

IONOSPHERIC DATA IN JAPAN

FOR AUGUST 1973

VOL. 25 No. 8

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OBSERVATION STATIONS

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

	Latitude	Longitude	Site
Wakkanai	45°23.6'N	141°41.1'E	Midori, Wakkanai-shi, Hokkaido
Akita	39°43.5'N	140°08.2'E	Tegata-Sumiyoshi-cho, Akita-shi, Akita-ken
Kokubunji	35°42.4'N	139°29.3'E	Nukui-Kitamachi, Koganei-shi, Tokyo
Yamagawa	31°12.1'N	130°37.1'E	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken
Okinawa	26°19.0'N	127°46.8'E	Chatan-son, Nakagami-gun, Okinawa-ken

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

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

SYMBOLS AND TERMINOLOGY

A. IONOSPHERE

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

a. Terminology

$f_o F2$ $f_o F1$ $f_o E$	}	The ordinary wave critical frequency for the $F2$, $F1$ and E layers, respectively.
$f_o E_s$		The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
$f_b E_s$		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 $f_o E_s$.
$hpF2$		The virtual height of the $F2$ layer measured on the ordinary wave component at a frequency equal to $0.834 f_o F2$.
$ypF2$		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 respectively at Fort Collins, Colorado and Kauai, Hawaii, is carried 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
	WWV	WWVH	
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 uppermost fifth of values when they are ranked according to magnitude,
 LD : lower decile, median of the lowest fifth 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 atmospheric.

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--.

c. Sudden Ionospheric Disturbances

(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 _____. When these quantities are not given correctly, they are accompanied by the following symbols.

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

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 coloumn, 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

AUG. 1973

FOF2 (0.1 MHz)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	44	50	F	A	A	A	A	A	A	A	A	A	A	46	A	A	46	48	A	46	54	F	F	F	40		
2	F	F		F	F			A		A									A	A		57	57	A	F	43	
3	43	F	F	A	F				A	A												63	57	F	F		
4	A	A	F	F	F				A	A	C											70	70	61	47		
5	S	F	F	F	41	43	47	56	60	53	70	57	56	A	61	63	A	A		55	66	68	F	F	F	61	
6	47	43	A	S	S	A			A	A												S	F	F	F		
7	S	A	A	F	F					A	A	A								A	A	F	60	60	43	38	
8	36	F	F	F	F					A	A	A										A	F	F	F		
9	F	F	F	S	F				R	A	A											A	F	F	F	50	
10	F	A	A	43	44	46	53	66	83	75	64	60	A	51	56	A	A					67	68	F	A	A	
11	A	F	A	F	F				A																		
12	38	39	40	F	F																						
13	F	S	F	F	F				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
14	C	C	C	C	C																						
15	F	F	F	F	F																						
16	37	37	40	38	F																						
17	36	F	36	34	F																						
18	40	38	38	37	F																						
19	F	F	F	A	A																						
20	U	S	F	F	F																						
21	F	F	38	U	F																						
22	A	A	A	A	F																						
23	F	46	43	43	37																						
24	45	44	46	F	I																						
25	F	F	F	F	F																						
26	39	A	33	F	F																						
27	A	36	35	F	F																						
28	37	33	35	33	F																						
29	36	F	F	F	F																						
30	F	F	F	F	F																						
31	F	F	F	38	38																						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	21	15	18	19	16	27	26	22	18	17	18	21	20	25	26	28	25	23	19	25	21	20	14	21			
MED	40	39	38	38	F	42	48	54	58	58	58	55	56	53	55	54	53	53	56	61	60	57	49	43			
UQ	44	42	40	40	40	43	50	57	66	64	63	58	60	56	56	59	57	58	61	67	67	62	55	F	47		
LQ	38	37	35	34	F	37	45	49	54	53	53	52	53	51	52	52	51	50	53	58	57	54	45	40			

AUG. 1973

FOF2 (0.1 MHz)

IONOSPHERIC DATA

AUG. 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								A	A	A	A	A	A	430	A	A	400	A	A					
2								A	A	A	A	440	A	430	430	A	A	A	A					
3					300	360		A	A	A	450	A	A	A	A	430	410	400	330					
4						380	400		A	A	C	A	430	440	430	450	410	380	330					
5							410	430	440		A	A	450	A	430	420	A	A						
6						A	A	A	A	A	A	460	A	460	450	A	410	A						
7					290	360	400	420		A	A	A	430	A	A	A	A	A	A					
8						A	A	A	A	A	A	A	A	A	A	420	400	390						
9						350	390	430		A	A	440	I A 430	430	A	420	A	A	A					
10						390	400	410	430	440		A	A	440	430	A	A	370	A					
11							A	A	430	430	430	I A 440	440	430	420	A	A	370	A					
12						390	380	410	450	430		A	450	A	430	A	390	A	300					
13						A	C	C	C	C	C	C	C	C	C	C	C	C	C					
14						C	C	C	C	C		430	430	440	430	420	410	390						
15						360		A	A	430	420	A	430	A	A	410	390	A	A					
16						360	390	410	420	430	430	430	430	440	420	390	360							
17						360	A	410	430	A	440	430	440	A	420	400	350							
18						A	A	A	430	430	440	H 440	440	A	430	A	400	A						
19						370	400	A	420	420	430	450	A	440	410	390	350							
20						380	400	410		A	A	A	A	430	430	410	400							
21							A	A	A	A	A	A	A	430	410	410		360						
22						370	400	410		A	A	430	430	450	430	410	A							
23							390	A	A	A	430		A	430		430	A	370						
24						330	H 400	A	400	A	A	A	A	430	420	400	380							
25						350	380	410	410	430	420		A	430	420	420	380	A						
26						340	390	420	430	A	A	A	430	430	420	A	A							
27						A	A	A	A	A	430	A	A	430	430	A								
28							A	A	420	A	A		A	430	430	420	A	A						
29							A	A	A		430	430	430	440	430	410								
30						360	410	420	440	440	450	450	450	450	430	400	L							
31							L	420	440	450	460		A	470	470	440								
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						2	16	15	13	15	14	15	15	22	22	21	16	10	3					
MED						295	360	400	410	430	430	430	430	430	430	420	400	370	330					
UQ							375	400	420	435	440	440	445	440	430	420	400	380	330					
LQ							355	390	410	420	430	430	430	430	430	410	390	360	315					

AUG. 1973

FOF1 (0.01 MHz)

IONOSPHERIC DATA

AUG. 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					A	180	220	265	295	310	325	320	315	310	A	300	290	235	190	S				
2					A	180	225	270	295	300	310	I A 300	310	305	305	A	A	A	A	A				
3					A	A	235	280	300	310	325	320	320	320	320	295		A	A	A	A			
4					A	A	230	280	300	310	I A 315	315	305	A	A	A	A	A	180	S				
5					A	165	230	280	295	300	300	A	A	A	325	310	265	250	190	E				
6					A	A	235	280	295	305	310	325	305	A	A	A	295	250	A	A				
7					A	A	215	265	295	300	300	295	300	A	A	A	A	A	A	A				
8					A	150	225	265	295	300	305	300	A	A	A	A	295	A	180	A				
9					A	150	210	240	A	290	A	A	A	A	310	305	290	225	A	S				
10					S	A	215	265	300	310	315	A	A	A	335	315	290	230	150	E				
11					A	A	215	265	290	295	A	A	I A 330	330	320	300	280	205	A	A				
12					S	A	A	A	A	A	A	330	320	315	305	300	285	A	A	A				
13					E	215	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
14					C	C	C	C	C	C	305	A	A	A	A	A	A	A	A	A				
15					A	210	245	285	A	A	A	A	A	A	A	A	300	225	150	E				
16					E	130	210	240	280	300	305	A	320	320	305	300	280	220	150	E				
17					S	210	245	280	A	A	A	A	A	A	A	A	A	215	A	S				
18					S	A	230	270	285	300	300	A	310	330	305	300	285	230	140	E				
19						150	225	270	295	305	315	305	300	300	A	A	A	A	140	E				
20						130	220	240	290	300	310	A	A	A	305	300	290	220	A	A				
21			E	E	E	E	205	255	290	300	A	A	A	A	A	A	280	225	A	S				
22						A	A	A	295	305	300	A	A	A	A	A	A	A	A	A				
23						A	220	270	300	315	320	A	A	A	A	A	A	A	A	A				
24					E	E	200	250	300	305	320	325	330	330	320	300	270	220	130	E				
25						A	210	260	290	A	315	325	340	310	310	295	265	215	S	S				
26					S	200	240	290	300	305	A	A	320	A	300	270	220	130	A	S				
27						140	210	245	285	290	295	A	A	A	A	A	A	230	A	S				
28					S	205	255	290	300	310	300	A	A	325	305	270	220	S	S					
29						150	205	255	290	300	300	305	320	300	310	300	285	220	S	E				
30						115	215	250	290	A	A	A	A	A	A	A	A	A	A	A	S			
31						A	205	250	300	315	335	320	I A 330	330	310	A	290	220	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			1	1	3	14	28	27	27	24	23	14	15	13	15	15	19	19	11	8				
MED			E	E	E	145	215	260	295	300	310	318	320	320	310	300	285	220	150	E				
UQ					E	150	225	270	295	308	315	325	325	330	320	302	290	230	180	E				
LQ					E	115	210	248	290	300	302	300	308	310	305	300	275	220	140	E				

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AUG. 1973

FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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	J	X ₂₃	J ₂₉	J ₃₃	J ₆₄	J ₈₃	98	J ₈₀	J ₉₅	J ₁₃₁	J ₁₂₁	65	J ₇₃	J ₇₅	36	J ₈₃	51	33	J ₆₃	J ₁₁₃	J ₆₃	38	38	J ₅₀	J ₅₀	
2		31	J ₂₁	J ₄₃	J ₃₉	40	27	31	65	J ₇₀	J ₁₀₃	50	41	J ₆₂	49	45	54	J ₆₃	J ₆₀	J ₉₀	J ₇₄	J ₆₁	J ₆₀	J ₆₃	J ₃₅	
3	J	X ₄₀	J ₂₃	18	J ₆₃	J ₅₁	30	33	43	60	J ₅₉	J ₆₀	J ₇₃	59	J ₅₀	49	40	44	J ₃₃	23	28	J ₅₃	J ₃₅	J ₄₁	J ₄₃	
4		61	J ₅₆	J ₅₃	J ₂₅	J ₃₃	28	29	33	J ₆₅	J ₆₆	C	59	39	35	J ₄₀	J ₆₀	J ₄₅	30	J ₃₃	18	J ₃₁	30	26	33	
5	J	X ₃₅	J ₅₃	J ₂₃	J ₂₀	J ₂₁	25	35	37	40	J ₄₆	44	J ₅₃	43	60	J ₅₅	39	J ₉₈	J ₇₈	J ₈₃	J ₄₃	J ₅₃	38	J ₃₃	J ₃₁	
6	J	X ₃₃	J ₅₃	J ₆₀	J ₆₅	J ₆₃	J ₅₈	61	J ₇₃	J ₈₄	J ₁₀₃	J ₅₂	J ₅₅	J ₆₇	41	J ₄₁	J ₅₄	38	J ₅₀	J ₄₅	J ₁₃₂	J ₈₄	J ₅₃	J ₅₃	J ₆₁	
7	J	X ₃₅	J ₆₀	J ₅₇	J ₃₁	J ₂₉	32	30	G	34	J ₇₃	J ₆₅	J ₆₅	42	J ₄₅	J ₈₀	J ₅₃	J ₄₅	J ₇₅	J ₉₀	J ₈₀	J ₆₃	J ₄₁	39	J ₅₅	
8	J	X ₂₅	J ₂₆	J ₅₂	J ₃₀	J ₃₀	19	J ₇₀	J ₇₀	J ₅₆	J ₁₄₀	J ₉₃	J ₈₅	J ₁₁₃	J ₇₃	J ₉₅	61	J ₇₀	J ₆₉	J ₃₂	83	J ₇₀	J ₅₁	J ₅₃	J ₅₇	
9	J	X ₂₅	43	43	71	73	26	32	42	J ₆₃	J ₁₄₀	61	49	58	43	J ₁₄₁	40	J ₁₆₄	J ₁₇₀	J ₁₆₂	J ₁₄₀	J ₁₂₁	J ₇₁	J ₆₀	J ₄₃	
10	J	X ₃₃	J ₅₃	J ₅₆	J ₄₅	40	34	28	44	35	35	38	J ₆₉	J ₆₀	J ₄₀	37	J ₆₀	J ₉₄	J ₅₀	J ₇₇	J ₈₇	J ₅₃	J ₅₄	J ₈₀	J ₇₅	
11	J	X ₅₀	J ₆₀	46	J ₃₀	41	J ₈₃	J ₇₀	J ₆₀	J ₇₈	35	35	36	J ₅₃	40	40	J ₇₀	J ₈₅	38	J ₆₁	J ₁₃₅	J ₄₃	J ₄₀	J ₄₀	29	
12		26	28	J ₃₁	J ₂₅	J ₂₁	28	45	J ₄₀	J ₆₀	J ₄₂	J ₆₀	J ₅₂	52	J ₉₅	G	44	J ₁₃₃	J ₆₅	J ₇₀	J ₇₀	J ₁₁₄	J ₁₅₈	J ₆₀	J ₅₃	
13	J	X ₄₀	J ₅₀	40	J ₃₅	J ₄₁	21	J ₅₀	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14		C	C	C	C	C	C	C	C	C	C	G	37	43	J ₁₀₀	J ₄₅	J ₆₃	J ₅₀	J ₃₀	33	J ₈₃	J ₁₂₁	J ₅₉	J ₂₃	J ₆₃	
15	J	X ₇₃	J ₂₀	J ₃₃	J ₃₁	40	J ₃₁	36	J ₄₃	J ₅₀	J ₆₃	39	J ₅₃	J ₇₀	J ₁₀₂	J ₄₄	J ₆₅	38	J ₆₄	J ₁₀₄	J ₆₃	J ₅₃	J ₄₅	J ₃₃	J ₃₃	
16		26	22	E ₁₅	E ₁₄	E	21	30	J ₄₀	40	34	G	38	G	G	G	23	33	31	41	25	J ₂₅	J ₃₀	J ₃₅	E ₁₂	J ₂₅
17	J	X ₄₅	J ₂₃	28	J ₂₀	E	30	34	J ₄₁	J ₄₃	J ₄₀	J ₅₈	42	37	J ₅₀	J ₅₉	38	33	J ₅₅	J ₆₁	J ₁₂₇	J ₄₃	J ₈₃	J ₄₄	J ₃₀	
18		E	J ₂₄	J ₃₀	26	25	19	J ₄₃	J ₄₃	J ₄₁	39	J ₄₁	36	38	J ₅₀	J ₈₀	J ₇₆	J ₄₄	J ₆₃	J ₅₃	J ₆₁	J ₅₃	J ₆₂	J ₇₃	J ₄₁	
19	J	X ₅₃	J ₃₃	J ₃₀	J ₆₁	J ₅₅	20	25	39	J ₈₀	43	37	37	39	J ₅₄	J ₅₁	J ₃₇	J ₄₅	26	J ₃₅	J ₄₁	33	26	J ₅₁	28	
20		32	J ₂₃	E	E	E	28	30	32	G	J ₉₃	J ₇₁	J ₅₁	J ₄₃	J ₄₂	G	G	38	J ₄₁	J ₃₁	J ₃₁	J ₃₃	J ₃₄	J ₃₂	19	
21	E	S ₁₅	E	J ₂₃	J ₄₃	J ₅₉	J ₃₃	J ₄₅	J ₆₃	J ₇₃	J ₁₀₆	67	72	66	40	35	J ₅₀	40	33	J ₁₄₄	J ₁₄₂	J ₆₅	J ₈₆	J ₆₉	J ₈₈	
22	J	X ₁₁₃	J ₈₅	J ₁₀₇	J ₆₁	J ₄₃	J ₃₀	33	39	39	J ₆₇	J ₅₃	J ₄₀	J ₄₅	J ₃₈	J ₃₃	40	J ₄₅	J ₃₅	J ₂₅	J ₃₃	J ₄₃	J ₄₆	J ₄₃	J ₄₃	
23	J	X ₂₇	J ₃₅	J ₃₁	E	J ₂₃	24	29	37	52	47	62	J ₄₃	66	J ₆₅	J ₅₀	J ₄₃	J ₄₅	J ₃₀	J ₅₃	J ₉₈	J ₆₃	30	J ₆₃	23	
24	J	X ₂₄	J ₂₀	J ₂₄	21	J ₂₄	42	31	28	44	G	42	43	J ₇₀	G	40	G	G	G	36	22	21	E	19	E ₁₅	E ₁₆
25		18	J ₂₃	J ₂₁	J ₂₂	J ₃₀	24	G	G	G	38	42	38	48	G	G	G	33	40	J ₇₀	42	J ₂₅	24	32	43	
26		31	42	J ₂₂	J ₃₃	J ₂₁	J ₃₀	J ₃₂	31	34	37	J ₅₀	J ₅₉	J ₅₉	G	J ₃₄	35	J ₅₅	J ₅₆	J ₆₄	J ₈₃	J ₆₃	J ₈₃	J ₈₃	J ₆₁	
27	J	X ₆₃	J ₂₃	E	15	22	J ₃₃	39	J ₄₅	J ₆₃	J ₅₀	43	J ₆₀	J ₅₅	J ₄₁	J ₅₇	J ₅₁	J ₃₆	J ₅₃	J ₈₂	J ₆₁	J ₃₁	J ₂₄	J ₂₅	J ₃₂	
28		28	J ₂₄	J ₂₁	J ₂₆	J ₃₀	J ₄₁	J ₆₁	J ₈₃	J ₆₃	38	J ₇₂	J ₁₂₅	J ₆₈	28	G	38	J ₆₀	J ₈₃	J ₇₃	J ₆₃	J ₈₅	J ₆₃	23	23	
29	J	X ₂₈	E	14	J ₂₃	E	20	43	39	J ₄₃	J ₄₉	33	36	G	G	G	40	32	34	31	J ₃₆	J ₃₆	J ₄₃	J ₃₂	J ₃₃	
30	J	X ₂₄	18	E	J ₃₀	J ₅₅	J ₃₃	27	33	G	36	J ₄₃	42	J ₄₃	J ₄₂	J ₄₁	J ₃₈	J ₄₀	J ₄₃	J ₄₃	J ₄₃	J ₃₄	J ₃₅	J ₃₄	J ₂₈	
31	J	X ₂₅	16	E	16	15	20	J ₄₀	J ₄₃	G	G	G	36	J ₈₃	G	G	32	G	G	20	30	21	E ₁₅	J ₂₅	J ₂₁	E ₁₅
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		30	30	30	30	30	30	30	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	J	X ₃₁	J ₂₅	J ₃₀	J ₃₀	J ₃₀	29	34	41	J ₅₀	J ₄₇	50	50	54	42	J ₄₁	42	J ₄₄	J ₄₆	J ₅₇	J ₆₃	J ₅₃	J ₄₂	J ₄₀	J ₃₄	
UQ	J	X ₄₀	J ₅₀	J ₄₃	J ₄₃	J ₄₃	J ₃₃	J ₄₅	J ₄₅	J ₆₃	J ₇₃	J ₆₁	J ₆₀	J ₆₆	J ₅₀	J ₅₅	J ₅₄	J ₆₀	J ₆₃	J ₈₂	J ₈₃	J ₆₃	J ₆₀	J ₆₀	J ₅₃	
LQ	J	X ₂₅	J ₂₂	21	J ₂₁	J ₂₁	24	30	37	39	38	39	38	43	35	33	38	36	34	J ₃₂	J ₃₆	J ₃₃	J ₃₄	J ₃₂	28	

AUG. 1973

FOES (0.1 MHz)

IONOSPHERIC DATA

AUG. 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	23	20	A	A	A	A	A	A	A	A	A	A	G	A	A	G	37	A	38	21	18	41	15
2	E	16	20	25	24	G	G	A	49	A	48	39	44	40	G	43	45	A	A	53	46	50	A	22
3	20	20	15	A	15	25	G	42	A	A	G	A	A	49	48	38	36	30	21	16	45	28	22	30
4	A	A	20	20	25	20	G	G	A	A	C	50	G	35	38	34	35	30	25	G	20	20	E	24
5	23	17	15	E	16	G	35	G	G	G	44	50	37	A	G	G	A	A	50	26	16	23	24	20
6	27	30	A	30	28	17	44	50	A	A	50	G	50	36	38	45	37	38	42	38	27	20	40	30
7	21	A	A	20	19	23	G	G	G	A	A	A	G	43	A	43	43	46	A	A	50	36	32	33
8	E	15	E	21	18	G	A	A	53	A	A	A	A	A	A	32	38	32	29	20	A	40	26	40
9	E	21	20	12	18	G	28	G	36	A	A	40	A	39	A	G	A	A	A	A	A	45	36	32
10	27	A	A	30	36	24	G	36	G	G	G	47	A	37	G	A	A	33	A	50	30	26	A	A
11	A	20	A	27	20	35	50	54	A	G	35	35	A	G	G	45	A	G	40	30	20	20	39	15
12	E	E	E	18	E	G	27	30	37	38	37	46	40	A	G	41	34	40	25	30	A	A	A	40
13	28	26	17	20	32	G	40	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	G	36	36	35	38	35	36	25	20	35	A	45	20	42
15	20	E	22	20	23	28	G	40	40	35	38	A	40	A	41	37	G	A	56	25	32	23	E	E
16	E	E	E ₁₅	E ₁₄	E	G	G	G	G	G	G	35	G	G	G ₂₂	G	G	G	G	22	22	35	E ₁₂	19
17	16	E	E	E	E	27	G	40	36	32	45	35	35	39	44	35	31	34	15	40	26	30	40	E
18	E	16	E	E	G	17	40	40	40	G	G	36	G	43	G	55	G	A	50	46	43	30	23	16
19	17	E	18	A	A	G	G	35	A	40	G	G	G	53	33	30	34	25	29	33	E	E	22	E
20	E	E	E	E	E	G	G	G	G	47	54	44	43	37	G	G	G	30	27	27	22	27	20	15
21	E ₁₅	E	15	18	14	31	43	A	A	A	A	A	A	33	34	33	35	32	A	A	A	A	21	A
22	A	A	A	A	18	19	24	33	G	A	A	37	39	34	33	32	38	32	20	26	17	20	36	20
23	18	E	22	E	E	18	G	G	41	43	A	36	A	36	40	32	41	26	33	40	32	E	E	20
24	E	E	17	15	21	A	27	G	A	G	A	43	A	G	G	G	G	G	G	16	E	E	E ₁₅	E ₁₆
25	14	20	20	E	E	19	G	G	G	22	33	40	G	A	G	G	G	38	A	40	20	E	20	30
26	16	A	20	18	15	26	G	G	G	G	A	A	A	G	33	G	A	A	A	A	E	A	A	25
27	A	18	E	E	19	28	37	40	A	43	39	42	47	37	35	40	28	A	A	17	26	20	22	28
28	16	19	17	20	27	A	A	A	A	G	A	A	A	37	G	G	43	46	A	A	17	16	E	E
29	20	E	E	E	E	G	A	A	42	A	G	G	G	G	G	G	G	G	30	25	17	20	16	16
30	17	14	E	15	17	20	G	G	G	36	42	40	39	41	41	31	37	30	40	30	23	30	17	18
31	18	E	E	E	E	15	32	G	G	G	G	G	48	G	G	30	G ₂₁	G ₁₉	17	E	E ₁₅	E	20	E ₁₅
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	30	30	30	30	30	30	30	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	17	16	17	18	18	19	26	35	40	40	44	41	46	37	33	32	36	32	40	32	24	24	22	20
UQ	23	23	20	25	24	27	40	50	A	A	A	A	A	43	41	41	43	46	A	46	45	36	39	30
LQ	E	E	E	E	E	G	G	G	G	G	G	35	36	G	G	G	G	26	25	25	17	20	17	15

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AUG. 1973

FBES (0.1 MHz)

IONOSPHERIC DATA

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

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AUG. 1973

F-MIN (0.1 MHz)

IONOSPHERIC DATA

AUG. 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	280	290	F	A	A	A	A	A	A	A	A	A	A	315	A	A	270	295	A	305	300	280	F	F	290
2	290	300	305	F	275	280	290	A	325	A	300	270	285	265	290	305	315	A	A	310	305	300	A	295	F
3	290	290	310	A	F	300	280	310	A	A	320	A	A	300	290	315	285	295	315	310	315	295	F	F	F
4	A	A	F	F	305	335	300	335	A	A	C	325	320	310	325	265	285	315	300	290	300	315	345	280	F
5	280	F	F	F	315	315	320	320	310	270	335	320	310	A	305	325	A	A	305	290	280	295	295	300	F
6	315	295	A	315	S	A	290	S	A	A	315	275	295	295	295	310	295	295	325	300	S	F	F	F	F
7	275	A	A	F	305	265	265	285	335	A	A	A	300	290	A	290	305	320	A	A	295	315	310	310	F
8	280	270	F	280	F	305	A	A	320	A	A	A	A	A	A	305	330	295	300	285	A	F	F	F	F
9	F	285	F	305	F	325	335	315	R	A	A	280	I A 295	305	A	315	A	A	A	A	A	F	290	295	F
10	F	A	A	295	305	305	285	305	325	335	315	300	A	295	320	A	A	310	A	300	310	F	A	A	F
11	A	F	A	F	F	320	315	325	A	280	340	330	I A 285	285	320	290	A	310	280	320	330	320	310	300	F
12	295	290	300	F	300	300	305	315	365	295	300	315	300	A	295	300	300	310	310	300	A	A	A	F	F
13	F	S	F	F	305	325	290	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	F	F	F	F	F	305	320	315	350	305	330	A	305	A	310	305	325	A	305	325	315	330	325	310	S
16	295	290	295	305	315	300	325	335	325	310	300	325	325	330	240	290	320	315	315	305	300	325	315	295	F
17	300	F	305	295	305	315	295	300	335	285	330	330	310	285	325	315	330	340	A	300	F	330	F	320	F
18	310	295	315	300	310	365	340	325	315	350	335	300	300	305	310	345	315	A	325	310	290	305	F	F	F
19	305	F	300	A	A	315	325	310	A	330	335	305	285	315	290	325	335	340	340	295	F	330	S	F	F
20	U S 295	F	F	F	F	320	290	310	340	330	335	315	350	330	335	325	315	310	305	310	300	F	F	F	F
21	F	F	315	U S 295	F	300	320	A	A	A	A	A	A	315	325	320	315	320	A	A	A	A	S	A	A
22	A	A	A	A	F	325	335	330	335	A	A	315	340	315	310	330	335	320	320	290	285	315	310	300	F
23	F	305	290	295	280	325	325	350	330	330	A	305	A	305	315	310	305	305	310	330	315	300	290	300	F
24	300	290	280	285	310	I A 300	295	260	A	R	A	A	A	250	285	290	335	315	295	270	265	315	F	290	F
25	265	F	305	300	300	280	280	290	305	330	R	320	A	R	265	285	300	320	A	280	285	290	S	275	F
26	310	A	290	295	275	290	280	280	315	315	A	A	A	275	285	315	A	A	A	A	300	A	A	280	F
27	A	285	285	F	F	285	340	330	A	250	275	310	300	300	290	300	330	A	A	300	275	280	290	290	F
28	300	275	290	295	F	A	A	A	A	300	A	A	A	275	320	300	315	320	A	A	300	300	305	295	F
29	280	F	285	F	F	325	A	A	260	A	245	245	285	315	310	320	315	290	285	265	F	290	300	325	F
30	F	F	F	310	F	320	340	320	330	305	320	315	305	325	300	315	305	310	315	300	295	S	300	290	F
31	275	270	275	310	315	320	335	305	335	335	345	305	290	315	305	315	320	315	305	290	285	305	290	295	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	21	15	18	19	16	27	26	22	18	17	18	21	20	25	26	28	25	23	19	25	21	20	14	21	
MED	295	290	298	295	305	315	310	315	328	310	325	315	300	305	308	312	315	310	310	300	300	305	302	295	F
UQ	305	295	305	302	310	322	325	325	335	330	335	320	310	315	320	318	325	320	318	310	305	318	310	300	F
LQ	280	285	285	295	300	300	290	305	315	295	300	300	288	290	290	300	305	308	302	290	285	295	290	290	F

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AUG. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 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								A	A	A	A	A	A	385	A	A	360	A	A					
2								A	A	A	A	395	A	380	380	A	A	A	A					
3						355	360	A	A	A	365	A	A	A	A	370	350	350	360					
4							340	375	A	A	C	A	400	385	390	360	365	340	335					
5								350	390	385	A	A	380	A	395	355	A	A						
6							A	A	A	A	A	385	A	360	360	A	345	A						
7						330	345	375	390	A	A	A	375	A	A	A	A	A	A					
8							A	A	A	A	A	A	A	A	A	385	I A 340	325						
9							355	380	375	A	A	405	I A 410	390	A	380	A	A	A					
10							325	A	390	385	390	A	A	385	380	A	A	A	A					
11								A	A	395	395	395	I A 380	390	380	A	A	350	A					
12							335	395	400	380	420	A	A	A	380	A	385	A	365					
13							A	C	C	C	C	C	C	C	C	C	C	C	C					
14						C	C	C	C	C	380	400	380	380	I A 370	365	A							
15							355	A	A	420	410	A	395	A	A	A	360	A	A					
16							345	360	390	405	395	395	395	380	380	380	385	360						
17							350	A	370	395	A	385	395	365	A	355	360	A						
18							A	A	A	380	405	420 ^H	380	A	375	A	370	A						
19							350	A	A	A	410	410	370	A	365	350	360	370						
20							350	350	345	A	A	A	A	390	370	365	350							
21							A	A	A	A	A	A	A	395	390	365		A						
22							350	365	390	A	A	400	395	375	385	370	A							
23								380	A	A	A	420	A	385		350	A	340						
24							335	345 ^H	A	410	A	A	A	360	355	370	340							
25							335	390	370	415	A	405	A	390	390	345	340	A						
26							340	340	350	375	A	A	A	370	350	355	A	A						
27							A	A	A	A	A	370	A	A	390	370	A							
28								A	A	395	A	A	A	395	350	335	A	A						
29								A	A	A	390	395	380	385	370	355								
30							350	365	385	380	A	380	380	A	A	345	A	L						
31								L	380	405	380	390	A	370	350	365								
CNT							2	16	13	13	14	12	15	14	21	21	20	14	7	3				
MED							342	348	365	385	395	392	395	380	385	375	362	360	350	360				
UQ							350	380	390	405	408	405	395	390	380	370	365	355	362					
LQ							338	350	370	380	380	392	380	375	365	352	345	340	348					

AUG. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

AUG. 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								A	A	A	A	A	A	520	A	A	445	360	A					
2								A	300	A	385	455	415	470	380	345	320	A	A					
3						325	365	335	335	335	325	A	A	390	370	340	360	310	290					
4							350	250	A	A	C	295	315	325	325	460	380	305	300					
5								295	255	425	275	325	325	A	340	285	A	A						
6							370	A	A	A	320	400	360	370	365	335	350	310						
7						475	430	390	265	A	A	A	370	400	A	375	330	315	A					
8							A	A	300	A	A	A	A	A	A	330	280	340						
9							290	330	320	A	A	425	I A 400	A	365	A	345	A	A	A				
10							350	300	270	250	310	375	A	335	330	A	A	300	A					
11								A	A	350	295	325	A	420	325	375	A	290	300					
12							350	290	245	400	375	350	350	A	350	355	330	300	260					
13							350	C	C	C	C	C	C	C	C	C	C	C	C					
14						C	C	C	C	C	310	310	400	345	325	310	285							
15							300	300	270	300	300	A	350	A	345	350	310	A	A					
16							290	270	295	335	350	325	320	320	580	365	300	280						
17							360	300	270	320	300	305	340	380	300	340	300	280						
18							265	315	320	265	275	360	325	360	330	A	300	A						
19							285	300	A	280	275	350	375	A	360	285	280	255						
20							365	320	275	305	300	315	290	295	300	305	310							
21							285	A	A	A	A	A	A	350	310	330		300						
22							300	290	275	A	A	350	290	350	350	300	275							
23							280	310	280	A	325	A	320		350	325	300							
24							355	460	A	R	A	A	A	515	400	375	300							
25							415	370	340	325	R	530	A	R	480	415	350	300						
26							425	400	315	350	A	A	A	455	410	340	A	A						
27							370	300	335	A	545	410	315	370	340	380	320							
28								A	A	350	A	A	A	420	330	360	310	310						
29								A	A	A	550	580	400	350	340	320								
30							275	365	280	315	310	325	345	300	360	315	310	295						
31								280	260	280	275	310	325	325	325	295								
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT					3	21	21	19	18	18	21	19	24	25	27	21	17	4						
MED					370	350	300	280	322	310	325	350	355	345	340	310	300	295						
UQ					422	365	335	312	350	350	375	372	410	370	358	330	310	300						
LQ					348	290	290	270	280	295	315	325	330	325	318	300	295	275						

AUG. 1973

H^oF2 (KM)

IONOSPHERIC DATA

AUG. 1973

H·F (KM)

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

Station	WAKKANAI																							Lat. 45 23.6 N. Long. 141 41.1 E		Sweep 1 MHz to 20 MHz in 20 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																								
1	275	270	315	A	A	A	A	A	A	A	A	A	A	215	A	A	215	A	A	290	275	275	A	270																								
2	290	255	300	A	350	265	250	A	A	A	A	205	A	250	250	A	A	A	A	A	A	A	A	290																								
3	300	300	255	A	305	290	255	A	A	A	250	A	A	A	A	260	250	225	245	260	A	290	295	300																								
4	A	A	300	270	300	230	230	250	A	A	C	A	210	205	225	220	225	250	260	270	265	225	220	300																								
5	315	255	280	260	250	245	250	250	225	195	A	A	200	A	200	260	A	A	A	285	260	265	260	245																								
6	250	325	310	315	305	A	A	A	A	A	A	210	A	240	250	A	A	A	A	A	280	290	A	320																								
7	310	A	A	275	275	290	240	225	215	A	A	A	260	A	A	A	A	A	A	A	A	A	A	A																								
8	295	305	350	305	255	270	A	A	A	A	A	A	A	A	A	200	250	260	270	275	A	A	250	A																								
9	250	340	315	250	255	250	240	225	235	A	A	215	220	240	A	210	A	A	A	A	A	A	325	300																								
10	265	A	A	325	285	270	215	A	230	215	200	A	A	200	225	A	A	A	A	A	270	260	A	A																								
11	A	275	A	310	275	290	A	A	A	200	205	195	210	210	250	A	A	225	A	260	220	250	A	265																								
12	270	290	290	295	250	230	220	230	220	210	200	A	A	A	240	A	225	A	255	250	A	A	A	A																								
13	325	310	320	305	A	230	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C																								
14	C	C	C	C	C	C	C	C	C	C	230	200	215	205	A	230	A	225	245	A	A	A	250	A																								
15	250	250	340	295	295	290	250	A	A	200	200	A	240	A	A	A	240	A	A	250	250	225	220	250																								
16	265	285	275	260	240	240	240	240	205	210	200	210	195	220	215	225	230	235	240	250	260	240	230	265																								
17	270	270	270	275	250	255	250	A	235	200	A	210	195	250	A	240	235	A	A	A	300	250	A	235																								
18	250	270	275	270	250	225	A	A	A	240	200	180	210	A	245	A	245	A	A	A	A	260	260	260																								
19	265	260	260	A	A	255	230	A	A	A	205	195	225	A	240	225	250	225	250	A	270	225	260	300																								
20	255	275	260	225	250	260	225	210	225	A	A	A	A	225	205	220	245	255	275	250	265	280	260	255																								
21	250	230	275	280	250	275	A	A	A	A	A	A	A	195	230	230	255	250	A	A	A	A	290	A																								
22	A	A	A	A	295	260	230	250	215	A	A	210	220	200	200	225	A	270	255	260	275	245	A	295																								
23	250	250	300	265	300	245	250	250	A	A	A	200	A	215	A	240	A	245	A	A	250	245	250	270																								
24	265	290	300	265	260	300	280	240	A	210	A	A	A	240	235	235	230	290	265	300	310	250	300	260																								
25	300	300	225	300	300	280	250	210	220	195	A	210	A	200	200	240	260	A	A	A	290	260	315	A																								
26	275	A	305	300	300	A	265	225	250	215	A	A	A	210	215	250	A	A	A	A	260	A	A	300																								
27	A	300	300	280	340	A	A	A	A	A	275	A	A	A	235	225	A	225	A	A	265	295	295	275	300																							
28	270	335	300	310	335	A	A	A	A	215	A	A	A	200	240	255	A	A	A	A	250	255	250	260																								
29	300	320	310	300	275	245	A	A	A	A	210	200	210	210	230	260	220	265	310	300	275	250	255	250																								
30	300	300	270	300	300	280	250	240	210	220	A	210	210	A	A	225	A	250	A	270	275	300	255	260																								
31	300	300	275	250	230	250	220	235	220	205	200	200	A	220	225	225	230	240	255	260	260	250	250	250																								
CNT	26	25	26	25	27	25	20	14	13	14	12	15	14	21	20	20	17	15	12	16	21	22	20	23																								
MED	270	290	300	280	275	260	245	238	220	210	202	205	210	215	228	230	235	250	255	262	270	252	258	265																								
UQ	300	300	310	300	300	280	250	250	230	215	220	210	220	235	240	245	250	258	268	280	275	275	282	300																								
LQ	255	270	275	265	250	245	230	225	215	200	200	200	210	205	215	225	225	230	248	255	260	245	250	258																								

AUG. 1973

H·F (KM)

IONOSPHERIC DATA

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

AUG. 1973

H^oES (KM)

IONOSPHERIC DATA

AUG. 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 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	F3	F3	F4	CL52	C4	C3	C2	C4	C3	C2	C2	C2	C1	L2	C2	C1	C2	C7	C2	F2	F2	F5	F2
2	F2	F2	F3	F3	L5	C2	C2	C2	C2	C2	C2	L1	C1	C2	C2	L2	L2	L3	L3	L3	F4	FF32	F5	F4
3	F2	F3	F2	F7	L2	L2	C2	C2	C2	C3	C1	C3	C3	C2	CL21	C2	L2	L2	L2	L1	F4	F4	F4	F3
4	F2	F3	F2	F3	L3	CL11	C2	C1	C2	C3		C2	C1	L1	L2	L2	L3	CL11	C2	C1	FF21	F2	F1	F4
5	F2	F4	F2	F2	L1	C2	C3	C2	C1	C1	C2	L2	L1	L2	C1	H1	C4	C6	C6	C2	F2	F2	F3	F2
6	F4	F7	F7	F3	CL22	CL32	C3	C1	C3	C5	C2	C1	C3	L1	L2	L2	C2	C2	L3	CL22	F3	F2	F4	F3
7	F2	F3	F3	F3	L3	L3	C2		C1	C2	C2	C4	C1	L2	L3	L2	L4	L3	L4	L3	F3	F3	F2	FF22
8	F1	F2	F1	F3	L2	C1	C5	C3	C2	C3	C4	C3	L4	L3	L3	CL12	C2	L2	C3	CL21	F2	F3	F2	F4
9	F1	FF22	FF22	FF12	CL22	C2	C3	C2	L2	C3	L3	L2	L2	L1	C3	H1	C3	C3	CL32	C3	F3	F2	F3	F2
10	F4	F4	F4	F4	L3	L3	C1	C2	C1	C1	C1	L2	L3	L2	H1	C3	C5	C2	C5	L4	F4	F4	F3	F4
11	F3	F3	F5	F3	CL22	CL22	C4	C2	C3	C1	L1	L1	L3	H1	C1	C2	C3	C2	L3	L3	F2	F2	F2	F1
12	F1	F2	F2	F2	F1	C1	L2	L3	L2	L2	CL11	C2	C1	C3		C1	C2	L3	L2	L3	F4	F6	F4	F3
13	F3	F4	F3	F2	F3	C2	C3																	
14												L2	L1	L1	L2	L2	L2	L2	L2	CL22	F4	F5	F2	F3
15	F2	F2	F4	F2	F3	L2	C2	C3	C2	L2	L2	L3	L2	L3	L2	L2	C1	C4	C3	C2	F2	F2	F1	F2
16	F1	F1				C1	C2	C2	C1	C1		L1			L1	H1	H1	C1	C1	C2	F3	F4		F2
17	F2	F1	F1	F1		C2	C2	C2	C2	L1	L2	L2	L2	L2	L3	L2	LH11	CL21	CL41	C2	F3	F2	F2	F1
18		F2	F2	F1	C1	R1	C2	C3	C2	C1	C1	L1	X1	C2	C1	C4	C2	C3	C3	C5	F4	F4	F3	F4
19	F2	F1	F3	F6	F5	H1	H1	C3	C2	C2	C1	C1	C1	C3	L1	L1	L2	L2	C5	C6	F1	F1	F2	F1
20	F2	F2				C1	C2	C2		C2	C3	L2	L2	L1			C1	C2	L2	L2	F4	F5	F3	F2
21			C2	C2	C2	C3	C3	C2	C2	C3	L4	L3	L3	L1	L2	L2	C2	C2	L3	L3	F2	F4	F3	F3
22	F3	FF32	FF43	FF23	F2	L2	L2	CL22	C1	C2	C2	L2	L2	L2	L3	L3	L4	L2	CL22	FF12	FF11	F3	F3	
23	F2	F1	F3		F1	LH11	C2	C2	C2	C2	C3	L1	L3	L2	L2	L2	L2	L3	CL22	CL22	FF22	F1	F2	F1
24	F2	F2	F2	F1	C3	C4	C2	C1	C3		C2	C2	C2		H1			C2	C1	H1		F1		
25	C2	F3	F2	F2	F1	L1			L1	L2	CL11	C1	H2				H1	C3	C4	C3	F3	F2	F2	F3
26	F2	F4	F3	F2	F2	C4	C2	C1	C2	C1	C2	L2	L3		L1	H1	C3	C3	C5	F3	F2	F4	F3	F3
27	F4	F2		F1	F2	C4	C2	C2	C3	C2	C2	L2	L2	L2	L2	L3	L2	C5	L7	L2	F3	F2	F3	F3
28	F2	F3	F2	F4	F5	C3	C4	C5	C4	C1	C4	C2	L2	L2		H1	C2	C4	C5	C3	F2	F2	F1	F2
29	F3		F1	F1		H1	C2	C2	C2	C3	C1	C1				H1	H1	H1	C2	C2	F2	F3	F2	F2
30	F2	F2		F2	FF12	C2	C2	C2		L2	L2	L2	L2	L2	L2	L2	L3	L2	L3	L4	F5	F3	F2	F4
31	F2	F1		F1	F1	L1	C4	C2				C1	L2			L2	L1	L1	L1	F1		F2	F2	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

AUG. 1973

TYPES OF ES

IONOSPHERIC DATA

AUG. 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	F ₅₂	F	F	F	F	A	43	42	48	A	A	A	A	A	I ₅₀ R	I ₄₆ R	I ₄₉ A	50	54	50	52	51	45	F
2	F	F	I ₃₇ A	I ₃₆ A	F ₃₅	36	47	56	I ₆₅ A	71	A	A	A	A	64	64	69	64	A	A	A	F	F	F
3	A	F	F ₄₂	F	F	46	52	A	A	A	A	A	60	I ₆₃ A	58	60	58	59	64	68	F	F	F	F ₅₄
4	F ₄₈	F	F	F ₄₄	F ₃₇	40	49	C	C	C	62	68	68	64	58	52	52	56	58	68	74	67	57	56
5	F ₅₅	F ₅₂	F ₅₁	F ₄₉	44	46	58	I ₅₆ R	60	70	59	54	55	57	I ₆₄ A	71	I ₆₄ A	A	A	I ₆₈ A	70	F	70	47
6	40	I ₄₀ A	F	40	F ₃₈	40	54	F ₆₈	85	F ₇₃	66	I ₆₄ A	A	A	A	71	67	I ₇₈ A	75	65	66	F	F	F
7	F	F	F	A	A	C	Z ₅₆	C	C	A	A	I ₅₄ A	I ₅₈ A	58	A	A	A	57	62	69	F	F	F	I ₄₈ A
8	38	F	36	40	40	40	43	55	63	56	68	51	I ₅₀ A	58	60	64	62	56	60	65	74	60	F	F
9	F	F	F	F	F	49	54	51	I ₅₆ R	I ₅₂ A	I ₅₄ A	I ₅₄ A	55	I ₅₅ A	61	I ₆₀ A	54	I ₅₇ A	60	62	F	61	63	59
10	F ₃₈	F	F	F	F	F	50	66	75	I ₇₂ A	H ₆₅	I ₆₂ A	I ₅₇ A	57	61	60	56	58	I ₅₈ A	73	F	A	F	F
11	F ₅₁	F	F	F	40	39	57	68	I ₆₄ A	I ₆₀ A	57	54	52	56	56	I ₆₁ A	I ₆₅ A	67	74	82	78	65	49	46
12	F ₄₁	F ₄₁	42	42	F	40	53	75	59	65	I ₅₉ A	55	55	61	51	56	60	I ₆₄ A	I ₆₄ A	69	64	65	F	F
13	F ₃₆	36	34	I ₃₆ A	34	41	49	70	65	63	I ₆₀ A	I ₅₇ A	I ₅₄ R	54	I ₅₈ A	59	61	70	76	I ₈₈ R	I ₈₉ R	A	A	A
14	F	F	F	F	F	45	59	I ₆₂ R	66	A	A	55	60	65	64	64	62	60	I ₆₂ R	54	52	F	F	F
15	F	F	F	F	F ₄₁	F ₄₁	51	57	61	70	68	I ₅₆ A	I ₅₆ A	60	59	59	62	65	64	66	F	F	F	40
16	36	F	F	F	35	40	56	75	68	56	I ₅₅ C	59	53	60	59	58	69	67	63	66	59	53	F	41
17	39	38	F ₃₉	36	36	36	48	65	69	73	64	67	62	59	58	59	53	48	48	61	F	F	F	F
18	F	F	C	C	C	C	C	C	C	73	62	59	I ₆₄ A	I ₆₆ A	68	I ₆₅ A	61	I ₅₉ A	56	F	F ₅₅	F	F	F
19	F	F	F	F	F	36	51	63	69	68	57	58	64	64	67	70	64	58	50	54	F	54	F	F ₄₉
20	F	F	F ₄₇	F	F ₂₈	I ₃₆ A	46	I ₅₈ A	75	77	76	68	66	69	58	61	58	A	A	71	70	64	F	F
21	F	F	F ₄₁	42	F ₃₉	44	53	Z ₇₅	62	60	A	A	A	A	A	55	A	A	57	62	60	55	F	F
22	F ₄₆	42	F ₄₂	42	F ₃₈	40	49	59	62	I ₅₃ A	54	59	62	56	I ₅₇ A	56	54	53	I ₅₂ C	61	62	F	62	50
23	47	F	F	F	F	42	56	54	68	64	57	57	61	65	62	62	69	74	71	74	62	49	F	F
24	48	F	F	F ₄₄	F ₄₄	39	43	49	46	46	E ₄₆ G	A	47	54	I ₅₈ A	54	51	48	46	51	54	65	47	49
25	44	F ₄₆	F ₄₈	42	F ₄₂	F	43	52	62	A	A	C	E ₄₅ G	46	46	52	51	52	52	52	52	53	46	44
26	41	38	32	35	33	32	H ₄₆	59	57	54	I ₅₅ A	53	52	53	58	58	I ₅₂ A	57	60	71	61	54	49	F
27	F	F ₄₄	42	40	F	38	51	63	56	54	54	I ₆₄ A	I ₆₃ A	62	59	62	59	A	A	59	59	I ₅₆ A	54	48
28	F ₄₄	38	38	42	F	F ₄₃	55	55	65	54	I ₅₇ A	I ₅₉ A	61	64	74	62	63	62	62	I ₆₄ R	62	I ₅₈ A	54	48
29	39	37	40	F	F	42	40	42	47	56	I ₅₁ R	48	66	71	64	54	I ₅₆ C	52	54	67	I ₆₃ R	55	F	F ₄₂
30	41	F ₄₂	F ₃₉	36	32	36	55	62	69	67	I ₆₂ R	61	62	66	59	59	65	64	72	67	56	F	F	55
31	F ₄₉	46	F ₄₄	F	41	42	51	69	78	65	57	68	64	63	68	68	68	62	62	67	69	63	F	54
CNT	20	13	17	16	18	26	30	27	27	25	24	25	27	27	28	30	29	27	27	29	23	18	12	17
MED	42	41	F ₄₁	41	38	40	51	59	64	64	58	58	60	60	59	60	61	59	60	66	62	57	54	48
UQ	F ₄₈	F ₄₄	F ₄₂	42	F ₄₁	42	55	67	68	70	63	62	62	64	64	64	64	64	64	69	70	64	60	54
LQ	39	38	38	36	35	38	47	55	60	56	55	54	54	56	58	56	54	56	55	61	58	54	48	46

The Radio Research Laboratories, Japan

AUG. 1973

FOF2 (0.1 MHz)

IONOSPHERIC DATA

AUG. 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								370	400	I A 460	A	A	A	A	450	430	I A 410	390	L					
2							350	A	A	A	A	A	A	A	450	A	A	A	A					
3						L	L	A	A	A	A	A	A	A	450	I A 440	420	A	A					
4						L	U L 410	C	C	C	A	450	A	A	450	450	H 440	H 410	L	L				
5							A	A	A	440	470	480	480	460	I A 460	430	I A 410	A	A					
6						U L 310	380	A	A	A	A	A	A	A	A	I A 440	440	A	A					
7							A	C	C	A	A	I A 460	A	A	A	A	A	400	A					
8							360	390	430	450	430	470	H 460	I A 450	440	440	430	410	A	A				
9							A	410	430	I A 440	I A 460	I A 450	I A 450	I A 450	I A 460	I A 430	A	A	A					
10						L	U L 400	I A 400	A	A	460	460	I A 470	460	440	440	H 420	L	A					
11							A	A	A	A	460	I A 460	470	460	440	I A 430	I A 410	I A 380	330					
12							360	390	430	450	450	460	440	450	450	430	I A 410	A	A					
13							A	A	430	A	A	A	460	450	430	400	420	A	A					
14							L	A	410	A	A	460	450	450	430	420	390	L	L					
15							L	400	H 410	420	H 460	I A 450	I A 450	450	430	420	400	A	A					
16							L 360	390	420	430	H I C 460	450	450	440	440	H 420	390	L	A					
17							L 380	380	420	I A 430	I A 440	I A 450	I A 450	440	430	420	400	L	L					
18							C	C	C	430	450	460	A	A	430	I A 420	400	A						
19							U L 390	400	430	440	I A 460	460	I A 450	440	440	420	400	L						
20								A	A	440	430	450	440	450	450	420	L	A						
21							L I A 400	I A 420	A	A	A	A	A	A	A	450	A	A	L					
22							L 400	L 420	I A 440	460	I A 450	I A 450	I A 450	A	A	410	L							
23							L 410	L 430	430	450	460	490	460	H 450	430	410	360	L						
24							I A 340	360	I A 420	430	460	I A 450	440	I A 450	I A 430	420	A	L						
25							270	360	370	410	A	A	I C 460	450	450	440	420	410	A					
26							360	390	430	440	I A 440	460	460	I A 430	440	A	A	L						
27							A	390	430	460	460	A	A	A	H 460	450	A	A						
28							A	L	A	A	A	A	A	460	I A 450	440	420	L						
29								A	430	430	A	I A 440	460	460	440	470	I C 400	L						
30							L 390	L 430	H 460	460	470	450	460	460	450	430	L	L						
31							U L 410	430	460	460	L 470	L 480	470	470	410	400	L	L	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						2	12	18	20	19	19	23	21	22	27	27	23	5	1					
MED						290	360	390	430	440	460	460	450	450	440	430	410	390	330					
UQ							L 385	400	430	450	460	460	460	460	450	440	420	400						
LQ							360	390	420	430	450	I 450	450	450	440	420	400	380						

The Radio Research Laboratories, Japan

AUG. 1973

FOF1 (0.01 MHz)

IONOSPHERIC DATA

AUG. 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						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
2						A				A	A	A	A	A	A	A	A	A	A					
3						A	230	270	300															
4						A	240	280	310	I A 325	A	340	A	A	A	A	A	A	A					
5						S	A	C	C	C	A	A	A	A	A	A	A	A	A					
6						A	230	275	300		A	A	A	A	A	I A 330	I A 310	A	A					
7						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
8						C	A	C	C	A	A	A	A	A	A	A	A	A	A					
9						A	A	A	A	A			A											
10						S	A	A	A	A	A	A	A	A										
11						A	A	A	A	A	A	A	A	A	A									
12						S	A	A	A	A	A													
13						E	A	A	A	A	A	A	A											
14						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
15						S	A			I A 265	I A 295	I A 305	A	A	A	A	A	A	A					
16						S	A	A	A	310	I C 330	345	350	350	330	310	275	230	A					
17						S	A	A	A	A	A	A	A	A	A	A	275	245	A					
18						C	C	C	C	A	A	A	A	A	A	A	A	A	A					
19						S	A			270	A	A	A	A	A	A	A	A	A					
20						S	A			265	A	A	A	A	A	A	310	A	A	A				
21						S	A	A			295	A	A	A	A	A	A	A	A					
22						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
23						S	I A 235	I A 275	I A 305	320	335		A	A	A	A	A	A	A					
24						S	225	265	I A 295	I A 315	330	I A 340	345	350	335	310	285	240	A					
25						S	A	250	I A 285	320	I A 325	I C 340	350	355	340	315	275	230	A					
26						S	A	A	290	315	I A 325	335	350		A	310	270	240	A					
27						S	A	255	290	A	A	A	A	A	A	A	A	A	A					
28						S	A	A	A	A	A	A	A	A	A	R 300	270	240	A					
29						S	215	260	295	315		A	A	A	A	340	320	I C 295	250	A				
30						S	A	A	A	A	A	A	A	A	A	A	A	A	A					
31						A	265	I A 285	310	325	340	350			A	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	6	12	12	9	8	6	6	6	7	12	12	8						
MED						E	230	265	295	315	330	340	350	350	340	315	288	240						
UQ							235	272	300	320	A 335	345	350	355	340	320	295	248						
LQ							225	262	290	310	325	340	350	345	332	310	275	235						

The Radio Research Laboratories, Japan

AUG. 1973

FOE (0.01 MHz)

IONOSPHERIC DATA

AUG. 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 Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J X 31	J X 64	J X 41	J X 41	J X 84	J X 86	J X 67	J X 60	J X 56	J X 94	J X 62	J X 76	J X 77	J X 73	J X 86	J X 114	J X 94	J X 39	J X 36	J X 36	J X 31	J X 32	J X 64	J X 34
2	J X 34	J X 53	J X 45	J X 45	J X 31	J X 24	27	J X 45	J X 71	J X 69	J X 71	J X 65	J X 64	J X 72	J X 59	J X 86	J X 68	J X 67	J X 110	J X 110	J X 98	J X 64	J X 88	J X 65
3	J X 89	J X 89	J X 80	J X 52	J X 84	J X 39	31	J X 90	J X 92	J X 84	J X 137	J X 124	J X 76	J X 84	J X 64	J X 80	J X 44	J X 68	J X 70	J X 52	J X 54	J X 41	J X 29	J X 40
4	J X 49	J X 34	J X 26	J X 30	J X 20	21	J X 36	C	C	C	J X 80	J X 84	J X 64	J X 76	J X 46	J X 44	J X 34	34	31	J X 30	J X 36	J X 24	J X 19	J X 34
5	J X 25	J X 20	J X 19	J X 19	E S 14	24	J X 44	J X 52	J X 44	J X 42	J X 50	J X 58	J X 54	J X 45	J X 90	J X 45	J X 111	J X 100	D	J X 112	J X 90	J X 52	J X 34	J X 30
6	J X 41	J X 52	J X 33	J X 29	J X 26	J X 27	J X 119	J X 77	J X 102	J X 75	J X 104	J X 175	J X 150	J X 77	J X 108	J X 79	J X 64	J X 85	J X 79	J X 54	J X 40	J X 44	J X 46	J X 54
7	J X 41	J X 40	J X 54	J X 54	J X 86	C	J X 45	C	C	J X 65	J X 78	J X 74	J X 139	J X 88	J X 85	J X 95	J X 62	J X 36	J X 61	J X 86	J X 58	J X 38	J X 39	J X 86
8	J X 41	J X 30	J X 39	J X 40	J X 29	J X 26	J X 30	J X 31	J X 36	J X 34	G	J X 74	J X 64	J X 32	47	J X 65	J X 43	J X 40	J X 43	J X 30	J X 44	J X 75	J X 52	J X 29
9	J X 40	J X 34	J X 35	J X 64	J X 84	J X 45	J X 42	J X 49	39	J X 108	J X 134	J X 97	J X 72	J X 128	J X 77	J X 65	J X 65	J X 127	J X 74	J X 41	J X 27	J X 32	J X 114	J X 50
10	J X 29	J X 29	J X 29	J X 22	J X 38	J X 19	30	J X 51	J X 70	J X 80	J X 49	J X 73	J X 70	J X 51	39	36	40	J X 37	J X 110	J X 111	J X 80	J X 89	J X 36	J X 54
11	J X 65	J X 58	J X 47	J X 55	J X 56	J X 71	J X 79	J X 86	J X 67	J X 74	J X 89	J X 77	J X 38	J X 38	J X 62	J X 81	J X 95	J X 95	J X 48	J X 86	J X 66	J X 34	J X 37	J X 29
12	E S 14	J X 19	J X 18	J X 28	J X 26	J X 34	J X 49	J X 67	J X 51	J X 68	J X 72	40	39	J X 80	48	J X 68	J X 89	J X 84	J X 68	J X 48	J X 44	J X 43	J X 40	J X 43
13	J X 34	J X 29	J X 28	J X 37	J X 34	J X 26	J X 49	J X 103	J X 111	J X 129	J X 156	J X 88	J X 49	G	J X 59	J X 42	36	34	J X 116	J X 106	J X 44	J X 87	J X 67	J X 69
14	J X 54	J X 54	J X 44	J X 53	J X 34	21	J X 29	J X 51	J X 44	J X 94	J X 134	J X 134	J X 52	J X 40	J X 45	J X 41	J X 31	J X 30	J X 30	J X 36	J X 26	J X 44	J X 51	J X 44
15	J X 59	J X 56	J X 45	J X 56	J X 62	J X 37	J X 29	J X 37	33	J X 31	J X 88	J X 144	J X 79	J X 36	J X 34	J X 37	J X 49	J X 44	J X 46	J X 124	J X 33	J X 42	J X 65	J X 24
16	J X 65	J X 38	J X 41	E S 14	E S 13	J X 20	J X 31	J X 45	J X 41	J X 33	C	G	G	G	G	37	35	33	J X 72	J X 36	J X 43	J X 26	J X 23	J X 37
17	J X 34	J X 39	J X 29	J X 26	J X 29	J X 22	J X 34	J X 34	J X 39	J X 50	J X 50	J X 68	J X 58	J X 38	J X 40	J X 34	34	28	J X 27	J X 30	J X 47	J X 45	J X 51	J X 27
18	J X 21	J X 19	C	C	C	C	C	C	C	J X 70	J X 44	J X 72	J X 100	J X 98	J X 41	J X 79	J X 59	J X 79	J X 30	J X 114	J X 20	J X 31	M 21	J X 29
19	J X 40	J X 17	J X 44	J X 29	J X 26	J X 38	30	37	J X 47	J X 45	J X 66	J X 65	J X 50	J X 54	J X 40	J X 44	J X 41	J X 38	J X 42	J X 31	J X 45	J X 39	J X 36	J X 54
20	J X 44	J X 40	J X 60	J X 25	J X 24	J X 37	J X 41	J X 60	J X 85	J X 41	J X 38	36	J X 37	J X 38	J X 36	J X 62	J X 67	J X 80	J X 99	J X 79	J X 18	J X 24	J X 42	J X 42
21	J X 19	J X 25	J X 45	J X 46	J X 30	J X 25	26	J X 44	J X 47	J X 54	J X 94	J X 173	J X 185	J X 167	J X 169	J X 64	J X 68	J X 69	J X 34	J X 26	J X 25	J X 29	J X 28	J X 29
22	J X 24	J X 44	J X 31	J X 31	J X 48	J X 26	J X 37	J X 30	J X 30	J X 80	J X 44	J X 47	J X 52	J X 66	J X 79	J X 68	J X 34	J X 30	C	J X 27	J X 46	J X 24	J X 37	J X 35
23	J X 39	J X 20	J X 19	J X 19	J X 21	J X 18	25	33	37	39	40	39	J X 46	J X 44	J X 55	J X 68	J X 37	J X 31	24	J X 26	J X 20	J X 107	J X 47	J X 24
24	E S 14	J X 39	J X 29	J X 17	M 21	20	41	38	J X 46	35	36	J X 49	41	47	J X 95	40	J X 64	32	J X 34	J X 29	J X 23	J X 22	E S 14	M 22
25	M 22	J X 21	J X 27	J X 26	E S 14	19	30	34	42	J X 85	J X 54	C	G	G	G	G	42	40	J X 37	J X 29	J X 46	J X 29	J X 41	J X 30
26	J X 18	J X 18	J X 18	J X 18	J X 18	J X 21	26	30	J X 40	40	J X 64	J X 42	G	J X 50	J X 35	45	J X 76	38	J X 32	J X 32	J X 30	J X 21	J X 21	J X 26
27	J X 44	J X 55	J X 45	J X 39	J X 43	J X 26	J X 45	35	37	J X 42	J X 57	J X 80	J X 65	J X 82	J X 65	J X 41	J X 67	J X 139	J X 49	J X 90	J X 108	J X 114	J X 54	J X 50
28	J X 20	J X 37	J X 19	J X 22	J X 27	20	J X 37	J X 41	J X 47	J X 55	J X 74	J X 75	J X 52	J X 49	J X 56	G	G	29	J X 40	J X 35	J X 64	J X 84	J X 44	E S 14
29	J X 39	J X 19	J X 37	M 21	E S 14	E S 14	28	39	39	41	J X 44	J X 46	J X 41	J X 40	G	39	C	G	J X 32	J X 64	J X 39	J X 74	J X 42	J X 64
30	J X 46	J X 27	J X 26	E S 14	J X 19	E S 14	24	29	J X 36	J X 38	J X 65	J X 45	J X 39	J X 41	J X 31	J X 36	35	J X 34	J X 31	J X 41	J X 40	J X 20	E S 14	J X 60
31	M 21	J X 62	J X 25	J X 19	E S 14	E S 14	29	31	J X 43	38	G	J X 42	G	J X 49	J X 39	J X 44	J X 34	J X 29	J X 49	J X 27	J X 20	J X 24	J X 21	M 21
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	30	30	29	30	28	28	30	30	30	31	31	31	31	30	31	30	31	31	31	31	31
MED	J X 39	J X 37	J X 34	J X 29	J X 28	J X 24	J X 32	J X 42	J X 44	J X 54	J X 64	J X 72	J X 52	J X 49	J X 48	J X 45	J X 46	J X 38	J X 44	J X 41	J X 43	J X 39	J X 40	J X 35
UQ	J X 44	J X 52	J X 45	J X 45	J X 43	J X 34	J X 44	J X 56	J X 62	J X 80	J X 88	J X 84	J X 71	J X 76	J X 71	J X 68	J X 67	J X 74	J X 72	J X 86	J X 50	J X 58	J X 51	J X 52
LQ	J X 23	J X 23	J X 26	J X 21	J X 20	20	29	34	J X 39	J X 40	J X 44	J X 46	J X 40	J X 39	J X 39	J X 40	J X 35	32	J X 32	J X 30	J X 28	J X 28	J X 28	J X 29

The Radio Research Laboratories, Japan

AUG. 1973

FOES (0.1 MHz)

IONOSPHERIC DATA

AUG. 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	18	36	25	18	18	A	35	35	36	A	A	A	A	A	39	35	A	33	30	33	25	28	23	28	
2	32	31	31	A	20	20	27	43	A	61	A	A	A	A	43	55	58	59	A	A	A	50	33	40	
3	A	29	20	27	20	20	28	A	A	A	A	A	50	A	42	52	38	49	52	40	34	20	22	28	
4	30	21	E	20	E	20	29	C	C	C	51	43	49	56	41	34	30	30	27	24	30	20	E	E	
5	18	E	E	E	E ₁₄ S	19	42	E ₅₂ R	43	37	44	44	44	41	A	41	A	A	A	A	22	35	30	21	
6	25	A	28	24	17	19	36	43	43	58	60	A	A	A	A	46	40	A	69	49	30	18	34	35	
7	30	18	31	A	A	C	30	C	C	A	A	A	A	47	A	A	A	32	51	22	30	26	30	A	
8	18	20	22	25	19	19	24	30	34	34	G	36	A	G	40	40	32	39	38	28	17	35	34	24	
9	34	19	24	22	28	30	37	38	35	A	A	A	50	A	58	A	49	A	42	17	E	27	32	31	
10	22	22	21	18	19	18	26	48	52	A	44	A	A	38	G	34	32	37	A	25	38	A	26	40	
11	42	39	38	24	25	24	37	62	A	A	38	48	38	38	40	A	A	59	31	35	E	23	19	23	
12	E ₁₄ S	16	E	19	17	28	27	31	39	41	A	37	37	40	37	39	54	A	A	24	28	35	24	30	
13	20	20	19	A	28	20	40	56	34	44	A	A	E ₄₉ R	G	A	37	33	34	34	68	42	A	A	A	
14	25	24	18	19	24	20	24	48	35	A	A	38	36	38	37	35	30	27	23	18	20	21	18	27	
15	18	17	22	27	28	20	25	24	32	31	34	A	A	35	34	35	38	38	35	27	E	19	E	18	
16	30	22	28	E ₁₄ S	E ₁₃ S	18	29	35	35	29	C	G	G	G	G	35	33	31	49	28	30	23	E	22	
17	27	24	23	18	20	19	28	34	38	50	48	49	54	37	39	34	31	28	24	21	28	28	23	19	
18	E	E	C	C	C	C	C	C	C	38	42	52	A	A	40	A	38	A	26	42	E	23	E	E	
19	21	15	18	15	16	18	28	35	42	40	47	39	50	37	34	35	32	28	32	20	E	30	19	18	
20	21	22	22	20	24	A	24	A	58	36	35	36	37	37	36	41	37	A	A	19	E	18	21	28	
21	E	22	E	24	16	E	24	43	44	49	A	A	A	A	A	40	A	A	30	E	21	E	E	18	
22	18	23	18	28	19	23	23	30	U ₃₀ R	A	38	46	49	51	A	48	32	27	C	23	19	E	22	31	
23	29	E	E	E	18	E	24	30	34	38	38	38	37	37	36	38	35	28	21	23	E	30	35	E	
24	E ₁₄ S	18	E	16	E	18	38	35	43	34	36	A	38	47	A	36	39	32	32	26	22	E	E ₁₄ S	E	
25	E	E	E	17	E ₁₄ S	16	24	28	37	A	A	C	G	G	G	G	36	38	28	24	38	22	30	25	
26	E	E	E	E	E	18	24	29	37	38	A	39	G	48	35	44	A	36	29	21	26	18	E	E	
27	E	36	28	32	29	22	41	33	34	33	44	A	A	60	38	33	45	A	A	19	E	A	E	26	
28	E	E	E	17	19	18	37	38	U ₄₇ R	47	A	A	52	45	54	G	G	29	30	34	38	A	E	E ₁₄ S	
29	19	E	22	E	E ₁₄ S	E ₁₄ S	27	39	38	40	43	46	40	37	G	37	C	G	28	41	32	24	28	25	
30	35	20	19	E ₁₄ S	E	E ₁₄ S	U ₂₄ R	29	31	35	41	44	38	39	U ₃₁ R	34	33	30	28	21	40	E	E ₁₄ S	44	
31	E	29	19	E	E ₁₄ S	E ₁₄ S	27	29	35	38	G	40	G	40	36	37	34	26	39	22	18	22	20	E	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	30	30	30	29	30	28	28	30	30	30	31	31	31	31	30	31	30	31	31	31	31	31	31
MED	20	20	20	19	18	19	28	35	38	42	48	48	49	40	39	37	38	36	33	24	25	23	22	25	
UQ	30	24	24	25	24	20	36	44	44	A	A	A	A	58	56	45	54	D ₅₉ A	52	34	31	32	30	30	
LQ	14	16	E	15	14	18	24	30	34	37	38	39	38	37	36	35	32	30	28	21	E ₁₇ F	20	E ₁₄ F	18	

The Radio Research Laboratories, Japan

AUG. 1973

FBES (0.1 MHz)

IONOSPHERIC DATA

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

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AUG. 1973

F-MIN (0.1 MHz)

IONOSPHERIC DATA

AUG. 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	F 280	F	F	F	F	A	275	255	290	A	A	A	A	A	I R 245	I R 250	I A 270	290	300	300	280	295	290	F	
2	F	F	290	I A 285	305	280	290	290	I A 310	330	A	A	A	A	300	310	315	320	A	A	A	F	F	F	
3	A	F	285	F	F	320	330	A	A	A	A	A	280	I A 295	290	300	300	310	310	310	F	F	F	290	
4	F	F	F	F	F	310	300	C	C	C	315	310	325	310	315	335	300	295	295	295	310	310	300	285	
5	F	270	295	F	300	310	310	I R 320	305	325	325	280	280	295	I A 300	310	I A 320	A	A	I A 305	300	F	320	320	
6	295	I A 290	F	300	310	285	280	295	310	310	I A 310	I A 290	A	A	A	300	290	I A 320	325	290	290	F	F	F	
7	F	F	F	A	A	C	Z 320	C	C	A	A	I A 280	I A 300	305	A	A	A	285	295	305	F	F	305	I A 290	
8	295	F	270	300	300	320	280	285	320	290	330	310	I A 310	290	285	300	310	305	305	290	315	320	F	F	
9	F	F	F	F	F	345	335	315	I R 330	I A 305	I A 280	I A 275	280	I A 290	I A 300	I A 305	310	I A 300	310	295	F	295	300	315	
10	F	F	F	F	F	F	300	315	320	I A 305	H 315	I A 310	I A 285	290	320	315	310	305	I A 295	305	F	A	F	F	
11	F	F	F	F	310	280	305	340	I A 340	I A 320	300	300	260	285	300	I A 300	I A 310	305	295	310	315	320	300	300	
12	F	F	300	300	F	315	305	330	345	260	I A 325	285	305	295	275	300	305	I A 315	I A 310	315	310	340	F	F	
13	F	285	295	I A 300	325	320	310	325	330	325	I A 320	I A 310	I R 295	295	I A 285	290	285	290	275	I R 300	I R 335	A	A	A	
14	F	F	F	F	F	325	310	I R 320	325	A	A	295	290	290	305	315	315	305	I R 320	315	295	F	F	F	
15	F	F	F	F	F	300	315	320	320	330	345	315	I A 280	I A 290	290	300	290	310	320	320	315	F	F	325	
16	305	F	F	F	305	290	305	335	355	330	I C 295	310	290	305	305	295	315	330	325	325	330	310	F	300	
17	300	290	290	300	305	310	290	325	310	320	310	315	315	320	305	330	310	310	305	310	F	F	F	F	
18	F	F	C	C	C	C	C	C	C	335	330	295	A	A	325	I A 315	335	I A 340	325	F	290	F	F	F	
19	F	F	F	F	F	310	310	330	330	345	315	295	310	305	310	320	330	330	335	295	F	290	F	300	
20	F	F	F	F	F	I A 310	I A 315	320	I A 300	320	320	325	335	315	320	300	310	320	A	A	305	320	320	F	F
21	F	F	295	300	310	310	320	305	Z 305	340	A	A	A	A	A	295	A	A	315	300	315	310	F	F	
22	F	285	F	300	310	310	320	330	345	I A 305	315	300	325	290	I A 320	325	310	320	I C 300	290	300	F	305	330	
23	315	F	F	F	F	295	330	310	315	340	320	310	280	320	305	290	300	310	310	315	320	305	F	F	
24	300	F	F	F	F	305	285	250	285	275	300	G	A	245	285	I A 295	310	315	320	300	295	265	305	275	300
25	275	285	F	F	F	265	300	320	A	A	C	G	260	255	290	310	305	305	300	280	285	275	290	F	
26	285	290	305	280	295	290	290	H 305	305	285	I A 300	280	280	280	305	320	I A 290	300	300	315	300	300	290	F	
27	F	295	270	285	F	290	320	325	340	295	270	I A 310	I A 300	290	290	305	300	A	A	280	295	I A 290	280	300	
28	F	280	290	295	F	300	315	280	330	290	I A 300	I A 305	295	295	315	310	300	310	310	I R 290	290	I A 300	290	300	
29	290	280	270	F	F	340	330	250	290	295	I R 290	I A 280	305	310	325	295	I C 310	295	300	305	I R 300	290	F	285	
30	285	285	F	F	295	295	315	325	315	315	I R 320	300	290	305	295	295	310	315	320	320	305	F	F	295	
31	F	280	295	F	310	320	315	320	335	335	315	310	295	300	310	325	320	325	315	290	310	285	F	270	
CNT	20	13	17	16	18	26	30	27	27	25	24	25	26	26	28	30	29	27	27	29	23	18	12	17	
MED	298	285	295	300	308	310	310	315	320	320	315	300	292	295	300	305	310	310	310	305	300	302	295	300	
UQ	F	290	F	300	F	320	320	325	330	330	320	310	305	305	310	315	315	320	318	310	315	310	302	300	
LQ	290	280	290	295	300	290	290	298	310	300	300	285	280	290	292	295	300	302	300	295	292	290	285	290	

AUG. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 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								A	320	I A 350	A	A	A	A	365	355	I A 345	330	L					
2									A	A	A	A	A	A	I A 380	A	A	A	A					
3						L	L	A	A	A	A	A	A	A	A	I A 375	365	A	A					
4						L	U L 340	C	C	C	A	A	A	A	385	365	H 350	H 345	L	L				
5								A	A															
6																								
7																								
8																								
9																								
10																								
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28																								
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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	10	16	20	19	18	19	19	20	25	23	21	4						
MED						305	342	360	372	390	390	380	385	380	370	360	365	342						
UQ							360	370	382	398	400	392	390	390	380	368	375	352						
LQ																								

AUG. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

AUG. 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							550	400	A	A	A	A	A	A	420	R	A	360	300					
2							380	360	I A 315	285		A	A	A	A	345	330	300	A	A				
3						295	255	A	A	A	A	A	370	I A 375	380	340	335	315	300					
4						305	340	C	C	C		330	320	300	I A 310	320	310	390	335	300				
5							280	A	300	280	300	430	410	380	I A 340	300	I A 290	A	A					
6						355	350	340	275	280	I A 310	A	A	A	A	325	335	I A 290	I A 270					
7							295	C	C	A	A	A	I A 370	340		A	A	A	340	320				
8						400	370	280	385	280	350		A	380	360	320	305	310	280					
9						255	300	285	A	A	I A 420	I A 420	I A 405	I A 345	I A 325	I A 315	I A 295	285						
10						300	320	295	280	I A 300	310	A	A	380	320	320	325	320	I A 280					
11						295	I A 260	I A 270	I A 305	365		A	490	400	380	I A 340	I A 310	330	280					
12						315	275	255	340	I A 300	410	355	330	445	335		A	I A 295	I A 290					
13						325	290	285	290	I A 315	I A 340	A	A	385	385	350	345	315	300					
14						295	250	280	A	A	375	365	340	315	300	300	265	240						
15						280	280	280	250	320		A	A	355	350	340	300	280	260					
16						305	260	245	300		C	330	380	350	330	345	290	265	280					
17						355	280	305	285	315	305	I A 310	320	330	290	300	265	295						
18						C	C	C		275	280	365	A	A	300	I A 290	265	I A 270						
19						310	275	265	265	330	375	320	335	310	280	275	265							
20							A	280	295	270	280	325	305	325	300	285	A							
21						265	295	315	285	A	A	A	A	A		370	A	A	275					
22						280	275	255	A	350	350	300	I A 325	I A 320	310	305	280							
23						265	300	285	275	320	325	400	325	330	335	300	280	255						
24						490	380	A	410	G	A	540	405	A	330	295	300							
25						405	430	350	310	A	A	C	G	510	560	380	330	325						
26						365	300	385	400	I A 355	430	430	I A 420	345	310		A	325						
27						270	280	270	365	420	I A 330	I A 335	I A 335	365	335	310	A							
28						280	330	280	380	A	A	355	365	295	330	325	290							
29						530	405	355	390	I A 440	330	325	295	360	I C 300	300								
30						260	280	290	290	305	355	355	320	355	350	300	280							
31						280	260	275	290	280	355	325	320	285	275	260	275							
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT					5	26	25	26	23	21	19	22	26	27	29	26	26	18						
MED					305	300	295	280	290	315	350	360	345	340	330	300	295	280						
UQ					355	350	340	305	348	350	392	410	380	362	340	325	320	300						
LQ					300	280	280	270	280	300	328	330	325	320	310	295	280	275						

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AUG. 1973

H^oF2 (KM)

IONOSPHERIC DATA

AUG. 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	305	290	320	295	290	A	A	A	A	A	A	A	A	A	230	240	A	A	A	280	310	290	260	290	
2	I A 305	A	A	A	265	260	230	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	280	I A 295	
3	I A 300	300	290	320	280	250	225	A	A	A	A	A	A	A	A	A	A	A	A	255	280	250	260	275	
4	280	305	285	240	240	250	240	C	C	C	A	A	A	A	A	200 ^H	215 ^H	240	250	255	260	230	250	280	
5	275	275	275	250	250	245	A	A	A	200	A	A	A	210	I A 215	A	A	A	A	I A 270	250	280	225	205	
6	290	I A 320	300	285	260	250	A	A	A	A	A	A	A	A	A	A	A	A	A	300	255	280	285	A	
7	330	290	315	A	A	C	A	C	C	A	A	A	A	A	A	A	A	A	A	265	290	265	270	I A 300	
8	280	320	350	290	250	245	225	230	230	190	180	195 ^H	I A 225	210	I A 220	I A 205	200	I A 260	I A 270	270	240	240	A	295	
9	I A 310	310	290	270	280	230	I A 240	I A 225	215	I A 190	I A 200	A	A	A	A	A	A	A	A	245	240	300	295	255	
10	225	300	305	290	275	230	230	A	A	A	A	A	A	195	215	195 ^H	210	I A 230	I A 260	255	275	I A 250	265	I A 300	
11	I A 285	A	A	280	260	265	A	A	A	A	200	I A 220	220	230	240	A	A	A	A	245	230	235	255	260	
12	250	280	290	280	275	290	240	205	I A 205	I A 195	I A 215	210	185	I A 225	210	I A 225	A	A	A	245	240	240	275	I A 270	
13	290	310	300	I A 315	I A 260	240	A	A	215	A	A	A	I A 205	215	I A 220	I A 230	245	A	A	I A 260	225	A	A	A	
14	290	320	290	275	260	235	235	I A 230	A	A	A	210	195	215	240	I A 230	220	230	I A 230	220	245	275	340	320	
15	240	275	350	I A 320	310 ^A	255	240	220	200 ^H	185	175 ^H	A	A	190	210	230	A	A	A	255	240	255	225	230	
16	A	A	I A 300	275	280	250	240	I A 230	I A 220	195 ^H	I A 200	195	190	195	185 ^H	240	A	A	A	240	250	240	255	265	
17	I A 305	310	290	255	260	245	240	I A 225	I A 200	I A 195	I A 190	I A 200	I A 220	215	I A 225	235	230	220	250	255	290	300	245	230	
18	235	260	C	C	C	C	C	C	C	A	I A 190	A	A	A	A	A	A	A	240	I A 265	280	280	235	240	
19	270	280	260	250	290	260	240	A	A	215	I A 205	205	I A 205	205	230	230	I A 230	225	240	260	295	300	245	255	
20	280	290	275	230	290	A	245	A	A	220	195	195	200	200	230	A	A	A	A	255	230	230	300	330	
21	250	245	290	290	260	245	235	A	A	A	A	A	A	A	A	A	A	A	A	250	245	255	230	270	
22	260	320	290	300	280	280	I A 240	230	240	I A 190	205	I A 190	A	A	A	A	I A 230	250	I C 270	270	265	280	270	260	
23	250	255	300	275	295	280	240	245	240	I A 220	215	210	190	180	230	I A 210	I A 230	230	245	240	215	265	I A 300	270	
24	270	290	300	280	265	305	A	A	A	220	225	I A 225	230	A	A	A	A	I A 250	290	305	325	265	250	275	
25	290	295	245	280	260	295	250	225	A	A	A	I C 230	200	220	240	235	A	A	260	265	I A 300	285	340	295	
26	275	275	280	305	290	290	240	220	220	195	I A 220	200	220	I A 215	220	A	A	A	275	255	260	245	275	280	
27	280	I A 285	I A 315	I A 330	I A 315	315	A	I A 230	215	195	A	A	A	A	A	220	A	A	A	295	250	I A 315	290	300	
28	275	275	290	275	300	265	A	A	A	A	A	A	A	A	A	225	240	250	275	260	300	I A 275	265	245	
29	290	305	340	280	270	220	235	I A 245	I A 235	A	A	A	215	225	230	230	I C 220	240	280	280	270	315	240	325	
30	I A 330	300	285	280	275	270	235	A	200	205	200	215	I A 210	200	210	230	240	230	240	260	245	290	290	260	I A 275
31	255	315	290	245	245	245	240	235	230	205	210	I A 195	200	230	205	I A 230	I A 230	240	I A 275	270	245	270	265	255	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	28	28	28	29	27	21	15	14	16	16	15	16	18	19	18	13	13	16	30	30	29	29	29	
MED	280	292	290	280	275	250	240	230	218	195	202	205	202	212	225	230	230	240	260	258	258	270	265	275	
UQ	290	310	302	292	290	275	240	230	230	210	215	210	220	220	230	235	230	250	275	270	290	285	280	295	
LQ	260	278	288	272	260	245	235	222	205	192	192	195	198	200	215	220	220	230	248	250	240	250	250	255	

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H·F (KM)

IONOSPHERIC DATA

AUG. 1973

H'ES (KM)

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

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

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

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AUG. 1973

H'ES (KM)

IONOSPHERIC DATA

AUG. 1973

TYPES OF ES

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

Station		AKITA											Lat. 39 43.5 N · Long. 140 08.2 E											Sweep 1 MHz to 20 MHz in 20 sec in automatic operation										
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
1	F2	F3	F2	F2	FF13	N	C	H	N	H	N	C	N	N	N	L	N	N	C	F	F	F	F	F										
2	F6	F5	F6	F6	F3	L	N	H	N	N	N	N	N	N	N	L	L	L	L	F	F	F	F	F										
3	F3	F3	F2	F3	F5	L	N	H	H	C	C	C	N	N	N	L	N	N	L	F	F	F	F	F										
4	F4	F3	F2	F2	F2	N	N	C			L	L	L	L	L	L	L	L	L	F	F	F	F	F										
5	F2	F2	F1	F2		N	L	H	C	C	N	N	L	L	L	L	L	L	L	F	F	F	F	F										
6	F3	F3	F3	F3	F2	L	C	C	C	C	L	L	L	L	L	L	N	N	C	F	F	F	F	F										
7	F3	F3	F3	F6	F4		L			L	L	L	L	L	L	N	N	C	F	F	F	FF	F											
8	F2	F2	F3	F5	F2	L	H	L	N	N	L		L	L	N	N	H	C	C	F	F	F	F	F										
9	F4	F2	F3	F2	F3	L	C	L	L	N	N	L	L	L	N	N	L	L	N	F	F	F	F	F										
10	F2	F2	F2	F2	F3	L	N	C	C	C	N	N	L	L	L	L	N	N	L	F	F	F	F	F										
11	F5	F3	F3	F3	F2	L	C	C	N	N	N	L	L	L	H	N	C	C	C	F	F	F	F	F										
12		F1	F1	F2	F1	N	C	C	N	L	N	N	H	H	H	H	N	C	C	F	F	F	F	F										
13	F2	F2	F2	F3	F3	L	C	C	C	N	L	L	L	L	L	L	H	H	C	F	F	F	F	F										
14	F2	F3	F2	F2	FF22	N	N	N	N	C	L	N	L	L	L	L	L	L	L	F	F	F	F	F										
15	F2	F2	F3	F3	F3	L	N	C	L	N	L	L	L	L	L	L	L	L	L	F	F	F	F	F										
16	F3	F3	F3			C	C	C	C	L	N				H	L	N	C	N	F	F	F	F	F										
17	F3	F2	F2	F1	F2	L	C	C	N	N	N	N	L	L	L	L	N	N	C	F	F	F	F	F										
18	F1	F2								N	N	N	C	C	C	C	N	C	C	F	F	F	F	F										
19	F2	F1	F3	F2	F2	N	H	H	H	C	N	N	N	N	L	L	N	N	C	F	F	F	F	F										
20	F3	F2	F2	F2	F2	N	H	H	C	C	L	L	L	L	L	L	N	C	L	F	F	F	F	F										
21	F1	F3	F2	F3	F3	L	H	C	C	C	N	C	C	C	L	L	C	C	N	F	F	F	F	F										
22	F2	F3	F2	F3	F2	L	L	L	L	L	C	L	L	L	L	L	L	L	L	F	F	F	F	F										
23	F4	F2	F2	F2	F2	L	H	H	H	H	H	H	L	L	L	L	L	L	H	F	F	F	F	F										
24		F2	F2	F1	F1	H	H	H	H	C	H	H	H	H	H	H	H	H	N	F	F	F	F	F										
25	F2	F2	F2	F3		H	L	H	H	H	C	C					H	H	H	F	F	F	F	F										
26	F2	F2	F2	F1	F2	C	H	H	H	H	C	C	L	L	L	L	H	H	H	F	F	F	F	F										
27	F3	F4	F4	F4	F4	H	H	H	H	L	C	N	N	N	L	L	L	C	C	F	F	F	F	F										
28	F2	F2	F1	F1	F2	H	C	C	C	N	N	L	L	L	L		H	N	N	F	F	F	F	F										
29	F2	F1	F2	F1			H	H	H	N	C	C	C	C	L			C	C	F	F	F	F	F										
30	F3	F2	F3		F1		C	C	C	C	L	L	L	L	L	L	H	L	C	F	F	F	F	F										
31	F1	F3	F2	F2		H	H	C	H		C			C	C	C	L	L	L	F	F	F	F	F										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT																																		
MED																																		
UQ																																		
LQ																																		

AUG. 1973

TYPES OF ES

IONOSPHERIC DATA

AUG. 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 350	L 360	A	A	A	A	A	L 440	A	A	A	A	A					
2								390	A	A	A	A	A	A	A	A	A	A	L					
3							C	C	C	A	A	A	A	L 460	A	A	A	A	A					
4							L	L 410	A	A	L 460	A	A	L 470	A	L 460	A	C	C					
5							C	C	C	C	C	A	A	A	C	C	C	A	A	L				
6								L	A	A	A	A	A	A	A	A	L 410	A						
7								L	L 410	L 430	A	L 470	A	A	A	A	A	A	L					
8								L 380	L 400	L 420	L 430	L 450	L 450	A	L 450	L 450	A	A	A					
9									L	L 420	A	A	A	A	L 460	A	L 430	L	L	L				
10							L	L	L	L 440	H 460	L 460	L 460	L 460	L 460	L 460	L 440	A	A	L				
11								L 360	A	A	A	A	A	A	A	L 450	A	A	A	A				
12							L	L 360	L 390	L 420	L 460	C	L 460	L 460	L 460	L 440	H 440	L 420	A	L				
13								C	C	C	C	A	A	C	L 450	L 440	L 410	A	A	L				
14									L	L 440	A	L 450	L 460	L 450	L 450	A	L 400	L						
15								L	L 380	L 410	L 440	C	L	C	A	L 450	L 410	C	L 370	L				
16								L	A	A	A	A	C	L 450	L 450	C	C	L 410	L	A				
17								L 350	L 400	L 410	A	L 440	L 460	C	A	A	L 420	L 400	L					
18								A	A	C	C	H 460	L 460	L 450	A	A	L 440	L 410	L					
19								A	L	A	L 440	A	L 470	L 460	A	A	A	L	L 360	L				
20									A	A	A	A	A	L 460	H 460	L 450	L 430	A	A	A				
21									A	L 430	L 440	A	A	A	A	A	A	L	L					
22								L	L 390	L 450	L 450	A	A	A	L 450	A	L	A	A	A				
23									L	L 410	L 450	L 450	L 450	L 480	L 470	A	A	L 410	L					
24								A	L 360	A	A	A	L 460	L 460	L 460	L 440	L 440	L	A	A				
25								A	A	A	L 400	L 440	L 450	L 450	L 460	L 440	L 450	L 420	L 410	A	A			
26								L	L 400	L 450	L 450	L 460	L 460	A	L 460	L 450	L	A	A	A				
27								L	L 400	L 450	L 460	A	A	A	A	L 460	L	A	A					
28									C	C	L	A	L 480	A	L 460	L 460	L 450	L 400	L					
29									A	L	L	L 470	L 470	L 460	L 460	L 450	L 450	L 410	L					
30								L	L 390	L 410	L 450	L 510	L 480	L	L 480	A	L 450	L	C					
31								L	L	L	L 460	L 460	L 480	L 500	L 480	A	L 450	L 420	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	13	12	14	13	15	12	20	13	16	11	2						
MED							L 360	L 390	L 420	L 450	L 460	L 460	L 460	L 460	L 450	L 440	L 410	L 365						
UQ							L 360	L 400	L 430	L 450	L 460	L 470	L 460	L 460	L 450	L 450	L 410							
LQ							L 350	L 390	L 410	L 440	L 450	L 455	L 460	L 450	L 450	L 425	L 405							

AUG. 1973

FOF1 (0.01 MHz)

IONOSPHERIC DATA

AUG. 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	A	260	R 295	330	A	A	A	A	A	310	A	A	A					
2						B		235	260	290	310	I R 325	A	A	A	A	A	A	A					
3						B	C	C	C	330	A	A	A	A	A	A	A	A	A					
4						B	A	A	A	A	A	A	A	A	A	A	A	A	C	C				
5						C	C	C	C	C	A	A	A	C	C	C	A	A	A					
6						B		245	A	A	A	A	A	A	A	A	300	265	A					
7						B	A		250	290	A	A	A	A	350	A	330	A	A	A				
8						B	A	A	A	A	A	R	A	R		350	330	300	I A 250	A				
9						B	A	A	A	A	A	A		385	355	345	330	A	A	A				
10						B		240	A	A	A	A	R	A	A	A	340	A	A	A				
11						A	A	A	A	A	A	A	A	A		360	340	290	A	A				
12						A	A	A	A		335	C	A	A	A	A	340	A	A	A				
13						B	C	C	C	C	A	A	C	R		340	335	285	245	A				
14						B	A	A	A	A	A	R	A	R	A	A	A	A	A	A				
15						A	A	A	R	R	C	A	C	A	A	A	C	A	A					
16						B	A	A	A	A	A	C	R		R 350	I C 320	C	290	A	A				
17						B	A	A	A	A	A	A	C	A	A	A	A	220	A					
18						A	A	A	C	C		R 350	360	I R 365	355	340	310	285	220	A				
19						B	A	I A 260	A	310	I A 315	I A 325	A	A	A	A	A	A	A	A				
20						B		210	A	290	A	A	A	A	A	A	320	270	225	A				
21						B		220	260	295	I A 315	A	A	A	A	A	310	A	A	A				
22						B	A	A	A	A	R	A	A	A	A	A	A	A	A	A				
23						S		230	265	300	325	335	I A 335	R	A	A	A	A	A	A				
24						B		160	260	R	A	310	I A 325	345	R	360	I R 360	330	I A 315	280	240	A		
25						A	A	250	290	315	340	I R 350	360	380	345	320	275	225	A					
26						C	A	250	280	305	I A 320	320	340	I R 350	335	315	280	225	A					
27						B		205	A	A	A	A	A	A	A	A	A	290	A	A				
28						B	A	C	C	A	A	A	A	A	R	R	R	245	A					
29						B		160	260	I R 290	A	A	A	A	R	R	R	B I R 235	A					
30						B	A	A	A	A	A	A	R	A	A	A	315	A	C	A				
31						B	A	R I A 260	290	330	350	I R 355	370	A	A	A	280	230	A					
CNT								9	11	10	11	8	7	6	7	9	15	12	12					
MED								220	260	290	315	330	I 345	362	355	340	320	285	232					
UQ								235	260	295	330	345	R 352	370	358	345	332	290	245					
LQ								205	255	290	310	I A 322	330	360	350	335	315	280	225					

The Radio Research Laboratories, Japan

AUG. 1973 FOE (0.01 MHz)

IONOSPHERIC DATA

AUG. 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	J 54	J 54	J 54	J 51	J 29	J 26	J 56	35	J 45	56	56	J 131	J 141	J 51	J 95	J 74	J 81	J 69	J 51	J 41	J 31	J 25	J 35	J 65	
2	J 41	J 25	J 25	J 53	J 54	J 39	G	30	49	J 54	J 61	66	J 84	48	J 125	J 133	J 56	J 42	J 42	J 31	J 28	J 25	J 29	J 41	
3	J 54	J 21	J 35	J 29	J 30	J 39	C	C	C	J 58	J 59	J 103	J 84	J 50	J 61	J 90	J 54	J 88	71	53	J 104	J 42	J 38	J 30	
4	J 64	M 49	J 54	J 28	J 20	M 20	J 30	J 42	J 52	J 67	J 43	J 72	J 54	J 58	J 61	J 44	M 61	C	C	C	C	C	C	C	
5	C	C	C	C	C	C	C	C	C	C	C	M 59	M 60	M 67	C	C	J 84	J 75	J 26	J 74	J 84	J 54	J 54	J 45	
6	J 48	J 30	J 25	J 25	J 54	J 28	21	J 74	J 74	J 59	J 131	J 144	J 75	J 131	J 139	J 55	J 45	J 51	J 54	J 25	M 23	J 31	J 41	J 75	
7	J 34	J 35	J 34	J 43	J 45	J 32	25	35	J 41	65	J 51	J 84	75	J 62	J 101	J 74	J 61	J 44	J 32	J 55	J 30	J 23	J 61	J 48	
8	J 101	J 60	J 71	J 54	J 54	J 44	28	J 33	J 36	35	36	32	46	G	J 43	J 59	J 75	J 40	J 39	J 49	M 20	J 54	J 53	J 25	
9	J 29	J 54	J 65	J 54	J 61	J 50	J 43	J 41	J 45	J 78	48	J 74	J 65	J 74	J 54	J 84	J 50	J 31	J 30	J 28	J 30	J 42	J 26	J 27	
10	J 28	J 26	J 25	J 22	22	E 15	G	J 40	J 38	J 40	J 42	36	J 40	J 40	39	J 54	J 54	M 75	J 30	J 20	J 38	J 40	J 55	J 65	
11	J 60	J 52	J 40	J 39	J 54	M 49	J 121	J 145	M 61	J 88	J 59	J 89	J 80	J 52	J 42	J 83	J 75	J 75	J 105	J 115	J 54	J 74	J 44	J 44	
12	J 42	J 49	J 20	J 26	J 25	J 30	J 47	J 38	J 32	G	C	J 41	43	41	J 42	G	J 55	M 81	J 144	J 54	J 30	J 28	J 30	J 50	
13	J 50	J 30	J 40	J 24	J 24	J 25	C	C	C	C	J 131	J 105	C	G	32	G	41	J 58	J 41	J 35	J 54	J 121	71	J 24	J 54
14	J 61	J 50	J 33	J 28	J 26	J 25	J 30	J 45	30	41	J 52	32	J 41	31	41	J 51	J 45	31	30	J 59	J 26	J 26	J 59	J 25	
15	M 18	J 70	J 41	J 34	J 40	J 35	J 43	J 31	G	30	C	45	C	44	J 43	J 45	C	34	J 26	J 23	J 54	J 41	J 25	M 23	
16	J 54	J 25	J 20	J 25	54	J 54	J 46	J 43	J 74	J 74	J 74	C	G	G	C	C	36	J 35	J 48	J 31	J 51	J 60	J 35	60	
17	J 39	J 56	J 74	J 36	J 23	J 28	25	35	J 41	J 65	J 39	J 40	C	J 70	J 58	J 43	J 33	31	22	J 24	M 34	J 48	J 30	J 36	
18	J 25	J 23	J 25	J 28	J 29	J 29	J 56	M 75	C	C	43	43	G	J 52	J 48	J 54	J 39	J 41	J 38	J 42	J 30	J 36	J 28	J 40	
19	J 23	23	E 14	E 12	E 14	J 40	J 48	31	J 49	J 42	49	J 41	J 42	J 80	J 74	J 85	J 55	J 63	J 28	J 30	J 26	J 22	J 53	J 84	
20	22	J 30	J 26	J 53	J 19	J 38	30	J 90	J 58	J 119	J 84	J 100	46	44	J 44	G	J 48	J 41	M 79	J 49	J 53	J 28	M 21	J 23	
21	M 30	J 34	J 35	J 25	J 26	22	G	J 41	J 41	J 46	J 51	95	J 53	J 53	J 79	75	J 35	J 41	J 50	J 31	J 44	J 25	J 24	J 25	
22	J 28	J 25	J 20	J 26	M 23	J 21	27	35	J 35	30	69	J 112	J 99	46	49	J 41	61	J 53	J 46	J 35	J 53	J 39	J 54	J 25	
23	J 41	J 21	J 22	M 22	J 20	E 15	G	30	36	39	44	40	38	45	J 90	J 45	46	30	J 25	J 27	J 25	J 19	J 95	J 53	
24	J 25	J 25	J 44	M 23	E 15	J 25	31	35	J 44	J 76	J 20	38	45	33	40	J 40	35	J 48	J 41	J 42	J 22	J 39	J 30	E 15	
25	M 19	M 24	J 22	J 26	J 50	J 30	J 48	J 48	J 42	J 53	38	21	G	39	38	37	39	J 51	J 36	J 30	J 30	J 36	24	J 25	
26	J 25	J 26	24	19	22	J 19	J 30	J 30	35	39	39	37	J 46	G	G	37	48	J 50	J 102	J 25	J 62	J 53	J 25	J 54	
27	J 40	J 43	J 26	J 33	J 26	M 21	25	J 38	J 74	J 41	J 41	46	J 90	J 130	J 131	J 51	G	J 75	J 90	J 114	J 84	J 74	J 141	J 75	
28	J 114	J 25	J 45	M 22	J 51	22	J 35	C	C	J 75	J 110	J 54	J 51	J 43	32	26	G	G	22	J 33	J 21	J 39	J 54	J 84	
29	J 64	J 41	J 26	J 90	J 25	21	G	31	J 43	45	J 42	46	46	G	G	G	E 32	G	J 30	J 25	J 20	J 40	J 51	J 53	
30	J 29	J 25	J 29	J 26	M 23	J 20	24	31	35	J 41	36	J 41	32	J 46	48	35	J 41	C	J 25	J 52	J 36	J 26	J 25	M 22	
31	18	J 59	J 26	J 25	20	E 15	25	33	J 43	37	40	32	44	J 42	J 55	34	J 27	J 43	J 42	J 38	24	J 30	J 60	J 25	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	28	27	26	28	29	30	28	30	29	29	30	29	30	30	30	30	30	30	
MED	J 40	J 30	J 28	J 27	J 26	J 27	30	J 35	J 42	J 50	J 51	46	J 46	J 46	J 48	J 45	J 48	J 43	J 38	J 36	J 30	J 39	J 36	J 42	
UQ	J 54	J 50	J 41	J 39	J 50	J 38	J 44	J 42	J 49	J 66	J 61	J 89	J 75	J 53	J 74	J 74	J 58	J 63	J 51	J 53	J 53	J 48	J 54	J 54	
LQ	J 25	J 25	J 25	J 25	J 22	21	24	32	J 36	40	42	40	42	39	41	37	36	J 35	J 30	J 28	J 26	J 26	J 26	J 25	

The Radio Research Laboratories, Japan

AUG. 1973

FOES (0.1 MHz)

IONOSPHERIC DATA

AUG. 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	25	25	31	21	23	16	23	30	36	A	A	A	A	42	A	A	A	A	50	32	28	25	25	A	
2	30	20	25	A	A	25	G	26	43	45	55	A	A	48	A	A	40	35	28	23	16	20	21	29	
3	26	E	22	E	E	21	C	C	C	51	53	A	A	44	61	A	45	A	A	26	40	29	32	24	
4	45	40	20	19	E	G	25	33	51	52	42	A	54	41	A	40	A	C	C	C	C	C	C	C	
5	C	C	C	C	C	C	C	C	C	C	A	A	A	C	C	C	53	A	20	40	25	24	30	30	
6	16	15	20	23	16	22	G	59	52	50	A	A	A	A	A	54	38	43	37	19	E	25	24	20	
7	20	28	25	34	25	23	25	30	31	A	41	A	A	45	A	A	45	40	20	40	E	E	16	25	
8	A	A	A	A	A	20	25	31	31	33	36	E ₃₂ ^R	46	G	40	50	A	A	35	30	E	A	E	25	
9	E	E	A	23	A	A	40	26	38	A	46	50	A	40	46	40	32	28	21	E	17	15	16	25	
10	19	18	E	E	E	E ₁₅ ^B	G	36	37	40	40	E ₃₆ ^R	40	39	38	36	45	A	20	16	30	26	29	A	
11	38	16	19	20	22	A	25	A	A	51	52	A	A	51	40	A	48	51	60	A	25	45	35	39	
12	31	38	20	20	E	20	22	28	31	G	C	40	40	41	40	G	36	62	20	22	25	19	18	A	
13	A	18	22	15	E	22	C	C	C	C	A	A	C	E ₃₂ ^R	G	40	55	40	23	46	A	A	19	A	
14	A	A	23	19	19	18	24	45	30	31	41	E ₃₂ ^R	40	E ₃₁ ^R	37	45	34	29	25	34	25	24	25	E	
15	E	20	25	19	A	31	31	29	G	E ₃₀ ^R	C	40	C	44	40	35	C	34	20	16	20	20	20	E	
16	E	E	E	19	A	25	31	39	50	43	43	C	G	G	C	C	31	25	45	20	30	33	25	A	
17	30	A	A	25	20	17	24	31	34	43	39	39	C	A	52	34	29	30	21	17	26	22	25	26	
18	16	15	19	16	22	18	38	A	C	C	43	42	G	52	44	40	35	34	25	26	16	20	E	29	
19	15	E ₁₄ ^B	E ₁₂ ^B	E ₁₄ ^B	A	A	30	45	41	48	40	40	40	50	46	52	40	25	25	14	16	E	E	35	
20	E	15	15	20	E	20	25	A	58	A	56	A	40	40	40	G	45	40	A	45	35	25	E	E	
21	E	E	22	15	16	G	G	40	38	40	50	A	51	52	51	A	30	29	30	29	21	24	E	17	
22	19	25	19	17	E	20	26	31	30	E ₃₀ ^R	A	A	A	41	43	40	A	32	35	E	19	22	35	16	
23	28	16	19	E	17	E ₁₅ ^S	G	29	34	38	39	40	31	40	A	44	38	20	25	20	20	16	20	16	
24	21	20	E	16	E ₁₅ ^S	16	31	33	42	A	A	37	42	E ₃₃ ^R	40	40	25	42	40	40	E	17	19	E ₁₅ ^S	
25	E	15	15	17	A	27	40	46	33	38	38	E ₂₁ ^R	G	38	38	36	37	44	34	25	29	17	16	16	
26	E	20	E	E	E	19	25	29	34	39	39	37	46	G	G	36	46	42	A	20	40	35	E	30	
27	34	29	18	23	18	G	25	35	32	31	33	46	A	A	46	40	G	A	A	16	25	A	A	A	
28	A	E	25	E	16	19	35	C	C	43	52	39	51	35	E ₃₂ ^R	F ₂₆ ^R	G	G	21	24	E	19	19	A	
29	18	23	20	26	25	G	G	30	40	43	42	43	43	G	G	G	F ₃₂ ^B	G	27	20	19	31	25	A	
30	20	20	22	16	E	E	23	26	35	36	E ₃₆ ^R	40	E ₃₂ ^R	31	45	35	35	C	24	40	26	20	20	E	
31	E	E	E	18	E	E ₁₅ ^B	26	E	39	36	40	E ₃₂ ^R	43	40	54	33	G ₂₅ ^G	42	31	30	18	22	A	15	
CNT	30	29	30	30	30	30	28	27	26	28	29	30	28	30	29	29	30	29	30	30	30	30	30	30	30
MED	20	20	20	19	16	20	25	31	36	42	43	42	46	40	44	40	38	40	28	24	23	23	20	26	
UQ	31	25	25	23	25	23	31	40	43	51	55	A	A	48	54	52	46	51	40	34	28	29	25	A	
LQ	E	15	15	15	E	15	22	29	32	36	40	39	40	33	40	35	32	29	21	19	16	19	16	16	

The Radio Research Laboratories, Japan

AUG. 1973

FBES (0.1 MHZ)

IONOSPHERIC DATA

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

AUG. 1973

F-MIN (0.1 MHz)

IONOSPHERIC DATA

AUG. 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	R	S	UR	F	UR	290	R	R	255	A	A	A	A	R	A	A	A	A	340	310	305	290	F	A													
2	R	F	F	A	A	285	315	300	295	350	350	A	A	275	A	A	JR	315	310	305	295	295	290	285													
3	F	F	F	F	F	330	C	C	C	330	320	A	A	295	290	310	305	315	315	320	F	265	320	315													
4	285	A	F	300	325	310	315	310	320	330	265	A	320	310	A	290	A	C	C	C	C	C	C	C													
5	C	C	C	C	C	C	C	C	C	C	C	A	A	A	C	C	C	I	A	305	305	315	290	F	JR	325	330	F	F	270							
6	270	F	F	265	305	295	295	280	A	355	315	A	A	A	A	A	295	310	325	320	310	295	300	JR	290	R											
7	S	S	F	295	F	305	JR	355	315	JR	280	A	R	A	A	310	I	A	I	A	290	305	305	310	295	F	290	F									
8	A	A	A	A	A	305	275	300	325	325	330	320	UR	245	275	295	320	I	A	305	315	295	300	315	I	A	290	F									
9	F	F	A	F	A	A	315	I	R	JR	310	I	A	330	305	I	A	280	290	300	315	310	315	335	305	300	290	320	300								
10	F	F	F	F	F	290	290	300	320	315	305	335	315	285	295	320	315	330	A	295	310	335	330	290	A												
11	F	F	F	F	315	I	A	320	295	I	A	345	A	340	275	A	A	A	305	I	A	310	305	300	315	A	330	300	305	320							
12	295	295	290	F	285	F	295	295	305	375	335	355	C	315	270	315	305	305	305	315	305	310	I	S	335	325	280	A									
13	A	F	F	290	300	J	F	295	310	C	C	C	C	I	A	320	A	C	280	285	295	290	295	295	JR	300	A	310	A								
14	A	A	R	JR	305	F	295	335	320	330	330	305	295	295	310	340	320	335	320	335	325	I	R	310	290	280	F										
15	330	I	R	R	I	A	315	JR	315	I	R	305	I	R	325	350	I	C	JR	290	I	C	295	I	R	300	310	I	C	315	330	310	F	315	S	JR	305
16	290	R	275	F	315	I	A	310	310	300	345	R	300	325	C	280	295	I	C	300	C	JR	315	335	330	335	330	295	S	A							
17	S	A	A	R	290	290	300	320	305	325	295	300	I	C	A	285	330	330	305	310	315	335	280	F	295	F											
18	F	F	F	F	315	335	325	A	C	C	325	320	285	305	310	320	330	350	330	305	270	F	F	295	300												
19	295	F	305	F	320	F	310	F	305	A	I	A	300	330	355	345	310	275	300	300	320	320	315	345	320	295	305	J	F	280	F	275					
20	F	F	U	F	F	305	305	A	320	I	A	330	325	A	310	310	310	330	325	330	A	305	I	S	320	S	325	295	285								
21	J	F	F	290	F	310	F	310	300	290	330	335	310	295	A	310	320	320	I	A	300	330	325	330	325	320	I	A	315	295	305						
22	285	280	310	300	295	310	330	345	340	R	A	A	A	310	320	R	I	A	310	330	310	305	320	290	R	R											
23	F	F	JR	280	285	275	305	335	325	345	325	320	JR	325	R	300	I	A	310	310	320	JR	325	315	R	310	315	285	F								
24	305	F	F	F	F	275	270	275	JR	305	A	A	G	UR	255	285	320	345	325	300	290	280	265	305	285	285											
25	285	275	F	300	F	A	275	290	300	310	320	G	240	R	280	305	245	295	310	310	325	300	285	285	280	295											
26	290	280	290	275	275	285	320	320	300	315	305	320	290	280	R	285	305	290	300	A	325	320	290	290	F												
27	U	F	F	F	F	F	285	335	330	S	330	310	I	R	I	R	305	A	295	300	310	A	A	295	R	315	A	A	A								
28	A	280	280	JR	285	300	310	335	C	C	295	290	310	310	285	JR	315	300	315	315	310	R	330	JR	290	F	A										
29	290	R	F	R	305	335	350	340	305	300	R	285	R	JR	310	310	325	310	300	310	310	320	295	315	A												
30	R	F	F	JR	295	F	310	310	I	R	325	JR	325	270	I	R	300	R	305	305	310	310	C	JR	305	R	290	290	R	F	F						
31	F	F	F	F	320	JR	305	315	345	JR	360	345	365	310	320	300	305	315	JR	335	315	315	310	310	UR	A	300	F									
CNT	15	14	16	20	21	28	27	23	24	24	23	18	19	26	26	26	29	26	27	26	27	26	27	26	22	13											
MED	290	288	290	298	295	305	315	325	322	325	310	300	290	300	305	310	310	315	315	310	310	295	290	300													
UQ	295	300	F	305	305	310	310	328	335	335	335	325	315	310	310	315	320	325	325	328	315	320	315	305	305												
LQ	285	280	280	285	295	290	300	312	305	312	292	285	280	285	295	300	310	305	305	305	295	290	285	285													

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AUG. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 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 345	L 390	A	A	A	A	A	L 370	A	A	A	A	A						
2								360	A	A	A	A	A	A	A	A	A	A	A	L					
3							C	C	C	A	A	A	A	A	A	A	A	A	A						
4							L	L 365	A	A	370	A	A	350	A	345	A	C	C						
5						C	C	C	C	C	A	A	A	C	C	C	A	A	L						
6							L	A	A	A	A	A	A	A	A	A	L 390	A							
7							L	L 365	L 350	A	370	A	A	A	A	A	A	A	L						
8							L 350	380	365	L 395	440	L 395	A	410	360	A	A	A							
9								L	L 360	A	A	A	A	370	A	360	L	L	L						
10						L	L	L	385	H 380	385	410	370	410	355	360	A	A	L						
11							L 365	A	A	A	A	A	A	A	A	380	A	A	A	A					
12						L	355	380	L 425	410	C	380	490	A	345	H 360	335	A	L						
13							C	C	C	C	A	A	C	L 360	L 385	L 345	A	A	L						
14								L	415	A	335	385	390	380	A	350	L								
15							L	L 370	L 390	370	C	L	C	A	L 335	370	C	L 355	L						
16							L	A	A	A	A	C	410	L 380	C	C	L 365	L	A						
17							L 350	L 360	410	A	390	415	C	A	A	355	L 375	L							
18							A	A	C	C	H 380	410	400	A	A	A	355	L							
19							A	L	A	410	A	360	435	A	A	A	L	L 365							
20								A	A	A	A	A	410	H 365	A	360	A	A	A						
21								A	350	L 315	A	A	A	A	A	A	L	L	L						
22							L	L 360	L	L 360	A	A	A	L 385	A	L	A	A	A						
23								L	L 370	L 360	L 400	400	395	L 320	A	A	L 350	L							
24							A	A	A	A	A	370	360	380	355	A	L	A	A						
25						A	A	A	370	360	390	395	365	360	345	355	A	A	A						
26							L	L 360	L 355	380	375	365	A	355	375	L	A	A	A						
27							L	350	L	L 400	395	A	A	A	A	345	L	A	A						
28							C	C	L	A	L 370	A	L 375	L 345	L 355	L 350	L								
29								A	L	L	L 345	360	370	370	L 380	L 360	L 365	L							
30							L	L 365	L 395	L 420	L 355	L 395	L	L 340	A	L 340	L	C							
31							L	L	L	L 400	L 410	395	L 345	L 375	A	L 345	L 355	A							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							5	12	12	14	13	15	12	18	12	14	10	2							
MED							L 350	L 365	L 370	388	385	395	390	370	358	355	L 355	L 360							
UQ							L 355	375	L 392	L 410	395	398	410	380	380	360	L 365								
LQ							L 350	L 360	358	360	370	368	368	360	345	L 345	L 350								

AUG. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

AUG. 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							R	R	A	A	A	A	A	610	A	A	A	A	A					
2								330	300	250	280		A	A	A	A	290	260	275					
3							C	C	C	280	330	A	A	355	340	A	320	A	A					
4							290	310	300	A	410	A	300	320	A	390	A	C	C					
5						C	C	C	C	C	A	A	A	C	C	C	340	A	290					
6							350	A	245	310	A	A	A	A	A	335	290	250						
7							230	300	310	A	R	A	A	340	I A 340	I A 375	380	320	280					
8							410	340	280	265	320	350	500	380	340	290	A	290						
9							290	240	300	A	350	A	A	370	350	305	290	300	250					
10						310	280	280	300	320	290	320	360	350	320	320	290	A	305					
11							300	I A 245	A	A	300	A	A	A	A	355	A	310	300	280				
12						310	310	220	270	290		C	350	400	310	355	330	310	A	260				
13							C	C	C	C	A	A	C	380	370	350	340	310	290					
14								270	270	350	350	340	305	300	290	260	270							
15							290	250	260	275	I C 295	305	I C 330	350	330	305	I C 300	270	250					
16								240	250	300	270	C	390	360	I C 300	C	290	250	270					
17							310	285	290	275	305	320	I C 300	A	360	290	290	270						
18							A 300	A	C	C	285	310	360	320	300	280	300	250						
19							A	260	250	250	350	390	350	330	280	275	300	250						
20								A	260	I A 260	A 300	A	A	320	305	305	270	300	270	A				
21								275	255	250	340	A	A	A	320	A	280	290						
22							280	250	280	300		A	A	A	310	300	290	A	A	290				
23								290	250	270	290	300	400	340	I A 330	330	290	260						
24							450	400	300	A	A	G	500	375	300	290	300	A	A					
25						A	A	340	320	330	G	600	415	360	580	355	310	310	270					
26							290	290	345	310	350	350	390	405	380	310	A 380	320	A					
27							270	270	280	310	390	365	A	A	300	350	290	A	A					
28								C	C	370	380	340	340	350	300	310	290	290						
29								240	340	300	390	390	R	295	300	300	310	300						
30							290	290	290	260	280	380	320	350	320	310	300	C						
31							280	250	245	240	240	320	305	305	310	280	270	260						
CNT							2	17	22	24	24	22	17	18	25	26	24	27	20	13				
MED							310	290	278	280	285	325	350	355	350	320	308	300	280	275				
UQ							310	300	300	305	350	380	400	370	350	332	310	300	290					
LQ							280	250	258	262	290	320	320	320	300	290	290	260	270					

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H^oF₂ (KM)

IONOSPHERIC DATA

AUG. 1973

H·F (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	300	300	300	300	290	300	250	240	A	A	A	A	A	A	A	A	A	A	A	290	280	300	300	A	
2	290	290	290	A	A	310	250	240	A	A	A	A	A	A	A	A	A	A	260	260	250	250	260	315	
3	310	290	305	300	265	290	C	C	C	A	A	A	A	A	A	A	A	A	A	250	300	300	260	245	
4	A	A	290	250	240	220	240	240	A	I ₂₄₀	A	240	A	240	A	240	A	C	C	C	C	C	C	C	
5	C	C	C	C	C	C	C	C	C	C	A	A	A	C	C	C	A	A	250	270	260	240	210	A	
6	290	300	300	270	300	260	220	A	A	A	A	A	A	A	A	A	A	A	A	255	250	240	240	270	290
7	320	300	290	310	305	310	210	230	270	A	A	A	A	A	A	A	A	A	250	260	215	240	260	300	
8	A	A	A	A	A	250	220	220	200	200	200	240	I ₂₃₀	A	220	250	A	A	I ₂₄₅	265	260	230	I ₂₄₅	290	350
9	260	260	I ₂₉₅	290	A	I ₂₅₀	I ₂₃₀	210	250	A	A	A	A	240	I ₂₄₅	I ₂₃₀	220	240	245	240	240	300	240	210	
10	275	290	270	280	255	250	210	250	205	200	200	210	220	190	240	220	A	A	245	240	210	250	300	I ₂₈₅	
11	310	260	260	250	260	I ₂₅₀	220	A	A	A	A	A	A	A	220	A	A	A	A	A	240	I ₂₅₀	250	I ₂₆₀	
12	310	I ₃₀₅	300	300	260	I ₂₆₅	210	200	195	180	C	220	205	I ₂₁₀	250	210	250	A	230	240	220	205	220	A	
13	A	300	340	290	290	260	C	C	C	C	A	A	C	220	240	I ₂₄₀	I ₂₄₀	I ₂₅₅	250	280	I ₂₂₀	I ₂₃₅	280	A	
14	A	I ₃₃₀	290	260	260	225	230	220	210	205	I ₂₆₀	270	220	220	240	I ₂₄₅	250	240	240	280	250	260	310	F	
15	250	240	350	300	I ₃₁₀	280	260	250	240	200	I ₂₁₀	240	I ₂₄₅	I ₂₅₀	270	250	I ₂₄₅	240	240	240	250	240	250	230	
16	290	330	290	270	A	300	270	A	A	I ₂₄₀	I ₂₂₀	C	200	220	I ₂₂₀	C	260	205	I ₂₆₀	240	250	320	300	A	
17	330	A	A	310	290	290	240	220	210	I ₁₉₅	210	190	C	A	A	200	215	220	250	240	230	290	290	250	
18	250	290	290	250	260	210	I ₂₃₀	A	C	C	260	205	200	I ₂₄₀	I ₂₅₅	I ₂₃₀	250	I ₂₄₀	250	250	300	290	260	260	
19	255	260	250	220	250	A	A	220	A	225	A	250	180	A	A	A	A	210	245	250	245	255	250	I ₃₅₀	
20	245	290	240	250	280	290	245	A	A	A	A	A	200	220	I ₂₄₅	210	A	A	A	260	250	220	255	260	
21	310	240	270	245	260	250	240	I ₂₃₀	245	A	A	A	A	A	A	A	205	230	250	270	250	260	240	270	
22	290	300	250	290	230	260	240	240	240	200	A	A	A	220	A	260	A	A	A	290	240	260	300	250	
23	290	290	300	280	300	290	245	250	240	250	210	200	200	280	A	A	A	240	250	200	240	230	290	310	
24	290	290	300	260	250	250	A	A	A	A	I ₂₃₅	220	210	170	H	250	I ₂₅₀	220	A	A	320	300	260	250	270
25	280	300	270	255	A	A	A	A	220	225	220	210	210	245	260	250	A	A	I ₂₅₅	250	300	310	260	260	
26	260	300	270	310	300	300	240	230	210	220	210	200	I ₂₂₀	250	210	250	A	A	A	220	260	A	300	350	
27	310	F	260	300	345	310	290	240	245	205	200	200	A	A	A	A	270	210	A	A	250	250	A	A	A
28	A	290	360	240	290	290	250	C	C	A	A	200	I ₂₂₀	250	230	210	240	240	240	240	240	280	310	A	
29	285	320	330	280	280	240	240	I ₂₃₀	260	A	I ₂₃₀	230	I ₂₄₀	250	220	210	230	200	250	230	255	240	300	250	A
30	250	330	290	260	250	280	250	205	210	200	210	200	190	H	290	A	220	250	C	240	250	250	300	340	260
31	280	290	260	250	250	250	240	240	200	200	200	200	250	210	I ₂₄₅	220	245	A	250	270	240	250	A	245	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	25	27	28	28	25	28	25	20	17	17	17	16	17	20	17	19	15	13	22	29	30	28	28	21	
MED	290	290	290	275	265	262	240	230	220	200	210	210	210	220	245	230	240	240	250	250	248	258	260	260	
UQ	310	300	300	300	290	290	250	240	240	225	230	240	220	248	250	250	250	240	250	270	250	295	300	295	
LQ	260	290	270	250	255	250	230	220	210	200	210	200	200	220	230	220	218	230	240	240	240	240	250	250	

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AUG. 1973

H·F (KM)

IONOSPHERIC DATA

AUG. 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	100	100	100	100	100	100	105	120	140	120	115	105	110	110	105	105	105	100	100	105	100	100	110	105
2	100	100	100	100	100	100	G	140	130	115	105	105	105	100	105	100	105	105	100	100	100	100	100	100
3	110	100	110	100	105	100	C	C	C	110	110	105	110	110	110	105	105	105	105	100	100	100	100	100
4	100	100	110	100	105	110	110	110	105	100	100	105	100	100	100	100	100	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	110	110	110	C	C	C	110	110	105	100	100	100	100	100
6	100	100	100	100	100	100	105	105	105	100	110	105	105	100	100	100	100	100	100	110	105	100	100	100
7	100	100	100	100	100	100	105	100	110	105	105	105	110	130	110	110	110	105	110	100	110	100	100	100
8	100	110	110	105	100	100	105	100	110	110	100	100	100	G	130	110	110	110	105	100	100	100	100	100
9	100	100	100	100	110	110	115	110	100	105	105	110	120	125	125	115	120	110	110	120	110	105	105	100
10	100	100	100	100	100	B	G	110	110	105	110	105	100	110	110	115	120	110	110	105	100	100	100	105
11	100	100	100	90	110	110	105	105	105	105	105	105	105	110	125	120	115	110	110	100	105	105	100	100
12	100	100	100	100	105	105	100	105	105	G	C	110	110	115	110	G	110	105	105	100	100	100	100	100
13	100	105	105	105	105	115	C	C	C	C	100	100	C	100	G	100	110	110	100	100	100	100	100	100
14	100	100	100	100	100	110	100	110	100	110	100	100	100	100	100	105	100	100	100	100	100	100	100	110
15	100	110	105	100	100	100	100	105	G	100	C	105	C	100	100	100	C	100	100	100	110	100	100	100
16	100	100	100	100	100	110	110	110	100	100	105	C	G	G	C	C	140	100	110	100	110	110	100	100
17	100	100	100	100	100	100	110	110	110	105	100	100	C	100	100	100	100	125	110	110	100	105	105	100
18	100	100	100	100	100	110	110	120	C	C	170	145	G	120	120	110	115	110	105	105	115	110	110	105
19	105	105	B	B	B	110	110	110	110	110	110	110	110	110	105	110	110	110	110	110	105	105	105	105
20	105	105	105	105	110	110	130	110	110	105	105	105	100	110	105	G	120	110	105	105	100	105	105	110
21	105	105	100	100	100	100	G	110	115	110	110	100	110	110	105	110	110	110	105	100	100	100	100	100
22	100	100	100	100	100	100	110	110	105	100	100	100	100	100	100	100	100	100	100	100	110	100	100	100
23	100	100	100	100	100	S	G	130	120	120	130	110	110	105	100	100	100	100	100	100	100	100	110	100
24	150	130	115	115	S	150	130	120	110	110	110	130	125	100	140	100	100	110	110	110	110	115	110	S
25	140	120	110	105	105	110	110	120	125	115	160	100	G	170	150	150	130	120	110	110	105	110	105	100
26	100	100	100	120	110	100	115	120	125	125	115	110	110	G	G	145	125	115	115	110	105	105	105	105
27	100	100	100	103	100	100	120	110	110	110	110	110	100	100	100	100	G	110	110	100	100	100	105	100
28	105	105	100	100	100	100	100	C	C	100	100	100	100	100	100	100	G	G	115	100	100	100	110	100
29	100	100	100	100	100	100	G	140	115	110	110	110	110	G	G	G	B	G	110	110	100	100	100	100
30	100	100	100	100	100	100	115	110	110	100	100	100	100	100	100	150	120	C	110	100	100	100	100	100
31	100	100	110	100	100	B	150	140	110	130	120	100	130	115	105	105	105	115	110	110	100	110	110	105
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	29	29	28	27	23	27	25	27	29	30	25	26	26	26	27	27	30	30	30	30	30	29
MED	100	100	100	100	100	100	110	110	110	110	110	105	110	108	105	105	110	110	108	100	100	100	100	100
UQ	100	105	105	100	105	110	115	120	115	110	110	110	110	110	110	110	118	110	110	110	105	105	105	105
LQ	100	100	100	100	100	100	105	110	105	102	100	100	100	100	100	100	102	102	100	100	100	100	100	100

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AUG. 1973

H^oES (KM)

IONOSPHERIC DATA

AUG. 1973

TYPES OF F5

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	F3	F3	F5	F3	F3	LH11	L2	H1	H2	H1	C2	C2	C2	C2	C2	C2	C2	C3	C5	F4	F5	F3	FF31	F3	
2	F4	F3	F4	F3	F3	L2		H1	H2	C1	C2	C2	C2	C1	C2	C2	C2	C2	L2	F1	F2	F3	F3	F3	
3	FF23	F1	FF22	F2	F2	L2				C3	C2	C3	C3	C2	C2	C2	C2	C4	C4	F4	F3	F4	F5	F5	
4	F5	F5	FF23	F3	F3	C1	C2	C3	C3	C3	C2	C2	C3	C2	C2	C2	C2								
5											C2	C2	C2				C2	C4	C3	F5	F3	F4	F3	F4	
6	F3	F3	F4	F2	F3	L3	L2	C3	C4	C2	C2	C1	C2	C2	C2	C2	C1	C3	C3	F3	F1	F3	F2	F4	
7	F3	F8	F5	F6	F5	L3	C1	C1	C2	C2	C2	C2	C2	H1	C2	C2	C3	C2	C3	F4	F1	F1	F2	F3	
8	F4	F5	F5	F3	F5	L3	L1	L2	C1	C1	C1		L1		H1	C2	C3	C2	C4	F3	F1	F3	F2	F2	
9	F1	F2	F3	F4	F4	L3	CL22	C2	C2	C2	C3	C1	H1	H1	H2	C2	C1	C2	C2	F2	F2	F4	F3	F4	
10	F3	F3	F3	F3	F1			C3	C2	C2	C1	L1	L2	C1	C1	C1	H2	C4	C3	F3	F5	F3	F3	F5	
11	F4	F4	F3	F2	FF23	C3	C3	C3	C2	C3	C1	C2	C2	CL12	HL11	H2	C3	C3	C3	F3	F3	F3	F4	F3	
12	F3	F4	F3	F1	F1	C3	L2	C1	L2			C1	C1	C1	C1		C2	C4	C2	F3	F3	F4	F3	F3	
13	F3	F3	F3	F3	F3	C2					C2	C2		L1		H1	C1	C2	L3	F4	F3	F1	F3	F4	
14	F3	F2	F2	F3	F5	L2	C2	C1	C1	C1	C1	C1	L1	L1	L1	L1	L2	L1	L1	F3	F3	F2	F2	F1	
15	F1	F2	F3	F4	F5	L1	L3	L2		L1		C1		L1	L1	L1		L2	L2	F2	FF22	F3	F3	F1	
16	F2	F3	F2	F3	F5	L3	C3	C2	C2	C2	L1						H2	L2	CL23	F3	FF21	FF21	F2	F4	
17	F3	F3	F4	F3	F3	L2	C2	C1	C1	C3	L1	L1		L2	L3	L2	L3	HL22	HL22	C2	F3	F5	F3	F5	
18	F3	F3	F3	F4	F4	C3	C2	C3			H1	H1		H2	H2	C2	C2	C2	C4	F4	F4	F4	F2	F4	
19	F3	F1				C6	C5	C1	C2	C1	C2	C1	C1	C2	C2	C2	C3	C2	C3	F3	F4	F1	F3	F3	
20	F6	F2	F3	F3	F1	C4	HL23	C3	C3	C3	C3	C2	L1	C1	C2		H3	C4	C3	F5	F3	F4	F2	F2	
21	F3	F2	F4	F3	F5	L1		C2	C2	C2	C2	C2	C2	C2	C2	C2	C1	C2	L3	F4	F5	F3	F2	F2	
22	F2	F3	F3	F2	F2	L3	C1	C2	C1	L1	C3	L2	L2	L1	L2	L2	L3	L3	L3	F3	FF13	F2	F3	F3	
23	F4	F2	F3	F2	F3			H1	H1	H1	H1	C1	C1	C1	H2	C2	L2	L2	L2	F5	F2	F1	FF32	F2	
24	FF11	FF21	F2	F1		H1	H1	H2	C2	C2	C2	H1	H1	L1	HL11	L3	HL21	C3	C4	F3	F2	F3	F5		
25	F1	F4	F2	F3	F3	C5	C3	H2	H2	C2	HL11	L1		H1	H1	H1	H2	H3	C4	F4	F5	F4	F3	F3	
26	F2	F3	F2	F1	F2	C3	C2	C2	H2	H1	C1	C1	C2			H1	H3	C4	C5	F2	F4	F4	F2	F3	
27	F4	F3	F3	F5	F4	L1	C2	C1	C1	C1	C1	C1	C2	C2	C2	C2		C2	C4	F2	F3	F3	F3	F3	
28	F3	F2	F2	F2	F2	L1	C2			C2	C2	C1	C2	C1	L1	L1			C1	F3	F2	F2	F2	F3	
29	F3	F6	F4	F5	F5	L1		H1	C1	C1	C1	C1	C1						H2	F2	F2	F3	F3	F2	
30	F4	F4	F3	F1	F1	L1	C1	C1	C1	C2	C1	C1	C2	C1	L2	H1	H1		L3	F4	F4	F4	F3	F2	
31	F1	F2	F1	F3	F1		H1	H1	C2	H1	CL11	L1	HL11	C1	C3	C1	L1	C2	C3	F4	F2	FF33	F3	F3	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

AUG. 1973

TYPES OF ES

IONOSPHERIC DATA

AUG. 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	R	S	UR	F	UR	360	R	R	G	A	A	A	A	R	A	A	A	A	A	300	315	360	F	A	
2	R	F	F	A	A	380	390	350	360	260	290	A	A	G	A	A	JR	300	300	300	350	340	350	360	
3	F	F	F	F	F	290	C	C	C	290	A	A	A	350	350	IA	320	IA	IA	290	290	F	F	F	
4	A	A	F	310	280	305	300	310	300	A	G	A	300	320	A	G	A	C	C	C	C	C	C	C	
5	C	C	C	C	C	C	C	C	C	C	A	A	A	C	C	C	A	IA	310	300	350	JF	290	250	
6	F	F	F	F	340	340	360	A	260	350	A	A	A	A	A	360	305	300	300	350	315	350	JR	R	
7	S	S	F	360	F	350	JR	310	G	A	R	A	A	340	A	A	G	340	340	300	300	F	360	F	
8	A	A	A	A	A	300	410	350	300	300	350	G	G	G	350	320	IA	305	300	300	300	IA	300	350	
9	F	F	A	F	A	A	305	IA	JR	JR	A	350	A	A	370	350	305	300	310	270	310	310	340	290	
10	F	F	F	F	F	350	310	300	300	325	290	G	G	G	320	330	290	A	320	310	280	290	340	A	
11	F	F	F	F	300	IA	320	IA	A	A	A	A	A	A	355	310	320	315	290	A	290	A	300	305	
12	320	A	F	F	340	340	310	240	270	G	C	G	G	310	355	320	320	A	305	290	IA	265	270	340	
13	A	F	F	F	JF	320	305	C	C	C	C	IA	A	C	400	G	360	360	360	JR	A	A	300	A	
14	A	A	R	JR	F	260	290	305	290	290	G	360	355	330	305	300	300	300	280	300	IA	300	305	390	
15	300	IA	R	R	IA	300	JR	IA	IA	260	IA	JR	IA	360	IA	360	IA	300	290	300	F	300	S	JR	
16	R	360	F	305	IA	310	340	260	R	340	290	C	390	G	IA	C	JR	300	280	290	280	290	360	S	
17	S	A	A	R	350	350	340	300	300	300	340	325	IA	A	A	290	290	300	305	300	270	340	315	F	
18	F	F	F	F	300	260	A	A	C	300	310	360	320	305	290	300	260	280	300	370	F	F	300	310	
19	F	F	F	F	320	A	IA	280	250	250	A	G	G	340	300	300	300	260	280	310	300	JF	350	360	
20	290	F	UF	F	310	310	300	A	290	IA	A	A	G	310	305	290	300	280	A	310	IA	280	S	320	
21	JF	F	F	F	F	315	340	290	260	280	370	R	A	A	A	350	A	290	290	290	300	IA	300	300	
22	360	360	330	310	355	300	300	260	270	R	A	A	A	340	320	R	A	290	305	340	300	360	R	R	
23	F	F	JR	320	350	340	280	300	260	300	300	JR	R	350	A	330	300	JR	300	R	300	300	380	F	
24	300	F	F	F	F	350	G	G	JR	A	A	G	G	375	300	290	300	A	340	350	400	310	350	350	
25	350	F	310	340	A	A	A	A	320	G	G	G	G	G	G	355	310	A	290	310	350	350	350	320	
26	320	350	350	390	350	360	300	300	350	320	340	G	G	G	G	315	A	340	A	280	290	350	350	F	
27	UF	F	F	F	360	F	350	290	280	290	330	R	R	IA	A	340	360	340	A	A	360	300	A	A	
28	A	360	400	JR	350	350	350	290	C	C	G	G	350	340	360	JR	350	310	300	300	R	290	JR	F	
29	360	R	F	R	310	260	260	260	350	300	R	G	R	JR	310	340	300	330	350	310	310	290	350	300	
30	R	F	F	JR	F	320	340	IA	300	300	JR	400	R	R	360	340	315	300	C	JR	R	350	355	F	
31	F	F	F	F	300	JR	300	280	JR	260	250	250	320	310	310	320	300	JR	300	300	300	300	UR	A	F
CNT	14	13	16	20	21	27	24	21	22	19	14	7	9	18	20	23	25	23	26	26	26	25	22	13	
MED	345	345	350	320	330	315	302	300	300	300	330	350	340	340	340	315	300	300	300	300	300	340	340	310	
UQ	360	360	355	350	350	350	340	300	310	310	350	355	355	360	350	340	320	312	310	310	315	350	350	350	
LQ	305	330	320	305	300	300	295	280	270	272	290	322	310	310	312	300	300	295	290	300	290	300	300	305	

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AUG. 1973

HPF2 (KM)

IONOSPHERIC DATA

AUG. 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	R	S	U	R	F	U	R		G	A	A	A	A	R	A	A	A	A	A		90	95	100	F	A											
2	R	F	F	A	A	110	190	110	100	100	100	A	A	G	A	A	J	R	70	90	90	90	100	100	100											
3	F	F	F	F	F	100	C	C	C	80	A	A	A	75	90	I	A	80	I	A	80	F	120	F	90	100										
4	A	A	A	85	100	80	95	100	90	70	A	G	A	60	75	A	G	A	C	C	C	C	C	C	C											
5	C	C	C	C	C	C	C	C	C	C	C	A	A	A	C	C	C	A	I	A	85	90	90	100	J	F	60	70	70							
6	F	F	F	F	100	110	90	A	50	110	A	A	A	A	A	100	95	90	90	90	90	95	110	J	R	110	R									
7	S	S	F	100	F	110	J	R	90	G	A	R	A	A	100	A	A	G	120	120	90	90	F	100	F											
8	A	A	A	A	A	90	100	110	90	90	100	G	G	G	110	100	I	A	105	105	100	100	90	I	A	95	110	F								
9	F	F	A	F	A	A	95	I	R	95	J	R	100	A	65	A	A	75	95	95	100	85	80	90	100	80	60	90								
10	F	F	F	F	F	100	105	110	110	110	100	140	60	100	75	70	G	G	G	60	65	70	A	90	70	60	70	100	A							
11	F	F	F	F	100	I	A	90	I	A	60	A	A	A	A	A	A	A	40	I	A	75	120	85	70	A	60	A	100	F	90					
12	90	A	F	100	F	110	100	90	40	90	G	C	G	G	90	55	80	80	A	95	90	I	S	65	100	110	A	A								
13	A	F	F	F	J	F	80	95	C	C	C	C	I	A	100	A	C	90	G	100	100	100	100	J	R	100	A	A								
14	A	A	R	J	R	F	100	100	95	100	100	G	100	105	120	100	90	90	90	110	90	I	R	90	95	100	F	A								
15	90	I	R	R	100	I	A	100	J	R	90	I	R	95	100	I	C	J	R	100	I	C	100	100	I	C	100	90	100	90	F	90	S	J	R	100
16	R	100	100	F	95	I	A	100	90	100	100	R	120	100	C	100	G	I	C	100	C	J	R	90	100	100	100	100	100	100	100	100	100	S	A	
17	S	A	A	R	110	100	120	90	90	60	100	75	I	C	70	A	A	60	60	100	95	70	70	110	F	85	F	F	F	F	F	F	F	F		
18	F	110	F	100	F	100	100	A	A	C	50	100	85	80	95	70	60	50	80	100	130	F	F	F	100	F	90	F	F	F	F	F	F	F		
19	F	95	100	F	100	F	100	120	A	I	A	60	50	60	A	G	G	100	50	60	80	60	80	100	100	J	F	100	F	90	F	F	F	F		
20	70	F	U	F	60	100	F	100	95	100	A	70	I	A	60	A	A	G	85	95	60	60	70	A	90	I	S	80	80	80	100	I	S	80	100	
21	J	F	90	100	F	100	F	100	100	85	110	60	60	110	100	R	A	A	A	100	A	100	90	100	90	90	I	R	90	90	95	I	R	90	95	
22	100	100	110	90	105	100	90	100	120	R	A	A	A	110	120	R	A	100	95	110	90	100	R	R	R	R	R	R	R	R	R	R	R	R	R	
23	F	F	J	R	100	90	110	120	100	90	100	90	100	90	100	J	R	90	R	110	A	110	90	J	R	90	90	R	90	90	110	F	A	A	A	
24	90	F	F	F	F	100	G	G	J	R	100	A	A	G	G	75	70	40	60	A	110	100	110	85	100	100	100	100	100	100	100	100	100	100	100	100
25	100	80	90	100	F	A	A	A	A	80	G	G	G	G	G	G	55	90	A	60	90	100	90	100	90	100	90	100	90	100	100	100	100	100	100	100
26	90	100	100	110	100	90	70	60	50	40	60	G	G	G	G	135	A	60	A	60	70	100	100	F	F	F	F	F	F	F	F	F	F	F	F	
27	U	F	100	F	100	F	90	F	90	70	70	S	60	120	R	R	I	A	120	A	110	100	120	A	A	100	R	90	R	A	A	A	A	A	A	
28	A	100	90	J	R	100	110	100	C	C	G	G	110	120	100	J	R	100	110	100	100	90	90	R	100	J	R	100	F	A	A	A	A	A	A	
29	100	R	F	R	100	100	100	100	100	110	90	R	G	R	J	R	90	100	100	120	110	100	90	100	110	90	100	110	90	100	100	100	100	100	100	100
30	R	F	F	J	R	F	110	100	I	R	100	90	J	R	100	90	R	R	100	110	95	90	C	J	R	100	R	90	105	F	F	F	F	F	F	
31	F	F	F	F	90	J	R	95	90	90	J	R	100	50	50	80	60	90	80	70	J	R	50	100	100	70	100	U	R	80	A	F	F	F	F	
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	14	13	16	20	21	27	24	21	22	19	14	7	9	18	20	23	25	23	26	26	26	25	22	13												
MED	98	100	100	100	100	100	100	90	90	90	100	90	100	92	98	90	90	90	95	90	90	100	100	95												
UQ	100	100	100	100	110	100	100	100	100	100	100	105	105	100	100	100	100	100	100	100	100	100	100	100												
LQ	90	100	90	92	100	95	90	60	70	60	70	82	70	85	70	62	80	85	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	

AUG. 1973

YPF2 (KM)

IONOSPHERIC DATA

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

AUG. 1973

FOF2 (0.1 MHz)

IONOSPHERIC DATA

AUG. 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 340	L 420	A	A	A	A	A	A	A	A	A	A	A				
2								L 420	400	A	A	A	A	A	A	A	A	A	A	A		L		
3								L 410	H 490	H 470	H 480		L	A	450	I A 450	430		L	L				
4								L	A	430	460	I A 460		A	A	A	A	A	H 410	A				
5								L	400	440	H 480	H 470	480		A	A	A	H 440	I A 410	L	A			
6								L	400	430	460	470	450	450	450	A	H 430	410	L					
7								L	420	L 440	440		A	A	A	450	A	A	A	360	L			
8								A	420	440	I A 440		L	R 460	R	A	H 440	A	I A 400	A				
9								L	320	410	430	I A 450	480	450	I A 460	A	A	A	A	L				
10								L	410	H 410	450	470	450	460	H 460	H 430	430	410	L					
11								A	A	A	I A 460	460		A	A	A	A	A	A	A				
12								L	410	420	440	460	H 450	460	440	R 430	420	I A 390	350	H				
13								L	390	L 430	440	H 490	H 470	440	440	H 420	420	A	L					
14									390	I A 420	I A 450	450	430	H 460	440	R	A	410	400	340	L			
15								L	390	L 410	460	H 470	H 450	460	440	430	I A 410	390	A					
16								L	L	A	440	H 450	L	A	450	A	A	A	390	A				
17								L	L	430	440	I R 450	450	R 450	450	430	H 430	390	L					
18								L	440	440	H	A	A	A	I A 460	430	I A 430	430	380	L				
19								A	A	A	440	I A 460	460		A	A	430	420	370	L	L			
20								A	L	440	440	H 460	460		A	A	440	410	L	L				
21								L	370	400	A	440	H 470	I A 460	460	440	A	410	380	L				
22								L	A	H 440	440	H 460	470	H 450	H 450	I A 440	430	H	L	L				
23								L	400	L	A	A	L	R	A	460	H 440	I C 440	L	L				
24								L	A	A	A	A	A	A	A	450	A	L	A					
25								L	L	400	430	H 450	450	450	460	450	450	420	380	L	A			
26								A	L	L	A	460	450	A	470	460	440	L	A	A				
27								A	400	470	460	I A 480		A	A	460	450	420	L					
28								L	A	450	A	A	I A 480	I A 470	480	460	U I 450	420	L	L				
29								L	A	A	A	A	A	A	A	450	440	400	L					
30								L	L	430	510	H 500	I R 490	490	470	450	450	A	L					
31								L	L	A	L	A	480	L	H 470	A	A	L	A					
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	17	22	23	20	18	16	19	19	20	16	3					
MED								355	400	430	450	465	460	460	450	440	430	395	350					
UQ								395	410	440	460	475	470	460	460	450	435	410	355					
LQ								330	400	430	440	460	450	450	440	430	420	385	345					

AUG. 1973

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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	A	230	270	305	320	330	335	A	A	A	295	270	190	S					
2						S	A	H 240	280	305	325	340	350	I A 345	A	A	A	A	A	A	B				
3						S	A	A	A	310	I A 320	340	340	340	I A 335	330	300	A	A	S					
4						S	S	230	280	320	A	A	A	A	A	A	A	280	A	S					
5						S		H 150 220	H 270	I A 300	I A 330	330	335	A	A	A	305	270	180	S					
6						S	S	A	A	A	A	A	A	345	340	325	315	275	225	S					
7						S	A	235	285	305	325	340	340	345	335	320	305	270	A	S					
8						E	A	235	I A 275	310	330	340	350	350	345	325	305	270	200	S					
9						S		150 230	280	I A 310	325	340	350	R 350	345	330	320	280	215	S					
10						S	A	245	275	I A 300	340	I A 340	340	345	I R 335	325	305	240	A	S					
11						S	A	220	270	A	A	A	A	A	A	A	305	270	210	S					
12						S	A	240	280	315	330	340	340	340	330	330	305	250	A	S					
13						S	S	220	270	295	A	A	335	I A 330	330	320	305	260	190	S					
14						C	C	A	290	I A 315	A	A	335	335	330	320	290	260	205	S					
15						S		160 I A 220	265	I A 300	A	A	350	I A 345	I A 340	330	A	A	A	S					
16						S	A	240	A	A	A	A	A	340	I A 335	325	295	260	185	A					
17						S	A	I A 215	I A 265	A	A	A	R	A	A	315	295	270	A	S					
18						S	A	A	265	290	320	H 340	340	340	340	320	300	260	200	H	S				
19						S		135 230	270	300	320	I A 335	340	330	330	320	290	260	A	S					
20						S	A	A	270	305	310	A	A	A	A	A	290	260	190	S					
21						S	S	220	260	290	305	320	340	340	335	315	A	A	A	S					
22						S	A	A	A	A	A	320	A	A	340	I A 310	300	260	A	S					
23						S	A	230	275	305	A	A	A	340	I A 330	I A 320	I C 300	I A 260	A	S					
24						S	A	240	275	310	325	340	335	A	A	A	305	270	A	A					
25						S	A	230	275	300	H 310	325	340	350	340	320	295	260	210	H	S				
26						S	S	220	270	290	305	325	325	320	A	325	300	250	170	S					
27						S	S	200	250	290	320	A	A	A	335	325	300	A	A	B					
28						E	S	195	A	A	A	A	A	A	330	320	295	250	175	S					
29						S	S	230	270	300	310	H 330	330	335	325	300	I A 270	250	160						
30						S	S	210	250	300	320	I R 330	I R 340	340	330	330	300	270	A						
31						S		230	280	310	330	345	I R 360	I A 360	I A 345	I A 325	I A 300	270	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT						2	4	25	26	25	20	19	21	21	22	24	27	26	15						
MED						E	150	230	270	305	320	340	340	340	335	322	300	260	190						
UQ							155	235	280	310	328	340	340	345	340	325	305	270	208						
LQ							142	220	270	300	315	330	335	340	330	320	295	260	182						

The Radio Research Laboratories, Japan

AUG. 1973

FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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 40	JX 41	JX 32	JX 35	JX 36	JX 28	JX 31	28	34	38	JX 52	76	113	170	101	JX 138	80	JX 84	104	JX 36	JX 31	38	JX 48	85
2	JX 78	JX 45	JX 95	JX 39	JX 44	JX 32	15	28	43	52	JX 71	JX 82	JX 103	JX 72	JX 128	JX 129	JX 120	JX 82	JX 62	JX 52	JX 30	JX 21	JX 41	JX 32
3	JX 26	JX 25	JX 21	JX 26	JX 28	E S 14	JX 31	JX 56	31	34	36	39	JX 53	JX 53	40	JX 57	JX 65	37	JX 38	JX 36	JX 51	JX 31	JX 24	JX 64
4	JX 51	JX 41	JX 37	JX 50	JX 27	JX 21	44	30	JX 49	45	JX 69	JX 98	JX 61	JX 83	68	59	JX 79	JX 33	JX 52	JX 33	JX 44	JX 25	JX 29	JX 34
5	E S 14	E S 14	E S 13	E	JX 46	JX 22	22	27	33	39	37	44	JX 70	160	188	66	40	86	D	145	JX 76	JX 63	JX 33	JX 34
6	JX 27	JX 21	JX 17	JX 37	JX 21	JX 26	27	JX 27	JX 44	JX 52	JX 44	41	41	G	44	46	35	30	24	21	JX 25	23	24	JX 32
7	JX 23	JX 48	JX 39	JX 32	JX 29	JX 27	39	28	33	37	JX 55	JX 101	JX 82	JX 69	JX 46	JX 57	75	M 89	JX 33	18	22	JX 21	JX 33	JX 28
8	23	16	JX 38	JX 60	JX 73	JX 95	JX 51	JX 38	38	JX 50	JX 50	40	51	42	48	38	44	JX 64	JX 52	JX 29	JX 20	23	22	JX 29
9	E S 14	23	JX 27	JX 24	JX 25	JX 29	19	25	34	JX 40	JX 58	JX 57	JX 60	52	JX 65	JX 65	69	JX 51	JX 64	JX 40	JX 52	27	JX 40	25
10	27	JX 39	JX 36	JX 26	JX 32	JX 36	JX 28	JX 36	34	JX 53	46	JX 41	33	30	33	41	39	JX 57	JX 34	27	JX 28	21	JX 36	JX 50
11	JX 37	83	JX 37	JX 33	JX 51	JX 51	JX 34	JX 83	53	JX 50	JX 86	JX 127	JX 103	94	100	90	JX 104	JX 85	JX 141	JX 53	124	JX 79	JX 142	JX 99
12	JX 38	JX 34	JX 33	JX 24	JX 26	JX 26	JX 22	JX 33	JX 34	G 31	37	G	39	37	40	40	JX 52	JX 80	JX 50	JX 27	JX 40	JX 20	24	24
13	22	19	E S 14	JX 18	14	JX 20	JX 37	28	29	JX 35	36	38	33	41	30	34	39	JX 44	JX 39	JX 41	JX 28	JX 56	JX 40	JX 40
14	JX 37	JX 25	JX 27	23	JX 22	C	C	JX 53	JX 37	JX 90	JX 69	JX 47	35	38	37	JX 61	JX 46	JX 41	JX 50	22	17	JX 25	JX 51	JX 27
15	E S 14	JX 40	JX 29	JX 28	JX 20	JX 38	G	JX 36	33	35	37	JX 71	39	42	37	JX 61	JX 62	JX 40	JX 46	JX 36	JX 34	JX 40	JX 54	JX 42
16	JX 34	20	24	E	JX 24	JX 34	JX 24	G 21	JX 58	JX 39	JX 53	43	JX 51	41	49	JX 60	JX 87	JX 94	JX 83	JX 42	JX 29	JX 34	JX 33	JX 36
17	JX 85	JX 60	48	JX 59	JX 51	33	JX 24	JX 33	JX 29	JX 40	55	JX 34	39	39	JX 39	G 29	33	33	JX 27	JX 27	JX 27	JX 29	JX 34	JX 26
18	JX 33	JX 27	JX 26	JX 21	JX 25	JX 19	JX 24	27	JX 42	34	51	JX 52	JX 56	49	39	JX 64	JX 45	28	26	JX 33	80	JX 65	JX 29	JX 29
19	JX 61	JX 30	JX 47	JX 38	JX 40	JX 34	22	JX 43	JX 54	77	JX 52	JX 50	JX 105	47	44	41	39	33	JX 39	JX 34	JX 39	JX 55	JX 29	JX 30
20	JX 25	JX 30	E	15	JX 36	JX 35	JX 33	38	JX 44	JX 57	42	JX 141	44	JX 110	JX 97	JX 42	G 23	G	JX 32	JX 23	25	JX 29	JX 21	17
21	JX 28	25	JX 26	JX 27	JX 35	JX 25	24	27	34	JX 62	38	37	JX 73	39	36	JX 47	JX 60	JX 37	JX 28	JX 64	JX 37	JX 24	JX 31	JX 31
22	JX 37	JX 30	JX 31	JX 33	JX 34	JX 36	JX 26	JX 32	JX 42	JX 33	36	35	41	35	40	JX 81	32	29	JX 29	JX 33	JX 56	JX 74	JX 52	JX 35
23	JX 39	JX 46	JX 48	JX 31	JX 36	JX 29	JX 21	27	39	JX 50	JX 86	JX 57	41	JX 48	38	37	C	JX 35	JX 28	JX 26	JX 20	19	E S 15	E S 14
24	JX 20	JX 17	21	JX 31	JX 31	JX 29	JX 27	34	JX 45	JX 48	JX 60	JX 58	JX 90	JX 85	JX 77	39	47	JX 42	JX 36	JX 73	JX 74	JX 36	JX 30	JX 40
25	JX 22	E S 14	JX 20	22	20	21	17	26	30	32	34	42	39	41	44	42	41	38	36	JX 40	JX 38	JX 41	JX 34	JX 34
26	JX 34	19	26	JX 29	JX 39	JX 51	JX 41	JX 38	JX 41	JX 52	37	42	JX 57	JX 57	37	40	43	JX 52	JX 49	JX 54	JX 45	JX 31	JX 44	JX 39
27	JX 33	JX 48	JX 64	JX 46	JX 62	JX 28	24	JX 72	JX 73	JX 58	JX 61	JX 168	JX 61	JX 80	G 31	40	31	JX 31	JX 38	JX 29	JX 31	23	JX 27	JX 31
28	JX 27	20	23	25	E	23	45	25	JX 64	JX 54	JX 58	JX 70	JX 63	JX 95	G 26	G 25	JX 29	G	20	21	E S 14	E S 14	JX 25	21
29	E S 14	JX 22	JX 40	JX 37	JX 62	JX 26	18	JX 37	JX 47	45	54	JX 66	79	JX 59	JX 60	41	JX 49	32	JX 35	24	JX 38	JX 34	JX 32	JX 34
30	23	JX 29	JX 19	27	JX 26	21	21	23	JX 33	32	G 24	G 26	G 26	G 27	G	G	36	JX 49	JX 36	JX 27	JX 22	JX 32	23	23
31	23	JX 24	JX 26	JX 31	21	23	18	27	35	JX 49	42	49	45	40	JX 38	JX 47	JX 65	36	K 44	JX 39	JX 88	JX 26	JX 19	JX 20
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31
MED	JX 27	JX 27	JX 27	JX 29	JX 31	JX 28	24	30	JX 38	JX 45	51	JX 49	53	48	40	46	46	JX 40	JX 38	JX 35	JX 34	JX 29	JX 32	JX 32
UQ	JX 37	JX 40	JX 38	JX 36	JX 40	JX 34	JX 33	JX 38	JX 44	JX 52	JX 58	JX 70	JX 72	JX 76	62	JX 61	JX 65	JX 60	JX 51	JX 40	JX 48	JX 39	JX 40	JX 38
LQ	23	20	JX 22	JX 24	JX 24	JX 23	21	27	34	36	37	40	40	40	37	40	39	33	JX 32	JX 27	JX 26	JX 23	JX 24	JX 26

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AUG. 1973

FOES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1973

FBES (0.1 MHZ)

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

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	29	25	E	31	14	G	16	G	30	35	A	A	A	A	A	A	A	A	A	34	17	19	17	19	
2	24	27	E	A	28	20	14	27	34	48	A	A	A	A	A	A	A	A	46	31	E	E	37	28	
3	21	18	15	E	17	E ₁₄	26	26	29	G	36	39	43	47	38	57	36	30	25	33	40	25	18	E	
4	A	A	24	29	21	G	27	28	42	30	35	A	50	53	53	52	59	25	37	25	31	22	25	28	
5	E ₁₄	E ₁₄	E ₁₃	E	30	G	21	G	G	36	34	42	44	A	A	A	37	62	40	62	22	43	19	E	
6	15	E	E	24	12	G	23	27	33	32	38	41	38	G	42	45	33	G	G	20	21	E	15	19	
7	16	25	30	25	19	24	23	27	32	33	42	A	A	57	43	55	A	A	29	16	E	E	18	15	
8	E	E	18	18	16	A	29	35	33	43	47	38	39	E ₄₂	43	38	43	61	35	29	16	E	E	19	
9	E ₁₄	E	22	15	20	G	18	G	G	32	54	39	43	52	60	54	50	40	32	28	32	18	32	E	
10	E	14	28	20	23	20	24	20	30	32	31	40	G	G	E ₃₃	36	37	35	29	19	18	E	18	A	
11	23	A	A	19	A	A	33	42	46	45	A	38	49	A	60	58	53	61	A	50	42	51	A	A	
12	E	18	E	17	15	G	14	29	25	G	G	G	G	G	G	G	35	E ₈₀	27	15	31	E	E	E	
13	E	E	E ₁₄	14	12	G	20	G	G	28	34	36	G	41	G	34	39	41	33	37	27	26	27	29	
14	16	E	18	E	E	C	C	35	27	43	A	36	G	38	36	43	40	35	29	19	E	20	39	20	
15	E ₁₄	25	16	E	E	19	G	34	32	35	36	34	38	40	37	30	47	33	40	29	23	25	31	E	
16	18	E	E	E	24	17	22	G	44	34	39	38	45	40	47	50	52	35	51	38	17	31	29	A	
17	E	21	20	A	A	26	15	26	27	35	36	34	39	39	37	G	G	29	22	23	27	22	21	15	
18	19	20	17	16	15	16	24	25	38	32	50	46	52	49	37	55	40	G	24	32	A	22	E	20	
19	30	E	E	28	A	20	20	36	41	A	41	49	42	46	43	39	37	32	24	15	32	A	16	18	
20	E	16	E	14	14	30	24	36	37	41	39	44	37	50	76	40	G	G	30	21	24	22	16	E	
21	16	E	22	16	29	22	21	G	32	44	35	36	A	39	G	45	36	35	20	G	19	16	24	15	
22	25	24	21	14	27	29	23	28	34	33	35	G	36	35	28	A	32	G	26	30	49	24	E ₅₂	E ₃₅	
23	E ₃₉	A	A	E	20	21	17	G	36	45	A	38	40	47	35	35	C	30	20	16	14	16	E ₁₅	E ₁₄	
24	18	E	E	15	18	15	20	32	40	48	A	A	53	47	A	38	45	36	36	35	53	35	30	27	
25	20	E ₁₄	E	14	14	G	16	24	29	G	E ₃₄	42	39	41	41	40	36	34	34	37	37	40	33	19	
26	E	E	24	E	20	A	40	35	37	48	35	40	50	45	E ₃₇	36	43	44	42	E ₅₄	41	26	31	23	
27	29	25	A	A	A	25	19	A	36	37	35	50	60	54	31	39	G	26	26	20	E	E	E	20	
28	22	E	E	E	E	14	34	G	51	38	48	50	54	49	G	G	G	G	G	G	E ₁₄	E ₁₄	20	E	
29	E ₁₄	14	28	A	A	24	17	34	46	44	52	58	A	53	53	38	31	29	32	18	29	25	23	15	
30	E	26	E	17	22	G	G	G	23	E ₃₂	G	G	E ₂₆	E ₂₇	G	G	35	49	28	16	19	17	E	E	
31	E	15	E	15	14	E	E ₁₈	26	34	44	E ₄₂	49	45	39	37	47	60	28	43	E ₃₉	A	24	E	19	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	
MED	16	15	16	16	20	18	20	27	33	35	38	40	43	46	38	40	38	34	30	U	26	24	22	20	19
UQ	22	25	23	24	28	24	24	34	38	44	51	50	52	52	53	54	50	44	38	33	34	26	30	24	
LQ	E	E	E	E ₁₄	14	G	16	E ₁₉	29	32	35	37	38	39	U	32	36	35	28	26	18	17	15	16	E ₁₄

AUG. 1973

FBES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1973

F-MIN (0.1 MHZ)

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

Station	YAMAGAWA				Lat. 31 12.1 N. Long. 130 37.1 E				Sweep 1 MHz to 20 MHz in 20 sec in automatio operation															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E ₁₄	E ₁₄	E ₁₄	E	E	E ₁₄	E ₁₃	E ₁₃	14	15	17	17	19	16	16	14	14	11	E ₁₄	E ₁₃	E ₁₅	E ₁₄	E ₁₄	E ₁₄
2	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E	E ₁₄	E ₁₃	11	11	14	15	17	19	23	16	15	14	15	E ₁₄	E ₁₃	E ₁₄	E ₁₅	E ₁₅	E ₁₅
3	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₄	14	14	14	17	16	20	20	21	16	17	14	14	E ₁₃	E ₁₅	E ₁₄	E ₁₅	E ₁₄	E ₁₄
4	E ₁₄	11	13	E ₁₄	13	E ₁₄	E ₁₄	11	11	14	15	15	20	20	15	15	15	12	E	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₄
5	E ₁₄	E ₁₄	E ₁₃	E	E	E ₁₄	E ₁₄	13	13	15	15	16	16	16	16	14	14	14	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₅
6	E ₁₄	E ₁₄	E ₁₄	E	E	E ₁₄	E ₁₄	11	13	14	16	24	22	17	16	16	15	12	11	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₄
7	E ₁₄	E ₁₅	E ₁₄	E ₁₄	E	E ₁₄	E ₁₄	E ₁₃	12	15	17	17	18	24	16	16	14	13	E ₁₅	E ₁₄	E ₁₅	E ₁₄	E ₁₄	E ₁₄
8	E ₁₅	E ₁₄	E ₁₄	E	E	E	13	14	14	15	15	21	16	18	17	15	15	11	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₄
9	E ₁₄	E ₁₅	E	E ₁₄	E	E ₁₅	E ₁₃	13	14	14	17	19	19	21	16	14	14	14	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₄	E ₁₄
10	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₃	E ₁₄	12	13	14	15	15	17	20	20	16	15	15	11	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₄
11	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E	E ₁₄	E ₁₄	11	11	15	15	15	16	16	14	15	15	15	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₄
12	E ₁₅	E ₁₄	E ₁₅	E	E	E ₁₅	11	11	14	12	14	15	15	16	16	14	14	12	E ₁₄	E ₁₃	E ₁₅	E ₁₄	E ₁₅	E ₁₄
13	E ₁₅	E ₁₅	E ₁₄	E	E	E ₁₄	E ₁₅	14	14	14	14	15	18	18	16	14	14	14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	C	C	E ₁₄	14	14	19	22	24	21	15	14	14	14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
15	E ₁₄	E ₁₄	E ₁₃	E ₁₃	13	E ₁₄	E ₁₄	14	13	15	16	17	19	17	19	15	13	14	E ₁₅	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₅
16	E ₁₄	E ₁₅	E ₁₅	E	E	E ₁₄	11	E ₁₄	14	15	14	15	14	16	15	14	17	14	11	E	E ₁₄	E ₁₃	E ₁₄	E ₁₄
17	E ₁₄	E ₁₄	E ₁₄	E	E	E ₁₄	13	11	13	11	14	16	22	15	21	14	13	11	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
18	E ₁₄	E ₁₄	E ₁₃	E	E	E ₁₄	E	11	13	14	15	15	15	22	17	15	15	12	11	E ₁₃	E ₁₅	E ₁₅	E ₁₄	E ₁₄
19	E ₁₅	E ₁₄	E ₁₄	14	E	E ₁₅	E	14	12	14	15	21	20	19	15	15	17	12	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₅	E ₁₅
20	E ₁₄	E ₁₄	E	E	E	12	11	12	13	13	14	15	20	18	19	15	14	13	E ₁₃	E ₁₄	E ₁₅	E ₁₃	E ₁₄	E ₁₃
21	E ₁₄	E ₁₄	E ₁₄	E	E	E ₁₄	E ₁₅	E	14	15	14	15	18	16	14	14	11	14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
22	E ₁₄	E ₁₄	11	E	E	E ₁₄	11	12	13	12	16	15	20	18	18	14	11	11	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₄	E ₁₄
23	E ₁₄	E ₁₄	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E ₁₃	11	11	13	15	15	19	15	17	15	C	11	E ₁₃	E ₁₄	E ₁₃	E ₁₄	E ₁₅	E ₁₄
24	E ₁₄	E ₁₃	E ₁₄	E ₁₄	E ₁₃	E ₁₃	14	13	14	14	16	18	22	28	20	18	17	13	11	E	E ₁₄	E ₁₃	E ₁₂	E ₁₄
25	11	E ₁₄	E ₁₃	E	E	E ₁₄	13	E	11	11	11	15	17	20	15	15	14	13	E ₁₃	E ₁₄	E ₁₄	E ₁₅	E ₁₄	E ₁₄
26	E ₁₃	E ₁₄	E ₁₄	E ₁₅	E	E ₁₅	E ₁₃	E ₁₅	12	14	14	15	16	15	15	14	13	11	E ₁₃	E ₁₄	E ₁₅	E ₁₅	E ₁₅	E ₁₄
27	E ₁₃	E ₁₄	E ₁₄	E	E	E ₁₄	E ₁₅	E ₁₃	11	14	14	18	15	22	17	14	14	11	E ₁₄	11	E ₁₄	E ₁₄	E ₁₄	E ₁₄
28	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E	E	E ₁₃	E ₁₄	14	13	14	16	19	20	15	17	14	11	13	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₅
29	E ₁₄	E ₁₃	E	E	E	E ₁₃	E ₁₄	14	14	15	15	16	16	17	19	14	14	14	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃
30	E ₁₄	E ₁₄	E ₁₄	E ₁₄	14	E ₁₅	E ₁₄	E ₁₃	11	14	17	18	15	14	23	19	15	13	E ₁₄	E	E ₁₄	E ₁₄	E ₁₄	E ₁₄
31	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E	E ₁₄	E ₁₄	13	14	14	19	22	20	24	17	14	14	12	11	E ₁₄	E ₁₃	E	E ₁₄	E ₁₄
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31
MED	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E	E ₁₄	E ₁₃	12	13	14	15	16	19	18	16	15	14	13	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₄
UQ	E ₁₄	E ₁₄	E ₁₄	E ₁₄	E ₁₃	E ₁₄	E ₁₄	14	14	15	16	18	20	21	17	15	15	14	E ₁₄	E ₁₄	E ₁₅	E ₁₅	E ₁₄	E ₁₄
LQ	E ₁₄	E ₁₄	E ₁₃	E	E	E ₁₄	13	11	12	14	14	15	16	16	15	14	14	11	E ₁₃	E ₁₃	E ₁₄	E ₁₄	E ₁₄	E ₁₄

The Radio Research Laboratories, Japan

AUG. 1973

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	I 280	U 270	275	U 290	305	310	305	325	J 220	S 285	I 290	A	A	A	A	A	A	A	A	A	350	325	S 270	S 290	
2	S	S 285	F	I 270	F	F	310	290	350	355	A	A	A	A	A	A	I 305	I 305	330	300	320	S 325	S 320	S 285	
3	290	F	290	295	310	F	320	325	355	320	325	265	275	275	305	300	305	320	320	330	335	J 300	305	S	
4	A	A	I 290	295	F	F	325	310	340	355	280	I 295	295	315	285	290	280	310	315	315	295	295	S 275	I 295	
5	295	S 275	285	285	285	S 295	330	305	355	370	275	280	285	A	I 305	I 310	290	280	275	S	S	I 335	285	F	
6	265	S 275	F	300	F	F	285	315	360	345	335	285	275	265	265	295	I 335	340	325	300	S 305	300	U 290	I 295	
7	S	S	S	S	F	300	325	335	335	345	S	305	A	I 315	310	310	A	A	I 300	300	U 325	350	J 300	S 285	J 280
8	I 285	I 285	J 295	J 335	285	I 310	335	370	345	360	385	300	280	285	310	305	310	A	310	J 325	320	J 315	285	S 280	
9	270	270	S 280	310	F	F	315	370	315	350	345	300	R 305	285	290	305	320	340	325	295	I 300	325	345	U 290	
10	310	I 285	290	I 295	300	J 325	320	335	350	355	355	285	320	320	305	330	320	300	U 290	315	335	340	280	A	
11	S	A	A	F	A	I 325	335	340	S 380	360	A	330	265	I 290	315	335	310	305	A	305	I 330	305	A	A	
12	F	F	S 285	310	300	295	305	340	355	355	315	315	315	290	310	315	295	I 300	310	325	365	355	275	270	
13	285	290	280	280	290	S 305	320	345	365	365	325	270	255	290	285	295	295	295	295	U 305	J 375	335	U 325	S	
14	F	F	S 285	F	F	I 300	I 310	U 350	350	375	I 285	285	335	295	315	U 305	340	325	325	345	330	295	U 295	I 300	
15	305	285	310	J 300	F	325	355	365	375	360	305	300	290	270	285	295	S	335	320	330	325	315	I 275	S	
16	S	275	275	295	F 275	310	335	350	350	340	335	320	285	290	320	320	320	330	J 330	S	340	295	285	I 305	
17	J 305	275	305	I 300	I 295	300	330	350	355	360	300	300	J 310	325	295	S 330	305	320	315	325	I 330	350	315	S	
18	J 300	S 285	310	315	S 325	315	335	360	345	345	F 320	315	280	295	330	330	335	325	320	315	I 310	I 300	I 285	U 260	
19	I 285	270	I 280	I 310	I 280	270	280	365	355	I 345	240	305	285	295	310	325	340	345	335	345	F	I 285	I 290	S 280	
20	S	U 285	305	295	F 265	I 270	280	S 320	S 330	335	335	315	310	300	320	315	330	320	320	305	330	365	295	295	
21	285	300	315	300	295	S 305	305	340	370	360	360	315	A	305	315	315	335	325	310	S 325	315	J 335	U 295	U 300	
22	U 300	290	F 285	U 285	U 295	S	345	370	345	340	355	315	315	315	325	I 310	315	325	310	290	330	I 330	S	S	
23	S	A	A	F	J 275	S 265	320	325	S 355	375	I 340	325	295	320	315	300	I 305	305	I 310	325	325	315	290	I 280	
24	I 290	285	265	310	285	F	260	J 275	340	355	A	A	285	310	A	340	295	315	300	J 290	280	280	J 300	I 270	
25	J 285	I 280	300	330	320	315	290	340	325	330	U 265	270	285	305	310	285	315	310	320	320	290	280	295	280	
26	270	275	270	265	S 250	I 270	305	355	325	305	315	335	290	315	300	325	305	305	310	S 305	335	290	I 265	I 265	
27	U 255	I 275	I 260	A	A	275	S 330	I 350	355	340	305	265	R 300	315	290	305	325	335	325	315	310	J 300	U 275	275	
28	J 275	295	295	285	F 280	F 315	310	350	325	325	280	305	305	310	295	305	295	295	310	I 340	335	340	265	290	
29	U 305	265	S	A	I 305	290	330	340	325	325	A	A	A	315	315	315	310	305	300	320	300	320	280	265	
30	265	260	265	S	F	F	300	335	350	345	315	280	290	285	305	295	305	310	I 330	S	330	275	S	S	
31	S	285	I 290	320	I 310	S 305	325	S	375	385	330	290	300	S 305	310	320	325	320	320	320	S 310	I 310	275	280	
CNT	21	24	25	24	23	23	31	30	31	30	27	26	27	28	28	28	28	29	29	29	28	29	31	27	22
MED	S 285	S 282	285	298	295	S 305	320	340	350	352	315	300	290	302	310	310	310	315	315	320	325	310	S 285	S 280	
UQ	S 300	S 285	295	310	302	315	330	350	355	360	335	315	308	315	315	322	325	325	325	325	335	332	295	295	
LQ	S 275	S 275	S 280	S 288	280	S 292	305	325	340	340	295	285	285	290	295	300	305	305	310	305	S 310	S 295	S 278	S 275	

AUG. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 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 395	L 380	A	A	A	A	A	A	A	A	A	A	A	A				
2								L 345	375	A	A	A	A	A	A	A	A	A	A	A	A	L			
3								L 365	H 365	H 385	H 390	L	A	380	I A 375	365	L	L							
4								L A	405	395	I A 385	A	A	A	A	A	H 355	A							
5								L 385	385	395	395	A	A	A	A	A	H 370	I A 370	L	A					
6								L 400	410	375	395	415	375	A	A	A	350	360	L	L					
7								L 365	L 375	A	A	A	A	A	A	A	A	A	355	L					
8								A 370	A	I A 400	L	R 415	R	A	A	H 365	A	A	A	A					
9								L 420	L 395	370	A	370	A	A	A	A	A	A	A	L					
10								L 390	H 420	400	390	420	H 400	H 395	395	370	365	L							
11								A	A	A	A	380	A	A	A	A	A	A	A	A					
12								L 390	415	410	375	H 400	390	R 410	395	380	A	H 355							
13								L 385	L 415	L 395	H 365	H 380	425	H 390	375	A	A	L							
14								400	I A 390	I A 405	415	H 395	365	400	R	A	A	L 365	370						
15								L 395	420	330	H 375	H 365	345	390	375	A	360	A							
16							L	L	A	385	H 400	L	A	375	A	A	A	A	A						
17								L	L	395	425	I R 415	R 365	410	380	H 395	370	360	L						
18								L 345	H 370	A	A	A	A	420	I A 380	A	375	L							
19								A	A	A	A	A	400	A	A	375	380	380	L						
20								A	L	A	H 345	A	385	A	A	375	370	L	L						
21								L 350	375	A	395	H 350	I A 370	390	420	A	370	370	L						
22								L	A	H 365	H 375	H 390	H 395	H 395	H 375	I A 365	350	L	L						
23								L 385	L	A	A	L	R	A	370	H 365	C	L	L						
24								L	A	A	A	A	A	A	A	360	A	L	A						
25							L	L	350	370	H 375	L 360	390	370	355	355	355	355	A						
26							A	L	L	A	390	410	A	A	365	365	L	A	A						
27								A	A	L 360	380	I A 380	A	A	385	370	375	L							
28								L	A	385	A	A	A	I A 380	365	375	U 330	L 345	L						
29								L	A	A	A	A	A	A	355	365	345	L							
30								L	L	395	360	H 385	I R 370	370	345	360	335	A	L						
31								L	L	A	L	A	375	L	H 370	A	A	L	A						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								4	16	20	19	18	15	13	17	19	15	13	3						
MED								372	385	385	395	385	390	380	380	375	370	360	355						
UQ								408	392	408	400	395	400	395	395	375	370	370	362						
LQ								348	368	370	375	H 375	372	370	370	365	352	355	355						

AUG. 1973

M(3000)F1 (0.01)

IONOSPHERIC DATA

AUG. 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							285	300	550	400	A	A	A	A	A	A	A	A	A	A	240			
2							245	365	255	255	A	A	A	A	A	A	I A 310	I A 320	280	295				
3							250	250	335	320	460	405	375	300	310	295	285	260						
4							350	280	255	400	A	350	325	A	E A 375	A	290	275						
5							295	235	240	450	400	390	A	A	A	360	E A 370	E A 340	E A 310					
6							260	225	280	300	405	410	405	375	320	255	250	255						
7							250	275	255	325	A	A	E A 350	330	A	A	A	300						
8							270	270	255	250	375	425	355	325	325	295	A	285						
9							240	260	270	290	395	350	400	390	300	295	270	295						
10							280	250	250	260	410	310	300	355	295	300	350	325						
11							235	230	275	A	300	450	I A 360	310	300	E A 350	E A 350	A						
12							255	240	255	325	345	330	425	350	315	310	I A 300	A	270					
13							245	220	250	315	480	475	370	335	315	300	305	310						
14							230	250	A	405	330	285	290	285	265	280	265							
15							240	235	255	350	375	375	370	330	305	275	250	245						
16							250	240	255	275	305	335	400	355	285	275	280	275	270					
17							260	250	245	385	350	300	290	330	300	350	300	305						
18							245	290	275	300	320	370	310	270	290	285	290	245						
19							230	225	A	340	370	355	340	275	290	275	255	250						
20							275	230	290	290	330	340	350	330	320	290	300	280						
21							270	240	255	255	360	A	380	325	300	275	300	225						
22							235	230	270	260	335	330	330	305	I A 300	330	280	280						
23							275	225	245	A	320	350	300	300	300	I C 300	275	260						
24							375	290	270	A	A	400	330	A	295	350	300	330						
25							350	260	295	310	420	425	390	345	350	385	305	300	275					
26							E A 350	240	275	305	305	295	375	315	305	290	345	325	280					
27							I A 240	240	290	355	465	E A 350	305	350	320	335	265							
28							250	300	305	355	310	310	350	335	300	305	305	270						
29							255	270	290	A	A	A	295	310	300	300	310	290						
30							245	240	285	340	400	335	330	295	305	305	290	255						
31							230	230	230	255	390	350	310	295	280	295	255	270						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							5	30	31	30	24	25	26	28	26	27	28	28	28	3				
MED							U 268	252	250	270	318	375	352	338	325	300	300	292	275	U 268				
UQ							350	275	272	290	352	405	400	365	335	314	315	302	292	298				
LQ							250	240	230	255	290	335	332	310	300	295	288	275	260	268				

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H^oF₂ (KM)

IONOSPHERIC DATA

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H·F (KM)

135° E Mean Time (G. M. T. + 9h)

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E A 290	E A 330	295	320	275	250	250	225	255	225	I A 210	A	A	A	A	A	A	A	A	A	230	310	260	250	
2	250	E A 300	300	A	E A 345	300	240	225	235	A	A	A	A	A	A	A	A	A	A	270	250	210	290	E A 340	
3	325	305	300	300	300	255	250	230	H 190	H 200	H 190	H 175	A	A	225	I A 245	255	225	H 220	240	250	255	240	280	
4	A	A	310	330	250	230	250	220	I A 245	200	H 195	A	A	A	A	A	A	H 210	I A 225	245	260	250	295	260	
5	225	280	280	265	E A 300	255	240	220	205	205	H 195	215	I A 210	A	A	A	H 220	A	A	I A 245	230	225	215	260	
6	320	290	250	270	255	270	250	230	H 220	190	230	210	185	200	A	A	H 215	205	225	235	245	235	245	300	
7	315	320	E A 330	305	255	250	245	220	220	220	A	A	A	A	A	A	A	A	E A 255	235	205	240	275	280	
8	270	285	305	250	260	A	270	A	235	I A 210	A	195	190	I A 215	I A 215	E A 240	A	A	A	240	225	205	270	275	
9	300	290	295	245	320	250	225	H 180	200	200	I A 210	220	A	A	A	A	A	A	I A 250	255	260	235	240	260	
10	250	310	300	270	280	260	235	200	195	H 175	180	200	185	H 180	H 180	205	230	E A 240	260	250	210	205	E A 320	A	
11	310	A	A	300	A	A	280	A	A	A	A	200	A	A	A	A	A	A	A	E A 270	250	275	A	A	
12	290	315	285	260	260	290	225	200	190	180	170	H 175	220	200	200	215	225	A	H 220	240	205	190	280	335	
13	300	300	300	290	275	250	230	210	H 190	H 190	H 170	170	H 170	E A 205	H 190	205	A	A	A	260	205	230	275	E A 340	
14	270	275	300	250	300	C	C	250	215	A	A	195	170	H 250	205	A	A	E A 255	E A 250	225	220	E A 270	E A 350	250	
15	270	E A 340	300	305	275	255	225	240	210	200	H 175	H 185	235	E A 250	215	230	I A 230	I A 230	A	225	230	230	E A 300	240	
16	260	295	300	275	E A 295	280	245	215	I A 215	200	H 200	200	A	245	A	A	A	A	A	220	205	E A 350	A	A	
17	265	345	300	A	A	A	240	225	H 200	200	190	175	240	210	200	H 175	210	205	220	250	250	205	250	250	
18	290	305	275	255	250	255	240	240	I A 210	H 220	A	A	I A 200	I A 210	200	I A 220	I A 215	200	225	245	I A 270	295	265	280	
19	E A 275	275	250	290	A	300	H 245	A	A	A	A	A	E A 250	A	A	E A 250	240	225	240	230	300	I A 285	250	275	
20	270	275	220	245	300	E A 330	275	A	E A 230	E A 250	H 210	A	210	A	A	E A 250	205	220	E A 270	255	235	205	250	270	
21	300	275	260	260	E A 365	280	240	220	205	A	195	200	H I A 205	210	190	I A 200	E A 230	E A 255	220	235	240	220	270	260	
22	E A 300	E A 325	305	300	E A 300	E A 350	240	235	I A 195	H 175	H 200	H 175	H 185	H 175	H 170	A	H 200	210	250	275	255	225	A	I A 295	
23	A	A	A	255	290	E A 350	245	225	225	A	A	200	205	I A 200	200	230	H I A 230	I A 230	230	240	245	215	210	280	300
24	295	280	305	265	300	290	255	I A 270	A	A	A	A	A	A	A	245	A	E A 270	A	300	E A 350	310	250	305	
25	275	310	280	245	255	260	250	230	225	H 185	205	220	215	250	A	E A 260	E A 250	E A 250	A	255	E A 300	E A 345	280	295	
26	295	275	E A 300	325	E A 350	A	A	A	E A 240	A	195	200	A	A	240	220	A	A	A	E A 250	245	250	E A 345	E A 340	
27	E A 325	250	A	A	A	300	230	I A 235	I A 225	215	190	A	A	A	220	E A 250	215	225	250	255	250	230	285	310	
28	325	280	280	285	265	240	E A 310	230	A	205	A	A	A	I A 205	200	210	H 195	H 200	225	230	205	215	325	300	
29	275	340	E A 350	A	A	E A 300	240	E A 250	A	A	A	A	A	A	A	245	200	220	I A 250	240	250	240	280	310	
30	315	E A 340	285	250	240	260	260	H 220	H 225	200	H 210	H 190	210	200	250	210	240	A	A	230	210	250	300	310	
31	280	290	280	245	310	285	250	230	225	I A 215	230	A	E A 250	190	185	A	A	225	I A 240	270	I A 255	235	250	265	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	28	28	27	26	26	29	26	26	22	20	19	18	17	17	19	18	19	19	30	31	31	28	28	
MED	282	290	295	270	272	260	245	225	215	200	195	200	205	202	200	220	218	218	232	244	240	232	268	278	
UQ	300	312	300	300	295	290	250	232	225	212	210	200	215	212	215	238	230	230	248	255	251	256	286	304	
LQ	270	280	280	252	260	255	240	220	200	190	190	180	185	200	190	210	210	210	225	235	218	218	250	260	

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H·F (KM)

IONOSPHERIC DATA

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H°ES (KM)

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

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

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H°ES (KM)

IONOSPHERIC DATA

AUG. 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	FF 42	F 3	F 2	F 5	F 3	L 3	LH 11	HL 22	HL 12	HL 21	CL 21	C 3	C 4	C 4	C 4	CL 41	CL 51	CL 61	C 6	L 5	F 4	F 3	F 4	FF 14
2	F 3	F 5	F 3	F 5	F 6	L 5	L 1	HL 22	HL 21	C 2	C 3	C 3	C 4	C 3	C 2	C 3	L 5	L 5	L 4	L 5	F 2	F 1	F 2	F 3
3	F 1	F 1	F 2	F 1	FF 22		L 2	L 2	L 2	C 1	C 2	C 2	C 1	C 1	C 1	C 2	C 2	L 2	L 4	L 5	F 3	F 5	F 3	F 2
4	F 3	F 5	F 2	F 3	F 4	L 1	L 3	C 3	C 2	C 2	C 2	C 4	HC 22	C 3	C 3	C 4	L 7	L 4	L 5	L 3	F 6	FF 42	FF 42	FF 42
5					F 4	L 2	C 2	C 2	C 3	C 3	C 1	C 1	C 2	C 3	C 3	C 3	C 2	C 3	C 3	L 3	F 5	F 5	F 2	F 2
6	F 2	F 2	F 1	F 4	F 2	L 2	L 1	L 5	C 5	L 2	L 2	L 2	C 2		CL 11	C 1	H 1	HL 12	HL 12	CL 12	F 2	FF 12	FF 21	F 3
7	F 2	F 3	F 3	F 3	F 5	L 5	L 3	HL 23	HL 22	CL 11	C 1	C 3	C 2	C 3	C 1	C 3	C 6	C 5	C 4	C 1	F 1	F 1	F 2	F 3
8	F 1	F 1	F 2	F 3	F 4	L 1	L 2	HL 32	HL 22	H 3	C 2	C 1	HC 11	H 1	HL 11	HL 21	CL 31	CL 51	C 6	C 5	F 4	F 1	F 1	F 2
9		F 2	F 3	F 2	F 4	CL 11	C 5	H 2	HL 22	L 3	CL 22	H 1	H 1	C 1	C 2	C 2	C 2	C 3	C 4	C 2	F 2	F 2	F 4	F 2
10	F 1	F 3	F 3	F 3	F 3	L 3	L 2	L 2	CL 21	L 2	L 2	L 3	L 1	L 1	L 1	C 2	C 2	C 2	L 5	L 1	F 2	F 1	F 3	F 4
11	F 2	F 3	F 4	F 3	F 4	L 5	L 3	C 5	C 4	C 3	C 4	C 3	C 3	C 4	C 5	CL 33	CL 42	C 6	C 5	C 6	F 4	F 4	F 5	F 4
12	F 2	F 4	F 2	F 3	F 4	L 2	L 1	L 3	L 2	L 2	HL 11		H 1	H 1	C 1	H 1	C 2	C 6	L 4	L 3	F 3	F 1	F 1	F 1
13	F 1	F 1		F 1	F 1	L 3	CL 12	C 4	CL 11	CL 21	C 2	C 2	L 1	C 2	L 1	HL 12	HL 22	CL 32	CL 64	CL 35	FF 34	F 2	F 4	F 3
14	F 2	F 2	F 2	F 1	F 2		L 4	L 2	L 2	L 3	L 4	L 1	C 1	HC 11	HL 12	CL 12	CL 21	CL 31	CL 42	CL 11	F 1	F 2	F 6	F 2
15		F 3	F 2	F 2	F 2	L 4		L 2	H 2	HL 22	HL 12	HL 21	HL 12	HL 11	HL 12	HL 22	L 2	L 5	L 5	L 5	FF 24	FF 31	FF 41	F 3
16	F 3	F 1	F 1		F 5	L 4	L 3	L 2	L 5	L 3	L 3	HL 21	L 2	H 1	HL 22	HL 32	CL 41	CL 31	CL 41	CL 42	F 2	F 4	F 4	F 6
17	F 2	F 3	F 2	F 6	F 5	L 4	L 1	L 2	L 2	L 2	L 3	L 2	HL 11	HL 12	L 2	L 2	H 1	HL 22	L 2	L 2	F 2	FF 22	FF 23	F 3
18	F 2	F 2	F 2	F 4	F 2	L 2	L 2	HL 12	CL 23	H 1	H 3	H 1	CL 21	H 1	H 1	C 3	H 1	H 1	C 2	C 3	F 4	F 2	F 3	F 4
19	F 4	F 3	F 3	F 8	FF 64	CL 22	C 2	C 4	C 3	C 2	C 2	C 2	C 2	C 2	C 1	CL 11	C 2	C 3	C 4	L 2	F 4	F 2	F 2	F 2
20	F 2	F 3		F 1	F 3	L 7	L 2	HC 44	C 4	C 3	C 1	C 4	C 2	C 3	L 4	L 4	L 1		C 4	CL 31	FF 22	F 4	F 4	F 1
21	F 2	F 2	F 5	F 4	F 6	L 4	L 2	CL 32	C 2	C 3	C 2	HC 11	C 2	C 1	C 1	C 3	C 3	C 3	L 3	L 3	F 2	F 5	F 3	F 2
22	F 3	F 6	F 3	F 2	F 5	L 3	L 2	L 5	L 4	L 2	HL 12	CL 11	CL 11	C 2	L 1	CL 42	HL 12	CL 33	L 4	CL 34	FF 41	F 4	F 4	F 5
23	F 5	F 6	F 4	FF 21	F 2	L 2	L 2	HL 32	C 3	C 3	C 3	C 2	L 1	C 1	L 1	L 1		CL 32	L 2	L 2	F 1	F 1		
24	F 2	F 2	F 1	F 2	F 2	L 2	L 2	H 3	C 4	C 1	C 2	C 2	C 2	C 2	C 3	HC 12	C 2	C 4	C 7	L 4	F 4	F 5	F 7	F 3
25	F 2		F 1	F 1	F 2	L 1	L 1	HL 12	HL 11	HL 11	HL 11	H 1	H 1	H 1	H 1	H 2	H 2	H 4	C 4	C 6	F 7	F 6	F 7	F 3
26	FF 12	F 1	F 5	F 2	F 3	CL 22	C 4	C 5	C 4	C 2	C 2	C 1	C 3	C 2	CL 11	HL 21	HL 11	C 4	C 5	C 5	F 5	F 7	F 4	F 4
27	F 8	F 5	F 6	F 7	F 6	L 6	C 4	C 3	C 3	C 2	C 2	C 2	C 5	C 2	L 1	C 1	H 1	L 2	L 2	L 3	F 1	F 1	F 2	F 2
28	F 3	F 1	F 2	F 2		L 2	L 4	C 2	C 5	C 3	C 2	L 2	L 3	L 2	L 1	L 1	L 2		H 1	L 1			F 2	F 1
29		F 5	F 4	F 7	F 5	L 7	H 2	CL 32	C 2	C 2	CL 21	CL 31	C 4	C 2	C 2	C 2	C 1	C 2	C 5	F 3	F 5	F 4	F 3	F 2
30	F 2	F 4	F 1	F 4	F 5	L 2	L 1	HL 12	L 4	HL 11	L 1	L 1	L 1	L 1			H 3	C 3	C 4	F 3	F 2	F 2	F 1	F 1
31	F 1	F 2	F 1	FF 22	F 2	F 1	H 2	H 3	C 2	C 2	C 1	C 1	CL 11	L 1	L 2	C 2	HL 42	HL 23	CL 43	CL 43	FF 22	F 3	F 2	F 2
	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																								

AUG. 1973

TYPES OF ES

IONOSPHERIC DATA

AUG. 1973

FOF2 (0.1 MHZ)

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

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	46	F	F	36	36	36	50	49	60	62	I A 54	A	I A 54	53	58	63	64	70	83	80	43	39	42	F	
2	38	36	37	I A 28	30	33	40	53	64	I A 57	49	56	56	A	83	I A 79	75	91	87	A	69	66	48	37	
3	33	38	F	F	44	F	40	64	61	54	62	J R 52	66	94	116	119	128	132	113	R	87	U R 68	60	55	
4	U S 57	U R 58	53	S 53	53	S 47	44	R 63	77	59	51	A	A	A	65	75	84	92	81	70	67	67	64	57	
5	53	46	45	43	38	41	42	66	74	A	51	57	67	A	A	56	65	68	83	J R 92	86	S 57	39	35	
6	F	F	S 35	F 35	28	F	36	66	R 62	J R 57	60	57	56	67	77	105	113	77	67	68	67	53	53	49	
7	46	48	45	48	48	49	50	51	64	67	62	I C 59	65	68	I A 69	68	74	77	93	87	68	58	U R 57	R 56	
8	U S 52	J S 52	F	F	40	43	I A 34	47	74	59	R 50	A	59	63	72	80	90	90	91	96	68	S 60	54	S 47	
9	48	50	49	S 41	43	S 27	37	53	52	64	56	56	I A 58	61	72	85	84	67	64	78	88	J S 74	46	S 44	
10	45	44	44	S 43	39	40	40	59	59	65	59	65	65	64	64	66	62	58	74	82	R 83	37	31	30	
11	J R 30	29	31	32	30	27	37	S 62	55	49	56	62	I A 62	67	79	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	56	R 74	89	97	102	94	94	S 99	R	84	S 60	I S 44	F
14	F	F	F	J S 46	32	A	64	S 60	52	50	63	92	110	I O 4	101	98	94	99	69	54	50	46	F	F	
15	39	42	F	37	38	41	60	55	52	49	56	68	82	93	107	121	114	96	91	65	39	S 35	F	F	
16	F	F	F	F	I A 33	S 33	37	54	55	62	S 57	52	74	91	97	100	90	91	114	72	42	38	35	A	
17	A U F 33	29	29	27	U S 25	27	56	J R 65	53	61	79	94	98	95	86	81	72	70	73	70	43	33	32	32	
18	F	33	32	28	26	26	39	48	61	59	64	I A 53	77	95	97	79	74	65	62	63	54	44	F	F	
19	A	S 39	S	32	27	A	A	69	57	52	52	61	A	A	90	A	A	74	A	A	52	56	54	57	
20	F	F	38	33	30	30	40	67	C	59	60	61	A	80	86	75	80	89	84	I A 83	J R 92	57	J S 53	52	
21	51	U S 49	73	U S 50	47	F	40	62	89	58	59	54	52	58	68	80	72	79	76	85	76	55	40	42	
22	43	38	38	F	36	36	38	49	60	64	62	64	58	65	65	69	70	73	75	78	78	68	F	A	
23	A	A	A	A	A	A	28	64	74	A	A	65	74	82	87	88	94	106	102	95	81	68	63	S 50	
24	S 46	S 49	46	44	40	34	33	49	70	63	A	A	71	81	74	62	56	62	72	79	75	66	J R 72	58	
25	55	S 48	50	54	38	32	37	57	54	53	60	64	67	70	61	58	67	67	69	68	55	54	47	43	
26	55	44	43	S 36	37	37	42	S 58	60	65	I A 61	A	77	92	74	R 66	68	71	A	A	79	I A 50	A	44	
27	44	S 47	A	A	A	37	45	52	58	61	59	A	I A 80	90	94	94	97	88	76	65	65	47	43	S 42	
28	S 44	S 43	43	40	42	35	35	60	66	I A 64	71	91	93	80	89	97	97	U R 106	115	U R 104	67	34	R U S 33	33	
29	35	34	33	36	28	S 26	J S 37	55	58	62	H 60	74	87	100	100	96	95	94	97	81	74	S 44	38	36	
30	36	37	37	36	27	F 24	34	S 61	66	59	57	68	92	110	113	R 103	108	103	113	R 106	76	47	47	59	
31	62	R 64	57	45	37	S 39	48	R 75	64	57	57	64	I A 76	94	104	105	87	86	S 99	98	74	55	S 44	S 49	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	21	23	20	23	26	24	27	29	28	27	27	24	27	26	29	28	28	29	27	24	29	29	25	22	
MED	46	44	43	37	37	34	39	59	61	59	59	61	68	82	86	82	84	86	84	80	70	55	46	46	
UQ	52	48	48	44	42	38	42	64	66	62	60	64	77	94	97	100	96	94	99	92	79	60	54	55	
LQ	39	38	36	34	30	28	36	53	58	56	53	56	60	67	72	68	71	71	74	71	65	44	40	37	

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AUG. 1973

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	A	L	A	A	A	A	A	450	420	400	H	360				
2								L	L	A	450	A	450	A	A	A	A	A	A	A	A			
3								L	L	L	450	460	470	H	450	H	450	A	450	430	430	A		
4								L	L	L	430	440	L	A	A	A	A	A	A	A	410	L	A	
5								L	A	A	L	470	450	460	A	A	470	430	A	A				
6								L	L	L	400	440	470	A	460	450	460	450	U	L	L			
7								A	L	L	440	460	L	C	A	A	A	A	L	420	L			
8								L	L	L	410	430	A	A	460	A	I	A	440	430	A	A		
9								L	L	L	350	L	460	470	A	A	A	450	430	L	470	L		
10						L	L	L	L	L	440	450	470	H	470	460	460	H	I	A	420	U	L	L
11								L	L	L	400	A	A	A	A	A	C	C	C	C				
12								C	C	C	C	C	C	C	C	C	C	C	C	C				
13								C	C	C	C	H	460	H	450	460	450	I	A	A	A	A		
14								L	A	U	L	440	450	450	450	460	440	L	430	410	L			
15								L	L	L	420	450	450	A	450	450	420	420	410	L				
16								L	L	L	440	I	A	450	A	A	A	430	A	400	L			
17								L	L	A	440	450	450	450	450	H	450	420	400	350				
18								L	L	L	370	420	440	450	450	A	450	A	420	L	L			
19								L	L	A	A	A	A	A	A	A	A	A	A	A	A			
20								L	C	L	A	A	A	A	A	A	A	A	A	L				
21								A	R	A	460	A	450	L	440	450	A	A	410	L				
22								A	H	410	460	A	470	A	460	450	L	L	L					
23								L	A	A	A	A	A	470	450	450	430	420	L					
24								L	L	U	L	440	A	A	460	A	A	450	L	420	L			
25								L	L	L	440	460	460	450	450	A	L	A	A	A				
26								L	A	I	A	450	A	A	H	470	470	A	I	A	460	460	410	A
27								L	L	L	450	470	A	I	A	480	470	470	470	450	410	H	L	
28								L	L	A	L	480	480	A	A	A	470	450	430	L				
29								A	A	A	A	A	490	A	A	A	A	A	A	A				
30								L	L	L	450	U	L	490	480	480	490	450	L	A				
31								L	L	L	L	A	A	A	A	480	A	A	A	L				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									6	18	18	15	16	13	14	19	17	15	4					
MED									395	440	455	460	460	450	455	450	430	410	370					
UQ									400	440	460	470	470	470	460	455	450	420	425					
LQ									370	420	450	450	450	450	450	445	430	410	355					

AUG. 1973

FOF1 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1973

FOE (0.01 MHz)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1							A	230	270	310	325	A	A	350	350	325	310	280	A	A					
2							A	225	270		A	A	A	A	A	A	A	A	A	A	A				
3							A	A	A	A	A	A	A	365	340	A	A	A	A	A	A				
4							A	230	280		A	A	A	A	A	A	A	A	A	A	A				
5							A	A	A	A	A	A	A	355	350	335	320	A	A	A					
6							S	220	270		A	A	A	A	A	350	335	320	275	A	A				
7							A	A	A	A	A	350	350	R	R	R	340	315	280	A	A				
8							A	A	A	A	A	355	355	R	R	R	340	320	280	A	A				
9							S	140	225	285	310	R	R	R	R	360	350	350	320	A	A	A			
10							S	225	I A	R	A	A	I A	R	R	R	330	A	A	A	A				
11							A	A	A	300	340	350	R	R	R	R	C	C	C	C	C				
12							C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
13							C	C	C	C	C	A	A	355	350	R	330	305	A	A	A				
14							A	A	A	A	A	A	A	355	350	330	305	I A	275	A	A				
15							A	A	260	315	350	I A	I A	I A	I A	350	335	310	I A	280	265	A			
16							A	A	A	A	A	A	A	A	A	A	A	265	220	A					
17							A	A	A	A	A	I A	I A	I A	I A	350	A	305	270	A	A				
18							A	A	250	305	315	340	R	R	R	330	305	245	A	A	A				
19							A	A	265	I A	320	345	350	345	345	I A	320	295	A	A	A				
20							A	240	C	A	A	A	A	A	R	320	330	310	A	A	A				
21							S	A	260	295	325	345	345	360	350	330	A	A	A	A	A				
22							A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
23							A	200	270	300		A	A	A	A	A	A	290	230	A					
24							S	215	270	335	335	340	UR	R	R	I A	320	A	A	A	A				
25							A	A	R	I A	I A	UR	UR	UR	UR	335	305	260	A	A					
26							A	A	A	A	A	A	A	A	350	335	310	270	A	A					
27							S	220	265	I A	290	310	A	A	R	A	345	315	A	A	A				
28							S	A	A	A	A	A	A	A	A	A	320	275	A	A	A				
29							A	A	A	300	320	R	R	B	A	A	A	A	A	A	A				
30							A	200	I A	290	325	340	B	R	R	370	350	325	A	A	A				
31							S	A	270	310	340	350	A	A	A	355	A	A	215	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							1	11	16	15	13	12	14	18	21	20	18	13	4						
MED							S	140	225	270	305	335	350	R	352	355	350	335	310	275	225				
UQ								228	275	312	340	350	R	360	360	350	340	320	280	248					
LQ								218	262	298	320	342	R	350	350	350	330	305	270	218					

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AUG. 1973

FOE (0.01 MHz)

IONOSPHERIC DATA

AUG. 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	J X 32	M 24	J X 29	J X 40	J X 29	J X 29	J X 26	J X 32	J X 58	J X 43	J X 60	45	J X 58	46	46	46	42	30	27	J X 30	J X 32	J X 44	J X 29	J X 74	
2	J X 50	J X 38	J X 42	J X 41	J X 29	J X 28	J X 28	26	31	J X 70	J X 69	J X 64	J X 73	J X 175	J X 95	J X 190	J X 100	81	J X 204	J X 87	J X 50	J X 22	J X 26	J X 28	
3	E B 22	J X 18	J X 24	E S 15	E S 15	E S 15	22	J X 59	J X 50	J X 46	J X 50	J X 49	43	G	J X 54	41	J X 41	J X 45	J X 40	J X 40	J X 54	J X 22	J X 40	M 18	
4	J X 20	J X 19	J X 24	E B 13	J X 27	J X 25	J X 26	31	J X 44	J X 65	J X 74	J X 83	J X 76	J X 80	J X 65	J X 79	59	44	J X 44	J X 84	J X 42	M 22	M 17	E S 15	
5	E S 15	J X 25	J X 21	J X 19	J X 27	J X 19	20	J X 50	J X 62	J X 104	J X 54	41	J X 63	J X 64	J X 85	J X 50	35	M 67	J X 55	J X 57	J X 52	J X 39	M 17	J X 22	
6	J X 29	J X 30	J X 21	J X 25	J X 18	J X 20	J X 20	J X 35	J X 29	J X 50	J X 39	J X 55	J X 41	J X 37	42	38	36	36	29	J X 25	19	M 22	M 20	J X 18	
7	J X 27	J X 29	J X 31	J X 29	J X 26	J X 31	J X 22	J X 41	J X 39	J X 51	48	J X 57	J X 64	47	M 106	J X 61	46	37	32	J X 27	M 21	J X 28	J X 36	J X 20	
8	J X 40	J X 30	M 22	E S 15	J X 36	J X 18	J X 51	J X 49	J X 31	43	46	47	50	44	46	44	42	44	J X 54	J X 44	J X 40	J X 25	M 20	J X 44	
9	E B 19	E S 15	J X 19	M 23	J X 17	E B 11	G	G	31	36	39	51	J X 66	J X 50	J X 61	44	J X 41	J X 50	J X 35	J X 26	16	J X 24	J X 34	J X 27	
10	J X 31	J X 39	J X 24	J X 27	E B 12	M 23	M 21	24	J X 32	34	J X 39	37	M 41	G	G	37	J X 54	J X 31	J X 27	J X 23	J X 19	M 17	E S 15	M 18	
11	E S 16	E S 15	J X 19	E S 15	17	J X 19	J X 29	J X 40	J X 45	35	44	46	66	49	J X 63	C	C	C	C	C	C	C	C	C	
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	C	J X 39	39	42	41	43	J X 51	J X 53	J X 66	J X 58	J X 51	J X 51	J X 39	J X 31	
14	J X 35	J X 32	J X 25	J X 20	J X 18	J X 40	J X 49	J X 32	J X 60	J X 61	J X 50	37	43	42	33	38	37	J X 35	J X 33	J X 19	M 18	E S 14	E S 16	J X 37	
15	J X 40	E S 16	J X 24	M 20	18	J X 41	J X 35	J X 30	24	G	G	44	43	45	J X 46	43	37	J X 25	J X 38	J X 31	J X 23	18	J X 29	E S 16	21
16	J X 22	E S 15	J X 24	E S 15	J X 51	J X 28	J X 43	J X 47	J X 51	J X 41	J X 60	J X 44	J X 54	44	J X 79	J X 50	J X 40	35	26	J X 64	M 34	J X 40	J X 39	J X 41	
17	J X 41	J X 85	J X 43	J X 25	J X 29	J X 37	J X 40	J X 29	J X 35	J X 50	45	J X 38	42	29	G	M 35	G	J X 28	J X 26	M 22	M 18	M 22	J X 24	J X 33	
18	J X 44	M 20	E S 16	J X 20	J X 18	J X 18	J X 20	25	37	43	54	45	G	50	J X 54	J X 50	37	J X 46	33	J X 25	J X 64	J X 21	J X 32	J X 36	
19	J X 57	J X 23	J X 41	J X 36	J X 27	J X 39	J X 86	J X 48	36	J X 60	J X 73	J X 49	J X 90	J X 92	J X 74	J X 144	J X 136	J X 50	J X 174	J X 190	J X 42	J X 21	J X 33	J X 36	
20	J X 25	M 18	J X 25	E S 15	E B 14	E B 13	J X 22	J X 24	C	J X 40	J X 56	J X 80	J X 100	J X 50	J X 59	J X 116	J X 50	J X 87	J X 30	J X 76	J X 62	J X 36	J X 51	J X 27	
21	J X 19	J X 21	J X 26	J X 25	J X 45	J X 51	J X 45	J X 76	41	45	J X 49	44	48	40	44	47	J X 56	J X 55	J X 30	J X 30	J X 25	J X 40	J X 28	J X 29	
22	J X 31	J X 29	J X 51	J X 36	J X 39	J X 36	J X 18	J X 37	J X 33	35	38	J X 58	46	J X 84	45	39	45	J X 30	27	J X 27	J X 54	J X 22	J X 39	J X 45	
23	J X 59	J X 40	J X 45	J X 41	J X 41	J X 35	J X 29	26	J X 45	J X 54	J X 71	J X 63	J X 60	J X 46	J X 49	51	32	21	J X 20	J X 21	E B 19	M 23	M 22	M 22	
24	J X 26	J X 20	J X 23	E S 15	E S 15	E S 16	E S 15	G	30	G	J X 61	44	G	J X 55	J X 70	J X 62	38	30	J X 24	J X 53	J X 54	J X 25	J X 23	J X 30	
25	J X 20	E B 12	E S 15	E B 13	E B 12	E S 16	J X 20	24	29	J X 27	J X 26	G	G	44	47	47	49	42	J X 48	J X 42	J X 36	J X 37	J X 41	J X 37	
26	J X 19	J X 33	J X 24	J X 19	J X 25	J X 23	J X 25	J X 44	J X 44	J X 45	J X 85	J X 81	36	J X 48	55	J X 74	43	J X 64	J X 80	J X 105	J X 93	J X 58	J X 77	J X 39	
27	J X 36	J X 51	J X 45	J X 41	J X 60	J X 71	J X 35	26	36	J X 60	J X 74	J X 82	J X 182	46	37	38	34	32	25	17	E S 14	M 21	E S 16	M 21	
28	E S 16	M 21	E B 12	E B 12	E S 15	E B 12	M 20	23	J X 42	J X 173	J X 55	J X 58	J X 110	J X 55	J X 74	J X 38	G	G	J X 28	J X 43	J X 30	J X 23	J X 28	J X 42	
29	E B 18	E S 15	E S 15	E B 12	E B 11	E B 12	J X 32	J X 41	J X 44	J X 58	J X 53	36	J X 70	47	J X 60	J X 53	J X 54	J X 46	J X 50	J X 31	J X 39	J X 45	J X 43	J X 23	
30	E S 16	E S 16	E S 15	J X 25	J X 27	18	J X 19	G	28	G	31	E B 37	G	G	G	41	41	J X 39	J X 100	J X 51	J X 30	M 22	J X 18	J X 23	
31	E S 15	E B 13	M 17	J X 18	E S 15	J X 18	E S 15	25	32	36	J X 53	J X 53	J X 103	J X 50	45	J X 109	46	J X 64	34	J X 32	J X 41	J X 37	J X 79	M 18	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	29	29	29	29	29	29	28	29	29	30	30	30	30	29	29	29	29	29	29	29	29	29	
MED	J X 26	J X 21	J X 24	J X 20	J X 25	J X 23	J X 25	J X 31	J X 36	J X 45	J X 53	J X 46	52	46	52	47	42	J X 42	J X 33	J X 32	J X 36	J X 24	J X 28	J X 28	
UQ	J X 36	J X 30	J X 29	J X 27	J X 29	J X 35	J X 35	J X 41	J X 44	J X 58	J X 60	J X 58	J X 70	J X 50	J X 65	J X 61	50	J X 50	J X 50	J X 57	J X 51	J X 37	J X 39	J X 37	
LQ	E E 19	E 16	J X 19	E 15	E 15	18	J X 20	25	31	36	44	41	41	42	43	39	37	32	J 27	J X 25	19	22	20	J X 21	

The Radio Research Laboratories, Japan

AUG. 1973

FOES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	22	16	20	19	20	20	20	21	51	35	A	A	A	45	45	39	37	30	26	25	23	29	25	16
2	E	20	19	A	17	18	19	24	30	A	36	46	41	A	77	A	52	60	69	A	27	E	17	E
3	E ₂₂ B	E	17	E ₁₅ S	E ₁₅ S	E ₁₅ S	16	30	29	32	37	41	40	G	45	41	39	36	34	25	50	20	19	E
4	17	16	E	E ₁₃ B	17	22	20	29	40	40	36	A	A	A	53	65	47	35	35	45	20	E	E	E ₁₅ S
5	E ₁₅ S	E	13	15	15	E	18	22	43	A	34	38	40	A	A	40	34	52	45	43	52	18	E	16
6	E	E	E	E	14	14	G	20	G ₂₅	39	36	47	39	37	40	38	36	34	26	20	17	E	E	17
7	16	E	22	E	16	16	16	31	27	37	39	50	56	47	A	55	43	36	30	26	16	20	22	17
8	20	25	E	E ₁₅ S	14	E	A	27	28	40	45	A	39	E ₄₄ R	46	41	38	44	46	44	40	21	17	22
9	E ₁₉ B	E ₁₅ S	E	16	E	E ₁₁ B	G	G	30	35	37	41	A	47	50	39	35	39	U ₂₈ A	23	15	15	E	27
10	21	26	21	18	E ₁₂ B	E	G	24	30	34	33	37	38	G	G	35	48	31	26	21	E	E	E ₁₅ S	E
11	E ₁₆ S	E ₁₅ S	14	E ₁₅ S	15	15	26	35	40	34	44	46	A	47	62	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	37	39	42	40	43	50	52	60	58	50	50	S	30
14	17	24	16	E	15	21	A	24	50	36	39	37	40	41	41	37	35	31	28	18	16	E ₁₄ S	E ₁₆ S	20
15	23	E ₁₆ S	18	E	E	15	21	25	G ₂₄	G	44	43	45	36	37	37	G ₂₂	31	16	22	17	17	E ₁₆ S	20
16	17	E ₁₅ S	15	E ₁₅ S	A	15	31	41	37	35	46	42	45	44	63	40	46	28	24	51	32	25	20	A
17	A	16	U ₂₁ A	19	19	18	30	21	28	45	37	35	41	E ₂₉ R	G ₂₈	34	G ₂₈	26	22	16	E	E	17	22
18	28	E	E ₁₆ S	13	15	15	16	23	33	40	41	38	G	47	40	47	34	40	32	24	37	E	20	20
19	A	16	25	16	21	A	A	29	36	40	47	45	A	G	70	A	A	50	A	A	30	16	22	23
20	20	17	20	E ₁₅ S	E ₁₄ B	E ₁₃ B	16	G ₂₂	C	39	56	57	A	48	59	75	48	46	21	40	40	21	32	19
21	18	E	17	16	21	20	22	51	39	43	44	43	43	40	42	47	55	30	21	30	21	30	25	19
22	20	17	18	20	19	21	16	36	31	34	38	55	45	59	45	38	43	27	22	18	52	20	E	A
23	A	A	A	A	A	A	17	25	40	A	A	59	49	39	39	40	32	G ₂₁	G ₁₈	21	E ₁₉ B	17	E	E
24	22	16	20	E ₁₅ S	E ₁₅ S	E ₁₆ S	E ₁₅ S	G	29	G	A	A	G	55	55	37	38	30	24	50	50	24	22	29
25	19	E ₁₂ B	E ₁₅ S	E ₁₃ B	E ₁₂ B	E ₁₆ S	20	23	29	E ₂₇ R	E ₂₆ R	G	G	43	45	42	43	39	42	41	37	36	35	26
26	19	27	23	E	17	15	20	32	42	45	A	A	36	40	55	60	43	30	A	A	60	A	A	21
27	34	U ₃₇ S	A	A	A	28	25	26	36	39	42	A	A	40	37	E ₃₈ R	32	31	24	16	E ₁₄ S	E	E ₁₆ S	E
28	E ₁₆ S	E	E ₁₂ B	E ₁₂ B	E ₁₅ S	E ₁₂ B	17	22	34	A	40	39	76	47	61	38	G	G	26	45	28	23	R	28
29	E ₁₈ B	E ₁₅ S	E ₁₅ S	E ₁₂ B	E ₁₁ B	E ₁₂ B	21	36	41	56	50	44	67	47	57	50	48	42	49	20	21	29	27	21
30	E ₁₆ S	E ₁₆ S	E ₁₅ S	25	21	16	16	G	E ₂₈ R	G	G	E ₃₇ B	G	E ₂₂ G	G	41	40	36	65	31	U ₂₂ A	E	E	E
31	E ₁₅ S	E ₁₃ B	E	16	E ₁₅ S	E	E ₁₅ S	24	31	35	52	52	A	50	45	78	47	46	32	31	34	35	E	E
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	29	29	29	29	29	29	28	29	29	30	30	30	30	29	29	29	29	29	29	29	27	29
MED	18	16	17	15	15	15	19	24	32	39	41	44	44	44	45	41	40	35	28	30	27	20	17	20
UQ	22	17	20	18	19	20	22	30	40	43	47	57	A	47	59	50	47	42	45	45	40	25	22	23
LQ	E ₁₆ E	E ₁₂ E	E ₁₄ E	E ₁₃ F	E ₁₄ E	E ₁₃ E	16	22	29	34	37	38	39	38	40	38	35	30	24	21	17	E	E	15

The Radio Research Laboratories, Japan

AUG. 1973

FBES (0.1 MHz)

IONOSPHERIC DATA

AUG. 1973

F-MIN (0.1 MHZ)

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

Station		OKINAWA			Lat. 26 19.0 N.		Long. 127 46.8 E		Sweep 1 MHz to 25 MHz in 30 sec in automatic operation																
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		E ₁₅	E ₁₅	E ₁₅	E ₁₅	11	E ₁₅	11	14	14	15	20	23	21	21	22	20	17	14	11	11	14	E ₁₅	13	E ₁₅
2		E ₁₅	13	E ₁₅	11	E	E ₁₅	11	11	14	17	19	21	22	27	23	20	19	15	15	12	E ₁₅	E ₁₅	E ₁₅	E ₁₅
3		22	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	15	14	18	21	22	21	24	21	19	20	15	14	12	12	12	E ₁₅	13
4		14	12	E ₁₅	13	12	11	11	11	14	21	20	22	22	20	21	20	18	14	E	11	E ₁₅	E ₁₅	E ₁₅	E ₁₅
5		E ₁₅	E ₁₅	12	11	11	E ₁₅	12	14	14	14	20	21	21	21	21	19	18	15	14	12	13	13	14	E ₁₅
6		E ₁₆	E ₁₆	E ₁₆	11	11	11	E ₁₄	12	14	16	17	23	20	24	21	20	20	14	13	11	E ₁₅	E ₁₅	E ₁₅	E ₁₅
7		E ₁₅	E ₁₅	E ₁₅	E ₁₅	E	E ₁₅	14	14	15	18	20	18	22	22	21	20	17	15	14	12	14	E ₁₆	E ₁₆	E ₁₆
8		13	13	12	E ₁₅	11	13	13	14	15	20	21	25	25	23	21	20	15	15	13	12	E ₁₅	E ₁₆	E ₁₅	E ₁₆
9		19	E ₁₅	E ₁₅	11	11	11	11	13	14	16	18	22	22	20	20	18	17	14	14	13	11	12	E ₁₅	E ₁₆
10		E ₁₆	E ₁₆	13	12	12	13	E ₁₆	13	16	21	21	22	22	21	21	21	17	14	14	11	E ₁₄	E ₁₆	E ₁₅	E ₁₆
11		E ₁₆	E ₁₅	12	E ₁₅	12	11	12	13	11	21	20	20	22	22	20	C	C	C	C	C	C	C	C	C
12		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13		C	C	C	C	C	C	C	C	C	C	C	20	22	21	21	20	17	17	14	14	E ₁₅	E ₁₆	E ₁₅	E ₁₅
14		E ₁₆	12	13	E ₁₅	12	11	11	13	14	15	20	21	22	22	17	16	15	14	11	E	E ₁₅	E ₁₄	E ₁₆	E ₁₆
15		E ₁₄	E ₁₆	E ₁₅	E ₁₅	E ₁₅	13	13	14	15	17	21	22	23	21	20	21	15	13	E	11	E ₁₆	E ₁₅	E ₁₆	E ₁₅
16		E ₁₅	E ₁₅	12	E ₁₅	E ₁₅	12	14	13	13	15	18	24	26	26	21	20	15	16	11	11	14	E ₁₆	E ₁₅	E ₁₆
17		E ₁₆	E ₁₅	12	11	11	14	12	11	14	14	20	21	21	22	20	17	14	14	14	15	E ₁₆	E ₁₆	E ₁₆	E ₁₆
18		E ₁₆	E ₁₆	E ₁₆	11	12	12	12	11	14	14	16	20	21	20	15	17	15	15	14	14	E ₁₆	E ₁₆	E ₁₆	14
19		E ₁₅	12	11	11	11	12	E ₁₆	12	15	15	21	21	23	23	20	19	17	14	14	14	E ₁₄	E ₁₄	E ₁₆	E ₁₅
20		E ₁₆	E ₁₆	11	E ₁₅	14	13	14	14	C	14	18	21	25	22	22	19	18	14	13	12	E ₁₆	E ₁₆	14	E ₁₅
21		E ₁₆	E ₁₆	13	13	11	12	E ₁₄	13	13	20	21	27	21	27	21	23	19	14	15	13	E ₁₅	E ₁₆	E ₁₆	E ₁₆
22		E ₁₄	E ₁₅	12	E ₁₅	11	E ₁₅	11	12	14	17	18	22	22	22	22	19	21	14	14	12	E ₁₅	12	E ₁₅	E ₁₅
23		13	E ₁₅	E ₁₅	11	11	12	12	14	15	21	19	23	21	22	22	20	15	14	11	13	19	E ₁₅	E ₁₅	E ₁₆
24		E ₁₆	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₆	E ₁₅	14	14	21	17	16	23	23	23	23	20	14	14	12	E ₁₆	E ₁₅	E ₁₆	E ₁₆
25		E ₁₆	12	E ₁₅	13	12	E ₁₆	12	13	14	16	14	22	22	22	21	15	19	14	E	14	15	E ₁₆	E ₁₆	13
26		E ₁₅	12	E ₁₅	E ₁₅	12	12	11	14	14	15	22	20	21	21	21	20	16	14	14	12	E ₁₆	E ₁₆	E ₁₅	E ₁₅
27		14	E ₁₅	E ₁₅	11	11	13	E ₁₅	17	20	22	23	25	25	30	25	22	21	17	15	13	E ₁₄	E ₁₆	E ₁₆	E ₁₆
28		E ₁₆	E ₁₅	12	12	E ₁₅	12	E ₁₆	12	15	17	21	23	22	22	22	20	21	17	13	E ₁₅	E ₁₅	E ₁₆	E ₁₅	E ₁₆
29		18	E ₁₅	E ₁₅	12	11	12	12	15	17	20	20	25	23	37	23	30	21	18	14	13	13	E ₁₆	E ₁₆	17
30		E ₁₆	E ₁₆	E ₁₅	11	11	12	12	14	13	14	17	37	20	20	26	15	19	15	14	12	12	E ₁₅	14	E ₁₆
31		E ₁₅	13	E ₁₅	E ₁₅	E ₁₅	E ₁₅	E ₁₅	14	17	20	22	27	25	31	27	23	20	14	13	11	E ₁₆	E ₁₅	E ₁₅	E ₁₆
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		29	29	29	29	29	29	29	29	28	29	29	30	30	30	30	29	29	29	29	29	29	29	29	29
MED		E ₁₆	E ₁₅	E ₁₅	12	11	12	12	13	14	17	20	22	22	22	21	20	18	14	14	12	E ₁₅	E ₁₅	E ₁₅	E ₁₆
UQ		E ₁₆	E ₁₅	E ₁₅	E ₁₅	12	E ₁₅	E ₁₄	14	15	20	21	23	23	24	22	20	20	15	14	13	E ₁₆	E ₁₆	E ₁₆	E ₁₆
LQ		E ₁₅	12	12	11	11	12	12	12	14	15	18	21	21	21	21	19	16	14	13	11	12	E ₁₅	E ₁₅	E ₁₅

The Radio Research Laboratories, Japan

AUG. 1973

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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	F	F	275	280	310	355	340	320	350	I A 295	A	I A 270	260	275	280	280	290	330	340	320	295	310	F	
2	325	315	330	I A 290	315	320	340	320	355	I A 310	345	315	270	A	300	I A 295	270	300	315	A	325	325	305	290	
3	370	295	F	F	335	F	325	340	360	350	330	J R 240	260	280	310	305	320	320	320	R	305	320	310	290	
4	U S 290	U R 290	280	290	S 300	S 310	310	320	390	375	275	A	A	A	285	290	295	315	320	310	305	305	305	305	
5	315	295	300	310	305	280	315	360	330	A	320	300	310	A	A	290	290	280	290	J R 340	350	400	330	270	
6	F	F	300	300	310	F	330	380	R 360	J R 340	320	320	260	270	250	300	350	340	305	310	310	290	305	295	
7	275	285	270	290	300	315	365	320	330	350	S 350	I C 300	300	315	I A 300	290	300	290	320	330	310	320	U R 290	310	
8	U S 290	J S 285	F	F	300	370	I A 335	310	360	370	450	A	280	290	290	290	330	380	315	350	330	290	S 300	280	
9	290	300	380	S 320	S 360	S 330	340	360	330	350	320	310	I A 280	275	280	300	320	295	290	320	340	J S 380	280	S 330	
10	295	310	290	290	310	330	330	330	330	345	315	320	320	320	330	330	320	290	310	330	R 370	300	290	290	
11	J R 280	290	290	310	310	320	350	S 350	380	345	315	315	I A 305	295	310	C	C	C	C	C	C	C	C	C	
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
13	C	C	C	C	C	C	C	C	C	C	C	C	270	270	270	290	290	310	300	380	R	360	340	I S 310	F
14	F	F	F	320	J S 300	300	A	370	380	330	310	250	290	320	I R 325	310	320	320	340	370	305	305	310	F	
15	300	310	F	295	F	340	350	375	325	360	330	280	270	280	290	310	330	330	340	360	360	310	290	F	
16	F	F	F	F	I A 320	S 370	370	340	350	360	R 340	280	260	290	310	320	310	310	350	370	340	300	300	A	
17	A	U F 310	300	320	350	U S 400	360	360	J R 370	325	310	275	305	305	295	310	310	310	325	355	305	330	325	285	
18	F	295	325	315	375	315	365	360	355	335	380	I A 330	280	310	325	305	315	315	330	330	315	345	F	F	
19	A	S 300	S	350	310	A	A	410	360	370	295	310	A	A	310	A	A	320	A	A	310	300	320	350	
20	F	F	340	310	290	280	310	380	C	345	330	305	A	285	300	305	295	320	310	I A 325	J R 300	340	J S 335	300	
21	295	U S 310	330	U S 330	310	F	300	340	375	330	355	340	260	300	295	315	310	310	315	335	350	365	285	310	
22	300	305	275	F	305	290	335	345	335	370	330	345	310	325	300	300	285	310	310	320	345	350	F	A	
23	A	A	A	A	A	A	300	370	400	A	A	270	300	300	310	290	295	310	330	330	330	320	290	S 310	
24	S 340	S 295	290	300	300	300	310	290	360	360	A	A	295	310	330	310	290	310	295	295	290	300	J R 305	300	
25	280	S 275	285	330	315	310	325	350	350	320	290	295	315	310	315	295	315	320	315	325	310	300	300	270	
26	280	290	310	S 300	300	320	S 320	360	350	330	I A 320	A	300	310	320	310	320	310	A	A	340	I A 320	A	300	
27	310	S 310	A	A	A	310	360	360	340	340	330	A	I A 285	290	295	300	330	340	340	330	320	290	270	S 270	
28	S 270	S 300	290	300	320	310	310	330	340	I A 305	280	300	320	280	280	290	290	U R 280	340	U R 340	380	280	R	U S 270	
29	290	290	270	310	350	270	S 320	370	360	335	280	H 300	280	310	300	310	295	310	330	300	300	S 330	270	280	
30	270	280	310	320	330	290	F 320	S 350	360	345	310	280	270	300	310	S 300	310	310	320	R 360	370	270	260	275	
31	300	R 300	320	360	290	S 310	S 330	R 380	370	370	330	290	I A 290	290	310	320	310	310	S 380	320	330	330	290	S 290	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	21	23	20	23	26	24	27	29	28	27	27	24	27	26	29	28	28	29	27	24	29	29	25	22	
MED	295	295	300	310	310	310	330	350	358	345	320	300	285	298	300	300	310	310	320	330	325	320	300	290	
UQ	300	308	322	320	320	325	350	370	365	360	330	315	302	310	310	310	320	320	335	345	345	330	310	305	
LQ	280	290	288	298	300	300	318	340	338	332	310	280	270	280	290	290	295	300	312	320	310	300	290	280	

AUG. 1973

M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 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	A	L	A	A	A	A	A	370	350	H	350					
2								L	L	A	395	A	325	A	A	A	A	A	A	A				
3								L	L	L	400	380	H	370	410	A	380	400	350	A				
4								L	L	390	340	A	A	A	A	A	A	360	L	A				
5								L	A	A	L	430	410	A	A	390	385	A	A					
6								L	390	L	390	A	390	420	380	385	U	L	L					
7								A	L	L	380	C	A	A	A	A	L	370	L					
8								L	370	390	A	A	405	A	I	A	370	370	A	A				
9								L	430	L	L	380	A	A	A	380	375	L	340	L				
10					L			L	L	380	390	390	H	400	395	370	H	I	A	350	U	L	L	
11								L	L	420	A	A	A	A	A	C	C	C	C					
12								C	C	C	C	C	C	C	C	C	C	C	C					
13								C	C	C	C	H	410	H	430	370	365	I	A	A	A	A		
14								L	A	U	L	390	390	395	370	360	390	390	350	L				
15								L	L	400	L	345	A	375	370	380	375	360	L	L				
16								L	390	I	A	330	A	A	A	355	A	370	L					
17								L	L	A	435	410	405	425	385	H	375	370	360	360				
18								L	415	400	385	430	445	A	380	A	370	L	L					
19								L	L	A	A	A	A	A	A	A	A	A	A	A				
20								L	C	L	A	A	A	A	A	A	A	A	A	L				
21								A	R	335	A	395	L	400	370	A	A	340	L					
22								A	H	415	415	380	A	400	A	390	375	L	L	L				
23								L	A	A	A	A	A	390	390	360	370	340	L					
24								L	L	U	L	A	A	385	A	A	370	L	340	L				
25								L	L	370	370	400	410	360	A	L	A	A	A					
26								L	A	I	A	A	380	370	A	I	A	370	360	A				
27								L	L	380	360	A	I	A	390	380	380	350	350	390	H	L		
28								L	L	A	L	370	370	A	A	A	L	360	340	L				
29								A	A	A	A	360	A	A	A	A	A	A	A	A				
30								L	L	L	420	U	L	350	380	360	340	350	L	A				
31								L	L	L	A	A	A	A	360	A	A	A	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									6	18	18	15	16	13	14	19	17	15	4					
MED									402	380	380	390	398	380	375	370	370	360	350					
UQ									415	390	390	405	408	400	380	380	375	362	355					
LQ									375	370	370	365	382	370	365	368	360	345	345					

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M(3000)F1 (0.01)

IONOSPHERIC DATA

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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 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	300	280	I A 385	A	A	500	430	400	360	335	280					
2								265	260	I A 360	305	370	460	A	I A 380	I A 370	380	325	300	A				
3								275	245	290	305	600	420	350	310	310	290	285	240					
4								295	220	250	300	A	A	A	400	370	335	290	270	275				
5								250	240	A	340	380	320	A	A	415	345	360	325					
6								240	245	285	335	325	370	375	430	320	260	250	265					
7								225	290	260	265	I C 350	360	320	I A 340	350	310	325	290					
8								310	250	250	255	A	390	385	350	335	290	300	270					
9								240	215	275	330	350	I A 400	A	405	365	310	290	310	340	260			
10						265	285	250	270	305	315	320	320	300	305	330	375	300	250					
11								250	240	250	350	445	I A 360	360	310	C	C	C	C					
12								C	C	C	C	C	C	C	C	C	C	C	C					
13								C	C	C	C	440	395	355	345	320	310	310	300	250				
14								235	225	265	L 335	455	350	295	305	295	280	275	255					
15								240	230	250	310	420	395	360	360	315	275	250	235					
16								250	255	290	420	400	320	300	295	290	280	245						
17								250	255	280	A 340	370	310	300	310	320	305	305	280					
18								225	255	295	250	I A 355	360	310	280	305	300	310	275					
19								200	240	280	375	350	A	A	300	A	A	285	A	A				
20								225	C	275	330	A 380	A	340	300	360	325	290	280					
21								230	315	260	300	300	360	350	305	320	285	280						
22								230	270	260	300	290	360	320	350	340	335	285	285					
23								245	210	A	A	425	330	310	310	330	310	290	255					
24								300	250	275	A	A	355	305	285	305	300	320	310					
25								245	270	330	370	370	320	325	330	360	310	290	285					
26								260	260	290	I A 300	A	330	305	295	E A 370	310	305	A					
27								230	255	280	300	A	I A 350	330	325	315	265	250	250					
28								275	275	I A 340	350	325	315	330	350	330	330	320	255					
29								215	245	A 305	E A 370	340	335	305	310	305	295	280	255					
30								250	245	260	245	375	380	320	305	310	295	285	270					
31								210	220	235	320	A 370	I A 350	320	300	295	285	300	255					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	27	28	27	27	24	26	26	29	28	28	29	27	4				
MED							265	245	248	275	308	370	358	322	310	319	308	290	275	255				
UQ							262	258	290	339	420	390	360	350	350	328	310	288	268					
LQ							230	235	260	300	345	330	310	300	305	290	285	255	250					

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H^oF₂ (KM)

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H·F (KM)

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

Station	OKINAWA				Lat. 26 19.0 N.	Long. 127 46.8 E	Sweep 1 MHz to 25 MHz in 30 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	320	340	350	330	330	300	235	230	A	275	A	A	A	I A 230	A	250	250	220	H 230	245	235	320	325	250					
2	250	320	290	I A 325	320	300	250	215	225	A	200	A	310	A	A	A	A	A	A	A	225	240	245	290					
3	305	310	300	270	230	240	265	250	230	230	200	210	H 185	H 180	A	255	240	250	A	A	235	250	215	250	265				
4	305	270	295	250	255	250	250	240	A	A 250	190	A	A	A	A	A	A	A	A	A	250	A	A	250	245	260	240		
5	250	285	280	265	285	280	275	220	A	A	H 190	200	200	A	A	200	205	A	A	260	245	295	220	300					
6	320	305	285	255	250	305	240	220	205	240	185	A	195	190	225	205	220	220	220	265	245	220	255	280					
7	310	310	335	290	280	250	230	A	210	225	215	205	A	A	A	A	A	A	245	245	235	220	230	300	270				
8	300	310	275	300	285	210	I A 230	250	210	235	I A 205	A	195	I A 200	I A 240	260	260	A	A	240	250	245	245	300					
9	280	270	250	245	220	H 200	245	205	195	H 195	205	245	A	A	A	235	220	A	A	225	265	225	205	295	295				
10	295	305	290	275	250	250	245	200	205	200	180	175	H 190	200	H 205	H 200	I A 220	215	H 220	250	205	200	265	305					
11	305	305	270	255	245	250	250	250	240	185	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C				
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
13	C	C	C	C	C	C	C	C	C	C	C	C	H 175	H 165	250	245	I A 250	A	A	A	A	210	250	I S 280	350				
14	300	320	290	250	245	280	A	240	I A 215	210	210	200	210	260	A 250	H 210	205	210	240	215	245	225	250	290					
15	300	280	310	300	280	235	240	240	205	200	I A 225	A	A	I A 240	220	225	210	225	225	220	205	225	260	305					
16	270	295	300	260	I A 250	215	240	255	230	A 210	I A 215	A	A	A	A	A	A	215	220	220	240	A 280	290	A					
17	A	275	320	255	250	255	250	H 175	210	A	190	180	220	200	225	H 200	215	220	240	235	215	200	250	320					
18	350	300	275	280	280	270	240	220	200	230	255	190	180	A	250	A	215	I A 250	I A 255	240	255	230	280	290					
19	I A 280	280	270	240	280	A	A	225	220	A	A	A	A	A	A	A	A	A	A	A	265	260	270	240					
20	300	285	255	260	280	300	250	230	C	A	A	A	A	A	A	A	A	A	A	230	I A 255	230	210	240	285				
21	275	270	230	235	280	280	290	290	A	A	A	230	A	200	A 260	A	A	210	250	A 240	230	215	325	290					
22	300	280	310	270	270	310	240	A	200	H 200	230	A	I A 200	A	I A 210	220	I A 250	210	230	250	260	215	250	A					
23	A	A	A	A	A	A	270	230	A	A	A	A	A	A	210	220	255	220	210	220	220	220	230	275					
24	270	295	315	265	250	260	260	260	245	200	H 200	A	A	210	A	A	240	A	230	240	320	320	300	270	250				
25	300	290	290	250	240	280	275	225	220	200	225	200	170	A 285	A	A	A	A	A	250	285	300	300	370					
26	300	315	290	300	305	250	260	255	A	A	A	A	A	H 165	220	A	I A 220	A	225	A	A	260	I A 270	A	305				
27	310	305	A	A	A	300	240	220	250	225	A 255	A	A	I A 200	200	190	245	205	215	H 235	245	235	205	295	320				
28	330	305	260	260	250	220	250	190	215	I A 225	210	205	A	A	A	205	210	200	H 245	240	210	310	A R 405						
29	305	310	315	265	210	300	270	A	A	A	A	A	A	A	A	A	A	A	A	A	240	225	225	340	330				
30	335	305	270	250	255	300	260	220	205	235	200	190	H 180	H 210	A 215	270	270	A 255	A	235	210	A 245	310	300					
31	260	250	245	205	305	260	260	225	215	205	A	A	A	A	A	A	A	A	A	A 255	235	240	230	270	275				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	27	28	27	27	27	27	27	26	21	20	19	13	16	15	13	18	16	19	18	24	29	29	27	27					
MED	300	302	290	260	255	260	250	228	215	218	205	200	195	210	225	230	220	220	232	240	235	230	270	290					
UQ	308	310	305	278	280	300	260	250	225	232	220	205	205	235	245	250	245	238	245	250	250	260	295	305					
LQ	280	280	270	250	250	250	240	220	205	200	195	190	180	200	215	205	210	212	225	235	220	215	250	275					

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H·F (KM)

IONOSPHERIC DATA

AUG. 1973

H⁺ES (KM)

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

Station	OKINAWA																								Lat.	26 19.0 N.	Long.	127 46.8 E	Sweep 1 MHz to 25 MHz in 30 sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																												
1	105	100	105	115	100	100	105	105	120	125	110	110	110	130	125	120	115	120	115	110	105	105	115	105																												
2	105	110	105	105	100	100	100	140	130	110	115	110	110	105	105	105	130	110	110	105	100	100	125	125																												
3	B	100	100	S	S	S	115	110	110	110	110	110	110	G	105	110	105	105	100	100	100	100	110	100																												
4	100	100	115	B	105	100	115	120	115	115	110	105	105	105	105	100	100	100	100	115	110	100	100	S																												
5	S	115	110	110	110	120	120	115	110	105	105	120	115	125	120	120	130	110	110	105	105	105	100	105																												
6	110	110	110	110	105	105	105	105	105	105	105	105	105	105	105	125	130	120	115	110	100	115	115	110	110																											
7	105	105	100	105	105	100	105	100	100	105	130	125	120	125	115	120	120	120	115	110	100	110	115	110																												
8	115	110	110	S	105	110	105	105	105	130	130	125	120	125	125	135	125	115	110	105	105	100	95	110																												
9	B	S	105	105	105	B	G	G	140	150	105	140	125	125	120	120	120	110	110	110	110	105	105	100																												
10	105	100	105	100	B	105	105	135	105	155	110	130	105	G	G	120	105	110	100	100	100	100	S	130																												
11	S	S	105	S	105	110	105	105	105	135	125	125	120	140	120	C	C	C	C	C	C	C	C	C																												
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C																												
13	C	C	C	C	C	C	C	C	C	C	C	C	105	105	160	160	130	120	115	110	110	105	100	95	95																											
14	105	105	95	100	100	110	105	110	100	105	105	120	130	150	135	140	125	100	100	100	100	S	S	110																												
15	110	S	105	100	100	105	100	100	105	G	145	150	140	100	140	180	100	100	100	95	100	100	S	100																												
16	105	S	105	S	110	110	105	105	105	120	100	105	100	140	120	120	120	125	125	115	110	105	110	110																												
17	110	105	105	105	105	105	100	100	100	100	100	100	150	105	100	100	100	100	100	100	100	100	100	110																												
18	110	110	S	105	100	100	100	130	125	125	120	130	G	125	130	125	130	115	115	115	110	105	110	110																												
19	110	105	105	105	125	120	100	115	120	110	110	120	115	110	110	110	105	105	105	105	100	100	100	100																												
20	105	110	100	S	B	B	105	105	C	105	120	115	110	110	110	110	110	100	100	110	110	105	150	105																												
21	120	105	100	120	110	110	115	110	120	120	125	110	125	130	125	110	110	120	110	105	105	110	110	105																												
22	110	110	105	105	100	100	100	100	100	120	120	110	105	110	165	140	120	120	120	110	105	105	110	105																												
23	105	105	100	100	100	100	100	130	120	115	110	110	110	110	115	110	115	100	100	105	B	100	100	100																												
24	105	105	105	S	B	S	S	G	160	G	115	155	G	110	110	110	110	110	100	100	100	100	100	100																												
25	100	B	S	B	B	S	100	120	150	120	100	G	G	150	135	130	125	125	120	120	110	110	110	105																												
26	95	105	105	105	110	110	115	115	115	110	110	105	110	110	120	110	120	120	115	110	105	105	105	105																												
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28	S	115	B	B	S	B	105	110	105	105	105	100	100	100	100	100	G	G	110	105	100	100	100	105																												
29	B	S	S	B	B	B	105	120	120	115	115	115	115	110	105	105	110	105	105	110	110	105	105	105																												
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UQ	110	110	105	105	105	110	105	120	120	125	120	125	120	128	128	130	125	120	115	110	110	105	110	110																												
LQ	105	105	100	100	100	100	105	105	105	105	105	108	105	108	110	110	110	105	100	105	100	100	100	100																												

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IONOSPHERIC DATA

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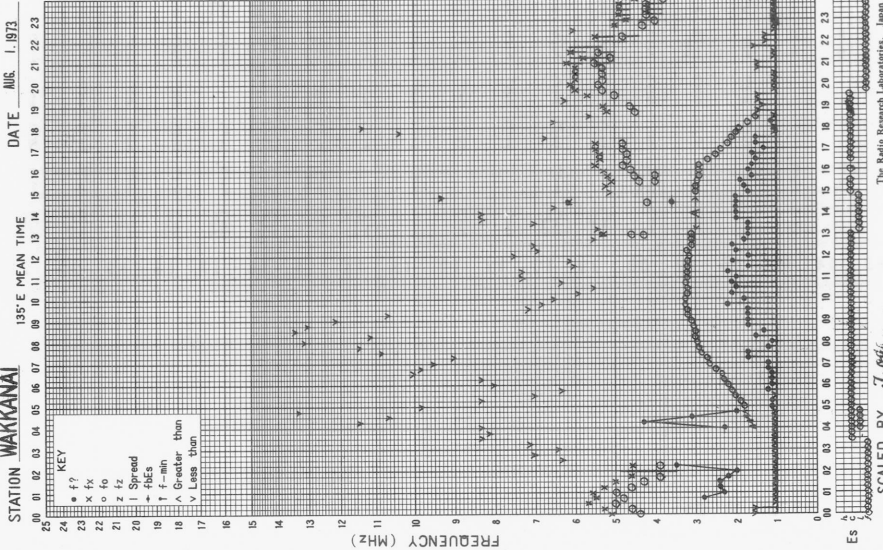
135 E Mean Time (G. M. T. + 9h)

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	F5	F3	F4	FF23	F4	F4	L3	LH21	CL21	CL11	CL21	C2	C3	HC11	C1	C1	C2	C1	CL22	LL22	F2	F2	F2	F2		
2	F3	FF31	F3	F6	F6	F4	L3	LH11	CL11	C3	C1	C2	C2	C4	C3	C4	LL22	C3	C3	L5	F5	F3	F5	F3		
3		F1	F1				L1	L2	LH21	CH21	C1	C1	C2		C1	C1	C2	L3	L4	L3	F6	F2	FF23	F1		
4	F1	F2	FF11		F3	F4	LL51	CL21	C3	C2	C1	C3	C4	C3	C3	L6	L3	L5	L5	LL35	FF33	F1	F1			
5		F2	F2	F3	F4	F2	L1	C2	C4	C4	CH21	C1	C2	C2	C3	C2	H1	C4	C5	L3	F4	FF41	F1	F3		
6	F2	F2	F2	F2	F2	F3	L1	L2	L2	C2	C1	C2	C2	C1	C1	H1	C1	CL21	CL21	L2	FF22	FF11	F4	F2		
7	F2	F2	F4	F2	F2	F4	L2	L3	LH12	L2	LH11	C2	C2	C1	C2	C2	C3	C2	C3	L2	FF21	F2	FF22	FF11		
8	F2	F4	F1		F2	F2	L3	L2	LH32	HC22	HC21	C1	C1	C1	C1	H2	C2	C3	C5	L5	F6	F2	F1	F3		
9			F2	F2	F3				HL11	HL11	HL11	H1	C2	C2	C2	C2	C1	C3	C3	L3	F2	F1	F2	F2		
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12																										
13												C2	C1	H1	H1	H1	C3	CC52	LL52	L6	F4	F4	F4	F5		
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15	F4		F1	F1	F1	F2	L2	L2	L1		LH21	HL11	HL11	HL11	HL11	HCL11	L2	L3	L2	L2	F1	F2		F1		
16	F1		F1		FF21	F2	L5	L4	C3	CC12	L2	L2	L3	HL11	CL22	CL12	LL33	HL11	CL22	LL53	F3	F2	F2	F3		
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31			F1	F1		F1		C1	C1	CL11	CL22	C3	C2	C1	HCC11	C2	CL22	CL34	CL31	LL23	FF52	FF21	FF43	F2		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT																										
MED																										
UQ																										
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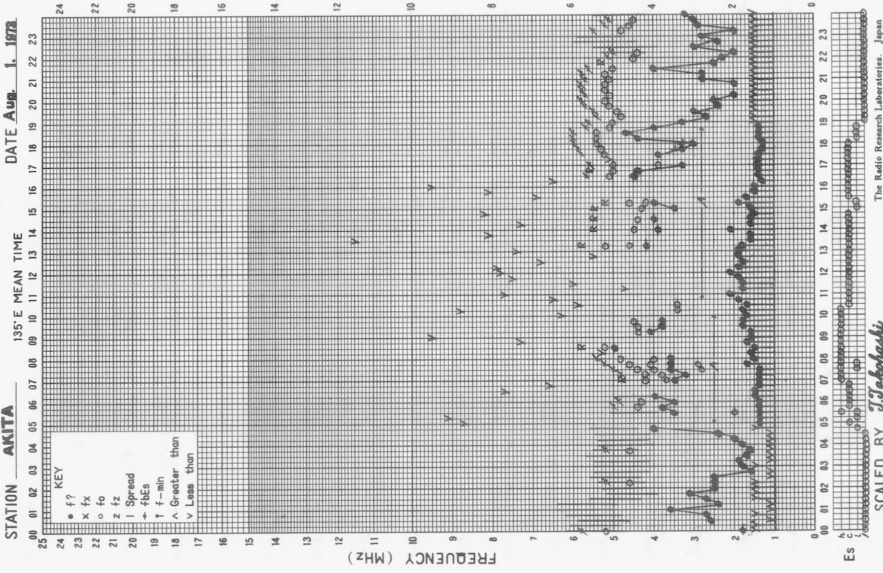
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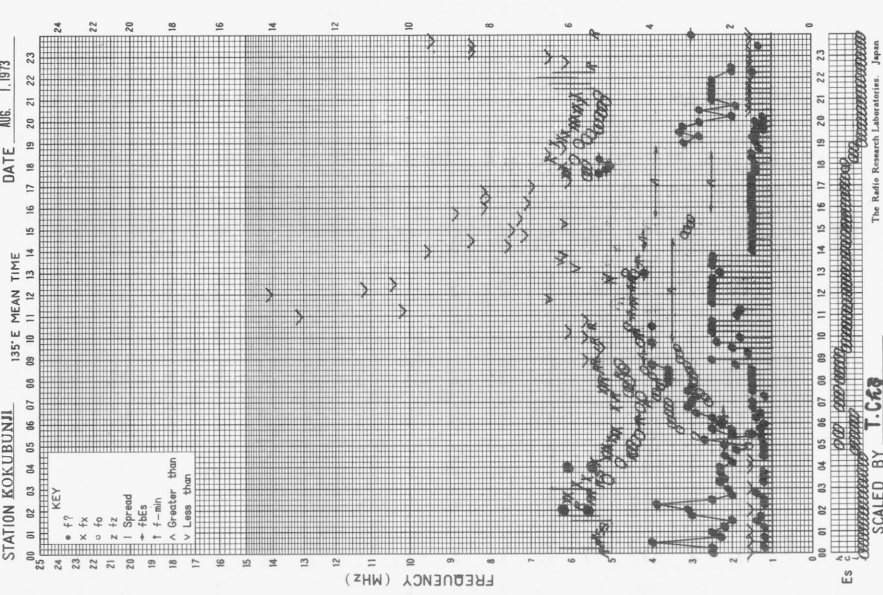
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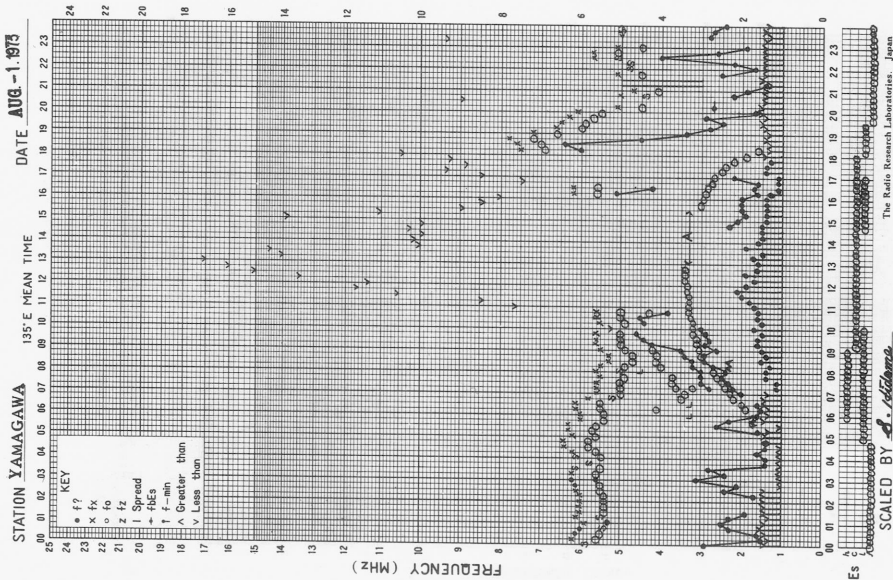
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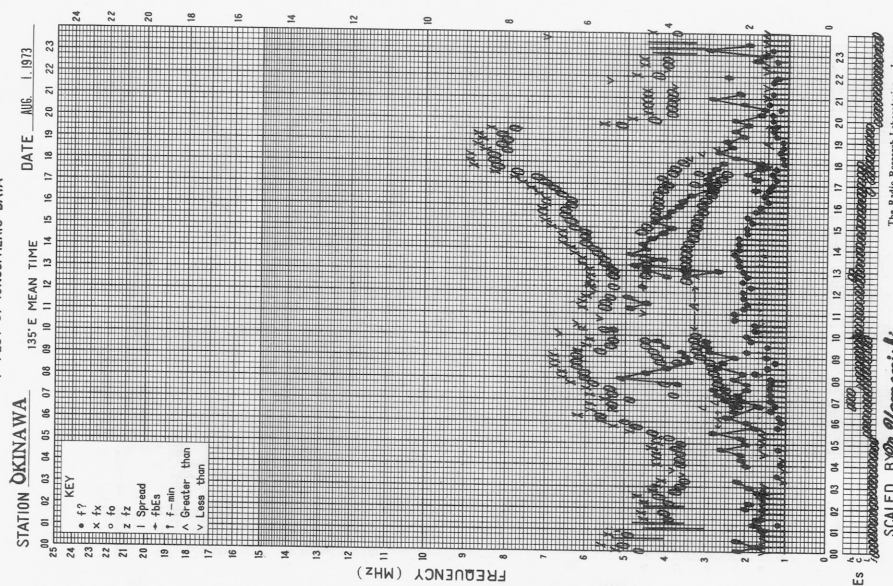
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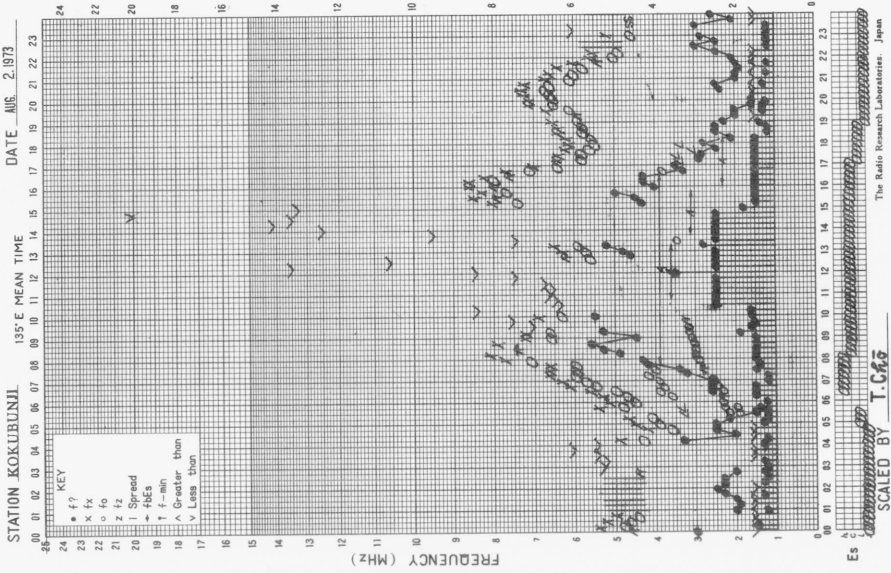
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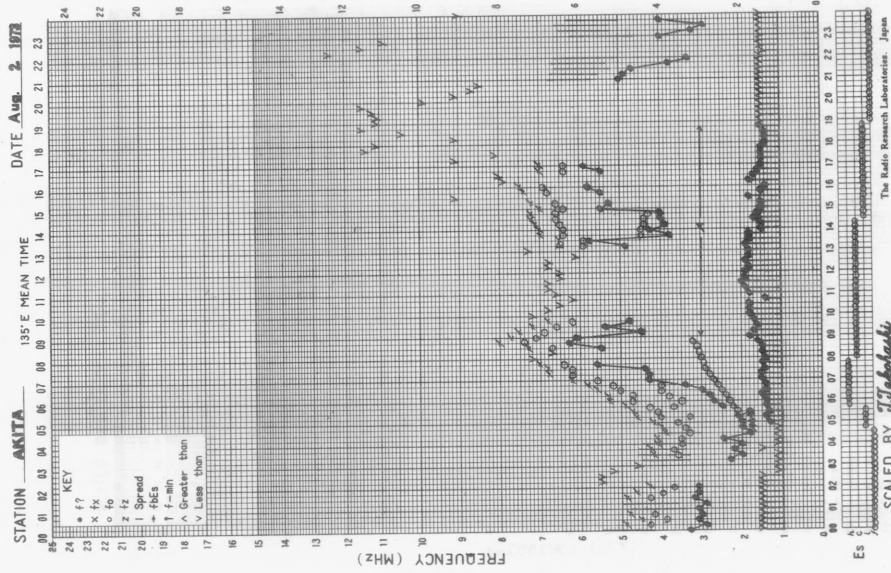
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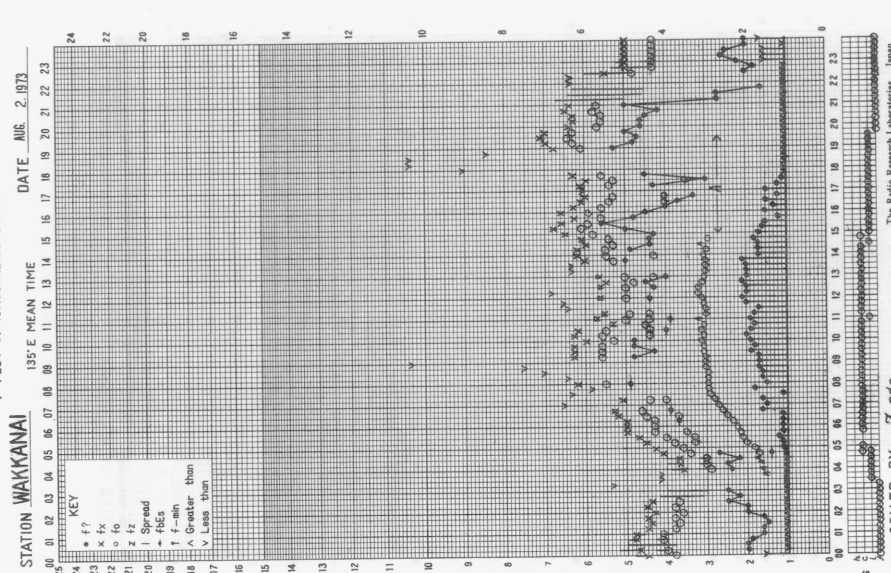
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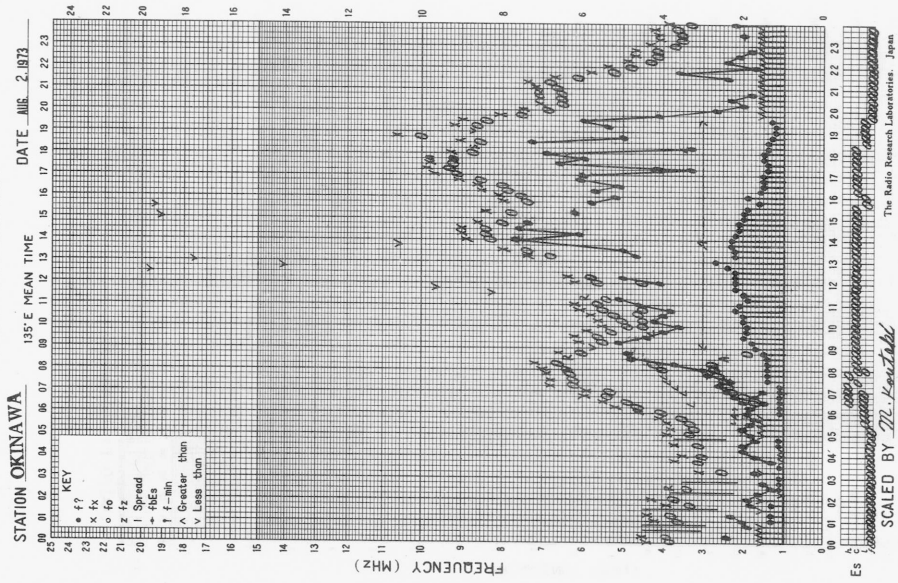
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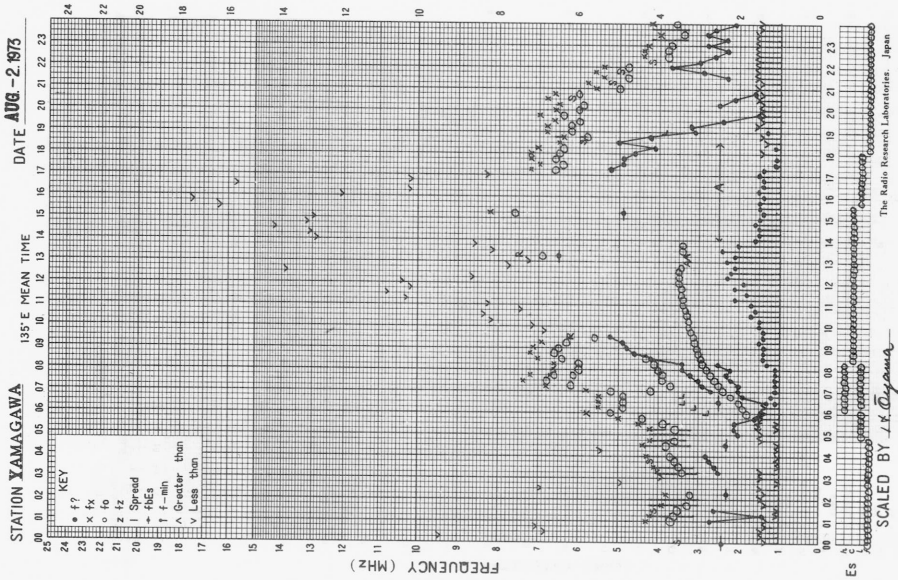
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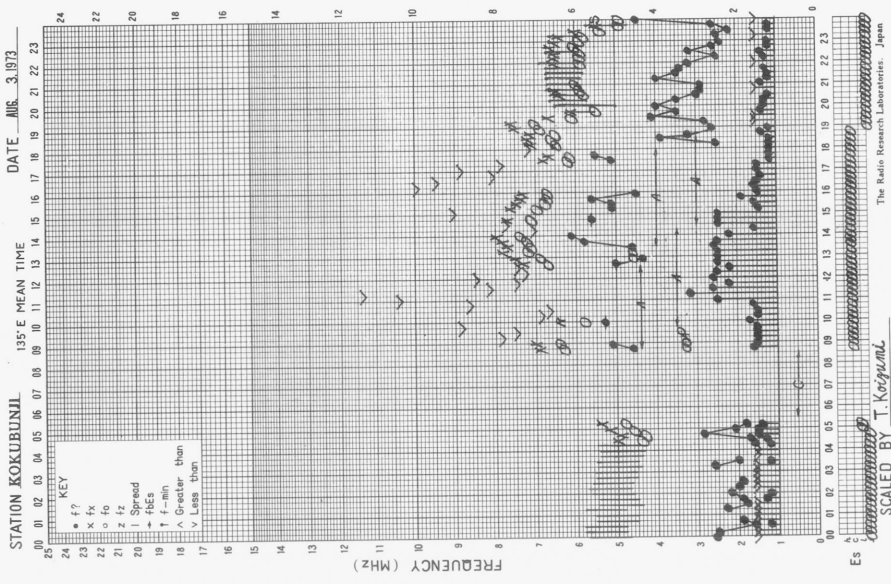
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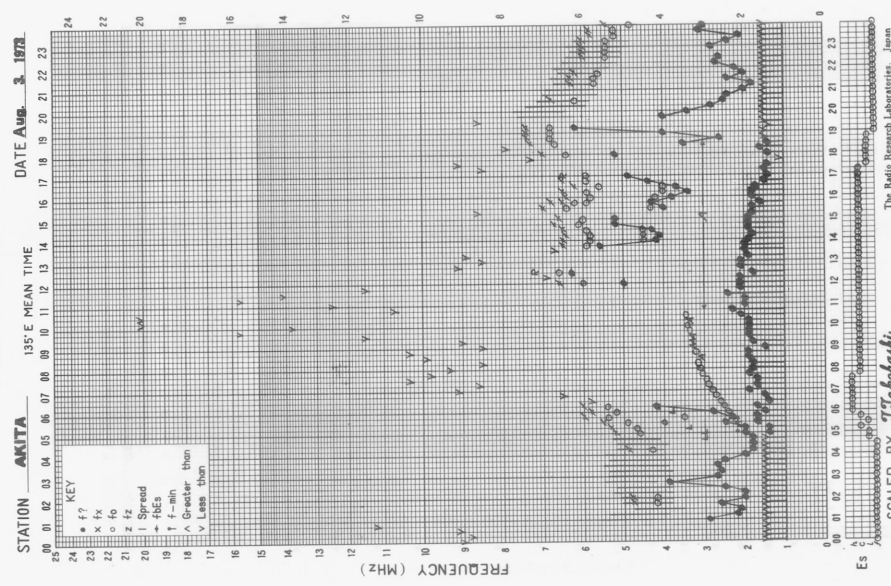
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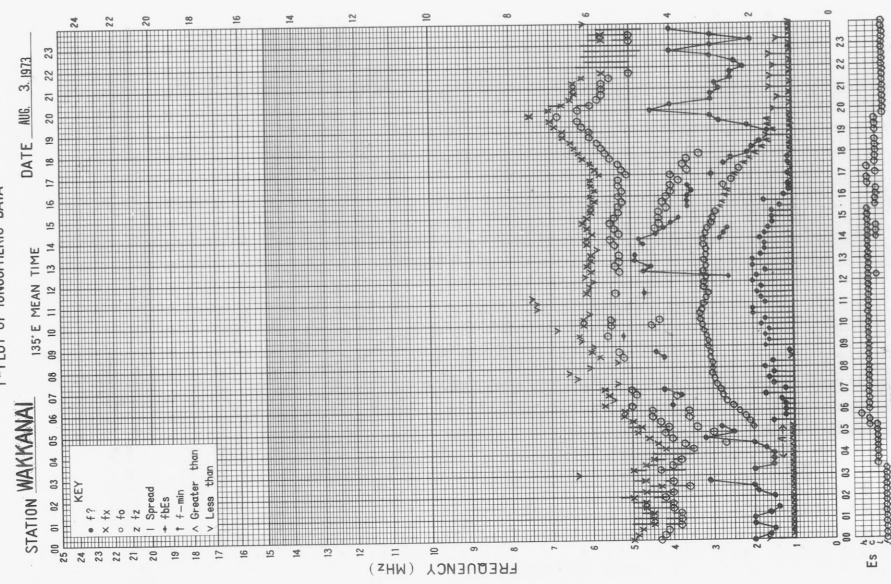
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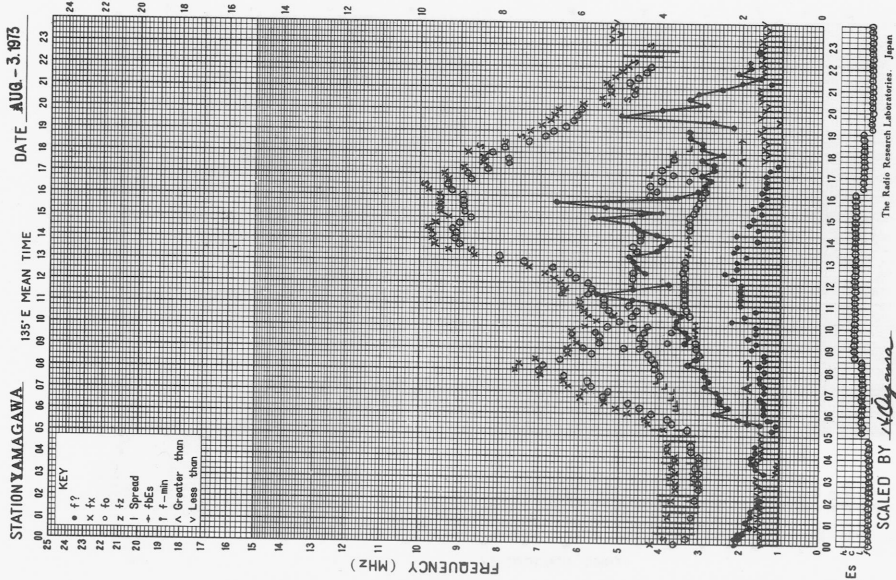
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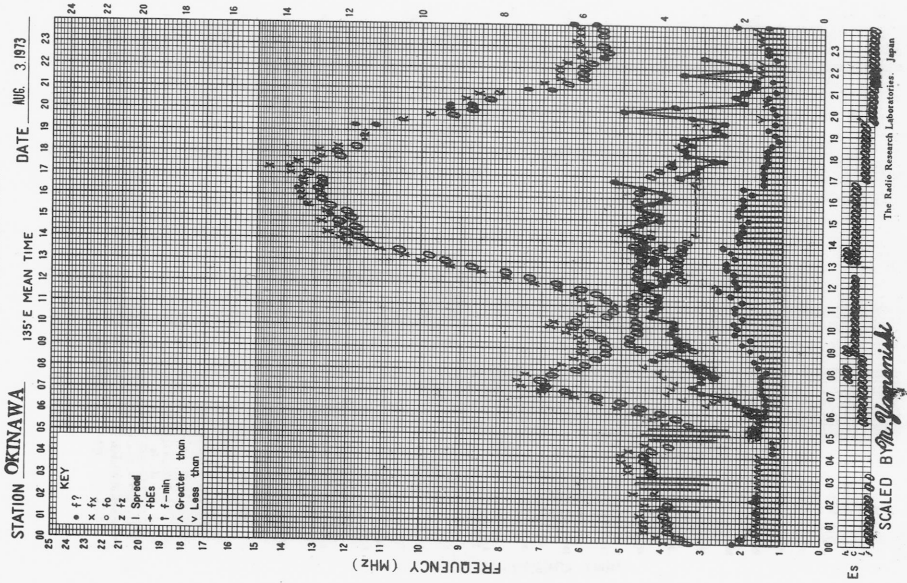
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f-PLOT OF IONOSPHERIC DATA



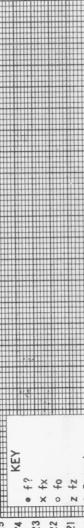
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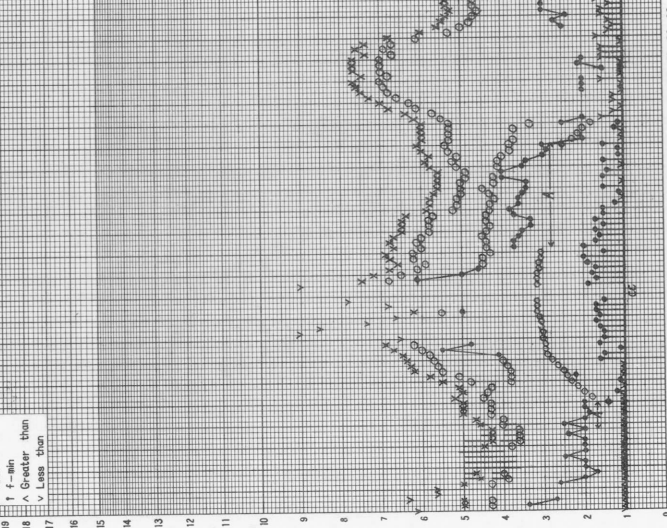
f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI DATE AUG. 4. 1973

135°E MEAN TIME



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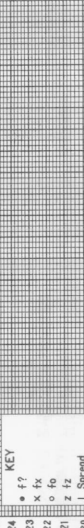


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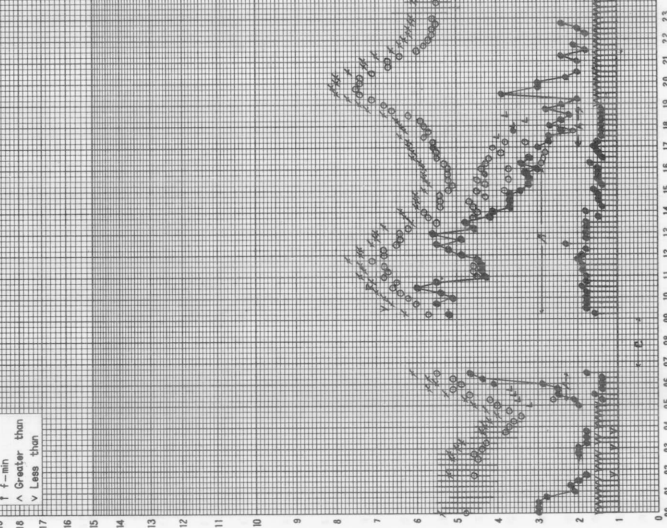
f-PLOT OF IONOSPHERIC DATA

STATION AKITA DATE AUG. 4. 1973

135°E MEAN TIME



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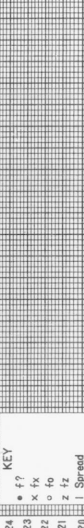


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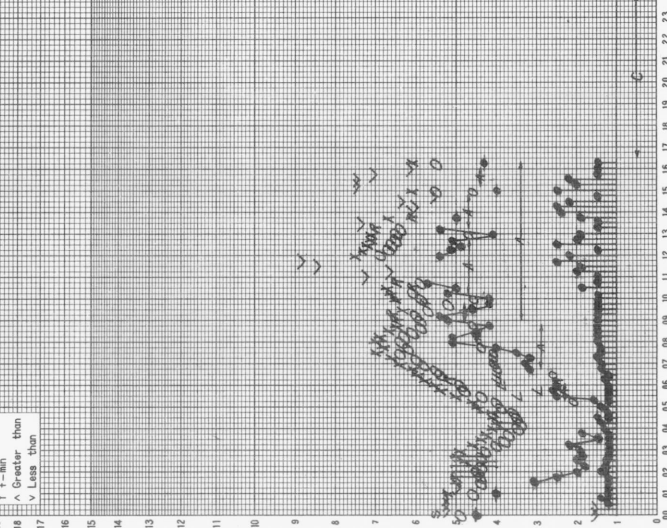
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STATION KOKUBUNJI DATE AUG. 4. 1973

135°E MEAN TIME

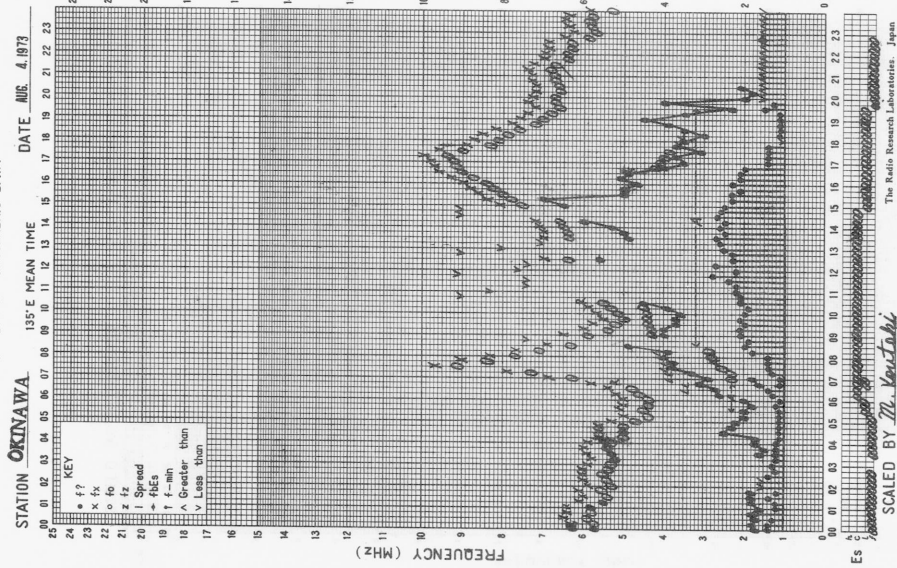


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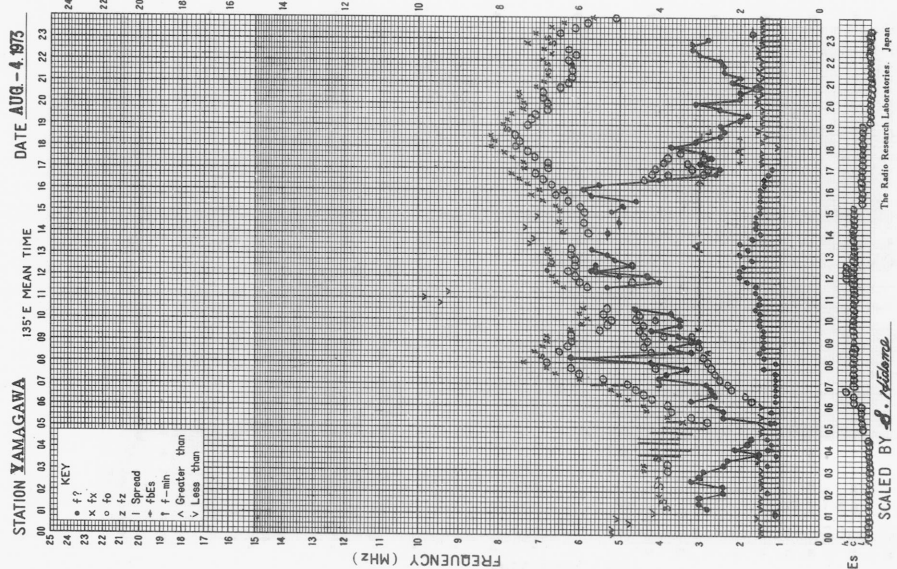


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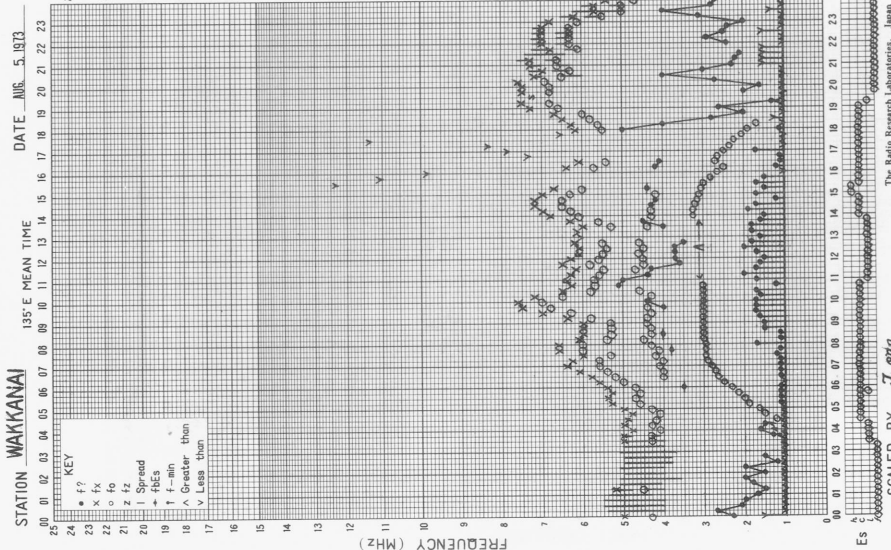
f-plot of IONOSPHERIC DATA



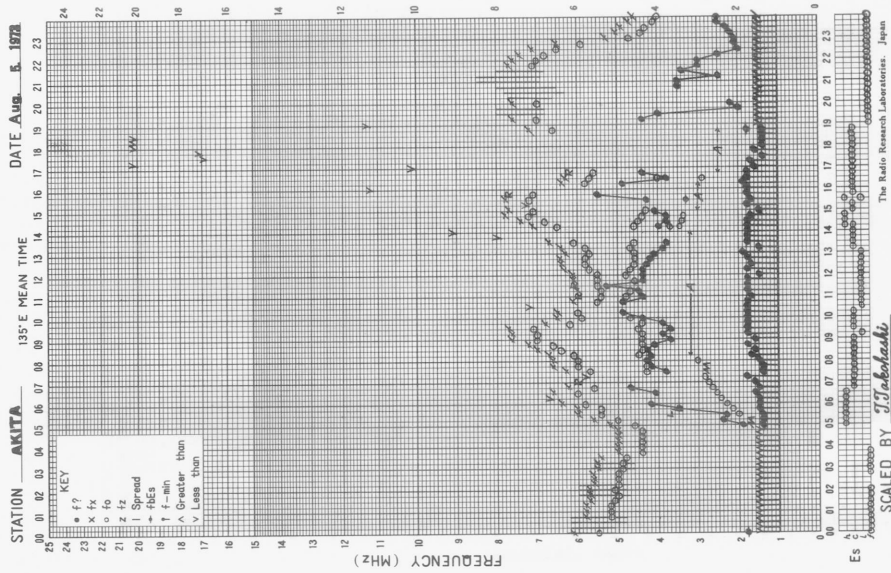
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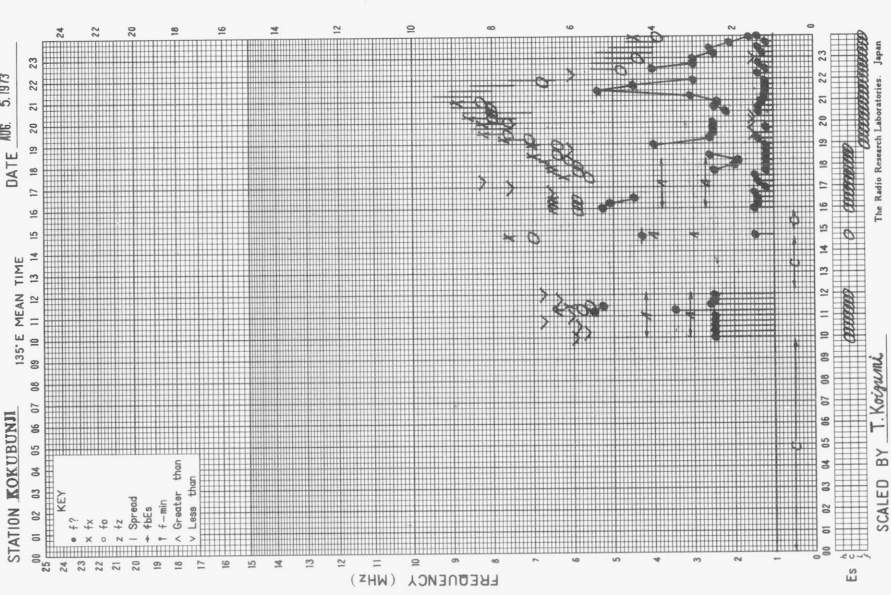
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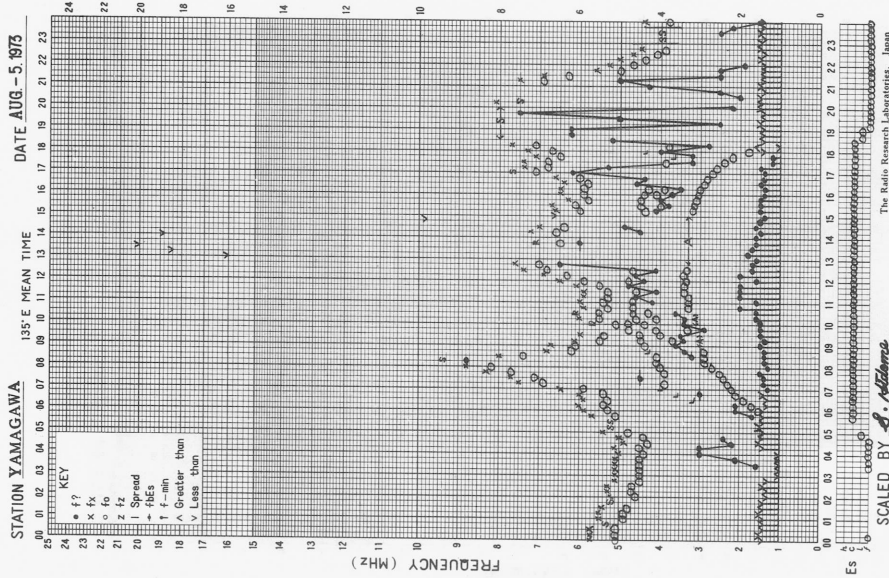
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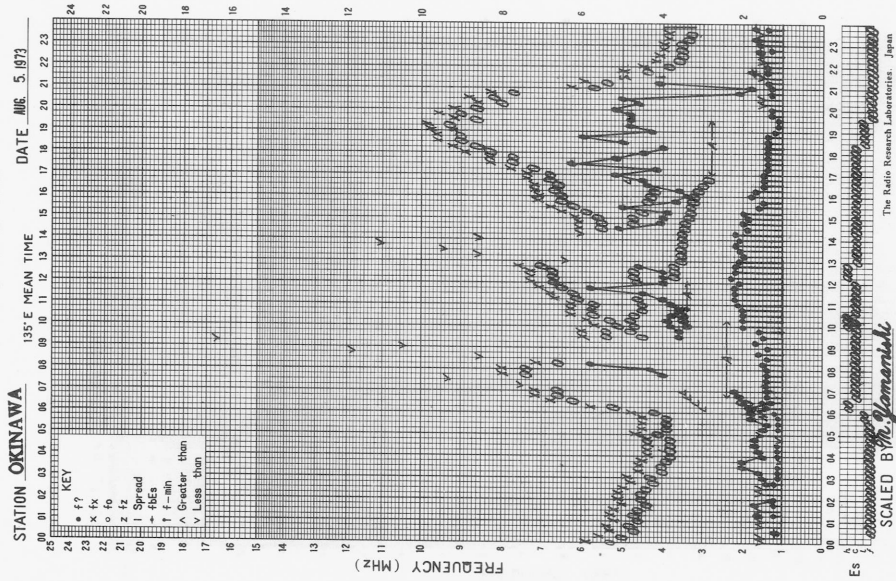
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f-plot of IONOSPHERIC DATA



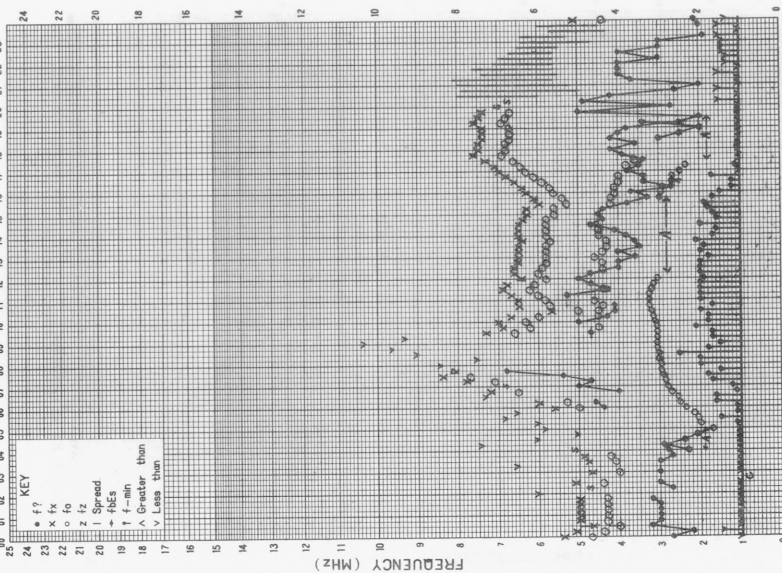
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f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI DATE AUG. 6, 1973

135°E MEAN TIME

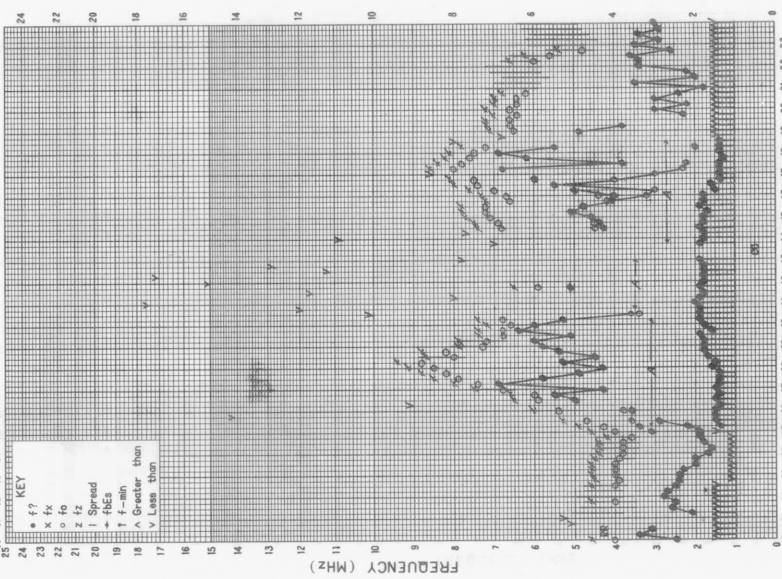


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SCALED BY J. Oda

f-PLOT OF IONOSPHERIC DATA

STATION AKITA DATE AUG. 6, 1973

135°E MEAN TIME

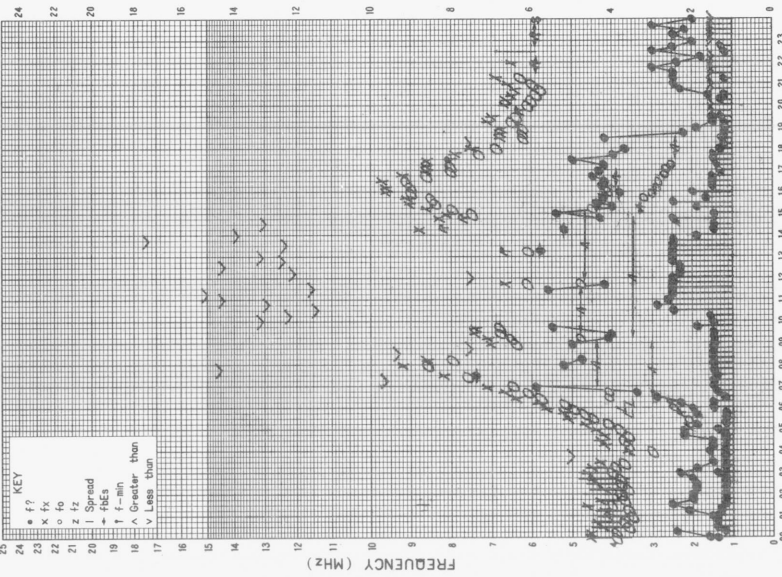


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SCALED BY J. Takahashi

f-PLOT OF IONOSPHERIC DATA

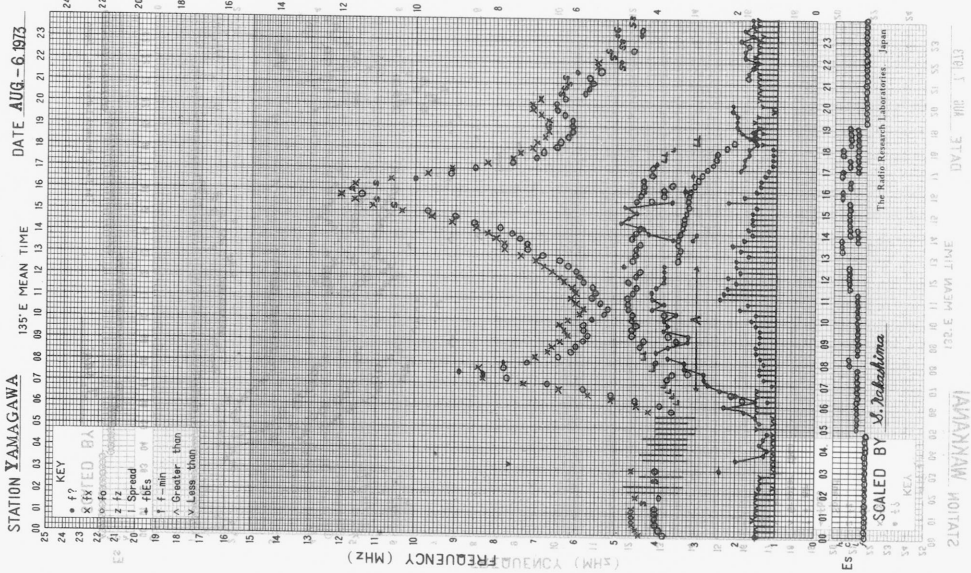
STATION KOKUBUNJI DATE AUG. 6, 1973

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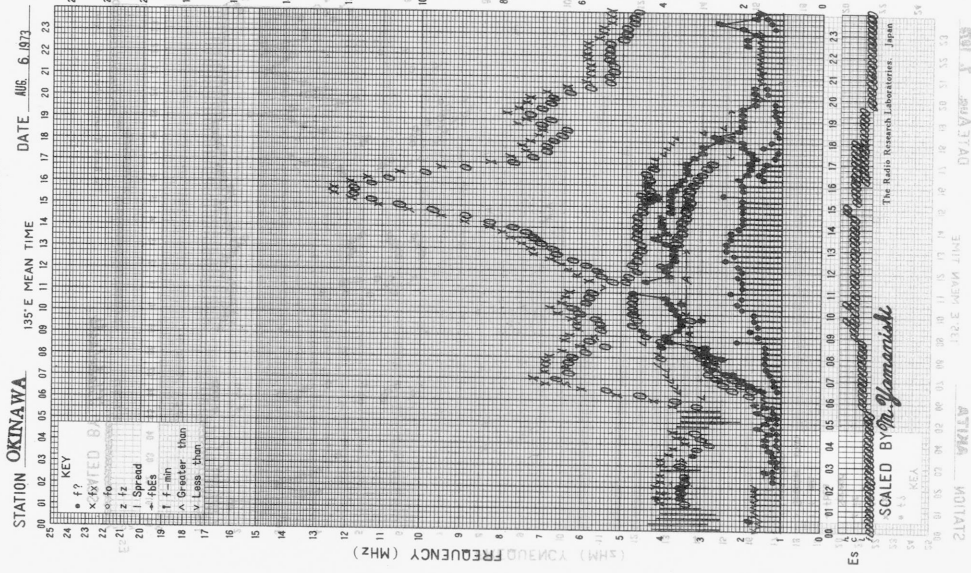


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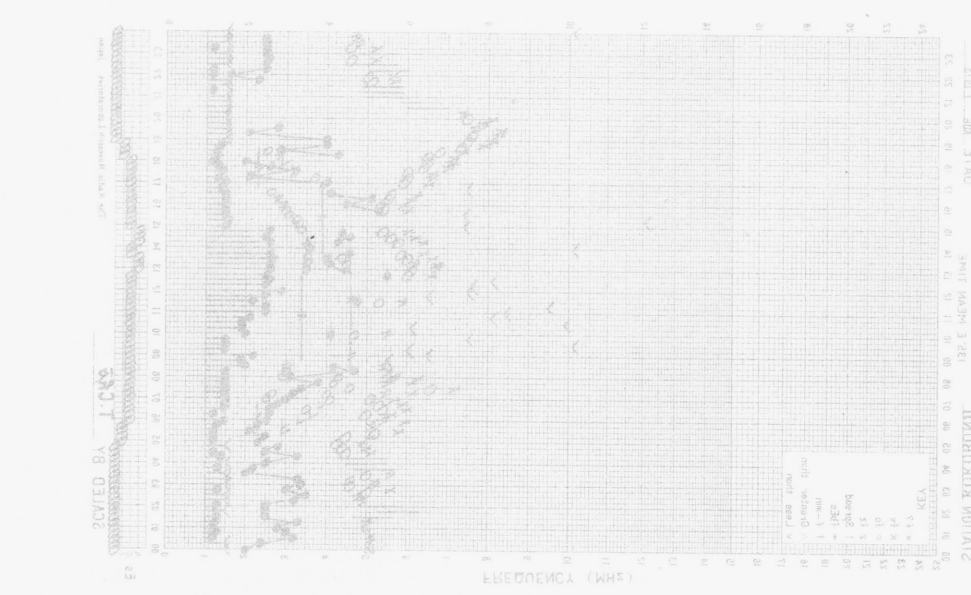
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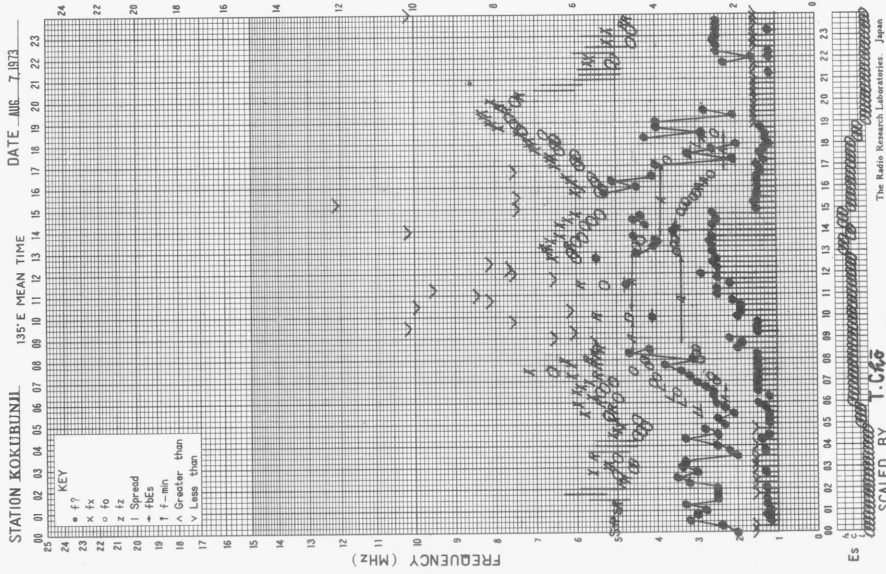
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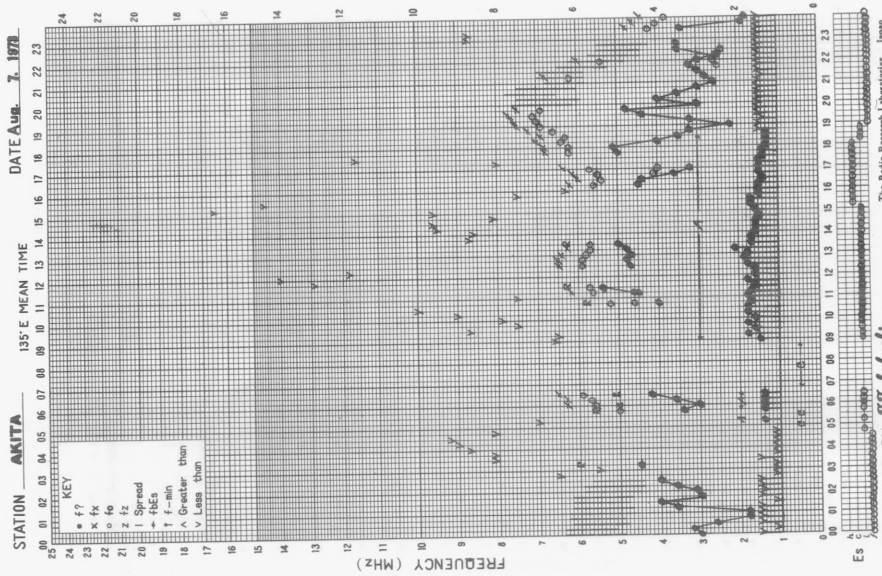
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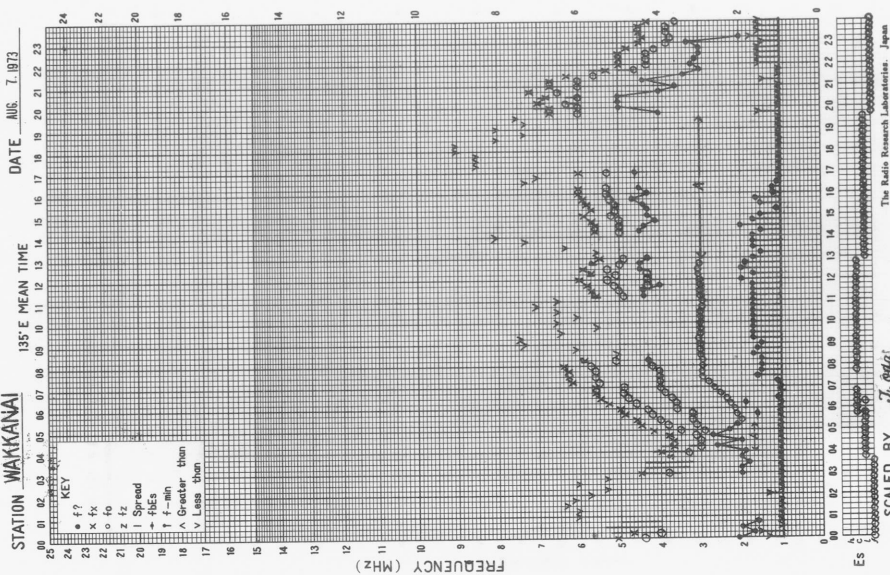
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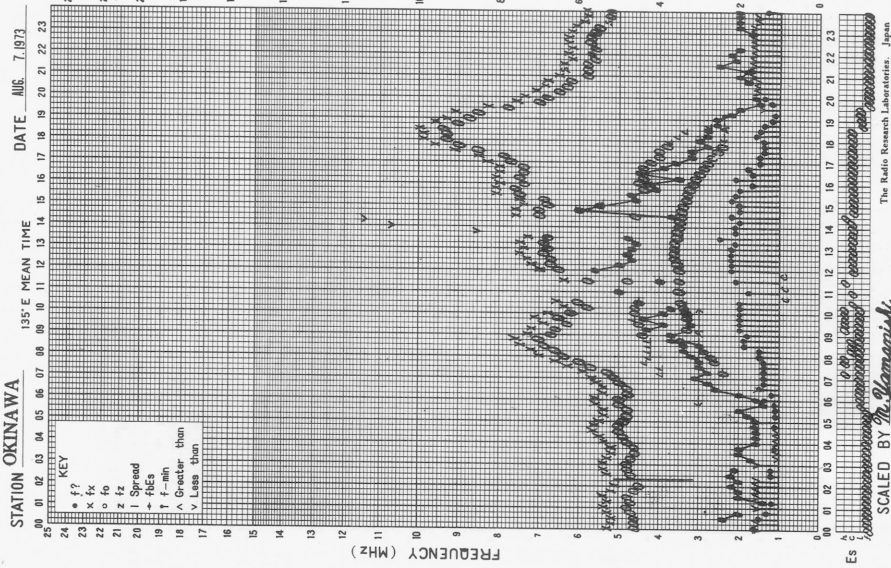
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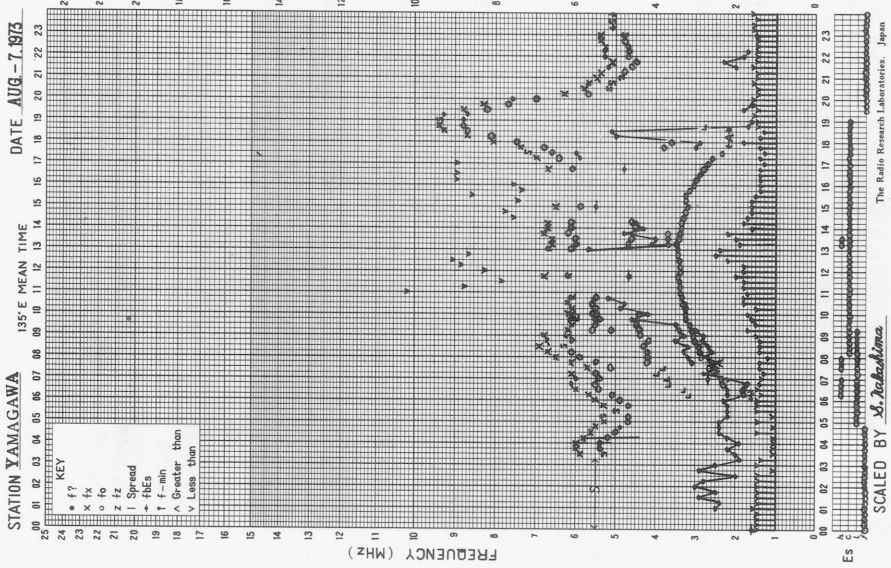
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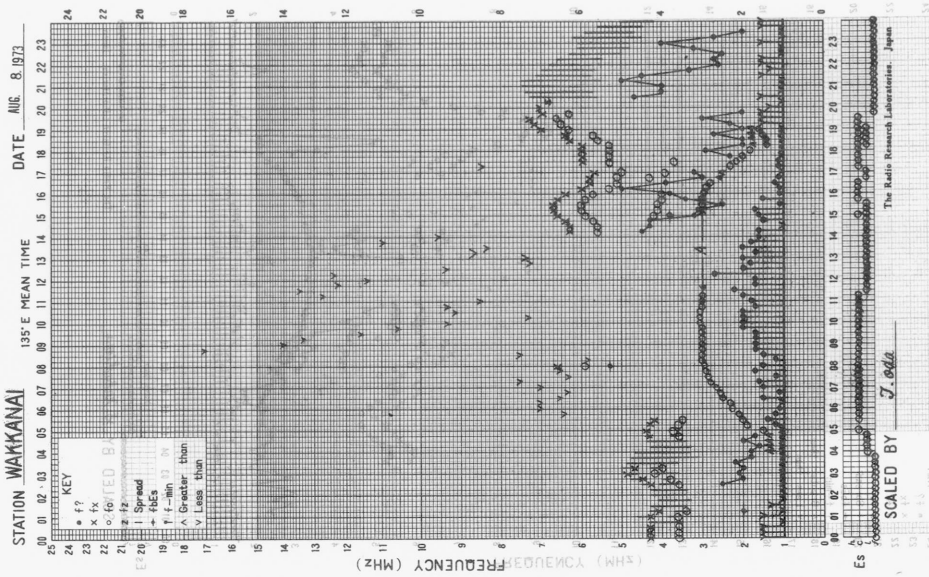
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f-PLOT OF IONOSPHERIC DATA

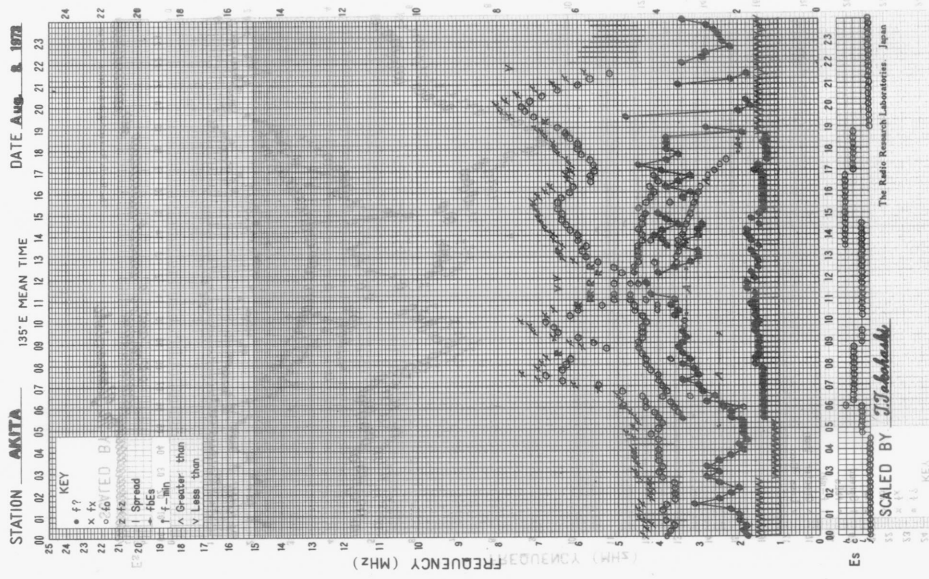


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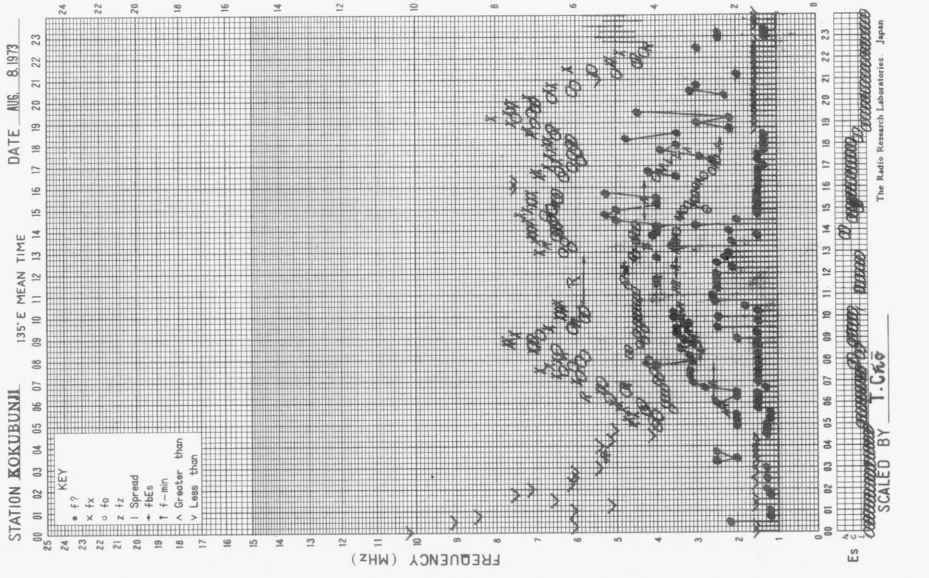
AWAKKANAI NI IRIYATZ
DATE AUG 8 1973
135°E MEAN TIME

f-PLOT OF IONOSPHERIC DATA



AKITA NI IRIYATZ
DATE AUG 8 1973
135°E MEAN TIME

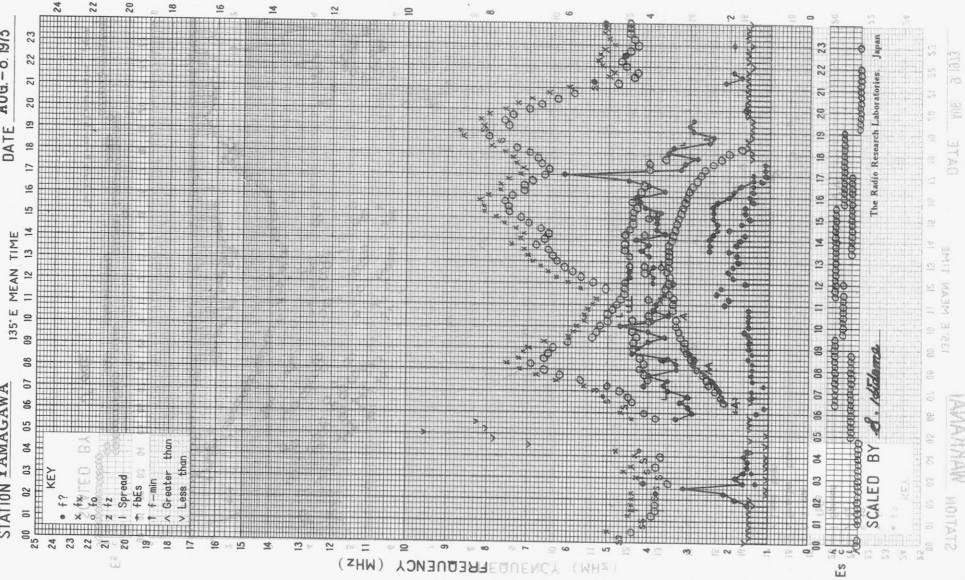
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KOKUBUNJI NI IRIYATZ
DATE AUG 8 1973
135°E MEAN TIME

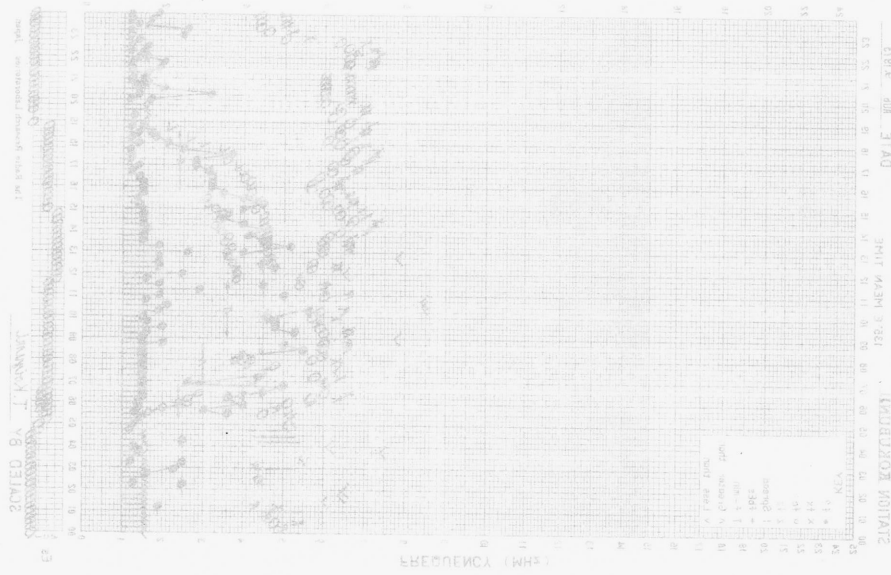
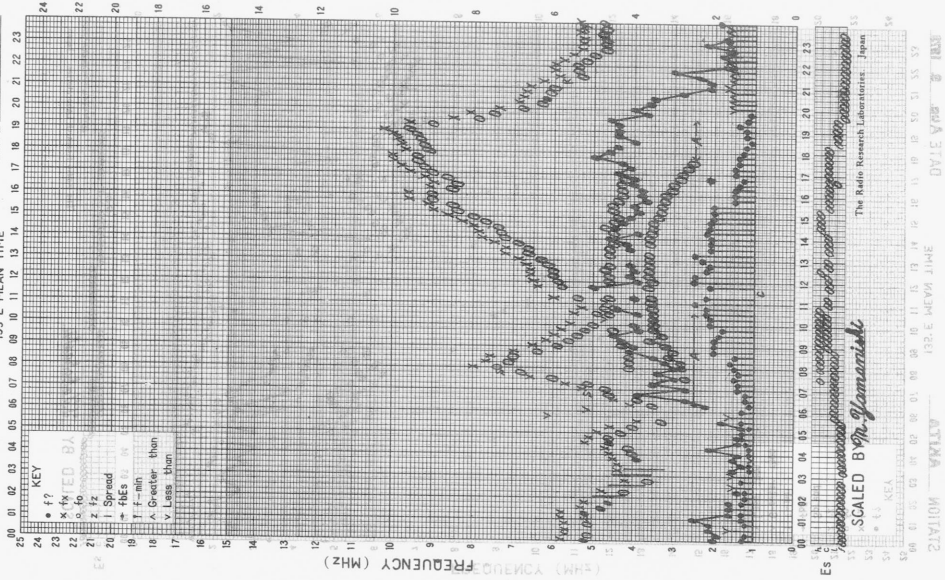
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STATION YAMAGAWA DATE AUG - 8 1973



f-plot of IONOSPHERIC DATA

STATION OKINAWA DATE AUG 8 1973

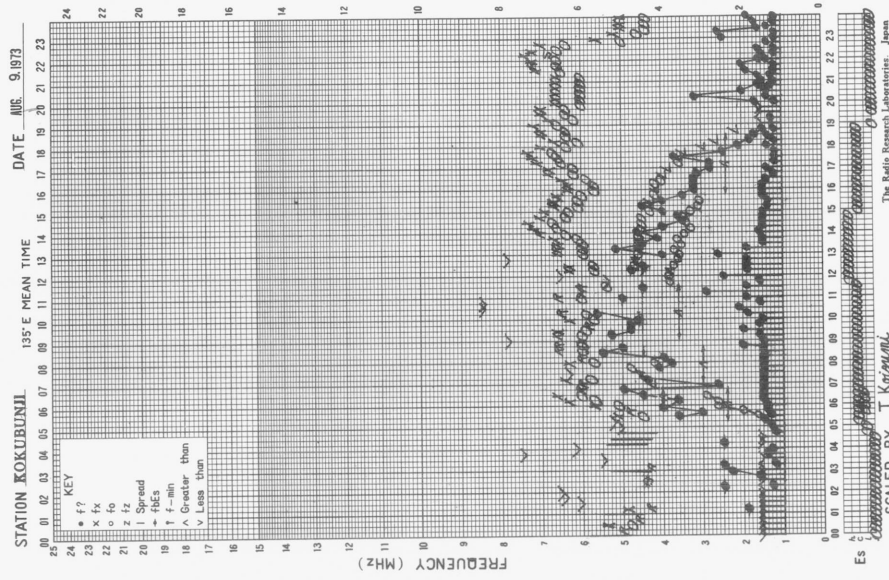


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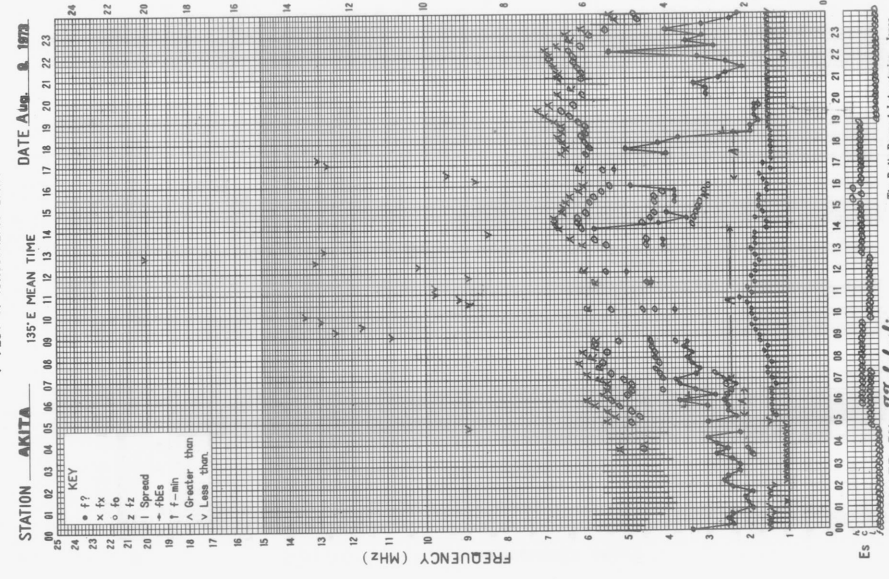
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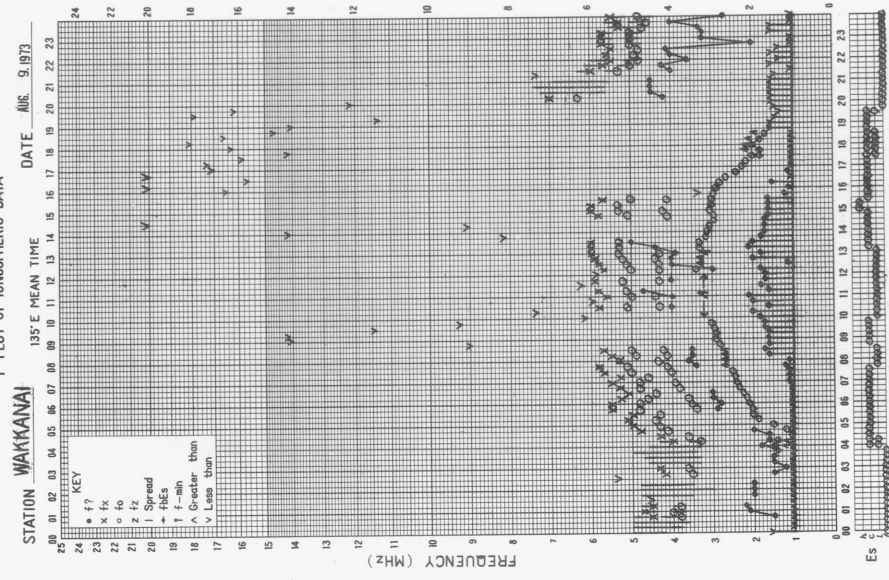
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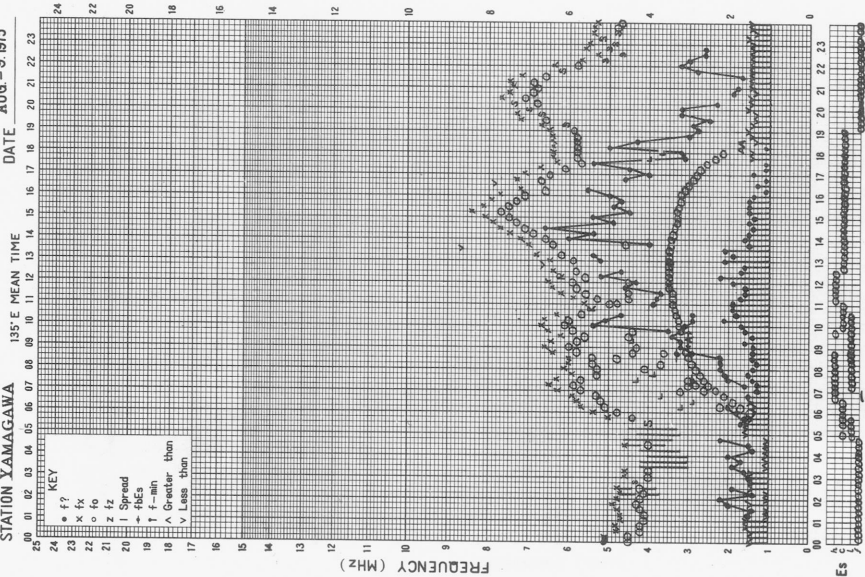


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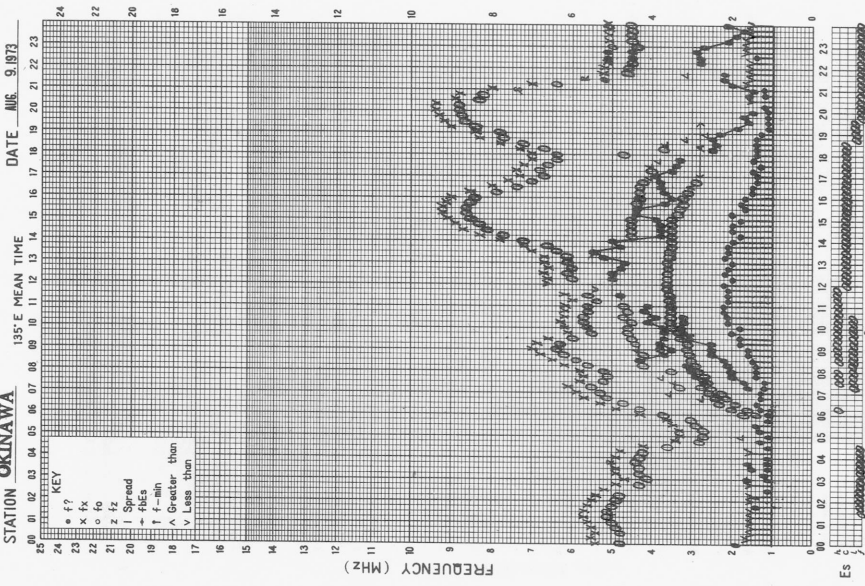
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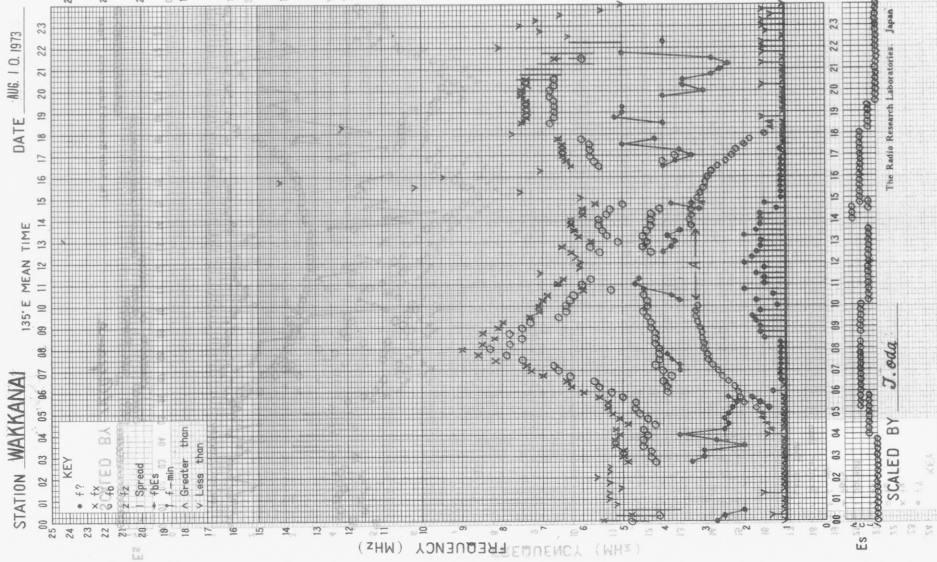
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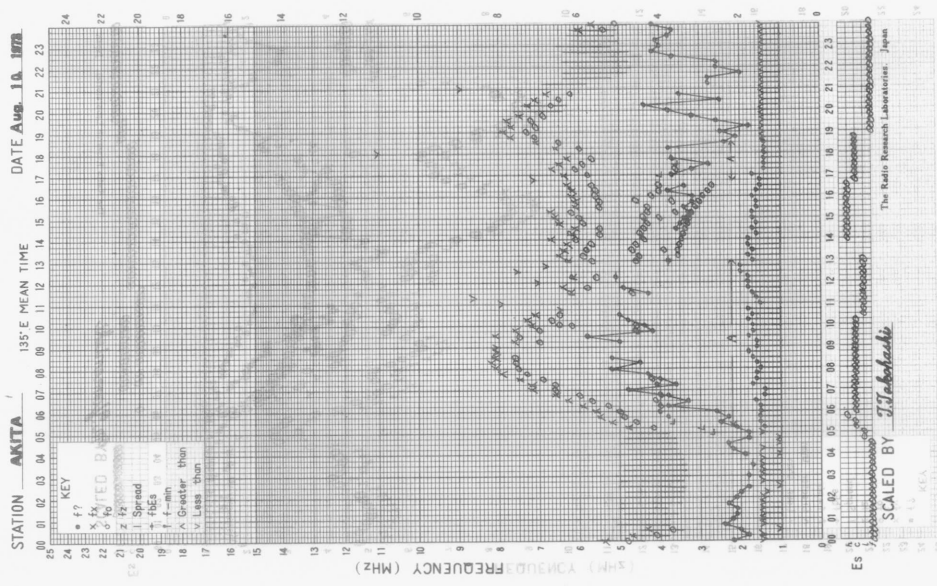
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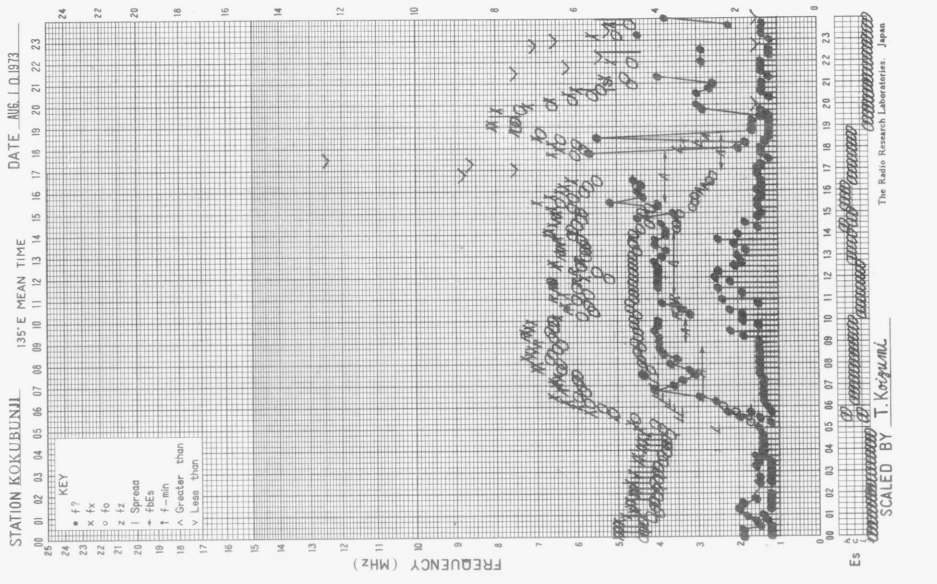
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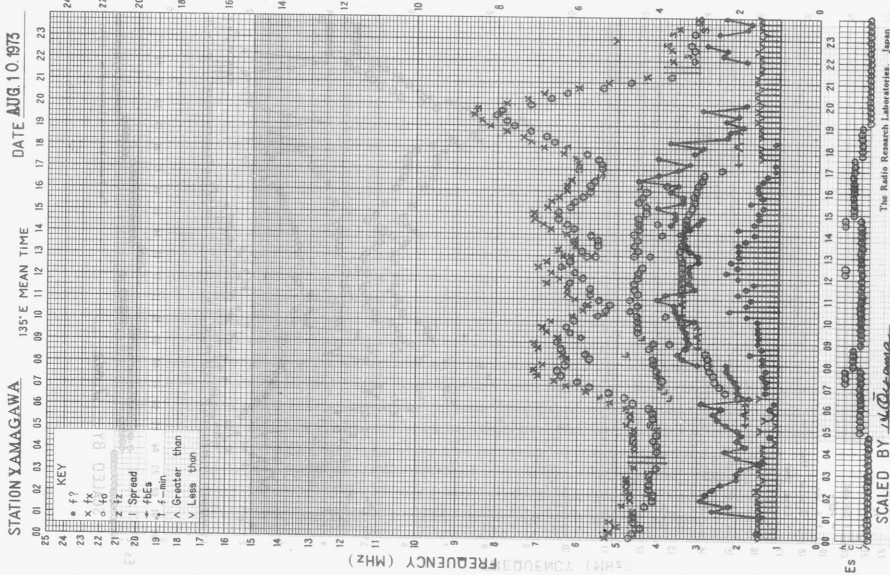
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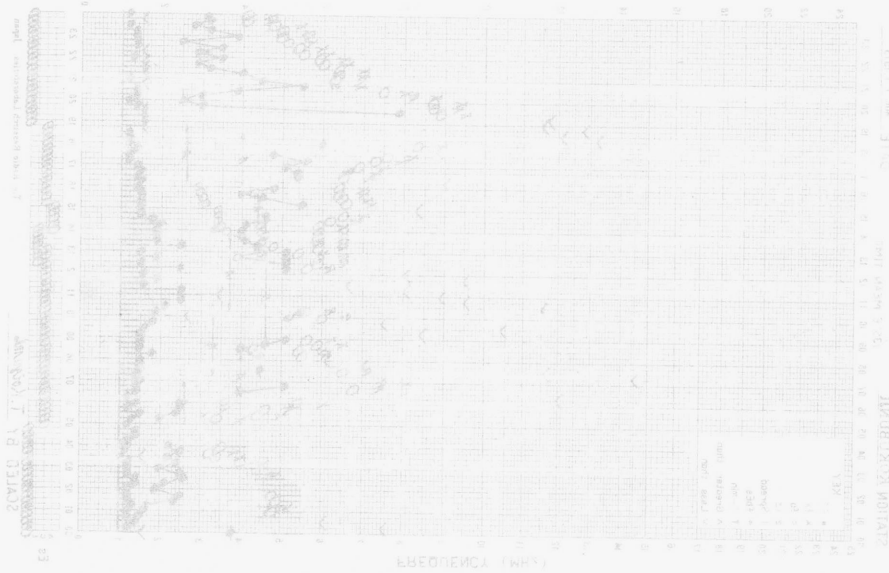
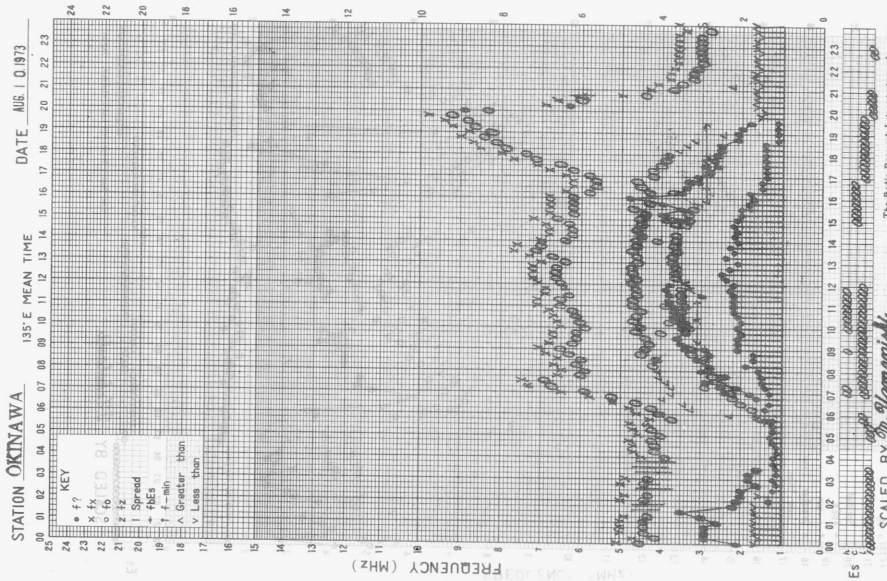


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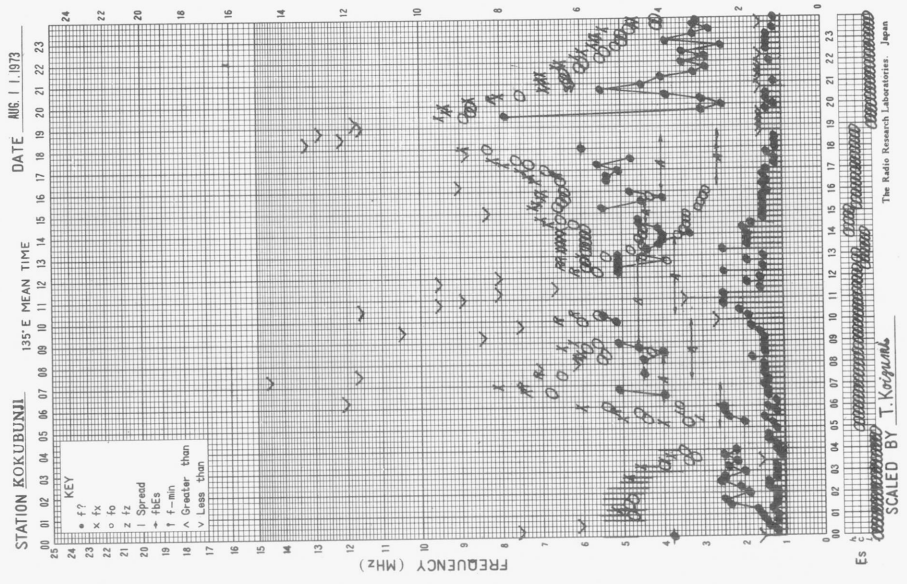


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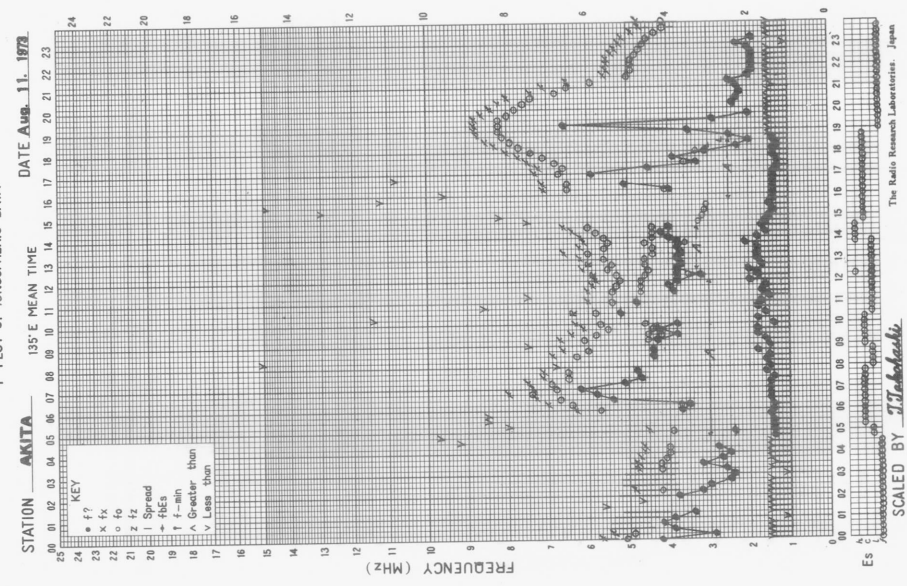


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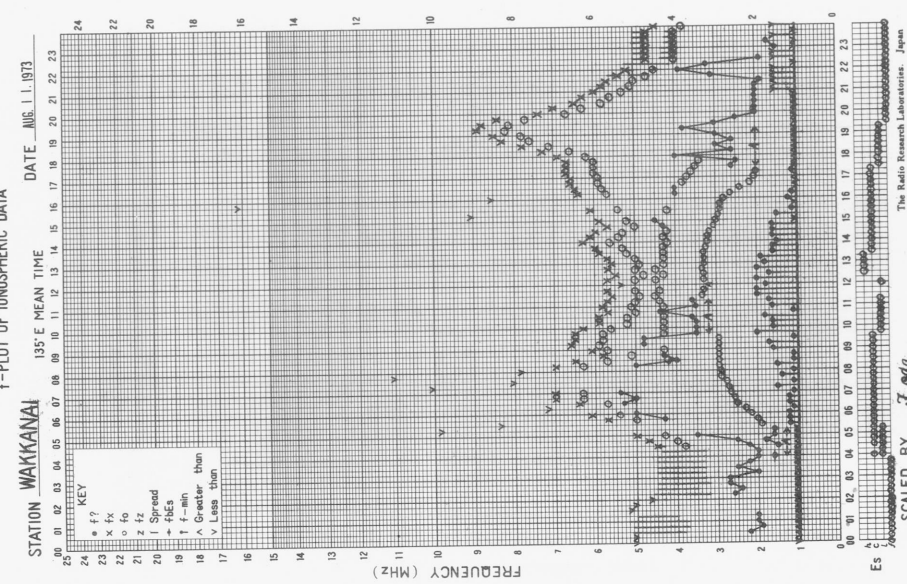
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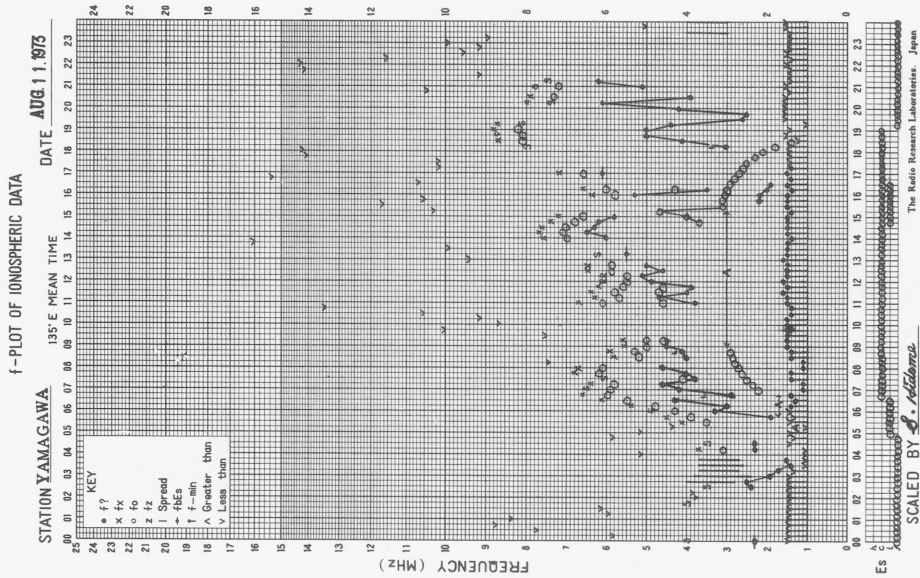
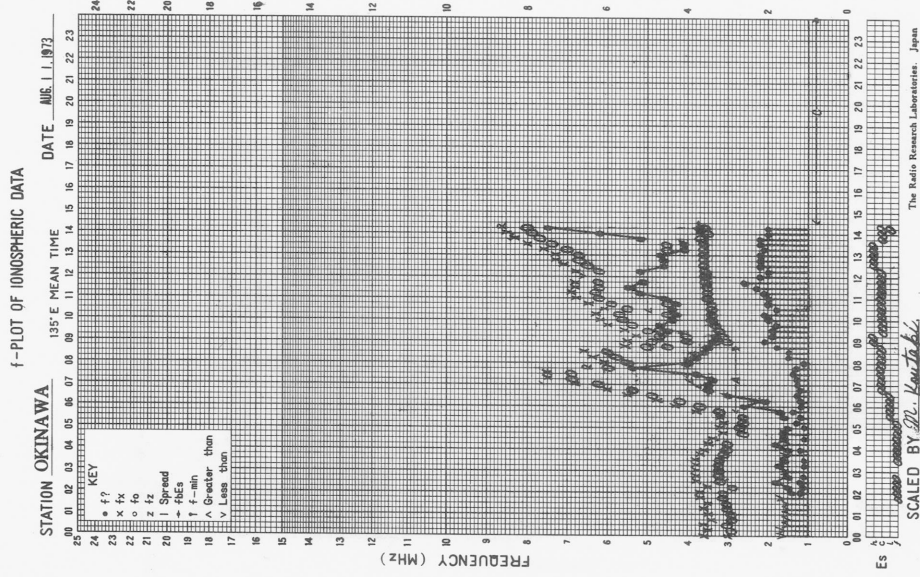


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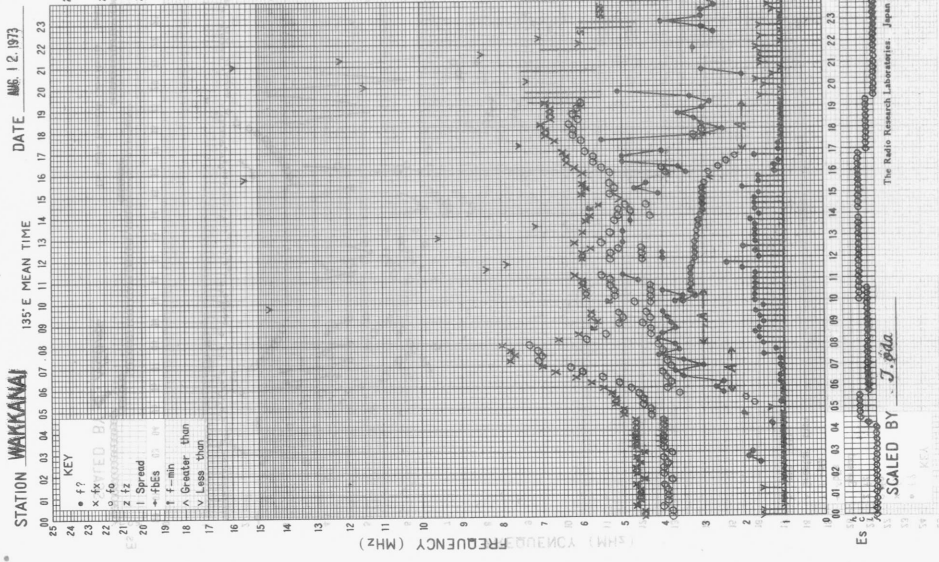


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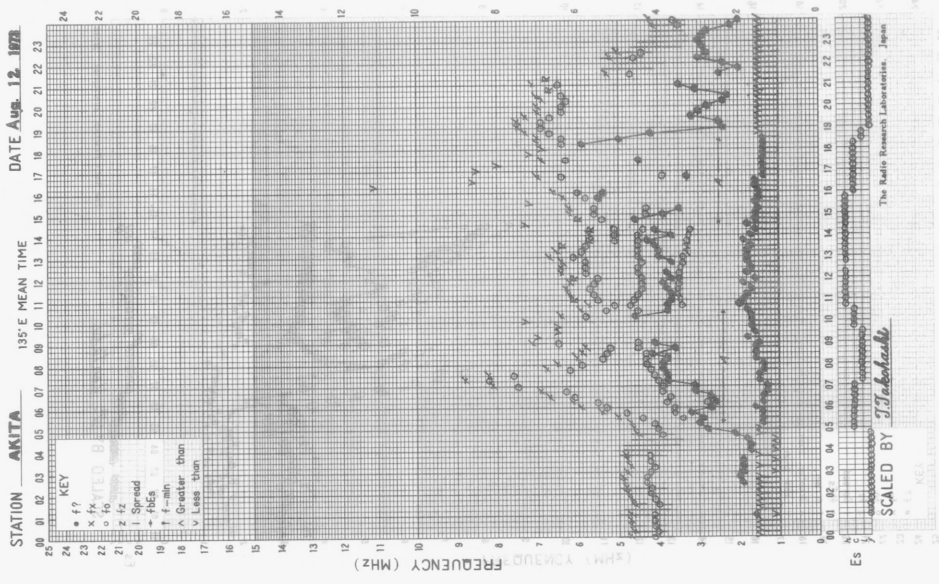


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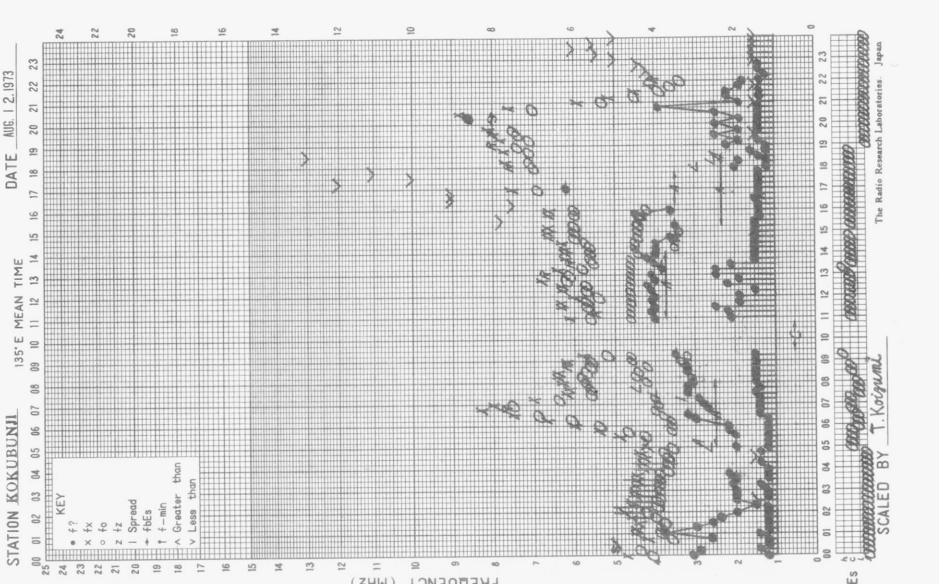
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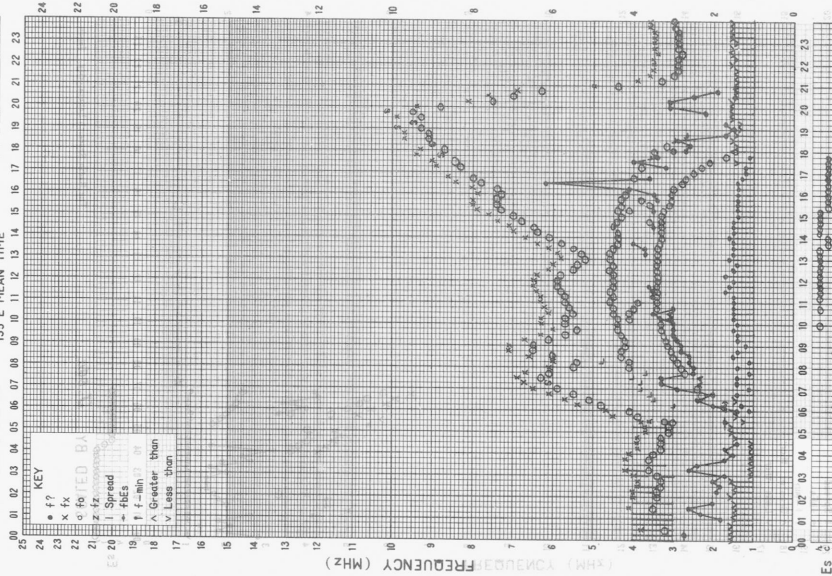
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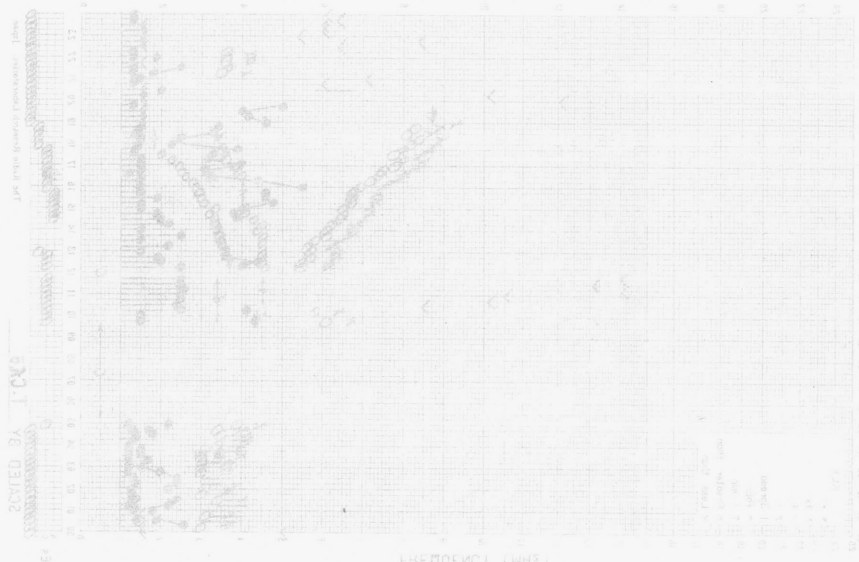
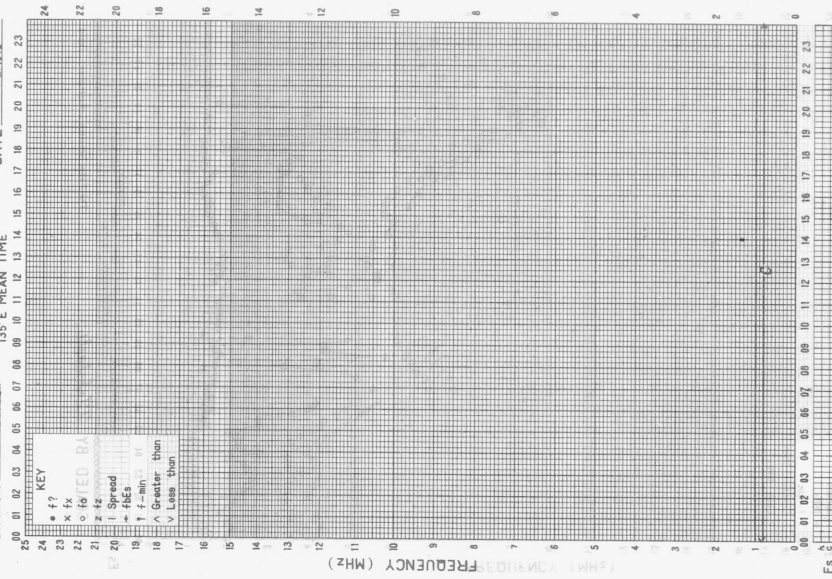
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STATION YAMAGAWA DATE AUG. 12, 1973



f-PLOT OF IONOSPHERIC DATA

STATION OKINAWA DATE AUG. 12, 1973



UNITED STATES GOVERNMENT PRINTING OFFICE: 1969 O 344-100

FORM 157 (REV. 1-65)

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DATE: AUG. 12, 1973

TIME: 10:10-11:00

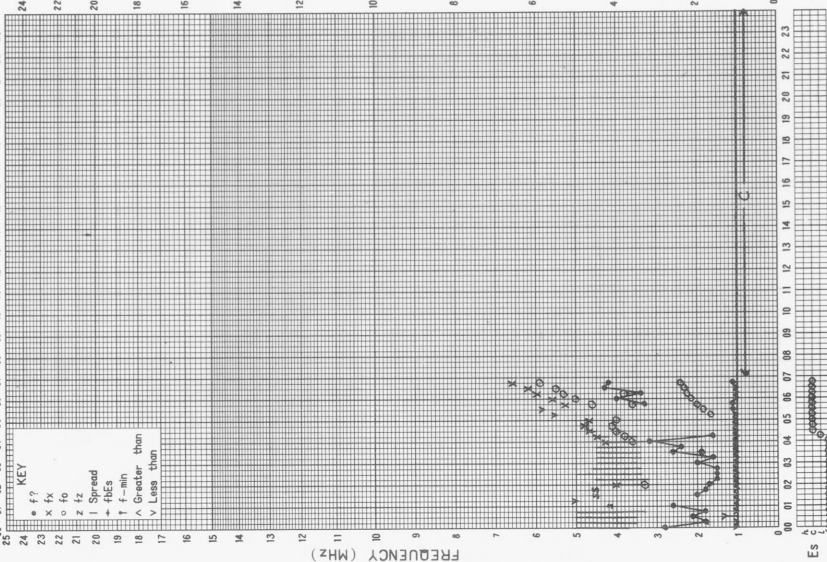
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STATION WAKKANAI DATE Aug. 12, 1973

135°E MEAN TIME



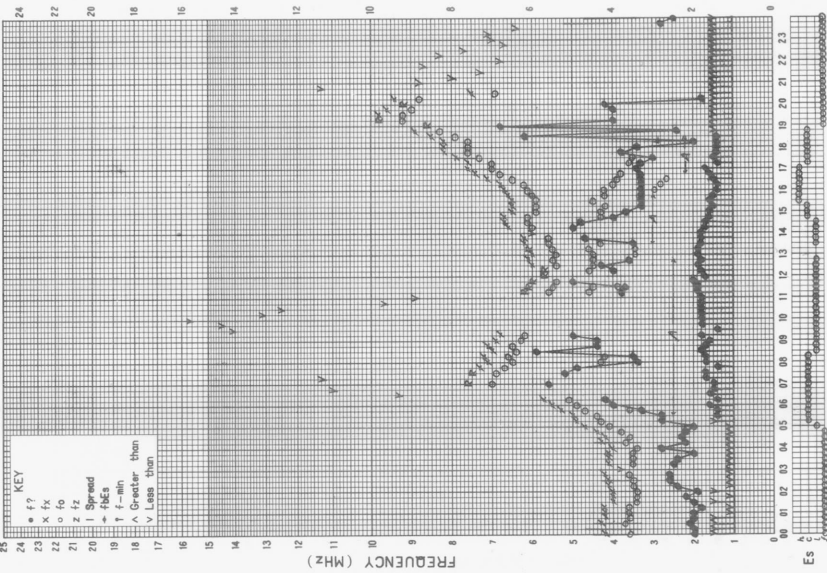
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SCALED BY J. Ota

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STATION AKITA DATE Aug. 13, 1973

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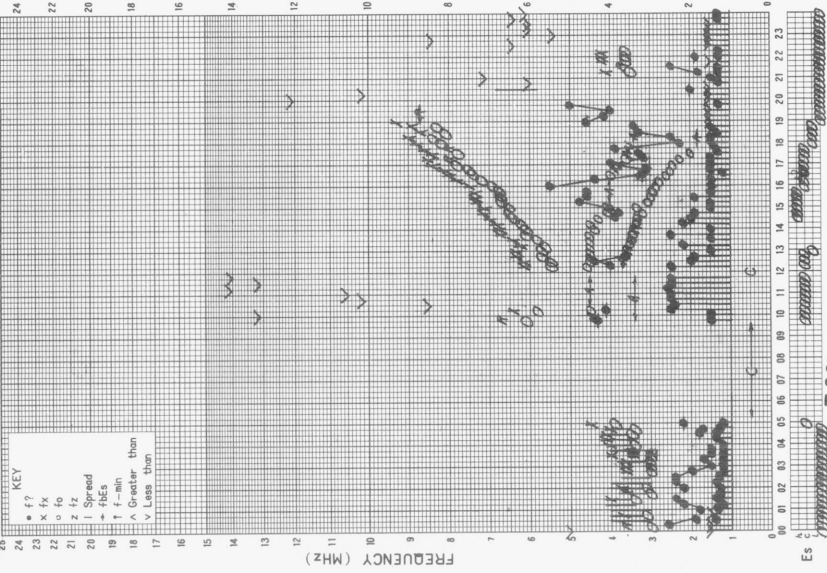
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STATION KOKUBUNJI DATE Aug. 13, 1973

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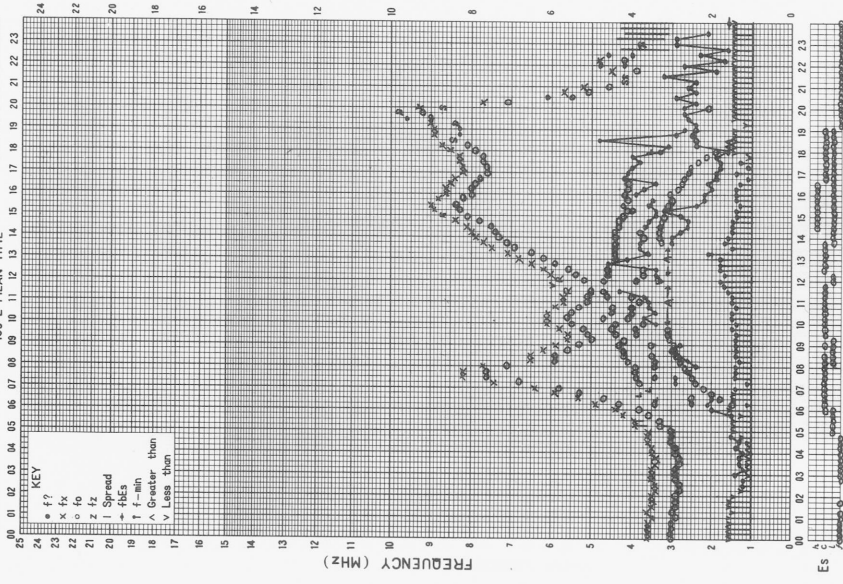


ES C A The Radio Research Laboratories, Japan

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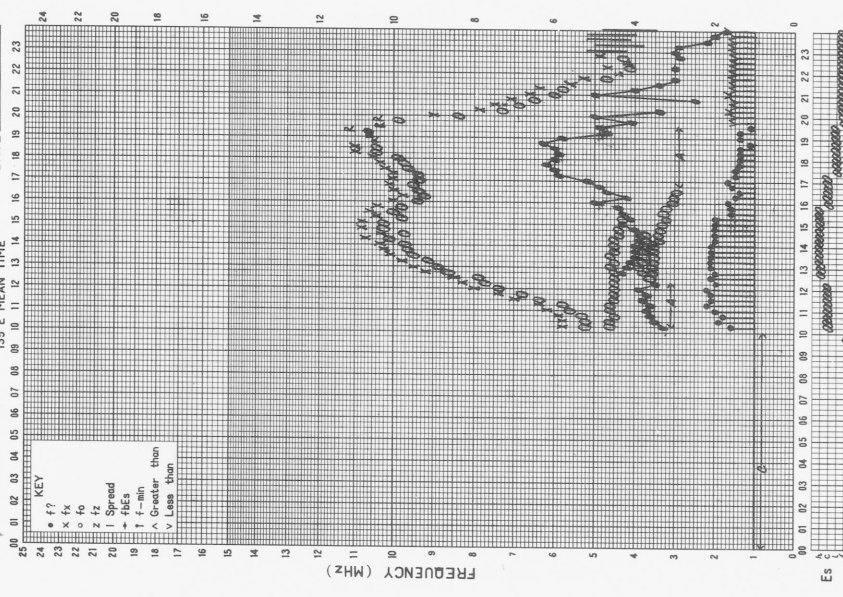
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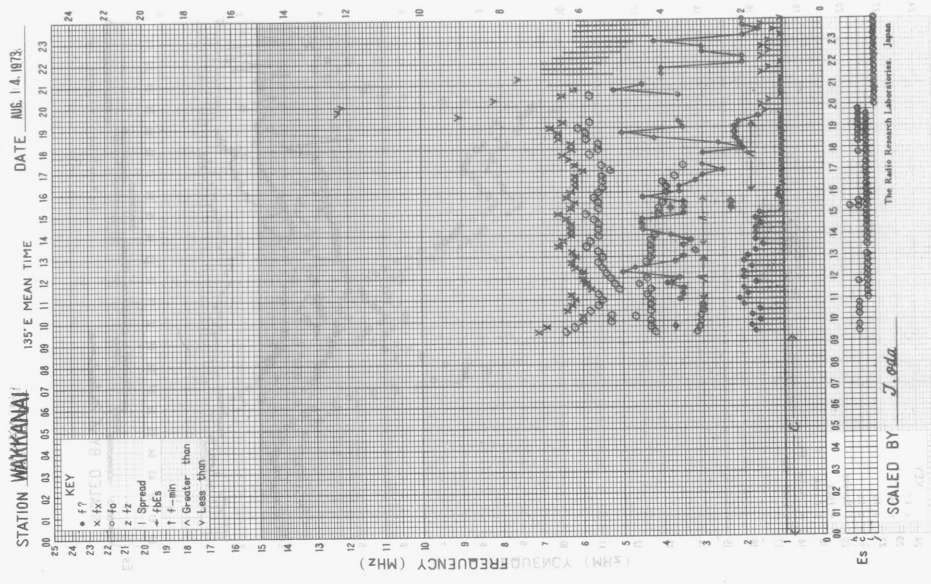


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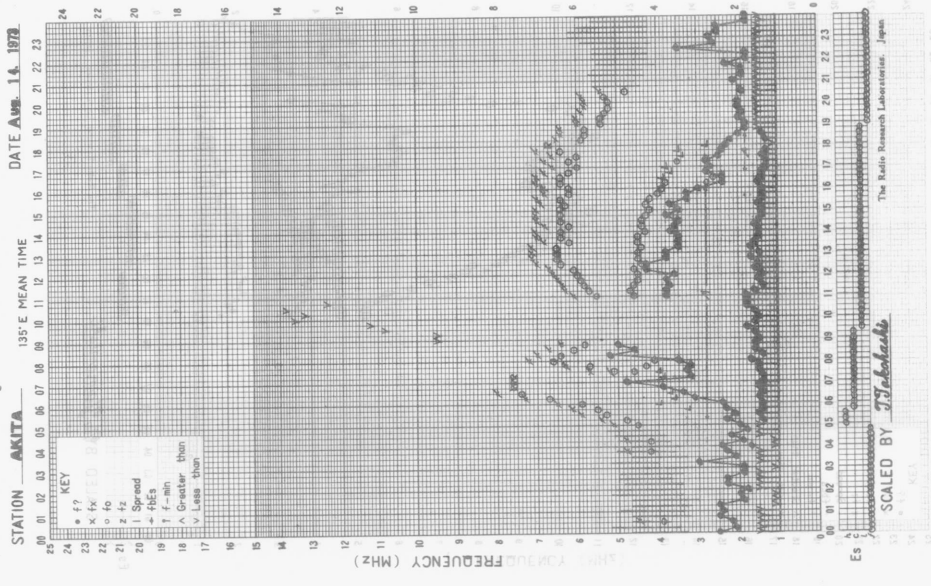
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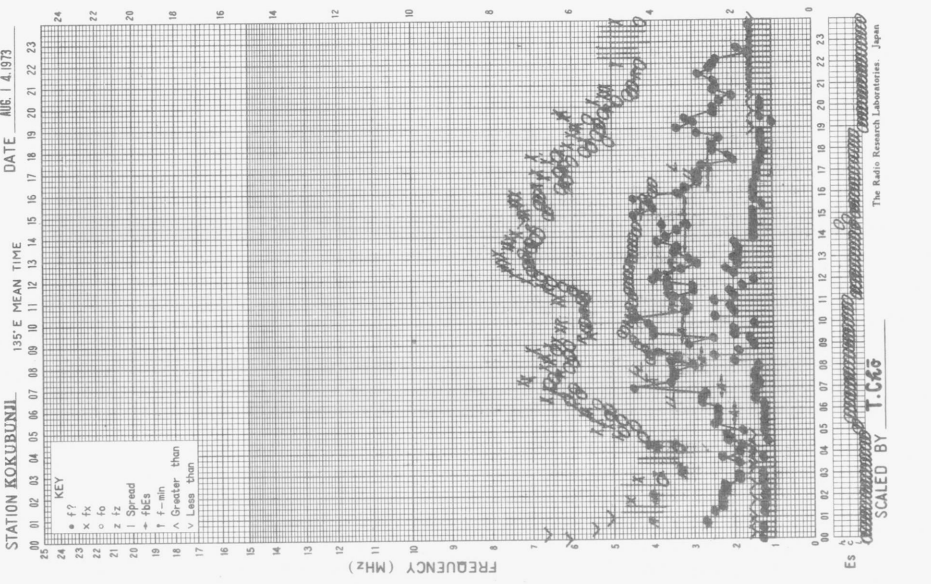
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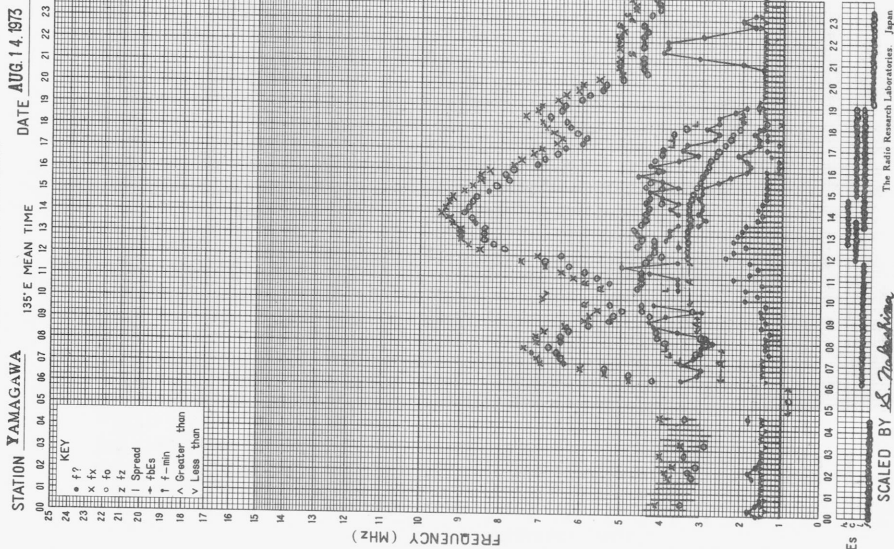


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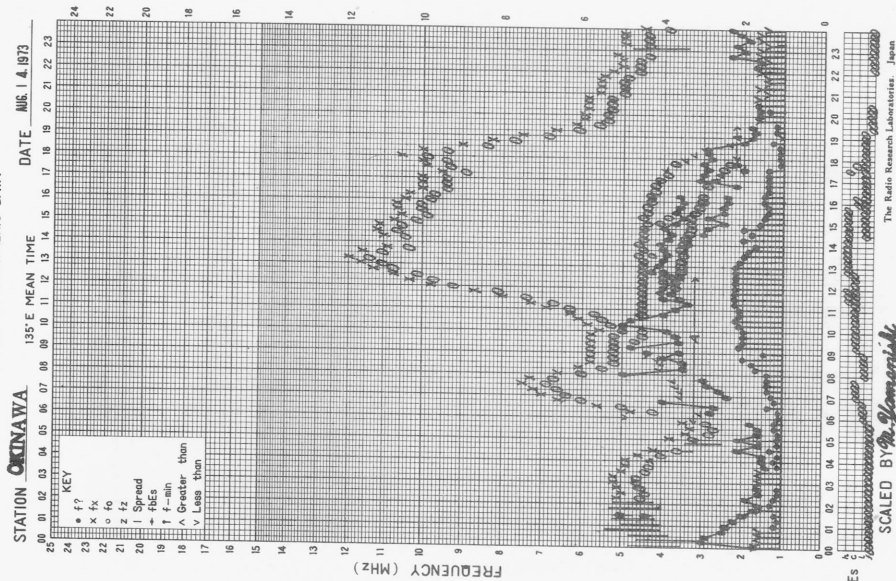
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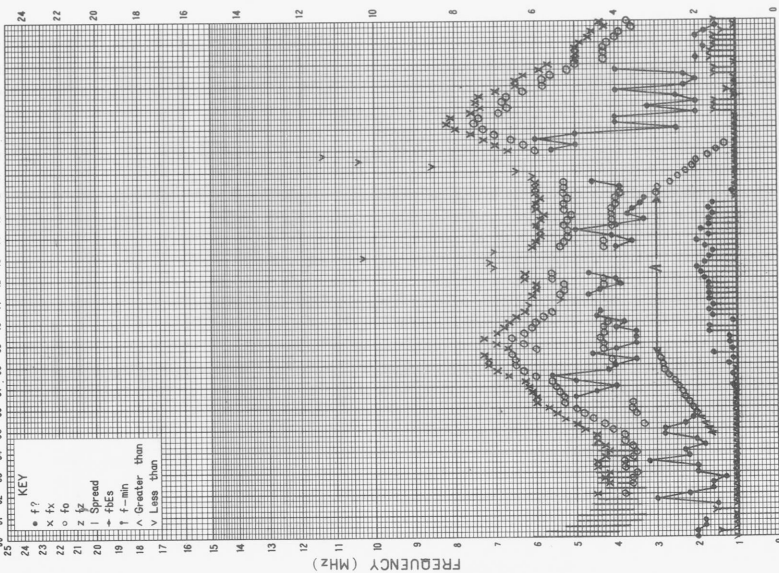
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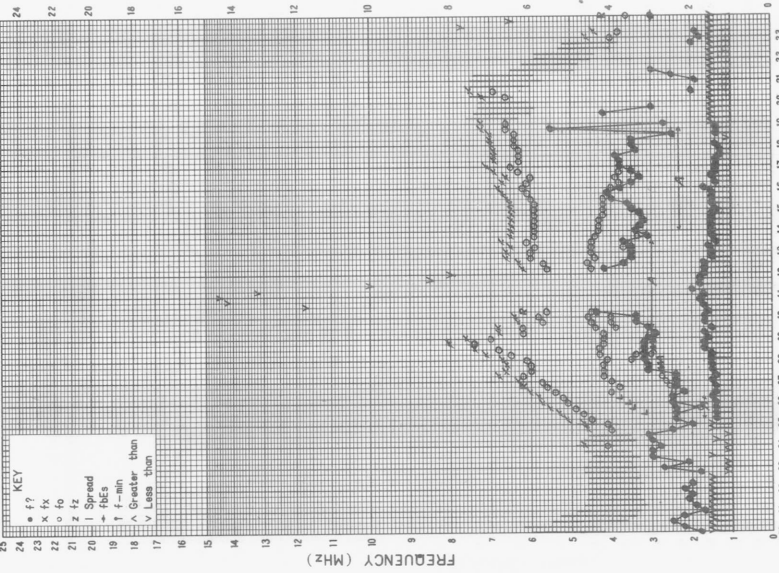


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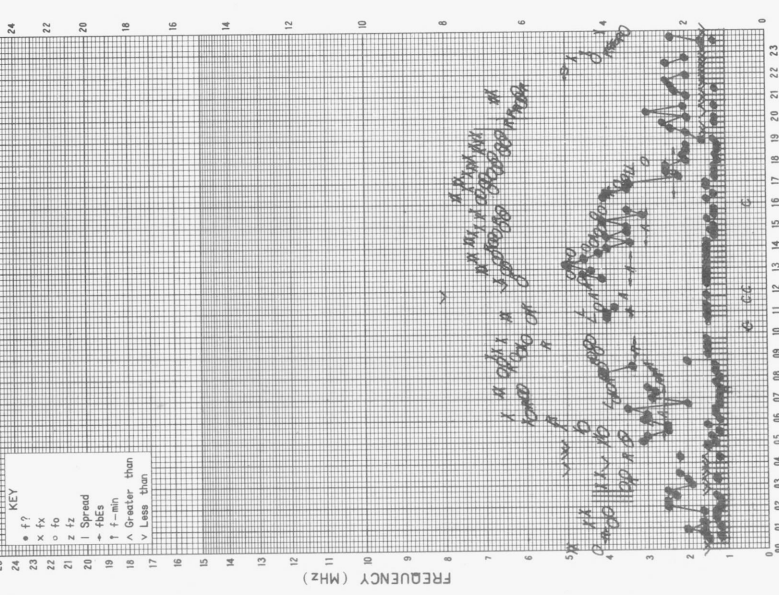


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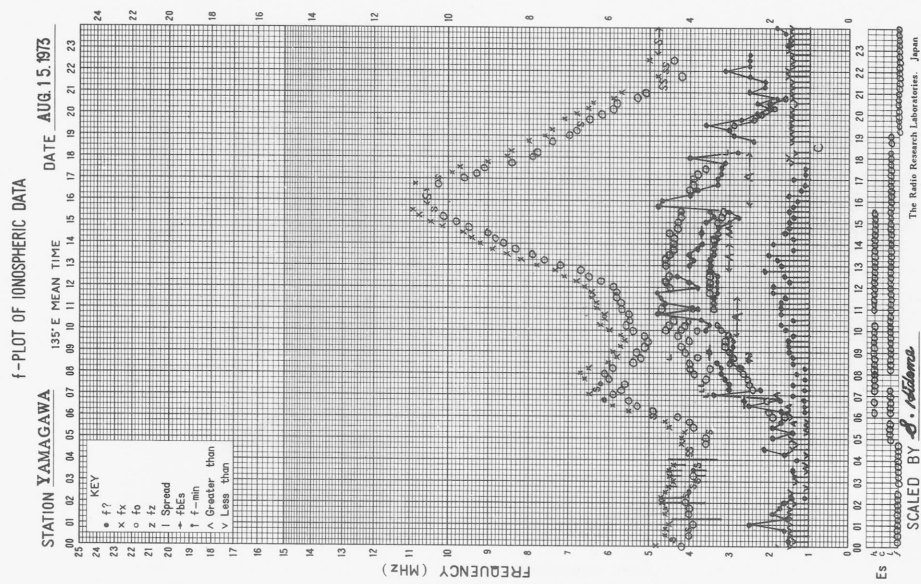
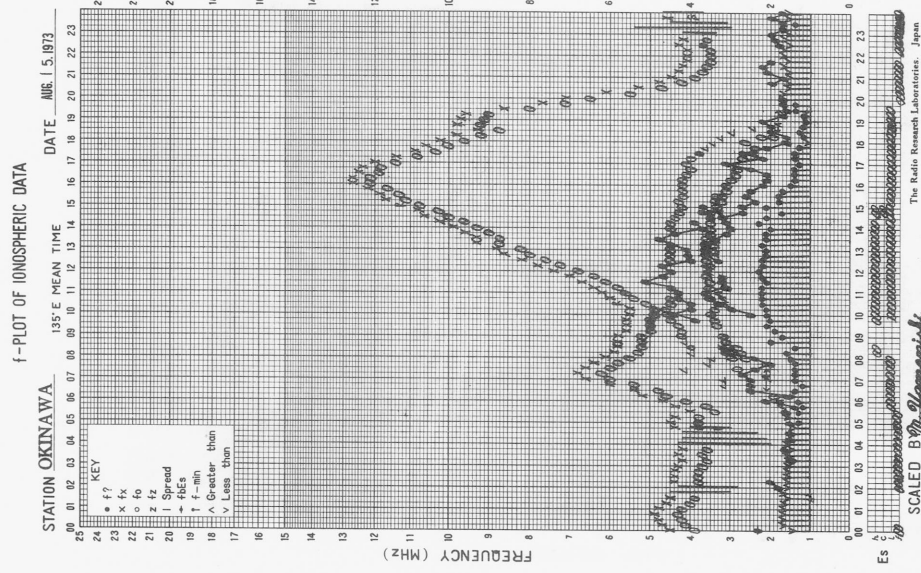
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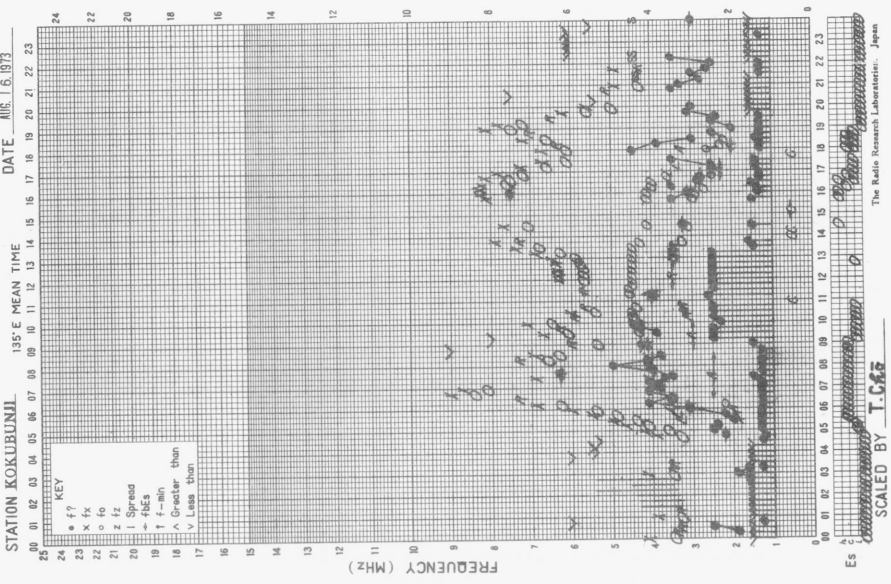
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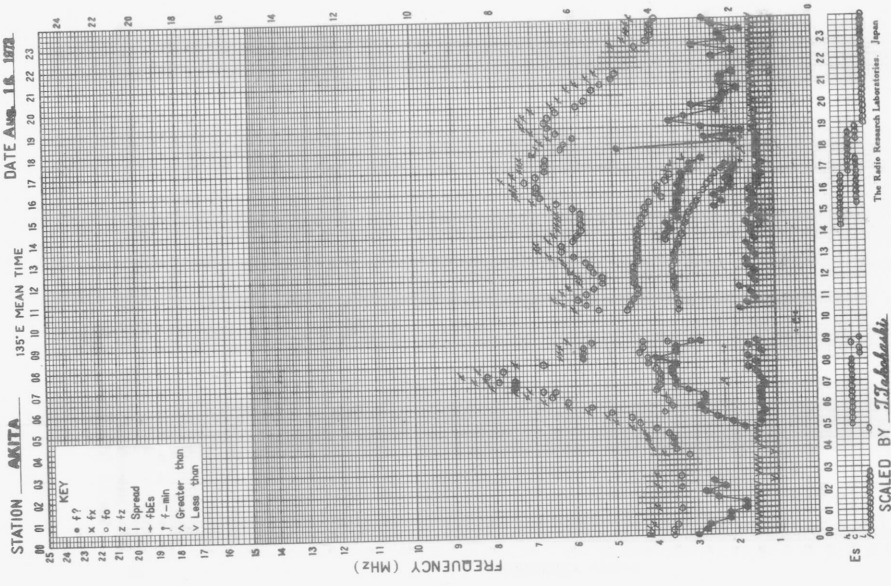
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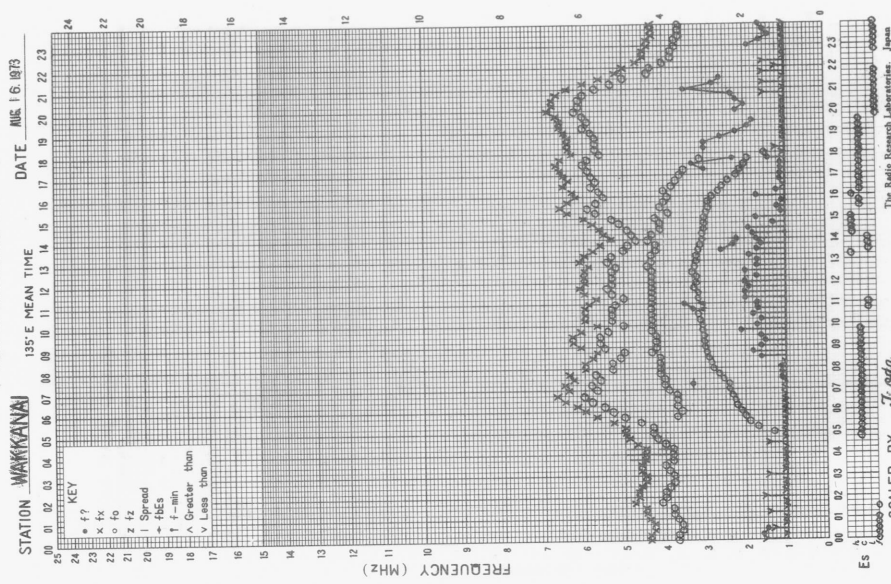
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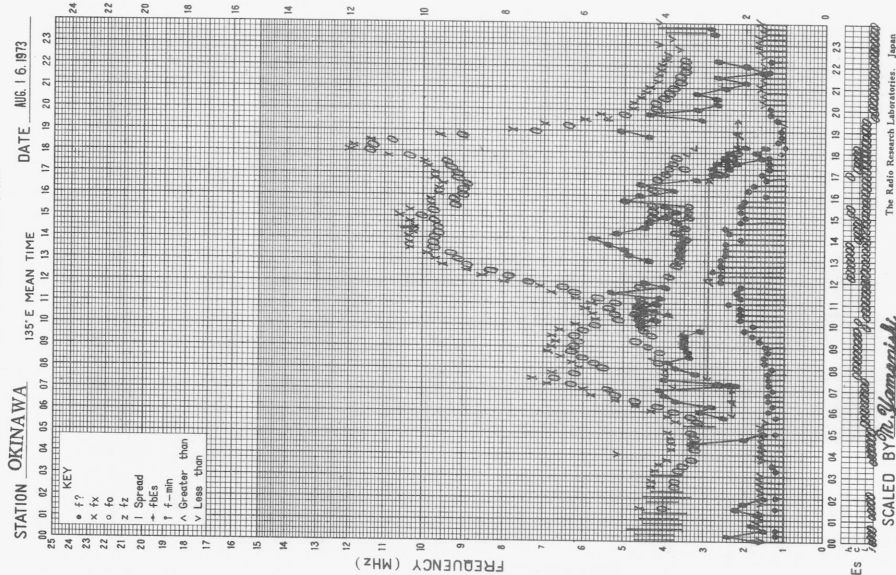
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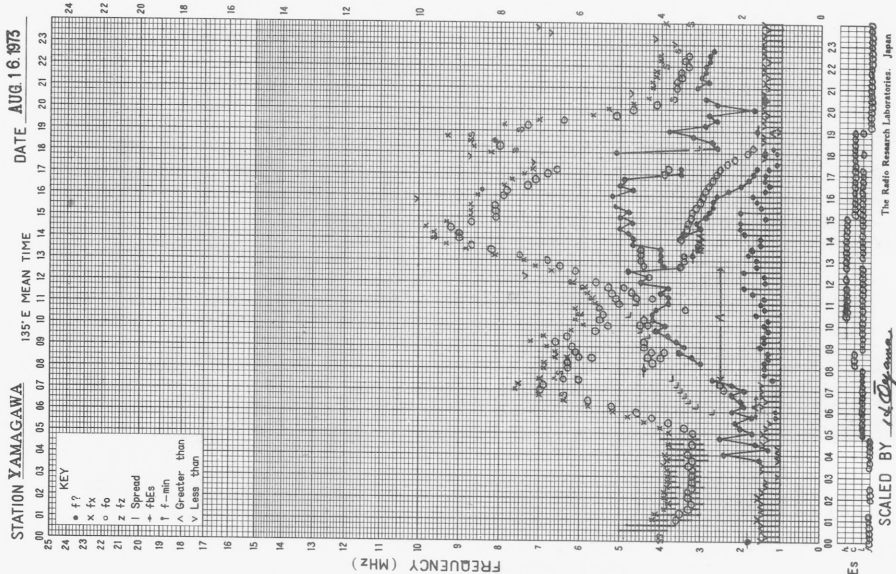
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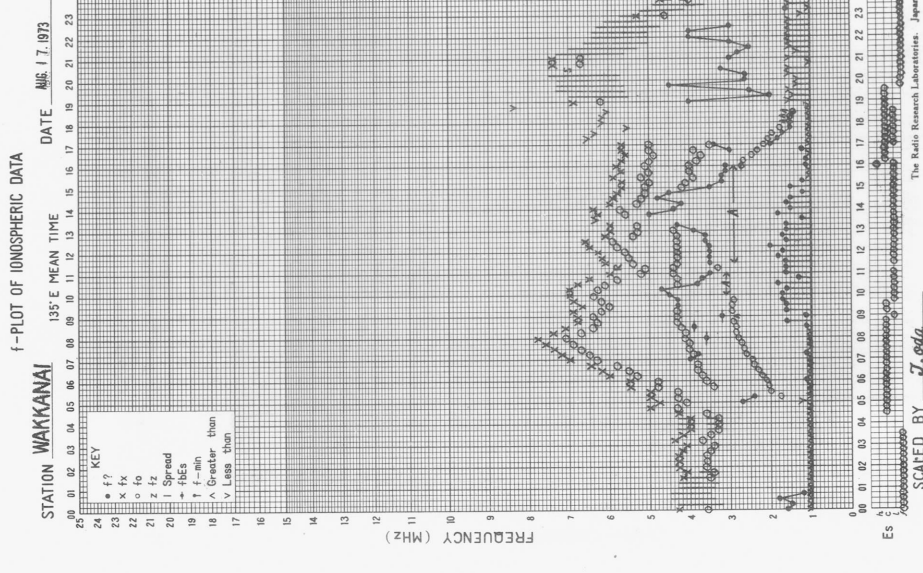
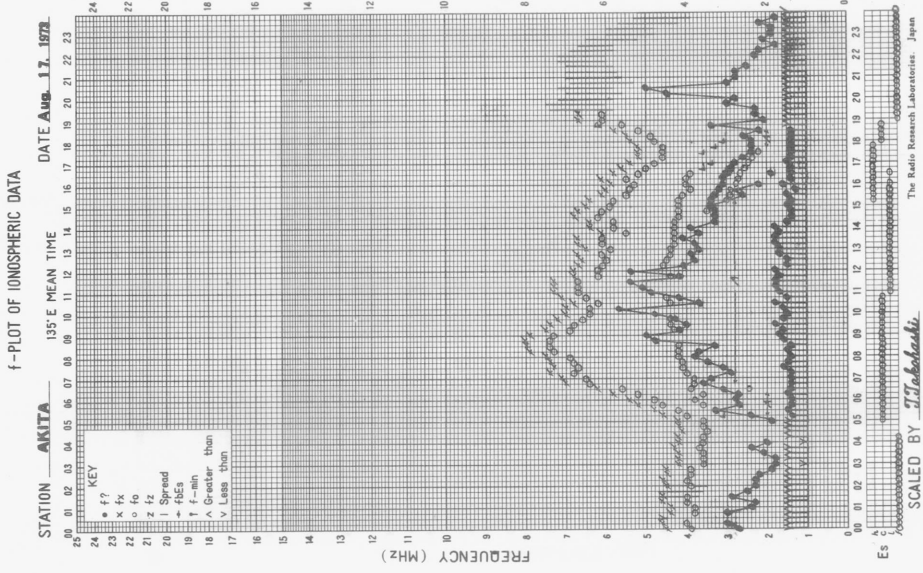
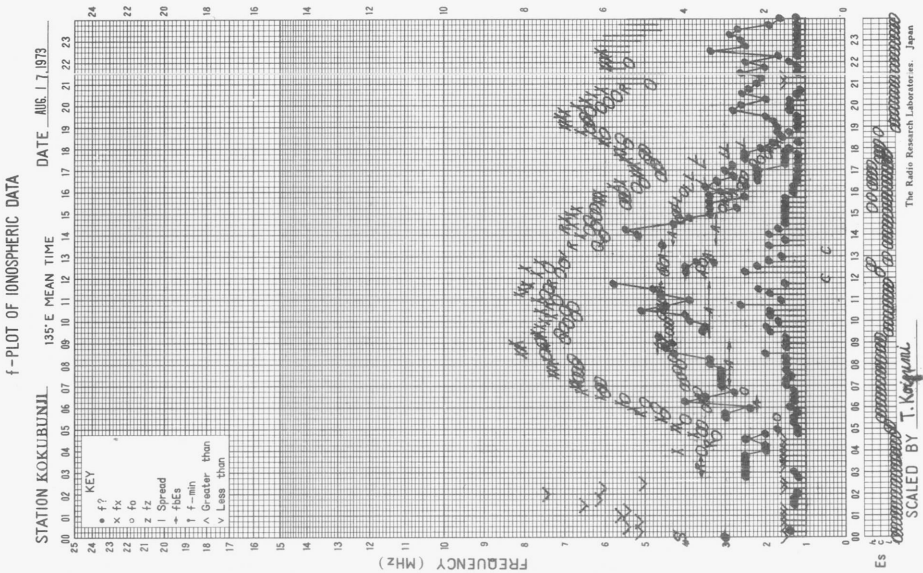


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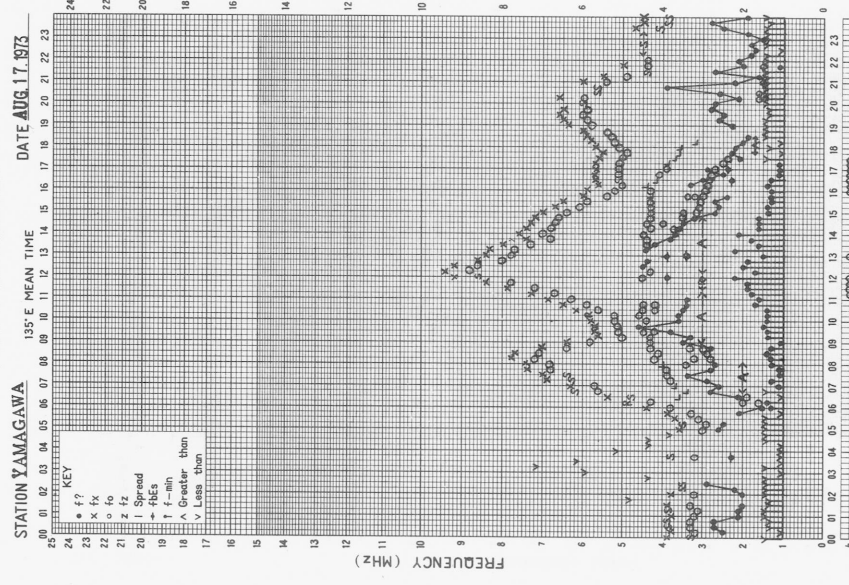


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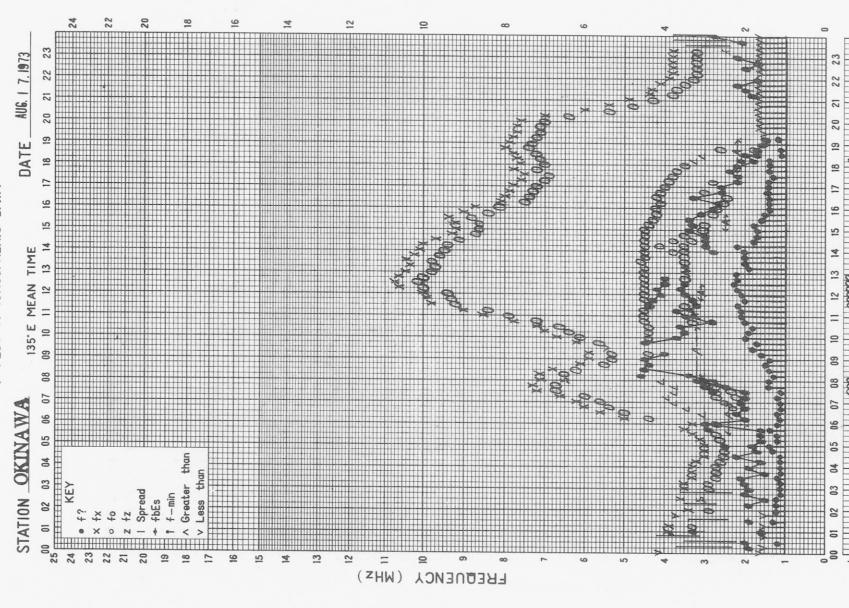
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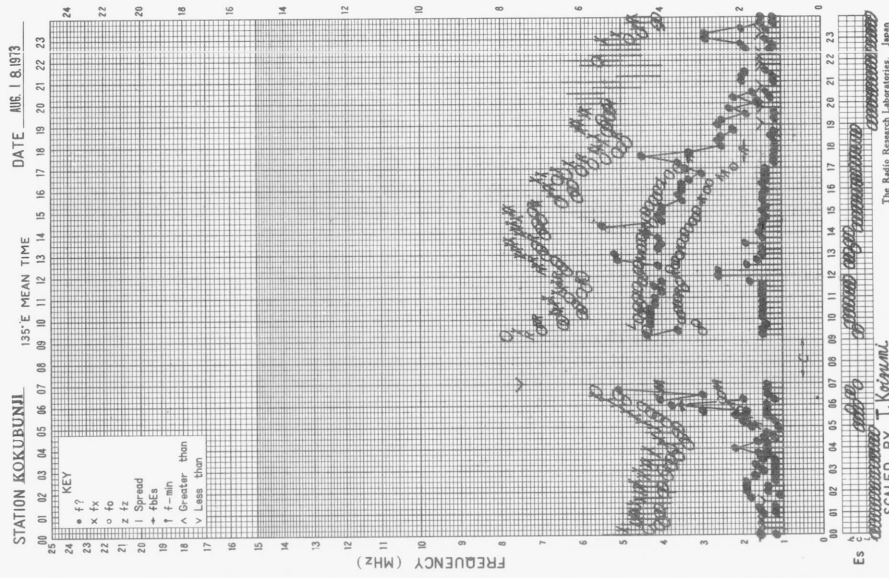
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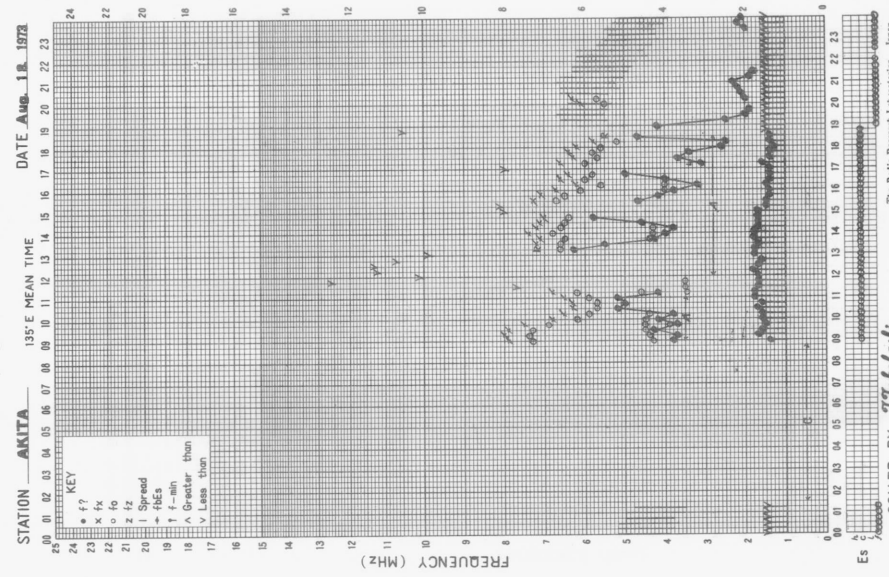
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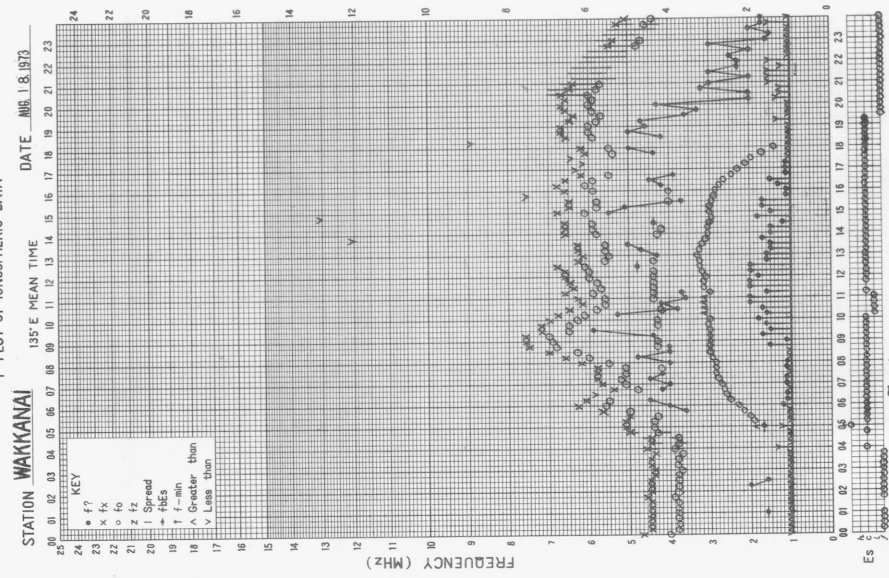
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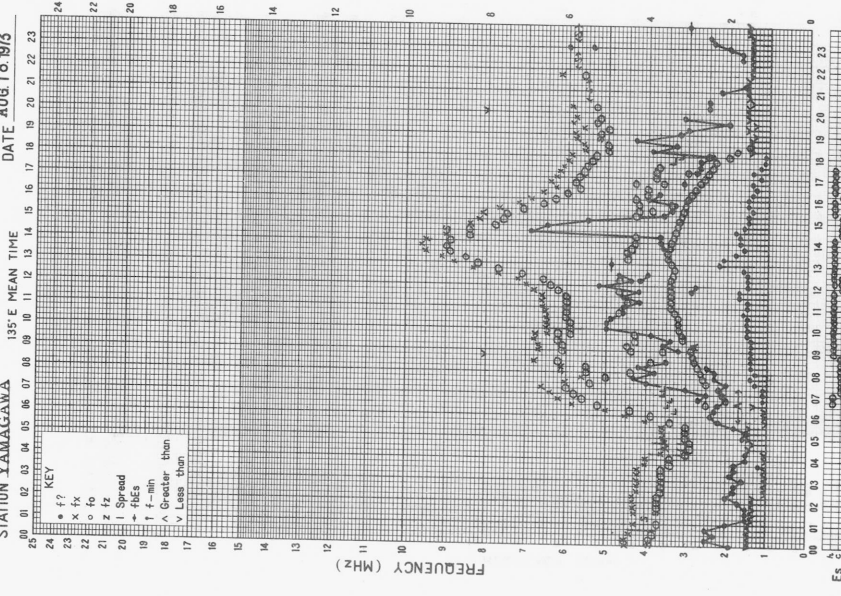


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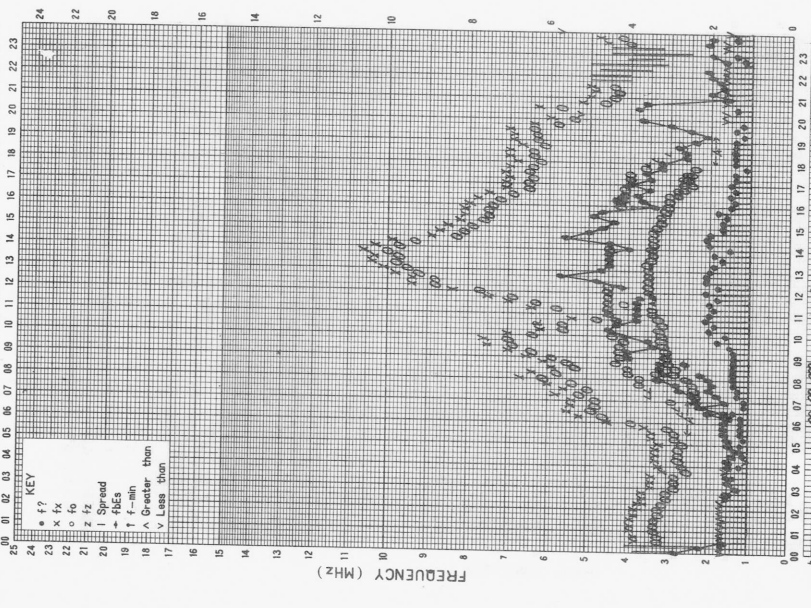
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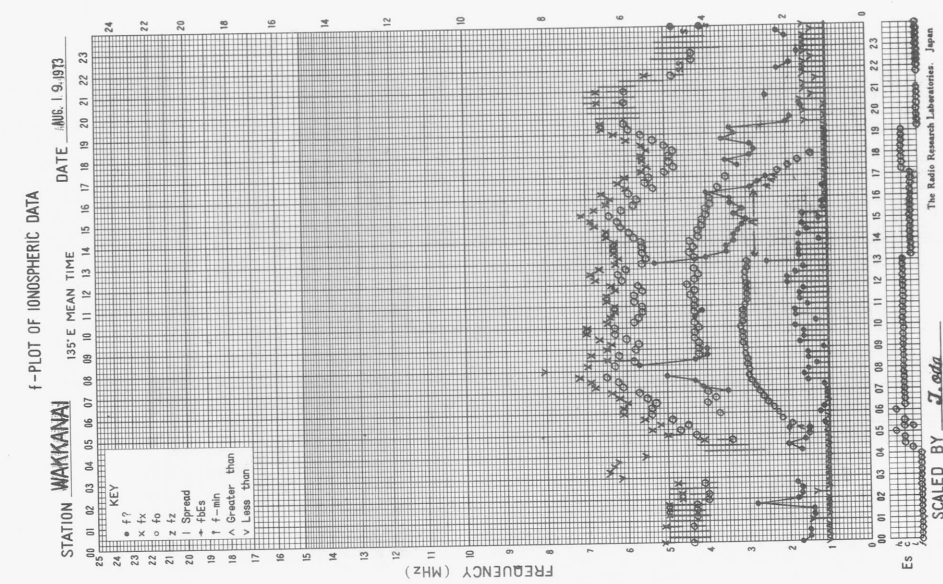
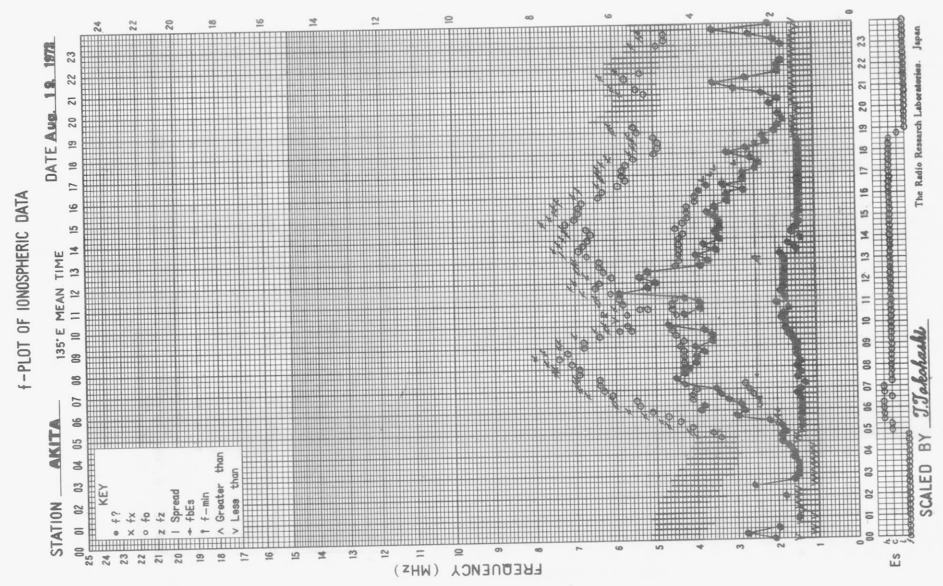
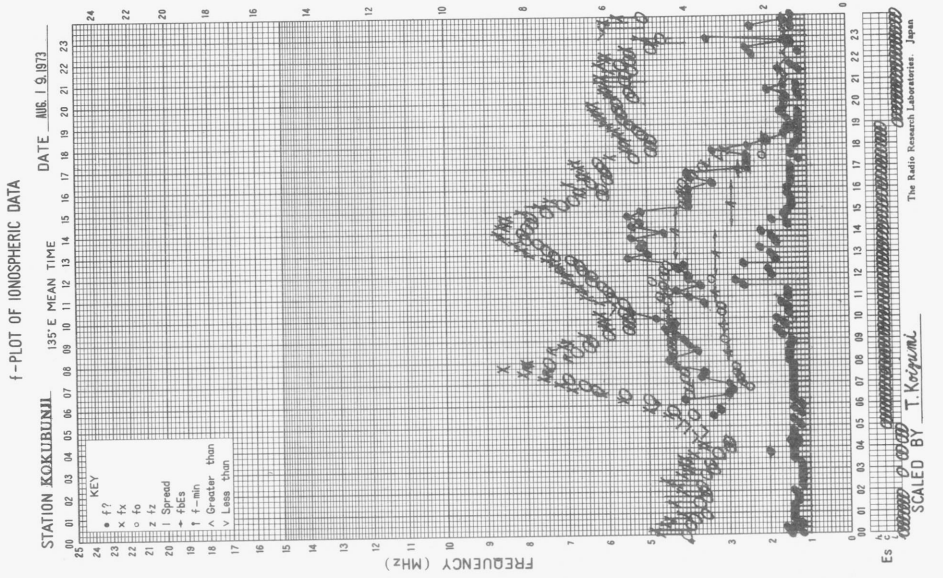
STATION YAMAGAWA DATE AUG. 18, 1973



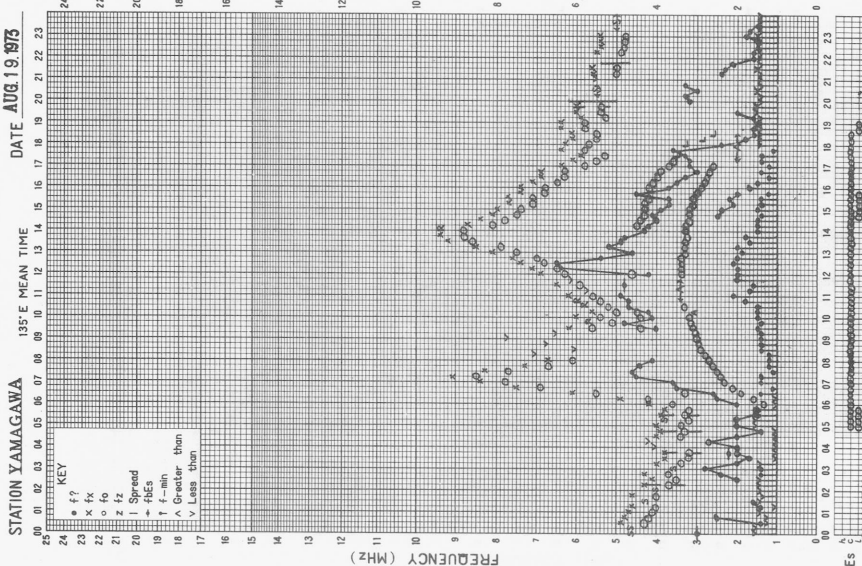
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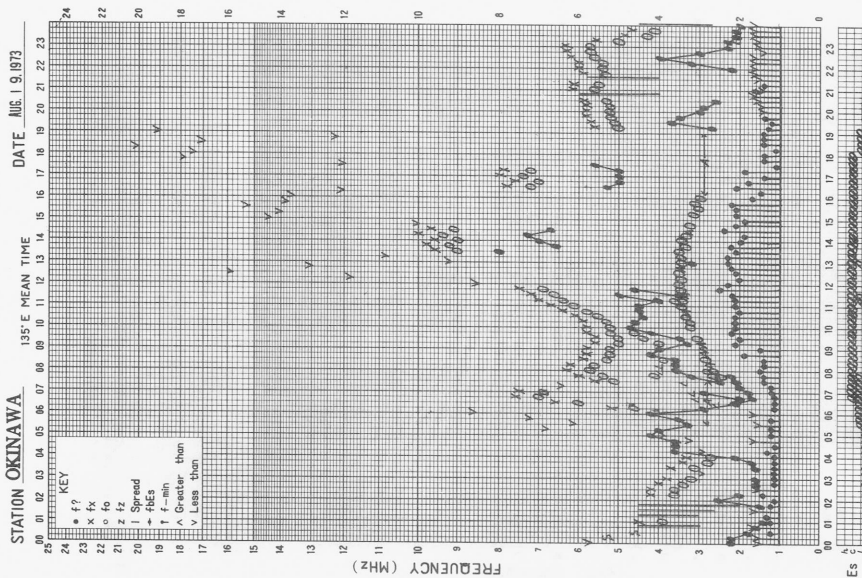




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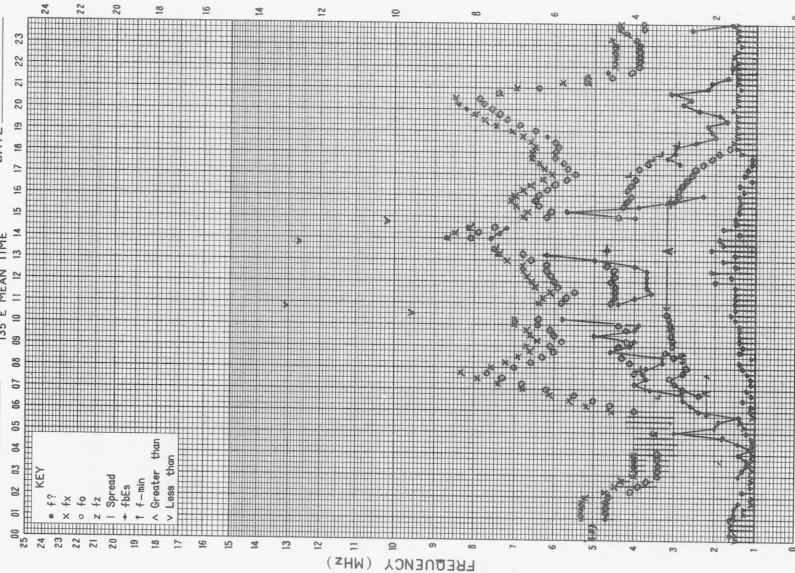


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STATION YAMAGAWA

135° E MEAN TIME

DATE AUG. 20, 1973



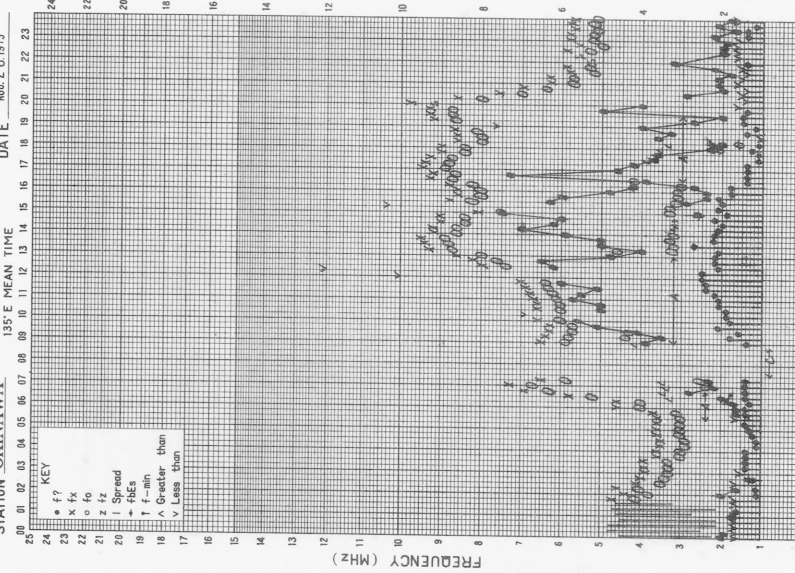
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The Radio Research Laboratories, Japan
SCALED BY S. S. Saitama

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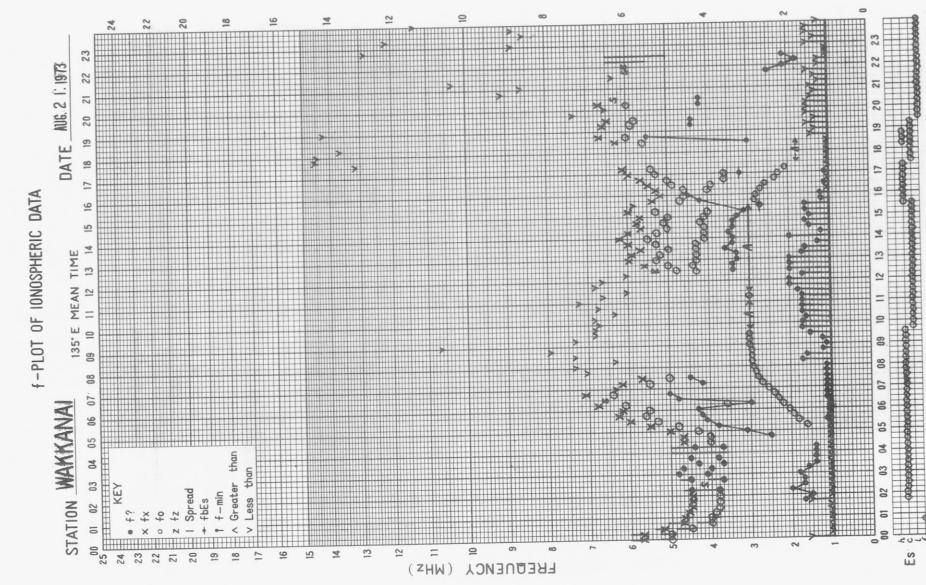
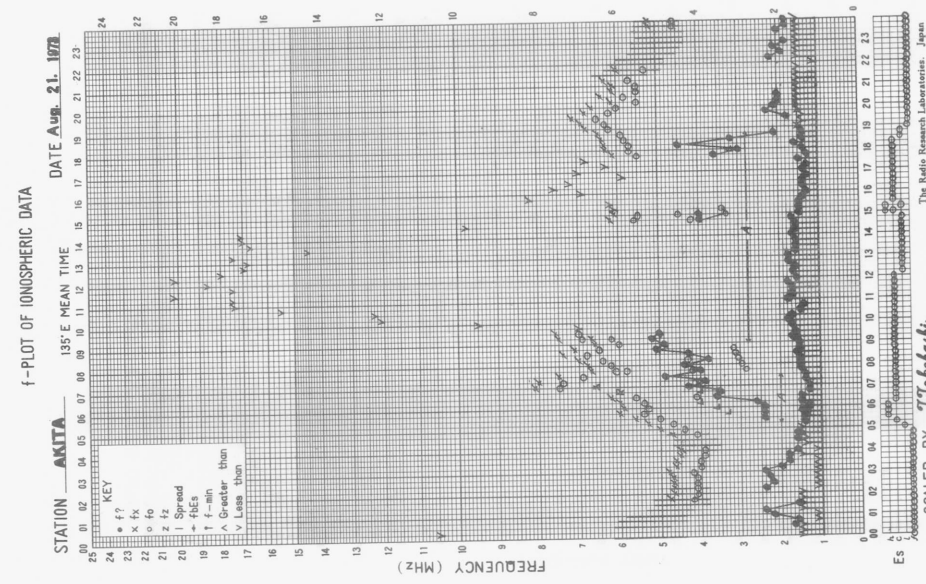
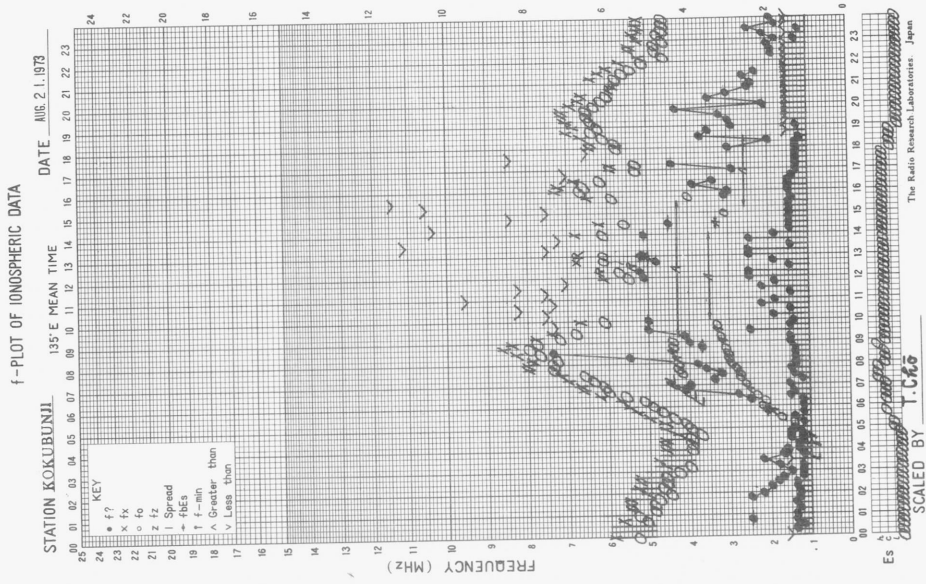
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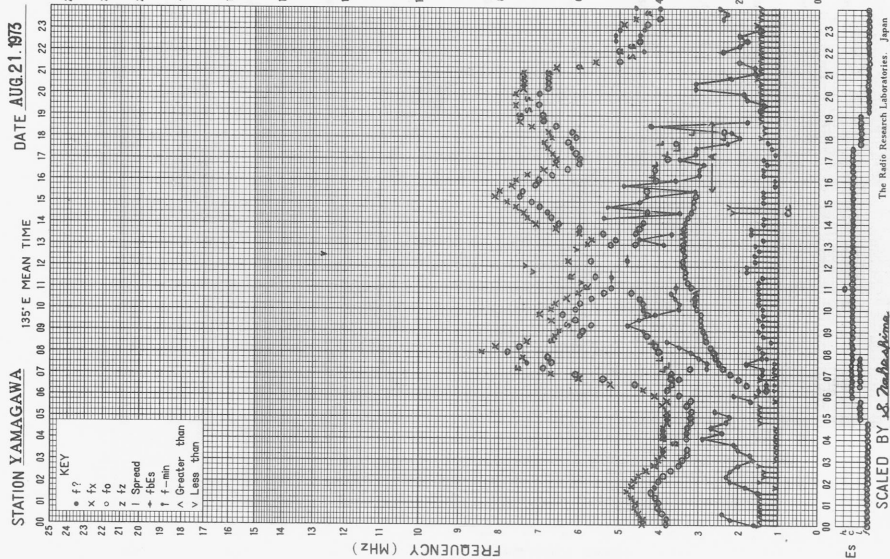
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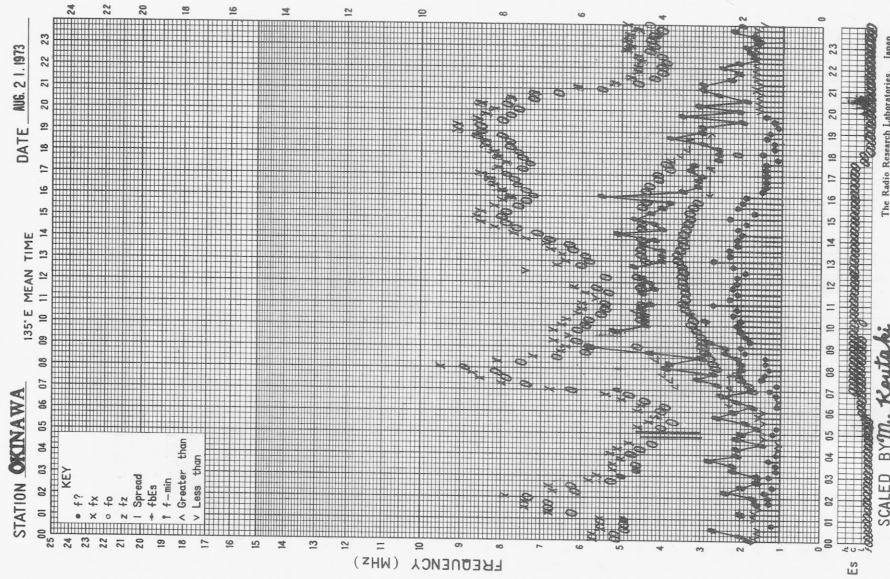
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SCALED BY M. Kenta



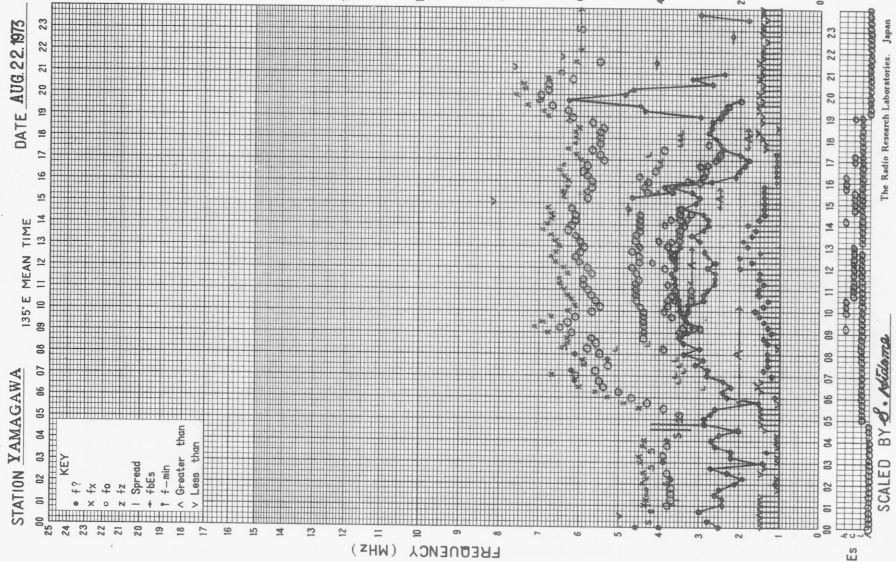
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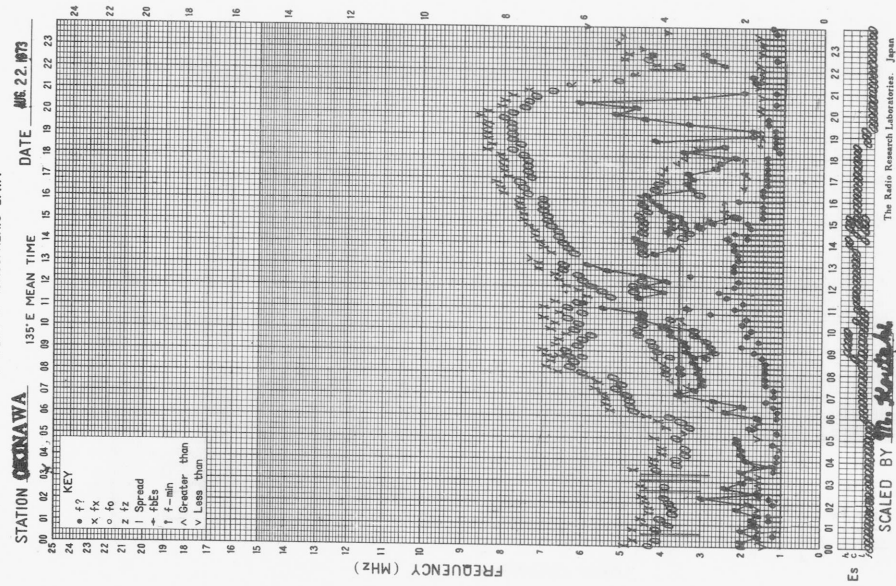
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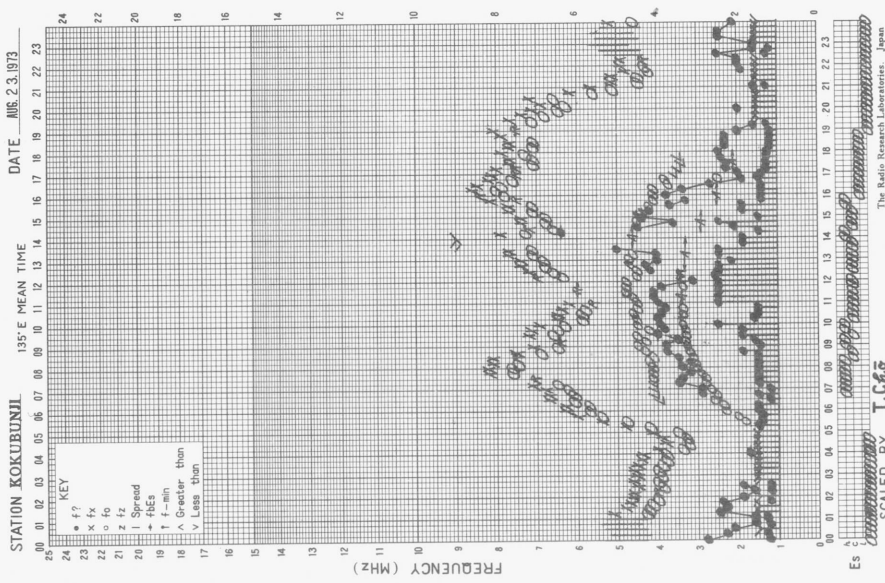
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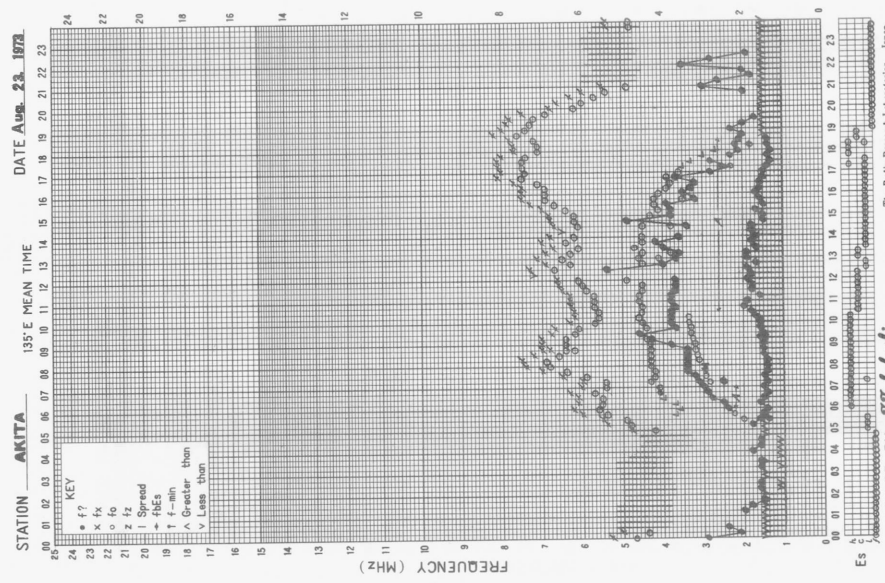
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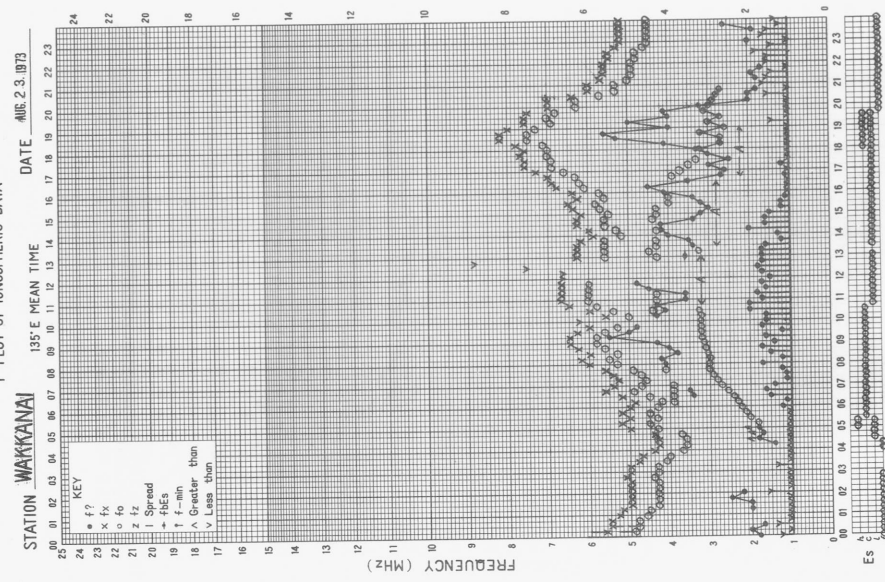
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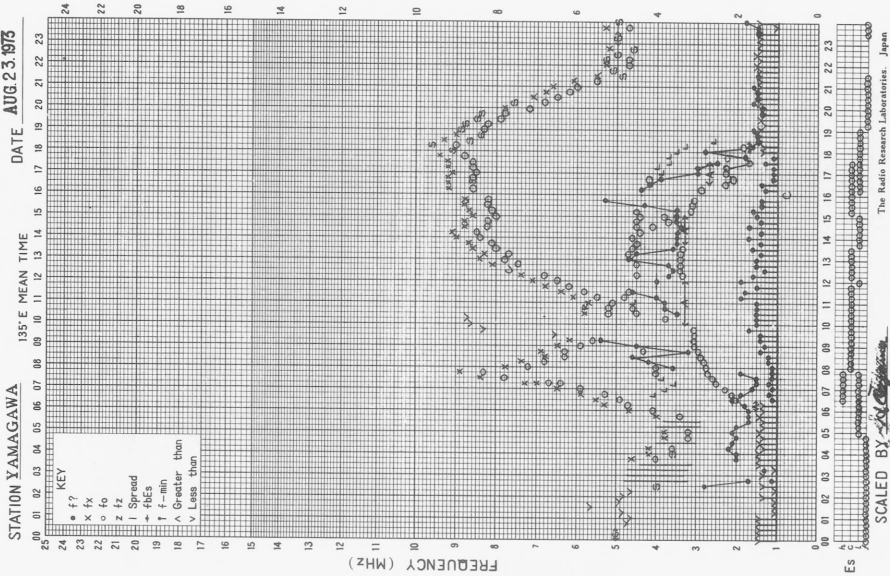
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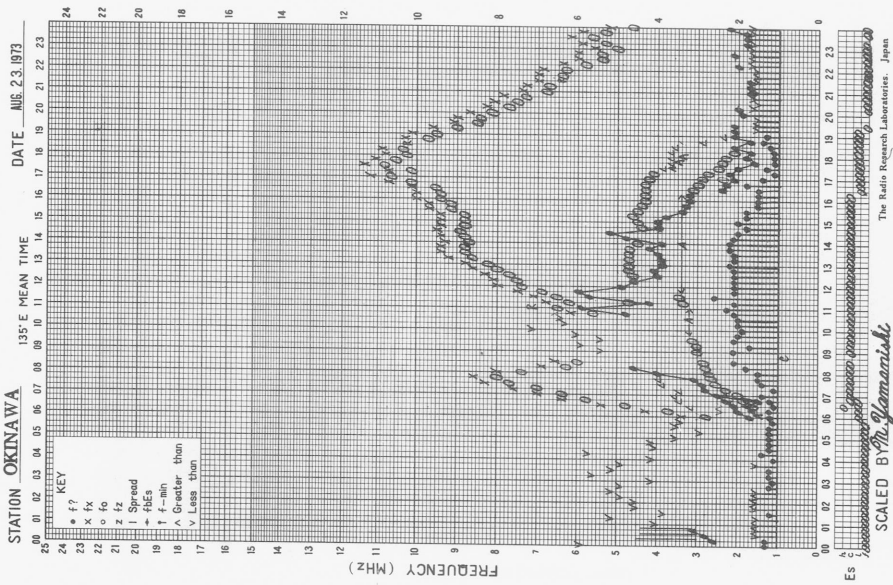
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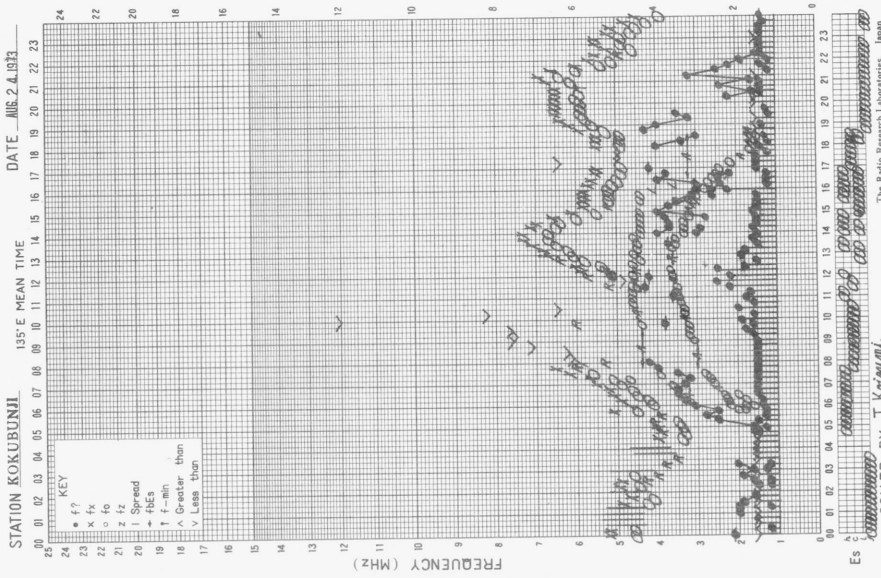
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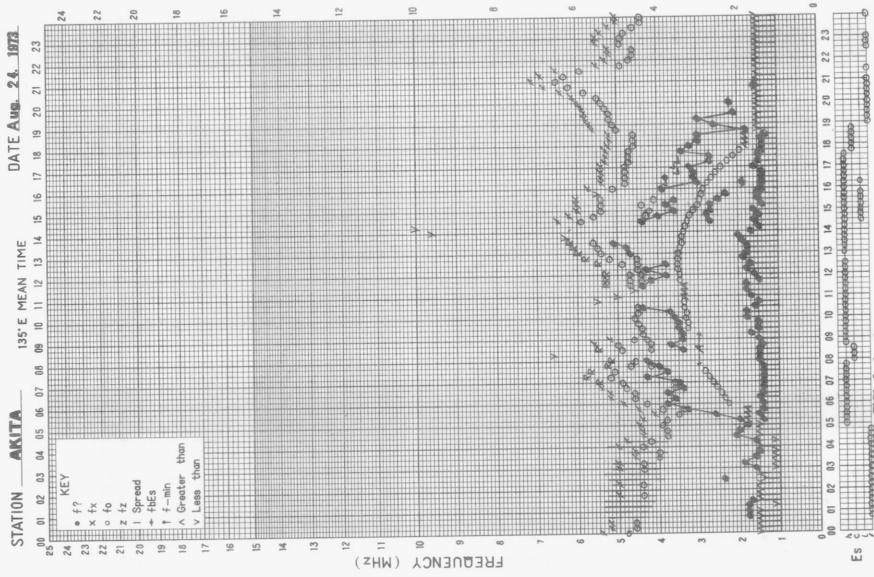
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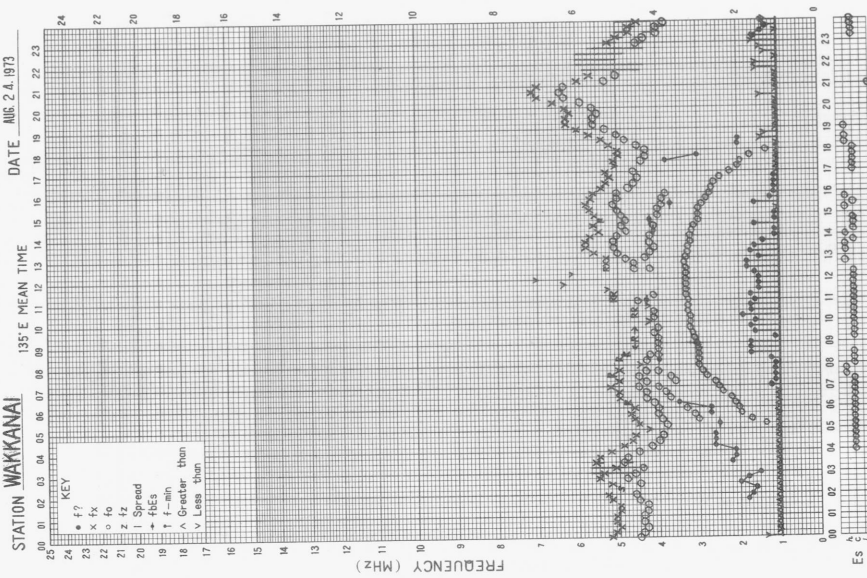
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f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

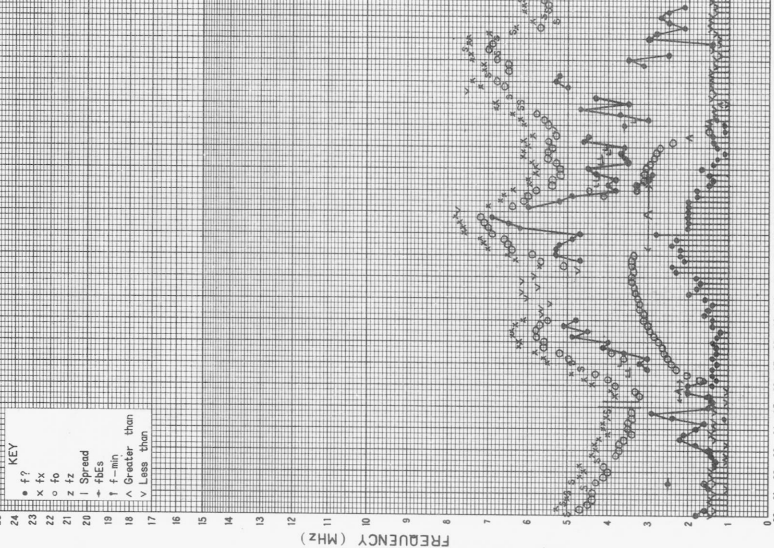


f-plot of IONOSPHERIC DATA

STATION YAMAGAWA DATE AUG 24 1973

135°E MEAN TIME

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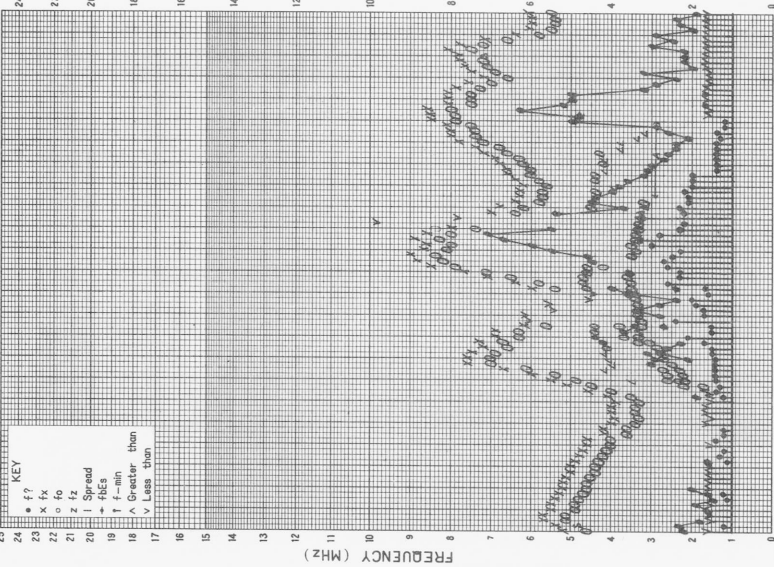
The Radio Research Laboratories, Japan

f-plot of IONOSPHERIC DATA

STATION OKINAWA DATE AUG 24 1973

135°E MEAN TIME

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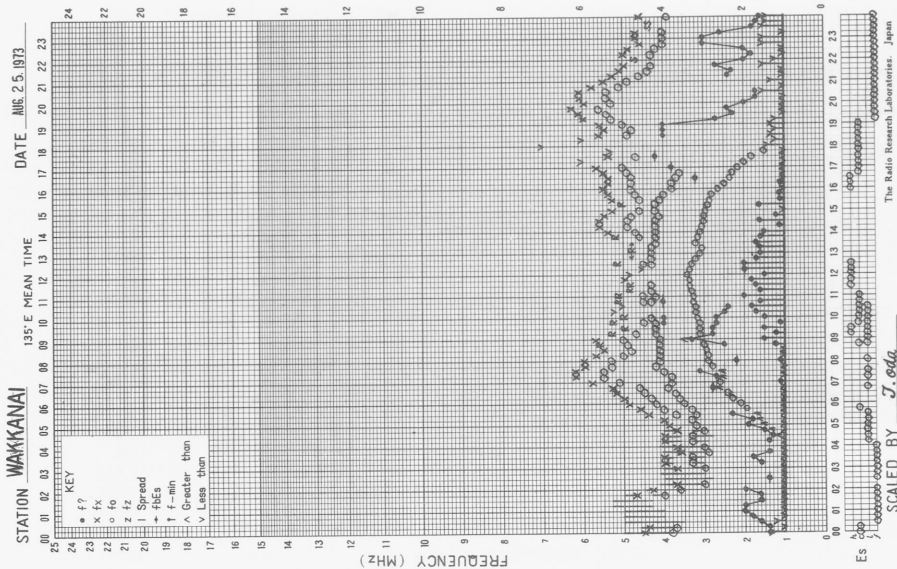


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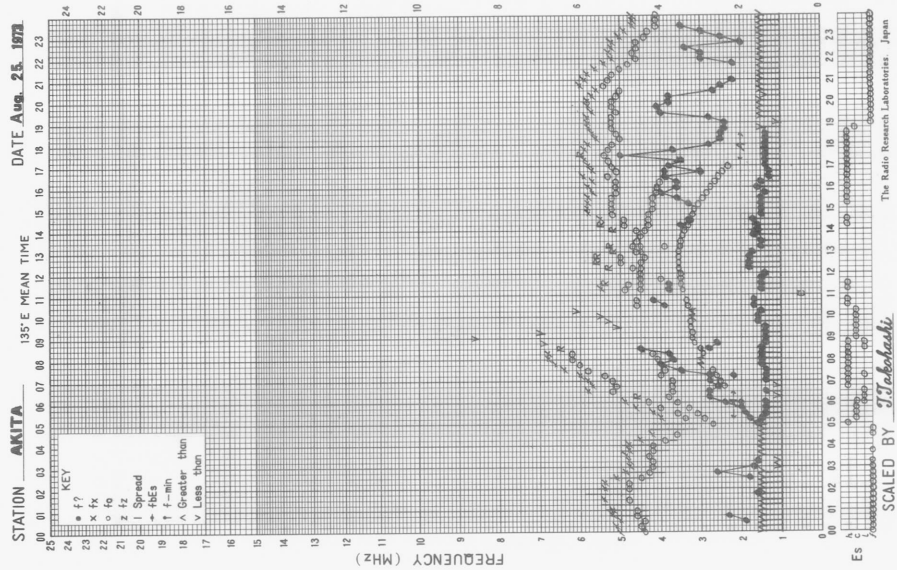
SCALED BY M. Kawai

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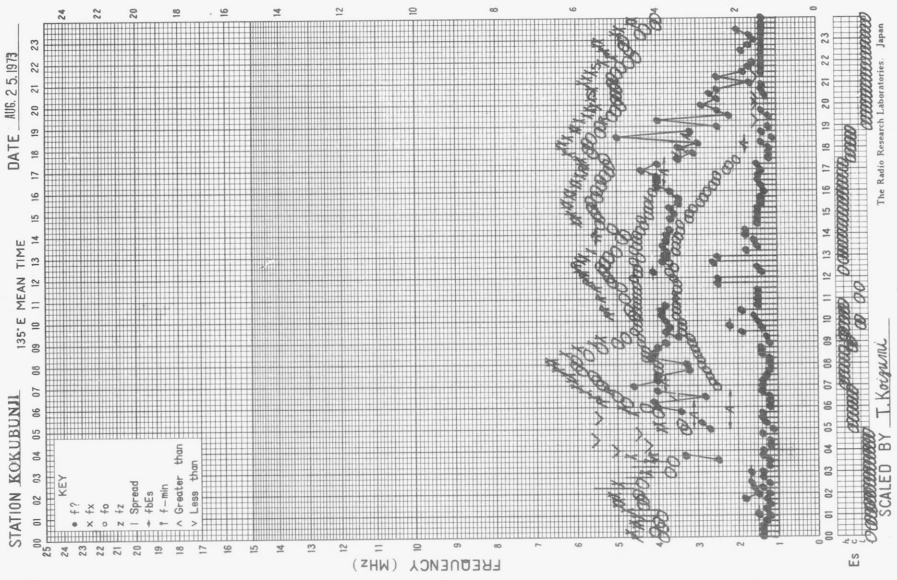
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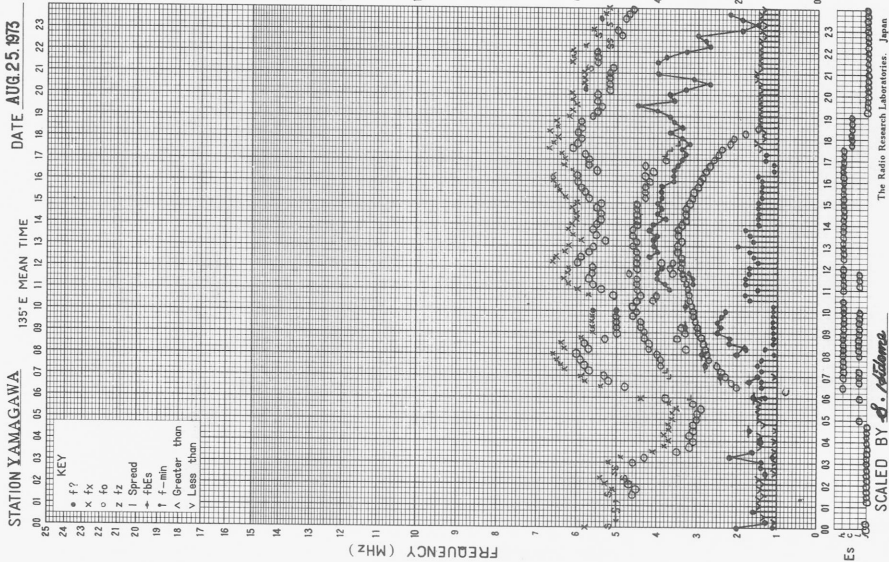
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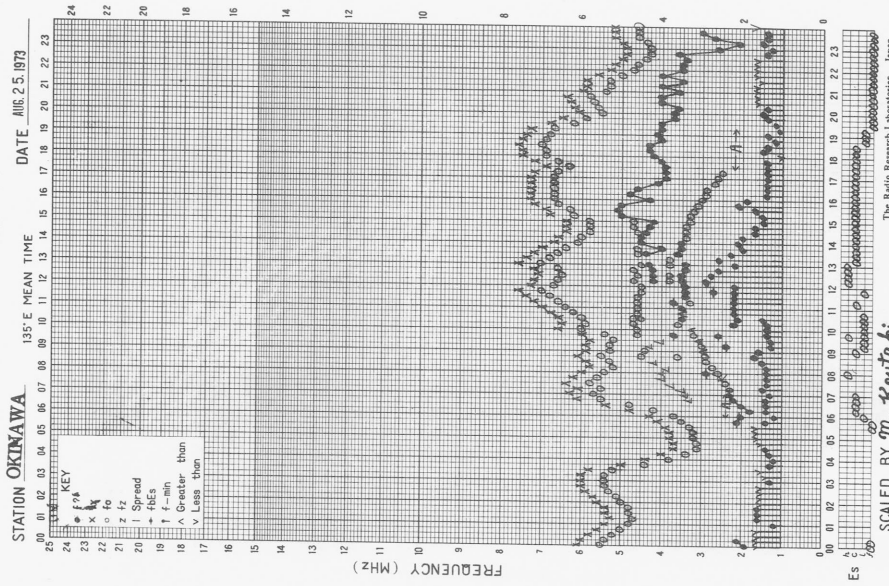
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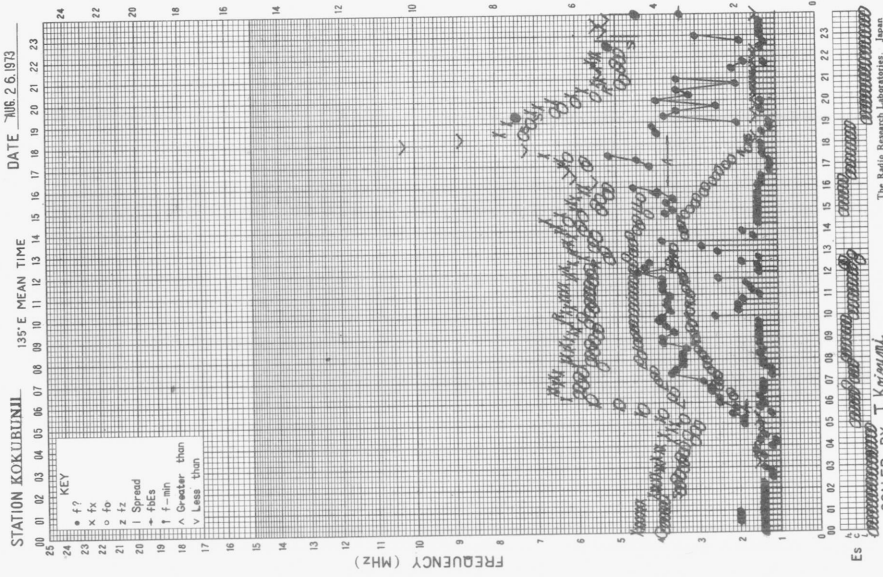
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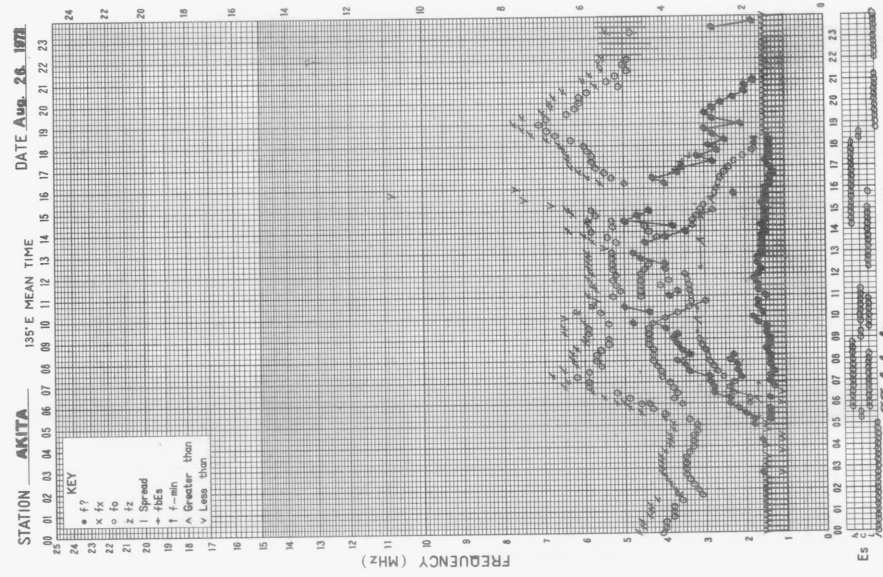
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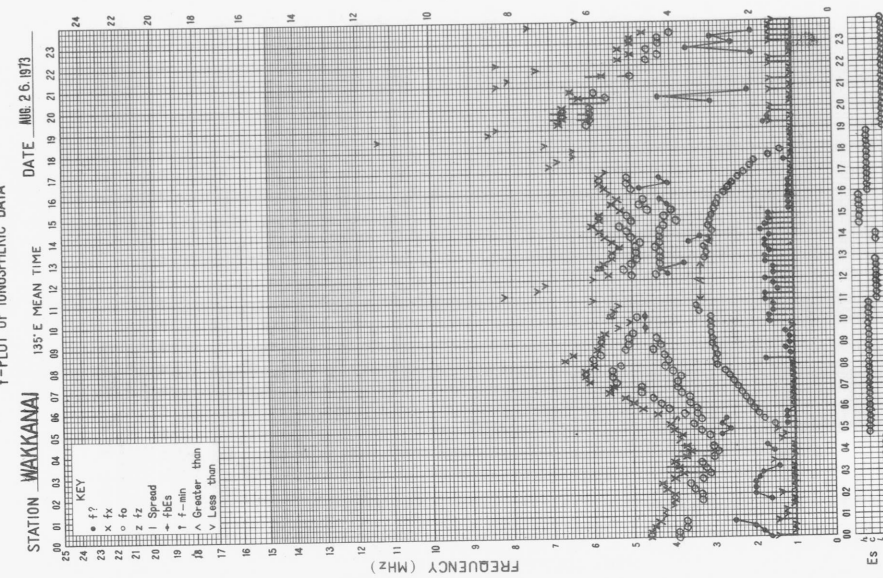
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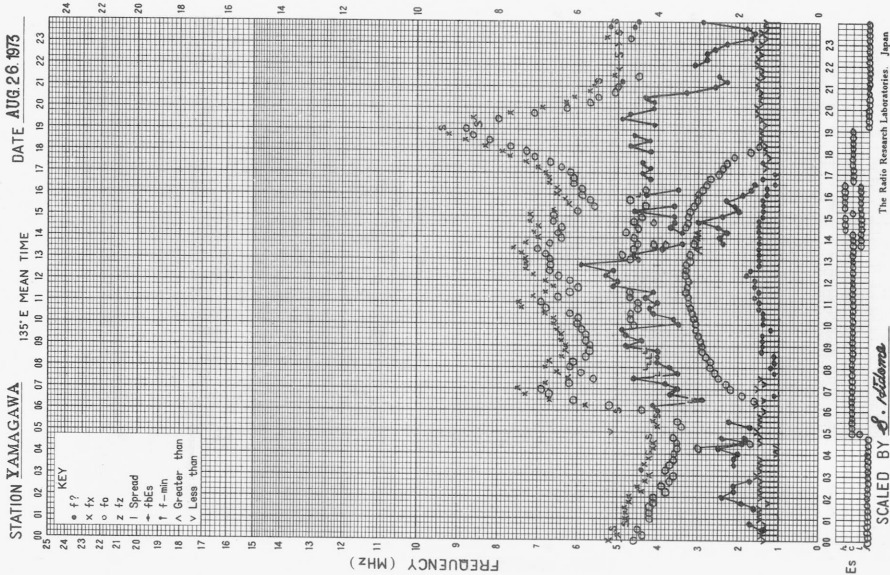
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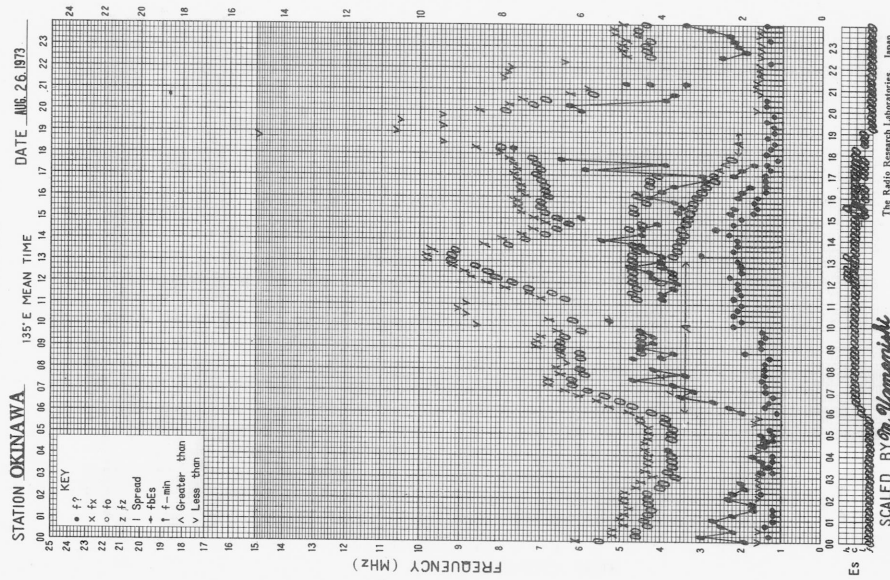
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f-PLOT OF IONOSPHERIC DATA

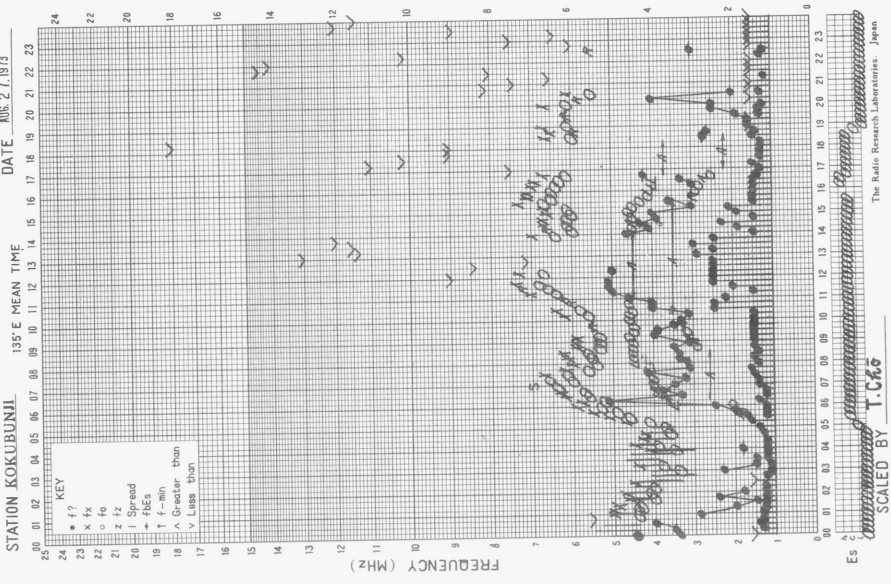


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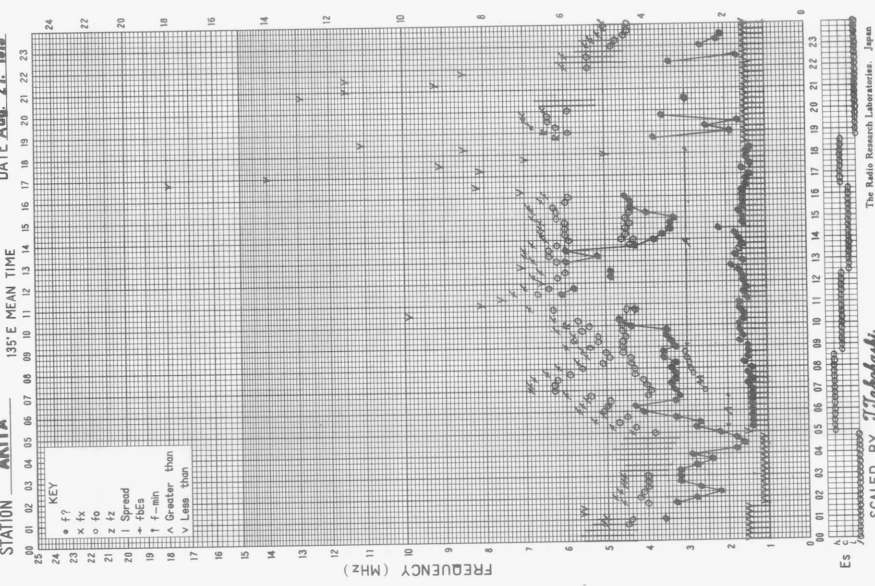
STATION KOKUBUNJI DATE MAR. 27, 1973



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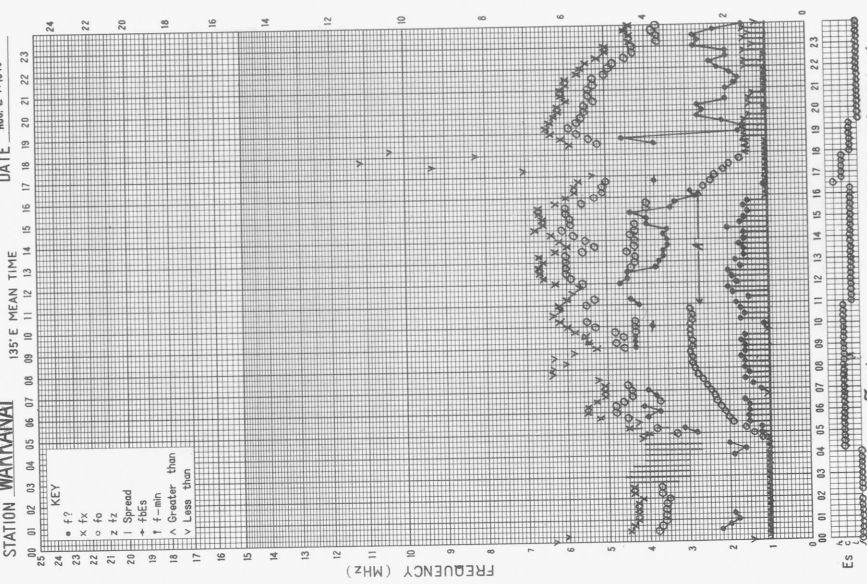
STATION AKITA DATE Aug. 27, 1972



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The Radio Research Laboratories, Japan
SCALED BY J. T. G.

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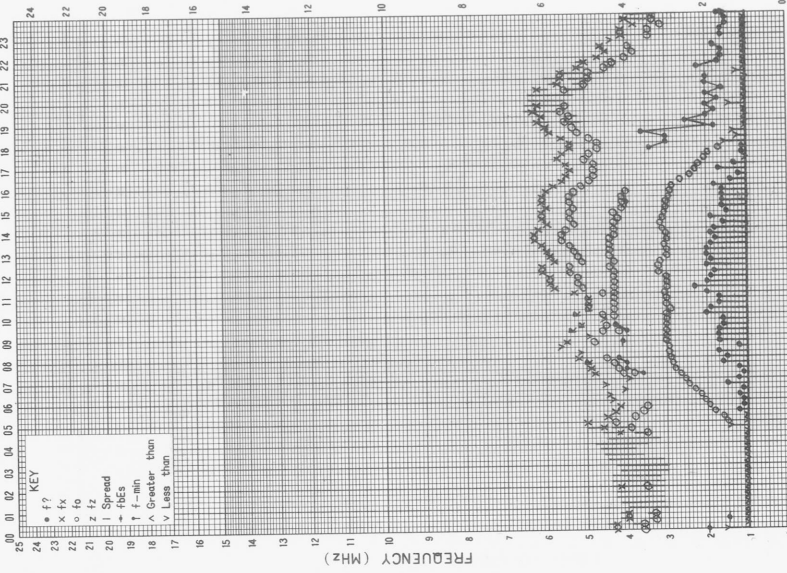


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f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI DATE AUG. 29. 1973

135°E MEAN TIME

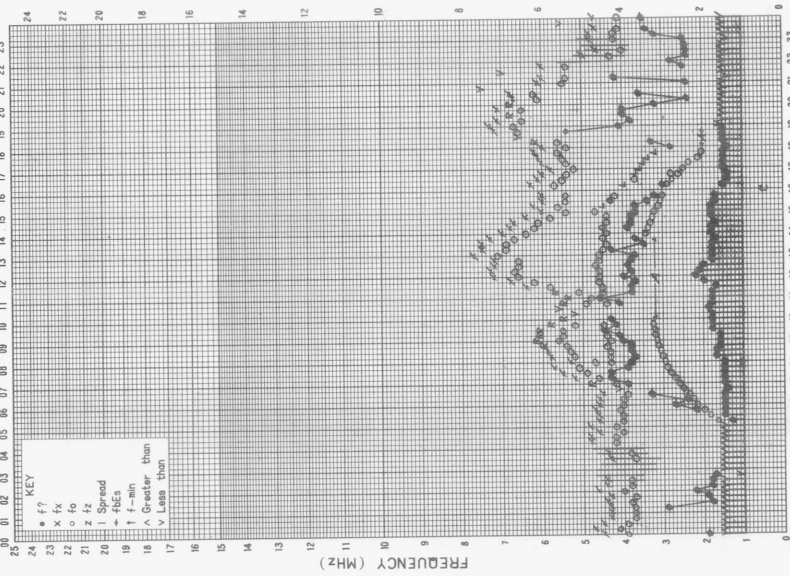


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The Radio Research Laboratories, Japan
SCALED BY J. 694a

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STATION AKITA DATE AUG. 29. 1973

135°E MEAN TIME

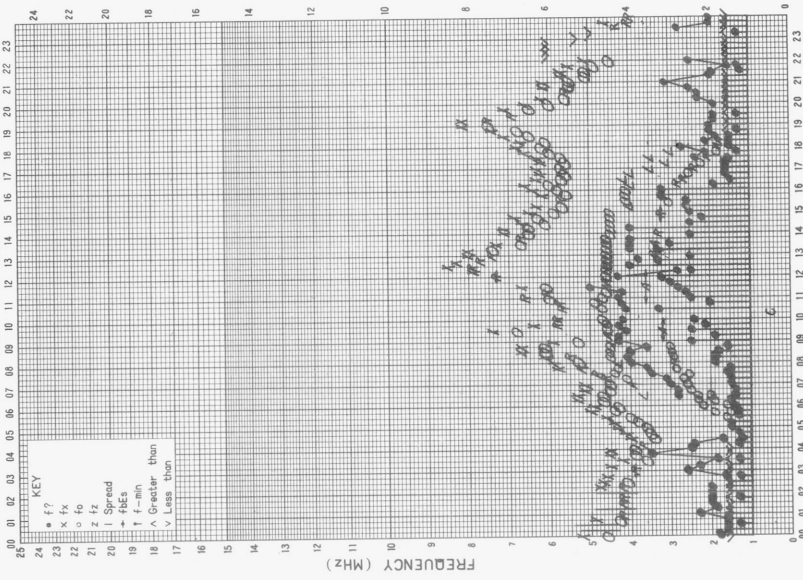


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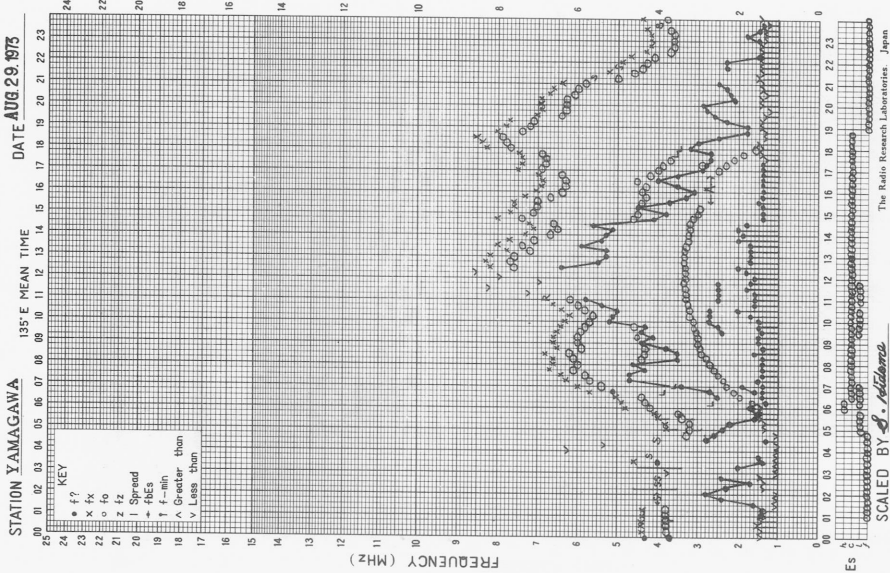
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135°E MEAN TIME

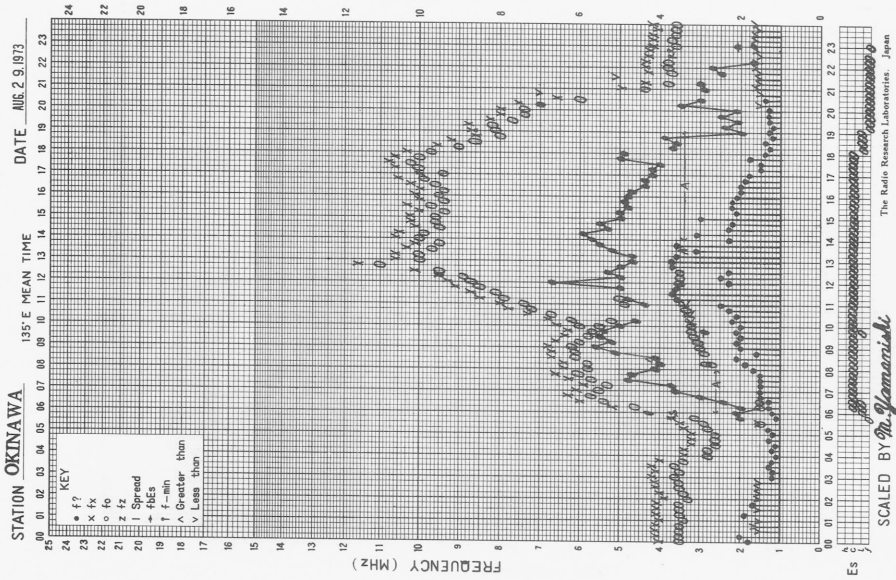


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The Radio Research Laboratories, Japan
SCALED BY I. C66

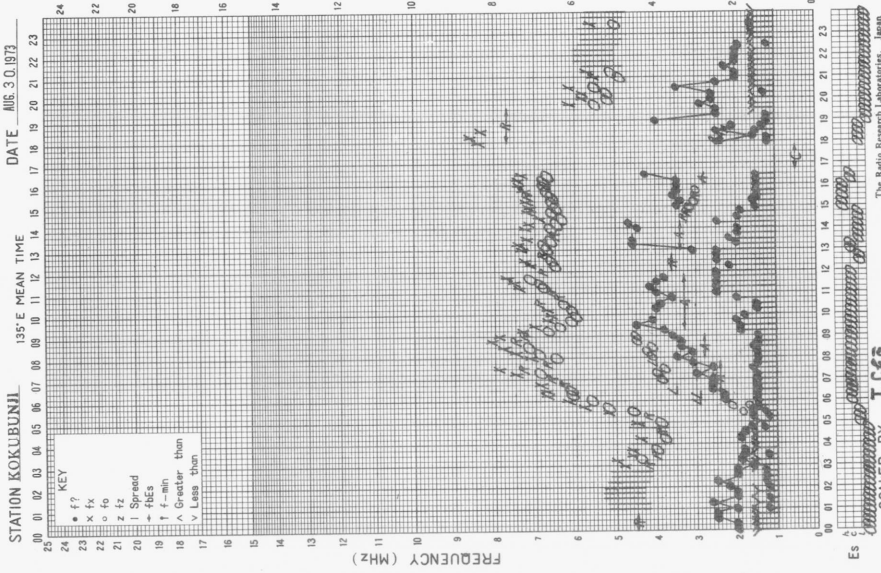
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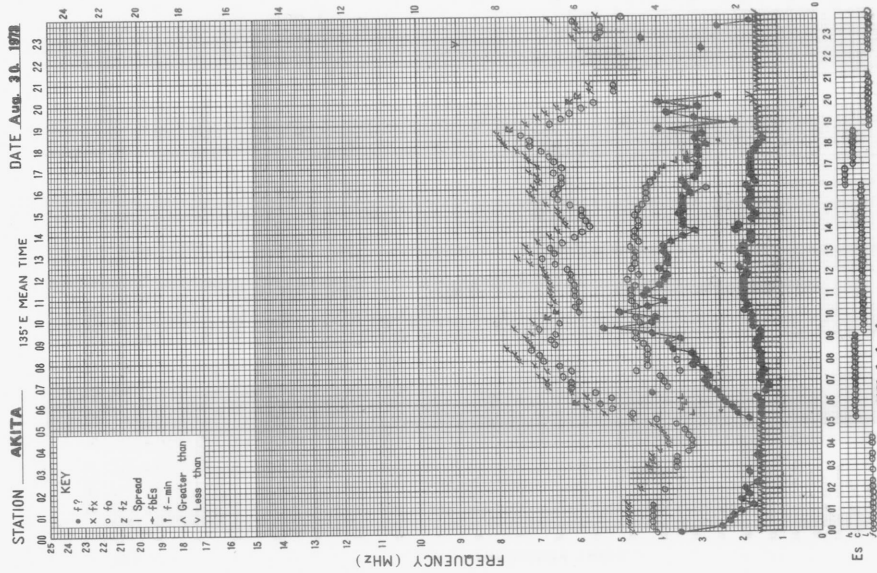
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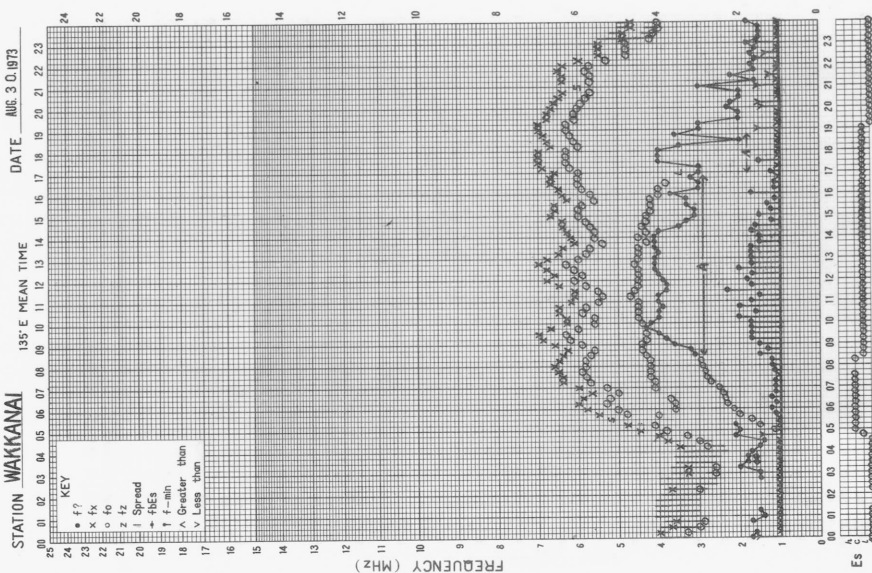
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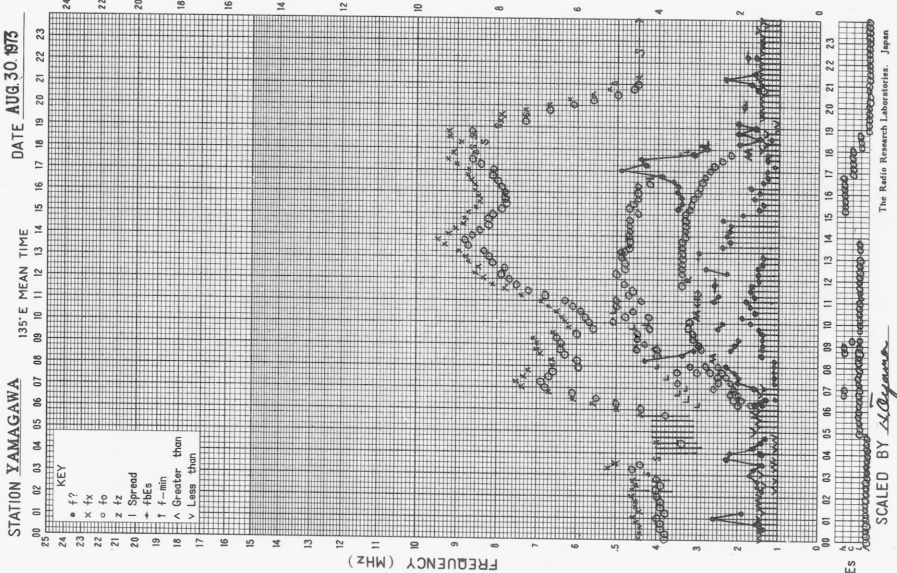
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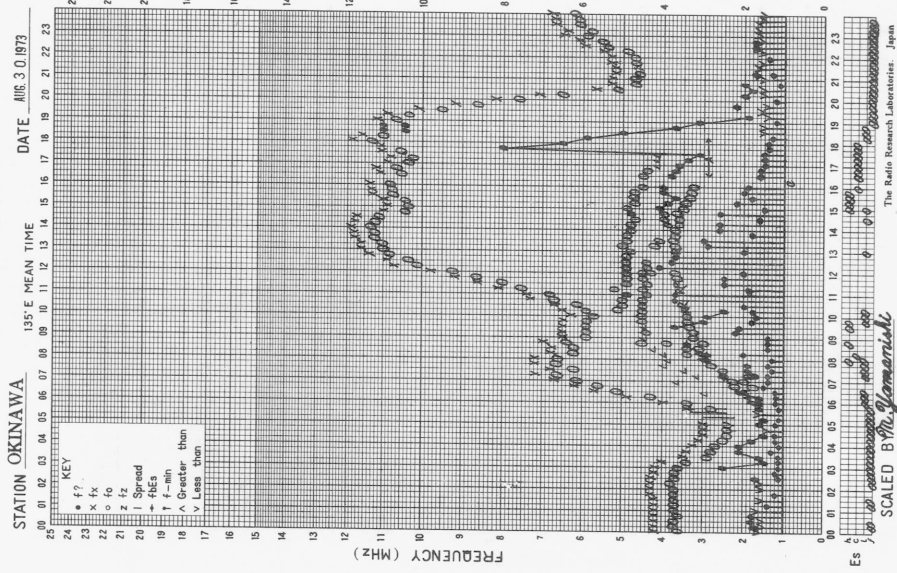
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f-PLOT OF IONOSPHERIC DATA

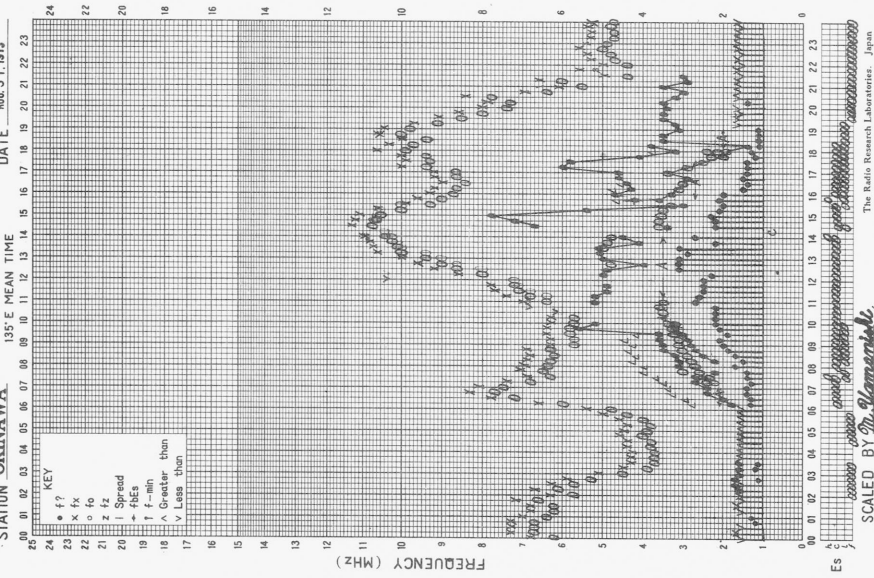


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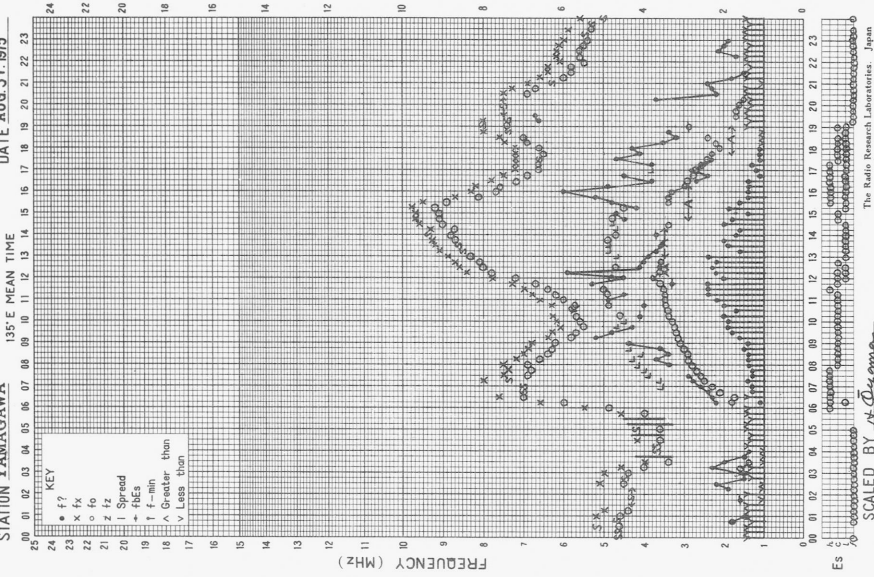
f- PLOT OF IONOSPHERIC DATA

STATION OKINAWA DATE AUG. 31, 1973



f- PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA DATE AUG. 31, 1973



SOLAR RADIO EMISSION

<u>Flux Density and Variability</u>										
Month: August 1973						Frequency: 200 MHz				
Flux density $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$						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	6	6	6	6	6	0	0	0	0	0
2	6	7	6	7	6	0	0	0	0	0
3	6	6	6	5	6	0	0	*	0	0
4	6	5	5	5	5	0	*	*	0	*
5	5	6	6	5	5	0	0	*	0	0
6	6	7	7	9	6	0	0	*	0	0
7	8	6	6	7	7	1	0	0	0	0
8	8	7	6	6	6	0	0	0	0	0
9	6	6	6	6	6	0	0	0	0	0
10	6	6	6	6	6	0	0	*	0	0
11	6	6	6	5	6	0	0	0	0	0
12	6	7	8	6	6	0	0	0	0	0
13	6	6	6	6	6	0	0	0	0	0
14	6	6	6	6	6	0	0	0	0	0
15	6	6	6	5	6	0	0	0	0	0
16	6	6	6	6	6	0	0	0	0	0
17	6	6	6	6	6	0	0	0	0	0
18	6	6	6	6	6	0	0	0	0	0
19	6	6	5	5	6	0	0	*	0	0
20	6	5	6	6	6	0	0	0	0	0
21	6	6	6	6	6	0	0	0	0	0
22	6	6	6	6	6	0	0	*	0	0
23	6	6	6	5	6	0	0	*	0	0
24	5	5	5	6	5	0	0	0	0	0
25	6	6	6	6	6	0	0	0	0	0
26	6	7	6	6	6	0	0	0	0	0
27	7	6	5	6	6	0	*	*	0	0
28	7	7	(7)	7	7	0	0	(0)	0	0
29	7	7	-	7	7	0	*	-	0	0
30	8	8	9	8	8	0	0	0	0	0
31	8	8	9	15	8	0	0	1	1	0

Note No observations during the following periods:

10th 1950- 2130 28th 0500- 0735
 27th 0700- 0725 29th 0735- 2210

*: interference.

SOLAR RADIO EMISSION

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

Note No observations during the following periods:

1st	0400-	0500	10th	1950-	2130
2nd	0400-	0500	11th	0800-	0900
4th	0400-	0425	14th	0800-	0900
4th	0500-	0515	15th	0200-	0300
5th	0400-	0420	15th	0400-	0710
5th	0500-	0515	18th	0635-	0800
5th	0800-	0900	27th	0555-	0615
8th	0400-	0500	29th	0735-	0815
9th	0800-	0900	29th	1950-	2215
10th	0800-	0815			

Distinctive Events
(single-frequency observations)

Month: August 1973

Observing station: Hiraiso

Normal observing period: 1950 - 0930 (sunrise to sunset)

Date	Freq.	Starting time	Time of maximum	Duration	Type	Flux density $10^{-22} \text{ W m}^{-2} \text{ Hz}^{-1}$		Polarization	Remarks
	MHz	UT	UT	minutes		peak	mean		
6	100	0319.0	0320.0	2.5	C	1000	200	rl	

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

AUG 1973		FREQUENCY 15 MHZ															BANDWIDTH 80 HZ															RECEIVING ANTENNA ROD 4.5 M															MEASURED AT HIRAIKO					
UT DAY	00H 45M	01H 45M	02H 45M	03H 45M	04H 45M	05H 45M	06H 45M	07H 45M	08H 45M	09H 45M	10H 45M	11H 45M	12H 45M	13H 45M	14H 45M	15H 45M	16H 45M	17H 45M	18H 45M	19H 45M	20H 45M	21H 45M	22H 45M	23H 45M																												
1	-9	-8	-8	-6	1	6	ES-2	13	4	3	7	3	14	ES2	ES0	ES1	ES-6	3	-6	-6	-3	3	6	9																												
2	2	-2	-2	2	12	18	17	16	7	6	3	5	8	ES3	ES2	ES-3	ES-2	-10	ES-24	-3	12	7	-1	0																												
3	-1	2	2	6	14	14	13	23	14	9	13	11	-1	ES1	ES-2	4	13	9	0	3	ES-3	ES-14	ES-23	ES-23																												
4	ES-25	ES-25	ES-5	ES2	ES1	6	11	12	12	13	3	10	10	8	9	ES-2	ES-8	2	7	2	3	1	-1	3																												
5	-4	-6	7	9	14	16	19	17	15	13	13	17	11	8	2	ES2	5	6	5	7	5	7	7	7																												
6	4	0	3	7	8	16	19	23	19	ES19	12	16	13	14	9	ES3	ES4	9	4	3	8	3	0	0																												
7	-4	-3	8	7	9	7	13	14	9	15	16	ES-2	ES-2	ES0	ES1	ES-1	ES-1	ES-23	-11	7	4	7	9	7																												
8	8	2	4	4	12	17	17	18	9	14	13	11	8	ES0	ES1	ES-5	ES-2	3	6	9	8	ES0	ES0	-8																												
9	-2	-1	8	8	13	18	24	15	11	14	6	7	8	ES8	ES5	ES0	ES0	ES-22	ES-22	9	16	12	8	8																												
10	2	6	8	9	14	17	14	19	19	19	19	US18	7	ES-1	ES1	ES1	ES-4	-1	2	5	8	6	6	0																												
11	-1	0	4	9	8	13	15	13	12	12	17	6	ES-1	ES-1	ES-1	ES-2	ES-3	-5	3	5	9	11	4	7																												
12	1	-3	7	8	14	19	18	22	19	18	19	14	11	7	ES-1	ES-1	ES-4	-10	1	2	9	10	7	4																												
13	4	2	1	8	14	16	19	17	17	13	13	13	ES1	ES-1	ES1	-3	ES-5	-9	-1	8	8	4	7	-2																												
14	2	-2	3	8	13	15	15	15	12	9	6	ES-2	ES0	ES3	4	ES0	ES-9	ES-22	-1	5	17	11	9	8																												
15	3	6	8	12	13	16	12	14	10	12	11	9	3	ES0	ES-5	ES-7	ES-7	0	-13	7	5	10	4	8																												
16	2	5	3	6	12	13	14	17	13	9	ES3	ES-2	ES0	ES-2	ES-10	ES-22	ES-13	ES-22	ES6	8	8	5	5	4																												
17	3	4	8	11	7	15	13	9	9	13	8	5	5	ES3	ES5	ES1	-2	-5	ES-22	4	8	9	9	5																												
18	3	4	4	10	12	14	19	18	9	9	7	ES5	ES1	ES6	ES3	ES-5	ES-3	-13	-13	7	7	12	9	8																												
19	5	3	7	10	15	19	19	14	11	4	ES1	ES0	ES3	ES1	ES4	ES-3	ES0	5	7	6	4	8	6	4																												
20	8	3	10	9	11	11	17	14	13	16	1	ES10	ES0	ES3	ES4	ES11	ES-2	-1	-13	-4	4	9	8	8																												
21	8	4	3	8	10	14	19	12	0	1	ES18	ES1	ES-5	ES3	ES2	ES0	ES-5	-5	ES-22	13	6	8	3	2																												
22	-1	1	4	7	7	7	15	8	-1	ES-9	-1	8	ES-6	ES-1	ES3	ES-1	ES-23	ES-23	-1	4	5	7	11	5																												
23	8	6	7	9	11	20	20	15	13	12	11	8	6	3	8	ES-2	ES-22	ES-22	-14	ES-22	5	-2	2	4																												
24	0	1	0	10	18	15	15	ES-13	-4	ES-13	ES-7	ES-8	ES-8	ES-13	ES-11	ES-22	ES-22	8	-2	-10	-1	8	3	-7																												
25	-14	-3	6	5	4	13	16	12	5	0	ES-1	ES-3	-2	-1	ES1	ES-13	ES-22	ES-22	-4	-16	1	8	-2	-3																												
26	1	-3	-5	4	2	8	11	6	4	6	ES-4	ES-7	ES-5	ES0	ES1	ES2	ES-9	ES-22	-5	0	11	8	5	4																												
27	1	3	2	8	9	11	14	9	8	4	ES-2	ES-1	ES1	ES2	ES1	ES-11	ES-23	-14	ES-23	1	11	7	2	-3																												
28	0	-2	5	6	11	16	14	6	19	12	19	9	ES-1	ES0	ES-7	ES-22	ES-22	-13	ES-22	0	9	5	4	-4																												
29	3	4	3	9	ES12	12	ES-1	C	4	ES-4	0	8	7	18	ES14	ES-23	ES-1	-11	ES-23	-14	14	6	6	2																												
30	5	2	4	4	9	13	15	14	20	10	ES9	3	ES-2	ES2	ES3	ES-13	ES0	-16	-5	4	12	4	6	4																												
31	4	-2	5	5	13	18	17	12	5	2	9	-2	13	ES4	ES-8	ES-2	ES-1	ES-22	ES-22	3	13	5	3	-4																												
CNT	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31																												
MED	2	1	4	8	US12	15	15	14	11	US10	US8	US6	US1	ES2	ES1	ES-2	ES-4	-9	US-4	4	8	7	5	4																												
UD	8	6	8	10	14	19	19	22	19	ES18	19	16	13	8	ES9	ES3	ES4	8	ES6	9	14	11	9	8																												
LD	-9	-6	-5	2	ES2	7	11	6	0	ES-4	ES-2	ES-5	ES-5	ES-1	ES-8	ES-22	ES-22	ES-22	ES-23	-14	-1	ES0	ES-1	-7																												

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Aug. 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	3+	3U	S	S	2U	3	4	5U	4	U	U	U	U			
2	3+	3U	S	S	2U	4	4	4U	3	U	U	U	U			
3	4o	4U	4U	S	4U	4	4	5U	2U	U	U	U	U			
4	4o	3U	5U	S	3U	3	4	5U	4	N	N	N	N			
5	4+	4U	5U	S	4U	4	4	5U	4	N	N	N	N			
6	4-	4U	S	S	2U	4	4	5U	4	N	N	N	N			
7	4-	4U	4U	S	3U	4	4	3U	4	N	N	N	N			
8	5-	5U	S	S	5U	4	4	5U	4	N	N	N	N			
9	4o	4U	4U	S	4U	4	4	3U	4	N	N	N	N			
10	5-	4U	4U	5U	5U	4	5	5U	4	N	N	N	N			
11	4o	4U	S	S	4U	4	4	4U	4	N	N	N	N			
12	4+	4U	4U	S	5U	4	5	4U	4	N	N	N	N			
13	4o	4U	S	S	5U	4	4	4U	4	N	N	N	N			
14	4o	4U	4U	S	4U	4	4	4U	4	N	N	N	N			
15	4o	4U	4U	S	4U	4	4	4U	4	N	N	N	N			
16	4o	5U	5U	S	3U	4	4	4U	4	N	N	N	N			
17	4o	4U	S	S	5U	4	4	3U	4	N	N	N	N			
18	4+	5U	5U	S	5U	4	4	4U	4	N	N	N	N			
19	4+	4U	S	S	5U	4	4	5U	4	N	N	N	N			
20	4o	4U	S	S	4U	4	4	4U	4	N	N	N	N			
21	3+	3U	3U	S	3U	4	4	3U	4	N	N	N	N			
22	4-	4U	4U	S	4U	4	3	3U	4	N	N	N	N			
23	4-	5U	S	S	2U	4	4	4U	3	N	N	N	N			
24	3o	3U	S	S	2U	4	3U	4U	3	U	U	U	U			
25	3o	3U	S	S	2U	4	3	4U	3	U	U	U	U			
26	3+	3U	S	S	3U	4	3	3U	4	U	U	U	U			
27	3o	3U	S	S	2U	4	3	3U	4	N	N	N	N			
28	3+	3U	S	S	2U	4	4	3U	4	N	N	N	N			
29	4-	3U	S	S	4U	4	3	4U	4	N	N	N	N			
30	4o	4U	S	S	5U	4	4	4U	4	N	N	N	N			
31	4-	4U	S	S	4U	4	4	3U	3	N	N	N	N			

SUDDEN IONOSPHERIC DISTURBANCES

HIRAISO

Time in U.T.

Aug.	S W F						Correspondence				
	Drop-out Intensities (dB)				Start	Duration	Type	Imp.	Solar Flare	Solar Noise	Geomag. Crochet
1973	CO	HA	1)	2)							
06	10				0626	15	S	1-			

NOTES

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

I N U B O

Aug.	S P A									Remarks
1973	Phase Advance (degrees)						Time (U.T.)			
Date	GBR	NAA	NWC	NPG	ND3		Start	End	Maximum	
5				5			2336	0020	2341	X
6			16				0146	0233	0200	
6			8				0404	0456	0415	
6			39				0626	0725	0636	
6			24				0843	0948	0847	
7			<u>8</u>	5			0037	0135	0043	
8			8	<u>7</u>			2338	0030	2342	
9				4			2140	2209	2145	
10			<u>8</u>	5			0015	0104	0020	

IONOSPHERIC DATA IN JAPAN FOR AUGUST 1973

F-296 Vol.25 No.8 (Not for Sale)

電離層月報(1973年8月)

第25卷 第8号 (非売品)

1974年1月10日 印刷

1974年1月25日 発行

編集兼 郵政省電波研究所
発行所 〒184 東京都小金井市貫井北町4丁目2-1

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