L2	L2		L2	L2	C3	F3	F2	F2	F2	F3
8	F3	F2	F2				C2	C2	C2	C1	L1			L1				C2	L2	F2	F2	F2	F2	F2
9	F2	F2	F2	F1	F1			H1	L1		L2			L1	L2	L2	L1		L2	F2	F2	F1		
10			F2	F1	F2		L2	C1	C1	C1	C1	C1	C2	L1		L2						F2	F3	F2
11	F1	F1			F2			H1		C1	L2	L1	L2	L1				L2		F2				
12					F3	F3		C1		C1	C1	L1	L2		H1	H1	H2	H2	C1				F1	
13		F1	F1	F1	F1		H1	H1	H1	C1	H1	H1				C1		H1	L1	F2	F2	F2	F2	F1
14	F1	F1	F1	F3	F3	F2		H1			H1	C1	C2	L2	L2	L3	L3	L2	L1	F2	F1	F1	F1	
15							L1			C1	C1	L1				C1	H1	H2	L1		F2	F1		F2
16	F3	F1	F1	F1	F2	F2	L1	H1	C1	H1	L1	L1	L1		L1	L2			L1					
17								H1	H1					H1	H1	H1	H2	H2						
18										C1	L1		L1				H1	C1	L1	F1				
19		F2		F2				L1	L2	L1					H1	H2	C1	L3	L2	F2		F2		
20								H1	H2	C1	C1		C1	L1	L2		H3	C3	L3	F2	F2			F1
21							C1	C1	C1	C2	C2	L1		L1		H1	H1	C2	C4	F3	F3	F2	F2	F2
22	F2	F1	F1						L2	L2		L2			L1					F1	F1	F2	F1	F1
23		F1					H1	H1	H1			L1					H1	H1	F1	F2	F2		F2	F1
24											C1				C1	L1	L1	L1	F3	F2	F2	F2		F1
25						F1											LH 11	C 21		F1				
26		F1	F1		F2	F2	L2						C1		H1	H1	H1	C1	F3		F1	F1	F1	F1
27		F2					L1	L2	L1															
28										C2	C2	C1			L1	L2	L1	L2			F3	F2	F1	F1
29																C2	C1				F3			
30			F2	F2			H1			C1	C1									F1				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

SEP. 1971 | TYPES OF ES

IONOSPHERIC DATA

SEP. 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	56	J(R)55	55	51	51	61	56	66	71	78	81	66	73	79	75	76	71	I(R)76	81	R	F	F	F	R
2	A	F56	F	F	A	R	55	75	76	81	78	79	80	62	66	73	71	73	85	89	I(R)76	65	J(R)52	50
3	51	48	43	44	40	42	67	66	66	68	66	65	72	73	75	76	I(A)81	R87	A	R	A	61	52	F
4	51	I(R)48	43	42	41	44	59	80	65	76	75	66	69	67	69	80	85	75	79	86	S84	J(R)56	45	42
5	F40	41	I(R)42	41	38	40	J(R)65	76	79	S73	61	59	76	81	73	73	79	J(R)99	J(R)100	R96	70	A	I(A)38	A
6	39	39	40	43	45	U(S)41	62	J(R)73	69	75	75	81	75	87	78	69	66	70	66	J(R)75	81	58	45	41
7	41	38	38	37	38	36	52	66	71	73	61	61	65	71	I(A)74	C	58	68	70	A	R	R	41	I(R)40
8	R39	F	F	33	34	35	56	66	J(R)75	75	63	63	65	68	70	69	68	65	61	55	59	58	J(R)55	42
9	44	39	45	I(R)46	30	36	53	66	58	62	65	65	66	72	J(R)78	72	70	73	J(R)75	69	53	46	48	47
10	46	46	45	45	45	41	54	65	74	66	70	76	76	74	70	68	69	J(R)76	81	75	55	51	R51	F
11	47	47	45	41	35	35	51	J(R)68	57	67	63	I(A)72	80	81	86	78	73	67	J(R)76	J(S)81	S64	49	48	48
12	48	46	47	40	40	40	59	57	66	76	77	81	87	77	73	67	69	75	94	S82	52	44	44	44
13	42	42	40	41	38	38	55	72	82	80	65	71	72	73	73	80	96	88	81	73	I(R)70	58	51	55
14	C	52	50	48	46	48	58	61	58	67	78	67	76	89	87	86	89	81	J(R)79	81	65	45	47	49
15	48	48	47	44	41	46	I(R)66	70	68	70	76	82	85	79	78	78	88	92	R95	J(R)79	75	58	50	51
16	50	51	50	49	45	45	R73	80	J(R)76	71	68	71	75	78	80	79	75	76	85	J(R)80	45	45	45	46
17	46	46	46	45	42	41	61	J(R)75	78	72	69	74	75	79	80	82	82	84	87	60	49	48	49	49
18	49	49	50	50	41	36	59	70	73	86	88	90	91	94	106	108	J(R)105	J(R)100	86	53	51	52	54	53
19	50	53	52	43	43	44	54	80	80	80	89	90	86	79	78	77	I(A)84	85	83	A	A	48	49	48
20	48	48	47	42	41	40	64	86	R80	81	78	81	87	87	88	96	92	90	J(R)75	J(R)59	R51	55	F	55
21	51	50	51	50	38	36	58	82	90	81	76	75	87	77	75	75	70	82	J(R)79	68	R50	R47	51	I(R)50
22	50	50	46	46	41	44	63	J(R)80	76	86	80	73	80	87	85	89	C	76	J(R)73	62	51	C	C	C
23	C	C	C	C	C	C	C	C	C	C	88	90	86	81	78	79	J(R)79	87	89	62	51	I(R)51	51	50
24	51	50	48	47	48	46	68	81	82	83	86	80	81	85	78	75	82	85	88	R70	56	51	52	52
25	51	51	48	49	51	40	70	70	80	84	80	79	82	85	99	107	109	108	88	69	64	61	63	63
26	61	52	54	45	49	44	71	88	98	92	98	J(R)104	R103	93	76	81	89	99	87	61	47	48	50	54
27	52	54	53	48	44	44	60	69	93	68	82	90	108	R102	100	100	94	87	62	58	59	60	56	60
28	52	58	52	46	45	44	60	73	74	87	90	90	80	83	87	86	78	82	66	57	52	51	50	I(A)49
29	48	49	47	47	41	40	64	75	78	78	91	87	84	84	75	73	77	92	94	65	56	54	48	45
30	40	39	38	39	37	38	61	80	J(R)88	81	77	82	95	95	75	81	J(R)80	81	78	52	53	51	53	52
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	28	28	28	29	29	29	29	30	30	30	30	30	29	29	30	29	26	26	26	27	25
MED	48	48	47	45	41	41	60	73	76	76	77	78	80	80	78	78	79	82	81	69	56	51	50	49
UQ	51	52	50	48	45	44	64	80	80	81	82	82	86	87	85	82	88	88	87	80	65	58	52	52
LQ	45	46	44	42	38	38	56	66	69	71	68	67	75	74	74	73	71	75	75	60	51	48	48	46

SEP. 1971 | FOF2 (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 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							L	L	A	A	450	A	480	480	490	430	A	L	A					
2							A	A	L	450	L	A	480	480	460	440	L	L	A					
3								L	L	A	A	480	R	A	480	460	A	A	A					
4								L	L	450	460	480	470	L	500	450	L	L						
5							A	A	440	460	L	L	490	490	L	450	440	L						
6								L	L	450	A	A	480	A	470	450	L	A						
7								490	420	440	A	A	460	470	A	C	L	L						
8							L	A	A	450	450	470	470	L	A	A	L	L						
9								A	L	450	460	480	470	470	A	430	L	A						
10								L	L	L	450	440	480	510	460	440	L	L						
11								A	A	A	L	A	A	490	470	440	L	L						
12								L	L	U 490	L	480	480	470	470	L	L	A						
13								L	L	420	460	490	480	L	480	440	L							
14								310	L	L	450	480	480	A	450	L	L	A						
15								L	L	440	440	480	480	B	460	L	L	L						
16								L	L	420	480	490	490	490	450	L	A	L						
17							L	L	L	460	L	500	510	450	470	450	L	A						
18									L	L	U 500	L	500	510	U 500	L	L							
19								L	L	L	L	490	L	L	L	A	A	A	A					
20								L	L	440	L	L	490	480	480	U 450	L							
21								L	L	460	L	480	480	460	L	L	A							
22								L	L	L	L	450	480	480	L	450	C							
23								C	C	C	480	480	480	440	L	L	L							
24									L	480	L	490	480	480	U 480	L	L							
25									L	L	U 470	L	L	L	500	L	L							
26								L	L	L	L	U 500	490	L	L	L	L							
27								L	L	L	L	L	L	L	L	L	L							
28							L	L	L	L	L	U 500	L	L	L	L								
29									L	L	500	L	U 490	U 480	L	L	L							
30								L	L	L	L	L	L	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	2	15	13	18	23	17	17	13	1							
MED								400	430	450	460	480	480	480	470	450	440							
UQ										460	480	490	490	490	480	450								
LQ										440	450	480	480	470	460	440								

The Radio Research Laboratories, Japan

SEP. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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 260	A	A	A	A	A	A	345	I R 320	A	A	A					
2						B	215	A	A	A	A	A	R	345	335	R 310	A	A	A					
3						B	I A 200	250	A	A	A	R	A	A	A	A	A	A	A					
4						B	R	A	A	R	R	A	A	A	A	A	A	A	A					
5						B	A	A	A	A	R	R	A	I R 350	I R 330	310	A	A	A					
6						B	I A 200	255	A	A	A	A	A	B	I A 350	325	I A 260	A	A					
7						B	210	250	285	A	A	A	A	A	A	C	A	A	A					
8						B	A	A	A	A	A	A	A	A	A	A	A	210	A					
9						B	200	R 260	290	320	A	A	A	A	A	A	A	A	A					
10						B	195	250	295	320	330	335	A	R	R	R	280	230	A					
11						B	210	I A 260	I A 300	330	A	A	A	R	I A 325	300	265	A	A					
12						B	A	I A 240	280	305	320	A	A	A	335	305	270	A	A					
13						B	190	270	300	I A 315	R	R	R 350	R	R	R	R	A	A					
14						B	A	260	295	R 335	R	A	R	A	A	R	A	A	A					
15						B	A	A	I A 300	I A 320	I A 330	I A 340	R 350	B	R	310	I A 270	A	A					
16							195	250	285	A	A	A	A	A	A	A	A	A	A					
17							200	265	300	325	R 345	R 350	R 360	I R 355	330	305	275	A	A					
18							190	265	305	340	A	A	A	A	A	305	270	A	A					
19							190	I A 260	300	A	A	A	A	R	330	310	265	A	B					
20							190	255	290	320	A	A	R	R	R	A	A	160	A					
21							A	255	R 315	A	R	A	R	I R 340	I R 330	R 300	A	A	A					
22							215	I A 240	300	A	A	A	A	R 340	R 335	R	C	A	A					
23							C	C	C	C	330	I R 340	R 350	R 350	I R 350	R 340	A	A	A					
24							165	A	300	325	I A 330	I R 345	I A 340	A	A	A	A	A	A					
25							A 180	260	290	330	340	I A 340	345	A	A	A	260	I A 210	S					
26							190	270	295	320	R 350	R 350	R	A	I A 320	300	260	180	B					
27							A	260	290	310	340	360	360	335	325	300	255	200						
28							A	250	290	310	A	A	A	A	A	A	A	A						
29							150	255	300	310	R 330	R 350	R 360	340	325	300	250	A						
30							210	255	295	320	330	350	A	A	A	A	250	A						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							19	23	22	17	11	10	8	8	14	15	13	6						
MED							195	255	295	320	330	348	R 350	R 342	330	305	265	205						
UQ							205	260	300	325	340	R 350	R 360	R 350	335	310	270	210						
LQ							190	250	290	315	330	I 340	348	340	325	300	260	180						

The Radio Research Laboratories, Japan

SEP. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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	20	20	E S 15	20	21	E B 15	23	32	49	J X 65	J X 39	J X 50	45	41	41	37	J X 59	J X 51	J X 29	J X 84	J X 54	J X 64	J X 51	J X 68
2	J X 84	J X 38	J X 44	J X 30	J X 62	J X 29	J X 35	J X 61	J X 44	J X 41	J X 41	J X 51	G 33	G 30	G	G	34	J X 35	J X 42	J X 35	J X 29	J X 25	J X 29	J X 24
3	J X 25	22	21	21	22	E B 14	22	31	J X 35	J X 51	51	G 35	45	J X 71	42	J X 41	J X 121	J X 141	J X 109	J X 75	J X 80	J X 58	22	J X 24
4	J X 23	J X 29	J X 29	J X 29	J X 26	J X 21	G	J X 39	32	G 32	G 33	38	J X 40	J X 40	J X 40	J X 50	J X 36	J X 30	J X 29	J X 22	J X 24	23	J X 29	J X 30
5	J X 29	J X 17	J X 24	J X 18	M 21	21	J X 48	J X 51	J X 34	J X 39	G 35	G 35	J X 39	G 30	G 29	35	J X 36	35	J X 35	J X 23	J X 22	J X 66	J X 52	J X 54
6	J X 17	J X 24	M 21	M 21	21	J X 15	23	J X 30	J X 41	J X 57	J X 66	53	45	E B 45	42	39	J X 36	J X 64	J X 40	J X 18	J X 29	J X 64	J X 35	J X 24
7	23	J X 25	21	21	21	21	24	J X 35	J X 36	J X 41	60	J X 45	41	J X 38	80	C	J X 32	J X 31	J X 41	J X 109	J X 41	J X 64	J X 42	J X 24
8	J X 54	J X 42	J X 45	J X 21	J X 24	22	24	J X 49	J X 49	J X 51	J X 42	J X 42	42	37	J X 61	J X 61	J X 32	25	J X 21	J X 37	J X 29	J X 29	J X 29	J X 29
9	J X 25	J X 24	J X 24	J X 24	J X 19	E B 13	24	32	J X 49	35	41	42	J X 41	J X 41	J X 49	J X 40	J X 61	J X 51	J X 51	J X 36	J X 35	J X 25	J X 29	J X 21
10	21	21	J X 21	22	21	18	25	28	34	35	38	G	J X 42	G	G	G	G 17	25	J X 25	E B 13	E B 13	E S 16	21	J X 21
11	J X 26	22	J X 25	21	22	20	G	32	J X 41	60	J X 58	J X 116	J X 49	G 33	33	G 22	G	J X 29	J X 28	23	35	J X 25	J X 18	J X 17
12	J X 18	M 20	M 19	E S 15	E S 15	E B 13	23	27	34	40	J X 41	38	J X 39	37	36	36	37	J X 33	J X 29	J X 52	J X 27	M 33	J X 17	J X 25
13	J X 20	J X 22	E B 14	J X 17	J X 25	J X 21	G 17	J G 26	32	38	G	G	G	G	G	G	G	29	20	J X 29	J X 24	J X 25	J X 36	J X 29
14	C	J X 26	22	21	J X 21	J X 29	J X 25	G 20	G	G	G	39	G	J X 59	42	G	J X 41	J X 54	J X 74	J X 49	J X 29	J X 29	J X 25	J X 21
15	22	E S 15	E S 15	18	19	21	27	34	35	G	G 35	G	G	E B 50	G	G	35	25	J X 24	J X 24	J X 24	J X 24	J X 21	J X 28
16	E S 15	E S 15	J X 20	21	19	E B 13	22	G	33	J X 42	J X 41	34	J X 39	35	J X 36	35	J X 61	23	J X 25	J X 40	J X 24	J X 21	21	J X 24
17	E S 15	E S 15	20	E B 13	E B 13	J X 19	J G 18	G	34	35	G	G	G	G	37	35	40	J X 54	35	J X 18	J X 25	M 21	J X 25	M 20
18	E S 15	J X 16	J X 17	E S 15	E B 13	E B 14	G	31	33	39	37	39	J X 40	37	35	33	34	29	19	E S 15	E S 15	E S 15	J X 17	E S 15
19	M 20	E S 15	E B 14	M 19	J X 18	J X 17	G	30	G 28	33	J X 45	37	37	G 35	37	J X 54	J X 102	81	J X 69	J X 134	J X 65	J X 35	J X 18	M 22
20	M 24	M 24	24	M 21	J X 18	E B 14	25	29	35	38	42	J X 41	G 34	G	G	36	J X 30	24	J X 22	J X 53	J X 65	J X 25	22	E B 13
21	E S 15	21	18	E B 13	E B 13	E B 13	J X 31	32	G	37	G 32	42	G 35	G 27	G 29	J G 27	J X 41	J X 35	J X 24	J X 41	J X 35	J X 39	J X 29	J X 41
22	J X 25	J X 24	J X 24	22	20	20	G	29	32	J X 54	41	41	43	J G 30	J G 31	J G 30	C	J X 24	22	21	J X 24	C	C	C
23	C	C	C	C	C	C	C	C	C	C	38	G	G	G	G	G	35	23	J X 21	E B 13	J X 29	22	J X 29	21
24	E B 13	E B 13	20	21	20	E B 13	G	29	35	34	36	G	38	37	38	36	J X 31	26	21	21	22	J X 24	22	21
25	E S 15	E S 15	18	E B 13	E S 15	21	J X 25	G 19	G	43	42	40	42	40	38	34	J X 42	J X 40	36	J X 26	J X 25	J X 17	J X 23	M 21
26	J X 15	M 17	M 17	J X 16	J X 17	M 18	21	G 20	34	G	G	G	G	37	35	34	33	25	J X 29	M 20	E S 15	E S 15	J X 38	J X 36
27	J X 34	J X 24	M 21	J X 17	J X 18	J X 16	23	G	33	33	35	G 26	G 29	G 21	34	33	33	G 18	J X 16	E B 12	E B 14	M 20	M 20	J X 27
28	J X 29	J X 24	J X 20	J X 17	M 21	M 21	17	27	32	37	J X 41	39	37	36	35	32	J X 30	J X 50	J X 24	J X 23	M 20	J X 22	J X 33	J X 63
29	J X 42	J X 18	E B 12	J X 17	J X 17	M 20	23	G	G	G	G	40	G	G	37	38	J X 29	J X 54	J X 27	J X 26	J X 26	J X 18	J X 17	M 21
30	E B 12	J X 16	J X 16	E B 13	E B 13	J X 20	G	27	31	34	35	G	36	36	35	32	28	J X 27	J X 25	J X 30	J X 17	J X 17	17	E S 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	29	29	29	29	29	29	29	30	30	30	30	30	29	29	30	30	30	30	29	29	29
MED	J X 22	J X 21	20	20	20	19	23	29	34	38	38	38	38	36	36	34	J X 35	J X 30	J X 28	J X 26	J X 26	J X 25	J X 25	J X 24
UQ	J X 26	J X 24	J X 24	21	21	21	25	32	J X 35	J X 42	J X 42	42	J X 42	38	40	37	J X 41	J X 51	J X 36	J X 41	J X 35	J X 33	J X 29	J X 29
LQ	15	16	17	17	17	E B 14	G 17	G 26	32	34	G 35	G	G 29	G 27	G 29	G 27	31	25	J X 22	21	J X 22	J X 21	J X 21	21

SEP. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 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	E	E	$E_{S\,15}$	E	E	$E_{B\,15}$	21	26	45	58	31	45	42	36	38	35	45	30	28	40	20	50	40	25
2	A	23	25	25	A	28	34	50	40	39	40	49	$E_{R\,33}$	G_{28}	G	G	31	31	40	25	24	20	20	18
3	25	E	E	E	15	$E_{B\,14}$	22	31	33	48	50	$E_{R\,35}$	45	58	35	36	A	60	A	35	A	40	E	22
4	17	27	25	22	23	21	G	25	38	$E_{R\,32}$	$E_{R\,33}$	38	40	37	40	38	38	27	22	17	E	17	17	17
5	E	E	E	17	E	G	40	49	32	39	$E_{R\,35}$	$E_{R\,35}$	39	$E_{R\,30}$	G_{26}	35	G	G	33	19	E	A	A	A
6	E	20	16	E	E	G	22	30	40	37	58	50	44	$E_{B\,45}$	38	37	32	32	30	17	E	25	18	E
7	E	19	E	E	E	G	23	34	35	40	58	45	32	37	A	C	27	26	40	A	21	32	20	17
8	19	22	25	17	17	G	21	45	43	35	39	35	38	$E_{R\,37}$	58	60	28	24	21	25	17	E	20	21
9	22	E	E	E	E	$E_{B\,13}$	24	28	33	35	38	40	38	39	49	34	31	45	45	22	21	21	21	E
10	E	E	18	17	E	G	25	28	32	34	38	G	32	G	G	G	G_{15}	23	22	$E_{B\,13}$	$E_{B\,13}$	$E_{S\,16}$	E	16
11	E	E	22	E	E	G	G	28	40	57	40	A	49	$E_{B\,33}$	33	G_{22}	G	24	25	16	35	17	E	E
12	E	E	E	$E_{S\,15}$	$E_{S\,15}$	$E_{B\,13}$	23	27	32	38	41	38	39	37	36	36	36	32	26	40	25	E	17	15
13	E	E	$E_{B\,14}$	E	E	E	G_{17}	G_{24}	31	37	G	G	G	G	G	G	G	28	16	18	18	20	25	25
14	C	17	E	E	E	25	22	G_{17}	G	G	G	38	G	58	35	G	27	36	45	35	25	26	21	E
15	E	$E_{S\,15}$	$E_{S\,15}$	E	E	G	27	28	28	G	$E_{R\,35}$	G	G	$E_{B\,50}$	G	G	30	25	G	E	16	18	21	E
16	$E_{S\,15}$	$E_{S\,15}$	17	$E_{S\,15}$	E	$E_{B\,13}$	21	G	31	38	31	34	38	35	35	32	39	23	G	21	E	17	E	E
17	$E_{S\,15}$	$E_{S\,15}$	E	$E_{B\,13}$	$E_{B\,13}$	17	G_{15}	G	32	35	G	G	G	G	37	34	38	44	32	E	20	E	E	E
18	$E_{S\,15}$	E	E	$E_{S\,15}$	$E_{B\,13}$	$E_{B\,14}$	G	31	33	38	$E_{R\,37}$	$E_{R\,39}$	39	37	35	32	32	26	16	$E_{S\,15}$	$E_{S\,15}$	$E_{S\,15}$	E	$E_{S\,15}$
19	E	$E_{S\,15}$	$E_{B\,14}$	E	16	E	G	28	G_{28}	33	43	37	37	$E_{R\,35}$	37	51	A	78	65	A	A	28	17	E
20	17	16	16	E	E	$E_{B\,14}$	25	28	34	36	40	38	$E_{R\,34}$	G	G	33	27	23	17	35	31	20	E	$E_{B\,13}$
21	$E_{S\,15}$	E	E	$E_{B\,13}$	$E_{B\,13}$	$E_{B\,13}$	25	28	G	36	$E_{R\,35}$	38	$E_{R\,35}$	G_{26}	G_{28}	G_{25}	35	25	16	32	24	18	22	35
22	21	21	17	E	E	E	G	26	$E_{R\,34}$	41	36	31	39	G_{28}	G_{28}	G_{26}	C	22	16	E	20	C	C	C
23	C	C	C	C	C	C	C	C	C	C	38	G	G	G	G	G	28	21	17	$E_{B\,13}$	18	E	22	E
24	$E_{B\,13}$	$E_{B\,13}$	E	E	E	$E_{B\,13}$	G	28	33	33	35	G	32	37	35	34	29	22	G	E	E	22	17	E
25	$E_{S\,15}$	$E_{S\,15}$	E	$E_{B\,13}$	$E_{S\,15}$	E	16	G_{16}	G	40	42	39	41	40	37	33	24	39	21	17	17	16	21	E
26	E	E	E	E	E	E	G	G_{20}	33	G	G	G	G	37	33	34	30	25	26	E	$E_{S\,15}$	$E_{S\,15}$	28	32
27	25	16	E	E	14	E	21	G	32	33	35	G_{26}	G_{29}	G_{21}	34	33	33	G_{18}	E	$E_{B\,12}$	$E_{B\,14}$	E	E	27
28	25	17	17	16	E	E	17	27	32	36	39	39	37	36	35	32	28	44	20	22	E	22	E	A
29	39	E	$E_{B\,12}$	E	E	E	22	G	G	G	G	40	G	G	37	35	27	20	20	25	16	15	17	E
30	$E_{B\,12}$	E	E	$E_{B\,13}$	$E_{B\,13}$	15	G	27	31	34	$E_{R\,35}$	G	36	35	33	31	27	20	22	17	E	E	E	$E_{S\,15}$
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	29	29	29	29	29	29	29	30	30	30	30	30	29	29	30	30	30	30	29	29	29
MED	15	15	$E_{E\,12}$	E	E		21	28	32	36	36	37	36	U_{32}	35	33	30	26	22	18	18	18	17	15
UQ	20	17	17	15	$E_{E\,14}$	$E_{B\,14}$	23	28	34	39	40	39	39	37	37	35	35	32	32	32	24	22	21	22
LQ	E	E	E	E	E	E	G	G_{24}	31	33	$E_{G\,33}$	G	$E_{G\,29}$	$E_{G\,28}$	G_{28}	G_{25}	27	23	16	$E_{E\,13}$	$E_{E\,13}$	$E_{E\,15}$	E	E

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SEP. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 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	E S 13 15	E S 13 15	E S 13 15	E S 13 15	E S 13 15	15	15	15	15	15	19	25	25	25	25	15	15	15	19	E S 13 15	E S 13 15	E S 13 15	E S 13 15	13
2	E S 13 15	13	E S 13 15	E S 13 15	E S 13 15	15	15	14	15	15	25	25	25	24	18	14	15	15	14	13	13	E S 13 15	13	E S 13 15
3	13	E S 13 15	E S 13 15	13	12	14	13	15	15	25	25	25	18	15	15	15	15	15	14	E S 13 15	E S 13 15	13	E S 13 15	E S 13 15
4	E S 13 15	13	E S 13 15	13	E S 13 15	13	15	15	15	18	19	25	25	26	18	14	14	14	13	E S 13 15	E S 13 15	E S 13 15	E S 13 15	E S 13 15
5	E S 13 15	14	E S 13 15	14	14	15	14	14	14	15	26	25	25	17	15	15	14	13	13	14	E S 13 15	E S 13 15	E S 13 15	E S 13 15
6	E S 13 15	14	14	13	12	14	15	14	15	15	28	25	25	45	15	15	15	15	14	13	13	E S 13 15	E S 13 15	E S 13 15
7	E S 13 15	13	E S 13 15	E S 13 15	13	15	15	13	15	15	15	25	25	15	15	C	14	15	13	E S 13 15	13	E S 13 15	13	E S 13 15
8	13	13	E S 13 15	13	E S 13 15	13	13	13	16	15	15	15	23	15	15	16	15	15	13	E S 13 15	E S 13 15	E S 13 15	E S 13 15	E S 13 15
9	E S 13 15	13	13	13	13	13	15	14	15	14	25	24	25	15	15	15	15	15	15	E S 13 15	E S 13 15	E S 13 15	13	E S 13 15
10	E S 13 15	E S 13 15	13	12	13	15	13	13	15	14	25	15	25	25	26	15	13	15	15	13	13	E S 16	E S 13 15	13
11	E S 13 15	E S 13 15	13	12	E S 13 15	15	13	13	15	16	15	15	18	15	18	18	14	14	14	14	13	E S 13 15	E S 13 15	E S 13 15
12	E S 13 15	E S 13 15	14	E S 13 15	E S 13 15	13	13	14	16	15	15	16	17	26	17	14	15	14	12	12	14	E S 13 15	12	13
13	14	E S 13 15	14	14	13	12	13	15	15	18	25	25	25	25	15	14	15	14	13	12	13	E S 13 15	13	E S 13 15
14	C	13	E S 13 15	E S 13 15	E S 13 15	13	15	14	15	26	23	28	25	25	15	18	15	15	13	E S 13 15	13	E S 13 15	E S 13 15	E S 13 15
15	E S 13 15	E S 13 15	E S 13 15	13	E S 13 15	15	15	13	15	25	24	25	20	50	25	15	15	14	15	E S 13 15	E S 13 15	E S 13 15	E S 13 15	13
16	E S 13 15	E S 13 15	13	13	E S 13 15	13	13	14	15	15	20	21	15	25	15	15	15	13	15	E S 13 15	E S 13 15	E S 13 15	E S 13 15	E S 13 15
17	E S 13 15	E S 13 15	E S 13 15	13	13	12	13	14	15	15	15	19	25	25	15	15	14	14	12	14	13	E S 13 15	E S 13 15	E S 13 15
18	E S 13 15	E S 13 15	E S 13 15	E S 13 15	13	14	14	14	14	15	15	24	25	15	15	15	14	15	12	E S 13 15	E S 13 15	E S 13 15	E S 13 15	E S 13 15
19	E S 13 15	E S 13 15	14	E S 13 15	13	E S 13 15	14	14	15	14	15	16	26	26	15	15	14	14	15	14	E S 13 15	E S 13 15	E S 13 15	E S 13 15
20	14	13	13	14	14	14	15	15	15	20	25	25	25	25	22	15	15	15	13	13	E S 13 15	13	E S 13 15	13
21	E S 13 15	E S 13 15	E S 13 15	E B 13 13	E B 13 13	E B 13 13	13	15	15	19	35	23	23	26	15	14	13	13	13	E S 13 15	12	E S 13 15	E S 13 15	E S 13 15
22	E S 13 15	13	13	E S 13 15	13	E S 13 15	14	14	15	15	16	17	18	15	15	14	C	15	12	E S 13 15	E S 13 15	C	C	C
23	C	C	C	C	C	C	C	C	C	C	15	15	26	25	25	16	15	15	13	E B 13 13	13	12	E S 13 15	13
24	E B 13 13	E B 13 13	E S 13 15	E S 13 15	12	E B 13 13	13	13	15	15	15	23	25	25	25	15	15	13	15	E S 13 15	E S 13 15	13	E S 13 16	E S 13 15
25	E S 13 15	E S 13 15	E S 13 15	E B 13 13	E S 13 15	13	13	13	14	14	17	18	16	15	16	14	14	12	E S 13 15	14	E S 13 15	E S 13 15	E S 13 15	E S 13 15
26	14	13	E S 13 15	12	14	E S 13 15	14	13	14	15	15	15	15	15	15	14	15	14	13	14	E S 13 15	E S 13 15	E S 13 15	E S 13 15
27	12	13	E S 13 15	12	12	E S 13 15	15	15	14	15	16	18	16	15	15	16	17	15	E S 13 15	12	14	E S 13 15	13	E S 13 15
28	E S 13 15	14	14	13	E S 13 15	14	14	13	13	15	16	15	18	15	14	14	15	14	12	13	13	12	13	E S 13 15
29	14	E S 13 15	12	13	14	E S 13 15	13	14	14	15	16	15	18	15	14	15	14	13	14	13	E S 13 15	13	13	E S 13 15
30	12	13	E S 13 15	13	13	12	14	15	15	15	15	15	15	15	15	14	14	13	E S 13 15	E S 13 15	14	E S 13 15	E S 13 15	E S 13 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	29	29	29	29	29	29	29	30	30	30	30	30	29	29	30	30	30	30	29	29	29
MED	E S 13 15	E E 14	E S 13 15	12	13	14	14	14	15	15	16	22	25	24	15	15	15	14	14	13	E S 13 15	E S 13 15	E S 13 15	E S 13 15
UQ	E S 13 15	E S 13 15	E S 13 15	E S 13 15	E S 13 15	15	15	15	15	16	25	25	25	25	18	15	15	15	15	E S 13 15	E S 13 15	E S 13 15	E S 13 15	E S 13 15
LQ	13	13	14	13	13	13	13	13	15	15	15	15	18	15	15	14	14	14	13	13	13	E S 13 15	12	E S 13 15

SEP. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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	275	J R 280	275	300	300	345	325	335	320	295	335	335	290	305	305	315	310	I R 310	295	R	F	F	F	R
2	A	F 280	F	F	A	R	315	320	335	320	325	300	325	295	305	315	320	315	320	315	I R 320	290	J R 295	285
3	300	295	305	305	305	315	345	335	340	335	335	310	305	300	305	305	I A 300	R 310	A	R	A	285	295	F
4	300	I R 300	310	315	315	315	340	355	340	340	345	320	330	315	305	320	325	320	320	325	S 345	J R 325	290	305
5	F 305	295	I R 295	300	305	325	J R 345	355	345	S 360	355	300	305	315	315	315	300	J R 325	J R 325	R 330	345	A	I A 280	A
6	290	280	290	295	335	U S 340	340	J R 360	350	325	295	315	295	320	335	320	320	330	320	J R 280	320	330	285	290
7	290	285	285	290	290	305	315	335	310	330	A	295	275	310	I A 300	C	315	325	315	A	R	R	280	I R 280
8	R 290	F	F	280	265	270	325	335	J R 320	330	320	305	315	315	300	310	310	325	310	275	275	290	J R 310	280
9	275	280	300	I R 320	325	305	360	350	330	325	315	310	305	305	J R 300	320	315	315	J R 340	320	325	285	290	295
10	300	285	285	285	310	300	335	315	325	315	300	330	290	305	315	325	305	J R 315	335	315	330	275	R 290	F
11	285	290	300	325	310	315	340	J R 340	360	340	310	I A 310	310	315	320	320	325	325	J R 315	J S 330	S 345	290	275	290
12	290	305	315	315	315	330	380	355	320	315	325	315	325	345	340	320	325	310	340	S 345	330	285	295	295
13	290	300	305	320	325	300	345	335	295	345	325	325	305	300	300	290	315	325	300	305	I R 320	290	280	270
14	C	290	275	290	285	305	350	345	345	315	345	325	300	310	320	310	325	310	J R 315	320	310	300	280	280
15	275	295	300	315	315	315	I R 340	350	330	325	320	320	320	315	310	320	310	315	R 315	J R 315	305	300	280	275
16	285	290	300	305	290	290	R 340	350	J R 345	350	325	310	320	310	315	320	320	315	330	J R 345	290	270	275	285
17	290	285	285	300	305	295	345	J R 335	345	335	315	320	305	320	315	325	330	325	340	350	290	290	280	290
18	285	290	300	320	315	295	340	340	345	335	320	300	285	280	295	295	J R 325	J R 320	340	300	275	270	275	285
19	280	300	320	300	265	280	305	340	350	325	315	300	305	305	320	310	I A 330	330	335	A	A	280	290	285
20	290	290	300	295	300	295	330	350	R 350	345	325	310	310	305	305	315	325	335	J R 335	J R 305	R 275	260	F	280
21	275	280	295	320	310	285	310	330	335	330	330	310	320	310	305	320	315	330	J R 315	325	R 290	R 275	290	I R 280
22	290	300	300	305	300	305	320	J R 335	335	335	340	315	315	310	315	325	C	305	J R 315	325	275	C	C	C
23	C	C	C	C	C	C	C	C	C	C	320	310	325	320	320	315	J R 320	330	335	325	280	I R 280	300	280
24	290	290	290	295	295	295	330	345	345	335	325	315	320	325	320	310	320	320	330	R 330	305	295	290	290
25	280	280	285	305	330	280	345	315	330	345	330	315	330	295	305	310	320	330	330	305	285	290	280	290
26	310	285	300	270	310	300	340	330	340	315	315	J R 310	R 330	335	310	315	330	325	350	360	275	285	275	290
27	285	275	300	315	290	305	350	340	355	350	320	290	310	R 320	315	325	345	345	325	260	290	295	270	285
28	280	295	310	305	285	295	350	345	325	335	335	345	315	325	325	330	330	350	325	320	305	295	285	I A 290
29	295	290	295	320	305	310	350	350	350	335	340	335	335	340	335	325	325	330	345	340	305	315	310	315
30	300	285	295	310	320	310	360	365	J R 315	355	315	310	325	335	325	335	J R 330	340	335	310	285	295	280	290
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	28	28	28	29	29	29	29	29	30	30	30	30	29	29	30	29	26	26	26	27	25
MED	290	290	300	305	305	305	340	340	340	335	325	310	312	312	315	320	320	325	325	320	305	290	285	285
UQ	292	295	300	315	315	315	345	350	345	340	335	320	325	320	320	320	325	330	335	330	320	295	290	290
LQ	282	282	290	295	292	295	330	335	325	325	315	310	305	305	305	310	315	315	315	305	285	280	280	280

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

IONOSPHERIC DATA

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

Station KOKUBUNJI TOKYO Lat. 35° 42.4' N. Long. 139° 29.3' E Sweep 1 MHz to 20 MHz in 20 sec in 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							L	L	A	A	400 L	A	360 L	340 L	350 L	360 L	A	L	A					
2							A	A	L	380 L	L	A	360 L	360 L	360 L	350 L	L	L	A					
3								L	L	A	A	380 L	R	A	360 L	360 L	A	A	A					
4								L	L	400	370 L	380 L	400	L	340 L	350 L	L	L						
5							A	A	370 L	400 L	L	L	370	350 L	L	340 L	350 L	L						
6								L	L	380 L	A	A	340 L	A	370 L	370 L	L	A						
7								300 L	390 L	370 L	A	A	370 L	370 L	A	C	L	L						
8							L	A	A	380 L	380 L	390 L	370 L	L	A	A	L	L						
9								A	L	380 L	380 L	380 L	390 L	370 L	A	370 L	L	A						
10								L	L	L	420 L	430 L	380 L	340 L	370 L	350 L	L	L						
11								A	A	A	L	A	A	370 L	360 L	380	L	L						
12								L	L	360 U L	L	370	360	265 L	370 L	L	L	A						
13								L	L	400 L	390 L	370 L	400 L	L	360 L	370 L	L							
14								390 L	L	L	380 L	400 L	370 L	A	380 L	L	L	A						
15								L	L	390 L	410 L	380 L	380	B	350 L	L	L	L						
16								L	L	430 L	400 L	390 L	370 L	370 L	360 L	L	A	L						
17							L	L	L	410 L	L	380 L	360 L	390 L	370	360 L	L	A						
18									L	L	U L 360	L	L	370 L	U L 350	L	L							
19								L	L	L	L	390 L	L	L	L	A	A	A	A					
20								L	L	410 L	L	L	390 L	380	390 L	U L 370	L							
21								L	L	390 L	L	380 L	400 L	390 L	L	L	A							
22								L	L	L	L	420 L	380 L	380	L	380 L	C							
23								C	C	C	380 L	400 L	390 L	430	L	L	L							
24									L	400 L	L	390 L	380 L	380 L	U L 380	L	L							
25									L	L	U L 404	L	L	L	355 L	L	L							
26								L	L	L	L	U L 365	365 L	L	L	L	L							
27								L	L	L	L	L	L	L	L	L	L							
28							L	L	L	L	L	U L 360	L	L	L	L								
29									L	L	378 L	L	U L 370	U L 375	L	L	L							
30								L	L	L	L	L	L	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	2	15	13	18	22	17	17	13	1							
MED								345 L	380 L	390 L	380 L	380 L	370 L	370 L	360 L	360 L	350 L							
UQ										400 L	400 L	390 L	390 L	380 L	370 L	370 L								
LQ										380 L	380 L	380 L	365 L	360 L	355 L	350 L								

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

IONOSPHERIC DATA

SEP. 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 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							280	250	290	290	265	280	350	290	310	290	295	270	260					
2							260	250	250	270	280	290	275	315	315	295	280	280	260					
3								255	240	280	275	305	330	330	310	310	I A 300	290	A					
4								250	250	260	255	290	290	300	320	290	260	260						
5							250	240	250	240	250	300	325	300	300	290	305	260						
6								240	250	250	320	290	310	290	280	280	260	260						
7								260	290	270	A	340	360	310	I A 300	C	285	270						
8							255	260	280	280	280	340	305	305	340	305	280	250						
9								240	250	290	310	310	325	325	305	290	275	270						
10								250	265	275	300	280	340	315	315	300	295	260						
11								250	245	A 270	300	I A 320	300	290	285	280	260	255						
12								230	280	290	275	300	280	275	270	300	260	275						
13								260	270	240	275	290	310	310	315	320	270							
14								245	250	270	250	300	340	290	280	280	260	250						
15								250	250	260	285	300	290	290	290	270	280	260						
16								250	230	240	270	310	285	300	285	280	260	255						
17							230	250	250	255	270	300	315	290	300	280	255	260						
18									250	A 245	270	285	310	330	300	285	250							
19								255	250	250	290	255	290	280	280	300	I A 280	I A 260	A					
20								240	230	260	260	285	290	290	290	285	260							
21								260	260	260	260	275	285	260	290	275	260							
22								250	240	260	260	250	295	290	290	280	C							
23								C	C	C	265	290	290	280	290	280	260							
24									255	245	260	260	280	285	280	290	250							
25									240	250	250	290	290	305	290	280	270							
26								270	250	250	260	275	255	260	290	290	260							
27								230	240	230	280	270	280	275	280	260	235							
28							230	240	255	260	270	250	290	270	260	250								
29									240	240	255	260	260	255	250	260	260							
30								235	240	245	255	260	275	260	245	255	250							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							6	25	29	29	29	30	30	30	30	29	28	17	2					
MED							252	250	250	260	270	290	290	290	290	285	260	260	260					
UQ							260	255	255	270	280	300	315	305	305	290	280	270						
LQ							230	240	240	245	260	275	285	280	280	280	260	260						

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SEP. 1971 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 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	290	290	280	280	260	245	220	240	A	A	200	I 200 A	210	240	220	230	I 250 A	250	I 250 A	260	260	300 A	290	250
2	I 260 A	250	270	285	I 280 A	290	A	I 240 A	I 240 A	210	A	A	200	210	210	230	240	I 240 A	I 250 A	250	240	240	250	290
3	280	280	250	250	250	250	235	220	220	I 230 A	I 210 A	210	I 210 A	I 210 A	205	I 230 A	A	A	A	250	A	300 A	220	250
4	250	270	290	260	280	260	240	240	210	200	205	205	205	195	245	250 A	245	230	245	240	210	210	240	260
5	280	280	280	270	245	260	I 240 A	I 240 A	205	210	200	180	220	200	240	240	240	I 260 A	245	220	200	A	I 300 A	I 280 A
6	270	310	290	260	220	205	230	220	I 220 A	200	I 210 A	A	A	A	240	230	240	I 250 A	250	255	230	215	260	300
7	290	340	310	275	270	280	250	I 240 A	220	A	A	I 220 A	220	220	I 220 A	C	I 240 A	250	255	I 300 A	250	270	290	280
8	280	350 A	390 A	330	340	300	250	I 250 A	A	210	235	210	240	250	I 230 A	I 250 A	240	240	240	300	280	260	250	305
9	330	300	290	240	205	240	240	I 230 A	210	200	200	250	220	220	I 250 A	230	I 240 A	I 260 A	250	240	240	290	300	280
10	290	290	300	290	250	280	240	230	230	220	200	200	240	195 H	220	195	220	240	240	225	205	270	290	300
11	280	260	280	205	250	240	245	I 220 A	A	A	220	I 220 A	I 200 A	205 H	200	210	220	240	250	240	220	260	300	280
12	270	255	240	240	240	230	210	210	205	230	230	200	240	230	210	220	250 A	I 250 A	245	220	210	250	280	270
13	260	280	280	250	230	260	220	240	240	210	205	200	200	240	240	210	240	240	240	240	230	225	310	340
14	C	300	300	290	250	280	240	210	200	210	220	220	200	I 240 A	240	240	240	I 250 A	260	250	240	250	300	290
15	300	280	260	250	250	240	240	240	210	200	200	210	240	B	240	240	240	250	240	240	240	240	280	290
16	290	280	290	250	260	285	245	230	225	200	230	200	200	210	210	245	I 240 A	250	240	210	215	300	305	290
17	290	285	285	250	240	260	200	240	240	205	200	190 H	200	220	220	230	I 250 A	I 250 A	240	200	250	270	290	275
18	290	290	270	245	200	275	240	240	220	240 A	220	220	210	210	230	250	235	255	210	200	270	305	300	290
19	280	260	240	270	320	275	230	230	200	210	245	220	220	210 H	230	A	A	A	A	A	A	300 A	280	280
20	280	280	270	245	250	290	240	230	220	200	230	220	210	220	240	240	240	240	220	260	290	305	300	275
21	285	290	280	225	240	300	255	240	210	210	190 H	210	200	220	230	220	I 240 A	250	240	245	240	330	300	310
22	300	280	290	250	240	280	240	240	220	220	210	200	200	230	200	240	C	245	240	230	240	C	C	C
23	C	C	C	C	C	C	C	C	C	C	205	210	200	200	230	210	240	245	225	210	270	290	300	300
24	285	280	290	290	260	260	240	240	210	205	190 H	200 H	210	230	240	210 H	240	245	230	210	235	260	290	300
25	290	290	290	245	230	240	210	210	220	225	220	205	205	200	240	230	I 260 A	240	220	220	255	260	290	270
26	240	285	250	250	250	225	240	230	225	210	220	205	200	205	200	240	245	245	220	200	270	300	350 A	310
27	310	290	260	220	260	250	220	225	205	200 H	200 H	230	220	230	245	235	240	230	210	250	260	275	275	300
28	310	270	260	240	275	270	180 H	230	220	225	225	225	205	200	225	240	230	240 A	220	220	240	280	275	I 300 A
29	350 A	275	275	240	245	250	220	230	205 H	200	200 H	250	205	205	230	230	220	245	230	210	240	240	250	240
30	260	290	290	255	240	250	225	230	220	205	200 H	205	200	200 H	205	240	240	240	220	225	270	260	295	275
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	29	29	29	29	28	29	26	26	28	28	29	28	30	28	27	28	28	29	28	28	29	29
MED	285	280	280	250	250	260	240	230	220	210	208	210	205	210	230	230	240	245	240	240	240	270	290	290
UQ	290	290	290	270	260	280	240	240	220	220	220	220	220	230	240	240	240	250	248	250	260	300	300	300
LQ	275	280	270	245	240	245	220	230	210	200	200	200	200	202	210	225	240	240	222	220	230	250	275	275

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SEP. 1971 | H'F (KM)

IONOSPHERIC DATA

SEP. 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	S	100	100	B	130	110	110	110	105	110	100	100	140	115	110	105	105	100	100	100	100	100
2	100	100	100	100	100	100	120	110	110	110	110	100	100	100	G	G	110	110	100	100	100	100	100	100
3	100	100	100	100	100	B	120	110	110	110	105	105	110	110	110	120	110	110	105	100	100	100	100	100
4	100	100	100	100	100	100	G	110	110	110	105	105	105	105	100	100	100	100	100	100	105	105	105	105
5	100	100	100	100	100	120	105	110	110	105	100	100	100	100	100	140	100	100	110	110	100	105	105	105
6	105	100	100	100	100	110	115	115	110	110	105	105	105	B	135	145	130	110	105	110	100	105	100	100
7	100	100	100	100	100	115	140	130	110	110	110	110	110	105	105	C	110	110	110	105	100	100	100	100
8	100	100	100	100	100	100	110	105	110	110	105	105	110	110	110	110	110	140	110	100	100	100	100	100
9	100	100	100	100	100	B	150	140	120	140	110	120	110	105	105	110	110	110	100	100	100	100	100	100
10	100	100	100	100	100	100	140	130	140	140	140	G	110	G	G	G	100	140	115	B	B	S	100	100
11	100	100	100	100	100	100	G	140	110	110	110	105	105	105	105	100	G	100	100	105	105	100	100	100
12	100	100	100	S	S	B	115	110	120	110	110	110	105	125	150	140	125	115	110	105	105	100	105	100
13	100	110	B	100	100	100	110	100	130	100	G	G	G	G	G	G	G	130	105	100	100	100	100	100
14	C	100	100	100	100	100	100	100	G	G	G	110	G	110	105	G	110	100	100	100	100	100	100	100
15	100	S	S	100	100	100	130	100	110	G	100	G	G	B	G	G	110	140	100	100	100	100	100	100
16	S	S	100	100	100	B	140	G	110	110	110	100	110	110	110	110	100	130	100	100	100	100	100	100
17	S	S	100	B	B	100	100	G	145	140	G	G	G	G	160	145	125	115	110	105	105	100	100	100
18	S	100	100	S	B	B	G	155	155	150	110	110	105	105	115	150	125	110	110	S	S	S	105	S
19	100	S	B	100	100	100	G	105	105	100	105	105	105	105	140	115	115	110	105	100	100	100	100	100
20	100	100	100	100	100	B	150	145	130	120	110	110	100	G	G	110	110	130	110	105	100	100	100	B
21	S	100	100	B	B	B	110	115	G	115	100	105	100	100	100	100	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	G	115	140	100	100	100	100	100	100	100	C	100	100	100	100	C	C	C
23	C	C	C	C	C	C	C	C	C	C	125	G	G	G	G	G	115	140	110	B	100	100	100	100
24	B	B	100	100	100	B	G	135	120	135	110	G	120	110	110	110	110	130	100	100	100	100	100	100
25	S	S	100	B	S	100	100	100	G	125	115	110	110	110	110	110	105	120	100	100	100	100	100	100
26	100	100	100	100	100	100	100	100	120	G	G	G	G	110	110	150	130	120	115	100	S	S	105	100
27	100	100	110	100	100	100	150	G	130	145	150	100	100	100	175	130	110	115	100	B	B	105	105	100
28	100	100	100	100	100	120	110	160	130	110	110	110	110	110	110	110	110	105	105	100	105	100	105	100
29	100	100	B	100	100	100	150	G	G	G	G	175	G	G	140	125	115	105	110	105	105	100	100	100
30	B	100	100	B	B	100	G	160	145	130	125	G	110	110	110	115	150	100	100	100	100	105	100	S
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	21	23	24	23	23	20	22	25	25	25	25	22	23	22	24	23	27	30	30	26	26	26	29	26
MED	100	100	100	100	100	100	118	110	120	110	110	105	105	105	110	115	110	110	105	100	100	100	100	100
UQ	100	100	100	100	100	100	140	135	130	130	110	110	110	110	138	135	115	130	110	105	100	100	100	100
LQ	100	100	100	100	100	100	110	105	110	110	105	105	100	100	105	110	110	105	100	100	100	100	100	100

SEP. 1971 | H'ES (KM)

IONOSPHERIC DATA

SEP. 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 automatio 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	F1		F1	F1		H1	C1	C1	C2	C1	C2	L1	L1	H1	C1	C2	L2	L2	F5	F5	F2	F5	F2
2	F3	F3	F3	F2	F2	L3	H2	C3	C2	C1	C1	L2	L1	L1			C1	C3	L3	F2	F3	F3	F2	F2
3	F4	F2	F2	F1	F2		H1	C1	C1	C2	L1	L1	C1	C2	C1	H1	C3	C2	L3	F2	F3	F3	F1	F3
4	F2	F2	F4	F2	F2	L4		C1	C1	L1	L1	L1	L1	L1	L1	L2	L2	L2	L3	F4	F1	F2	F3	F2
5	F2	F1	F2	F1	F1	C1	L4	L4	C2	C2	L1	L1	L1	L1	L1	HL2	LH31	LH32	CL33	FF21	F1	F2	F3	F3
6	F2	F3	F2	F2	F2	L1	C2	C2	C2	C1	C2	C1	C1		H1	H1	H1	C2	L2	F2	F1	F2	F2	F2
7	F2	F2	F1	F1	F1	L1	H1	H1	C1	C1	C1	C1	C1	C1	C2		C2	C1	C3	F3	F3	F3	F3	F1
8	F3	F3	F3	F2	F3	L1	C1	C3	C2	C1	C1	C1	C1	C1	C2	C2	C1	H1	L3	F2	F2	F2	F3	F3
9	F3	F2	F2	F2	F1		H1	H1	H3	H1	C1	H1	C1	C1	C1	C2	C2	C4	L4	F3	F3	F3	F4	F3
10	F2	F2	F2	F2	F1	L1	H1	H1	H1	H1	H1		C1				L1	HL11	L2				F2	F2
11	F2	F2	F3	F1	F2	L1		H1	C1	C2	C1	C3	C2	L1	L2	L1		L3	L4	F3	F7	F2	F2	F1
12	F2	F1	F1				C3	C1	C2	CL1	CL1	C1	L2	H1	H1	HL1	H3	C3	C4	F6	F5	F2	F2	F3
13	F2	F1		F3	F2	F2	L1	L1	HL1	L2								H1	L2	F2	F2	F4	F4	F3
14		F1	F3	F2	F2	F2	L8	L2				C1		C2	C2		C1	L3	L2	F4	F4	F3	F2	F2
15	F2			F1	F1	F2	H1	L1	C1		L1						C1	HL1	L1	F1	F1	F3	F3	F2
16			F3	F1	F1		H1		C1	C1	C1	C1	C1	C1	C1	C1	L2	HL1	L2	F4	F1	F1	F2	F2
17			F1			F2	L1		H1	H1					H1	H1	HL2	C3	C4	F4	F4	F1	F2	F1
18		F1	F1					H1	H1	H1	C1	C1	L1	L1	C1	H1	H2	C3	C2				F1	
19	F1			F2	F2	F1		C2	L2	L2	L2	L2	L1	L1	H1	C3	C4	C5	C4	F7	F4	F3	F2	F1
20	F2	F2	F4	F3	F1		HL2	H2	H1	H1	C1	C1	L1			C1	C1	H1	L2	F3	F3	F3	F2	
21		F2	F1				C2	C1		C1	L1	L1	L1	L1	L1	L1	L1	L2	L1	F3	F3	F2	F3	F3
22	F3	F3	F2	F2	F1	F1		C1	H1	L2	L2	L2	L2	L1	L2	L1		L1	L1	F1	F5			
23											H1						C1	HL1	L3		F2	F2	F4	F2
24			F1	F1	F1			H1	HL1	HL1	C1		H1	C1	C1	C2	C1	HL1	L1	F1	F2	F2	F2	F1
25			F1			F1	LH11	L1		H1	H1	C1	C2	CL1	C2	C2	LH22	CL43	L3	F2	F2	F1	F4	F2
26	F1	F1	F1	F2	F1	F1	L1	L2	C1					C1	L1	H1	H2	C3	C4	F1			F4	F5
27	F3	F2	F1	F2	F4	F2	HL21		H1	HL1	HL1	L1	L1	L1	HL1	H1	C2	L2	F1			F1	F1	F4
28	F4	F3	F3	F2	F1	F1	L1	H1	HL1	CL1	CL1	CL1	C1	CL1	CL1	C2	C3	C4	F2	F2	F1	F4	F2	F3
29	F4	F1		F1	F1	F2	H1					H1			HL1	H2	C1	C2	F4	F3	F5	F3	F2	F1
30		F1	F1			F2		H1	H1	H1	H1		C1	C1	C1	H1	H1	L3	F2	F2	F1	F1	F1	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

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SEP. 1971 | TYPES OF ES

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	390	360	350	350	340	260	300	290	300	320	290	290	350	340	340	300	300	330	350	R	F	F	F	R
2	A	390	F	F	A	R	300	280	290	300	300	350	300	350	340	320	300	320	300	300	300	350	350	355
3	350	350	340	340	310	320	255	280	250	290	290	330	340	350	340	340	330	330	A	R	A	350	350	F
4	350	350	330	300	315	310	270	260	270	270	255	300	290	300	325	300	290	295	290	290	250	260	315	330
5	340	320	320	320	300	300	260	250	255	245	255	315	330	305	320	305	320	285	285	270	250	A	390	A
6	350	370	355	325	260	250	260	250	250	260	355	300	350	290	290	300	300	290	300	355	300	280	350	360
7	360	360	360	340	360	340	320	280	300	290	A	350	390	330	320	C	300	300	300	A	R	R	460	360
8	355	F	F	390	390	385	290	285	300	290	300	340	305	320	350	330	310	285	290	380	360	360	330	370
9	390	390	350	300	290	300	255	250	290	300	315	330	340	340	350	300	300	300	280	300	290	360	360	360
10	350	360	370	350	300	350	280	320	300	310	350	290	350	340	320	300	340	300	290	300	290	360	360	F
11	360	350	350	260	300	300	260	260	250	280	300	330	305	305	300	290	290	290	300	290	255	350	370	350
12	340	315	290	300	300	280	220	250	300	300	290	300	300	275	275	300	280	300	270	250	270	345	350	335
13	345	330	330	300	285	300	255	270	340	265	300	300	340	350	350	350	300	300	340	340	300	360	390	400
14	C	360	370	360	350	340	250	260	260	300	260	300	350	330	300	300	300	300	300	300	330	350	390	380
15	380	360	350	300	340	290	260	250	290	300	300	300	300	300	330	300	330	305	300	300	300	350	360	360
16	370	350	340	300	340	350	260	255	255	260	300	310	300	315	300	300	300	300	290	260	350	400	390	350
17	360	350	360	340	340	350	260	260	260	270	300	300	320	300	305	300	270	290	255	245	310	350	360	350
18	355	350	325	300	285	320	250	270	255	260	290	310	350	360	330	320	290	300	255	320	380	385	385	360
19	360	325	300	330	400	350	300	280	255	300	305	310	315	300	300	310	290	280	290	A	A	350	350	350
20	345	350	320	320	305	345	290	250	250	270	300	300	330	340	340	300	300	290	280	300	360	400	F	360
21	360	360	360	300	330	360	300	290	280	290	290	300	300	300	340	300	300	290	300	290	350	400	355	350
22	360	350	350	340	330	340	290	260	280	290	280	310	310	300	300	300	C	300	300	300	360	C	C	C
23	C	C	C	C	C	C	C	C	C	C	300	310	300	300	300	300	300	290	280	300	360	360	350	390
24	360	360	360	360	350	350	280	250	270	280	300	300	300	300	300	330	300	300	290	290	340	350	360	370
25	360	360	360	310	290	350	250	300	280	260	280	300	300	340	315	305	300	285	290	300	355	360	370	350
26	305	375	315	360	305	320	280	290	280	300	305	300	285	280	310	305	290	265	255	250	370	380	390	360
27	360	370	320	300	350	310	250	250	255	250	300	350	310	300	305	295	255	255	290	385	340	350	370	360
28	385	330	310	315	350	345	250	255	290	290	290	255	305	300	290	285	285	255	285	285	310	350	355	340
29	355	350	350	300	300	300	250	250	250	280	275	290	285	270	265	290	295	290	265	275	320	300	305	300
30	340	350	350	305	300	305	250	250	270	255	285	300	295	275	280	275	280	260	270	285	350	345	365	345
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	28	28	28	29	29	29	29	29	30	30	30	30	29	29	30	29	26	26	26	27	25
MED	360	350	350	318	312	320	260	260	270	290	300	300	308	302	312	300	300	292	290	300	325	350	360	360
UQ	360	360	358	340	345	350	290	280	290	300	300	315	340	340	340	305	300	300	300	300	355	360	378	360
LQ	350	350	322	300	300	300	250	250	255	265	290	300	300	300	300	300	290	285	280	285	300	350	350	350

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SEP. 1971 | HPF2 (KM)

IONOSPHERIC DATA

SEP. 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	J R 90	100	90	100	90	90	100	110	90	90	100	100	100	100	100	100	I R 110	100	R	F	F	F	R
2	A	F 100	F	F	A	R	100	100	90	90	90	100	100	100	110	120	100	110	100	90	I R 100	100	J R 100	105
3	100	100	100	100	90	100	95	100	100	90	100	110	110	100	110	100	I A 100	R 90	A	R	A	100	90	F
4	90	I R 100	110	100	95	90	100	90	110	50	55	80	60	70	75	95	70	75	70	70	S 55	J R 60	85	75
5	F 110	80	I R 80	80	100	70	J R 45	50	50	S 55	50	155	70	80	85	70	80	J R 70	J R 70	R 55	65	A	I A 70	A
6	95	80	95	90	55	U S 65	50	J R 50	50	90	105	90	100	100	100	140	100	100	100	J R 95	90	100	110	90
7	90	90	120	100	90	100	100	100	100	90	A	100	90	110	I A 100	C	100	90	100	A	R	R	100	I R 100
8	R 85	F	F	90	100	105	90	95	J R 90	100	90	100	95	120	100	110	90	95	100	100	100	100	J R 110	90
9	100	90	90	I R 100	110	100	85	90	90	110	95	110	110	100	J R 95	120	100	100	J R 100	100	100	100	100	100
10	100	90	90	100	100	100	90	100	90	100	100	100	100	110	120	120	100	J R 90	90	100	90	100	R 100	F
11	100	90	90	80	100	100	90	J R 90	90	I A 70	85	I A 60	95	90	80	60	70	65	J R 65	J S 65	S 65	90	85	95
12	70	90	80	95	95	75	55	70	65	70	70	90	60	85	45	70	70	75	50	S 55	80	65	65	65
13	70	70	70	80	70	95	70	65	65	95	100	100	100	100	90	100	100	90	100	100	I R 100	90	100	90
14	C	110	90	100	100	100	90	90	100	100	80	130	100	110	100	100	100	100	J R 100	90	110	100	90	80
15	100	100	100	100	100	100	I R 90	100	100	90	100	140	120	90	110	90	110	95	R 90	J R 90	100	90	100	100
16	90	110	120	100	100	100	R 100	105	J R 85	90	100	100	100	105	100	100	100	100	100	J R 100	90	90	100	100
17	90	100	100	100	110	100	80	J R 100	100	50	70	70	80	60	95	55	75	85	65	55	90	90	90	95
18	95	95	75	70	85	80	65	75	55	85	70	110	95	100	90	85	J R 70	J R 55	65	125	90	90	70	90
19	95	75	55	85	85	95	100	40	50	85	65	85	90	100	55	90	I A 60	I A 60	65	A	A	110	95	100
20	60	95	90	100	95	80	65	60	R 50	90	100	100	110	100	100	100	90	110	J R 100	J R 90	R 100	90	F	90
21	100	100	100	100	110	90	100	110	100	100	100	90	100	100	100	100	100	100	J R 90	100	R 90	R 90	105	I R 90
22	90	90	90	100	110	110	100	J R 100	110	100	100	100	110	100	100	100	C	100	J R 100	100	100	C	C	C
23	C	C	C	C	C	C	C	C	C	C	100	110	100	90	100	100	J R 90	100	110	90	100	I R 100	110	100
24	90	100	100	100	100	90	100	100	110	100	90	90	100	100	90	110	100	100	100	R 100	100	90	100	110
25	90	100	100	100	110	110	90	90	90	80	70	60	80	110	80	80	65	70	65	100	90	85	85	95
26	100	75	105	110	85	100	65	60	55	95	95	J R 95	R 70	60	90	70	65	55	65	55	100	75	90	95
27	95	105	85	75	70	95	70	55	50	55	95	110	90	R 70	90	60	50	50	70	115	80	65	100	90
28	65	85	90	95	65	60	60	55	60	60	65	50	75	55	55	60	65	50	70	90	85	70	105	I A 80
29	70	95	70	60	38	100	55	50	50	55	40	60	75	70	75	65	60	60	50	70	85	100	70	65
30	65	70	70	65	75	95	55	45	J R 35	45	70	95	55	65	75	50	J R 75	60	80	75	100	60	85	80
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	28	27	28	28	28	29	29	29	29	29	30	30	30	30	29	29	30	29	26	26	26	27	25
MED	90	92	90	100	98	98	90	90	90	90	90	100	98	100	95	100	90	90	90	90	90	90	100	90
UQ	100	100	100	100	100	100	100	100	100	95	100	110	100	100	100	100	100	100	100	100	100	100	100	100
LQ	88	88	82	82	85	90	65	60	55	70	70	90	80	80	80	70	70	65	65	70	85	85	85	90

The Radio Research Laboratories, Japan

SEP. 1971 | YPF2 (KM)

IONOSPHERIC DATA

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

SEP. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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									410L	L	500L	470L	L	490L	470	470	430L	L	A					
2								A	L	450L	L	490L	490H	IA 480	480	470	A	A	A					
3									L	450H	470H	490H	520H	490	510L	470H	A	A	L					
4									L	IA 440	L	490H	510	570	470	430H	450H	390L	L					
5							L	L	420	430	450	460H	480H	470	470	460	450	L	A					
6									L	L	500L	L	A	A	A	480	A	A	A					
7								L	A	A	450L	500	490	480	480H	470	450	400	A					
8								L	L	490H	470	470	L	IA 490	470	460	450	390L	L					
9									L	420	L	480L	490	UL 480	470	470H	460L	L	A					
10									L	C	470H	480	440	490H	480H	460	L	L						
11										L	490	490H	470H	480	480H	480	450	L						
12								L	L	470	490	510H	480H	490H	470	460	440L	L	L					
13									L	460L	480L	500	490	480	490H	460	L	L	L					
14									L	L	470L	L	520	L	490	L	L	L	A					
15									L	L	480L	470H	510L	450R	490L	480L	440L	L	L					
16									L	460L	L	490L	490L	480L	UL 500	UL 470	460	UL 420						
17									L	440L	500L	540L	510L	500H	480	490	L	L						
18									L	A	480	500	A	500	510	490	460L	L						
19									L	L	L	500L	490L	530	500	500L	L	L						
20									L	L	L	510L	540L	L	530L	480	440L	L						
21									L	L	470L	500L	520L	UL 520	510H	470L	L	L						
22									L	L	L	520L	510L	520L	490L	L	450L	L						
23								L	L	480L	480	490	500L	510H	520H	480L	450L	A						
24									L	470L	450	490L	L	530L	490L	460L	L	L						
25									L	450L	490L	L	L	500L	500L	470L	L	L						
26									L	L	500	500	L	540L	480L	490L	440L	L						
27									L	L	L	L	L	500L	510L	L	L	L						
28									L	L	UL 470	500L	500L	500	UL 470	440	A	A						
29									L	L	L	470L	480	L	L	L	L	L						
30									L	L	L	480L	490L	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									2	13	20	26	22	25	27	25	15	4						
MED									415	450L	480	490	490	490	490	470	450L	395L						
UQ										460L	490L	500L	510L	510L	500L	480	450	410						
LQ										440	470	480	490	480	475	460	440L	390L						

SEP. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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	H 240	275	305	320	I R 335	350	H 360	345	325	300	250	155					
2							S	220	275	300	A	A	350	A	A	320	I A 300	250	170					
3							S	215	265	290	I A 310	I A 330	350	350	350	325	295	A	A					
4							S	A	270	310	320	A	A	A	I A 340	I A 330	290	250	180					
5							S	210	I A 260	A	A	A	I A 340	340	340	320	290	I A 240	170					
6							S	H 230	270	310	325	340	A	A	A	A	300	260	150					
7							S	220	275	300	320	I A 320	I A 335	350	340	310	290	250	170					
8							S	220	265	290	H 320	H 330	A	A	A	320	290	245	180					
9							S	H 230	285	305	A	A	A	A	330	310	A	A	A					
10							S	H 230	275	I C 305	330	I A 340	350	340	I A 325	I A 315	290	250	180					
11							S	210	270	305	330	A	A	A	A	A	A	260	A					
12							S	A	260	310	330	340	340	I A 340	I A 330	320	300	240	A					
13							S	230	I A 270	310	320	I A 330	345	350	335	325	290	H 260	A					
14							S	220	I A 280	320	330	335	330	A	A	A	A	250	A					
15							S	210	270	320	330	H 340	350	I B 355	350	325	290	A	A					
16							S	225	280	315	350	350	350	350	335	320	300	H 240	S					
17							S	230	280	305	A	350	350	R 350	I R 335	320	290	250	A					
18							S	220	280	305	325	350	350	I A 350	340	320	290	250	A					
19							S	210	280	H 305	320	A	A	360	350	I A 335	320	A	A					
20							S	230	A	A	A	A	R 360	I A 350	I A 335	320	290	240	S					
21							S	230	290	315	A	A	A	H 360	350	330	300	250	S					
22							S	210	280	310	330	H 335	H 350	H 350	340	325	300	250	S					
23							S	220	H 285	H 310	H 335	350	350	350	345	330	300	250	A					
24							S	230	290	C	A	A	A	A	350	330	A	A	S					
25							S	H 230	280	325	335	340	350	340	A	A	A	A	S					
26							S	210	H 270	310	330	330	340	R 340	330	320	290	230	S					
27							S	200	280	H 310	330	H 345	350	345	335	315	280	I A 230	S					
28							S	215	260	295	A	A	A	I A 340	I A 330	320	290	230	S					
29							S	210	270	300	H 320	320	350	350	345	320	290	230	S					
30							S	210	280	305	320	320	330	335	330	I A 310	280	I A 220	S					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								28	29	27	22	20	21	22	24	26	25	24	8					
MED								220	275	305	328	338	350	350	340	320	290	250	170					
UQ								230	280	310	330	342	350	350	345	325	300	250	180					
LQ								210	270	305	320	330	340	340	332	320	290	240	162					

SEP. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 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 18	E S 15	E S 15	E S 13	E S 14	18	J X 16	26	33	39	39	G 33	G 34	G	42	39	G	J X 42	J X 50	J X 57	J X 25	J X 66	J X 41	J X 51
2	J X 70	J X 52	J X 75	J X 39	J X 33	J X 20	J X 27	J X 42	38	33	J X 44	J X 38	G 31	J X 74	J X 42	44	J X 135	M 185	J X 51	J X 171	J X 51	J X 28	J X 26	J X 21
3	J X 18	E S 14	17	J X 16	21	J X 18	E S 15	26	34	36	38	38	39	45	45	44	60	J X 69	J X 80	J X 61	J X 30	J X 39	J X 53	J X 43
4	J X 41	J X 34	J X 21	J X 21	18	22	J X 24	J X 26	31	J X 63	J X 48	40	40	J X 43	37	J X 38	J X 31	32	25	16	J X 49	J X 32	J X 29	19
5	E B 19	E S 15	E B 20	E S 13	E B 13	E S 14	23	27	32	J X 39	36	J X 43	J X 35	40	39	39	36	36	J X 46	J X 29	J X 28	21	J X 22	J X 51
6	J X 28	J X 25	J X 18	19	21	23	20	25	33	40	40	43	J X 53	J X 60	J X 78	J X 76	J X 54	J X 108	J X 84	J X 102	J X 42	J X 29	J X 32	J X 29
7	J X 24	J X 76	J X 33	J X 35	J X 32	J X 26	J X 27	32	42	J X 51	40	45	40	J G 31	G 32	33	36	28	27	J X 29	J X 43	J X 59	60	32
8	J X 29	J X 33	J X 33	J X 24	J X 24	J X 54	J X 24	J X 34	33	35	53	41	J X 47	J X 75	J X 62	34	32	28	20	J X 17	J X 51	J X 72	J X 22	J X 27
9	J X 22	J X 24	J X 17	J X 19	J X 18	19	J X 21	27	38	40	44	45	46	39	35	36	33	J X 52	J X 40	J X 41	J X 40	J X 52	J X 41	E B 16
10	22	E S 14	E S 14	E S 15	E S 12	E S 13	16	29	34	C	G	J X 41	G 29	J G 28	33	32	G	G	21	E S 13	E S 15	E S 15	21	18
11	E S 15	J X 24	E S 15	J X 21	E S 15	22	19	J G 21	33	34	35	37	J X 52	J X 53	38	33	J X 34	J X 39	20	J X 35	J X 43	J X 24	E S 12	J X 22
12	E S 15	17	18	E S 13	E	E S 14	E S 14	26	30	G 27	J G 31	G 32	G 28	39	35	35	33	34	J X 29	J X 40	J X 51	22	21	J X 34
13	J X 35	J X 35	J X 21	J X 16	22	22	22	G	31	33	37	35	G 32	J G 32	J G 27	G 25	G	29	J X 29	J X 36	J X 31	J X 24	J X 24	24
14	22	22	21	E S 15	17	J X 20	J X 24	G	J X 35	G 27	J G 31	35	36	36	37	J X 52	41	J X 50	J X 64	J X 72	J X 25	J X 21	17	J X 26
15	24	E S 14	E S 15	E B 13	E B 13	E S 13	E S 14	32	G	G	J G 28	J G 29	J X 36	E B 42	G	G	31	J X 28	J X 28	J X 33	J X 28	J X 26	J X 19	22
16	J X 20	J X 26	E B 20	E B 15	E S 15	E S 13	E S 15	25	33	39	39	J G 31	G 25	G	G	G 18	36	35	J X 33	J X 33	J X 32	J X 31	J X 16	22
17	18	E S 12	18	17	18	19	J X 23	J X 32	32	33	33	G 22	G	G 23	36	36	35	34	J X 36	J X 48	J X 73	J X 33	E S 15	E S 15
18	E B 15	E S 14	E B 13	E B 12	E	E	E S 15	30	38	J X 78	J X 89	J X 75	J X 60	J X 39	J X 40	34	32	30	18	21	E S 14	E S 15	E S 15	E S 15
19	J X 21	18	16	E S 15	J X 21	21	E S 14	24	32	34	34	38	J X 41	39	37	J X 35	G	31	J X 29	J X 101	J X 97	92	J X 82	J X 27
20	22	19	21	E	16	E S 15	18	26	31	34	J X 39	39	40	37	40	34	G	32	J X 33	J X 25	21	J X 31	J X 29	J X 20
21	E S 15	E S 15	E S 14	21	21	J X 21	E S 15	J X 25	G 26	33	36	36	35	J G 32	G 32	G 32	G 27	29	18	J X 21	34	J X 36	J X 51	J X 33
22	30	25	J X 29	J X 24	19	18	19	25	32	35	35	G 24	G 27	G 27	G 30	J G 27	32	31	21	J X 19	J X 27	27	17	J X 28
23	18	E B 15	E S 14	E	E S 12	E S 15	E S 15	30	33	33	36	37	G	G	G	G	G	J X 56	J X 54	J X 20	E S 15	J X 24	E S 12	J X 33
24	J X 27	J X 21	22	E S 14	E S 14	E S 14	E S 15	G	32	J G 33	36	36	37	J X 37	G 31	36	J X 41	J X 43	J X 35	J X 26	J X 24	18	18	22
25	E S 14	E S 15	E S 13	E S 15	E B 14	E S 13	E S 15	27	31	37	40	40	40	42	39	35	34	J X 36	J X 26	J X 22	J X 24	22	J X 21	J X 25
26	24	22	17	E S 12	E B 13	E B 13	E S 15	27	31	J G 27	J G 24	G 28	G 33	G 27	G 29	G 26	G	30	16	19	J X 24	E S 15	E S 15	J X 36
27	19	21	E S 13	17	17	J X 28	19	24	30	36	39	G	47	39	37	40	32	J X 31	E S 15	E S 15	J X 24	E S 12	21	22
28	19	J X 26	J X 25	22	22	22	18	23	28	35	J X 40	35	35	37	35	G	56	J X 66	38	J X 30	J X 23	J X 29	E S 15	22
29	18	E S 15	J X 60	J X 25	J X 21	J X 21	J X 18	25	J G 25	G 20	G	G	37	40	40	42	34	30	23	17	17	E S 15	E S 14	J X 24
30	19	E S 14	E S 13	E	E S 15	E S 12	20	25	30	35	36	33	34	36	35	J X 32	31	J X 28	16	E S 13	E S 14	E S 14	18	E S 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	20	20	18	16	17	18	18	26	32	35	36	36	36	38	36	34	32	33	J X 29	J X 29	J X 28	J X 26	21	J X 23
UQ	J X 24	J X 25	J X 21	J X 21	21	22	22	29	33	39	40	40	40	42	40	39	36	J X 43	J X 40	J X 41	J X 43	J X 33	J X 29	J X 32
LQ	18	E S 15	E S 15	E S 13	E E 14	E S 14	E S 15	25	31	33	34	G 32	G 32	G 31	G 32	G 32	G 27	30	21	J X 19	J X 24	21	16	21

SEP. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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	16	E S 15	E S 15	E S 13	E S 14	E	S	G	32	37	36	E B 33	G 33	G	41	38	G	33	49	57	20	54	24	29
2	A	34	A	21	22	15	25	40	36	G	41	35	G 30	72	37	43	A	53	51	30	30	15	20	16
3	E	E S 14	16	15	E	16	E S 15	25	31	34	35	36	38	40	38	38	45	48	21	20	20	35	A	34
4	25	26	E	16	E	E	19	24	G	47	42	36	38	37	35	33	25	G	G	15	20	20	22	19
5	E B 19	E S 15	E B 20	E S 13	E B 13	E S 14	S	G	29	33	34	34	35	40	38	38	35	32	30	28	18	E	15	29
6	20	E	15	E	13	E	S	G	32	37	38	41	52	56	78	38	53	A	69	A	26	20	30	16
7	18	16	15	24	22	20	21	30	42	47	39	40	37	G 30	G 30	G	35	G	25	20	25	20	A	20
8	22	20	E	16	20	24	16	20	32	34	41	39	40	E R 75	40	G	G	27	G	E	E	A	20	20
9	15	17	E	15	E	E	15	G	32	39	40	41	44	36	G	34	31	31	32	31	29	A	29	E B 16
10	E	E S 14	E S 14	E S 15	E S 12	E S 13	16	29	32	C	G	41	G 29	G 28	E R 33	32	G	G	G	E S 13	E S 15	E S 15	E	E
11	E S 15	18	E S 15	15	E S 15	E	G	G	30	G	G	35	37	39	37	33	30	21	19	20	28	20	E S 12	19
12	E S 15	E	E	E S 13	E	E S 14	E S 14	25	29	G 27	G 29	G 30	G 28	37	35	34	32	31	26	36	40	E	E	19
13	16	20	16	16	12	E	S	G	28	33	36	35	G 32	G 30	E R 27	G 25	G	29	22	20	23	15	19	17
14	E	E	E	E S 15	E	17	G	G	31	G 25	G 29	G	36	36	37	35	38	43	62	63	20	15	E R 17	19
15	19	E S 14	E S 15	E B 13	E B 13	E S 13	E S 14	28	G	G	G 24	G 28	29	E B 42	G	G	G	26	22	20	26	20	18	21
16	20	22	E B 20	E B 15	E S 15	E S 13	E S 15	G	31	37	38	G 26	G 24	G	G	G 18	34	35	31	20	29	21	E	17
17	E	E S 12	E	E	E	E	20	20	G	G	33	G 22	G	G 23	35	35	34	33	34	33	20	E	E S 15	E S 15
18	E B 15	E S 14	E B 13	E B 12	E	E	E S 15	G	36	49	36	40	59	36	30	G	G	29	17	E	E S 14	E S 15	E S 15	E S 15
19	E	E	E	E S 15	19	E	E S 14	G	G	G	G	36	39	38	G	33	G	30	21	63	53	51	20	17
20	E	E	E	E	E	E S 15	16	G	30	32	35	38	33	37	39	G	G	31	32	23	E	20	20	E
21	E S 15	E S 15	E S 14	E	E	E	E S 15	20	G 21	G	34	36	35	G 26	G 29	G 28	G 26	29	18	20	29	25	18	20
22	18	15	21	15	13	E	S	25	G	G	G	G 24	G 27	G 26	G 25	G 23	G	29	19	15	20	E	17	20
23	17	E B 15	E S 14	E	E S 12	E S 15	E S 15	28	31	G	G	G	G	G	G	G	G	50	44	E	E S 15	E	E S 12	23
24	23	20	E	E S 14	E S 14	E S 14	E S 15	G	G	C	35	36	37	36	G 31	35	33	29	30	20	19	E	E	E
25	E S 14	E S 15	E S 13	E S 15	E B 14	E S 13	E S 15	G	G	G	38	38	38	40	37	33	32	25	17	E	E	E	19	25
26	E	E	E	E S 12	E B 13	E B 13	E S 15	G	G	G 25	G 23	G 28	G 32	G 27	G 29	G 26	G	27	15	E	16	E S 15	E S 15	28
27	E	E	E S 13	E	13	E	S	G	G	35	37	G	47	G	G	39	31	15	E S 15	E S 15	20	E S 12	E	E
28	E	E	20	E	E	E	G	G	G	32	37	35	E R 35	36	35	G	53	55	38	29	19	15	E S 15	E
29	E	E S 15	20	20	18	16	16	G	G 24	G 20	G	G	G	39	37	38	32	29	20	E	E	E S 15	E S 14	21
30	E	E S 14	E S 13	E	E S 15	E S 12	G	25	30	34	34	E R 33	G	35	34	32	G	24	15	E S 13	E S 14	E S 14	E	E S 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	24	30	30	28	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	E 15	15	E 14	E 14	E 13	E 13	15	G	30	32	35	35	35	36	34	33	30	29	22	20	20	15	17	19
UQ	19	17	16	15	15	E S 15	16	25	32	36	38	38	38	38	37	35	34	33	32	30	26	20	20	20
LQ	E	E	E	E	E	E	E S 14	G	G	G	G 24	U G 26	G 28	G 27	E G 27	G 18	G	26	17	E E 13	15	E E 12	E E 12	E E 15

SEP. 1971 | FBES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E S 15	E S 15	E S 13	E S 14	E S 13	E S 15	14	15	15	20	22	21	22	20	16	15	16	E S 13	E S 12	E S 15	E S 14	E S 15	E S 15
2	E S 14	E S 13	E S 15	E S 13	E S 13	E S 13	E S 13	E S 14	15	16	21	20	21	21	20	19	15	E S 15	E S 14	E S 15	E S 13	E S 13	E S 13	E S 13
3	E S 13	E S 14	E S 14	E	E S 13	12	E S 15	15	15	18	16	22	20	20	20	19	15	14	E S 14	E S 14	E S 14	E S 15	E S 15	E S 13
4	E S 15	E S 15	14	13	14	E S 15	E S 12	E S 14	16	15	19	20	20	20	20	20	15	14	11	E S 13	E S 15	E S 15	E S 14	E S 15
5	19	E S 15	20	E S 13	13	E S 14	E S 15	13	140	15	20	22	20	21	21	18	15	E S 14	11	E S 13	E S 15	E S 14	E S 14	E S 15
6	E S 14	E S 14	E S 13	E S 15	E	E S 15	E S 16	14	15	16	21	20	20	24	20	21	15	11	E S 13	E S 14	E S 15	E S 15	E S 14	E S 13
7	E S 15	E S 15	11	E S 15	E S 15	E S 15	E S 13	E S 15	11	16	19	20	20	20	20	19	15	15	13	E S 12	E S 14	E S 14	E S 15	E S 15
8	E S 15	11	E S 14	E	E	E S 14	E S 12	11	13	17	20	21	20	22	20	20	15	14	E S 15	E S 14	E S 14	16	E S 13	E S 15
9	E S 13	E S 14	E S 14	E S 13	E S 13	E S 15	E S 14	16	E S 14	16	18	20	20	22	20	19	18	14	E S 12	E S 12	E S 13	E S 14	E S 13	16
10	E S 15	E S 14	E S 14	E S 15	E S 12	E S 13	E S 14	E S 14	E S 14	C	20	21	20	17	19	17	16	11	11	E S 13	E S 15	E S 15	E S 15	E S 15
11	E S 15	E S 15	E S 15	11	E S 15	E S 15	E S 14	14	11	15	16	20	23	20	20	18	14	14	E S 14	E S 15	E S 15	E S 14	E S 12	E S 12
12	E S 15	E S 14	E S 14	E S 13	E	E S 14	E S 14	14	14	16	20	21	23	20	21	16	15	14	E S 15	E S 14	E S 14	E S 14	E S 15	E S 14
13	E S 14	E S 15	E S 12	E	E	E S 15	E S 15	14	15	17	20	21	21	20	20	19	15	14	E S 14	E S 13	E S 15	E S 13	E S 15	E S 15
14	E S 15	E S 15	11	E S 15	11	E S 15	E S 15	E S 13	14	20	20	22	20	22	22	15	15	15	E S 13	E S 15	E S 15	E S 14	13	E S 14
15	E S 15	E S 14	E S 15	13	13	E S 13	E S 14	14	14	20	18	20	19	42	23	21	17	14	E S 14	E S 13	E S 13	E S 12	E S 15	16
16	E S 14	E S 11	20	15	E S 15	E S 13	E S 15	E S 15	11	16	19	16	20	20	20	15	11	11	E S 13	E S 16	E S 15	E S 15	E S 15	E S 15
17	E S 15	E S 12	E S 15	E S 13	E S 13	E S 14	E S 13	E S 13	E S 14	15	21	20	22	22	22	20	16	11	E S 13	E S 15	E S 15	E S 15	E S 15	E S 15
18	15	E S 14	13	12	E	E	E S 15	15	15	15	20	20	20	20	20	19	15	11	E S 14	E S 15	E S 14	E S 15	E S 15	E S 15
19	E S 14	E S 13	11	E S 15	E	E S 14	E S 14	14	12	15	19	20	20	20	20	20	15	13	E S 14	E S 14	E S 15	E S 15	E S 15	E S 12
20	E S 15	E S 15	E S 12	E	E S 13	E S 15	E S 13	14	15	18	20	21	25	22	21	20	18	11	E S 13	E S 15	E S 15	E S 15	E S 16	E S 15
21	E S 15	E S 15	E S 14	E S 13	E S 13	E S 14	E S 15	12	16	16	20	20	20	20	20	20	17	E S 14	E S 13	E S 13	E S 13	E S 14	E S 14	E S 15
22	E S 13	E S 14	11	E S 13	11	E S 13	E S 15	E S 15	15	18	20	20	21	21	20	15	15	11	E S 15	E S 11	E S 13	E S 15	E S 13	E S 13
23	E S 14	15	E S 14	E	E S 12	E S 15	E S 15	E S 15	14	15	15	20	22	23	20	15	15	14	E S 13	E S 15	E S 15	E S 15	E S 12	E S 14
24	E S 13	E S 14	E S 13	E S 14	E S 14	E S 14	E S 15	E S 14	15	E C 33	20	20	20	20	22	21	16	15	E S 12	E S 14	E S 15	E S 15	E S 15	E S 15
25	E S 14	E S 15	E S 13	E S 15	14	E S 13	E S 15	E S 14	15	17	18	20	22	20	20	19	19	15	E S 13	E S 15	E S 15	E S 14	E S 14	E S 14
26	E S 14	E S 15	E S 15	E S 12	13	13	E S 15	13	15	15	16	20	20	20	19	15	15	E S 14	E S 13	E S 15	E S 13	E S 15	E S 15	E S 15
27	E S 15	E S 12	E S 13	E	E	E S 15	E S 15	14	14	15	16	23	22	20	23	20	17	11	E S 15	E S 15	E S 13	E S 12	E S 15	E S 13
28	E S 15	E S 14	11	15	E S 13	E S 15	E S 14	15	15	15	20	22	22	20	21	20	20	E S 13	E S 13	E S 12	E S 14	E S 13	E S 15	E S 14
29	E S 13	E S 15	E S 13	E S 13	E	E S 12	E S 15	11	E S 13	14	17	22	20	20	21	16	18	E S 15	E S 13	E S 13	E S 14	E S 15	E S 14	E S 14
30	E S 13	E S 14	E S 13	E	E S 15	E S 12	E S 15	E S 15	15	15	20	20	17	18	20	20	16	13	E S 13	E S 13	E S 14	E S 14	E S 15	E S 15
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	E S 15	E S 14	E S 14	E S 13	E E 13	E S 14	E S 15	13	15	16	20	20	20	20	20	19	15	14	E S 13	E S 14	E S 14	E S 14	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 15	E S 14	E S 15	E S 15	15	15	17	20	21	22	22	21	20	17	14	E S 14	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 11	E	E S 13	E S 14	14	14	15	18	20	20	20	20	16	15	11	E S 13	E S 13	E S 14	E S 14	E S 14	E S 14

SEP. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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	U S 280	I S 280	U S 295	U S 300	J S 305	S 350	340	360	340	325	325	300	295	310	310	320	325	305	315	U R 320	S 330	S 290	S	J S 340
2	A	S	A	F	F 305	S	325	340	340	325	310	295	325	R 315	J R 290	310	I A 315	320	S	S	345	J S 305	S 280	S 300
3	S 300	S 305	S 300	320	S 335	290	340	365	335	360	335	325	300	315	285	290	J S 290	310	325	S 335	345	S 285	I A 255	S 275
4	S 270	S 280	S 305	S 305	310	295	S 325	J S 340	355	340	320	315	310	290	295	315	320	315	S 320	S 340	350	S 325	S 270	S 280
5	285	280	S 295	290	295	275	S 285	S 345	S 365	370	360	H 335	275	310	325	315	295	S 305	S 335	S 340	S 360	270	S 275	I S 260
6	265	260	255	325	300	F 290	310	365	305	315	305	330	325	325	R 330	330	325	A	U S 310	I A 305	345	335	S 260	S 280
7	S 285	S 290	275	S 290	F 320	F 310	S 320	S 355	U S 360	345	305	290	275	300	320	S 300	310	310	U S 335	325	S 310	S 315	I A 290	S 265
8	F 260	S 255	F	F	F 265	270	S 285	330	H 350	S 370	335	335	285	I R 310	310	330	U S 325	S 345	U S 335	310	305	I 300	J S 295	U S 295
9	U S 270	285	300	S 375	390	310	345	370	355	335	320	305	300	300	300	300	305	S 315	S 335	325	S 330	I A 265	I S 270	S
10	S	S 280	S 285	S 275	S 275	300	S 325	345	335	I C 335	330	305	295	R 305	300	305	305	U S 315	I S 350	J S 345	320	J S 295	290	I S 280
11	S 285	305	S 300	290	300	335	S 350	355	350	Z 295	305	305	R 300	305	310	300	300	S 310	U S 320	S 315	J S 315	I S 290	285	S 270
12	S 285	S 280	S 295	310	295	335	330	335	325	335	V 315	305	320	315	330	315	325	315	U S 320	I S 325	S 355	280	270	S 265
13	265	S 250	S 275	280	330	300	S 320	350	355	355	335	320	305	305	295	S 300	305	S 320	S 320	S	I S 340	J S 275	S 275	S 270
14	S 295	S 295	S 280	S 295	S 340	S 345	350	380	S 360	340	340	335	295	310	S 315	310	315	S 340	S 330	S 335	S 350	300	270	275
15	S 285	S 290	S 315	S 310	S 315	330	S 335	375	340	340	340	295	310	R 300	315	310	310	315	J S 340	I S 350	325	S 310	285	J S 285
16	285	290	295	305	330	285	335	360	370	350	330	310	315	310	S 310	315	U S 310	U S 320	U S 325	U S 370	385	270	270	U S 275
17	285	S 300	S 305	330	340	S 330	S 330	370	365	V 350	300	295	300	305	310	325	310	J S 335	S 340	325	285	265	280	S 280
18	S 280	S 280	S 295	S 315	320	305	S 295	365	S 330	335	335	275	S 275	290	S 285	S 285	315	J S 325	U S 335	290	S 270	265	265	275
19	290	S 290	J S 315	S 300	250	S 255	S 300	335	335	300	305	315	J R 305	290	295	305	S 320	345	S 340	S 300	J S 295	S 275	I S 275	S 285
20	S 265	290	J S 295	S 300	S 290	J S 280	I S 300	S	330	H 340	335	S 300	R 295	R 295	R 295	320	S 335	S 335	I S 335	U S 345	265	J S 280	J S 285	U S 290
21	S 280	S 275	J S 285	315	300	S 285	300	345	375	345	335	290	R 305	320	315	330	320	U S 325	I S 340	J S 340	340	295	U S 290	F 285
22	S 290	J S 310	S 300	S 325	320	F 305	S 315	S 360	360	345	330	310	305	300	325	320	320	320	340	340	310	S 290	S 275	I S 280
23	S 280	305	S 320	355	315	325	325	360	350	S 340	315	340	315	300	305	300	S 315	J S 320	U S 325	345	S 295	275	265	260
24	265	275	S 290	290	290	305	325	335	U S 335	S 350	335	315	310	315	300	295	305	315	S 325	335	S 325	S 275	S 270	270
25	S 280	S 290	S 280	S 330	S 300	295	S 300	H 340	S 355	370	320	310	300	275	285	J S 300	S 315	J S 315	U S 320	305	285	280	270	280
26	S 300	S 295	S 290	300	300	290	295	340	S 325	S 305	300	315	295	300	305	305	S 315	S 325	I S 340	315	275	S 255	S 270	275
27	280	280	S 295	290	275	S 290	S 330	345	350	350	295	U 300	S 305	305	U S 300	J S 325	335	S 340	320	J S 280	290	280	285	S 275
28	J S 300	290	J S 290	J S 335	295	305	S 310	J S 340	330	335	U S 330	335	325	310	S 325	U S 325	S 325	U S 330	U S 335	S 330	315	J S 285	320	305
29	295	290	U S 285	325	330	305	S 315	U S 350	370	340	340	320	340	335	320	320	325	S 325	I S 330	345	330	S 300	S 290	280
30	S 290	290	305	325	335	300	320	365	350	355	335	315	315	315	U S 320	310	330	U S 345	S 330	S 335	285	J S 290	J S 290	J S 300
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	29	28	28	30	29	30	29	30	30	30	30	30	30	30	30	30	29	29	28	30	30	29	29
MED	S 285	S 290	S 295	308	305	300	S 322	350	350	340	330	310	305	305	310	310	315	S 320	S 330	S 332	322	S 285	S 275	S 280
UQ	S 290	S 290	S 300	325	330	310	330	365	360	350	335	320	315	315	320	320	325	S 330	S 335	S 340	345	S 300	S 285	S 285
LQ	S 275	S 280	S 285	292	295	290	S 300	340	335	335	310	300	295	300	295	300	310	315	S 320	315	295	275	S 270	S 275

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

IONOSPHERIC DATA

SEP. 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 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									L 390	L	L 360	L 390	L	L 350	380	350	L 370	L	A					
2								A	L	L 380	L	L 370	H 375	A	375	A	A	A	A					
3									L	H 375	H 380	H 380	H 365	365	L 335	H 360	A	A	L					
4									L	A	L	H 375	355	315	385	H 375	H 355	L 360	L					
5							L	L	380	325	400	H 400	H 385	360	345	365	355	L	A					
6									L	L	L 365	L	A	A	A	365	A	A	A					
7								L	A	A	L 405	355	365	355	H 355	360	355	350	A					
8								L	L	H 320	375	385	L	I A 350	370	365	370	L 390	L					
9									L	405	L	L 360	350	U L 360	360	H 340	L 325	L	A					
10									L	C	H 385	395	440	375	H 370	370	L	L						
11										L	365	H 380	H 385	375	H 385	355	340	L						
12								L	L	365	365	H 355	H 385	H 365	385	370	L 360	L	L					
13									L	L 390	L 380	375	380	395	H 370	370	L	L	L					
14									L	L	L 380	L	370	L	345	L	L	L	A					
15									L	L	L 375	H 365	H 370	B	L 370	L 355	L 365	L	L					
16									L	L 395	L	L 380	L 375	L 400	U L 365	U L 350	350	U L 390						
17									L	L 390	L 365	L 360	L 365	L 360	H 375	335	L	L						
18									L	A	375	370	A	360	350	345	L 345	L						
19									L	L	L	L 360	L 370	350	360	L 340	L	L						
20									L	L	L	L 390	L 355	L	L 340	350	L 365	L						
21									L	L	L 390	L 375	L 375	U L 365	H 360	L 370	L	L						
22									L	L	L	L 370	L 375	L 355	L 370	L	L 380	L						
23								L	L	L 365	385	385	L 390	H 355	H 345	L 360	L 355	A						
24									L	L 380	L 420	L 410	L	L 360	L 365	L 370	L	L						
25									L	L 385	L 395	L	L	L 360	L 340	L 350	L	L						
26									L	L	360	365	L	L 340	L 355	L 345	L 350	L						
27									L	L	L	L	L	L 375	L 350	L	L	L						
28									L	L	U L 395	L 370	L 380	370	U L 370	385	A	A						
29									L	L	L	L 415	385	L	L	L	L	L						
30									L	L	L	L 380	L 385	L	L	L	L							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									2	12	20	26	22	23	27	24	15	4						
MED									385	L 380	L 380	375	375	360	365	360	L 355	L 375						
UQ										L 390	L 392	385	385	368	370	370	L 365	L						
LQ										365	365	L 365	365	355	350	350	350	355						

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

IONOSPHERIC DATA

SEP. 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 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									255	285	280	270	345	300	290	290	275	290	250					
2								245	250	255	290	300	285	E A 310	300	310	I A 305	285	250					
3									275	245	260	275	330	300	320	310	300	280	250					
4									245	250	255	295	315	325	325	275	280	265	260					
5							300	230	225	225	240	260	360	290	265	280	305	265	245					
6									H 225	250	310	280	280	295	A	290	285	A	A					
7								245	240	250	290	340	355	300	275	300	295	280	230					
8								250	230	240	285	295	350	I A 320	300	290	290	255	240					
9									235	240	290	295	320	300	300	295	295	260	240					
10									250	I C 245	275	310	300	300	300	295	290	260						
11										310	315	315	295	280	280	300	285	270						
12								235	275	265	280	320	275	280	280	290	260	255	250					
13									245	250	260	305	305	300	300	295	285	250	245					
14									240	270	255	280	350	295	285	290	285	250	255					
15									235	255	255	260	300	275	285	280	270	265	245					
16									220	245	280	285	285	280	295	290	285	260						
17									225	230	300	315	295	280	280	275	275	250						
18									230	240	260	300	310	295	295	295	265	245						
19									245	305	265	275	275	310	290	280	255	235						
20									225	240	250	285	295	295	300	280	250	245						
21									225	250	245	265	300	275	275	255	280	255						
22									240	240	250	285	290	285	260	265	260	250						
23								225	245	250	260	250	255	295	295	280	275	250						
24									245	230	255	280	265	270	280	280	275	255						
25									220	235	245	280	280	300	315	280	265	245						
26									250	260	260	275	275	290	270	290	275	250						
27									225	230	L	285	260	270	295	255	240	230						
28									240	255	250	250	245	285	250	245	260	250						
29									235	240	240	275	260	250	290	270	255	250						
30									230	230	245	260	275	280	250	295	245							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	6	29	30	29	30	30	30	29	30	30	28	12					
MED							300	240	240	248	260	282	295	294	290	290	275	255	248					
UQ								245	245	255	280	300	315	300	300	295	285	265	250					
LQ								230	225	240	250	275	275	280	280	280	260	250	242					

SEP. 1971 | H'F2 (KM)

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IONOSPHERIC DATA

SEP. 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	300	295	280	265	245	210	235	225	210	210	200	190H	180H	230H	225	240	210H	250H	I A 230	I A 240	230	I A 240	280	215
2	A	330	A	250	265	265	250	I A 240	225	200	A	190	185H	I A 210	210	A	A	A	A	225	225	220	300	280
3	260	255	255	245	205	230	240	230	210H	200H	185H	200H	200H	200	205H	230H	A	A	240	225	200	260	A	E A 330
4	300	300	245	245	230	245	250	215	215H	I A 215	I A 205	190H	200	200	200	190H	225H	220	245	220	205	210	290	295
5	295	275	265	250	250	250	250	225	210	200	180	180H	180H	245	245	230	230	240	I A 230	220	200	250	275	310
6	300	305	300	245	195	280	245	205	210	210	200	E A 240	A	A	A	210	A	A	A	A	230	200	A	310
7	295	295	E A 325	295	280	300	270	I A 230	A	A	195	230	200	205	205H	210	E A 240	220	I A 230	210	230	225	A	275
8	320	300	345	300	325	E A 300	255	240	230	205H	220	200	235	I A 210	215	210	210	240	235	245	250	I A 245	250	285
9	300	310	260	215	200	255	225	220	230	210	205H	E A 230	I A 200	205	210	215H	230	240	I A 240	240	230	A	I A 300	280
10	285	285	275	260	265	250	250	230	215	I C 200	195H	200	180	180H	200H	200	200H	240	230	205	220	225	265	280
11	285	250	255	225	250	245	220	205	220	205H	205	180H	170H	205	195H	200	225	230	240	215	225	225	250	300
12	260	255	240	245	240	220	210	220	220H	210	200	200H	180H	205H	200	210	205H	235	I A 245	225	205	220	280	300
13	295	320	295	250	200	250	235	225	220	210H	205	195	200	200	190H	200	220H	245H	245	240	210	200	300	325
14	280	270	290	275	225	220	225	215	200	210H	205H	195H	195	180	250	230	E A 240	A	A	260	205	210	310	325
15	300	275	250	235	240	210	215	205	210	195H	190	190H	180H	B	190H	200H	220	225	245	210	215	240	295	300
16	300	295	285	260	235	250	245	210	215	205	200H	185H	190	180	220	220	230	240	245	210	200	E A 330	320	305
17	290	270	260	245	210	245	250	225	220	200	180H	180H	175H	175H	210	220	225	I A 240	225	225	225	250H	280	295
18	295	290	265	230	195	220	250	220	225	I A 205	200	200	I A 200	200	225	215	225	245	225	195	250	250	300	295
19	265	250	240	245	E A 340	310	255	230	215	200H	195H	170H	210H	215	205	210	230	225	215	I A 255	E A 305	A	325	280
20	255	255	245	245	250	265	270	225	220	220	190H	200	200	200	210	200	230	235	230	210	210	300	295	280
21	280	295	270	225	250	275	260	230	220	200	200	195	180	180H	195H	215	200	245	240	220	230	E A 290	280	330
22	285	250	260	235	215	260	250	235	215	200H	195	190	190H	175H	200	200H	220	235	240	220	225	250	290	310
23	285	260	240	205	235	245	245	220	225	215	205	200	190H	195H	205H	220	225	I A 225	230	205	200	280	265	320
24	300	295	260	265	250	240	225	225	220	210	195	195	180H	190H	200H	210	225	240	235	215	205	225	275	295
25	275	280	260	230	200	220	250	205	225	200	200	190H	180H	200H	175H	230	230H	230	225	225	215	250	290	300
26	245	250	265	235	240	255	255	230	225	220	205	200	175H	175H	200	210	230	240	225	205	215	300	300	300
27	270	275	270	240	250	260	240	225	220	210	200	225	I A 210	225	220	A	225	230	220	205	260	280	275	290
28	260	260	260	225	250	300	260	225	220	225	205	200	205	200	205	210	I A 225	I A 230	235	210	215	250	260	260
29	260	285	295	250	210	250	240	225	185H	190H	175H	190H	215	215	200H	235	230	240	235	215	210	235	240	290
30	260	265	275	245	200	265	250	225	225	210	200	190	245	195H	200H	215	230	235	230	205	215	280	280	280
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	29	30	30	30	30	30	29	29	29	30	29	28	29	28	27	26	27	29	30	28	27	30
MED	285	278	262	245	239	250	250	225	220	205	200	194	190	200	205	210	225	238	235	220	215	244	280	295
UQ	300	295	278	250	250	265	250	230	225	210	205	200	200	208	210	220	230	240	240	225	230	260	300	308
LQ	265	260	255	235	210	240	235	220	215	200	195	190H	180H	185H	200H	205	220	230	230	210	205	225	275	280

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SEP. 1971 | H'F (KM)

IONOSPHERIC DATA

SEP. 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 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	95	S	S	S	S	100	145	140	120	115	115	105	105	G	125	130	G	110	105	105	105	105	110	105
2	100	100	100	100	100	125	125	110	110	120	100	100	100	100	100	125	110	110	105	100	100	100	105	105
3	105	S	105	100	100	100	S	125	110	110	105	110	120	115	115	115	110	105	100	100	100	100	105	100
4	100	95	100	95	95	95	95	100	145	110	110	100	100	100	100	100	100	125	115	115	105	105	105	95
5	B	S	B	S	B	S	125	125	110	100	100	100	100	165	150	130	125	125	110	105	100	100	100	100
6	100	100	100	100	100	100	100	125	115	110	110	105	100	100	100	100	120	110	105	110	105	100	100	100
7	100	105	100	100	100	100	120	110	110	110	110	105	105	100	100	115	110	125	110	105	100	100	100	100
8	100	100	100	100	100	100	100	100	115	120	110	110	110	105	110	115	115	120	135	120	130	100	100	100
9	100	100	100	95	100	100	100	145	120	115	110	110	120	120	140	110	110	110	105	105	100	100	105	B
10	100	S	S	S	S	S	140	130	120	C	G	100	100	100	110	110	G	G	120	S	S	S	100	95
11	S	100	S	100	S	100	100	100	140	135	160	100	100	100	100	100	100	100	140	105	105	100	S	100
12	S	100	100	S	E	S	S	120	115	110	100	100	100	100	120	140	125	110	105	100	100	100	100	100
13	100	100	100	100	95	95	100	G	140	125	110	105	100	100	100	100	G	130	105	105	100	100	100	100
14	100	100	100	S	100	100	100	G	100	100	95	120	110	105	110	110	130	115	110	105	105	105	95	100
15	100	S	S	B	B	S	S	110	G	G	100	100	100	B	G	G	155	100	95	95	95	95	95	95
16	95	95	B	B	S	S	S	130	120	115	110	100	100	G	G	100	130	120	115	105	100	100	100	100
17	100	S	100	100	105	100	100	100	150	130	105	100	G	100	170	145	130	115	105	105	105	105	S	S
18	B	S	B	B	E	E	S	145	125	120	120	110	115	95	100	150	130	120	105	105	S	S	S	S
19	100	100	100	S	95	100	S	170	145	125	120	100	100	135	130	100	G	105	105	100	100	100	100	95
20	100	100	100	E	100	S	145	150	105	105	100	100	100	100	110	115	G	110	105	105	105	100	100	105
21	S	S	S	100	100	100	S	105	100	115	120	110	110	100	100	100	105	115	110	105	100	100	100	100
22	100	100	100	100	100	100	100	125	125	125	110	100	100	100	100	100	120	135	125	110	100	105	100	100
23	100	B	S	E	S	S	S	140	140	150	130	145	G	G	G	G	G	120	115	105	S	100	S	100
24	100	100	95	S	S	S	S	G	140	C	100	100	100	100	100	115	105	100	100	100	100	100	100	95
25	S	S	S	S	B	S	S	165	160	125	120	110	110	110	105	105	100	100	100	100	100	100	100	100
26	100	100	100	S	B	B	S	130	145	100	100	100	100	100	100	100	G	125	115	105	100	S	S	100
27	100	100	S	100	100	100	100	135	135	125	120	G	125	140	140	125	120	95	S	S	100	S	100	100
28	100	100	100	100	100	100	100	145	125	115	105	105	100	105	115	G	145	150	110	100	100	100	S	100
29	100	S	100	100	100	100	100	155	105	100	G	G	155	130	125	120	115	110	105	100	95	S	S	100
30	100	S	S	E	S	S	155	145	140	125	120	125	125	125	120	100	115	105	120	S	S	S	100	S
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	24	18	18	15	17	18	19	27	29	27	28	28	28	26	27	27	23	29	29	27	26	24	23	26
MED	100	100	100	100	100	100	100	130	120	115	110	102	100	100	110	110	115	110	105	105	100	100	100	100
UQ	100	100	100	100	100	100	125	145	140	125	120	110	110	115	122	122	128	120	115	105	105	100	100	100
LQ	100	100	100	100	100	100	100	110	110	110	100	100	100	100	100	100	110	105	105	100	100	100	100	100

SEP. 1971 | H'ES (KM)

IONOSPHERIC DATA

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

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

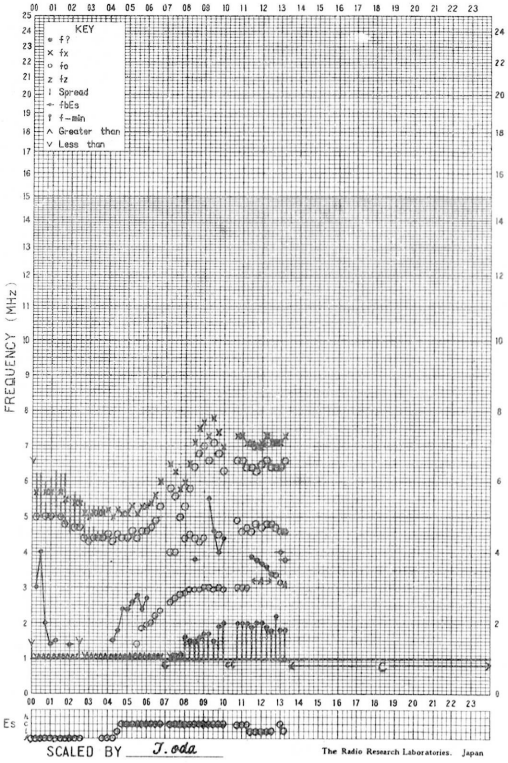
Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F1					F1	C1	C11	H3	C2	C2	C1	C1		H1	H1		C4	C6	F6	F1	F4	FF31	F2
2	F2	F5	F3	F3	F3	F2	C5	C4	C4	C1	C2	C2	L1	L2	L2	HL22	CL53	C5	C4	F3	F3	F2	F2	F2
3	F1		F1	F2	F1	F2		C3	C3	CL21	CL21	C1	CL11	CL21	CL11	C2	C4	C3	L3	F7	F5	F6	FF71	F7
4	F3	F4	F2	F2	F1	F1	L3	LC13	H2	C3	C3	L1	L2	L2	L2	L2	L2	HL22	CL51	F1	FF11	FF13	FF11	F1
5							CL11	C5	C2	L2	L2	L2	L2	HL1	HL2	HL21	HL23	HL34	CL71	F3	F3	F1	F2	F3
6	F3	F1	F1	F1	F1	F2	L1	H3	CL21	C2	C2	C1	C2	C2	L4	LH22	H2	C3	C7	F5	F2	F2	F3	F3
7	FF23	F2	F3	F2	F3	F2	C3	C3	C5	CL22	CL31	CL21	CL11	L1	L2	CL11	C2	H3	C6	F2	F5	F3	F6	F4
8	F5	F6	F2	F3	F6	F7	L3	LC62	CL31	CL31	C2	C1	C2	C2	C2	C1	C2	C2	C1	F1	F1	F6	F2	F2
9	F1	F2	F2	F2	F1	F1	L1	H2	H2	H2	CL21	CL21	HL22	HL12	H1	C1	CH21	C3	L5	F5	F7	F7	F5	
10	F1						H1	H3	HL21			L3	L1	L1	CL11	C1			C1				F1	F1
11		F2		F1		F1	L1	L1	H2	HL21	HL11	L1	L2	L2	L2	L2	L3	LH31	HL13	F1	F3	F2		F2
12		F1	F2					CL21	CL21	LL2	L1	L2	L1	L2	C1	H1	H1	C3	L5	F7	F7	F1	F3	F3
13	FF22	F3	F2	F3	F1	F2	L1		HCL32	CL12	CL21	CL11	L1	L1	L1	L2		H2	L3	F4	F3	F1	F2	F1
14	F2	F1	F1		F1	F1	L1		L4	L1	L1	H1	CL11	C1	C1	CL21	HCL22	CL41	CL41	FF51	FF21	FF11	F1	F1
15	F1							C3			L1	L2	L1				H1	L3	L4	F4	F4	F2	F2	F1
16	F1	F3						H2	CL22	CL23	CL12	L1	L1			L1	HL21	HL52	C6	F5	F3	F2	F1	F1
17	F1		F1	F1	F1	F1	L4	LH41	HL11	HL11	C1	L1		L1	HL11	HL11	H2	CL51	CL71	FF71	F3	F2		
18								HL41	HL22	CL32	CL22	CL11	CL21	L2	L2	HL11	HL11	HL31	L2	F1				
19	F1	F1	F1		F3	F1		H1	HL11	H2	C1	L2	L3	HL12	HL2	L1		L3	L3	F6	F4	F4	F5	F2
20	F1	F1	F2		F1		H3	HL21	L2	L2	L2	L2	L1	L1	C1	C1		C4	C4	F2	F1	F2	F2	F1
21				F2	F2	F1		L1	L1	CL11	C1	CL12	CL11	L1	L2	L2	L2	C2	C1	F2	F5	F3	F3	F2
22	F3	F3	F3	F2	F1	F1	L1	H3	HL21	HL11	CL11	L1	L1	L1	L1	L2	CL11	HL22	C2	F1	F5	F1	F1	F3
23	F1							HL41	H2	HL11	HL11	H1						H4	C6	F1		F2		F3
24	F3	F2	F2						H2	C1	L2	L1	L1	L2	L1	C1	L2	L4	L6	F3	F2	F1	F1	F2
25								H1	H1	H2	CL21	CL11	C1	C2	L2	L2	L3	L3	L2	F1	F1	F1	F4	F5
26	F1	F2	F1					H3	HL11	L2	L1	L1	L1	L1	L1	L1		H3	L1	F1	F2			F4
27	F1	F1		F1	F1	F3	L1	HL21	HL11	HL22	HL21		H1	HL11	H1	H1	H1	LC11			F2		F1	F1
28	F1	F1	F2	F1	F1	F1	L1	H1	H1	CL21	C2	C1	C2	C2	C1		H1	HHL42	C5	F8	F2	F2		F1
29	F2		F2	F2	F2	F1	L1	HL11	L2	L1			HL11	HL11	H1	H1	C2	C4	L2	F1	F1			F2
30	F1						H1	H2	HL22	HL21	HL11	H1	H1	H1	C1	L1	C1	L2	C1				F1	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

SEP. 1971 | TYPES OF ES

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 1.1971

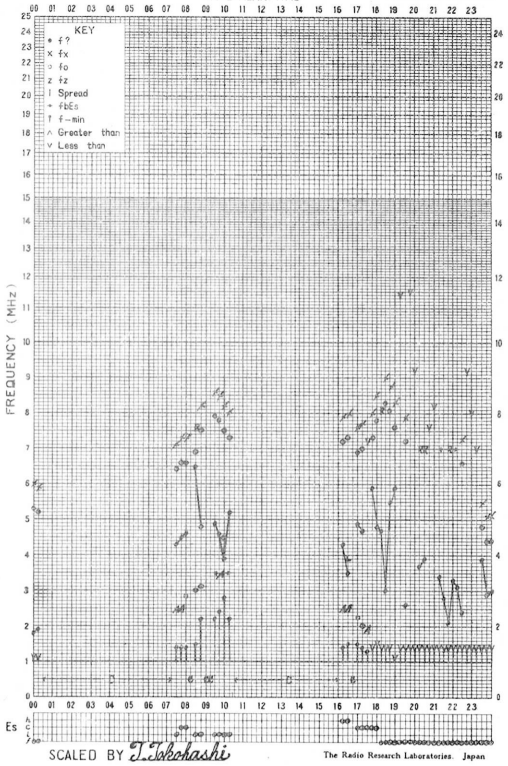


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Sep. 1. 1971

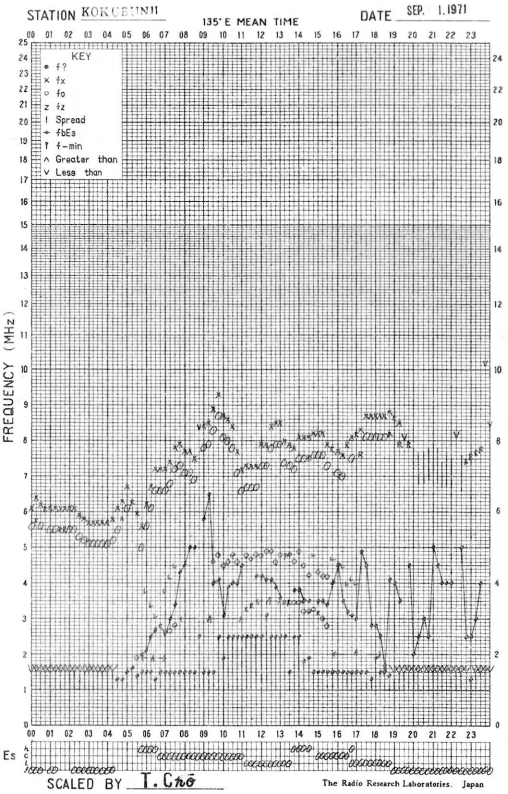


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 1.1971



SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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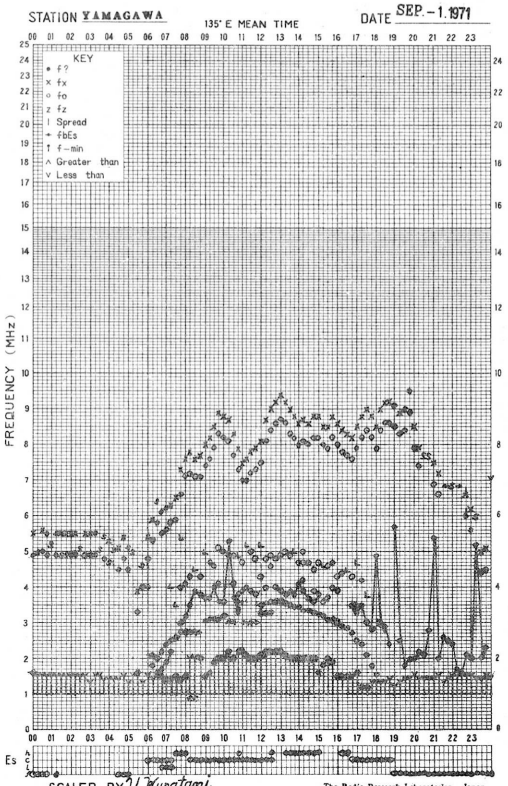

SCALED BY J. Kuratani

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 2, 1971

KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
∧ Greater than
∨ 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 Sep. 2, 1971

KEY
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← fbEs
↑ f-min
∧ Greater than
∨ 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 SEP. 2, 1971

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∧ Greater than
∨ 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 Sep. 2, 1971

KEY
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↑ f-min
∧ Greater than
∨ Less than

FREQUENCY (MHz)

Es

SCALED BY M. Oyama

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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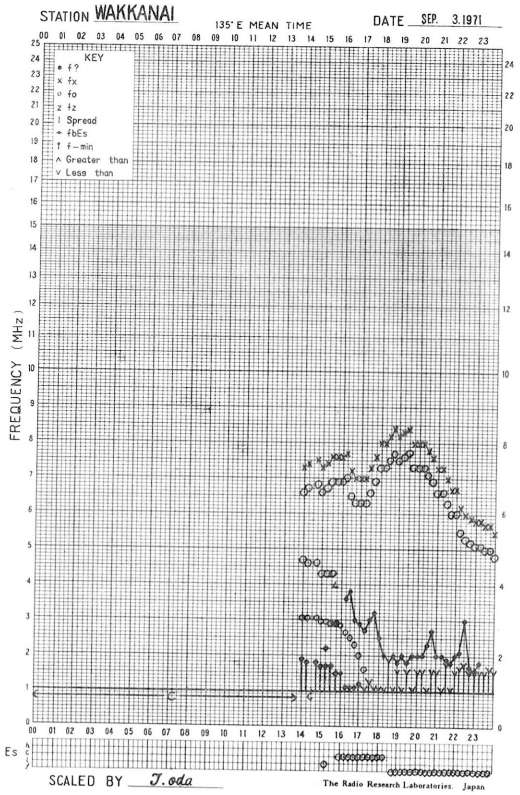

SCALED BY T. oda

The Radio Research Laboratories. Japan

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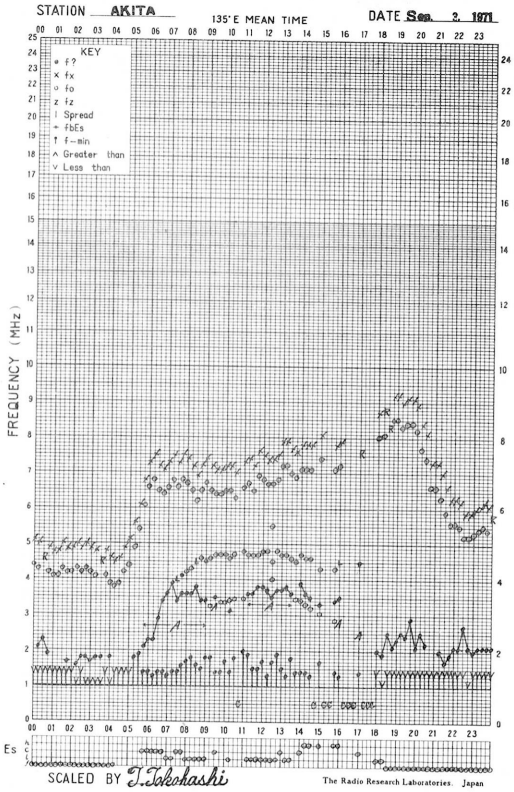

SCALED BY T. Tokohashi

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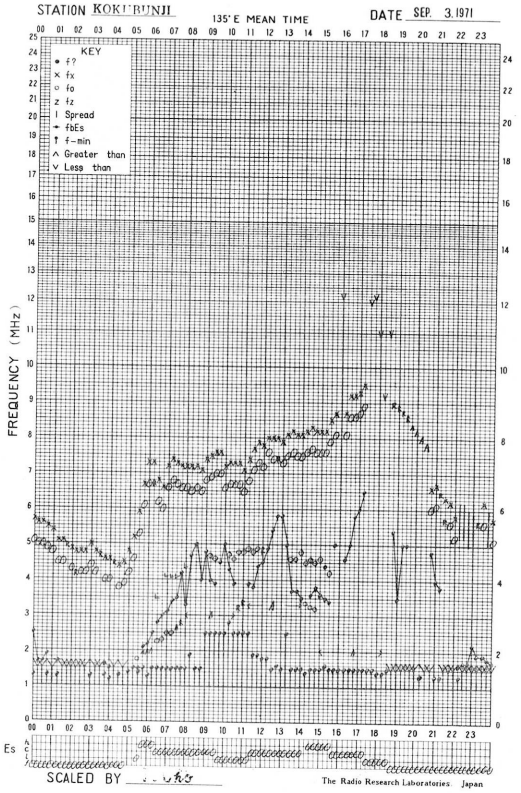
f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 3.1971



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f-PLOT OF IONOSPHERIC DATA

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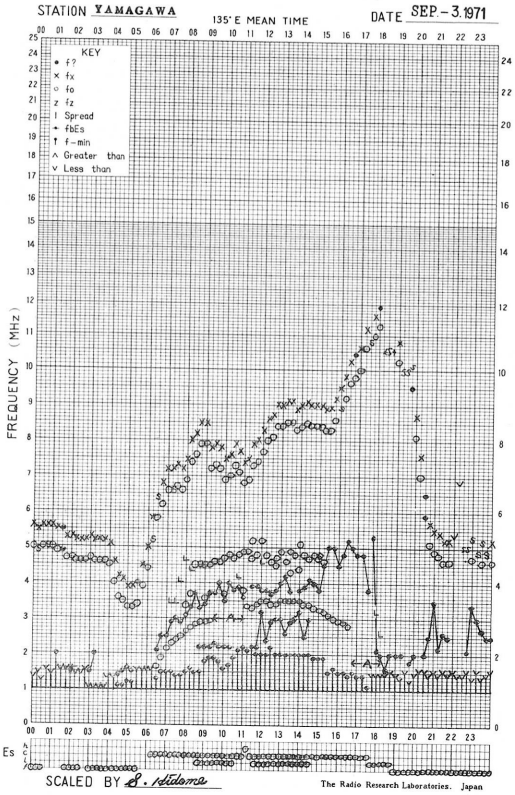

SCALED BY S. Kitsuma

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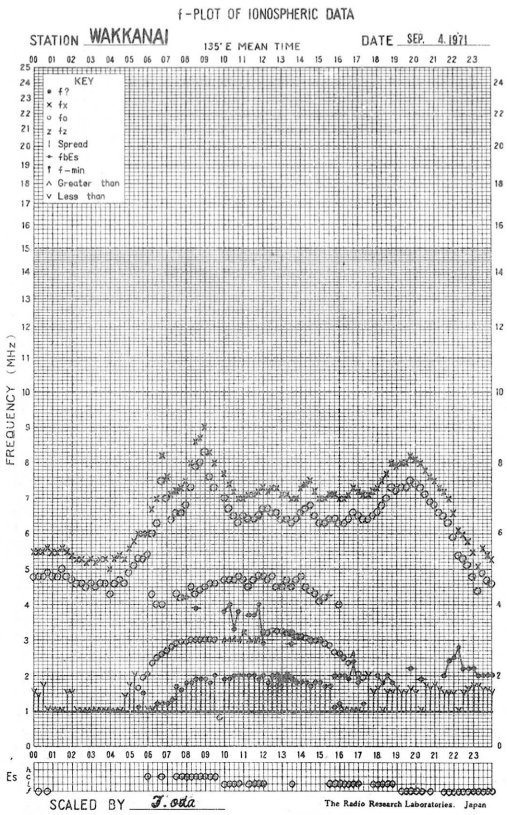
f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE SEP. 4, 1971
KEY
• f?
× fx
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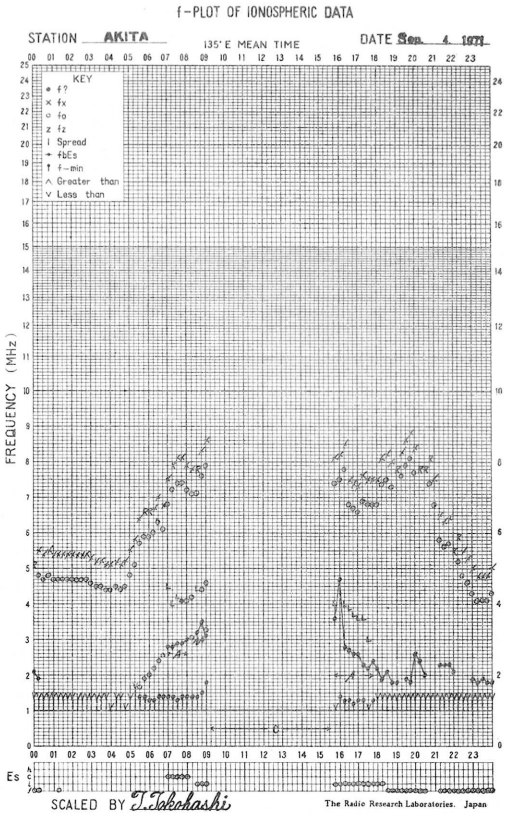
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Sep. 4, 1971
KEY
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| Spread
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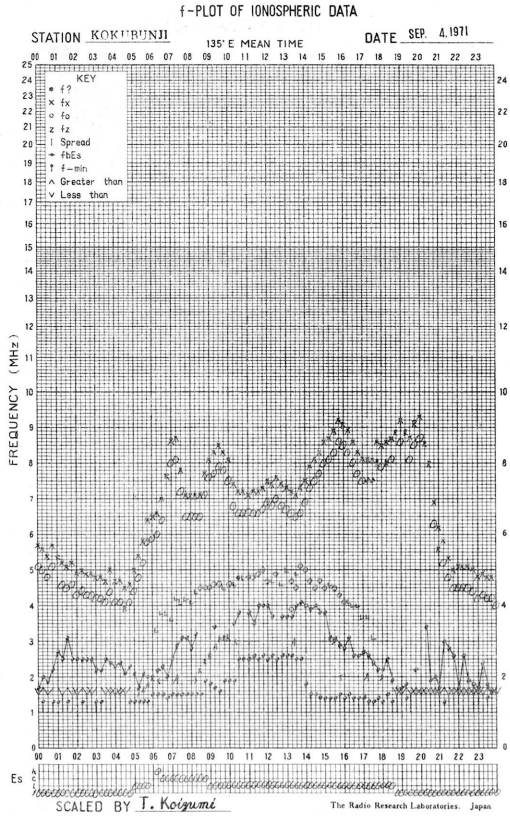
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE SEP. 4, 1971
KEY
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○ fo
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| Spread
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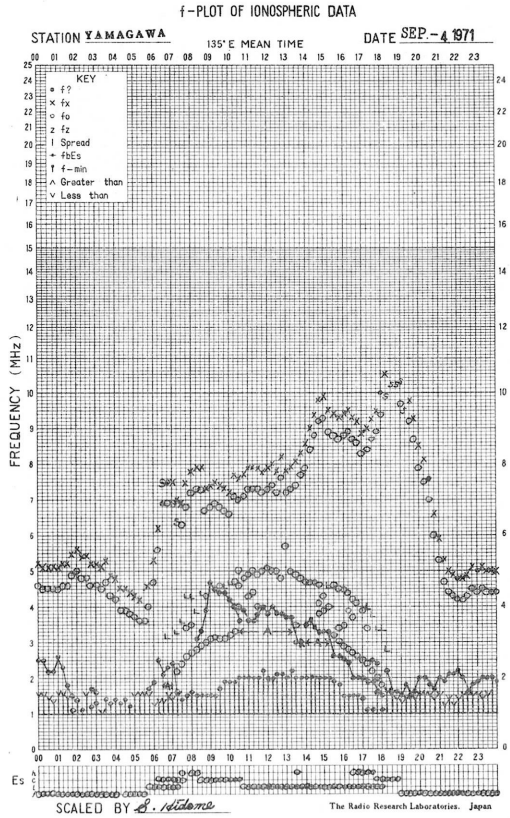
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE SEP.-4, 1971
KEY
• f?
× fx
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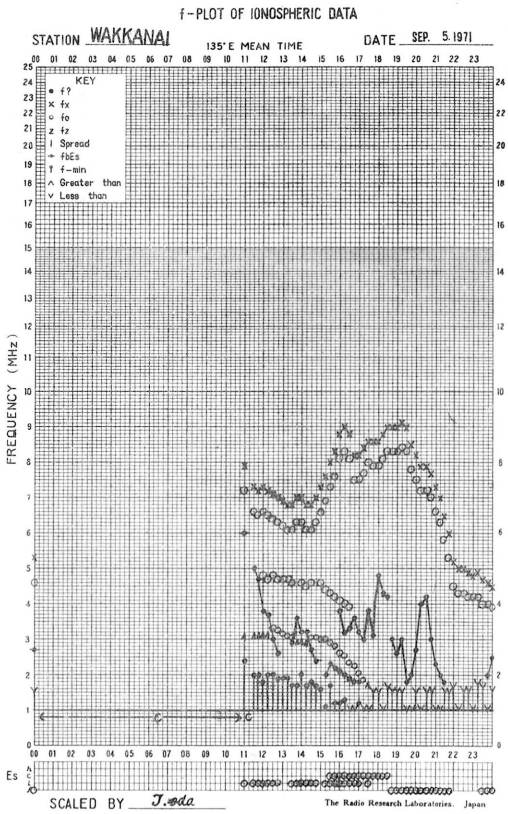
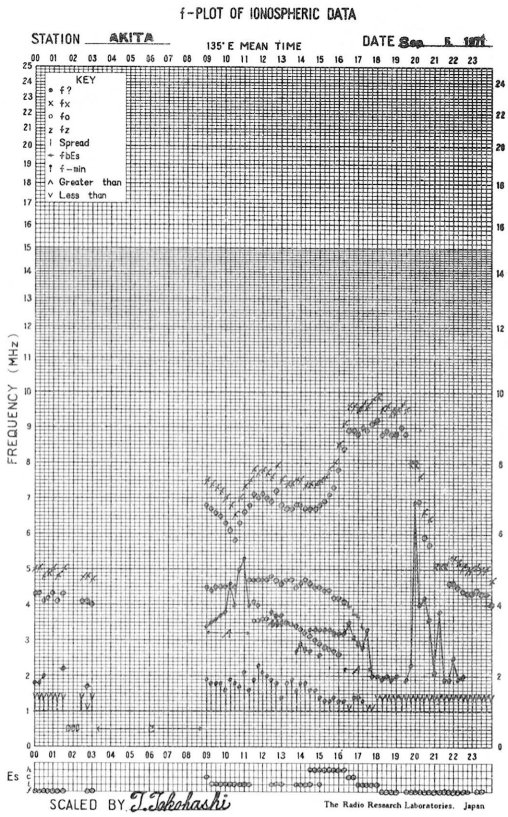
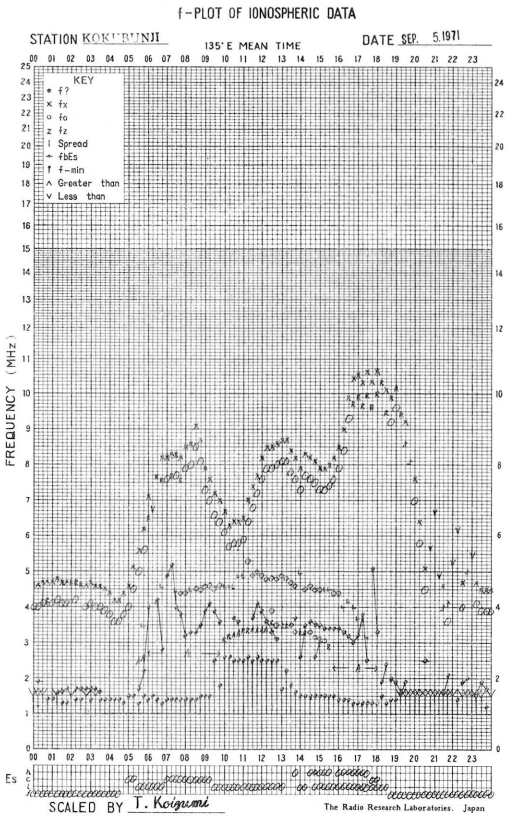
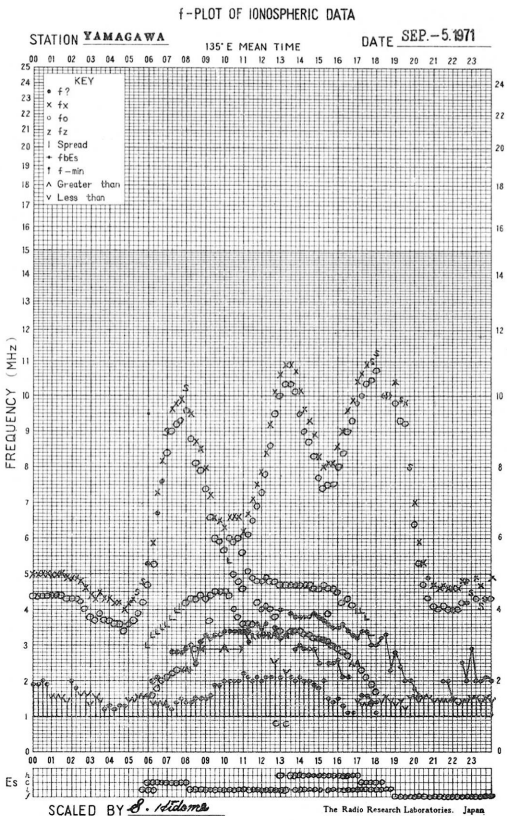
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Iidaka
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE SEP. 5.1971
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 Sep. 5. 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 SEP. 5.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
÷ fbEs
† f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE SEP.-5.1971
KEY
• f?
× fx
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| Spread
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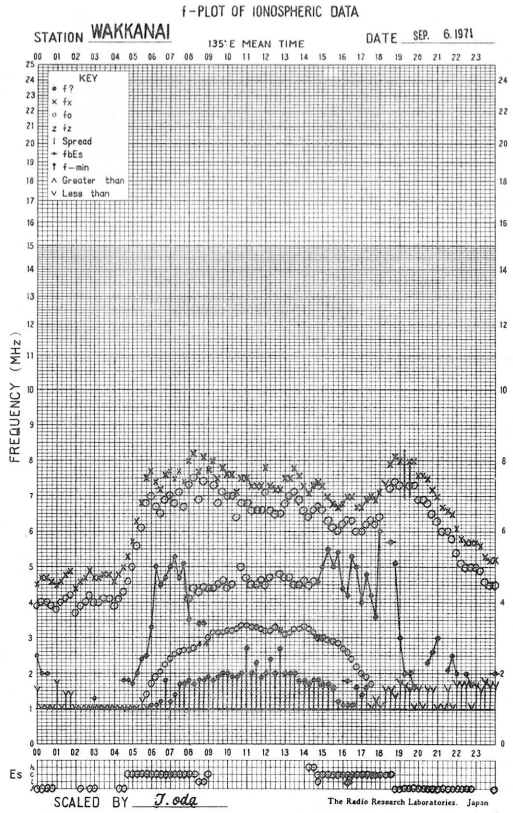
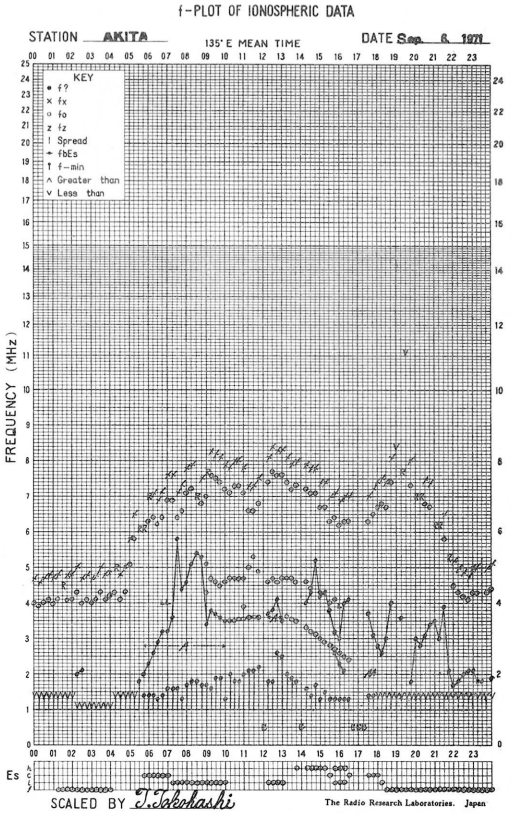
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Kitoma
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135° E MEAN TIME
DATE SEP. 6, 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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DATE Sep. 6, 1971
KEY
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○ fo
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↑ f-min
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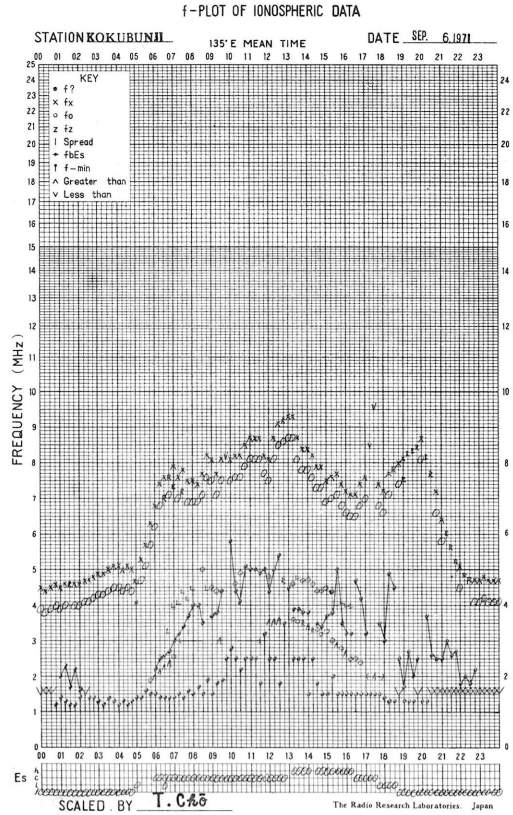
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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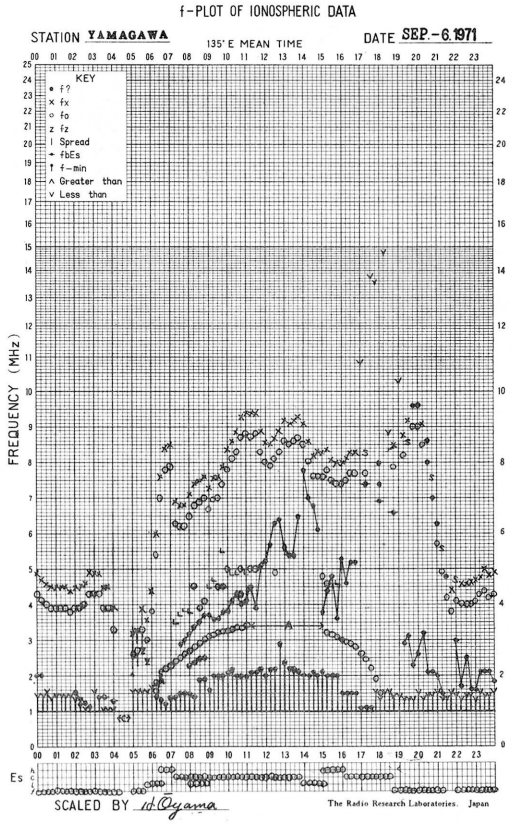
SCALED BY T. Cho
The Radio Research Laboratories. Japan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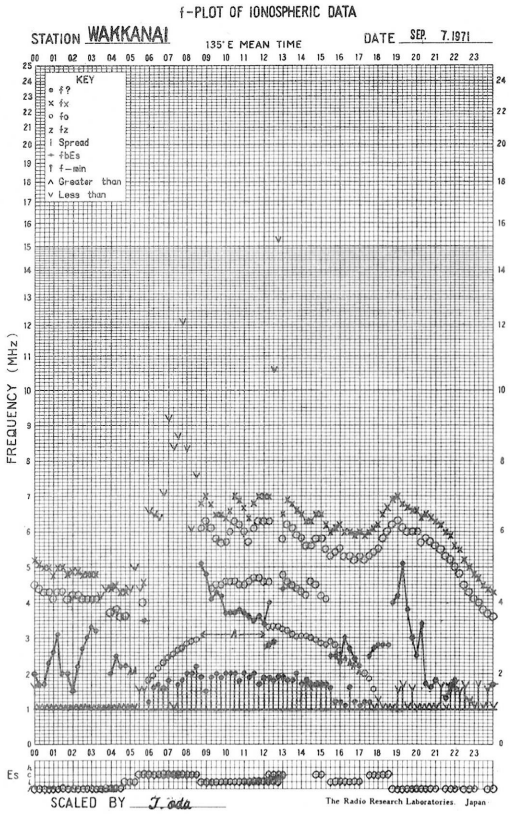
SCALED BY M. Oyama
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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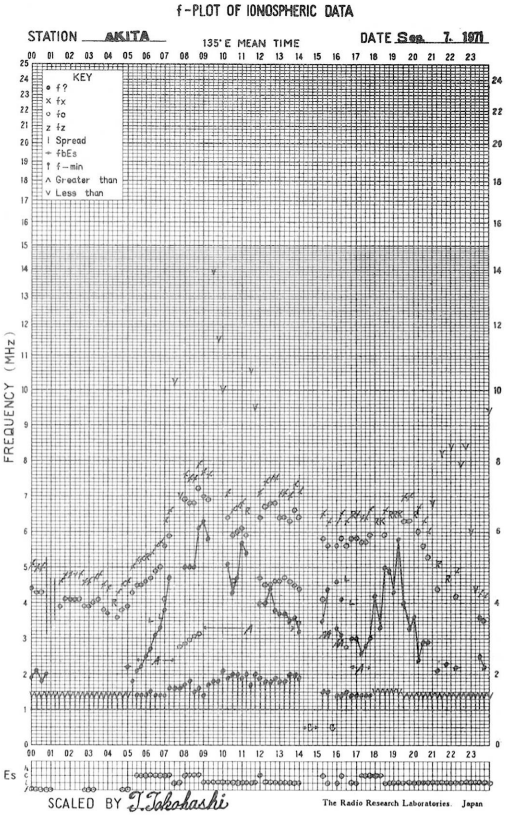
SCALED BY T. Oda
The Radio Research Laboratories. Japan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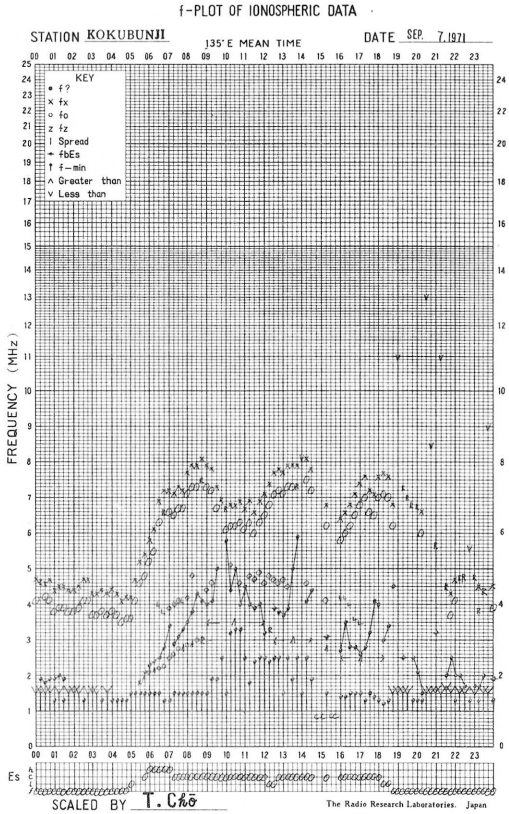
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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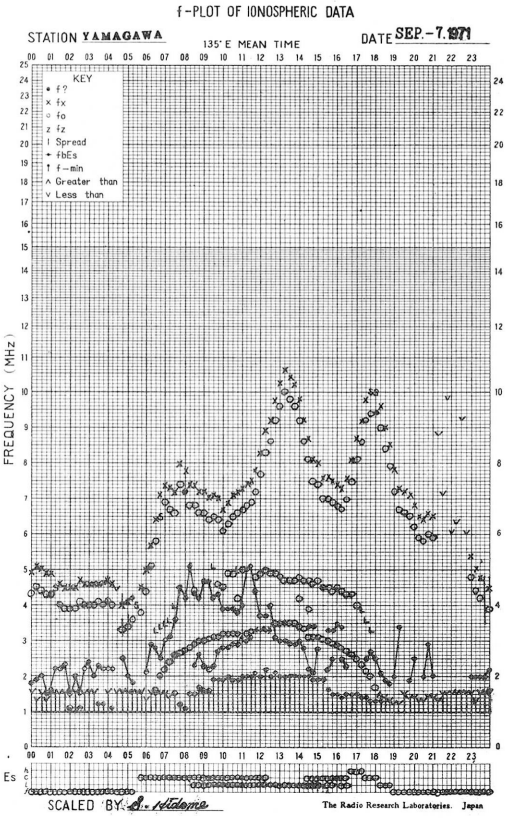
The Radio Research Laboratories. Japan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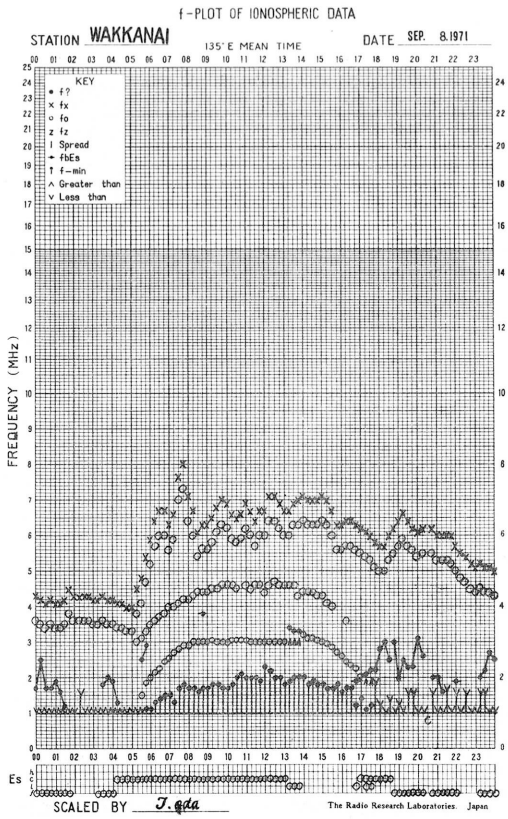
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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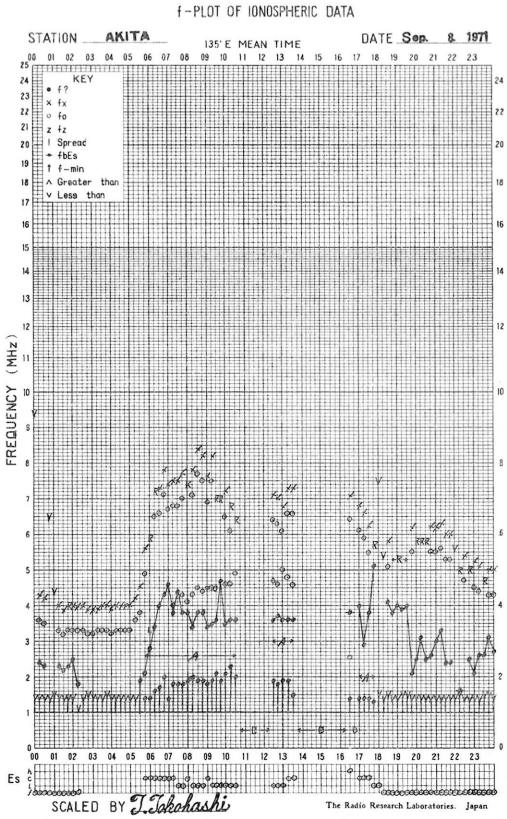
SCALED BY T. Oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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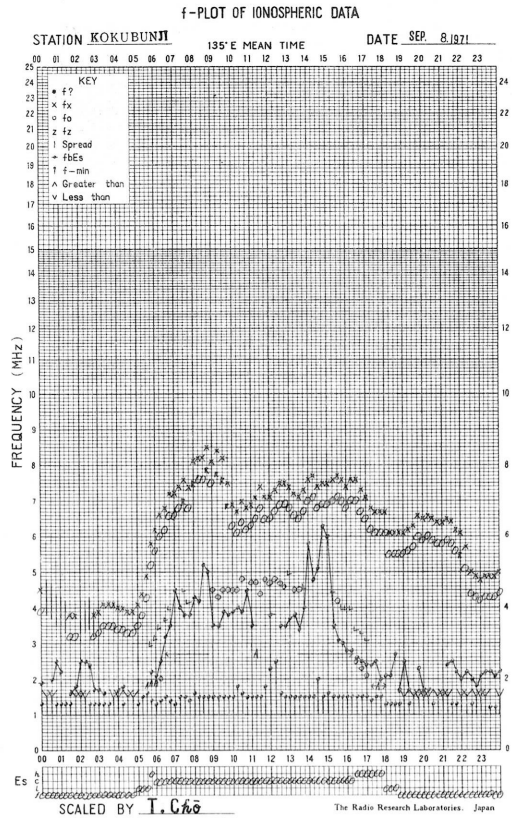
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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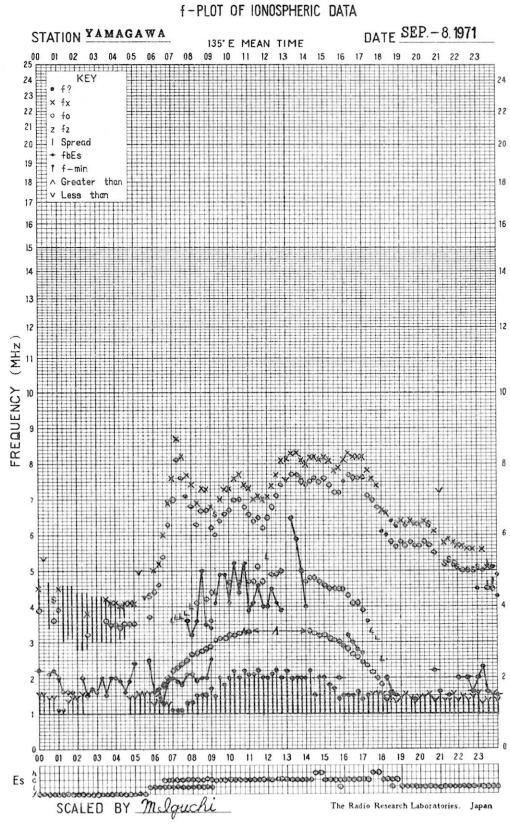
SCALED BY T. Chō
The Radio Research Laboratories. Japan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↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
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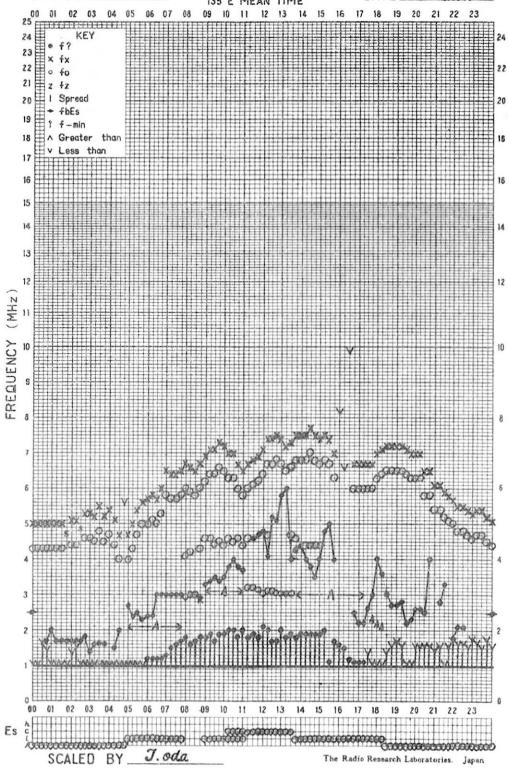
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 9 1971



SCALED BY T. oda

The Radio Research Laboratories. Japan

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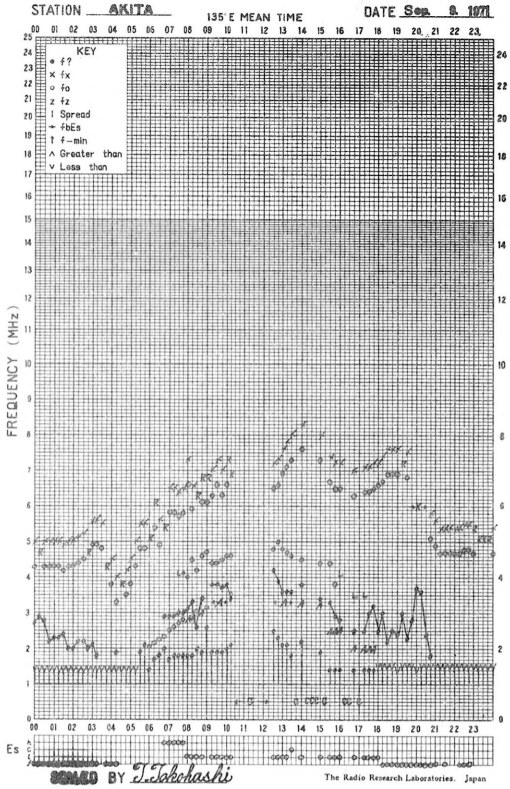

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The Radio Research Laboratories. Japan

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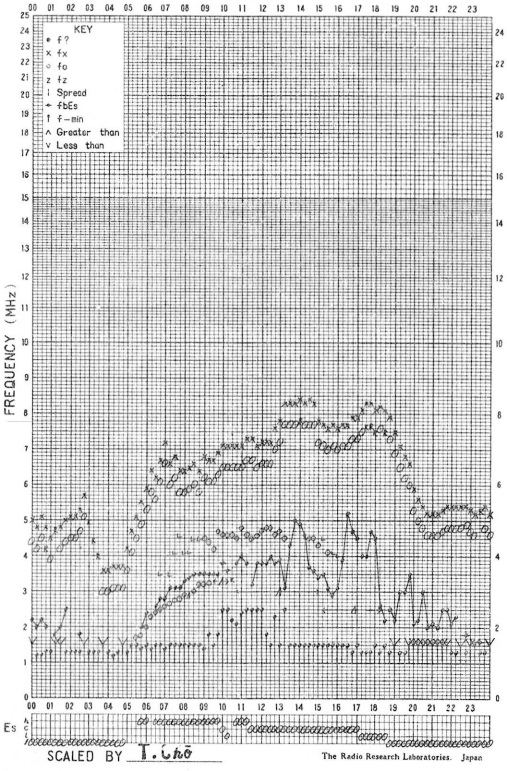

SCALED BY T. Ichō

The Radio Research Laboratories. Japan

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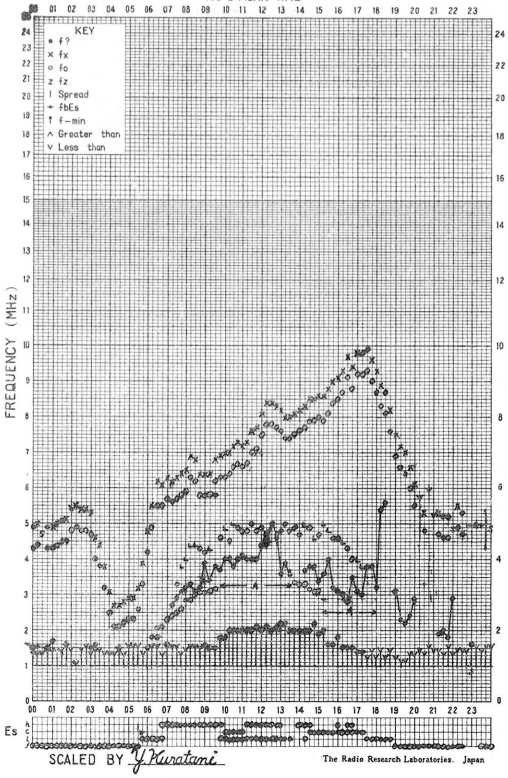
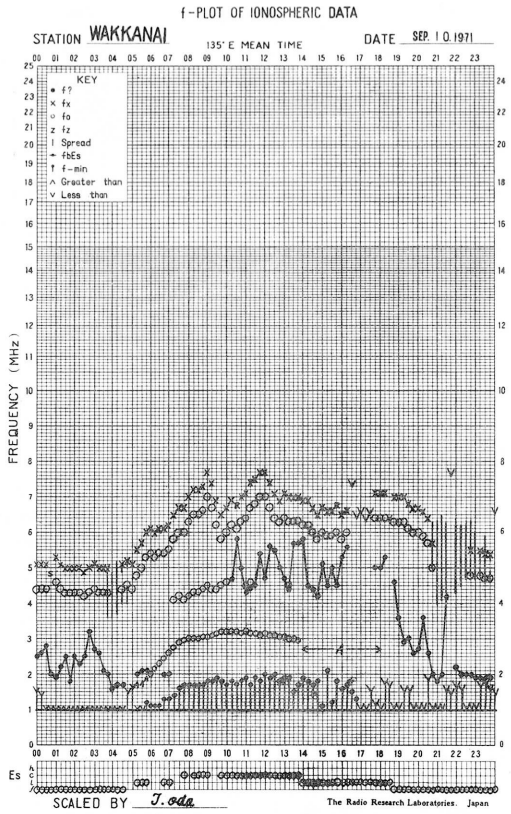


SCALED BY J. Kuratani

The Radio Research Laboratories. Japan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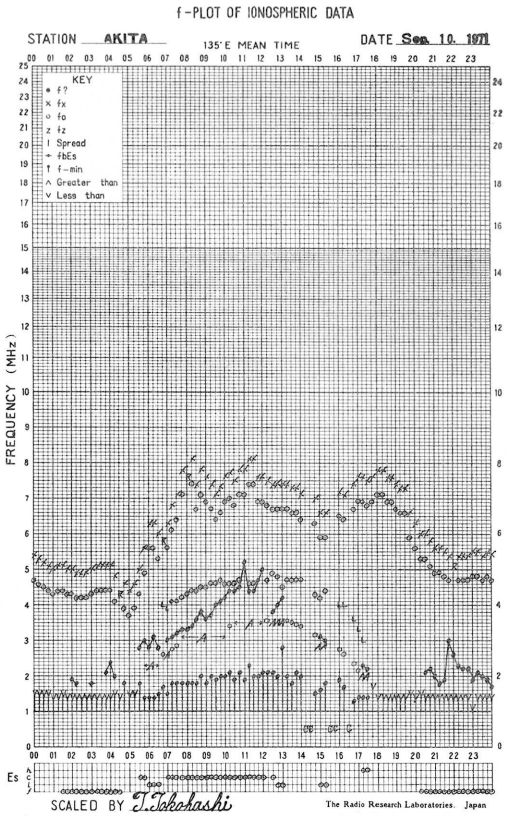
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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∧ Greater than
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FREQUENCY (MHz)
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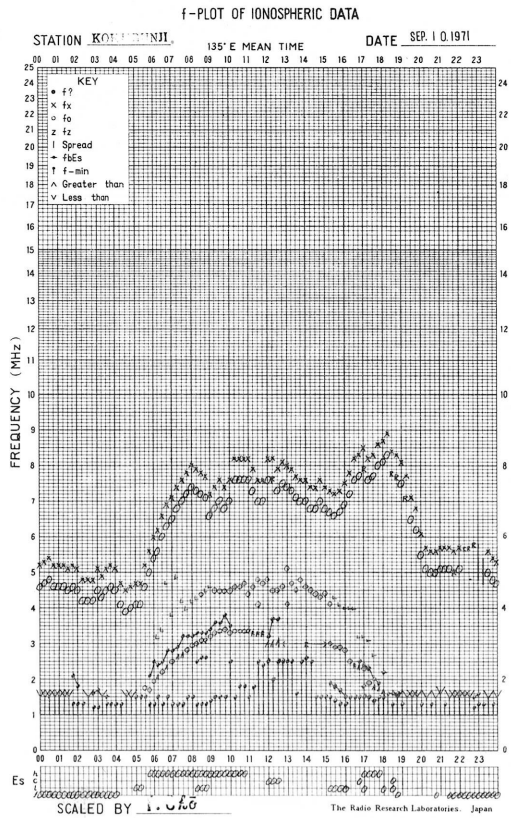
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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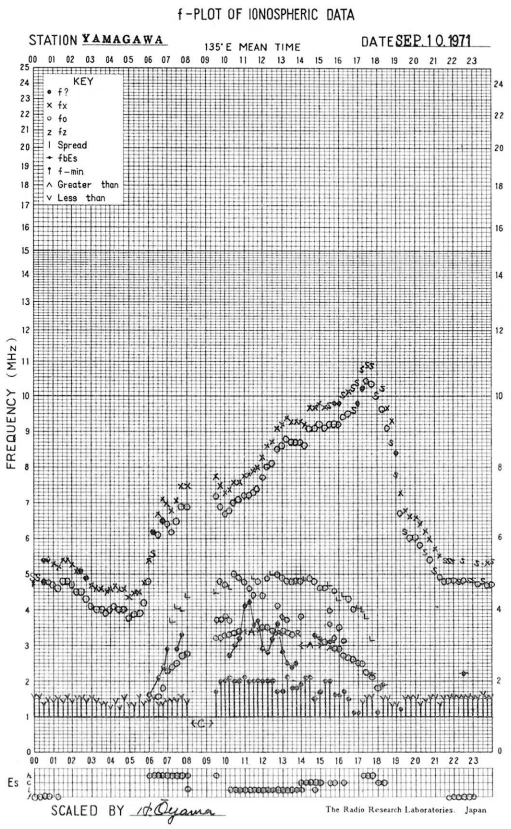
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Oba
The Radio Research Laboratories. Japan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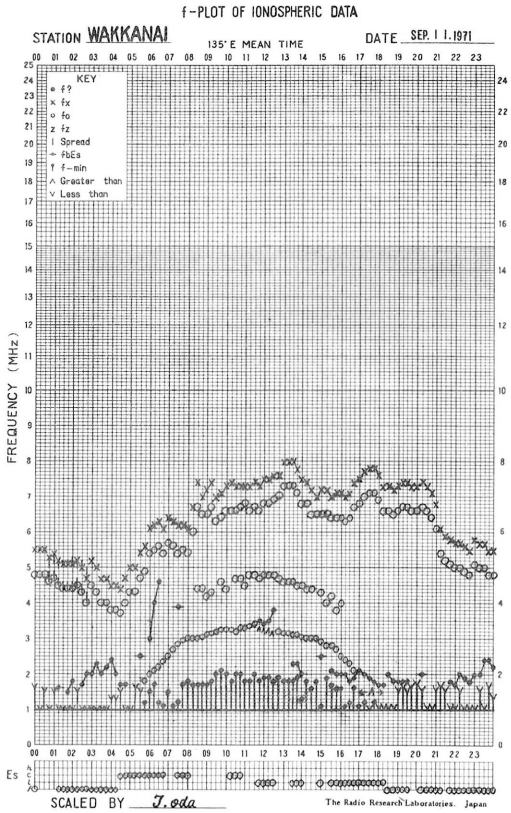
SCALED BY M. Oyama
The Radio Research Laboratories. Japan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DATE SEP. 11. 1971
KEY
FREQUENCY (MHz)
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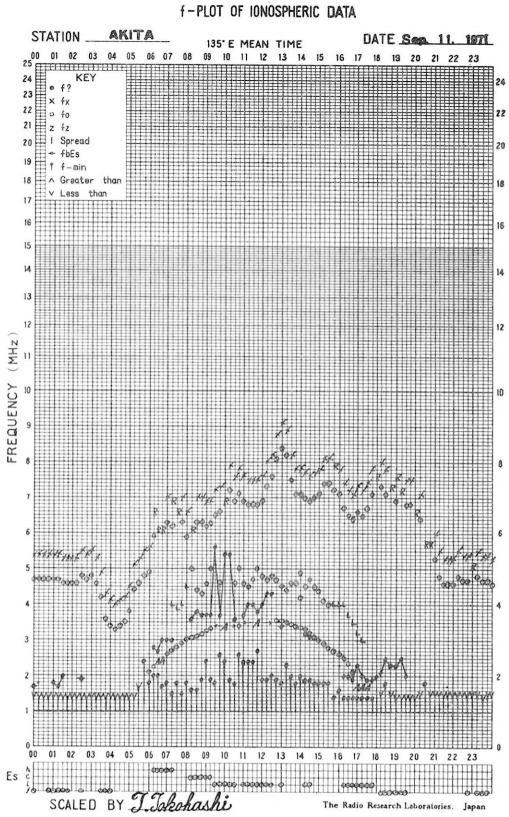
SCALED BY T. Oda
The Radio Research Laboratories. Japan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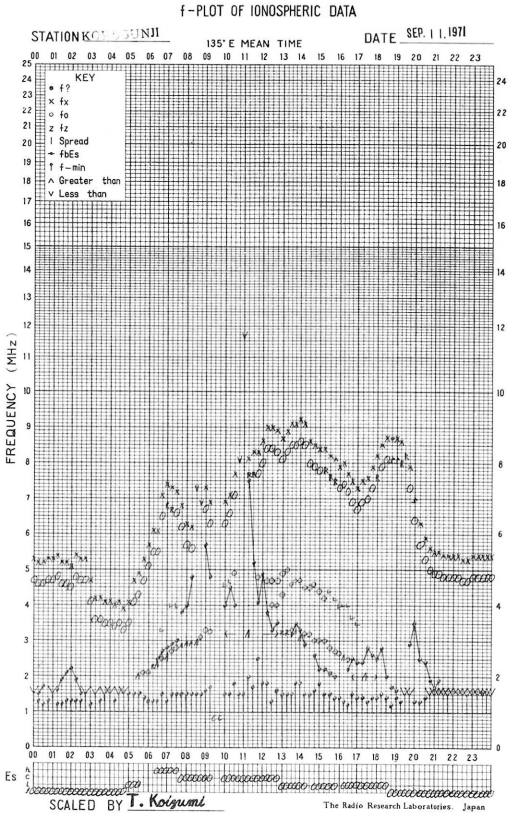
The Radio Research Laboratories. Japan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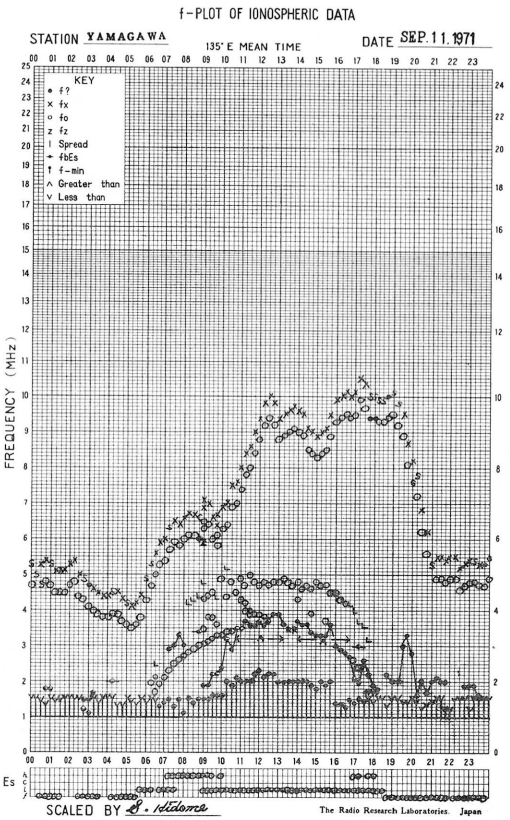
The Radio Research Laboratories. Japan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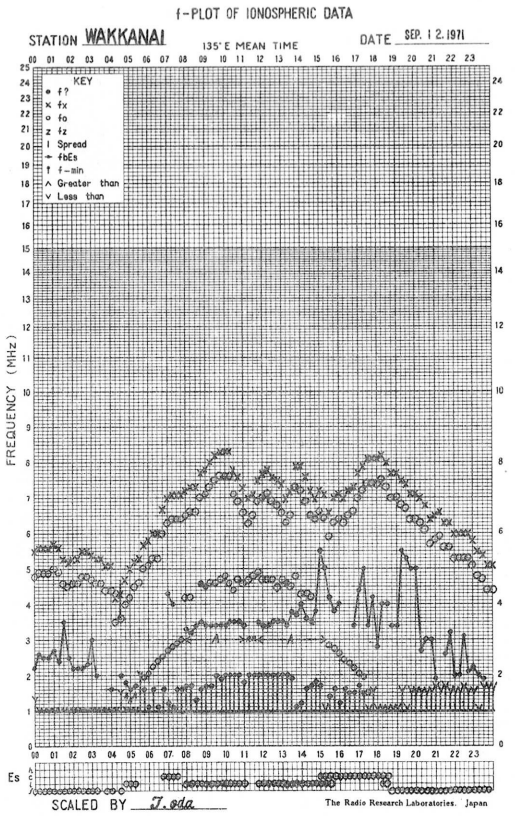
The Radio Research Laboratories. Japan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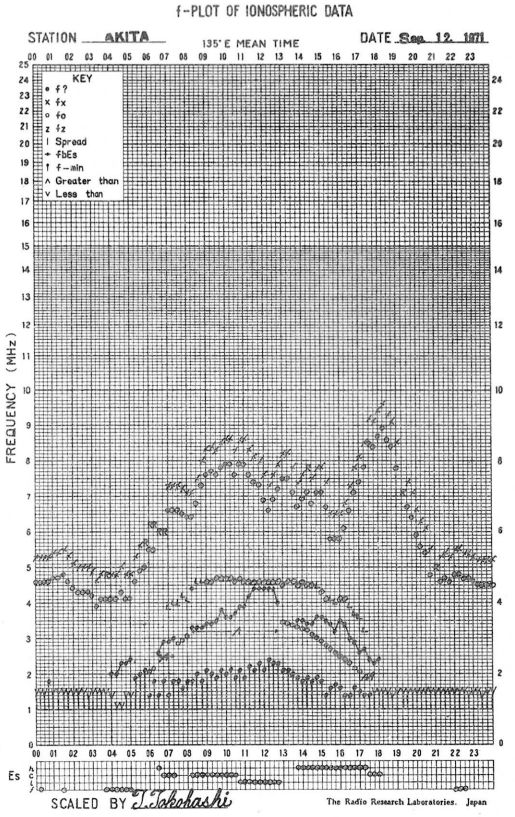
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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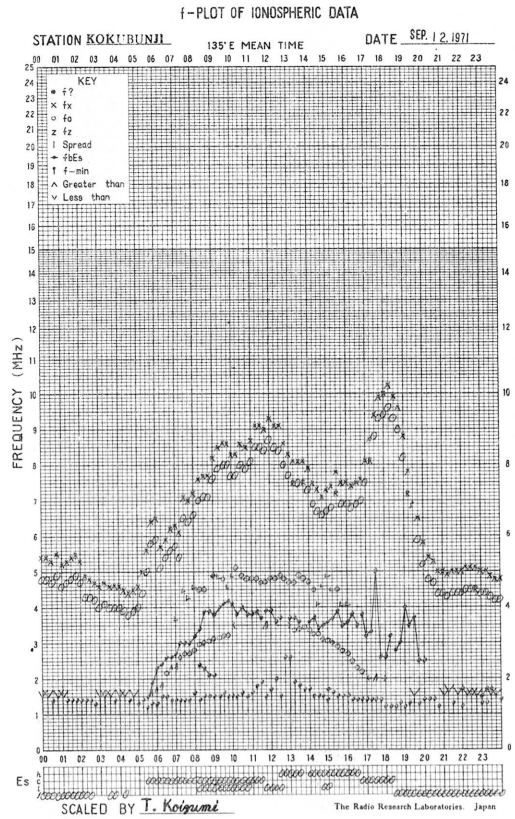
The Radio Research Laboratories. Japan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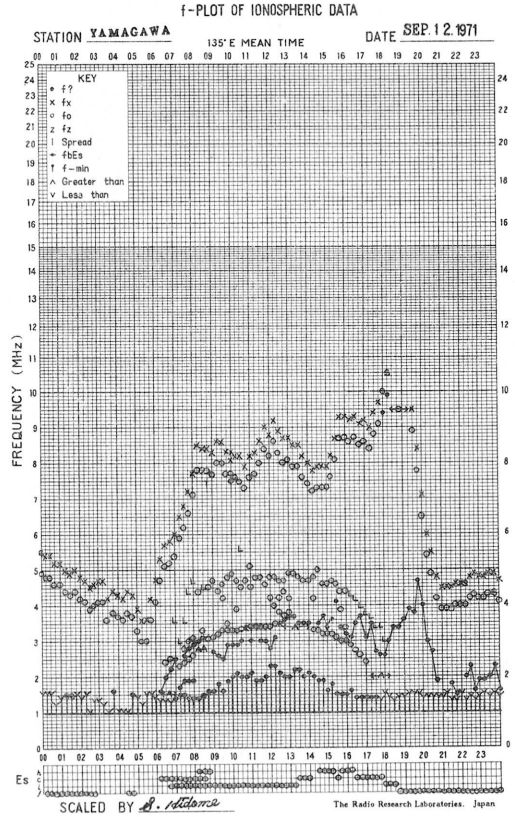
The Radio Research Laboratories. Japan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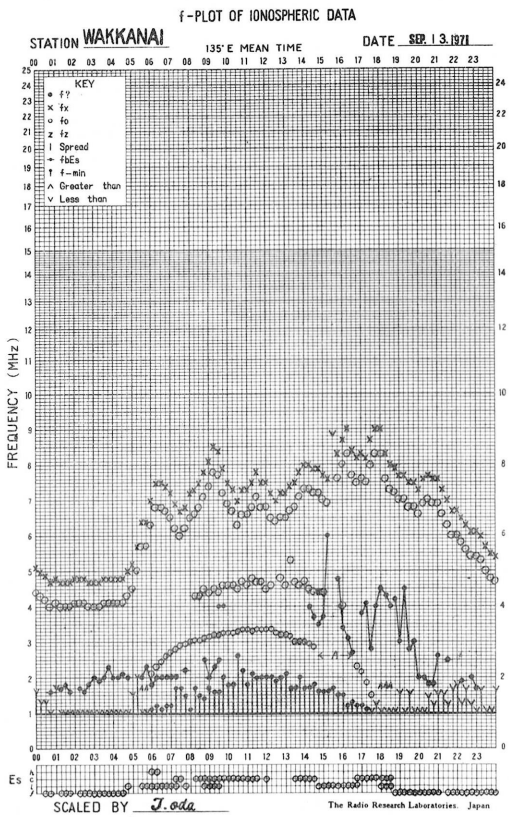
The Radio Research Laboratories. Japan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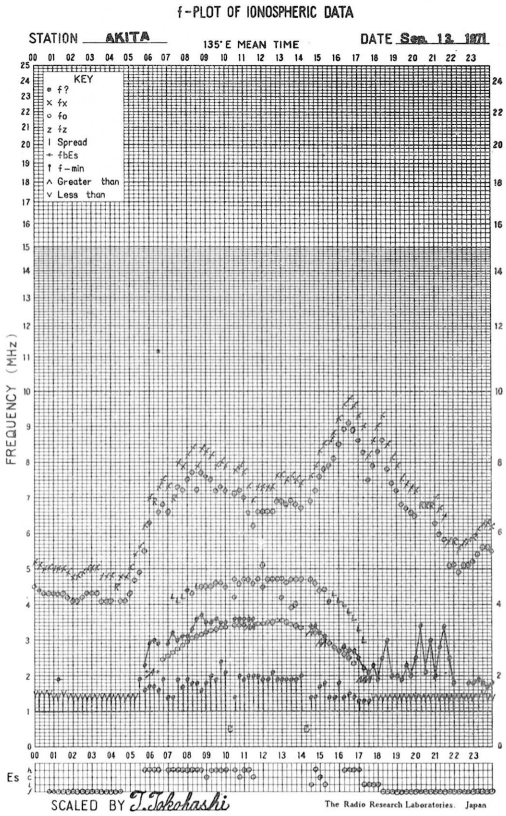
SCALED BY T. oda
The Radio Research Laboratories. Japan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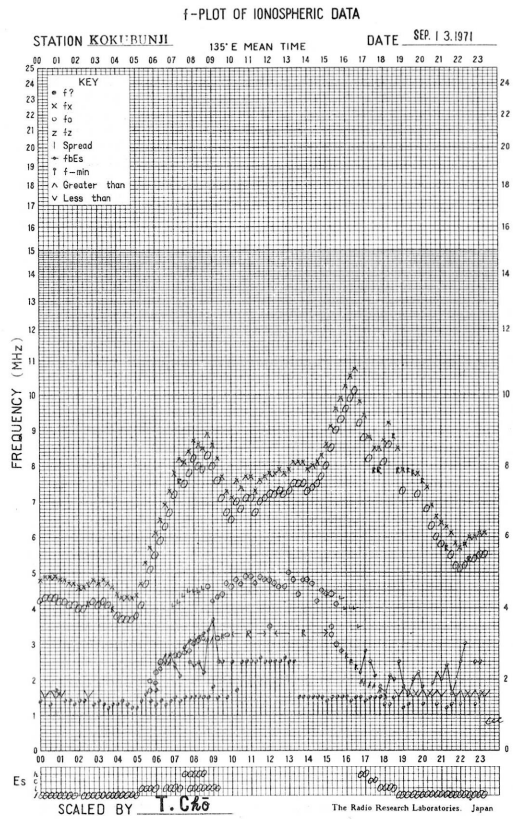
SCALED BY T. Tokohashi
The Radio Research Laboratories. Japan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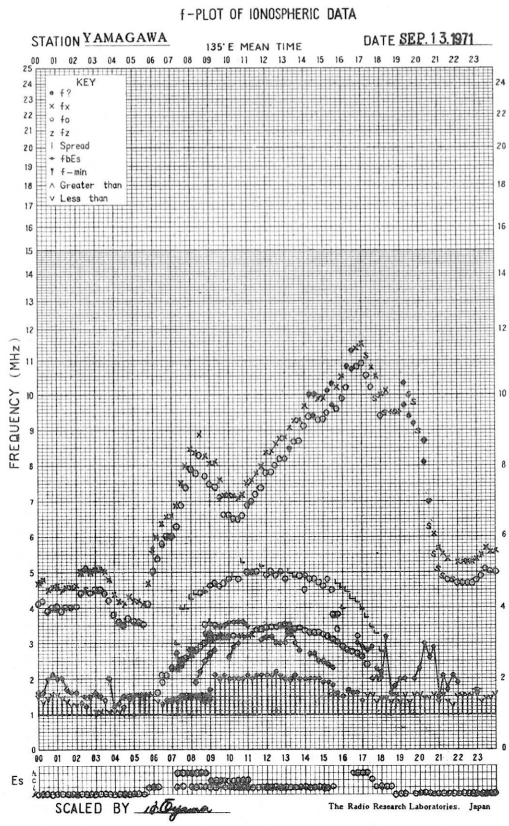
SCALED BY T. Cho
The Radio Research Laboratories. Japan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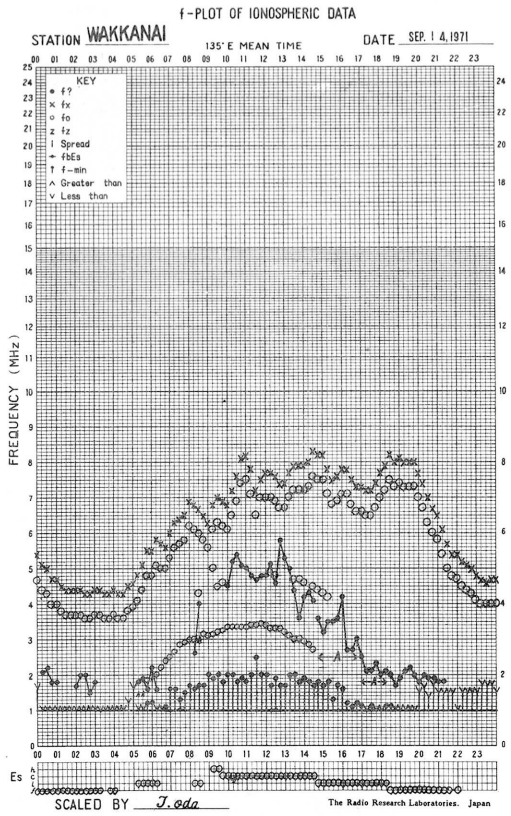
SCALED BY S. Oyama
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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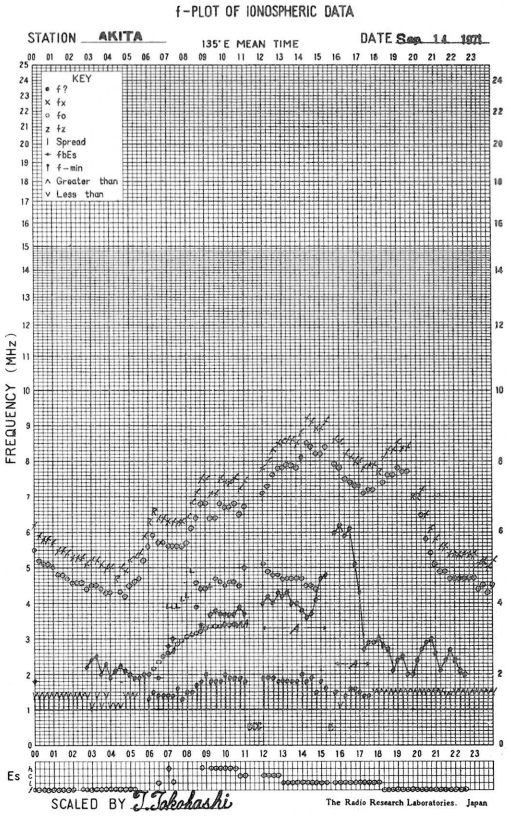
SCALED BY T. oda
The Radio Research Laboratories. Japan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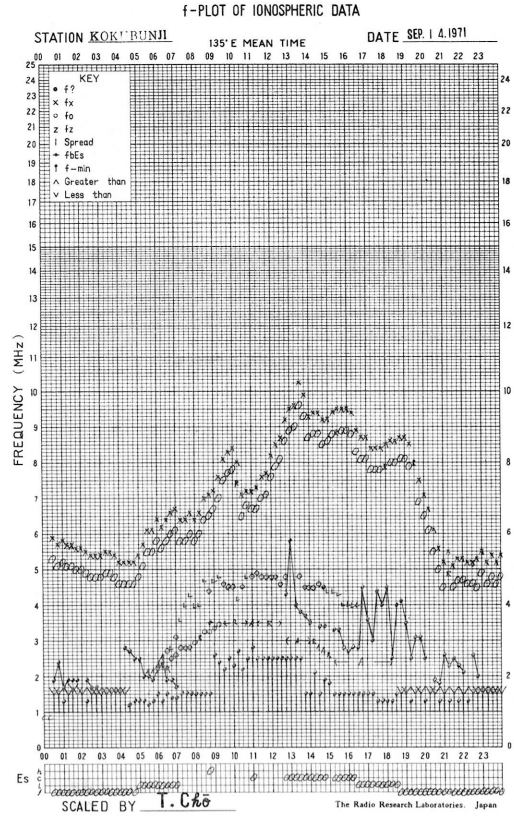
The Radio Research Laboratories. Japan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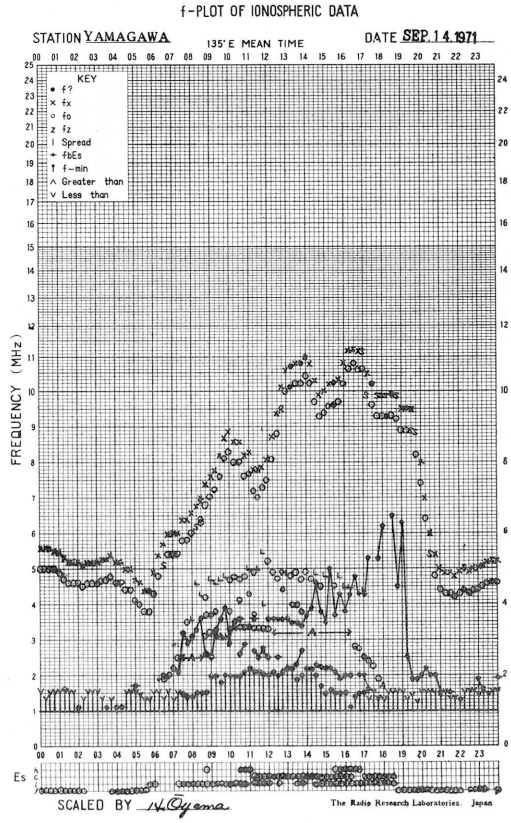
SCALED BY T. Chō
The Radio Research Laboratories. Japan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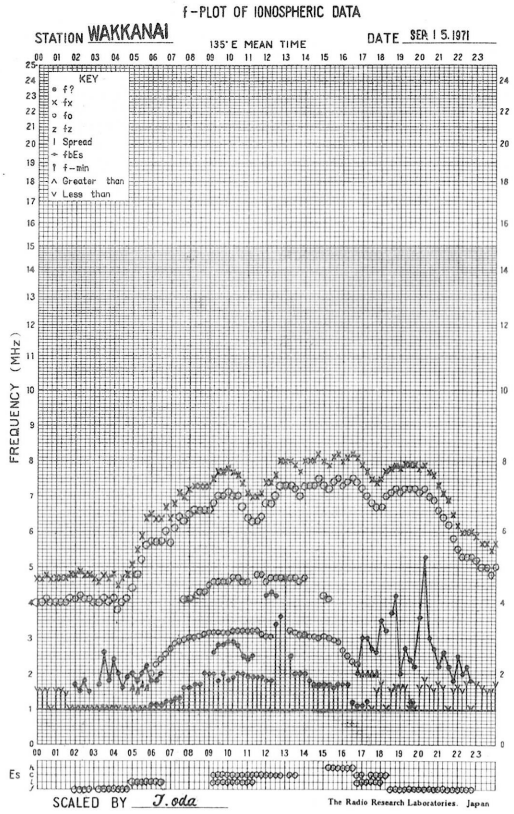
FREQUENCY (MHz)
Es
SCALED BY M. Ogawa
The Radio Research Laboratories. Japan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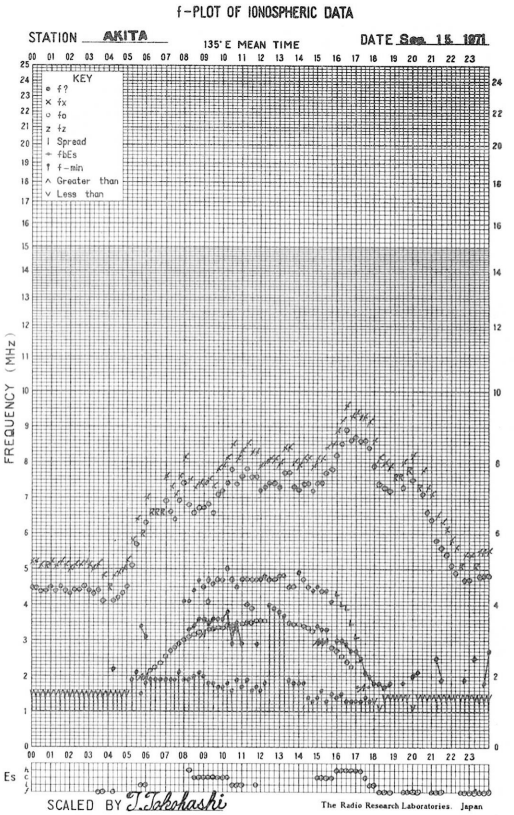
The Radio Research Laboratories. Japan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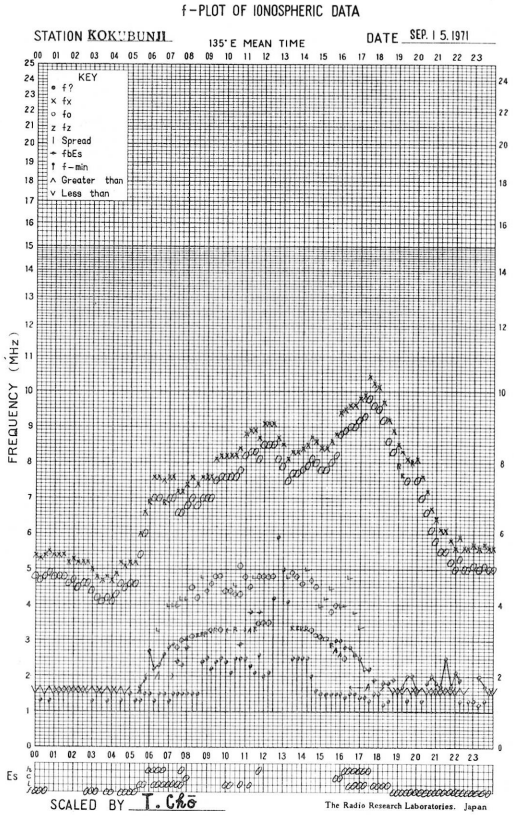
The Radio Research Laboratories. Japan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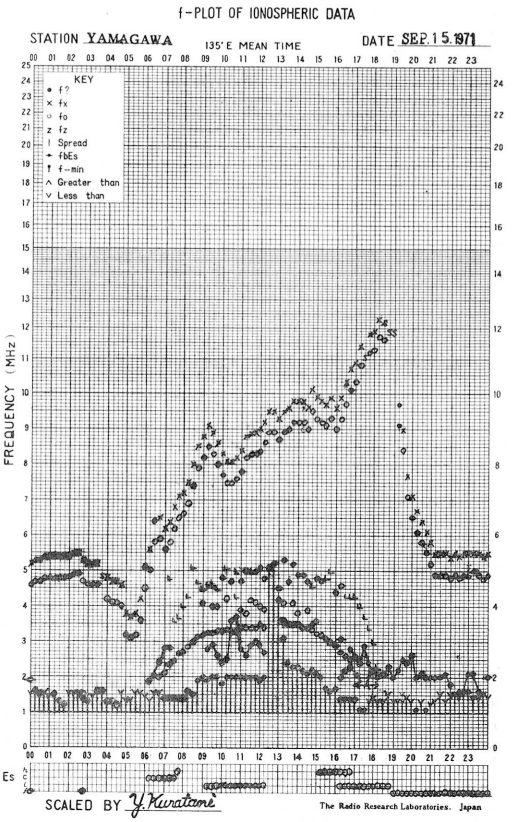
SCALED BY T. Chō
The Radio Research Laboratories. Japan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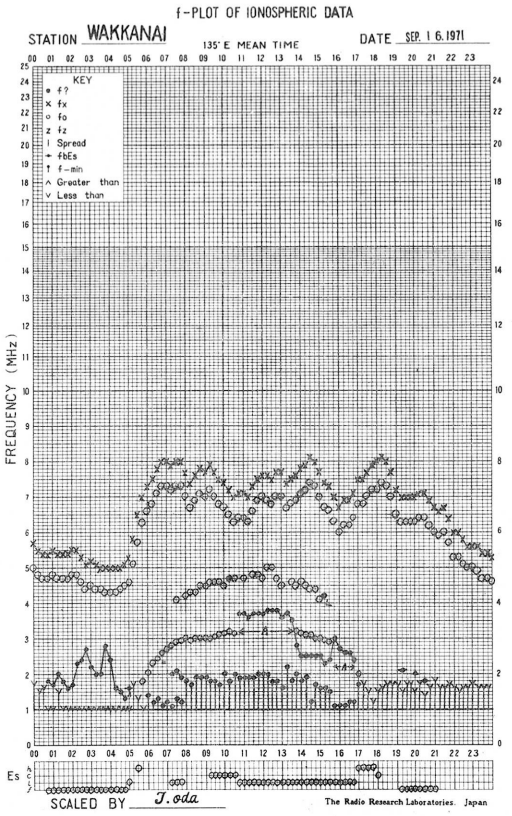
The Radio Research Laboratories. Japan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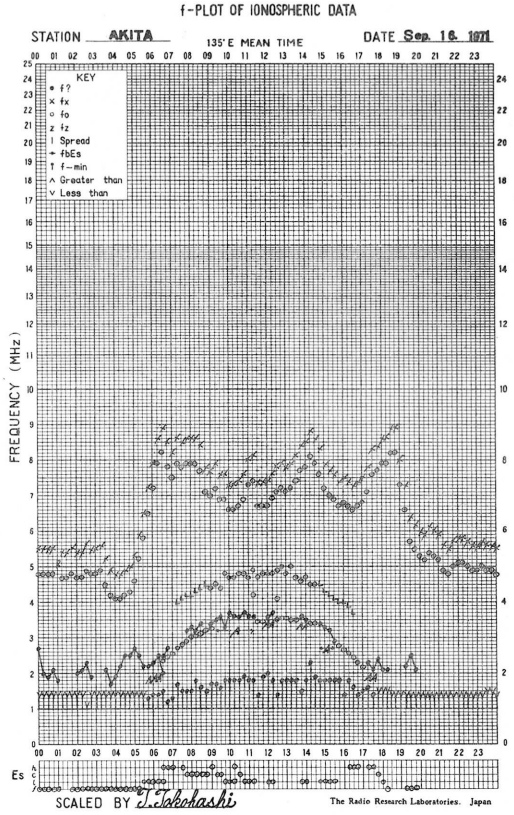
The Radio Research Laboratories. Japan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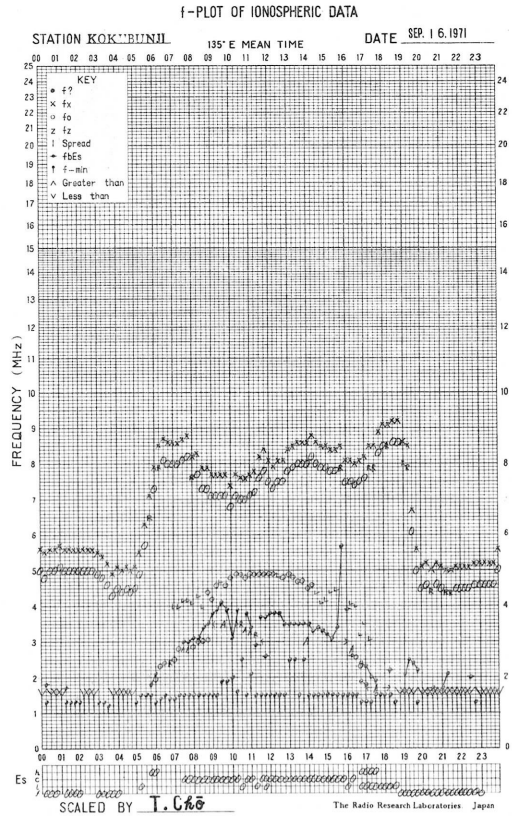
The Radio Research Laboratories. Japan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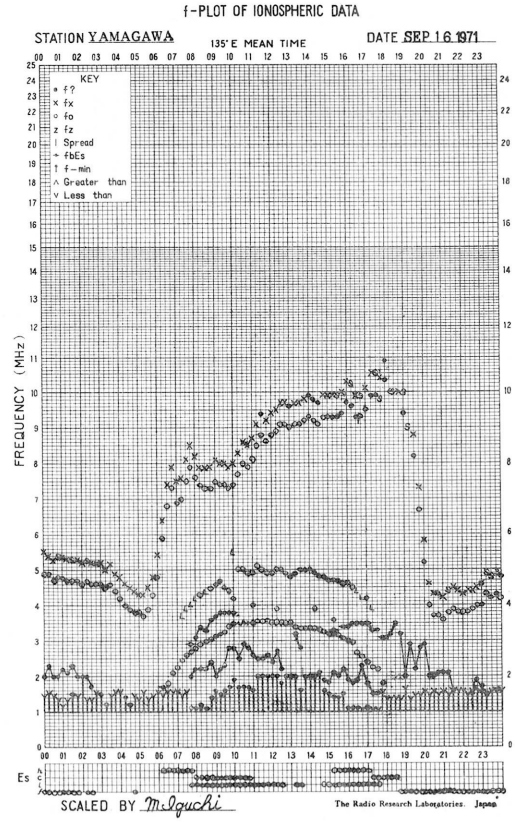
SCALED BY T. Cho
The Radio Research Laboratories. Japan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The Radio Research Laboratories. Japan

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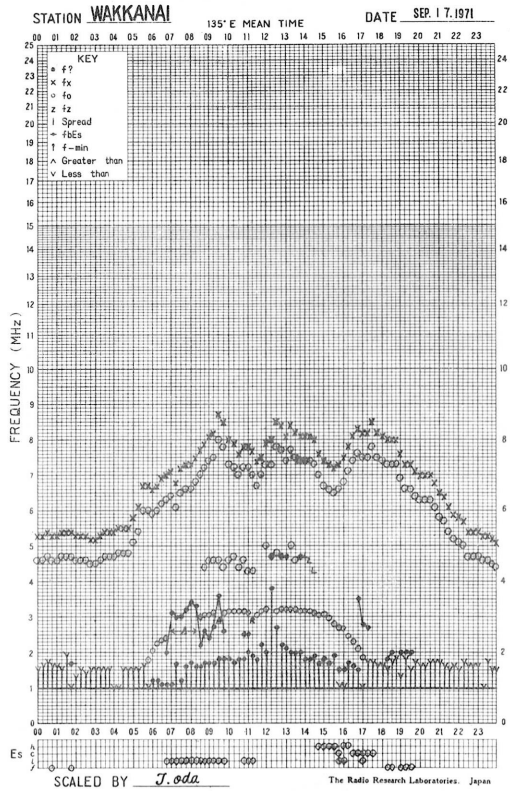

SCALED BY J. oda

The Radio Research Laboratories. Japan

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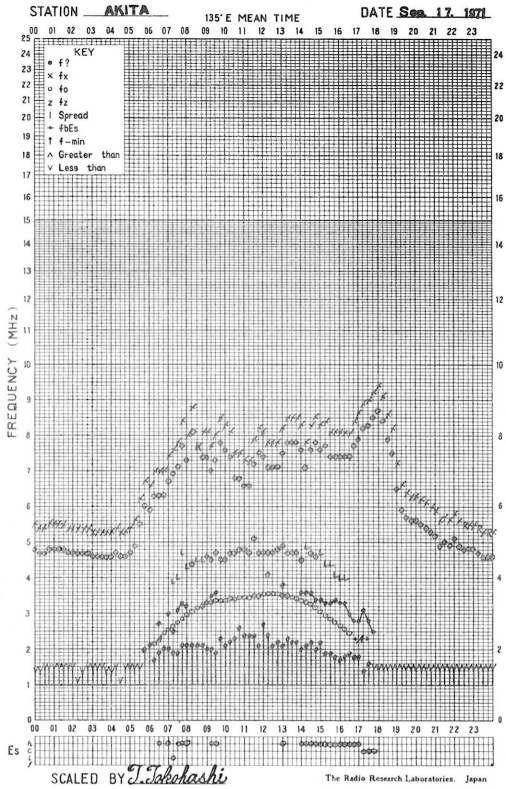

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The Radio Research Laboratories. Japan

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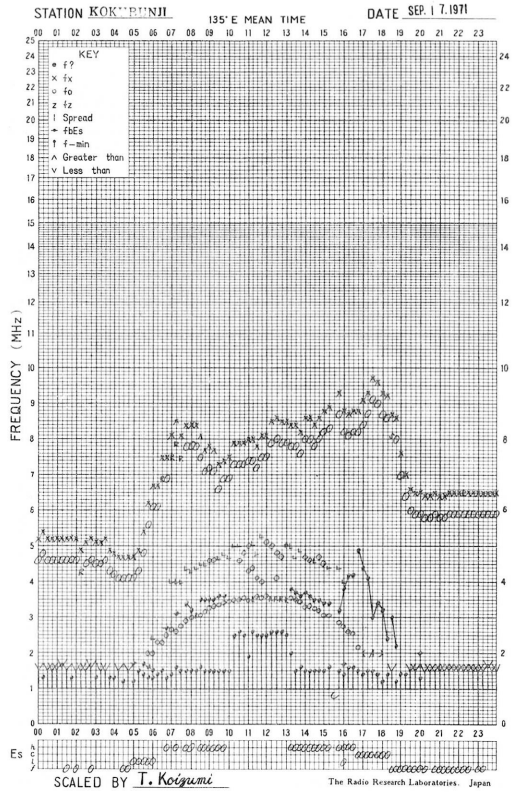

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The Radio Research Laboratories. Japan

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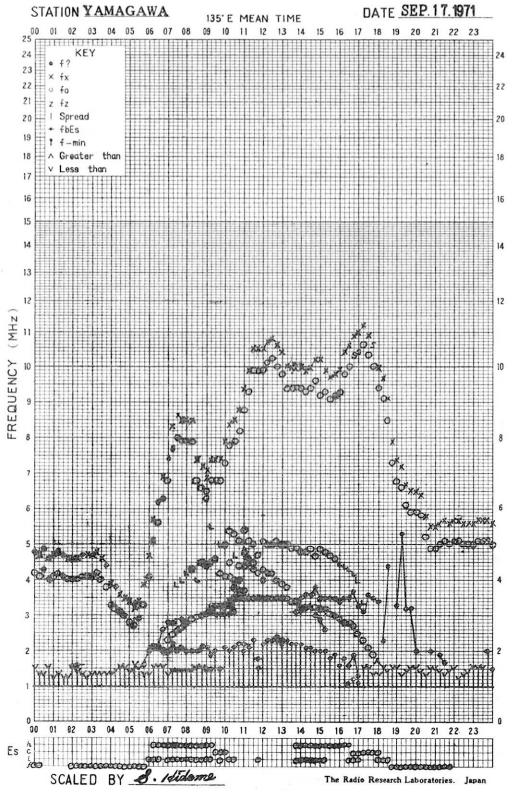
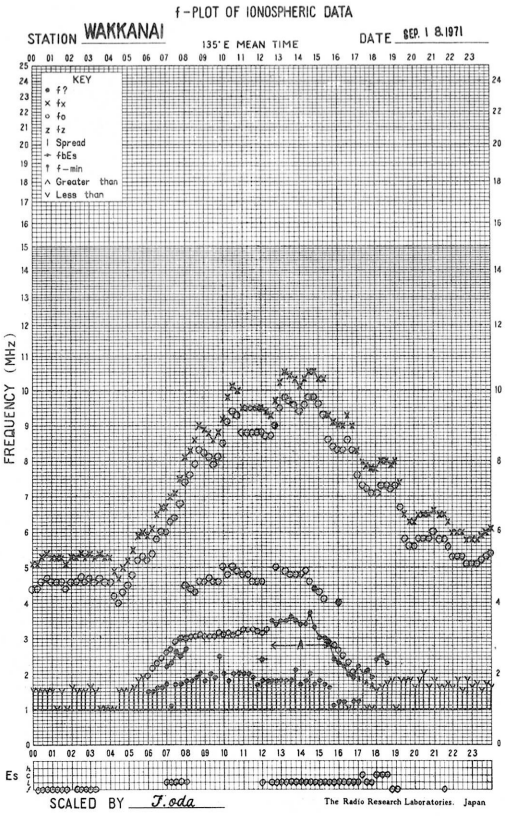


SCALED BY S. Shidama

The Radio Research Laboratories. Japan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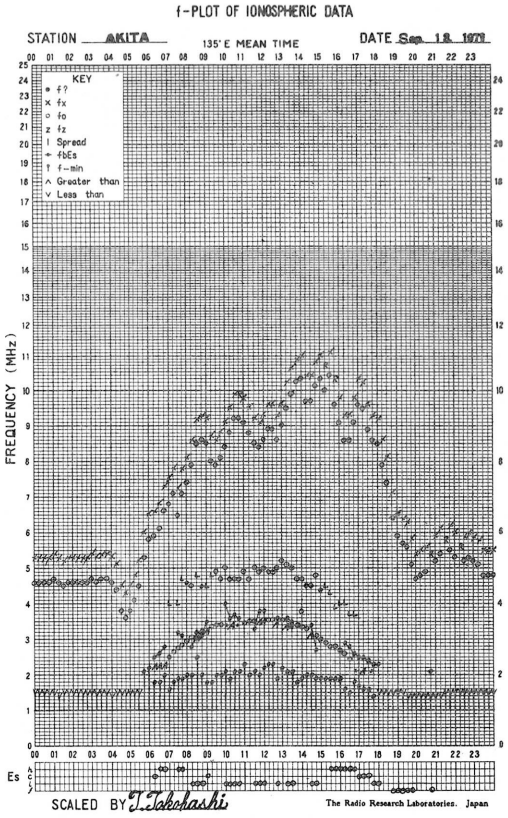
SCALED BY T. oda
The Radio Research Laboratories. Japan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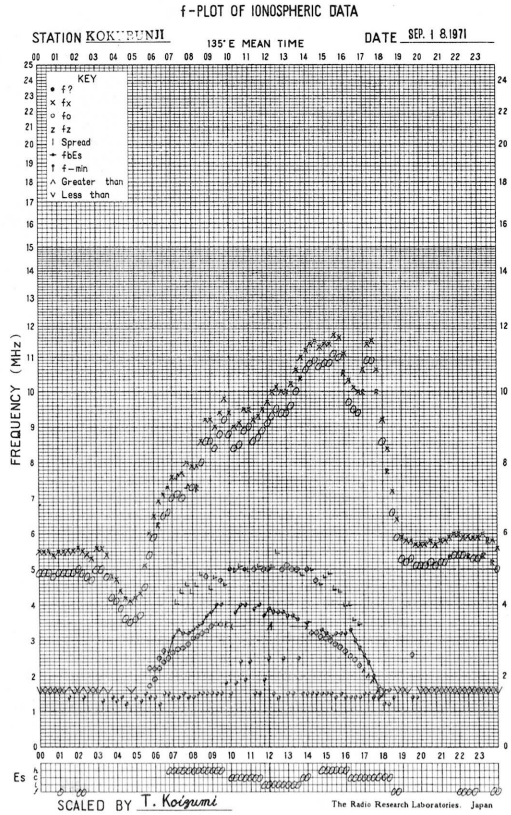
The Radio Research Laboratories. Japan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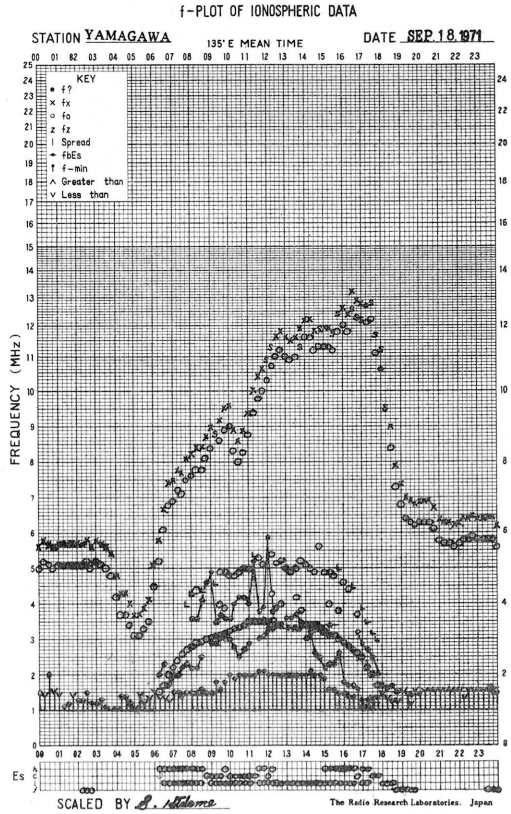
The Radio Research Laboratories. Japan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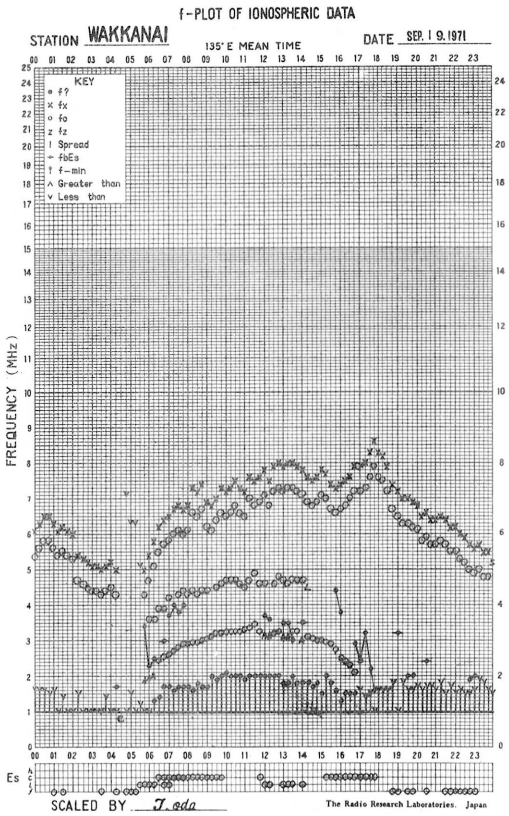
The Radio Research Laboratories. Japan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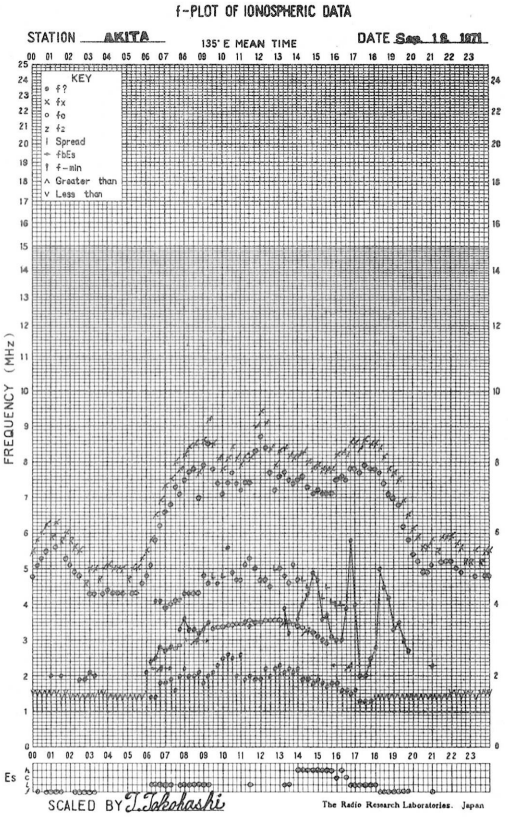
The Radio Research Laboratories. Japan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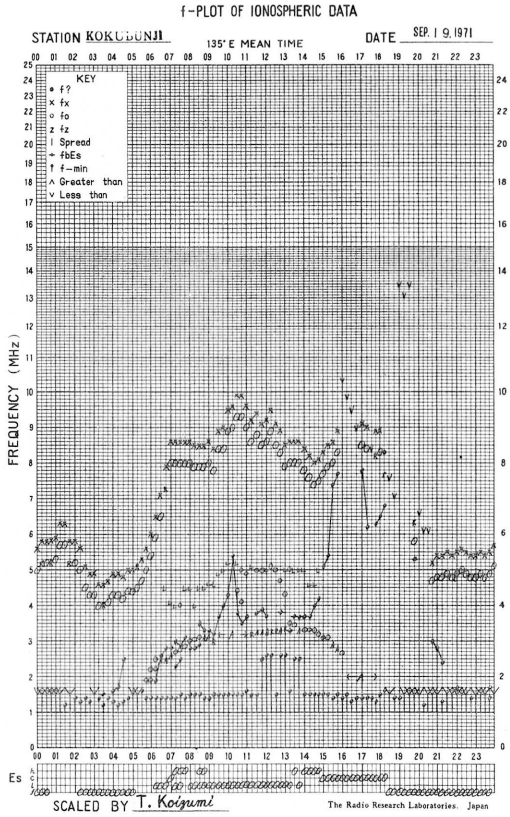
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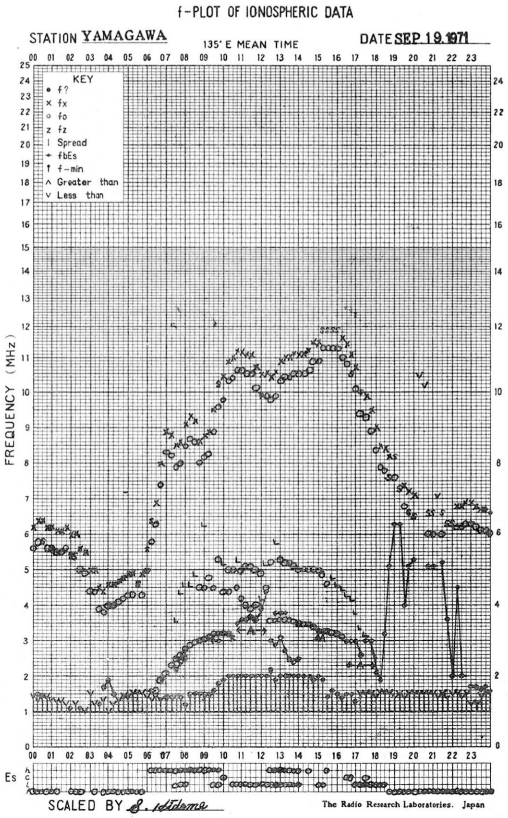
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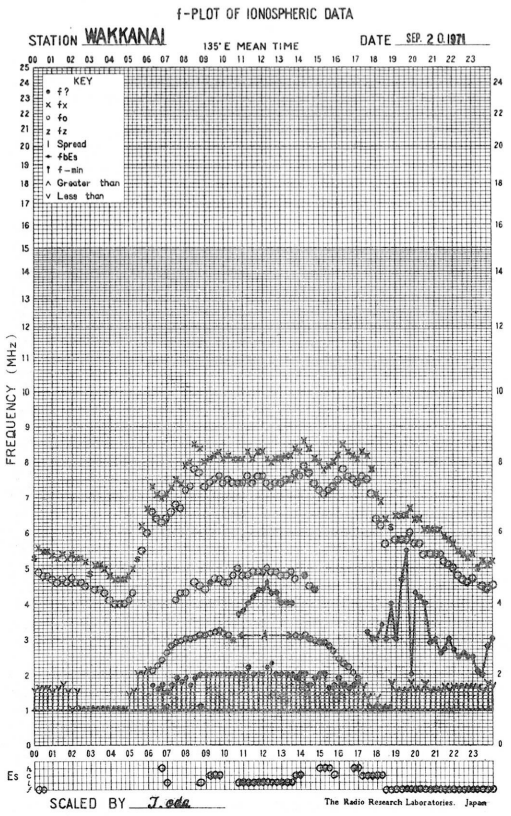
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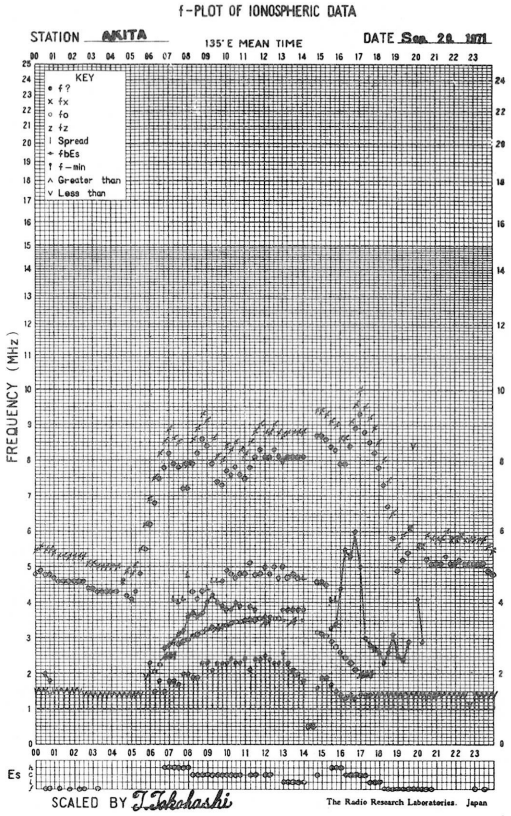
SCALED BY T. oda
The Radio Research Laboratories. Japan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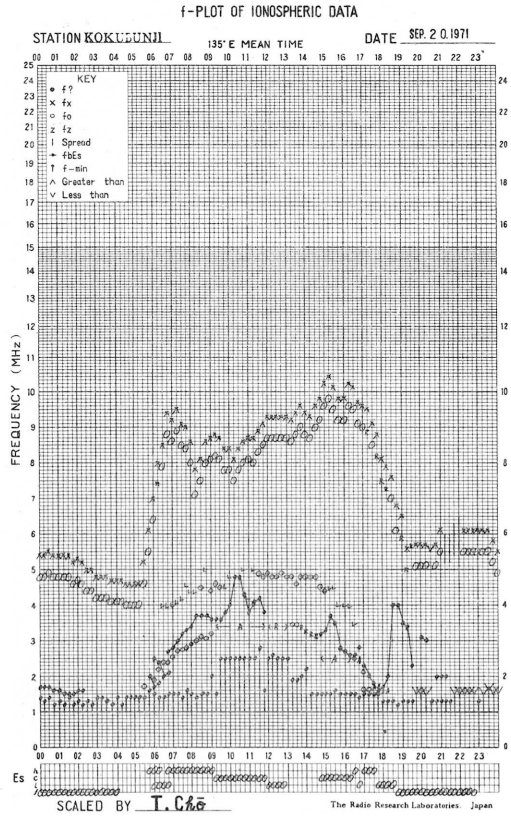
The Radio Research Laboratories. Japan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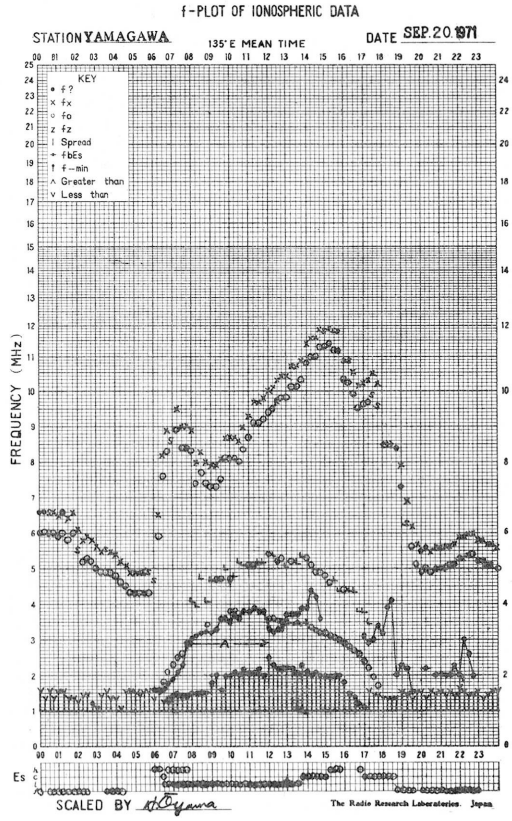
The Radio Research Laboratories. Japan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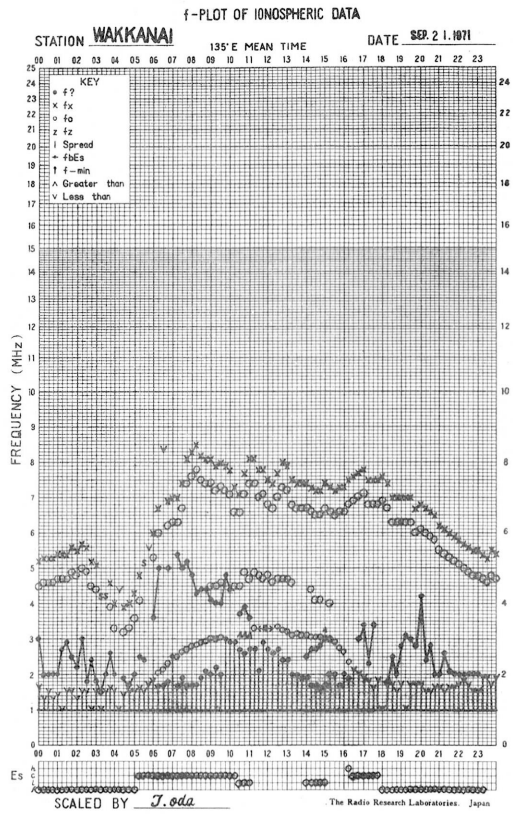
The Radio Research Laboratories. Japan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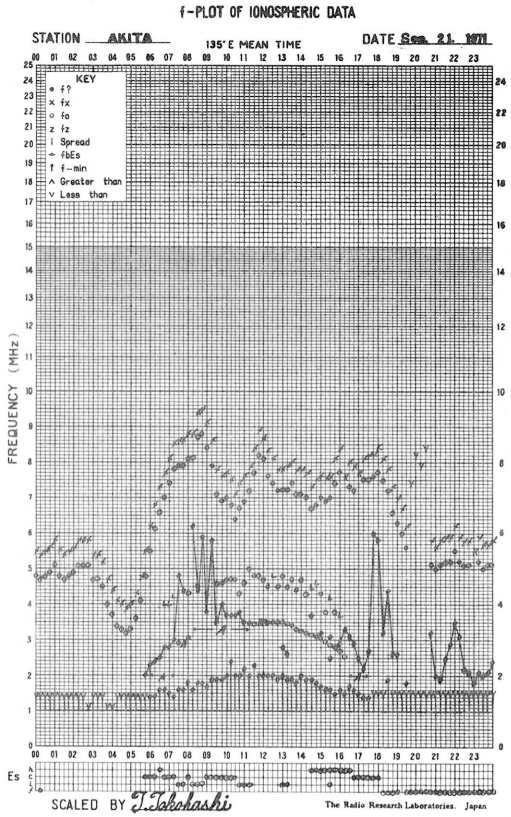
The Radio Research Laboratories. Japan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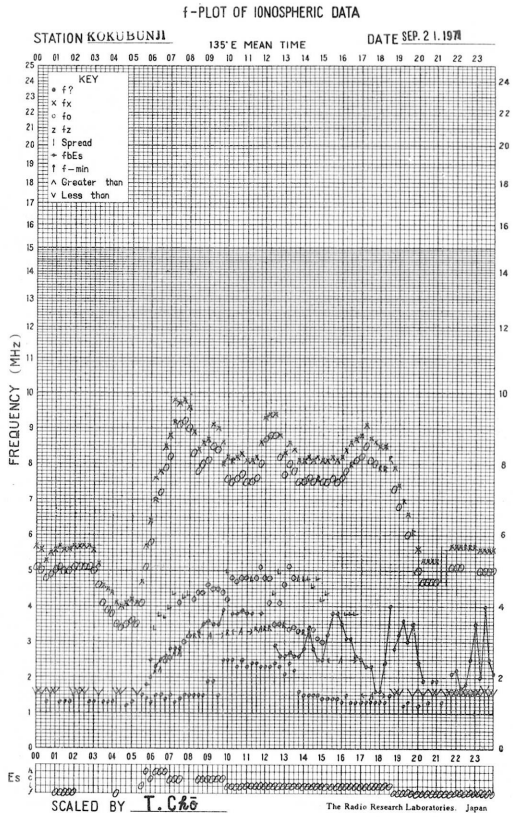
The Radio Research Laboratories. Japan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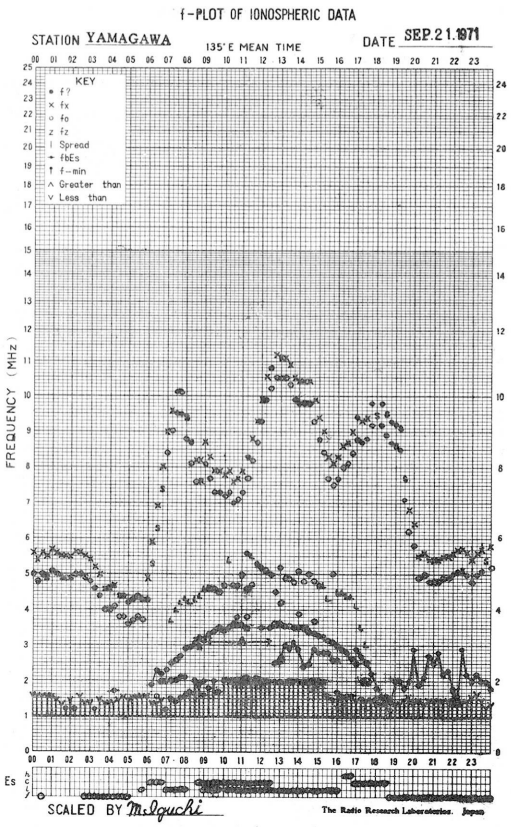
The Radio Research Laboratories. Japan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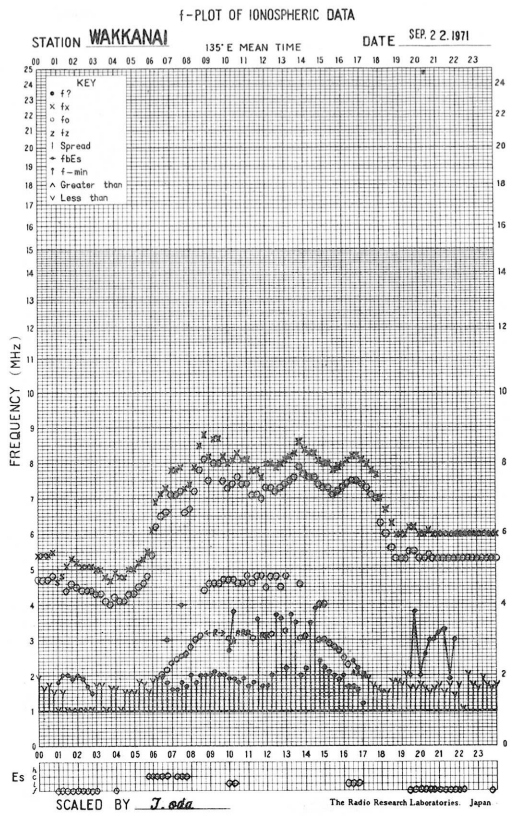
The Radio Research Laboratories. Japan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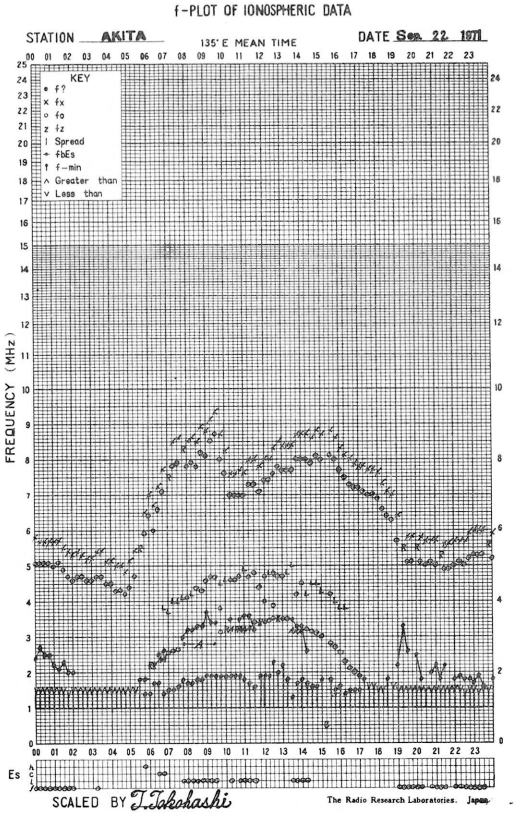
SCALED BY T. oda
The Radio Research Laboratories. Japan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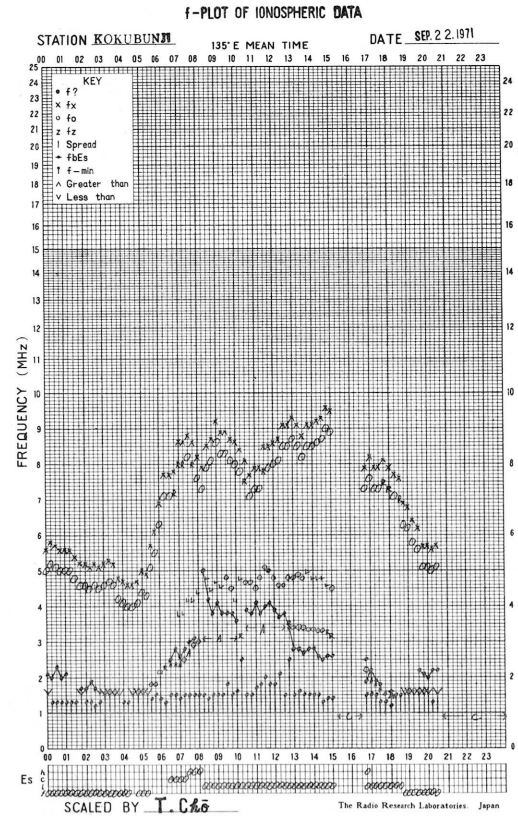
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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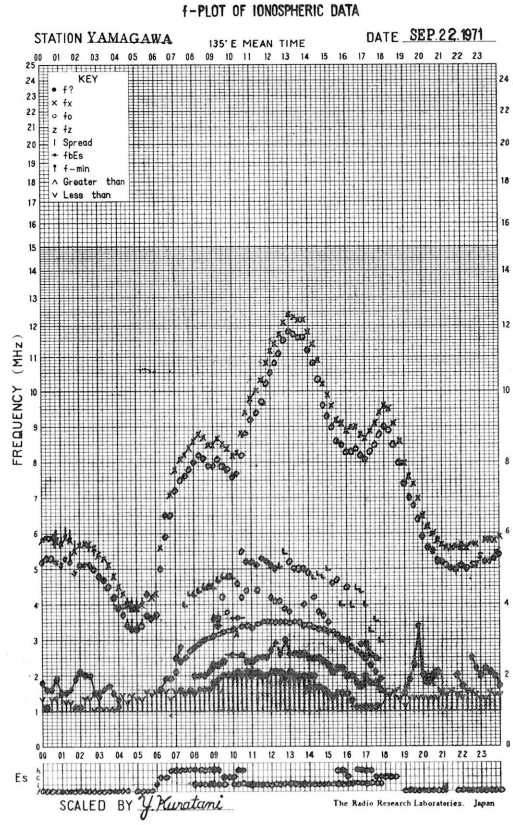
The Radio Research Laboratories. Japan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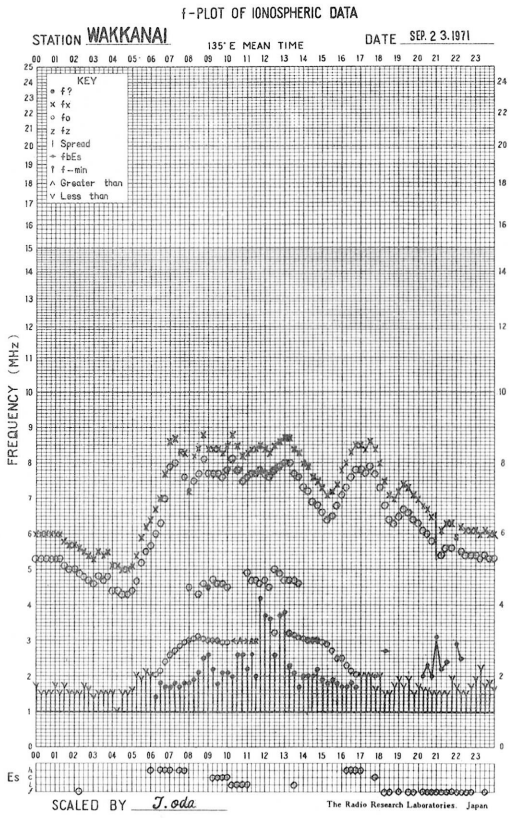
The Radio Research Laboratories. Japan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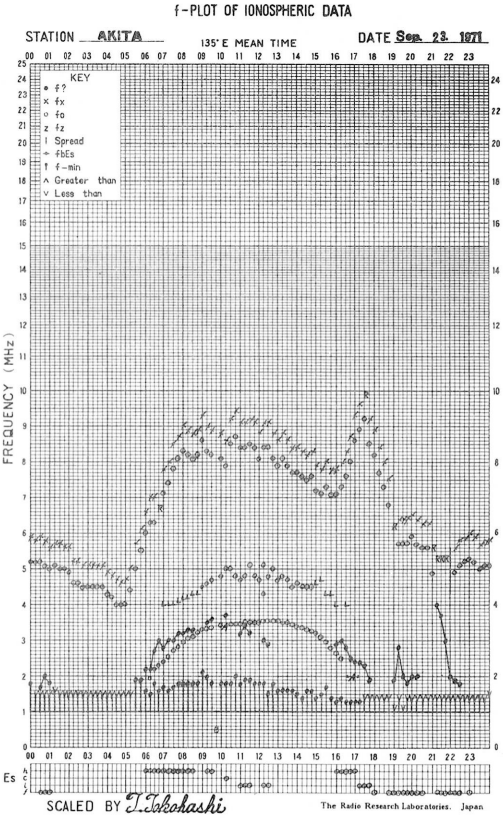
The Radio Research Laboratories. Japan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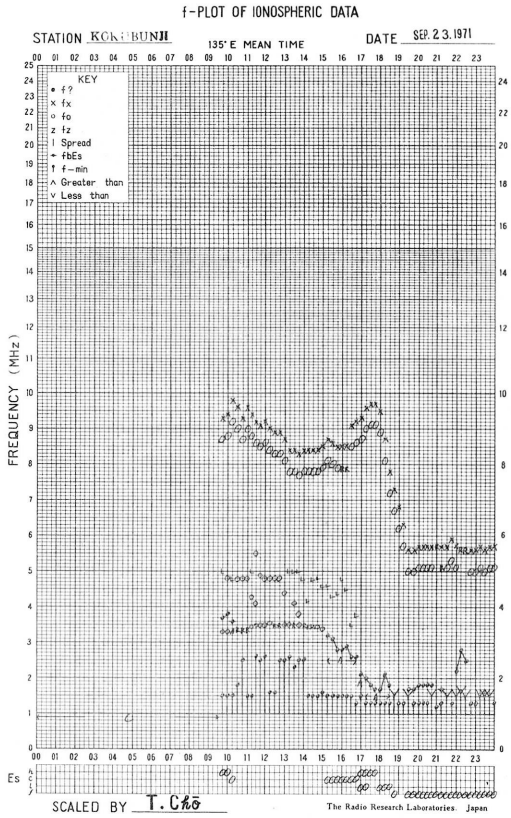
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135° E MEAN TIME
DATE SEP. 23. 1971
KEY
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× fx
○ fo
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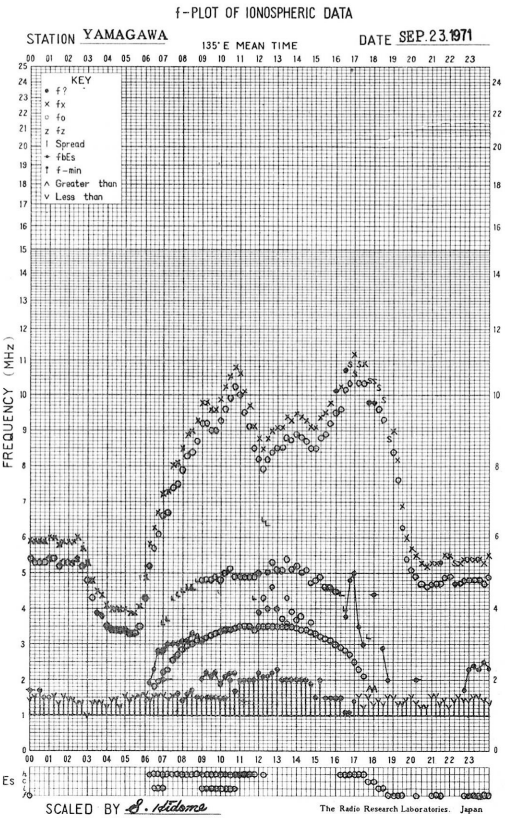
÷ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Chō
The Radio Research Laboratories. Japan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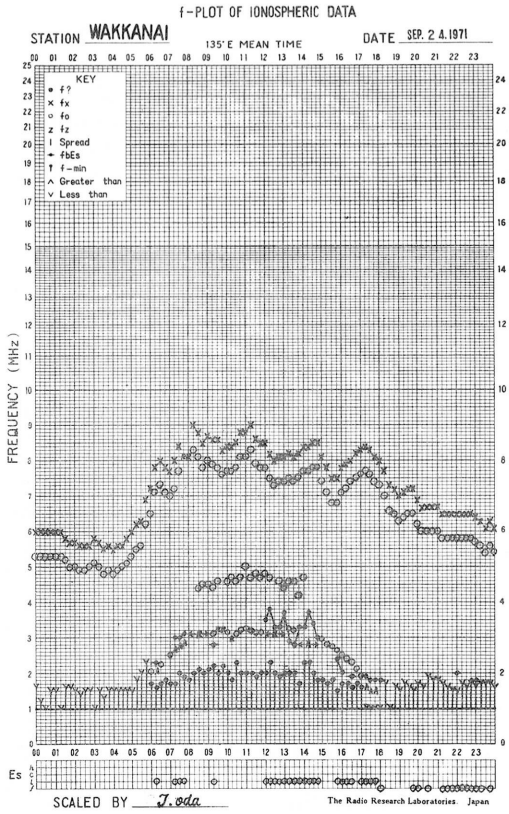
FREQUENCY (MHz)
Es
SCALED BY S. Ichidome
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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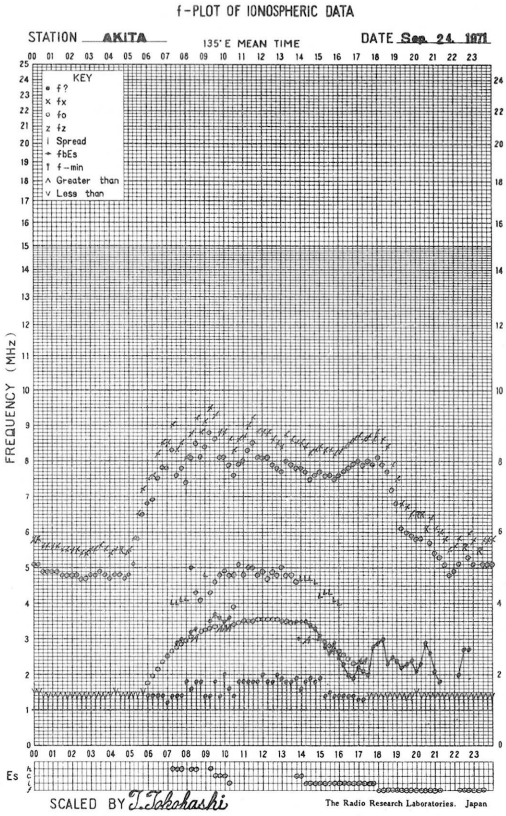
SCALED BY T.oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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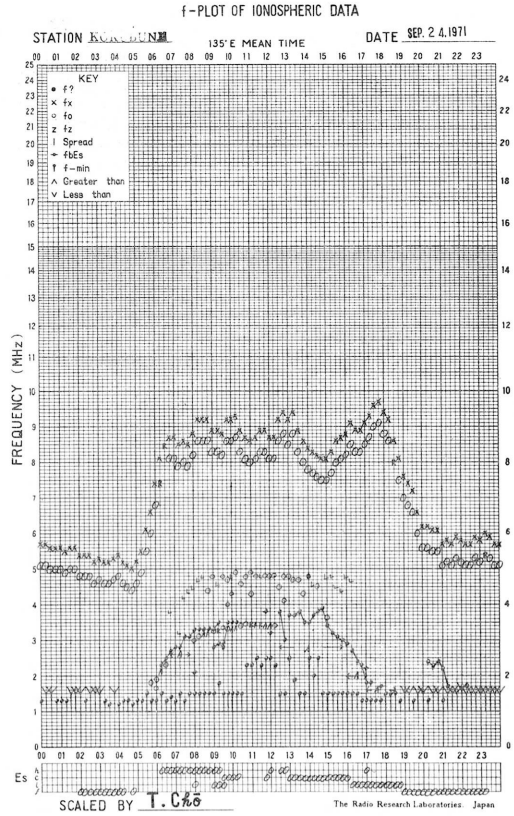
SCALED BY T.Tokohashi
The Radio Research Laboratories. Japan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KEY
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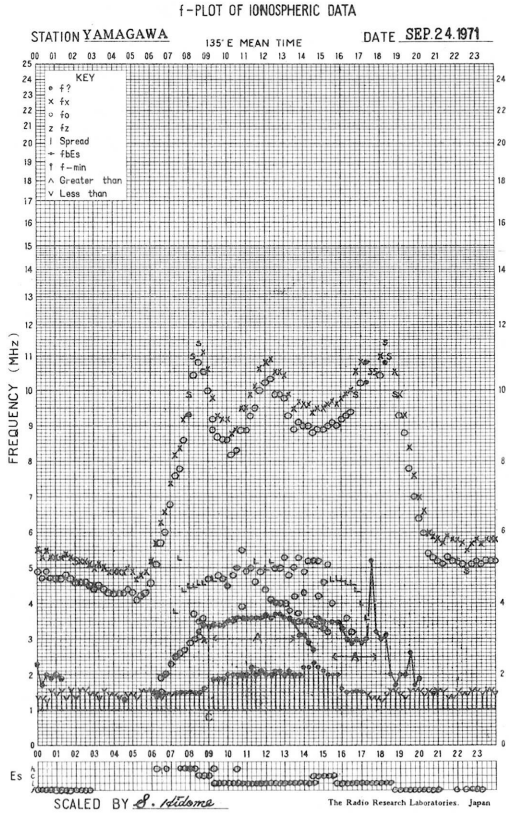
FREQUENCY (MHz)
Es
SCALED BY T.Cho
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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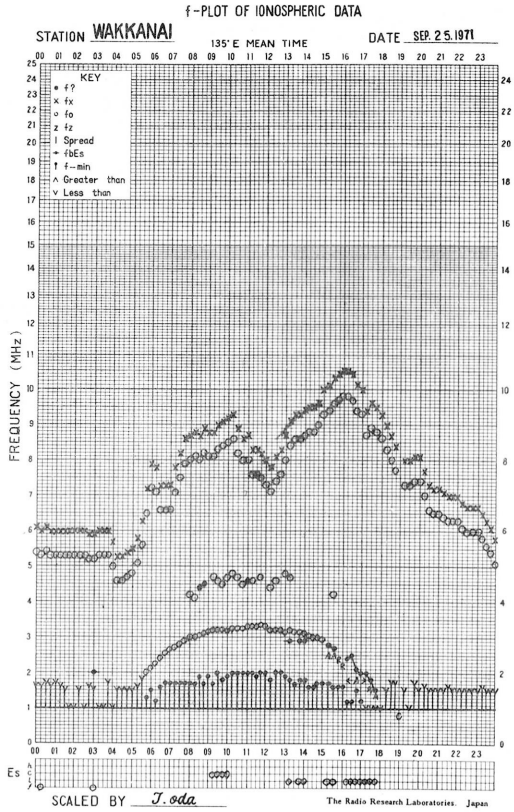
SCALED BY S. Hidoma
The Radio Research Laboratories. Japan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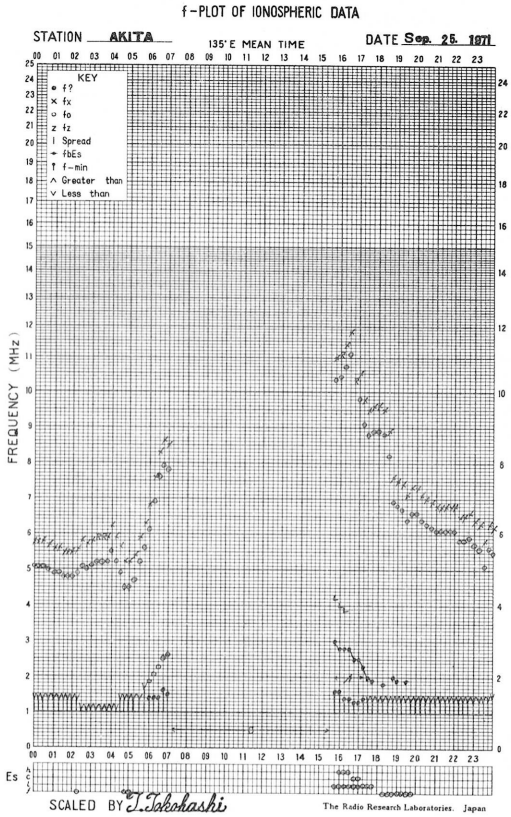
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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DATE Sep. 25. 1971
KEY
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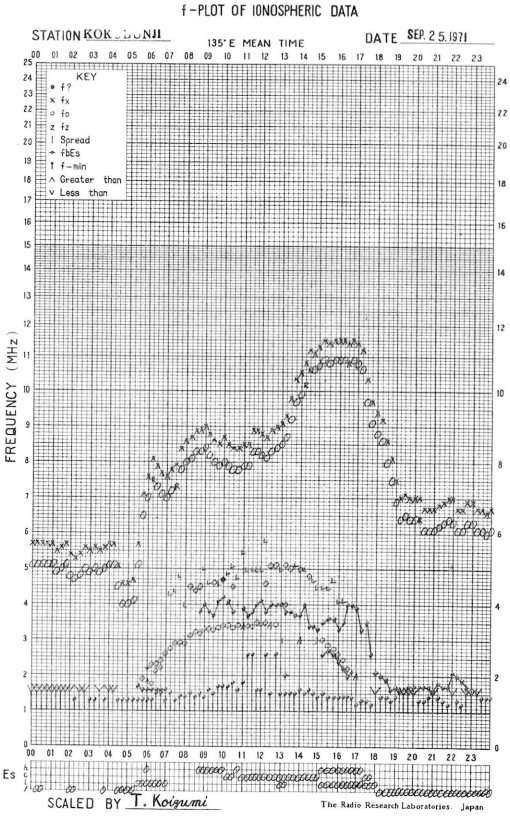
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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DATE SEP. 25. 1971
KEY
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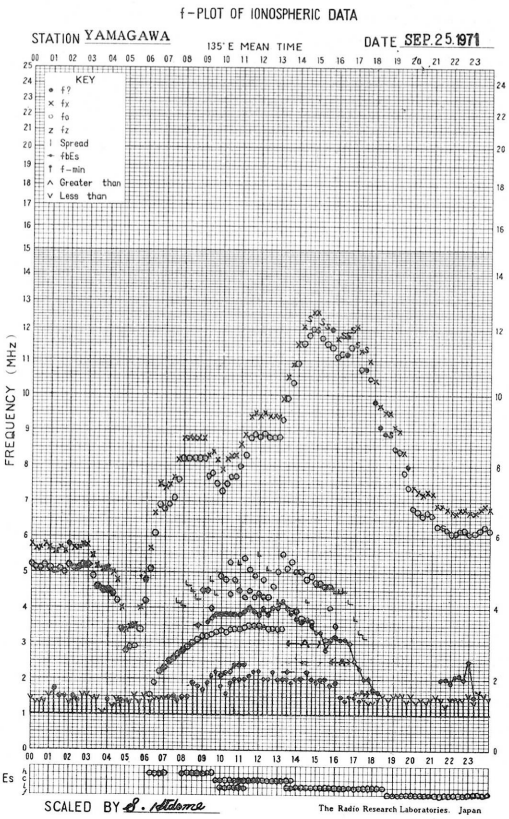
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE SEP. 25. 1971
KEY
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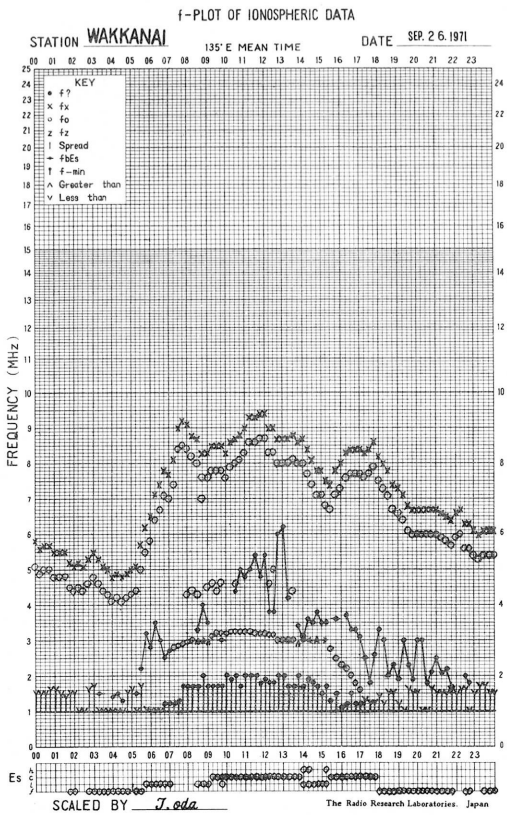
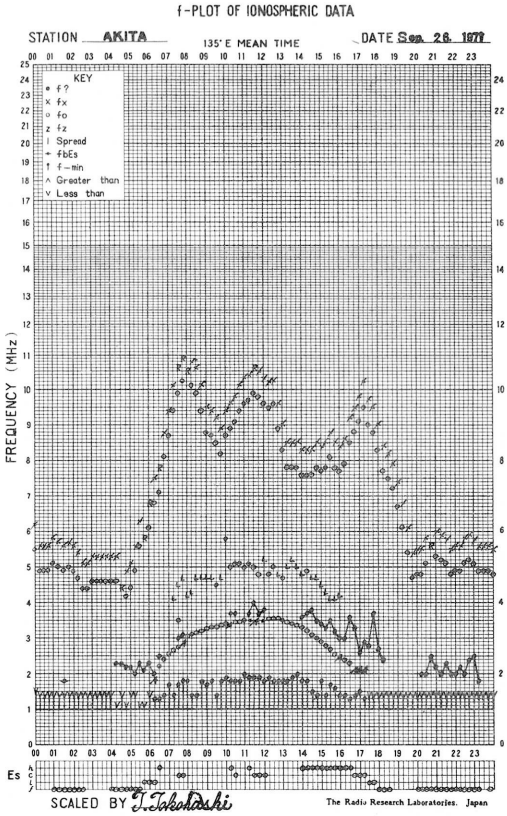
FREQUENCY (MHz)
Es
SCALED BY S. Ishioma
The Radio Research Laboratories. Japan


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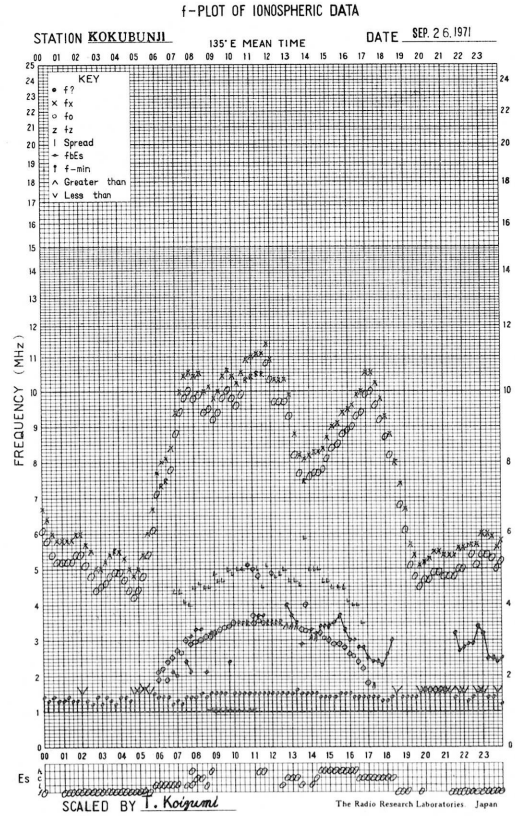
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


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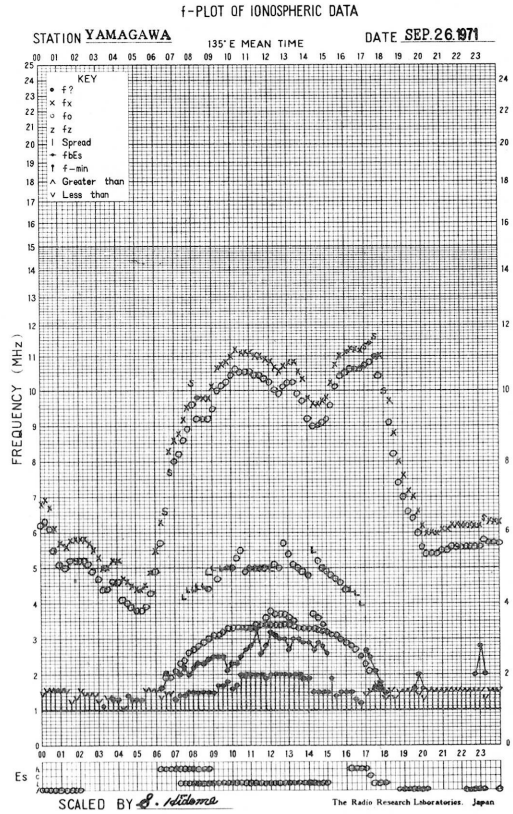
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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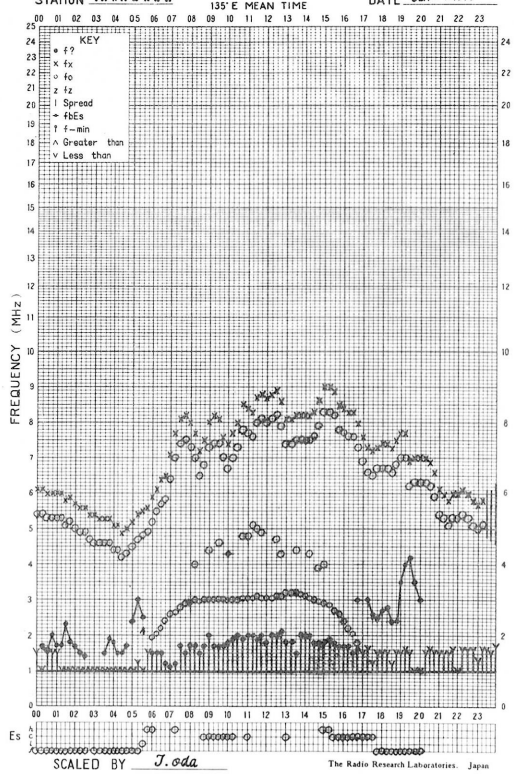
STATION YAMAGAWA
135°E MEAN TIME
DATE SEP. 26. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Iidaka
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 27. 1971

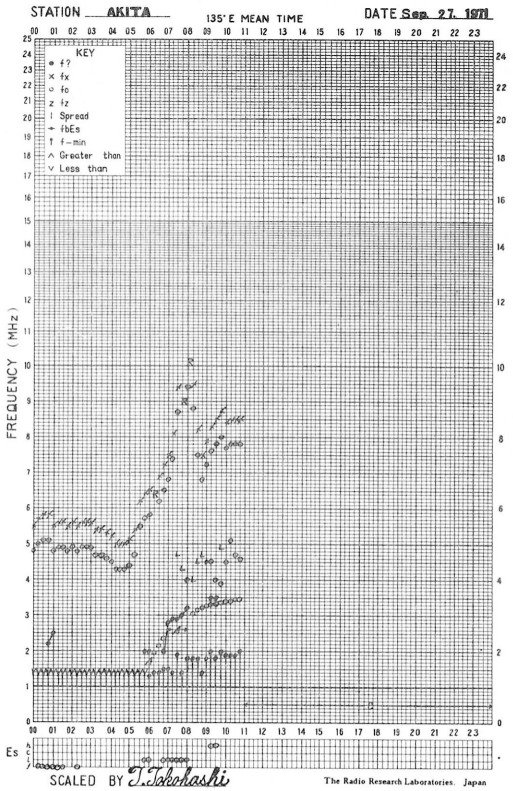


SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Sep. 27. 1971

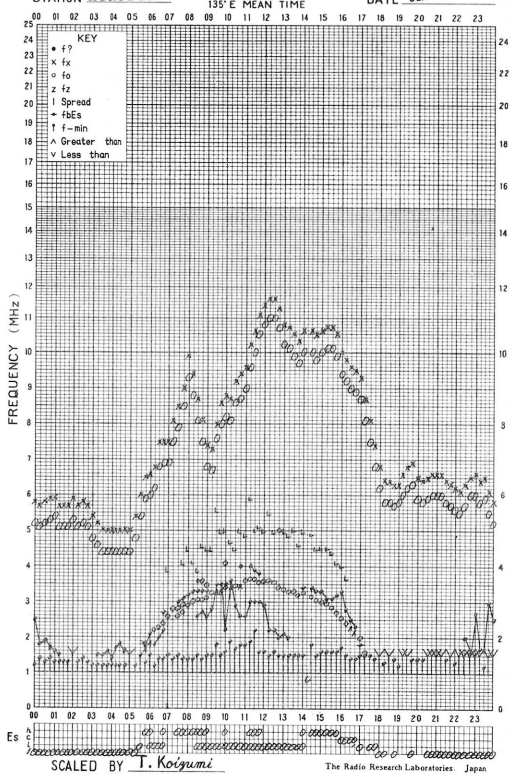


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE SEP. 27. 1971

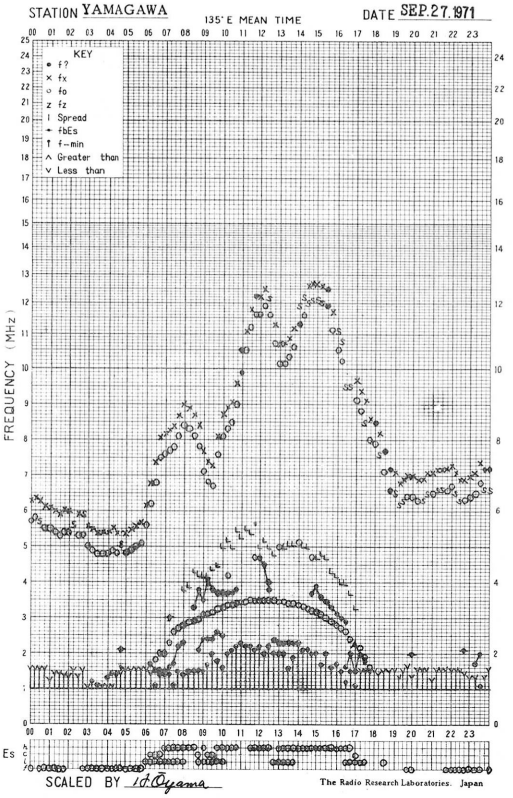


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

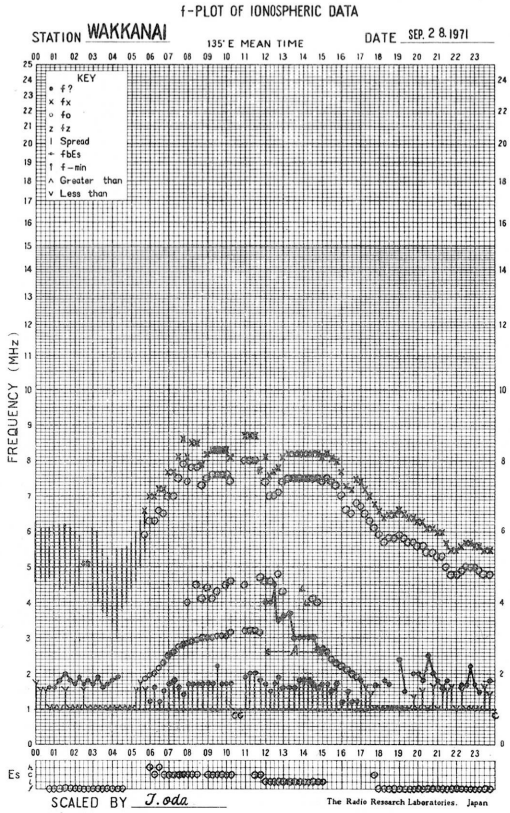
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE SEP. 27. 1971



SCALED BY H. Oyama

The Radio Research Laboratories. Japan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STATION WAKKANAI
135°E MEAN TIME
DATE SEP. 28.1971
KEY
• f?
× fx
○ fo
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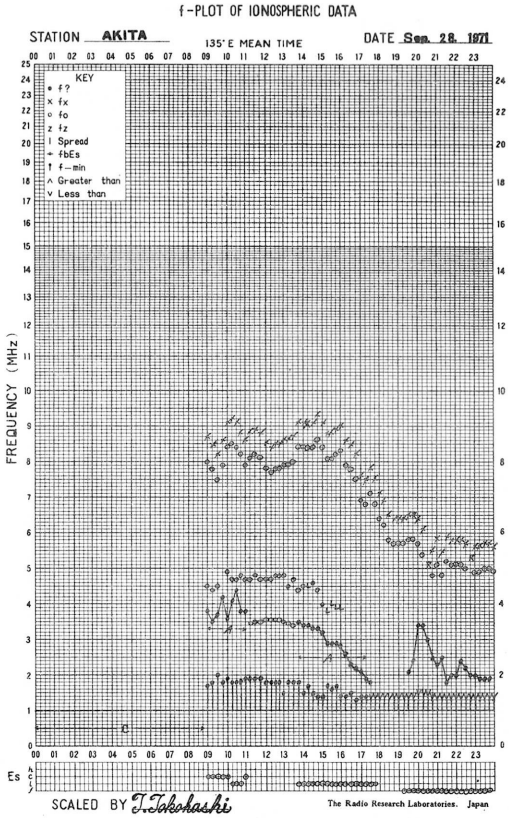
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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DATE Sep. 28. 1971
KEY
• f?
× fx
○ fo
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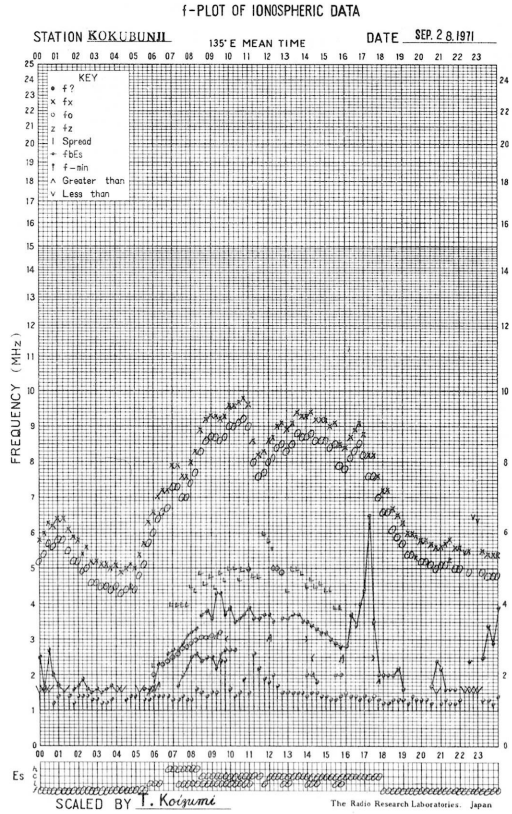
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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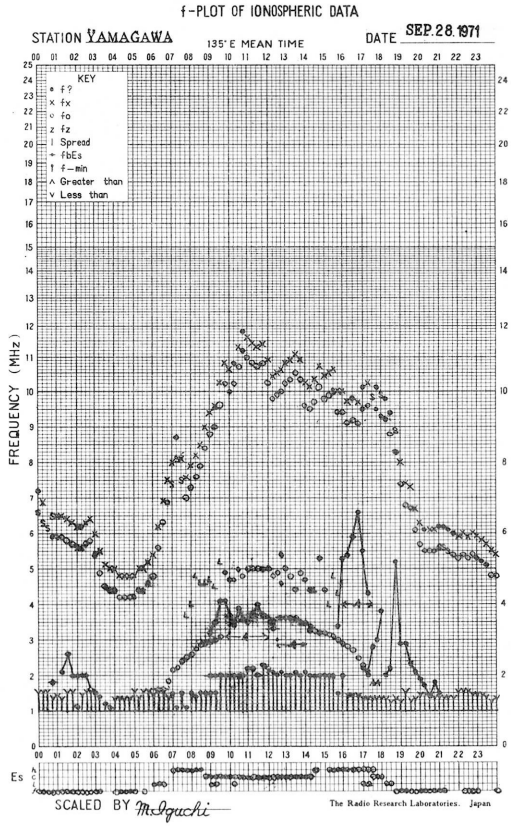
STATION KOKUBUNJI
135°E MEAN TIME
DATE SEP. 28.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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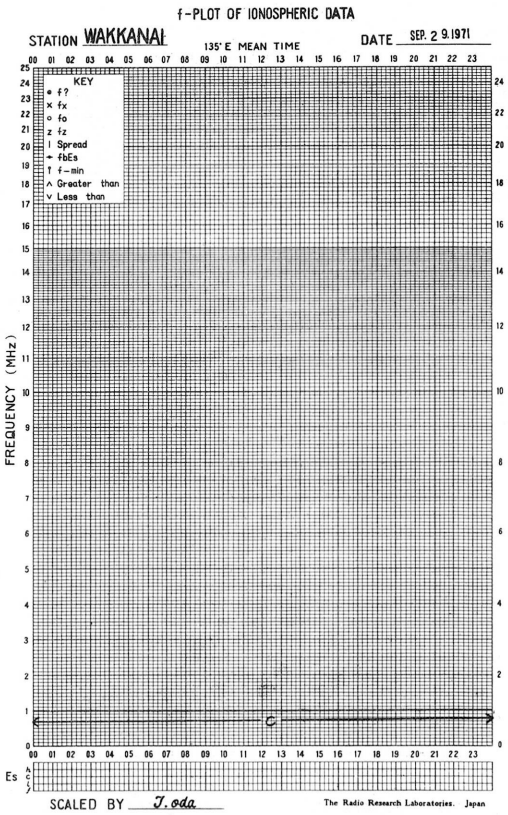
135°E MEAN TIME
DATE SEP.28.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY M. Iguchi
The Radio Research Laboratories. Japan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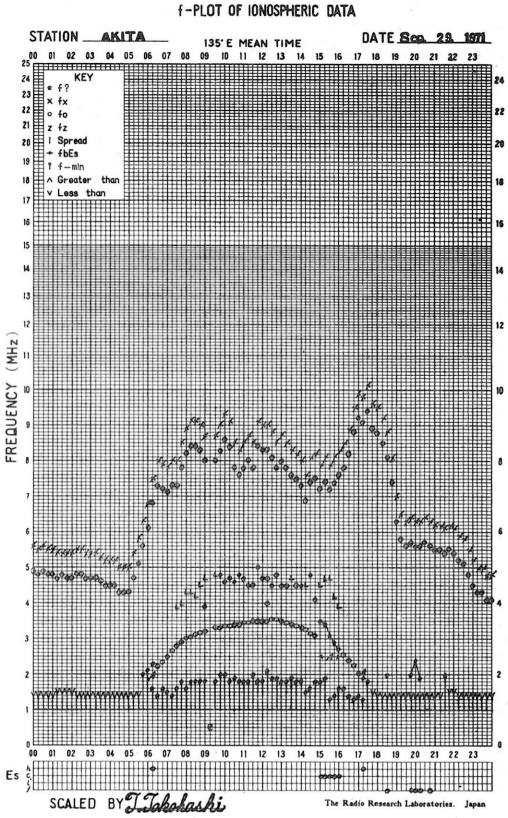
135°E MEAN TIME
DATE SEP. 29.1971
KEY
• f?
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Oda
The Radio Research Laboratories. Japan


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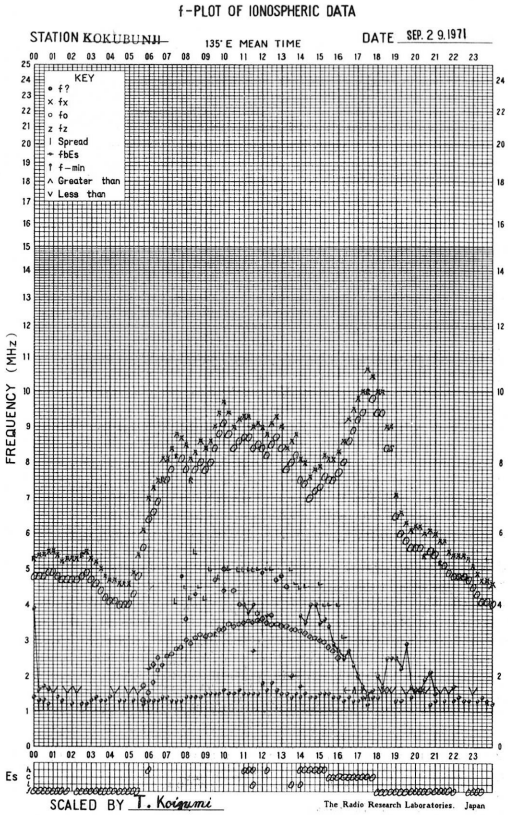
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
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135°E MEAN TIME
DATE SEP. 29.1971
KEY
• f?
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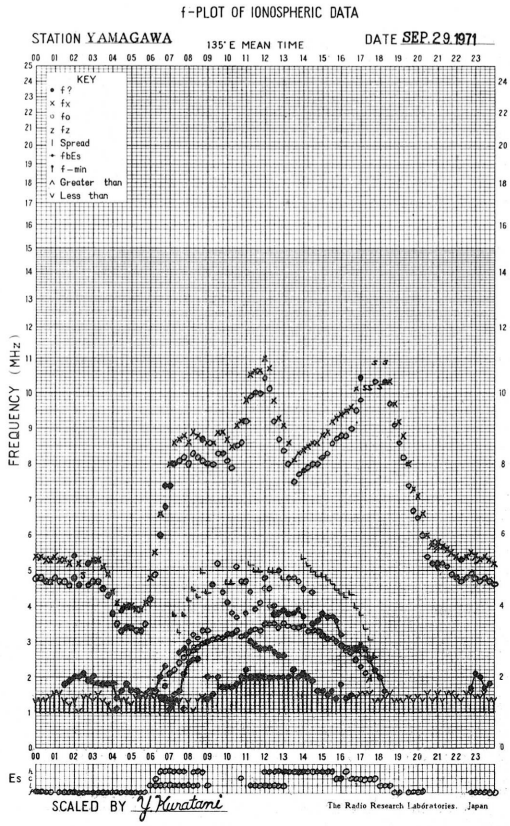
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koigumi
The Radio Research Laboratories. Japan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135°E MEAN TIME
DATE SEP. 29.1971
KEY
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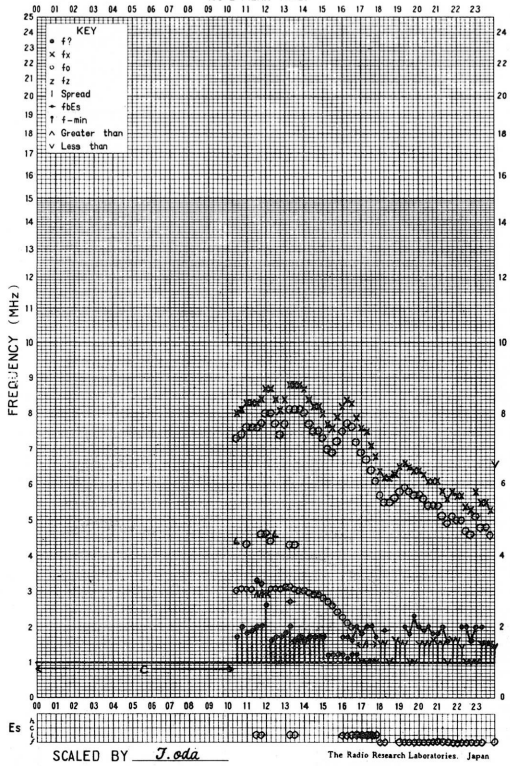
× fx
○ fo
z fz
| Spread
⌁ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY Y. Kuratani
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE SEP. 30.1971

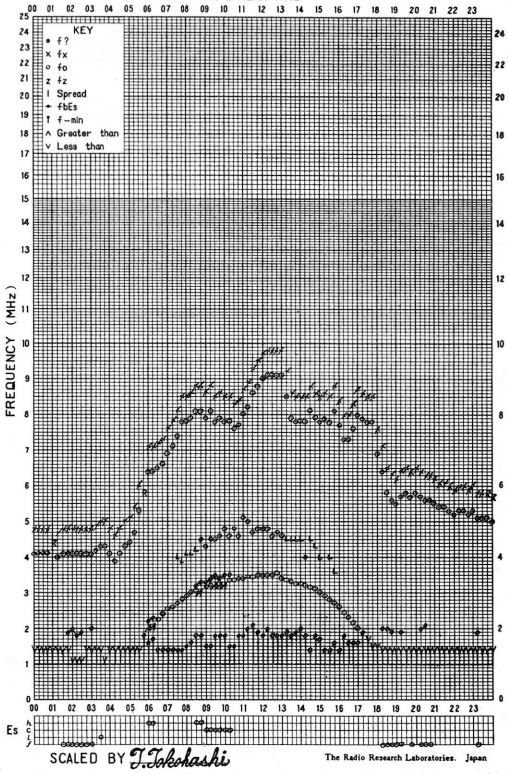


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Sep. 30. 1971



SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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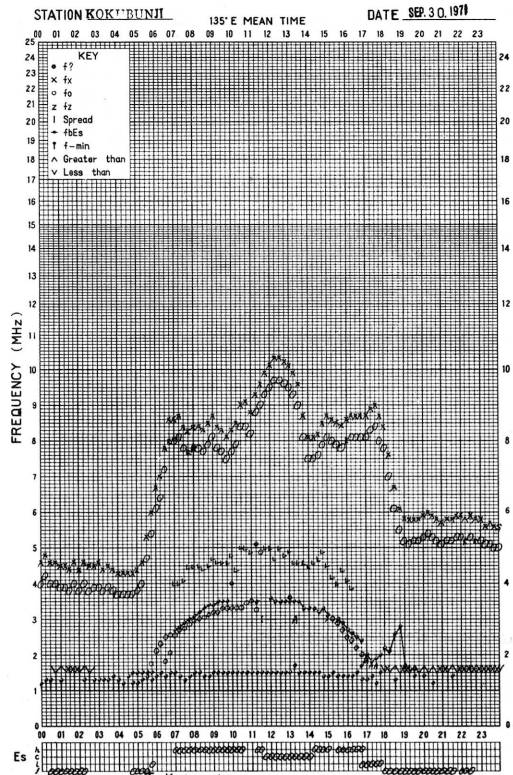

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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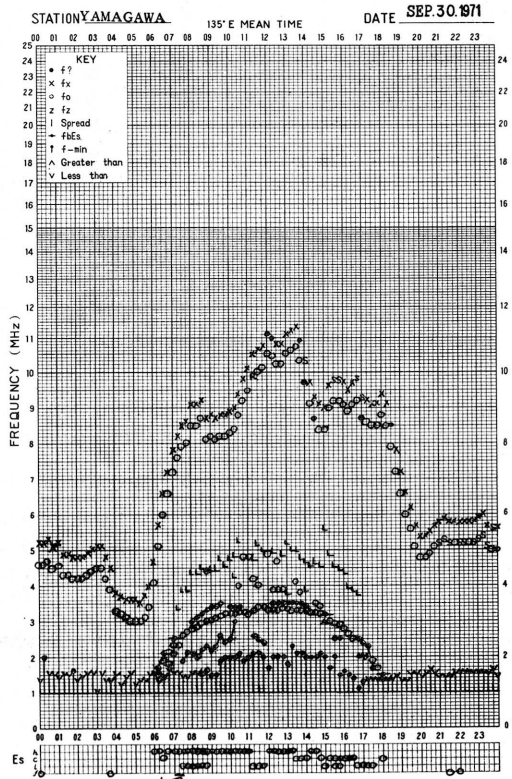

SCALED BY A. Ogyama

The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: September 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	5	6	5	5	0	0	0	0	0
2	5	6	6	q	5	0	0	0	0	0
3	5	5	5	5	5	0	0	0	0	0
4	5	5	5	6	5	0	0	0	0	0
5	7	6	6	6	6	1	0	0	0	0
6	9	6	5	8	7	1	0	0	0	0
7	11	14	18	-	12	0	0	1	-	0
8	12	16	23	26	16	1	1	2	1	1
9	18	16	10	12	18	1	0	0	0	1
10	13	9	16	6	12	0	1	1	0	1
11	5	5	5	5	5	0	0	0	0	0
12	5	5	5	5	5	0	0	0	0	0
13	5	5	5	5	5	0	0	0	0	0
14	5	5	5	5	5	0	0	0	0	0
15	5	5	5	6	5	0	0	0	0	0
16	5	5	6	5	6	0	0	0	0	0
17	5	5	6	6	5	0	0	0	0	0
18	5	6	6	5	6	0	0	1	0	0
19	6	5	5	5	5	0	0	0	0	0
20	5	6	6	7	6	0	0	0	0	0
21	6	6	6	6	6	0	0	0	0	0
22	6	6	6	6	6	0	0	1	0	0
23	5	5	5	6	5	0	0	0	0	0
24	6	5	5	6	5	0	0	0	0	0
25	6	5	5	5	5	0	0	0	0	0
26	6	5	(5)	-	5	0	0	(0)	-	0
27	5	5	(5)	5	5	0	0	(0)	0	0
28	5	5	(5)	5	5	0	0	(0)	0	0
29	5	5	(5)	5	5	0	0	(0)	0	0
30	5	6	(5)	5	5	0	0	(0)	0	0

Note No observations during the following periods:

1st 0000- 0120
7th 0800- 2400
10th 0210- 0240
26th 0710- 2400

q: quiet level, when radiometer is unstable.

SOLAR RADIO EMISSION

Flux Density

Month: September 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	27	25	26	26	27
2	25	25	24	23	25
3	22	22	23	22	23
4	22	22	22	22	22
5	22	21	21	24	22
6	24	23	23	25	24
7	22	22	23	-	23
8	27	27	27	30	27
9	28	27	25	24	28
10	24	23	26	25	24
11	24	22	22	24	23
12	22	22	-	22	23
13	22	24	23	22	23
14	23	23	22	24	23
15	23	22	23	22	23
16	24	23	23	22	23
17	23	24	22	26	23
18	25	24	24	24	25
19	23	22	22	24	23
20	24	25	24	26	24
21	26	26	27	28	26
22	27	27	28	26	27
23	25	26	26	24	26
24	24	23	24	28	24
25	28	27	27	24	28
26	24	23	23	25	24
27	26	24	24	24	25
28	24	24	24	24	24
29	23	23	23	24	23
30	23	23	23	24	23

Note No observations during the following periods:

6th	2120-		2223
7th	0737-	8th	0020
12th	0613-		0741
15th	0030-		0100

Distinctive Events

(single-frequency observations)

Month: September 1971
Observing station: Hiraiso
Normal observing period: 2020 - 0850 (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	
5	200	0557.0	0558.0	(3.0)	C	(140)	(10)	* 0600-01.0
	100	0557.0	0557.5	(3.0)	C	(35)	(5)	* 0600-01.0
13	100	0829.5	0830.1	4.0	C	450	70	
14	200	0435.0	0435.0	1.0	C	50	15	
	100	0434.0	0434.1	0.5	C	200	50	
		0435.0	0435.2	0.5	C	70	20	
	200	2339.0	2340.0	3.0	C	100	20	
	100	2337.0	2340.3	6.3	C	130	30	
		2344.7	2346.7	11.8	C	115	15	
15	500	0320.2	0320.5	0.5	C	90	60	
	200	0320.8	0320.8	2.5	C	260	20	
	100	0321.1	0321.7	4.4	C	500	50	
18	200	0706.0	0706.5	1.0	C	35	10	
	100	0706.2	0706.6	1.5	C	450	150	
22	200	0626.0	0626.5	2.5	C	110	10	
	100	0626.0	0626.0	1.0	C	170	40	
28	200	0028.0	0029.5	2.5	C	35	10	
	100	0027.0	0029.5	3.5	C	80	20	
	200	0546.5	0547.0	1.0	C	210	50	
	100	0545.5	0546.5	1.5	C	80	20	
30	200	2250.0	2250.5	1.0	C	100	15	
	100	2250.0	2251.1	1.5	C	140	20	

*: interrupted by calibration.

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

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

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

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

MEASURED AT HIRAISO

UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M
1	3	0	-2	14	14	17	22	-19	10	13	19	8	9	11	3	ES -16	-4	-2	3	3	3	5	5	0
2	-3	2	4	ES 23	15	18	21	21	8	-12	3	-5	ES 11	-12	ES -12	ES -24	ES -27	ES -24	ES -24	9	6	-4	6	-4
3	-12	8	1	9	16	20	20	5	2	2	12	5	ES -3	8	-3	ES -24	ES -27	8	ES -27	-5	7	12	3	-1
4	-3	-1	2	4	11	16	23	13	7	14	0	3	ES -6	ES -17	-16	ES -25	ES -28	-10	ES -25	13	11	4	2	7
5	-1	-1	6	10	14	21	20	21	18	ES -11	ES 1	ES -2	ES 7	ES -11	ES -28	ES -27	ES -27	ES -27	ES -18	9	16	17	4	8
6	-4	-3	1	1	13	8	11	12	-1	-3	2	1	ES 4	ES -13	ES -13	ES -27	ES -27	ES -27	ES -24	3	3	3	0	1
7	0	0	5	11	10	22	6	ES -13	-8	-11	ES -7	7	ES -9	-3	ES -22	ES -18	ES -27	ES -27	ES -27	-12	5	10	2	1
8	-5	-1	4	4	4	13	-2	2	ES -7	ES -14	ES -10	ES -12	ES 1	4	-17	ES -26	ES -20	ES -11	ES -26	-1	9	0	-2	0
9	-7	-4	5	5	12	12	11	-6	ES -9	-6	ES -6	ES -15	ES -6	ES -27	ES -27	ES -24	ES -18	-8	-21	-2	13	10	3	3
10	-5	-4	4	8	11	18	12	6	-7	ES -12	ES -6	ES -18	ES -9	ES -27	ES -13	ES -13	-13	-20	ES -24	-6	10	7	-1	3
11	-2	1	0	8	10	16	18	16	7	ES -19	ES -7	ES -18	ES -6	ES -27	ES -27	ES -27	-8	ES -27	ES -27	4	1	-2	-9	2
12	2	4	-1	11	11	11	12	9	ES -9	-7	ES -8	ES -27	ES -5	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	5	2	3	-2	-4
13	0	-9	2	3	10	16	16	18	11	1	ES -7	ES -9	ES -4	ES -26	ES -17	ES -26	ES -26	-19	1	4	5	6	-1	-1
14	2	-1	-1	10	14	14	21	10	-1	ES -13	ES -2	ES -23	ES 4	ES -26	ES -12	ES -26	ES -26	ES -26	3	7	13	-1	-6	ES -17
15	ES -6	3	4	-10	10	14	18	3	-11	ES -13	14	1	ES -22	ES -27	-18	ES -27	ES -24	-7	0	7	12	3	10	-6
16	-2	-3	8	9	14	11	17	-11	ES -11	ES -16	ES -4	ES -29	-10	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	0	9	4	-1	5
17	-6	-2	9	1	12	15	9	4	ES -7	ES -14	ES -7	ES -27	ES -10	ES -27	ES -27	-20	ES -27	11	ES -24	-4	-3	-1	3	-2
18	-1	4	-1	18	15	23	11	-9	ES -4	ES -14	ES -10	ES -26	ES -6	ES -23	ES -23	-17	0	-12	-7	13	11	7	-2	-2
19	-1	-1	11	8	12	16	16	17	15	22	15	-10	ES -6	ES -1	ES -20	ES -20	ES -20	ES -20	ES -20	4	12	7	0	-1
20	0	5	4	7	18	16	14	-10	ES -11	-18	ES -12	ES -26	ES -5	ES -11	ES -10	ES -26	-12	-23	-23	13	6	8	5	-7
21	0	0	5	11	7	25	10	8	ES -11	-14	ES -1	ES -26	ES 0	ES 5	ES -14	ES -26	ES -26	-23	ES -26	1	8	-1	3	4
22	-1	6	3	10	8	20	19	-12	ES -14	ES -12	ES -12	ES -27	ES -2	ES -12	ES -7	8	3	-11	ES -27	9	1	5	2	-3
23	2	0	-1	3	14	18	15	-12	ES -9	ES -9	ES 2	ES -27	ES -3	-5	ES -18	6	ES -27	ES -27	ES -27	11	7	6	6	-2
24	-3	4	6	7	19	17	19	4	ES -7	-6	ES -3	ES -27	ES -3	ES -6	ES -9	ES -27	ES -27	ES -27	7	7	2	4	6	-7
25	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
26	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	10	7	20	24	28	28	32	13	7	ES -5	ES 0	-15	ES 1	ES -11	ES -7	ES -18	ES -17	-12	ES -18	3	16	7	4	1
28	2	6	7	9	15	19	31	7	ES -8	ES -18	ES -12	ES -27	ES -6	ES -27	ES -12	ES -27	-16	-8	-13	8	9	7	-1	-7
29	2	3	7	8	14	15	11	-9	ES -8	-11	ES -2	ES -22	ES -3	ES -27	-12	ES -27	ES -27	ES -27	ES -27	12	9	3	3	-3
30	-3	2	4	4	8	22	4	-13	ES -8	ES -6	ES -10	ES -7	ES -7	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	9	1	5	11	2
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	-1	0	4	US 8	12	16	16	4	US -7	ES -11	ES -4	ES -16	ES -4	ES -15	ES -16	ES -26	ES -26	US -22	ES -24	4	8	5	2	-1
UD	2	6	9	ES 18	18	23	23	18	11	13	14	5	ES 7	ES 5	ES -7	ES -13	-4	-2	3	13	13	10	6	5
LD	ES -6	-4	-1	ES 1	8	11	6	-13	ES -11	ES -18	ES -12	ES -27	ES -10	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	-5	1	-1	-2	-7

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Sept. 1971	Whole Day Index		W W V 00 06 12 18 / 06 12 18 24	L M 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	4-		(3) - - 4	(4) 4 (4) 3	4 (5) 5 4	N N N N			
2'	4+		4 (5)(5) 4	(4) 4 - -	4 (5)(4) 4	N N N N			
3'	4°		4 - (5) 4	4 4 (4) 4	4 (5)(5) 4	N N N N			
4'	4°		4 - (5) 4	3 4 (4) -	4 (5)(4) 4	N N N N	16.46	---	56γ
5'	4-		4 - - 3	4 - - -	4 (5) - 4	N N N N	---	18.0	
6'	3+		(2) - - 4	(3) 4 (3) -	4 (5) - 4	N N N N			
7'	4-		4 - - 4	4 4 (3) -	4 (4)(4) 4	N N N N			
8	3°		(3) - - 4	(2) 3 (3) -	4 (3)(5) 3	N N N N			
9	4°		4 - - 4	(4) 4 (4) -	4 (3)(4) 4	N N N N			
10	4°		4 - (5) 4	(4) 4 (4)(3)	4 (4)(4) 4	N N N N			
11	4-		4 - - 3	4 4 (4) -	4 (5)(4) 3	N N N N			
12	3+		(3) - - 4	(3) - - -	4 (4) - 4	N N N N			
13	4°		4 - - 4	4 4 (4) -	4 (5)(4) 4	N N N N			
[14]	3+		(3) - - 4	3 3 (3) -	4 (5)(4) 3	N N N N			
[15]	4°		(3) - 5 4	4 4 (4) -	4 (4)(5) 4	N N N N			
[16]	4-		(4) - - 4	4 3 (4) -	4 (3)(3) 4	N N N N			
17	4-		(3) - (5) 4	(3) 4 (4) -	4 (4)(4) 3	N N N N	11.25	---	117γ
18	5-		5 - (5) 4	5 4 (4) -	4 (3)(5) 4	N U U U	---	19.0	
19	4-		(3) - - 4	(4) - - -	4 (5) - 4	U N N N			
20	3+		4 - - 4	3 3 (3) 4	4 (3)(4) 4	N N N N			
21	4-		4 - - 4	4 4 (4) 3	4 (4) - 4	N N N N			
22	4°		4 - - 4	4 4 (4) 4	4 (3)(5) 4	N N N N			
23	4°		(4) - (5) 4	4 4 (4) C	4 (3)(4) 4	N N N N			
24	4+		5 - (5) 4	5 3 (4) 4	4 (4)(4) 4	N N N N	14.30	---	118γ
25	4°		(4) C C C	4 4 (4) -	C C C C	N N U U	---	19.0	
26	3°		C C C C	3 - - -	C C C C	N N N N			
27	4+		5 - (5) 5	4 4 (4) 4	5 (5) - 4	N N N N			
28	5-		5 - (5) 5	4 4 (4)(5)	4 (4)(5) 4	N N N N			
29	4+		(5) - - 5	4 4 (4) 4	4 (3)(3) 4	N N N N			
30*	4-		(4) - - (4)	4 4 (4)(3)	4 (3) - 4	N N N N	02.7	24.0	69γ

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.

Sept. 1971	S W F						Correspondence		
	Drop-out Intensities (db) CO LM HA TO SH	Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
15	× ×	03.20	40	G	×	×	×	

I N U B O

1971 SEP.	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
DATE	GBR	WWVL	NAA	NPG	NWC	HA2	Start	End	Maximum	
1			24				0522	0550	0525	
6			13	18	64	38	0343	0525	0350	X
12					8		0258	0332	0307	
13		—			12		0707	0800	0716	
13				17	32	29	2355	0043	0004	X
14				5	8	11	0050	0116	0101	
14			15				0340	0405	0345	
14			12	27	48	47	2338	0057	2356	X
15			27	29	—	75	0320	0542	0337	
17				17	44	—	0251	0432	0314	X
19					8	—	0104	0130	0108	
20				7	—	—	0252	0325	0256	
22					8	—	0308	0428	0328	
22					4		0832	0903	0837	
23				7	—	11	2225	2300	2233	
24					32	11	0452	0625	0507	X
25				4	16	7	0153	0222	0158	
27				5	—	7	0135	0212	0145	
28		22		9	24	20	0026	0108	0033	

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 SEPTEMBER 1971

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