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IONOSPHERIC DATA IN JAPAN

FOR MAY 1973

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OBSERVATION STATIONS

Ionospheric observations are carried out by means of the ionospheric vertical sounding at the following five observatories in Japan.

	Latitude	Longitude	Site
Wakkanai	45°23.6′N	141°41.1′E	Midori, 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
Yamagawa	31°12.1′N	130°37.1′E	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken
Okinawa	26°19.0′N	127°46.8′E	Chatan-son, Nakagami-gun, Okinawa-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.	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.

a. Terminology

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

f_oE_s — 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 $foEs$.

$hpF2$ — The virtual height of the $F2$ layer measured on the ordinary wave component at a frequency equal to 0.834 $foF2$.

$ypF2$ — 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 $foF2$).

b. 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 nonionospheric 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.

c. Qualifying Letters

The following letters are entered in the first column before a numerical value on the monthly tabulation sheets.

D	Greater than.
E	Less than.
I	Missing value has been replaced by an interpolated value.
J	Ordinary component characteristic deduced from the extraordinary component.

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

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

U — Uncertain or doubtful numerical value.

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

d. 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.

e. 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 $f_o E$. 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 $f_o E$. 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 non-blanketing 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.

f. 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 100, 200 and 500 MHz at Hiraiso. Observation equipments are: a 5 meter parabolic reflector with a total-power receiver for 500 MH_2 and a 10 meter parabolic reflector with two polarimeters for 100 and 200 MHz. Observations are feasible almost from sunrise to sunset.

Time is expressed in hours, minutes and tenths of minutes U.T. and the unit of flux density is 10^{-22} W m^{-2} Hz^{-1} for both components of polarization.

a. 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 mean flux level is counted.

Daily data with bracket mean that observation time does not exceed one third of the period.

b. 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 the nearest minute in general, but to nearest a tenth minute for short intense occurrences of clear commencements. *Date* indicates the day to which *starting time* of event belongs.

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

Type is denoted by the following descriptive 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 wavelength,

e : sudden beginning of burst with steep rise of intensity,

E : steep rise of intensity of continuum background,

pi : post-burst increase,

ns : noise storm.

Peak intensity is the flux density of each important peak of the occurrence, measured above the pre-burst level.

Mean intensity is the flux density averaged over the duration of burst, measured above the pre-burst level.

Polarization is expressed by polarization degree as follows:

O : no apparent polarization,

r or l : right- or left-handed polarization degree less than 0.5,

R or L : right- or left-handed polarization degree equal to or less than 1,

s : oscillatory change of polarization degree less than 0.5,

S : oscillatory change of polarization degree equal to or less than 1.

The following letters may be attached to values in table, if necessary.

D : greater than,

E : less than,

U : uncertain or doubtful, also including a case of partial interruption of observed phenomenon.

C. RADIO PROPAGATION

a. Measurement of H. F. Field Strength

Field strength observation of 15 MHz standard waves transmitted from WWV and WWVH stations which are located at Fort Collins, Colorado and Kauai, Hawaii, are carried respectively out at Hiraiso. In order to avoid interference among the same frequency waves, the upper side-band of WWV or WWVH with the audio tone 600 Hz is picked up by the use of a narrow band pass filter with 80 Hz band width. Particulars of the transmitters and the receiver are summarized in the following tables.

Characteristics	Transmitter		Receiver
Station Call	WWV	WWVH	
Location	Fort Collins, Colorado	Kauai, Hawaii	Hiraiso, Ibaraki
latitude	40°41′N	22°00′N	36°22′N
longitude	105°02′W	159°46′W	140°38′E
Distance	9150 km	5910 km	–
Carrier Power	10 kW	10 kW	–
Modulation	50%	50%	–
Antenna	λ/2 vertical	λ/2 vertical	4.5 m vertical rod
Bandwidth	–	–	80 Hz for upper side-band
Calibration	–	–	every an hour

The tabulated *field strength* in dB above one microvolt per meter is the peak average of the incident upper side-band field intensity in 45 seconds after the universal time indicated on the

table. Abbreviated symbols are as follows.

CNT : number of values from which a median has been computed,
MED : median,
UD : upper decile, median of the upper tenth of values when they are ranked according to magnitude,
LD : lower decile, median of the lower tenth of values when they are ranked according to magnitude,
U : uncertain,
E : less than,
C : influenced by, or impossible because of, any non-propagational reasons,
S : influenced by, or impossible because of, interferences or atmospherics.

b. Radio Propagation Quality Figures

The tabulated six-hourly quality figures are calculated for standard waves WWV transmitted from Fort Collins and standard waves WWVH transmitted from Kauai, respectively. *Quality figures* expressing radio propagation conditions are ranged over five grades as follows:

1 : very poor (very disturbed),
2 : poor (disturbed),
3 : rather poor (unstable),
4 : normal,
5 : good.

Whole day quality figure ranged in grades of 1_o, 1+, 2–, 2_o, 2+ 3–, 3_o, 3+, 4–, 4_o, 4+, 5–, 5_o stands for an average of six-hourly ones of the two circuits. Abbreviated symbols are as follows: follows:

C : artificial accident,
S : propagational accident,
U : inaccurate.

Radio propagation conditions which can be described with a code in the following.

N : normal,
U : unstable,
W : distrubed,

are forecast 12 hours in advance and broadcast twice per an hour from JJY Station.

Data on a *geomagnetic storm* correlated with a radio propagation disturbance are tabulated from observation at Kakioka Magnetic Observatory, Japan Meteorological Agency. *Time* is expressed in hours and minutes U.T. (or tenths of hour), and *range* in gammas. When they are uncertain quantitatively, /'s are replaced with them. Continuation of a geomagnetic storm is denoted by ---.

Daily conditions characterized by COSMIC EVENT, FLARE, MAGSTORM, PROTON FLARE of GEOALERT are modified by letters C, F, M, P, respectively.

c. Sudden Ionospheric Disturbances (SID)

(i) SWF

The table of short wave fade-out (SWF) is prepared from the record of field intensities measured at Hiraiso. *Drop-out intensities* of the 10 MHz, the 20 MHz and the 25 MHz waves are distinguished by marks ', '' and ''' from these of the 15 MHz wave for WWV and WWVH, respectively. Values of *start, duration, type* and *importance* are obtained from data of the circuit whose drop-out intensity in dB is underlined as____.

Types of fade-out are as follows:

S : sudden drop-out and gradual recovery,

SL : slow drop-out taking 5 to 15 minutes and gradual recovery,
G : gradual and irregular in both drop-out and recovery.

Importance of fade-out is scaled according to its amplitude into nine ascending grades as 1–, 1, 1+, 2–, 2, 2+, 3–, 3, 3+.

Correspondence of solar flare, solar radio burst or geomagnetic crochet to SWF is marked by x in accordance with interchange messages of IUWDS and observations at Hiraiso.

(ii) SPA

Data of sudden phase anomaly (SPA) are prepared from the records of phase measurement of VLF radio wave propagation received at Inubo. Characteristics of the VLF radio wave propagation circuits are given on the following table. In the last coloumn, distance of circuit along the great circle is shown.

Transmitter					Distance of circuit (km)
Name	Location (Geographic Coordinate)	Station Call	Frequency (kHz)	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	10	6100
Aldra	66°25′N 013°09′E	AL0 AL2 AL3	10.2 12.3 13.6	10	7820
North Dakota	46°22′N 098°20′W	ND0 ND2 ND3	10.2 12.85 13.6	10	9150

Phase advance is shown in unit of degree at its maximum stage. No transmission or no reception during the period is indicated by –, and indistinguishable record is spaced out, and multi-peak event is marked by *.

Out of more than two circuits on which the same SPA event is observed, the *phase advance* on the circuit on which the SPA is the most remarkable or distinct is underlined. As for the underlined *phase advance, start, end* and *maximum* times are obtained.

In the column *remarks,* the event with its corresponding solar X-ray data observed by satellites is shown by X.

In table (i) SWF and (ii) SPA, *date* indicates the day to which *start-time* of event belongs.

The following letters may be attached to the value, if necessary.

D : greater than,
E : less than,
U : uncertain or doubtful.

IONOSPHERIC DATA

MAY. 1973 | FOF2 (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

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

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

The Radio Research Laboratories, Japan

MAY. 1973 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOF1 (0.01 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							370	410	B	A	A	460	B	470	470	450	L	A						
2									450	460	490	470		B	460	480	360							
3									460	460	470	I B 500	500	B	500	B	430							
4								L 440	450	460	500	L 470	U L 500	500	480	460	410							
5							C	C	C	460	470	480	480	480	490	450								
6									430	460	480	470	480	480	460	430	410							
7									440	460	520	470	480	500	480	450	L 430	L						
8							350	380	A	410	430	A	440	440	430	420	410	380						
9								410	430	A	450	480	470	460	450	430	L 410	L						
10							C	C	C	A	460	450	450	450	450	420	400							
11							380	A	A	A	440	A	460	430	440	420	410	A						
12							U L 390	400	A	450	440	460	450	450	450	430	A							
13									430	440	460	460	460		430	430	400	L 370						
14							360	A	A	420	430	430	430	430	420	400	380	400						
15							390	410	420	430	440	460	450	450	440	430	A	A						
16								A	430	430	430	430	430	430	420	A	410	A						
17							360	390	C	410	A	A	A	430	430	410	U L 420	390						
18						320	360	A	A	A	420	A	A	440	430	A	A	A						
19						A	A	A	A	A	A	A	A	A	A	A	A							
20							A	A	A	A	A	430	A	440	440	A	400	390	L					
21						330	A	400	A	A	A	440	450	A	430	420	410	390	330					
22						A	A	A	A	A	A	A	A	420	420	410	400	380	A					
23						340	380	400	A	A	A	A	A	460	A	A	410	A						
24						320	390	A	A	A	470	A	A	A	A	A	A	A						
25							A	A	A	450	A	480	A	460	460	430	430	390						
26							A	A	450	470	460	470	470	A	470	A	A	A						
27							L 400	L	450	440	470	470	470	460	460	A	430	L 410						
28						330	390	A	A	450	A	A	470	470	440	440	430	400	340					
29						340	370	C	C	A	430	440	440	440	430	420	410	A						
30							390	A	A	A	450	A	470	A	A	440	A	A	A					
31							400	A	430	A	A	A	A	450	450	440	430	390	L 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						6	15	9	12	17	21	20	20	23	27	22	22	11	3					
MED						330	380	400	435	450	460	465	465	450	450	430	410	390	340					
UQ						340	390	410	450	460	470	470	475	465	460	440	430	395	345					
LQ						320	365	400	430	430	440	445	450	440	430	420	400	385	335					

MAY. 1973 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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	225	270	B	325	325	330	B	B	340	330	295	245	175	E				
2					E	190	260	300	A	335	345	R	R	B	340	330	300	250	200	E				
3					A	195	270	300	320	340	355	B	R	B	B	B	R	270	B	A				
4					S	195	250	300	315	335	345	355	350	350	335	315	300	260	195	E				
5					C	C	C	C	C	345	345	350	I A 335	350	330	325	300	250	195	E				
6					S	205	260	295	310	330	340	340	350	A	315	305	295	250	185	E				
7					E	180	250	295	310	325	335	350	350	330	325	305	295	A	A	A				
8					S	185	250	300	320	345	335	340	350	325	320	310	295	235	190	E				
9					A	195	240	280	300	320	330	335	335	335	330	300	A	A	205	S				
10					C	C	C	C	C	320	330	345	340	335	320	295	285	245	185	S				
11					A	190	235	285	300	315	325	320	325	325	A	300	285	240	185	E				
12					E	A	235	285	300	305	315	325	335	335	325	310	280	240	180	E				
13					105	200	250	290	305	325	330	335	330	330	315	305	280	240	180	E				
14					E	180	220	250	300	320	335	340	335	325	325	305	290	250	190	E	E	S	S	E
15	S	E			E	190	235	280	300	315	320	325	330	320	310	305	270	230	185	E	S			
16					A	190	230	270	295	310	315	325	330	335	325	300	280	235	185	E				
17	E	E			E	190	235	270	C	300	300	310	320	310	330	305	285	235	190	E				
18	E	S			S	200	250	285	305	310	330	330	320	305	A	310	280	240	195	E				S
19					120	190	240	I B 280	300	305	320	325	A	A	325	310	295	250	185	E				
20					110	205	245	290	325	325	320	320	A	A	A	330	300	245	195	E				
21				E	135	205	245	290	300	315	325	330	325	315	A	A	295	235	190	S	E	S	S	E
22	S				E	A	245	285	300	315	320	325	325	330	I A 315	300	290	260	195	E				
23					A	210	250	290	305	315	320	325	325	A	A	A	A	250	195	120				
24					110	220	255	295	305	320	325	325	A	A	A	A	A	250	200	E				
25					A	210	255	295	310	320	325	A	350	340	325	305	290	250	200	E				
26					110	210	265	300	310	A	350	350	330	345	330	310	290	255	200	E				
27					120	205	250	290	315	340	360	350	350	350	340	320	290	265	205	E				
28					110	210	270	295	310	335	345	360	350	345	325	310	290	260	195	E				
29				E	130	200	255	C	C	310	315	325	350	345	330	315	290	A	A	A				
30				E	A	215	260	295	305	320	340	335	330	325	330	320	305	250	200	E	E			
31				E	A	200	260	295	310	325	330	340	340	340	330	315	290	260	200	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	2	2		4	17	27	29	28	25	30	31	28	25	23	24	27	27	28	28	25	3			2
MED	E	E		E	105	200	250	290	305	320	330	332	335	335	325	310	290	250	195	E	E			E
UQ				E	110	205	255	295	310	330	340	342	350	342	330	315	295	252	200	E	E			
LQ				E	E	190	240	282	300	315	320	325	330	325	322	305	285	240	185	E	E			

The Radio Research Laboratories, Japan

MAY. 1973 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	G	28	33	B	J X 64	J X 58	J X 55	B	42	40	G	40	J X 80	J X 33	J X 45	J X 50	J X 24	J X 23	E S 15
2	J X 33	J X 31	J X 35	J X 40	J X 20	G	G	G 29	34	38	38	G	G	E B 45	G	37	G	G	G 18	18	J X 33	J X 25	J X 33	J X 32
3	16	J X 18	J X 16	15	15	G	G	G	G	G	G	E B 50	G	E B 53	E B 43	E B 43	G	G 24	E B 30	22	E S 14	E	E S 15	E S 15
4	E	E S 15	E S 15	E	E S 13	23	G	34	36	39	40	38	G	G	38	G	G	G	22	18	17	17	E	17
5	E	C	C	C	C	C	C	C	C	G	39	41	38	G	G	37	38	32	27	20	J X 21	E	E S 15	E S 15
6	E S 15	E	E	E	E S 14	G	G	35	37	39	38	39	G	39	38	G	G	J X 60	J X 55	17	J X 23	J X 23	E	E S 14
7	E S 12	E	E	E	E	G	G 22	G	41	41	45	G	39	36	G	33	33	J X 33	J X 35	J X 44	E S 15	E S 15	J X 33	J X 23
8	J X 23	J X 43	E	E	G	G	G	33	J X 53	G	J X 63	J X 73	40	G	47	G	40	40	27	13	21	J X 23	28	J X 23
9	J X 31	J X 35	J X 23	16	15	G	G	31	J X 58	J X 53	38	G	G	G	35	34	34	J X 31	G	E S 15	C	C	C	C
10	C	C	C	C	C	C	C	C	C	47	43	39	41	45	48	J X 41	G	J X 61	J X 140	26	33	J X 35	J X 25	J X 23
11	J X 21	J X 18	18	J X 28	J X 23	G	32	J X 58	J X 49	48	39	49	46	57	35	34	37	J X 43	J X 33	J X 61	J X 40	J X 39	23	E
12	E S 15	18	E	E	E	23	33	39	J X 50	36	36	G	G	G	G	37	J X 43	J X 62	J X 50	J X 51	J X 63	E	J X 30	J X 33
13	J X 30	J X 23	15	E	G	23	30	38	37	G	38	38	38	G	42	G	34	G	23	20	J X 21	E	18	E S 16
14	J X 22	J X 33	43	16	J X 40	J X 31	28	J X 56	J X 59	40	G	G	38	G	49	33	G	33	27	J X 33	E	E S 15	E S 14	E
15	E S 15	20	J X 30	J X 50	J X 29	28	31	J X 42	41	J X 58	40	38	G	G	G	40	J X 65	38	G	J X 28	E S 15	E S 14	E S 15	E S 15
16	E S 15	E	J X 30	49	J X 53	J X 63	J X 53	J X 101	J X 53	34	40	J X 45	G	G	41	J X 64	38	42	J X 60	J X 108	J X 110	E S 14	18	18
17	E	E	J X 25	E	J X 30	J X 42	34	J X 43	C	37	53	J X 43	46	38	G	G	35	40	33	23	J X 28	J X 53	J X 27	24
18	E	J X 23	J X 23	J X 31	E S 14	24	31	40	J X 63	45	41	J X 95	J X 65	J X 45	J X 52	45	J X 83	J X 43	J X 103	J X 60	J X 35	J X 73	30	E S 15
19	E	E	J X 25	15	G	J X 35	J X 45	J X 81	J X 71	J X 121	J X 68	J X 123	J X 60	43	47	J X 53	J X 75	J X 60	J X 85	J X 71	J X 23	20	J X 35	J X 23
20	J X 28	J X 25	J X 23	E	18	33	J X 50	50	J X 58	J X 61	J X 63	J X 55	J X 53	43	42	45	G	G	24	28	J X 33	J X 21	J X 31	E
21	E S 15	J X 23	E	E	G	28	J X 44	40	J X 50	51	49	45	J X 45	J X 64	J X 43	37	G	G	G	E S 15	E	E S 14	E S 15	E
22	E S 15	J X 62	J X 70	J X 81	J X 51	J X 36	J X 66	J X 58	J X 66	J X 103	J X 64	J X 53	J X 61	G	34	34	35	33	J X 35	30	J X 39	J X 43	J X 35	J X 33
23	24	23	J X 20	J X 21	23	25	33	36	49	J X 60	J X 58	J X 54	J X 53	J X 55	J X 55	J X 50	J X 53	J X 93	J X 63	27	J X 23	J X 81	33	E
24	J X 38	E	E	E	18	G	38	J X 54	J X 65	44	J X 51	J X 61	J X 71	79	J X 80	J X 76	63	J X 61	J X 89	J X 63	J X 63	J X 74	J X 28	J X 80
25	J X 55	J X 60	J X 63	J X 53	23	33	J X 48	43	J X 80	J X 63	J X 100	J X 58	J X 70	J X 61	38	38	34	38	J X 56	J X 43	J X 30	J X 25	J X 30	J X 23
26	J X 21	18	E	E	17	24	J X 53	J X 60	J X 60	J X 58	66	40	J X 51	J X 65	J X 65	180	J X 140	J X 73	J X 53	J X 64	J X 41	J X 41	J X 38	J X 31
27	J X 23	26	J X 23	15	18	28	J X 53	J X 60	40	37	G	G	41	40	38	48	40	G	J X 38	J X 45	J X 28	J X 25	J X 38	21
28	E	J X 27	E	E	18	27	38	49	53	39	52	48	42	58	44	G	44	35	G	23	21	21	E S 15	18
29	E	E	20	18	J X 33	26	32	C	C	55	43	49	G	38	G	G	38	J X 54	J X 56	30	J X 36	J X 43	J X 43	J X 53
30	J X 33	J X 20	18	J X 53	J X 60	22	37	J X 75	J X 84	J X 63	43	J X 65	J X 51	J X 84	J X 48	40	J X 70	J X 88	J X 51	J X 63	16	J X 41	J X 21	J X 28
31	J X 38	J X 46	J X 25	J X 60	J X 35	G	37	J X 50	J X 45	J X 53	50	J X 53	45	40	43	43	37	38	J X 31	J X 43	J X 38	J X 58	J X 50	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	30	29	29	29	29	29	29	28	26	31	31	31	30	31	31	31	31	31	31	31	30	30	30	30
MED	16	J X 20	20	15	18	24	33	42	J X 52	45	43	45	41	40	40	37	37	38	J X 33	30	J X 28	J X 24	J X 28	20
UQ	J X 28	J X 27	J X 25	J X 31	J X 29	28	J X 44	J X 57	J X 60	J X 58	56	J X 54	J X 51	54	47	44	44	J X 60	J X 56	J X 48	J X 38	J X 41	J X 33	J X 24
LQ	E	E	E	E	E G 13	G	28	34	41	38	38	38	G	G	34	E G 33	E G 33	32	25	21	21	15	15	E E 15

MAY. 1973 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

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

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

The Radio Research Laboratories, Japan

MAY. 1973 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | F-MIN (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	12	16	16	B	22	22	17	B	38	28	20	17	15	16	E	E	E	E S 14	E S 15
2	E S 12	E	E	E	E	15	18	18	20	20	20	20	26	45	19	16	16	20	12	E	E	E S 14	E S 15	E
3	E	E	E	E	E	12	20	12	17	20	21	50	20	53	43	43	18	15	30	E	E S 14	E	E S 15	E S 15
4	E	E S 15	E S 15	E	E S 13	12	14	17	17	20	22	17	17	19	17	13	E	12	E	E	E S 12	E	E	E
5	E	C	C	C	C	C	C	C	C	19	17	20	18	16	20	20	15	12	12	E	E	E	E S 15	E S 15
6	E S 15	E	E	E	E S 14	12	14	11	11	16	19	20	12	17	16	17	14	12	11	E	E	E	E	E S 14
7	E S 12	E	E	E	E	11	11	11	16	15	19	18	20	20	17	16	16	11	E	E	E S 15	E S 15	E S 14	E S 15
8	E	E	E	E	E S 13	11	11	11	22	19	17	17	16	18	20	12	11	11	E	E	E	E	E S 15	E
9	E S 15	E	E	E	E	11	E	11	12	12	16	16	17	16	18	11	16	11	11	E S 15	C	C	C	C
10	C	C	C	C	C	C	C	C	C	17	16	16	16	12	13	12	12	E	E	E S 14	E S 15	E S 14	E S 16	E
11	E	E	E	E	E	E	E	12	13	15	15	18	17	18	16	16	13	11	12	E	E	E	E S 15	E
12	E S 15	E	E	E	E	E	E	11	14	20	17	21	16	17	16	16	12	17	11	E	E	E	E	E
13	E	E	E	E	E	E	E	E	12	12	17	17	17	15	18	11	11	11	E	E	E	E	E	E S 16
14	E	E	E	E	E	E	E	11	13	17	18	17	17	16	16	13	12	E	11	E	E	E S 15	E S 14	E
15	E S 15	E	E	E	E	E	11	11	11	16	16	17	19	11	16	12	12	11	E	E	E S 15	E S 14	E S 15	E S 15
16	E S 15	E	E	E	E	E	11	11	16	16	17	16	20	20	20	11	11	11	E	E	E S 13	E S 14	E	E
17	E	E	E	E	E	11	12	E	C	17	17	20	18	16	17	16	12	E	E	E	E	E S 15	E	E
18	E	E S 13	E	E	E S 14	12	12	16	18	17	20	17	20	20	17	17	11	12	E	E	E	E	E S 13	E S 15
19	E	E	E	E	E	11	12	31	16	15	16	20	20	20	17	16	15	12	11	E	E	E	E S 15	E S 12
20	E	E	E	E	E	13	12	16	25	20	20	17	17	13	28	20	15	12	11	E	E	E	E	E
21	E S 15	E	E	E	E	11	13	14	13	15	18	17	20	17	16	15	11	11	11	E S 15	E	E S 14	E S 15	E
22	E S 15	E	E	E	E	E	13	16	17	16	12	20	17	16	16	15	15	11	11	E	E	E	E	E
23	E	E	E	E	E	11	11	12	15	15	20	17	15	17	20	15	15	11	12	E	E	E	E	E
24	E	E	E	E	E	E	E	13	17	18	18	20	17	17	16	15	13	11	12	E	E	E	E	E
25	E	E	E	E	E	12	11	11	11	16	16	20	17	19	17	16	15	15	11	E	E	E	E S 12	E
26	E	E	E	E	E	11	11	16	18	17	16	20	11	17	17	16	12	E	11	E	E	E	E	E
27	E	E	E	E	E	11	11	12	11	24	23	20	17	17	16	16	11	12	12	E	E	E	E	E
28	E	E	E	E	E	12	11	13	12	16	13	16	17	20	16	16	11	E	11	E	E	E S 15	E S 15	E
29	E	E	E	E	E	11	11	C	C	16	15	20	16	19	12	17	11	11	E	E	E	E	E	E
30	E S 15	E	E	E	E	11	11	11	17	18	18	17	15	15	15	12	11	E	E	E	E	E	E	E
31	E	E	E	E	E	E	E	12	17	18	20	20	18	17	17	15	11	E	11	E	E	E	E	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	29	29	29	29	28	27	31	31	31	31	31	31	31	31	31	31	31	30	30	30	30
MED	E	E	E	E	E	11	11	12	16	17	17	18	17	17	17	16	12	11	11	E	E	E	E E 12	E
UQ	E S 15	E	E	E	E	12	12	16	17	19	20	20	20	20	18	16	15	12	12	E	E	E S 14	E S 15	E S 15
LQ	E	E	E	E	E	E	11	11	12	16	16	17	16	16	16	13	11	11	E	E	E	E	E	E

MAY. 1973 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	F	F	F	S 315	315	270	280	B	A	A	315	B	300	300	310	305	I A 320	300	300	285	275	300	270
2	270	280	285	300	330	310	310	325	310	295	310	325	H 290	315	310	300	305	330	330	300	290	290	285	285
3	280	280	295	F 295	F 290	305	F 290	295	315	315	325	320	315	R	300	310	R	320	R	R 320	310	275	265	275
4	275	280	285	300	295	300	295	320	315	335	315	295	315	295	305	320	315	310	315	315	275	275	280	280
5	285	C	C	C	C	C	C	C	C	305	290	290	300	295	305	315	320	325	310	300	290	310	295	295
6	285	280	290	280	285	315	310	295	320	330	295	310	310	290	310	320	335	310	310	320	305	285	285	285
7	285	280	285	275	280	310	325	330	325	345	265	285	295	270	300	300	290	300	305	310	320	365	275	265
8	285	285	305	320	295	300	275	220	A	225	G	A	W	R	265	280	275	305	300	285	275	270	S 270	I S 280
9	265	260	275	285	290	325	295	320	320	330	300	300	290	300	315	305	305	315	320	315	C	C	C	C
10	C	C	C	C	C	C	C	C	C	295	285	305	300	295	300	320	315	320	I A 300	295	300	305	310	280
11	280	280	290	310	320	325	325	305	285	320	270	A	255	300	315	315	310	320	290	305	325	330	300	285
12	280	280	290	300	300	300	305	325	320	305	315	300	315	310	305	290	300	330	305	295	305	310	300	300
13	280	275	290	285	305	320	335	320	315	315	300	325	295	H 290	320	305	330	320	285	280	315	325	315	290
14	290	280	295	300	290	285	335	A	300	250	265	250	265	275	275	280	320	265	270	270	255	275	280	290
15	270	275	285	270	275	300	280	330	295	310	330	325	300	320	280	305	305	315	340	315	295	290	285	290
16	275	280	285	A	A	A	A	A	R	280	R	255	265	310	300	315	365	280	285	A	A	330	305	285
17	285	280	295	280	290	A	300	320	C	250	A	265	305	290	310	310	280	305	295	290	310	285	295	280
18	F 285	F	F 270	290	305	295	300	330	A	A	285	A	A	300	310	A	A	300	A	320	315	A	F 320	F
19	295	295	F 275	290	295	305	305	A	A	A	A	A	285	280	280	A	A	A	A	A	285	290	280	285
20	290	F 275	F 300	F 285	F 300	F 305	300	300	A	A	A	265	300	310	300	300	295	275	295	285	295	280	295	290
21	285	285	280	300	290	315	295	335	295	A	255	275	285	A	255	285	285	255	285	305	265	270	265	310
22	295	A	A	A	A	265	A	A	A	A	A	A	A	240	255	270	285	290	275	280	285	265	F	F 280
23	F	F	F	F 280	F 285	295	300	290	315	A	A	295	275	290	295	310	315	A	305	325	270	F 275	F 285	F 285
24	300	F 280	F	F	290	315	305	330	A	275	270	290	300	295	A	290	320	305	300	295	285	F 285	S	F
25	F	F	F	F	F 285	290	295	300	315	300	A	300	I A 305	305	290	300	295	320	315	310	310	300	300	285
26	F	F	F 295	F 295	305	310	320	310	305	F 295	320	295	290	315	280	310	A	310	310	290	280	280	310	300
27	300	280	290	290	290	300	330	310	315	325	300	295	290	300	290	300	295	300	305	315	295	F	F 295	305
28	285	290	F	F	F	295	270	F 285	A	330	315	255	280	260	295	295	295	305	310	305	295	295	290	285
29	F	F	F	F 295	275	270	270	C	C	A	270	230	245	260	275	285	290	300	305	310	290	285	F 275	F
30	F	F	F	F	300	295	V 305	A	315	230	330	300	290	A	295	300	A	A	310	330	320	300	295	285
31	F	F	290	300	300	F 265	305	305	295	310	300	290	260	290	315	310	285	300	295	315	310	310	295	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	23	20	21	22	26	27	27	23	18	23	23	26	28	27	30	29	26	28	28	29	29	28	28	27
MED	285	280	290	292	292	300	300	310	315	305	300	295	290	295	300	305	305	308	305	305	295	288	295	285
UQ	288	280	295	300	300	312	310	325	315	322	315	305	300	302	310	310	315	320	310	315	310	308	300	290
LQ	280	280	285	285	290	295	295	298	300	288	270	275	278	290	280	295	290	300	295	295	285	275	280	280

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MAY. 1973 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							320	340	B	A	A	390	B	365	350	365	L	A						
2									335	360	350	360		B	360	345	400							
3									355	390	370	I B 365	370	B	340	B	345							
4								L 365	365	370	350	L 380	U L 355	355	340	350	365							
5							C	C	C	365	380	375	370	360	335	365								
6									365	365	360	375	385	360	370	370	365							
7									I A 360	370	330	385	360	350	345	355	L 350	L						
8							345	340	A	365	A	A	380	385	370	355	I A 340	340						
9								365	370	A	380	350	360	370	375	385	L 365	L						
10							C	C	C	A	360	380	380	A	A	A	355							
11							355	A	A	A	385	A	A	385	365	380	340	A						
12							U L 360	380	A	365	385	375	370	380	365	350	A							
13									370	380	375	390	370		I A 370	375	350	L 380						
14							345	A	A	385	355	385	350	350	355	375	370	305						
15							405	A	A	385	390	365	365	380	370	I A 350	A	A						
16								A	350	370	390	375	375	385	A	A	340	A						
17							A	A	C	400	A	A	A	350	350	380	U L 335	A						
18						330	340	A	A	A	A	A	A	385	370	A	A	A						
19						A	A	A	A	A	A	A	A	A	A	A	A							
20							A	A	A	A	A	375	A	370	370	A	355	335	L					
21						360	A	A	A	A	A	A	A	A	A	350	335	310	335					
22						A	A	A	A	A	A	A	A	380	350	350	340	330	A					
23						325	340	360	A	A	A	A	A	A	A	A	A	A						
24						370	A	A	A	A	360	A	A	A	A	A	A	A						
25							A	A	A	380	A	370	A	365	370	380	355	335						
26							A	A	360	360	390	405	390	A	A	A	A	A						
27							A	L	370	390	385	370	385	390	360	A	A	L 340						
28						335	335	A	A	375	A	A	365	360	385	360	345	345	355					
29						325	360	C	C	A	395	385	370	370	385	380	345	A						
30							435	A	A	A	380	A	360	A	A	365	A	A	A					
31							360	A	A	A	A	A	A	380	360	350	350	335	365 L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						6	12	6	10	17	19	19	18	21	23	21	20	10	3					
MED						332	350	362	362	370	380	375	370	370	365	365	350	335	355					
UQ						360	360	365	370	385	385	385	380	380	370	375	360	340	360					
LQ						325	340	340	355	365	360	370	360	360	350	350	340	330	345					

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MAY. 1973 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1973 | 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							445	420	B	A	A	350	B	325	320	310	295	A						
2									310	320	325	300		315	315	330	275							
3									300	300	270	300	330	315	340	295	280							
4								270	265	265	300	290	320	340	310	275	280							
5							C	C	C	310	360	350	325	325	320	280								
6									275	305	315	315	315	325	315	290	265							
7									275	265	395	350	315	360	300	300	300	280						
8							405	645	A	675	G	A	W	R	480	415	380	315						
9								310	305	360	330	335	325	325	300	315	295	280						
10							C	C	C	385	400	355	350	360	340	315	310							
11							295	A	A	345	450	A	510	370	345	350	325	305						
12							280	265	295	325	315	350	305	325	345	340	315							
13									290	295	360	305	350		300	310	270	265						
14							275	A	370	510	420	495	420	390	380	305	300	400						
15							375	280	325	290	295	285	300	300	340	305	290	260						
16								A	R	405	500	500	475	345	370	340	425	350						
17							365	350	C	525	A	460	350	355	320	360	360	310						
18						350	350	310	A	A	410	A	A	370	365	A	A	350						
19						310	320	A	A	A	A	A	400	440	425	A	A							
20							365	350	A	A	A	460	370	340	575	375	360	400	295					
21						300	I A 305	270	A	A	A	450	405	A	420	345	425	375	300					
22						425	A	A	A	A	A	A	A	525	450	415	385	365	360					
23						355	345	345	330	A	A	395	420	360	335	310	290	A						
24						290	325	275	A	405	475	375	365	360	A	A	295	295						
25							300	300	300	355	A	370	I A 360	350	375	325	325	290						
26							295	360	320	340	320	370	355	320	365	A	A	270						
27							270	315	290	290	330	335	365	340	325	325	320	300						
28						325	395	345	A	325	370	510	450	375	360	345	320	310	275					
29						405	440	C	C	A	450	600	550	500	445	400	360	350						
30							330	A	310	550	310	355	385	A	335	325	A	A	270					
31							270	310	330	320	370	385	460	370	310	320	370	310	290					
	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	20	17	16	23	23	26	27	27	30	27	26	20	6					
MED						338	328	310	302	325	360	355	365	350	340	325	312	310	292					
UQ						380	370	350	322	395	415	450	420	370	375	345	360	350	300					
LQ						305	295	280	290	302	318	335	328	325	320	308	290	285	275					

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MAY. 1973 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1973 | 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	280	270	285	285	250	245	250	245	B	A	A	210	B	215	260	250	A	A	255	I A 260	285	285	250	280
2	300	325	270	270	215	240	245	235	245	215	200	215	225	B	230	250	205	265	250	250	270	260	280	290
3	285	290	255	245	260	245	260	245	240	220	215	B	210	B	270	B	245	250	260	245	245	255	280	265
4	280	285	260	250	260	245	245	235	230	215	230	220	205	200	250	245	240	230	245	230	250	260	260	270
5	260	C	C	C	C	C	C	C	C	225	215	200	220	200	250	250	255	250	250	260	265	255	225	245
6	275	280	275	260	280	250	245	240	230	240	215	200	190	220	220	225	235	260	A	245	250	255	255	265
7	265	275	260	265	295	245	215	230	A	250	270	210	210	200	225	240	245	250	A 265	A	225	260	300	295
8	300	275	245	225	265	260	250	265	A	250	A	A	230	205	245	250	A	245	250	260	280	295	315	305
9	310	305	300	260	285	240	245	220	245	A	210	255	200	215	210	210	250	230	250	240	C	C	C	C
10	C	C	C	C	C	C	C	C	C	A	245	220	230	A	A	A	240	275	A	260	260	255	235	280
11	295	300	270	225	245	240	250	A	A	A	230	A	A	225	230	225	A 275	A	A 320	A	A 260	250	240	250
12	290	295	290	275	255	250	235	240	A	210	215	200	240	200	215	250	A	A	A	A	A	245	250	260
13	295	280	260	255	245	240	255	245	230	220	210	200	240	H 210	A	215	245	225	240	260	250	240	215	270
14	255	300	275	260	A	290	245	A	A	215	250	215	250	245	250	250	215	250	295	A 295	310	270	245	260
15	290	300	A 320	A	340	245	250	A	A	205	200	200	210	210	200	I A 250	A	A	240	245	240	245	265	270
16	295	295	280	A	A	A	A	A	200	210	210	250	240	210	A	A	245	A	A	A	A	220	225	295
17	295	300	285	290	315	A	A	A	C	225	A	A	A	250	250	210	235	A	A	270	250	A	280	275
18	300	295	300	285	280	260	230	A	A	A	A	A	A	235	250	A	A	A	A	A	A 250	A	240	270
19	275	250	275	265	280	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	265	275	310	290
20	280	295	255	285	265	250	A	A	A	A	A	240	A	240	250	A	200	245	260	275	260	280	275	275
21	255	250	275	265	280	250	A	A	A	A	A	A	A	A	A	240	235	245	260	255	275	300	300	235
22	240	A	A	A	A	A	A	A	A	A	A	A	A	225	240	250	265	265	A	A 300	A 320	310	250	315
23	300	300	335	305	320	250	250	230	A	A	A	A	A	A	A	A	A	A	A	245	260	275	260	260
24	250	275	F 290	F 275	295	250	A	A	A	A	250	A	A	A	A	A	A	A	A	260	280	270	315	325
25	A	300	305	275	265	250	A	A	A	210	A	210	A	250	200	245	230	240	A	250	240	265	260	275
26	295	260	260	255	250	225	A	A	240	250	215	200	200	A	A	A	A	A	A	A	A	A	260	255
27	250	270	270	250	260	250	A	210	210	215	215	200	205	200	250	A	A	220	A	A	250	260	270	245
28	245	275	270	260	275	260	250	A	A	240	A	A	215	215	215	225	235	240	245	260	250	250	245	270
29	275	285	250	290	295	250	225	C	C	A	205	205	245	235	220	230	235	A	A	260	290	A	280	290
30	300	295	260	255	A	255	250	A	A	A	215	A	255	A	A	250	A	A	A	A	230	245	260	290
31	305	250	255	270	I A 285	260	250	A	A	A	A	A	A	240	250	250	225	250	260	A	A	A	245	265
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	28	26	25	25	19	12	9	17	19	18	19	22	22	21	20	18	16	21	26	25	30	30
MED	285	288	272	265	275	250	250	238	230	220	215	210	220	215	242	245	238	248	252	260	260	260	260	270
UQ	295	300	288	275	285	250	250	245	240	240	230	220	240	235	250	250	245	250	260	260	275	275	280	290
LQ	265	275	260	255	260	245	245	230	230	215	210	200	208	205	220	225	232	240	248	245	250	250	245	260

MAY. 1973 | H'F (KM)

IONOSPHERIC DATA

MAY. 1973 | H'ES (KM) | 135 E Mean Time (G. M. T.+ 9 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E	E	E	G	115	120	B	110	110	115	B	115	120	G	125	120	115	110	115	110	100	S
2	100	100	100	100	100	G	G	105	105	125	125	G	G	B	G	120	G	G	115	125	115	110	100	100
3	100	100	100	100	100	G	G	G	G	G	G	B	G	B	B	B	G	100	B	100	S	E	S	S
4	E	S	S	E	S	135	G	125	125	125	120	120	G	G	115	G	G	G	145	125	120	115	E	110
5	E	C	C	C	C	C	C	C	C	G	120	115	105	G	G	150	130	140	125	120	115	E	S	S
6	S	E	E	E	S	G	G	125	125	120	120	115	G	110	115	G	G	120	115	120	110	110	E	S
7	S	E	E	E	E	G	105	G	125	125	115	G	125	125	G	115	115	110	105	105	S	S	105	105
8	115	110	E	E	G	G	G	145	125	G	115	110	125	G	115	G	125	125	125	130	115	110	110	105
9	105	105	100	100	105	G	G	120	120	115	125	G	G	G	150	115	110	105	G	S	C	C	C	C
10	C	C	C	C	C	C	C	C	C	115	115	115	120	125	125	125	G	115	115	160	130	110	110	110
11	105	100	100	100	100	G	140	125	120	120	115	110	110	120	110	140	125	120	115	110	110	105	105	E
12	S	110	E	E	E	120	120	115	110	115	115	G	G	G	G	140	120	115	115	115	115	E	110	105
13	105	105	100	E	G	150	140	125	120	G	120	120	115	G	115	G	140	G	130	115	110	E	110	S
14	120	115	115	125	115	115	115	110	115	130	G	G	115	G	120	145	G	145	130	120	E	S	S	E
15	S	125	115	115	120	125	125	115	120	120	120	125	G	G	G	150	125	120	G	115	S	S	S	S
16	S	E	105	115	110	115	115	110	120	120	115	110	G	G	150	130	150	125	120	115	110	S	110	110
17	E	E	100	E	125	120	115	115	C	110	110	110	110	115	G	G	140	120	120	120	110	110	105	105
18	E	150	120	125	S	125	135	115	115	115	120	110	105	105	110	140	120	125	115	110	110	110	105	S
19	E	E	105	105	G	120	120	110	110	115	110	110	110	145	135	125	120	115	110	105	110	110	110	115
20	105	105	110	E	150	125	115	120	115	110	110	110	105	105	110	125	G	G	125	115	110	115	115	E
21	S	105	E	E	G	145	120	120	115	115	115	110	110	110	105	110	G	G	G	S	E	S	S	E
22	S	105	105	100	100	100	115	115	115	110	110	110	115	G	105	155	145	145	125	120	115	115	110	110
23	110	105	100	100	125	145	125	130	115	110	110	110	110	105	105	105	125	120	125	120	120	115	110	E
24	105	E	E	E	120	G	125	115	115	120	115	110	105	110	100	100	115	115	115	115	115	115	105	105
25	105	100	100	100	100	125	120	115	110	110	110	110	110	110	120	125	135	125	115	120	115	110	115	110
26	110	110	E	E	150	150	120	125	120	110	120	125	115	120	115	110	110	115	115	110	110	110	105	100
27	100	105	100	100	140	135	115	120	115	125	G	G	125	125	160	120	120	G	115	110	110	105	105	110
28	E	100	E	E	120	145	125	120	115	125	115	125	125	120	125	G	125	120	G	125	115	115	S	110
29	E	E	135	135	125	125	125	C	C	110	115	115	G	145	G	G	115	105	105	115	115	110	105	100
30	100	105	135	105	100	115	125	115	110	115	120	110	110	110	120	140	115	110	115	115	120	120	110	105
31	105	105	105	105	105	G	125	120	115	115	115	115	120	145	125	125	125	120	115	115	110	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	15	20	19	16	19	19	23	26	25	27	28	24	21	19	23	22	23	25	26	29	25	21	22	18
MED	105	105	105	102	115	125	120	120	115	115	115	110	110	115	115	125	125	120	115	115	115	110	110	105
UQ	108	110	112	115	125	140	125	125	120	120	120	115	120	125	125	140	128	125	125	120	115	115	110	110
LQ	102	102	100	100	100	120	115	115	115	110	112	110	110	110	110	115	118	115	115	110	110	110	105	105

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MAY. 1973 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							C 1	C 1		C 2	C 2	C 1		C 1	C 1		C 2	C 2	C 4	C 3	F 4	F 4	F 1	
2	F 2	F 4	F 2	F 2	L 1			L 1	L 2	CL 11	C 1					CL 11			L 1	C 1	F 4	F 2	F 3	F 3
3	F 1	F 2	F 1	F 1	L 1													L 1		L 1				
4						H 1		C 1	C 1	C 1	C 1	C 1			C 1				H 1	C 1	F 1	F 1		F 2
5											C 1	C 1	L 1			H 1	H 1	H 1	C 2	C 1	F 2			
6								C 1	C 1	C 1	C 1	C 1		L 1	C 1			C 2	C 4	C 1	F 2	F 2		
7							L 1		C 1	C 1	C 2		C 1	C 1		C 1	C 1	L 2	L 3	L 3			F 4	F 2
8	F 2	F 2						H 1	C 1		C 2	C 2	C 1		C 1		C 2	C 1	C 2	H 1	F 1	F 3	F 3	F 3
9	F 2	F 3	F 2	F 1	L 1			C 1	C 2	C 1	C 1				H 1	C 1	L 1	L 2			C	C	C	C
10										C 2	C 1	C 1	C 1	C 1	C 2	C 2		C 2	C 4	H 1	FF 11	F 3	F 2	F 4
11	F 2	F 2	F 2	F 2	L 2		H 2	C 2	C 3	C 2	C 1	C 2	C 2	C 1	L 1	H 1	C 2	C 4	C 3	C 7	F 4	F 6	F 1	
12		F 1				R 1	C 2	C 3	C 2	C 1	C 1					H 1	C 2	C 2	C 3	C 4	F 5		F 4	F 5
13	F 5	F 2	F 1			H 1	H 1	C 1	C 1		C 1	C 1	C 1		C 2		H 1		H 1	C 1	F 1		F 1	
14	F 1	F 3	FF 21	F 2	C 3	C 3	C 1	C 2	C 2	H 1			C 1		C 1	H 1		H 1	H 2	C 4				
15		C 1	F 4	F 4	C 2	C 2	C 1	C 2	C 1	C 1	C 1	C 1				H 1	C 3	C 3		C 2				
16			F 3	F 5	L 5	C 4	C 3	C 3	C 1	C 1	C 1	C 2			H 1	H 2	H 1	C 2	C 5	C 3	F 6		F 1	F 2
17			F 2		C 3	C 2	C 2	C 2		C 1	C 2	C 2	C 2	C 1			H 1	C 2	C 4	C 2	F 3	F 4	F 3	F 1
18		H 1	F 2	F 2		C 2	H 1	C 2	C 3	C 2	C 1	C 4	C 3	C 1	L 1	HC 11	C 4	C 3	C 7	C 3	F 4	F 5	F 2	
19			F 1	F 2		C 3	C 4	C 1	C 2	C 3	C 2	C 2	L 1	HL 11	H 2	C 2	C 3	C 4	C 4	C 6	F 2	F 2	F 4	F 2
20	F 2	F 2	F 2		H 1	C 2	C 2	C 2	C 2	C 2	C 2	C 2	L 2	L 1	L 1	C 1			C 1	C 2	F 4	F 2	F 2	
21		F 2				H 1	C 3	C 1	C 2	C 2	C 2	C 2	C 2	C 3	L 2	L 2								
22		F 6	F 3	F 5	L 4	L 2	C 2	C 3	C 3	C 4	C 4	C 2	C 1		L 1	H 1	H 1	H 1	C 6	C 4	F 3	F 2	F 2	F 2
23	F 1	F 2	F 2	F 1	CL 22	H 2	C 2	H 1	C 2	C 3	C 2	C 2	C 2	L 2	L 2	L 2	CL 22	C 3	C 4	C 3	F 2	F 2	F 3	
24	F 2				C 2		C 2	C 2	C 2	C 1	C 1	C 2	L 2	CL 22	L 3	L 3	CL 23	C 2	C 3	C 2	F 4	F 3	F 2	F 5
25	F 3	F 4	F 2	F 2	L 1	C 1	C 2	C 2	C 2	C 2	C 3	L 1	C 3	C 2	C 1	C 1	H 1	C 1	C 5	C 3	F 1	F 3	F 2	F 2
26	F 2	F 1			H 1	H 1	C 3	C 2	C 2	L 1	C 1	C 1	C 1	C 1	C 2	C 3	C 3	C 2	C 3	C 3	F 6	F 4	F 3	F 4
27	F 2	F 2	F 3	F 1	H 1	H 1	C 3	C 1	C 1	C 1			C 1	C 1	H 1	C 2	C 2		C 5	C 5	F 4	F 3	F 5	F 1
28		F 3			C 1	H 1	C 1	C 3	C 2	C 1	C 2	C 1	C 1	C 1	C 1		C 1	C 1		C 2	F 2	F 2		F 2
29			F 2	H 1	C 3	C 2	C 1			C 3	C 1	C 1		H 1			C 1	L 4	L 5	L 2	F 2	F 5	F 4	F 2
30	F 2	F 1	F 1	L 2	L 3	C 2	C 1	C 3	C 3	C 2	C 1	C 2	C 2	C 3	C 1	H 1	C 2	C 5	C 3	C 3	C 1	F 1	F 2	F 2
31	F 2	F 2	F 3	L 4	L 5		C 1	C 1	C 2	C 2	C 2	C 2	C 1	H 1	C 1	C 1	C 1	C 2	C 2	C 3	F 3	F 5	F 2	F 1
	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. 1973 | TYPES OF ES

IONOSPHERIC DATA

MAY. 1973 | FOF2 (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	58	56	F 49	46	43	45	52	57	68	C	C	C	I B 68	75	I C 77	79	I C 76	I C 77	76	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	78	84	74	74	70	76	78	82	77	78	70	64	62	63
3	65	62	59	55	50	57	71	86	84	80	80	80	75	74	83	94	95	91	89	84	74	64	66	68
4	65	64	61	59	56	62	74	86	84	80	79	75	74	77	86	96	89	84	84	74	69	67	68	68
5	68	62	59	57	56	62	79	84	79	73	71	71	81	84	90	96	88	78	75	78	76	76	67	62
6	59	58	57	56	55	59	69	78	72	68	76	76	75	81	81	82	79	79	82	79	72	65	66	F
7	F	F 64	F	F	54	60	75	69	66	69	66	90	98	I A 94	101	I A 103	101	I A 104	105	92	64	51	55	56
8	55	55	57	54	28	36	42	E G 45	I A 43	E G 44	I A 48	48	I A 50	51	56	59	56	62	56	I A 55	I A 54	I A 52	54	54
9	53	54	54	54	44	54	52	60	68	64	66	70	71	76	81	74	79	81	84	75	63	62	61	60
10	59	57	62	62	49	46	55	62	58	62	66	65	67	65	68	73	64	63	59	76	72	64	60	F
11	F	F	F	F	44	47	58	57	58	I A 61	60	I R 54	59	64	66	60	62	I A 62	64	79	86	65	F 44	44
12	45	F	F	F	F	49	59	62	67	69	67	61	67	71	68	66	70	69	70	72	I R 74	F	F	F 64
13	F	F	F 58	53	50	55	62	63	68	62	59	61	72	76	77	86	82	64	63	76	85	74	62	40
14	41	42	46	F 43	F 42	49	72	H 62	52	49	61	65	70	83	67	76	62	51	59	66	66	67	64	61
15	59	55	54	54	50	58	70	88	64	72	65	73	74	85	94	98	99	95	98	68	66	64	58	58
16	56	52	54	48	F	H 56	55	55	I A 53	66	63	60	66	71	76	70	61	68	77	88	77	68	I A 48	44
17	41	F	42	42	37	40	46	46	E G 44	A	A	58	68	66	72	64	58	I A 64	70	66	69	66	F	61
18	F 56	55	55	F	52	52	50	A	A	A	A	57	64	64	64	57	I A 58	64	72	I A 84	I A 64	A	F	F 56
19	F 52	F	F	F	F	54	I A 50	A	A	A	50	52	51	56	61	I A 59	57	I A 56	60	62	57	56	I R 58	56
20	54	50	56	46	46	50	51	55	51	50	I A 54	58	62	60	56	57	62	57	66	78	76	F	F	A
21	F	F	48	F 45	F 42	52	62	55	56	I A 57	I A 54	52	62	72	79	82	85	76	92	91	86	82	82	97
22	64	43	40	F 38	F	44	A	A	A	E G 44	E G 44	A	E G 46	52	A	A	58	I A 52	47	52	58	52	I A 56	55
23	F 52	F 52	F	F 43	F	42	50	56	57	57	56	61	67	72	77	83	86	70	72	I A 76	64	A	R	F
24	F 69	F	F	F	54	56	62	68	62	58	I A 60	I A 66	67	67	69	74	74	73	65	66	69	69	I R 66	F
25	F	F	F	F	55	62	69	74	79	65	65	65	I A 62	62	69	74	74	74	71	72	69	64	60	F
26	F	F	F	F	F	62	59	65	68	H 69	I A 61	63	67	74	75	76	78	I A 75	76	75	78	F 76	F 77	77
27	62	59	57	60	54	62	79	90	72	68	64	66	71	73	82	79	85	89	88	83	83	F	79	70
28	64	64	R	F	F	55	57	66	58	60	55	57	64	66	68	73	73	79	82	76	I R 68	63	59	61
29	61	58	56	F	F	48	49	58	54	E G 45	E G 47	52	56	57	I A 62	58	60	64	I A 67	61	55	56	F	F
30	54	F	F	F	F	52	67	72	71	64	56	I A 59	64	71	80	82	82	84	83	79	58	56	F	F
31	F	F	F	F	F 46	54	63	72	H 80	64	56	58	58	63	72	69	69	I A 72	77	88	74	F 64	60	55
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	19	19	18	21	30	29	27	27	26	28	29	31	31	30	30	31	31	31	30	30	25	23	22
MED	58	56	56	54	50	54	59	63	66	64	61	61	67	71	74	75	74	73	75	76	69	64	61	60
UQ	63	60	58	56	54	58	69	73	72	69	66	70	72	76	81	82	84	80	82	79	76	67	66	64
LQ	54	53	52	45	44	48	52	57	56	57	56	58	62	64	68	66	62	64	66	68	64	62	58	55

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MAY. 1973 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOF1 (0.01 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							U L 390	440	I B 450	C	C	C	B	A	C	470	C	C						
2								C	C	C	480	480	490	480	480	460	430	L						
3							L	L	L 470	480	500	490	510	L 510	480	460	L 440	L						
4							L	U L 440	U L 480	480	490	500	500	510	490	460	L 460	L						
5							L	L	L 460	480	500	540	H 500	520	490	470	410	A	A					
6								L	L 470	470	490	500	480	480	490	450	430	L						
7							L	L	L	A	A	A	A	A	A	A	A	A	A					
8							370	380	I A 420	440	I A 450	440	I A 460	460	440	450	430	390						
9							L	390	450	470	490	I A 490	I A 510	480	470	460	A	A						
10								L	L 450	460	460	460	470	470	440	H 440	430	A	L					
11							L	420	I A 480	I A 460	460	I A 470	460	460	I A 450	I A 440	A	A						
12							L	U L 460	430	I A 460	I A 470	470	460	460	460	I A 440	H 420	A	L					
13							L	L	440	I A 450	470	480	450	470	470	430	430	L	L					
14						L	L 370	400	480	450	440	460	440	440	460	420	410	L	L					
15							L 400	410	430	470	460	470	480	H 480	H 470	440	I A 370	L	A					
16						L	L	H 490	I A 440	440	450	460	460	450	460	440	H 430	A	A					
17							L 410	400	440	A	A	A	A	A	A	A	A	A	A					
18						L	A	A	A	A	A	A	A	A	440	440	A	A	A					
19								A	A	A	A	450	450	A	A	A	A	A	A					
20							U L 410	400	440	I A 440	I A 450	I A 450	460	460	450	450	H 430	H 400	A					
21						L	U L 360	A	A	A	A	480	470	460	I A 450	I A 440	420	390	U L 340					
22							A	A	A	440	440	I A 450	460	440	A	A	400	A	A					
23							L	A	A	A	A	A	480	460	460	A	430	390						
24							L	A	A	A	I A 470	I A 460	460	I A 480	470	440	I A 440	400	A					
25						L	L	A	450	460	470	500	I A 480	470	470	460	440	L	L					
26								A	450	I A 460	I A 480	470	470	480	A	A	A	A	A					
27						L	L	450	450	470	I A 480	490	480	I A 480	A	A	A	390	L					
28						L	400	430	450	450	470	490	470	470	470	450	430	400	L					
29						320	400	400	430	450	470	450	I A 470	460	I A 450	H 450	430	A	A					
30						L	420	I A 410	A	480	460	I A 490	480	I A 460	I A 460	450	430	400	L					
31						L	440	460	440	470	H 470	I A 480	I A 470	I A 470	440	I A 440	430	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	11	16	22	22	24	26	27	26	24	24	22	8	1					
MED						320	L 400	415	450	460	470	475	470	470	460	450	430	395	U L 340					
UQ							410	445	460	470	480	490	480	480	470	460	430	400						
LQ							380	400	440	450	460	460	460	460	450	440	420	390						

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MAY. 1973 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						B	240	285	I B 315	C	C	C	B	B	C	340	I C 310	C	A	C				
2						C	C	C	C	C	A	350	365	I B 360	I A 350	340	I A 315	I A 265	210	S				
3						195	265	305	I A 325	I A 335	I A 350	R 360	365	R 360	355	I A 330	300	270	A	S				
4						I A 195	255	300	325	340	355	360	365	350	A	A	A	270	195	S				
5						195	255	290	310	335	345	355	365	360	350	335	305	260	A	S				
6						195	245	I A 285	315	340	345	I A 355	I A 360	360	340	325	305	270	A	S				
7						I A 185	250	280	320	340	350	355	365	355	345	325	300	A	A	S				
8						B	245	285	320	340	I A 350	I A 355	I A 360	360	340	320	I A 290	250	A	E				
9						A	235	275	310	335	350	A	A	A	A	330	295	250	A	S				
10						A	A	A	A	A	350	360	365	355	345	330	290	250	A	S				
11						A	245	275	310	335	345	350	A	A	A	325	295	245	A	S				
12						A	A	I A 285	A	A	A	A	A	A	345	320	285	A	A	S				
13						I A 200	245	285	320	340	350	355	365	I A 360	I A 345	330	305	260	200	S				
14						A	A	275	310	335	345	A	A	A	335	310	275	245	A	S				
15						A	245	285	A	A	A	A	A	A	345	325	285	245	A	S				
16						A	A	275	310	A	A	A	365	350	330	310	280	240	A	S				
17						A	245	285	305	A	A	A	A	350	330	310	285	255	A	A				
18						A	255	295	315	330	340	345	A	A	A	I A 320	I A 285	245	A	A				
19						A	240	I B 280	310	335	A 340	I A 345	355	350	335	320	295	255	A	S				
20					S	A	A	285	325	A	A	A	A	A	350	330	305	265	A	A				
21					S	A	250	290	315	335	340	A	A	A	A	A	A	245	200	S				
22						A	235	275	310	I A 335	350	A	A	A	A	A	A	265	215	S				
23					S	205	245	295	315	I A 330	340	345	A	A	A	320	295	255	A	A				
24					S	A	250	290	315	335	345	350	I A 355	I A 350	340	320	295	260	A	S				
25					E	A	250	290	320	I A 330	A	A	360	355	345	325	300	260	A	A				
26					S	205	255	295	320	335	345	350	360	355	345	335	305	265	A	A				
27					E	A	A	A	A	A	A	350	360	355	345	335	300	A	A	A				
28					E	200	I A 255	I A 290	325	345	355	I A 360	365	355	345	325	300	260	A	A				
29					S	200	250	290	320	335	345	I A 350	I A 355	345	A	A	A	A	A	A				
30					S	A	255	I A 290	320	I A 335	I A 345	355	360	355	A	A	A	260	A	A				
31					A	210	I A 245	I A 285	325	340	350	355	I A 360	355	345	325	300	265	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					3	11	24	28	26	22	22	20	19	20	21	26	26	26	5	1				
MED					E	200	248	285	315	335	345	355	360	355	345	325	298	260	200	E				
UQ					E	202	255	290	320	340	350	355	365	360	345	330	305	265	210					
LQ					E	195	245	282	310	335	345	350	360	350	340	320	290	250	200					

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MAY. 1973 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 27	M 20	E S 14	E	J X 20	E B 17	G 22	G	E B 62	C	C	C	B	J X 52	C	G	C	C	J X 29	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	J X 50	G	G	E B 39	J X 36	37	33	28	G	24	J X 19	E S 14	J X 20	J X 27
3	J X 30	J X 24	J X 20	J X 20	J X 19	G	31	G	36	36	37	G	G 34	G	G 30	J X 36	36	34	J X 29	J X 24	J X 20	E S 14	E S 14	J X 20
4	J X 19	J X 19	J X 19	J X 19	E S 14	25	34	35	39	41	40	38	40	41	38	J X 47	34	G	24	24	E S 14	E S 14	E S 14	E S 14
5	J X 20	J X 18	E S 14	E S 14	E	22	29	39	42	44	41	39	G	G	G	G	42	46	J X 47	J X 34	J X 34	J X 22	E S 14	J X 19
6	E S 14	E S 14	E S 14	E S 14	J X 19	G	29	39	40	46	43	J X 46	38	45	J X 50	G	G	32	J X 30	J X 52	J X 59	J X 56	J X 46	J X 39
7	J X 39	J X 49	J X 45	J X 36	J X 24	25	30	38	45	49	J X 60	52	52	J X 101	J X 80	J X 175	J X 86	J X 107	J X 87	J X 60	J X 29	J X 44	J X 32	J X 30
8	J X 25	J X 24	E S 14	E S 14	E	E B 19	29	39	42	42	J X 56	40	J X 79	45	39	G	J X 59	J X 40	31	J X 76	J X 112	J X 75	J X 34	J X 56
9	J X 44	J X 27	J X 29	J X 26	J X 19	J X 23	30	34	35	45	40	J X 62	J X 90	44	J X 47	38	J X 50	J X 48	J X 30	J X 42	J X 34	J X 54	J X 31	J X 18
10	J X 24	J X 24	J X 20	J X 43	E S 14	J X 27	J X 29	J X 39	J X 34	J X 44	G	G	38	G	G	G	33	47	J X 30	J X 36	J X 64	J X 56	J X 44	J X 54
11	J X 44	J X 20	J X 18	J X 20	J X 24	29	32	39	53	J X 66	44	47	44	41	48	50	J X 56	J X 66	J X 46	J X 54	J X 64	J X 51	J X 30	J X 41
12	J X 66	J X 44	J X 32	J X 29	J X 24	24	34	J X 42	J X 44	J X 54	J X 67	J X 44	J X 51	J X 42	44	J X 64	34	J X 50	29	J X 24	J X 78	J X 56	J X 44	J X 48
13	J X 34	J X 24	J X 25	J X 27	J X 19	22	30	J X 50	45	J X 56	46	42	43	42	J X 48	G	39	G	G	J X 20	J X 27	E S 14	E S 14	E S 14
14	J X 21	J X 22	J X 34	J X 40	J X 17	25	32	32	33	G	43	37	J X 39	37	38	40	34	29	29	J X 24	J X 30	J X 19	M 20	E S 14
15	M 18	M 20	E S 14	J X 34	J X 24	J X 39	J X 37	J X 48	J X 48	J X 61	J X 45	J X 72	J X 44	J X 44	G	38	J X 69	J X 39	J X 59	J X 52	J X 46	J X 46	J X 24	E S 14
16	J X 20	J X 24	M 21	J X 30	J X 84	J X 35	40	J X 47	J X 54	45	J X 74	J X 44	39	G	45	42	J X 42	J X 50	J X 62	J X 55	J X 48	J X 54	J X 58	J X 34
17	J X 41	J X 30	J X 24	J X 30	J X 41	26	34	39	J X 51	J X 106	J X 75	J X 72	J X 54	J X 60	50	J X 75	J X 65	J X 114	J X 86	J X 49	J X 30	J X 34	J X 72	J X 54
18	J X 32	J X 29	J X 54	M 22	J X 30	29	J X 62	J X 84	J X 94	J X 94	J X 76	J X 84	J X 96	J X 130	J X 44	42	J X 67	J X 65	J X 62	J X 94	J X 94	J X 106	J X 76	J X 54
19	J X 37	J X 37	J X 36	J X 66	J X 79	J X 55	J X 59	J X 71	J X 66	J X 71	J X 119	J X 61	G	50	J X 54	J X 81	J X 54	J X 55	J X 42	J X 47	J X 50	J X 48	J X 42	J X 35
20	J X 24	E S 14	M 20	E S 14	E S 14	27	34	40	37	J X 61	J X 113	J X 72	J X 67	J X 41	G	G	G	G	J X 64	J X 41	J X 51	J X 62	J X 27	J X 75
21	J X 41	J X 19	J X 20	E	14	24	34	47	54	J X 58	J X 54	J X 50	J X 48	J X 41	J X 46	J X 72	J X 46	G	G	E S 16	J X 17	J X 17	E S 14	E S 14
22	E S 14	J X 42	J X 85	J X 39	J X 39	J X 38	J X 47	J X 49	J X 47	J X 47	45	J X 72	J X 50	J X 52	J X 107	J X 123	J X 37	J X 61	J X 40	J X 36	J X 39	J X 52	J X 87	J X 63
23	J X 50	J X 41	J X 31	E S 14	E S 14	G	31	J X 47	J X 47	46	J X 50	J X 51	39	J X 45	45	J X 74	J X 55	39	J X 38	J X 100	J X 43	J X 102	J X 86	J X 72
24	J X 20	M 20	J X 18	J X 30	E S 13	24	40	45	52	J X 112	J X 62	J X 69	48	J X 72	49	42	J X 69	J X 44	J X 47	J X 44	J X 52	J X 84	J X 91	J X 79
25	J X 79	J X 47	J X 59	J X 47	J X 30	J X 37	39	J X 52	J X 50	J X 64	J X 44	42	J X 110	46	44	38	39	J X 47	25	J X 30	J X 18	J X 30	J X 44	J X 24
26	J X 44	J X 39	J X 20	E S 14	E S 14	G	36	J X 51	44	J X 72	J X 90	48	46	45	J X 112	J X 66	J X 67	J X 96	J X 64	J X 29	J X 21	J X 46	J X 41	J X 54
27	J X 35	J X 26	J X 22	J X 19	J X 24	26	J X 41	J X 154	J X 74	J X 49	J X 59	42	49	50	54	J X 56	J X 79	J X 40	30	J X 34	J X 36	J X 49	J X 20	M 20
28	E S 14	J X 19	J X 19	M 20	J X 17	27	J X 41	J X 44	41	40	43	40	G	39	41	37	J X 47	33	J X 36	J X 37	J X 19	M 21	J X 30	J X 24
29	J X 27	E S 14	E S 14	E S 13	E S 14	24	34	39	42	40	41	J X 66	J X 49	J X 60	J X 99	J X 55	J X 71	J X 47	J X 80	J X 36	J X 45	J X 37	J X 56	J X 38
30	J X 46	J X 40	J X 84	J X 51	J X 40	J X 31	31	J X 79	J X 54	J X 97	J X 61	J X 121	40	J X 70	J X 77	39	J X 42	37	J X 31	J X 45	J X 21	E S 14	J X 20	J X 30
31	J X 47	J X 59	J X 56	J X 67	J X 68	J X 24	J X 42	J X 67	G	39	43	J X 67	J X 52	52	46	J X 64	J X 47	J X 81	J X 76	J X 53	J X 49	J X 54	J X 44	J X 37
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	31	30	31	30	30	31	30	30	30	30	30
MED	J X 31	J X 24	J X 20	J X 24	J X 19	25	34	43	44	J X 49	J X 48	J X 48	45	45	46	42	J X 46	J X 45	J X 36	J X 39	J X 38	J X 47	J X 33	J X 34
UQ	J X 44	J X 39	J X 34	J X 36	J X 30	29	40	J X 50	J X 52	J X 64	J X 62	J X 67	J X 52	J X 52	J X 50	J X 64	J X 65	J X 55	J X 60	J X 52	J X 51	J X 56	J X 46	J X 54
LQ	J X 20	J X 20	J X 18	14	14	22	30	39	40	44	43	40	39	41	38	36	36	33	29	J X 29	J X 21	J X 21	J X 20	J X 20

The Radio Research Laboratories, Japan

MAY. 1973 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E	E	E S 14	E	E	E b 17	G 21	G	E B 62	C	C	C	B	52	C	G	C	C	29	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	45	G	G	E B 39	37	G	33	28	G	20	E	E S 14	E	E
3	20	18	18	15	E	G	31	G	35	36	37	G	G 34	G	G 29	35	35	34	29	19	E	E S 14	E S 14	E
4	E	E	E	E	E S 14	21	29	32	35	39	39	38	39	40	38	36	34	G	24	21	E S 14	E S 14	E S 14	E S 14
5	E	E	E S 14	E S 14	E	22	29	38	37	39	37	39	G	G	G	G	38	40	45	30	22	20	E S 14	E
6	E S 14	E S 14	E S 14	E S 14	E	G	29	34	38	42	39	44	38	44	46	G	G	30	26	28	44	28	E	17
7	24	26	32	25	20	24	28	35	43	48	57	51	51	A	78	A	81	A	82	59	27	39	25	28
8	18	18	E S 14	E S 14	E	E B 19	29	33	A	41	A	39	A	44	36	G	35	29	30	A	A	A	24	30
9	20	17	18	19	E	22	27	32	34	37	37	58	64	41	37	35	45	45	29	35	29	22	18	E
10	E	18	18	15	E S 14	21	27	34	33	37	G	G	38	G	G	G	33	45	25	24	48	38	34	32
11	18	E	E	E	17	26	30	33	51	A	43	U R 47	44	41	47	49	55	A	36	50	52	35	E	21
12	30	32	18	24	18	20	32	36	40	48	50	43	45	39	44	64	32	42	25	21	62	20	32	24
13	22	E	E	17	15	21	28	41	43	50	45	42	41	39	39	G	36	G	G	17	20	E S 14	E S 14	E S 14
14	E	E	18	E	E	20	28	30	33	G	36	37	36	36	37	39	33	29	24	20	25	E	E	E S 14
15	E	E	E S 14	E	21	30	34	39	34	35	36	39	37	38	G	38	44	34	55	50	39	24	17	E S 14
16	19	19	E	25	21	27	35	43	A	42	38	37	38	G	39	42	33	49	55	48	29	42	A	28
17	E	18	16	27	24	24	30	37	37	A	A	50	48	46	47	56	43	A	37	47	24	20	25	24
18	20	E	20	E	17	25	40	A	A	A	A	51	48	56	35	37	A	59	45	A	A	A	41	28
19	E	18	25	29	19	48	A	A	A	A	44	42	G	50	53	A	51	A	34	U R 47	41	25	43	24
20	E	E S 14	E	F S 14	E S 14	23	29	37	37	48	A	47	43	38	G	G	G	G	60	25	31	26	19	A
21	21	E	15	E	E S 14	23	32	43	45	A	A	46	44	41	46	49	35	G	G	E S 16	E	E	E S 14	E S 14
22	E S 14	23	20	18	22	29	A	A	A	37	38	A	42	42	A	A	34	A	38	32	35	29	A	18
23	20	29	17	E S 14	E S 14	G	29	44	45	45	48	48	38	40	44	72	42	37	35	A	40	A	20	54
24	E	E	E	15	E S 13	23	33	44	48	54	A	A	39	52	40	37	50	32	44	32	40	51	18	40
25	32	38	42	36	16	27	35	48	43	44	38	42	A	40	43	35	35	37	24	18	E	28	22	18
26	E	22	16	E S 14	E S 14	G	34	45	41	48	A	44	44	43	57	55	50	A	38	27	17	E	35	28
27	20	18	18	16	16	24	32	33	42	41	50	41	47	50	54	54	76	37	28	30	30	40	E	E
28	E S 14	16	15	E	14	24	33	34	36	37	39	38	G	38	36	35	33	30	33	35	E	E	18	E
29	E	E S 14	E S 14	E S 13	E S 14	G	27	34	37	35	38	40	48	45	A	34	40	41	A	24	18	15	39	29
30	29	18	20	17	19	26	29	51	47	43	43	A	38	51	48	35	32	31	26	40	E	E S 14	E	19
31	E	18	25	24	18	19	34	38	G	36	41	55	49	48	41	58	39	A	60	38	28	29	28	34
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	29	30	30	30	31	30	31	30	30	31	30	30	30	30	30
MED	14	18	16	14	14	22	30	37	41	42	43	42	42	41	40	37	36	37	33	31	28	24	18	20
UQ	20	18	18	19	18	25	34	44	48	48	57	50	48	47	47	54	45	59	44	47	40	38	32	28
LQ	E	E	14	E	E S 13	19	29	33	36	37	38	39	38	38	36	E G 34	33	30	26	21	17	14	14	14

MAY. 1973 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | F-MIN (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E S 14	E S 14	E S 14	E	E S 14	17	15	15	62	C	C	C	B	41	C	19	C	C	15	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	21	25	27	39	22	16	17	20	15	E S 13	E S 14	E S 14	E S 14	E S 14
3	E S 13	E S 14	E	E	E S 14	16	19	15	18	22	23	29	23	25	18	16	16	14	19	E S 14	E S 14	E S 14	E S 14	E S 14
4	E S 14	E	E S 14	E S 14	E S 14	15	16	14	18	19	20	20	24	23	19	16	16	18	15	E S 14	E S 14	E S 14	E S 14	E S 14
5	E S 14	E S 14	E S 14	E S 14	E	15	16	15	17	17	18	24	20	20	23	20	19	15	14	E S 13	E S 14	E S 14	E S 14	E S 14
6	E S 14	E S 14	E S 14	F S 14	E S 14	15	15	17	17	15	17	18	25	19	18	15	16	16	15	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	17	14	18	15	19	19	24	20	20	16	14	14	14	E S 14	E S 14	E S 14	E S 14	E S 13
8	E S 15	E	E S 14	E S 14	E	19	15	15	17	18	19	20	18	18	18	15	15	17	15	E	E S 14	E S 14	E S 14	E S 14
9	E S 14	E	E	E	E S 14	14	15	17	15	15	17	20	20	15	19	14	18	15	14	E S 14	E S 14	E S 14	E S 13	E S 14
10	E S 14	E	E	E	E S 14	14	14	15	17	15	18	18	18	15	14	15	15	14	14	E S 14	E S 14	E S 14	E S 14	E S 14
11	E S 14	E S 14	E S 14	E S 14	E	14	15	16	17	18	21	19	18	19	18	17	16	14	14	E S 13	E S 14	E S 14	E S 14	E S 14
12	E S 14	E	E S 14	E	E	14	15	17	19	19	20	24	20	18	16	16	15	17	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	14	15	18	17	19	19	18	18	16	16	15	15	15	E S 14	E S 14	E S 14	E S 14	E S 14
14	E S 14	E S 14	E	E S 14	E	14	15	15	18	19	19	15	18	15	15	17	15	14	14	E S 14	E S 14	E S 14	E S 14	E S 14
15	E S 14	E S 14	E S 14	E S 14	E	14	14	15	14	15	16	16	16	15	16	15	14	14	14	E S 14	E S 14	E S 14	E S 14	E S 14
16	E S 14	E S 14	E S 14	E	E	14	16	17	18	17	16	17	17	17	20	15	15	15	14	E S 13	E S 14	E S 14	E S 14	E S 14
17	E S 14	E S 14	E	F	E	14	15	15	15	17	16	17	15	15	15	15	15	14	14	E	E S 13	E S 14	E S 14	E S 14
18	E S 14	E S 14	E	E S 14	E	15	15	15	15	15	16	18	18	21	18	17	15	14	15	E	E S 14	E S 14	E S 14	E S 14
19	E S 14	E	E S 14	E	E	14	15	31	16	15	18	18	17	15	15	15	14	14	14	E S 13	E S 14	E S 13	E S 14	E S 14
20	E S 14	E S 14	E S 14	E S 14	E S 14	13	16	15	22	16	18	15	18	18	23	18	14	15	14	14	E S 14	E S 14	E S 14	E S 14
21	E S 14	E S 14	E	E	E S 14	15	15	15	17	20	19	20	16	19	18	18	15	15	15	E S 16	E S 14	E S 14	E S 14	E S 14
22	E S 14	E	E	E	E	14	15	18	18	17	16	18	18	18	15	17	15	16	15	E S 14	E S 14	E S 14	E S 14	E S 14
23	E S 14	E S 14	E	E S 14	E S 14	15	15	15	16	19	19	18	23	20	18	15	17	15	14	14	E S 14	E S 14	E S 14	E S 14
24	E S 14	E S 14	E S 14	E	E S 13	15	15	15	18	19	19	19	17	19	18	17	15	15	14	E S 14	E S 13	E S 14	E S 14	E S 14
25	E S 14	E S 14	E	E	E	14	15	15	18	18	18	23	18	17	18	17	14	15	14	14	E S 14	E S 14	E S 14	E S 14
26	E S 14	E	E	E S 14	E S 14	15	14	15	17	17	18	18	21	19	18	17	15	15	14	14	E S 14	E S 14	E S 14	E S 13
27	E S 14	E	E	E	E	14	15	15	15	18	18	17	18	14	17	14	15	14	14	13	E	E S 13	E S 14	E S 14
28	E S 14	E	E	E S 14	E	14	15	15	17	15	17	15	13	15	15	15	14	14	14	14	E S 14	E S 14	E	E S 14
29	E S 14	E S 14	E S 14	E S 13	E S 14	15	14	15	16	14	18	15	17	20	18	15	14	14	14	14	E	E S 14	E S 13	E S 14
30	E S 14	E S 14	E	E	E S 14	14	14	15	18	16	16	25	15	18	14	15	15	15	15	14	E S 14	E S 14	E S 14	E S 14
31	E S 14	E	E	E	E	15	16	15	16	16	17	18	21	16	16	17	15	14	13	14	E S 13	E S 14	E S 13	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	30	30	30	30	30	30	30	30	30	29	30	30	31	31	30	31	30	30	31	30	30	30	30	30
MED	E S 14	E S 14	E	E	E	14	15	15	17	17	18	18	18	18	18	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	F S 14	E S 14	15	15	15	18	18	19	20	21	20	18	17	16	15	15	14	E S 14	E S 14	E S 14	E S 14
LQ	E S 14	E	E	E	E	14	15	15	16	15	17	17	17	16	16	15	15	14	14	E S 13	E S 14	E S 14	E S 14	E S 14

MAY. 1973 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	295	280	F 285	295	285	290	280	300	300	C	C	C	I B 295	285	I C 305	310	I C 310	I C 305	310	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	295	320	300	315	300	305	300	305	310	310	300	280	275	270
3	275	275	290	300	285	280	305	320	320	310	300	305	295	290	295	300	310	335	320	305	300	270	260	280
4	280	280	285	290	285	300	315	315	310	310	310	305	300	290	290	310	305	310	315	300	280	285	280	280
5	295	290	290	275	280	285	310	320	330	320	300	280	285	285	295	310	315	310	300	295	290	295	300	280
6	275	280	280	275	275	310	305	310	305	295	300	295	295	295	290	300	305	290	310	310	300	285	280	F
7	F	F 280	F	F	290	325	325	320	325	315	270	285	295	I A 285	285	I A 295	295	I A 300	315	315	300	265	270	270
8	280	280	300	315	305	285	260	G	I A 250	G	I A 235	250	I A 240	245	285	285	280	290	305	I A 295	I A 280	I A 275	265	270
9	265	260	280	305	300	315	325	305	310	310	305	290	300	290	310	310	310	310	315	310	285	270	275	275
10	275	275	295	330	355	330	315	325	295	280	290	280	290	290	295	310	310	300	290	300	310	305	285	F
11	F	F	F	F	305	310	330	295	300	I A 305	300	I R 280	270	290	310	300	300	I A 300	285	295	315	325	F 285	280
12	275	F	F	F	F	320	315	300	310	320	315	300	300	310	295	305	305	310	305	290	I A 290	F	F	F 300
13	F	F	F 295	295	315	330	340	330	330	340	320	280	300	285	290	315	310	315	275	280	295	315	325	285
14	280	280	285	F 300	F 290	320	320	H 325	260	230	255	265	255	280	275	315	300	300	290	280	260	275	270	270
15	285	275	275	275	280	300	300	330	330	320	300	305	295	290	300	315	315	315	330	310	290	295	275	280
16	280	275	280	290	F	H 310	300	305	I A 280	300	285	280	290	290	310	305	280	280	280	310	300	315	I A 295	270
17	270	F	295	290	305	305	285	310	G	A	A	270	295	290	305	305	285	I A 295	305	290	295	305	F	280
18	F 285	280	285	F	295	310	315	A	A	A	A	280	305	295	295	295	I A 285	280	285	I A 320	I A 310	A	F	F 290
19	F 295	F	F	F	F	310	I A 320	A	A	A	275	275	255	275	295	I A 300	300	I A 295	310	305	285	280	I R 285	275
20	285	275	305	300	280	325	305	310	280	260	I A 270	290	290	300	295	285	290	385	270	300	305	F	F	A
21	F	F	295	F 295	F 300	305	335	315	330	I A 310	I A 290	240	270	280	280	275	295	260	280	300	270	255	255	310
22	330	275	245	F 280	F	295	A	A	A	G	G	A	G	255	A	A	300	I A 300	280	285	290	265	I A 280	280
23	F 275	F 275	F	F 275	F	315	315	305	315	315	265	285	285	285	290	290	310	300	285	I A 300	295	A	R	F
24	F 295	F	F	F	295	305	295	325	325	305	I A 290	I A 290	300	295	285	300	300	310	300	305	290	290	I R 300	F
25	F	F	F	F	295	310	300	305	325	325	320	295	I A 285	285	295	295	310	295	305	305	305	280	290	F
26	F	F	F	F	F	320	330	310	325	320	I A 300	295	285	285	285	290	295	I A 290	290	285	280	F 280	F 285	285
27	280	290	290	285	295	295	325	320	310	295	295	290	290	280	285	275	280	305	305	290	300	F	290	290
28	275	280	R	F	F	300	280	305	305	320	315	260	295	295	290	290	290	295	300	310	I R 285	285	270	270
29	270	275	275	F	F	265	270	285	270	G	G	260	260	285	I A 285	275	290	310	I A 310	310	285	275	F	F
30	280	F	F	F	F	295	300	305	325	300	295	I A 275	280	275	280	295	295	300	315	310	290	275	F	F
31	F	F	F	F	F 295	280	275	285	H 325	300	280	265	270	270	290	285	300	I A 295	290	310	310	F 285	290	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	23	19	19	18	21	30	29	27	27	26	28	29	31	31	30	30	31	31	31	30	30	25	23	22
MED	280	280	285	292	295	308	310	310	310	308	295	280	290	285	292	300	300	300	305	302	292	280	280	280
UQ	285	280	295	300	300	315	320	320	325	320	300	295	295	290	295	310	310	310	310	310	300	295	290	285
LQ	275	275	280	280	285	295	300	305	298	295	272	275	275	282	285	290	292	295	288	295	285	275	272	270

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MAY. 1973 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1973 | 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

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							U L 345	340	I B 350	C	C	C	B	A	C	345	C	C						
2								C	C	C	I A 370	395	370	370	365	350	350	L						
3							L	L	L 360	365	360	370	355	L 340	360	355	L 360	L						
4							L	U L 365	U L 365	365	370	360	360	355	350	355	L 340	L						
5							L	L	L 380	375	370	350	H 360	345	355	340	385	A	A					
6								L	L 360	365	355	350	380	375	I A 345	355	360	L						
7							L	L	L	A	A	A	A	A	A	A	A	A	A					
8							335	360	I A 345	360	I A 370	375	I A 370	375	385	345	340	335						
9							L	385	350	375	355	I A 345	I A 340	365	370	350	A	A						
10								L	L 355	380	370	380	370	370	375	H 385	360	A	L					
11							L	360	A	A	380	I A 370	370	370	I A 365	I A 360	A	A						
12							L	U L 340	380	I A 365	I A 370	365	I A 380	370	I A 370	I A 360	H 365	A	L					
13							L	L	A	A	I A 380	375	400	340	360	370	360	L	L					
14						L	L 355	375	330	360	375	375	370	360	340	355	365	L	L					
15							L 360	I A 355	370	365	370	360	355	385	H 395	350	A	L	A					
16						L	L	H 350	A	A	380	370	370	380	350	I A 360	H 350	A	A					
17							L 330	I A 345	365	A	A	A	A	A	A	A	A	A	A					
18						L	A	A	A	A	A	A	A	A	390	345	A	A	A					
19								A	A	A	A	370	405	A	A	A	A	A	A					
20							U L 330	I A 350	365	A	A	A	380	375	380	355	H 350	H 360	A					
21						L	U L 390	A	A	A	A	A	345	365	A	A	340	345	U L 325					
22							A	A	A	370	360	I A 350	340	A	A	A	350	A	A					
23							L	A	A	A	A	A	360	385	A	A	A	A						
24							L	A	A	A	I A 360	I A 370	390	I A 375	360	385	I A 345	355	A					
25						L	L	A	I A 370	I A 385	395	375	I A 375	385	345	355	350	L	L					
26								A	375	I A 380	I A 385	390	380	350	A	A	A	A	A					
27						L	L	350	365	380	I A 380	375	A	A	A	A	A	A	L					
28						L	340	350	360	380	385	375	385	385	360	365	355	345	L					
29						325	330	365	370	380	380	380	I A 375	I A 370	I A 370	H 355	A	A	A					
30						L	345	I A 360	A	370	380	I A 375	380	I A 390	I A 370	360	375	350	L					
31						L	325	350	355	375	H 385	I A 380	I A 380	I A 375	350	I A 355	360	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	11	16	19	18	23	24	26	24	22	23	19	6	1					
MED						325	L 340	352	365	372	370	372	370	370	362	355	355	348	U L 325					
UQ							L 350	362	370	380	380	375	380	378	370	360	360	355						
LQ							330	350	355	365	370	362	360	362	350	350	350	345						

MAY. 1973 | M(3000)F1 (0.01)

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IONOSPHERIC DATA

MAY. 1973 | H'F2 (KM) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							315	325	I B 320	C	C	C	I B 340	325	I C 310	295	I C 290	C						
2								C	C	C	330	280	295	295	305	300	295	260						
3							300	265	280	290	300	290	315	315	320	295	275	260						
4							265	265	270	280	295	300	315	330	325	280	280	260						
5							260	270	255	280	305	370	330	335	320	280	280	255	265					
6								265	290	300	310	320	300	325	325	290	300	270						
7							255	250	260	280	I A 360	345	305	I A 320	330	I A 315	315	I A 295	290					
8							495	G	I A 635	G	I A 600	525	A	540	390	375	375	320						
9							250	280	290	305	325	350	I A 330	325	305	300	290	275						
10								265	330	380	350	360	340	350	330	290	305	295	300					
11							270	335	A 345	325	340	I A 400	425	355	320	340	A	A						
12							260	290	295	290	325	355	345	315	340	I A 320	295	270	265					
13							245	280	275	270	305	390	335	340	330	280	270	270	275					
14						255	255	255	490	600	445	380	405	330	360	285	270	290	295					
15							305	255	265	285	290	320	345	340	305	285	275	265	245					
16						300	305	380	I A 415	340	350	385	360	340	300	315	350	345	A 315					
17							405	340	G	A	A	A	330	350	320	I A 320	355	A	270					
18						280	295	A	A	A	A	A	335	350	340	355	I A 360	I A 340	315					
19								A	A	A	450	445	525	420	355	A	A	I A 305	265					
20							305	300	395	I A 390	I A 400	390	370	340	365	380	335	345	I A 330					
21						290	250	300	295	A	A	580	405	355	335	350	315	350	310					
22							A	A	A	G	G	A	G	500	A	A	335	A	A					
23							285	340	300	325	460	390	345	350	325	I A 315	280	290						
24							305	265	285	A	A	I A 350	335	350	350	315	300	270	265					
25						300	285	280	260	280	300	345	I A 375	390	340	325	300	300	255					
26								280	290	270	I A 330	340	360	355	325	330	315	I A 310	290					
27						275	255	260	275	315	325	355	345	350	330	340	I A 330	280	260					
28						280	340	305	305	310	300	485	350	365	350	335	320	295	275					
29						400	415	350	405	G	G	500	445	395	I A 360	390	340	305	A					
30						295	300	290	250	335	330	I A 405	390	380	345	305	305	290	250					
31						290	345	340	270	325	395	I A 390	425	395	335	360	320	I A 300	310					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						10	25	27	27	24	26	27	30	31	30	29	29	27	20					
MED						290	295	280	290	312	330	370	345	350	330	315	305	290	275					
UQ						300	305	330	338	360	400	395	390	360	345	340	330	305	305					
LQ						280	260	265	272	282	305	345	330	330	320	295	290	270	265					

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MAY. 1973 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1973 | H'F (KM) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	285	290	265	270	240	240	230	I B 240	C	C	C	B	A	C	230	I C 240	I C 245	255	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	I A 210	190	235	230	220	230	235	245	255	235	245	255	280	300
3	290	290	260	245	275	265	250	240	235	225	215	205	225	240	210	240	I A 250	250	240	235	235	250	300	290
4	290	265	255	250	250	245	240	230	230	225	205	215	220	210	210	235	240	245	245	230	255	255	280	280
5	265	250	280	275	255	245	245	250	235	225	210	205	H 200	230	230	240	I A 245	I A 250	I A 255	265	260	245	240	255
6	290	285	280	270	270	235	250	245	230	I A 230	230	I A 220	215	I A 200	I A 220	230	235	250	255	250	270	270	270	290
7	295	315	310	255	260	235	240	230	I A 225	A	A	A	A	A	A	A	A	A	A	250	215	A	330	320
8	305	280	245	215	240	275	265	265	I A 260	215	I A 245	230	I A 240	I A 230	225	215	I A 235	245	250	I A 275	I A 290	I A 310	320	320
9	335	305	300	245	240	250	220	200	200	215	215	I A 205	I A 220	230	230	240	A	A	245	245	250	305	295	290
10	290	295	250	230	195	210	240	245	220	205	225	215	210	205	230	H 190	230	I A 240	240	250	260	285	315	315
11	300	295	280	235	250	240	240	235	A	A	A	I A 230	I A 220	230	I A 230	A	A	A	300	295	260	230	H 230	300
12	I A 320	I A 310	295	290	265	240	240	230	A	A	I A 225	I A 210	I A 210	I A 225	I A 220	I A 230	H 220	I A 235	240	250	I A 290	265	255	255
13	300	275	255	255	245	240	230	A	A	A	A	220	210	260	230	220	I A 230	240	240	285	260	215	220	245
14	290	300	280	270	280	235	240	230	220	225	215	220	210	240	250	I A 235	210	250	260	290	300	290	245	290
15	250	285	305	290	290	250	A	A	225	220	210	240	225	H 200	H 180	A	A	A	A	I A 265	295	285	265	290
16	290	300	290	290	270	I A 260	A	A	A	A	215	230	235	235	I A 240	I A 235	H 220	A	A	270	245	250	I A 270	I A 325
17	320	300	280	290	290	250	240	I A 235	230	A	A	A	A	A	A	A	A	A	A	290	265	245	310	290
18	300	300	290	290	280	I A 240	A	A	A	A	A	A	A	A	215	255	A	A	A	A	I A 255	A	A	300
19	260	280	290	305	265	I A 250	A	A	A	A	A	A	205	A	A	A	A	A	A	A 290	I A 290	320	I A 300	305
20	280	290	255	250	250	225	240	I A 240	230	A	A	A	230	230	220	230	H 205	H 190	A	250	240	290	250	I A 280
21	275	270	255	260	290	250	A	A	A	A	A	A	A	A	A	A	A	240	265	250	275	315	295	240
22	220	315	360	340	300	305	A	A	A	220	245	A	A	A	A	A	A	A	A	315	310	330	I A 305	280
23	320	315	305	300	285	240	235	A	A	A	A	A	205	215	A	A	A	I A 245	285	I A 285	290	I A 280	265	A
24	250	240	250	300	250	240	A 260	A	A	A	A	A	200	I A 215	240	230	I A 225	I A 240	I A 250	260	290	I A 280	280	I A 300
25	280	A	A	290	255	265	A	A	I A 230	I A 210	190	230	I A 235	205	I A 210	220	250	I A 235	240	250	240	280	290	280
26	290	300	260	240	270	245	240	I A 240	I A 215	I A 240	I A 215	I A 215	A	A	A	A	A	A	A	255	255	260	295	280
27	250	275	270	255	245	240	240	230	I A 230	230	I A 215	205	A	A	A	A	A	A	A	250	255	I A 290	245	235
28	280	270	245	300	250	240	I A 250	230	230	215	215	200	200	210	215	230	220	240	I A 240	240	245	250	290	290
29	295	270	285	F 290	290	250	250	I A 230	I A 210	200	205	230	I A 230	I A 230	I A 235	H 230	A	A	A	240	245	290	I A 325	330
30	300	315	300	280	270	250	230	I A 225	I A 220	230	I A 195	I A 220	200	I A 210	I A 220	230	220	240	240	250	205	260	295	295
31	280	280	300	290	280	240	240	230	230	215	H 205	A	A	A	A	A	A	A	A	250	235	290	290	290
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	30	30	30	23	20	20	17	20	20	22	21	21	20	17	18	19	29	30	28	29	29
MED	290	290	280	272	268	242	240	230	230	220	215	218	218	230	220	230	230	242	250	250	258	280	290	290
UQ	300	300	295	290	280	250	248	240	230	225	220	230	230	230	230	235	240	245	255	275	290	290	300	300
LQ	275	275	255	250	250	240	240	230	220	215	208	205	205	210	215	230	220	240	240	250	245	252	265	280

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MAY. 1973 | H'F (KM)

IONOSPHERIC DATA

MAY. 1973 | H'ES (KM) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	105	S	E	110	B	110	G	B	C	C	C	B	115	C	G	C	C	115	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	105	G	G	B	115	130	130	125	G	130	120	S	105	105
3	100	100	100	100	100	G	155	G	135	120	115	G	105	G	100	100	135	130	120	100	100	S	S	100
4	100	100	100	100	S	135	130	130	130	130	125	130	125	125	125	125	170	G	140	125	S	S	S	S
5	110	110	S	S	E	165	145	130	130	130	125	130	G	G	G	G	130	125	125	115	115	110	S	110
6	S	S	S	S	105	G	150	130	125	120	120	115	130	115	115	G	G	130	120	115	110	110	110	105
7	105	105	105	105	105	140	140	140	130	130	120	120	120	125	120	115	115	115	110	110	110	110	125	115
8	115	105	S	S	E	B	150	130	125	125	125	120	120	125	135	G	120	125	125	120	115	115	110	110
9	105	105	105	110	105	105	145	130	135	120	115	110	110	110	110	145	125	125	125	115	110	110	110	105
10	105	105	105	105	S	105	105	105	105	105	G	G	130	G	G	G	150	125	125	115	110	110	110	110
11	105	110	105	100	105	140	140	140	125	120	120	120	115	110	120	125	125	120	115	110	110	105	105	105
12	105	105	100	100	105	125	120	120	115	115	115	110	110	115	130	120	130	120	120	115	115	115	110	110
13	105	110	105	105	105	150	140	125	120	120	120	120	120	120	115	G	130	G	G	120	105	S	S	S
14	120	120	115	115	120	120	120	120	130	G	125	120	110	115	130	125	130	155	135	115	115	110	115	S
15	110	135	S	125	120	120	120	115	115	115	115	115	115	115	G	155	125	130	120	115	115	115	110	S
16	140	120	125	120	125	120	125	120	115	115	115	115	130	G	160	140	135	125	115	115	115	110	110	110
17	105	105	120	120	120	120	125	120	115	110	105	110	115	125	155	130	125	120	115	115	110	105	105	105
18	105	105	105	135	100	130	125	120	115	115	115	115	115	115	115	130	125	125	120	115	110	110	110	110
19	105	110	105	105	105	120	125	120	115	115	110	110	G	145	135	125	125	120	115	110	110	110	110	105
20	115	S	105	S	S	125	125	125	130	120	110	110	105	105	G	G	G	G	125	115	115	115	110	105
21	105	110	105	E	S	140	125	125	120	115	115	115	115	110	110	105	105	G	G	S	125	120	S	S
22	S	115	100	105	105	120	125	120	120	125	120	110	110	110	110	105	105	115	125	115	115	110	110	105
23	100	100	100	S	S	G	125	125	120	120	115	115	115	115	140	125	125	125	120	115	115	115	115	110
24	105	105	105	105	S	145	125	125	125	120	120	115	125	125	125	125	125	125	120	115	115	115	110	110
25	105	105	100	100	100	120	120	115	120	115	115	115	115	120	115	125	125	125	120	115	120	115	115	105
26	105	100	105	S	S	G	125	125	125	125	120	125	120	120	120	120	120	120	115	115	110	110	110	105
27	105	105	100	100	100	140	125	115	110	120	115	120	125	125	125	125	115	115	115	115	110	110	110	110
28	S	105	100	100	100	135	125	120	125	140	125	130	G	150	130	130	125	130	120	115	115	115	105	110
29	105	S	S	S	S	150	130	130	120	125	115	115	115	110	110	115	115	110	115	115	110	110	110	105
30	105	100	105	100	120	115	130	115	115	115	115	115	130	115	115	125	120	125	120	120	115	S	115	115
31	105	110	105	105	105	110	115	115	G	130	125	115	120	125	130	125	125	115	115	115	110	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	27	27	24	21	20	24	30	28	28	28	29	27	26	26	26	24	28	26	28	29	29	25	25	25
MED	105	105	105	105	105	125	125	122	120	120	115	115	115	115	120	125	125	125	120	115	115	110	110	105
UQ	108	110	105	110	115	140	140	130	128	125	120	120	125	125	130	130	130	125	125	115	115	115	110	110
LQ	105	105	100	100	102	120	125	120	115	115	115	115	115	115	115	120	120	120	115	115	110	110	110	105

The Radio Research Laboratories, Japan

MAY. 1973 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1973 | TYPES OF ES | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F1			F1		L1							C1					C1					
2											L2				C1	H1	H1	H1		H2	F1		F2	F2
3	F2	F2	F2	F2	F2		H1		H1	H1	C1		L1		L1	L1	H1	HL12	C1	L1	F1			F1
4	F1	F2	F1	F1		H1	H2	H1	H1	H1	H2	H1	H1	H1	H1	H1	H1		H2	H3				
5	F2	F1				H1	H1	H2	H1	H2	H1	H1					H1	H2	H2	C4	F3	F2		F1
6					F1		H1	H1	H2	H2	H1	C1	H1	C2	C1			H2	C3	C3	F3	F3	F2	F2
7	F3	F3	F3	F1	F3	H2	H2	H2	H2	H2	H2	H1	H2	H5	H3	C2	C3	C5	L6	L3	F6	F4	F3	F3
8	F3	F2					H1	H1	H1	H1	H2	H1	H2	H2	H1		H3	H2	H2	H6	F3	F3	F3	F3
9	F2	F2	F3	F3	F1	L2	H2	H1	H1	H1	H1	L2	L3	L2	L3	H1	H4	H4	H3	C3	F6	F2	F2	F2
10	F2	F1	F1	F2		L2	L2	LH22	L2	L2			H1				H1	H2	H2	C4	F2	F3	F4	F3
11	F2	F1	F1	F1	F1	HL23	H2	H2	H2	H3	H1	H1	H2	L2	H2	H2	H2	C3	C3	L3	F3	F2	F2	F2
12	F4	F3	F2	F3	F2	H1	H2	C2	C2	C2	C3	L2	L2	C2	H2	H2	H1	H3	H2	C3	F4	F3	F4	F4
13	F2	F2	F2	F2	F1	H1	H2	H2	H2	H3	H2	H2	H1	H1	C2		H2			C1	F2			
14	F1	F2	F2	F2	F1	C2	C2	C1	H1		H1	H1	L1	C1	H1	H2	H2	H1	H2	C4	F4	F1	F1	
15	F1	F1		F2	F3	C3	C2	C3	C2	C1	C1	C1	C1	C1		H1	H2	H2	C3	C4	F6	F3	F3	
16	F2	F2	F1	F3	F3	C3	H3	C2	C2	C2	C2	C2	H1		H1	H1	H2	H3	C4	C4	F3	F4	F6	F4
17	F3	F2	F2	F3	F3	C3	H2	C2	C2	L4	L3	L2	C2	H2	H2	H3	H2	C4	C3	C3	F4	F4	F4	F4
18	F2	F1	F2	F1	F2	H3	H2	C3	C5	C3	C4	C2	C2	C2	C1	H1	H4	H3	H3	C4	F4	F4	F4	F5
19	F2	F2	F4	F3	F4	C4	H3	H2	C2	C3	L2	L2		H1	H2	H4	H3	C3	C4	L3	F5	F3	F5	F3
20	F2		F1			H2	H2	H3	H1	H2	L3	L2	L2	L2					H3	C5	F5	F3	F3	F3
21	F3	F1	F2			H1	H2	H3	H2	C2	C3	C2	C2	L2	L2	L3	L2				F1	F2		
22		F2	F3	F4	F2	CL22	H4	C3	C2	H1	H1	L2	L1	L2	L3	L4	L2	C2	H2	C3	F2	F2	F4	F4
23	F3	F3	F4				H2	H2	H2	C2	C2	C2	C1	C2	H2	H3	H2	H2	C3	C3	F3	F6	F3	F3
24	F2	F1	F1	F1		H1	H2	H2	H2	H2	H4	C2	H1	H3	H2	H2	H2	H2	C3	C5	F3	F3	F3	F4
25	F2	F4	F4	F4	L2	C3	C2	C4	C2	C2	C1	C1	C2	C1	C2	H1	H1	H2	C2	C2	F1	F3	F3	F2
26	F2	F2	F1				H2	H2	H2	H2	H2	H1	C2	C2	C3	C2	C3	C3	C3	C3	F3	F2	F6	F3
27	F2	F4	F2	F2	L1	H2	H3	C2	L2	C2	C2	H2	H2	H2	H2	H3	C3	C2	C4	C4	F3	F3	F2	F1
28		F2	F1	F1	L1	H2	H3	H2	H2	H1	H1	H1		H1	H1	H1	H1	H1	H3	C4	F1	F1	F2	F1
29	F2					H1	H2	H2	H1	H1	C1	C1	C2	L2	L3	C2	C2	L2	C3	C2	F2	F1	F4	F3
30	F4	F2	F2	F2	C3	C3	H2	C3	C2	C2	C2	C3	H1	C2	C3	H1	C1	H2	C2	CL31	F1		F2	F2
31	F2	F2	F3	F3	L2	L2	C2	C2		H1	H1	C1	C2	H2	H2	H3	H2	C3	C5	C4	F3	F4	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. 1973 | TYPES OF ES

IONOSPHERIC DATA

MAY. 1973 | 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	60	F 57	J F 53	49	45	50	54	66	R	78	R 76	75	B	83	R 89	93	87	83	83	J R 82	69	61	J R 64	R
2	65	66	R	R	31	45	55	I R 65	66	S 74	I R 85	94	81	79	I R 82	83	86	87	86	84	70	60	61	59
3	64	64	64	51	51	55	74	86	82	75	77	R 88	88	84	93	J R 104	101	99	89	U S 84	S 69	64	64	U S 69
4	66	65	61	58	54	61	79	87	80	81	83	87	85	87	90	99	96	89	80	76	69	71	S 68	69
5	68	65	59	56	57	64	83	87	88	73	72	I S 73	85	94	98	107	97	84	79	J R 81	U S 70	J F 70	S 67	60
6	60	59	59	55	54	59	70	80	74	68	S 77	80	86	89	I A 88	86	90	92	90	81	70	65	63	S 65
7	64	F 59	S 63	F 60	F	64	70	70	A	61	I R 74	95	J R 102	98	108	114	115	116	112	91	62	I R 56	56	J R 55
8	J R 56	55	58	R 62	26	35	41	E G 35	A	A	S	R	R	S	60	60	A	62	61	I R 56	55	58	R 58	R
9	52	52	J R 53	J R 54	38	47	J R 58	58	70	68	A	70	A	S 78	85	90	90	86	80	69	61	59	60	64
10	F 61	59	60	60	41	40	52	65	59	U S 69	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	60	61	A	A	79	75	65	C	C	C	C	S 58	A	45
12	43	I A 46	S 49	F	S	S 50	57	60	63	69	69	63	I A 66	77	80	76	A	71	71	A	J R 78	74	71	F 67
13	J F 63	F	F	64	54	55	59	68	62	59	S 60	54	71	84	91	90	81	73	72	80	84	I S 80	56	40
14	38	39	39	40	40	50	77	71	S	R	61	80	R	89	84	84	65	A	65	R	R	J R 61	J R 65	J R 65
15	R	63	62	60	58	R 64	88	71	60	75	66	J R 70	R	93	110	108	97	98	R	69	J R 70	R 65	I R 65	I R 63
16	60	I R 55	R	I R 56	I R 56	58	A	A	A	A	R	I R 77	I R 77	84	95	87	J R 75	73	R 85	96	83	I R 56	R 48	I R 46
17	S	42	43	41	I A 40	J R 39	46	A	A	A	A	I R 61	80	74	J R 75	80	69	79	79	I A 64	A	F	F	R
18	F	R	R	R	F	49	53	48	A	A	A	A	67	73	75	67	64	71	80	85	69	I A 48	S 39	A
19	A	A	A	F 40	44	45	49	A	A	A	A	62	E G 49	R 56	I A 64	65	59	59	I A 60	61	55	55	60	55
20	54	51	54	48	46	49	51	54	I R 53	57	56	56	62	65	64	60	67	60	69	84	66	52	45	A
21	F	55	F	F 40	F 39	54	59	54	A	I A 55	A	A	A	A	89	87	93	J S 88	91	91	90	80	84	J R 91
22	S 70	I A 47	F 44	F 44	F 38	49	56	A	A	R	R	R	A	R	60	59	I R 60	56	50	A	J R 53	A	A	R
23	A	J R 55	R	F	44	41	R 50	55	A	I R 56	R 56	J R 61	R 70	J R 78	84	87	R 88	75	I A 70	80	U S 67	68	S 65	A
24	U F 64	S 74	F 54	F 50	F 52	51	60	74	66	A	R	R	R	J R 74	80	84	88	80	70	70	I R 68	I R 69	R	R 60
25	R	R	F	F	F	56	72	81	76	59	60	64	A	65	74	85	83	I R 79	I R 73	70	F	F 70	S	U S 69
26	67	F	F	F	F	56	65	I S 64	67	U S 64	U S 64	A	67	A	86	84	80	83	84	84	85	71	S 75	J S 71
27	U S 70	68	66	59	54	64	J R 78	79	66	A	61	67	69	I A 75	86	85	A	94	91	86	81	S 71	F 66	70
28	69	64	67	59	F 56	60	61	75	61	61	I R 58	71	64	R	81	80	88	J R 88	81	81	64	60	60	I R 60
29	58	58	J R 57	54	F	45	53	R	A	A	A	R	58	64	68	68	65	68	66	61	55	54	54	45
30	F 49	F	50	F	F 44	48	68	75	69	62	A	59	66	I A 80	90	J R 100	97	96	84	71	55	51	51	51
31	A	U S 41	F	F 40	F 40	40	59	74	76	I R 62	R	A	R	66	J R 74	81	80	80	87	85	72	I R 54	59	57
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	22	24	20	23	24	30	29	25	18	20	18	22	19	24	30	30	27	28	28	26	26	28	25	23
MED	62	58	58	54	44	50	59	70	66	66	65	70	70	78	84	84	86	82	80	81	69	61	61	60
UQ	66	64	62	59	54	58	70	75	76	74	76	80	83	86	90	90	92	88	86	84	72	70	65	68
LQ	56	52	52	46	40	45	53	60	62	60	60	61	66	74	75	76	68	72	70	70	62	56	56	55

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MAY. 1973 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOF1 (0.01 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35 42·4 N · Long. 139 29·3 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	B	L	A	A	B	S	L 470	L 480	L							
2								L	L 440	L	500	510	L 500	B	L	L 490	L 450	L						
3								L	L	L	L	B	L	L	L	U L 460	L	L	A					
4							L	L	L	L 490	L	L 510	L	L 510	L	L	L	A						
5							L	L	L	L	L	L	U S 510	S	490	470	A	A	A					
6								L	L	L	A	490	500	510	A	490	L	L						
7							A	A	A	A	B	B	L 550	L 500	B	L 470	A	A						
8							L 390	L 350	A	A	S	L 450	L 450	S	A	L 450	A	L						
9								L 420	L	L	A	A	A	A	A	A	L	L						
10								A	L	S	C	C	C	C	C	C	C	C	C					
11								C	C	C	A	A	A	A	460	430	410	C						
12							A	A	L	A	A	A	A	480	460	A	A	A	A					
13								L	A	A	A	A	A	A	A	450	U L 450	L	L					
14							L	L	490	L 480	L 450	L 450	L 450	L 450	L 470	L	A	A	A					
15							L	L	L	L 450	A	A	A	L 450	L 460	L	L	A						
16									A	A	A	B	L 450	A	L 450	L 450	L 410	L 370	A					
17							A	A	A	A	A	A	B	R	L 450	A	L 410	A						
18						L	L 390	A	A	A	A	A	460	460	450	440	410	A	A					
19							A	A	A	A	A	A	490	460	A	A	A	A	A					
20								A	A	450	A	R 460	470	460	460	460	420	L	L					
21							L	A	A	A	A	A	A	A	L 490	A	H 470	L 410	L					
22						L	A	A	A	L 430	R	A	A	A	A	A	R	L 380	A					
23								L	A	A	L	460	R	A	L	460	A	A	A					
24								L 410	A	A	A	L 470	R	A	A	A	A	A						
25									A	A	A	A	A	A	A	460	L 450	A	A					
26							L	A	A	L	L	A	A	A	A	460	A	A	A					
27							L	A	L	A	A	A	A	A	480	A	A	A	L					
28							L	A	A	L 450	L 490	A	L 470	L 490	450	L 450	L 430	L 360						
29						L 310	L 370	A	A	A	A	A	470	460	R 470	450	420	390	L					
30							L	A	430	450	A	490	470	A	A	A	A	390	L					
31							L	L 440	440	L 450	A	A	A	L 450	L 450	L 450	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	3	4	4	8	3	9	13	12	15	18	11	6						
MED						L 310	L 390	L 415	440	L 450	L 490	470	470	460	460	460	L 420	L 385						
UQ							L 390	L 430	465	L 465	495	490	500	495	470	470	L 450	390						
LQ							L 380	L 380	435	L 450	L 470	L 460	L 460	455	450	450	410	L 370						

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MAY. 1973 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOE (0.01 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35 42·4 N Long. 139 29·3 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						A	250	295	B	A	A	A	B	S	B	B	300	255	A					
2						B	R	A	A	R	A	A	R	B	I B 365	335	310	I A 235	190					
3						B	I S 250	R	A	A	R	B	S	A	R	R 345	300	250	A					
4						A	260	290	340	360	S	A	A	A	B	S	A	A	190					
5						175	260	310	320	350	I A 365	S	S	S	395	365	320	255	170					
6						155	245	300	I A 330	355	I A 340	A	A	A	350	I S 330	300	265	A					
7						185	250	300	320	350	I B 350	B	R	R	B	B	B	A	A					
8						A	A	I R 280	R	R 350	A	A	R	S	I A 355	I A 345	R	I A 245	180					
9						A	A	A	A	345	A	A	A	A	A	A	I S 290	250	175					
10						B	A	A	A	S 350	C	C	C	C	C	C	C	C	C					
11						C	C	C	C	C	340	I A 340	375	375	350	325	300	C	C					
12						S	A	260	A	A	A	A	A	365	I A 330	310	I A 280	245	A					
13						140	235	280	320	I S 320	350	360	370	I S 360	330	325	285	A	A					
14						160	R 220	S	S	B	B	B	B	B	350	I R 330	290	250	190					
15						A	210	260	290	A	A	A	A	A	R	B	R	A	A					
16						B	A	R 270	300	A	A	B	B	B	I B 355	328	R	R	A					
17						A	A	260	I A 295	A	A	B	B	R	R	315	290	A	A					
18						R 175	250	I A 290	I A 310	I A 330	A	A	A	A	340	335	295	260	175					
19						165	240	I B 290	I A 305	A	A	A	R	B	355	320	295	250	A					
20						175	260	285	I B 310	330	A	A	A	R	R	340	295	250	A					
21						R	250	285	310	335	A	A	A	A	A	I A 335	300	260	190					
22						A	240	285	A	A	A	A	A	A	A	A	B	I R 250	A					
23						B	250	275	I A 295	A	A	375	B	A	375	340	300	255	A					
24						175	250	280	320	B	B	B	B	R	350	I R 335	300	260	200					
25						B	250	A	A	B	A	B	A	R 365	A	S	U S 325	A	A					
26						I A 190	255	300	330	S	S	A	375	370	B	330	300	A	A					
27						190	255	290	A	A	A	A	A	A	375	325	295	250	A					
28						A	A	290	310	330	B	A	B	B	A	A	290	225	A					
29						160	250	A	A	A	A	B	R	A	R	340	300	255	200					
30						190	A	290	320	340	I A 360	A	R	355	A	A	295	A	A					
31						A	A	A	A	A	A	A	A	B	B	330	300	250	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						13	20	22	17	13	6	3	3	6	14	21	24	20	10					
MED						175	250	288	310	345	I 350	360	375	365	352	330	300	250	190					
UQ						185	252	290	320	350	I A 360	368	375	370	365	340	300	255	190					
LQ						160	242	280	I 305	330	340	350	372	360	350	325	292	250	175					

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MAY. 1973 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 52	J X 60	J X 23	M 22	J X 18	J X 20	G	33	E B 56	46	56	J X 70	B	E S 50	E B 40	E B 37	41	33	27	E B 13	21	J X 28	J X 40	J X 27
2	J X 26	E S 15	E S 15	19	E S 15	22	28	32	38	G	S 39	45	G	E B 51	E B 41	G	G	J X 31	J X 25	J X 24	M 24	M 22	M 21	J X 53
3	J X 25	J X 26	J X 25	M 24	17	20	E S 29	G	36	36	G 35	E B 70	E S 39	41	G 35	37	37	37	J X 49	J X 25	21	E S 15	M 19	M 22
4	J X 22	J X 23	J X 24	J X 19	M 19	20	G	35	39	41	E S 46	45	J X 51	40	E B 52	E S 45	36	J X 51	34	E S 15	24	J X 19	24	J X 24
5	J X 19	21	M 30	M 21	J X 19	G	31	37	39	S 40	40	E S 49	E S 45	E S 50	42	46	J X 55	J X 54	J X 44	J X 64	J X 40	J X 54	M 21	20
6	J X 26	17	19	E S 15	E B 12	G	28	36	41	J X 43	J X 49	J X 30	42	J X 49	M 91	G	G	G	24	J X 16	E S 15	21	M 35	J X 30
7	J X 30	J X 74	M 60	J X 43	M 20	25	J X 44	J X 60	M 79	J X 75	E B 50	E B 51	46	47	E B 49	40	66	J X 68	J X 54	J X 31	J X 43	J X 30	J X 30	21
8	J X 25	M 21	J X 24	M 21	M 22	20	29	G	55	62	46	41	G	S	J X 50	40	62	36	G	J X 41	J X 24	J X 51	J X 59	J X 45
9	E S 15	J X 24	J X 20	J X 19	J X 30	J X 33	J X 24	31	37	38	M 66	J X 59	J X 116	J X 166	J X 76	J X 58	S 42	J X 40	J X 39	J X 43	J X 60	J X 60	J X 40	J X 44
10	J X 30	J X 25	J X 25	J X 29	J X 24	J X 30	J X 50	J X 54	J X 42	41	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	60	J X 52	M 81	M 93	45	34	38	C	C	C	C	J X 54	J X 73	J X 55
12	J X 80	J X 65	J X 54	J X 50	J X 35	J X 30	J X 40	J X 42	J X 44	J X 68	J X 64	46	M 65	G 35	J X 40	J X 83	J X 89	J X 59	J X 54	J X 72	J X 43	J X 42	J X 36	J X 49
13	J X 35	J X 30	J X 44	24	M 24	22	27	38	J X 50	J X 51	J X 51	49	J X 55	J X 52	47	G	J X 46	J X 42	J X 26	25	E S 15	J X 40	J X 24	J X 19
14	J X 26	J X 28	J X 18	20	M 20	19	G	31	G	E B 38	E B 40	E B 40	E B 39	E B 39	40	42	65	61	J X 41	J X 55	J X 41	J X 30	J X 29	J X 25
15	J X 20	E S 15	19	J X 20	21	J X 28	J X 38	J X 32	J X 41	J X 42	J X 55	J X 60	71	41	G	E B 40	J X 41	65	J X 39	J X 31	J X 31	J X 50	J X 41	J X 42
16	J X 29	J X 54	J X 52	J X 75	J X 75	J X 54	75	70	72	J X 90	J X 75	43	E B 40	50	E B 39	40	32	G	J X 50	J X 25	J X 28	J X 54	J X 41	J X 39
17	J X 35	J X 39	J X 30	J X 42	51	J X 25	J X 34	55	60	65	75	55	E B 38	G	G	J X 54	J X 36	36	J X 62	70	J X 74	J X 28	J X 54	J X 54
18	J X 46	J X 41	J X 51	J X 35	E S 15	G	31	38	75	J X 84	69	J X 102	42	40	G	G	40	J X 62	J X 62	J X 40	J X 41	J X 61	J X 60	J X 90
19	J X 130	J X 105	J X 109	J X 25	J X 30	J X 41	47	J X 75	J X 90	M 81	J X 110	J X 60	G	E B 40	J X 62	J X 58	55	J X 44	J X 81	J X 40	J X 56	J X 42	J X 30	J X 50
20	J X 40	J X 33	J X 23	J X 25	J X 22	G	G	J X 49	48	J X 43	J X 49	46	47	G	G	G	39	30	25	J X 36	J X 40	J X 53	J X 54	J X 63
21	J X 50	J X 115	J X 39	J X 20	J X 24	G 17	32	40	60	M 63	J X 62	J X 62	M 66	J X 85	J X 56	J X 60	G	G	G	17	M 20	J X 21	19	E S 15
22	M 20	J X 48	J X 54	J X 40	J X 40	22	37	M 66	J X 60	J X 51	45	J X 61	J X 81	J X 49	56	J X 57	E B 40	G	J X 42	J X 55	J X 59	J X 64	J X 85	J X 28
23	J X 64	J X 24	J X 21	J X 29	J X 34	E B 15	G	J X 49	65	J X 50	46	G	46	J X 74	49	38	J X 53	62	J X 71	J X 38	J X 40	J X 54	J X 54	J X 63
24	J X 70	J X 62	J X 25	J X 29	J X 20	G	28	J X 40	J X 56	69	J X 56	44	46	J X 51	J X 49	J X 40	J X 61	50	J X 54	J X 40	J X 49	J X 35	J X 54	J X 88
25	J X 42	J X 59	J X 46	J X 54	J X 46	J X 29	J X 44	J X 54	J X 58	J X 60	J X 54	J X 58	M 71	J X 61	J X 60	E S 35	G	J X 42	J X 164	J X 52	J X 94	J X 30	J X 26	J X 56
26	J X 60	J X 29	J X 30	J X 24	E S 15	22	33	J X 52	J X 61	E S 43	44	J S 74	J X 53	J X 75	J X 60	G	J X 74	J X 78	J X 120	J X 30	M 21	J X 33	J X 40	J X 49
27	J X 39	J X 54	J X 43	J X 36	J X 26	G 17	G	J X 81	J X 50	J X 74	J X 51	J X 55	M 62	J X 74	43	80	J X 115	J X 94	J X 30	J X 21	J X 40	J X 30	J X 39	J X 62
28	M 24	M 21	19	E B 12	E B 14	21	J X 38	J X 44	J X 55	J X 41	38	57	E B 35	E B 43	41	J X 44	32	J X 35	J X 39	J X 41	J X 29	23	J X 37	21
29	J X 28	J X 22	M 21	E B 12	E B 13	20	G	J X 43	91	J X 132	M 64	47	G	36	G	37	41	34	J X 54	J X 74	E S 15	M 20	E S 15	J X 18
30	J X 64	J X 72	M 24	M 20	J X 30	23	J X 45	J X 61	40	J X 54	M 57	S 45	46	M 82	M 64	J X 56	J X 43	J X 50	J X 38	24	J X 18	J X 40	J X 30	J X 54
31	J X 60	J X 59	J X 48	J X 60	J X 41	J X 25	J X 30	J X 40	J X 38	40	55	66	55	E B 40	40	J X 40	J X 65	70	J X 43	42	J X 21	J X 35	J X 35	J X 45
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	29	29	30	30	30	29	29	29	29	30	30	30
MED	J X 32	J X 32	J X 25	J X 24	J X 22	22	30	41	51	50	52	50	46	U 45	43	40	41	42	J X 42	J X 38	J X 31	J X 35	J X 36	J X 44
UQ	J X 52	J X 59	J X 46	J X 36	J X 30	J X 25	J X 38	J X 54	60	J X 68	62	J X 60	62	J X 61	56	J X 54	J X 61	J X 61	J X 54	J X 43	J X 43	J X 53	J X 54	J X 54
LQ	J X 25	J X 23	J X 21	20	18	17	E G 24	35	40	41	45	44	E G 39	U 38	E G 40	E G 35	36	34	J X 30	J X 25	21	J X 28	J X 26	J X 24

MAY. 1973 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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	19	E	E	E	17	G	32	E B 56	43	51	68	B	E S 50	E B 40	E B 37	38	33	23	E B 13	16	20	29	24
2	E	E S 15	E S 15	E	E S 15	20	20	30	36	G	39	41	G	E B 51	E B 41	G	G	27	17	19	15	E	E	E
3	26	26	E	15	E	20	E S 29	G	36	E R 36	E R 35	E B 70	E S 39	E R 41	E R 35	37	36	37	48	16	17	E S 15	E	E
4	16	16	E	E	E	17	G	33	39	40	E S 46	44	46	40	E B 52	E S 45	E S 36	44	26	E S 15	E	E	E	24
5	18	E	27	15	E	G	31	35	38	40	40	E S 49	E S 45	E S 50	41	40	52	43	42	54	34	15	E	E
6	20	E	E	E S 15	E B 12	G	27	35	40	40	49	40	40	45	A	G	G	G	24	E	E S 15	E	30	22
7	20	E	44	25	E	24	41	50	A	52	E B 50	E B 51	45	44	E B 49	38	55	62	50	30	40	21	25	18
8	19	E	16	17	E	18	27	G	A	A	S	40	G	S	41	40	A	34	G	21	25	40	27	35
9	E S 15	18	E	E	25	22	25	29	32	38	A	54	A	59	53	55	E S 42	37	34	40	53	35	30	32
10	20	15	16	E	E	28	27	40	40	E S 41	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	55	51	A	A	38	G	G	C	C	C	C	45	A	32
12	28	A	35	30	26	21	39	40	42	64	64	46	A	G 35	40	60	A	55	54	A	30	25	29	26
13	25	E	30	15	15	22	26	34	45	50	48	49	52	51	47	G	42	29	21	18	E S 15	32	20	16
14	19	20	E	E	E	19	G	30	G	E B 38	E B 40	E B 40	E B 39	E B 39	40	38	59	A	35	54	39	23	25	27
15	17	E S 15	E	E	E	21	34	35	35	38	54	54	67	41	G	E B 40	35	60	35	29	31	40	36	36
16	18	40	43	36	22	38	A	A	A	A	60	42	E B 40	49	E B 39	38	32	G	39	23	22	41	40	34
17	35	27	25	22	A	22	34	A	A	A	A	51	E B 38	G	G	53	32	32	48	A	A	20	35	40
18	35	37	33	25	E S 15	G	27	34	A	A	A	A	40	40	G	G	40	58	61	20	35	A	20	A
19	A	A	A	19	26	30	42	A	A	A	A	52	G	E B 40	A	56	56	45	42	A	40	25	26	44
20	38	31	19	22	E	G	G	44	E R 48	41	46	43	44	G	G	G	35	30	25	30	40	25	25	A
21	45	29	25	E	16	G 17	30	39	A	A	A	A	A	A	40	60	G	G	G	15	E	21	E	E S 15
22	E	A	20	29	30	21	36	A	A	31	E R 45	E R 61	A	E R 49	44	52	E B 40	G	38	A	40	A	A	20
23	A	E	E	14	20	E B 15	G	35	A	48	44	G	E R 46	E R 74	49	38	51	59	A	30	35	50	40	A
24	17	54	17	21	16	G	27	37	56	A	53	41	E R 46	50	49	40	58	44	53	25	43	20	40	43
25	30	16	25	23	23	25	42	53	49	48	54	58	A	58	58	E S 35	G	41	A	34	25	19	E	25
26	41	16	E	19	E S 15	21	32	52	60	E S 43	E S 44	A	52	A	53	G	58	62	78	26	E	24	26	32
27	22	35	27	19	E	G 17	G	54	39	A	51	54	57	A	42	79	A	88	29	20	29	22	30	15
28	16	E	E	E B 12	E B 14	21	34	44	51	39	36	51	E B 35	E B 43	39	38	31	28	33	35	27	E	23	E
29	17	22	E	E B 12	E B 13	19	G	43	A	A	A	E R 47	G	E R 36	G	37	37	29	25	E	E S 15	E	E S 15	16
30	15	E	E	E	16	20	34	60	38	38	A	42	40	A	63	52	43	35	27	15	16	25	25	41
31	A	15	20	25	30	25	30	32	37	40	51	A	51	E B 40	39	39	55	65	39	36	15	35	33	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	30	30	30	30	30	30	30	30	30	30	29	30	29	29	30	30	30	29	29	29	29	30	30	30
MED	20	17	16	15	15	20	28	38	46	43	51	U 48	U 42	U 44	40	38	39	37	35	26	27	24	26	26
UQ	35	31	27	22	22	22	34	52	A	A	64	56	57	U 54	49	52	55	58	48	36	39	35	33	36
LQ	17	E	E	E	E	17	20	33	38	38	U 42	42	E G 39	E G 40	E G 39	E G 35	32	29	25	18	15	19	20	16

The Radio Research Laboratories, Japan

MAY. 1973 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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	11	14	12	12	15	17	56	29	25	25	B	50	40	37	22	15	15	13	E S 15	E S 15	13	E S 15
2	13	E S 15	E S 15	F S 15	E S 15	15	15	20	15	30	31	31	34	51	41	15	15	19	12	12	12	12	E S 15	14
3	E S 15	14	E S 15	12	12	16	E S 29	15	19	26	25	70	E S 39	32	E S 31	20	16	15	16	12	E S 15	E S 15	E S 15	E S 15
4	E S 15	12	12	14	E S 15	15	15	14	16	E S 34	E S 46	25	29	25	52	E S 45	25	15	16	E S 15	E S 15	E S 15	14	E S 15
5	E S 15	E S 15	E S 15	12	E S 15	14	15	16	19	E S 34	20	E S 49	E S 45	E S 50	32	25	22	14	12	12	12	14	E S 15	E S 15
6	12	E S 15	14	E S 15	12	12	14	16	E S 25	15	24	25	25	24	25	15	15	14	14	12	E S 15	E S 15	11	E S 15
7	14	14	E S 15	14	12	14	14	15	29	20	50	51	26	27	49	35	32	13	15	E S 15	E S 15	12	13	E S 15
8	13	12	12	F S 15	E S 15	12	15	15	25	25	32	25	23	S	38	32	15	15	12	E S 15	E S 15	E S 15	E S 15	E S 15
9	E S 15	E S 15	E S 15	F S 15	E S 15	12	13	12	15	20	25	26	19	16	E S 25	15	15	15	14	12	E S 15	E S 15	E S 15	E S 15
10	E S 15	E S 15	12	F S 15	E S 15	14	14	14	15	E S 25	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	16	19	25	34	33	15	16	C	C	C	C	E S 15	E S 15	15
12	E S 15	E S 15	E S 15	F S 15	E S 15	E S 15	14	15	15	25	20	E S 25	25	19	15	15	15	15	14	E S 15	E S 15	E S 15	E S 15	E S 15
13	E S 15	12	12	12	12	12	12	15	24	E S 38	19	25	E S 31	19	18	15	15	14	14	12	E S 15	E S 15	E S 15	13
14	E S 15	14	12	12	E S 15	12	12	15	15	38	40	40	39	39	25	21	15	15	13	E S 15	13	E S 15	E S 15	E S 15
15	14	E S 15	E S 15	13	E S 15	13	13	15	15	25	34	30	30	25	23	40	15	15	15	E S 15	12	E S 15	12	12
16	E S 15	13	E S 15	E S 15	12	13	15	15	15	25	25	40	40	39	39	15	15	15	14	12	14	E S 15	E S 15	12
17	E S 15	13	13	12	12	13	15	15	22	25	25	34	38	19	29	20	15	15	12	14	E S 15	E S 15	E S 15	13
18	13	E S 15	13	F S 15	E S 15	15	15	20	16	21	25	25	26	25	26	26	20	26	14	14	12	E S 15	14	E S 15
19	E S 15	14	14	12	12	13	14	40	16	15	25	32	31	40	25	26	16	15	14	12	14	E S 15	E S 15	E S 15
20	12	13	14	14	13	14	14	15	34	15	22	30	29	26	32	25	19	12	14	12	12	E S 15	13	E S 15
21	E S 15	12	14	13	12	12	15	15	15	22	35	25	33	31	22	15	15	14	14	12	14	13	E S 15	E S 15
22	14	12	12	12	12	12	14	14	15	25	35	25	25	36	25	25	40	15	15	13	13	E S 15	13	12
23	12	13	13	14	14	15	15	19	22	22	22	25	40	25	26	26	19	15	15	12	12	E S 15	12	E S 15
24	14	14	12	12	12	14	14	14	29	36	39	40	40	26	25	15	15	15	15	12	12	13	E S 15	E S 15
25	13	13	13	E S 15	E S 15	15	15	15	15	34	25	39	39	26	26	E S 35	16	15	12	12	E S 15	E S 15	12	12
26	12	12	F S 15	12	E S 15	14	14	15	15	E S 43	E S 38	E S 29	26	E S 30	34	24	14	13	12	12	12	14	13	14
27	14	13	13	14	11	14	14	15	24	25	25	29	36	33	25	25	15	15	14	13	14	12	13	13
28	12	11	14	12	14	12	14	13	14	25	35	25	35	43	15	23	14	12	13	12	14	E S 15	13	E S 15
29	E S 15	12	13	12	13	13	13	15	20	25	34	39	35	15	24	22	16	14	14	14	E S 15	E S 15	E S 15	12
30	12	12	12	12	12	14	12	15	15	19	E S 33	E S 32	E S 25	19	15	15	15	15	12	12	12	12	13	12
31	14	14	E S 15	14	12	14	14	15	18	28	28	33	25	40	35	15	25	15	13	12	E S 15	12	12	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	29	29	29	29	30	30	30
MED	13	13	13	13	12	14	14	15	16	25	25	U 28	30	26	26	21	15	15	14	12	13	E S 15	12	E S 15
UQ	E S 15	E S 15	E S 15	F S 15	E S 15	14	15	15	23	U 28	34	U 36	38	38	34	26	19	15	15	13	E S 15	E S 15	E S 15	E S 15
LQ	13	12	12	12	12	12	14	15	15	22	25	25	25	25	25	15	15	14	13	12	12	13	13	12

The Radio Research Laboratories, Japan

MAY. 1973 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	285	F 290	J F 295	285	285	300	315	305	R	270	R 320	A	B	305	R 305	325	325	315	315	J R 305	290	280	J R 270	R
2	280	290	R	R	290	320	355	I R 325	305	S 310	I R 290	310	310	295	I R 300	300	305	320	315	310	315	275	280	275
3	280	275	305	290	275	290	310	325	320	320	295	R 295	305	295	295	J R 310	320	325	325	U S 310	S 305	270	270	U S 275
4	290	290	295	290	290	300	315	330	320	320	305	300	295	300	290	315	320	315	300	295	285	285	S 290	290
5	295	290	280	270	280	305	325	320	320	330	290	I S 280	280	285	295	320	320	325	310	J R 295	U S 285	J F 305	S 285	285
6	275	280	280	280	280	305	315	310	320	295	S 290	300	290	290	I A 300	290	300	315	320	310	300	290	275	S 280
7	280	F 285	S 310	F 330	F	330	330	330	A	260	I R 260	275	J R 285	275	290	290	300	310	315	320	305	I R 265	255	J R 285
8	J R 270	280	295	R 345	310	290	230	G	A	A	S	R	R	S	270	280	A	295	315	I R 300	295	260	R 275	R
9	270	270	J R 285	J R 315	300	345	J R 335	295	300	320	A	295	A	S 295	295	310	310	320	325	310	295	270	270	280
10	F 275	280	305	330	345	330	320	340	280	U S 285	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	300	280	A	A	290	320	310	C	C	C	C	S 345	A	290
12	280	I A 285	S 295	F	S	S 340	320	335	300	310	A	285	I A 280	295	310	310	A	320	290	A	J R 295	305	305	F 285
13	J F 290	F	F	310	300	330	330	345	355	305	S 325	A	295	300	310	305	325	280	280	280	300	I S 335	310	290
14	280	280	285	300	280	320	350	350	S	R	250	275	R	285	285	310	325	A	295	R	R	J R 280	J R 285	J R 280
15	R	285	275	270	285	R 305	310	325	320	290	315	J R 275	R	290	295	325	315	315	R	320	J R 280	R 295	I R 290	I R 290
16	285	I R 280	R	I R 285	I R 310	310	A	A	A	A	R	I R 295	I R 280	280	315	305	J R 300	275	R 280	315	325	R	R 290	I R 275
17	S	270	310	335	I A 310	J R 325	310	A	A	A	A	I R 275	295	300	J R 300	315	290	315	330	I A 310	A	F	F	R
18	F	R	R	R	F	310	285	315	A	A	A	A	295	290	300	310	280	290	300	320	330	I A 295	S 245	A
19	A	A	A	F 300	295	310	310	A	A	A	A	310	G	R 270	I A 295	315	305	290	I A 305	325	280	270	285	270
20	280	295	305	290	305	315	325	315	I A 290	290	290	275	285	300	310	290	305	290	280	315	305	300	280	A
21	F	295	F	F 300	F 285	330	350	340	A	A	A	A	A	A	295	260	290	J S 275	275	295	265	260	270	J R 320
22	S 325	I A 290	F 265	F 285	F 280	315	320	A	A	R	R	R	A	R	250	275	I R 290	290	300	A	J R 270	A	A	R
23	A	J R 295	R	F	300	320	R 315	320	A	R	R 305	J R 290	R 290	A	300	290	R 320	300	I A 295	310	U S 290	275	S 275	A
24	U R 290	S 305	F 290	F 280	F 290	335	320	340	335	A	R	R	R	J R 290	300	310	275	315	315	285	I R 290	I R 285	R	R 280
25	R	R	F	F	F	325	305	335	315	320	300	295	A	285	295	305	300	I R 305	I R 300	320	F	F 285	S	U S 290
26	285	F	F	F	F	320	335	I S 325	A	U S 315	U S 325	A	270	A	295	295	295	295	A	295	300	310	S 285	J S 285
27	U S 315	295	280	305	300	300	J R 320	305	315	A	295	295	295	I A 290	295	280	A	A	310	300	295	S 290	F 290	290
28	275	285	295	290	F 305	315	295	305	330	305	I R 275	295	295	R	300	300	295	J R 310	320	320	295	295	270	I R 270
29	280	295	J R 295	300	F	270	265	R	A	A	A	R	280	285	295	310	310	305	335	325	280	280	280	315
30	F 290	F	300	F	F 285	295	305	320	345	325	A	255	275	I A 275	280	J R 300	320	330	330	345	290	285	280	285
31	A	U S 270	F	F 275	F 305	315	290	255	330	R	R	A	R	290	J R 290	305	300	300	300	330	330	I R 285	275	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	22	24	20	23	24	30	29	25	17	17	17	20	19	23	30	30	27	27	27	26	26	27	25	23
MED	280	285	295	290	292	315	315	325	320	310	295	292	290	290	295	305	305	310	310	310	295	285	280	285
UQ	290	292	302	308	305	325	325	335	330	320	305	295	295	295	300	310	320	315	318	320	305	295	285	290
LQ	280	280	282	285	285	305	310	310	305	290	290	275	280	285	290	290	298	292	298	300	285	275	270	280

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MAY. 1973 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1973 | M(3000)F1 (0.01) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	B	L	A	A	B	S	L 365	L 355	L							
2								L	L 385	L	340	370	L 375	B	L	L 345	L 355	L						
3								L	L	L	L	B	L	L	L	U L 345	L	L	A					
4							L	L	L	L 380	L	L 350	L	L 340	L	L	L	A						
5							L	L	L	L	L	L	U S 320	S	340	345	A	A	A					
6								L	L	L	A	360	355	340	A	325	L	L						
7							A	A	A	A	B	B	L 335	L 340	B	L 365	A	A						
8							L 300	L 340	A	A	S	L 395	L 375	S	A	L 335	A	L						
9								L 385	L	L	A	A	A	A	A	A	L	L						
10								A	L	S	C	C	C	C	C	C	C	C	C					
11								C	C	C	A	A	A	A	365	350	350	C						
12							A	A	L	A	A	A	A	375	345	A	A	A	A					
13								L	A	A	A	A	A	A	A	360	A	L	L					
14							L	L	340	L 340	L 360	L 385	L 365	L 365	L 345	L	A	A	A					
15							L	L	L	L 380	A	A	A	L 380	L 365	L	L	A						
16									A	A	A	B	L 375	A	L 335	L 355	L 360	L 370	A					
17							A	A	A	A	A	A	B	R	L 340	A	L 380	A						
18						L	A	A	A	A	A	A	360	360	365	365	A	A	A					
19							A	A	A	A	A	A	345	410	A	A	A	A	A					
20								A	A	370	A	R 355	A	370	365	350	345	L	L					
21							L	A	A	A	A	A	A	A	L 335	A	H 300	L 340	L					
22						L	A	A	A	L 370	R	A	A	A	A	A	R	L 335	A					
23								L	A	A	L	395	R	A	L	360	A	A	A					
24								L 370	A	A	A	L 360	R	A	A	A	A	A						
25									A	A	A	A	A	A	A	350	L 340	A	A					
26							L	A	A	L	L	A	A	A	A	335	A	A	A					
27							L	A	L	A	A	A	A	A	335	A	A	A	L					
28							L	A	A	L 370	L 350	A	L 360	L 330	375	L 360	L 340	L 335						
29						L 325	L 320	A	A	A	A	A	360	360	R 345	360	355	350	L					
30							L	A	385	400	A	335	440	A	A	A	A	350	L					
31							L	L 350	490	L 400	A	A	A	L 380	L 360	L 380	A	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	2	4	4	8	3	9	12	12	15	18	9	6						
MED						L 325	L 310	L 360	385	L 375	L 350	360	360	362	345	352	L 350	L 345						
UQ								L 378	438	L 390	L 355	385	L 375	378	365	L 360	L 355	350						
LQ								L 345	362	L 370	345	355	350	340	340	345	340	L 335						

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MAY. 1973 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1973 | 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								310	E B 360	280	290	A	B	305	290	280	280							
2								270	290	290	310	300	290	310	300	300	280	260						
3								255	270	270	310	E B 315	290	315	305	285	270	255	240					
4							240	255	255	270	300	305	315	300	310	275	270	255						
5							255	250	260	260	320	310	350	310	310	280	270	260	270					
6								270	260	310	320	300	315	310	A	310	290	270						
7							250	250	A	460	400	350	340	340	320	305	290	280						
8							L 680	G	A	A	S	R	R	S	400	340	A	315						
9								260	280	275	A	355	A	340	310	290	285	260						
10								275	390	360	C	C	C	C	C	C	C	C	C					
11								C	C	C	350	390	A	A	310	280	300	C						
12							260	260	300	345	A	355	A	315	300	300	A	290	340	A				
13								250	260	315	310	A	360	315	295	280	255	280	300					
14							250	240	S	R	450	340	410	340	360	270	E A 340	A	300					
15							260	245	270	290	290	350	E A 380	320	290	270	250	265						
16									A	A	A 300	340	360	320	290	300	290	330	305					
17								A	A	A	A	400	B	300	300	290	320	280						
18						250	265	A	A	A	A	A	340	340	310	310	350	340	A					
19							A	A	A	A	A	340	G	420	A	310	325	310	A					
20								310	R	370	390	350	380	345	330	370	305	320	330					
21							240	250	A	A	A	A	A	A	305	370	300	315	300					
22						270	290	A	A	R	R	R	A	R	440	A 390	350	310	300					
23								260	A	300	350	360	350	E R 400	305	320	270	300	A					
24								255	280	A	A 360	360	310	340	305	300	300	270						
25									290	290	E A 350	A 270	A	A 370	340	310	290	290	A					
26							260	255	A 290	300	280	A	405	A	A	300	310	310	A					
27							260	A 280	260	A	370	350	350	A	315	A	A	A	240					
28							310	295	275	330	390	390	370	350	320	300	300	290						
29						380	405	300	A	A	A	R	450	370	330	310	315	280	250					
30							300	275	255	300	A	490	380	A	390	300	270	255	240					
31							350	275	260	260	360	A	390	375	340	305	300	A 320						
	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	24	18	19	20	21	21	23	27	29	27	26	12					
MED						270	260	260	271	300	328	350	355	330	310	300	290	285	300					
UQ						325	305	278	290	322	365	360	380	345	330	310	305	310	302					
LQ						260	252	252	260	278	305	315	340	312	302	285	275	265	245					

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MAY. 1973 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1973 | H'F (KM) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35 42·4 N. Long. 139 29·3 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	260	280	270	255	290	270	240	240	B	A	A	A	B	S	250	250	250	250	260	230	240	260	300	300
2	300	260	230	200	285	255	240	240	240	220	210	205	220	I B 230	220	225	220	225	240	240	220	240	290	300
3	310	290	250	240	300	260	245	230	220	225	200	I B 210	245	255	I S 230	245	255	A	A	240	220	220	300	290
4	290	270	245	240	255	270	230	230	220	210	I S 200	250	I A 235	225	I B 240	255	255	I A 245	220	240	270	275	275	290
5	270	250	270	275	270	250	245	240	225	220	200	I S 195	E S 270	I S 245	250	260	A	A	A	A	280	250	240	250
6	300	290	270	255	270	240	250	230	250	245	I A 250	220	210	250	I A 235	240	210	240	240	240	240	250	300	290
7	290	310	300	250	290	240	A	A	A	A	B	B	A 260	A 275	I B 245	240	A	A	250	220	265	320	350	300
8	310	300	260	210	250	285	260	250	A	A	S	220	220	I S 230	I A 240	E A 260	A	A 290	250	250	300	E A 390	300	350
9	300	315	290	250	300	240	240	250	200	250	A	A	A	A	A	A	S	I A 245	240	250	E A 350	350	340	310
10	300	280	260	210	195	240	240	I A 270	A 250	I S 255	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	A	A	A	A	240	220	230	C	C	C	C	240	A	A 310
12	310	I A 335	I A 340	300	290	250	A	A	A	A	A	A	I A 210	205	260	A	A	A	A	A	260	250	255	300
13	300	310	295	240	240	240	225	240	A	A	A	A	A	A	A	220	A	250	250	275	240	220	250	260
14	310	310	275	240	280	240	240	220	220	250	250	210	250	240	260	270	A	A	A	E A 350	300	300	280	300
15	280	270	300	300	270	260	250	230	240	250	I A 265	A	A	240	270	270	250	A	240	240	300	310	300	300
16	290	360	A 350	I A 310	250	280	A	A	A	A	A	B	240	I A 255	270	250	250	240	I A 280	240	240	260	E A 350	340
17	E A 390	350	300	260	I A 270	250	I A 275	A	A	A	A	A	B	I R 250	300	I A 230	250	260	250	A	A	290	340	350
18	340	300	A 300	300	260	240	A	A	A	A	A	A	240	240	210	200	I A 260	A	A	245	240	A	A 350	A
19	A	A	A	300	290	270	A	A	A	A	A	A	245	200	A	A	A	A	A	260	320	320	290	360
20	350	310	250	260	260	210	220	A	A	230	I A 235	250	I A 230	240	240	245	250	250	250	250	250	260	310	A
21	A	290	300	275	270	240	240	I A 250	A	A	A	A	A	A	240	I A 245	H 240	240	270	250	280	345	310	240
22	200	I A 285	305	310	320	260	A	A	A	260	R	A	A	A	A	A	R	240	A	A	A 330	I A 350	I A 335	305
23	A	290	300	305	290	250	240	250	A	A	250	225	R	A	A	A	A	A	A	250	300	E A 350	A 350	A
24	280	290	275	275	250	225	220	A 250	A	A	I A 250	250	I A 220	I A 250	A	A	A	A	275	250	300	290	A 300	A 300
25	290	300	330	290	290	260	290	250	A	A	A	A	A	A	I A 250	220	225	A	A	250	290	270	260	290
26	320	255	F 255	290	290	240	225	A	A	S	S	A	A	A	A	250	A	A	A	250	250	250	290	310
27	290	290	280	250	250	240	230	A	240	A	A	A	A	A	255	A	A	A	I A 255	240	250	250	300	250
28	290	290	250	240	250	250	A 250	A	A	220	310	390	200	I R 200	240	250	235	250	250	250	250	260	300	300
29	300	300	260	250	290	250	250	A	A	A	A	I R 230	245	220	245	230	240	210	240	240	245	280	280	260
30	300	300	275	225	275	240	250	I A 245	240	195	A	250	200	A	A	A	A	A 250	I A 245	210	250	A 290	310	A
31	A	310	300	A 350	A 340	240	225	255	210	200	A	A	A	200	250	260	A	A	285	240	240	300	310	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	26	29	29	30	30	30	24	18	12	14	11	13	17	19	22	22	15	15	19	25	28	29	29	26
MED	300	290	275	258	272	250	240	242	232	228	250	225	232	240	245	245	250	245	250	242	252	268	300	300
UQ	310	310	300	300	290	260	250	250	240	250	250	250	245	250	255	252	250	250	258	250	298	305	310	310
LQ	290	285	260	240	255	240	230	230	220	220	205	210	220	222	240	230	232	240	240	240	240	250	290	290

MAY. 1973 | H'F (KM)

IONOSPHERIC DATA

MAY. 1973 | H'ES (KM) | 135 E Mean Time (G. M. T.+ 9h)

Station KOKUBUNJI TOKYO Lat. 35 42·4 N · Long. 139 29·3 E Sweep 1 MHz to 20 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	105	100	105	105	105	G	125	B	110	110	105	B	S	B	B	120	120	115	B	110	110	100	100
2	100	S	S	100	S	110	150	100	105	G	105	105	G	B	B	G	G	110	105	105	105	105	105	100
3	100	100	100	100	100	155	S	G	110	110	105	B	S	105	105	150	100	120	105	100	100	S	100	100
4	100	100	100	100	100	145	G	130	125	115	S	110	105	105	B	S	110	125	145	S	105	110	105	105
5	100	100	100	105	105	G	140	140	130	125	125	S	S	S	140	130	130	125	120	115	110	110	110	100
6	100	100	105	S	B	G	140	125	120	110	110	105	115	110	110	G	G	G	115	110	S	100	105	105
7	105	105	100	100	105	145	130	125	125	110	B	B	145	140	B	130	110	110	100	100	100	100	110	100
8	100	100	100	100	100	110	150	G	130	120	110	110	G	S	130	125	110	120	G	110	110	110	100	110
9	S	100	100	100	100	100	100	110	110	145	110	110	105	105	105	125	130	125	115	105	105	105	100	100
10	100	100	100	100	100	100	100	100	105	130	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	110	110	110	110	130	140	130	C	C	C	C	105	100	100
12	100	100	100	100	100	100	110	110	110	105	105	105	105	110	110	115	110	110	110	110	105	105	105	105
13	100	100	100	100	100	130	140	125	120	115	110	110	115	110	110	G	110	110	110	105	S	100	100	120
14	110	110	120	100	100	140	G	115	G	B	B	B	B	B	130	140	115	110	115	105	105	100	100	100
15	100	S	140	135	105	115	115	110	110	110	105	105	105	110	G	B	130	110	110	110	110	105	100	105
16	110	110	110	105	100	110	105	110	110	110	105	115	B	115	B	150	140	G	110	105	105	105	105	100
17	105	100	100	100	100	110	110	105	105	110	100	105	B	G	G	110	140	140	100	100	105	110	100	100
18	100	100	100	100	S	G	140	120	110	105	110	105	110	110	G	G	130	125	110	110	110	105	100	105
19	100	100	100	100	105	130	115	115	110	105	105	105	G	B	125	120	120	115	110	110	105	100	100	100
20	100	100	100	100	100	G	G	110	105	110	105	105	105	G	G	G	125	125	110	105	105	105	105	105
21	100	100	100	100	100	100	125	125	115	110	110	110	105	105	110	125	G	G	G	120	120	105	105	S
22	105	125	130	100	100	130	115	110	110	110	110	120	110	110	100	100	B	G	110	105	100	100	100	105
23	110	100	100	100	100	B	G	120	110	105	105	G	105	105	125	145	125	115	110	110	105	105	110	105
24	105	100	100	100	100	G	130	125	125	115	120	140	140	140	140	120	115	110	110	110	105	100	105	105
25	100	100	100	100	100	100	110	110	110	110	110	110	110	110	110	S	G	115	105	100	100	100	105	105
26	105	100	100	100	S	145	130	125	115	S	125	110	125	110	120	G	120	110	105	105	105	100	100	105
27	105	100	100	100	100	115	G	110	110	105	105	105	105	105	130	115	110	110	110	105	105	105	105	105
28	100	100	100	B	B	125	110	110	110	110	120	110	B	B	140	120	140	100	105	100	100	110	100	110
29	100	100	110	B	B	150	G	100	105	105	105	110	G	100	G	145	125	125	125	120	S	160	S	105
30	100	100	100	100	110	140	110	110	120	115	110	110	110	110	110	110	120	105	100	100	105	110	110	105
31	105	100	100	100	100	105	110	105	105	130	110	110	115	B	140	140	110	110	110	105	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	29	28	29	27	24	24	22	28	28	27	27	25	19	20	20	20	25	25	27	27	26	29	29	29
MED	100	100	100	100	100	115	115	110	110	110	110	110	110	110	122	125	120	115	110	105	105	105	105	105
UQ	105	100	100	100	102	140	140	125	120	115	110	110	115	110	130	140	130	125	112	110	105	110	105	105
LQ	100	100	100	100	100	105	110	110	110	110	105	105	105	105	110	118	110	110	105	105	105	100	100	100

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MAY. 1973 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1973 | TYPES OF ES | 135 E Mean Time (G. M. T. + 9h)

Station KOKUBUNJI TOKYO Lat. 35 42·4 N. Long. 139 29·3 E Sweep 1 MHz to 20 MHz in 20 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F3	F4	F3	F2	F1	L1		H1		C1	C1	C2					H2	H1	L1		F1	F3	F2	F3
2	F2			F1		H1	H1	L1	C1		L1	L1						C1	L1	F2	F2	F1	F2	F2
3	F3	F3	F2	F2	F1	H2			C1	C1	L1			L1	L1	H1	L1	C2	C2	C2	F1		F1	F1
4	F2	F2	F2	F1	F1	H1		HL22	H1	C1		C1	C1	C1			C1	HC11	H1		F1	F2	F2	F4
5	F2	F2	F3	F3	F2		H1	H1	H1	H1	H1				H1	HH21	H2	H4	C4	F4	F3	F2	F1	F2
6	F3	F1	F1				H1	H2	C1	C2	C2	C1	C1	C2	C3				C2	F1		F1	F3	F3
7	F3	F3	F4	F3	F1	C2	H2	H2	H2	C2			H1	H1		H1	C2	C3	L3	F3	F3	F3	F2	F3
8	F2	F3	F2	F1	F1	F1	H1		H2	H2	C1	C1			H1	H1	C1	H1		F3	F1	F3	F3	F3
9		F2	F2	F2	F3	F1	L1	C1	L1	H1	C2	C2	C3	C2	C2	HL22	H1	H3	C2	F5	F3	F3	F3	F4
10	F4	F2	F2	F2	F1	L3	L3	L2	L3	H1														
11											C2	C2	C3	C3	H1	H1	H1					F4	F4	F5
12	F3	F3	F3	F3	F3	L2	C3	C2	C1	C3	C2	C2	C2	C1	C2	C3	C4	C5	C4	C5	F3	F3	F3	F6
13	F5	F3	F5	F3	F3	H2	H1	H2	C2	C2	C2	C2	C2	C1	C2		C2	C3	C4	F3		F3	F3	F1
14	F2	F4	F1	F1	F1	H1		C1							H1	H1	C3	C2	C3	F3	F6	F4	F5	F2
15	F2		F1	F1	F1	F2	C4	C3	C1	C1	C2	C1	L2	L1			H1	C2	C3	F3	F5	F4	F6	F4
16	F1	F2	F5	F3	F3	C3	C3	C3	C2	C2	C2	C1		C1		H1	H1		C3	F4	F4	F4	F6	F4
17	F4	F5	F4	F3	F6	F2	C2	C2	C2	C2	C2	C1				C1	H1	H1	C5	F5	F3	F2	F3	F3
18	F3	F3	F3	F2			H1	H1	C3	C2	C2	C2	C1	C1			H1	H4	C4	F4	F5	F5	F4	F5
19	F4	F4	F4	F2	F3	H3	C2	C1	C2	C2	C2	C2			H2	H2	H2	C2	C2	C4	F3	F3	F3	F5
20	F4	F4	F3	F3	F2			C2	C1	C1	C1	C1	L1				H1	H2	C2	F4	F3	F5	F4	F5
21	F4	F3	F4	F1	F5	L2	H2	H2	C2	C2	C1	C2	C2	C2	C2	H2				F1	F1	F4	F1	
22	F1	F3	FF23	F4	F3	HL12	C2	C3	C3	C1	C1	H1	C2	C1	C1	C2			C1	F3	F4	F3	F3	F3
23	F3	F1	F1	F2	F3			H2	C2	C2	C2		L1	L2	H2	H2	H2	C3	C4	F4	F5	F5	F4	F5
24	F3	F4	F3	F4	F3		H1	H1	H2	C2	H1	H1	H1	H1	H1	H1	C2	C2	C2	F3	F3	F5	F6	F3
25	F5	F3	F3	F3	F3	C2	C3	C1	C2	C1	C2	C1	C1	C1	C1			C1	L4	F4	F3	F4	F4	F4
26	F4	F3	F4	F4		H1	H2	H2	C2		H1	C1	C1	C2	C1		H3	C3	C2	F4	F1	F3	F4	F6
27	F3	F4	F3	F3	F2	C1		C3	C2	C2	C2	C2	C2	C2	H1	C1	C2	C3	C2	F2	F4	F3	F3	F3
28	F3	F2	F1			C1	C3	C3	C2	C1	H1	C1			H1	H1	H1	C1	L3	F2	F3	F2	F3	F1
29	F2	F3	F2			H1		C1	C2	C2	C2	C1		L1		H1	H1	H2	C2	F1		F1		F1
30	F3	F3	F1	F1	F5	H1	C3	C2	C2	C1	C1	C1	C1	C2	C2	C2	H2	C3	C3	F1	F2	F3	F3	F5
31	F4	F3	F4	F4	F4	L3	C3	LH21	C1	H1	C1	C1	C2		H1	H1	C3	C3	C4	F4	L2	F5	F5	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																								

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MAY. 1973 | TYPES OF ES

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	350	F 350	J F 350	350	360	310	300	310	R	300	R 300	A	B	340	R 315	300	300	300	300	J R 305	350	360	J R 390	R
2	370	360	R	R	350	300	260	I R 280	315	S 300	I R 345	310	300	330	I R 320	320	300	300	290	300	300	350	370	390
3	380	360	310	350	390	345	300	290	290	290	340	R 340	310	350	340	J R 310	300	290	290	U S 305	S 310	370	380	U S 370
4	360	350	320	340	340	320	280	290	290	300	310	320	350	320	350	300	290	290	300	310	350	350	S 360	350
5	350	340	350	360	350	315	290	290	290	290	350	I S 355	370	350	350	300	290	290	305	J R 320	U S 350	J F 315	S 345	340
6	370	360	350	350	350	310	300	300	290	340	S 340	340	350	340	I A 345	360	310	300	290	290	300	350	360	S 360
7	350	F 360	S 310	F 280	F	280	260	270	A	A	I R 400	390	J R 400	390	360	360	350	330	300	300	340	I R 400	400	J R 365
8	J R 400	360	315	R 250	305	360	G	G	A	A	S	R	R	S	G	360	A	360	350	I R 325	360	400	R 390	R
9	400	350	J R 360	J R 300	350	260	J R 250	350	300	300	A	360	A	S 350	350	305	300	300	280	300	350	380	380	360
10	F 350	350	305	280	230	260	290	280	395	U S 370	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	A	385	A	A	320	300	310	C	C	C	C	S 250	A	330
12	350	I A 325	S 305	F	S	S 250	290	290	320	A	A	360	I A 380	350	310	310	A	300	350	A	J R 310	310	320	F 350
13	J F 350	F	F	300	300	260	280	250	255	320	S 300	A	360	340	305	310	290	305	350	360	320	I S 270	300	340
14	350	370	350	310	360	295	250	250	S	R	440	390	R	360	350	310	A	A	360	R	R	J R 390	J R 360	J R 390
15	R	360	390	400	360	R 310	300	300	300	300	305	J R 400	R	360	360	300	315	305	R	300	J R 350	K 350	I R 355	I R 360
16	360	I R 400	R	I R 370	I R 305	300	A	A	A	A	R	I R 355	I R 360	350	310	350	J R 340	400	R 360	310	390	R	A	I R 385
17	S	400	360	290	I A 300	J R 300	310	A	A	A	A	R	350	350	J R 350	300	350	300	300	I A 330	A	F	F	R
18	F	R	R	R	F	300	350	305	A	A	A	A	350	350	320	310	350	350	320	290	280	I A 340	S 415	A
19	A	A	A	F 330	310	300	A	A	A	A	A	G	G	G	I A 350	A	330	330	I A 310	290	360	370	360	390
20	350	350	310	350	310	280	285	300	I R 360	375	G	G	380	350	325	380	320	350	360	300	310	320	355	A
21	F	320	F	F 315	F 350	280	250	270	A	A	A	A	A	A	330	400	320	J S 350	360	315	380	420	400	J R 300
22	S 260	I A 335	F 370	F 260	F 350	300	300	A	A	R	R	R	A	R	460	A	I R 370	360	350	A	J R 400	A	A	R
23	A	J R 360	R	F	300	300	R 300	300	A	R	G	G	R 355	A	320	350	R 290	320	I A 330	300	U S 355	370	S 380	A
24	U F 345	S 305	F 350	F 350	F 320	250	300	270	A	A	R	R	R	J R 360	350	310	250	300	300	350	I R 370	I R 370	R	R 360
25	R	R	F	F	F	300	350	300	300	300	A	A	A	A	340	310	310	I R 300	I R 315	290	F	F 350	S	U S 330
26	350	F	F	F	F	290	270	I S 290	A	U S 300	U S 280	A	410	A	350	340	320	340	A	320	310	305	S 355	J S 350
27	U S 310	330	345	305	310	315	J R 290	305	290	A	A	350	350	I A 350	330	A	A	A	300	310	320	S 330	F 340	345
28	360	355	320	305	F 310	300	320	310	290	360	I R 380	G	G	R	350	350	350	J R 350	300	300	350	360	400	I R 380
29	370	360	J R 350	350	F	400	405	R	A	A	A	R	G	370	350	320	315	300	280	290	350	360	360	305
30	F 350	F	330	F	F 350	320	310	290	255	300	A	G	380	I A 375	360	J R 320	300	290	275	250	340	340	360	360
31	A	U S 380	F	F 400	F 350	280	355	290	270	R	R	A	R	G	J R 360	340	330	350	335	290	290	I R 365	360	330
	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	24	20	23	24	30	27	24	16	15	12	13	16	20	29	27	26	27	27	26	26	27	24	23
MED	350	358	348	330	345	300	300	290	290	300	340	355	358	350	350	310	312	305	305	300	350	350	360	360
UQ	370	360	350	350	350	310	305	300	308	330	365	385	380	360	350	350	330	350	350	315	355	370	385	368
LQ	350	345	312	300	308	280	280	280	290	300	302	340	350	345	320	308	300	300	300	290	310	335	355	340

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MAY. 1973 | HPF2 (KM)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	95	F 95	J F 65	95	90	90	100	90	R	90	R 90	A	B	110	R 85	90	90	90	90	J R 95	90	100	J R 100	R
2	90	100	R	R	90	90	100	I R 95	85	S 70	I R 85	60	70	80	I R 100	80	100	70	80	75	95	100	80	100
3	70	90	90	95	110	100	70	60	60	60	105	R 105	95	95	100	J R 60	60	60	60	U S 90	S 90	100	90	U S 80
4	90	95	80	105	100	75	80	60	80	60	85	80	100	90	100	60	60	70	100	90	90	90	S 90	90
5	90	100	100	90	100	85	70	60	70	50	90	I S 90	80	100	90	60	70	70	90	J R 100	U S 100	J F 85	S 100	100
6	80	90	95	100	100	90	70	60	70	100	S 70	100	90	60	I A 80	90	90	60	60	80	100	95	90	S 90
7	100	F 90	S 90	F 70	F	65	90	80	A	A	I R 95	100	J R 90	100	100	100	110	110	90	100	120	I R 90	90	J R 95
8	J R 80	100	85	R 100	95	100	G	G	A	A	S	R	R	S	G	100	A	100	100	I R 100	100	90	R 100	R
9	90	90	J R 100	J R 90	100	100	J R 110	110	90	90	A	90	A	S 70	60	75	75	100	80	90	90	110	80	80
10	F 100	100	95	70	70	90	70	30	95	U S 80	C	C	C	C	C	C	C	C	C	C	C	C	C	C
11	C	C	C	C	C	C	C	C	C	C	A	65	A	A	100	60	70	C	C	C	C	S 50	A	70
12	100	I A 90	S 90	F	S	S 60	70	60	80	A	A	90	I A 75	90	70	90	A	70	95	A	J R 90	90	80	F 90
13	J F 90	F	F	95	100	60	65	50	55	80	S 50	A	80	70	80	100	60	90	100	135	80	I S 55	70	100
14	100	130	100	90	100	60	50	60	S	R	150	100	R	100	110	110	A	A	100	R	R	J R 100	J R 100	J R 100
15	R	100	90	90	100	R 100	90	90	100	100	95	J R 90	R	100	100	90	85	95	R	90	J R 110	R 110	I R 105	I R 100
16	100	I R 95	R	I R 95	I R 90	100	A	A	A	A	R	I R 100	I R 100	110	90	100	J R 120	90	R 100	90	90	R	A	I R 100
17	S	90	100	100	I A 100	J R 90	90	A	A	A	A	R	110	100	J R 110	100	110	100	90	I A 95	A	F	F	R
18	F	R	R	R	F	100	110	95	A	A	A	A	90	100	90	90	100	100	80	80	70	I A 90	S 135	A
19	A	A	A	F 80	100	100	A	A	A	A	A	G	G	G	I A 55	A	70	80	I A 90	70	90	100	100	100
20	100	60	90	95	90	110	100	100	I R 85	70	G	G	70	90	75	70	80	90	90	100	85	80	90	A
21	F	80	F	F 85	F 100	70	50	90	A	A	A	A	A	A	80	105	110	J S 100	110	85	90	80	100	J R 60
22	S 70	I A 90	F 100	F 90	F 100	60	50	A	A	R	R	R	A	R	100	A	I R 105	100	110	A	J R 90	A	A	R
23	A	J R 100	R	F	90	90	R 90	90	A	R	G	G	R 50	A	100	90	R 60	120	I A 65	100	U S 90	90	S 70	A
24	U F 75	S 95	F 95	F 120	F 100	70	70	50	A	A	R	R	R	J R 100	110	100	100	100	100	100	I R 100	I R 100	R	R 100
25	R	R	F	F	F	90	100	90	90	80	A	A	A	A	80	80	90	I R 95	I R 90	70	F	F 100	S	U S 70
26	90	F	F	F	F	65	50	I S 70	A	U S 60	U S 80	A	85	A	70	110	90	100	A	90	90	75	S 90	J S 95
27	U S 60	110	100	85	90	80	J R 70	95	70	A	A	70	90	I A 70	70	A	A	A	70	90	120	S 90	F 100	100
28	90	90	80	95	F 90	60	80	90	55	100	I R 95	G	G	R	110	100	110	J R 100	90	90	110	100	90	I R 100
29	90	100	J R 110	110	F	90	95	R	A	A	A	R	G	75	60	80	80	60	60	70	110	100	90	85
30	F 100	F	70	F	F 90	130	90	60	45	60	A	G	110	I A 95	100	J R 85	95	60	75	60	70	110	90	90
31	A	U S 90	F	F 105	F 100	90	55	60	50	R	R	A	R	G	J R 100	110	110	110	105	100	90	I R 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	22	24	20	23	24	30	27	24	16	15	12	13	16	20	29	27	26	27	27	26	26	27	24	23
MED	90	95	92	95	100	90	80	80	75	80	90	90	90	95	90	90	90	95	90	90	90	95	90	95
UQ	100	100	100	100	100	100	92	90	88	90	95	100	98	100	100	100	105	100	100	100	100	100	100	100
LQ	80	90	88	90	90	70	70	60	58	60	82	80	78	78	80	80	70	70	80	80	90	90	90	88

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MAY. 1973 | YPF2 (KM)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	S 73	S	F 59	S 54	I S 46	I S 48	58	67	83	86	I C 90	99	I B 103	I R 112	122	134	J S 121	109	S 94	83	S 79	S 72	I S 79	84
2	I S 81	81	S 89	S 83	F 33	F 32	51	I C 70	I C 75	82	92	89	S 97	I R 106	S 115	J S 117	S 112	103	S 97	S 94	S 82	S 70	69	S 71
3	S 70	S 74	73	54	55	57	S 76	85	74	71	75	88	97	99	108	111	107	S 103	S 101	S 88	S 77	71	71	73
4	S 71	71	71	60	54	54	67	83	85	77	79	90	S 100	105	108	112	J S 113	97	82	77	S 76	S 73	S 71	I S 71
5	71	73	62	58	58	60	S 79	89	76	74	70	74	95	114	S 122	124	J S 121	S 104	S 94	S 88	79	67	60	F
6	S 63	S 59	59	S 57	53	52	63	S 83	66	74	76	79	93	94	92	99	S 112	S 107	S 106	J S 101	S 80	68	S 65	66
7	64	F	F 63	F 54	44	S 41	57	68	59	63	73	89	98	U S 108	S 115	130	136	132	130	U S 103	73	66	65	70
8	S 70	S 70	S 68	67	F 29	S 34	45	43	E G 39	E G 43	E G 45	I R 51	53	58	61	59	58	60	70	59	58	S 54	S 54	58
9	60	F 56	61	61	41	F	48	58	67	S 66	63	67	82	88	92	100	102	93	81	70	S 61	S 59	S 62	I S 64
10	S 65	S 63	S 64	S 74	27	24	47	60	H 67	78	83	81	97	91	88	81	80	78	S 88	92	74	59	S 62	S 62
11	F 62	F 60	58	S 62	40	37	57	63	63	I A 66	70	72	84	89	98	96	92	S 97	S 98	S 99	S 76	66	S 59	S 61
12	S 65	F 59	F	F	F 49	A	48	56	S 70	I A 72	68	75	87	99	102	96	88	86	88	S 97	I S 97	U S 84	65	F
13	S	F	F	S 83	F 64	F 59	73	64	H 54	I A 56	61	62	75	91	98	101	94	S 92	89	S 87	U S 93	80	J S 46	47
14	J S 46	43	I S 42	44	S 39	S 51	62	54	H 50	54	72	89	87	J S 100	115	93	I A 89	I A 83	74	81	S 84	63	68	67
15	69	67	68	68	67	S 70	82	S 52	I A 60	67	71	I A 72	87	111	119	111	105	101	91	I S 90	I A 74	70	I S 70	I S 70
16	F	S	S	S 62	I S 69	F 59	A	57	68	69	87	I S 93	I A 90	94	106	109	112	89	S 100	S	S	S 54	I S 50	S 50
17	F	F	F 48	F 54	F	F 31	48	H 53	54	53	58	67	83	89	94	S 115	S 116	I S 108	S 106	S 86	62	62	I S 62	I S 62
18	F 61	S 58	F	F	S 53	51	55	56	60	A	A	A	70	I A 83	S 95	99	101	J S 106	J S 104	I S 100	78	62	J S 63	S 62
19	U S 67	S 59	S 54	F 52	S 46	49	54	57	50	I A 56	A	I A 55	I A 52	58	64	63	63	68	64	63	S 61	I A 61	F	S
20	S	F	S	F 60	F 56	F	52	60	65	64	I A 62	60	65	71	76	74	79	79	I A 78	S 85	82	54	S 44	I A 44
21	S	A	I A 51	I A 43	I S 46	F	54	51	A	A	A	A	I A 68	I A 86	90	83	99	J S 100	91	S	S	76	I S 76	I S 78
22	83	S 50	U S 38	F	S 39	47	64	64	62	59	H 57	57	62	69	77	78	76	74	64	52	53	J S 50	S 52	S 59
23	I S 56	S 54	S	F	F	F 40	48	54	54	I A 56	60	S 66	78	I A 86	92	96	104	88	I A 80	S 82	73	S 66	S	S
24	69	S 61	F	F	S	F	F 62	65	61	62	65	68	79	77	83	87	99	86	74	S 71	I S 72	J S 71	S 72	J S 72
25	S 65	S 62	F	53	S 51	56	71	76	I A 68	63	R 62	61	I A 71	80	93	S 95	88	I A 90	I A 92	88	S 83	F	F	S
26	F	F	F	J S 66	59	F	F	68	S 72	S 62	64	68	I A 72	81	96	S 102	J S 101	98	S 99	I S 97	I S 94	S 83	I S 76	S 73
27	F	S	S 74	F	F	F	65	78	71	62	70	74	80	83	86	91	S 102	I S 108	I S 109	U S 98	82	79	U S 75	S 70
28	S	S	F	72	F	F	S 66	87	73	66	66	65	73	81	89	S 106	S 105	I S 99	92	90	I S 78	S 71	S 65	F 58
29	F	J S 62	54	F	F	F	68	63	A	A	A	52	60	66	81	87	80	76	S 79	79	58	I A 58	59	U S 55
30	S 53	J S 51	S 48	I S 44	S 43	S 48	60	H 70	59	E G 49	53	58	70	82	91	109	S 116	I S 109	76	69	57	59	60	S 61
31	F	S 55	53	47	43	I S 42	52	80	65	54	57	63	68	78	86	99	S 100	100	S 96	J S 95	S 76	S 67	S 61	F 62
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	21	21	24	25	22	29	31	29	28	27	29	31	31	31	31	31	31	31	29	29	30	28	26
MED	S 65	S 60	59	59	46	48	58	64	65	64	68	68	80	88	93	99	101	97	91	S 88	S 76	66	S 64	S 63
UQ	S 70	S 67	68	66	55	56	66	73	71	72	74	81	92	99	107	110	S 112	S 104	S 98	S 95	S 82	S 71	S 70	S 71
LQ	S 62	S 56	53	54	41	40	52	56	59	56	62	62	70	80	87	89	88	86	80	79	72	59	S 60	S 59

MAY. 1973 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOF1 (0.01 MHZ) | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	B	L	C	L	B	R 530	530	I A 480	A	A						
2								C	C	L	L 500	L	L	B	L	L	L	L						
3								L	L	U L 460	A	A	L 510	I B 510	L 500	L 480	L	L						
4								L	A	L	L 510	L 520	L 500	L 520	L 490	L 470	L	L						
5								L	L	U L 460	L	L 490	520	I A 500	L 500	L 480	L 450	A						
6								L	L	L 470	L	U L 500	A	A	L 490	H 490	450	L						
7								A	A	A	A	A	L 510	510	R	L 480	A	A						
8								L 370	390	R 430	R 450	450	H 450	R 460	460	450	430	H 430	L					
9								L	L 390	L 460	L 490	L 500	L 470	A	H 480	470	I A 440	L	L					
10								L	L	A	L 480	L 500	A	H 470	H 480	450	L 450	L 430	L					
11								L	L	A	A	L 480	I A 480	H 490	H 470	460	A	A	A					
12								L	A	A	A	I A 470	500	A	460	430	L 440	A	A					
13								L	A	A	A	480	480	I A 470	I A 470	L 460	L	A	A					
14									L	H 460	I A 460	A	480	470	460	L	A	A	A					
15									A	A	A	A	H 500	A	A	A	L	A	A					
16								L 380	A	A	450	A	A	L 440	L 480	H 430	410	A	A					
17								A	L 440	A	A	H 450	R 460	450	450	450	A	A	A					
18								A	A	A	A	A	A	A	A	A	A	A	A					
19								A	A	A	A	A	A	U R 440	440	440	420	400	A					
20								L	A	A	A	A	A	490	R 470	H 480	440	A	A					
21								A	A	A	A	A	A	A	A	A	A	L 410	L					
22								A	L	L	480	470	450	R 450	R 430	I A 420	410	390	L 340					
23								A	A	A	490	A	A	A	A	470	A	A	A					
24								L	L	A	A	470	480	480	460	480	L 450	L	L					
25							L	A	A	A	A	500	A	A	A	A	A	A	A					
26								A	A	A	L 500	A	A	A	H 480	480	L 490	L	L					
27								A	A	A	500	I A 500	H 500	480	H 490	H 460	H 480	A	A					
28								A	L	A	R 490	L 490	480	470	470	460	L 450	L	A					
29							A	A	A	A	A	R 450	R 460	R 460	R 450	450	430	L 410	A					
30							L	L	U L 410	490	H 480	H 470	460	R 480	480	H 450	I A 440	A	L	L				
31								L 390	L 430	H 490	L	480	480	470	450	H 450	H 450	410	L	L				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	5	8	13	18	19	21	24	25	17	7	1					
MED								L 380	L 410	460	490	480	480	470	470	460	440	410	L 340					
UQ								L 385	L 430	480	L 500	L 500	500	490	485	480	L 450	L 420						
LQ								L 375	L 390	460	480	470	465	460	460	450	430	405						

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MAY. 1973 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOE (0.01 MHZ) | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							S	250	B	A	C	365	B	B	B	R 350	320	280	210					
2							H 180	I C 260	I C 295	A	A	A	B	B	355	A	A	R	230					
3							190	260	300	A	A	B	A	B	R 390	350	320	280	B					
4							S	260	305	325	340	A	A	A	A	A	315	285	230					
5							S	250	290	I A 335	I A 345	360	360	A	R	360	330	290	220					
6							S	260	300	325	340	I A 350	370	360	355	340	320	280	220					
7							S	250	300	315	335	345	355	R 360	350	340	320	A	A					
8							A	245	305	R 330	335	355	360	360	350	325	300	270	220					
9							A	A	A	330	I A 355	I A 360	360	350	350	330	305	270	H 220					
10							A	A	A	A	A	A	380	I A 350	335	330	310	280	I A 200					
11							165	H 250	285	310	320	I A 325	I A 340	350	340	325	300	270	190					
12							A	A	275	310	320	A	A	A	A	325	305	270	200					
13							190	250	290	315	A	A	345	350	340	325	310	275	A					
14							A	A	285	I A 320	A	A	A	A	A	I A 330	305	270	195					
15							145	240	I A 275	305	A	A	330	A	A	A	A	260	200					
16							170	240	280	310	320	335	I A 340	340	340	H 320	295	260	200					
17							150	240	285	310	I A 320	330	A	A	A	A	290	260	180					
18							160	250	290	320	325	335	350	340	330	I A 330	310	280	H 230					
19							160	240	290	A	A	A	A	A	350	330	310	270	220					
20							160	250	300	315	A	A	A	A	I A 365	I A 345	320	280	200					
21							170	260	H 290	300	315	330	335	330	335	320	290	I A 265	230					
22							190	260	285	I C 310	325	I A 340	355	345	340	320	300	270	220					
23							185	255	300	320	325	A	A	A	350	330	315	280	210					
24							A	A	290	310	325	340	R 350	R 360	350	330	315	H 280	H 240					
25							160	250	290	310	330	R 350	360	360	350	320	A	A	230					
26							185	H 260	295	325	340	I A 350	360	355	355	345	320	280	220					
27							A	H 250	300	A	A	A	A	A	350	340	315	280	220					
28							170	260	300	310	325	345	345	A	A	I A 330	A	A	A					
29							170	255	290	315	340	350	I A 355	A	A	A	A	270	220					
30							180	240	300	325	340	355	350	350	340	330	305	270	220					
31							A	A	A	320	A	A	A	A	A	A	300	270	220	S				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							18	25	27	25	20	18	19	15	21	25	26	27	27					
MED							170	250	290	315	328	348	355	350	350	330	310	270	220					
UQ							185	260	300	325	340	355	360	360	350	340	320	280	220					
LQ							160	250	288	310	322	335	345	348	340	325	300	270	200					

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MAY. 1973 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 41	J X 81	J X 90	J X 76	J X 41	21	E S 15	28	E B 51	55	C	49	B	E B 45	E B 48	52	J X 57	J X 62	J X 72	62	J X 44	J X 28	J X 33	J X 40
2	J X 25	J X 20	J X 27	J X 26	J X 29	J X 26	22	C	C	33	40	38	E B 47	E B 49	39	36	39	27	24	J X 30	J X 26	J X 41	J X 50	J X 49
3	J X 28	J X 25	24	20	20	E S 13	22	28	34	38	J X 63	J X 78	42	E B 58	G 37	G 30	34	30	26	24	J X 22	17	21	21
4	E S 14	E S 13	E S 14	24	E	E S 14	22	30	45	65	41	43	45	47	45	37	G 27	G 22	31	E S 14	20	J X 25	J X 30	J X 31
5	E S 14	E S 14	J X 22	J X 23	J X 26	E S 14	23	30	33	38	46	39	J X 53	53	44	41	42	42	J X 47	J X 47	J X 43	J X 21	J X 32	J X 44
6	24	J X 31	14	J X 26	25	18	23	30	35	38	39	40	J X 64	J X 66	38	G	37	39	J X 47	J X 44	J X 20	17	E S 14	J X 30
7	J X 29	J X 36	J X 30	J X 27	17	E S 15	24	38	J X 56	J X 50	J X 50	J X 51	47	G	46	37	J X 60	J X 61	J X 70	17	17	J X 29	J X 36	J X 50
8	J X 36	J X 45	24	J X 56	J X 33	J X 31	J X 33	J X 32	33	36	38	G	G	43	40	37	33	31	G	22	20	16	20	21
9	E S 15	E S 14	23	28	J X 19	J X 27	J X 35	J X 39	33	36	J X 47	38	42	48	G	40	49	31	30	J X 38	J X 62	51	25	45
10	J X 29	J X 25	J X 26	J X 20	J X 28	19	22	32	J X 37	48	44	45	46	36	38	40	35	31	J X 38	J X 27	J X 26	J X 36	J X 34	J X 34
11	J X 34	J X 21	J X 21	J X 18	J X 24	J X 27	25	30	40	J X 73	87	47	J X 78	G	37	47	J X 71	J X 45	J X 39	J X 29	J X 30	J X 23	J X 29	J X 34
12	J X 51	J X 27	J X 36	J X 31	J X 46	J X 55	J X 38	J X 51	J X 76	J X 75	77	61	J X 50	J X 68	J X 65	37	33	J X 66	J X 51	J X 47	J X 72	J X 25	J X 34	J X 34
13	J X 35	25	J X 32	J X 36	J X 45	J X 28	22	31	40	J X 60	J X 73	J X 71	42	54	45	41	G	J X 73	J X 71	J X 84	45	J X 36	23	J X 32
14	J X 27	J X 40	J X 62	J X 70	17	E S 14	26	36	41	63	M 67	52	J X 48	38	39	J X 47	J X 111	J X 95	J X 53	J X 24	E S 15	E S 15	24	21
15	E S 14	21	22	J X 49	J X 32	J X 46	J X 83	J X 65	J X 99	J X 55	J X 55	85	35	J X 70	J X 65	J X 68	49	J X 60	J X 52	33	J X 88	J X 111	J X 88	J X 106
16	J X 105	J X 88	J X 65	J X 90	J X 95	J X 38	47	56	J X 87	54	44	J X 139	107	G	G	G	34	J X 47	J X 54	J X 36	J X 46	J X 29	23	J X 55
17	J X 29	J X 58	J X 33	E S 14	24	20	34	J X 45	42	J X 84	168	38	44	38	35	J X 58	J X 60	77	J X 54	J X 69	J X 38	J X 22	J X 40	J X 34
18	J X 29	J X 37	J X 34	J X 33	E	E S 13	25	54	73	J X 74	J X 96	J X 95	J X 75	J X 105	J X 89	45	42	J X 51	J X 83	J X 92	J X 49	J X 37	J X 38	J X 28
19	J X 42	J X 53	J X 39	J X 48	J X 36	15	29	38	J X 47	J X 104	J X 149	M 120	94	38	38	42	40	J X 44	J X 51	J X 51	J X 69	J X 85	J X 44	J X 56
20	J X 49	J X 40	J X 32	J X 35	J X 22	J X 29	27	34	J X 65	J X 68	J X 96	J X 64	J X 73	J X 58	38	36	40	J X 50	J X 93	J X 40	J X 38	J X 37	J X 33	J X 53
21	J X 36	J X 72	J X 88	J X 51	J X 39	J X 32	26	43	J X 84	84	J X 89	J X 80	J X 105	J X 98	J X 93	83	J X 74	J X 37	G	E S 14	J X 30	21	J X 31	J X 87
22	J X 50	J X 46	J X 39	J X 25	J X 20	J X 30	J X 50	J X 54	J X 64	40	J X 97	43	G 34	38	41	J X 48	40	35	30	20	J X 27	22	J X 67	J X 63
23	35	J X 89	J X 38	27	25	E S 14	27	38	J X 54	J X 68	J X 82	J X 84	J X 94	J X 139	J X 70	45	J X 59	79	J X 95	J X 68	J X 60	J X 95	J X 89	J X 147
24	J X 72	J X 101	J X 63	J X 33	J X 34	J X 58	J X 32	J X 32	38	J X 65	J X 58	38	38	39	41	38	34	32	32	J X 59	J X 47	J X 40	36	J X 34
25	J X 43	J X 49	J X 30	J X 22	J X 45	J X 27	29	J X 54	J X 69	J X 57	J X 77	47	82	J X 83	J X 64	J X 70	J X 60	J X 100	J X 137	J X 19	J X 82	J X 60	J X 50	J X 83
26	J X 41	J X 33	J X 31	J X 29	J X 31	E B 12	32	J X 67	J X 70	52	54	64	80	85	39	G	G	31	29	J X 48	J X 39	J X 34	J X 34	E S 13
27	J X 60	J X 32	J X 38	J X 41	J X 40	30	30	60	J X 59	75	64	J X 82	J X 49	44	49	37	39	J X 64	J X 80	J X 73	J X 63	J X 54	J X 48	J X 40
28	J X 44	J X 33	J X 28	J X 24	J X 24	J X 29	J X 46	54	J X 51	64	J X 86	J X 48	J X 46	J X 52	37	36	36	J X 47	J X 55	J X 31	J X 49	J X 61	J X 34	24
29	23	J X 22	22	J X 20	21	25	J X 36	J X 52	69	75	J X 74	J X 89	J X 47	41	39	40	J X 37	41	M 80	J X 54	J X 79	J X 85	J X 31	J X 29
30	J X 41	J X 33	J X 28	J X 27	E S 14	19	24	J X 44	J X 41	59	39	38	44	40	40	41	J X 63	J X 59	J X 59	20	J X 21	J X 28	E S 14	J X 22
31	J X 29	J X 25	25	E B 15	22	J X 33	J X 35	J X 31	39	J X 61	41	40	40	42	38	34	G	31	27	20	J X 19	J X 29	J X 36	J X 33
	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	30	30	31	30	31	30	31	31	31	31	31	31	31	31	31	31	31
MED	J X 35	J X 33	J X 30	J X 27	J X 25	26	28	38	48	60	64	49	47	45	40	40	40	J X 45	J X 51	J X 36	J X 39	J X 29	J X 34	J X 34
UQ	J X 42	J X 48	J X 38	J X 38	J X 35	J X 30	J X 34	J X 54	J X 69	J X 70	J X 86	J X 79	J X 75	J X 62	46	46	J X 58	J X 62	J X 70	J X 52	J X 54	J X 46	J X 39	J X 52
LQ	J X 28	J X 25	24	J X 24	20	15	24	31	39	49	44	40	42	38	38	36	34	32	30	23	J X 24	J X 22	27	J X 30

The Radio Research Laboratories, Japan

MAY. 1973 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	26	23	19	22	18	E	E S 15	G	E B 51	48	C	48	B	E B 45	E B 48	50	47	61	52	22	30	E	21	E
2	E	E	15	20	E	18	G	C	C	33	40	E R 38	E B 47	E B 49	39	36	34	E R 27	G	23	16	25	22	28
3	20	16	E	17	E	E S 13	G	G	32	38	51	56	E R 42	E B 58	G 34	G 30	34	G	E R 26	E	20	20	20	20
4	E S 14	E S 13	E S 14	E	E	E S 14	21	30	45	48	39	41	44	E R 47	45	34	G 27	G 22	25	E S 14	18	25	16	18
5	E S 14	E S 14	19	15	18	F S 14	22	G	G	36	45	39	48	52	E R 44	41	39	42	47	46	42	21	17	40
6	E	18	13	18	14	E	22	G	33	37	38	39	54	52	E R 38	G	36	38	47	42	18	15	E S 14	20
7	18	26	20	20	13	E S 15	23	35	47	48	46	48	46	G	E R 46	37	57	54	52	16	17	28	33	50
8	23	45	15	35	16	15	17	23	33	35	E R 38	G	G	43	39	G	G	G	G	19	17	14	E	E
9	E S 15	E S 14	E	21	16	20	28	31	29	G	38	38	40	47	G	40	49	G	25	38	50	46	E	16
10	16	15	20	18	15	E	20	31	33	45	43	42	46	36	G	38	34	G	25	25	23	18	17	19
11	16	E	16	15	13	27	25	G	G	A	48	44	60	G	36	45	52	41	37	29	28	21	17	E
12	E	E	16	15	29	A	36	35	65	A	58	53	49	54	40	G	G	50	50	45	48	20	19	20
13	20	E	24	22	30	16	G	30	38	A	56	47	42	49	45	38	G	48	57	27	40	31	16	18
14	23	31	18	15	E	E S 14	25	31	34	33	66	52	45	E R 38	39	42	A	A	44	23	E S 15	E S 15	E	E
15	E S 14	E	E	17	28	35	51	44	A	48	50	A	E R 35	46	49	53	37	43	49	27	A	46	48	22
16	30	25	44	32	57	29	A	34	46	45	38	69	A	G	G	G	G	44	52	33	36	25	E	31
17	25	30	18	E S 14	20	19	32	37	40	51	45	35	43	37	34	36	55	66	54	50	25	22	21	23
18	18	14	17	20	E	E S 13	G	46	49	A	A	A	58	A	55	45	42	41	75	E S 92	45	30	32	18
19	23	48	25	25	33	14	29	37	46	A	A	A	A	E R 38	37	42	37	34	43	50	54	A	E	31
20	30	29	23	18	15	E	25	29	52	50	A	54	48	40	E R 38	36	39	46	A	37	28	32	29	A
21	15	A	A	A	30	28	27	42	A	A	A	A	A	A	78	74	65	28	G	E S 14	28	E	16	53
22	43	41	31	19	16	22	46	47	43	40	41	42	G 34	37	40	42	32	29	29	18	26	17	23	53
23	E	E	27	15	E	E S 14	26	38	52	A	41	54	66	A	51	44	53	70	A	66	58	51	43	50
24	30	25	16	15	E	23	25	29	37	49	47	G	G	G	41	37	G	31	28	55	44	31	23	E
25	30	36	25	18	42	20	29	49	A	E R 57	56	44	A	68	58	48	54	A	A	15	50	32	25	50
26	15	23	26	23	22	E B 12	30	65	69	50	47	55	A	65	38	G	G	G	27	48	36	16	26	E S 13
27	E	23	28	25	31	17	29	53	56	55	46	52	45	42	44	G	G	46	64	70	62	43	23	20
28	33	23	14	18	19	28	44	45	45	55	44	45	46	43	36	36	33	36	36	31	46	33	28	E
29	E	E	14	18	14	20	33	48	A	A	A	41	44	40	35	40	35	32	54	53	51	A	25	21
30	23	22	25	18	E S 14	E	20	31	34	36	G	G	40	E R 40	39	40	46	56	30	16	20	17	E S 14	17
31	14	22	E	E B 15	E	E S 33	23	29	36	45	39	38	40	42	37	33	G	30	25	E R 20	16	28	21	23
	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	30	30	31	30	31	30	31	31	31	31	31	31	31	31	31	31	31
MED	18	22	18	18	16	16	25	32	44	48	46	45	46	42	38	38	36	41	44	28	30	25	21	20
UQ	24	28	25	22	25	22	30	44	52	D A 57	56	54	58	51	44	42	48	49	53	46	47	32	25	31
LQ	E E 14	14	14	15	E E 13	E E 14	20	29	34	39	40	39	42	37	36	34	E G 27	28	26	20	20	18	16	16

MAY. 1973 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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 14	E S 14	E S 14	11	E S 14	E S 14	E S 15	14	51	23	C	23	B	45	48	24	17	15	E S 14	E S 14	E S 14	E S 14	E S 15	E S 15
2	E S 15	E S 14	E S 14	E S 14	E S 14	E S 13	14	C	C	19	23	28	47	49	23	23	21	23	14	11	E S 14	E S 14	E S 14	E S 13
3	E S 15	E S 14	E S 14	F S 14	E S 14	E S 13	16	14	16	19	20	45	26	58	25	22	15	14	24	E S 14	E S 14	E S 15	E S 14	E S 14
4	E S 14	E S 13	E S 14	E	E	E S 14	E S 15	15	16	22	19	23	27	27	28	23	16	15	12	E S 14	E S 14	E S 12	E S 15	E S 13
5	E S 14	E S 14	E S 12	E	E	E S 14	E S 14	14	15	15	19	24	24	23	28	23	24	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14	E S 14
6	E S 14	E S 14	E	E S 14	E	E S 14	E S 14	14	14	16	21	20	20	28	25	23	15	14	E S 12	E S 13	E S 14	E S 14	E S 14	E S 15
7	E S 14	E S 15	E S 13	E	E	E S 15	E S 15	14	14	16	22	23	25	22	23	20	19	15	14	E S 13	E S 14	E S 15	E S 14	E S 14
8	E S 14	E S 15	E	E S 15	12	E	14	14	21	19	23	19	23	19	22	20	15	15	E S 15	11	E S 12	E S 12	E S 14	E S 14
9	E S 15	E S 14	E S 15	11	E	E S 12	11	12	14	14	14	17	19	19	19	17	16	14	E S 14	11	E S 15	E S 14	E S 15	E S 15
10	E S 14	E	E	E S 14	E	E S 15	E S 14	14	14	15	16	16	20	19	16	15	15	13	E S 14	E S 14	E S 15	E S 15	E S 14	E S 15
11	E S 14	E S 15	E S 14	E	E	E S 14	E S 13	14	15	15	14	22	22	19	18	16	15	14	E S 13	E	E S 14	E S 14	E S 14	E S 15
12	E S 15	E S 14	E S 12	E	E S 14	E S 14	E S 13	14	14	15	15	23	23	20	16	21	16	15	E S 14	E S 14	E S 14	E S 15	E S 14	E S 13
13	E S 14	E S 14	E S 13	E S 14	E S 14	E S 14	E S 14	E S 14	17	15	16	23	22	20	23	19	16	15	13	E	E S 14	E S 13	E S 15	E S 13
14	E S 15	E S 15	E S 14	E	E S 15	E S 14	E S 13	11	14	17	25	25	23	20	17	19	15	14	E S 14	E S 14	E S 15	E S 15	E S 14	E S 14
15	E S 14	E S 14	E	E	E	E S 14	11	12	14	E C 18	15	18	20	16	16	16	14	13	11	11	E S 15	E S 14	E S 14	E S 15
16	E S 14	E S 15	E S 13	F S 14	E S 13	E S 13	E S 15	12	14	14	15	16	16	19	24	14	15	12	11	E S 14	E S 14	E S 14	E S 15	E S 14
17	E S 14	E S 14	E S 13	E S 14	E	F S 14	E S 13	14	14	15	15	21	18	23	20	15	15	13	E S 13	E S 13	E S 14	E	E S 13	E S 14
18	E S 14	E	E S 14	E S 13	E	E S 13	12	13	14	14	19	19	21	24	21	19	14	14	E S 14	E S 15	E S 14	E S 13	E S 13	E S 14
19	E S 14	E S 13	E S 14	E	E	E	E S 13	23	13	15	16	23	23	23	20	16	16	14	11	E S 14	E S 14	E S 13	E S 14	E S 15
20	E S 14	E S 14	E S 14	E S 14	E	E S 14	11	13	21	15	15	16	15	19	29	23	14	E S 14	11	11	E S 14	E S 14	E S 15	E S 14
21	E S 13	E S 15	E	E	E	E S 12	E S 12	11	15	15	15	20	18	19	19	19	14	14	14	E S 14	E S 14	E S 15	E S 14	E S 14
22	E S 14	E	E S 14	12	E	E S 14	13	14	11	E C 36	17	17	23	17	20	18	14	14	13	E S 13	E S 13	E	E S 13	E S 13
23	E S 15	E S 14	E S 14	E	E S 13	E S 14	14	14	14	15	15	20	23	24	21	19	14	14	E S 14	E S 14	E S 15	E S 15	E S 15	E S 14
24	E S 14	E	E S 14	E	E S 15	E S 14	11	14	14	15	18	17	16	15	15	15	15	14	11	E S 13	E S 14	E S 14	E S 14	E S 14
25	E S 14	E S 14	E S 14	E	E	E	E S 12	14	15	20	20	24	23	25	19	18	19	13	13	13	E S 14	E S 14	E S 13	E S 13
26	E S 14	E S 13	E S 13	E S 13	13	12	15	12	15	15	20	19	20	16	19	14	14	14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 13
27	E S 15	E S 14	E S 14	E	E	E S 14	E S 14	14	14	19	22	22	23	16	14	14	15	14	E S 14	13	E S 14	E S 14	E S 14	E S 15
28	E	E S 14	E	E	E	12	13	14	14	16	17	23	22	21	21	16	14	14	13	E S 13	E S 15	E S 15	E S 13	E S 14
29	E S 14	E S 14	E	E	E	E S 14	E S 15	14	13	15	20	22	20	19	18	17	14	12	13	E S 12	E S 15	E S 14	E S 14	E S 14
30	E S 15	E S 14	E	E	E S 14	E S 14	14	14	15	15	15	19	22	21	15	14	14	14	11	11	E S 14	E S 14	E S 14	E S 14
31	E	E S 12	E S 14	15	15	E S 14	12	12	14	16	20	18	21	20	21	15	14	14	11	E	E S 14	E S 14	E S 13	E S 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	30	30	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	E S 14	E S 14	E S 14	E	E	E S 14	E S 14	14	14	15	18	21	22	20	20	18	15	14	12	E S 13	E S 14	E S 14	E S 14	E S 14
UQ	E S 14	E S 14	E S 14	F S 14	E S 14	E S 14	E S 14	14	15	17	20	23	23	24	23	20	16	14	E S 14	E S 14	E S 14	E S 14	E S 14	E S 14
LQ	E S 14	E S 14	E E 12	E	E	E S 13	12	12	14	15	15	18	20	19	18	16	14	14	12	E E 11	E S 14	E S 14	E S 14	E S 14

MAY. 1973 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | 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	280 S	S	290 F	285 S	260 I S	270 I S	310	300	305	305	295 I C	275	280 I B	285 I R	290	320	325 J S	310	330 S	300	295 S	275 S	260 I S	275
2	270 I S	290	335 S	345 S	270 F	265 F	315	335 I C	320 I C	305	325	305	290 S	290 I R	300 S	305 J S	310 S	320	320 S	325 S	315 S	280 S	275	280 S
3	285 S	295 S	315	280	275	300	340 S	350	340	325	300	280	285	290	295	295	315	310 S	315 S	305 S	300 S	270	270	275
4	280 S	285	305	305	280	285	320	335	340	310	305	290	290 S	290	290	305	300 J S	310	305	300	290 S	295 S	285 S	280 I S
5	280	300	280	285	275	285	330 S	350	340	350	300	275	265	290	295 S	310	315 J S	305 S	320 S	310 S	305	290	270	F
6	285 S	280 S	275	295 S	285	290	330	350 S	335	315	310	280	290	285	280	285	300 S	310 S	310 S	325 J S	300 S	285	275 S	275
7	280	F	300 F	315 F	295	255 S	340	345	355	300	270	265	280	280 U S	280 S	300	310	310	320	320 U S	300	265	255	280
8	270 S	285 S	315 S	360	305 F	285 S	310	290	G	G	G	R	255	275	295	280	285	300	300	315	275	265 S	255 S	260
9	265	280 F	280	315	325	F	320	325	345	315 S	305	285	280	290	295	300	315	325	335	315	280 S	265 S	270 S	280 I S
10	285 S	285 S	295 S	350 S	335	285	320	325	300 H	320	300	270	290	310	295	300	305	295	305 S	320	325	275	275 S	275 S
11	265 F	285 F	285	340 S	315	280	335	350	315	320 I A	295	280	285	280	295	305	300	310 S	320 S	310 S	320 S	305	270 S	270 S
12	275 S	295 F	F	F	320 F	A	315	295	A	325 I A	300	270	275	295	315	305	285	295	285	300 S	320 I S	320 U S	275	F
13	S	F	F	325 S	310 F	305 F	355	360	370 H	A	310	290	285	295	300	300	305	320 S	300	290 S	310 U S	315	285 J S	280
14	275 J S	285	290 I S	295	305 S	335 S	360	365	355 H	255	240	285	260	275 J S	330	310	A	A	285	290	315 S	260	270	270
15	275	275	270	285	295	325 S	365	355 S	315 I A	320	320	275 I A	270	295	305	305	315	325	305	330 I S	290 I A	280	275 I S	260 I S
16	F	S	S	290 S	310 I S	340 F	A	300	315	260	265	275 I S	260 I A	285	295	310	315	280	290 S	S	S	270 S	265 I S	270 S
17	F	F	275 F	335 F	F	300 F	330	305 H	300	A	275	275	275	290	285	295 S	310 S	305 I S	315 S	310 S	290	285	280 I S	275 I S
18	280 F	295 S	F	F	290 S	290	315	340	335	A	A	A	275	A	285 S	285	285	300 J S	305 J S	325 I S	330	285	255 J S	295 S
19	275 U S	285 S	280 S	280 F	285 S	305	315	335	300	295 I A	A	270 I A	260 I A	295	305	295	290	325	305	300	275 S	275 I A	F	S
20	S	F	S	300 F	315 F	F	315	325	330	335	310 I A	300	285	280	290	285	305	290	290 I A	295 S	315	315	255 S	255 I A
21	S	A	300 I A	280 I A	270 I S	F	355	355	A	A	A	A	280 I A	290 I A	295	255	285	320 J S	270	S	S	265	270 I S	300 I S
22	330	340 S	265 U S	F	285 S	325	355	340	345	310	240 H	260	225	255	255	270	285	295	305	290	275	245 J S	265 S	A
23	S	260 S	S	F	F	285 F	350	345	365	A	300	285 S	280	285 I A	285	290	300	310	290 I A	295 S	295	260 S	S	S
24	275	305 S	F	F	S	F	340 F	335	325	305	325	280	305	285	280	280	305	305	310	295 S	280 I S	275 J S	270 S	295 J S
25	280 S	290 S	F	285	295 S	305	335	345	335 I A	300	275 R	260	290 I A	270	300	310 S	285	290 I A	300 I A	310	290 S	F	F	S
26	F	F	F	320 J S	305	F	F	355	A	315 S	305	290	280 I A	270	280	290 S	295 J S	290	305 S	285 I S	295 I S	275 S	290 I S	265 S
27	F	S	295 S	F	F	F	325	345	315	305	295	270	285	290	270	275	275 S	300 I S	310 I S	310 U S	295	285	285 U S	275 S
28	S	S	F	320	F	F	275 S	320	300	340	310	295	280	285	290	300 S	315 S	310 I S	315	310	295 I S	280 S	285 S	S
29	F	290 J S	275	F	F	F	285	295	A	A	A	265	290	285	300	305	310	305	315 S	325	290	285 I A	275	285 U S
30	275 S	285 J S	290 S	300 I S	290 S	320 S	355	305 H	380	G	285	265	275	270	275	295	325 S	330 I S	330	320	280	270	285	285 S
31	F	280 S	305	295	285	275 I S	280	335	355	280	265	285	280	275	275	295	300 S	310	305 S	325 J S	320 S	300 S	295 S	275 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	20	21	21	24	25	22	29	31	27	25	27	28	31	30	31	31	30	30	31	29	29	30	28	24
MED	278 S	285 S	290	300	295	290	330	335	335	310	300	278	280	285	295	300	305	310	305	310 S	295 S	278	272 S	275 S
UQ	280 S	295 S	300	322	310	305	340	350	345	320	308	285	285	290	298	305	315	310	315 S	320 S	315 S	285	282 S	280 S
LQ	275 S	285 S	280	285	285 S	285	315	322	315	300	275	270	275	280	282	288	290	300	300	300 S	290	270 S	268 S	270 S

The Radio Research Laboratories, Japan

MAY. 1973 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1973 | M(3000)F1 (0.01) | 135 E Mean Time (G. M. T.+ 9h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	B	L	C	L	B	R 340	340	A	A	A						
2								C	C	L	L 360	L	L	B	L	L	L	L						
3								L	L	U L 390	A	A	L 365	I B 360	L 360	L 355	L	L						
4								L	A	L	L 360	L 345	L 360	A	A	L 375	L	L						
5								L	L	U L 370	L	L 370	A	A	L 360	L 355	L 355	A						
6								L	L	L 365	L	U L 365	A	A	L 365	H 380	340	L						
7								A	A	A	A	A	A	355	R	L 350	A	A						
8								L 335	360	R 350	R 350	390	H 400	A	350	365	355	H 325	L					
9								L	L 370	L 370	L 345	L 340	L 365	A	H 355	345	A	L	L					
10								L	L	A	L 355	L 340	A	H 375	H 365	380	L 355	L 330	L					
11								L	L	A	A	A	A	H 355	H 365	A	A	A	A					
12								L	A	A	A	A	A	A	415	420	L 360	A	A					
13								L	A	A	A	A	375	I A 375	I A 360	L 335	L	A	A					
14									L	H 360	I A 370	A	A	360	350	L	A	A	A					
15									A	A	A	A	H 360	A	A	A	L	A	A					
16								L 370	A	A	335	A	A	L 410	L 355	H 395	370	A	A					
17								A	A	A	A	H 375	A	380	375	375	A	A	A					
18								A	A	A	A	A	A	A	A	A	A	A	A					
19								A	A	A	A	A	A	U R 420	385	A	355	350	A					
20								L	A	A	A	A	A	345	R 370	H 375	340	A	A					
21								A	A	A	A	A	A	A	A	A	A	L 330	L					
22								A	L	L	A	A	375	R 365	R 385	A	385	355	L 350					
23								A	A	A	330	A	A	A	A	A	A	A	A					
24								L	L	A	A	405	375	375	370	355	L 355	L	L					
25							L	A	A	A	A	330	A	A	A	A	A	A	A					
26								A	A	A	A	A	A	A	H 375	375	L 330	L	L					
27								A	A	A	A	A	H 360	375	A	H 360	H 335	A	A					
28								A	L	A	R 360	A	A	A	395	370	L 345	L	A					
29							A	A	A	A	A	R 400	A	R 395	R 385	385	370	L 365	A					
30							L	L	U L 385	365	H 375	H 395	390	R 365	375	H 375	I A 360	A	L	L				
31								L 355	L 395	H 355	L	375	375	385	395	H 380	H 355	365	L	L				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	4	8	10	12	11	17	22	20	16	7	1					
MED								L 355	L 378	365	358	372	375	375	368	375	355	350	L 350					
UQ								L 362	L 390	L 370	360	392	375	380	385	380	360	360						
LQ								L 345	365	358	345	L 342	362	360	360	355	342	330						

MAY. 1973 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1973 | H'F2 (KM) | 135 E Mean Time (G. M. T. + 9h)

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

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								275	280	285	I C 295	310	B	305	300	275	255	255						
2								C	C	300	270	H 280	330	315	300	295	260	260						
3								235	245	250	295	325	300	305	300	280	260	260						
4								240	245	265	305	305	300	300	295	275	275	255						
5								240	240	245	300	300	375	330	295	280	265	260						
6								235	230	295	280	305	325	310	315	330	285	265						
7								230	240	350	300	320	345	330	340	300	270	275						
8								395	G	G	G	R	475	405	355	370	360	355	290					
9								250	260	305	320	370	320	315	315	290	275	250	240					
10								255	H 280	295	305	360	320	290	305	300	300	300	270					
11								235	250	A	330	350	340	330	305	295	295	280	250					
12								320	I A 290	I A 290	E A 320	355	350	310	285	280	295	295	295					
13								225	H 220	A	E A 350	365	355	340	300	275	290	280	E A 300					
14									230	450	E A 530	300	400	360	260	285	A	A	305					
15									A	285	280	A	375	300	280	275	270	260	255					
16								325	280	350	350	350	A	325	300	280	275	305	295					
17								H 285	345	A	400	380	335	305	330	295	270	275	250					
18								275	275	275	275	275	375	A	330	315	320	280	E A 290					
19								255	E A 360	A	A	A	A	360	340	340	340	285	290					
20								255	285	280	I A 315	E A 350	370	355	330	345	305	310	I A 290					
21								240	A	A	A	A	A	A	E A 350	E A 460	340	285	305					
22								250	275	320	430	460	515	420	380	355	335	305	290					
23								260	E A 290	A	380	355	E A 375	A	325	305	295	E A 300	A					
24								235	250	E A 295	300	360	315	350	330	325	285	275	280					
25							250	245	A	320	I A 330	390	I A 355	360	310	290	330	A	A					
26								A	A	305	335	350	A	E A 375	330	305	290	300	270					
27								255	295	345	350	355	330	330	355	335	330	285	255					
28								270	300	280	330	330	350	330	320	305	280	275	250					
29							280	E A 305	A	A	A	475	380	370	325	295	295	295	270					
30							235	H 275	230	G	395	445	375	355	355	320	265	240	225	240				
31								240	240	400	L	390	380	360	350	315	290	285	270	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							3	27	25	24	27	27	26	28	31	31	30	29	22	2				
MED							250	252	262	298	312	350	351	330	318	298	290	280	272	242				
UQ							265	274	285	348	346	368	375	359	332	320	305	295	290					
LQ							242	240	240	281	299	312	330	310	300	282	270	260	255					

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MAY. 1973 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1973 | 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 automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	285	255	250	250	300	290	250	H 225	I B 260	A	C	E A 260	B	E B 250	B	A	A	A	240	250	260	250	320	290
2	290	255	225	195	H 240	E A 320	245	I C 230	I C 230	230	230	210	B	B	205	200	230	235	250	245	240	250	315	300
3	285	275	240	210	290	280	245	230	220	215	A	A	225	I B 220	H 220	225	H 230	240	245	235	230	250	300	290
4	265	275	245	225	260	260	245	230	I A 220	I A 215	H 205	200	E A 240	A	A	205	H 205	225	235	245	255	270	270	295
5	265	255	250	255	295	275	230	235	225	215	E A 240	200	A	A	A	E A 250	E A 250	I A 240	240	255	260	220	260	E A 350
6	275	295	280	255	255	270	240	230	220	215	H 205	205	A	A	215	H 195	250	260	250	245	225	225	275	300
7	295	300	260	225	250	285	220	A	A	A	A	A	A	210	R	220	A	A	250	205	210	E A 300	E A 360	E A 350
8	300	E A 310	250	225	245	300	255	255	250	240	250	210	H 200	I A 220	250	225	225	H 195	245	240	275	270	320	320
9	300	300	275	250	200	E A 350	245	240	H 200	215	205	230	E A 235	A	H 195	E A 250	A	230	230	240	A	A	305	300
10	275	280	265	205	195	305	245	245	255	A	I A 240	E A 250	I A 200	H 220	H 230	225	250	230	240	235	225	260	295	305
11	300	275	275	220	230	E A 310	245	225	225	A	A	A	A	H 200	H 200	A	A	A	A	245	220	240	250	295
12	300	250	275	245	245	A	E A 280	E A 250	A	A	A	I A 200	I A 205	I A 205	200	205	H 205	A	A	270	245	210	250	290
13	295	280	280	225	225	250	235	225	A	A	A	A	225	A	A	E A 260	H 200	A	A	270	265	215	250	300
14	320	340	300	255	255	235	230	210	220	H 200	A	A	A	240	E A 250	A	A	A	A	270	250	230	290	305
15	280	295	300	275	285	255	225	E A 250	A	A	A	A	H 195	A	A	A	E A 250	A	A	225	A	E A 315	E A 365	310
16	300	300	E A 320	295	E A 350	230	A	E A 250	A	A	A	A	A	200	H 200	H 200	235	A	A	245	220	245	295	350
17	350	350	295	215	240	250	270	A	A	A	A	H 195	A	220	200	205	A	A	A	250	250	280	285	290
18	295	285	255	260	265	270	235	A	A	A	A	A	A	A	A	A	A	A	A	A	240	250	E A 340	265
19	295	E A 330	295	285	E A 300	230	250	A	A	A	A	A	A	190	225	A	E A 250	E A 255	A	E A 300	A	A	300	330
20	300	300	280	255	245	215	H 240	225	A	A	A	A	A	225	245	H 200	A	A	A	275	235	230	E A 340	A
21	360	I A 270	A	A	265	275	230	A	A	A	A	A	A	A	A	A	A	220	225	255	260	295	320	E A 350
22	250	E A 255	A	300	285	255	230	A	225	A	E A 270	E A 275	220	220	E A 250	A	215	230	E A 250	270	280	310	350	I A 290
23	275	350	330	320	270	250	240	A	A	A	A	A	A	A	A	A	A	A	A	A	E A 310	E A 350	E A 370	E A 350
24	E A 295	250	270	265	280	250	235	230	225	A	A	200	190	225	250	230	220	230	240	I A 260	300	300	280	250
25	300	300	275	275	E A 310	250	A	A	A	A	A	E A 250	A	A	A	A	A	A	A	245	300	280	270	E A 335
26	275	310	295	250	275	250	235	A	A	A	A	A	A	A	H 200	205	H 205	H 215	H 240	270	250	235	270	255
27	290	290	275	250	250	240	240	A	A	A	A	A	A	225	I A 240	H 225	H 245	A	A	E A 275	E A 310	E A 300	275	300
28	330	290	240	230	260	305	300	A	E A 250	A	E A 250	A	A	A	205	210	225	E A 255	A	250	E A 265	270	290	305
29	300	275	275	260	290	310	A	A	A	A	A	225	A	215	205	230	210	225	A	250	E A 350	A	305	300
30	315	305	275	285	275	250	230	215	210	200	H 195	H 180	210	E R 250	210	H 240	A	A	230	235	240	280	280	275
31	280	300	245	250	250	A	H 240	225	215	A	210	220	225	235	205	H 180	H 210	205	215	I A 235	210	255	280	305
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	29	30	31	29	28	19	16	9	11	16	12	18	21	21	19	16	16	29	28	28	31	30
MED	295	288	275	250	258	255	240	228	224	215	U 218	205	208	220	208	212	220	229	240	248	245	254	288	298
UQ	300	300	280	275	280	282	245	236	234	215	A 238	U 225	224	225	232	228	239	236	246	262	265	279	310	312
LQ	279	275	250	225	245	250	232	225	220	215	205	200	200	210	200	205	210	222	232	240	232	238	275	290

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MAY. 1973 | H'F (KM)

IONOSPHERIC DATA

MAY. 1973 | H'ES (KM) | 135 E Mean Time (G. M. T. + 9h)

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

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105	105	105	100	100	105	S	150	B	110	C	115	B	B	B	140	130	115	110	105	105	115	95	105
2	105	100	100	100	100	100	150	C	C	105	105	105	B	B	105	100	100	110	140	110	100	105	105	100
3	100	100	95	100	100	S	145	150	120	105	100	100	100	B	100	100	150	155	125	100	95	100	105	100
4	S	S	S	100	E	S	135	125	110	110	110	105	105	105	105	100	100	100	125	S	105	105	110	110
5	S	S	100	100	100	S	145	140	145	130	125	130	115	150	150	150	135	130	115	110	110	110	110	110
6	105	105	105	105	105	120	160	140	130	120	110	125	110	110	150	G	165	135	115	110	105	105	S	100
7	100	100	100	100	100	S	140	120	120	120	120	130	130	G	165	155	105	105	105	105	105	105	105	105
8	105	105	105	105	105	105	100	105	145	140	145	G	G	175	155	145	140	125	G	125	110	110	110	105
9	S	S	100	100	100	105	100	100	105	130	105	175	150	145	G	150	130	150	125	115	105	105	115	105
10	100	95	105	100	100	105	140	135	100	105	125	125	125	110	135	140	165	150	115	105	105	100	100	100
11	100	100	100	100	100	100	135	140	125	110	110	110	100	G	150	110	110	105	105	100	100	100	100	105
12	100	100	125	110	100	100	100	120	110	115	110	115	105	100	125	150	145	110	110	105	105	105	100	100
13	100	100	100	100	100	100	145	130	125	110	105	105	110	115	115	120	G	110	105	105	105	100	100	105
14	105	105	105	105	95	S	120	105	120	120	100	100	105	165	105	120	110	105	105	105	S	S	105	105
15	S	125	115	115	115	110	110	105	105	110	105	105	120	105	105	100	125	120	115	115	105	105	100	100
16	100	105	100	100	105	100	120	115	110	110	115	110	105	G	G	G	175	120	110	105	105	100	105	100
17	100	100	100	S	125	120	115	110	105	105	105	115	105	105	110	120	110	105	105	105	100	105	100	100
18	100	110	110	110	E	S	145	120	115	110	105	105	105	105	105	155	150	130	110	105	110	100	100	105
19	100	105	100	105	105	110	125	120	110	105	105	100	100	175	145	125	125	120	110	110	105	100	100	100
20	100	95	95	100	90	110	130	130	115	110	105	105	100	100	100	105	150	115	110	105	105	105	105	100
21	105	100	100	100	95	100	140	125	115	105	105	105	105	105	105	105	105	105	G	S	105	110	150	105
22	100	105	100	100	100	100	120	120	125	125	120	125	105	135	125	120	120	120	125	120	110	105	110	105
23	105	105	100	105	120	S	140	125	120	115	110	105	115	120	120	130	120	115	115	110	110	110	105	110
24	105	105	100	100	100	100	100	100	140	125	120	175	170	165	160	140	150	135	120	110	110	105	120	100
25	100	100	100	100	100	100	125	115	110	110	110	110	115	110	110	105	105	120	115	110	100	110	110	105
26	100	100	100	100	100	B	140	125	115	120	115	110	110	110	130	G	G	125	110	110	110	105	100	S
27	100	100	95	95	95	115	125	115	110	105	105	105	105	150	130	170	130	120	110	110	110	110	105	100
28	105	100	100	100	100	115	110	110	110	105	105	105	110	105	155	150	140	105	100	115	105	105	105	105
29	105	105	100	95	100	100	115	110	105	105	105	130	110	110	110	140	125	120	110	105	105	100	100	100
30	120	100	100	100	S	100	140	120	115	120	120	125	120	120	115	150	125	120	125	100	100	120	S	110
31	110	105	100	B	100	100	100	105	110	110	105	105	150	105	150	105	G	140	120	110	100	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	28	30	29	28	23	30	30	29	31	30	30	28	25	28	28	28	31	29	29	30	30	29	30
MED	100	100	100	100	100	100	128	120	115	110	108	110	110	110	122	128	128	120	110	110	105	105	105	105
UQ	105	105	105	105	102	110	140	130	120	120	115	125	118	145	150	150	148	128	120	110	110	110	110	105
LQ	100	100	100	100	100	100	115	110	110	105	105	105	105	105	105	105	110	110	110	105	105	100	100	100

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MAY. 1973 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1973 | 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	F5	F4	F5	F3	F5	F1		HL12		CC21		C1				H1	H3	CL31	C3	F3	F4	FF22	F2	FF22
2	FF11	F1	F2	F4	F3	F4	H1			L1	L1	L1			C1	L1	L2	L1	HL11	F2	F2	F2	F3	F3
3	F3	F3	F2	F3	F1		H1	H1	C2	C2	C3	C2	L1		L1	L1	H1	HL11	H1	F1	F2	F1	F1	F1
4				F1			H1	HL21	C2	C2	C1	C1	C1	C1	C1	C1	L1	L2	HL41		F6	F7	FF21	F5
5			F2	F2	F3		H2	H2	H2	HC11	HC11	H1	C2	HC21	H1	H1	H1	H2	C4	F7	F7	F3	F3	F6
6	F2	F4	F1	F4	F2	F1	H1	H2	H2	C1	C2	HC11	C2	C2	H1		H1	H2	C4	F3	F3	F3		F4
7	F7	F3	F3	F4	F2		H2	H3	C3	C1	C1	H1	H1		H1	H1	C2	C3	L4	F2	F1	F5	F5	F4
8	F3	F5	F3	F3	F2	F2	L1	LH11	H1	H1	H1			H1	H1	H1	H2	H1		F3	F5	F1	F1	F2
9			F2	F4	F3	F5	LH31	LH41	CH21	H1	C2	HC11	H1	H1		H2	H2	H2	H2	F5	F5	F6	F2	F4
10	F3	F4	FF23	FF41	F4	F1	HC11	HC23	CHH21	C2	HC11	HC11	H1	C1	H1	H1	HL11	H1	C3	F3	F6	F4	F4	F7
11	F2	F2	F3	F3	F3	F4	H2	H2	H1	C3	CL31	CL12	C2		H1	H2	C3	C4	C4	FF41	F7	F6	F2	FF11
12	F3	F3	FF13	FF33	F7	F7	L5	HL34	C3	C5	C4	CL21	C1	L3	HLL21	H1	H1	C4	C6	F7	FF42	FF31	F3	F3
13	F4	F1	F4	F3	F4	F3	HL21	HL21	HL21	C3	C3	C2	C1	C2	C2	C1		C2	C2	F3	F5	F3	F2	FF12
14	FF22	FF42	FF22	FF22	F1		C2	L3	CL22	CL11	L2	L1	C1	HC11	C1	C1	C6	C5	C5	F2			F1	F1
15		FF21	F1	FF22	F4	F5	C3	C4	C4	C2	C2	C4	C1	C2	C2	C3	HC22	C4	CL62	FF31	F6	F5	F4	F3
16	F2	FF21	F7	F5	F5	F4	C5	C4	C4	C2	C1	C2	C3				H1	H3	C7	F4	F5	F3	F2	F5
17	F6	F5	F3		F6	F5	C3	C2	C4	C3	C3	C1	C1	C2	C1	CL12	C3	C5	C4	F3	F4	F2	F3	F2
18	F2	F3	FF21	F3			H1	H4	C5	C4	C4	C3	C2	C2	C2	HL21	H2	HL32	C4	F5	F5	F5	F4	FF22
19	F5	F7	F4	F5	F7	F1	H4	C1	C4	C3	C3	C4	C2	HL11	HL11	HL11	H2	C4	CL41	F4	F5	F4	F3	F5
20	F5	F3	F5	FF34	F2	F1	H3	H2	C2	C3	C3	C3	C2	C2	C1	L1	H1	C3	C6	F3	F4	F5	F5	F6
21	F6	F7	F4	F4	F3	F4	HL31	H5	C4	C4	C4	C4	C4	C4	C3	C4	C4	L1			F4	F1	FF21	F4
22	F4	F4	F5	F4	F2	F3	CL31	C4	C2	H1	CL21	HL11	L1	HL11	HL11	C2	C1	C1	H2	F1	F5	F5	F3	F5
23	F2	F3	F4	FF23	F1		H2	H4	C3	C3	C2	C2	CC23	HC42	H2	H1	H3	CL51	C6	F4	F5	F4	F7	FF15
24	F6	F6	F4	F4	F2	F4	L3	L3	H2	H2	H2	H1	H1	H1	H1	H1	H1	H2	C3	F4	F7	F7	FF17	F4
25	F5	F4	F5	F4	F6	F5	H2	C4	C6	C3	C2	C1	C2	C2	C3	C2	C3	HC52	CL31	F1	F5	FF23	FF22	F3
26	F3	F3	F3	F2	F2		H2	H6	C3	C2	C2	C2	C3	C2	H1			H1	C3	F3	F4	F4	F7	
27	F2	F5	F4	F3	F3	FF11	HC21	C4	C3	C3	C2	C2	C2	HC11	HL11	H1	H1	H3	C4	F7	F7	F5	F3	F3
28	F7	F5	F2	F2	F2	F5	C4	C4	C2	C3	C2	C2	C1	CH11	HC11	HC11	HC11	L3	L4	FF63	F5	F3	F4	F2
29	F1	F2	F1	F3	F1	F1	C2	C4	C4	C4	C4	HC11	C1	C1	CH11	HL11	HL11	C2	C4	F4	F4	F3	F2	F2
30	FF12	F2	F2	F2		F1	H1	C2	C1	C1	C1	H1	H2	C1	C1	H1	HL21	C4	HL31	F2	F2	F2		F2
31	FF22	FF21	F1		F1	F3	L2	L3	C3	C3	L1	L1	HL12	L1	HL11	L1		HL11	C2	CL11	F2	F4	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. 1973 | TYPES OF ES

IONOSPHERIC DATA

MAY. 1973 | FOF2 (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station OKINAWA Lat. 26 19·0 N. Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 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 94	84	J S 80	60	A	F	S	69	80	88	96	110	B	141	160	167	160	138	121	114	97	93	97	J R 107
2	121	115	144	100	39	35	50	73	83	85	93	96	107	124	142	145	138	124	114	112	97	90	96	93
3	91	107	90	64	60	56	77	86	76	71	80	96	115	117	130	125	116	110	110	100	85	84	82	80
4	87	82	79	64	52	51	57	85	81	75	80	92	102	120	124	120	118	106	96	89	C	81	72	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	73	77	87	98	101	105	114	123	124	128	112	84	74	78	79
7	75	R 74	81	80	S 53	39	53	70	69	60	77	84	100	119	122	154	171	160	158	144	111	102	103	R 105
8	J R 102	S 103	R 110	S 104	S 61	54	58	62	50	D W 47	W	D W 48	55	60	64	71	R 73	71	81	74	61	62	58	62
9	64	63	69	68	39	30	44	61	64	64	65	68	86	96	102	108	112	102	84	77	62	63	S 63	64
10	S 72	76	65	55	28	25	40	64	76	79	79	86	93	111	96	96	90	95	101	87	61	63	64	67
11	64	61	60	54	43	40	51	70	51	68	70	80	87	94	105	108	110	117	114	86	75	S 72	77	81
12	81	82	81	75	51	I A 35	42	57	69	72	73	87	102	116	120	108	110	114	125	123	R 122	95	91	96
13	96	C	C	C	C	C	C	C	C	55	64	67	83	96	I A 105	112	110	110	112	105	100	76	60	A
14	54	60	52	65	57	57	50	53	53	53	75	94	92	108	126	95	102	107	92	J R 100	90	63	67	67
15	S 71	S 74	68	68	65	71	53	47	62	73	80	80	100	130	135	130	120	111	106	R 109	93	C	C	C
16	C	C	C	C	C	C	C	C	C	69	86	100	94	98	112	128	126	108	112	S 120	83	57	61	58
17	52	V 54	53	C	C	C	C	C	C	67	70	81	97	110	118	152	158	139	152	R 122	81	V 80	92	85
18	V 86	81	71	C	C	C	C	C	C	A	A	A	83	93	109	128	140	152	152	123	96	93	93	J R 90
19	100	95	94	R 88	85	74	J S 61	60	A	69	A	I A 65	74	75	77	78	84	80	S 73	S 74	S 71	63	F	F
20	F	61	59	55	52	46	51	57	61	69	62	60	A	83	91	95	100	92	85	A	I A 77	67	62	49
21	44	F	67	S 45	41	37	46	54	56	R 62	62	64	76	95	99	86	96	112	101	107	97	77	68	71
22	76	61	A	S 44	F	F	54	57	I A 58	60	H 62	67	76	84	96	97	98	106	88	62	52	S 52	48	51
23	49	F	F	F	F	F	47	53	A	54	I A 64	I A 75	90	104	107	113	117	113	100	90	79	S 72	F	F
24	F	F	F	F 62	F	60	57	51	62	68	72	69	82	88	92	99	102	102	97	89	80	J S 68	68	63
25	64	F	F	53	54	59	67	66	67	66	A	A	84	96	107	A	102	101	S 110	101	93	R 102	95	95
26	F	A	F	F	F	F	F	77	58	I A 60	68	72	81	87	102	112	111	111	113	R 105	98	F	83	81
27	85	F	S 92	101	93	68	67	75	73	A	A	83	97	90	92	97	107	117	131	I R 110	82	80	82	F
28	F	F	95	F	F	62	64	73	76	A	A	76	87	92	103	122	122	123	112	116	R 122	104	98	96
29	89	S 91	82	69	S 62	S 54	62	S 74	54	R 54	60	66	65	78	93	105	102	106	119	R 104	93	R 110	J R 114	R 116
30	115	R	R 102	74	V 65	S 62	58	70	52	52	57	64	80	91	102	118	140	127	S 113	98	72	77	88	76
31	69	64	S 62	56	V 43	F 38	51	77	53	J R 52	62	61	77	85	93	107	113	100	95	101	85	71	67	S 65
	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	19	22	22	19	21	23	25	23	27	24	28	28	30	30	29	30	30	30	29	29	28	27	24
MED	78	76	80	64	53	54	53	66	62	68	71	79	87	96	105	112	112	110	111	104	85	76	78	80
UQ	92	88	92	75	62	60	60	73	74	72	80	87	98	111	120	125	123	123	119	112	97	92	92	94
LQ	64	62	65	55	43	38	50	57	55	59	63	66	80	88	96	97	102	102	96	89	77	65	66	64

MAY. 1973 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOF1 (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station OKINAWA Lat. 26 19·0 N. Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 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									B	L	L	L 530	B	L	510	L 490	L	L	L					
2									L	L	L	L 510	L 570	L 550	L 530	L 490	L	L	L					
3								L	L	L	L	L	L 520	L	A	A	L	A						
4								L	L	L	L 510	L	L 550	L 520	L 500	L 500	A	L	L					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6								C	C	L	L	L	L 510	L 510	510	500	L 460	L	L					
7									L	A	U L 500	L 520	L	A	490	L 470	L	L	L					
8								L	L 410	420	450	450	460	460	450	450	450	L 430	L					
9								L	L	L 440	L	L	L 510	U L 500	L 480	L	L 460	L	L					
10								L	L	L	L 480	480	L 500	490	L	470	L	L	A					
11									L	I A 470	L 480	480	L 490	470	460	L 460	A	A						
12									A	L	A	A	L 470	L 470	L 480	A	A	A						
13								C	C	L	A	A	A	A	A	L 460	L 440	L	L					
14								L	A	L	A	A	A	A	L 470	L 450	L	L	L					
15									L	U L 470	L	A	A	A	A	A	A	L	L					
16								C	C	A	U L 480	L 480	L	A	480	L 460	L 430	L 470	L					
17								C	C	A	L	A	460	460	A	A	L 420	A	A					
18								C	C	A	A	A	480	470	470	450	430	L	L					
19								L	A	A	A	A	A	A	A	450	L 430	L	A					
20								L	L	L	460	500	A	A	L 480	470	430	L	A	A				
21								L	L	A	A	A	A	A	A	A	450	L	L					
22								A	L	L 470	L	U L 470	L 500	460	460	450	450	L 410	L					
23								A	A	A	A	A	A	480	A	A	450	A	A					
24								L	L	L	L 490	L 490	I A 490	480	L 480	L 470	A	A	L					
25							L	L	L	A	A	A	A	A	A	A	A	L	L					
26								L	A	A	L	L 500	A	A	A	A	L	L	L					
27								A	L	A	A	A	A	A	A	A	A	A	A					
28								L	A	A	A	A	A	A	A	L 470	L 440	L	L					
29								L	L	L 460	I A 450	I A 480	I A 480	470	460	L 460	L 450	L	L	L				
30							L	L	L	L 480	L 490	460	480	L 480	480	L 470	L 450	L 420	L					
31							L	L	L 370	490	450	I A 480	470	460	470	450	L 450	L 430	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	8	11	14	16	16	18	20	16	5						
MED									L 390	L 470	L 480	480	L 490	475	480	L 465	L 450	L 430						
UQ										475	L 490	L 500	L 510	L 495	L 490	L 470	450	430						
LQ										L 450	455	480	475	465	470	450	L 430	L 420						

MAY. 1973 | FOF1 (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOE (0.01 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station OKINAWA Lat. 26 19·0 N. Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 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	A	B	A	A	A	B	B	R 390	A	345	290	230	A				
2							160	260	300	A	A	A	A	B	A	A	335	B	A	A				
3							A	A	A	A	A	B	A	B	A	A	A	295	B	A				
4							A	A	A	A	A	A	A	A	A	A	A	290	240	A				
5							C	C	C	C	C	C	C	C	C	C	C	C	C	C				
6							C	C	C	340	A	A	A	A	R 370	355	335	285	230	A				
7							A	240	300	335	345	355	365	360	365	350	330	A	220	A				
8							A	A	A	A	A	A	A	365	360	350	365	285	215	A				
9							A	250	A	A	A	A	A	I A 370	360	350	315	275	220	A				
10							A	240	280	A	A	A	A	A	360	335	315	290	A	A				
11							A	225	280	305	A	A	355	350	350	350	315	A	A	A				
12							A	A	275	300	330	A	350	350	350	340	310	280	A	A				
13							C	C	C	320	340	350	A	A	A	335	330	280	A	A				
14							A	230	I A 280	310	A	A	A	A	A	A	A	A	A	A				
15							A	A	A	A	A	A	A	A	A	A	A	I A 265	210	A				
16							C	C	C	A	A	A	340	340	350	335	310	280	220	S				
17							C	C	C	A	A	A	A	A	A	A	A	A	A	A				
18							C	C	C	I A 310	330	A	A	355	355	340	A	285	225	A				
19							A	A	A	A	A	A	A	A	A	A	325	A	A	A				
20							A	A	305	315	330	A	A	A	A	360	325	280	A	A				
21							170	A	285	315	335	345	350	R 360	R 350	335	A	A	A	A				
22							A	225	275	310	A	A	A	355	I A 360	340	330	280	240	A				
23							155	235	A	A	A	355	360	370	360	340	320	285	A	A				
24							A	245	A	340	A	360	365	365	355	350	330	285	230	A				
25							180	A	A	A	A	360	R 365	370	355	A	320	290	A	A				
26							A	235	290	A	I A 350	365	370	370	360	350	335	A	A	A				
27							A	A	A	A	A	A	A	A	A	350	325	290	A	A				
28							A	A	A	A	A	A	A	A	A	A	325	A	I A 230	A				
29							160	A	A	A	A	A	A	A	A	A	A	285	A	A				
30							A	A	A	A	A	A	A	A	A	A	A	290	230	180				
31							A	A	A	A	A	A	A	A	A	A	320	285	200	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							5	10	10	11	7	7	9	13	16	17	21	21	14	1				
MED							160	238	282	315	335	355	360	360	360	350	325	285	228	180				
UQ							170	245	300	328	342	360	365	370	360	350	330	290	230					
LQ							160	230	280	310	330	352	350	355	352	340	320	280	220					

The Radio Research Laboratories, Japan

MAY. 1973 | FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FOES (0.1 MHZ) | 135 E Mean Time (G. M. T.+ 9h)

Station OKINAWA Lat. 26 19.0 N, Long. 127 46.8 E Sweep 1 MHz to 25 MHz in 30 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 61	J X 39	J X 46	J X 72	J X 61	J X 39	J X 85	J X 48	E B 51	46	51	43	B	E B 56	43	39	G	31	28	21	17	J X 25	J X 22	J X 32
2	J X 33	J X 29	J X 20	M 22	E B 12	J X 17	21	30	36	J X 47	J X 49	J X 74	41	J X 58	J X 46	J X 37	J G 34	34	27	J X 33	J X 25	J X 25	J X 33	J X 40
3	J X 51	J X 36	J X 37	J X 50	J X 40	J X 29	18	28	36	37	38	54	J X 51	54	J X 75	J X 58	J X 52	J X 64	J X 41	J X 26	J X 32	J X 18	J X 18	J X 21
4	J X 24	J X 26	J X 25	J X 18	J X 25	J X 19	19	35	37	J X 40	J X 55	J X 55	J X 60	J X 49	J X 48	J X 46	J X 55	J G 22	G	21	C	J X 24	J X 20	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	44	44	J X 54	J X 39	J X 38	G	G	G	31	31	J X 29	J X 20	J X 36	J X 36	J X 20
7	J X 24	J X 19	J X 18	E S 15	J X 29	J X 24	J X 33	J X 50	41	J X 55	46	42	J X 54	J X 64	G	37	34	30	G 22	M 22	J X 25	J X 26	J X 34	J X 40
8	J X 31	J X 20	J X 29	J X 35	J X 20	J X 36	J X 35	J X 41	J X 45	J X 45	37	43	44	G	G	G	G	G	G 17	J X 30	J X 21	M 19	M 20	M 22
9	M 17	M 21	M 18	M 20	J X 20	J X 18	24	33	J X 41	J X 101	49	50	43	42	40	49	42	36	25	16	J X 19	J X 21	E S 15	M 18
10	24	J X 21	M 19	M 21	E B 12	E S 16	19	32	34	35	J X 38	41	40	44	45	40	37	45	J X 77	J X 61	J X 50	J X 35	J X 21	J X 17
11	J X 39	J X 38	J X 30	J X 26	J X 23	J X 21	19	32	36	J X 51	J X 44	41	40	G	G 30	40	J X 59	J X 74	J X 53	J X 40	J X 50	J X 24	J X 20	J X 19
12	M 18	E S 16	E S 15	E B 11	J X 25	J X 50	J X 24	29	J X 50	44	J X 51	48	43	30	44	48	J X 48	J X 95	87	J X 49	J X 39	J X 35	J X 63	J X 51
13	J X 24	C	C	C	C	C	C	C	C	44	49	J X 54	J X 83	J X 84	130	J X 55	37	G	29	19	J X 16	J X 36	J X 60	J X 59
14	J X 74	J X 63	J X 65	J X 89	J X 45	J X 35	J X 24	30	37	36	J X 64	120	69	J X 48	J X 70	41	43	39	J X 36	J X 37	J X 67	J X 46	J X 30	J X 40
15	J X 84	J X 84	J X 65	J X 32	J X 19	15	20	27	J X 42	J X 48	J X 58	J X 87	J X 90	J X 102	J X 90	J X 70	J X 64	J X 38	J X 38	J X 32	J X 36	C	C	C
16	C	C	C	C	C	C	C	C	C	J X 69	J X 62	J X 50	46	J X 86	43	G	J G 25	J G 23	J G 21	J X 21	J X 18	E B 14	J X 24	J X 26
17	J X 26	J X 26	J X 31	C	C	C	C	C	C	J X 51	J X 50	J X 51	J X 51	J X 46	J X 63	J X 78	J X 40	J X 64	J X 52	J X 45	J X 39	J X 29	J X 35	J X 32
18	J X 35	J X 39	J X 21	C	C	C	C	C	C	J X 60	J X 89	J X 91	J X 45	G	G	G	34	G 19	25	17	M 21	E S 16	E S 16	J X 29
19	J X 35	J X 41	J X 25	J X 35	J X 64	J X 40	J X 35	30	J X 84	J X 74	J X 125	J X 92	J X 105	J X 86	J X 56	J X 45	36	J X 55	J X 54	J X 38	J X 70	J X 51	J X 54	J X 41
20	J X 44	J X 41	J X 36	J X 24	J X 36	J X 24	27	J X 70	J X 38	J X 74	42	J X 43	J X 82	J X 113	J X 43	G	J X 33	41	J X 60	J X 167	J X 120	J X 64	J X 80	J X 64
21	J X 45	J X 51	J X 64	J X 40	J X 49	J X 40	J X 39	J X 50	J X 54	J X 87	J X 56	J X 83	50	47	J X 64	J X 64	J X 38	J X 37	J X 29	16	E B 13	E S 15	M 21	J X 51
22	J X 63	J X 37	J X 61	J X 43	J X 64	J X 84	J X 88	J X 64	J X 64	J X 38	66	J X 43	J X 37	G	J X 33	G	35	G	G	21	J X 54	J X 42	J X 48	J X 33
23	J X 41	J X 51	J X 55	J X 22	J X 38	J X 30	23	53	J X 74	J X 60	J X 74	J X 108	J X 57	45	47	J X 76	G	J X 92	J X 92	J X 74	J X 94	J X 84	J X 64	J X 52
24	J X 24	J X 74	J X 57	J X 80	J X 53	J X 28	J X 38	J X 23	36	44	J X 35	43	48	42	G	42	J X 81	J X 82	33	22	J X 36	J X 33	J X 24	J X 40
25	J X 42	J X 40	J X 38	J X 41	J X 33	J X 34	G 17	31	41	J X 55	J X 94	J X 135	J X 64	J X 80	J X 72	J X 114	J X 84	J X 54	J X 84	J X 97	J X 38	J X 24	J X 28	J X 64
26	J X 65	J X 80	J X 41	J X 53	19	E S 15	24	29	J X 49	J X 61	J X 58	45	J X 59	J X 74	J X 51	J X 57	J X 44	J X 36	J X 33	J X 39	J X 24	J X 24	J X 84	J X 64
27	J X 27	J X 38	J X 31	J X 25	J X 32	J X 26	J X 24	J X 55	J X 100	J X 170	J X 134	J X 94	94	J X 75	J X 64	J X 77	J X 64	J X 78	J X 80	J X 94	J X 74	J X 53	J X 75	J X 52
28	J X 52	J X 38	J X 26	J X 24	J X 21	J X 25	J X 30	J X 40	J X 110	J X 114	J X 220	J X 93	J X 144	J X 90	J X 94	39	36	J X 33	25	J X 21	J X 29	J X 54	J X 68	J X 64
29	J X 40	J X 27	J X 24	J X 19	J X 17	J X 18	G	J X 29	36	J X 60	J X 58	J X 48	J X 51	J X 74	J X 74	51	J X 64	J X 57	32	J X 30	E S 16	J X 21	J X 36	J X 28
30	M 22	J X 36	J X 28	J X 20	M 18	E S 16	19	29	J X 41	J X 43	J X 50	J X 55	J X 48	J X 39	43	37	32	J G 26	25	G 18	J X 20	J X 24	J X 30	M 20
31	J X 29	J X 34	J X 31	M 20	M 18	E B 12	J X 24	J X 29	J X 31	J X 40	43	J X 60	J X 48	J X 48	J X 41	J X 40	38	J X 41	J X 64	J X 61	J X 86	J X 90	M 21	J X 32
	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	27	27	25	25	25	25	25	25	30	30	30	29	30	30	30	30	30	30	30	29	29	29	28
MED	J X 35	J X 38	J X 31	J X 25	J X 25	J X 25	24	32	J X 41	J X 50	J X 51	J X 54	J X 51	J X 48	J X 46	42	38	J 38	32	J X 30	J X 32	J X 26	J X 30	J X 36
UQ	J X 48	J X 41	J X 44	J X 41	J X 40	J X 35	J X 33	J X 48	J X 51	J X 61	J X 64	J X 87	J X 64	J X 75	J X 64	J X 57	J X 52	J X 57	J X 54	J X 45	J X 50	J X 42	J X 54	J X 52
LQ	J X 24	J X 26	J X 24	J X 20	J X 19	J X 18	19	29	36	44	44	43	44	42	40	37	34	30	25	21	J X 20	J X 24	J X 21	J X 24

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MAY. 1973 | FOES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | FBES (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station OKINAWA Lat. 26 19.0 N. Long. 127 46.8 E Sweep 1 MHz to 25 MHz in 30 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	25	22	24	23	A	25	26	36	E B 51	43	49	43	B	E B 56	42	38	G	31	25	19	16	18	E	20
2	E	22	17	E	E B 12	14	21	29	35	41	50	41	41	49	40	37	G 30	33	27	25	22	E	21	20
3	35	26	35	24	20	22	18	21	34	37	38	50	43	50	63	57	48	49	40	23	17	E	E	20
4	19	20	E	16	19	15	19	26	36	36	40	53	49	39	45	36	46	G 21	G	21	C	22	E	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	40	43	50	39	38	G	G	G	31	31	30	18	26	29	21
7	20	E	E	E S 15	26	17	30	47	32	52	41	41	47	61	G	36	34	29	G 20	18	20	20	29	16
8	32	16	22	U A 28	19	16	16	35	33	37	36	40	39	G	G	G	G	G	G 17	29	20	E	E	E
9	E	15	E	E	15	13	23	30	40	40	43	46	42	42	40	45	37	28	25	16	E	E	E S 15	E
10	20	16	E	E	E B 12	E S 16	19	30	34	35	37	39	40	44	44	38	37	35	62	53	28	21	20	E
11	35	17	25	16	16	18	18	31	34	50	36	37	38	G	G 30	40	51	59	51	38	26	21	17	17
12	E	E S 16	E S 15	E B 11	25	A	19	29	45	42	49	47	41	G 30	41	46	43	93	85	48	22	U A 21	22	E
13	20	C	C	C	C	C	C	C	C	42	49	52	58	75	A	41	G	G	25	18	15	22	40	A
14	16	19	18	37	23	19	22	27	37	34	64	65	69	48	40	39	40	35	30	37	36	46	E	21
15	25	54	21	24	16	15	16	27	30	34	44	63	71	81	60	40	41	30	32	32	36	C	C	C
16	C	C	C	C	C	C	C	C	C	45	40	40	45	84	43	G	G 25	G 22	G 19	G	E	E B 14	24	23
17	22	E	25	C	C	C	C	C	C	50	45	50	41	41	50	45	37	45	45	39	30	29	25	E S 32
18	22	19	15	C	C	C	C	C	C	A	A	A	45	G	G	G	33	G 19	26	17	E	E S 16	E S 16	21
19	19	29	E	21	37	30	24	29	A	60	A	A	56	61	48	40	35	45	42	37	60	40	29	35
20	37	28	30	17	25	15	25	27	36	42	36	37	A	70	40	G	30	38	60	A	A	37	40	23
21	30	16	20	25	30	21	16	31	33	50	50	58	48	47	52	47	32	29	22	16	E B 13	E S 15	E	49
22	52	32	A	33	32	25	47	42	38	34	43	38	37	G	E R 33	G	G	G	G	21	21	41	25	16
23	20	23	23	E	25	18	22	46	A	50	A	A	56	43	47	73	G	92	72	74	63	36	22	36
24	21	18	40	30	24	20	33	23	35	40	35	43	48	40	G	39	81	81	33	21	E	33	23	27
25	17	23	28	28	18	21	G 17	29	39	51	A	A	46	80	72	A	83	40	33	22	26	17	25	45
26	50	A	38	22	19	E S 15	24	29	44	A	48	41	49	64	49	49	39	31	28	33	22	19	30	33
27	26	28	24	16	25	25	19	50	44	A	A	57	63	50	56	74	51	75	50	A	62	50	U A 35	29
28	37	32	22	21	21	16	17	34	61	A	A	60	56	50	50	38	34	28	25	20	21	25	52	51
29	40	26	18	16	E	E	G	28	34	36	55	45	50	43	42	42	39	41	31	19	E S 16	19	25	20
30	E	16	17	15	E	E S 16	20	27	36	37	37	40	40	37	40	36	32	G 23	25	G 16	16	20	26	E
31	19	20	E	E	E	E B 12	15	26	30	38	43	50	42	42	38	39	36	31	64	61	34	58	E	22
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	27	25	25	25	25	25	25	30	30	30	29	30	30	30	30	30	30	30	29	29	29	28
MED	22	20	21	17	20	17	19	29	36	42	44	48	46	45	42	39	36	31	30	24	21	21	23	21
UQ	34	27	25	24	25	21	24	34	42	50	55	58	56	61	50	45	41	45	45	38	30	33	29	32
LQ	19	16	15	15	16	14	17	27	34	37	40	41	41	39	38	36	G 30	28	25	19	16	17	E E 15	16

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MAY. 1973 | FBES (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | F-MIN (0.1 MHZ) | 135 E Mean Time (G. M. T. + 9h)

Station OKINAWA Lat. 26 19.0 N. Long. 127 46.8 E Sweep 1 MHz to 25 MHz in 30 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	11	12	13	14	15	51	27	21	25	B	56	32	25	20	16	15	16	12	E S 15	E S 15	E S 15
2	E S 16	E S 16	11	F S 15	12	11	15	15	16	21	20	27	35	36	27	22	20	32	15	13	12	E S 16	E S 15	E S 15
3	E S 15	E S 15	E S 16	12	11	E S 15	14	15	17	22	20	39	27	35	26	24	19	15	27	15	E S 15	E S 16	E S 15	12
4	E S 15	13	E S 15	11	11	11	14	16	18	21	22	22	31	25	26	21	18	15	15	15	C	E S 15	E S 15	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	20	18	21	22	21	21	20	16	15	15	12	E S 16	13	E S 15	11
7	14	E S 15	E S 15	E S 15	11	11	13	15	15	18	20	21	24	21	23	21	21	15	15	13	E S 15	E S 16	E S 16	13
8	E S 15	11	13	E	11	12	11	15	20	22	21	21	24	23	21	21	18	16	15	15	10	E S 16	E S 16	E S 16
9	E S 16	12	E S 15	13	E	12	14	15	16	17	20	20	21	21	21	17	18	15	15	14	E S 15	E S 15	E S 15	E S 16
10	E S 15	13	E S 15	E S 16	12	E S 16	14	15	15	19	22	20	21	20	19	18	18	17	15	15	E S 15	13	E S 15	E S 16
11	E S 16	13	13	12	E	11	12	12	15	20	21	21	21	21	20	20	18	15	15	12	E S 15	E S 15	E S 15	E S 15
12	E S 16	E S 16	E S 15	11	13	12	11	15	15	15	20	20	23	23	18	20	17	15	14	15	E S 15	E S 15	E S 15	E S 16
13	E S 16	C	C	C	C	C	C	C	C	18	20	28	22	27	20	18	18	16	15	14	E	E S 15	E S 15	E S 15
14	E S 15	E S 16	E S 15	E S 15	E	E S 15	E S 15	14	15	20	20	22	25	23	21	18	15	15	15	13	14	E S 16	E S 16	13
15	E S 15	13	E S 15	12	E	12	13	15	15	16	21	22	22	20	18	15	16	15	11	14	11	C	C	C
16	C	C	C	C	C	C	C	C	C	16	18	18	21	19	23	16	15	15	E	E S 15	E S 15	14	E S 15	E S 15
17	14	13	E S 15	C	C	C	C	C	C	18	19	20	20	22	24	21	20	15	15	11	E S 15	E S 15	E S 15	E S 15
18	13	E S 15	E	C	C	C	C	C	C	15	20	21	21	25	18	18	15	15	15	11	E S 15	E S 16	E S 16	E S 15
19	E S 15	E S 15	E S 15	12	14	13	13	21	15	15	18	21	22	22	21	21	15	15	15	15	13	13	E S 15	E S 15
20	13	13	11	E S 15	13	11	14	13	22	15	19	20	22	21	31	22	17	15	14	11	E S 16	12	E S 15	E S 16
21	E S 15	E S 15	E S 15	E S 15	11	E	14	14	15	17	20	20	22	20	20	19	16	15	15	14	13	E S 15	14	13
22	E S 15	13	E S 15	11	11	11	14	14	15	17	20	22	22	20	20	20	18	16	15	15	12	12	11	12
23	E S 15	E S 15	E S 15	E S 15	13	13	14	15	17	19	20	20	21	22	20	18	18	15	15	15	13	E S 15	E S 16	E S 15
24	E S 15	E S 15	E S 16	12	E S 15	12	15	15	16	20	17	22	21	21	18	18	20	15	15	14	13	E S 15	E S 15	E S 15
25	E S 16	E S 16	13	12	13	11	14	15	17	21	20	22	22	23	21	19	20	15	15	14	14	E S 16	E S 16	E S 15
26	E S 16	12	E S 15	E S 16	14	E S 15	15	15	20	20	20	25	28	25	20	19	17	15	14	14	12	E S 15	E S 15	E S 15
27	E S 15	E S 15	E S 15	E S 15	14	12	14	14	16	18	20	21	26	22	20	19	21	15	14	14	13	12	13	E S 15
28	E S 15	E S 15	11	11	11	14	E S 16	15	15	19	20	20	20	20	20	17	15	15	15	14	12	E S 15	E S 15	E S 15
29	E S 15	11	E S 15	11	E S 15	E S 15	14	14	16	22	20	22	23	23	20	16	16	15	15	14	E S 16	12	E S 15	12
30	13	12	E	11	12	E S 16	15	15	16	16	20	21	22	20	20	19	16	15	16	11	E	13	12	E S 16
31	E S 15	13	E S 15	E S 15	12	12	12	15	15	17	15	21	21	21	20	20	17	15	14	11	12	E S 15	E S 16	E S 15
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	27	27	25	25	25	25	25	25	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28
MED	E S 15	E S 15	E S 15	12	12	12	14	15	16	18	20	21	22	22	20	19	18	15	15	14	12	E S 15	E S 15	E S 15
UQ	E S 16	E S 15	E S 15	E S 15	13	13	14	15	17	20	20	22	24	23	23	21	19	15	15	15	E S 15	E S 15	E S 15	E S 15
LQ	E S 15	13	E E 13	11	11	11	13	14	15	17	20	20	21	21	20	18	16	15	15	13	12	12	E S 15	12

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MAY. 1973 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1973 | M(3000)F2 (0.01) | 135 E Mean Time (G. M. T. + 9h)

Station OKINAWA Lat. 26 19·0 N Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 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 300	315	J S 310	340	A	F	S	325	310	270	270	290	B	290	310	315	310	310	325	310	310	295	270	J R 290
2	295	320	350	375	280	270	320	330	350	305	310	285	275	290	300	310	320	315	325	320	310	285	290	280
3	270	310	350	300	290	300	340	350	355	300	270	270	310	300	315	310	320	310	320	320	295	290	275	270
4	295	300	320	330	290	285	300	350	350	315	295	270	280	300	310	300	310	300	300	300	C	300	300	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	325	290	275	280	270	275	290	300	320	335	330	330	300	290	275
7	280	R 290	330	360	S 340	270	350	350	350	320	290	245	270	290	280	300	320	310	310	310	310	280	275	R 270
8	J R 280	S 290	R 320	S 350	S 310	280	260	310	265	W	W	W	260	275	285	280	R 280	265	310	310	270	260	270	260
9	280	275	300	340	335	255	340	320	340	320	300	280	270	295	295	300	320	330	320	320	285	260	S 270	275
10	S 310	310	320	380	310	290	310	330	330	325	270	280	290	310	300	310	310	310	330	340	280	290	290	280
11	300	270	300	320	310	300	330	370	320	310	290	280	290	280	300	310	310	320	350	330	290	S 310	290	280
12	300	310	320	360	340	I A 320	315	330	320	330	285	270	290	300	310	310	300	310	310	340	R 350	310	310	290
13	300	C	C	C	C	C	C	C	C	330	300	270	270	290	I A 300	320	315	310	310	310	320	310	275	A
14	280	290	290	310	320	360	380	350	300	330	240	290	260	280	340	310	260	320	280	J R 310	325	290	270	270
15	S 270	S 270	290	280	310	340	380	340	300	300	305	265	275	305	318	320	335	310	325	R 320	290	C	C	C
16	C	C	C	C	C	C	C	C	C	255	265	310	290	275	300	320	340	310	290	S 350	380	270	280	290
17	270	V 280	310	C	C	C	C	C	C	300	270	260	280	295	290	310	325	270	340	R 360	275	V 280	295	280
18	V 285	285	290	C	C	C	C	C	C	A	A	A	270	280	290	300	300	300	340	320	290	295	290	J R 280
19	300	300	310	R 320	320	325	J S 300	340	A	310	A	I A 285	280	290	280	280	290	310	S 300	S 300	S 300	280	F	F
20	F	290	300	320	315	310	340	340	320	330	300	260	A	270	290	290	315	310	280	A	I A 310	300	280	275
21	290	F	320	S 320	310	300	350	350	330	R 310	300	280	260	280	290	260	270	295	280	300	310	270	260	270
22	320	350	A	S 260	F	F	380	355	I A 325	300	H 260	250	230	240	270	280	280	300	340	310	280	S 270	260	280
23	280	F	F	F	F	F	330	350	A	290	I A 340	I A 350	280	280	280	300	300	300	300	300	290	S 290	F	F
24	F	F	F	F 310	F	330	350	340	350	340	310	290	280	280	270	280	300	310	310	310	310	J S 300	280	280
25	275	F	F	320	310	330	370	350	350	320	A	A	270	285	300	A	290	280	S 280	290	330	R 300	310	300
26	F	A	F	F	F	F	F	360	350	I A 300	320	280	280	270	280	290	300	310	310	R 315	320	F	270	280
27	310	F	S 320	320	330	335	320	350	300	A	A	260	300	275	270	270	290	305	330	I R 330	280	275	270	F
28	F	F	320	F	F	280	290	320	320	A	A	280	275	270	280	300	310	320	300	300	R 310	290	270	270
29	270	S 280	290	300	S 280	S 270	300	S 350	350	R 245	280	280	270	270	290	305	310	300	325	R 320	290	R 280	J R 290	R 300
30	R 310	R	R 290	300	V 310	S 270	360	400	360	290	270	280	260	270	285	295	320	340	310	330	290	280	290	310
31	280	280	S 290	300	V 310	F 280	320	370	375	J R 290	280	260	260	270	270	300	320	310	300	320	320	300	280	S 290
	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	19	22	22	19	21	23	25	23	27	25	28	28	30	30	29	30	30	30	29	29	28	27	24
MED	288	290	310	320	310	300	330	350	330	310	290	280	275	280	290	300	310	310	310	320	310	290	280	280
UQ	300	310	320	340	320	325	350	350	350	322	300	282	280	290	300	310	320	310	325	330	320	300	290	290
LQ	280	280	290	300	310	280	312	330	320	295	270	262	270	270	280	290	300	300	300	310	290	280	270	272

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MAY. 1973 | M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1973 | M(3000)F1 (0.01) | 135 E Mean Time (G. M. T.+ 9h)

Station OKINAWA Lat. 26 19·0 N. Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 sec in automatio operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									B	L	L	L 360	B	L	340	L 370	L	L	L					
2									L	L	L	L 370	L 330	L 320	L 350	L 350	L	L	L					
3								L	L	L	L	L	L 350	L	A	A	L	A						
4								L	L	L	L 370	L	L 325	L 365	L 360	L 360	A	L	L					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6								C	C	L	L	L	L 360	L 360	L 350	350	L 360	L	L					
7									L	A	U L 370	L 350	L	A	370	L 390	L	L	L					
8								L	L 340	370	370	390	400	390	380	380	360	L 330	L					
9								L	L	L 310	L	L	L 350	U L 360	L 370	L	L 365	L	L					
10								L	L	L	L 365	310	L 360	350	L	370	L	L	A					
11									L	I A 360	L 370	385	L 380	380	395	L 350	A	A						
12									A	L	A	A	L 380	L 370	L 350	A	A	A						
13								C	C	L	A	A	A	A	A	L 360	L 365	L	L					
14								L	A	L	A	A	A	A	L 360	L 380	L	L	L					
15									L	U L 350	L	A	A	A	A	A	A	L	L					
16								C	C	A	U L 370	L 360	L	A	355	L 380	L 355	L 360	L					
17								C	C	A	L	A	305	370	A	A	L 370	A	A					
18								C	C	A	A	A	340	380	355	390	360	L	L					
19								L	A	A	A	A	A	A	A	385	L 365	L	A					
20								L	L	L	380	350	A	A	L 360	385	360	L	A	A				
21								L	L	A	A	A	A	A	A	A	370	L	L					
22								A	L	L 360	L	U L 370	L 350	370	380	370	360	L 360	L					
23								A	A	A	A	A	A	365	A	A	360	A	A					
24								L	L	L	L 360	L 360	I A 390	380	L 370	L 360	A	A	L					
25							L	L	L	A	A	A	A	A	A	A	A	L	L					
26								L	A	A	L	L 370	A	A	A	A	L	L	L					
27								A	L	A	A	A	A	A	A	A	A	A	A					
28								L	A	A	A	A	A	A	A	L 360	L 370	L	L					
29								L	L	L 350	I A 375	I A 370	I A 380	380	390	L 345	L 370	L	L	L				
30							L	L	L	L 380	L 370	390	380	L 300	365	L 385	L 365	L 350	L					
31							L	L	L 420	365	380	I A 355	380	390	360	370	L 340	L 340	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	8	11	14	16	16	18	20	16	5						
MED									L 380	L 360	L 370	365	L 360	370	360	L 370	L 362	L 350						
UQ										368	372	370	380	380	370	382	L 368	L 360						
LQ										L 350	L 370	L 355	L 345	L 360	L 355	L 360	360	L 340						

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MAY. 1973 | M(3000)F1 (0.01)

IONOSPHERIC DATA

MAY. 1973 | H'F2 (KM) | 135 E Mean Time (G. M. T.+ 9h)

Station OKINAWA Lat. 26 19·0 N Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									280	285	300	325	B	335	295	270	265	245	245					
2									250	300	275	300	355	350	305	280	275	260	250					
3								230	240	L 255	L 325	330	310	310	295	285	280	270						
4								250	240	300	300	340	350	325	290	300	260	275	255					
5								C	C	C	C	C	C	C	C	C	C	C	C					
6									C	255	L 290	345	330	320	360	340	300	275	255					
7									250	310	320	345	360	340	360	315	280	260	250					
8								290	455	620	675	660	495	425	385	360	345	375	295					
9								265	260	275	290	345	380	330	315	300	275	255	245					
10								270	265	280	330	350	330	305	290	300	295	290	260					
11									L 250	305	330	355	350	360	340	300	300	280						
12									295	275	355	380	355	320	290	280	315	340	.					
13								C	C	270	340	390	355	370	A	290	290	290	280					
14								255	240	280	530	340	440	355	255	280	305	260	310					
15									310	330	305	390	295	335	270	280	255	285	250					
16								C	C	300	380	300	340	400	325	295	270	285	285					
17								C	C	345	350	390	345	330	350	300	260	270	240					
18								C	C	A	A	A	365	265	350	320	310	300	250					
19								260	A	340	A	I A 380	350	350	350	335	310	290	290					
20								255	275	290	300	455	A	E A 400	330	325	300	280	330	A				
21								240	L 260	320	370	E A 405	400	350	325	400	375	305	320					
22								245	L 250	360	290	L 375	405	455	365	340	340	275	250					
23								250	A	390	I A 370	I A 355	350	340	340	330	300	330	310					
24								230	250	280	320	310	355	350	365	350	345	315	265					
25							235	250	260	295	A	A	365	355	320	A	350	330	300					
26								225	230	A	315	380	355	370	345	330	305	300	270					
27								250	L 285	A	A	360	340	345	360	375	340	305	265					
28								250	290	A	A	375	350	365	350	305	290	270	265					
29								250	275	540	415	370	405	275	340	305	290	295	260	230				
30							230	210	250	L 415	435	395	400	365	350	325	295	250	255					
31							300	240	235	405	395	375	350	370	375	315	290	280	300					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	19	23	26	25	28	28	30	29	29	30	30	27	1				
MED							235	250	260	300	330	362	355	349	340	305	298	282	265	230				
UQ							268	255	278	345	370	382	372	365	350	330	310	300	292					
LQ							232	240	250	280	300	342	348	330	305	295	280	270	250					

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MAY. 1973 | H'F2 (KM)

IONOSPHERIC DATA

MAY. 1973 | H'F (KM) | 135 E Mean Time (G. M. T.+ 9h)

Station OKINAWA Lat. 26 19·0 N. Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 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	250	250	230	A	F 320	260	245	B	250	A	230	B	B	255	240	215	240	245	240	250	275	300	300
2	270	265	220	185	180	295	250	240	240	245	I A 240	210	210	I A 240	200 H	200 H	205 H	245	250	255	235	250	285	300
3	315	250	215	260	275	295	250	230	215	210	200	A	250	A	A	A	A	A	250	250	250	260	280	315
4	275	270	245	205	260	275	250	245	230	215	215	200	230	210	250 A	215	230	220	240	250	C	255	250	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	245	240	I A 220	200	200 H	210	215	200 H	250	250	230	205	255	290	300
7	300	290	240	210	225	295	240	255	215 H	I A 230	230	220	A	A	205	200	230 A	220	230	220	205	285	320	295
8	295	270	250	215 A	205	270	275 H	I A 270	250	250	230	220	200	200	210	215	200 H	225	250	255	255	290	315	325
9	305	300	255	225	200	305	250	250	255	235	I A 215	I A 225	235	245	240	A	225	225	235	240	245	310	320	315
10	275	250	245	200	235	315	260	245	240	230	210	210	200	260	I A 255	220	250	255	A	250	250	300	300	300
11	305	305	280	225	235	270	250	235	210	I A 220	A 200	200	205	215	200	270	A	A	245	230	265	270	280	300
12	280	260	250	210	225	I A 300	250	230	A	A	230	A	235	190 H	250	I A 210	A	A	295	250	240	A 210	275	295
13	290	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	210	210	245	250	245	230	335	A
14	305	305	310	F 280	245	215	220	205	I A 210	210	A	A	A	A	255	235	270	250	250	275	250	300	310	330
15	330	355	305	300	255	235	205	220	220	240	A	A	A	A	A	A	I A 235	210	260	245	250	C	C	C
16	C	C	C	C	C	C	C	C	C	A	220	245	A	A	I A 230	200	205	220	H 220	245	205	270	300	320
17	360	310	290	C	C	C	C	C	C	A	A	A	A 250	A 235	A	A	A 245	A	A	220	230	305	280	335
18	300	285	240	C	C	C	C	C	C	A	A	A	A	210	205	205	H 215	H 235	240	225	205	250	270	295
19	295	265	250	260	245	235	245	H 240	A	A	A	A	A	A	A	A 235	240	A	A	270	325	325	305	F 350
20	345	300	290	240	250	250	245	235	240	A	210	225	A	A	250	225	220	A	A	A	I A 275	290	325	325
21	365	310	245	255	310	255	215	235	225	A	A	A	A	A	A	A	210	230	230	265	230	265	345	350
22	295	235	A	400	300	235	250	A	245	H 215	210	205	220	215	210	210	230	H 210	240	250	280	400	365	300
23	305	375	345	315	315	250	235	A	A	A	A	A	A	250	A	A	215	A	A	325	E S 310	300	325	F 380
24	270	300	310	260	285	250	205	210	235	250	H 170	250	I A 250	210	H 180	240	A	A	250	245	250	265	295	295
25	300	305	275	275	265	245	240	230	250	A	A	A	A	A	A	A	A	I A 250	245	250	250	260	260	280
26	F 280	A	275	220	270	270	225	235	A	A	A	205	A	A	A	A	245	205	230	245	220	250	320	320
27	275	280	250	215	215	205	245	A	250	A	A	A	A	A	A	A	A	A	A	I A 245	E A 330	325	A 330	310
28	320	280	250	215	250	250	255	240	A	A	A	A	A	A	A	H 220	210	220	225	250	240	250	330	330
29	315	265	250	260	260	280	250	240	230	215	I A 220	I A 235	A	225	235	I A 220	245	295	240	245	220	260	275	275
30	275	280	270	290	290	240	250	215	205	H 200	205	200	200	H 190	240	210	210	H 205	205	240	220	265	255	255
31	295	295	265	245	230	225	240	215	H 180	210	270	A	235	230	200	H 220	H 210	215	A	270	245	320	255	300
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	26	26	25	24	25	25	22	19	17	17	16	14	16	19	20	24	21	23	29	29	29	29	27
MED	298	282	250	240	250	255	250	235	230	230	215	220	225	215	230	218	218	225	245	250	245	270	300	300
UQ	310	305	280	260	272	295	250	245	242	245	230	228	235	238	250	230	238	245	250	250	250	300	320	325
LQ	280	265	245	215	228	240	240	230	215	215	210	205	200	205	205	210	210	215	232	240	230	255	280	298

MAY. 1973 | H'F (KM)

IONOSPHERIC DATA

MAY. 1973 | H'ES (KM) | 135 E Mean Time (G. M. T. + 9h)

Station OKINAWA Lat. 26 19·0 N Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 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	110	110	105	105	105	100	105	105	B	130	130	145	B	B	170	165	G	160	125	110	110	110	110	105
2	110	105	105	105	B	105	140	135	130	115	105	105	110	105	105	105	105	150	135	100	100	110	105	105
3	105	105	105	105	105	105	120	115	110	110	105	105	105	150	120	125	120	115	115	100	105	105	105	105
4	105	100	105	100	100	105	135	115	115	115	105	105	105	105	105	105	100	105	G	115	C	105	105	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	125	120	120	110	115	G	G	G	U G 180	130	110	105	105	100	100
7	100	100	100	S	105	105	125	125	125	115	120	140	125	115	G	120	120	110	110	105	105	105	105	105
8	105	105	105	105	105	105	105	105	100	105	160	145	135	G	G	G	G	G	110	125	115	110	110	110
9	110	105	105	105	105	105	135	140	105	105	135	140	145	180	175	140	140	150	155	130	115	110	S	120
10	110	110	110	145	B	S	140	125	135	110	110	140	150	160	145	150	160	125	105	105	105	105	105	105
11	105	100	105	100	105	105	130	120	120	115	115	110	160	G	105	175	115	105	105	105	105	100	100	100
12	100	S	S	B	100	100	100	135	120	120	115	120	125	105	140	135	135	110	105	105	110	105	105	105
13	105	C	C	C	C	C	C	C	C	120	120	115	110	110	120	120	155	G	115	105	105	100	105	105
14	130	120	125	110	110	120	100	120	120	120	105	105	105	105	105	130	120	110	110	105	105	105	105	105
15	105	105	100	100	95	120	115	125	115	110	105	105	105	105	105	105	105	100	110	110	105	C	C	C
16	C	C	C	C	C	C	C	C	C	105	120	105	120	115	145	G	100	100	100	100	100	B	145	110
17	115	120	120	C	C	C	C	C	C	105	105	105	105	105	105	100	100	100	100	100	100	100	100	115
18	115	120	115	C	C	C	C	C	C	110	105	105	110	G	G	G	115	105	130	120	100	S	S	125
19	130	115	110	110	105	105	105	135	105	105	100	100	100	100	100	100	145	120	110	110	105	105	105	105
20	105	105	100	105	105	105	130	125	125	110	120	110	105	105	105	G	105	125	110	110	110	110	105	105
21	105	105	105	100	100	105	105	135	125	120	110	115	120	150	135	125	120	125	115	125	B	S	105	110
22	105	105	100	100	120	120	125	125	115	125	115	105	105	G	105	G	140	G	G	120	110	110	110	105
23	110	105	105	115	100	105	145	130	120	120	120	140	140	145	135	125	G	120	115	110	110	105	105	105
24	100	105	105	105	105	105	105	105	U G 175	155	105	155	145	150	G	155	125	115	115	115	100	100	100	105
25	105	105	100	100	105	105	105	115	110	110	105	105	110	130	130	120	115	120	110	105	105	100	100	105
26	105	105	100	100	105	S	125	140	125	110	115	120	115	110	110	110	120	105	115	105	105	105	105	105
27	100	100	100	100	120	100	125	110	105	105	105	105	100	100	125	115	120	115	110	105	110	110	105	130
28	105	100	100	100	100	105	115	115	105	105	105	105	105	105	105	U G 175	150	105	140	100	100	105	100	100
29	100	100	100	100	100	100	G	110	110	110	105	105	105	105	105	135	125	120	115	110	S	100	100	100
30	100	110	100	100	100	S	140	125	120	115	115	110	120	120	150	120	110	105	150	100	100	100	110	100
31	105	105	105	100	100	B	105	105	105	105	U G 175	105	105	105	105	105	140	120	115	105	105	105	100	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	26	26	23	23	21	24	25	24	30	30	30	29	25	25	24	26	27	28	30	27	26	27	28
MED	105	105	105	100	105	105	122	125	118	110	112	108	110	110	110	122	120	115	115	105	105	105	105	105
UQ	110	110	105	105	105	105	132	130	125	120	120	120	125	130	135	138	140	122	120	110	110	110	105	108
LQ	105	105	100	100	100	105	105	115	108	105	105	105	105	105	105	108	110	105	110	105	102	100	100	105

MAY. 1973 | H'ES (KM)

IONOSPHERIC DATA

MAY. 1973 | TYPES OF ES | 135 E Mean Time (G. M. T.+ 9h)

Station OKINAWA Lat. 26 19·0 N. Long. 127 46·8 E Sweep 1 MHz to 25 MHz in 30 sec in automatio operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	FF 34	FF 32	F 4	F 4	F 5	F 5	L 4	L 6		HC 11	HC 22	HC 11			H 1	HC 11		H 1	H 2	L 1	F 3	FF 42	FF 22	FF 41
2	FF 21	FF 41	FF 31	F 1		F 2	H 2	H 2	H 1	C 2	C 2	C 1	L 1	L 1	C 1	C 1	L 1	H 1	HL 22	L 4	F 7	FF 32	FF 21	F 5
3	F 6	F 5	F 4	F 5	F 5	F 6	L 1	C 2	C 2	C 1	C 2	C 1	C 1	HL 11	CL 21	CL 21	CL 22	CL 32	C 1	L 3	F 3	F 1	FF 21	F 4
4	F 2	F 4	F 3	F 3	F 4	F 2	H 2	C 1	C 2	CL 11	C 1	C 2	C 1	CH 11	C 2	L 1	L 3	L 2		L 1		F 4	F 2	
5																								
6										C 1	CC 21	CC 21	C 1	C 1				H 1	H 3	L 6	F 3	F 5	F 2	F 5
7	F 2	F 2	F 1		F 5	F 6	C 5	C 4	C 1	C 3	C 2	H 1	C 1	C 3		C 1	C 1	C 2	L 2	L 1	F 3	F 4	F 6	F 3
8	F 4	F 2	F 6	F 5	F 4	F 3	L 2	L 3	L 2	L 2	HL 11	HL 11	HL 11						L 1	L 3	F 3	F 1	F 1	F 2
9	F 1	F 2	F 1	F 1	F 1	F 2	H 4	HL 22	C 2	C 2	HC 21	HL 21	HC 11	HL 11	H 1	H 2	H 1	H 1	H 2	H 1	F 2	F 2		F 2
10	F 3	F 2	F 2	F 1			C 2	CL 31	H 1	C 1	C 1	HC 11	HC 11	HL 11	H 2	H 1	H 1	C 3	C 6	L 6	F 3	F 3	F 3	F 2
11	F 5	F 2	F 4	F 3	F 3	F 6	H 2	C 3	C 3	C 2	C 1	L 1	HL 11		L 1	H 1	C 3	C 5	C 6	L 5	F 5	F 4	F 2	F 2
12	F 1				F 6	F 5	L 3	HL 24	CL 32	C 3	C 1	CC 21	C 1	L 1	HL 21	H 2	H 3	CL 41	C 6	L 4	FF 21	F 2	FF 22	F 2
13	F 1									CL 21	CL 21	C 2	C 3	C 4	CC 41	CL 21	H 1		C 2	L 3	F 2	F 3	FF 51	FF 43
14	FF 22	FF 22	FF 22	FF 23	FF 26	FF 12	L 5	CL 22	CL 22	C 1	C 2	C 3	C 2	C 2	C 2	HL 11	CL 21	CL 32	C 6	L 6	F 5	F 6	F 2	F 4
15	F 4	F 4	F 2	F 4	F 2	F 1	L 1	C 2	C 2	C 2	C 2	C 3	C 4	C 5	C 3	C 3	C 4	L 3	CL 43	L 6	F 6			
16										C 3	C 2	C 2	C 2	C 4	H 1		L 2	L 3	L 3	L 2	F 2		F 3	F 4
17	F 4	F 3	F 3							C 3	C 2	C 2	C 2	C 2	L 3	L 3	L 2	L 4	L 4	L 5	F 4	F 4	F 5	FF 21
18	F 4	FF 22	F 2							C 4	C 4	C 3	C 2				C 1	L 1	HCL 11	LL 11	F 1			FF 42
19	FF 22	FF 32	F 3	F 4	F 6	F 6	L 3	HL 11	C 5	C 3	C 6	C 3	L 3	L 3	C 3	L 3	HL 12	CL 22	CL 52	L 4	F 6	F 4	FF 45	F 4
20	F 4	FF 26	F 5	F 2	F 6	F 4	C 5	C 2	C 1	C 3	C 1	C 1	C 4	C 4	L 1		L 2	CL 32	LL 64	LL 35	FF 64	FF 62	F 6	F 5
21	F 3	F 2	F 4	F 4	F 3	F 6	LH 22	H 2	C 4	C 4	C 3	C 3	C 2	H 1	H 2	C 2	C 1	C 1	C 3	L 1			F 1	F 6
22	F 6	F 6	F 5	F 4	FF 16	FF 16	LL 16	C 2	C 2	C 1	C 3	C 1	C 1		L 1		H 1			L 2	F 3	F 6	F 5	F 3
23	F 2	F 3	F 4	F 2	F 4	F 6	H 1	H 3	C 2	C 3	C 3	HH 51	H 2	H 1	H 1	C 4		C 5	C 6	L 6	F 4	F 5	F 5	F 6
24	F 2	F 2	F 5	F 5	F 4	F 5	L 4	L 2	HC 11	H 2	L 1	H 1	H 2	H 1		H 1	C 2	C 3	C 3	L 3	F 2	F 5	F 4	FF 23
25	F 2	F 2	F 4	F 4	F 5	F 3	L 2	C 1	CC 22	C 2	C 4	C 4	CL 21	C 3	LC 32	CC 31	C 5	C 3	C 4	L 5	F 3	F 2	F 6	FF 23
26	F 5	F 4	F 2	F 2	F 1		C 1	H 1	C 2	C 3	C 2	C 1	C 2	C 3	C 2	C 2	C 2	L 1	C 3	L 3	F 3	F 3	F 3	F 3
27	F 4	F 3	F 3	F 2	F 4	F 3	C 2	C 4	C 3	C 3	C 3	L 3	L 2	L 2	CL 21	C 4	C 3	C 5	C 6	L 6	F 6	F 6	F 4	FF 25
28	F 5	F 3	F 5	F 6	F 2	FF 21	L 2	C 3	C 4	C 4	C 6	C 4	C 2	C 2	C 2	HL 11	HL 11	LH 21	HL 11	L 2	F 4	F 4	F 4	F 4
29	F 5	F 5	F 3	F 2	F 2	F 1		LH 31	C 2	C 2	C 3	C 2	C 2	C 2	C 2	HL 21	CL 11	C 2	C 4	L 2		F 4	F 6	F 5
30	F 2	FF 12	F 4	F 2	F 1		H 2	C 2	C 1	C 2	C 2	C 2	C 1	C 1	HC 11	C 1	C 1	L 1	H 1	L 1	F 3	F 3	FF 23	F 1
31	F 2	F 3	F 2	F 1	F 1		LHH 11	L 2	L 2	C 2	HC 11	C 2	C 3	C 2	C 2	C 2	HL 22	CL 21	CL 62	LL 53	FF 36	FF 33	F 2	F 3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

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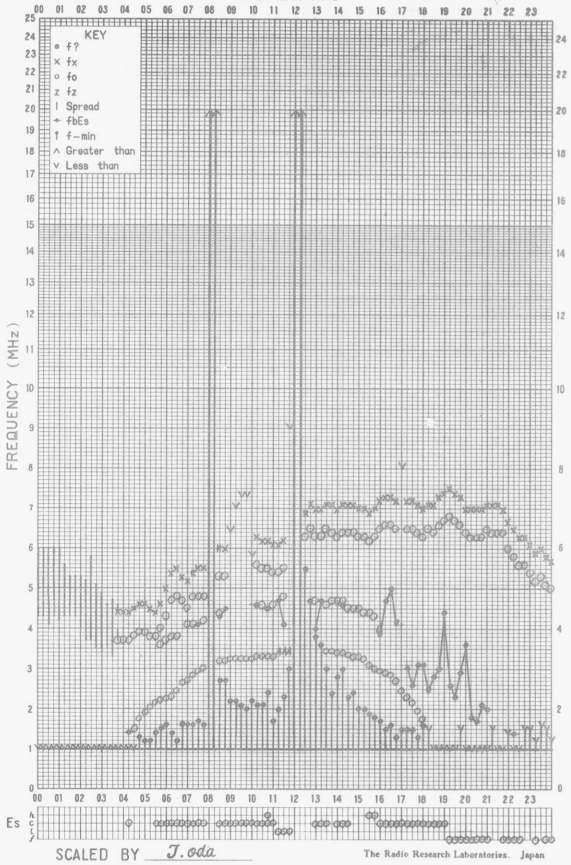
MAY. 1973 | TYPES OF ES

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE Mar. 2, 1973



SCALED BY T. oda

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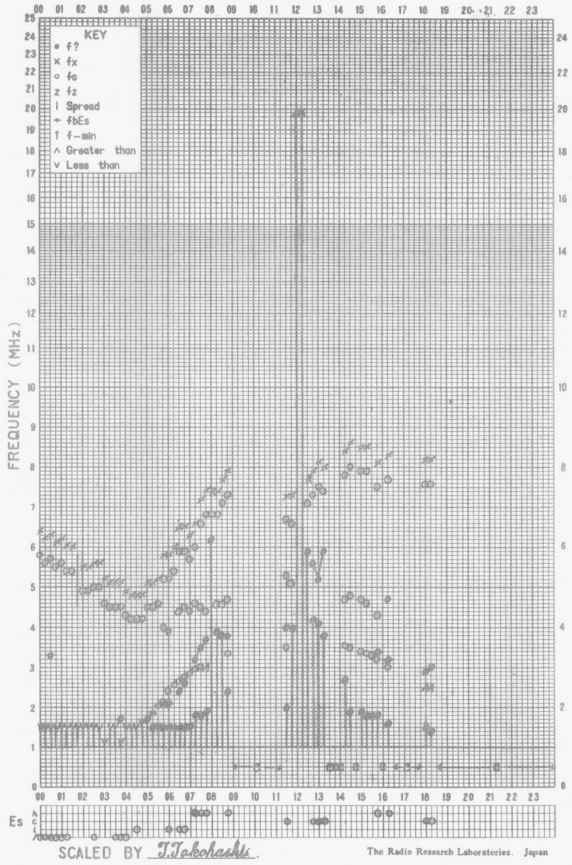
f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 1, 1973



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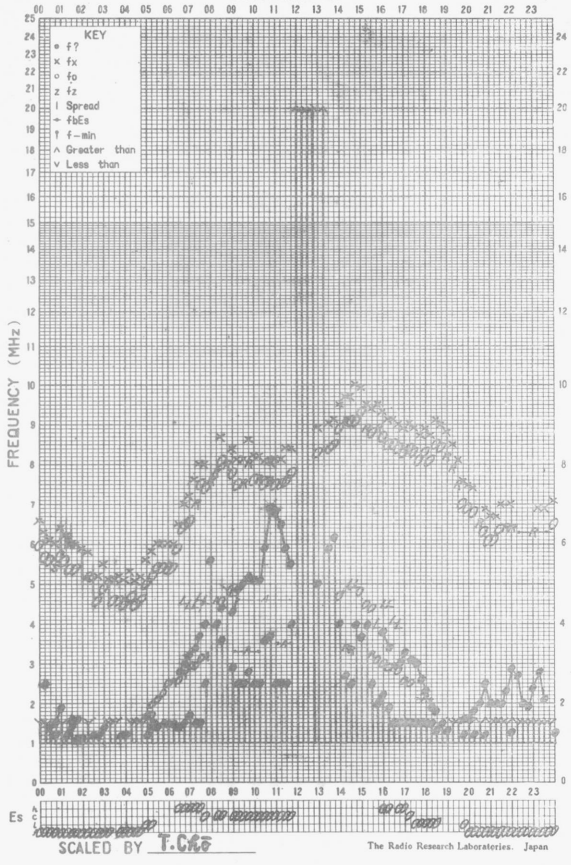
f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 1, 1973



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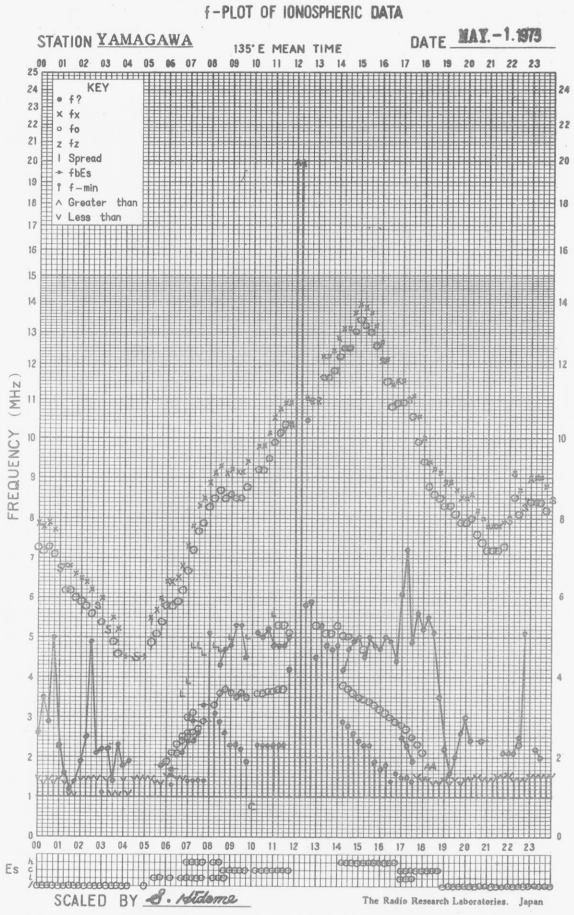
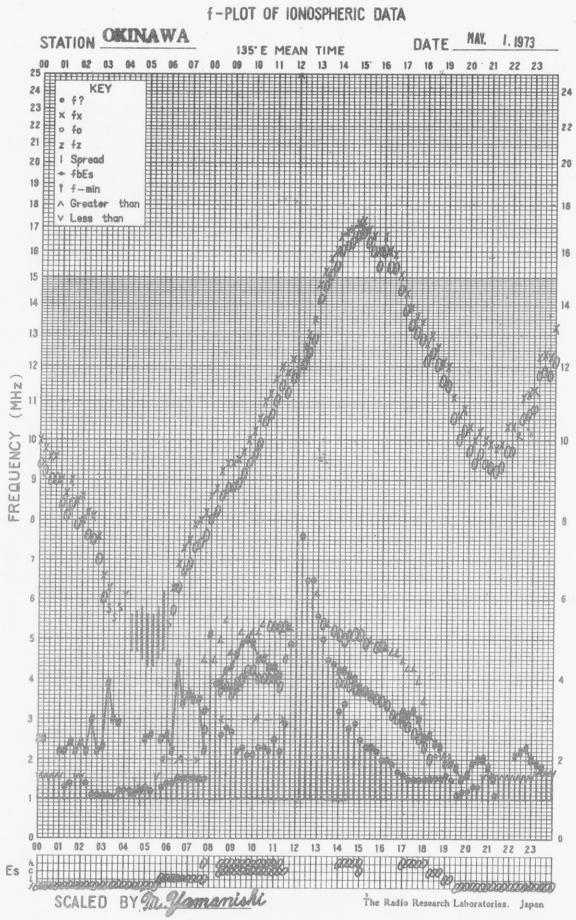

f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE MAY.-1.1973
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY S. Hitoma
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION OKINAWA
135° E MEAN TIME
DATE MAY. 1. 1973
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY M. Yamanishi
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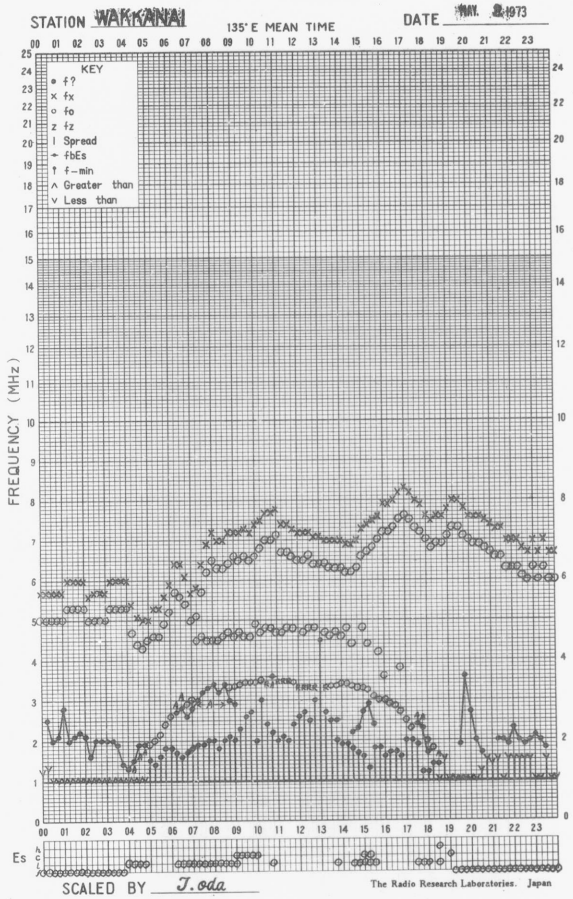
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 2,1973



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f-PLOT OF IONOSPHERIC DATA

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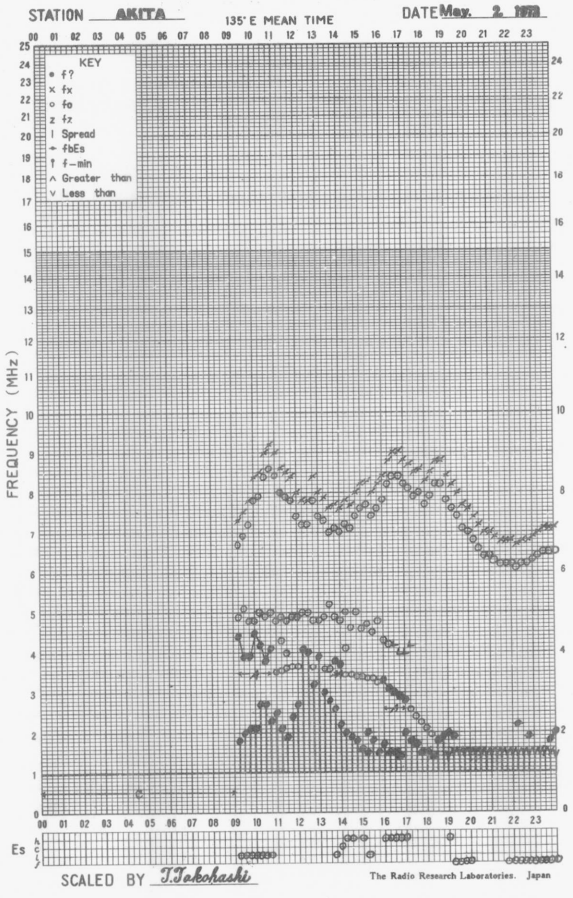

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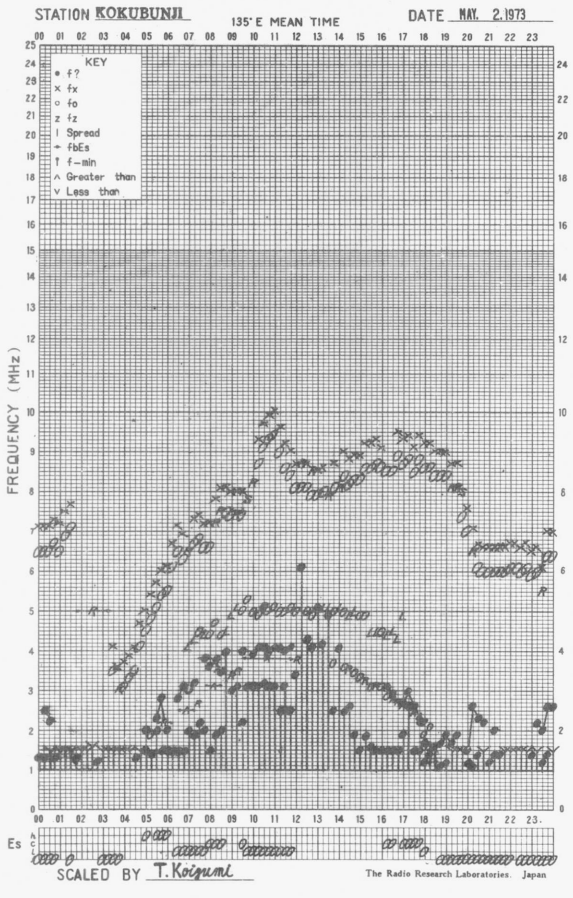
f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 2,1973



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f-PLOT OF IONOSPHERIC DATA

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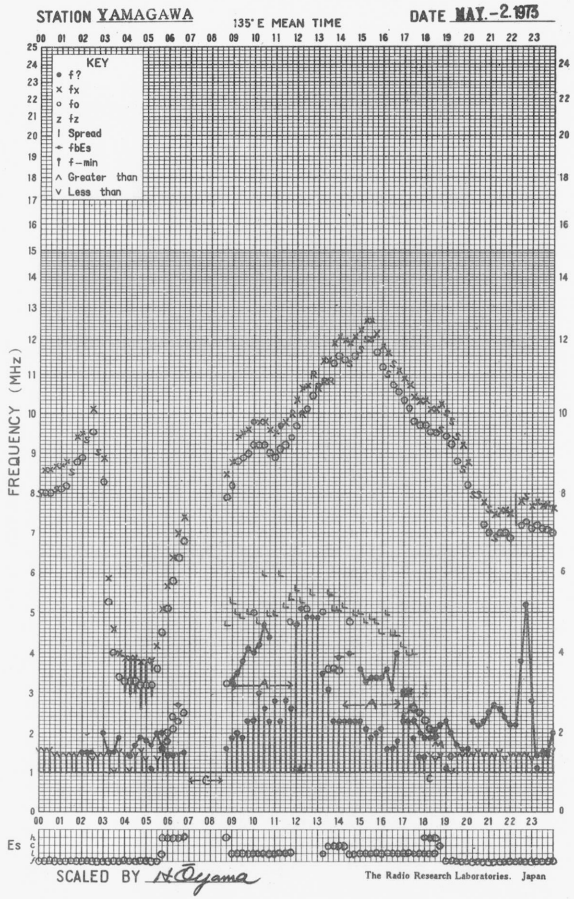

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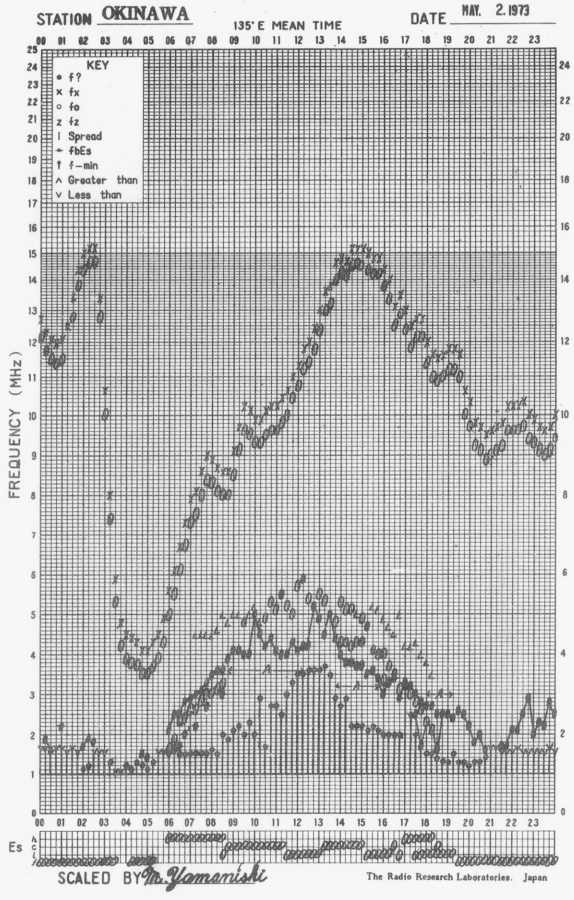

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f-PLOT OF IONOSPHERIC DATA

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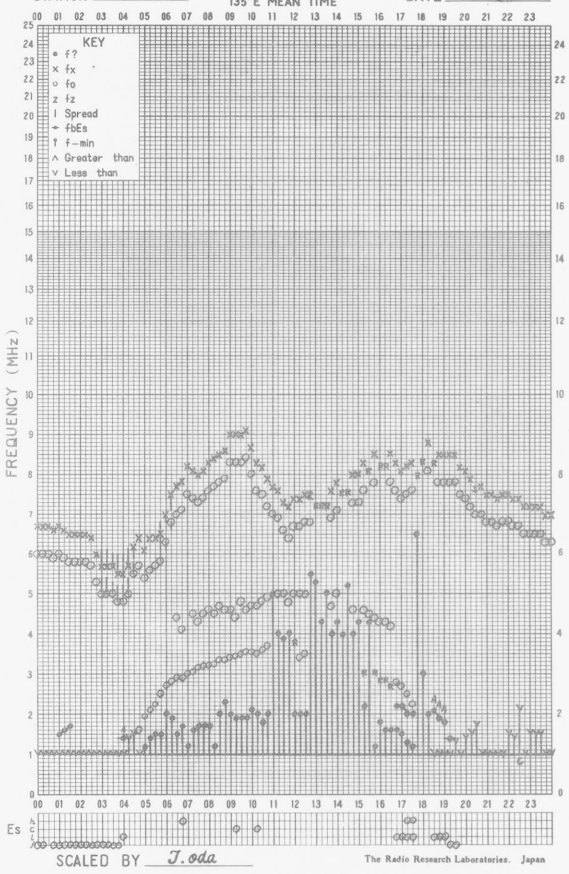

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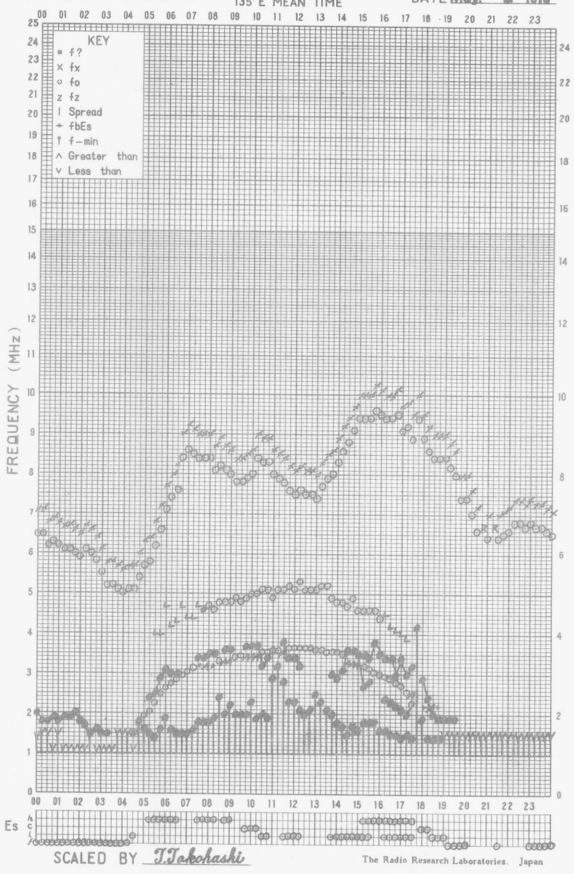
f-PLOT OF IONOSPHERIC DATA

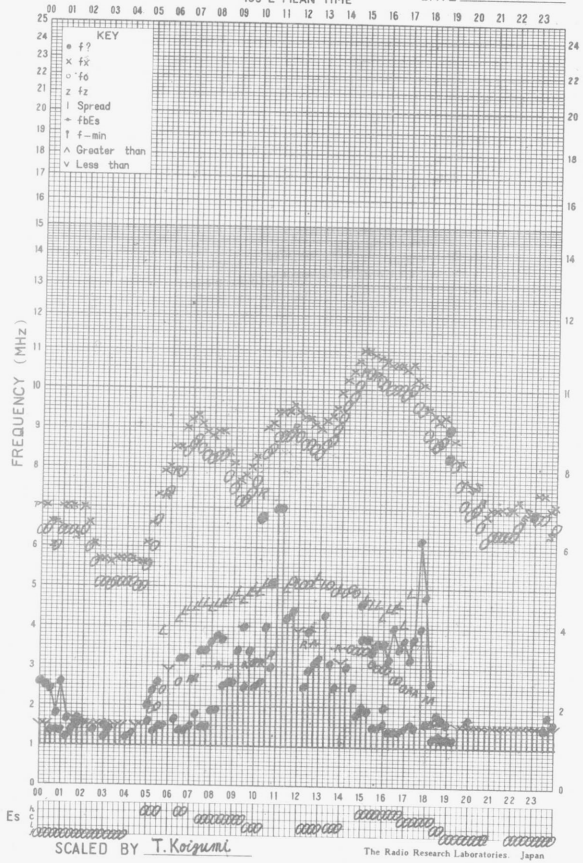
STATION AKITA 135°E MEAN TIME DATE May. 3. 1973



SCALED BY T.Takahashi The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

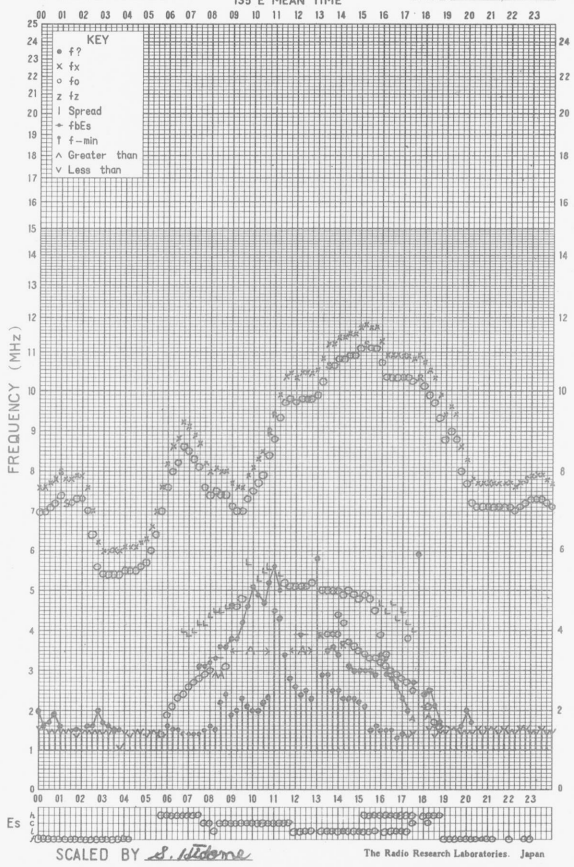
STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 3.1973



SCALED BY T. Koizumi The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE MAY.-3.1973

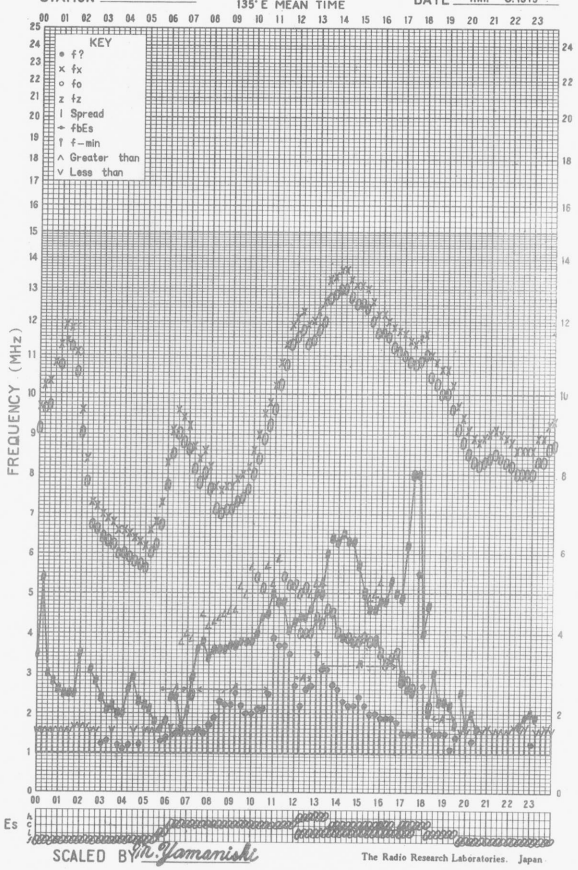


SCALED BY S. Uchone

The Radio Research Laboratories. Japan

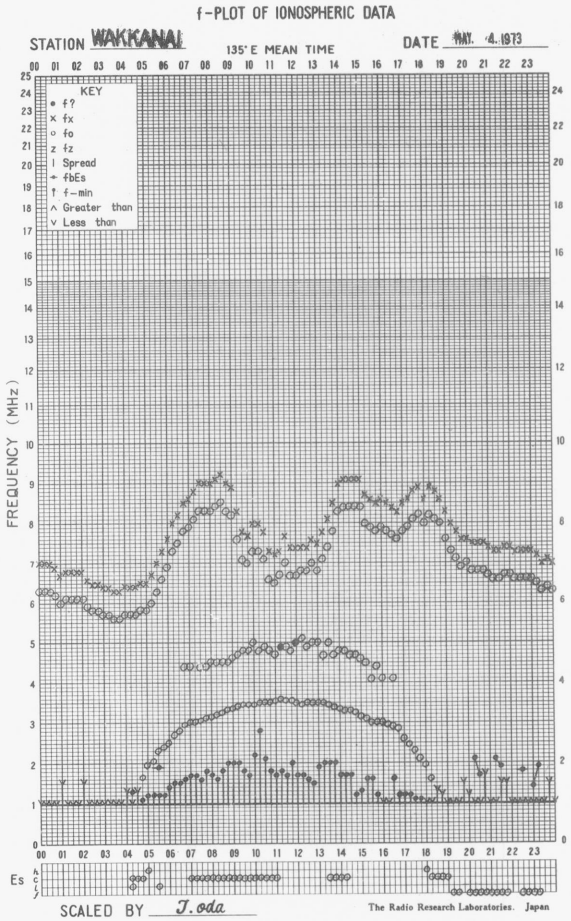
f-PLOT OF IONOSPHERIC DATA

STATION OKINAWA 135°E MEAN TIME DATE MAY. 3.1973



SCALED BY M. Yamanishi

The Radio Research Laboratories. Japan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135°E MEAN TIME
DATE MAY. 4.1973
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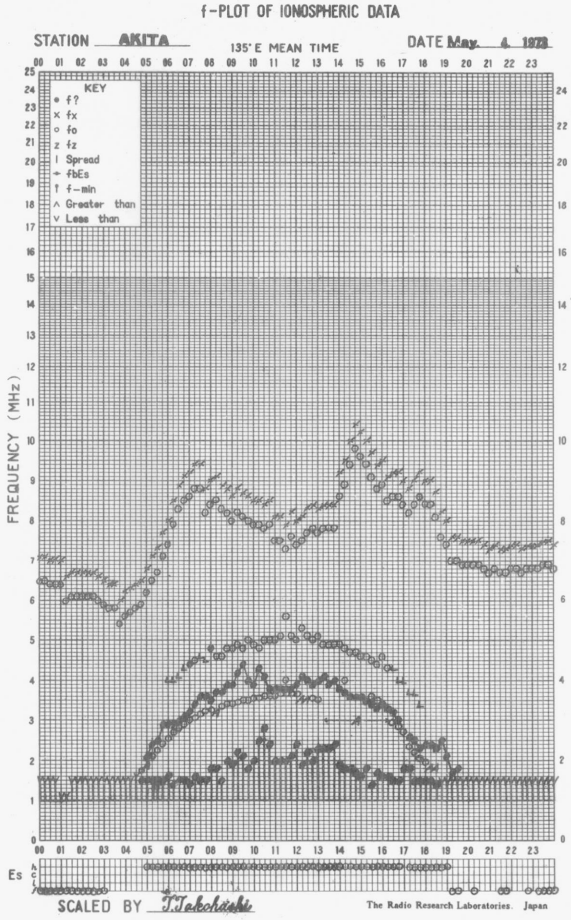
v Less than
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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DATE May. 4. 1973
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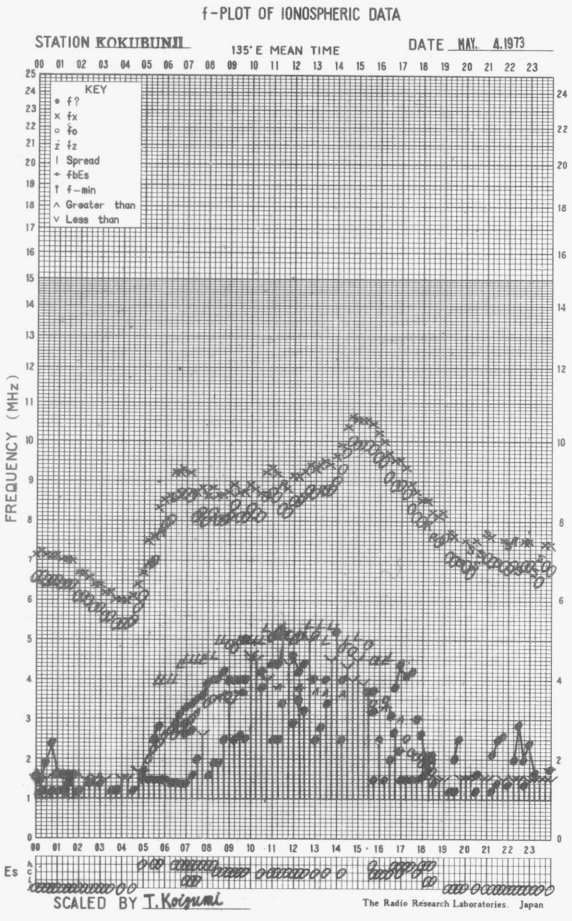
FREQUENCY (MHz)
Es
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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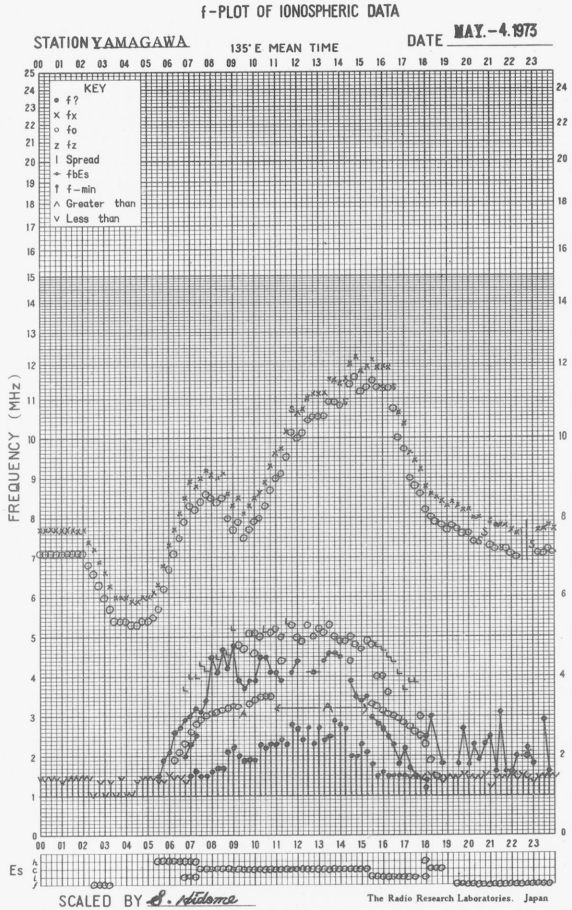
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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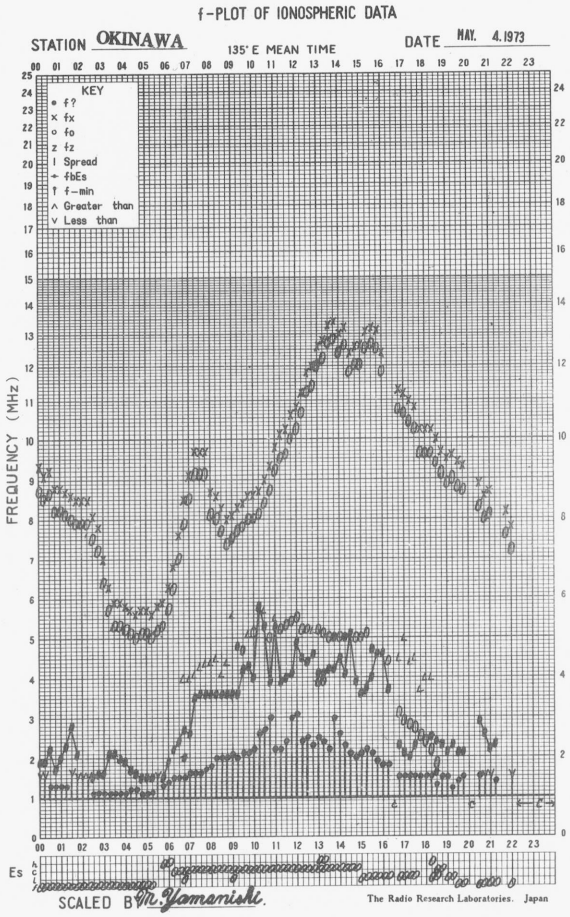
SCALED BY S. Hidema
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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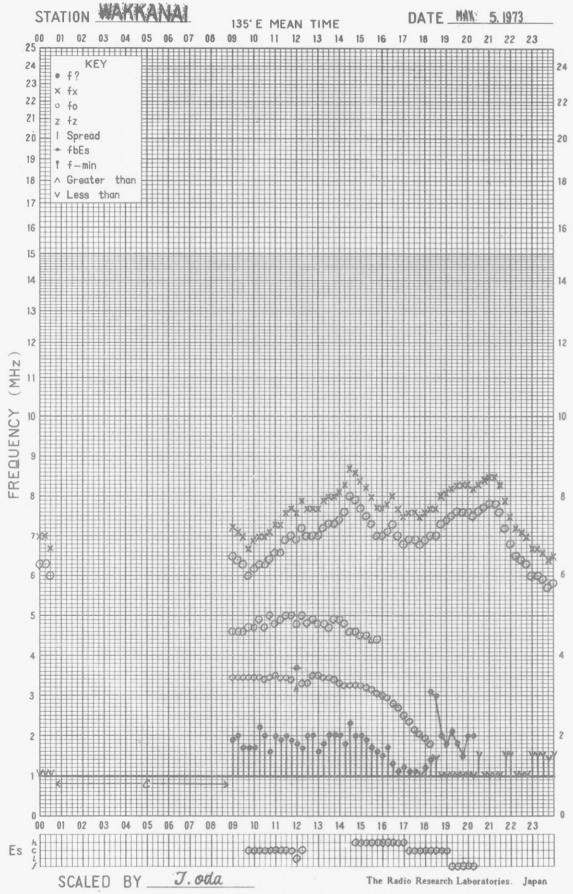
SCALED BY Mr. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 5. 1973



SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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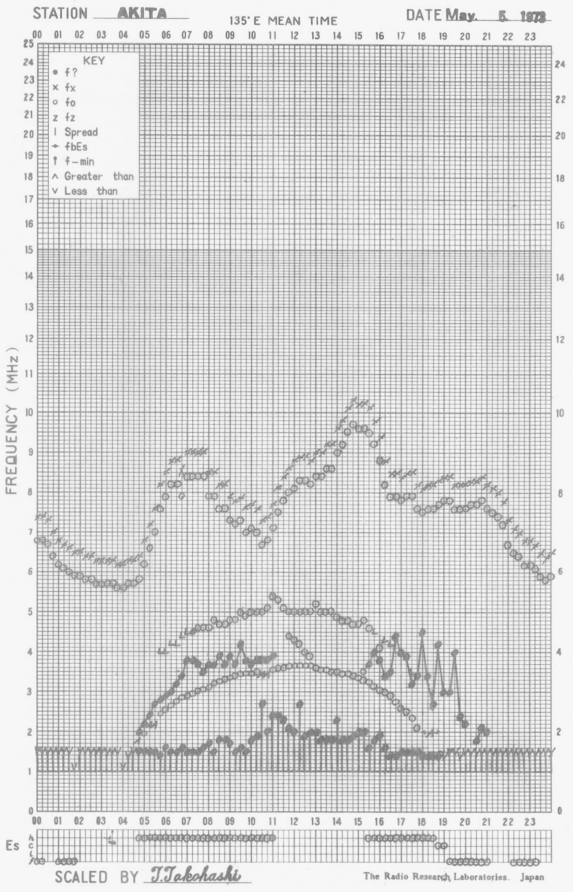

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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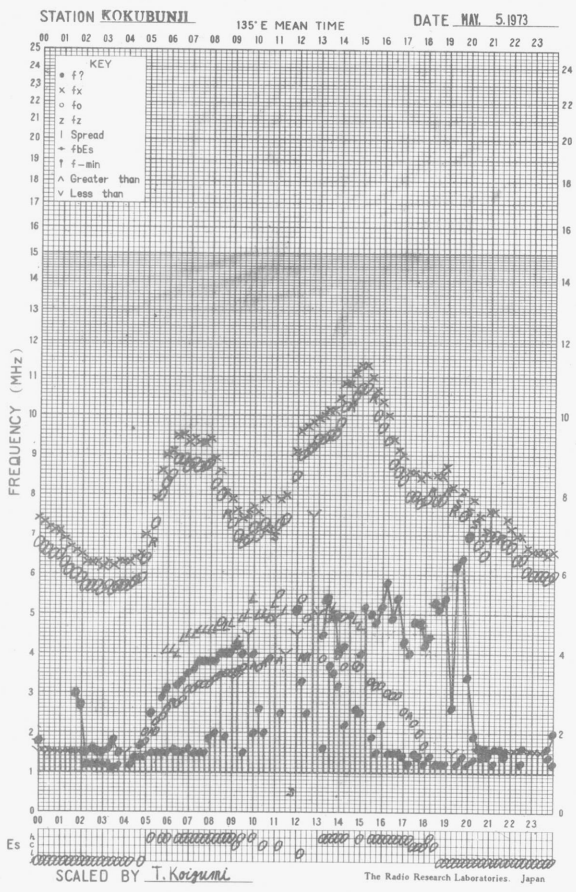

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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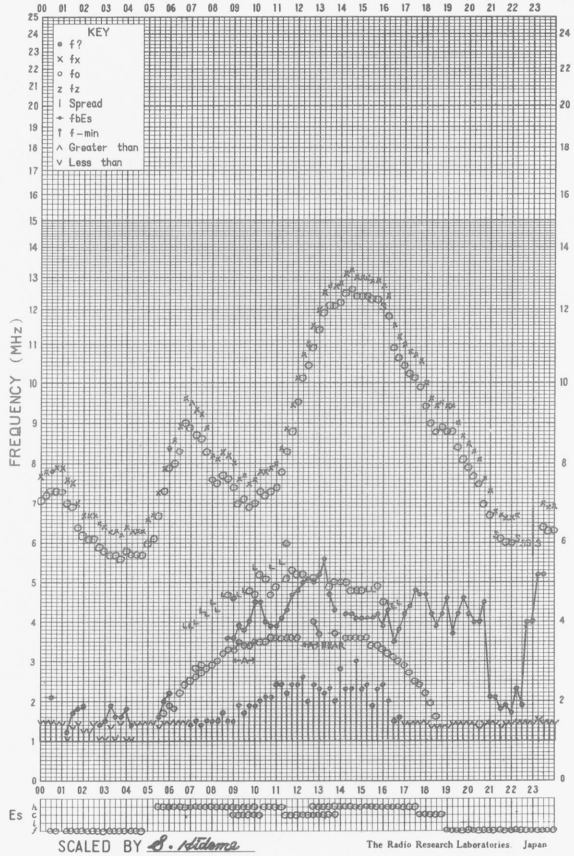

SCALED BY S. Kitamo

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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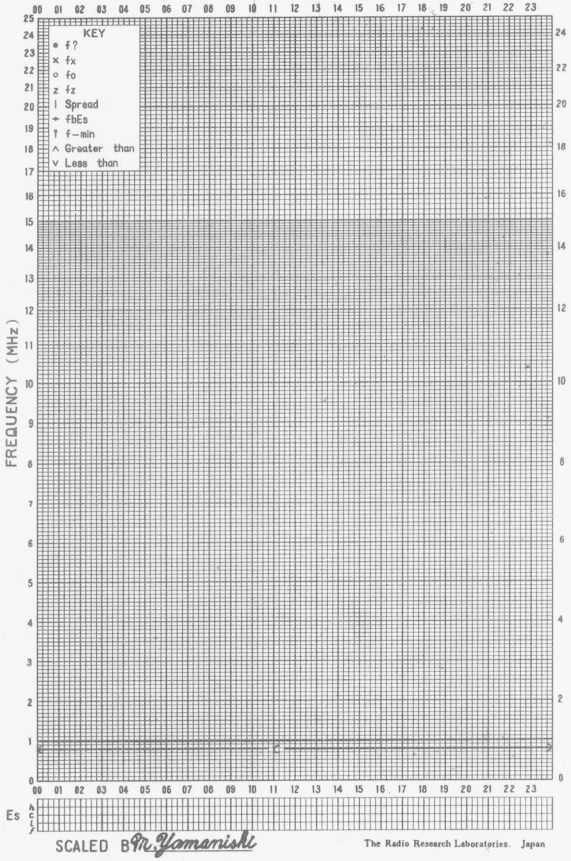

SCALED BY M. Yamanishi

The Radio Research Laboratories. Japan

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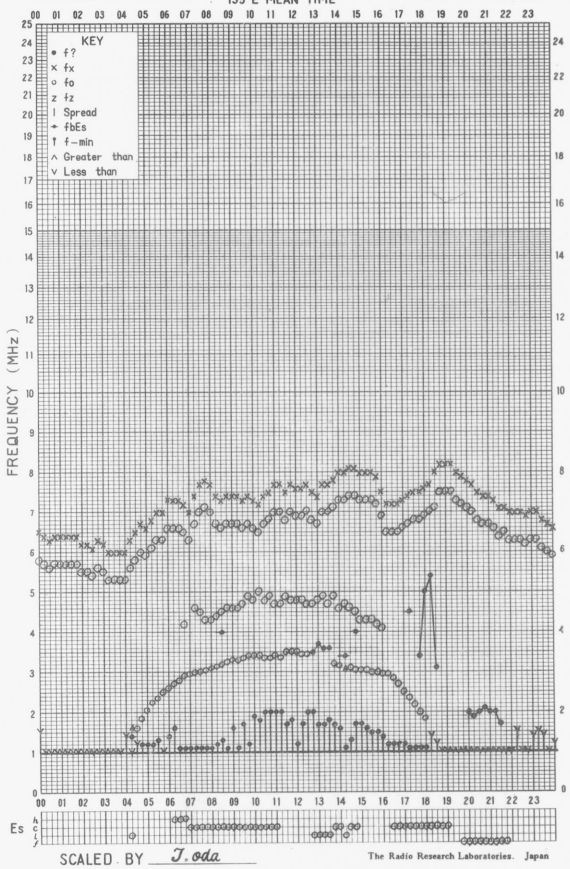

SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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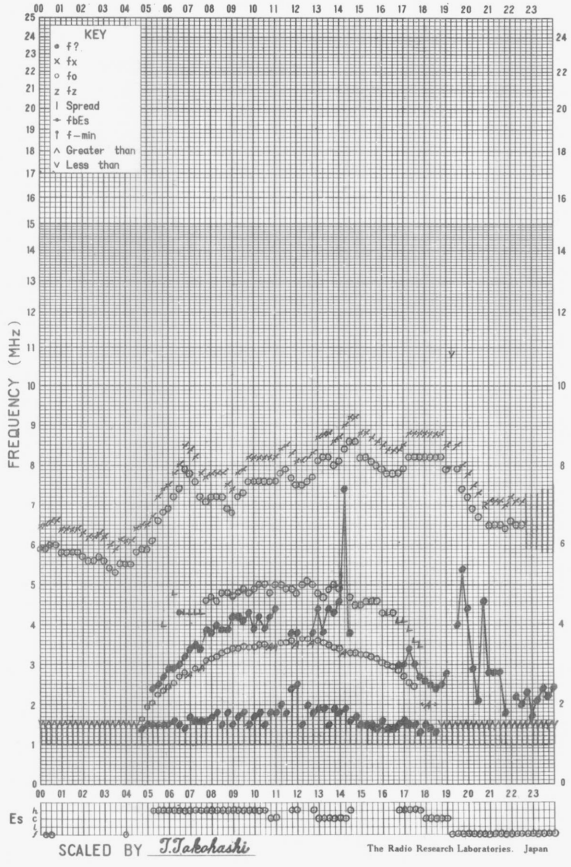

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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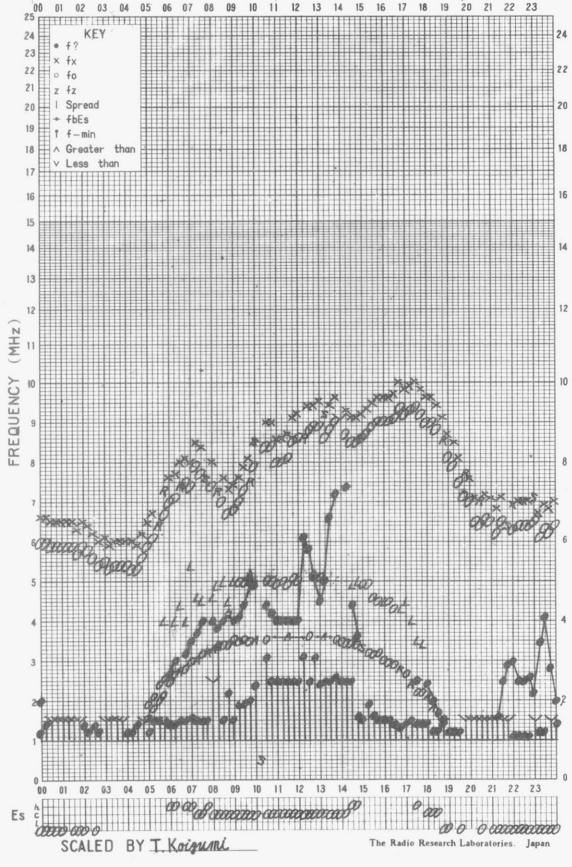

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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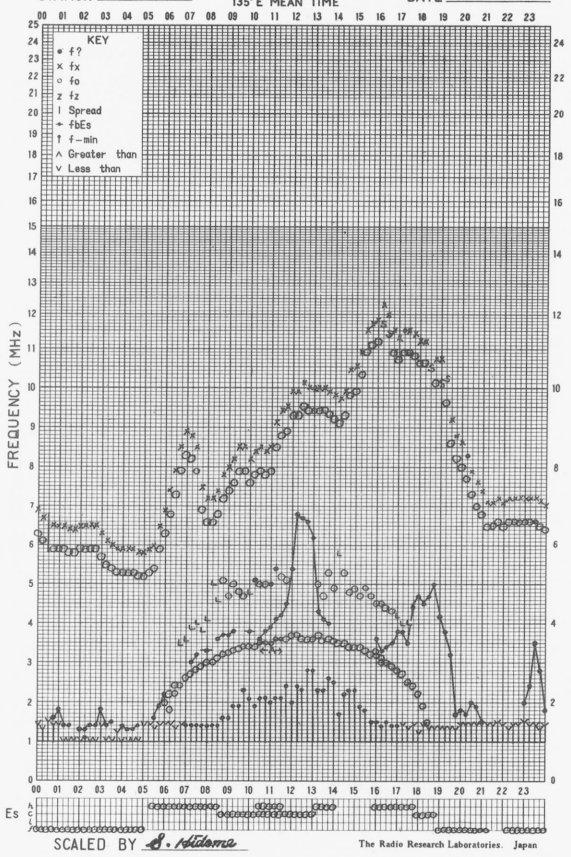

SCALED BY S. Kitsuma

The Radio Research Laboratories. Japan

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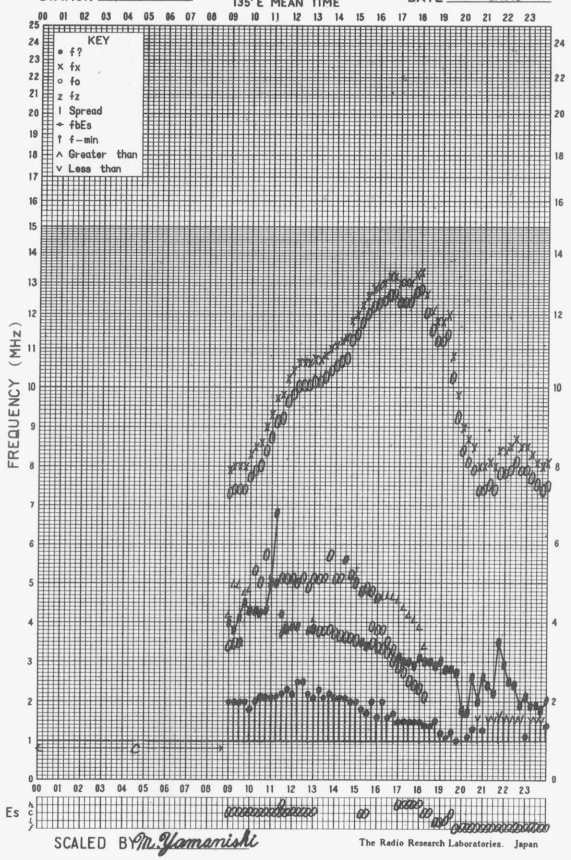

SCALED BY M. Yamanishi

The Radio Research Laboratories. Japan

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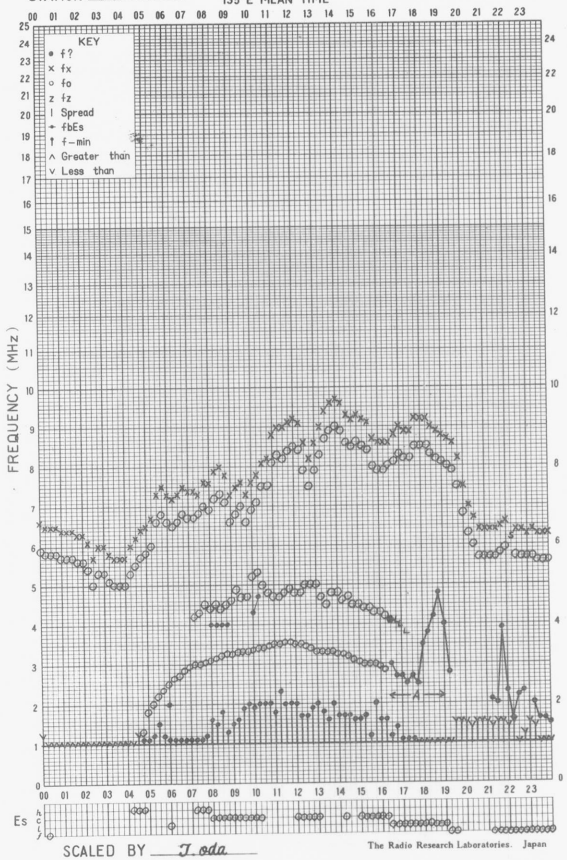

SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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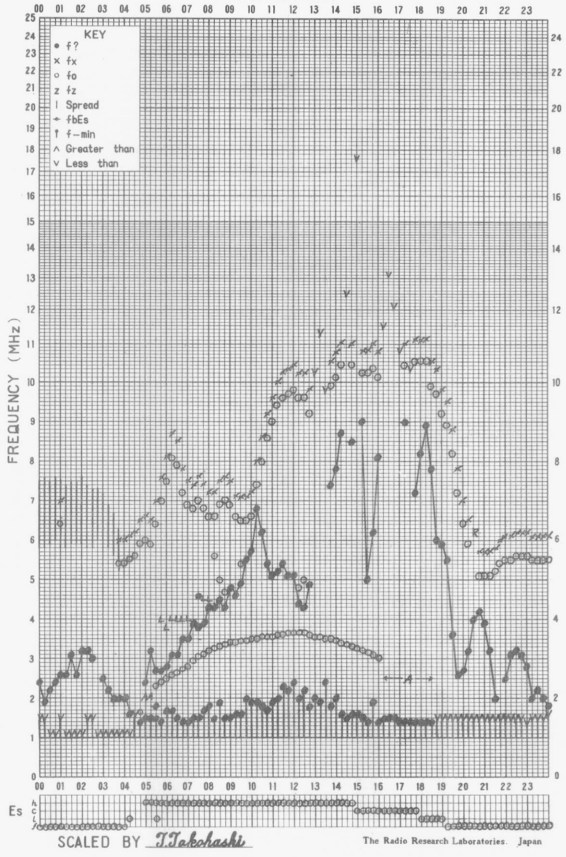

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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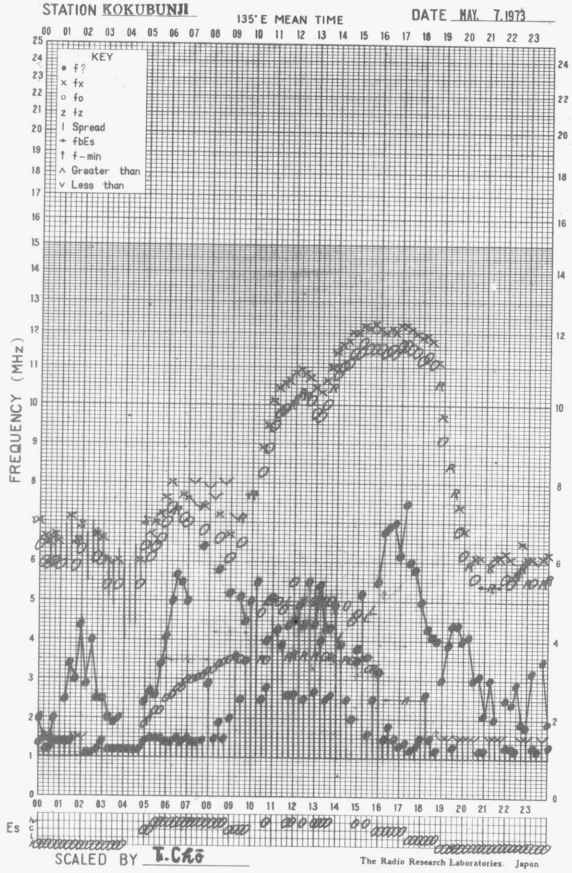
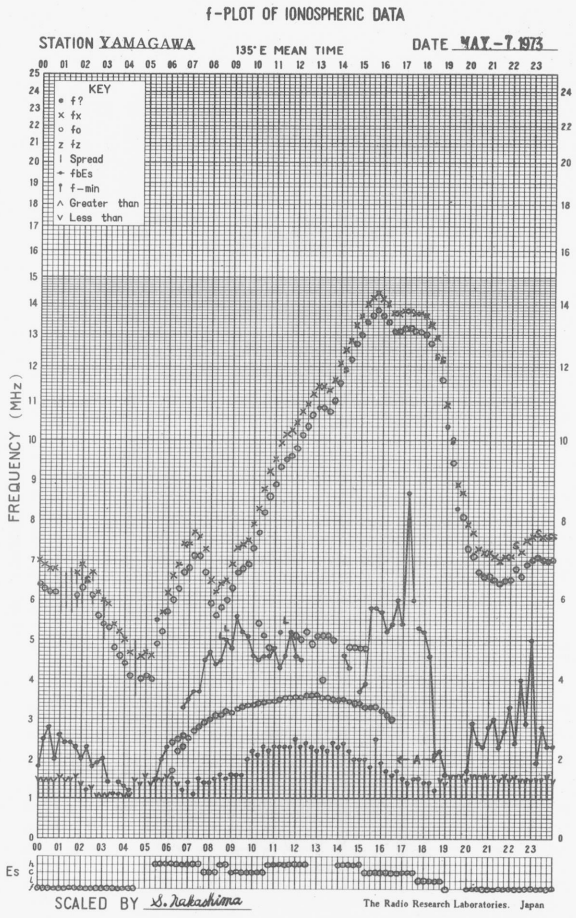


SCALED BY T. Cho

The Radio Research Laboratories. Japan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DATE MAY.-7.1973
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FREQUENCY (MHz)
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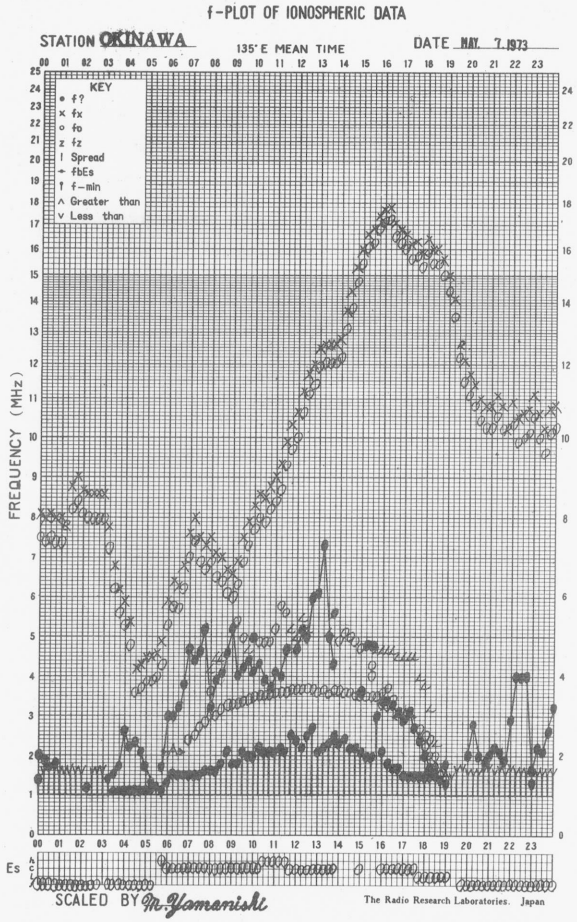
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan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Less than
FREQUENCY (MHz)
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SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

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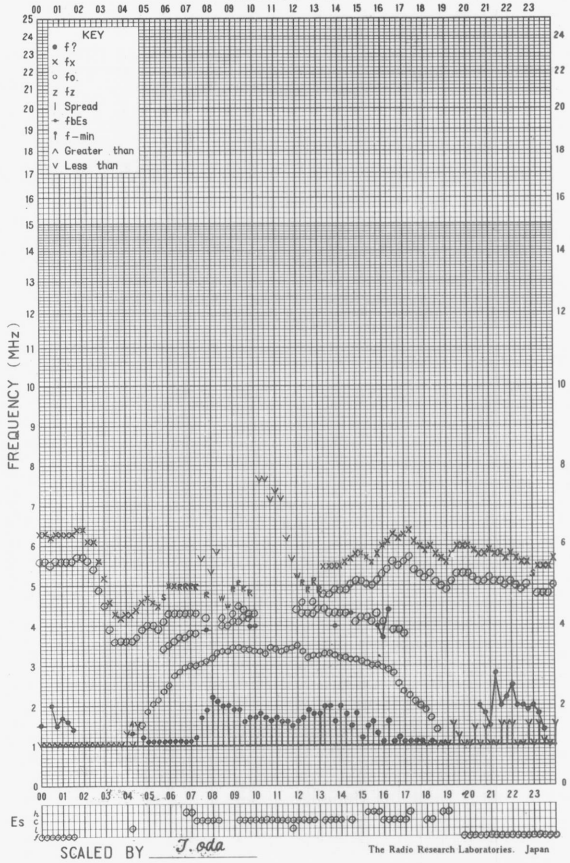

SCALED BY T. oda

The Radio Research Laboratories. Japan

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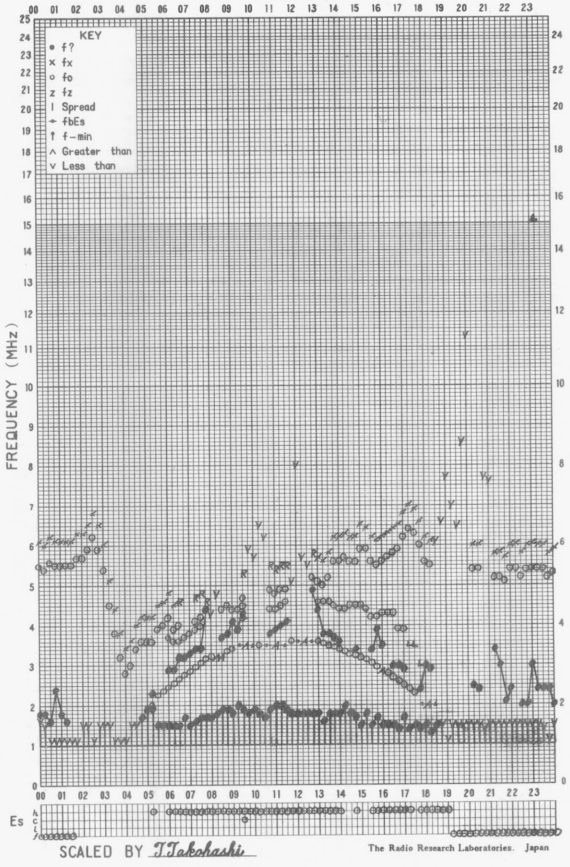

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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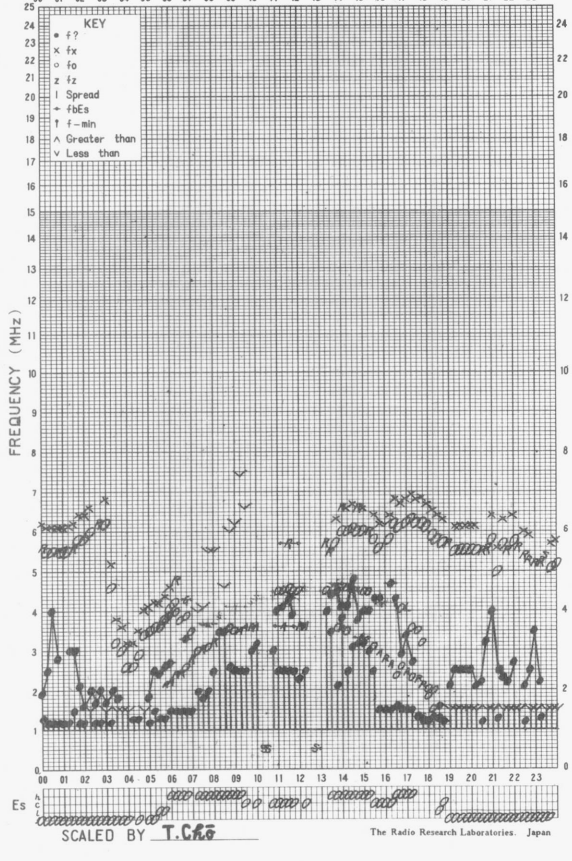
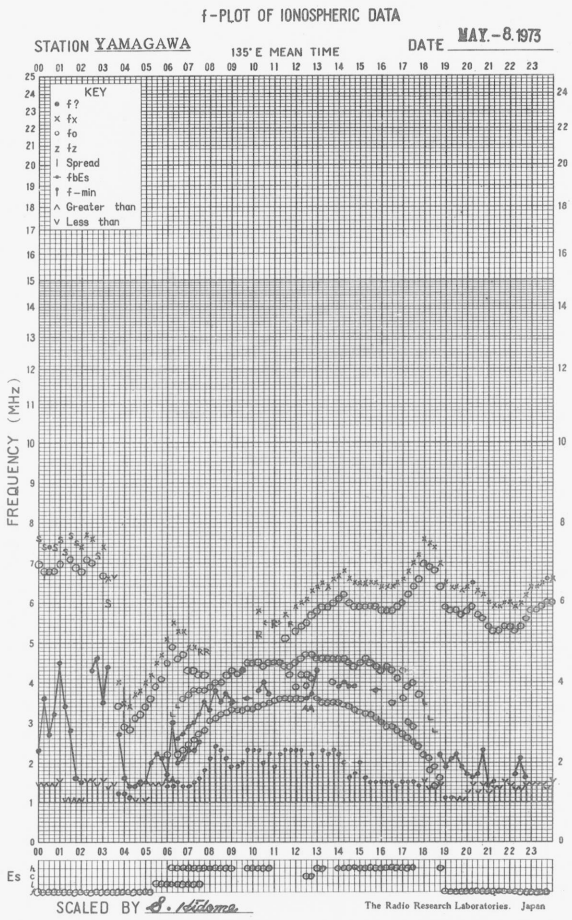


SCALED BY T. Cho

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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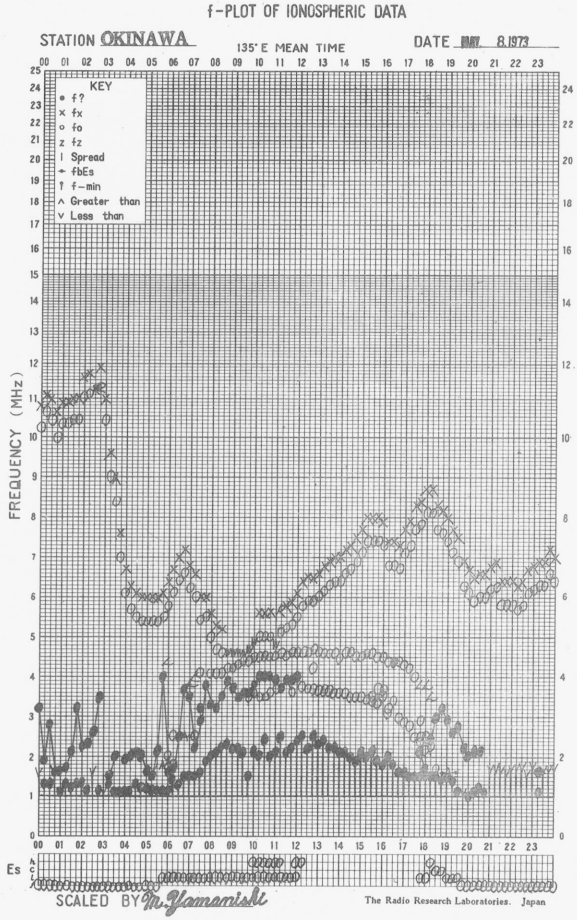
SCALED BY S. Kitsuma
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

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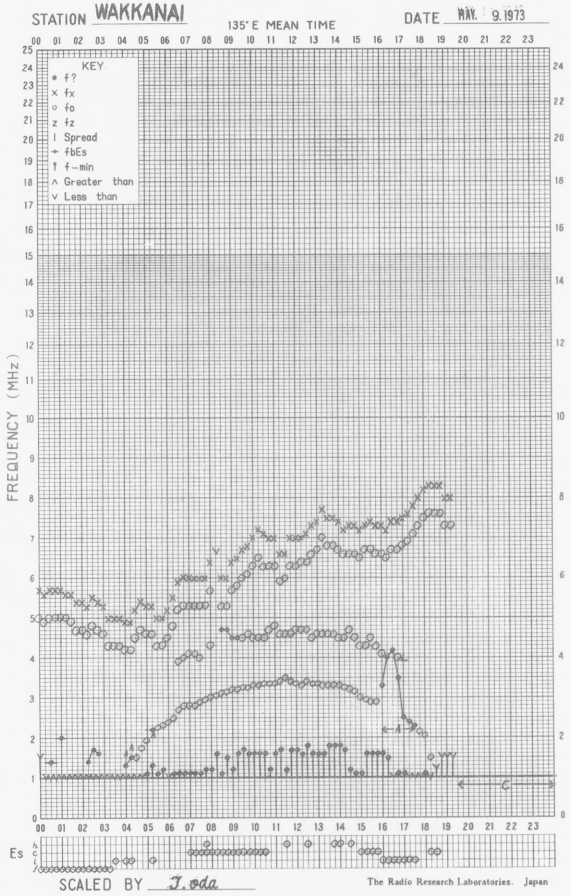
STATION WAKKANAI 135°E MEAN TIME DATE MAY. 9.1973



SCALED BY T. Oda

The Radio Research Laboratories. Japan

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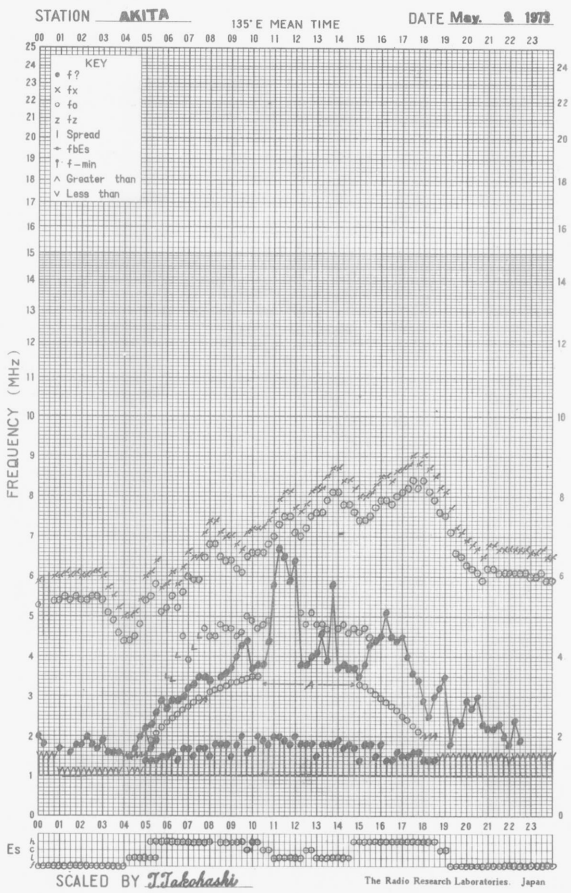

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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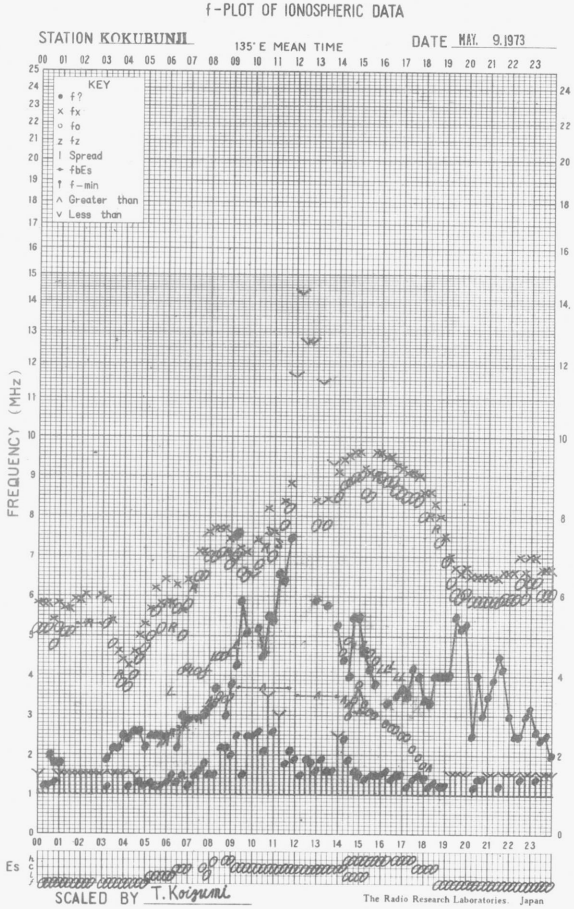
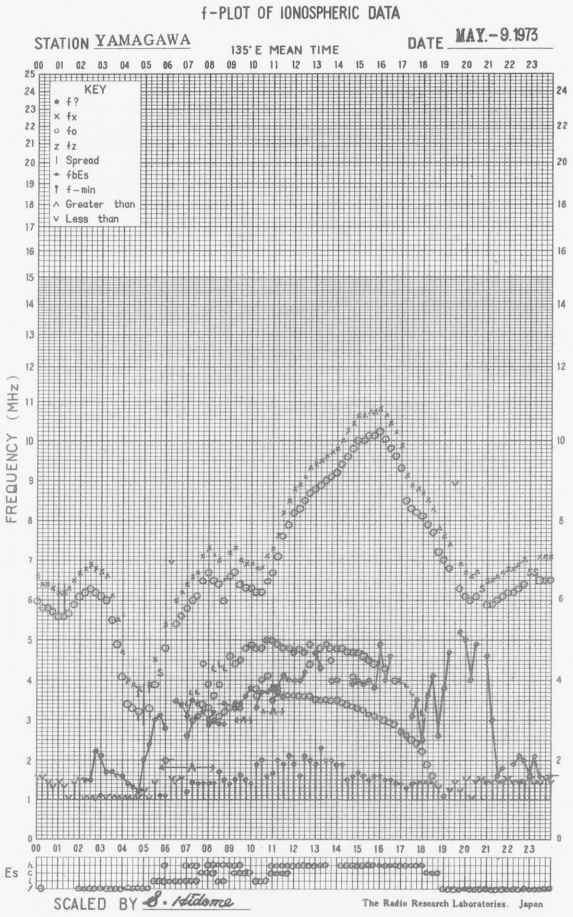


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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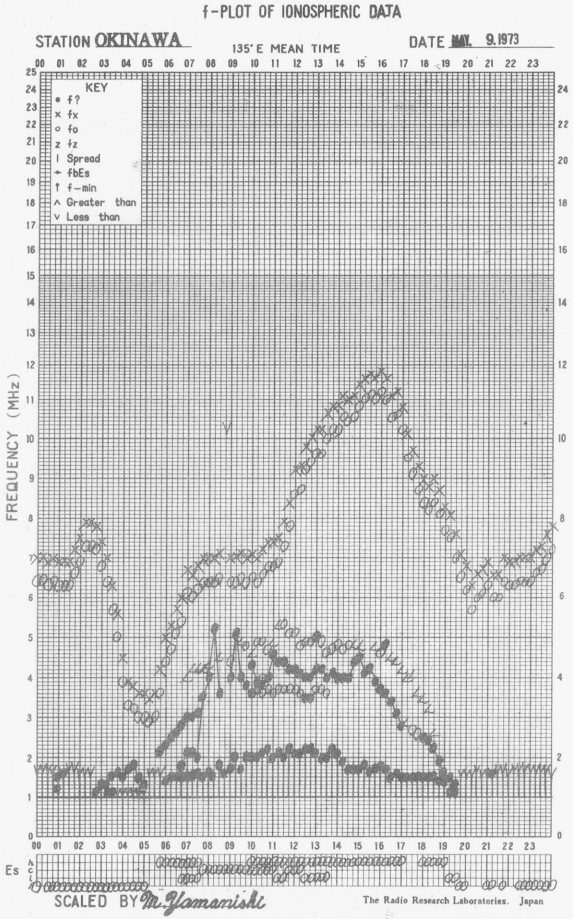
SCALED BY S. Kitsome
The Radio Research Laboratories. Japan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SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

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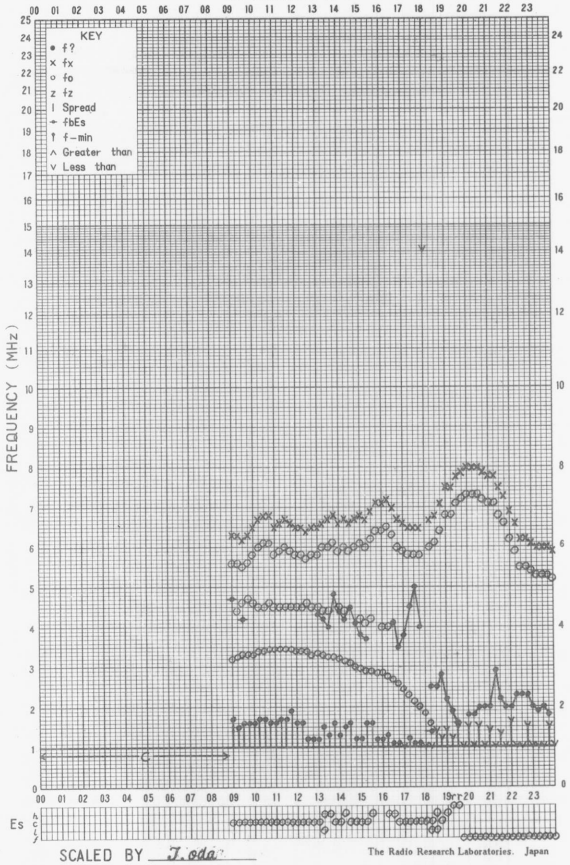

SCALED BY J. Oda

The Radio Research Laboratories. Japan

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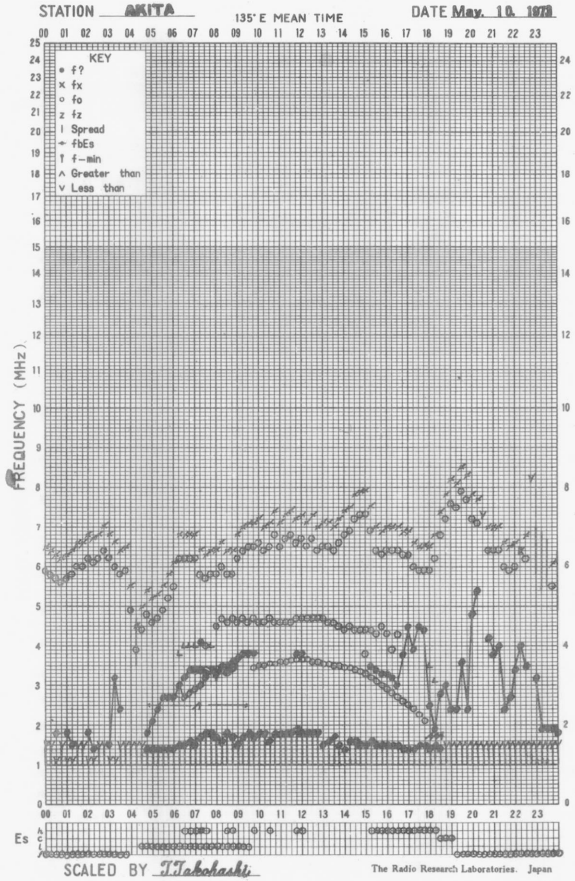

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The Radio Research Laboratories. Japan

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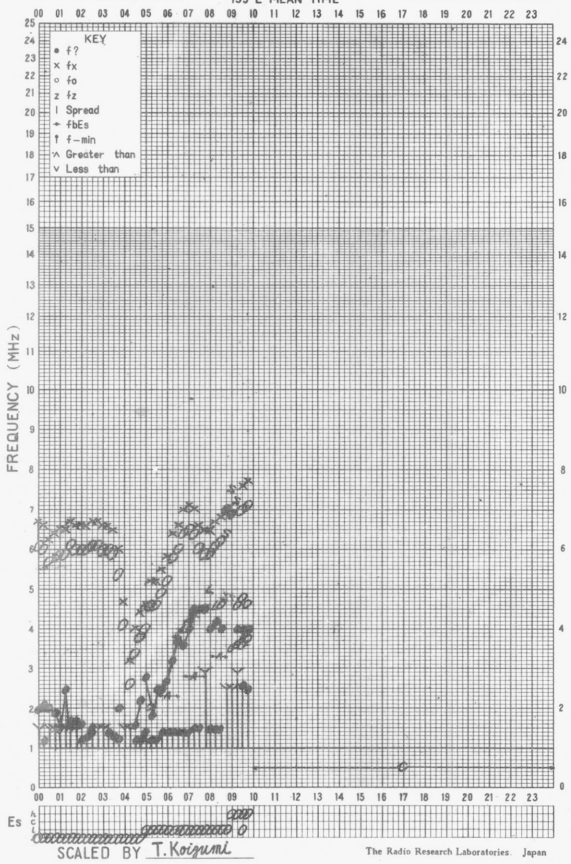
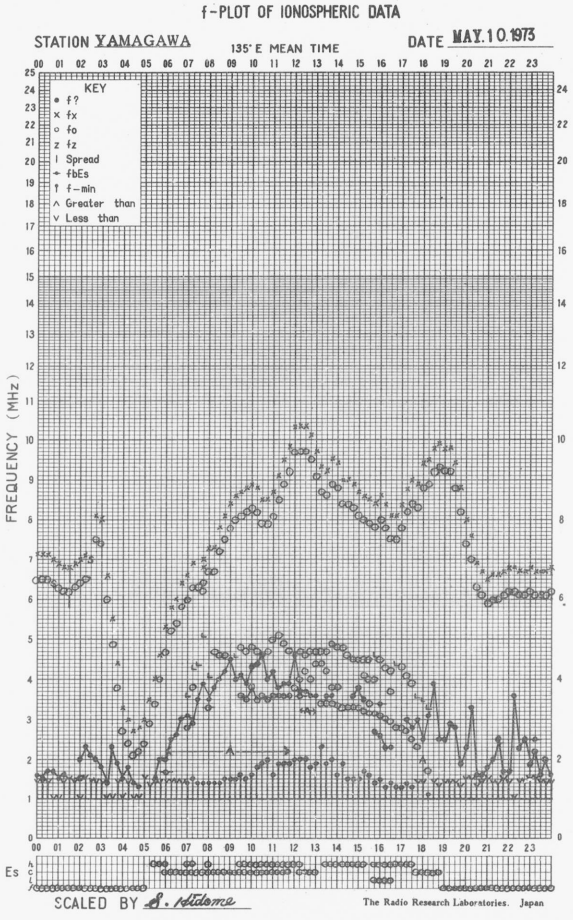


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan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DATE MAY. 10. 1973
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FREQUENCY (MHz)
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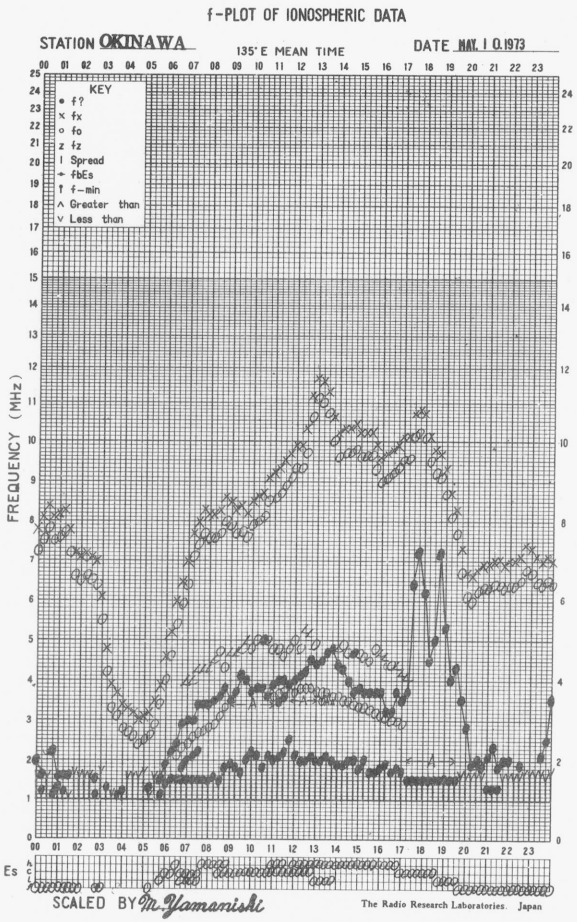
SCALED BY S. Ishitomo
The Radio Research Laboratories. Japan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DATE MAY. 10. 1973
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∨ Less than
FREQUENCY (MHz)
Es
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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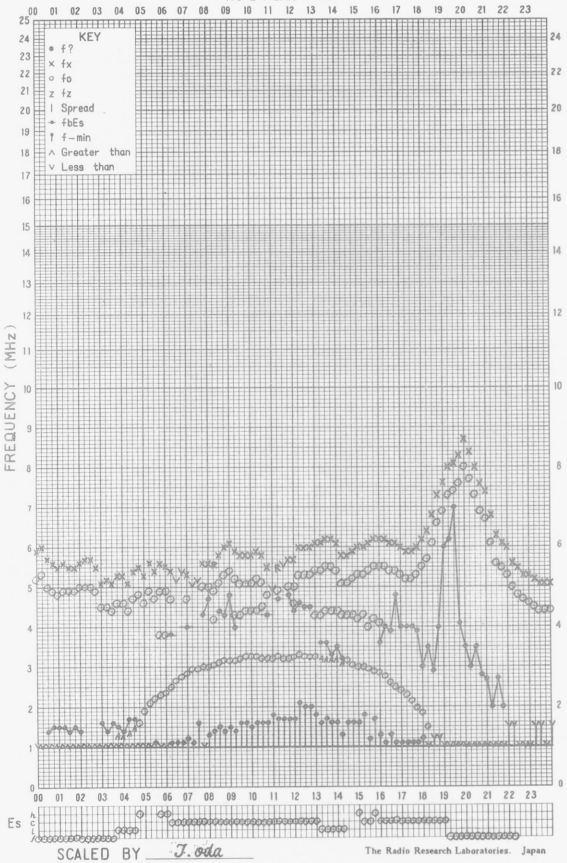

SCALED BY J. Oda

The Radio Research Laboratories. Japan

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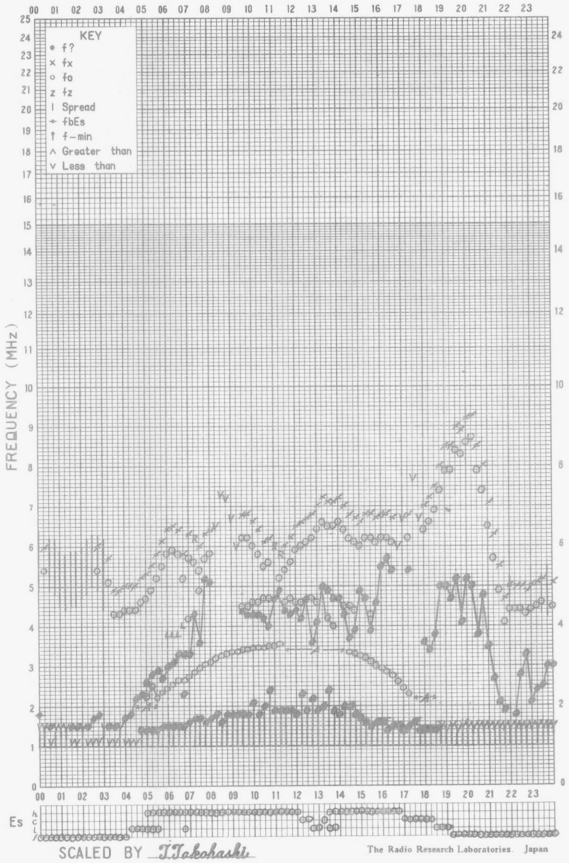
STATION AKITA 135°E MEAN TIME DATE May. 11. 1973



SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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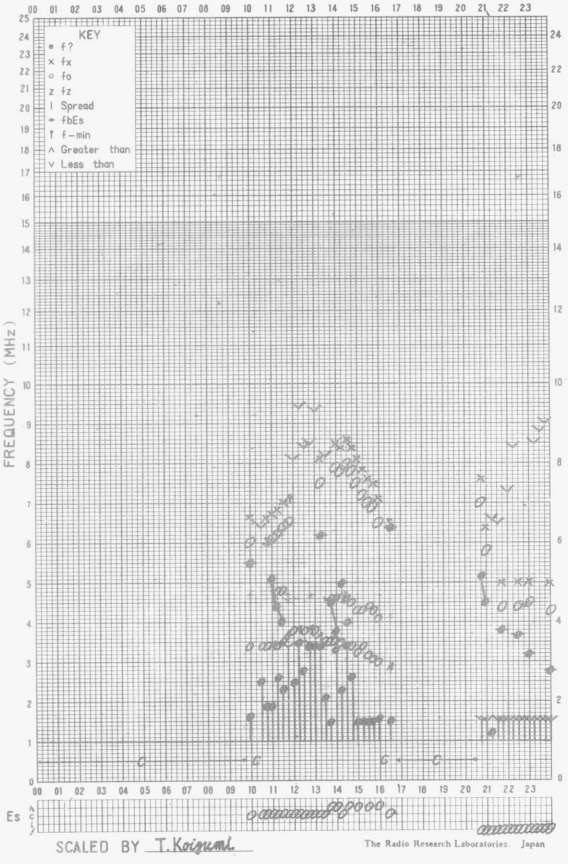

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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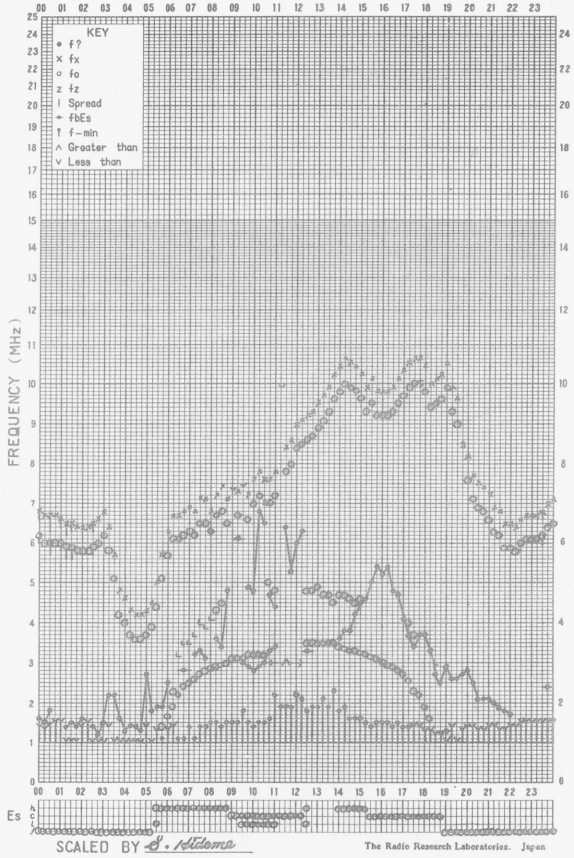

SCALED BY S. Aidoma

The Radio Research Laboratories. Japan

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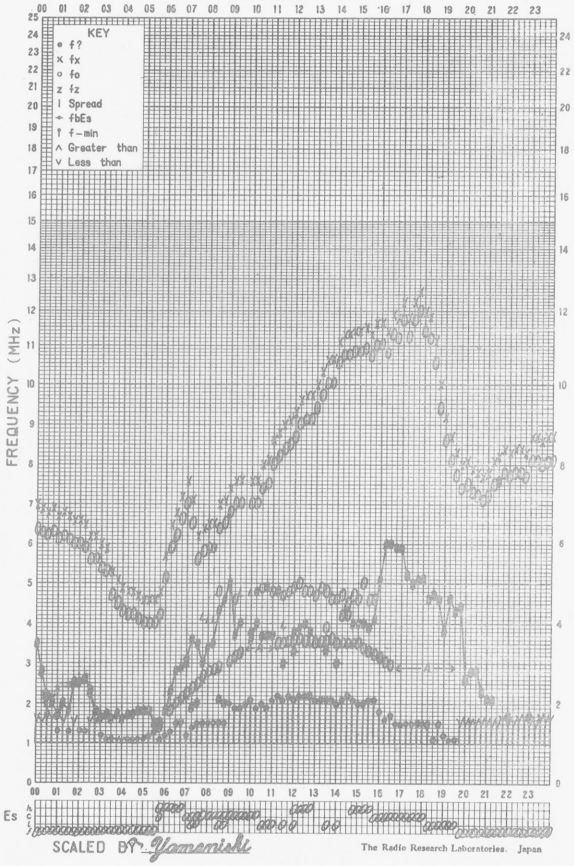

SCALED BY Yamauchi

The Radio Research Laboratories. Japan

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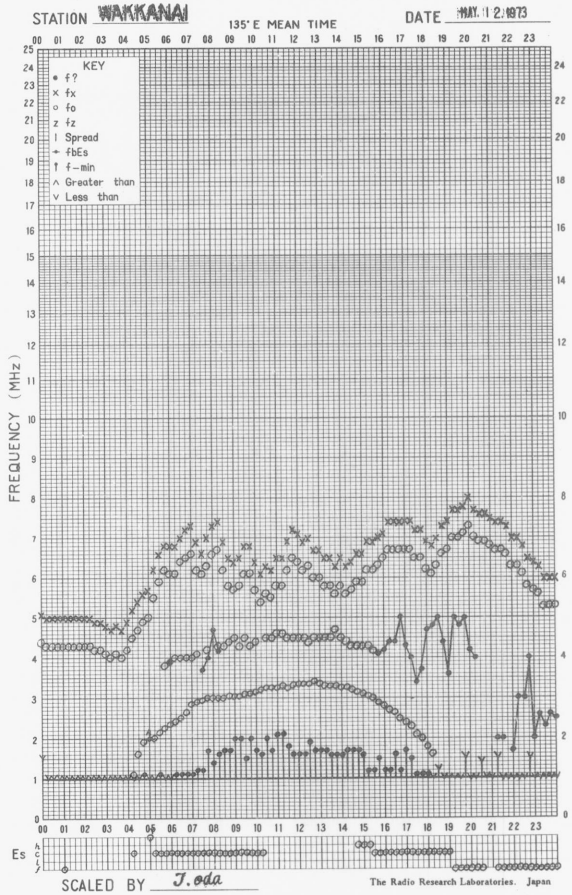

SCALED BY J. Oda

The Radio Research Laboratories. Japan

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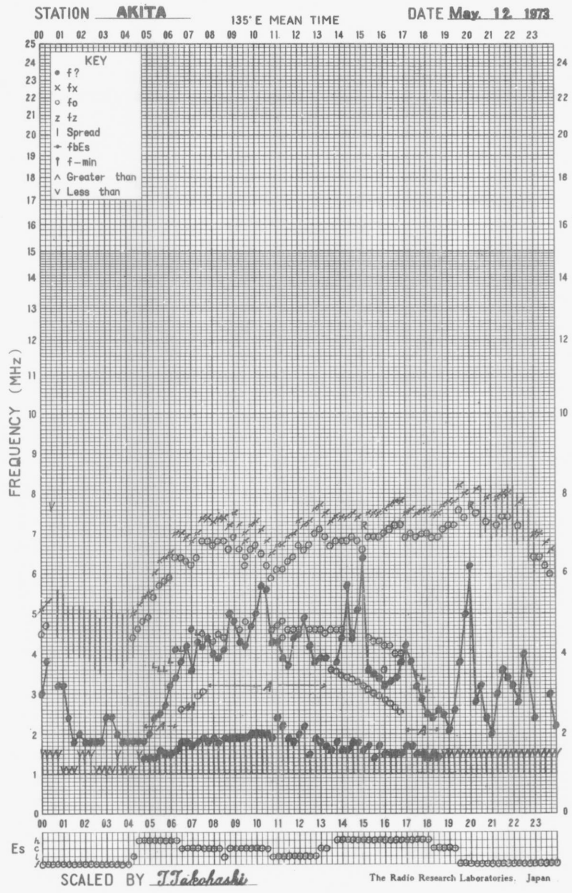

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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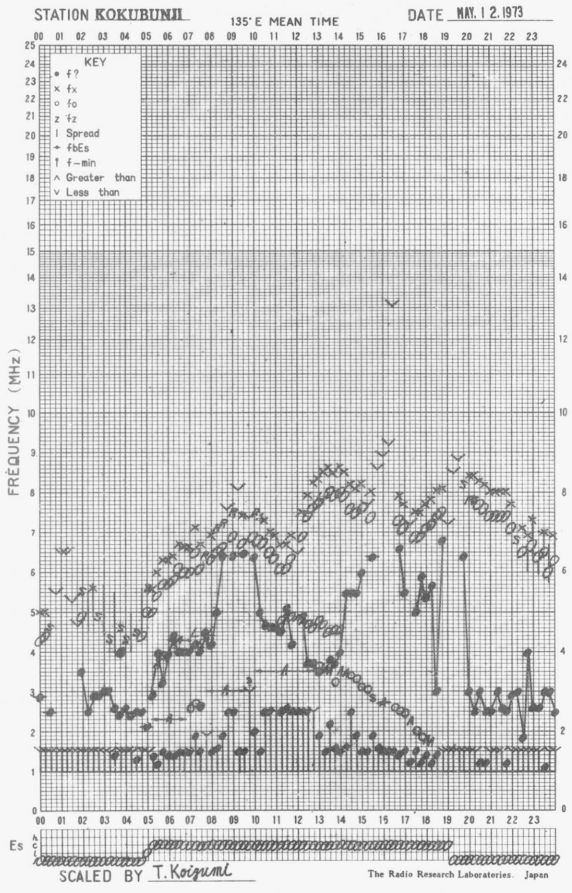

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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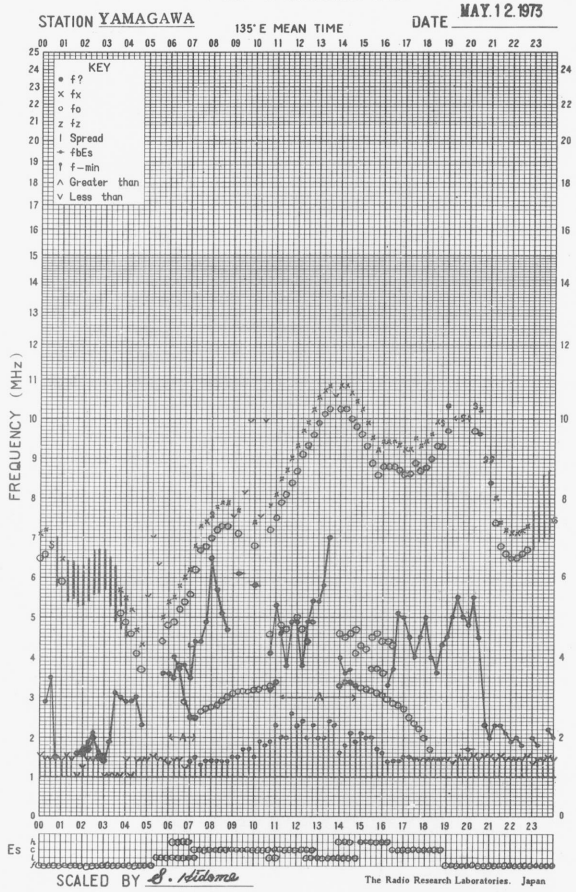

SCALED BY S. Hidema

The Radio Research Laboratories. Japan

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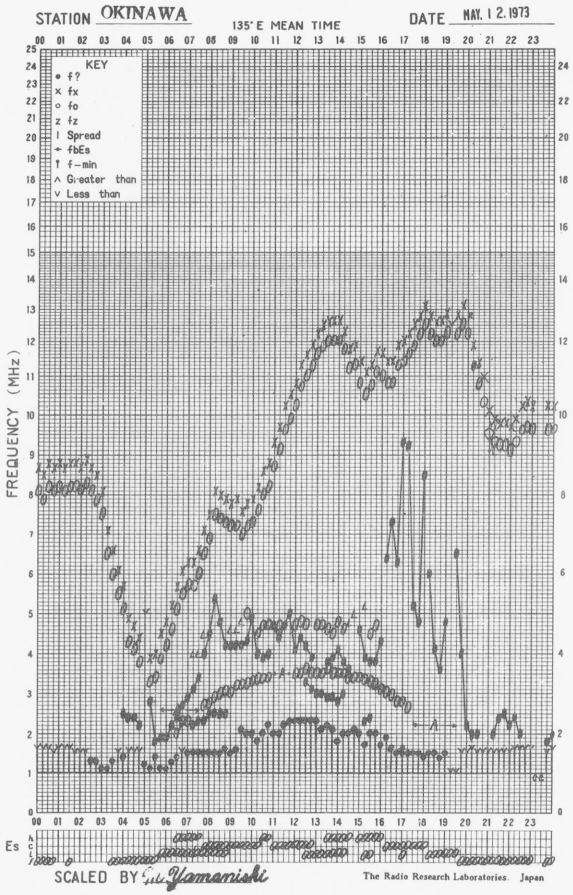

SCALED BY Yu. Yamanishi

The Radio Research Laboratories. Japan

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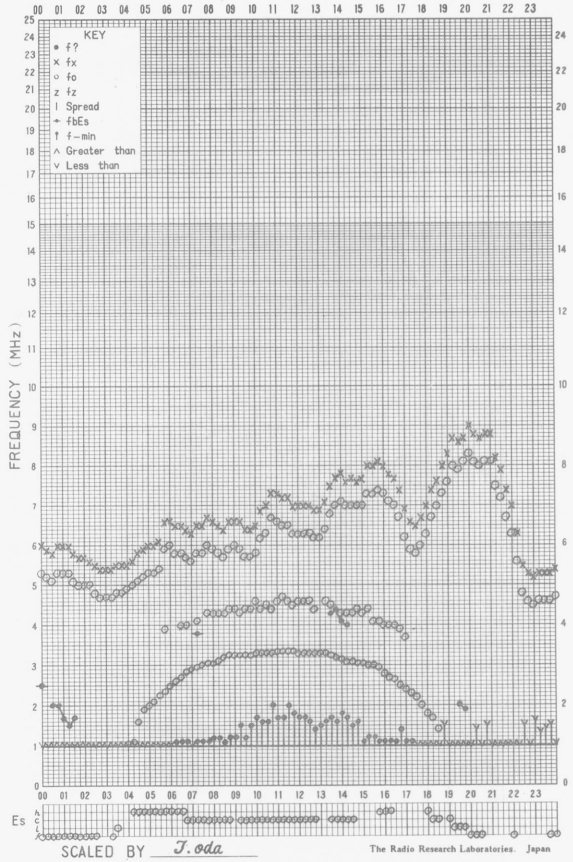

SCALED BY J. Oda

The Radio Research Laboratories. Japan

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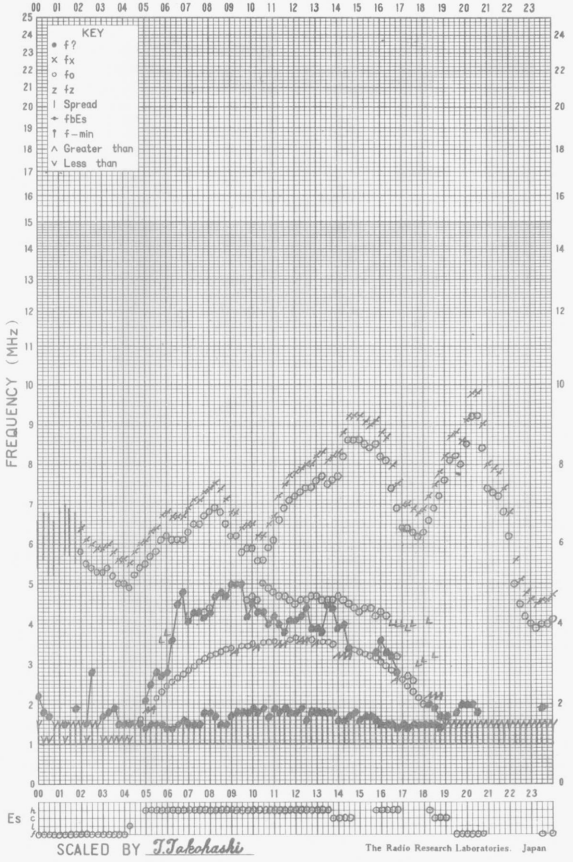

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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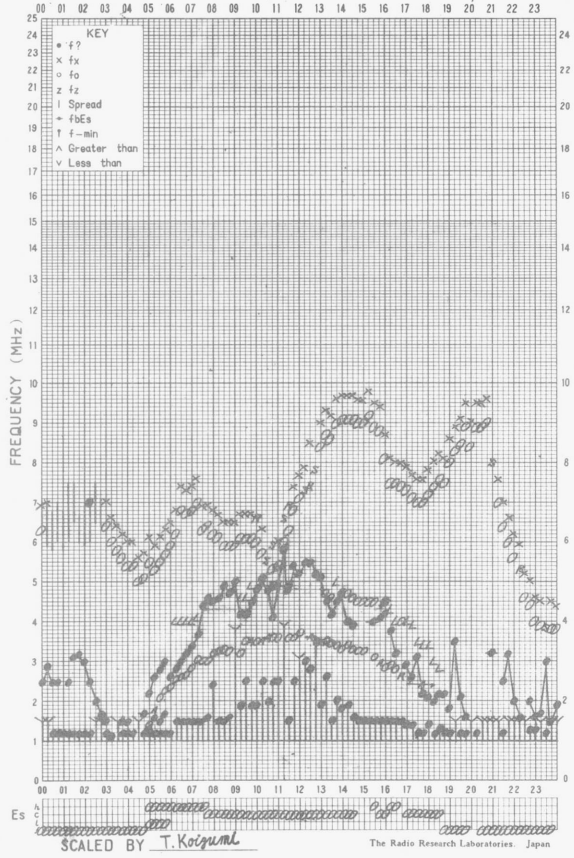

SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

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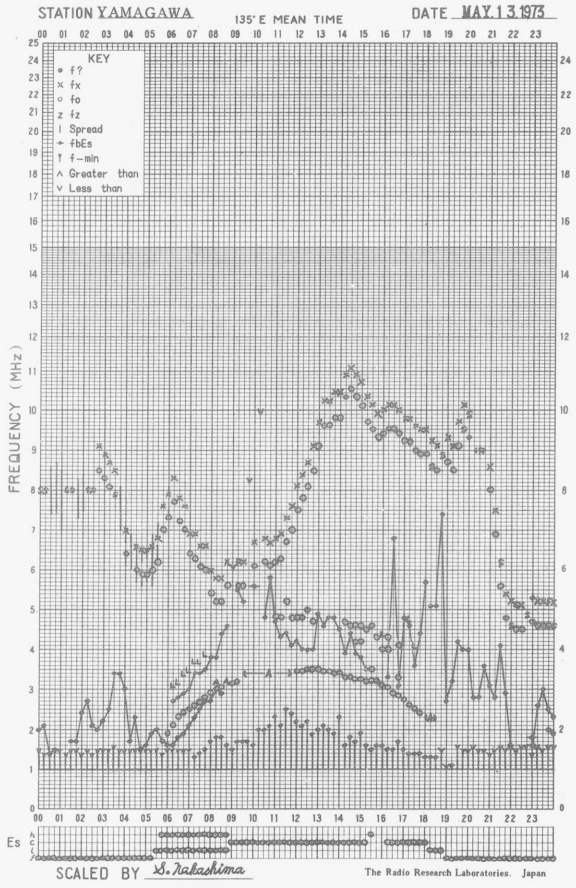

SCALED BY S. Takashima

The Radio Research Laboratories. Japan

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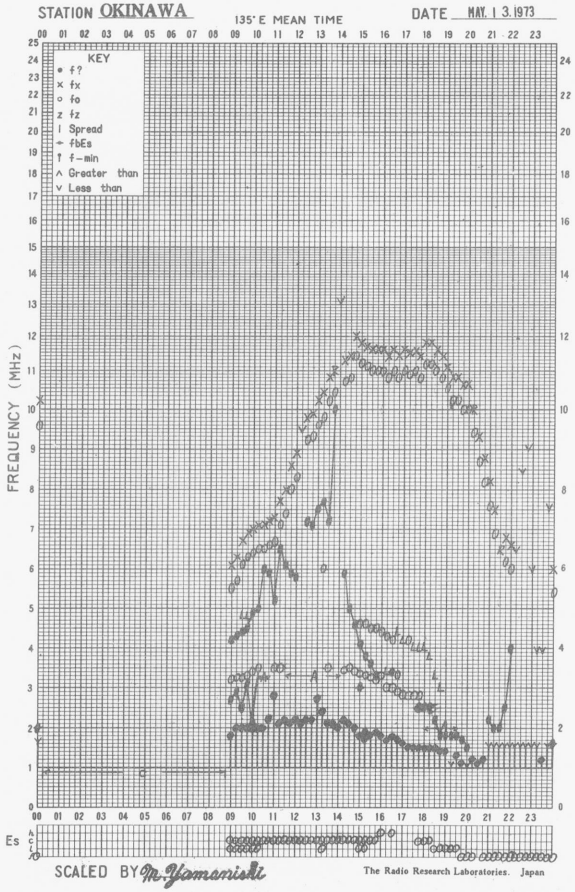

SCALED BY M. Yamanishi

The Radio Research Laboratories. Japan

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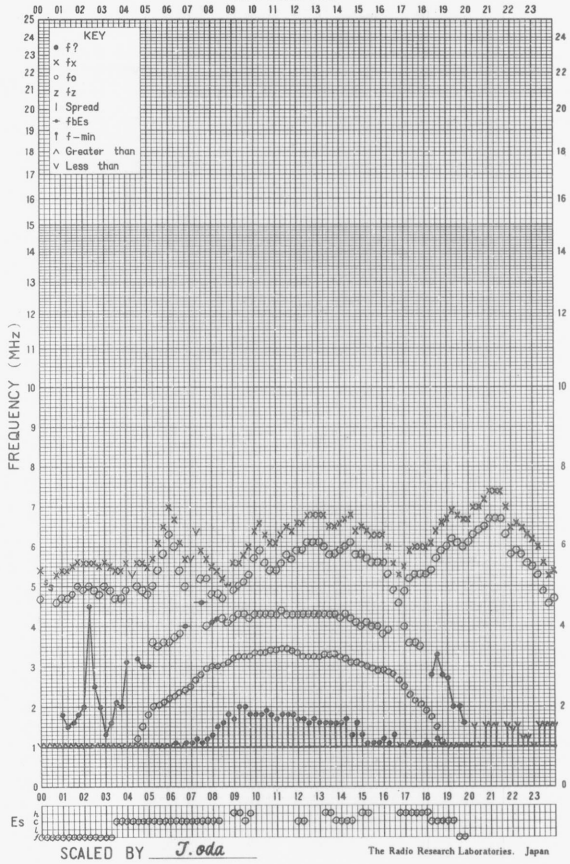

SCALED BY T. Oda

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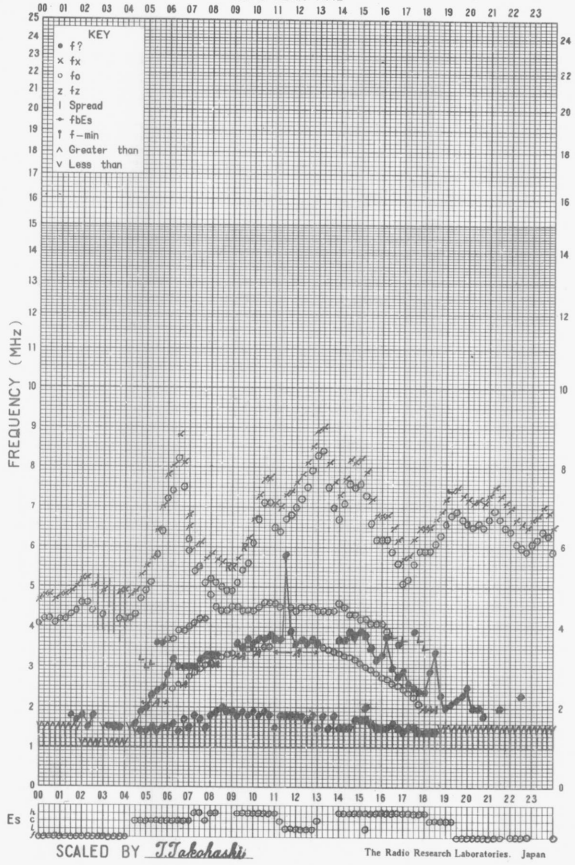

SCALED BY T. Takahashi

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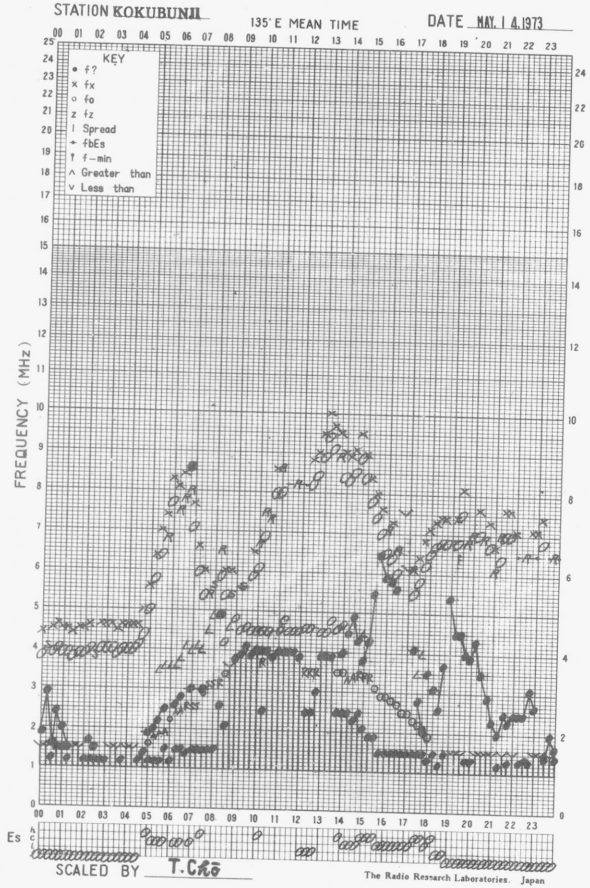

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The Radio Research Laboratories. Japan

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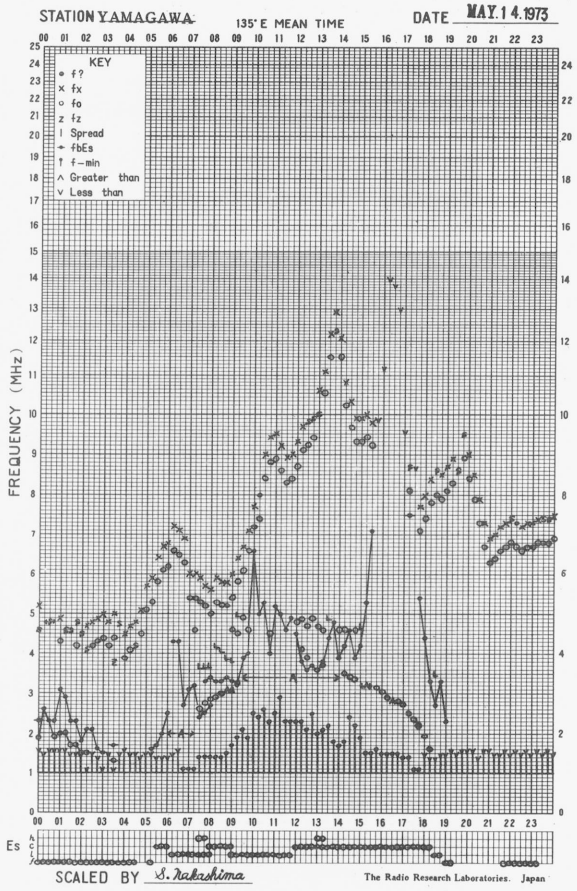

SCALED BY S. Nakashima

The Radio Research Laboratories. Japan

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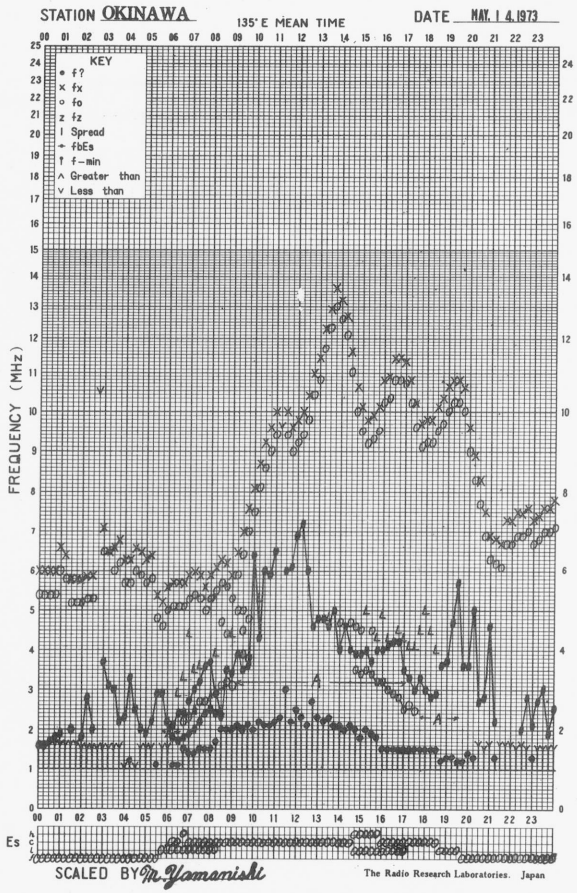

SCALED BY M. Yamanishi

The Radio Research Laboratories. Japan

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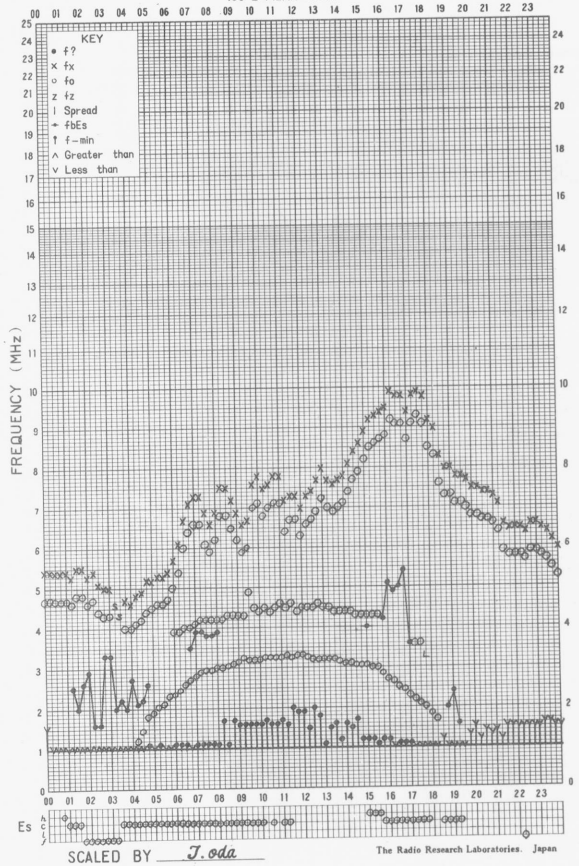

SCALED BY J. oda

The Radio Research Laboratories. Japan

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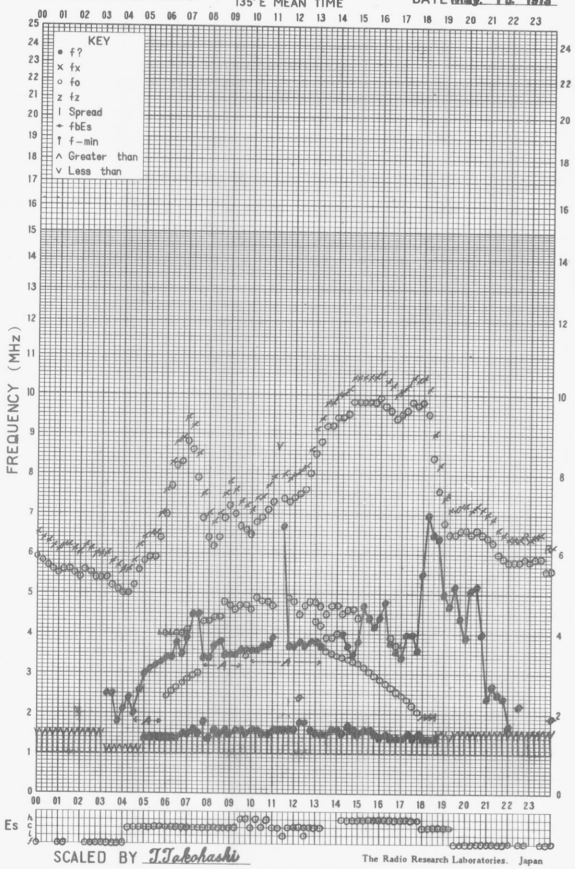

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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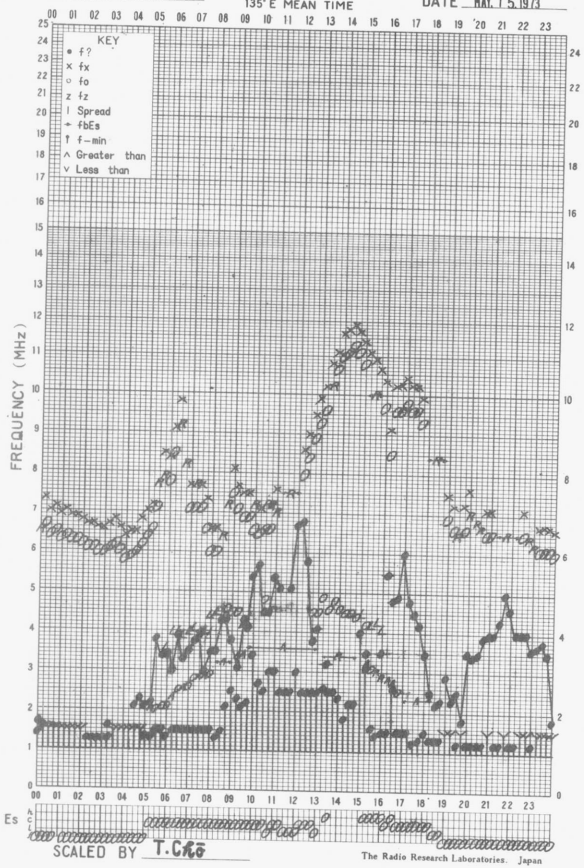
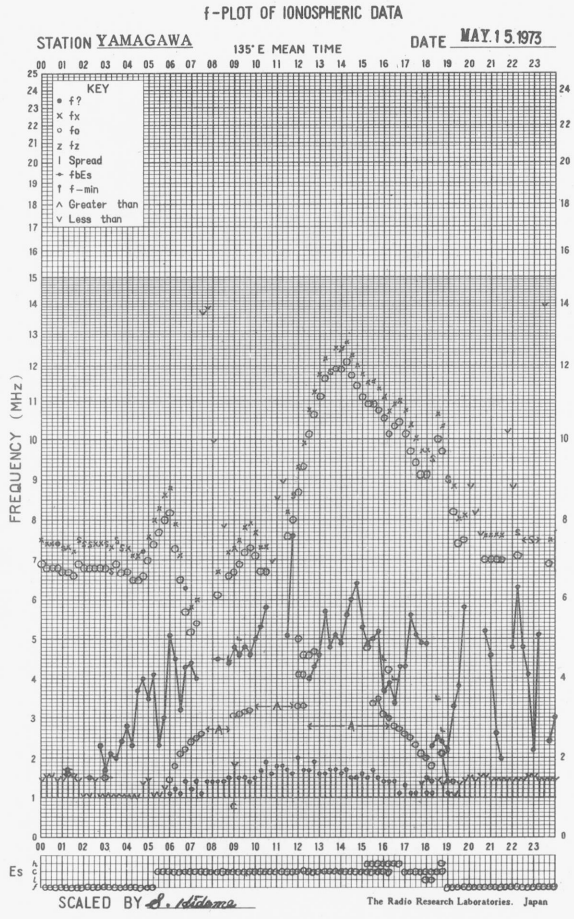


SCALED BY T. Ōtō

The Radio Research Laboratories. Japan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STATION YAMAGAWA
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DATE MAY. 15. 1973
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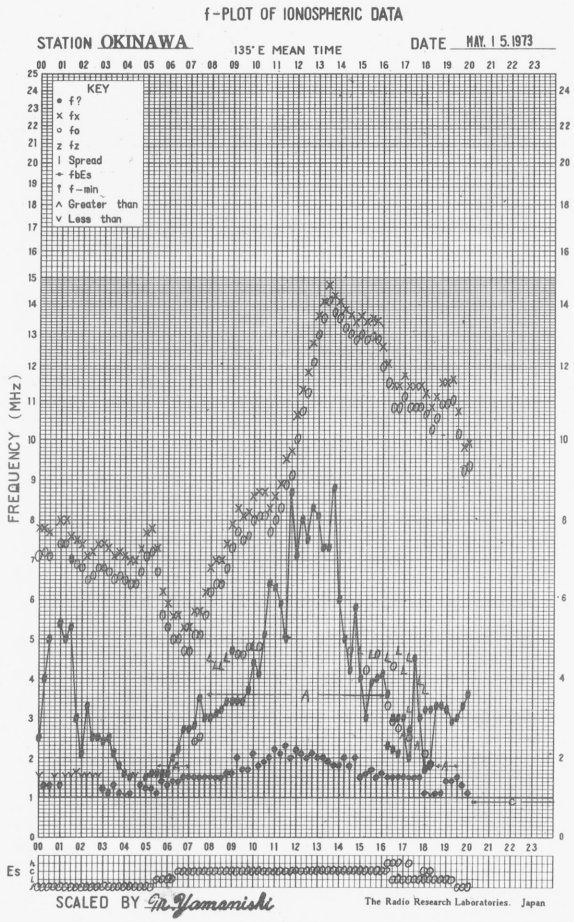
SCALED BY S. Ishidome
The Radio Research Laboratories. Japan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SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

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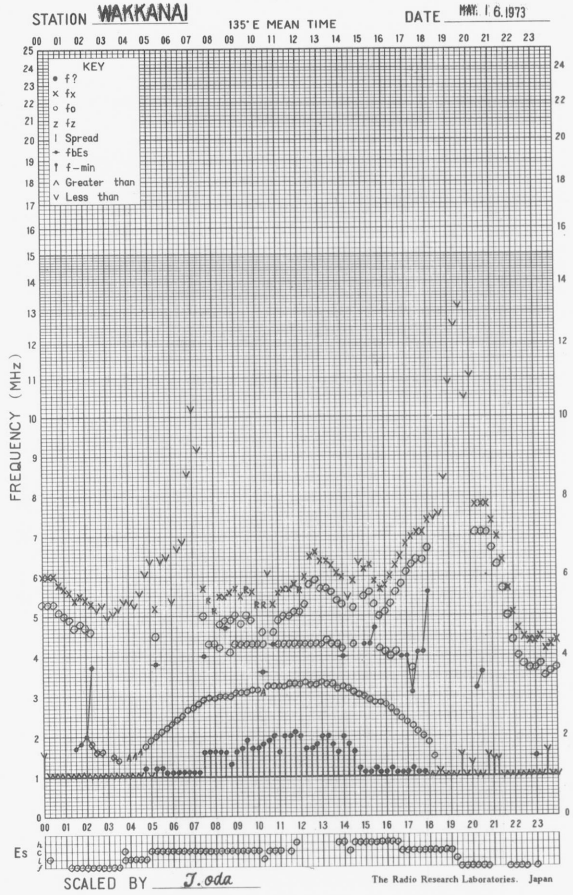

SCALED BY J. oda

The Radio Research Laboratories. Japan

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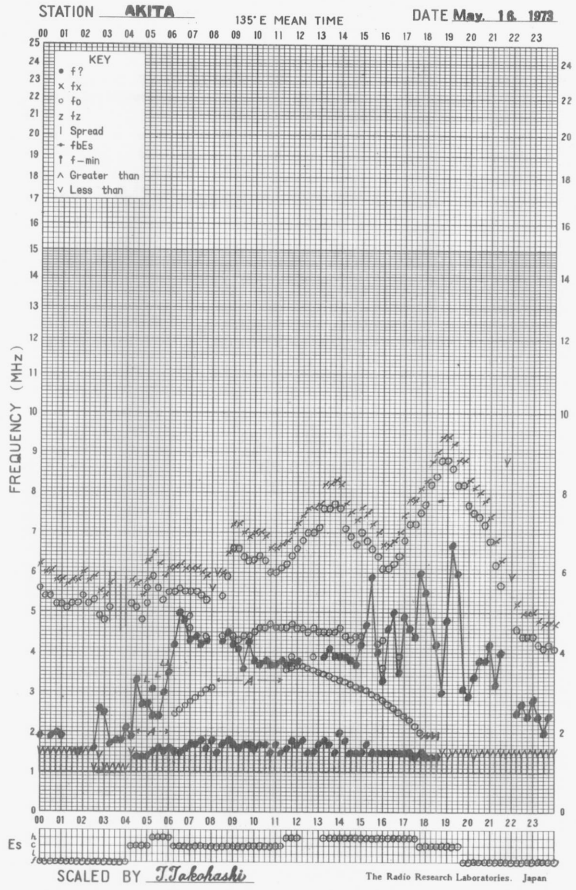

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The Radio Research Laboratories. Japan

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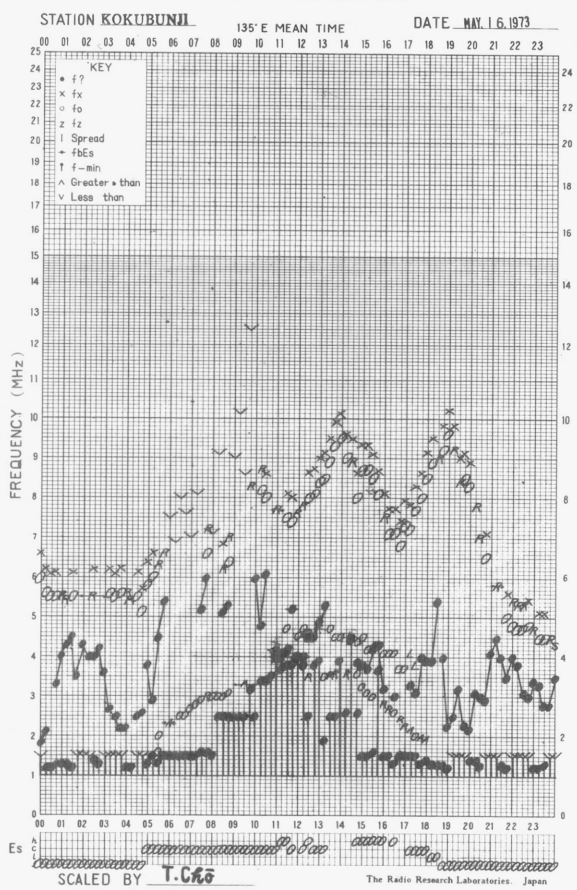
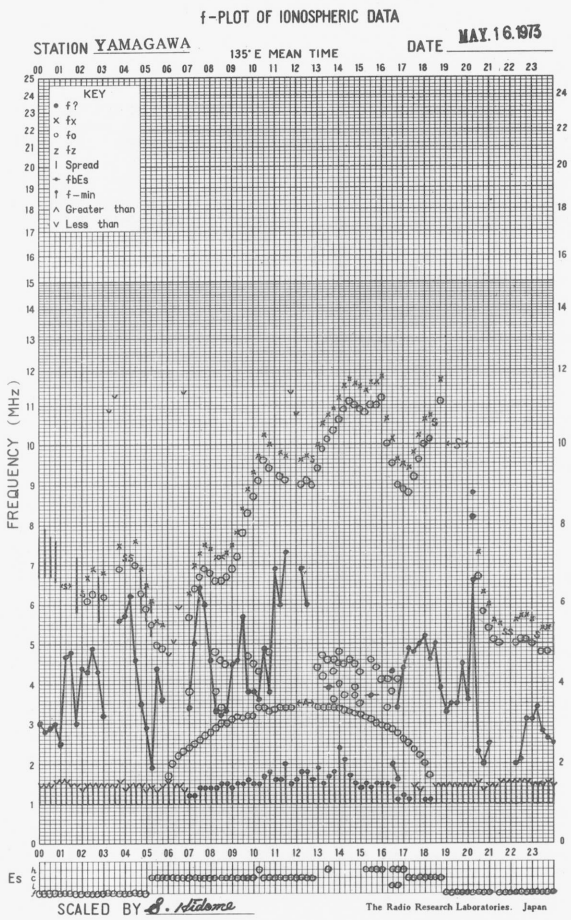


SCALED BY T. Chō

The Radio Research Laboratories. Japan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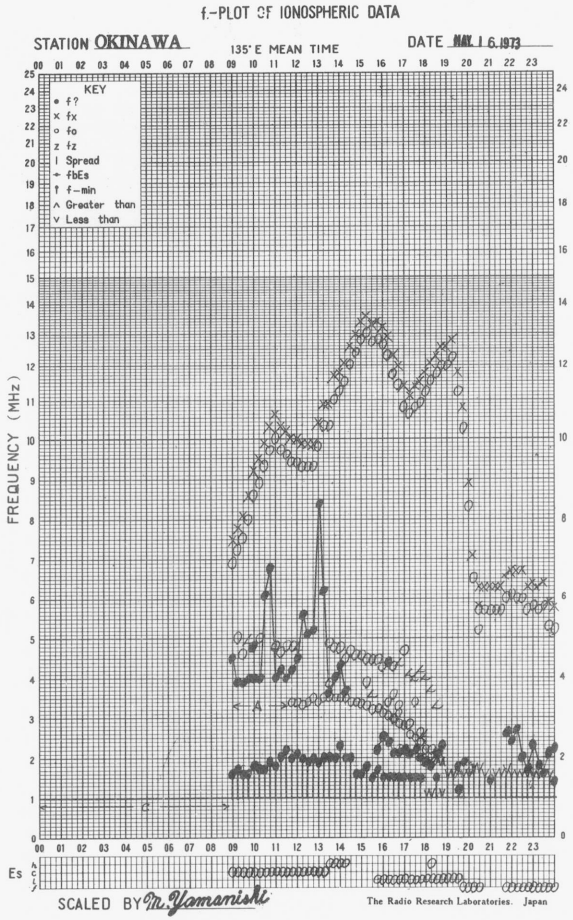
SCALED BY S. Hidoma
The Radio Research Laboratories. Japan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SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

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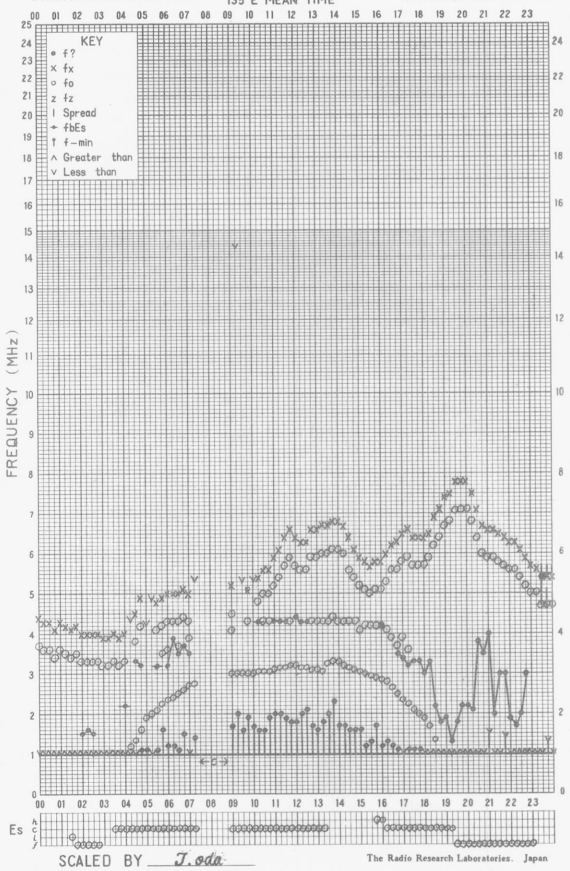

SCALED BY T. oda

The Radio Research Laboratories. Japan

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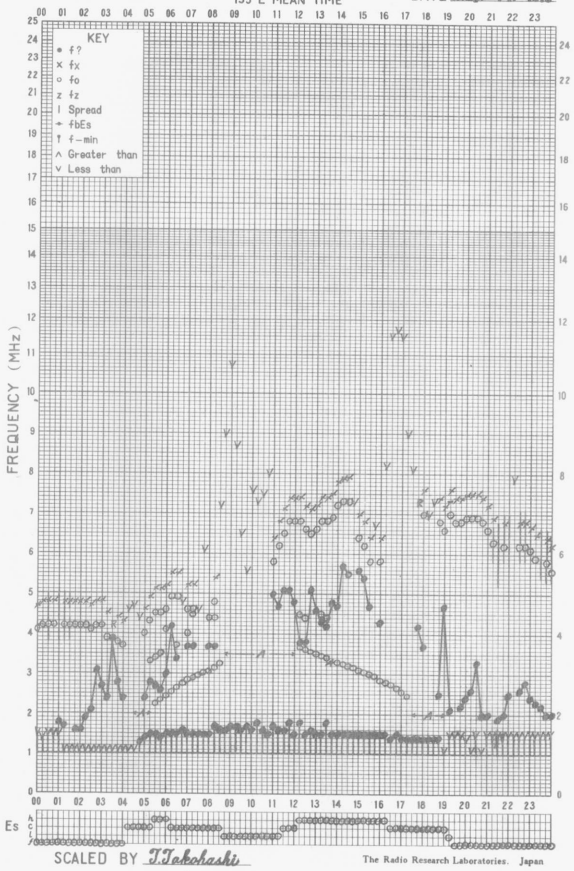

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The Radio Research Laboratories. Japan

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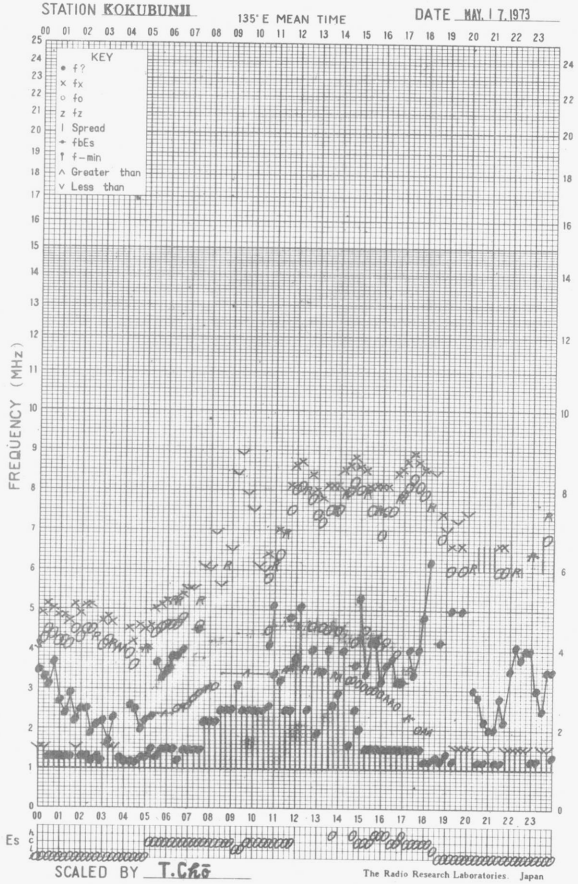

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The Radio Research Laboratories. Japan

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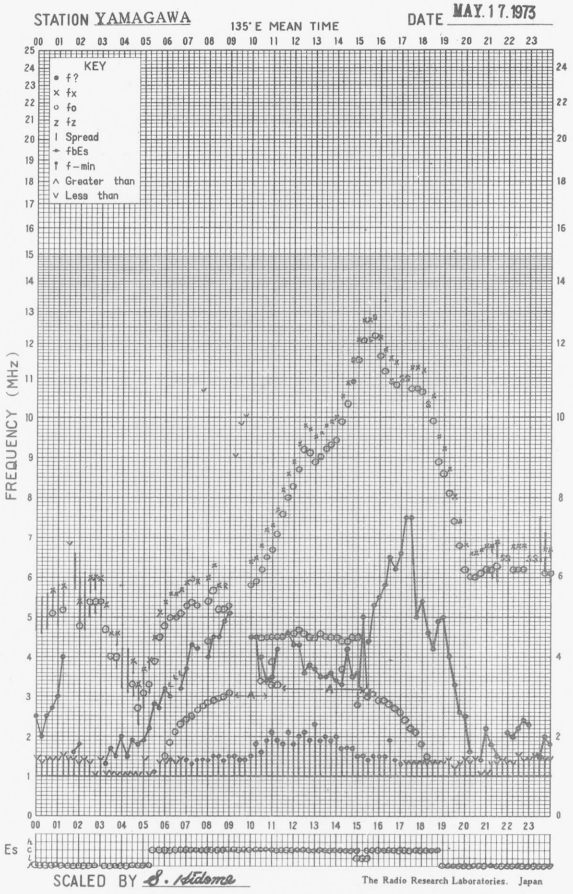

SCALED BY S. Ashizawa The Radio Research Laboratories. Japan

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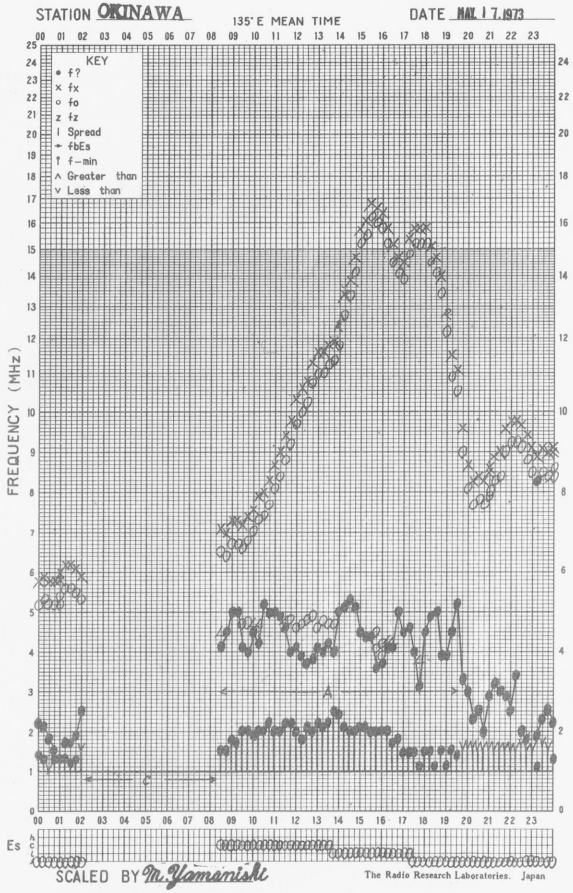
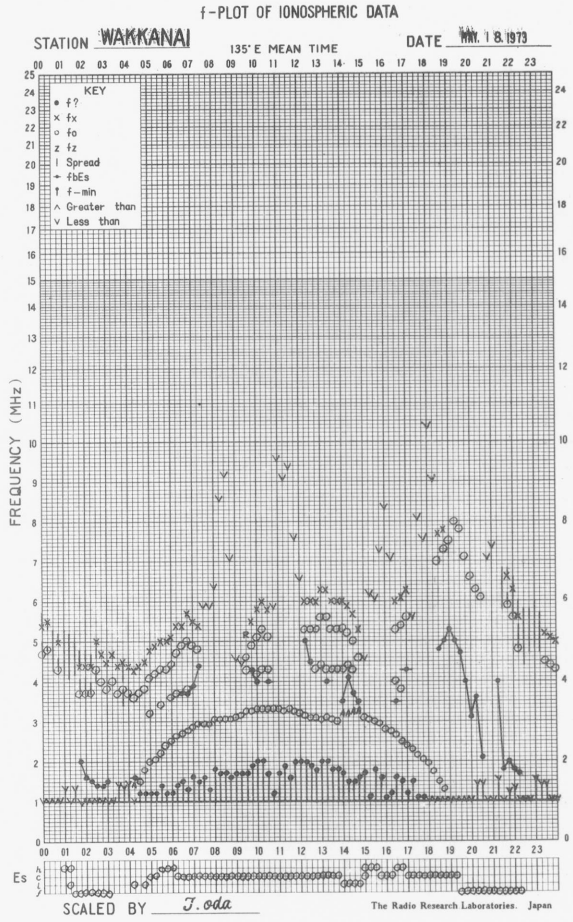


SCALED BY M. Yamanishi The Radio Research Laboratories. Japan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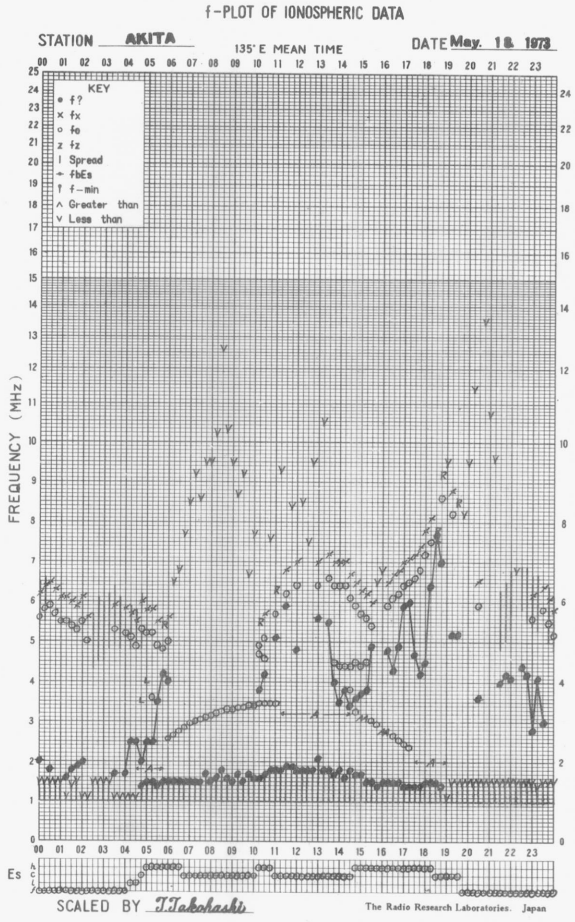
SCALED BY J. oda
The Radio Research Laboratories. Japan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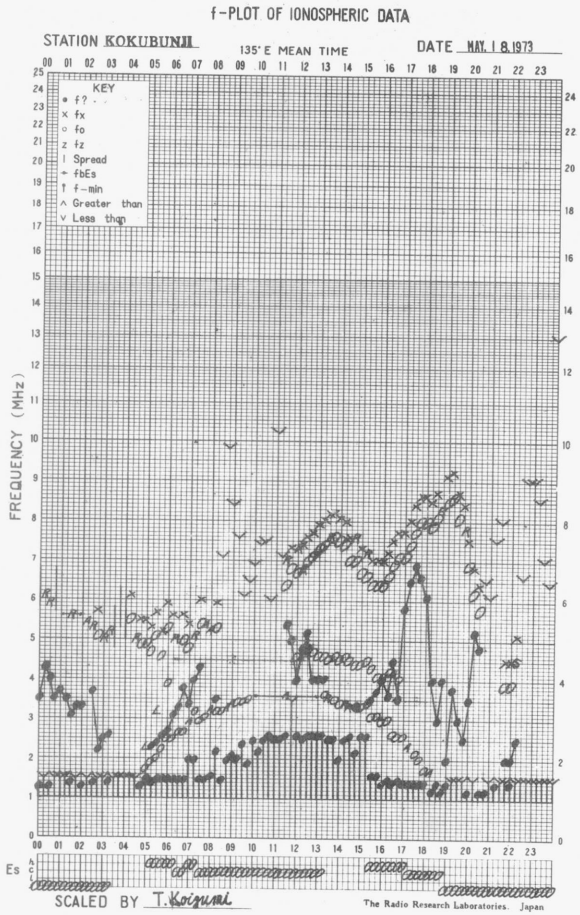
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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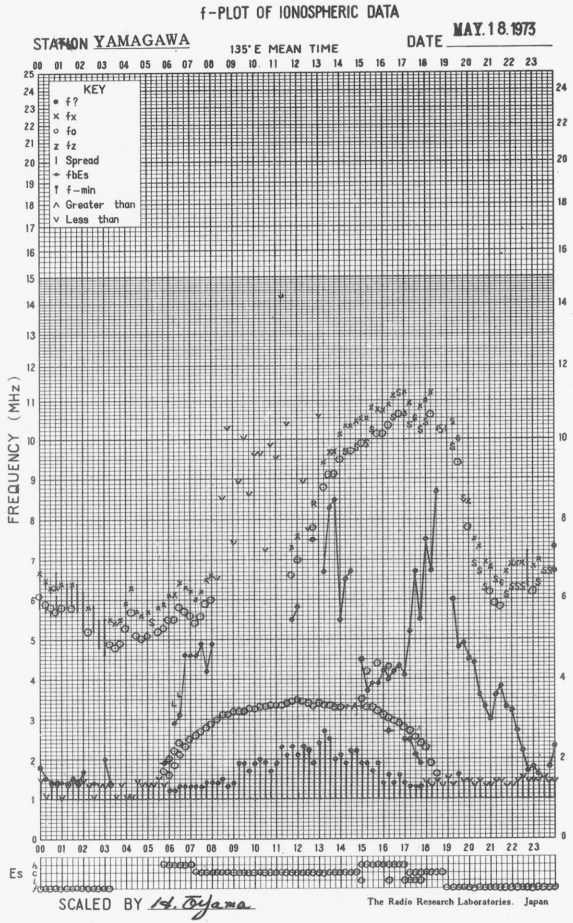
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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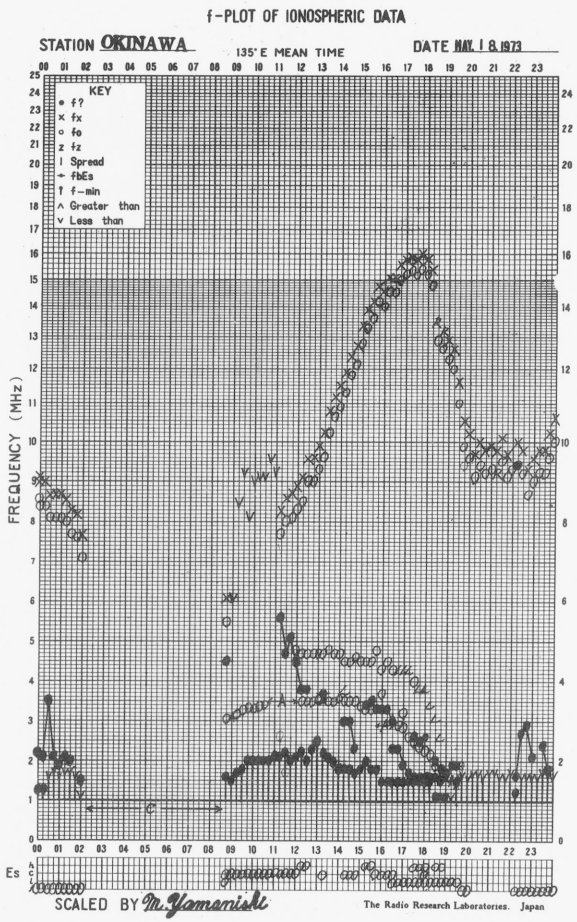
SCALED BY H. Tajima
The Radio Research Laboratories. Japan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The Radio Research Laboratories. Japan

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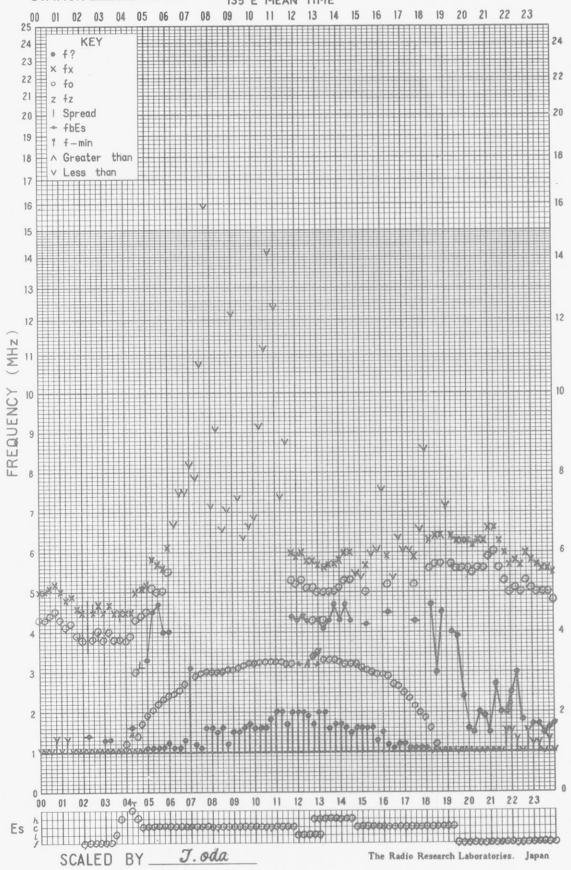

SCALED BY J. oda

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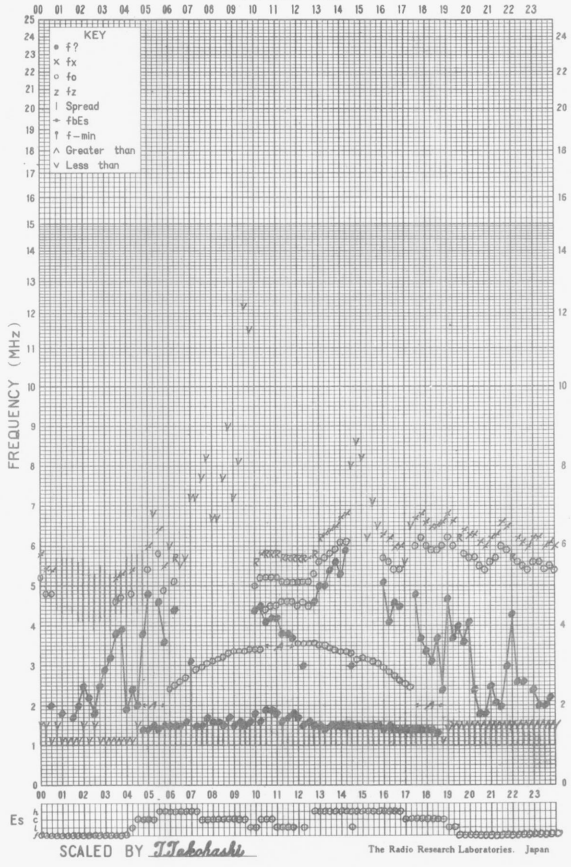

SCALED BY T. Takahashi

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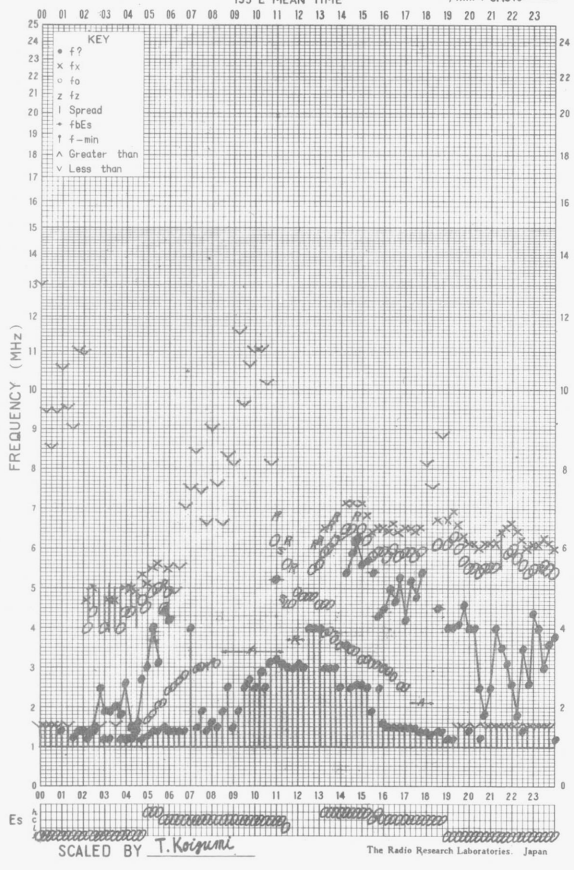
f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 19.1973

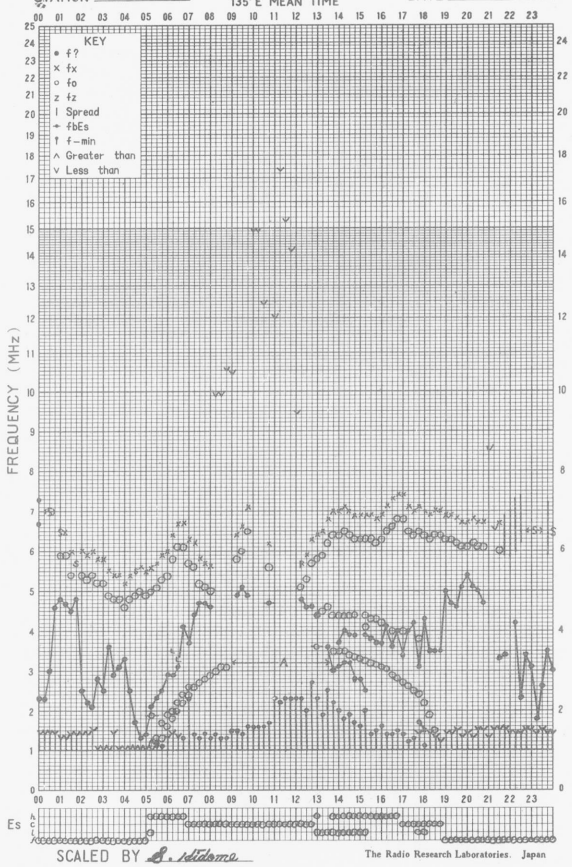


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA 135°E MEAN TIME DATE MAY. 19. 1973

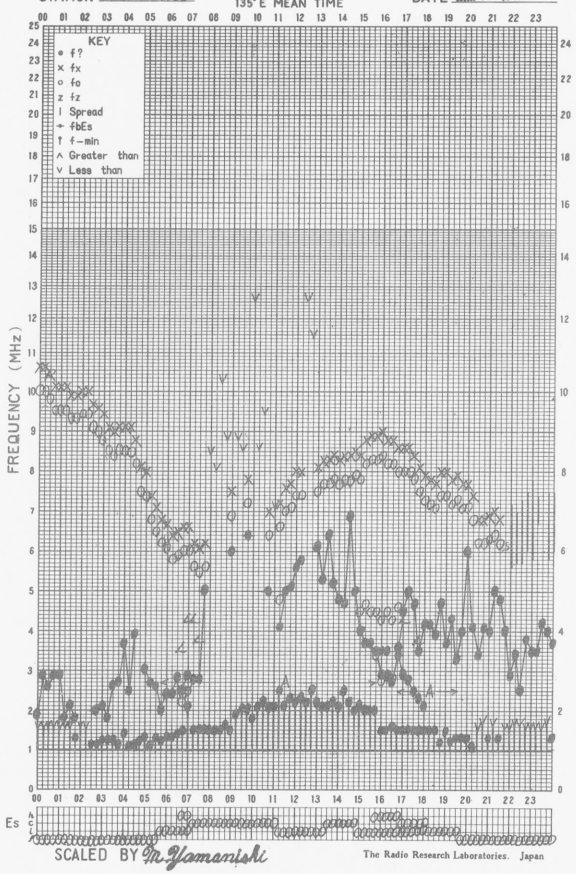


SCALED BY S. Ishidome

The Radio Research Laboratories. Japan

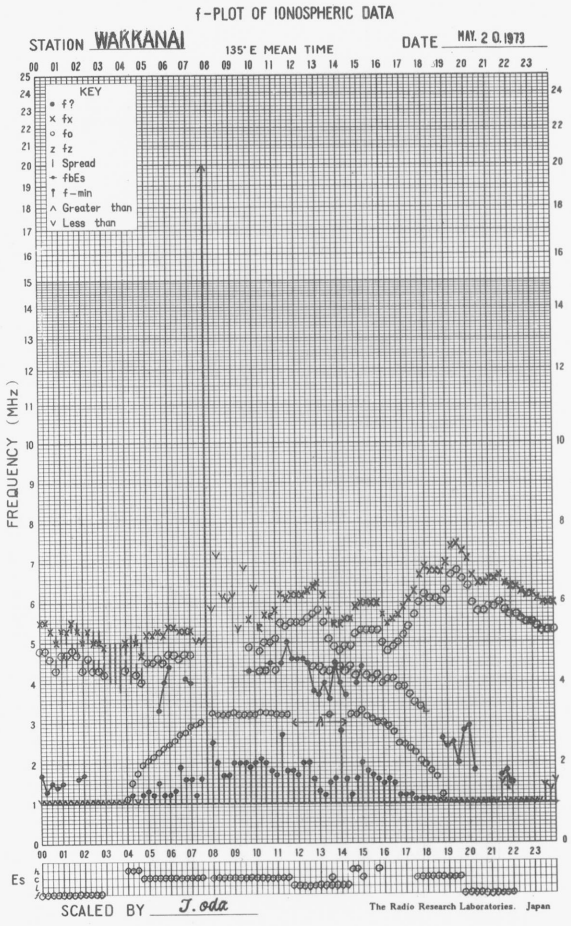
f-PLOT OF IONOSPHERIC DATA

STATION OKINAWA 135°E MEAN TIME DATE MAY. 19. 1973



SCALED BY M. Yamanishi

The Radio Research Laboratories. Japan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135°E MEAN TIME
DATE MAY. 20. 1973
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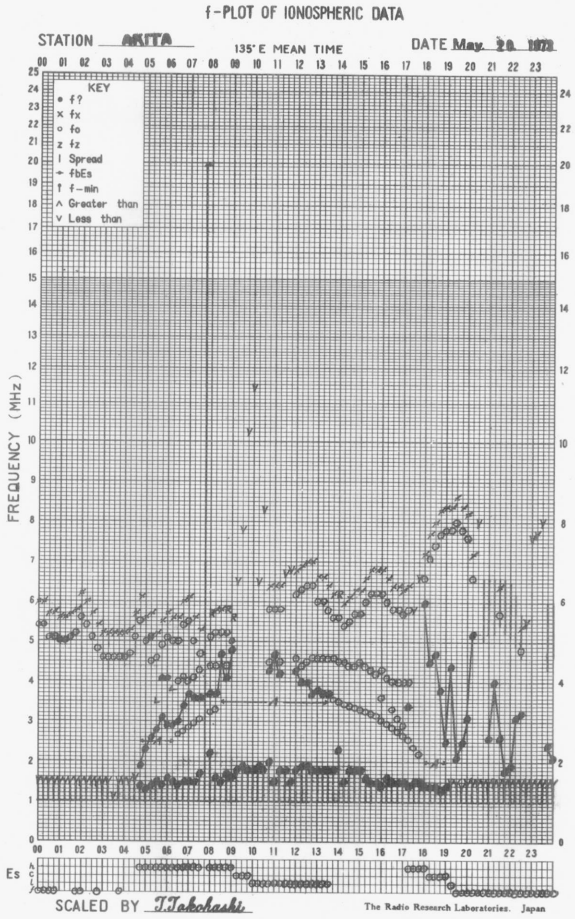
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY J. oda
The Radio Research Laboratories. Japan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DATE May. 20. 1973
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FREQUENCY (MHz)
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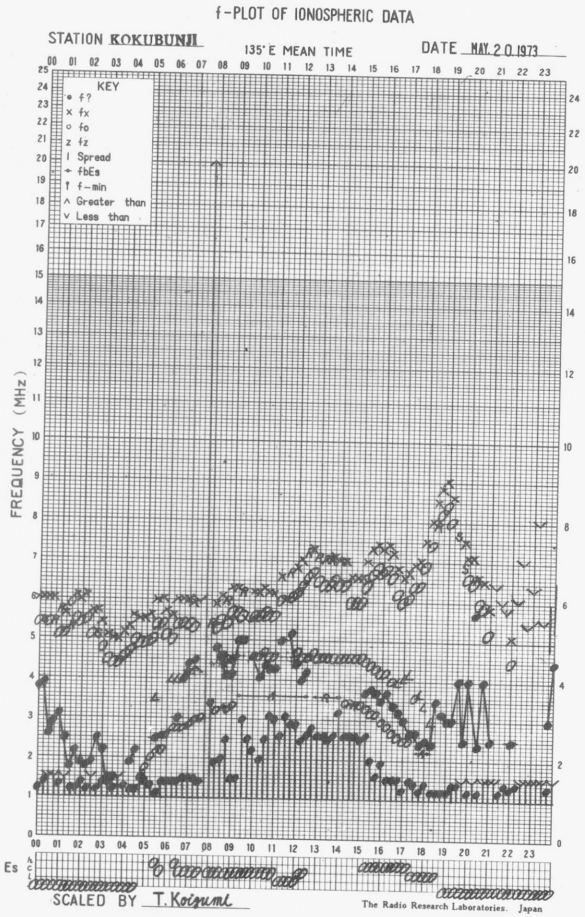
SCALED BY T. Takahashi
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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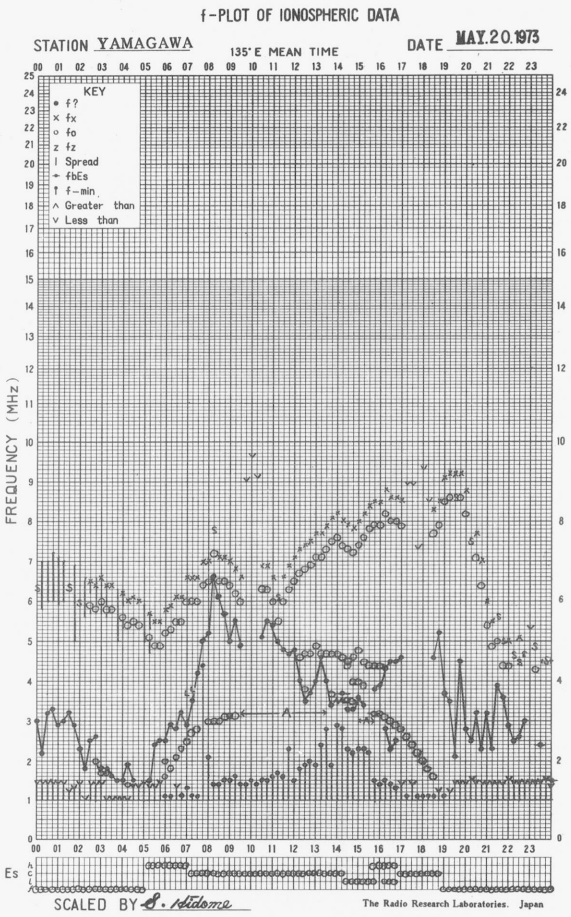
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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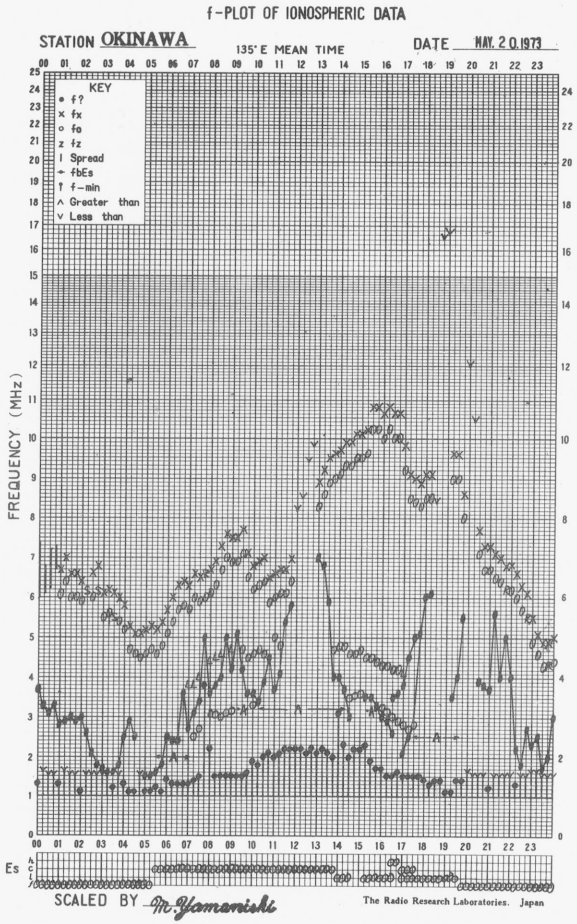
SCALED BY S. Ishidome
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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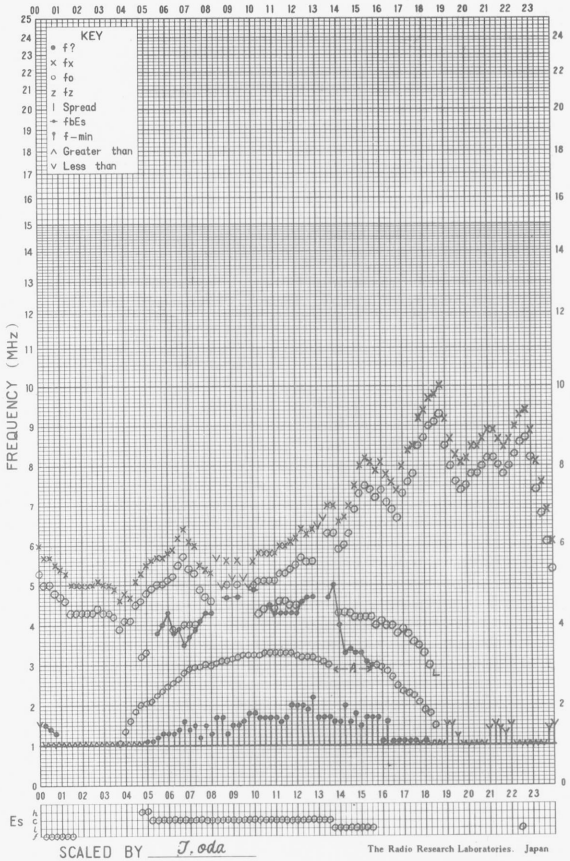
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 2 1. 1973



SCALED BY T. oda

The Radio Research Laboratories. Japan

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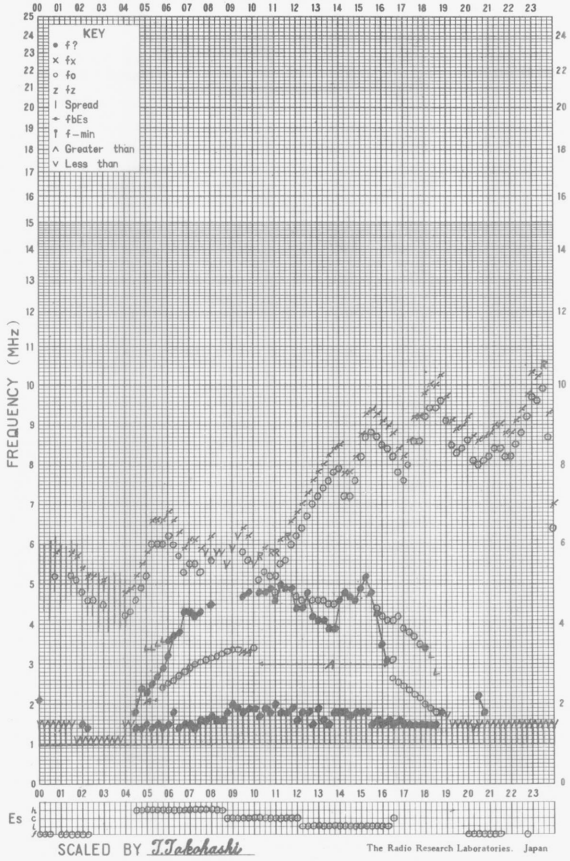

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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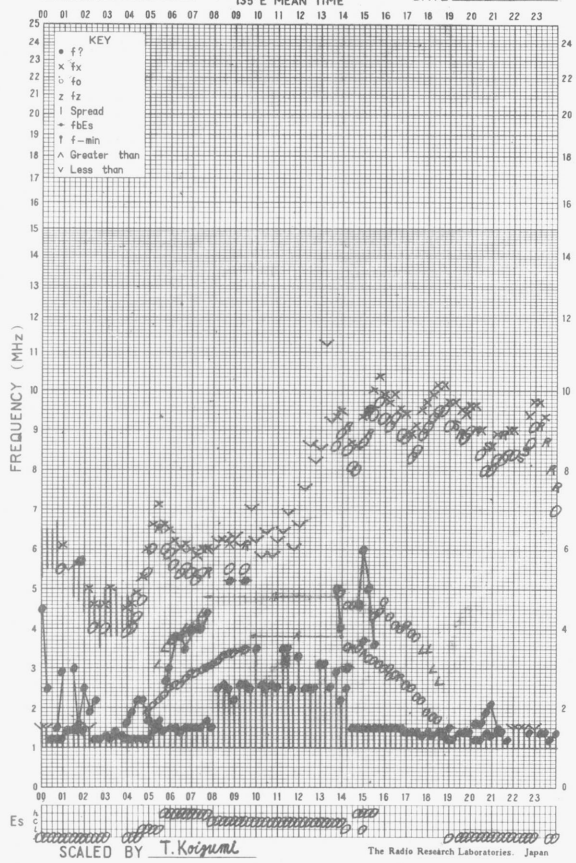
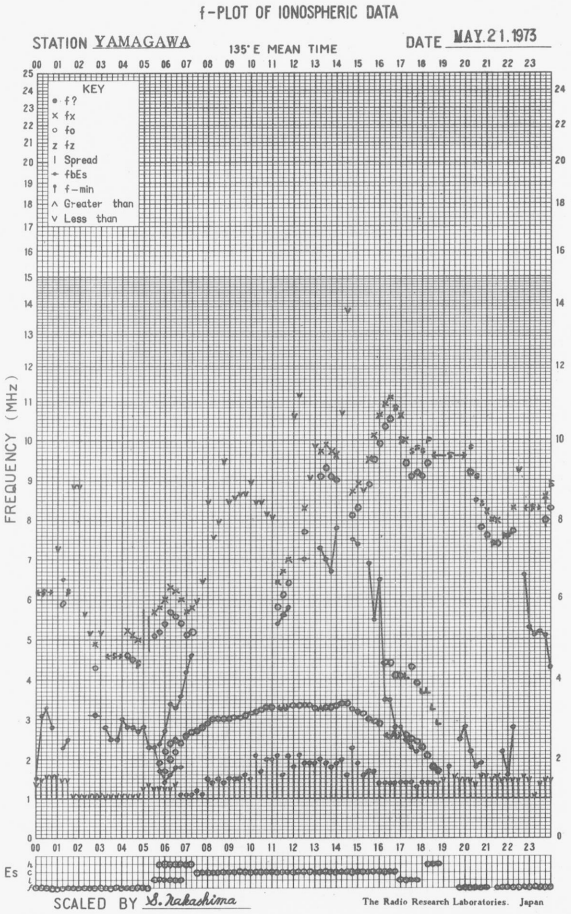


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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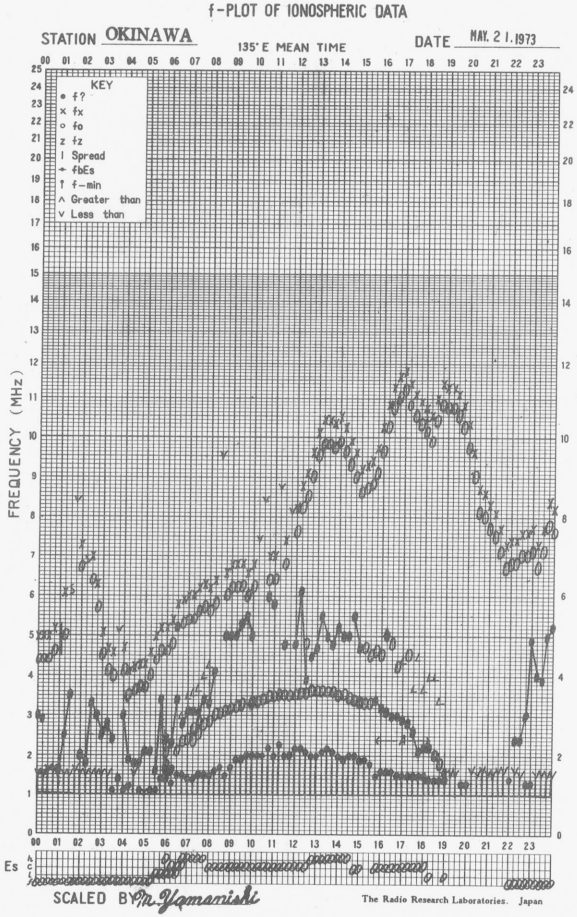
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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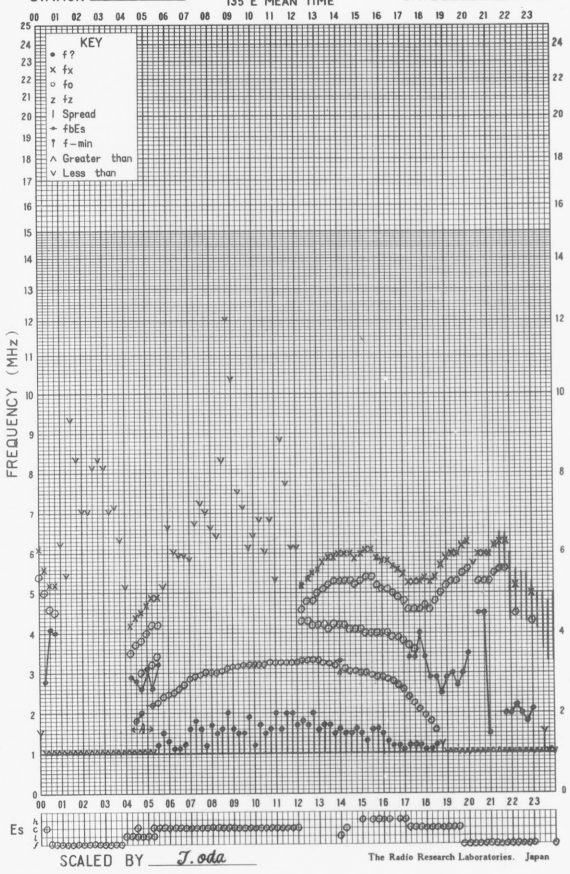
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 22. 1973



SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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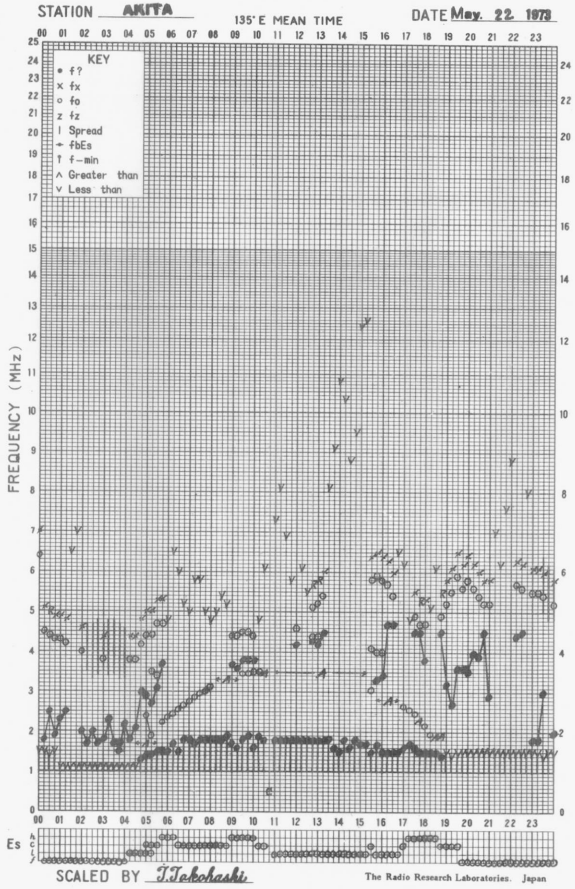

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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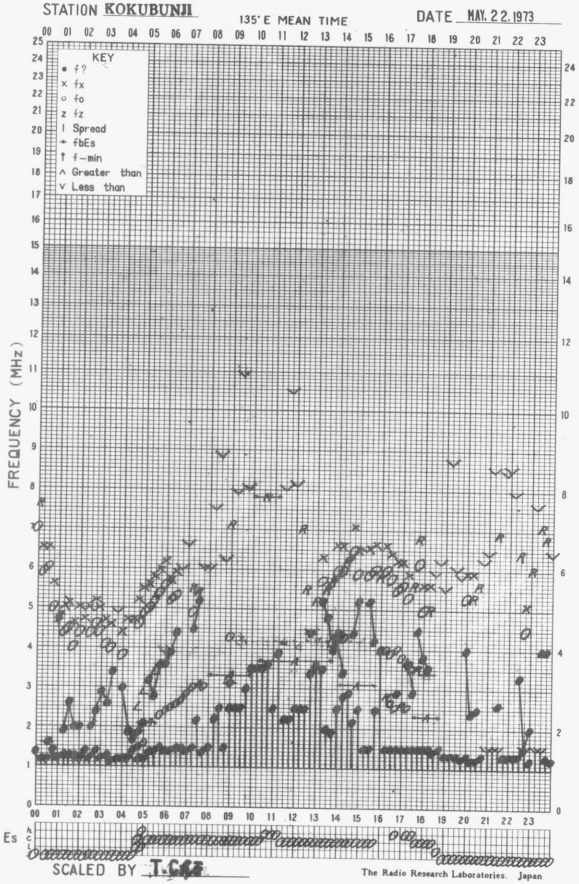
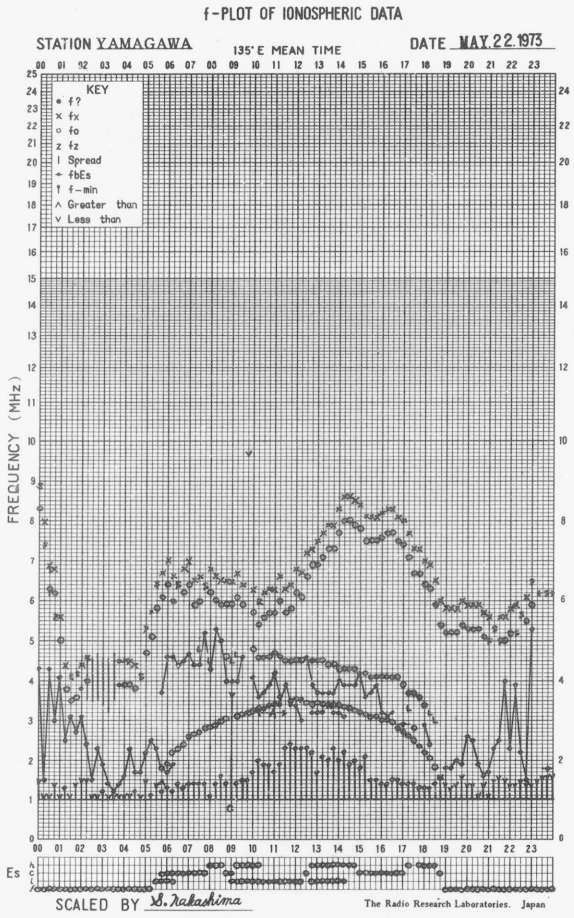


SCALED BY T. [illegible]

The Radio Research Laboratories. Japan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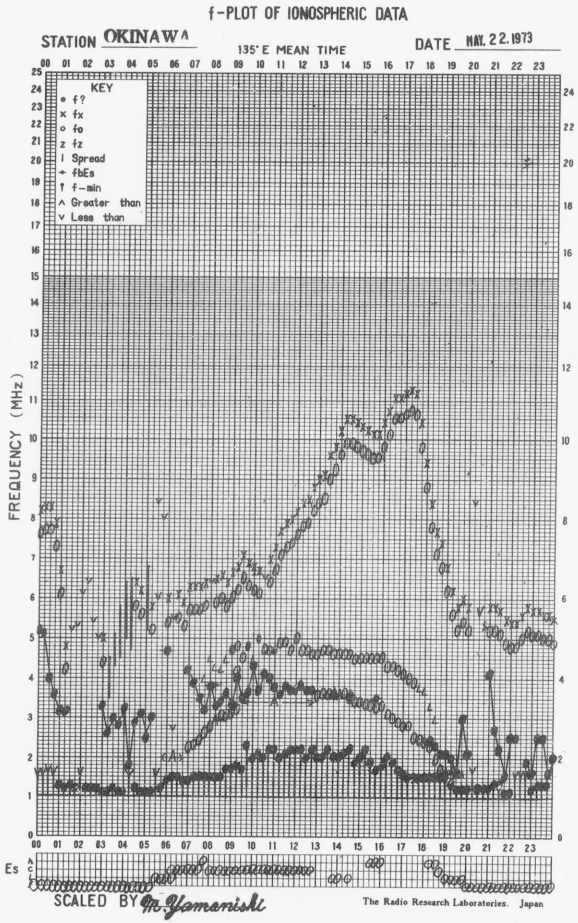
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan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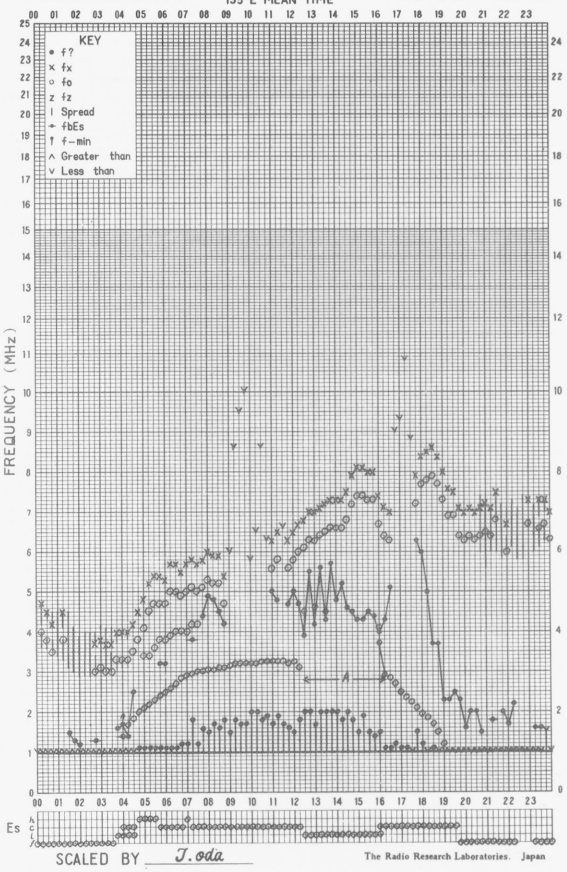
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 23. 1973



SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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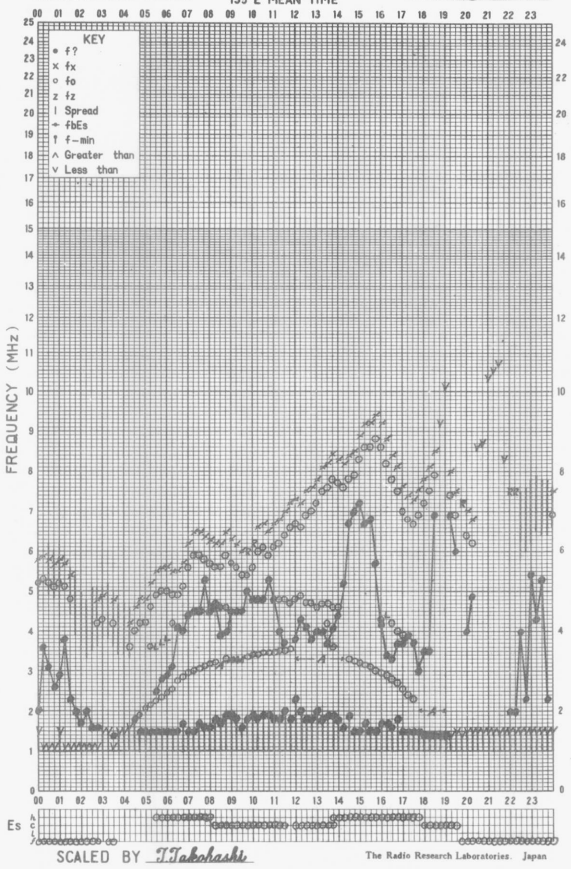

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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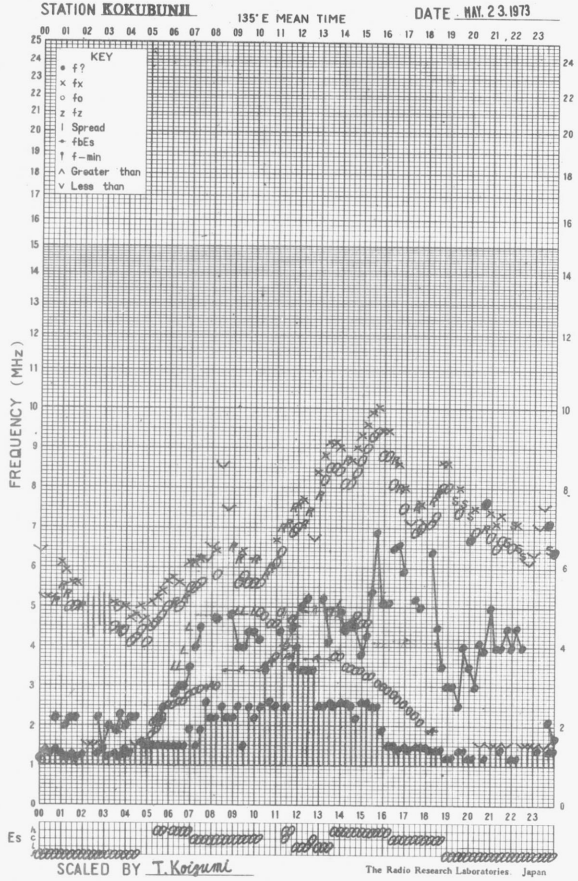
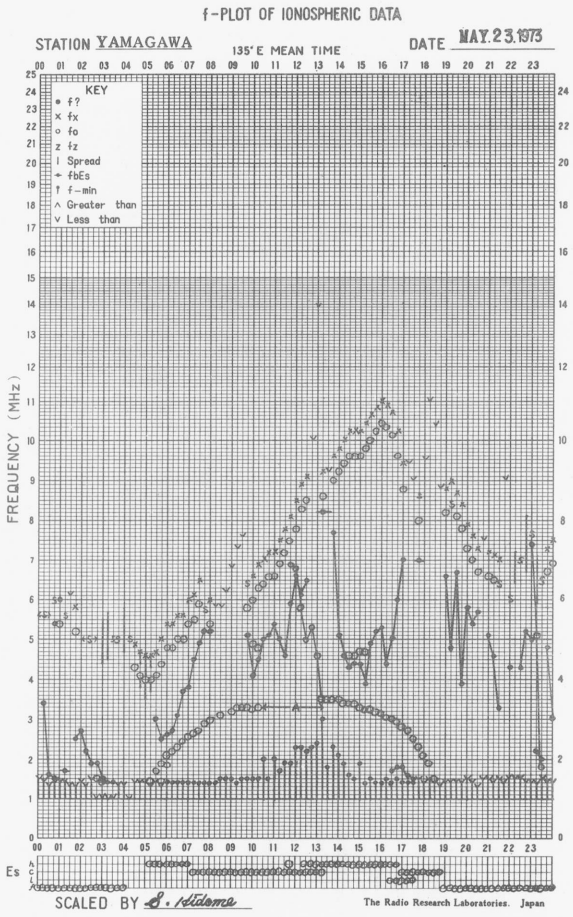


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan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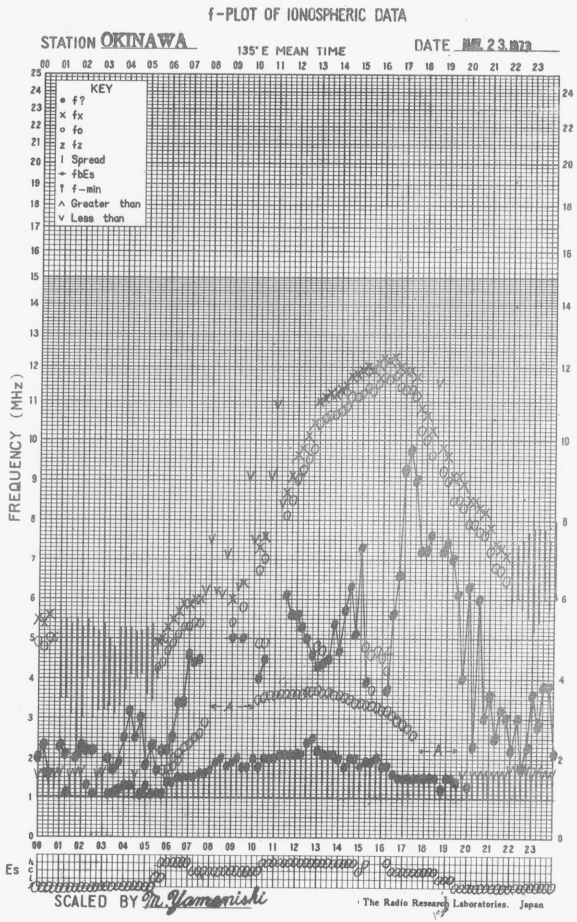
SCALED BY S. Kitoma
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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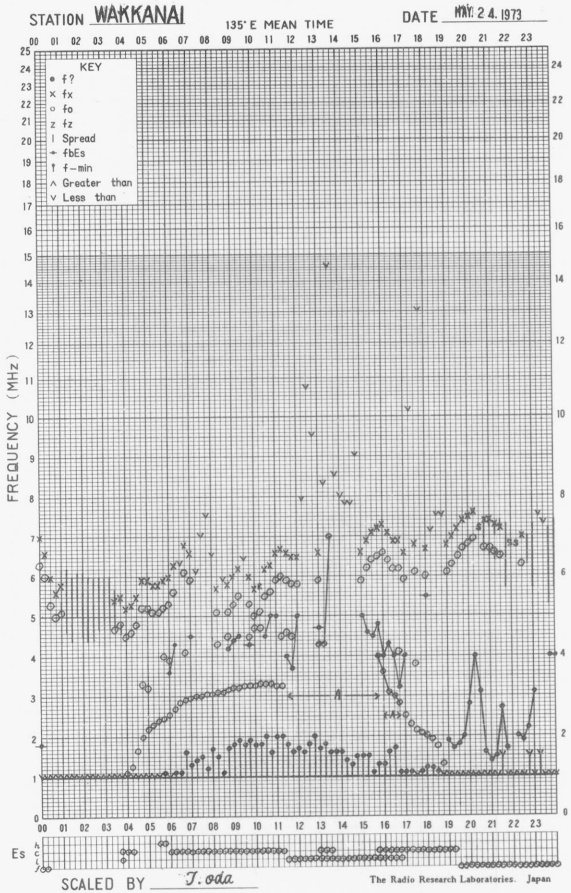

SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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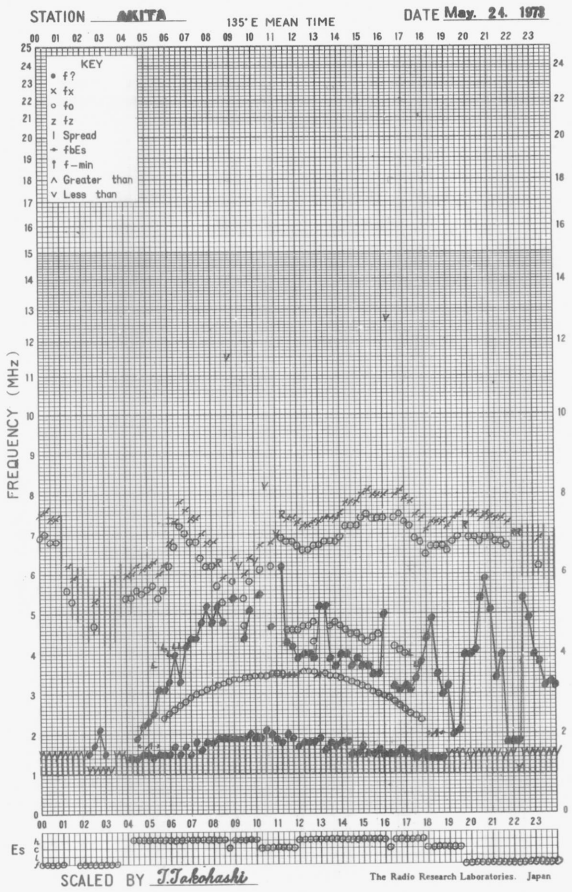

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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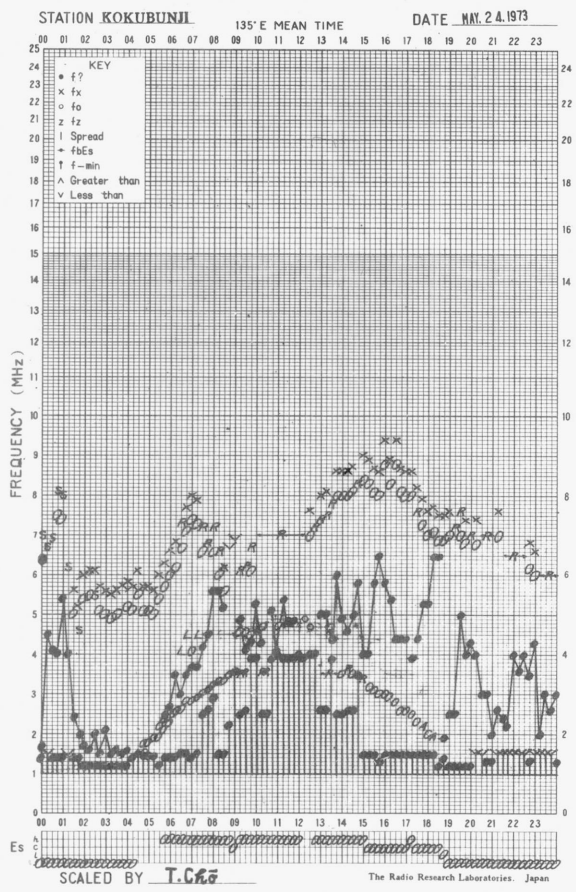
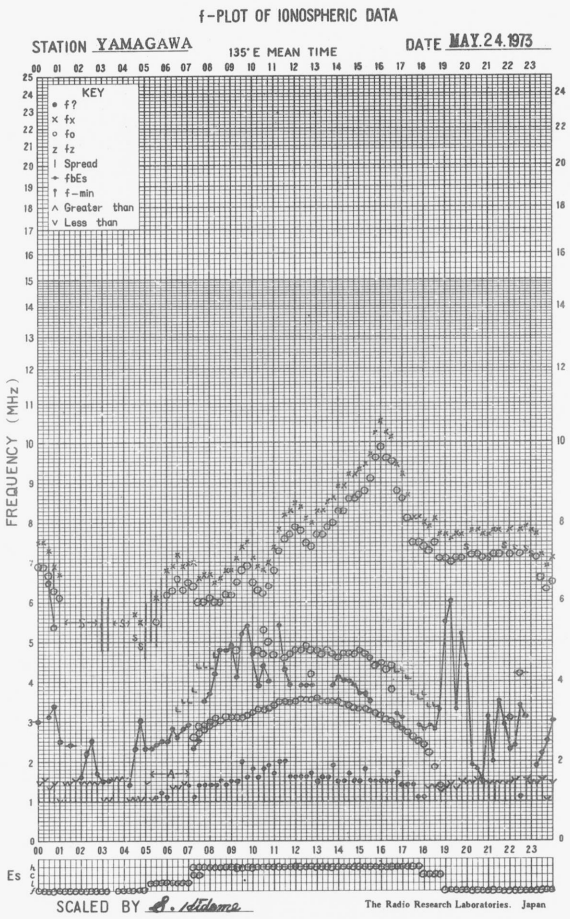


SCALED BY T. Ono

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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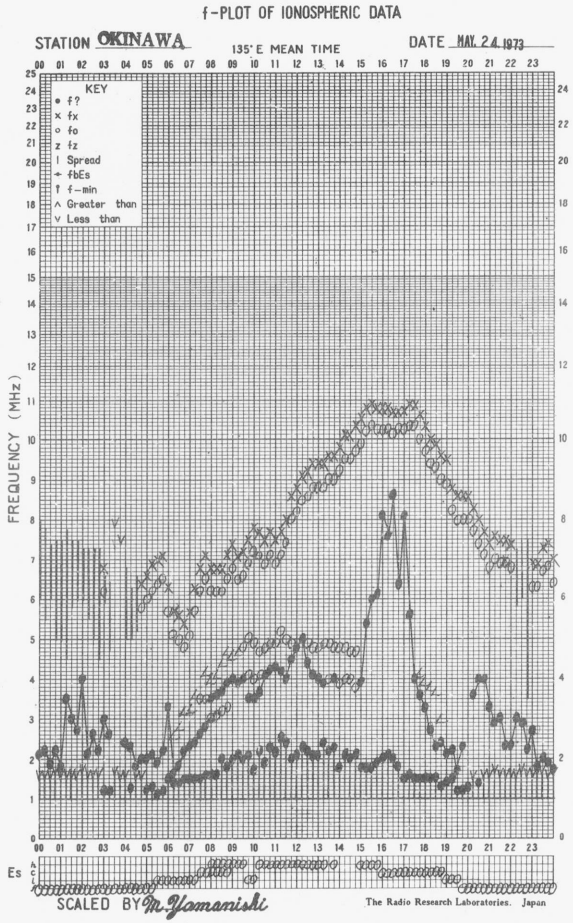
SCALED BY S. Hitotsuma
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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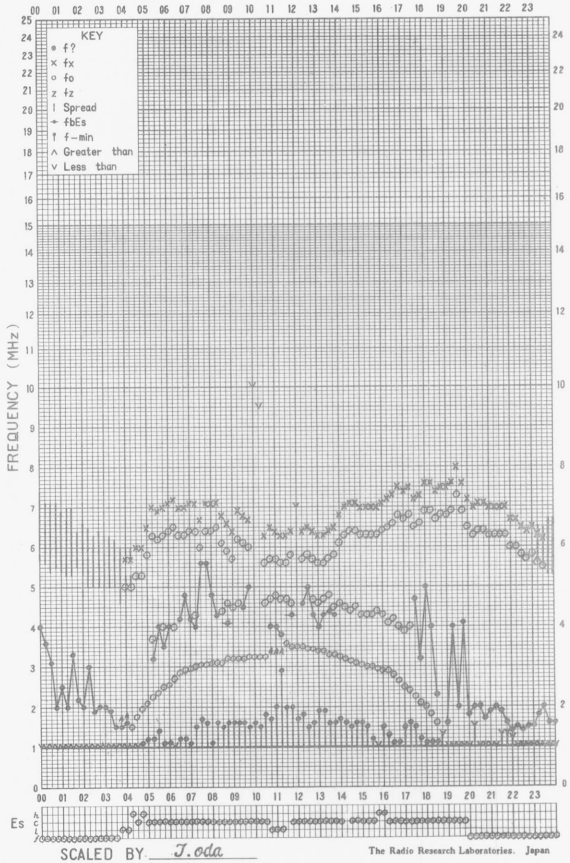
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 25. 1973



SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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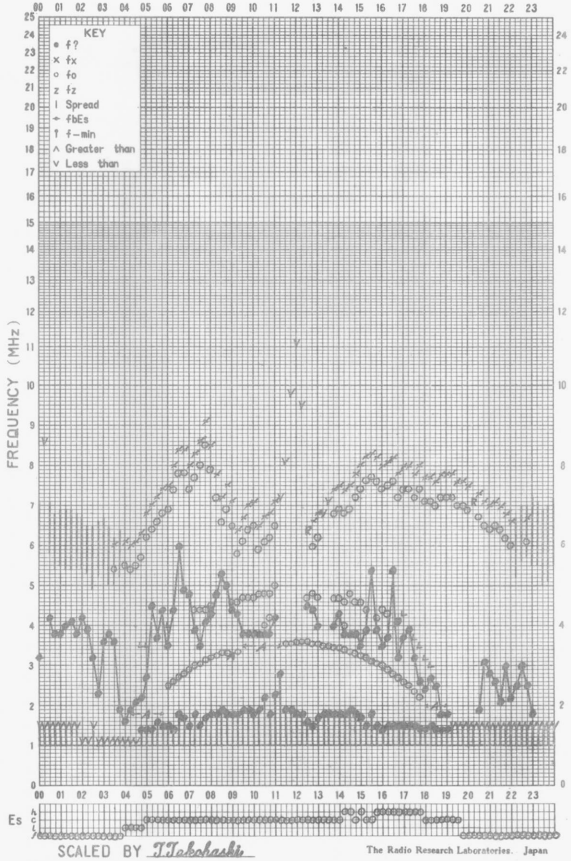

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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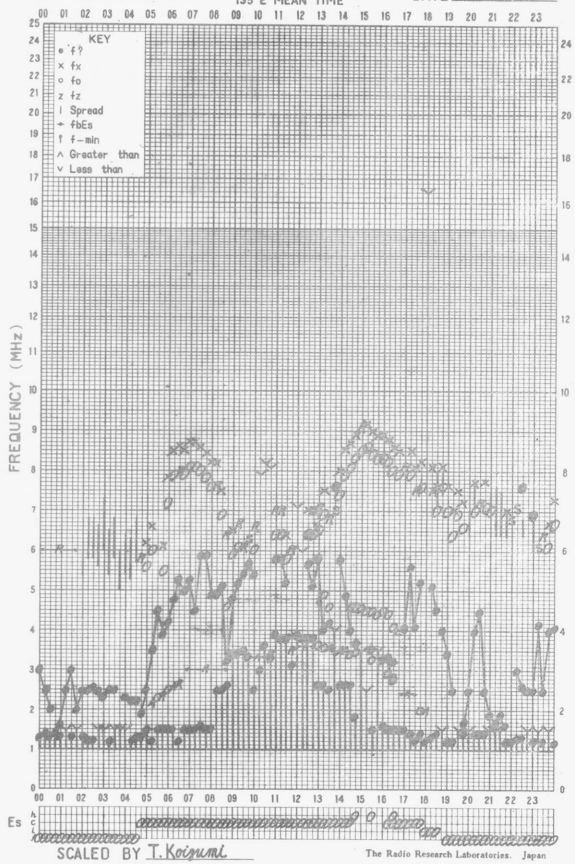
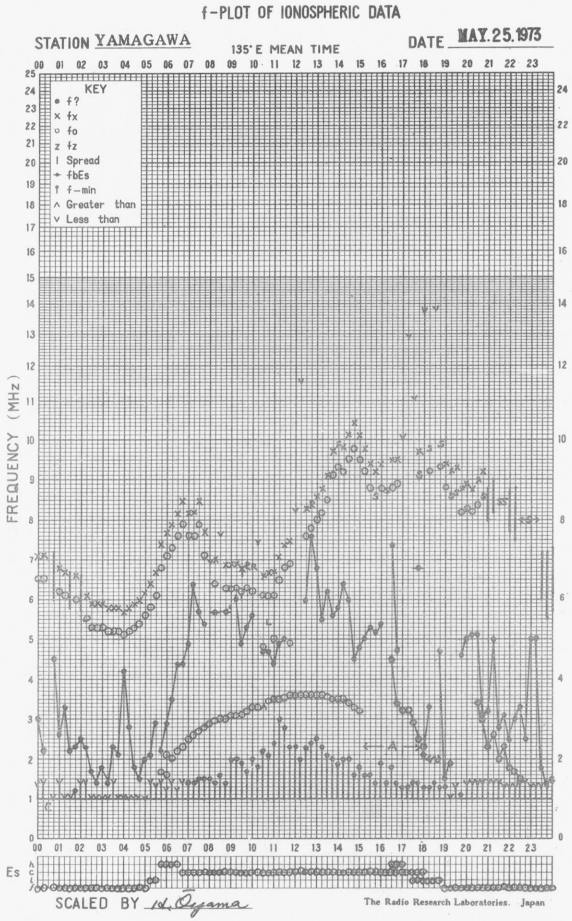


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan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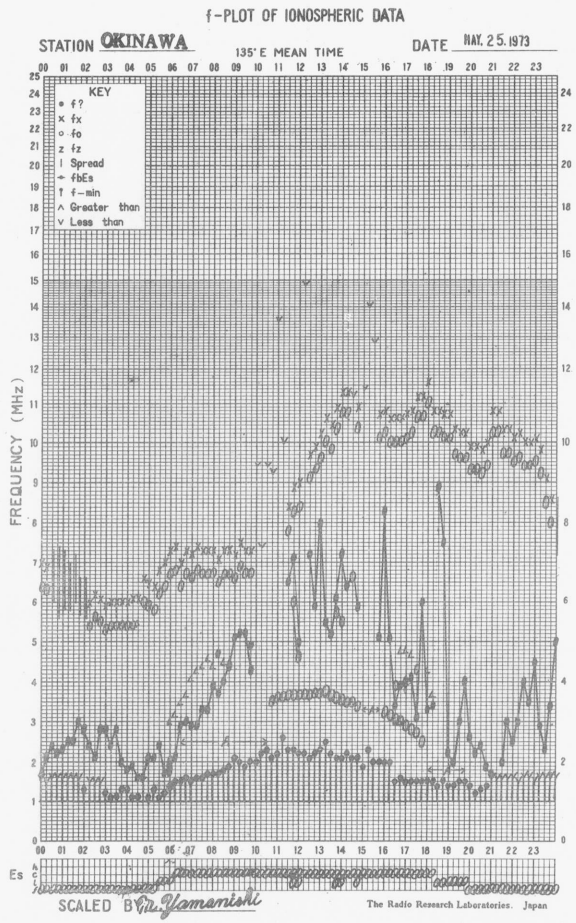
SCALED BY M. Ozima
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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SCALED BY Y. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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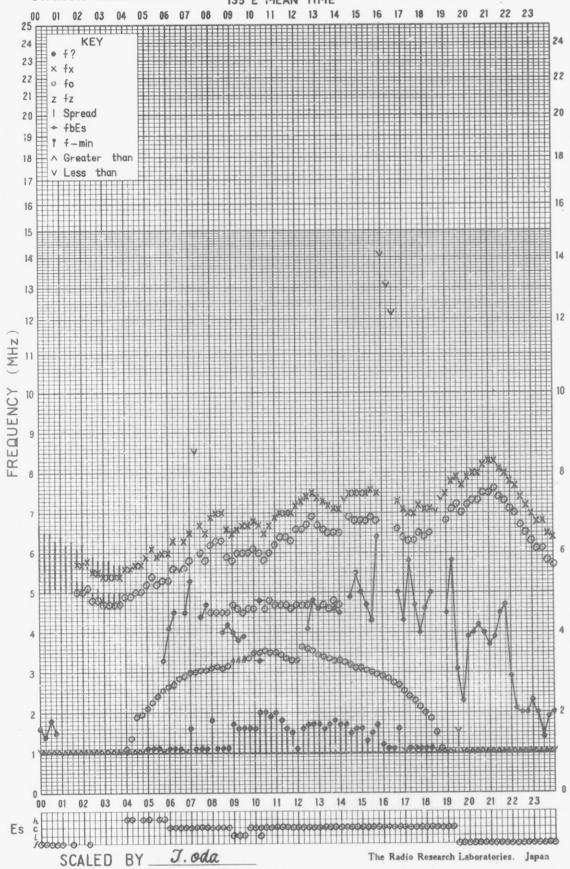

SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

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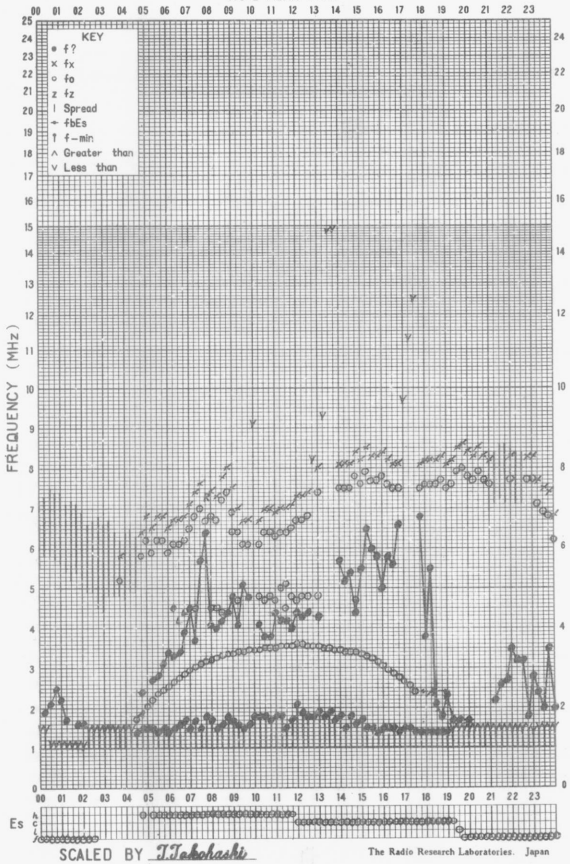

SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

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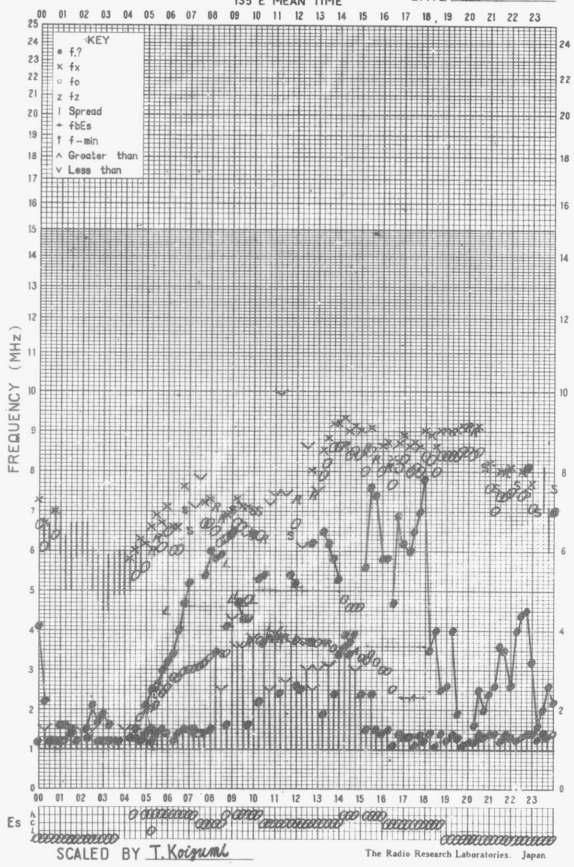
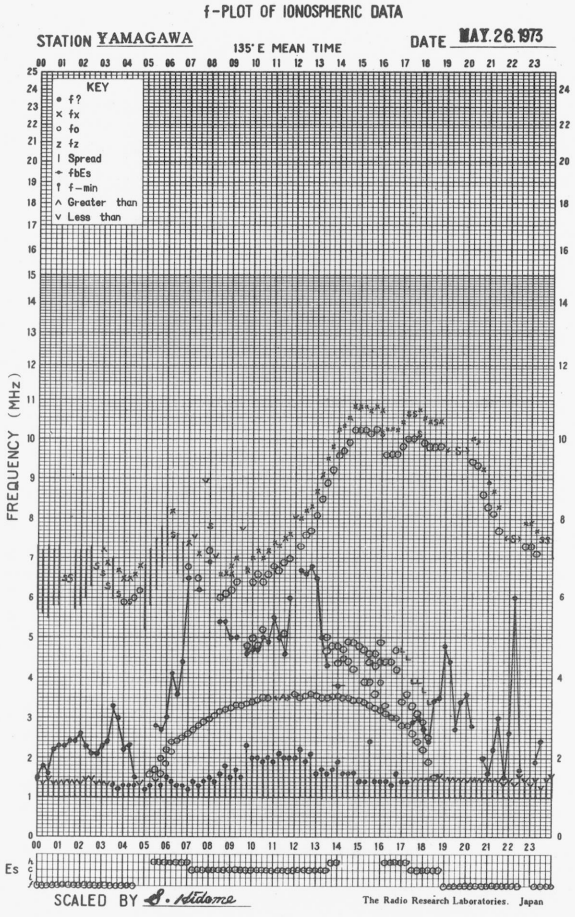


SCALED BY T. Koizumi

The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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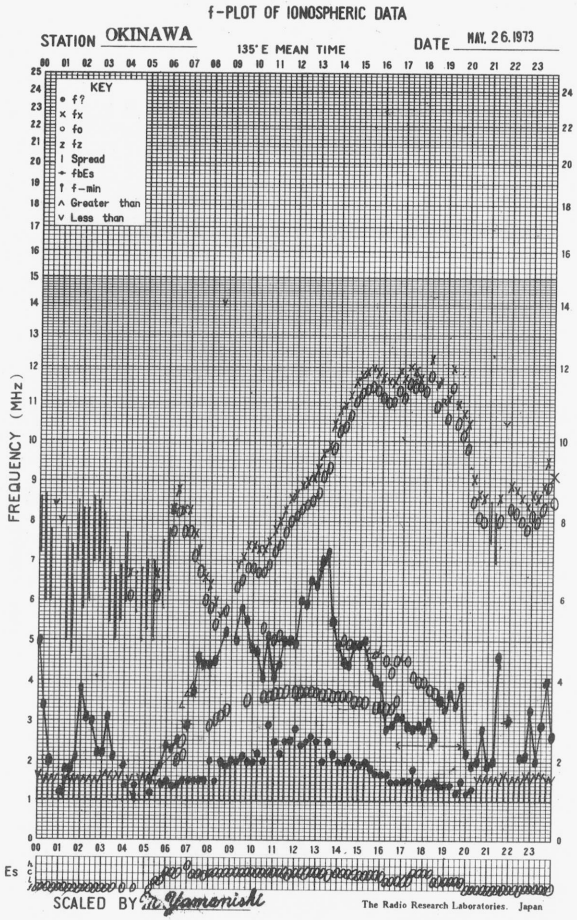
SCALED BY S. Ishizawa
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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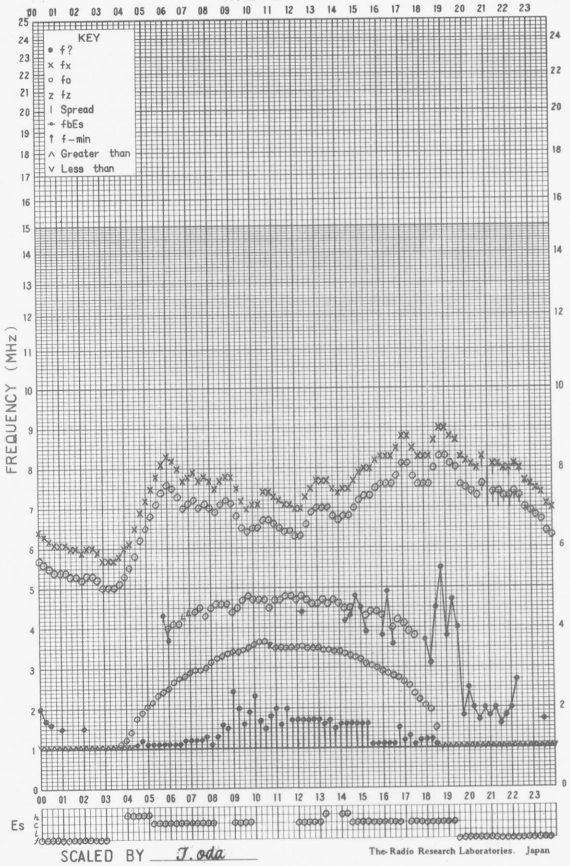
SCALED BY R. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 27. 1973

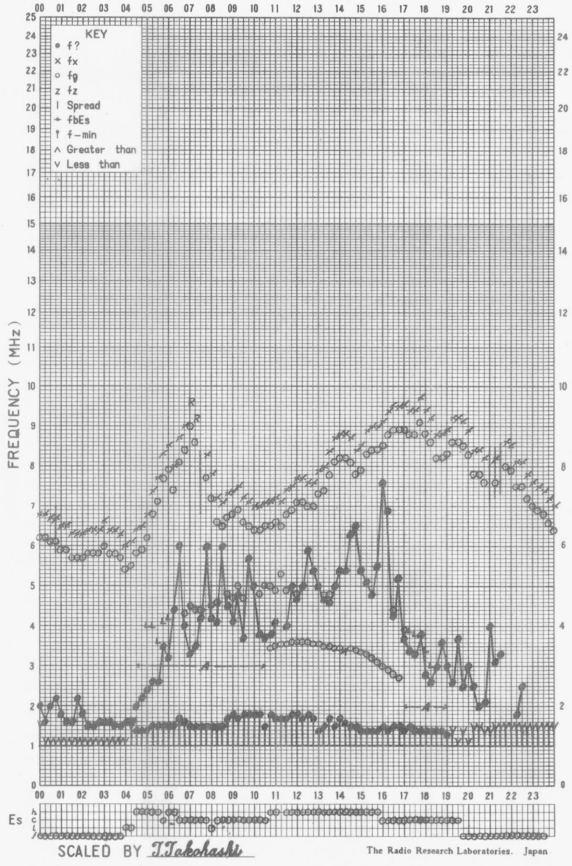


SCALED BY T. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 27. 1973

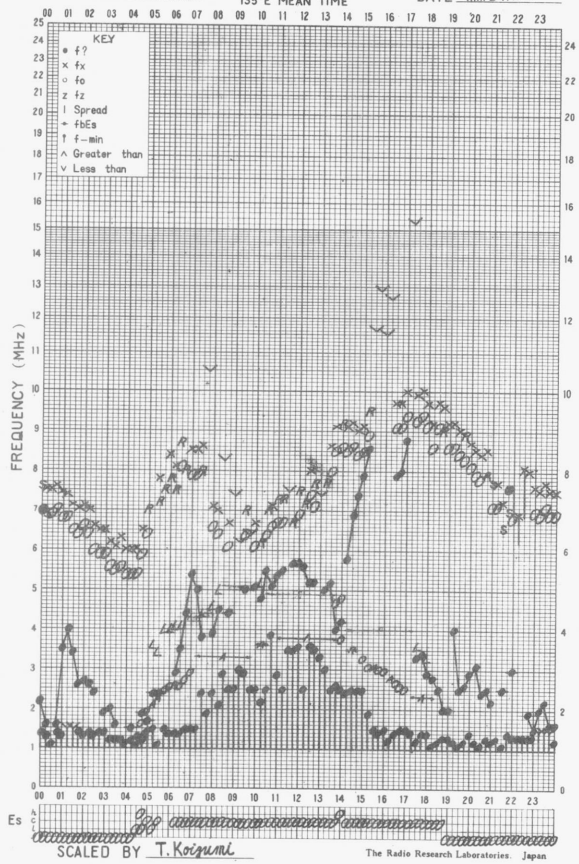


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

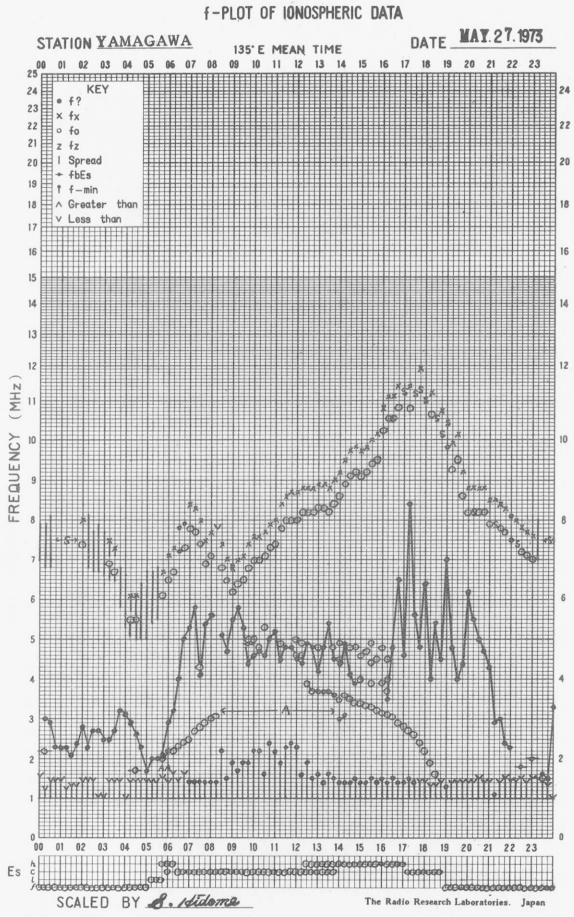
f-PLOT OF IONOSPHERIC DATA

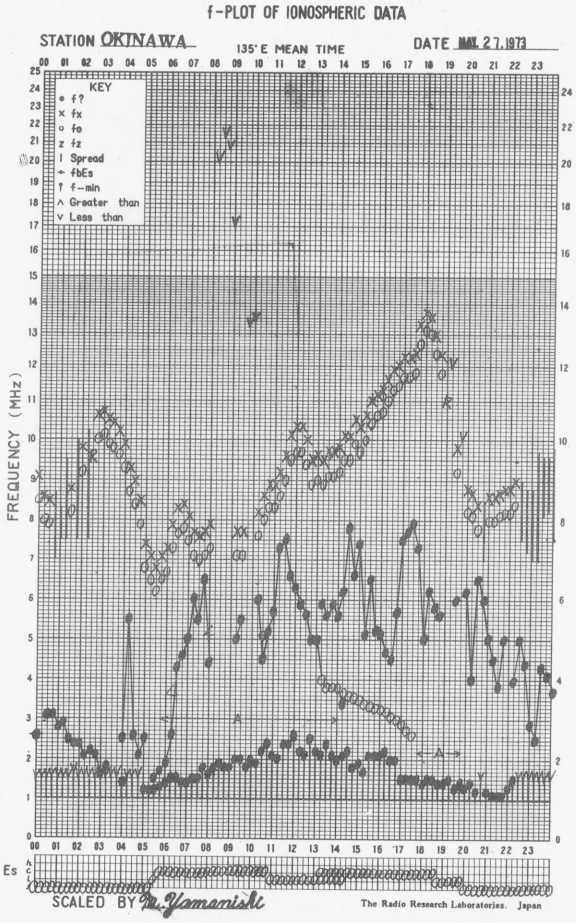
STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 27. 1973



SCALED BY T. Koizumi

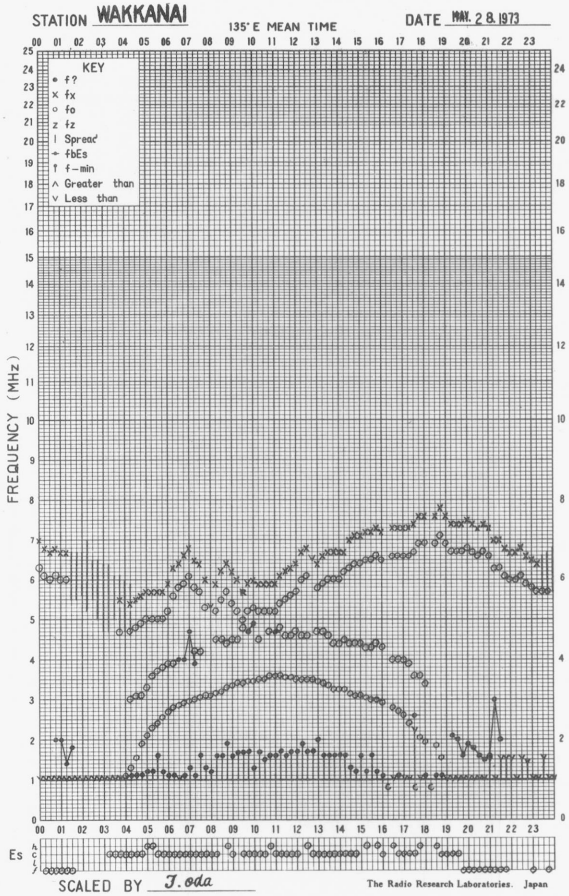
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE MAY. 27. 1973
KEY
• f?
× fx
○ fo
z fz
I Spread
⌐ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Kitaoka
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION OKINAWA
135°E MEAN TIME
DATE MAY. 27. 1973
KEY
• f?
× fx
○ fo
z fz
I Spread
⌐ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY R. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 2 8. 1973

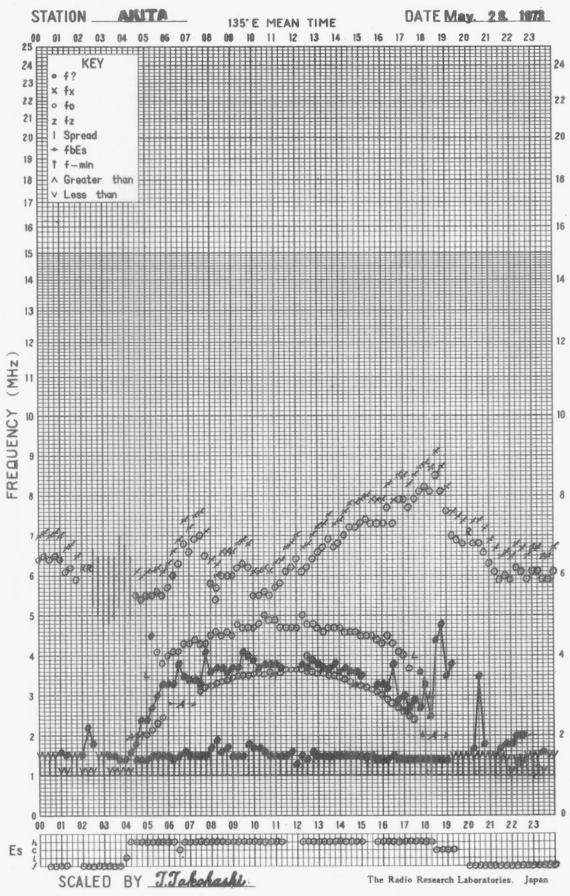


SCALED BY J. oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 28. 1973

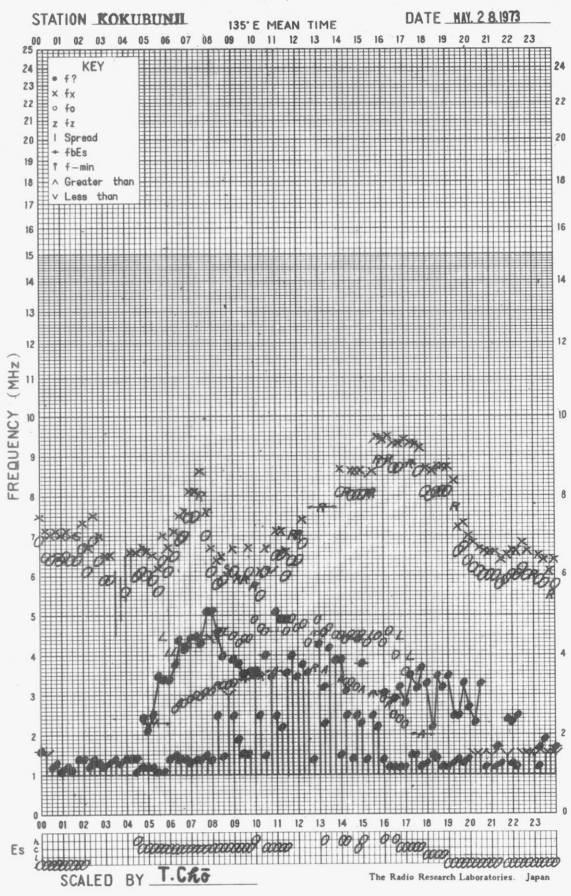


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

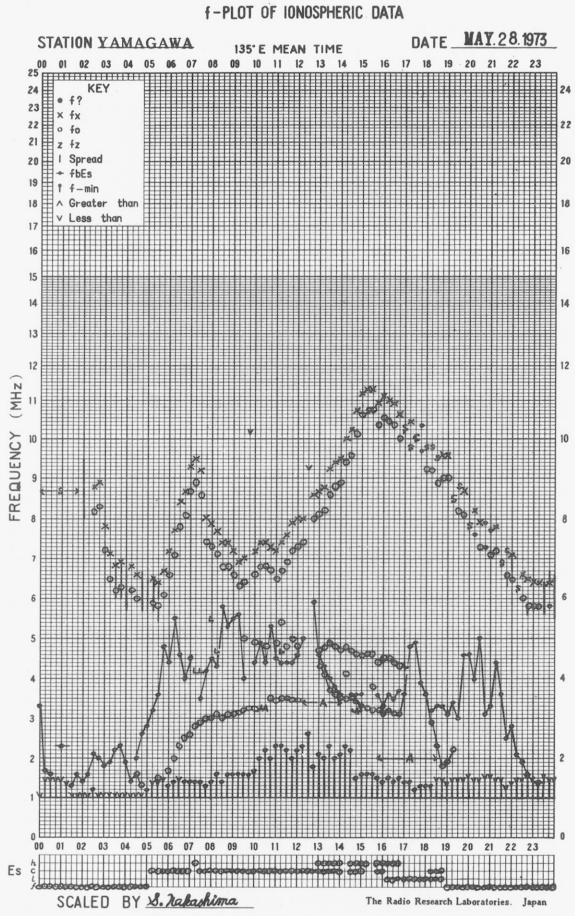
f-PLOT OF IONOSPHERIC DATA

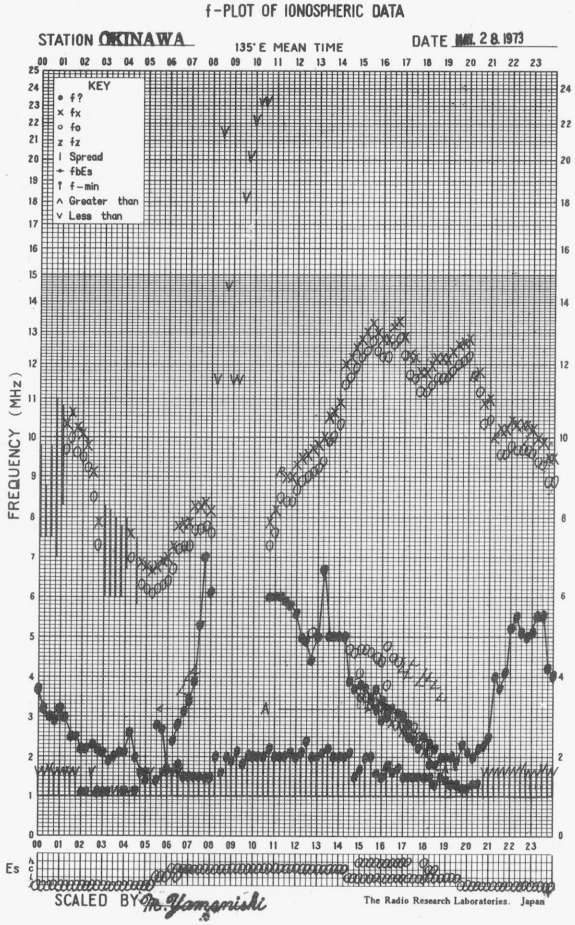
STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 2 8. 1973



SCALED BY T. Chō

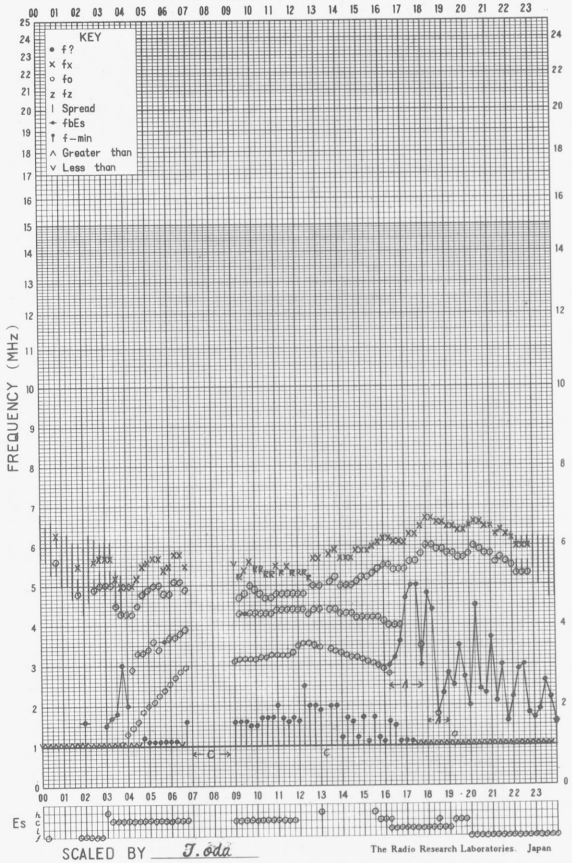
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE MAY.28.1973
KEY
● f?
× fx
○ fo
z fz
| Spread
÷ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION OKINAWA
135°E MEAN TIME
DATE MAY. 28. 1973
KEY
● f?
× fx
○ fo
z fz
| Spread
÷ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 29. 1973

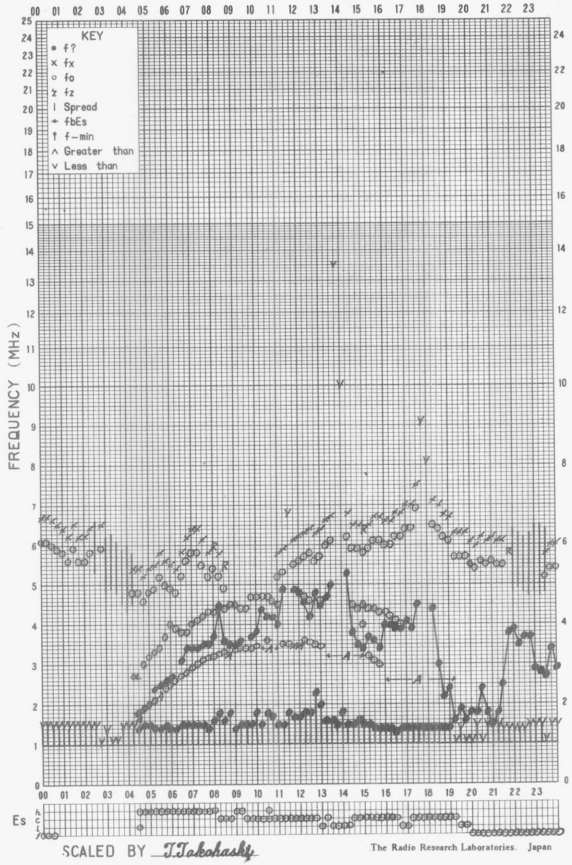


SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 29. 1973

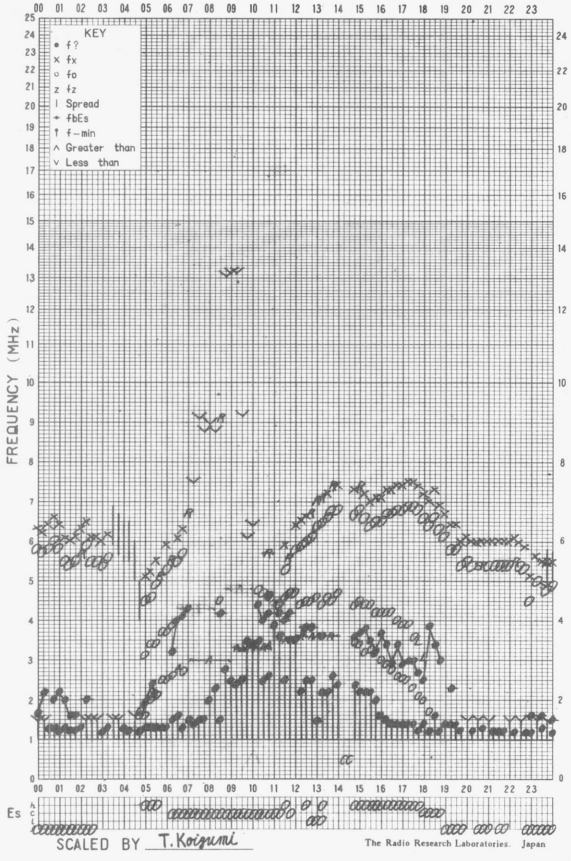


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

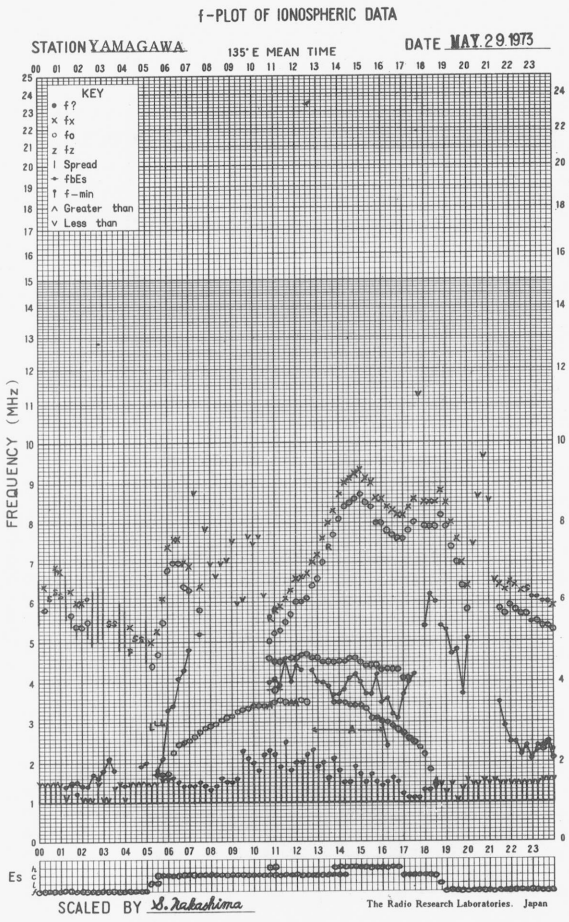
f-PLOT OF IONOSPHERIC DATA

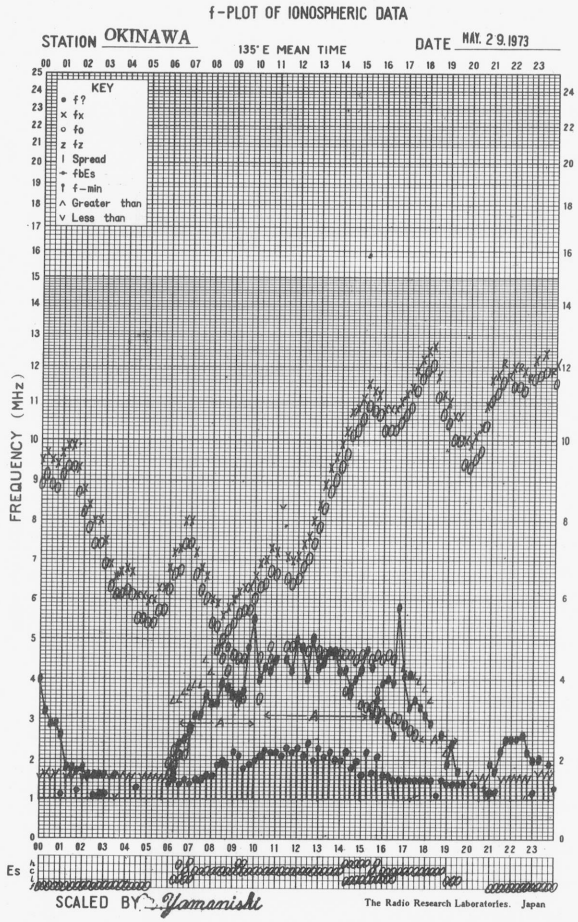
STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 29. 1973



SCALED BY T. Koizumi

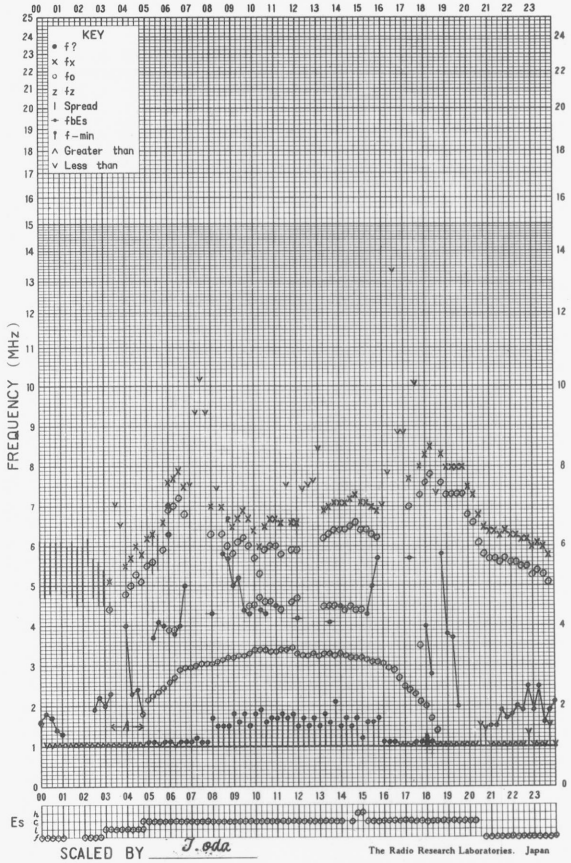
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE MAY. 29. 1973
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Nakashima
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION OKINAWA
135° E MEAN TIME
DATE MAY. 29. 1973
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY Yamanishi
The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 30. 1973

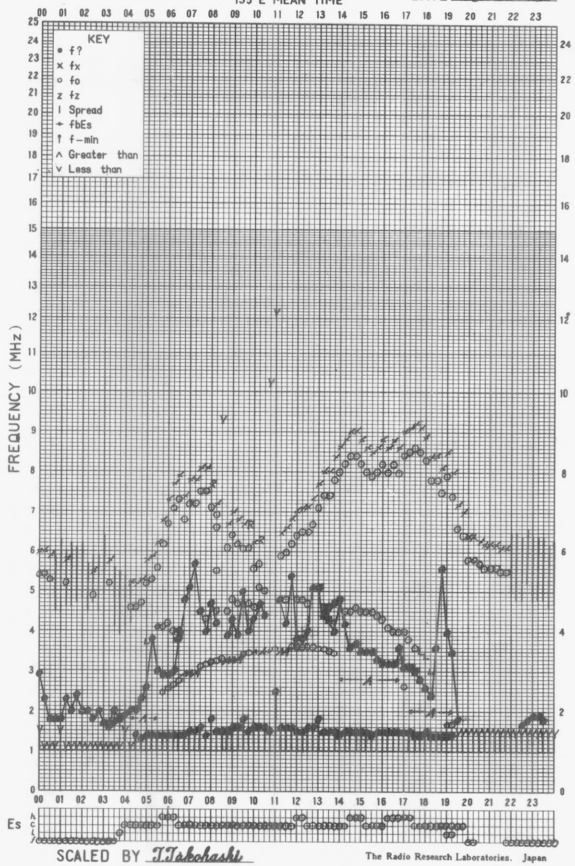


SCALED BY T. Oda

The Radio Research Laboratories. Japan

f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 30. 1973

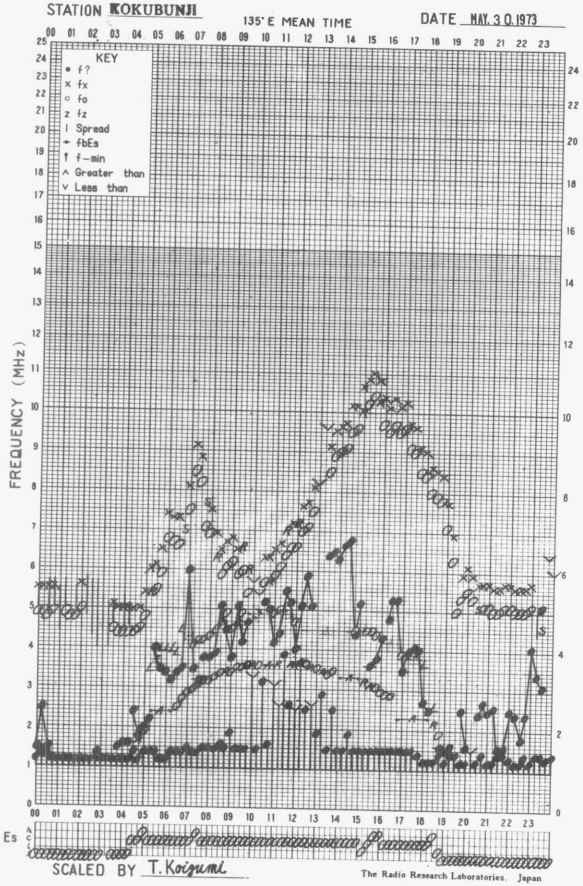


SCALED BY T. Takahashi

The Radio Research Laboratories. Japan

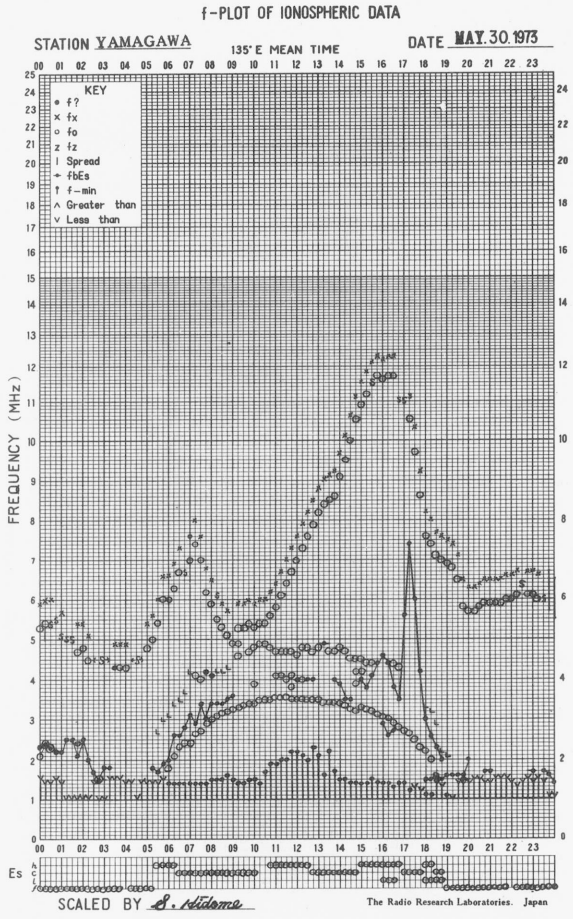
f-PLOT OF IONOSPHERIC DATA

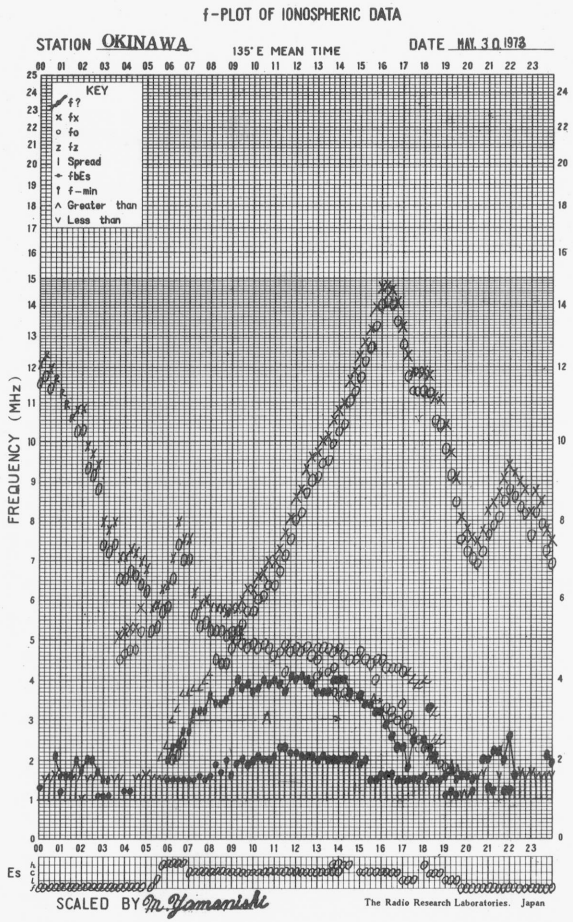
STATION KOKUBUNJI 135°E MEAN TIME DATE MAY. 30. 1973



SCALED BY T. Koizumi

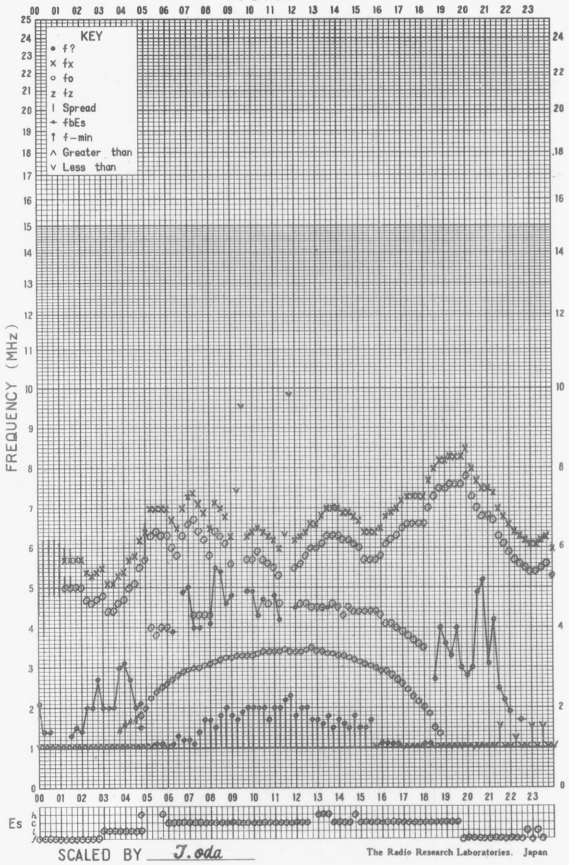
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135° E MEAN TIME
DATE MAY. 30. 1973
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY S. Hidema
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION OKINAWA
135° E MEAN TIME
DATE MAY. 30. 1973
KEY
• f?
× fx
○ fo
z fz
| Spread
⊸ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

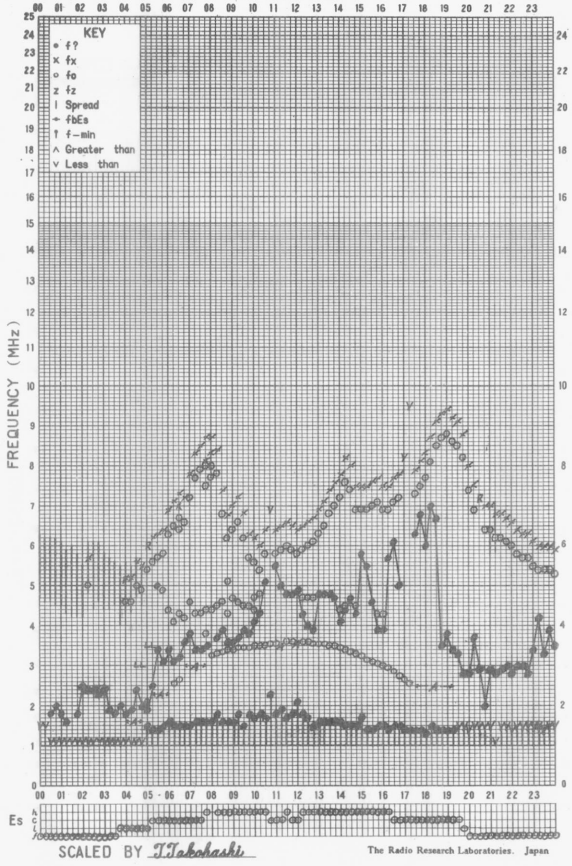
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI 135°E MEAN TIME DATE MAY. 3 1. 1973



f-PLOT OF IONOSPHERIC DATA

STATION AKITA 135°E MEAN TIME DATE May. 31. 1973



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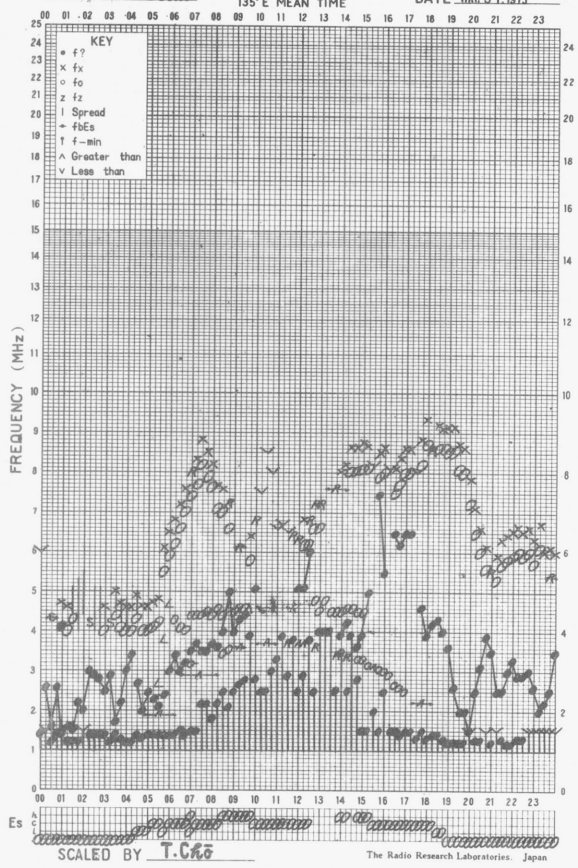
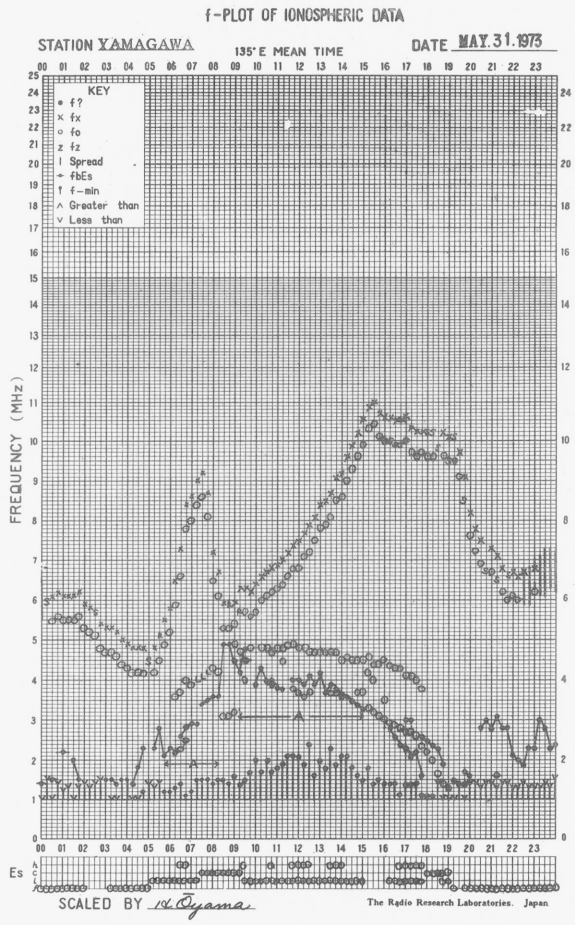
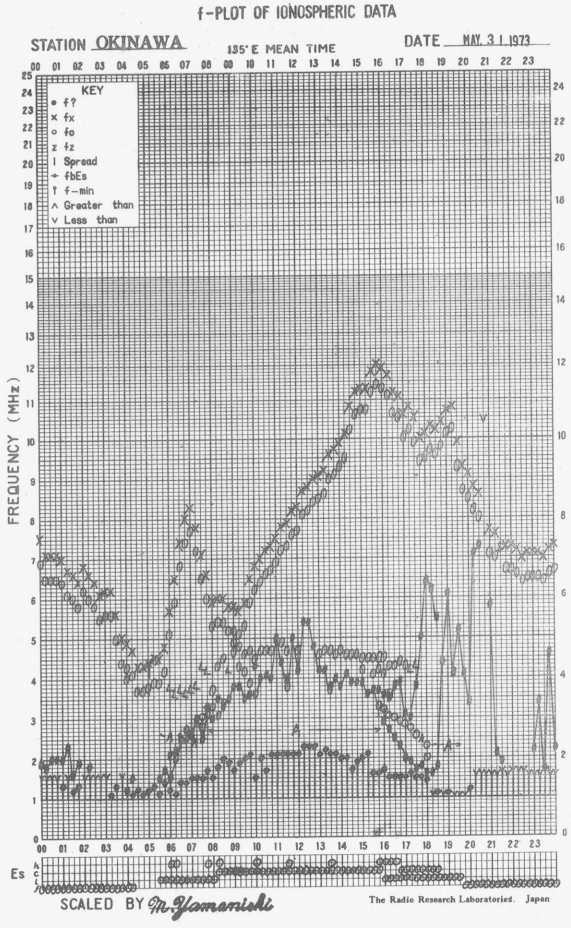
STATION KOKUBUNJI 135°E MEAN TIME DATE: MAY. 3 1. 1973




f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA
135°E MEAN TIME
DATE MAY. 31. 1973
KEY
● f?
× fx
○ fo
z fz
| Spread
⇥ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY K. Oyama
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION OKINAWA
135°E MEAN TIME
DATE MAY. 31. 1973
KEY
● f?
× fx
○ fo
z fz
| Spread
⇥ fbEs
↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY M. Yamanishi
The Radio Research Laboratories. Japan

SOLAR RADIO EMISSION

Flux Density and Variability

Month: May 1973
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	12	12	10	16	12	0	1	0	0	0
2	13	12	9	7	13	0	0	0	0	0
3	8	8	8	10	8	1	1	1	0	1
4	11	9	10	8	10	0	0	0	0	0
5	8	7	7	7	8	0	0	0	0	0
6	7	6	7	6	7	0	0	0	0	0
7	7	6	7	7	6	0	1	0	0	0
8	6	6	6	5	6	0	0	0	0	0
9	5	5	6	5	5	0	0	0	0	0
10	5	5	5	(5)	5	0	0	0	(0)	0
11	6	6	6	6	6	0	0	0	0	0
12	7	6	7	7	6	0	0	0	0	0
13	7	7	8	8	7	0	0	0	1	0
14	7	6	6	6	7	0	0	0	0	0
15	6	6	6	7	6	0	0	0	0	0
16	6	7	7	7	7	0	0	0	0	0
17	6	7	8	(14)	7	0	0	0	(1)	0
18	14	12	10	7	13	1	0	0	1	0
19	62	26	10	19	25	1	1	0	1	1
20	29	35	63	41	34	1	1	1	1	1
21	37	23	26	33	33	1	1	0	1	1
22	25	26	18	8	27	0	0	0	0	0
23	7	7	8	7	8	0	1	0	0	0
24	8	8	8	8	8	0	0	0	0	0
25	8	7	8	7	8	0	0	0	0	0
26	7	7	7	7	7	0	0	0	0	0
27	6	6	7	7	7	0	0	0	0	0
28	7	8	7	6	7	0	0	0	0	0
29	6	6	7	7	6	0	0	0	0	0
30	7	7	8	7	7	*	0	0	0	0
31	7	7	8	7	7	0	0	0	0	0

Note No observations during the following periods:

3rd	0100-	0200	17th	2300-	2400
10th	1930-	2330	30th	0500-	0620
17th	2100-	2210			

*: interference.

SOLAR RADIO EMISSION

Flux Density

Month: May 1973
Observing station: Hiraiso Frequency: 500 MHz

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

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

Note No observations during the following periods:

2nd 0500- 0600 27th 0400- 0500
3rd 0050- 0220 30th 0400- 0500
17th 2102- 18th 0010

q: quiet level, when radiometer is unstable.

Distinctive Events

(single-frequency observations)

Month: May 1973
Observing station: Hiraiso
Normal observing period: 1930 - 0940 (sunrise to sunset)

Date	Freq.	Starting time	Time of maximum	Duration	Type	Flux density 10^{-22} Wm^{-2} Hz^{-1}		Polarization	Remarks
	MHz	UT	UT	minutes		peak	mean		
1	500	0242.0	0319.6	93	C	3000	330		
	100	-	0250U	124D	C	230U	40U	Or	
	200	-	0257U	127D	C	150U	45U	l	
	500	0415.0	0426.0	165	pi	75	20		
	200	2105.2	2105.5	3.0	C	130D	50D	s	
	500	2105.4	2105.7	0.5	S	190	100		
	100	2105.5	2105.8	3.0	C	240	100	r	
		2122.5	2123.0	1.0	S	200	70	r	
	200	2122.8	2123.0	0.5	C	130	50	rl	
2	100	0031.5	0033.3	3.0	C	250	70	rlr	
	500	0032.0	0033.0	2.0	C	630	80		
	200	0032.8	0033.0	0.8	C	800	120	l	
	100	0424.5	0424.6	0.5	S	75	30	r	
		2020.5	2021.3	4.0	C	120	30	r	
		2148.2	2149.0	2.5	C	260	120	rlr	
	500	2148.3	2148.9	1.5	S	60	20		
	200	2148.5	2148.8U	1.5	C	850D	400D	l	
		2151.0	2151.8	2.5	C	150	60	s	
	100	2151.2	2151.6	1.8	C	110	30	l	
3	200	0025.0	0025.0U	1.2	C	850D	150D	rl	
		0028.9	0029.0U	1.0	C	850D	250D	s	
	100	0030.0	0034.2	5.0	C	230	30	rOr	
	200	0334.5	0335.5	1.5	C	850	100	rl	
	100	0335.5	0335.7	1.0	eS	500	70	rl	
		0440.0	0441.4	2.5	C	190	50	rl	
	200	0441.0	0441.2	1.0	C	300	60	s	
	100	0446.5	0447.2	3.5	C	240	80	lr	
	200	0446.8	0447.1	0.8	C	350	30	lrl	
		0537.0	0537U	1.5	C	850D	370D	rlr	
	100	0538.0	0538.6	2.0	C	850	180	r	
	200	0628.5	0629.2	1.0	C	145	40	rl	
	100	0628.7	0628.9	1.5	C	170	60	rl	
	200	0631.0	0631.2U	2.2	C	850D	150D	s	
	100	0631.2	0631.5	2.3	C	220	60	rl	
	500	0631.4	0631.6	1.5	C	650	85		
		0832.7	0857.2U	29D	C	400D	90D		sunset
	200	0833.0	-	51D	C	850D	320D	L	sunset
	100	0834.5	0837.5	36U	C	240	70U	O	sunset
5	200	2118.8	2119.2	1.5	C	150	60	s	
	100	2119.0	2119.4	1.5	C	160	50	r	
7	200	0517.7	0519.8	2.5	C	500	100	l	
	100	0518.0	0518.7	2.0	C	190	50	rl	
	500	0519.0	0519.4	1.0	S	80	15		

Date	Freq.	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22}Wm^{-2}Hz^{-1}$		Polarization	Remarks
	MHz	UT	UT	minutes		peak	mean		
8	200	0537.2	0538.7	2.0	C	480	90	rl	
	100	0538.0	0538.4	2.0	C	160	50	r	
		0605.7	0606.4	1.2	C	170	60	r	
	200	0605.9	0606.5	1.0	C	520	150	l	
13	200	2115.0	2240.0	110	RF	25	10	0	
	100	2147	2259	123	RF	70	20	rlr	
15	200	0805.9	0806.4	2.0	C	400	50	l	
18	200	2154.0	2157.0	9.5	C	200D	15D	RL	
	100	2154.2	2156.3	4.0	C	85	20	l	
	500	2155.0	2155.9	9.0	C	620	60		
		2252.5	2258.8	22	C	20	10		
	200	2315	0122	425	ns	140	30	R	*
	100	2317	0134	610D	ns	180	60	R	sunset
19	100	1930E	0750	840D	ns	100	20	R	
		2235.0	2235.2	1.0	S	80	30	l	
	200	2239.2	2240.0	2.0	C	100	50	R	
	500	2242.0	2244.8	4.0	C	200	100		
	100	2242.3	2245.2	7.5	C	240	70	r	
	200	2242.4	2243.3U	5.0	C	820D	300D	s	
	100	2250.5	2256.5	4.5	C	240	90	r	
20	500	0450.2	0451.0	2.0	S	50	20		
	200	0540.0	0547.8	34.0	C	220	40	r	
	500	0544.0	0549.4	8.0	C	50	20		
		0558.8	0559.2	1.0	S	20	10		
	100	1930E	0317	840D	ns	120	65	R	
	500	2147.0	2147.4	1.0	eS	110	50		
21	100	1930E	2000	840D		100	40	r	**, slight enhance
23	100	0245.6	0246.0	1.5	C	80	20	l	
		0304.7	0305.0	0.8	C	120	20	rl	
		0330.4	0330.5	1.0	C	80	20	rl	
	200	0330.5	0330.8	0.5	C	220	30	rlr	
	100	0531.0	0535.0	5.0	F	120	-	lr	
	200	0531.5	0533.5	6.0	C	800	60	r	
	100	0627.0	0627.2	1.0	C	70	30	r	
	200	0627.0	0627.5	1.0	C	820	300	r	
27	100	0719.5	0719.7	1.0	S	75	15	r	
	200	0719.5	0719.8	0.5	C	150	80	l	
30	100	0657.0	0657.6	1.0	C	90	10	r	

*: flux duplicates with steady flux.

**: sunrise.

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

MAY 1973 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

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

MEASUREMENT OF H_0F_0 FIELD STRENGTH (UPPER SIDE-BAND OF WWVH)

MAY 1973 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISO

UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M
1	3	-2	ES -23	ES -23	4	13	17	17	24	5	9	ES -1	ES 4	ES 2	ES 14	ES 2	ES 8	20	ES -23	9	ES -23	-1	4	3
2	-2	0	-1	3	9	17	21	23	21	8	13	15	ES -2	12	ES 1	ES 2	ES 9	-5	-1	13	-3	5	5	-3
3	0	C	-3	7	9	20	23	18	13	12	22	13	7	6	-1	ES 2	ES 4	24	5	18	10	9	4	ES 6
4	2	0	3	8	11	20	24	25	18	24	17	14	19	11	9	4	ES 3	19	-9	11	14	10	5	4
5	2	1	6	6	16	16	20	22	16	9	22	20	20	13	ES 21	-1	17	5	11	8	8	10	6	10
6	5	4	6	11	14	17	20	21	22	22	21	19	19	15	ES 16	ES 11	22	ES 21	11	10	ES 13	11	5	5
7	4	9	8	12	14	16	21	17	14	23	23	17	ES 19	22	ES 25	ES 1	21	16	ES -15	ES -24	ES 17	ES 22	ES -7	ES -24
8	-5	0	3	9	11	17	16	11	16	19	19	16	ES 17	16	ES 27	10	11	17	15	5	4	ES 11	ES 9	7
9	3	5	11	10	14	21	26	22	19	33	21	17	15	21	8	ES 3	7	25	9	11	9	-2	ES -2	0
10	6	6	5	12	16	17	17	14	25	27	17	11	15	8	ES 6	ES 7	ES -1	22	13	15	8	6	11	6
11	2	0	2	11	14	19	17	23	24	11	16	15	17	11	4	ES 1	ES -4	1	11	10	13	5	5	6
12	6	6	5	12	12	16	16	23	17	19	16	21	17	17	10	ES 3	11	15	5	12	12	9	7	3
13	1	3	11	15	20	21	19	21	16	26	21	24	25	11	ES 0	ES -4	ES 0	ES -25	-3	10	13	8	1	5
14	5	8	6	12	18	17	13	20	6	11	12	12	16	1	11	-13	-4	0	5	11	6	6	2	2
15	6	12	11	8	13	18	18	18	17	7	4	ES 3	ES -3	ES 4	ES 5	ES 6	ES -1	-13	10	10	-1	-2	6	3
16	11	10	9	12	11	11	16	12	19	13	24	18	3	ES 1	ES -10	ES -24	ES -24	ES -24	ES -24	6	4	3	2	2
17	10	5	9	12	17	13	8	15	17	16	10	12	12	ES 6	ES -1	ES 1	ES -10	-18	ES -24	5	-2	C	2	3
18	-3	-2	11	6	13	15	17	20	18	3	3	15	ES 5	4	ES 6	ES -3	8	15	-3	5	-2	1	-4	2
19	-9	9	6	10	17	19	17	16	18	18	19	ES 4	ES 1	ES 4	ES 0	ES 1	ES 9	ES -11	ES -24	3	12	6	ES -9	-1
20	2	8	12	12	16	14	16	19	22	22	26	22	17	ES -3	ES 1	ES -2	11	-9	-12	21	10	3	-7	-3
21	2	4	9	12	15	17	22	25	26	21	23	19	26	18	26	19	ES -10	-3	-4	6	5	-2	-11	ES -24
22	-15	-3	-2	11	12	17	17	19	16	7	11	11	12	15	ES -6	ES -10	ES -7	-12	-2	6	6	5	0	0
23	6	10	5	9	10	12	21	21	17	17	18	16	15	17	16	15	14	16	6	15	12	5	4	2
24	4	5	4	5	14	18	19	19	16	11	3	9	1	ES 1	ES 5	ES 0	10	14	14	7	4	8	5	9
25	5	-3	3	9	16	19	23	18	21	15	16	22	16	12	ES 0	8	18	20	8	14	13	11	8	8
26	-7	7	7	12	16	17	21	23	21	22	25	25	21	22	10	7	11	15	11	15	13	6	2	5
27	6	6	6	8	14	16	18	23	25	27	23	23	29	18	11	13	7	18	9	9	13	12	-1	4
28	2	3	8	10	13	19	19	21	22	22	15	18	19	8	ES 0	1	3	-7	ES -22	6	5	8	4	-2
29	-4	-4	4	9	10	18	18	18	18	20	17	12	ES 1	ES 3	ES 4	C	ES 2	-2	15	9	16	8	8	4
30	2	5	10	14	17	20	22	25	24	18	17	12	22	ES 1	ES 2	ES 2	8	6	9	12	17	18	16	7
31	1	0	5	11	16	19	20	24	24	22	22	16	16	19	12	7	9	11	13	14	14	12	12	7
CNT	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	30	31	31
MED	2	4	6	10	14	17	19	20	18	18	17	16	US 16	11	ES 6	ES 2	ES 8	US 11	5	10	US 10	US 7	US 4	US 3
UD	6	10	11	12	17	20	23	25	25	27	24	23	25	21	ES 25	13	18	22	14	15	ES 16	ES 12	11	8
LD	-7	-3	-2	5	9	13	16	14	14	7	4	ES 4	ES 1	ES 1	ES -1	ES -10	ES -10	ES -18	ES -24	5	ES -2	ES -2	ES -7	ES -3

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

May 1973	Whole Day Figure	W W V 00 06 12 18 / 06 12 18 24	W W V H 00 06 12 18 / 06 12 18 24	Conditions 00 06 12 18 / 06 12 18 24	Principal Geomagnetic Storms Start	End	Range
1	3o	3U S S 4	3 3 3U 3	N N N N			
2	4-	3U 4U S 4U	4 4 3U 4	N N N N			
3	4o	3 S S 5	4 4 4 4	N N N N			
4	4+	4 S 5U 5	4 4 4 4	N N N N			
5	4+	5 S 4U 5	4 4 4 4	N N N N			
6	5-	5 S S 5U	4 4 5U 4	N N N N			
7	4o	5 S S 4	4 4 4U 3U	N N N N			
8	4o	4 5U S 4	4 4 4U 4	N N N N			
9	4o	4 5U S 3	4 4 4 4	N N N N			
10	4o	4 S 4U 4	4 4 4 4	N N N N			
11	4o	4 S 4U 5	4 4 4 4	N N N N			
12	4o	4 4U 4U 5	4 4 4 4	N N N N			
13	4o	5 S S 4	4 4 3U 4	N N N N	17.3	---	141
14	3+	4 S S 2U	4 3 3 4	N U U U	---	---	
15	3+	3U S S 3U	4 3 3U 4	U U U U	---	---	
16	3o	3U S S 2U	4 4 2U 4	U U U U	---	17.0	
17	3o	3U S S 2U	4 4 2U 3	U U U U			
18	3o	3U S S 2U	4 3 3U 3	U U U U			
19	3o	3U S S 2U	4 4 2U 3	U U U U			
20	4-	4U S S 3U	4 4 3U 4	U U U U			
21	3+	3U S S 2U	4 4 4 3	U U U U	02.52	18.0	148
22	3+	2U S S 4	3 4 3 4	U U U U			
23	4-	4 3U 4U 2U	4 4 5 4	U U U U			
24	4-	3U S 4U 4	4 3 4U 4	U U U U			
25	4+	4 5U 5U 4	4 4 4 4	N N N N			
26	4+	5 5U 4U 4	4 4 4 4	N N N N			
27	4+	4 4U 4U 4	4 5 5 4	N N N N			
28	4-	5 5U S 3U	4 4 2U 3	N N N N			
29	4o	3U 5U S 4	4 4 3U 4	N N N N			
30	4o	4 5U 4U 4	4 4 4U 4	N N N N			
31	4+	4 5U 4U 5	4 4 4 4	N N N N			

SUDDEN IONOSPHERIC DISTURBANCES

HIRAISO

Time in U.T.

May 1973	S W F								Correspondence		
	Drop-out Intensities (dB)				Start	Duration	Type	Imp.	Solar Flare	Solar Noise	Geomag. Crochet
	CO	HA	1)	2)							
1	//	//	12		0242	81	S	1		X	
2	//	15	10		0110	22	S	1-			
7			12		0642	20	S	1			
18		>25		30	2156	20	S	2			
19		//		25	2243	17	S	2+	2243	X	
20			15	15	0450	20	SL	1			
20			18	15	0600	20	SL	1	0525	X	

NOTES

CO: Colorado (WWV)
HA: Hawaii (WWVH)
1): Australia
2): Teheran

I N U B O

May 1973	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
Date	GBR	NAA	NWC	NPG	ND3		Start	End	Maximum	
1	141	87	205	141	135		0222	0656	0257	X
1	39						0912	0956	0926	X
1	12	49		109	101		2027	2146	2040	
1	13			7			2208	2247	2214	
1			—	11			2346	0009	2349	
2	8	8	—	24	20		0032	0107D	0035	
2	20	17	—	39	19		0107E	0206	0112	X
2			—	28*	36*		0227	0340	0308	X
2	23		—	17	25		0346	0440	0403	
2	60		80		27		0734	0928	0808	
2	23						1147	1212	1149	
2	16	62		117	121		2042	2230	2053	
2	19	21	44	47	40		2315	0048	2334	X
3	33	35	104	72	76		0146	0353D	0207	
3	40	19	84	33	45		0353E	0536	0407	X
3	225	77	209	21	79		0829	1022	0838	X
4			20	9	9		0107	0211	0121	
4			26	10	10		0234	0334	0258	
4	19		24				0434	0530	0455	
4			16				0610	0709	0621	X
4				30	29		2038	2128	2042	X
4			12	17			2320	2359	2323	X
5			6	7			0011	0046	0018	
5		17	48	22	22		0156	0300	0205	X
5	15	8	32	11	14		0454	0526D	0500	X

May 1973	S P A									Remarks
	Phase Advance (degrees)						Time (U.T.)			
Date	GBR	NAA	NWC	NPG	ND3		Start	End	Maximum	
5	12	6	38	9	6		0526E	0626	0535	X
5	17		30				0630	0756	0700	
5	35						0927	1020	0932	X
5	20	74		64	72		1712	1819	1718	X
5				27			1920	2026	1943	
6			12				0326	0402	0335	
6				8			1954	2016	2001	
6	29						2211	2341	2223	
7	48	17	59	17			0638	0809	0648	X
7	16	29	28	34	29		2235	0024	2314	
9			10				0438	0513	0443	
13					65		0204	0454	0241	
13	59						2136	2259	2151	
14				38			0109	0244	0121	
16			—	9			0326	0412	0338	
16	18		32	12	14		0426	0530	0501	
16				13	126		2312	0122	2336	
17		35		—	59		1908	2000	1913	
18			30	9			0351	0445	0407	
18	50	81	72	107	90		2155	2314	2201	
19	90	149	125	175	164		2242	0026	2247	
20	46	28	88	28	40		0450	0600D	0456	X
20	50	26	100	27	20		0600E	0725	0605	X
20				10			2021	2046	2024	X
21			10		19		0401	0416	0407	
25			14	7			0200	0253	0216	

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