

IONOSPHERIC DATA IN JAPAN

FOR JUNE 1976

VOL.28 No. 6

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RADIO RESEARCH LABORATORIES
 MINISTRY OF POSTS AND TELECOMMUNICATIONS
 TOKYO, JAPAN

INTRODUCTION

This Series contains data on ionosphere (I), solar radio

emission (S) and radio propagation (P) obtained at the following stations under the Radio Research Laboratories, Ministry of Posts and Telecommunications of Japan.

Station	Geographic		Geomagnetic		Technical Method
	Latitude	Longitude	Latitude	Longitude	
Wakkanai	45°23.6'N	141°41.1'E	35.3°N	206.0	Vertical Sounding (I)
Akita	39°43.5'N	140°08.2'E	29.5°N	205.4	" (I)
Kokubunji	35°42.4'N	139°29.3'E	25.4°N	205.4	" (I)
Yamagawa	31°12.1'N	130°37.1'E	20.3°N	197.8	" (I)
Hiraiso	36°22.0'N	140°37.5'E	26.2°N	206.3	Radio Receiving (S, P)
Inubo	35°42.2'N	140°51.5'E	26.0°N	206.8	" (P)

A. IONOSPHERE

Ionospheric observations are carried out at five stations in Japan by means of vertical sounding method.

The published data consist of tabulations of hourly values of the ionospheric characteristics and figures of daily f -plot.

All symbols and terminology in the tables or figures of ionospheric data are used in accordance with the "URSI Handbook of Ionogram Interpretation and Reduction (Second Edition) 1972".

a. Characteristics of Ionosphere

$f_x I$	Top frequency of spread F trace
$f_o F2$	Ordinary wave critical frequency
$f_o F1$	for the $F2$, $F1$, E and E_s including particle
$f_o E$	E layers respectively
$f_o E_s$	
$f_b E_s$	Blanketing frequency of the E_s layer, e.g. the lowest ordinary wave frequency visible through E_s
f_{min}	Lowest frequency which shows vertical ionospheric reflections
$M(3000)F2$	Maximum usable frequency factor
$M(3000)F1$	for a path of 3000 km for transmission by $F2$ and $F1$ layers respectively
$h'F2$	Minimum virtual height on the ordinary wave for the $F2$, whole F , E and E_s layers respectively
$h'F$	
$h'E$	
$h'E_s$	
Types of E_s	See below A. b. (iii)

b. Symbols

(i) 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 non-ionospheric reason.
D	Measurement influenced by, or impossible because of, the upper limit of the normal frequency range in use.
E	Measurement influenced by, or impossible because of, the lower limit of the normal frequency range in use.
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.
K	Presence of particle E layer.
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.
P	Man-made perturbation of parameters—Presence of polar spure traces.

Q	Range spread present.
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	Lacuna phenomena, severe layer tilt.
Z	Third magneto-electronic component present.

(ii) Qualifying Letters

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

A	Less than. Used only when $f_b E_s$ is deduced from $f_o E_s$ because total blanketing of higher layer is present.
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.
M	Mode interpretation uncertain.
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-electronic component.

(iii) Description of Types of E_s

When more than one type of E_s trace is present on the ionogram, the type for the trace used to determine $f_o E_s$ must be written first. The number of multiple traces is indicated after the type letter.

The types are:

f	An E_s trace which shows no appreciable increase of height with frequency.
l	A flat E_s trace at or below normal E layer minimum virtual height or below the particle E layer minimum virtual height.
c	An E_s trace showing a relatively symmetrical cusp at or below $f_o E$. (Usually a daytime type.)
h	An E_s trace showing a discontinuity in height with the normal E layer trace at or above $f_o E$. The cusp is not symmetrical, the low frequency end of the E_s trace lying clearly above the high frequency end of the normal E trace. (Usually a daytime type.)
q	An E_s trace which is diffuse and non-blanketing over a wide frequency range.
r	An E_s trace showing an increase in virtual height at the high frequency end similar to group retardation.
a	An E_s trace having a well-defined flat or gradually rising lower edge with stratified and

diffuse traces present above it.

s A diffuse *Es* trace which rises steadily with frequency and usually emerges from another type *Es* trace.

d A weak diffuse trace at heights below 95 km associated with high absorption and large *f_{min}*.

n The designation 'n' is used to denote an *Es* trace which cannot be classified into one of the standard types.

k The designation k is used to show the presence of particle E. When *f_{oEs}* > *f_{oE}* (particle E) the *Es* type precedes k.

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

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

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

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

B. SOLAR RADIO EMISSION

Solar radio observations are carried out on 100, 200 and 500 MHz at Hiraíso. 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 $10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$ for both components of polarization.

All symbols and terminology in the table of data are used in accordance with the "Descriptive Text of Solar-Geophysical Data, NOAA" and "Instruction Manual Monthly Report for Solar Radio Emission, WDC-C2".

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 parenthesis mean that observation time does not exceed one third of the period.

b. Outstanding Occurrences

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.

Type is denoted by numerical code and letter symbol in parallel as follows:

SGD Cord	Letter Symbol	Morphological Classification
1	S	Simple 1
2	S/F	Simple 1F
3	S	Simple 2
4	S/F	Simple 2F
5	S	Simple
6	S	Minor
7	C	Minor ⁺
8	S	Spike
20	GRF	Simple 3
21	GRF	Simple 3A
22	GRF	Simple 3F
23	GRF	Simple 3AF
24	R	Rise
25	R	Rise A
26	FAL	Fall
27	RF	Rise and Fall
28	PRE	Precursor
29	PBI	Post Burst Increase
30	PBI	Post Burst Increase A
31	ABS	Post Burst Decrease
32	ABS	Absorption
40	F	Fluctuations
41	F	Group of Bursts
42	SER	Series of Bursts
43	NS	Onset of Noise Storm
44	NS	Noise Storm in progress
45	C	Complex
46	C	Complex F
47	GB	Great Burst
48	C	Major
49	GB	Major ⁺

Flux density is the increase of flux over the level at which daily flux is calculated, or the increase of flux over the underlying burst when the event is superposed on another burst of long duration.

Polarization is expressed by the polarization degree and sense as follows:

- R or L right- or left-handed polarization,
- W, M or S weak, moderate or strong polarization,
- 0 almost zero or unable to detect polarization due to small increase of flux.
- 00 polarization degree of less than 1 percent.

The following symbols may be attached after numerical values in table, if necessary.

- D greater than, or later than,
- E less than, or earlier than,
- U approximate, or uncertain.

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 Hiraíso. 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 table.

Characteristics	Transmitter		Receiver
	WWV Fort Collins, Colorado	WWVH Kauai, Hawaii	Hiraíso, Ibaraki
Station Call	WWV	WWVH	
Location	Fort Collins, Colorado	Kauai, Hawaii	Hiraíso, 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 observed values,
MED	median,
UD	value of the uppermost decile when they are ranked according to magnitude,
LD	value of the lowest decile when they are ranked according to magnitude,
U	uncertain,
E	less than,
C	influenced by, or impossible because of, any artificial accident,
S	influenced by, or impossible because of, interferences or atmospherics.

b. Radio Propagation Quality Figures

The tabulated six-hourly quality figures are calculated for standard waves WWV transmitted from Fort Collins and standard waves WWVH transmitted from Kauai.

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* (U.T.) is expressed in unit of hour and minute (or tenth of hour), and *range* in gamma. 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 respectively distinguished by marks ', '' and ''' from these of the 15 MHz wave for WWV and WWVH. Values of *start*, *duration*, *type*, and *importance* are obtained from data of the circuit whose drop-out intensity in dB is underlined as xx. 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, 1+, 2-, 2, 2+, 3-, 3, 3+.

Correspondence of solar optical flare, solar radio burst, and 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 waves received at Inubo. The transmitting stations are listed in the following table.

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 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.

Transmitting Stations						
Name	Location (Geographic Coordinate)		Call Sign	Frequency (kHz)	Radiation Power (kW)	Arc Distance from Inubo (km)
Rugby	52°22'N	001°11'W	GBR	16.0	40	9550
Cutler	44°38'N	067°17'W	NAA	17.8	1000	10640
Jim Creek	48°12'N	121°55'W	NPG	18.6	250	7620
North West Cape	21°48'S	114°09'E	NWC	22.3	1000	6990
Aldra	66°25'N	013°08'E	AL3	13.6	10	7820
Reunion	20°58'S	055°17'E	RE3	13.6	10	10970
North Dakota	46°22'N	098°20'W	ND3	13.6	10	9140
Haiku	21°24'N	157°50'W	HA3	13.6	10	6100

IONOSPHERIC DATA

JUN. 1976

FXI (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	X 47	X 45	X 46	X 44																	X 66	X 67	X 56	S 50
2	A	A	X 42	43																	X 72	77	61	X 47
3	X 47	X 47	46	51	46	60	67	70													X 73	X 73	X 67	X 54
4	X 51	X 50	X 50	X 47		60															X 65	X 60	X 61	58
5	52	X 49	A	X 49																	X 62	X 63	X 57	X 57
6	A	A	X 50	A																	X 62	X 57	X 55	S 52
7	X 47	X 44	43	X 42																	X 51	X 55	A	X 51
8	X 54	X 52	53	X 52																	X 67	X 60	X 58	X 55
9	X 50	X 50	X 50	X 47																	X 64	A	A	A
10	A	49	46	46																	X 69	62	61	60
11	A	A	A	44	50	57	63														X 75	X 75	X 71	X 73
12	X 49	A	X 47	A	54																A	X 65	X 60	X 56
13	X 52	X 43	X 39	X 37																	X 63	X 63	X 58	X 55
14	U 54	X 43	44	44																	X 60	X 57	X 57	X 53
15	X 50	X 47	X 45	X 45																	A	65	63	60
16	54	X 50	X 49	48																	X 75	X 77	X 74	X 72
17	X 65	X 61	X 57	X 56																	X 80	X 80	X 71	X 65
18	X 58	X 52	X 50	X 52																	X 62	X 66	X 59	X 55
19	X 52	X 55	X 43	42	45																C	C	C	C
20	C	C	C	C																	X 71	69	72	72
21	X 51	X 52	X 53	57	55																X 66	X 65	60	60
22	57	X 48	X 43	X 44																	X 72	X 73	X 70	X 60
23	X 52	X 51	X 50	X 48																	X 79	X 65	X 68	X 61
24	X 50	X 48	X 47	X 47																	X 88	X 83	X 67	X 55
25	X 55	X 53	X 52	X 50					71												A	X 60	S 60	66
26	62	60	58	X 55																	X 80	X 80	X 68	X 61
27	X 60	X 56	X 57	X 57																	X 74	X 74	X 74	X 64
28	X 59	X 49	55	56	56	55				58											X 73	X 71	X 66	X 63
29	X 57	X 51	X 51	X 50																	X 68	X 70	X 61	62
30	57	X 54	X 49	50																	X 76	X 80	X 74	X 80
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	25	27	27	6	4	2	1	1	1											26	28	27	28
MED	X 52	X 50	X 49	X 48	52	58	65	70	71	58											X 70	X 66	X 61	X 60
UQ	57	X 52	X 52	X 52	55	60															X 75	X 74	X 69	X 64
LQ	X 50	X 48	X 46	X 44	46	56															X 64	X 62	X 60	X 55

JUN. 1976

FXI (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

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	40	38	39	37	39	44	45	46	A	A	50	A	A	A	A	46	50	A	A	59	60	49	S	43			
2	A	A	35	36	36	42	A	A	52	A	53	A	A	49	A	49	A	A	A	A	65	F	F	40			
3	S	40	F	F	E	F	F	F	60	52	53	51	J	R	48	48	A	57	A	58	64	66	66	47			
4	44	43	43	40	44	53	57	59	51	50	51	52	49	A	A	58	61	59	53	58	58	53	54	F			
5	F	42	A	42	37	39	44	A	A	A	A	A	A	A	A	A	A	A	53	53	55	56	50	S			
6	A	A	43	A	35	A	A	A	A	A	A	A	A	A	A	46	45	45	50	53	48	55	50	48	S		
7	40	37	34	35	34	41	47	51	50	A	A	A	A	45	43	48	49	50	54	53	44	48	A	44			
8	47	45	44	45	42	44	45	41	A	A	A	52	A	R	R	50	51	51	49	A	S	60	53	S	48		
9	43	43	43	40	40	51	50	A	A	A	R	A	A	A	A	A	50	47	48	51	57	A	A	A			
10	A	F	F	36	A	42	A	50	A	60	A	47	47	48	51	53	53	49	57	59	62	F	F	F			
11	A	A	A	F	F	F	F	C	C	C	C	C	53	A	64	55	A	A	A	62	68	68	64	66			
12	42	A	40	A	F	54	59	56	A	R	R	A	A	51	R	A	A	A	48	57	A	58	53	49			
13	45	36	32	30	31	A	A	A	A	A	A	A	E	G	E	G	E	G	43	48	48	A	A	56	56	51	48
14	U	S	36	U	F	41	43	54	A	54	62	A	A	A	47	R	R	45	49	51	55	53	50	50	46		
15	43	40	38	38	40	45	51	59	60	A	A	A	53	A	A	51	52	52	51	A	A	F	F	F	50		
16	F	47	43	42	36	43	48	49	51	59	47	55	56	55	51	50	56	53	49	50	59	68	70	67	65		
17	58	54	50	49	47	45	58	67	61	A	54	56	A	51	52	48	50	48	53	63	73	73	64	58			
18	49	45	43	47	43	38	A	A	A	A	A	R	A	47	46	49	53	46	46	50	55	59	52	48			
19	45	48	36	33	F	43	44	A	45	45	A	A	46	A	R	45	C	C	C	C	C	C	C	C	C		
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	50	50	49	A	60	64	F	F	F	65	
21	S	S	46	F	F	40	A	48	A	53	A	A	A	A	A	48	50	48	A	53	59	58	F	F	F		
22	F	48	41	36	37	43	48	55	C	C	A	53	53	54	61	56	48	47	44	50	58	65	66	63	53		
23	45	44	43	41	43	50	58	53	46	46	55	58	56	53	48	45	46	49	50	61	72	68	61	54			
24	43	41	40	40	44	53	63	65	64	50	53	48	51	47	48	50	51	A	60	71	81	76	60	48			
25	48	46	45	43	43	49	56	53	F	66	52	56	56	A	45	50	57	63	68	69	A	53	S	S	55		
26	F	F	F	48	50	42	47	A	A	A	56	60	53	55	56	51	50	52	58	63	73	73	61	54			
27	53	50	50	50	50	49	A	55	A	55	53	53	A	51	50	A	A	50	51	57	67	67	67	57			
28	S	S	42	F	F	F	F	42	48	52	F	56	55	50	46	47	52	54	58	65	63	66	64	59	56		
29	50	S	S	43	43	42	A	54	A	58	A	A	R	R	R	48	48	47	49	51	61	63	S	F	F		
30	F	47	42	F	41	49	51	56	A	49	53	51	48	50	A	A	49	53	65	66	69	73	67	73			
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	24	25	24	21	25	27	21	18	13	14	14	14	15	17	16	22	24	23	23	24	26	26	26	24			
MED	45	43	42	40	42	45	51	54	54	52	53	53	51	49	48	50	50	49	53	58	63	60	54	50			
UQ	48	45	44	43	43	49	57	59	60	58	55	56	54	51	52	51	53	52	58	63	68	68	63	56			
LQ	43	40	36	36	39	42	47	50	51	49	53	51	48	47	46	48	48	48	50	53	57	53	51	48			

The Radio Research Laboratories, Japan

JUN. 1976

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FOF1 (0.01 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						360	A	A	A	A	A	A	A	A	A	A	410	A	A															
2						A	A	A	A	A	A	A	A	A	A	420	A	A	A															
3					260	330	A	A	A	A	A	A	430	430	420	A	A	A	A															
4						320	350	A	A	430	430	430	420	A	A	400	A	A	A															
5						A	A	A	A	A	A	A	A	A	A	A	A	A	A															
6							A	A	A	A	A	A	A	A	420	410	400	360	330															
7						330	360	380	400	A	A	A	A	A	410	400	390	A	A															
8							360	A	A	A	A	A	A	420	430	410	400	350	330															
9						320	A	A	A	A	430	A	A	A	A	A	A	390	330															
10							A	A	A	A	A	420	450	430	A	A	A	A	A															
11						340	A	C	C	C	C	C	A	A	420	410	A	A																
12						A	A	A	A	420	430	A	A	A	420	A	A	A	A															
13					260	A	A	A	A	A	A	A	430	430	410	400	390	A	A															
14							A	A	A	A	A	A	A	430	410	410	410	370	340															
15						340	390	400	A	A	A	A	A	A	A	410	410	380	L															
16							A	400	A	430	430	440	440	440	430	410	400	390	360															
17						360	390	400	A	A	A	430	A	440	430	A	410	A	A															
18						A	A	A	A	A	A	430	A	430	A	410	400	380	340															
19						A	A	A	A	420	A	A	430	A	430	A	C	C	C															
20							C	C	C	C	C	C	C	C	C	410	400	380	A															
21						340	A	A	A	A	A	A	A	A	A	A	A	A	A															
22								C	C	A	A																							
23					290	370	400	420	430	A	450	A	430	440	A	400	A	A	290															
24					270	350	370	410	A	430	430	430	450	440	430	A	A	A	A															
25					250	320	360	A	A	A	430	440	A	A	430	420	400	A	A															
26						420	A	A	A	A	430	440	A	420	430	400	380	350																
27							410	A	A	430	A	A	430	A	A	A	A	370	340															
28							A	A	430	430	450	440	430	430	410	A	370	A																
29						A	A	A	A	A	A	430	430	410	410	360	370	360																
30						360	370	A	A	A	430	430	430	430	A	A	390	A	330	280														
31																																		
CNT					5	12	12	7	2	7	9	12	12	15	18	17	17	13	11	2														
MED					260	340	370	400	410	430	430	430	435	430	425	410	400	380	340	285														
UQ					270	355	385	405		430	430	440	445	430	430	410	410	380	350															
LQ					260	325	360	400		425	430	430	430	430	420	410	400	370	330															

The Radio Research Laboratories, Japan

JUN. 1976

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JUN. 1976

FOE (0.01 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					S	200	240	275	295	300	310	310	300	290	A	A	A	245	200	110				
2					A	205	240	270	295	305	305	B	300	300	300	A	285	235	200	120				
3					145	205	240	270	295	300	300	295	295	A	A	295	270	235	185	E				
4					130	200	240	270	295	A	300	315	325	315	300	295	280	240	200	E				
5					125	180	225	260	290	305	310	305	315	325	320	300	280	235	200	A				
6					A	195	230	265	295	300	305	305	300	A	A	300	280	235	195	E				
7					A	190	240	260	290	300	310	305	300	A	300	290	A	A	A	A				
8					A	210	240	270	300	305	310	310	310	300	A	A	A	A	A	S				
9					A	A	235	285	300	300	320	320	305	A	A	A	A	A	A	A				
10					A	A	240	280	295	300	310	300	310	325	320	305	285	A	200	125				
11					A	A	245	C	C	C	C	C	305	A	300	305	285	245	190	S				
12					130	200	240	265	290	300	315	315	330	305	310	305	290	245	200	120				
13					A	200	235	280	295	305	305	305	305	300	A	A	285	240	200	A				
14					A	205	240	280	295	305	300	300	300	305	A	A	290	255	205	140				
15					130	A	250	A	A	310	325	320	310	310	A	300	285	245	200	130				
16					E	205	240	275	295	300	305	300	305	300	A	300	285	265	215	130				
17					A	205	255	295	305	310	310	305	300	A	A	A	290	A	205	E				
18					120	195	245	280	300	310	310	315	315	300	305	300	280	A	205	150				
19					145	210	245	265	295	305	310	305	A	A	A	300	C	C	C	C				
20					C	C	C	C	C	C	C	C	C	C	C	A	A	250	200	S				
21					S	A	245	285	300	310	310	300	A	A	A	A	A	A	205	S				
22					A	200	240	C	C	310	315	320	320	325	310	A	A	A	A	A				
23					120	205	255	290	305	320	325	325	A	A	325	310	290	255	200	E				
24					E	200	250	290	300	310	315	315	310	305	305	310	295	255	210	A				
25					130	210	255	290	300	305	305	310	A	A	A	A	290	250	190	110				
26					A	195	240	275	300	305	305	310	325	A	305	A	A	A	A	A				
27					E	205	245	275	300	305	310	320	305	300	A	300	290	250	205	E				
28					A	210	235	280	300	300	310	310	310	305	300	300	290	250	200	130				
29					E	190	230	265	290	300	300	300	A	A	A	305	285	A	195	S				
30					A	200	255	280	295	300	310	310	A	325	320	300	285	245	195	S				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					13	24	29	26	26	27	28	27	23	17	14	18	21	19	24	16				
MED					125	200	240	275	295	305	310	310	305	305	305	300	285	245	200	115				
UQ					130	205	245	280	300	308	310	315	312	315	320	305	290	250	205	130				
LQ					E	198	240	270	295	300	305	305	300	300	300	300	285	240	198	E				

The Radio Research Laboratories, Japan

JUN. 1976

FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 1976

FOES (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	22	E 15	E 16	23	E 14	24	33	J A 53	J A 50	J A 60	J A 56	J A 50	J A 60	J A 60	J A 55	J A 74	J A 41	J A 45	J A 65	J A 70	J A 70	J A 30	J A 80	J A 37	
2	J A 73	J A 61	J A 51	J A 43	J A 51	33	J A 55	J A 59	J A 58	78	J A 81	J A 73	J A 81	J A 46	J A 75	40	J A 73	J A 75	J A 82	J A 84	J A 86	J A 64	E 15	J A 30	
3	24	25	22	E 15	G	33	J A 51	J A 52	J A 56	43	J A 51	J A 45	40	36	37	J A 90	J A 55	J A 52	J A 51	J A 61	J A 68	J A 33	E 16	E 13	
4	E 16	25	25	E 15	G	27	J A 53	J A 46	J A 51	40	J A 50	G	39	J A 52	J A 90	J A 45	J A 43	J A 71	J A 48	J A 53	J A 50	J A 33	J A 25	J A 30	
5	J A 45	J A 33	J A 51	J A 20	J A 33	43	J A 43	J A 66	J A 63	J A 84	J A 95	J A 53	J A 83	J A 91	J A 71	J A 123	J A 90	J A 51	J A 40	J A 43	J A 45	J A 30	J A 53	J A 50	
6	J A 53	J A 53	35	J A 60	31	J A 45	J A 80	J A 70	J A 50	J A 65	J A 113	J A 130	J A 73	J A 70	J A 40	G	31	31	28	J A 44	J A 35	J A 30	J A 65	24	
7	21	28	28	J A 21	J A 23	G	31	J A 60	J A 52	J A 61	J A 90	J A 133	J A 64	J A 52	J A 53	37	31	J A 43	J A 46	J A 30	J A 41	J A 25	J A 64	26	
8	J A 21	J A 33	25	E 15	J A 23	28	35	J A 43	J A 61	J A 58	J A 55	J A 51	J A 69	35	34	38	J A 50	J A 35	32	J A 70	J A 53	J A 40	J A 26	J A 33	
9	28	25	27	J A 55	J A 30	J A 33	J A 53	J A 53	J A 54	J A 60	41	54	J A 74	J A 49	58	J A 65	53	J A 35	J A 38	J A 33	J A 31	J A 70	J A 64	J A 64	
10	J A 53	J A 26	J A 41	J A 30	71	34	54	J A 52	J A 126	J A 74	J A 140	36	38	45	42	J A 66	46	J A 59	J A 51	J A 53	J A 33	J A 38	J A 30	J A 36	
11	J A 60	54	J A 63	J A 51	J A 28	J A 36	J A 60	C	C	C	C	C	J A 56	J A 104	48	40	J A 88	J A 84	J A 73	J A 59	J A 54	J A 64	J A 70	J A 90	
12	J A 30	J A 53	J A 150	J A 55	J A 40	J A 53	J A 50	J A 60	J A 120	41	44	50	J A 85	J A 65	J A 54	J A 74	J A 72	J A 80	J A 66	J A 52	J A 78	J A 51	J A 43	31	
13	J A 30	J A 30	J A 40	30	20	J A 54	J A 51	J A 55	J A 61	J A 53	J A 80	J A 58	38	36	33	40	39	J A 45	J A 51	J A 60	J A 35	J A 39	22	E 16	
14	E 15	20	22	J A 23	J A 24	31	J A 43	J A 64	J A 55	J A 62	J A 160	J A 72	J A 83	G	38	40	36	35	33	27	J A 31	J A 31	J A 20	J A 33	
15	J A 30	J A 22	24	23	18	24	36	39	J A 55	J A 85	J A 66	J A 70	J A 68	J A 58	J A 104	J A 48	36	39	33	J A 53	J A 64	J A 60	J A 35	J A 50	
16	J A 53	30	J A 25	28	18	29	J A 41	J A 43	J A 46	36	36	39	36	35	33	G	G	30	27	J A 29	J A 30	J A 30	J A 24	26	
17	E 16	E 14	23	E	17	26	38	42	J A 58	J A 90	J A 64	J A 58	79	35	36	J A 56	G	J A 45	J A 54	J A 82	J A 62	J A 30	J A 40	24	
18	E 15	E 15	E	E 15	G	J A 53	J A 63	J A 60	J A 74	J A 66	52	J A 45	J A 50	38	J A 43	G	33	26	27	J A 43	J A 24	J A 53	J A 23	J A 26	
19	J A 35	J A 25	24	J A 22	J A 30	J A 40	J A 43	J A 50	J A 61	J A 70	J A 69	J A 69	J A 43	J A 62	45	51	C	C	C	C	C	C	C	C	
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	33	J A 36	34	J A 66	29	J A 61	J A 54	J A 62	J A 30	
21	J A 25	27	25	J A 30	J A 38	J A 28	J A 54	J A 55	J A 71	J A 104	J A 121	J A 88	J A 64	J A 90	71	J A 50	J A 44	J A 51	J A 73	J A 53	J A 28	J A 28	J A 31	28	
22	J A 25	J A 24	28	J A 28	29	25	32	C	C	J A 104	58	41	36	35	40	33	30	31	22	20	J A 53	J A 25	J A 23	E	
23	E 14	J A 24	24	15	28	27	38	37	41	40	J A 58	47	J A 65	J A 70	G	47	J A 90	40	J A 53	J A 30	J A 25	J A 23	E	25	
24	J A 30	J A 28	J A 26	25	20	G	33	34	J A 48	41	G	40	38	G	G	46	48	J A 73	J A 53	J A 33	J A 33	J A 31	23	J A 25	
25	E 15	25	28	23	G	G	33	J A 55	J A 61	J A 60	J A 58	J A 42	J A 53	J A 127	J A 41	38	34	38	40	J A 41	J A 128	J A 113	J A 31	J A 56	
26	J A 88	J A 61	J A 52	J A 50	20	G	31	J A 61	62	J A 63	J A 61	38	40	56	34	43	J A 42	J A 30	J A 30	38	J A 31	J A 24	E	J A 30	
27	25	E	J A 30	E 15	22	27	J A 56	G	J A 141	J A 60	J A 63	52	65	J A 58	J A 56	55	J A 88	J A 88	29	J A 74	J A 60	J A 36	J A 33	J A 30	
28	J A 53	J A 33	27	E 15	22	28	31	44	47	39	J A 40	40	40	35	35	36	40	39	J A 40	J A 53	J A 71	E 14	E 15	J A 31	
29	J A 21	26	23	E	18	23	54	J A 52	J A 94	J A 72	63	63	34	34	33	37	38	34	28	30	J A 30	25	J A 33	J A 34	
30	26	22	24	E	J A 24	38	32	J A 45	J A 66	J A 47	39	J A 53	36	31	J A 61	J A 73	J A 85	J A 53	35	26	E 15	E 15	E 15	E 14	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	29	29	29	29	29	27	27	28	28	28	29	29	29	30	29	29	29	29	29	29	29	29	
MED	J A 26	26	26	23	23	28	J A 43	J A 52	J A 58	J A 60	J A 60	J A 52	J A 56	J A 49	42	44	42	J A 43	J A 40	J A 44	J A 45	J A 31	J A 30	J A 30	
UQ	J A 45	J A 33	J A 35	J A 30	J A 30	36	J A 54	J A 60	J A 64	J A 73	J A 80	J A 70	J A 69	J A 62	J A 56	J A 56	J A 55	J A 53	J A 53	J A 59	J A 62	J A 51	J A 43	J A 34	
LQ	21	24	24	15	18	25	33	J A 44	J A 52	45	50	42	39	35	35	37	36	35	32	J A 30	J A 31	J A 28	22	25	

The Radio Research Laboratories, Japan

JUN. 1976

FOES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FBES (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	E	E ₁₅	E ₁₆	E	E ₁₄	G	G	44	A ₅₀	A ₆₀	47	A ₅₀	A ₆₀	A ₆₀	A ₅₅	A ₇₄	38	45	A ₆₅	A ₇₀	33	28	44	25		
2	A ₇₃	A ₆₁	31	21	31	32	A ₅₅	A ₅₉	40	A ₇₈	51	A ₇₃	A ₈₁	46	A ₇₅	G	A ₇₃	A ₇₅	A ₈₂	A ₈₄	55	42	E ₁₅	E		
3	E	E	E	E ₁₅	G	30	42	50	54	42	43	44	G	36	G	A ₉₀	53	A ₅₂	47	54	46	E	E ₁₆	E ₁₃		
4	E ₁₆	E	E	E ₁₅	G	G	33	45	45	33	G	G	G	A ₅₂	A ₉₀	G	41	42	48	25	40	30	E	19		
5	32	33	A ₅₁	E	30	37	40	A ₆₆	A ₆₃	A ₈₄	A ₉₅	A ₁₅₃	A ₈₃	A ₉₁	A ₇₁	A ₁₂₃	A ₉₀	A ₅₁	32	30	32	20	43	40		
6	A ₅₃	A ₅₃	23	A ₆₀	22	A ₄₅	A ₈₀	A ₇₀	A ₅₀	A ₆₅	A ₁₁₃	A ₁₃₀	A ₇₃	A ₇₀	35	G	G	G	G	42	30	25	21	E		
7	E	E	E	E	15	G	G	G	G	A ₆₁	A ₉₀	A ₁₃₃	A ₆₄	41	G	G	30	41	45	20	32	23	A ₆₄	E		
8	E	33	E	E ₁₅	16	G	34	39	A ₆₁	A ₅₈	A ₅₅	43	A ₆₉	G	34	37	37	28	23	A ₇₀	32	30	E	E		
9	E	E	E	E	22	23	47	A ₅₃	A ₅₄	A ₆₀	G	A ₅₄	A ₇₄	A ₄₉	A ₅₈	A ₆₅	45	35	30	29	25	A ₇₀	A ₆₄	A ₆₄		
10	A ₅₃	E	E	E	A ₇₁	30	A ₅₄	48	A ₁₂₆	50	A ₁₄₀	G	G	G	41	48	46	45	47	40	E	20	E	25		
11	A ₆₀	A ₅₄	A ₆₃	E	28	31	47	C	C	C	C	C	45	A ₁₀₄	G	39	A ₈₈	A ₈₄	A ₇₃	55	23	E	43	52		
12	E	A ₅₃	E	A ₅₅	25	47	43	44	A ₁₂₀	G	G	A ₅₀	A ₈₅	45	G	A ₇₄	A ₇₂	A ₈₀	44	39	A ₇₈	50	43	21		
13	25	20	27	E	17	A ₅₄	A ₅₁	A ₅₅	A ₆₁	A ₅₃	A ₈₀	A ₅₈	G	G	33	31	36	44	A ₅₁	A ₆₀	24	36	E	E ₁₆		
14	E ₁₅	E	E	E	16	G	41	A ₆₄	51	52	A ₁₆₀	A ₇₂	A ₈₃	G	37	33	G	34	33	25	28	22	E	E		
15	E	E	E	E	G	23	34	36	51	A ₈₅	A ₆₆	A ₇₀	47	A ₅₈	A ₁₀₄	G	G	34	30	A ₅₃	A ₆₄	50	35	29		
16	E	E	E	E	G	G	40	G	43	G	G	G	G	G	33	G	G	G	G	27	25	20	E	E		
17	E ₁₆	E ₁₄	E	E	16	G	37	38	48	A ₉₀	41	G	A ₇₉	34	35	43	25	40	50	60	E	E	30	E		
18	E ₁₅	E ₁₅	E	E ₁₅	G	35	A ₆₃	A ₆₀	A ₇₄	A ₆₆	A ₅₂	40	A ₅₀	G	43	G	G	26	G	40	21	E	E	20		
19	F	F	E	F	28	37	38	A ₅₀	40	G	A ₆₉	A ₆₉	39	A ₆₂	36	44	C	C	C	C	C	C	C	C		
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	32	33	G	A ₆₆	26	18	27	E	23	
21	E	E	E	E	24	25	A ₅₄	46	A ₇₁	45	A ₁₂₁	A ₈₅	A ₆₄	A ₉₀	A ₇₁	47	43	37	A ₇₃	42	25	25	20	E		
22	E	E	E	25	16	G	G	C	C	A ₁₀₄	47	G	G	G	G	33	30	26	22	18	35	20	23	E		
23	E ₁₅	E	E	E	G	G	G	G	G	G	49	G	48	40	G	43	G	40	48	G	25	21	E	E		
24	E	23	16	E	G	G	G	G	47	G	G	G	G	G	G	46	48	A ₇₃	36	31	30	25	E	E		
25	E ₁₅	E	E	E	G	G	G	50	54	48	G	G	45	A ₁₂₇	39	35	G	37	35	40	A ₁₂₈	31	E	E		
26	E	E	E	26	18	G	G	A ₆₁	A ₆₂	A ₆₃	50	G	G	50	G	36	35	29	26	30	26	22	E	E		
27	E	E	21	E ₁₅	20	G	A ₅₆	G	A ₁₄₁	50	41	45	A ₆₅	40	45	A ₅₅	A ₈₈	33	G	48	32	34	30	E		
28	46	E	E	E ₁₅	15	G	G	42	45	G	G	G	G	G	G	G	40	35	38	50	E	E ₁₄	E ₁₅	E		
29	E	E	E	E	G	G	A ₅₄	50	A ₉₄	48	A ₆₃	A ₆₃	34	G	32	G	G	24	G	G	22	E	30	E		
30	E	E	E	E	15	G	G	41	A ₆₆	43	G	40	35	29	A ₆₁	A ₁₇₃	38	45	G	G	E ₁₅	E ₁₅	E ₁₅	E ₁₄		
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	29	29	29	29	29	29	29	27	27	28	28	28	29	29	29	30	29	29	29	29	29	29	29	29		
MED	E	E	E	E	16	G	40	46	A ₅₄	51	50	44	47	40	35	36	37	37	36	40	28	23	E ₁₅	E		
UQ	16	20	16	15	22	31	A ₅₁	A ₅₄	A ₆₄	A ₆₄	A ₇₄	A ₇₀	A ₆₉	A ₅₈	A ₅₅	48	46	45	48	53	33	30	30	21		
LQ	E	E	E	E	G	G	G	38	46	38	G	G	G	G	G	G	G	29	23	26	23	20	E	E		

The Radio Research Laboratories, Japan

JUN. 1976

FBES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

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

The Radio Research Laboratories, Japan

JUN. 1976

F-MIN (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

M(3000)F2 (0.01)

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	295	290	280	300	295	340	320	A	A	A	300	A	A	A	A	275	300	A	A	295	320	305	300	S	
2	A	A	310	295	305	290	A	A	335	A	300	A	A	280	A	295	A	A	A	A	290	F	340	300	
3	S	295	F	F	270	290	305	300	320	305	315	305	J	R	270	280	A	315	A	285	295	285	305	325	295
4	295	300	295	315	285	300	325	285	295	280	315	290	295	A	A	295	295	320	310	305	315	290	295	F	
5	F	290	A	305	295	265	270	A	A	A	A	A	A	A	A	A	A	A	A	320	300	295	305	280	S
6	A	A	300	A	290	A	A	A	A	A	A	A	A	A	265	285	280	300	325	300	310	295	290	S	
7	320	325	290	285	295	280	295	320	340	A	A	A	A	250	210	290	295	310	310	330	295	290	A	295	
8	320	300	295	315	355	310	300	265	A	A	A	285	A	R	R	290	315	315	305	A	S	300	S	295	
9	290	300	S	320	300	320	340	A	A	A	R	A	A	A	A	A	300	310	310	315	310	A	A	A	
10	A	F	F	F	A	320	A	A	A	315	A	340	220	225	280	300	315	285	315	305	310	F	F	F	
11	A	A	A	F	F	F	F	C	C	C	C	C	255	A	285	315	A	A	A	275	275	290	280	300	
12	285	A	275	A	270	275	290	290	A	R	R	A	A	295	R	A	A	A	280	290	A	295	285	285	
13	280	295	305	300	265	A	A	A	A	A	A	A	G	G	G	255	295	300	A	A	295	295	295	290	
14	U	S	305	U	F	F	F	A	315	350	A	A	A	275	R	R	265	290	325	325	315	280	290	280	
15	S	300	300	295	315	305	310	295	320	335	A	A	A	325	A	A	305	290	325	315	A	A	F	F	325
16	F	300	295	F	310	335	325	315	310	310	305	325	305	295	280	310	315	295	290	290	285	300	305	305	
17	310	315	300	305	310	280	305	345	340	A	315	320	A	280	325	285	290	295	A	A	300	325	300	300	
18	285	285	280	295	S	320	290	A	A	A	A	A	R	A	270	255	285	315	280	280	290	270	300	290	290
19	280	305	305	275	F	F	305	300	A	280	250	A	A	260	A	R	A	C	C	C	C	C	C	C	C
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	310	300	285	A	295	295	285	F	335
21	S	S	300	F	F	285	A	290	A	315	A	A	A	A	A	A	300	310	A	305	290	305	285	F	F
22	300	315	305	295	305	280	325	C	C	A	290	275	300	315	325	295	290	265	300	300	295	305	315	315	
23	310	295	300	300	300	325	345	320	320	260	310	310	315	330	310	A	285	295	295	285	305	310	310	315	
24	305	300	300	295	295	280	300	310	330	290	320	275	295	225	260	285	290	A	285	295	320	330	305	295	
25	300	305	300	300	300	280	315	270	F	340	270	290	305	A	255	260	290	285	295	305	A	285	S	F	270
26	F	F	F	300	335	335	275	A	A	A	310	305	285	305	310	290	290	305	310	295	300	315	310	310	
27	285	295	295	320	335	340	A	300	A	325	330	320	A	285	285	A	A	300	295	280	305	295	315	295	
28	S	280	F	F	F	F	320	355	335	325	280	330	270	290	260	250	295	295	295	305	300	300	300	310	
29	320	315	S	S	320	315	335	A	310	A	325	A	A	R	R	R	290	295	310	305	290	295	310	S	F
30	F	315	295	F	315	305	335	315	A	295	320	290	275	320	A	A	295	285	290	285	260	300	285	315	
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	24	25	24	21	25	27	21	16	13	14	14	14	15	17	16	19	24	23	22	23	26	26	26	24	
MED	300	300	295	300	305	305	315	310	320	308	312	298	290	280	280	290	295	300	305	295	295	300	295	300	
UQ	305	305	300	315	315	320	325	320	335	325	320	320	302	295	298	298	300	310	310	305	310	305	305	310	
LQ	290	295	295	295	295	282	300	290	310	280	300	285	258	260	255	285	290	288	290	290	290	295	290	292	

JUN. 1976

M(3000)F2 (0.01)

IONOSPHERIC DATA

JUN. 1976 M(3000)F1 (0.01)

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							360	A	A	A	A	A	A	A	A	A	A	A	A									
2						A	A	A	A	A	A	A	A	A	A	335	A	A	A									
3					305	A	A	A	A	A	A	A	395	385	380	A	A	A	A									
4						345	A	A	A	395	410	390	395	A	A	375	A	A	A									
5						A	A	A	A	A	A	A	A	A	A	A	A	A	A									
6							A	A	A	A	A	A	A	A	380	355	350	350	365									
7						340	345	370	400	A	A	A	A	A	390	370	360	A	A									
8							A	A	A	A	A	A	A	395	380	390	A	370	350									
9						370	A	A	A	A	380	A	A	A	A	A	A	A	A									
10							A	A	A	A	A	425	400	370	A	A	A	A	A									
11						A	A	C	C	C	C	C	A	A	365	A	A	A										
12						A	A	A	A	395	385	A	A	A	390	A	A	A	A									
13						345	A	A	A	A	A	A	385	395	395	375	360	A	A									
14							A	A	A	A	A	A	A	395	390	390	350	A	A									
15						350	L	A	385	A	A	A	A	A	A	390	360	350	L									
16							A	375	A	415	420	395	410	385	395	400	375	360	350									
17						350	A	A	A	A	A	410	A	395	390	A	350	A	A									
18						A	A	A	A	A	A	A	A	440	A	365	375	355	330									
19						A	A	A	A	400	A	A	390	A	380	A	C	C	C									
20							C	C	C	C	C	C	C	C	C	380	350	335	A									
21							355	A	A	A	A	A	A	A	A	A	A	A	A									
22							335	360	C	C	A	A	420	370	395	395	400	365	335	345								
23						345		380	400	385	420	A	395	A	390	385	A	375	A	A	335							
24						350	L	350	350	355	A	420	395	400	405	385	390	A	A	A	A							
25						360	L	370	390	A	A	A	395	385	A	A	375	350	350	A	A							
26							330	A	A	A	A	395	380	A	385	360	350	340	340									
27								365	A	A	A	A	A	370	A	A	A	350	330									
28								A	A	395	390	385	385	395	385	380	A	A	A									
29							A	A	A	A	A	A	405	400	395	365	410	350	360									
30							345	380	A	A	A	395	400	405	380	A	A	A	A	355	335							
31																												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT					5	10	8	6	2	7	8	11	12	15	18	16	14	10	9	2								
MED					345	350	360	372	392	400	395	395	395	395	388	375	360	350	350	335								
UQ					350	355	380	385		418	402	405	405	395	390	390	375	355	355									
LQ					345	345	348	365		395	388	392	385	385	380	362	350	340	340									

JUN. 1976 M(3000)F1 (0.01)

IONOSPHERIC DATA

JUN. 1976

H^oF₂ (KM)

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

Station	WAKKANAI				Lat. 45 23.6 N.				Long. 141 41.1 E				Sweep 1 MHz to 20 MHz in 20 sec in automatic operation											
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							310	A	A	A	360	A	A	A	A		425	345	A					
2						350	A	A	290	A	A	A	A	425	A	350	A	A	A					
3					340	315	275	305	A	A	350	335	360	500	450	415	A	340	A	A				
4						300	250	A	350	405	345	360	365	A	A	340	305	295	A					
5						A	A	A	A	A	A	A	A	A	A	A	A	A	285					
6							A	A	A	A	A	A	A	A	470	405	400	335	270					
7						375	345	305	290	A	A	A	A	520	720	375	365	320	320					
8							350	490	A	A	A	375	A	R	R	375	315	320	300					
9						275	A	A	A	A	R	A	A	A	A	A	350	325	305					
10							A	A	A	300	A	295	670	625	400	350	335	A	A					
11						300	300	C	C	C	C	C	475	A	335	315	A	A						
12						A	310	360	A	R	R	A	A	360	R	A	A	A	A					
13					430	A	A	A	A	A	A	A	G	G	G	530	365	A	A					
14							270	A	A	270	A	A	A	450	R	R	460	350	290					
15						305	350	280	280	A	A	A	320	A	A	355	350	300	280					
16							300	325	300	350	350	310	350	370	415	330	330	330	355					
17						400	300	250	280	A	325	315	A	415	325	415	365	330	A					
18						A	A	A	A	A	A	R	A	470	510	400	320	385	370					
19						325	350	A	425	515	A	A	490	A	R	A	C	C	C					
20							C	C	C	C	C	C	C	C	C	C	330	320	350	A				
21						370	A	A	A	325	A	A	A	A	A	A	350	320	A					
22						400	275	C	C	A	370	410	360	305	300	355	390	470	310					
23						300		260	310	325	490	345	340	315	315	350	A	400	345	A		300		
24						310	320	285	285	270	360	345	450	390	650	475	400	A	A			310		
25						300	360	250	450	355	270	450	370	340	A	520	455	350	320	300				
26							430	A	A	A	350	325	400	360	325	365	350	310	300					
27							330	A	305	300	330	A	400	400	A	A	300	315						
28							300	300	420	300	410	395	520	515	370	350	330	275						
29							A	A	A	285	A	A	R	R	R	400	305	340	290					
30						300	275	300	A	385	325	400	470	340	A	A	350	370	300	300				
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					5	14	18	13	11	14	13	14	15	17	16	19	23	21	17	2				
MED					310	322	300	305	300	350	345	360	395	425	415	370	350	330	300	300				
UQ					340	370	345	330	338	405	350	400	482	520	512	400	365	345	310					
LQ					300	300	275	300	285	300	325	325	355	360	342	350	332	320	290					

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JUN. 1976

H^oF₂ (KM)

IONOSPHERIC DATA

JUN. 1976

H'F (KM)

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

Station	WAKKANAI																							Lat. 45° 23.6' N.	Long. 141° 41.1' E	Sweep 1 MHz to 20 MHz in 20 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																								
1	270	290	275	275	250	225	250	A	A	A	A	A	A	A	A	A	A	A	A	A	280	245	A	260																								
2	A	A	A	300	A	A	A	A	A	A	A	A	A	A	A	260	A	A	A	A	A	A	200	275																								
3	250	265	270	275	260	A	A	A	A	A	A	A	210	210	225	A	A	A	A	A	A	250	210	225																								
4	250	250	250	230	260	250	A	A	A	200	200	190	215	A	A	240	A	A	A	A	255	A	285	275	265																							
5	A	A	A	260	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	270	290	260	A	A																							
6	A	A	285	A	275	A	A	A	A	A	A	A	A	A	210	210	230	250	250	A	265	275	280	250																								
7	250	245	295	265	250	240	250	245	215	A	A	A	A	A	205	240	245	A	A	245	300	280	A	265																								
8	230	A	265	220	205	250	A	A	A	A	A	A	A	200	220	240	A	240	235	A	255	275	260	275																								
9	270	250	260	255	260	245	A	A	A	A	240	A	A	A	A	A	A	A	A	A	275	250	A	A	A																							
10	A	260	270	240	A	245	A	A	A	A	A	200	200	250	A	A	A	A	A	A	220	255	250	300																								
11	A	A	A	300	255	A	A	C	C	C	C	C	A	A	240	A	A	A	A	A	280	275	A	A																								
12	250	A	310	A	305	A	A	A	A	225	230	A	A	A	220	A	A	A	A	A	A	A	A	285																								
13	285	270	320	285	295	A	A	A	A	A	A	A	220	205	220	235	260	A	A	A	270	A	250	250																								
14	230	265	275	250	250	245	A	A	A	A	A	A	A	195	250	240	265	A	A	250	250	290	250	275																								
15	250	265	250	240	250	240	A	240	A	A	A	A	A	A	A	210	240	260	250	A	A	A	A	255																								
16	250	250	265	250	250	230	A	245	A	205	200	200	200	215	205	205	220	225	225	295	270	255	245	245																								
17	230	240	250	230	225	245	A	A	A	A	A	210	A	190	210	A	220	A	A	A	260	225	250	240																								
18	260	280	255	275	250	A	A	A	A	A	A	A	A	195	A	225	235	215	250	A	280	250	250	265																								
19	300	250	245	265	310	A	A	A	A	205	A	A	220	A	225	A	C	C	C	C	C	C	C	C																								
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	205	225	250	A	270	250	285	255	225																								
21	260	275	260	295	225	225	A	A	A	A	A	A	A	A	A	A	A	A	A	A	250	250	280	250																								
22	250	245	265	300	245	215	225	C	C	A	A	200	205	205	210	200	200	210	250	245	270	250	240	210																								
23	250	260	250	225	270	250	220	205	220	205	A	200	A	235	205	A	215	A	A	260	250	245	220	220																								
24	240	280	275	270	250	240	250	225	A	200	190	205	200	200	210	A	A	A	A	280	250	225	210	250																								
25	250	250	250	250	250	235	235	A	A	A	215	235	A	A	240	240	255	A	A	A	A	285	300	290																								
26	250	260	265	290	230	245	240	A	A	A	A	200	245	A	215	230	250	225	250	275	265	235	220	250																								
27	270	245	270	250	225	220	A	230	A	A	A	A	A	250	A	A	A	250	250	A	A	A	250	250																								
28	A	270	300	255	250	230	230	A	A	215	225	205	210	200	205	225	A	A	A	A	250	240	240	240																								
29	235	250	260	250	225	245	A	A	A	A	A	A	200	200	215	240	210	240	225	250	260	240	300	240																								
30	250	225	250	250	250	240	230	A	A	A	210	210	190	215	A	A	A	A	A	240	270	305	230	290	240																							
31																																																
CNT	23	23	26	27	26	20	9	6	2	7	8	11	12	15	18	16	14	10	10	13	22	23	22	26																								
MED	250	260	265	255	250	240	235	235	218	205	212	200	208	205	215	232	232	240	250	270	262	250	250	250																								
UQ	260	268	275	275	260	245	250	245		210	228	208	218	215	225	240	250	250	250	275	280	275	275	265																								
LQ	250	250	250	250	245	230	230	225		202	200	200	200	200	210	210	220	225	235	250	250	242	240	240																								

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H'F (KM)

IONOSPHERIC DATA

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H'E (KM)

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

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

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

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H'E (KM)

IONOSPHERIC DATA

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H^oES (KM)

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

Station	WAKKANAI																							Lat. 45° 23.6' N.	Long. 141° 41.1' E	Sweep 1 MHz to 20 MHz in 20 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																								
1	105	S	S	115	S	140	125	120	115	110	110	110	105	105	100	100	100	120	115	115	110	105	105	105																								
2	105	100	100	100	105	125	115	115	115	110	110	105	105	105	110	140	120	115	110	115	110	110	S	100																								
3	100	100	100	S	G	120	110	110	110	110	110	110	105	105	140	120	120	115	110	110	110	105	S	S																								
4	S	100	100	S	G	125	120	115	115	105	110	G	140	110	110	110	120	120	115	110	110	110	110	105																								
5	105	100	100	105	125	125	115	110	110	110	110	110	110	115	125	115	110	115	110	105	115	115	115	110																								
6	105	105	100	105	125	115	110	110	115	110	110	105	105	105	105	G	135	120	125	120	115	110	110	105																								
7	105	105	100	100	100	G	125	110	110	110	110	110	105	105	115	110	105	125	115	120	115	100	110	105																								
8	105	100	105	S	105	145	125	120	120	115	110	110	105	110	105	105	105	100	105	105	105	110	105	105																								
9	100	100	100	100	100	125	115	115	110	110	115	110	105	105	100	100	100	100	100	100	115	110	110	105																								
10	105	105	100	100	100	120	115	115	110	110	110	110	110	115	140	120	120	115	115	115	105	105	110	105																								
11	105	100	100	100	100	120	120	C	C	C	C	C	110	105	110	145	115	115	110	115	115	110	105	110																								
12	105	125	120	115	125	120	110	110	110	115	115	115	125	110	150	125	120	120	120	115	115	110	105	105																								
13	100	100	100	105	140	120	115	115	110	110	105	105	105	105	105	100	120	115	110	105	110	110	105	S																								
14	S	105	100	105	105	120	120	115	110	110	105	105	105	G	105	105	130	125	120	115	110	115	105	105																								
15	105	105	105	105	105	110	120	115	105	110	110	110	105	110	105	120	125	115	120	115	110	110	105	105																								
16	100	100	100	100	120	115	110	115	105	110	110	115	110	105	105	G	G	130	125	115	105	105	105	105																								
17	S	S	100	E	100	145	120	120	110	110	110	110	105	110	105	100	105	120	115	110	110	110	100	105																								
18	S	S	E	S	G	125	120	115	110	110	105	105	105	105	110	G	180	105	130	120	110	105	105	105																								
19	105	100	105	100	125	125	115	115	110	110	110	105	105	105	105	110	C	C	C	C	C	C	C	C																								
20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	105	100	125	115	115	115	115	110	105																							
21	110	100	100	100	100	105	115	115	110	110	110	105	105	105	105	100	110	125	120	120	110	110	110	105																								
22	105	105	100	100	100	140	125	C	C	110	110	110	110	110	110	110	105	105	105	125	115	110	105	E																								
23	S	105	105	105	155	150	125	145	130	125	115	110	105	105	G	125	120	115	110	115	105	105	E	100																								
24	100	100	100	100	125	G	120	115	110	110	G	110	110	G	G	125	115	115	110	110	110	110	105	105	105																							
25	S	100	100	105	G	G	140	120	110	110	110	105	105	105	105	105	140	120	115	110	110	110	110	105																								
26	105	100	105	100	105	G	145	115	115	110	110	115	110	110	115	105	105	100	100	120	110	105	E	105																								
27	105	E	100	S	125	120	120	G	110	110	110	110	110	105	105	110	115	115	110	115	110	110	105	105																								
28	105	100	100	S	105	150	135	115	110	110	110	110	110	110	110	150	125	115	115	110	110	S	S	125																								
29	100	100	100	E	140	135	110	110	110	105	105	105	105	120	105	130	125	105	120	115	115	110	110	110																								
30	105	105	105	E	110	140	140	120	110	110	110	105	105	100	120	115	115	120	120	120	S	S	S	S																								
31																																																
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																								
CNT	23	25	27	20	24	25	29	26	27	28	27	27	29	27	27	27	28	29	29	29	28	27	23	25																								
MED	105	100	100	100	105	125	120	115	110	110	110	110	105	105	105	110	118	115	115	115	110	110	105	105																								
UQ	105	105	102	105	125	140	125	115	112	110	110	110	110	110	112	122	122	120	120	115	115	110	110	105																								
LQ	102	100	100	100	100	120	115	115	110	110	110	105	105	105	105	105	105	115	110	110	110	105	105	105																								

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H^oES (KM)

IONOSPHERIC DATA

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TYPES OF ES

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

The Radio Research Laboratories, Japan

JUN. 1976

TYPES OF ES

IONOSPHERIC DATA

JUN. 1976

FXI (0.1 MHz)

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

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	X 48	X 44	X 45	X 44																		C	C	C	C					
2	C	C	C	C																		X 77	X 61	63	60					
3	A	48	46	46	44																	A	71	57	51					
4	X 48	52	X 46	X 44	44																	X 63	X 55	X 59	55					
5	53	48	A	X 48																		X 61	X 62	X 60	X 56					
6	X 58	X 55	X 53	X 48																		X 65	55	54	A					
7	45	45	40	X 38																		X 59	X 50	52	46					
8	50	47	50	X 45	44																	X 59	A	A	A					
9	X 45	52	50	X 46																		X 64	X 54	X 46	A					
10	47	45	46	41	41																	A	X 55	X 54	A					
11	A	48	46	A	45																	X 76	X 75	74	A					
12	A	55	59	57	62	72																X 76	A	X 55	55					
13	57	55	50	42																		A	62	65	65					
14	55	A	X 45	X 44	43																	X 60	X 53	52	54					
15	51	48	X 45	X 40																		X 58	60	X 60	60					
16	46	48	50	49	47																	X 71	X 73	74	X 67					
17	X 63	X 61	X 58	X 47																		X 91	X 80	70	67					
18	X 53	53	52	57	52																	X 65	X 65	X 59	X 56					
19	X 51	60	54	48	39																	A	62	63	52					
20	52	55	56	55	53																	X 69	X 69	68	57					
21	A	60	62	52	49																	63	62	63	57					
22	55	52	X 43	45	45																	A	X 75	60	52					
23	X 51	52	52	X 47																		X 81	X 68	X 63	X 58					
24	X 54	X 51	X 49	X 48																		X 88	82	57	49					
25	48	52	50	X 48																		X 71	54	53	52					
26	A	A	A	A	49																	X 75	72	63	60					
27	59	56	X 57	X 54																		X 76	X 73	64	62					
28	60	63	52	53	50																	X 71	X 66	62	61					
29	60	52	52	52	46																	X 69	X 65	68	R					
30	A	47	A	A	43																	72	X 72	77	75					
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	23	27	26	26	17	1																24	27	28	23					
MED	52	52	50	X 48	45	72																X 70	X 65	61	57					
UQ	56	55	53	52	49																	X 76	X 72	64	60					
LQ	48	48	46	X 44	44																	X 63	X 58	X 56	53					

JUN. 1976

FXI (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FOF2 (0.1 MHz)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	42	38	39	38	38	42	46	A	54	A	A	A	C	A	A	C	C	C	C	C	C	C	C			
2	C	C	C	C	C	C	C	C	C	C	C	C	A	55	53	48	A	A	A	67	71	55	F	F		
3	A	F	F	F	F	A	52	A	59	A	A	50	53	51	53	54	59	61	60	65	A	F	F	F		
4	42	F	40	38	F	49	49	43	A	A	A	52	48	48	A	66	71	74	60	62	57	49	53	F		
5	F	F	A	42	A	A	A	49	60	54	A	A	47	A	A	53	A	58	57	58	55	56	54	50		
6	52	49	47	42	38	39	45	52	A	A	A	A	53	I R	48	46	49	53	A	48	57	59	F	F	A	
7	F	F	F	32	34	42	53	A	48	A	E G	42	46	A	A	A	48	55	A	A	52	52	43	F	F	
8	F	F	F	42	39	F	39	50	50	45	49	A	A	47	A	52	54	A	57	52	A	53	A	A	A	
9	39	F	F	40	44	45	48	A	A	A	A	51	A	A	A	A	52	58	64	49	52	58	48	40	A	
10	F	F	F	F	F	38	47	A	65	59	A	48	49	C	C	60	57	58	60	68	A	49	48	A	A	
11	A	F	F	A	F	44	A	A	A	A	A	56	61	73	74	70	64	57	52	64	70	69	F	A	A	
12	A	F	F	F	F	F	74	70	67	A	A	A	50	54	A	A	A	A	A	A	66	70	A	49	F	
13	F	F	F	F	30	41	A	A	A	A	R	A	A	A	E G	43	48	55	54	55	52	A	F	F	F	
14	F	A	39	38	F	43	53	54	66	68	49	A	A	A	49	48	51	54	59	59	54	47	F	F	F	
15	F	F	39	34	34	39	48	63	62	56	54	53	48	A	A	53	60	I R	58	53	56	52	F	54	52	
16	F	F	F	F	F	44	45	A	A	56	53	54	50	50	50	57	59	52	53	59	65	F	F	61	F	
17	56	55	51	41	38	45	60	S	61	64	65	A	53	49	51	A	A	A	A	62	74	85	74	F	F	
18	47	45	F	F	F	42	A	A	A	A	A	A	A	A	52	53	47	A	46	54	59	59	53	50	F	
19	45	F	F	F	F	46	A	A	50	48	48	E G	45	A	A	A	47	A	46	45	A	A	F	F	42	F
20	F	F	F	F	F	45	48	57	57	56	55	A	53	59	52	50	I R	48	A	59	63	63	F	F	F	
21	A	F	F	F	F	47	A	A	57	55	53	A	A	55	A	57	53	52	I C	53	A	F	F	F	F	
22	F	F	37	F	F	50	50	59	54	53	54	A	62	59	A	A	A	A	54	61	A	69	51	F	F	
23	45	F	F	41	42	51	50	50	53	61	55	55	56	53	I C	51	49	47	49	55	60	75	62	57	52	
24	48	45	43	42	39	47	62	65	62	53	52	59	47	I R	48	47	A	53	57	66	74	82	73	F	F	
25	F	F	F	42	40	38	56	56	71	A	I R	I C	51	53	A	51	60	63	69	73	65	47	F	F	F	
26	A	A	A	A	F	46	52	A	A	A	62	A	60	C	C	A	A	53	55	64	69	F	54	51	F	
27	F	F	50	48	43	40	47	55	62	54	60	A	A	51	58	55	56	55	A	63	70	67	F	F	F	
28	F	F	F	F	F	50	51	A	C	56	55	49	A	51	A	52	60	62	A	A	65	60	F	F	F	
29	F	F	F	F	F	36	A	A	64	59	52	55	50	A	A	50	52	54	48	53	63	59	F	R	F	
30	A	F	A	A	F	47	49	A	A	A	A	A	51	A	52	A	A	A	69	67	F	66	F	F	F	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	11	7	13	16	18	26	22	14	19	16	16	14	18	16	14	23	20	21	23	25	22	20	13	7		
MED	45	45	42	40	38	44	50	56	60	56	53	53	50	52	52	52	56	57	55	61	64	60	53	51		
UQ	48	48	47	42	40	47	53	61	64	59	55	55	53	55	53	54	60	58	60	66	70	66	54	52		
LQ	40	42	39	37	36	40	48	50	54	54	51	49	48	50	49	49	52	53	52	57	57	49	49	50		

The Radio Research Laboratories, Japan

JUN. 1976

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FOF1 (0.01 MHz)

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

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	C	A	A	C	C	C	C						
2							C	C	C	C	C	C	C	A	420	A	A	A	A	A						
3							A	A	A	A	A	A	430	A	430	A	A	380	A	A						
4							L	A	A	A	A	A	430	440	420	A	A	380	360	A						
5							A	A	A	410	A	A	A	A	A	A	400	A	360	A						
6							320	350		A	A	A	A	A	A	420	A	A	A	A						
7							310	350	A	410	A	420	410	A	A	A	400	370	A	A						
8								A	A	A	A	A	A	430	A	420	A	A	A	A						
9								A	A	A	A	A	A	A	A	A	410	A	A	A						
10							A	360	A	A	430	A	440	430	I C 440	I C 430	410	400	370	A						
11							320	A	A	A	A	A	A	430	A	420	410	390	410	A						
12							300	360	380	A	A	A	A	430	430	H	A	A	A	A						
13							A	A	A	A	A	430	A	A	A	430	410	390	A	A						
14							U L 330	A	400	A	430	A	A	A	A	A	420	390	370	A						
15							350	360	390	420	430	440	H 440	440	A	A	410	400	A	A						
16							L	370	A	A	A	430	430	440	430	430	H 410	400	370	320						
17							L	370	A	A	A	A	440	450	H	A	A	A	A	330						
18							L	A	A	A	A	A	A	A	A	A	400	400	A	A						
19							L	A	A	400	A	A	450	A	A	A	A	A	360	A						
20							L	370	400	A	A	A	A	440	430	A	410	A	370	A						
21								A	A	400	A	430	A	A	A	A	420	410	H	A	C					
22							L	390	400	A	A	430	A	A	440	A	A	A	A	330						
23							L	U L 390	410	420	A	A	440	440	H 440	I C 440	420	410	A	A						
24							350	380	A	420	430	430	430	440	450	430	A	A	A	A						
25								360	380	A	A	440	C	A	A	A	420	A	360	330						
26							A	A	A	A	A	A	A	A	A	C	C	A	A	A	A					
27							A	380	390	410	420	A	A	A	430	H 430	420	410	380	A						
28							L	A	A	C	A	430	430	A	A	A	410	A	A	A						
29								A	A	A	A	A	A	A	A	A	410	390	370	350	L					
30							L	350	A	A	A	A	A	A	A	A	A	A	A	A						
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							7	14	8	8	5	9	11	11	11	9	17	14	11	5						
MED							320	365	395	410	430	430	430	440	430	430	410	395	370	330						
UQ							340	380	400	420	430	430	440	440	440	430	420	400	370	330						
LQ							315	360	385	405	430	430	430	430	430	420	410	390	360	330						

JUN. 1976

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JUN. 1976

FOE (0.01 MHz)

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

Station		AKITA		Lat. 39 43.5 N		Long. 140 08.2 E		Sweep 1		MHz to 20		MHz in 20		sec in automatio		operation									
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						S	190	235	270	295	310	320	A	C	A	A	C	C	C	C	C				
2						C	C	C	C	C	C	C	C	A	A	A	315	285	245	A	S				
3						S	A	235	275	300	310	A	A	A	A	A	310	295	245	A	S				
4						E	A	220	270	300	310	A	325	335	330	315	300	280	250	195	S				
5						S	A	225	270	300	315	320	A	335	330	320	300	275	245	A	S				
6						S	A	A	270	300	315	325	A	A	A	A	300	280	245	190	S				
7						S	A	225	260	290	A	A	325	A	A	A	A	A	A	S	S				
8						S	170	220	260	290	315	320	330	A	A	A	A	A	A	A	S				
9						S	A	230	275	295	315	325	335	335	A	A	A	A	A	A	E				
10						S	175	235	270	305	315	A	A	A	C	C	310	285	250	190	S				
11						E	A	245	275	305	315	325	A	A	A	A	A	280	245	185	B				
12						E	175	235	275	300	A	A	330	A	A	325	310	285	245	195	B				
13						E	185	230	270	300	310	320	325	A	A	A	A	A	A	A	A				
14						E	180	245	280	300	315	320	A	A	A	A	320	280	250	200	A				
15						S	190	240	280	305	315	325	335	345	340	320	310	290	250	200	B				
16						E	190	235	275	295	A	315	A	A	A	325	305	280	245	205	S				
17						S	185	240	285	310	315	320	A	A	A	A	A	290	A	200	B				
18						E	185	230	270	305	315	325	335	A	A	A	A	A	A	A	A				
19						E	180	230	265	295	315	A	A	A	A	A	310	285	245	190	B				
20						E	180	245	280	295	305	A	A	A	A	A	A	A	A	200	B				
21						E	A	240	270	300	310	320	325	335	330	320	305	280	240	I C 190	A				
22						S	195	235	275	300	315	325	A	A	A	A	A	A	A	A	A				
23						S	A	245	285	305	315	325	335	340	330	I C 320	310	295	255	215	A				
24						B	195	240	A	A	A	A	A	A	A	A	320	290	A	A	A				
25						B	175	A	275	300	315	A	C	A	A	A	320	290	250	200	S				
26						S	A	A	275	295	310	320	A	A	C	C	A	A	A	A	B				
27						S	A	235	275	300	310	315	A	A	A	325	310	290	255	A	A				
28						S	195	240	275	I C 295	310	A	A	A	A	A	320	290	260	200	A				
29						E	A	220	260	290	A	A	A	A	A	A	A	A	A	A	A				
30						E	190	235	275	300	A	A	A	A	A	325	305	280	245	190	S				
31																									
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						12	17	26	28	28	23	17	10	6	5	9	18	20	18	16	1				
MED						E	185	235	275	300	315	320	330	335	330	320	310	285	245	198	E				
UQ						E	190	240	275	300	315	325	335	340	330	325	315	290	250	200					
LQ						E	180	230	270	295	310	320	325	335	330	320	305	280	245	190					

JUN. 1976

FOE (0.01 MHz)

IONOSPHERIC DATA

JUN. 1976

FOES (0.1 MHz)

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

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 A 20	J A 24	J A 20	J A 20	J A 40	G 42	J A 64	J A 52	J A 65	J A 59	J A 52	C 110	J A 92	C	C	C	C	C	C	C	C	C	C																											
2	C	C	C	C	C	C	C	C	C	C	C	C	J A 83	J A 42	48	47	J A 55	J A 85	J A 75	J A 33	J A 130	J A 53	J A 45	J A 66																										
3	J A 60	J A 40	J A 55	J A 43	J A 49	J A 52	J A 46	J A 71	J A 60	J A 65	J A 68	J A 48	J A 65	J A 60	J A 58	J A 64	J A 47	J A 71	J A 62	J A 53	J A 79	J A 89	J A 45	J A 33																										
4	M 21	J A 24	J A 23	J A 26	J A 34	J A 29	J A 50	39	J A 55	J A 83	J A 68	J A 70	37	41	J A 48	J A 64	31	31	J A 36	J A 100	J A 79	J A 25	J A 41	J A 43																										
5	J A 39	J A 43	J A 54	J A 59	J A 45	J A 52	J A 69	J A 49	J A 60	J A 68	J A 89	J A 75	41	J A 74	J A 137	43	J A 67	J A 117	J A 49	J A 25	J A 27	J A 20	J A 28	J A 40																										
6	J A 63	J A 60	J A 31	J A 39	J A 34	25	33	45	J A 52	J A 55	J A 79	J A 105	J A 119	J A 88	J A 37	46	J A 49	J A 78	J A 74	J A 53	J A 54	J A 52	J A 43	J A 67																										
7	J A 57	J A 43	J A 28	J A 18	J A 39	J A 28	30	J A 63	J A 57	J A 67	J A 60	J A 51	J A 62	J A 106	J A 74	J A 42	J A 41	J A 76	J A 102	J A 79	J A 50	J A 40	J A 22	J A 42																										
8	J A 36	J A 21	J A 19	J A 50	J A 42	25	J A 41	J A 45	J A 60	J A 48	J A 62	J A 60	43	J A 95	J A 66	J A 59	J A 69	J A 44	J A 35	J A 96	J A 92	J A 87	J A 79	J A 90																										
9	J A 80	J A 54	J A 55	J A 64	J A 40	J A 24	J A 48	J A 76	J A 89	J A 62	J A 55	J A 57	J A 57	J A 84	J A 54	J A 48	J A 47	J A 39	J A 45	J A 41	J A 28	J A 34	J A 76	J A 67																										
10	J A 65	J A 74	J A 66	J A 55	J A 51	J A 35	J A 54	J A 156	J A 90	J A 90	J A 76	J A 55	J A 41	C	C	37	J A 49	J A 42	J A 40	J A 32	J A 84	J A 31	J A 74	J A 79																										
11	J A 77	J A 65	J A 54	J A 44	J A 32	28	J A 75	J A 85	J A 119	J A 114	J A 76	J A 78	J A 63	J A 63	35	J A 55	38	38	J A 83	J A 35	J A 26	J A 41	J A 89	J A 83																										
12	J A 74	J A 75	J A 75	J A 74	J A 38	J A 37	J A 36	J A 45	J A 69	J A 122	J A 142	J A 102	J A 45	34	J A 88	J A 130	J A 156	J A 85	J A 87	J A 79	J A 82	J A 70	J A 41	J A 55																										
13	J A 39	J A 62	J A 43	J A 65	J A 42	J A 38	J A 88	J A 83	J A 94	J A 68	J A 46	J A 60	J A 85	J A 106	J A 48	36	J A 40	J A 53	J A 60	J A 50	J A 74	J A 42	J A 36	J A 59																										
14	J A 56	J A 66	J A 40	J A 46	J A 34	25	J A 47	43	J A 53	42	46	J A 105	J A 179	J A 82	J A 47	37	34	35	J A 59	J A 51	J A 27	J A 39	J A 27	J A 39																										
15	J A 36	J A 33	J A 31	J A 26	E S 13	J A 24	27	36	37	40	38	J A 46	42	J A 82	J A 54	J A 60	35	J A 86	J A 95	J A 31	J A 53	J A 39	J A 66	J A 54																										
16	J A 63	J A 40	J A 25	J A 30	J A 25	G	35	J A 88	J A 69	J A 62	40	J A 51	37	J A 39	G	G	37	27	27	J A 30	J A 26	J A 34	J A 34	J A 18																										
17	J A 29	J A 21	M 22	M 20	E S 13	28	40	43	J A 59	J A 59	J A 65	J A 47	J A 53	J A 67	J A 88	J A 75	J A 56	J A 72	J A 77	J A 130	J A 56	J A 86	J A 54	J A 43																										
18	J A 23	J A 30	J A 19	J A 34	J A 28	32	J A 57	J A 67	J A 70	J A 80	J A 68	J A 79	J A 76	J A 70	J A 52	J A 37	J A 45	J A 76	J A 51	J A 52	J A 42	J A 28	J A 49	J A 26																										
19	J A 30	J A 38	J A 24	J A 25	J A 29	30	J A 62	J A 72	J A 70	J A 51	J A 74	J A 52	J A 115	J A 139	J A 52	J A 42	J A 46	J A 43	J A 43	J A 54	J A 58	J A 42	J A 80	J A 50																										
20	J A 40	J A 36	J A 55	J A 40	J A 16	G	30	42	J A 50	J A 65	J A 76	J A 79	J A 35	35	J A 56	J A 44	J A 47	37	J A 74	J A 48	J A 66	J A 80	J A 54	J A 94																										
21	J A 76	J A 56	J A 88	J A 90	J A 48	28	J A 52	J A 99	J A 62	J A 88	J A 45	J A 67	J A 79	J A 60	J A 58	42	G	42	C	J A 84	J A 86	J A 54	J A 33	J A 54																										
22	J A 29	J A 18	E S 13	J A 27	J A 27	G	29	35	J A 55	J A 83	J A 81	J A 96	J A 80	J A 53	J A 55	J A 68	J A 54	J A 86	J A 33	J A 89	J A 74	J A 33	J A 41	J A 18																										
23	J A 18	M 20	J A 20	E S 14	E S 14	24	31	35	40	44	44	40	37	40	C	G	40	J A 82	J A 79	J A 53	J A 39	J A 31	J A 25	J A 17																										
24	J A 19	E S 14	J A 22	J A 18	E B 18	G	30	J A 50	J A 45	34	35	40	J A 46	J A 43	J A 35	54	42	J A 45	J A 60	J A 44	J A 45	J A 54	J A 58	J A 34																										
25	J A 39	J A 42	J A 41	E S 14	E B 18	20	J A 34	J A 43	J A 59	J A 99	J A 45	C	J A 93	J A 101	J A 65	G	50	J A 42	32	J A 88	J A 32	J A 49	J A 84	J A 67																										
26	J A 87	J A 76	J A 66	J A 75	J A 53	J A 47	J A 55	J A 82	J A 160	J A 91	J A 80	J A 70	J A 48	C	C	J A 85	J A 70	J A 42	J A 54	J A 52	J A 55	J A 30	J A 56	J A 39																										
27	J A 30	J A 24	J A 17	J A 29	J A 32	J A 35	29	J A 85	42	J A 45	J A 54	J A 73	J A 159	J A 74	37	45	J A 58	J A 52	J A 86	J A 28	J A 50	J A 25	J A 43	J A 48																										
28	J A 53	J A 65	J A 30	J A 33	E S 14	28	39	J A 85	C	J A 51	42	42	J A 53	J A 56	J A 74	37	J A 52	J A 64	J A 97	J A 80	J A 91	J A 55	J A 38	J A 76																										
29	J A 43	J A 55	J A 39	J A 30	J A 39	J A 31	J A 60	J A 77	J A 63	J A 86	J A 50	J A 59	J A 52	J A 52	J A 51	42	40	35	J A 42	J A 33	J A 49	J A 26	J A 79	J A 55																										
30	J A 79	J A 30	J A 80	J A 80	J A 66	J A 80	33	J A 67	J A 58	J A 72	J A 64	J A 70	J A 55	J A 109	J A 44	J A 69	J A 75	J A 57	J A 49	J A 54	E S 13	E S 14	E S 14	E S 14																										
31																																																		
CNT	29	29	29	29	29	29	29	29	28	29	29	28	29	28	27	29	29	29	28	29	29	29	29	29																										
MED	J A 40	J A 40	J A 31	J A 34	J A 34	28	J A 41	J A 64	J A 60	J A 65	J A 62	J A 60	J A 55	J A 68	J A 54	J A 45	J A 47	J A 52	J A 60	J A 52	J A 54	J A 40	J A 45	J A 50																										
UQ	J A 63	J A 60	J A 55	J A 55	J A 42	J A 35	J A 54	J A 82	J A 70	J A 83	J A 76	J A 76	J A 80	J A 92	J A 66	J A 60	J A 55	J A 76	J A 78	J A 79	J A 79	J A 54	J A 66	J A 67																										
LQ	J A 30	J A 24	J A 22	J A 26	J A 25	24	33	43	J A 52	J A 51	J A 46	J A 51	J A 43	J A 48	J A 48	37	40	J A 42	J A 42	J A 35	J A 39	J A 31	J A 36	J A 39																										

The Radio Research Laboratories, Japan

JUN. 1976

FOES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FBES (0.1 MHz)

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

Station	AKITA																										
	Lat. 39 43.5 N											Long. 140 08.2 E											Sweep 1	MHz to 20	MHz in 20	sec in automatio	operation
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	E	19	18	E	18	G	42	A 64	45	A 65	A 59	A 52	C	A 110	A 92	C	C	C	C	C	C	C	C	C			
2	C	C	C	C	C	C	C	C	C	C	C	C	A 83	40	47	42	A 55	A 85	A 75	24	45	46	44	42			
3	A 60	E	32	25	22	A 52	41	A 71	53	A 65	A 68	42	44	37	47	48	37	51	56	43	A 79	36	27	E			
4	E	E	E	18	19	19	42	33	A 55	A 83	A 68	41	36	39	A 48	46	G	30	32	20	24	20	32	33			
5	32	31	A 54	32	A 45	A 52	A 69	43	35	47	A 89	A 75	U Y	A 74	A 137	38	A 67	32	47	22	20	E	19	30			
6	34	26	20	20	25	22	31	45	A 52	A 55	A 79	A 105	43	40	33	42	43	A 78	44	33	E	30	26	A 67			
7	19	E	20	E	25	20	29	A 63	37	A 67	37	38	A 62	A 106	A 74	35	33	A 76	A 102	46	47	28	E	33			
8	25	E	E	24	27	24	38	43	43	46	A 62	A 60	41	A 95	36	45	A 69	44	32	A 96	20	A 87	A 79	A 90			
9	27	22	29	31	25	22	44	A 76	A 89	A 62	46	A 57	A 57	A 84	A 54	36	40	38	40	31	23	24	32	A 67			
10	E	21	25	20	G	30	33	A 156	59	36	A 76	39	39	C	C	35	34	35	38	28	A 84	U Y	31	28	A 79		
11	A 77	20	18	A 44	17	25	A 75	A 85	A 119	A 114	A 76	45	40	45	34	33	36	35	46	34	20	30	44	A 83			
12	A 74	18	26	20	21	28	31	35	42	122	A 142	A 102	37	35	A 88	A 130	A 156	A 85	A 87	25	50	A 70	24	39			
13	27	41	23	21	20	34	A 88	A 83	A 94	A 68	37	A 60	A 85	A 106	38	35	38	51	50	37	A 74	22	25	42			
14	39	A 66	28	20	16	21	44	36	47	39	45	A 105	A 179	A 82	46	35	34	34	57	48	37	E	18	16			
15	20	E	14	15	E 13	17	26	33	34	37	37	41	41	A 82	A 54	39	33	48	48	24	28	26	31	37			
16	26	32	E	19	18	G	30	A 88	A 69	47	37	40	37	37	G	G	33	27	27	28	24	17	E	15			
17	E	15	E	E	E 13	27	34	40	52	50	A 65	43	37	47	A 88	A 75	A 56	A 72	31	62	55	E	24	19			
18	E	19	E	18	19	30	A 57	A 67	A 70	A 80	A 68	A 79	A 76	A 70	43	35	34	A 76	42	43	35	E	E	19			
19	19	26	16	17	18	28	A 62	A 72	37	44	43	36	A 115	A 139	A 52	38	A 46	32	40	A 54	A 58	35	20	E			
20	E	E	39	19	14	G	28	39	45	45	44	A 79	U Y	35	35	46	33	44	34	A 74	30	24	29	27	40		
21	A 76	39	20	20	24	24	A 52	A 99	38	45	38	A 67	A 79	46	A 58	40	G	41	C	A 84	27	36	19	34			
22	17	E	E 13	16	17	G	28	33	45	46	36	A 96	45	38	A 55	A 68	A 54	A 86	25	45	A 74	21	28	E			
23	E	E	E	E 14	E 14	24	30	34	38	43	44	38	37	36	C	G	35	46	49	52	28	20	19	E			
24	E	E 14	17	18	E 18	G	29	41	40	34	35	38	42	36	35	A 54	G	42	42	43	44	30	50	38	E		
25	26	29	20	E 14	E 18	20	28	36	50	A 99	38	C	A 93	45	A 65	G	41	33	29	25	21	20	E	35			
26	A 87	A 76	A 66	A 75	27	40	46	A 82	A 160	A 91	48	A 70	48	C	C	A 85	A 70	40	44	51	35	20	E	19			
27	20	19	E	21	25	32	28	32	33	35	45	A 73	A 159	35	37	38	33	32	A 86	25	25	20	21	27			
28	26	29	20	E	E 14	24	37	A 85	C	47	41	42	A 53	48	A 74	34	43	51	A 97	A 80	28	20	27	23			
29	27	28	30	25	20	26	A 60	A 77	48	47	46	47	45	A 52	A 51	36	34	32	26	20	21	20	22	U Y	55		
30	A 79	18	A 80	A 80	15	21	33	A 67	A 58	A 72	A 64	A 70	48	A 109	44	A 69	A 75	A 57	34	28	E 13	E 14	E 14	E 14	E 14		
31																											
CNT	29	29	29	29	29	29	29	29	28	29	29	28	29	28	27	29	29	29	28	29	29	29	29	29	29		
MED	26	19	20	20	18	24	37	A 63	48	47	46	A 54	45	46	A 48	38	40	42	44	34	28	22	24	33			
UQ	34	29	28	24	24	28	46	A 77	A 58	A 68	A 68	A 74	A 76	A 83	A 62	46	A 54	A 57	56	48	47	31	28	42			
LQ	E	E	13	16	15	20	30	36	39	45	38	41	40	38	40	35	34	34	33	25	23	20	19	16			

The Radio Research Laboratories, Japan

JUN. 1976

FBES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

F-MIN (0.1 MHZ)

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

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

JUN. 1976

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 1976

M(3000)F2 (0.01)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	285	295	305	295	300	330	290	A	315	A	A	A	C	A	A	C	C	C	C	C	C	C	C	C			
2	C	C	C	C	C	C	C	C	C	C	C	C	A	310	290	280	A	A	A	300	310	310	F	F			
3	A	F	F	F	F	A	305	A	345	A	A	290	300	290	305	295	305	320	300	305	A	F	F	F			
4	305	F	305	305	F	330	325	325	A	A	A	295	235	270	A	290	295	320	310	330	305	305	290	F			
5	F	F	A	310	A	A	A	285	305	335	A	A	270	A	A	295	A	300	300	300	300	290	290	295			
6	295	300	310	310	325	300	280	325	A	A	A	A	300	I R	285	270	295	315	A	310	300	310	F	F	A		
7	310	F	F	300	310	290	330	A	320	A	G	275	A	A	A	280	310	A	A	305	305	300	F	F			
8	F	F	F	320	325	F	305	305	310	A	300	A	A	275	A	280	310	A	310	295	A	290	A	A	A		
9	285	F	F	285	340	325	305	A	A	A	300	A	A	A	A	280	305	325	320	305	320	295	285	A			
10	F	F	F	320	295	F	310	300	A	325	350	A	270	285	C	C	305	310	320	315	325	A	305	305	A		
11	A	F	F	A	F	295	A	A	A	A	A	275	255	270	285	305	305	295	280	280	285	290	F	A			
12	A	F	F	F	F	F	285	310	300	A	A	A	260	290	A	A	A	A	A	295	305	A	290	F			
13	F	F	F	F	290	285	A	A	A	A	R	A	A	A	G	260	300	290	295	305	A	F	F	F			
14	F	A	280	315	F	305	315	290	320	340	305	A	A	A	280	285	290	305	A	325	305	290	F	F			
15	F	F	315	310	310	280	280	325	345	315	335	305	275	A	A	280	320	I R	330	305	320	300	F	300	315		
16	F	F	F	F	F	310	320	290	A	A	350	290	320	265	270	275	300	320	310	315	290	280	F	305	315		
17	305	300	325	300	300	300	335	315	S	335	340	A	320	265	275	A	A	A	A	275	285	300	300	F	F		
18	290	290	F	F	F	280	A	A	A	A	A	A	A	A	A	265	310	260	A	275	285	285	290	290	285		
19	290	F	F	F	290	310	A	A	295	275	265	G	A	A	A	290	A	285	280	A	A	F	F	F	320		
20	F	F	F	F	F	325	300	295	300	300	285	A	285	320	295	305	I R	300	285	A	290	295	310	F	F		
21	A	F	F	F	F	325	A	A	305	310	285	A	A	290	A	300	295	305	I C	310	A	F	F	F	F		
22	F	F	300	295	300	325	290	315	335	290	300	A	300	320	A	A	A	A	315	295	A	325	300	F	F		
23	295	F	F	305	310	335	320	325	310	320	310	290	285	305	I C	280	295	280	A	305	295	305	320	300	305		
24	305	295	300	300	305	295	310	315	330	315	290	330	290	I B	285	270	A	275	280	295	295	315	315	F	F		
25	F	F	F	310	300	300	315	300	275	310	A	I R	I C	290	300	A	275	A	280	295	285	300	310	335	310	F	F
26	A	A	A	A	F	330	315	A	A	A	A	315	A	295	C	C	A	A	290	305	310	305	F	300	300	F	F
27	F	F	305	310	325	320	305	310	330	320	330	A	A	275	290	280	300	290	A	290	310	330	F	F	F		
28	F	F	F	F	F	305	340	350	A	C	305	315	310	A	280	A	275	300	310	A	A	315	320	F	F		
29	F	F	F	F	F	330	335	A	A	305	315	300	315	280	A	A	290	295	295	285	295	305	295	F	R		
30	A	F	A	A	F	325	320	A	A	A	A	A	295	A	290	A	A	A	295	290	F	285	F	F	F		
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	11	7	13	16	18	26	22	14	18	16	16	14	18	16	14	23	20	20	22	25	22	20	13	7			
MED	295	295	310	302	305	318	305	312	318	315	300	298	282	285	280	290	300	302	300	300	305	305	300	305			
UQ	305	298	315	310	310	325	320	325	330	338	312	315	295	298	290	300	308	315	310	305	310	312	305	315			
LQ	290	292	305	298	300	300	290	295	305	302	288	275	265	275	270	280	295	290	295	290	300	292	290	298			

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JUN. 1976

M(3000)F2 (0.01)

IONOSPHERIC DATA

JUN. 1976 M(3000)F1 (0.01)

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

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	C	A	A	C	C	C	C					
2						C	C	C	C	C	C	C	A	A	A	A	A	A	A					
3						A	A	A	A	A	A	A	A		A	A	A	A	A					
4						L	A	A	A	A	A	A	410	A	A	A	370	350		A				
5						A	A	A	385	A	A	A	A	A	A	A	A	360		A				
6						340	370		A	A	A	A	A	A	380		A	A	A					
7						330	370	A	370	A	390	410	A	A	A	355	380		A	A				
8							A	A	A	A	A	A	A	A	380		A	A	A	A				
9							A	A	A	A	A	A	A	A	A	375		A	A	A				
10						A	360	A	A	405	A	410	400	I C 385	I C 370	380	360		A	A				
11						345	A	A	A	A	A	A	A	A		375	370	355	340		A			
12						A	380	385	A	A	A	A	390	415	H	A	A	A	A					
13						A	A	A	A	A	410	A	A	A	370	365		A	A	A				
14						U L 350	A	370	A	380	A	A	A	A	A	350	365	370		A				
15						315	375	375	400	415	390	H 395	395	A	A	A	375		A	A				
16						L	365	A	A	A	410	A	400	400	410	H 385	365	350	360					
17						L	A	A	A	A	A	A	415	H	A	A	A	A	A					
18						L	A	A	A	A	A	A	A	A	A	390	370		A	A				
19						L	A	A	370	A	A	395	A	A	A	A	A	380		A				
20						L	350	A	A	A	A	A	410	400	A	370		A	A	A				
21							A	A	A	A	410	A	A	A	A	A	H 370		A	C				
22						L	360	375	A	A	405	A	A	390	A	A	A	A	355					
23						L	U L 365	370	380	A	A	405	415	405	H I C 380	375	375		A	A				
24						335	350	A	A	395	415	415	A	375	395	A	A	A	A					
25							360	A	A	A	395	C	A	A	A	365		A	A	365				
26						A	A	A	A	A	A	A	A	C	C	A	A	A	A					
27						A	340	365	390	385	A	A	A	415	H 385	380	370	360		A				
28						L	A	A	C	A	A	A	A	A	A	370		A	A	A				
29							A	A	A	A	A	A	A	A	A	375	360	365	355					
30						L	A	A	A	A	A	A	A	A	A	A	A	A	A					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						6	12	6	6	5	8	6	8	9	9	14	12	8	4					
MED						338	362	372	382	395	408	408	405	400	380	372	370	360	358					
UQ						345	370	375	390	405	410	410	412	405	H 385	380	372	368	362					
LQ						330	355	370	370	385	392	395	398	385	375	365	362	350	355					

JUN. 1976 M(3000)F1 (0.01)

IONOSPHERIC DATA

JUN. 1976

H^oF₂ (KM)

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

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	310	A	A	A	C	A	A	C	C	C	C					
2						C	C	C	C	C	C	C	A	325	360	415		A	A	A				
3						A	310	A	285	A	A	390	355	390	350	A	315	310	A					
4						245	290	255	A	A	A	380	600	450	A	325	310	260	280					
5						A	A	390	325	295	A	A	455	A	A	350	A	320	315					
6						340	390	310	A	A	A	A	350	R	465	380	320	A	A					
7						350	285	A	330	A	G	450	A	A	A	420	325	A	A					
8							340	330	A	A	A	A	475	A	405	330	A	300	280					
9							350	A	A	A	380	A	A	A	A	380	315	270	295					
10						305	350	A	300	255	A	470	405	C	C	320	310	290	275					
11						345	A	A	A	A	A	420	420	365	330	305	320	355	A					
12						325	310	275	285	A	A	A	480	370	A	A	A	A	A					
13						370	A	A	A	A	R	A	A	A	G	450	335	A	A					
14						305	315	345	295	260	A	A	A	A	440	415	370	310	A					
15						400	375	285	270	320	295	350	465	A	A	385	305	280	A					
16						280	380	A	A	285	385	335	475	445	345	350	310	325	300					
17						325	280	305	280	265	A	325	485	430	A	A	A	A	330					
18						350	A	A	A	A	A	A	A	A	445	320	460	A	A					
19						305	A	A	375	450	470	G	A	A	A	400	A	370	A					
20						270	340	340	345	355	380	A	380	310	370	345	A	395	A					
21							A	A	330	330	390	A	A	370	A	335	340	315	I C	310				
22						270	355	280	290	375	360	A	345	305	A	A	A	A	285					
23						245	285	300	340	300	340	370	375	350	C	390	420	A	A					
24						305	300	295	260	315	400	310	410	R	475	A	385	345	315					
25							325	355	295	A	I R	C	A	415	A	405	335	325	275					
26						295	315	A	A	A	320	A	355	C	C	A	A	345	305					
27						275	330	305	290	305	300	A	A	415	360	375	335	350	A					
28						250	245	A	C	360	335	350	A	A	A	400	325	315	A					
29							A	A	300	305	365	320	415	A	A	395	350	330	340					
30						250	315	A	A	A	A	A	380	A	385	A	A	A	295					
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						21	21	14	18	15	15	13	18	13	13	22	19	19	14					
MED						305	315	305	298	305	380	370	412	370	385	380	325	320	298					
UQ						340	350	340	330	342	392	420	475	415	445	400	345	345	315					
LQ						270	300	285	285	290	338	335	375	350	360	335	315	305	280					

The Radio Research Laboratories, Japan

JUN. 1976

H^oF₂ (KM)

IONOSPHERIC DATA

JUN. 1976

H⁺F (KM)

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

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	275	295	280	285	270	230	A	A	A	A	A	A	C	A	A	C	C	C	C	C	C	C	C	C						
2	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	A	260	270	A	A	A						
3	A	285	A	295	275	A	A	A	A	A	A	A	A	235	A	A	A	A	A	260	A	255	245	255						
4	265	255	245	270	295	230	A	A	A	A	A	A	195	A	A	A	215	A	A	245	255	260	305	A						
5	A	A	A	A	A	A	A	A	215	A	A	A	A	A	A	A	A	A	A	260	255	285	285	305						
6	290	280	260	240	270	245	A	A	A	A	A	A	A	A	220	A	A	A	A	280	235	A	255	A						
7	250	300	280	275	A	225	A	A	A	A	220	215	A	A	A	240	225	A	A	A	A	290	295	A						
8	280	290	250	250	280	245	A	A	A	A	A	A	A	A	230	A	A	A	A	255	A	A	A	A						
9	A	300	300	A	245	215	A	A	A	A	A	A	A	A	A	240	A	A	A	255	245	245	A	A						
10	280	310	270	280	265	A	A	A	A	215	A	195	210	I C 190	I C 210	215	A	A	A	235	A	A	280	A						
11	A	295	280	A	280	255	A	A	A	A	A	A	A	A	230	230	A	A	A	310	255	295	A	A						
12	A	A	290	335	310	A	235	A	A	A	A	A	230	180	H	A	A	A	A	270	280	A	290	A						
13	315	A	240	265	295	A	A	A	A	A	210	A	A	A	230	230	A	A	A	275	A	310	295	A						
14	A	A	A	260	250	235	A	A	A	A	A	A	A	A	A	240	235	A	A	275	245	265	310	275						
15	290	255	245	245	255	240	235	225	200	195	205	H	A	A	A	A	215	A	A	250	250	315	295	280						
16	275	A	250	240	255	180	235	A	A	A	220	A	200	210	200	200	230	230	A	280	275	280	255	230						
17	245	270	240	215	285	260	A	A	A	A	A	A	180	H	A	A	A	A	A	280	205	295	250	250						
18	265	270	295	295	265	A	A	A	A	A	A	A	A	A	A	230	230	A	A	300	250	245	270	270						
19	275	310	235	230	310	A	A	A	A	A	A	200	A	A	A	A	A	A	A	A	A	270	230	230						
20	250	265	A	245	215	180	H	250	A	A	A	A	195	215	A	205	A	A	A	280	255	250	295	A						
21	A	A	265	250	310	245	A	A	A	A	215	A	A	A	A	A	180	A	C	A	305	310	245	A						
22	240	250	255	280	285	240	230	225	A	A	195	A	A	205	A	A	A	A	250	295	A	230	265	245						
23	255	265	250	240	245	A	235	230	A	A	A	195	200	185	H I C 215	205	220	A	A	250	230	245	245							
24	255	270	270	270	270	230	235	A	A	200	190	190	A	225	220	A	A	A	280	250	255	A	280							
25	300	A	265	245	275	230	220	A	A	A	205	C	A	A	A	235	A	A	A	255	215	250	295	A						
26	A	A	A	A	270	A	A	A	A	A	A	A	A	C	C	A	A	A	A	295	265	255	240	275						
27	285	290	255	245	245	A	240	230	215	215	A	A	A	180	H	225	245	215	235	A	280	245	235	265	305					
28	290	A	295	255	245	A	A	A	C	A	A	A	A	A	A	245	A	A	A	250	245	280	285	285						
29	245	295	A	290	225	240	A	A	A	A	A	A	A	A	A	230	245	235	240	285	255	260	295	A						
30	A	245	A	A	275	240	A	A	A	A	A	A	A	A	A	A	A	A	A	270	325	240	265	270						
31																														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	20	20	22	24	27	18	9	4	3	4	8	5	7	9	9	14	10	3	2	21	23	23	24	15						
MED	275	282	262	258	270	238	235	228	215	208	208	195	200	205	220	230	222	235	245	275	255	255	280	270						
UQ	288	295	280	280	282	245	235	230	215	215	218	200	205	215	230	240	230	235		280	272	282	295	280						
LQ	252	265	250	245	252	230	235	225	208	198	200	195	195	185	H 215	215	215	232		260	250	245	255	248						

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H⁺F (KM)

IONOSPHERIC DATA

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H'E (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					S	E	B						I	C	A	C	C	C	C	C				
2					C	C	C	C	C	C	C	C	110	110	110	110	110	110	115		S			
3					S	B							105	A	A		110	110	110	115				
4					E	A							110	110	110	110	110	110	110		S			
5					S								110	110	105	105	110	110	115		S			
6					S	A							105	105	105	110	110	110	115		S			
7					S	A							110	105	105	110	110	110	S		S			
8					S								105	105	105	105	105	105	105		S			
9					S								105	105	105		A	A	A	A	E			
10					S								105	C	C	A	A		105	115		S		
11					E								105	105	105	110	105	110	115		B			
12					E								105	110	105	110	110	110	115		B			
13					E								105	105	105		A	A	A	A	A			
14					E								105	105	105	110	110	110	115		B			
15					S	A							110	105	110	105	110	110	115		B			
16					E								105	105	110	110	105	110	110		S			
17					S								105	105	A	A	A		110	115		B		
18					E								110	105	105		A	A	A	A	A			
19					E								105	105	110	110	110	110	120		B			
20					E								A	A	A	A	A	105	110	115		B		
21					E								105	110	105	110	110	115	I	C	B			
22					S								105	105	105	105	105		A	A	A			
23					S								110	110	I	C		110	110	115		B		
24					B								105	A	A		110	110	115	115		A		
25					B	A							I	C	A		110	110	110	115		S		
26					S	A							105	C	C	A	A	A	A		B			
27					S	B							105	105	110	110	110	110	110		A			
28					S								105	105	I	C		110	110	115		A		
29					E	A							A	A	A	A	A	A	A		A			
30					E								105	105	110	110	110	115	115		S			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						21	28	29	29	29	29	28	28	23	22	21	22	23	22					
MED						120	110	110	105	105	105	105	105	105	105	110	110	110	115					
UQ						120	110	110	105	105	105	105	108	108	110	110	110	110	115					
LQ						115	110	105	105	105	105	105	105	105	105	110	110	110	115					

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H'E (KM)

IONOSPHERIC DATA

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H^oES (KM)

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

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	105	105	100	100	100	G	125	115	115	115	115	C	110	105	C	C	C	C	C	C	C	C	C	
2	C	C	C	C	C	C	C	C	C	C	C	C	110	120	125	140	125	115	115	110	110	110	110	
3	105	100	100	100	100	115	115	115	110	110	110	110	105	105	125	120	125	115	115	115	115	115	110	
4	105	105	100	105	100	105	115	130	115	115	110	115	140	135	115	115	130	125	115	110	110	110	110	
5	105	105	105	105	115	125	120	120	120	115	115	115	145	130	115	125	115	120	115	110	110	120	110	
6	105	105	105	105	105	125	120	115	115	115	115	110	110	110	110	125	125	115	115	115	115	115	110	
7	105	105	105	105	105	105	125	115	115	115	115	115	115	110	110	140	110	105	100	100	100	105	125	
8	110	105	100	105	105	145	135	130	125	115	115	115	115	110	115	115	115	115	115	100	105	115	110	
9	110	105	100	100	105	135	125	115	115	115	115	115	110	110	105	105	105	105	100	100	100	120	110	
10	110	105	105	105	110	120	120	115	115	115	110	110	C	C	130	125	120	115	115	110	110	105	105	
11	105	100	100	100	125	120	115	115	115	115	110	115	115	110	115	115	140	125	115	115	120	110	110	
12	105	105	105	120	125	120	120	115	115	115	115	110	115	120	125	125	120	115	115	115	115	120	110	
13	105	100	100	100	100	130	120	115	115	115	115	115	110	105	105	140	100	115	115	115	105	115	110	
14	105	110	100	100	105	140	125	125	115	115	115	110	110	110	145	140	125	115	115	110	115	110	110	
15	110	105	110	105	S	105	130	120	115	115	120	125	140	125	125	125	130	120	115	115	110	110	105	
16	105	100	105	100	100	G	130	115	115	110	115	110	110	110	G	G	140	140	130	120	115	115	110	
17	110	110	110	110	S	145	135	130	120	115	115	110	110	105	100	100	125	115	120	120	115	115	105	
18	105	100	100	105	105	130	125	115	115	110	115	110	110	110	110	105	105	100	100	115	115	110	110	
19	105	105	105	100	145	125	120	115	115	115	110	110	110	110	115	115	125	125	125	115	115	115	110	
20	105	105	100	100	100	G	140	120	115	115	110	105	105	110	105	110	115	125	115	120	115	110	115	
21	110	105	110	105	100	130	125	115	120	115	120	115	110	115	115	115	G	125	C	120	115	115	110	
22	105	105	S	105	100	G	130	125	115	115	115	110	110	110	110	110	105	105	105	100	100	105	110	
23	110	110	110	S	S	145	145	130	125	125	115	115	125	115	C	G	125	115	115	115	110	105	105	
24	105	S	105	105	B	G	120	110	110	115	115	110	105	105	105	125	125	120	115	110	110	110	105	
25	105	105	105	S	B	155	105	125	115	115	115	C	110	110	110	G	125	120	120	115	115	115	110	
26	110	105	105	105	100	105	110	120	115	115	115	115	115	C	C	105	105	100	100	100	100	110	105	
27	105	110	105	105	105	120	125	115	120	115	115	110	110	115	140	130	120	120	115	110	110	115	110	
28	110	105	105	105	S	130	125	115	C	115	115	115	110	110	110	145	125	120	115	110	110	110	110	
29	105	105	105	100	100	100	125	115	115	110	110	110	105	105	105	105	130	125	120	100	100	100	115	
30	110	105	100	105	110	120	140	125	115	110	110	110	110	110	115	130	125	120	120	115	S	S	S	
31																								
CNT	29	28	28	27	23	24	29	29	28	29	29	28	29	28	26	26	28	29	28	29	28	28	28	28
MED	105	105	105	105	105	125	125	115	115	115	115	110	110	110	110	122	125	120	115	115	110	110	110	110
UQ	110	105	105	105	108	132	130	125	115	115	115	115	115	115	115	130	125	125	115	115	115	115	110	110
LQ	105	105	100	100	100	118	120	115	115	115	115	110	110	110	105	110	115	115	115	110	108	110	110	105

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H^oES (KM)

IONOSPHERIC DATA

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TYPES OF ES

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

Station	AKITA				Lat. 39 43.5 N.	Long. 140 08.2 E	Sweep 1 MHz to 20 MHz in 20 sec in automatio operation																	
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F2	F2	F2	F2	L3		H3	C5	C3	C3	C2	C2		C4	L3									
2													C3	C2	H2	H2	H2	C4	C4	L2	F4	F6	F6	F5
3	F5	F2	F5	F3	L2	C3	C3	C3	C4	C3	C3	C2	C2	L2	H2	C2	H2	C3	C3	C4	F4	F3	F5	F3
4	F2	F2	F1	F2	L2	LH2	C4	H2	C2	C3	C2	C2	H1	H1	C2	C2	H1	H3	C3	LH2	F3	F6	F6	F6
5	F6	F5	F4	F3	C4	H4	C2	C2	C2	C2	C2	C2	H1	H2	C2	H2	C3	C3	C2	L4	F3	F1	F2	F4
6	F4	F3	F4	F3	L6	H2	C2	C2	C3	C2	C4	C3	C2	C2	C1	H1	H2	C3	C3	C3	F1	F3	F4	F4
7	F3	F2	F2	F2	L2	L3	H2	C4	C2	C2	C1	C2	C2	C2	C2	H2	C2	L3	L4	L2	F3	F3	F2	F3
8	F4	F2	F2	F3	L3	H2	H2	H2	H3	C2	C2	C2	C2	C2	C2	C2	C4	C2	C3	L3	F2	F3	F3	F5
9	F3	F4	F3	F4	L2	H1	H2	C3	C4	C2	C2	C2	C3	C3	C2	L2	L4	L2	L3	L3	F3	F5	F5	F4
10	F2	F2	F3	F3	L2	C2	C3	C4	C3	C1	C2	C2	C2		H2	H2	H2	C3	C3	C3	F4	F4	F4	F5
11	F5	F2	F2	F4	H2	C3	C3	C3	C4	C3	C2	C2	C2	C2	C1	C1	H2	H2	C2	C2	F2	F4	F5	F4
12	F4	F1	F3	F3	C4	C4	C3	C3	C2	C2	C3	C3	C1	C1	H3	H4	C4	C3	C3	C3	F4	F6	F6	F3
13	F4	F6	F4	F3	L2	H3	C4	C3	C4	C3	C2	C2	C3	C4	C2	H2	L4	C2	C4	C3	F4	F3	F6	F5
14	F5	F4	F4	F3	L1	H1	H3	H3	C3	C2	C2	C2	C2	C3	C2	H2	H2	H2	C6	C2	F3	F2	F2	F3
15	F2	F3	F2	F2		L2	H2	C2	C1	C2	C1	H1	H1	H2	H2	H2	H2	C2	C2	C4	F3	F3	F3	F3
16	F3	F3	F3	F2	L1		H3	C3	C4	C2	C2	C2	C1	C1			H2	H1	H3	C3	F4	F2	F2	F2
17	F2	F2	F1	F1		H2	H2	H2	C3	C3	C2	C2	C1	C3	L4	L3	H3	C3	C3	C4	F6	F1	F4	F4
18	F3	F2	F1	F2	L3	H3	H2	C3	C2	C3	C2	C2	C3	C3	C2	L2	L2	L3	L4	C3	F4	F2	F2	F3
19	F3	F4	F2	F1	H3	H3	C3	C3	C2	C3	C2	C1	C3	C4	C2	C2	H3	H2	H3	C2	F3	F3	F3	F2
20	F2	F2	F4	F2	L1		H2	C2	C2	C2	C2	C1	L2	L1	L2	L1	C3	H2	C3	C3	F3	F2	F3	F3
21	F5	F3	F3	F2	L2	H2	H3	C3	C2	C2	C1	C3	C2	C2	C3	C2		H3		C3	F2	F4	F2	F5
22	F2	F2		F2	L2		H2	H2	C4	C3	C1	C3	C2	C2	C3	C3	C3	L3	L3	L4	F4	F3	F4	F1
23	F2	F1	F2			H2	H2	H1	H2	H2	C2	C1	H1	C1			H2	C4	C3	C3	F3	F3	F2	F1
24	F3		F1	F2			C1	C2	C2	C1	C1	C2	C2	L1	L1	H2	H2	C2	C3	L3	F3	F4	F4	F5
25	F4	F2	F2			H1	L2	H3	C3	C3	C1		C3	L2	C2		H2	C2	C2	C2	F3	F2	F2	F3
26	F3	F3	F3	F2	L2	L3	C3	C3	C3	C2	C2	C2	C2		L3		L4	L2	L2	L2	F5	F2	F2	F3
27	F2	F2	F1	F3	L2	C2	H1	C2	C2	C2	C2	C3	C3	C1	H1	H1	C2	C2	C3	L3	F3	F2	F3	F4
28	F3	F2	F2	F2		H2	H2	C3		C3	C2	C2	C2	C2	C2	H1	H2	C3	C4	L3	F2	F2	F4	F3
29	F3	F3	F4	F3	L3	L3	H4	C4	C3	C2	C2	C3	L2	L3	L3	L2	H2	H2	C2	L2	F4	F3	F2	F4
30	F6	F3	F3	F3	L2	C1	H2	H3	C3	C2	C3	C3	C2	C2	C1	H3	H2	C2	C4	C6				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

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TYPES OF ES

IONOSPHERIC DATA

JUN. 1976

FXI (0.1 MHz)

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

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	A	52	S	S	S																	S	65	69	A	37
2	X	S	S	S	S																73	X	S	A	S	
3	A	X	S	S	X																	S	S	A	S	
4	A	A	A	A	43																	C	C	C	C	
5	C	C	C	C	C																	A	S	S	X	
6	66	58	58	S	S																	X	S	A	A	
7	A	S	S	S	S																	67	50	S	A	
8	A	A	A	S	S																	60	S	S	S	
9	S	S	S	S	S																	S	S	S	S	
10	S	44	A	S	S																	A	C	C	C	
11	C	C	C	C	C																	S	S	71	66	
12	67	S	S	S	S	70		80	74													U	S	S	X	
13	X	A	A	A	S																	S	S	S	S	
14	A	A	A	S	S																	A	58	S	S	
15	S	S	49	40	39																	X	S	60	S	
16	S	50	S	44	X																	S	S	S	66	
17	U	S	S	S	S																	S	S	S	S	
18	S	52	57	58	60																	X	X	X	60	
19	X	S	S	A	A																	S	S	S	S	
20	S	S	47	50	40																	S	S	S	S	
21	A	61	S	S	42																	64	62	63	52	
22	S	48	S	S	43																	C	C	C	C	
23	C	C	C	C	C																	S	S	S	S	
24	X	X	S	S	S																	80	65	64	56	
25	A	A	A	A	S			64														X	X	A	A	
26	S	A	A	A	40																	0	S	S	60	
27	60	S	S	S	S																	S	S	S	57	
28	55	S	S	S	S																	S	S	A	A	
29	A	A	S	S	S																	A	X	60	S	
30	S	S	44	43	40	52																68	79	S	X	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	11	14	13	17	23	2		2	2											1	20	17	16	14		
MED	55	50	49	44	41	61		72	69											73	66	X	61	58		
UQ	62	52	57	48	47																	76	65	64	60	
LQ	50	44	44	43	39																	60	X	56	52	

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FXI (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FOF2 (0.1 MHz)

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

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	A	F ₄₁	40	S ₃₇	S ₃₅	40	48	50	A	59	A	A	A	A	53	62	71	60	59	58	59	F	A	F	
2	32	31	S ₃₁	S	32	39	49	A	A	A	A	A	56	61	55	55	57	A	A	F	J ₇₈ S	S	A	I ₃₃ S	
3	A	J ₃₄ S	I ₃₆ S	F	33	42	54	A	A	A	A	A	51	53	57	58	61	67	64	65	S	S	A	S	
4	A	A	A	A	F	46	45	A	55	82	H ₅₅	C	C	C	C	C	C	C	72	I ₅₅ C	C	C	C	C	
5	C	C	I ₄₀ C	C ₃₉	C ₃₃	I ₃₅ C	C	C	C	C	C	48	55	51	R ₅₆	62	A	A	A	66	A	S ₅₃	S ₅₈	52	
6	F ₅₅	F	F ₄₈	I ₄₄ S	I ₃₉ S	40	47	R ₅₁	A	A	A	A	A	A	A	53	54	48	49	60	60	S	A	A	
7	A	S ₃₄	F	F	F	43	54	50	A	A	A	48	53	R ₅₂	46	53	55	62	51	60	F ₅₈	44	S	A	
8	A	A	A	S	F	S ₄₃	53	58	57	A	46	47	55	61	65	A	55	55	61	59	F	I ₄₅ S	50	46	
9	S ₄₄	S	S	J ₄₇ S	F	37	44	59	A	A	A	A	A	A	A	A	A	A	A	54	52	I ₄₄ S	41	S	
10	S	F	A	F	S	36	47	63	67	51	E ₄₅ G	E ₄₄ G	49	56	64	A	66	A	A	I ₆₂ S	A	C	C	C	
11	C	C	C	C	C	C	C	C	C	A	A	A	A	78	79	83	76	A	A	A	S	S	F	F	
12	F	S	F	S	F	F	A	F	F	59	58	57	55	56	60	55	A	53	69	J ₇₅ S	66	59	57	54	
13	J ₅₄ S	A	A	A	F	40	42	A	47	A	A	A	A	A	A	A	A	58	60	J ₅₄ S	51	50	46	F	
14	A	A	A	F	31	39	48	61	66	62	48	E ₄₅ G	A	50	51	54	A	67	64	57	A	F	S	S	
15	S	S	F	31	F ₃₀	37	48	61	57	57	53	50	48	50	A	60	64	64	54	A	54	S ₅₃	F	S	
16	S	F	S ₄₄	F	36	38	50	A	A	58	57	47	49	52	53	61	60	61	60	65	66	S	S	F ₆₀	
17	U ₅₇ S	S ₅₇	F	S ₄₀	F	44	54	A	70	68	61	54	50	53	A	A	54	63	S ₇₂	84	S	S	S	S	
18	S	F	F	F	F	S ₄₈	42	R	A	A	A	A	A	52	55	53	A	A	50	J ₅₆ S	60	J ₅₃ S	J ₅₂ S	F	
19	45	S ₄₆	I ₄₂ S	A	A	39	A	A	A	49	50	A	C	49	48	49	47	46	44	48	S ₅₄	F	F	F	
20	S ₄₁	U ₄₀ S	F	F	F	41	50	56	A	54	A	A	A	62	58	50	A	50	53	54	I ₆₂ S	I ₅₉ S	44	S	
21	A	F	S	S	F	44	50	A	A	63	60	65	61	57	59	64	55	55	A	52	F	F	F	F	
22	S	F	S ₃₆	F	F	39	58	57	49	55	A	57	64	58	C	C	C	C	C	C	C	C	C	C	
23	C	C	C	C	C	C	C	C	C	59	55	53	56	56	53	52	A	56	S ₆₃	S ₇₀	S ₇₄	59	S ₅₃	S ₅₀	
24	49	45	S ₄₅	S ₄₂	F ₃₈	42	58	64	F ₅₆	54	R ₅₅	59	R ₅₀	R ₄₉	47	51	58	A	69	77	J ₇₆ S	66	A	A	
25	A	A	A	A	S ₃₄	39	52	F ₅₈	75	64	49	60	56	59	54	55	A	A	74	A	72	S ₅₁	F	A	
26	S	A	A	A	F	49	57	A	53	61	51	59	64	59	67	71	60	59	61	69	S ₆₉	F	S	F	
27	F	S	S	F	S	S ₄₈	A	61	58	A	52	50	I ₄₉ B	51	56	57	58	60	S ₆₈	S ₆₈	70	S ₆₁	S ₅₇	F	
28	F	S	S	S	S	S ₄₄	49	49	A	59	59	A	A	A	56	A	R ₆₇	A	A	A	S	S	A	A	
29	A	A	S	S	F	J ₃₉ S	41	44	57	A	59	63	A	A	A	49	51	56	A	56	57	A	54	F	S
30	S	S	F	F	F	F	46	47	48	64	A	A	51	55	59	F ₅₆	61	64	A	A	F	J ₇₃ S	S ₆₆	59	
31																									
CNT	8	8	9	8	11	27	24	16	13	19	17	16	18	23	23	22	19	18	22	23	18	15	10	7	
MED	47	S ₄₀	S ₄₀	S ₄₀	34	41	49	58	57	59	55	52	54	55	56	55	58	60	60	60	61	S ₅₃	S ₅₂	52	
UQ	54	46	S ₄₄	S ₄₂	37	44	54	61	66	62	58	58	56	58	59	61	62	63	66	67	S ₇₀	59	S ₅₇	56	
LQ	42	S ₃₄	S ₃₆	37	32	39	46	50	53	56	50	48	50	52	53	53	55	55	54	56	56	S ₅₀	S ₄₆	48	

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JUN. 1976

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FOF1 (0.01 MHz)

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

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		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Hour	Day																								
1								L	A	A	A	A	A	A	A	R	A	A	A	A					
2									A	A	A	A	A	A	420	420	410	A	A	A					
3									A	A	A	A	A	A	430	420	A	A	A						
4									A	A	A	A	440	C	C	C	C	C	C	C					
5								C	C	C	C	C	C	440	A	A	A	A	A	A					
6								L	A	A	A	A	A	A	A	A	410	A	A	A					
7								L	L	L	A	A	A	440	430	430	430	U	A	A	A	L			
8									A	390	A	A	A	430	R	A	420	430	A	A	A	A			
9									L	390	A	A	A	A	A	A	A	A	A	A	A				
10									A	400	410	430	450	440	440	430	A	A	A	A	A				
11								C	C	C	C	A	A	A	A	A	410	A	A	A					
12									A	A	A	440	450	440	440	430	A	420	A	380	340				
13									A	A	A	A	A	A	A	A	A	A	A	A	A				
14									370	A	410	A	A	450	A	A	440	A	A	A	L				
15									370	390	A	A	440	450	450	A	A	U	A	420	A	380	L	A	
16								L	A	A	A	A	450	440	450	440	430	420	A	A	A				
17									A	A	A	A	A	A	A	A	A	A	A	A	A				
18									A	A	A	A	A	A	A	R	420	A	A	A	A				
19									A	A	A	420	430	A	C	430	420	410	A	L	L				
20									L	A	A	A	A	A	A	440	430	430	A	A	L				
21									A	A	A	A	460	450	450	450	A	A	A	A	A				
22									350	400	L	A	A	450	A	450	C	C	C	C	C				
23									C	C	C	C	440	440	450	460	450	460	430	H	A	A	320	L	
24									L	A	A	L	440	440	450	R	450	A	A	410	A	A	A		
25									L	L	400	A	A	440	440	440	A	440	430	A	A	A			
26									A	A	A	R	430	440	A	440	440	A	420	A	A	A			
27									A	A	420	A	430	430	450	440	430	420	H	410	370	320	L		
28									A	A	A	A	A	A	A	A	A	A	A	A	A				
29									A	A	A	A	A	A	A	A	A	A	A	A	A				
30									A	L	A	A	A	A	A	430	A	430	A	A	A				
31									380																
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								4	7	3	6	12	14	11	15	13	15	1	3	3					
MED								370	390	410	435	440	440	450	430	430	420	410	380	320					
UQ								380	400	415	440	450	450	450	440	430	425		380	330					
LQ								360	390	410	430	440	440	440	430	420	410		375	320					

JUN. 1976

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JUN. 1976

FOE (0.01 MHZ)

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

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						160	235	265	295	305	325	A	A	A	A	A	290	245	185	B				
2						145	230	265	A	310	A	A	A	A	330	300	285	250	180	B				
3						B	A	275	A	A	A	A	A	A	340	310	275	240	180	B				
4						170	220	270	A	A	A	C	C	C	C	C	C	C	C	C	C			
5						C	C	C	A	C	C	340	345	340	325	310	285	245	180	B				
6						A	A	275	300	320	A	A	A	A	A	A	290	245	195	B				
7						A	A	A	A	A	A	A	A	A	A	A	A	A	A	B				
8						180	240	280	A	310	325	330	A	330	325	310	A	235	A	S				
9						A	240	280	300	320	330	A	A	A	A	A	A	A	A	B				
10						160	250	280	310	310	A	A	A	A	A	A	285	250	170	B				
11						C	C	C	C	A	A	A	A	A	A	320	285	240	180	B				
12						160	225	270	300	A	A	A	A	340	330	310	280	240	185	B				
13						180	235	280	300	A	A	A	A	A	A	A	A	A	A	B				
14						A	A	A	A	A	A	340	350	340	330	320	280	250	200	B				
15						A	A	275	A	A	A	340	340	350	330	320	290	250	200	B				
16						A	230	280	300	A	A	A	A	A	A	A	A	A	A	B				
17						205	250	290	A	A	A	A	A	A	A	A	A	260	190	B				
18						160	240	290	A	325	A	340	A	A	A	A	A	A	A	B				
19						170	240	275	A	A	A	A	C	A	A	320	280	250	190	B				
20						A	230	270	A	A	A	A	A	A	A	330	A	255	180	B				
21						B	230	275	300	320	340	A	A	A	A	A	A	260	190	B				
22						150	250	285	310	325	335	340	A	A	C	C	C	C	C	C	C			
23						C	C	C	C	320	335	340	A	A	A	320	290	260	190	B				
24						B	A	A	A	A	A	A	A	A	A	A	290	260	A	B				
25						B	240	280	300	330	A	A	A	A	330	315	290	250	A	B				
26						B	220	270	300	315	330	A	A	A	A	A	A	A	A	A	A			
27						A	240	270	A	A	A	A	A	340	340	315	290	260	190	B				
28						A	220	275	A	A	A	A	A	A	340	325	290	250	180	S				
29						180	240	260	A	A	A	A	A	A	A	A	A	A	A	A	A			
30						A	230	280	310	A	A	A	350	340	330	310	290	260	190	B				
31																								
CNT						12	21	24	12	12	7	7	4	7	11	15	17	21	18					
MED						165	235	275	300	320	330	340	348	340	330	315	290	250	188					
UQ						180	240	280	305	322	335	340	350	340	335	320	290	260	190					
LQ						160	230	270	300	310	328	340	342	340	330	310	285	245	180					

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JUN. 1976

FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 1976

FBES (0.1 MHz)

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

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	A 94	20	23	25	19	G	27	43	A 67	52	A 53	A 52	A 61	A 78	37	41	40	45	56	40	19	42	A 87	E	
2	E	16	17	23	17	21	46	A 82	A 87	A 106	A 121	A 103	52	41	G	G	42	A 67	A 85	22	48	18	A 62	20	
3	A 47	17	24	17	17	28	46	A 88	A 86	A 88	A 72	A 80	44	39	39	43	53	46	42	52	47	46	A 72	30	
4	A 76	A 59	A 60	A 54	15	G	37	A 53	42	51	40	C	C	C	C	C	C	C	E 36	C	E 26	E 27	C	C	
5	C	C	E 30	E 23	E 23	C	C	C	C	C	C	C	38	44	47	52	46	A 109	A 101	A 65	30	A 69	17	19	20
6	28	23	23	23	27	17	42	46	A 58	A 61	A 64	A 64	A 113	A 147	A 89	38	44	45	46	42	31	30	A 60	A 79	
7	A 74	20	20	26	26	23	29	40	A 84	A 83	A 90	40	38	39	40	41	45	40	27	22	30	30	27	A 62	
8	A 64	A 66	A 80	24	16	27	37	31	46	A 61	44	41	44	40	42	A 146	41	42	40	30	14	17	32	28	
9	20	20	17	E	E	26	33	34	A 120	A 120	A 123	A 112	A 110	A 73	A 68	A 62	A 94	A 89	45	29	41	30	26	20	
10	25	E	A 84	16	16	24	40	35	40	34	G	38	37	36	46	A 76	44	A 89	A 107	43	A 120	C	C	C	
11	C	C	C	C	C	C	C	C	C	A 79	A 146	A 102	A 100	56	44	G	56	A 144	A 75	A 102	20	20	44	26	
12	26	33	17	26	20	41	A 90	41	42	38	42	40	39	G	18	41	A 122	A 35	31	20	31	19	18	26	
13	42	A 58	A 61	A 63	15	35	38	A 87	41	A 63	A 90	A 55	A 88	A 83	A 73	A 65	A 65	47	44	51	24	26	34	22	
14	A 73	A 60	A 42	23	18	26	36	45	40	45	46	43	A 49	44	40	42	A 71	38	30	34	A 66	18	E	20	
15	27	16	E	17	17	20	26	29	46	46	38	40	40	47	A 60	42	41	33	40	A 58	30	E	26	26	
16	28	23	16	E	E	21	41	A 88	A 86	44	41	41	35	42	35	35	40	40	40	37	22	20	20	E	
17	E	16	E	16	20	30	51	A 79	55	63	56	47	45	47	A 87	A 77	43	47	48	57	46	65	E	45	
18	24	E	E	17	27	40	35	45	A 61	A 72	A 65	A 88	A 103	46	40	42	A 89	A 68	40	50	26	30	17	E	
19	E	19	25	A 36	A 41	30	A 55	A 74	A 73	41	41	A 113	C	37	35	40	40	31	28	35	20	28	27	20	
20	E	E	E	E	16	16	26	40	A 67	46	A 89	A 103	A 77	38	37	37	A 56	38	26	17	27	38	20	30	
21	A 65	35	28	30	17	27	40	A 61	A 120	53	40	40	41	41	45	45	45	47	A 60	31	23	27	23	E	
22	18	E	23	E	E	26	28	30	40	45	A 72	40	53	40	C	C	C	C	C	C	C	C	C	C	
23	C	C	C	C	C	C	C	C	C	42	39	41	39	38	37	G	A 63	40	26	19	20	20	17	18	
24	E	17	19	E	17	22	45	41	34	40	40	36	40	45	44	37	47	A 104	56	20	24	34	A 78	A 55	
25	A 59	A 87	A 54	A 54	26	19	27	33	47	51	42	40	42	44	36	38	A 92	A 169	50	A 104	18	24	20	A 63	
26	27	A 54	A 77	A 62	21	26	54	A 78	47	41	40	45	40	40	62	32	41	55	55	55	28	E	30	E	
27	38	43	40	23	25	19	A 55	52	41	A 120	41	35	35	37	38	33	32	35	26	17	26	20	23	29	
28	20	16	17	26	20	17	46	44	A 110	52	44	A 57	A 100	A 137	46	A 74	53	A 110	A 172	A 147	42	40	A 84	A 90	
29	A 65	A 62	33	24	18	30	36	53	A 110	50	57	A 78	A 87	A 66	42	43	44	A 60	46	49	A 74	41	E	40	
30	30	23	E	E	19	19	39	33	43	55	A 99	A 86	46	40	45	40	55	38	A 74	A 85	E 16	E	E	E	
31																									
CNT	27	27	28	28	28	27	27	27	27	29	29	29	28	29	28	28	28	28	29	28	29	28	27	27	
MED	28	20	23	23	18	24	39	45	55	52	46	45	44	42	42	41	46	46	45	38	27	26	26	26	
UQ	A 62	48	41	26	21	28	46	A 68	A 85	A 63	A 72	A 86	A 82	47	49	46	A 64	A 78	56	54	42	32	39	35	
LQ	20	16	17	16	16	19	34	38	42	45	41	40	40	39	37	37	42	39	36	26	21	18	18	19	

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JUN. 1976

FBES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

F-MIN (0.1 MHz)

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

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

The Radio Research Laboratories, Japan

JUN. 1976

F-MIN (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

M(3000)F2 (0.01)

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

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	A	F	F	S	S	S	S	S	A	S	A	A	A	A	300	310	325	335	A	295	335	F	A	F				
2	290	290	325	S	310	335	A	A	A	A	A	A	305	325	310	310	315	A	A	F	J	S	S	A	I	S		
3	A	J	S	I	S	F	355	315	335	A	A	A	A	A	280	290	310	310	305	315	325	310	S	S	A	S		
4	A	A	A	A	F	350	355	A	280	350	330	H	C	C	C	C	C	C	345	I	C	335	305	C	C	C		
5	C	C	I	C	C	325	I	C	C	C	C	C	215	310	285	A	310	A	A	A	320	A	300	300	275			
6	F	F	F	I	S	I	S	300	300	335	A	A	A	A	A	A	315	335	A	A	310	315	S	A	A			
7	A	300	F	F	F	325	335	300	A	A	A	270	310	290	250	290	290	320	305	320	310	F	295	S	A			
8	A	A	A	S	F	310	340	345	340	A	215	220	290	325	325	A	310	310	315	335	F	I	S	300	295			
9	S	S	S	J	S	F	340	290	325	A	A	A	A	A	A	A	A	A	A	335	315	315	J	S	S	S		
10	S	F	A	F	S	295	315	340	360	360	G	G	270	290	300	A	315	A	A	I	S	A	C	C	C			
11	C	C	C	C	C	C	C	C	C	A	A	A	A	260	280	290	320	A	A	A	A	S	S	F	F			
12	F	S	F	S	F	F	A	F	F	295	330	300	300	300	315	325	A	285	305	J	S	310	295	280	290			
13	J	S	A	A	A	F	310	285	A	350	A	A	A	A	A	A	A	320	335	J	S	305	250	280	F			
14	A	A	A	F	320	285	310	345	335	355	A	G	A	290	275	285	A	330	330	335	A	A	F	S	S			
15	S	S	F	F	310	315	310	300	335	320	370	305	300	270	265	A	305	330	345	335	A	315	300	F	S			
16	S	F	320	F	305	315	340	A	A	345	340	350	250	275	275	300	300	305	305	295	290	S	S	S	300			
17	U	S	310	F	305	F	315	A	A	325	350	345	315	255	285	A	A	275	295	285	295	S	S	S	S			
18	S	F	F	F	F	315	280	R	A	A	A	A	A	290	310	300	A	A	280	J	S	315	J	S	J	S	F	
19	290	280	I	S	A	A	310	A	A	A	255	265	A	C	270	290	295	285	315	280	290	315	F	F	F			
20	300	U	300	F	F	F	300	320	305	A	290	A	A	A	320	330	310	A	315	310	300	J	S	J	S	S		
21	A	F	S	S	F	340	340	A	A	315	300	310	315	285	300	310	310	325	A	310	F	F	F	F	F			
22	S	F	315	F	F	335	345	355	330	330	A	310	325	315	C	C	C	C	C	C	C	C	C	C	C			
23	C	C	C	C	C	C	C	C	C	335	345	285	305	295	265	310	A	310	310	S	315	330	305	300	305			
24	315	310	310	S	S	300	F	290	325	325	305	335	325	340	350	280	255	285	300	A	295	310	J	S	350	A	A	
25	A	A	A	A	310	280	295	275	F	320	365	250	300	305	300	275	290	A	A	310	A	320	305	F	A	A		
26	S	A	A	A	F	345	380	A	285	325	315	290	315	305	315	300	325	A	A	320	305	F	S	F	F			
27	F	S	S	F	S	355	A	320	345	A	345	290	I	R	240	290	295	305	295	310	320	310	315	310	310	F		
28	F	S	S	S	S	330	A	A	A	340	355	A	A	A	310	A	315	R	A	A	A	S	S	A	A	A		
29	A	A	S	S	300	295	J	S	295	A	A	320	340	A	A	A	295	300	305	A	305	A	A	305	F	S		
30	S	S	F	F	F	F	370	375	340	260	330	A	A	290	290	305	280	F	290	295	A	A	F	J	S	290	305	290
31																												
CNT	8	8	9	8	11	27	21	14	13	19	16	16	18	23	22	22	19	16	19	22	18	15	10	7				
MED	292	300	315	308	310	315	325	332	325	335	328	295	302	290	300	302	310	315	310	312	315	300	300	295				
UQ	302	310	320	312	318	335	340	340	340	352	342	310	310	300	310	310	318	322	328	320	320	308	310	302				
LQ	290	290	305	302	302	305	300	320	305	322	282	245	270	285	275	290	298	308	305	305	310	295	290	290				

The Radio Research Laboratories, Japan

JUN. 1976

M(3000)F2 (0.01)

IONOSPHERIC DATA

JUN. 1976

M(3000)F1 (0.01)

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

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	A	A	A	A	A	A	A	A	^R 365	A	A	A	A				
2							A	A	A	A	A	A	A	A	A	395 385		A	A	A				
3							A	A	A	A	A	A	A	A	385 360		A	A	A					
4							A	A	A	A	385	C	C	C	C	C	C	C	C	C				
5						C	C	C	C	C	C	410	A	A	A	A	A	A	A					
6						L	A	A	A	A	A	A	A	A	A	365	A	A	A					
7						L	L	L	A	A	A	370	420	370	A	A	A	A	L					
8						A	385	A	A	A	A	^R 405	A	390	A	A	A	A	A					
9						L	360	A	A	A	A	A	A	A	A	A	A	A	A					
10						A	360	A	395	400	425	435	395	A	A	A	A	A						
11					C	C	C	C	A	A	A	A	A	A	A	380	A	A	A					
12						A	A	A	390	A	410	395	395	A	A	A	A	A						
13						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
14						A	A	A	A	A	A	A	A	A	A	A	A	A	L					
15						360	395	A	A	410	400	400	A	A	A	A	A	A	A					
16					L	A	A	A	A	400	420	400	A	395	405	A	A	A						
17						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
18						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
19						A	A	A	A	A	A	A	C	385	390	A	A	L	L					
20						L	A	A	A	A	A	A	A	390	395	380	A	A	L					
21						A	A	A	A	400	420	A	380	A	A	A	A	A						
22						370	375	L	A	A	400	A	400	C	C	C	C	C						
23					C	C	C	C	A	400	400	415	400	370	380	^H	A	A	345					
24					L	A	A	L	A	395	^R 405	395	A	A	390	A	A	A						
25					L	360	365	A	A	385	380	A	A	395	370	A	A	A						
26						A	A	A	A	405	A	395	395	A	370	A	A	A						
27						A	A	A	A	A	430	375	410	375	380	^H 355	A	355						
28						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
29						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
30						A	^L 395	A	A	A	A	A	A	395	A	A	A	A	A					
31																								
CNT							3	7		2	9	13	9	13	9	10	1		2					
MED							360	375		392	400	405	400	395	390	380	355		350					
UQ							365	390			400	420	415	395	395	385								
LQ							360	362			395	400	395	385	370	370								

JUN. 1976

M(3000)F1 (0.01)

IONOSPHERIC DATA

JUN. 1976

H^oF2 (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							290	315	A	285	A	A	A	A	380	340	280	E A	A					
2							A	A	A	A	A	A	360	315	345	345	310	A	A					
3							300	A	A	A	A	A	425	390	350	330	E A	A	295					
4							260	A	385	255	300	H	C	C	C	C	C	C	C	245				
5							C	C	C	C	C	C	640	350	E A	400	A	320	A	A	A			
6							325	E A	350	300	A	A	A	A	A	A	325	300	A	A				
7							300	290	370	A	A	A	460	350	385	540	390	E A	A	300	290			
8							290	290	300	A	690	660	390	310	295	A	320	325	290					
9							370	305	A	A	A	A	A	A	A	A	A	A	A	285				
10							340	270	250	285	G	G	480	380	350	A	305	A	A					
11							C	C	C	C	A	A	A	A	375	335	305	290	A	A				
12							A	250	290	350	310	370	390	370	340	320	A	385	295					
13							415	A	350	A	A	A	A	A	A	A	A	A	300	270				
14							340	280	280	265	A	G	A	405	430	385	A	290	275					
15							345	265	310	270	340	395	465	470	A	340	290	260	265					
16							330	295	A	A	290	300	300	540	440	420	340	335	325	300				
17							A	A	300	E A	295	300	350	500	400	A	A	410	340	325				
18							415	A	A	A	A	A	A	400	350	360	A	A	370					
19							A	A	A	490	450	A	C	450	400	390	400	310	370					
20							310	330	A	395	A	A	A	310	305	365	A	330	320					
21							275	A	A	325	360	340	315	390	355	310	340	310	A					
22							270	255	315	310	A	350	300	340	C	C	C	C	C					
23							C	C	C	C	295	295	440	370	390	475	360	A	320	295				
24							350	300	290	290	305	340	310	300	445	510	405	350	A	E A	A			
25							360	355	385	300	240	530	355	350	380	400	370	A	A	300				
26							E A	A	395	300	385	390	325	350	E A	350	330	290	A	A				
27							A	340	270	A	290	410	480	410	375	330	355	305	270					
28							A	A	A	300	260	A	A	A	350	A	310	A	A					
29							370	A	A	300	305	A	A	A	395	365	340	A	325					
30							240	300	490	325	A	A	400	380	345	405	E A	385	325	A				
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					5	21	15	14	19	16	16	18	23	22	22	19	16	18						
MED					330	300	300	300	300	325	392	380	388	352	342	322	310	294						
UQ					350	350	322	350	318	418	550	465	402	400	370	345	325	322						
LQ					325	290	275	290	282	300	350	350	372	345	330	302	300	275						

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H^oF2 (KM)

IONOSPHERIC DATA

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H^oF (KM)

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

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		A	290	295	305	290	225	245	A	A	A	A	A	A	A	250	A	A	A	A	300	250	260	A	310			
2		300	330	290	335	275	240 ^H	A	A	A	A	A	A	A	A	200	200 ^H	A	A	A	280	250	200	A	250			
3		A	285	E A 300	275	210	300	A	A	A	A	A	A	235	265	A	A	A	260	E A 300	260	E A 310	A	E A 300				
4		A	A	A	A	285	195 ^H	A	A	A	A	240	C	C	C	C	C	C	C	C	C	270	320	C	C			
5		C	C	E C 345	265	E C 290	C	C	C	C	C	C	200	A	A	A	A	A	A	A	250	A	290	260	320			
6		295	295	260	275	300	245	A	A	A	A	A	A	A	A	250	A	A	A	A	290	260	275	A	A			
7		A	295	350	325	E A 330	240	210	A	A	A	A	240	200	250	A	A	A	A	A	250	265	280	A	A			
8		A	A	A	250	290	250	A	220	A	A	A	240	A	E A 250	A	A	A	A	A	250	225	300	E A 290	E A 300			
9		320	275	260	250	210	210	A	E A 250	A	A	A	A	A	A	A	A	A	A	A	260	260	E A 300	300	275			
10		300	255	A	260	275	265	A	250	A	200	210	200	195	210	A	A	A	A	A	250	A	C	C	C			
11		C	C	C	C	C	C	C	C	C	A	A	A	A	A	A	235	A	A	A	A	280	290	E A 305	295			
12		300	E A 350	265	325	300	E A 325	A	A	A	200	A	220	220	215	A	A	A	A	A	245	250	265	290	295			
13		A	A	A	A	280	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	260	290	E A 350	300			
14		A	A	A	250	250	270	A	A	A	A	A	A	A	A	A	A	A	A	A	240	A	300	290	320			
15		E A 280	275	230	275	275	245	205 ^H	200 ^H	A	A	210	210	230	A	A	A	A	A	A	A	290	260	275	290			
16		300	290	240	275	260	230	A	A	A	A	220	210	190 ^H	A	205 ^H	190 ^H	A	A	A	275	275	290	265	250			
17		260	250	210	250	295	290	A	A	A	A	A	A	A	A	A	A	A	A	A	305	275	E A 290	240	A			
18		275	270	310	260	260	E A 300	A	A	A	A	A	A	A	A	A	A	A	A	A	A	250	270	255	250			
19		270	300	290	A	A	E A 275	A	A	A	A	A	A	C	H 200	225	A	A	240	260	320	275	E A 340	315	260			
20		270	275	265	235	245	250	240	A	A	A	A	A	A	205 ^H	230	225	A	A	A	250	275	250	270	240	E A 300		
21		A	260	E A 290	360	290	245	A	A	A	A	A	215	195	A	250	A	A	A	A	275	295	305	295	250			
22		290	245	285	265	250	220	220	200 ^H	A	A	A	215	A	215	C	C	C	C	C	C	C	C	C	C			
23		C	C	C	C	C	C	C	C	C	A	215	225	205	200	235	195 ^H	A	A	260	255	240	240	250	260			
24		260	265	275	255	290	250	A	A	200	A	220	200	225	A	A	240	A	A	A	250	230	240	A	A			
25		A	A	A	A	E A 320	240	225	240	A	A	E A 255	E A 250	A	A	200	240	A	A	A	A	235	E A 260	320	A			
26		350	A	A	A	E A 300	250	A	A	A	A	225	A	225	220	A	205	A	A	A	E A 300	260	300	E A 340	275			
27		E A 350	A	300	245	260	240	A	A	A	A	A	195	200	190 ^H	225	225	230	A	250	250	245	245	260	310			
28		290	240	305	300	290	240	A	A	A	A	A	A	A	A	A	A	A	A	A	A	275	300	A	A			
29		A	A	A	300	250	280	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	310	285	A			
30		E A 350	275	285	290	270	215	A	220	A	A	A	A	A	230	A	A	A	A	A	A	330	240	255	245			
31																												
CNT		17	19	20	23	27	26	6	7	1	2	9	13	9	13	9	10	1	1	5	20	25	28	20	20			
MED		292	275	279	275	275	242	222	220	200	200	218	210	205	215	225	225	230	240	260	260	260	280	U 274	280			
UQ		300	291	296	300	290	260	240	238			222	222	225	232	235	240			260	286	275	298	296	300			
LQ		272	262	262	252	260	240	210	210			215	200	200	205	205	200 ^H			250	250	250	256	258	255			

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H^oF (KM)

IONOSPHERIC DATA

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H'E (KM)

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

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						115	110	105	100	100	100	100	100	100	100	105	A	110	120	B				
2						120	110	105	105	100	100	100	100	105	105	105	105	105	110	120	B			
3						B	110	105	100	105	105	105	105	105	105	105	105	105	105	120	B			
4						125	105	105	100	105	100	C	C	C	C	C	C	C	C	C	C			
5						C	C	C	C	C	C	100	105	105	105	105	105	110	115	B				
6						A	105	105	105	100	100	100	100	100	100	105	105	105	120	B				
7						A	A	A	105	100	100	100	100	105	105	100	A	A	A	B				
8						E A	140	105	105	105	100	100	100	100	100	105	105	100	E A	120	S			
9						A	110	105	105	105	105	105	105	105	105	105	A	A	A	B				
10						125	110	105	105	100	105	105	100	100	A	A	100	105	E B	120	B			
11						C	C	C	C	105	100	100	100	105	105	105	105	105	105	115	B			
12						125	110	105	105	100	100	100	100	105	100	105	105	105	110	B				
13						125	110	105	100	100	100	100	100	100	A	A	A	A	A	B				
14						A	110	105	100	100	100	105	105	100	105	105	105	105	125	B				
15						A	A	105	105	105	105	105	105	105	105	105	105	105	125	B				
16						A	110	105	105	100	105	105	105	100	105	100	A	A	A	B				
17						130	105	105	105	105	105	105	100	105	105	105	105	110	115	B				
18						130	110	110	105	105	105	105	105	105	105	105	105	A	A	B				
19						130	110	105	105	100	105	105	I C	105	105	105	105	105	120	B				
20						A	110	105	105	105	105	100	100	A	A	100	105	105	115	B				
21						B	110	105	105	105	105	105	105	105	105	105	105	105	120	B				
22						140	105	105	A	105	105	105	105	105	C	C	C	C	C	C	C			
23						C	C	C	C	100	100	100	105	105	105	105	105	105	110	B				
24						B	105	105	105	105	105	100	105	100	A	A	105	110	115	B				
25						B	110	105	105	100	100	100	100	100	100	105	105	105	110	B				
26						B	110	105	105	105	105	105	105	105	105	105	A	A	A	A				
27						A	115	105	105	105	105	105	A	100	105	105	105	105	115	B				
28						A	105	105	105	105	105	105	105	105	105	105	105	110	115	S				
29						140	110	105	105	100	105	105	100	A	A	105	105	A	A	A				
30						A	110	105	105	105	100	100	100	105	105	105	100	105	110	120	B			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						12	25	26	26	29	29	29	28	27	23	25	22	21	21					
MED						126	110	105	105	105	105	105	102	105	105	105	105	105	120					
UQ						132	110	105	105	105	105	105	105	105	105	105	105	110	120					
LQ						125	105	105	105	100	100	100	100	100	105	105	105	105	115					

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H'E (KM)

IONOSPHERIC DATA

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H^oES (KM)

135° E Mean Time (G. M. T. + 9 h)

Station	KOKUBUNJI TOKYO				Lat.	35 42.4 N.				Long.	139 29.3 E				Sweep 1 MHz to 20 MHz in 20 sec in automatic operation											
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	105	100	100	100	100	100	140	125	115	110	110	110	105	100	100	105	130	120	115	110	110	110	105	105		
2	105	100	100	100	110	125	120	115	110	110	105	105	105	115	G	G	140	115	115	110	110	105	105	105		
3	105	100	100	100	100	120	115	110	105	105	105	105	110	110	140	125	120	120	115	110	110	110	110	105		
4	105	105	100	100	105	145	115	115	115	110	115	C	C	C	C	C	C	C	120	115	110	110	110	110		
5	105	105	105	105	110	C	125	120	120	C	C	150	140	135	125	125	120	115	110	110	110	105	100	100		
6	105	100	110	105	105	105	105	125	120	110	110	110	105	105	105	110	130	120	120	120	115	115	110	110		
7	110	105	100	100	125	100	100	100	110	105	105	105	110	105	105	105	130	100	100	100	115	110	105	105		
8	105	105	100	100	100	140	125	140	120	110	115	120	115	110	130	110	115	110	110	110	105	105	115	105		
9	100	110	105	100	100	180	130	125	110	110	110	105	105	105	105	105	100	100	100	100	100	100	125	115		
10	110	105	105	110	125	140	125	125	120	110	120	110	105	105	135	125	120	115	115	110	110	C	C	C		
11	C	C	C	C	C	C	C	C	C	110	110	105	105	105	105	150	130	120	120	115	120	120	110	105		
12	105	105	105	115	100	120	115	115	115	110	110	110	115	G	100	130	120	110	115	115	110	110	110	105		
13	100	100	100	100	100	130	125	115	115	110	105	105	105	100	100	100	100	100	100	100	100	100	110	110		
14	105	105	105	105	105	145	140	125	110	105	110	170	145	155	150	145	125	125	125	115	115	120	110	110		
15	110	110	100	105	105	105	110	140	115	110	115	160	150	140	135	135	125	125	120	110	110	105	105	105		
16	100	100	100	100	100	170	120	115	110	110	105	105	105	100	100	100	100	100	100	100	120	100	105	105		
17	100	100	100	100	100	140	125	115	115	110	110	105	105	105	105	105	110	125	120	115	110	115	110	110		
18	105	105	100	100	105	140	135	120	120	110	110	110	110	110	105	105	100	100	100	100	100	120	110	105		
19	100	100	100	100	100	130	125	115	110	110	110	105	C	110	150	140	140	130	120	120	110	110	110	105		
20	100	100	100	100	95	115	145	120	110	110	105	100	100	100	100	140	105	125	115	115	115	115	110	110		
21	105	100	100	100	105	140	125	120	115	115	115	110	115	105	110	110	105	130	120	120	115	120	115	110		
22	110	105	100	105	105	130	140	130	125	120	110	115	110	105	C	C	C	C	C	C	C	C	C	C		
23	C	C	C	C	C	C	C	C	C	120	125	125	115	110	120	G	125	125	110	110	110	110	110	105		
24	100	100	100	100	105	105	110	105	105	110	105	105	110	100	100	145	125	115	110	110	105	110	110	110		
25	110	105	100	100	100	100	150	130	115	110	110	105	105	110	170	150	120	110	110	115	110	115	115	110		
26	100	110	105	100	105	105	120	120	120	115	115	110	110	110	105	105	130	100	100	100	100	115	110	110		
27	105	105	100	105	100	115	115	110	110	105	110	110	105	150	145	145	140	120	115	110	110	110	110	110		
28	105	105	105	100	100	105	120	120	110	110	110	105	105	105	140	135	125	120	115	110	110	110	105	105		
29	105	100	100	100	135	140	130	115	110	105	105	100	100	100	105	110	130	125	125	100	100	100	125	115		
30	110	110	110	105	105	105	135	140	120	115	110	105	130	140	150	130	120	130	115	110	S	120	110	110		
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	28	28	28	28	28	27	28	28	28	29	29	29	28	28	27	26	28	28	29	29	28	28	28	28		
MED	105	105	100	100	105	125	125	120	115	110	110	105	108	105	105	125	122	120	115	110	110	110	110	108		
UQ	105	105	105	105	105	140	132	125	120	110	110	110	115	110	138	140	130	125	120	115	112	115	110	110		
LQ	100	100	100	100	100	105	115	115	110	110	105	105	105	105	105	105	112	110	110	110	108	105	108	105		

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H^oES (KM)

IONOSPHERIC DATA

JUN. 1976

TYPES OF ES

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

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	F6	F5	F6	F6	F5	L1	C3	C4	C5	C2	C3	C2	C3	C2	C2	C3	CL22	CL41	CL41	C6	F2	F5	F4	F2	
2	F3	F3	F2	F3	FF21	C4	C3	C4	C3	C3	C2	C4	C2	C1			H2	C4	C4	C2	F2	F2	F3	F2	
3	F4	F2	F2	F2	F1	C5	C4	C5	C5	C4	C3	C4	C3	C2	H2	C3	C5	C4	C5	C6	F5	F6	F6	F5	
4	F6	F6	F5	F4	F5	C1	C4	C3	C3	C3	C2								C2	C3	F2	F3	F3	F4	
5	F4	F4	F4	F2	F1		C3	C2	C3			H1	H1	H3	C3	C3	C5	C4	C4	C5	F5	F3	F3	F3	
6	F6	F5	F4	F6	F4	L4	C6	C4	C5	C4	C4	C4	C4	C3	C3	C3	C4	C5	C5	C5	F6	F5	F5	F5	
7	F5	F4	F6	F6	FF45	L4	L4	L3	C5	C4	C4	C3	C2	C2	C2	C2	CL32	L4	L4	C5	FF34	FF34	F4	F6	
8	F5	F6	F4	F5	F5	CL42	C4	C2	C4	C2	C2	C1	C2	C2	C2	C3	C2	C4	CL51	L4	F2	F2	FF23	F5	
9	F4	FF23	F2	F2	F1	HL11	C4	C2	C3	C4	C3	C3	C4	C4	C4	C4	L5	L4	L6	L6	F4	F6	FF26	F3	
10	F4	F3	F4	F4	F3	C4	C5	C3	C3	C2	CH11	C1	C2	C2	HL23	CL22	CL42	C4	C3	C3	F4				
11									C5	C3	C4	C3	C3	C3	C3	H1	C4	C4	C5	C5	F3	F4	F6	F4	
12	F6	F5	F3	F4	F5	C5	C4	C3	C3	C1	C2	C1	C1		HL2	C2	C3	C2	C4	C6	F6	F4	F6	F7	
13	F6	F4	F4	F3	F1	C3	C5	C4	C2	C3	C2	C3	C2	C2	L2	C4	L4	L4	L3	L3	F5	F3	F6	F7	
14	F3	F5	F4	F3	F2	HL21	HC35	CC54	C2	C3	C3	HC11	HH22	H2	H1	H2	C5	C4	CL42	CL52	F6	F5	F2	F3	
15	F4	F4	F2	F4	F3	L2	L3	C2	CC42	C3	C2	H1	H1	H2	H2	H2	C2	C4	C6	C6	F4	F3	F4	F3	
16	F5	F4	F2	F2	F2	HL21	C4	C6	C4	C3	C3	C2	C1	C2	C2	C3	L5	L5	L4	L5	FF26	F4	F4	F4	
17	F2	F2	F3	F2	F3	C5	C4	C4	C3	C3	C3	C3	C3	C3	C3	C4	C3	C4	C5	C5	F6	F6	F3	F5	
18	F6	F2	F2	F5	F4	C5	C5	C4	C4	C3	C3	C3	C3	C2	C2	C4	C3	L4	L4	L4	F4	F5	F3	F3	
19	F2	F3	F5	F4	F5	C4	C4	C4	C3	C3	C3	C3		C2	HC11	H2	H2	C4	C4	C6	F6	F6	F6	F4	
20	F3	F2	F2	F3	F3	L2	C2	C4	C4	C3	C3	C4	C3	L2	L2	H2	C3	C4	C3	C5	F4	F4	F3	F4	
21	F5	F5	F4	F5	F5	C3	C4	C4	C3	C3	C1	C1	C1	C2	C2	C3	C4	C4	C4	C5	F4	F6	F6	F4	
22	F4	F4	F4	F2	F2	C5	C2	C2	CL21	C3	C3	C2	C2	C2											
23										C2	C1	C1	C1	C2	C2		C4	C4	C3	C3	F3	F3	F4	F4	
24	F3	F2	F2	F2	F3	L4	C4	C4	C3	C2	C2	C2	C2	C3	L2	HL13	C3	C3	C4	C5	F5	F6	F3	F4	
25	F4	F5	F4	F4	F5	L2	H1	C2	C4	C3	C2	C2	C2	C2	H1	H1	C3	C3	C5	C4	F1	F3	F4	F3	
26	F2	F4	F5	F3	F3	L2	C5	C4	C4	C2	C2	C2	C2	C2	C4	C2	CL23	L6	L6	L6	F4	F3	F5	F3	
27	F4	F5	F3	F5	F5	L4	C5	CL51	C2	C3	C2	C1	L1	H1	H1	H1	H2	C4	C3	C4	F5	F6	F5	F6	
28	F4	F5	F4	F6	F5	LC33	C4	C5	C4	C3	C3	C3	C3	C4	H2	C4	C5	C4	C3	C4	F4	F6	F6	F6	
29	F4	F5	F5	F5	FF23	C5	C5	C4	C4	C4	C4	C4	C3	L3	LH21	C2	CC43	CL43	CL45	L5	F5	F6	FF34	F6	
30	F5	F6	F3	F2	F5	L4	C4	H2	C4	C3	C3	C2	C2	C1	H3	C4	C2	C3	C5	C3		F1	F2	F1	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

JUN. 1976

TYPES OF ES

IONOSPHERIC DATA

JUN. 1976

FXI (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	0 ^S ₅₅	A	S	S	44																X ^S ₇₅	X ^S ₇₁	0 ^S ₆₄	A	
2	A	A	61	60	50																X ^S ₇₉	X ^S ₆₀	A	A	
3	S	X ^S ₅₆	50	47	40																X ^S ₆₆	X ^S ₅₃	S	A	
4	0 ^S ₄₆	A	A	X ^S ₄₇	38	35															X ^S ₅₃	X ^S ₅₇	S	S	
5	X ^S ₅₀	S	0 ^S ₄₈	X ^S ₄₇	40	40															X ^S ₇₅	X ^S ₇₁	X ^S ₆₈	A	
6	S	60	S	45	X ^S ₃₉	39															X ^S ₇₄	A	A	S	
7	A	A	A	A	S																X ^S ₆₈	S	A	A	
8	A	A	A	A	A	40															X ^S ₇₁	X ^S ₆₂	X ^S ₅₅	S	
9	49	X ^S ₄₉	61	59	34	32															S	X ^S ₅₄	X ^S ₅₃	X ^S ₅₅	
10	X ^S ₅₀	X ^S ₄₄	C	C	X ^S ₃₈																X ^S ₆₅	X ^S ₆₁	X ^S ₄₈	0 ^S ₄₇	
11	47	45	39	X ^S ₃₈	38																X ^S ₈₆	A	S	S ₆₇	
12	A	S ₆₆	S ₆₁	S	60									83	78						X ^S ₇₁	0 ^S ₆₆	S ₆₄	S ₆₄	
13	S	62	S ₆₁	S	S																S	X ^S ₅₁	S	S	
14	56	S	S	X ^S ₄₆	35																A	X ^S ₅₆	X ^S ₅₀	A	
15	42	X ^S ₅₇	S	40	37	35															X ^S ₆₀	X ^S ₅₈	S	S	
16	S	60	59	S ₅₀	43	43															X ^S ₆₈	X ^S ₆₈	0 ^S ₆₅	64	
17	A	64	53	X ^S ₄₈	A																X ^S ₈₆	X ^S ₇₁	70	69	
18	72	66	X ^S ₅₈	A	60	54															X ^S ₆₇	0 ^S ₆₂	X ^S ₅₁	S	
19	60	S	X ^S ₄₀	S ₃₇	A																X ^S ₅₇	X ^S ₅₆	A	A	
20	S	S	58	S	A																S	X ^S ₆₈	S	S	
21	A	S	S	S	40	45															X ^S ₇₁	X ^S ₆₅	X ^S ₅₆	S	
22	S	60	59	S ₅₀	0 ^S ₄₀	40															A	X ^S ₆₉	X ^S ₆₅	60	
23	61	58	S ₅₅	59	X ^S ₄₅	40															X ^S ₇₆	A	60	62	
24	62	64	64	62	62																85	X ^S ₅₆	X ^S ₄₂	0 ^S ₃₉	
25	A	47	A	A	A	34															S	S	S	S	
26	0 ^S ₆₄	S	S	S	X ^S ₅₈																X ^S ₆₆	X ^S ₆₁	X ^S ₆₂	S	
27	A	S	S	S	S																X ^S ₇₁	X ^S ₆₇	66	S	
28	62	65	S	X ^S ₄₆	54																S	X ^S ₅₇	A	A	
29	A	A	A	A	45	44															X ^S ₅₈	X ^S ₅₇	X ^S ₅₅	X ^S ₅₂	
30	X ^S ₅₁	X ^S ₄₆	45	39	36	35										79					X ^S ₇₃	X ^S ₇₅	X ^S ₇₀	60	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	15	17	16	17	22	13								1	1	1					23	25	18	11	
MED	55	60	58	47	40	40								83	78	79					X ^S ₇₁	X ^S ₆₁	X ^S ₆₁	60	
UQ	62	64	61	50	50	43															X ^S ₇₅	X ^S ₆₈	65	64	
LQ	50	49	49	45	38	35															X ^S ₆₆	X ^S ₅₇	X ^S ₅₃	54	

JUN. 1976

FXI (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FOF2 (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	U ₄₉ S	A	S	S	F	39	48	60	63	A	A	A	53	54	60	A	A	61	A	A	69	U ₆₅ S	58	A	
2	A	A	F	F	F	43	52	47	48	53	A	A	58	66	68	71	78	75	70	70	73	54	A	A	
3	S	J ₅₀ S	F	F	F	33	34	53	48	50	A	A	A	55	A	64	65	71	68	62	60	U ₄₇ S	S	A	
4	U ₄₀ S	A	A	S	F	F	42	56	57	60	A	46	46	55	50	65	86	90	65	47	J ₅₁ S	I ₄₈ S	I ₄₅ S		
5	S ₄₄	I ₄₂ S	U ₄₂ S	S ₄₁	F	F	J ₄₅ S	58	48	46	52	55	55	51	54	71	68	62	66	68	69	65	62	A	
6	S	F	S	F	S	33	F	38	45	50	51	A	A	A	A	A	A	A	51	56	68	A	A	A	
7	A	A	A	A	A	33	40	49	55	58	A	A	A	A	A	55	A	58	54	A	62	I ₅₀ S	A	A	
8	A	A	A	A	A	F	44	A	A	A	A	A	A	A	A	69	68	77	84	83	65	56	49	I ₄₅ S	
9	F	43	F	F	F	28	F	38	57	A	A	A	A	A	A	A	89	75	A	A	I ₄₈ S	48	49	49	
10	S ₄₄	U ₃₈ S	C	C	32	33	45	A	A	50	R	48	53	62	74	70	67	62	67	59	59	55	42	41	
11	F	F	F	32	F	37	47	52	55	V ₄₉ S	60	64	70	72	81	95	86	67	65	67	80	A	S	61	
12	A	S	60	55	A	F	S	57	J ₇₇ S	A	61	A	A	77	F	F	66	A	68	91	86	65	U ₆₀ S	58	58
13	I ₅₆ S	F	55	I ₄₂ S	S	30	46	49	45	A	A	A	A	A	A	A	A	65	65	53	A	45	I ₄₅ S	A	
14	F	S	I ₄₄ S	40	F	28	42	60	66	A	49	48	49	51	56	68	75	78	A	A	A	50	U ₄₆ S	A	
15	F	J ₅₁ S	I ₅₂ S	F	F	31	F	48	52	58	R	49	54	A	A	57	71	72	71	62	A	J ₅₄ S	J ₅₂ S	I ₄₈ S	I ₄₅ S
16	S	J ₅₄ S	F	J ₄₄ S	F	F	45	47	57	65	A	A	J ₄₉ R	53	56	60	68	69	58	59	U ₆₂ S	U ₆₂ S	59	F	
17	A	F	F	J ₄₂ S	A	U ₃₆ S	46	A	68	75	60	A	52	54	54	60	67	78	84	88	80	65	F	F	
18	F	F	J ₅₂ S	A	F	F	42	A	A	A	52	A	A	A	57	55	55	60	55	55	61	58	45	S	
19	F	S	34	31	A	28	43	A	A	61	A	A	55	53	51	50	46	47	46	48	51	50	A	A	
20	S	S	F	S	A	25	40	47	51	59	A	A	A	56	55	49	48	50	55	54	I ₆₀ S	62	S	S	
21	A	S	S	S	F	F	45	49	55	A	76	61	59	68	77	64	60	53	49	54	65	59	50	S	
22	S	F	F	U ₄₄ S	34	34	47	48	54	U ₅₂ R	59	66	A	A	52	56	A	72	A	A	A	S	59	J ₅₄ S	
23	F	F	J ₄₉ S	F	U ₃₉ S	33	43	C	69	63	54	62	55	59	68	69	70	79	83	80	J ₇₀ S	A	F	F	
24	F	F	F	F	F	J ₅₀ S	48	55	64	61	66	A	A	R	U ₄₇ R	56	64	67	72	74	F	J ₅₀ S	U ₃₈ S	33	
25	A	F	A	A	A	F	44	62	58	A	56	56	60	A	65	A	66	A	64	65	S	S	S	S	
26	S	S	S	S	S	A	40	56	A	55	52	57	63	A	78	A	A	88	87	65	60	55	58	S	
27	A	S	S	S	S	31	A	A	56	55	A	A	57	52	55	60	65	68	64	67	65	61	F	S	
28	F	F	S	40	F	S	47	43	51	59	A	50	A	A	62	66	72	69	68	A	63	J ₅₁ S	A	A	
29	A	A	A	A	F	F	40	52	J ₆₁ S	A	A	A	A	A	A	A	60	62	A	A	52	51	J ₄₉ S	46	
30	S	U ₄₀ S	F	F	F	F	38	48	A	A	A	A	A	59	68	71	78	J ₇₈ S	A	J ₇₈ S	F	69	64	F	
31																									
CNT	7	9	10	12	8	21	29	23	22	19	12	12	16	18	23	23	23	28	24	22	25	26	18	10	
MED	45	50	49	40	33	33	45	52	56	59	55	56	55	55	57	65	68	68	65	65	63	55	49	48	
UQ	52	J ₅₄ S	52	42	36	36	47	56	61	61	60	62	60	62	68	70	74	76	71	74	69	62	58	54	
LQ	44	42	42	36	32	F	42	48	51	52	52	49	52	53	54	58	64	62	56	55	60	50	45	I ₄₅ S	

The Radio Research Laboratories, Japan

JUN. 1976

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

FOF1 (0.01 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								A	A	A	A	A	A	420	A	A	A	A	A											
2							A	L	350	400	A	A	A	430	A	430	420	H	390	370	340	L								
3							L	L	400	A	A	A	A	A	A	A	A	A	A	A										
4							A	L	410	A	A	H	430	R	420	430	420	410	A	A	L									
5							L	L	350	390	410	410	H	420	R	420	410	410	A	390	A	L								
6								370	390	A	A	A	A	A	A	A	A	A	A	A	A									
7								380	A	A	A	A	A	A	A	A	A	A	A	A	A									
8							A	A	A	A	A	A	A	A	A	A	A	A	H	400	360	L	A							
9								A	A	A	A	A	A	A	A	A	A	A	A	A	A									
10							L	A	A	A	A	430	430	A	440	430	A	A	A	A										
11							L	360	390	430	A	A	H	440	A	A	A	A	380	L	L									
12							L	L	A	A	A	A	440	A	A	430	A	H	380	350	L									
13								360	A	A	A	A	A	A	A	A	A	A	410	A										
14							L	A	A	A	A	450	440	440	A	A	A	A	A	A										
15							L	380	410	A	440	A	A	A	A	A	410	A	A											
16								A	410	A	A	A	440	440	440	420	A	380	350	L	A									
17							L	A	A	A	A	A	450	A	440	420	A	A	A											
18								A	A	A	A	A	A	A	A	A	U	R	410	370	340	A								
19							L	A	A	A	A	A	A	430	420	A	400	390	350											
20								400	A	A	A	A	A	A	A	430	400	400	L	L										
21								L	A	A	A	A	450	450	A	A	440	410	U	L	430	390	U	L						
22							L	A	A	A	A	A	A	A	440	A	A	A	A	A										
23							A	C	H	410	A	A	A	450	A	440	420	H	410	A	360	A								
24							L	L	390	410	430	A	A	A	440	440	420	A	A	350	A									
25							L	A	A	A	A	A	A	A	A	H	430	A	A	A										
26								A	A	L	420	430	A	A	A	A	A	A	A	A										
27							A	A	A	A	A	A	A	430	430	420	A	400	370	350	270									
28								A	A	A	A	A	A	A	A	R	430	430	A	A	A									
29								A	A	A	A	A	A	A	A	A	A	A	A	A										
30							A	A	A	A	A	A	A	A	A	A	430	400	H	A	A	A								
31																														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT								9	10	4	5	5	11	8	13	12	9	12	10	1										
MED								370	405	425	430	430	440	430	430	420	400	385	350	270										
UQ								380	410	430	440	440	445	440	440	430	410	400	360											
LQ								360	390	415	430	430	430	425	420	420	400	375	350											

JUN. 1976

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JUN. 1976

FOE (0.01 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					S		140	240	270		A	A	A	A	A	A	A		275	A	B			
2					S		A	220		A	A	A	A	A	330	315	300	265	220		S			
3					S		170	250	300		A	A	A	A	A	A	A	A	A	A	S			
4					S		170	250		A	A	A	320	A	A	A	A	290	260	210		B		
5					S		A	A	280		A	A	350	A	A	A	310	290	260	210		B		
6					S		A		230	290		A	A	330	330	330	A	A	A	A	B			
7					S		A		230	270	300		A	A	A	A	310	A	A	A	A	B		
8					S		A		250	280		A	A	A	A	A	A	295	270		A	S		
9					S		170	255	290		A	A	A	A	A	A	A	A	A	A	S			
10					S		A	A		A	310	330		A	A	A	A	300	A	205		B		
11					S		170	250		A	A	A	A	A	A	A	A	A	A	A	B			
12					B		A	A		280	305	320	330		A	A	A	330	300	260	200		S	
13					S		160	240	280		A	A	A	A	A	A	A	A	A	A	B			
14					S		A	230		A	A	A	335	340	345	335	320		A	A	A	S		
15					S		A	A		A	A	A	A	350	350	340	320	310	280	220		B		
16					S	S		255	280	305		A	A	A	A	A	320	A	A		230	S		
17					S		160	A	290	315	320		A	A	A	A	320	305	275	235		S		
18					S		160	250		A	A	A	A	A	A	A	A	A	A		220	S		
19					S		A	230	270		A	A	A	A	A	A	A	A	A		210	S		
20					B		A	230	280	305		A	A	A	A	A	320	300	270		A	S		
21					S		190	250	275	315	325		A	A	A	A	A	295	A	A	S			
22					S		165	240	295	305	330	335		A	A	A	A	A	A	A	S			
23					S		A	C	290	310		A	A	A	A	A	A	310	270	230		S		
24					S		170	235		A	A	A	A	A	A	A	320	300	275	230		S		
25					S		190	240	290	300	300		A	A	A	330	330	300	A	210		B		
26					S	S		230	270	300	310	320		A	A	A	A	A	A	A	S			
27					S		160	230		A	A	A	A	A	A	A	320	295	260	220		B		
28					S		A	250	275	300	320		A	A	A	A	320	300	270	220		S		
29					S		A	230	270	310		A	A	A	A	A	A	A	A	A	S			
30					S	S		245		A	A	A	A	A	A	A	320	295	265	220		S		
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							13	24	20	13	8	7	3	3	5	13	16	14	16					
MED							170	240	280	305	320	330	340	345	330	320	300	270	220					
UQ							170	250	290	310	328	335	345	348	335	320	300	275	225					
LQ							160	230	272	300	315	325	335	338	330	320	295	260	210					

The Radio Research Laboratories, Japan

JUN. 1976

FOE (0.01 MHz)

IONOSPHERIC DATA

JUN. 1976

FOES (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	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	83	76	32	44	27	17	23	60	J A 64	J A 74	J A 95	177	80	J A 50	60	D D 200	J A 84	71	75	J A 66	J A 37	J A 110	J A 70	J A 83							
2	J A 83	J A 127	J A 28	J A 54	J A 32	J A 46	J A 110	J A 69	J A 51	J A 53	J A 81	84	J A 51	46	39	31	34	41	J A 37	J A 80	J A 83	J A 32	J A 79	J A 53							
3	J A 33	J A 52	J A 29	J A 21	24	19	J A 32	29	G	J A 58	J A 43	D D 200	74	J A 83	66	J A 85	J A 45	J A 53	J A 66	J A 41	J A 40	J A 52	J A 33	J A 49							
4	J A 36	J A 83	J A 60	J A 51	J A 36	J A 28	J A 80	J A 51	J A 82	J A 70	J A 64	J A 52	36	J A 94	34	J A 42	46	52	30	25	21	37	J A 32	J A 23							
5	40	27	32	J A 49	J A 23	20	21	29	32	36	40	37	40	38	35	36	46	38	J A 50	J A 29	J A 29	23	J A 24	57							
6	J A 26	24	32	22	J A 63	J A 36	35	45	J A 84	J A 54	J A 73	J A 95	J A 113	J A 102	J A 129	91	J A 104	107	65	57	J A 84	90	78	46							
7	90	87	90	42	J A 36	33	25	37	J A 54	89	119	J A 36	129	190	91	47	84	67	J A 70	144	40	33	J A 52	J A 83							
8	57	56	57	57	56	37	57	60	J A 71	J A 106	J A 137	J A 143	J A 111	196	152	87	J A 62	35	J A 31	25	J A 18	J A 26	23	24							
9	J A 31	J A 35	J A 61	J A 27	J A 21	E S 14	23	J A 53	79	145	166	J A 111	D D 200	113	J A 84	J A 91	80	J A 71	J A 65	J A 62	J A 39	J A 32	J A 32	J A 33							
10	J A 31	E S 15	C	C	J A 26	J A 53	J A 28	J A 88	J A 103	D D 200	J A 77	40	J A 53	J A 41	J A 53	J A 54	J A 54	72	J A 59	176	J A 86	J A 79	J A 82	J A 53							
11	J A 26	J A 21	21	J A 50	22	J A 23	25	J A 34	J A 50	74	J A 84	71	J A 104	85	J A 60	80	J A 103	47	J A 36	21	J A 50	J A 80	J A 70	J A 77							
12	J A 70	85	69	58	34	34	27	J A 52	150	J A 161	J A 142	J A 82	D D 200	90	J A 90	45	J A 82	J A 59	70	J A 83	50	47	J A 50	37							
13	J A 39	J A 38	J A 51	E S 14	E B 14	22	23	36	J A 54	J A 89	65	J A 102	143	J A 92	J A 71	J A 82	J A 74	53	J A 36	J A 36	56	30	J A 24	J A 50							
14	J A 29	J A 54	J A 91	46	25	25	27	J A 64	90	J A 81	J A 49	G	43	44	47	46	42	J A 45	66	J A 87	J A 85	J A 86	J A 71	J A 53							
15	J A 50	J A 32	J A 40	20	J A 36	J A 31	J A 65	J A 35	36	J A 57	48	47	J A 54	J A 67	J A 58	J A 50	42	J A 43	J A 45	80	J A 50	J A 30	J A 41	J A 36							
16	J A 27	J A 27	J A 36	J A 28	J A 26	E S 15	J A 27	J A 51	J A 60	J A 82	164	J A 132	J A 54	J A 40	J A 46	28	J A 54	33	31	J A 31	J A 51	J A 24	J A 29	J A 29							
17	J A 76	J A 36	J A 25	J A 28	J A 51	J A 32	J A 39	J A 76	J A 83	J A 73	J A 86	J A 100	J A 42	J A 84	J A 52	41	51	J A 51	J A 54	J A 49	J A 84	J A 76	J A 84	J A 52							
18	J A 59	J A 42	J A 65	J A 64	J A 84	J A 26	J A 64	J A 59	70	102	J A 80	60	64	J A 89	J A 71	55	43	J A 35	30	J A 36	J A 24	76	J A 51	J A 39							
19	J A 82	40	J A 30	J A 29	J A 36	J A 44	J A 34	70	92	152	95	99	65	J A 39	J A 51	J A 45	41	34	30	J A 29	J A 25	J A 25	J A 50	46							
20	43	J A 89	16	20	J A 51	J A 53	28	40	J A 48	J A 49	90	J A 123	90	66	J A 44	G	35	41	35	J A 36	J A 85	92	70	E S 15							
21	65	J A 50	J A 54	J A 45	25	E S 15	36	J A 40	J A 64	86	72	J A 49	J A 53	J A 48	J A 61	J A 34	35	J A 46	J A 41	J A 35	22	J A 26	J A 33	J A 26							
22	J A 36	J A 33	J A 29	J A 32	J A 61	J A 28	J A 26	J A 42	J A 68	60	45	68	180	J A 58	J A 45	J A 58	157	J A 72	139	J A 99	J A 75	J A 51	J A 29	J A 42							
23	J A 58	J A 24	J A 26	24	J A 26	24	J A 41	C	J A 42	J A 47	J A 50	J A 47	J A 52	J A 55	37	38	42	J A 48	29	J A 29	J A 37	J A 82	J A 37	J A 27							
24	J A 31	24	J A 21	J A 29	J A 26	J A 25	23	25	J A 31	J A 38	J A 53	J A 61	J A 67	J A 61	J A 39	38	44	J A 53	J A 32	J A 51	J A 51	J A 30	J A 32	J A 65							
25	J A 51	J A 35	J A 72	J A 84	J A 60	J A 27	23	J A 48	J A 60	J A 88	J A 135	J A 54	56	J A 84	G	J A 74	J A 84	D D 200	144	J A 50	50	J A 82	56	57							
26	70	J A 54	J A 84	J A 71	J A 64	45	32	J A 49	70	39	40	71	65	90	92	119	159	J A 114	67	J A 58	J A 51	35	J A 50	J A 39							
27	60	46	32	56	J A 84	J A 75	J A 51	80	J A 84	J A 65	J A 120	97	45	41	40	42	35	34	34	J A 27	J A 31	J A 72	45	J A 64							
28	41	42	J A 34	J A 49	32	28	J A 40	J A 39	J A 51	57	70	57	110	68	39	38	J A 51	J A 41	J A 61	J A 102	57	J A 83	90	J A 75							
29	81	J A 51	J A 52	48	34	32	29	J A 53	63	163	168	107	J A 121	J A 78	107	J A 83	J A 64	J A 71	J A 69	J A 75	J A 51	J A 41	J A 29	J A 32							
30	J A 25	J A 64	J A 54	J A 32	22	19	J A 36	J A 46	J A 65	J A 90	92	J A 100	J A 101	J A 62	J A 80	42	40	J A 73	J A 145	J A 61	18	20	J A 24	J A 32							
31																															
CNT	30	30	29	29	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30							
MED	J A 46	J A 42	J A 36	J A 44	J A 33	28	30	J A 49	J A 64	J A 74	J A 82	J A 83	66	J A 68	J A 56	46	51	52	J A 52	J A 50	J A 50	J A 44	J A 48	J A 46							
UQ	J A 70	J A 56	J A 60	J A 51	J A 51	J A 36	J A 40	J A 60	J A 82	J A 90	J A 120	107	111	J A 90	J A 80	J A 82	J A 82	J A 71	J A 67	J A 80	J A 57	J A 80	J A 70	J A 57							
LQ	J A 31	J A 32	J A 29	J A 28	25	22	25	J A 38	J A 51	J A 57	J A 64	54	53	J A 48	40	38	42	41	J A 34	J A 31	J A 31	J A 30	J A 32	J A 32							

JUN. 1976

FOES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

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	40	A A 76	E	21	15	G	20	43	46	A A 74	A A 95	A A 177	49	35	43	D A 200	A A 84	44	A A 75	A A 66	37	50	22	A A 83	
2	A A 83	A A 127	16	29	21	20	49	30	39	48	A A 81	A A 84	40	43	39	G 30	34	33	29	35	E	24	A A 79	A A 53	
3	33	24	E	E	E	16	29	G	G	A A 58	A A 143	D A 200	A A 74	50	A A 66	50	40	51	62	36	36	44	30	A A 49	
4	26	A A 83	A A 60	E	17	19	27	42	39	58	A A 64	35	36	35	34	35	45	42	29	25	16	E	16	16	
5	30	E	20	21	15	G	21	28	G	35	36	37	39	38	34	35	40	34	49	19	20	15	22	A A 57	
6	20	15	21	E	15	21	26	30	35	42	A A 73	A A 95	A A 113	A A 102	A A 129	A A 91	A A 104	A A 107	41	25	41	A A 90	A A 78	A A 46	
7	A A 90	A A 87	A A 90	A A 42	A A 36	20	21	34	48	52	A A 119	A A 136	A A 129	A A 190	A A 91	42	A A 84	49	48	A A 144	30	21	A A 52	A A 83	
8	A A 57	A A 56	A A 57	A A 57	A A 56	G	35	A A 60	A A 71	A A 106	A A 137	A A 143	A A 111	A A 196	A A 152	54	54	33	30	24	16	25	E	22	
9	20	20	30	20	E E 14	G	43	A A 79	A A 145	A A 166	A A 111	D A 200	A A 113	A A 84	A A 91	67	69	A A 65	A A 62	36	32	29	29		
10	18	E S 15	C	C	15	15	22	A A 88	A A 103	44	G	39	36	39	39	42	54	55	48	44	50	30	22	21	
11	E	E	E	E	E	15	24	29	35	38	46	48	36	47	54	65	73	30	27	20	40	A A 80	52	48	
12	A A 70	53	48	A A 58	16	23	24	29	A A 150	42	A A 142	A A 82	43	48	49	40	A A 82	29	29	46	47	43	30	32	
13	30	20	20	E S 14	E B 14	G	22	29	40	A A 89	A A 65	A A 102	A A 143	A A 92	A A 71	A A 82	A A 74	40	34	31	A A 56	22	23	A A 50	
14	27	22	26	E	E	16	24	39	56	A A 81	41	G	43	44	46	46	42	44	A A 66	A A 87	A A 85	20	26	A A 53	
15	22	21	35	E	20	20	26	28	35	50	40	46	A A 54	A A 67	52	45	39	43	45	A A 80	49	22	41	35	
16	18	22	26	22	17	E S 15	24	41	34	52	A A 164	A A 132	43	38	35	28	G	40	31	30	30	25	18	17	20
17	A A 76	22	20	20	A A 51	29	31	A A 76	60	55	52	A A 100	38	52	34	40	50	51	54	49	55	35	52	52	
18	51	40	42	A A 64	51	22	32	A A 59	A A 70	A A 102	50	A A 60	A A 64	A A 89	46	47	33	30	27	32	21	43	33	32	
19	E	22	16	22	A A 36	20	30	A A 70	A A 92	55	A A 95	A A 99	44	37	35	43	32	33	27	25	25	E	A A 50	A A 46	
20	28	E	E	E	A A 51	19	27	37	47	42	A A 90	A A 123	A A 90	44	44	G	34	35	31	35	19	21	53	E S 15	
21	A A 65	18	15	20	15	E S 15	33	35	49	A A 86	52	43	38	45	50	33	34	34	29	33	18	19	29	21	
22	36	E	E	24	27	22	15	39	46	45	44	60	A A 180	A A 58	38	43	A A 157	63	A A 139	A A 99	A A 75	42	22	19	
23	27	15	E	E	E	G	32	C	G	44	49	44	43	49	36	35	40	39	27	28	37	A A 82	32	E	
24	19	E	15	15	16	G	23	G	29	36	50	A A 61	A A 67	39	37	37	43	45	30	44	44	22	17	18	
25	A A 51	34	A A 72	A A 84	A A 60	17	G	42	53	A A 88	50	46	46	A A 84	G	A A 74	58	D A 200	47	35	30	33	26	35	
26	54	50	E	19	17	A A 45	26	40	A A 70	34	38	39	47	A A 90	67	A A 119	A A 159	62	41	41	51	28	E	29	
27	A A 60	15	15	15	19	20	A A 51	A A 80	41	46	A A 120	A A 97	39	40	39	42	35	31	33	26	29	23	29	28	
28	28	35	15	25	16	16	35	30	46	50	A A 70	45	A A 110	A A 68	39	36	48	39	43	A A 102	40	41	A A 90	A A 75	
29	A A 81	A A 51	A A 52	A A 48	16	G	28	49	55	A A 163	A A 168	A A 107	A A 121	A A 78	A A 107	A A 83	40	49	A A 69	A A 75	29	37	25	21	
30	16	16	18	E	E	G	33	45	A A 65	A A 90	A A 92	A A 100	A A 101	50	53	39	35	73	A A 145	49	E	18	20	21	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	29	29	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	30	22	20	20	16	16	26	39	46	52	A A 68	A A 83	48	50	45	42	44	42	41	36	36	26	29	32	
UQ	A A 57	50	35	25	27	20	32	45	A A 65	A A 86	A A 119	A A 107	A A 110	A A 84	66	65	73	51	54	A A 62	47	42	50	A A 50	
LQ	20	15	15	E	15	G	22	30	35	44	49	45	40	40	37	36	39	33	29	28	21	21	22	21	

The Radio Research Laboratories, Japan

JUN. 1976

FBES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

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

The Radio Research Laboratories, Japan

JUN. 1976

F-MIN (0.1 MHz)

IONOSPHERIC DATA

JUN. 1976

M(3000)F2 (0.01)

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	U S 305	A	S	S	F	325	335	335	335	A	A	A	295	295	295	A	A	305	A	A	325	U S 330	275	S	A
2	A	A	F	F	F	335	365	355	355	340	A	A	295	295	285	290	295	315	315	315	335	345	A	A	
3	S	J S 290	F	F	F	300	330	360	335	335	A	A	A	305	A	305	300	320	325	320	S	350	U S 315	S	A
4	U S 275	A	A	S 340	F	F	320	335	275	335	A	A	315	240	300	260	275	310	335	355	330	300	305	310	300
5	275	I S 290	U S 275	S 270	F	F	I S 315	345	375	285	295	310	305	295	295	305	325	295	305	300	S	295	310	325	A
6	S	F	S	S 305	S 320	F	330	300	300	335	A	A	A	A	A	A	A	A	305	305	340	S	A	A	A
7	A	A	A	A	A	335	310	315	325	345	A	A	A	A	A	300	A	320	300	A	325	I S 300	A	A	
8	A	A	A	A	A	F	340	A	A	A	A	A	A	A	A	305	285	290	305	335	325	305	310	I S 295	
9	F	285	F	F	F	340	325	315	340	A	A	A	A	A	A	A	325	350	A	A	I S 310	300	300	300	
10	S 325	U S 320	C	C	300	310	325	A	A	355	R	260	275	285	305	320	315	315	330	325	S	330	305	305	295
11	F	F	F	310	305	F	350	345	355	330	275	285	285	255	255	275	315	325	315	305	S	285	300	A	S
12	A	A	A	A	F	340	300	J S 330	A	335	A	A	300	310	315	315	A	280	320	350	305	U S 285	280	295	
13	I S 285	F	290	I S 300	S	315	330	335	340	A	A	A	A	A	A	A	A	325	325	315	A	290	I S 290	A	
14	F	S	I S 295	S 305	F	305	310	350	365	A	265	280	245	275	285	295	300	330	A	A	A	310	U S 270	A	
15	F	S	S	F	F	305	320	345	345	340	350	R	375	315	A	A	290	305	305	330	335	A	J S 305	J S 310	I S 310
16	S	S	F	J S 335	F	F	335	360	325	335	350	A	A	J R 255	290	285	280	305	330	315	310	U S 305	U S 310	305	F
17	A	F	F	J S 310	A	U S 300	325	A	335	355	365	A	295	A	280	285	275	295	295	315	330	310	F	F	
18	F	F	J S 270	A	F	F	340	A	A	A	A	A	A	A	300	275	275	300	290	290	S	295	285	295	S
19	F	S	325	320	A	295	325	A	A	305	A	A	305	305	295	320	270	300	305	315	295	300	A	A	
20	S	S	F	S	A	285	325	300	315	305	A	A	A	305	310	305	295	300	320	320	I S 300	290	S	S	
21	A	S	S	S	F	F	330	325	300	A	345	305	285	295	330	310	310	300	300	315	S	325	325	320	S
22	S	F	F	U S 330	295	300	350	315	320	U R 310	310	315	A	A	275	290	A	325	A	A	A	A	335	305	J S 315
23	F	F	J S 305	F	U S 340	300	330	C	360	360	290	320	295	285	295	310	295	300	325	300	S	355	A	F	F
24	F	305	F	F	F	J S 305	305	325	345	330	340	A	A	275	265	295	305	300	305	310	S	340	J S 335	U S 300	320
25	A	F	A	A	A	F	320	385	320	A	305	285	290	A	305	A	305	A	345	300	S	S	S	S	
26	S 310	S	S	S	S 330	A	325	345	A	345	285	300	285	A	285	A	A	305	335	325	300	310	285	S	S
27	A	S	S	S	S	325	A	A	330	330	A	A	325	275	280	285	295	310	315	315	295	295	F	S	
28	F	F	S	310	F	S	350	350	335	365	A	270	A	A	290	280	305	305	320	A	300	J S 335	A	A	
29	A	A	A	A	F	F	345	A	J S 345	A	A	A	A	A	A	A	315	325	A	A	310	305	J S 310	315	
30	S 305	U S 325	F	F	F	F	340	355	355	A	A	A	A	A	290	285	275	290	A	A	J S 320	F	325	310	F
31																									
CNT	7	6	8	12	8	21	29	22	22	18	11	12	16	17	23	23	23	27	24	22	25	26	18	10	
MED	305	298	300	308	312	320	330	335	335	338	305	302	292	295	290	300	305	310	315	315	310	310	302	300	
UQ	308	320	308	325	335	335	345	350	345	350	342	315	298	300	298	308	310	325	325	320	330	325	310	315	
LQ	280	290	282	302	300	305	325	325	325	310	288	282	265	285	282	285	295	300	305	305	300	300	290	295	

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M(3000)F2 (0.01)

IONOSPHERIC DATA

JUN. 1976

M(3000)F1 (0.01)

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							A	A	A	A	A	A	380	A	A	A	A	A						
2						A	425	A	A	A	A	375	A	355	415	H	385	355	370					
3						L	L	385	A	A	A	A	A	A	A	A	A	A	A					
4							A	A	A	A	H	415	R	395	400	405	365	A	A	L				
5						L	L	375	385	415	415	H	405	A	395	415	365	A	360	A	L			
6							350	360	A	A	A	A	A	A	A	A	A	A	A	A				
7							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
8						A	A	A	A	A	A	A	A	A	A	A	A	H	335	365	L	A		
9							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
10						L	A	A	A	A	415	420	A	410	395	A	A	A	A					
11						L	L	395	410	395	L	A	A	H	385	A	A	A	A	365	L	L		
12						L	L	A	A	A	A	A	A	A	A	370	A	H	395	360	L			
13							375	L	A	A	A	A	A	A	A	A	A	A	A	A				
14						L	A	A	A	A	400	410	A	A	A	A	A	A	A	A				
15						L	L	375	385	A	400	A	A	A	A	A	A	A	A	A				
16							A	395	A	A	A	A	400	405	405	395	A	360	365	L	A			
17						L	A	A	A	A	A	A	415	A	355	A	A	A	A					
18							A	A	A	A	A	A	A	A	A	A	U	R	365	380	355	A		
19						L	A	A	A	A	A	A	A	420	430	A	375	360	345					
20							A	A	A	A	A	A	A	A	A	395	L	375	350	L	L			
21							L	A	A	A	A	A	415	A	A	375	390	U	L	U	L			
22						L	A	A	A	A	A	A	A	A	405	A	A	A	A	A				
23						A	C	H	360	A	A	A	A	A	390	405	H	A	A	370	A			
24						L	L	360	385	360	H	A	A	A	415	390	405	A	A	365	A			
25						L	A	A	A	A	A	A	A	A	395	H	A	A	A	A				
26							A	A	380	395	L	A	A	A	A	A	A	A	A	A				
27						A	A	A	A	A	A	A	430	415	425	A	425	380	A	A				
28							A	A	A	A	A	A	A	A	R	370	355	A	A	A				
29							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
30						A	A	A	A	A	A	A	A	A	A	A	H	350	A	A	A			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								7	8	4	5	4	7	8	13	10	7	11	9					
MED								375	385	388	400	412	400	408	395	385	375	360	365	L				
UQ								385	390	405	415	418	415	415	405	405	388	372	365	L				
LQ								368	372	370	400	408	390	398	390	365	370	352	360	L				

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M(3000)F1 (0.01)

IONOSPHERIC DATA

JUN. 1976

H'F2 (KM)

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							270	275	A	A	A	E A 400	380	350		A	A	305	A					
2						E A 270	265	275	E A 300	A	A	A	355	340	350	330	300	275	270					
3							240	250	300	A	A	A	E A 350	A		325	320	280	E A 300					
4						E A 320		280		A	A	360	550	350	500	375	290	250	230					
5						300	260	250	430	375	345	350	395	370	305	285	330	E A 300	250					
6							350	350	300		A	A	A	A	A	A	A	A	E A 315	275				
7							310	E A 305	265		A	A	A	A	A	355	A	E A 300	A	A				
8						270	A	A	A	A	A	A	A	A	A	305	E A 355	320	265	225				
9							270		A	A	A	A	A	A	A	A	285	E A 280	A	A				
10						300	A	A	270	R	500	440	375	300	300	300	E A 340	265						
11						255	250	300	375	360	350	395	420	370	295	E A 300	290	265	295					
12							280	245	A	305	A	A	305	290	305	310	A	340	270					
13							295	295	A	A	A	A	A	A	A	A	A	290	260					
14							300	275	250	A	510	425	540	450	390	330	300	255	A					
15							250	275	275	270	255	350	A	A	400	310	300	270	270					
16						E A 300		290	275		A	A	500	400	390	375	300	270	285	275				
17							260	A	300	270	255	A	390	A	455	375	355	305	300					
18								A	A	A	A	A	A	A	360	395	400	330	330	300				
19							305	A	A	E A 350	A	A	350	355	400	345	425	360	340					
20							350	340	340		A	A	A	375	355	350	380	350	290					
21							290	E A 350	A	265	350	385	340	275	325	315	330	340						
22							240	325	325	300	335	E A 350	A	A	450	385	A	E A 300	A	A				
23							E A 270	C	250	250	400	320	400	390	340	310	320	290	265	250				
24							275	290	255	300	280	A	A	500	500	355	325	300	285	270				
25							275	225	E A 330	A	E A 350	390	375	A	325	A	E A 345	A	250					
26							260	A	260	400	360	350	A	350	A	A	A	295	250					
27							A	A	255	280		A	A	300	420	400	355	340	290	290	260			
28								320	245		A	450	A	A	350	350	300	300	270					
29							E A 290	E A 275	A	A	A	A	A	A	A	A	320	290	A	A				
30							275	E A 290	A	A	A	A	A	370	355	370	320	A	A	255				
31																								
CNT							16	22	22	18	11	12	16	17	23	23	23	27	23	10				
MED							272	275	284	281	350	355	384	375	360	345	310	295	270	265				
UQ							290	295	310	302	388	408	420	400	400	362	332	318	294	275				
LQ							252	260	275	270	266	350	350	350	350	310	300	282	265	250				

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H'F2 (KM)

IONOSPHERIC DATA

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H'F (KM)

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	E A 275	A 275	E A 320	280	240	245	H A	A A	A A	A A	A A	A A	E A 250	A A	A A	A A	A A	A A	A A	250	E A 260	300	A A		
2	A A	A 275	E A 300	250	240	A 200	A A	A A	A A	A A	A A	E A 240	A A	A 190	230	A A	E A 250	260	225	215	A A	A A			
3	E A 350	300	250	225	270	230	E A 250	205	200	A A	A A	A A	A A	A A	A A	A A	A A	A A	250	235	E A 300	A A			
4	A A	A A	A 210	250	280	250	A A	A A	A A	A A	H 190	A A	210	210	215	A A	A A	230	220	255	250	240	250		
5	E A 300	280	285	275	250	250	240	230	200	205	190	H 200	A A	E A 240	205	230	A A	E A 250	A A	E A 240	250	245	240	A A	
6	345	280	225	205	280	250	235	E A 250	E A 250	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	240	A A	A A	A A		
7	A A	A A	A A	A A	A 240	240	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	245	240	A A	A A		
8	A A	A A	A A	A A	A 230	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A 210	H 240	A A	210	230	250	300		
9	315	305	280	225	230	260	250	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	250	270	305	300		
10	240	225	C C	270	265	235	A A	A A	A A	200	200	A A	220	E A 220	A A	A A	A A	A A	E A 260	E A 270	250	250	300		
11	290	275	275	300	270	240	225	225	205	E A 225	A A	A A	H 200	A A	A A	A A	A A	220	230	250	275	A A	E A 310	A A	
12	A A	A A	A A	A A	250	240	230	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	H 205	E A 240	230	E A 250	E A 320	305	300	
13	315	295	240	250	295	260	240	210	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	255	A A	260	300	A A	
14	305	300	E A 280	245	225	250	235	A A	A A	A A	205	185	A A	A A	A A	A A	A A	A A	A A	A A	A A	250	E A 300	A A	
15	300	265	E A 310	245	260	270	225	220	225	A A	225	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	250	A A	A A	
16	275	275	250	250	290	240	210	A A	200	A A	A A	A A	E A 250	200	200	180	A A	225	240	A A	250	250	250	270	
17	A A	240	270	280	A A	E A 300	250	A A	A A	A A	A A	A A	190	A A	220	A A	A A	A A	A A	260	E A 250	250	A A	E A 340	
18	E A 315	E A 310	A A	A A	E A 305	215	E A 260	A A	A A	A A	A A	A A	A A	A A	A A	A A	225	220	E A 240	A A	245	E A 310	250	A A	
19	255	290	250	260	A A	E A 300	A A	A A	A A	A A	A A	A A	A A	205	200	A A	225	E A 245	240	260	255	240	A A	A A	
20	E A 350	245	230	200	A A	E A 330	240	A A	A A	A A	A A	A A	A A	A A	A A	H 180	230	E A 250	A A	250	250	240	A A	240	
21	A A	270	250	250	275	250	250	A A	A A	A A	A A	A A	E A 230	210	A A	A A	205	225	225	275	240	240	250	305	
22	E A 350	275	235	250	E A 310	E A 290	215	A A	A A	A A	A A	A A	A A	A A	200	A A	A A	A A	A A	A A	A A	250	250	285	
23	E A 300	300	250	245	220	250	A A	I C 230	H 225	A A	A A	A A	A A	A A	A A	200	H 190	A A	A A	220	A A	220	A A	300	300
24	290	250	255	255	240	215	240	220	200	200	A A	A A	A A	A A	200	205	205	A A	A A	E A 250	A A	250	200	255	300
25	A A	E A 320	A A	A A	A A	300	230	A A	A A	A A	A A	A A	A A	A A	H 200	A A	A A	A A	A A	A A	E A 295	245	E A 275	300	E A 340
26	A A	A A	265	250	225	A A	240	A A	A A	225	230	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	245	255	E A 350
27	A A	290	250	255	245	250	A A	A A	A A	A A	A A	A A	195	220	220	A A	200	225	A A	A A	245	245	300	290	
28	290	E A 300	245	255	215	250	245	210	A A	A A	A A	A A	A A	A A	E A 240	225	A A	A A	A A	A A	245	E A 250	A A	A A	
29	A A	A A	A A	A A	240	220	220	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	E A 270	E A 300	255	250	
30	245	250	290	300	250	215	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	275	235	260	215	
31																									
CNT	19	22	22	23	24	29	24	10	8	4	5	5	6	8	12	9	6	10	11	14	25	27	21	17	
MED U	278	278	251	250	250	245	239	218	201	208	205	195	198	208	202	205	225	220	230	251	248	245	255	292	
UQ	308	295	275	262	274	258	245	228	220	225	225	200	E A 240	225	214	215	230	E A 245	E A 240	260	250	255	300	300	
LQ U	266	265	250	245	240	240	230	210	200	202	200	190	195	202	200	190	H 205	220	226	250	242	240	250	270	

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H'F (KM)

IONOSPHERIC DATA

JUN. 1976

H^oE (KM)

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					S		115	105	105	100	100	100	105	105	105	A	A	E A 120	A	B				
2					S	A		105	105	105	105	105	105	105	105	A	E A 125	E A 125	110	S				
3					S		115	105	105	105	105	105	105	100	105	A	A	A	A	S				
4					S		120	105	105		A	A		A	A	A		105	105	110	B			
5					S	A	A		105		A	A	E A 120		A	A	A	105	105	100	E A 110	B		
6					S	A		105	100		A	A		105	100	100	A	A	A	A	B			
7					S	A	E A 120		105	105		A	A		A	A	105		A	A	A	B		
8					S	A		105	105	105	105	105	105	100	105	105	105	E A 115	110	S				
9					S		120	105	105	105	105	105	105	105	105	105		A	A	A	A			
10					S	A		105	105	105	105	105		A	A	A	A	E A 120	A	E A 125	B			
11					S		120	105		A	A	A	A	A	A	A	A	A	A	A	B			
12					B	A	A		105	100	100	100		A	A	A	105	105	105	110	S			
13					S		120	105	100		A	A	A	A	A	A	A	A	A	A	B			
14					S	A		105		A	A	100	100	105	105	105	E A 120		A	A	A	S		
15					S	A	A		A	A	A	A		105	105	105	105	F A 115	105	105	B			
16					S	S		105	105	105	100	100		A	A	A	E A 120	A	A	E A 125	S			
17					S		120	105	105	105	105		A	A	A	A	105	105	105	115	S			
18					S		120	105	105		A	A	A	A	A	A	A	A	A	E A 120	S			
19					S	A		100	100		A	A	A	A	A	A	A	A	A	110	S			
20					B	A		105	100	100	100		A	A	A	A	105	105	105	A	S			
21					S		125	100	100	105	105	105	105	105	105		A	A	E A 125	A	A	S		
22					S	E A 125	E A 115		105	105	105	105	100	105	105		A	A	A	A	S			
23					S	A	C		105	100	100	100		A	A		100	105	105	105	S			
24					S	E B 125		105		A	A	A	A		A	A	A	105	105	105	110	S		
25					S	A		100	100	100	100	100	100		A	100	100	100	100	105	B			
26					S	S		105	100	100	100	100	100		A	A	A	A	A	A	S			
27					S		120	105	100		A	A	A		A	A	A	E A 120	100	105	105	B		
28					S	A	A		100	105	105		A	A	A	A	105	105	105	110	S			
29					S	A	E A 120	E A 110		100	100	100	100	100		A	A	A	A	A	S			
30					S	S		105	100	105	105	105	105	100	105	105	105	105	105	110	S			
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							12	25	26	19	19	19	14	12	13	15	16	15	17					
MED							120	105	105	105	105	102	105	105	105	105	105	105	110					
UQ							121	105	105	105	105	105	105	105	105	105	108	105	110					
LQ							120	105	100	100	100	100	100	100	105	105	105	105	110					

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H^oE (KM)

IONOSPHERIC DATA

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H⁺ES (KM)

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

JUN. 1976

H⁺ES (KM)

IONOSPHERIC DATA

JUN. 1976

TYPES OF ES

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

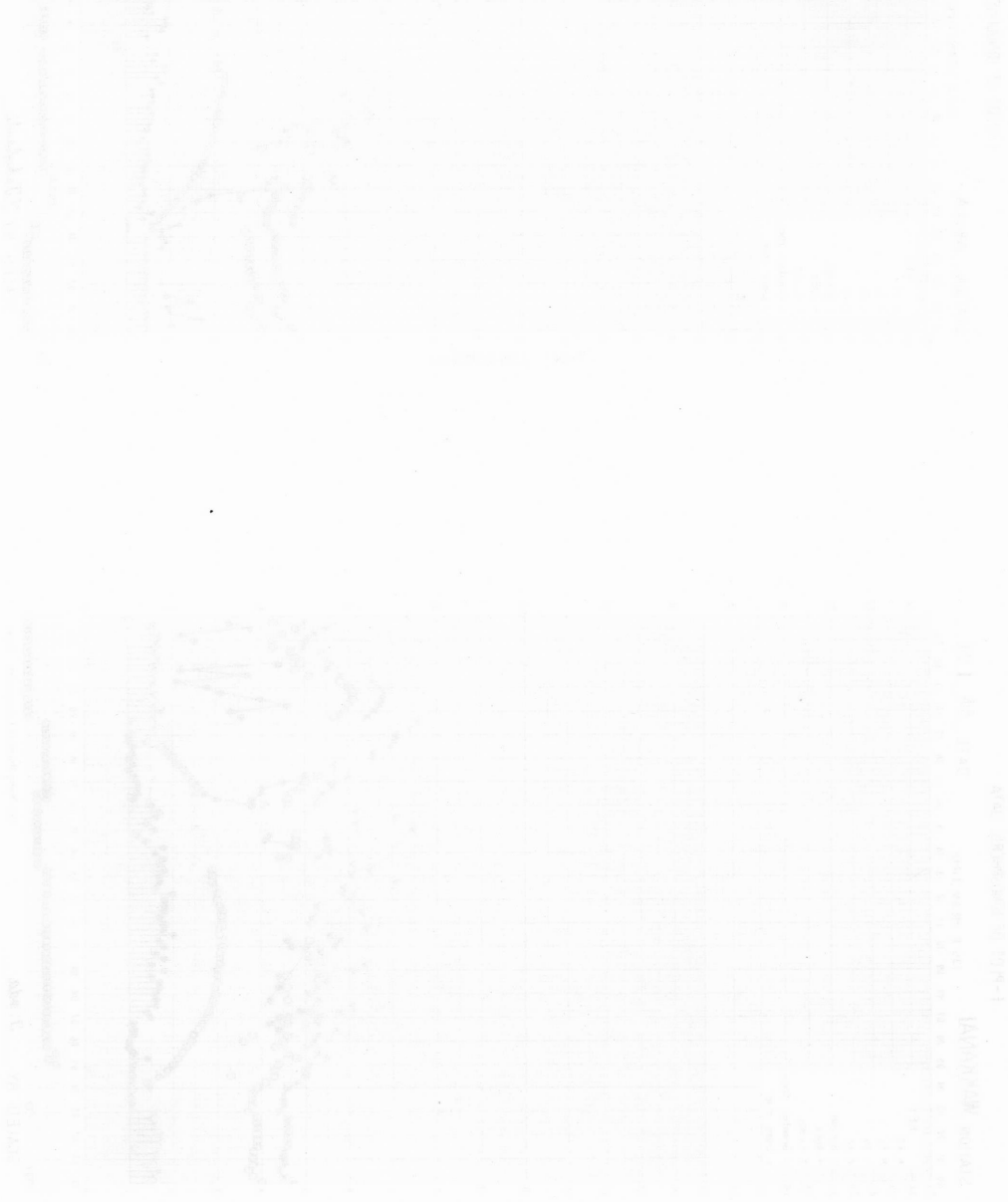
Station	YAMAGAWA				Lat. 31 12.1 N	Long. 130 37.1 E	Sweep 1 MHz to 20 MHz in 20 sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	F3	F4	F2	F3	F5	C1	C1	C2	C2	C4	C4	C4	C3	C1	HC13	CL42	CL42	CL42	CL44	CL62	FF24	FF22	FF31	F4						
2	FF42	F3	F2	F2	FF21	L3	L4	C3	C2	C2	C3	C3	C2	C1	H1	L1	H11	H12	C121	L131	F2	F3	FF32	F4						
3	F3	FF22	F1	F1	FF11	C1	C3	C1		C3	C5	C6	C3	C3	C4	L2	H12	C32	C32	C62	FF52	FF52	F6	F5						
4	F4	F5	F5	F1	F2	L3	C2	C3	C2	C4	C3	C1	HC1	C2	C1	C2	C2	C3	C4	C3	F2	FF22	F3	F2						
5	F1	FF21	F2	F4	F5	L1	L1	L2	H1	HC1	C1	H11	HC11	C1	H11	H1	C3	C3	C131	C131	FF21	F2	F2	FF42						
6	F3	FF11	FF22	F1	F5	L3	L4	L3	C2	HC32	C3	C7	C4	C5	C5	C4	C3	L4	L5	CL25	F5	F3	F3	F3						
7	F4	F3	F4	F4	F3	L3	HL23	H141	C3	C3	CL52	CL41	C6	C3	CH21	C2	C4	C5	CC52	CC56	F3	FF22	F4	F3						
8	F3	F5	F4	F3	F3	L2	CL45	C4	C5	C4	C6	C4	C4	C4	C5	C3	C4	CL21	C2	L2	F1	F2	F2	FF22						
9	FF31	F2	F3	F2	F1		H1	C4	C4	C5	C5	C5	C5	C5	C5	C5	L4	L5	L5	L4	F4	F2	FF23	F3						
10	F2				F2	L2	L2	C3	C4	C3	CH11	HC11	LH11	L1	L2	H12	CL21	CL42	CL21	L2	FF22	F2	F2	F2						
11	F2	FF11	F1	F2	F1	C1	H121	C2	L2	L2	L3	L3	L2	L2	L4	L3	L5	L2	L2	CL31	F5	F5	F4	F4						
12	F4	F3	F4	F5	F4	C3	C3	C3	C4	C2	C3	C4	C4	C2	C3	H1	C3	C2	C4	C5	F6	FF43	F5	F5						
13	F4	F2	F2			C1	H2	H3	C3	C7	C3	C6	C3	C4	C3	C6	C6	L4	L4	CL63	FF33	F4	F3	F5						
14	F3	F4	F4	F2	F2	C1	C32	C4	F5	L4	C2		H1	H1	H1	H11	H11	H12	CL53	CL63	FF43	FF22	FF22	FF31						
15	FF21	F2	F3	F1	F3	L3	L2	L2	H122	CL32	H122	H111	H2	H4	H3	H2	H11	H121	C5	L6	F5	F4	F6	F4						
16	F3	F3	F3	F3	F1		H2	C3	C2	C3	C6	C4	L2	L2	L1	L1	L2	H11	H12	CL32	FF32	FF22	F2	F2						
17	F3	F3	F2	F2	F5	L3	C3	C6	C6	C3	C3	L2	L1	L3	L1	H1	H3	H3	C6	C5	FF31	FF21	F3	F4						
18	F6	F4	F4	F4	F5	C2	C4	C3	C3	C5	C2	C2	C2	C4	C5	L2	L5	L2	H121	C6	F2	FF55	F2	F6						
19	F2	F3	F2	F3	F3	L2	C4	C5	C4	C5	C4	C5	C5	C1	C2	C2	L31	H122	H2	C4	F2	F2	F4	F4						
20	F4	F2	F1	F1	F4	L2	HL23	C4	C2	C2	C5	C4	C2	C2	C1		H1	H3	CL21	CL34	FF22	F2	F4							
21	F5	F2	F3	F3	F2		C4	C4	C3	C3	C2	C2	C1	C2	L4	L2	H11	L4	LH31	LL63	F3	F2	FF22	FF21						
22	F5	F2	F3	F4	F3	L4	LH22	CL32	C3	C2	C2	C2	C5	C4	C1	L2	L4	L6	L4	L5	F6	F4	F3	FF22						
23	FF12	FF21	FF21	F2	F2	L1	C3		C1	C2	C2	C2	L2	L2	C1	C1	H2	C2	C1	L4	F3	F3	F2	F1						
24	F2	F2	F1	F2	F2	L1	H1	H1	L2	L2	L2	L2	L2	L1	L1	H1	H2	C3	C3	C6	F4	F2	F2	F2						
25	F3	F3	F5	F3	F3	L3	HL32	C3	C5	C4	C3	C3	C2	C3		H2	H4	C3	C3	C5	F4	F4	F3	F3						
26	F5	F4	F3	F4	F3	C6	C2	C4	C4	H1	H1	C2	C2	C3	C3	C5	C7	L4	L6	L5	F8	F6	FF22	F6						
27	F4	F4	F2	F7	F5	L3	C6	C4	C3	C3	C2	C3	L2	H11	H11	H11	H2	H2	C3	C5	F4	FF31	FF61	F3						
28	F6	F5	F5	F5	F2	L4	L6	HL32	C4	C2	C4	C2	C4	C5	HC11	H1	H3	C4	C5	C3	F3	F4	F3	F5						
29	F2	F3	F3	F4	F2	L1	CL12	CL22	CL62	C4	C4	C3	C3	C2	L4	L3	LH31	L3	CL14	CL22	F4	F4	F3	FF22						
30	F2	F1	F2	F2	F2	L1	H2	H2	C4	C3	C4	C4	C4	C3	HC22	H2	H1	C6	C4	L3	F1	F2	F3	F3						
31																														
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT																														
MED																														
UQ																														
LQ																														

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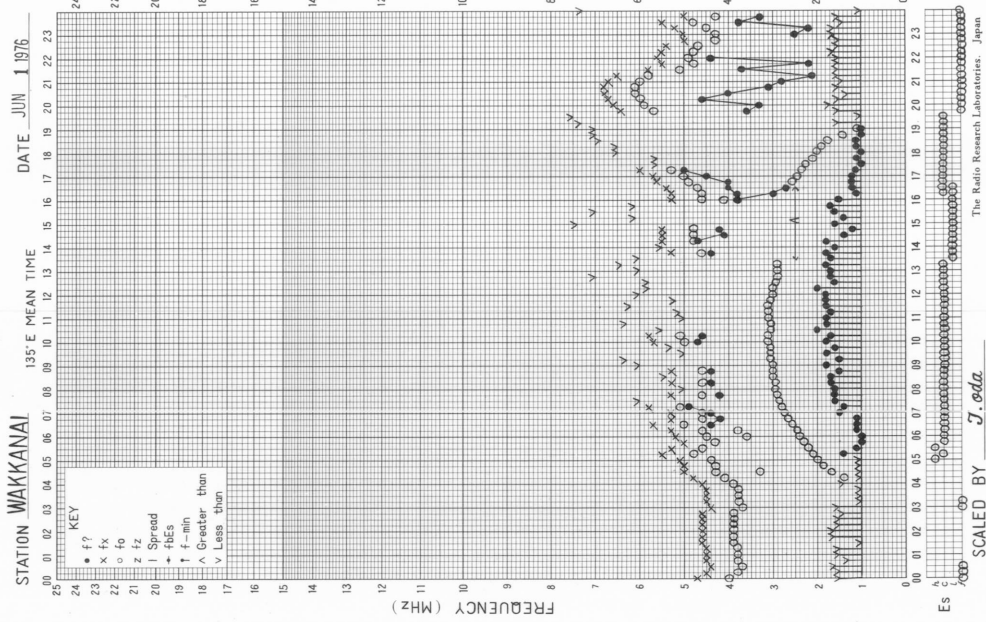
JUN. 1976

TYPES OF ES

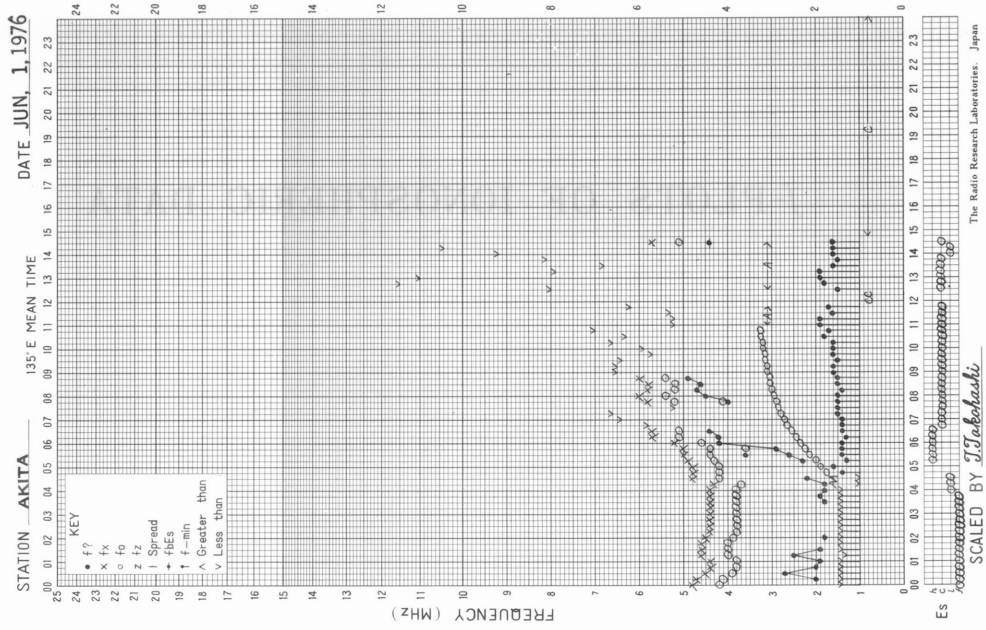
f-PLOTS OF IONOSPHERIC DATA



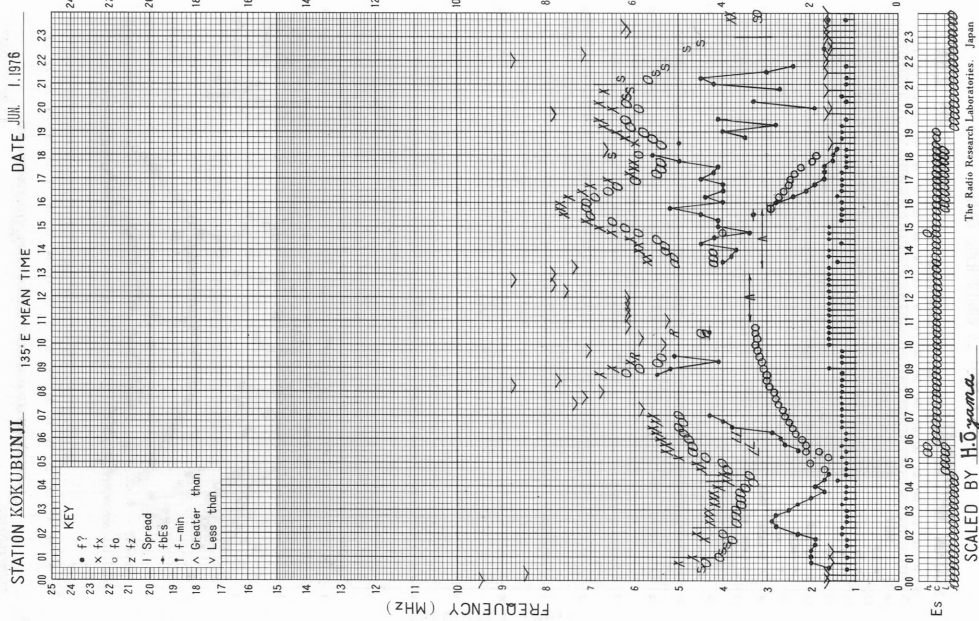
f-PLOT OF IONOSPHERIC DATA



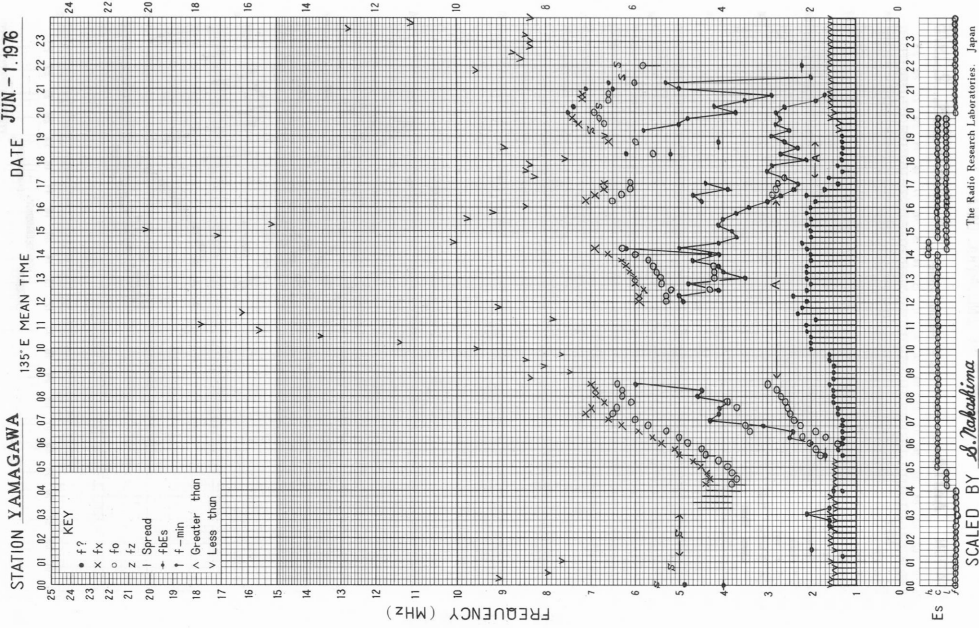
f-PLOT OF IONOSPHERIC DATA



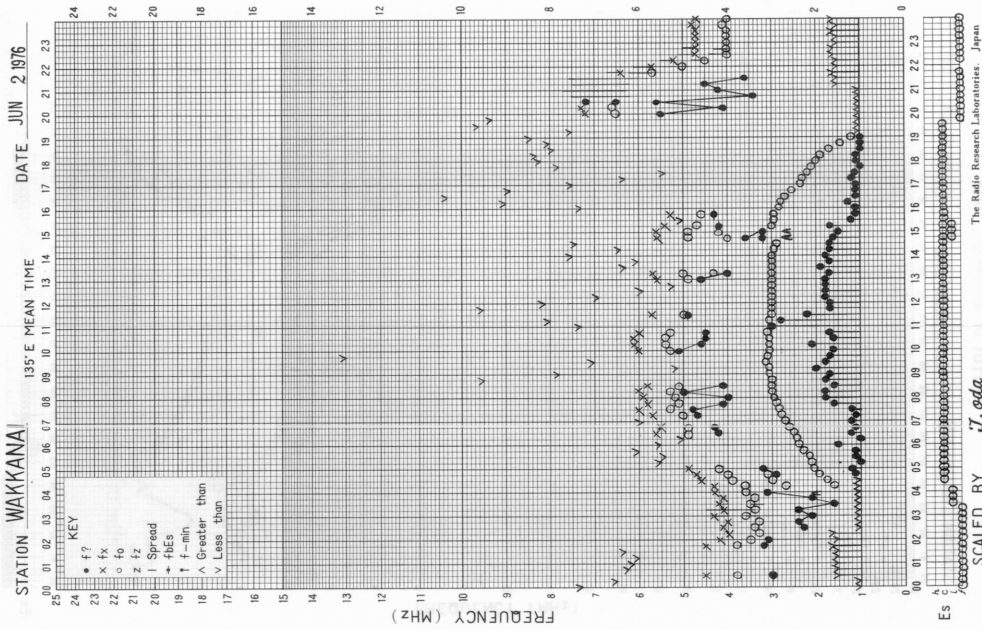
f-PLOT OF IONOSPHERIC DATA



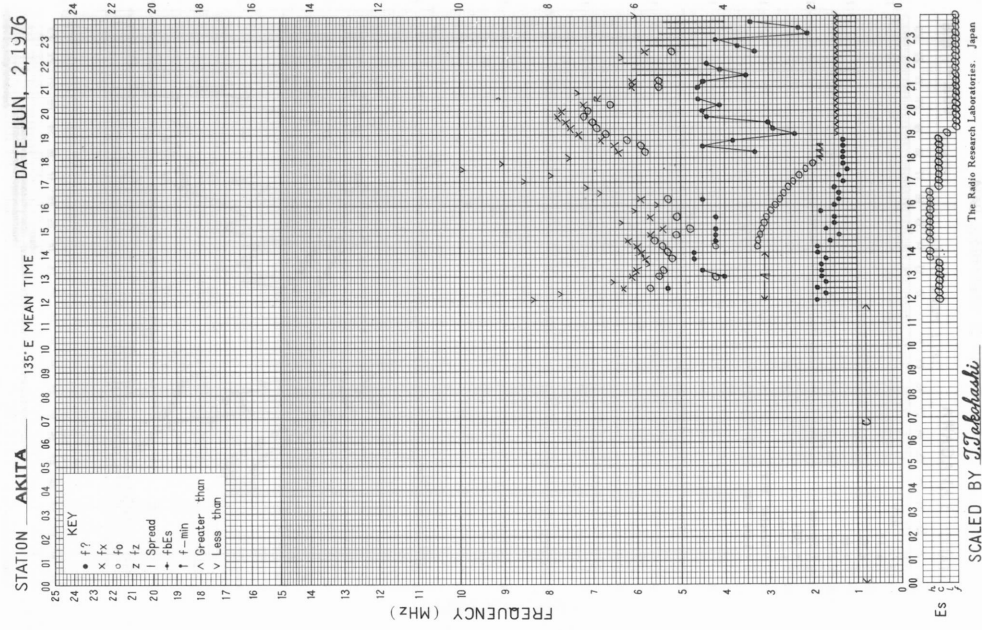
f-PLOT OF IONOSPHERIC DATA



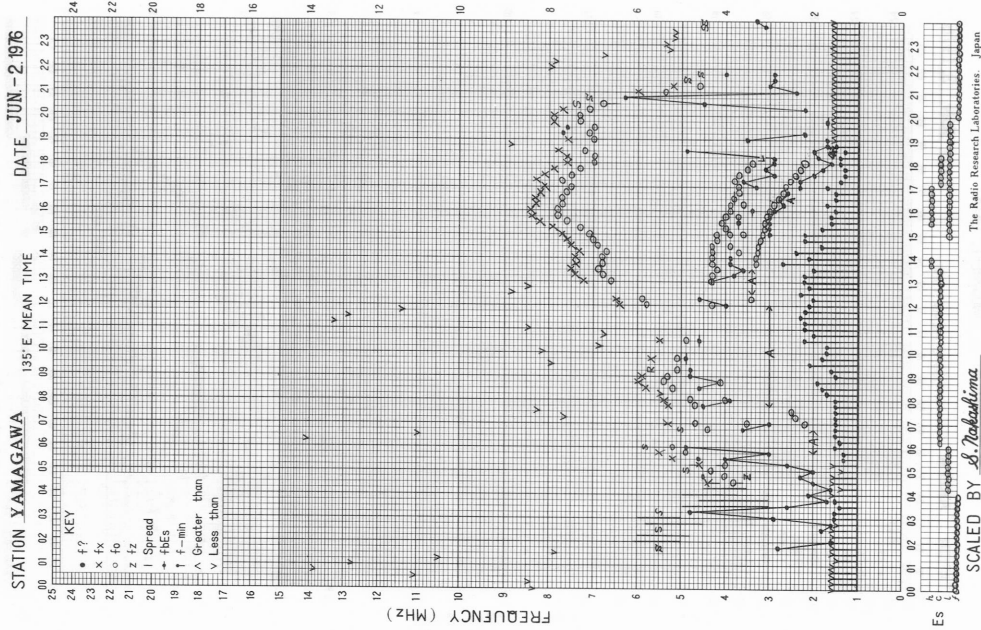
f-PLOT OF IONOSPHERIC DATA



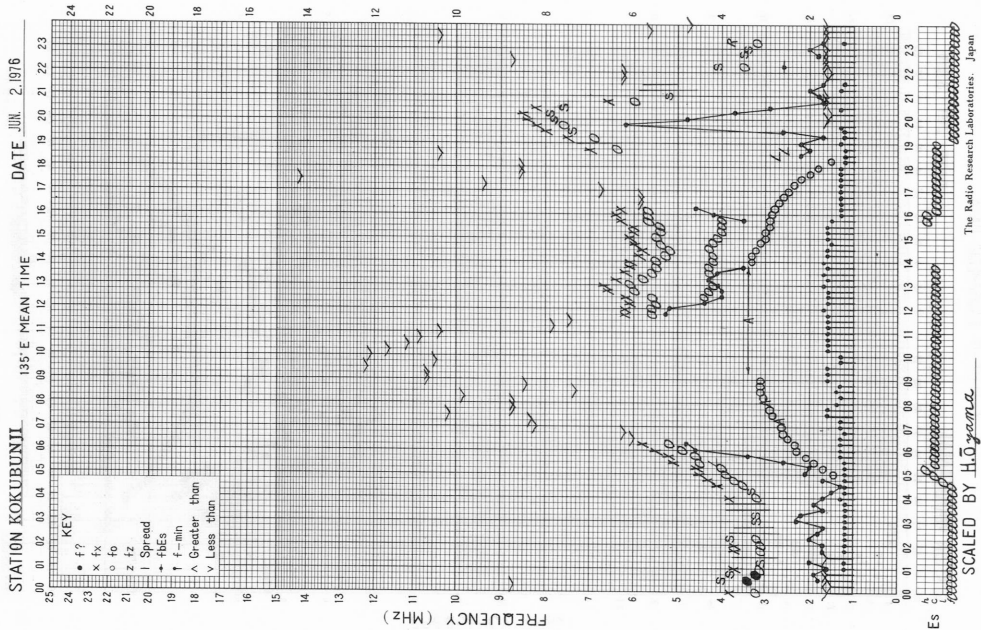
f-PLOT OF IONOSPHERIC DATA



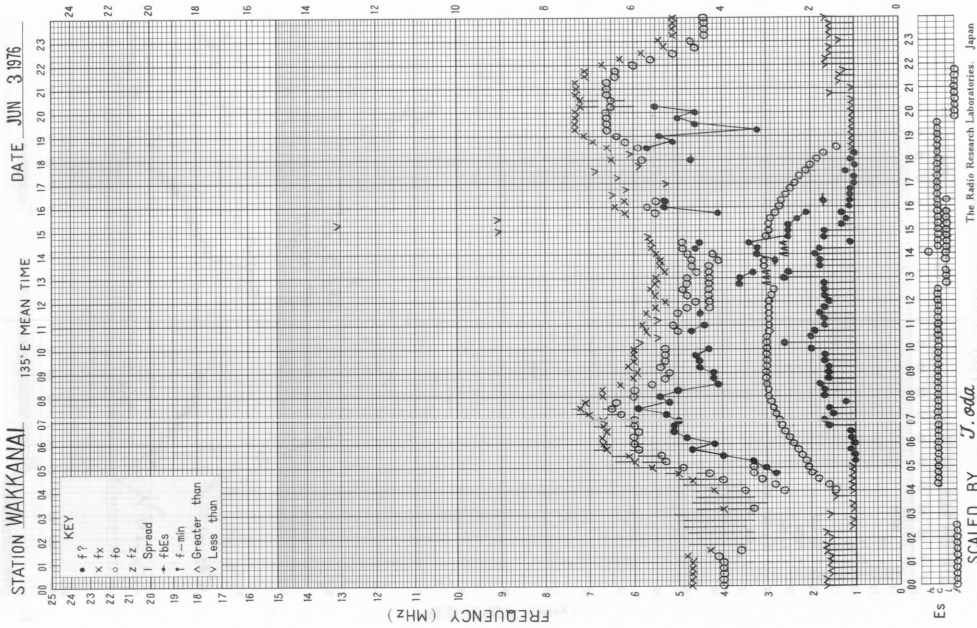
f-PLOT OF IONOSPHERIC DATA



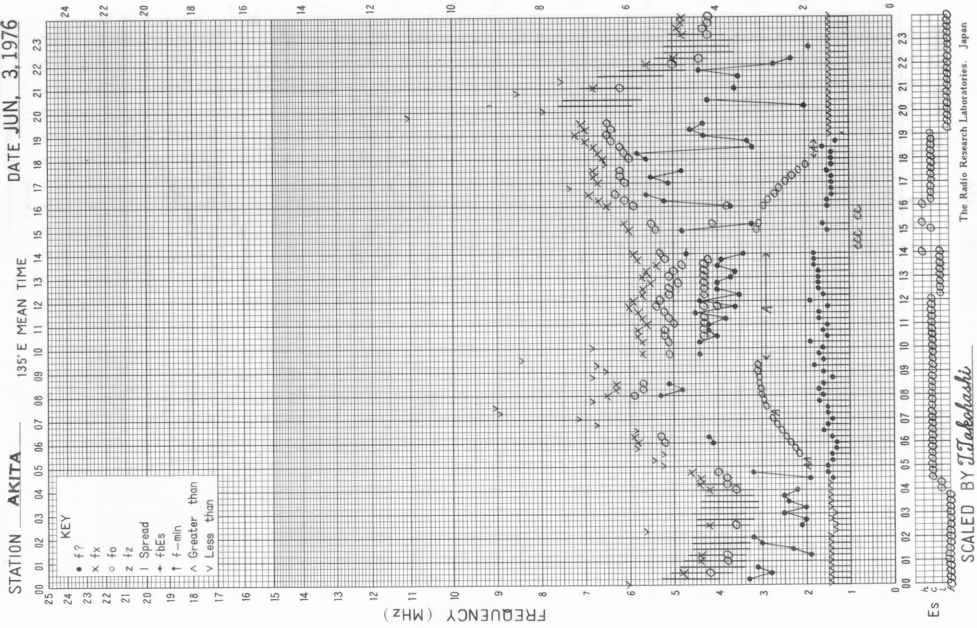
f-PLOT OF IONOSPHERIC DATA



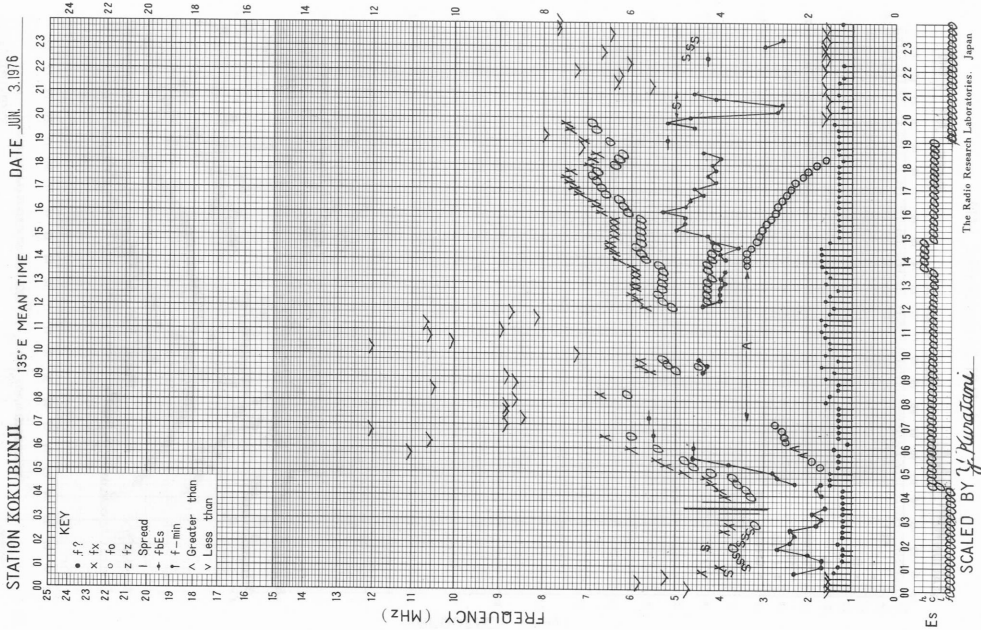
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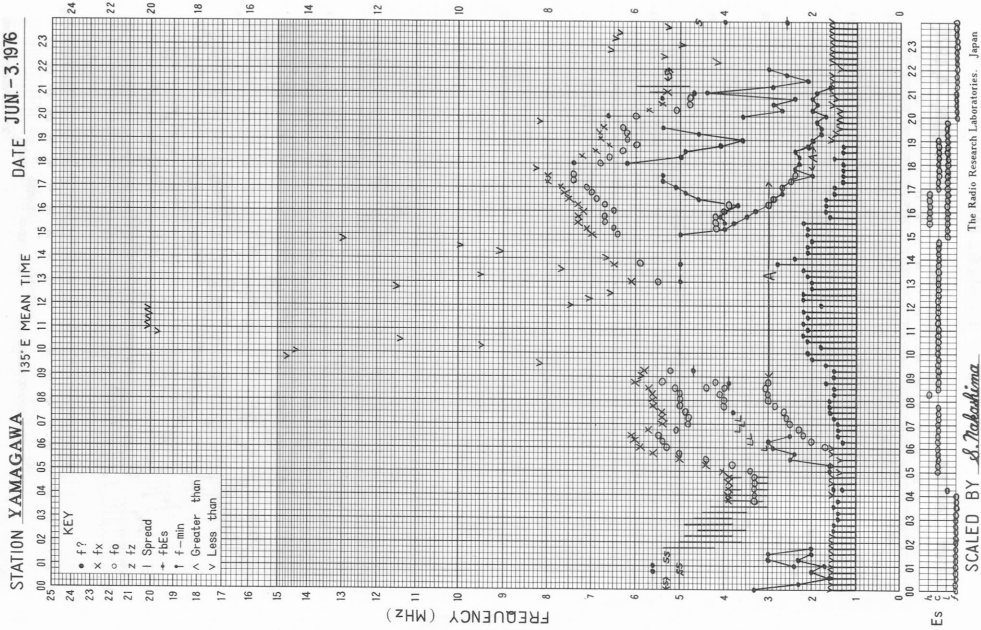
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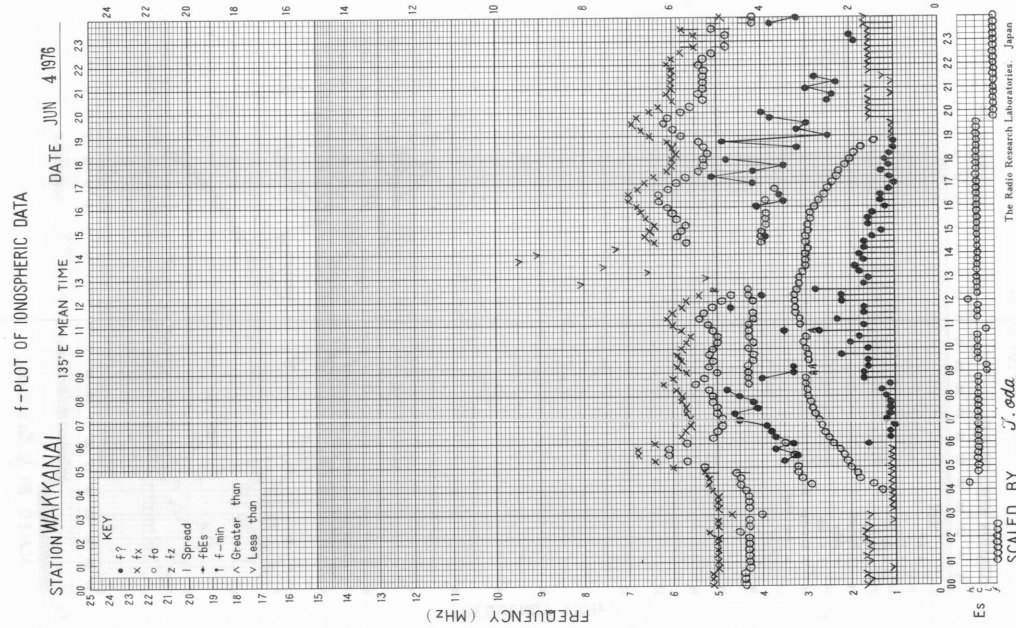
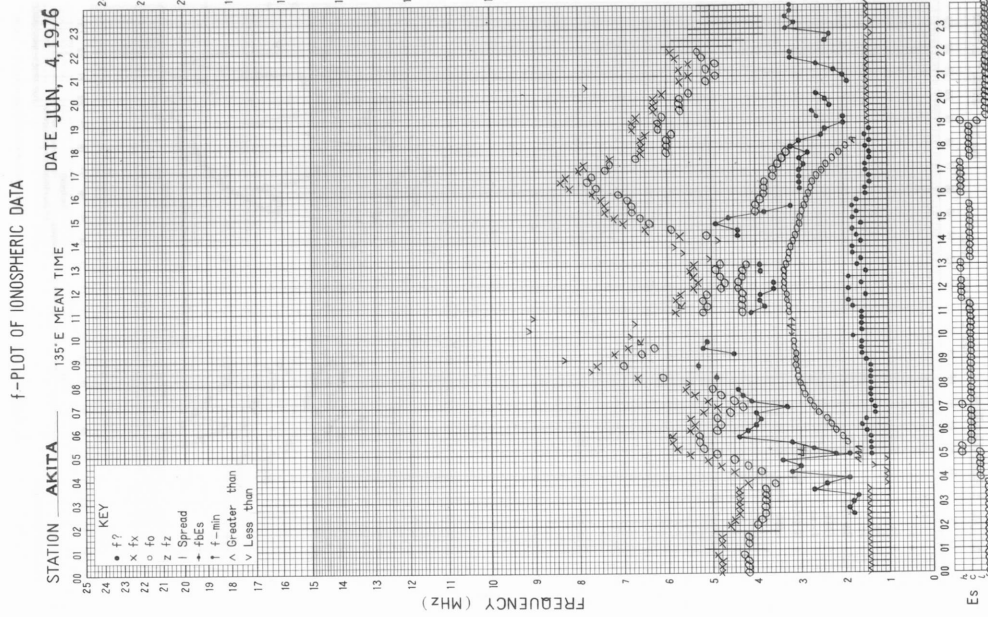


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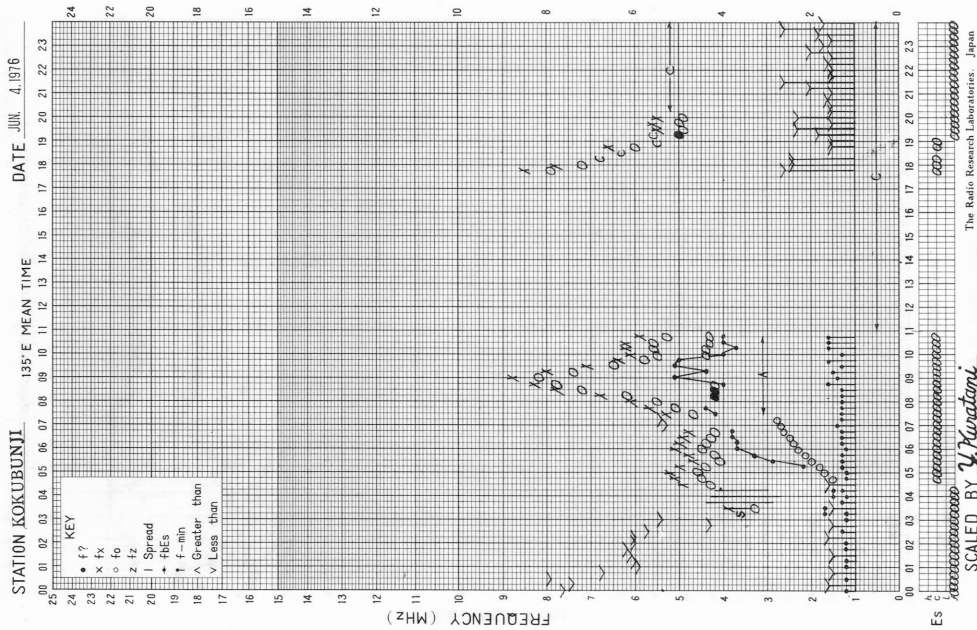


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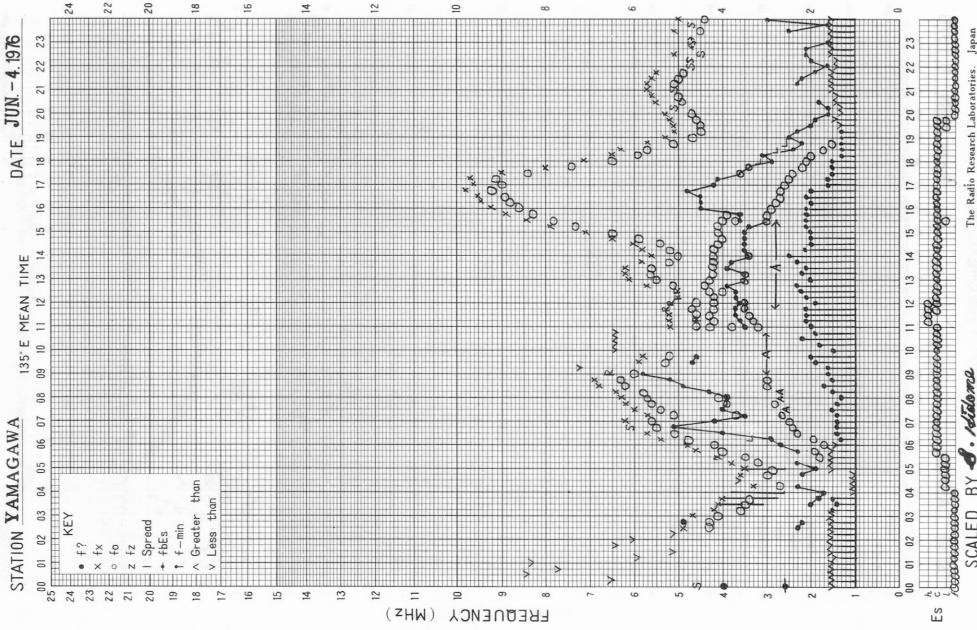


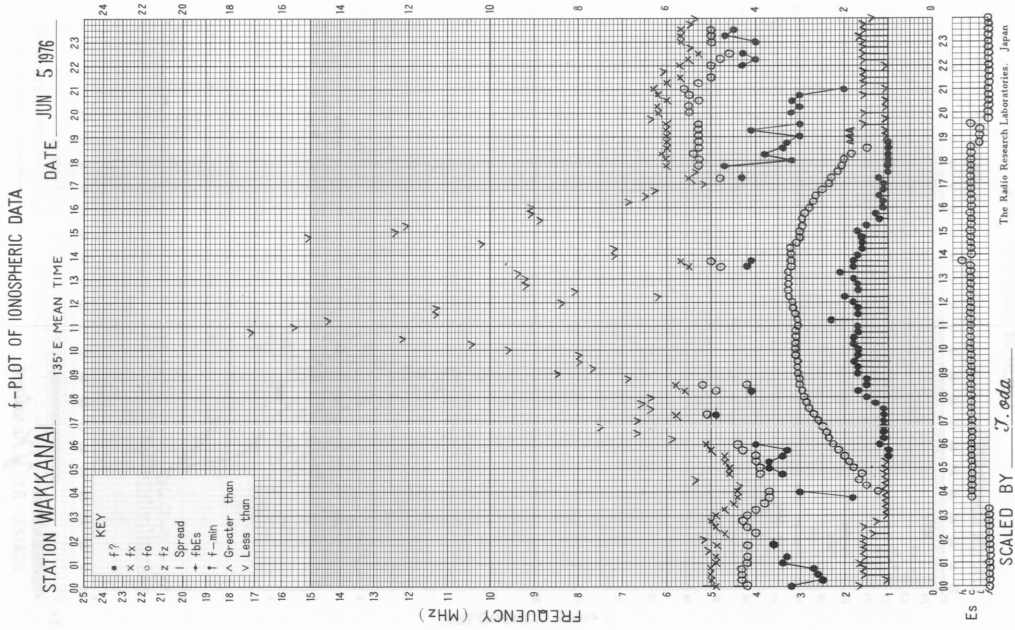
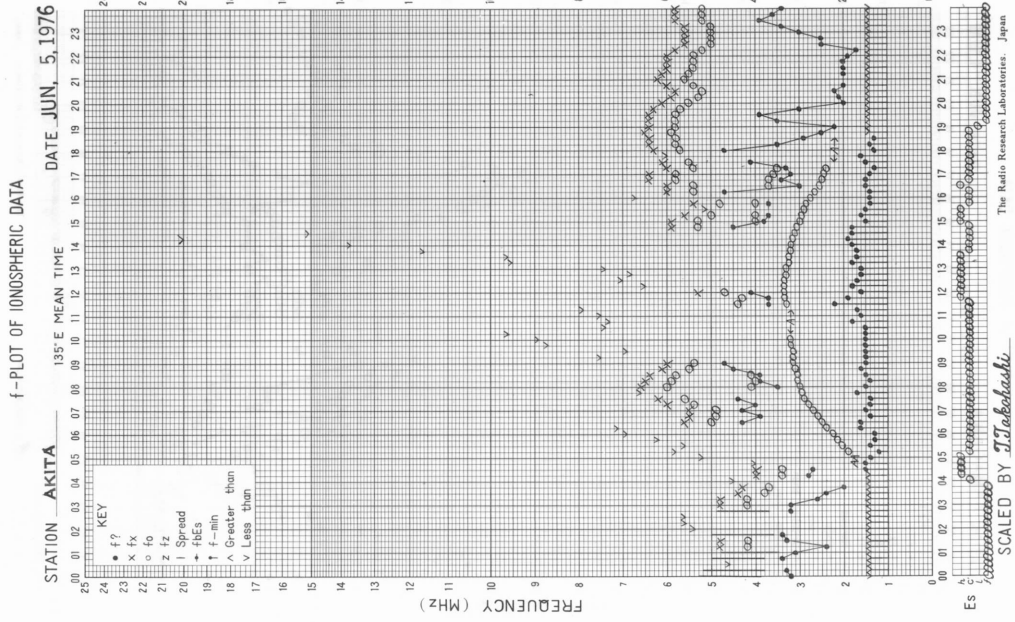


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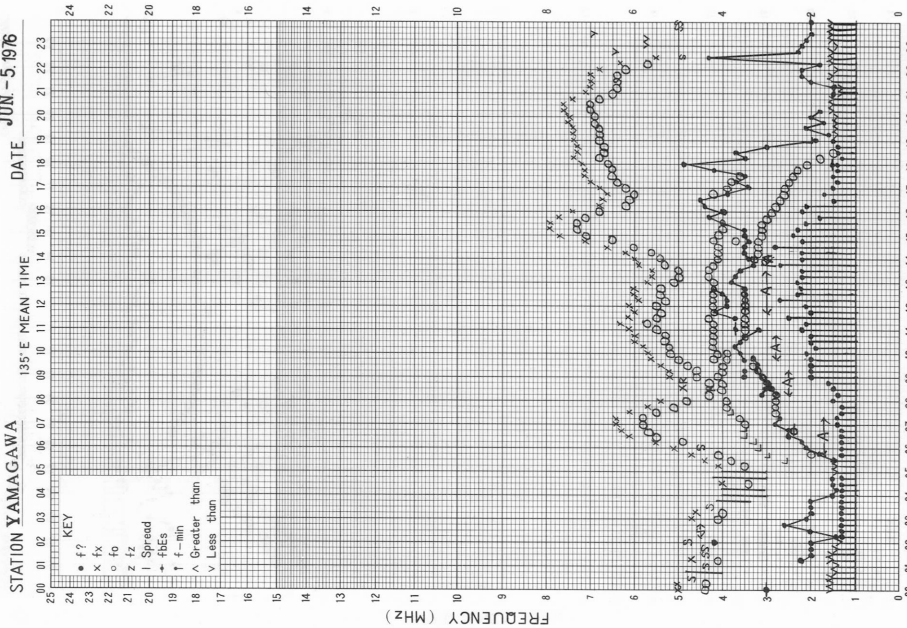


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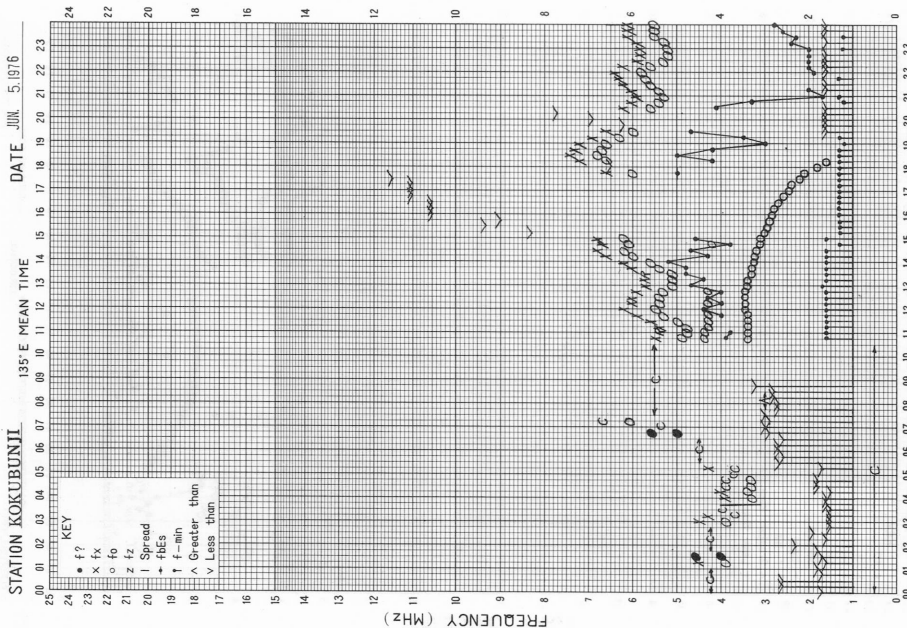


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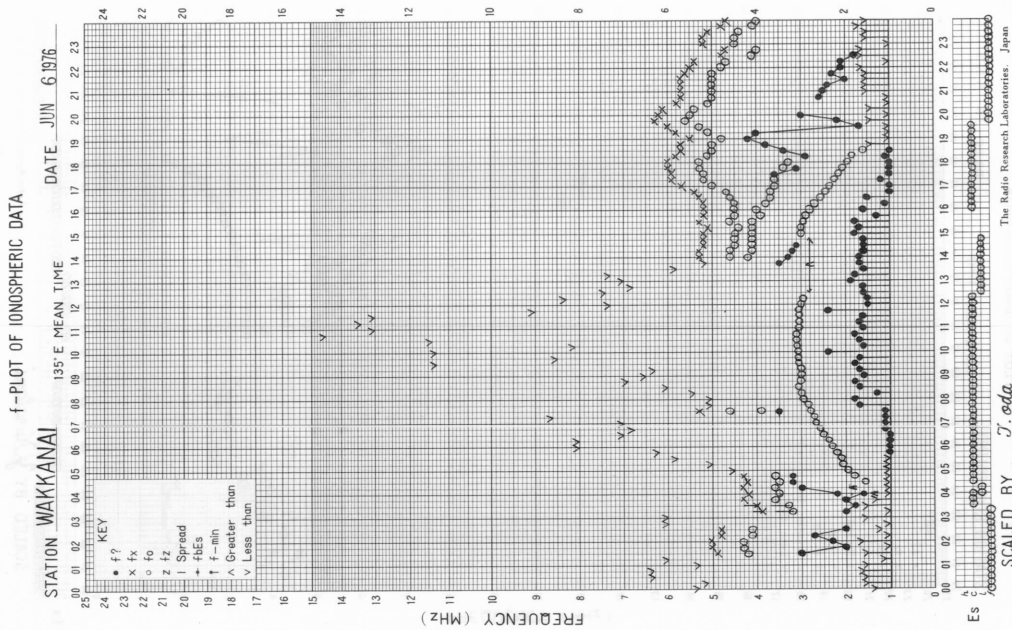
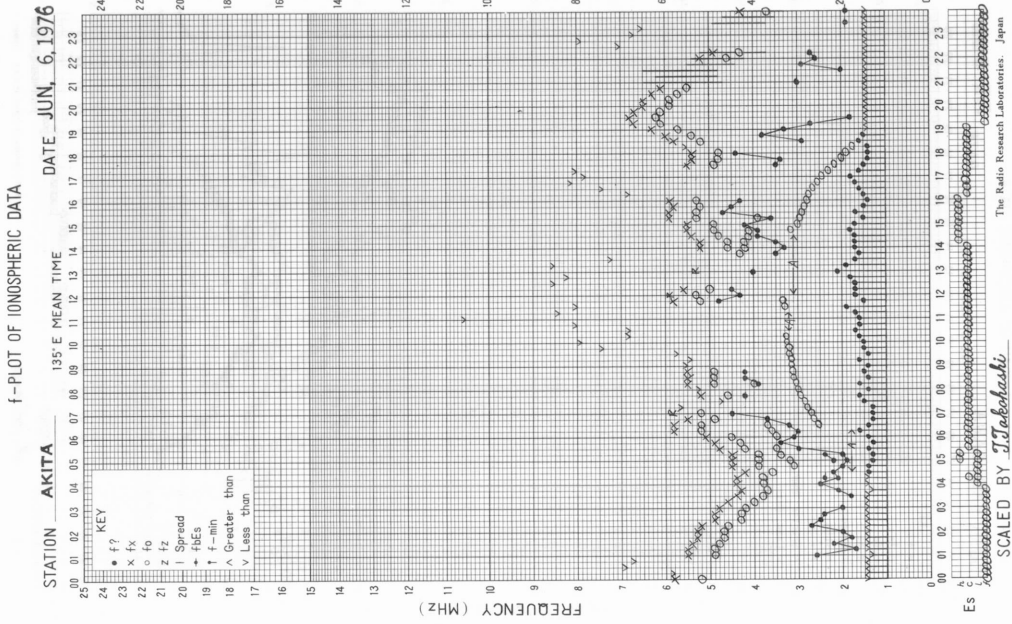


SCALED BY *S. Niikawa*
The Radio Research Laboratories, Japan

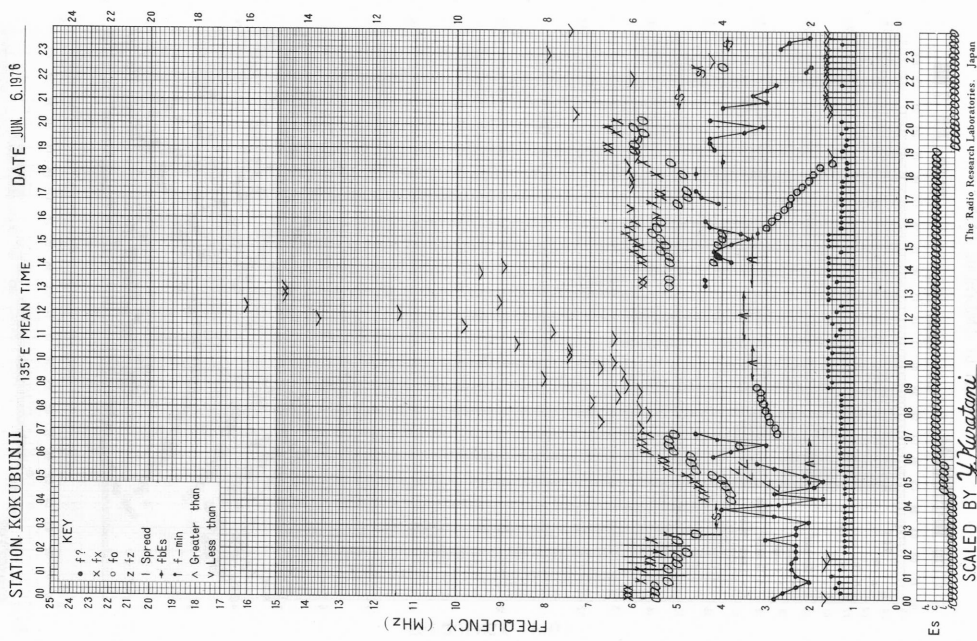
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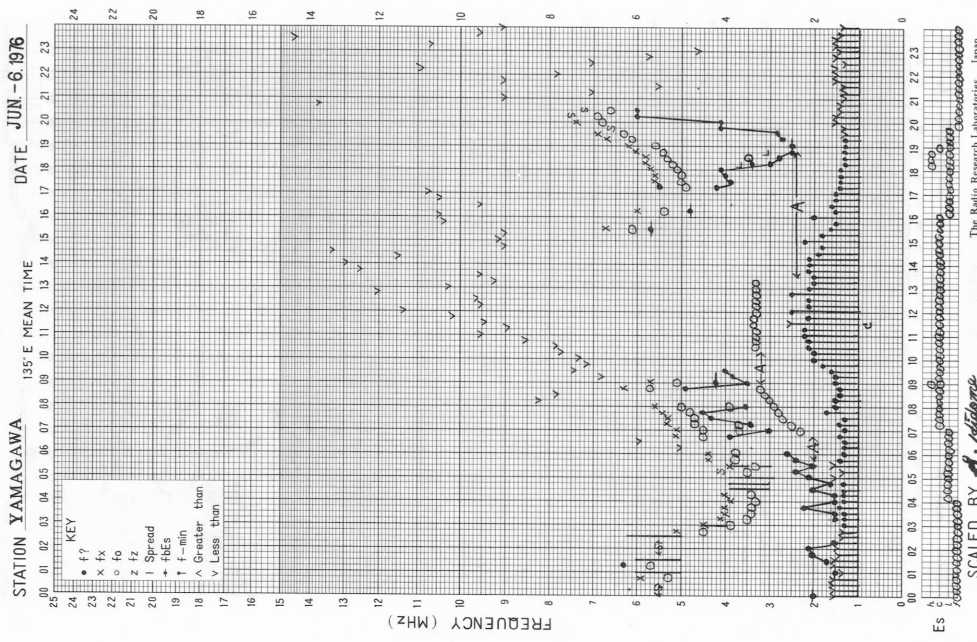
SCALED BY *Y. Kunatani*
The Radio Research Laboratories, Japan



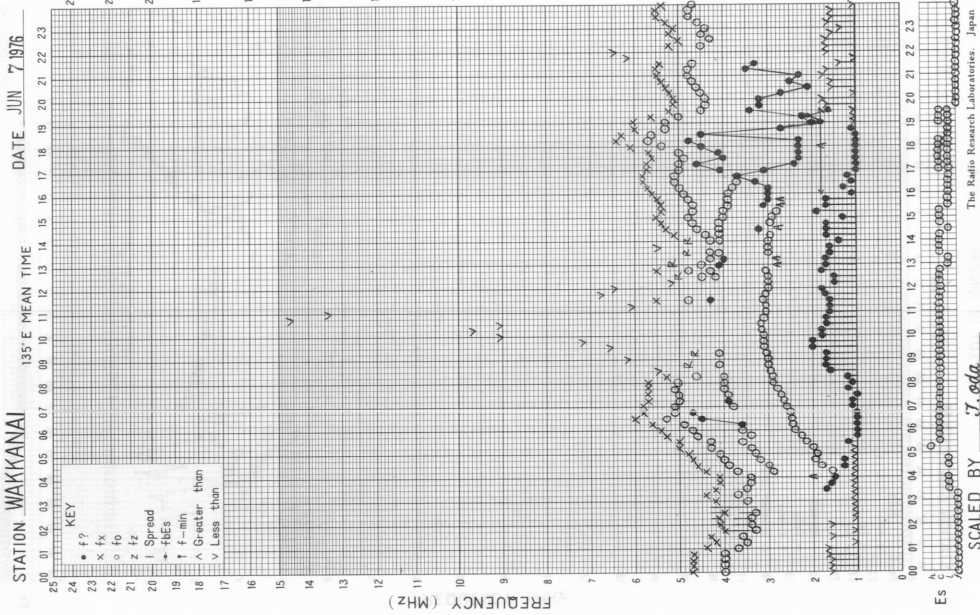
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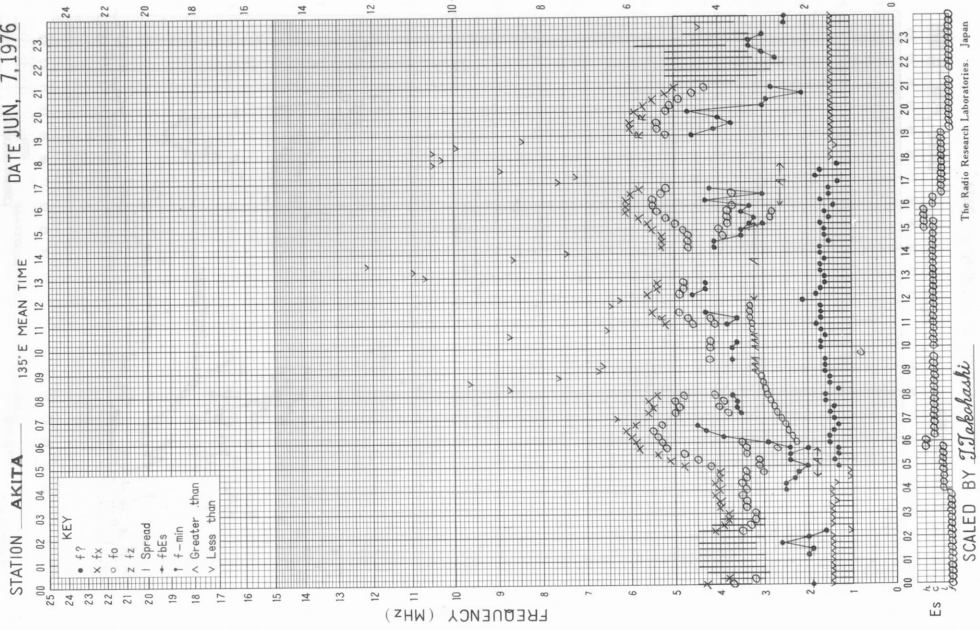
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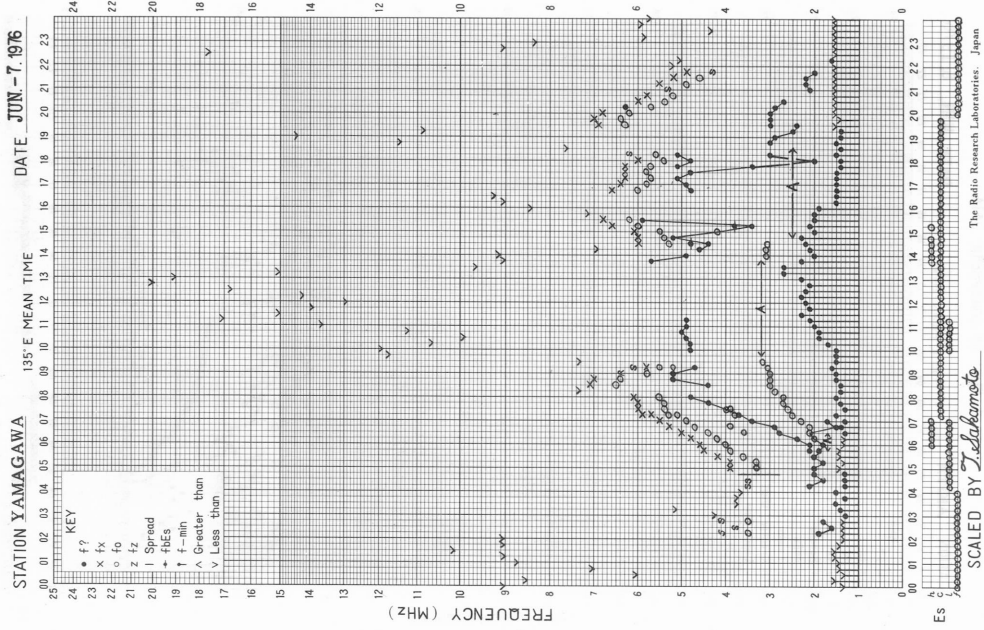
f-plot of IONOSPHERIC DATA



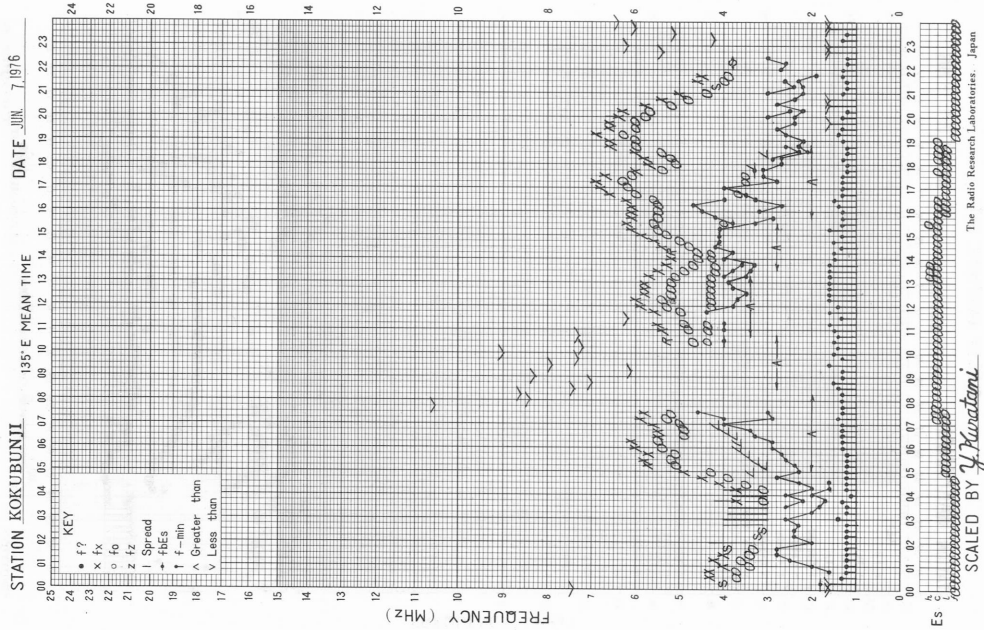
f-plot of IONOSPHERIC DATA



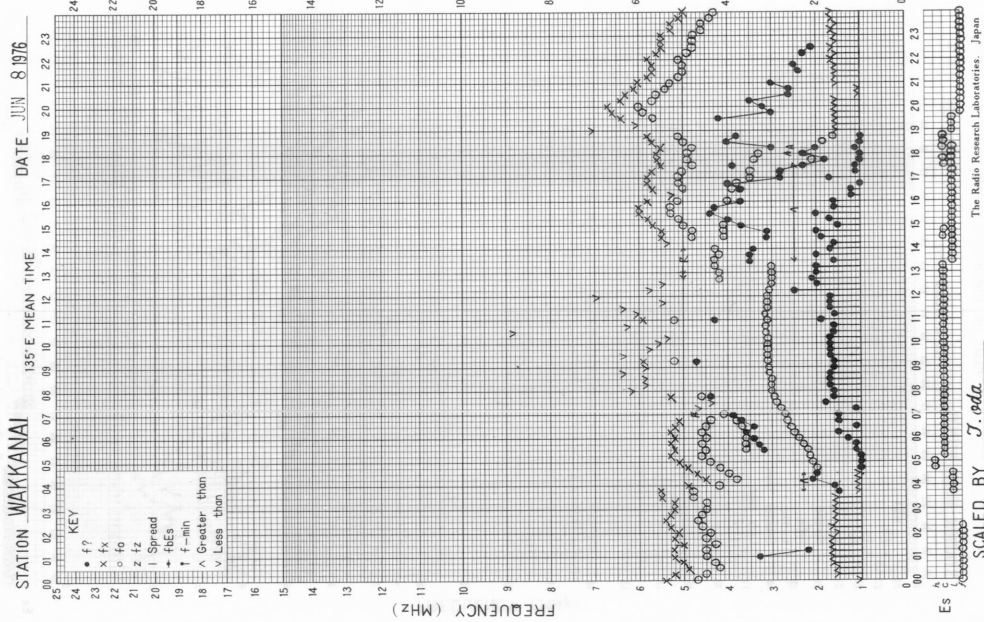
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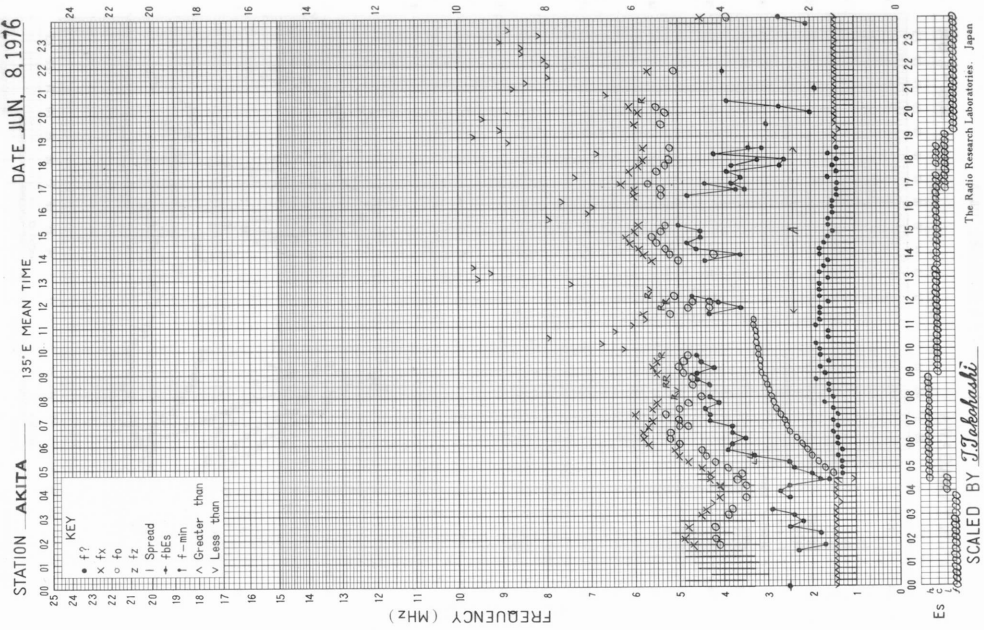
f-PLOT OF IONOSPHERIC DATA



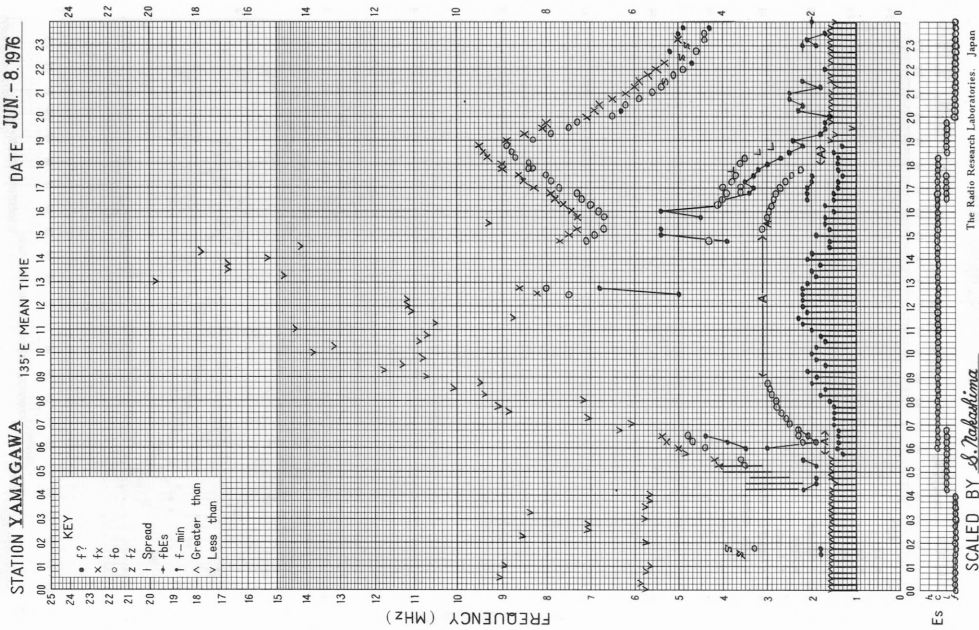
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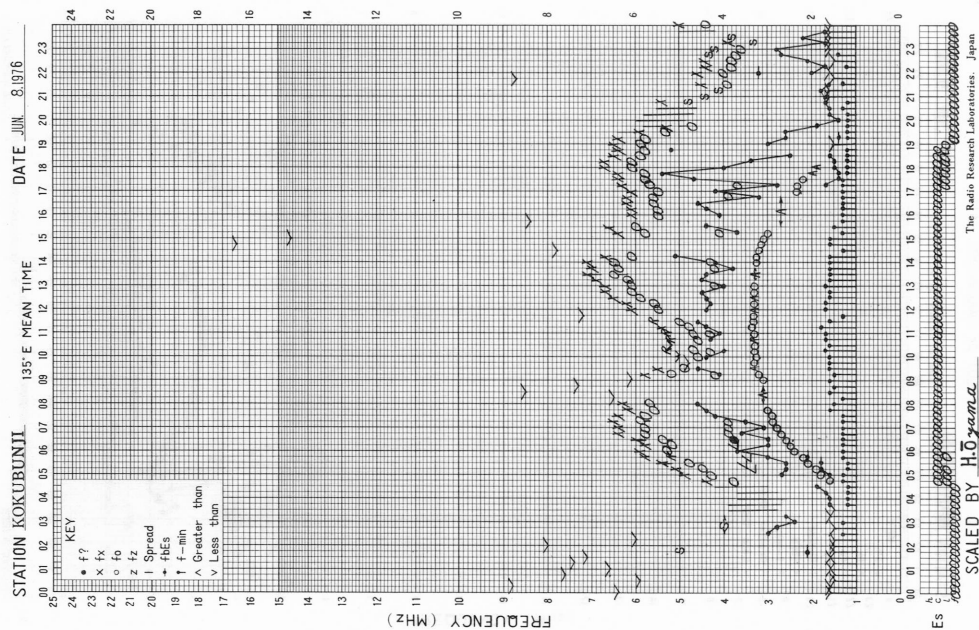
f-PLOT OF IONOSPHERIC DATA



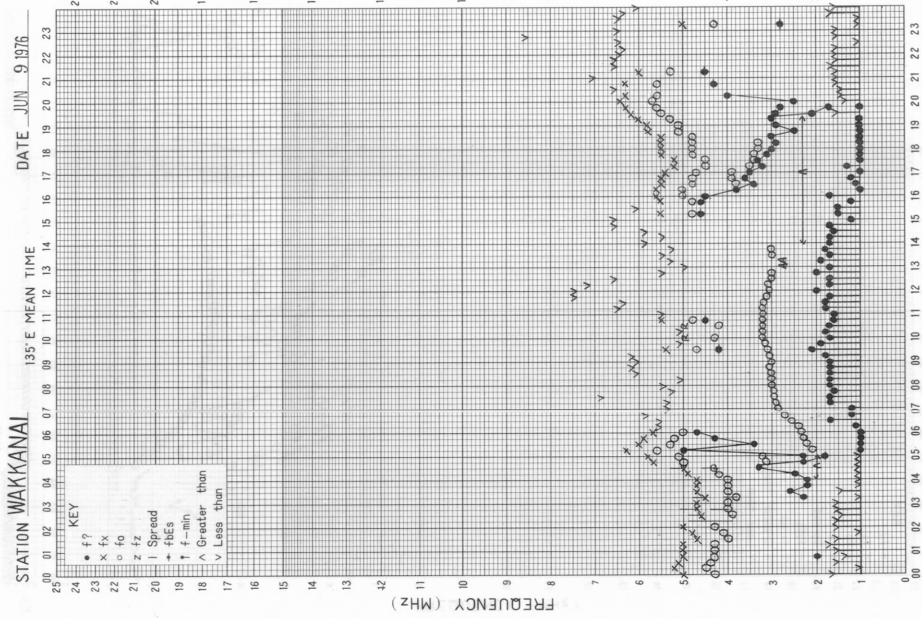
f-plot of IONOSPHERIC DATA



f-plot of IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

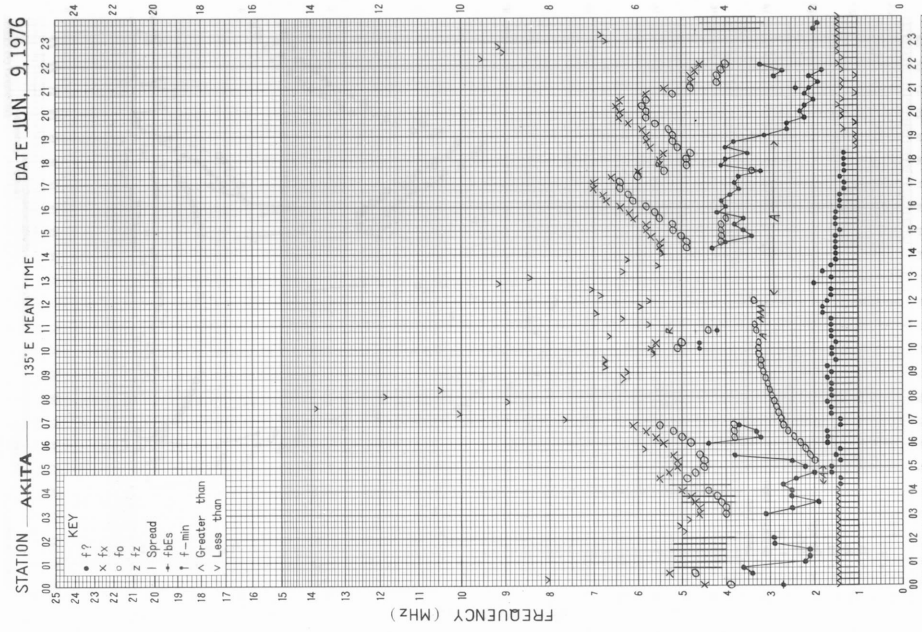


ES

SCALED BY J. Oda

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f-PLOT OF IONOSPHERIC DATA

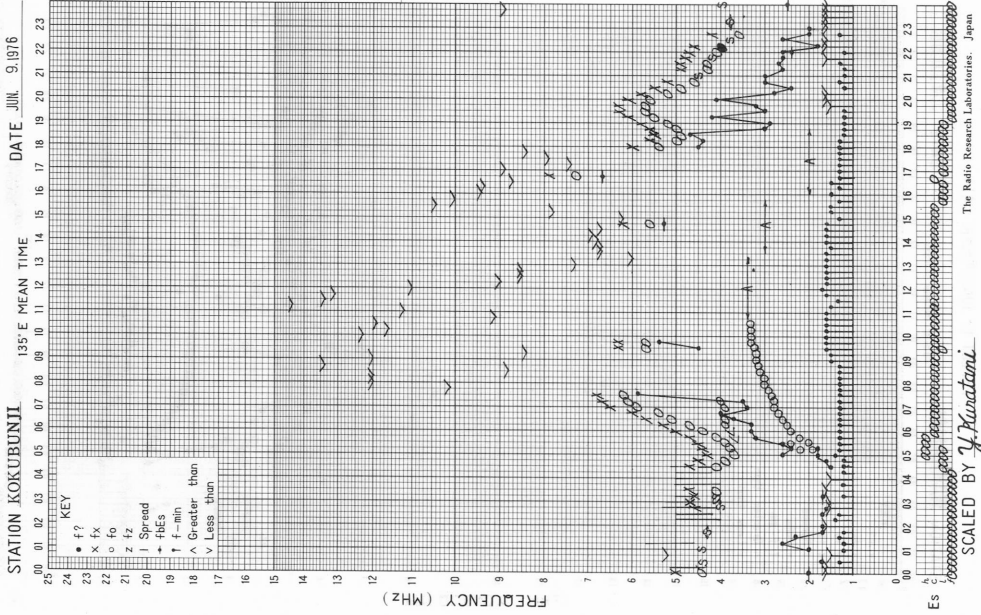


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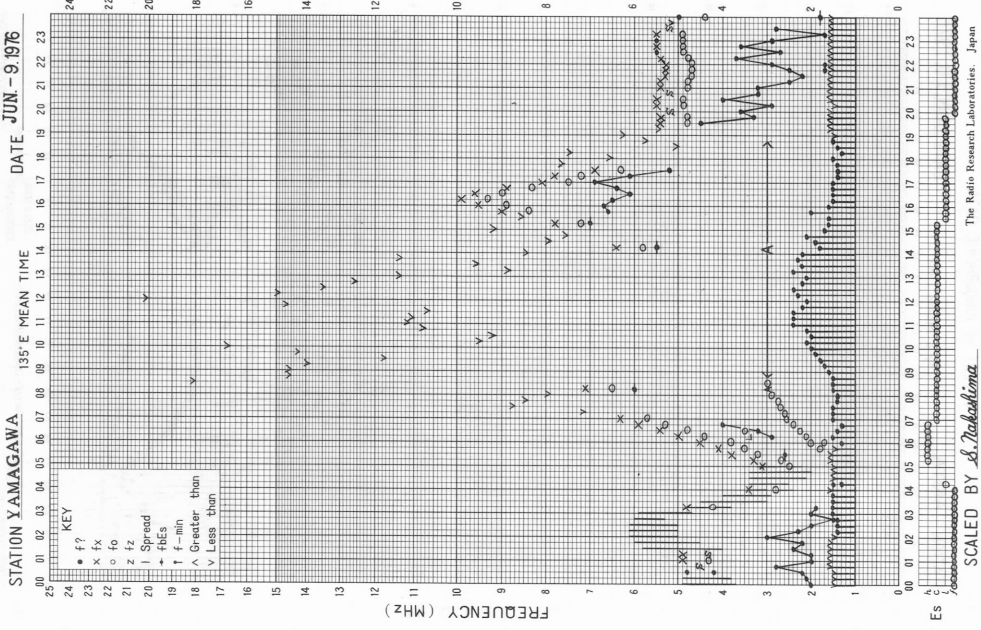
SCALED BY Tabehashi

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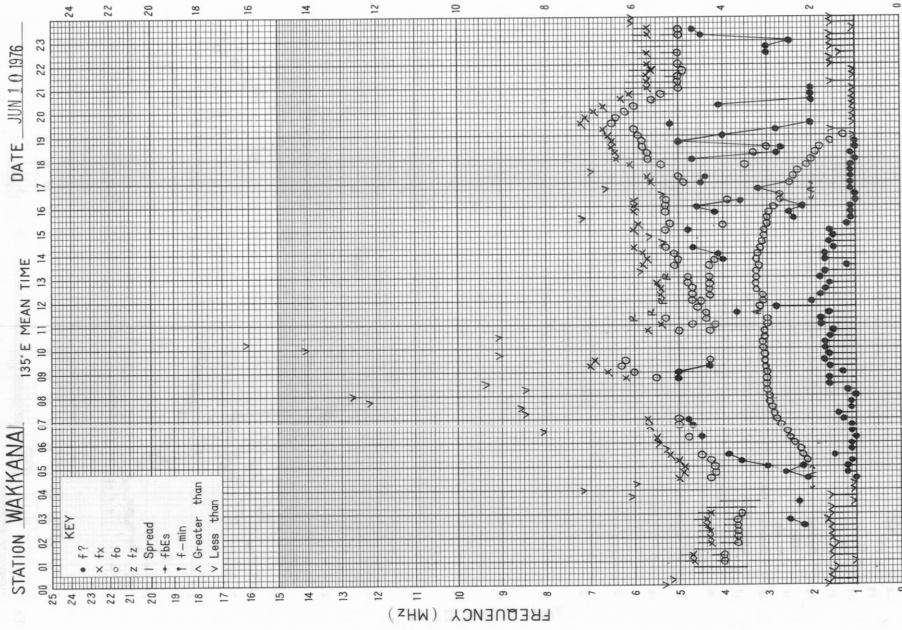
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f-PLOT OF IONOSPHERIC DATA

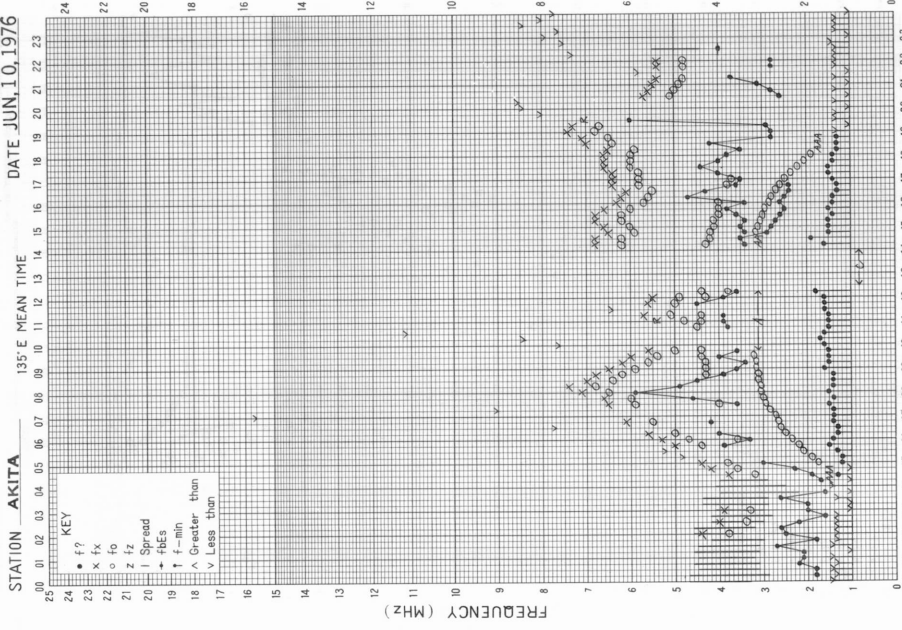


f-plot of IONOSPHERIC DATA



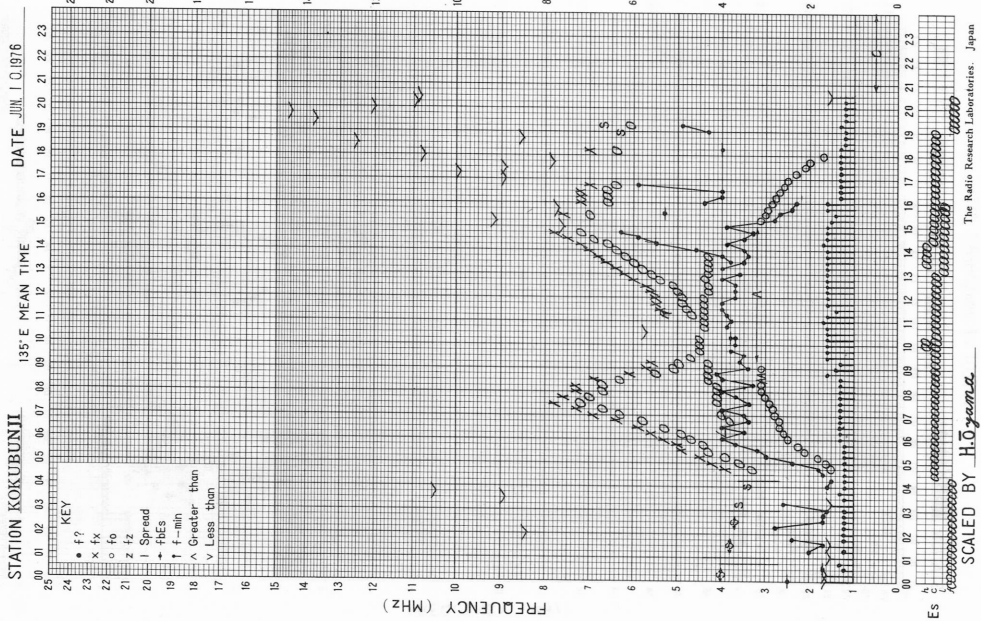
SCALED BY J. ota

f-plot of IONOSPHERIC DATA

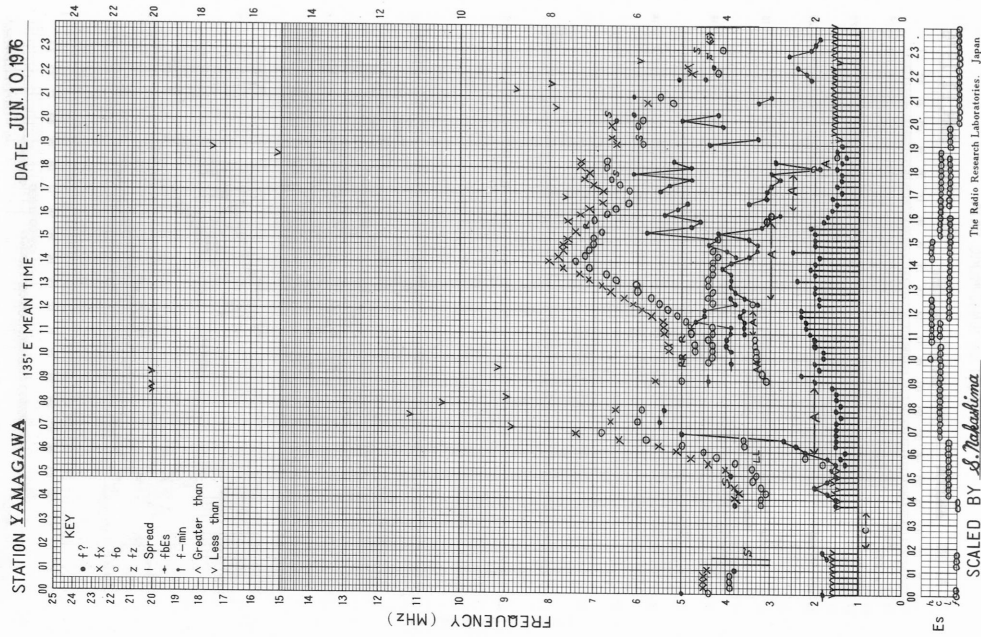


SCALED BY J. Taketaki

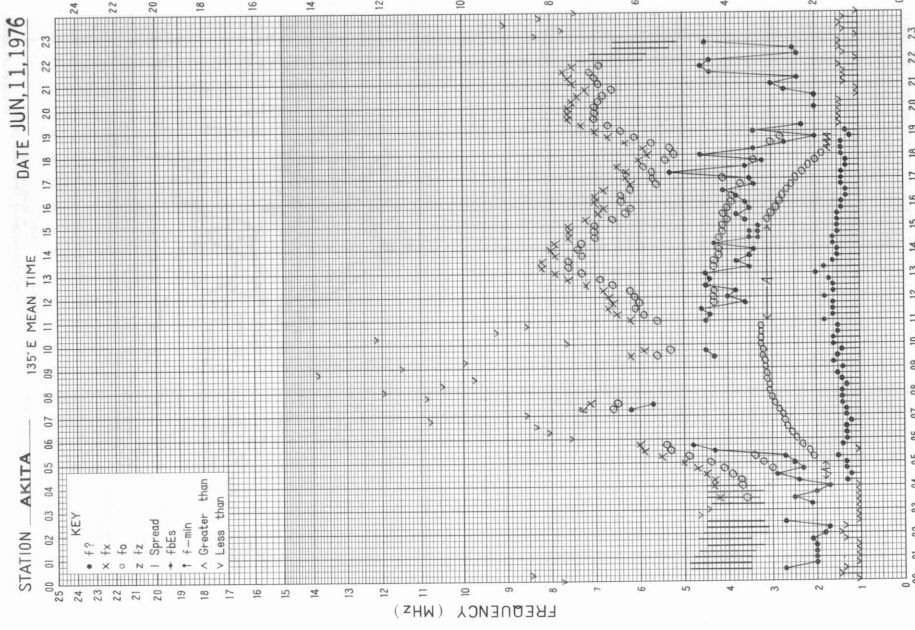
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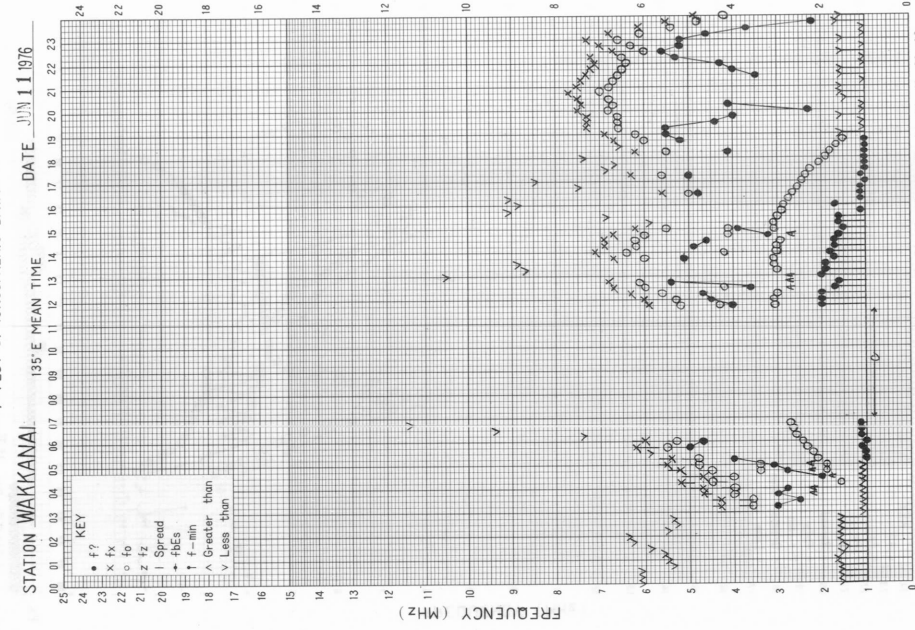
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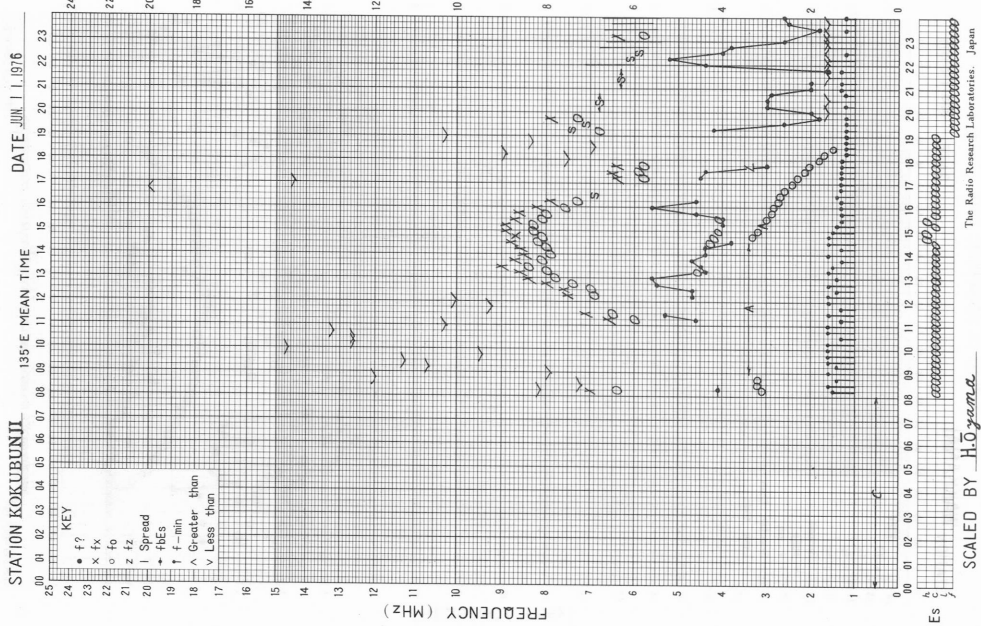
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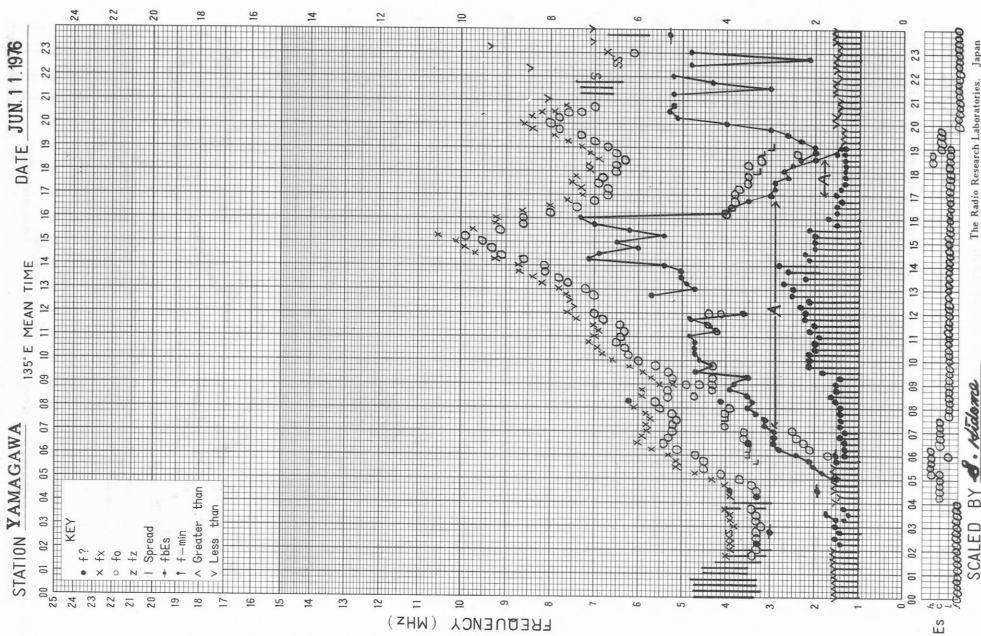
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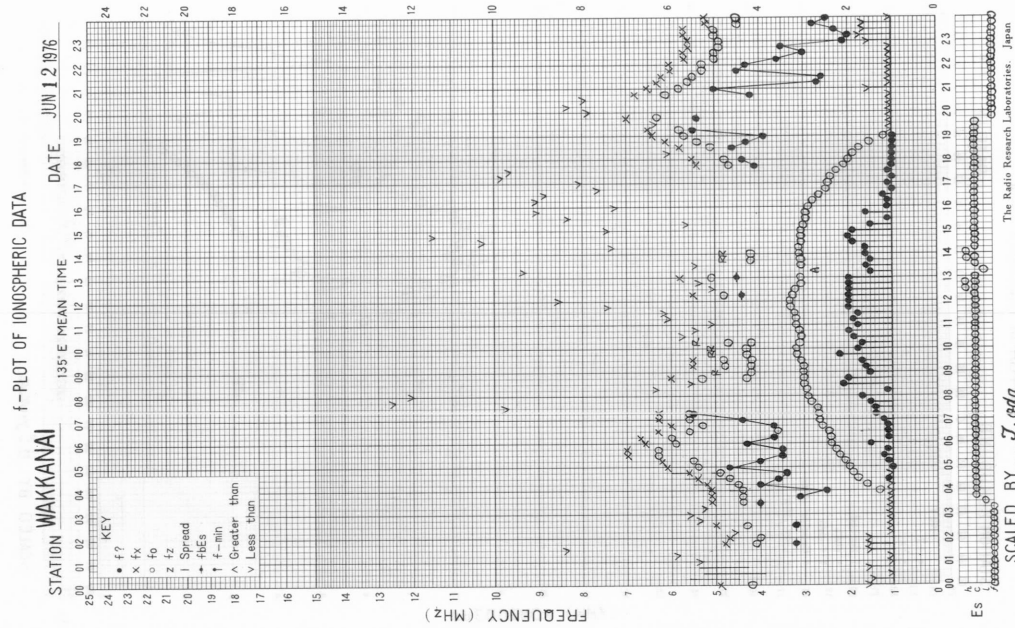
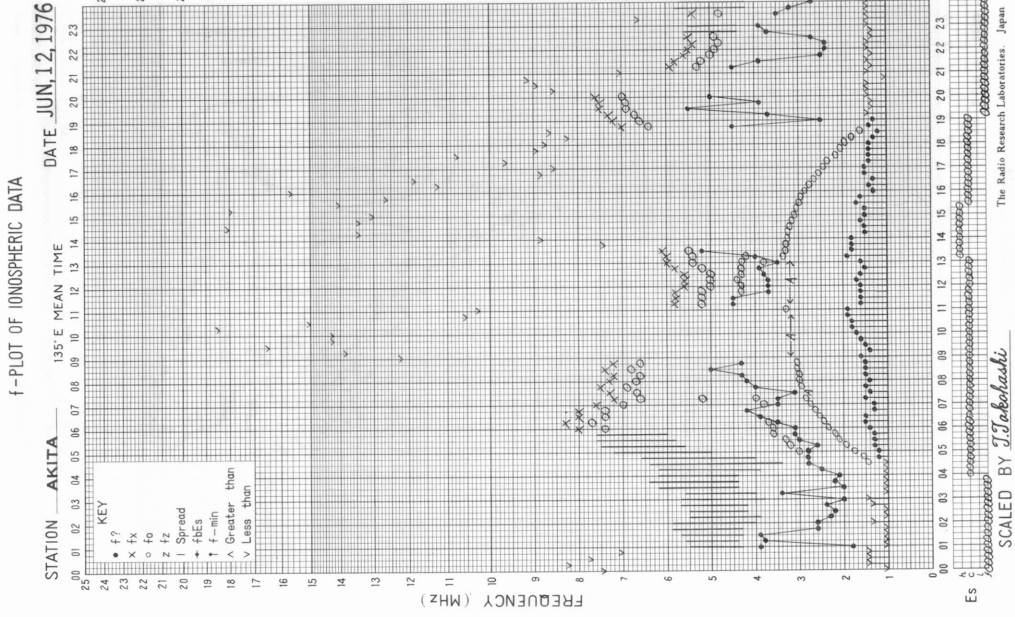


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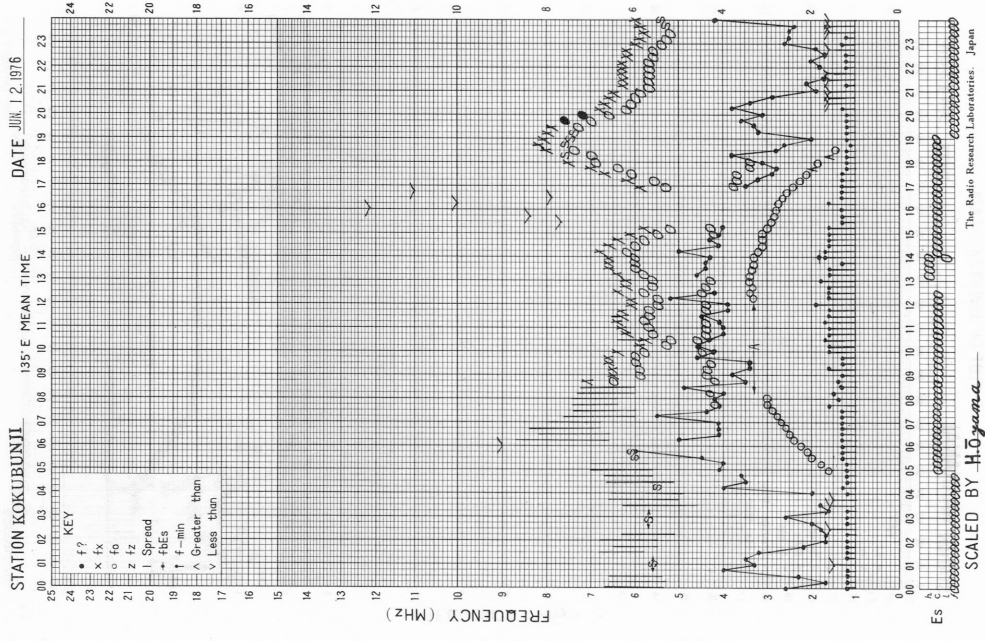


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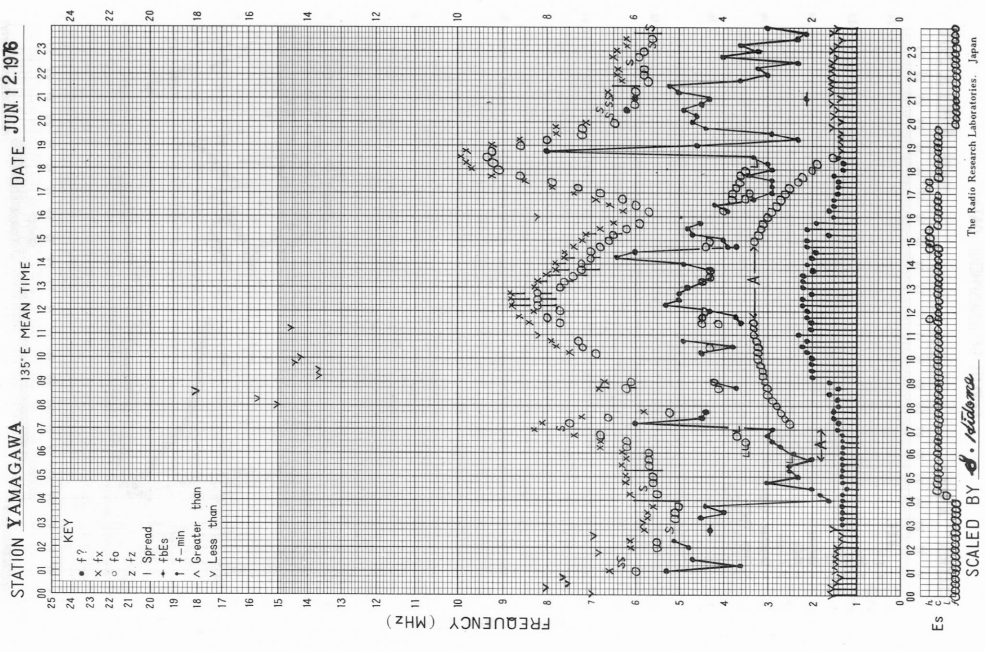


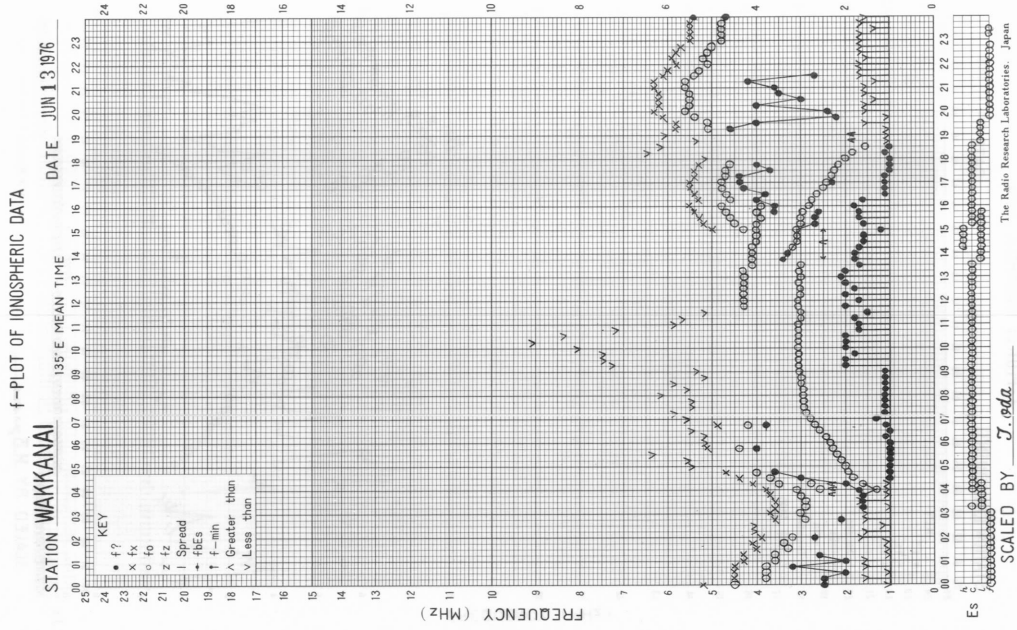
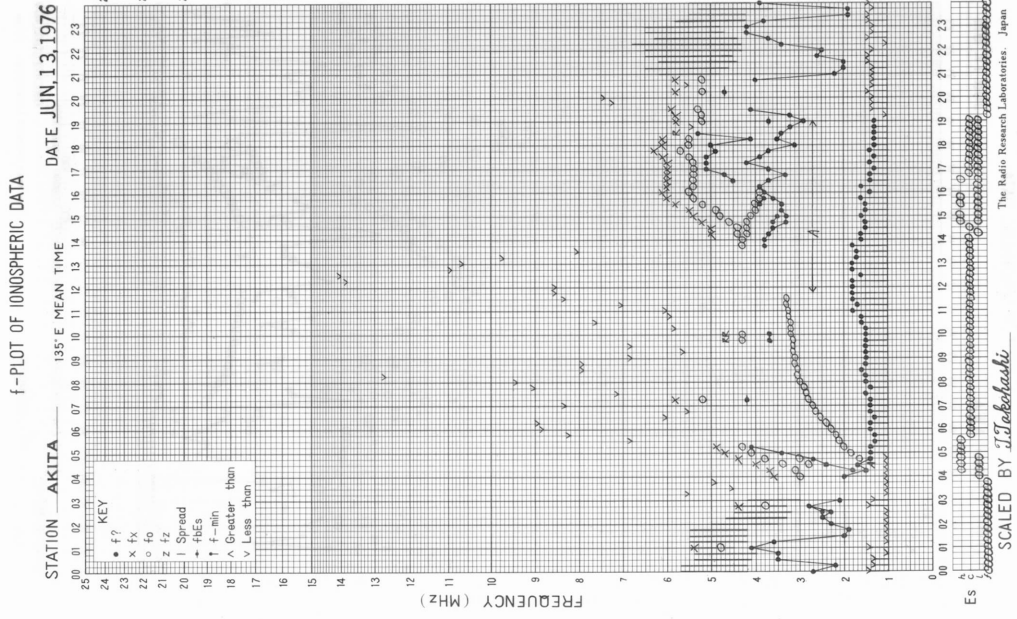


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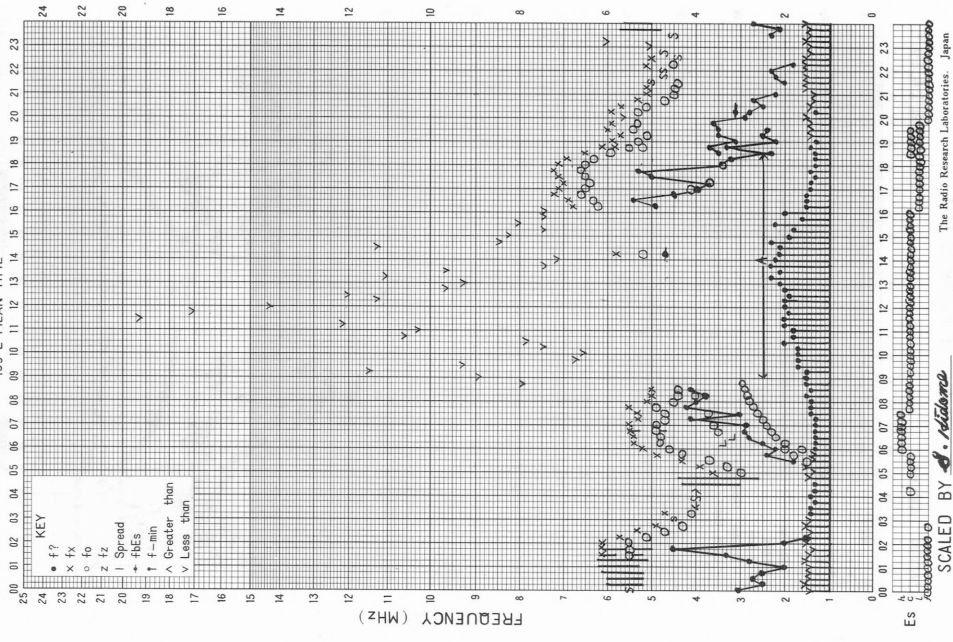


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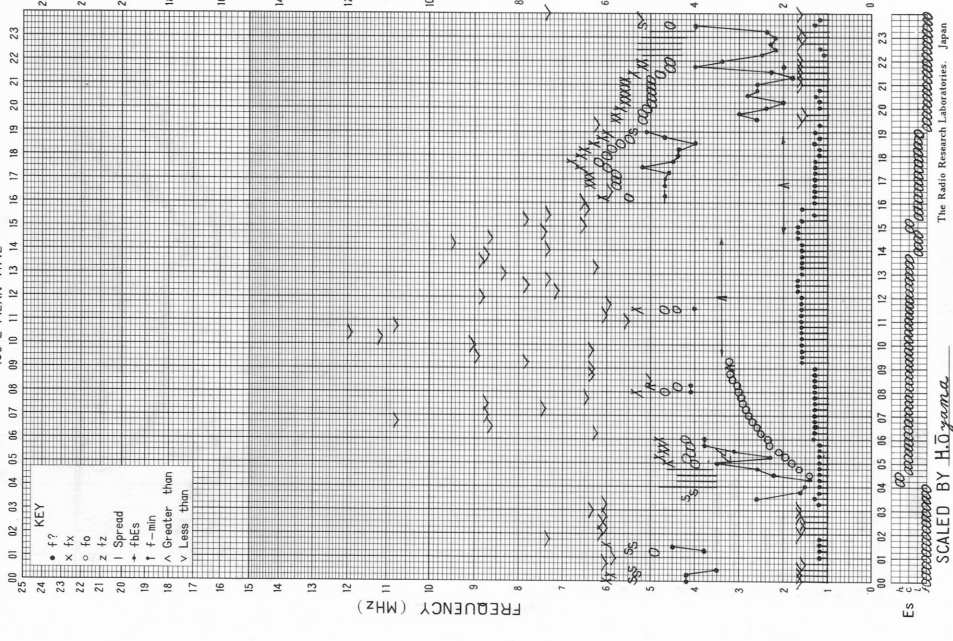
f-PLOT OF IONOSPHERIC DATA
STATION YAMAGAWA DATE JUN 13 1976



SCALED BY S. Akizawa

The Radio Research Laboratories, Japan

f-PLOT OF IONOSPHERIC DATA
STATION KOKUBUNJI DATE JUN 13 1976

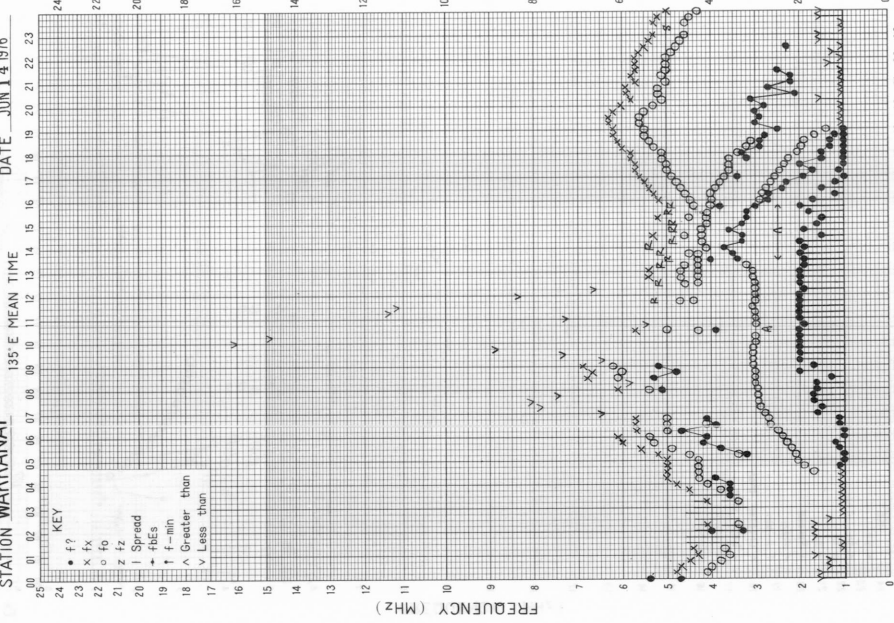


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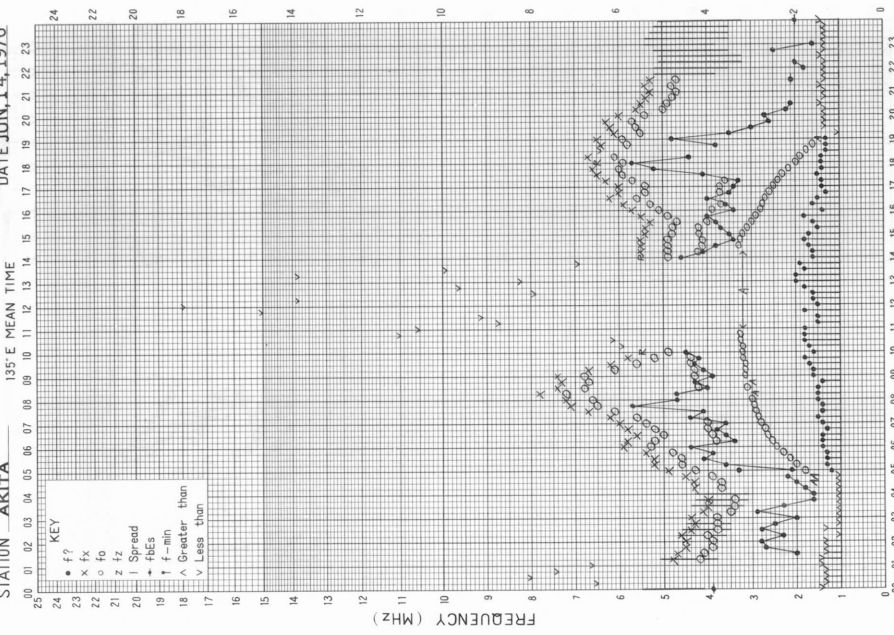
STATION WAKKANAI DATE JUN 14 1976



Es
The Radio Research Laboratories, Japan
SCALED BY J. oda

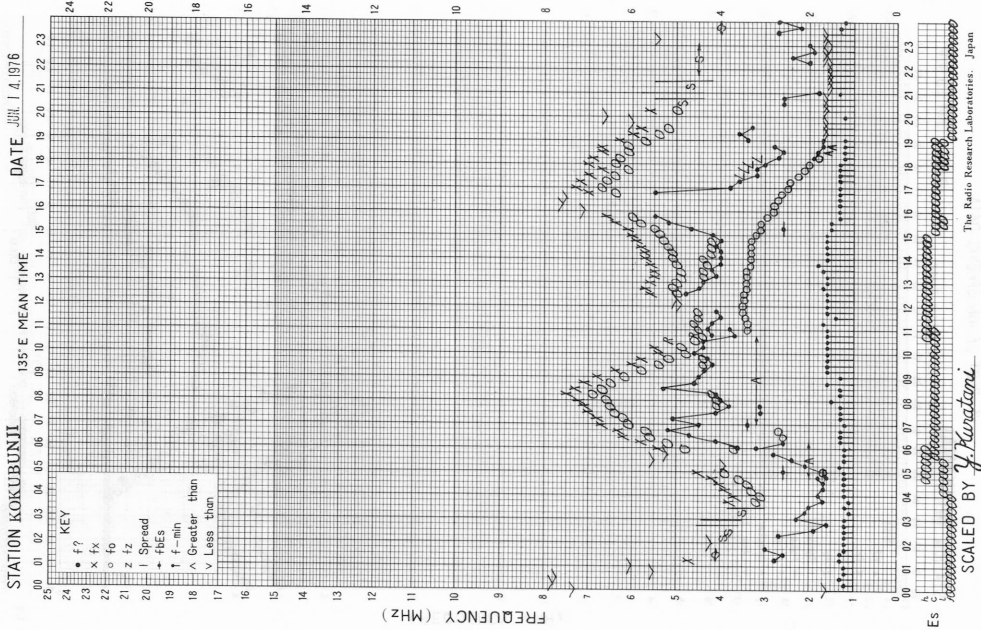
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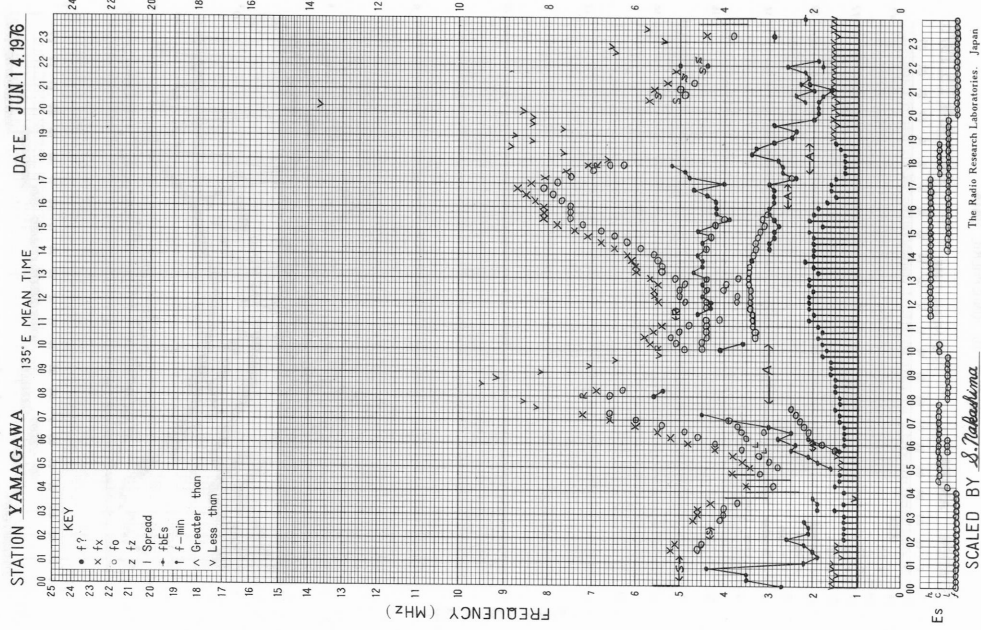


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SCALED BY J. Takasaki

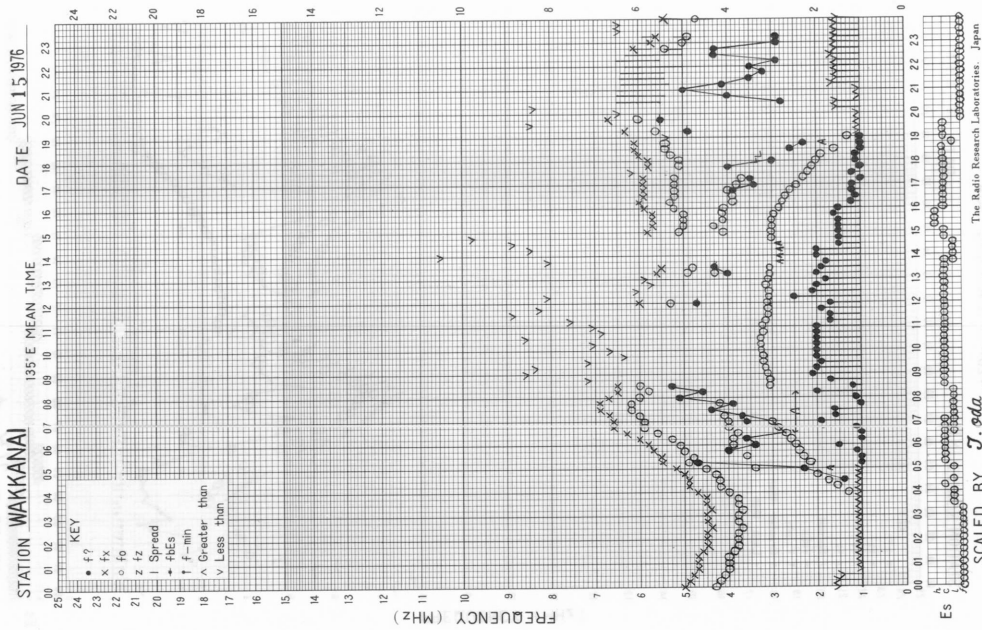
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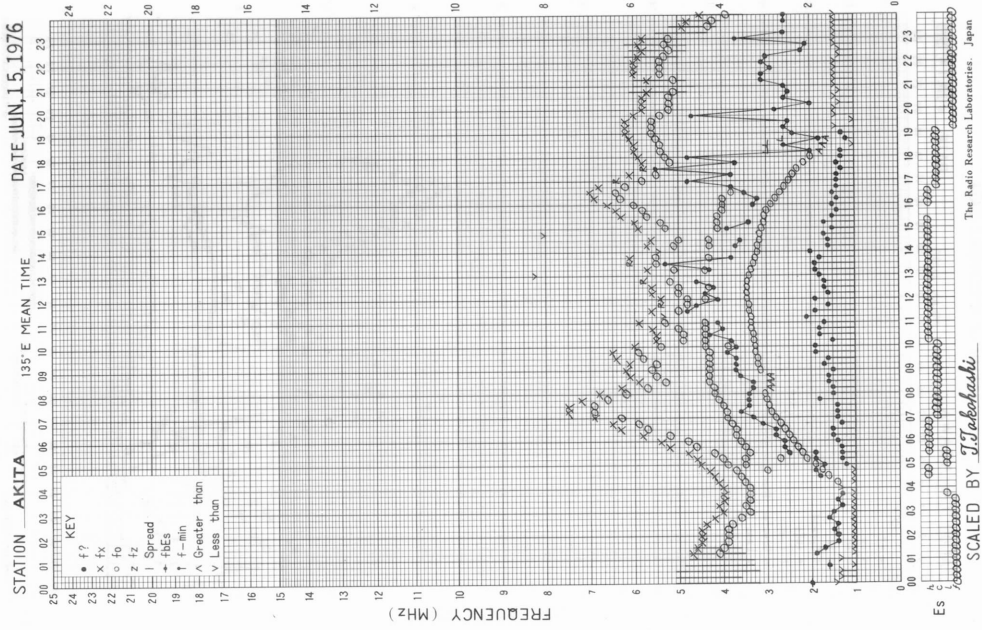
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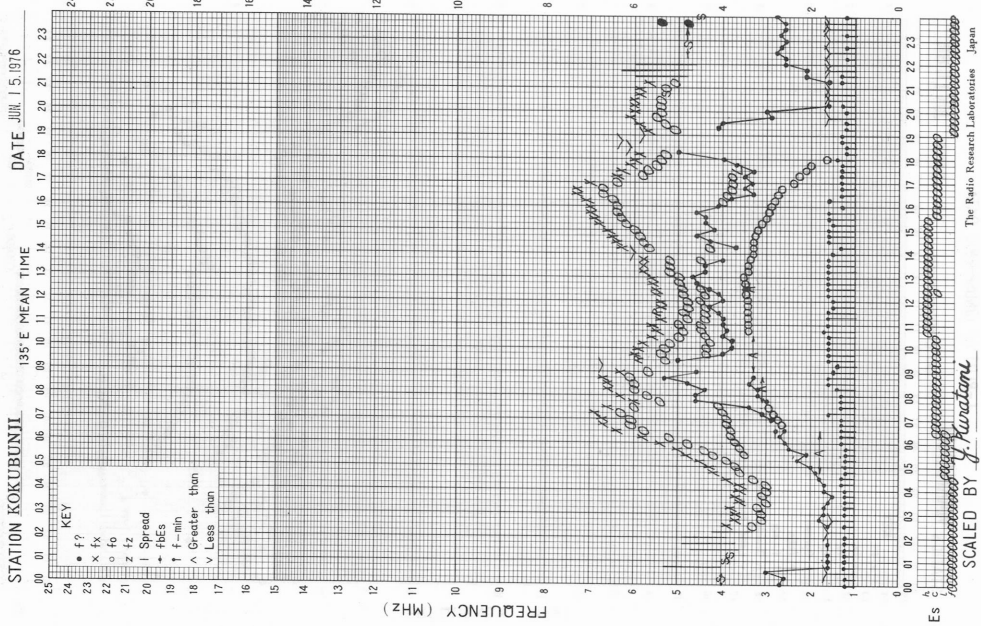
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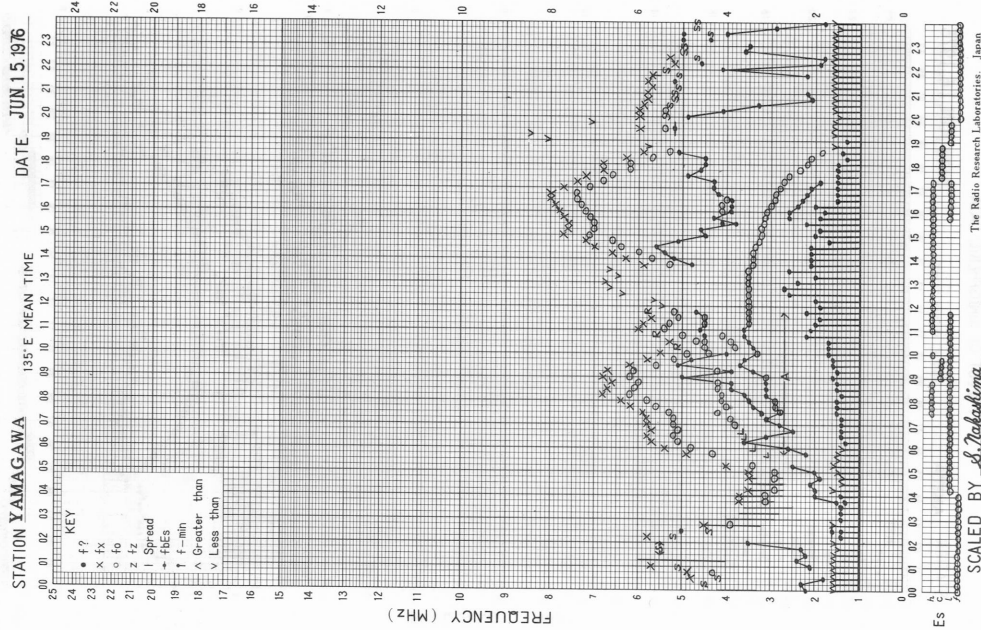
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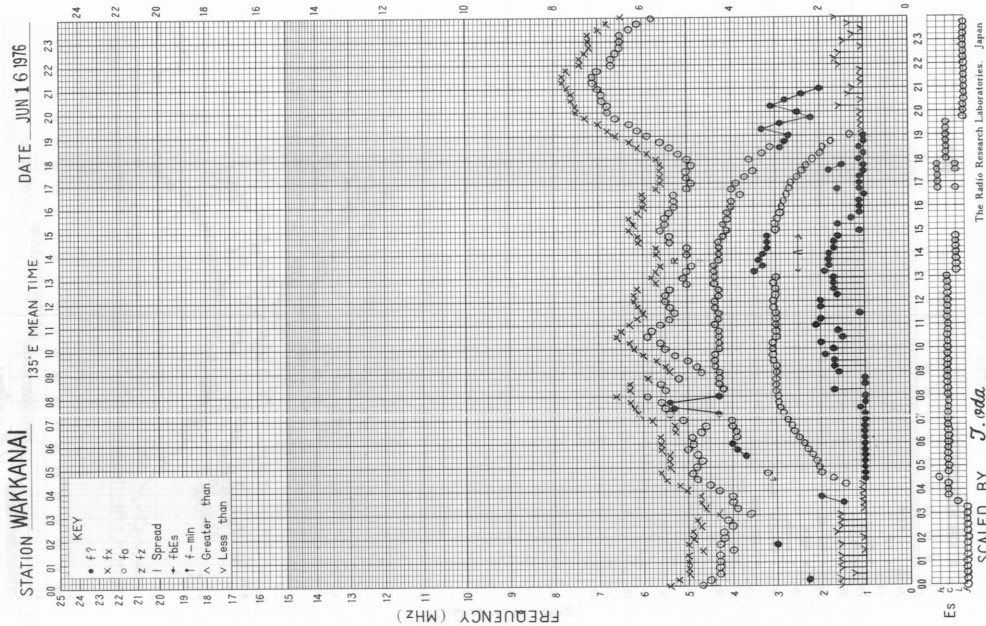
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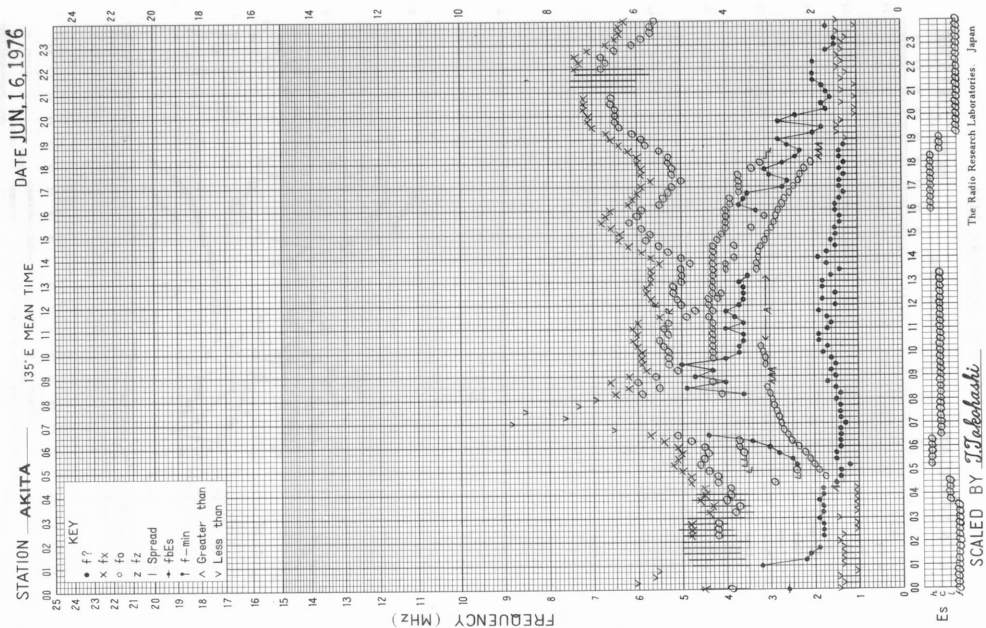
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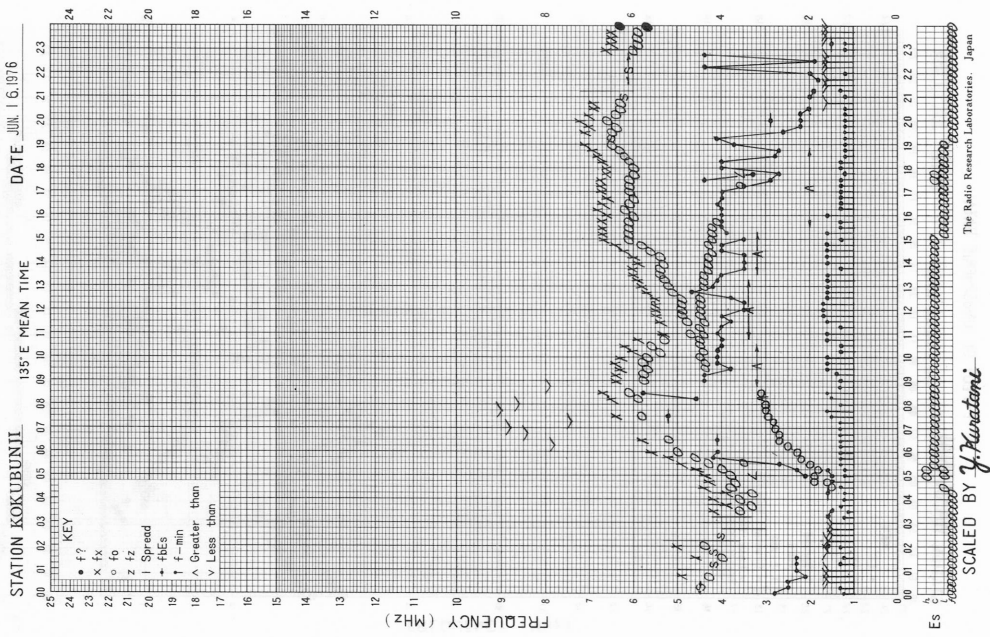
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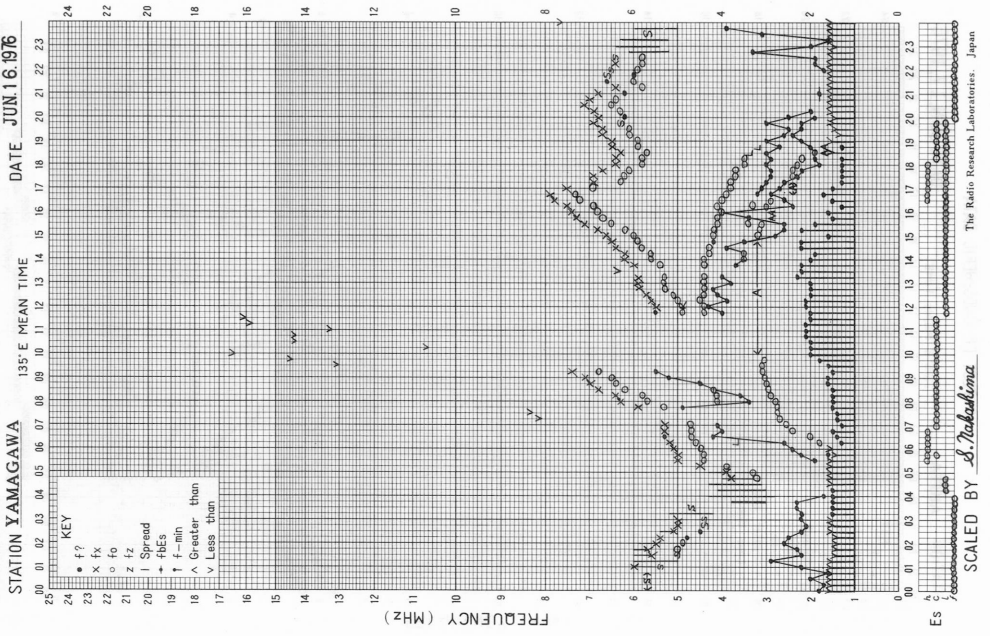
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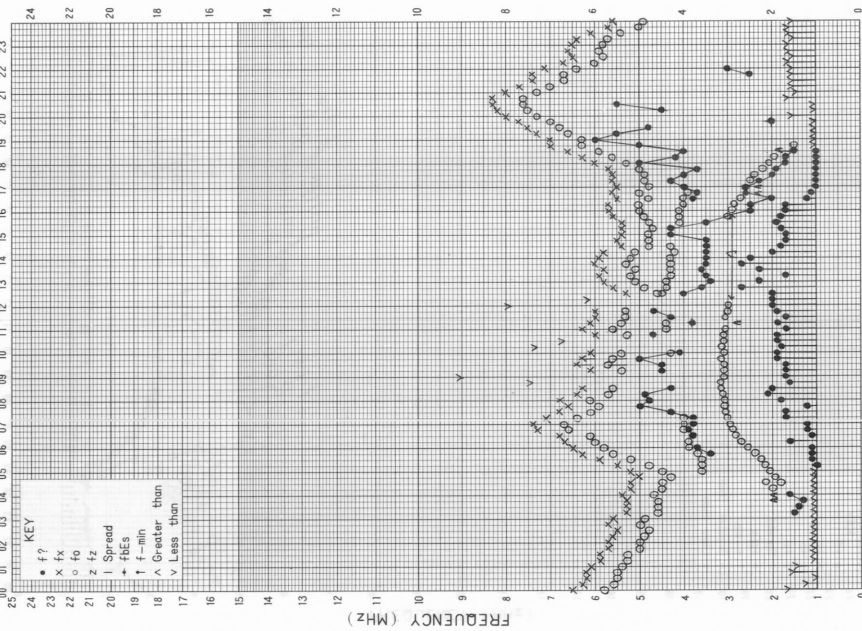
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f-PLOT OF IONOSPHERIC DATA

STATION WAKKANAI DATE JUN 17 1976

135° E MEAN TIME

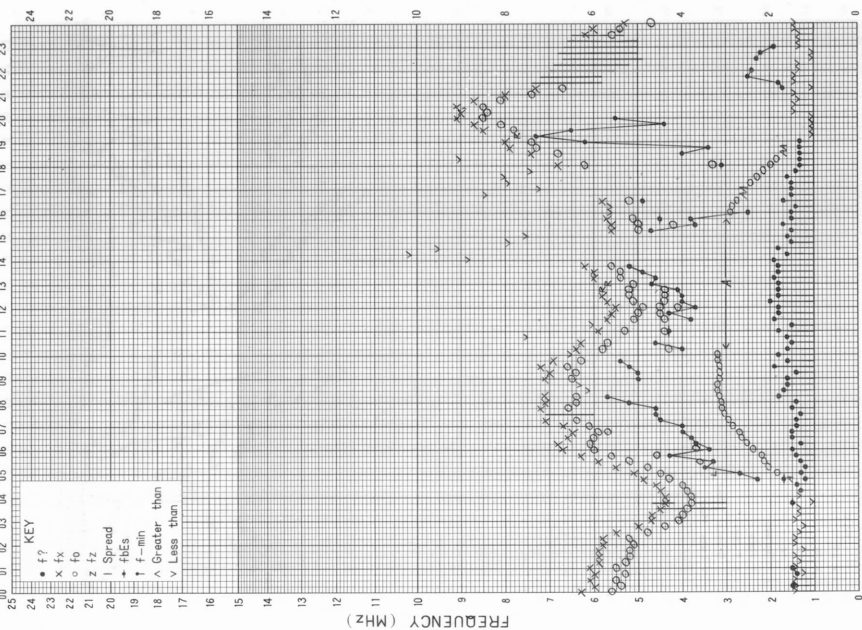


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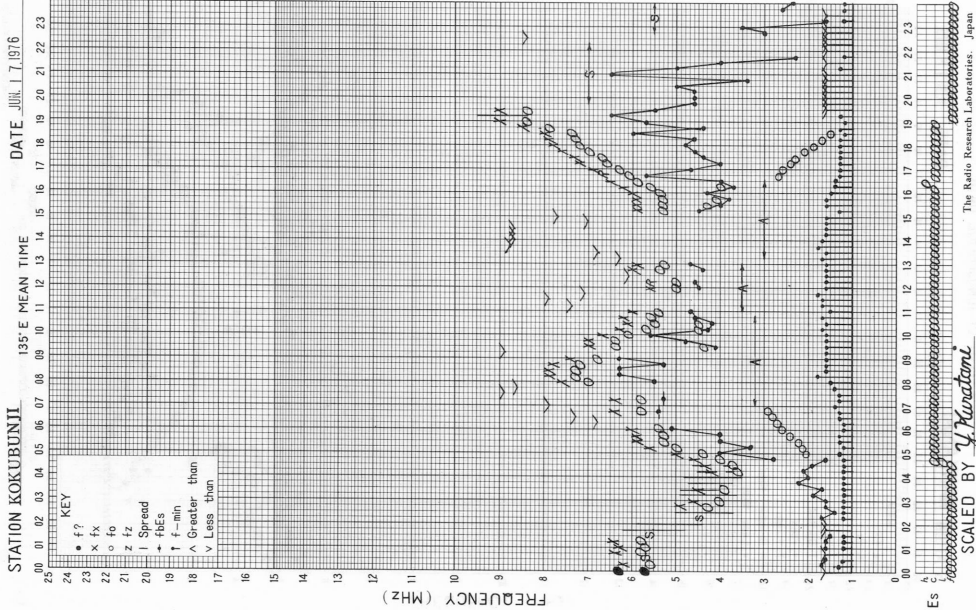
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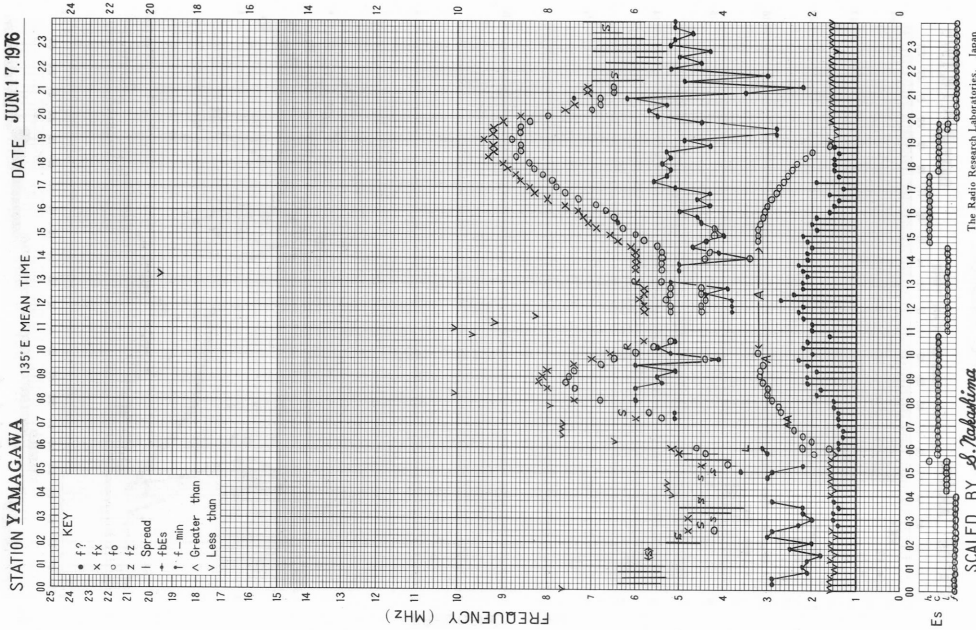


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SCALED BY T. Takeuchi

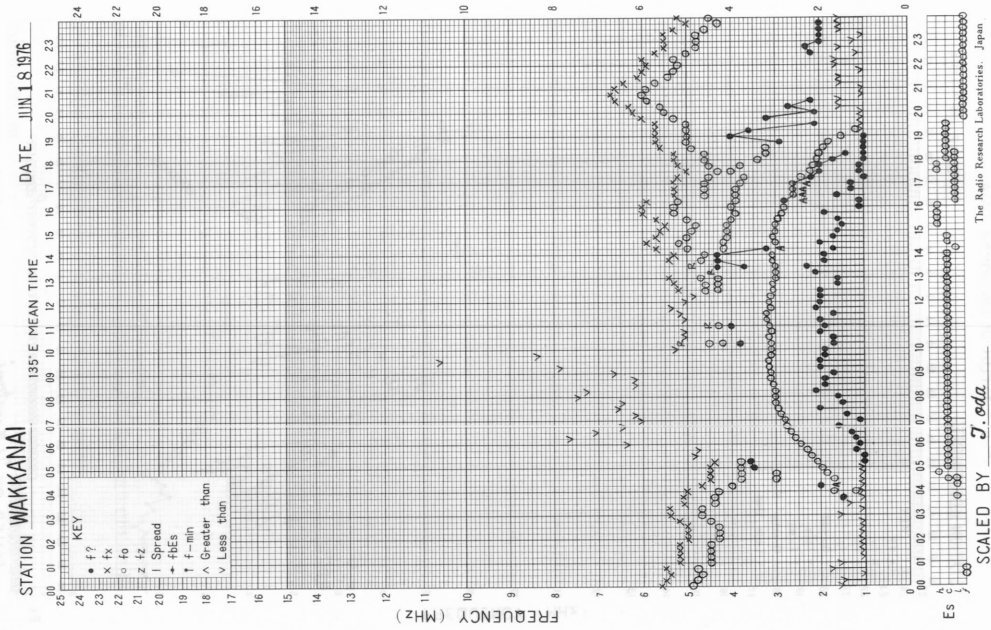
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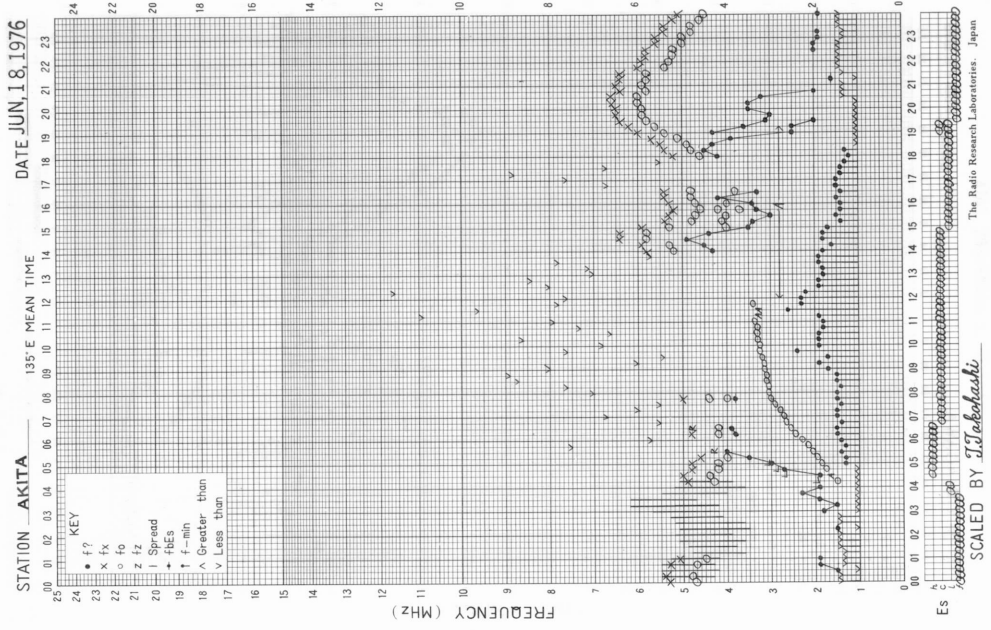
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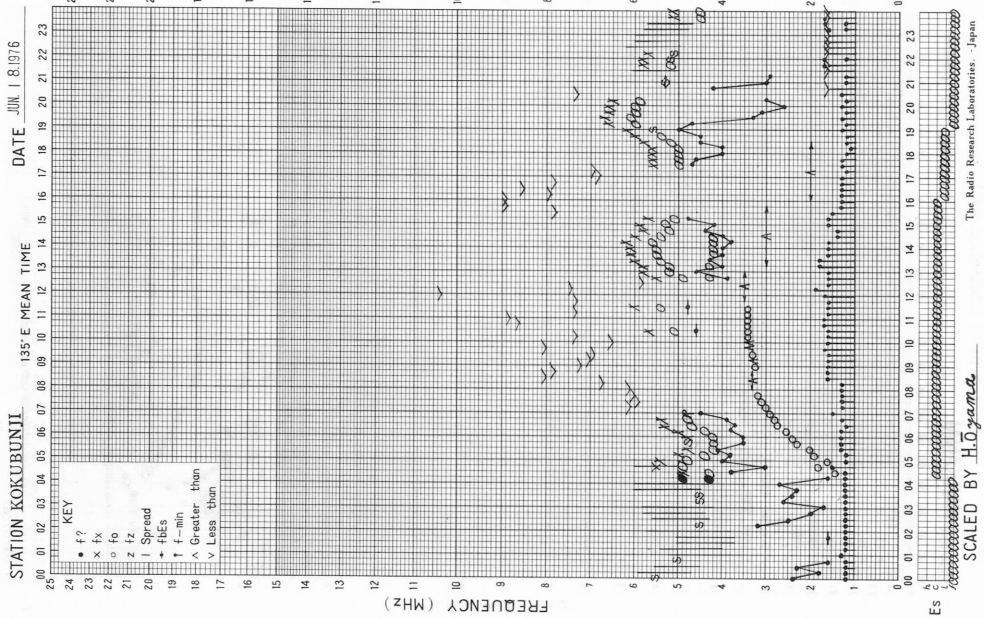
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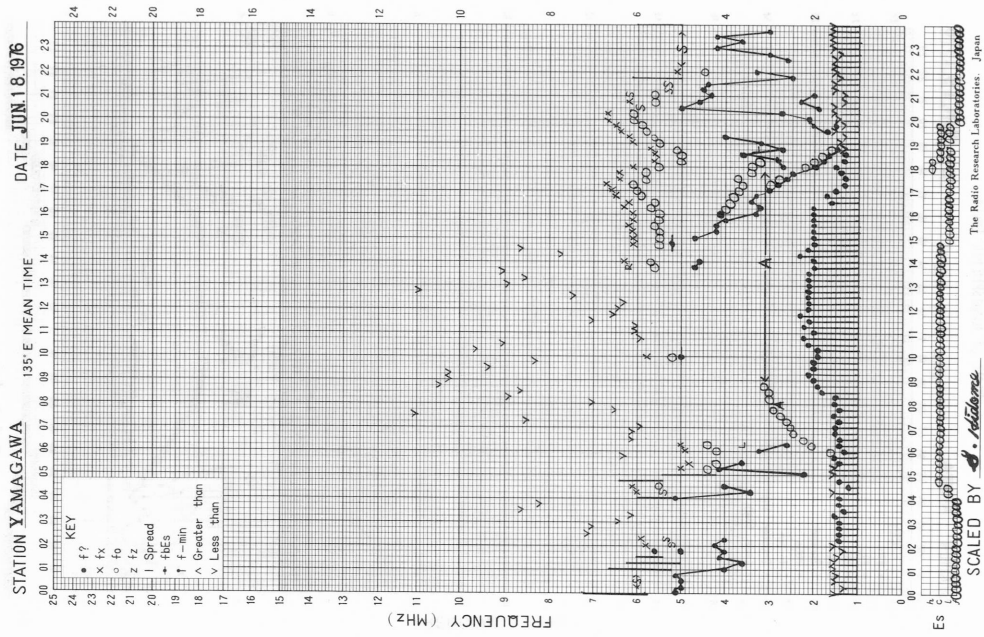
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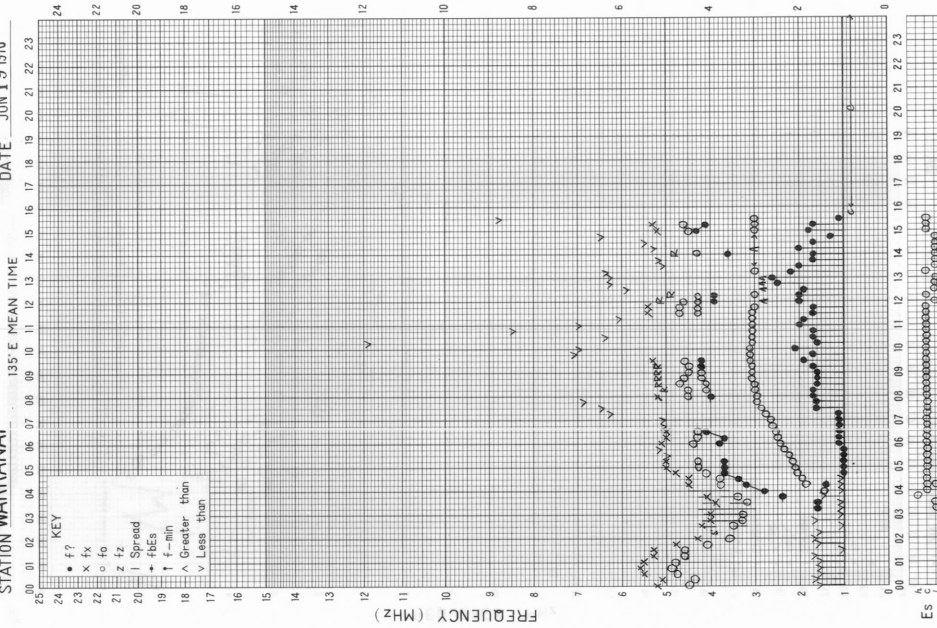


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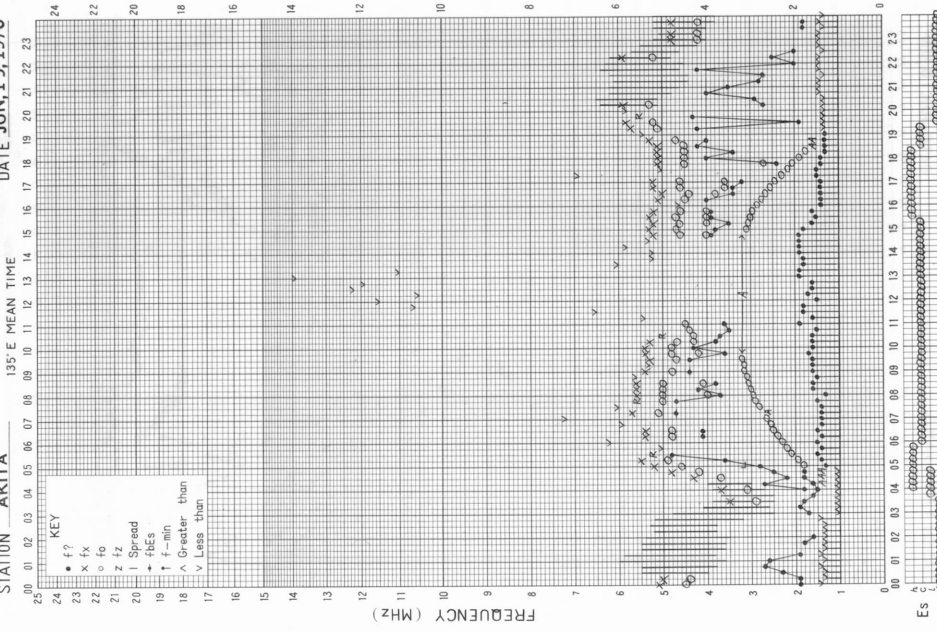
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STATION WAKKANAI DATE JUN 19 1976

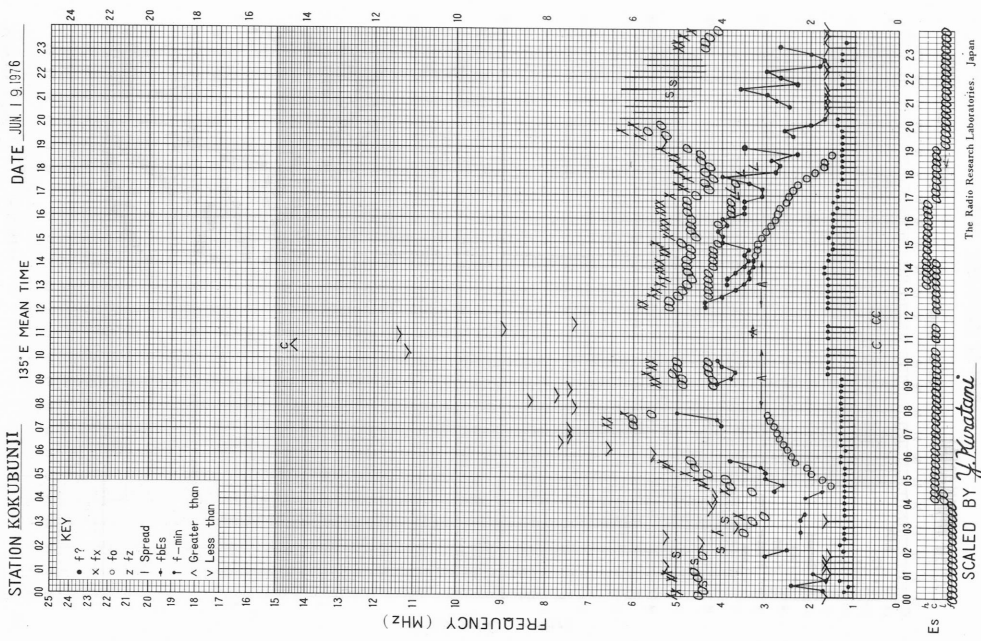


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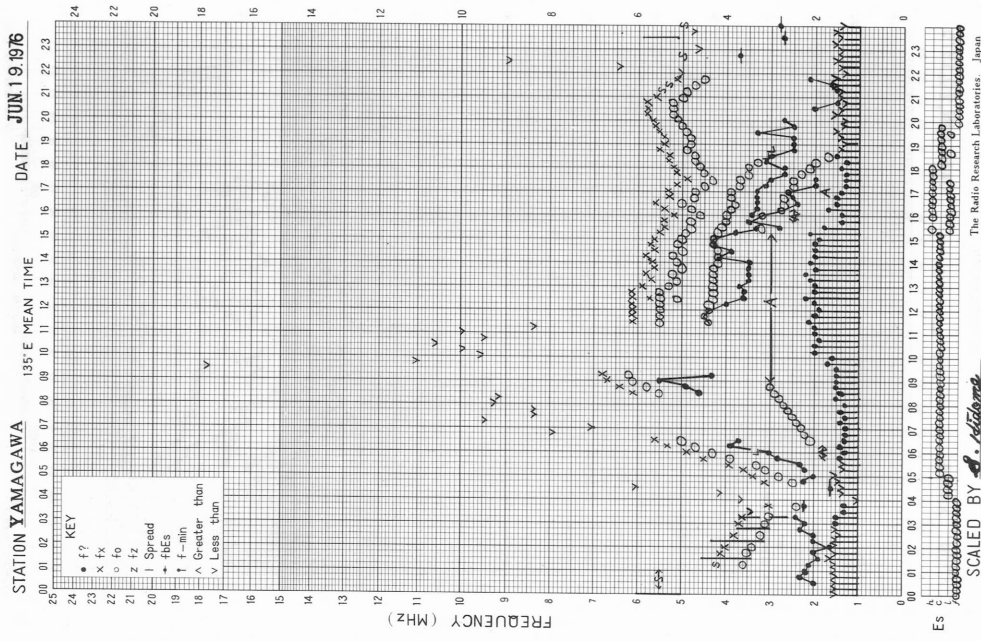
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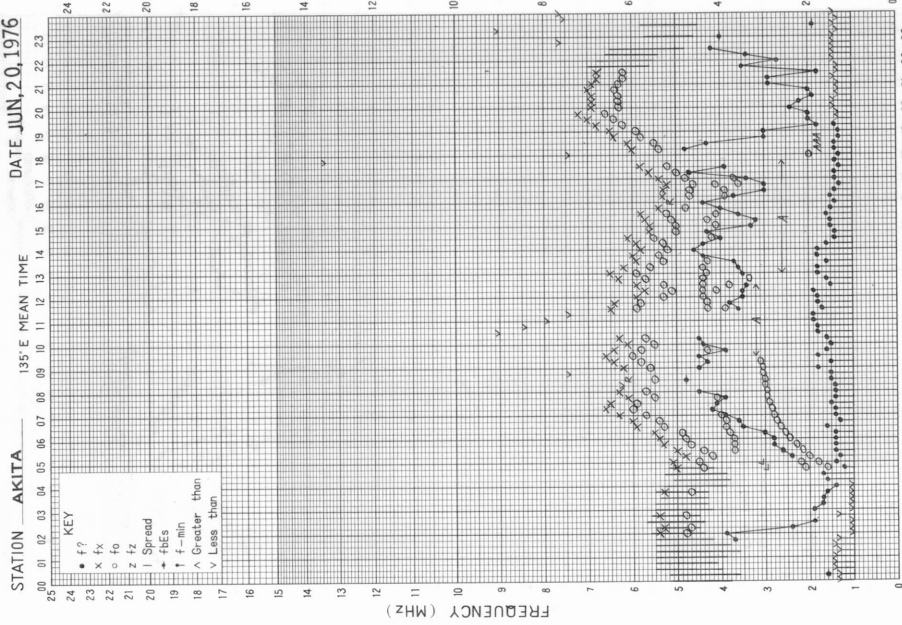
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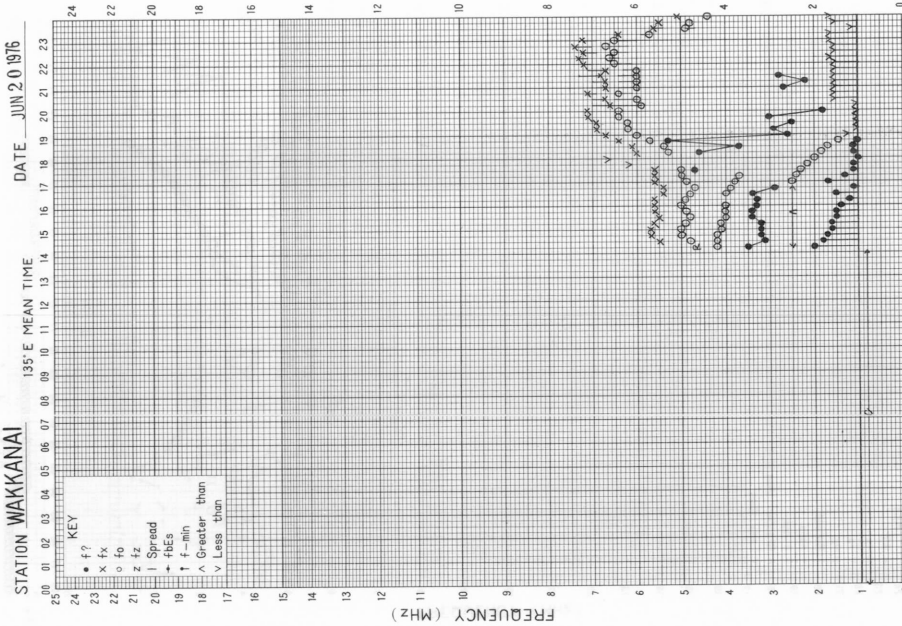
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f-PLOT OF IONOSPHERIC DATA



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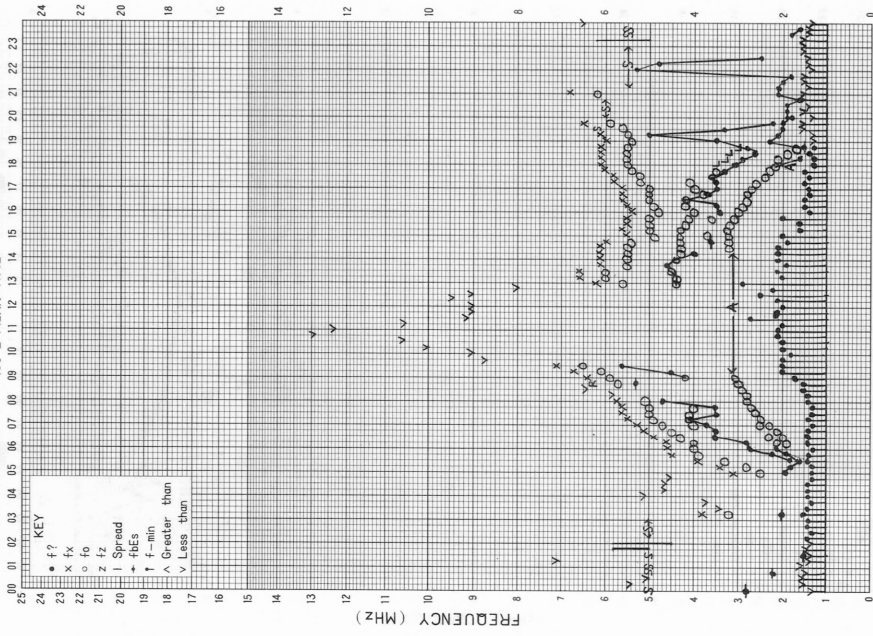


f- PLOT OF IONOSPHERIC DATA

STATION **YAMAGAWA**

135°E MEAN TIME

DATE **JUN 20 1976**



KEY

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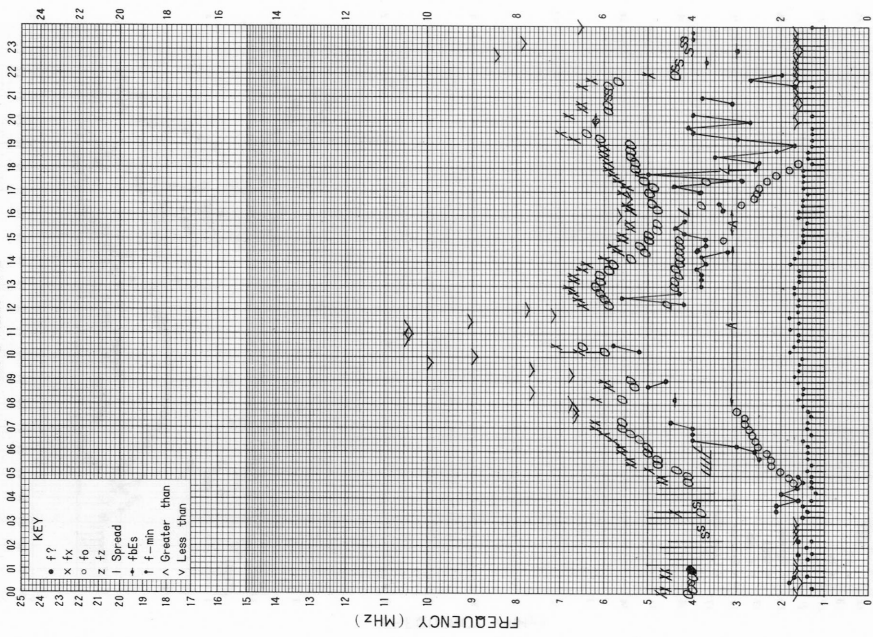
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The Radio Research Laboratories, Japan
SCALED BY **S. Akizawa**

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STATION **KOKUBUNJI**

135°E MEAN TIME

DATE **JUN 20 1976**

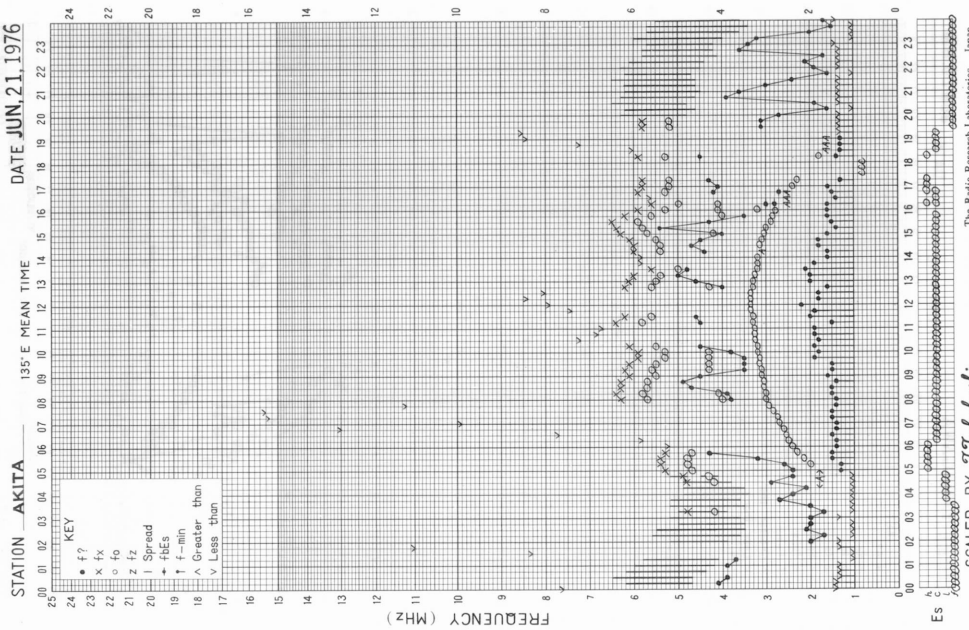


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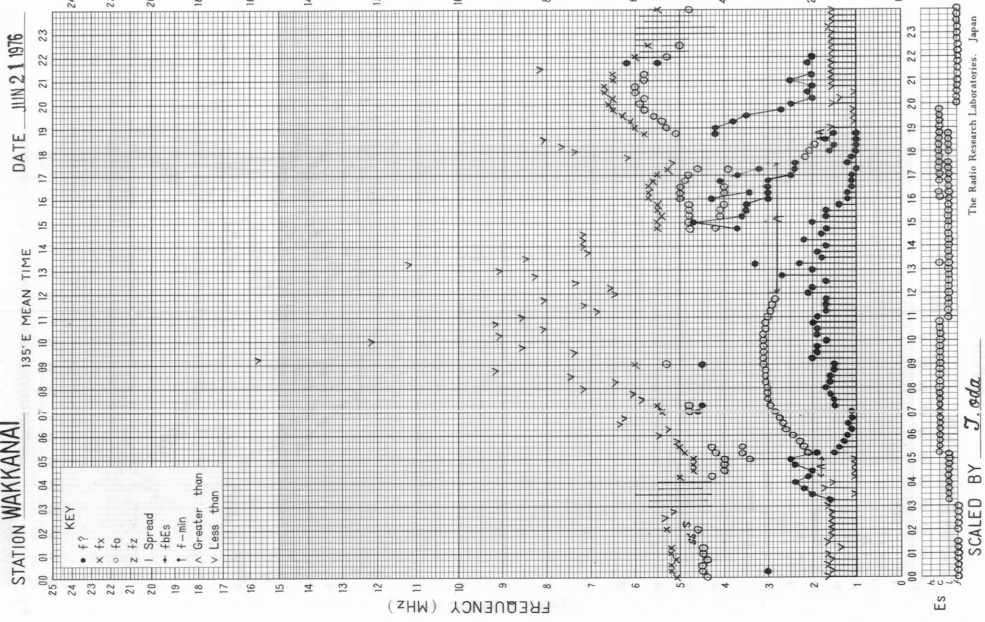
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The Radio Research Laboratories, Japan
SCALED BY **Y. Murakami**

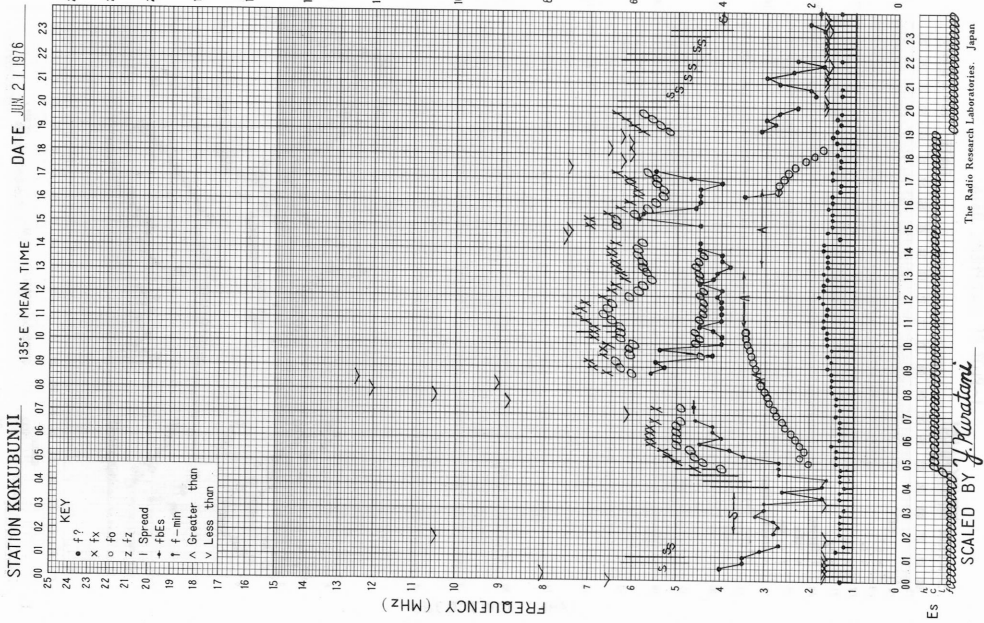
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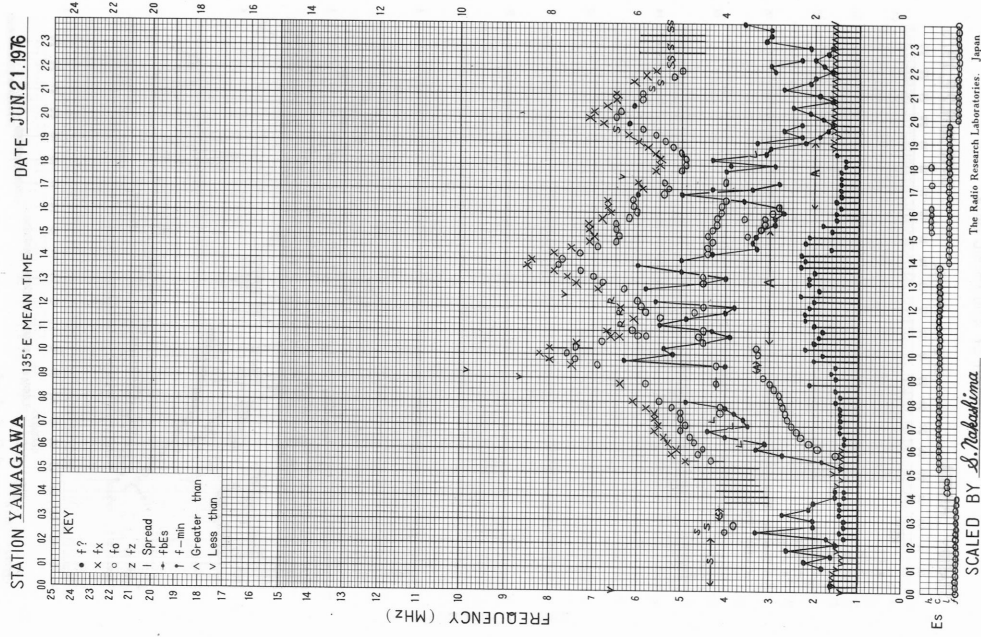
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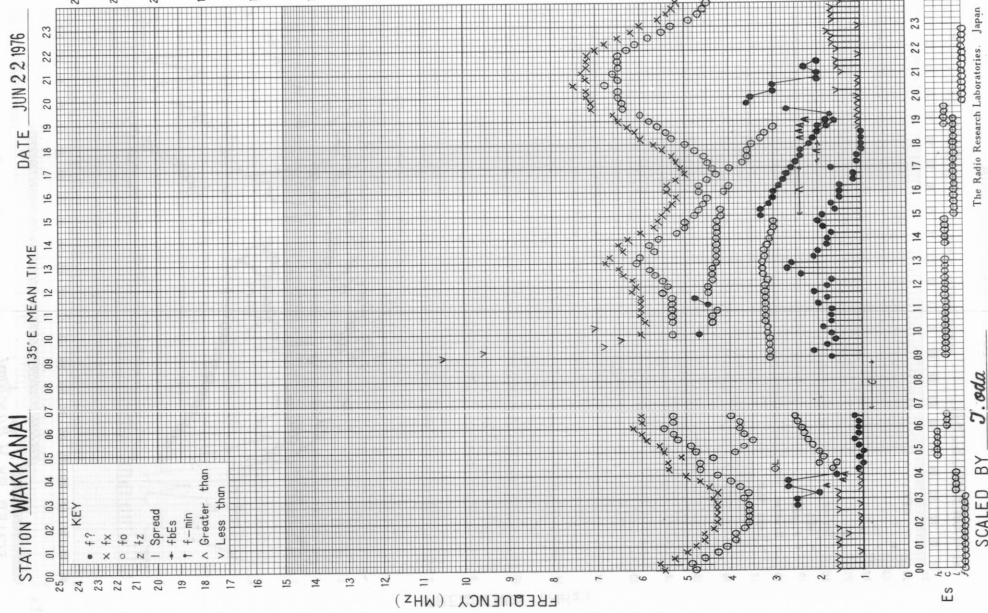
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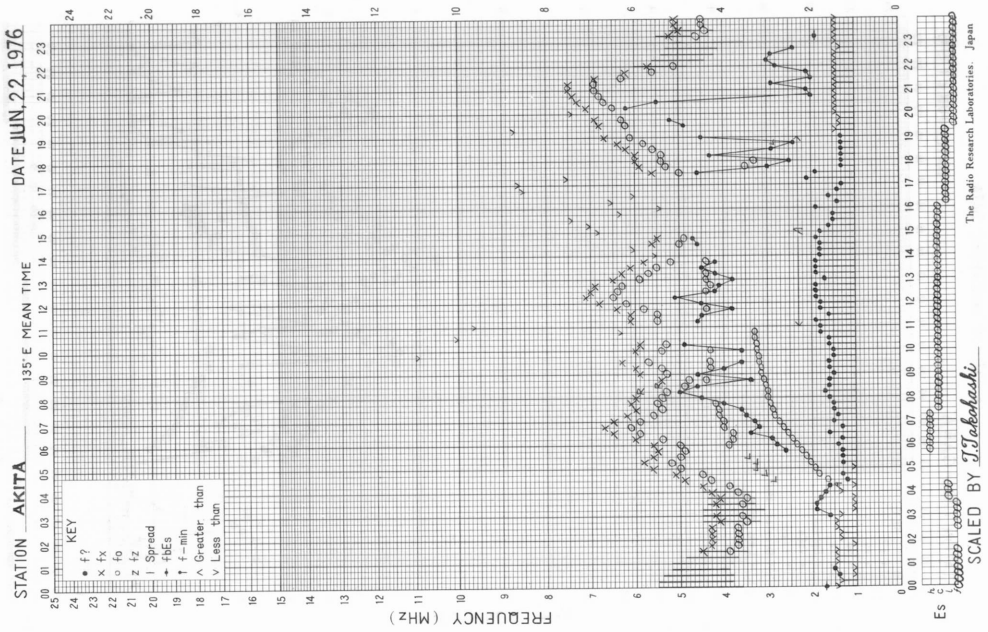
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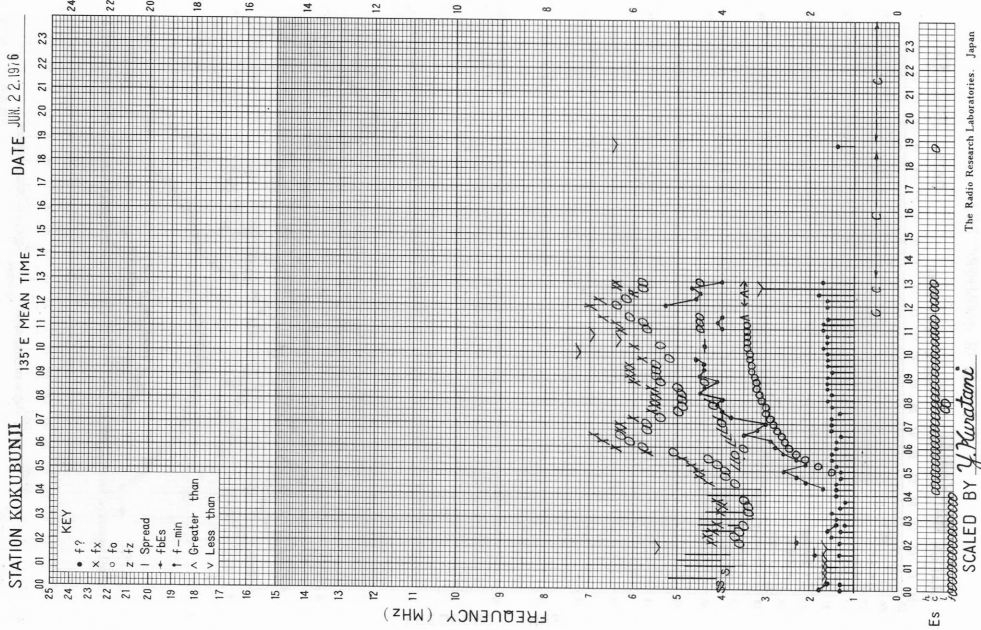
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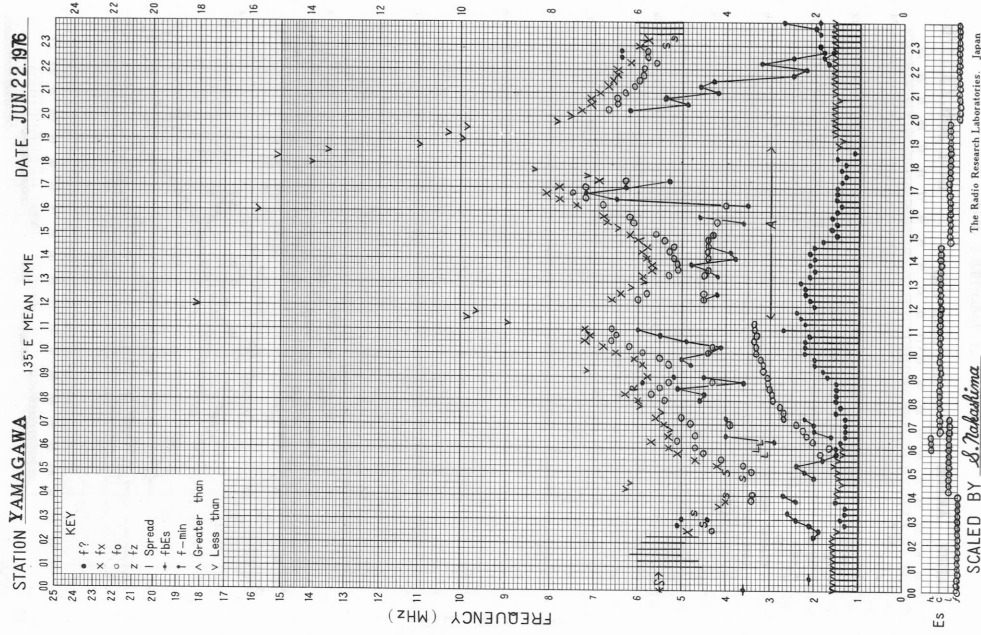
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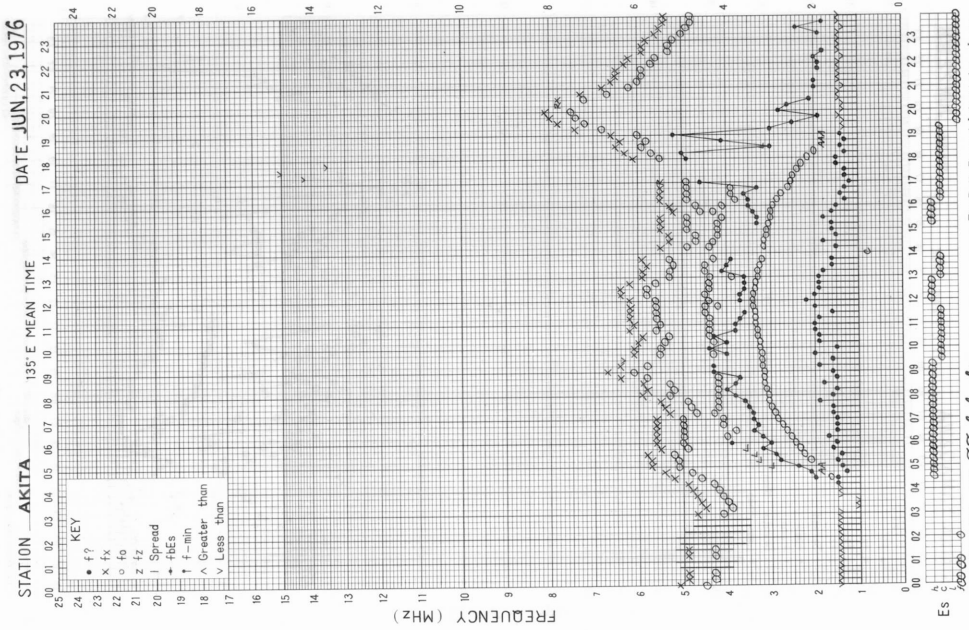
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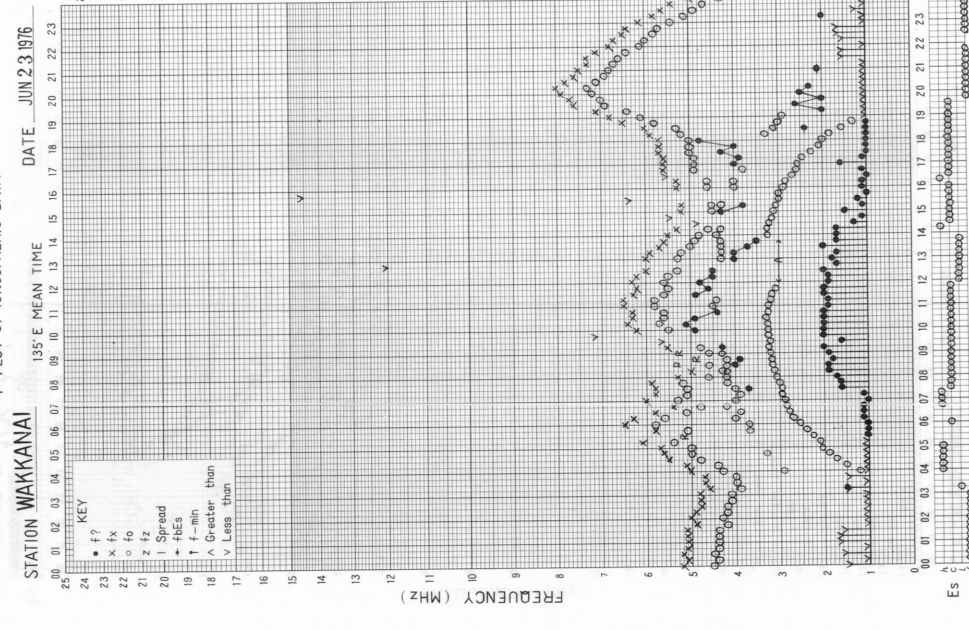
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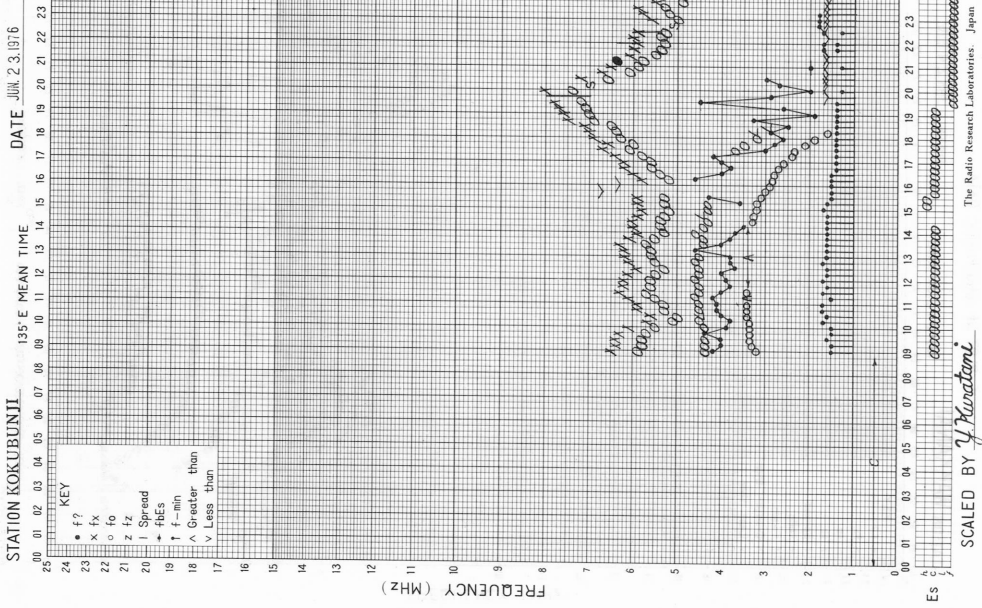
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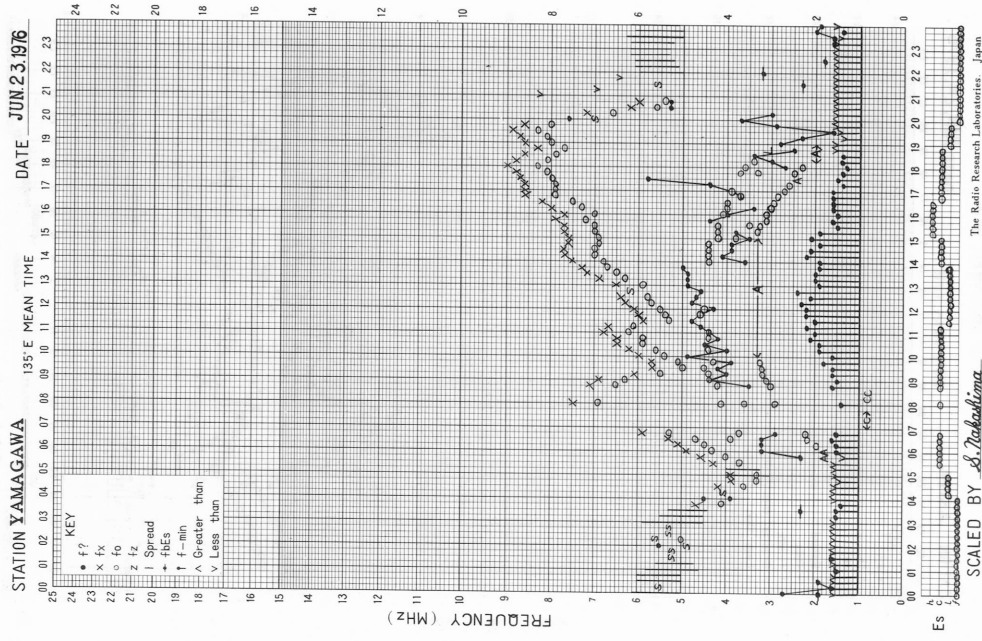
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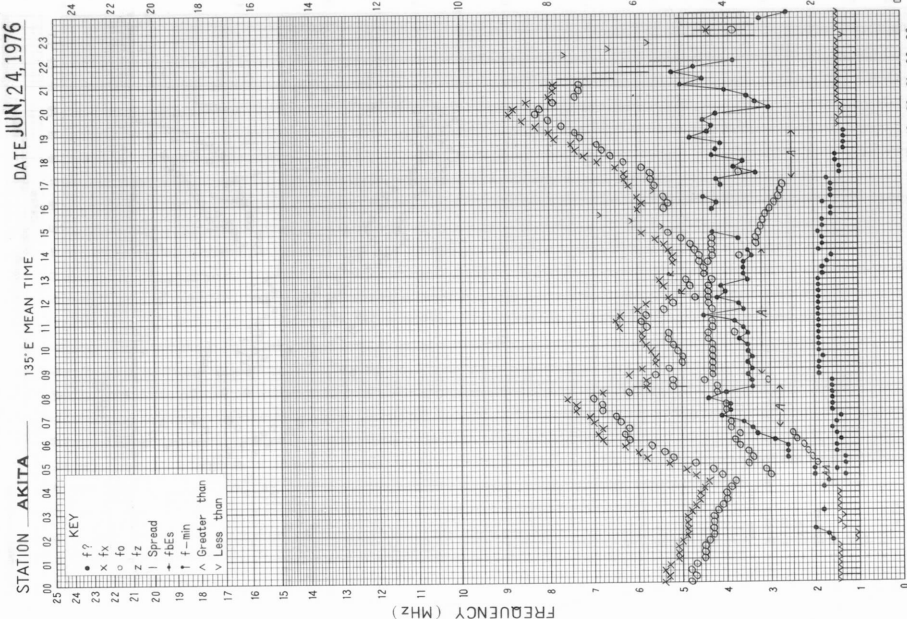
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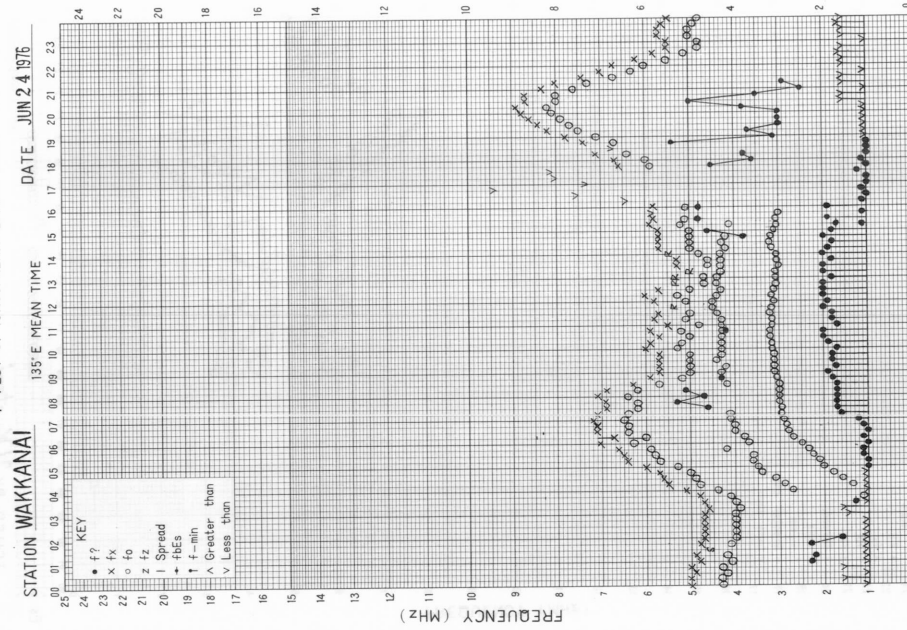


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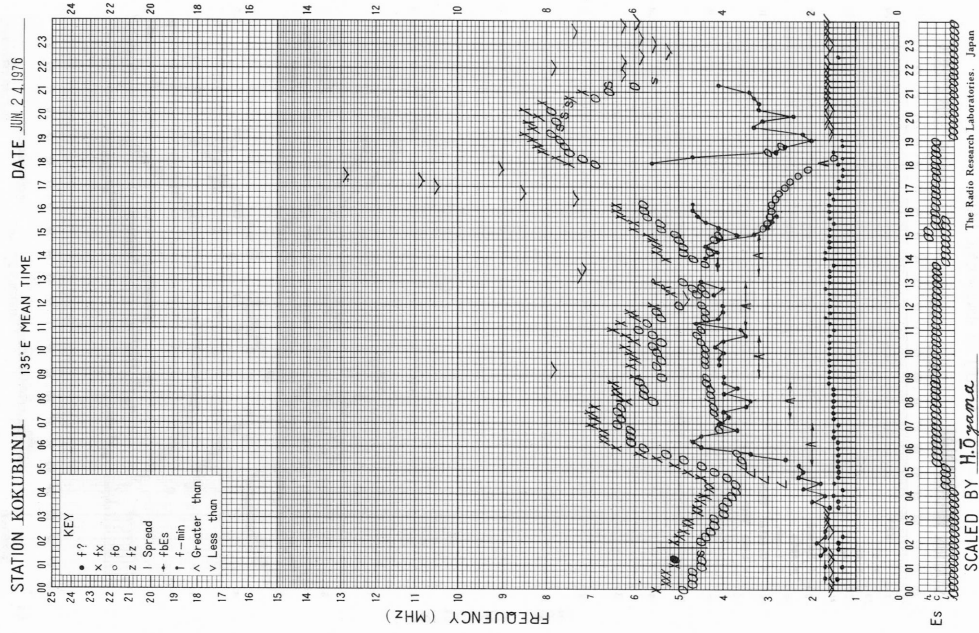


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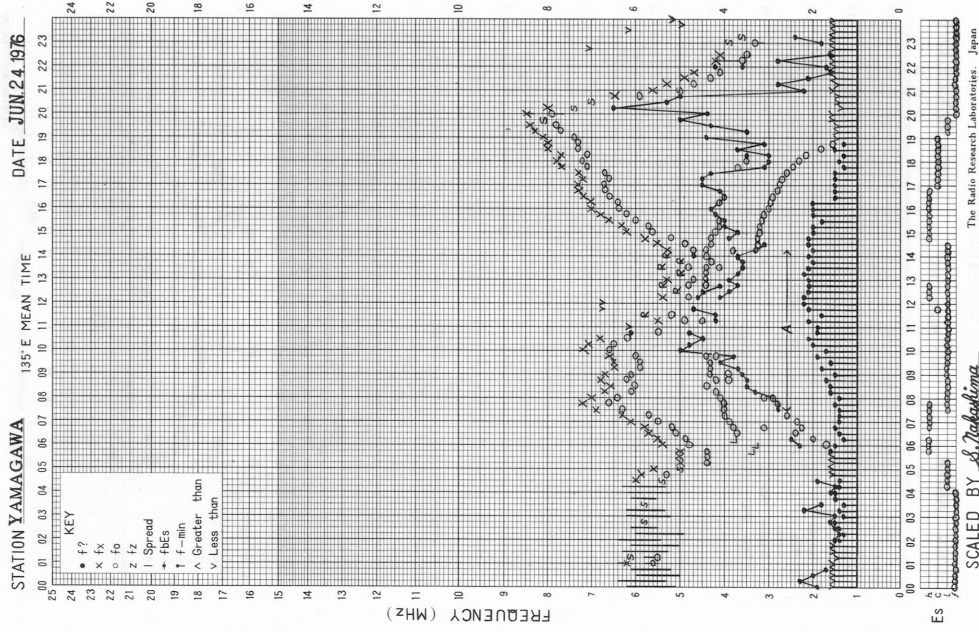
SCALED BY J. Oka

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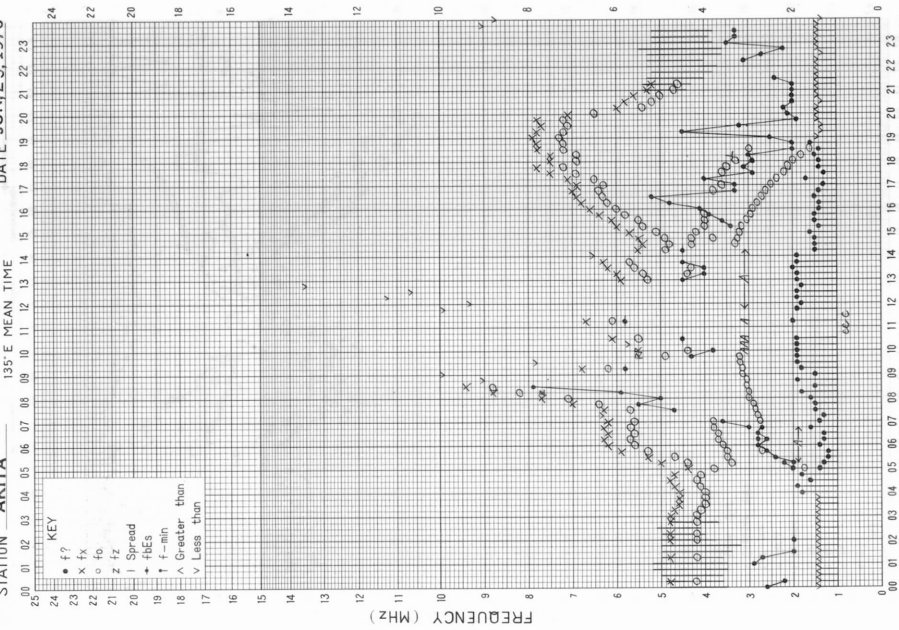
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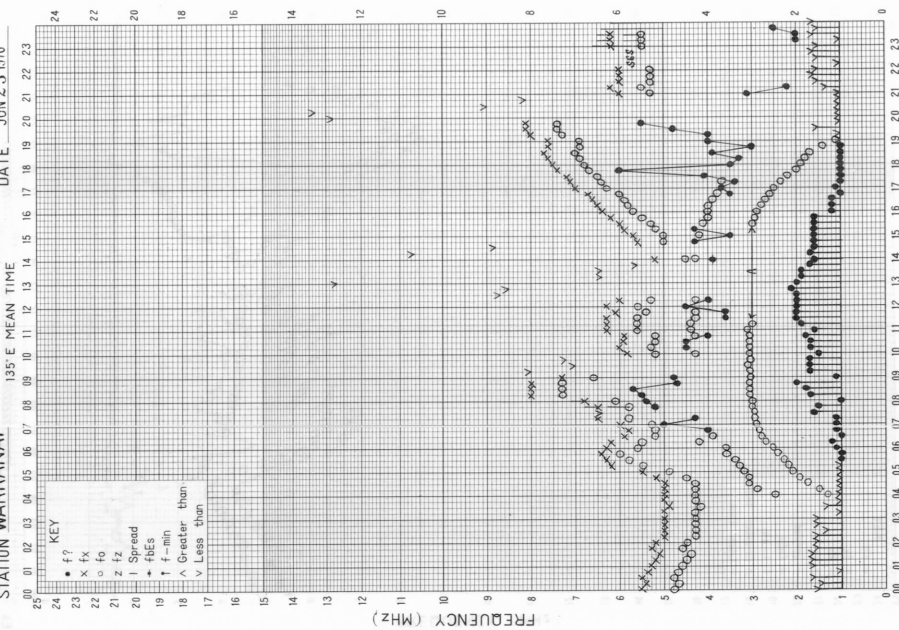
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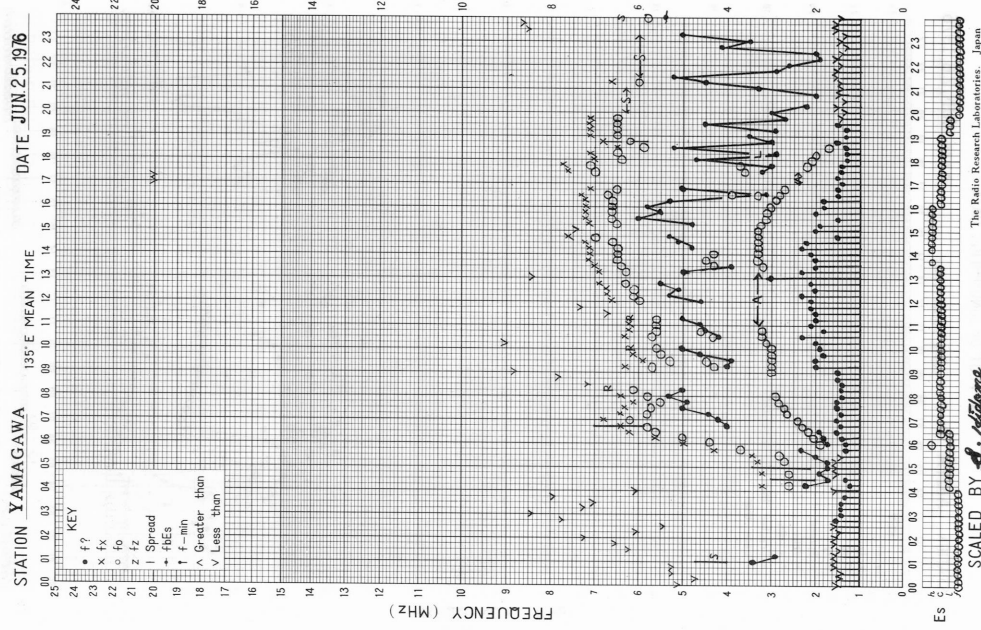
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STATION AKITA 135° E MEAN TIME DATE JUN 25 1976



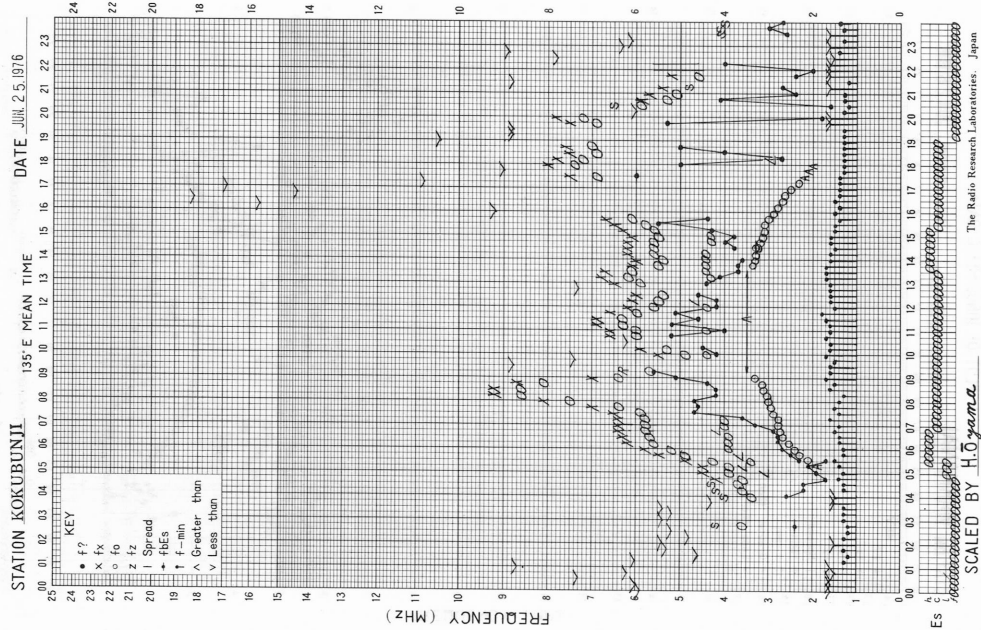
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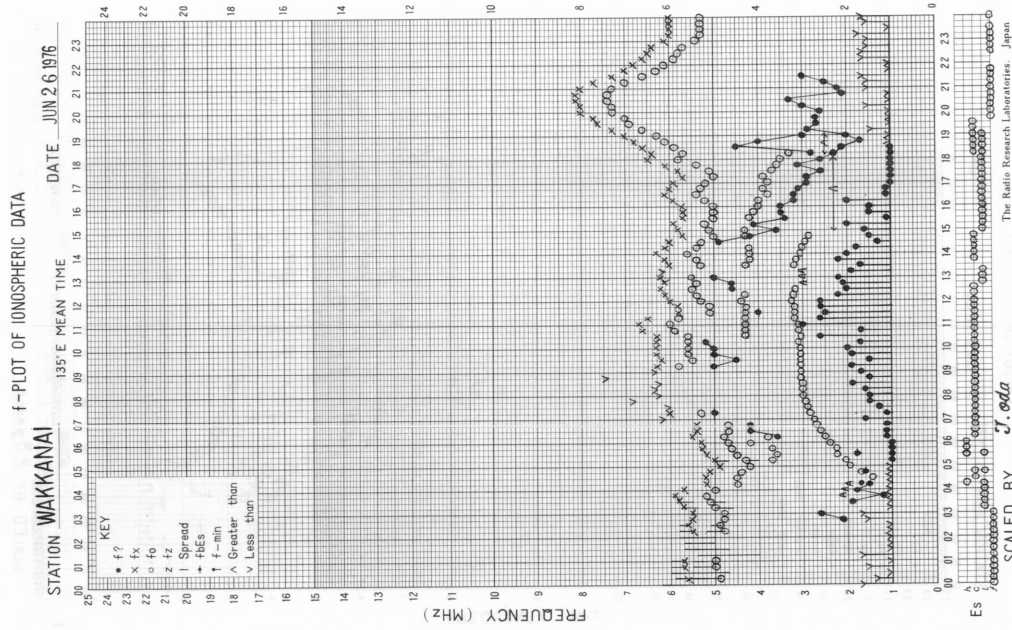
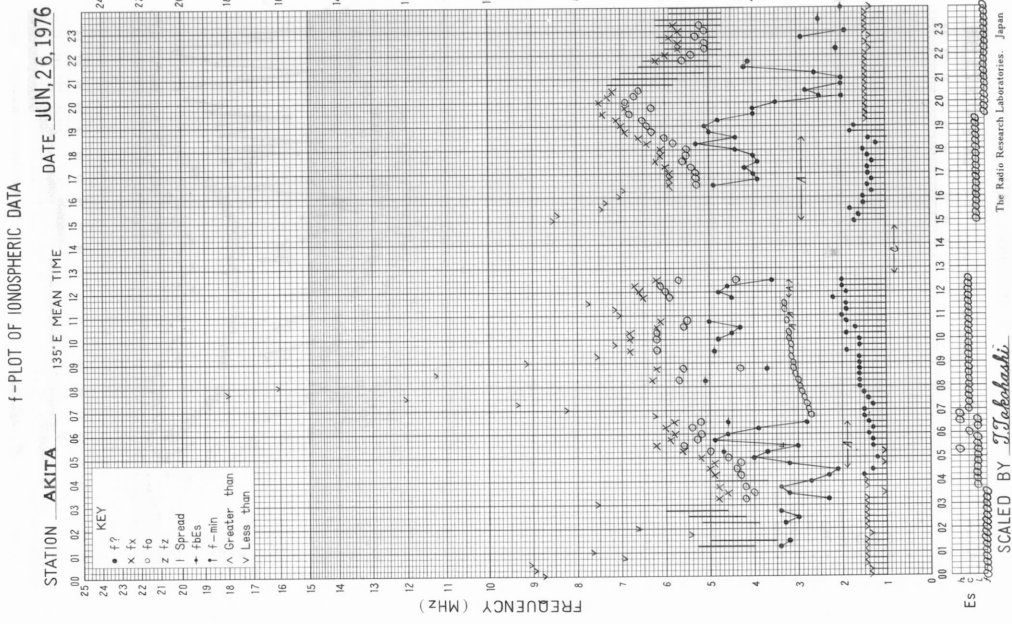


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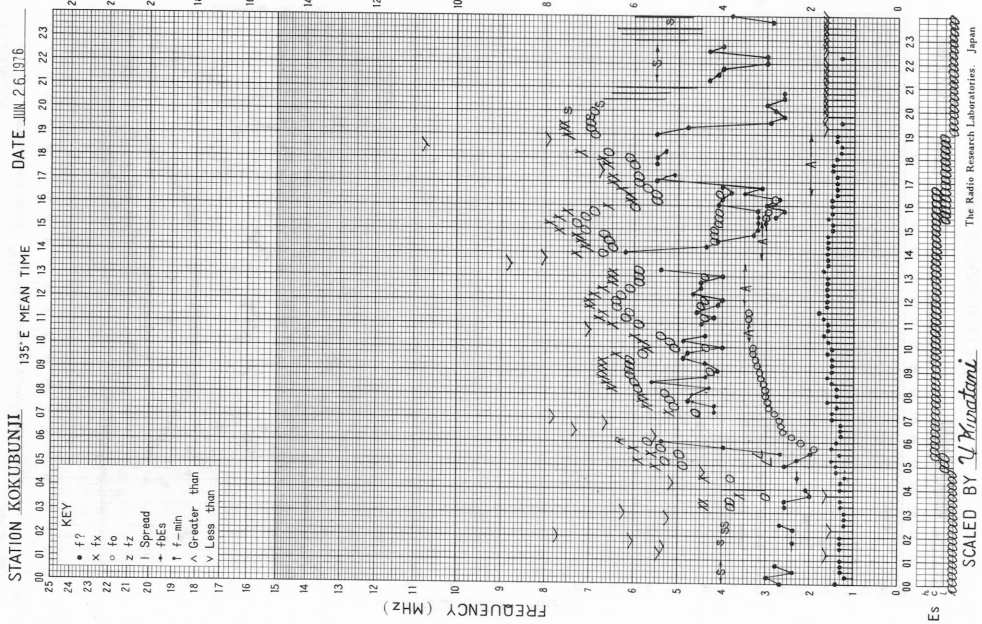


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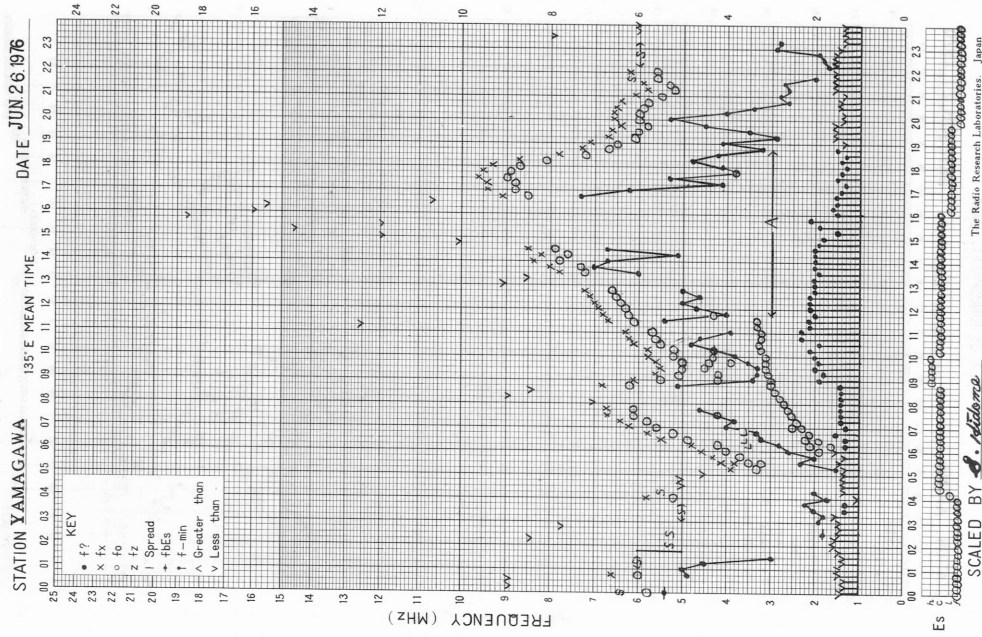




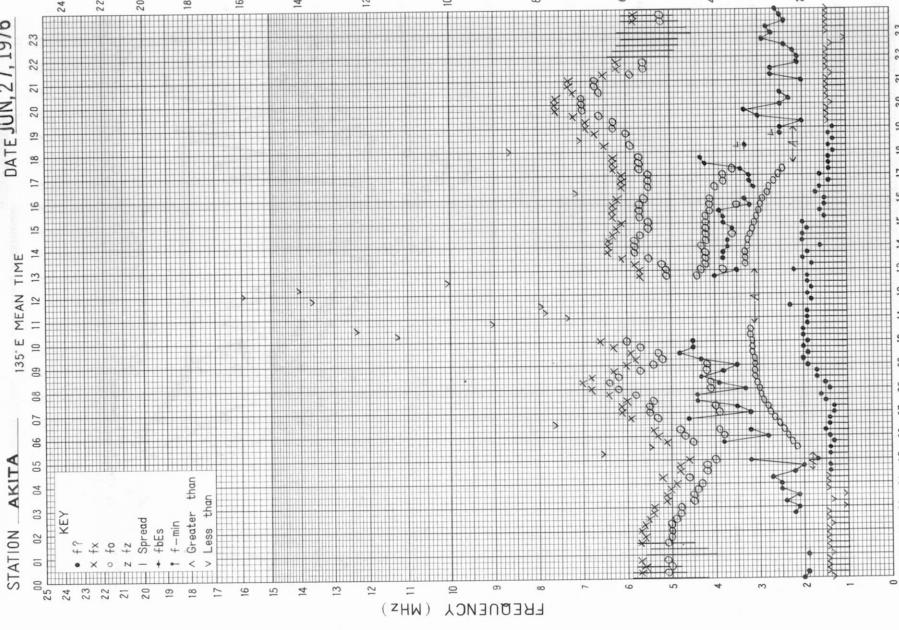
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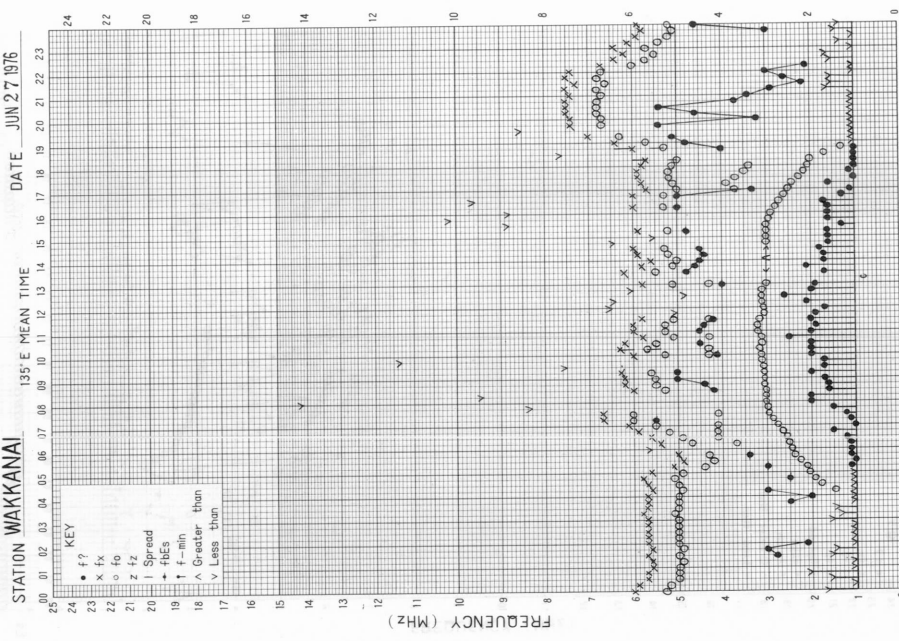
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 The Radio Research Laboratories, Japan

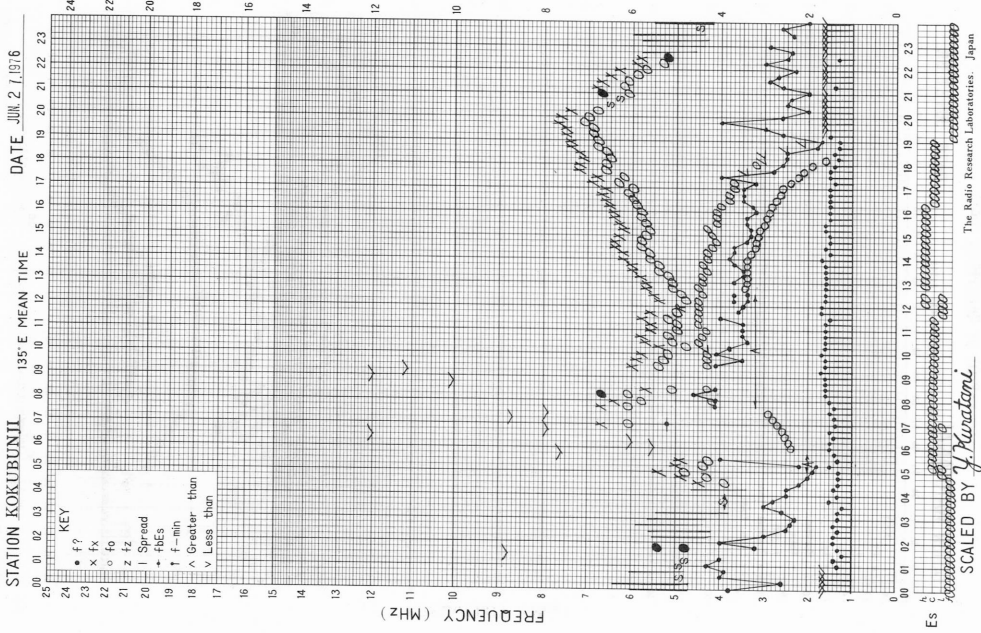
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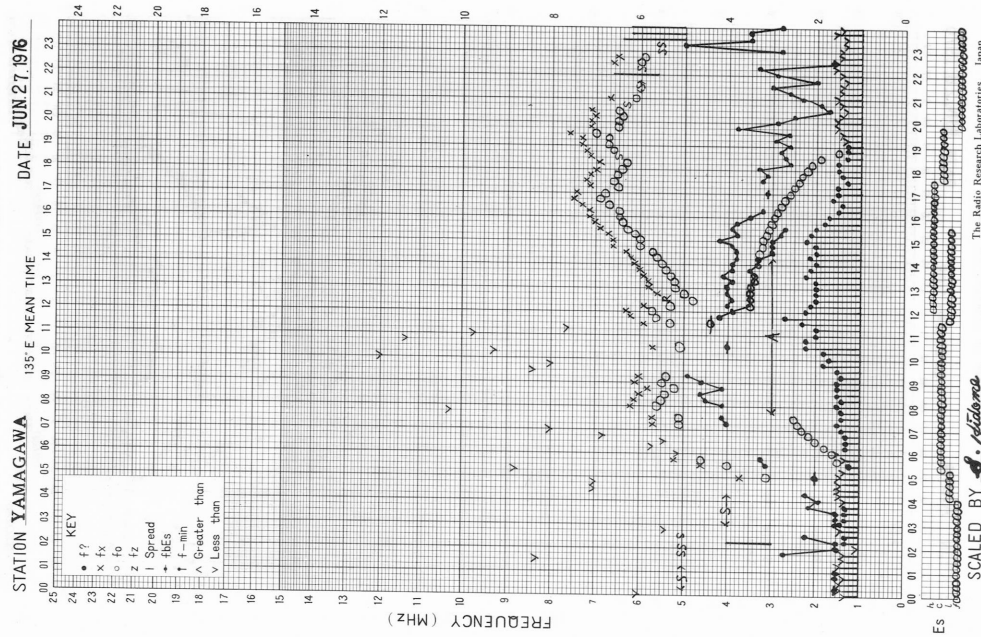
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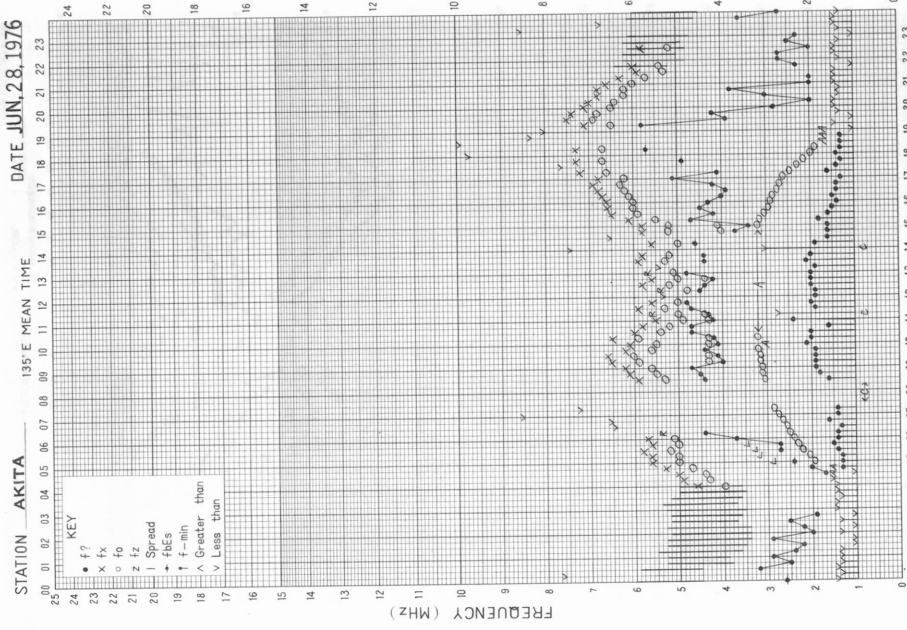
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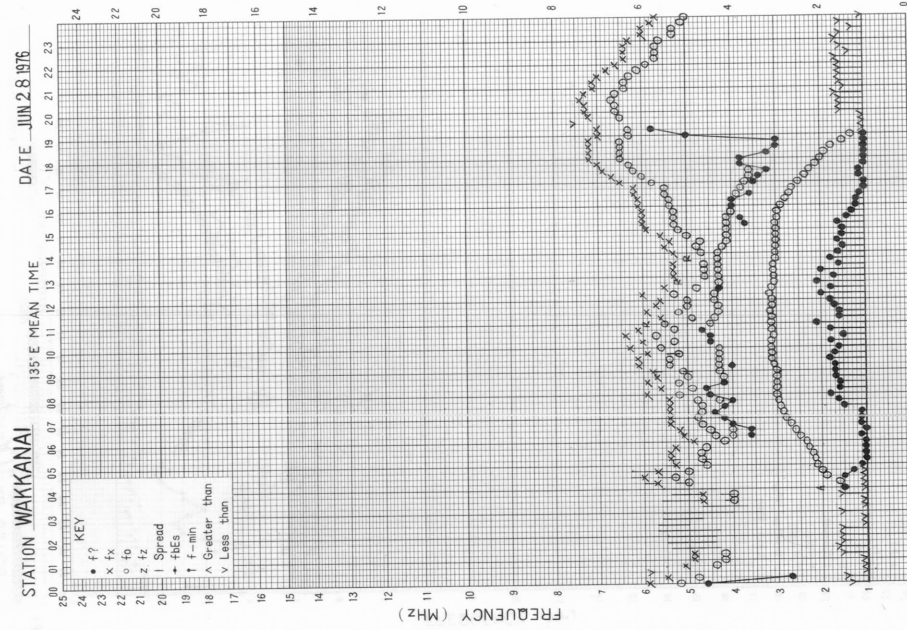
f-PLOT OF IONOSPHERIC DATA

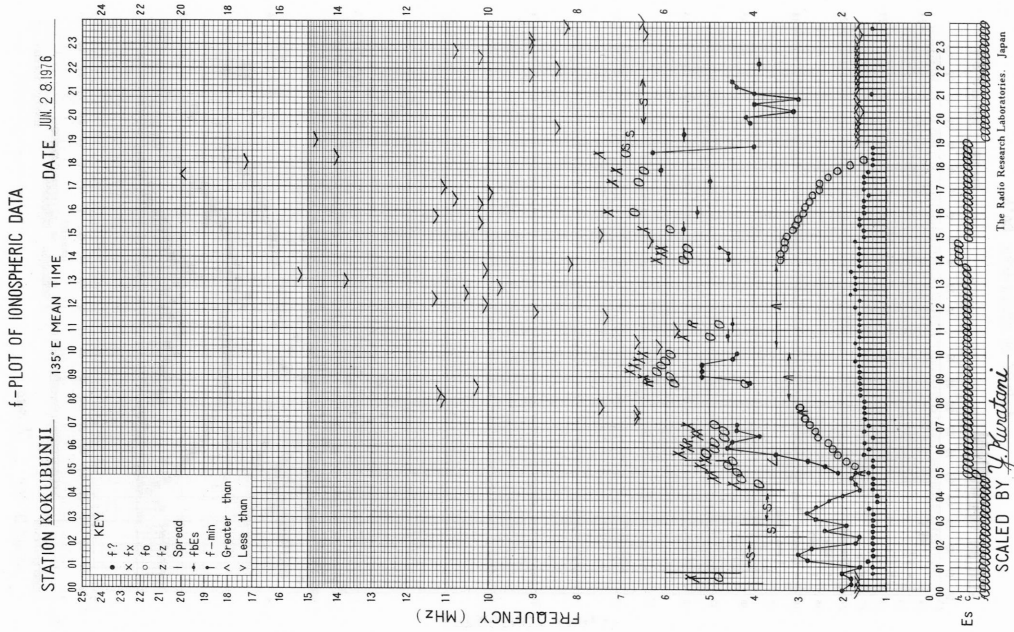
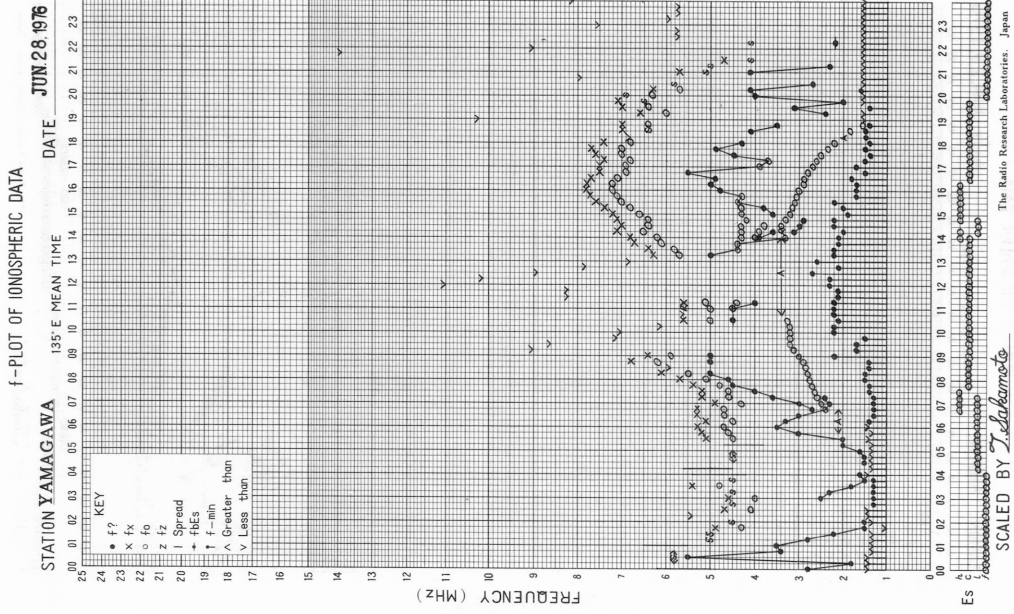


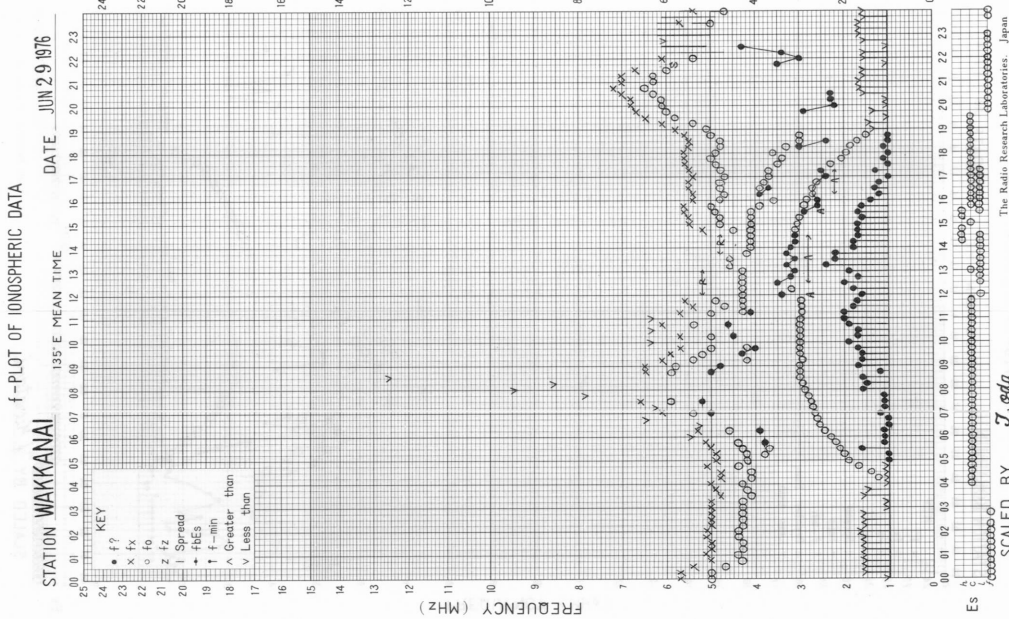
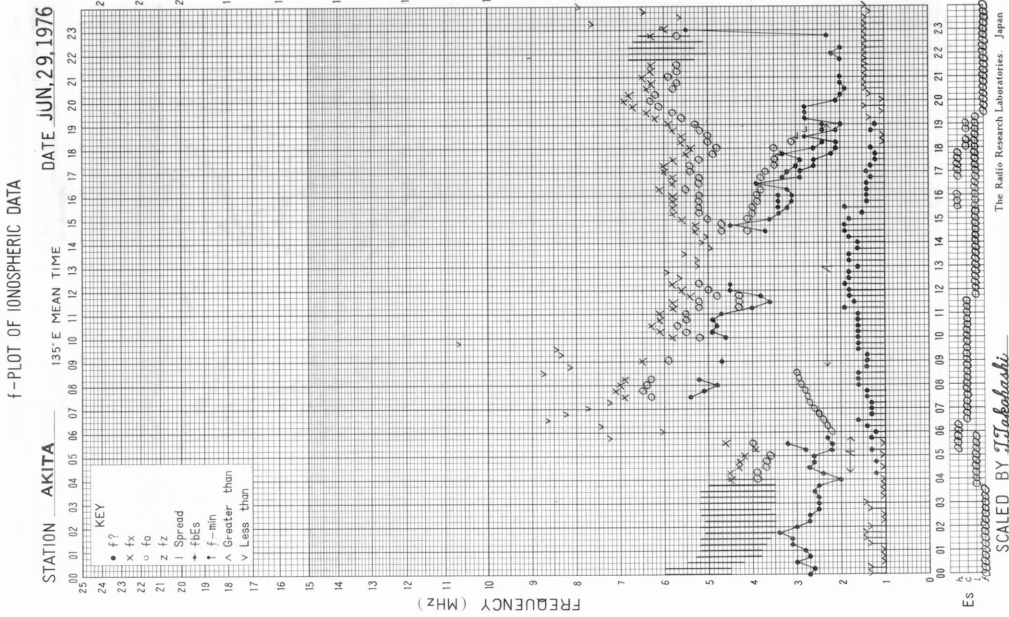
f-PLOT OF IONOSPHERIC DATA



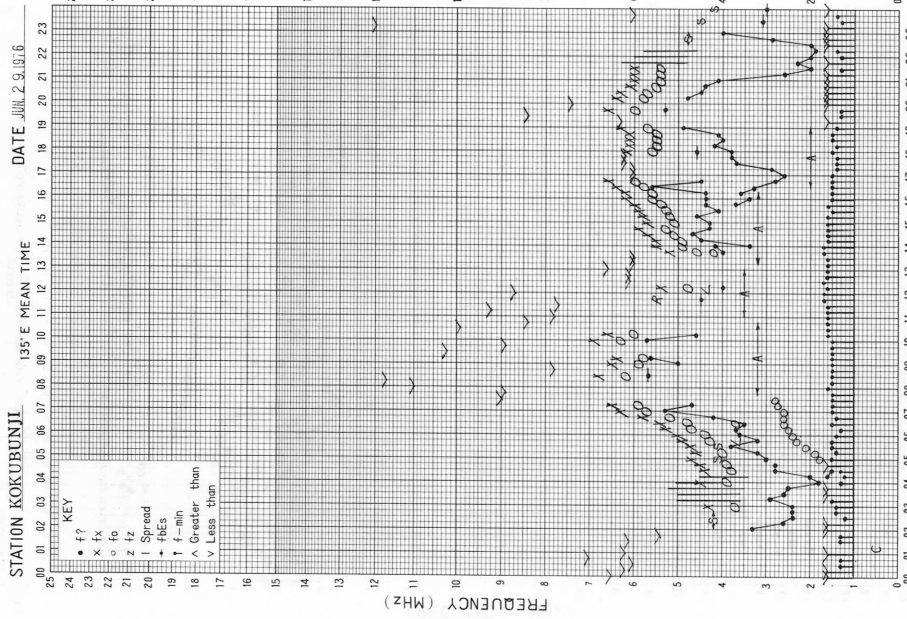
f-PLOT OF IONOSPHERIC DATA





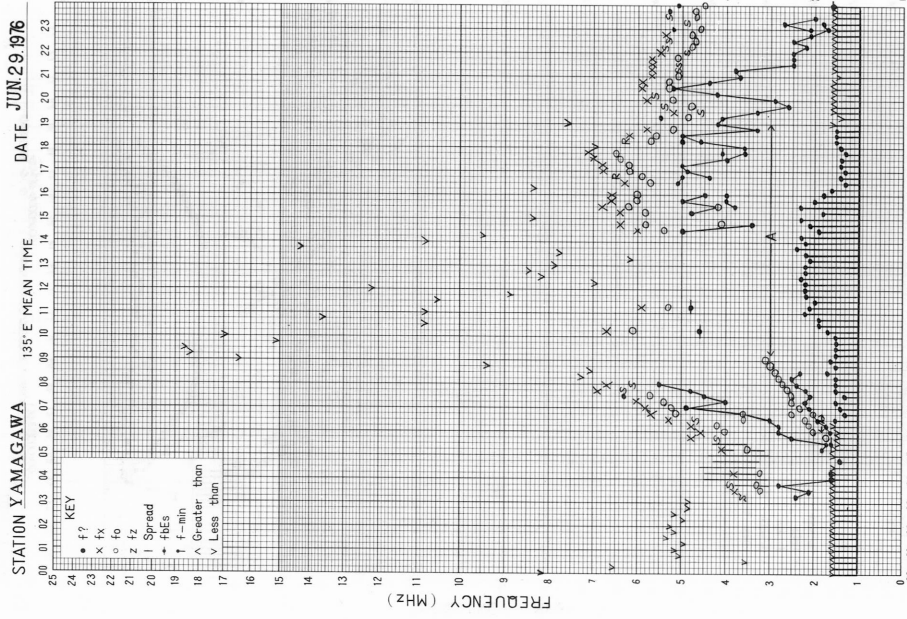


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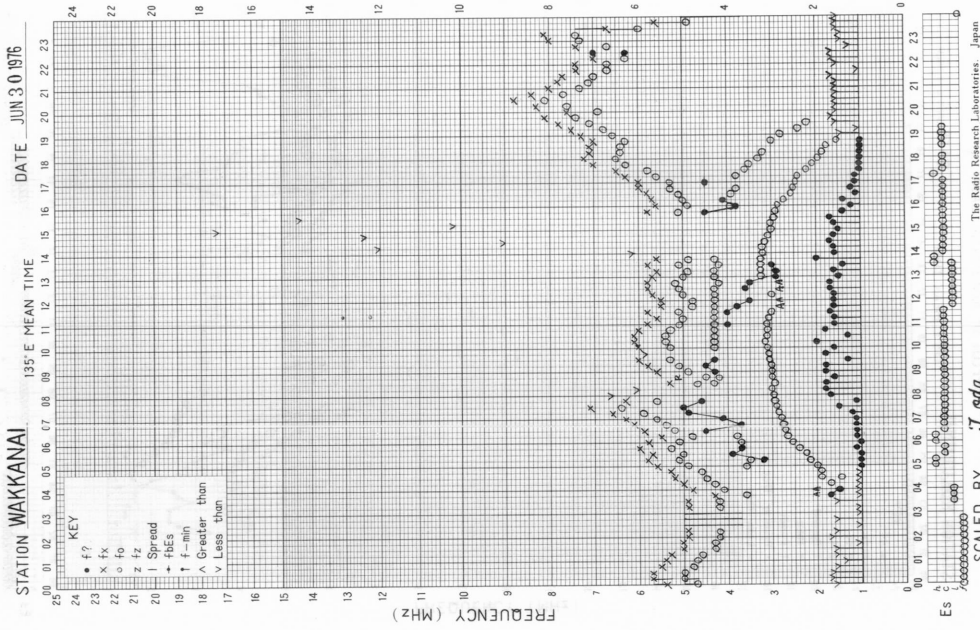
Es
C
The Radio Research Laboratories, Japan
SCALED BY Y. Kawano

f-PLOT OF IONOSPHERIC DATA

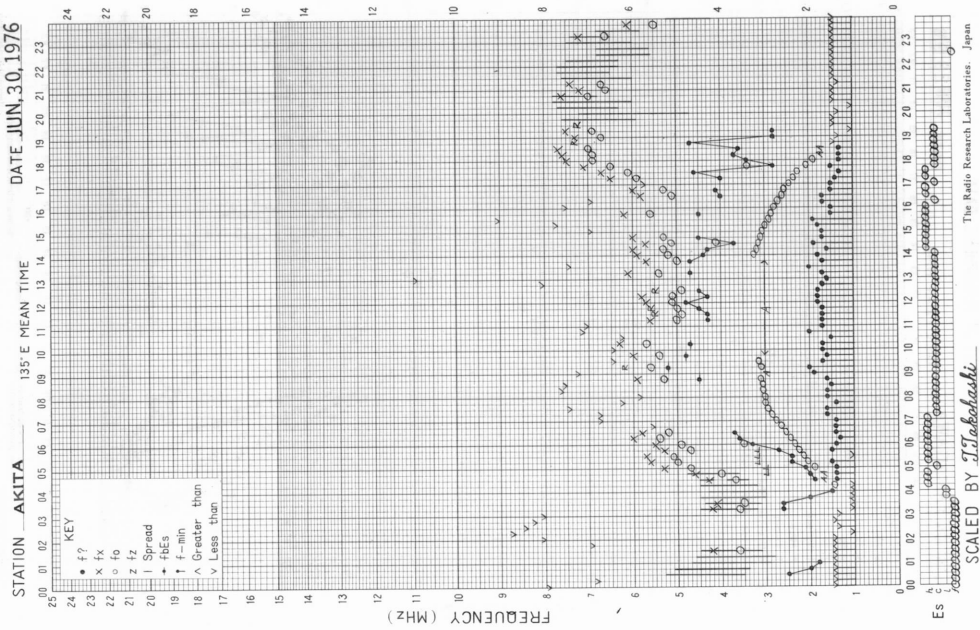


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SCALED BY S. Takahama

f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

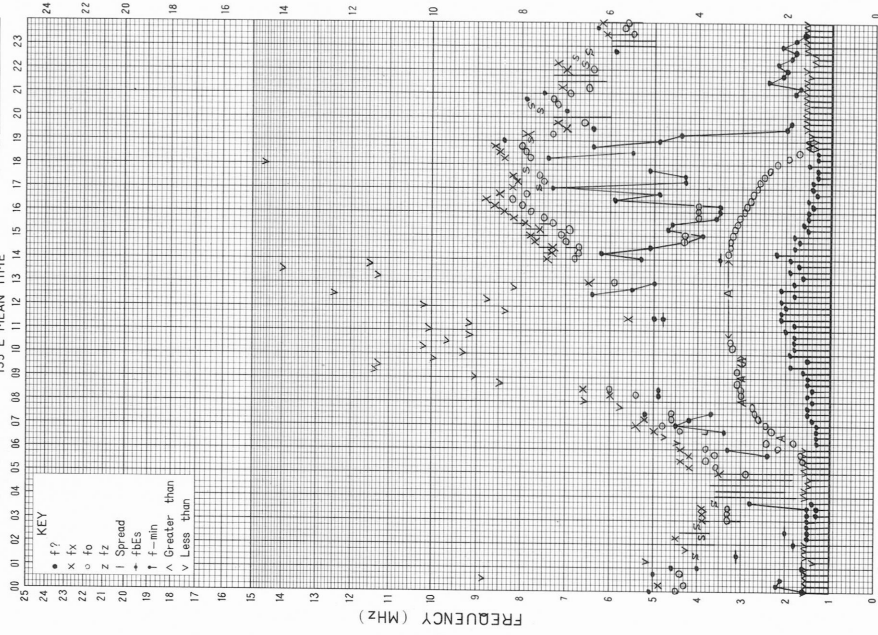


f-PLOT OF IONOSPHERIC DATA

STATION YAMAGAWA

135°E MEAN TIME

DATE JUN. 30. 1976



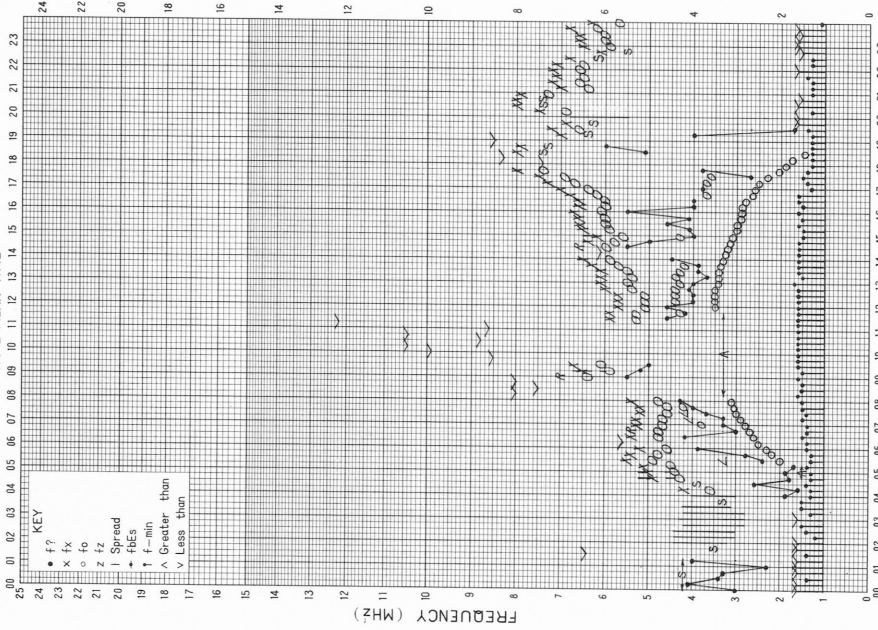
Es
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SCALED BY S. Nakakuma

f-PLOT OF IONOSPHERIC DATA

STATION KOKUBUNJI

135°E MEAN TIME

DATE JUN. 30. 1976



Es
The Radio Research Laboratories, Japan
SCALED BY H.O.yama

SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

Hiraiso Branch, R.R.L.,
Nakaminato, Ibaraki,
311-12 JAPAN

June 1976

Single-frequency total flux observations at 200 MHz										
Flux density: $10^{-22} \text{Wm}^{-2} \text{Hz}^{-1}$						Variability: 0 to 3				
UT Date	00-03	03-06	06-09	21-24	Day	00-03	03-06	06-09	21-24	Day
1	6	6	6	6	6	0	0	0	0	0
2	6	6	6	6	6	0	0	0	0	0
3	6	6	6	6	6	0	0	0	0	0
4	6	6	6	6	6	0	0	0	0	0
5	6	6	6	6	6	0	0	0	0	0
6	6	6	6	6	6	0	*	0	0	0
7	6	6	6	6	6	0	*	*	0	0
8	6	6	6	6	6	*	0	*	0	0
9	6	6	6	6	6	0	0	0	0	0
10	6	6	6	6	6	0	0	0	0	0
11	6	6	6	7	6	0	0	0	0	0
12	7	6	6	6	6	0	0	0	0	0
13	6	6	6	6	6	0	0	*	0	0
14	6	6	6	6	6	0	*	0	0	0
15	q	q	7	7	7	*	*	*	0	*
16	q	7	7	7	7	*	*	*	0	*
17	q	q	q	7	7	*	*	*	1	*
18	q	q	7	8	7	*	*	0	0	*
19	8	8	8	8	8	*	*	*	1	*
20	q	q	8	7	8	*	*	*	0	*
21	7	7	7	6	7	*	0	0	0	0
22	7	7	7	7	7	*	*	*	0	*
23	7	7	7	6	7	0	*	0	0	0
24	7	7	7	7	7	0	0	0	0	0
25	7	7	7	7	7	0	0	0	0	0
26	7	7	7	7	7	0	*	0	0	0
27	7	7	7	6	7	*	*	*	0	*
28	7	7	6	7	6	0	0	0	0	0
29	7	7	7	6	7	0	0	*	0	0
30	6	6	6	6	6	*	0	0	0	0

Note No observations during the following periods:

25th 0220 - 0255

25th 0435 - 0510

q: likely quiet.

*: interference.

SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

Hiraiso Branch, R.R.L.,
Nakaminato, Ibaraki,
311-12 JAPAN

June 1976

Single-frequency total flux observations at 500 MHz					
Flux density: $10^{-22} \text{Wm}^{-2} \text{Hz}^{-1}$					
UT	00-03	03-06	06-09	21-24	Day
Date					
1	23	23	23	24	23
2	23	23	23	23	23
3	24	24	23	(23)	23
4	24	24	23	24	24
5	24	24	24	25	24
6	24	24	24	24	24
7	-	-	22	23	23
8	24	23	23	23	23
9	23	23	23	23	23
10	24	24	24	24	24
11	24	24	24	24	24
12	24	24	24	24	24
13	24	24	24	24	24
14	24	24	24	24	24
15	24	24	24	24	24
16	24	24	24	24	24
17	24	24	24	25	24
18	25	25	24	25	25
19	25	25	25	25	25
20	25	25	24	25	25
21	25	25	25	25	25
22	25	24	24	24	24
23	24	24	23	24	24
24	24	24	23	-	24
25	24	23	23	23	23
26	23	23	23	23	23
27	23	23	q	22	23
28	23	23	23	22	23
29	22	22	22	23	22
30	23	23	23	-	23

Note No observations during the following periods:

3rd 2130 - 2350 24th 1920 - 2340
7th 0015 - 0615 30th 2100 - 2345

q: likely quiet.

Flux values before June 1st, 1976 U.T., are to be multiplied by 1.28, for 500 MHz only.

SOLAR RADIO EMISSION

HIRAISO (HIRA)

36.37N 140.62E

Hiraiso Branch, R.R.L.,
Nakaminato, Ibaraki,
311-12 JAPAN

June 1976

Outstanding Occurrences

No outstanding occurrence was observed during June 1976.

RADIO PROPAGATION

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

JUN 1976 FREQUENCY 15 MHZ BANDWIDTH 80 HZ RECEIVING ANTENNA ROD 4.5 M

MEASURED AT HIRAISSO

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

RADIO PROPAGATION

RADIO PROPAGATION QUALITY FIGURES

HIRAISO

Time in U.T.

Jun. 1976	Whole Day Figure	W W V				W W V H				Condition				Principal Geomagnetic Storms		
		00	06	12	18	00	06	12	18	00	06	12	18	Start	End	Range
		06	12	18	24	06	12	18	24	06	12	18	24			
1	4o	3U	3U	S	5U	4	4U	4U	4	U	U	U	U			
2	4o	4U	4	S	4U	4	3	4	4	N	N	N	N			
3	4o	4U	4	5U	5U	4	3	4	4	N	N	N	N			
4	4-	4U	3U	S	S	4	4	3U	4	N	N	N	N			
5	3+	S	3U	S	S	4	4	3U	3	U	U	U	U			
6	3o	2	2U	S	S	4	4	4	3	U	U	U	U			
7	3+	3U	3U	S	S	4	4	3U	4	U	U	U	U			
8	4-	S	4U	S	S	4	3U	3U	4	U	U	U	U			
9	4o	S	4	S	4U	4	4U	4	4	U	U	U	U			
10	4o	4U	4	5U	4U	4	4	4	4	N	N	N	N			
11	4o	5U	2U	S	S	5	5	4	4	N	N	U	U			
12	4-	S	3U	S	S	3U	4	4	4	U	U	U	U			
13	4o	4U	4	S	5U	4	4	4	4	U	U	N	N			
14	4o	4U	4	4U	5U	3	4	4	4	N	N	N	N			
15	4+	4U	4	5U	5U	4	4	4	4	N	N	N	N			
16	4+	4U	4U	5U	5U	4	4	5	4	N	N	N	N			
17	4o	4U	3U	5U	S	4	4	4U	3U	N	N	N	N			
18	4o	3U	3U	4U	S	3	4U	5	3U	U	U	U	U			
19	3+	S	4	S	4U	4	4	4U	4	U	U	N	N			
20	4o	4U	4	5U	S	4	4U	4	4	N	N	N	N			
21	4-	4	4U	S	4	4	4	3U	3	N	N	N	N			
22	4o	5U	5	5U	4U	3	3U	4	4	N	N	N	N			
23	4+	5U	4U	5U	5U	4	4	4	4	N	N	N	N			
24	4+	5U	4U	5U	5U	4	4	5	4	N	N	N	N	1632	---	74
25	4+	5U	4U	5U	5U	4	4	5	4	N	N	N	N	---	21.0	
26	4+	5U	5	5U	4U	4	4	4	4	N	N	N	N			
27	4+	4U	5	S	5U	4	4U	4U	4	N	N	N	N			
28	4+	4U	5	5U	5U	4	5	3	4	N	N	N	N			
29	4+	5U	5	4U	4U	4	4U	4	4	N	N	N	N			
30	4-	4U	4U	S	S	4	4	3U	3	N	N	N	N	0250	---	104

RADIO PROPAGATION

SUDDEN IONOSPHERIC DISTURBANCES

HIRAISO		Time in U.T.									
Jun 1976	S W F						Correspondence				
	Drop-out Intensities (dB)				Start	Duration	Type	Imp.	Solar Flare	Solar Noise	Geomag. Crochet
CO	HA	1)	2)								
16			10		2310	19	SL	1-		x	

NOTES

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

RADIO PROPAGATION
Sudden Ionospheric Disturbance (SPA)

I N U B O

Jun. 1976	S P A										
	Phase Advance (degrees)								Time (U.T.)		
Date	GBR	NAA	NPG	NWC	AL3	ND3	HA3	RE3	Start	End	Maximum
16	14	—	27	22		22	<u>39</u>		2311	0030	2321
17	<u>16</u>	—		4					0240	0258	0245
17		—		5				<u>8</u>	0307	0334	0322
17		—		6				<u>10</u>	0442	0506	0451
17		—		11				<u>24</u>	0615	0701	0624
17		—		<u>4</u>				10	0711	0749	0715
22				6					0450	0520	0457

IONOSPHERIC DATA IN JAPAN FOR JUNE 1976

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2-1 Nukui-Kitamachi 4-chome, Koganei-shi, Tokyo 184 JAPAN.