F-281 Revised Edition

IONOSPHERIC DATA IN JAPAN

FOR MAY 1972

VOL. 24 No. 5

Issued in July 1973

Prepared by the

RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

TOKYO, JAPAN

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IONOSPHERIC DATA IN JAPAN FOR MAY 1972
(Vol.24 No.5) F-281 の送付について

さきにお送りいたしましたF-281およびRF-281は、共に製本に一部誤りのあったものもありましたので、改訂版F-281を送付します。

In the "IONOSPHERIC DATA IN JAPAN FOR MAY 1972" (F-281) and (RF-281) already sent to you, there were some errors in edition.
Please use this revised edition FOR MAY 1972, (F-281).

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CONTENTS

SITE OF THE RADIO WAVE OBSERVATORIES AND HIRAISO BRANCH

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

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

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

Terminology

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

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

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

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

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

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

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

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

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

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

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

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

a. Descriptive Letters

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

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

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

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

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

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

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

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

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

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

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

N Conditions are such that the measurement cannot be interpreted.

O Measurement refers to the ordinary component.

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

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

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

V Forked trace which may influence the measurement.

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

X Measurement refers to the extraordinary component.

Y Intermittent trace.

Z Third magneto-ionic component present.

b. Qualifying Letters

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

the monthly tabulation sheets.

D — greater than.

E — less than.

I — Missing value has been replaced by an interpolated value.

J — Ordinary component characteristic deduced from the extra-ordinary component.

O — Extraordinary component characteristic deduced from the ordinary component. (Used for x- characteristics only.)

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

U — Uncertain or doubtful numerical value.

Z — Measurement deduced from the third magneto-ionic component.

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

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

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

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

d. Description of Standard Types of *Es*

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

F — An *Es* trace which shows no appreciable increase of height with frequency. The trace is usually relatively solid at most latitudes. This classification may only be used at night; apparently flat *Es* traces observed in the daytime are classified according to their virtual hight: *H* or *L*.

L — A flat *Es* trace at or below the normal *E* layer minimum virtual height in the day or below the night *E* layer minimum virtual height at night.

C — An *Es* trace showing a relatively symmetrical cusp at or below f_oE. This is usually continuous with the normal *E* trace, although when the deviative absorption is large, part or all of the cusp may be missing. (Usually a daytime type.)

H — An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above f_oE. The cusp is not symmetrical, the low frequency end of the *Es* trace lying clearly above the high frequency end of the normal *E* trace. (Usually a daytime type.)

Q — An *Es* trace which is diffuse and non-blanketing over a wide

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

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

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

S A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace. The rising trace alone is classified as *'S'*; the horizontal trace is classified separately. At high latitudes the slant trace usually starts to rise from a horizontal *Es* trace such as *Es-L*, or *Es-F*, at frequencies which greatly exceed the *E* layer critical frequency, whereas at low latitudes it usually rises from *Es-Q Es-C* or *Es-H* at frequencies near the regular *E* critical frequency. Type *S* is never used to determine f_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	4.5m 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.

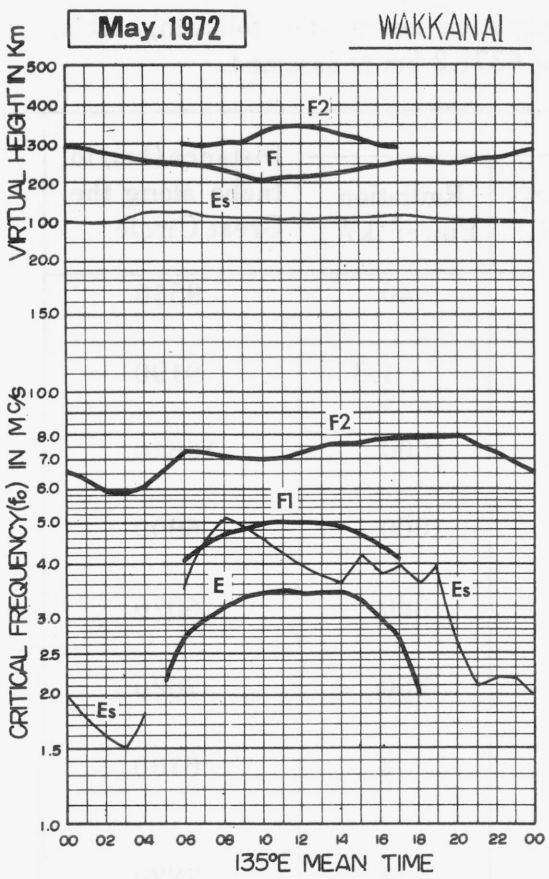
Transmitting Site					Distance (km) to Inubo along the Great Circle
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz-UTC)	Radiation Power (kW)	
Rugby	52°22′N 001°11′W	GBR	16.0	40	9550
Fort Collins	40°41′N 105°03′W	WWVL	20.0	1.8	9190
Cutler	44°39′N 067°17′W	NAA	17.8	1000	10640
North West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

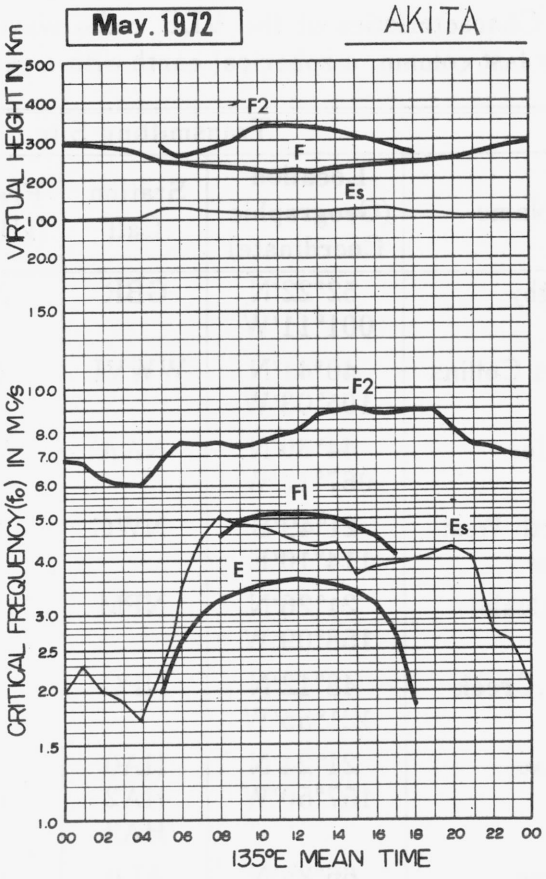
The phase advance is shown in its maximum stage. In the column 'Phase Advance', — means no transmission or no reception during the period, and blank means indistinguishable record.

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.

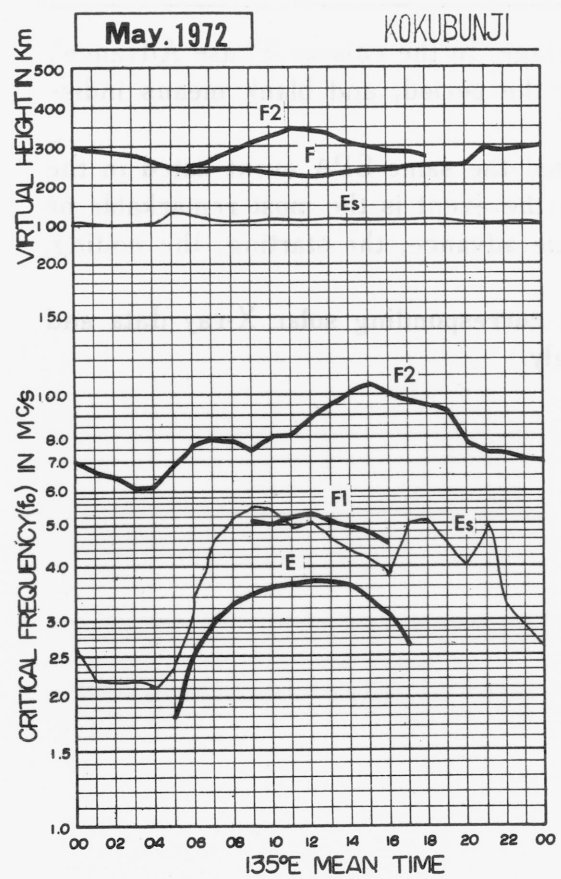
In the column 'Remarks', the event with its corresponding solar X-ray data and solar radio data is shown by 'X' and 'R', respectively.

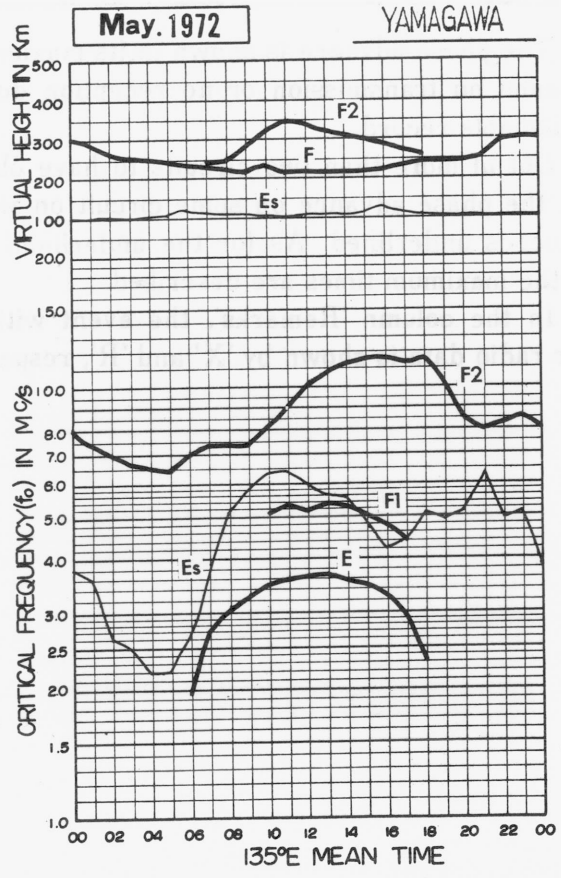
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

MAY. 1972 | FOF2 (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	40	36	34	34	32	41	50	53	60	63	63	64	66	66	76	74	68	69	65	73	69	58	57	57
2	53	51	51	46	47	60	64	67	60	63	74	70	76	78	76	74	74	69	69	75	76	72	63	56
3	54	56	54	51	53	53	52	47	47	49	52	R	48	50	52	54	58	56	58	63	54	55	53	54
4	50	50	49	43	42	47	48	47	47	48	51	51	56	60	59	58	59	63	64	70	A	57	55	F
5	F 50	I S 49	51	48	48	62	67	64	61	56	58	63	66	69	69	73	71	72	70	77	71	64	61	58
6	54	53	52	51	52	64	73	74	66	63	65	73	69	80	85	84	83	80	80	A	80	71	66	62
7	62	60	59	F	F	61	63	I A 65	71	73	72	70	69	73	77	80	82	84	79	80	73	66	66	62
8	F	F	F	F	F	66	77	68	70	70	75	83	77	76	74	76	76	74	73	83	83	78	73	68
9	66	I S 62	60	58	59	73	86	83	74	83	82	83	74	78	79	82	80	78	81	91	91	S 83	73	63
10	60	I C 58	58	C	C	C	57	61	68	66	72	62	64	73	78	83	I A 80	83	76	S	A	A	72	C
11	C	C	C	62	60	67	68	64	A	A	66	H 60	65	65	90	68	70	68	77	84	79	71	63	58
12	59	60	C	C	58	67	64	70	70	67	68	71	76	77	77	78	86	86	86	91	84	81	75	70
13	C	69	69	68	71	C	C	85	84	87	92	88	81	89	89	81	78	80	84	93	85	C	78	C
14	73	C	C	64	71	81	98	87	85	77	R	83	84	86	89	91	87	83	C	C	88	86	85	78
15	73	68	64	63	61	65	73	80	85	75	73	69	75	81	83	83	80	74	74	80	86	81	76	71
16	69	65	66	63	62	60	64	80	C	84	71	72	75	98	88	F 73	F 66	F 70	F 74	79	76	F	F	F
17	F	F 59	F 58	F 58	F 58	F 60	49	48	A	R	R	54	53	53	58	60	60	63	65	70	71	68	S 63	F
18	F	F	F	F 57	F	63	68	63	R	64	73	H 66	66	70	75	77	78	A	A	80	78	78	75	73
19	71	68	63	63	67	75	85	95	93	87	82	84	87	85	83	83	86	85	80	81	83	81	80	79
20	80	79	76	70	67	75	83	79	76	80	78	79	84	86	84	81	82	81	83	85	86	82	80	83
21	79	78	76	68	69	77	80	83	79	82	73	74	77	76	79	82	I A 84	86	94	100	89	75	76	75
22	73	74	73	73	67	68	80	96	88	82	78	79	79	75	75	77	I A 81	80	88	93	84	78	73	74
23	73	74	73	67	67	75	84	85	95	90	86	80	80	83	76	84	86	85	89	88	83	74	68	67
24	66	65	61	57	57	68	79	88	79	67	63	68	76	75	65	70	76	83	85	80	73	69	67	67
25	66	I C 64	64	63	64	66	74	77	80	70	70	71	73	68	67	70	78	80	81	86	80	74	73	74
26	71	67	63	62	63	70	87	83	70	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	68	73	73	79	77	74	73	73	80	84	81	76	73	72
28	67	65	61	58	59	62	66	64	60	73	66	61	C	73	72	72	75	84	86	86	81	78	76	S
29	69	I S 67	F	F 60	56	62	74	66	A	50	49	A	58	63	58	59	A	60	63	69	I S 76	78	73	64
30	64	60	59	58	60	75	74	69	63	60	62	62	67	64	67	61	64	63	63	74	83	80	77	68
31	62	58	52	53	60	60	74	85	89	69	58	57	61	65	68	66	63	A	67	77	78	73	68	60
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	24	26	26	28	29	30	25	27	28	28	29	30	30	30	29	28	28	27	28	27	29	24
MED	66	63	60	59	60	66	73	72	71	70	70	70	73	75	76	75	78	79	78	80	80	75	73	68
UQ	71	68	65	63	67	72	80	83	84	81	74	79	77	80	83	82	82	83	84	86	84	79	76	74
LQ	59	58	53	53	56	60	64	64	63	63	63	62	66	66	68	70	70	69	68	76	76	70	66	61

The Radio Research Laboratories, Japan

MAY. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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							400		U L 460	A	470	480	480	470	460	440	400							
2										480	480	500 L	500	470	490	450	420 L							
3							370		A	420	430	460	A	450	430	430	410							
4								410	420	450	460	470	470	A	470	470	420							
5							U L 380	420	A	A	500	480	480	470	460	440	440	A						
6								420	A	A	480	490	A	A	A	A	430							
7									A	A	500	500	500	500	480	470	430	A						
8								A	A	480	510	490	500	480	500	460	440 L							
9									470	500	500	510	520	500	500	470	U L 440							
10								A	A	A	500	500	520	500	490	A	A	410						
11							A	450	A	A	A	A	A	500	500	470	A	A						
12								500	500		510		550	520	530 L	500 L	A	410 L						
13									L	480	520	530	L	500	530	500	460 L							
14									A	A	A	530	560	540	A	510								
15						U L 380	430	470	500	500	510	560	560	530	520	510 L								
16							430	470	C	500		530	540	520	500									
17								A	A	460	470	480	480	480	480	480	460	L						
18							A	A	A	A	A		500	500	A	490	470	A						
19							A	A	A	A	A	A	510	510	500	500 L	470 L							
20							L	A	500	500	A	A	510	500	500	510	470							
21								L	480 L	500	490	520	520	520 L	490	490	A	A						
22								A	480	500	480	510	510	510	510	510 L	A	A						
23								A	490	A	500	510	510	500		480	450	A						
24							460 L	450	450	500	500	A	500	490	500	460	B	A						
25							L	460 L	460	470	500 L	500	500	500	480	470	450	410						
26							410	A	450	C	C	C	C	C	C	C	C							
27							C	C	C	C	480	490	490	470	460	450	440	U L 400						
28							410 L	430 L	480	460	A	500	C	500	470	460	440	410	A					
29						A	A	A	A	460	460	A	A	450	440	440	A	410						
30							A	A	A	A	A	490	490	480	450	460	A	A						
31						400	410	A	450	A	500	490	470	480	A	470	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	9	10	14	16	22	23	24	28	25	27	18	6						
MED						390	410	450	475	480	500	500	500	500	490	470	440	410						
UQ							430	470	490	500	500	510	520	505	500	495	460	410						
LQ							400	420	450	460	480	490	490	480	470	460	430	410						

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MAY. 1972 | FOF1 (0.01 MHz)

IONOSPHERIC DATA

MAY. 1972 | 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					E	190	240	290	300	320	325	330	330	315	A	A	A	A	190	A				
2					E	195	230	290	300	325	340	350	345	330	310	A	A	240	185	E				
3					E	190	235	285	300	320	325	325	315	A	320	300	285	235	185	E				
4					E	150	235	290	305	330	350	350	360	335	330	315	290	240	195	F				
5					E	160	240	280	300	325	340	320	330	325	330	320	295	240	160	E				
6					E	200	260	295	325	335	335	355	355	340	315	275	255	A	A	E				
7					E	185	255	300	320	330	345	350	340	310	315	320	A	A	160	E				
8					E	200	265	295	315	330	330	330	A	A	335	A	A	255	180	E				
9					S	200	265	300	325	325	335	325	335	360	345	I A 320	300	260	195	F				
10					C	C	260	300	325	340	B	360	I R 365	370	350	330	300	270	190	E				
11					105	205	265	300	330	355	360	365	340	A	R	A	310	270	195	E				
12					125	220	270	300	325	345	370	375	I R 365	375	370	350	310	275	210	E				
13					E	C	C	305	315	350	335	A	380	375	350	340	315	280	195	E				
14					E	215	285	315	345	365	B	340	B	A	A	A	A	285	C	S				
15					105	220	280	310	345	365	365	370	360	345	345	340	A	A	220	S				
16					115	220	280	310	C	355	375	385	385	385	365	345	300	280	220	S				
17					E	215	265	300	320	330	350	350	365	375	350	330	300	270	205	120				
18					A	215	270	300	340	340	335	335	330	325	330	330	300	270	200	S				
19					A	220	275	305	330	350	365	355	335	340	I A 325	315	305	280	210	S				
20					A	220	280	300	325	345	360	365	355	340	325	R	A	A	A	A				
21					A	225	280	305	320	335	350	355	345	320	350	330	300	260	200	S				
22					S	215	285	305	330	335	350	340	A	R	350	340	300	270	200	E				
23					125	220	285	305	335	B	B	R	360	365	355	335	305	280	200	E				
24					120	215	270	300	315	340	350	345	335	A	345	325	B	B	200	E				
25					A	225	285	300	325	335	345	350	A	A	335	A	305	270	A	A				
26					120	225	280	300	320	C	C	C	C	C	C	C	C	C	C	C				
27					C	C	C	C	C	C	340	B	370	A	A	A	A	275	205	E				
28					125	230	280	300	320	335	335	345	C	330	350	330	300	275	205	F				
29					160	225	270	295	315	330	335	340	330	R	A	340	295	270	220	E				
30					130	225	275	300	315	325	325	B	330	B	A	A	A	270	205	S				
31					130	225	280	300	320	330	335	365	A	A	A	A	305	270	215	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					22	28	29	30	29	28	27	26	24	19	23	20	20	24	26	19				
MED					F E 105	215	270	300	320	335	340	350	345	340	345	330	300	270	200	E				
UQ					125	222	280	305	325	342	350	360	362	368	350	340	305	275	205	E				
LQ					E	200	260	295	315	330	335	340	332	328	328	320	298	260	190	E				

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MAY. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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

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 20	13	E	13	E	G	29	38	41	50	46	48	41	35	JX 50	JX 43	JX 35	JX 34	G	19	FS 15	15	ES 15	E
2	E	20	JX 25	JX 20	20	G	G	G	G	G	G	40	G	46	JX 41	JX 50	JX 38	G	G	30	18	JX 33	JX 51	JX 21
3	20	24	17	E	14	G	28	38	43	42	38	G	44	38	G	38	35	40	JX 41	JX 25	JX 31	18	JX 27	JX 23
4	25	E	15	E	14	21	G	34	38	44	46	44	G	JX 55	G	38	G	G	JX 38	JX 81	JX 71	JX 53	JX 63	JX 56
5	JX 53	JX 25	JX 21	20	16	27	G	40	JX 54	JX 53	JX 73	JX 43	38	40	G	36	41	JX 51	JX 41	JX 55	JX 28	17	JX 28	JX 40
6	JX 44	JX 30	JX 24	JX 25	JX 21	G 20	JX 43	38	54	49	43	40	JX 60	JX 68	JX 70	JX 51	40	35	28	JX 76	JX 50	20	E	FS 15
7	E	E	E	E	E	G	33	JX 73	JX 61	JX 51	48	43	JX 52	JX 46	43	44	38	JX 44	34	JX 63	JX 25	JX 53	JX 51	JX 61
8	JX 31	JX 41	JX 41	JX 18	JX 51	33	33	46	53	43	40	42	44	JX 45	G 33	JX 41	JX 50	JX 42	JX 56	JX 48	19	E	E	E
9	ES 14	21	16	15	ES 16	26	31	36	JX 59	44	JX 54	JX 51	G	G	G	JX 48	G	31	JX 45	25	20	21	15	22
10	JX 20	C	JX 23	C	C	C	35	JX 48	JX 51	JX 63	JX 53	42	G	G	G	JX 51	JX 83	JX 43	34	JX 30	JX 113	JX 100	JX 50	C
11	C	C	C	E	JX 31	33	JX 44	43	M 71	JX 108	JX 53	JX 51	JX 55	35	G	44	JX 64	JX 65	35	JX 28	F	F	FS 15	18
12	18	24	C	C	29	G	G	39	40	39	G	G	G	G	G	43	JX 51	36	JX 45	49	JX 63	20	JX 20	40
13	JX 21	ES 17	E	24	20	C	C	G	G	G	40	42	G	G	G	G	G	37	JX 35	23	ES 15	FS 15	E	ES 15
14	JX 20	C	ES 15	ES 15	20	29	35	JX 51	JX 58	JX 61	JX 74	JX 60	JX 56	JX 56	JX 64	JX 54	35	40	C	JX 46	18	15	15	15
15	25	E	E	E	G	30	40	JX 48	41	40	G	G	42	42	42	G	36	28	28	JX 40	JX 33	JX 33	20	JX 25
16	JX 26	JX 20	E	E	G	40	35	36	C	JX 53	50	43	G	G	G	G	38	37	40	JX 41	JX 25	JX 41	JX 25	E
17	E	E	E	15	21	G	36	JX 45	JX 76	JX 64	JX 61	39	45	G	G	G	42	41	JX 36	JX 71	JX 33	JX 64	JX 83	JX 44
18	JX 48	JX 61	JX 41	JX 52	20	JX 35	JX 43	JX 55	JX 71	JX 61	JX 100	JX 51	43	JX 55	JX 70	JX 111	G	JX 110	JX 118	JX 71	JX 43	18	22	FS 15
19	E	18	JX 24	JX 20	JX 23	JX 34	JX 51	JX 50	JX 58	JX 64	JX 56	JX 63	46	45	JX 43	35	G	40	31	16	F	15	JX 23	JX 29
20	ES 15	17	18	JX 24	JX 23	G	32	45	43	45	JX 54	58	43	39	37	42	34	25	34	24	JX 33	JX 23	JX 28	JX 35
21	17	E	JX 23	JX 26	JX 33	G	G	35	44	JX 50	40	40	39	JX 48	44	JX 56	JX 75	JX 63	JX 33	ES 14	FS 15	21	FS 16	ES 15
22	ES 15	F	E	JX 20	ES 14	G	39	JX 61	JX 60	50	40	41	40	G	G	JX 58	JX 83	JX 70	JX 67	JX 44	JX 18	18	E	JX 25
23	E	18	E	E	G	29	38	48	45	JX 53	48	G	G	41	42	43	JX 60	JX 60	34	JX 50	JX 34	JX 53	JX 13	26
24	JX 30	ES 15	JX 25	JX 21	18	26	36	JX 63	JX 61	43	39	JX 55	40	38	G	G	ES 50	40	JX 56	JX 69	JX 65	JX 31	JX 43	JX 25
25	JX 21	C	JX 20	JX 25	17	G	36	JX 55	43	41	41	41	43	40	40	37	G 25	33	26	15	20	JX 38	JX 23	18
26	20	JX 21	18	E	16	G	JX 41	JX 50	38	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	42	E 40	G	37	JX 63	JX 53	JX 43	JX 33	32	23	ES 15	F	ES 17	JX 21
28	14	JX 21	E	14	19	G	33	39	41	42	JX 51	43	C	38	G	G	38	35	JX 43	24	JX 30	F	JX 20	JX 33
29	18	JX 24	JX 45	JX 31	G	37	41	JX 53	JX 54	41	42	52	JX 53	G	JX 36	41	JX 60	JX 44	JX 50	JX 64	JX 44	JX 30	JX 21	20
30	26	E	E	15	18	30	JX 42	JX 51	JX 53	JX 63	JX 64	46	G	E 36	36	JX 61	JX 70	JX 45	JX 40	30	JX 25	JX 25	JX 30	JX 51
31	JX 33	15	15	E	18	G	G	JX 55	41	47	43	G	40	41	JX 50	42	JX 73	JX 100	JX 65	41	JX 35	JX 34	JX 33	JX 21
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	26	28	28	29	28	29	30	29	29	30	30	29	30	30	30	30	30	29	30	30	30	30	29
MED	20	18	16	15	18	20	35	46	51	49	46	42	40	38	36	42	38	40	JX 36	JX 40	JX 26	21	JX 22	JX 22
UQ	JX 26	JX 24	JX 24	JX 22	21	30	40	JX 51	JX 58	JX 53	JX 54	51	44	45	JX 43	JX 51	JX 60	JX 45	JX 45	JX 55	JX 35	JX 34	JX 33	JX 33
LQ	15	E	E	E	EG 14	G	29	38	41	42	40	40	G	G	G	36	35	34	33	24	18	15	FE 15	15

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MAY. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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	19	12	E	E	E	G	G	G	40	45	44	47	G	G	40	41	35	30	G	17	E S 15	E	F S 15	E
2	E	E	15	E	E	G	G	G	G	G	G	G	G	44	G	34	30	G	G	27	16	24	30	E
3	18	E	E	E	G	G	G	37	42	40	G	G	43	38	G	G	G	32	39	24	26	16	20	15
4	E	E	E	E	G	G	G	G	G	43	43	42	G	45	G	G	G	G	32	65	A	40	25	30
5	27	20	E	E	G	G	G	40	47	50	G	G	G	G	G	G	40	40	30	53	28	F	24	40
6	40	26	20	15	19	G 15	40	G	52	46	G	G	60	68	69	47	40	32	26	A	50	17	E	F S 15
7	E	E	E	E	E	G	G	A	54	50	46	G	45	45	41	43	36	40	32	60	20	21	36	22
8	E	12	E	E	17	G	G	44	53	42	G	G	37	44	G 31	37	37	40	54	48	17	E	E	E
9	E S 14	E	E	E	E S 16	G	G	G	G	G	44	48	G	G	G	36	G	G	44	23	16	17	E	E
10	15	C	E	C	C	C	G	43	51	58	44	G	G	G	G	49	A	35	30	18	A	A	47	C
11	C	C	C	E	28	32	43	42	A	A	50	50	51	35	G	35	62	64	33	26	E	E	F S 15	E
12	E	E	C	C	G	G	G	G	G	G	G	G	G	G	G	G	50	G	43	42	53	18	18	40
13	E	E S 17	E	13	G	C	C	G	G	G	G	38	G	G	G	G	G	G	G	22	E S 15	E S 15	E	F S 15
14	16	C	E S 15	E S 15	G	G	G	50	53	60	63	47	50	50	55	40	35	39	C	45	16	E	E	E
15	E	E	E	E	G	G	39	44	G	G	G	G	G	G	G	G	35	28	G	34	30	24	17	20
16	15	15	E	E	G	37	G	G	C	44	46	G	G	G	G	G	G	G	G	32	19	15	E	E
17	E	E	E	E	G	G	G	43	A	G	G	G	G	G	G	G	G	G	G	64	22	E	50	25
18	40	31	30	30	15	G	41	48	51	56	53	47	G	G	50	45	G	A	A	60	36	14	E	E S 15
19	E	E	18	15	16	G	48	48	58	60	53	54	G	G	40	G	G	G	G	G	E	E	22	26
20	E S 15	23	15	E	17	G	G	44	G	43	50	55	G	G	G	G	33	25	28	20	31	20	25	18
21	E	E	15	20	13	G	G	G	G	44	G	G	G	45	G	G	A	44	G	E S 14	E S 15	20	F S 16	E S 15
22	E S 15	E	E	E	E S 14	G	G	45	G	G	G	G	38	G	G	43	A	60	63	33	E	E	E	20
23	E	E	E	E	G	G	G	48	43	52	45	G	G	G	G	G	44	47	33	23	32	30	20	E
24	18	E S 15	15	E	G	G	G	G	G	G	G	50	G	38	G	G	E B 50	40	38	40	47	19	20	21
25	18	C	14	15	16	G	G	G	G	G	G	G	42	38	30	33	G 24	G	20	15	E	36	20	15
26	18	20	16	E	G	G	G	44	G	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	G	E B 40	G	36	34	40	31	24	15	20	E S 15	F	E S 17	16
28	E	12	E	E	G	G	G	G	G	G	50	43	C	G	G	G	G	G	38	21	20	E	18	20
29	18	16	28	20	G	35	40	43	A	G	G	G	47	G	36	42	A	G	50	63	44	30	17	17
30	16	E	E	E	G	G	40	49	53	47	55	45	G	E B 36	36	43	44	42	G	28	21	24	23	43
31	23	E	15	E	G	G	G	50	G	47	G	G	40	40	47	36	53	A	60	39	28	E	33	18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	26	28	28	29	28	29	30	29	29	30	30	29	30	30	30	30	30	29	30	30	30	30	29
MED	15	E	E	E	G	G	G	42	40	43	G	G	G	G	G	34	35	31	30	30	20	16	18	16
UQ	18	16	15	14	14	G	G	45	53	50	46	47	40	40	36	41	50	40	39	48	32	24	24	21
LQ	E	E	E	E	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	21	15	F	E	E

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MAY. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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	E	E	E	E	13	E	12	15	15	18	17	18	17	16	12	11	E	E	E	E S 15	E	E S 15	E
2	E	E	E	E	E	E	E	11	11	17	16	16	16	17	17	16	E	15	15	E	E	F S 15	E S 15	E S 15
3	E	E S 15	E	E	E	12	E	12	11	15	17	15	18	17	12	E	11	11	E	E	E	E	E	E
4	E	E	E	E	E	E	E	11	15	17	17	17	16	16	16	12	11	E	F	E	E	E	E	E
5	E S 15	E S 15	E	E	E	E	11	12	11	16	17	18	20	15	12	E	12	12	F	E	E	E	E	E
6	E	E	E	E	E	E	12	E	15	16	16	18	17	17	17	15	12	11	E	E	E	E	E	E S 15
7	E	E	E	E	E	12	11	13	13	17	16	20	16	18	17	17	12	15	F	E	E	E	E	E
8	E S 15	E	E	E	E	E	E	11	12	15	13	16	16	17	15	12	E	11	E	E	E	E	E	E
9	E S 14	E S 15	E	E	E S 16	E	12	12	16	17	16	18	15	16	15	15	11	12	E	E	E	E	E	F S 16
10	E S 13	C	E	C	C	C	11	17	20	18	36	18	28	18	17	16	16	11	12	E	E	F S 15	E	C
11	C	C	C	E	E	12	17	15	16	18	18	18	17	17	15	20	15	11	12	E	E	F	E S 15	E S 15
12	E	E	C	C	E	12	11	13	17	16	19	20	20	16	17	17	11	12	F	E	E	E	E	E S 15
13	E S 13	E S 17	E	E	E	C	C	15	16	20	18	18	30	20	18	17	15	16	13	E	E S 15	E S 15	E	E S 15
14	E	C	E S 15	E S 15	E	12	16	17	17	27	40	20	34	27	20	20	17	13	C	E S 13	E	E	E	E
15	E	E	E	E	E	11	12	17	18	22	20	20	23	17	17	15	16	15	13	E S 11	E	E	E	E
16	E	E	E	E	E	13	11	15	C	16	17	18	17	13	20	16	11	11	11	E S 14	E	E	F S 15	E
17	E	E	E	E	E	12	12	11	19	18	18	20	20	20	20	17	12	11	12	E	E	E	E	E
18	E	E	E	E	E	E	E	11	27	17	15	17	16	17	17	11	17	E	11	E S 13	E	E	F S 14	E S 15
19	E	E	E	E	E	12	15	15	17	20	20	20	16	17	17	18	12	17	12	E S 12	E	E	E	E
20	E S 15	E	E	E	E	12	13	13	15	17	16	18	16	20	16	20	16	11	11	E	E	E	E	E
21	E	E	E	E	E	11	11	11	12	17	19	17	20	18	19	16	11	11	F	E S 14	E S 15	E	F S 16	E S 15
22	E S 15	E	E	E	E S 14	E	11	12	15	17	17	20	16	16	17	12	12	15	11	E	F	E	E	E
23	E	E	E	E	E	E	11	12	16	37	38	22	20	20	20	16	17	17	15	E	E	E	E	E S 15
24	E	E S 15	E	E	E	E	11	11	15	16	18	19	17	21	18	16	50	33	15	E	E	E	E	E
25	E	C	E	E	E	E	11	12	17	15	17	23	17	18	20	19	16	11	F	E	E S 15	E	E	E
26	E	E	E	E	E	12	11	15	20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	18	40	18	25	18	18	E	E	E	E	F S 15	F	F S 17	F
28	E	E	E	E	E	12	11	16	16	16	17	20	C	23	17	12	19	17	11	E	E	E	E	E
29	E	E	E	E	E	12	12	16	18	18	20	27	20	20	16	20	E	12	11	E	E	E	E	E
30	E S 14	E	E	E	E	12	15	14	16	16	17	37	18	36	22	12	16	12	11	E S 13	E	E	E	E S 15
31	E	E	E	E	E	12	11	12	16	20	19	26	16	20	16	21	16	12	F	E	E S 15	E S 15	E S 15	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	26	28	28	29	28	29	30	29	29	30	30	29	30	30	30	30	30	29	30	30	30	30	29
MED	E	E	E	E	E	12	11	12	16	17	18	18	17	18	17	16	12	12	11	E	E	E	E	E
UQ	E S 13	E	E	E	E	12	12	15	17	18	19	20	20	20	18	18	16	15	12	E	E	E	E S 14	E S 15
LQ	E	E	E	E	E	E	11	11	15	16	17	18	16	17	16	12	11	11	E	E	E	E	E	E

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MAY. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | M(3000)F2 (0.01) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	275	285	270	270	280	305	290	315	305	315	295	305	295	290	315	325	320	320	300	305	305	290	280	290
2	280	280	290	280	290	315	345	345	325	290	310	300	295	310	310	315	320	325	310	295	290	320	285	270
3	270	270	270	280	285	285	285	295	250	265	280	R	270	270	270	295	300	305	300	305	280	270	270	280
4	275	280	305	285	310	320	315	285	290	285	275	235	285	320	305	305	300	305	310	315	A	285	290	F
5	F 270	I S 270	275	290	285	305	350	345	345	310	290	300	305	310	320	310	315	320	305	315	310	295	295	295
6	275	275	270	280	280	305	325	340	335	300	290	310	270	300	305	310	300	300	305	A	300	290	290	270
7	275	285	280	F	F	310	315	I A 310	325	315	305	305	295	290	300	305	305	315	315	315	305	275	290	280
8	F	F	F	F	F	305	340	325	315	310	300	315	300	320	310	310	315	325	300	300	300	295	300	285
9	290	I S 280	280	280	285	300	325	325	325	315	305	315	300	295	290	305	315	300	295	295	320	S 300	300	285
10	275	I C 260	270	C	C	C	310	305	295	330	305	305	275	295	290	290	I A 300	315	305	S	A	A	275	C
11	C	C	C	290	275	300	315	280	A	A	295	H 285	275	280	300	305	300	295	300	310	305	290	275	265
12	255	265	C	C	295	300	330	315	315	290	295	285	295	295	295	290	300	305	300	290	295	285	280	270
13	C	260	270	285	290	C	C	295	290	300	295	300	285	295	300	310	310	290	295	300	305	C	285	C
14	275	C	C	270	270	275	310	300	305	315	R	280	285	290	285	290	300	300	C	C	285	285	280	285
15	275	265	265	265	280	280	285	300	305	315	295	265	275	285	295	300	300	305	295	285	280	290	275	280
16	270	270	275	265	275	270	250	255	C	255	260	255	225	280	300	F 300	F 275	F 285	F 290	280	280	F	F	F
17	F	F 255	F 260	F 295	F 295	F 310	300	250	A	R	R	245	240	240	275	275	285	290	290	285	280	280	S 270	F
18	F	F	F	F 265	F	300	300	300	R	285	295	H 275	280	265	285	300	285	A	A	290	280	275	280	260
19	280	280	285	275	285	305	275	295	290	300	295	295	285	285	300	300	300	305	305	290	290	285	285	270
20	285	290	295	315	285	300	320	310	300	290	300	280	290	290	300	300	300	300	310	295	300	280	280	275
21	285	285	295	295	290	310	300	305	300	315	300	295	295	300	295	300	I A 300	300	295	315	305	285	280	280
22	280	285	290	300	315	280	275	295	305	295	305	290	290	305	295	290	I A 295	290	295	310	305	290	280	275
23	280	280	290	285	280	295	310	290	285	280	290	290	285	290	290	300	305	300	300	305	305	300	280	280
24	275	275	270	270	270	275	280	300	315	300	280	270	295	310	280	275	290	305	320	310	290	280	270	275
25	275	I C 275	280	290	305	295	315	305	315	315	275	285	305	310	295	300	295	315	300	300	290	295	285	285
26	300	280	285	280	285	275	310	325	325	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	320	300	290	305	310	315	305	310	305	310	310	295	300	280
28	285	275	275	285	290	295	305	350	285	340	320	280	C	295	310	305	305	305	305	300	310	285	295	S
29	270	I S 290	F	F 270	265	260	285	305	A	255	245	A	280	310	300	300	A	295	290	275	I S 290	295	300	285
30	285	285	270	280	285	305	310	320	315	295	275	280	285	285	300	280	310	300	295	280	300	295	300	295
31	285	285	270	280	290	270	275	295	315	330	280	265	295	280	300	295	295	A	290	295	305	300	295	295
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	26	24	26	26	28	29	30	25	27	28	28	29	30	30	30	29	28	28	27	28	27	29	24
MED	275	280	275	280	285	300	310	305	305	300	295	288	285	295	300	300	300	305	300	300	300	290	285	280
UQ	285	285	288	290	290	305	315	320	315	315	302	300	295	305	305	305	305	312	305	310	305	295	295	285
LQ	275	270	270	270	280	280	285	295	295	290	280	278	280	285	290	295	300	300	295	290	290	285	280	272

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MAY. 1972 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1972 | 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							340		A	A	A	A	375	355	350	A	375							
2										355	355	350L	345	IA 340	350	365	380L							
3							325		A	A	380	365	A	360	375	350	345							
4								355	360	IA 375	A	A	380	A	365	355	355							
5							UL 380	A	A	A	345	365	375	360	375	375	A	A						
6								380	A	A	360	355	A	A	A	A	A							
7									A	A	A	350	A	A	350	A	350	A						
8								A	A	355	365	365	360	IA 360	340	355	370L							
9									375	350	A	A	345	355	340	355	UL 365							
10								A	A	A	A	360	335	360	345	A	A	A						
11							A	A	A	A	A	A	A	345	340	355	A	A						
12								340	360		355		335	340	340L	340L	A	365L						
13									L	375	350	340	L	380	345	360	370L							
14									A	A	A	340	A	A	A	345								
15						UL 335	IA 350	IA 355	350	370	370	340	340	340	340	340L								
16							300	320	C	A		335	335	335	350									
17								A	A	365	370	370	360	365	355	345	325	L						
18							A	A	A	A	A		380	340	A	A	340	A						
19							A	A	A	A	A	A	365	355	360	340L	355L							
20							L	A	345	350	A	A	370	360	350	350	350							
21								L	370L	A	365	355	350	A	355	345	A	A						
22								A	355	360	395	370	370	355	350	A	A	A						
23								A	A	A	A	360	355	355		350	A	A						
24							325L	355	370	350	360	A	335	350	340	355	B	A						
25							L	365L	355	380	360L	350	340	350	355	355	335	350						
26							350	A	375	C	C	C	C	C	C	C	C							
27							C	C	C	C	375	370	365	360	365	365	360	UL 350						
28							365L	395L	355	370	A	A	C	340	370	355	350	340	A					
29						A	A	A	A	375	370	A	A	375	370	A	A	345						
30							A	A	A	A	A	A	365	370	370	A	A	A						
31						325	340	A	360	A	360	375	380	360	A	340	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	9	8	12	13	16	18	22	25	25	21	15	5						
MED						330	340	355	360	365	362	358	360	355	350	355	355	350						
UQ							350	372	370	375	370	365	370	360	365	355	368L	350L						
LQ							325	348	355	355	358	350	340	345	345	345	348	345						

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MAY. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1972 | 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							345		U L 320	310	345	325	350	350	310	300	280							
2										350	305	320	320	300	300	295	270							
3							350		510	470	415	R	500	475	450	385	325							
4								400	415	450	445	600	420	320	350	345	320							
5							235	270	270	A	375	345	345	320	315	300	295	270						
6								270	270	300	325	335	A	A	A	295	280							
7									295	300	320	310	325	330	320	300	290	265						
8								270	310	280	345	300	320	300	315	300	275							
9									260	300	300	300	320	325	310	295	275							
10								305	350	315	340	300	420	340	315	310	A	270						
11							280	345	A	A	345	A	400	365	350	320	A	A						
12								300	295		305		350	340	340	320	310	280						
13									300	300	300	305	320	320	315	350	295							
14									300	A	A	340	350	345	325	315								
15						320	325	315	310	290	350	405	390	350	325	315								
16							450	395	C	360		420	520	325	300									
17								500	A	R	R	530	575	550	420	400	355	320						
18							300	300	485	A	345		370	390	355	320	320	A						
19							295	275	300	290	300	345	325	310	325	320	300							
20							270	265	300	320	320	360	325	320	300	320	305							
21								275	280	275	290	360	340	330	325	315	I A 300	290						
22								285	280	315	300	335	320	320	350	340	A	325						
23								285	310	300	300	325	345	325		315	300	300						
24							345	290	275	320	400	400	340	300	385	360	345	300						
25							270	295	295	300	370	360	320	320	340	340	310	285						
26							270	260	275	C	C	C	C	C	C	C	C							
27							C	C	C	C	320	345	350	320	315	300	300	295						
28							285	260	375	270	315	405	C	345	315	320	310	295	270					
29						350	320	300	A	520	550	A	415	350	350	350	350	325						
30							275	285	315	370	A	390	370	370	320	320	315	305						
31						350	345	300	285	280	440	425	370	390	345	325	350	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	16	23	25	23	26	25	28	29	28	29	24	14	1					
MED						350	298	290	300	300	332	345	350	330	325	320	302	295	270					
UQ						350	345	302	315	335	370	400	395	350	350	340	320	305						
LQ						335	272	272	280	295	305	325	325	320	315	300	292	280						

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MAY. 1972 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1972 | 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

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	300	260	305	310	300	255	245	245	A	A	A	A	215	200	250	A	250	250	255	245	250	245	260	270
2	260	295	260	270	275	245	230	220	215	205	220	225	205	I A 245	240	235	240	240	255	270	265	245	265	275
3	280	285	285	260	275	250	260	A	A	A	230	240	A	245	225	250	250	I A 265	A	250	275	290	300	275
4	290	280	230	215	250	250	240	240	235	I A 235	A	A	215	I A 225	210	220	220	275	A	A	A	A	305	320
5	340	320	290	260	300	250	230	A	A	A	200	200	200	205	225	225	A	A	260	I A 250	250	245	265	A
6	A	315	305	275	265	260	A 250	255	A	A	225	210	A	A	A	A	A	260	250	A	I A 260	245	245	285
7	280	265	280	275	260	235	240	A	A	A	A	245	A	A	A	A	250	A	250	A	235	280	305	260
8	315	300	250	250	270	240	245	A	A	A 255	200	210	215	A	215	240	255	A	A	A	245	250	250	250
9	260	265	275	270	275	245	240	220	220	215	A	A	205	200	225	230	225	240	I A 270	260	230	250	220	250
10	285	I C 300	300	C	C	C	250	A	A	A	A	250	250	215	230	A	A	A	270	240	A	A	A	I C 300
11	C	C	C	250	265	275	A	A	A	A	A	A	A	210	230	230	A	A	A 285	250	230	245	250	300
12	320	305	C	C	265	250	220	235	245	215	220	215	210	230	235	250	A	260	A	A	A	260	250	A
13	300	295	275	275	260	C	C	225	210	205	215	210	225	215	205	230	230	250	265	260	245	250	250	270
14	275	C	300	300	270	250	245	A	A	A	A	A	A	A	A	250	250	275	C	A	260	260	260	250
15	260	280	295	290	270	260	I A 260	I A 250	225	210	200	210	200	240	245	230	240	245	250	290	290	265	250	270
16	270	290	280	300	260	I A 280	275	250	C	A	A	230	220	225	240	230	250	260	285	A 275	260	260	275	280
17	300	300	285	245	245	250	250	A	A	235	225	205	240	215	220	240	245	260	265	I A 270	260	255	A	A 340
18	A	A	A	A	265	250	A	A	A	A	A	270	200	250	A	A	245	A	A	A	A	275	260	275
19	270	265	255	290	260	250	A	A	A	A	A	A	200	250	225	220	220	250	250	250	250	260	275	300
20	275	260	260	230	250	250	240	I A 250	245	250	A	A	220	200	220	245	225	240	265	260	260	265	280	290
21	265	265	260	250	260	230	220	220	245	I A 210	200	210	200	I A 220	245	240	A	A	250	245	225	250	270	280
22	285	270	265	250	225	225	250	A	250	230	200	215	200	250	225	A	A	A	A	A 250	225	245	250	295
23	280	260	240	245	245	240	250	I A 250	A	A	A	215	215	215	260	250	A	A	A 275	240	250	260	260	275
24	310	265	295	300	260	250	245	245	235	230	205	I A 230	245	235	220	225	B	A	A	A	A	260	295	295
25	295	C	270	250	245	245	260	245	250	215	205	220	250	225	215	220	230	250	250	250	230	A 275	265	275
26	250	275	265	270	270	250	250	A	210	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	205	210	210	215	225	250	245	250	275	245	230	245	250	280
28	250	280	285	275	250	250	250	245	220	240	A	A	C	250	240	235	260	250	I A 260	250	240	250	260	280
29	270	245	325	310	320	A	A	A	A	210	230	A	A	220	245	A	A	250	A	A	A	265	250	265
30	265	250	270	270	270	250	A	A	A	A	A	A	215	205	205	A	A	A	270	280	265	260	250	I A 255
31	270	270	275	300	270	240	245	A	250	A	205	200	215	215	A	230	A	A	A	A	260	250	265	250
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	27	27	29	27	24	15	14	15	16	20	23	26	25	22	18	18	20	20	24	28	28	28
MED	280	278	275	270	265	250	245	245	235	215	205	215	215	220	225	232	245	250	262	250	250	258	260	275
UQ	298	295	292	290	270	250	250	250	245	235	222	230	220	240	240	245	250	260	270	265	260	262	278	292
LQ	268	265	262	250	260	245	240	230	220	210	200	210	202	215	220	230	230	250	250	248	232	248	250	268

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MAY. 1972 | H'F (KM)

IONOSPHERIC DATA

MAY. 1972 | H'ES (KM)

135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	105	E	105	E	G	145	125	120	120	115	115	115	110	105	105	105	100	G	120	S	115	S	E
2	E	100	100	100	100	G	G	G	G	G	G	120	G	110	115	110	100	G	G	120	115	110	110	105
3	100	100	100	E	125	G	140	125	120	120	115	G	110	110	G	140	125	120	115	115	110	110	110	105
4	105	E	105	E	140	125	G	125	125	120	125	120	G	115	G	130	G	G	120	110	110	110	105	105
5	105	105	115	105	115	120	G	125	115	115	110	110	115	120	G	150	125	115	115	110	105	105	105	105
6	100	100	100	100	100	100	120	125	125	120	120	120	110	110	110	110	110	105	105	115	110	110	E	S
7	E	E	E	E	E	G	135	120	115	115	115	115	110	110	115	115	105	115	115	115	115	110	115	110
8	105	105	105	100	105	125	125	120	115	115	115	110	105	105	105	105	105	120	115	110	110	E	E	E
9	S	100	100	100	S	145	125	125	125	110	110	110	G	G	G	105	G	135	120	110	110	110	105	105
10	105	C	105	C	C	C	120	120	115	115	115	115	G	G	G	120	115	120	115	115	115	110	105	C
11	C	C	C	E	120	125	125	120	110	110	110	110	110	105	G	110	115	110	110	110	E	E	S	105
12	105	105	C	C	130	G	G	115	115	115	G	G	G	G	G	135	115	125	120	110	110	105	105	100
13	100	S	E	100	125	C	C	G	G	G	110	105	G	G	G	G	G	120	110	110	S	S	E	S
14	100	C	S	S	135	120	120	115	115	110	110	110	110	105	105	105	105	125	C	115	110	110	105	105
15	105	E	E	E	G	135	120	115	120	120	G	G	115	110	115	G	105	105	125	115	110	105	105	105
16	105	105	E	E	G	115	125	140	C	115	110	115	G	G	G	G	140	140	125	115	115	110	110	E
17	E	E	E	115	135	G	120	120	115	110	110	115	115	G	G	G	120	120	115	110	110	105	105	105
18	100	100	100	100	100	120	115	115	110	110	110	110	110	110	110	125	G	115	115	110	110	110	105	S
19	E	105	100	100	100	125	120	115	110	110	110	110	110	110	110	115	G	125	120	125	F	115	110	110
20	S	105	105	100	105	G	135	120	120	120	120	115	115	115	110	120	105	105	140	105	115	110	110	110
21	105	E	105	105	105	G	G	140	120	110	115	120	110	110	135	120	115	115	115	S	S	110	S	S
22	S	E	E	100	S	G	125	120	115	120	125	115	105	G	G	125	115	115	115	110	115	110	E	105
23	E	110	E	E	G	145	125	120	120	115	115	G	G	145	150	130	120	115	115	110	110	105	105	105
24	105	S	105	110	125	120	120	115	115	120	120	110	115	110	G	G	B	120	110	110	110	105	105	105
25	105	C	105	105	105	G	125	120	120	120	115	110	105	105	105	105	105	120	120	100	105	105	100	100
26	105	100	105	E	145	G	120	115	120	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
27	C	C	C	C	C	C	C	C	C	C	110	B	G	105	105	100	100	100	115	115	S	E	S	105
28	100	100	E	100	145	G	125	125	115	115	115	110	C	115	G	G	125	120	110	115	110	E	105	105
29	105	100	100	100	G	125	120	115	115	115	110	110	110	G	105	140	120	125	120	115	110	110	110	105
30	105	E	E	100	150	140	125	120	110	110	110	110	G	B	105	100	110	120	115	120	110	105	100	100
31	100	100	100	E	145	G	G	115	120	115	115	G	105	105	100	100	120	115	115	115	110	115	105	110
	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	17	17	18	21	15	23	28	27	27	27	24	19	21	17	24	24	28	27	29	24	25	22	22
MED	105	100	105	100	125	125	125	120	115	115	115	110	110	110	110	115	115	120	115	115	110	110	105	105
UQ	105	105	105	105	135	130	125	125	120	120	115	115	115	110	115	128	120	120	120	115	112	110	110	105
LQ	100	100	100	100	105	120	120	115	115	110	110	110	110	105	105	105	105	115	115	110	110	105	105	105

The Radio Research Laboratories, Japan

MAY. 1972 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1972 | 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	F2	F1		F1			H1	C1	C1	C2	C2	C2	C1	C1	L2	L3	L2	L3		CL11		F1		
2		F1	F1	F1	L1							C1		C2	C2	L3	L2			C3	F1	F2	F3	F2
3	F2	F1	F1		C1		H1	C2	C1	C1	C1		C2	L1		H1	C1	C2	C3	C2	F4	F2	F2	F2
4	F1		F1		C1	C1		C1	C1	C2	C1	C1		C2		H1			C4	C4	F4	F4	F3	F3
5	F2	F1	F1	F1	C1	C1		C1	C2	C2	C2	C1	C1	C1		H1	C2	C4	C2	C3	F3	F1	F3	F8
6	F4	F4	F3	F2	L1	L1	C2	C1	C2	C2	C1	C1	C2	C4	C2	CL31	CL21	L2	L3	C4	F4	F1		
7							H1	C2	C2	C1	C2	C1	C1	C1	C1	C2	L1	L3	C3	C4	F3	F2	F6	F3
8	F2	F2	F2	F1	L2	C1	C1	C2	C2	C2	C1	C1	L1	L2	L1	L2	L2	C4	C4	C5	F1			
9		F1	F1	F1		H1	C1	C1	C1	C1	C2	C2				L2		H1	C3	C3	F1	F2	F1	F1
10	F2		F1				C2	C2	C2	C2	C1	C1			C1	C1	C2	C3	C3	C2	F5	F3	F6	
11					C3	C2	C1	C1	C2	C3	C2	C2	C2	L1		L1	C3	C3	C3	C3				F1
12	F1	F1			H1			C1	C1	C1						H1	C2	C2	C5	C3	F4	F2	F2	F1
13	F1			F1	C1						C1	L1						C1	C2	C2				
14	F2				C1	C1	C1	C2	C2	C2	C1	C1	C1	L2	L2	L1	L2	C2		C5	F1	F1	F1	F1
15	F1					H1	C3	C2	C1	C1			C1	C1	C1		L1	L1	C1	C4	F4	F4	F2	F2
16	F2	F2				C3	C1	H1		C1	C2	C1					H1	H2	C3	C3	F3	F2	F1	
17				F1	C1		C1	C2	C2	C1	C1	C1	C1				C1	C3	C2	C4	F3	F2	F3	F3
18	F3	F3	F5	F2	L1	C2	C2	C2	C2	C2	C2	C1	C1	C2	C2	C1		C5	C7	C3	F3	F2	F1	
19		F1	F2	F2	L1	C2	C2	C2	C3	C2	C2	C2	C1	C2	L2	C1		C2	C1	C1		F1	F3	F4
20		F2	F2	F2	L2		H1	C2	C1	C1	C2	C2	C1	C1	C1	C1	L2	L2	HL11	L2	F5	F2	F3	F3
21	F1		F2	F2	L1			H1	C1	C2	C1	C1	C1	C2	H1	C1	C3	C4	C2			F2		
22				F1			C1	C3	C1	C1	C1	C1	L1			C2	C3	C2	C4	C3	F1	F1		F4
23		F1				H1	C1	C2	C1	C1	C1			H1	H1	H1	C2	C2	C2	L3	F4	F3	F3	F1
24	F2		F2	F1	C1	C1	C1	C2	C1	C1	C1	C1	C1	L1				C1	C2	C5	F4	F2	F4	F2
25	F2		F2	F2	L2		C1	C2	C1	C1	C1	C1	L2	L2	L1	L1	L1	CL11	CL11	L1	F1	F5	F2	F1
26	F1	F2	F1		H1		C2	C2																
27											C1			L1	L1	L2	L2	LC11	CL21	C2				F2
28	F1	F2		F1	H1		C1	C1	C1	C2	C2	C1		C1			C1	C1	C2	C2	F2		F2	F3
29	F2	F2	F5	F3		C3	C2	C2	C2	C1	C1	C1	C1		L2	H1	C2	C2	C3	C3	F4	F4	F2	F2
30	F2			F1	H1	H1	C1	C2	C2	C2	C2	C1			L1	L2	L2	C3	C3	C2	F2	F4	F4	F3
31	F4	F1	F2		H1			C2	C1	C1	C1		L1	L2	L2	L1	C2	CL41	CL71	CL31	F3	F2	F2	F2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

MAY. 1972 | TYPES OF ES

IONOSPHERIC DATA

MAY. 1972 | 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 50	F	F 50	50	48	62	64	63	56	63	62	73	77	75	91	96	83	83	74	76	66	58	56	57
2	56	52	53	47	46	56	65	72	77	67	78	84	92	95	98	96	89	78	78	77	77	71	59	57
3	54	52	50	48	49	58	48	54	51	I A 52	I R 54	54	54	57	58	62	67	67	65	65	54	52	54	56
4	55	51	54	54	39	52	54	51	54	I R 53	58	58	63	65	67	67	74	72	83	84	69	57	54	54
5	53	51	51	51	51	66	71	65	70	57	64	70	75	78	76	78	86	76	79	I A 82	75	61	57	56
6	54	51	51	48	48	63	83	71	67	I A 61	64	72	79	87	103	101	94	92	94	82	83	S 65	62	58
7	F	F	F	F	F	68	73	71	I A 72	74	79	71	78	90	97	100	91	91	89	89	70	59	F 62	F 61
8	F	F	F	F	F	66	77	74	H 68	75	78	88	89	88	85	86	88	86	82	85	F 80	78	76	70
9	67	F 65	F 62	F 60	F 59	71	82	V 81	78	87	85	80	84	88	92	98	91	87	93	90	91	79	77	66
10	62	61	60	60	59	67	64	61	67	72	74	78	75	79	90	95	94	89	83	80	75	71	71	68
11	68	67	66	V 62	60	69	71	I A 72	68	65	68	73	77	81	85	88	86	86	91	103	87	60	60	59
12	58	F 59	57	58	57	72	68	66	69	76	78	78	84	89	93	91	97	100	97	96	I A 87	76	76	76
13	73	71	75	74	67	80	89	102	88	87	95	98	93	96	105	99	I A 92	I A 90	I A 96	99	86	81	81	78
14	78	74	71	69	F 75	90	94	96	92	82	86	96	107	109	115	112	108	100	101	96	87	89	87	87
15	84	75	70	67	65	67	78	91	88	76	77	78	92	99	99	95	89	85	82	92	86	82	82	75
16	69	69	66	65	64	63	61	74	H 89	W 80	81	84	96	118	97	87	76	83	91	92	79	76	76	77
17	78	76	75	71	69	68	67	R 57	50	G	A	59	63	61	66	68	69	72	77	I A 77	I R 74	I R 66	F 66	F
18	F 63	F	F	F	F 64	67	72	74	76	73	76	84	I A 78	79	87	93	88	89	89	93	79	74	F	F
19	F	F	F	F	63	73	87	96	93	I C 86	84	90	I A 92	96	96	94	91	89	85	89	84	83	82	82
20	F	82	80	69	69	78	79	79	76	85	83	88	97	96	99	97	95	96	94	97	88	75	86	85
21	84	84	81	75	71	79	89	91	87	79	82	83	82	90	92	93	94	96	99	104	88	78	81	81
22	78	78	80	73	67	73	82	91	88	86	I A 82	78	85	86	89	89	93	98	102	102	89	72	76	76
23	77	78	76	71	72	80	86	86	86	96	89	87	91	95	93	98	96	95	96	97	79	68	71	71
24	67	67	66	59	59	64	79	96	87	67	64	76	89	87	74	79	84	87	96	81	69	67	65	67
25	68	66	68	64	62	62	76	89	87	69	70	74	77	87	82	81	86	94	91	86	83	77	74	73
26	70	65	62	61	62	73	102	92	69	60	64	72	78	84	92	97	88	88	84	83	76	73	73	69
27	69	69	61	58	58	71	73	72	76	65	62	72	I C 79	I C 82	88	87	83	80	87	96	79	70	73	69
28	68	64	62	61	58	68	69	75	69	68	63	65	71	82	90	81	81	91	93	R	A	F 76	F 77	F
29	F 68	69	59	63	F	62	75	76	I A 57	I A 54	59	59	64	71	65	59	A	A	64	77	74	F	71	59
30	62	58	54	F 56	F	72	88	68	I A 65	68	73	78	84	78	73	80	76	77	73	80	87	F 78	F 78	75
31	69	69	62	63	F	68	76	88	89	82	71	70	68	71	80	83	72	71	75	87	F	F 74	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	27	27	26	31	31	31	31	31	30	31	31	31	31	31	30	30	31	30	29	30	29	27
MED	68	67	62	61	61	68	76	74	76	72	75	78	79	87	90	91	88	88	89	88	79	74	73	69
UQ	72	74	70	68	67	72	82	90	87	81	82	84	90	92	96	96	93	92	94	96	87	78	77	76
LQ	60	59	56	57	57	64	68	70	68	64	64	72	76	78	81	81	83	80	80	81	75	66	62	59

MAY. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | FOF1 (0.01 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							L	L	L 480	470	500	470	490	480	470	H 460	U L 440	L						
2								L	L	L 480	520	500	500	500	500	U L 480	U L 440	L						
3								420	430	I A 440	I A 440	470	470	460	470	460	A	A						
4								U L 440	450	500	470	A	480	480	490	460	450	L	L					
5							A	A	L 450	A	490	490	490	490	470	470	440	L	L					
6						L	L	A	U L 450	A	A	500	510	I A 510	I A 480	L	450	U L 400	L					
7								A	A	A	A	I A 550	520	I A 500	480	I A 480	440	L	A					
8								A	L	500	510	480	500	520	480	L	L	L						
9						.	L	L	L	500	500	L 560	510	530	L 500	490	L	L	L					
10							L	L	L	A	I A 500	500	520	500	500	470	I A 440	L						
11								A	A	A	I A 520	I A 520	520	520	500	H 480	L	A						
12									L	530	520	530	500	520	530	510	U L 500	L	A					
13							L	L	L	L 530	550	540	530	550	A	A	A							
14							A	L	L	L	L 560	570	R 520	L	520	L 530	L	A						
15						L	L	470	L	L 520	550	590	550	550	530	500	L	L	A					
16							420	U L 500	L 500	560	560	580	540	540	L 540	490	U L 560	L	A					
17							U L 410	470	460	480	I A 510	520	500	510	490	500	460	A	A					
18								A	A	540	540	A	A	510	520	500	H 500	U L 450	L					
19						L	A	A	A	C	L 600	540	I A 530	510	540	L 510	L 470	L	L					
20								L	L 490	L 510	500	550	520	530	530	L 520	U L 460	L	L					
21							L	A	U L 500	L	530	H 530	560	540	I A 500	I A 480	460	L	A					
22							L	L	L 470	490	I A 560	560	540	530	500	500	H 470	L	A					
23							L	L	A	520	A	560	520	540	I A 500	H 500	I A 470	L	L					
24						U L 450	L	A	L 460	A	490	510	500	I A 500	L 510	480	450	400	A					
25							A	L	470	480	520	510	530	510	500	470	460	A	A					
26						L	L	A	L 460	550	500	500	490	490	470	460	440	L	A					
27							L	L	A	A	L 450	490	I C 490	I C 500	470	470	450	420	L					
28								L	460	470	510	500	490	480	480	490	L 460	410	A					
29						450	A	A	A	I A 480	470	480	A	A	L	A	A	A	A					
30							A	A	A	490	490	500	490	480	480	460	470	400	A					
31						L	L	A	470	480	A	A	A	480	480	470	I A 450	I A 420	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	2	5	15	21	27	28	28	29	29	27	23	7						
MED						450	415	470	L 460	500	510	515	510	510	500	480	460	410						
UQ								470	L 475	520	535	550	525	530	510	500	470	420						
LQ								440	455	480	495	500	490	490	480	470	445	400						

MAY. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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	240	280	305	IA 325	IA 340	350	A	A	A	A	IA 290	255	A	S				
2						175	245	285	315	335	345	355	IA 365	360	340	320	285	250	185	S				
3						S	235	280	315	IA 330	A	A	365	355	345	IA 330	290	240	A	S				
4						A	245	285	315	335	350	360	360	355	345	340	315	260	A	S				
5						A	245	285	315	335	345	355	A	A	345	325	300	260	A	S				
6						A	250	305	325	335	345	355	365	IA 355	A	A	A	A	A	S				
7						A	A	300	IA 320	335	345	IA 360	A	A	A	A	A	A	A	S				
8						A	265	300	A	A	A	A	A	A	A	315	295	260	185					
9						180	255	295	325	325	340	360	365	355	345	330	315	265	180					
10						180	255	290	320	340	350	365	365	360	350	330	305	260	165					
11					E	180	255	305	330	345	355	360	A	A	A	340	325	275	A					
12					E	A	255	290	325	345	IA 355	A	A	A	IA 350	340	315	275	A	S				
13						A	265	305	325	345	355	365	A	A	A	345	315	265	S					
14					S	200	265	305	335	355	370	380	A	A	A	340	IA 325	A	S					
15					E	205	255	310	340	340	355	365	IA 370	365	IA 355	IA 340	325	285	A	S				
16					S	A	A	310	330	345	355	365	370	365	360	340	IA 320	280	A	A				
17					E	A	270	295	315	340	IA 355	365	A	A	A	345	335	A	A	S				
18					E	A	A	315	B	A	350	355	A	A	355	345	325	275	A	S				
19					S	205	IA 270	310	330	IC 340	355	365	A	A	A	A	IA 320	270	A	S				
20					S	200	250	295	325	340	R 350	IA 360	370	A	A	A	A	A	215	S				
21					S	200	265	310	330	345	355	IA 360	370	370	355	A	A	265	A	A				
22					S	215	275	300	325	340	IA 350	IA 360	370	IA 370	355	340	315	A	A	A				
23					S	215	265	305	330	B	B	365	IA 365	370	355	345	320	280	A	S				
24					E	A	265	A	A	A	A	A	A	A	A	340	B	B	A	A				
25					E	A	A	A	325	345	350	A	B	A	A	A	A	A	A	A				
26					S	220	A	A	330	IA 340	A	A	A	A	345	IA 330	310	A	A	A				
27					E	215	265	IA 300	IA 330	345	350	IA 360	C	C	350	340	315	275	A	A				
28					E	A	270	300	IA 325	340	350	IA 365	375	370	360	IA 340	320	A	A	A				
29					E	A	A	IA 305	IA 330	340	A	A	A	A	A	A	310	270	210	A				
30					E	A	A	A	325	IA 340	IA 350	A	A	A	A	A	A	A	A	A				
31					E	A	IA 265	305	325	345	IA 360	A	A	A	355	340	320	280	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					12	13	24	27	28	27	25	22	13	12	17	22	24	20	6					
MED					E	200	260	300	325	340	350	360	365	362	350	340	315	268	185					
UQ					E	215	265	305	330	345	355	365	370	370	355	340	320	275	210					
LQ					E	180	250	292	320	335	350	360	365	355	345	330	308	260	180					

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MAY. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1972 | FOES (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	M 20	JX 18	E	JX 19	JX 17	20	26	33	34	41	43	JX 49	JX 48	39	37	33	30	G	22	JX 27	JX 33	M 20	FS 14	JX 18
2	JX 20	JX 20	M 18	JX 20	JX 19	G	G	33	37	40	41	41	39	G	JX 55	G	G	G	G	ES 14	JX 35	JX 81	JX 28	JX 29
3	JX 20	JX 20	JX 25	JX 24	JX 18	21	27	35	39	JX 54	JX 52	43	G	G	G	JX 39	JX 50	JX 49	JX 42	JX 27	JX 58	JX 42	JX 27	JX 23
4	JX 20	JX 21	M 20	JX 25	JX 17	20	JG 24	31	JX 110	JX 58	47	47	42	G	G	36	33	38	21	ES 13	M 21	JX 27	JX 18	JX 24
5	JX 29	JX 23	JX 18	JX 20	M 20	23	37	43	JX 52	JX 51	JX 48	43	41	JX 43	38	G	JX 46	38	JX 37	JX 123	JX 70	JX 40	JX 43	JX 43
6	JX 37	JX 39	JX 23	JX 18	JX 21	22	35	JX 47	45	JX 64	JX 53	47	50	JX 93	JX 84	JX 45	38	29	23	JX 28	JX 27	JX 46	JX 53	JX 26
7	JX 20	JX 28	JX 20	JX 26	M 20	26	JX 43	JX 50	JX 105	JX 80	JX 78	JX 62	JX 59	JX 53	43	JX 113	JX 49	28	JX 66	JX 39	ES 14	JX 53	JX 63	JX 63
8	JX 51	JX 50	JX 110	JX 84	JX 43	JX 40	42	JX 45	JX 58	42	43	JX 43	JX 50	JX 48	JX 43	G	31	30	JX 40	JX 80	JX 60	JX 34	JX 34	JX 20
9	M 20	M 20	M 20	E	E	G	30	39	42	41	JX 46	JX 51	38	G	G	G	40	JX 39	JX 26	JX 40	JX 36	M 20	JX 19	M 20
10	E	M 22	JX 16	E	E	25	33	41	JX 82	JX 80	JX 62	42	43	47	46	44	JX 61	JX 65	JX 27	JX 35	JX 25	ES 14	JX 35	JX 33
11	JX 25	JX 25	JX 24	JX 26	JX 33	29	JX 46	JX 88	JX 66	JX 60	JX 63	JX 64	JX 58	JX 50	JX 37	G	39	JX 63	JX 66	JX 109	JX 66	JX 18	JX 14	M 20
12	JX 20	JX 16	M 21	E	E	28	JX 45	42	50	41	39	JX 42	39	42	JX 52	37	38	JX 44	JX 45	JX 78	JX 144	JX 53	JX 26	JX 18
13	JX 18	JX 27	JX 25	JX 24	JX 18	31	JX 48	JX 45	JX 52	44	42	G	JX 39	JX 43	JX 71	JX 95	JX 168	JX 182	JX 140	JX 86	JX 53	JX 24	FS 14	JX 18
14	JX 18	ES 13	E	ES 14	ES 13	27	JX 73	JX 50	JX 46	JX 54	JX 51	JX 56	JX 51	JX 57	JX 56	G	36	JX 48	JX 61	JX 91	JX 110	JX 49	JX 40	JX 19
15	JX 16	M 20	E	E	E	23	35	40	JX 51	42	JX 41	39	42	41	JX 47	37	G	G	37	JX 60	JX 40	JX 39	JX 38	JX 26
16	JX 18	JX 21	JX 19	JX 28	ES 14	JX 27	35	37	43	44	45	43	45	41	51	G	JX 44	JX 42	JX 38	JX 41	JX 37	JX 23	JX 20	JX 28
17	JX 18	M 22	JX 27	JX 17	19	18	34	JX 72	JX 47	JX 45	JX 65	JX 44	44	JX 46	45	JX 53	JX 47	JX 58	JX 127	D	JX 184	JX 84	JX 83	JX 83
18	JX 37	JX 23	M 20	JX 18	JX 23	25	38	JX 51	JX 55	JX 55	JX 53	JX 86	JX 143	JX 64	39	G	G	G	35	JX 86	JX 88	JX 58	JX 50	JX 71
19	JX 64	JX 36	JX 42	JX 28	JX 34	25	JX 48	JX 54	JX 68	C	JX 58	JX 77	JX 109	JX 89	JX 50	45	35	40	35	JX 29	JX 43	ES 14	FS 14	JX 18
20	JX 49	JX 19	JX 17	JX 18	JX 17	G	G	35	43	44	44	45	46	JX 65	JX 53	35	JX 39	28	JX 26	21	JX 28	JX 43	JX 39	JX 40
21	ES 14	JX 25	JX 18	E	JX 19	G	34	JX 49	JX 47	42	40	38	40	34	JX 65	JX 73	JX 51	38	JX 79	JX 67	JX 49	ES 14	JX 18	FS 14
22	ES 14	JX 18	ES 14	E	ES 14	G	35	39	41	43	JX 110	JX 73	43	44	G	JX 84	JX 62	JX 49	JX 45	JX 59	JX 41	JX 25	JX 18	JX 21
23	JX 19	JX 24	JX 19	JX 19	ES 13	G	35	41	JX 64	49	47	49	41	JX 62	54	JX 93	JX 93	38	26	JX 38	JX 73	JX 53	JX 41	JX 39
24	JX 25	JX 29	JX 18	E	E	23	37	JX 58	JX 48	JX 53	JX 54	39	JX 44	JX 53	JX 40	G	EB 42	EB 37	JX 43	JX 36	JX 53	JX 52	JX 42	JX 63
25	JX 35	JX 29	JX 63	JX 44	JX 38	25	JX 53	JX 48	JX 63	JX 59	39	38	EB 39	JX 40	JX 49	JX 37	JX 39	JX 41	JX 35	JX 25	JX 23	JX 36	JX 50	JX 53
26	JX 40	JX 25	JX 23	JX 18	ES 14	G	32	JX 53	JX 41	JX 53	JX 50	JX 46	JX 39	JX 38	JG 34	39	JX 45	JX 44	JX 58	JX 40	JX 19	JX 36	JX 23	JX 25
27	JX 18	JX 23	JX 23	JX 27	E	G	G	35	JX 73	JX 46	42	JX 44	C	C	G	G	38	32	29	JX 27	JX 32	JX 21	JX 27	JX 18
28	M 20	JX 19	JX 19	JX 17	E	28	35	JX 44	45	44	46	JX 47	G	G	G	42	37	35	JX 113	JX 101	JX 95	JX 53	JX 45	JX 35
29	JX 24	JX 41	JX 29	JX 24	15	30	JX 41	JX 48	JX 59	JX 53	JX 58	JX 49	JX 84	JX 63	JX 63	JX 65	JX 86	JX 88	JX 48	JX 63	JX 59	JX 53	M 21	JX 27
30	JX 23	JX 39	JX 28	JX 42	JX 46	32	JX 68	JX 67	JX 88	JX 55	JX 54	JX 90	JX 47	JX 38	JX 44	JX 67	JX 35	JX 45	JX 40	JX 64	JX 25	JX 44	JX 26	JX 19
31	JX 19	JX 24	JX 35	JX 29	JX 26	28	JX 45	JX 51	JX 51	JX 47	JX 78	JX 93	JX 75	JX 43	G	41	47	JX 48	JX 49	JX 47	JX 53	JX 80	JX 25	JX 28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	31	31	30	30	31	31	31	31	31	31	31	31	31	31
MED	JX 20	JX 23	JX 20	JX 19	17	23	35	JX 45	JX 51	JX 48	JX 48	JX 46	44	JX 43	JX 44	37	39	39	JX 40	JX 41	JX 43	JX 40	JX 27	JX 26
UQ	JX 27	JX 28	JX 25	JX 26	JX 20	28	JX 44	JX 50	JX 64	JX 55	JX 56	JX 54	JX 50	JX 53	JX 52	JX 49	JX 48	JX 48	JX 54	JX 79	JX 63	JX 53	JX 42	JX 37
LQ	JX 18	JX 20	JX 18	16	EE 13	EG 18	32	39	44	43	43	42	39	38	36	G	36	30	28	JX 28	JX 30	JX 24	JX 20	JX 20

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MAY. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | FBES (0.1 MHZ) | 135° E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	15	14	20	26	32	34	38	42	43	44	38	37	33	30	G	20	23	23	E	E S 14	E
2	E	17	E	E	15	G	G	31	35	37	40	40	38	G	G	G	G	G	G	E S 14	25	54	18	22
3	E	E	E	16	16	17	26	31	37	A	49	43	G	G	G	36	47	44	30	20	26	20	22	22
4	19	21	E	19	15	19	G 22	30	36	45	45	47	41	G	G	35	33	35	21	E S 13	E	24	E	E
5	E	15	E	E	E	21	36	42	36	47	43	40	38	41	38	G	40	32	26	A	35	30	17	40
6	23	28	E	E	E	22	32	41	42	A	52	47	50	67	55	44	38	28	23	19	19	30	20	E
7	E	E	15	15	E	23	40	42	A	65	72	56	46	53	43	51	40	28	37	38	E S 14	37	35	18
8	38	32	25	25	28	20	37	44	40	40	38	37	40	42	37	G	30	30	33	20	22	16	19	16
9	E	E	15	E	E	G	28	35	37	38	38	47	38	G	G	G	37	32	22	26	22	E	18	E
10	E	16	16	E	E	23	31	36	37	52	61	40	43	41	42	40	47	35	23	20	18	E S 14	21	26
11	22	17	16	E	E	25	33	A	63	58	63	55	44	40	36	G	35	63	60	77	52	16	16	E
12	16	16	E	E	E	25	38	40	48	40	39	41	39	41	41	37	37	41	42	60	A	20	E	E
13	E	E	E	21	15	30	43	42	47	40	40	G	39	40	70	75	A	A	A	75	20	20	E S 14	15
14	16	E S 13	E	E S 14	E S 13	25	71	46	44	44	42	41	46	52	40	G	35	35	53	75	64	20	25	17
15	E	E	E	E	E	22	34	35	45	40	40	39	40	40	44	37	G	G	36	58	33	21	28	E
16	E	16	16	15	E S 14	23	33	37	42	44	44	42	43	41	44	G	38	42	37	36	27	18	E	25
17	E	E	16	E	15	19	31	44	38	40	A	42	40	38	40	48	44	57	42	A	50	A	E	50
18	19	E	E	14	15	24	30	46	U R 55	48	45	64	A	47	38	G	G	G	33	64	68	40	46	55
19	37	15	E	20	23	24	47	54	66	C	47	44	A	44	39	36	35	40	30	24	39	E S 14	E S 14	E
20	38	E	E	E	E	G	G	35	43	44	43	44	46	40	40	35	36	28	G	20	18	27	25	27
21	E S 14	E	E	E	E	G	32	44	45	41	40	38	45	40	65	57	41	35	77	63	41	E S 14	E	E S 14
22	E S 14	E	E S 14	E	E S 14	G	34	35	39	43	A	45	43	41	G	38	G	31	38	48	38	18	E	E
23	E	E	15	15	E S 13	G	33	40	58	49	E R 47	48	40	49	54	40	72	36	25	26	28	19	E	E
24	E	E	16	E	E	23	35	47	41	46	47	38	40	52	38	G	E B 42	E B 37	36	24	24	25	22	27
25	E	E	18	22	18	24	44	42	45	42	39	38	E B 39	40	48	36	37	40	33	23	18	20	20	27
26	19	E	E	E	E S 14	G	30	50	40	46	45	43	39	38	G 28	37	42	37	45	39	E	30	19	25
27	E	19	E	16	E	G	G	34	57	46	40	41	C	C	G	G	36	30	29	25	28	E	E	E
28	E	15	15	E	E	27	30	40	44	38	44	45	G	G	G	37	35	35	76	50	A	E	20	23
29	18	17	20	14	14	27	38	47	A	A	46	43	49	54	45	56	A	A	48	44	41	37	E	E
30	E	24	18	17	18	28	62	64	A	46	43	45	45	38	43	40	33	37	35	58	20	26	E	E
31	E	E	30	19	16	26	39	46	43	44	52	59	52	40	G	38	46	45	48	44	50	18	E	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	30	31	31	30	30	31	31	31	31	31	31	31	31	31	31
MED	E	E	E	14	14	22	33	42	43	44	44	43	42	40	39	36	37	35	35	38	27	20	17	15
UQ	18	16	16	16	15	24	38	46	52	48	48	46	46	44	44	40	42	40	44	59	41	28	20	25
LQ	E	E	E	E	E	E G 17	30	35	38	40	40	40	39	38	E G 28	G	34	30	26	23	20	16	E	E

MAY. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | F-MIN (0.1 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

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

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

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MAY. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | M(3000)F2 (0.01) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F 280	F	F 280	280	280	310	340	325	315	305	295	300	295	285	300	315	305	315	310	295	310	290	270	285
2	290	280	300	290	285	330	335	315	325	320	285	295	295	295	300	305	315	315	310	290	300	305	290	280
3	280	275	275	290	300	320	300	270	270	IA 280	IR 280	295	290	270	285	295	305	315	315	305	285	275	280	275
4	285	280	285	295	300	295	305	295	310	IR 295	280	300	305	315	305	305	310	305	300	310	305	285	275	280
5	280	270	280	285	285	325	330	330	345	335	300	300	300	305	295	305	315	305	305	IA 310	305	300	290	285
6	280	290	285	285	285	310	335	340	345	IA 300	300	290	290	275	295	290	300	300	300	305	305	S 305	285	275
7	F	F	F	F	F	325	330	325	IA 310	295	315	285	285	285	300	305	305	305	315	325	305	290	F 280	F 275
8	F	F	F	F	F	320	320	330	H 330	290	290	300	305	300	300	300	310	300	300	295	E 295	285	285	285
9	280	F 275	F 280	F 280	F 285	310	320	V 305	300	300	295	280	290	280	290	300	295	305	300	300	300	285	295	280
10	270	265	265	275	290	300	320	315	305	300	310	305	285	285	285	305	310	300	300	300	275	275	265	270
11	270	270	280	V 275	290	300	295	IA 305	300	300	275	275	280	290	290	300	290	300	300	310	345	270	270	260
12	255	F 260	265	285	290	340	320	330	305	305	300	280	275	290	290	285	290	305	300	300	IA 295	270	275	275
13	270	280	275	290	295	315	305	325	295	290	280	285	280	275	290	300	IA 300	IA 295	IA 300	305	290	270	280	270
14	270	270	270	260	F 270	290	300	300	320	295	270	260	280	270	285	280	295	290	290	295	280	290	275	275
15	270	275	255	265	275	280	270	300	305	285	285	270	275	285	285	295	295	290	295	290	290	275	275	275
16	275	275	280	275	270	285	245	255	H 275	W 250	255	230	245	295	290	300	285	275	290	295	265	275	265	265
17	265	270	275	300	310	310	290	R 260	245	G	A	250	285	270	280	295	290	290	300	IA 290	IR 295	IR 285	F 265	F
18	F 270	F	F	F	F 290	320	295	290	295	290	275	290	IA 280	280	275	285	290	290	290	305	280	270	F	F
19	F	F	F	F	285	280	285	295	305	IC 290	260	280	IA 280	285	295	290	300	295	295	295	285	275	275	270
20	F	285	305	290	300	295	315	315	290	285	280	270	290	280	280	280	295	290	300	300	310	265	260	270
21	275	280	290	290	295	290	305	310	315	285	295	295	275	280	285	290	300	300	305	310	310	280	275	275
22	270	280	290	310	290	300	305	300	305	315	IA 290	275	275	275	285	285	285	295	300	305	315	270	275	275
23	275	285	295	280	290	300	325	320	270	285	285	265	280	285	290	295	295	300	300	315	315	270	280	280
24	275	275	280	270	275	280	275	295	305	310	295	285	290	295	280	280	290	295	320	300	285	285	270	270
25	280	270	295	295	290	290	300	315	310	320	285	290	275	295	280	290	285	300	310	295	290	285	285	285
26	290	285	280	275	280	295	325	335	325	255	280	280	275	275	280	295	295	295	300	295	285	280	290	280
27	295	260	295	300	285	305	330	310	320	315	290	280	IC 285	IC 295	295	295	300	300	300	320	305	285	285	280
28	285	275	280	260	295	315	295	325	325	310	285	285	280	275	300	300	290	295	315	R	A	275	F 285	F
29	F 290	290	275	270	F	280	300	335	IA 330	IA 280	270	270	280	295	305	265	A	A	305	260	285	F	300	290
30	285	290	275	F 285	F	305	330	315	IA 290	295	280	280	290	270	265	300	280	310	300	290	300	F 280	F 285	285
31	290	300	275	275	F	300	280	290	295	305	280	285	270	280	280	305	305	280	290	305	F	F 285	F	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	27	27	26	31	31	31	31	31	30	31	31	31	31	31	30	30	31	30	29	30	29	27
MED	280	275	280	285	290	300	305	315	305	295	285	285	280	285	290	295	295	300	300	300	295	280	280	275
UQ	285	285	288	290	295	315	325	325	320	305	295	292	290	295	295	300	305	305	305	305	305	285	285	280
LQ	270	270	275	275	285	292	295	298	295	285	280	275	278	275	282	290	290	295	300	295	285	275	275	272

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MAY. 1972 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1972 | 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							L	L	L 355	365	350	360	355	365	350	H 350	U L 350	L						
2								L	L	L 365	345	355	360	360	350	U L 335	U L 355	L						
3								335	360	I A 350	I A 360	370	360	370	350	340	A	A						
4								U L 335	345	320	I A 360	A	375	365	345	350	340	L	L					
5							A	A	L 355	A	365	365	370	355	360	355	350	L	L					
6						L	L	A	U L 375	A	A	A	I A 340	I A 345	I A 345	L	350	U L 345	L					
7								A	A	A	A	I A 325	350	I A 345	370	I A 355	365	L	A					
8								A	L	370	355	385	360	345	355	L	L	L						
9							L	L	L	360	380	L 340	360	340	L 345	335	L	L	L					
10							L	L	L	A	I A 360	385	350	375	I A 365	355	A	L						
11								A	A	A	A	A	340	350	375	H 350	L	A						
12									L	350	350	350	375	365	330	340	U L 330	L	A					
13							L	L	L	L 360	350	355	360	345	A	A	A							
14							A	L	L	L	L 350	335	R 360	L	350	L 345	L	A						
15						L	L	345	L	L 365	345	330	350	345	350	360	L	L	A					
16							305	U L 330	L 355	340	320	320	350	340	L 340	335	U L 320	L	A					
17							U L 330	300	370	355	I A 355	355	370	355	360	I A 350	345	A	A					
18								A	A	335	330	A	A	355	350	350	H 335	U L 335	L					
19						L	A	A	A	C	L 320	355	I A 340	360	335	L 340	L 345	L	L					
20								L	L 365	L 350	375	345	345	345	345	L 335	U L 355	L	L					
21							L	A	I A 370	L	360	H 355	340	345	I A 360	I A 360	350	L	A					
22							L	L	L 365	370	I A 340	340	345	340	360	340	H 335	L	A					
23							L	L	A	A	A	335	355	340	I A 350	H 340	I A 355	L	L					
24						U L 335	L	A	L 370	A	I A 355	365	380	I A 360	350	340	340	B	A					
25							A	L	A	385	360	360	350	350	I A 350	360	345	A	A					
26						L	L	A	L 380	340	355	370	360	365	365	350	I A 345	L	A					
27							L	L	A	A	L 400	375	I C 355	I C 345	370	345	395	340	L					
28								L	A	375	355	360	370	375	355	345	L 345	350	A					
29						250	A	A	A	I A 355	I A 360	355	A	A	L	A	A	A	A					
30							A	A	A	325	355	355	375	375	350	345	340	A	A					
31						L	L	A	350	355	A	A	A	380	375	350	A	A	A	A				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	2	5	13	20	26	26	28	29	29	27	21	4						
MED						292	318	335	L 365	355	355	355	358	355	350	345	345	342						
UQ								335	L 370	365	360	365	365	365	360	350	350	348						
LQ								U L 330	L 355	345	350	340	350	345	350	340	340	338						

MAY. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1972 | H'F2 (KM) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							245	255	350	330	350	325	315	345	310	280	275	260						
2								255	270	280	340	300	305	300	305	285	275	255						
3								340	455	A	I A 440	415	400	450	400	330	310	280						
4								350	345	R	405	355	335	320	330	330	290	285	270					
5							240	255	250	265	350	340	325	315	320	315	275	270	260					
6						280	245	245	260	I A 320	315	330	335	350	310	300	280	280	255					
7								250	A	I A 310	I A 320	320	350	320	300	295	280	275	250					
8								250	250	330	325	305	310	320	300	310	285	280						
9							250	245	280	300	300	345	325	350	320	300	270	280	270					
10							255	280	270	340	320	330	365	350	335	290	290	280						
11								A	A	I A 370	I A 365	385	345	340	330	310	290	300						
12									290	305	305	305	325	330	330	330	305	280	250					
13							265	255	250	295	335	325	335	345	315	320	I A 315							
14							A	285	255	290	325	375	335	335	320	310	295	270						
15						295	315	305	285	300	330	390	350	330	320	305	295	300	270					
16							475	340	295	380	395	490	400	305	305	300	330	330	295					
17							305	450	570	G	A	500	400	440	380	345	335	335	290					
18								290	310	375	385	355	I A 355	375	350	320	315	300	280					
19						290	280	270	290	I C 290	395	340	I A 340	320	315	305	290	280	270					
20								265	285	310	295	355	325	320	335	320	295	270	270					
21							250	270	270	270	330	310	355	340	335	310	305	295	310					
22							280	275	285	280	I A 300	350	355	340	325	320	310	290	280					
23							255	255	300	315	290	355	340	340	325	305	310	290	270					
24						325	315	290	270	280	300	370	325	325	355	350	315	285	260					
25							270	280	290	265	345	350	380	320	335	325	320	290	255					
26						285	255	240	260	500	390	365	355	355	330	305	295	290	270					
27							245	280	280	280	300	365	I C 340	I C 330	315	310	290	295	280					
28								265	270	260	380	350	350	350	300	305	315	300	A					
29						350	310	265	A	A	430	430	400	350	340	A	A	A	290					
30							250	A	A	350	350	340	325	325	360	320	340	280	285					
31						280	300	295	295	285	385	350	400	360	345	300	305	340	300	260				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						7	20	28	27	28	30	31	31	31	31	30	30	29	22	1				
MED						290	260	270	285	302	338	350	340	340	325	310	295	285	270	260				
UQ						310	302	290	295	335	385	368	355	350	335	320	315	295	285					
LQ						282	250	255	270	280	315	330	325	320	315	300	290	280	260					

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MAY. 1972 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1972 | 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	295	295	290	290	295	260	240	235	220	225	230	I A 225	I A 225	210	240	210 H	235	235	240	260	255	245	295	280
2	255	295	245	265	295	230	225	235	230	230	225	230	205	205	230	235	235	240	250	250	245	I A 260	250	300
3	295	295	295	285	260	250	240	245	245	A	A	225	205	210	230	235	A	A	245	240	280	300	305	300
4	285	305	260	245	235	255	240	230	250	I A 240	I A 235	I A 240	210	205	235	220	220	I A 250	250	240	230	255	285	290
5	295	305	290	290	285	250	I A 235	I A 220	225	I A 225	I A 215	205	205	245	235	230	I A 235	245	I A 250	I A 255	250	250	265	I A 295
6	305	305	280	285	295	250	245	I A 245	A	A	A	A	A	A	A	A	I A 230	230	250	230	245	255	265	280
7	290	275	255	280	265	230	245	A	A	A	A	A	A	A	I A 245	I A 235	I A 240	245	I A 245	235	225	A	A	300
8	I A 300	I A 290	305	295	295	245	250	A	A	220	220	200	235	240	220	210	235	245	250	270	270	260	255	250
9	270	285	285	280	270	245	240	240	235	225	200	I A 225	205	210	235	225	250	240	245	250	260	240	250	245
10	290	300	300	280	255	255	245	245	235	I A 225	I A 230	205	230	240	I A 225	240	I A 230	I A 240	250	250	255	255	295	I A 300
11	295	285	275	250	250	255	255	A	A	A	A	A	A	230	205	205 H	255	A	A	I A 280	245	220	265	300
12	310	320	315	260	255	245	245	240	I A 235	220	215	230	225	215	235	245	245	I A 240	I A 250	270	I A 260	270	260	270
13	295	290	280	265	245	250	I A 245	I A 240	I A 230	225	215	210	210	210	A	A	A	A	A	A	250	260	265	280
14	285	280	290	295	305	265	I A 250	I A 240	I A 245	240	230	190	I A 225	I A 235	230	240	250	I A 250	285	I A 275	I A 265	250	290	285
15	280	275	300	280	285	260	I A 250	245	I A 235	215	210	230	210	210	I A 230	240	240	240	I A 260	300	275	290	285	260
16	285	295	285	290	275	255	I A 255	245	240	240	250	230	230	235	I A 240	235	250	A	A	265	265	260	280	310
17	290	295	275	240	245	235	245	I A 240	220	245	I A 235	225	215	220	240	A	A	A	A	A	300	I A 265	300	I A 310
18	320	300	285	290	270	250	245	A	A	A	A	A	A	A	230	230	220 H	235	I A 260	290	A	A 320	I A 335	A
19	290	265	260	255	260	240	A	A	A	C	245	215	I A 220	230	220	230	230	A	A	250	265	270	280	280
20	I A 305	260	245	215	250	235	230	230	I A 230	I A 235	225	210	I A 230	230	220	215	235	235	245	250	235	295	330	295
21	280	280	250	245	250	240	245	I A 235	I A 230	220	220	200 H	235	225	A	A	A	255	I A 260	265	245	245	270	270
22	290	270	250	230	265	235	245	230	235	I A 225	I A 225	I A 215	230	215	205	230	230 H	250	I A 250	255	240	245	270	275
23	280	255	255	250	270	245	235	A	A	A	A	A	225	A	A	A	A	I A 240	245	230	240	245	285	280
24	295	300	290	295	295	235	245	A	A	I A 220	I A 225	200	200	I A 235	235	225	I B 235	I B 255	I A 245	235	250	275	295	315
25	280	300	260	265	255	240	A	A	A	225	220	215	225	225	I A 235	230	A	A	A	240	240	250	265	300
26	240	270	290	290	295	245	240	A	A	250	I A 215	205	230	230	220	I A 230	A	A	A	250	235	290	265	290
27	255	275	250	275	280	235	235	225	A	A	230	220	I A 215	I A 215	225	230	240	240	255	235	235	250	275	270
28	270	290	285	275	255	240	235	A	A	215	I A 220	I A 230	225	220	215	245	250	A	A	250	A	265	280	285
29	255	265	295	300	300	A	A	A	A	A	A	250	A	A	A	A	A	A	A	295	300	315	220	250
30	265	290	295	300	280	250	A	A	A	A	A	I A 220	I A 220	205	I A 220	I A 230	235	I A 240	I A 250	A 295	245	295	245	255
31	265	260	310	295	F 285	250	A	A	A	A	A	A	A	210	230	235	A	A	A	A	I A 270	255	255	255
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	26	18	16	20	22	25	25	26	26	25	22	20	21	28	29	30	30	30
MED	290	290	285	280	270	245	245	240	235	225	225	220	225	220	230	230	235	240	250	250	250	260	272	282
UQ	295	298	292	290	290	250	245	245	238	238	230	230	230	230	235	235	245	248	250	270	265	275	290	300
LQ	275	275	260	258	255	240	240	230	230	220	215	205	210	210	220	225	230	240	245	240	240	250	265	270

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MAY. 1972 | H'F (KM)

IONOSPHERIC DATA

MAY. 1972 | 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	105	E	100	105	150	150	140	130	125	120	110	115	115	115	115	115	G	140	115	115	110	S	110
2	105	100	100	100	100	G	G	140	140	130	130	155	115	G	115	G	G	G	G	S	110	110	105	105
3	105	105	100	100	100	140	140	130	130	115	115	115	G	G	G	125	130	125	120	110	110	105	105	105
4	105	105	100	100	100	100	100	145	110	125	125	125	125	G	G	150	150	130	130	S	110	105	105	105
5	105	100	105	105	115	135	130	125	120	115	115	115	115	110	150	G	125	125	110	110	105	105	105	100
6	105	100	105	100	100	140	135	125	125	120	115	115	115	110	110	110	110	115	110	115	110	110	110	110
7	100	110	100	100	110	140	125	125	115	115	115	115	110	115	115	110	110	110	110	110	S	105	105	105
8	110	110	105	105	105	115	130	125	115	115	120	110	105	110	110	G	160	135	120	120	115	105	105	110
9	110	110	105	E	E	G	140	135	120	120	120	115	130	G	G	G	145	135	125	115	115	120	110	110
10	E	110	110	E	E	130	135	130	120	120	115	125	125	125	120	120	135	125	120	115	110	S	105	105
11	105	100	100	100	140	135	135	125	120	120	115	115	110	115	115	G	135	125	115	115	110	110	110	110
12	105	110	105	E	E	120	120	120	115	115	115	110	115	115	115	155	140	125	120	115	115	105	110	105
13	100	100	100	100	100	125	115	120	115	110	110	G	105	105	125	125	120	120	115	115	110	110	S	105
14	105	S	E	S	S	130	125	120	120	115	115	115	110	110	110	G	120	110	105	105	115	110	105	105
15	110	110	E	E	E	145	125	130	120	125	125	140	125	115	110	115	G	G	130	115	110	110	105	105
16	105	100	100	100	S	115	125	140	130	120	120	115	120	130	115	G	115	130	125	115	115	110	110	105
17	105	110	105	110	130	115	125	125	125	120	115	120	115	115	120	130	120	115	115	115	110	110	110	105
18	105	100	100	100	115	130	130	115	115	115	115	110	110	110	145	G	G	G	125	115	110	110	110	110
19	105	100	100	100	100	140	125	115	115	C	115	115	115	110	105	120	150	125	115	115	115	S	S	110
20	110	100	100	110	105	G	G	140	130	130	120	120	120	115	115	110	115	115	115	130	115	115	110	110
21	S	110	100	E	105	G	140	125	120	125	125	125	140	145	130	125	125	125	115	115	115	S	110	S
22	S	100	S	E	S	G	130	140	120	120	115	115	140	135	G	120	120	120	115	115	110	110	110	105
23	105	110	105	110	S	G	130	130	125	120	120	115	115	130	130	130	125	130	120	115	105	105	105	105
24	105	105	100	E	E	140	125	115	115	115	115	115	110	105	105	G	B	B	115	115	110	110	105	105
25	100	105	105	105	100	130	115	115	115	115	120	115	B	110	105	105	100	100	100	100	100	100	100	100
26	100	100	100	100	S	G	140	115	115	115	115	110	115	110	110	140	130	115	105	105	105	105	100	100
27	100	100	100	100	E	G	G	130	120	115	115	115	C	C	G	G	140	140	120	115	110	110	105	110
28	110	105	100	105	E	130	130	125	120	130	115	115	G	G	G	130	140	120	115	110	110	110	120	100
29	100	100	100	105	145	130	125	115	115	115	115	115	115	110	145	140	130	120	120	115	110	110	110	105
30	105	100	100	100	100	120	120	115	115	115	115	110	110	115	115	110	110	105	105	105	110	110	105	105
31	105	100	100	100	110	140	120	115	115	115	115	110	110	115	G	140	125	125	115	115	105	110	110	105
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	30	27	23	19	23	28	31	31	30	31	30	27	25	24	21	27	26	30	29	30	28	28	30
MED	105	102	100	100	105	130	128	125	120	118	115	115	115	115	115	125	125	125	115	115	110	110	105	105
UQ	105	110	105	105	112	140	135	130	122	120	120	115	120	115	122	130	138	125	120	115	115	110	110	110
LQ	105	100	100	100	100	122	125	118	115	115	115	115	110	110	110	115	118	115	115	110	110	105	105	105

MAY. 1972 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1972 | 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	F1	F2		F2	F2	H1	H1	H2	H1	H2	H1	C2	C2	C1	C1	C2	C1		H2	L5	F3	F1		F2
2	F1	F2	F2	F2	F2			H2	H1	H1	H2	H1	C1		C1						F4	F3	F3	F3
3	F1	F1	F2	F2	F1	H1	H2	H2	H2	H2	H2	C1				H1	H4	H4	H4	L3	F3	F3	F4	F6
4	F5	F4	F2	F4	F2	L3	L2	H1	LH 11	H2	H1	H1	H1			H1	H1	H3	H2		F1	F4	F2	F2
5	F2	F1	F1	F1	F1	F2	H3	H2	H2	C2	C2	C2	C1	LH 11	H1		H2	H2	L3	L4	F4	F4	F3	F4
6	F3	F4	F2	F1	F1	H2	H3	H2	H1	H2	H2	H1	C2	L4	L2	L4	L2	C2	L1	C3	F4	F5	F3	F2
7	F1	F2	F2	F2	F1	H2	H3	H3	C3	C2	C2	C2	L2	C3	C2	L2	L3	L3	L5	L6		F4	F4	F3
8	F4	F6	F4	F3	F4	CH 11	H3	H3	C2	C1	H1	C1	L2	C2	L3		H1	H2	H4	F4	F4	F3	F3	F2
9	F1	F1	F1				H1	H2	H1	H1	H1	C2	H1				H1	H2	H2	F4	F6	F1	F2	F1
10		F1	F2			H2	H2	H2	H1	H2	C2	H1	H1	H1	H2	H2	H2	H3	H4	F3	F3		F3	F4
11	F3	F3	F3	F2	HL 11	H2	H2	H3	H3	H2	C2	C2	C2	C2	C1		H1	H3	C5	F3	F4	F2	F1	F1
12	F4	F2	F2			C3	C2	H2	C2	C1	C1	L2	C1	C1	C2	H1	H1	H2	C3	C6	F2	F3	F2	F2
13	F2	F2	F1	F3	F1	H3	C2	C3	C2	C1	C2		C2	L2	HL 22	H3	H3	H4	C5	F4	F4	F4		F2
14	F2					H2	H5	H3	H2	C2	C1	C1	C2	C2	C2		H2	L2	L4	F3	F4	F2	F3	F3
15	F2	F2				H1	H3	H2	H2	H1	H1	H1	H1	C1	L3	C1			H3	C3	F4	F3	F3	F3
16	F2	F2	F2	F2		C1	H3	H1	H2	C2	C2	C1	H1	H1	H2		C2	H3	H2	C3	F4	F3	F2	F2
17	F2	F1	F2	F1	H2	C2	H2	H3	H1	H2	C2	H1	C1	C1	H1	H2	H2	C4	C4	C4	F2	F5	F3	F4
18	F2	F3	F1	F1	C2	H2	H1	C3	C1	C2	C2	L2	L2	L2	H1				H3	C6	F4	F4	F6	F4
19	F4	F2	F2	F2	L2	HL 11	H3	C3	C3		C2	C1	C3	L2	L2	C1	H1	H3	C3	C3	F3			F1
20	F4	F2	F2	F1	L1			H1	H2	H2	C1	C2	C1	C1	C1	L1	C2	C2	C1	H2	F2	F4	F3	F2
21		F3	F1		L1		H2	H2	C2	H1	H1	H1	H1	H1	H2	HL 22	HL 32	H2	C3	C4	L3		F2	
22		F1					H2	H1	C1	C1	C2	C2	H1	H1		C1	H1	C1	C3	C3	F4	F2	F1	F2
23	F2	F2	F2	F1			H2	H1	H2	C1	C1	C1	C1	H1	H1	H2	H3	H2	C2	C2	F2	F2	F2	F2
24	F2	F2	F2			H2	H2	C3	C2	C1	C2	C1	L1	L2	L2				C3	C4	F3	F3	F3	F4
25	F2	F2	F2	F3	L3	H1	C4	C2	C2	C2	C1	C1		L1	L2	L2	L3	L3	L4	L3	F3	F3	F3	F2
26	F3	F3	F2	F1			H1	C3	C2	C2	C2	L2	C1	L1	L1	H1	H1	C2	L2	L4	F1	F4	F3	F4
27	F2	F2	F2	F2				H1	C2	C2	C1	C1					H1	H1	C3	C3	F4	F2	F2	F1
28	F2	F2	F2	F1		H3	H2	H2	H2	H1	C2	C1				H2	H1	C2	C4	L3	F3	F3	FF 12	F3
29	F2	F2	F3	F1	H2	H3	H4	C3	C3	C2	C2	C2	C2	L2	HL 22	H2	H3	H3	H4	C6	F4	F4	F1	F3
30	F2	F3	F2	F2	L2	C2	C4	C3	C4	C3	C2	L1	L2	C1	C2	L3	L2	L3	L4	L4	F3	F3	F2	F2
31	F2	F2	F3	F3	L1	H2	C2	C3	C3	C2	C2	L3	L2	C1		H1	H3	H3	C3	C3	F3	F3	F2	F2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

MAY. 1972 | TYPES OF ES

IONOSPHERIC DATA

MAY. 1972 | 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	S 51	51	51	50	49	64	63	59	58	62	65	76	86	J R 89	100	110	J R 105	95	J R 87	J R 77	R 65	60	56	58
2	56	J R 53	56	46	45	50	U R 71	65	J R 77	69	76	91	93	106	113	111	97	89	90	80	S 76	69	61	58
3	58	S 55	F 53	52	S 53	56	61	63	58	59	56	60	64	63	68	70	74	78	74	I A 64	59	53	54	55
4	J S 54	50	52	51	37	48	63	59	59	59	64	71	68	73	76	79	86	83	95	89	S 65	58	57	59
5	56	51	54	53	53	66	71	65	65	61	A	J R 76	80	84	82	89	86	84	R 90	86	S	60	51	60
6	J S 54	54	51	50	F 50	64	90	A	61	65	68	76	86	95	107	113	110	108	106	92	76	69	F 64	69
7	F 65	F 62	F 63	F 58	57	70	78	71	A	74	80	79	89	A	A	110	100	98	107	88	60	59	61	60
8	59	F 55	F	F 58	58	64	J R 80	78	71	V 74	85	91	95	95	95	96	92	91	91	86	U R 81	F	J R 75	71
9	F	F	65	61	61	71	77	79	J R 85	84	86	85	92	J R 100	108	110	109	J R 102	J R 102	93	86	79	R 79	J R 75
10	70	67	R 65	65	66	66	74	65	65	J R 75	78	81	R 85	91	105	113	101	91	95	R 85	J R 79	R 71	U R 71	71
11	71	70	65	R 65	65	71	J R 79	83	A	80	81	96	106	J R 105	J R 107	108	109	106	A	U R 119	R	R 71	70	60
12	F	U R 56	55	60	61	R 68	U R 71	71	70	J R 75	79	86	93	97	J R 102	J R 103	105	A	105	J R 103	U R 86	R	F	F
13	75	F	U R 76	J R 74	R 67	R	R 88	96	91	90	94	J R 105	106	110	118	115	105	105	J R 107	S 100	A	90	91	84
14	80	S 80	72	70	73	86	99	103	86	82	90	104	115	124	129	125	121	119	110	J R 104	90	F	F	F
15	F	F	U F 83	U F 75	F 69	70	84	95	84	81	89	U R 98	114	120	118	110	100	97	95	J R 100	R	U R 84	R	R 81
16	R 79	R	73	66	66	73	63	J R 77	J R 105	73	R	R	110	120	99	90	83	90	J R 103	95	U R 75	I R 78	J R 82	R
17	R	U R 81	I R 81	J R 75	66	70	R 71	70	A	61	65	J R 70	71	I R 75	A	79	76	I R 80	83	80	63	68	F	A
18	F	F	F	F 61	F	60	67	80	80	75	80	A	J R 88	J R 89	96	J R 105	J R 103	J R 102	103	R 101	U R 75	R 76	U R 79	F
19	R	F	F	F	F	R 65	89	91	R 86	80	85	92	R 97	J R 102	J R 106	J R 103	98	91	91	R 97	U R 82	J R 79	81	83
20	R 81	82	J R 80	70	68	J R 75	J R 75	79	75	87	R 89	94	105	107	110	114	112	112	108	106	87	S	F 85	F
21	U S 93	F	91	F 75	74	80	90	83	84	79	86	I R 90	94	U R 96	101	A	A	106	109	S	86	82	81	J S 89
22	85	S 89	S 93	72	73	75	82	85	84	85	85	80	89	95	98	J R 102	J R 105	110	111	108	81	R	J R 78	J R 79
23	U R 80	R 80	U R 79	F	F	J R 80	88	81	81	89	R 82	95	J R 102	J R 105	106	111	110	R	A	J R 100	A	J R 72	F	U R 76
24	R 70	70	66	62	60	R 61	84	91	89	A	A	R	95	92	82	90	B	96	91	R 90	71	66	R 66	U R 66
25	69	66	66	61	55	65	81	86	80	A	66	70	U R 80	91	97	92	93	96	91	85	I R 82	J R 79	R	U R 76
26	75	70	65	61	61	J R 79	96	R	65	60	A	R	J R 89	96	J R 102	J R 104	92	96	95	90	J R 82	U R 76	R 76	R 71
27	71	70	R 65	61	61	71	66	J R 75	72	64	64	R 70	80	87	94	96	96	92	96	S 97	77	71	S 72	70
28	66	65	62	59	61	65	74	84	67	70	63	71	J R 78	88	100	A	A	95	110	100	S 66	F	F	F
29	U F 64	F 67	64	F 58	F	F 69	86	72	A	A	65	70	I A 78	I R 76	63	A	76	A	70	A	77	U R 75	F	65
30	56	56	R 55	56	F	J R 68	72	A	A	70	A	A	95	I A 84	81	J R 86	91	J R 94	91	J R 89	R	J R 75	R	R
31	R	U R 75	F	R	I R 66	F	71	J R 75	78	81	J R 74	77	J R 79	84	95	97	81	81	85	86	R	F	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	27	28	26	29	31	28	26	28	26	26	31	30	29	28	28	28	29	29	24	24	21	22
MED	70	66	65	61	61	68	77	78	78	74	80	80	89	95	100	104	99	96	95	92	77	72	72	70
UQ	77	72	74	68	66	71	85	84	84	81	85	92	96	105	107	110	105	104	106	100	82	R 78	R 79	R 76
LQ	57	55	56	57	55	64	71	70	65	64	65	71	80	87	95	91	88	90	91	86	68	67	61	60

MAY. 1972 | FOF2 (0.1 MHz)

IONOSPHERIC DATA

MAY. 1972 | 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	460	480	490	UR 500	490	480	450	L	L						
2								L	L	L	490	520	550	520	500	470	L	L						
3							L	U 460	A	A	470	A	480	470	470	470	430	L	A					
4							L	L	450		500	510	490	520	480	470	440	L						
5							L	L	500	L	A	A	A	490	490	480	L	A						
6							L	A	A	A	A	A	A	A	H 500	A	L	A	A					
7								L	A	I	A	A	A	A	A	A	450	L						
8								A	L	A	500	490	A	500	500	L	L							
9									A	490	500	500	550	500	500	480	L							
10							L		A	580	A	550	A	A	A	A	450							
11							L	L	A	A		510	540	A	A	480	L	A						
12										530	480	A	A	550	A	L	A	A						
13									A	A	A	A	580	A	L	A	A	A	L					
14								A	A	A	A	600	580	560	U 540	L	A	A	A					
15							L	L	L	U 510	490	550	UR 550	O 52	L	490	L							
16							U 440	L	L	690	UR 560	600	A	A	L	L	L	L						
17							L	L	A	500	U 510	500	A	500	A	490	480	A						
18								L	A	A	A	A	500	500	510	490	480	390	L					
19									A	A	550	550	520	A	A	480	L	L						
20							L	L	L	A	L	550	550	L	520	510	U 490	L						
21							L	L	470	A	540	A	500	A	A	A	A	A	A					
22							L	L	L	L	500	500	540	530	520	500	L	A	L					
23							L		A	490	A	A	B	510	A	A	A	A						
24							L	A	A	A	A	530	490	A	A	A	B	A						
25							L	A	A	A	A	500	510	490	500	480	450	L	L					
26								A	A	A	A	A	A	R 500	480	450	L	L						
27							L	L	U 440	L	A	520	A	500	490	460	460	A	I					
28								450	A	490	510	520	L	510	490	A	A	A	A					
29						A	A	430	A	A	A	A	A	A	460	A	A	A	A					
30								A	A	A	A	A	A	A	A	A	A	A	A					
31						L	A	A	A	510	A	A	A	500	490	480	450	400						

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	3	4	10	14	18	16	19	18	17	10	2						
MED							U 440	450	460	505	500	520	530	500	495	480	450	395						
UQ								455	485	530	510	550	550	515	500	490	480							
LQ								440	445	490	490	500	500	495	480	470	450							

MAY. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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						165	230	275	305	R 325	I R 340	350	A	A	A	A	A	A	A					
2						B	R 225	280	R 320	340	350	I R 350	A	A	R	R	I A 290	260	A					
3						170	240	280	320	R 335	A	A	A	A	A	R	290	255	A					
4						A	230	285	320	R 340	355	375	I R 375	R 370	365	R 325	295	A	A					
5						B	A	285	A	330	A	A	A	A	350	320	295	245	A					
6						B	250	290	325	350	360	I A 360	A	A	A	A	A	A	A					
7						A	250	290	320	A	A	A	A	A	A	A	A	A	A					
8						A	A	A	A	A	A	A	A	A	A	A	310	260	A					
9						150	250	295	I A 320	I A 340	R	B	A	A	A	340	R	I A 270	A					
10						B	I A 240	290	I R 330	I R 350	I R 360	R	R	I A 380	I R 360	335	R 320	I A 260	A	B				
11						B	260	300	I A 330	350	360	B	A	A	A	A	A	265	A					
12						B	245	I A 290	A	B	A	A	A	A	I R 380	355	320	260	A					
13						B	255	I A 300	I A 330	I A 350	A	A	A	A	A	365	315	A	A					
14						A	255	310	A	A	A	A	B	A	A	A	A	A	A					
15						A	250	305	350	A	A	B	B	R	B	R	R 330	275	200					
16						B	250	305	340	I A 350	I R 360	I R 360	I A 370	B	A	A	A	A	A					
17						A	R 250	300	I A 330	350	B	A	A	B	A	R	325	270	A					
18						A	250	310	B	B	A	A	R	B	U R 380	R	R 310	275	200					
19						A	250	300	I A 340	A	A	A	A	A	A	A	A	A	A					
20						B	250	290	345	360	365	I R 380	R 375	I A 370	365	325	A	A	A					
21						A	265	300	345	350	B	395	395	400	375	345	310	265	A					
22						265	265	300	325	A	B	B	290	R	R	I R 340	300	250	A					
23						B	260	I R 310	335	B	B	B	B	B	B	350	325	275	A					
24						A	260	A	A	A	A	B	A	A	A	A	B	A	A					
25						A	255	290	A	A	A	B	B	A	A	A	A	260	A					
26						B	A	270	I A 310	R 330	A	A	A	A	A	A	A	A	A					
27						195	260	300	325	A	A	B	A	A	R	345	320	275	A					
28						200	255	305	325	345	360	B	A	A	A	340	320	A	A					
29						A	250	A	A	A	A	A	A	R	I A 350	340	310	260	200					
30						160	250	290	320	340	A	B	A	A	A	A	A	A	A					
31						185	A	300	I A 320	A	A	U R 350	355	R 345	A	R 335	330	275	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						8	27	28	23	17	9	8	6	5	8	14	18	18	3					
MED						178	250	298	325	345	360	360	372	370	365	340	312	262	200					
UQ						198	255	300	332	350	360	378	R 375	380	378	345	320	275	200					
LQ						162	250	290	320	340	355	R 350	355	R 370	355	335	300	260	200					

MAY. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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

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	M 19	M 21	M 21	J X 22	E B 12	G	26	30	35	40	43	44	44	41	J X 43	J X 39	J X 31	32	19	J X 20	J X 25	J X 54	J X 19	17
2	22	21	20	J X 20	21	J X 20	25	34	40	45	43	44	J X 39	J X 38	G	G	J G 28	G	20	17	J X 29	J X 54	J X 26	J X 54
3	J X 40	J X 24	J X 24	J X 22	M 17	G	27	32	J X 48	J X 45	38	J X 50	50	J X 41	J X 37	G 31	33	J X 37	J X 41	J X 76	J X 43	J X 30	J X 40	J X 29
4	J X 37	J X 22	J X 17	M 21	M 21	J X 20	G 19	34	41	39	46	42	G	G	G	G	34	31	J X 58	J X 16	M 21	J X 21	M 21	J X 19
5	M 19	M 19	J X 17	M 17	M 19	20	J X 39	J X 30	J X 48	J X 54	J X 97	J X 59	J X 90	J X 41	37	37	37	J X 48	J X 41	J X 28	J X 29	J X 86	J X 42	J X 51
6	J X 41	J X 30	J X 26	J X 24	J X 19	J X 20	J X 33	J X 79	J X 63	J X 62	J X 62	J X 84	J X 59	J X 55	38	47	J X 52	J X 42	J X 49	J X 36	J X 34	J X 40	J X 58	J X 64
7	J X 42	23	J X 26	J X 27	J X 27	19	30	J X 46	66	J X 56	J X 84	J X 63	J X 87	J X 127	J X 164	J X 103	J X 91	37	J X 51	J X 88	J X 58	J X 19	J X 30	J X 79
8	J X 22	J X 22	J X 42	J X 42	J X 44	J X 30	J X 54	J X 74	48	J X 74	49	45	J X 84	46	J X 40	38	36	J X 56	J X 30	J X 29	J X 23	J X 37	J X 34	J X 24
9	J X 26	22	E S 15	22	19	G	31	J X 47	J X 51	55	G	E B 40	40	40	J X 40	G	G	39	J X 42	J X 54	J X 54	J X 35	J X 20	J X 21
10	J X 25	J X 24	J X 19	22	E B 13	20	35	J X 52	J X 41	50	J X 62	J X 49	J X 82	J X 85	J X 54	J X 91	G	50	J X 59	47	J X 24	21	J X 29	E B 13
11	E B 13	19	22	E B 13	22	21	31	J X 48	81	J X 60	J X 54	46	50	J X 84	J X 63	41	40	J X 62	120	J X 129	J X 89	J X 51	J X 51	J X 22
12	20	21	J X 25	20	20	20	J X 48	J X 50	J X 54	40	46	58	J X 52	46	J X 63	49	J X 119	J X 164	J X 84	J X 55	J X 40	J X 64	J X 52	J X 49
13	J X 29	J X 29	J X 29	J X 29	J X 22	25	J X 66	J X 101	J X 68	J X 61	J X 82	80	J X 76	J X 107	49	J X 74	J X 112	J X 190	J X 110	J X 127	J X 104	J X 73	J X 26	J X 22
14	E B 12	M 19	E B 14	E B 14	E B 12	24	J X 41	J X 70	J X 68	J X 55	J X 69	J X 48	46	45	47	42	J X 74	J X 61	J X 59	34	J X 69	J X 50	J X 53	20
15	J X 50	19	M 16	E B 12	E B 12	23	31	J X 44	J X 42	J X 42	45	41	42	G	E B 41	G	G	J X 42	J X 61	J X 30	J X 40	J X 54	42	J X 40
16	21	J X 21	21	J X 23	J X 19	J X 24	35	52	45	J X 59	J X 54	J X 60	J X 61	56	J X 51	45	36	J X 50	J X 75	J X 54	J X 41	J X 51	J X 33	J X 24
17	E S 15	E S 15	E B 13	E B 13	20	23	32	37	79	45	48	48	J X 74	J X 48	81	46	J X 44	66	J X 129	J X 44	J X 21	J X 19	139	J X 90
18	J X 44	J X 42	J X 30	J X 22	20	21	32	J X 44	J X 62	J X 73	J X 75	99	43	E B 42	44	G	G	31	25	J X 31	J X 41	J X 51	J X 54	J X 51
19	J X 61	J X 51	J X 51	J X 39	J X 27	28	J X 49	76	J X 81	J X 71	J X 48	J X 52	J X 44	J X 75	J X 75	46	36	34	J X 30	J X 24	J X 34	J X 54	J X 18	21
20	20	J X 54	J X 39	J X 35	J X 25	J X 29	J X 30	36	41	J X 60	54	44	J X 59	J X 54	41	37	36	27	27	J X 19	J X 23	J X 38	J X 35	J X 37
21	J X 29	J X 21	E S 15	J X 19	J X 25	J X 34	32	J X 43	49	J X 84	47	J X 90	49	J X 73	J X 74	J X 143	J X 110	J X 93	J X 90	J X 85	J X 63	J X 62	J X 30	M 21
22	E S 15	E S 15	E B 12	E B 13	J X 29	27	31	J X 41	J X 44	36	E B 40	E B 41	44	G	G	G	J X 44	J X 89	J X 49	J X 35	J X 51	J X 35	J X 28	J X 36
23	J X 30	J X 24	21	J X 20	J X 21	23	30	J X 41	J X 52	45	J X 56	J X 74	E B 55	46	J X 55	J X 60	J X 62	J X 84	J X 120	J X 135	J X 124	J X 29	J X 52	J X 29
24	J X 26	J X 22	20	J X 24	J X 29	J X 25	33	J X 75	J X 94	100	J X 101	47	J X 44	47	J X 70	49	E B 86	J X 51	J X 49	J X 59	J X 40	J X 52	J X 29	35
25	J X 25	J X 35	J X 42	J X 32	J X 22	24	32	J X 57	J X 71	80	61	E B 40	44	40	J X 41	42	40	39	J X 35	J X 54	J X 25	J X 22	J X 29	J X 28
26	J X 50	J X 24	J X 29	J X 25	J X 25	J X 30	J X 52	J X 79	J X 84	65	100	80	J X 59	44	J X 40	45	J X 41	J X 38	J X 54	J X 26	J X 52	J X 21	J X 29	J X 24
27	J X 23	M 20	21	E B 13	E B 13	23	27	36	J X 41	47	J X 57	44	J X 56	38	G 25	G 25	35	57	J X 39	J X 27	J X 30	J X 27	J X 22	J X 24
28	M 21	M 22	J X 22	18	E B 12	27	J X 37	39	J X 44	41	47	41	47	47	37	J X 93	J X 89	J X 140	J X 61	J X 59	30	J X 68	J X 30	J X 51
29	J X 30	J X 36	J X 30	J X 21	J X 21	J X 41	J X 65	J X 41	J X 65	63	J X 75	J X 71	J X 98	56	48	J X 86	84	J X 104	J X 128	J X 110	J X 31	J X 39	J X 51	J X 41
30	J X 36	J X 39	J X 41	J X 49	J X 61	J X 40	J X 47	77	J X 180	J X 80	J X 106	100	J X 71	J X 104	J X 55	J X 61	J X 84	J X 61	80	J X 84	J X 89	J X 51	J X 41	J X 51
31	J X 30	J X 51	J X 29	J X 41	J X 57	J X 29	J X 43	J X 60	J X 54	48	55	J X 61	J X 56	J X 45	42	G	36	36	J X 38	J X 41	J X 75	J X 54	J X 84	J X 85
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	J X 26	J X 22	J X 22	J X 22	J X 21	23	32	J X 46	J X 52	55	54	49	J X 51	46	J X 43	42	38	J X 50	J X 51	J X 44	J X 40	J X 50	J X 33	J X 29
UQ	J X 36	J X 30	J X 29	J X 26	J X 25	J X 28	J X 42	J X 65	J X 68	J X 64	J X 72	J X 67	J X 66	J X 56	J X 55	54	J X 74	J X 64	J X 78	J X 68	J X 56	J X 54	J X 51	J X 50
LQ	20	21	18	18	19	20	30	38	J X 44	45	46	44	44	40	38	G 28	34	37	J X 38	J X 28	J X 29	J X 30	J X 28	J X 22

The Radio Research Laboratories, Japan

MAY. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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	E	E	E	16	E B 12	G	25	30	35	32	41	42	44	40	40	38	30	25	18	16	20	26	15	E
2	E	E	E	E	E	G	24	31	38	43	43	43	39	38	G	G	E R 28	G	20	16	23	30	18	35
3	25	22	15	E	E	G	27	31	45	45	38	50	46	40	E R 37	G 31	33	36	39	A	27	23	25	17
4	16	20	E	E	E	17	G 18	33	41	38	46	40	G	G	G	G	32	27	40	15	E	20	15	17
5	E	E	E	E	E	17	25	G	41	43	A	51	53	40	37	37	37	46	37	17	22	53	29	46
6	28	25	17	16	16	17	30	A	58	60	52	65	59	52	38	47	44	42	42	33	33	39	18	54
7	30	E	16	25	15	17	27	38	A	45	54	57	65	A	A	66	37	34	40	55	55	16	17	22
8	15	16	19	22	20	19	46	59	45	50	42	40	72	41	32	37	35	50	26	25	20	25	22	16
9	17	E	E S 15	E	15	G	30	44	50	40	G	E B 40	40	40	40	G	G	32	39	50	15	22	E	16
10	15	E	15	E	E B 13	19	29	40	41	47	61	48	60	83	52	79	G	45	58	45	17	E	26	E B 13
11	E B 13	E	E	E B 13	E	16	30	45	A	52	48	43	45	65	58	32	38	59	A	85	46	47	35	22
12	E	E	18	E	E	19	45	40	53	40	42	55	52	41	60	45	60	A	75	42	35	59	32	16
13	24	24	26	20	20	24	52	86	65	59	65	78	44	61	46	41	53	78	25	85	A	55	18	16
14	E B 12	E	E B 14	E B 14	E B 12	24	39	63	65	55	56	45	44	41	45	41	66	51	51	25	64	31	20	E
15	E	E	E	E B 12	E B 12	22	30	43	40	41	41	41	41	G	E B 41	G	G	41	59	29	29	29	40	30
16	E	16	E	16	E	20	30	44	42	52	54	55	51	55	50	42	35	38	74	50	39	49	25	E
17	E S 15	E S 15	E B 13	E B 13	E	21	32	36	A	42	48	45	59	43	A	42	42	62	79	32	18	15	E	A
18	35	20	22	20	E	21	32	40	61	63	75	A	41	E B 42	44	G	G	30	25	30	39	40	40	35
19	50	39	35	29	17	23	40	75	75	56	46	45	43	75	51	43	34	22	22	21	30	26	16	E
20	E	30	22	20	22	25	14	34	30	55	51	44	43	51	40	37	35	27	E B 29	17	20	28	16	17
21	E	E	E S 15	16	22	27	30	40	42	76	44	63	48	71	53	A	A	90	90	U S 84	54	40	17	E
22	E S 15	E S 15	E B 12	E B 13	15	27	29	40	44	E R 36	E B 40	E B 41	41	G	G	G	43	62	26	25	30	34	20	21
23	E	16	E	16	E	22	28	40	52	44	50	60	E B 55	43	55	56	60	A	A	60	A	22	42	16
24	25	21	E	16	25	20	25	72	74	A	A	45	40	46	50	46	E B 86	50	45	59	35	46	28	34
25	20	30	20	22	16	22	30	44	63	A	56	E B 40	44	39	38	38	G	33	32	50	20	20	16	18
26	30	19	25	21	16	26	50	U R 79	60	58	A	U R 80	51	44	32	G	41	35	35	19	26	15	E	20
27	20	E	E	E B 13	E B 13	23	27	32	40	42	54	44	52	E R 38	E S 25	G 25	35	47	33	25	28	17	17	16
28	E	E	19	E	E B 12	23	35	37	44	40	45	40	E R 47	44	37	A	A	75	61	51	29	49	17	44
29	16	26	20	E	15	38	64	40	A	A	55	50	A	50	40	A	75	A	62	A	30	25	27	40
30	32	30	27	35	30	22	27	A	A	63	A	A	59	A	51	50	54	51	40	70	45	28	19	35
31	25	20	16	21	25	22	40	49	51	44	51	60	55	41	38	G	35	34	36	40	30	35	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	15	16	15	16	13	21	30	40	51	47	51	45	46	43	40	36	36	45	40	40	30	28	19	18
UQ	25	22	20	20	16	23	37	54	65	58	56	58	55	54	51	46	U 51	60	60	57	39	40	28	35
LQ	E	E	E	E	E	17	27	36	42	42	44	42	42	40	37	F G 25	32	34	29	25	21	22	16	16

The Radio Research Laboratories, Japan

MAY. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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	E S 15	E S 15	13	13	12	14	13	15	15	15	25	25	35	25	25	15	15	15	15	13	13	13	13	E S 15
2	E S 15	E S 15	E S 15	13	13	13	15	15	14	15	15	24	25	26	22	15	14	13	14	13	14	14	E S 15	13
3	E S 15	13	14	14	14	13	14	13	14	15	15	25	25	25	26	15	14	13	15	13	14	14	E S 15	13
4	13	12	14	13	13	12	13	14	15	15	26	25	25	25	17	16	15	14	14	12	13	E S 15	12	12
5	14	14	13	14	14	13	14	15	15	15	26	15	25	25	25	16	14	14	13	12	13	13	14	13
6	E S 15	13	12	13	14	12	13	15	22	19	25	25	28	25	24	25	15	14	14	14	14	E S 15	13	E S 15
7	13	E S 15	13	14	12	13	14	14	21	16	19	25	26	29	19	16	15	14	12	13	13	13	12	13
8	13	13	13	13	13	13	12	14	15	25	25	25	25	23	24	15	15	14	14	13	13	13	13	13
9	13	E S 15	E S 15	E S 15	13	14	15	15	20	15	25	40	28	25	15	15	15	15	13	12	13	12	E S 15	12
10	12	13	13	E S 15	13	15	13	15	20	15	25	25	26	25	25	24	15	15	13	12	E S 15	F S 15	13	13
11	13	E S 15	13	13	13	15	15	15	19	15	29	39	30	31	25	25	15	15	13	13	13	13	12	12
12	E S 15	13	13	14	13	15	15	15	15	34	30	35	25	29	29	19	15	15	15	13	13	E S 15	E S 15	E S 15
13	E S 16	13	13	E S 15	13	15	15	15	25	22	23	35	25	26	20	15	15	14	13	14	14	14	13	12
14	12	14	14	14	12	14	15	15	15	19	27	35	40	26	26	25	15	14	13	13	13	14	14	13
15	E S 15	13	13	12	12	14	14	15	25	23	28	36	39	29	41	25	25	14	15	13	E S 15	13	13	13
16	13	14	E S 15	12	E S 15	13	15	15	15	28	25	29	25	39	36	25	15	15	14	E S 15	12	E S 15	E S 15	E S 15
17	E S 15	E S 15	13	13	12	13	14	15	25	16	39	29	32	39	25	25	15	13	15	E S 15	12	14	14	13
18	14	E S 15	E S 15	12	13	14	15	15	40	39	26	29	29	42	25	25	16	15	15	12	12	12	E S 15	E S 15
19	E S 15	E S 15	12	12	12	15	15	15	25	25	29	25	28	34	26	25	15	15	13	12	14	12	12	E S 15
20	13	13	13	12	E S 15	13	13	15	15	15	26	25	30	29	16	25	15	14	14	12	14	13	13	12
21	E S 15	14	E S 15	14	14	12	15	14	15	15	40	28	15	28	16	16	14	14	12	13	13	13	13	E S 15
22	E S 15	E S 15	12	13	12	13	14	15	15	15	40	41	25	28	25	25	15	15	15	13	13	E S 15	E S 15	13
23	E S 15	12	13	13	13	15	13	15	15	39	39	40	55	40	40	26	15	15	15	13	12	12	13	12
24	12	12	12	14	12	13	15	15	15	25	25	38	25	25	25	25	86	33	15	13	13	13	13	13
25	12	12	12	13	13	13	15	15	15	25	25	40	39	26	26	25	18	15	15	13	12	E S 15	13	13
26	13	12	13	13	12	15	15	15	15	25	25	25	28	25	25	25	15	15	13	12	12	12	E S 15	13
27	13	E S 15	E S 15	13	13	15	15	15	15	25	25	39	30	25	18	15	15	16	16	14	E S 15	13	13	14
28	14	E S 15	14	14	12	14	14	15	16	19	25	37	39	32	26	16	16	15	13	14	E S 15	14	12	12
29	13	13	13	14	12	14	15	15	15	25	25	26	25	28	25	25	15	15	15	13	13	13	13	13
30	12	13	13	13	13	13	15	15	15	13	25	40	33	25	25	15	15	13	13	E S 15	13	13	13	E S 15
31	E S 15	E S 15	12	13	12	13	13	15	15	19	25	26	29	22	29	25	15	15	15	12	13	13	12	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	13	13	13	13	13	13	15	15	15	19	25	29	28	26	25	25	15	15	14	13	13	13	13	13
UQ	E S 15	E S 15	14	14	13	14	15	15	20	25	28	38	31	29	26	25	15	15	15	13	14	14	14	14
LQ	13	13	13	13	12	13	14	15	15	15	25	25	25	25	23	16	15	14	13	12	13	13	13	13

The Radio Research Laboratories, Japan

MAY. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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

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	280 S	275	285	280	280	315	350	340	310	305	290	290	300	290 J R	300	310	315 J R	315	315 J R	300 J R	295 R	285	275	280
2	290	285 J R	320	285	275	320	340 U R	325	315 J R	330	290	295	280	290	300	320	315	315	320	310	305 S	295	295	275
3	275	280 S	290 F	295	300 S	315	305	275	280	300	265	275	295	280	305	285	320	325	330	320 I A	300	265	285	280
4	285 J S	280	290	335	295	315	340	325	330	290	305	310	325	310	300	305	320	310	325	325	310 S	290	280	285
5	290	275	275	290	295	320	345	355	325	315	A	310 J R	305	310	305	310	310	300	315 R	310	S	320	295	270
6	290 J S	285	295	290	280 F	330	355	A	A	A	290	285	290	285	295	310	310	305	320	325	315	285	270 F	290
7	275 F	275 F	285 F	285 F	290	330	340	350	A	310	310	290	270	A	A	315	315	315	325	330	305	280	280	290
8	290	300 F	F	295 F	295	320	335 J R	320	315	310 V	305	295	295	295	295	315	305	300	310	305	300 U R	F	295 J R	300
9	F	F	280	295	295	315	330	315	330 J R	300	305	270	275	280 J R	290	290	305	305 J R	305 J R	300	290	280	285 R	285 R
10	275	270	280 R	280	305	320	325	325	325	290 J R	310	300	295 R	285	290	300	310	300	315	295 R	305 J R	290 R	285 U R	270
11	270	275	290	280 R	310 R	320	305 J R	325	A	290	270	290	290	295 J R	290 J R	295	305	300	A	335 U R	R	280 R	275	270
12	F	270 U R	280	305	300	335 R	330 U R	325	305	295 J R	290	280	285	290	275 J R	285 J R	300	A	305	310 J R	320 U R	R	F	F
13	280	F	290 U R	295 J R	310 R	R	350 U	305	320	280	280	285 J R	285	280	290	285	295	300	300 J R	315 S	A	250	290	285
14	285	280 S	290	270	275	320	305	320	325	295	260	270	275	280	290	300	295	310	310	305 J R	290	F	F	F
15	F	F	270 U F	275 U F	285 F	305	300	325	310	295	280	270 U R	265	265	280	300	295	300	295	310 J R	R	280 U R	R	285 R
16	270 R	R	290	280	275	300	260	300 J R	305 J R	275	R	R	275	250	295	290	280	280	300 J R	320	270 U R	270 I R	260 U R	R
17	R	270 U R	280 I R	295 I R	305	315	310 R	295	A	265	275	245 J R	275	280 I R	A	285	305	310 I R	320	300	285	270	F	A
18	F	F	F	280 F	F	320	300	290	300	260	260	A	275 J R	260 J R	280	275 J R	275 J R	275 J R	285 J R	325 J R	280 U R	275 R	265 U R	F
19	R	F	F	F	F	280 R	325	310	315 R	260	270	260	270 R	275 J R	275 J R	280 J R	285	285	290	310 R	280 U R	265 J R	270	280
20	270 U	280	280 J R	285	295	320 J R	310 J R	305	310	285	280 R	270	275	280	280	280	285	295	295	305	305	S	260 F	F
21	280 U S	F	310	305 F	295	310	335	310	330	I A 290	280	I R 280	265	U R 290	290	A	A	290	295	S	290	280	285	280 J S
22	275	280 S	310 S	285	295	320	315	305	320	295	285	280	270	275	275	285 J R	280 J R	290	300	305	300	R	270 J R	250 J R
23	285 U R	290 R	290 U R	F	F	315 J R	320	300	285	270	280 R	265	265 J R	275 J R	290	280	300	R	A	320 J R	A	270 J R	F	280 U R
24	275 R	275	290	275	270	275 R	285	335	300	A	A	R	275	285	295	280	B	290	310	300 R	285	260	260 R	225 U R
25	260	275	290	295	300	295	310	325	325	A	290	270	265 U R	275	300	295	300	310	310	300	290 I R	285 J R	R	255 U R
26	295	295	275	275	280	305 J R	340	R	A	A	A	R	270 J R	280	285 J R	290 J R	285	295	295	300	295 J R	280 U R	280	285 R
27	285	285	280 R	280	285	340	320	330 J R	320	315	280	285 R	285	280	285	300	300	295	300	320 S	310	285	280 S	295
28	280	275	275	285	305	315	325	330	335	345	300	285	280 J R	285	305	A	A	305	310	320	330 S	F	F	F
29	280 U F	285 F	260	265 F	F	285 F	305	335	A	A	265	285	280 I A	300 I R	285	A	300 I A	A	300	A	275	285 U R	F	290
30	270	270	255 R	270	F	320 J R	350	A	A	A	A	A	285	280 I A	275	280 J R	285	285 J R	300	295 J R	R	275 J R	R	R
31	R	290 U R	F	R	305 I R	F	310	310 J R	270	285	295 J R	275	265 J R	265	275	290	275	285	285	300	R	F	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	27	28	26	29	31	28	24	25	26	26	31	30	29	28	28	28	29	29	24	24	21	22
MED	280	280	285	285	295	315	325	322	315	295	282	282	275	280	290	290	300	300	305	310	298	280	280	280
UQ	285	285	290	295	300	320	340	328	325	305	295	290	288	290	295	302	310	310	315	320	305	285	285	285
LQ	275	275	280	280	280	310	308	305	305	285	275	270	270	275	280	285	285	290	300	300	288	270 R	270	270

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MAY. 1972 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1972 | 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L 370	360	L 370	U R 350	350	L 360	360	L	L						
2								L	L	L	390	360	340	360	350	370	L	L						
3							L	U L 340	A	A	360	A	A	350	380	360	L 350	L	A					
4							L	L	360		A	370	370	350	380	360	360	L						
5							L	L	350	L	A	A	A	390	350	350	L	A						
6							L	A	A	A	A	A	A	A	H 350	A	L	A	A					
7								L	A	I	A	A	A	A	A	A	L 370	L						
8								A	L	A	360	390	A	380	360	L	L							
9									A	390	380	380	350	380	360	360	L							
10							L		A	350	A	310	A	A	A	A	380							
11							L	L	A	A		380	L 340	A	A	L 380	L	A						
12										370	380	A	A	350	A	L	A	A						
13									A	A	A	A	L 340	A	L	A	A	A	L					
14								A	A	A	A	330	330	340	U L 350	L	A	A	A					
15							L	L	L	U L 380	400	350	U R 350	370	L	400	L							
16							U L 330	L	L	280	U R 340	320	A	A	L	L	L	L						
17							L	L	A	360	U L 320	360	A	360	A	350	340	A						
18								L	A	A	A	A	380	380	350	350	370	340	L					
19									A	A	340	330	370	A	A	360	L	L						
20							L	L	L	A	L	360	350	L	360	350	U 360	L						
21							L	L	390	A	370	A	A	A	A	A	A	A	A					
22							L	L	L	L	380	380	350	340	330	340	L	A	L					
23							L		A	390	A	A	B	360	A	A	A	A						
24							L	A	A	A	A	380	380	A	A	A	B	A						
25							L	A	A	A	A	380	350	370	340	350	340	L	L					
26								A	A	A	A	A	A	R 360	370	360	L	L						
27							L	L	U L 390	L	A	360	A	340	350	350	350	A	L					
28								360	A	370	360	370	L	350	360	A	A	A	A					
29						A	A	A	A	A	A	A	A	A	350	A	A	A	A					
30								A	A	A	A	A	A	A	A	A	A	A	A					
31						L	A	A	A	340	A	A	A	370	370	340	360	350						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	2	4	10	13	18	14	19	18	17	10	2						
MED							U 330	350	375	370	360	365	350	360	355	360	360	345						
UQ									390	380	380	380	370	370	360	360	370							
LQ									355	350	360	350	340	350	350	350	350							

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MAY. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1972 | 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								240	280 L	310	320	345	320	310	325	270	265	250						
2								250	285	270	305	310	340	310	290	270	255	255						
3							315	350	375	370	450	405	345	360	330	315	285	270	250					
4							260	270	290		345	320	290	320	320	290	280	275						
5							230	230	310	285	A	305	305	295	305	290	275	270 A						
6							225	A	A	320 A	340	380 E A	330	330	310	285	280	275	250					
7								235	A	300	300	345	360 E A	A	A	270	260	270						
8								250 A	270	305	310	305	320 A	310	290	290	285							
9									290	285	285	305	350	340	305	290	290							
10							250		250	350	310	350	340	380 E A	305	300	285							
11							250	270	A	295		315	310	305	330	305	290	290						
12										320	290	315	305	340	335	320	300	A						
13									265	290 A	310	340 A	330	340	310	280	290	300 A	275					
14								250	260	280	310 A	350	350	325	305	300	290 A	275	260 A					
15							295	270	260	275	300	350	355	310	305	295	295							
16							350	300	280	420	470	R	350	305	300	305	305	300						
17							250	315	A	450	410	410	410	360	A	340	320	300						
18								300	290	390 A	A	A	340	395	345	325	320	300	265					
19									300	300 A	365	350	355	350	305	305	295	270						
20							250	250	290	330	330	345	330	310	320	305	290	280						
21							235	255	255	A	350	325	330	350	310	A	A	A	A					
22							250	265	275	295	300	310	360	350	330	315	320	295	275					
23							250		290	305	320	360	350	340	320	310	290	A						
24							300	290	E A 340	A	A	375	340	325	330	340	B	290						
25							260	255	265	A	E A 350	400	385	345	305	290	290	285	260					
26								A	A	A	A	A	350	340	305	300	300	300						
27							250	270	285	275	350 A	375	300	345	320	300	290	285	275					
28								260	255	275	355	355	375	340	300	A	A	A	270					
29						330	300	255	A	A	405	380	A	320	340	A	A	A	E A 350					
30								A	A	A	A	A	325	A	390	330	320	290	280					
31						280	285	290	305	350	320	350	390	390	340	305	340	310						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	18	22	23	24	25	27	30	29	29	28	27	22	11					
MED						305	250	262	282	302	320	348	340	340	310	300	290	285	268					
UQ							295	290	290	340	350	363	352	348	330	312	300	300	275					
LQ							250	250	265	285	310	318	325	310	305	290	285	270	260					

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MAY. 1972 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1972 | 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

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	300	300	280	295	285	240	230	220	225	220	240	240	270	210	210	250	240	240	240	245	240	260	290	290
2	260	295	240	240	295	245	240	240	240	240	220	235	210	210	245	230	220	230	245	230	250	270	255	A
3	320	300	285	275	250	245	245	235	250	250	210	A	A	225	240	225	210	A	A	A	250	340	305	300
4	275	300	270	225	225	250	235	230	260	210	240	220	200	205	205	235	225	230	250	220	220	250	270	290
5	270	305	290	270	260	250	220	220	260	240	A	A	A	205	230	230	245	A	255	230	230	A	290	A
6	300	300	275	280	300	250	235	A	A	A	A	A	A	220	225	270	A	A	A	245	240	300	250	350
7	330	280	255	290	270	240	230	230	250	260	240	260	A	A	A	A	250	230	250	250	220	270	290	290
8	275	260	275	270	255	240	245	A	250	220	205	200	A	240	210	235	240	295	250	245	240	300	250	280
9	300	295	290	270	255	245	240	250	260	240	200	200	210	200	240	240	240	265	255	250	250	260	250	250
10	300	290	300	290	250	230	240	250	220	260	A	290	A	A	A	240	240	260	270	260	250	250	300	290
11	295	280	250	250	250	240	240	270	A	A	270	220	250	A	A	240	250	A	A	260	260	345	305	320
12	310	320	305	250	250	230	250	240	250	210	220	240	240	240	260	290	A	A	290	255	235	340	350	300
13	300	300	280	260	260	230	255	350	A	A	250	250	220	A	A	A	A	A	250	A	A	350	250	260
14	270	280	270	290	305	240	250	A	A	A	A	220	220	220	245	220	A	A	A	250	A	345	300	275
15	275	255	275	275	255	255	250	240	225	240	200	205	205	200	240	220	240	270	290	255	260	300	310	280
16	295	290	285	285	285	255	240	A	250	260	260	260	A	A	290	250	240	260	300	275	295	370	305	305
17	295	295	265	290	210	245	230	250	A	250	230	240	220	220	A	255	270	260	280	250	230	300	300	A
18	340	310	300	300	255	250	240	270	A	A	A	A	205	240	245	235	220	220	250	245	260	340	325	350
19	350	310	305	295	280	250	260	300	A	A	250	235	210	A	A	250	240	240	260	250	260	300	290	290
20	270	290	250	250	250	230	240	225	240	A	A	210	220	220	215	225	230	225	260	240	220	280	330	300
21	290	255	230	230	255	250	230	230	220	190	210	250	240	245	A	A	A	A	A	S	270	300	270	270
22	275	275	230	200	250	230	230	245	240	200	210	200	220	210	200	250	A	A	250	245	235	300	295	300
23	290	260	235	290	260	250	240	250	260	240	A	A	B	250	270	A	A	A	A	250	245	300	300	290
24	320	300	290	295	300	250	240	A	A	A	A	A	200	A	A	240	B	A	260	300	300	360	340	350
25	305	310	290	270	250	250	250	A	A	A	A	210	250	220	240	240	240	250	250	260	250	260	290	290
26	290	260	305	300	290	250	250	A	A	A	A	A	A	250	240	260	270	270	250	245	250	250	265	265
27	290	285	265	285	260	240	240	250	240	230	A	225	230	225	225	230	235	240	260	235	230	270	290	275
28	275	285	280	280	250	220	250	245	A	215	245	200	R	250	225	A	A	A	A	290	220	240	280	300
29	255	290	320	300	320	A	A	A	A	A	A	A	A	A	210	240	A	A	A	A	300	290	260	260
30	305	300	340	350	290	240	270	A	A	A	A	A	A	A	A	A	A	A	A	300	260	315	260	350
31	290	290	290	310	290	250	A	A	A	270	A	A	A	230	220	250	240	270	300	250	250	350	A	270
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	29	21	17	19	17	21	18	22	22	25	20	17	22	27	29	30	30	28
MED	295	290	280	280	260	245	240	242	250	240	230	222	220	220	235	240	240	250	254	250	250	298	290	290
UQ	302	300	290	292	288	250	250	250	250	250	245	240	240	240	245	250	242	265	265	256	260	320	305	300
LQ	275	280	265	265	250	240	235	230	240	218	210	210	210	210	215	230	232	230	250	245	235	270	265	275

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MAY. 1972 | H'F (KM)

IONOSPHERIC DATA

MAY. 1972 | 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	B	G	150	145	125	130	110	110	110	110	110	110	110	115	110	100	100	100	100	100
2	100	100	100	100	100	100	150	140	120	115	120	110	115	115	G	G	105	G	110	105	105	105	105	100
3	100	100	100	100	105	G	135	130	115	110	110	110	105	105	105	105	140	125	115	110	110	105	105	100
4	100	100	100	100	100	100	100	130	125	125	120	120	G	G	G	G	150	120	110	110	105	100	100	100
5	100	100	100	120	110	120	110	110	110	110	110	110	100	105	155	145	125	110	110	105	100	100	100	105
6	100	100	100	100	100	130	125	110	110	110	110	110	110	110	115	110	110	105	105	100	100	100	105	105
7	100	100	100	100	100	145	130	125	110	110	105	105	105	105	105	105	105	110	105	105	105	100	100	100
8	105	100	100	105	105	110	100	105	105	105	110	105	100	100	100	100	140	110	110	105	100	105	100	100
9	100	100	S	100	100	G	140	110	110	110	G	B	110	110	110	G	G	130	110	105	105	100	100	100
10	100	100	100	100	B	120	120	110	120	110	110	110	110	110	110	110	G	115	110	110	105	100	100	B
11	B	100	100	B	100	140	130	110	110	110	110	110	105	105	100	110	140	110	105	100	100	100	100	100
12	100	100	100	100	100	130	110	110	105	105	105	100	105	105	130	140	110	110	110	105	105	100	100	100
13	100	100	100	100	100	120	110	110	110	105	105	100	105	100	125	120	110	105	105	105	105	100	100	100
14	B	100	B	B	B	125	110	110	110	110	105	105	110	105	100	105	100	100	100	100	110	110	105	105
15	100	100	105	B	B	130	120	115	110	110	110	100	100	G	B	G	G	130	110	110	105	105	100	100
16	100	100	100	100	100	100	120	115	110	100	110	105	105	110	110	105	110	105	110	110	105	105	100	100
17	S	S	B	B	140	135	130	120	110	110	110	110	110	110	105	130	120	110	110	105	105	100	100	100
18	100	100	100	100	100	130	130	115	110	110	110	105	140	B	140	G	G	150	120	110	105	105	100	100
19	100	100	100	100	100	150	110	110	110	110	110	110	110	110	105	105	110	100	100	100	110	110	110	110
20	105	100	100	100	100	100	105	140	140	115	115	115	115	115	125	115	110	110	125	105	110	110	110	105
21	110	125	S	100	100	100	145	125	125	110	130	120	130	125	125	120	115	115	115	110	115	110	105	100
22	S	S	B	B	115	150	140	125	115	110	B	B	140	G	G	G	115	110	110	110	110	105	100	100
23	100	100	100	100	100	150	140	115	110	115	110	110	B	140	140	140	110	110	105	105	105	105	105	100
24	100	100	100	100	100	100	140	105	105	105	105	105	105	105	100	105	B	110	100	100	100	100	100	100
25	100	100	100	100	100	130	130	110	105	105	105	B	110	110	105	105	105	120	110	100	100	100	100	100
26	100	100	100	100	100	110	105	105	105	105	105	105	105	100	105	100	120	115	100	100	100	100	100	100
27	100	100	100	B	B	150	150	130	110	110	110	105	100	100	100	100	130	115	110	100	105	105	100	100
28	100	100	100	100	B	130	125	120	115	115	110	110	105	100	110	115	115	110	110	105	100	105	100	100
29	100	100	100	105	125	110	110	110	110	110	105	115	110	110	145	130	130	110	110	110	110	100	100	100
30	105	100	100	100	105	120	110	110	110	110	105	105	105	105	110	110	105	105	100	100	100	110	110	110
31	100	100	100	100	110	130	115	115	110	110	110	110	110	110	110	G	140	130	110	110	105	105	105	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	29	26	25	25	28	31	31	31	31	29	28	29	27	27	24	26	30	31	31	31	31	31	30
MED	100	100	100	100	100	128	125	115	110	110	110	110	110	110	110	110	112	110	110	105	105	105	100	100
UQ	100	100	100	100	105	132	138	125	115	110	110	110	110	110	125	120	130	115	110	110	105	105	105	100
LQ	100	100	100	100	100	110	110	110	110	110	105	105	105	105	105	105	110	110	105	100	100	100	100	100

The Radio Research Laboratories, Japan

MAY. 1972 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1972 | 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	F1	F2	F2	F3			H1	H1	H1	H1	C1	C1	C1	C1	C1	C1	C1	C1	L1	F2	F7	F3	F2	F2
2	F1	F2	F2	F2	F2	LH11	H1	H1	H1	C2	H2	C2	C1	C1			L1		L3	F3	F4	F4	F4	F4
3	F3	FF32	F2	F1	F1		H1	H2	H2	C2	C1	C2	C2	C1	C1	L1	H1	H2	C3	F4	F4	F4	F5	F3
4	F3	F4	F2	F1	F2	L2	L1	H1	H2	H2	H2	H1					H1	H1	C4	F1	F1	F3	F2	F2
5	F1	F1	F1	F1	F1	C2	C3	C1	C2	C2	C2	C2	C2	C1	H1	HL11	H1	C4	C3	F4	F4	F5	F4	F4
6	F3	F3	F3	F2	F2	H1	H3	C3	C2	C2	C2	C2	C2	C2	C1	C3	C2	C4	C3	F6	F6	F4	F3	F4
7	F3	F2	F4	F5	F2	H1	H1	H2	C2	C2	C2	C2	C2	C3	C4	C2	C2	C2	C4	F6	F6	F2	F3	F3
8	F2	F3	F4	FF32	F4	L2	L3	C3	C2	C2	C1	C1	L2	L1	L1	L1	HL11	CL22	C2	F3	F3	F6	F3	F2
9	F2	F1		F1	F2		H2	C2	C2	C1			C1	C1	C1			H1	C4	F4	F2	F4	F2	F2
10	F2	F2	F2	F1		H2	H1	C2	H1	C2	C2	C2	C2	C2	C1	C2		C2	C2	L4	F2	F1	F2	
11		F1	F1		F1	H1	H1	C2	C3	C2	C2	C1	C1	C2	L1	C1	H1	C2	C3	F3	F3	F4	F5	F6
12	F1	F1	F2	F1	F1	H1	C2	C3	C2	C1	C1	C2	C1	C1	H1	H2	C3	C2	C3	F5	F5	F4	F3	F3
13	F2	F2	F3	F3	F2	H2	C4	C2	C2	C1	C2	L2	L2	L2	HL12	HL31	C2	C3	C2	F3	F4	F4	F4	F2
14		F1				H2	C2	C3	C2	C2	C2	C2	C1	C1	L2	L2	L3	L3	L4	F4	FF42	F4	F2	F1
15	F2	F2	F1			H2	H2	C3	C1	C1	C1	C1	C1					H2	C4	F3	F4	F3	F3	F3
16	F1	F2	F1	F1	F1	L1	H1	C2	C2	C1	C1	C1	C1	C1	C1	C1	C2	C1	CL33	F4	F5	F4	F6	F2
17					F1	H1	H1	H1	C2	C2	C1	C1	C1	C1	C1	H2	H2	C2	C2	F3	F3	F2	F2	F3
18	F4	F4	F3	F3	F1	HL11	H1	C2	C1	C2	C2	C2	H1		H1			H1	H1	F3	F5	F7	F5	F5
19	F4	F6	F3	F2	F1	HLL111	C3	C3	C2	C2	C2	C1	C1	C2	C2	C1	C1	L2	L2	F3	FF21	F4	F2	F1
20	F2	F3	F3	F4	F4	L3	LH11	H1	H1	C2	C2	C1	C1	C1	H1	C1	C2	C1	HL12	F3	F3	F3	F2	F3
21	F3	F1		F2	F4	L3	H2	H2	H2	C2	H2	H2	H1	H2	H2	H3	C2	C2	C3	F4	F4	F5	F3	F2
22					F1	H2	H1	H1	C2	C1			H1				C2	C3	C1	FF21	FF21	F3	F4	F2
23	F3	F4	F1	F2	F2	H1	H1	C1	C1	C1	C1	C1		H1	H2	H2	C2	C3	C3	F3	F3	F2	F1	F2
24	F4	F4	F2	F3	F3	L2	H1	C3	C2	C2	C2	C1	C1	C1	L2	C2		C1	L2	F3	F3	F2	F4	F3
25	F3	F4	F4	F2	F2	H1	H2	C2	C2	C2	C2		C1	C1	C1	C1	LH11	H2	C2	F3	F4	F4	F2	F2
26	F3	F2	F4	F4	F2	CL21	C3	C3	C2	C2	L2	L2	L1	L2	L1	LC21	HL11	CL22	L3	F3	F4	F2	F2	F3
27	F3	F1	F2			H1	H1	H2	C2	C2	C3	C1	L2	L1	L1	L1	HL11	C3	C3	F2	F3	F5	F3	F4
28	F2	F1	F4	F1		C2	C3	C1	C2	C1	C2	C1	C1	L2	C1	C2	C3	C4	C3	F3	F4	F6	F3	F4
29	F3	F4	F4	F1	F1	C3	C5	C2	C3	C2	C2	C1	C2	C2	H1	H2	H2	C3	C2	F4	F4	F3	F2	F2
30	F5	F3	F3	F3	F1	H2	C1	C4	C3	C2	C2	C1	C1	C2	C1	C2	C2	L2	L2	F3	F3	F6	F2	F3
31	F3	F2	F2	F3	F3	H1	C2	C2	C2	C1	C1	C1	C2	C1	C1		H1	H2	C3	F3	F3	F3	F3	F3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

MAY. 1972 | TYPES OF ES

IONOSPHERIC DATA

MAY. 1972 | 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	375 S	380	350	380	370	285	255	250	305	330	355	350	350	350 J R	350	300	300 J R	300	300 J R	310 J R	350 B	360	390	350
2	350	360 J R	300	350	350	290	280 U R	290	300 J R	280	350	330	360	350	320	300	300	300	290	300	310 S	330	330	360
3	390	355 S	360 F	340	320 S	305	325	360	375	G	G	A	350	360	330	325	300	295	280	290 I A	315	405	365	355
4	360 J S	375	340	275	330	290	270	295	300	320	340	325	290	320	325	305	300	300	290	265	295 S	350	360	355
5	355	380	385	345	350	280	250	250	305	300	A	305 J R	310	315	310	305	310	310	305 R	300	S	A	330	400
6	360 J S	360	340	350	360 F	280	250	A	A	A	370	A	350	360	350	305	305	305	290	290	300	350	370 F	355
7	375 F	355 F	340 F	350 F	355	280	250	250	A	310	305	350	390	A	A	300	300	300	290	280	A	370	370	350
8	350	320 F	F	340 F	320	290	270 J R	280	300	320 V	340	350	350	350	340	305	340	340	300	300	310 U R	F	345 J R	350
9	F	F	360	360	350	300	290	300	300 J R	330	340	390	360	355 J R	350	350	310	300 J R	300 J R	310	350	360	350 R	350 R
10	400	395	390 R	390	300	290	300	300	290	370 J R	310	350	360 R	360 I A	360	325	315	310	300	330 R	340 J R	360 R	380 U R	400
11	400	390	350	360 R	300 R	290	305 R	290	A	340	400	350	350	360 J R	355 J R	350	300	305	A	290 U R	R	390 R	395	380
12	F	400 U R	390	300	300	255 R	260 U R	290	300	350 J R	350	350	350	355	400 J R	355 J R	350	A	315	305 J R	300 U R	R	F	F
13	390	F	360 U R	355 J R	340 R	R	300 R	A	300	370	360	360 J R	370	370	350	340	330	320	310 J R	305 S	A	380	335	355
14	355	360 S	350	395	380	290	315	290	290	320	410	390	390	355	350	340	340	300	305	305 J R	350	F	F	F
15	F	F	380 U F	380 U F	350 F	305	330	290	300	335	355	400 U R	400	395	350	350	345	350	350	310 J R	R	380 U R	R	380 R
16	395 R	R	360	365	395	340	390	340 J R	340 J R	G	R	R	395	360	350	350	350	355	310 J R	300	380 U R	400 I R	400 J R	R
17	R	400 U R	350 I R	360 J R	310	300	300 R	350	A	G	G	G	G	390 I R	A	350	340	320 I R	300 I A	330	350	400	F	A
18	F	F	F	390 F	F	300	310	350	300	A	A	A	380 J R	410 J R	365	360 J R	370 J R	360 J R	340 J R	300 J R	355 U R	400 J R	400 U R	F
19	R	F	F	F	F	330 R	300	305	310 I A	400	400	400	400 R	400 J R	350 J R	350 J R	350	340	350	310 R	380 U R	400 J R	400	390
20	390 R	390	350 J R	350	350	290 J R	295 J R	300	300	355	360 R	370	360	360	360	350	340	320	315	305	305	S	425 F	F
21	355 U S	F	310	305 F	325	305	265	295	280	340 I A	365	350 I R	370	355 U R	350	A	A	350	325	S	320	370	350	365 J S
22	375	350 S	300 S	345	320	290	280	310	290	330	360	390	400	400	380	350 J R	390 J R	350	345	300	350	R	395 J R	400 J R
23	360 U R	350 R	335 U R	F	F	300 J R	300	310	350	350	390 R	400	400 J R	390 J R	350	350	300	R	A	290 J R	A	400 J R	F	360 U R
24	400 R	390	360	390	390	360 R	360	290	350	A	A	R	390	350	350	350	B	350	300	350 R	380	410	400 R	400 U R
25	400	350	350	360	350	350	300	300	290	A	370 I A	405	400 U R	380	305	350	350	300	300	300	350 I R	360 J R	R	390 U R
26	350	350	380	400	350	300 J R	255	R	A	A	A	R	390 J R	390	350 J R	350 J R	350	350	350	335	350 J R	390 U R	390 R	360 R
27	350	350	360 R	350	350	250	300	290 J R	300	300	355	375 R	350	355	350	330	320	320	320	290 S	300	350	360 S	345
28	355	360	360	360	315	290	280	280	260	270	350	355	375 J R	355	320	A	A	325	300	295	270 S	F	F	F
29	350 U F	350 F	405	400 F	F	355 F	310	260	A	A	G	380	380 I A	350 I R	360	A	350 I A	A	A	A	400	355 U R	F	360
30	390	390	390 R	400	F	270 J R	255	A	A	A	A	A	365	380 I A	400	350 J R	350	330 J R	300	340 J R	R	400 J R	R	R
31	R	350 U R	F	R	340 I R	F	300	325 J R	390	355	350 J R	360	400 J R	400	390	350	350	350	360	330	R	F	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	27	28	26	29	31	27	24	21	22	23	30	30	29	28	28	28	28	29	23	23	21	22
MED	368	360	360	360	350	290	300	295	300	330	355	360	370	360	350	350	340	320	302	300	350	380	370	360
UQ	390	390	370	385	350	305	302	308	308	350	370	390	390	390	360	350	350	350	322	310 R	350	400 R	395 R	390
LQ	355	350	345	348	320	290	268	290	295	320	350	350	350	355	350	315	302	300	300	295	308	360	350	355

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MAY. 1972 | HPF2 (KM)

IONOSPHERIC DATA

MAY. 1972 | 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

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	S 75	70	100	110	90	85	50	70	90	130	105	110	110	J R 90	110	90	J R 90	90	J R 90	J R 90	R 100	100	100	110
2	110	J R 100	90	110	110	100	U R 100	100	J R 90	70	100	95	90	95	90	55	70	95	60	70	S 90	75	70	100
3	70	S 95	F 90	60	S 90	95	75	90	75	G	G	A	100	90	75	75	70	75	65	I A 70	100	95	100	90
4	J S 100	85	80	65	110	110	40	65	50	130	80	75	65	60	80	95	70	100	60	60	S 70	95	90	95
5	90	80	100	80	80	75	60	50	55	110	A	J R 90	90	110	90	95	85	100	R 95	100	S	A	85	100
6	J S 90	90	65	90	F 100	65	50	A	A	A	80	A	100	90	75	90	95	95	65	60	55	100	F 85	95
7	F 90	F 100	F 110	F 100	95	70	65	55	A	95	100	100	110	A	A	80	80	85	85	65	A	90	80	95
8	90	F 90	F	F 110	90	65	J R 75	70	75	V 120	100	100	110	110	120	85	100	100	90	90	U R 100	F	J R 115	110
9	F	F	100	100	110	90	90	90	J R 90	110	100	100	100	J R 105	110	110	100	J R 90	J R 90	100	110	100	R 110	R 110
10	90	95	R 100	100	90	100	90	90	100	J R 100	80	100	R 100	I A 100	100	95	95	100	90	R 110	J R 100	R 100	U R 100	90
11	90	100	110	R 100	R 100	100	J R 105	90	A	100	90	90	90	J R 100	J R 105	90	90	85	A	U R 90	R	R 100	95	90
12	F	U R 90	100	90	90	R 105	U R 90	100	110	J R 90	90	110	110	105	J R 90	J R 105	90	A	95	J R 85	U R 90	R	F	F
13	100	F	U R 100	J R 95	R 100	R	R 90	A	90	100	110	J R 90	105	105	100	130	100	95	J R 105	S 85	A	90	70	90
14	95	S 100	95	110	80	70	90	75	80	180	135	115	100	95	70	70	100	95	100	J R 95	R 100	F	F	F
15	F	F	U F 110	U F 120	F 100	90	90	65	100	105	105	U R 90	90	95	90	90	95	90	90	J R 80	R	U R 100	R	R 100
16	R 95	R	90	95	95	100	100	J R 100	J R 95	G	R	R	95	100	110	90	110	95	J R 130	100	U R 110	R 100	U R 100	R
17	R	U R 90	I R 100	J R 100	100	90	R 110	90	A	G	G	G	G	I R 100	A	110	100	I R 100	I A 100	110	110	90	F	A
18	F	F	F	F 100	F	100	100	110	100	A	A	A	J R 110	J R 120	105	J R 120	J R 110	J R 100	J R 100	R 90	U R 105	R 90	U R 100	F
19	R	F	F	F	F	R 110	100	95	I A 90	90	90	100	R 100	J R 90	J R 90	J R 100	110	100	110	R 90	U R 100	J R 100	100	100
20	R 100	100	J R 90	110	110	J R 100	J R 85	100	90	95	R 95	100	115	110	115	100	110	100	90	90	95	S	F 75	F
21	U S 95	F	80	F 90	90	55	70	100	80	I A 120	130	I R 120	80	U R 75	100	A	A	70	80	S	100	80	95	J S 90
22	80	S 60	S 65	100	100	70	80	90	80	110	90	100	90	90	100	J R 120	J R 100	100	95	90	90	R	J R 95	J R 90
23	U R 100	R 100	U R 105	F	F	J R 100	90	100	90	110	R 100	90	J R 90	J R 90	110	110	90	R	A	J R 90	A	J R 90	F	U R 100
24	R 90	100	100	90	100	R 100	100	100	100	A	A	R	100	110	110	100	B	110	100	R 90	110	100	R 100	U R 100
25	90	110	110	100	110	90	100	90	100	A	I A 70	85	U R 90	100	135	140	90	100	90	90	I R 100	J R 100	R	U R 100
26	90	160	110	90	110	J R 90	95	R	A	A	A	R	J R 100	100	J R 110	J R 110	110	110	90	105	J R 110	U R 100	R 100	R 100
27	110	110	R 100	110	110	100	90	J R 90	90	100	105	R 70	100	95	95	75	105	95	85	S 65	95	95	S 90	70
28	95	90	90	80	85	70	75	55	65	55	95	90	J R 75	85	80	A	A	75	70	45	S 75	F	F	F
29	U F 100	F 95	85	F 90	F	F 95	90	60	A	A	G	100	I A 90	I R 100	100	A	I A 90	A	A	A	90	U R 105	F	100
30	100	100	R 100	90	F	J R 100	95	A	A	A	A	A	95	I A 100	90	J R 110	110	J R 110	90	J R 100	R	J R 90	R	R
31	R	U R 90	F	R	I R 100	F	90	J R 115	100	105	J R 90	100	J R 90	90	100	90	110	110	100	100	R	F	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	27	28	26	29	31	27	24	21	22	23	30	30	29	28	28	28	28	29	23	23	21	22
MED	92	95	100	100	100	95	90	90	90	105	98	100	100	100	100	95	98	98	90	90	100	100	95	100
UQ	100	100	100	105	110	100	98	100	100	110	105	100	100	105	110	110	108	100	100	100	R 102	R 100	R 100	R 100
LQ	90	90	90	90	90	75	75	70	80	95	90	90	90	90	90	90	90	90	85	80	90	90	85	90

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MAY. 1972 | YPF2 (KM)

IONOSPHERIC DATA

MAY. 1972 | 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

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	S 50	I S 50	48	I S 44	S 48	J S 48	55	56	S 60	59	64	77	102	113	S 121	S 132	S 122	S 112	I S 102	I S 91	I S 80	S 70	A	S
2	U S 70	I S 64	S 69	U S 47	39	S 39	62	65	70	H 73	82	U C 86	I C 100	U C 112	I C 120	J C 126	I C 126	R	S	S 102	I S 84	I S 68	J S 67	S 59
3	I S 54	I S 56	U S 52	I S 52	S 51	45	57	I S 71	U C 82	71	75	88	98	94	92	93	100	S 99	87	S 83	66	A	S	S
4	58	55	I S 52	50	48	46	58	67	63	69	73	80	J R 87	J R 88	U R 89	99	J S 101	S 101	I S 101	I S 88	J S 73	69	I S 67	S 67
5	S 69	I S 65	J S 63	J F 61	64	C	C	S 63	I A 64	69	C 82	C 86	I C 89	I C 92	I C 93	C 99	I A 100	107	S 112	I S 112	S	S	S	S
6	S	S	S 58	56	I S 52	S 52	I S 68	69	63	64	66	I C 78	C	C	C	S 117	S 126	S 136	137	I S 108	I S 86	I S 78	I S 78	S
7	S	S	S	F 68	S 59	S 62	S	69	70	I A 71	72	I A 81	R 103	J S 124	J S 127	S 120	S 115	117	C	A	S	S	S	S 88
8	S	S	S	S	74	S 71	I S 84	82	79	I A 88	I A 98	R 101	105	108	S 114	S 114	S 114	S 108	C	S	S	I S 80	I S 77	S
9	S 79	F	68	S 63	58	S 57	67	83	S 94	83	84	94	107	114	S 122	J S 130	I S 128	J S 122	S	S	S	J S 87	S	S
10	71	S 70	67	J S 66	67	58	71	80	81	86	84	J S 90	U R 102	111	I S 120	S 123	S 111	S 105	C	S	A	S 87	I S 76	I S 76
11	U S 81	J S 74	S 73	64	55	58	S 80	C 73	S 74	80	90	S 104	U S 118	J S 124	J S 130	135	S 136	S 129	J S 129	S	J S 77	I S 84	J S 76	S
12	S	U S 76	J S 85	S	S 62	S 54	62	73	74	78	R 89	107	I S 121	130	126	I S 125	J S 126	S	S	S	S	S	S	S 88
13	S	S	S	I S 83	S 76	U S 70	S 85	S	87	93	J S 107	I S 120	J S 130	S 138	S 149	S 156	J S 155	S 151	C 147	J S 144	S	S	J S 124	S
14	S	S	S	S	S 75	S 75	S	I C 106	83	U C 75	C 99	114	129	142	153	S 161	161	S 152	I C 144	J S 135	S	S	S 102	S
15	S	S	S	S	S	S	S	C	84	86	R 93	I S 118	I C 132	146	151	I S 148	146	135	I S 127	S	S	S	U S 83	U S 86
16	S	S	S	S	S	S	S 62	81	C	63	I C 67	91	122	111	99	88	96	110	114	J S 92	78	79	S 84	I S 89
17	I A 92	91	91	85	81	68	68	78	80	86	96	102	111	114	114	112	112	S 117	S 112	92	74	80	82	86
18	F	F	S 72	S 72	S 58	F	63	86	78	79	77	85	92	93	98	105	111	S 109	J S 119	J S 113	S 88	82	F 82	J S 86
19	J S 82	F	F	F	F 65	F	72	85	A	77	80	I A 84	94	102	107	R 109	105	102	S 104	I S 102	I S 92	S 80	F	S 89
20	S 83	84	S 86	S 76	71	71	75	72	73	83	96	97	U S 108	R 113	J S 120	S 123	127	127	J S 122	J S 121	J S 101	J S 93	S 94	I S 98
21	S	S	S	89	81	S 79	U S 84	88	76	77	88	92	103	109	R 112	J S 118	J S 118	S 114	I C 118	I S 112	I S 98	93	S 102	S 102
22	S 102	S	I S 104	S 85	73	72	80	83	90	I A 88	90	93	102	109	113	S 117	125	123	I S 116	I S 109	90	87	90	90
23	I S 88	U S 81	70	66	65	69	U S 78	75	74	71	81	88	95	I C 107	C 111	C 120	127	122	C 108	98	80	82	87	S
24	S	F	S	F	78	78	82	89	82	80	82	92	102	106	U S 107	105	R 101	103	I S 102	U S 94	71	71	75	I S 80
25	S 79	S 76	S 74	69	70	71	84	82	70	62	I A 66	72	86	102	C 108	J C 108	J S 102	101	U S 97	A	A	J S 84	S 83	J S 86
26	J S 83	F	F	S	J S 82	87	88	A	67	A	71	I A 88	100	104	U C 112	C 114	S 107	S 109	S 120	S	99	79	F 82	J S 85
27	I S 82	S 79	S 65	S 64	S 61	S 59	70	78	62	59	I A 66	72	87	98	101	109	S 118	J S 112	I S 112	I S 110	S 93	S 82	I S 82	S 80
28	F	F	F 76	I S 72	67	J F 64	70	71	86	66	66	A	88	103	111	J S 115	S 116	J S 122	J S 126	I S 121	I S 97	I S 72	69	S 74
29	F	F	F	F	F 72	F	85	I A 68	A	63	69	89	99	80	74	94	106	96	I A 88	I A 78	I A 70	F	S	S
30	S	A	F	F	S	F	I A 59	I A 63	70	I A 74	A	A	A	A	U S 107	S 111	U S 117	129	S 118	97	S 83	F	S 65	F
31	S	S	F	F	F	F	72	F 72	S 73	74	70	76	80	89	97	101	103	100	S 105	S 100	87	I A 66	59	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	13	18	20	27	23	27	28	28	30	30	29	29	29	30	31	31	29	25	22	21	22	23	18
MED	S 80	S 74	S 70	S 66	65	64	71	74	74	74	82	89	102	109	112	115	S 116	S 112	S 114	S 102	S 84	S 80	S 82	S 86
UQ	S 83	S 79	S 76	S 74	74	71	81	82	82	83	90	97	108	114	S 121	S 124	S 126	S 123	S 122	I S 112	S 92	S 84	S 86	S 89
LQ	S 70	I S 64	S 63	58	58	S 56	62	69	70	69	70	84	94	102	101	106	106	S 105	S 104	S 92	77	72	S 76	S 80

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MAY. 1972 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	440L	510L	500L	510	510	510	480	L	370	L					
2								L	L	L	480L	L	510L	530L	500L	490L	L	L	L					
3									A	L	L	I A 500	500	510	A	480L	L	L	A					
4								L	A	A	490	530	500	L	510	490	460L	L	A					
5									A	A	490L	500L	510	A	490L	A	A	A	A					
6								L	A	A	A	C	C	C	C	510L	A	430L	L					
7								A	A	A	A	A	A	A	500	A	A	L	A					
8								L	L	A	A	A	A	540L	530L	A	480L	L	A					
9								L	L	L	A	L	A	540	530H	510	490	L						
10									L	450L	580L	L	A	A	A	A	A	L						
11									A	L	A	A	550	570	L	530L	A	A						
12									L	L	A	A	A	550	550L	550L	L	A	A					
13									A	A	A	A	L	560	560L	540L	450	A	L					
14								L	A	A	A	A	A	A	A	A	L	L	L					
15								A	A	A	A	I A 570	I A 580	I A 570	520	L	L	L	L					
16								L	L	A	A	L	L	530	A	L	470	L	A					
17									L	L	L	L	580L	A	610L	U 520L	510L	L	L					
18								L	L	L	520	I A 540	L	L	L	520	500	L	L					
19								L	A	A	A	A	550	530	530	520	510L	L	A					
20								A	L	L	L	530L	580L	520L	500L	530L	520L	470L	L					
21								L	L	A	520L	600L	510	A	550L	A	500L	A	A					
22								L	L	A	A	580	580	550	540	530	490L	L	L					
23								L	A	L	510	U 540L	530L	540	A	A	A	A	A					
24								L	L	L	L	510L	A	A	A	A	B	B						
25							L	L	A	A	A	A	510	520	A	500	A	A	A					
26									A	A	L	A	A	510L	A	I A 500	470L	I A 460	A					
27								380	A	L	A	500L	500	510L	500	470	470L	430L	A					
28								L	A	L	A	A	500L	A	500L	500L	470L	440L	A					
29								A	A	A	L	A	A	A	A	500	450	A	A					
30								A	A	A	A	A	A	A	A	A	A	A	A					
31							L	A	A	A	A	A	A	A	490	500	470H	470L	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1		2	8	12	16	17	18	20	16	7						
MED								380		445L	510L	530L	510	530	515	505	475L	440L						
UQ											520L	555	565	550	540L	525L	500L	465L						
LQ											490	500L	505	520	500	495	470	430L						

The Radio Research Laboratories, Japan

MAY. 1972 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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							190	H 250	290	310	I A 330	350	360	A	A	A	A	A	A					
2							185	H 260	290	315	345	A	A	A	A	A	A	A	A					
3							175	I A 250	300	320	335	A	A	A	A	330	310	280	210					
4							180	250	295	315	330	R 350	R 350	340	345	330	310	280	210					
5							C	230	280	310	A	A	A	A	C 355	330	310	275	210					
6							C 190	260	300	330	340	I C 350	C	C	C	340	325	290	220					
7							170	260	300	330	355	I A 360	365	355	I A 350	350	A	A	A					
8							170	A	A	A	A	A	A	A	A	A	A	290	A					
9							270	H 270	310	340	350	A	A	A	360	A	A	290	A					
10							200	260	300	A	A	A	A	A	370	350	325	A	A					
11							195	265	A	A	A	A	A	A	A	365	330	295	A					
12							185	270	310	330	340	350	I R 375	R 390	I R 380	365	335	310	240					
13							195	270	320	340	360	A	A	A	390	370	330	310	I A 225					
14							A	270	315	340	360	A	A	A	A	A	340	I A 300	260					
15							220	280	320	350	375	A	A	A	A	365	340	300	250					
16							215	280	320	340	360	360	375	380	360	320	310	300	240					
17							I A 200	270	320	I C 340	I A 360	A	A	A	A	360	335	H 305	245					
18							220	260	340	345	360	370	375	380	360	A	A	295	A					
19							210	270	325	350	365	370	A	A	A	A	A	A	A					
20							190	270	320	345	365	370	375	370	370	350	325	280	230					
21							A	280	320	340	360	360	A	A	A	A	330	H 290	230					
22							210	280	310	325	I A 340	360	A	A	A	A	330	290	235					
23							225	280	305	340	I A 345	I B 355	I R 365	390	380	360	330	300	230					
24							A	275	310	A	A	A	A	R	360	340	B	B	A					
25							210	270	305	330	I C 340	A	A	A	A	I A 350	330	290	230					
26							180	260	300	A	A	A	A	A	A	A	320	A	A					
27							C	260	310	A	A	A	A	370	370	H 360	335	310	250					
28							220	270	310	330	I A 345	360	I B 365	I B 370	360	340	320	290	A					
29							C	270	310	320	A	A	A	A	A	340	325	295	A					
30							210	260	310	A	A	A	A	A	A	A	A	300	I A 230					
31							195	275	I A 305	330	A	A	A	A	A	A	330	300	245					
	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	30	29	24	21	13	9	9	14	19	22	24	18					
MED							195	270	310	330	350	360	365	370	360	350	330	295	230					
UQ							210	270	320	340	360	360	375	380	370	360	330	300	245					
LQ							185	260	300	322	340	350	365	370	360	340	320	290	225					

The Radio Research Laboratories, Japan

MAY. 1972 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1972 | FOES (0.1 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 27	J X 23	J X 25	J X 25	J X 22	22	G	27	35	36	35	37	37	J X 50	J X 47	45	41	33	J X 30	J X 27	M 35	M 57	J X 105	J X 64
2	J X 36	J X 26	J X 26	23	19	18	22	29	35	42	42	46	J X 60	37	37	36	32	44	J X 28	J X 32	24	E S 15	20	23
3	24	32	25	J X 27	J X 26	25	21	J X 52	J X 45	36	40	J X 61	J X 52	J X 46	J X 99	G 30	36	31	32	J X 36	J X 30	J X 72	J X 49	J X 97
4	J X 36	E S 14	J X 19	20	E S 15	20	21	30	47	56	47	44	42	90	J X 55	G	G	G	J X 55	J X 37	J X 51	J X 35	J X 36	J X 36
5	J X 25	J X 25	E S 14	E C 16	17	C	C	J X 37	J X 77	J X 54	J X 50	J X 56	J X 58	C 64	C 39	54	150	110	J X 49	J X 44	J X 55	63	J X 51	J X 51
6	32	31	J X 39	J X 24	J X 41	27	C 25	35	J X 53	J X 64	J X 64	C	C	C	C	45	49	G	32	J X 37	J X 25	J X 30	J X 29	J X 34
7	J X 38	J X 38	J X 32	J X 36	J X 37	J X 29	J X 46	46	55	J X 75	J X 73	J X 101	J X 85	90	95	94	J X 59	J X 38	82	J X 133	106	69	J X 40	J X 37
8	29	J X 34	J X 19	J X 22	E S 15	E S 15	22	J X 36	J X 41	96	J X 139	J X 99	74	71	71	J X 55	J X 56	J X 44	J X 37	J X 57	J X 50	J X 24	J X 39	J X 68
9	J X 21	E S 15	E S 15	21	J X 21	E S 15	G	32	41	45	J X 55	J X 79	J X 72	41	46	J X 49	37	44	J X 61	J X 65	J X 51	J X 61	J X 39	J X 21
10	J X 25	22	22	25	J X 20	J X 20	28	44	J X 52	43	J X 62	J X 62	J X 83	J X 57	J X 58	J X 51	J X 53	J X 58	J X 61	J X 73	J X 100	J X 64	J X 61	J X 22
11	J X 33	J X 25	J X 21	18	E S 14	E S 14	27	62	J X 60	J X 48	J X 103	69	44	47	J X 60	45	J X 57	J X 64	51	47	J X 59	J X 65	J X 33	J X 65
12	J X 65	J X 40	J X 26	J X 23	J X 21	21	23	J X 59	49	42	J X 77	73	J X 89	51	J X 61	50	47	J X 85	J X 100	92	J X 36	J X 64	J X 65	J X 50
13	J X 69	J X 37	J X 29	J X 39	J X 30	J X 33	J X 45	J X 48	J X 54	88	J X 99	94	48	47	54	G	36	52	34	25	J X 34	J X 71	J X 86	J X 67
14	J X 76	J X 26	J X 26	24	E S 15	E S 15	22	31	J X 50	J X 61	J X 63	J X 103	121	75	75	87	37	32	28	J X 22	J X 26	25	59	J X 52
15	J X 74	J X 39	J X 51	J X 47	J X 39	J X 52	31	44	J X 61	J X 67	J X 115	J X 124	J X 123	J X 135	58	G 34	G	G	28	J X 38	J X 41	J X 64	J X 62	42
16	J X 47	J X 84	J X 37	J X 24	J X 29	J X 19	24	36	42	60	J X 63	J X 59	46	J X 74	J X 55	J X 48	37	G	J X 58	J X 61	J X 32	J X 36	J X 37	J X 65
17	J X 97	J X 62	J X 63	J X 45	E S 13	J X 51	J X 49	J X 42	J X 50	56	J X 55	49	J X 61	J X 71	J X 95	43	36	J X 51	30	14	J X 89	J X 60	J X 52	J X 30
18	J X 66	J X 54	J X 26	J X 27	J X 17	J X 21	25	J X 57	41	38	J X 52	J X 84	49	53	41	38	36	G 28	33	J X 58	J X 102	J X 65	J X 36	48
19	J X 51	J X 55	J X 32	J X 29	J X 29	J X 34	28	J X 52	J X 103	J X 73	J X 73	J X 101	J X 92	47	J X 56	56	J X 42	J X 46	J X 41	J X 49	J X 62	J X 31	J X 53	J X 56
20	J X 33	22	E S 15	23	13	E S 14	27	41	38	C 44	J X 55	45	51	J X 104	42	37	34	36	32	J X 35	M 110	J X 104	71	J X 34
21	J X 62	42	J X 25	J X 38	J X 42	J X 47	27	38	42	J X 71	42	39	40	J X 106	42	J X 57	J X 73	J X 55	J X 51	J X 51	J X 56	J X 24	J X 46	J X 52
22	J X 73	J X 63	J X 56	J X 29	E	E S 13	29	39	J X 84	J X 160	J X 90	41	45	41	47	41	37	36	31	J X 31	J X 31	J X 84	J X 61	J X 36
23	J X 31	J X 34	J X 46	J X 24	J X 31	J X 26	25	36	J X 53	52	50	J X 48	41	50	J X 64	J X 74	J X 126	J X 135	J X 111	J X 42	J X 97	J X 83	J X 70	J X 51
24	J X 29	J X 37	J X 25	J X 31	J X 28	J X 29	J X 39	31	J X 46	42	42	44	J X 102	J X 69	52	J X 90	J X 73	J X 94	J X 84	J X 65	J X 42	27	33	25
25	J X 42	J X 36	J X 37	31	J X 26	J X 30	30	30	J X 53	J X 58	J X 104	J X 67	49	51	J X 52	48	J X 72	J X 86	J X 75	J X 145	J X 140	J X 95	J X 19	J X 32
26	J X 23	J X 49	J X 33	J X 62	J X 42	J X 21	J X 81	J X 89	J X 57	J X 99	J X 100	129	94	170	C 75	J X 64	37	J X 51	J X 83	J X 50	J X 38	J X 63	J X 49	J X 34
27	J X 38	J X 24	J X 19	E C 14	E C 14	E C 15	26	38	J X 49	J X 55	J X 83	44	J X 54	40	G 29	G 25	G 25	41	J X 98	M 75	M 59	J X 34	J X 37	J X 65
28	J X 65	J X 31	24	E B 13	25	23	33	37	J X 54	J X 70	J X 110	J X 140	E B 44	56	G	38	43	J X 45	J X 51	J X 109	98	J X 78	J X 20	J X 91
29	J X 40	J X 82	J X 39	E	E C 15	E C 15	39	J X 76	J X 90	J X 66	J X 103	125	J X 103	J X 136	J X 93	J X 162	J X 58	69	J X 135	J X 176	J X 160	J X 141	J X 61	J X 64
30	J X 70	J X 95	J X 23	J X 35	J X 42	J X 38	J X 77	J X 142	J X 129	J X 82	J X 150	J X 144	J X 179	J X 168	J X 96	J X 84	J X 66	J X 83	J X 99	J X 86	J X 76	J X 70	J X 70	J X 65
31	J X 66	J X 75	J X 50	J X 32	J X 86	J X 99	31	J X 45	J X 84	J X 74	J X 75	J X 62	J X 72	49	42	41	G	37	J X 44	J X 44	J X 33	J X 79	J X 88	J X 80
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31
MED	J X 38	J X 36	J X 26	J X 25	J X 22	22	27	39	J X 52	J X 58	J X 64	J X 64	59	56	55	48	41	44	J X 51	J X 49	J X 51	J X 64	J X 49	J X 51
UQ	J X 66	J X 52	J X 37	J X 32	J X 30	J X 30	33	J X 50	J X 58	J X 72	J X 100	J X 101	J X 89	J X 90	J X 71	J X 56	J X 58	J X 61	J X 78	J X 69	J X 93	J X 72	J X 62	J X 65
LQ	J X 30	J X 26	J X 22	22	15	E 15	23	36	44	44	J X 51	46	46	47	42	38	36	34	32	J X 36	J X 34	J X 34	J X 36	J X 34

The Radio Research Laboratories, Japan

MAY. 1972 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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

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	25	17	16	16	15	E	G	G	34	35	35	37	G	40	45	45	36	30	26	19	31	54	A	64
2	28	18	E	21	E	E	G	28	34	40	41	45	45	E C 37	E C 37	E C 36	32	31	25	31	E	E S 15	E	E
3	E	E	E	23	20	E	G	31	42	G	38	58	42	44	52	G 30	34	G	31	35	30	A	40	33
4	22	E S 14	E	E	E S 15	E	21	29	47	55	47	43	42	47	49	G	G	G	53	35	43	19	36	28
5	16	17	E S 14	E C 16	15	C	C	36	A	50	41	46	44	C 49	C 39	51	A	99	40	43	53	52	50	51
6	23	26	E	E	20	E	C 25	30	49	55	59	C	C	C	C	43	47	G	28	30	23	26	25	21
7	30	32	22	25	25	21	45	44	53	A	57	A	85	74	47	81	47	38	E C 82	A	55	35	22	20
8	E	20	E	E	E S 15	E S 15	G	32	40	A	A	53	67	41	50	54	42	42	36	56	40	21	17	E S 68
9	E	E S 15	E S 15	17	15	E S 15	G	31	38	44	52	56	55	41	43	42	35	34	33	E S 65	38	51	E S 39	16
10	E	E	E	15	E	16	28	42	43	37	44	44	55	55	56	49	47	41	54	68	A	49	30	17
11	22	17	E	E	E S 14	E S 14	25	42	49	45	79	59	E R 44	47	57	45	54	61	49	45	29	52	28	65
12	53	30	16	16	E	E	23	57	43	42	77	60	88	48	50	50	45	84	96	E S 92	31	51	61	41
13	40	28	E	E	25	24	43	48	45	60	95	80	47	46	51	G	G	50	31	23	21	53	51	65
14	65	21	22	E	E S 15	E S 15	E R 22	31	49	57	55	77	89	56	64	76	G	31	G	17	19	E	51	44
15	25	26	51	37	29	37	30	43	58	61	87	103	123	130	44	G 34	G	G	G	37	25	55	54	22
16	28	15	E	E	25	E	G	G	42	50	E C 63	50	46	47	53	48	36	G	50	57	30	24	35	44
17	A	50	34	39	E S 13	49	44	40	43	48	50	49	57	68	58	43	G	42	29	14	19	25	23	22
18	E	38	20	20	14	15	G	33	40	38	46	63	48	51	41	38	35	G 27	32	58	62	21	24	32
19	35	30	29	20	15	23	27	34	A	60	56	A	47	45	45	48	40	44	41	44	55	26	48	18
20	E	E	E S 15	14	13	E S 14	G	40	36	C 44	45	45	50	45	42	37	G	33	30	17	53	62	32	26
21	17	15	E	16	33	28	24	30	40	62	40	39	39	70	39	51	48	54	50	E S 51	52	23	32	40
22	33	30	26	13	E	E S 13	27	38	46	A	63	41	44	41	46	41	G	35	30	24	23	29	26	17
23	22	32	35	20	21	15	G	36	51	49	50	47	E R 41	50	62	57	112	118	84	42	32	47	34	36
24	E	18	16	22	22	21	34	31	42	41	42	44	94	68	49	61	70	62	49	52	33	18	E	17
25	26	21	27	16	15	24	G	30	49	56	A	65	48	51	52	42	69	85	52	A	A	24	15	21
26	19	43	26	51	28	20	79	A	55	A	46	A	80	47	49	64	G	51	56	35	37	23	40	16
27	20	20	E	E C 14	E C 14	E C 15	25	36	46	44	A	44	46	40	G 29	G 25	G 22	38	E S 98	68	29	26	23	20
28	50	20	E	E B 13	E	14	29	33	46	48	57	A	E B 44	56	G	G	43	36	51	E S 109	54	25	14	18
29	27	36	19	E	E C 15	E C 15	32	A	A	37	49	75	92	52	59	39	44	49	A	A	A	22	51	52
30	31	A	18	23	31	32	A	A	65	A	A	A	A	A	90	84	61	47	98	77	48	41	51	50
31	51	33	27	17	23	22	30	43	64	66	66	58	62	49	42	41	G	35	43	43	22	A	46	26
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31
MED	25	21	16	16	15	15	25	36	46	50	54	57	48	48	49	43	36	38	42	U 40	33	26	33	26
UQ	32	31	24	20	22	22	30	42	52	60	72	77	80	56	53	51	47	50	53	U 61	53	52	49	43
LQ	16	17	E	E E 13	E E 14	E E 13	G	31	42	43	46	45	44	45	42	38	G	31	30	33	27	23	24	19

MAY. 1972 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | F-MIN (0.1 MHZ) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 15	E S 15	E S 15	E S 14	E	E S 14	E S 15	15	15	15	17	20	22	23	15	16	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
2	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	15	E C 16	E C 19	E C 22	E C 24	E C 24	E C 20	E C 21	E C 17	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
3	E S 15	E S 15	E S 14	E S 15	E S 14	E S 14	E S 15	E S 15	14	E C 25	16	20	19	16	21	16	15	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
4	E S 15	E S 14	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	15	16	15	18	18	E S 25	15	15	14	E S 14	E S 15	E S 15	E S 15	E S 15	E S 14	E S 14
5	E S 14	E S 14	E S 14	E C 16	E S 14	C	C	14	14	15	15	15	15	E C 23	21	15	14	15	E S 14	E S 14	E S 15	E S 15	E S 15	E S 15
6	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 14	14	15	15	C	C	C	C	23	16	15	E S 15	E S 14	E S 15	E S 15	E S 15	E S 15
7	E S 15	E S 15	E S 14	E S 14	E S 15	E S 15	E S 15	E S 14	15	15	17	17	24	24	15	19	15	15	E S 15	E S 15	E S 15	E S 15	E S 15	F S 15
8	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	14	14	15	17	20	24	16	23	16	15	14	E S 14	E S 15	E S 15	E S 15	E S 15	F S 15
9	E S 15	E S 15	E S 15	E S 14	E S 14	E S 15	E S 15	E S 15	15	16	17	E S 22	23	22	16	16	15	E S 15	E S 15	E S 14	E S 15	E S 14	E S 15	E S 14
10	E S 15	E S 15	E S 14	E S 14	E S 14	E S 14	E S 14	14	15	15	16	17	19	23	18	16	18	E S 14	E S 14	E S 13	E S 15	E S 15	E S 15	E S 15
11	E S 15	E S 14	E S 15	E S 14	E S 14	E S 14	E S 15	14	E S 15	16	23	24	24	24	24	23	16	16	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
12	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	16	18	24	25	23	25	18	21	16	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
13	E S 15	E S 14	E S 15	E S 15	E S 14	E S 13	E S 15	15	15	18	E S 24	22	24	24	21	21	15	15	16	E S 14	E S 15	E S 15	E S 15	E S 15
14	E S 15	E S 15	E S 14	E S 15	E S 15	E S 15	E S 14	15	17	17	23	24	33	25	24	22	17	14	15	E S 15	E S 15	E S 15	E S 15	E S 15
15	E S 14	E S 15	E S 14	E S 14	15	15	E S 14	15	15	15	23	23	31	26	21	17	19	15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15
16	E S 15	E S 14	E S 15	E S 15	E S 15	E S 15	E S 15	14	E C 19	E C 25	E C 29	20	29	30	25	19	15	13	16	14	E S 13	E S 13	E S 14	E S 13
17	E S 12	E	E S 13	E S 15	E S 13	E	12	15	17	E C 35	23	26	22	23	23	17	19	15	13	11	E	E S 14	E S 13	E S 13
18	E S 14	E S 12	E	E S 13	E	E	11	16	29	20	20	28	23	24	21	22	16	15	14	12	E S 15	E S 14	13	13
19	E S 15	E S 14	E S 14	E S 14	E	13	15	16	16	20	20	28	24	23	21	17	15	14	14	11	E S 15	E S 15	E S 15	E S 14
20	E S 15	E S 15	E S 15	E	E	E S 14	13	14	15	18	19	23	23	20	23	17	16	15	15	E S 14	E S 13	E S 14	E S 14	E S 14
21	E S 14	E S 12	E S 13	E	E S 12	E S 15	15	15	15	15	17	17	21	23	23	15	16	15	14	E S 13	E	E S 15	E	E S 15
22	E S 15	E S 14	E S 14	E	E	E S 13	E S 15	15	15	16	23	21	23	24	21	18	15	14	11	E S 15	E S 13	E S 15	E S 15	E S 14
23	E S 15	E S 14	E S 13	E	11	E	13	14	15	25	29	36	28	25	24	16	16	14	16	13	E S 14	E S 14	E	E S 14
24	E S 14	E	E	E	E	E	14	14	15	19	20	21	16	21	19	17	51	32	15	E S 14	E S 14	E S 14	E S 15	E S 14
25	E S 15	E S 14	E S 14	E S 14	E S 14	E S 12	E S 14	14	E C 21	E C 23	E C 34	23	28	25	21	23	19	14	13	11	E S 13	E S 13	E S 13	E S 14
26	E S 13	E S 14	E S 14	E S 13	12	E	14	14	14	16	18	21	29	24	21	21	17	16	E C 15	E C 15	E S 15	E S 15	E S 14	E
27	E S 15	E	E C 13	E C 14	E C 14	E C 15	E C 17	E C 18	E C 20	15	21	29	22	24	19	20	17	15	14	E C 14	E C 14	E S 15	E S 14	E S 13
28	E S 15	E S 13	E C 14	13	E C 15	E	E C 14	E C 17	16	17	24	25	44	38	24	22	23	16	16	E C 13	E C 14	E C 15	E	E S 14
29	E S 15	E	E	E	E C 15	E C 15	E C 18	E C 19	16	16	18	22	23	23	22	22	19	14	E C 17	E C 14	E C 15	E S 14	E S 15	E S 15
30	E S 15	E S 15	E	E	E C 12	E C 15	E C 18	E C 18	15	19	20	31	23	24	23	18	21	14	17	15	11	E S 13	E S 15	E S 14
31	E S 13	E S 13	14	11	15	16	17	20	17	18	20	23	21	20	23	21	19	15	17	16	15	15	14	15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	31	31	31	31	30	30	30	30	31	31	31	31	31	31	31	31	31
MED	E S 15	E S 14	E S 14	E S 14	E S 14	E S 14	E S 15	14	15	16	19	22	23	24	21	18	16	15	U 13	E S 14	E S 15	E S 15	E S 15	E S 15
UQ	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	E S 15	15	16	18	22	25	24	25	23	21	18	15	15	E S 15	E S 15	E S 15	E S 15	E S 15
LQ	E S 14	E S 14	E S 14	E E 12	E E 12	E S 13	E S 14	14	15	15	17	20	22	22	19	16	15	14	E S 14	E 14	E S 14	E S 14	E S 14	F S 14

MAY. 1972 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1972 | 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

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	260 S	I S 260	280	I S 270	270 S	J S 290	345	340	330 S	315	285	280	275	300	295 S	310 S	310 S	315 S	I S 305	I S 290	I S 275	270 S	A	S
2	U S 270	I S 280	305 S	U S 340	265	285 S	340	340	325	315 H	310	U C 280	I C 280	U C 290	I C 295	J C 310	I C 315	R	S	335 S	I S 325	I S 310	J S 285	290 S
3	I S 280	I S 270	U S 280	I S 300	300 S	300	305	I S 315	U C 325	295	270	295	310	310	315	315	330	345 S	335	340 S	335	A	S	S
4	300	290	I S 290	320	290	310	335	360	335	320	315	305	J R 300	J R 295	U R 295	300	J S 305	305 S	I S 315	I S 320	J S 300	280	I S 270	270 S
5	280 S	I S 265	J S 275	J F 285	290	C	C	345 S	I A 320	295	325 C	290 C	I C 300	I C 295	I C 290	C 285	A	A	305 S	I S 320	S	S	S	S
6	S	S	280 S	260	I S 275	300 S	I S 330	375	350	315	280	I C 280	C	C	C	285 S	295 S	305 S	320	I S 320	I S 285	I S 280	I S 275	S
7	S	S	S	F 300	295 S	280 S	S	335	335	I A 295	275	I A 265	270 R	J S 295	J S 315	310 S	295 S	305	C	A	S	S	S	275 S
8	S	S	S	S	290	310 S	I S 315	330	315	I A 290	I A 285	285 R	285	285	300 S	305 S	305 S	305 S	C	S	S	I S 305	I S 275	S
9	265 S	F	285	285 S	295	285 S	305	305	310 S	315	275	255	270	280	285 S	J S 300	I S 300	J S 310	S	S	S	J S 280	S	S
10	270	260 S	270	J S 275	300	310	310	335	310	310	290	J S 260	J R 290	290	I S 295	310 S	315 S	295 S	C	S	A	290 S	I S 290	I S 270
11	U S 275	J S 295	300 S	310	295	310	315 S	355 C	325 S	295	275	270 S	U S 285	J S 285	J S 290	295	310 S	310 S	J S 310	S	J S 300	I S 280	J S 275	S
12	S	U S 270	J S 270	S	305 S	315 S	325	335	335	285	270 R	255	I S 275	285	270	I S 285	J S 285	S	S	S	S	S	S	265 S
13	S	S	S	I S 275	290 S	U S 285	305 S	S	310	275	J S 265	I S 270	J S 270	275 S	285 S	295 S	J S 290	290 S	290 C	J S 300	S	S	J S 305	S
14	S	S	S	S	285 S	270 S	S	I C 320	305	U C 295	255 C	250	265	280	285	290 S	295	290 S	I C 285	J S 270	S	S	270 S	S
15	S	S	S	S	S	S	S	C	290	290	A	I S 270	I C 285	295	295	I S 285	300	300	I S 305	S	S	S	U S 270	U S 260
16	S	S	S	S	S	S	320 S	300	C	335	C	240	285	295	295	275	280	290	305	J S 325	270	255	250 S	I S 260
17	I A 270	270	285	295	295	330	325	300	325	295	275	270	280	285	295	295	295	300 S	325 S	315	255	260	270	265
18	F	F	265 S	275 S	275 S	F	300	320	320	290	295	270	270	265	265	275	290	275 S	J S 300	J S 320	295 S	280	F 250	J S 290
19	J S 270	F	F	F	F 295	F	315	320	A	290	275	I A 260	265	275	275	275 R	285	285	290 S	I S 290	I S 295	275 S	F	265 S
20	265 S	285	295 S	290 S	290	300	335	335	285	285	285	260	U S 265	265 R	J S 275	280 S	290	295	J S 305	J S 295	J S 305	J S 270	265 S	J S 265
21	S	S	S	285	290	305 S	U S 320	330	340	300	285	265	270	285	275 R	J S 290	J S 295	290 S	I C 300	I S 300	I S 290	270 S	260 S	265 S
22	275 S	S	I S 320	305 S	285	285	325	305	300	I A 290	275	265	260	270	280	290 S	300	315	I S 310	I S 315	290	275	270	275
23	I S 285	U S 305	295	285	275	305	U S 335	355	320	255	280	270	260	I C 265	C 270	C 280	300	A	C 315	305	275	270	265	S
24	S	F	S	F	275	280	305	305	305	290	275	280	285	290	U S 295	295	R 290	300	I S 310	U S 330	295	275	280	I S 270
25	280 S	285 S	295 S	285	285	310	355	355	340	300	A	275	265	285	C 285	J C 290	J S 295	295	U S 305	A	A	J S 285	290 S	J S 280
26	J S 285	F	F	S	J S 295	320	340	A	300	A	240	I A 270	255	270	U C 280	C 280	275 S	270 S	J S 290	S	295	265	F 255	J S 285
27	I S 280	285 S	285 S	280 S	295 S	290 S	325	345	345	305	I A 280	265	265	275	280	285	295 S	J S 305	I S 310	I S 320	300	280 S	I S 280	265 S
28	F	F	F 265	I S 280	300	J F 305	345	310	335	290	275	A	265	280	285	J S 295	295 S	J S 300	J S 315	I S 315	I S 305	I S 270	275	S 260
29	F	F	F	F	F 250	F	330	I A 340	A	285	285	295	305	300	265	260	310	325	I A 310	I A 300	I A 290	F	S	S
30	S	A	F	F	S	F	I A 310	I A 300	315	I A 300	A	A	A	A	U S 270	280 S	U S 295	310	335 S	330	340 S	F	F 255	S
31	S	S	F	F	F	F	320	F 310	290 S	295	A	280	275	280	280	285	280	280	295 S	300 S	310	I A 290	290	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	13	18	20	27	23	27	28	28	30	26	29	29	29	30	31	30	27	25	22	21	22	23	18
MED	275 S	280 S	285 S	285 S	290	300	325	332	320	295	278	270	275	285	285	290	295 S	300 S	305 S	315 S	295 S	278 S	270 S	268 S
UQ	280 S	285 S	295 S	300	295	310	335	342	335	305	285	280	285	295	295 S	298 S	305 S	308 S	315 S	320 S	305 S	280 S	280 S	275 S
LQ	270 S	I S 270	275 S	278 S	280	285 S	312	310	308	290	275	265	265	275	275	282	290 S	290 S	300 S	I S 300	290	270	265 S	265 S

The Radio Research Laboratories, Japan

MAY. 1972 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1972 | M(3000)F1 (0.01) | 135° E Mean Time (G. M. T.+ 9h)

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	L	L 385	L 350	L 350	360	355	A	A	L	400	L					
2								L	L	L	L 370	L	A	L 345	L 345	L 355	L	L	L					
3									A	L	L	I A 360	360	355	A	L 360	L	L	A					
4								L	A	A	A	340	380	A	A	350	L 350	L	A					
5									A	A	L 350	A	355	A	L 370	A	A	A	A					
6								L	A	A	A	C	C	C	C	L 335	A	L 350	L					
7								A	A	A	A	A	A	A	A	A	A	L	A					
8								L	L	A	A	A	A	L 355	A	A	L 355	L	A					
9								L	L	L	A	L	A	350	A	355	345	L						
10									L	L 380	L 340	L	A	A	A	A	A	L						
11									A	L	A	A	355	335	L	L 350	A	A						
12									L	L	A	A	A	345	A	A	L	A	A					
13									A	A	A	A	L	355	A	L 345	405	A	L					
14								L	A	A	A	A	A	A	A	A	L	L	L					
15								A	A	A	A	A	I A 345	I A 355	385	L	L	L	L					
16								L	L	A	A	L	L	330	A	L	340	L	A					
17									L	L	L	L	A	A	A	U L 345	L 350	L	L					
18								L	L	L	380	A	L	L	L	365	355	L	L					
19								L	A	A	A	A	345	360	350	A	L 335	L	A					
20								A	L	L	L	L 375	L 325	L 375	L 380	L 340	L 335	L 345	L					
21								L	L	A	L 370	L 325	375	A	L 345	A	A	A	A					
22								L	L	A	A	345	340	355	A	335	L 345	L	L					
23								L	A	L	A	U L 350	L 340	320	A	A	A	A	A					
24								L	L	L	L	L 390	A	A	A	A	B	B						
25							L	L	A	A	A	A	A	A	A	330	A	A	A					
26									A	A	L	A	A	A	A	A	L 360	A	A					
27								A	A	L	A	L 365	A	L 355	350	360	L 340	A	A					
28								L	A	L	A	A	L 360	A	L 355	L 340	A	L 345	A					
29								A	A	L	A	A	A	A	A	335	A	A	A					
30								A	A	A	A	A	A	A	A	A	A	A	A					
31							L	A	A	A	A	A	A	A	370	360	H 350	L 330	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										2	6	9	12	15	9	16	13	5						
MED										L 382	L 360	L 350	355	355	L 355	348	L 350	L 345						
UQ											L 370	L 365	360	355	L 370	358	L 355	L 350						
LQ											L 350	L 345	342	345	L 350	L 338	L 340	L 345						

MAY. 1972 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1972 | H'F2 (kM) | 135° E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								245	280	260	360	335	340	300	300	280	255	255	240					
2								225	240	285	290	345	315	335	300	290	265	260	245					
3									260	290	305	330	290	300	300	290	280	255	245					
4								240	240	295	295	310	310	305	305	300	280	275	250					
5									A	300	290	300	300	C 300	C 300	300	I A 300	I A 295	255					
6								215	240	E A 300	A	C	C	C	C	325	305	275	245					
7								235	250	A	E A 300	A	380	300	280	285	280	265	A					
8								230	250	A	A	300	300	310	305	290	275	260	255					
9								250	250	255	270	370	340	330	310	300	285	255						
10									275	250	320	360	310	320	300	290	265	275						
11									245	255	E A 400	355	325	320	320	300	275	270						
12									250	250	A	350	E A 345	310	325	315	295	300	300					
13									245	285	A	340	330	330	305	285	275	275	260					
14								230	225	E A 290	335	E A 380	355	325	315	300	280	265	265					
15								240	255	305	A	E A 405	E A 390	E A 340	285	305	290	275	270					
16								305	265	250	C	440	310	290	300	355	320	305	260					
17									260	290	305	295	335	320	325	300	290	285	250					
18								275	250	300	330	360	365	355	360	340	310	305	285					
19								260	A	315	345	A	370	345	340	320	305	300	285					
20								230	325	300	300	320	360	345	325	325	295	275	260					
21								245	225	280	320	355	335	315	325	310	295	290	275					
22								250	280	A	E A 320	370	370	340	320	320	290	270	255					
23								250	260	435	345	350	355	325	330	315	A	A	A					
24								250	270	285	380	350	I A 330	315	295	310	330	290						
25							230	240	240	E A 300	A	E A 410	370	340	310	310	300	E A 350	290					
26									300	A	360	I A 350	360	330	315	300	305	310	280					
27								245	240	280	A	355	350	330	325	315	295	270	A					
28								245	250	365	400	I A 380	340	320	305	295	290	280	255					
29								I A 260	A	305	370	350	E A 370	305	420	350	290	265	A					
30								A	E A 350	A	A	A	A	A	A	355	310	270	240					
31							275	255	A	A	A	350	390	350	325	330	315	305	280					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							2	22	27	25	21	27	29	29	29	31	30	30	23					
MED							252	245	250	288	320	350	338	320	310	305	290	275	260					
UQ								250	265	300	352	360	362	332	325	320	305	292	278					
LQ								235	242	270	298	338	325	310	300	298	280	265	250					

The Radio Research Laboratories, Japan

MAY. 1972 | H'F2 (kM)

IONOSPHERIC DATA

MAY. 1972 | 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	340	325	300	305	300	255	220	225	210	205	200	200	200	E A 220	A	A	240	225	235	240	250	E A 300	A	A
2	280	285	250	200	300	290	230	220	210	E A 220	E A 230	A	A	C	C	I C 205	225	225	240	235	230	230	250	265
3	305	310	295	260	250	250	250	240	A	200	190	I A 220	230	A	A	215	240	235	I A 240	240	225	A	A	350
4	300	285	280	240	245	245	240	225	A	A	A	E A 250	210	I A 200	A	200	220	230	I A 240	235	E A 270	250	325	300
5	280	305	290	270	255	I C 245	I C 225	230	A	A	230	I A 215	E A 250	A	C 205	A	A	A	A	240	240	A	A	A
6	300	330	250	275	300	250	C 260	215	A	A	A	C	C	C	C	A	I A 230	230	I A 235	225	225	250	270	275
7	350	305	250	235	265	255	235	A	A	A	A	A	A	A	A	A	A	A	A	A	250	270	255	280
8	270	275	250	240	230	230	235	225	225	A	A	A	A	225	A	A	E A 250	A	A	E A 265	250	230	240	A
9	265	290	260	270	250	235	230	220	225	A	A	A	A	205	A	250	220	240	250	I A 250	285	300	I A 250	250
10	285	305	300	280	240	225	230	240	E A 250	225	230 H	240 H	A	A	A	A	A	A	255	270	A	E A 285	285	295
11	300	290	260	240	215	250	240	E A 240	A	E A 250	A	A	220	E A 260	A	E A 255	A	A	255	225	230	E A 350	320	A
12	E A 360	320	270	240	225	235	240	E A 255	230	215	A	A	A	E A 275	A	A	A	A	A	A	225	A	350	300
13	300	300	250	250	245	250	255	245	A	A	A	A	250	225	I A 210	240 H	205	A	A	245	225	250	295	305
14	325	270	250	260	280	285	245	230	A	A	A	A	A	A	A	A	210 H	225	245	245	240	260	300	300
15	285	280	E A 340	320	290	295	250	A	A	A	A	A	A	A	205	205	205 H	235	250	250	245	A	A	310
16	305	290	285	255	280	200	250	250	E A 250	A	I A 240	I A 230	230	I A 230	I A 220	260	230	240	I A 250	255	260	310	350	360
17	I A 360	345	290	255	230	E A 250	240	240	250	A	A	A	A	A	A	I A 215	210 H	A	240	230	270	305	310	300
18	315	305	270	255	240	255	245	230	240	200 H	220	A	E A 250	I A 230	230	205	225	225 H	E A 250	250	E A 300	270	325	300
19	320	300	280	250	260	250	240	230	A	A	A	A	E A 250	225	E A 250	A	235	I A 235	I A 250	260	E A 275	260	A	285
20	290	275	245	230	240	245	225	I A 225	205 H	E C 250	A	205	I A 215	215	200 H	200 H	210 H	240	250	255	250	A	A	305
21	280	250	225	240	250	250	225	225	225	I A 205	195 H	180 H	200	A	210	A	A	A	A	250	265	275	315	305
22	310	290	225	220	235	250	230	235	A	A	A	215	225	205	E A 260	E A 230	230	240	245	240	240	E A 280	E A 300	285
23	275	270	265	275	295	245	220	E A 240	A	230	A	E A 260	250	A	A	A	A	A	A	245	250	310	305	310
24	270	280	265	280	305	290	245	225	I A 235	215	245	210	A	A	A	A	B	B	260	250	250	290	305	300
25	305	290	270	240	255	255	235	230	A	A	A	A	A	A	A	275	A	A	A	A	A	255	260	280
26	285	300	260	300	280	240	E A 300	A	A	A	A	A	A	A	A	A	210 H	A	A	245	240	250	E A 340	275
27	270	265	255	270	255	245	235	A	A	A	A	E A 250	A	220	225	230	225 H	A	A	255	220	250	270	275
28	E A 350	320	290	250	250	250	225	230	A	E A 250	A	A	E B 250	A	230 H	225 H	I A 235	E A 250	A	I A 250	245	255	290	300
29	295	350	315	330 F	300	250	235	A	A	215	A	A	A	A	A	E A 230	A	A	A	A	A	E A 300	E A 350	E A 350
30	315	I A 295	260	275	240	E A 240	A	A	A	A	A	A	A	A	A	A	A	A	A	I A 245	255	A	A	I A 295
31	I A 295	270	255	270	285	245	245	A	A	A	A	A	A	A	240	240	200 H	250	I A 255	255	220	A	I A 315	350
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	30	24	12	13	9	12	14	13	12	17	20	15	18	27	28	24	24	27
MED	298	290	262	255	255	250	236	229	226	210	230	213	221	220	216	222	224	235	250	245	244	261	297	300
UQ	312	305	285	275	282	252	245	236	238	E E 230	230	U A 232	E 250	A 228	232	240	231	240	250	251	254	286	318	305
LQ	282	280	250	240	240	244	230	225	218	205	198	208	215	210	208	205	210 H	228	240	240	230	250	268	282

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MAY. 1972 | H'F (KM)

IONOSPHERIC DATA

MAY. 1972 | H'ES (KM) | 135° E Mean Time (G. M. T.+ 9h)

Station YAMAGAWA Lat. 31° 12.1' N. Long. 303° 71.E 1' Sweep 2 MHz to 02 MHz in 0 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	105	G	145	125	120	120	120	120	105	100	150	145	115	105	100	100	100	100	100
2	100	100	100	100	100	100	140	125	125	115	115	110	110	110	110	110	105	110	110	105	105	S	100	100
3	100	100	100	100	95	105	130	105	115	125	110	105	105	105	100	100	130	150	120	105	105	105	105	105
4	100	S	100	100	S	100	145	125	115	110	110	120	120	110	110	G	G	G	105	105	100	100	100	100
5	100	100	S	C	100	C	C	110	105	105	105	105	100	100	150	140	125	115	110	105	100	100	100	100
6	100	100	100	100	100	100	125	120	110	110	105	C	C	C	C	120	125	G	125	100	100	100	100	100
7	100	100	95	95	95	95	120	110	110	110	105	105	105	105	105	105	105	105	100	110	105	100	100	100
8	100	100	95	95	S	S	140	105	100	100	100	105	100	100	100	95	125	115	105	105	100	100	100	100
9	100	S	S	95	100	S	G	125	110	110	110	100	100	100	105	100	100	135	125	110	105	105	100	100
10	100	100	100	100	105	105	120	120	110	105	105	110	110	110	110	115	120	110	105	105	100	100	100	100
11	100	100	100	95	S	S	125	110	110	105	100	100	105	100	100	150	125	115	105	105	100	100	100	100
12	100	95	95	100	100	105	150	110	110	115	105	105	110	125	120	125	130	115	110	105	100	100	100	100
13	100	100	100	100	100	115	110	110	110	105	105	105	100	110	115	G	170	125	110	105	100	100	100	100
14	100	95	95	100	S	S	115	110	110	105	105	100	100	100	100	100	105	115	145	95	95	95	100	100
15	100	100	100	95	95	100	120	115	110	105	105	105	100	100	125	100	G	G	150	105	105	105	105	100
16	100	100	100	100	100	100	135	120	110	110	110	105	110	110	105	105	105	G	120	110	110	105	105	105
17	105	100	100	100	S	115	110	115	110	110	110	110	105	105	105	140	145	115	115	110	105	100	100	100
18	100	100	100	100	100	100	140	105	110	110	105	105	105	110	105	105	100	100	130	110	105	105	100	100
19	100	100	100	100	100	120	120	115	110	110	105	105	100	105	105	100	100	100	100	100	100	100	110	105
20	105	110	S	100	100	S	140	125	130	125	125	125	110	110	125	125	130	145	125	125	100	105	100	110
21	105	105	105	105	105	105	145	130	125	115	130	110	105	100	105	105	125	120	115	110	110	110	105	105
22	105	105	105	115	E	S	125	120	110	105	105	110	105	105	105	105	145	125	115	100	110	105	105	105
23	100	100	100	100	100	100	145	125	115	110	105	105	125	145	135	125	115	110	105	105	105	105	105	100
24	105	100	100	100	100	100	100	110	110	115	105	105	100	110	110	110	110	105	100	100	100	100	100	100
25	105	110	110	95	110	110	135	115	110	105	100	100	100	150	135	145	130	115	115	110	110	125	100	100
26	100	100	100	100	105	110	110	105	105	105	105	105	105	105	105	105	140	100	95	95	110	110	110	100
27	100	100	100	C	C	C	150	125	110	105	95	100	100	150	100	100	100	125	110	105	105	105	100	100
28	100	95	100	B	100	100	120	120	115	105	105	110	B	125	G	125	125	120	110	105	100	100	100	100
29	100	100	95	E	C	C	110	110	105	110	105	105	105	100	105	120	125	120	115	110	105	105	105	105
30	105	100	100	100	100	100	115	115	105	105	105	105	100	100	105	105	130	125	115	110	110	110	105	105
31	105	105	100	100	110	110	115	110	110	105	100	100	135	145	160	150	G	125	110	105	105	105	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	29	28	27	23	22	28	31	31	31	31	30	29	30	29	29	28	27	31	31	31	30	31	31
MED	100	100	100	100	100	102	125	115	110	110	105	105	105	105	105	110	125	115	110	105	105	102	100	100
UQ	102	100	100	100	100	110	140	122	112	110	110	110	110	110	115	125	130	125	118	110	105	105	105	102
LQ	100	100	100	100	100	100	115	110	110	105	105	105	100	100	105	105	105	110	105	105	100	100	100	100

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MAY. 1972 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1972 | 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	F4	F4	F2	F2	F2	F1		H1	H2	C1	CL11	CL11	C1	L2	L3	HL12	HC11	C3	C3	F3	F3	F4	F3	F5
2	F5	F5	F3	F3	F1	F1	H2	H2	H2	C2	C1	C1	C1	C1	C1	C1	L1	C2	C4	F4	F1		F2	F2
3	F1	F3	F4	F2	F2	F1	C1	C3	C2	H1	C2	C2	C1	C2	C3	L1	H1	H1	H2	F7	F7	F3	F7	F4
4	F4		F1	F1		F1	H1	H1	C3	C2	C1	C1	C1	C1	C2				C2	F3	F4	F3	F4	F2
5	F2	F2			F1			C2	C3	C4	C1	C2	L1	L1	H1	H1	H3	C2	C5	F7	F6	F4	F6	F3
6	F7	F5	F4	F2	F6	F3	C3	C2	C2	C3	C3					C1	H1		H2	F5	F5	F7	F6	F5
7	F4	F4	F3	F3	F3	FF41	C3	C2	C2	C3	C3	C3	C3	C3	C3	CL41	CL21	C3	L4	F2	F3	F3	F4	F4
8	F2	F2	F2	F1			H1	C3	C4	L3	L3	LL12	L2	L2	L2	L2	HL12	CL22	CL32	FF23	FF51	F4	F2	F4
9	F2			F1	F1			HL11	CL21	C1	C1	C2	L1	L1	C1	L1	L1	H1	HL11	FF53	F3	F5	F4	F4
10	F1	F1	F1	F1	F1	F2	C2	C2	C3	C1	C1	C1	C2	C2	C2	C2	C1	C2	C3	F5	F4	F3	F4	F2
11	F3	F2	F1	F1			C2	C2	C2	C2	C3	C3	C1	L1	L2	HL11	H2	C3	C2	F3	F3	F2	F3	F3
12	F3	F3	F1	F1	F1	F1	HC21	CL31	C2	C1	C3	C2	C1	H1	H1	H1	H1	C4	C3	F4	F4	F4	F4	F2
13	F3	F2	F1	F2	F4	F4	C4	C3	C2	C3	C4	C3	L1	CL11	C1		H2	H2	C2	F3	FF24	F3	F3	F3
14	F4	F3	F3	F1			C1	C1	C2	C2	C2	C3	C3	C2	C3	L2	CL11	CL11	HL12	FF21	F3	F2	F3	F4
15	F3	F4	F4	F3	F2	F4	CL32	C2	C4	C2	C2	C3	C3	C3	HL11	L1			H1	F7	F4	F5	F3	F4
16	F4	F2	F2	F3	F5	F1	H2	C1	C1	C1	C1	C2	C1	C2	C2	C2	C2		H3	F5	F4	F6	F4	F4
17	F6	F5	F4	F4		F7	C3	C2	C3	C2	C1	C1	C2	C2	C3	H1	H1	C2	C1	F1	F3	F4	F3	F5
18	F4	F4	F3	F2	F1	F2	H1	C3	C1	C1	C2	C4	C1	C1	C1	L1	L2	L2	HL22	FF72	FF32	FF21	F4	F5
19	F4	F3	F5	F2	F2	FF31	C2	C1	C5	C3	C3	C3	C2	C1	C2	C2	C2	L3	L3	F6	F5	F7	F5	F3
20	F2	F1		F2	F1		H2	H2	H3	H2	H1	H1	C1	C2	H1	H1	H1	HC22	HL11	F2	F5	F3	F3	FF23
21	FF22	F2	F2	F3	F4	FF31	HC12	H1	H2	C2	H1	C1	C1	C3	C1	C3	H2	H2	C2	FF41	FF71	F4	F5	F6
22	F6	F2	F5	FF11			C2	H2	C3	C3	C3	C1	C1	C1	C1	C2	HL11	H1	CL31	F2	FF23	F2	F3	F3
23	F4	F5	F4	F4	F3	F2	HL11	H3	C2	C1	C1	C1	H1	H1	H2	H4	C4	C3	C3	F5	F4	F5	F3	F4
24	F3	F4	F4	F2	F3	F5	L3	C2	C2	C2	C1	C1	C3	C2	C2	C2	C1	L2	L3	F6	F6	F5	F4	F2
25	F5	FF35	FF33	F3	FF43	FF62	C1	C2	C2	C2	C2	C2	C1	HL11	HL11	HL11	HL31	CL41	CL21	FF31	FF23	FF14	F2	F4
26	F3	F2	F2	F3	F6	F7	C3	C2	C3	C3	C2	C2	C2	C2	C2	C2	HL32	L3	L3	F5	FF22	FF22	F6	FF21
27	F3	F4	F1				H2	H3	C2	C2	L4	L1	L2	HL11	L1	L1	L1	HL21	CL41	F4	F4	F5	F5	F2
28	F6	F5	F1		F1	F1	C3	C2	C2	C2	C3	C3		H1		H1	HH11	C3	C4	F5	F6	F4	F2	F2
29	F6	F5	F3				C3	C5	C5	C2	C2	C3	C4	C3	C3	CHL111	H2	C3	C4	F3	F4	F2	F4	F2
30	F3	F5	F2	F2	F3	F4	C5	C6	C4	C4	C3	C4	C4	C5	C3	C5	HC32	H3	CL52	F5	F6	F4	F3	F6
31	F4	F4	F2	FF22	FF21	FF21	C2	C2	C4	C4	C5	C2	HC22	HC12	HC11	HC11		H3	C4	F4	F1	F6	F4	F5
	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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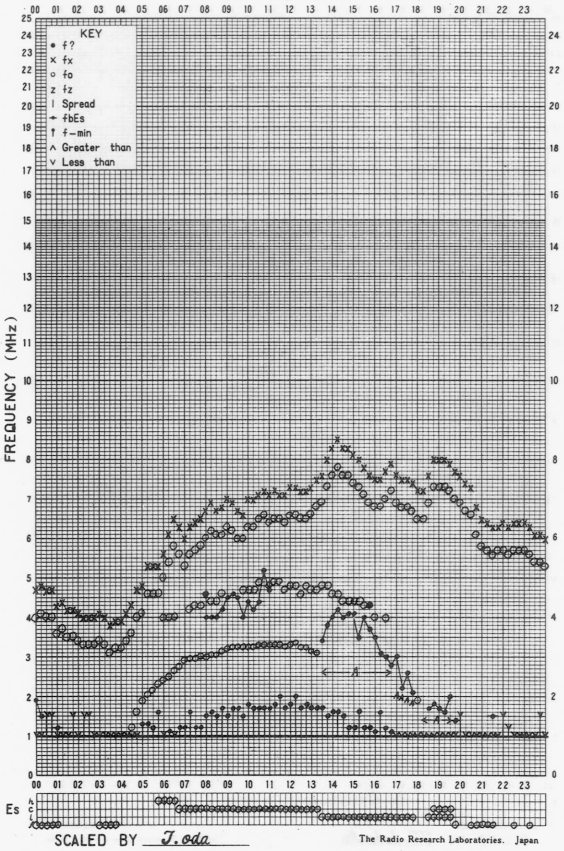
MAY. 1972 | TYPES OF ES

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 1. 1972



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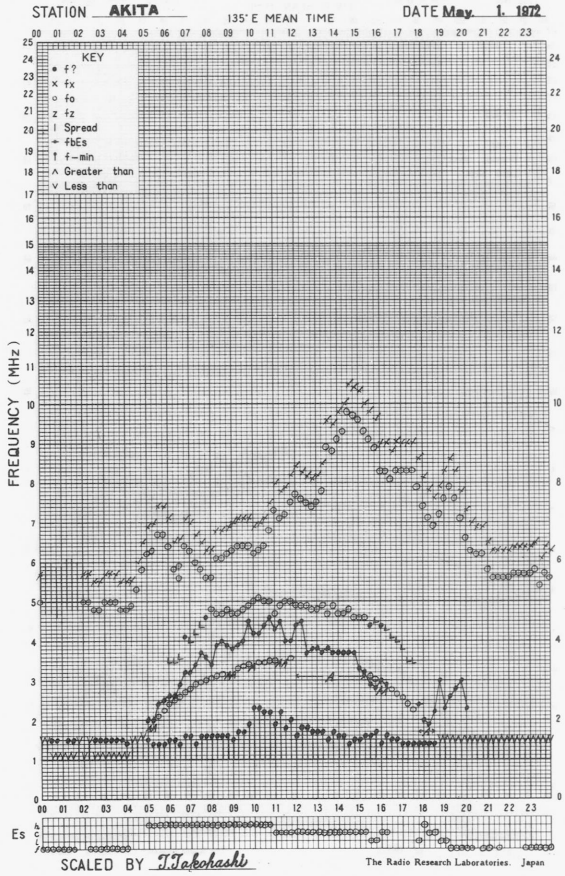
f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 1. 1972



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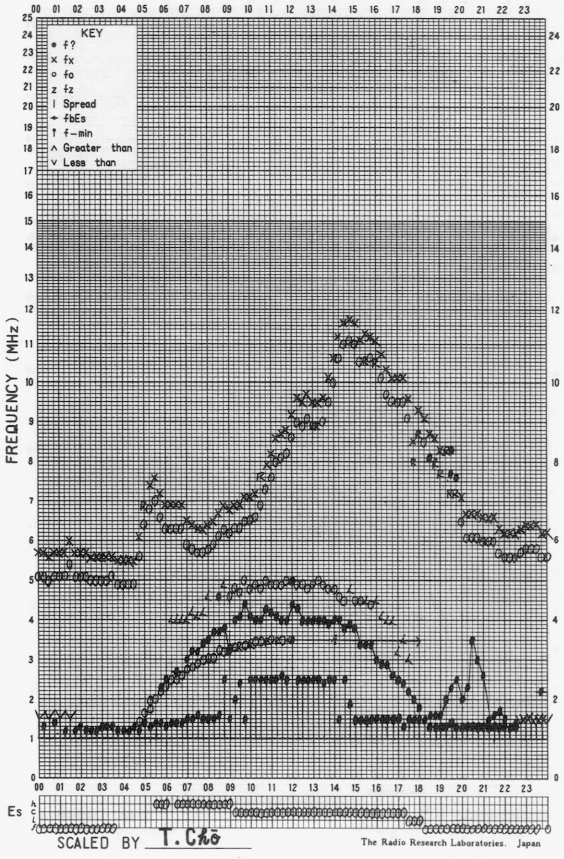
f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 1. 1972



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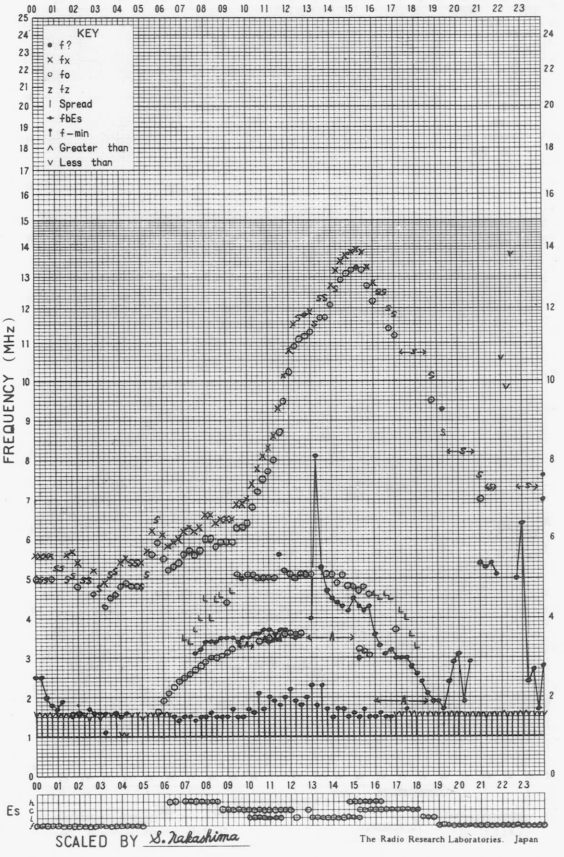
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE MAY. 1. 1972



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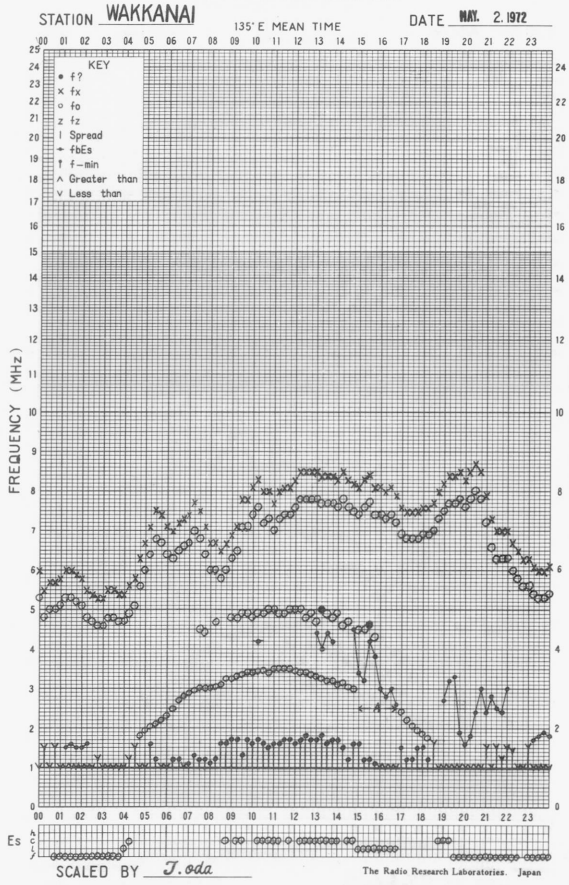
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE MAY. 2. 1972



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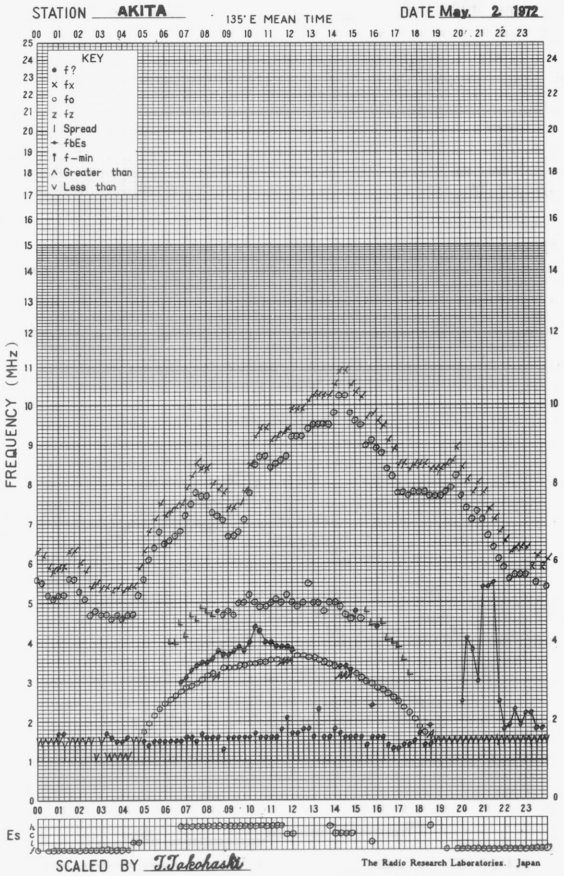
f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135° E MEAN TIME DATE May. 2. 1972

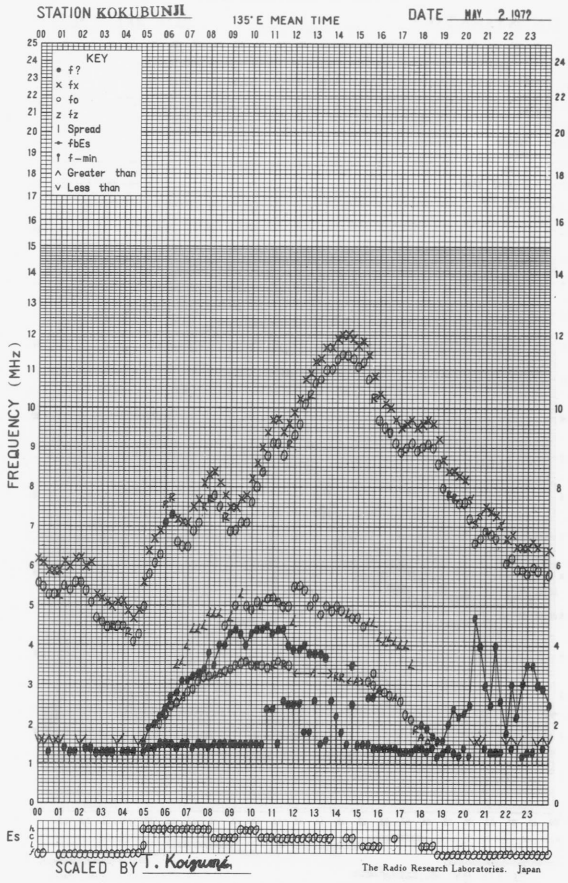


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135° E MEAN TIME DATE MAY. 2. 1972



SCALED BY I. Koizumi

The Radio Research Laboratories. Japan

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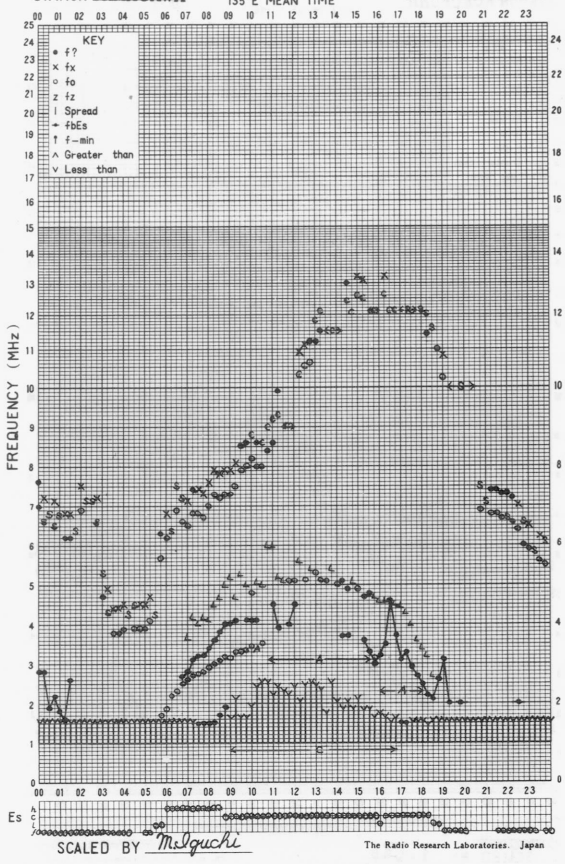

SCALED BY M. Iguchi

The Radio Research Laboratories. Japan

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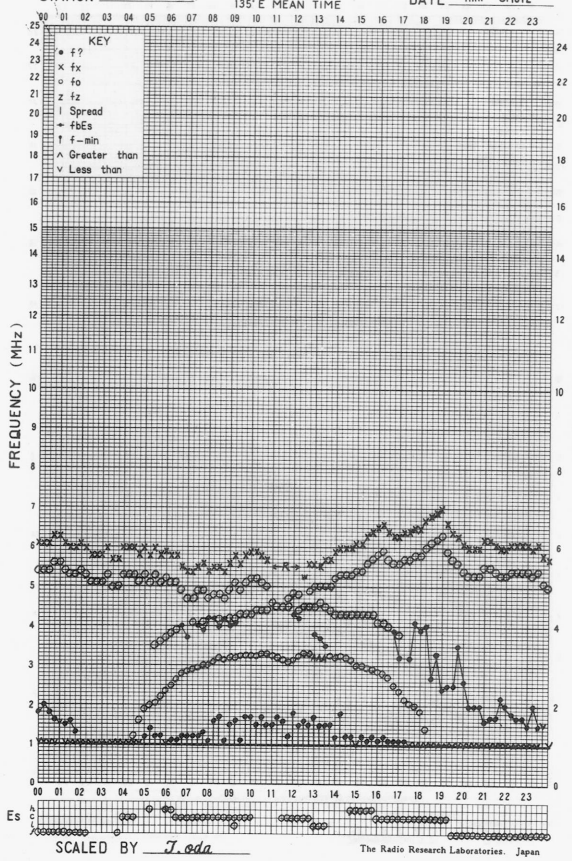

SCALED BY T. oda

The Radio Research Laboratories. Japan

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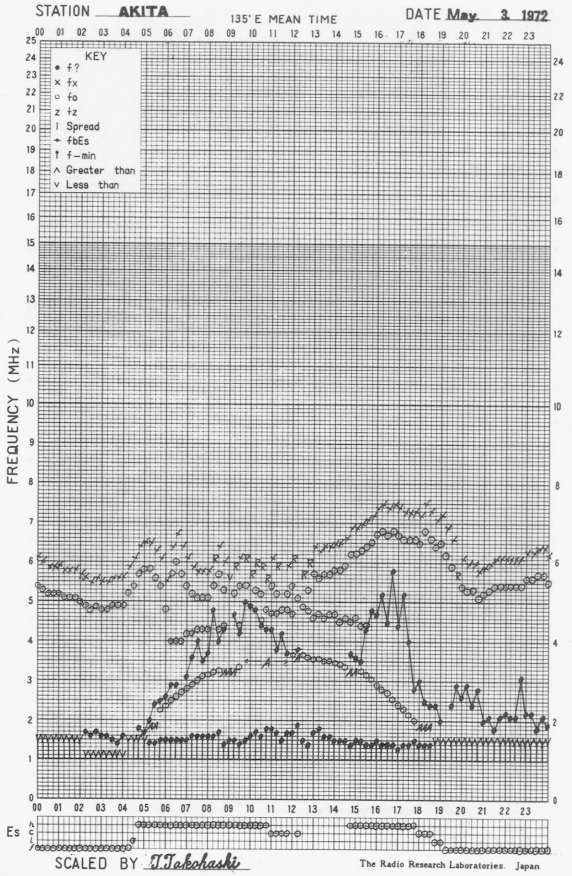

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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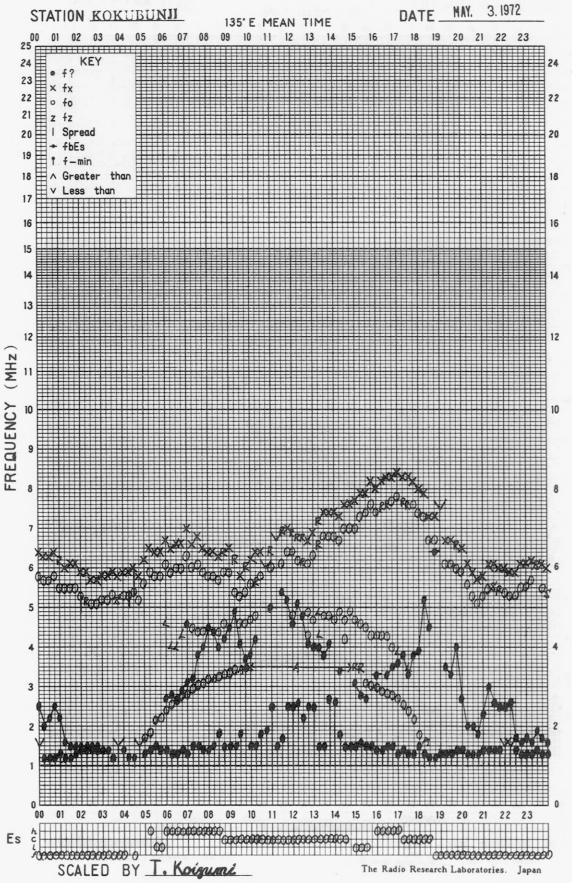

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The Radio Research Laboratories. Japan

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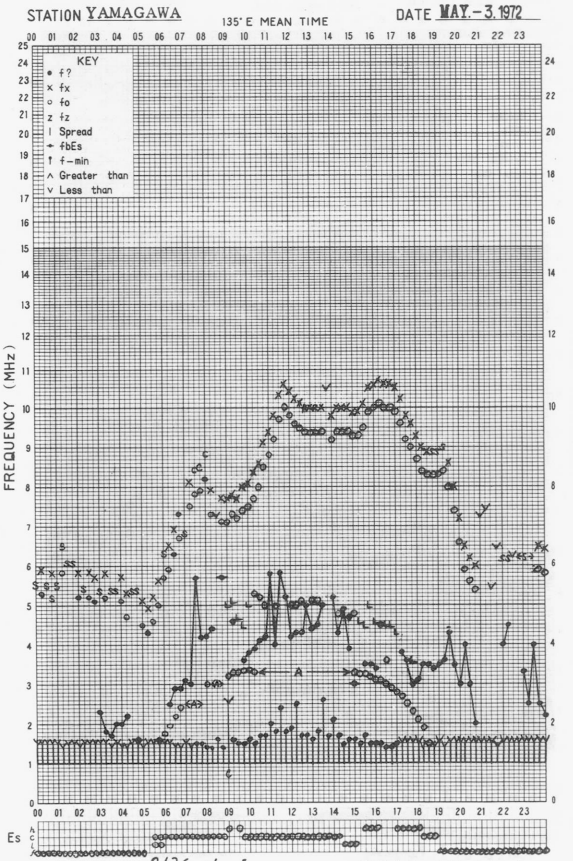
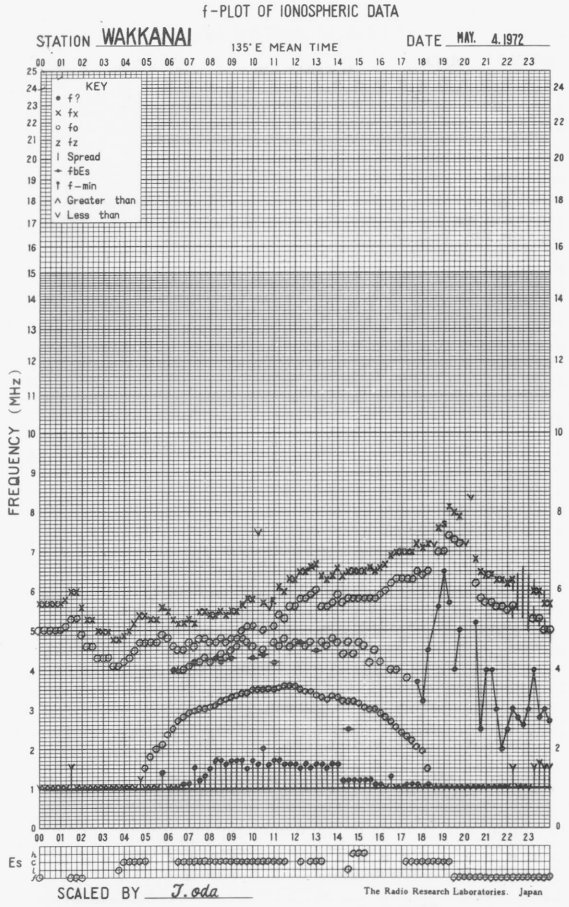


SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan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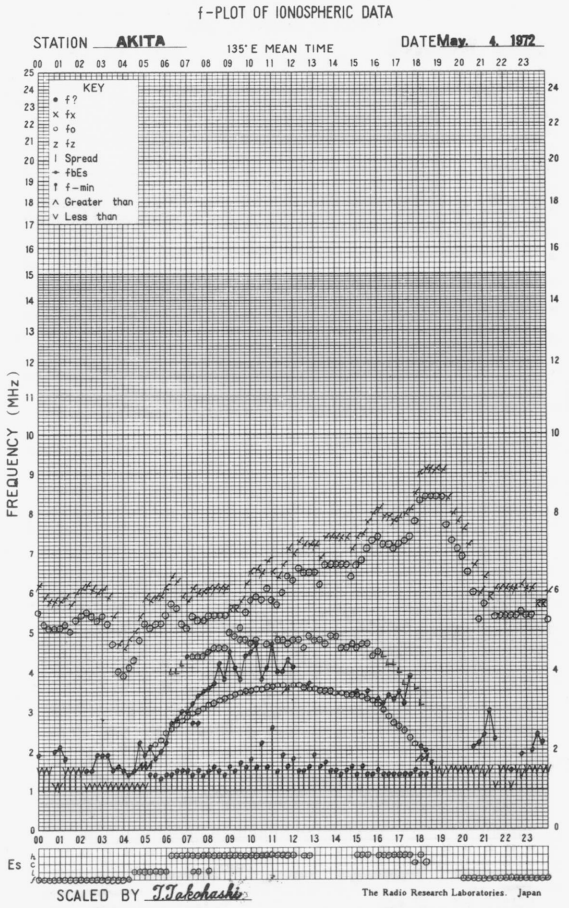
SCALED BY J. oda
The Radio Research Laboratories. Japan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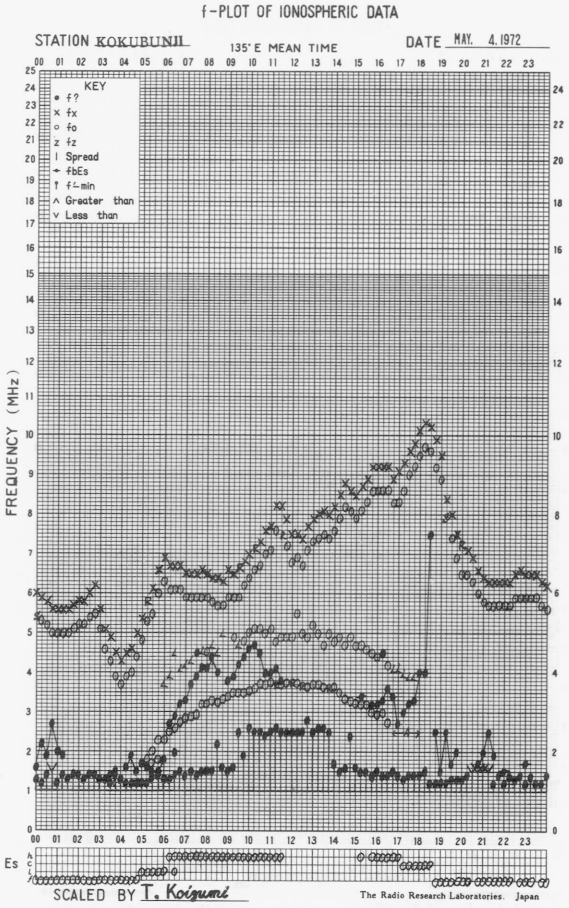
SCALED BY T.Takahashi
The Radio Research Laboratories. Japan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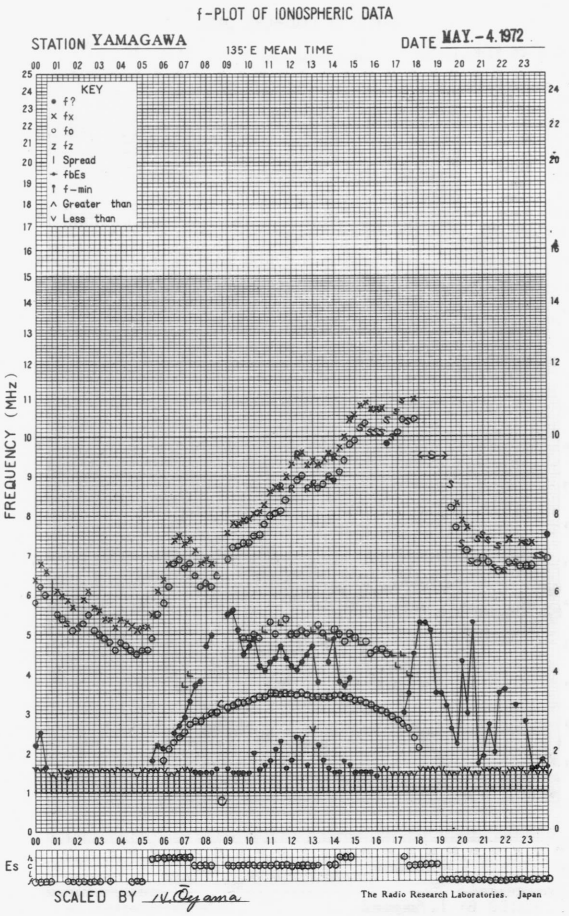
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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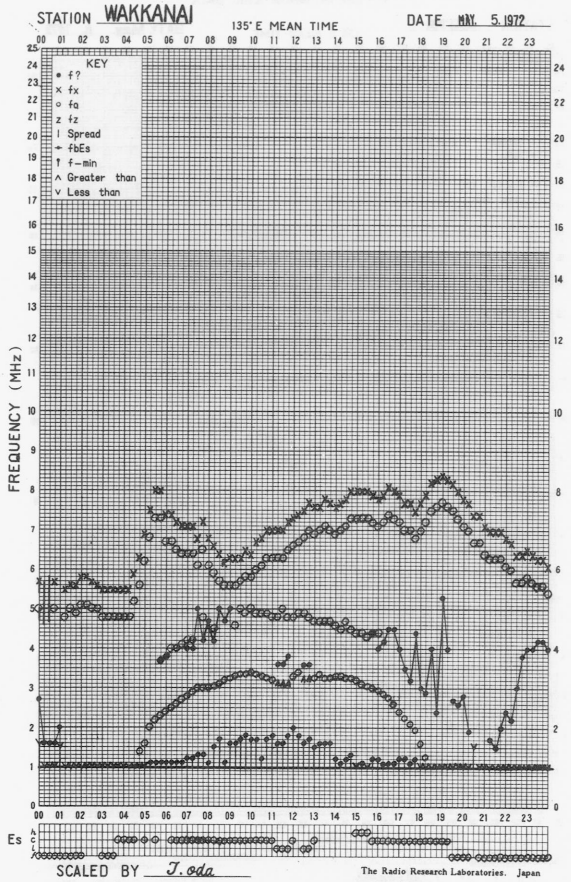
SCALED BY M. Ōyama
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 5.1972



SCALED BY T. oda

The Radio Research Laboratories. Japan

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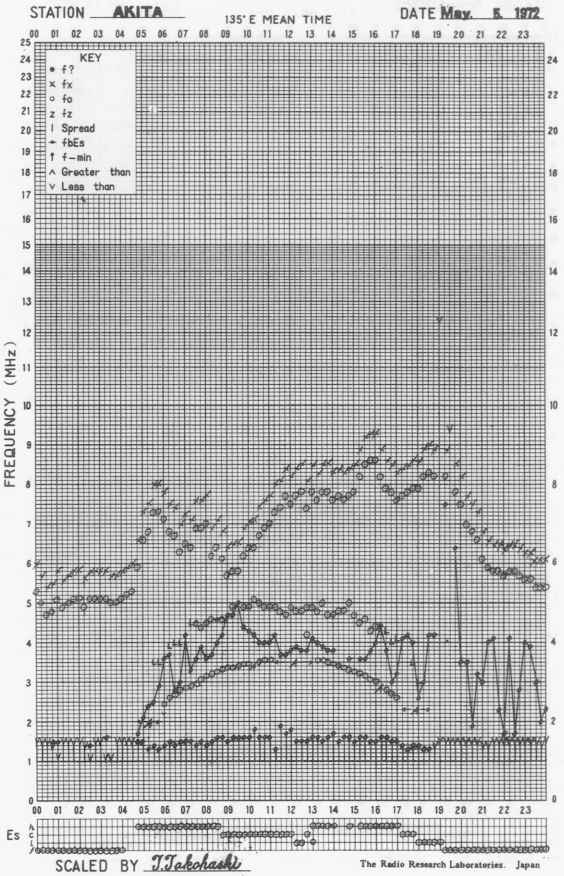

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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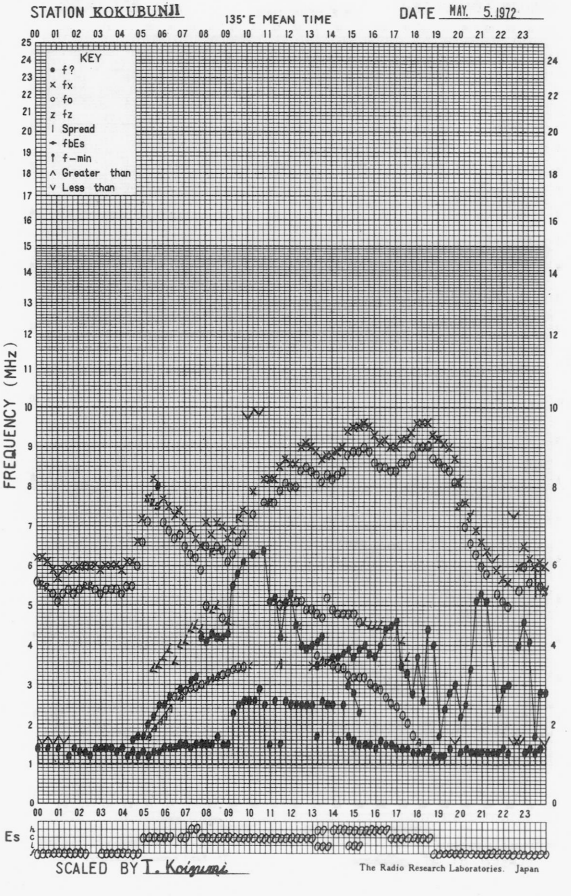

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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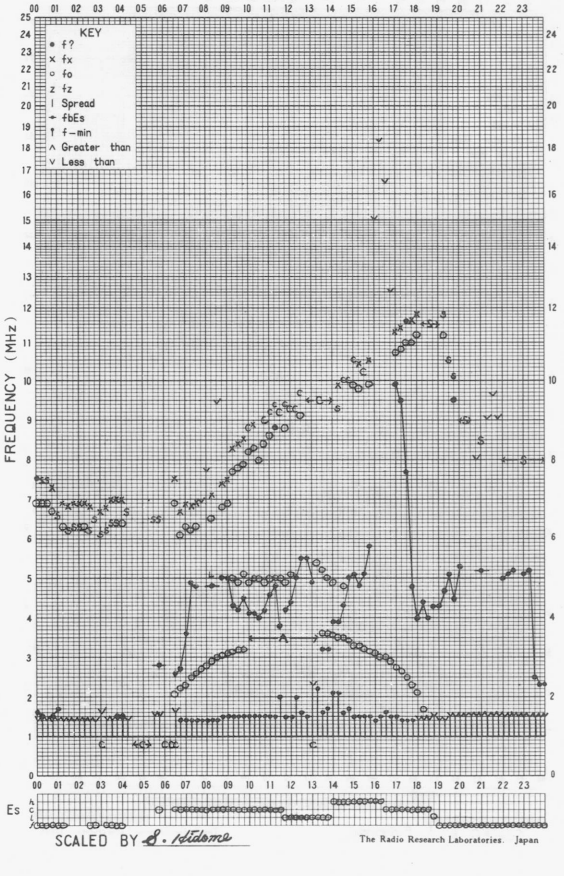

SCALED BY S. Hidoma

The Radio Research Laboratories. Japan

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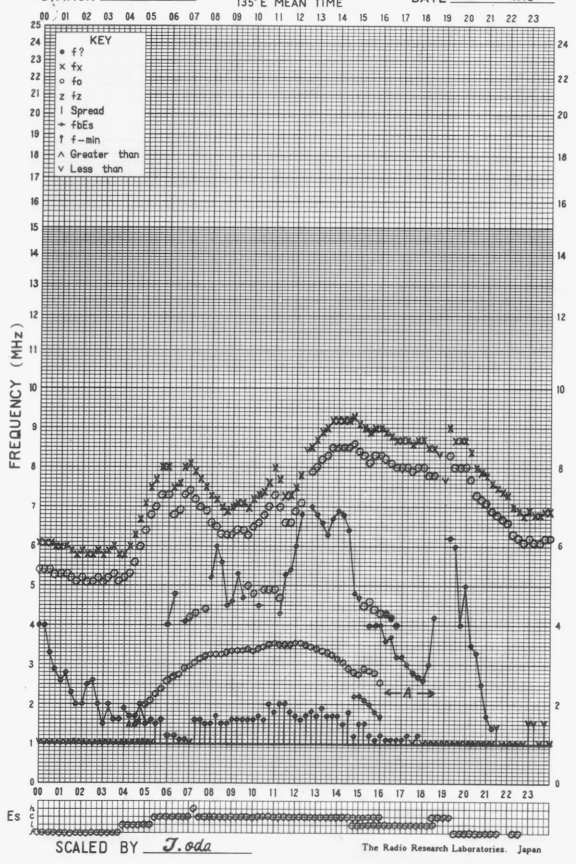

SCALED BY J. Oda The Radio Research Laboratories. Japan

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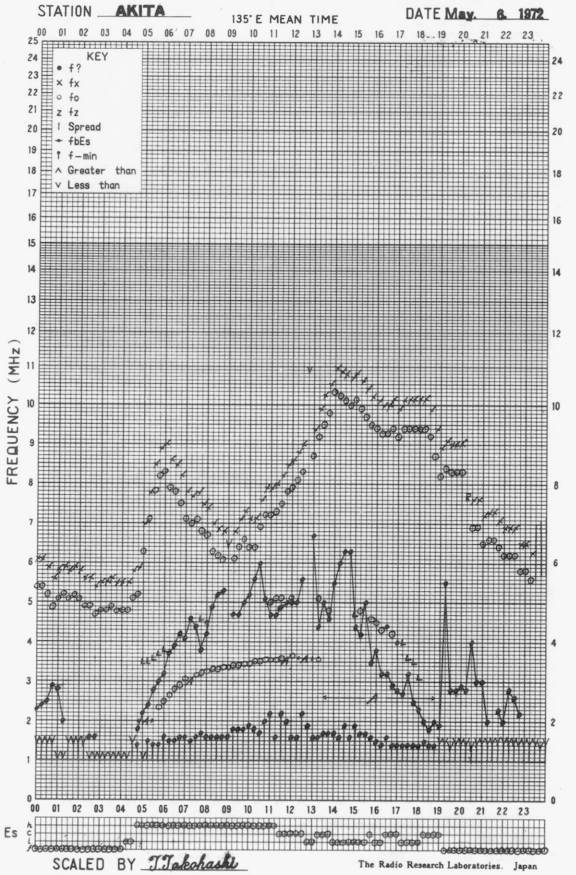

SCALED BY T. Takahashi The Radio Research Laboratories. Japan

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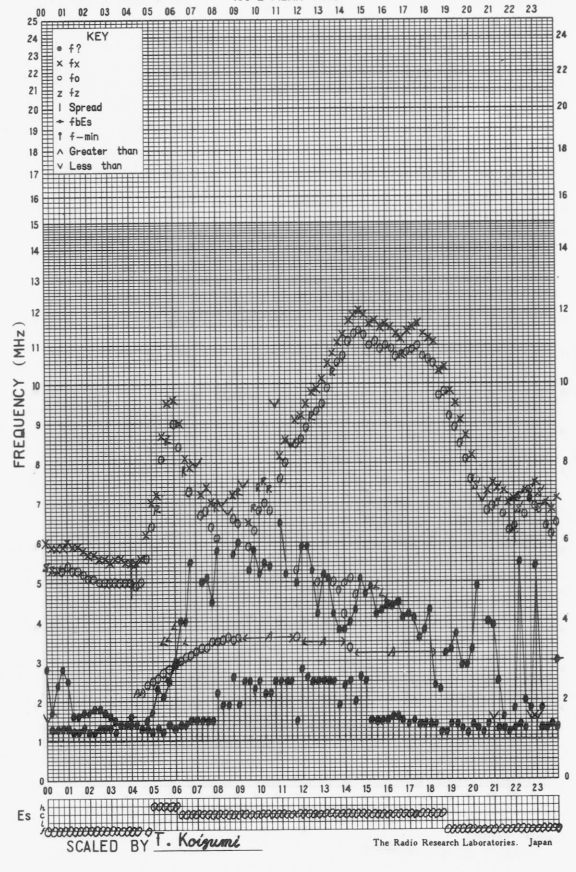

SCALED BY T. Koizumi The Radio Research Laboratories. Japan

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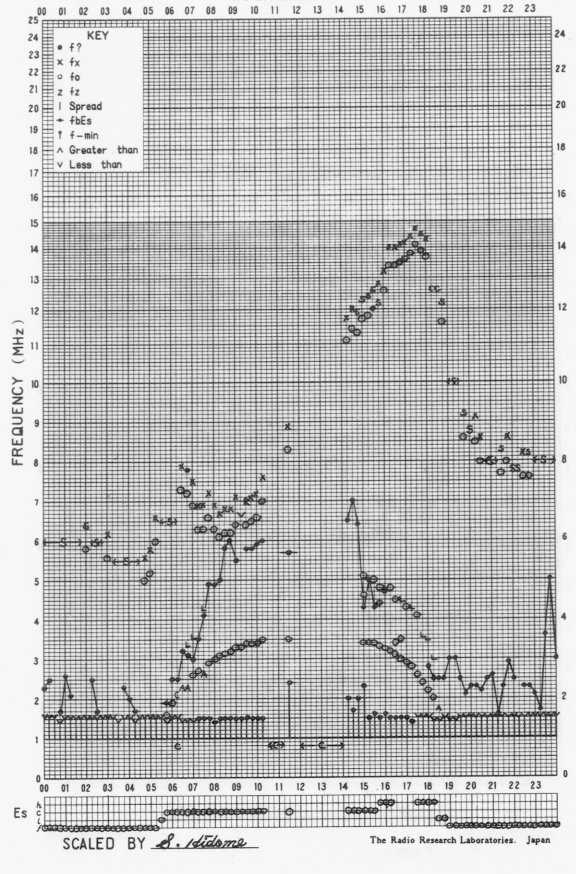

SCALED BY S. Iidaka The Radio Research Laboratories. Japan

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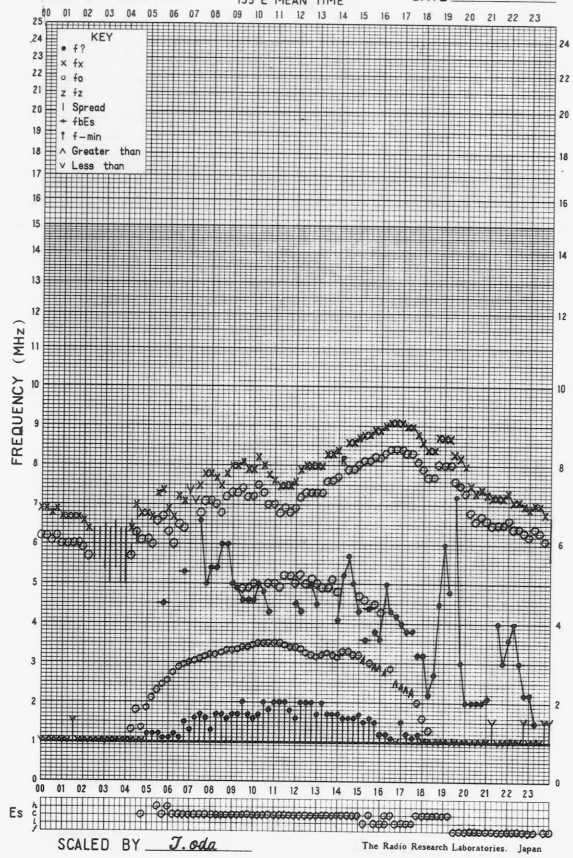

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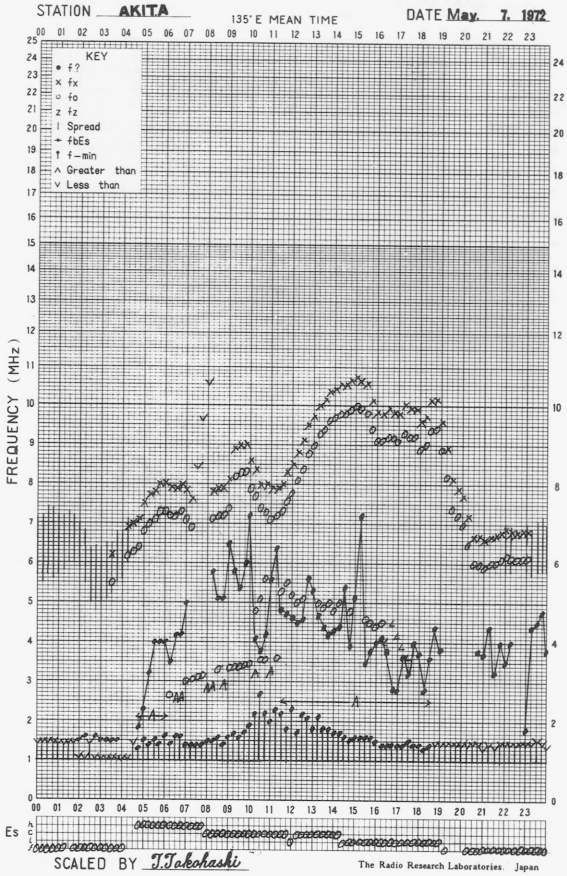

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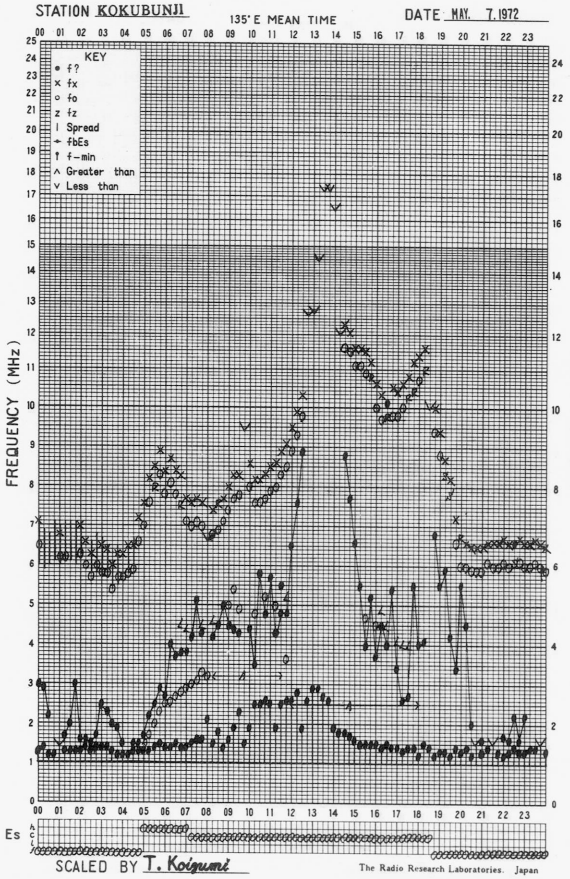

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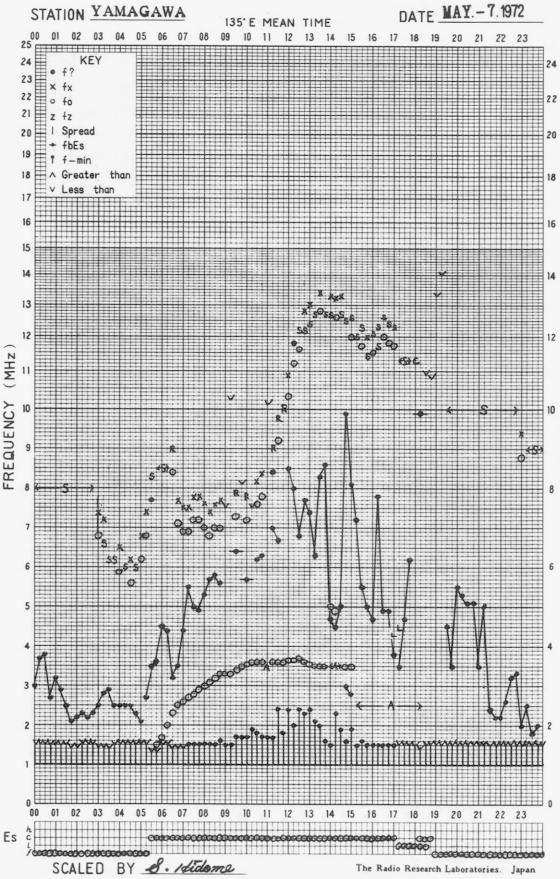

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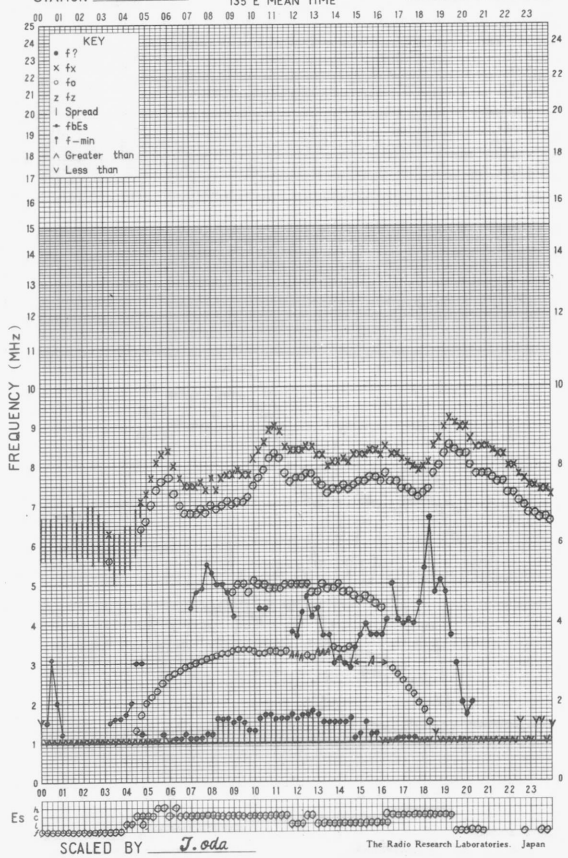

SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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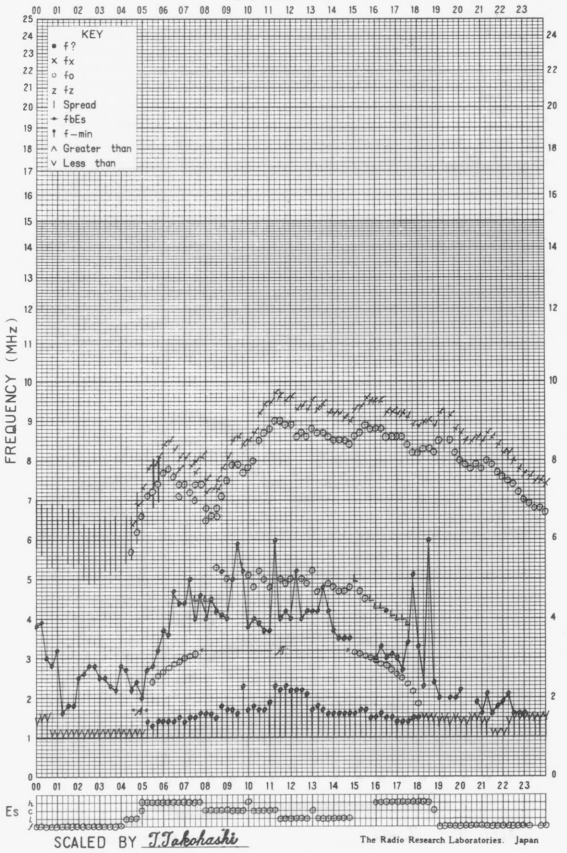

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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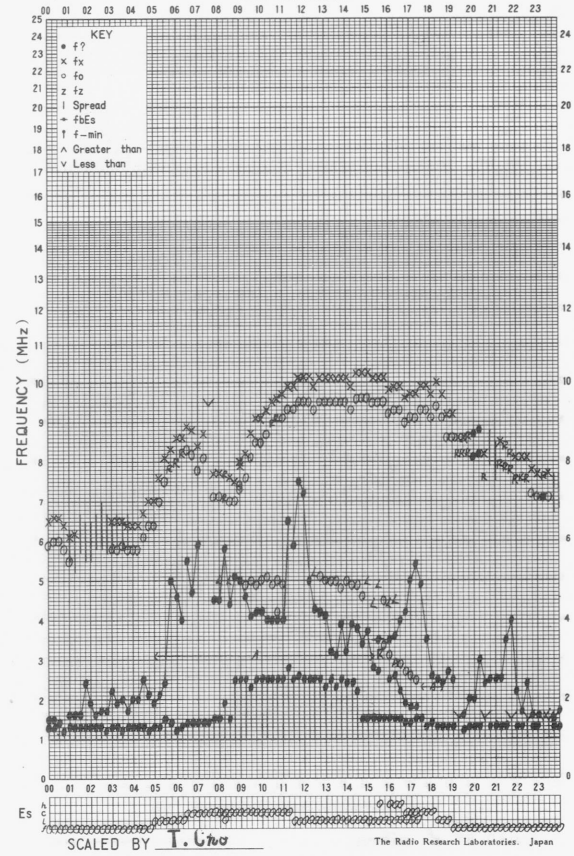

SCALED BY T. Ono

The Radio Research Laboratories. Japan

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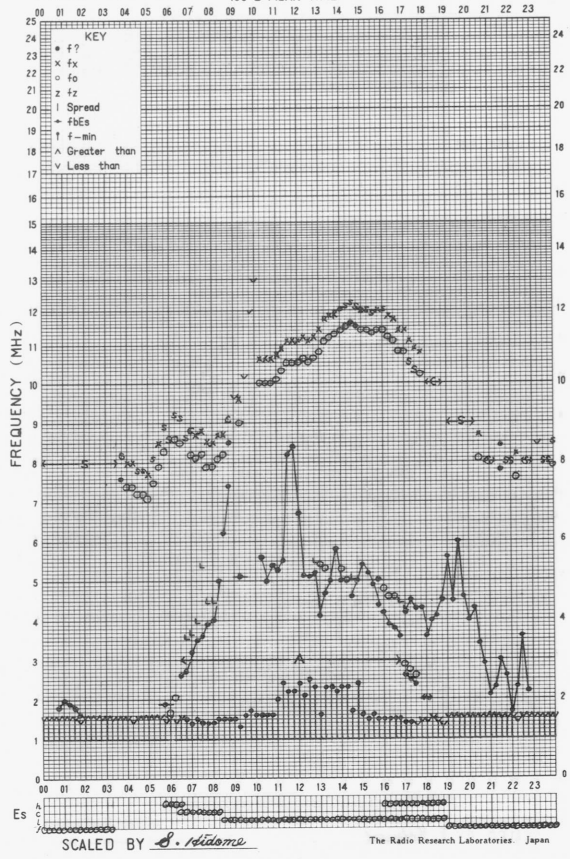
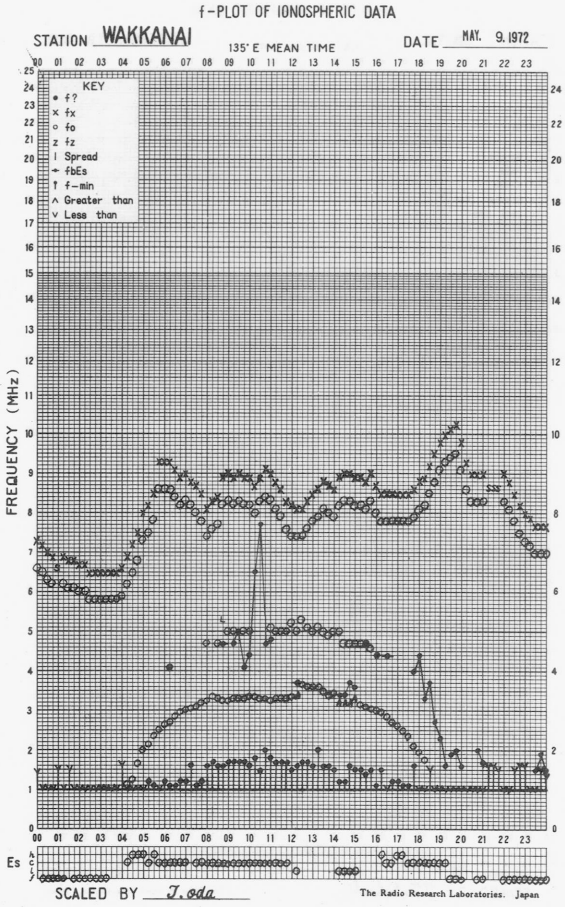


SCALED BY S. Hidoma

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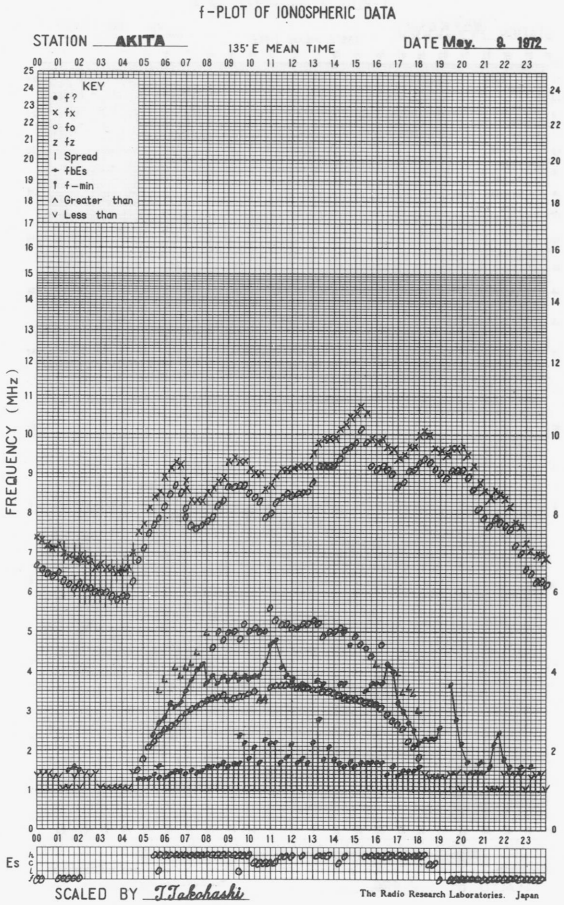
SCALED BY T. oda
The Radio Research Laboratories. Japan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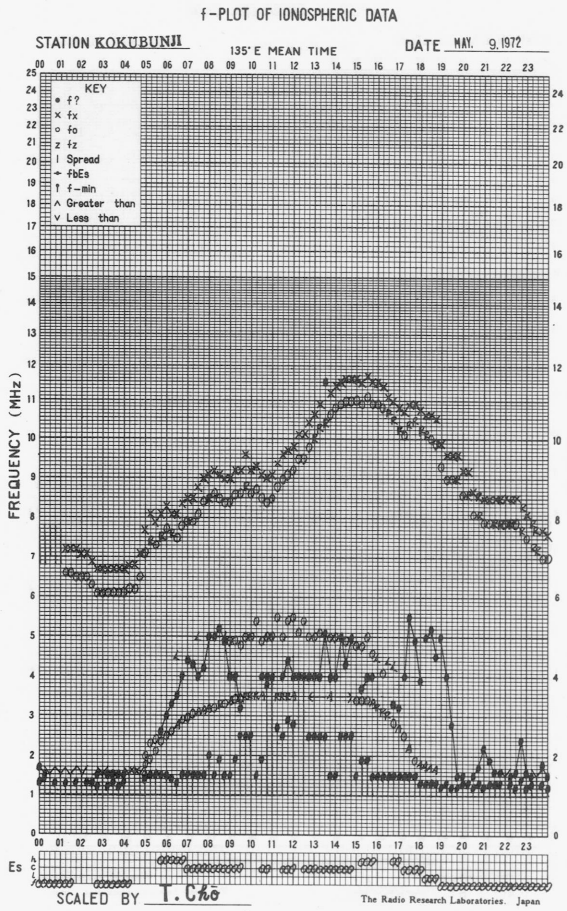
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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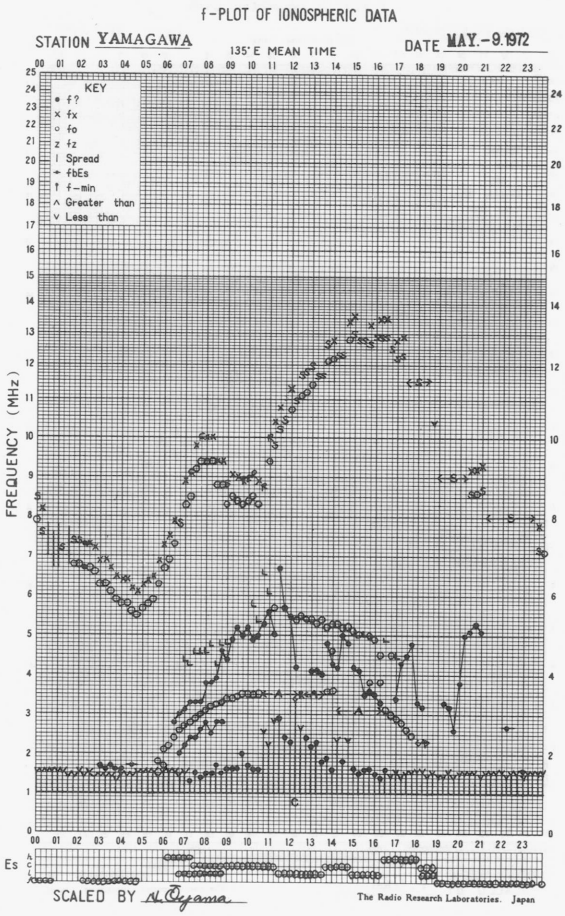
SCALED BY T. Cho
The Radio Research Laboratories. Japan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The Radio Research Laboratories. Japan

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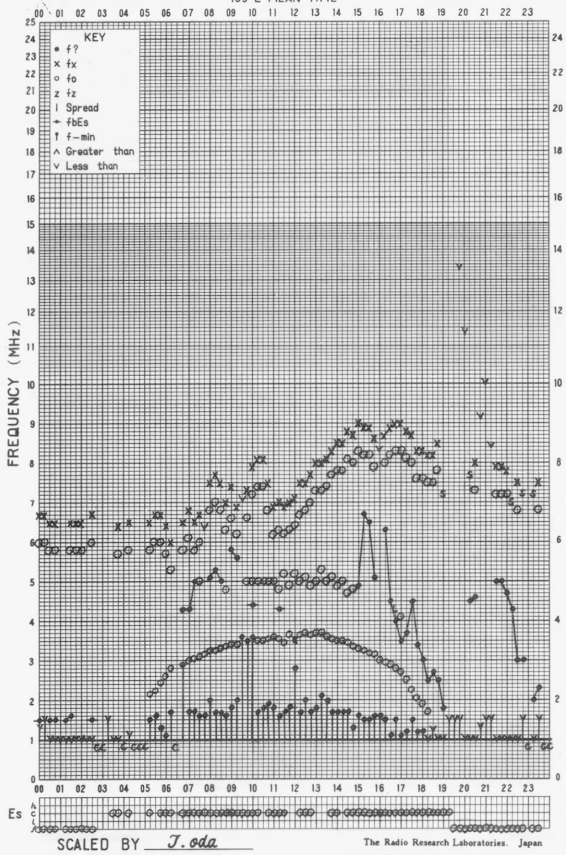

SCALED BY T. oda

The Radio Research Laboratories. Japan

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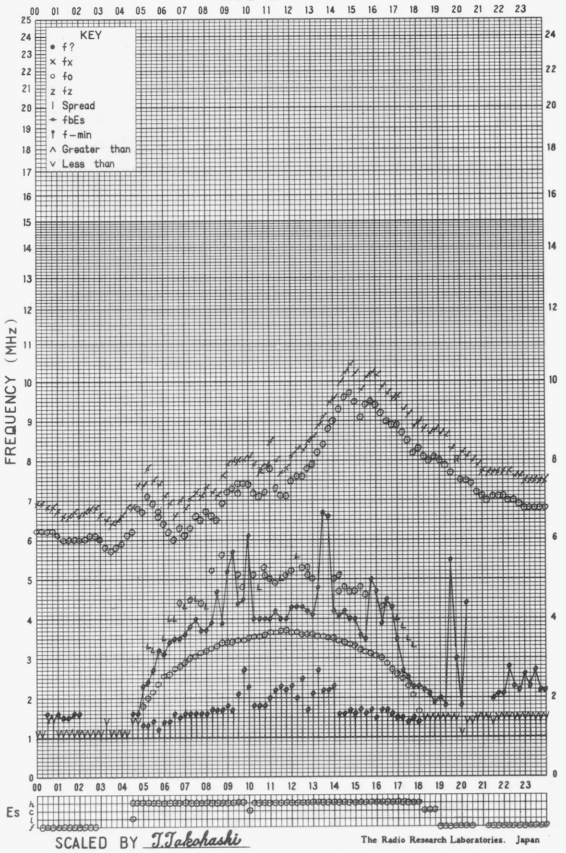

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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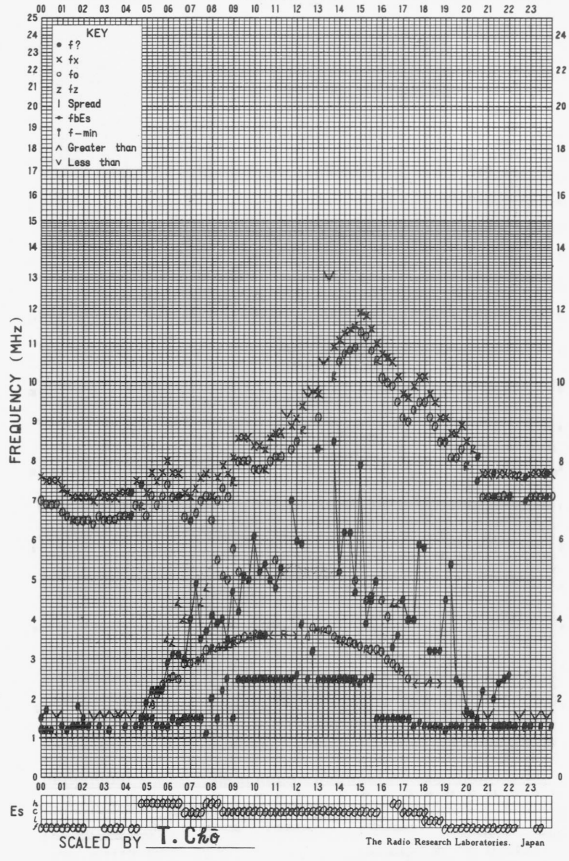

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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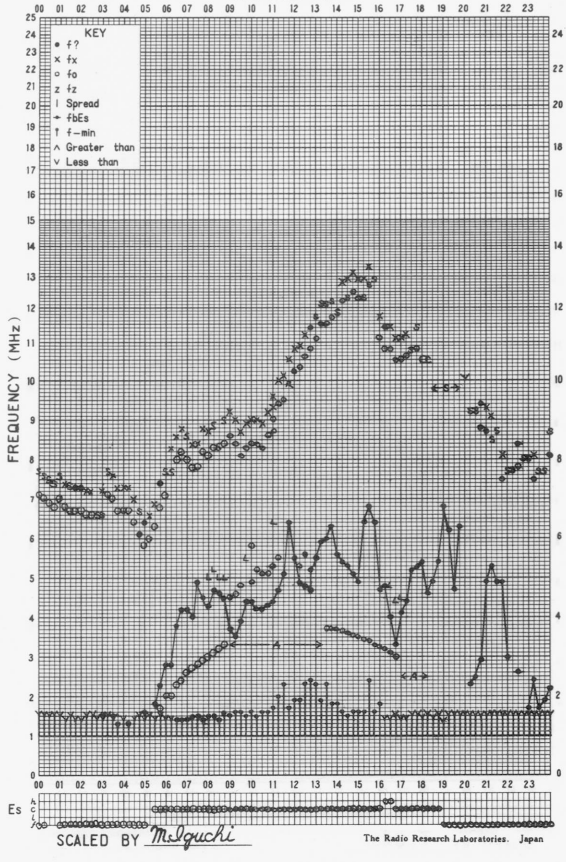
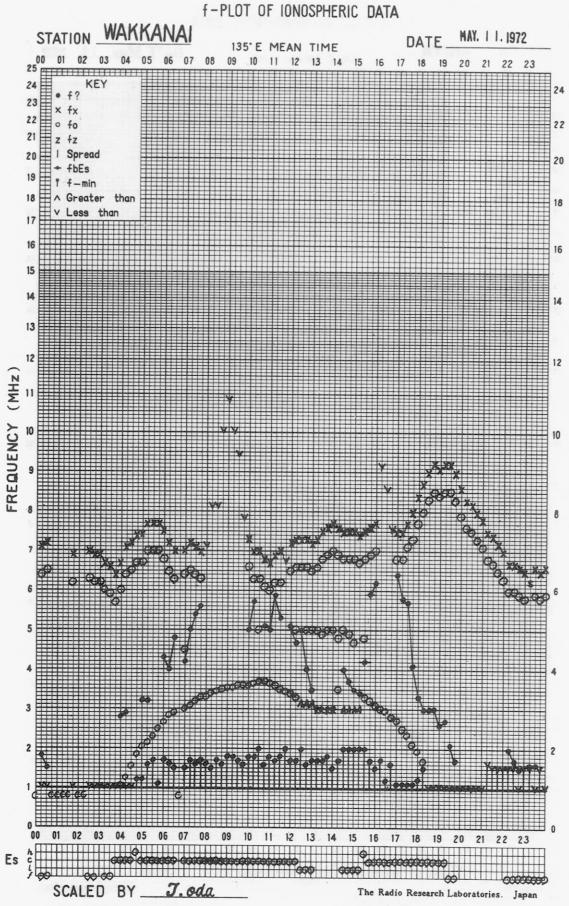


SCALED BY M. Iguchi

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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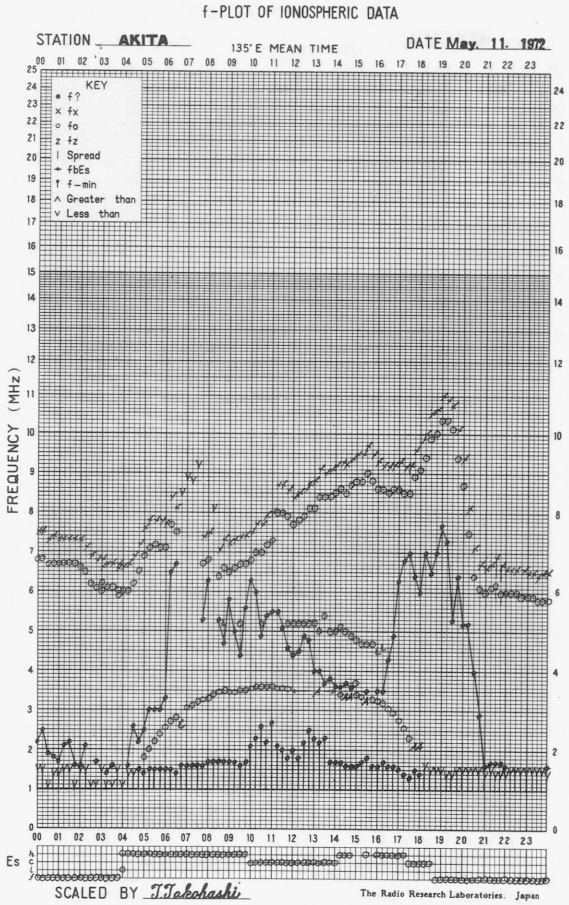
SCALED BY T. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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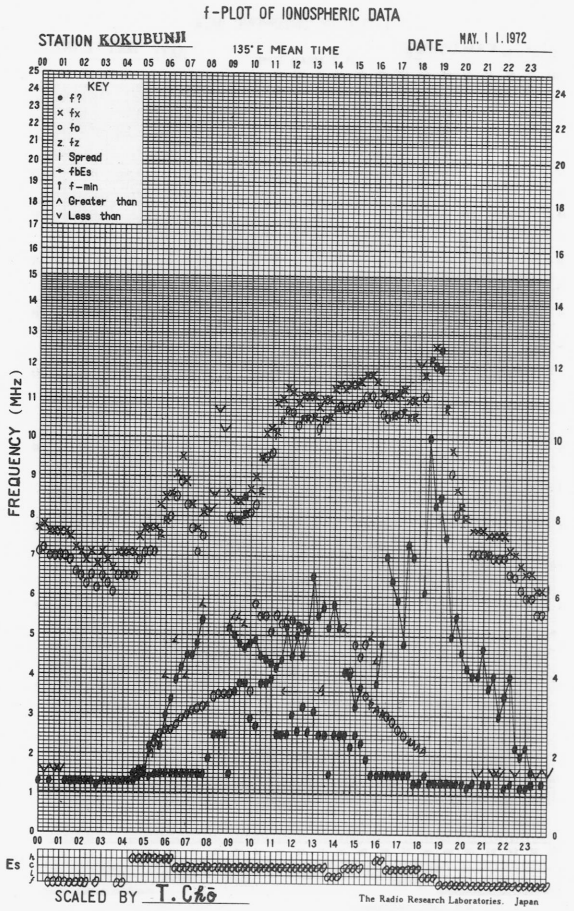
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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DATE MAY. 11. 1972
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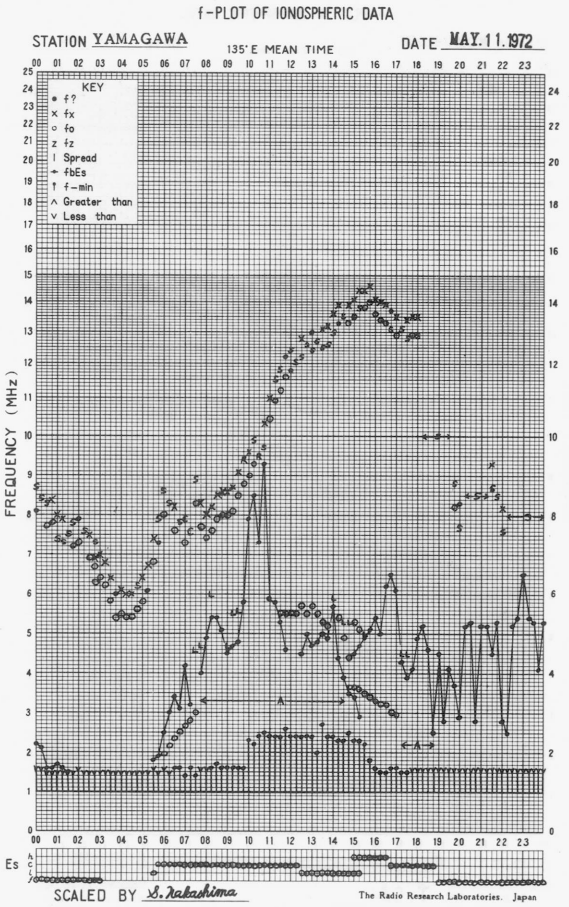
FREQUENCY (MHz)
Es
SCALED BY T. Chō
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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SCALED BY S. Takashima
The Radio Research Laboratories. Japan

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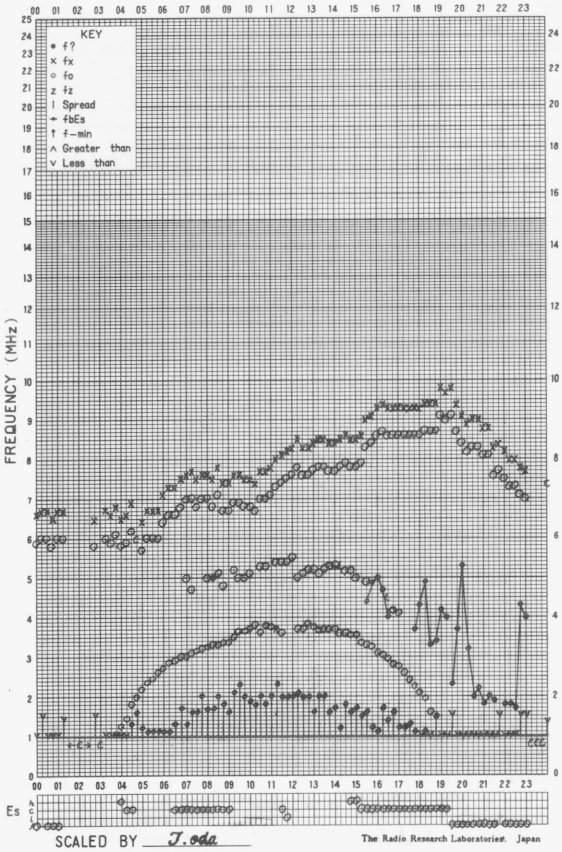

SCALED BY J. oda

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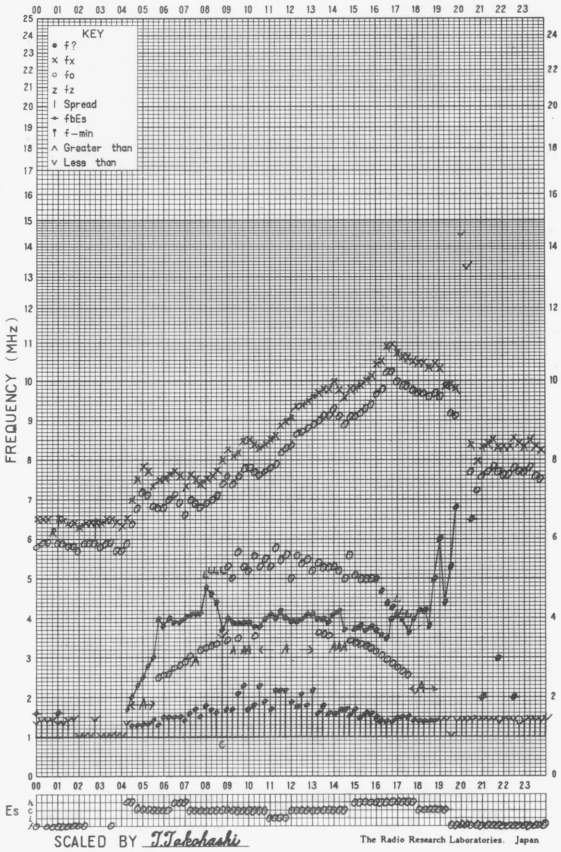
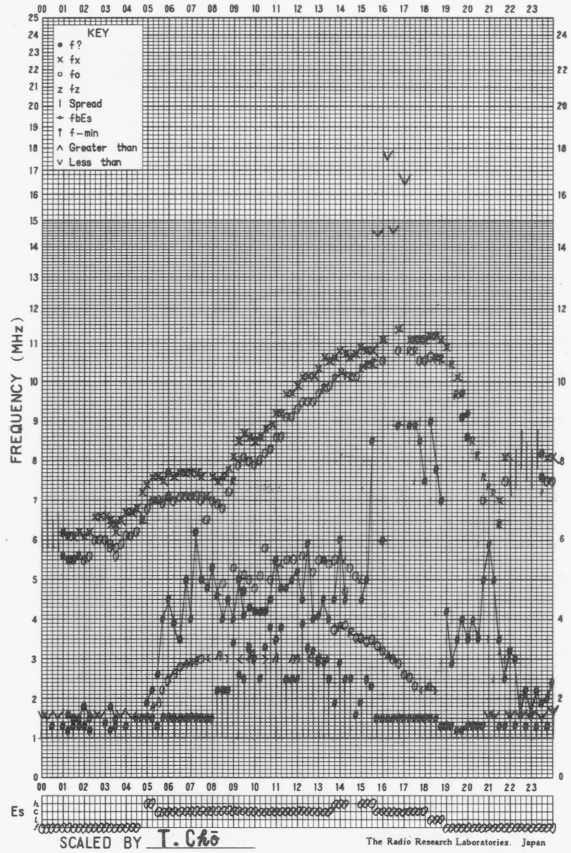


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 12. 1972

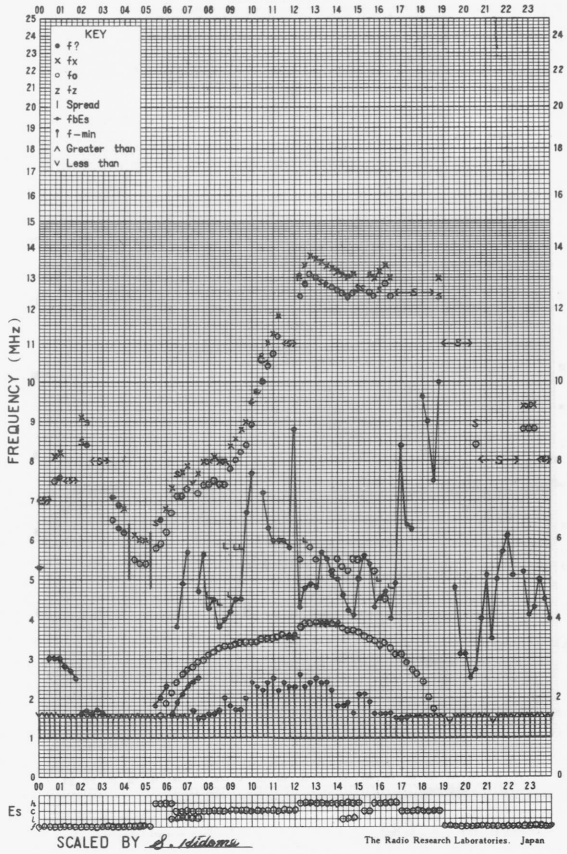


SCALED BY T. Chō

The Radio Research Laboratories. Japan

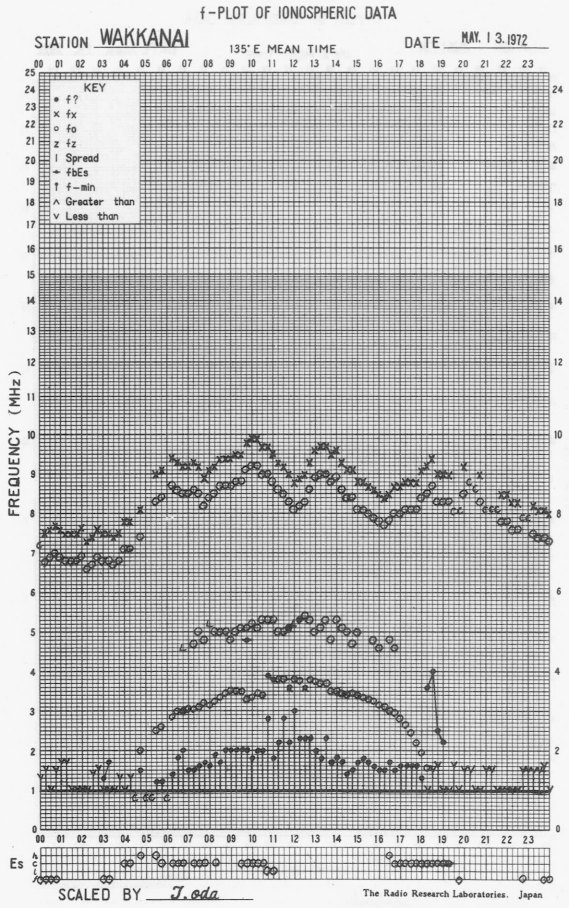
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE MAY. 12. 1972



SCALED BY S. Kitamura

The Radio Research Laboratories. Japan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135° E MEAN TIME
DATE MAY. 13. 1972
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FREQUENCY (MHz)
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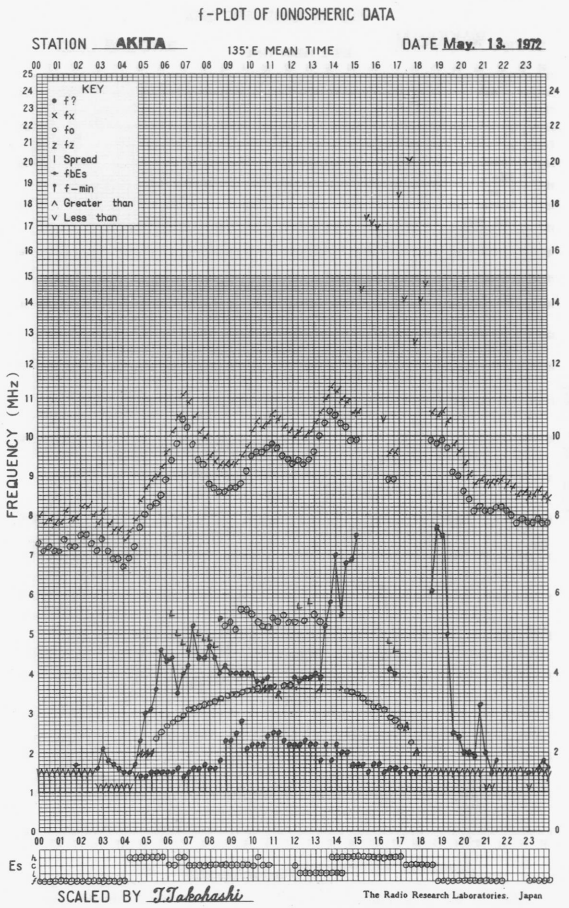
SCALED BY T. oda
The Radio Research Laboratories. Japan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DATE May. 13. 1972
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FREQUENCY (MHz)
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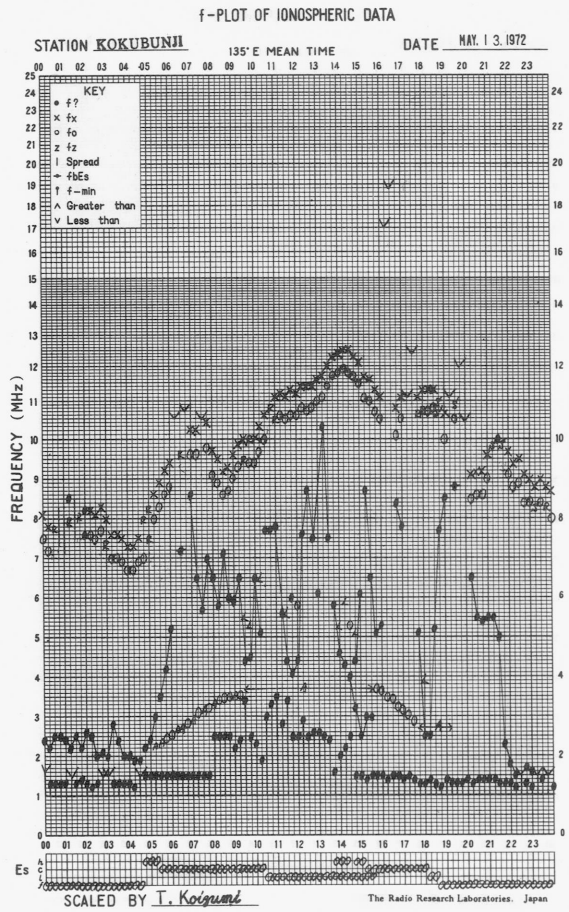
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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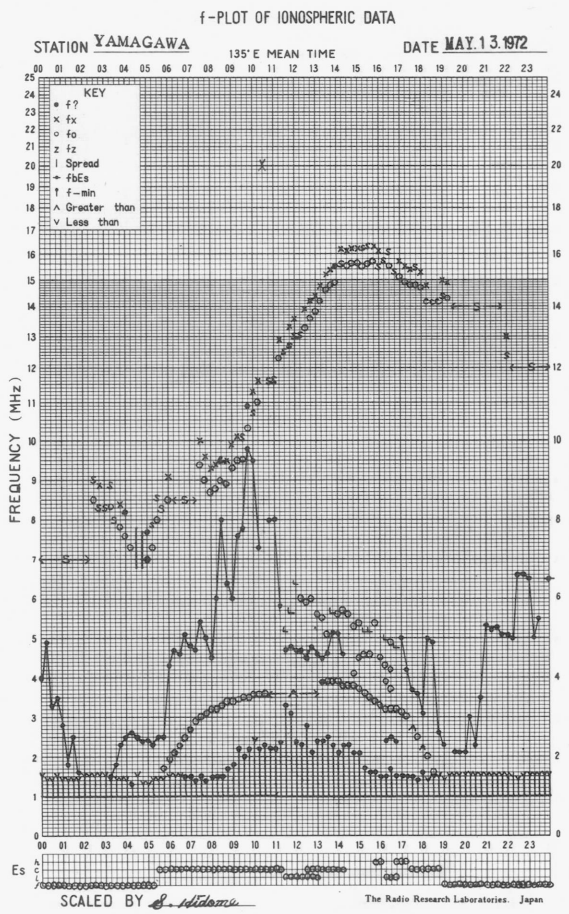
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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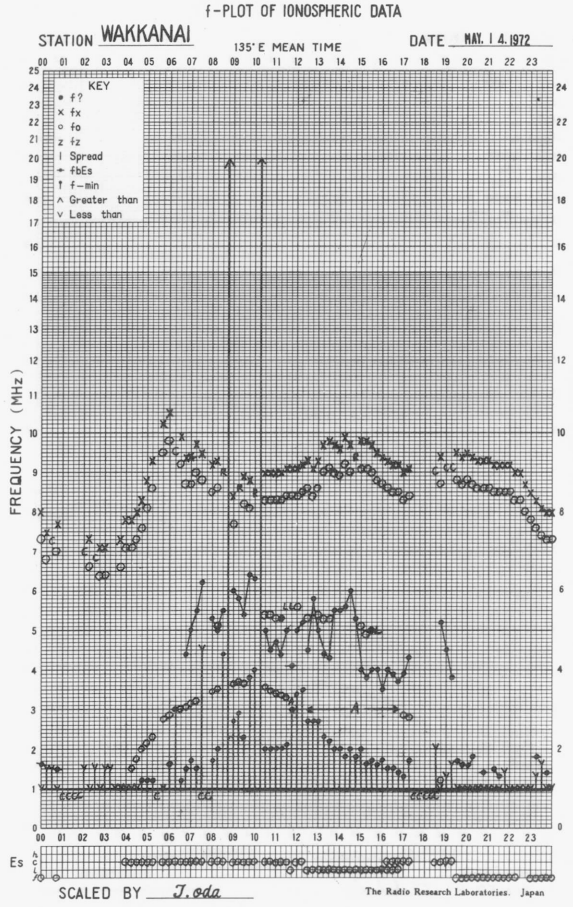
The Radio Research Laboratories. Japan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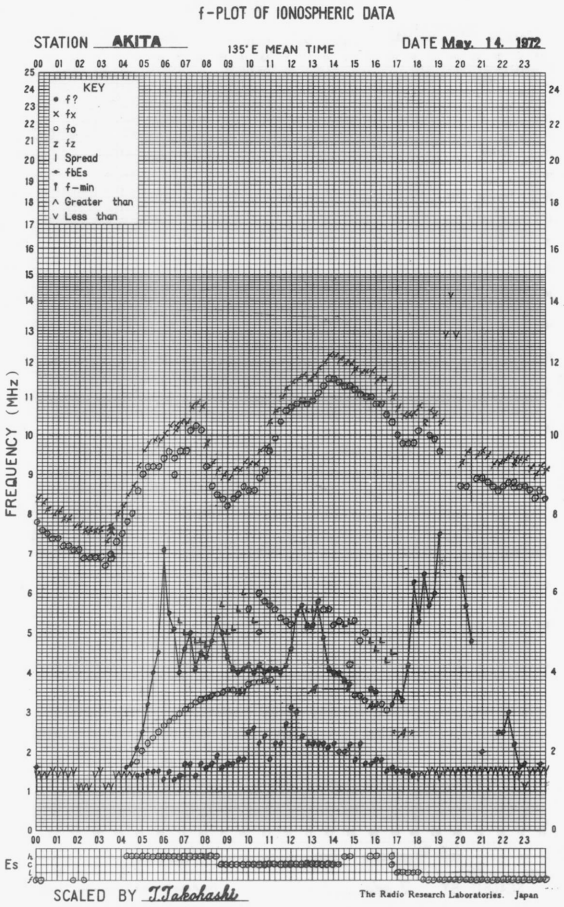
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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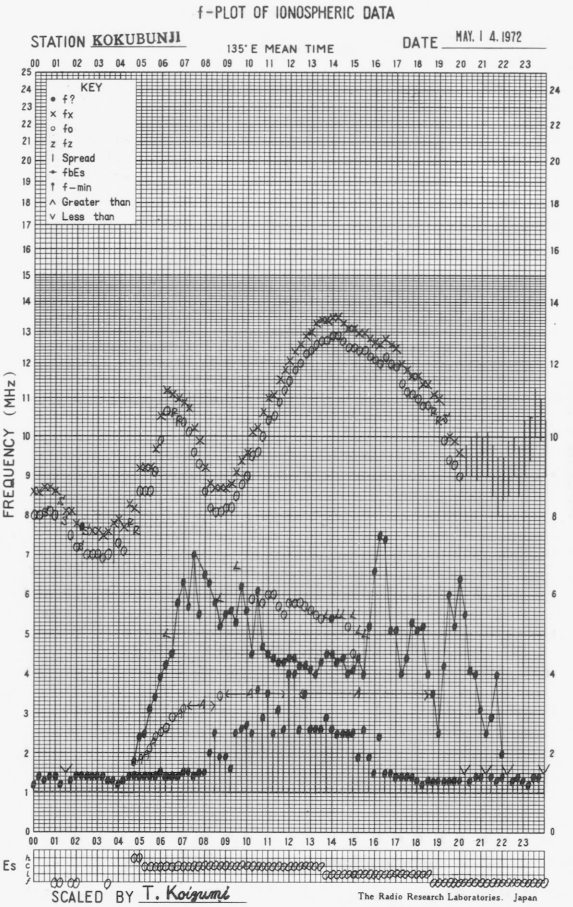
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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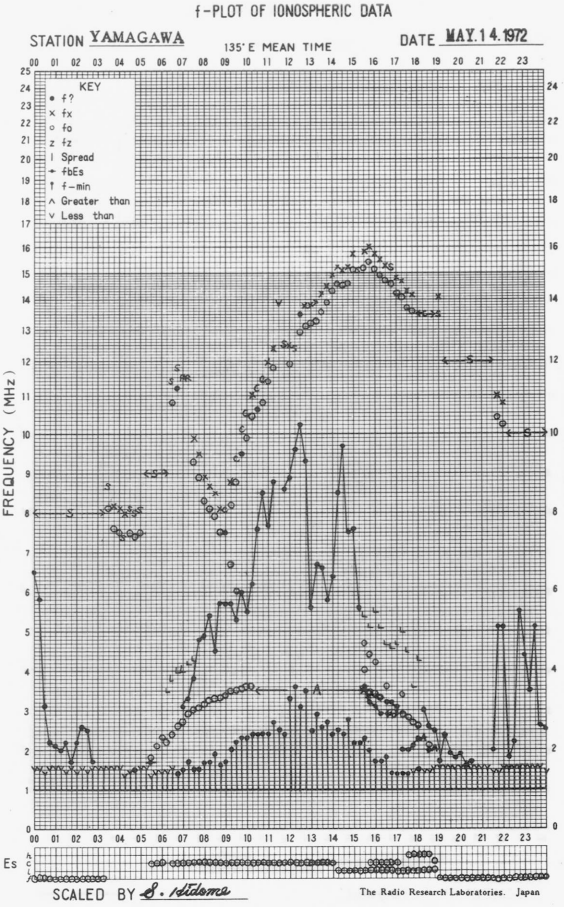
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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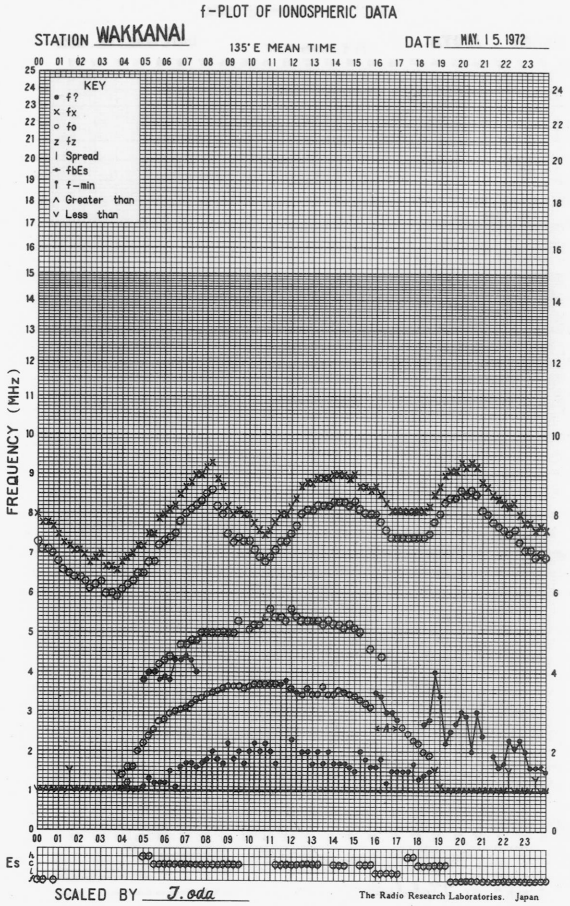
SCALED BY S. Shidoma
The Radio Research Laboratories. Japan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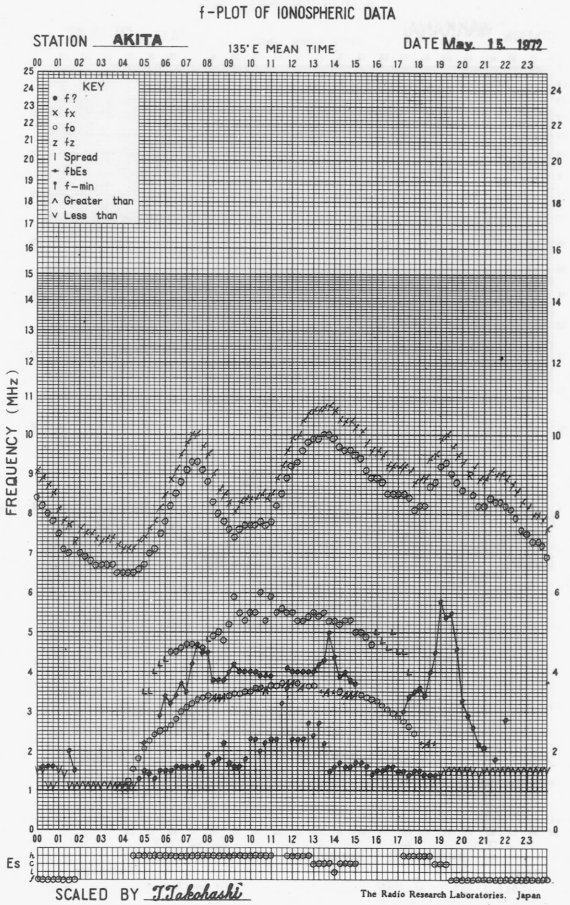
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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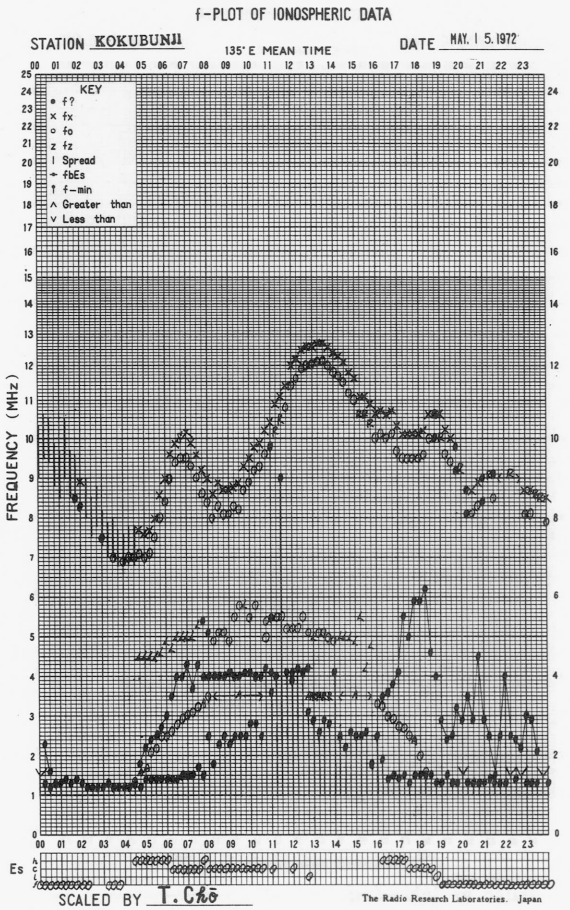
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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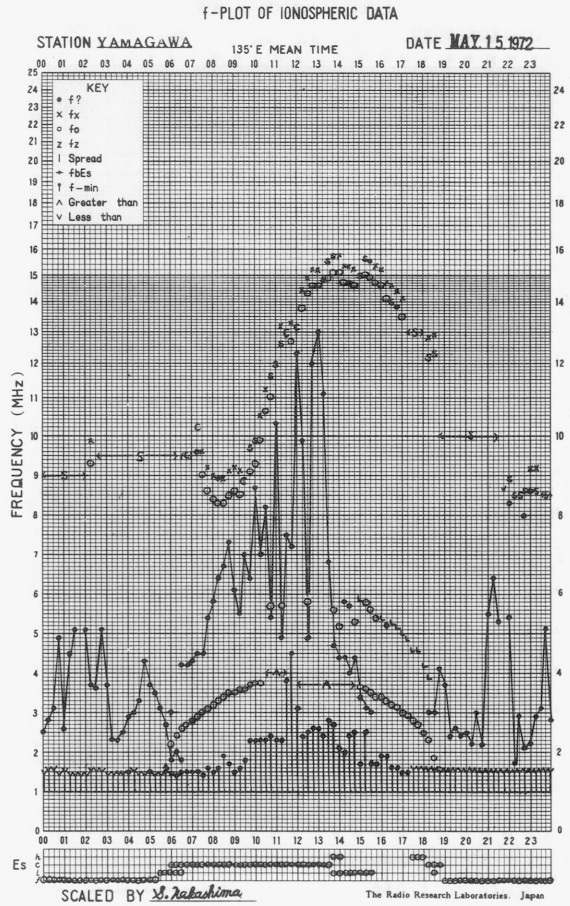
SCALED BY T. Chō
The Radio Research Laboratories. Japan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SCALED BY S. Takashima
The Radio Research Laboratories. Japan

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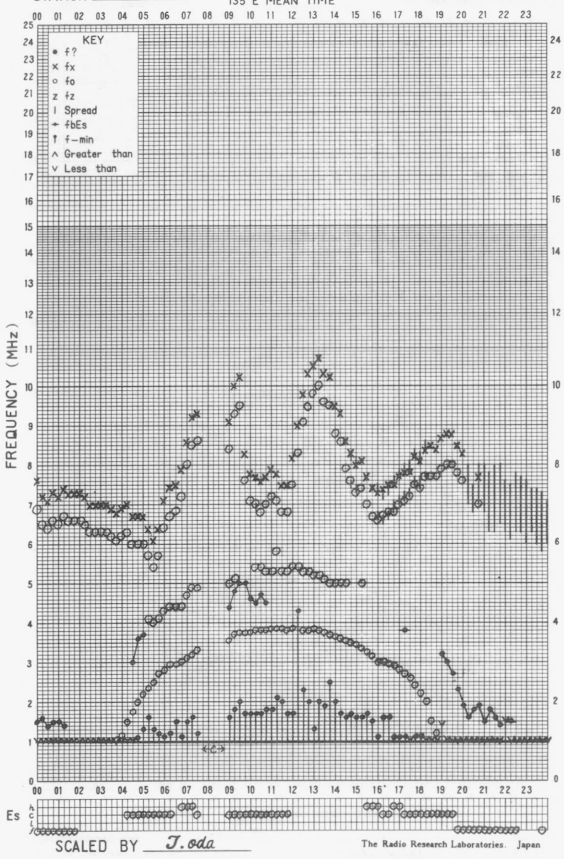
STATION WAKKANAI 135° E MEAN TIME DATE MAY. 16. 1972



SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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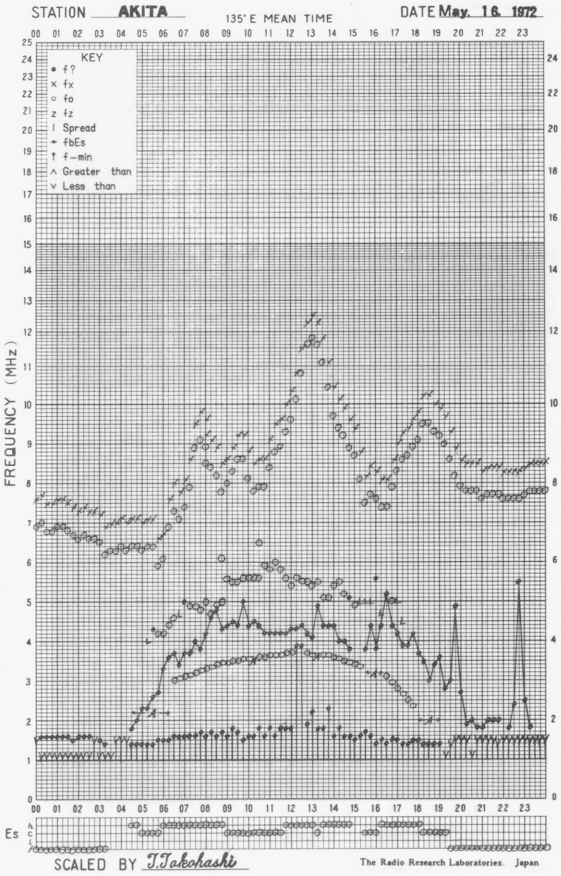

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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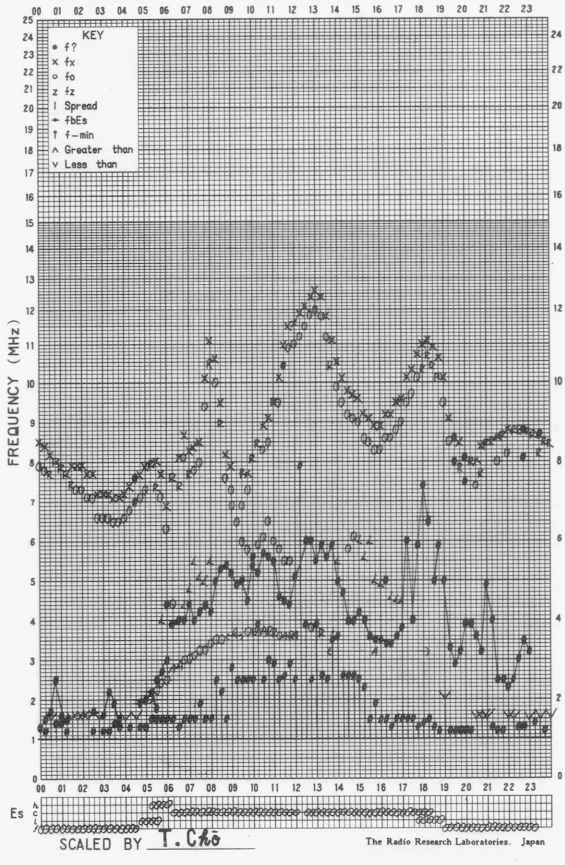

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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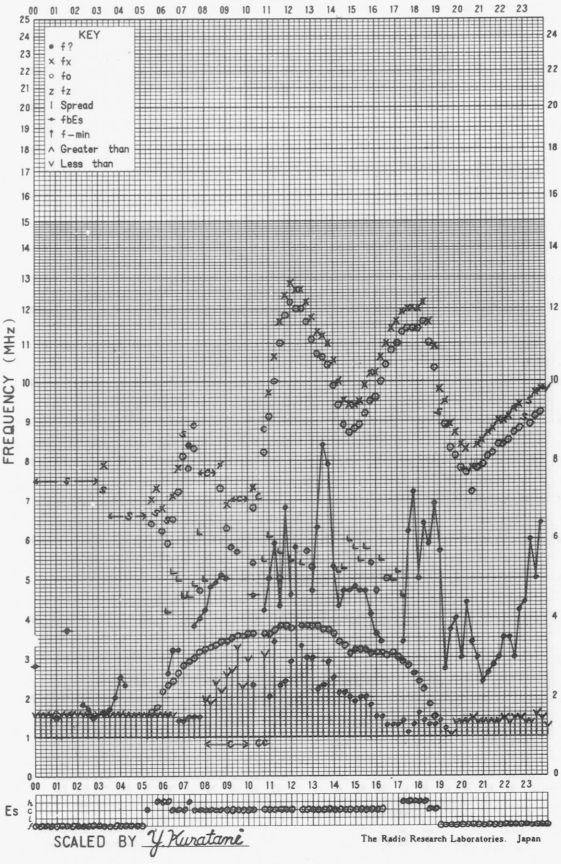
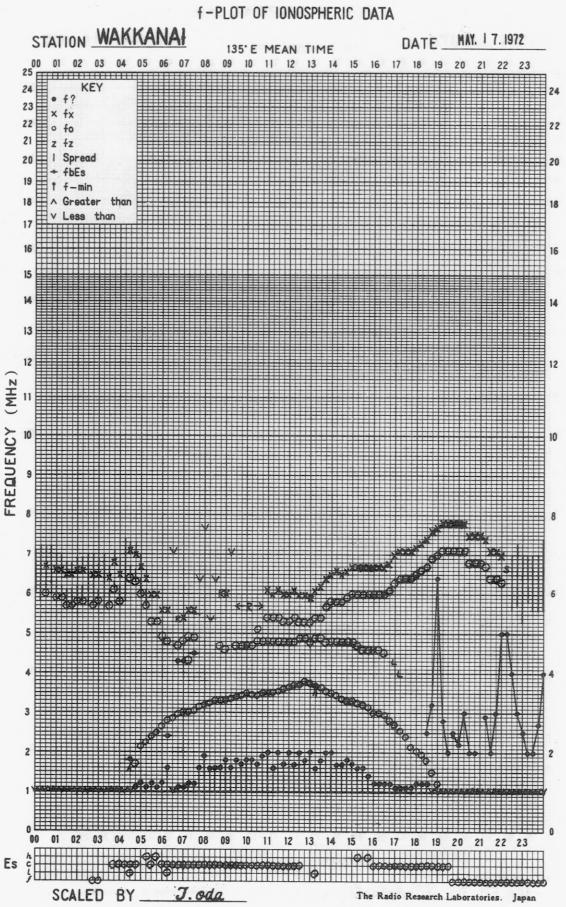


SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan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DATE MAY. 17. 1972
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FREQUENCY (MHz)
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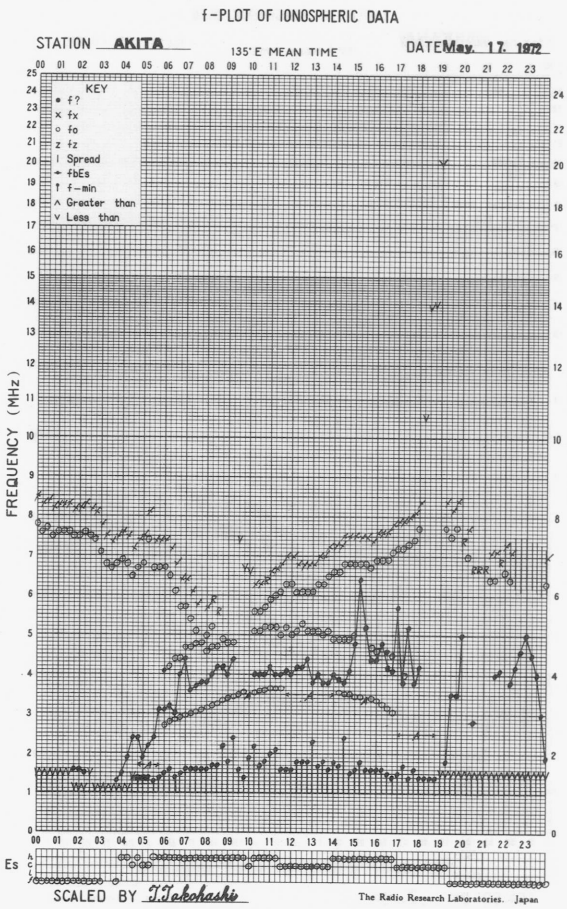
SCALED BY T. oda
The Radio Research Laboratories. Japan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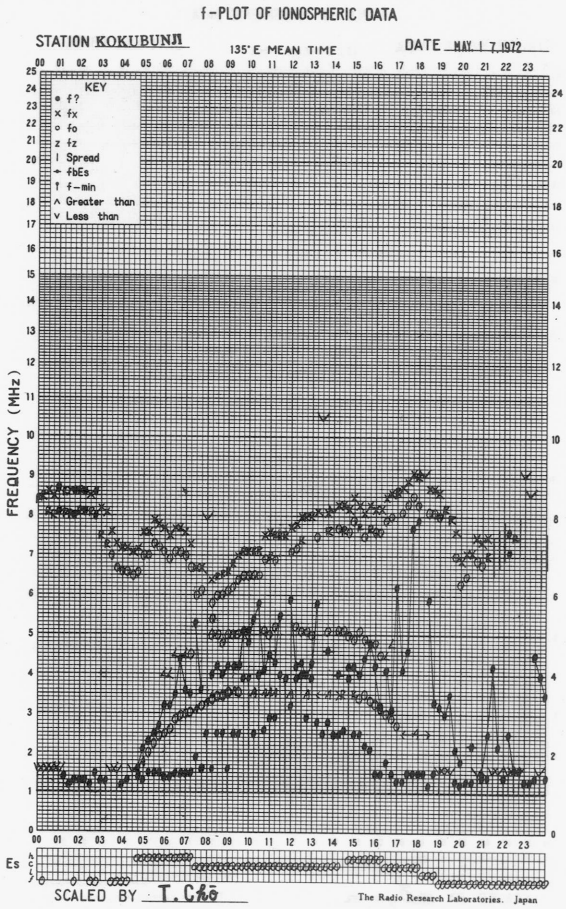
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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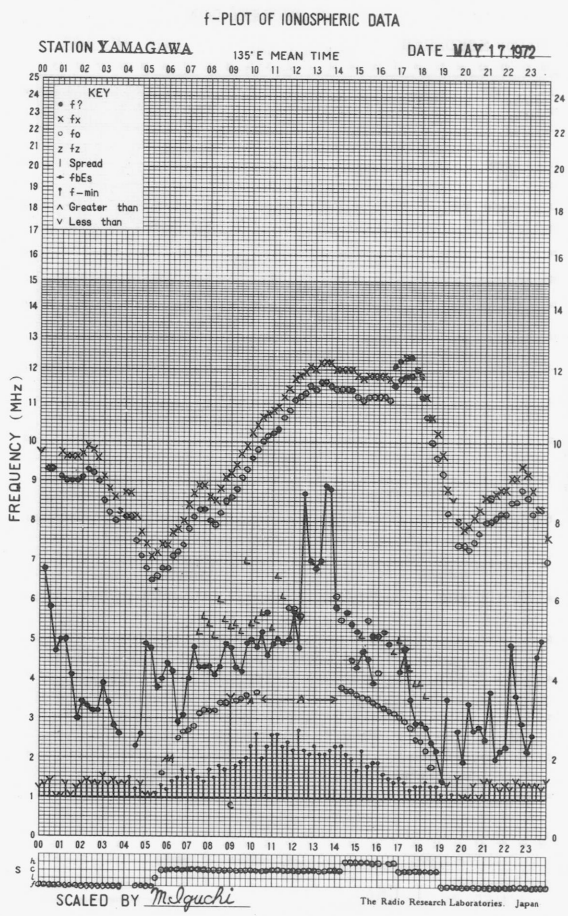
SCALED BY T. Cho
The Radio Research Laboratories. Japan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SCALED BY M. Iguchi
The Radio Research Laboratories. Japan

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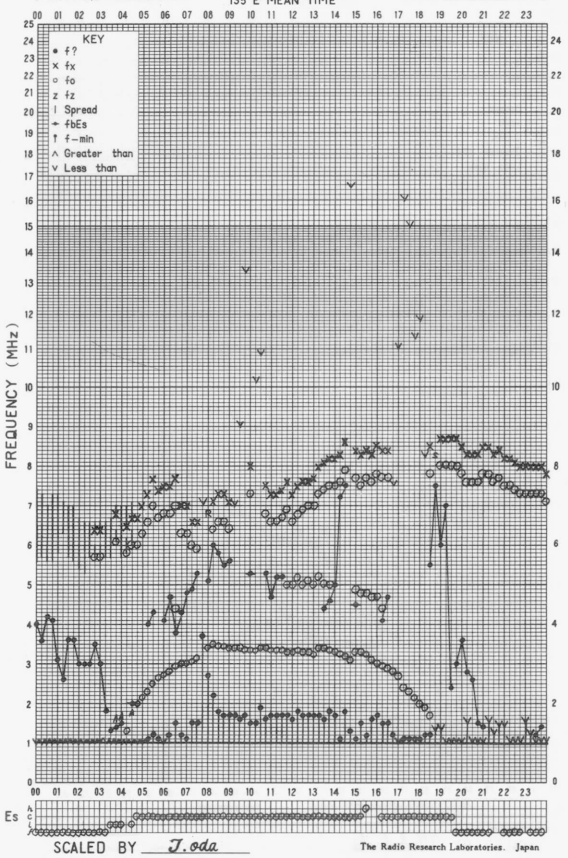

SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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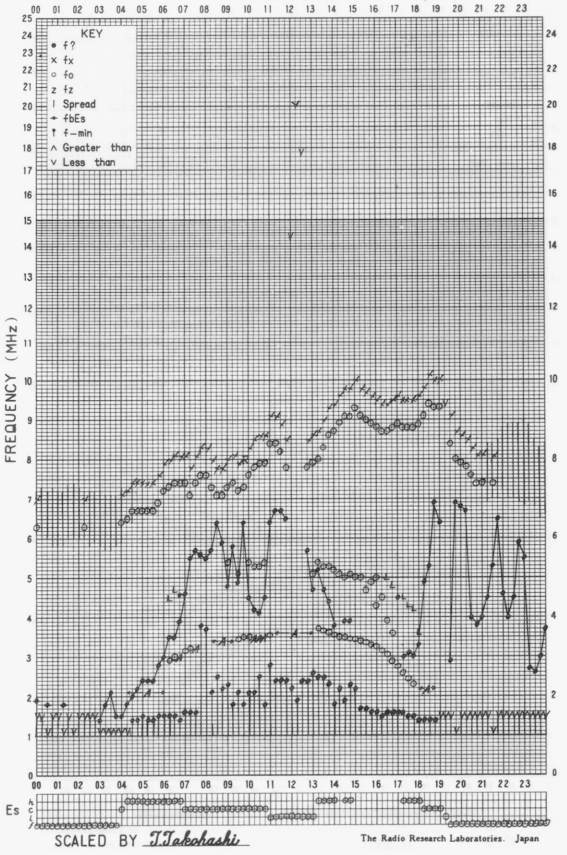

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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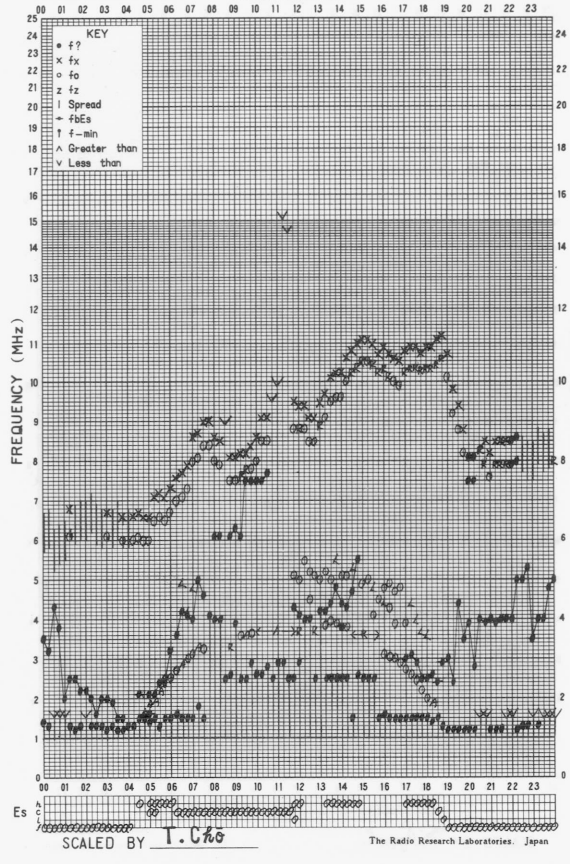

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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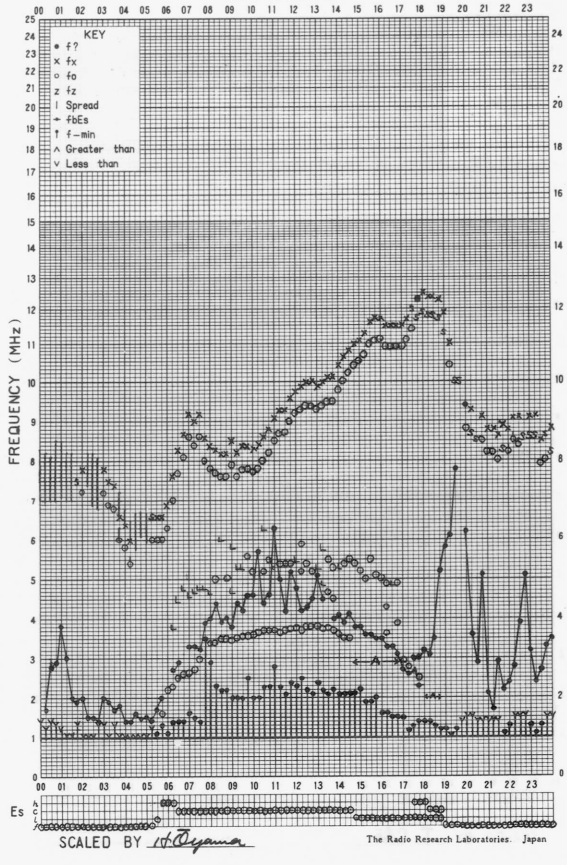
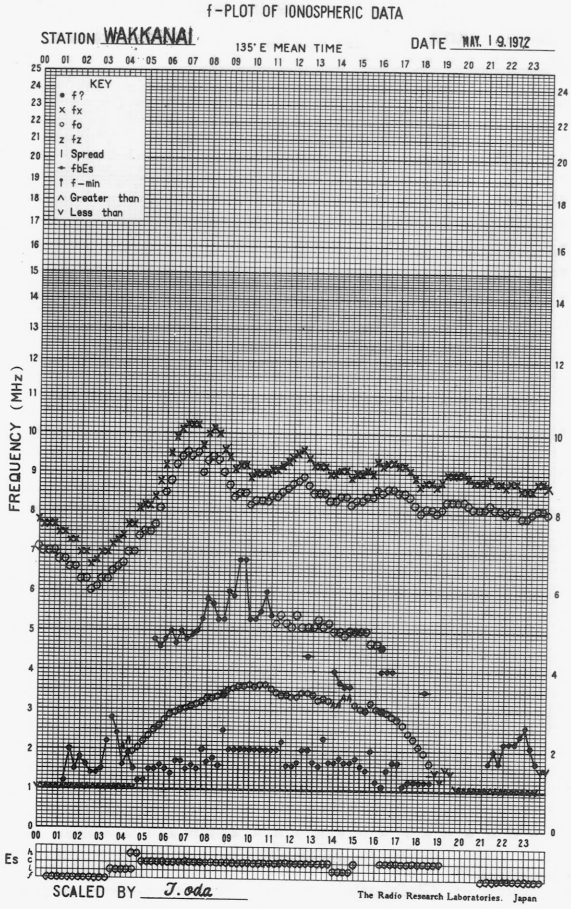


SCALED BY H. Tegawa

The Radio Research Laboratories. Japan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135°E MEAN TIME
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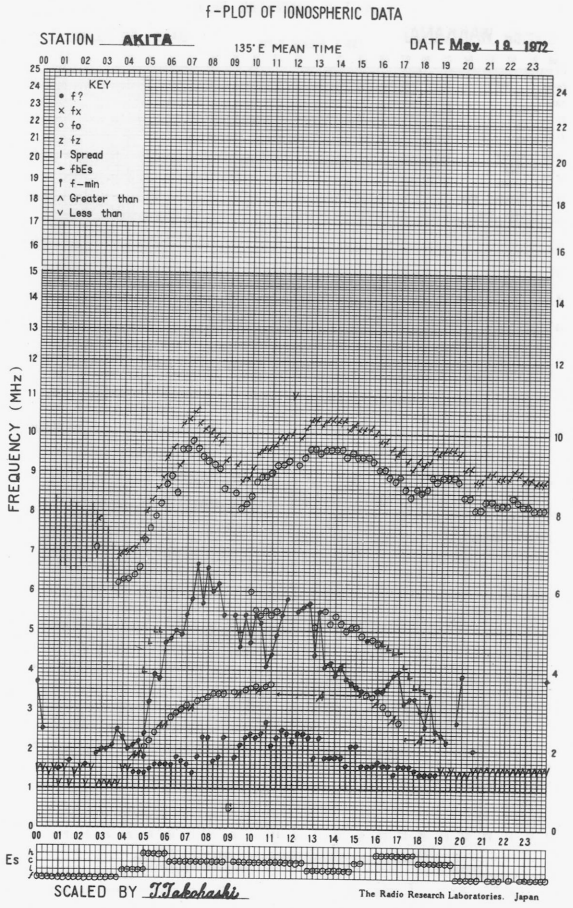
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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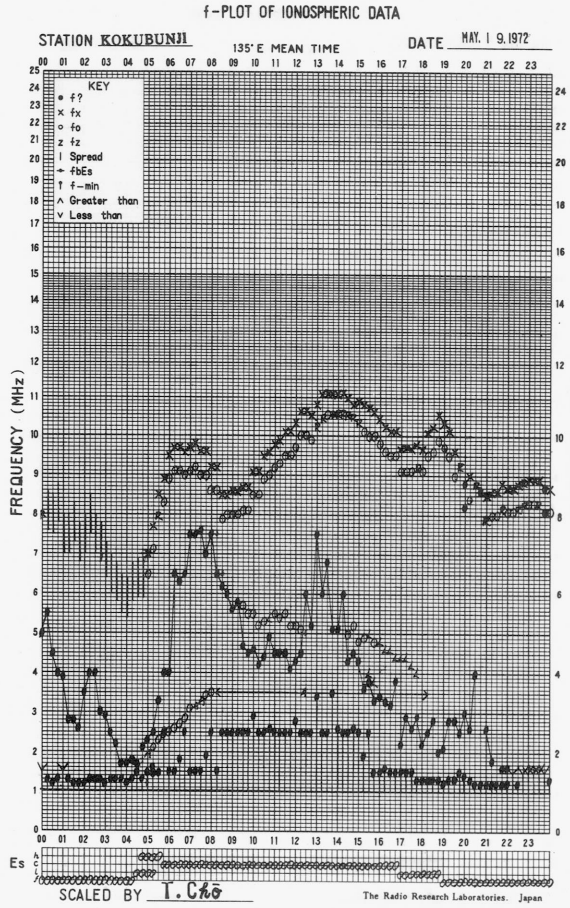
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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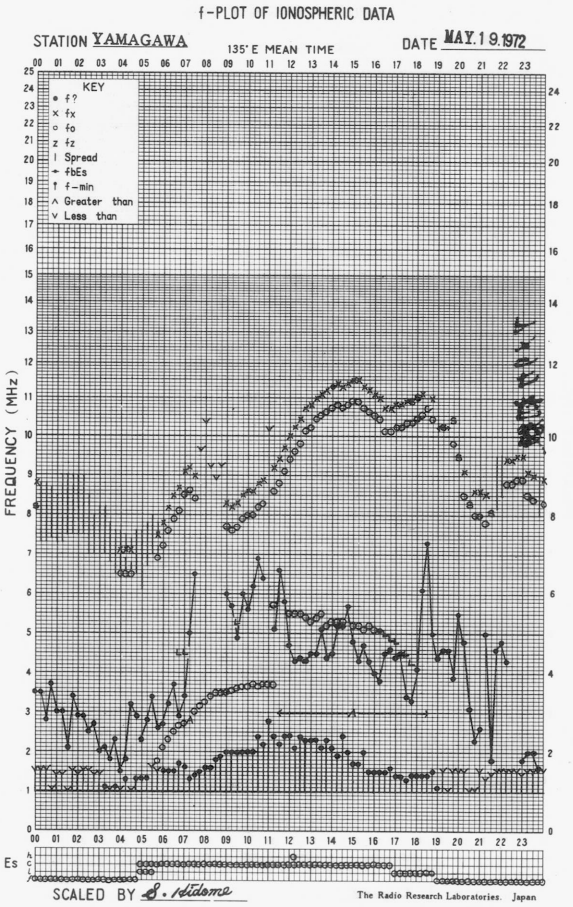
SCALED BY T. Cho
The Radio Research Laboratories. Japan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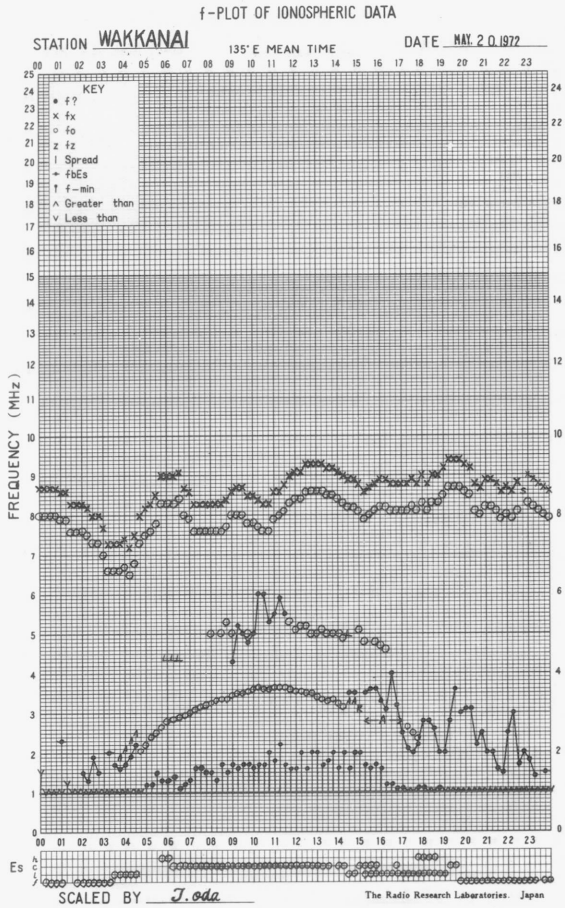
SCALED BY S. Nitsuma
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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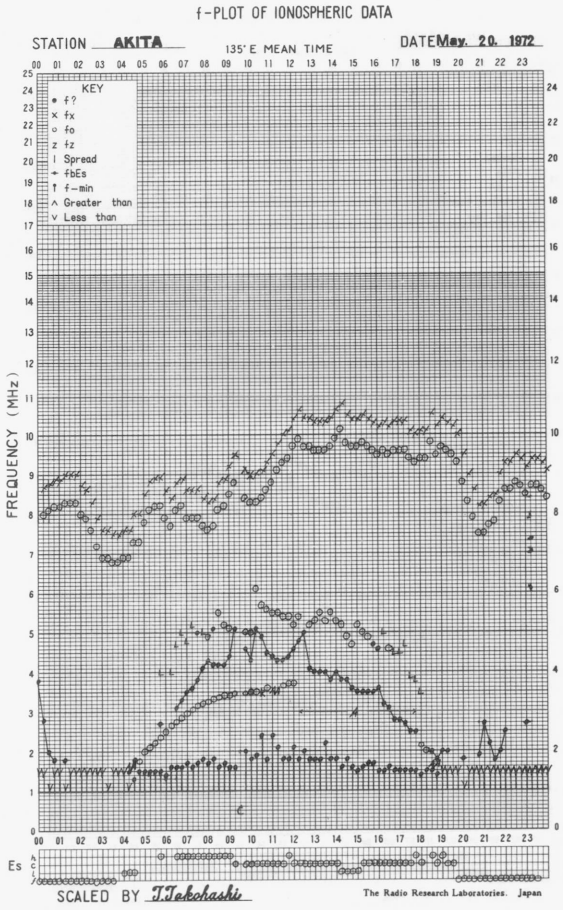
SCALED BY J. oda
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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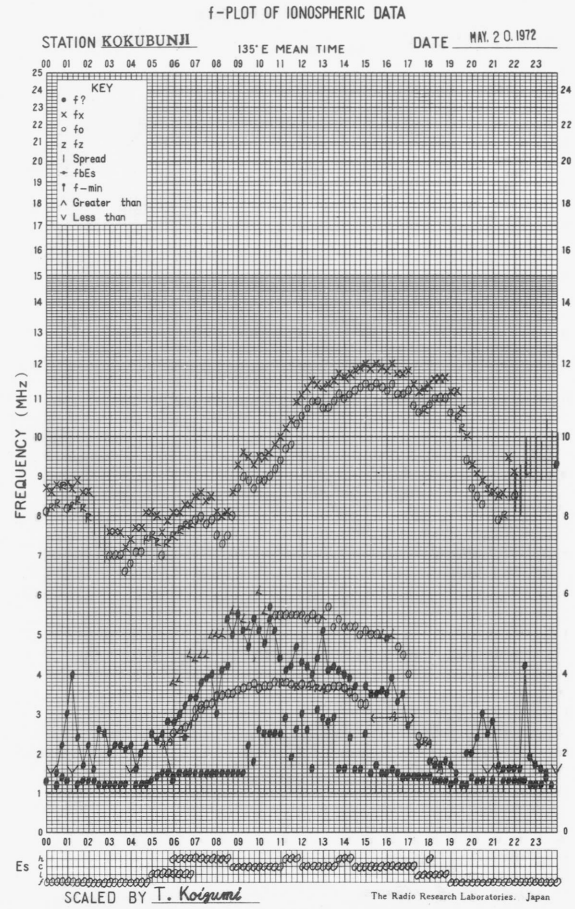
SCALED BY T.Takahashi
The Radio Research Laboratories. Japan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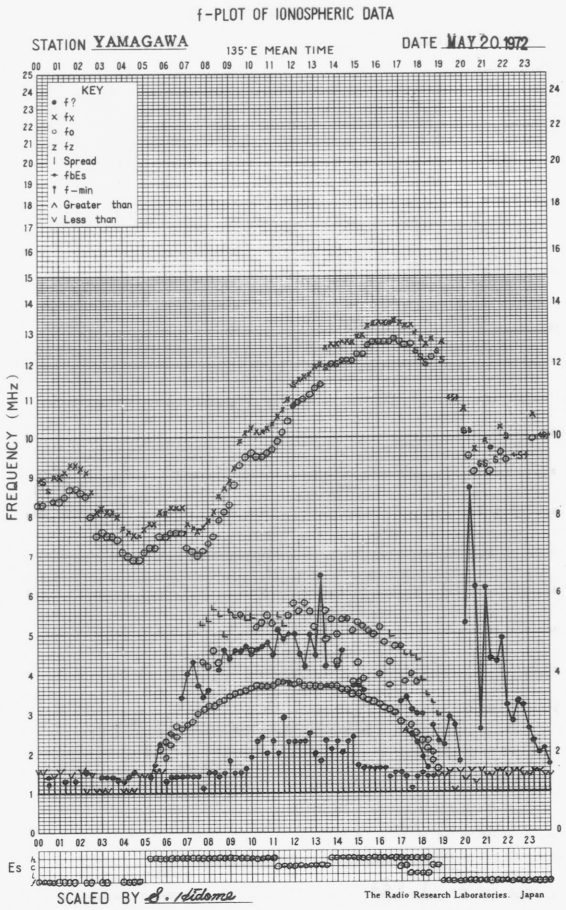
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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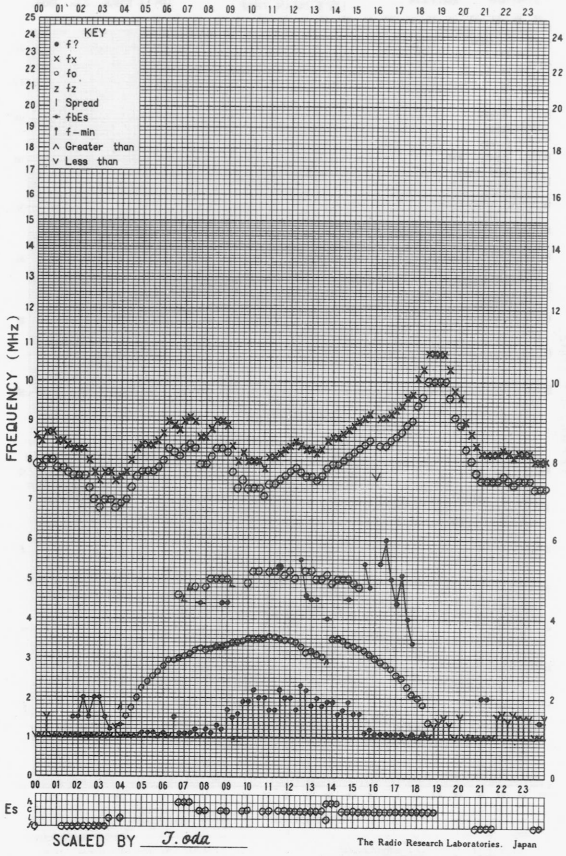
SCALED BY S. Uchida
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 2 1. 1972



SCALED BY T. oda

The Radio Research Laboratories. Japan

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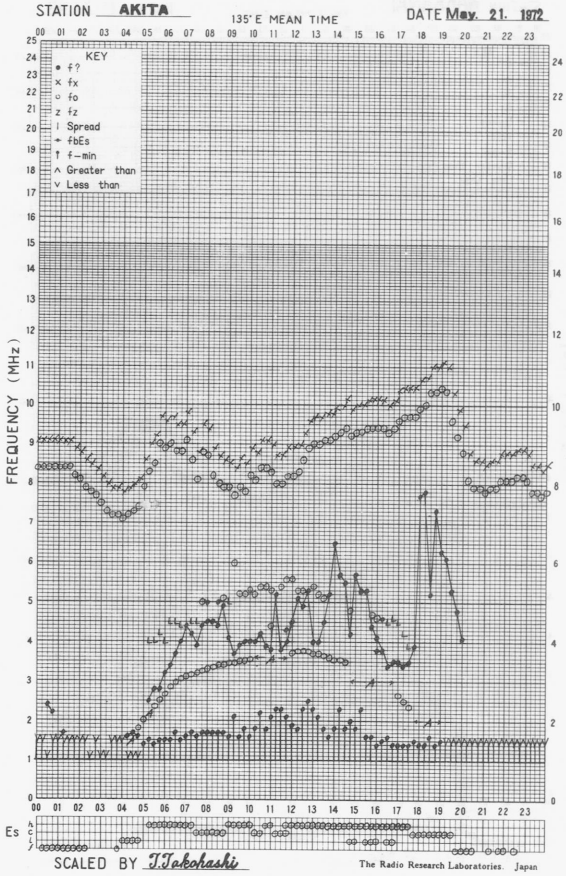
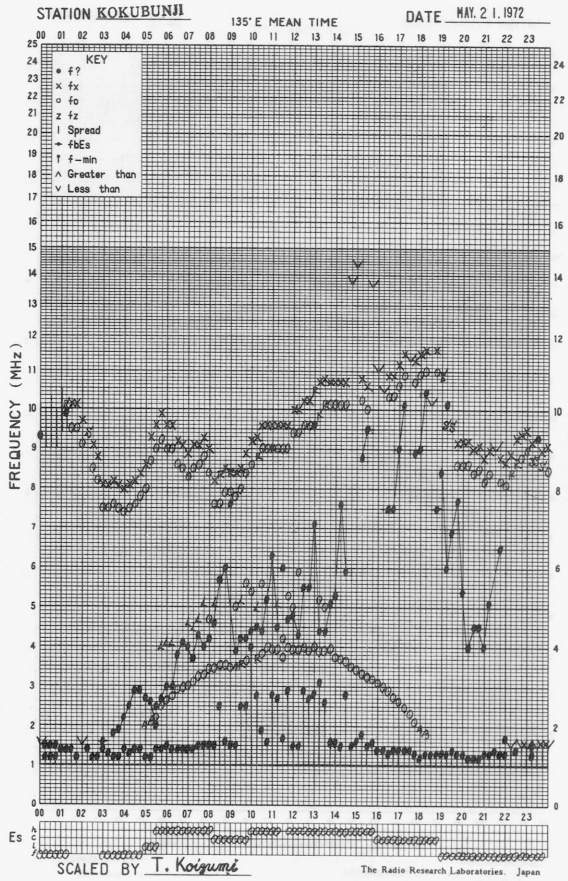


SCALED BY T.Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 2 1. 1972

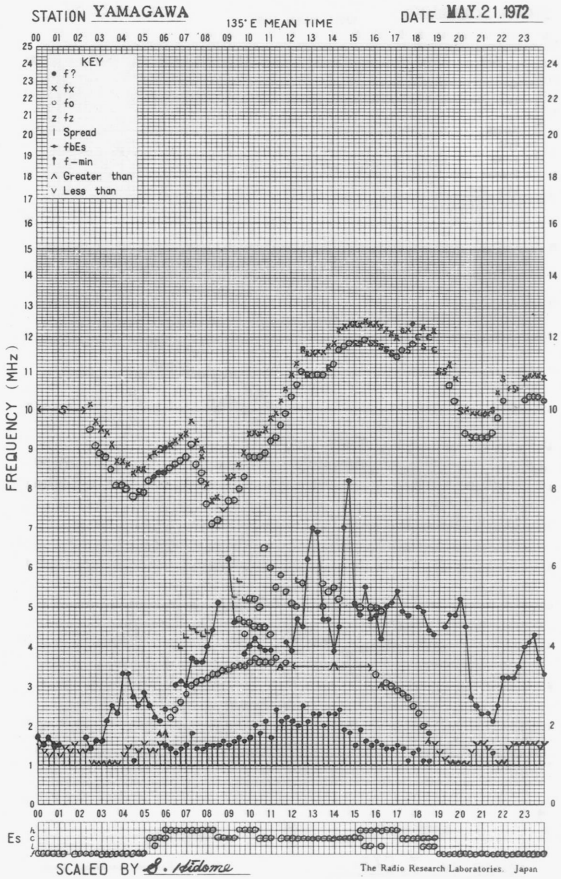


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

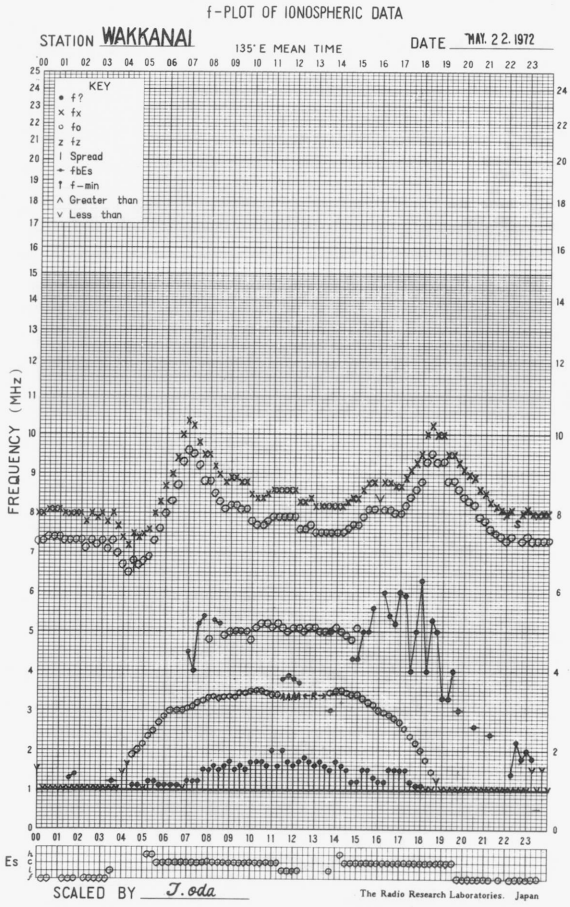
f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE MAY.21.1972



SCALED BY S. Ichidome

The Radio Research Laboratories. Japan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135° E MEAN TIME
DATE MAY. 22. 1972
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× fx
○ fo
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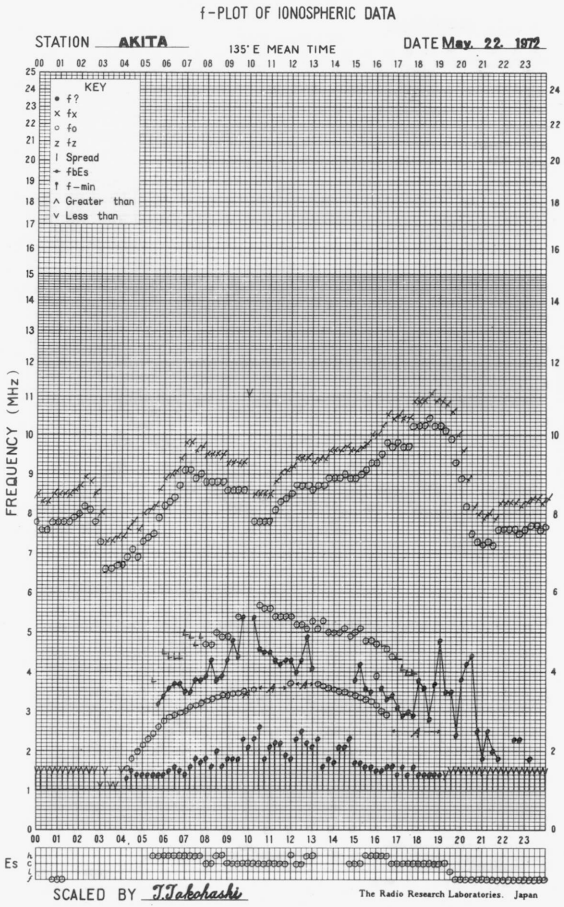
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. oda
The Radio Research Laboratories. Japan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DATE May. 22. 1972
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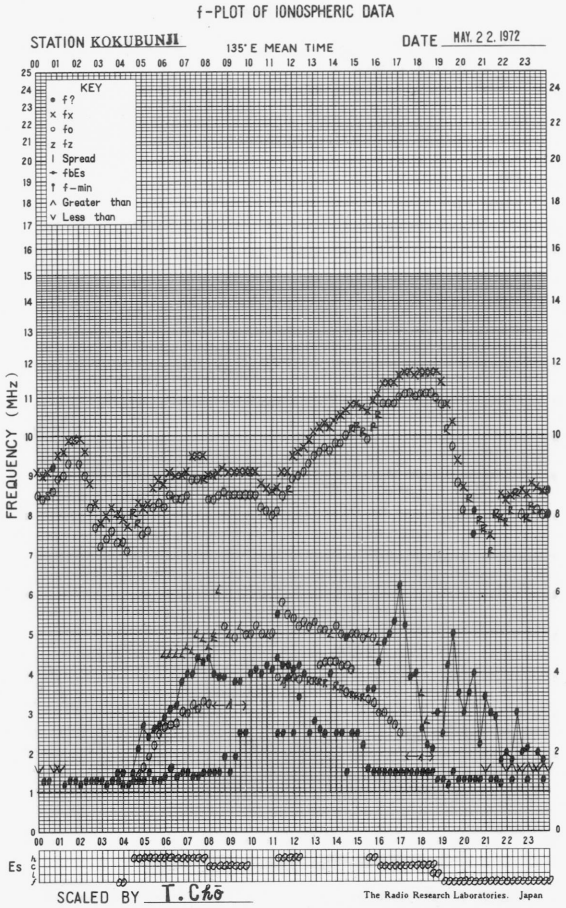
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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DATE MAY. 22. 1972
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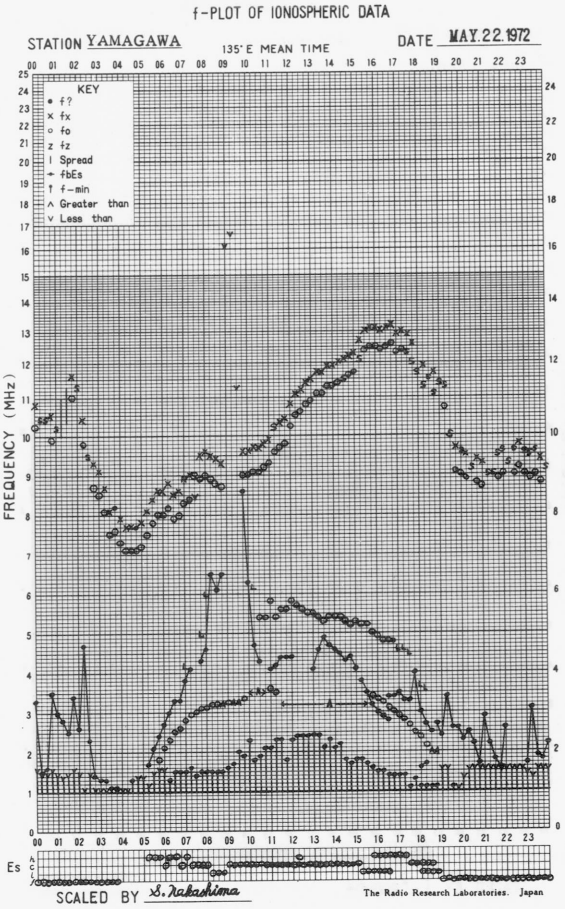
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Cho
The Radio Research Laboratories. Japan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135° E MEAN TIME
DATE MAY. 22. 1972
KEY
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○ fo
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⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan

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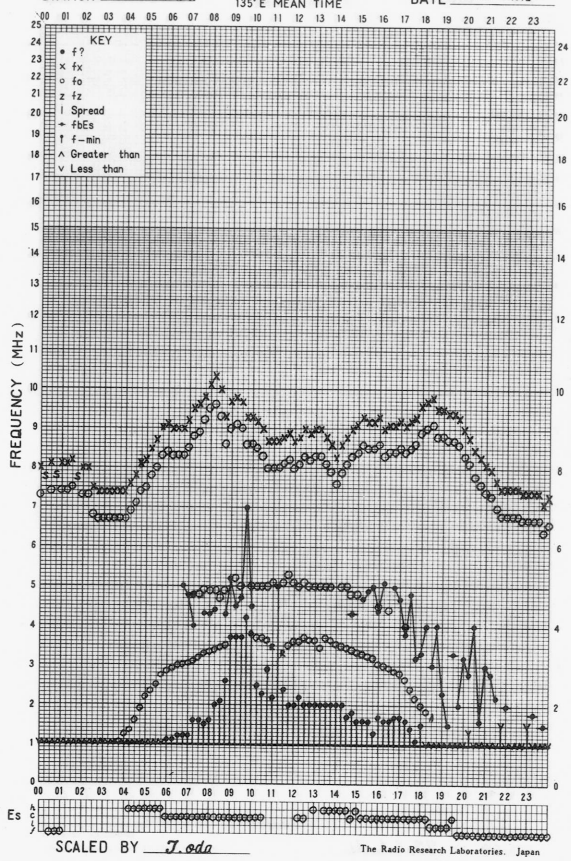

SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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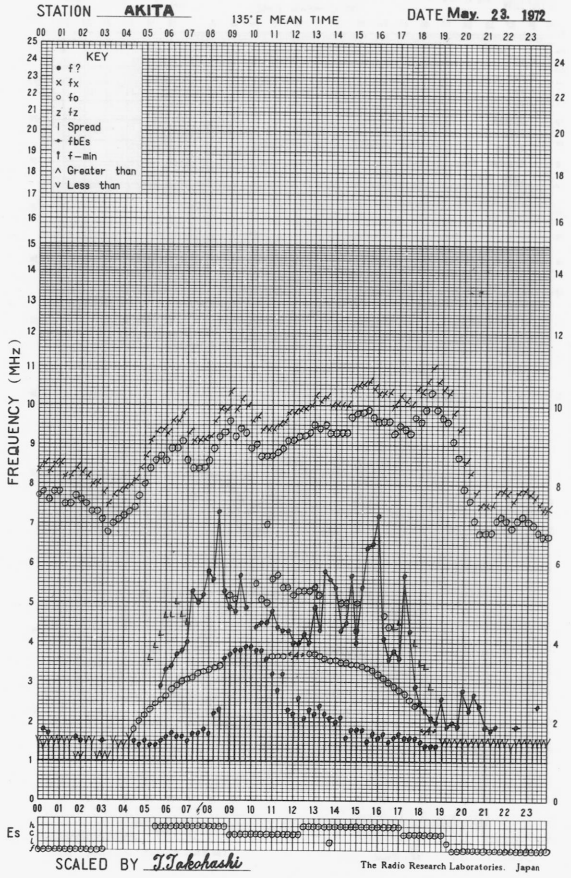

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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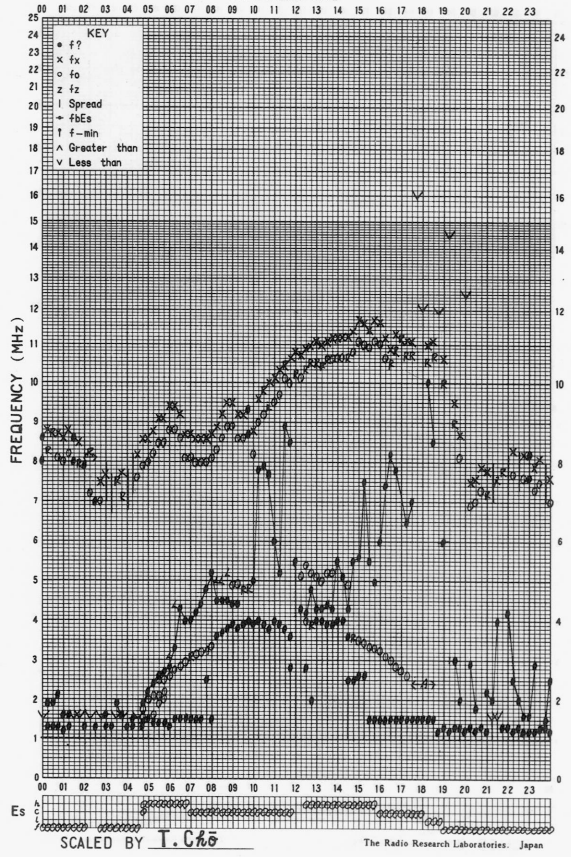

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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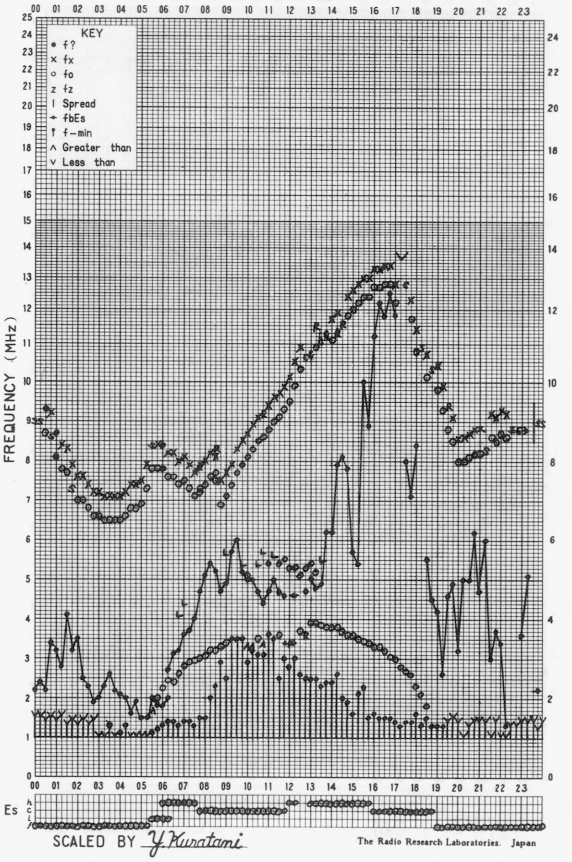

SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan

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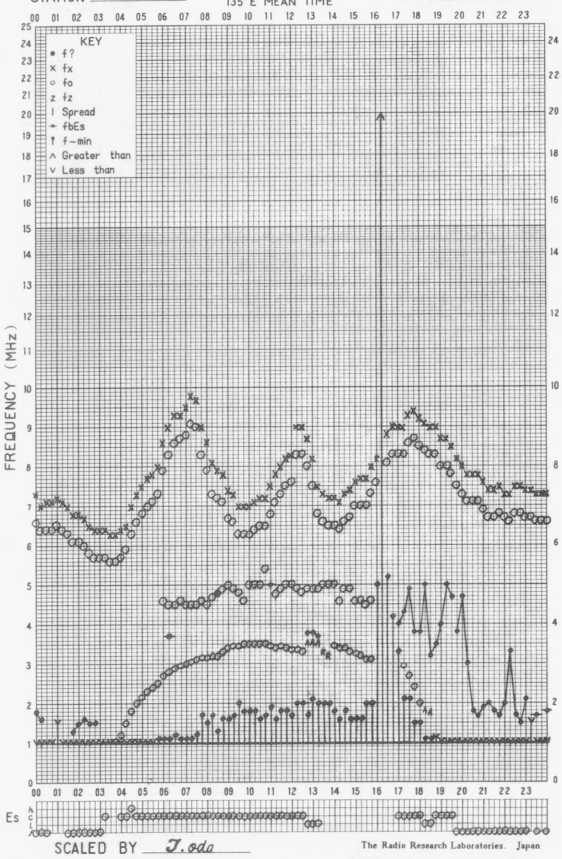

SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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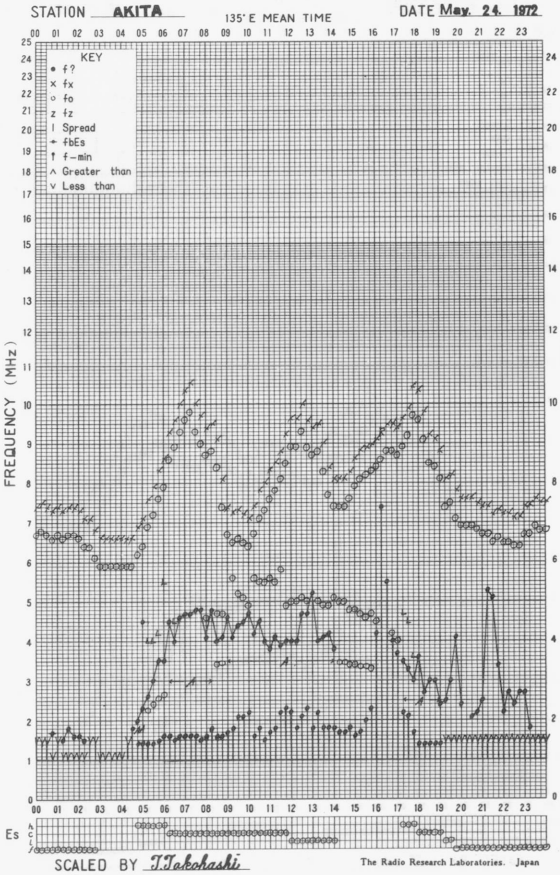

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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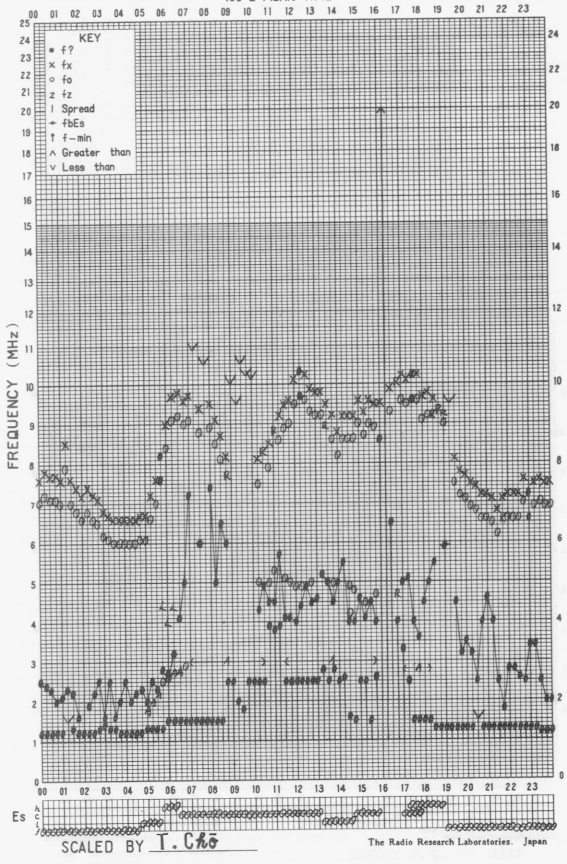

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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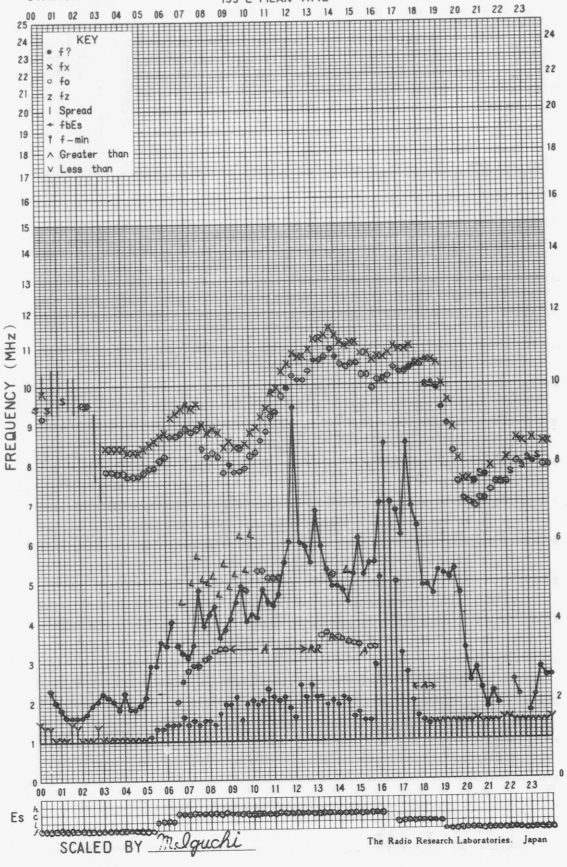

SCALED BY M. Iguchi

The Radio Research Laboratories. Japan

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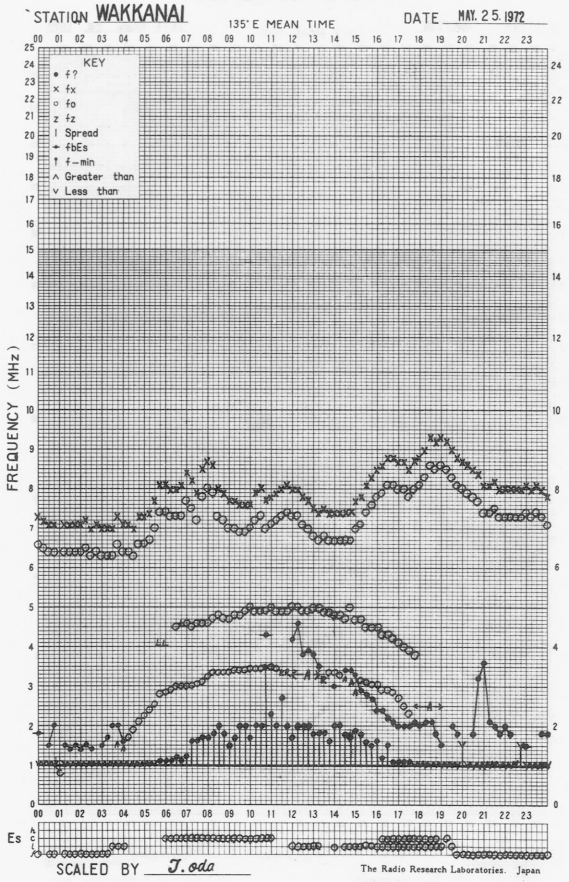

SCALED BY T. oda

The Radio Research Laboratories. Japan

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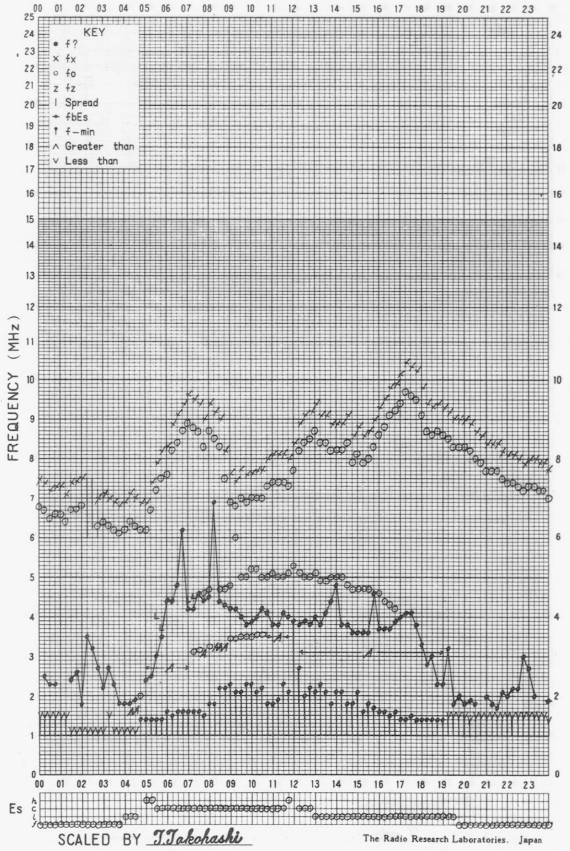

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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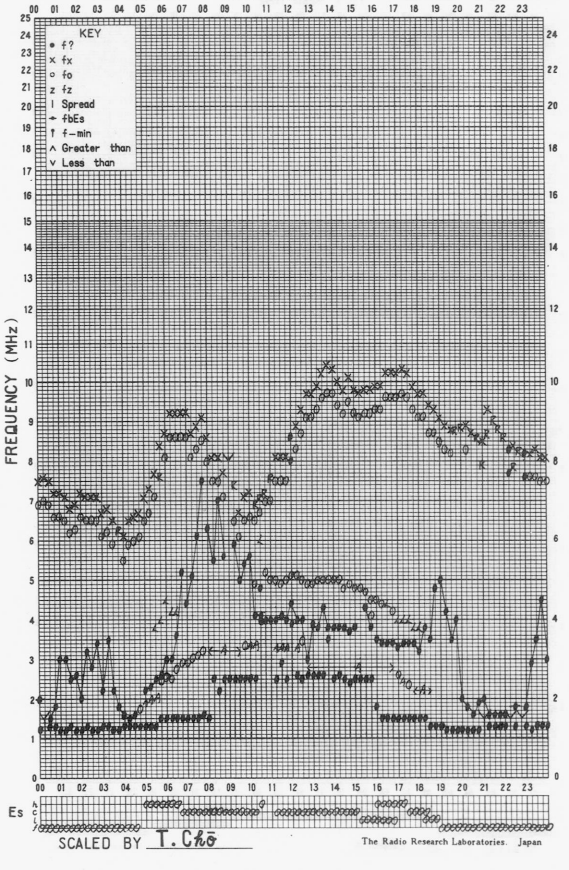

SCALED BY T. Chō

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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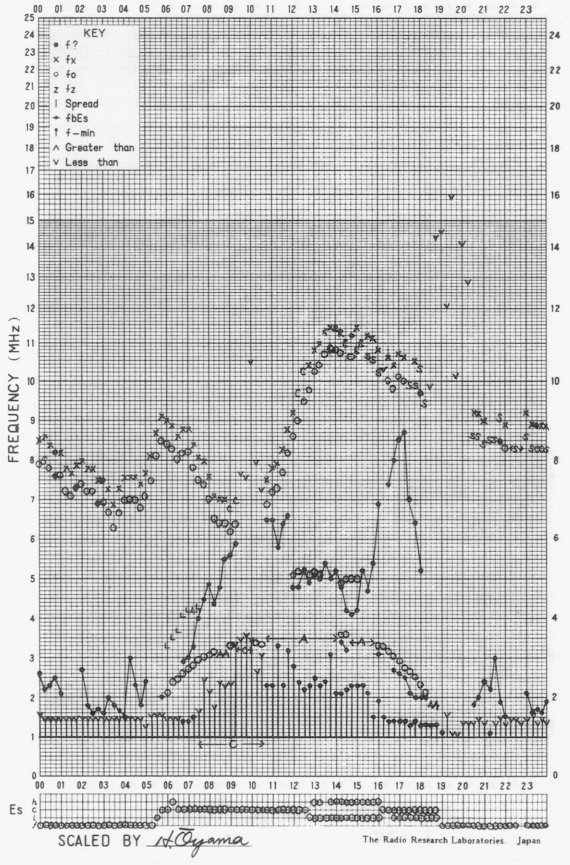

SCALED BY H. Oyama

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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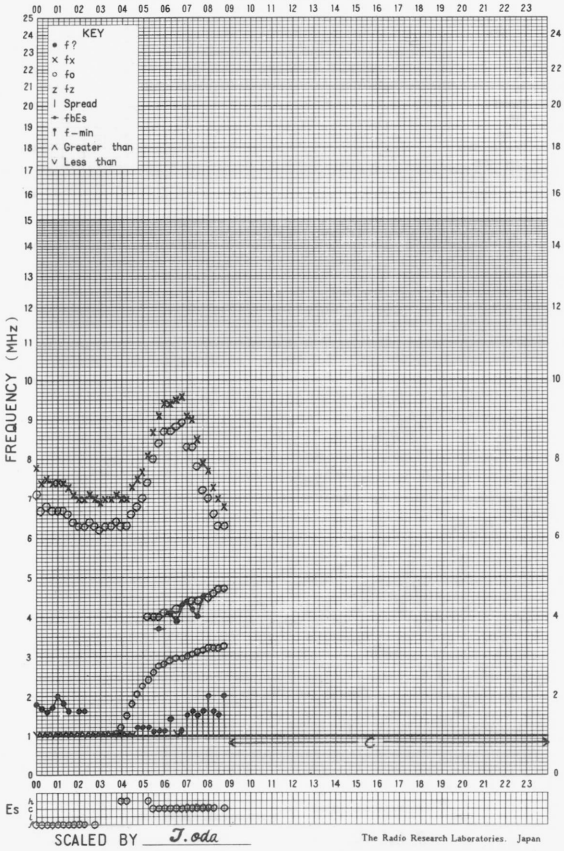

SCALED BY T. oda

The Radio Research Laboratories. Japan

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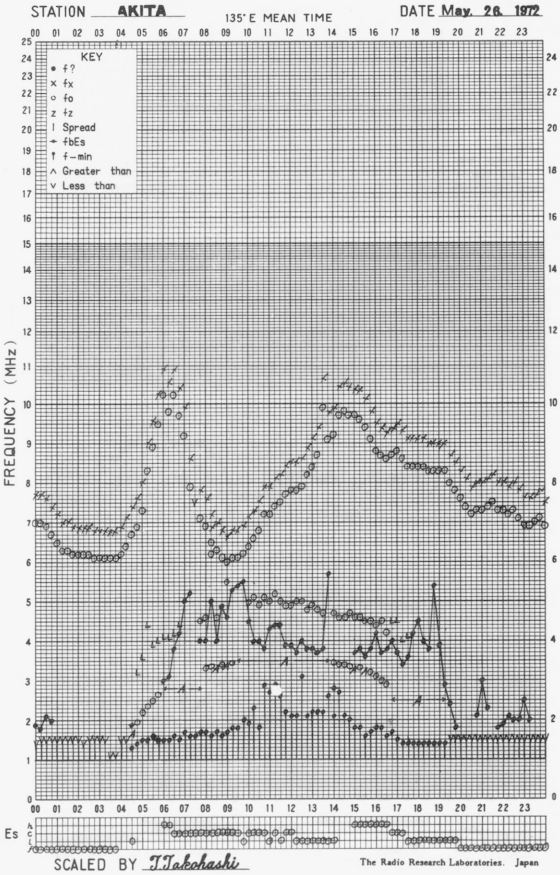

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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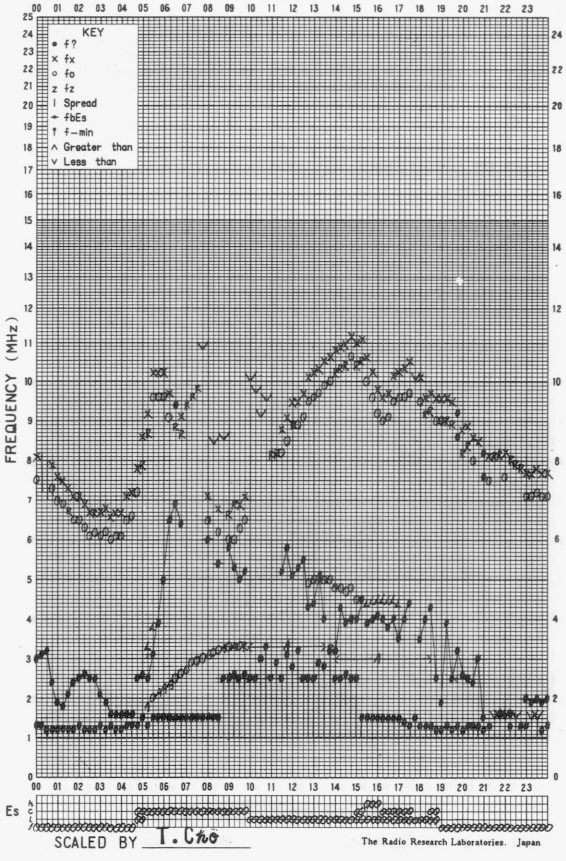

SCALED BY T. Cho

The Radio Research Laboratories. Japan

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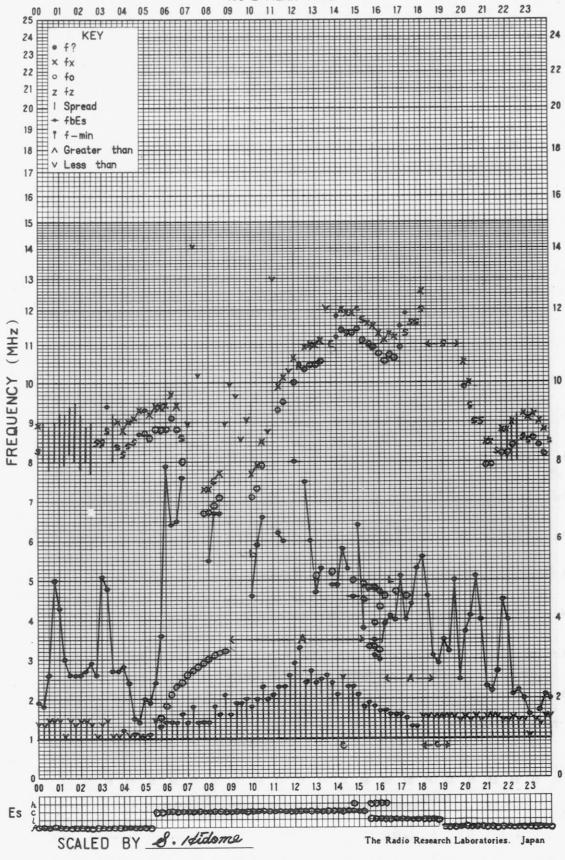

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The Radio Research Laboratories. Japan

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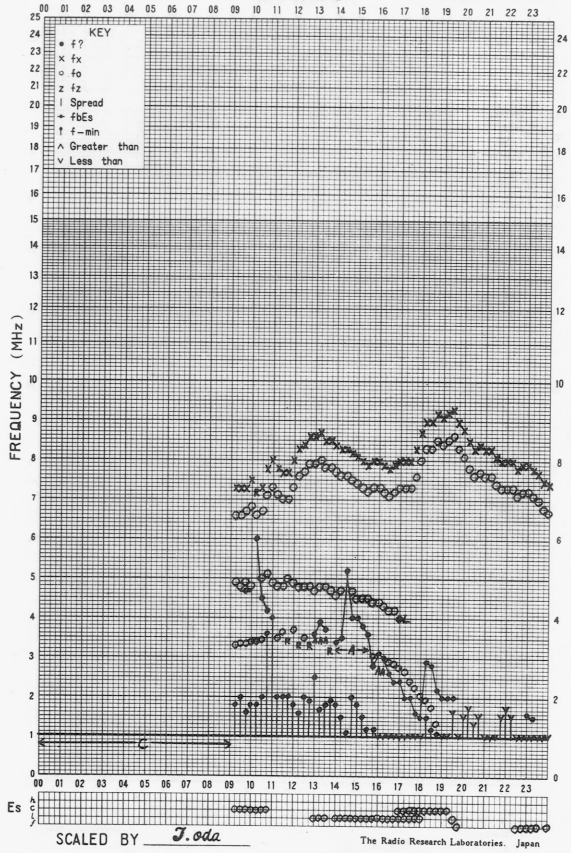

SCALED BY T. oda

The Radio Research Laboratories. Japan

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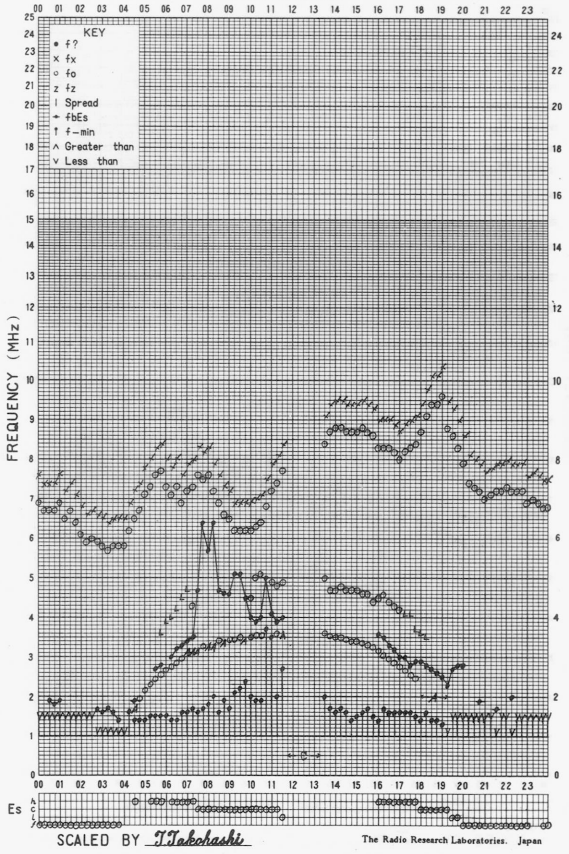

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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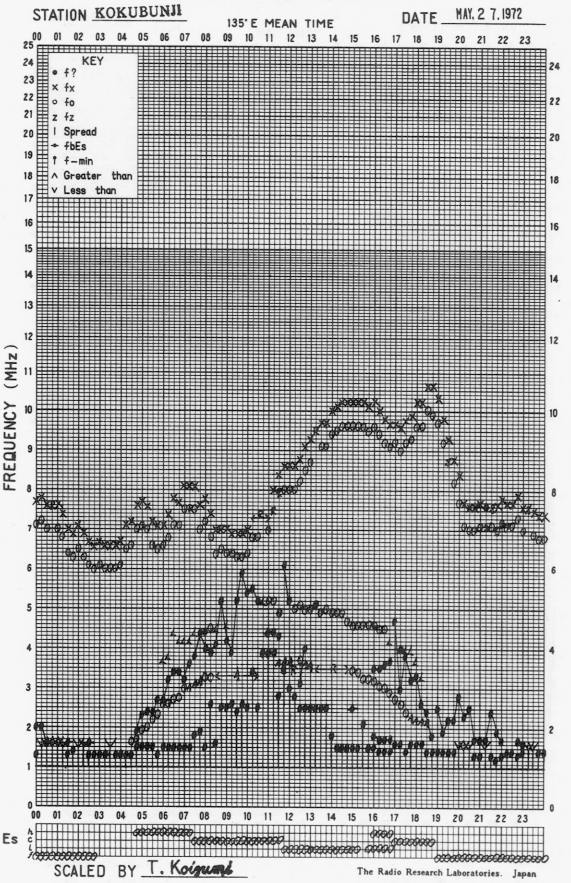

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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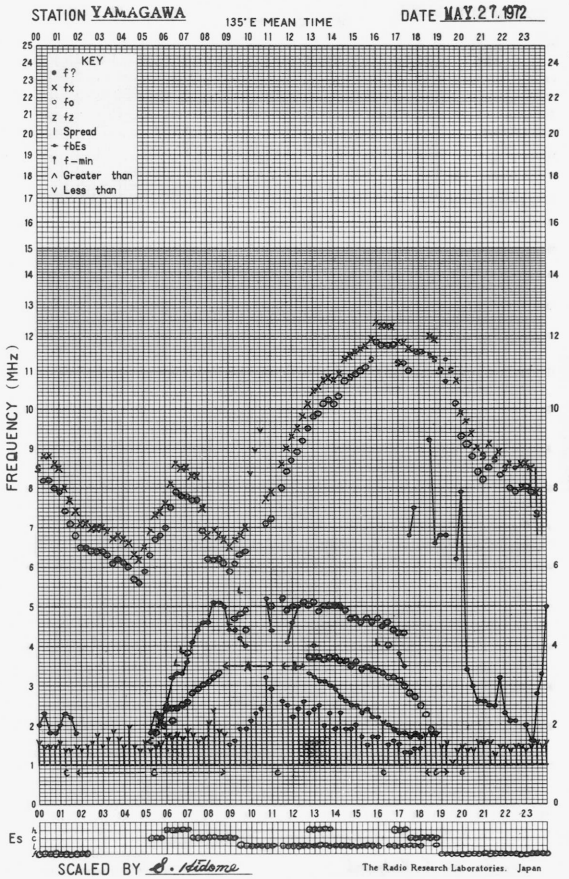
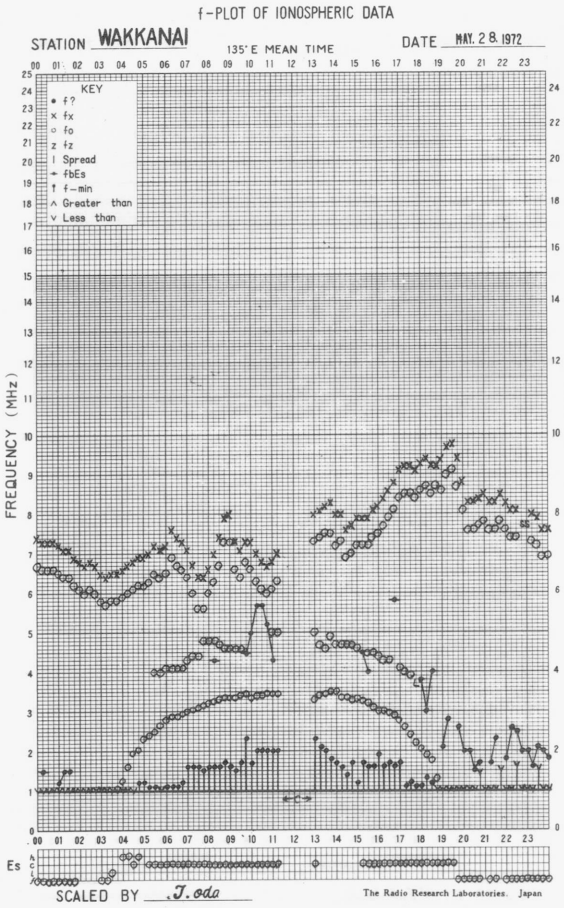


SCALED BY S. Hidaka

The Radio Research Laboratories. Japan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STATION WAKKANAI
135° E MEAN TIME
DATE MAY. 28. 1972
KEY
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× fx
○ fo
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| Spread
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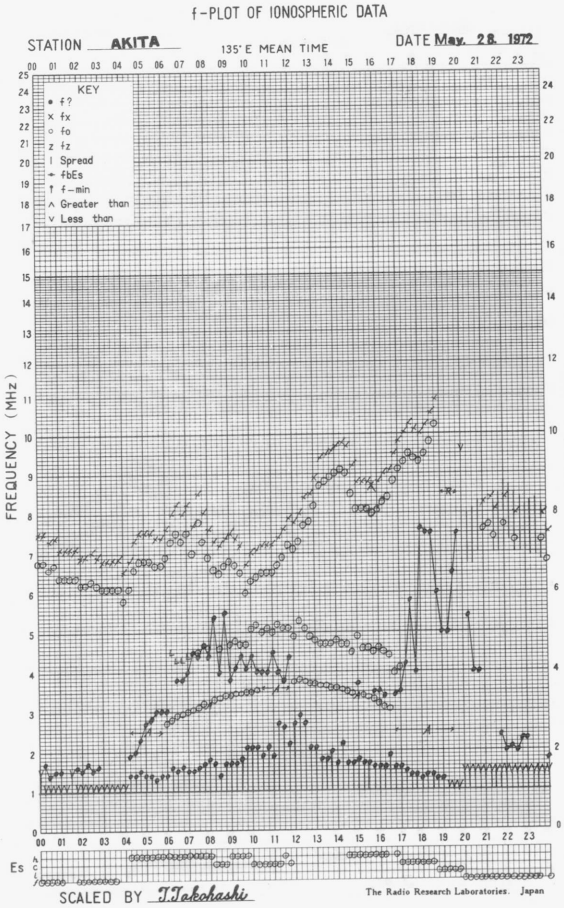
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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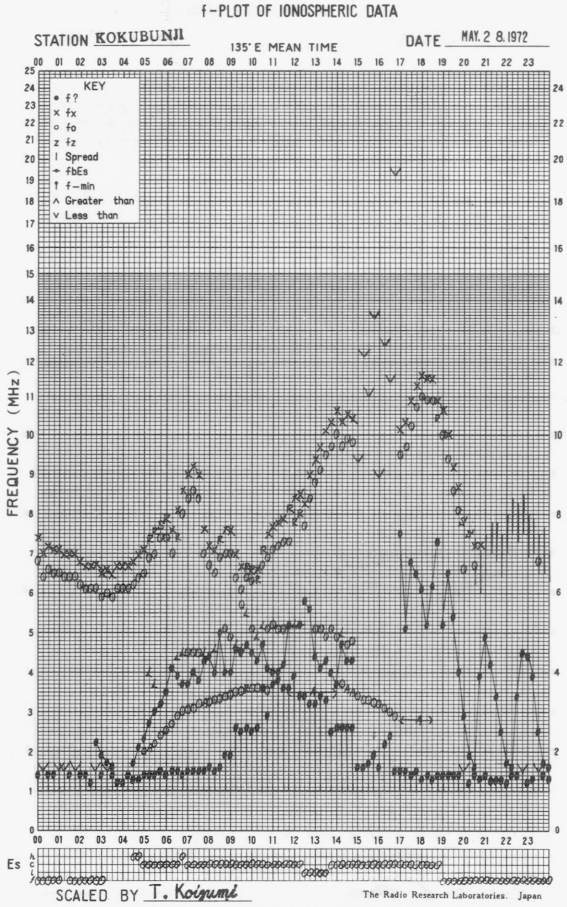
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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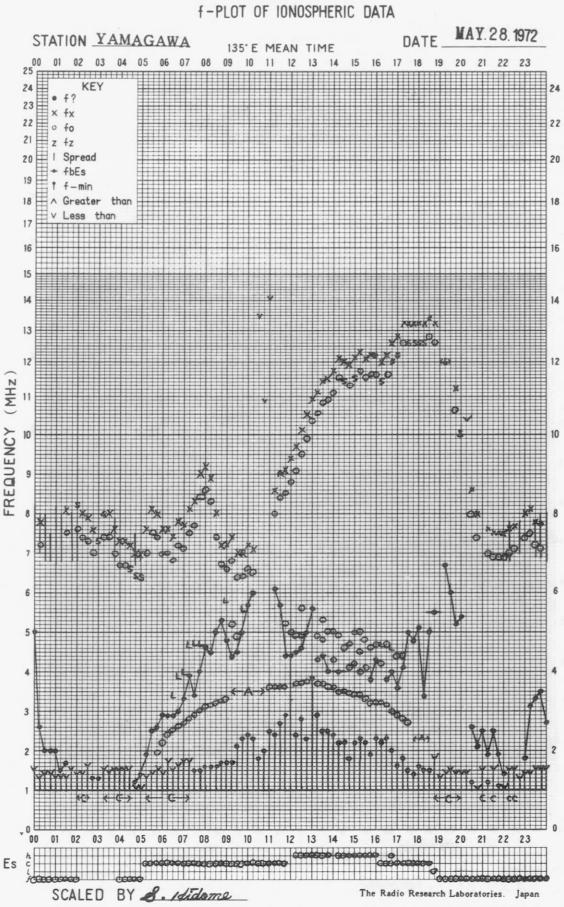
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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135° E MEAN TIME
DATE MAY. 28. 1972
KEY
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○ fo
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↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
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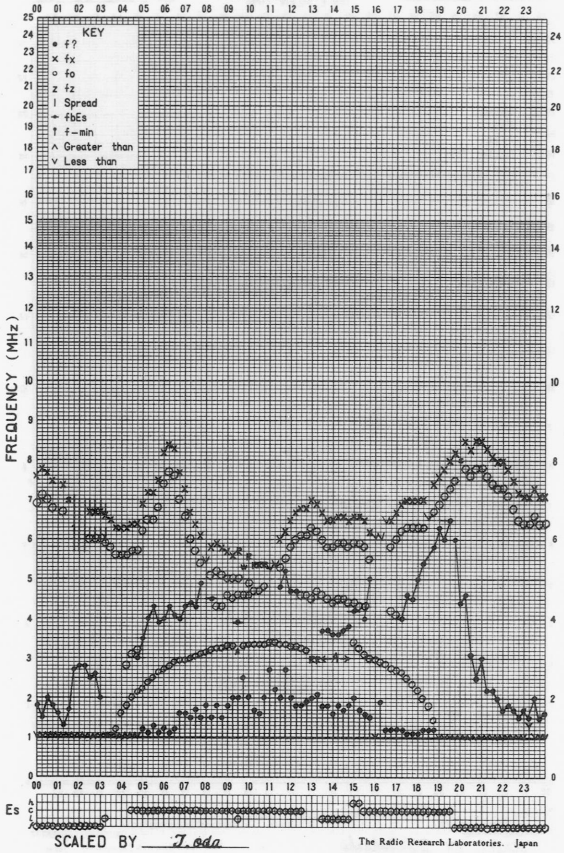
SCALED BY S. Ichidome
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135° E MEAN TIME DATE MAY. 2 9. 1972



SCALED BY T. Oda

The Radio Research Laboratories. Japan

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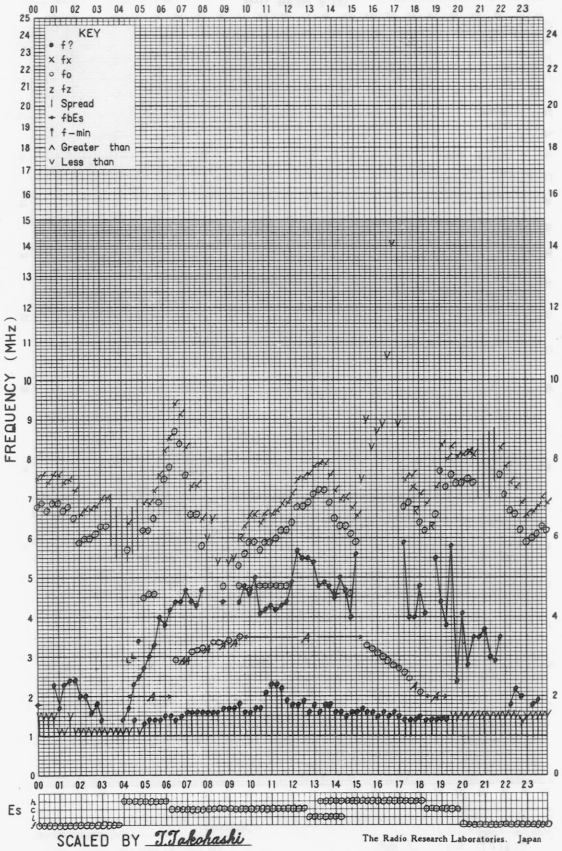

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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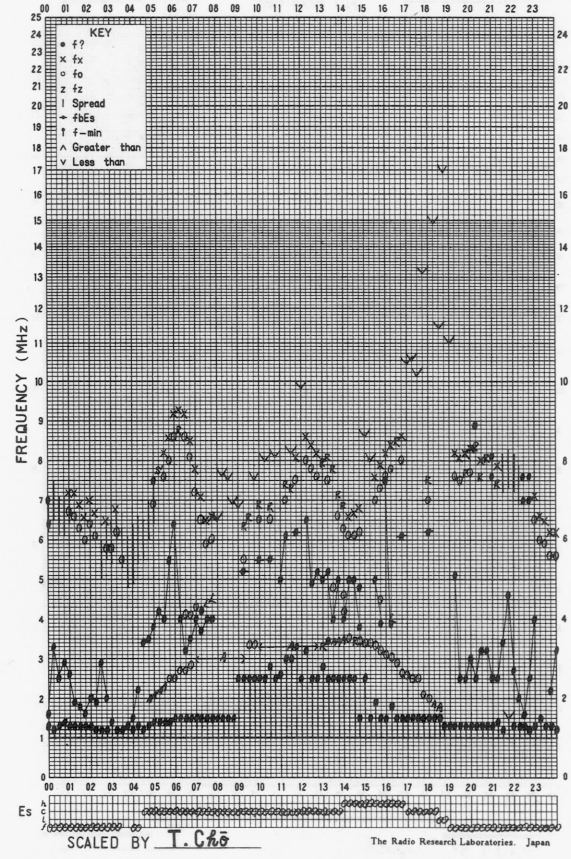

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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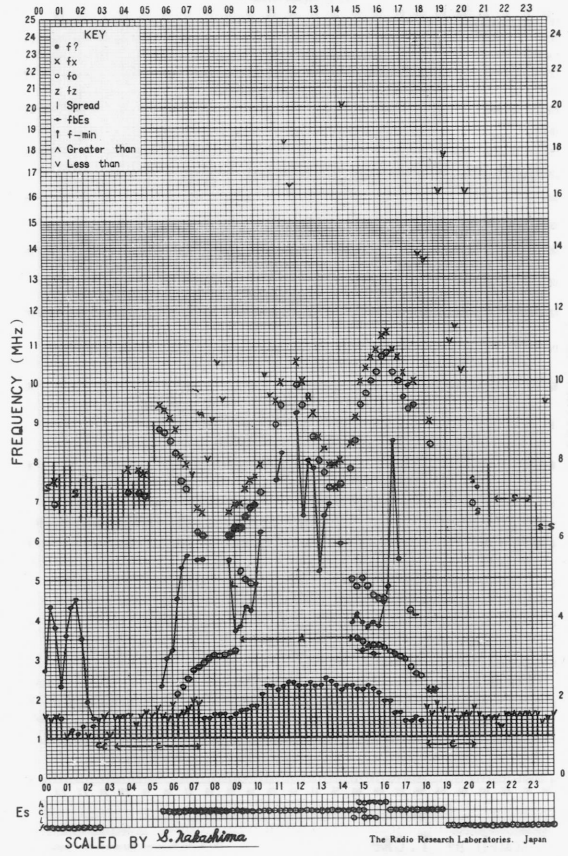

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The Radio Research Laboratories. Japan

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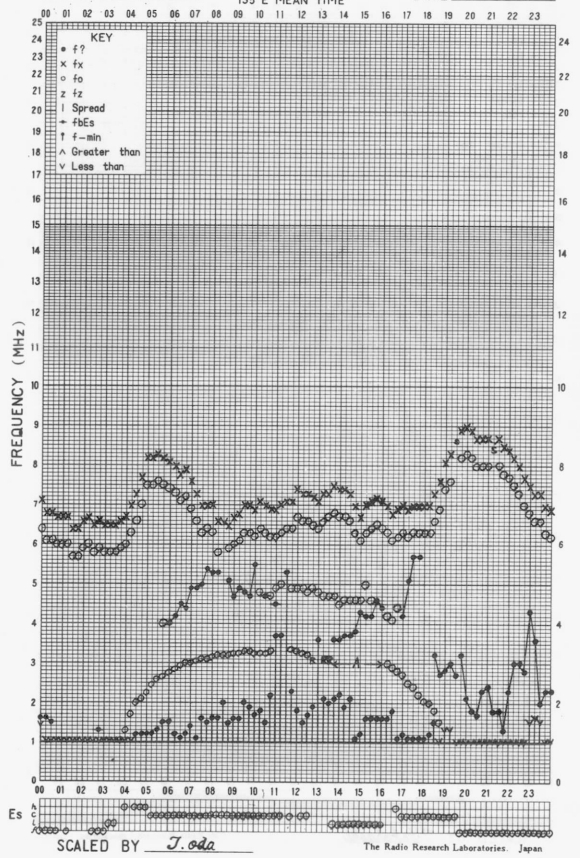

SCALED BY T. oda

The Radio Research Laboratories. Japan

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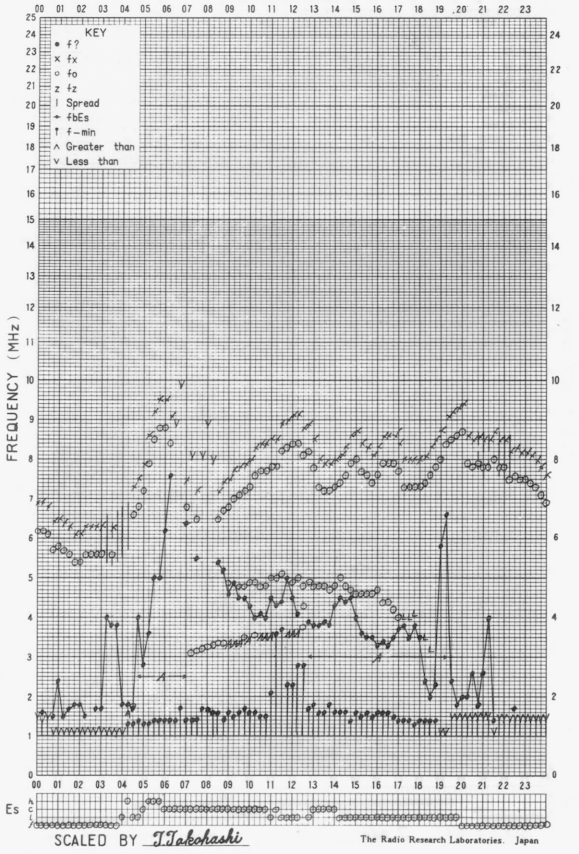

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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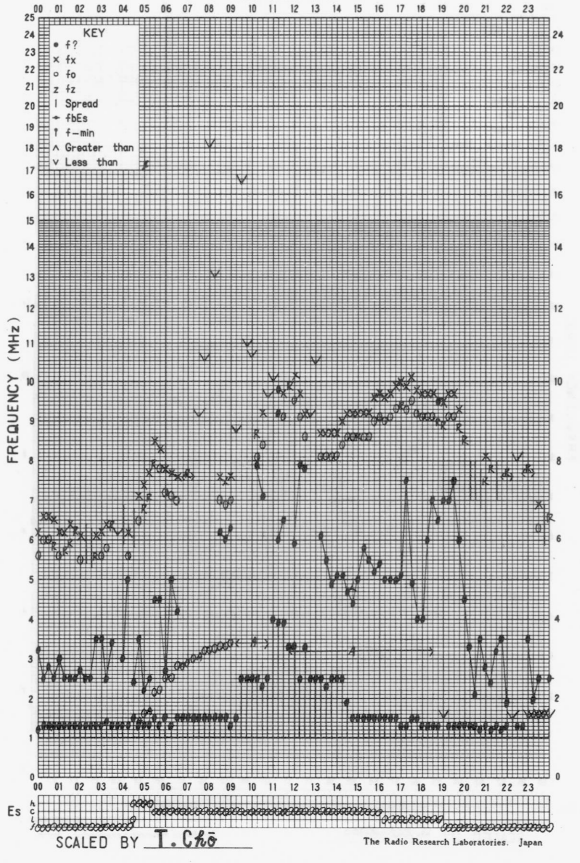

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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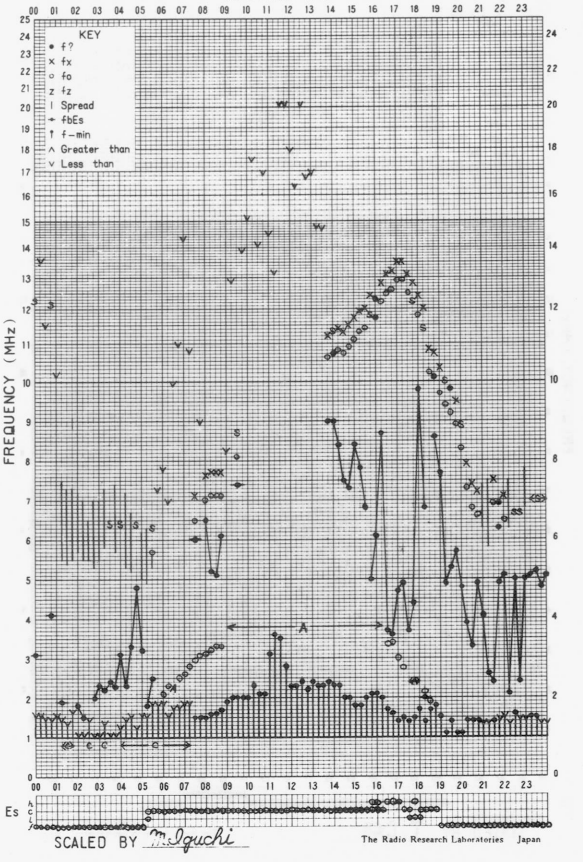

SCALED BY M. Iguchi

The Radio Research Laboratories Japan

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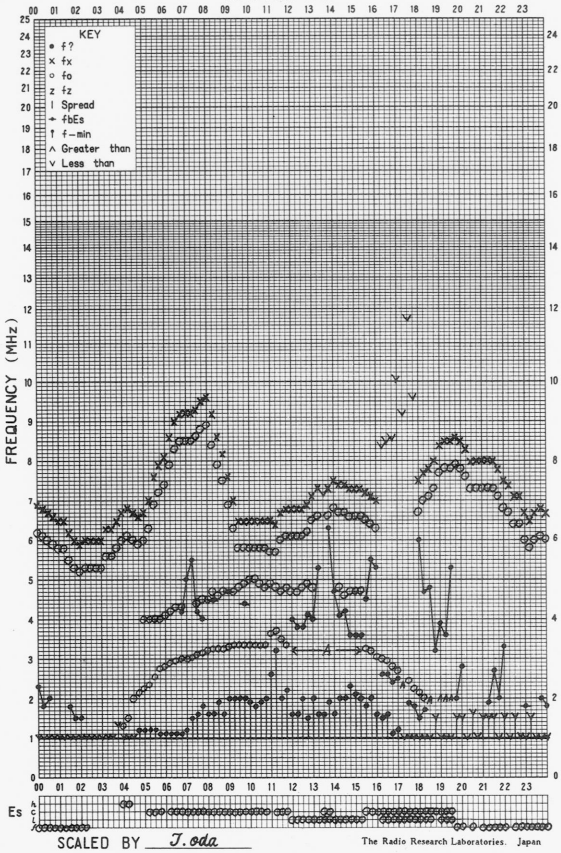

SCALED BY J. oda

The Radio Research Laboratories. Japan

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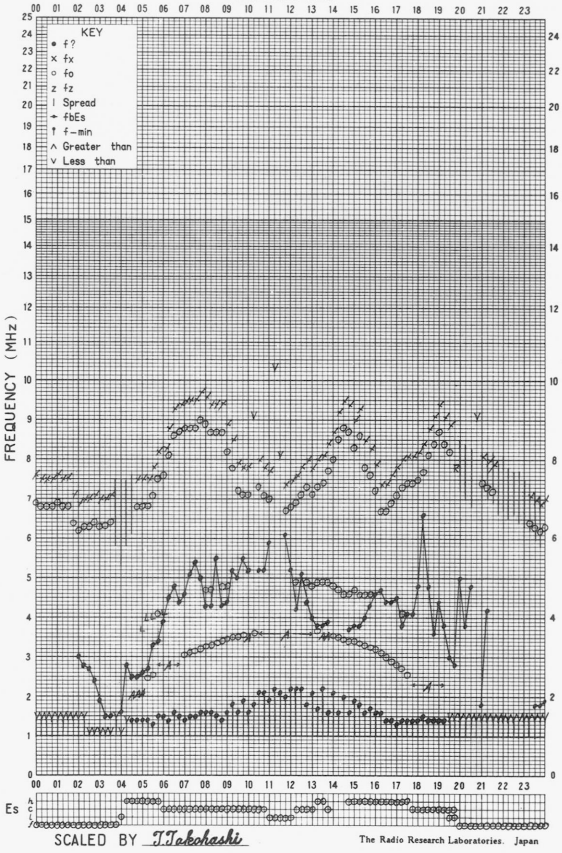

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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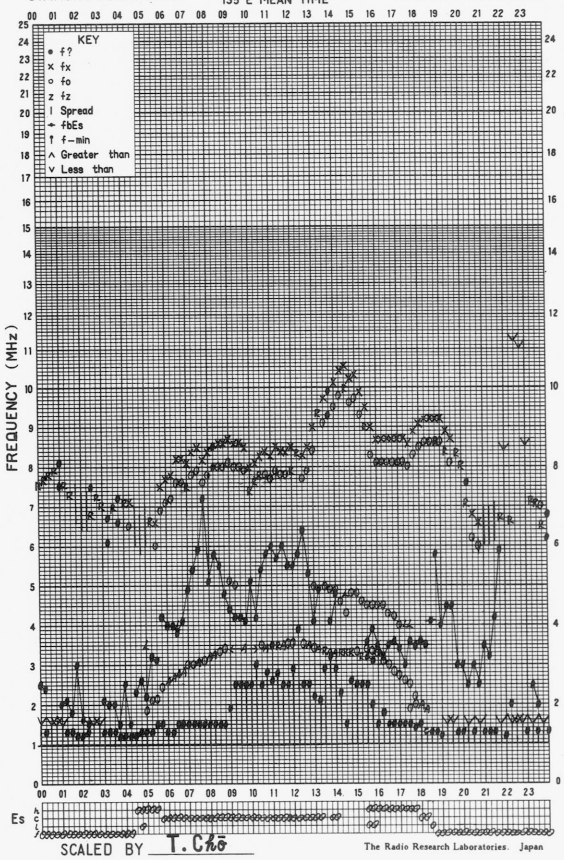

SCALED BY T. Chō

The Radio Research Laboratories. Japan

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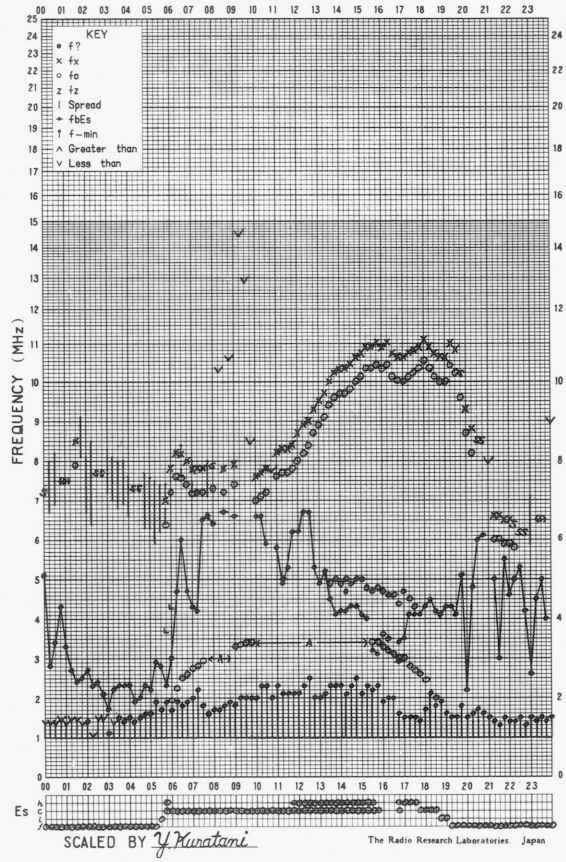
STATION YAMAGAWA 135°E MEAN TIME DATE MAY. 31. 1972



SCALED BY Y. Kuratani

The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: May 1972
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	5	5	6	5	5	0	0	0	0	0
2	5	5	5	6	5	0	0	0	0	0
3	5	5	5	6	5	0	0	0	0	0
4	5	6	6	q	6	0	0	0	0	0
5	q	6	5	6	5	0	0	*	0	0
6	6	6	6	7	6	0	0	0	0	0
7	8	8	6	8	7	0	0	0	0	0
8	8	10	12	8	9	0	0	0	0	0
9	6	6	5	6	6	0	0	0	0	0
10	6	6	6	7	6	0	0	0	0	0
11	6	6	6	6	6	0	0	0	0	0
12	6	6	6	7	6	0	0	0	1	0
13	7	7	6	5	7	0	0	1	0	0
14	q	6	6	6	6	0	0	0	0	0
15	7	6	6	6	6	0	0	0	0	0
16	6	7	8	7	7	0	0	0	0	0
17	7	7	7	7	7	0	0	0	0	0
18	7	7	6	7	7	0	0	0	0	0
19	7	8	6	6	7	0	1	0	0	0
20	6	7	8	17	7	0	0	0	0	0
21	19	25	31	65	22	0	0	0	0	0
22	42	27	22	6	43	0	0	1	0	0
23	7	6	6	7	6	0	0	0	0	0
24	7	7	9	6	7	0	1	1	0	0
25	5	5	6	6	6	0	0	0	0	0
26	6	6	5	6	6	0	0	0	0	0
27	6	6	6	6	6	0	0	0	0	0
28	5	5	6	7	5	0	0	0	0	0
29	10	11	12	8	10	1	0	1	0	0
30	9	8	6	9	8	1	0	0	0	0
31	8	7	8	6	8	0	0	0	0	0

q: quiet level, when radiometer is unstable.

*: interference by atmospherics.

SOLAR RADIO EMISSION

Flux Density

Month: May 1972
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	24	25	24	25	24
2	25	25	24	23	25
3	24	24	24	25	24
4	25	25	25	25	25
5	26	26	25	24	26
6	25	25	24	26	24
7	26	26	26	27	26
8	27	27	27	29	27
9	29	30	29	27	29
10	29	28	26	28	27
11	29	30	28	28	29
12	29	30	29	32	29
13	31	29	28	34	30
14	33	32	30	30	32
15	31	31	31	29	31
16	29	29	29	31	29
17	31	30	31	31	31
18	32	30	28	32	30
19	31	31	32	30	32
20	33	32	31	27	31
21	28	29	29	31	28
22	31	28	29	29	30
23	29	28	27	27	29
24	26	25	25	27	26
25	27	26	25	25	27
26	25	25	25	25	25
27	26	25	25	26	25
28	26	25	26	q	26
29	q	q	q	25	q
30	25	25	25	23	25
31	24	24	24	23	23

q: quiet level, when radiometer is unstable.

Distinctive Events

(single-frequency observations)

Month: May 1972
Observing station: Hiraiso
Normal observing period: 1930 - 0940 (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	
9	200	0908.0	0908.0	1.5	C	340	120	
11	200	2153.0	2153.0	1.0	C	670	200	
	100	2153.5	2153.6	0.5	C	190	80	
12	200	0154.6	0154.8	0.5	C	740	-	
	100	0154.7	0155.2	1.0	C	170	60	
	500	0318.3	0318.4	0.5	S	80	40	
	200	0324.8	0325.0	0.2	C	740	300	
	100	0324.8	0324.9	1.0	eS	110	30	
	200	2253.5	2253.8	1.0	C	1000	-	
	100	2253.7	2253.8	1.2	C	190	50	
13	200	0616.0	0616.2	0.5	C	200	50	
	100	0617.5	0617.6	1.0	C	140	30	
	500	0809.5	0809.6	0.3	S	510	-	
	200	0812.5	0813.0	1.5	C	140	30	
	100	0812.5	0813.2	2.2	C	170	30	
		0909.5	0915.0	9.0	C	180	40	
		2010.5	2011.8	4.0	C	250	130	
	200	2112.0	2112.1	1.5	C	830	200	
	100	2112.0	2112.5	1.0	C	200	80	
16	100	0306.7	0310.5	11.5	C	150	50	
	200	0307.5	0313.5	35	C	150	5	
	500	0308.0	0308.2	11.0	C	270	30	
	100	0318.0	0340.0	240	E	15	10	*2 R
	500	0319.0	0326.0	220	Pi	13	5	
17	200	0511.0	0513.0	5.0	C	140	30	
	100	0511.8	0513.4	3.2	C	180	50	
20	200	0721.5	0721.8	2.0	C	490	80	
	100	2200	0357.0	>690		50	15	*1, *2 L
21	100	1935	2016	>835		360	60	*1, *2 L, SR-SS
		2038.4	2038.7	0.8	C	1000	-	
24	500	0659.7	0706.0	48	RF	30	5	*3 0700-01 0704.2-05.3
	200	0702.0	0704.0	31	RF	30	5	
	100	0703.4	0704.5	37	C	225	50	
29	100	0353.5	0632.0	>342		80	20	*1, *2 R
30	100	1940	2215	>350		40	15	*1, *2 R
	200	2313.0	2313.2	0.7	C	550	180	
	100	2313.0	2313.5	1.0	C	160	60	
31	200	0221.0	0221.2	1.0	C	270	60	
	100	0221.5	0221.8	1.0	C	110	30	
		0548.0	0548.3	0.5	C	150	50	
	200	0851.8	0852.0	0.5	C	620	140	
	100	0852.0	0852.3	0.5	C	100	40	

*1: noise storm

*2: polarization

*3: interrupted by calibration

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

MAY 1972 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	-2	-7	-1	-2	8	ES 4	ES -11	ES -9	ES -13	ES -1	ES -8	-5	ES 1	ES -4	ES 4	ES -7	ES -22	-7	FS -22	13	12	-8	-10	8
2	0	0	-7	-1	1	ES -13	ES -13	ES -18	ES -13	ES -10	ES -10	ES -2	ES -7	ES -8	ES -1	ES -1	-15	-12	FS -23	2	17	9	ES -23	-12
3	-14	ES -23	-19	ES -19	-19	-15	-19	ES -23	ES -23	ES -23	ES -23	ES -23	ES -24	ES -6	ES -2	ES 0	ES -23	-17	FS -23	FS -23	FS -23	FS -23	FS -23	-17
4	-8	-4	-8	-12	-15	ES -14	ES -10	ES -11	ES -8	ES -10	ES -8	ES -9	FS -5	-1	ES 3	ES -2	-1	1	-11	4	6	0	-1	-1
5	-9	-1	-1	11	14	10	3	-2	ES -15	ES 12	ES -9	ES -2	ES -7	ES 10	ES 5	1	6	5	1	-8	-1	2	2	-9
6	-16	-5	-5	-6	3	13	13	-8	-11	ES -14	ES -11	ES -2	ES -7	ES 3	ES -2	0	10	7	8	-1	-6	-17	-6	-9
7	-9	-9	-9	-2	6	13	13	13	7	ES -8	ES -6	ES -7	FS -5	10	4	ES 10	7	10	7	1	1	-4	-4	-8
8	-5	-10	-7	0	9	12	14	11	5	7	1	0	FS -1	ES -1	ES 3	12	6	6	3	1	-1	-3	-8	-9
9	-11	-10	-7	-1	4	9	15	0	2	ES -8	ES -4	ES -2	FS -2	8	ES 1	0	-7	11	-1	0	-13	-13	-7	-3
10	-10	-7	9	3	9	9	6	-8	-9	-9	ES -9	ES -7	ES -9	ES -2	7	10	4	12	7	6	-2	-2	-14	-8
11	-11	-3	2	-3	7	10	9	2	4	-5	ES -8	ES -3	ES -7	ES 7	-1	0	ES -1	-18	4	2	4	-18	-4	-7
12	-11	-8	-1	2	0	1	-13	ES -10	-11	-7	-4	ES -4	FS -5	10	6	ES 5	2	10	-5	0	-2	-2	-1	-7
13	2	-2	-9	0	5	8	7	ES -9	-13	-2	ES -11	ES -6	FS -7	6	13	12	15	16	16	8	2	1	-4	-6
14	-12	6	-6	-9	3	5	7	-12	-10	-11	ES -6	ES -1	1	18	19	ES 4	1	-4	-4	-15	-3	-3	-18	-6
15	-11	-9	-6	-1	11	13	9	9	8	11	1	12	FS 7	17	17	10	-2	11	-7	7	-3	-4	-4	-2
16	-4	6	-1	ES -23	ES 8	3	C	5	12	13	12	ES -2	ES -7	ES 3	ES 3	13	ES -2	ES -14	ES -17	ES -11	ES -15	ES -19	ES -23	ES -23
17	ES -23	ES -23	-22	-11	-6	5	-8	7	17	15	-2	ES -9	10	11	8	7	11	9	-1	9	9	4	-3	-19
18	-14	-8	-3	3	15	14	9	-2	3	3	ES 7	ES -8	ES 0	8	13	15	17	11	1	7	4	4	-9	-5
19	-8	-1	-4	1	9	16	16	20	18	16	17	15	4	19	21	24	17	5	3	3	-3	2	-11	-9
20	-9	-9	1	10	3	8	14	21	13	2	-2	ES -1	8	14	13	17	17	7	7	1	FS 17	FS 5	-3	-13
21	-8	-1	3	8	6	12	14	24	22	14	ES 9	ES 8	ES 32	ES 27	19	15	6	8	8	4	6	2	-1	-2
22	-6	-2	-3	1	8	10	18	2	1	2	16	1	7	11	8	11	11	3	1	-2	0	-15	-9	-12
23	ES -15	-10	-10	2	6	11	16	13	6	6	-5	ES -3	14	16	ES 6	ES 6	15	3	0	8	4	-2	-7	ES -2
24	-1	-3	1	4	11	14	11	ES -24	ES -13	-3	-9	ES -3	FS -4	12	9	ES 7	6	0	-4	2	1	-2	-2	-3
25	1	6	-2	1	7	12	20	-9	ES -15	ES -9	ES -5	ES -3	ES -1	18	13	ES 13	4	1	-4	5	2	-4	-7	-10
26	-12	-1	3	1	11	8	8	2	14	18	10	ES -7	1	13	10	19	17	1	8	11	3	4	-4	-7
27	-7	-3	-10	4	8	11	-2	ES -9	4	4	10	3	5	8	8	9	2	6	-4	1	0	1	5	-1
28	-3	-4	6	-3	4	15	15	18	3	3	ES -2	ES 2	ES -3	ES 2	ES -1	7	7	FS -15	-4	-10	17	-3	-13	-10
29	-4	-16	ES -15	ES -3	1	11	11	10	14	15	2	6	ES -1	ES 1	6	ES 4	-3	1	0	-6	-2	-10	-9	-18
30	-10	2	ES -24	-2	5	7	7	2	-12	ES -7	ES 5	ES -3	FS -4	1	12	8	10	0	8	7	16	8	-3	-4
31	-2	-3	-2	1	US 12	17	10	-8	-8	-2	-3	ES 0	FS 3	8	ES 2	ES 1	9	-7	-23	3	7	6	-4	0
CNT	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	-9	-4	-4	0	US 6	10	9	0	2	US -1	ES -4	ES -2	FS -1	US 8	6	US 7	6	3	0	2	US 1	US -2	-6	US -7
UD	0	6	3	8	12	14	16	20	17	15	12	ES 8	ES 10	ES 18	19	17	15	11	8	9	FS 17	6	-1	-1
LD	ES -15	-16	ES -19	ES -12	ES -6	ES -13	ES -13	ES -18	ES -15	ES -11	ES -11	ES -9	ES -7	ES -4	ES -1	ES -1	ES -15	ES -15	ES -23	ES -11	ES -13	ES -18	ES -23	ES -18

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

MAY 1972 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

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

RADIO PROPAGATION QUALITY FIGURES

May 1972	Whole Day Index		W W V 00 06 12 18 / 06 12 18 24	L M 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Warning 00 06 12 18 / 06 12 18 24	Principal magnetic storms Start	End	ΔH
1	3+		4 (3)(3) 4	4 3 (4)(3)	4 3 2 4	U U U U			
2	3°		3 (2)(2) 3	4 4 (4)(1)	4 3 3 3	U N N N			
3	2+		3 (1)(2)(2)	3 4 (4)(1)	4 2 (2) 3	N N N N			
4	3+		4 (3) 3 4	3 4 (4)(3)	4 3 2 4	N N N N			
5	4°		4 (3) 4 4	4 4 (4) 4	4 3 3 4	N N N N			
6	4°		4 (3) 4 4	5 3 (4) -	4 4 4 4	N N N N			
7	4+		4 (4) 4 4	(5) - - -	4 3 3 4	N N N N			
8	4°		(4)(5) 4 4	4 4 (4) 4	4 4 3 4	N N N N			
9	4°		4 (4) 3 4	5 3 (4) 4	4 4 4 4	N N N N	05 18 24.0		76γ
10	4-		4 3 4 4	5 3 (4) 3	4 4 4 4	N N N N			
11	4°		4 4 4 4	3 4 (4)(4)	4 4 3 4	N N N N			
12	4-		3 (3) 4 4	4 4 (4) 4	4 4 4 4	N N N N			
13	4°		4 (3) 5 4	4 3 (4) -	4 4 5 4	N N N N			
14	4+		4 3 5 (4)	(5) - - -	4 4 4 4	N N N N			
15	4+		(4) 5 4 (4)	5 4 (4) 5	4 4 4 4	N N N N	18 49	---	157γ
[16*]	3+		(4)(5)(3)(2)	4 3 (4)(1)	4 4 4 3	N N N N	---	15.0	
[17]	4-		3 4 4 4	3 4 (4) 4	4 4 4 3	N N N N			
[18]	4+		4 4 5 4	4 5 (4) 4	4 4 5 4	N N N N			
19	4+		4 (5) 5 4	4 5 (4) 4	4 4 4 4	N N N N			
20	4°		4 4 5 4	3 4 (4) -	4 4 5 4	N N N N			
21	5-		(5) 5 5 (4)	(5) - - -	4 4 4 4	N N N N			
22	4+		(5) 4 5 4	4 (4) - 4	4 4 4 4	N N N N			
23	4°		(4) 5 4 (5)	3 4 (4) 4	4 4 4 4	N N N N			
24	4-		4 (3) 4 4	4 4 (4) 3	4 4 4 4	N N N N			
25	4-		4 (3) 4 (4)	3 (4) - 4	4 4 3 4	N N N N			
26	4+		(5)(4) 4 4	4 (5) - 4	4 4 4 4	N N N N			
27	4-		(4)(4) 4 4	3 3 (3) -	4 4 4 4	N N N N			
28	4-		(4) 4 (3) 4	(4) - - -	4 4 4 4	N N N N			
29'	4°		4 5 4 4	(3) 4 (4) 3	4 4 4 4	N N N N			
30	4-		4 (3) 4 5	3 3 (4) 4	4 4 3 4	N N N N			
31	3+		4 3 3 4	3 4 - 3	4 4 3 4	N N N N			

GEOALERT

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

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

C = artificial accident
--- = continuing magnetic storm

SUDDEN IONOSPHERIC DISTURBANCES

(S.I.D.)

HIRAISO

Time in U.T.

May 1972	S W F								COrrespondence		
	Drop-out Intensities (db)					Start-time	Dura-tion	Type	Imp.	Flare	Solar Noise	Mag.
	CO	LM	HA	TO	SH							
17	×	20	×			22.36	37	Slow	2		×	
24	×	26	×			06.58	72	Slow	2-		×	

I N U B O

1972	S P A										
May	Phase Advance (degrees)								Time (U.T.)			Remarks
DATE	GBR	WWVL	NAA	NWC	NPG	HA2	HA3	AL3	Start	End	Maximum	
1	—	—			7				1952	2038	2003	
4	—				20				0816	0852	0825	
5	—	18		8	13	18	19		2211	2327	2253	
9	—			8	4				0217	0244	0225	
11	—			20	13	16	18		0045	0150	0100	X
11	—		13	12					0602	0642	0610	
11	—		28	8	10	14	10		2249	2349	2305	
12	—		10	—	10*	12	11		0018	0125	0038	
12	—			—	10	16	14		0321	0408	0326	X
12	—			8					0715	0748	0717	
12	—				7*	—	—		1930	2030	1943	
12	—		15	32	23	—	—		2336	0054	2353	X
13	—			8	3	—	—		0124	0200	0137	
13	—			8	3	—	—		0209	0248	0218	X
13	—		19		3				1923	1946	1930	
13	—				3				2038	2116	2043	
13	—				5	—	—		2150	2230	2158	
13	—			8	8	—	—		2316	0004	2320	
14	—		17	16	7	—	—		0047	0120	0057	X
14	—			28*	11*	—	—		0256	0423	0315	
14	—				5	—	—		2045	2138	2105	
14	—		15	18*	21*	—	—		2250	2350	2255	
15	—	72	35	—	44	—	60*	68*	0221	0335	0243	X
15	—	—	11	24	8	—			0608	0647	0613	X
15	—	—	8	20		—			0652	0740	0704	

1972 May	S P A											Remarks
	Phase Advance (degrees)								Time (U.T.)			
DATE	GBR	WWVL	NAA	NWC	NPG	HA2	HA3	AL3	Start	End	Maximum	
15	—	53	31		40	—	34		1949	2042	2001	X
15	—				6	—	10		2107	2151	2111	
16	—			8	7	—	7		0010	0040	0017	
16	—			12	6	—			0110	0140	0120	
16	—	40	58	92*	47	—	62	45	0308	0430	0320	X
16	—		27	40	13	—	19		0432	0533	0437	X
17	—			8	3	—			0304	0335	0315	
17	—	142	90*	72	112	—	115	65	2234	0057	2247	X
18	—			8	3	—	5		0334	0425	0338	
18	—		25		—	—	42		2025	2148	2032	X
18	—	17	16	16	22*	—	29		2232	2338	2240	X
19	—			8	3	—			0306	0343	0312	
19	—			8		—			0434	0512	0445	
22	—	43	20		29	—	33		2105	2153	2115	
22	—				17	—			2208E	2247D	2211	
22	—	94*	42*	72*	70*	—	74*	40*	2205	0325	0042	X
23	—				7	—	13		2013	2111	2031	X
24	—	54	67	193*	70*	—	65	166	0637	0850	0708	X
26	—	14	33	8	8	—	11		2307	0001	2318	X
27	—	74	53	68*	52	—	68	54	0134	0343	0148	X
28	—		15	20	9	—	—	—	0031	0115	0045	X
28	—	29	15	64	18*	—	—	—	0221	0237	0252	X
28	—			48	3	—	—	—	0348	0412	0352	X
28	—			52		—	—	—	0714	0841	0730	X
28	—		64			—	—	—	1326	1416	1335	X

1972 May	S P A											Remarks
	Phase Advance (degrees)								Time (U.T.)			
DATE	GBR	WWVL	NAA	NWC	NPG	HA2	HA3	AL3	Start	End	Maximum	
29	—				9	—	12		0146	0312	0209	X
29	—			6		—			0336	0414	0340	
30	—			8	3	—	6		0023	0059	0027	
30	—	95	28	76	54	—	70	47	0151	0350	0220	
30	—				8	—	12	14	2157	2323	2215	
31	—			12	5	—			0146	0216	0150	
31	—	—		32*		—			0541	0730	0610	
31	—	11			5	—	7		2005	2049	2022	X

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

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

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

F-281 Revised Edition

IONOSPHERIC DATA IN JAPAN FOR MAY 1972

Vol. 24 No.5 Not for Sale

1973年7月10日 印 刷
1973年7月25日 発 行 （非売品）

編集兼
発行人 今野清恒
東京都小金井市貫井北町4丁目2－1

発行所 郵政省電波研究所
〒 184 東京都小金井市貫井北町4丁目2－1
☎ (0423)(21)1211(代)

印刷所 株式会社 真成社
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☎ (260)5279