

IONOSPHERIC DATA IN JAPAN

FOR FEBRAURY 1973

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RADIO RESEARCH LABORATORIES
MINISTRY OF POSTS AND TELECOMMUNICATIONS
TOKYO, JAPAN

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°37.5'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_bE_s	The lowest ordinary wave frequency at which the E_s layer begins to become transparent. This is usually determined from the minimum frequency at which reflections from layers at greater heights are observed.
f -min	The frequency below which no echoes are observed.
$M(3000)F2$	The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.
$M(3000)F1$	The maximum usable frequency factor for a path of 3000 km for transmission by $F1$ layer.
$h'F2$	The minimum virtual height, $h'F2$, refers to the highest, most stable stratification observed in the F region and can only be scaled when such stratification is present.
$h'F$	The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e.g., at night, and with the current $h'F1$ when $F1$ stratification is present.
$h'Es$	The lowest virtual height of the trace used to give the f_oEs .
$hpF2$	The virtual height of the $F2$ layer measured on the ordinary wave component at a frequency equal to $0.834 f_oF2$.
$ypF2$	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 E_s .
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 atmospheric.
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 height: *H* or *L*.

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

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

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

Q An *Es* trace which is diffuse and non-blanketing over a wide frequency range. The spread is most pronounced at the upper edge of the trace. (This type is common in daytime in the vicinity of the magnetic equator.)

R An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation but which is 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_oEs and $h'Es$. The slant trace is sometimes observed to start at f_oE 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 MHz 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 $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$ 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	$\lambda/2$ vertical	$\lambda/2$ 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 10, 1+, 2-, 20, 2+ 3-, 30, 3+, 4-, 40, 4+, 5-, 50 stands for an average of six-hourly ones of the two circuits. Abbreviated symbols are as 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 : disturbed,

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+, 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 column, distance of circuit along the great circle is shown.

Name	Transmitter				Distance of circuit (km)
	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	10.2	10	6100
		HA2	12.2		
		HA3	13.6		
Aldra	66°25'N 013°09'E	AL0	10.2	10	7820
		AL2	12.3		
		AL3	13.6		
North Dakota	46°22'N 098°20'W	ND0	10.2	10	9150
		ND2	12.85		
		ND3	13.6		

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

FEB. 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	38	40	40	37	37	30	28	46	62	65	63	65	68	65	67	63	57	48	44	33	35	F	F	37
2	39	36	43	36	41	28	33	48	65	88	90	90	83	89	74	66	66	51	35	35	35	37	36	35
3	36	37	35	37	38	33	35	50	70	72	83	63	67	68	75	62	60	47	46	33	31	35	38	F
4	F	F ₄₀	F ₄₀	F ₃₆	33	33	34	51	66	76	75	78	80	73	73	61	61	50	38	34	36	44	38	36
5	35	36	36	36	36	34	27	45	61	76	81	76	73	73	72	72	61	57	48	39	37	36	32	32
6	33	36	43	F	F	F ₃₀	F ₃₁	53	73	76	81	C	83	83	78	77	63	44	43	46	34	34	36	38
7	36	36	37	37	35	33	31	56	93	96	86	92	80	84	76	77	64	63	44	40	35	28	33	28
8	F	F ₃₀	F	F	F	F ₂₈	30	53	73	90	109	90	87	77	73	73	61	59	40	30	29	32	36	34
9	34	30	28	30	30	29	30	50	74	96	97	87	78	75	82	72	66	51	39	43	32	35	31	26
10	26	27	29	30	31	28	28	53	76	80	78	77	86	81	90	79	67	56	47	41	31	30	31	34
11	34	33	33	33	33	34	32	53	66	88	C	77	72	81	85	79	75	60	45	48	44	40	40	41
12	39	38	37	37	37	37	33	57	75	83	76	80	79	78	84	78	71	68	40	37	33	30	34	33
13	34	F	F	F ₃₆	F ₃₆	F ₃₅	36	63	79	85	87	87	83	80	74	76	73	67	44	33	A	A	33	33
14	33	36	35	35	36	34	36	63	76	83	79	88	84	77	69	78	73	56	42	40	43	39	41	41
15	38	38	38	39	40	40	43	64	77	74	86	92	87	85	78	80	76	60	50	40	40	41	44	40
16	40	40	42	40	40	38	40	64	90	C	C	C	97	83	71	73	67	53	52	49	35	36	40	40
17	37	37	38	37	37	33	38	63	68	76	91	91	110	96	84	86	69	60	43	53	48	46	48	45
18	45	43	40	40	43	40	36	A	76	84	98	104	91	84	J ₈₃ C	82	63	68	50	42	42	I ₄₀ S	40	F
19	F	38	38	I ₃₉ S	40	41	43	62	70	76	103	106	86	81	79	73	64	68	46	43	46	44	39	40
20	40	43	42	41	40	38	C	51	69	67	80	93	91	74	93	74	72	54	48	45	40	40	42	S
21	S	S	S	43	45	39	C	57	C	76	83	81	97	82	81	77	74	63	48	48	44	S ₅₀	F	F
22	S	S	S	S ₅₀	56	56	S	S ₄₃	53	F	F	F	F	80	70	66	71	63	52	38	40	38	34	33
23	29	28	28	22	19	C	C	53	68	75	69	106	F ₇₀	94	82	85	82	F ₇₈	F ₅₆	F ₄₂	F	F ₄₆	50	53
24	F	C	40	S	S	S	S	66	63	90	102	103	83	76	73	79	80	62	49	48	49	S	S	40
25	C	C	34	36	C	C	A	C	50	63	78	81	80	73	76	74	69	70	F ₄₃	F	F	S	F	S ₃₇
26	S	S	33	C	32	C	C	59	60	68	83	91	93	73	84	66	71	63	59	57	37	32	35	F
27	S ₃₇	S	S	S	40	C	37	55	C	79	78	82	89	80	89	96	73	67	53	48	40	C	43	S ₄₃
28	41	S	S	35	33	33	37	S ₇₃	83	76	76	96	107	91	83	76	77	61	53	52	44	43	41	S ₄₂
29																								
30																								
31																								
CNT	20	20	22	23	24	23	21	26	26	26	25	25	27	28	28	28	28	28	28	27	25	23	24	23
MED	36	36	38	37	37	34	34	54	70	76	83	88	83	80	78	76	69	60	46	42	37	38	38	37
UQ	39	39	40	39	40	38	37	63	76	85	90	92	90	84	84	79	73	65	50	48	43	42	41	40
LQ	34	34	34	36	33	32	31	51	65	75	78	80	80	74	73	72	64	54	43	38	35	34	34	34

FEB. 1973

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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 **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																								
2											L	A	A	L										
3																								
4																								
5																								
6												C		L										
7																								
8											L													
9																								
10														L										
11											C													
12																								
13																								
14																								
15												L												
16											C	C	L	L										
17												L		L										
18														L										
19											L	L	L											
20													L											
21													L	L										
22											430	420	420	410										
23																								
24												L			L									
25											420	400		L										
26												L	L											
27											L	420												
28														L										
29																								
30																								
31																								
CNT												3	2	1	1									
MED											420	410	420	410										
UQ											425													
LQ											420													

FEB. 1973

FOF1 (0.01 MHz)

IONOSPHERIC DATA

FEB. 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								S	215	270	290	295	300	290	280	225	A	S						
2								E	215	265	290	295	295	290	280	225	A	E						
3								A	225	260	290	300	300	290	280	230	A	E						
4								S	210	260	295	295	300	300	A	240	A	A						
5								S	215	265	290	300	300	295	285	235	185	E						
6								A	210	245	285	C	295	300	290	250	185	A						
7								S	A	265	285	295	300	295	280	250	195	E						
8								S	230	280	300	305	300	300	290	255	195	E						
9								A	240	275	290	295	300	300	280	245	205	E						
10								A	225	270	290	300	305	295	280	255	195	S						
11								S	A	A	C	300	300	300	290	250	200	A						
12								S	230	290	295	300	A	A	A	A	A	A						
13								140	I A 235	285	300	305	I A 305	I A 300	A	A	A	A						
14								A	225	280	300	315	310	305	295	270	205	E						
15								A	235	I A 280	295	305	315	305	300	265	205	S						
16								A	235	C	C	C	310	305	295	260	205	S						
17								A	A	280	300	300	300	300	290	240	200	A						
18								A	235	280	295	300	305	300	290	245	195	E						
19								A	A	265	295	300	300	295	290	260	A	A						
20								C	A	A	A	A	A	300	295	270	200	E						
21								175	C	275	295	300	300	300	290	255	230	S						
22								A	A	280	290	300	300	300	275	245	210	E						
23							C	A	A	290	290	295	300	300	290	255	210	S						
24								A	A	A	300	300	305	300	295	260	210	E						
25								A	A	275	A	300	305	300	295	270	215	140						
26								C	235	280	290	300	305	300	290	265	215	S						
27								200	C	260	300	295	300	300	300	270	A	A						
28								C	C	265	A	A	A	300	290	270	210	S						
29																								
30																								
31																								
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
CNT								4	16	24	23	24	25	27	25	26	20	12						
MED								158	228	275	295	300	300	300	290	255	205	E						
UQ								188	235	280	298	300	305	300	295	265	210	E						
LQ								E E 140	215	265	290	295	300	298	280	245	195	E						

The Radio Research Laboratories, Japan

FEB. 1973

FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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 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	E	E	G	G	G	G	G	G	G	G	G	15	23	F S	F S	E S	E S	J X	E																										
2	J X	E	E	E	E	E	E S	G	G	G	G	J X	J X				28	21	J X	E	30	E	29	J X																										
3	E S	19	15	E	E	E	E	J X	33	G	G	G	31	G	33	30	J X	E	J X	J X	J X	J X	J X	J X																										
4	25	20	15	E	E	25	E S	E S	G	G	G	G	38	40	43	J X	24	20	J X	J X	24	27	20	24																										
5	24	E	E	E	16	J X	E	E S	G	G	G	G	G	G	G	33	40	J X	23	E	J X	J X	J X	E																										
6	22	E	E	E	E	E	23	15	G	G	G	C	G	G			32	34	28	20	15	20	22	22																										
7	E	E	E	E	E	J X	E S	E S	J X	G	G	G	G	34	40	J X	33	J X	J X	J X	J X	J X	E	19																										
8	24	E	E	E	E	E	18	E S	G	G	G	G	G	G	G	G	23	18	E	E	J X	E S	E S	E S																										
9	E S	E	15	E	E	J X	J X	24	G	G	G	G	G	G	G	G	G	17	21	17	J X	22	E S	E																										
10	E	E	E	E	E	E S	18	17	G	G	G	G	G	G	G	G	22	E S	15	15	E	19	J X	J X																										
11	20	E	E	E	E	23	22	E S	23	29	C	G	G	G	G	G	G	J X	23	25	E S	E S	J X	E																										
12	E	J X	J X	J X	E	E S	E S	30	G	G	G	G	32	32	J X	J X	G	J X	J X	J X	J X	24	J X	J X																										
13	J X	E	15	15	15	E S	E S	G	25	25	G	G	31	J X	J X	33	30	J X	J X	J X	J X	J X	J X	E S																										
14	E	23	J X	E	E	E	15	20	G	G	G	G	G	G	G	G	23	22	J X	J X	20	20	E S	E S																										
15	E S	E	E	E	E	E S	E S	J X	G	G	G	G	G	G	G	G	24	20	E	E	E	E	E	E																										
16	E S	E	E	J X	E	E	23	J X	C	C	C	36	G	G	G	G	G	E S	J X	J X	J X	J X	J X	J X																										
17	22	23	E	E	E	E	J X	J X	G	G	G	G	G	G	G	G	28	J X	J X	J X	J X	J X	J X	E																										
18	E S	25	18	15	E	E	E	52	24	G	G	G	G	G	G	G	24	20	J X	J X	J X	E S	E C	E																										
19	E S	E	E	E	E	J X	J X	29	26	G	G	G	G	G	G	G	26	23	E	E	E S	E S	E S	E S																										
20	E	E S	E	E C	E	E S	E S	23	34	J X	33	37	J X	G	G	G	23	22	23	E	E	J X	J X	E S																										
21	E S	E	19	E C	E	E	E C	G	G	G	G	G	G	G	G	G	31	F S	13	J X	J X	J X	J X	27																										
22	E S	E	E	E	E	E S	20	30	29	G	G	G	G	G	G	G	G	19	G	J X	E	25	E S	E																										
23	E S	E	E S	E	E S	C	C	J X	J X	G	G	G	G	G	G	G	G	E S	16	E	E	E	E	E S																										
24	E	E C	E	E C	E	E S	E S	22	25	30	G	G	G	G	G	G	G	18	16	E	E S	E	E S	E																										
25	C	C	E	E	E	18	30	26	26	26	31	24	G	G	G	G	G	G	E	E	20	J X	J X	J X																										
26	E	E	E S	E	E	E	C	20	G	G	40	34	34	G	33	15	G	E S	J X	J X	E	E S	E S	E S																										
27	E S	22	22	E C	E	E	E C	G	E C	G	G	G	33	33	G	G	29	J X	J X	J X	22	E S	E S	E																										
28	E S	E	E C	19	E	E S	E S	E C	31	G	30	32	38	G	G	G	G	E S	J X	E S	20	E S	21	E S																										
29																																																		
30																																																		
31																																																		
CNT	27	27	28	28	28	27	26	28	28	27	26	26	28	28	28	28	28	28	28	28	28	28	28	28																										
MED	E	E	E	E	E	E	E	19	24	G	G	G	G	G	G	E	23	20	23	20	22	22	20	16																										
UQ	20	18	15	E	E	E	18	22	29	30	24	25	24	32	G	32	29	28	23	J X	J X	J X	J X	J X																										
LQ	E	E	E	E	E	E	E S	E G	G	G	G	G	G	G	G	G	G	18	F S	E	E	E	E	E																										

FEB. 1973

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 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 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	E	E	G	G	G	G	G	G	G	G	21	E ₁₂	E ₁₅	E ₁₄	E ₁₅	E	E	E					
2		E	E	E	E	E	E	E ₁₅	G	G	G	50	50	G	G	G	20	25	E	19	E	E	E	E					
3		E ₁₆	E	E	E	E	E	E	27	14	G	G	G	23	G	19	17	20	E	20	20	E	16	16	16				
4		E	15	E	E	E	E	E ₁₅	E ₁₇	G	G	G	G	38	G	28	36	24	29	25	E	E	E	E					
5		E	E	E	E	E	20	E	E ₁₇	G	G	G	G	G	G	G	G	21	E	20	15	15	E	E					
6		E	E	E	E	E	E	E	15	G	G	G	C	G	G	G	17	G	16	E	E	E	E	E					
7		E	E	E	E	E	E	E ₁₅	E ₁₆	27	G	G	G	G	G	40	G	G	45	31	19	20	E	E	E				
8		E	E	E	E	E	E	E	16	E ₁₈	G	G	G	G	G	G	G	G	E	E	E	E ₁₄	E	E ₁₅					
9		E ₁₅	E	E	E	E	15	17	19	G	G	G	G	G	G	G	G	G	E	E	E	E	E ₁₅	E					
10		E	E	E	E	E	E ₁₅	E	17	G	G	G	G	G	G	G	20	G	E ₁₅	E	E	E	19	E	E				
11		E	E	E	E	E	E	E ₁₆	E ₁₆	23	28	C	G	G	G	G	G	G	15	E	E ₁₅	E ₁₅	17	E	E ₁₆				
12		E	20	18	15	E	14	E ₁₅	E ₁₈	20	G	G	G	31	30	35	30	34	28	22	20	E	22	20	20				
13		28	E	E	E	E	E ₁₅	E ₁₅	G	25	24	G	G	26	G	31	31	29	29	22	55	24	20	A	A	E	E ₁₆		
14		E	E	E	E	E	E	E	19	G	G	G	G	G	G	G	G	15	16	16	17	E	E ₁₄	E ₁₅	E ₁₄				
15		E ₁₅	E	E	E	E	E ₁₃	E ₁₆	41	G	20	29	G	G	G	G	G	G	E	E	E	E	E	E	E				
16		E ₁₅	E	E	E	E	E	E	37	G	C	C	C	20	G	G	G	G	E ₁₅	E	E	E	E	E	E				
17		E	E	E	E	E	E	E	50	24	20	G	G	G	G	G	G	G	21	20	20	16	20	E	E				
18		E ₁₅	E	E	E	E	E	E	A	21	G	G	G	G	G	G	G	G	18	E	18	20	E ₁₈	E ₂₀	E				
19		E ₁₅	E	E	E	E	20	25	20	25	G	G	G	G	G	G	G	23	14	E	E	E	E ₁₅	E ₁₅	E ₁₅				
20		E	E ₁₄	E	E	C	E	E ₁₄	E ₁₄	20	32	34	33	33	40	G	G	G	19	E ₁₅	E	23	16	E	17	E			
21		E ₁₅	E	E	E	C	E	E	E	C	G	G	G	G	G	G	G	19	E ₁₅	E	23	16	E	17	E				
22		E ₁₆	E	E	E	E	E	E ₁₅	20	26	24	G	G	G	G	G	G	G	18	G	24	E	E	E ₁₆	E	E			
23		E ₁₅	E	E ₁₅	E	E ₁₃	C	C	32	25	G	G	G	G	G	G	G	G	E ₁₆	E	E	E	E	E	E ₁₅				
24		E	E	C	E	E	C	E	E ₁₅	E ₁₅	21	25	28	G	G	G	G	G	G	18	G	E	E ₁₆	E	E	E ₁₅	E		
25		C	C	E	E	E	A	21	26	24	29	24	G	G	G	G	G	G	G	E	F	E	E	E	E				
26		E	E	E ₁₃	E	E	E	C	G	G	G	25	23	23	G	G	G	15	G	E ₁₈	E	16	E	E ₁₅	E ₁₅	E ₁₆			
27		E ₁₂	E	E	E	C	E	E	E	C	G	E	C	G	G	G	G	G	29	28	20	20	E	E	E ₁₅	E			
28		E ₁₅	E	E	C	E	E	E ₁₄	E ₁₅	F	C	29	G	G	30	30	32	G	G	G	G	E ₁₈	23	E ₁₅	E	E ₁₆			
29																													
30																													
31																													
CNT		27	27	28	28	28	27	26	28	28	27	26	26	28	28	28	28	28	28	28	28	28	28	28	28	28			
MED		E	E	E	E	E	E	E ₁₅	17	20	G	G	G	G	G	G	G	G	E	G	E	16	16	E	E	E			
UQ		E ₁₅	E	E	E	E	E	E ₁₄	E ₁₆	22	25	22	21	23	23	G	G	G	18	16	20	21	20	20	15	16	E	E ₁₅	E ₁₅
LQ		E	E	E	E	E	E	E	E	G	G	G	G	G	G	G	G	G	G	E	E	E	E	E	E	E	E		

The Radio Research Laboratories, Japan

FEB. 1973

FBES (0.1 MHz)

IONOSPHERIC DATA

FEB. 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	E	E	E	S ₁₂	17	20	20	20	16	17	16	11	12	E	S ₁₂	F	S ₁₅	E	S ₁₄	E	S ₂₅	E	S ₁₅	E	E																								
2	E	E	E	E	E	E	E	S ₁₅	E	12	17	16	20	17	12	E	E	E	E	E	S ₁₅	E	E	S ₁₅	E	E	E	E																										
3	E	S ₁₆	E	E	E	E	E	E	E	E	11	12	11	11	11	E	E	E	F	E	E	S ₁₅	E	E	E	E	E	E																										
4	E	S ₁₅	E	E	E	E	E	S ₁₅	E	S ₁₅	E	S ₁₇	12	11	11	11	11	12	E	11	E	E	E	F	E	S ₁₃	E	S ₁₃	E	S ₁₅	E																							
5	E	S ₁₃	E	E	E	E	E	E	E	S ₁₇	E	E	E	16	17	16	11	E	E	E	E	F	E	E	S ₁₃	E	E	E	E																									
6	E	E	E	E	E	E	E	S ₁₅	E	13	E	11	C	E	18	11	14	E	E	E	E	S ₁₃	E	S ₁₅	E	S ₁₅	E	E	E																									
7	E	E	E	E	E	E	E	S ₁₅	E	S ₁₆	15	17	19	20	21	21	20	20	18	E	E	E	E	E	E	E	E	E	E																									
8	E	S ₁₅	E	E	E	E	E	E	E	S ₁₈	17	18	20	20	20	21	21	19	17	E	E	E	E	E	E	S ₁₄	E	E	S ₁₅	E																								
9	E	S ₁₅	E	E	E	E	E	E	S ₁₅	E	18	20	22	20	20	21	20	18	15	E	E	F	E	E	S ₁₅	E	S ₁₅	E	E																									
10	E	E	E	E	E	E	S ₁₅	E	E	12	16	17	17	18	18	17	11	11	E	S ₁₅	E	F	E	E	S ₁₄	E	S ₁₅	E	S ₁₆	E																								
11	E	E	E	E	E	E	S ₁₅	E	S ₁₄	E	S ₁₆	13	12	C	17	15	15	12	14	11	E	F	S ₁₆	E	S ₁₅	E	S ₁₃	E	S ₁₆	E																								
12	E	E	E	E	E	E	E	S ₁₅	E	S ₁₈	E	17	16	17	17	17	13	13	E	E	E	E	S ₁₅	E	S ₁₅	E	S ₁₄	E	S ₁₅	E																								
13	E	S ₁₅	E	E	E	E	E	S ₁₅	E	S ₁₅	E	15	16	16	16	17	17	12	11	E	E	E	E	E	E	S ₁₅	E	S ₁₅	E	S ₁₆	E																							
14	E	E	E	E	E	E	E	E	E	12	11	11	12	11	16	16	11	E	F	E	E	S ₁₁	E	S ₁₅	E	S ₁₄	E	S ₁₅	E	S ₁₄	E																							
15	E	S ₁₅	E	E	E	E	E	S ₁₃	E	S ₁₆	E	16	17	18	20	20	20	18	20	15	F	S ₁₁	F	F	E	E	E	E	E	E																								
16	E	S ₁₅	E	E	E	E	E	E	S ₁₅	E	11	C	C	C	12	E	E	E	11	F	S ₁₅	F	S ₁₄	E	E	E	S ₁₅	E	S ₁₅	E	S ₁₆	E																						
17	E	S ₁₄	E	E	E	E	E	E	E	E	11	16	11	17	11	12	E	E	E	E	E	E	E	E	E	E	S ₁₅	E	E	E	E																							
18	E	S ₁₅	E	S ₁₅	E	E	E	E	E	E	11	17	12	15	15	18	16	13	12	E	E	S ₁₂	E	E	E	S ₁₈	E	C	20	E																								
19	E	S ₁₅	E	E	E	E	E	E	S ₁₄	E	11	13	16	15	16	16	16	17	11	E	E	F	E	E	S ₁₅	E	S ₁₅	E	S ₁₅	E																								
20	E	E	S ₁₄	E	E	C	25	E	E	S ₁₄	E	S ₁₄	F	C	16	E	C	E	C	18	11	12	12	16	11	11	11	F	E	F	E	E	S ₁₂	E	S ₁₅	E	S ₁₂																	
21	E	S ₁₅	E	E	E	C	31	E	E	E	C	20	E	F	S ₁₅	11	11	11	17	18	12	11	E	F	S ₁₅	E	F	E	E	E	E	S ₁₅	E																					
22	E	S ₁₆	E	E	E	E	E	E	S ₁₅	12	E	E	11	15	16	15	16	11	E	F	E	E	E	E	S ₁₅	E	S ₁₆	E	E	E	E	E																						
23	E	S ₁₅	E	E	S ₁₅	E	E	S ₁₃	C	C	E	11	20	11	12	13	11	16	12	12	E	S ₁₆	E	E	E	E	E	E	E	S ₁₅	E																							
24	E	E	C	17	E	E	C	20	E	E	S ₁₅	E	S ₁₅	12	17	17	18	20	20	21	18	15	11	E	E	E	S ₁₆	E	E	E	S ₁₅	E																						
25	C	C	E	E	E	E	E	E	C	15	E	14	17	16	13	13	15	16	14	12	F	E	E	E	S ₁₅	E	S ₁₅	E	E	E	E	E																						
26	E	E	E	S ₁₃	E	E	E	C	E	C	15	11	11	12	15	11	12	17	E	11	F	S ₁₈	E	E	S ₁₅	E	E	S ₁₅	E	S ₁₅	E	S ₁₆	E																					
27	E	S ₁₂	E	S ₁₄	E	S ₁₆	F	C	17	E	E	E	C	26	12	12	17	17	17	16	20	17	17	11	F	E	E	S ₁₅	E	S ₁₄	E	E	S ₁₅	E																				
28	E	S ₁₅	E	E	C	20	E	E	E	S ₁₄	E	S ₁₅	E	C	29	16	16	17	20	19	20	18	18	17	E	S ₁₈	E	E	S ₁₅	E	S ₁₅	E	S ₁₆	E	S ₁₆	E																		
29																																																						
30																																																						
31																																																						
CNT	27	27	28	28	28	27	26	28	28	27	26	26	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28																				
MED	E	S ₁₄	E	E	E	E	E	E	S ₁₅	E	12	16	16	16	16	16	16	12	11	F	E	F	E	E	S ₁₄	E	E	S ₁₅	E	E	E	E	E	E																				
UQ	E	S ₁₅	E	E	E	E	E	S ₁₄	E	S ₁₅	E	E	15	17	17	20	18	19	17	16	12	E	S ₁₂	E	E	S ₁₅	E	S ₁₅	E	S ₁₅	E	S ₁₅	E	S ₁₅	E	S ₁₅																		
LQ	E	E	E	E	E	E	E	E	E	E	11	11	11	12	12	14	12	11	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																			

FEB. 1973

F-MIN (0.1 MHz)

IONOSPHERIC DATA

FEB. 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 **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	295	305	325	325	310	320	355	345	355	365	325	355	340	360	350	330	310	325	320	295	F	F	290
2	285	295	335	305	335	280	335	325	340	335	340	355	325	355	365	335	335	345	310	305	305	295	305	285
3	280	295	285	295	320	305	315	355	345	340	350	350	345	335	350	355	330	340	350	340	295	295	280	F
4	F	F	F	F	310	290	325	355	355	355	320	335	325	330	355	360	340	335	335	300	305	325	330	290
5	295	295	280	285	305	340	335	355	350	355	345	355	355	340	345	345	355	345	335	335	325	335	300	290
6	275	285	280	F	F	F	F	350	360	365	335	C	335	340	345	360	380	335	310	345	310	300	280	285
7	295	285	290	295	290	305	290	320	345	365	345	350	325	350	350	355	355	350	335	345	335	320	275	285
8	F	F	F	F	F	F	F	340	355	320	350	355	345	340	345	360	330	320	350	305	285	280	305	295
9	300	315	285	285	300	275	295	320	335	355	340	345	345	335	335	345	350	335	325	325	295	310	305	285
10	275	270	285	275	305	295	330	345	350	365	345	340	350	330	340	355	360	340	320	345	315	310	290	295
11	305	305	290	280	305	295	310	335	350	365	C	350	345	330	355	360	345	360	300	315	320	310	295	305
12	305	305	290	295	295	305	305	340	350	360	360	360	330	345	345	350	350	355	325	320	360	305	325	290
13	295	F	F	F	F	F	F	350	365	375	335	355	325	365	355	340	345	345	340	295	A	A	310	305
14	290	280	290	295	300	295	310	345	365	360	330	340	345	345	335	345	345	350	300	300	295	310	300	310
15	290	295	305	285	300	300	325	350	350	350	335	335	335	350	345	340	355	335	320	315	300	295	300	300
16	285	280	295	285	300	305	315	335	345	C	C	C	350	350	340	345	360	330	325	345	285	300	300	315
17	295	280	280	270	285	275	315	335	340	340	330	320	340	350	325	350	360	335	285	285	340	285	305	300
18	290	275	280	275	300	300	335	A	345	335	325	335	330	345	J C	325	355	350	340	350	310	300	I S	F
19	F	290	290	I S	295	295	345	370	355	315	330	350	350	335	340	360	350	355	325	300	310	325	305	295
20	295	280	290	295	300	315	C	365	310	335	325	340	350	325	355	355	365	335	315	320	310	300	300	S
21	S	S	S	295	310	300	C	370	C	355	325	325	350	355	325	350	365	365	315	315	295	280	F	F
22	S	S	S	S	270	270	S	S	340	F	F	F	F	315	350	340	340	335	325	305	300	315	270	290
23	270	255	285	275	280	C	C	335	355	365	315	340	300	340	330	340	335	335	340	310	F	270	280	275
24	F	C	300	S	S	S	S	340	340	320	340	350	345	340	330	320	350	360	305	290	305	S	S	285
25	C	C	275	285	C	C	A	C	340	310	345	340	350	350	345	360	360	350	345	F	F	S	F	S
26	S	S	285	C	295	C	C	340	350	345	335	330	365	340	345	360	350	340	315	335	340	285	280	F
27	S	S	S	S	295	C	340	355	C	330	335	340	345	315	315	355	345	365	320	315	320	C	285	S
28	290	S	S	290	280	275	320	340	340	355	345	335	340	330	335	345	355	345	315	330	305	290	305	S
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	20	20	22	23	24	23	21	26	26	26	25	25	27	28	28	28	28	28	28	27	25	23	24	23
MED	292	288	290	285	300	300	320	342	348	355	335	340	345	340	345	350	350	340	325	315	305	300	300	295
UQ	295	295	295	295	305	305	330	355	355	360	345	350	350	350	350	358	358	350	335	332	320	310	305	300
LQ	285	280	285	280	295	288	310	335	340	335	330	335	332	332	335	345	342	335	315	305	295	292	282	288

FEB. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 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 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																								
2											L	A	A	L										
3																								
4																								
5																								
6												C		L										
7																								
8											L													
9																								
10														L										
11												C												
12																								
13																								
14																								
15												L												
16											C	C	L	L										
17												L		L										
18														L										
19											L	L	L											
20														L										
21														L	L									
22													350	360	345	365								
23																								
24													L			L								
25												380	380		L									
26													L	L										
27												L												
28											405					L								
29																								
30																								
31																								
CNT												3	2	1	1									
MED												380	370	345	365									
UQ												392												
LQ												365												

FEB. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1973

H^oF₂ (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																								
2											250	250	270	250										
3																								
4																								
5																								
6												C		260										
7																								
8											240													
9																								
10													245											
11												C												
12																								
13																								
14																								
15												245												
16											C	C	245	240										
17												255		250										
18															245									
19											260	240	230											
20													245											
21													255	250										
22											450	310	340	260										
23																								
24												250			245									
25											250	250	245											
26												270	245											
27											250													
28														250										
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											6	8	9	8	1									
MED											250	250	245	250	245									
UQ											260	262	255	255										
LQ											250	248	245	248										

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FEB. 1973

H^oF₂ (KM)

IONOSPHERIC DATA

FEB. 1973

H^oF (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	260	270	255	235	225	225	270	220	215	220	230	230	230	220	240	235	215	230	220	240	265	280	270	285																														
2	295	265	235	250	225	300	230	220	230	250	230	A	A	250	225	230	215	220	225	280	265	260	265	300																														
3	300	270	290	275	230	245	250	225	230	240	235	220	205	220	250	220	220	215	225	220	265	280	320	340																														
4	280	255	245	230	235	295	225	215	215	225	200	245	240	250	245	220	225	210	255	245	270	245	230	260																														
5	270	275	285	275	260	235	225	215	215	205	225	225	205	240	245	225	225	215	210	245	245	230	255	275																														
6	315	300	290	240	220	225	240	215	220	200	195	C	225	225	240	225	210	225	250	225	250	275	305	300																														
7	270	295	295	250	270	270	295	230	225	220	220	230	225	250	245	245	215	A	250	245	250	250	260	310																														
8	275	285	255	275	280	300	280	220	220	225	225	220	225	225	235	230	220	210	220	250	280	305	270	260																														
9	265	245	295	300	290	300	295	220	220	225	225	230	225	225	240	230	225	220	240	250	250	260	240	275																														
10	300	310	300	300	250	265	245	220	225	220	200	200	225	220	250	230	225	225	240	220	250	280	300	295																														
11	290	265	280	300	270	270	220	215	215	215	C	205	220	220	240	230	220	205	250	250	250	270	275	270																														
12	260	265	290	280	260	245	250	220	215	215	205	205	210	200	250	230	225	220	220	270	220	300	265	280																														
13	350 ^A	295	295	300	255	260	230	215	215	220	200	210	205	240	200	245	225	A	215	295	A	A	265	285																														
14	300	300	275	270	255	255	250	220	215	210	200	200	230	210	220	245	225	200	215	255	260	250	265	245																														
15	250	265	260	285	275	260	225	A	220	215	210	220	205	210	240	245	225	215	220	220	270	255	250	250																														
16	290	290	270	260	250	250	245	I A 230	240	C	C	C	225	235	225	225	215	220	245	225	230	285	270	250																														
17	265	295	290	300	300	300	245	A	220	230	235	230	215	220	225	230	220	215	250	270	220	270	250	250																														
18	250	300	290	300	255	240	215	A	220	225	225	230	220	215	230	225	220	220	215	250	265	245	260	295																														
19	260	280	300	300	295	300	235	210	220	220	245	215	215	225	230	225	220	225	205	245	250	235	250	290																														
20	285	295	280	300 ^{E C}	260	230	225	205	215	230	225	230	A	225	200	235	230	210	210	245	250	285	270	295																														
21	275	265	270	310 ^{E C}	250	250	245	205	210	200	225	210	225	220	200	245	225	210	225	250	250	275	280	270																														
22	265	250	250	285	300	300	265	215	230	220	230	210	210	230	220	240	245	225	245	245	275	255	300	300																														
23	345	345	300	270	345	C	C	230	215	235	200	200	225	240	225	240	230	220	200	235	280	300	305	280																														
24	275	260	250	305	275	290	220	215	220	225	230	230	230	225	230	235	230	210	230	275	250	270	280	300																														
25	C	C	305	275	265	225	A	210	215	220	210	200	220	225	225	230	225	220	200	260	295	245	300	285																														
26	255	250	275	275	260	290	C	225	210	215	200	225	220	215	245	225	240	225	240	220	215	295	300	335																														
27	270	250	275	295	270	220	230	215	C	200	200	245	230	215	225	245	235	220	225	250	240	260	295	265																														
28	300	250	240	260	295	305	250	220	230	225	205	200	220	225	240	240	240	220	240	230	245	280	260	250																														
29																																																						
30																																																						
31																																																						
CNT	27	27	28	28	28	27	25	25	27	27	26	25	26	28	28	28	28	26	28	28	27	27	28	28																														
MED	275	270	280	276	260	260	245	220	220	220	222	220	222	225	232	230	225	220	225	245	250	270	270	282																														
UQ	298	295	292	300	278	298	250	220	222	225	230	230	225	232	242	240	228	220	242	252	265	280	298	298																														
LQ	265	262	258	265	250	242	225	215	215	215	200	205	215	220	225	225	220	210	215	232	248	252	260	262																														

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FEB. 1973

H^oF (KM)

IONOSPHERIC DATA

FEB. 1973

H^oES (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	E	E	E	E	F	E	E	G	G	G	G	G	G	G	G	100	110	S	S	S	S	105	105	E
2	100	E	E	E	E	E	S	G	G	G	G	120	110	120	G	125	115	110	E	110	E	105	105	105
3	S	100	100	E	E	E	E	105	105	G	G	G	100	G	125	120	105	E	105	105	110	105	105	105
4	105	110	105	G	G	S	S	G	G	G	G	140	125	120	115	110	105	105	105	105	105	100	105	100
5	100	E	E	E	110	110	E	S	105	G	G	G	G	G	155	125	115	110	E	105	105	100	E	100
6	100	E	E	E	E	E	110	110	G	G	G	C	G	G	150	125	115	115	110	100	100	110	E	E
7	E	E	E	E	E	115	S	S	105	G	105	G	G	150	130	120	120	110	110	110	105	E	105	105
8	110	E	E	E	E	E	110	S	G	G	G	G	G	G	G	G	130	115	E	E	105	S	E	S
9	S	E	100	E	E	110	105	110	G	G	G	G	G	G	G	G	G	120	115	110	110	110	S	E
10	E	E	E	E	E	S	110	110	G	G	G	G	G	G	G	100	125	S	100	E	105	105	100	100
11	100	E	E	E	E	100	100	S	110	110	C	105	100	G	100	100	100	100	100	S	S	105	E	S
12	E	100	100	100	E	100	S	S	100	G	105	105	105	110	105	105	105	105	100	100	105	110	105	105
13	105	E	105	105	105	S	S	G	115	110	110	110	105	105	100	105	110	110	110	110	110	110	110	S
14	E	105	100	E	E	E	110	110	105	105	105	100	100	G	G	100	100	110	110	110	105	S	S	S
15	S	E	E	E	E	S	S	105	105	105	G	G	G	G	G	G	150	115	E	E	E	E	E	E
16	S	E	E	105	E	E	110	110	110	C	C	C	105	G	G	G	G	S	110	115	110	110	105	100
17	100	100	E	E	E	E	115	110	105	110	G	G	G	G	G	G	115	110	105	105	105	100	105	E
18	S	100	105	110	E	E	E	110	110	G	G	G	G	G	G	G	115	110	110	105	105	S	C	E
19	S	E	E	E	E	115	105	105	105	G	G	G	G	G	G	G	115	115	E	E	E	S	S	S
20	E	S	E	C	E	S	S	115	105	105	105	105	100	G	100	100	130	110	100	E	E	105	105	S
21	S	E	105	C	E	E	C	G	G	G	G	G	G	G	G	G	110	S	120	110	110	110	105	105
22	S	E	E	E	E	E	S	110	110	110	G	G	G	G	G	G	105	G	110	E	110	S	E	E
23	S	E	S	E	S	C	C	110	105	G	G	G	G	G	G	G	G	S	E	F	E	E	E	S
24	E	C	E	C	E	S	S	110	105	110	G	G	G	G	G	G	100	145	E	S	E	E	S	E
25	C	C	E	E	E	110	110	110	110	110	105	105	G	G	G	G	G	G	E	E	110	110	105	105
26	E	E	S	E	E	E	C	120	G	G	105	180	100	G	130	100	G	S	100	105	E	S	S	S
27	S	100	100	C	E	E	C	G	C	G	G	G	155	145	G	G	100	100	100	100	100	E	S	E
28	S	E	C	105	E	S	S	C	115	G	110	110	105	G	G	G	G	S	110	S	100	S	100	S
29																								
30																								
31																								
CNT	8	7	9	5	2	8	10	16	18	9	8	9	12	6	10	14	22	18	19	16	19	16	14	10
MED	100	100	100	105	108	110	110	110	105	110	105	105	105	122	122	105	112	110	110	105	105	105	105	105
UQ	105	102	105	105		112	110	110	110	110	108	110	108	145	130	120	115	115	110	110	110	110	105	105
LQ	100	100	100	105		100	105	110	105	105	105	105	100	110	100	100	105	110	100	105	105	105	105	100

FEB. 1973

H^oES (KM)

IONOSPHERIC DATA

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

FEB. 1973

TYPES OF ES

IONOSPHERIC DATA

FEB. 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	37	40	F	F	F	F	F ₃₁	50	57	66	72	60	72	73	71	61	59	49	48	38	35	27	F	F ₃₀
2	32	35	40	34	35	24	31	55	63	78	89	94	80	81	84	75	62	54	43	39	38	36	34	35
3	34	36	35	34	31	31	32	58	55	76	89	76	68	H ₆₆	71	76	59	56	42	35	27	34	38	F
4	F ₃₆	42	39	31	26	F ₃₂	34	55	64	66	69	87	81	78	74	69	64	54	44	I A ₃₆	40	41	36	28
5	29	31	F ₃₁	34	36	34	31	62	67	68	71	84	71	78	80	75	69	57	48	48	37	32	31	34
6	35	36	36	35	F ₃₈	F ₃₄	36	60	77	77	80	92	96	86	79	74	66	54	36	46	41	34	35	36
7	37	36	R ₃₆	39	37	36	35	60	I R ₉₀	95	96	92	93	91	84	76	79	56	51	I A ₄₀	36	30	30	31
8	36	35	32	F ₃₂	F ₃₁	F ₃₁	30	62	72	86	104	104	93	82	77	71	66	I R ₅₈	47	32	35	34	39	41
9	31	34	32	31	31	31	30	65	85	91	98	104	87	78	81	81	70	62	46	40	42	38	27	30
10	31	30	31	32	34	30	32	62	82	86	79	84	86	87	86	89	70	60	49	51	38	34	33	35
11	36	35	35	34	34	34	34	59	81	81	89	79	78	81	94	92	76	60	41	46	47	46	41	41
12	42	40	38	36	36	35	36	65	80	86	89	94	85	84	89	87	76	70	I A ₅₈	I A ₄₅	44	I A ₃₈	34	34
13	36	36	36	F ₃₅	35	35	35	72	89	82	80	90	101	86	82	72	88	74	54	39	38	I A ₃₅	33	I A ₃₄
14	34	36	I A ₃₅	36	33	32	32	65	89	101	90	83	96	80	76	73	78	67	44	45	47	46	39	40
15	36	39	38	38	39	40	42	63	79	86	85	92	96	89	81	78	78	64	49	51	43	41	45	42
16	42	44	45	44	45	41	45	69	98	99	101	109	105	96	77	81	69	60	46	45	45	42	42	41
17	41	42	39	40	39	40	41	62	88	80	95	106	112	101	94	88	71	59	62	54	50	46	44	45
18	46	42	42	42	48	41	42	67	85	86	103	103	109	99	88	89	76	59	63	50	45	42	40	45
19	39	37	41	40	F	F ₄₁	46	69	72	78	97	124	87	81	80	84	71	66	59	45	45	46	41	37
20	38	42	41	39	40	38	40	60	66	71	81	95	105	87	85	92	82	68	43	45	45	41	42	44
21	42	41	42	40	44	34	40	75	75	73	72	80	103	114	90	86	86	68	44	43	43	41	45	47
22	47	46	45	43	F	F	40	82	64	69	70	123	104	121	89	80	91	F	66	45	F ₄₀	F	F	F
23	50	F ₅₁	F	F	42	F	26	55	92	74	78	95	94	105	94	83	98	77	69	46	F	F	F	F
24	F	54	F ₄₈	40	41	40	40	70	77	81	I R ₁₀₄	106	90	83	86	80	70	81	45	47	58	41	44	40
25	40	42	40	43	38	38	37	52	77	98	104	86	95	86	82	84	76	66	54	43	46	F	F	F
26	F	F	F ₄₂	37	38	31	37	61	72	73	80	97	115	94	80	79	66	73	59	57	40	31	35	39
27	38	36	35	36	36	36	48	68	66	77	92	85	96	90	91	104	84	74	50	41	49	48	46	50
28	49	51	52	42	42	40	43	83	79	72	89	94	107	117	99	78	77	69	51	52	47	43	46	32
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	27	26	26	25	25	28	28	28	28	28	28	28	28	28	28	28	27	28	28	27	25	24	24
MED	37	39	38	36	37	35	36	62	77	79	89	93	94	86	83	80	74	62	48	45	43	41	39	38
UQ	42	42	42	40	40	40	40	68	85	86	96	104	104	95	89	86	78	68	56	48	46	42	43	42
LQ	35	36	35	34	34	32	32	60	66	73	80	84	86	81	80	75	68	58	44	40	38	34	34	34

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FEB. 1973

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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 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	380	L	L	410	L								
2											L	L	440	L	450	L	A							
3											L	L	L	L	L	L								
4											L	L	L	L	L	L	A							
5											L	L	H	L	490	L	A							
6									L	L	380	L	L	L	L	L								
7									L	L	390	460	460	H	L	L	L							
8										L	L	450	L	L	L	L								
9											L	L	450	L	430	L								
10											L	L	450	430	L	L	L							
11										L	U	L	420	430	U	L	450	420	450	L				
12									L	L	U	L	390	460	450	L	L	A						
13										L	L	430	470	L	L	L								
14										L	410	L	U	L	L	U	410	L						
15										L	L	400	L	L	L	L								
16									L	A	420	480	U	L	450	460	L	L						
17											L	480	U	L	L	L	L							
18										L	430	450	U	L	L	420	L	L						
19										510	L	I	A	440	460	410	L	L						
20										L	410	430	430	L	L	L								
21										L	L	460	L	L	420	L								
22										L	U	L	I	A	510	H	440	L	L					
23									L		360	L	L	L	L	L	L							
24										L	H	600	L	400	L	L	U	L	360					
25									L	U	L	390	U	L	360	L	L	430	L	430	L			
26									L	L	L	460	460	H	430	L	L							
27										L	L	400	L	L	440	L	L							
28									L	L	420	L	L	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	3	13	19	14	9	6	1								
MED									U	L	390	510	410	450	455	430	425	U	L	360				
UQ									555	420	460	460	450	440										
LQ									L	L	435	390	430	440	420	420								

FEB. 1973

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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 **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	250	285	295	310	320	315	I A 300	270	I A 220	S						
2								A	255	285	295	305	315	310	A	A	A	S						
3								B	240	285	305	325	335	330	310	270	I A 225	S						
4								A	235	280	300	310	325	320	305	A	A	B						
5								S	245	285	300	315	330	320	I A 300	280	A	S						
6								A	A	275	295	305	310	305	300	270	210	S						
7								B	225	285	300	310	320	320	300	270	230	S						
8								A	250	285	305	315	325	330	315	A	A	A						
9								A	A	285	305	315	325	325	310	285	245	S						
10								A	250	285	305	325	330	320	310	285	A	S						
11								B	255	I A 285	305	I A 320	330	330	315	I A 290	245	S						
12								B	255	290	305	325	335		A	A	A	S						
13								A	255	290	I A 310	325		A	A	A	A	S						
14								A	A	A	310	325	335	330	315	295	I A 250	B						
15								195	255	295	315	325	I A 335	335	320	295	250	S						
16								B	A	A	A	A	A		I A 310	290	A	B						
17								A	255	295	315	325	335	335	320	280	240	A						
18								A	255	295	315	325	335	330	310	280	240	B						
19								A	A	A	310	I A 325	330	330	310	285	I A 235	180						
20								200	260	295	315	325	335	330	A	A	A	180						
21								B	255	290	A	A	A	A	A	280	250	A						
22								215	265	295	A	A	A	330	315	285	250	A						
23								A	A	A	A	A	330	330	310	280	240	A						
24								185	A	A	310	325	335	335	320	290	240	B						
25								S	190	I A 245	295	305	315	330	340	320	290	250	A					
26								S	B	250	290	310	325	335	335	320	285	A	A					
27								S	210	260	I A 285	320	325	325	315	295	255	190	A					
28								S	A	A	A	A	310	320	310	300	I A 275	240	B					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								6	20	22	23	24	24	25	23	22	18	2						
MED								198	255	285	305	325	330	330	310	282	240	180						
UQ								210	255	295	310	325	335	330	315	290	250							
LQ								190	248	285	302	312	325	320	302	275	230							

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FEB. 1973

FOE (0.01 MHz)

IONOSPHERIC DATA

FEB. 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 automatic operation															
Hour D.V.	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₈	G	G	G	32	35	34	32	30	26	J _X ₁₉	J _X ₃₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	
2	E ₁₄	E ₁₄	E ₁₄	E	E ₁₄	E ₁₄	E ₁₄	22	28	32	G	36	38	34	40	J _X ₅₉	J _X ₃₆	J _X ₂₈	J _X ₂₇	E ₁₄	J _X ₂₁	J _X ₂₉	J _X ₁₉	E ₁₄	
3	E ₁₄	E ₁₄	J _X ₁₈	M ₂₀	M ₂₀	E ₁₄	E ₁₄	E ₁₈	G	G	G	G	G	G	34	38	24	E ₁₆	J _X ₂₇	E ₁₄	E ₁₄	J _X ₁₉	J _X ₁₉	E ₁₄	
4	E ₁₄	M ₂₀	E ₁₄	J _X ₂₆	J _X ₁₈	E ₁₄	E ₁₄	J _X ₁₉	G	G	J _X ₄₀	36	38	40	44	J _X ₄₈	J _X ₃₉	J _X ₃₈	J _X ₃₂	J _X ₄₅	J _X ₄₂	J _X ₂₄	J _X ₁₉	J _X ₂₄	
5	J _X ₂₀	J _X ₁₇	J _X ₁₉	E ₁₄	J _X ₂₁	J _X ₂₀	J _X ₁₈	J _X ₂₀	G	G	G	G	G	G	39	35	43	J _X ₅₂	J _X ₄₅	J _X ₃₆	E ₁₄	J _X ₃₉	J _X ₁₇	E ₁₄	E ₁₄
6	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	J _X ₂₁	J _X ₂₇	J _X ₃₀	J _G ₂₅	G	G	G	G	34	33	33	30	25	E ₁₄	J _X ₂₄	E ₁₄	E ₁₄	E ₁₄	
7	E ₁₄	M ₂₀	E ₁₄	E ₁₄	M ₂₀	J _X ₁₉	J _X ₄₉	E ₁₈	G	G	J _G ₃₀	G	G	G	35	31	28	J _X ₂₇	J _X ₄₆	J _X ₅₄	J _X ₃₉	J _X ₃₄	J _X ₂₉	J _X ₂₆	
8	J _X ₂₀	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	J _X ₂₉	J _X ₃₁	G	G	G	G	G	G	G	G	28	J _X ₃₀	J _X ₅₅	J _X ₃₀	J _X ₂₃	E ₁₄	J _X ₂₅	E ₁₄	E ₁₄
9	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₄	J _X ₂₅	J _X ₃₇	J _X ₄₁	J _X ₃₀	G	G	G	G	G	G	G	20	J _X ₃₀	J _X ₂₄	J _X ₂₃	J _X ₂₆	J _X ₂₀	E ₁₄	
10	E ₁₄	M ₂₀	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	J _X ₂₅	G	G	G	G	G	G	G	G	26	J _X ₂₁	J _X ₂₄	J _X ₂₂	E ₁₄	E ₁₄	E ₁₄	J _X ₃₅	
11	J _X ₃₀	J _X ₁₉	J _X ₂₀	E ₁₄	E ₁₄	E ₁₄	J _X ₁₈	E ₂₁	G	J _X ₂₄	J _X ₃₄	J _X ₃₈	G	G	G	J _X ₃₆	J _G ₂₃	J _X ₂₇	J _X ₂₆	J _X ₂₅	J _X ₁₉	E ₁₄	E ₁₄	J _X ₂₁	
12	J _X ₂₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	J _X ₂₄	E ₁₄	E ₂₁	J _X ₂₉	G	31	G	G	35	36	J _X ₄₃	J _X ₆₄	J _X ₇₉	J _X ₈₂	J _X ₅₄	J _X ₃₄	J _X ₄₁	J _X ₃₄	J _X ₂₁	
13	E ₁₄	J _X ₁₉	J _X ₁₇	M ₂₁	J _X ₂₆	J _X ₂₀	J _X ₂₁	J _X ₂₅	G	G	J _X ₃₉	J _X ₃₆	J _X ₄₄	J _X ₄₄	39	J _X ₄₆	J _X ₄₉	J _X ₅₀	J _X ₃₈	J _X ₃₁	J _X ₉₂	J _X ₇₇	J _X ₅₄	J _X ₄₆	
14	J _X ₂₉	J _X ₄₁	J _X ₄₅	J _X ₃₀	J _X ₂₃	J _X ₂₁	M ₂₀	J _X ₄₄	J _X ₉₀	J _X ₄₉	G	J _X ₄₂	G	40	39	J _G ₂₉	27	E ₁₈	J _X ₂₃	J _X ₄₃	J _X ₂₇	E ₁₄	E ₁₄	J _X ₂₅	
15	J _X ₂₀	J _X ₂₅	M ₂₀	E ₁₄	E ₁₄	E ₁₄	E ₁₄	G	G	G	G	G	J _X ₂₅	G	J _X ₆₀	J _X ₄₀	37	35	G	31	23	E ₁₄	J _X ₁₉	E ₁₄	J _X ₂₂
16	E ₁₄	J _X ₂₅	J _X ₂₀	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₂₁	32	J _X ₆₈	J _X ₄₄	J _X ₆₅	J _X ₇₄	J _X ₄₆	J _X ₃₇	J _G ₂₉	29	E ₁₉	E ₁₄	E ₁₄	J _X ₂₇	J _X ₂₅	J _X ₁₈	E ₁₄	
17	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₂₆	J _X ₂₇	G	G	J _G ₃₀	J _X ₃₂	J _X ₃₉	G	G	28	J _X ₃₆	J _X ₂₄	E ₁₄	E ₁₄	E ₁₄	J _X ₂₀	J _X ₄₁	
18	J _X ₄₁	J _X ₂₇	J _X ₂₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	20	J _X ₃₄	J _X ₃₀	G	G	G	G	G	G	G	E ₂₀	J _X ₃₃	J _X ₄₆	J _X ₄₅	J _X ₃₀	J _X ₃₄	J _X ₂₀	
19	J _X ₂₄	J _X ₂₄	J _X ₂₁	J _X ₁₉	J _X ₁₉	E ₁₄	J _X ₂₀	J _X ₃₄	J _X ₃₇	J _X ₄₃	J _G ₃₀	J _X ₆₆	J _G ₃₀	G	G	29	27	G	E ₁₄	J _X ₁₉	J _X ₂₁	E ₁₄	E ₁₄	E ₁₄	
20	E ₁₄	E ₁₄	E	E ₁₄	E	J _X ₁₈	E ₁₄	G	29	G	G	G	35	G	35	J _X ₃₁	28	J _X ₃₀	J _X ₁₉	J _X ₂₁	J _X ₁₉	E ₁₄	J _X ₂₀	E ₂₀	
21	J _X ₁₉	J _X ₂₀	J _X ₁₉	J _X ₂₀	E	E ₁₄	E ₁₄	E ₂₁	G	G	32	35	36	34	J _X ₃₃	J _G ₂₈	G	20	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
22	E ₁₄	E ₁₄	M ₂₀	J _X ₂₄	J _X ₂₀	E ₁₄	E ₁₄	G	G	G	33	51	J _X ₃₆	J _X ₃₄	G	J _X ₃₀	G	21	J _X ₂₄	J _X ₂₀	J _X ₂₅	J _X ₃₀	E ₁₄	E ₁₄	
23	E ₁₄	M ₂₀	E ₁₄	E ₁₄	E ₁₄	M ₂₀	E ₁₄	29	J _X ₃₁	35	J _X ₃₉	J _X ₃₈	35	G	G	G	26	20	E ₁₄	E ₁₄	E ₁₄	E ₁₄	J _X ₃₀	J _X ₁₈	
24	J _X ₁₈	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	G	27	J _X ₃₄	G	G	G	G	G	G	G	E ₂₁	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
25	E ₁₄	J _X ₁₈	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	G	J _X ₃₀	J _G ₂₈	G	G	G	J _G ₂₇	24	G	G	J _X ₂₄	J _X ₂₄	E ₁₄	E ₁₄	J _X ₂₀	J _X ₂₁	E ₁₄	
26	J _X ₂₉	J _X ₂₉	J _X ₂₆	J _X ₁₆	J _X ₂₁	J _X ₂₀	E ₁₄	E ₂₂	G	G	G	36	G	G	G	J _X ₂₉	J _X ₃₀	J _X ₃₂	J _X ₂₇	E ₁₄	J _X ₃₉	J _X ₃₅	E ₁₄	E ₁₄	
27	E ₁₄	J _X ₂₀	E ₁₄	J _X ₂₀	E ₁₄	E ₁₄	E ₁₄	J _X ₂₂	J _X ₃₈	J _X ₄₄	J _X ₃₈	J _G ₂₉	36	G	G	J _G ₂₇	29	G	J _X ₂₂	M ₂₀	E ₁₄	J _X ₁₇	E ₁₄	E ₁₄	
28	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	M ₂₁	E ₁₄	24	J _X ₃₅	J _X ₄₇	J _X ₆₄	J _X ₃₆	30	G	G	J _X ₄₁	J _X ₄₄	J _X ₂₇	E ₁₇	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
29																									
30																									
31																									
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	E ₁₄	18	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	20	27	26	G	32	G	G	32	29	28	22	J _X ₂₄	J _X ₂₀	J _X ₁₉	J _X ₁₈	E ₁₄	E ₁₄	
UQ	J _X ₂₀	J _X ₂₀	J _X ₂₀	20	20	20	19	26	32	33	34	37	36	34	36	37	30	31	31	J _X ₂₅	J _X ₃₀	J _X ₂₈	J _X ₂₀	J _X ₂₂	
LQ	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E _G ₁₈	G	G	G	G	G	G	G	G	24	E ₂₀	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄

The Radio Research Laboratories, Japan

FEB. 1973

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 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 automatic operation																
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₈	G	G	G	32	34	34	32	29	24	E	25	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
2	E ₁₄	E ₁₄	E ₁₄	E	E ₁₄	E ₁₄	E ₁₄	22	28	32	G	34	38	32	38	50	35	20	24	E ₁₄	E	20	E	E ₁₄		
3	E ₁₄	E ₁₄	E	E	E	E ₁₄	E ₁₄	E ₁₈	G	G	G	G	G	G	33	35	24	E ₁₆	E	E ₁₄	E ₁₄	E	E	E ₁₄		
4	E ₁₄	E	E ₁₄	21	E	E ₁₄	E ₁₄	19	G	G		24	36	38	39	38	45	36	32	24	A	E	E	20		
5	18	E	E	E ₁₄	18	E	E	E	G	G	G	G	G	35	33	41	50	44	22	E ₁₄	31	E	E ₁₄	E ₁₄		
6	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E	22	24	23	G	G	G	G	34	32	31	28	22	E ₁₄	19	E ₁₄	E ₁₄	E ₁₄		
7	E ₁₄	E	E ₁₄	E ₁₄	E	19	22	E ₁₈	G	G	G	24	G	G	G	34	30	27	25	42	A	23	24	E	E	
8	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	17	21	G	G	G	G	G	G	G	28	25	E ₅₅	28	23	E ₁₄	E	E ₁₄	E ₁₄	
9	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₄	E ₁₄	22	20	29	20	G	G	G	G	G	G	19	27	21	20	20	E	E ₁₄		
10	E ₁₄	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	20	22	G	G	G	G	G	G	G	25	20	22	20	E ₁₄	E ₁₄	E ₁₄	E		
11	E	E	E	E ₁₄	E ₁₄	E ₁₄	E	E ₂₁	G	23	29	28	35	G	G	G	32	21	23	21	23	E	E ₁₄	E ₁₄	E	
12	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E	E ₁₄	E ₂₁	22	25	29	G	G	G	35	34	42	35	51	A	A	25	A	22	E	
13	E ₁₄	E	E	E	18	E	E	20	G	G	33	29	35	40	35	30	26	19	29	19	24	A	29	A		
14	18	E	A	24	16	18	E	25	65	32	G	30	G	G	34	22	27	E ₁₈	E	28	21	E ₁₄	E ₁₄	E		
15	E	E	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄	G	G	G	G	24	30	35	36	34	G	30	23	E ₁₄	E	E ₁₄	E ₁₄	E		
16	E ₁₄	18	17	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₂₁	28	43	34	36	35	29	32	G	25	28	E ₁₉	E ₁₄	E	E	21	E	E ₁₄	
17	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	21	21	G	G	G	28	28	25	G	G	G	27	20	E	E ₁₄	E ₁₄	E ₁₄	22	
18	E	E	18	E ₁₄	E ₁₄	E ₁₄	E ₁₄	20	22	25	G	G	G	G	G	G	G	F ₂₀	18	18	21	20	19	E		
19	E	E	15	15	E	E ₁₄	18	33	32	35	G	46	G	G	G	G	29	25	G	E ₁₄	E	E	E ₁₄	E ₁₄	E ₁₄	
20	E ₁₄	E ₁₄	E	E ₁₄	E	E	E ₁₄	G	29	G	G	G	35	G	33	30	27	16	E	E	E	E ₁₄	E	E ₂₀		
21	E	E	E	E	E	E ₁₄	E ₁₄	E ₂₁	G	G	32	34	33	34	31	G	G	19	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
22	E ₁₄	E ₁₄	E	18	E	E ₁₄	E ₁₄	G	G	G	33	50	34	25	G	24	G	20	18	E	18	E	E ₁₄	E ₁₄		
23	E ₁₄	E	E ₁₄	E ₁₄	E ₁₄	E	E ₁₄	24	25	33	32	33	35	G	G	G	25	18	E ₁₄	E ₁₄	E ₁₄	E ₁₄	18	E		
24	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	G	25	32	G	G	G	G	G	G	G	F ₂₁	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	
25	E ₁₄	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	G	28	G	G	G	G	G	G	G	G	21	18	E ₁₄	E ₁₄	E	E	E ₁₄		
26	19	18	18	E	16	E	E ₁₄	E ₂₂	G	G	G	34	G	G	G	22	27	25	22	E ₁₄	E	E	E ₁₄	E ₁₄		
27	E ₁₄	E	E ₁₄	E	E ₁₄	E ₁₄	E ₁₄	19	24	31	32	26	G	G	G	G	17	28	G	18	E	E ₁₄	E	E ₁₄	E ₁₄	
28	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E	E ₁₄	23	29	30	30	26	G	G	25	28	20	E ₁₇	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄		
29																										
30																										
31																										
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
MED	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	20	22	22	G	G	27	G	G	28	27	26	20	18	14	14	14	E	E ₁₄	E ₁₄
UQ	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	22	28	30	30	34	35	34	34	30	28	22	24	20	20	17	E	E ₁₄	E ₁₄	
LQ	E	E	E	E ₁₄	E ₁₃	E	E ₁₄	18	G	G	G	G	G	G	G	G	G	20	E	G	E ₁₈	E ₁₄	E ₁₄	E	E	E

FEB. 1973

FBES (0.1 MHz)

IONOSPHERIC DATA

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

FEB. 1973

F=MIN (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	300	305	F	F	F	F	300	335	360	340	345	345	340	345	340	345	340	320	320	330	330	305	F	275	
2	295	310	330	325	310	285	305	320	325	330	325	335	325	320	325	345	345	325	325	305	305	305	285	285	
3	290	300	315	285	305	295	305	320	345	320	315	335	340	325 ^H	305	355	335	335	315	335	280	305	295	F	
4	290 ^F	325	325	315	290	280 ^F	335	340	365	335	325	335	325	340	335	350	345	335	330	320 ^{I A}	310	310	330	300	
5	295	295	305 ^F	295	310	310	320	345	360	340	320	335	325	320	330	360	350	335	310	335	325	295	305	285	
6	280	285	285	295	320 ^F	325 ^F	330	340	350	345	335	330	335	340	340	340	350	345	295	315	345	300	290	290	
7	295	285	290 ^R	305	310	295	290	335	350 ^{I R}	335	335	325	325	320	335	320	350	355	335	330 ^{I A}	320	305	300	295	
8	310	295	310	295 ^F	290 ^F	285 ^F	305	335	345	320	325	330	325	330	330	330	335	325 ^{I R}	320	305	305	280	300	295	
9	315	295	295	290	285	275	285	330	335	325	330	330	330	330	320	340	340	340	330	310	325	320	295	300	
10	295	290	285	295	300	305	320	345	335	335	340	330	325	330	320	335	350	340	310	330	320	310	290	290	
11	300	305	290	290	300	295	325	330	345	345	350	335	330	330	325	330	355	350	295	300	300	310	295	295	
12	300	300	290	290	305	295	305	340	340	340	335	330	335	335	325	335	345	325	325 ^{I A}	310 ^{I A}	345	315 ^{I A}	305	310	
13	295	295	290	300	280	305	305	335	350	355	330	325	335	330	330	325	340	340	320	305	310	305 ^{I A}	305	310 ^{I A}	
14	295	285	305 ^{I A}	305	315	305	305	330	330	345	340	325	325	310	335	330	330	335	305	300	310	310	305	295	
15	310	290	290	290	290	295	320	340	345	330	320	325	325	325	325	340	340	335	310	295	300	300	300	300	
16	285	295	290	295	300	290	300	315	320	325	320	330	325	335	325	340	335	350	325	335	305	310	310	290	
17	295	310	300	285	280	295	295	335	355	325	315	330	320	320	325	335	340	330	325	295	320	300	300	300	
18	305	285	290	285	305	305	310	335	340	335	330	325	325	335	330	340	345	330	325	320	320	305	290	295	
19	295	285	285	280	F	F	295	320	350	350	315	320	335	325	335	325	335	340	335	335	310	295	310	295	290
20	285	290	295	290	305	295	325	345	340	325	330	310	325	330	320	335	340	360	305	305	305	300	305	300	
21	305	285	305	280	320	290	300	345	360	350	315	305	325	330	325	320	350	355	315	310	305	280	290	295	
22	300	305	300	300	F	F	285	325	345	310	300	315	305	325	330	335	330	F	325	300	280 ^F	F	F	F	
23	275	290 ^F	F	F	285	F	290	340	350	330	335	315	320	305	340	315	340	320	335	295	F	F	F	F	
24	F	305	300 ^F	265	285	290	320	320	335	305	335	335	325	320	335	340	340	345	310	295	310	290	290	275	
25	285	285	290	290	300	315	325	320	325	330	345	315	335	325	320	340	345	335	340	280	305	F	F	F	
26	F	F	295 ^F	285	315	290	310	335	340	330	320	325	330	330	315	340	335	330	305	320	330	285	285	300	
27	290	300	290	290	300	300	335	340	330	330	335	320	325	320	315	340	345	340	320	290	320	295	280	290	
28	285	295	310	310	295	275	295	340	340	350	335	300	310	330	345	335	345	350	320	315	290	305	310	320	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	27	26	26	25	25	28	28	28	28	28	28	28	28	28	28	28	27	28	28	27	25	24	24	
MED	295	295	295	290	300	295	305	335	345	330	330	330	325	330	325	338	340	335	320	310	310	305	298	295	
UQ	300	302	305	300	310	305	320	340	350	340	335	335	330	332	335	340	345	345	325	320	320	310	305	300	
LQ	290	288	290	285	290	290	300	330	335	325	320	322	325	320	322	332	340	330	310	300	305	300	290	290	

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FEB. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 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															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L 375	L	L	L 375	L	L								
2										L	L	L 370	L	L 370	L	A								
3										L	L	L	L	L	L	L								
4										L	L	L	L	L	L	A								
5										L	L	L 390	L	L 355	L	A								
6									L	L	L 420	L	L	L	L	L								
7									L	L	L 390	L 385	L 370	L	L	L								
8										L	L	L 380	L	L	L	L								
9										L	L	L 365	L	L 375	L	L								
10										L	L	L 380	L	L 375	L	L	L							
11										L	L	L 400	L 380	L 370	L 380	L 370	L							
12									L	L	L 400	L 370	L 380	L	L	L	A							
13										L	L	L 395	L 370	L	L	L								
14										L	L	L 405	L	L 380	L	L 390	L							
15										L	L	L 400	L	L	L	L								
16									L	A	L 380	L 365	L 365	L 355	L	L								
17											L	L 355	L 370	L	L	L								
18										L	L 370	L 380	L 350	L	L 380	L	L							
19										L	L	L 350	L	L 370	L 375	L 395	L	L						
20										L	L 390	L 375	L 385	L	L	L								
21										L	L	L 355	L	L	L 375	L								
22										L	L	L 345	L 360	L 355	L 365	L	L							
23									L		L 430	L	L	L	L	L	L							
24									L	L	L 330	L	L 390	L	L	L	L 390							
25									L	L	L 360	L 390	L	L	L 395	L 365	L							
26									L	L	L	L 350	L 365	L 375	L	L								
27										L	L	L 425	L	L	L 365	L	L							
28									L	L	L 395	L	L	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	3	13	19	14	9	6	1								
MED									L 360	L 350	L 395	L 375	L 370	L 375	L 372	L 390								
UQ									L 370	L 400	L 382	L 380	L 375	L 380										
LQ									L 340	L 380	L 365	L 365	L 365	L 365	L 365									

FEB. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1973

H^oF₂ (KM)

135 E Mean Time (G. M. T. + 9h)

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										245	245	240	250	245	245	225								
2										255	255	245	250	280	250	240								
3										260	250	235	245	250	245	230								
4										230	255	250	275	250	250	240								
5										225	250	255	250	280	255	235								
6									220	235	240	255	260	250	240	240								
7									230	230	245	250	255	255	250	250								
8										245	255	250	250	240	250	245								
9										235	250	250	245	250	255									
10										230	230	250	250	250	255	245								
11										225	245	235	245	260	260	245								
12									210	220	245	250	250	245	255	245								
13										225	235	250	255	245	250	240								
14										225	240	235	250	245	250	245								
15										235	245	250	255	255	245									
16									250	235	250	255	250	250	250	250								
17										255	255	250	250	250	240									
18										235	250	255	260	240	250	240	230							
19										280	265	240	235	245	255	235								
20										235	245	250	255	245	255	250								
21										230	235	260	255	245	255	240								
22										260	300	265	290	245	240	240								
23									235		240	265	250	250	240	250	240							
24										235	320	235	250	240	250	245								
25								230	245	245	230	225	250	250	260	235								
26									225	255	250	265	250	240	240	245								
27										240	240	240	265	250	270	250	230							
28									225	235	250	290	260	255	240	240	240							
29																								
30																								
31																								
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
CNT								1	9	26	28	28	28	28	28	26	4							
MED								230	230	235	245	250	250	250	250	240	235							
UQ									235	245	250	255	255	250	255	245	240							
LQ									225	230	240	242	250	245	245	240	230							

The Radio Research Laboratories, Japan

FEB. 1973

H^oF₂ (KM)

IONOSPHERIC DATA

FEB. 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 automatic operation															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	290	265	245	220	205	265	280	220	210	230	200	220	240	220	240	220	220	220	240	220	220	280	320	315			
2	290	250	235	220	240	^{E S} 310	250	230	240	240	235	230	240	205	^{I A} 230	^{I A} 230	230	215	235	255	250	265	260	295			
3	295	280	245	260	260	260	255	230	215	230	235	215	220	230	235	^{I A} 220	220	220	220	215	^{E S} 320	280	270	325			
4	310	230	240	250	280	290	250	205	205	195	245	245	230	^{I A} 220	A	A	230	230	235	^{I A} 240	250	245	230	^{I A} 270			
5	310	290	280	255	245	240	230	215	210	200	^H 180	^H 180	^H 200	230	240	^{I A} 240	240	250	240	215	^{I A} 235	245	285	290			
6	295	295	290	265	245	240	240	225	210	200	195	205	190	^H 235	230	235	230	225	220	255	220	250	290	285			
7	255	300	285	250	250	270	^{I A} 280	230	225	215	205	205	185	^H 190	^H 235	230	235	205	^{I A} 210	^{I A} 240	245	^{I A} 250	265	280			
8	250	250	245	290	300	300	265	230	210	215	^H 200	190	220	230	230	240	230	^{I A} 230	240	^{I A} 225	245	300	265	230			
9	245	260	250	290	265	300	^{I A} 270	230	230	215	225	205	230	230	230	235	230	220	230	245	230	230	250	280			
10	290	290	300	285	250	250	250	225	230	215	200	200	195	195	^H 235	230	215	210	240	230	235	250	290	300			
11	265	265	255	270	270	265	230	230	225	220	200	205	205	200	230	^{I A} 235	220	205	240	275	270	240	265	275			
12	260	250	250	270	245	250	240	235	205	205	200	210	205	235	235	^{I A} 230	220	^{I A} 245	A	A	250	^{I A} 250	275	245			
13	260	270	290	305	300	250	250	225	220	210	200	195	210	^{I A} 210	230	210	240	210	220	240	270	A	A	A			
14	290	295	^{I A} 285	^{I A} 270	250	255	265	230	240	230	195	215	210	230	215	215	235	210	205	^{I A} 255	255	245	230	255			
15	250	250	255	280	265	255	225	220	225	205	200	230	230	220	230	245	230	215	235	230	245	245	250	250			
16	270	270	255	255	250	250	250	240	230	^{I A} 220	205	215	225	210	230	230	230	215	215	245	240	250	255	250			
17	240	250	260	290	300	275	265	220	215	220	220	200	205	230	240	210	215	220	220	245	225	240	250	280			
18	255	285	290	295	250	230	245	230	215	200	220	210	220	225	205	210	230	215	240	235	240	250	290	250			
19	250	280	295	300	280	275	240	205	220	220	^H 200	^{I A} 205	215	200	235	220	230	225	215	235	245	240	245	275			
20	290	285	255	260	245	250	230	205	230	215	200	205	220	230	235	240	225	205	240	245	245	250	260	260			
21	250	290	255	295	230	250	245	215	210	215	205	205	190	^H 245	205	210	230	210	210	230	245	260	280	270			
22	245	255	240	265	300	305	230	235	235	235	240	^{I A} 220	^H 220	225	230	220	240	230	220	215	255	250	250	290			
23	290	275	260	215	255	250	260	220	215	225	185	205	^H 240	215	220	240	240	215	220	230	290	305	300	290			
24	265	240	240	300	270	260	240	230	220	215	^H 210	200	220	235	230	205	235	220	200	265	245	245	275	290			
25	290	280	260	280	225	215	200	200	200	215	^H 200	210	190	240	215	220	225	210	200	280	255	220	300	270			
26	265	280	250	275	230	290	240	225	210	280	^H 190	205	200	215	215	230	235	235	230	220	205	300	300	270			
27	290	240	280	280	245	240	205	220	210	200	190	180	235	240	220	230	230	215	205	240	255	250	290	280			
28	270	250	225	225	270	300	255	230	210	220	215	200	235	220	240	230	230	220	230	235	270	245	255	245			
29																											
30																											
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	28	28	27	27	28	27	27	27		
MED	268	270	255	270	250	256	248	225	215	215	200	205	220	225	230	230	230	218	220	240	245	250	265	275			
UQ	290	285	282	290	270	278	258	230	228	222	218	215	230	230	235	235	235	225	238	245	255	255	290	290			
LQ	252	250	245	255	245	250	235	220	210	208	200	200	202	212	225	220	225	210	215	230	238	245	252	258			

IONOSPHERIC DATA

FEB. 1973

H¹ES (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	S	S	S	S	S	S	S	B	G	G	G	150	140	130	130	130	115	110	105	S	S	S	S	S
2	S	S	S	E	S	S	S	155	165	155	G	135	135	130	125	115	115	110	105	S	105	105	105	S
3	S	S	105	100	100	S	S	B	G	G	G	G	105	G	130	115	115	S	105	S	S	105	100	S
4	S	115	S	110	115	S	S	105	G	G	105	150	140	130	120	115	115	110	105	105	105	100	100	100
5	100	100	100	S	110	110	110	105	G	G	G	G	G	115	115	125	115	110	105	S	105	100	S	S
6	S	S	S	S	S	S	110	105	105	105	105	G	G	155	140	140	125	115	S	110	S	S	S	S
7	S	105	S	S	120	120	115	B	G	G	100	G	G	G	145	140	130	115	110	110	105	105	105	100
8	100	S	S	S	S	S	110	110	G	G	G	G	G	G	G	100	100	110	110	105	S	105	S	S
9	S	S	S	S	S	S	105	105	100	105	G	G	G	G	G	G	120	105	110	105	105	100	S	
10	S	100	S	S	S	S	110	105	G	G	G	G	G	G	G	130	100	100	100	S	S	S	S	105
11	120	100	100	S	S	S	100	B	105	105	105	105	G	G	G	100	100	100	100	100	100	S	S	100
12	100	S	S	S	S	100	S	B	110	105	110	G	G	110	110	105	105	100	100	100	100	100	100	100
13	S	100	100	105	105	100	100	100	G	110	110	110	110	110	115	110	110	105	100	100	100	110	105	105
14	105	105	100	100	100	100	105	100	105	105	G	100	G	130	100	100	120	B	110	105	105	S	S	100
15	100	95	95	S	S	S	S	G	G	G	100	105	100	130	125	G	135	130	S	105	S	100	S	105
16	S	100	100	S	S	S	S	B	110	110	110	105	105	100	100	100	110	B	S	105	105	100	105	S
17	S	S	S	S	S	S	S	110	110	G	105	105	100	G	G	G	140	110	105	S	S	S	105	105
18	105	110	100	S	S	S	S	110	110	105	G	G	G	G	G	G	G	B	110	105	105	105	100	100
19	105	105	105	105	110	S	110	105	105	105	105	100	100	G	G	150	125	G	S	110	110	S	S	S
20	S	S	E	S	E	105	S	G	160	G	G	G	155	G	125	115	115	110	110	110	110	S	110	B
21	105	100	105	100	E	S	S	B	G	G	120	120	115	115	110	110	G	135	S	S	S	S	S	S
22	S	S	100	100	100	S	S	G	G	G	130	105	105	105	G	105	G	115	110	110	105	105	S	S
23	S	105	S	S	S	120	S	115	110	110	110	105	165	G	G	G	135	120	S	S	S	S	105	105
24	100	S	S	S	S	S	S	G	110	110	G	G	G	G	G	G	G	B	S	S	S	S	S	S
25	S	100	S	S	S	S	S	G	105	105	G	G	G	100	100	G	G	100	100	S	S	115	110	S
26	105	100	100	100	100	100	S	B	G	G	G	120	G	G	G	100	100	100	100	S	105	105	S	S
27	S	100	S	100	S	S	S	110	110	105	105	105	160	G	G	100	140	G	110	100	S	110	S	S
28	S	S	S	S	S	120	S	110	110	110	105	105	105	G	100	100	100	B	S	S	S	S	S	S
29																								
30																								
31																								
CNT	11	16	12	9	9	9	9	15	17	15	15	16	15	13	16	20	22	20	20	17	15	16	13	11
MED	105	100	100	100	105	105	110	110	110	105	105	105	110	115	118	110	115	110	105	105	105	105	105	100
UQ	105	105	102	105	110	120	110	110	110	110	110	120	140	130	128	120	130	115	110	110	105	105	105	105
LQ	100	100	100	100	100	100	105	105	105	105	105	105	105	110	105	100	110	102	100	100	105	100	100	100

The Radio Research Laboratories, Japan

FEB. 1973

H¹ES (KM)

IONOSPHERIC DATA

FEB. 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												H1	H1	H1	H2	C2	L1	F2							
2							H1	H1	H1	H1	H2	H1	H1	H1	H2	C3	L1	F2			F1	F2	F1		
3			F1	F1	F2								L2		H1	C2	C2		F2			F1	F1		
4		F1		F3	F1		L1				LH1	H1	H1	H2	C2	C4	C3	L3	F2	F3	F2	F2	F1	F1	
5	F1	F1	F1		F2	F2	F2	L1						C2	C2	H3	C4	L4	F2		F4	F2			
6						F2	L3		L2	L2	L2			H1	H1	H2	H4	C3		F2					
7		F1			F1	F2	F2				L2				H1	H1	H1	C2	F3	F4	F3	F2	F2	F2	
8	F1					F1	L1										L1	LH1	C3	F2	F2		F1		
9						F2	L1		L1	L1								C1	F2	F2	F1	F2	F1		
10		F1					L1		L1								H1	L1	F1	F1				F2	
11	F1	F1	F1			F1			L2	L2	L2	L2				L3	L1	L1	F1	F2	F1			F1	
12	F1					F1			L1	L1	L1			L2	L2	L2	L3	L3	F4	F3	F2	F2	F2	F1	
13		F1	F1	F1	F2	F1	F1	L1		L1	L1	L2	L2	L2	C2	L2	L1	L1	F4	F2	F2	F3	F3	F3	
14	F1	F2	F2	F3	F3	F2	F1	L2	L2	L2		L1		H1	LH1	L1	C1		F1	F3	F2			F1	
15	F1	F2	F1								L1	L2	L2	H1	H1		H2	H2		F1		F1		F1	
16		F1	F1						L3	L2	L2	L2	L2	L2	L2	L2	L3			F1	F2	F2	F1		
17							L1		L1		L2	L2	L3				H2	L2	F1				F1	F2	
18	F1	F2	F2				L2		L1	L2									F2	F1	F2	F2	F1	F1	
19	F1	F1	F1	F1	F1		F1	L3	L2	L3	L2	L2	L1		H1	H2			F1	F1	F1				
20						F1			H1				H1		H1	C2	C2	L1	F1	F1	F1		F1		
21	F2	F1	F1	F1							C1	C2	C1	C2	L2	L2		H1							
22			F1	F2	F1						H1	L3	L3	L1		L1		C3	F3	F1	F2	F2			
23		F1				F1		C3	L2	L1	L2	L2	H1				H1	C1					F2	F1	
24	F1								L1	L1															
25		F1							L2	L1				L1	L1			L1	F1			F1	F1		
26	F1	F2	F2	F1	F1	F1						C1				L2	L3	L2	F2		F2	F2			
27		F1		F1					L1	L2	L1	L2	L2	H1			L1	H2		F2	F1		F1		
28						F1			L2	L2	C2	L2	L1		L1	L2	L1								
29																									
30																									
31																									
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	
CNT																									
MED																									
UQ																									
LQ																									

FEB. 1973

TYPES OF ES

IONOSPHERIC DATA

FEB. 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	34	37	R 40	36	23	26	25	51	58	64	76	70	70	JR 72	IR 68	62	55	55	53	46	34	H 24	27	28	
2	32	39	32	29	F 28	29	29	55	60	73	JR 100	JR 102	84	75	90	JR 77	59	52	45	40	38	36	31	32	
3	S 34	34	36	S	J 29	S 30	JR 28	59	59	69	90	94	66	63	74	74	59	54	43	41	24	31	F 29	F 33	
4	F 33	41	29	25	24	F 26	29	63	66	64	70	90	86	85	IR 77	72	59	55	40	45	44	39	F 29	26	
5	29	31	31	31	30	32	31	64	70	68	62	IR 80	JR 79	80	IR 83	73	59	56	46	47	35	29	30	34	
6	34	34	33	35	36	34	41	IR 62	67	80	81	91	100	90	79	70	71	55	41	IR 42	45	33	35	35	
7	36	IR 36	36	JR 39	35	36	35	R	JR 84	90	IR 101	98	91	92	82	78	80	66	48	A	A	38	IR 30	UR 31	
8	IR 32	UR 30	35	JR 29	30	F	R 29	JR 63	R	R 75	95	113	97	96	81	72	64	58	46	A	37	32	39	43	
9	25	30	30	30	30	31	300	A	84	91	99	107	98	IR 79	80	79	70	69	45	37	44	34	34	29	
10	30	28	31	34	32	30	31	R	R	84	83	82	84	92	IS 83	87	76	64	51	48	37	35	IA 36	IA 31	
11	34	34	34	31	31	32	34	62	91	JR 85	82	IS 77	79	82	90	94	76	58	45	42	48	53	40	40	
12	41	36	36	35	34	35	36	66	90	83	JR 89	91	JR 100	IR 82	83	86	72	65	61	44	46	36	31	IR 34	
13	31	31	31	35	33	33	33	R	JR 79	IR 84	JR 86	IR 89	95	95	JR 89	85	JR 77	R 75	55	46	38	36	35	R	
14	36	35	36	36	35	31	31	61	81	JR 104	JR 105	96	87	86	84	JR 74	75	62	44	IR 46	48	UR 46	37	UR 34	
15	R	36	36	33	38	37	35	58	UR 79	86	87	94	JR 103	100	82	77	74	62	48	53	42	44	40	41	
16	41	46	41	42	42	41	44	67	JR 91	111	109	JR 105	106	91	84	76	69	61	46	41	50	44	UR 40	R 41	
17	41	40	36	36	34	39	JR 40	71	83	JR 85	90	JR 107	113	94	94	85	73	55	64	48	50	42	40	41	
18	42	39	39	41	40	39	40	77	86	91	99	JR 100	118	114	95	81	79	59	56	56	46	40	39	40	
19	39	37	38	39	35	39	44	R	JR 75	R	91	122	JR 101	78	79	83	71	61	IR 66	47	JR 40	R 42	R 41	JR 40	
20	UR 39	JR 41	JR 40	41	36	36	37	R	65	81	JR 89	JR 88	JR 102	JR 100	81	83	JR 87	JR 76	41	43	44	46	44	41	
21	R 38	39	40	JR 39	JR 40	35	40	R	JR 76	72	67	JR 79	109	114	JR 105	JR 89	81	65	48	38	40	37	40	JR 41	
22	41	38	37	41	JR 37	F	R 41	R	68	75	R	136	111	125	IR 98	81	81	90	71	R	IR 45	R	R	F	
23	R	42	37	R	F	F	30	R	JR 77	72	74	83	109	100	JR 103	81	94	74	64	51	40	45	49	47	
24	48	48	37	30	36	35	34	68	83	94	JR 105	82	97	88	83	79	74	74	56	54	56	44	42	39	
25	40	43	44	40	42	36	H 30	52	90	96	95	88	81	JR 102	84	93	78	59	51	46	50	IS 50	41	43	
26	S 48	44	51	41	45	30	35	68	74	87	JR 87	95	111	JR 104	82	R	72	R	60	47	38	33	R	38	
27	38	36	35	35	34	JR 33	35	61	JR 73	JR 77	JR 89	85	91	JR 107	JR 104	C	90	R 73	45	38	42	41	JR 42	IR 45	
28	46	46	R 43	JR 41	39	UR 39	R 43	R	R	R 78	R	95	117	JR 130	124	R	69	R 75	57	53	R 49	51	47	45	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	28	28	26	27	25	28	18	25	27	26	28	28	28	28	25	28	27	28	25	27	27	26	26	
MED	37	37	36	36	35	34	35	62	77	83	89	92	98	92	83	79	74	62	48	46	44	39	39	40	
UQ	41	41	40	40	38	36	40	67	84	88	99	101	108	101	92	85	78	71	56	48	47	44	41	41	
LQ	33	34	34	31	30	31	30	59	68	74	82	84	85	82	81	74	69	57	45	42	38	34	31	33	

FEB. 1973

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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 automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	L	L	L	L	L								
2										L	L	U L 450	L	L	L	L								
3									L		L	L	L	L	L	L								
4									L	L	L	L	L	L	A	A								
5									L	L	A	L	L	L	L									
6									L	L	L	L	L	L	L									
7									L	L	L	L	L	L	L	L								
8									L	L	L	L	L	L	L	L								
9									A	L	L	L	L	L	L	L								
10									L	L	L	L	L	L		A	L	A						
11									L	L			A	L	L	L								
12										L	L	L	L	L	L	L								
13										L	B	B	L	L	L	L								
14									L	L	L	B	L	L	L	L								
15									L	L	L	L	L	L	L	L								
16										L	L	L	B	L	L	L								
17										L	L	L	L	L	L	L								
18									L	A	L	L	L	L	L	L	L							
19									L	L	L	L	L	L	L	L								
20									L	L	L	L	L	L	L	L								
21										L	L	L	L	L	L	L								
22										L	L	L	L	B	L	L	L							
23										L		L	L	L	L	L	L							
24										L	L	L	L	L	L	L	L							
25										L	L	L	L	L	L	L	L							
26										L	L	L	L	L	L	L	L							
27										L	L	L	L	L	L	L	C							
28											L	L	L	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1			6	1											
MED									L 310			L 450	L 450											
UQ												L 450												
LQ												L 450												

The Radio Research Laboratories, Japan

FEB. 1973

FOF1 (0.01 MHz)

IONOSPHERIC DATA

FEB. 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 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	225	280	310	315	335	325	300	A	A	A						
2								A	I R 225	280	305	330	335	330	300	280	I A 220	B						
3								B	250	280	320	335	I S 335	R 330	310	270	A	B						
4								A	260	I A 275	325	I R 325	345	330	310	A	A	A						
5								180	A	A	A	330	B	I A 320	315	280	A	B						
6								A	A	A	I A 315	I R 325	I R 325	I R 300	280	230	B							
7								A	A	285	310	I R 310	I R 325	I R 320	I R 305	290	240	B						
8							B	R	B	B	A	B	I B 340	I R 330	315	285	B	B						
9								A	A	A	A	B	R	B	B	S 280	B	A						
10								180	I A 230	290	I R 320	I B 330	335	I R 340	I S 325	I A 310	R	A						
11								185	A	A	A	A	A	I R 335	A	A	A	A						
12								175	I R 265	290	A	A	A	R	A	A	A	B						
13								160	I B 265	B	B	B	B	R	A	A	A	A						
14								180	260	I R 305	I R 325	I B 330	370	A	A	A	A	B						
15								160	B	R	340	I B 350	355	I R 340	335	I R 300	255	A						
16								180	265	R	R	335	I B 340	I R 335	I R 315	290	A	A						
17								160	I A 250	U R 300	320	340	355	345	320	A	A	B						
18								A	A	A	A	345	350	345	320	295	240	180						
19								A	A	A	A	R	340	335	310	290	I R 250	190						
20								180	I R 255	I R 285	300	I R 310	320	325	315	A	A	190						
21								190	R	I R 210	A	R	A	A	A	A	240	170						
22								160	R	260	285	320	R	B	A	R	I R 290	R	180					
23								A	A	R	A	A	R	330	315	290	A	A						
24								200	I R 250	R	A	A	B	I R 240	330	295	240	175						
25								205	I A 260	I S 320	I R 325	I B 330	340	340	315	280	I R 240	A						
26								225	260	295	I R 300	I R 310	A	R	315	R	A	160						
27								R	A	R	280	A	A	310	R	C	250	A						
28								R	I R 240	R	R	A	A	R	R	A	A	A						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								15	16	15	15	16	16	20	19	16	10	7						
MED								180	I 258	285	320	I 330	340	330	315	290	240	180						
UQ								188	260	292	322	335	348	338	318	292	250	185						
LQ								168	I 245	280	308	I 320	335	325	310	280	240	172						

The Radio Research Laboratories, Japan

FEB. 1973

FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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 automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	E S 15	E S 15	E S 15	E B 14	E B 14	E B 12	E S 15	E B 13	G	G	34	35	G	35	36	31	25	25	M 21	19	E S 15	24	21	E S 15								
2	E S 15	E B 13	E S 15	E B 12	E B 14	E S 15	E S 15	23	G	32	G 26	37	G	G	35	J X 38	24	21	J X 30	30	J X 24	J X 19	18	E S 15								
3	E S 15	M 25	M 21	19	J X 23	M 20	E S 15	E B 16	G	30	G	G	G	G	34	25	E B 14	M 21	J X 22	M 18	E S 15	M 21	21									
4	E B 13	J X 20	J X 28	J X 17	E S 15	M 20	E S 15	J X 23	G	35	35	36	41	40	J X 50	J X 55	J X 43	J X 46	J X 43	22	J X 22	21	J X 18	E S 15								
5	J X 21	20	E S 15	M 21	25	J X 29	J X 28	22	J X 26	35	J X 54	36	37	36	40	J X 41	J X 35	J X 24	J X 41	54	M 20	J X 22	J X 25	M 20								
6	E B 13	E B 14	E S 15	E S 15	18	18	J X 23	24	J X 29	35	J X 36	32	G	G	34	36	30	J X 24	J X 22	23	E B 12	E S 15	J X 24	M 21								
7	E S 15	E S 15	E S 15	E B 13	E B 13	M 20	M 21	J X 29	J X 30	G	J G 28	24	G	G	35	33	29	J X 22	J X 25	J X 50	49	J X 29	J X 25	23								
8	M 20	M 23	M 21	M 21	19	E S 15	E B 12	20	E B 33	E B 30	35	E B 40	E B 40	G	G	30	F B 30	J X 36	J X 29	J X 64	21	J X 19	J X 30	20								
9	J X 23	J X 24	J X 24	21	21	E S 15	20	J X 74	J X 74	J X 77	36	E B 34	G	E B 35	E B 34	G	F B 37	21	J X 23	J X 40	J X 29	J X 25	J X 30	M 20								
10	21	19	21	E S 15	E B 14	J X 16	19	17	J X 28	G	G	E B 34	21	21	E S 39	46	22	J X 49	J X 29	J X 34	J X 26	E S 15	J X 54	J X 60								
11	J X 29	J X 30	21	J X 26	M 21	J X 25	E B 12	22	J X 30	J X 36	J X 49	J X 48	J X 50	G	35	36	31	J X 37	J X 26	J X 27	J X 24	J X 29	20	E B 12								
12	24	E S 15	E B 14	E B 13	E B 14	17	21	G	G	G	36	35	40	G	J X 42	41	J X 41	J X 24	J X 25	E S 15	E S 15	J X 20	J X 24	M 20								
13	J X 23	J X 21	E B 13	E S 15	22	20	J X 26	G	G	33	E B 50	E B 33	E B 38	G	J X 25	J X 40	J X 55	24	J X 24	25	M 23	M 20	J X 45	46								
14	J X 40	J X 24	J X 24	J X 21	20	M 20	E S 15	17	G	21	G	G	E B 50	44	45	42	39	J X 40	20	23	E S 15	23	24	E S 15	E S 15							
15	E S 15	E S 15	E B 13	E B 13	E S 15	E S 15	E B 14	G	F B 32	G	G	E B 36	40	21	J G 33	G	35	J X 30	21	19	E S 15	E S 15	E B 14	E S 15								
16	M 21	E S 15	M 21	E S 15	M 21	E S 15	E B 14	G	G	G	G	G	E B 40	G	G	G	J X 36	25	J X 25	J X 24	E S 15	E B 13	E B 13	E S 15								
17	E S 15	E B 13	E B 13	E S 15	E B 13	E B 12	E S 15	G	32	G	G	J G 29	G	G	G	J X 40	J X 34	J X 30	M 21	21	M 18	J X 19	M 20	E S 15								
18	E S 15	E B 13	E B 14	E S 15	M 20	J X 19	E S 15	J X 24	J X 42	52	J X 46	G	G	G	G	G	20	G	29	25	16	21	M 20	E B 12	J X 24	E S 15	E S 15					
19	21	E B 12	E S 15	J X 28	J X 23	E S 15	E B 13	J X 24	J X 30	J X 48	35	G	G	J G 29	G	G	G	G	E S 15	E S 15	E S 15	E B 13	E S 15	E B 13								
20	E B 13	E S 15	E S 15	E S 15	E B 13	E S 15	E S 15	G	G	33	G	20	G	36	38	33	30	16	E S 15	E S 15	E S 15	M 20	E S 15	E B 12								
21	E B 13	E B 13	E B 13	E S 15	M 21	J X 23	M 20	G	G	G	36	36	39	38	35	34	G	G	E B 12	E S 15	E S 15	M 20	M 21	M 21								
22	M 21	J X 19	E S 15	E B 13	E S 15	E B 13	E B 13	G	G	32	G	G	E B 50	40	G	G	G	20	23	J X 20	J X 28	J X 19	J X 23	J X 20	E S 15							
23	20	E S 15	E B 12	E B 12	E S 15	E B 13	M 20	J X 25	31	G	35	35	G	G	G	G	J X 28	J X 39	J X 30	21	M 20	E S 15	24	J X 30								
24	J X 24	J X 23	J X 20	19	J X 24	M 21	16	G	G	G	36	36	E B 39	G	G	G	G	18	22	E B 14	E S 15	E S 15	E B 14	E S 15	E S 15							
25	E B 12	E B 12	E B 12	E B 12	E B 12	E S 15	E B 12	G	25	G	G	E B 35	G	G	G	G	G	J X 25	21	M 21	J X 24	20	M 20	J X 23	M 21							
26	M 21	E S 15	E S 15	J X 17	24	E S 15	E B 11	G	G	35	G	G	35	45	G	G	J X 35	G	23	E S 15	J X 24	J X 24	M 21	J X 36								
27	J X 25	J X 24	E S 15	E S 15	M 21	E S 15	E S 15	G	34	G	G	25	36	40	G	G	C	30	24	E S 15	E S 15	E S 15	E S 15	E S 15								
28	M 21	E S 15	E B 12	E B 12	E B 13	E S 15	E S 15	G	G	J X 41	21	J X 31	45	22	18	35	J X 35	19	E S 15	J X 25	M 22	18	E S 15	26								
29																																
30																																
31																																
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28								
MED	20	E 15	E 15	E 15	18	E 15	E 15	G 16	22	30	30	U 28	E G 36	G 20	U 26	33	30	24	22	22	20	20	20	18								
UQ	22	J X	22	21	19	21	20	20	23	J X	30	35	36	36	40	36	36	38	J X	35	J X	28	J X	26	J X	28	23	J X	24	J X	24	21
LQ	E 15	E 14	E 14	E B 13	E B 14	E S 15	E B 14	G	G	G	G	E G 22	G	G	G	E G 20	24	20	20	E S 15	E S 15	E S 15	E S 15	E S 15								

FEB. 1973

FOES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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 ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₄ B ₁₄	E ₁₄ B ₁₄	E ₁₂ S ₁₂	E ₁₅ B ₁₃		G	G	34	35	G	35	35	30	25	25	E	E	E ₁₅ S ₁₅	17	E	E ₁₅ S ₁₅		
2	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₂ B ₁₂	E ₁₄ B ₁₄	E ₁₅ S ₁₅	E ₁₅ S ₁₅	20		G	31	26	37	G	G	34	35	24	20	22	25	17	17	18	E ₁₅ S ₁₅	
3	E ₁₅ S ₁₅	E	15	E	17	E	E ₁₅ S ₁₅	E ₁₆ B ₁₆		G	29	G	G	G	G	31	25	E ₁₄ B ₁₄	E	20	E	E ₁₅ S ₁₅	E	E		
4	E ₁₃ B ₁₃	18	17	E	E ₁₅ S ₁₅	E	E ₁₅ S ₁₅	21	20	G	33	35	36	39	38	49	52	32	40	38	18	E	E	E ₁₅ S ₁₅		
5	E	E	E ₁₅ S ₁₅	E	18	16	22	16	26	32	43	36	37	36	40	32	32	22	40	25		E	E	25	E	
6	E ₁₃ B ₁₃	E ₁₄ B ₁₄	E ₁₅ B ₁₅	E ₁₅ S ₁₅	E	E	16	17	26	29	35	E ₂₃ R ₂₃	E ₂₀ R ₂₀	G	34	33	26	24	E	16	E ₁₂ B ₁₂	E ₁₅ S ₁₅	E	E		
7	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E	E	28	30	G	G	R	G	G	34	33	26	20	23	A	A	25	20	19		
8	E	18	E	E	E	E ₁₅ S ₁₅	E ₁₂ B ₁₂	R	F ₃₃ B ₃₃	E ₃₀ B ₃₀	35	E ₄₀ B ₄₀	E ₄₀ B ₄₀	G	G	30	F ₃₀ B ₃₀	36	27	A	E	E	E	E		
9	16	16	E	E	E	E ₁₅ S ₁₅	E	A	45	40	34	E ₃₅ B ₃₅	G	E ₃₅ B ₃₅	E ₃₄ B ₃₄	G	F ₃₇ B ₃₇	E ₂₁ R ₂₁	21	27	17	E	21	E		
10	E	E	E	E ₁₅ S ₁₅	E ₁₄ B ₁₄	15	E	G ₁₆	25	G	G	E ₃₄ B ₃₄	E ₂₁ R ₂₁	E ₂₁ R ₂₁	E ₃₉ S ₃₉	44	G ₂₁	46	25	34	25	E ₁₅ S ₁₅	A	A		
11	E	25	18	22	E	E	E ₁₂ B ₁₂	E ₂₂ R ₂₂	30	34	46	39	47	E ₂₀ R ₂₀	34	33	30	34	25	27	E	19	E	E ₁₂ B ₁₂		
12	E	E ₁₅ S ₁₅	E ₁₄ B ₁₄	E ₁₃ B ₁₃	E ₁₄ B ₁₄	E	E	G	G	G	34	34	37	G	41	36	32	20	19	E ₁₅ S ₁₅	E ₁₅ S ₁₅	20	18	20		
13	16	E	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E	E	E	G	G	30	E ₅₀ B ₅₀	E ₃₃ B ₃₃	E ₃₈ B ₃₈	G	35	31	39	21	18	22	E	E	25	25		
14	E	E	16	17	E	E	E ₁₅ S ₁₅	G ₁₅	G	G	G	E ₅₀ B ₅₀	40	29	36	33	32	16	E	E ₁₅ S ₁₅	16	22	E ₁₅ S ₁₅	E ₁₅ S ₁₅		
15	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₄ B ₁₄	G	F ₃₂ B ₃₂	G	G	E ₃₆ B ₃₆	40	E ₂₁ R ₂₁	G ₂₉	F ₂₀ R ₂₀	31	27	17	19	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₄ B ₁₄	E ₁₅ S ₁₅		
16	16	E ₁₅ S ₁₅	E	E ₁₅ S ₁₅	E	E ₁₅ S ₁₅	E ₁₄ B ₁₄	G	G	G	G	G	E ₄₀ B ₄₀	G	G	G	32	24	23	21	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E ₁₅ S ₁₅		
17	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₂ B ₁₂	E ₁₅ S ₁₅	G	28	G	G	G	G	G	G	24	35	29	27	15	E	E	E	E ₁₅ S ₁₅		
18	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₄ B ₁₄	E ₁₅ S ₁₅	E	E	E ₁₅ S ₁₅	21	35	51	36	G	G	G	G	20	G	28	23	16	E	E	E ₁₂ B ₁₂	16	E ₁₅ S ₁₅	E ₁₅ S ₁₅
19	E	E ₁₂ B ₁₂	E ₁₅ S ₁₅	14	E	E ₁₅ S ₁₅	E ₁₃ B ₁₃	22	26	40	32	G	E ₂₃ R ₂₃	G	25	G	G	G	G	F ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₃ B ₁₃	
20	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₅ S ₁₅	G	G	G	32	G	E ₂₀ R ₂₀	G	34	32	29	22	G	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E	E ₁₅ S ₁₅	E ₁₂ B ₁₂	
21	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E	E	E	G	G	G	31	36	38	38	34	30	G	G	E ₁₂ B ₁₂	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E	E	E	E	
22	E	E	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E ₁₃ B ₁₃	G	G	31	G	G	E ₅₀ B ₅₀	40	G	G	F ₂₀ R ₂₀	23	20	22	17	E	16	E ₁₅ S ₁₅		
23	E	E ₁₅ S ₁₅	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E ₁₅ S ₁₅	E ₁₃ B ₁₃	E	23	28	G	35	33	G	G	G	20	27	21	26	E	E	E ₁₅ S ₁₅	E	24		
24	E	E	E	E	19	E	E	G	G	G	34	34	E ₃₉ B ₃₉	G	G	G	G	G	17	22	E ₁₄ B ₁₄	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₄ B ₁₄	E ₁₅ S ₁₅	E ₁₅ S ₁₅
25	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E ₁₅ S ₁₅	E ₁₂ B ₁₂	G	E ₂₅ R ₂₅	G	G	E ₃₅ B ₃₅	G	G	G	G	G	G	25	E	25	E	E	E	E	
26	E	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E	23	E ₁₅ S ₁₅	E ₁₁ B ₁₁	G	G	34	G	G	31	32	G	G	20	G	20	E ₁₅ S ₁₅	23	16	E	25		
27	E	E	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₂₀ R ₂₀	27	G	G	24	34	40	G	G	C	29	23	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅
28	E	E ₁₅ S ₁₅	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E ₁₅ S ₁₅	G	G	32	E ₂₁ R ₂₁	31	32	E ₂₂ R ₂₂	E ₁₈ R ₁₈	26	33	19	E ₁₅ S ₁₅	24	E	E	E ₁₅ S ₁₅	E		
29																										
30																										
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28		
MED	E ₁₂ B ₁₂	E ₁₄ B ₁₄	E ₁₄ B ₁₄	E ₁₃ B ₁₃	E ₁₃ B ₁₃	E ₁₄ B ₁₄	E ₁₄ B ₁₄	F ₁₆ G ₁₆	F ₂₂ G ₂₂	29	27	E ₃₄ G ₃₄	E ₃₂ G ₃₂	E ₂₀ G ₂₀	U ₂₆	30	26	22	18	18	15	E ₁₄ B ₁₄	15	15		
UQ	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	E ₁₅ S ₁₅	20	27	32	34	35	38	32	34	33	32	25	23	25	16	16	17	E ₁₅ S ₁₅		
LQ	E	E	E ₁₂ B ₁₂	E ₁₂ B ₁₂	E	E	E	G	G	G	G	E ₂₂ G ₂₂	G	G	G	E ₂₀ G ₂₀	22	17	E ₁₃ B ₁₃	E ₁₅ S ₁₅	E	E	E	E		

The Radio Research Laboratories, Japan

FEB. 1973

FBES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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 ₁₅	E ₁₅	E ₁₅	14	14	12	E ₁₅	13	14	14	16	16	16	19	15	15	15	14	E ₁₅	E ₁₅	E ₁₅	13	E ₁₅	E ₁₅
2	E ₁₅	13	E ₁₅	12	14	E ₁₅	E ₁₅	14	15	14	14	21	16	19	15	15	15	15	14	E ₁₅	E ₁₅	13	14	E ₁₅
3	E ₁₅	E ₁₅	12	E ₁₅	14	E ₁₅	E ₁₅	16	13	15	19	24	18	15	16	15	14	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
4	13	12	14	12	E ₁₅	E ₁₅	E ₁₅	12	15	15	15	16	15	15	15	15	14	15	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	E ₁₅
5	E ₁₅	14	E ₁₅	E ₁₅	12	E ₁₅	E ₁₅	14	14	15	14	15	34	15	15	14	14	12	E ₁₅	E ₁₅	E ₁₅	E ₁₅	12	E ₁₅
6	13	14	E ₁₅	E ₁₅	13	E ₁₅	E ₁₅	16	13	15	15	15	15	15	15	13	13	14	E ₁₅	E ₁₅	12	E ₁₅	E ₁₅	E ₁₅
7	E ₁₅	E ₁₅	E ₁₅	13	13	E ₁₅	E ₁₅	12	13	15	15	15	15	16	33	23	15	13	12	E ₁₅	12	13	E ₁₅	E ₁₅
8	E ₁₅	12	E ₁₅	E ₁₅	E ₁₅	E ₁₅	12	13	33	30	25	40	40	28	25	25	30	16	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
9	E ₁₅	12	13	E ₁₅	14	E ₁₅	14	15	15	16	15	35	25	35	34	19	37	15	12	14	E ₁₅	E ₁₅	14	E ₁₅
10	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	12	14	14	15	14	18	34	18	15	E ₃₉	19	15	14	E ₁₅	E ₁₅	11	E ₁₅	E ₁₅	E ₁₅
11	E ₁₅	12	E ₁₅	14	12	E ₁₅	12	15	14	15	15	19	19	18	16	14	15	15	E ₁₅	12	12	E ₁₅	12	12
12	E ₁₅	E ₁₅	14	13	14	E ₁₅	E ₁₅	14	15	15	15	15	15	15	20	15	15	12	13	E ₁₅	E ₁₅	E ₁₅	13	E ₁₅
13	13	E ₁₅	13	E ₁₅	E ₁₅	E ₁₅	E ₁₅	15	15	28	50	33	38	25	25	14	15	12	12	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
14	E ₁₅	E ₁₅	12	12	E ₁₅	E ₁₅	E ₁₅	13	12	15	16	50	25	20	15	15	14	15	15	E ₁₅	13	12	E ₁₅	E ₁₅
15	E ₁₅	E ₁₅	13	13	E ₁₅	E ₁₅	14	15	32	16	16	36	18	15	15	14	14	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	E ₁₅
16	12	E ₁₅	14	E ₁₅	E ₁₅	E ₁₅	14	14	13	15	25	26	40	25	26	15	15	13	14	12	E ₁₅	13	13	E ₁₅
17	E ₁₅	13	13	E ₁₅	13	12	E ₁₅	12	15	15	15	19	19	18	15	15	12	14	13	E ₁₅	12	14	14	E ₁₅
18	E ₁₅	13	14	E ₁₅	12	E ₁₅	E ₁₅	12	12	15	19	16	19	19	16	14	12	12	14	14	12	E ₁₅	E ₁₅	E ₁₅
19	E ₁₅	12	E ₁₅	12	12	E ₁₅	13	12	14	15	13	15	15	15	15	19	15	14	F ₁₅	E ₁₅	E ₁₅	13	E ₁₅	13
20	13	E ₁₅	E ₁₅	E ₁₅	13	E ₁₅	E ₁₅	15	15	12	13	15	15	15	15	15	13	13	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	12
21	13	13	13	E ₁₅	12	13	E ₁₅	12	15	15	15	18	15	25	13	15	14	15	12	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
22	E ₁₅	E ₁₅	E ₁₅	13	E ₁₅	13	13	13	12	15	19	25	50	25	16	15	15	15	13	E ₁₅	12	E ₁₅	E ₁₅	E ₁₅
23	E ₁₅	E ₁₅	12	12	E ₁₅	13	E ₁₅	12	14	26	15	15	24	16	15	14	12	14	F ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
24	E ₁₅	14	E ₁₅	E ₁₅	E ₁₅	14	12	14	14	16	16	16	39	15	15	15	15	13	14	E ₁₅	E ₁₅	14	E ₁₅	E ₁₅
25	12	12	12	12	12	E ₁₅	12	16	14	16	15	35	15	19	15	15	15	12	E ₁₅	E ₁₅	E ₁₅	E ₁₅	13	E ₁₅
26	E ₁₅	E ₁₅	E ₁₅	12	14	E ₁₅	11	15	14	14	15	23	16	15	13	15	12	14	12	E ₁₅	13	13	E ₁₅	E ₁₅
27	E ₁₅	E ₁₅	E ₁₅	E ₁₅	13	E ₁₅	E ₁₅	13	15	15	12	15	15	15	16	C	14	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
28	E ₁₅	E ₁₅	12	12	13	E ₁₅	E ₁₅	12	14	15	14	15	15	14	15	15	12	13	E ₁₅	12	E ₁₅	E ₁₅	E ₁₅	E ₁₅
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28
MED	E ₁₅	E ₁₅	13	13	13	E ₁₅	E ₁₅	14	14	15	15	18	18	16	15	15	14	14	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
UQ	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	15	15	16	17	30	25	20	17	15	15	15	F ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
LQ	13	12	13	12	13	13	13	12	14	15	15	15	15	15	15	14	14	13	13	13	12	14	14	E ₁₅

FEB. 1973

F-MIN (0.1 MHz)

IONOSPHERIC DATA

FEB. 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 automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	285	315	320 ^R	365	345	290	280	365	360	280	320	340	325	JR	IR	355	345	345	325	350	335	275 ^H	295	255								
2	295	325	330	350	270 ^F	330	300	345	345	305	JR	JR	345	320	335	JR	345	340	325	315	315	305	325	280								
3	280 ^S	305	350	S	JR	290	JR	285	355	360	300	320	340	400	320	330	350	355	325	335	340	290	295	260 ^F	275 ^F							
4	275 ^F	340	330	360	290	275	305	350	365	335	315	320	325	335	IR	335	355	355	355	IR	305	315	325	355	305 ^F	290						
5	280	290	310	305	315	310	325	350	370	355	350	330	IR	JR	325	340	360	355	360	350	340	335	305	290	280							
6	270	280	290	290	310	300	315	IR	345	360	325	310	330	320	335	345	330	355	350	345	IR	300	320	295	290	290						
7	285	IR	290	285	JR	310	315	310	295	R	JR	340	335	IR	325	330	310	325	330	335	340	350	355	A	A	335	R	UR	295			
8	IR	UR	320	305	290	JR	340	270	F	285	R	JR	350	R	325	315	325	330	335	335	335	335	345	325	A	315	285	285	345			
9	365	285	305	280	280	275	270	A	335	330	325	320	345	IR	330	335	340	335	350	340	310	335	330	280	290							
10	280	280	285	290	300	300	305	R	R	345	335	330	315	325	IS	325	335	340	330	325	330	315	315	IA	IA	IA	300	300				
11	295	275	280	295	275	285	285	345	350	JR	340	340	JR	330	330	320	320	340	355	330	320	290	290	325	305	290						
12	305	310	280	290	280	285	315	335	355	340	R	JR	300	340	JR	IR	340	330	320	R	310	340	345	310	335	295	IR	310				
13	325	300	325	315	265	280	305	R	IR	360	IR	345	JR	325	IR	330	325	315	JR	325	330	JR	325	360	315	330	320	310	290	R		
14	300	290	300	310	315	295	315	330	360	JR	335	JR	365	325	325	330	325	330	325	JR	340	325	355	365	IR	300	320	UR	330	330	UR	300
15	R	310	310	335	320	305	315	320	UR	320	325	330	320	JR	325	340	345	340	350	345	315	320	325	300	290	295						
16	285	285	305	305	300	295	290	320	JR	295	325	330	JR	315	330	310	335	330	350	360	330	300	320	320	UR	305	300	UR	300			
17	300	310	300	295	270	285	JR	290	340	340	JR	300	JR	325	335	325	335	345	360	325	325	310	315	300	295	295						
18	300	290	285	290	325	320	325	350	360	330	330	JR	320	320	325	345	335	345	355	355	320	340	315	315	280	310						
19	290	280	275	265	285	280	320	R	JR	360	R	320	345	JR	355	320	330	340	355	330	IR	340	345	310	315	300	310					
20	UR	JR	JR	320	310	300	300	R	340	335	JR	325	JR	315	JR	JR	330	310	340	JR	JR	345	330	320	300	300	285	300	320			
21	R	285	305	JR	310	315	300	R	JR	345	350	345	295	315	315	325	330	345	355	335	320	295	290	285	JR	280						
22	320	295	305	320	JR	F	R	R	325	320	R	315	325	320	IR	335	335	320	335	325	R	IR	320	R	R	F						
23	R	290	325	R	F	F	300	R	JR	315	345	335	300	340	310	JR	330	335	340	335	325	315	290	275	275	285						
24	305	310	295	265	280	290	330	330	330	340	JR	345	330	330	330	335	340	330	340	340	305	295	295	300	285	270						
25	290	300	295	285	325	335	295	310	335	335	345	340	320	JR	335	340	355	360	340	315	295	310	IS	300	255	290						
26	295 ^S	305	335	300	340	280	295	345	350	310	JR	325	325	315	JR	325	320	R	335	R	335	300	290	285	R	290						
27	295	310	295	315	305	JR	305	345	345	JR	JR	JR	330	320	JR	JR	320	C	355	360	R	320	315	290	300	JR	IR	285				
28	290	290	305	JR	285	UR	R	R	R	310	R	R	320	325	JR	305	345	R	335	335	R	305	305	310	315	305	305					
29																																
30																																
31																																
CNT	26	28	28	26	27	25	28	18	25	27	26	28	28	28	28	25	28	27	28	25	27	27	25	26								
MED	295	292	305	305	300	295	300	345	345	335	325	328	325	325	335	340	345	345	325	315	315	305	290	290								
UQ	305	310	315	320	315	305	315	350	360	340	340	330	332	332	340	345	355	355	338	330	320	318	300	300								
LQ	285	288	290	290	280	285	292	330	335	322	320	320	320	320	320	325	335	335	332	320	300	298	295	285	285							

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FEB. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 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	L	L	L	L	L	L								
2										L	L	U L 365	L	L	L	L								
3									L		L	L	L	L	L	L								
4									L	L	L	L	L	L	A	A								
5									L	L	A	L	L	L	L									
6									L	L	L	L	L	L	L									
7									L	L	L	L	L	L	L	L								
8										L	L	L	L	L	L	L								
9									A	L	L	L	L	L	L	L								
10									L	L	L	L	L	L		A	L	A						
11									L	L			A	L	L	L								
12										L	L	L	L	L	L	L								
13										L	B	B	L	L	L	L								
14									L	L	L	B	L	L	L									
15									L	L	L	L	L	L	L	L								
16										L	L	L	B	L	L	L								
17										L	L	L	L	L	L	L								
18									L	A	L	L	L	L	L	L	L							
19									L	L	L	L	L	L	L	L								
20									L	L	L	L	L	L	L	L								
21										L	L	L	L	L	L	L								
22									L	L	L	L	L	B	L	L	L							
23									L		L	L	L	L	L	L	L							
24									L	L	L	L	L	L	L	L								
25									L	L	L	L	L	L	L	L	L							
26									L	L	L	L	L	L	L	L								
27									L	L	L	L	L	L	L	L	C							
28										L	L	L	L	L	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1			6	1											
MED									L 430			L 390	L 375											
UQ												L 400												
LQ												L 380												

FEB. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1973

H^oF₂ (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									230	270	255	270	240	240	230									
2									260	260	240	255	260	260	230									
3								230		270	240	250	250	270	240									
4								220	240	290	270	255	250	250	240									
5								220	235	240	260	250	260	250										
6								220	245	250	250	260	250	250										
7								220	240	260	240	270	260	250	250									
8									240	260	260	250	255	240	245									
9								240	230	260	260	250	260	260	240									
10								230	230	245	245	270	260		250	225	A	225						
11								240	230			250	260	260	240									
12									230	245	235	240	260		250									
13									230	250	260	250	250	250	250									
14								220	250	250	250	250	260	240										
15								240	240	245	270	260	250	235	240									
16									250	250	250	250	250	250	240									
17									240	260	250	250	260	255	230									
18								230	240	250	260	260	250	240	240	225								
19								225	250	270	250	240	250	240	240									
20								240	250	250	250	250	260	260	250									
21									250	240	280	275	270	250	250									
22								230	240	300	255	250	270	245	240									
23								240		230	255	260	270	240	245	245								
24								230	240	230	250	250	240	250	230									
25								255	245	240	240	240	270	240	240	220								
26								220	250	250	260	270	240	250	250									
27								230	240	240	250	270	270	260	C									
28									240	250	280	265	275	250	240									
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									19	26	27	27	28	28	26	24	4	1						
MED									230	240	250	250	250	260	250	240	225	A	225					
UQ									240	250	260	260	262	260	255	250	235							
LQ									220	235	245	250	250	250	240	240	222							

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FEB. 1973

H^oF₂ (KM)

IONOSPHERIC DATA

FEB. 1973

H^oF (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	295	255	240	205	205	280	300	220	210	210	210	200	220	220	220	220	220	240	230	220	230	E A 300	300	345
2	300	245	220	210	305	240	280	230	240	220	205	245	210	230	230	I A 230	220	220	240	255	250	250	260	300
3	300	255	230	225	330	290	255	220	220	210	210	210	210	215	205	230	220	220	210	220	255	270	290	300
4	310	230	230	210	300	300	260	220	195	205	210	245	225	240	A	A	220	240	I A 265	240	240	210	245	300
5	300	290	270	255	250	255	250	240	215	200	I A 220	220	230	240	260	240	220	210	E A 280	240	240	245	310	300
6	300	300	300	265	245	250	245	220	205	200	210	200	200	200	210	235	235	210	230	240	220	240	290	290
7	240	305	300	250	230	290	290	245	210	200	200	200	200	240	240	240	230	210	200	A	A	250	260	290
8	250	280	250	240	310	300	290	240	215	205	205	245	245	240	225	230	220	240	240	A	250	275	290	215
9	220	260	260	300	290	310	290	I A 245	I A 240	I A 240	210	205	220	220	230	225	230	220	205	290	240	220	A 300	270
10	290	290	310	270	250	255	255	240	210	210	200	200	220	225	250	I A 240	230	I A 230	230	250	260	240	I A 280	I A 250
11	255	E A 350	290	310	290	290	250	240	225	205	240	230	A	240	230	230	220	230	240	A	280	240	245	260
12	250	245	255	260	250	290	240	230	220	200	200	200	240	225	250	235	220	205	220	220	240	240	260	290
13	250	270	245	250	315	300	220	220	225	200	B	B	200	240	240	240	230	220	220	250	240	E A 310	300	
14	260	290	290	290	240	260	260	240	200	200	240	I B 220	240	250	225	240	240	220	205	240	240	240	240	260
15	280	280	250	270	250	250	220	240	220	210	H 195	215	250	230	240	230	230	210	210	245	210	245	245	270
16	275	260	225	255	250	260	270	230	230	220	220	220	I B 220	230	210	220	240	230	230	270	240	235	240	260
17	250	250	260	290	310	290	290	225	220	215	200	205	210	205	205	H I A 230	220	220	235	225	220	240	255	275
18	270	270	290	275	215	250	245	225	225	I A 220	220	205	H 195	225	210	205	225	205	240	220	225	240	290	255
19	245	275	300	305	300	290	240	210	210	220	200	210	200	210	200	230	220	235	230	200	240	250	250	260
20	290	290	260	260	240	260	250	220	230	240	240	240	220	240	240	240	240	210	200	260	240	250	250	250
21	245	280	260	290	250	250	250	220	220	210	210	200	270	245	225	220	235	225	200	230	255	280	290	290
22	240	285	250	290	290	320	250	220	220	230	220	200	B	200	240	235	235	225	220	220	200	280	300	320
23	290	260	250	205	300	250	250	220	200	220	220	190	H 205	225	205	230	240	210	220	220	270	320	300	305
24	260	240	240	300	315	250	220	240	220	225	210	210	245	225	225	220	225	220	210	250	250	220	260	270
25	280	275	260	290	245	210	H 200	230	250	235	220	220	200	240	230	220	225	210	200	290	250	250	300	270
26	260	255	230	255	220	300	260	220	205	240	200	230	200	230	205	240	230	240	220	205	250	290	290	320
27	265	250	270	290	220	240	205	225	220	200	200	200	250	240	250	C	220	220	200	240	290	270	300	300
28	290	250	240	235	260	310	265	230	240	220	220	200	240	220	210	220	240	220	205	280	260	240	240	250
29																								
30																								
31																								
CNT	28	28	28	28	28	28	28	28	28	28	27	27	26	28	27	26	28	28	28	26	27	28	28	28
MED	268	268	258	262	250	270	250	228	220	210	210	210	220	230	225	230	228	220	220	240	240	246	278	282
UQ	290	285	280	290	300	295	268	240	225	220	220	220	240	240	240	240	235	230	231	255	252	268	298	300
LQ	250	252	240	245	242	250	242	220	210	202	200	200	200	220	210	220	220	210	205	220	240	240	250	260

The Radio Research Laboratories, Japan

FEB. 1973

H^oF (KM)

IONOSPHERIC DATA

FEB. 1973

H^oES (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	S	S	S	B	B	B	S	B	G	G	145	125	G	135	115	110	110	105	100	100	S	120	120	S	
2	S	B	S	B	B	S	S	150	G	G	150	105	185	G	G	130	115	110	170	105	105	100	100	105	S
3	S	105	105	105	100	100	S	B	G	G	125	G	G	G	G	120	110	B	105	100	100	S	130	100	
4	B	105	105	110	S	105	S	100	100	100	180	150	145	130	115	110	110	105	105	100	100	100	100	S	
5	100	105	S	120	105	105	105	100	100	100	100	170	150	160	140	130	110	100	100	100	100	100	100	100	
6	B	B	S	S	110	110	110	110	100	100	100	100	100	G	140	120	120	110	100	100	B	S	100	100	
7	S	S	S	B	B	110	110	100	100	G	100	100	G	G	150	140	125	100	105	100	100	100	100	100	
8	100	100	100	100	100	S	B	100	B	B	100	B	B	G	G	150	B	115	110	105	105	100	100	100	
9	100	100	100	100	100	S	110	105	100	100	100	B	G	B	B	G	B	115	105	105	100	100	100	100	
10	100	100	100	S	B	115	115	110	110	G	G	B	100	100	S	110	100	110	90	105	105	S	105	100	
11	100	100	100	100	130	120	B	175	105	100	100	100	100	100	100	100	100	100	100	100	100	100	100	B	
12	100	S	B	B	B	100	100	G	G	G	110	110	110	G	110	105	100	100	105	S	S	100	100	100	
13	100	100	B	S	100	100	100	G	G	120	B	B	B	100	100	100	100	150	100	100	100	100	100	100	
14	100	100	100	100	100	100	S	100	100	G	G	B	140	100	100	120	110	140	100	S	100	100	S	S	
15	S	S	B	B	S	S	B	G	B	G	G	B	125	100	100	100	150	130	120	105	S	S	B	S	
16	100	S	105	S	100	S	B	G	G	G	G	G	B	G	G	G	100	100	100	100	S	B	B	S	
17	S	B	B	S	B	B	S	G	110	G	100	100	G	G	105	100	100	100	100	100	100	105	100	S	
18	S	B	B	S	110	105	S	110	105	100	105	G	G	G	100	105	105	100	100	100	B	105	S	S	
19	100	B	S	105	100	S	B	105	105	100	100	G	100	100	G	G	G	G	S	S	S	S	B	B	
20	B	S	S	S	B	S	S	G	G	115	G	120	G	150	130	110	110	100	S	S	S	100	S	B	
21	B	B	B	S	100	100	100	G	G	G	120	120	110	110	110	110	G	G	B	S	S	100	100	100	
22	100	100	S	B	S	B	B	G	G	120	G	G	B	100	G	G	100	140	105	100	100	100	100	S	
23	100	S	B	B	S	B	115	110	110	G	105	100	G	G	G	100	100	100	100	100	100	100	105	100	
24	100	100	100	100	100	100	100	G	G	G	105	105	B	G	G	G	100	170	B	S	S	B	S	S	
25	B	B	B	B	B	S	B	G	105	G	G	B	G	G	G	G	100	100	120	100	100	100	100	105	
26	105	S	S	105	100	S	B	G	G	180	G	G	110	110	G	G	110	G	100	S	100	100	100	100	
27	100	100	S	S	100	S	S	100	110	G	105	100	100	G	G	C	140	120	S	S	S	S	S	S	
28	105	S	B	B	B	S	S	G	G	100	100	100	100	100	100	100	100	100	S	100	100	100	S	100	
29																									
30																									
31																									
CNT	16	12	9	10	15	13	10	14	14	14	18	15	13	14	16	20	23	24	22	20	17	19	19	14	
MED	100	100	100	102	100	105	108	105	105	100	102	105	110	100	110	110	110	105	100	100	100	100	100	100	
UQ	100	102	105	105	102	110	110	110	110	120	105	122	125	130	130	120	110	125	105	105	100	100	102	100	
LQ	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	

The Radio Research Laboratories, Japan

FEB. 1973

H^oES (KM)

IONOSPHERIC DATA

FEB. 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 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											H ₁	H ₁		H ₁	C ₂	C ₁	C ₁	L ₃	F ₁	F ₁		F ₁	F ₁			
2								H ₁		HL ₁₁	L ₁	H ₁			HL ₁₁	CL ₃₂	CL ₂₂	H ₁	F ₅	F ₄	F ₂	F ₁	F ₂			
3		F ₂	F ₃	F ₁	F ₂	F ₁				H ₁						C ₂	C ₂		F ₁	F ₂	F ₁		F ₁	F ₂		
4		F ₃	F ₃	F ₁		F ₁		L ₂	L ₂	L ₂	H ₁	H ₁	H ₁	H ₂	C ₂	C ₃	C ₃	L ₃	F ₃	F ₁	F ₁	F ₁	F ₃			
5	F ₁	F ₁		F ₁	F ₄	F ₄	F ₄	L ₂	L ₃	L ₁	L ₂	HL ₁₁	H ₁	HC ₁₁	H ₁	H ₁	C ₁	L ₂	F ₃	F ₃	F ₁	F ₁	F ₃	F ₁		
6					F ₁	F ₁	F ₂	L ₁	L ₂	L ₂	L ₃	L ₁	L ₁		H ₁	HL ₁₁	HL ₁₁	CL ₂₁	F ₁	F ₁			F ₂	F ₂		
7						F ₂	F ₁	L ₃	L ₁		L ₁	L ₁			H ₁	H ₁	H ₁	L ₂	F ₃	F ₃	F ₄	F ₃	F ₂	F ₁		
8	F ₁	F ₂	F ₁	F ₁	F ₁	F ₁		L ₁				L ₁				H ₁		C ₃	F ₂	F ₃	F ₁	F ₁	F ₂	F ₁		
9	F ₁	F ₂	F ₁	F ₁	F ₁		F ₁	L ₃	L ₂	L ₂	L ₁							C ₁	F ₂	F ₃	F ₂	F ₂	F ₃	F ₂		
10	F ₂	F ₁	F ₂			F ₁	F ₁	L ₁	L ₁				L ₁	L ₁		C ₁	L ₁	CL ₂₂	F ₄	FF ₅₂	F ₃		F ₄	F ₄		
11	F ₃	F ₃	F ₁	F ₁	F ₁	F ₁		H ₁	L ₁	L ₂	L ₂	L ₂	L ₂	L ₁	L ₁	L ₂	L ₁	L ₃	F ₄	F ₄	F ₂	F ₃	F ₁	F ₁		
12	F ₁					F ₁	F ₁					C ₁	C ₁	C ₁		C ₂	C ₁	L ₂	L ₂	F ₂		F ₂	F ₂	F ₃		
13	F ₂	F ₂			F ₁	F ₁	F ₁							L ₁	C ₁	L ₂	L ₂	HL ₁₁	L ₂	F ₂	F ₁	F ₁	F ₃	F ₂		
14	F ₁	F ₁	F ₁	F ₁	F ₁	F ₁		L ₁	L ₁				H ₁	L ₁	L ₂	H ₁	C ₃	H ₁	F ₂	F ₁	F ₁	F ₂	F ₁	F ₁		
15													H ₁	L ₁	L ₁	L ₁	HL ₂₂	HL ₂₂	F ₁	F ₁						
16	F ₂		F ₁		F ₁													L ₂	L ₁	F ₂	F ₃					
17									C ₁		L ₁	L ₁				L ₁	L ₂	L ₂	L ₂	F ₁	F ₁	F ₁	F ₁	F ₁		
18					F ₁	F ₂		L ₂	C ₃	C ₃	L ₂					L ₁	L ₂	L ₂	L ₁	F ₁	F ₁		F ₃			
19	F ₁			F ₂	F ₃			L ₂	L ₂	L ₁	L ₁		L ₁	L ₁												
20										C ₁		C ₁		H ₁	H ₁	C ₁	L ₁	L ₁					F ₁			
21				F ₁	F ₁	F ₂	F ₁				H ₁	H ₁	C ₁	C ₁	C ₁	C ₁							F ₂	F ₁	F ₂	
22	F ₂	F ₁									H ₁							L ₁	H ₁	F ₂	F ₃	F ₁	F ₂	F ₂		
23	F ₁						F ₁	C ₁	C ₁			C ₁	L ₁				L ₁	L ₂	L ₂	F ₃	F ₂	F ₁		F ₂	F ₄	
24	F ₁	F ₂	F ₁	F ₁	F ₂	F ₁	F ₁					C ₁	C ₂				L ₁	H ₁								
25									L ₁										L ₂		FF ₃₁	F ₁	F ₁	F ₃	F ₁	
26	F ₁			F ₁	F ₃					H ₁			C ₁	C ₁				C ₁		F ₁	F ₁	F ₅	F ₂	F ₁	F ₃	
27	F ₂	F ₂			F ₁			C ₁	C ₁		L ₁	L ₁	L ₁					H ₁	H ₁							
28	F ₁										L ₁	L ₁	L ₁	L ₁	L ₁	L ₁	L ₂	L ₁		F ₂	F ₂	F ₁		F ₁		
29																										
30																										
31																										
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		
CNT																										
MED																										
UQ																										
LQ																										

FEB. 1973

TYPES OF ES

IONOSPHERIC DATA

FEB. 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 automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	345	300	290 ^R	230	250	320	345	240	240	260	280	260	280	250 ^{JR}	250 ^{IR}	250	250	250	290	250	260	390 ^H	320	390
2	330	290	250	240	380 ^F	290	325	250	260	310	290 ^{JR}	260 ^{JR}	260	290	280	250 ^{JR}	250	260	290	300	300	310	295	350
3	330 ^S	305	255	250 ^S	390 ^{JS}	340	320 ^{JR}	240	240	310	300	260	260	300	280	250	245	270	260	250	310	300	380 ^F	355 ^F
4	350 ^F	250	270	240	320	350	300	250	230	260	305	300	290	260	260 ^{IR}	250	240	250	300 ^{IA}	290	260	240	300 ^F	345
5	320	330	305	290	290	300	260	250	220	250	250	280 ^{IR}	290 ^{JR}	300	260 ^R	250	250	250	260 ^A	260	250	295	310	340
6	340	350	340	300	260	260	270	260 ^{IR}	250	300	300	290	300	290	265	260	250	260	260	300 ^{IR}	260	300	340	340
7	350	360 ^{IR}	340	295 ^{JR}	290	300	300	300 ^R	260 ^{JR}	290	300 ^{IR}	290	310	300	280	260	250	250	240	260 ^A	260	260	300 ^{UR}	300
8	300 ^{IR}	290 ^{UR}	300	260 ^{JR}	350	320 ^F	320 ^R	260 ^{JR}	260 ^R	280	305	280	280	280	260	260	760	260	290	290 ^A	290	330	340	250
9	235	320	305	350	350	360	340	340 ^A	270	270	290	295	270	280 ^{IR}	270	260	260	250	250	300	250	275	340	325
10	345	330	355	320	300	310	300	300 ^R	250	260	275	300	290	280 ^{IS}	275	250	290	270	280	300	300	300 ^{IA}	300 ^{IA}	300
11	300	360	320	325	340	340	320	250	250 ^{JR}	250 ^{JR}	260	260 ^{JS}	260	290	290	250	240	270	280	340	340	290	300	340
12	300	300	340	320	310	340	280	270	240	260 ^R	290 ^{JR}	260	260 ^{JR}	290 ^{IR}	260	260	300 ^R	290	260	260	290	260	300 ^{IR}	300
13	300	300	300	300	360	350	290	290 ^R	250 ^{IR}	260 ^{IR}	290 ^{JR}	290 ^{IR}	290	280	280 ^{JR}	290	290	260	290	290	290	300	300 ^A	300 ^R
14	300	300	300	300	260	340	300	290	260	275 ^{JR}	260	280	290	300	290	280 ^{JR}	280	260	260	300 ^{IR}	300	270 ^{UR}	280	300 ^{UR}
15	300 ^R	300	300	300	300	300	300	290	260 ^{UR}	270	270	305	300 ^{JR}	270	250	260	250	250	300	290	290	305	325	325
16	345	330	300	305	305	325	325	290	310 ^{JR}	290	290	300 ^{JR}	290	290	290	270	250	250	260	310	300	290	300 ^{UR}	300 ^R
17	300	300	300	310	350	350	360 ^{JR}	260	260	270 ^{JR}	315	300 ^{JR}	270	290	270	250	250	275	290	290	300	320	320	325
18	320	335	350	330	280	300	290	250	250	275	270	300 ^{JR}	295	290	255	270	250	240	290	260	300	290	350	305
19	320	350	360	390	350	350	295	290 ^R	250 ^{JR}	290 ^R	300	260	250 ^{JR}	300	290	260	250	260	265 ^{IR}	260	300	300	300	300
20	350 ^{UR}	350 ^{JR}	300 ^{JR}	300	300	300	300	300 ^R	260	290	290 ^{JR}	300 ^{JR}	300 ^{JR}	290	290	260	260 ^{JR}	250 ^{JR}	290	300	300	290	300	290
21	290 ^R	300	300	350 ^{JR}	290 ^{JR}	300	290	290 ^R	260 ^{JR}	250	260	330	300	380	300	290	260	250	250	290	300	310	350 ^{JR}	350
22	290	300	300	300	350 ^{JR}	300 ^F	300 ^R	300 ^R	260	280	300	300	300	300	280 ^{IR}	290	290	290	290	290 ^R	275 ^{IR}	300 ^R	300 ^R	300 ^F
23	300 ^R	350	300	300 ^R	300 ^F	300 ^F	300	300 ^R	300 ^{JR}	250	250	315	280	305	290 ^{JR}	270	275	260	290	290	350	390	380	355
24	315	300	305	370	360	310	250	270	280	260	260 ^{JR}	270	280	290	280	250	260	260	290	315	325	305	340	350
25	350	320	320	350	290	270	340 ^H	300	290	270	250	260	290	290 ^{JR}	250	250	240	250	300	320	305	315 ^{IS}	390	330
26	310 ^S	310	260	310 ^F	250	350	310	250	250	270	290 ^{JR}	290	300	280 ^{JR}	300	300 ^R	260	260 ^R	260	290	290	350	300 ^R	390
27	300	300	300	300	260	280 ^{JR}	250	260	260 ^{JR}	300 ^{JR}	280 ^{JR}	290	300	300 ^{JR}	300 ^{JR}	300 ^C	250	250 ^R	290	290	350	310	360 ^{IR}	360
28	350	300	290 ^R	260 ^{JR}	350	350 ^{UR}	300 ^R	300 ^R	300 ^R	300	300	300	300	310 ^{JR}	280	280 ^R	260	250 ^R	290	300	300 ^R	300	300	300
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	28	28	26	27	25	28	18	25	27	26	28	28	28	28	25	28	27	27	25	27	27	24	26
MED	320	302	300	300	305	320	300	260	260	270	290	290	290	290	280	260	250	260	290	290	300	300	320	328
UQ	345	332	320	325	350	350	320	270	260	290	300	300	300	300	290	270	260	260	290	300	300	310	345	350
LQ	300	300	300	295	290	300	290	250	250	260	260	265	275	285	260	250	250	250	260	280	290	290	300	300

FEB. 1973

HPF2 (KM)

IONOSPHERIC DATA

FEB. 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 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	70	70	R 70	65	100	90	100	55	50	60	45	45	50	R 50	I R 50	50	50	50	60	50	55	H 170	80	100
2	70	65	65	60	F 90	60	75	60	60	85	J R 60	J R 60	60	70	65	J R 50	50	85	55	95	90	90	60	90
3	S 110	55	45	S	J S 70	100	J R 80	60	50	90	60	40	80	70	45	50	50	55	80	50	85	100	F 90	F 100
4	F 100	55	85	60	80	F 95	70	45	30	55	65	45	70	65	I R 40	45	60	45	I A 60	65	60	60	F 100	100
5	80	70	65	70	60	55	65	50	40	80	100	I R 90	J R 90	90	100	R 110	110	50	A	100	90	95	100	100
6	100	100	100	100	100	100	100	I R 100	90	90	90	100	90	100	95	100	100	100	100	I R 90	100	90	100	100
7	110	I R 100	90	J R 95	100	90	90	R	J R 100	100	I R 90	100	110	90	100	100	110	110	100	A	A	100	R 100	U R 100
8	I R 90	U R 100	90	J R 100	110	F	R 120	J R 100	R	R 70	55	60	50	40	50	50	60	60	50	A	70	90	100	60
9	65	120	85	100	100	80	110	A	55	70	50	60	50	I R 45	50	45	60	50	50	95	60	75	100	80
10	100	80	85	90	90	90	55	R	R	70	75	50	70	50	I S 70	60	55	65	70	60	95	90	I A 100	I A 100
11	100	90	120	85	100	100	120	50	50	J R 55	50	J S 70	65	40	60	60	60	75	80	70	100	60	95	100
12	60	90	105	80	130	100	75	75	60	100	R J R 100	100	J R 100	I R 100	100	100	R 90	90	100	100	100	100	90	I R 95
13	90	90	90	90	100	90	100	R	I R 100	I R 90	J R 90	I R 100	100	110	100	J R 90	90	100	100	100	100	100	A	R
14	90	90	90	90	100	100	90	90	100	J R 85	100	100	100	90	90	J R 90	100	100	100	I R 90	90	U R 90	100	U R 90
15	R	90	90	90	90	90	90	100	U R 100	75	80	90	J R 50	55	55	55	50	60	80	70	65	90	115	80
16	95	90	95	55	90	80	80	65	J R 90	100	100	J R 90	100	100	100	90	100	100	90	100	90	100	U R 90	R 90
17	90	90	90	90	110	90	J R 100	100	100	J R 80	75	J R 50	70	70	60	70	50	80	80	90	90	125	90	75
18	80	95	90	70	65	70	65	50	40	70	60	70	65	70	50	50	50	60	65	55	90	100	100	85
19	120	90	115	110	100	100	60	R	J R 50	R	90	100	J R 90	90	100	100	100	100	I R 105	100	90	90	90	100
20	U R 100	J R 110	J R 90	90	90	90	90	R	100	100	J R 100	J R 90	J R 90	J R 100	100	100	J R 100	J R 100	100	90	90	100	90	100
21	R 100	90	90	J R 100	J R 100	90	100	R	J R 100	100	100	110	90	90	90	100	90	100	100	100	90	100	90	J R 100
22	100	90	90	90	J R 100	F	R 90	R	90	100	R	90	90	90	I R 100	100	100	100	100	R	I R 100	R	R	F
23	R	110	90	R	F	F	90	R	J R 90	60	90	80	35	85	J R 70	60	50	70	70	70	95	60	105	85
24	80	95	95	90	90	90	65	50	55	45	J R 65	70	65	60	70	50	60	60	80	85	75	100	70	100
25	90	80	90	100	60	75	H 70	60	55	50	50	65	70	J R 30	70	50	55	60	60	85	65	I S 75	70	80
26	S 90	80	55	F 90	55	100	90	50	50	90	100	100	90	100	90	R	100	R	100	100	100	100	R	70
27	90	90	90	90	90	J R 100	100	100	J R 100	J R 90	J R 110	100	90	J R 90	J R 90	C	100	R	90	100	100	90	J R 100	I R 100
28	110	90	R 90	J R 100	90	U R 100	R 100	R	R	90	R	90	90	J R 80	100	R	100	R	100	100	90	R 100	90	90
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	28	28	26	27	25	28	18	25	27	26	28	28	28	28	25	28	27	27	25	27	27	24	26
MED	90	90	90	90	90	90	90	60	60	85	85	90	85	82	80	60	75	80	80	90	90	90	92	98
UQ	100	95	90	100	100	100	100	100	R 100	90	100	100	90	90	100	100	100	100	100	100	100	100	100	100
LQ	80	80	85	80	90	90	72	50	50	70	60	60	65	58	58	50	52	60	68	70	80	90	90	85

The Radio Research Laboratories, Japan

FEB. 1973

YPF2 (KM)

IONOSPHERIC DATA

FEB. 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 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 ₃₄	S ₃₅	S ₄₁	S ₃₃	S ₂₃	S ₂₄	S ₂₇	S ₃₃	S ₆₄	S ₆₈	S ₇₂	S ₉₂	S ₇₉	S ₈₁	S ₇₇	S ₆₉	S ₆₆	S ₆₅	S ₇₄	S ₇₇	S ₄₆	S ₂₉	S ₂₆	S ₂₉	
2	S ₂₈	F ₃₂	S ₃₈	F ₃₉	S ₁₉	S ₂₄	I ₂₄	S ₃₆	S ₆₀	S ₇₂	J ₁₀₁	J ₁₁₇	S ₉₈	J ₈₅	J ₉₈	S ₉₄	S ₆₄	S ₅₉	S ₅₅	S ₄₈	S ₄₀	S ₄₀	S ₃₇	S ₃₅	
3	S ₃₃	S ₃₅	S ₄₃	S ₂₉	F ₂₄	F ₂₇	F ₃₆	S ₆₆	S ₇₇	S ₉₀	S ₉₉	S ₇₄	S ₆₈	S ₇₄	S ₇₉	S ₇₈	S ₅₇	S ₅₅	S ₄₄	S ₃₃	F ₃₆	F ₃₆	F ₃₄		
4	F ₃₂	S ₃₆	S ₃₈	S ₂₇	F ₂₆	F ₂₇	S ₂₄	S ₄₀	S ₆₈	S ₆₂	S ₇₂	S ₉₂	S ₁₀₈	S ₁₀₁	S ₈₆	S ₇₇	S ₆₉	S ₆₀	S ₄₇	S ₄₇	S ₄₈	S ₄₃	V ₃₄	S ₂₈	
5	S ₂₇	S ₃₂	S ₃₂	S ₃₄	S ₃₃	S ₂₃	S ₂₆	S ₃₉	S ₇₈	S ₇₈	S ₆₈	J ₈₃	S ₉₆	S ₁₀₃	J ₁₀₀	S ₈₃	S ₆₅	J ₆₅	S ₄₈	I ₄₈	J ₄₂	J ₃₇	S ₂₈	S ₃₀	
6	S ₃₃	S ₃₄	S ₃₂	S ₃₄	S ₄₀	S ₃₀	S ₃₁	S ₃₉	S ₆₀	S ₇₃	S ₇₈	S ₉₈	S ₁₀₁	S ₁₀₂	S ₈₈	S ₇₉	S ₇₃	S ₆₈	S ₅₃	S ₄₆	S ₄₂	S ₃₉	S ₃₅	S ₃₅	
7	S ₃₃	S ₃₀	S ₃₁	S ₃₂	S ₂₈	S ₂₈	S ₃₂	S ₄₀	S ₇₃	S ₉₂	S ₈₄	S ₁₀₀	S ₈₉	S ₁₀₀	S ₉₆	S ₉₀	S ₈₁	S ₈₅	S ₆₀	S ₃₅	I ₃₆	S ₄₁	S ₃₉		
8	S ₃₃	S ₂₇	S ₂₇	S ₂₈	S ₂₈	S ₃₀	S ₃₁	S ₃₈	S ₈₆	S ₉₄	S ₁₁₄	S ₁₂₃	S ₁₂₄	S ₁₂₆	S ₁₁₅	S ₉₂	S ₇₈	S ₆₆	I ₅₈	I ₄₆	S ₄₂	S ₄₄	S ₄₀	S ₄₅	
9	S ₃₀	S ₂₃	S ₂₆	S ₂₆	S ₂₈	S ₃₀	S ₂₉	S ₄₃	S ₈₀	J ₁₀₀	J ₉₉	S ₁₁₇	S ₁₁₂	J ₁₀₅	S ₉₉	J ₁₀₁	S ₈₄	S ₇₁	S ₆₅	S ₄₅	S ₄₁	S ₄₃	S ₃₆	S ₃₄	
10	S ₃₀	S ₃₁	S ₃₀	S ₃₂	S ₃₁	S ₂₈	S ₃₀	S ₄₅	S ₈₄	J ₁₀₉	S ₁₀₇	S ₈₆	S ₉₁	S ₁₁₁	S ₁₀₂	S ₁₀₁	S ₉₅	S ₇₉	S ₇₄	S ₅₉	S ₄₅	S ₅₁	S ₅₂	S ₃₆	
11	S ₃₂	S ₃₂	S ₃₂	S ₃₁	S ₃₁	S ₃₂	S ₃₄	S ₄₈	J ₈₅	S ₉₅	S ₈₄	S ₈₄	S ₈₇	S ₁₀₁	S ₁₀₁	S ₁₀₂	S ₇₈	S ₆₇	S ₆₇	S ₅₆	S ₅₂	S ₆₀	S ₅₂	S ₃₉	
12	S ₃₈	S ₃₃	S ₃₀	S ₃₀	S ₂₉	S ₃₀	S ₃₁	S ₄₆	S ₇₈	S ₈₄	S ₈₆	J ₉₈	J ₉₈	J ₉₉	J ₉₈	S ₉₃	S ₈₆	S ₈₁	J ₈₆	S ₈₆	S ₆₅	J ₆₆	S ₄₅	I ₃₆	
13	S ₃₂	S ₃₂	S ₃₀	S ₃₁	S ₂₉	S ₃₀	S ₃₂	S ₄₆	S ₇₀	S ₈₂	S ₉₁	S ₁₀₂	S ₁₀₉	S ₁₁₈	S ₁₂₄	S ₁₂₇	S ₁₁₀	S ₉₆	S ₈₄	S ₇₁	S ₅₅	S ₄₅	S ₄₃	S ₃₆	
14	S ₃₄	S ₃₆	S ₃₆	S ₃₄	S ₃₆	S ₂₉	S ₃₀	S ₄₄	S ₈₂	S ₉₄	S ₁₁₀	S ₁₁₈	S ₉₇	S ₁₀₂	S ₉₅	S ₈₆	S ₈₄	S ₈₄	S ₇₅	S ₅₃	S ₅₂	S ₄₈	S ₄₃	S ₃₀	
15	S ₃₂	S ₃₃	S ₃₅	S ₃₇	S ₃₉	S ₃₀	S ₃₀	S ₄₅	S ₇₂	S ₈₆	S ₉₄	S ₁₀₆	S ₁₀₅	S ₁₀₄	S ₉₆	S ₈₁	S ₇₅	S ₇₅	S ₆₂	S ₅₃	S ₄₈	S ₄₄	S ₃₈	S ₃₄	
16	S ₃₇	S ₃₇	S ₃₉	S ₃₅	S ₃₁	S ₃₁	S ₃₁	S ₄₃	S ₈₀	J ₁₀₆	S ₁₁₁	J ₁₀₁	S ₁₀₁	S ₉₄	S ₉₁	S ₇₉	S ₇₆	S ₆₇	S ₅₅	S ₄₆	S ₄₆	S ₄₇	S ₄₅	S ₄₂	
17	S ₄₄	S ₄₂	S ₃₆	S ₃₂	S ₃₀	S ₃₁	S ₂₉	S ₅₂	J ₇₈	S ₇₄	S ₇₈	S ₁₀₈	S ₁₁₁	S ₁₀₅	S ₁₀₆	S ₁₁₁	S ₈₅	S ₆₇	S ₆₅	S ₅₂	S ₅₀	S ₄₄	S ₄₀	S ₄₁	
18	I ₄₂	I ₄₀	S ₃₈	S ₄₁	S ₅₃	S ₂₈	S ₂₈	S ₅₂	S ₇₅	S ₈₅	S ₉₅	S ₁₀₆	S ₁₂₆	S ₁₄₃	S ₁₄₃	S ₁₀₆	J ₈₄	S ₇₁	S ₆₂	S ₆₃	S ₅₂	J ₄₆	S ₃₈	S ₃₈	
19	S ₃₆	S ₃₃	S ₃₃	S ₃₃	J ₃₃	S ₃₄	S ₃₄	S ₅₁	S ₇₅	S ₇₇	S ₉₂	S ₁₁₆	S ₁₁₃	J ₉₅	J ₉₃	S ₉₂	S ₇₈	S ₆₈	S ₇₇	S ₆₄	S ₃₆	S ₃₇	S ₃₇	S ₃₈	
20	S ₃₈	S ₃₇	S ₃₃	S ₃₆	S ₄₀	S ₂₁	S ₂₃	S ₄₆	S ₆₇	S ₇₈	S ₈₆	S ₉₄	S ₉₀	S ₉₀	S ₉₇	S ₁₀₃	S ₉₄	S ₇₅	S ₅₄	S ₃₉	S ₄₃	S ₅₀	S ₄₅	S ₃₇	
21	S ₃₃	S ₃₄	S ₃₃	S ₃₂	S ₃₄	S ₃₇	S ₃₂	S ₅₇	S ₆₉	S ₆₆	S ₇₁	S ₈₆	J ₁₂₁	J ₁₁₀	S ₁₁₀	S ₁₁₆	S ₁₀₂	S ₇₄	S ₆₁	S ₅₃	S ₃₃	S ₃₈	S ₃₉	S ₃₉	
22	S ₄₃	H ₃₂	S ₃₆	S ₄₆	F ₅₉	S ₆₄	S ₅₈	S ₅₆	S ₆₅	J ₈₆	S ₁₃₂	S ₁₂₆	S ₁₂₇	S ₁₂₆	S ₉₅	S ₉₄	S ₉₄	S ₈₇	S ₈₄	J ₇₉	S ₄₅	S ₄₀	S ₄₀	S ₄₀	
23	S ₄₁	S ₄₃	S ₄₂	S ₃₅	F ₂₇	F ₂₆	F ₅₅	S ₇₀	V ₉₂	S ₇₈	S ₇₄	S ₁₀₂	S ₁₀₇	S ₁₂₅	S ₁₀₂	S ₈₃	S ₈₂	S ₇₄	S ₆₃	S ₄₇	I ₄₉	S ₅₀	J ₅₀	J ₅₀	
24	S ₅₀	S ₄₅	S ₃₃	S ₂₈	S ₂₉	S ₃₅	S ₂₃	S ₄₈	S ₈₆	S ₉₀	J ₁₀₃	S ₇₄	S ₉₈	S ₁₀₈	S ₁₀₀	S ₉₁	S ₇₇	S ₈₁	S ₈₃	S ₇₁	S ₆₂	S ₅₅	S ₄₆	S ₄₃	
25	S ₄₅	S ₄₂	S ₃₃	S ₂₉	S ₃₄	S ₃₃	H ₂₄	S ₄₅	S ₉₆	S ₉₈	S ₈₆	S ₉₀	S ₉₈	J ₁₀₉	S ₁₀₆	S ₁₁₈	S ₁₀₀	S ₆₈	S ₅₇	S ₅₁	S ₅₂	S ₄₇	S ₄₃	S ₄₁	
26	S ₄₁	S ₄₂	S ₄₀	S ₃₆	S ₄₆	S ₂₉	F ₂₈	S ₅₁	S ₇₂	J ₇₇	S ₉₄	S ₁₁₂	J ₁₁₈	S ₁₃₃	J ₁₁₀	J ₁₀₄	S ₉₁	J ₈₇	J ₈₄	S ₅₆	S ₃₉	S ₄₃	S ₄₀	S ₃₈	
27	S ₃₉	S ₃₇	S ₂₅	F ₂₈	S ₃₂	S ₂₈	S ₂₄	S ₄₇	S ₆₆	S ₈₁	S ₉₃	S ₇₇	S ₈₂	S ₁₀₇	S ₁₂₃	I ₁₁₇	S ₁₀₈	S ₈₀	S ₅₉	S ₅₁	S ₃₉	S ₄₃	S ₄₃	S ₄₀	
28	S ₄₃	S ₄₂	S ₃₇	S ₃₅	S ₂₈	S ₃₀	S ₃₀	S ₆₆	S ₆₉	S ₇₈	S ₈₁	S ₁₀₁	J ₁₁₉	S ₁₃₆	S ₁₄₉	S ₁₂₇	J ₉₃	S ₈₅	S ₉₂	S ₆₀	S ₅₇	S ₅₅	S ₄₅	S ₃₇	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₇	S ₂₆	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₈	S ₂₇	S ₂₈	S ₂₈	S ₂₇	S ₂₈	S ₂₈	
MED	S ₃₄	S ₃₄	S ₃₃	S ₃₂	S ₃₁	S ₃₀	S ₃₀	S ₄₆	S ₇₂	S ₈₂	S ₈₈	S ₁₀₀	S ₁₀₁	S ₁₀₄	S ₁₀₀	S ₉₄	S ₈₄	S ₇₂	S ₆₅	S ₅₃	S ₄₆	S ₄₄	S ₄₀	S ₃₈	
UQ	S ₄₁	S ₃₈	S ₃₈	S ₃₅	S ₃₄	S ₃₁	S ₃₁	S ₅₁	S ₈₀	S ₉₃	S ₉₇	S ₁₁₀	S ₁₁₂	S ₁₁₀	S ₁₁₂	S ₁₀₅	S ₉₄	S ₈₂	S ₇₆	S ₆₃	S ₅₂	S ₄₈	S ₄₅	S ₄₀	
LQ	S ₃₂	S ₃₂	S ₃₂	S ₃₀	S ₂₈	S ₂₈	S ₂₆	S ₄₀	S ₆₈	S ₇₆	S ₈₀	S ₈₈	S ₉₄	S ₁₀₀	S ₉₆	S ₈₄	S ₇₆	S ₆₇	S ₅₈	S ₄₆	S ₄₀	S ₄₀	S ₃₇	S ₃₄	

The Radio Research Laboratories, Japan

FEB. 1973

FOF2 (0.1 MHz)

IONOSPHERIC DATA

FEB. 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	L	U L 460	L	L	L	L	L											
2										L	L	H 440	L	L	L	L	L	240										
3										L	L	L	L	L	L	L	L	L										
4										L	L	L	L	L	L	L	L	L										
5										L	L	L	L	L	L	L	L	L										
6									L	C	L	L	L	L	L	L	A	A	A									
7									L	L	L	L	L	L	L	L	L	L										
8									L	L	L	L	L	L	L	L	A	A										
9									L	L	L	L	L	L	L	L	L	L										
10									L	L	L	L	L	L	L	L	L	A										
11									L	L	L	L	L	L	L	L	L	A	A									
12									L	L	L	L	L	L	L	L	L	L										
13									L	L	L	L	L	L	L	L	L	A										
14									L	L	L	L	L	L	L	L	L	L										
15									L	L	L	L	L	L	L	L	L	L										
16									L	L	L	L	L	L	L	L	L	320										
17									L	L	L	L	L	L	L	L	L	L										
18									L	L	L	L	L	L	L	L	A	L										
19									L	L	L	L	L	L	L	L	L	L	260									
20									L	L	L	L	L	L	L	L	L	L										
21									L	L	L	L	L	L	L	L	L	A	L									
22									L	L	L	L	L	L	L	L	L	L										
23									L	L	L	L	L	L	L	L	L	L										
24									L	L	L	L	L	L	L	L	L	L										
25									L	L	L	L	L	L	L	L	L	L										
26									L	L	L	L	L	L	L	L	L	L										
27									L	L	L	L	L	L	L	L	L	L										
28									L	L	L	L	L	L	L	L	L	L										
29																												
30																												
31																												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT									2		2	8	14	7	5	2	2	3										
MED									290		425	465	470	470	460	445	340	260										
UQ												470	470	490	470			275										
LQ												455	470	465	450			250										

FEB. 1973

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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		195	260	295	A	A	330	315	I A 290	I A 260	195	S					
2							S		185	260	290	310	325	325	I A 310	300	270	195	S					
3							S	H	220	H 260	H 300	H 320	320	330	I A 320	300	270	190	S					
4							S		200	260	300	H 320	330	330	330	310	A	A	S					
5							S		180	270	300	320	330	330	320	305	280	A	S					
6							S		205	I A 270	305	320	335	340	330	305	270	210	S					
7							S	A	I A 270	305	320	330	330	320	300	270	210	S						
8							S		220	275	305	325	335	335	325	305	275	A	S					
9							S	H	230	280	310	320	330	330	325	310	280	230	S					
10							S		230	I A 280	I A 305	I A 325	I A 335	340	I A 340	320	280	210	S					
11							S	I A 220	280	I A 305	320	330	340	330	H	A	A	A	S					
12							S	H 230	H 280	H 300	305	I A 320	335	330	310	R	A	A	S					
13							S		240	290	315	I A 330	320	A	A	A	290	220	S					
14							S	H	240	290	310	330	340	340	330	I A 300	I A 270	230	S					
15							S		240	295	320	335	340	355	340	310	280	210	S					
16							S		220	280	310	320	330	325	325	310	280	220	S					
17							S		225	275	290	300	I A 320	340	330	I A 315	280	I A 215	S					
18							S		210	260	I A 305	330	340	340	340	A	A	A	S					
19							S		240	285	310	320	330	330	325	310	280	230	S					
20							S		215	265	295	315	330	330	A	A	A	A	S					
21							S	H	230	H 280	H 300	310	320	320	310	295	I A 260	230	S					
22							S	H	220	270	300	320	H 320	H 320	H 320	300	270	230	B					
23							S	A	A	295	I R 320	330	330	320	305	I A 275	220	S						
24							S		220	270	300	310	325	330	320	310	A	A	S					
25							S	H	220	H 280	300	H 315	320	320	320	305	280	H 230	S					
26							S		230	260	H 305	320	R 325	320	320	H 310	A	A	S					
27							S		230	270	300	320	325	330	320	I C 310	280	220	S					
28								150	235	270	300	320	330	330	330	310	275	230	S					
29																								
30																								
31																								
CNT							1	26	27	28	27	27	27	26	24	21	19							
MED							150	220	270	300	320	330	330	325	308	275	220							
UQ								230	280	305	320	330	338	330	310	280	230							
LQ								215	268	300	318	322	330	320	300	270	210							

FEB. 1973

FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	JX 24	ES 14	ES 14	ES 14	E 14	ES 14	ES 15	ES 14	G	G	31	JX 48	34	G	G 31	30	26	G	18	21	19	16	ES 14	ES 14
2	ES 15	ES 15	ES 14	ES 14	ES 14	JX 19	JX 26	ES 14	G	G	G	G	35	35	34	JX 31	JG 26	G	20	22	JX 22	JX 26	JX 24	JX 19
3	JX 20	JX 18	JX 19	JX 20	JX 22	23	18	ES 13	G	G	G	G	35	37	34	G 27	G	G	23	18	19	20	22	20
4	ES 15	ES 15	ES 14	ES 14	E 25	JX 23	ES 15		G	G	33	34	38	37	44	JX 47	JX 41	JX 39	JX 26	JX 39	JX 45	25	ES 13	ES 15
5	JX 27	ES 14	JX 30	JX 35	22	23	18	23	G	G	G	JX 33	41	41	40	41	35	JX 70	JX 88	JX 86	JX 33	JX 26	19	ES 14
6	ES 14	ES 14	ES 14	ES 14	ES 13	16	18	23	G 20	EC 45	G 23	G 25	G 26	G 22	39	JX 49	67	JX 35	JX 29	JX 24	25	ES 15	18	ES 15
7		JX 21	ES 22	ES 15	E 14	JX 14	JX 25	JX 28	JX 54	JX 36	JX 35	JG 30	JG 27	G	39	36	30	31	JX 29	JX 31	JX 21	JX 77	JX 44	JX 34
8	JX 29	23	25	ES 15	EB 14	EB 14	ES 14	JX 25	24	JX 31	31	JG 31	G 25	18	36	41	JX 47	JX 44	JX 62	JX 51	JX 36	JX 35	23	23
9	ES 14	JX 21	ES 15	ES 14	ES 15	ES 15	ES 14	ES 15	G	JX 51	JX 56	JG 31	35	39	34	G 23	G 17	30	JX 51	JX 36	JX 32	JX 52	JX 23	JX 27
10	JX 29	25	23	25	ES 14	JX 14	JX 13	JX 17	JX 31	29	36	41	JX 54	JG 29	35	JG 31	39	JX 61	JX 77	70	JX 54	JX 87	JX 34	JX 39
11	JX 28	16	ES 15	E	ES 14	ES 14	ES 15	23	JX 35	JX 36	JX 54	JX 33	JG 31	G 33	G 34	JX 34	JX 46	JX 52	JX 49	JX 29	JX 23	24	JX 29	JX 24
12	23	19	19	EB 11	EB 13	ES 12	ES 14	ES 14	G	29	32	34	34	JG 27	JG 32	G 23	29	25	JX 24	JX 34	JX 19	JX 22	JX 24	C
13	JX 26	JX 19	ES 13	18	ES 13	ES 14	ES 13	JX 17	JX 25	G 25	G 31	JX 39	37	40	39	37	34	30	JX 38	JX 23	JX 24	JX 28	26	25
14	ES 14	ES 15	ES 12	EB 13	EB 15	ES 15	25	22	JX 26	31	G	G	G 28	G 28	G 27	33	28	JX 31	JX 20	ES 15	ES 14	ES 14	ES 15	ES 15
15	ES 14	ES 14	ES 14	EB 14	EB 14	ES 14	ES 13		27	G	G	G 32	44	40	38	G	34	29	JX 31	JX 36	JX 58	JX 64	JX 36	22
16	ES 15	ES 15	ES 14	ES 14	ES 15	ES 15	ES 15	ES 15	G	31	32	G	G	G	G	G 17	G 18	G	ES 14	ES 14	ES 14	ES 14	ES 15	ES 14
17	ES 14	ES 14	EB 11	ES 13	ES 13	ES 13	ES 14	ES 15	G	G	37	40	38	JX 37	G 32	33	JX 34	JX 30	JX 27	JX 24	JX 21	25	ES 15	ES 14
18	C	C	ES 12	ES 15	EB 12	EB 12	ES 15		G	31	34	G 28	JX 65	JX 35	JG 34	JG 60	JX 56	JX 41	JX 32	JX 25	JX 20	JX 18	ES 14	21
19	ES 14	ES 14	ES 14	ES 14	E 22	20	24		G	G	G	G 22	G 22	G 21	G 23	G 21	JG 28	JX 26	JX 26	ES 14	ES 14	ES 14	ES 14	ES 14
20	ES 14	ES 13	ES 14	ES 14	E 14	ES 14	ES 14	19	G	31	34	37	42	43	37	45	JX 41	JX 30	25	20	21	ES 15	ES 15	ES 13
21	ES 14	ES 13	ES 15	ES 14	E 14	ES 14	ES 14	21	27	G	G	35	36	38	35	36	JX 43	JX 28	21	JX 21	20	19	ES 15	ES 14
22	ES 14	ES 12	E	ES 14	EB 13	18	ES 13	ES 14	23	G	G	G	33	G	G	G	G	G	JX 36	JX 37	JX 31	JX 25	JX 25	JX 25
23	JX 17	23	17	18	16	17	ES 14	17	25	31	34	34	34	42	38	33	30	26	22	ES 13	ES 14	ES 14	ES 14	ES 14
24	18	ES 14	ES 13	ES 14	ES 14	21	17	24	G 22	G 27	G 28	G 22	G 32	G	G	G 26	JX 38	JX 32	JX 24	ES 14	21	ES 15	ES 14	ES 14
25	ES 15	ES 15	ES 14	ES 13	ES 14	ES 13	ES 14	ES 14	G	G	G	G 32	G	G	G 27	35	G	G	24	16	19	24	JX 23	JX 19
26	JX 27	24	JX 37	JX 35	JX 33	JX 26	20	ES 14	G 23	31	34	38	41	JX 47	35	JX 35	JX 35	JX 29	ES 15	JX 21	17	ES 15	21	ES 15
27	21	ES 14	ES 15	E	ES 14	ES 14	ES 15	ES 15	25	G 23	35	35	38	38	G 25	C	35	26	JX 27	21	17	30	25	31
28	22	28	27	ES 14	ES 14	ES 13	ES 14	27	27	G 26	G 27	G 31	34	25	34	32	29	19	18	19	ES 15	ES 15	ES 14	ES 14
29																								
30																								
31																								
CNT	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	27
MED	17	ES 15	ES 14	ES 14	E 14	ES 14	ES 14	16	G 21	G 26	32	32	34	34	34	33	34	30	JX 26	JX 22	21	23	20	ES 15
UQ	JX 24	20	18	ES 15	E 14	18	18	23	26	31	34	35	38	38	38	36	JX 40	JX 34	JX 32	JX 35	JX 28	JX 29	JX 24	24
LQ	ES 14	ES 14	ES 14	ES 14	E 13	ES 14	ES 14	ES 14	G	G	G	G 22	G 30	G 22	G 32	G 24	G 27	G 22	G 22	18	18	ES 15	ES 14	ES 14

FEB. 1973

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 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		E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	G	G	G	33	33	G	G ₃₁	30	26	G	G	E	E	E	E ₁₄	E ₁₄	
2	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E	22	E ₁₄	G	G	G	G	G	35	34	29	G ₂₅	G	G	E	18	20	20	16	
3	16	17	15	E	15	E	E	E ₁₃	G	G	G	G	G	35	33	26	G	G	G	E	E	E	E	E	
4	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E	E	E	E ₁₅	G	G	G	G	36	35	40	36	35	24	23	21	29	16	E ₁₃	E ₁₅	
5	18	E ₁₄	20	16	12	E	E	G	G	G	G	16	39	40	37	36	32	50	54	A	E	22	E	E ₁₄	
6	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E	E	G	G	E _C ₄₅	G ₂₃	G ₂₁	G ₂₆	G ₂₂	37	45	60	35	27	21	16	E ₁₅	E	E ₁₅	
7	18	17	E ₁₄	E ₁₅	14	E ₁₄	15	17	27	27	26	24	G ₂₂	G	37	35	30	30	20	28	15	A	30	17	
8	17	16	E	E ₁₅	E _B ₁₄	E _B ₁₄	E ₁₄	15	20	25	28	G	G ₂₂	G ₁₈	G	40	45	43	A	A	19	19	E	E	
9	E ₁₄	E	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₅	G	23	27	27	G	G	G	G ₁₇	G	G	44	35	30	29	19	18	
10	26	16	E	E	E ₁₄	E	E	G	21	28	32	33	38	G ₂₈	34	G ₂₃	36	44	38	44	25	45	24	28	
11	23	E	E ₁₅	E	E ₁₄	E ₁₄	E ₁₅	G	24	24	35	29	G ₂₈	G ₃₀	G ₃₀	33	45	46	48	25	20	E	E	16	
12	E	E	E	E _B ₁₁	E _B ₁₃	E ₁₂	E ₁₄	E ₁₄	G	G	G	33	33	G ₂₇	G ₂₄	G ₂₃	29	25	23	32	E	19	17	C	
13	20	E	E ₁₃	E	E ₁₃	E ₁₄	E ₁₃	15	17	G ₂₄	G ₂₈	38	G	35	34	35	33	29	32	E	16	16	E	E	
14	E ₁₄	E ₁₅	E ₁₂	E _B ₁₃	E _B ₁₅	E ₁₅	E	G	15	G	G	G	G ₂₈	G ₂₈	G ₂₆	32	27	17	G	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅	
15	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E _B ₁₄	E ₁₄	E ₁₄	E ₁₃	G	G	G	G	32	43	37	38	G	34	28	22	35	28	25	30	E
16	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₅	G	31	32	G	G	G	G	G ₁₇	G ₁₇	G	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	
17	E ₁₄	E ₁₄	E ₁₁	E ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₅	G	G	33	38	34	31	G ₃₀	31	25	23	16	16	15	E	E ₁₅	E ₁₄	
18	C	C	E ₁₂	E ₁₅	E _B ₁₂	E _B ₁₂	E _B ₁₂	E ₁₅	G	30	33	28	G	32	31	29	47	32	33	22	17	E	E	E ₁₄	E
19	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E	E	E	G	G	G	G	G	G ₂₁	G ₁₉	G ₂₁	G ₂₀	G ₁₈	17	16	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	
20	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E	E ₁₄	E ₁₄	G	G	30	34	37	41	43	34	40	34	28	15	E	E	E ₁₅	E ₁₅	E ₁₃	
21	E ₁₄	E ₁₃	E ₁₅	E ₁₄	E	E ₁₄	E ₁₄	G	G	G	G	34	36	37	G	35	40	19	G	16	E	E	E ₁₅	E ₁₄	
22	E ₁₄	E ₁₂	E	E ₁₄	E _B ₁₃	E	E ₁₃	E ₁₄	18	G	G	G	G	G	G	G	G	G	26	E ₁₃	30	19	15	17	
23	E	E	14	14	E	E	E ₁₄	G	22	E _R ₃₁	34	G	G	27	35	G	29	25	19	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	
24	E	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E	E	G	G	G	G	22	G	G	G	G	32	25	G	E ₁₄	E	E ₁₅	E ₁₄	E ₁₄	
25	E ₁₅	E ₁₅	E ₁₄	E ₁₃	E ₁₄	E ₁₃	E ₁₄	E ₁₄	G	G	E _R ₃₂	G	G	G	G	G	G	G	22	15	E	22	20	16	
26	17	15	34	20	17	23	E	E ₁₄	G	G	33	37	40	36	33	33	27	25	E ₁₅	19	E	E ₁₅	E	E ₁₅	
27	E	E ₁₄	E ₁₅	E	E ₁₄	E ₁₄	E ₁₅	E ₁₅	25	G	22	34	35	37	37	G ₂₄	C	33	25	15	E	E	21	E	E
28	E	E	E	E ₁₄	E ₁₄	E ₁₃	E ₁₄	G	17	G	G	G	G	G	G	G	G	G	18	17	17	E ₁₅	E ₁₅	E ₁₄	E ₁₄
29																									
30																									
31																									
CNT	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	28	27
MED	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₄		G	E _G ₂₂	G ₂₆	G ₂₆	G ₂₈	29	G ₃₀	30	30	25	20	16	E ₁₄	15	E ₁₄	E ₁₄	
UQ	17	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	20	25	32	33	36	36	34	35	34	30	26	U	28	18	20	16	16
LQ	E ₁₄	E ₁₂	E ₁₂	E ₁₃	E ₁₂	E	E	G	G	G	G	G	G	G	G	G	G	E	G	E	E	E	E ₁₄	E	E ₁₄

The Radio Research Laboratories, Japan

FEB. 1973

FBES (0.1 MHz)

IONOSPHERIC DATA

FEB. 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 ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₄	15	15	13	15	15	15	15	13	F ₁₅	F ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₄	E ₁₄
2	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₄	13	15	14	18	14	14	14	11	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₃	E ₁₄	E ₁₄
3	E ₁₃	12	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	13	14	15	15	14	15	14	15	14	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₃	E ₁₅	E ₁₄
4	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₅	12	15	13	15	15	15	15	15	13	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₅
5	E ₁₄	E ₁₄	E	E	E ₁₄	E ₁₅	E ₁₅	F ₁₄	E ₁₅	11	11	14	13	13	11	11	E	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₄	E ₁₄
6	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₅	14	E ₁₅	13	14	14	15	14	14	E	F ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅
7	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₄	E ₁₄	E ₁₂	E ₁₄	F ₁₄	13	13	14	15	13	11	11	14	15	E ₁₃	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₅
8	E ₁₅	E ₁₂	E ₁₄	E ₁₅	14	14	E ₁₄	E ₁₄	14	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	15	14	F ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₄
9	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	14	14	14	14	15	14	14	13	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
10	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₃	E ₁₄	14	15	13	14	14	15	14	14	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₅
11	E ₁₄	E ₁₅	E ₁₅	E	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₂	12	12	14	14	15	14	12	14	E ₁₃	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄
12	E ₁₅	E ₁₅	E ₁₅	11	13	E ₁₂	E ₁₄	E ₁₄	15	11	12	14	11	14	14	14	11	15	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₄	C
13	E ₁₃	E ₁₄	E ₁₃	12	E ₁₃	E ₁₄	E ₁₃	E ₁₄	14	14	16	17	16	17	15	15	15	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅
14	E ₁₄	E ₁₅	E ₁₂	13	15	E ₁₅	E ₁₅	E ₁₅	14	13	14	14	14	15	14	13	11	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅
15	E ₁₄	E ₁₄	E ₁₄	14	14	E ₁₄	E ₁₄	E ₁₃	13	15	15	15	16	17	17	15	15	E ₁₅	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₅
16	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₅	F ₁₅	14	15	14	15	15	14	11	11	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄
17	E ₁₄	E ₁₄	11	E ₁₃	E ₁₃	E ₁₃	E ₁₄	E ₁₅	12	14	14	15	15	15	15	15	15	F ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄
18	C	C	E ₁₂	E ₁₅	12	E ₁₂	12	E ₁₅	14	15	15	15	14	15	15	12	13	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
19	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	F ₁₂	14	14	14	15	15	14	11	11	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
20	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	11	14	12	15	15	16	14	13	14	13	E ₁₃	E ₁₄	E ₁₃	E ₁₅	E ₁₅	E ₁₃
21	E ₁₄	E ₁₃	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	11	14	11	12	12	14	12	13	11	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₄
22	E ₁₄	E ₁₂	E ₁₄	E ₁₄	13	E ₁₃	E ₁₃	E ₁₄	11	14	14	17	14	15	14	14	11	14	11	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄
23	E ₁₄	E ₁₅	E	E	E ₁₄	E ₁₄	E ₁₅	E ₁₅	13	22	13	14	20	15	14	13	14	E ₁₃	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄
24	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	13	15	13	14	15	15	14	15	11	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₄
25	E ₁₅	E ₁₅	E ₁₄	E ₁₃	E ₁₄	E ₁₃	E ₁₄	E ₁₄	14	14	14	15	14	15	15	14	15	14	E ₁₅	E ₁₄	E ₁₅	E ₁₄	E ₁₅	E ₁₄
26	E ₁₅	E	E	E	E	E ₁₅	E ₁₅	E ₁₄	14	14	14	14	14	15	15	14	12	12	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₅
27	E ₁₅	E ₁₄	E ₁₅	E	E ₁₄	E ₁₄	E ₁₅	E ₁₅	14	14	14	14	15	15	15	C	14	14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
28	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₃	F ₁₃	15	13	15	14	15	14	14	13	F ₁₄	E ₁₅	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₄
29																								
30																								
31																								
CNT	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	28	28	28	28	28	27
MED	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄	13	14	14	14	14	15	14	14	13	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
UQ	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₅	14	14	15	15	15	15	15	15	14	E ₁₅	E ₁₅	E ₁₅	E ₁₄	E ₁₅	E ₁₅	E ₁₅
LQ	E ₁₄	E ₁₄	E ₁₂	E ₁₂	E ₁₄	E ₁₄	E ₁₅	E ₁₄	12	14	13	14	14	15	14	13	11	F ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄

FEB. 1973

F-MIN (0.1 MHz)

IONOSPHERIC DATA

FEB. 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																			
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	305 ^S	310	335	375	315	285	295	325	360	350	325	345	330	345	345	345	340	320	315	350	340	345	290	290		
2	300	290 ^F	355 ^S	265 ^F	245	285	310 ^S	335	350	320	325 ^J	340 ^J	325 ^S	315 ^J	325 ^J	345 ^S	350	340	330	335 ^S	290	305 ^S	325	300		
3	275	295 ^S	350 ^S	365	265	F	340 ^F	325	350	325	325	335 ^S	350	315	315	330	355 ^S	370	325	325 ^S	335	F	290	295 ^F		
4	315 ^F	305 ^S	345	300	290 ^F	280 ^F	255 ^S	325	355	355	325	305 ^S	315 ^S	325	350 ^S	350	365	375 ^S	320	320	320	325	315 ^V	290		
5	275 ^S	285 ^S	295 ^S	325	345	310	310	310	360 ^S	345 ^S	345	300 ^J	360 ^S	320 ^S	340 ^S	350	355	340 ^J	S	I A	335 ^J	310 ^J	325 ^J	315	290	
6	305	290 ^S	300	310	340	335	320	335	335	355	335	310	325	325	325	340	330	345	340	345	285	310	290	290		
7	305	265	275	315	325	285	280	300	340	350	310	320	310	320	320	340	345	350	370	345	300	I A	300	265	310	
8	330	295	300	320	290	270	270	290	350	320	320	U 15	310	305	U 15	320	315	340	I A	I A	330	295	320	295	345	
9	355	315	295	270	280	270	270	320	245	J 340	J 315	S 325	320	J 315	J 315	J 325	340	350	355	340 ^S	305 ^S	325 ^S	290	310		
10	290	290	285	310	320	315	295	315	335	J 345	345	315	300	320 ^S	315 ^S	310	335	340	335	325	295 ^S	295 ^S	325 ^S	290 ^S		
11	285	280	295	285	290	285	295	315	J 340	S 345	345	335	325	315 ^S	325	335	350	330	335	295 ^S	290	315	315 ^S	280		
12	315 ^S	305	300	300	295	285	295	305	360	345	335	J 330	J 330	J 330	J 325	345	330	335	J 330	335	320	J 320	U 295	I C	305	
13	310	305	305	305	295	285	295	320	340 ^S	340	340	325	315	325	340	325	320	335	335	310	295	290	310	290		
14	305	295	305	305	305	290	285	305	340	315	325	340 ^S	330	315	325	335	345	345	335 ^S	320	310	315	335	300		
15	285	300	305	325	335	285	285	300	345	330	330	320 ^S	325	325	330 ^S	330	330	335	335 ^S	335	320 ^S	320	305	290		
16	305	310	325	350	290	275	275	300	325	J 330	335	J 340	320 ^S	330 ^S	340	330	340	360	345	330	305	320	310 ^S	305		
17	315	295 ^S	330	300	300	295	305	345 ^S	J 350	350	315	315	315	320	315	320	345	335	340 ^S	305 ^S	300	300	275	295		
18	I C	I C	275	270	360	280	280	315	345 ^S	325	305	305	305	320	330	335	J 320	355	340 ^S	335	315	J 280	275	290 ^S		
19	285	285	275	275	J 290	S 275	S 295	335	360	340	320	U 330	J 330	J 305	J 320	320	350	355	345 ^S	345	320	305	310 ^S	300 ^S		
20	305 ^S	310 ^S	300 ^S	305 ^S	360	380	290 ^S	335	365	350	340	345	325	330	320 ^S	330	355	365 ^S	360	310 ^S	310 ^S	330	335	315		
21	305	325	310 ^S	315	310	340	300	350	385	335	310	280	J 315	J 320	320	325	355	340	345	335	305	265	275	285		
22	315	265 ^H	290	U 285	F	290	315	355	355	325	J 265	320	335	320	340	335	330	340	335	J 345	340	290	280	270		
23	275 ^S	310	320	340	265 ^F	F	270 ^F	345	330	360	360	320	310	310	325	345	325	335	325	315	275	I 285	J 285	J 295		
24	325 ^S	310 ^S	335	280	280	325	310	330	360 ^S	350	J 360	325	315	325	320 ^S	340	325	320	330	325 ^S	305 ^S	310	265 ^S	280		
25	310	320	310	295	295 ^S	305	250 ^H	310	345 ^S	355	330	345	315	J 320	340	340	360 ^S	360	325	315	305	280 ^S	290 ^S	270 ^S		
26	295	290	300	290	325 ^S	330	250 ^F	320	360	J 340	320	335	J 320	330	J 320	J 320	330	J 330	J 340	340	280	285	300	305		
27	315	340 ^S	300	295 ^F	330	330	320	340 ^S	350	345	360	350	295	305 ^S	325 ^S	I C	335	U 350	360	350	335 ^S	280	295	300	280	
28	290	315 ^S	325	345	300	275	275	365 ^S	360	355	315	310	J 310	315	330	325	J 325	325	335	305 ^S	315	335	335	295		
29																										
30																										
31																										
CNT	28	28	28	28	27	26	28	28	28	28	28	28	28	28	28	28	28	28	27	28	28	27	28	28		
MED	305	298	302	305	300	285	295	322	350	345	325	325	320	320	325 ^S	335	340	340	335	332	305	310	298	292		
UQ	315	310	325	322	325	315	308	335	360	350	340	338	328	325	335	340	350	355	345	338	318	320	315	302		
LQ	288	290	295	288	290	280	275	310	340	330	318	315	312	315 ^S	320 ^S	325	330	335	330	318	295	292	288	290		

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FEB. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 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 automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										L	L	U L 360	L	L	L	L								
2										L	H 365	L	L	L	L	L	L	420						
3										L	L	L	L	L	L	L	L	L	L					
4										L	L	L	L	L	L	L	L	L	L					
5										L	L	L	L	L	L	L	L	L	L					
6									L	C	L	L	L	L	L	L	A	A	A					
7										L	L	L	L	L	L	L	L	L	L					
8									L	L	L	L	L	L	L	L	L	L	L					
9										L	L	L	L	L	L	L	L	L	L					
10									L	L	L	L	L	L	L	L	L	L	L	A				
11										L	L	L	L	L	L	L	L	L	L	A	A			
12									L	L	L	L	L	L	L	L	L	L	L					
13									L	L	L	L	L	L	L	L	L	L	L	A				
14										L	L	L	L	L	L	L	L	L	L					
15										L	L	L	L	L	L	L	L	L	L					
16										L	L	L	L	L	L	L	L	L	L	435				
17										L	L	L	L	L	L	L	L	L	L	L				
18									L	L	L	L	L	L	L	L	L	L	L	L				
19									L	L	L	L	L	L	L	L	L	L	L	L	430			
20										L	L	L	L	L	L	L	L	L	L	L				
21									L	L	L	L	L	L	L	L	L	L	L	L				
22									L	L	L	L	L	L	L	L	L	L	L	L				
23										L	L	L	L	L	L	L	L	L	L	L				
24									L	L	L	L	L	L	L	L	L	L	L	L				
25									L	L	L	L	L	L	L	L	L	L	L	L				
26										L	L	L	L	L	L	L	L	L	L	L				
27										L	L	L	L	L	L	L	L	L	L	L				
28									L	L	L	L	L	L	L	L	L	L	L	L				
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									2		2	8	14	7	5	2	2	3						
MED									L 375		415	370	375	385	360	375	425	420						
UQ												380	385	390	380				425					
LQ												360	365	365	360				410					

FEB. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1973

H^oF₂ (KM)

135 E Mean Time (G. M. T. + 9h)

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										235	270	250	270	255	250	230	240							
2										275	260	250	250	285	280	235	225	220						
3										255	265	235	245	280	280	275	225	215						
4										225	275	285	275	240	230	250	230	215						
5										225	245	280	275	270	245	245	235							
6									250	245	255	265	255	255	250	250	255	225						
7										235	260	270	250	285	260	260	235							
8									240	250	255	250	250	255	245	245	235							
9										250	250	260	250	280	255	255	240							
10									245	230	230	250	265	270	255	270	230	230						
11										225	225	255	275	270	255	230	225	230						
12										225	235	235	260	270	255	270	245	235						
13									215	230	250	255	255	255	255	240	230	225						
14										255	250	230	230	260	250	250	250	240						
15										250	255	255	250	255	250	255	245							
16										255	245	240	270	240	250	255	235							
17										240	280	275	245	265	265	260	225	230						
18									225	235	250	270	285	260	240	230	220							
19									215	250	265	250	240	240	270	240	235	225						
20										250	260	250	265	250	290	250	240	220						
21									205	240	270	275	280	255	275	255	230	220						
22									210	235	310	255	250	260	240	240	255							
23												220	285	280	250	245	245							
24									235	230	225	240	250	255	255	225	235							
25									230	230	240	240	265	275	240	240	230	215						
26											270	255	280	235	240	255	230							
27										225	240	245	325	260	275	I C 245	240	210	200					
28									220	240	255	265	270	275	245	230	230	250						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									12	26	27	28	28	28	28	28	28	15	1					
MED									225	238	255	255	265	260	252	245	235	225	200					
UQ									238	250	265	265	275	272	268	255	240	230						
LQ									215	230	245	248	250	255	245	240	230	218						

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FEB. 1973

H^oF₂ (KM)

IONOSPHERIC DATA

FEB. 1973

H^oF (KM)

135 E Mean Time (G. M. T. + 9h)

Station	YAMAGAWA				Lat.	31 12.1 N.				Long.	130 37.1 E				Sweep 1 MHz to 20 MHz in 20 sec in automatic operation									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E A 295	260	230	205	205	310	300	260	220	225	210	200	200	H 175	H 195	220	215	230	250	205	220	200	290	295
2	270	295	240	210	E S 440	305	E A 350	245	230	220	H 200	H 225	210	205	210	230	210	220	235	210	285	255	250	275
3	305	295	230	210	E A 350	305	250	255	235	225	H 195	H 220	210	200	225	200	225	225	225	200	220	275	250	275
4	250	255	230	225	260	300	E S 330	230	215	H 190	H 225	210	210	230	I A 225	E A 230	E A 220	E A 220	220	250	270	235	225	270
5	E A 300	300	E A 300	260	215	E S 250	255	250	230	H 200	H 200	H 195	245	250	E A 245	245	225	250	E A 250	A	240	235	265	E S 305
6	295	280	285	270	225	230	255	225	H 200	H 190	H 200	H 200	H 200	200	225	A	A	A	210	220	250	230	250	250
7	250	320	330	245	220	290	290	275	225	200	H 200	H 195	195	210	230	220	235	235	205	E A 240	255	I A 240	I A 260	245
8	245	250	265	250	270	310	320	260	225	210	205	200	200	205	230	A	A	230	A	A	255	255	270	225
9	205	250	255	E S 300	300	E S 330	E S 335	260	230	215	H 200	205	205	230	225	205	220	230	E A 235	E A 250	E A 290	250	295	250
10	E A 360	300	300	280	250	E S 265	300	250	230	225	210	210	200	H 190	210	225	I A 230	A	235	250	250	I A 265	245	A
11	E A 300	295	270	255	265	280	280	245	230	220	220	195	H 190	210	H 210	225	A	A	250	230	250	240	225	255
12	245	250	250	275	255	275	275	250	225	210	200	H 185	H 190	H 190	225	215	210	230	220	230	220	230	C	C
13	270	240	255	265	275	300	255	225	205	H 210	H 200	210	190	H 195	H 185	H 230	230	I A 215	210	220	225	250	245	250
14	255	250	260	250	250	230	290	250	225	220	H 205	H 215	205	200	205	205	200	H 220	210	205	240	220	225	245
15	300	295	265	250	225	230	295	250	230	220	225	220	E A 250	215	225	210	225	230	220	E A 250	250	255	E A 300	295
16	270	250	240	220	255	E S 300	310	260	240	225	215	205	205	H 200	H 195	H 215	H 205	225	210	225	245	250	250	250
17	250	250	230	250	280	280	350	245	225	H 200	H 215	235	200	200	225	H 205	225	225	220	225	245	245	250	260
18	C	C	295	295	210	E S 220	275	240	200	200	H 200	H 195	200	205	H 215	I A 225	220	220	220	225	210	230	245	265
19	250	270	300	310	260	295	280	210	225	205	205	200	190	H 220	H 200	220	210	195	230	215	200	255	255	260
20	260	255	E S 280	280	215	205	E S 315	240	220	240	220	240	240	I A 230	205	A	A	220	205	220	260	240	240	255
21	290	270	260	265	255	240	230	230	210	H 195	H 190	H 200	H 185	225	225	240	I A 220	230	205	220	220	295	250	255
22	245	H 200	250	250	230	235	210	200	H 205	200	200	225	205	210	240	205	H 200	235	220	230	230	290	305	335
23	300	255	240	225	250	280	E S 350	220	235	230	235	210	225	220	H 200	225	205	220	225	210	250	300	290	285
24	240	225	220	E S 305	330	250	E S 250	250	235	210	H 220	H 180	200	H 190	H 190	220	210	235	225	230	240	235	250	295
25	250	240	235	300	255	225	E S 260	240	210	H 210	235	H 200	200	H 220	230	245	225	H 210	H 225	235	250	265	245	290
26	280	245	E A 310	275	250	210	345	240	215	235	225	225	210	240	210	210	H 210	245	220	200	E S 275	275	260	255
27	245	230	E S 280	305	240	225	250	225	215	H 200	230	215	215	220	200	C	F A 240	220	200	210	245	300	280	300
28	280	245	210	240	255	320	315	220	210	H 215	210	210	215	H 195	220	215	205	205	215	220	225	225	225	270
29																								
30																								
31																								
CNT	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	24	24	25	27	26	28	28	28	26
MED	260	255	252	254	252	U 262	278	245	225	210	208	208	201	208	215	220	216	225	220	221	244	250	250	261
UQ	285	288	274	278	264	299	308	250	230	222	220	218	210	220	225	226	225	230	226	230	251	265	265	288
LQ	250	248	238	242	228	229	255	228	212	200	H 200	200	200	200	202	210	209	220	210	210	225	235	245	250

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FEB. 1973

H^oF (KM)

IONOSPHERIC DATA

FEB. 1973

H^oES (KM)

135 E Mean Time (G. M. T. + 9h)

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	105	S	S	S	E	S	S	S	G	G	135	115	110	G	105	105	105	G	100	105	100	100	S	S	
2	S	S	S	S	S	170	150	S	G	G	G	G	145	130	115	100	100	G	100	100	100	100	100	100	
3	100	100	100	100	100	100	100	S	G	G	G	G	125	120	170	105	G	G	175	140	135	130	120	120	
4	S	S	S	S	E	105	100	S	G	G	170	150	120	130	120	115	110	105	105	100	100	100	S	S	
5	100	S	115	110	105	105	105	100	G	G	G	100	165	150	135	135	115	105	100	100	100	100	100	S	
6	S	S	S	S	S	120	115	105	100	C	100	100	95	100	130	125	110	110	105	105	100	S	105	S	
7	95	100	S	S	110	S	105	100	100	100	100	100	100	G	140	130	130	110	105	105	105	100	100	100	
8	100	100	100	S	B	B	S	110	105	105	100	100	100	100	150	125	120	115	105	105	105	105	100	105	
9	S	100	S	S	S	S	S	S	G	100	100	100	150	130	150	100	100	130	105	105	100	100	100	100	
10	100	100	100	100	S	S	S	S	105	105	105	100	100	100	120	100	120	110	105	105	105	110	100	95	
11	95	100	S	E	S	S	S	120	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
12	100	95	95	B	B	S	S	S	G	140	125	120	125	100	100	100	145	135	110	105	110	105	105	C	
13	100	100	S	100	S	S	S	100	100	105	100	100	120	110	110	170	140	140	115	100	100	100	100	100	
14	S	S	S	B	B	S	100	100	100	140	G	G	100	100	100	110	110	95	100	S	S	S	S	S	
15	S	S	S	B	B	S	S	S	155	G	G	105	140	135	120	G	170	155	130	115	105	100	100	100	
16	S	S	S	S	S	S	S	S	G	150	155	G	G	G	G	100	100	G	S	S	S	S	S	S	
17	S	S	B	S	S	S	S	S	G	G	110	110	110	105	105	105	100	100	100	100	100	100	S	S	
18	C	C	S	S	B	S	B	S	G	115	110	100	100	100	100	95	95	95	95	95	95	95	100	S	100
19	S	S	S	S	E	100	100	100	G	G	G	100	100	100	100	100	95	100	100	S	S	S	S	S	
20	S	S	S	S	E	S	S	100	G	170	170	155	140	130	110	105	105	105	105	105	105	105	S	S	S
21	S	S	S	S	E	S	S	105	100	G	G	125	120	140	125	115	105	105	110	100	105	100	S	S	
22	S	S	E	S	B	135	S	S	110	G	G	G	145	G	G	G	G	G	110	105	100	100	100	100	
23	100	115	130	120	120	120	S	105	105	105	155	150	150	100	115	120	100	130	110	S	S	S	S	S	
24	100	S	S	S	S	100	100	100	105	100	100	100	100	G	G	100	100	100	100	S	100	S	S	S	
25	S	S	S	S	S	S	S	S	G	G	125	G	G	100	160	G	G	G	175	150	100	110	100	100	
26	100	100	100	100	100	100	105	S	105	175	150	130	120	120	130	120	110	110	S	100	100	S	100	S	
27	100	S	S	E	S	S	S	S	175	105	160	150	150	135	105	C	115	115	100	100	100	105	105	105	
28	120	100	105	S	S	S	S	105	105	105	105	100	150	100	125	130	120	100	100	95	S	S	S	S	
29																									
30																									
31																									
CNT	14	11	8	6	5	10	10	13	15	16	20	22	26	23	25	24	25	22	26	23	23	19	16	13	
MED	100	100	100	100	105	105	102	100	105	105	110	100	120	105	120	105	110	108	105	105	100	100	100	100	
UQ	100	100	110	110	110	120	105	105	105	140	152	125	145	130	130	122	120	115	110	105	105	105	102	100	
LQ	100	100	100	100	100	100	100	100	100	102	100	100	100	100	105	100	100	100	100	100	100	100	100	100	

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FEB. 1973

H^oES (KM)

IONOSPHERIC DATA

FEB. 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	F1										H1	C1	C1		L1	L2	L3		L1	FF11	F2	F1					
2						F1	F2						H1	H1	C2	L3	L2		L1	L1	L1	F2	F2	F1			
3	F2	F1	F3	F1	F2	F2	F1						H1	C2	HC21	L2			H1	F1	F1	F1	F1	F1			
4						F2	F4				H1	H1	H2	H1	H3	C3	C4	C5	L4	F4	F4	F2					
5	F3		F6	F3	F4	F2	F1	L1				L1	H2	H2	H2	H2	C3	C5	C7	F5	F3	F3	F1				
6						F1	F1	L2	L2		L1	L1	L2	L1	HL21	HL33	CL41	C5	L6	F5	F2		F1				
7	F2	F1			F1		F2	L4	L3	L3	L3	L2	L2		HL13	HL21	HL12	C3	C4	F7	F3	F4	F5	F2			
8	F2	F1	F1					L1	L2	L2	L2	L1	L1	L1	HL11	HL23	CL32	CL42	CL35	FF33	F3	F3	F2	F2			
9		F1								L2	L2	L2	HL11	HL12	HL11	L1	L1	HL11	C4	F6	F7	F4	F4	F3			
10	F5	F2	F1	F1		F1	F1	L1	L2	L2	L2	L2	L2	L1	CL11	L1	CL21	C4	C5	F7	F3	FF13	F4	F4			
11	F2	F1						C1	L4	L4	L4	L2	L2	L1	L2	L3	L4	L6	L6	F7	F3	F1	F3	F3			
12	F2	F1	F1							H1	H1	CL12	CL11	L2	L1	L2	HL12	HL12	L4	F5	F1	F2	F2				
13	F2	F1		F1				L2	L2	L2	L2	L3	H1	C1	C1	HC22	HC22	H3	CL32	F1	F2	F1	F2	F1			
14						F2	L1	L2	H2				L1	L1	L1	CL22	CL21	L1	L1								
15									H1			L1	H1	H1	C1		HCL12	HL21	HL21	F3	F4	F3	F3	F1			
16										H1	H1					L1	L1										
17											C2	C2	C2	L1	L1	L1	L2	L1	L2	F2	F1	F1					
18										C2	C1	L2	L2	L2	L2	L3	L3	L5	L3	F2	F2	F1		F1			
19						F1	F2	L1				L1	L1	L1	L1	L1	L1	L1	L1								
20								L1		H1	H1	HL11	H1	HL21	C1	C3	C3	C4	L2	F1	F2						
21								L1	L1			H2	H2	HH11	H1	C2	C5	L2	L1	F1	F1	F1					
22						F1		L2					H1						C5	F7	F3	F3	F2	F2			
23	F1	F1	F1	F1	F1	F1		L1	L3	L1	HL22	HL11	HL11	LH21	CL21	CL12	L2	H2	C3								
24	F1					F1	F1	L1	L2	L1	L1	L1	L1			L1	L4	L3	HL22			F1					
25											H2			L1	H1				H1	F2	FF11	FF32	F6	F2			
26	F2	F3	F6	F3	F3	F4	F1		L2	HL22	H1	HH11	H1	H2	H1	C2	C1	L3		F3	F1		F1				
27	F1								H1	L2	HL21	HL11	HL11	HL11	L1		C2	C2	L2	F1	F1	F6	F4	F2			
28	F1	F1	F1					L2	L2	L1	L2	L2	HL12	L1	HL11	HL13	CL12	L2	L1	F2							
29																											
30																											
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT																											
MED																											
UQ																											
LQ																											

FEB. 1973

TYPES OF ES

IONOSPHERIC DATA

FEB. 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	59	46	35	26	21	23	26	32	66	72	84	106	94	98	100	95	92	101	98	115	95	S ₆₄	44	35	
2	36	38	32	35	F ₂₅	25	24	33	R ₆₃	85	113	111	120	111	118	120	90	70	65	55	J ₅₂ S	47	49	39	
3	33	33	39	24	20	A	23	32	60	81	103	118	84	90	96	101	84	67	50	57	47	36	F ₃₄	S ₃₄	
4	29	F ₂₇	30	23	V ₂₄	23	23	33	J ₆₂ S	72	76	95	119	119	107	87	95	67	60	53	54	47	R ₄₁	33	
5	33	34	R ₃₆	F ₃₈	33	A	20	29	S ₇₁	91	94	120	136	148	131	96	77	70	70	68	J ₅₃ R	54	R ₃₉	38	
6	42	R ₄₁	39	43	42	26	H ₁₉	32	R ₆₂	76	92	118	129	145	141	122	102	91	80	65	R ₅₉	57	56	54	
7	43	40	35	39	33	23	25	34	80	85	90	110	110	110	121	114	96	95	72	46	43	I ₄₄ R	R ₅₅		
8	52	A	A	26	25	S ₂₆	27	33	75	101	R ₁₁₄	129	143	150	150	R ₁₂₃	110	87	81	A	58	I ₆₆ R	S ₇₀		
9	34	22	23	24	26	28	28	36	82	97	108	124	130	130	141	144	127	97	77	63	S ₅₁	53	R ₄₈	A	
10	39	39	36	34	31	24	25	37	75	109	117	105	114	130	R ₁₃₂	128	R ₁₂₃	115	97	93	R ₈₀	72	R ₇₄	43	
11	33	33	30	29	28	27	29	41	75	90	96	98	107	115	125	128	96	90	87	76	85	82	R ₁₀₀	73	
12	50	46	35	33	31	28	28	40	71	90	100	97	114	R ₁₂₈	145	152	145	142	141	152	139	114	90	68	
13	J ₆₂ R	42	33	31	29	29	30	40	65	87	103	114	124	137	161	176	160	138	124	R ₁₁₅	96	84	R ₇₅	60	
14	42	40	40	33	30	28	27	S ₃₇	S ₇₃	85	110	122	120	122	129	128	116	105	104	86	J ₇₄ S	R ₇₇	S ₆₀	49	
15	44	43	44	46	46	H ₂₃	24	35	67	93	107	120	124	117	130	116	95	90	88	R ₇₂	67	60	50	44	
16	42	S ₄₈	42	27	23	24	26	36	72	106	120	116	117	115	R ₁₂₄	112	87	77	69	56	62	73	66	62	
17	52	50	46	33	30	28	28	42	71	74	77	118	120	114	122	133	122	89	74	64	52	58	55	52	
18	44	40	36	45	56	19	23	43	64	80	88	105	141	175	175	159	134	112	82	72	84	68	65	R ₅₅	
19	47	41	35	34	32	S ₃₅	33	50	76	74	87	106	123	124	118	127	124	94	84	85	69	U ₅₄ R	U ₅₀ R	51	
20	47	42	36	37	43	19	19	38	67	76	90	110	111	116	118	124	121	96	69	52	53	57	54	47	
21	36	36	33	33	32	31	23	42	69	65	68	96	120	139	142	152	151	120	90	75	R ₆₀ U ₅₀ R	43	45		
22	42	34	30	34	R ₃₈	S ₄₆	58	47	54	69	96	122	143	123	143	127	110	112	91	76	43	U ₄₂ S	45	45	
23	46	54	42	35	27	24	25	46	68	94	77	79	117	115	142	120	90	78	86	75	52	53	55	52	
24	54	47	25	27	28	35	18	38	95	96	80	80	104	120	118	116	91	84	106	91	78	53	47	46	
25	47	S ₄₅	30	27	26	25	19	43	89	100	77	110	105	114	135	124	115	80	66	57	J ₅₃ S	52	52	46	
26	41	35	F ₃₅	35	35	20	23	43	77	85	98	118	128	147	147	146	156	145	138	111	90	78	66	49	
27	47	48	27	26	29	R ₃₃	17	42	74	87	86	91	86	110	126	128	113	104	83	64	50	48	48	S ₄₃	
28	43	46	32	26	25	25	24	46	78	89	93	120	150	166	172	171	144	132	142	R	R ₉₈	93	88	U ₅₄ S	
29																									
30																									
31																									
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	
CNT	28	27	27	28	28	26	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	27	27	
MED	43	41	35	33	30	26	24	38	71	86	94	110	120	121	130	126	112	94	84	72	60	57	54	49	
UQ	47	46	38	35	33	28	28	42	76	94	105	119	128	138	142	138	126	112	98	86	82	72	66	54	
LQ	38	36	31	26	26	23	23	34	66	76	85	102	110	114	120	116	94	82	71	57	52	51	48	44	

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FEB. 1973

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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									L	L	L	L	460	470	480	470	L	L	L	A					
2									L	L	L	450	460	470	480	480	L	L	L	A					
3										L	U	L	450	L	490	460	L	L							
4										L	U	L	440	480	480	480	460	L	L						
5									L	L	L	L	470	470	L	470	L	L	A						
6										L	L	L	470	470	480	U	L	U	L	A					
7									L	L	L	460	480	L	500	480	L	A	L						
8									L	L	L	L	L	L	L	480	L	L	A						
9									L	L	L	U	L	L	U	L	L	L	L	A					
10									L	L	L	L	U	L	500	500	L	L	L	A					
11									L	L	L	L	480	500	L	A	A	L							
12									L	L	L	L	U	L	500	L	L	L							
13										L	L	U	500	490	L	L	L	L							
14										L	L	L	L	U	L	L	L	L							
15										L	L	L	L	480	L	L	L	L							
16										L	L	L	U	L	U	L	L	L							
17									L	L	L	480	480	L	U	L	L	L	200						
18									L	L	L	L	500	L	470	L	L	L							
19									L	L	L	L	L	U	L	L	L	L							
20										L	L	L	L	500	A	460	L	L	L						
21									L	360	L	500	500	L	480	L	L	L							
22									L	L	L	L	U	L	480	470	L	L	L	L					
23										L	L	L	470	L	U	L	U	L							
24									L	L	L	L	L	U	L	L	L	L							
25									L	L	L	L	L	450	470	L	L	L	210						
26										L	L	L	490	480	500	L	L	L							
27										L	L	L	L	L	470	U	L	L	A	L					
28									L	L	L	L	480	L	U	L	460	L	L	310					
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT										1	4	13	17	18	18	3		1	2						
MED									360	450	480	480	480	480	480	460		310	205						
UQ										455	480	480	500	490	460										
LQ										U	L	470	470	U	L	470	470	L	L						

FEB. 1973

FOF1 (0.1 MHz)

IONOSPHERIC DATA

FEB. 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								S	200	265	A	A	A	A	A	R	280	225	B					
2								S	200	265	300	320	335	340	330	310	285	230	170					
3								S	170	240	270	330	I R 335	330	315	290	285	240	170					
4								S	180	250	295	330	340	340	335	A	A	A	160					
5								S	180	255	300	330	350	I A 350	335	325	290	A	S					
6								B	210	A	320	335	345	355	335	330	290	235	S					
7								B	215	280	315	340	350	350	340	325	285	235	A					
8								B	A	R 310	360	340	375	I A 340	340	330	300	A	A					
9								S	170	240	270	335	340	350	340	A	A	250	A					
10								B	A	A	A	A	350	A	A	340	305	A	A					
11								B	225	A	A	A	A	A	A	A	A	A	A					
12								S	220	265	310	330	335	340	335	330	300	A	A					
13								S	235	280	320	335	340	I A 340	335	I A 310	A	240	175					
14								S	195	270	315	335	350	350	330	330	300	250	A					
15								S	235	290	320	A	330	340	A	320	A	A	S					
16								S	200	230	315	345	340	350	350	325	290	I A 250	175					
17								S	230	275	320	325	335	I A 330	A	A	A	235	160					
18								S	220	275	A	A	340	335	325	310	A	250	A					
19								S	225	285	320	335	340	350	340	325	295	250	S					
20								S	210	275	305	330	335	340	A	A	A	A	165	S				
21								S	230	275	305	330	335	335	330	315	275	A	A					
22								155	210	270	320	335	340	335	330	325	295	245	180					
23								S	225	A	270	310	330	340	335	325	290	A	S	S				
24								S	220	275	305	330	340	355	340	330	300	I A 250	A					
25								S	230	285	310	335	345	340	335	320	295	255	160					
26								S	220	280	305	325	335	I A 330	320	290	A	A						
27								S	235	275	305	325	335	335	330	315	A	A	A	B				
28								S	240	290	320	335	350	350	340	320	290	250	170					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1	26	24	24	23	26	25	22	22	19	16	10					
MED								155	220	275	310	330	340	340	335	325	290	248	170					
UQ									230	280	320	335	345	350	340	330	298	250	175					
LQ									200	265	302	330	335	335	330	315	288	235	160					

FEB. 1973

FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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 automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	JX 22	JX 20	JX 24	JX 24	JX 19	JX 18	JX 17	JX 17	JX 19	28	JX 37	JX 40	40	JX 51	JX 36	JX 39	G	JX 36	JX 20	M 19	JX 18	JX 24	JX 21	M 20
2	JX 21	ES 15	EB 13	EB 12	EB 12	ES 16	ES 15	ES 16	G	G	G	G	G	G	G	G	G	G	G	ES 15	ES 15	ES 16	JX 21	ES 15
3	ES 16	M 17	JX 20	JX 20	JX 16	JX 25	M 21	ES 16	G	G	G	G	JX 38	40	38	34	30	JX 25	G	M 22	EB 17	ES 15	ES 15	ES 15
4	ES 15	EB 14	EB 13	JX 25	M 20	EB 13	JX 17	JX 25	G	G	G	35	39	38	35	JX 38	34	JX 29	JG 17	M 21	JX 23	EB 14	ES 15	ES 16
5	ES 15	ES 15	ES 16	ES 15	E	JX 26	JX 25	ES 16	G	G	G	G	G	40	38	34	JX 42	JX 57	JX 84	JX 64	JX 42	JX 34	JX 25	JX 18
6	ES 16	EB 14	ES 15	EB 13	JX 19	M 20	JX 37	JX 35	JX 26	JX 42	G	G	G	39	38	35	36	JX 57	JX 64	JX 41	JX 25	JX 27	JX 25	JX 26
7	M 23	JX 18	ES 15	ES 15	EB 14	JX 24	JX 22	M 22	28	JX 48	JG 26	JX 35	JX 37	23	40	41	42	32	JX 43	JY 21	JX 64	M 20	JX 21	JX 51
8	JX 41	JX 37	JX 30	JX 22	JX 19	JX 17	JX 19	JX 36	JX 33	JX 41	JX 41	JX 51	JX 48	JX 69	38	41	JX 51	JX 30	JX 39	JX 74	JX 84	JX 84	JX 74	JX 50
9	M 19	ES 16	ES 15	M 17	JX 18	JX 19	M 20	ES 15	G	30	34	37	37	JG 30	JX 35	JX 44	JX 41	JX 40	JX 51	JX 64	JX 24	M 21	JX 18	JX 62
10	JX 36	JX 18	JX 20	JX 25	JX 20	JX 19	JX 17	JX 18	24	27	34	35	JG 24	JG 27	35	G	38	33	JX 26	JX 30	JX 29	JX 40	JX 18	M 17
11	JX 16	M 18	M 20	M 19	M 18	ES 15	ES 16	JX 18	JX 25	JX 41	JX 51	JX 61	JX 54	JX 41	38	JX 45	JX 48	JX 34	JX 36	JX 34	JX 21	JX 17	M 20	M 16
12	JX 17	M 18	ES 15	ES 15	EB 11	EB 12	ES 15	JX 19	25	31	35	36	36	JX 38	39	39	42	JX 39	JX 39	JX 29	EB 14	JX 19	JX 25	JX 19
13	JX 20	JX 16	JX 19	ES 15	JX 18	JX 17	ES 15	M 22	JG 23	G 27	JG 29	35	JX 43	40	41	JX 51	JX 35	29	JX 20	JX 19	M 20	M 20	M 19	M 18
14	ES 16	ES 15	EB 13	EB 13	EB 11	M 24	ES 15	ES 15	G	G	36	37	37	37	JX 36	JG 29	JX 32	JX 29	JX 29	JX 20	JX 17	M 20	M 17	ES 16
15	ES 15	ES 16	ES 15	ES 15	EB 12	EB 12	ES 16	ES 16	G	32	34	42	43	47	47	36	35	28	22	EB 14	M 17	M 17	M 17	ES 15
16	ES 15	ES 16	EB 13	EB 13	EB 11	EB 13	EB 14	ES 15	G	32	33	36	G	G	G	G	G	JX 24	JX 24	M 18	JX 17	M 18	ES 15	ES 15
17	ES 15	EB 13	EB 13	ES 15	EB 13	EB 13	ES 15	ES 15	G	32	33	G	35	34	JX 60	JX 44	JX 35	JX 26	JX 28	JX 24	M 21	M 17	JX 19	JX 17
18	ES 16	ES 16	ES 15	ES 15	EB 11	JX 24	JX 17	JX 17	G	G	33	38	37	37	39	34	30	JX 31	JX 22	ES 15	JX 18	ES 15	JX 18	M 16
19	ES 16	EB 13	EB 13	EB 12	E	EB 12	M 18	ES 15	G	G	G	JX 53	G 25	G 23	JG 27	G 19	G 19	JG 20	20	JX 17	EB 14	EB 15	ES 16	M 17
20	ES 15	EB 13	ES 15	ES 15	E	EB 13	ES 14	G	G	G	36	39	44	44	JX 50	38	36	JX 36	JX 20	ES 14	M 21	ES 15	ES 16	ES 15
21	JX 18	EB 13	ES 15	ES 15	EB 11	EB 11	ES 15	M 18	G 17	G	35	40	39	45	JX 51	41	34	26	JX 24	M 21	ES 15	ES 15	ES 15	M 17
22	M 17	EB 13	EB 13	M 18	M 17	EB 12	ES 15	G	G	G	G	G	G	37	38	G	G	26	G	EB 12	ES 15	ES 15	JX 32	JX 24
23	M 20	JX 18	M 17	M 16	M 18	JX 20	M 19	ES 16	G 22	32	34	36	37	35	35	35	31	27	G 17	ES 15	ES 15	ES 16	JX 25	ES 15
24	ES 16	ES 16	M 18	M 19	EB 13	EB 16	ES 15	ES 16	G 20	G 25	G 27	G	G	G	G	G	G	JX 33	JX 29	M 21	M 21	M 20	ES 15	ES 15
25	ES 15	ES 15	ES 15	ES 15	EB 13	ES 16	M 21	ES 15	G	30	G	G	G	G	39	38	33	30	17	M 18	JX 24	M 18	M 19	M 20
26	ES 16	ES 15	ES 15	EB 11	EB 11	ES 15	M 18	M 20	G 20	32	35	39	37	42	JX 37	36	34	32	JX 24	JX 21	M 17	ES 16	ES 16	ES 16
27	JX 17	M 20	JX 20	JX 20	EB 11	EB 11	ES 16	G	G	G	G	G	38	39	38	36	34	28	21	EB 11	ES 15	ES 15	ES 16	JX 28
28	JX 29	JX 24	M 22	ES 15	M 21	ES 15	M 18	JX 20	G	G 23	JG 27	JX 35	JG 34	JG 35	36	35	31	JX 21	G	M 20	ES 15	JX 19	ES 15	JX 32
29																								
30																								
31																								
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	16	E 16	E 15	E 15	E 13	E 16	17	16	G	27	33	36	37	38	38	36	34	JX 30	JX 23	20	18	18	18	17
UQ	JX 20	JX 18	20	19	18	JX 20	19	JX 20	22	32	35	39	39	40	39	40	37	JX 34	JX 32	JX 26	JX 24	20	JX 21	JX 22
LQ	ES 16	E 14	E 14	ES 15	EB 11	EB 13	ES 15	ES 15	G	G	G	G	E 24	G 28	35	32	30	26	18	16	E 15	ES 15	ES 16	ES 16

The Radio Research Laboratories, Japan

FEB. 1973

FOES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 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	15	E	16	16	E	E	16	G	G	28	32	39	36	35	32	28	G	30	17	E	U A	17	20	17	E
2	16	E S	E B	E B	E B	E S	E S	E S	G	G	G	G	G	G	G	G	G	G	G	E S	E S	E S	16	E S	
3	E S	E	16	15	14	A	E	E S	G	G	G	G	34	38	37	33	29	22	G	E	E B	E S	E S	E S	
4	E S	E B	E B	E	E	E B	E	G	G	G	G	34	39	38	35	33	33	26	G	E	16	E B	E S	E S	
5	E S	E S	E S	E S	E B	A	E S	G	G	G	G	G	39	37	G	31	42	63	24	41	25	21	E		
6	E S	E B	E S	E B	15	E	14	17	20	40	G	G	G	36	37	35	36	51	64	31	16	25	22	22	
7	20	E	E S	E S	E B	20	19	14	23	24	G	23	27	G	39	38	42	32	40	16	24	E	20	35	
8	30	A	A	17	E	E	16	25	26	26	30	25	36	42	37	38	40	31	26	A	40	51	A	25	
9	19	E S	E S	E	E	E	E	E S	G	29	33	36	37	30	30	40	30	21	U A	40	42	20	16	E	A
10	22	15	E	22	17	16	E	G	23	27	33	34	G	G	35	G	37	32	23	U A	E	20	E	E	
11	E	16	E	E	E	E S	E S	G	20	29	33	35	41	38	38	45	41	33	36	32	20	E	E	E	
12	E	E	E S	E S	E B	E B	E S	G	28	30	34	36	36	31	39	38	38	36	32	22	E B	17	23	16	
13	16	E	E S	E S	18	E	E S	G	G	G	G	35	36	38	37	34	30	28	16	19	E	E	E	E	
14	E S	E S	E B	E B	E B	E	E S	E S	G	G	35	36	37	36	29	G	26	20	20	20	E	E	E	E S	
15	E S	E S	E S	E S	E B	E B	E S	E S	G	32	34	40	42	47	46	36	33	28	21	E B	E	E	E	E S	
16	E S	E S	E B	E B	E B	E B	E S	G	32	33	36	G	G	G	G	G	24	G	E	E	E	E S	E S		
17	E S	E B	E B	E S	E B	E B	E S	G	32	33	G	35	34	36	33	29	19	G	17	E	16	17	E		
18	E S	E S	E S	E S	E B	E	15	G	G	G	32	35	36	36	36	33	30	23	20	E S	16	E S	E	E	
19	E S	E S	E B	E B	E	E B	E	E S	G	G	G	30	G	G	G	G	G	G	20	E	E B	E S	E S	E	
20	E S	E B	E S	E S	E	E B	E S	G	G	G	36	39	44	40	48	36	34	34	16	E S	E	E S	E S	E S	
21	E	E S	E S	E S	E B	E B	E S	G	G	G	35	40	35	45	G	40	34	25	23	E	E S	E S	E S	E	
22	E	E B	E B	E	E	E B	E S	G	G	G	G	G	G	37	38	G	G	26	G	E B	E S	E S	20	E	
23	19	E	E	E	E	E	E S	G	22	32	34	36	37	35	35	35	31	25	16	G	E S	E S	E S	E S	
24	E S	E S	E	E	E B	E S	E S	G	G	G	G	G	G	G	G	G	G	28	19	E	E	E	E S	E S	
25	E S	E S	E S	E S	E B	E S	E S	G	G	G	G	G	G	G	39	38	33	30	17	E	18	E	E	E	
26	E S	E S	E S	E B	E B	E S	E	G	G	32	35	38	37	40	35	36	33	30	19	E	E	E S	E S	E S	
27	E	E	E	E	E B	E B	E S	G	G	G	G	G	38	38	36	34	31	28	18	E B	E S	E S	E S	E	
28	20	E	E	E S	E	E S	E	G	G	G	G	28	G	G	36	34	30	G	G	E	E S	18	E S	25	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
MED	16	E	E	E	E	E	E	E	G	G	31	34	36	36	36	34	31	28	19	E	E	E	16	E	
UQ	16	E S	E S	E S	E B	E	E S	E S	G	30	34	36	37	38	38	37	34	32	24	21	17	16	18	E S	
LQ	E S	E	E	E	E	E	E	G	G	G	G	E	G	G	31	G	28	22	G	E	E	E	E	E	

FEB. 1973

FBES (0.1 MHz)

IONOSPHERIC DATA

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

The Radio Research Laboratories, Japan

FEB. 1973

F-MIN (0.1 MHz)

IONOSPHERIC DATA

FEB. 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	300	320	360	340	300	285	290	310	375	350	330	340	330	320	325	330	305	340	330	345	370	315 ^S	300	300
2	300	330	340	370	280 ^F	280	310	330	350 ^R	320	330	320	340	310	320	345	340	320	340	320	300 ^J	310	320	320
3	300	295	340	380	290	A	340	320	340	320	340	350	330	300	305	330	350	360	345	330	330	320	F	330 ^S
4	335	290 ^F	350	325	320 ^V	320	290	320	360 ^J	360	315	310	335	330	340	330	355	370	350	330	320	350	315 ^R	290
5	290	295	300 ^R	300 ^F	380	A	310	310	345 ^S	340	310	320	320	330	335	345	330	350	340	345	315 ^J	330	300 ^R	330
6	300	310 ^R	310	330	380	360	320 ^H	320	350 ^R	335	320	330	310	320	320	310	310	350	355	340	320 ^R	320	310	325
7	335	285	280	300	370	300	270	310	350	360	310	320	310	310	330	340	340	350	370	310	280	315	310 ^I	370 ^R
8	350	A	A	360	310	285 ^S	280	310	320	320	310 ^R	310	300	310	320	310 ^R	285	340	350	A	320	320	330 ^I	340 ^S
9	365	365	295	280	275	275	280	300	340	330	320	325	315	305	310	310	320	360	360	330	330 ^S	330	310	A
10	290	300	310	305	340	300	290	310	330	330	340	320	310	320	310 ^R	320	320 ^R	325	350	350	310 ^R	330	350 ^R	360
11	305	290	305	310	320	290	300	330	370	330	350	320	320	310	320	340	330	315	330	320	310	310	340 ^R	320
12	320	340	270	310	320	300	300	335	290	350	340	315	340	320 ^R	320	320	320	320	320	335	330	350	340	310
13	310 ^J	330 ^R	315	310	310	290	305	310	330	330	330	330	330	305	310	320	320	320	330 ^R	335 ^R	330	295	310 ^R	335
14	310	320	335	330	305	310	290	310 ^S	340 ^S	340	330	335	330	310	320	320	335	340	330	330	300 ^J	320 ^R	335 ^S	300
15	290	300	310	335	380	250 ^H	275	310	335	330	335	325	335	320	330	330	310	330	345	320 ^R	310	315	300	290
16	290	295 ^S	370	375	300	275	275	290	310	330	345	330	345	310	300 ^R	290	330	360	360	330	280	300	320	310
17	310	325	355	320	360	275	260	315	360	350	300	330	340	310	310	320	340	350	340	330	300	315	310	300
18	310	295	290	310	405	270	285	340	365	335	300	290	305	315	320	315	330	345	340	310 ^S	320	300	310	305 ^R
19	320	290	295	290	300	300 ^S	300	345	370	340	330	320	320	310	320	320	315	320	325	340	310	270 ^U	295 ^U	300
20	330	310	310	310	380	380	270	320	375	340	330	335	325	310	310	330	335	355	365	310	295	320	320	320
21	290	290	310	310	330	340	315	305	360	350	300	235	310	330	300	320	330	350	315	330	315 ^R	260 ^U	310	310
22	340	310	290	320	330 ^R	340 ^S	340	360	360	310	300	330	330	310	320	320	330	340	370	345	330	275 ^U	280	280
23	290	330	340	350	320	280	300	330	350	340	365	320	330	310	330	335	345	320	330	330	275	280	290	330
24	320	370	290	300	275	350	380	300	345	360	340	350	320	330	320	335	330	310	330	350	360	315	300	290
25	310	340 ^S	305	300	310	350	300	310	360	370	320	340	330	320	340	280	360	360	355	340	300 ^J	290	335	330
26	340	345	310 ^F	330	330	370	290	330	360	340	320	330	320	330	320	310	330	320	330	340	290	280	310	290
27	320	300	310	290	300	400 ^R	270	320	330	350	350	340	300	310	320	340	330	350	340	370	295	275	300	290 ^S
28	315	340	340	310	310	270	275	330	350	345	305	300	320	310	315	310	320	320	330	R	330 ^R	300	330	220 ^U
29																								
30																								
31																								
CNT	28	27	27	28	28	26	28	28	28	28	28	28	28	28	28	28	28	28	28	26	28	28	27	27
MED	310	310	310	310	320	300	290	318	350	340	330	325	322	310	320	320	330	340	340	330	312	315	310	310
UQ	325	330	340	332	350	340	308	330	360	350	340	332	330	320	322	332	338	350	352	340	330	320	325	330
LQ	300	295	298	302	300	280	278	310	338	330	310	320	312	310	310	312	320	320	330	330	300	292	300	295

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FEB. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 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 automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																								
1									L	L	L	390	L	385	L	370	H	L	L	L	A																											
2									L	L	370	380	L	380	L	370	360	L	L	L	A																											
3										L	U	L	L	400	L	360	355	L	L																													
4										L	U	L	385	360	L	370	370	L	L																													
5									L	L	L	L	360	390	L	370	L	L	A																													
6										L	L	370	L	370	380	U	380	U	L	L	A																											
7									L	L	380	370	L	L	370	L	L	A	L																													
8									L	L	L	L	L	L	L	360	L	L	A																													
9									L	L	L	U	L	L	L	370	L	L	L	A																												
10									L	L	L	L	L	U	370	370	L	L	L	A																												
11									L	L	L	L	L	385	370	L	L	A	A	L																												
12									L	L	L	L	L	U	360	L	L	L	L																													
13										L	L	U	L	370	L	L	L	L	L																													
14										L	L	L	L	L	U	400	L	L	L	L																												
15										L	L	L	L	380	L	L	L	L	L																													
16										L	L	L	L	U	370	U	400	L	L	L																												
17									L	L	L	370	L	370	L	U	L	L	L	L	430																											
18									L	L	L	L	L	360	L	380	L	L	L																													
19									L	L	L	L	L	L	U	L	L	L	L																													
20										L	L	L	L	L	360	A	370	L	L	L																												
21									L	430	L	350	355	L	370	L	L	L	L																													
22									L	L	L	L	L	U	380	420	L	L	L	L																												
23										L	L	360	L	U	380	U	380	L	L	L																												
24										L	L	L	L	L	U	380	L	L	L																													
25									L	L	L	L	L	L	420	370	L	L	L	L	405																											
26										L	L	360	380	370	L	L	L	L	L																													
27										L	L	L	L	L	370	U	L	L	L	A	L																											
28									L	L	L	370	L	U	395	390	L	L	L	420																												
29																																																
30																																																
31																																																
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																								
CNT										1	4	13	17	18	18	3		1	2																													
MED										430	375	370	370	375	370	370		420	418																													
UQ											L	382	370	380	395	380	L	L	L																													
LQ											370	360	370	370	370	L	370	362																														

FEB. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

FEB. 1973

H^oF₂ (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 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									235	250	270	260	265	280	290	260	260	250	220					
2									255	275	270	250	265	280	285	250	240	230	230					
3										300	260	240	250	300	300	270	250	230						
4										260	275	300	270	260	250	265	260	220						
5									255	265	295	290	270	275	250	250	230	245						
6										270	280	265	275	270	265	270	250	245						
7									250	235	270	275	275	295	275	260	255	245						
8									270	280	265	275	280	275	265	270	250	235						
9									255	275	270	270	265	290	280	265	260	235	220 ^A					
10									265	265	250	265	270	280	275	280	250	250	210					
11									225	265	250	270	270	285	275	245	240	250						
12									235	250	250	275	270	280	265	265	245	250						
13										265	265	275	270	285	280	270	245	220						
14										255	275	265	260	265	270	270	235	235						
15										265	265	280	250	270	265	245	250	245						
16										275	260	265	250	275	280	255	250	230						
17									235	240	290	280	250	275	280	270	230	225	220					
18									220	260	300	300	300	280	260	245	240	230						
19									230	245	270	280	255	275	270	250	240	230						
20										250	270	275	260	295	275	275	245	230	210					
21									230	245	240	330	290	275	290	260	240	220						
22									235	260 ^L	295	270	260	260	260	250	250	255	220					
23										240	240	280	265	285	275	250	240	230						
24									250	225	245	250	280	260	260	255	240	250						
25									250	235	250	280	260	290	275	275	230	230	230					
26										250	280	285	270	265	245	260	240	245						
27										250	240	270	285	300	280	260	240	240	220					
28									250	260	290 ^L	300	275	260	275	260	245	245						
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									17	28	28	28	28	28	28	28	28	28	9					
MED									250	260	270	275	270	278	275	260	245	235	220					
UQ									255	265	278	280	275	285	280	270	250	245	220					
LQ									235	248	250	265	260	270	265	250	240	230	220					

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FEB. 1973

H^oF₂ (KM)

IONOSPHERIC DATA

FEB. 1973

H^oES (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	100	100	100	100	100	100	100	100	100	200	105	110	110	105	105	105	G	125	100	100	100	100	115	100	
2	115	S	B	B	B	S	S	S	G	G	G	G	G	G	G	G	G	G	G	S	S	S	100	S	
3	S	105	100	100	100	100	125	S	G	G	G	G	110	115	110	110	170	105	G	105	B	S	S	S	
4	S	B	B	105	110	B	105	100	G	G	G	160	155	140	130	110	115	110	105	105	105	B	S	S	
5	S	S	S	S	E	105	100	S	G	G	G	G	G	160	145	140	120	105	105	105	100	100	100	100	
6	S	B	S	B	105	105	110	105	105	105	G	G	G	165	135	170	130	110	105	105	100	100	100	100	
7	100	100	S	S	B	105	100	100	205	100	100	100	100	100	130	130	120	115	110	100	100	100	100	100	
8	100	100	100	100	100	100	115	105	105	100	100	100	115	110	155	135	120	100	110	105	105	105	105	100	
9	100	S	S	100	100	100	100	S	G	145	135	130	130	100	100	100	100	100	105	105	100	100	100	100	
10	100	100	100	100	100	100	100	110	110	105	105	115	100	115	110	G	120	110	105	105	110	100	100	100	
11	100	100	100	100	100	S	S	110	110	105	105	105	100	110	185	105	105	105	105	100	100	100	100	100	
12	100	100	S	S	B	B	S	100	160	145	130	130	130	100	165	140	120	110	105	105	B	105	100	100	
13	100	100	105	S	100	105	S	105	105	105	105	145	130	125	115	105	105	140	100	100	100	100	100	100	
14	S	S	B	B	B	105	S	S	G	G	125	120	120	120	100	100	100	100	100	100	100	100	100	S	
15	S	S	S	S	B	B	S	S	G	175	180	140	135	120	125	115	110	195	140	B	100	100	100	S	
16	S	S	B	B	B	B	B	S	G	170	170	190	G	G	G	G	G	105	100	100	100	100	S	S	
17	S	B	B	S	B	B	S	S	G	150	150	G	125	115	105	105	105	100	105	105	100	100	100	100	
18	S	S	S	S	B	100	100	100	G	G	125	115	120	120	115	120	115	100	100	S	100	S	100	100	
19	S	B	B	B	E	B	105	S	G	G	G	110	100	100	100	100	100	100	175	100	B	S	S	100	
20	S	B	S	S	E	B	S	G	G	G	160	155	140	135	115	110	110	105	105	S	100	S	S	S	
21	100	B	S	S	B	B	S	100	100	G	175	185	155	135	100	115	110	105	100	105	S	S	S	100	
22	100	B	B	125	125	B	S	G	G	G	G	G	G	145	135	G	G	125	G	B	S	S	100	100	
23	100	100	100	100	105	110	105	S	110	110	175	110	115	U G	170	145	135	120	115	105	S	S	S	100	S
24	S	S	100	100	B	S	S	S	105	105	105	G	G	G	G	G	G	100	100	100	100	100	S	S	
25	S	S	S	S	B	S	145	S	G	150	G	G	G	G	155	150	150	140	150	100	110	110	105	110	
26	S	S	S	B	B	S	100	100	105	160	150	140	140	130	115	120	120	105	105	105	100	S	S	S	
27	110	110	110	110	B	B	S	G	G	G	G	G	150	140	120	120	130	115	110	B	S	S	S	110	
28	110	100	105	S	105	S	105	105	G	105	105	105	105	105	140	105	120	100	G	100	S	110	S	100	
29																									
30																									
31																									
CNT	14	11	10	11	12	12	15	13	12	17	19	19	21	24	25	23	23	27	24	21	19	17	18	18	
MED	100	100	100	100	100	102	105	100	105	110	125	120	120	120	120	115	120	105	105	105	100	100	100	100	
UQ	100	100	105	102	105	105	108	105	110	150	155	142	135	138	140	132	120	115	108	105	100	100	100	100	
LQ	100	100	100	100	100	100	100	100	105	105	105	110	110	108	110	105	108	100	100	100	100	100	100	100	

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H^oES (KM)

IONOSPHERIC DATA

FEB. 1973

TYPES OF ES

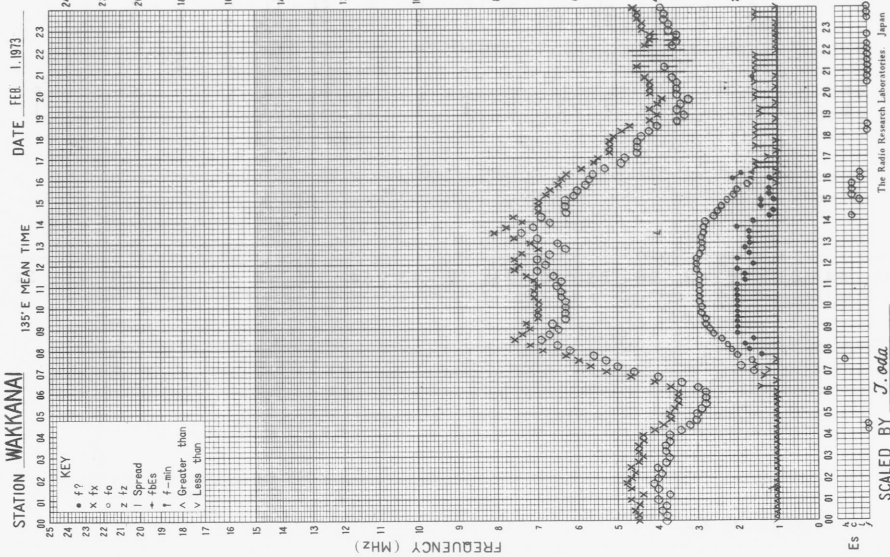
135 E Mean Time (G. M. T. + 9h)

Station	OKINAWA				Lat. 26 19.0 N. Long. 127 46.8 E				Sweep 1 MHz to 25 MHz in 30 sec in 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	F2	F2	F2	F3	F2	L2	L1	H2	C2	C2	C2	C2	C1		H3	L2	F2	F3	F3	F1	F1		
2	F2																						F2		
3		F1	F3	F3	F2	F6	FF21						C1	H2	C2	C2	HC13	LH32		F2					
4				F2	F1		F2	L1				H1	H1	H1	H1	C2	C3	C4	L1	F1	F1				
5						F6	F2							HL11	HL11	HL12	C2	C5	L6	F5	F7	F3	F3	F1	
6					F3	F1	F3	L4	L2	L3				H1	H2	H2	H2	C6	L6	F4	F2	F3	F3	F1	
7	F1	F1				F4	F6	L3	HL13	L3	L2	L2	L2	L1	HL22	HL21	CL21	CL42	LL53	F1	F3	F1	F4	F4	
8	F5	F6	F5	F1	F1	F1	F2	L6	L6	L4	L3	L2	CL12	CL22	HL13	HL13	CL23	L4	LL15	FF64	FF31	F3	F3	F3	
9	F1			F1	F1	F1				H2	H1	CL13	CL12	L2	L3	L4	L3	LC22	C5	F4	F5	F3	F2	F4	
10	F6	F2	F2	F6	F3	F1	F1	L1	C2	C2	C2	CL11	L1	L1	CL11		H2	C4	L4	F6	F1	F4	F1	F1	
11	F1	F2	F1	F1	F1			L1	L2	L3	L2	L2	L3	CL21	HL11	L4	L4	L4	L3	F3	F2	F2	F2	F2	
12	F3	F1						L1	H1	HL22	HL11	HL12	HL12	LH21	HCL11	HL11	CL31	C5	L4	F3		F1	F2	F1	
13	F1	F1	F1		F2	F1		L1	L2	L2	L2	HL11	HL11	HL21	C2	CH11	CH21	HL21	LL11	F1	F1	F1	F1	F1	
14						F1					H2	H1	H1	H1	LH11	L2	L3	L3	L2	F2	F1	F1	F1		
15										H1	HC11	HC21	HC21	HC21	CC21	C3	C3	HL12	H2		F1	F1	F1		
16										H1	H1	H1						L2	L1	F1	F1	F1			
17										H1	H1		C1	C1	C2	C2	L2	LH21	L1	F3	F1	F1	F1	F1	
18					F2	F2	L2				C1	C1	C1	C1	C2	CL12	CL22	L3	L2		F1		F1	F1	
19						F1						L1	L1	L1	L2	L1	L1	L2	HL11	F1				F1	
20											H1	H1	H2	H2	C3	C2	C3	C4	L1		F1				
21	F1							L1	L1		H1	H2	H1	H2	LHH11	C2	C2	C3	L4	F1				F1	
22	F1			F1	F1										H1	H1			H1				F3	F2	
23	F2	F2	F1	F1	F2	F2	F2		C2	C1	HC12	C1	C1	H1	H1	H1	C1	C3	L1				F4		
24			F2	F1					L2	L1	L2							L4	L4	F1	F1	F1			
25						F1				H1					H1	H1	H1	H2	HL11	F1	F3	F1	F1	F1	
26						F2	L1		L1	HL21	HL12	HL11	H1	H2	C1	CL22	CL21	C4	L4	F3	F1				
27	F1	F1	F1	F1									H1	H1	C1	C1	C1	C4	L2					F3	
28	F3	F1	F1		F1		F1	L1		L2	L2	L1	L1	L1	HL12	HL11	LL11	L1		F1		F1		F6	
29																									
30																									
31																									
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	
CNT																									
MED																									
UQ																									
LQ																									

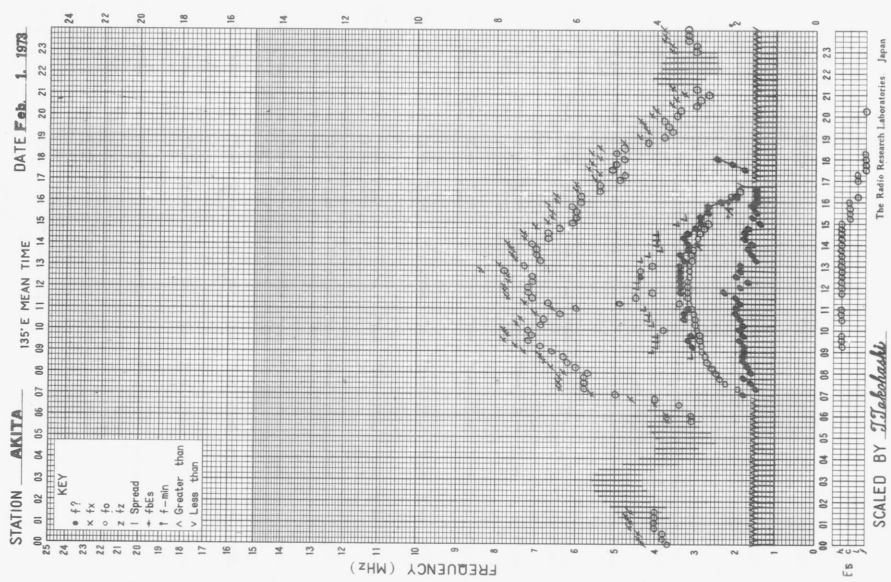
FEB. 1973

TYPES OF ES

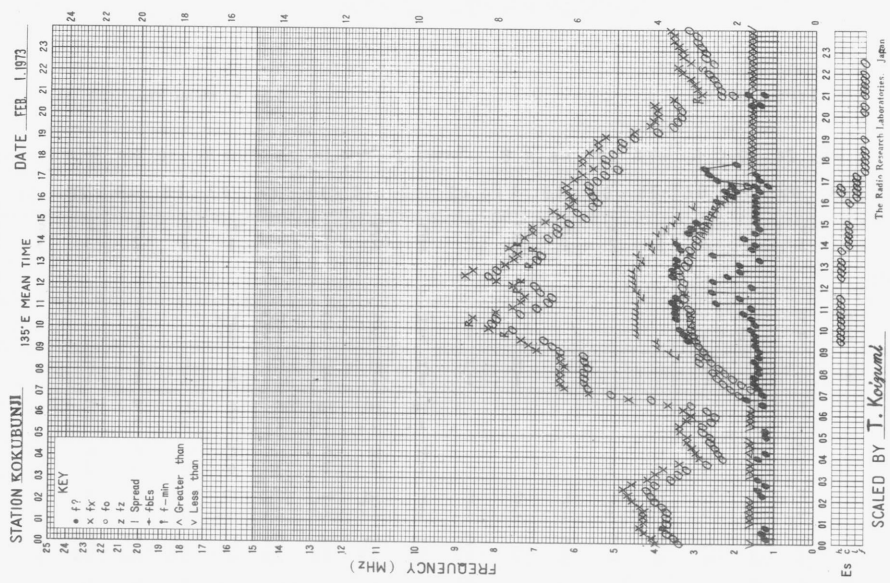
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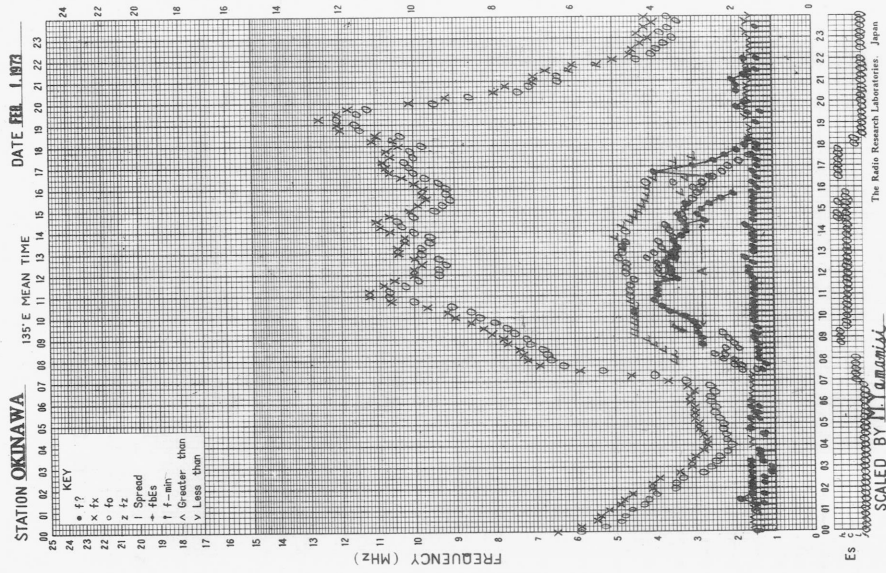
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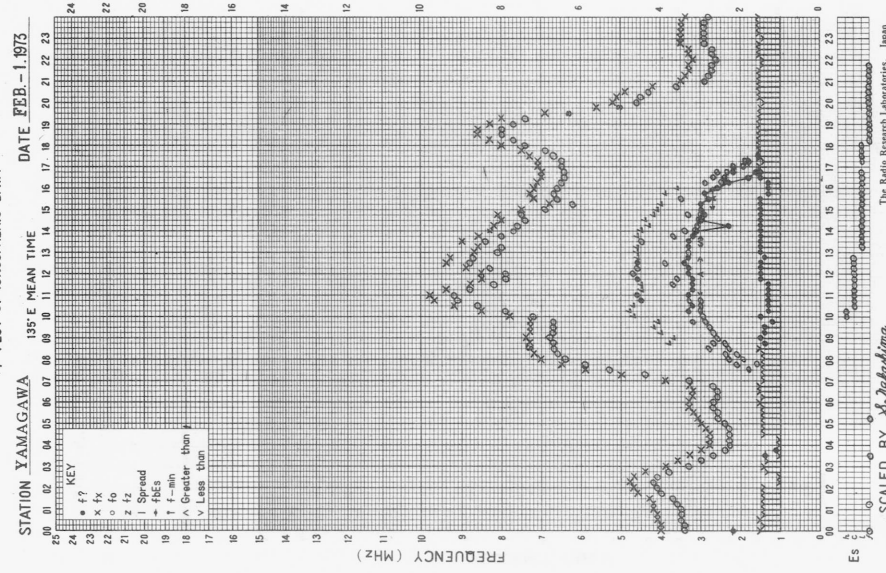
f-PLOT OF IONOSPHERIC DATA



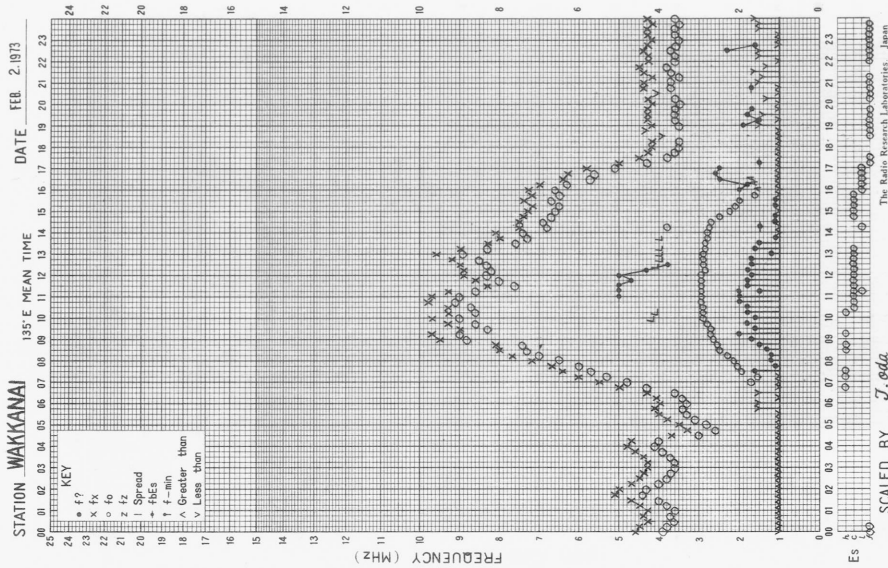
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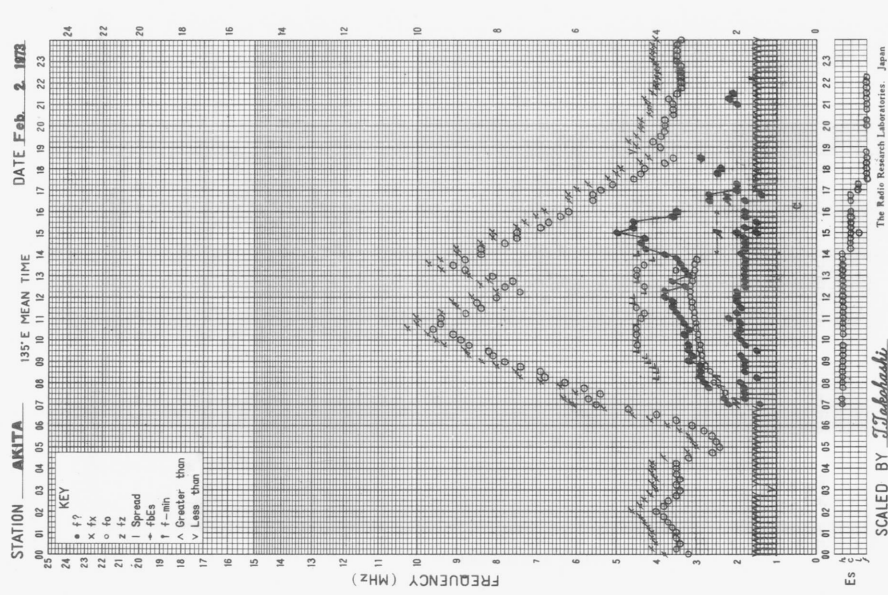
f-PLOT OF IONOSPHERIC DATA



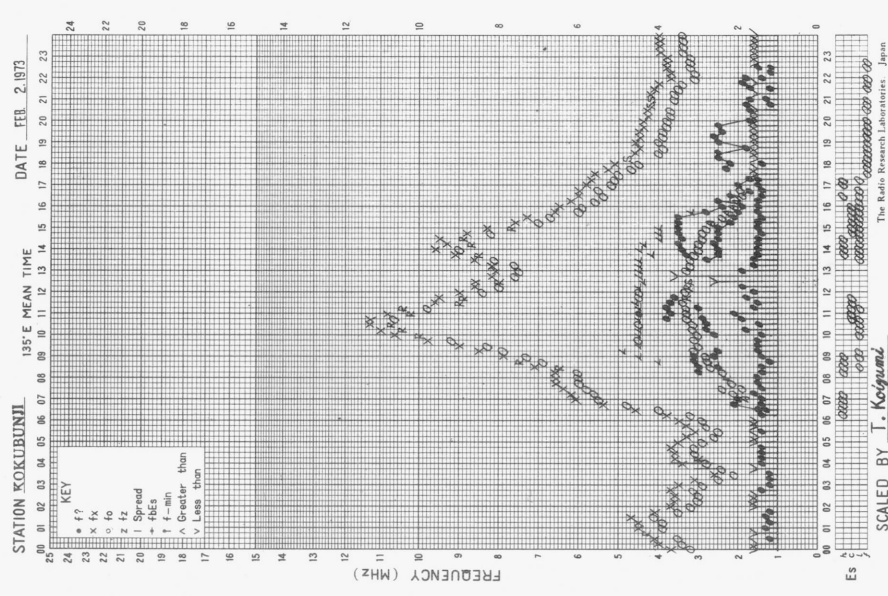
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f-plot of IONOSPHERIC DATA

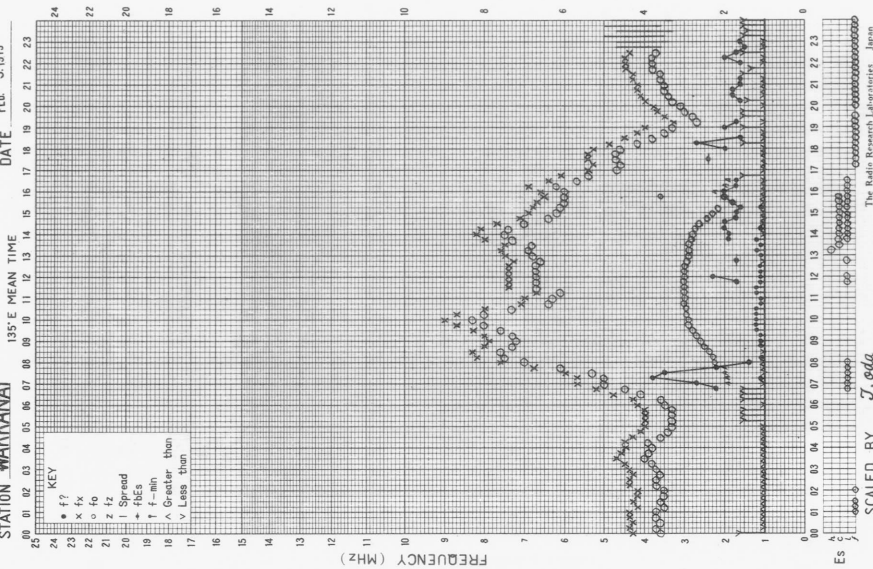


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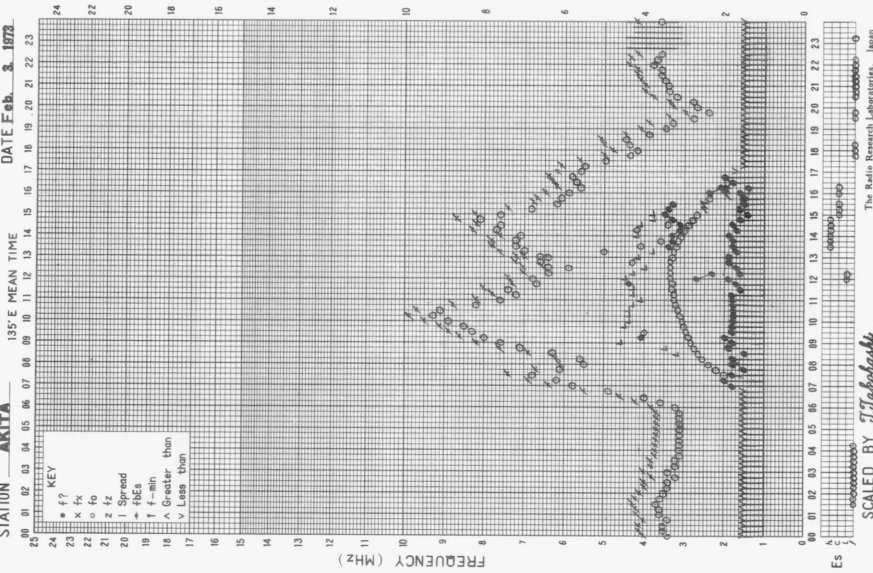
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STATION WAKKANAI DATE FEB 3, 1973



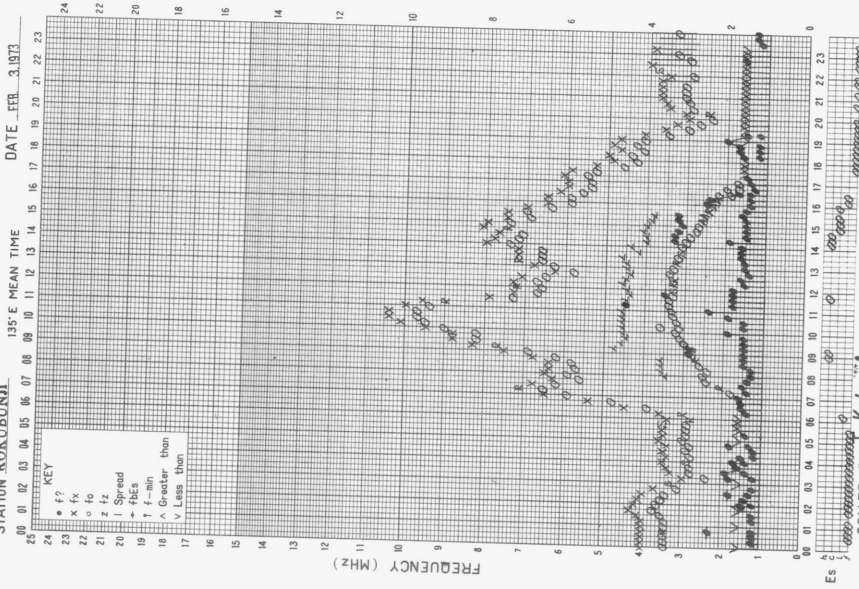
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STATION AKITA DATE Feb. 3, 1973



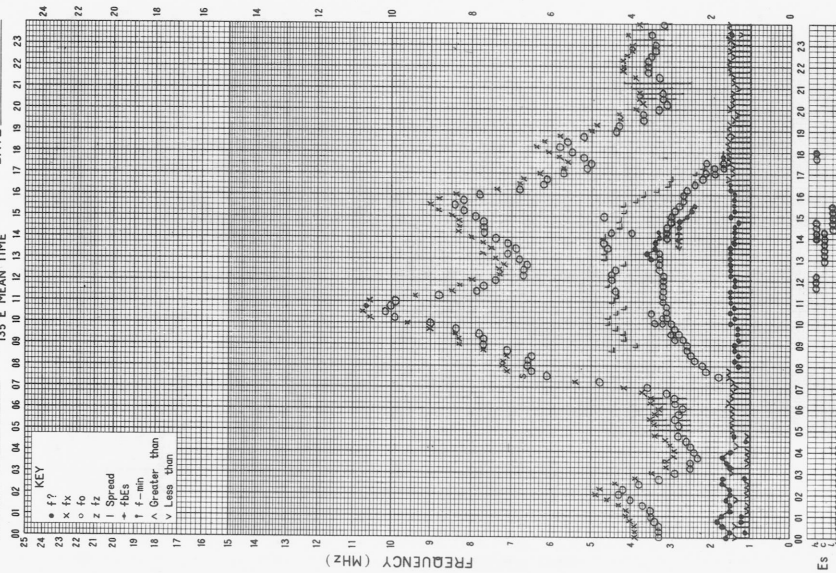
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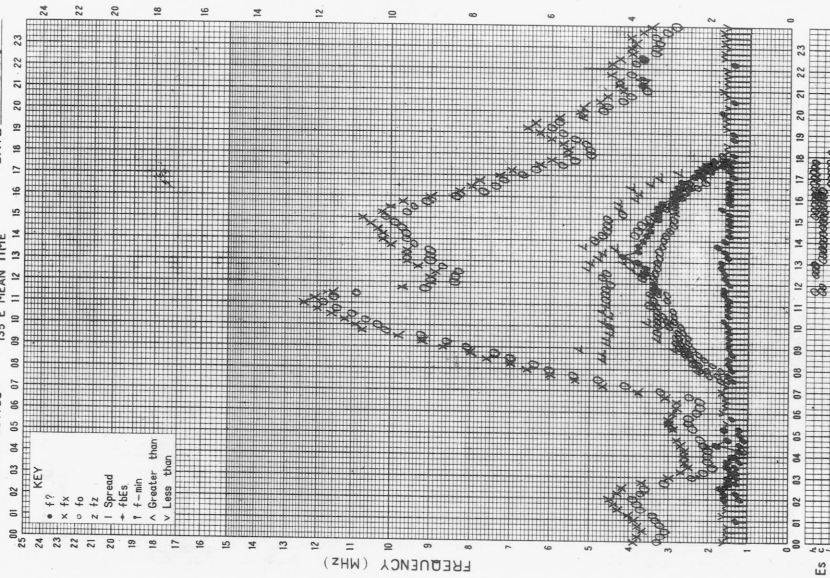
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STATION YAMAGAWA 135°E MEAN TIME DATE FEB - 3, 1973

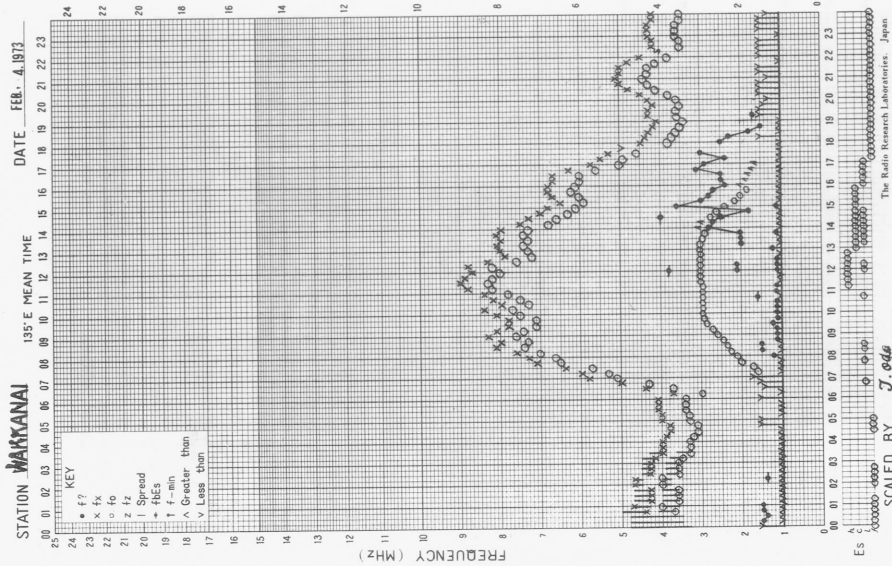


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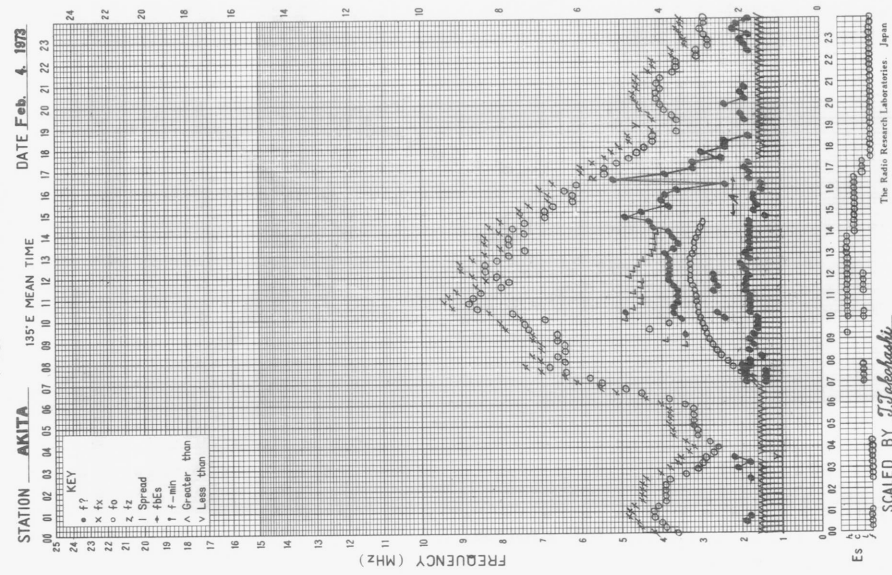
STATION OKINAWA 135°E MEAN TIME DATE FEB 3, 1973



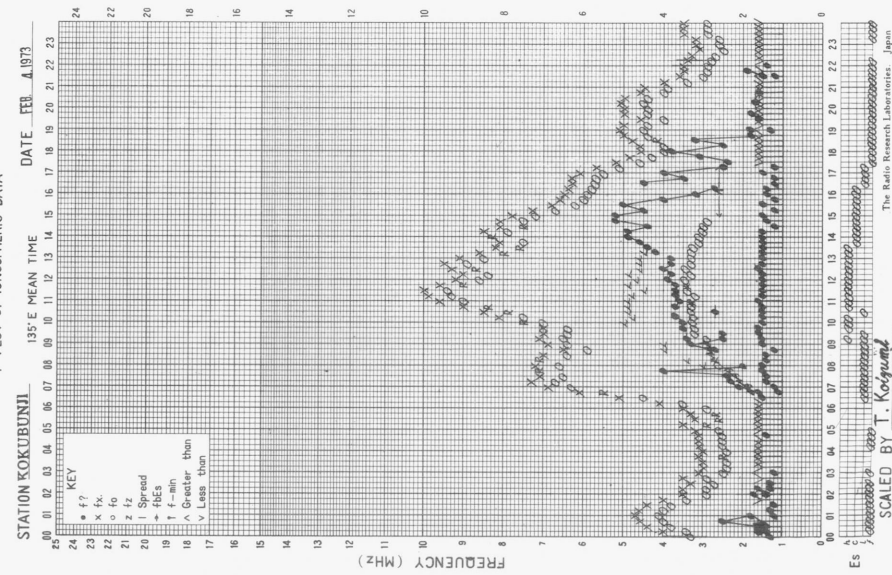
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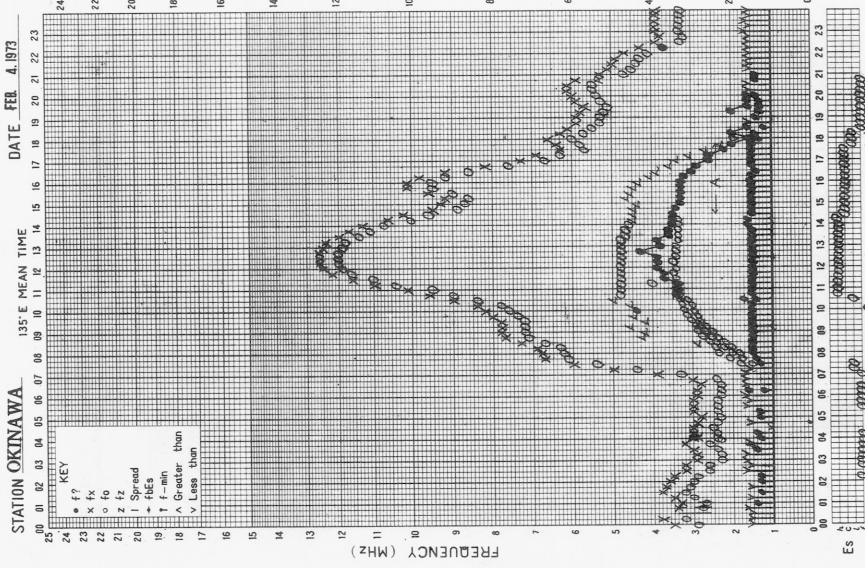
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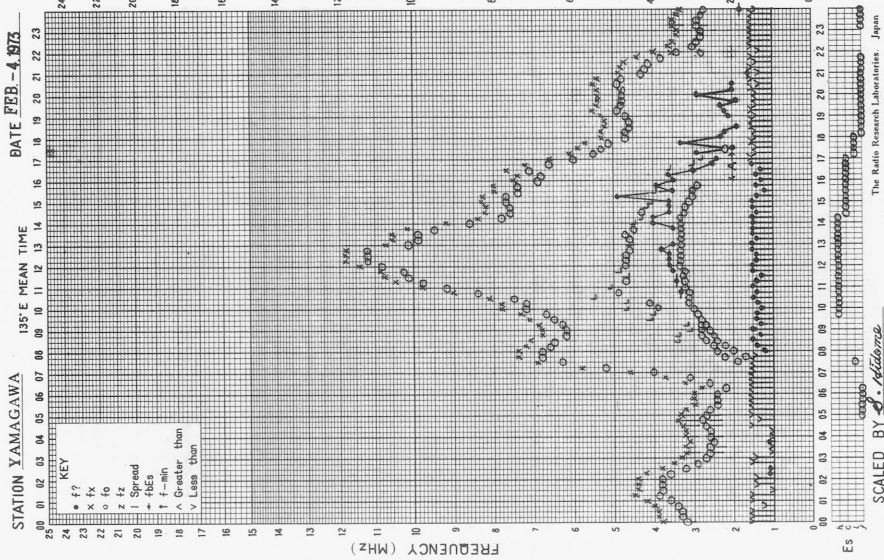
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f-PLOT OF IONOSPHERIC DATA

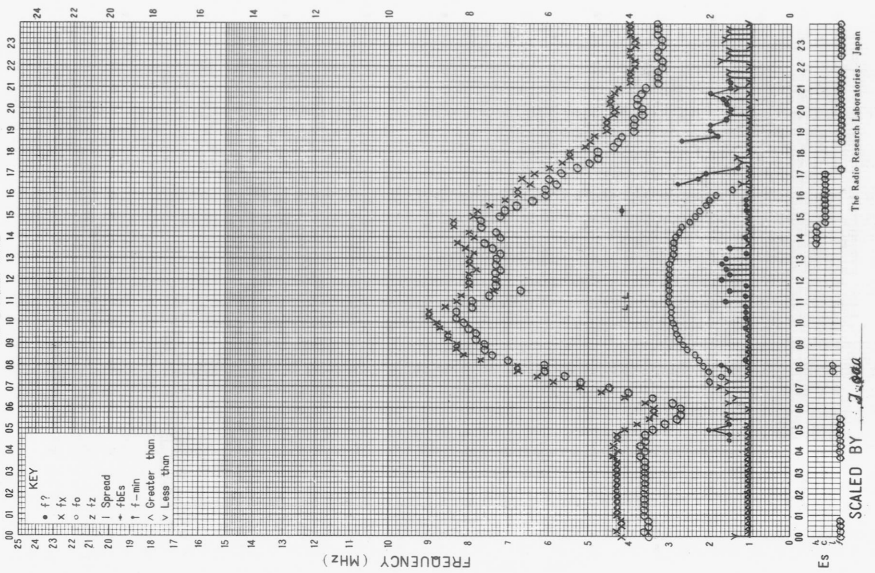


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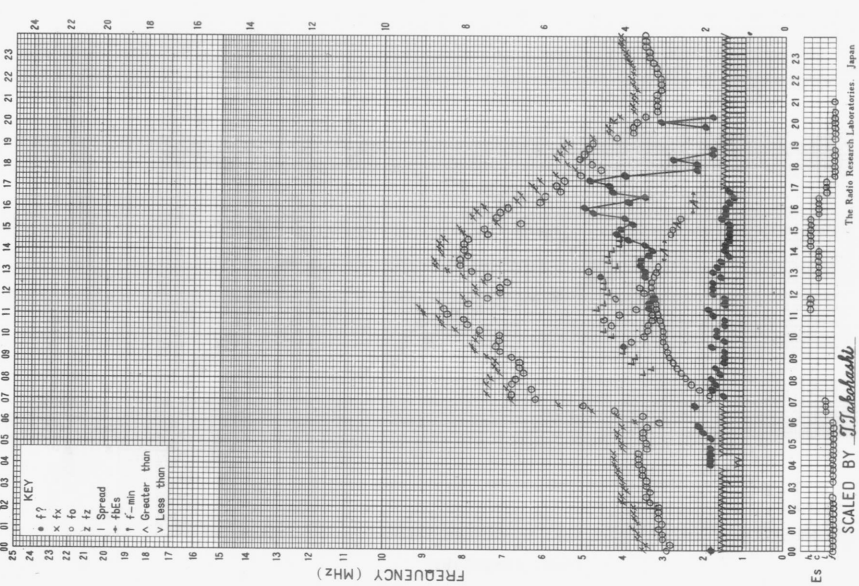
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STATION **WAKKANAI** DATE FEB. 5, 1973



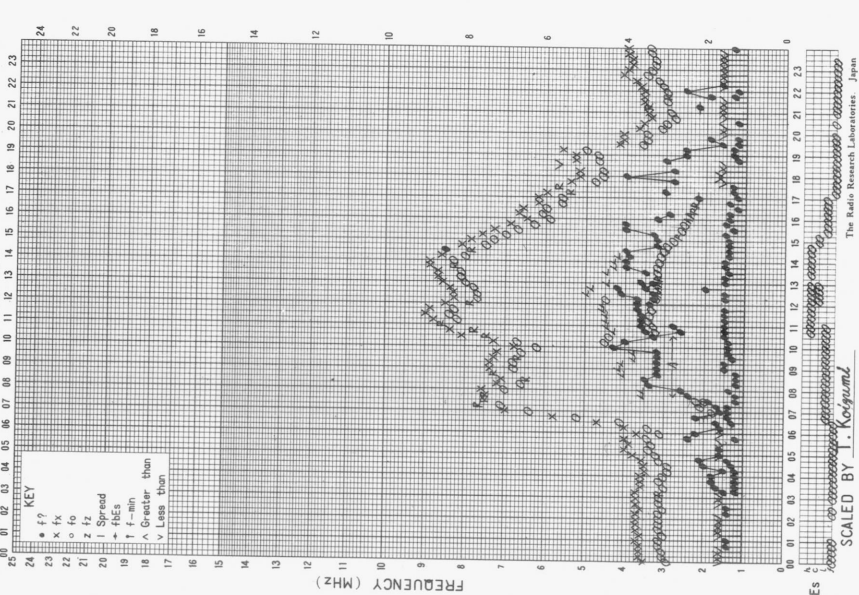
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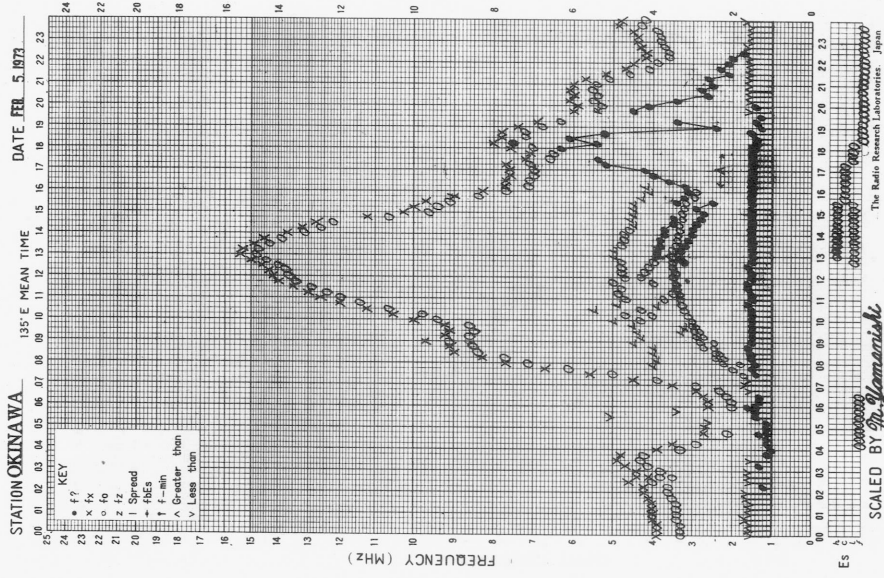


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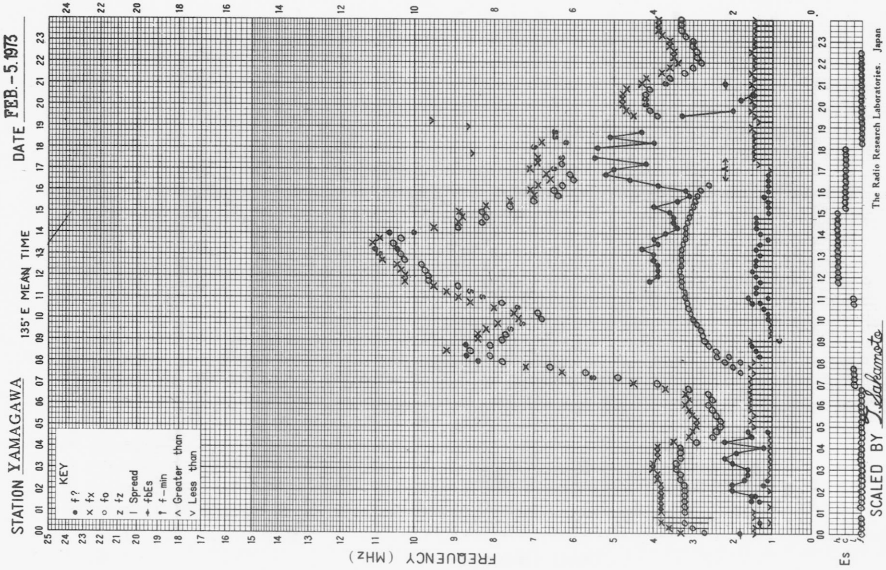
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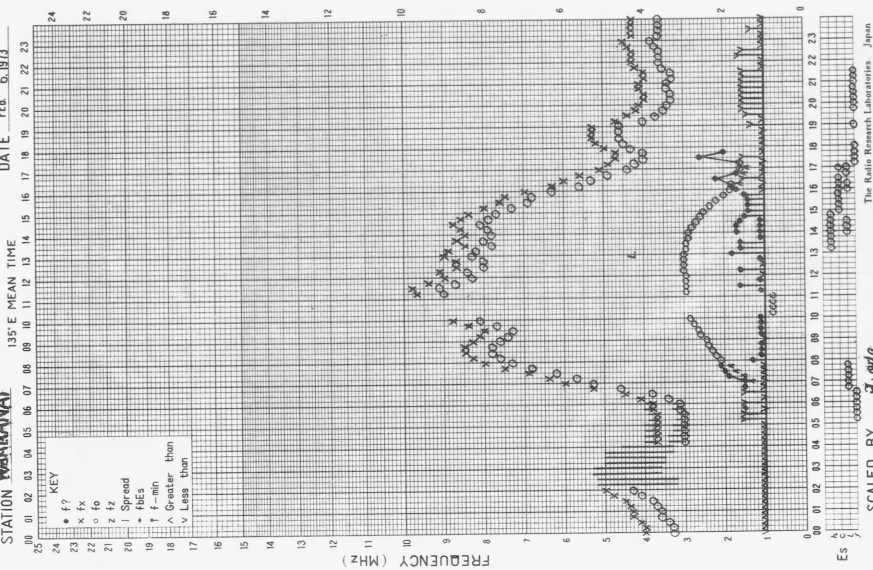


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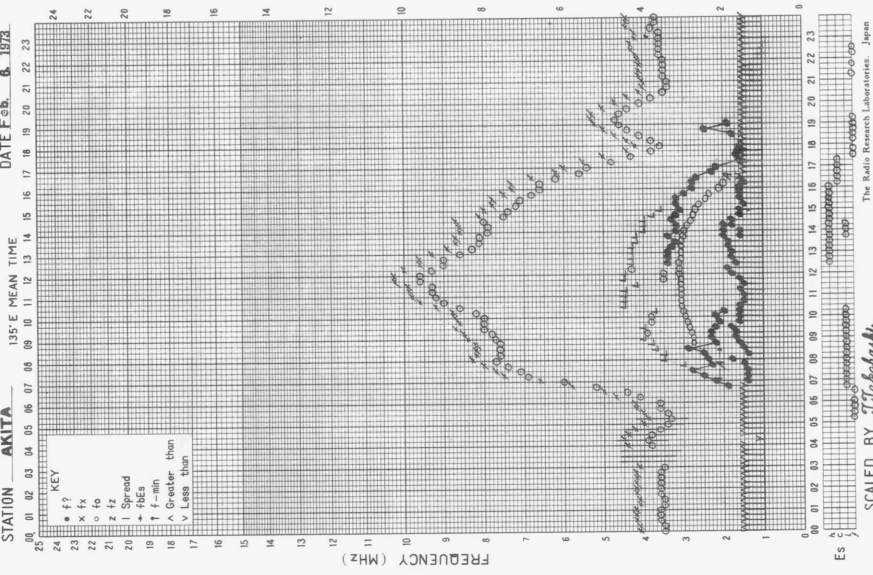
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STATION WAKKANAI DATE FEB. 6. 1973



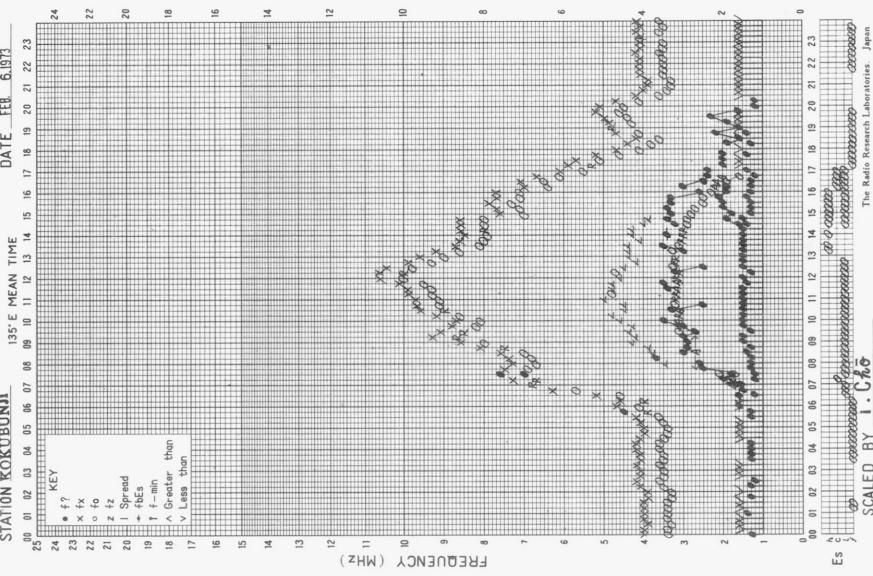
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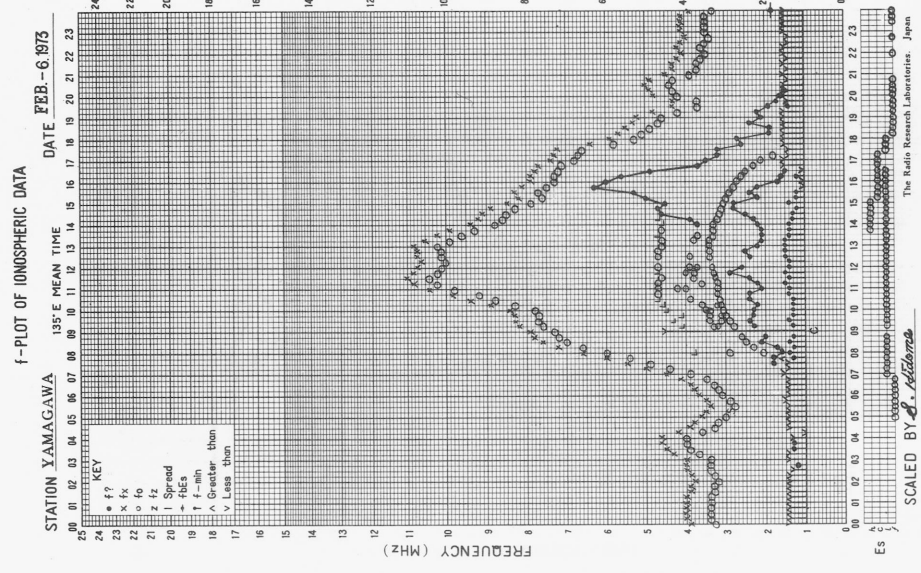
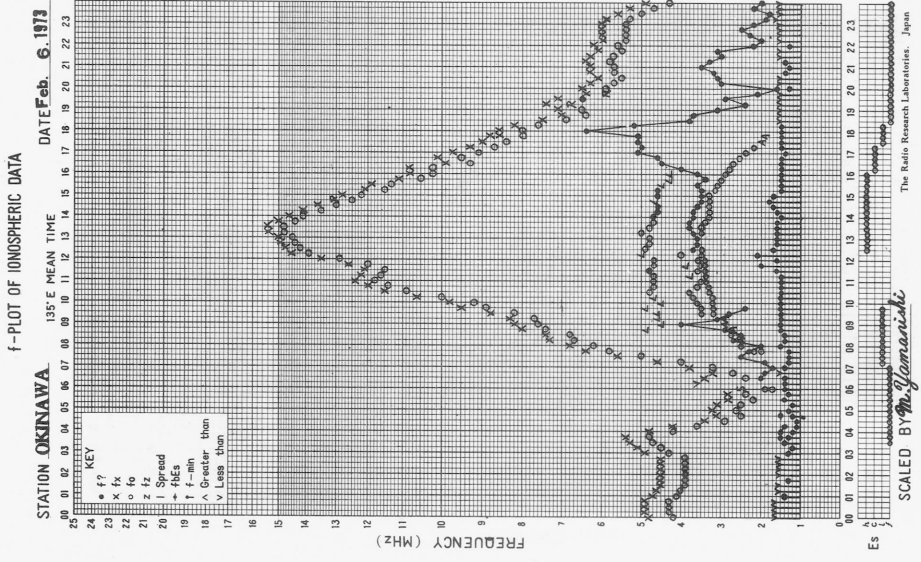
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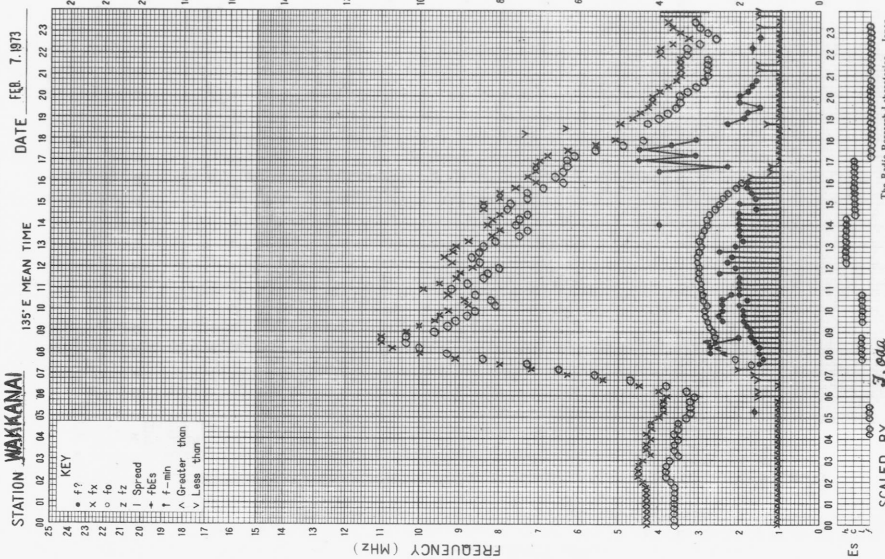
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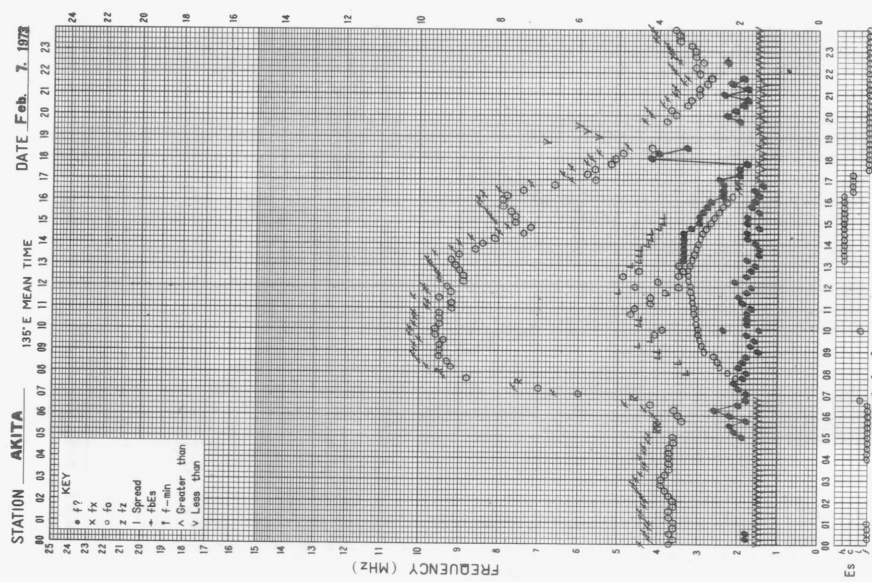




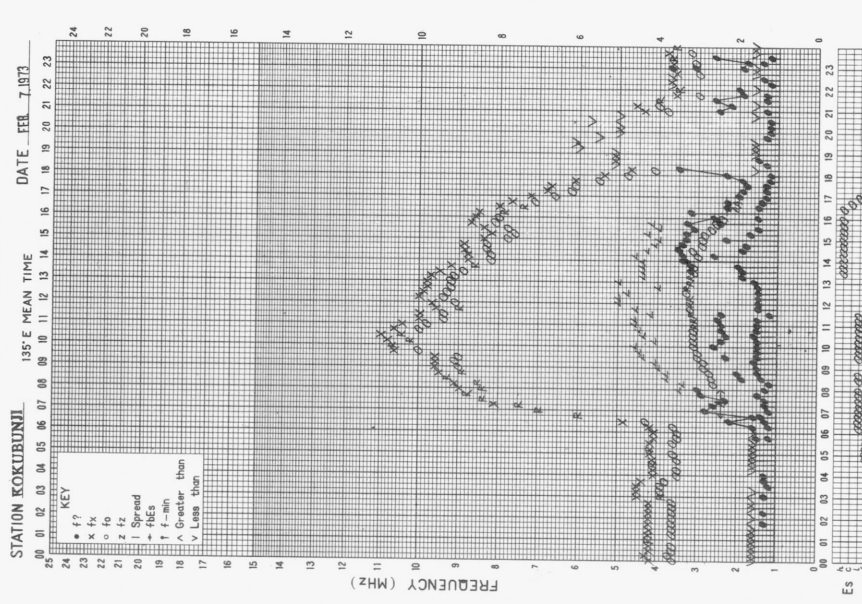
f-plot of IONOSPHERIC DATA



f-plot of IONOSPHERIC DATA



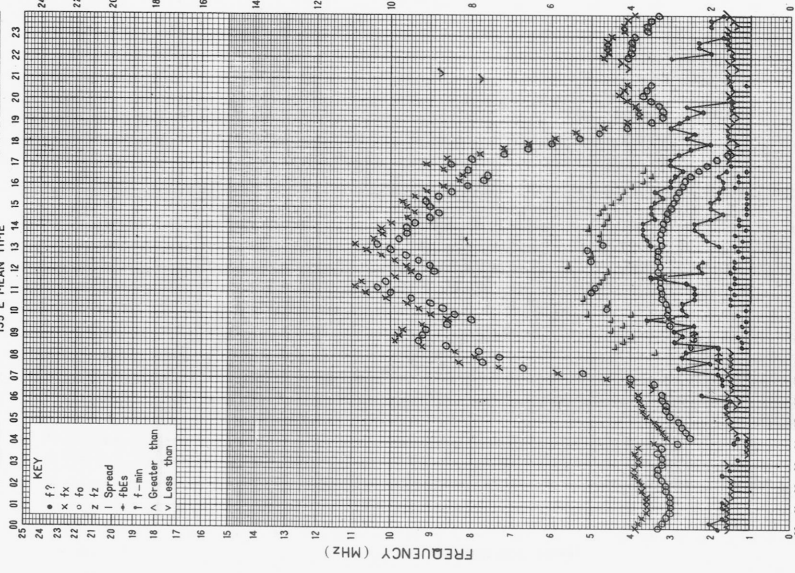
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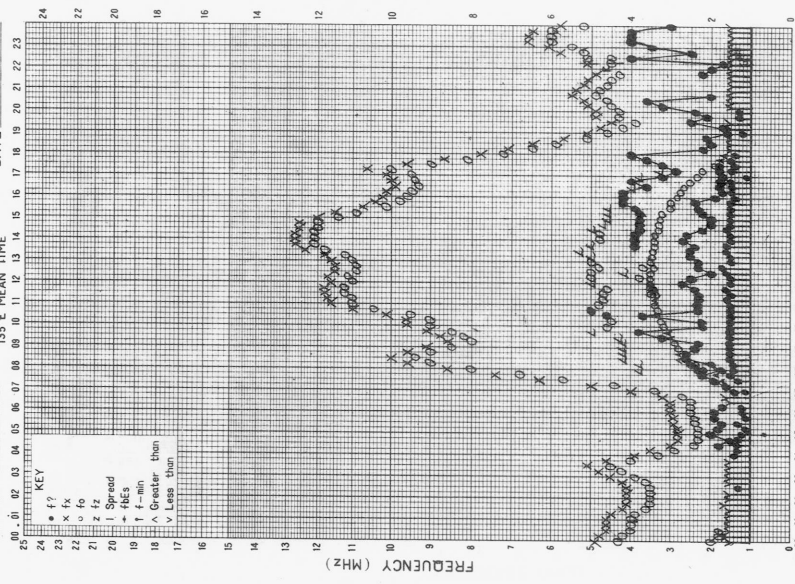
STATION YAMAGAWA DATE FEB - 7 1973

STATION OKINAWA DATE FEB 7 1973



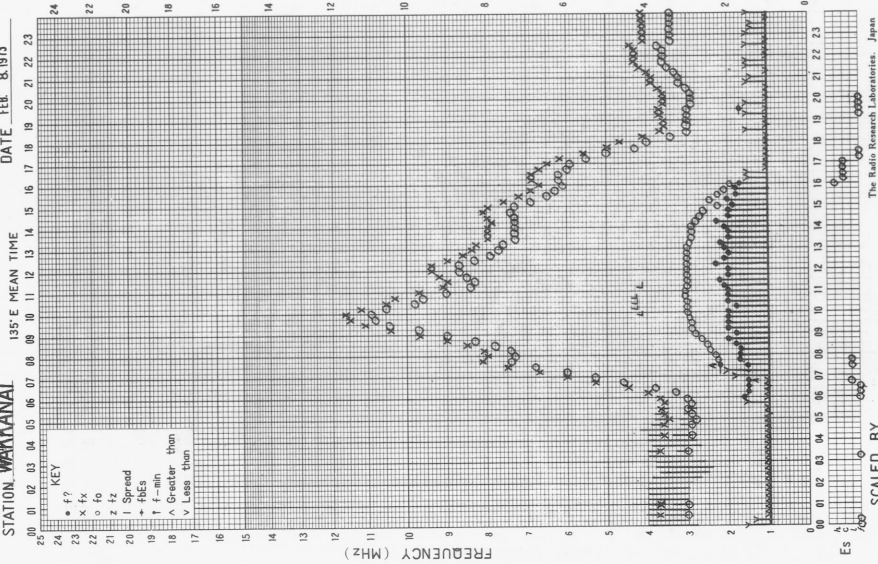
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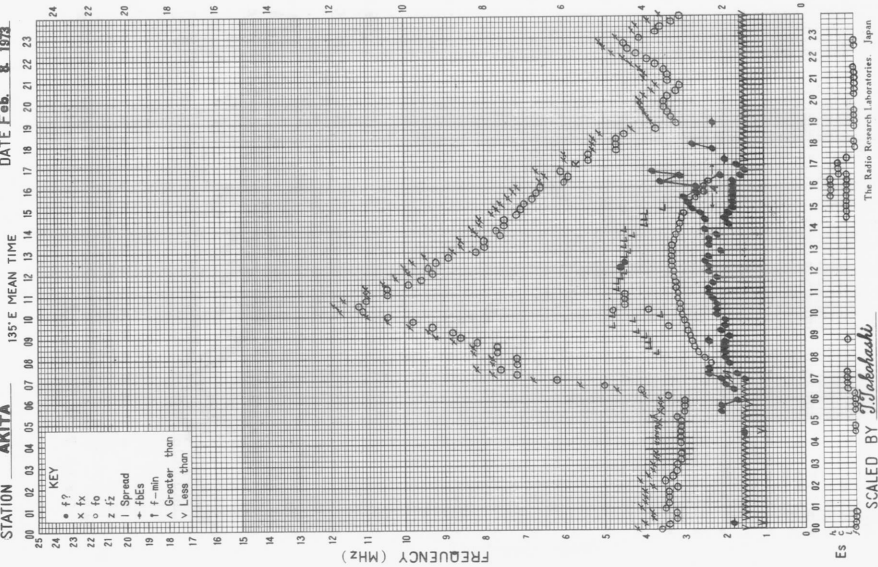
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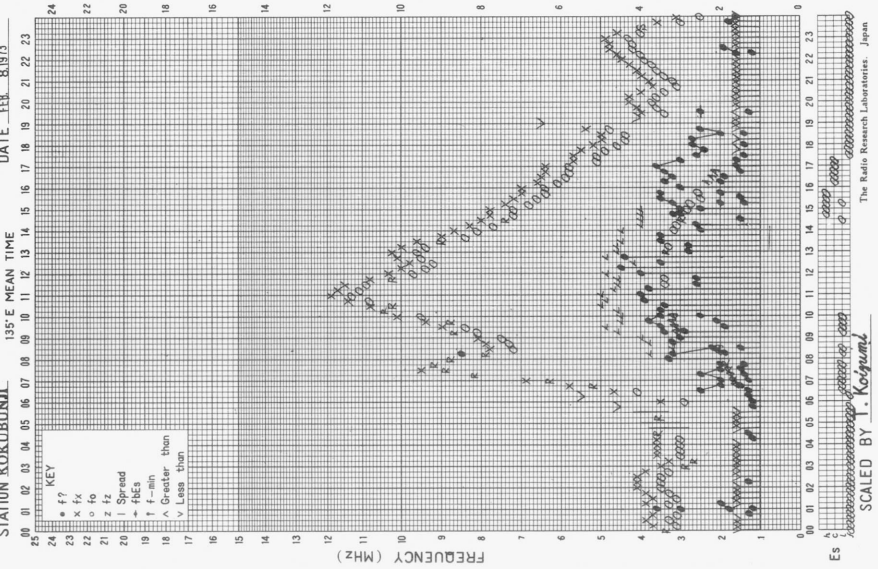
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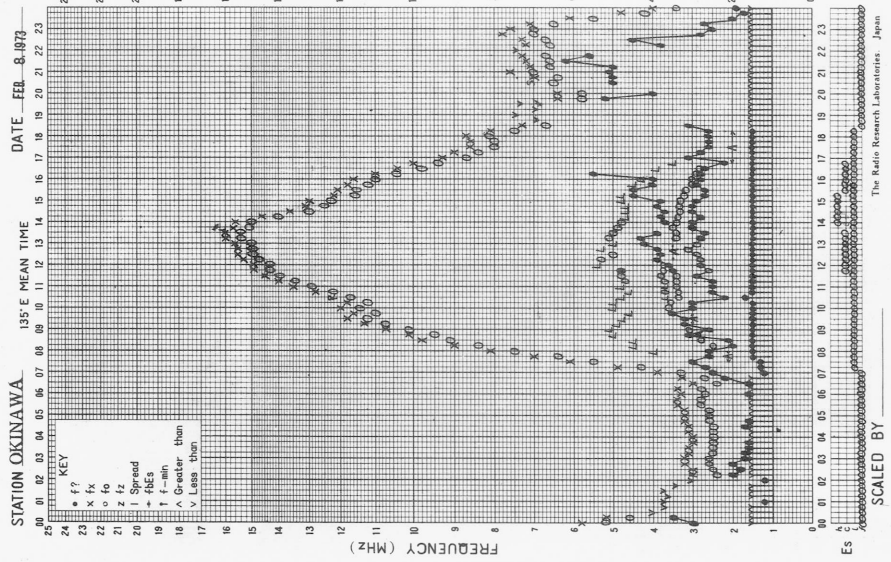


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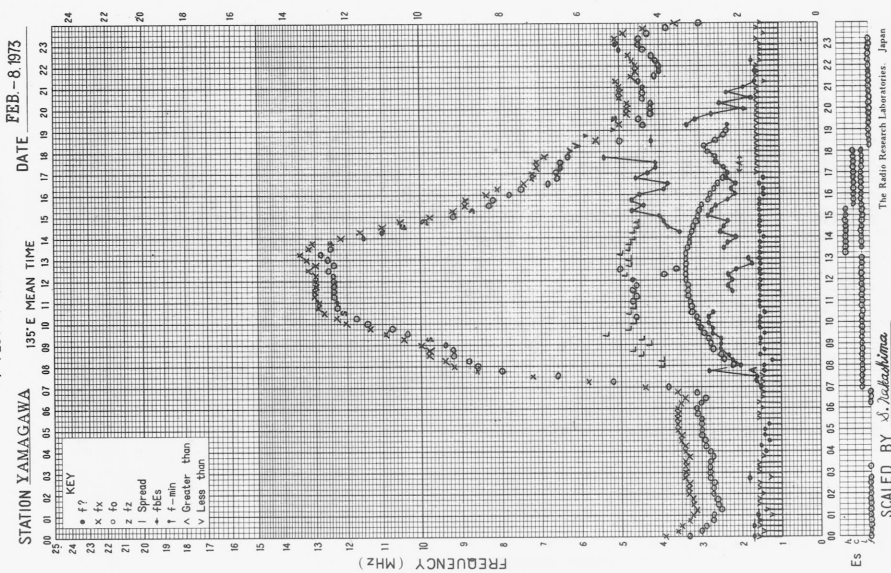
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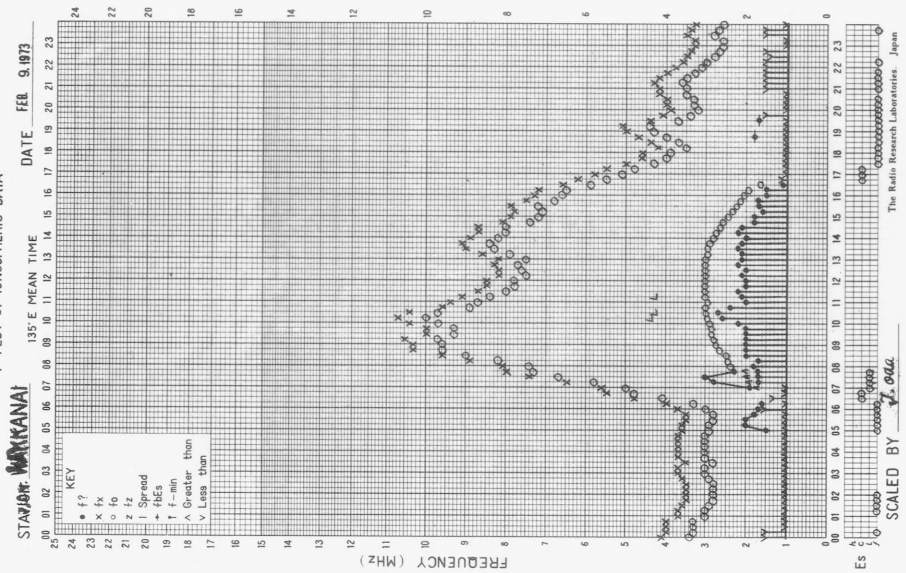
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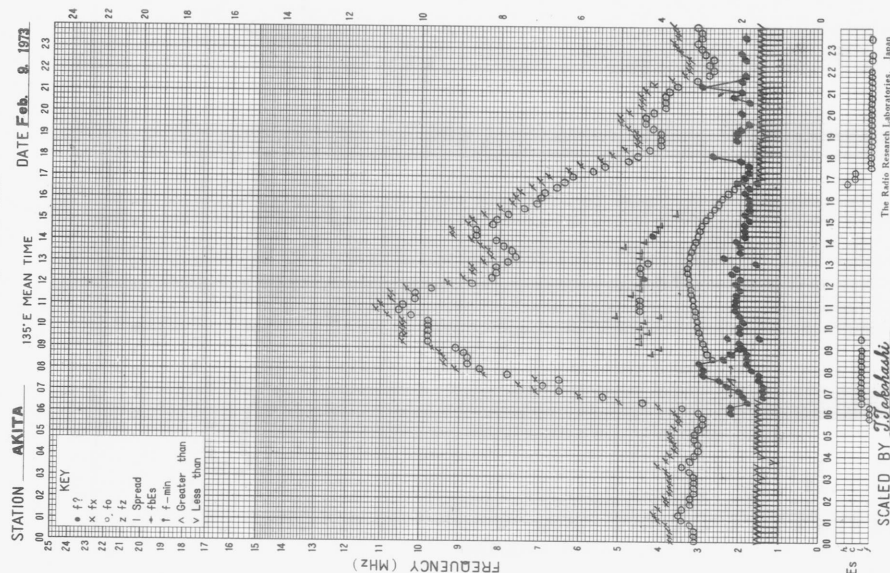
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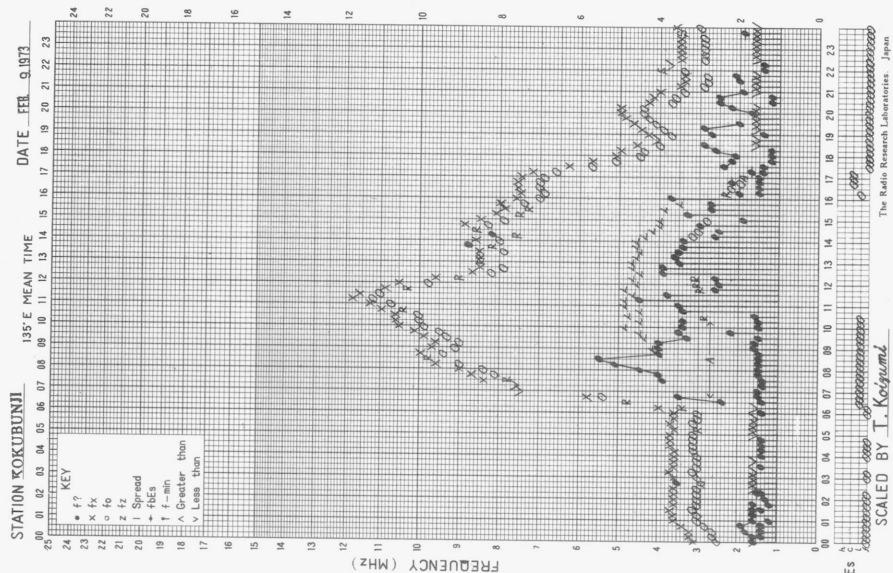
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f-PLOT OF IONOSPHERIC DATA



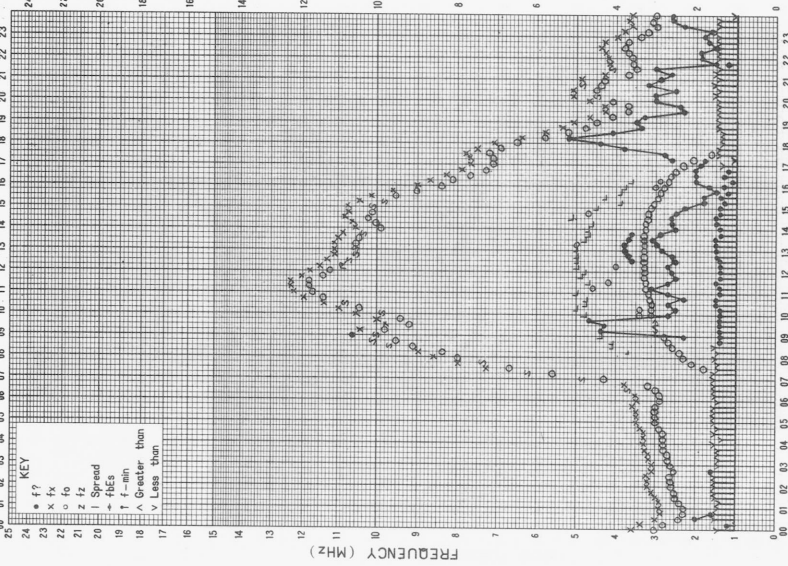
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STATION YAMAGAWA DATE FEB - 9 1973

135°E MEAN TIME

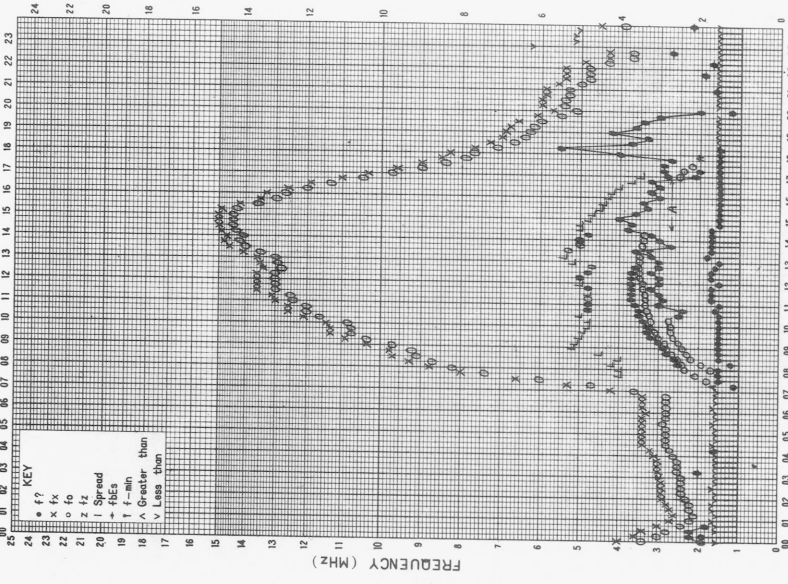


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SCALED BY AKiyama
The Radio Research Laboratories, Japan

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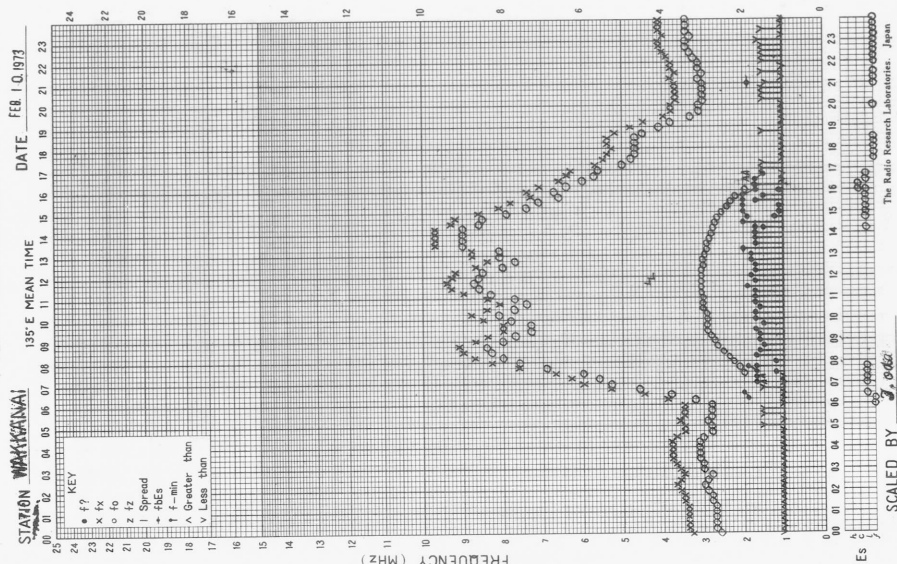
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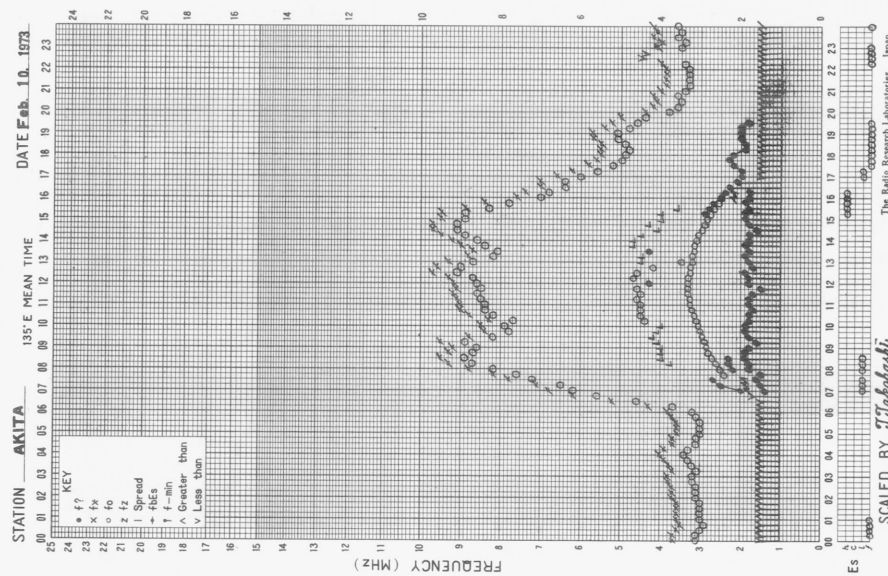


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The Radio Research Laboratories, Japan

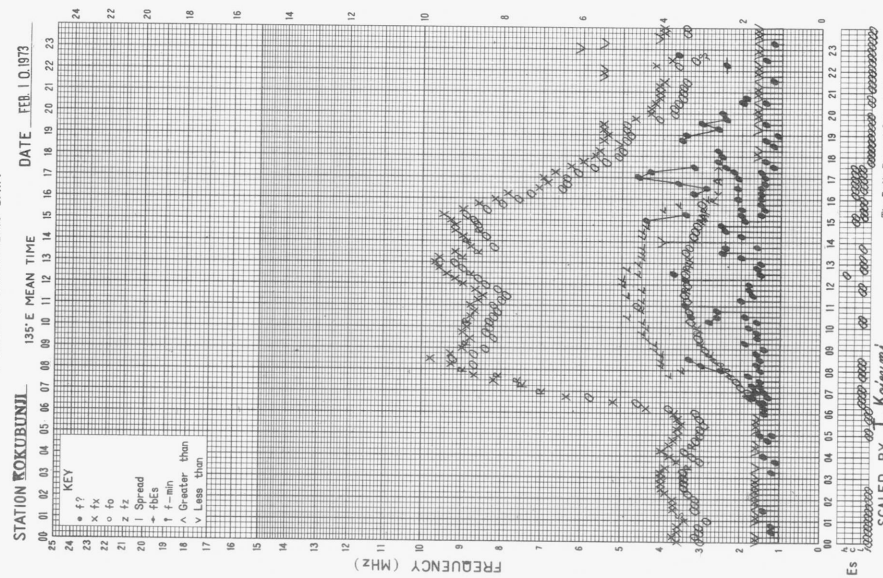
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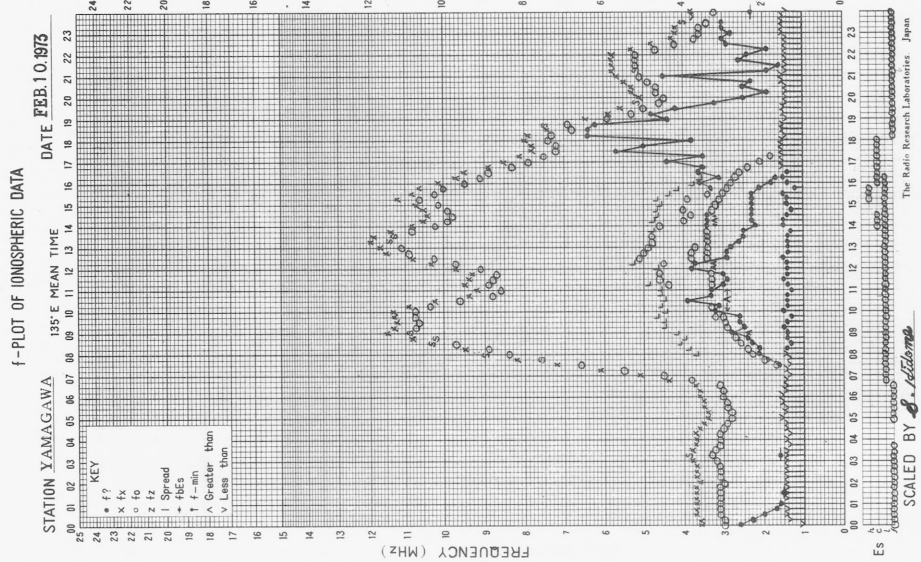
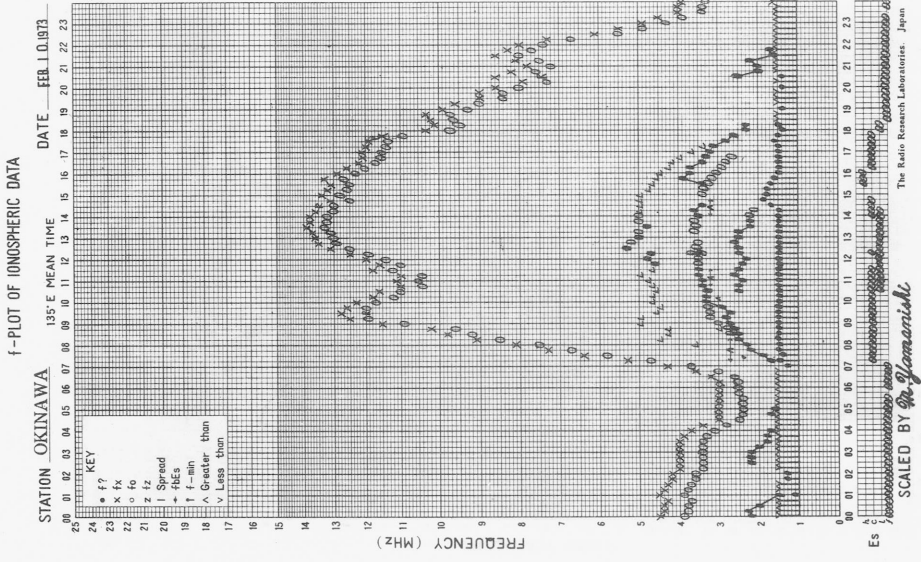


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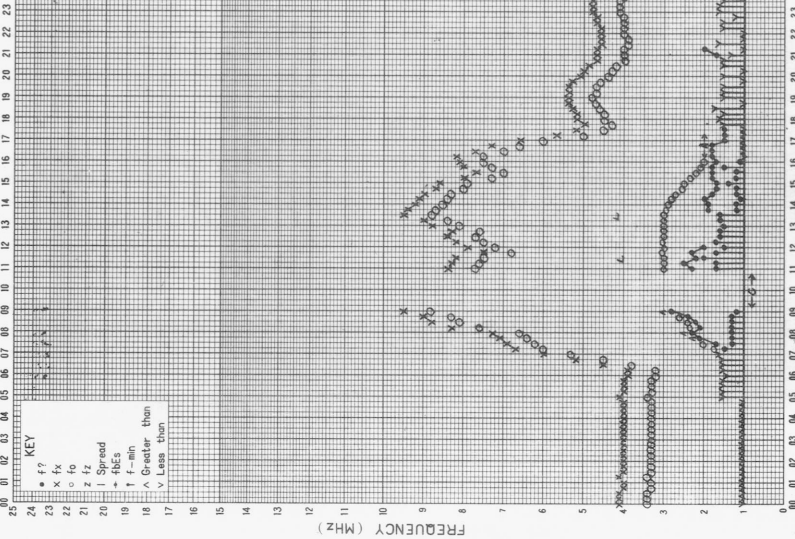




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STATION **WAKKANAI** DATE FEB. 11, 1973

135°E MEAN TIME

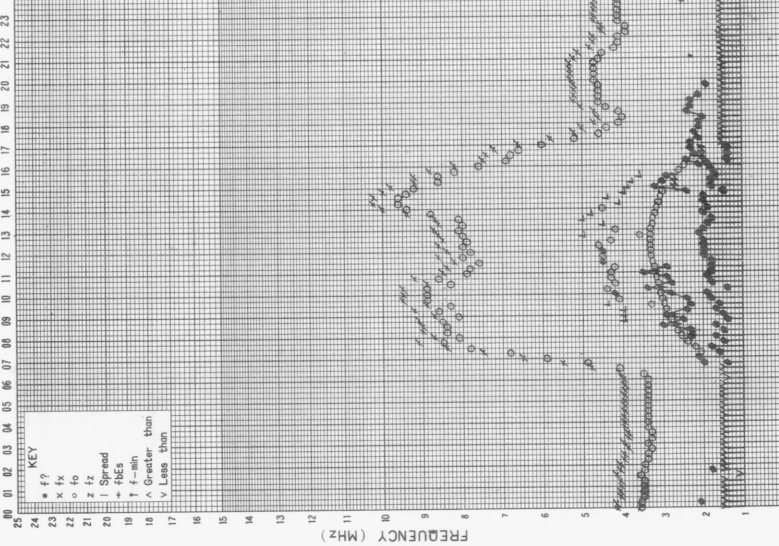


Es
The Radio Research Laboratories, Japan
SCALED BY **J. Oda**

f-PLOT OF IONOSPHERIC DATA

STATION **AKITA** DATE Feb. 11, 1973

135°E MEAN TIME

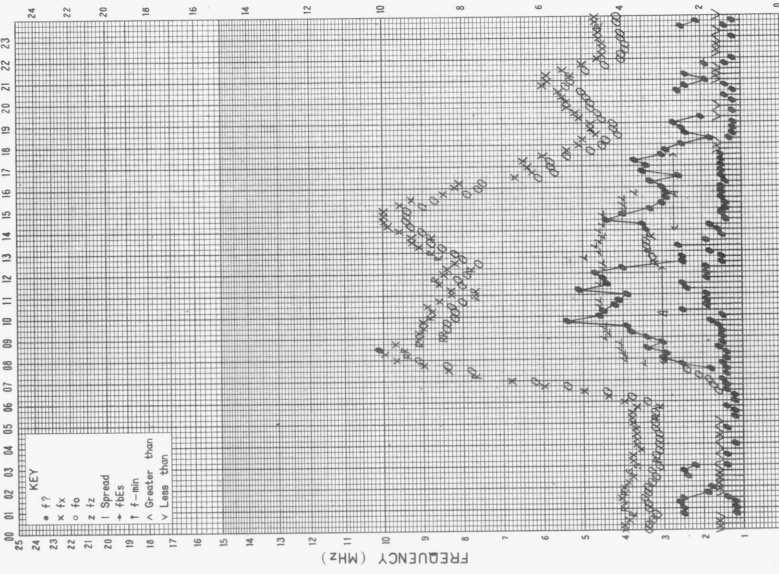


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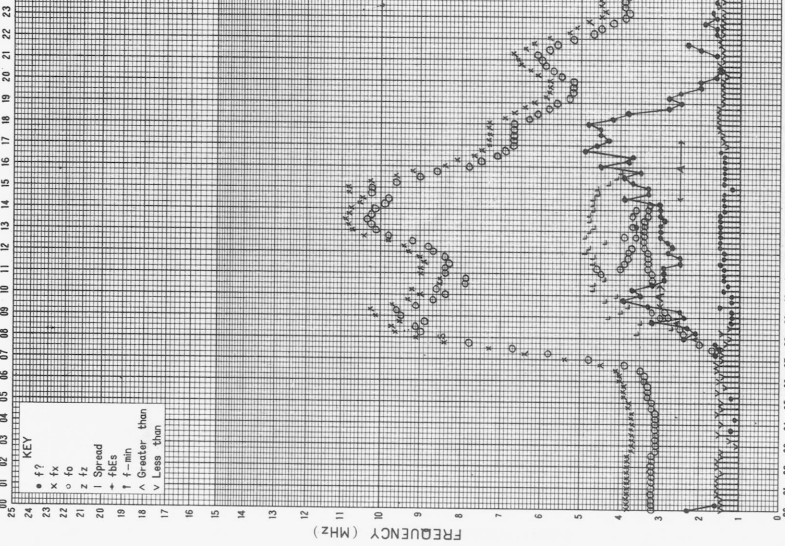


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SCALED BY **T. Kojima**

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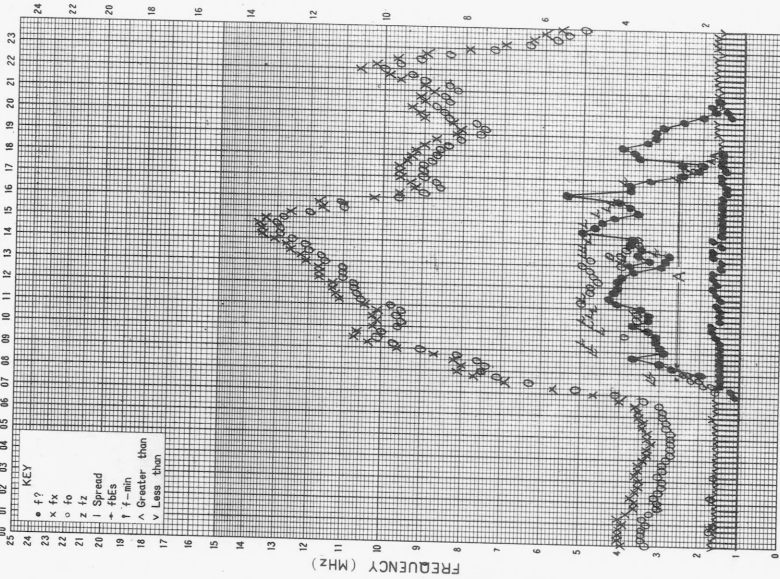


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SCALED BY S. Nakano
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION OKINAWA DATE FEB 11 1973

135°E MEAN TIME



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SCALED BY M. Yamamoto
The Radio Research Laboratories, Japan

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STATION **MATSANAI** DATE FEB. 12, 1973

135°E MEAN TIME

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f-PLOT OF IONOSPHERIC DATA

STATION **AKITA** DATE Feb. 12, 1973

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f-PLOT OF IONOSPHERIC DATA

STATION **KOKUBUNJI** DATE FEB. 12, 1973

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SCALED BY **I. C. G**

The Radio Research Laboratories, Japan

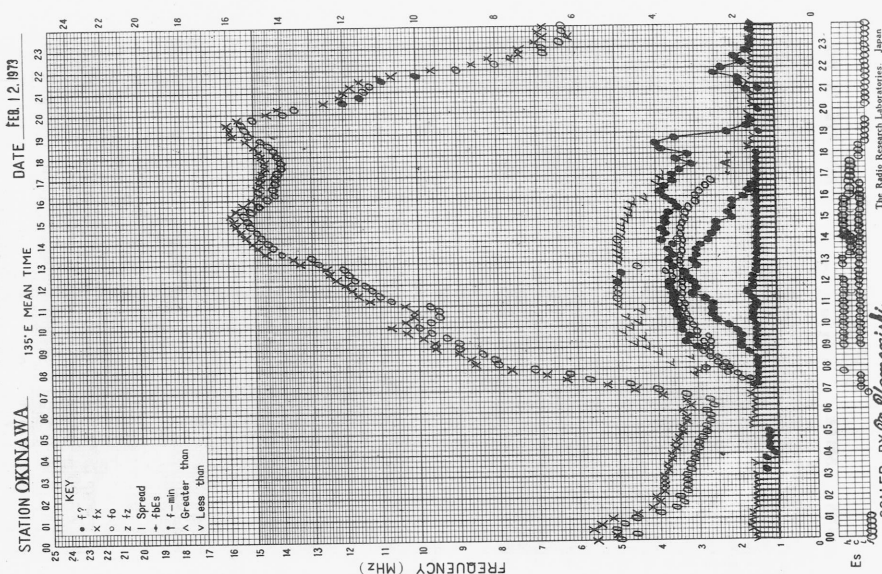
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The Radio Research Laboratories, Japan

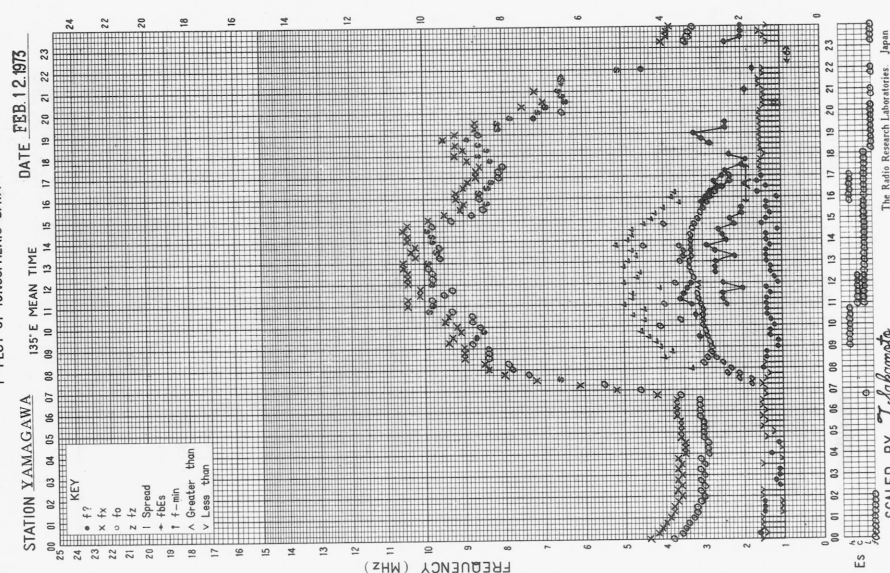
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The Radio Research Laboratories, Japan

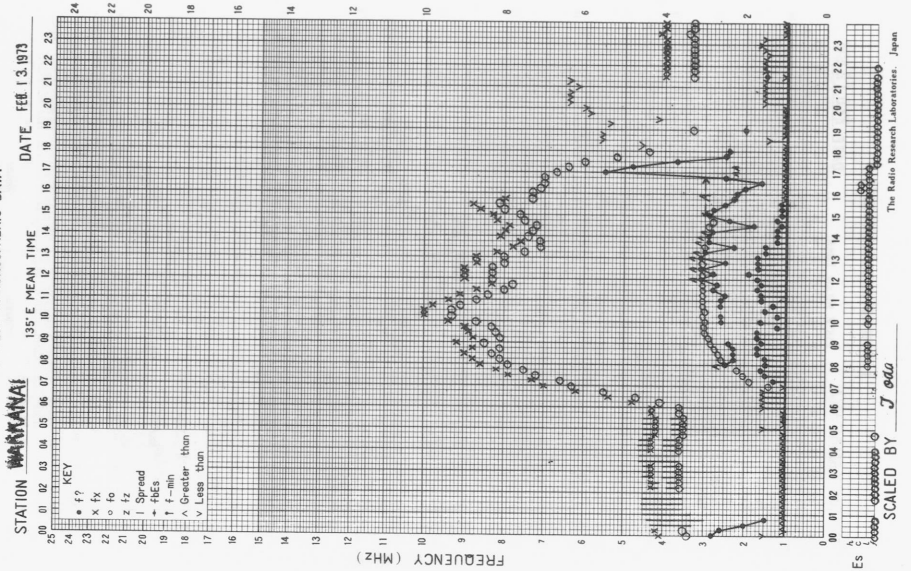
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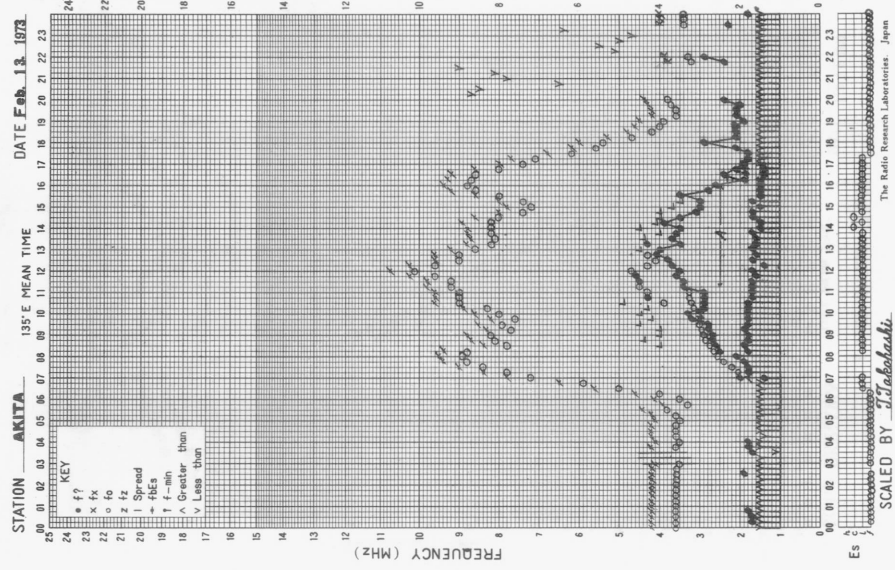
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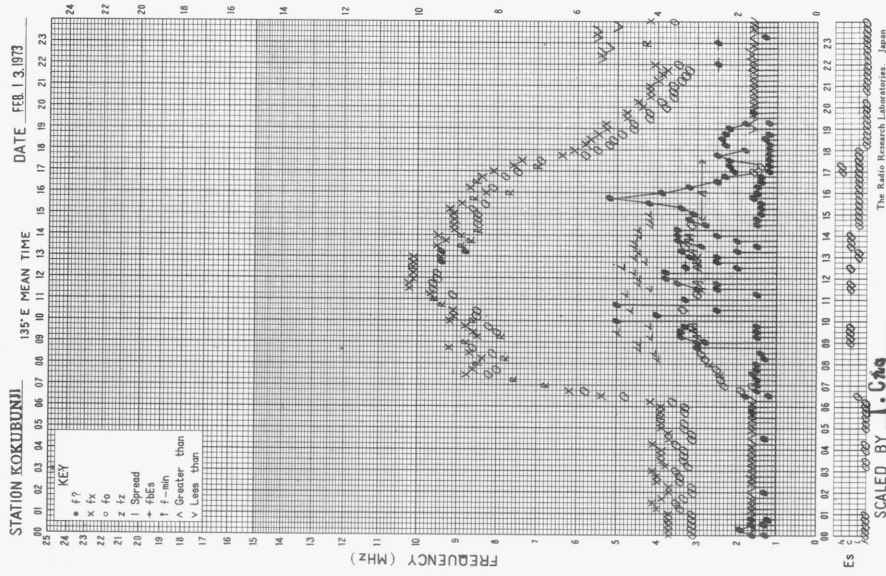
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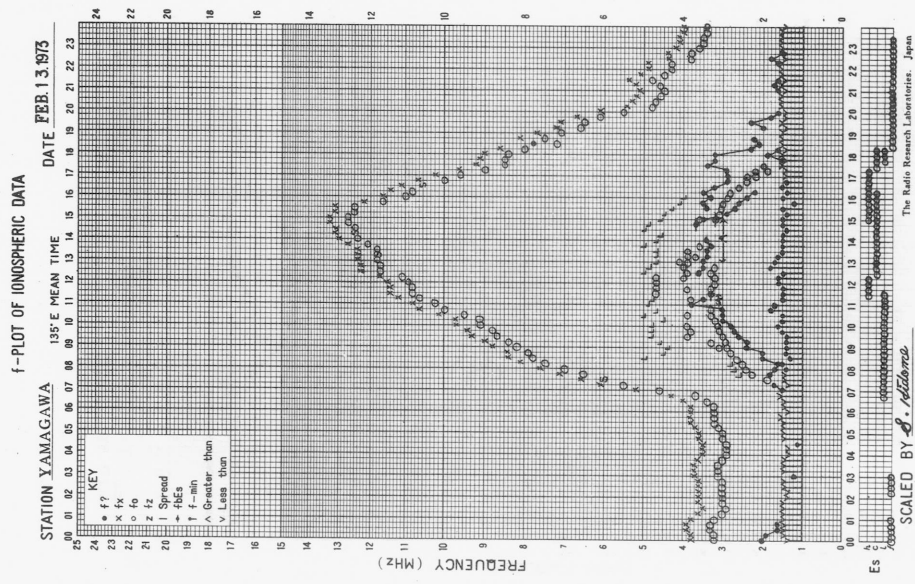
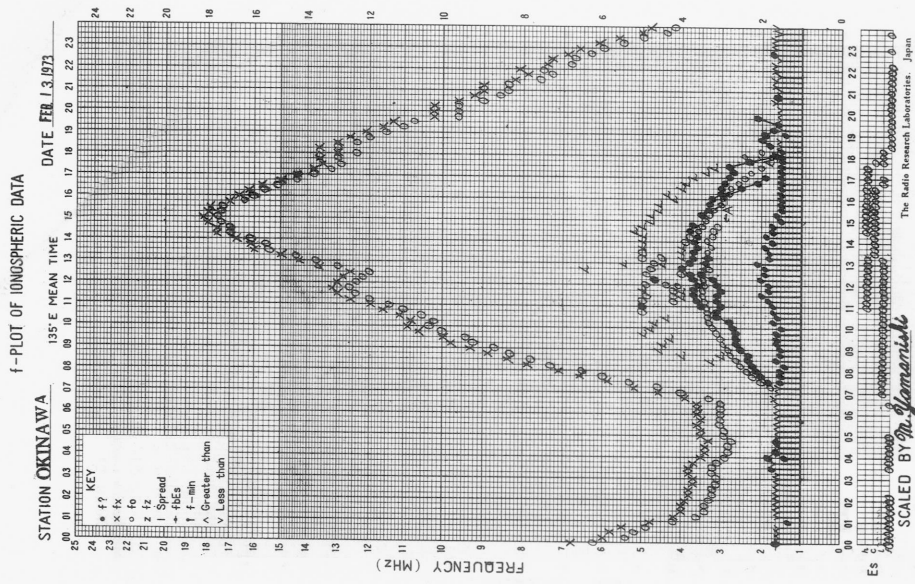


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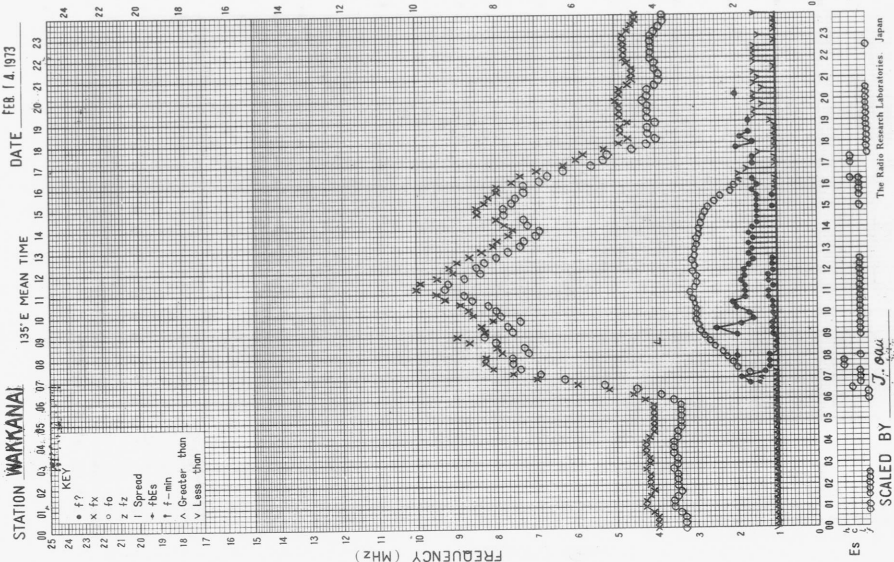


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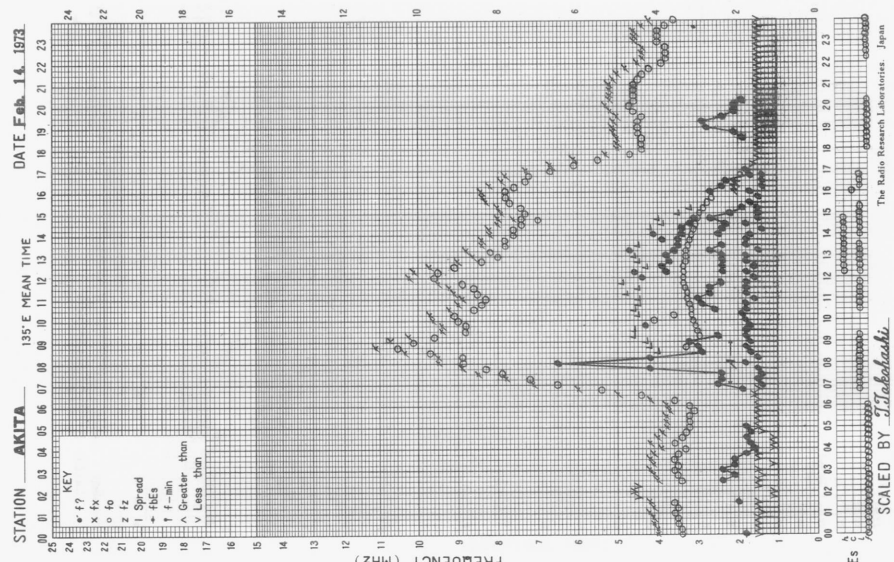




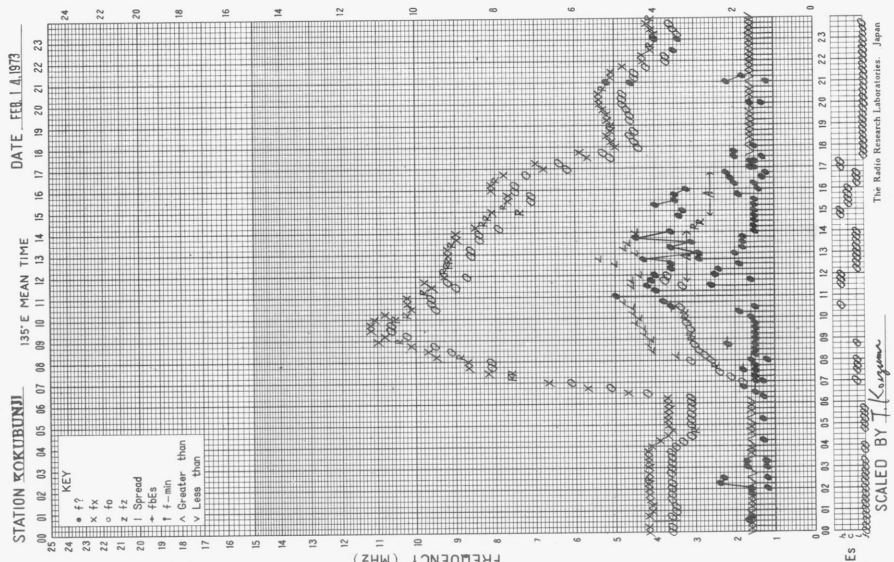
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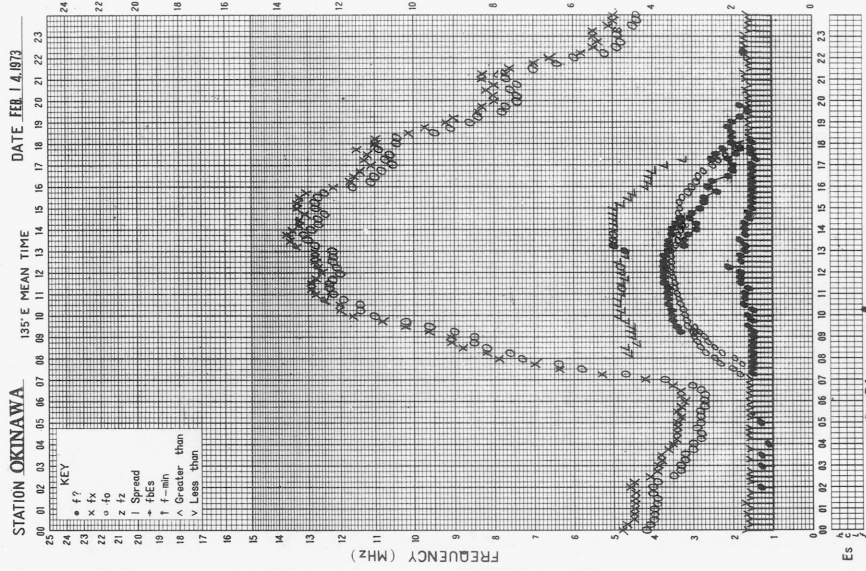
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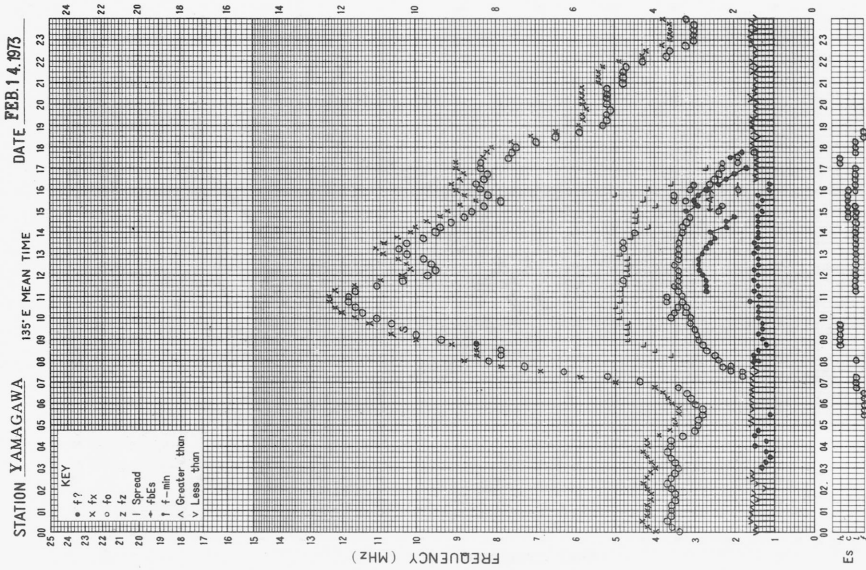
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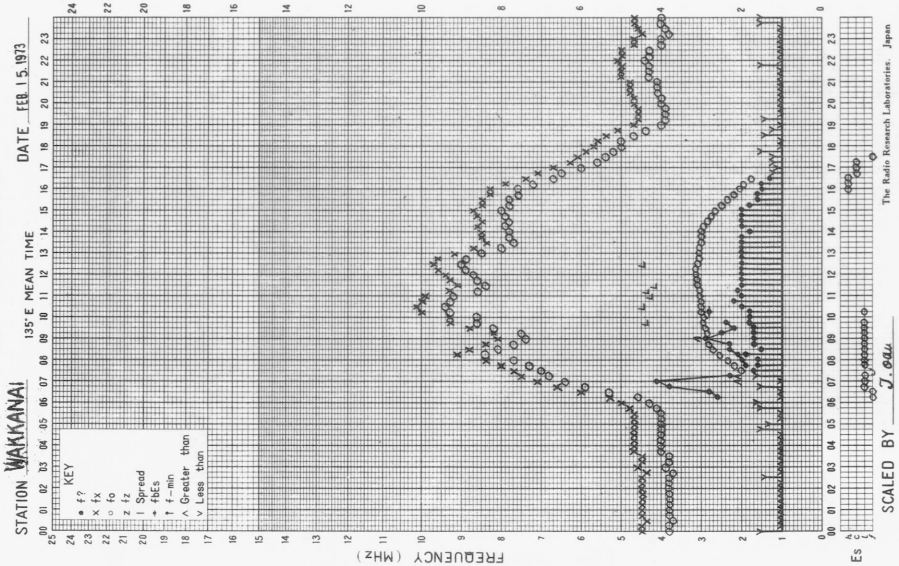
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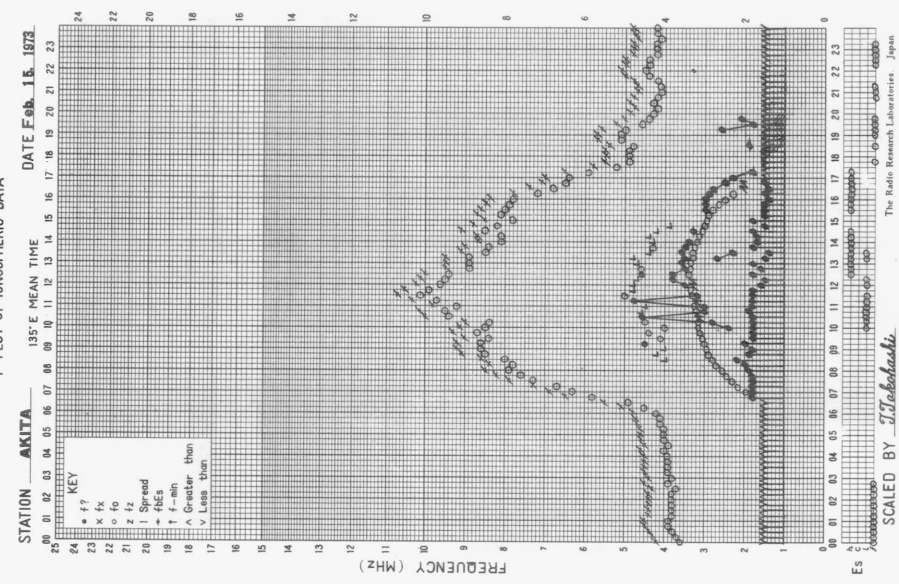
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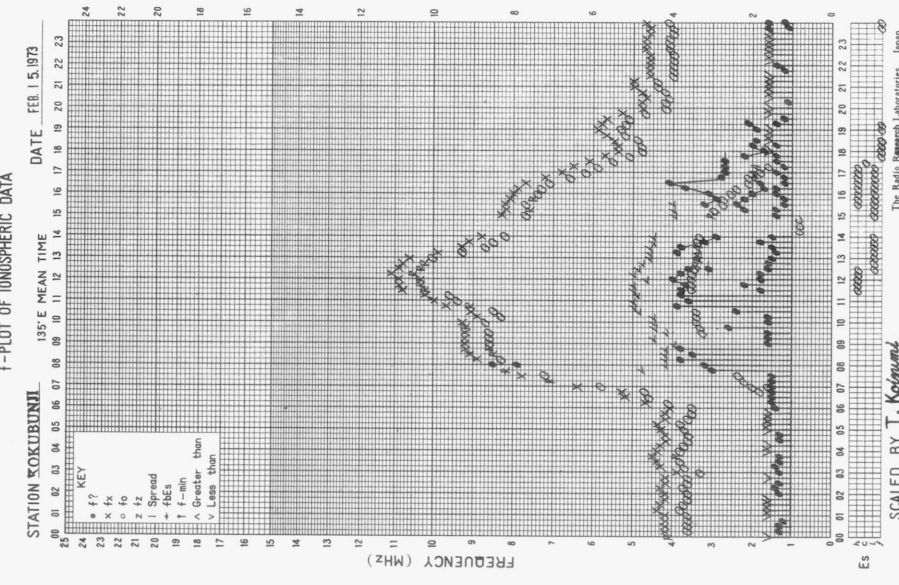
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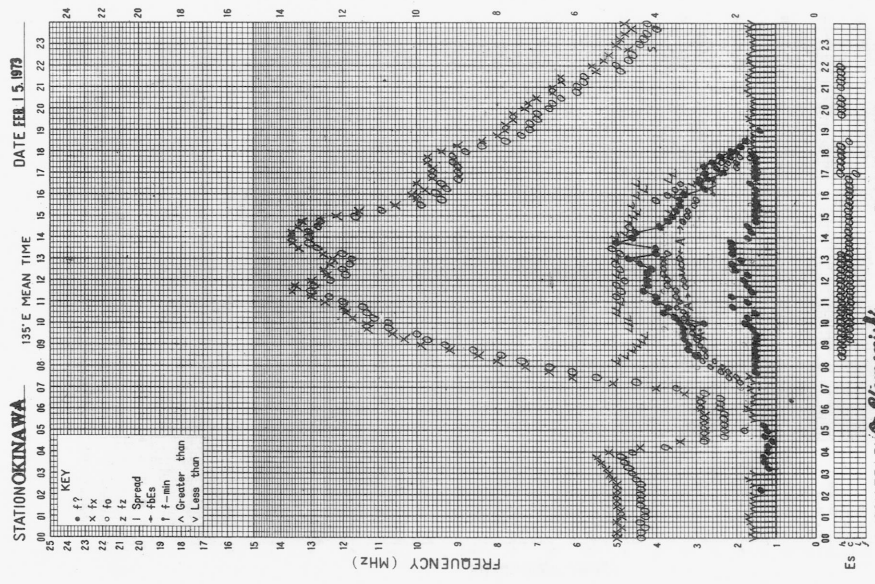
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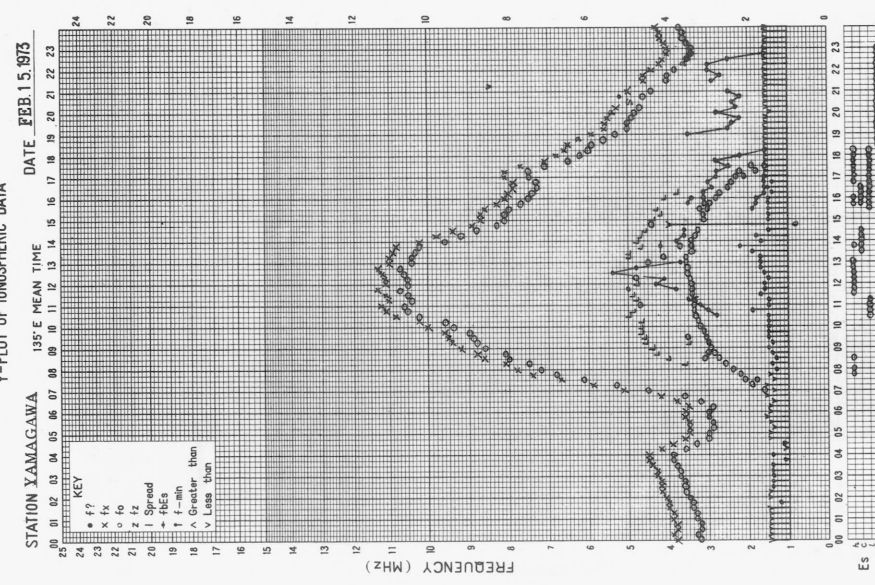
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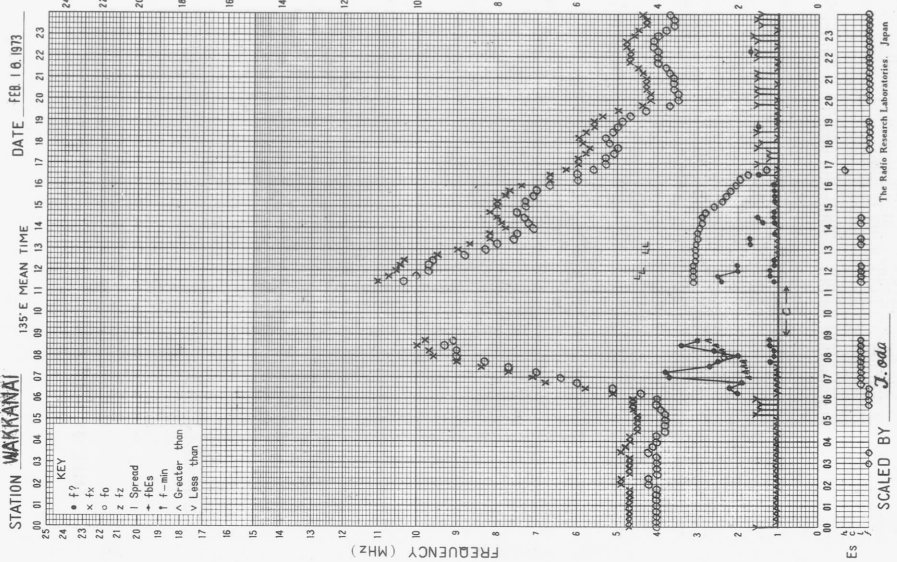
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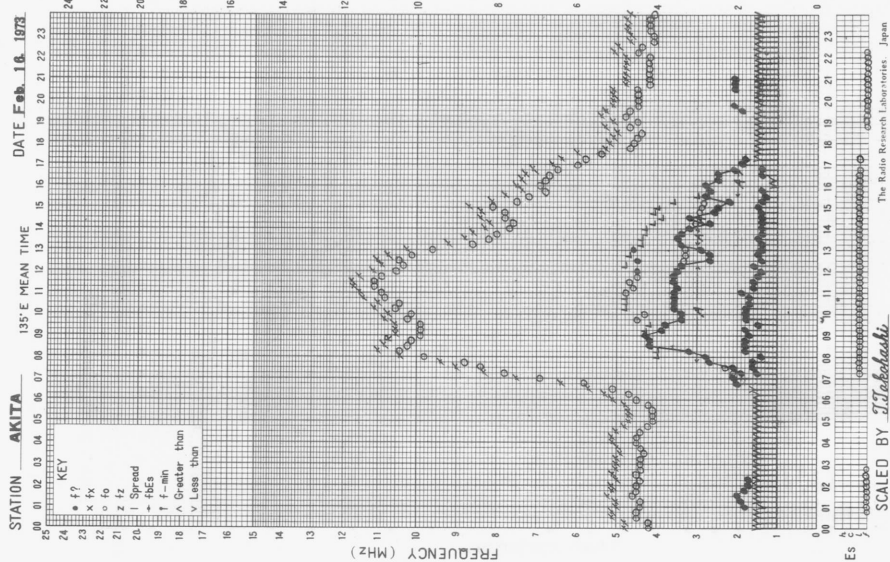
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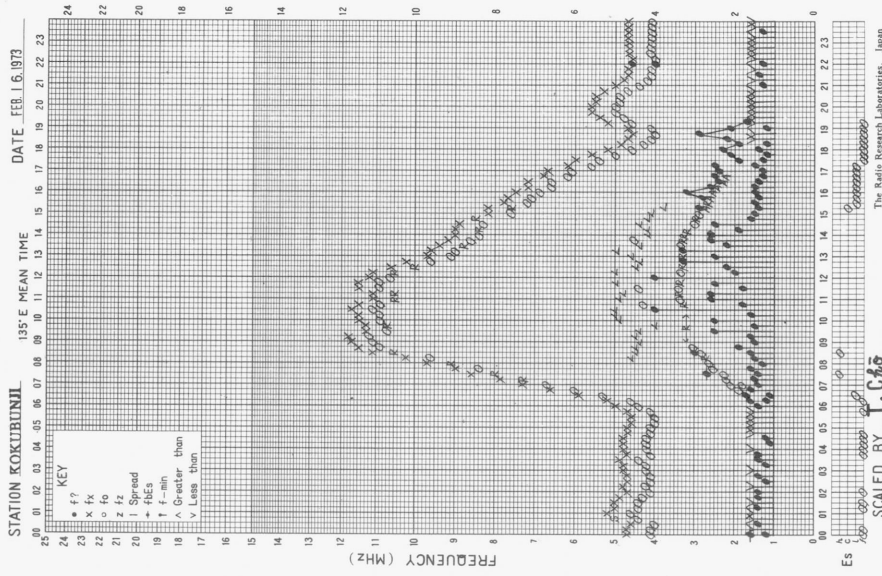
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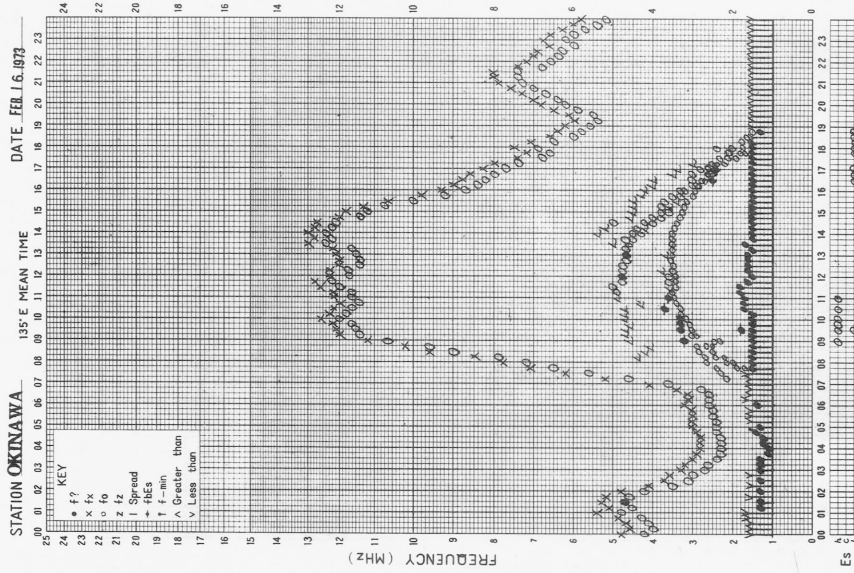
f-plot of IONOSPHERIC DATA



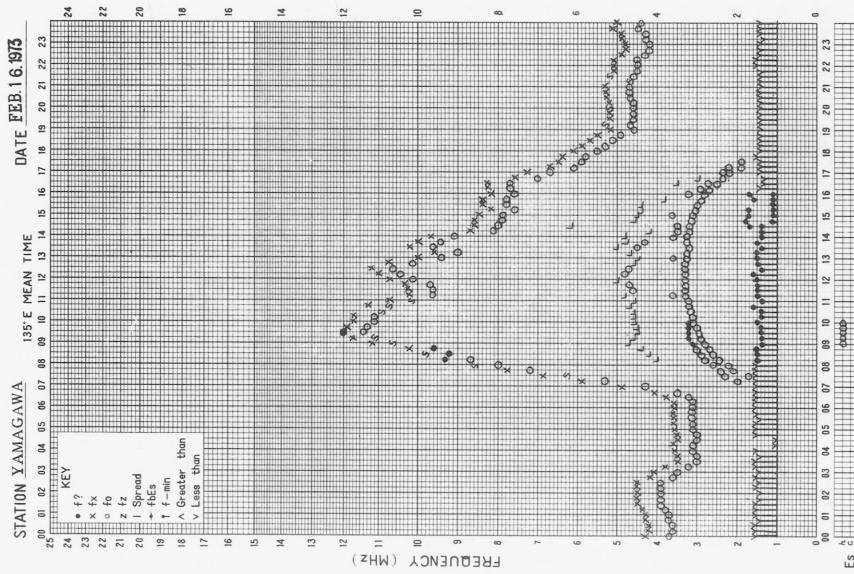
f-plot of IONOSPHERIC DATA



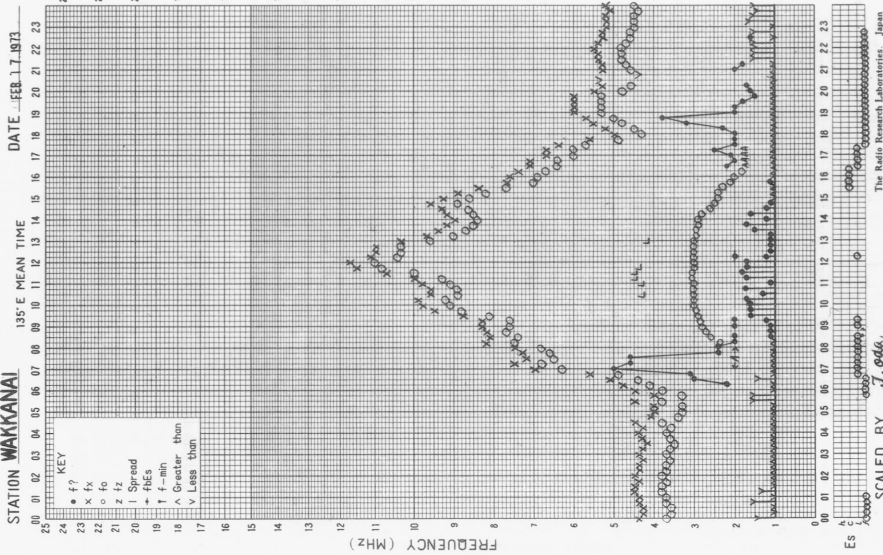
f-PLOT OF IONOSPHERIC DATA



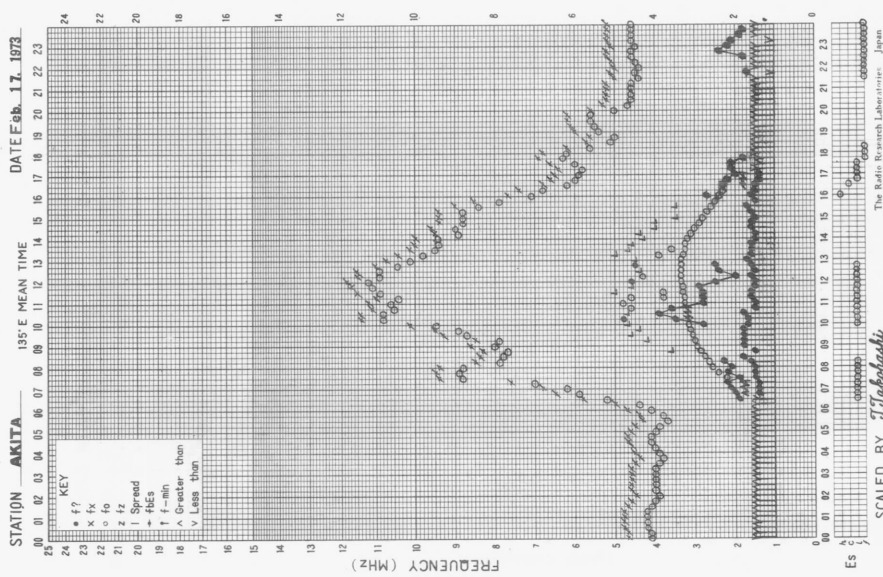
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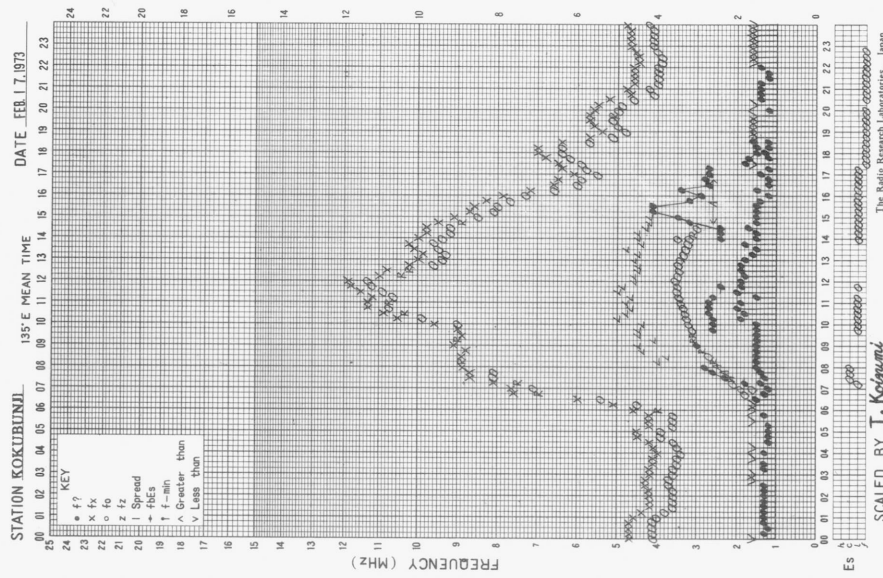
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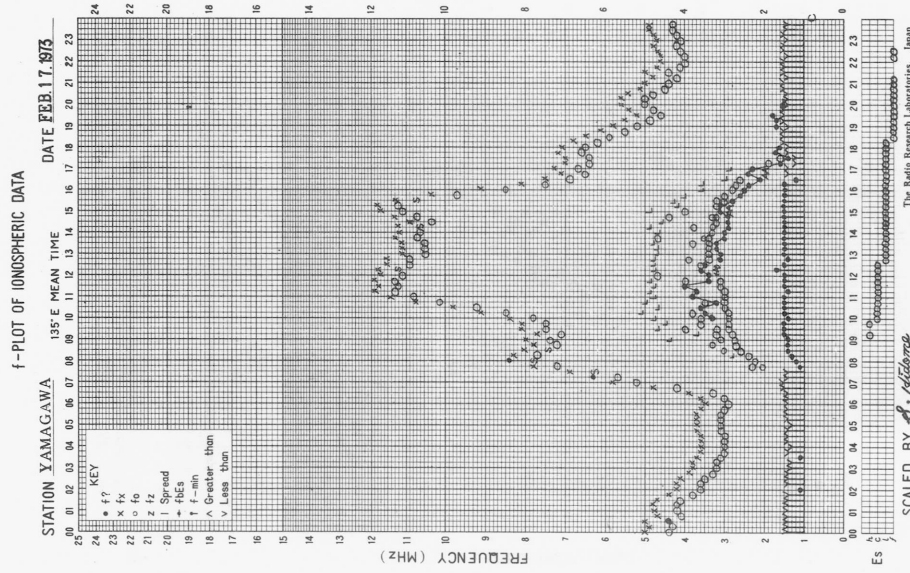
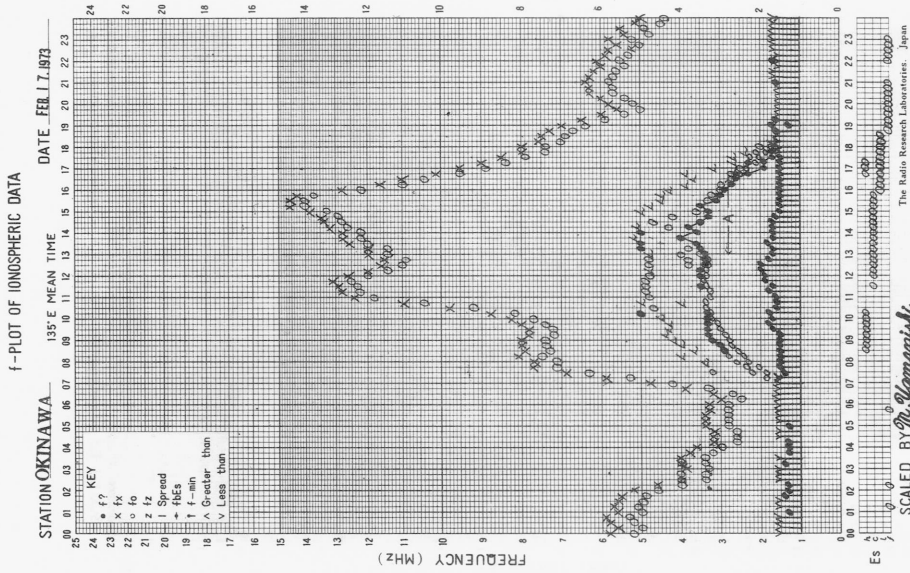


f- PLOT OF IONOSPHERIC DATA

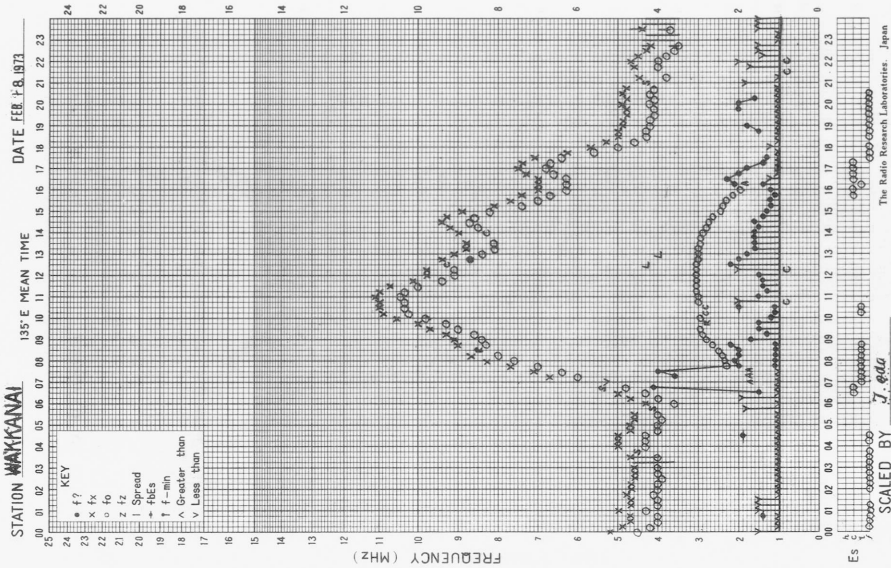


f- PLOT OF IONOSPHERIC DATA

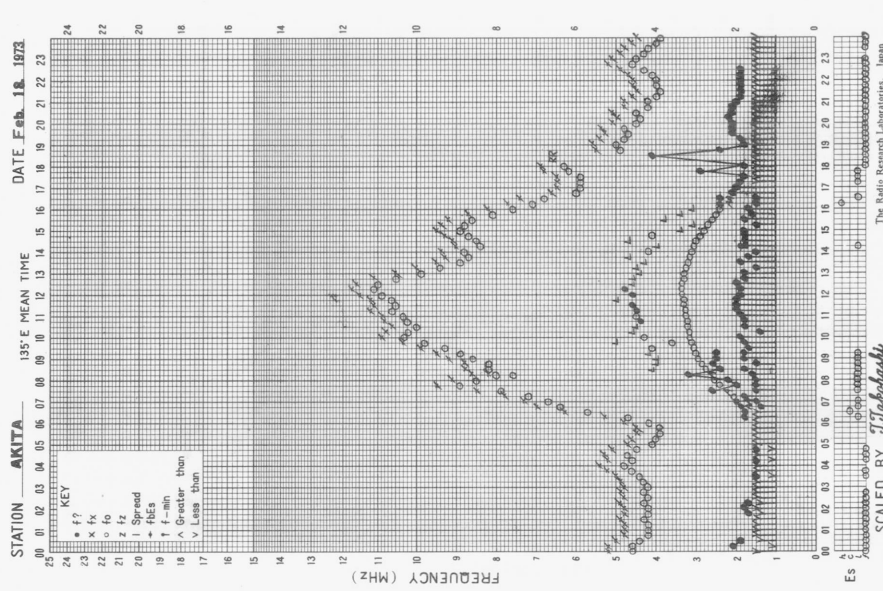




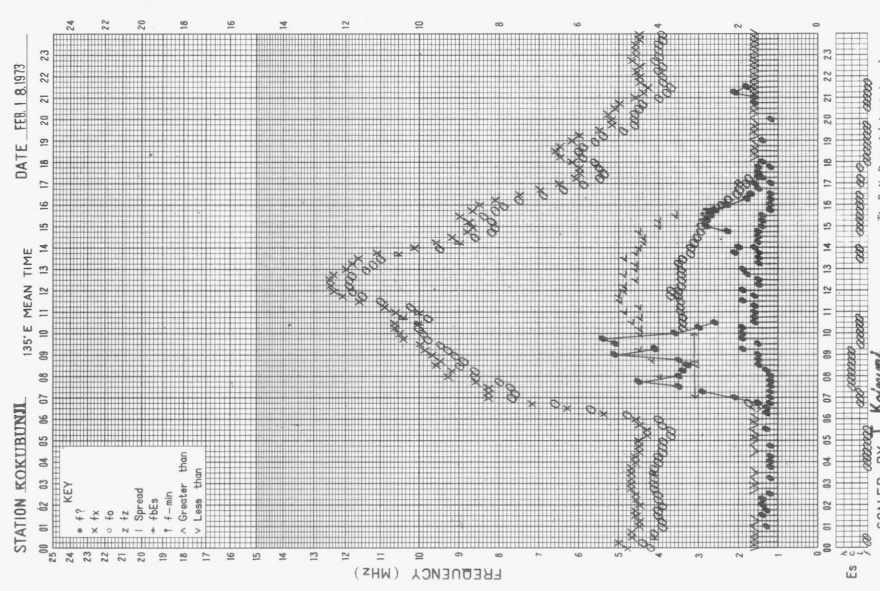
f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



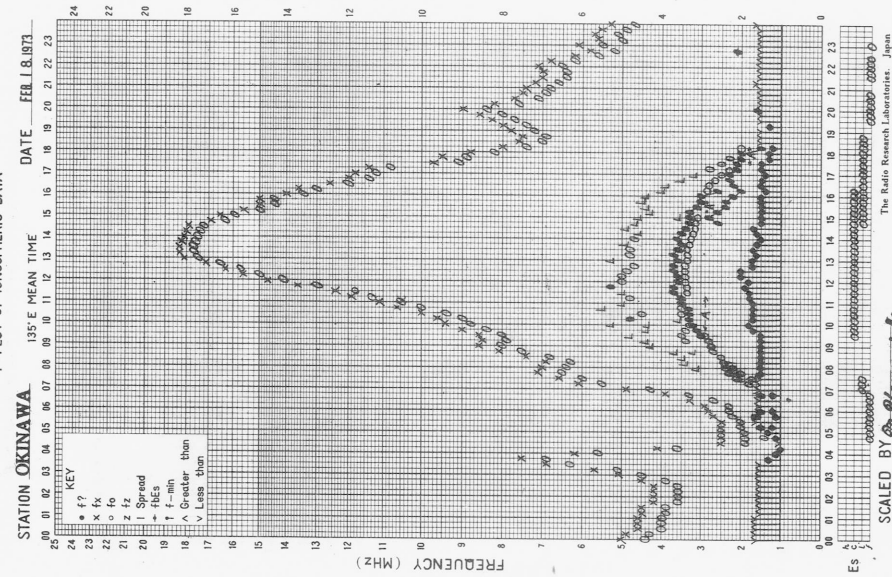
f-PLOT OF IONOSPHERIC DATA



f-plot of IONOSPHERIC DATA



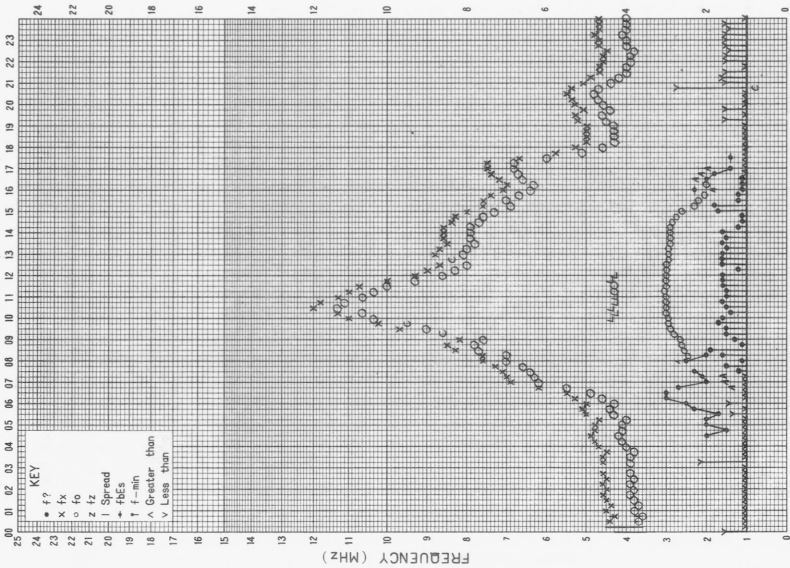
f-plot of IONOSPHERIC DATA



f--PLOT OF IONOSPHERIC DATA

STATION WAKKANAI DATE FEB. 19, 1973

135°E MEAN TIME

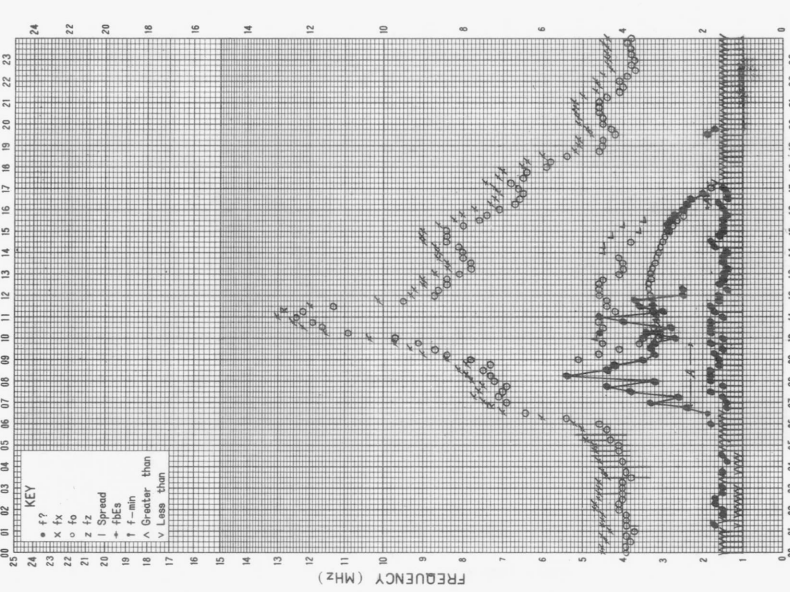


SCALED BY J.oda The Radio Research Laboratories, Japan

f--PLOT OF IONOSPHERIC DATA

STATION AKITA DATE Feb. 18, 1973

135°E MEAN TIME

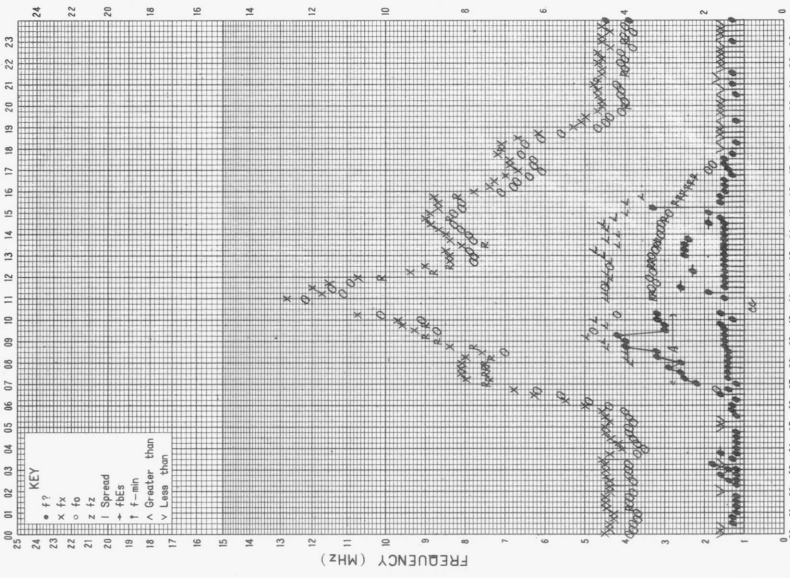


SCALED BY T. Sakahashi The Radio Research Laboratories, Japan

f--PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI DATE FEB. 19, 1973

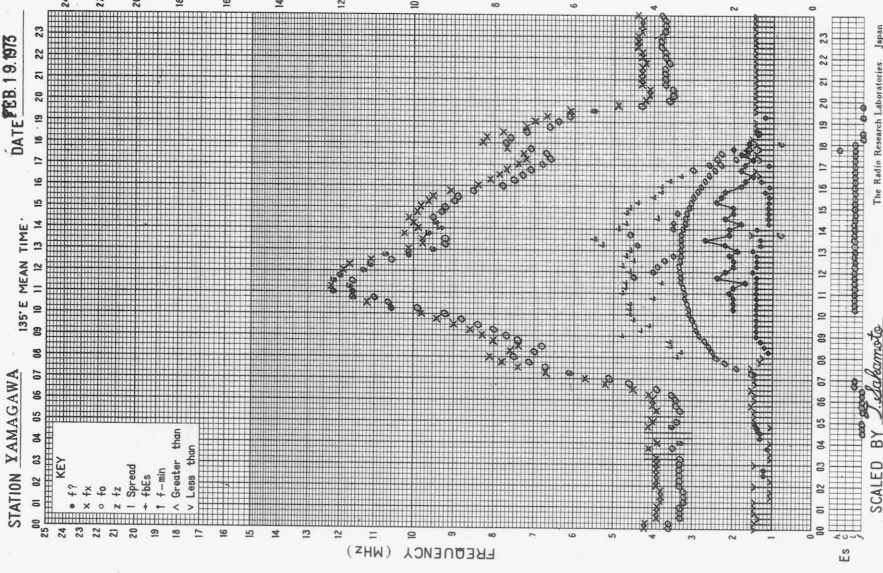
135°E MEAN TIME



SCALED BY T.C.S. The Radio Research Laboratories, Japan

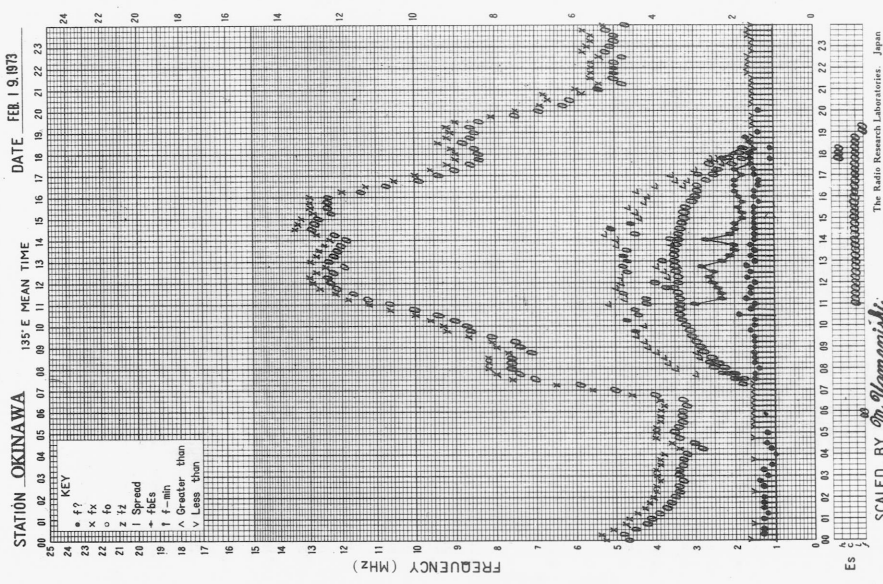
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STATION YAMAGAWA DATE FEB. 19 1973

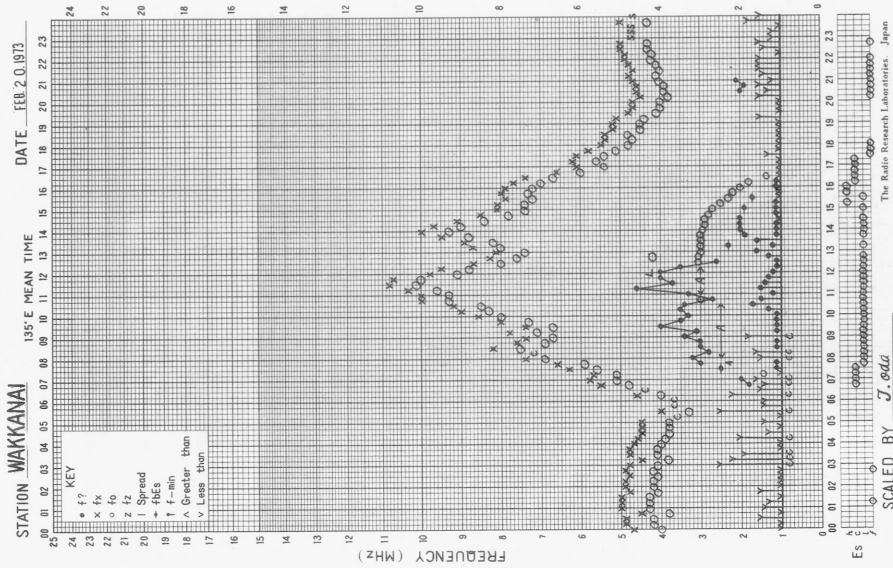


f- PLOT OF IONOSPHERIC DATA

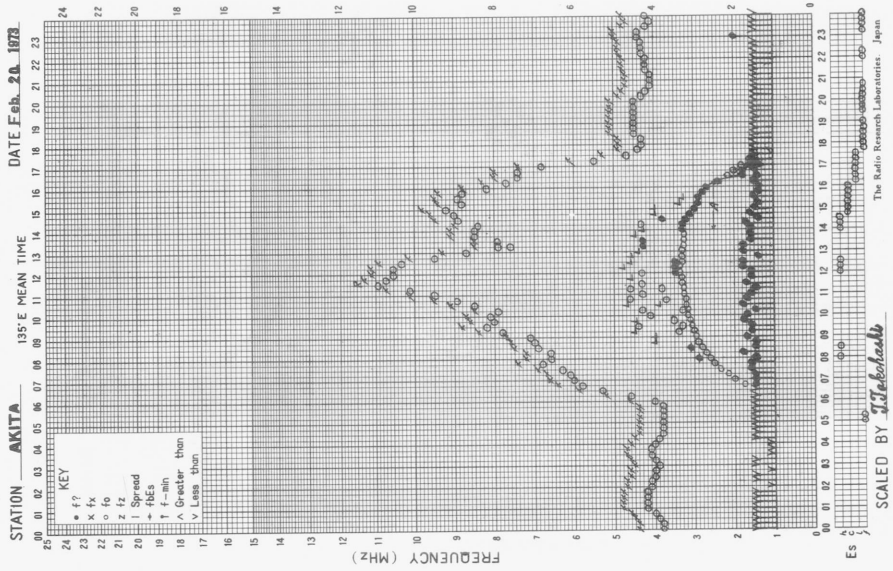
STATION OKINAWA DATE FEB. 19 1973



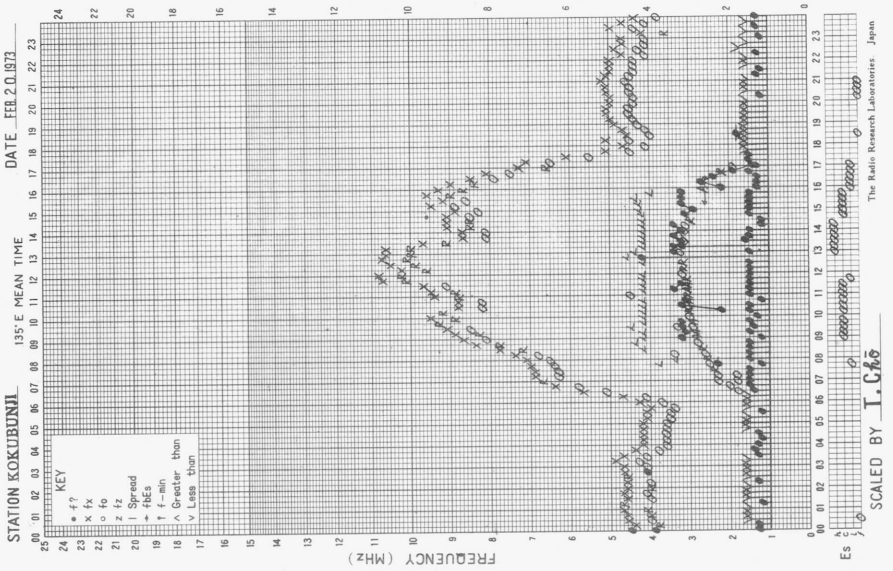
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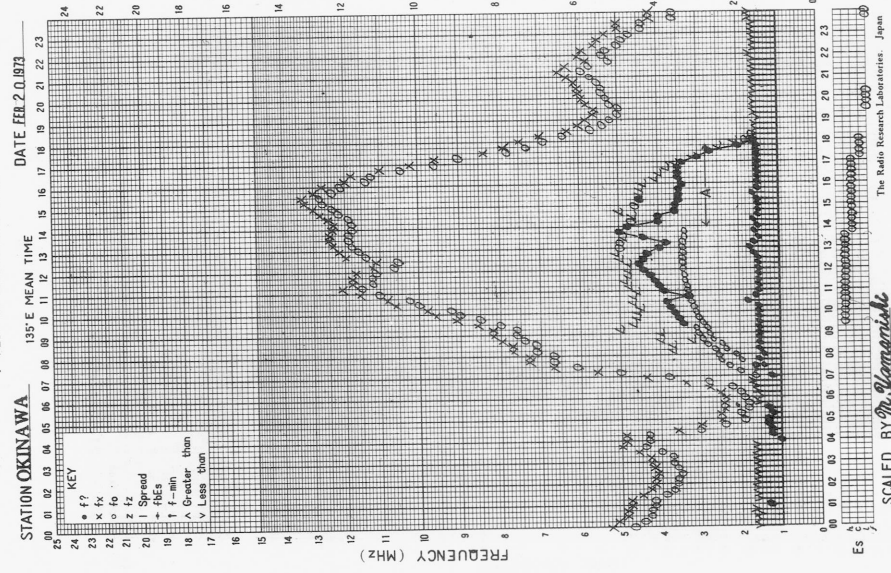
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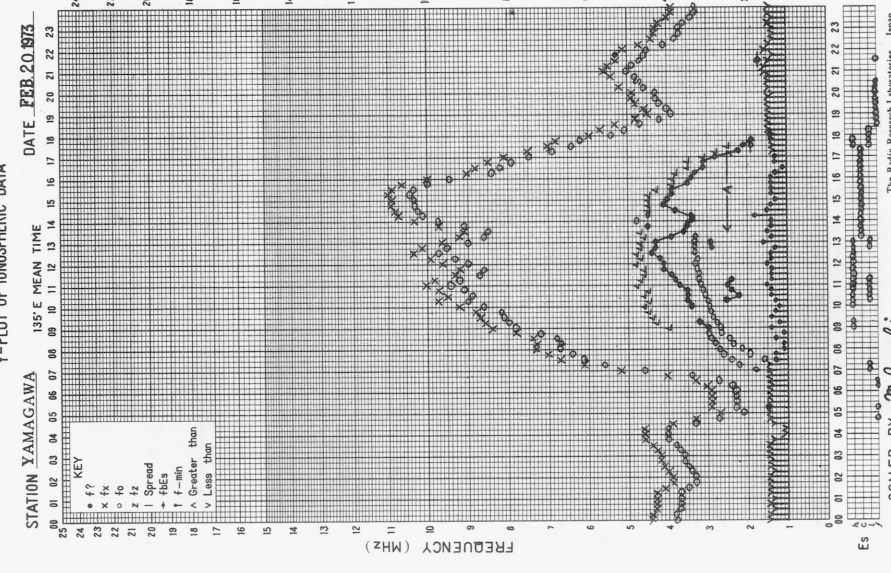
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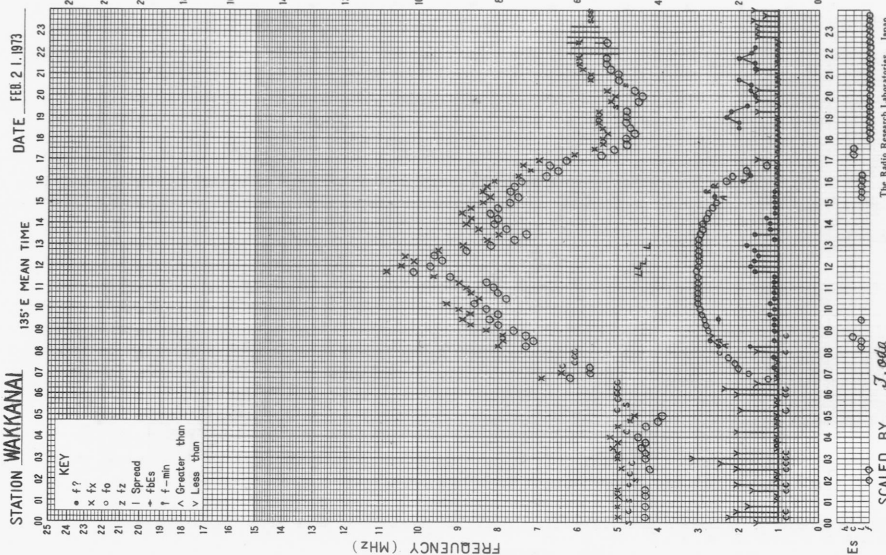
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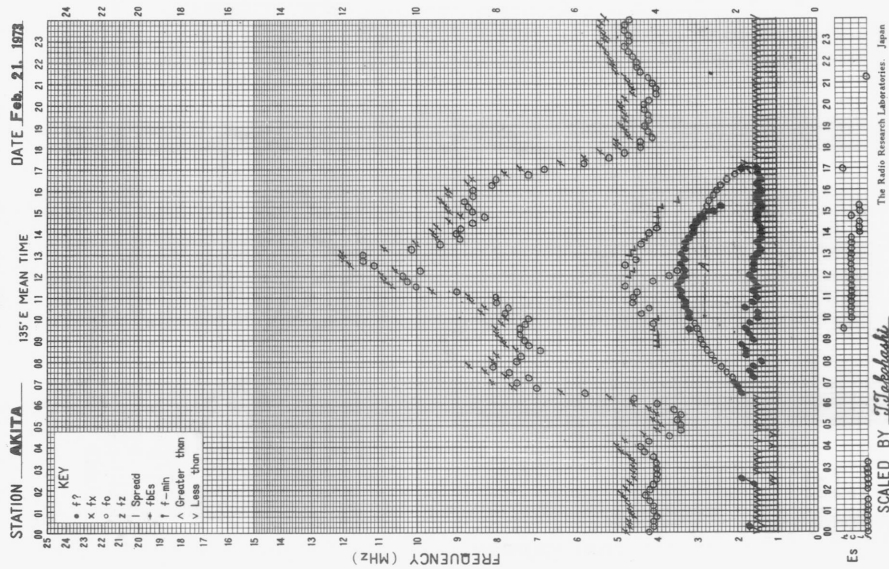
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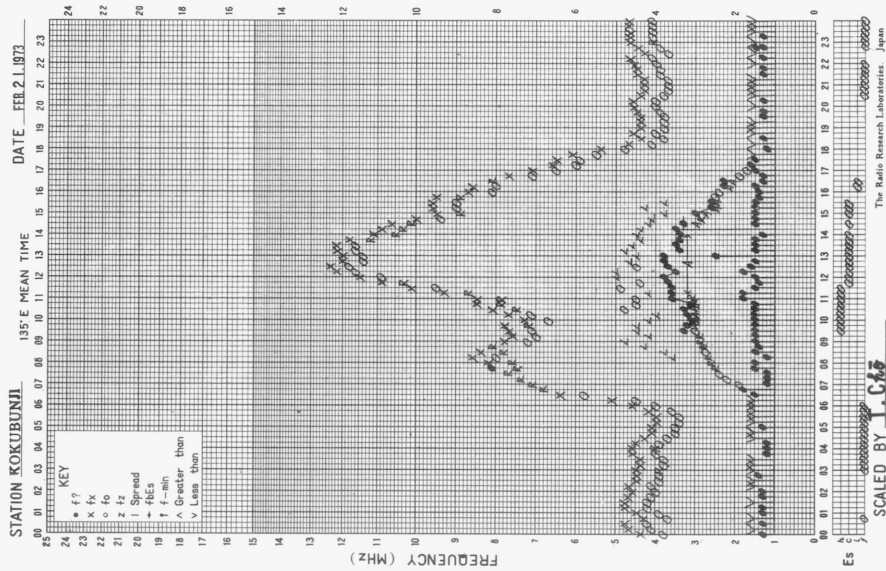
f-plot of IONOSPHERIC DATA



f-plot of IONOSPHERIC DATA



f-plot of IONOSPHERIC DATA

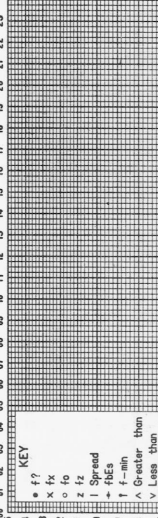


f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA DATE FEB. 21, 1973

135°E MEAN TIME

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23



KEY

- f_oF₂
- × f_oF₁
- f_oF₁ Spread
- △ f_{min}
- ▽ f_{min} Less than
- ▲ Greater than
- ▽ Less than

FREQUENCY (MHZ)

25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

Es

SCALED BY *S. Nakamura*

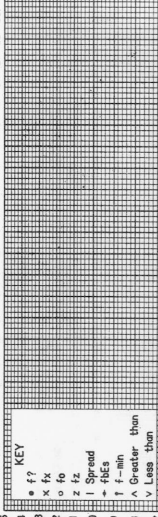
The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA

STATION OKINAWA DATE FEB. 21, 1973

135°E MEAN TIME

00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23



KEY

- f_oF₂
- × f_oF₁
- f_oF₁ Spread
- △ f_{min}
- ▽ f_{min} Less than
- ▲ Greater than
- ▽ Less than

FREQUENCY (MHZ)

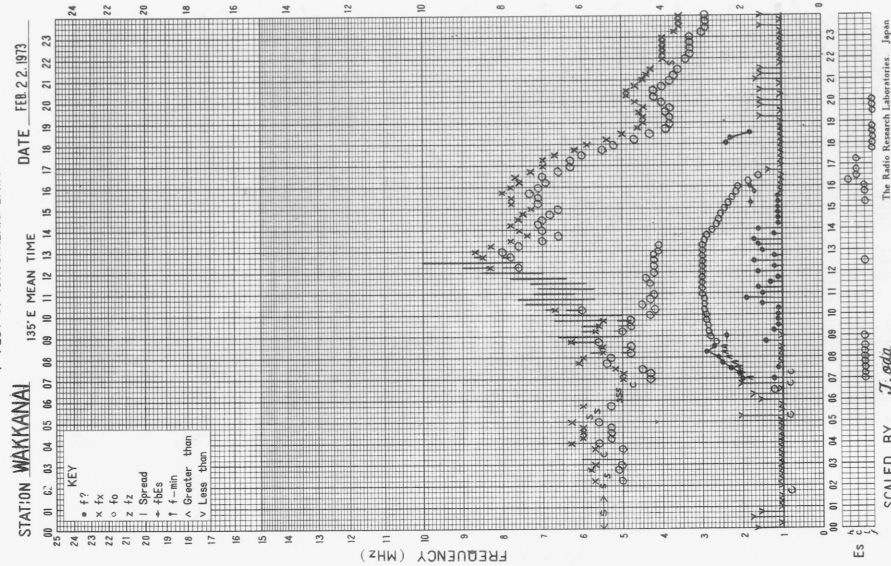
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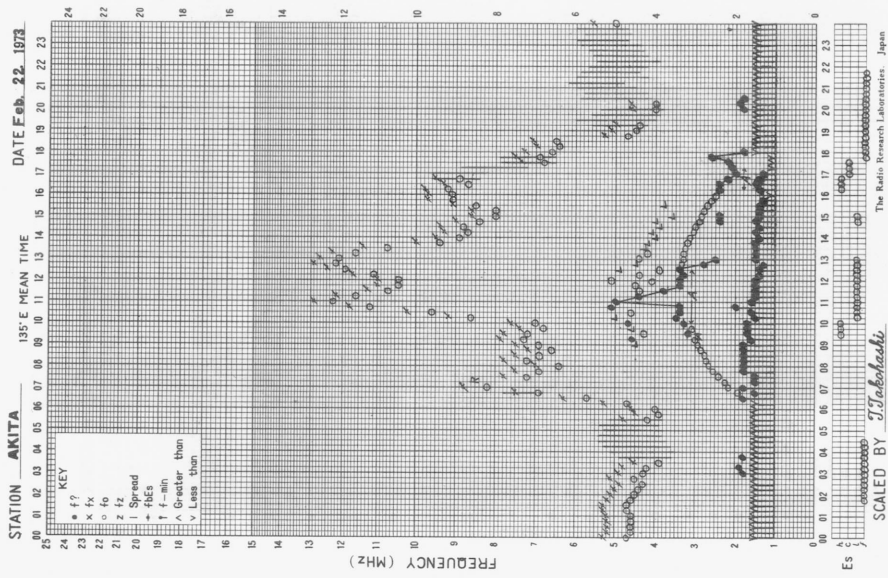
SCALED BY *M. Yamamoto*

The Radio Research Laboratories, Japan

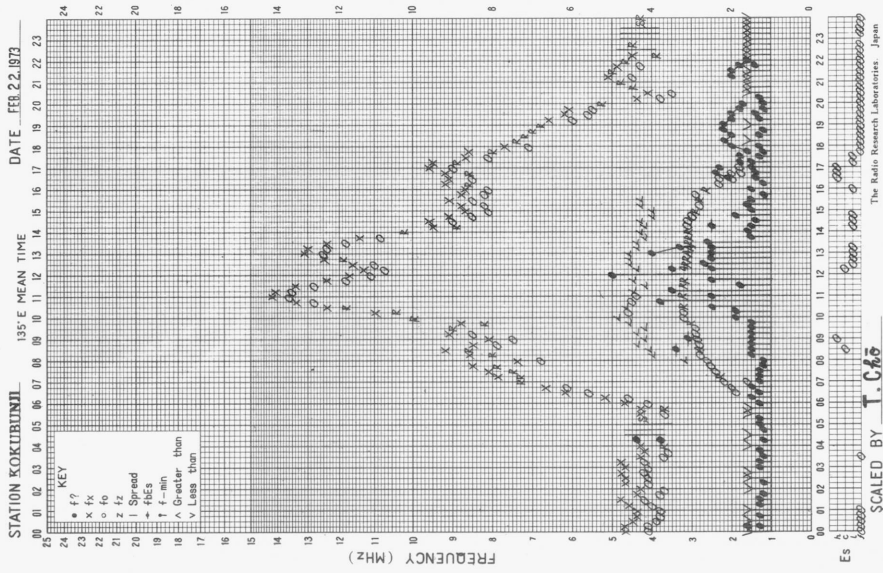
f- PLOT OF IONOSPHERIC DATA



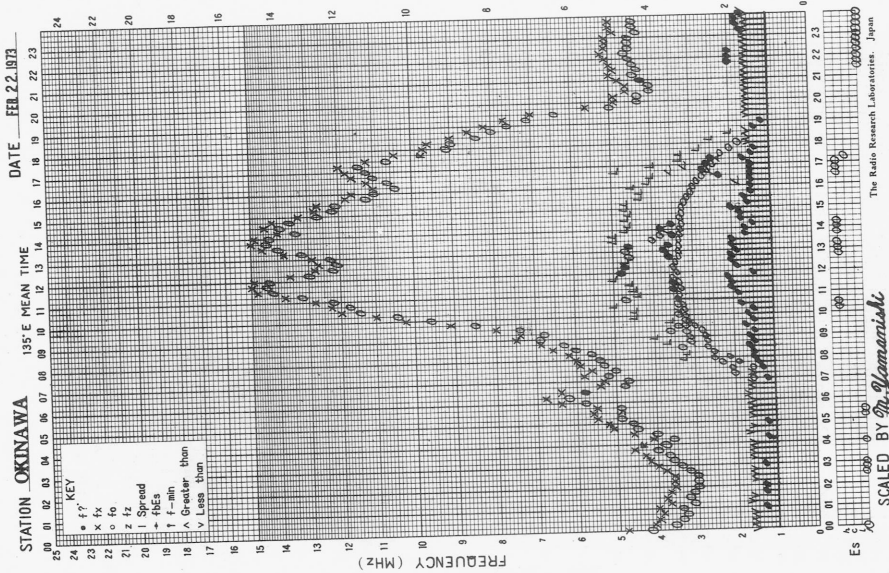
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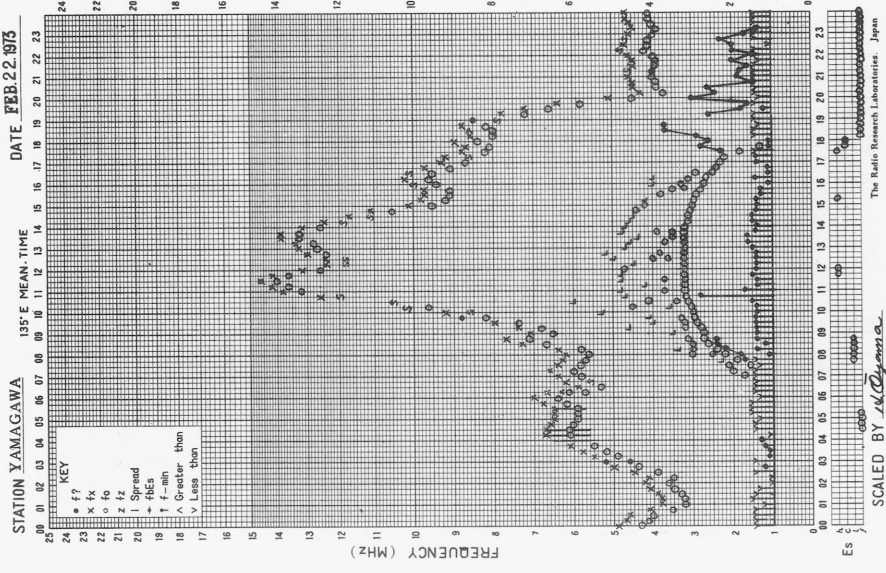
f- PLOT OF IONOSPHERIC DATA



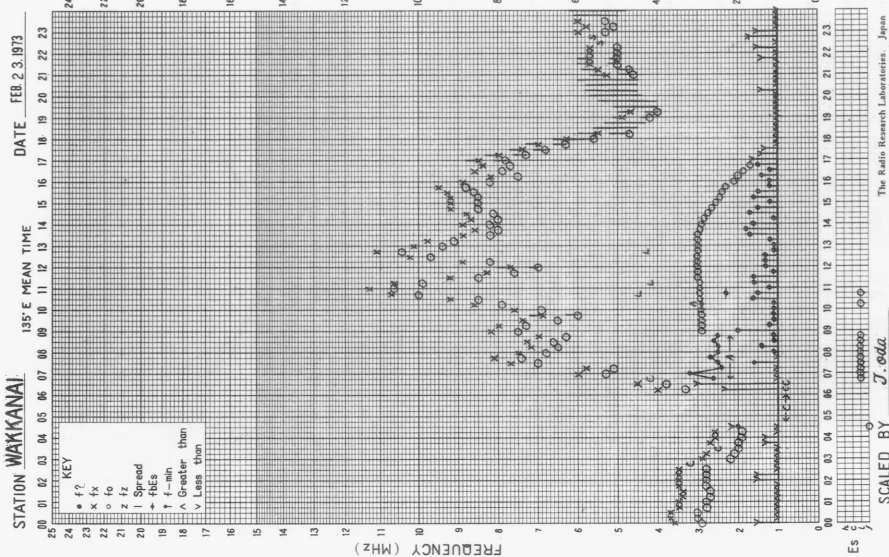
f-PLOT OF IONOSPHERIC DATA



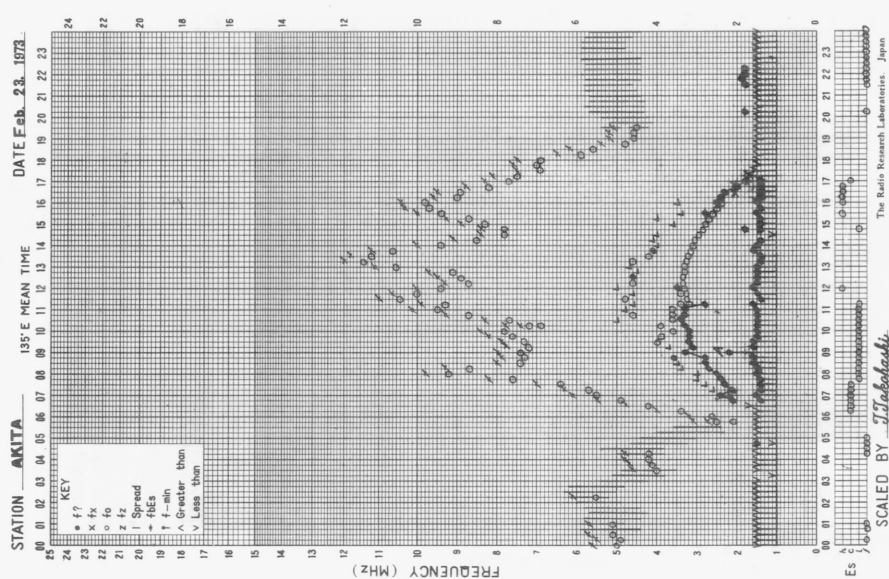
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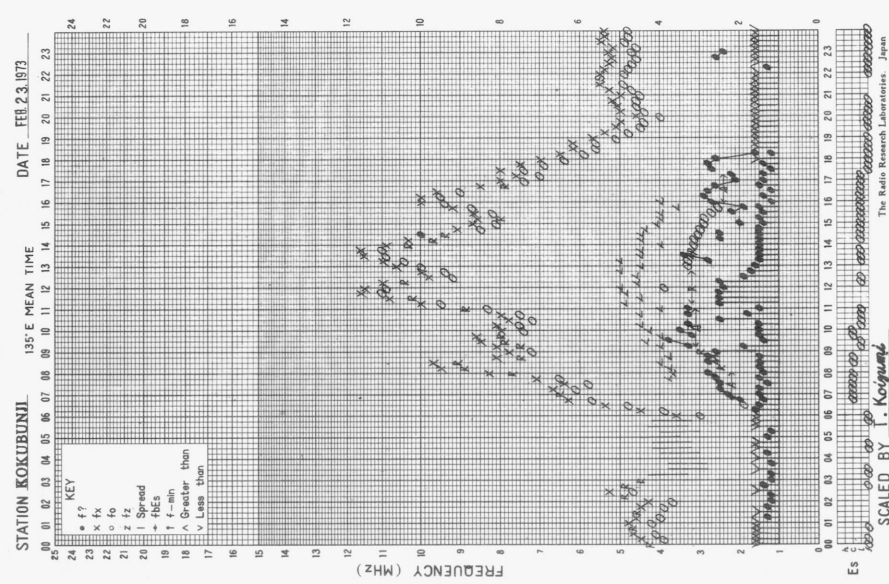
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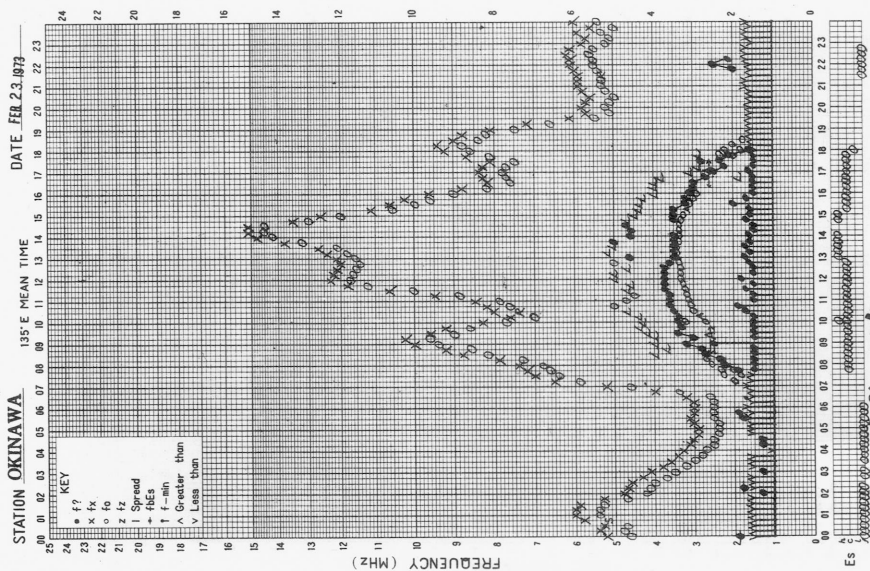
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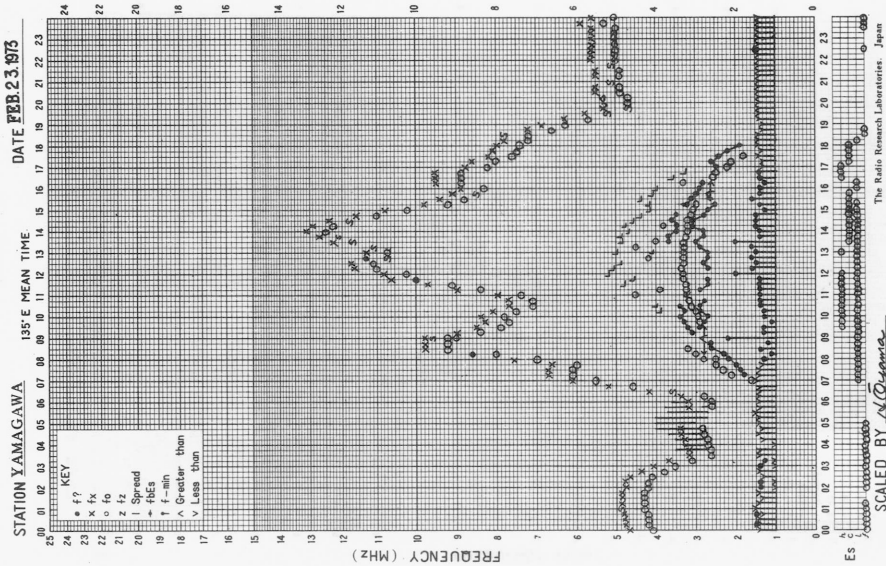
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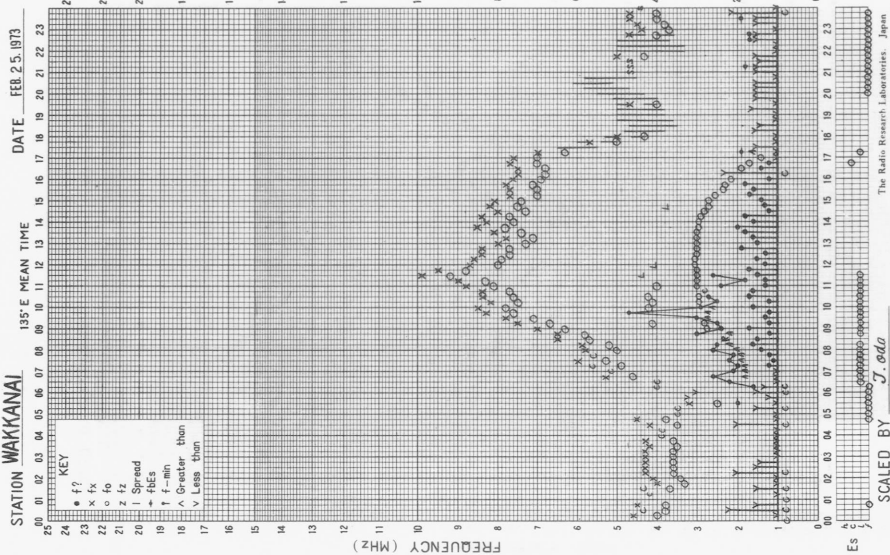
f-plot of IONOSPHERIC DATA



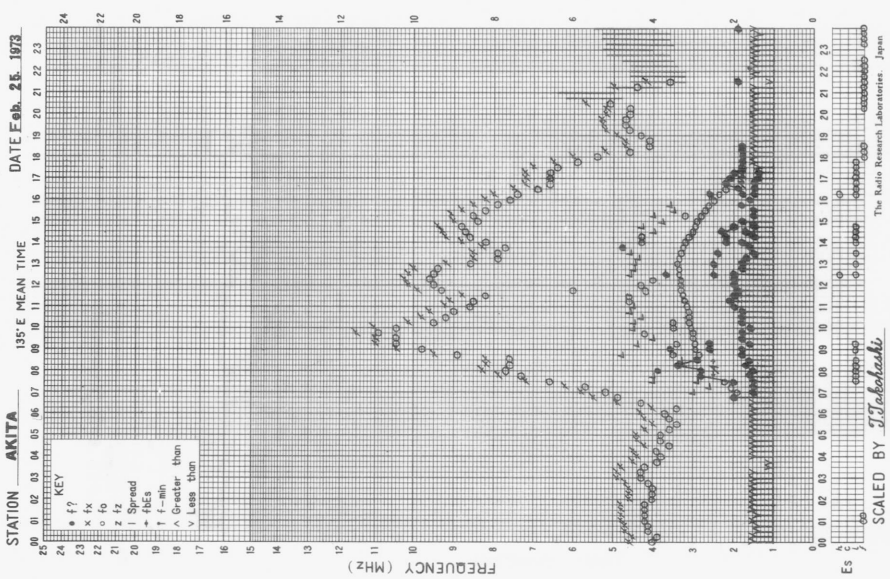
f-plot of IONOSPHERIC DATA



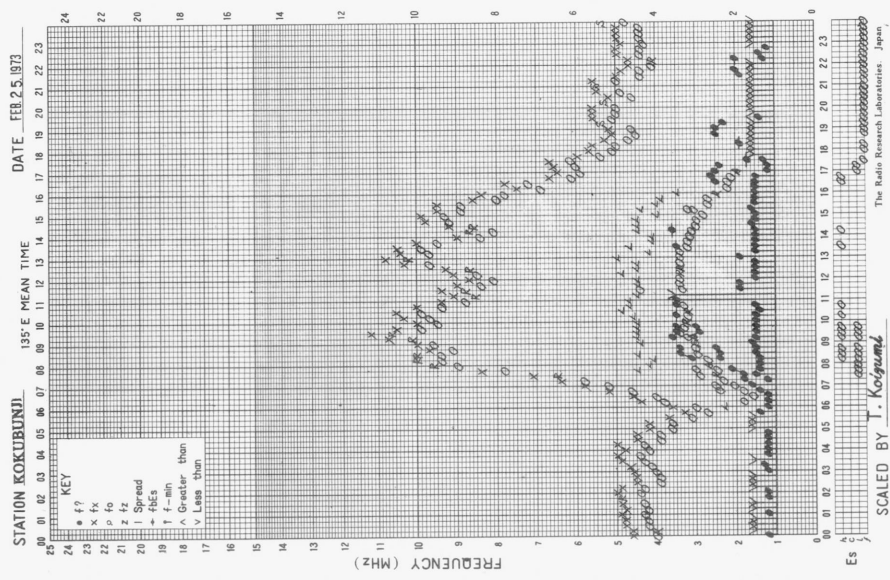
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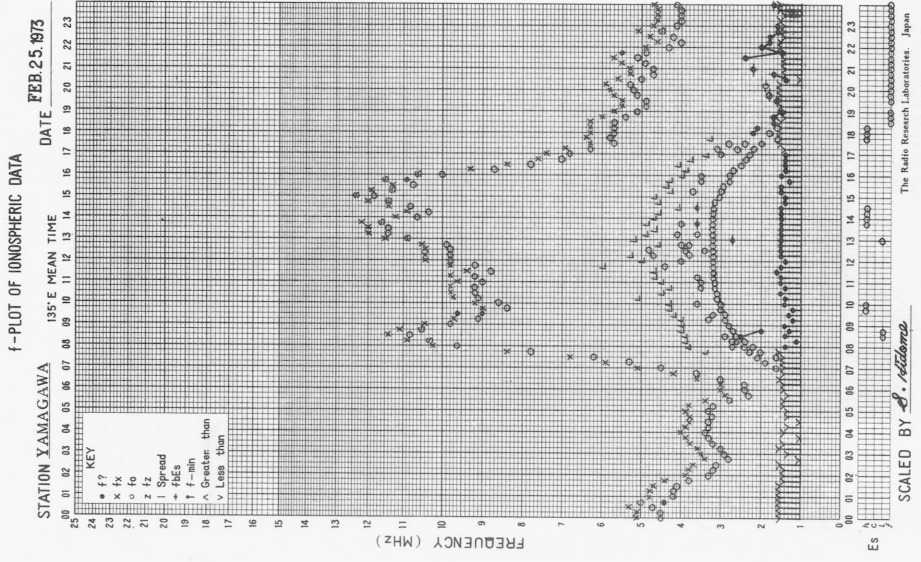
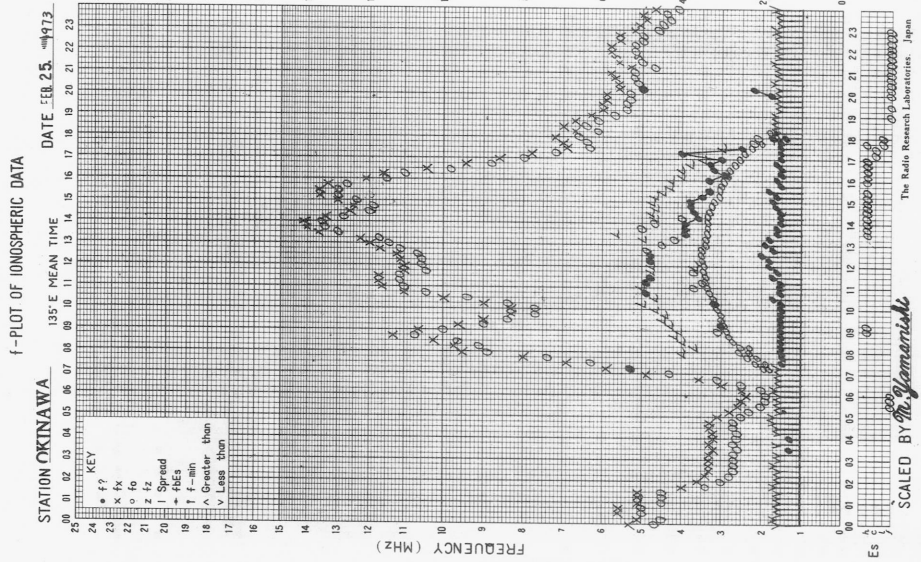


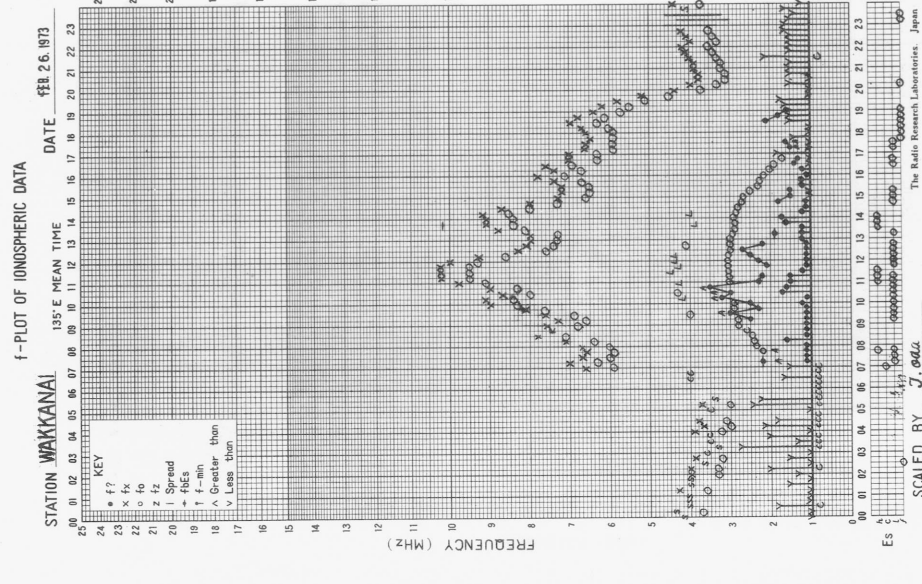
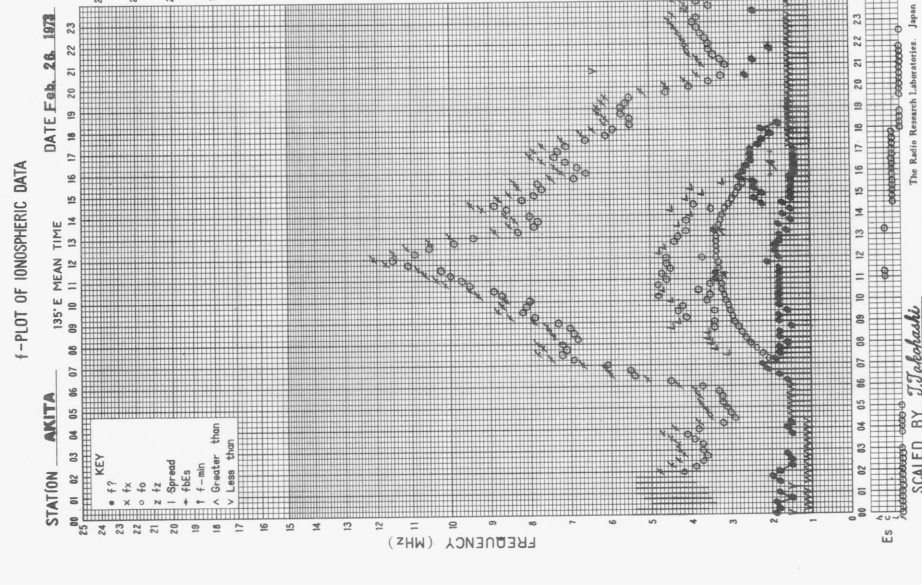
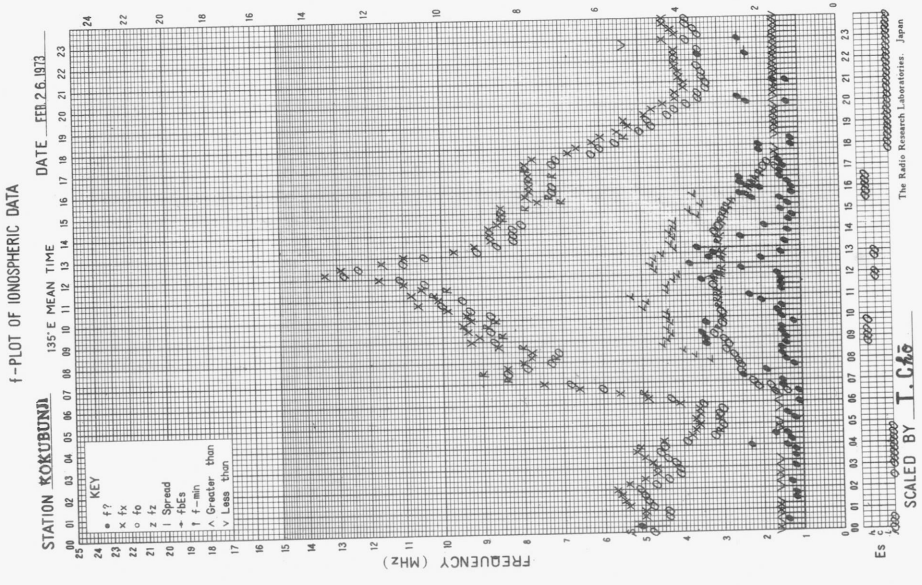
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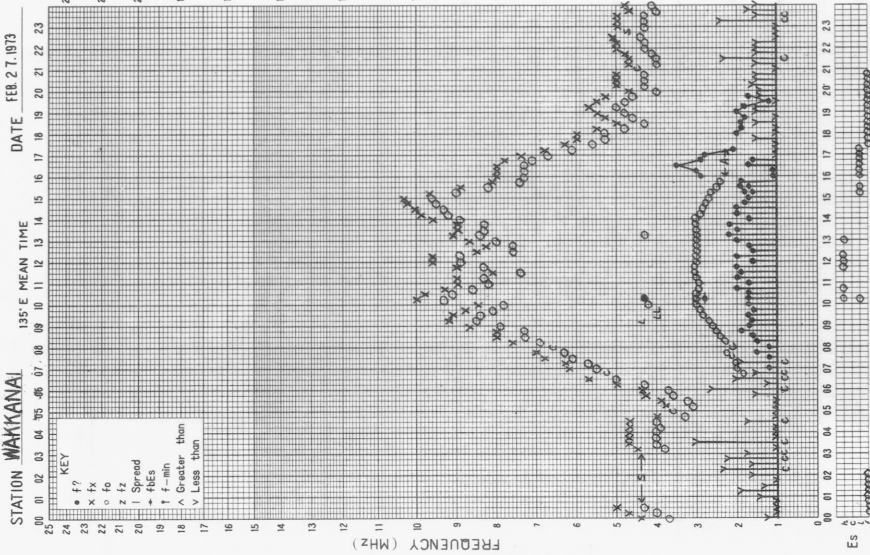
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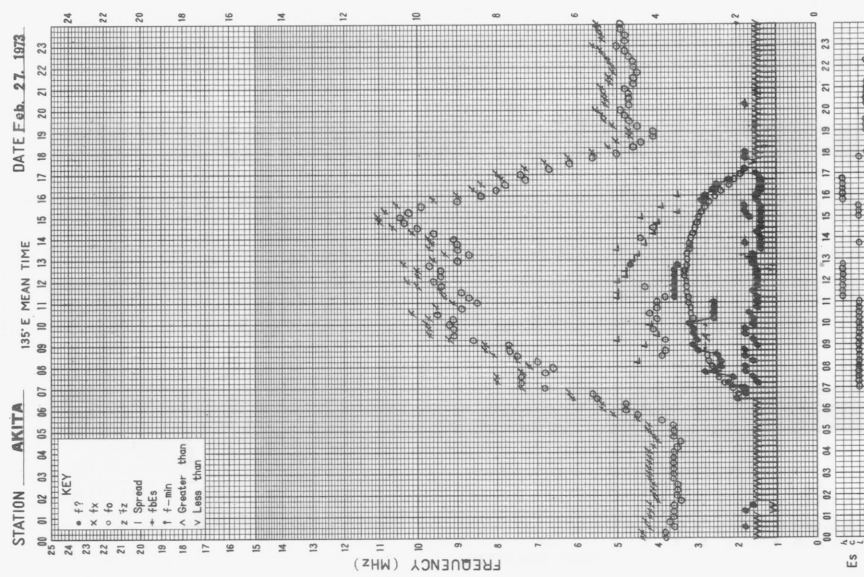




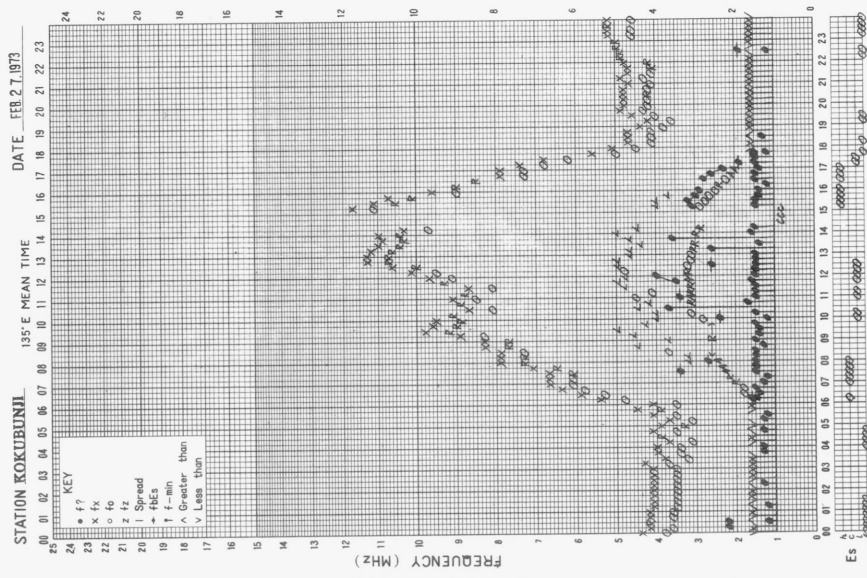
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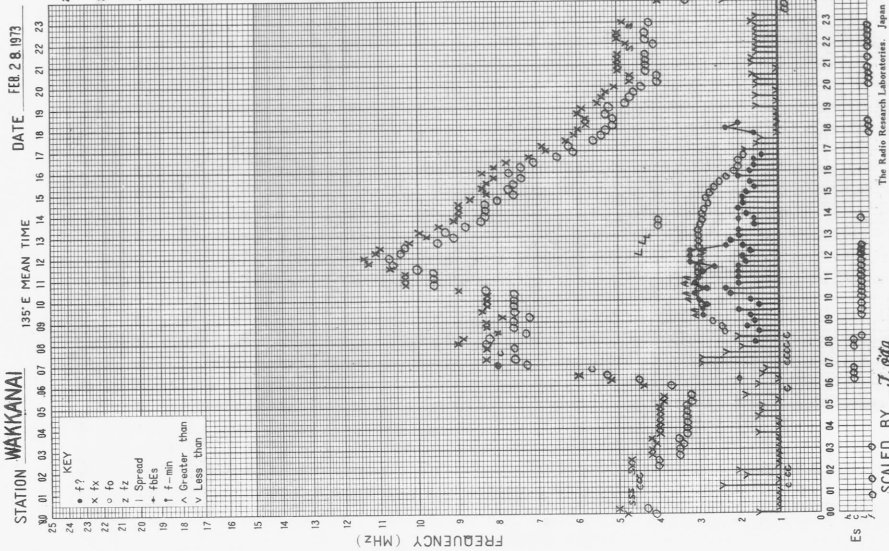
f-PLOT OF IONOSPHERIC DATA



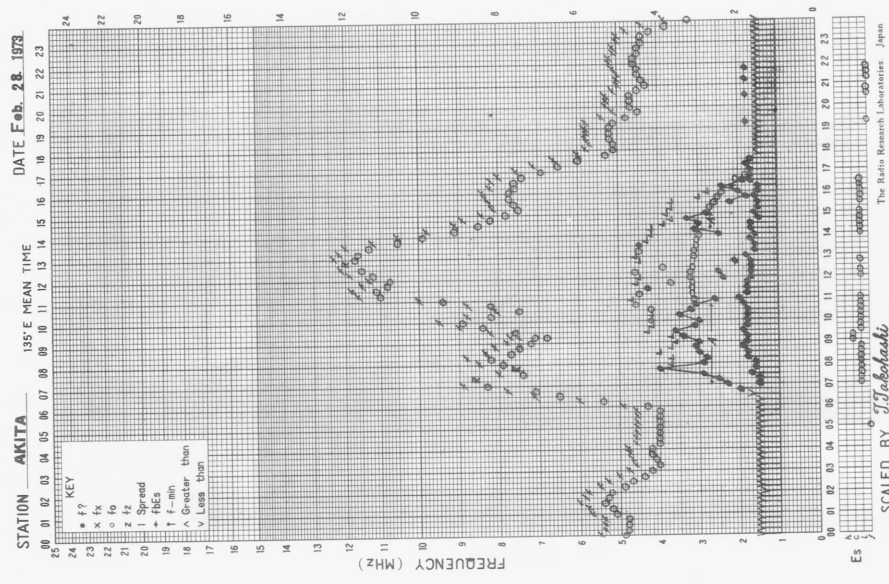
f-PLOT OF IONOSPHERIC DATA



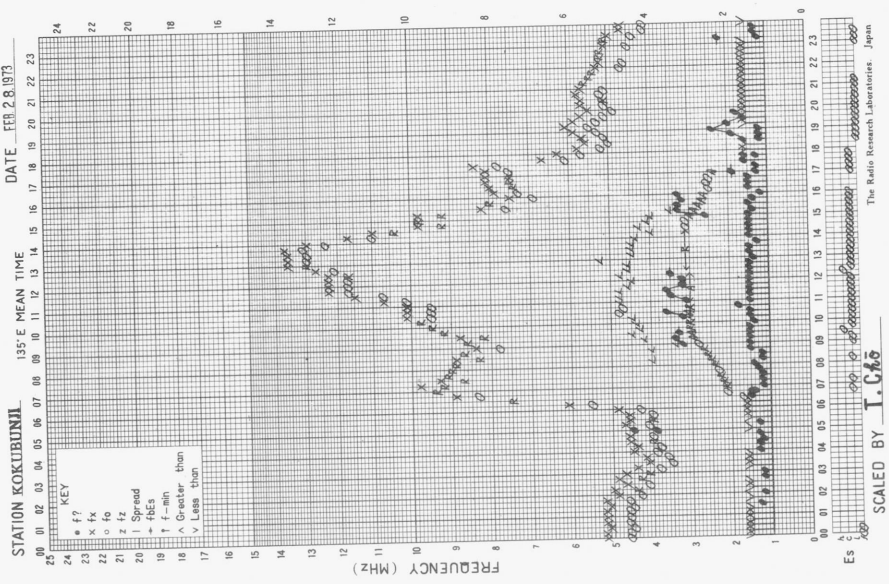
f-plot of IONOSPHERIC DATA

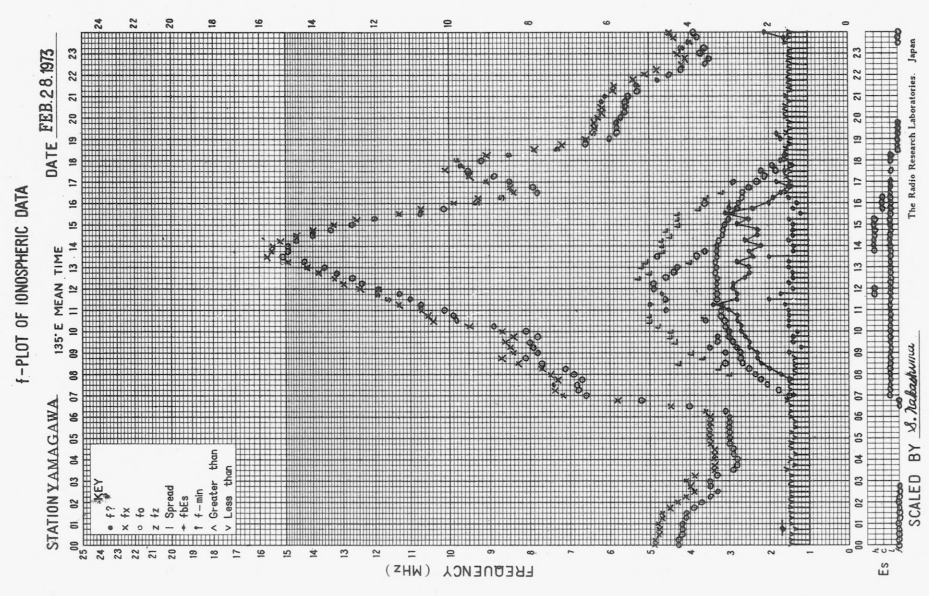
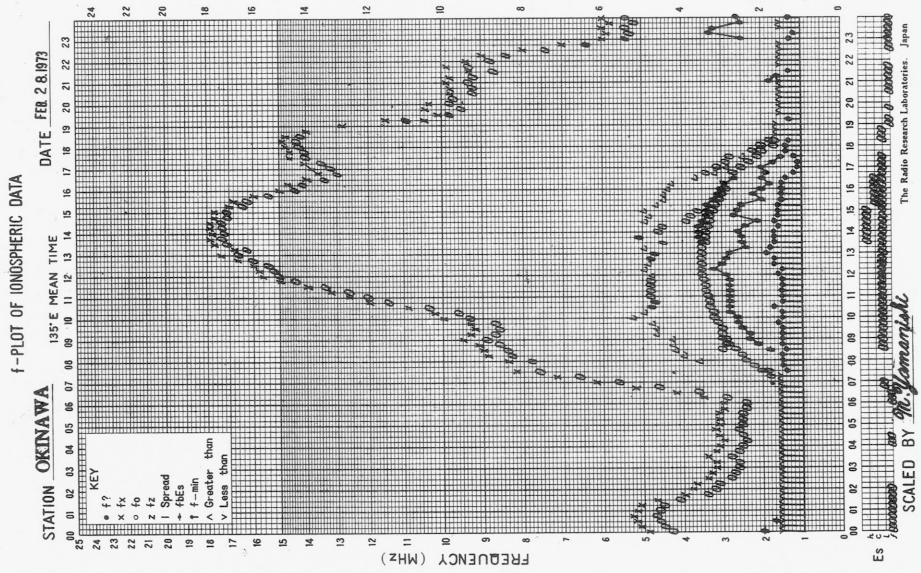


f-plot of IONOSPHERIC DATA



f-plot of IONOSPHERIC DATA





SOLAR RADIO EMISSION

<u>Flux Density and Variability</u>										
Month: February 1973						Frequency: 200 MHz				
Observing station: Hiraiso										
Flux density $10^{-22} \text{Wm}^{-2} \text{Hz}^{-1}$						Variability 0 to 3				
UT	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
Date										
1	7	7	(6)	6	7	0	0	(0)	0	0
2	7	8	(8)	6	7	0	0	(0)	0	0
3	7	7	(7)	7	7	0	0	(0)	0	0
4	7	6	(7)	7	7	0	0	(0)	0	0
5	6	7	(6)	5	6	0	0	(0)	0	0
6	5	5	5	7	5	0	0	0	0	0
7	7	7	6	5	7	0	0	0	0	0
8	5	6	6	6	6	0	0	0	0	0
9	5	5	5	6	5	0	0	0	0	0
10	6	-	-	7	(6)	0	-	-	0	(0)
11	6	6	6	6	6	0	0	0	0	0
12	6	6	7	6	6	0	0	0	0	0
13	7	7	6	7	7	0	0	0	1	0
14	6	7	7	12	7	0	0	0	1	0
15	11	12	10	7	11	1	1	1	0	1
16	7	7	8	7	7	0	0	1	0	0
17	7	6	6	6	6	0	0	0	0	0
18	5	6	6	7	6	0	0	0	0	0
19	6	6	6	6	6	0	0	0	0	0
20	6	6	6	5	6	0	0	0	0	0
21	5	5	5	5	5	0	0	0	0	0
22	6	6	7	6	6	0	0	0	0	0
23	6	6	6	7	6	0	0	0	0	0
24	8	8	9	10	8	0	0	0	0	0
25	8	7	7	6	8	0	0	0	0	0
26	6	6	6	6	6	0	0	0	0	0
27	6	7	6	6	6	0	0	0	0	0
28	6	6	6	9	6	0	0	1	1	0

Note No observations during the following periods:

9th 0315- 0410
10th 0230- 0820

SOLAR RADIO EMISSION

<u>Flux Density</u>					
Month: February 1973					
Observing station: Hiraiso			Frequency: 500 MHz		
Flux density $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	27	27	(26)	25	26
2	27	28	(29)	26	27
3	28	28	(29)	28	28
4	28	27	(27)	24	28
5	26	27	(26)	25	26
6	25	26	26	29	26
7	28	29	29	30	29
8	31	31	30	31	31
9	31	31	30	30	31
10	30	30	28	28	29
11	31	30	29	29	30
12	30	29	29	30	29
13	30	29	28	29	29
14	29	30	30	31	29
15	31	30	29	26	30
16	29	30	27	24	28
17	25	26	26	25	25
18	26	26	25	26	25
19	27	26	26	25	26
20	25	25	24	24	25
21	24	24	24	24	24
22	24	24	24	24	24
23	24	25	23	24	24
24	25	25	24	25	24
25	25	25	25	23	25
26	24	25	25	26	24
27	27	27	27	24	27
28	26	26	26	27	26

Note No observations during the following periods:

22nd 0200- 0300

<u>Distinctive Events</u> (single-frequency observations)									
Month: February 1973 Observing station: Hiraiso Normal observing period: 2120 - 0820 (sunrise to sunset)									
Date	Freq.	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$		Polarization	Remarks
	MHz	UT	UT	minutes		peak	mean		
18	200	2120E	2126.5	27D	C	80	25		1st peak 2nd peak 3rd peak
			2134.5			100			
			2140.5			50			
	100	2120E	2134.5	45D	C	30	10		
			2141.5			40			
			2147.8			30			
28	100	0411.5	0412.3	3.0	C	95	40	1	
	500	2154.5	2156.7	5.0	C	80	25	1	
	100	2156.5	2203.3	12.0	C	55	15	L	

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

FEB 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	4	ES -3	ES -5	ES 1	ES -2	ES -6	ES -13	ES -4	ES -6	ES -4	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	0	ES -26	0	0	2			
2	0	6	ES -1	ES 4	ES -1	ES -6	ES -3	ES 2	ES 2	ES 2	ES -26	ES -17	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	7	ES -26	ES -26	0	1	-3			
3	2	ES 0	ES -5	ES -10	ES -1	ES -6	ES 1	ES -1	ES -2	ES -4	ES -27	ES -27	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	5	4	4			
4	8	7	ES 0	ES 0	ES -2	ES 4	ES 0	ES -1	ES 4	ES -1	ES -15	ES -26	ES -15	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-17	-14	2 5 7			
5	10	7	10	ES 6	ES 3	ES 2	ES 4	ES 4	ES 6	ES -1	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-6	-1	-1		
6	ES 6	6	5	ES -1	ES 0	ES -7	ES 2	ES 1	ES 0	ES 0	ES -6	ES -15	ES -17	ES -13	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26		
7	12	10	5	4	0	-1	ES 4	ES 5	ES -1	ES -12	ES -26	ES -26	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-1	0	-2	-1	
8	0	-2	0	ES -7	ES -16	ES -16	ES -11	ES 0	ES -5	ES -10	ES -25	ES -25	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-5	-4	-6		
9	-7	0	-1	ES -17	ES -2	ES -15	ES -2	ES -3	ES -1	ES -9	ES -17	ES -26	ES -11	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-11	-11	ES -14		
10	-7	-6	-2	ES -3	ES 7	ES -7	ES -1	ES 0	ES -4	ES -8	ES -8	ES -21	ES -18	ES -18	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	
11	-8	-4	0	ES -8	ES -8	ES -7	ES 3	ES 4	ES -3	ES -11	ES -8	ES -8	ES -27	ES -21	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	ES -27	-10	-2	-5		
12	-7	-4	-1	ES -12	ES -9	ES -7	ES -2	ES 0	ES 0	ES 0	ES -1	ES -15	ES -6	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-1	1	-1		
13	0	4	4	ES -20	ES -7	ES -12	ES -3	ES -5	ES 0	ES 0	ES -6	ES 5	ES -1	ES -7	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-5	-1	-4		
14	-2	2	8	5	ES -16	ES -10	ES -3	ES 0	ES -2	ES -3	ES -3	ES 2	ES 8	ES -13	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	3	2	-4
15	-1	5	-4	ES -7	ES -12	ES -7	ES -1	ES 1	ES 1	ES -4	ES -1	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-9	-9	-5	
16	-11	-9	1	ES 3	ES -4	ES -6	ES -6	ES 1	ES -2	ES -9	ES -5	ES -6	ES -24	ES -24	ES -12	ES -15	ES -15	ES -24	ES -24	ES -24	ES -24	0	1	0	1		
17	1	2	2	7	ES -1	ES 0	ES -2	ES 2	ES -1	ES 2	ES 3	ES 6	ES 3	ES -6	ES -2	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	2	3	6	
18	5	7	2	ES -9	ES -11	ES -3	ES -3	ES -1	ES -6	ES -5	ES -1	ES 1	ES -7	ES -11	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-12	0	2	4	5	
19	6	4	8	ES -10	ES -10	ES -10	ES -5	ES 0	ES 1	ES 3	ES -18	ES 1	ES -4	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	-15	-13	-11	
20	-9	-2	-11	ES -7	ES 6	ES -1	ES 2	ES 5	ES 0	ES -2	ES -2	ES 2	ES -24	ES -24	ES -24	ES -13	ES -24	ES -24	-9	3	ES -24	0	3	5			
21	2	3	1	ES -19	ES -21	ES -13	ES -11	ES -10	ES -12	ES -16	ES -25	ES -25	ES -25	13	ES 0	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-2	ES -25	-8	4	3	
22	0	2	1	5	-2	ES -5	ES -14	ES -5	ES -2	ES 0	ES -2	ES 1	ES -4	ES 5	ES -12	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-10	6	4	
23	0	-7	-6	ES -3	ES -14	ES -14	ES -10	ES -5	ES -5	ES -1	ES -25	ES -25	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	ES -24	6	6	1	
24	3	0	1	ES -6	ES -7	ES -6	ES -3	ES -1	ES -5	ES -7	ES -16	ES 1	ES -7	ES -4	ES -7	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	0	-4	-3		
25	-3	-2	3	-5	-6	ES -16	ES -5	ES -3	ES -3	ES -1	ES -5	ES -14	ES -11	ES -16	ES -16	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-5	1	-7	
26	-7	-1	1	ES -2	ES -3	ES -8	ES -2	ES -2	ES -3	ES 0	ES -4	ES -3	ES -17	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-4	-8	-5	-3	
27	-2	1	-13	ES -11	ES -5	ES -9	ES -6	ES -9	ES -11	ES -11	ES -26	ES -6	ES -8	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	1	1	1	
28	-4	-7	-2	ES -12	ES -17	ES -10	ES -7	ES -6	ES -1	ES -10	ES -2	ES -10	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-2	ES -25	-11	

CNT	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
MED	US 0	0	0	ES -6	ES -4	ES -7	ES -3	ES 0	ES -2	ES -4	ES -8	ES -14	ES -17	ES -24	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	ES -25	-2	0	-2
UD	8	7	8	ES 5	ES 3	ES 0	ES 3	ES 4	ES 2	ES 0	ES -1	ES 2	ES -1	ES -4	ES -7	ES -24	ES -24	ES -24	-9	-12	-1	3	5	5		
LD	ES -8	ES -7	ES -6	ES -17	ES -16	ES -15	ES -11	ES -6	ES -6	ES -11	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	ES -26	-15	-13	-12

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Feb. 1973	Whole Day Figure	W W V				W W V H				Conditions				Principal Geomagnetic Storms		
		00	06	12	18	00	06	12	18	00	06	12	18	Start	End	Range
		06	12	18	24	06	12	18	24	06	12	18	24			
1	4o	4U	S	S	4	4	3U	S	4	N	N	N	N			
2	4o	4U	S	S	4	4	3U	S	4	N	N	N	N			
3	5-	4U	S	S	5U	4	4U	S	4	N	N	N	N			
4	5-	4U	S	S	5	4	5U	S	4	N	N	N	N			
5	5-	5U	S	S	4U	4	4U	S	4	N	N	N	N			
6	3o	4U	S	S	2U	4	4U	S	2U	N	N	N	N			
7	5-	5U	S	S	4	4	4U	S	4	N	N	N	N			
8	4o	4U	S	S	4	4	4U	4U	4	N	N	N	N			
9	3+	4U	S	S	3U	4	4U	5U	4	N	N	N	N			
10	3+	3U	S	S	4U	4	4U	4U	4	N	N	N	N			
11	4o	4U	S	S	4U	4	4U	S	4	N	N	N	N			
12	4o	4U	S	S	4U	4	4U	3U	4	N	N	N	N			
13	4o	4U	S	S	4U	4	3U	S	4	N	N	N	N			
14	4o	4U	S	S	4U	4	5U	S	4	N	N	N	N			
15	4o	4U	S	S	4U	4	4U	S	4	N	N	N	N			
16	3+	3U	S	S	4U	4	4U	S	4	N	N	N	N			
17	4o	4U	S	S	4	4	4U	S	4	N	N	N	N			
18	5-	4U	S	S	5	4	4U	S	4	N	N	N	N			
19	3+	4U	S	S	3	4	3U	S	4	N	N	N	N			
20	4o	3U	S	S	5U	4	3U	S	4	N	N	N	N			
21	4+	4U	S	5U	4	4	3U	S	4	N	N	N	N	14.0	---	109
22	4o	4U	S	S	4	4	4U	S	4	U	U	U	U	---	---	
23	3+	3U	S	S	4	4	5U	S	4	U	U	U	U	---	---	
24	3+	4U	S	S	3	4	5U	S	4	U	U	U	U	---	---	
25	3+	4U	S	S	3	4	4U	S	4	N	N	N	N	---	---	
26	4o	4U	S	S	4	4	4U	S	4	N	N	N	N	---	---	
27	4o	4U	S	S	4	4	4U	S	3	N	N	N	N	---	---	
28	3+	4U	S	S	3U	4	3U	S	4	N	N	N	N	---	17.0	

SUDDEN IONOSPHERIC DISTURBANCES

HIRAISO

Time in U.T.

Feb. 1973	Drop-out Intensities (dB)				S W F				Correspondence		
	CO	HA	1)	2)	Start	Duration	Type	Imp.	Solar Flare	Solar Noise	Geomag. Crochet
22	12	10	<u>16</u>		0132	57	SL	1+			
22	X	<u>30D</u>	<u>20</u>	X	2348	19	SL	2-	X		
28	25D	<u>40D</u>			2155	30	S	3+	X	X	

NOTES

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

I N U B O

Feb. 1973	S P A						Time (U.T.)			Remarks
	Phase Advance (degrees)						Start	End	Maximum	
Date	GBR	NAA	NWC	NPG	ND3		Start	End	Maximum	
3				40	—		0505	0628	0525	
14			21	<u>44</u>	—		2252	0012	2312	
15			<u>28</u>	17	—		0135	0228	0148	X
22			<u>12</u>	10			0020	0046	0025	
22	36	34	<u>91</u>	62	54		0134	0305	0144	X
22			<u>8</u>	4			0320	0340	0322	
22			48				0802E	0857	0808	X
22	58*	61*	107*	<u>123*</u>	95*		2321	0138	2354	X
23			<u>9</u>	3			0256	0314	0300	
23			<u>28</u>	10			0622	0702	0628	
23		11	20	<u>27</u>	20		2305	2334	2312	X
24			5	<u>7</u>			2304	2314	2307	
24			4	<u>7</u>			2322	2339	2324	
25			6				0222	0243	0227	
25			10*				0314	0351	0317	
28	23	62		<u>131</u>	77		2153	2312	2205	X

IONOSPHERIC DATA IN JAPAN FOR FEBRUARY 1973

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☎ (0423) (21) 1 2 1 1(代)

印刷所 株式会社真成社

〒162 東京都新宿区筑土八幡町8

☎ (03) (260) 5 2 7 9
