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IONOSPHERIC DATA IN JAPAN

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RADIO RESEARCH LABORATORIES

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN

CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES AND HIRAISO BRANCH

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

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

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

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

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

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

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

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

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

a. Descriptive Letters

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

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

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

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

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

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

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

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

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

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Letters

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

the monthly tabulation sheets.

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

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

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

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

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

d. Description of Standard Types of *Es*

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

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

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

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

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

S A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace. The rising trace alone is classified as 'S'; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal *Es* trace such as *Es-L*, or *Es-F*, at frequencies which greatly exceed the *E* layer critical frequency, whereas at low latitudes it usually rises from *Es-Q* *Es-C* or *Es-H* at frequencies near the regular *E* critical frequency. Type *S* is never used to determine f_0Es and $h'Es$. The slant trace is sometimes observed to start at f_0E without echoes clearly identifiable as *Es* echoes being seen.

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

e. Multiple Reflections from *Es*

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

B. SOLAR RADIO EMISSION

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

a. Time and Unit

The time is expressed as U.T.

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

b. Daily Data

Flux density

The three-hourly and daily mean values are given.

Variability

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

Variability is expressed in the following four grades:

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

The number of bursts exceeding the flux level is counted. Bracket means that observation time does not exceed one third of the period.

c. Distinctive Events

The phenomena are picked up on the following criteria:

1. Distinct from the prevailing kind of activity,
2. Correlated with other known solar phenomena,
3. Remarkable change-over from one situation to another.

Starting time and *Time of maximum* are given to nearest minute in general, but to nearest a tenth minute for short intense occurrences or clear commencements.

Duration is given in minutes and to nearest a tenth minute, if short or clear.

Descriptive type is denoted by the following symbols:

S = Simple rise and fall of intensity;
C = Complex variation of intensity,
C+ = Prolonged broad-band enhancement of radiation, generally of spectral type IV;
F = Group of bursts: multiple peaks probably belonging to the same event, but separated by relatively short period of quietness;
RF = More or less irregular rise and fall of intensity, at metric or decimetric wavelengths;
e = Sudden beginning of burst with steep rise of intensity;
E = Steep rise of intensity of continuum background;
p.i. = post-burst increase;
onset storm = clear-cut beginning of a noise storm.

Peak intensity is the flux density of the highest peak reached during the occurrence, measured above the pre-burst level.

Mean intensity is the flux density averaged over the burst's duration, measured above the pre-burst level; therefore, multiplying the duration, the total energy of the occurrence can be estimated.

C. RADIO PROPAGATION CONDITIONS

a. Field Strengths of WWV and WWVH

Field Strengths observations of WWV and WWVH transmitted from Fort Collins, Colorado and Hawaii, respectively, are carried out at Hiraiso Branch. In order to avoid interferences with other standard frequency waves on the same frequency, the upper side-band of 440 Hz is picked up by the use of a narrow band pass filter with

±40 Hz bandwidth.

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

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

Transmitter

	WWV	WWVH
Location	Fort Collins, Colorado Long. 105°02'W Lat. 40°41'N	Maui, Hawaii Long. 156°28'W Lat. 20°46'N
Power	3 kW for the upper side-band	0.5 kW* for the upper side-band
Antenna	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.

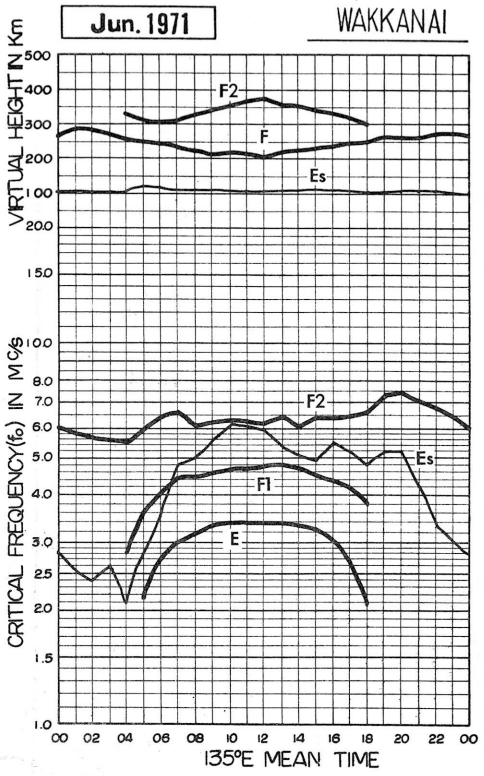
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West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

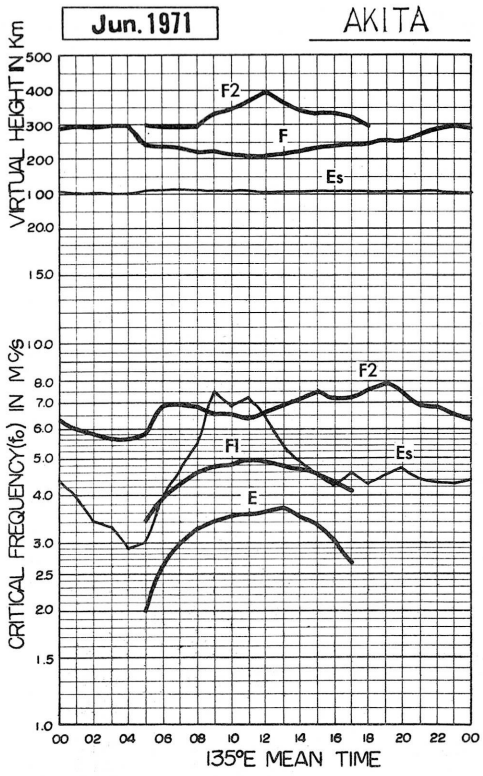
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

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.

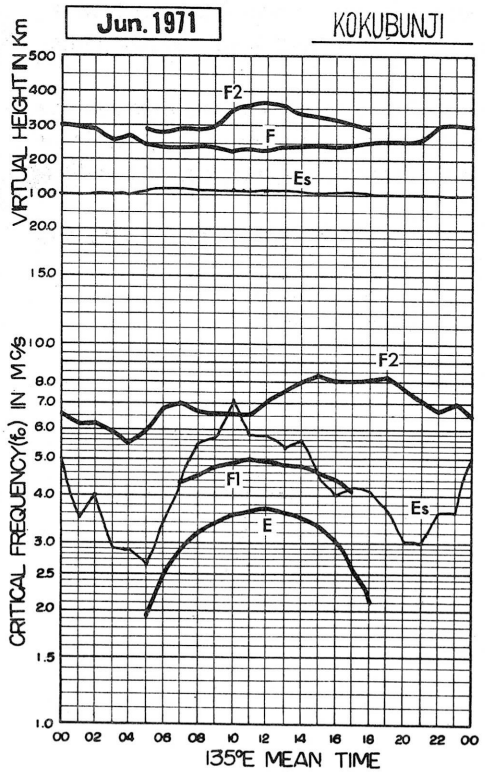
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

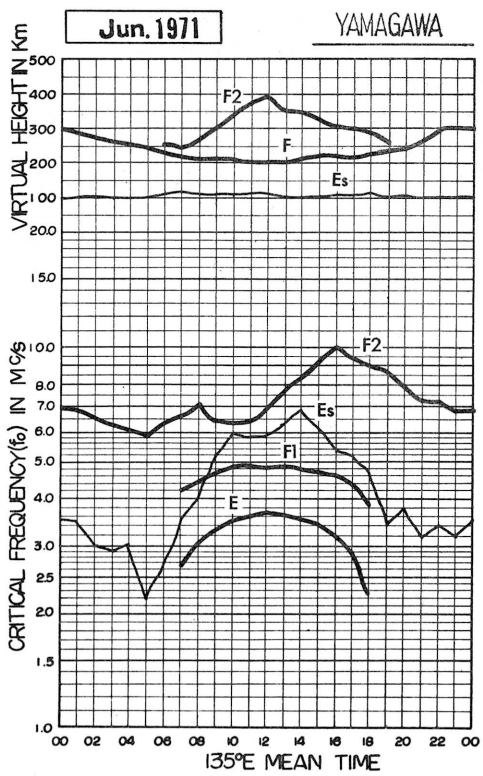
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

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

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

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	53	51	F 51	F 48	53	66	79	89	80	66	66	65	66	67	68	72	70	A	73	S	92	84	73	65
2	65	68	F 70	F	F	F 60	A	A	A	A	53	A	A	53	55	64	69	63	67	69	71	70	65	69
3	60	63	F 57	F 61	63	68	63	58	51	58	63	56	60	59	56	61	61	60	63	73	73	73	61	57
4	57	57	53	53	59	52	F 50	F 51	61	65	A	A	63	67	70	71	68	67	64	68	F 60	F	F	F
5	F	F	F	F 53	F	F 58	F 68	70	73	R	68	A	75	79	83	83	72	68	66	73	74	73	F 68	F
6	F	F 65	F 64	63	F 58	61	60	60	59	63	65	64	66	74	80	77	74	76	83	86	78	F 67	F 70	68
7	66	63	60	59	59	63	70	66	57	67	62	66	71	65	63	66	66	68	74	81	73	F 68	F 68	F
8	F	F	F	F 58	F	F 74	83	83	70	71	63	66	69	70	66	71	66	73	70	71	75	F 70	F	F 67
9	F 63	A	A	F	F 65	70	70	71	76	A	69	A	66	63	66	A	68	A	A	72	80	86	79	63
10	63	F 58	F 57	F	55	51	56	63	65	65	68	73	65	64	63	64	66	71	70	75	73	F	F 77	73
11	71	66	60	57	61	69	H 67	71	73	63	57	A	65	65	68	73	65	71	76	75	79	83	F	F
12	F	F	F 57	F 56	F 50	H 53	55	60	60	56	A	56	56	61	56	56	I C 60	60	64	66	69	70	73	67
13	63	58	56	56	57	70	78	78	73	73	63	63	60	60	57	57	A	61	65	70	75	74	S	69
14	61	58	57	F 57	F	F 64	65	70	C	C	C	C	C	C	C	C	A	72	73	76	75	65	64	F 63
15	F	F	F	F 63	F 60	63	A	A	A	55	62	55	54	A	53	A	60	A	A	A	A	A	A	F
16	F	F	F 50	F 50	53	66	61	73	57	61	A	63	70	67	A	69	69	68	66	70	71	F	F	F
17	F	F 60	F	F 55	F 55	F	64	74	61	61	A	63	60	60	59	59	63	62	66	70	67	65	63	55
18	S	52	47	48	47	53	I R 54	59	A	C	57	58	58	61	59	63	60	64	67	76	70	63	57	F 55
19	F 51	F 53	F 50	F	F 48	F 63	71	58	54	56	63	57	53	55	55	57	58	61	A	A	S	63	F	F
20	F 56	F 53	F 50	F	F 51	F 50	F 57	65	66	66	63	A	A	60	59	61	65	66	75	80	73	64	F 60	F
21	F 57	F 57	F 54	F 50	F 56	F 60	66	66	60	58	A	A	A	A	A	61	63	62	63	73	82	64	54	F 55
22	A	F 53	F 53	A	A	F 60	75	73	66	60	59	60	62	59	61	60	60	A	70	I A 76	I S 80	74	F	F
23	F	F	F	F	F	F 63	73	78	73	I A 64	68	65	61	I A 60	60	63	57	63	73	83	S 78	81	70	61
24	56	F 50	50	47	46	55	53	A	52	R	50	R	R	52	50	I R 52	A	A	A	A	65	A	F 53	A
25	F 53	F 56	F 53	F 55	F 48	53	58	65	60	64	66	64	64	I A 72	79	83	77	81	79	82	83	89	85	78
26	73	69	62	61	56	68	63	52	W	R	A	56	54	A	53	52	54	56	A	63	65	67	54	51
27	S	F	F	F	43	48	52	54	53	55	54	51	58	65	61	63	58	60	64	65	A	68	A	F
28	F 60	F 58	F	F	F	50	63	66	60	60	A	58	60	62	66	64	63	63	63	68	A	A	F 70	F
29	A	F	F	F	F 57	56	58	63	73	A	A	A	A	74	70	A	A	A	76	76	74	71	F 72	F
30	F	F	F 58	F 50	F 50	57	67	72	65	57	66	A	68	68	70	71	I A 63	66	67	68	72	74	74	F 73
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	17	20	21	20	23	29	28	27	25	22	21	19	24	26	27	26	26	24	25	26	26	24	21	17
MED	60	58	F 56	F 56	55	60	64	66	61	62	63	63	62	64	61	64	64	65	67	73	74	70	68	65
UQ	63	63	F 58	58	58	66	70	72	73	65	66	64	66	67	68	71	68	70	73	76	78	74	73	69
LQ	F 56	F 53	F 51	F 50	50	53	58	60	59	58	59	56	59	60	56	60	60	62	65	69	71	66	61	57

JUN. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							420	440	A	490	500	A	A	490	490	A	A	A						
2						A	A	A	A	A	480	A	A	A	A	470	A	460						
3					260	350	390	440	450	460	470	480	470	480	470	450	430	420	A					
4							430	430	A	A	A	A	500	I A 490	490	470	430	430						
5						380		450	A	A	A	A	500	A	500	460	A	A						
6								A	470	A	500	490	A	490	490	480	A	410	380 L					
7								450	490 L	A	A	A	A	A	A	470	460	430						
8						390	U L 400	450	440	A	490	470	A	A	A	470	440	420						
9								A	A	A	A	A	A	A	A	A	450	A						
10							410	440	A	A	A	480	A	A	470	480	440	A	380					
11						L		440	440	A	470	A	A	480	470	450	450	430	A					
12							410	A	440	A	A	470	460	460	470	440	C	A	360					
13						350	420	430	460	A	470	460	480	A	480	450	A	A						
14					280	370	400	450	C	C	C	C	C	C	C	C	A	A						
15							A	A	A	440	450	470	A	A	450	A	A	A	A					
16								430	A	A	A	A	A	A	A	A	430	400						
17						390	A	A	A	A	A	A	480	A	A	450	430	410	A					
18						350		A	A	C	A	470	470	470	460	440	A	A	360					
19					300	370	380	430	440	450	450	A	460	470	A	450	430	A	A					
20							A	A	A	A	460	A	A	460	460	440	430	A	A					
21						360	400	A	A	A	A	A	A	A	A	A	430	400	370					
22						370	400	A	A	460	A	A	A	480	460	460	450	A	A					
23					300	A	A	A	A	A	A	A	460	A	470	450	A	A	A					
24					260	340	380	A	A	430	460	460	460	450	450	430	A	A	A					
25							A	430	A	450	A	A	A	A	A	A	A	420	380					
26					260	320	380	410	410	430	A	470	460	A	460	A	A	A	A					
27					280	360	A	420	A	480	470	490	480	470	A	A	450 L	430	A					
28						350	410	A	A	A	A	A	490	490	470	A	A	A	A					
29								A	500	A	A	A	A	A	A	A	A	A	A					
30						420 L	420	A	A	490	500	A	500	490	490	A	A	A	380					
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	15	15	15	10	10	13	11	14	14	18	18	14	12	7					
MED					280	360	400	440	445	455	470	470	475	480	470	450	435	420	380					
UQ					290	375	415	445	470	480	490	480	490	490	490	470	450	430	380					
LQ					260	350	395	430	440	440	460	470	460	470	460	450	430	410	365					

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JUN. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					125	215	275	300	310	330	335	335	335	A	A	330	305	265	200	A				
2					A	220	260	295	310	335	350	360	365	360	340	315	300	265	200	S				
3					125	210	250	300	310	330	335	335	335	340	330	325	300	265	205	A				
4					140	210	270	300	320	330	330	340	350	330	330	325	280	A	A	S				
5					S	220	275	300	325	330	335	335	330	325	A	A	A	A	A	A				
6					S	210	270	300	325	345	350	355	350	340	325	305	290	A	A	A				
7					A	215	275	300	320	330	335	330	320	A	A	A	300	285	210	S				
8					A	A	280	300	315	335	335	330	335	310	A	A	295	270	210	S				
9					130	230	280	300	315	330	335	335	335	A	A	A	300	270	205	S				
10					130	230	275	300	320	315	340	345	A	A	A	A	305	270	200	A				
11					A	225	270	300	315	340	350	350	345	325	A	A	300	270	205	A				
12					A	210	265	300	315	325	335	330	340	335	325	325	I C 300	275	A	A				
13					140	205	280	300	310	325	335	335	340	340	325	330	300	280	205	E				
14					125	215	285	300	C	C	C	C	C	C	C	C	295	250	200	S				
15					120	215	260	295	305	315	325	330	330	325	305	320	300	270	195	E				
16					A	220	260	300	315	330	345	360	A	A	A	A	A	A	215	145				
17					130	225	265	300	310	325	350	355	350	350	335	305	A	A	A	A				
18					115	215	270	295	310	I C 330	345	350	330	340	325	315	300	265	205	S				
19					A	215	270	300	315	330	335	A	A	A	A	A	A	290	200	120				
20					140	A	265	295	315	320	325	335	A	A	A	A	A	A	215	A				
21					A	210	260	295	310	330	335	335	330	A	A	A	A	270	A	A				
22					A	A	270	300	320	330	325	340	A	A	A	A	A	270	210	E				
23					A	A	265	300	315	335	330	335	335	A	A	A	300	A	A	140				
24					145	205	270	295	305	320	330	335	325	320	A	335	305	275	210	S				
25					A	A	270	300	320	335	340	335	325	I A 305	315	315	A	250	A	A				
26				E	180	220	270	300	305	340	360	345	320	A	A	A	315	280	220	A				
27					110	210	270	300	315	335	350	365	370	365	355	340	A	A	225	A				
28					A	230	280	300	315	335	330	330	335	325	A	A	A	A	220	S				
29					A	230	280	305	340	I B 355	350	335	B	A	330	350	315	290	210	E				
30					A	215	280	305	330	340	345	R	A	340	330	305	A	A	A	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				1	14	25	30	30	29	29	29	27	22	17	13	15	19	20	21	7				
MED				E	130	215	270	300	315	330	335	335	335	335	330	325	300	270	205	E				
UQ					140	220	275	300	320	335	345	348	345	340	330	330	302	278	210	130				
LQ					125	210	265	300	310	330	335	335	330	325	325	315	300	265	200	E				

JUN. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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	28	J X 23	20	16	G	33	31	J X 50	J X 58	43	48	J X 60	J X 66	J X 53	42	J X 70	J X 83	J X 123	J X 98	J X 80	J X 30	J X 20	E	E
2	E S 15	J X 24	J X 70	J X 53	J X 51	J X 63	J X 91	J X 91	J X 141	J X 73	48	J X 71	J X 123	J X 65	48	40	65	88	J X 51	E S 17	E S 14	J X 45	J X 24	24
3	J X 21	J X 23	J X 23	J X 30	25	32	30	J X 53	42	42	44	G	G	G	37	G	G	G	J X 41	J X 30	E S 14	E S 16	E S 14	J X 25
4	E S 15	24	23	E S 15	G	G	38	40	49	J X 81	J X 83	J X 66	40	J X 73	J X 53	40	40	39	J X 40	J X 41	J X 53	E	J X 33	29
5	26	E	E S 15	E S 13	E S 15	G	34	36	J X 63	50	J X 66	J X 111	J X 83	J X 52	38	40	J X 63	J X 59	40	J X 55	J X 51	33	J X 50	J X 34
6	J X 63	J X 31	20	26	E S 16	22	31	44	40	52	41	44	J X 63	45	53	J X 49	J X 65	J X 50	26	21	J X 31	J X 30	J X 31	30
7	E S 14	J X 24	J X 20	15	16	G	G	G	39	J X 63	J X 68	49	J X 70	J X 73	J X 54	36	G	37	J X 51	20	18	E S 15	J X 28	J X 30
8	J X 23	23	J X 24	J X 29	J X 40	J X 63	G	37	43	J X 55	40	43	J X 73	J X 63	J X 71	J X 60	42	39	J X 40	J X 45	J X 48	J X 63	J X 21	J X 58
9	J X 48	J X 75	J X 70	J X 43	G	33	J X 45	J X 64	J X 58	J X 84	J X 73	J X 77	J X 90	J X 103	J X 48	J X 100	44	J X 111	J X 68	J X 41	J X 23	19	J X 33	J X 63
10	J X 29	J X 26	14	16	G	29	32	41	47	J X 54	J X 63	J X 70	J X 75	J X 50	51	49	G 28	J X 43	32	J X 64	J X 73	J X 53	J X 43	J X 25
11	J X 26	E S 16	J X 30	22	J X 24	G	G	41	41	J X 64	J X 113	J X 103	J X 56	43	43	J X 45	J X 53	J X 54	39	52	J X 71	J X 63	J X 33	E S 16
12	E S 16	J X 30	21	J X 23	J X 25	36	41	43	40	55	J X 71	J X 44	63	40	39	38	C	J X 46	28	J X 28	J X 54	J X 70	J X 30	E S 16
13	J X 33	J X 25	J X 23	J X 25	G	27	32	35	45	J X 64	46	43	45	J X 56	J X 61	G	J X 66	J X 50	J X 65	J X 103	J X 53	J X 29	J X 41	J X 40
14	E S 16	J X 24	15	E	G	G	G	J X 51	C	C	C	C	C	C	C	C	J X 100	J X 110	J X 103	J X 88	J X 100	J X 40	J X 101	J X 25
15	J X 73	J X 63	J X 50	J X 28	G	25	J X 70	J X 70	M 68	43	43	41	J X 56	J X 95	J X 66	J X 83	J X 61	J X 98	J X 155	J X 138	J X 85	J X 94	J X 94	J X 45
16	J X 41	E	E S 17	J X 24	20	G	36	34	47	J X 56	J X 88	J X 61	51	J X 115	J X 113	109	63	J X 39	34	J X 33	J X 63	J X 50	J X 31	J X 28
17	J X 45	J X 33	J X 48	J X 29	21	31	J X 62	J X 55	50	J X 56	J X 71	J X 73	53	57	J X 56	J X 63	J X 70	103	J X 105	J X 75	J X 53	J X 53	J X 60	J X 43
18	J X 25	J X 25	J X 25	J X 33	28	34	J X 45	J X 46	J X 85	C	J X 74	42	J X 53	G	G	G	44	43	34	37	J X 28	J X 28	J X 33	J X 40
19	J X 63	J X 31	J X 24	J X 25	19	G	33	J X 43	41	J X 75	J X 60	J X 70	J X 44	J X 43	J X 49	J X 35	J X 38	51	J X 94	J X 93	J X 60	J X 53	J X 81	J X 30
20	E S 16	E	E	E	G	J X 41	J X 70	J X 70	J X 51	J X 64	J X 60	J X 69	J X 83	44	41	44	J X 63	J X 43	J X 45	J X 56	J X 71	38	J X 31	J X 33
21	J X 20	J X 21	J X 25	J X 26	J X 33	25	34	43	J X 53	51	J X 93	95	J X 68	J X 68	J X 63	J X 64	J X 38	36	J X 31	50	J X 41	J X 30	J X 43	J X 30
22	73	J X 65	J X 72	J X 91	J X 65	25	38	J X 63	J X 58	J X 50	67	J X 56	60	36	43	J X 51	44	72	J X 63	J X 80	J X 45	J X 73	J X 33	J X 31
23	J X 43	J X 30	J X 30	J X 33	J X 45	J X 66	J X 64	J X 64	J X 70	M 68	J X 95	J X 73	J X 63	J X 75	38	J X 45	52	44	43	J X 73	J X 41	28	J X 28	E S 14
24	E S 12	18	J X 28	J X 25	G	28	33	57	J X 56	41	43	J X 58	40	J X 58	39	40	J X 73	J X 73	J X 88	J X 158	J X 110	J X 81	J X 63	J X 63
25	J X 53	J X 50	J X 34	J X 32	J X 21	J X 30	44	39	J X 61	45	J X 55	J X 103	J X 53	J X 88	J X 50	56	J X 50	J X 43	J X 35	J X 33	J X 39	J X 33	J X 30	E
26	E	E	E	E	22	28	32	38	47	42	47	42	J X 54	J X 64	J X 53	J X 58	J X 68	J X 76	J X 85	J X 53	40	J X 65	J X 100	J X 40
27	28	J X 43	J X 45	J X 30	J X 28	41	J X 54	J X 53	50	39	40	G	G	43	J X 73	J X 71	45	J X 53	J X 61	J X 73	J X 66	J X 73	J X 80	25
28	J X 41	J X 30	J X 31	J X 33	J X 35	30	33	J X 61	J X 60	J X 63	J X 68	J X 58	48	J X 45	J X 40	J X 65	J X 55	J X 53	J X 74	J X 39	J X 98	J X 103	75	J X 73
29	J X 105	J X 43	J X 43	J X 50	J X 31	25	40	J X 53	J X 59	J X 75	J X 126	J X 83	M 72	J X 53	63	J X 170	J X 180	J X 135	J X 130	J X 53	J X 78	J X 50	J X 61	J X 61
30	J X 73	J X 63	J X 60	J X 43	J X 33	G 21	38	J X 68	45	J X 51	44	J X 80	J X 65	50	51	J X 68	J X 73	J X 60	J X 33	31	J X 28	J X 34	J X 76	J X 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	30	30	30	30	30	30	30	30	29	28	29	29	29	29	29	29	29	30	30	30	30	30	30	30
MED	J X 28	J X 25	J X 24	J X 26	21	28	35	J X 48	50	J X 55	J X 63	J X 61	J X 60	J X 53	50	J X 49	J X 55	J X 52	J X 48	J X 52	J X 52	J X 42	J X 33	J X 30
UQ	J X 48	J X 33	J X 43	J X 33	J X 31	33	J X 45	J X 61	J X 59	J X 64	J X 73	J X 73	J X 70	J X 68	J X 56	J X 65	J X 66	J X 76	J X 85	J X 75	J X 71	J X 63	J X 63	J X 43
LQ	16	23	20	16	G	G 21	32	40	45	48	46	44	51	44	41	40	44	43	35	J X 33	J X 31	J X 29	J X 30	25

The Radio Research Laboratories, Japan

JUN. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	18	17	14	E	G	G	G	40	57	G	48	54	55	40	42	47	54	A	50	51	16	E	E	E
2	Es 15	E	42	21	23	43	A	A	A	A	G	A	A	48	48	G	45	42	G	Es 17	Es 14	E	17	E
3	15	E	16	20	G	G	G	G	G	G	G	G	G	G	G	G	G	G	36	25	Es 14	Es 16	Es 14	24
4	Es 15	20	E	Es 15	G	G	G	G	44	57	A	A	G	55	43	G	39	27	25	41	20	E	16	20
5	E	E	Es 15	Es 13	Es 15	G	G	G	50	47	49	A	49	50	39	34	50	45	28	40	20	22	17	25
6	20	E	15	E	Es 16	13	G	44	G	48	G	43	53	G	G	42	52	36	23	17	30	20	24	17
7	Es 14	16	E	E	15	G	G	G	G	57	57	49	62	63	53	36	G	37	47	17	15	Es 15	18	E
8	E	E	E	18	20	24	G	G	G	52	G	43	60	49	53	40	G	G	38	40	28	42	16	45
9	32	A	A	26	G	G	42	58	52	A	57	A	53	51	48	A	G	A	A	38	20	17	25	27
10	20	17	E	E	G	G	G	G	44	47	50	47	60	48	44	37	G 28	42	30	36	51	26	23	E
11	18	Es 16	26	E	19	G	G	40	41	53	G	A	53	G	40	43	G	35	37	52	40	42	30	Es 16
12	Es 16	28	E	E	17	G	40	42	40	53	A	G	G	G	G	G	C	46	24	20	43	45	E	Es 16
13	20	16	16	12	G	G	G	G	43	50	45	43	G	50	45	G	A	40	43	50	22	17	E	32
14	Es 16	22	14	E	G	G	G	G	C	C	C	C	C	C	C	C	A	42	53	67	41	38	E	17
15	26	38	41	16	G	G	A	A	A	G	G	G	51	A	G	A	49	A	A	A	A	A	A	E
16	30	E	Es 17	E	17	G	G	G	46	47	A	47	50	57	A	45	33	34	G	32	50	22	22	21
17	20	20	35	25	G	G	45	49	46	45	A	50	G	55	50	40	35	27	52	60	50	43	30	30
18	22	16	20	25	G	G	40	46	A	C	48	G	44	G	G	G	44	40	31	28	31	20	17	32
19	40	26	17	17	18	G	G	G	G	G	G	50	38	40	48	35	36	50	A	A	A	19	28	15
20	Es 16	E	E	E	G	20	40	47	45	55	G	A	A	38	38	38	35	41	41	56	56	20	20	26
21	16	15	17	19	26	15	G	43	50	49	A	A	A	A	A	54	36	24	29	50	30	25	30	20
22	A	18	30	A	A	23	35	55	56	G	50	54	47	36	38	38	40	A	50	A	42	18	20	17
23	18	27	15	20	20	53	60	50	48	A	53	50	G	A	38	45	50	42	36	53	26	17	28	Es 14
24	Es 12	E	20	18	G	G	G	A	49	G	G	G	G	G	37	G	A	A	A	A	50	A	43	A
25	43	42	30	16	18	25	43	G	50	44	50	53	53	A	50	51	49	40	34	30	39	20	18	E
26	E	E	E	E	G	G	G	G	G	G	A	G	G	A	40	44	45	47	A	30	28	56	20	37
27	E	15	18	20	20	G	45	G	48	G	G	G	G	G	53	55	38	38	40	24	A	42	A	E
28	20	16	20	20	21	G	G	48	54	57	A	48	G	G	38	46	51	46	57	38	A	A	22	56
29	A	40	20	36	25	19	38	47	48	A	A	A	A	48	47	A	A	A	42	20	53	38	25	50
30	50	36	25	20	22	G 20	G	60	43	G	G	A	48	43	46	53	A	56	25	20	20	24	36	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	30	30	30	30	30	30	30	30	29	28	29	29	29	29	29	29	29	30	30	30	30	30	30	30
MED	18	16	17	16	16	G	G	41	46	48	49	50	49	48	43	40	44	42	39	39	35	22	21	20
UQ	26	26	25	20	20	19	40	49	50	56	A	A	55	55	48	47	51	50	52	53	50	42	28	30
LQ	E Es 15	E	E Es 14	E	G	G	G	G	41	G	G	43	G	G	38	34	35	36	29	25	20	17	17	E Es 14

JUN. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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

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	E	E	E	11	11	17	17	20	18	20	18	19	17	16	17	11	11	E	E	E S 14	E	E
2	E S 15	E	E	E	E	12	12	16	17	18	17	21	20	20	18	17	17	15	12	E S 17	E S 14	E S 15	E S 15	E S 15
3	E	E	E	E	E	E	12	17	18	18	18	18	20	20	20	18	15	15	11	E	E S 14	E S 16	E S 14	E
4	E S 15	E S 16	E S 16	E S 15	E	11	12	15	17	17	20	20	20	20	18	18	15	12	13	E S 15	E	E	E	E S 15
5	E S 15	E	E S 15	E S 13	E S 15	13	13	17	18	20	20	20	20	20	20	17	17	16	11	E	E S 15	E S 16	E S 15	E S 15
6	E S 15	E	E	E S 15	E S 16	12	15	16	20	20	27	20	18	22	18	17	17	12	11	E	E	E	E	E S 15
7	E S 14	E	E	E	E	12	11	17	17	20	18	20	20	18	20	19	18	11	11	E S 13	E	E S 15	E S 15	E S 15
8	E	E	E	E	E	E	13	16	16	19	19	20	20	17	17	17	14	14	E	E S 14	E	E S 13	E	E S 15
9	E S 15	E	E	E	E	12	11	17	17	20	20	23	18	22	20	17	17	11	E	E S 13	E	E	E S 13	E
10	E S 15	E	E	E	E	11	15	17	19	15	18	20	18	18	23	19	18	16	11	E	E S 15	E S 15	E S 14	E S 16
11	E S 15	E S 16	E	E S 17	E	12	12	16	23	18	18	20	20	20	20	20	20	17	11	E	E S 15	E S 15	E S 16	E S 16
12	E S 16	E S 16	E S 14	E	E	11	11	15	16	20	18	20	17	20	20	17	C	17	15	E	E S 16	E S 16	E S 16	E S 16
13	E S 11	E S 15	E	E	E	11	11	12	17	17	18	22	20	21	18	20	17	13	11	E	E	E	E S 16	E S 12
14	E S 16	E	E	E	E	E	17	12	C	C	C	C	C	C	C	C	19	13	11	E S 12	E	E	E S 16	E
15	E	E	E	E	E	11	13	11	18	16	17	17	17	17	18	18	11	E	E	E	E	E S 14	E	E S 16
16	E	E	E S 17	E	E	E	E	E	11	19	17	20	20	17	17	E	16	12	16	E	E	E	E S 15	E
17	E	E	E	E	E	12	17	17	14	19	20	20	20	20	19	18	17	17	E	E	E	E S 15	E S 15	E
18	E S 16	E	E	E	E	11	11	13	17	C	18	20	18	20	20	17	17	11	11	E S 14	E	E	E	E S 15
19	E S 15	E	E	E	E	E	11	16	15	18	20	20	20	20	17	17	15	16	11	E	E	E	E	E
20	E S 16	E	E	E	E	11	E	12	17	18	17	19	18	20	19	20	16	16	E	E	E	E	E	E S 15
21	E	E	E	E	E	11	11	16	16	17	18	20	20	20	19	16	18	16	11	E S 16	E S 16	E	E S 17	E
22	E S 15	E	E	E	E	E	17	12	11	17	16	20	20	19	20	18	17	13	11	E	E	E	E	E
23	E	E	E	E	E	E	11	13	18	18	18	20	19	18	18	17	12	11	E	11	E	E S 15	E	E S 14
24	E S 12	E	E	E	E	11	11	12	15	18	18	18	18	17	20	18	18	12	12	E S 12	E	E	E	E
25	E	E	E	E	E	12	12	17	18	20	18	20	20	23	22	20	16	17	11	E	E	E	E	E
26	E	E	E	E	E	E	11	17	18	23	26	26	20	25	27	20	19	12	11	E	E	E S 15	E	E
27	E S 15	E	E	E	E	11	14	17	20	19	21	21	21	23	20	20	18	15	11	E	E	E	E	E S 15
28	E	E	E	E	E	11	12	17	18	18	18	20	20	20	20	23	19	18	12	E S 11	E	E S 16	E	E S 15
29	E	E	E	E	E	11	15	17	20	36	20	22	35	20	20	20	17	18	12	E	E	E	E	E S 15
30	E	E	E	E	E	11	12	18	20	19	20	23	30	24	23	20	18	15	11	E	E	E	E	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	30	30	30	30	30	30	30	30	29	28	29	29	29	29	29	29	29	30	30	30	30	30	30	30
MED	E S 14	E	E	E	E	11	12	16	17	18	18	20	20	20	20	18	17	14	11	E	E	E	E	E S 14
UQ	E S 15	E	E	E	E	12	13	17	18	20	20	20	20	20	20	20	18	16	11	E S 12	E	E S 15	E S 15	E S 15
LQ	E	E	E	E	E	E	11	13	16	18	18	20	18	19	18	17	16	12	11	E	E	E	E	E

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JUN. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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	280	275	285F	295F	285	295	295	320	335	295	290	310	295	295	305	285	310	A	295	S	295	285	290	265
2	280	275	280F	F	F	285F	A	A	A	A	270	A	A	265	250	280	295	300	295	285	280	280	270	270
3	265	275	265F	265F	275	295	300	295	295	265	300	275	285	285	265	295	295	290	285	290	290	290	285	265
4	265	280	275	270	305	310	255F	280F	300	305	A	A	275	285	290	305	300	290	295	295	285F	F	F	F
5	F	F	F	300F	F	290F	290F	305	330	R	295	A	280	295	290	300	290	310	290	310	295	290	280F	F
6	F	265F	275F	285	315F	305	325	300	305	310	290	290	280	285	290	295	285	290	290	300	320	285F	280F	280
7	280	285	285	290	280	300	310	320	300	320	295	290	310	A	300	305	300	305	305	310	310	280F	275F	F
8	F	F	F	285F	F	310F	310	315	315	325	270	280	280	300	275	285	280	300	305	290	295	260F	F	285F
9	270F	A	A	F	285F	320	285	310	290	A	295	A	295	285	290	A	290	A	A	280	280	300	310	300
10	280	260F	280F	F	310	305	300	290	290	310	290	315	295	295	295	290	290	315	310	305	290	F	300F	295
11	295	290	285	280	285	305	285H	315	300	325	320	A	290	285	280	305	285	280	295	300	290	270	F	F
12	F	F	295F	285F	280F	265H	275	300	300	295	A	275	285	285	305	295	I C 295	285	295	290	285	285	300	300
13	295	295	285	285	280	290	320	310	300	320	300	305	290	305	280	290	A	300	300	290	295	295	S	295
14	285	270	270	280F	F	315F	340	300	C	C	C	C	C	C	C	C	A	310	300	290	300	285	280	275F
15	F	F	F	290F	285F	285	A	A	A	290	290	290	A	A	275	A	300	A	A	A	A	A	A	F
16	F	F	280F	280F	300	320	315	315	300	290	A	295	295	300	A	315	310	320	315	310	290	F	F	F
17	F	285F	F	275F	265F	F	295	315	310	290	A	295	285	300	295	300	300	290	305	315	315	290	285	270
18	S	280	275	280	285	320	I B 310	295	A	C	290	280	295	295	290	315	290	295	300	305	315	295	290	290F
19	275F	280F	285F	F	290F	300F	325	320	295	275	300	285	255	290	270	295	290	295	A	A	S	295	F	F
20	270F	285F	295F	F	325F	300F	295F	305	350	325	300	A	A	290	285	290	295	290	300	315	330	280	290F	F
21	280F	285F	280F	285F	300F	290F	300	320	300	310	A	A	A	A	A	280	290	290	285	300	320	315	290	275F
22	A	300F	285F	A	A	290F	310	330	350	320	305	290	290	295	300	285	300	A	300	I A 300	I S 310	310	F	F
23	F	F	F	F	F	290F	290	305	320	I A 300	310	310	300	I A 290	290	300	280	280	275	310	295S	300	305	285
24	300	280F	270	270	285	290	285	A	285	R	280	R	R	275	250	I B 280	A	A	A	A	310	A	285F	A
25	280F	265F	265F	275F	290F	325	315	325	285	295	290	310	270	I A 260	270	275	270	270	285	280	275	280	270	270
26	285	260	260	255	245	265	255	280	W	R	A	270	275	A	275	300	285	290	A	290	275	275	280	280
27	S	F	F	F	280	290	290	300	270	290	295	275	280	300	285	295	295	290	290	285	A	265	A	F
28	280F	290F	F	F	F	330	315	290	265	A	A	305	265	280	290	280	285	285	295	280	A	A	285F	F
29	A	F	F	F	305F	285	295	280	300	A	A	A	A	295	300	A	A	A	290	305	295	280	265F	F
30	F	F	295F	295F	280F	265	285	310	335	280	290	A	295	300	300	320	I A 290	300	295	290	265	280	285	270F
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	17	20	21	20	23	29	28	27	26	21	21	19	23	25	27	26	26	24	25	26	26	24	21	17
MED	280	280	280F	282F	285	295	298	305	300	300	295	290	285	290	290	295	290	290	295	298	295	285	285	280
UQ	285	285	285F	288F	300F	310	312	315	315	320	300	305	295	295	295	300	300	300	300	305	310	295	290	290
LQ	275F	272	270F	275	280	290	288	298	290	290	290	280	280	285	275	285	285	290	290	290	285	280	280F	270

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

IONOSPHERIC DATA

JUN. 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							355	A	A	390	A	A	A	380	A	A	A	A						
2						A	A	A	A	A	375	A	A	A	A	345	A	A						
3					345	335	345	385	410	395	400	375	350	375	360	355	350	350	A					
4							345	350	A	A	A	A	380	I A 370	A	345	A	360						
5						330		375	A	A	A	A	A	A	360	370	A	A						
6								A	360	A	380	365	A	385	355	A	A	A	L 340					
7								355	365	A	A	A	A	A	A	360	350	A						
8						360	375	365	395	A	370	A	A	A	A	A	340	340						
9								A	A	A	A	A	A	A	A	A	345	A						
10							345	365	A	A	A	A	A	A	A	350	340	A	A					
11						L		A	A	A	385	A	A	365	365	A	355	335	A					
12							A	A	A	A	A	380	390	365	355	380	C	A	340					
13						370	360	370	A	A	A	A	385	A	A	365	A	A						
14					340	340	365	360	C	C	C	C	C	C	C	C	A	A						
15							A	A	A	385	395	370	A	A	370	A	A	A	A					
16								360	A	A	A	A	A	A	A	A	370	355						
17						325	A	A	A	A	A	A	355	A	A	A	345	340	A					
18						370		A	A	C	A	375	A	360	370	370	A	A	A					
19					335	340	370	380	405	400	380	A	405	380	A	360	340	A	A					
20							A	A	A	A	390	A	A	390	395	370	350	A	A					
21						345	370	A	A	A	A	A	A	A	A	A	A	345	345					
22						325	350	A	A	390	A	A	A	370	365	350	A	A	A					
23					325	A	A	A	A	A	A	A	415	A	365	355	A	A	A					
24					320	330	345	A	A	410	385	385	380	395	395	385	A	A	A					
25							A	370	A	A	A	A	A	A	A	A	A	A	A					
26					290	300	340	360	390	375	A	380	370	A	370	A	A	A	A					
27					320	340	A	380	A	375	405	385	395	380	A	A	L 365	A	A					
28						370	365	A	A	A	A	A	365	355	385	A	A	A	A					
29								A	A	A	A	A	A	A	A	A	A	A	A					
30						L 315	350	A	A	355	365	A	A	375	A	A	A	A	355					
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	15	14	13	6	9	11	8	11	14	13	14	11	7	4					
MED					325	340	352	365	392	390	385	378	380	375	365	360	350	345	342					
UQ					338	352	365	375	405	395	392	382	392	380	370	370	352	352	350					
LQ					320	328	345	360	365	375	378	372	368	365	360	350	342	340	340					

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

IONOSPHERIC DATA

JUN. 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							300	265	270	350	260	330	350	355	325	335	300	A						
2						350	A	A	A	A	450	A	A	475	510	400	325	330						
3					315	275	295	370	395	435	350	425	395	415	455	360	340	345	305					
4							510	375	355	340	A	A	400	380	360	320	305	315						
5						320		300	275	305	315	A	345	315	325	300	285	295						
6								325	320	330	365	350	375	355	320	310	320	300	295					
7								300	340	320	A	375	A	A	365	325	325	300						
8						275	255	290	250	305	415	370	A	345	A	325	350	315						
9								320	315	A	A	A	345	390	365	A	325	A						
10							335	325	325	320	360	300	A	350	330	345	325	295	280					
11						270		285	295	300	315	A	350	350	350	300	350	320	290					
12							375	320	330	A	A	420	410	360	350	355	I C 350	350	300					
13						270	275	270	300	275	325	320	390	325	400	360	A	300						
14					320	280	260	310	C	C	C	C	C	C	C	C	A	305						
15							A	A	A	360	345	390	A	A	415	A	335	A	A					
16								300	345	350	A	360	335	A	A	315	300	295						
17						400	325	270	310	360	A	350	375	350	350	340	320	325	315					
18						275		350	A	C	375	415	350	350	370	300	350	315	295					
19					320	290	265	285	370	415	340	400	480	400	410	365	350	355	A					
20							300	325	255	295	335	A	A	370	375	350	315	320	295					
21						305	320	310	350	305	A	A	A	A	A	A	325	310	300					
22						315	290	270	270	300	350	A	350	370	345	370	345	A	305					
23					325	A	A	290	270	A	325	315	340	A	370	325	A	330	315					
24					325	325	350	A	A	R	435	R	R	430	500	I R 430	A	A	A					
25							275	290	A	345	335	325	400	A	345	325	335	330	300					
26					395	360	370	365	W	R	A	425	420	A	425	365	400	360	A					
27					330	360	360	360	420	400	400	450	410	345	365	350	350	345	315					
28						275	275	300	A	A	A	350	425	390	360	340	350	325	A					
29								335	320	A	A	A	A	330	345	A	A	A	295					
30						385	315	A	300	420	350	A	350	345	325	300	I A 330	A	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					7	17	19	26	23	20	19	18	20	22	26	25	25	23	15					
MED					325	305	300	305	320	335	350	365	375	355	362	340	330	320	300					
UQ					328	350	342	325	348	360	370	415	405	390	400	360	350	330	305					
LQ					320	275	275	290	285	305	330	330	350	345	345	320	320	302	295					

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JUN. 1971 | H'F2 (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	265	290	295	270	260	250	225	A	A	205	A	A	A	235	A	A	A	A	A	A	250	250	220	300
2	270	285	A	270	310	A	A	A	A	A	240	A	A	A	A	260	A	A	265	275	255	275	265	295
3	270	270	300	300	285	250	245	235	205	205	210	210	250	230	210	225	230	245	I A 255	295	250	250	245	300
4	295	300	300	295	260	235	240	250	A	A	A	A	205	A	A	215	I A 235	230	250	270	265	270	300	300
5	300	295	250	235	235	260	250	220	A	A	A	A	A	A	240	220	A	A	250	A	250	265	280	290
6	270	270	265	245	225	220	230	A	225	A	210	250	A	220	250	A	A	A	245	245	250	270	275	275
7	270	275	270	265	260	225	245	200	220	A	A	A	A	A	A	225	225	A	A	255	235	255	275	280
8	260	250	250	265	275	250	230	230	250	A	210	A	A	A	A	A	215	225	265	I A 260	260	A	270	A
9	320	A	A	300	260	245	A 250	A	A	A	A	A	A	A	A	A	250	A	A	A	290	250	245	260
10	290	300	295	275	250	250	245	240	A	A	A	A	A	A	A	225	220	A	A	A 275	A	315	265	255
11	270	235	300	275	270	235	H 215	A	A	A	200	A	A	225	225	A	215	270	A	A	A	A	A 290	245
12	260	275	255	255	255	H 250	A	A	A	A	A	205	205	250	210	210	C	A	255	250	A	A	250	245
13	260	265	260	255	260	225	250	225	A	A	A	A	200	A	A	210	A	A	A	A	260	260	250	260
14	250	315	300	270	265	230	240	215	C	C	C	C	C	C	C	C	A	A	A	A	A	A	270	275
15	285	A	A	260	270	245	A	A	A	240	215	225	A	A	225	A	A	A	A	A	A	A	A	270
16	290	265	275	280	255	260	260	240	A	A	A	A	A	A	A	A	225	250	255	265	A	305	275	260
17	280	280	A	315	270	250	A	A	A	A	A	A	255	A	A	A	245	240	A	A	A	A	290	300
18	300	270	300	310	310	255	A	A	A	C	A	215	A	210	215	215	A	A	A	260	240	265	270	305
19	A	300	275	275	260	250	220	240	215	200	220	A	205	210	A	210	260	A	A	A	A	240	300	255
20	275	275	260	260	235	225	A	A	A	A	210	A	A	215	205	235	250	A	A	A	A	245	260	305
21	270	255	275	270	270	230	220	A	A	A	A	A	A	A	A	A	A	230	250	A	250	245	295	280
22	A	280	305	A	A	240	265	A	A	200	A	A	A	200	230	245	A	A	A	A	A	230	285	260
23	260	305	270	265	275	A	A	A	A	A	A	A	200	A	225	225	A	A	A	A	260	240	235	260
24	245	275	270	300	290	260	245	A	A	205	230	215	220	215	210	230	A	A	A	A	A	A	A	A
25	A	A	300	265	255	245	A	240	A	A	A	A	A	A	A	A	A	A	A	280	I A 280	275	280	270
26	275	285	275	300	320	300	250	240	235	235	A	215	205	A	215	A	A	A	A	285	270	A	250	A
27	305	300	325	335	295	250	A	250	A	205	200	210	190	215	A	A	240	A	A	265	A	A	A	265
28	295	280	285	260	250	240	250	A	A	A	A	A	225	225	220	A	A	A	A	A	A	A	270	A
29	A	A	270	A	260	245	250	A	A	A	A	A	A	A	A	A	A	A	A	250	A	A	300	A
30	A	A	270	265	295	240	250	A	A	250	210	A	A	235	A	A	A	A	230	260	280	280	A	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	26	28	29	28	21	13	6	9	11	8	11	13	13	14	12	7	10	15	16	19	26	25
MED	270	280	275	270	260	245	245	240	222	205	210	215	205	220	220	225	232	240	252	265	258	260	270	275
UQ	290	295	300	298	275	250	250	240	235	235	218	220	222	230	225	230	248	248	255	275	268	272	285	300
LQ	265	270	270	262	255	235	230	225	215	205	210	210	202	215	210	215	222	230	250	258	250	248	250	260

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JUN. 1971 | H'F (KM)

IONOSPHERIC DATA

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

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

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

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JUN. 1971 | H'ES (KM)

IONOSPHERIC DATA

JUN. 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		C1	H1	C1	C2	C1	C1	C2	C2	L1	L1	C2	C2	C3	C3	L3	F2	F1		
2		F1	F3	F2	L2	C3	C5	C4	C2	C2	C1	C2	C2	C2	C2	H1	C1	C2	C2			F2	F2	F1
3	F2	F1	F2	F2	C1	C1	C1	C2	C1	C1	C1				H1				C3	L2				F2
4		F1	F1				C1	C1	C1	C2	C2	C2	C1	C2	C2	C1	C1	L1	L2	C2	F2		F2	F2
5	F1						H1	C1	C2	C1	C2	C2	C1	C1	L1	L1	L2	L3	L4	L4	F2	F2	F1	F2
6	F2	F2	F2	F1		L1	H1	C1	C1	C1	C1	C1	C2	C1	C1	C2	C2	L3	L2	L1	F3	F3	F4	F2
7		F2	F1	F1	L1				C1	C2	C2	C1	C2	L3	L2	L2		C2	C2	C1	F1		F3	F2
8	F2	F1	F1	F2	L1	L2		C1	C1	C2	C1	C2	C2	C2	L2	L1	C11	C1	C2	C5	F3	F2	F1	F4
9	F3	F5	F6	F4		C1	C2	C2	C2	C3	C2	C3	C2	L2	L2	L3	C1	C2	C2	C2	F2	F1	F4	F3
10	F2	F2	F1	F1		H1	C1	C1	C2	C1	C2	C1	L2	L2	L2	L2	L1	C2	C2	L3	F4	F2	F3	F1
11	F1		F2	F1	L1			C2	C1	C1	C1	C3	C2	C1	L2	L2	C1	C2	C2	CL41	F3	F4	F3	
12		F3	F1	F1	L1	C2	C3	C1	C1	C2	C2	C1	LC1	C1	C1	C1		C2	L2	L1	F3	F3	F1	
13	F3	F2	F2	F1		C1	C1	C1	C1	C1	C2	C2	C1	C2	C2		C3	C3	C3	C3	F2	F2	F2	F2
14		F2	F1					C1									C3	C2	C4	C4	F3	F4	F2	F2
15	F2	F4	F4	F2		C1	C2	C3	C3	C1	C1	C1	C1	C2	C1	C3	C2	C4	C2	C2	F7	F6	F3	F2
16	F2			F2	L1		C1	H1	C1	C2	C2	C2	CL22	L2	L4	L2	L2	L2	C1	C4	F3	F2	F2	F4
17	F3	F2	F2	F3	C1	C1	C2	C2	C1	C1	C2	C2	C1	C2	C1	C2	L2	CL11	L3	L3	F6	F3	F3	F3
18	F3	F2	F2	F4	C2	C1	C2	C2	C2		C1	C1	C2				C1	C2	C3	C2	F4	F2	F2	F4
19	F4	F3	F2	F2	L1		C1	C2	C1	C2	C1	L2	L1	L2	L2	L1	L2	CL21	C5	C3	F6	F2	F3	F2
20						L1	C3	C2	C2	C2	C1	C2	L4	CL11	L2	CL12	L2	L3	C3	L5	F5	F2	F2	F4
21	F2	F1	F2	F2	L3	CL11	C1	C3	C2	C1	C3	C4	C2	L3	L3	L3	L2	L1	L4	L3	F3	F2	F3	F3
22	F6	F2	F6	F4	L3	L1	C2	C3	C2	C1	C2	C2	L1	L1	L1	L2	CL11	CL31	C2	C3	F4	F1	F2	F2
23	F2	F3	F2	F4	L2	L3	C3	C2	C2	C2	C2	C2	C1	L3	L1	L2	CL21	CL33	CL21	C3	F3	F1	F2	
24		F1	F3	F2		C1	C1	C3	C2	C1	C1	C1	C1	C1	L1	C1	CL31	CL41	C4	C4	F5	F4	F3	F6
25	F5	F7	F3	F2	L2	L1	C2	C1	C3	C2	C1	C2	C2	L3	C2	C2	L2	C2	L2	L2	F3	F2	F2	
26					L1	C1	C1	C1	C1	C1	C1	C1	C1	L2	L2	CL11	C2	C2	C4	L3	F3	F5	F2	F6
27	F1	F2	F2	F3	C2	C2	C3	C1	C2	C1	C1			H1	C2	C3	CL12	CL11	C2	C2	F5	F3	F3	F1
28	F2	F2	F3	F2	L2	L1	H1	C2	C2	C3	C3	C2	C1	C1	L1	L1	L3	L4	C3	C3	F6	F4	FF22	F3
29	F7	F5	F3	F5	L3	L1	C1	C2	C2	C2	C2	C2	C3	L2	C1	C2	C2	C2	C3	C2	F5	F3	F3	F4
30	F3	F4	F2	F2	L3	L1	C1	C3	C2	C2	C1	C2	L1	C1	C1	C2	L4	L3	L2	L2	F2	F4	F4	F3
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

JUN. 1971 | TYPES OF ES

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	57	57	54	54	52	61	78	82	75	I A 68	I A 64	67	69	68	74	76	I A 77	82	82	85	I R 88	86	79	I R 70
2	79	68	F	F	F	59	65	61	68	A	R	I R 59	I R 60	I R 58	I R 58	68	71	I A 76	78	74	72	72	72	68
3	68	62	63	61	66	69	72	I A 64	64	I A 65	68	65	67	68	68	75	68	68	66	76	76	70	64	62
4	61	60	63	56	54	38	48	I R 56	58	I R 65	63	I A 64	64	71	78	73	72	71	71	66	72	65	64	63
5	F	F 63	65	56	49	58	78	78	75	66	63	69	81	89	94	92	88	78	72	77	79	71	70	F 69
6	70	68	63	64	56	57	69	71	66	68	67	70	73	83	91	96	91	94	98	97	72	66	67	70
7	I R 69	66	62	58	59	71	77	65	65	67	67	68	77	78	79	74	73	80	84	91	66	67	69	69
8	68	68	63	57	57	66	82	84	69	64	67	75	88	84	81	79	77	77	78	79	75	71	68	F
9	F	F	F	F	68	60	67	83	A	A	69	A	A	84	89	84	78	75	74	76	F 82	F	F	F 68
10	F	F	F	54	56	58	64	78	76	76	78	I A 73	68	69	76	74	73	74	75	73	77	76	F	84
11	68	66	65	62	65	I R 60	68	76	89	I A 68	63	I A 60	68	76	78	79	75	78	I R 80	I A 80	86	F	F	F
12	F	F 61	F	F	50	50	59	68	66	I A 54	51	57	57	66	67	63	63	66	68	72	76	73	67	64
13	F	63	F 59	59	56	66	78	89	83	74	66	62	62	I A 66	68	63	71	67	A	A	A	75	68	68
14	64	57	57	57	56	61	69	I R 75	64	64	65	55	64	72	72	74	70	73	74	76	76	69	I R 67	66
15	67	68	68	63	58	58	64	64	68	I A 58	I A 59	I A 58	I A 57	I A 58	61	68	62	61	65	69	68	67	66	F
16	F	56	53	53	58	60	I R 62	I R 62	I R 68	62	I R 64	64	63	76	79	84	79	70	72	73	67	F	F	F
17	58	59	57	53	52	54	73	F 64	63	65	69	73	68	64	I A 62	66	72	73	69	79	72	68	68	63
18	57	55	52	49	48	56	56	61	68	65	I A 67	I A 64	62	66	70	68	67	68	I A 77	82	I R 70	64	59	55
19	53	53	51	50	48	60	69	I R 64	54	I A 60	66	I A 62	I A 59	62	64	62	66	72	75	70	61	59	F	60
20	56	54	F	F	54	52	61	68	I A 64	63	61	I R 60	I R 59	64	68	73	74	75	85	82	68	61	62	F
21	57	56	I R 56	57	55	56	69	72	62	64	I A 64	I A 64	I A 66	I A 68	64	68	67	69	79	86	I R 78	63	59	58
22	57	54	49	48	F 47	I R 60	65	71	70	62	66	63	61	65	63	67	65	69	76	83	88	68	65	F
23	F	R	F	F	F	58	71	76	74	66	65	I R 64	64	A	A	79	72	69	I A 76	89	86	79	72	F 63
24	64	53	I R 54	49	F 46	53	A	A	A	I A 58	A	A	A	51	I A 53	I A 56	I A 60	61	I R 64	72	I R 69	59	53	53
25	F	F	F	F	F	49	58	63	62	67	76	I A 66	I A 68	79	91	95	94	96	102	95	91	86	84	91
26	86	85	79	73	69	F	86	65	I A 55	51	I A 56	67	69	I A 66	59	59	64	64	68	67	I R 72	67	61	58
27	55	50	F 44	F	F	54	55	55	A	A	A	59	57	68	72	66	61	65	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	A	63	A	A	I A 72	77	76	76	78	79	79	74	73	65
29	F	F	F	F	63	66	77	78	77	77	I A 73	I A 70	83	86	85	79	81	83	83	86	74	66	69	F
30	67	F	I R 68	47	46	54	68	84	A	A	A	I A 70	I A 73	I A 77	83	81	69	68	73	71	73	71	70	68
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	23	21	21	25	28	28	28	25	25	25	28	27	28	29	30	30	30	28	28	28	26	24	22
MED	64	60	59	56	56	58	68	70	68	65	66	64	66	68	72	74	72	72	76	78	74	68	68	66
UQ	68	66	63	59	58	60	75	78	74	67	67	68	69	78	79	79	77	77	80	84	79	73	70	69
LQ	57	56	54	53	50	54	63	64	64	62	63	I 61	62	66	64	67	67	68	72	72	71	66	64	62

JUN. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

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

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							I A 400	430	A	A	A	A	I A 500	490	480 H	460	A	A	A					
2						340	400	430	450	I A 480	500	490	I A 480	480	480	A	A	A	A					
3							A	A	460	A	A	490	490	470	490	470	450	430	A					
4							420	520	460	510	480	I A 500	520	480	480 H	I A 460	450	420	L					
5						L	L	U L 470	I A 460	I A 480	A	500	500	490	470	I A 470	L 450	L	L					
6							L	L	470	490	500	500	510	500	480	470	460	430	L					
7						L	L	A	I A 460	500	500	520	510	490	470	480	460	420	L					
8						L	U L 440	A	460	490	490	I A 500	490	470	470	470	I A 450	420	L					
9							A	I A 440	A	A	A	A	A	490	I A 480	I A 470	440	400	A					
10							A	440	470	A	A	A	A	A	470	460	A	400	A					
11							400	I A 450	460	I A 490	480	A	A	A	A	470	I A 460	I A 410	A					
12							380	A	A	A	470	A	A	A	460	460	430	410	L					
13						L	A	450	I A 460	470	470	A	A	A	460	I A 460	430	A	A					
14						L	410	420	460	530	460	500 H	470	A	A	A	440	410	A					
15						460	390	I A 420	A	A	A	A	A	A	460	A	A	400	L					
16							A	A	I A 460	I A 460	480	A	500	470	470	460	430	U L 450	L					
17						340	400	I A 420	470	480	500	480	470	A	A	460	I A 440	A	A					
18						L	390	I A 440	440	A	A	A	490	I A 460	I A 470	460	440	410	A					
19						L	A	A	460	A	A	A	A	470	470	460	430 H	400	A					
20							400	430	I A 450	470	530 H	520	480	470	480	450	440	A	A					
21							400	420	450	A	A	A	A	A	A	440	430	410	L					
22						A	L	430	450	450	A	A	490	470	470	460	480	410	360					
23							L	I A 440	I A 450	I A 460	I A 460	I A 490	480	A	A	A	440	I A 410	A					
24						A	A	A	A	A	A	A	A	460	I A 460	I A 450	I A 420	410	350					
25							I A 400	A	A	470	470	A	A	A	A	A	A	A	A					
26						300	360	410	I A 430	I A 450	I A 450	460	A	A	500	470	430	420	A					
27						340 L	A	A	A	A	A	A	500	480	470	480	500	420	C					
28						C	C	C	C	C	A	A	A	A	A	470	460	440	A					
29						L	A	A	460	A	A	A	A	A	A	I A 480	I A 470	450	A					
30							L	A	A	A	A	A	A	A	A	I A 470	I A 450	450	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						5	14	17	21	16	15	12	16	16	21	25	25	23	2					
MED						340	400	430	460	480	480	500	490	475	470	460	440	410	355					
UQ						340	400	440	460	490	500	500	500	490	480	470	460	425						
LQ						340	390	420	450	465	470	490	480	470	470	460	430	410						

JUN. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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						A	270	300	A	A	A	A	A	370	355	340	305	A	A	S				
2						A	A	A	A	IA 340	355	365	370	370	355	330	300	IA 260	220	S				
3						A	A	295	315	340	350	A	A	370	350	330	300	260	A	S				
4					S	205	265	300	325	345	IA 360	IA 360	IA 365	370	A	A	A	A	A	A				
5					E	A	265	305	330	345	A	A	A	A	A	A	A	A	A	A				
6					E	A	260	300	325	345	355	365	370	360	IA 345	325	295	260	215	A				
7					E	200	260	300	330	345	355	A	A	A	A	A	A	A	A	A				
8					E	200	260	300	IA 325	IA 345	A	A	A	IA 365	345	325	305	265	A	A				
9					E	A	255	295	IA 320	A	A	A	A	A	A	A	A	A	A	A				
10					E	A	260	305	325	A	A	A	A	A	A	A	A	A	A	A				
11					S	195	IA 260	305	330	IA 345	IA 355	365	A	A	A	340	A	A	A	A				
12					E	A	A	295	315	340	IA 350	355	365	A	A	340	310	275	220	A				
13					E	205	IA 260	300	320	345	IA 355	A	A	A	A	A	A	280	A	A				
14					E	A	A	A	315	IA 340	360	IA 360	365	IA 370	IA 355	340	305	265	A	A				
15					E	200	255	IA 290	315	A	A	A	A	A	A	A	A	A	A	S				
16					E	A	A	A	A	A	A	A	A	365	350	A	A	A	A	A				
17					E	A	A	A	A	A	355	IA 355	A	A	A	A	A	A	A	A				
18					E	A	A	A	320	A	A	A	A	A	A	A	295	255	A	A				
19					E	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
20					E	A	A	A	A	A	365	IA 375	375	IA 370	IA 350	335	305	IA 265	A	A				
21					E	A	A	A	A	345	A	A	A	A	A	A	A	A	A	A				
22					E	A	A	300	330	340	350	A	A	A	A	330	305	265	A	A				
23					E	A	A	A	A	A	A	A	A	A	A	A	300	260	A	A				
24					S	A	A	A	A	A	A	A	A	A	A	A	A	270	A	A				
25					E	A	A	IA 305	320	340	350	A	A	A	A	A	A	A	A	A				
26					A	A	A	A	A	340	A	A	A	A	A	A	305	270	A	A				
27					E	A	A	A	A	A	A	IA 360	IA 365	370	355	340	320	280	C	C				
28					C	C	C	C	C	C	A	A	A	A	A	350	330	290	A	A				
29					E	A	265	IA 300	330	A	A	A	A	A	A	345	A	A	A	A				
30					E	A	A	305	IA 330	350	IA 355	IA 360	A	A	A	A	A	A	A	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					22	6	12	17	18	16	14	10	7	10	9	13	14	15	3					
MED					E	200	260	300	325	345	355	IA 360	365	370	350	340	305	265	220					
UQ					E	205	265	305	330	345	355	365	370	370	355	340	305	272	220					
LQ					E	200	260	300	320	340	350	IA 360	365	365	350	330	300	260	218					

JUN. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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	JX 24	JX 20	JX 19	JX 20	JX 19	23	JX 43	41	JX 68	JX 82	JX 77	JX 74	JX 69	50	G	47	JX 104	JX 73	JX 130	JX 129	JX 96	JX 69	JX 61	JX 81
2	JX 43	JX 40	JX 28	JX 36	JX 33	JX 34	38	JX 50	JX 79	D	JX 75	43	53	JX 81	46	JX 76	JX 94	JX 153	JX 124	JX 28	JX 38	JX 28	JX 43	JX 31
3	JX 46	JX 38	JX 28	E	E	31	JX 50	JX 68	46	JX 75	JX 57	43	41	40	38	G	34	G	JX 53	JX 43	JX 28	JX 39	JX 21	JX 23
4	JX 18	JX 30	JX 23	ES 13	ES 13	G	G	33	38	JX 47	43	JX 90	JX 68	41	42	JX 63	JX 43	JX 37	JX 29	JX 30	JX 58	JX 44	JX 71	ES 14
5	JX 46	JX 23	JX 33	JX 23	JX 24	25	33	38	JX 50	JX 94	JX 88	JX 71	JX 86	JX 48	JX 42	JX 50	JX 36	JX 49	JX 79	JX 55	JX 33	JX 23	JX 42	JX 36
6	JX 39	JX 44	JX 28	JX 46	JX 30	JX 30	29	40	43	42	39	G	40	42	JX 51	G	G 28	G	G	20	JX 29	JX 26	ES 13	JX 23
7	JX 45	JX 35	JX 41	JX 27	JX 28	23	37	JX 46	JX 51	45	40	JX 58	40	JX 44	39	38	JX 42	JX 35	JX 39	JX 46	JX 26	JX 27	JX 24	ES 14
8	JX 24	JX 25	JX 18	JX 21	JX 19	G	G	43	43	43	JX 46	JX 75	JX 90	47	JX 46	46	JX 65	JX 44	JX 33	JX 53	JX 49	JX 20	JX 37	JX 64
9	JX 45	JX 58	JX 48	JX 47	JX 37	28	JX 47	JX 52	JX 106	JX 114	JX 75	JX 108	JX 86	42	JX 63	JX 59	JX 37	JX 37	JX 40	JX 73	JX 83	JX 75	JX 19	JX 26
10	JX 34	JX 24	JX 20	JX 25	JX 20	JX 38	45	JX 43	JX 47	JX 69	JX 71	JX 86	JX 64	JX 58	JX 45	JX 36	JX 46	JX 64	JX 39	JX 28	JX 58	JX 87	JX 33	JX 29
11	JX 36	JX 38	JX 29	JX 23	ES 13	24	28	54	JX 44	JX 76	JX 48	JX 68	JX 79	JX 70	JX 59	42	JX 78	JX 106	JX 71	JX 90	JX 44	JX 60	JX 66	JX 63
12	JX 59	JX 44	JX 39	JX 30	JX 35	JX 45	JX 41	JX 48	JX 55	JX 89	47	JX 55	JX 48	JX 51	38	36	G	JX 28	G	21	ES 13	JX 22	JX 76	JX 43
13	JX 73	JX 43	JX 38	JX 38	JX 19	23	JX 48	34	JX 52	45	JX 67	JX 60	JX 58	JX 90	JX 43	JX 59	38	JX 74	JX 80	JX 104	JX 93	JX 54	JX 38	JX 47
14	ES 13	JX 27	JX 33	JX 30	17	JX 39	JX 83	JX 78	36	JX 45	G	39	44	55	JX 58	JX 79	JX 68	40	JX 83	JX 62	JX 26	JX 29	JX 33	JX 45
15	JX 44	JX 44	JX 33	JX 46	JX 33	27	41	JX 64	JX 64	JX 99	JX 69	JX 128	JX 94	JX 144	JX 76	JX 64	JX 48	31	JX 45	ES 16	JX 20	JX 42	JX 73	JX 60
16	JX 46	JX 48	JX 43	JX 46	JX 45	JX 33	JX 40	JX 40	JX 57	JX 80	JX 42	JX 48	JX 48	G	44	43	39	JX 51	JX 41	JX 38	JX 47	JX 73	JX 74	JX 84
17	JX 63	JX 31	JX 58	JX 49	JX 38	JX 36	JX 41	JX 53	39	JX 117	JX 72	42	43	JX 94	JX 79	JX 74	JX 47	JX 88	JX 46	JX 54	JX 58	JX 63	JX 43	JX 17
18	JX 18	JX 23	JX 43	JX 44	JX 29	23	30	JX 73	JX 73	JX 105	JX 107	JX 94	JX 44	JX 73	JX 66	46	43	JX 59	JX 104	JX 68	JX 63	JX 53	JX 50	JX 41
19	JX 39	JX 27	JX 39	JX 27	JX 24	28	JX 46	JX 59	JX 78	JX 75	JX 78	D	JX 80	JX 42	38	JX 38	JX 35	JX 44	JX 39	JX 20	JX 40	JX 70	JX 45	JX 59
20	JX 55	JX 43	JX 30	JX 40	JX 29	JX 33	JX 38	JX 44	JX 95	JX 58	G	48	48	48	47	41	34	JX 48	JX 42	JX 26	JX 43	JX 48	JX 39	JX 44
21	JX 53	JX 63	JX 59	JX 56	JX 69	25	37	JX 46	JX 46	JX 65	JX 68	JX 74	JX 82	JX 79	JX 63	JX 40	JX 34	JX 43	JX 30	JX 28	JX 46	JX 34	JX 22	JX 33
22	JX 27	JX 28	JX 27	JX 23	JX 34	JX 38	28	G	38	48	JX 75	JX 74	39	JX 94	40	JX 42	34	29	30	JX 63	JX 58	JX 53	JX 48	JX 79
23	JX 84	JX 79	JX 66	JX 33	JX 44	JX 67	JX 33	JX 45	JX 63	JX 63	JX 68	JX 62	46	JX 174	JX 93	JX 111	38	JX 63	JX 76	JX 59	JX 64	JX 53	JX 41	JX 43
24	JX 31	JX 23	JX 34	JX 29	JX 33	JX 31	JX 81	JX 89	JX 81	JX 83	JX 91	JX 133	JX 74	JX 48	JX 96	JX 139	JX 86	38	JX 49	JX 37	JX 85	JX 79	JX 68	JX 66
25	JX 68	JX 53	JX 58	JX 39	JX 25	JX 32	JX 43	44	JX 64	JX 41	46	JX 87	JX 66	JX 50	JX 53	JX 70	JX 65	JX 79	JX 43	JX 32	JX 22	JX 28	JX 21	JX 24
26	JX 18	JX 44	ES 13	ES 14	JX 29	27	32	34	JX 68	JX 49	JX 64	JX 44	JX 69	JX 82	JX 56	JX 38	42	JX 63	JX 43	JX 47	JX 60	JX 75	JX 49	JX 34
27	JX 38	JX 43	JX 39	JX 33	JX 83	25	JX 51	JX 59	JX 74	JX 74	JX 64	JX 48	42	G	44	42	34	33	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	JX 91	JX 93	JX 159	JX 100	JX 87	JX 45	JX 47	36	JX 47	JX 58	JX 63	JX 40	JX 45	JX 45
29	JX 58	JX 53	JX 50	JX 44	JX 56	JX 39	JX 43	JX 64	46	JX 76	JX 110	JX 93	JX 94	JX 59	JX 63	JX 64	JX 80	JX 67	JX 73	JX 84	JX 79	JX 44	JX 36	JX 43
30	JX 86	JX 64	JX 72	JX 46	JX 36	JX 30	37	42	JX 84	JX 97	JX 178	JX 98	JX 168	JX 114	JX 58	JX 64	JX 70	JX 48	JX 43	JX 43	JX 44	JX 36	JX 66	JX 79
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	30	29	29	29	29	29	29
MED	JX 44	JX 40	JX 34	JX 33	JX 29	30	JX 40	JX 46	JX 55	JX 75	JX 68	JX 72	JX 65	JX 53	JX 49	JX 46	JX 42	JX 46	JX 43	JX 46	JX 47	JX 44	JX 43	JX 43
UQ	JX 55	JX 44	JX 43	JX 44	JX 36	JX 34	JX 45	JX 59	JX 73	JX 89	JX 77	JX 93	JX 82	JX 82	JX 63	JX 64	JX 65	JX 64	JX 73	JX 62	JX 63	JX 63	JX 61	JX 60
LQ	JX 31	JX 27	JX 28	JX 23	JX 20	25	33	41	46	JX 48	JX 46	JX 48	44	44	42	40	35	36	JX 39	JX 28	JX 33	JX 29	JX 33	JX 29

The Radio Research Laboratories, Japan

JUN. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	20	15	18	18	15	23	41	41	65	A	A	54	60	42	G	45	A	49	64	22	64	30	26	49
2	20	24	18	24	25	26	35	37	37	A	39	42	E R 53	43	43	49	50	35	60	19	18	19	17	27
3	E	25	19	E	E	30	47	A	42	A	57	40	40	40	G	G	34	G	48	18	28	22	E	18
4	18	18	17	E S 13	E S 13	G	G	33	36	46	42	A	39	39	38	48	36	31	25	21	57	28	E	E S 14
5	31	18	25	18	18	25	32	36	50	60	51	43	41	48	40	50	35	36	26	35	33	20	E	19
6	E	19	21	25	20	27	29	37	39	41	39	G	39	40	42	G	G 28	G	G	20	17	26	E S 13	E
7	E	19	21	20	23	23	34	46	50	44	40	41	40	42	38	37	38	33	28	46	18	18	E	E S 14
8	17	E	E	19	18	G	G	43	40	40	44	58	39	46	38	44	65	34	25	30	49	19	25	34
9	40	38	26	25	24	27	45	51	A	A	54	A	A	42	60	59	35	37	39	71	20	55	E	18
10	22	20	18	18	15	28	43	38	42	60	61	A	57	58	44	35	45	34	39	25	25	18	24	20
11	24	23	15	18	E S 13	24	28	E R 54	39	A	44	A	60	64	57	39	58	47	59	A	20	33	28	45
12	35	24	28	20	28	28	35	47	54	A	45	53	48	50	38	G	G	25	G	20	E S 13	20	34	21
13	E	16	19	20	15	23	47	33	50	45	46	58	58	A	43	57	35	44	A	A	A	26	E	23
14	E S 13	20	20	18	15	29	33	38	35	37	G	39	42	55	56	58	35	38	59	30	19	18	31	25
15	25	E	E	20	24	25	37	44	50	A	A	A	A	A	45	57	43	30	25	E S 16	18	31	24	38
16	32	30	26	31	38	33	40	U R 40	54	47	40	48	42	G	44	38	39	35	27	35	40	28	35	27
17	32	24	33	29	28	31	38	51	38	37	48	40	43	60	A	35	47	45	46	50	21	44	24	E
18	E	20	24	26	23	23	29	48	43	60	A	A	44	58	57	39	42	39	A	67	E R 63	37	33	25
19	20	E	22	19	20	28	46	U R 59	40	A	48	A	A	41	36	37	31	38	39	20	25	48	35	19
20	18	20	21	31	20	30	34	40	A	42	G	42	43	41	43	39	G	48	42	25	E	48	27	30
21	44	39	31	30	35	24	37	41	38	54	A	A	A	A	55	35	32	29	25	24	40	26	20	21
22	20	24	20	18	25	34	28	G	36	43	60	51	38	40	37	28	33	29	30	31	35	41	36	29
23	28	25	21	19	22	40	28	45	49	50	55	59	46	A	A	50	36	57	A	50	45	39	38	29
24	27	20	27	E	18	31	A	A	A	A	A	A	A	39	A	A	A	G	33	29	60	31	40	43
25	35	26	29	24	17	28	43	44	46	38	46	A	A	50	52	59	56	70	40	30	20	23	19	18
26	E	20	E S 13	E S 14	19	24	30	33	A	45	A	44	49	A	38	37	39	32	42	35	E R 60	50	30	20
27	28	18	19	19	17	24	48	45	A	A	A	U R 48	42	G	43	36	34	32	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	A	55	A	A	A	40	38	33	47	48	42	27	27	34
29	39	36	31	30	34	33	43	63	44	68	A	A	59	59	61	60	59	40	60	33	65	31	28	37
30	52	28	49	24	25	25	31	38	A	A	A	A	A	A	55	55	50	34	28	38	30	28	48	31
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	30	29	29	29	29	29	29
MED	22	20	21	20	20	27	35	42	46	60	52	56	48	49	44	40	38	34	39	30	U 28	28	26	25
UQ	32	25	26	25	25	30	43	48	54	A	A	A	A	64	57	55	50	40	59	46	U 46	37	33	31
LQ	17	18	18	18	17	24	30	38	39	44	44	43	42	41	38	36	34	31	27	22	20	22	17	19

JUN. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

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

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

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JUN. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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	280	280	285	290	300	320	320	325	I A 295	I A 280	290	285	290	285	285	I A 295	300	295	285	I R 290	290	280	I R 270
2	295	280	F	F	F	270	295	285	295	A	R	I R 280	I R 275	I R 270	I R 245	280	280	I A 285	300	300	280	270	265	265
3	280	265	275	270	295	305	305	I A 290	300	I A 285	290	275	270	290	270	290	290	295	280	290	295	275	280	265
4	265	270	290	305	320	325	265	I R 275	275	I R 290	295	I A 290	270	280	285	300	290	290	305	295	280	275	265	270
5	F	F 275	300	295	270	290	310	325	330	310	290	285	270	280	290	295	310	305	300	290	305	290	285	F 275
6	305	300	290	285	305	310	325	315	310	315	300	285	270	270	285	285	295	290	300	320	305	290	285	285
7	I R 285	295	280	290	280	305	325	300	300	305	285	285	290	295	295	300	295	310	310	320	290	275	285	290
8	295	300	290	290	290	295	305	320	310	310	295	270	295	295	295	290	285	295	300	305	295	290	290	F
9	F	F	F	F	310	290	285	300	A	A	290	A	A	285	295	310	300	295	295	290	F 305	F	F	F 295
10	F	F	F	285	290	305	300	290	300	295	310	I A 295	285	285	295	300	300	290	295	290	285	285	F	305
11	290	290	290	280	310	I R 300	305	305	335	I A 315	295	I A 300	295	300	285	295	290	290	I R 290	I A 290	300	F	F	F
12	F	F 295	F	F	290	280	300	320	335	I A 295	255	290	275	290	305	290	295	305	305	290	290	300	290	300
13	F	285	F 290	290	295	305	300	315	315	325	305	285	285	I A 290	305	290	305	325	A	A	A	300	295	300
14	290	270	275	275	280	295	305	I R 315	295	300	295	270	300	305	295	300	305	300	295	295	305	290	I R 285	290
15	285	295	300	300	285	265	270	285	315	I A 280	I A 290	I A 275	I A 270	I A 280	270	315	295	295	280	280	305	285	290	F
16	F	285	285	285	305	315	I R 315	I R 310	I R 310	310	I R 290	300	275	290	290	300	310	295	295	300	285	F	F	F
17	290	290	275	265	275	275	305	F 300	290	290	295	300	295	310	I A 290	295	290	305	310	280	305	295	275	285
18	280	285	280	290	305	310	305	275	325	285	I A 315	I A 295	275	290	330	300	300	300	I A 310	320	I R 300	300	290	280
19	280	280	290	315	295	305	325	I R 320	320	I A 290	310	I A 290	I A 275	285	285	290	295	310	320	315	295	270	F	285
20	280	295	F	F	315	310	300	330	I A 315	315	300	I R 290	I R 270	285	290	290	295	305	305	320	310	280	280	F
21	280	295	I R 285	290	290	305	305	305	320	325	I A 315	I A 300	I A 295	I A 310	300	300	290	295	290	315	I R 305	290	290	280
22	280	280	300	305	F 300	I R 320	320	320	330	305	320	295	270	290	290	290	280	295	295	300	320	305	310	F
23	F	R	F	F	F	310	310	310	315	310	305	I R 280	295	A	A	305	290	295	I A 285	305	305	305	295	F 295
24	280	280	I R 290	285	275	290	A	A	A	I A 295	A	A	A	265	I A 250	I A 275	I A 280	305	I R 290	310	I R 310	305	285	280
25	F	F	F	F	F	325	310	295	305	305	305	I A 270	I A 265	255	275	275	275	285	305	295	295	280	275	275
26	270	270	275	265	250	F	290	260	I A 255	235	I A 255	290	300	I A 300	290	290	290	310	305	300	I R 295	290	290	285
27	285	310	F 290	F	F	295	285	275	A	A	A	290	255	295	305	295	285	290	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	A	280	A	A	I A 280	285	285	290	290	305	290	290	280	285
29	F	F	F	F	285	295	300	300	300	285	I A 280	I A 280	290	290	285	290	300	295	280	305	295	275	275	F
30	290	F	I R 275	280	275	285	305	320	A	A	A	I A 290	I A 280	I A 285	295	305	310	300	290	295	290	275	275	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	20	23	21	21	25	28	28	28	25	25	25	28	27	28	29	30	30	30	28	28	28	26	24	22
MED	285	285	290	285	290	302	305	305	310	300	295	290	275	290	290	292	295	295	295	300	295	290	285	285
UQ	290	295	290	290	305	310	310	320	320	310	305	292	292	295	295	300	300	305	305	308	305	295	290	290
LQ	280	280	280	280	280	290	300	290	300	I 290	290	280	270	282	285	290	290	290	290	290	290	275	278	275

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

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							I A 350	I A 360	A	A	A	A	I A 360	370	H 375	A	A	A	A					
2						325	350	345	360	I A 360	360	410	I A 395	375	355	A	A	A	A					
3							A	A	345	A	A	370	370	365	355	345	355	330	A					
4							315	295	365	320	365	I A 370	370	375	H 375	I A 360	350	340	L					
5						L	L	U L 340	A	A	A	380	365	I A 380	365	I A 365	H 365	L	L					
6							L	L	370	365	380	380	370	375	375	360	355	340	L					
7						L	L	A	I A 380	355	380	365	375	380	390	355	350	350	L					
8						L	U L 340	A	380	370	375	I A 370	390	I A 360	370	I A 365	I A 355	340	L					
9							A	A	A	A	A	A	A	345	A	A	360	A	A					
10							A	360	370	A	A	A	A	A	A	365	A	370	A					
11							355	I A 355	365	I A 385	405	A	A	A	A	360	I A 345	A	A					
12							340	A	A	A	A	A	A	A	355	360	360	340	L					
13						L	A	350	A	A	A	A	A	A	350	I A 350	370	A	A					
14						L	340	355	385	355	415	H 385	370	A	A	A	340	350	A					
15						335	I A 330	I A 345	A	A	A	A	A	A	A	A	A	355	L					
16							A	A	I A 370	I A 375	370	A	360	380	I A 360	365	365	U L 340	L					
17						I A 350	I A 370	I A 385	L 360	385	I A 390	375	365	A	A	355	A	A	A					
18						L	360	I A 340	A	A	A	A	355	I A 365	I A 365	355	I A 355	I A 345	A					
19						L	A	A	390	A	A	A	A	395	365	355	H 365	I A 350	L					
20							350	375	I A 395	415	H 360	340	390	385	375	360	365	A	A					
21							L 370	I A 375	380	A	A	A	A	A	A	370	370	360	L					
22						A	L	370	380	A	A	A	370	385	370	355	330	350	L 365					
23							L	I A 360	I A 375	I A 385	I A 385	A	A	A	A	A	365	I A 345	A					
24						A	A	A	A	A	A	A	A	375	A	A	I A 355	340	I A 350					
25							I A 370	A	A	370	A	A	A	A	A	A	A	A	A					
26						325	355	365	A	A	A	A	A	A	350	350	360	335	A					
27						L 435	A	A	A	A	A	A	395	395	370	355	335	350	C					
28						C	C	C	C	C	A	A	A	A	A	355	365	340	A					
29						L	A	A	A	A	A	A	A	A	A	I A 370	I A 340	I A 350	A					
30							L	A	A	A	A	A	A	A	A	I A 370	I A 360	335	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						5	14	16	16	12	11	10	15	16	17	22	24	21	2					
MED						335	350	358	372	370	380	372	370	375	365	360	358	345	358					
UQ						350	360	368	380	385	388	380	382	382	375	365	365	350						
LQ						325	340	345	365	358	368	370	365	368	355	355	350	340						

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

IONOSPHERIC DATA

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

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

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							270	270	290	I A 385	I A 370	350	370	365	350	330	I A 345	305	310					
2						350	305	360	325	A	470	R	I A 400	500	550	370	350	I A 340	305					
3							300	A	330	I A 365	350	380	400	360	400	385	340	325	350					
4							460	355	375	420	355	I A 365	410	375	345	300	330	310	270					
5						310	275	290	265	I A 300	340	380	345	340	320	295	280	270	265					
6							260	270	290	315	330	370	390	360	330	315	300	295	265					
7						265	250	265	300	325	380	365	350	320	300	320	325	290	255					
8						270	290	260	280	300	355	365	325	315	330	330	340	300	280					
9							315	300	A	A	355	A	A	340	305	295	300	300	290					
10							280	305	300	325	300	A	A	360	325	320	325	320	290					
11							280	300	250	A	350	I A 345	350	340	340	320	320	320	295					
12							325	290	275	A	525	380	440	365	325	350	335	315	280					
13						265	290	285	270	265	320	I A 340	I A 370	I A 350	320	360	305	280	A					
14						265	305	265	290	350	320	450	350	325	340	325	300	300	315					
15						L 400	350	345	295	A	A	I A 405	I A 430	I A 430	400	320	310	330	315					
16							250	280	290	315	300	340	405	330	325	305	290	315	290					
17						345	280	290	300	315	340	335	315	I A 310	I A 335	340	340	295	290					
18						290	300	440	290	I A 345	I A 320	I A 345	400	I A 355	315	335	335	315	I A 295					
19						265	245	I A 280	300	I A 365	320	A	A	385	355	350	340	290	265					
20							300	255	A	335	360	R	I R 415	375	355	330	325	300	275					
21							295	300	320	300	A	A	A	I A 330	350	330	335	320	300					
22						255	255	280	280	335	340	335	410	370	370	350	350	315	290					
23							265	285	290	340	330	I A 345	355	A	A	305	330	340	I A 320					
24						300	A	A	A	A	A	A	A	470	A	A	I A 370	325	300					
25							265	340	300	325	315	A	I A 410	410	355	340	320	340	275					
26						365	315	360	A	520	I A 490	370	350	I A 355	380	365	335	315	290					
27						315	365	410	A	A	A	395	500	360	325	340	375	325	C					
28						C	C	C	C	C	A	395	A	A	I A 360	330	325	310	290					
29						305	295	315	305	370	I A 360	I A 380	350	330	330	350	315	315	320					
30							290	260	A	A	A	A	A	A	325	310	295	315	265					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						15	28	27	23	21	24	21	23	27	28	29	30	30	28					
MED						300	290	290	290	335	345	365	390	360	338	330	328	315	290					
UQ						330	305	328	300	365	360	380	410	372	355	350	340	320	302					
LQ						265	268	275	285	315	320	345	350	335	325	320	310	300	275					

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JUN. 1971 | H'F2 (KM)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	280	295	280	260	285	235	A	A	A	A	A	A	IA 210	230	200H	A	A	A	A	260	300	290	260	IA 325
2	280	310	280	250	290	240	A	A	240	IA 230	220	200	IA 205	220	240	A	A	A	A	255	295	280	290	330
3	275	310	295	305	290	265	A	A	A	A	A	210	205	245	230	220	230	240	IA 265	280	255	260	250	305
4	300	300	265	240	230	230	245	215	215	IA 235	230	IA 220	205	195	190H	IA 200	230	240	250	245	A 330	290	295	290
5	340	300	260	235	295	255	250	230	IA 235	IA 220	IA 220	200	205	IA 220	240	IA 225	230	A	A	260	255	250	270	305
6	245	265	270	245	245	235	240	IA 240	230	230	200	200	200	195	230	230	230	230	230	230	220	285	285	285
7	305	275	295	275	285	245	IA 225	IA 220	A	A	205	205	215	225	215	230	230	IA 240	240	240	220	280	280	270
8	270	250	240	270	265	240	225	IA 225	230	230	A	A	190	IA 205	210	A	A	IA 240	245	250	270	250	295	320
9	320	310	300	270	235	230	A	A	A	A	A	A	A	A	A	A	IA 220	IA 225	IA 235	IA 280	270	A	215	250
10	295	295	290	270	255	250	A	A	A	A	A	A	A	A	A	230	A	A	A	245	270	265	305	245
11	265	290	270	290	250	230	240	A	A	A	215	A	A	A	A	240	IA 220	A	A	IA 270	245	265	290	300
12	290	240	280	260	305	275	A	A	A	A	A	A	A	A	230	225	220	230	245	255	255	245	280	270
13	260	260	275	290	270	240	IA 235	245	A	A	A	A	A	A	A	A	220	IA 250	A	A	A	250	245	270
14	255	320	315	300	280	A	A	IA 220	210	200	195	190H	A	A	A	A	IA 230	IA 225	IA 240	245	245	250	295	295
15	300	255	255	245	290	235	A	A	A	A	A	A	A	A	A	A	A	215	250	265	240	285	280	280
16	320	310	300	300	280	240	A	A	A	A	225	IA 225	215	205	215	230	A	A	IA 245	250	300	315	310	265
17	305	295	345	365	315	A	A	A	200	215	IA 210	200	A	A	A	215	A	A	A	280	250	300	295	250
18	290	280	305	290	280	240	230	A	A	A	A	A	IA 205	IA 215	IA 225	230	A	A	IA 250	280	IA 270	290	290	290
19	315	290	295	290	290	A	A	A	215	A	A	A	A	210	210	245	220H	IA 235	IA 235	240	245	A	330	290
20	290	290	270	280	240	245	A	A	A	195	190H	245	230	220	245	240	210	A	A	235	225	A	305	300
21	A	A	300	300	290	235	IA 240	IA 230	215	A	A	A	A	A	A	215	230	235	250	250	240	255	280	245
22	290	305	280	255	300	IA 240	220	230	205	A	A	A	200	210	225	230	235	240	IA 245	260	250	270	270	295
23	300	290	310	290	305	285	230	A	A	A	A	A	A	A	A	A	240	A	A	270	265	250	270	285
24	275	290	290	290	305	A	A	A	A	A	A	A	A	230	A	A	IA 235	240	IA 240	260	IA 250	265	IA 285	IA 295
25	IA 320	310	315	305	230	250	IA 235	IA 245	IA 220	215	A	A	A	A	A	A	A	A	IA 270	255	250	280	305	295
26	290	300	295	290	345	IA 250	250	240	A	A	A	A	A	A	235	230	IA 240	240	IA 255	270	IA 270	IA 290	290	295
27	305	265	330	320	315	245	A	A	A	A	A	A	195	190	IA 215	230	225	230	C	C	C	C	C	C
28	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	IA 220	215	240	IA 250	280	285	260	285	310
29	310	335	305	310	290	A	IA 245	IA 230	A	A	A	A	A	A	A	IA 220	IA 230	IA 240	IA 245	250	IA 275	315	300	345
30	IA 310	310	250	280	300	255	240	A	A	A	A	A	A	A	A	IA 215	IA 225	240	IA 230	260	285	300	320	320
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	29	29	29	24	15	12	11	9	10	10	13	15	16	20	21	19	20	28	28	26	29	29
MED	292	295	290	290	290	240	240	IA 230	215	220	212	202	205	215	225	230	230	240	IA 245	258	255	275	290	295
UQ	308	310	300	300	300	250	242	240	230	IA 230	220	220	210	222	232	230	230	240	250	270	272	290	295	305
LQ	278	278	270	260	265	235	230	IA 222	212	215	200	200	200	205	212	220	220	230	IA 240	248	245	255	280	270

JUN. 1971 | H'F (KM)

IONOSPHERIC DATA

JUN. 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

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

JUN. 1971 | H'ES (KM)

IONOSPHERIC DATA

JUN. 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	F3	F2	F2	F1	F1	H1	C2	C2	L2	L3	L3	L2	L2	H2		H2	C2	C4	C3	L2	F3	F3	F2	F3
2	F2	F2	F2	F3	F2	C2	H2	C1	C2	L2	C1	H1	H1	C2	H1	H2	C3	C2	C3	C1	F2	F3	F2	F3
3	F2	F2	F2			L2	L2	C2	H1	C2	C2	C1	L2	H1	H1		H2		C3	H2	F2	F3	F1	F2
4	F1	F1	F1					H1	H1	C2	C1	L2	L1	C1	C1	L2	L3	L2	L2	L2	F3	F3	F2	
5	F3	F2	F3	F1	L2	H1	H1	H1	C1	C2	L2	L1	L1	L2	L1	L2	L2	L3	L2	L3	F3	F3	F1	F1
6	F2	F2	F3	F3	L2	L2	H1	H1	H2	C1	H1		H1	C1	L2		L1			L2	F2	F2		F2
7	F2	F2	F3	F4	L3	H1	H2	C2	C2	C2	C1	L1	L1	L1	L1	C1	L2	L2	C2	C3	F1	F2	F1	
8	F1	F1	F1	F3	L1			H2	H2	C1	C2	C2	L2	C2	C1	C2	C2	C2	C2	L2	F4	F1	F3	F3
9	F4	F4	F3	F3	L2	H3	C3	C2	C4	L4	L2	L3	L2	L2	L2	L2	L2	L2	L3	L2	F3	F4	F1	F2
10	F2	F2	F2	F2	L1	H2	H2	C2	C3	C2	L2	L2	L2	L2	L2	L1	L2	L3	L2	L2	F2	F2	F2	F2
11	F3	F4	F1	F1		H1	L2	C1	C2	C2	C2	C2	L2	L3	C2	H1	C3	C3	C3	C4	F2	F3	F3	F4
12	F5	F2	F2	F3	L2	L2	C2	C3	C2	L2	L2	L2	C2	L1	C1	H1		L1		C2		F2	F3	F3
13	F3	F3	F3	F3	L1	H1	C3	H1	L2	C1	L2	L1	L2	L2	L2	L2	H1	C2	C3	L3	F5	F3	F2	F2
14		F3	F2	F2	C1	C2	L2	L2	C2	L1		C1	H1	H1	H1	C2	C2	C2	C3	C2	F1	F2	F3	F3
15	F3	F2	F2	F3	L2	C1	C2	C2	C2	L2	L2	L2	L2	L2	L2	L3	C2	C2	L3		F2	F4	F3	F4
16	F3	F3	F3	F3	L3	L2	L2	L2	L2	C2	L1	L2	L1		C2	L2	C2	L3	L2	C2	F4	F4	F3	F4
17	F4	F4	F4	F3	L4	C3	L2	L2	L2	C1	C2	C1	C1	C2	L2	C2	L2	L3	L2	L3	F2	F4	F3	F1
18	F2	F2	F2	F2	L1	H1	C1	L4	C2	L2	L3	L2	L2	L2	L2	H1	H2	H2	C2	C3	F3	F3	F3	F3
19	F2	F1	F2	F2	L1	C2	C3	C2	L2	L2	L2	L2	L1	L1	L1	L2	L2	L2	L2	L1	F2	F4	F6	F2
20	F2	F2	F3	F3	L1	L2	L2	L3	L3	L2		H1	H1	H2	H1	H1	H1	L2	L2	C2	F1	F3	F4	F2
21	F5	F4	F3	F2	L2	C1	C2	C2	C2	C2	L2	L2	L2	L3	L2	L2	L2	L2	L2	L2	F4	F3	F2	F2
22	F3	F2	F2	F2	L4	L2	L2		H1	C2	C2	L2	C1	L1	C1	L1	H1	H1	C3	L3	F3	F4	F4	F2
23	F2	F2	F2	F2	L2	L2	C1	C2	C2	C2	L2	L2	L2	L3	L3	L2	H1	C3	C3	C5	F4	F5	F3	F3
24	F3	F2	F2	F2	C1	C2	C3	L2	L2	L3	L2	L2	L2	L2	C2	C2	C2	C1	C2	L2	F2	F3	F4	F4
25	F3	F2	F3	F2	L1	L2	L2	C1	C2	H1	C2	L2	L2	L2	L2	L3	L3	L2	L3	L2	F2	F3	F2	F2
26	F1	F2			L1	C2	C2	H1	L3	L2	L2	L2	L2	L2	L2	L2	H1	C2	L2	C3	F3	F3	F3	F3
27	F3	F2	F5	F2	L2	H2	C2	C2	L2	L2	L2	L2	L1		H1	H1	H1	H2						
28									L3	L2	L3	L4	L3	C1	C2	C2	L2	L3	F3	F3	F3	F3		
29	F4	F6	F3	F4	L3	L3	H2	C2	C2	C2	L3	L2	L2	L2	L2	H2	L2	L2	L2	L3	F4	F3	F4	F4
30	F4	F3	F3	F2	L3	L1	H1	H1	C2	C3	C3	C2	C3	L2	L2	L2	L3	L3	L2	L3	F3	F3	F4	F4
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

JUN. 1971 | TYPES OF ES

IONOSPHERIC DATA

JUN. 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	61	57	J R 57	56	50	64	72	70	66	I A 66	63	71	76	74	78	79	85	91	91	I A 89	88	88	90	F 86
2	92	J R 80	78	76	R 71	61	66	66	62	65	58	61	I R 61	58	61	I A 72	81	I A 80	86	77	A	A	A	79
3	R	67	67	64	70	81	79	I A 68	J R 70	65	A	78	76	84	91	88	83	76	76	83	R 81	I R 63	64	65
4	65	61	65	65	40	41	48	61	66	67	61	66	65	73	87	82	80	80	73	71	70	67	I R 65	J R 64
5	66	R 62	61	F 56	53	60	81	78	70	A	59	71	I A 83	93	100	107	97	92	82	82	82	73	76	U F 74
6	F 80	F 73	F 71	59	54	61	71	75	67	68	68	65	76	87	97	108	109	118	110	91	69	S 67	70	I R 70
7	70	I R 68	64	60	60	72	70	65	69	66	67	73	83	91	87	87	84	86	96	87	65	J R 65	J R 69	I R 71
8	I A 69	J R 70	61	55	55	61	81	80	68	67	72	81	96	94	88	88	90	86	88	88	73	68	68	66
9	J R 70	J R 69	F	F 66	60	56	68	86	I A 86	86	A	A	73	93	J R 102	96	90	82	81	83	I R 86	R	F	F
10	R	F	63	66	58	66	67	78	83	83	80	I A 73	75	R 78	83	83	80	78	J R 80	I A 77	I R 81	75	I R 78	F
11	R 70	69	70	66	60	61	65	86	R 90	70	A	A	69	78	82	86	87	82	85	85	85	80	I A 68	R 70
12	F	F	74	R 65	60	56	65	73	67	A	A	56	61	65	73	77	72	74	72	82	80	72	65	67
13	J R 70	64	60	60	58	63	74	80	91	75	66	62	I A 66	I A 68	77	77	75	68	66	74	I S 80	J R 75	66	64
14	S 64	59	F 58	F 57	F	64	71	V 68	I A 65	61	59	61	62	I A 76	76	I A 76	77	75	78	J R 79	72	70	71	72
15	70	J R 70	I R 68	66	58	60	69	I A 71	73	A	A	A	A	60	70	71	66	61	66	70	I R 76	R 75	65	J R 64
16	R 63	R 61	F	R 61	R 62	65	61	61	68	68	67	60	62	75	I A 88	89	80	81	80	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	I C 72	73	69	67	67	70	J R 77	76	R 73	J R 80	J R 80	R 66	R 65	R 70
18	J R 63	I R 62	J R 61	51	R 48	R 46	55	67	81	81	I A 70	62	66	75	I A 80	I R 80	77	75	81	79	68	62	I R 62	60
19	54	F	F	F	F	57	66	I A 62	I A 60	I A 61	60	66	66	65	70	74	81	86	81	62	54	57	56	F
20	F 59	F 53	F	U F 50	46	47	67	80	62	56	57	57	59	72	80	84	86	88	87	82	I R 62	J R 61	61	F
21	F 60	F 58	J F 60	A	J F 56	60	69	70	68	65	I A 64	67	77	71	77	68	71	86	91	96	68	62	61	61
22	65	60	R 62	52	50	60	62	69	65	60	61	A	A	68	71	75	76	81	I A 84	91	J R 80	I R 72	67	R 60
23	F	F	F	F	F	F	70	71	66	A	A	A	66	A	A	86	86	76	81	R 100	88	F	F	F
24	J R 63	61	56	51	J R 49	49	52	56	59	58	A	A	A	A	A	60	63	65	70	I S 74	R 72	A	49	R
25	F	R	F	F	F	46	55	60	66	77	67	I A 64	70	83	96	101	J R 104	109	113	J R 107	I R 96	I R 92	R 95	J R 105
26	R 106	I R 96	R 92	F	F	F	F	F	61	64	66	F 77	80	R 77	64	66	68	70	71	73	75	65	67	65
27	63	56	51	53	50	57	54	57	A	A	A	62	61	67	76	72	70	68	69	79	75	64	62	F
28	F	F	F	F 52	F 50	58	65	65	64	65	63	68	I A 73	76	I A 76	86	86	94	91	85	J R 80	J R 72	73	70
29	F	J R 63	59	F	F	70	77	81	80	76	76	I A 78	85	92	95	96	93	90	90	97	R 72	71	J R 75	71
30	F	F	72	I R 50	46	52	78	J R 79	57	A	A	A	I A 82	84	A	A	80	80	I A 78	79	72	75	J R 73	F
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	22	22	23	23	27	28	28	28	23	21	23	27	28	27	29	30	30	30	29	28	25	26	21
MED	65	62	62	59	55	60	68	70	67	66	66	66	70	76	80	82	80	80	81	82	76	70	67	70
UQ	70	R 69	70	65	60	64	72	78	72	72	68	73	76	84	88	88	86	86	88	88	R 81	75	73	71
LQ	63	60	60	52	50	56	64	65	64	64	61	62	66	68	74	74	76	75	73	77	71	65	64	64

JUN. 1971 | FOF2 (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	L		A	A	A	480	480	480	480	460	A						
2						L	L	A	460	A	R 480	490	A	A	A	L 460	A	A						
3							A	A	A	A	A	A	L 500	490	490	480	440	L	A					
4							L 410	440	450	490	490	500	500	A	460	480	450	410						
5						L	L	L	A	A	L	500	A	A	490	490	460	A	A					
6							L	L	L	490	500	530	510	510	510	500	480	420	L					
7							L	L	L	L	A	500	L 510	A	A	460	A	400	L					
8							L	L	A	490	490	500	490	490	A	A	A	A	A					
9						L	L 430	A	A	480	A	A	A	A	A	A	A	A	A					
10							L	A	A	A	A	A	A	A	490	460	L	A	A					
11								A	L 430	A	A	A	A	A	A	480	L	400						
12							390	A	A	A	A	480	470	A	A	A	430	420	L					
13								450	460	A	A	A	A	A	A	460	430	400	L					
14						L	L	L	A	A	A	R	A	A	A	A	L 440	L	L					
15							A	A	A	A	A	A	A	480	450	450	440	L	L					
16							L	480	450	480	480	480	490	R 460	A	450	A	410	A					
17							C	C	C	C	C	A	A	480	490	460	450	A	L					
18							440	A	450	A	A	A	A	A	A	A	A	A	A					
19						L	L	A	A	A	490	490	480	470	460	450	440	410	L					
20							L	420	450	460	490	460	A	470	470	460	430	A	L					
21						L	L	U 420	L	A	A	A	A	A	460	440	460	A	A					
22						L		L	L	450	480	A	A	480	480	480	440	410	A					
23							L	A	L	A	A	A	A	A	A	440	440	410	L					
24						A	A	400	A	390	A	A	A	A	A	A	420	A	A					
25							L	L	L	A	A	A	A	490	470	460	A	A						
26								A	460	470	A	A	A	A	500	470	450	L	L					
27						L	A	A	A	A	A	A	A	480	480	480	460	430	L					
28							L	450	490	A	510	500	A	500	A	460	A	440	L					
29						L	A	A	A	A	A	A	A	490	490	A	A	A	A					
30						L	L	L	A	A	A	A	A	A	A	A	A	A	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							4	7	9	9	9	11	9	14	16	22	18	12						
MED							420	440	450	480	490	500	490	480	480	460	440	410						
UQ							435	450	460	490	490	500	500	490	490	480	460	420						
LQ							400	420	450	460	480	485	480	480	465	460	440	405						

The Radio Research Laboratories, Japan

JUN. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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 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						175	250	290	A	A	A	A	A	R	R	R	310	275	A					
2						B	250	300	320	R 340	R 360	I R 370	I R 370	I R 365	I A 350	320	I A 300	I A 260	A					
3						A	A	290	320	340	350	A	A	A	K 350	R	R	260	200					
4						R 190	R 230	290	R	I A 340	350	I A 365	A	B	A	A	A	A	A					
5						A	250	300	320	345	370	370	A	A	A	330	I A 305	A	A					
6						220	255	290	320	345	370	I A 370	375	I A 360	A	A	320	270	190					
7						200	270	300	325	A	A	A	A	I A 355	I A 350	I A 330	A	A	R					
8						200	R 250	330	I A 330	345	I A 350	370	375	360	350	340	300	A	A					
9						190	250	A	A	A	A	A	A	A	A	A	A	A	A					
10						A	250	A	A	A	A	A	A	A	K	R	A	260	A					
11						A	A	A	320	I A 340	I A 350	360	I A 360	350	355	330	305	I A 265	A					
12						A	250	I A 285	300	340	I A 365	I A 365	370	A	A	A	A	I A 255	210					
13						A	250	285	320	340	355	365	A	A	A	A	A	255	A					
14						A	A	A	A	330	A	R	400	I A 365	340	325	300	I A 270	A					
15						A	I A 230	I A 280	A	A	325	A	A	A	K 340	335	A	A	A					
16						185	R 245	A	A	A	A	K	R	R	330	320	A	A	A					
17						C	C	C	C	C	I C 360	I R 355	I R 345	350	I R 345	335	300	A	A					
18						180	R	290	I A 310	340	345	A	A	A	A	A	305	260	210					
19						A	A	A	310	I A 340	I A 350	I A 360	I A 360	360	A	A	A	255	I A 210					
20						A	A	A	A	A	365	370	365	370	355	330	305	255	A					
21						200	260	290	300	335	A	345	A	A	A	A	A	A	A					
22						A	A	A	A	A	A	A	A	350	340	335	310	260	A					
23						A	A	A	A	A	A	A	A	A	A	340	315	250	A					
24						A	A	A	A	A	A	A	A	A	A	A	305	265	A					
25						210	I R 250	290	A	320	345	I A 350	A	A	A	A	A	A	A					
26						A	A	A	A	A	370	A	A	A	A	A	310	270	210					
27						A	255	295	A	A	A	A	A	A	365	350	315	280	220					
28						A	250	300	325	I A 355	I A 360	I A 360	A	A	A	355	320	A	A					
29						A	A	A	A	A	A	A	A	A	A	345	I A 315	A	A					
30						A	260	A	A	345	360	A	A	A	A	A	A	A	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						10	18	16	13	16	18	14	9	10	12	15	17	17	7					
MED						195	250	290	320	340	358	I 365	370	360	350	335	305	260	210					
UQ						200	255	300	320	345	365	I 370	375	I 365	352	340	315	270	210					
LQ						185	250	290	310	340	350	I 360	I 360	350	340	330	305	255	205					

The Radio Research Laboratories, Japan

JUN. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 40	J X 24	J X 29	J X 24	J X 29	24	32	J X 42	J X 57	J X 66	J X 98	J X 51	46	G	G	38	40	J X 51	J X 74	J X 119	J X 61	J X 89	J X 51	J X 41
2	J X 49	J X 26	J X 64	J X 29	J X 21	J X 29	29	J X 64	37	J X 62	43	46	J X 62	J X 94	J X 59	J X 131	J X 61	J X 101	J X 41	J X 71	J X 136	J X 121	J X 94	J X 34
3	J X 47	J X 40	J X 55	J X 29	J X 30	55	J X 54	75	J X 65	J X 59	J X 144	J X 57	42	J X 42	G	G	G	33	J X 39	J X 21	J X 30	J X 29	J X 29	J X 27
4	J X 25	20	J X 19	22	19	G	G	35	G	J X 42	43	J X 41	45	J X 59	J X 45	J X 58	J X 40	J X 39	J X 31	J X 36	J X 29	J X 45	J X 75	J X 54
5	J X 41	J X 29	J X 34	J X 29	J X 29	J X 29	32	36	J X 42	J X 93	53	49	J X 102	J X 107	J X 40	34	35	J X 51	J X 63	J X 75	J X 35	J X 17	J X 16	J X 36
6	J X 50	J X 26	J X 30	J X 26	J X 17	J X 26	30	J X 40	40	J X 42	40	47	J X 41	47	J X 55	J X 47	J X 40	G	21	J X 17	J X 19	M 20	M 22	J X 18
7	J X 17	J X 25	J X 23	34	J X 23	G 19	G 25	33	41	J X 58	J X 85	J X 54	41	J X 50	J X 49	41	J X 54	J X 39	G	21	J X 54	J X 27	J X 29	J X 26
8	J X 94	J X 44	J X 19	22	E B 13	G	G	G	J X 111	J X 50	41	46	J X 50	45	J X 56	J X 45	J X 52	J X 44	J X 41	J X 21	J X 25	J X 44	J X 22	21
9	J X 56	J X 59	J X 51	J X 32	21	24	35	J X 69	J X 118	J X 64	J X 121	J X 95	55	J X 57	J X 65	J X 51	J X 49	J X 56	J X 49	J X 37	J X 35	J X 64	J X 64	J X 84
10	J X 54	E B 13	J X 29	J X 24	J X 29	28	J X 41	J X 51	J X 49	J X 54	J X 66	J X 96	72	J X 68	G	40	39	J X 41	J X 59	J X 84	J X 43	J X 20	J X 36	J X 40
11	J X 28	J X 29	J X 28	J X 24	J X 44	J X 29	29	J X 48	J X 54	J X 52	82	J X 165	57	J X 54	J X 75	40	G	G	J X 44	J X 39	J X 29	J X 29	J X 191	J X 59
12	J X 41	J X 29	J X 29	J X 25	23	24	33	J X 59	J X 54	J X 74	J X 69	J X 56	J X 54	J X 52	J X 75	J X 54	36	J X 28	J X 21	J X 21	J X 29	J X 22	J X 29	J X 62
13	J X 36	J X 60	J X 61	M 22	E B 13	23	J X 40	35	J X 56	J X 55	J X 85	J X 58	J X 80	J X 124	J X 59	J X 39	35	32	J X 30	J X 24	J X 30	J X 30	J X 37	J X 35
14	J X 54	J X 74	J X 29	J X 42	J X 29	J X 28	J X 52	J X 54	J X 88	J X 51	J X 71	G	J X 55	J X 81	J X 58	J X 91	J X 44	J X 74	J X 42	J X 36	J X 30	E S 15	J X 29	J X 21
15	J X 24	J X 55	J X 64	J X 41	J X 21	J X 41	J X 46	J X 91	J X 58	J X 109	J X 94	J X 136	J X 60	J X 55	G	J X 44	36	34	J X 29	J X 35	J X 24	J X 24	J X 29	J X 38
16	J X 51	29	J X 29	J X 25	J X 29	23	G	34	34	J X 41	J X 39	G	G	42	J X 91	J X 69	J X 51	J X 31	J X 52	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	J X 60	47	41	J X 74	J X 44	40	J X 51	J X 24	J X 24	J X 21	J X 41	J X 54	J X 74
18	J X 51	J X 54	21	J X 29	J X 25	21	G	J X 46	J X 61	J X 68	J X 150	J X 108	J X 99	J X 67	J X 89	J X 94	J X 68	J X 72	J X 51	J X 51	J X 51	J X 61	J X 51	J X 29
19	J X 54	J X 29	J X 49	J X 41	J X 31	J X 28	J X 59	J X 75	J X 75	J X 137	J X 54	49	40	43	J X 39	J X 39	J X 39	G 22	J X 38	J X 22	J X 17	J X 29	J X 52	J X 41
20	J X 74	J X 50	J X 40	J X 30	J X 26	J X 30	J X 30	J X 46	J X 46	J X 57	40	41	48	44	45	J X 53	46	J X 61	J X 40	J X 54	J X 44	J X 54	J X 80	J X 51
21	J X 62	J X 62	J X 84	J X 89	J X 84	J X 41	28	36	J X 46	J X 57	J X 85	J X 94	J X 61	J X 55	J X 39	40	J X 39	J X 54	J X 48	J X 29	J X 30	22	20	J X 21
22	J X 29	J X 30	J X 40	J X 30	J X 32	J X 24	J X 59	J X 39	42	37	42	J X 139	J X 181	42	J X 41	G	34	J X 41	J X 148	J X 51	J X 84	J X 61	J X 29	J X 30
23	21	J X 25	J X 25	J X 25	J X 29	J X 21	J X 54	J X 58	J X 54	J X 104	J X 101	J X 101	J X 81	J X 74	J X 97	38	G	35	J X 64	J X 49	J X 82	J X 64	J X 51	J X 61
24	J X 54	J X 61	J X 29	J X 30	J X 64	J X 54	J X 59	J X 54	J X 74	J X 56	J X 76	J X 164	J X 192	J X 164	J X 68	J X 54	36	J X 46	J X 40	J X 61	J X 75	J X 109	J X 66	J X 30
25	J X 40	J X 40	J X 40	J X 25	J X 21	G	G	36	J X 48	J X 57	J X 69	81	J X 79	47	J X 41	J X 41	J X 65	J X 84	J X 44	J X 64	J X 24	22	J X 24	J X 29
26	J X 24	J X 54	J X 41	21	J X 19	J X 46	J X 49	J X 41	J X 85	J X 57	J X 55	J X 76	54	J X 109	J X 58	35	38	J X 42	J X 34	J X 30	J X 43	J X 41	J X 53	36
27	J X 52	J X 26	J X 40	J X 26	J X 51	J X 30	J X 54	J X 44	J X 73	J X 84	J X 149	J X 59	J X 77	43	G	40	35	34	27	22	J X 24	J X 34	J X 30	J X 54
28	J X 50	J X 42	J X 40	J X 62	J X 49	46	J X 38	40	J X 55	J X 58	J X 58	J X 54	J X 81	J X 46	J X 99	J X 49	J X 91	35	J X 35	J X 62	J X 25	J X 24	J X 64	J X 54
29	J X 54	J X 35	J X 64	J X 41	J X 29	26	J X 41	J X 54	J X 82	J X 55	J X 74	J X 124	J X 115	J X 46	44	J X 64	J X 84	J X 53	J X 57	J X 40	35	J X 37	J X 25	J X 29
30	J X 51	J X 84	J X 40	J X 39	J X 30	J X 24	30	40	J X 57	J X 85	J X 85	J X 112	J X 108	J X 85	J X 149	J X 144	J X 94	J X 89	75	J X 51	J X 54	J X 25	J X 25	J X 54
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	30	29	29	29	29	29
MED	J X 50	J X 35	J X 40	J X 29	J X 29	J X 26	33	J X 44	J X 55	J X 57	J X 71	J X 58	J X 58	J X 53	J X 56	J X 44	40	J X 42	J X 41	J X 37	J X 30	J X 30	J X 36	J X 36
UQ	J X 54	J X 54	J X 49	J X 34	J X 30	J X 30	J X 49	J X 54	J X 73	J X 68	J X 85	J X 101	J X 81	J X 74	J X 74	J X 54	J X 52	J X 54	J X 52	J X 54	J X 51	J X 54	J X 54	J X 54
LQ	J X 36	J X 26	J X 29	J X 25	J X 21	23	29	36	J X 46	J X 54	J X 53	49	47	44	J X 40	39	36	34	J X 31	J X 24	J X 25	J X 24	J X 29	J X 29

The Radio Research Laboratories, Japan

JUN. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	E	23	16	22	22	31	40	45	A	52	49	43	G	G	38	39	46	70	A	45	40	35	24
2	26	19	27	29	E	21	28	58	36	60	42	43	58	49	52	41	51	A	32	60	A	A	A	23
3	40	38	41	25	22	48	47	A	45	59	A	52	40	41	G	G	G	31	35	17	27	E	17	20
4	20	E	E	E	E	G	G	32	G	40	42	40	43	50	40	42	32	38	26	25	21	28	31	35
5	31	25	25	25	25	25	30	32	40	A	45	48	A	76	40	32	35	51	52	54	29	E	E	E
6	17	17	25	16	15	16	29	40	37	42	40	47	40	46	43	41	25	G	21	15	16	E	20	E
7	E	17	E	25	20	17	25	G	40	40	55	44	40	49	49	40	51	31	G	E	35	21	23	E
8	A	25	16	E	E B 13	G	G	G	52	46	40	43	43	42	52	44	50	43	40	16	E	39	15	E
9	56	39	40	28	E	23	33	51	A	41	A	A	51	48	51	50	48	50	44	36	25	32	45	19
10	E	E B 13	E	E	20	21	36	50	48	50	61	A	68	65	G	39	38	39	41	A	20	19	25	23
11	18	25	19	17	22	25	26	40	50	50	A	A	55	48	70	39	G	G	25	35	17	24	E	35
12	28	25	E	22	20	20	29	50	51	A	A	40	44	49	51	46	36	26	G 17	17	25	16	25	19
13	E	47	39	E	E B 13	22	38	32	44	52	48	51	A	A	48	36	31	30	26	18	25	20	33	25
14	16	39	E	17	16	21	30	38	A	48	51	G	54	A	54	A	32	28	25	31	E	E S 15	24	16
15	27	35	26	20	E	26	40	A	51	A	A	A	A	43	G	40	34	26	28	30	17	17	25	24
16	40	25	24	19	20	21	G	31	32	40	38	G	G	40	A	38	48	29	45	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	58	47	40	44	39	35	40	24	E	E	20	25	40
18	24	E	15	20	22	20	G	45	36	51	A	50	55	62	A	55	59	40	35	32	26	29	29	25
19	28	35	26	33	25	20	31	A	A	A	45	46	40	40	37	37	36	G 22	27	17	16	20	40	32
20	33	18	15	16	16	24	30	37	40	40	40	41	47	44	44	42	41	61	28	52	44	25	25	41
21	29	39	44	A	16	15	27	33	42	54	A	59	55	54	37	36	34	44	46	17	25	E	E	17
22	E	21	19	20	25	21	35	32	38	36	41	A	A	40	40	G	34	34	A	45	25	31	E	20
23	E	16	22	20	18	20	29	42	42	A	A	A	A	A	A	36	G	34	29	30	41	35	35	34
24	35	30	22	19	21	41	42	33	49	39	A	A	A	A	A	48	34	41	40	U A 31	41	A	30	21
25	24	26	26	16	E	G	G	35	39	55	51	A	52	43	38	39	63	80	36	50	20	E	20	26
26	22	19	25	E	16	34	37	41	34	42	53	75	50	59	41	35	35	35	30	28	28	17	41	17
27	16	E	24	E	E	24	44	41	A	A	A	53	51	41	G	40	34	33	26	19	19	19	17	16
28	29	25	22	16	29	25	27	35	40	52	40	42	56	41	A	41	58	32	20	45	21	20	25	20
29	50	20	40	25	22	24	39	48	45	51	59	A	65	43	41	50	75	46	50	34	29	25	20	E
30	38	32	26	32	24	24	28	38	46	A	A	A	A	78	A	A	70	55	A	45	34	22	21	50
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	30	29	29	29	29	29
MED	26	25	24	19	20	21	30	40	44	51	53	52	53	48	44	40	36	36	31	31	25	20	25	21
UQ	33	32	26	25	22	24	36	48	50	A	A	A	68	62	54	44	50	46	44	45	29	29	31	26
LQ	16	17	16	16	13	20	27	33	39	42	42	43	43	41	38	37	34	30	26	17	19	17	20	17

The Radio Research Laboratories, Japan

JUN. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

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

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

The Radio Research Laboratories, Japan

JUN. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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	265	285	250	295	300	315	320	300	330	280	285	285	300	285	280	280	285	310	300	290	295	270	285	280
2	270	290	280	290	310	285	305	290	290	265	275	285	275	260	265	275	295	290	305	305	A	A	A	245
3	R	270	385	265	275	300	315	315	305	310	A	300	275	265	285	295	300	290	285	305	310	300	265	265
4	265	280	310	340	295	320	250	285	310	285	280	290	265	275	300	295	285	300	315	280	285	285	270	280
5	290	275	295	290	285	285	335	330	315	A	265	275	280	280	290	300	310	315	305	300	305	290	285	270
6	305	295	300	305	315	330	325	340	325	325	310	270	275	270	280	290	295	315	325	340	280	280	285	290
7	295	305	285	290	295	320	340	330	320	300	285	290	290	305	285	290	300	310	315	325	265	275	280	285
8	290	285	310	290	290	330	320	330	325	295	280	275	280	310	290	285	290	290	300	305	300	300	290	285
9	270	280	F	300	305	285	290	310	300	325	A	A	260	275	295	300	300	285	285	295	310	R	F	F
10	R	F	285	275	275	310	295	295	290	310	305	280	275	270	290	290	290	295	295	290	295	280	290	F
11	285	275	285	290	290	295	280	305	335	330	A	A	275	295	285	280	275	295	275	285	295	300	280	285
12	F	F	280	300	280	280	290	315	330	A	A	260	265	265	270	285	300	310	295	310	315	315	290	285
13	295	295	290	315	310	315	295	310	330	315	325	290	290	300	305	310	315	325	300	295	295	310	295	280
14	290	270	265	280	F	315	325	310	330	285	275	295	290	280	300	310	305	300	305	300	290	275	275	280
15	295	285	300	295	285	270	275	275	310	A	A	A	A	280	290	310	300	295	290	285	290	290	270	285
16	285	280	F	285	330	340	330	300	315	325	300	285	270	280	300	305	290	300	300	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	300	300	295	300	300	295	295	315	295	290	305	275	275	285
18	270	280	280	315	300	305	280	305	300	335	310	290	275	280	295	300	310	290	310	290	285	285	280	270
19	275	F	F	F	F	310	305	310	310	310	270	295	295	290	295	295	290	320	330	340	280	275	270	F
20	280	285	F	320	325	300	320	335	350	305	275	320	270	285	295	295	300	305	320	330	305	300	290	F
21	285	285	290	A	295	320	315	315	335	320	300	295	290	295	300	295	265	285	310	325	270	290	280	280
22	275	270	280	305	300	335	325	315	310	310	325	A	A	285	285	280	290	295	285	310	290	295	300	285
23	F	F	F	F	F	F	315	310	300	A	A	A	280	A	A	285	295	275	285	310	330	F	F	F
24	285	295	270	295	275	295	295	265	270	290	A	A	A	A	A	280	285	300	285	305	305	A	280	R
25	F	R	F	F	F	325	315	290	305	315	310	260	255	255	255	280	290	290	300	300	300	280	265	280
26	275	275	275	F	F	F	F	F	265	250	255	275	295	305	290	305	315	315	310	295	300	275	270	270
27	285	295	285	280	290	310	285	300	A	A	A	290	280	295	305	310	300	300	300	290	310	295	280	F
28	F	F	F	295	290	330	330	330	315	310	270	270	280	275	285	285	270	300	310	305	290	295	290	285
29	F	270	290	F	F	300	300	305	315	265	290	280	270	275	285	280	290	300	275	320	310	270	280	270
30	F	F	330	300	280	310	335	345	320	A	A	A	270	290	A	A	310	300	300	290	290	280	290	F
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	22	22	23	23	27	28	28	28	23	21	23	27	28	27	29	30	30	30	29	28	25	26	21
MED	285	282	285	295	295	310	315	310	315	310	285	285	275	280	290	295	295	300	300	300	295	285	280	280
UQ	290	290	300	302	302	320	325	322	328	318	305	292	290	295	298	300	300	310	310	310	305	295	290	285
LQ	275	275	280	290	285	298	292	300	302	288	275	275	270	275	285	285	290	290	290	290	290	275	275	270

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

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						L	L	A	A	A	A	A	380	380	380	360	350	A						
2						L	L	A	350	A	360	370	A	A	A	350	A	A						
3							A	A	A	A	A	A	380	350	350	360	360	L	A					
4							330	340	360	350	350	360	360	A	370	340	330	340						
5						L	L	L	A	A	L	A	A	A	360	360	360	A	A					
6							L	L	L	370	390	350	390	A	345	330	340	355	L					
7							L	L	L	L	A	380	380	A	A	370	A	370	L					
8							L	L	A	370	370	370	370	370	A	A	A	A	A					
9						L	330	A	A	340	A	A	A	A	A	A	A	A	A					
10							L	A	A	A	A	A	A	A	330	350	L	A	A					
11								A	390	A	A	A	A	A	A	340	L	350						
12							340	A	A	A	A	300	A	A	A	A	340	300	L					
13								350	A	A	A	A	A	A	A	370	350	350	L					
14						L	L	L	A	A	A	R	A	A	A	A	340	L	L					
15							A	A	A	A	A	A	A	350	380	390	350	L	L					
16							L	340	360	340	370	370	360	390	A	360	A	370	A					
17							C	C	C	C	C	A	A	380	350	330	320	A	L					
18							330	A	360	A	A	A	A	A	A	A	A	A	A					
19						L	L	A	A	A	A	A	390	420	420	380	360	350	L					
20							L	450	420	410	380	415	A	A	A	340	A	A	L					
21						L	L	U 270	L	A	A	A	A	A	370	340	350	A	A					
22						L		L	L	400	390	A	A	360	340	330	320	340	A					
23							L	A	L	A	A	A	A	A	A	340	320	340	L					
24						A	A	370	A	430	A	A	A	A	A	A	350	A	A					
25							L	L	L	A	A	A	A	350	370	350	A	A						
26								A	360	340	A	A	A	A	350	350	350	L	L					
27						L	A	A	A	A	A	A	A	420	380	360	350	350	L					
28							L	370	340	A	370	380	A	360	A	370	A	350	L					
29						L	A	A	A	A	A	A	A	370	360	A	A	A	A					
30						L	L	L	A	A	A	A	A	A	A	A	A	A	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							4	7	8	9	8	9	8	12	15	22	17	12						
MED							330	350	360	370	370	370	380	370	360	350	350	350						
UQ							335	370	375	400	385	380	385	385	375	360	350	352						
LQ							330	340	355	340	365	360	365	355	350	340	340	340						

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

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						265	250	250	290	IA 240	IA 205	IA 235	220	240	205	240	330	280						
2						305	295	370	360	IA 340	415	380	440	490	IA 450	395	330	IA 325						
3							260	IA 300	295	A 340	A	340	390	390	330	300	310	300	305					
4							440	350	310	360	375	395	445	390	310	310	330	300						
5						300	250	250	280	A	410	385	A	370	330	290	280	280	A 280					
6							255	250	290	300	330	450	375	330	340	320	300	275	250					
7							250	260	270	290	350	350	360	305	314	305	310	290	260					
8							250	260	285	370	385	360	330	300	315	310	320	295	280					
9						285	350	280	IA 285	290	A	A	440	350	300	300	310	300	290					
10							305	300	305	305	305	IA 360	IA 370	IA 360	340	330	300	295	290					
11								290	250	290	A	A	400	340	370	330	290	290						
12							340	290	280	A	A	450	360	400	320	305	325	300	290					
13								290	265	280	290	370	IA 360	IA 360	310	305	290	275	300					
14						290	260	250	IA 265	300	IA 350	360	390	IA 335	325	IA 310	300	305	270					
15							340	IA 330	325	A	A	A	A	430	350	305	340	325	330					
16							250	350	315	295	330	350	420	355	IA 310	295	300	295	295					
17							C	C	C	C	I C 320	340	340	350	350	340	305	275	295					
18							385	340	305	275	IA 310	420	390	360	IA 330	300	300	305	265					
19						250	250	IA 280	IA 340	IA 330	420	360	350	370	355	340	330	280	255					
20							275	270	250	350	405	350	460	360	330	320	300	295	260					
21						275	280	275	255	300	IA 340	390	340	345	335	340	365	310	290					
22						260		300	290	260	320	A	A	370	350	340	340	315	IA 290					
23							280	290	310	A	A	A	IA 360	A	A	325	295	315	315					
24						A	360	395	400	350	A	A	A	A	A	390	350	310	295					
25							260	300	270	280	305	IA 320	440	410	350	345	320	A 350						
26								345	460	440	440	A 410	340	310	375	350	315	295	290					
27						295	360	355	A	A	A	400	400	360	320	325	330	320	300					
28							250	280	320	305	440	420	350	360	IA 350	340	350	305	270					
29						250	285	260	285	A 350	350	IA 360	350	350	335	320	350	290	300					
30						300	260	245	250	A	A	A	A	350	A	A	A 320	300	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						11	25	29	28	23	21	23	25	28	27	29	30	30	24					
MED						285	275	290	290	300	350	360	370	360	330	320	318	300	290					
UQ						298	340	330	312	345	405	398	400	370	350	340	330	310	298					
LQ						262	250	260	270	290	320	350	350	342	318	305	300	290	270					

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JUN. 1971 — H'F2 (KM)

IONOSPHERIC DATA

JUN. 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	300	275	280	250	240	240	290	I A 240	I A 205	I A 235	220	240	205	240	290 A	I A 265	290 A	I A 300	280	310	300	295
2	290	290	300	280	250	260	250	I A 350	240	I A 240	250 A	240 A	I A 245	I A 240	I A 230	250	I A 260	I A 260	265	300	A	A	A	325
3	300	340	315	330	285	260	I A 260	I A 260	A	A	A	A	210	210	240	250	240	250	I A 260	255	250	240	290	300
4	310	295	250	210	200	260	240	230	205	240	260	210	240	I A 210	210	280	220	240	250	290	265	265	340	330
5	310	310	285	260	305	260	240	220	A	A	240 A	A	A	A	230	200	230	I A 220	I A 265	E A 300	250 A	230	260	300
6	250	240	260	230	240	230	230	I A 240	220	220	200	I A 230	190	I A 250	250	250 A	210	220	240	210	220	275	300	275
7	260	250	255	290	275	240	220	200 H	240	250	I A 260	240 A	200	I A 240	I A 280	240	I A 235	240	240	230	300	300	300	290
8	I A 260	285	230	260	260	245	240	210	I A 240	260	200	230	250 A	250	I A 280	I A 285	I A 265	I A 250	I A 255	250	250	290	280	280
9	350 A	330	315	270	220	240	260 A	A	A	235	A	A	I A 225	I A 240	I A 250	I A 270	A	A	A	260	260	310	350 A	250
10	290	290	290	270	295	260	250	I A 240	I A 240	I A 230	A	A	A	A	290	250	270	I A 250	I A 275	I A 275	250	280	300	250
11	260	300	280	260	265	250	240	I A 250	210	A	A	A	I A 225	A	A	260	210	240	245	280	250	250	250	340
12	300	290	250	250	290	280	260	A	A	A	A	250	I A 230	I A 250	A	A	240	220	240	275	250	220	280	310
13	250	I A 290	320	260	255	250	260 A	220	A	A	A	A	A	A	A	220	225	230	270	260	255	250	280 A	290
14	295	350 A	305	290	275	255	245	230	I A 235	A	A	R	A	A	A	A	240	240	250	255	250	250	300	300
15	280	305	300	250	290	260	A	A	A	A	A	A	A	240	230	250 A	220	240	260	270	255	250	270	290
16	315	310	295	280	250	240	210	210	200	240 A	220	210	220	200	A	240	I A 230	200	I A 240	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	I C 235	I A 250	I A 240	210	260 A	270	250	I A 250	240	250	245	270	350	310
18	315	295	260	255	260	240	240	I A 270	230	A	A	A	A	A	A	A	A	A	I A 250	250	260	290	310	300
19	330	305	305	340	300	240	230	A	A	A	A	I A 220	205	200	170 H	230	245	220	250 A	210	240	300	360 A	350 A
20	350 A	290	275	260	240	245	240	225	205	205	200	205	A	A	I A 230	E A 280	I A 220	I A 210	260 A	240	E A 300	260	300	320 A
21	300	340 A	E A 320	A	255	245	225	200	I A 220	I A 220	I A 240	A	A	A	205	220 H	240	A	A	250	255	270	290	290
22	300	300	270	260	290	250	250	210	220	200	200	A	A	210	240 A	240	240	240	A	255	240	260	240	270
23	260	260	300	300	290	250	230	A	A	A	A	A	A	A	A	220	240	245 A	250 A	255	250	300 A	300	305
24	340	290	290	250	305	A	A	250	A	220	A	A	A	A	A	A	245	A	A	I A 250	260	I A 250	300 A	300
25	340	340	305	260	250	250	200	240	250	A	A	A	A	220 A	220	240	A	A	270	260	250	260	335	310
26	310	290	300	265	330	385	310	A	A 240	260	A	A	A	A	250	235	245	I A 255	250 A	280 A	260	260	310 A	310
27	280	245	300	280	270	250	I A 220	A	A	A	A	A	A	190	205	220	230	225	240	255	230	250	280	290
28	345	290	245	250	300	250 A	220	210	240 A	A	210	220	I A 240	220	I A 200	235 A	I A 240	240	250	250	260	260	290	300
29	300	295	300 A	310	290	240	A	A	A	A	A	A	A	250	240	I A 250	A	A	A	240	260	305	300	295
30	350	300	250	310	310	260	245	I A 240	A	A	A	A	A	A	A	A	A	A	A	270	295	290	285	E A 330
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	28	29	28	26	21	17	14	13	12	14	18	21	25	25	23	24	29	28	28	28	29
MED	300	295	292	262	275	250	240	230	235	238	220	230	225	230	230	240	240	240	250	255	251	262	300	300
UQ	315	305	300	285	290	260	250	I A 240	240	240	240 A	240 A	I A 240	I A 240	250 A	250 A	245	250 A	262	272	260	290	305	310
LQ	280	290	260	258	255	242	230	210	220	220	200	215	210	210	210	235	230	222	242	250	250	250	280	290

JUN. 1971 | H'F (KM)

IONOSPHERIC DATA

JUN. 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

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	105	100	100	100	100	145	130	110	110	110	105	110	110	G	G	140	140	120	110	110	100	100	100	100
2	100	100	100	100	100	105	140	120	140	130	140	140	120	110	120	110	120	110	115	110	110	105	105	105
3	100	100	100	100	100	105	110	110	110	120	110	110	110	105	G	G	G	140	115	110	100	100	100	100
4	100	100	100	100	100	G	G	120	G	130	110	110	110	110	110	110	100	100	100	100	100	100	100	100
5	100	100	100	100	100	100	140	140	115	110	110	110	110	105	110	105	100	100	100	100	100	100	100	110
6	100	100	100	100	100	100	145	130	130	125	125	110	120	110	105	100	100	G	130	100	100	100	100	100
7	100	105	105	100	105	105	105	135	130	110	110	110	110	110	110	140	130	120	G	100	100	100	100	100
8	100	100	100	100	B	G	G	G	115	110	110	130	120	130	115	120	110	110	110	100	100	100	100	100
9	100	100	100	100	100	140	140	110	110	110	100	105	100	100	100	100	105	100	100	100	100	100	105	100
10	110	B	115	100	100	105	120	110	110	110	110	105	105	110	G	140	130	120	105	100	100	100	100	100
11	100	100	100	100	100	100	120	120	110	120	110	110	120	110	110	130	G	G	115	110	100	100	100	100
12	100	100	100	100	100	140	140	110	110	110	110	110	110	110	110	110	110	105	100	100	110	100	100	110
13	105	105	105	120	B	145	120	125	120	110	110	110	110	105	105	105	105	130	120	110	110	105	105	105
14	110	105	105	120	120	110	105	105	105	105	100	G	140	130	120	110	120	110	110	110	110	S	100	100
15	100	100	100	100	100	120	110	110	110	110	110	110	110	110	G	130	110	115	110	105	100	100	100	100
16	100	100	100	100	100	140	G	105	105	105	110	G	G	130	110	110	110	110	110	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C	120	130	120	115	110	110	110	110	110	100	100	105	105
18	100	100	100	100	100	140	G	110	110	110	105	110	105	110	110	120	120	115	130	110	110	110	105	100
19	100	100	100	100	100	115	110	110	110	110	110	110	110	130	110	110	105	100	100	100	100	100	110	115
20	110	105	105	105	110	110	110	105	110	110	160	155	130	130	130	125	120	110	110	105	100	125	100	105
21	100	105	105	105	105	105	145	125	115	115	110	110	110	105	100	105	100	100	100	100	100	100	100	100
22	100	100	100	100	100	100	100	100	105	110	120	110	105	125	115	G	140	115	110	105	105	105	100	100
23	100	100	100	100	100	100	100	110	110	105	105	110	110	110	110	130	G	120	110	110	105	105	100	105
24	100	100	100	100	100	105	105	110	105	110	110	105	105	110	100	120	145	110	110	100	100	100	100	100
25	100	100	100	100	100	G	G	145	130	120	110	110	110	110	110	110	105	100	100	100	100	100	100	100
26	100	100	100	100	115	110	110	110	105	110	110	110	110	105	105	120	130	125	110	110	110	110	110	110
27	105	110	105	105	110	115	110	110	110	105	105	105	105	110	G	130	140	130	125	110	110	110	110	110
28	105	100	100	100	100	105	140	130	120	110	110	110	110	110	120	130	110	130	110	100	100	100	100	100
29	100	100	100	100	100	120	110	110	110	110	110	105	105	100	110	110	110	110	105	105	100	100	100	100
30	100	100	100	100	100	100	145	140	130	130	110	110	110	105	105	105	105	100	100	100	100	100	100	100
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	29	29	27	26	24	28	28	29	29	28	29	29	25	28	27	28	29	29	29	28	29	29
MED	100	100	100	100	100	108	115	110	110	110	110	110	110	110	110	110	110	110	110	105	100	100	100	100
UQ	100	100	100	100	100	120	140	125	118	115	110	110	110	110	115	130	125	120	110	110	105	105	105	105
LQ	100	100	100	100	100	105	110	110	110	110	110	110	110	105	105	110	105	102	100	100	100	100	100	100

JUN. 1971 | H'ES (KM)

IONOSPHERIC DATA

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

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

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	F2	F4	F2	F4	H1	H1	C2	C2	C2	C2	C1	C1			H1	H1	H2	C4	F3	F6	F3	F3	F5
2	F3	F1	F3	F3	F1	L2	H1	H2	H1	H2	H1	H1	H2	C2	H1	C2	H2	C2	C2	F4	F6	F7	F5	F6
3	F5	F6	F5	F5	F4	C3	C3	C3	C2	H2	C2	C2	C1	C1										
4	F2	F1	F1	F1	F1			H1		H1	C1	C1	C1	C2	C1	C2	L2	L2	L3	F5	F3	F3	F5	F4
5	F3	F3	F3	F4	F4	L2	HL 11	H1	C2	C3	C2	C2	C4	C2	C1	L1	L1	L3	L3	F4	F4	F2	F2	FF 24
6	F3	F2	F3	F3	F1	L1	H2	H2	H1	H2	C1	C2	C1	C2	C2	L2	L2		H1	F3	F2	F1	F3	F2
7	F2	F3	F2	F5	F4	L3	L2	H1	H1	C2	C2	C1	C1	C1	C2	H1	H2	H1		F1	F4	F3	F2	F2
8	F4	F4	F2	F2					C2	C2	C1	H1	H1	H1	C2	H2	C2	C3	C2	F2	F2	F4	F3	F2
9	F6	F5	F4	F4	F1	H1	H3	C2	C3	C1	C2	C2	C1	C2	C1	C3	C3	L3	L4	F3	F3	F3	F5	F3
10	F2		F1	F1	F1	L1	H2	C3	C2	C2	C2	C2	C2	C2		H1	HL 11	H3	L3	F3	F2	F2	F3	F3
11	F3	F3	F3	F2	F2	L3	H1	H2	C2	H1	C2	C2	H1	C1	C2	H1			CL 12	F4	F2	F3	F3	F4
12	F4	F4	F2	F4	F2	H1	H2	C2	C2	C2	C3	C1	C2	C2	C2	C2	C2	L2	L2	F2	F4	F4	F7	F3
13	F2	F7	F5	FF 21		HL 22	H3	H2	C2	C2	C2	C2	C2	C3	C3	C1	L2	H2	C3	F5	F6	F6	F7	F6
14	F4	F5	F6	F4	F4	C4	C4	C3	C3	C3	C2		H1	H2	H2	C2	H2	C1	C2	F5	F1		F5	F2
15	F4	F4	F4	F4	F2	H3	C3	C2	C2	C2	C2	C3	C2	C2		H1	C1	C1	C2	F4	F4	F2	F3	F4
16	F5	F4	F2	F3	F4	HL 11		L2	L1	C2	C1			H1	C2	C2	C2	C1	C2					
17												H1	H1	H1	C2	C2	C1	C3	L2	F2	F1	F4	F3	F3
18	F3	F2	F2	F3	F3	HL 11		C3	C1	C2	C2	C2	C1	C2	C2	HL 22	F3	C2	H3	C2	F3	F4	F4	F4
19	F3	F4	F3	F3	F2	CL 11	C2	C3	C3	C3	C2	C2	C1	H1	C1	C2	L2	L2	L4	F3	F3	F4	F4	F6
20	F4	F4	F4	F3	F3	L5	C2	C3	C2	C2	H1	H1	H1	H2	H1	H2	H2	C4	C4	F5	F3	FF 23	F4	F4
21	F4	F6	F6	F4	F4	L2	H1	H2	C2	C2	C2	C2	C1	C2	L1	L2	L2	L3	L5	F3	F4	F2	F1	F2
22	F2	F3	F5	F4	F7	L3	L3	L2	C2	C1	H1	C3	C2	H1	H1		H1	C3	C2	F4	F5	F5	F1	F3
23	F1	F2	F4	F3	F2	L1	L2	C3	C2	C2	C2	C2	C2	C2	C2	H1		H2	C3	F5	F5	F4	F4	F5
24	F3	F3	F3	F2	F6	L3	C3	C2	C2	C1	C2	C2	C2	C2	L2	HL 11	H1	C2	C3	F4	F3	F4	F3	F3
25	F2	F4	F3	F1	F1			HL 11	H1	H2	C2	C3	C2	C1	C1	C1	C3	L3	L3	F3	F4	F2	F5	F4
26	F2	F3	F3	F1	F2	C3	C3	C2	C2	C2	C2	C2	C2	C2	C2	C1	H2	H3	C5	F4	F5	F4	F4	F4
27	F3	F2	F4	F2	F2	C3	C3	C2	C3	C3	C3	C2	C2	C1		H1	H1	H2	H2	F6	F6	F3	F4	F4
28	F6	F4	F3	F3	F4	L4	LH 21	H2	C2	C2	C1	C1	C2	C1	H2	H1	C2	H1	C2	F3	F3	F3	F3	F2
29	F4	F2	F3	F3	F3	HL 11	C3	C2	C2	C2	C2	C2	C2	L1	C1	C2	C3	C3	C3	F6	F2	F5	F3	F2
30	F4	F3	F3	F3	F3	L2	H1	H1	H2	H2	C2	C2	C2	C2	C3	C3	C3	L3	L3	F3	F4	F3	F3	F4
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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JUN. 1971 | TYPES OF ES

IONOSPHERIC DATA

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

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	390	380	J R 380	350	350	305	300	300	290	I A 360	380	380	350	380	390	390	380	330	350	I A 350	360	400	380	F 390
2	390	J R 370	390	350	R 330	380	340	A	370	A	G	380	R	G	A	I A 410	350	I A 370	340	340	A	A	A	405
3	R	400	380	410	390	350	320	I A 320	J R 330	A	A	350	400	405	350	360	350	350	380	340	315	I R 350	400	400
4	400	390	330	275	350	300	G	380	330	380	390	G	G	400	350	355	360	340	310	390	380	380	I R 390	J R 390
5	370	R 400	350	F 370	380	380	290	290	320	A	410	380	I A 385	380	355	315	310	305	310	310	305	330	355	U F 390
6	F 310	F 320	F 320	305	300	295	290	260	300	300	325	G	380	405	370	350	330	300	290	260	360	S 375	380	R 355
7	340	I R 320	380	355	340	280	270	285	290	350	380	370	370	340	380	350	350	340	310	290	400	J R 400	J R 400	I R 380
8	I A 380	J R 350	330	350	390	310	300	290	300	360	390	400	365	330	370	380	370	370	350	340	350	350	370	380
9	J R 400	J R 390	F	F 350	305	370	370	330	I A 350	300	A	A	450	400	J R 350	350	350	380	380	360	I R 330	R	F	F
10	R	F	380	410	400	300	360	360	370	350	340	I A 390	I A 400	R 400	370	370	370	350	J R 350	I A 370	I R 360	400	I R 370	F
11	380	390	360	350	370	350	360	340	R 290	290	A	A	410	360	380	390	390	360	390	380	350	350	I A 380	R 400
12	F	F	390	R 350	390	390	380	320	290	A	A	G	G	G	380	370	350	320	350	320	310	310	370	380
13	J R 350	350	360	320	330	300	340	315	280	300	290	370	I A 370	I A 370	320	315	300	290	330	330	I S 325	J R 300	320	360
14	S 360	395	F 395	F 355	F	300	280	V 290	A	380	I A 385	380	370	I A 370	350	I A 350	340	350	340	J R 350	370	400	400	390
15	360	J R 380	I R 350	360	380	400	400	I A 400	330	A	A	A	A	A	370	330	350	360	370	380	I R 390	R 370	390	J R 380
16	R 380	R 380	F	R 360	R 350	280	280	350	320	310	350	380	G	390	I A 350	350	370	350	350	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	I C 350	350	360	350	350	355	J R 360	320	R 360	J R 350	J R 340	R 390	R 400	R 380
18	J R 400	I R 390	J R 360	320	R 350	R 320	390	340	350	290	A	A	400	390	I A 350	I R 350	330	350	330	340	390	380	I R 380	380
19	400	F	F	F	F	330	290	I A 330	I A 330	I A 330	G	360	350	370	355	350	350	300	280	260	360	370	390	F
20	F 355	F 355	F	U F 300	300	300	290	280	255	G	G	G	G	370	350	350	345	330	290	280	I R 340	J R 340	360	F
21	370	370	360	A	360	300	320	320	265	300	I A 350	A	355	360	350	360	400	380	330	300	390	370	390	385
22	390	390	R 380	340	350	290	300	310	330	G	G	A	A	390	385	390	380	350	I A 370	330	J R 370	I R 350	350	R 370
23	F	F	F	F	F	F	330	320	350	A	A	A	I A 390	A	A	380	350	400	390	R 310	300	F	F	F
24	J R 380	360	350	390	J R 390	I A 360	360	G	405	380	A	A	A	A	A	400	380	350	350	I S 350	R 350	A	380	R
25	F	R	F	F	F	290	275	370	300	280	330	A	450	450	400	390	J R 370	360	350	J R 350	I R 350	I R 390	R 410	J R 390
26	R 400	I R 400	R 410	F	F	F	F	F	G	450	445	I A 410	350	315	375	350	310	305	305	330	310	375	380	385
27	360	340	360	355	330	305	A	355	A	A	A	G	G	360	330	325	335	325	310	315	300	330	310	F
28	F	F	F	F 350	F 355	290	265	290	320	350	G	G	I A 390	400	I A 390	400	400	380	340	350	J R 370	J R 360	370	400
29	F	J R 390	390	F	F	340	350	350	300	400	370	I A 390	400	400	380	390	365	350	400	300	R 300	400	J R 390	400
30	F	F	290	I R 350	390	330	290	J R 250	265	A	A	A	I A 400	380	A	A	I A 350	340	I A 340	350	380	390	J R 390	F
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	22	22	23	23	27	26	26	26	19	15	14	21	25	26	29	30	30	30	29	28	25	26	21
MED	380	380	360	350	350	305	310	320	320	350	370	380	385	380	362	355	350	350	345	340	350	370	380	385
UQ	390	390	380	358	385	350	360	350	330	370	388	390	400	400	380	390	370	360	360	350	370	390	390	390
LQ	360	355	350	345	335	300	290	290	290	300	345	370	365	360	350	350	345	325	310	310	320	350	370	380

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JUN. 1971 | HPF2 (KM)

IONOSPHERIC DATA

JUN. 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	110	J R 100	110	100	95	80	90	100	I A 95	110	110	110	110	100	100	100	110	100	I A 100	100	90	100	F 100
2	100	J R 110	100	110	R 110	110	110	A	110	A	G	110	R	G	A	I A 95	110	I A 105	120	110	A	A	A	85
3	R	90	100	90	100	90	80	I A 100	J R 90	A	A	110	100	95	110	90	110	100	110	120	95	I R 100	100	90
4	100	100	110	105	100	110	G	100	120	110	100	G	G	120	110	95	100	100	110	100	100	110	I R 90	J R 100
5	110	R 100	110	F 120	110	100	100	100	110	A	100	100	I A 110	80	105	90	100	80	100	90	95	100	105	U F 110
6	F 90	F 120	F 80	95	70	100	60	55	85	70	75	G	120	120	80	95	90	75	70	65	115	S 85	80	I R 90
7	80	I R 90	90	90	60	80	55	70	65	90	110	120	120	120	100	90	100	100	110	90	90	J R 100	J R 90	I R 100
8	I A 100	J R 110	80	110	90	100	90	110	100	110	100	90	95	110	110	100	110	120	110	120	110	110	120	100
9	J R 100	J R 100	F	F 110	95	90	110	110	I A 100	100	A	A	100	100	J R 100	100	110	80	80	100	I R 100	R	F	F
10	R	F	100	80	90	100	110	100	90	100	100	I A 100	I A 100	R 100	110	90	90	110	J R 110	I A 110	I R 100	100	I R 110	F
11	R 110		100	110	110	110	100	100	R 90	110	A	A	110	120	110	100	100	120	100	100	110	110	I A 100	R 90
12	F	F	90	R 110	100	90	90	110	100	A	A	G	G	G	120	140	100	100	100	90	90	90	90	110
13	J R 95	95	100	90	80	85	80	100	70	60	70	75	I A 75	I A 75	80	85	45	65	95	85	I S 100	J R 85	95	95
14	S 85	80	F 105	F 100	F	90	70	V 95	A	110	I A 90	110	110	I A 100	110	I A 100	110	110	120	J R 110	110	90	90	100
15	130	R 110	R 110	130	110	90	90	I A 90	110	A	A	A	A	A	110	130	110	120	120	110	I R 95	R 120	100	J R 100
16	R 110	R 110	F	R 100	R 110	100	100	110	130	100	90	100	G	100	I A 110	100	110	110	100	C	C	C	C	C
17	C	C	C	C	C	C	C	C	C	C	C 100	110	120	100	120	105	J R 100	R 120	R 120	J R 110	J R 120	R 90	R 100	R 110
18	J R 100	I R 100	J R 100	120	R 110	R 120	110	120	110	110	A	A	100	100	I A 110	I R 110	120	110	100	100	100	110	I R 100	100
19	100	F	F	F	F	110	100	I A 110	I A 120	I A 110	G	85	90	100	100	70	90	95	60	85	110	105	100	F
20	F 90	F 100	F	U F 100	90	100	70	65	65	G	G	G	G	80	95	95	65	70	95	70	I R 90	J R 60	90	F
21	75	80	85	A	60	85	75	80	90	100	I A 110	A	85	120	110	130	100	110	130	100	100	110	90	105
22	100	100	R 100	120	100	110	100	90	110	G	G	A	A	110	95	100	100	110	I A 90	110	J R 90	I R 100	100	R 90
23	F	F	F	F	F	F	110	80	100	A	A	A	I A 90	A	A	110	110	90	100	R 100	90	F	F	F
24	J R 110	100	110	100	J R 90	I A 100	110	G	95	100	A	A	A	A	A	100	110	110	110	I S 90	R 100	A	100	R
25	F	R	F	F	F	90	105	90	100	110	130	A	100	100	90	90	J R 110	100	100	J R 90	I R 100	I R 100	R 90	J R 100
26	R 100	I R 100	R 90	F	F	F	F	F	G	100	105	I A 120	100	90	75	70	85	95	95	90	95	105	90	100
27	100	80	135	100	80	95	A	65	A	A	A	G	G	90	75	75	85	75	90	95	60	90	80	F
28	F	F	F	F 60	F 95	65	90	70	55	90	G	G	I A 100	100	I A 100	90	90	110	100	90	J R 90	J R 100	110	90
29	F	J R 100	100	F	F	100	110	100	100	100	90	I A 100	100	80	110	100	95	110	100	100	R 100	100	J R 110	100
30	F	F	90	J R 100	100	110	90	J R 90	85	A	A	A	I A 100	100	A	A	I A 90	100	I A 100	90	100	100	J R 100	F
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	21	22	23	23	27	26	26	26	19	15	14	21	25	26	29	30	30	30	29	28	25	26	21
MED	100	100	100	100	100	100	95	98	100	100	100	105	100	100	108	100	100	102	100	100	100	100	100	100
UQ	100	R 110	105	110	105	105	110	100	110	110	108	110	110	110	110	100	110	110	110	110	100	105	100	100
LQ	90	95	90	98	90	90	80	80	90	98	90	100	100	95	95	90	90	95	95	90	92	90	90	90

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JUN. 1971 | YPF2 (KM)

IONOSPHERIC DATA

JUN. 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	I S 68	64 F	U F 58	I S 57	F 55	F 54	68	70	63	I C 64	69	72	81	80	84	91	100	105	108 S	J S 88	S 87	S 81	I S 80	J S 81
2	U S 84	S 82	S	S	S	F 61	S 62	S 71	S 61	64	61	56	57	66	71	I A 81	92	87	S 93	S 81	67	S 72	U S 74	S 69
3	J S 75	J S 70	S 70	S 67	67	S 68	60	U S 62	71	S 76	72	79	I A 84	I A 100	I A 109	105	101	96	S 91	I S 96	U S 86	U S 70	J S 76	J S 77
4	S 72	S 70	76	U S 73	34	36	46	U S 65	72	U R 60	61	65	66	79	85	103	102	U S 94	90	82	J S 77	J S 73	I S 69	67
5	U S 74	74	I S 76	78	65	U S 62	83	72	67	61	63	71	82	96	105	116	119	113	S 118	S 122	S 98	I S 102	U S 117	S
6	S	S	J S 95	S 82	66	64	68	74	71	70	65	68	72	86	102	114	128	134	116	90	S 76	J S 71	S 77	J S 73
7	72	S 71	S 73	I S 72	68	65	65	78	73	66	69	75	92	94	94	105	106	U S 110	U S 101	S 79	I S 75	J S 78	S 76	I S 73
8	I S 70	S 69	J S 65	59	J S 55	J S 54	J S 65	68	I A 64	71	S 82	90	94	94	87	S 93	J S 99	U S 100	I S 100	I S 98	S 81	68	S	S
9	S	J S 78	S 72	F 62	F 62	F	67	J S 87	81	71	A	A	75	92	I A 100	105	94	87	98	S 93	82	S 72	S	S
10	F	F 88	F	69	F	F	S 68	75	I A 94	S 96	I A 76	78	87	97	S 103	102	95	90	S 88	U S 94	S 91	S 74	S 70	S
11	F	S	F	F	F	S 64	S 70	S 92	77	69	64	63	67	78	84	94	S 102	94	83	J S 86	S 93	I S 87	73	67
12	J S 66	S 69	F 69	S	S	F	S 78	S 91	63	I A 60	55	60	67	76	87	86	80	82	89	97	S 94	S 73	72	68
13	68	67	J S 64	I S 61	61	59	S 72	81	85	75	64	62	69	82	89	I A 86	82	72	75	83	87	70	67	68
14	68	S 64	S 62	F	61	65	69	66	62	59	63	61	67	77	82	80	89	80	77	79	J S 72	I S 76	J S 74	I S 75
15	I S 78	F	S	58	J S 53	S 58	81	I S 87	S 87	61	51	53	59	62	68	73	78	75	S 77	J S 77	80	U S 79	I S 69	S 63
16	J S 65	S 61	U S 63	I S 63	S 61	61	51	58	71	68	59	58	62	77	83	89	S 100	U S 98	U S 93	U S 89	J S 85	S 72	S 69	S 59
17	S	S	F	S	F	F 57	S 58	S 73	F 74	81	F 74	70	69	68	76	79	S 86	S 91	U S 86	90	U S 83	S 58	U S 57	F 60
18	J S 66	J S 66	F	F 61	S 49	F 41	S 51	65	78	61	61	R 57	69	I A 80	91	U S 95	U S 95	84	79	S 72	U S 64	S 58	I S 61	J S 63
19	F	F	F	F	J S 48	F	57	63	70	58	62	68	69	75	81	92	U S 114	108	78	58	51	56	59	58
20	S 60	I S 58	F	F	F 55	52	63	72	60	56	57	R 53	60	75	86	99	100	S 100	I S 98	88	77	69	69	S 71
21	S 72	F	F	S	F	I A 64	I S 58	63	66	62	63	I A 67	69	79	83	84	100	S 121	I S 116	I S 94	70	S 72	S 74	F 67
22	S 64	56	S 48	F	F	S	55	65	73	65	51	57	64	70	77	I R 85	91	U S 97	U S 105	U S 102	S 79	A	S	S
23	S	F	S 59	F	F	F	U S 63	U S 60	66	62	59	A	A	A	79	90	S 93	89	U S 88	U S 104	U S 93	J S 56	57	S
24	S	A	F	F 60	F	F 45	S 48	S 49	56	51	54	53	50	54	R 56	62	64	74	81	S 83	U S 60	A	A	48
25	S 47	I S 46	J S 53	Z 55	S 62	U S 45	43	55	71	71	58	58	63	73	86	96	103	109	I S 108	S	S 90	S 87	S	S
26	S	S	S	S	S	S	F	S 58	A	A	I A 64	F 63	F	F 75	F 70	F 86	80	72	67	U S 73	68	S 58	J S 63	J S 63
27	J S 64	J S 64	63	57	J S 60	S 54	55	57	52	50	I A 55	I A 60	I A 61	66	68	I A 76	82	76	84	86	83	64	60	62
28	S 60	S 59	F	F	64	60	57	62	59	66	64	69	76	I A 77	79	85	102	110	S 104	87	78	S 73	I S 72	S 72
29	F	S	F	F	F 65	S 58	57	64	71	69	68	I A 72	78	R 89	S 103	R 105	S 100	90	U S 95	90	S 80	J S 75	S 82	U S 85
30	F	S 81	S 77	F	S	U S 52	I S 64	59	56	S 58	63	74	81	I A 84	A	S 98	I A 102	U S 93	90	U S 87	I A 78	I S 76	81	I S 81
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	20	17	16	19	23	29	30	29	29	29	28	28	29	29	30	30	30	30	29	30	28	25	23
MED	S 68	S 68	S 65	S 62	61	58	63	66	71	64	63	64	69	78	84	92	100	94	S 90	S 87	S 80	S 72	S 72	S 68
UQ	S 72	S 72	S 73	S 70	64	63	68	74	73	70	65	72	80	86	91	102	102	S 103	S 101	94	S 87	S 78	S 78	S 73
LQ	S 64	S 62	S 62	S 58	S 55	53	57	62	63	60	59	58	64	75	79	85	89	84	83	S 82	S 75	S 68	S 67	63

JUN. 1971 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	400L	450L	C	510	510H	510H	490	500H	480	I A 460	A	A					
2								L	L	460	I A 500	500R	480	I A 490	A	I A 480	470L	A	L					
3							L	L	L	L	530L	A	A	A	A	A	470	460L	L					
4								L	450	A	490	A	510	500	490	480	460H	430L	U L 380					
5							L	L	L	500L	540	I A 500	I A 490	A	A	A	A	A	A					
6								L	L	A	A	530	I A 530	I A 520	A	470	460	420	360					
7							L	L	440	600H	L	490	510H	510	520	480	470L	440	A					
8							L	L	I A 470	U L 490	500	A	A	A	510	I A 500	460R	450	U L 400	A				
9							L	A	A	A	A	A	A	A	A	A	500H	450	L 390					
10								440	A	470	A	A	A	A	A	480H	470	L	A	L				
11							L	420L	L	460	480H	A	500H	A	470H	460	440H	430H	L	L				
12							L	400L	A	A	L	470H	A	A	A	A	A	440	390					
13								430L	440L	460L	480L	490	490H	A	A	I A 470	450	460	L	L				
14							L	L	430	L	480	490	480	I A 480	I A 470	A	450	430	L					
15								L	430	450H	460H	460H	460H	470	470H	450	440	430	450L	A				
16							L	430H	440H	460	L	480	480	A	470	A	A	A	A					
17							L	A	L	A	A	A	480	A	470	I A 460	450	U L 450	L	A				
18							L	U L 420	A	A	490	490	470	A	A	A	450	430L	L					
19								A	L	470H	L	490	500H	470H	480H	A	440	A	A					
20							L	370	510	490H	470	500H	470H	A	A	460H	460H	A	A					
21							A	L	A	A	A	A	A	A	I A 470	480H	A	A	A					
22								390L	420	L	460	I A 480	I A 480	480	480	I A 470	A	A	L	A				
23							L	L	450	470L	A	A	A	A	A	A	460L	430	390H	L				
24							L	A	A	440	450	I A 470	460	470	460	450	430	420	L					
25								430L	450L	450H	510H	510H	480	A	A	I A 460	A	430	A					
26							L	490L	A	A	A	A	A	490	A	A	A	A	A					
27								400	440	460	A	A	A	490K	A	A	470	460H	400	L				
28								A	A	500L	A	I A 510	A	A	500	A	A	450H	L	L				
29								L	460	A	A	A	A	500	I A 490	500R	470	460L	420L	A				
30								L	L	U L 500	A	A	A	A	A	A	A	A	A	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								12	14	17	15	17	18	13	15	17	21	19	9					
MED								420L	445	470	490	490	480	490	480	470	460	440	390L					
UQ								430L	450	490L	505	500	500H	500	495	480	470	450	400L					
LQ								400L	440	460	475	480	480	480	470	460	450	430	390					

JUN. 1971 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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							A	250	A	C	A	A	A	A	A	340	I A 320	295	235	S				
2							200	H 265	305	330	350	365	380	370	355	340	315	290	220	S				
3							185	270	300	I A 330	350	360	350	A	A	A	A	A	240	S				
4							A	270	310	335	360	370	370	I A 370	A	A	320	290	230	A				
5							185	280	310	335	355	375	A	A	A	A	A	A	A	S				
6							220	270	320	340	365	370	I A 365	I A 360	350	A	A	300	A	S				
7							210	270	310	325	340	I A 355	380	A	A	360	330	290	225	S				
8							190	270	A	A	A	K 370	R 370	360	R 360	335	310	H 290	210	S				
9							210	270	305	340	340	A	A	A	A	A	A	A	A	S				
10							190	260	310	345	350	350	355	A	A	A	A	A	A	A				
11							190	255	300	320	I A 330	340	370	370	360	I A 350	320	290	H 230	S				
12							190	270	310	340	350	360	370	360	350	A	A	A	A	A				
13							200	250	310	330	350	360	380	370	A	A	A	A	250	A				
14							180	260	300	A	A	A	370	A	A	A	A	290	230	S				
15							180	260	300	330	340	350	365	360	350	330	310	280	A	S				
16							190	250	300	320	A	A	A	355	360	335	310	270	200	S				
17							A	260	I A 300	330	340	340	I A 360	360	340	335	310	280	H 230	B				
18							A	260	300	A	A	365	370	A	A	A	A	I A 290	250	S				
19							A	265	300	320	340	350	365	350	A	A	A	A	A	A				
20							A	280	I A 300	325	350	360	370	375	365	345	I A 315	285	235	B				
21							A	260	300	325	345	A	A	A	A	A	A	A	A	A				
22							A	E 260	A	A	A	350	I A 360	365	350	I A 345	320	290	235	145				
23							A	250	290	I A 315	I A 340	A	A	A	A	A	A	A	A	B				
24							A	260	300	A	A	A	A	A	A	350	320	290	230	S				
25							200	285	305	335	360	360	365	A	A	A	350	A	A	B				
26							200	270	310	330	I A 350	360	370	365	340	A	A	A	A	A				
27							190	265	305	340	350	360	I A 360	A	A	A	A	A	250	B				
28							A	A	A	345	370	390	390	I A 385	I A 375	360	325	300	260	I A 160				
29							180	270	310	340	A	A	A	A	A	I A 355	330	295	260	B				
30							230	280	310	340	360	380	385	370	360	345	320	A	A	B				
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	29	26	24	22	22	22	16	13	14	16	17	18	2				
MED							190	265	305	330	350	360	370	365	355	345	320	290	232	152				
UQ							200	270	310	340	355	370	370	370	360	350	322	290	250					
LQ							188	260	300	325	340	350	365	360	350	335	312	290	230					

JUN. 1971 | FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 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	JX 98	JX 42	JX 34	JX 44	JX 36	JX 34	JX 31	31	JX 40	C	JX 53	40	42	37	JX 53	37	60	JX 54	JX 74	JX 61	JX 46	JX 36	JX 34	23
2	JX 41	JX 33	JX 22	JX 37	19	ES 15	28	31	39	45	54	40	45	72	50	JX 133	JX 61	JX 96	JX 99	JX 70	JX 86	JX 52	JX 51	JX 61
3	JX 64	JX 41	32	JX 28	JX 25	JX 19	30	JX 34	34	48	JX 52	JX 64	JX 94	D	146	JX 60	37	JX 52	32	JX 28	27	JX 24	M 35	JX 71
4	JX 33	JX 50	JX 31	18	JX 19	JX 25	JX 24	JX 28	40	JX 66	JX 53	JX 59	JX 57	41	M 77	36	33	G	JX 30	JX 29	JX 24	22	JX 32	JX 44
5	JX 35	JX 53	JX 34	M 26	21	17	27	JX 40	JX 47	JX 64	JX 76	JX 65	JX 60	JX 67	JX 68	JX 74	JX 53	JX 79	JX 48	JX 36	JX 30	22	22	21
6	21	JX 22	18	JX 25	JX 24	ES 16	29	31	42	57	JX 62	JX 55	JX 84	JX 75	JX 55	JX 47	JX 43	57	37	JX 36	JX 23	JX 52	JX 37	ES 14
7	JX 19	JX 27	JX 31	JX 35	JX 31	JX 28	24	34	40	JX 50	JX 49	JX 46	42	JX 47	60	44	45	39	JX 42	JX 29	JX 54	JX 38	JX 51	25
8	24	JX 71	JX 27	JX 22	JX 34	JX 30	JX 22	36	JX 105	59	42	53	60	JX 64	52	JX 66	JX 53	JX 49	32	JX 43	JX 58	JX 52	JX 84	JX 30
9	JX 40	JX 24	JX 18	JX 20	JX 16	JX 20	28	JX 50	69	66	111	D	173	JX 68	134	100	JX 46	JX 65	JX 71	JX 33	JX 42	JX 36	89	74
10	JX 83	JX 39	JX 26	JX 44	JX 22	JX 36	JX 43	JX 84	JX 120	JX 89	JX 118	JX 124	JX 101	JX 68	JX 98	40	41	JX 43	JX 46	JX 32	JX 41	JX 84	JX 25	JX 58
11	JX 52	JX 37	JX 42	JX 21	JX 20	ES 12	27	47	JX 41	JX 84	JX 88	JX 62	JX 67	74	40	40	G 28	G 26	32	JX 33	JX 36	JX 32	JX 29	JX 26
12	JX 21	JX 36	JX 84	JX 54	JX 33	23	26	40	JX 64	JX 97	JX 61	50	JX 77	JX 67	JX 63	JX 59	JX 98	JX 54	JX 53	JX 27	16	21	21	JX 18
13	JX 21	JX 20	19	JX 28	JX 32	ES 15	38	35	JX 52	JX 49	JX 85	46	58	JX 62	JX 83	JX 100	JX 84	JX 35	JX 53	JX 29	JX 27	JX 29	JX 24	23
14	JX 28	JX 34	JX 24	JX 24	JX 34	22	22	G	G	42	JX 53	JX 50	57	53	52	JX 57	JX 51	JX 54	49	JX 33	23	17	JX 26	JX 33
15	JX 34	JX 51	JX 64	JX 60	JX 25	21	JX 64	JX 41	34	39	41	40	45	45	37	39	42	39	28	JX 30	JX 25	JX 26	JX 29	JX 29
16	JX 19	JX 29	JX 26	JX 19	19	ES 13	G	G 24	G	34	35	JX 41	39	JX 55	G	JX 81	JX 82	JX 51	JX 57	JX 33	JX 22	JX 29	JX 64	JX 78
17	JX 74	JX 51	JX 51	JX 52	JX 51	JX 42	JX 37	JX 52	JX 41	JX 83	JX 84	JX 103	39	JX 59	JX 74	JX 136	JX 53	JX 51	JX 43	JX 26	JX 41	JX 27	JX 23	JX 24
18	JX 29	JX 27	JX 41	39	JX 51	33	JX 26	JX 42	JX 52	59	JX 55	JX 55	JX 52	170	158	M 112	JX 105	JX 52	28	JX 36	JX 75	JX 61	JX 42	JX 27
19	JX 35	JX 28	JX 26	JX 20	JX 27	21	27	JX 52	JX 50	53	JX 50	JX 49	40	44	44	JX 57	JX 50	JX 89	JX 49	JX 32	JX 28	25	JX 34	JX 30
20	JX 35	22	JX 39	JX 42	JX 39	ES 15	25	JX 32	34	37	50	42	G	47	55	48	49	JX 50	65	44	JX 43	JX 27	JX 41	JX 31
21	25	JX 37	JX 34	JX 64	JX 71	115	95	40	JX 72	71	JX 79	96	JX 105	JX 71	JX 85	50	JX 99	107	JX 76	140	106	JX 37	JX 29	JX 44
22	JX 38	22	22	70	JX 34	JX 36	JX 44	JX 74	JX 52	JX 50	40	55	49	JX 60	JX 66	JX 84	JX 54	JX 73	JX 42	JX 64	JX 103	JX 86	JX 53	JX 64
23	JX 82	JX 25	22	JX 21	JX 32	JX 31	21	JX 36	36	JX 37	JX 56	JX 163	JX 135	JX 85	JX 83	JX 77	JX 39	JX 41	JX 25	JX 25	JX 25	JX 52	JX 57	JX 51
24	JX 51	JX 63	JX 64	JX 33	JX 33	JX 26	JX 25	JX 71	JX 65	JX 88	JX 72	JX 71	44	JX 63	JX 73	G 33	43	38	JX 40	JX 35	JX 63	JX 83	JX 65	JX 50
25	JX 35	JX 32	JX 28	JX 30	JX 42	ES 15	JX 40	34	39	42	JX 60	JX 70	49	JX 64	JX 63	JX 50	JX 64	JX 55	JX 51	JX 36	22	JX 32	JX 25	JX 33
26	JX 63	JX 42	JX 34	JX 19	17	ES 15	24	43	91	JX 88	JX 108	JX 70	JX 65	41	JX 87	JX 72	JX 67	JX 64	JX 51	JX 51	JX 63	JX 30	JX 36	JX 79
27	JX 33	JX 62	24	JX 60	22	24	25	32	38	37	JX 71	JX 64	JX 100	JX 58	78	JX 88	JX 53	32	JX 38	JX 24	JX 27	24	JX 29	JX 29
28	JX 33	JX 34	JX 50	JX 37	JX 62	JX 74	JX 52	JX 53	JX 71	45	JX 64	JX 84	JX 97	139	JX 82	JX 127	JX 88	71	28	JX 40	JX 37	JX 36	75	JX 58
29	JX 52	60	JX 29	JX 25	JX 29	ES 15	G 18	32	JX 40	JX 62	JX 77	JX 170	JX 98	JX 51	JX 67	JX 49	39	JX 43	JX 51	JX 40	JX 39	JX 24	JX 28	JX 29
30	JX 16	JX 19	JX 27	JX 17	18	21	JX 25	32	38	JX 50	JX 61	JX 57	JX 66	JX 85	JX 144	JX 110	JX 111	90	71	JX 46	JX 85	JX 51	JX 52	JX 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	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	JX 35	JX 35	JX 30	JX 29	JX 30	22	27	36	41	53	JX 60	JX 58	59	JX 64	JX 68	JX 60	JX 53	JX 52	JX 47	JX 34	JX 38	JX 32	JX 34	JX 32
UQ	JX 52	JX 50	JX 39	JX 44	JX 34	JX 31	37	JX 47	JX 64	JX 66	JX 77	JX 71	JX 94	JX 72	JX 83	JX 88	JX 67	JX 65	JX 53	JX 43	JX 58	JX 52	JX 52	JX 58
LQ	JX 25	JX 27	JX 24	JX 21	JX 21	ES 15	24	32	38	45	JX 52	49	45	JX 51	53	47	43	JX 41	JX 32	JX 29	JX 25	JX 25	JX 28	JX 26

The Radio Research Laboratories, Japan

JUN. 1971 | FOES (0.1 MHZ)

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	21	23	22	24	E	22	G	38	C	39	39	42	E$_{37}^{R}$	38	G	48	47	54	54	46	29	35	E
2	35	27	19	30	13	E$_{15}^{S}$	28	G	38	39	53	40	44	65	49	A	35	64	26	61	22	28	27	45
3	45	35	28	E$_{28}^{S}$	18	19	G	22	G	43	41	60	A	A	A	60	36	32	30	25	22	19	35	52
4	23	22	23	E	E	15	22	25	38	55	44	52	50	38	45	E$_{36}^{R}$	31	G	22	22	17	20	28	29
5	25	33	29	22	21	E$_{17}^{R}$	22	G	42	40	53	53	59	67	50	67	51	78	45	26	28	E	E	16
6	21	21	E	21	20	E$_{16}^{S}$	27	G	40	50	51	47	60	72	49	42	34	27	33	34	16	43	E$_{37}^{S}$	E$_{14}^{S}$
7	E	E	23	27	21	20	G	G	36	39	45	41	40	46	42	G	40	38	39	27	54	38	33	22
8	E	41	18	19	21	22	G	G	A	43	40	52	58	52	48	64	40	35	G	42	57	29	29	20
9	27	E	E	E	E	19	25	42	58	55	A	A	62	52	A	70	35	39	33	31	32	36	28	28
10	32	E	16	23	16	28	33	34	A	40	A	62	71	64	54	40	39	40	42	22	34	21	20	19
11	19	23	33	15	13	E$_{12}^{S}$	23	37	40	41	38	58	42	53	G	40	G$_{28}$	G$_{25}$	28	21	25	17	25	19
12	19	26	31	44	29	E	25	33	53	A	48	40	60	55	50	49	64	38	31	25	14	E	E	E
13	E	E	E	22	23	E$_{15}^{S}$	32	G	39	45	43	41	44	54	56	A	37	33	17	18	15	E	E	20
14	18	E	E	21	19	E	G	G	G	38	39	40	G	49	49	49	39	36	33	21	E	E	15	29
15	29	22	52	29	19	E	44	34	G	36	37	38	39	41	G	G	40	36	27	28	E	E	25	E$_{29}^{S}$
16	E	20	23	E	E	E$_{13}^{S}$	G	G$_{23}$	G	34	35	38	38	52	G	67	75	50	E$_{57}^{S}$	23	E	E	22	53
17	52	29	24	30	16	22	22	38	32	54	62	54	38	57	G	54	G	35	36	22	29	16	22	22
18	18	21	31	31	41	24	24	36	43	48	46	45	41	A	55	52	40	34	G	31	60	54	30	22
19	28	22	20	16	22	17	25	50	39	43	40	45	G	40	41	53	39	45	35	24	19	E	23	16
20	28	E	16	E	20	E$_{15}^{S}$	22	23	32	36	39	40	G	46	47	40	40	43	55	33	21	25	40	30
21	E	E	21	E	21	A	52	38	51	48	49	A	58	51	50	42	54	50	58	A	53	31	20	20
22	21	E	E	20	19	20	31	37	32	45	38	55	48	47	43	62	52	46	34	53	44	A	51	52
23	E	18	E	17	22	24	21	33	32	37	53	A	A	A	54	53	38	38	24	22	22	34	49	29
24	20	A	30	21	22	22	22	45	45	39	42	48	40	42	38	G$_{32}$	39	36	37	34	54	A	A	27
25	E	20	E	21	13	E$_{15}^{S}$	35	G	33	36	G	42	38	52	55	48	30	39	46	30	E	20	22	E
26	53	30	22	19	E	E$_{15}^{S}$	G	34	A	A	A	50	60	40	53	65	48	54	50	37	53	22	28	46
27	30	28	14	20	E	16	G	30	35	G	A	A	A	46	52	A	34	30	G	19	20	E	E	E
28	16	21	29	21	30	35	52	41	49	41	50	54	59	A	39	61	50	39	G	24	30	25	55	36
29	34	42	27	E$_{25}^{S}$	21	E$_{15}^{S}$	G$_{17}$	G	36	60	58	A	60	44	51	44	G	33	36	E$_{40}^{S}$	24	18	19	21
30	E	15	E	E	E	E	G	30	34	41	61	56	63	A	A	59	A	52	64	42	A	44	52	22
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	21	22	20	20	16	22	30	38	41	46	51	49	52	49	52	39	38	34	27	24	22	27	22
UQ	29	28	28	24	22	22	28	37	45	48	53	58	60	65	54	64	48	47	44	36	46	34	35	29
LQ	E	E	E	16	13	E$_{15}^{S}$	G	G	32	39	39	41	40	46	41	40	35	34	26	22	17	E	20	19

JUN. 1971 | FBES (0.1 MHZ)

IONOSPHERIC DATA

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

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

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

JUN. 1971 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 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	I S 280	270 F	U F 265	I S 275	280 F	285 F	330	330	320	I C 300	290	280	280	265	270	275	300	295	310 S	U S 290	280 S	270 S	I 275 S	U 255 S
2	U S 275	280 S	S	S	S	345 F	295 S	340 S	310 S	305	295	260	305	A	270	I A 265	295	280	305 S	300 S	255	265 S	U 265 S	250 S
3	U S 270	U S 265	280 S	285 S	290	310 S	335	U S 305	310	325 S	295	275	I A 250	I A 265	I A 290	295	295	295	295 S	I 300 S	U 320 S	U 260 S	U 265 S	U 265 S
4	270 S	275 S	315	U S 355	285	290	290	U S 310	330	U R 290	300	285	275	295	275	290	295	U 295 S	310	295	U 285 S	U 280 S	I 270 S	270
5	U S 265	275	I S 285	295	275	U S 275	330	345	335	325	250	275	265	270	275	285	295	290	305 S	300 S	295 S	I 280 S	U 275 S	S
6	S	S	U S 260	305 S	285	295	330	335	335	300	325	265	265	245	265	280	305	320	330	300	280 S	U 260 S	255 S	U 275 S
7	270	275 S	275 S	I S 275	285	300	330	310	300	310	295	270	285	285	280	290	300	U S 315	U S 330	305 S	I 280 S	U 270 S	270 S	I 280 S
8	I S 285	290 S	U S 300	315	U S 280	U S 310	U S 340	315	I A 320	280	285 S	290	290	285	265	270 S	U S 280	U S 290	I S 290	I S 300	310 S	280	S	S
9	S	U S 310	295 S	280 F	260 F	F	300	U S 325	340	325	A	A	260	265	I A 280	285	280	280	265	300 S	295	275 S	S	S
10	F	285 F	F	265	F	F	295 S	295	I A 300	330 S	I A 285	270	265	275	275 S	285	285	275	290 S	U 285 S	330 S	290 S	280 S	S
11	F	S	F	F	F	290 S	285 S	325 S	325	335	315	275	270	270	270	275	295 S	300	265	U 280 S	295 S	I 305 S	300	275
12	U S 280	275 S	275 F	S	S	F	305 S	340 S	350	I A 320	325	290	270	280	285	290	280	280	280	295	320 S	275 S	275	270
13	280	285	U S 295	I S 290	295	285	295 S	310	330	335	300	290	275	280	315	I A 300	305	285	280	290	310	285	275	270
14	280	265 S	260 S	F	295	305	335	325	305	300	330	295	290	310	305	295	305	315	295	305	U 295 S	I 280 S	U 270 S	I 275 S
15	I S 285	F	S	295	U S 265	270 S	305	I S 325	350 S	320	345	255	275	275	280	280	295	295	275 S	U 265 S	275	U 275 S	I 270 S	280 S
16	U S 270	265 S	U S 255	I S 275	295 S	320	325	315	325	340	305	295	265	300	280	270	300 S	U S 290	U S 300	U C 295	U S 305	295 S	290 S	290 S
17	S	S	F	S	F	290 F	275 S	285 S	295 F	310	310 F	320	315	290	300	305	295 S	300 S	U S 315	315	U 340 S	285 S	U 260 S	270 F
18	U S 280	U S 290	F	335 F	290 S	285 F	315 S	325	345	335	310	235 R	280	I A 280	295	U 305 S	U 310 S	315	310	325 S	U 295 S	A	I 280 S	U 270 S
19	F	F	F	F	U S 280	F	355	335	340	325	275	295	275	280	275	270	U 315 S	335	345	325	280	270	275	275
20	270	I S 265	F	F	275 F	305	350	355	275	305	350	240 R	255	280	275	285	290	295 S	I S 310	305	290	275	270	275 S
21	270 S	F	F	S	F	I A 280	I S 295	325	315	340	295	I A 295	275	285	280	260	275	300 S	I S 320	I A 295	280	290 S	270 S	285 F
22	280 S	280	275 S	F	F	S	335	355	350	325	355	A	285	280	275	I R 300	280	U S 290	U S 285	U S 295	290 S	A	S	S
23	S	F	285 S	F	F	F	U S 340	U S 350	335	325	290	A	A	A	275	280	280 S	285	U S 275	U S 310	U 345 S	U 270 S	295	S
24	S	A	F	325 F	F	315 F	305 S	280 S	315	290	285	285	240	265	270 R	285	290	285	310	335 S	U 330 S	A	A	270
25	285 S	I S 280	U S 255	Z 290	295 S	U S 315	345	310	320	330	285	250	255	255	260	260	265	280	I 280 S	S	300 S	270 S	S	S
26	S	S	S	S	S	S	F	295 S	A	A	I A 265	F 265	F	F 295	F 275	F 310	315	325	285	U S 315	290	275 S	U 265 S	U 275 S
27	U S 265	U S 295	285	290	U S 310	340 S	325	325	300	245	I A 265	I A 275	I A 280	280	270	I A 290	295	280	290	290	315	285	260	265
28	270 S	290 S	F	F	330	320	350	320	325	320	280	290	290	I A 270	270	270	265	290	305 S	300	295	265 S	I 270 S	275 S
29	F	S	F	F	F 285	S 320	320	315	305	290	270	I A 270	255	265 R	280 S	320 R	300 S	285	U 295 S	295	305 S	U 260 S	255 S	U 280 S
30	F	295 S	325 S	F	S	U S 280	I S 350	355	355	280 S	285	285	300	I A 290	A	295 S	I A 300	U S 295	300	U S 295	I A 300	I 270 S	265	I 270 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	19	20	17	16	19	23	29	30	29	29	29	27	28	28	29	30	30	30	30	29	30	27	25	23
MED	275 S	280 S	280 S	290	285	300	325	325	325	320	295	275	275	280	275	285	295	292	298 S	300 S	295 S	275 S	270 S	275 S
UQ	280 S	290 S	295 S	310	295	315	335	335	335	325	310	290	285	285	280	295	300	300	310 S	305 S	310 S	282	275 S	275 S
LQ	270 S	272 S	265 S	278	280	285	300 S	310	310	300	285	268	265	268	270	275	280	285	285 S	295	285 S	270 S	265 S	270

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

IONOSPHERIC DATA

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

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

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	365	385	C	380	335	315	405	380	380	350	A	A					
2								L	L	370	A	365	375	A	A	A	340	A	L					
3							L	L	L	L	335	A	A	A	A	A	350	335	L					
4								L	355	A	365	A	A	390	375	385	360	350	350					
5							L	L	L	355	A	375	375	A	A	A	A	A	A					
6								L	L	A	A	360	A	370	A	360	370	370	A					
7							L	L	385	355	L	410	385	A	345	370	345	360	A					
8							L	L	370	355	360	A	A	A	320	340	350	350	340	A				
9							L	A	A	A	A	A	A	A	A	A	340	355	360					
10								340	A	370	A	A	A	A	A	345	330	L	A	L				
11							L	355	L	385	395	A	390	A	400	370	365	370	L	L				
12							L	A	A	A	L	415	A	A	A	A	A	330	335					
13								350	365	A	385	375	385	A	A	A	355	325	L	L				
14							L	L	375	L	370	380	410	A	A	A	365	360	L					
15								L	370	390	395	435	395	385	375	380	A	335	300	A				
16							L	350	375	370	L	415	400	A	415	A	A	A	A					
17							L	A	L	A	A	A	395	A	390	375	355	340	L	A				
18							L	355	A	A	A	A	405	A	A	A	370	355	L					
19								A	L	380	L	A	370	395	375	A	365	A	A					
20							L	405	365	365	365	380	425	A	A	370	A	A	A					
21							A	L	A	A	A	A	A	A	385	375	A	A	A					
22								A	380	L	415	A	A	A	375	A	A	A	L	A				
23							L	L	360	380	A	A	A	A	A	A	350	350	345	L				
24							L	A	A	380	385	390	390	A	380	390	355	360	L					
25								350	355	365	350	370	395	A	A	A	A	A	A					
26							L	285	A	A	A	A	A	365	A	A	A	A	A					
27								355	380	390	A	A	A	A	A	A	340	335	345	L				
28								A	A	340	A	360	A	A	375	A	A	330	L	L				
29								L	380	A	A	A	A	380	375	350	360	340	A	A				
30								L	L	360	A	A	A	A	A	A	A	A	A	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								10	14	16	12	14	15	7	14	13	19	18	7					
MED								352	372	370	375	378	390	385	375	370	355	350	345					
UQ								355	380	380	390	410	398	392	385	380	362	360	348					
LQ								350	365	358	362	365	380	375	375	360	348	335	338					

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

IONOSPHERIC DATA

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

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							250	250	255	I C 330	355	370	345	350	350	345	305	300	275					
2								260	300	330	360	425	350	A	395	I A 375	310	E A 330	280					
3							240	240	290	275	340	350	A	A	I A 330	300	300	300	300					
4								315	275	E A 370	355	375	400	355	365	325	300	285	315					
5							250	235	270	295	465	375	365	350	340	320	295	300	265					
6								250	250	300	300	390	400	E A 445	355	325	295	260	240					
7							230	250	260	350	310	385	340	320	340	320	290	280	250					
8							250	230	A	345	305	310	325	320	360	350	320	300	280	260				
9							300	250	255	295	A	A	400	350	I A 345	300	275	310	295					
10								300	A	250	A	E A 370	E A 390	350	335	300	305	330	290	280				
11							280	255	250	270	310	A	390	360	350	340	295	290	295	280				
12							250	240	250	A	410	340	400	345	320	300	E A 340	320	300					
13								270	250	265	300	350	385	340	295	I A 300	290	335	295	270				
14							240	260	270	305	290	380	370	305	310	310	290	275	300					
15								250	245	295	300	495	410	395	370	345	300	320	305	290				
16							250	305	295	280	320	390	435	340	345	E A 380	E A 320	305	260					
17							400	290	315	300	310	305	300	370	330	320	305	300	280	260				
18							280	290	255	280	350	500	375	I A 345	310	300	290	280	255					
19								280	260	300	420	325	385	345	355	345	290	245	240					
20							230	230	380	345	280	580	460	370	345	325	290	290	260					
21							250	265	280	250	350	A	E A 400	340	325	400	345	290	250					
22								235	245	300	275	A	385	375	355	350	325	300	280	260				
23							240	235	275	310	E A 380	A	A	A	350	350	320	315	305	250				
24							285	A	340	400	400	410	570	460	460	375	355	325	275					
25								320	300	270	470	480	450	425	375	365	335	300	285					
26							250	290	A	A	A	410	350	330	370	310	300	275	325					
27								290	360	500	A	A	A	385	400	I A 355	325	340	290	265				
28								250	290	310	395	375	345	I A 370	365	375	335	295	260	245				
29								250	305	E A 350	400	A	410	385	340	320	300	300	290	255				
30								230	245	380	I A 400	350	315	A	A	320	I A 320	290	300	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							17	29	27	28	26	23	27	26	29	30	30	30	30	12				
MED							250	250	270	300	348	375	385	350	350	325	301	300	282	260				
UQ							280	290	298	338	400	410	400	372	365	350	320	312	300	275				
LQ							240	240	252	280	305	350	350	340	335	310	295	290	260	252				

JUN. 1971 | H'F2 (KM)

IONOSPHERIC DATA

JUN. 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

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	290	275	300	285	275	250	225	205	215H	C	190	190H	195H	190	180H	200	A	A	A	E A 285	290	295	E A 310	315
2	E A 315	280	280	290	245	210	275	240	250	240	A	210	240	A	A	A	235	A	240	E A 285	280	315	330	E A 390
3	E A 350	330	300	I A 270	260	235	220	230	235	E A 270	225	A	A	A	A	A	230	235	255	250	225	250	340	E A 350
4	320	305	250	205	250	280	235	210H	E A 250	A	E A 250	A	I A 210	200	E A 250	220	205H	205H	220	240	250	275	325	330
5	320	315	265	250	275	300	250	215	E A 260	220	A	I A 220	A	A	A	A	A	A	A	245	230	250	255	260
6	270	250	245	240	240	250	235	215	I A 220	A	A	E A 240	A	I A 210	I A 215	E A 265	235	205	I A 230	225	225	345	I A 305	290
7	295	275	275	275	255	250	225	225	205	240H	A	200	185H	E A 270	225	220	E A 270	E A 250	A	220	E A 320	300	310	295
8	285	300	245	250	275	250	225	220	A	E A 230	210	A	A	A	A	A	E A 250	235	220	I A 245	E A 265	290	325	290
9	295	245	245	225	265	295	230	A	A	A	A	A	A	A	A	A	190H	E A 250	E A 250	255	245	255	265	305
10	E A 310	255	265	280	275	250	270	E A 250	A	250	A	A	A	A	A	250H	250	E A 280	A	270	240	250	280	285
11	340	280	265	250	240	250	250	E A 250	240	220	195H	I A 220	220H	I A 205	190H	240	185H	200H	225	225	250	230	250	275
12	275	E A 300	E A 290	E A 300	E A 300	285	240	A	A	A	A	195H	A	A	A	A	A	A	220	E A 255	225	205	255	295
13	270	255	250	270	250	275	250	215	E A 240	I A 210	220	210	220H	A	A	A	210	215	230	250	240	210	275	300
14	295	310	300	295	250	245	235	225	210	200	E A 225	215	200	A	A	A	E A 240	E A 240	250	250	250	270	295	310
15	300	285	270	250	300	300	275	E A 250	220	200H	200H	200H	195H	220	200H	215	A	E A 250	225H	I A 270	255	225	275	I A 275
16	300	305	305	275	250	225	215	200H	200H	210	190H	190	190	I A 195	190	A	A	A	A	255	235	245	270	A
17	A	330	300	300	285	275	240	I A 225	200	A	A	A	200	A	195	I A 205	250	E A 245	A	A	225	250	320	330
18	290	285	265	230	I A 275	290	225	E A 250	A	A	A	A	200	A	A	A	E A 250	210	225	240	E A 350	A	320	310
19	335	270	240	245	290	270	240	A	E A 250	A	200H	I A 190	230H	200H	E A 240	A	E A 250	A	A	225	255	295	300	280
20	300	295	280	255	255	250	230	200	200	180H	225	200H	185H	I A 225	I A 225	245H	A	A	A	245	240	255	330	300
21	290	265	275	255	250	I A 250	I A 235	A	A	A	A	A	A	A	I A 225	E A 250	A	A	A	A	E A 300	270	290	290
22	290	275	285	250	250	225	225	I A 220	200	I A 200	210	A	A	A	E A 250	A	A	A	A	A	245	A	E A 280	I A 255
23	300	270	280	280	280	255	220	210	200	200	A	A	A	A	A	A	240	E A 260	220H	245	205	E A 300	I A 290	345
24	300	A	255	255	260	250	245	A	A	E A 235	E A 250	A	200	I A 205	220	210	E A 250	E A 250	A	240	E A 300	A	A	325
25	320	300	300	290	255	225	E A 250	205H	225	225H	200H	200H	200H	A	A	A	A	A	A	255	240	295	320	300
26	300	275	300	295	300	300	235	A	A	A	A	A	A	200	A	A	A	A	A	270	E A 300	280	330	E A 350
27	335	300	270	280	250	230	240	225	215	200	A	A	A	A	A	A	225	215H	225	245	225	220	305	300
28	295	260	300	275	230	250	I A 230	I A 225	I A 205	E A 250	A	A	A	A	205	A	A	A	225H	240	250	290	E A 345	310
29	300	300	305	295	255	240	230	225	200	I A 205	I A 220	A	A	215	I A 230	E A 260	230	210	A	A	245	300	325	305
30	300	250	220	200	310	295	205	215	215	220	A	A	A	A	A	A	A	A	A	A	I A 250	335	E A 350	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	29	29	30	30	30	30	30	24	22	20	15	14	15	12	15	12	18	17	15	25	30	27	29	29
MED	298	280	274	266	256	250	235	218	210	211	205	200	200H	204	210	221	U 223	U 218	225	245	244	270	300	298
UQ	308	300	300	282	275	280	242	226	230	229	220	212	215	215A	225A	245	E A 250	E A 250	232	252	258	295	322	312
LQ	290	270	255	250	250	245	225	212	200	200	200H	195H	195H	200	198	212	225	210	222	240	235	250	280	290

JUN. 1971 | H'F (KM)

IONOSPHERIC DATA

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

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

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	100	100	100	100	100	100	100	110	100	C	100	140	135	100	100	155	125	120	110	105	105	105	105	105
2	100	100	105	100	100	S	130	135	135	135	125	150	145	120	125	110	130	110	110	105	105	105	105	100
3	100	100	100	100	100	100	105	100	150	125	120	115	105	105	100	130	125	100	120	115	110	110	150	130
4	105	100	100	105	100	100	105	105	125	115	115	110	110	120	110	100	100	G	100	100	100	100	150	100
5	100	100	100	100	90	95	125	95	110	105	105	105	105	100	100	100	100	95	95	95	95	100	100	95
6	95	95	95	95	100	S	140	140	125	110	105	110	105	105	105	105	100	95	125	95	100	100	135	S
7	95	105	105	100	100	100	150	130	120	105	105	105	110	105	100	150	120	115	110	105	105	100	100	100
8	115	100	100	105	100	100	100	125	105	105	105	135	120	120	125	120	120	115	125	110	105	105	105	105
9	100	100	100	95	95	100	120	110	105	105	105	100	100	100	100	100	100	100	115	100	105	100	105	105
10	105	100	100	100	105	120	120	110	110	105	100	105	100	100	100	100	140	100	100	100	110	110	100	120
11	100	100	95	95	100	S	145	120	110	105	105	105	120	110	115	150	100	100	135	100	100	100	100	95
12	95	100	105	100	95	95	140	125	115	110	110	120	105	105	105	100	100	100	100	100	100	100	100	95
13	95	95	95	105	105	S	115	120	110	105	105	110	105	105	100	100	100	100	100	100	100	100	100	115
14	115	115	115	110	105	105	150	G	G	105	105	105	125	140	130	125	120	115	110	110	120	100	105	100
15	105	105	100	100	100	110	115	120	125	125	115	130	125	125	145	120	110	110	105	100	100	100	100	95
16	95	95	95	95	95	S	G	105	G	140	105	100	110	110	G	105	105	105	105	110	100	120	110	105
17	105	105	105	100	105	100	105	110	105	105	110	105	145	125	115	115	110	110	105	105	105	105	100	95
18	105	105	100	100	100	100	105	105	105	105	105	125	125	100	120	120	120	120	140	100	100	100	120	95
19	95	95	95	95	100	100	125	110	105	105	105	105	120	105	105	100	100	100	100	100	100	100	100	115
20	110	105	100	105	100	S	140	100	150	150	140	145	G	140	125	125	120	115	110	105	100	95	95	105
21	125	105	100	100	100	100	100	125	125	120	110	105	100	100	100	100	100	105	110	105	105	145	140	100
22	105	100	100	105	100	100	100	120	105	100	140	150	155	120	145	125	120	115	110	115	100	110	105	100
23	100	100	95	95	105	100	105	105	105	110	105	100	100	100	100	100	100	100	100	100	100	115	110	110
24	105	105	105	105	105	115	110	105	105	105	100	100	130	120	115	100	125	115	110	105	100	100	100	100
25	100	100	100	100	100	S	130	140	135	130	120	110	110	105	100	100	100	100	100	100	100	95	95	110
26	100	100	100	95	100	S	135	120	110	105	105	105	105	105	105	100	100	100	100	100	100	95	110	110
27	105	105	105	105	100	100	100	140	125	125	105	105	100	105	110	100	100	100	100	100	95	95	120	105
28	105	100	100	100	100	100	100	100	120	125	115	110	105	105	125	115	110	110	125	105	100	100	95	95
29	100	100	95	95	95	S	105	150	105	100	100	100	100	105	100	105	110	115	115	105	105	100	115	100
30	100	95	95	95	100	140	145	140	135	120	115	115	110	105	105	105	105	100	100	100	100	100	100	120
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	21	29	29	28	29	30	30	29	30	29	30	30	29	30	30	30	30	30	29
MED	100	100	100	100	100	100	115	120	110	105	105	108	110	105	105	105	108	105	110	100	100	100	105	100
UQ	105	105	100	105	100	100	135	125	125	125	115	120	125	120	120	120	120	115	115	105	105	105	110	110
LQ	100	100	95	95	100	100	105	105	105	105	105	105	105	105	100	100	100	100	100	100	100	100	100	100

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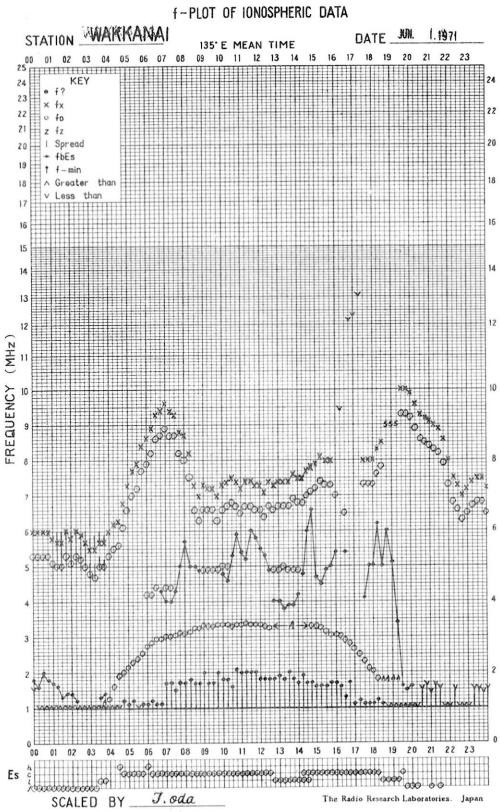
IONOSPHERIC DATA

JUN. 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	F2	F3	F5	F4	F4	F3	L2	C3	L3		L2	HL11	HL11	L2	L2	HL12	HL22	C3	C5	L7	F7	F3	F7	F2
2	F4	F7	F4	F4	F1		H2	H2	HL22	H1	H3	H1	H1	C2	C1	C3	H1	C5	C2	C7	F3	F4	F4	F4
3	F5	F5	F3	F2	F1	F1	C2	LH11	HL22	HL31	C2	C3	C3	C3	L2	HL12	HL12	L3	C3	CL21	FF12	FF21	F2	FF24
4	F3	F3	F4	F1	F1	F1	LH11	L2	H2	C2	C2	C2	C1	CL11	CL21	L2	L1		LH21	L2	F2	F1	FF33	F2
5	F2	F3	F3	F1	F1	F1	H1	LC12	C2	C2	C2	C3	C2	L3	L4	L6	L4	L6	L5	L3	F3	F2	F1	F2
6	F2	F2	F2	F1	F2		H4	H3	H3	C2	C2	C3	C2	C3	C2	C3	L2	LH43	HL54	L6	F3	FF33	FF62	
7	F2	FF21	F3	F2	F3	F6	HL23	H3	C3	C3	C2	C2	C1	C2	L2	H1	C2	C2	CL51	C6	F7	F4	F6	F5
8	FF11	F6	F2	F3	F2	F3	L1	H1	C5	L3	L2	H2	H2	H2	H2	H3	H2	H3	H3	C3	F5	F3	F4	F3
9	F5	F1	F1	F1	F1	F1	C3	C5	C5	C3	C4	L4	L3	L2	L7	L5	L3	L3	CLH24	L4	FF45	F4	FF14	FF13
10	FF23	F3	F2	F3	FF41	F2	C5	C4	C4	C3	C4	C2	C4	C2	C4	L2	HL23	L4	L5	L3	FF35	FF21	F2	FF12
11	F3	F2	F5	F1	F1		H1	H5	C3	C4	C2	C3	C2	C2	C1	HC11	L1	L2	HL22	L1	F4	F2	F4	F3
12	F3	F4	FF25	F7	F8	F2	HL21	HL41	C4	C6	C2	C1	C2	C2	C2	L3	L5	L4	L5	L3	F1	F1	F2	F2
13	F2	F2	F2	F6	F8		C7	C1	C4	C3	C4	C2	C2	C2	L3	L6	L2	L3	LH31	L3	F2	F3	F2	FF12
14	F5	F5	F2	F7	F2	F2	H2			C3	C2	C2	H1	HL21	HL21	HL21	CL21	CL32	C5	L2	F1	F1	F3	F4
15	FF33	F7	F6	F3	F2	FF11	C6	C4	H1	H2	C1	HC11	H1	H1	H1	C2	C2	C3	C5	L5	F2	F2	F8	F6
16	F3	F3	F5	F2	F1			L1		H1	L1	L1	C1	C2		C2	C5	CL31	C6	LL31	F1	F1	FF41	F3
17	F3	F3	F2	F3	F6	F3	L5	C4	L2	C3	C4	C2	HL11	H2	C2	C2	C2	C3	C5	L2	F4	F2	F2	F3
18	F2	F4	F8	F6	F4	F3	L3	C4	C4	C3	C2	H1	H1	L2	CL12	CL14	CL23	CL24	HL12	L5	F5	F7	FF24	FF31
19	F5	FF41	F4	F2	F2	F1	HL22	C2	C3	C4	C2	C2	C1	C2	C1	L3	L3	L6	L4	L7	F4	F2	F6	FF22
20	FF21	F1	F2	F2	F4		HL32	L2	HL12	HL11	HL11	H1		H2	H2	HL21	CL11	CL22	CL52	L4	FF31	F3	F6	FF24
21	FF11	F1	F8	F5	F4	F4	L5	H4	H4	H4	C3	C3	L4	L2	L2	L3	L5	LL22	LL52	LL32	FF41	FFF32	FF32	FF42
22	FF22	F1	F1	FF12	F1	F3	L6	CL43	L3	LC22	HL11	HL11	HL11	CH11	HC12	HL31	HL21	CL23	C3	C6	F3	F7	F6	F4
23	F2	F2	F1	F1	FF31	F3	L2	C3	C2	C1	C2	L3	L3	L4	L3	L2	L4	L4	L2	L3	F2	FF22	FF33	F6
24	F5	F7	F3	F7	F2	F3	C3	C4	C3	L2	L2	L2	HL11	C2	C2	L1	HL21	C2	CL51	C6	F6	F4	F3	F2
25	F4	F2	F2	F2	F3		H1	H1	H1	H1	C1	C2	C1	C2	L2	L2	L5	L6	L5	L5	F1	F2	F5	FF23
26	F7	F6	F4	F2	F1		H1	C5	C6	C3	C3	C2	C2	C1	C3	L3	L3	L4	L6	L5	F4	F4	FF23	FF51
27	F7	F4	F2	F4	F1	F1	LH11	H2	H2	HC11	C3	C2	L3	C2	L12	L5	L2	L3	HL25	L1	F2	F2	FF21	F2
28	F2	F3	F4	F5	F4	F3	L7	L5	CL42	H2	C2	C2	C3	C3	HL11	C3	C3	C3	HL12	CL51	F7	F5	F7	F5
29	FF43	FF32	F4	F4	F1		L1	HC32	C4	C2	L2	L2	L2	L1	L1	L2	C2	C2	C4	L4	F4	F2	FF21	F3
30	F1	F2	F2	F1	F1	F1	H1	H2	H2	C2	C2	C2	C2	C3	C4	C4	C3	L5	L5	L5	F4	F3	F6	FF23
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																								

JUN. 1971 | TYPES OF ES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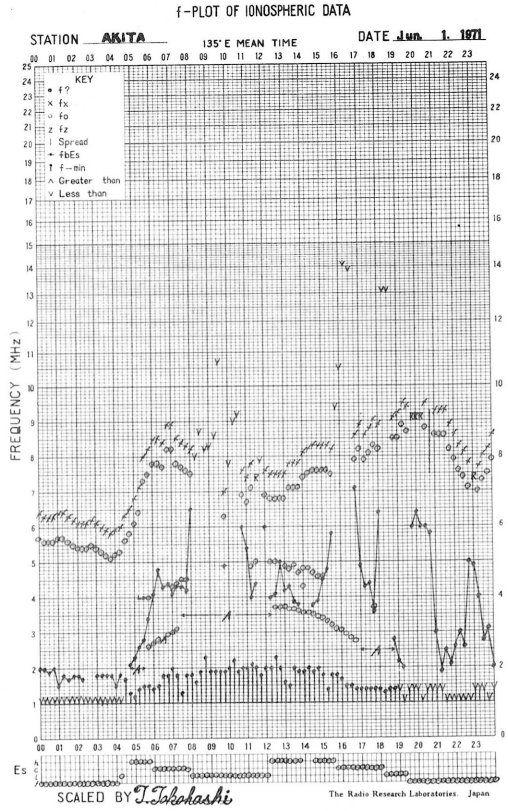
SCALED BY T. oda
The Radio Research Laboratories. Japan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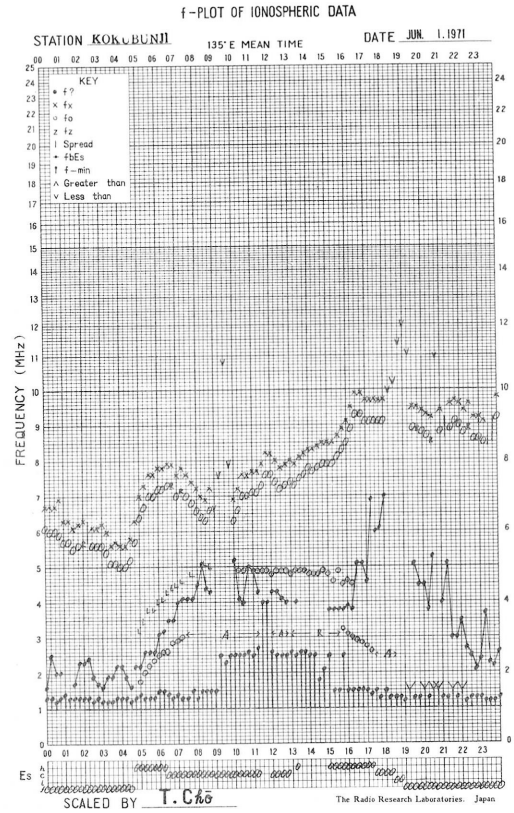
The Radio Research Laboratories. Japan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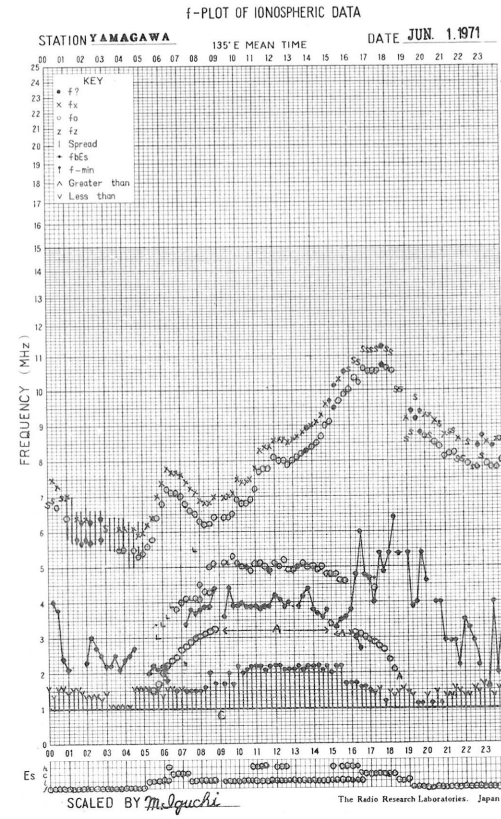
The Radio Research Laboratories. Japan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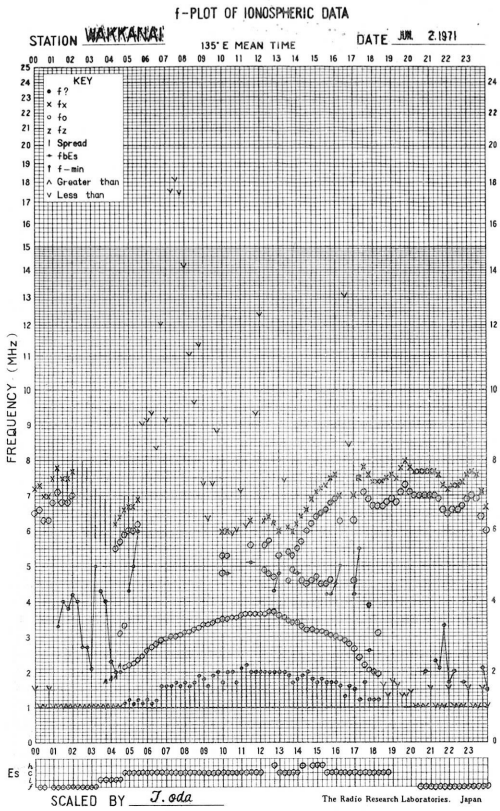
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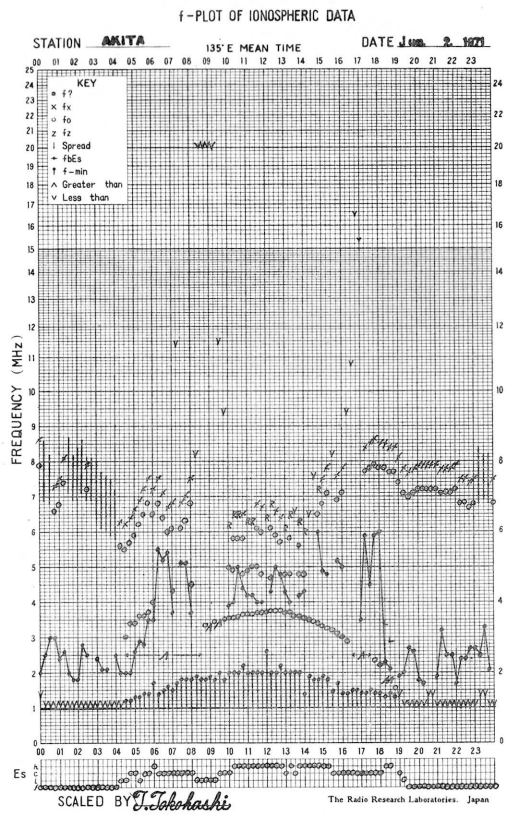
The Radio Research Laboratories. Japan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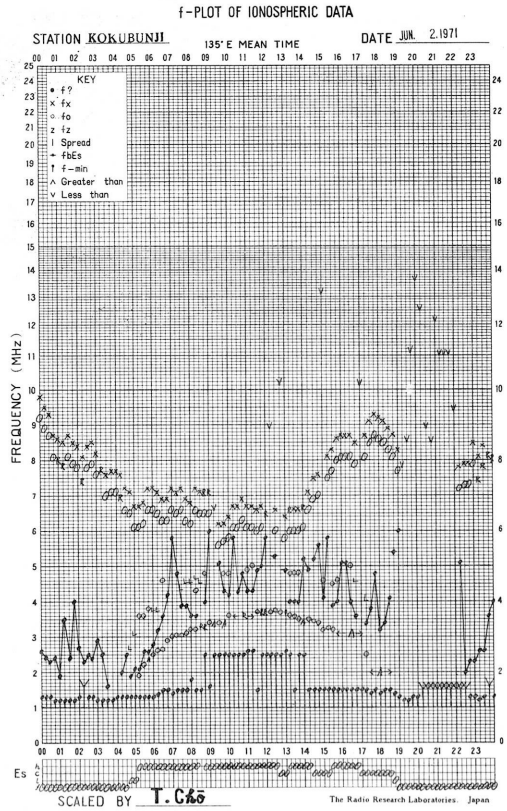
The Radio Research Laboratories. Japan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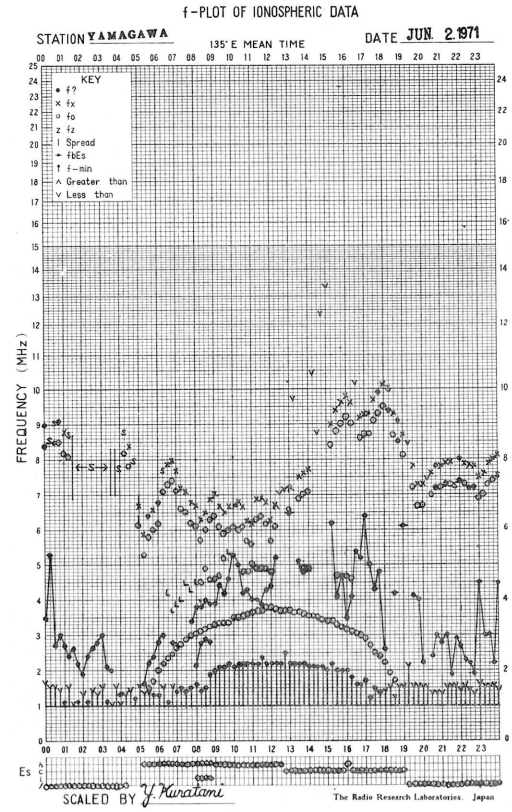
The Radio Research Laboratories. Japan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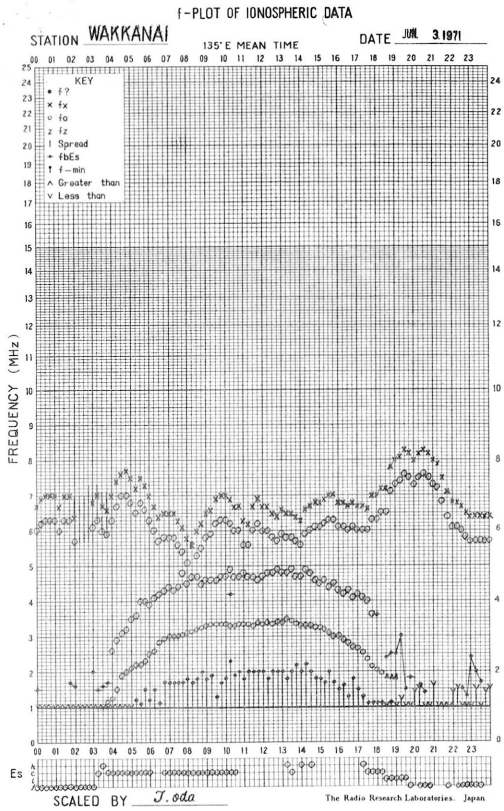
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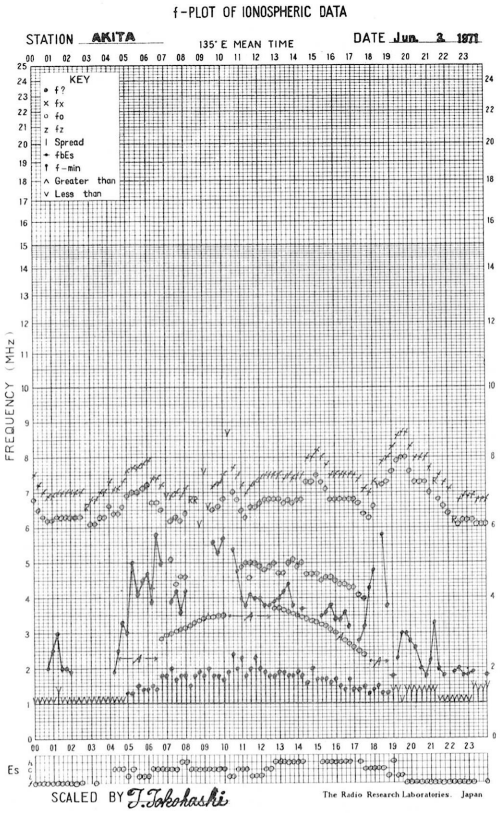
The Radio Research Laboratories. Japan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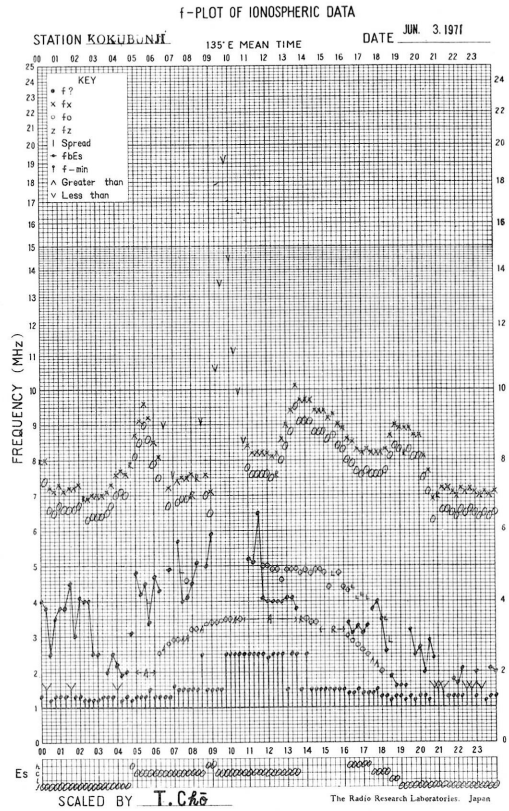
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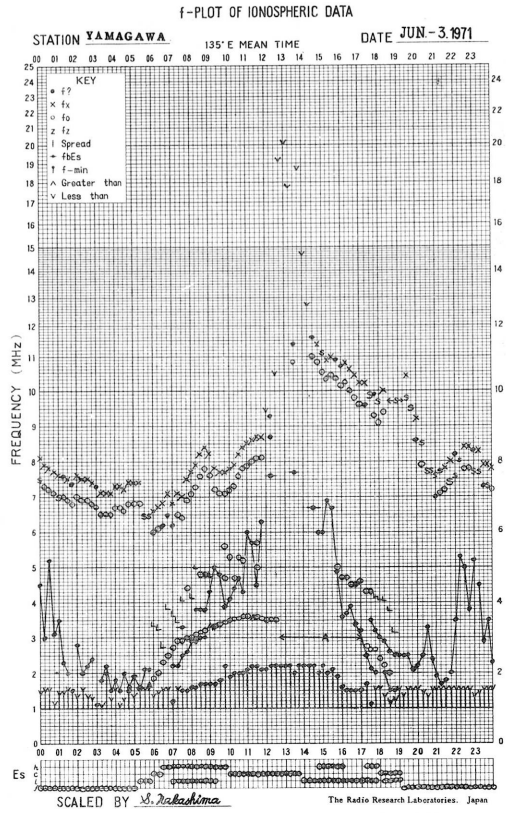
The Radio Research Laboratories. Japan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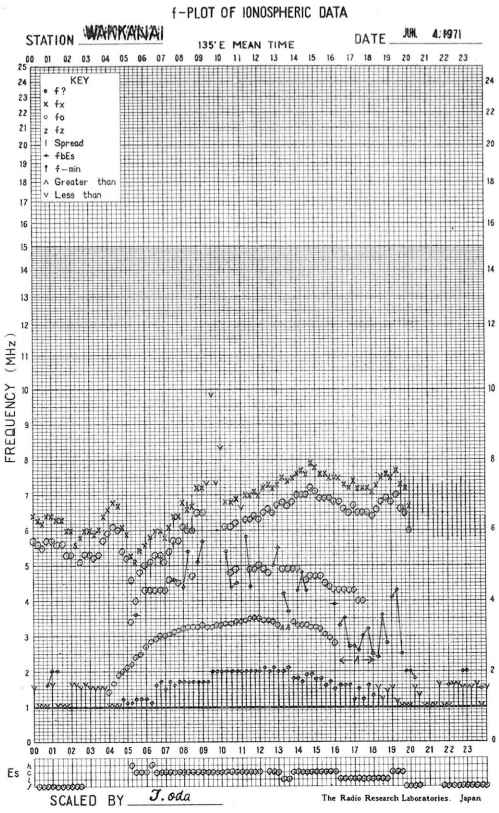
The Radio Research Laboratories. Japan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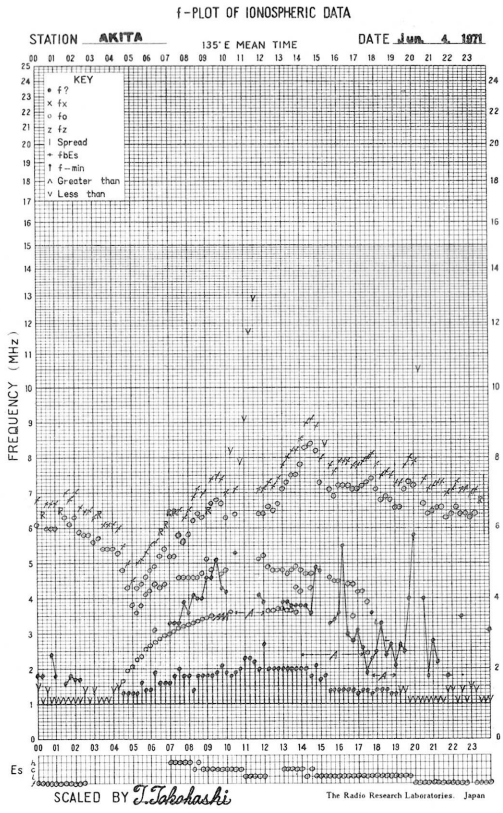
The Radio Research Laboratories. Japan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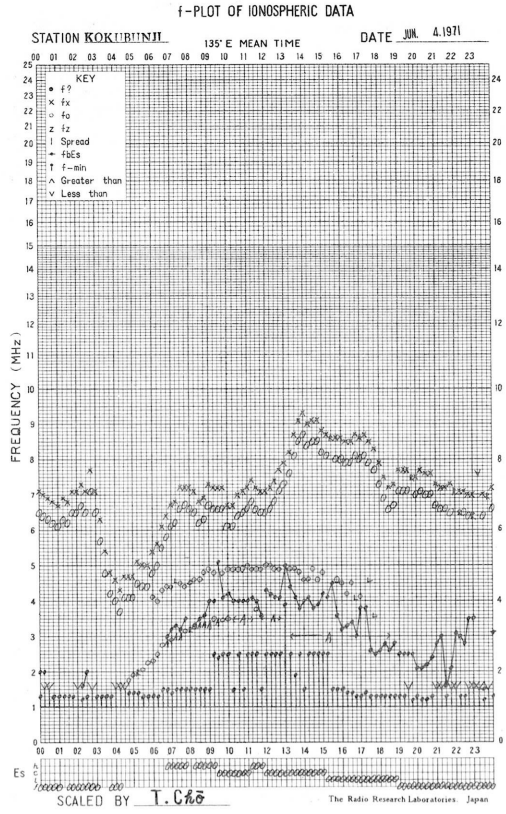
The Radio Research Laboratories. Japan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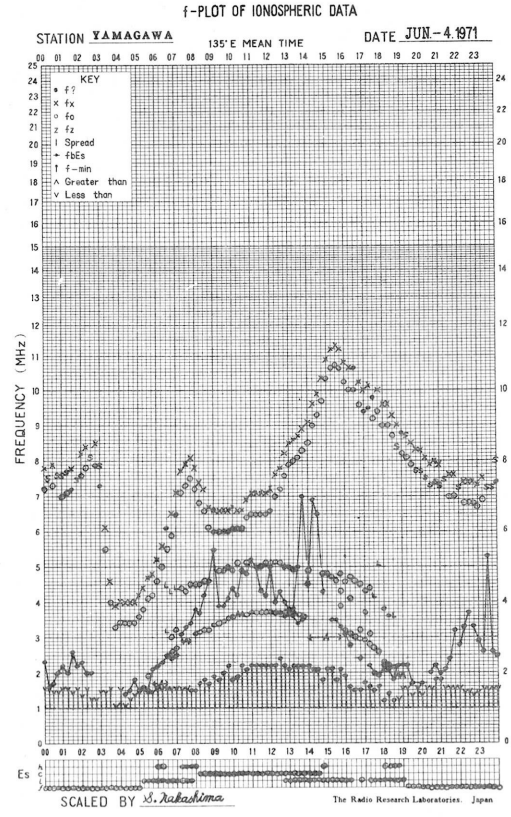
The Radio Research Laboratories. Japan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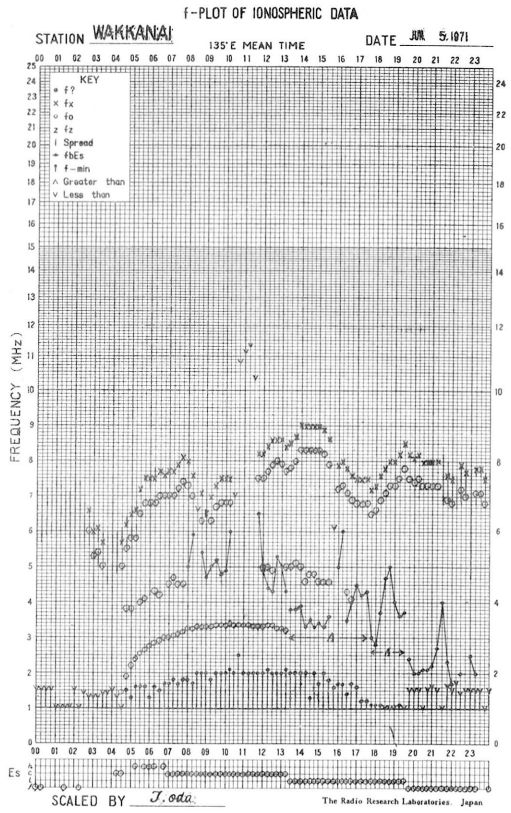
The Radio Research Laboratories. Japan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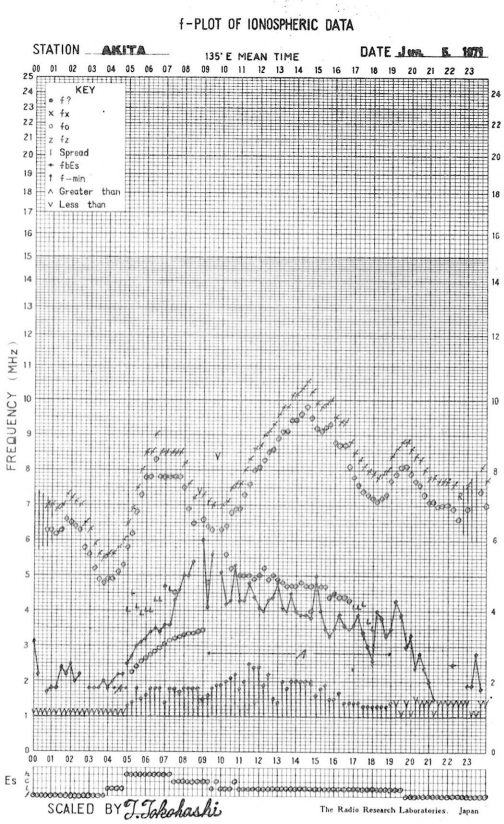
The Radio Research Laboratories. Japan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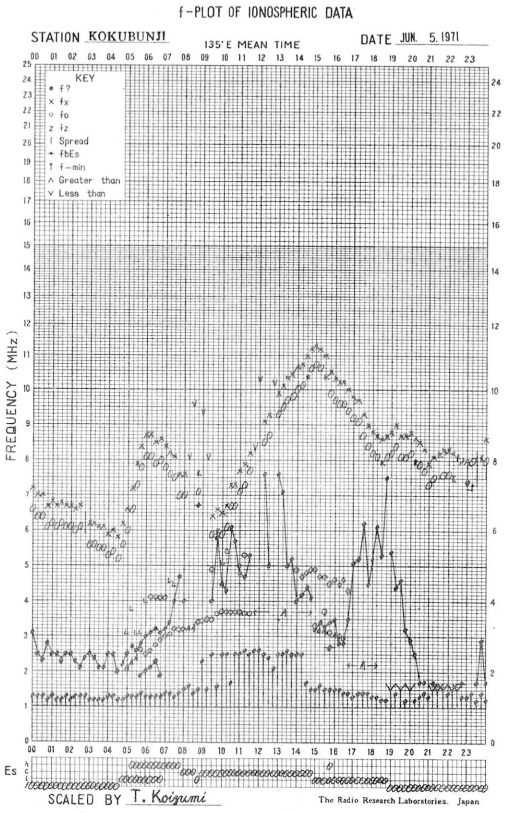
The Radio Research Laboratories. Japan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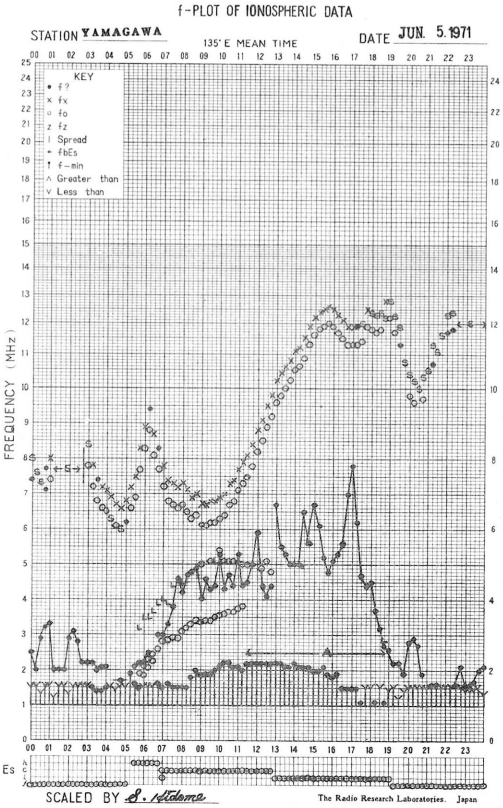
The Radio Research Laboratories. Japan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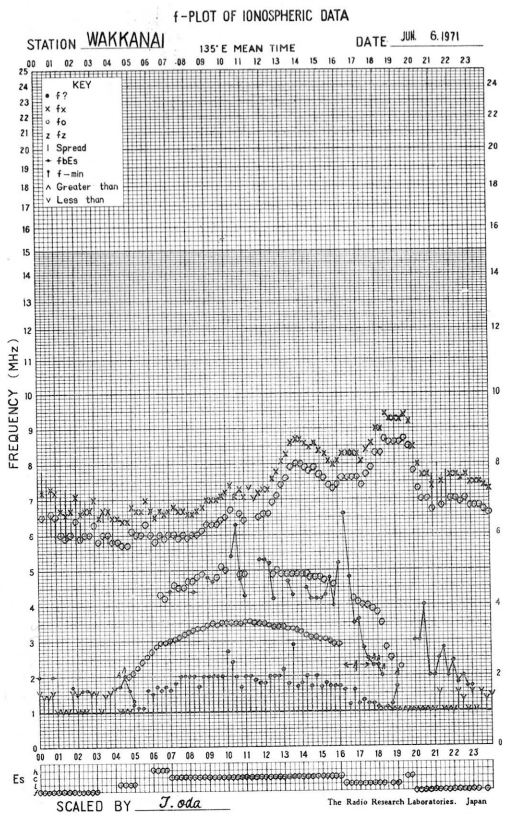
The Radio Research Laboratories. Japan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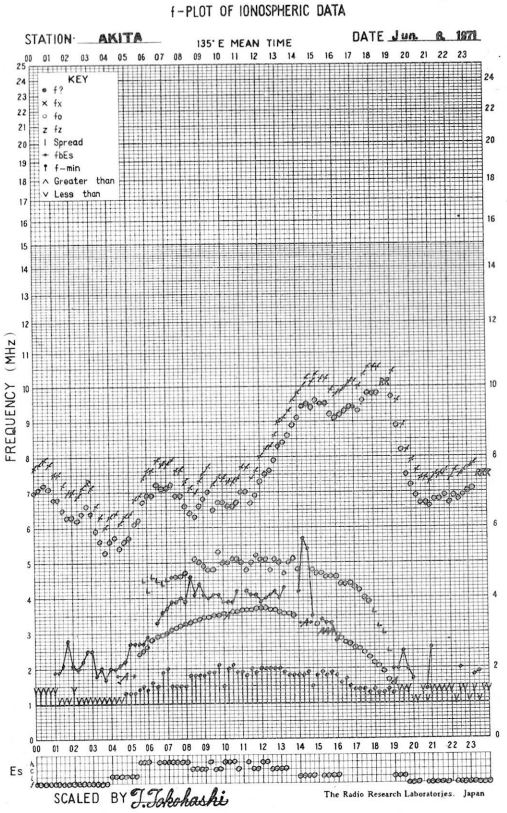
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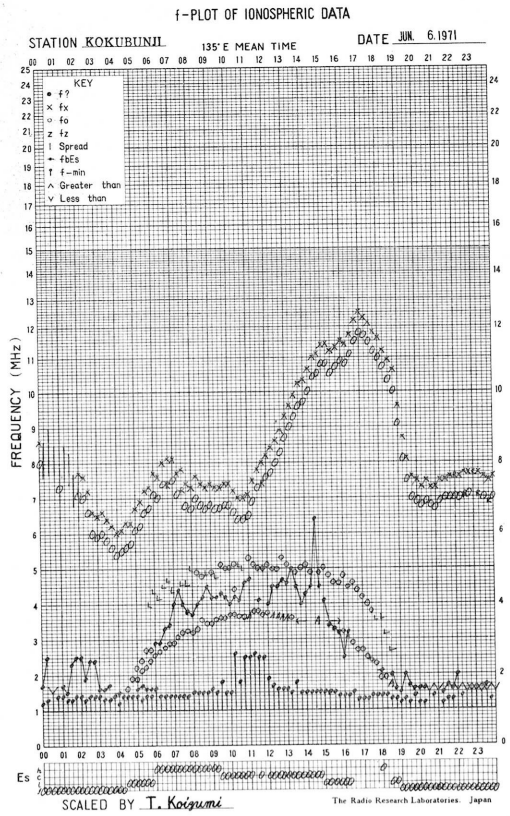
The Radio Research Laboratories. Japan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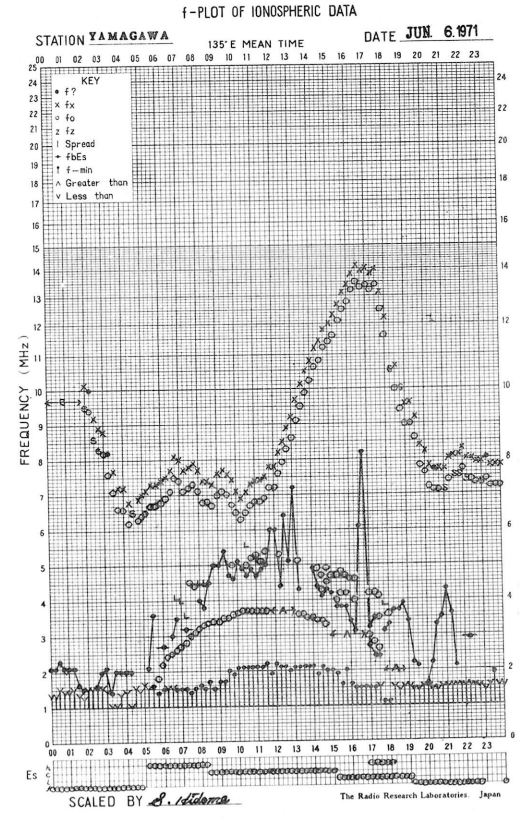
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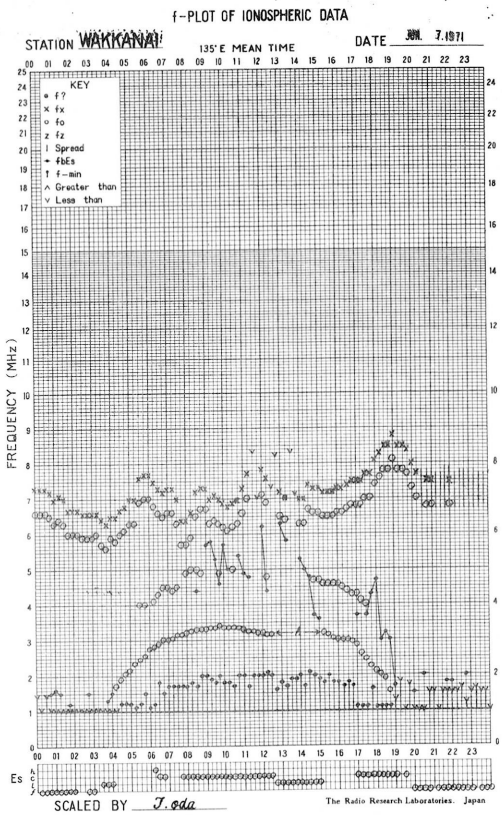
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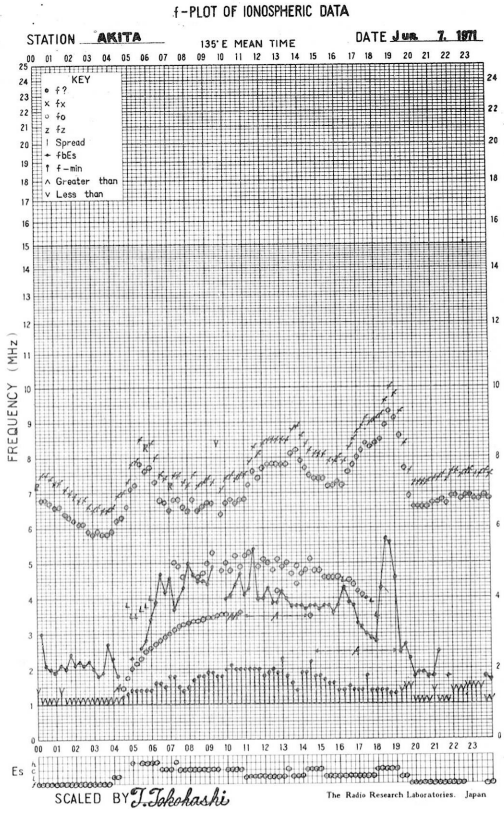
The Radio Research Laboratories. Japan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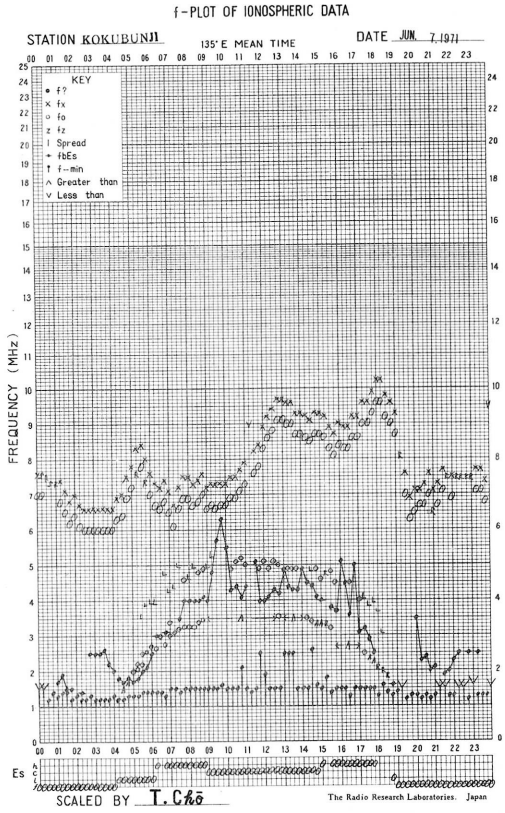
The Radio Research Laboratories. Japan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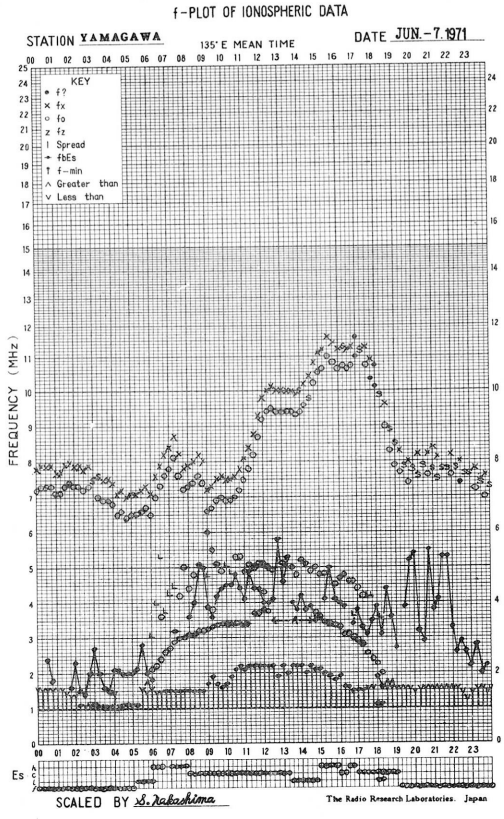
The Radio Research Laboratories. Japan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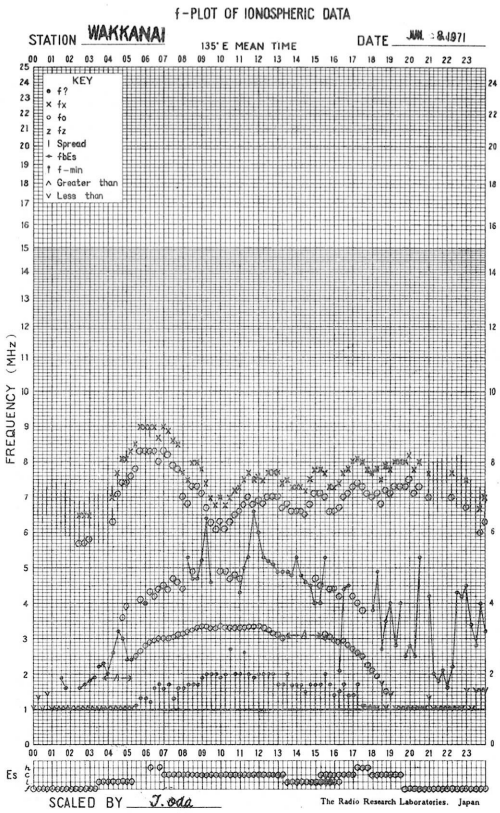
SCALED BY S. Takashima
The Radio Research Laboratories. Japan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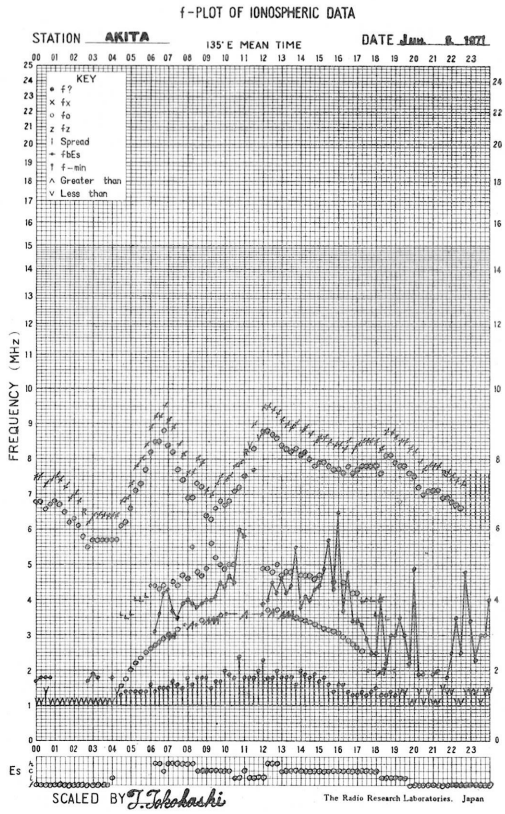
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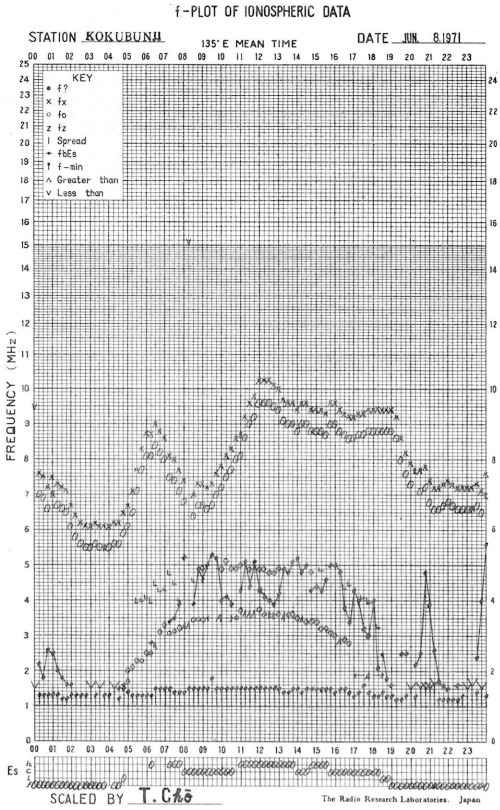
The Radio Research Laboratories. Japan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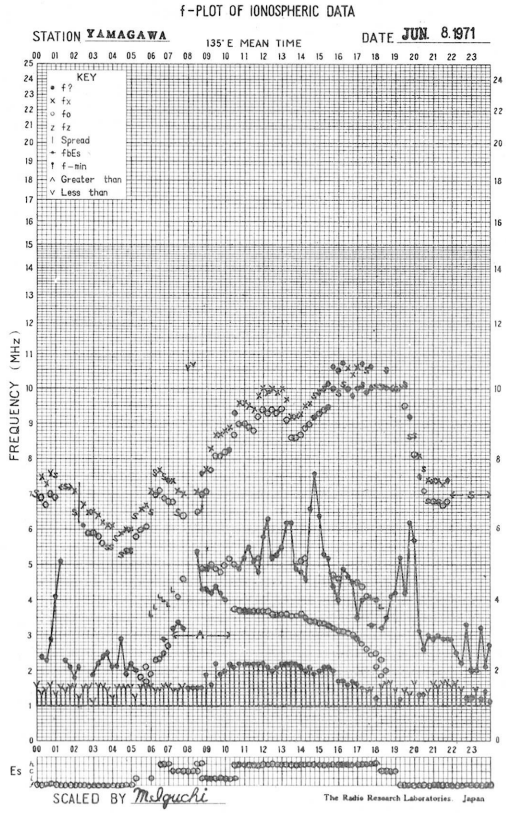
The Radio Research Laboratories. Japan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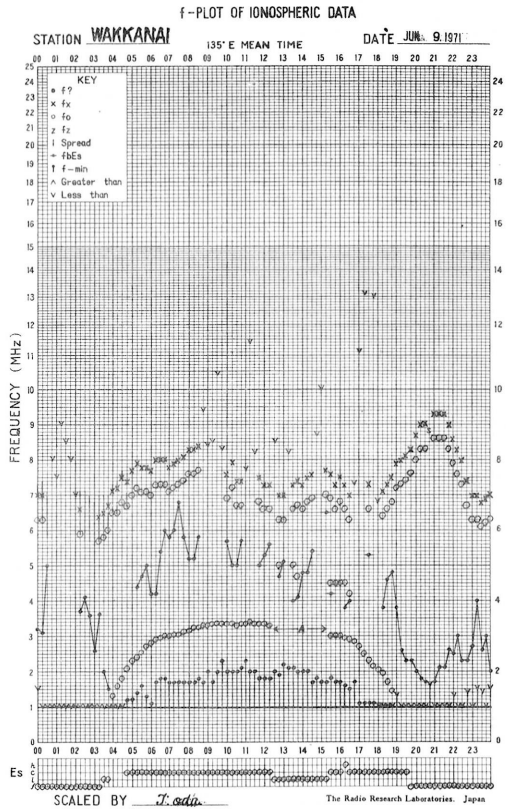
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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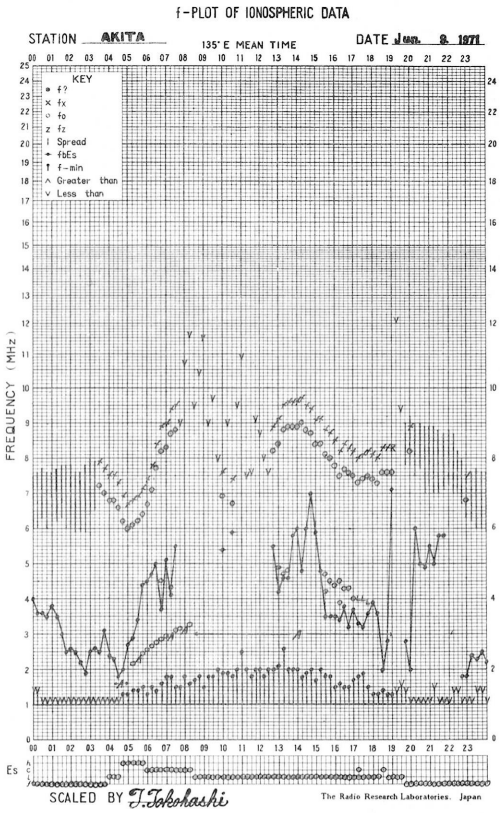
SCALED BY T. oda
The Radio Research Laboratories. Japan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DATE Jun. 9. 1971
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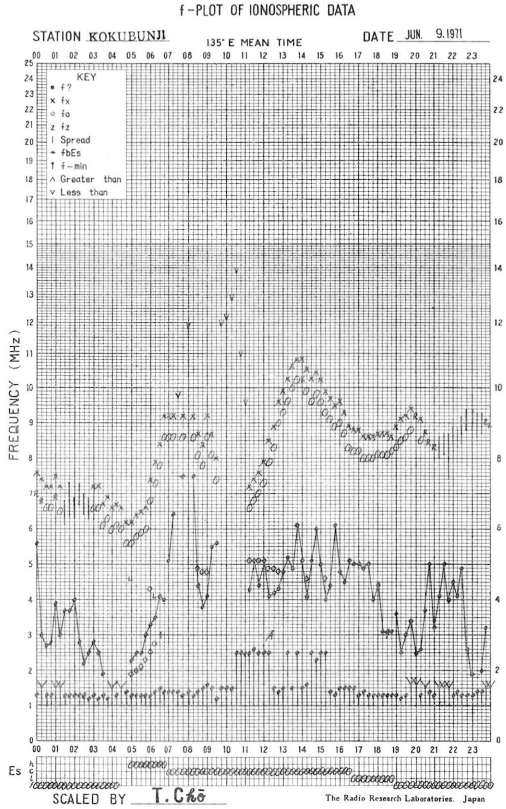
SCALED BY T. Tokohashi
The Radio Research Laboratories. Japan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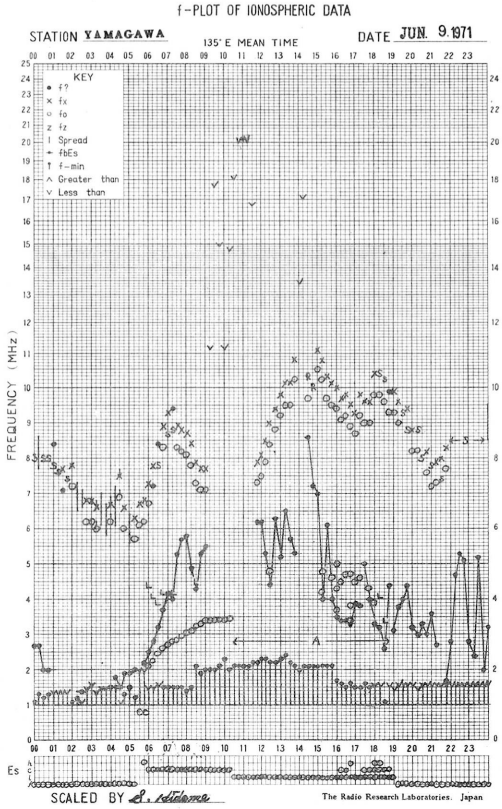
SCALED BY T. Chō
The Radio Research Laboratories. Japan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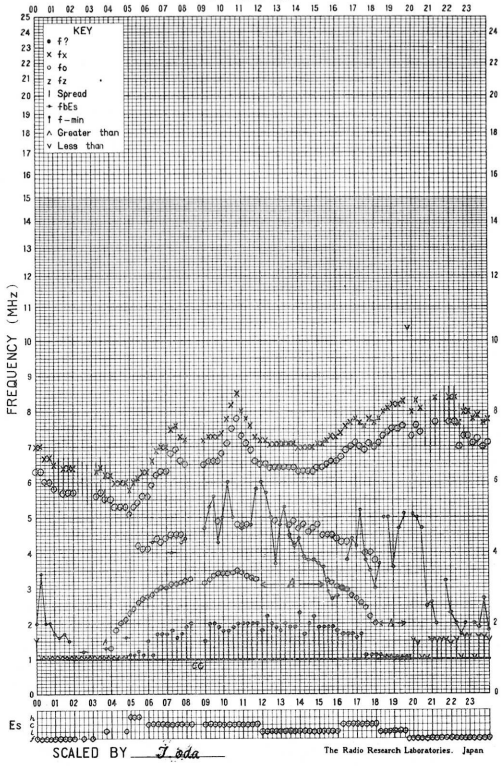
SCALED BY S. Ichidomiya
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 10. 1971



SCALED BY I. oda

The Radio Research Laboratories. Japan

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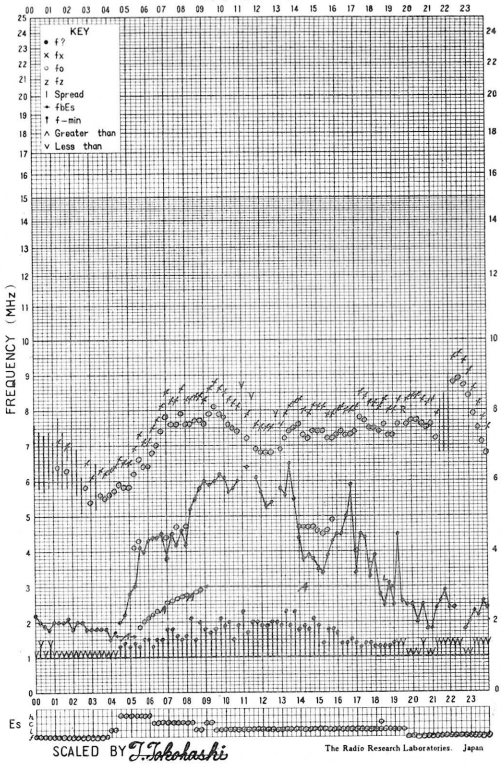

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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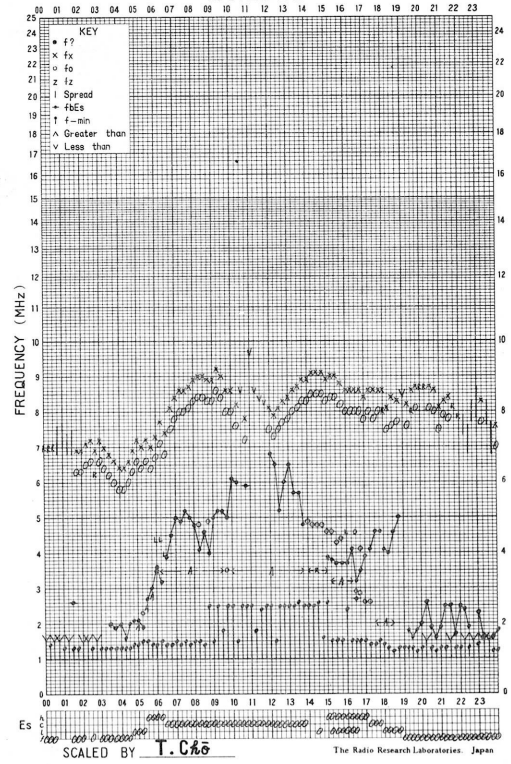

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The Radio Research Laboratories. Japan

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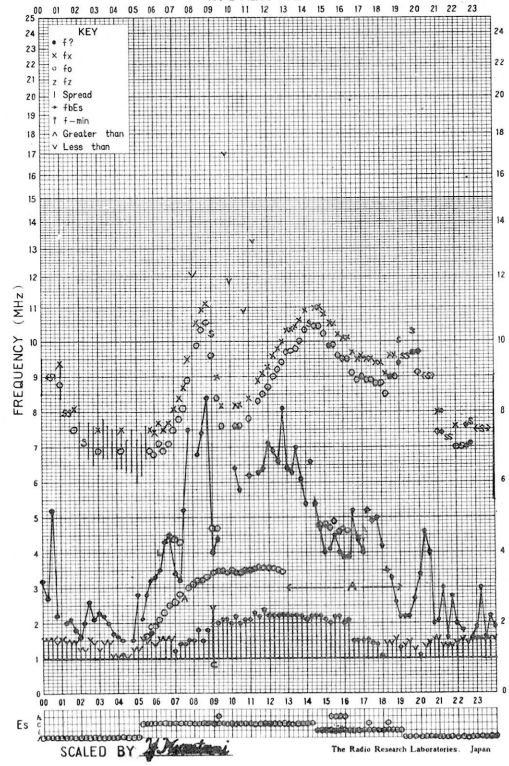

SCALED BY K. Yamamoto

The Radio Research Laboratories. Japan

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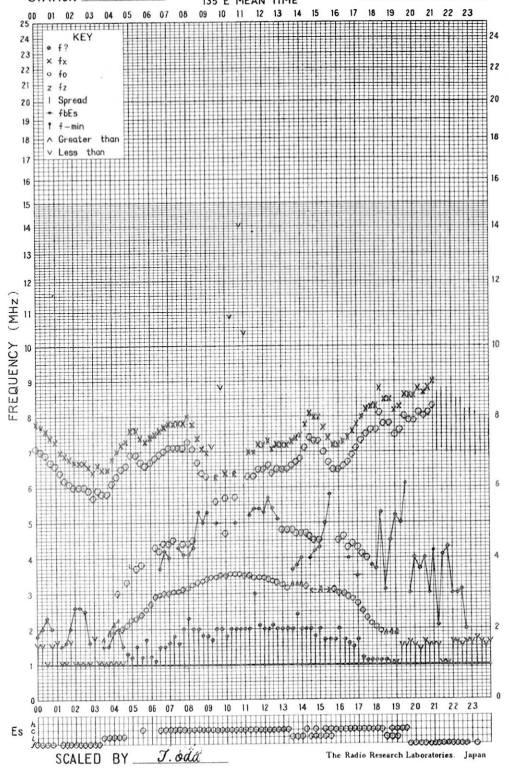

SCALED BY T. Oda

The Radio Research Laboratories. Japan

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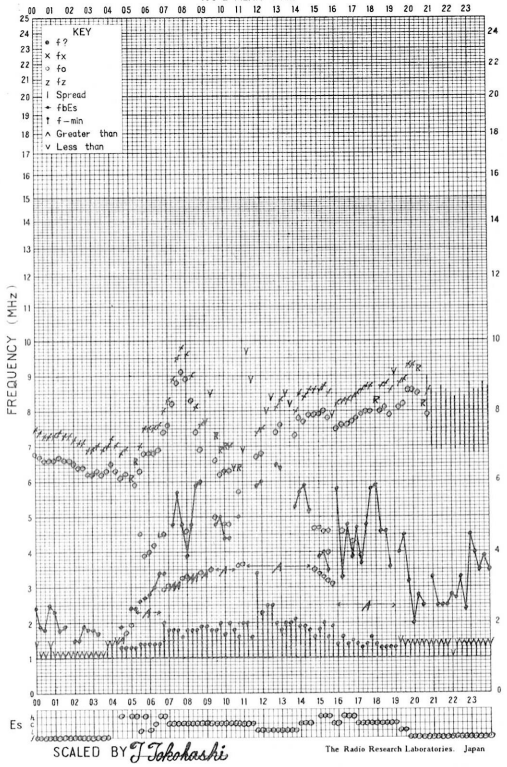

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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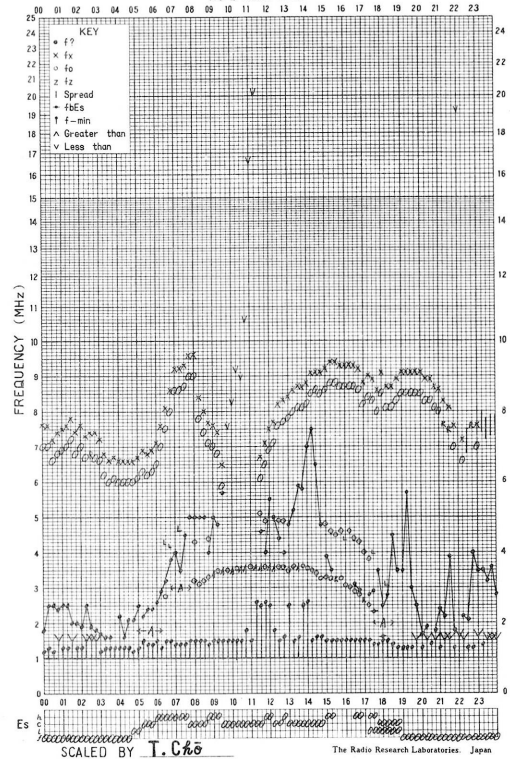

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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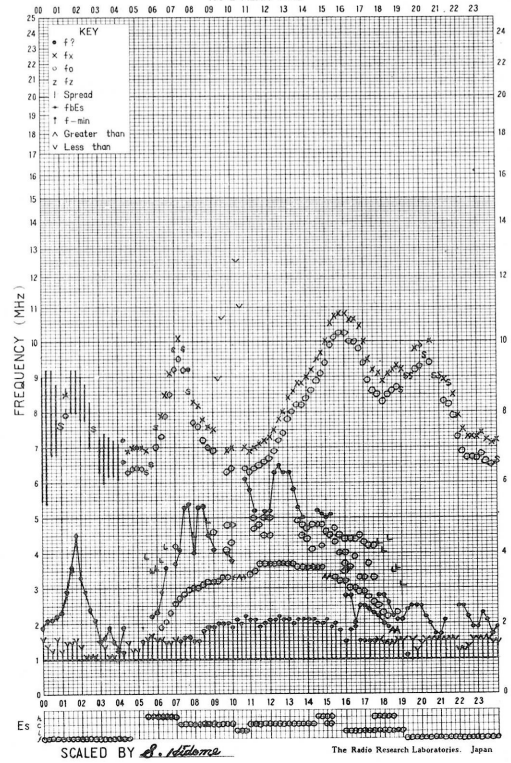
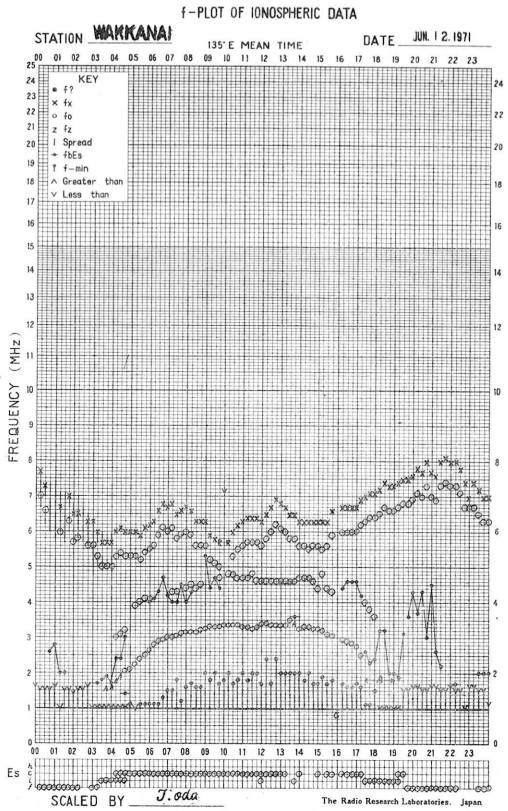


SCALED BY S. Nitoma

The Radio Research Laboratories. Japan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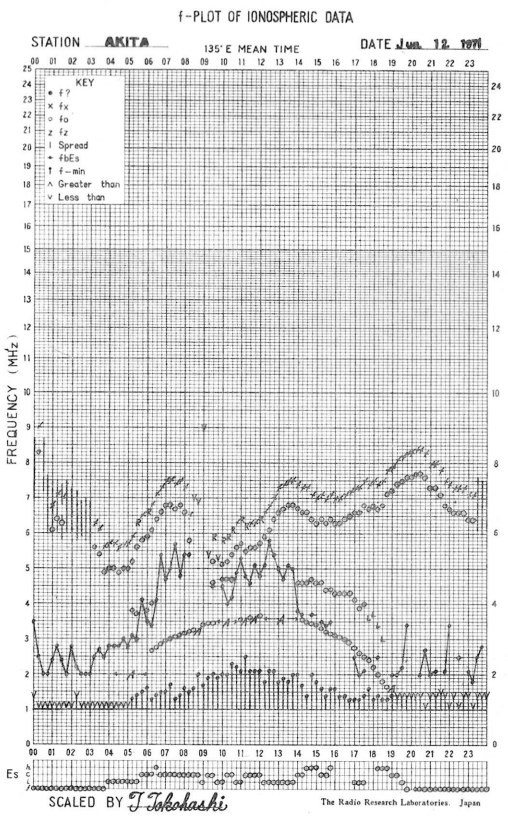
SCALED BY T. Oda
The Radio Research Laboratories. Japan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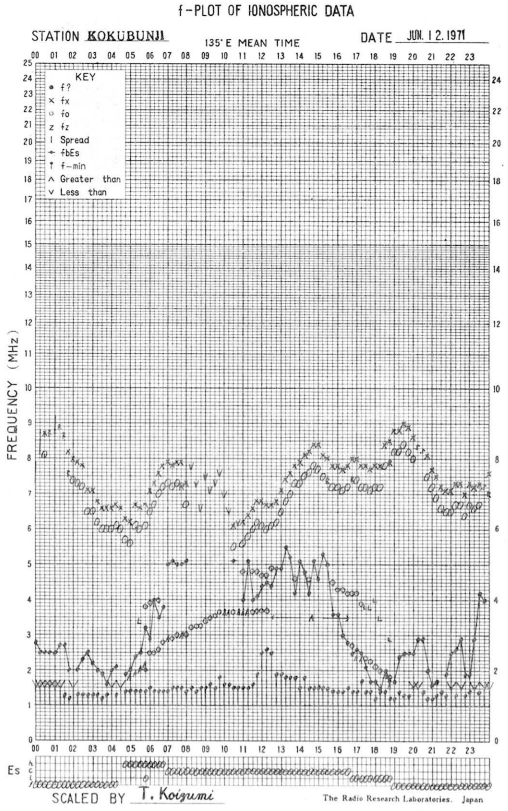
SCALED BY T. Iokohashi
The Radio Research Laboratories. Japan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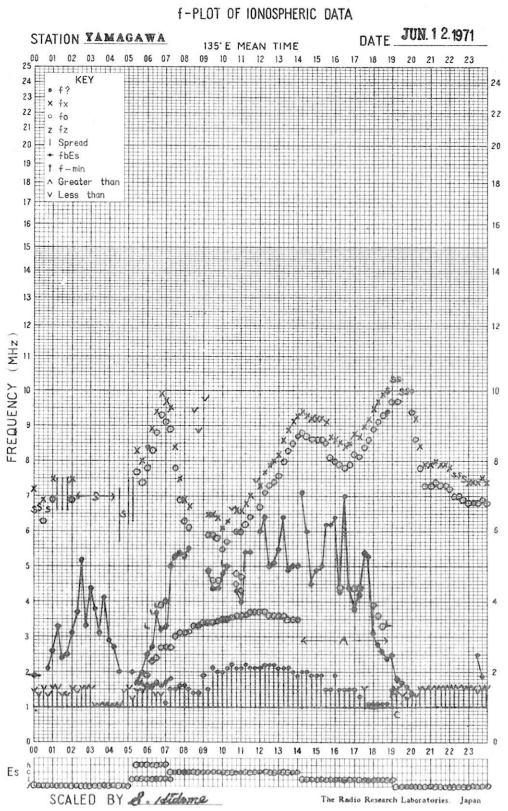
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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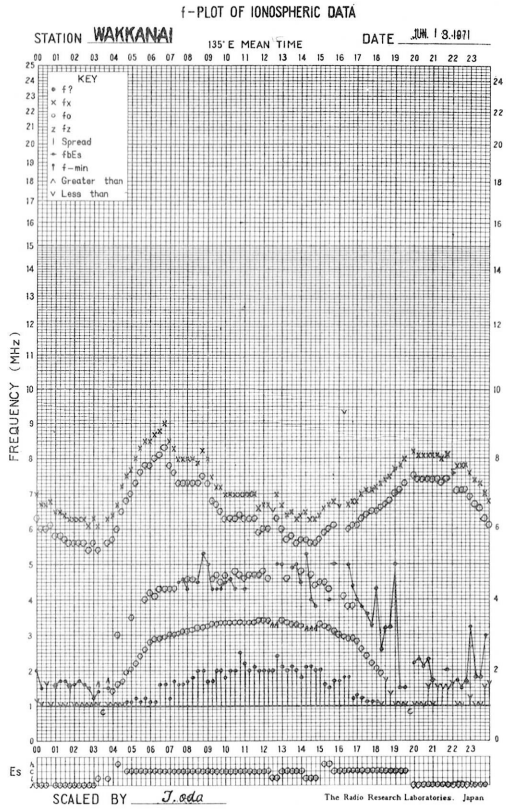
SCALED BY S. Aidama
The Radio Research Laboratories. Japan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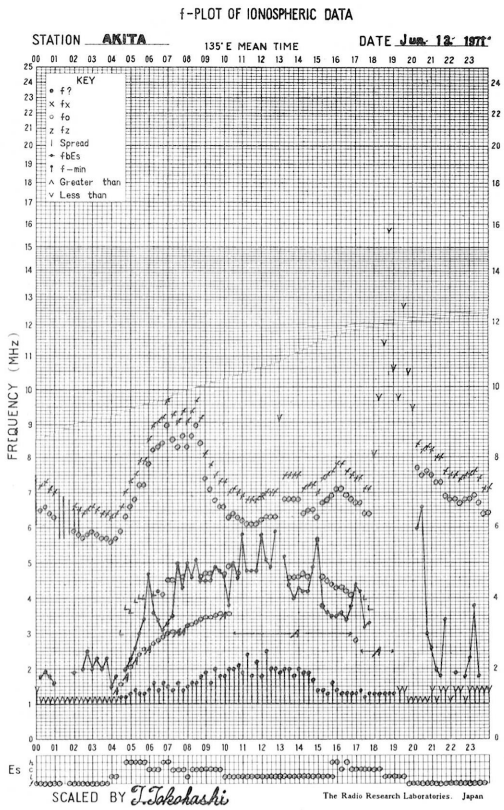
SCALED BY T. oda
The Radio Research Laboratories. Japan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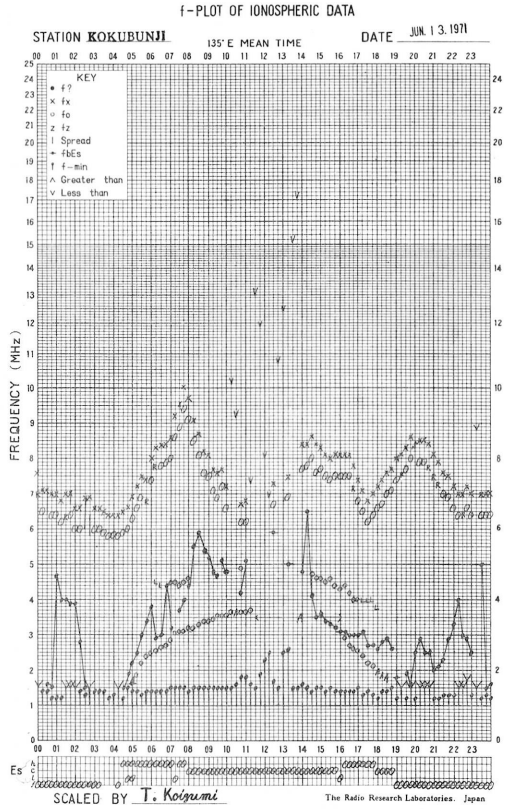
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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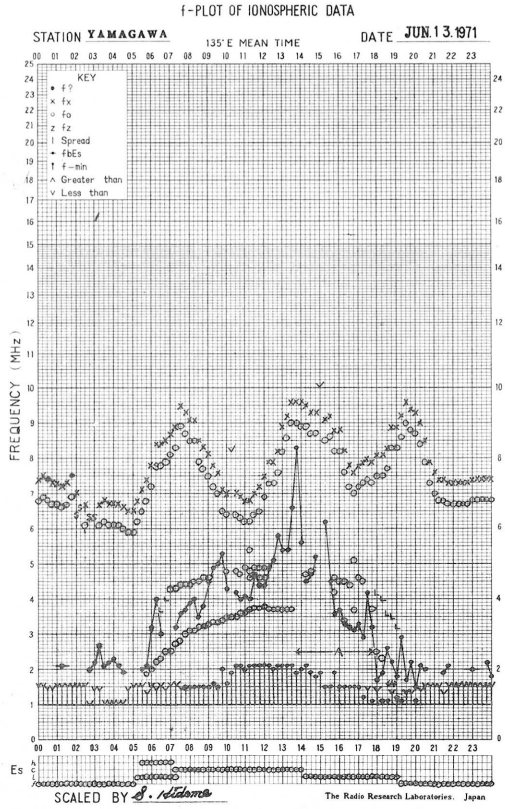
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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SCALED BY S. Kitamura
The Radio Research Laboratories. Japan

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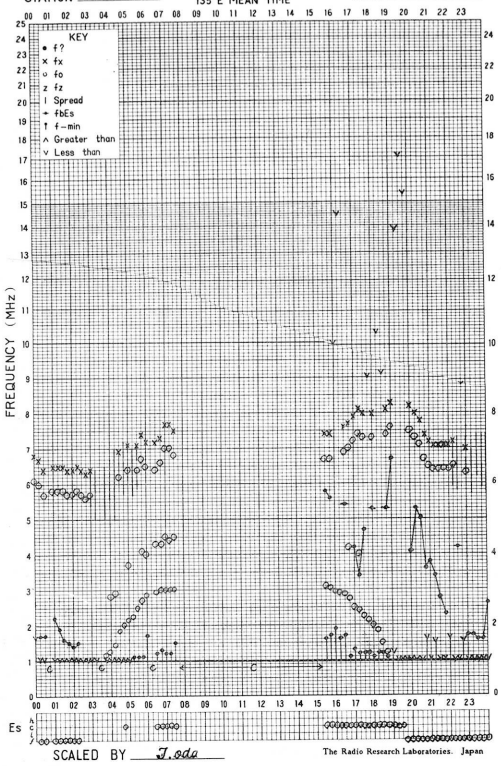

SCALED BY T. oda

The Radio Research Laboratories. Japan

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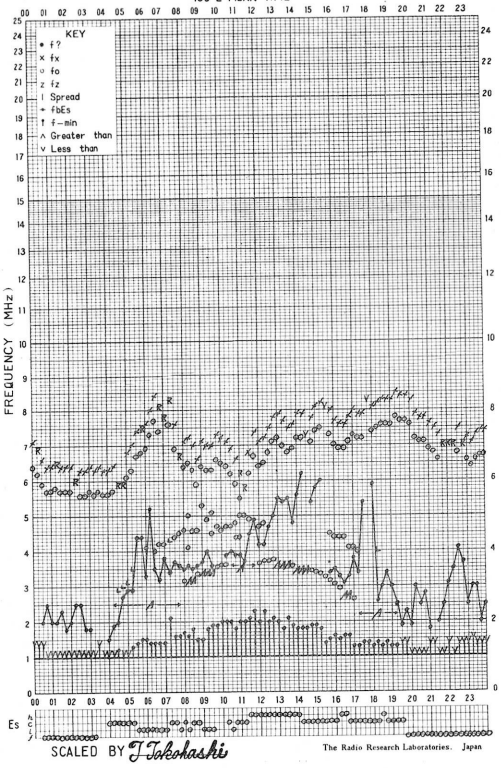

SCALED BY T Takahashi

The Radio Research Laboratories. Japan

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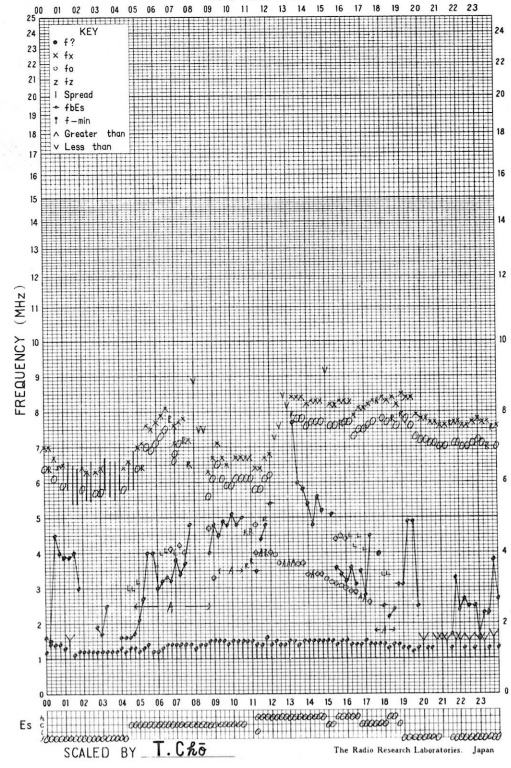

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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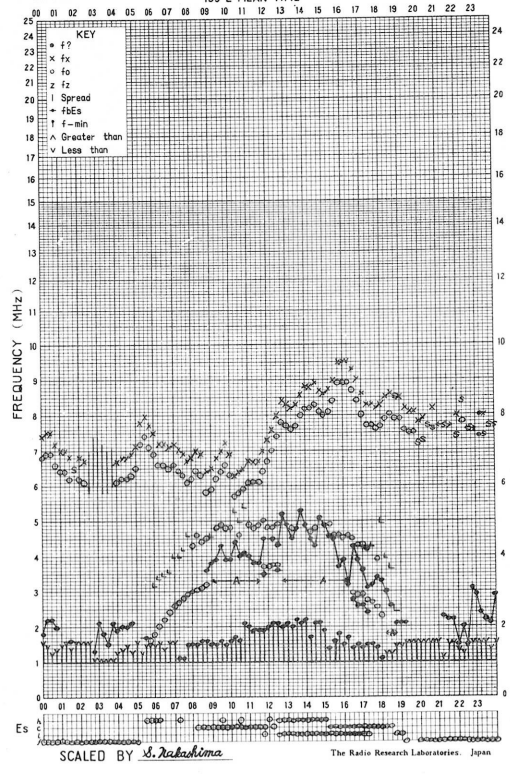

SCALED BY S. Nakashima

The Radio Research Laboratories. Japan

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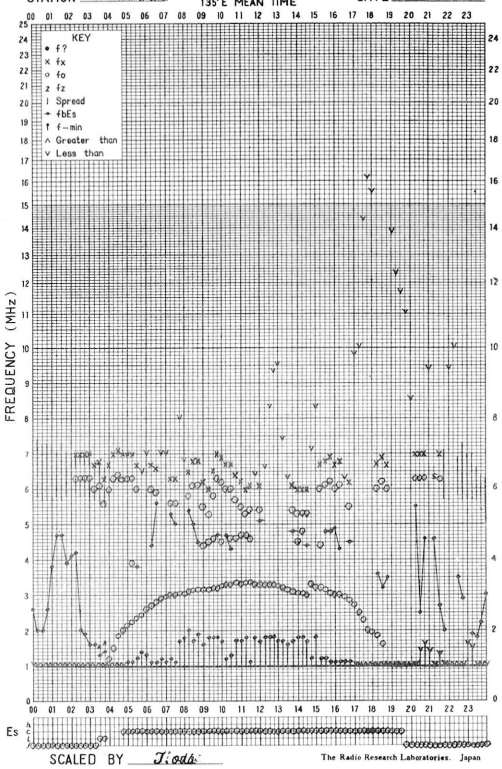

SCALED BY T. Ods.

The Radio Research Laboratories. Japan

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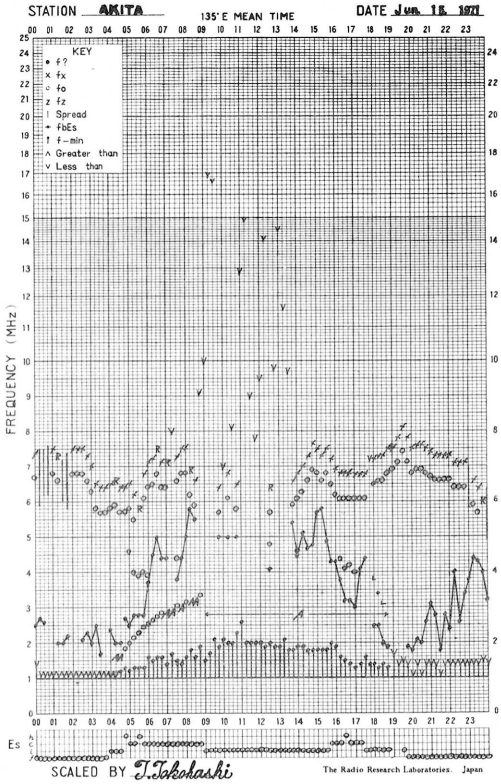

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The Radio Research Laboratories. Japan

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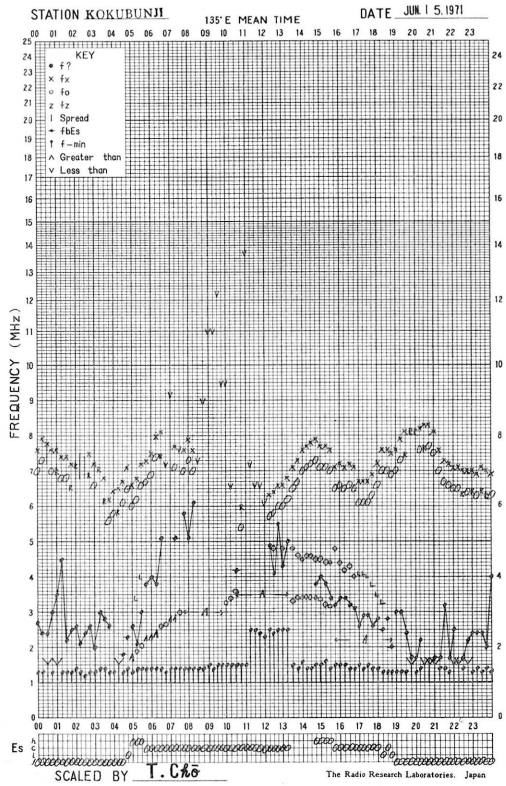

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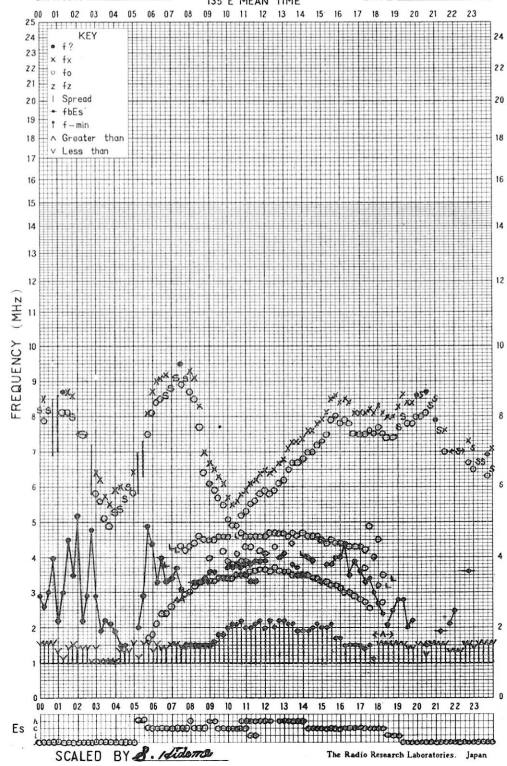
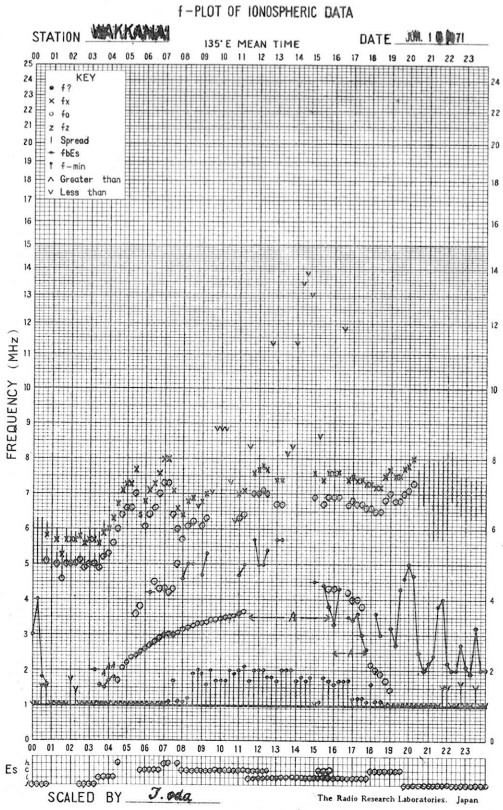


SCALED BY S. Kitamura

The Radio Research Laboratories. Japan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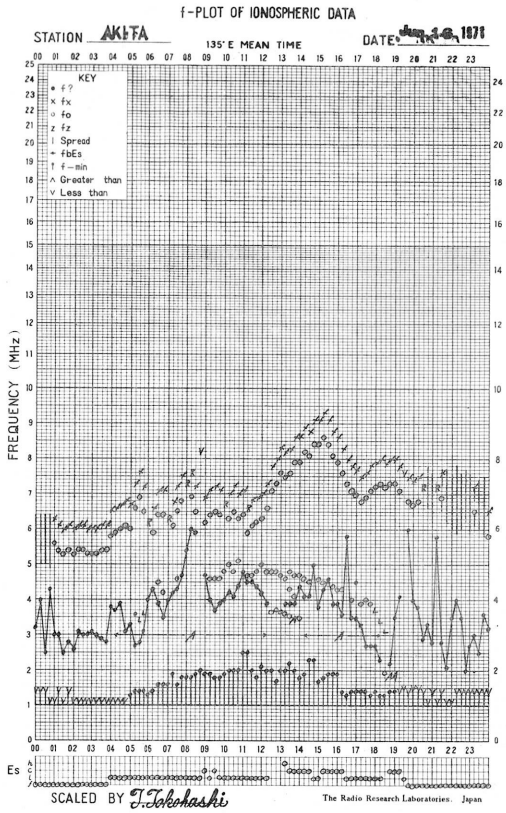
SCALED BY T. Oda
The Radio Research Laboratories. Japan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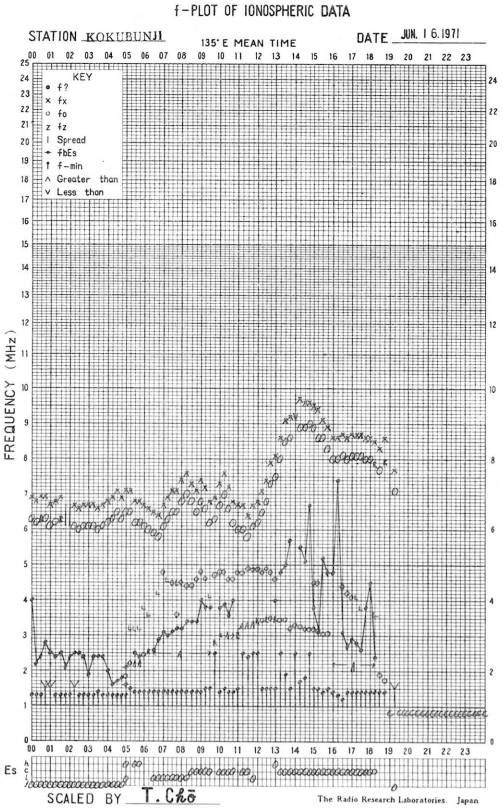
SCALED BY T. Tokohashi
The Radio Research Laboratories. Japan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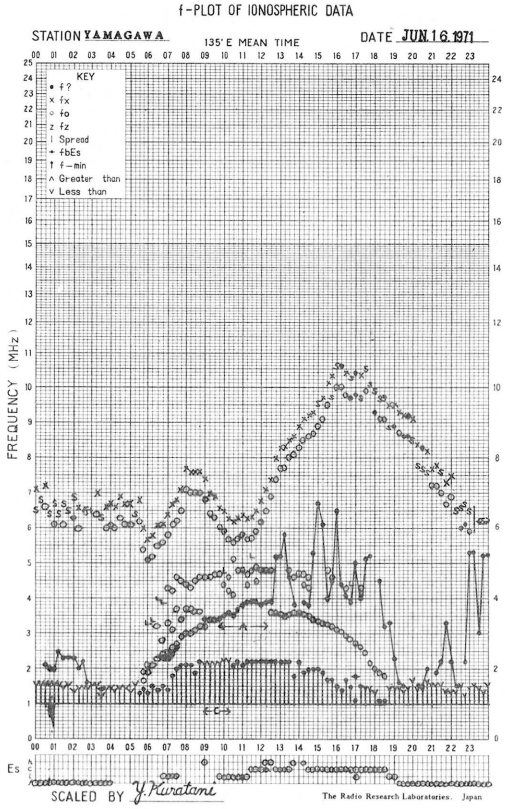
SCALED BY T. Chō
The Radio Research Laboratories. Japan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SCALED BY Y. Kuratani
The Radio Research Laboratories. Japan

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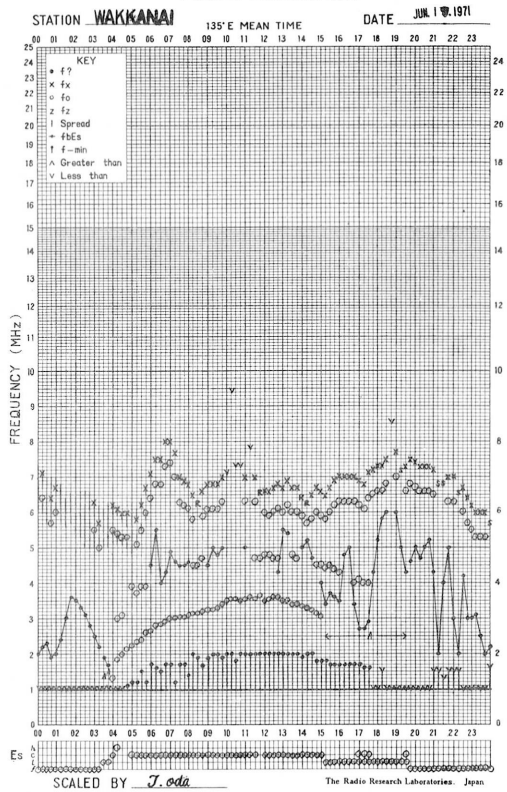

SCALED BY T. oda

The Radio Research Laboratories. Japan

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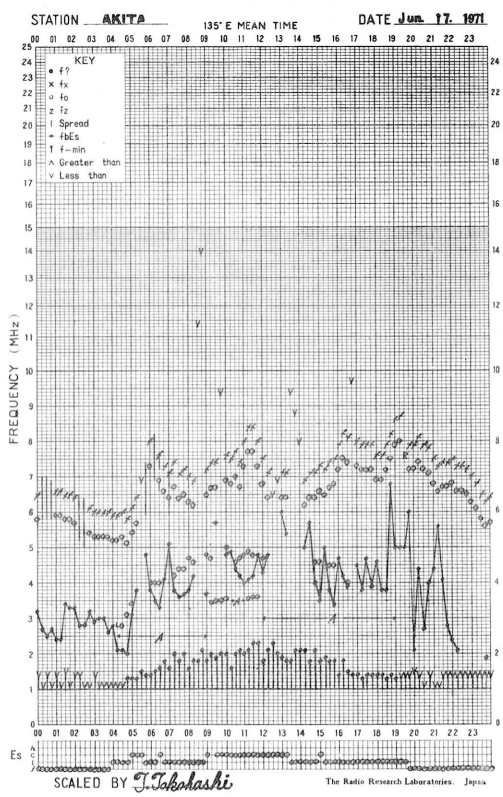

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The Radio Research Laboratories. Japan

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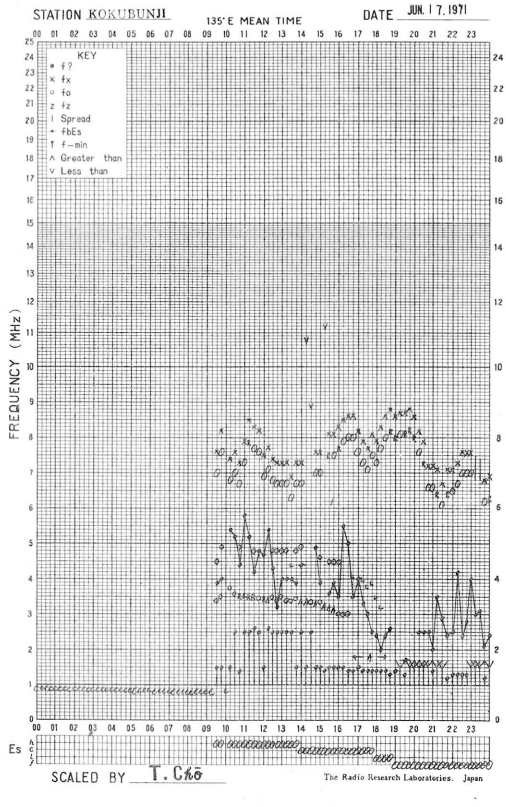

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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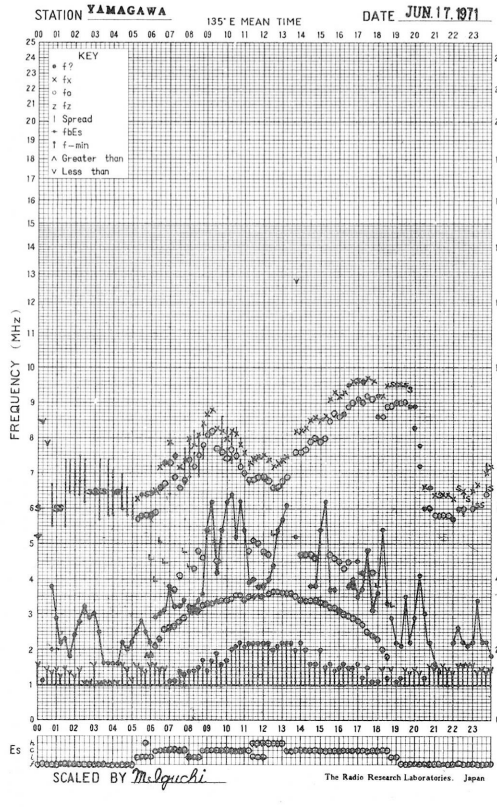
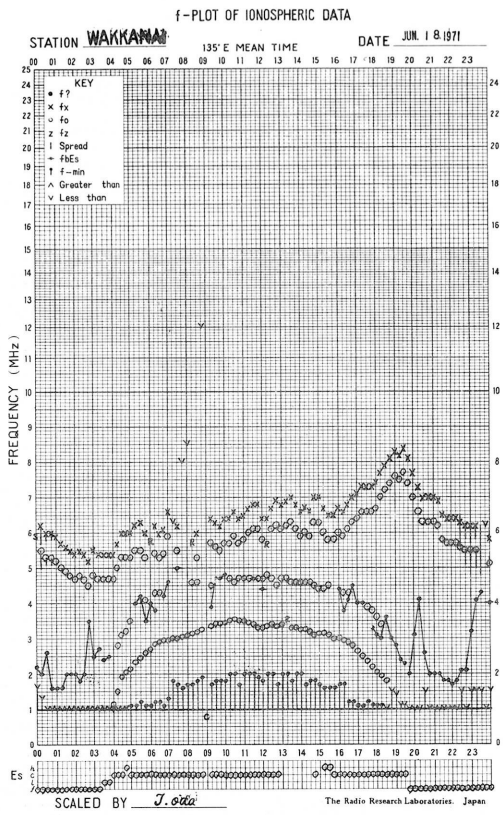


SCALED BY M. Oguchi

The Radio Research Laboratories. Japan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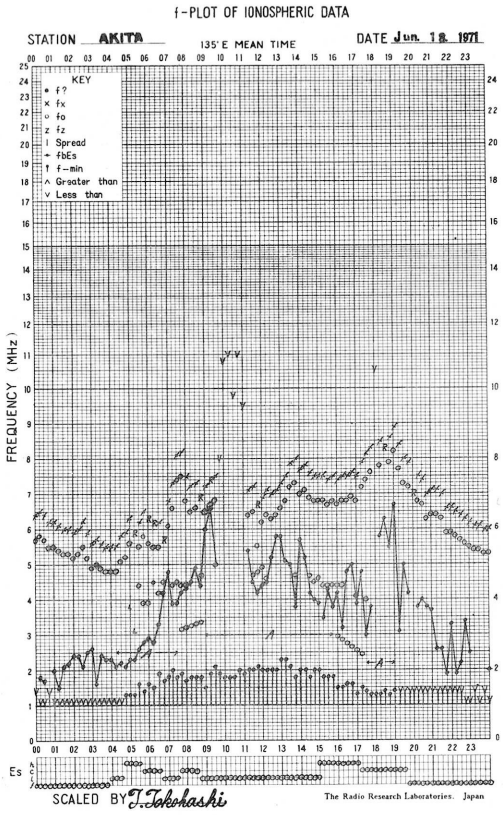
The Radio Research Laboratories. Japan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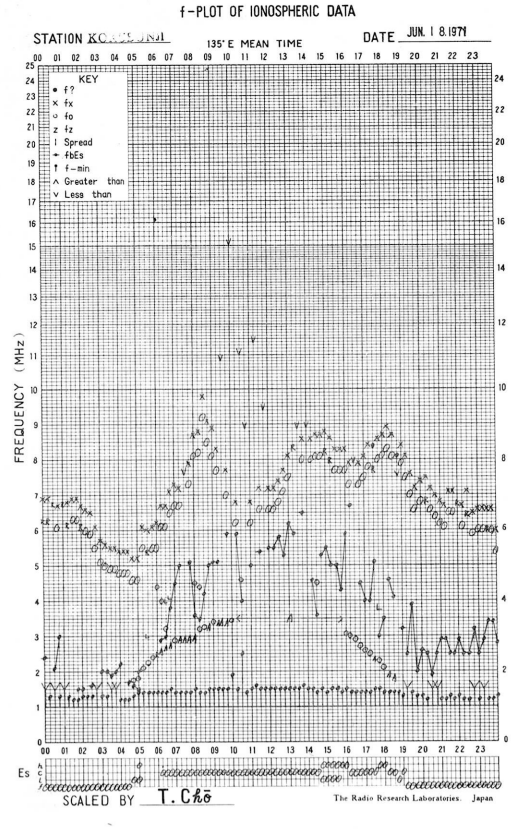
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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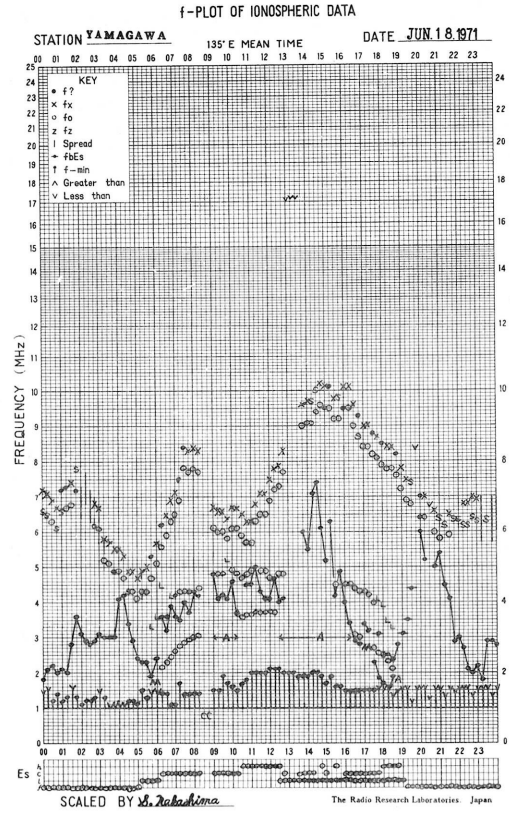
SCALED BY T. Chō
The Radio Research Laboratories. Japan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135°E MEAN TIME
DATE JUN. 18. 1971
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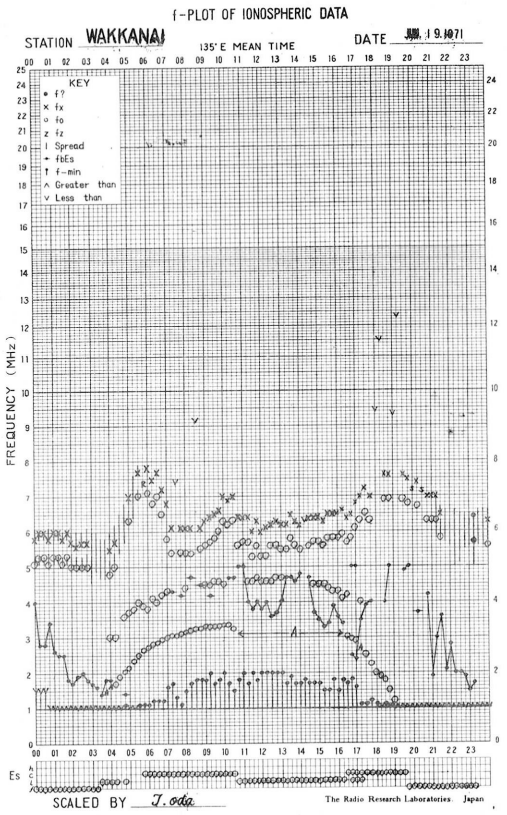
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Takashima
The Radio Research Laboratories. Japan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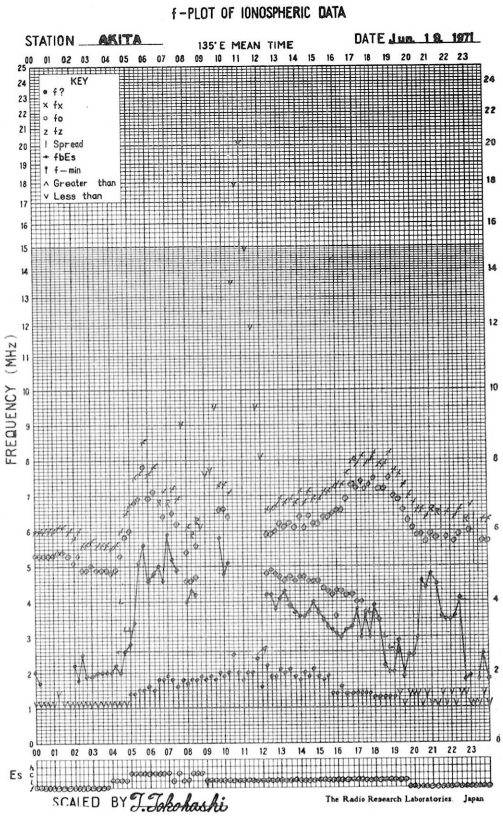
FREQUENCY (MHz)
Es
SCALED BY J. Oda
The Radio Research Laboratories. Japan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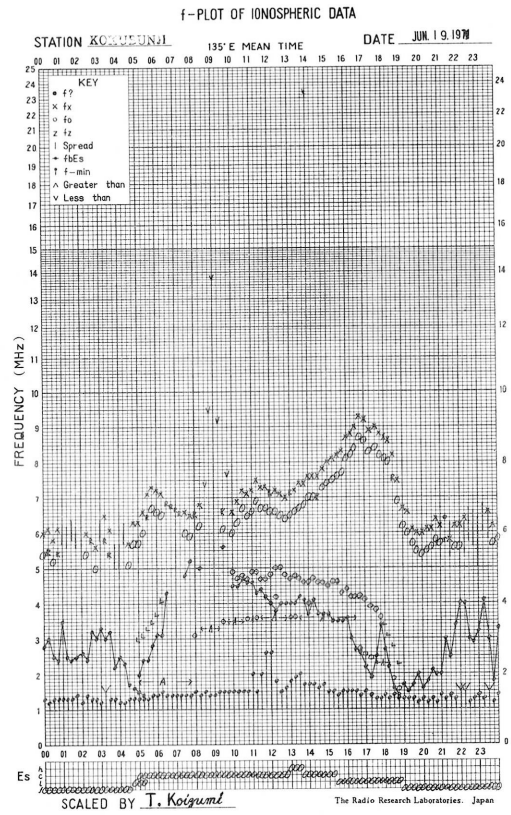
SCALED BY T. Tokohashi
The Radio Research Laboratories. Japan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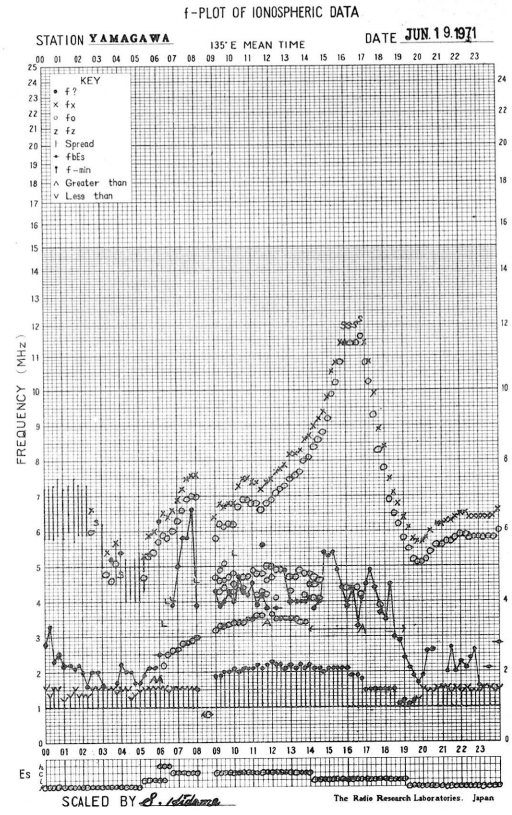
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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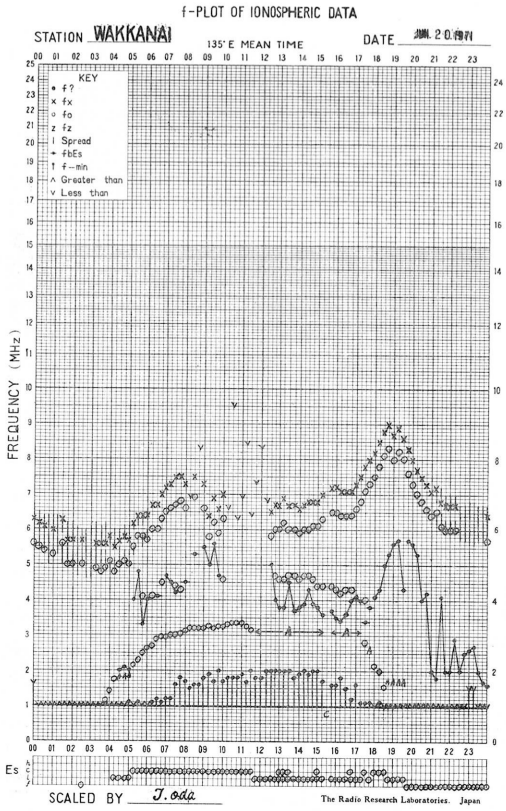
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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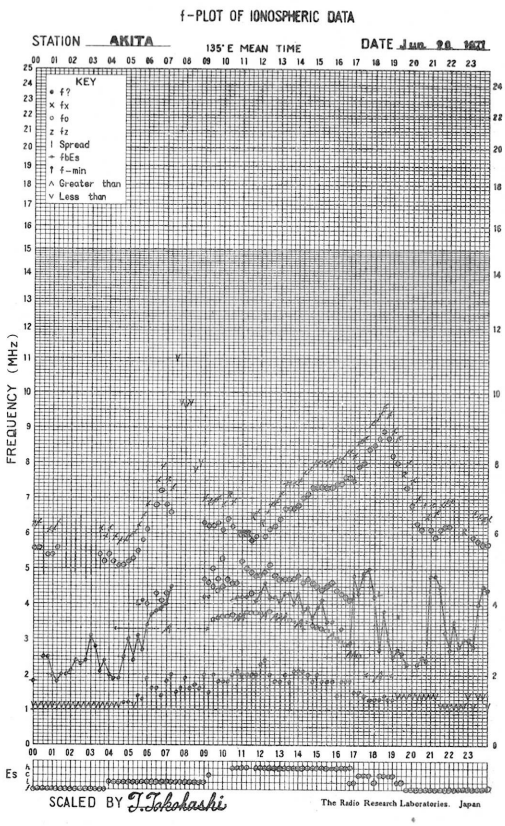
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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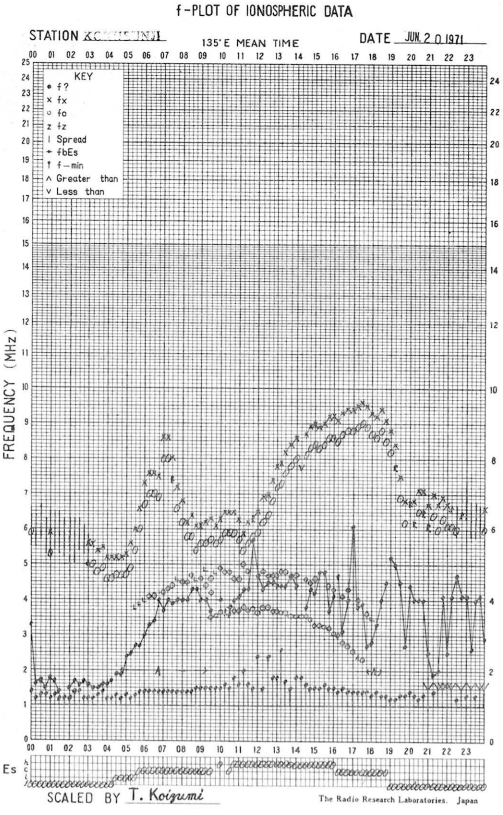
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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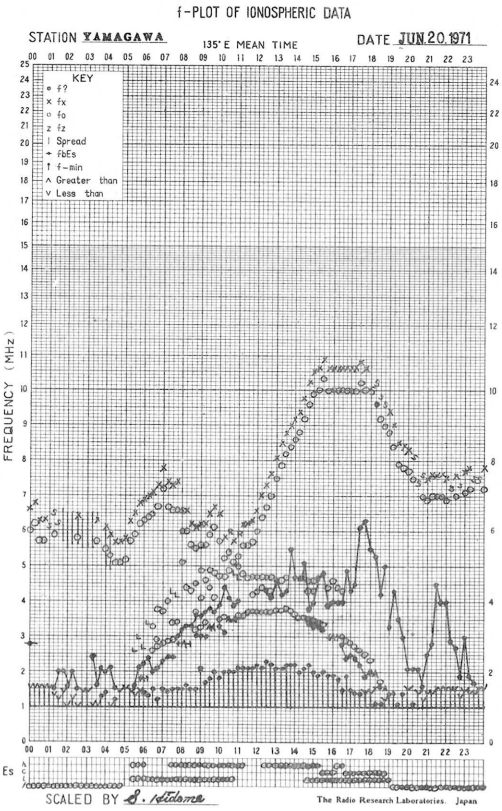
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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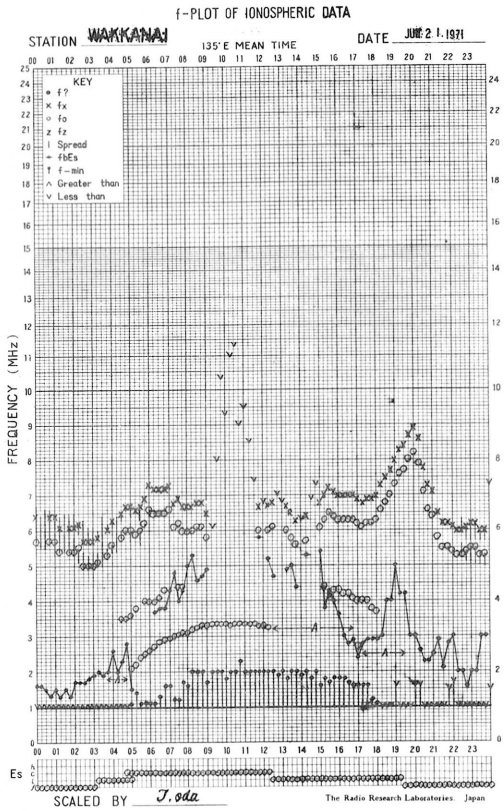
SCALED BY S. Ichidama
The Radio Research Laboratories. Japan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DATE JUN. 2 1. 1971
KEY
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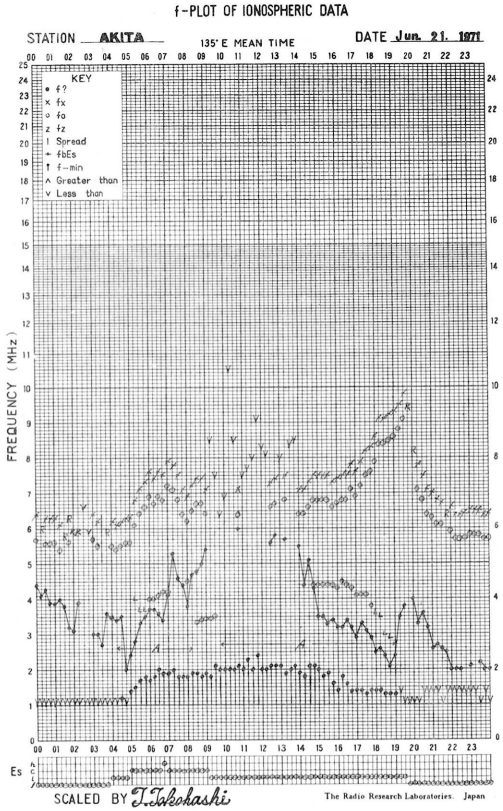
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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○ fo
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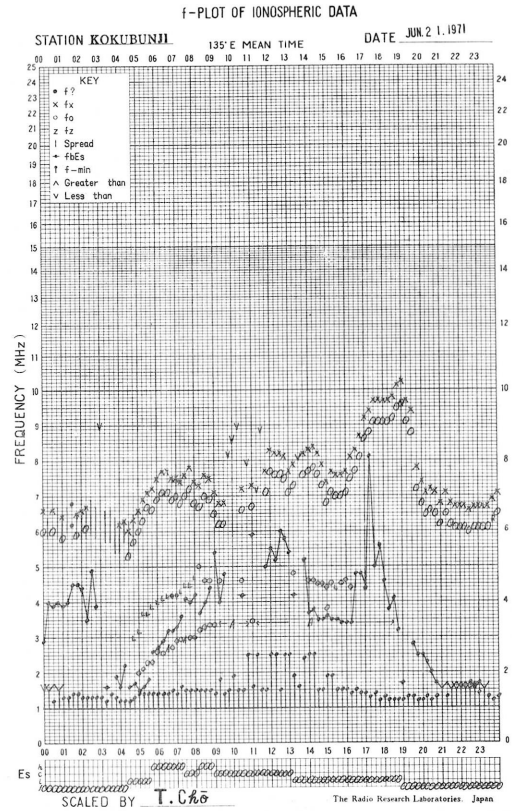
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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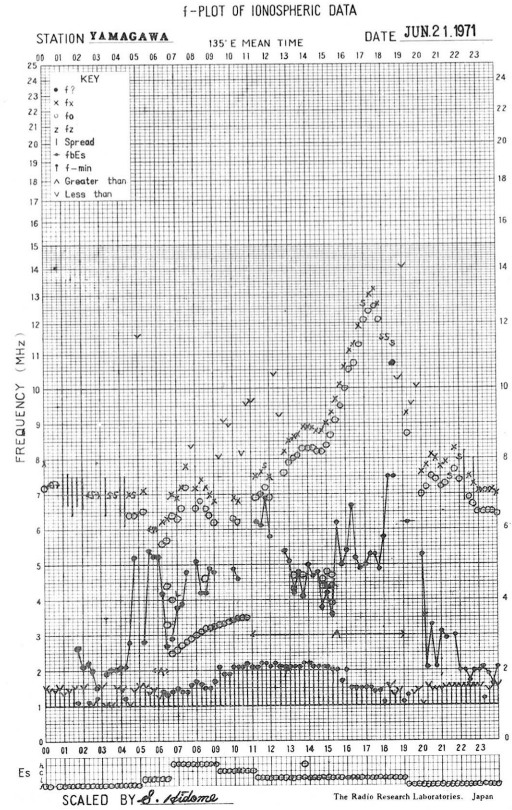
SCALED BY T. Cho
The Radio Research Laboratories. Japan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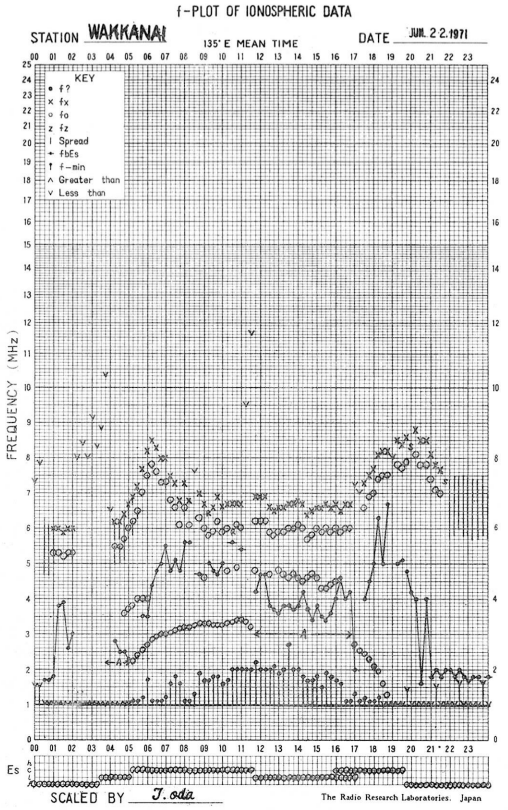
SCALED BY S. Kidoma
The Radio Research Laboratories. Japan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KEY
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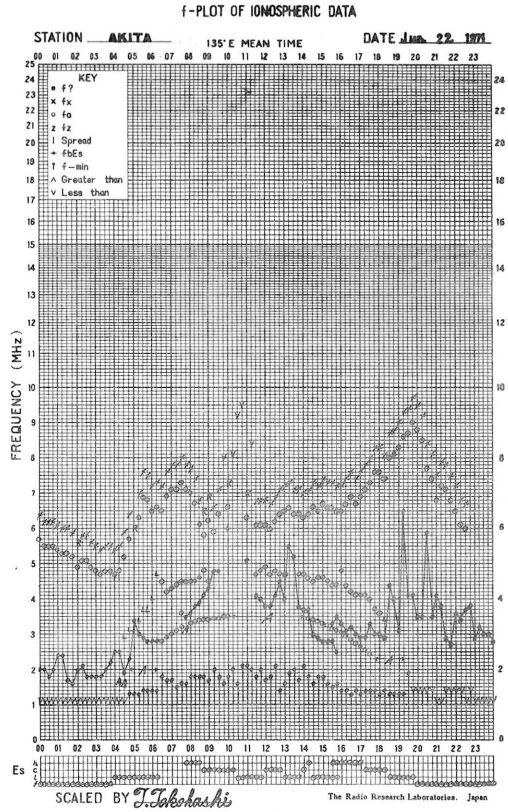
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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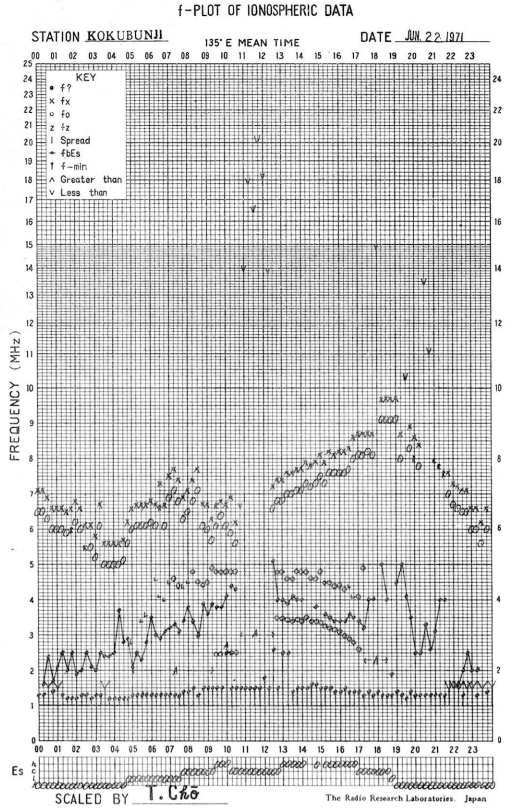
SCALED BY T. Tokohashi
The Radio Research Laboratories. Japan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KEY
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FREQUENCY (MHz)
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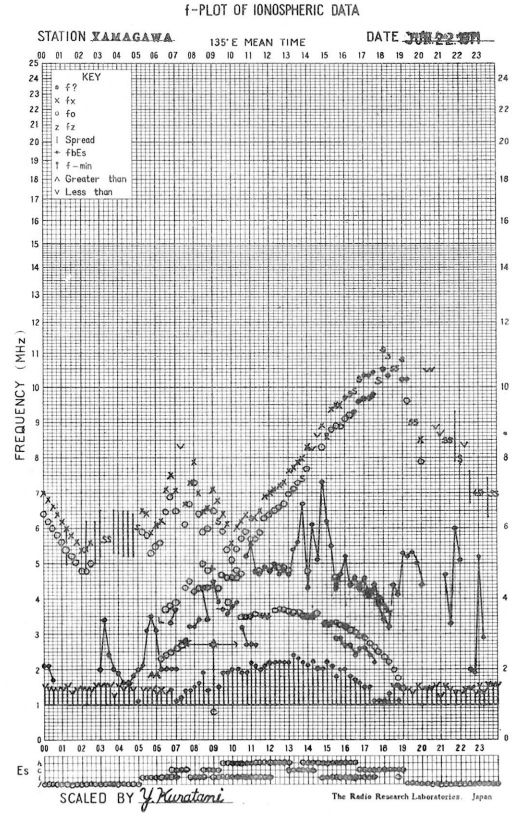
SCALED BY T. Cho
The Radio Research Laboratories. Japan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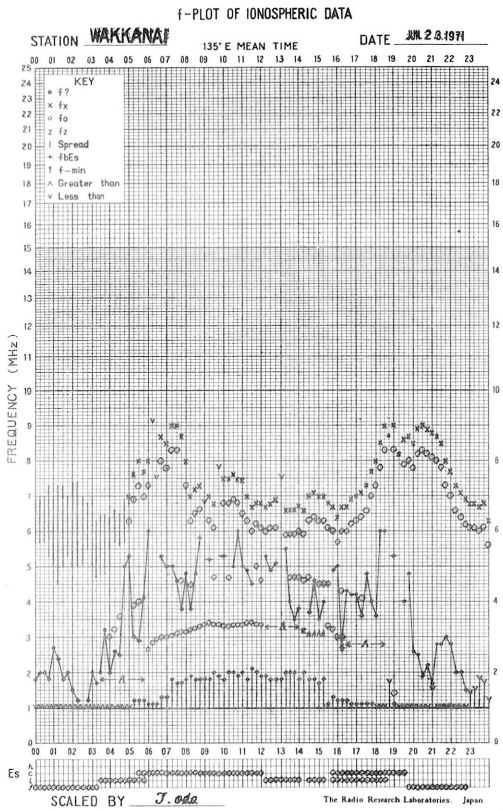
The Radio Research Laboratories. Japan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KEY
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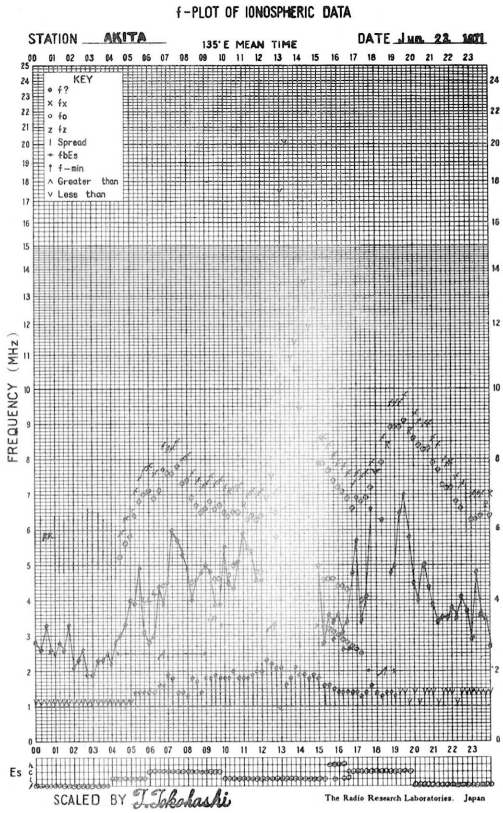
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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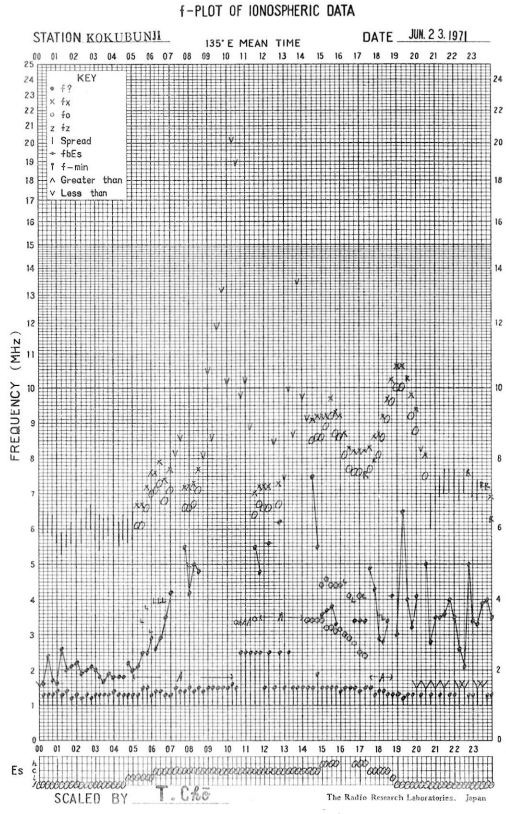
SCALED BY T. Ishikashi
The Radio Research Laboratories. Japan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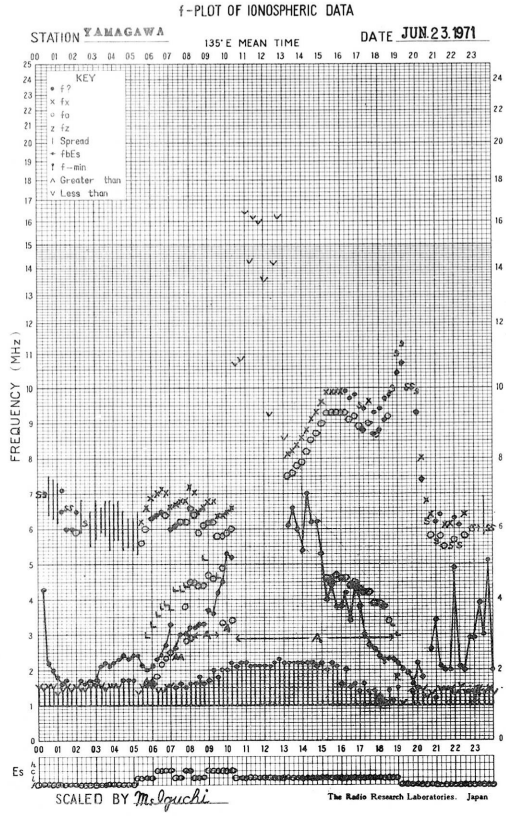
SCALED BY T. Cho
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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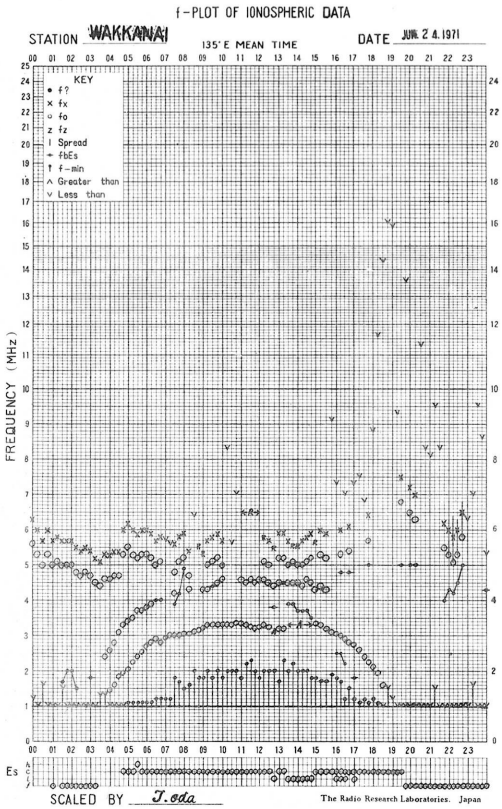
SCALED BY M. Iguchi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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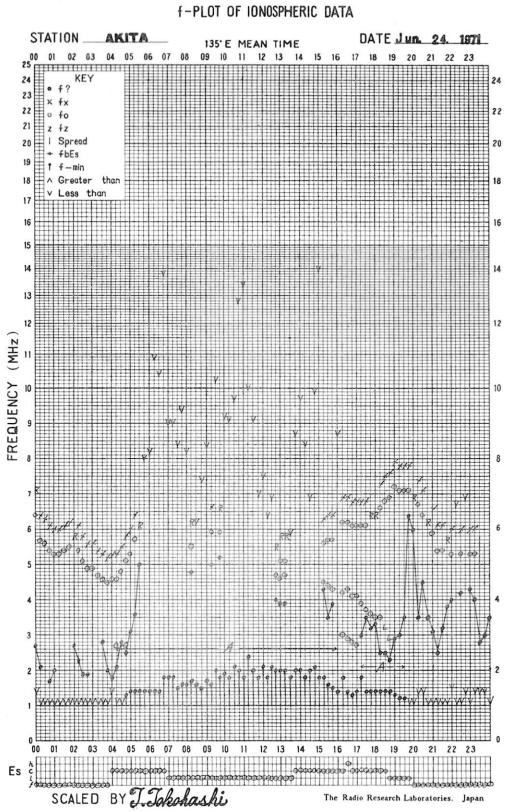
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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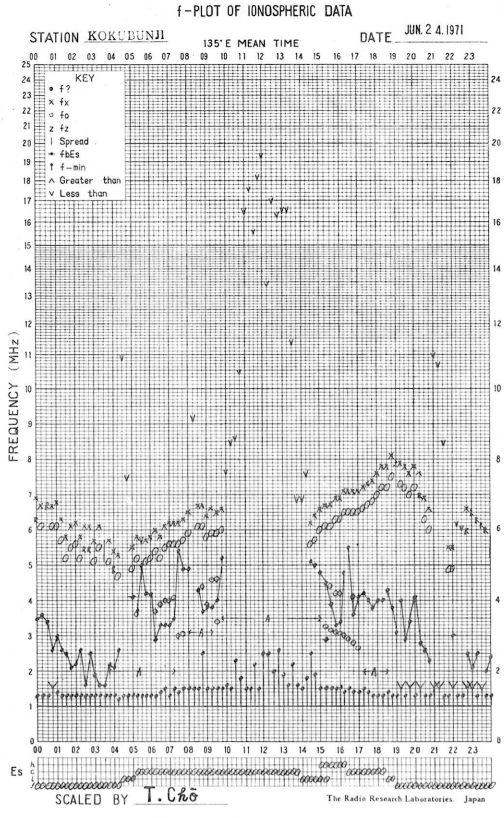
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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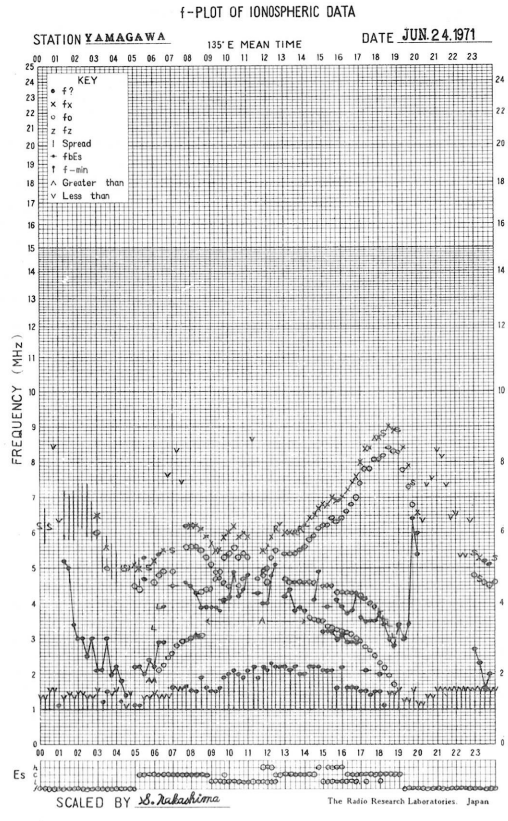
Es
SCALED BY T. Chō
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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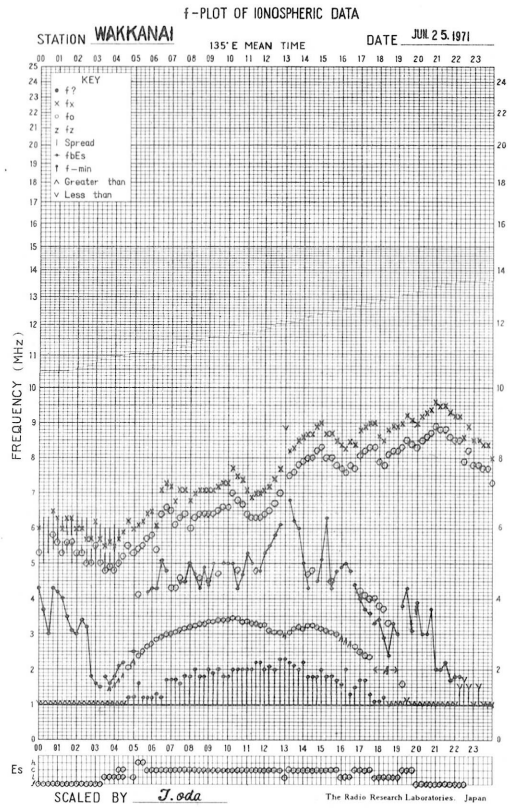
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan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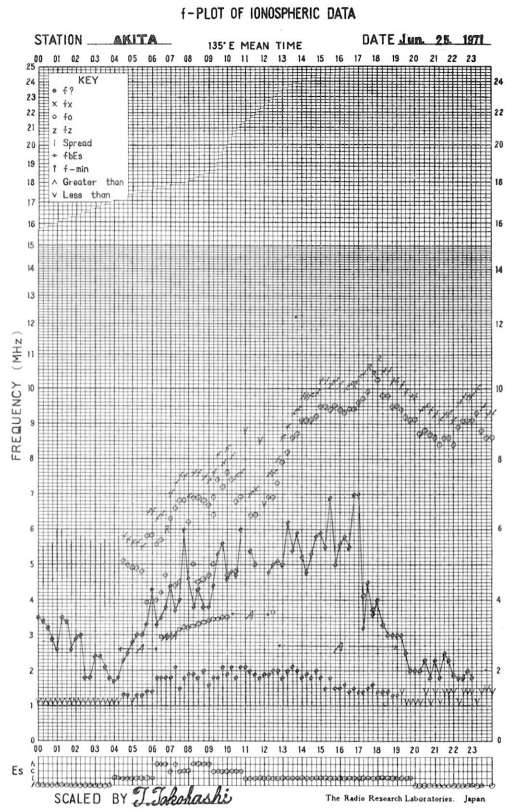
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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○ fo
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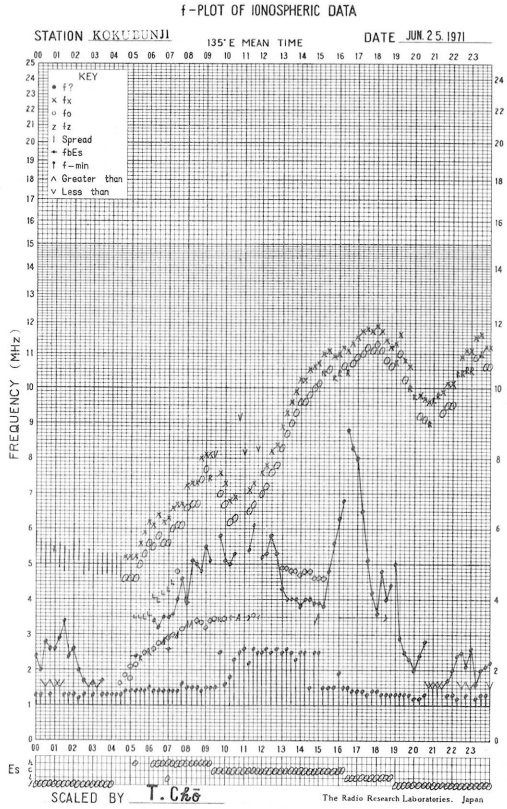
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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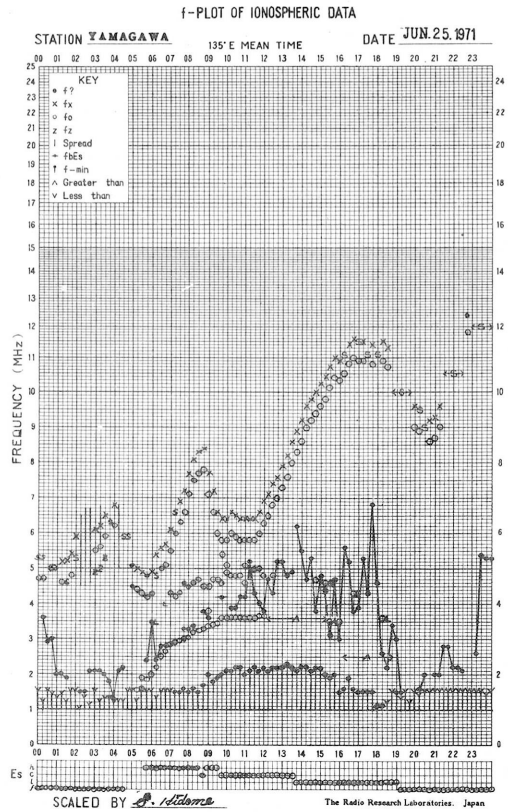
SCALED BY T. Chō
The Radio Research Laboratories. Japan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| Spread
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^ Greater than
v Less than
FREQUENCY (MHz)
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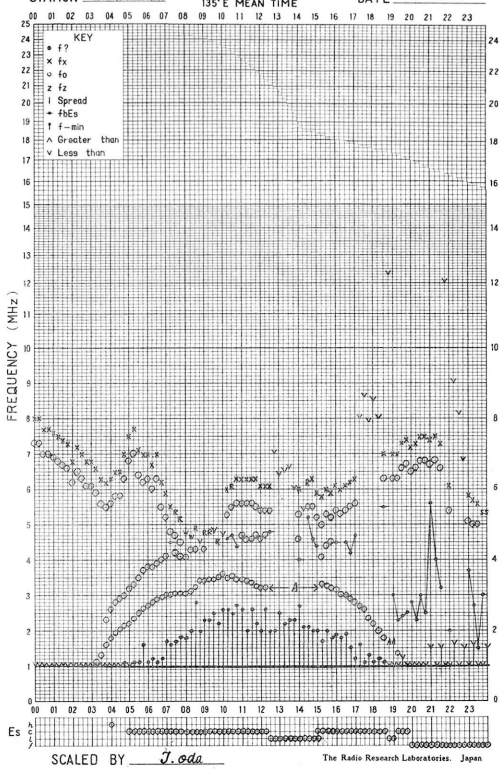
SCALED BY S. Iidaka
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE JUN. 2 6.1971

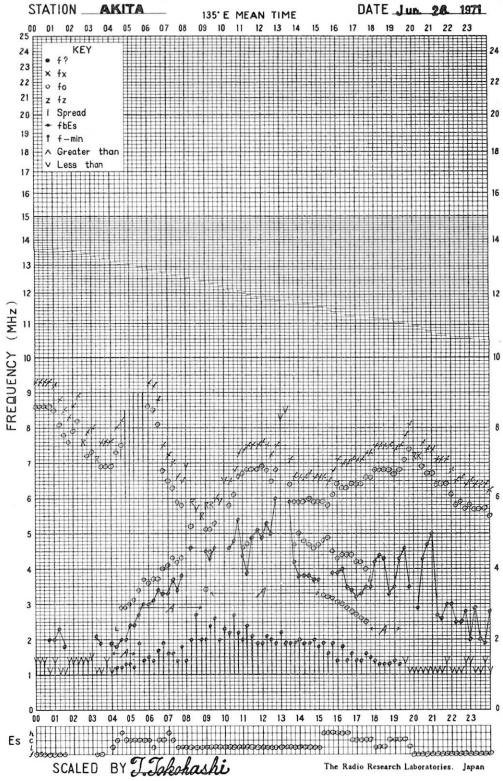


SCALED BY I. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE Jun. 26 1971

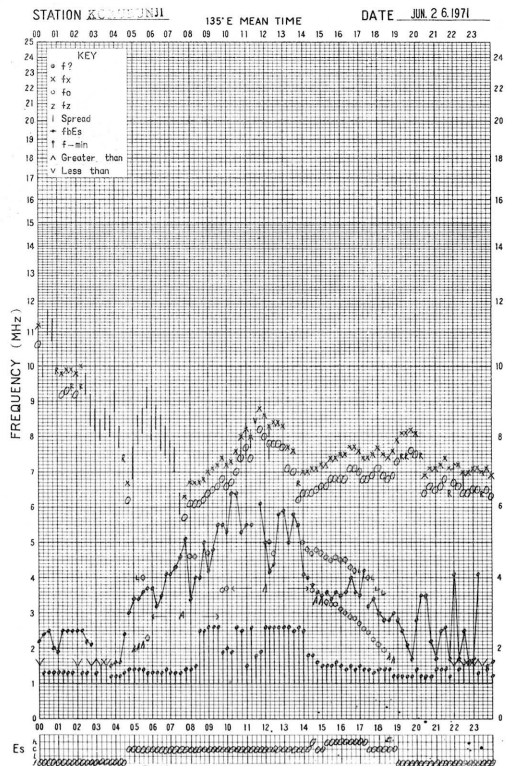


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION [illegible] 135°E MEAN TIME DATE JUN. 2 6.1971



SCALED BY T. Koigumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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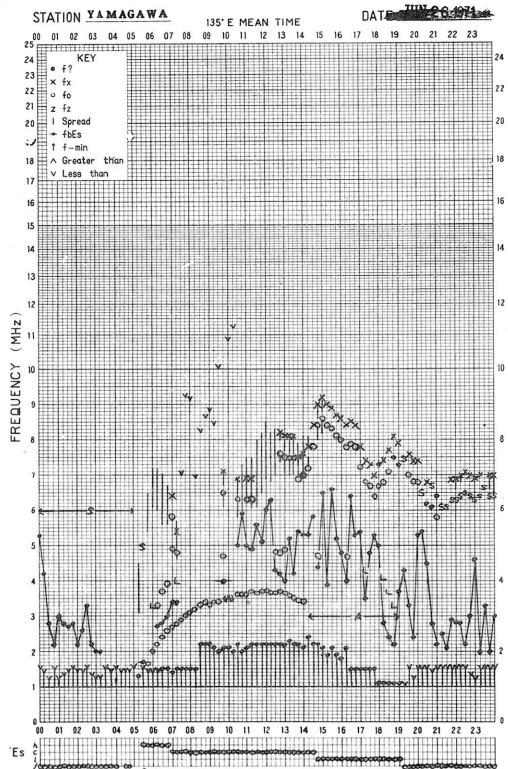
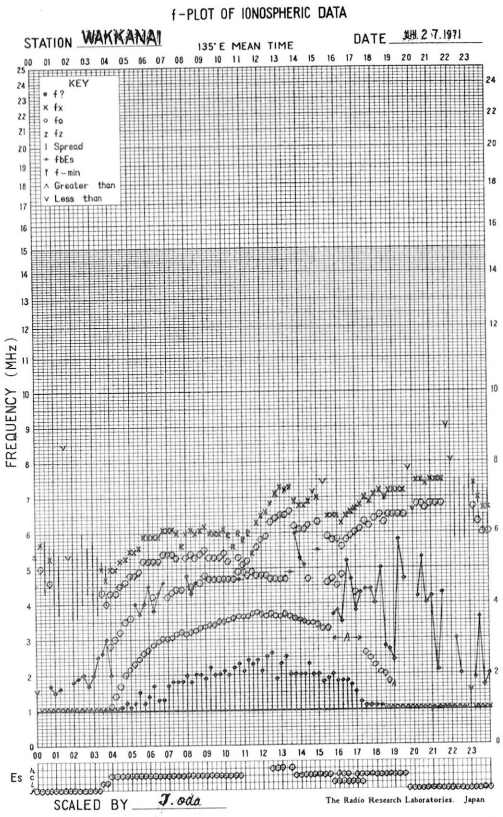


SCALED BY S. Nakashima

The Radio Research Laboratories. Japan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STATION WAKKANAI
135° E MEAN TIME
DATE JUN. 27. 1971
KEY
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← fbEs
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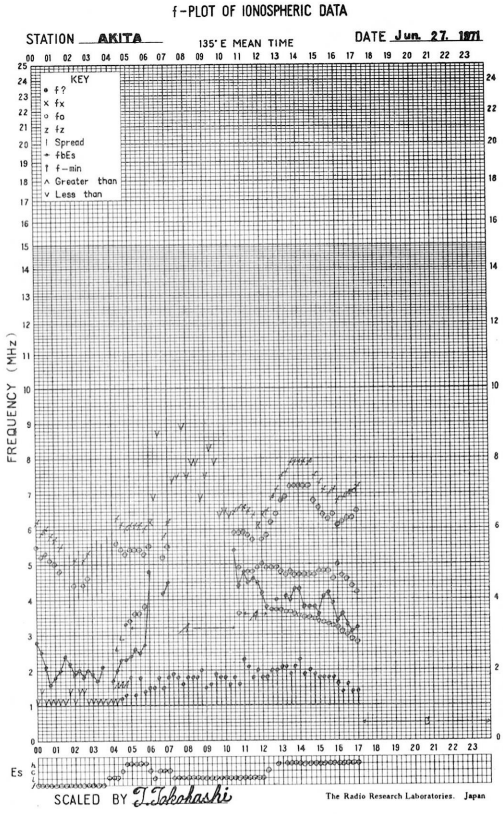
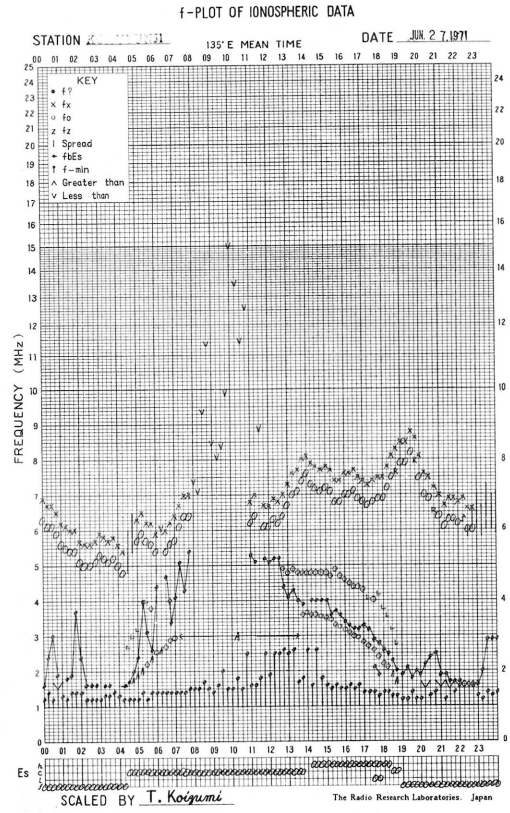
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135° E MEAN TIME
DATE Jun. 27. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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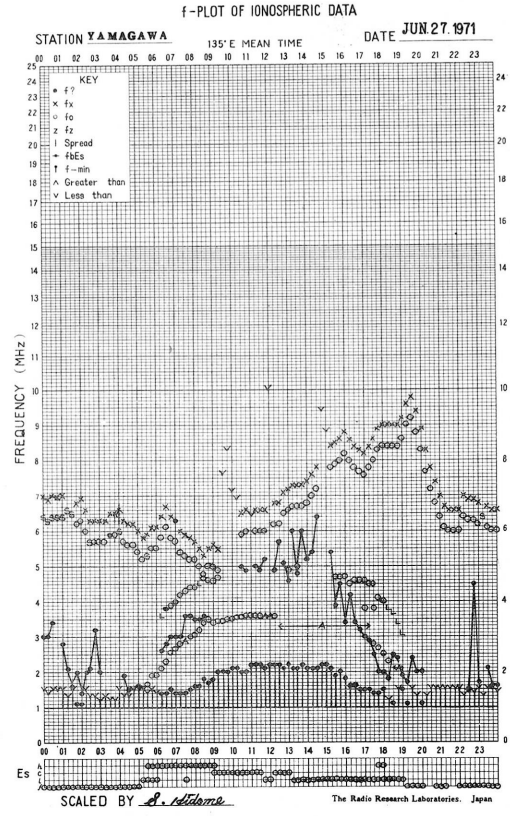
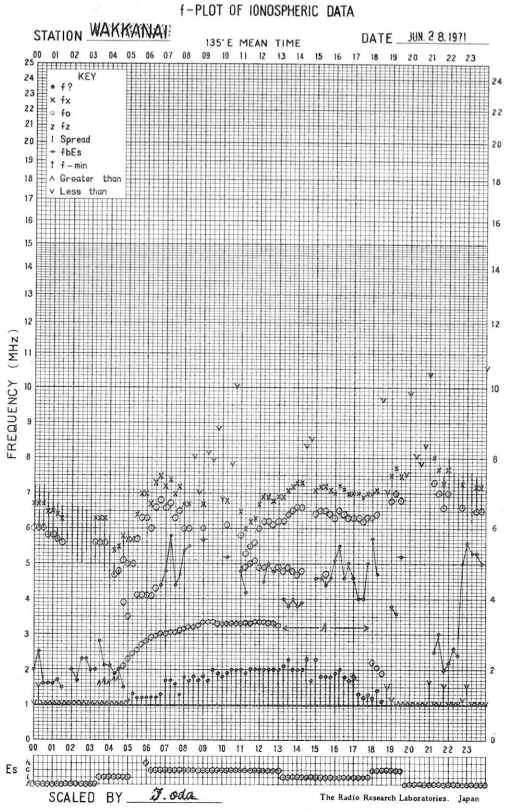
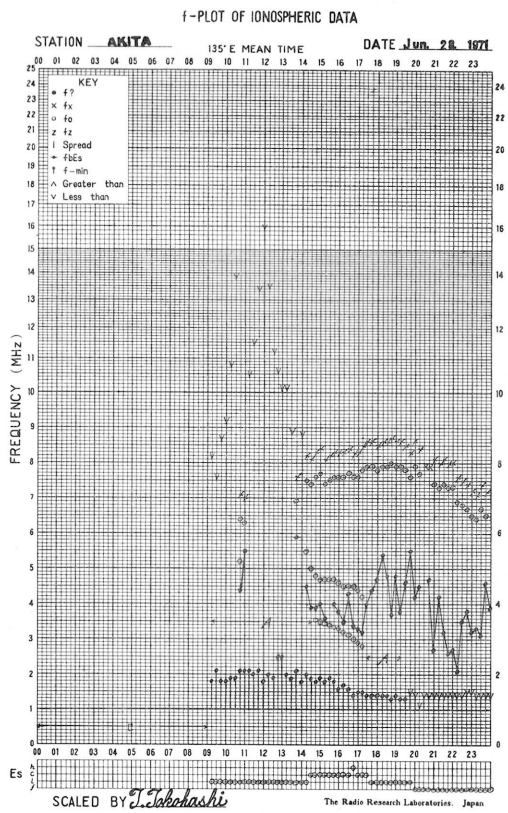
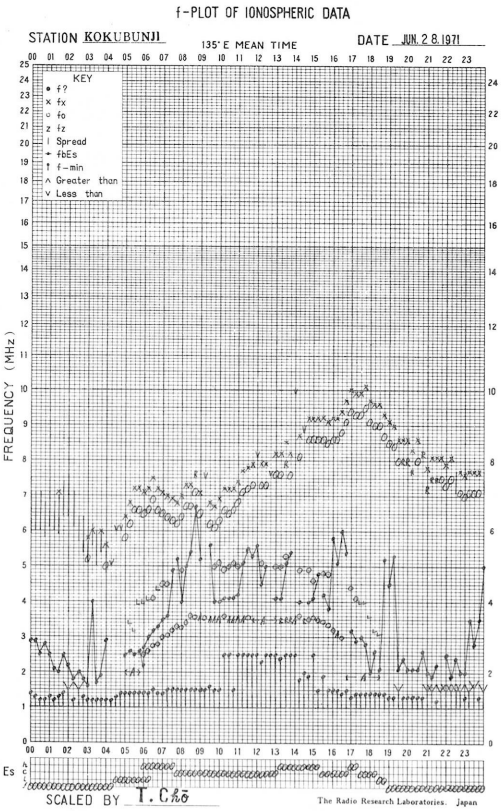
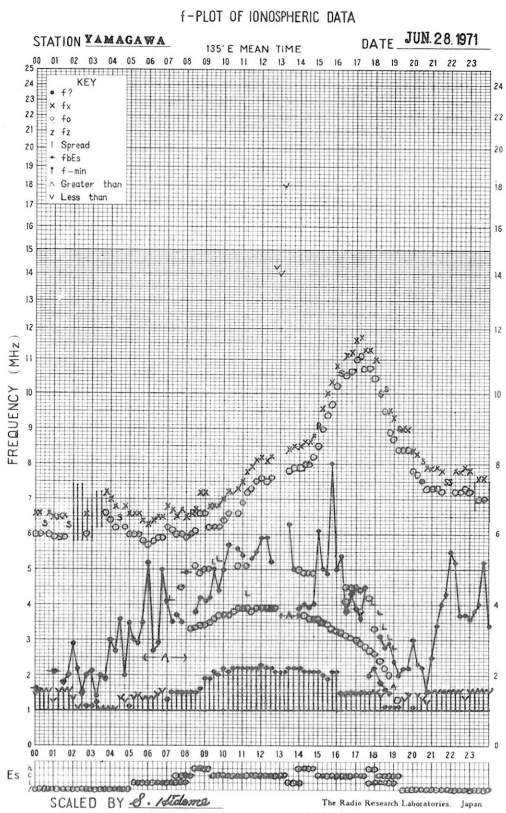
STATION
135° E MEAN TIME
DATE JUN. 27. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE JUN. 27. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY A. Ishitsuka
The Radio Research Laboratories. Japan


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


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


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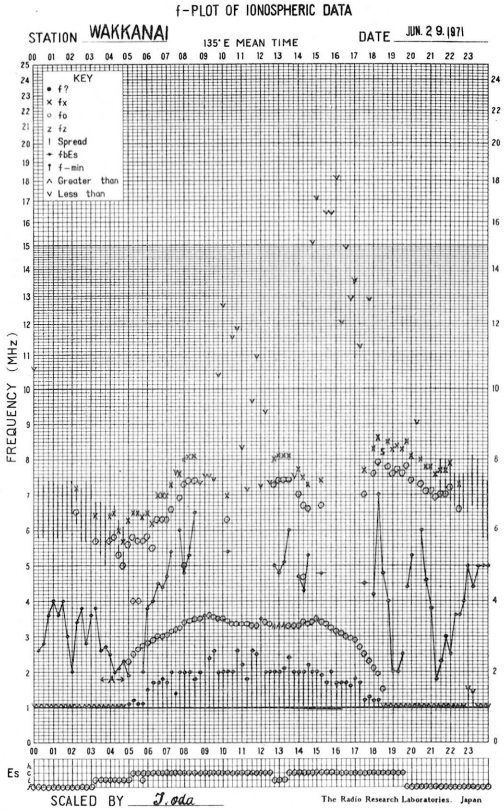
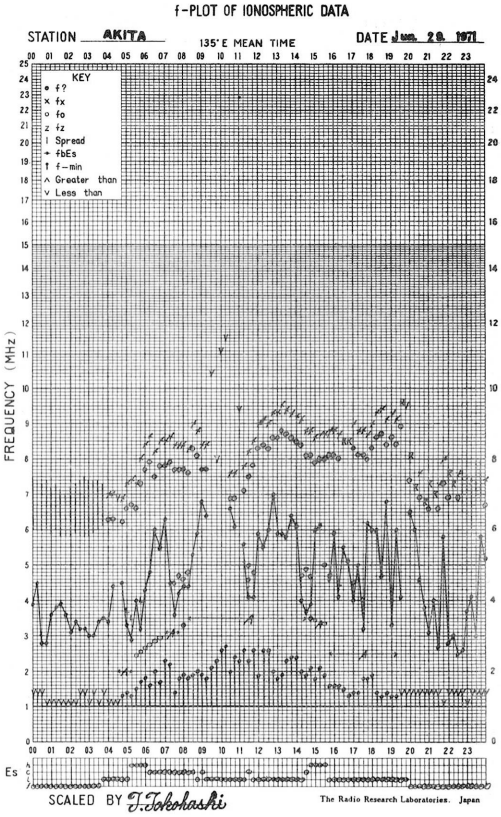
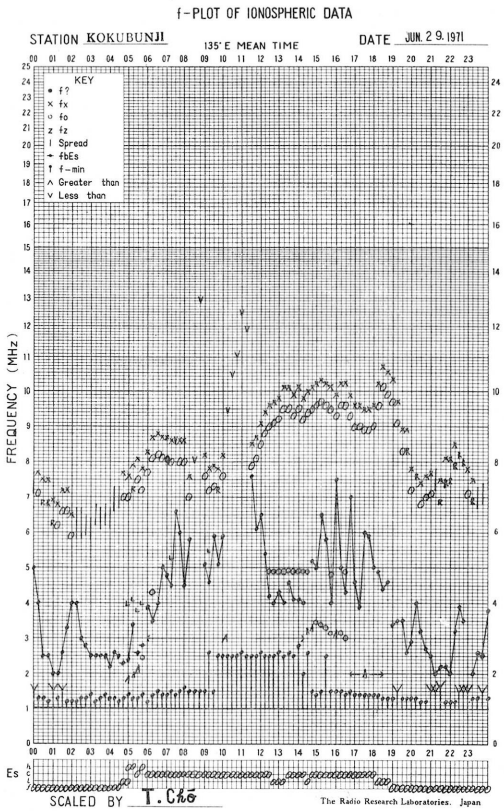
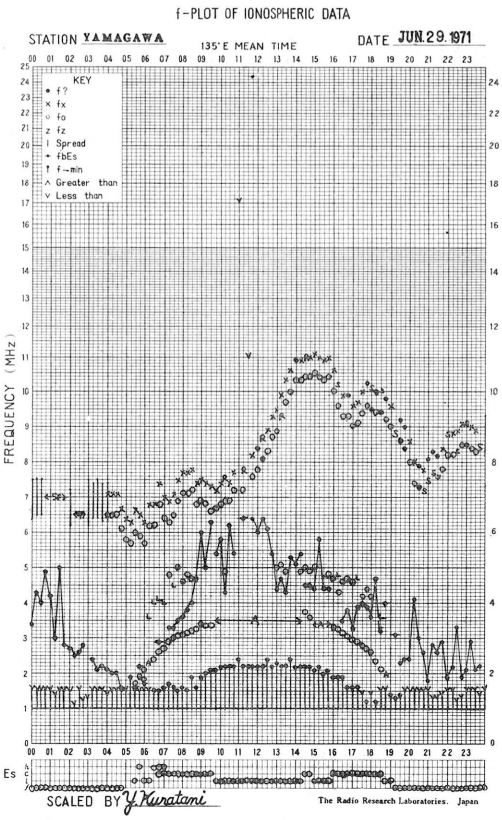
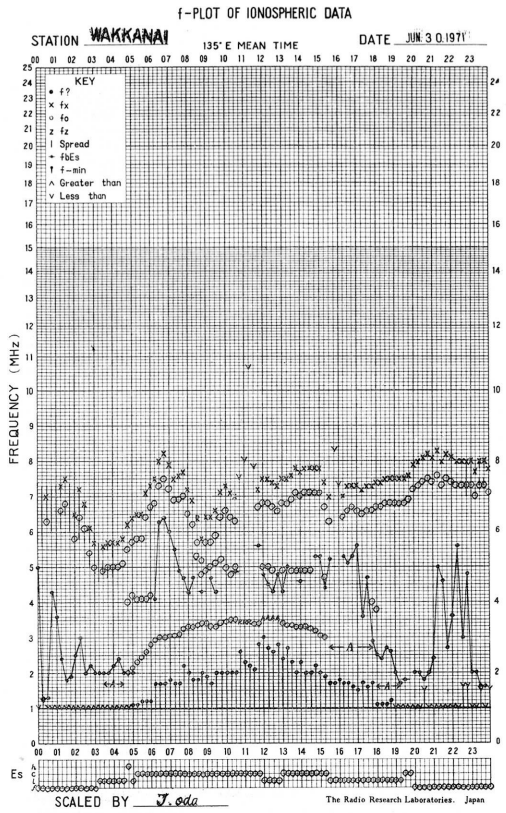
STATION YAMAGAWA
135° E MEAN TIME
DATE JUN. 28. 1971
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Kitamura
The Radio Research Laboratories. Japan

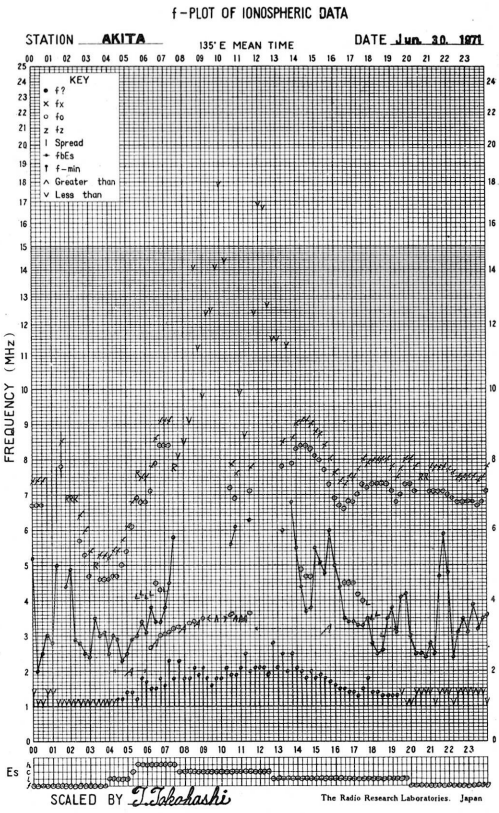

f-PLOT OF IONOSPHERIC DATA
STATION WAKKANAI
135°E MEAN TIME
DATE JUN. 29. 1971
KEY
• f?
× fx
○ fo
z fz
I Spread
⊣ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY I. Oda
The Radio Research Laboratories. Japan

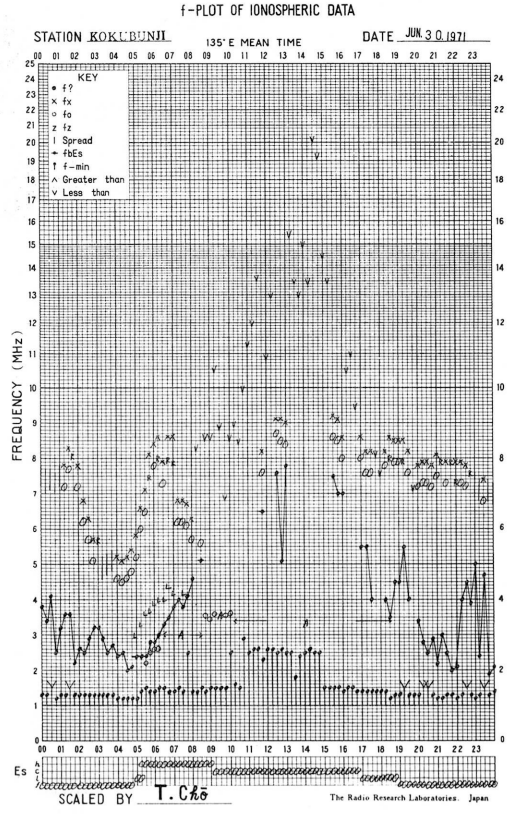

f-PLOT OF IONOSPHERIC DATA
STATION AKITA
135°E MEAN TIME
DATE Jun. 29. 1971
KEY
• f?
× fx
○ fo
z fz
I Spread
⊣ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Tokohashi
The Radio Research Laboratories. Japan

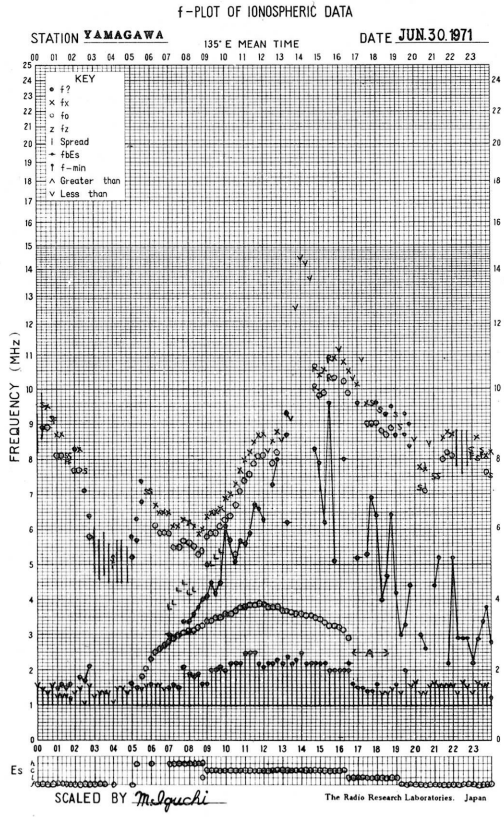

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI
135°E MEAN TIME
DATE JUN. 29. 1971
KEY
• f?
× fx
○ fo
z fz
I Spread
⊣ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Cho
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE JUN. 29. 1971
KEY
• f?
× fx
○ fo
z fz
I 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 JUN 30 1971
KEY
• f?
× fx
○ fo
z fz
I Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY J. Oda
The Radio Research Laboratories. Japan


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


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE JUN 30 1971
KEY
• f?
× fx
○ fo
z fz
I Spread
← fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY M. Iguchi
The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

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

	Flux density $10^{-22}Wm^{-2}(Hz)^{-1}$					Variability 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	7	7	q	6	7	*	*	*	1	*
2	8	11	9	20	8	1	1	0	1	1
3	8	7	7	q	10	0	0	0	0	0
4	6	6	6	6	6	0	0	0	0	0
5	7	7	6	6	6	0	0	0	0	0
6	6	6	5	6	6	0	0	0	0	0
7	6	6	6	8	6	0	0	0	0	0
8	6	6	7	6	7	0	0	0	0	0
9	5	6	6	5	6	0	0	0	0	0
10	5	5	6	-	5	0	0	0	-	0
11	6	5	5	-	5	0	0	0	-	0
12	4	4	4	-	4	0	0	0	-	0
13	6	5	5	-	5	0	0	0	-	0
14	4	5	4	4	5	0	0	0	0	0
15	5	6	6	4	5	0	0	0	0	0
16	5	5	4	4	5	0	0	0	0	0
17	4	5	5	5	5	0	0	0	0	0
18	5	5	5	5	5	0	0	0	0	0
19	5	5	4	5	5	0	0	0	0	0
20	5	5	5	4	5	0	0	0	0	0
21	5	5	5	5	5	0	0	0	0	0
22	5	5	5	5	5	0	0	0	0	0
23	5	5	4	4	5	0	0	0	0	0
24	4	4	4	4	4	0	1	0	0	0
25	4	4	5	4	4	0	0	0	0	0
26	5	5	4	5	5	0	0	0	0	0
27	5	5	5	6	5	0	0	0	0	0
28	5	5	6	6	5	0	0	0	*	0
29	7	6	7	10	7	0	0	0	0	0
30	9	9	8	5	9	0	0	0	0	0

Note No observations during the following periods:

10th 1920- 2400
11th 1920- 12th 0050
12th 1920- 13th 0015
13th 0525- 0615
14th 1920- 2400

q: quiet level, when radiometer is unstable.

*: interference by atmospherics.

SOLAR RADIO EMISSION

Flux Density

Month: June 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	23	23	q	29	23
2	29	28	28	31	29
3	28	26	27	28	28
4	29	30	29	28	29
5	28	29	29	30	29
6	29	29	30	30	30
7	31	30	28	28	30
8	27	26	26	28	27
9	26	25	26	26	26
10	27	26	24	24	26
11	25	25	24	26	24
12	25	25	24	25	25
13	25	23	23	25	24
14	24	25	24	25	25
15	24	23	23	23	24
16	23	22	24	22	23
17	23	23	23	22	23
18	24	23	23	24	23
19	26	25	24	25	25
20	24	24	24	26	24
21	26	25	25	23	25
22	23	22	22	24	23
23	23	22	22	23	23
24	23	23	23	26	23
25	25	23	23	25	24
26	25	24	23	24	24
27	24	23	24	23	24
28	25	24	24	25	24
29	26	25	24	26	25
30	26	28	26	29	27

q: quiet level, when radiometer is unstable.

Distinctive Events

(single-frequency observations)

Month: June 1971
Observing station: Hiraiso
Normal observing period: 1920 - 1000 (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	
24	500	0420.5	0420.7	1.0	C	160	90	
	200	0420.5	0423.0	16.0	C	50	5	
	100	0424.3	0423.5	2.0	C	20	5	
	500	0522.0	0528.5	14.0	C	20	3	
	200	0528.0	0532.0	13.0	C	15	5	
	100	0531.0	0531.5	1.5	C	15	5	
29	500	2237.0	2238.2	5.5	C	550	30	
	200	2237.0	2237.5	7.0	C	4000	350	
	100	2237.0	-	10.0	C	>1000	>300	
30	200	0031.0	0036.5	15.0	C	30	5	
	500	2148.8	2149.6	1.5	C	60	20	
	200	2147.0	2149.0	4.0	C	60	10	
	100	2149.0	2149.5	2.0	C	45	10	
	500	2349.9	2350.1	1.0	C	30	15	
	200	2349.0	2350.0	3.0	C	700	15	
	100	2349.5	2350.3	1.5	C	120	15	

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

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

MEASURED AT HIRAISO

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

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

JUN 1971 FREQJENCY 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	-3	4	10	14	19	21	27	24	22	23	23	20	24	22	19	24	11	14	14	2	2	-7	-7
2	-11	-2	1	-2	7	12	20	26	18	22	24	ES 19	13	10	22	12	1	2	8	15	6	-2	-4	-8
3	-8	-4	2	3	11	14	17	17	19	16	13	ES 23	19	-1	-5	ES -19	4	7	7	-3	-8	-8	-6	2
4	-4	-11	0	6	12	16	21	23	21	11	22	20	11	12	7	10	10	18	-13	13	16	6	-4	-3
5	-7	-1	-2	6	12	20	21	22	22	21	21	24	23	17	9	13	13	19	19	12	1	1	-6	-6
6	-3	-4	-2	7	12	19	22	22	22	24	23	21	17	12	19	24	16	1	2	4	5	6	-2	-3
7	-14	-5	-3	2	10	12	19	19	25	20	22	17	16	15	12	5	13	10	2	8	2	5	-2	-4
8	-3	-3	5	10	17	16	20	22	23	22	22	22	22	18	11	12	17	13	11	8	3	-3	-9	1
9	-5	-3	0	3	11	14	18	22	22	19	18	13	11	19	15	11	11	4	6	2	7	-4	-7	-4
10	-7	-7	-3	2	11	13	21	22	21	19	21	19	18	17	19	19	18	20	12	7	3	8	-3	-7
11	-7	-11	-3	-2	7	14	16	19	18	24	18	18	16	21	22	14	21	20	-2	1	2	-1	-3	-8
12	-14	-15	-8	9	13	15	18	21	21	18	-10	20	19	16	18	21	0	17	0	7	7	-1	-2	2
13	-8	-8	-7	1	8	15	19	8	20	17	16	21	19	15	ES 15	-19	-9	-4	3	11	5	3	6	-3
14	-4	C	-4	4	6	16	19	16	15	15	19	20	20	18	20	18	13	7	1	6	7	-8	0	-12
15	-8	-9	-4	1	4	14	16	18	21	22	16	21	15	17	ES 7	ES -25	-8	7	0	-4	-3	3	-9	-2
16	C	-8	-8	C	C	C	C	13	16	15	21	ES 11	16	10	ES -7	C	C	C	C	C	C	-2	C	-2
17	-7	-3	-2	3	4	14	20	17	17	21	20	20	12	19	14	2	5	16	2	5	-3	1	-5	2
18	-1	-10	-2	2	11	10	17	21	20	ES -17	16	16	2	-4	7	13	12	1	1	12	5	-4	-8	-13
19	-13	-4	6	2	3	3	18	19	19	12	13	6	14	14	2	ES -25	-22	2	-3	ES -1	5	1	-8	-10
20	-12	-7	-8	0	7	8	19	17	21	12	13	14	13	17	9	-15	3	4	3	6	1	-2	-8	-8
21	-9	-8	0	-1	5	7	8	8	13	15	7	ES 8	14	3	8	-11	-6	3	2	3	5	-3	-9	-9
22	-9	-9	-4	-6	5	16	18	17	16	19	11	15	13	7	9	5	5	5	2	1	1	-8	-7	-9
23	-6	-14	-6	-4	4	12	11	13	20	20	17	19	20	17	15	13	13	11	-4	-2	-4	-11	-9	-11
24	-13	-16	ES -6	-6	6	7	13	15	19	16	-5	9	9	3	3	ES -16	2	5	-8	-2	-14	-2	-1	-8
25	-4	-5	2	-7	2	10	12	19	19	17	16	19	18	13	13	16	13	9	8	-6	0	-4	-11	ES -25
26	-19	-13	-11	1	2	-2	13	11	13	20	17	13	12	6	ES -4	ES -30	-22	-1	2	0	-8	-7	-19	-9
27	-14	ES -8	-3	-6	1	9	13	6	17	19	14	17	8	10	12	6	18	14	2	1	-4	9	-11	-10
28	-8	-8	-5	-3	4	10	12	20	18	16	16	12	16	13	2	8	11	6	-3	-1	2	-7	-10	-17
29	-11	-8	-2	-3	-2	15	13	16	18	17	17	8	9	7	ES 6	11	16	11	2	-1	6	-11	ES -19	-8
30	-19	-13	-10	1	2	10	11	16	16	19	17	18	12	13	10	-5	12	7	7	3	ES -3	-4	-10	-3
CNT	29	29	30	29	29	29	29	30	30	30	30	30	30	30	30	29	29	29	29	29	29	30	29	30
MED	-8	-8	-3	1	7	14	18	18	19	19	17	US 18	16	14	US 10	10	11	7	2	3	2	-2	-7	-8
UD	-3	-3	4	9	13	19	21	23	23	22	23	ES 23	20	19	22	19	18	19	12	13	7	6	-1	2
LD	-14	ES -14	ES -8	-6	2	7	11	8	15	12	7	ES 8	9	3	ES -4	ES -25	-9	1	-4	ES -3	ES -8	-8	-11	-13

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Jun. 1971	Whole Day Index		W W V 00 06 12 18 / 06 12 18 24	LM 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1*	4°		(4)(5)(4) 4	5 2 - 4	4 4 4 4	N N N N	04.8	---	97Y
2*	3+		3 3 3 (4)	4 4 - (2)	4 4 4 4	N N N N	---	01.00	
3*	3+		4 (3) 3 4	3 3 - 4	4 4 3 4	N N N N			
4*	4°		4 3 (4)(4)	4 4 - 4	4 4 4 4	N N N N			
5	4°		(4) 4 4 4	5 4 - -	4 4 4 4	N N N N			
6	4+		(4) 5 4 4	(4) - - -	4 4 4 4	N N N N			
7	4°		(4) 4 (5) 4	4 3 - 5	4 4 4 4	N N N N			
8	5-		(4)(4)(5)(5)	5 5 - 4	4 4 4 4	N N N N			
9	4•		(4) 5 4 4	4 4 - 4	4 4 4 4	N N N N			
10	4+		4 5 (5)(4)	4 4 - 5	4 4 5 4	N N N N			
11	4°		(4) 4 (4)(4)	4 4 - C	4 4 4 4	N N N N			
12	4°		(4) 4 (4) 4	4 5 - -	4 4 4 4	N N N N			
13	4-		(4) 4 (4)(4)	3 - - -	4 4 3 4	N N N N			
14	4°		4 (4) 4 (4)	4 4 - 3	4 4 4 4	N N N N			
[15]	3°		4 (3) 3 (3)	4 2 - 3	4 4 3 4	N N N N			
[16]	4°		(4)(5)(4)(3)	4 3 - 4	(3) 4 (3) 4	N N N N			
[17]	3+		3 (3) 3 (3)	4 4 - 3	4 4 4 4	N N N N			
18	4-		3 4 3 (4)	4 4 - 4	4 3 3 4	N N N N			
19	4°		4 4 4 (4)	4 4 - -	4 4 3 4	N N N N			
20	4°		4 (4)(4)(4)	4 - - -	4 4 4 4	N N N N			
21	4-		(4) 4 3 (4)	4 2 - 5	4 3 3 4	N N N N			
22	4°		4 4 (4)(4)	5 3 - 4	4 4 4 4	N N N N			
23	4°		(4) 4 4 4	4 4 - 3	4 4 4 3	N N N N			
24	4°		4 4 4 (4)	3 4 - 4	3 3 4 3	N N N N			
25*	3+		(4) 3 (3)(2)	4 5 - (2)	4 4 4 3	N N U U	05.00	---	91Y
26*	3-		(2)(2)(2)(4)	3 3 - -	3 3 3 3	U U U U	---	15.00	
27	4-		4 3 4 (4)	(4) - - -	3 4 4 4	U N N N			
28	4°		4 (5) 4 4	4 4 - 3	4 4 4 3	N N N N			
29	4°		4 4 4 (4)	4 3 - 4	4 4 4 4	N N U U			
30	4°		3 5 4 (4)	4 (4) - -	3 4 4 4	U N N N			

GEOALERT

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

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

C = artificial accident
--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

Jun. 1971	S W F						Correspondence		
	Drop-out Intensities (db) CO LM HA TO SH	Start-time	Dura-tino	Type	Imp.		Flare	Solar Noise	Mag
29	×	22.38	14	S	×			×	

I N U B O

1971 Jun.	S P A Phase Advance(degrees)					Time (U.T.)			Remarks
DATE	GBR	WWVL	NAA	NPG	NWC	Start	End	Maximum	
18			10	7	12	0024	0052	0030	
24	—	—	—	—	48	0527	0643	0537	
24				11		2138	2219	2151	
25		47*	43*	45*	40*	2315	0103	2341	X
26			29		16	0104	0202	0130	
29	20	36	38	54	32	2238	0016	2241	
30		29	16	20		2149	2255	2156	

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, respectiveiy.

(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 JUNE 1971

第 23 巻 第 6 号

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