

ION.ANT.— 22

IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)

January 1974—June 1974

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3275

RADIO RESEARCH LABORATORIES

MINISTRY OF POSTS AND TELECOMMUNICATIONS

TOKYO, JAPAN



INTRODUCTION

Vertical soundings of ionosphere at Syowa Station, Antarctica, have been carried out by the Radio Research Laboratories through the sponsorship of the National Institute of Polar Research of Japan.

LOCATION OF SYOWA STATION

Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
69° 00.4' S	39° 35.4' E	69.6° 6 S	77.1° E

SPECIFICATIONS OF THE IONOSONDE USED AT SYOWA STATION

Items	Specifications
Frequency Range	500 kHz—15 MHz
Transmitting Power	10 kW (peak value)
Duration of Sweep	30 sec
Transmitted Pulse Width	100 μ sec
Recurrence Frequency of Transmitted Pulse	50 Hz (by power source frequency)
Frequency Scale	every 1 MHz
Height Range	900 km
Height Scale	every 50 km
Total Receiver Gain	120 dB
Recording Method	35 mm film and video fax for ionograms
Power Supply	100 volt AC, 2.5 kVA
Transmitting Antenna and Receiving Antenna	30 m height vertical delta terminated by 600 Ω respectively

SYMBOLS AND TERMINOLOGY

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_{xI}	Top frequency of spread F trace
f_oF2	Ordinary wave critical frequency for the $F2$, $F1$, E and E_s
f_oF1	including particle E layers respectively.
f_oE	
f_oE_s	
f_{min}	Lowest frequency which shows vertical ionospheric reflections
m_{min}	
$M(3000)F2$	Maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.
$h'F2$	Minimum virtual height on the ordinary wave for the $F2$,
$h'F$	whole F and E_s layers respectively.
$h'E_s$	
Types of E_s	See below 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, <i>ES</i> .
B	Measurement influenced by, or impossible because of absorption in the vicinity of <i>f_{min}</i> .
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.
E	Measurement influenced by, or impossible because of, the lower limit of the normal frequency range.
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 stratification.
K	Presence of particle <i>E</i> layer.
L	Measurement influenced by 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 spur 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 atmospherics.
T	Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
V	Forked trace which may influence the measurement.
W	Measurement influenced or impossible because 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.

(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 <i>fbEs</i> is deduced from <i>f_oEs</i> 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.
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 Type of *Es*

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

The types are:

f	An <i>Es</i> trace which shows no appreciable increase of height with frequency.
l	A flat <i>Es</i> trace at or below normal <i>E</i> layer minimum virtual height or below the particle <i>E</i> layer minimum virtual height.
c	An <i>Es</i> trace showing a relatively symmetrical cusp at or below f_oE .
h	An <i>Es</i> trace showing a discontinuity in height with the normal <i>E</i> layer trace at or above f_oE . The cusp is not symmetrical, the lower frequency end of the <i>Es</i> trace lying clearly above the high frequency end of the normal <i>E</i> trace.
q	An <i>Es</i> trace which is diffuse and non-blaketing over a wide frequency range.
r	An <i>Es</i> trace showing an increase in virtual height at the high frequency end similar to group retardation.
a	An <i>Es</i> trace having a well-defined fiat or gradually rising lower edge with stratified and diffuse traces present above it.
s	A diffuse trace which rises steadily with frequency and usually emerges from another type <i>Es</i> 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 <i>Es</i> trace which cannot be classified into one of the standard types.
k	The designation k is used to show the presence of particle <i>E</i> . When $f_oEs > f_oE$ (particle <i>E</i>) the <i>Es</i> 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.

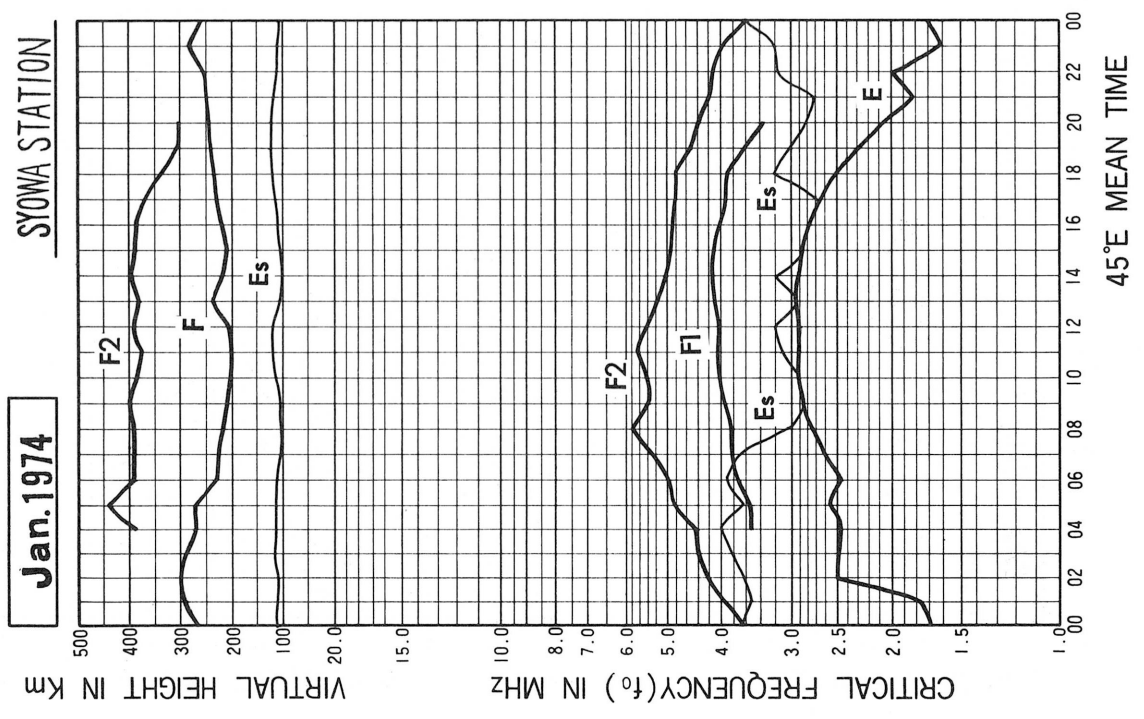
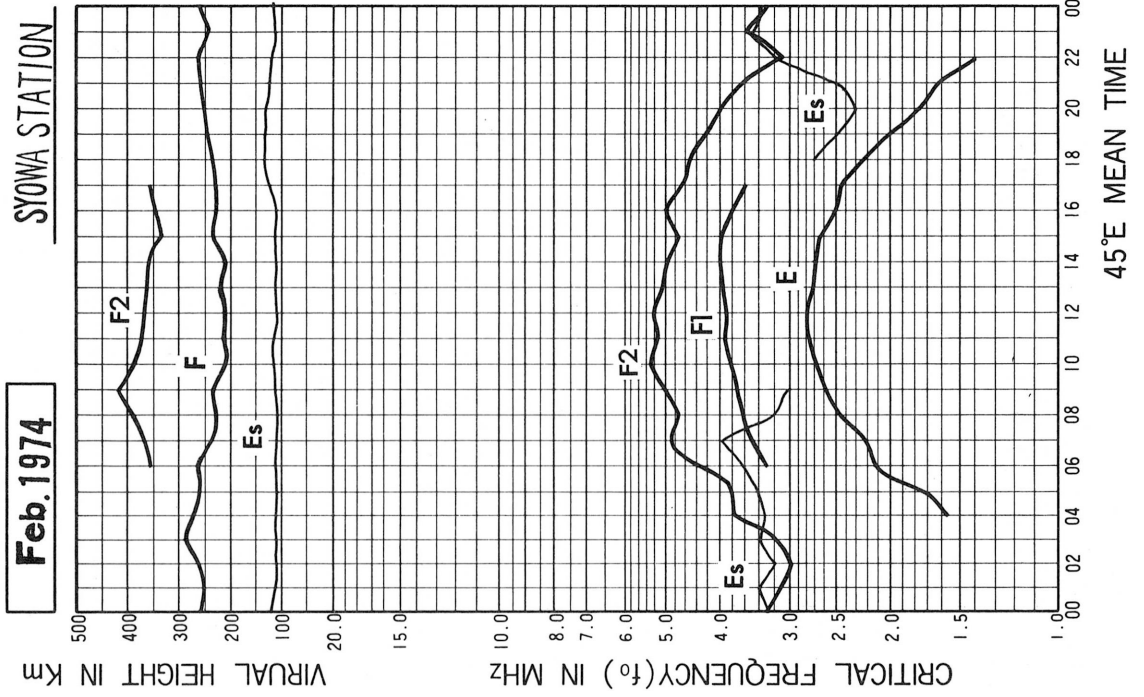
Median (MED) of a set of numbers is the middle value when the numbers are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

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

d. *f*-plot.

f-plots of ionospheric data are illustrated only the periods of the Regular World Days of every month.

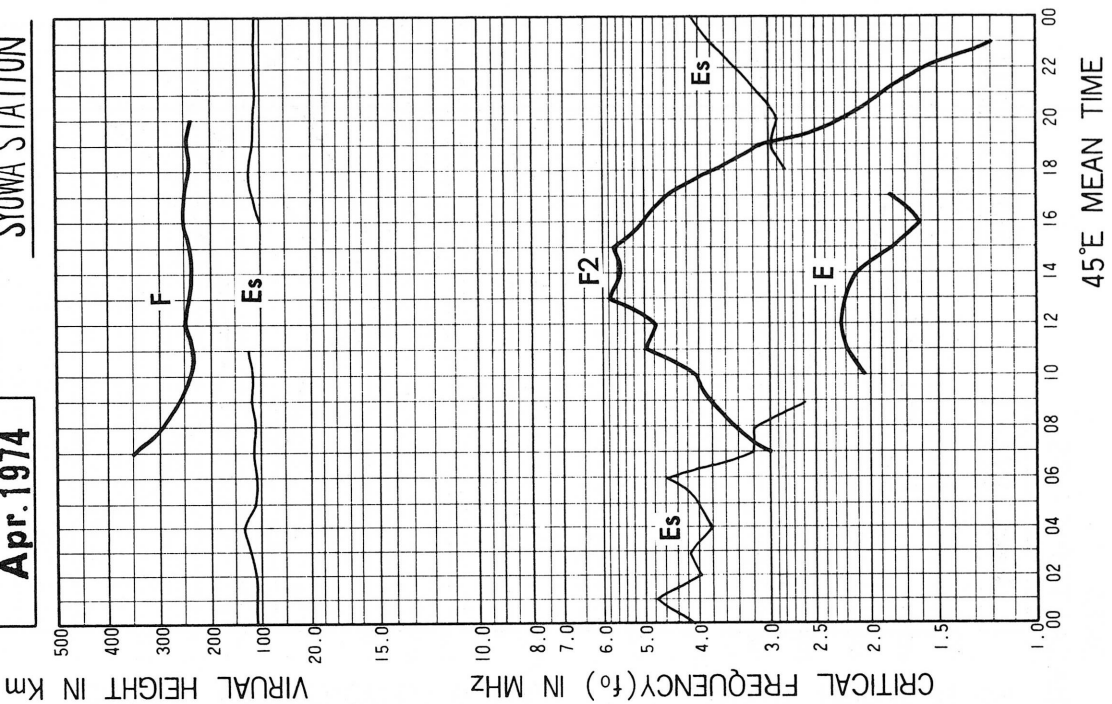
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

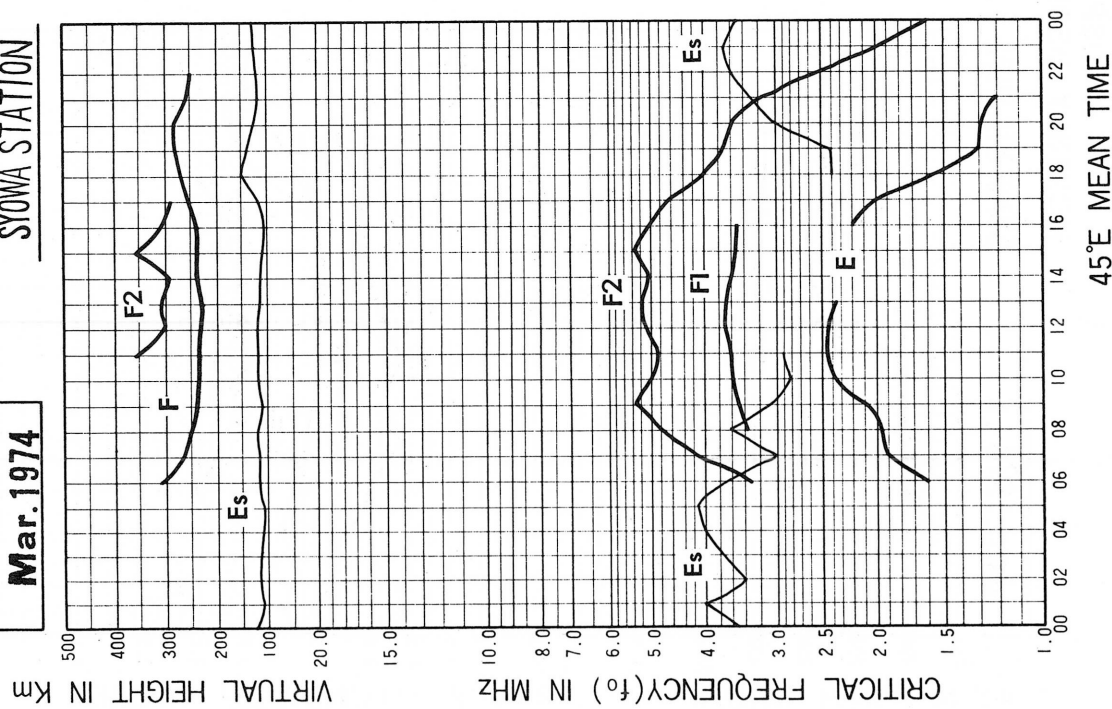
SYOWA STATION

Apr. 1974



SYOWA STATION

Mar. 1974



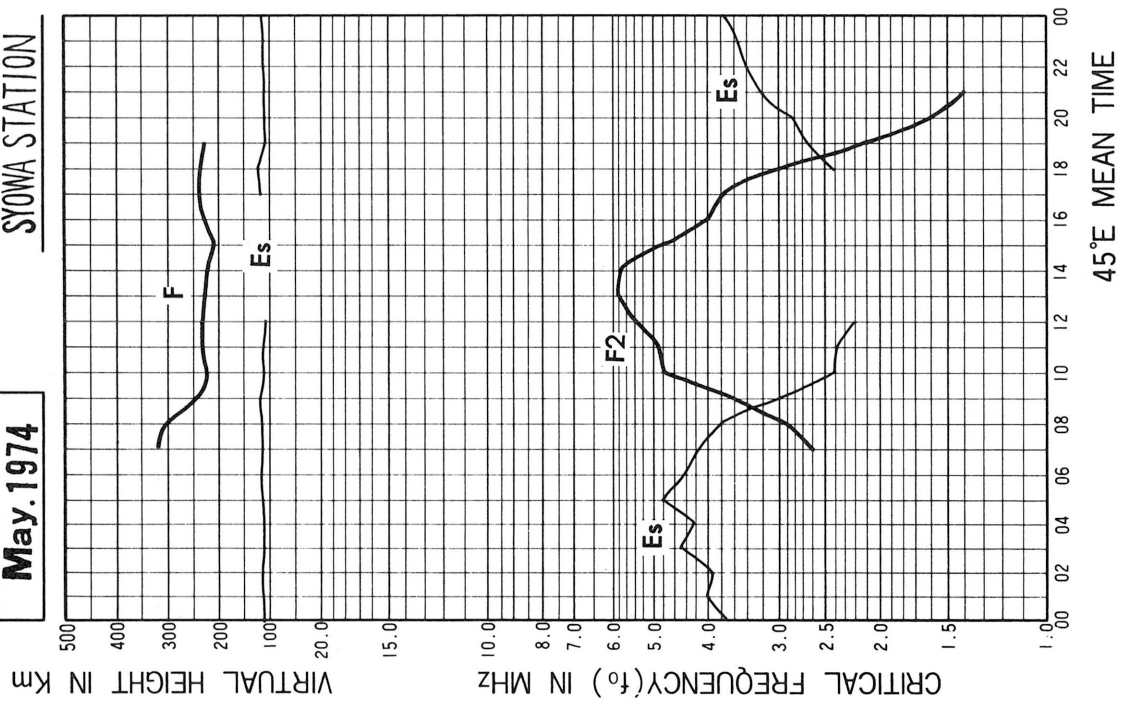
45°E MEAN TIME

45°E MEAN TIME

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

May. 1974

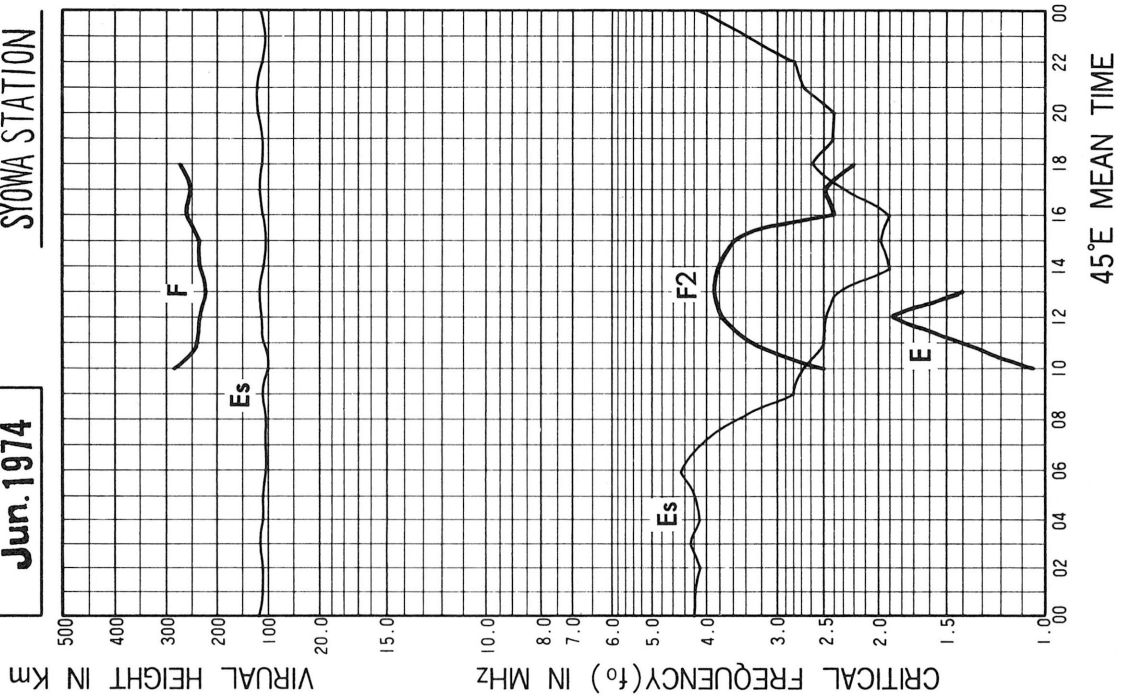
SYOWA STATION



45°E MEAN TIME

Jun. 1974

SYOWA STATION



45°E MEAN TIME

IONOSPHERIC DATA

JAN. 1974

FXI (0.1 MHz)

45 E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69 00 .4 S		Long. 39 35 .4 E		Sweep		MHz to 15		MHz in 30		sec in automatic		operation										
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	45	45	A	A	A	B	R	O R 51	R	B	R	R	R	55	55	B	B	X 58	R	B	X 56	46	X 43	O R 41
2	X 42	B	A	A	40	R	B	A	O R 51	X 55	51	53	O R 51	X 54	X 56	X 54	O R 56	O R 51	B	O R 51	45	R	49	43
3	46	O R 45	A	R	B	R	O R 51	A	A	O R 52	60	61	X 52	O R 50	O R 52	O R 55	B	R	X 49	B	46	41	42	
4	46	47	X 47	B	A	R	B	R	56	60	60	55	O R 50	O R 50	O R 56	X 55	X 52	X 52	B	R	X 46	51	R	52
5	R	50	48	45	A	50	51	A	51	R	O R 48	55	O R 51	R	O R 46	B	R	61	X 52	O R 52	X 49	50	O R 44	A
6	R	O R 44	A	B	A	A	B	R	R	B	R	O R 51	O R 50	O R 54	B	R	O R 53	O R 56	51	51	X 57	54	43	40
7	41	46	48	O R 44	X 55	53	53	X 53	X 56	X 57	X 58	55	X 55	X 58	X 56	O R 51	O R 52	51	X 53	X 50	X 50	X 49	X 50	X 52
8	X 52	X 55	X 54	46	51	X 58	64	69	65	65	B	65	O R 67	X 63	X 56	X 56	O R 56	X 56	X 54	O R 46	R	A	A	A
9	A	40	47	50	58	61	61	63	X 64	63	63	X 62	X 57	X 56	X 55	X 53	X 53	X 55	X 57	X 58	X 53	X 51	X 55	50
10	45	46	X 53	51	56	60	68	A	A	56	65	70	66	59	60	60	X 58	61	X 58	O R 55	O R 42	43	R	B
11	39	39	A	B	50	A	R	R	60	64	B	B	O R 60	X 58	X 56	O R 53	X 55	X 54	X 55	X 55	X 55	X 57	X 56	X 48
12	45	X 47	52	55	52	51	57	64	69	69	71	68	X 68	X 67	X 62	X 61	X 58	X 61	X 62	X 61	51	50	50	X 51
13	55	54	60	60	56	59	65	74	77	77	74	70	64	67	65	59	59	X 58	58	61	X 57	X 60	55	X 51
14	R	O R 46	O R 46	46	52	A	58	63	69	X 69	X 70	X 63	X 63	X 62	X 61	X 58	X 58	X 56	X 58	59	X 61	O R 42	O R 45	
15	46	A	A	A	O R 51	58	53	70	77	75	73	72	53	61	X 62	X 60	O R 61	B	56	51	50	47	X 50	51
16	A	A	43	54	55	B	B	B	B	B	B	B	B	O R 56	X 62	O R 59	O R 60	67	B	O R 46	O R 46	46	X 40	O R 44
17	B	B	55	A	O R 51	B	B	A	O R 48	55	X 57	X 60	B	B	B	B	B	B	X 59	X 61	X 56	43	50	A
18	B	B	R	A	O R 45	R	B	O R 49	53	X 55	B	B	B	B	B	B	R	B	R	B	R	B	O R 44	X 50
19	B	A	A	B	39	B	B	B	58	61	X 57	X 57	X 56	O R 54	O R 53	R	O R 54	X 52	X 53	X 51	X 53	42	R	A
20	B	B	B	55	48	48	R	R	A	R	X 51	B	B	O R 63	B	O R 57	O R 61	B	O R 54	X 52	X 50	50	B	X 46
21	R	B	B	A	A	O R 47	R	B	B	B	B	B	B	B	59	B	B	B	O R 52	X 45	X 51	X 41	X 40	X 42
22	X 41	42	X 50	52	X 45	50	54	62	X 68	X 68	67	66	X 57	X 56	O R 52	X 54	X 52	X 52	X 50	X 53	X 51	X 51	X 50	35
23	42	45	O R 46	A	O R 48	56	X 57	58	62	69	X 71	X 70	X 68	X 67	X 63	X 55	X 57	X 56	X 56	X 51	X 51	X 51	X 51	X 52
24	X 52	X 52	X 51	56	C	C	C	C	70	C	C	X 64	X 61	X 59	X 57	O R 54	O R 53	X 54	X 53	X 53	X 52	X 51	X 53	47
25	42	40	56	A	A	A	49	R	A	A	R	A	R	46	45	X 47	50	R	A	A	A	A	A	35
26	A	A	A	B	B	A	B	B	B	B	R	B	B	B	B	B	B	B	B	X 39	39	A	A	A
27	B	A	40	A	B	B	B	B	A	B	B	B	B	B	B	B	B	O R 51	R	O R 53	O R 45	A	R	A
28	A	B	R	R	B	B	B	B	B	R	R	B	R	B	B	B	O R 50	O R 50	O R 47	O R 46	O R 40	A	A	A
29	A	A	A	B	A	R	64	B	B	B	B	B	R	B	B	B	B	B	C	C	C	X 39	A	R
30	R	R	R	B	B	B	B	B	R	O R 45	R	R	R	R	R	R	B	B	B	O R 42	B	O R 39	A	A
31	38	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	X 40	B	45	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	17	16	12	17	12	14	11	17	18	16	18	18	21	21	18	21	20	19	25	25	23	20	20
MED	45	46	49	52	51	54	57	63	62	62	62	62	57	58	X 56	55	O R 55	X 56	X 54	X 51	X 51	49	50	46
UQ	46	47	54	55	55	58	64	66	69	69	70	X 68	X 64	X 62	X 61	X 59	O R 58	X 58	X 58	X 55	X 53	X 51	X 50	X 51
LQ	42	44	46	46	48	50	53	56	56	55	57	55	O R 52	54	55	O R 53	O R 53	X 52	X 52	X 49	46	44	43	42

The Radio Research Laboratories, Japan

JAN. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

JAN. 1974

FOF2 (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S, Long. 39° 35' 4" E Sweep MHz to 15 MHz in 30 sec in automatic operation

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

The Radio Research Laboratories, Japan

JAN. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JAN. 1974

FOF1 (0.01 MHZ)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S, Long. 39° 35' 4" E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1					350	B	A	360	A	B	R	390	380	400	400	B	B	380	350	B	330				
2						A	B	A	370	380	390	390	400	390	400	390	390	390	B	350	330	F	330	U L	
3						A		A	380	370	370	390	390	390	400	400	R	B		L	B				
4						A	B	A	380	380	390	390	400	400	400	400	400	390	B		L				
5						U F	F	A	U F	R	390	390	390	400	400	B	R	380	390	L	U L	L			
6						A	B	A	A	B	390	400	400	410	B	390	U R	380	390	390	370	L			
7			L		320	330	F	360	380	380	400	400	400	410	400	410	400	390	380	L	L				
8					A	350	F	370	360	400	400	B	R	400	390	420	410	410	400	410	400				
9						350	F	390	380	F	380	390	400	410	410	420	420	410	400	380	370	320	R	L	
10						F	340	U F	A	A	380	390	400	410	410	420	420	410	390	F	F	350			
11						A	A	U F	390	390	400	B	B	A	430	420	420	410	410	390	L	L	L	L	
12					300	350	A	U F	400	410	410	420	430	440	H	430	430	430	430	400	H	400	L		
13						U R	F	370	400	F	400	F	F	F	F	F	L	410	400	L	L				
14						F	A	380	380	390	400	410	420	430	440	440	450	430	420	400	U L	L			
15						F	F	F	400	F	410	F	420	430	430	430	420	410	B	L	L				
16						B	B	B	B	B	B	B	B	B	B	410	400	400	400	B					
17						B	B	A	370	400	410	410	B	B	B	B	B	B	B	410	370	350	L		
18						A	B	A	400	400	B	B	B	B	B	B	400	B	B	B	A				
19						B	B	B	390	390	400	420	410	410	420	420	410	L	380	360	350				
20				F	F	F	A	A	A	390	400	B	B	B	B	410	B	B	390	L	L				
21						U A	A	B	B	B	B	B	B	B	400	B	B	B	R	350					
22						340	350	370	380	390	400	410	410	410	410	410	400	L	L	A					
23						A	A	380	380	380	400	410	400	420	410	L	400	390	L	L	L	L			
24						C	C	C	380	C	C	410	410	410	420	400	400	390	L						
25						A	F	A	A	A	R	A	U F	F	380	360	350	A	A						
26						B	B	B	B	B	370	B	B	B	B	B	B	B	B	B					
27						B	B	A	B	B	B	B	B	B	B	B	B	360	340	L	L				
28						B	B	B	R	370	B	R	B	B	B	B	370	370	350	L	L				
29						F	B	B	B	B	B	R	B	B	B	B	B	B	C	C					
30						B	B	340	360	360	370	390	380	390	360	R	B	B	B						
31						B	B	B	B	B	B	B	B	B	B	B	370	B	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT				1	7	9	12	11	19	19	20	20	20	21	22	20	21	18	19	11	6	1		1	
MED				300	350	350	370	380	380	390	400	405	400	410	410	410	400	390	390	360	335	330		U L	
UQ				350	360	380	395	395	400	405	415	410	420	420	420	410	400	395	370	350					
LQ				340	340	355	375	380	380	390	390	395	400	400	400	390	390	380	355	330					

The Radio Research Laboratories, Japan

JAN. 1974

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JAN. 1974

FOE (0.01 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S, Long. 39° 35' 4" E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	180	B	A	B	A	B	B	305	A	B	R	A	295	290	290	B	B	B	B	B	A	170	A	A	
2	250 ^K	B	A	A	A	A	B	A	A	A	275	290 ^A	270	280	275	275	270	B	B	230	190	A	370 ^K	170	
3	A	A	A	A	B	A	A	B	A			A	A	290	280	275	A	B	B	B	B	180	130	130	
4	U ^A 130	C	A	B	A	A	B	A	300	270	270	280	285 ^A	290	280	280	265	250	B	B	U ^C 220	150	B	C	
5	A	240 ^K	A	H ²¹⁰	A	295 ^K	320 ^K	A	270	A	310 ^F	290	270	290	285	B	B	260	250 ^H	230	200	180	A	A	
6	B	A	B	B	A	A	B	A	A	B	R	A	280	280	B	B	B	B	250	230	195	200 ^F	200 ^H	150	
7	150	135	190 ^A	U ^A 260	F ²⁶⁰	F ²¹⁵	230	245	255 ^C	275	290	290	280	U ^A 300	A	280	275	265	240	220	190	170	165	155	
8	H ¹⁵⁰	150 ^A	U ^A 175	U ^A 290	K ²⁵⁰	A	240	250	270	290	B	B	B	B	B	A	A	260	250	U ^A 265	A	C	A	A	
9	A	A	180	U ^F 200	A	U ^A 260	280	260	265	270 ^A	290	280	280	A	290	280	270	A	250 ^A	225	200	195	170	H ¹⁷⁰	
10	A	175	U ^K 260	K ³¹⁰	U ^A 240	260	A	A	A	A	295	300 ^A	320	300 ^A	310	300	280	270	260	B	A	A	A	B	
11	A	A	A	B	F ²⁶⁰	A	A	A	A	265	B	B	B	290	A	290	280	260	245	445 ^H	H ²¹⁰	180	U ^A 180	150	
12	130 ^A	165	A	U ^A 250	U ^A 205	A	A	300	285	295	295	290	300	A	A	295	290	H ²⁷⁵	260	225	205	190	A	A	
13	A	A	A	A	A	A	255 ^A	250 ^A	U ^A 260	275 ^A	290	295	305	300	A	A	A	A	A	250 ^A	230	220	180	A	125
14	300 ^K	U ^K 320	320 ^K	A	U ^F 245	A	A	265	275	300	300	300	300	300	305 ^A	300	280	280	A	225	U ^A 215	A	290 ^K	A	
15	U ^K 250	A	A	B	250	A	285	250	310	A	315 ^A	300	300	300	A	A	305	A	B	250 ^A	220	265	350 ^K	360 ^K	350 ^K
16	A	A	U ^K 290	U ^F 240	210	B	B	B	B	B	B	B	B	B	B	B	B	R	B	240	230	200	220	350 ^K	
17	B	B	A	A	S	B	B	A	290	285	285	300	B	B	B	B	B	B	B	H ²³⁰	230	240	150	U ^K 330	A
18	B	B	A	S	S	A	B	A	265	285	B	B	B	B	B	B	B	B	B	B	A	B	200	185	
19	B	S	A	B	A	B	B	B	300	275	310	290	U ^A 290	300	300 ^H	280	270	265	260	230	200	180	A	S	
20	B	B	B	270	A	250 ^A	B	A	A	300	285	B	B	B	B	B	B	B	B	B	215	F ²¹⁰	210	B	160
21	300 ^K	B	B	A	A	A	A	B	B	B	B	B	B	B	R	B	B	B	B	270	230	190	150	195	H ¹⁷⁰
22	A	250 ^K	275 ^K	240	180	210	220	230	265	280	290	300	310	310	300	300	285	280	250	230	180	125	110	A	
23	115	A	300 ^K	A	A	A	A	U ^A 280	265	270	280	290	A	U ^R 310	R	290	270	280	A	230	A	185	C	115	
24	A	A	A	A	C	C	C	C	265	C	C	A	A	A	A	290	280	270	225	A	A	A	145	A	
25	160	A	U ^A 170	A	A	A	A	A	A	A	A	A	A	A	300	290	280	260	A	A	A	A	A	U ^A 160	
26	B	A	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	U ^A 200	260	A	A	B	
27	B	A	240	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	255	240	I ^B 230	220	A	A	A
28	A	B	B	A	B	B	B	B	B	B	310	B	R	B	B	B	B	280	250	230	190	B	A	B	A
29	A	A	B	B	A	A	210	B	B	B	B	B	270	B	B	B	B	B	C	C	C	H ¹⁹⁰	A	A	
30	A	A	A	B	B	B	B	B	250	255	270	275	270	270	265	250	B	B	B	220	B	B	A	A	
31	U ^F 220	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	250	B	B	B	170	B	210	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	12	7	10	9	9	7	8	10	16	16	18	15	16	16	12	16	15	14	17	23	20	19	15	14	
MED	170	175	250	250	245	255	245	260	270	282	290	290	288	295	290	285	275	265	250	230	208	180	200	160	
UQ	250	245 ^K	290 ^K	270	F ²⁵⁰	260	282	280	288	290	300	300	300	300	300	298	280	275	250	230	220	192	255	170	
LQ	140	158	180 ^A	U ^A 240	U ^A 210	232	225	250	265	270	280	290	275	290	280	280	270	260	240	220	192	170	168	150	

The Radio Research Laboratories, Japan

JAN. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

JAN. 1974

FOES (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' S, Long. 39° 35.4' E		Sweep MHz to 15 MHz in 30 sec in automatic operation																					
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	J A 77	E B 35	45	48	J A 96	B	38	G	40	B	G	35	35	G	G	B	B	E B 30	E B 32	B	30	25	J A 25	32	
2	K 31	B	J A 54	46	J A 37	32	B	46	46	47	G	30	30	G	60	G	G	E B 28	B	G	G	24	K 38	24	
3	25	35	40	35	B	34	32	45	46	J A 31	G	31	32	G	31	30	E B 28	B	E B 32	J A 71	B	G	G	29	
4	J A 34	J A 29	32	B	D S 48	38	B	43	G	G	G	G	32	J A 36	33	32	G	G	B	E B 26	28	J A 22	35	35	
5	37	K 27	35	32	53	30	K 58	48	G	35	J A 40	G	33	G	G	B	E B 33	G	30	34	G	G	33	37	
6	33	35	60	B	51	48	B	38	45	B	G	33	G	G	B	E B 34	E B 34	E B 33	29	J A 58	J A 73	31	G	18	
7	J A 54	20	J A 26	32	D S 47	J A 32	J A 27	J A 31	28	G	G	35	J A 53	34	37	30	G	29	30	J A 45	J A 28	21	19	J A 22	
8	20	J A 21	J A 36	32	J A 51	J A 61	J A 78	J A 30	D S 33	D S 30	B	E B 31	E B 32	E B 31	E B 32	J A 44	J A 45	33	G	40	41	J A 45	50	J A 45	
9	J A 75	J A 62	J A 25	J A 65	J A 27	34	G	G	G	J A 29	G	G	J A 42	J A 74	34	31	32	28	31	29	22	G	J A 24	J A 25	
10	28	J A 25	J A 44	K 31	32	28	39	54	J A 69	42	G	33	G	34	G	G	J A 36	G	33	E B 26	32	40	36	B	
11	37	34	56	B	G 23	50	43	J A 44	J A 34	G	B	B	48	35	34	G	G	G	G	G	J A 37	29	J A 29	J A 23	
12	D S 18	J A 25	J A 25	J A 28	31	41	35	35	31	G	31	36	G	39	36	31	G	G	31	30	35	J A 24	J A 35	J A 85	
13	J A 37	J A 51	J A 44	31	34	J A 33	41	35	29	G	G	32	36	J A 65	J A 54	D S 52	J A 50	J A 39	J A 32	D S 31	G	J A 65	J A 38	20	
14	K 33	J A 39	K 34	38	J A 62	48	37	G	G	G	32	35	33	G	39	45	G	35	J A 36	60	J A 25	J A 30	K 29	39	
15	52	42	J A 44	52	J A 32	36	43	G	39	J A 40	35	G	G	35	39	G	36	B	J A 73	30	J A 37	K 35	K 36	K 35	
16	J A 84	J A 74	J A 101	J A 54	59	B	B	B	B	B	B	B	B	E B 43	E B 31	E B 32	E B 32	G	B	29	33	28	G	K 35	
17	B	B	J A 42	J A 53	33	B	B	D S 45	G	G	36	G	B	B	B	B	B	B	B	G	J A 28	G	K 35	45	
18	B	B	36	40	31	34	B	37	G	G	B	B	B	B	B	B	E B 31	B	E B 31	B	40	B	G	26	
19	B	57	J A 44	B	47	B	B	B	G	G	G	G	32	G	G	G	G	G	29	31	G	G	37	D S 44	
20	B	B	B	G	32	J A 72	39	J A 41	58	J A 36	G	B	B	E B 47	B	E B 36	E B 49	B	E B 32	G	G	G	B	G	
21	K 41	B	B	39	40	36	D S 40	B	B	B	B	B	B	B	G	B	B	B	B	G	G	22	G	J A 30	
22	31	K 30	K 31	27	27	G	G	G	30	31	G 26	32	G	G	32	G	32	31	D S 50	J A 40	J A 35	J A 41	G	22	
23	G	24	K 30	50	39	35	43	33	G	G	30	30	33	G	G	G	G	J A 34	D S 24	28	J A 34	E C 22	G	G	
24	19	20	32	J A 26	C	C	C	C	G	C	C	35	33	32	31	G	G	G	J A 39	J A 56	J A 24	D S 20	D S 17	D S 20	
25	J A 32	J A 30	26	53	47	45	33	42	117	64	34	J A 51	41	G	33	52	G	40	46	J A 55	42	J A 56	82	J A 59	
26	77	40	52	B	B	47	B	B	B	B	32	B	B	B	B	B	B	B	B	22	G	36	J A 52	40	
27	89	45	31	J A 94	B	B	B	B	50	B	B	B	B	B	B	B	B	33	35	E B 26	24	J A 78	28	33	
28	35	B	30	27	B	B	B	B	B	36	G	B	G	B	B	B	G	G	28	G	E B 25	J A 42	37	35	
29	36	50	52	B	41	36	J A 62	B	B	B	B	B	B	30	B	B	B	B	B	C	C	C	G	J A 34	29
30	31	29	31	B	B	B	B	B	G	G	G	G	34	G	G	G	B	B	B	G	B	E B 26	35	J A 40	
31	J A 74	J A 41	43	B	B	B	B	B	B	B	B	B	B	B	B	B	G	B	B	B	23	B	29	33	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	27	25	29	23	24	22	18	21	25	22	22	21	23	23	22	21	24	21	24	27	28	29	30	30	
MED	36	35	36	38	40	36	39	37	30	E G 29	G	31	32	E G 31	32	E G 30	E G 28	E G 28	32	30	28	27	32	32	
UQ	53	42	J 44	51	51	47	43	44	46	36	32	35	34	35	36	32	33	33	34	41	35	J A 36	36	39	
LQ	31	26	31	31	32	33	33	30	G	G	G	G	E G 30	G	G	G	G	G	28	E G 22	E G 22	E G 20	19	24	

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JAN. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

JAN. 1974

F-MIN (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Hour Day	Station SYOWA STATION				Lat. 69° 00' 4" S		Long. 39° 35' 4" E		Sweep		MHz to 15 MHz in 30 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
1	9	35	10	25	12	B	27	14	26	B	20	25	20	11	14	B	B	30	32	B	20	10	10	13
2	10	B	10	12	8	16	B	11	10	14	10	10	12	10	10	15	21	28	B	19	9	10	9	16
3	9	13	20	21	B	21	11	28	18	15	12	12	11	13	10	9	28	B	32	10	B	10	10	8
4	8	E C 27	8	B	19	12	B	E S 22	10	10	9	9	12	10	10	10	10	10	B	20	E C 22	11	20	E C 16
5	16	13	10	10	20	10	10	22	15	25	14	10	10	10	12	B	33	10	10	21	15	15	10	9
6	21	13	31	B	22	21	B	24	14	B	25	20	10	20	B	34	34	33	14	21	9	9	9	12
7	10	9	9	14	13	9	9	9	E C 25	10	10	10	12	10	14	10	9	10	10	8	8	10	9	8
8	8	9	7	12	E S 13	E S 9	8	8	E S 9	E S 10	B	31	32	31	32	10	9	9	10	10	9	26	10	8
9	8	9	E S 9	9	8	10	9	9	9	13	9	11	10	10	11	10	E C 15	12	10	E C 20	9	8	8	9
10	9	8	12	12	9	9	10	11	10	11	E C 17	14	12	20	E C 10	10	10	10	12	26	11	15	12	B
11	15	8	9	B	14	15	E C 17	14	10	10	B	B	32	18	15	14	15	13	15	10	10	10	9	
12	E S 9	E S 10	9	10	13	14	10	9	9	10	10	10	10	10	11	10	10	12	9	9	10	10	10	9
13	9	13	8	9	20	15	10	9	10	10	9	8	10	15	12	10	10	9	10	8	13	15	9	8
14	14	12	30	25	9	20	10	8	9	10	10	15	10	10	11	15	11	11	9	9	8	9	15	13
15	8	14	10	26	15	10	10	8	12	13	14	9	9	10	13	E C 20	19	B	10	9	12	8	10	10
16	10	10	9	6	9	B	B	B	B	B	B	B	B	43	31	32	32	E S 20	B	15	21	E S 15	E C 14	E S 11
17	B	B	15	17	E S 29	B	B	17	10	E S 20	11	13	B	B	B	B	B	B	13	10	10	11	12	26
18	B	B	22	E S 27	E S 25	E S 19	B	15	10	19	B	B	B	B	B	B	31	B	31	B	10	B	18	9
19	B	E S 20	16	B	20	B	B	B	13	12	13	12	12	13	13	16	16	13	E S 12	10	9	8	E S 11	E S 26
20	B	B	B	15	20	12	27	13	16	20	16	B	B	47	B	36	49	B	32	12	13	16	B	14
21	E S 10	B	B	21	15	18	E S 20	B	B	B	B	B	B	B	E S 20	B	B	B	26	E C 15	11	10	6	6
22	E C 11	E S 9	E C 25	E S 10	E S 15	E S 14	E S 11	9	9	11	14	12	E S 17	10	11	10	E C 10	E S 12	12	12	9	9	9	E C 10
23	9	9	10	15	12	14	13	10	9	10	10	E S 18	E C 26	15	13	12	11	9	11	E C 10	9	9	E C 22	9
24	9	10	14	10	C	C	C	C	9	C	C	12	11	14	20	18	16	13	10	12	10	10	10	10
25	E S 9	13	6	20	16	23	14	20	27	20	24	11	12	10	10	10	10	12	9	9	9	8	9	9
26	20	12	14	B	B	15	B	B	B	B	12	B	B	B	B	B	B	B	B	10	10	10	8	30
27	44	15	9	15	B	B	B	B	30	B	B	B	B	B	B	B	B	16	23	26	15	12	13	8
28	14	B	25	E S 17	B	B	B	B	B	14	16	B	14	B	B	B	18	18	15	12	25	12	20	10
29	9	12	30	B	20	15	9	B	B	B	B	B	E S 20	B	B	B	B	B	C	C	C	9	E C 10	11
30	12	9	11	B	B	B	B	B	14	12	E S 18	14	20	18	15	10	B	B	B	15	B	26	8	11
31	8	10	25	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	12	B	9	15	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	30	30	30	30	31	30	30	31	31	31	31	31	31	31	30	30	30	31	31	31
MED	10	12	10	16	16	16	U 16	15	12	14	14	14	13	15	14	16	18	14	14	12	10	10	10	10
UQ	16	U 19	22	D B 27	U 22	B	B	B	26	B	B	B	D B 32	D B 47	B	B	42	B	32	21	14	15	12	13
LQ	8	10	9	12	12	12	10	9	10	10	10	10	11	11	10	11	10	12	10	10	9	9	9	9

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F-MIN (0.1 MHz)

IONOSPHERIC DATA

JAN. 1974

M(3000)F2 (0.01)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION	Lat. 69 00 .4 S		Long. 39 35 .4 E		Sweep MHz to 15 MHz in 30 sec in automatic operation																				
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F 280	R	A	A	A	B	R	270	R	B	R	R	R	F	F 270	B	B	295	R	B	F 320	F 335	315	A	
2	360	B	A	A	U F 335	R	B	A	245	270	245	270	265	280	280	285	285	305	B	295	F	R	325	295	
3	F 310	270	A	R	B	R	280	A	A	250	F	300	F 280	255	305	275	285	B	R	320	B	F 310	F	F	
4	F 295	300	F 295	B	A	R	B	R	F 260	265	280	275	R	R	275	300	285	305	B	R	300	320	R	F 310	
5	R	290	F 260	U F 320	A	F	F	A	F	R	245	255	F	R	265	B	R	265	305	325	300	F 335	305	A	
6	R	F	A	B	A	A	B	R	R	B	R	R	F	R	B	R	275	285	U F 310	335	F 305	F 295	F 315	305	
7	F 295	265	300	R	290	U F 250	305	F 265	280	270	270	260	265	290	300	R	290	295	325	325	325	315	320	310	
8	325	315	290	U F 265	290	295	U F 280	F 280	F 275	F 275	B	270	285	305	295	300	300	285	315	A	A	A	A	A	
9	A	265	F	F	F	U F 275	275	U F 265	275	270	F 275	300	270	295	280	260	260	290	315	355	325	310	315	F 300	
10	U F 335	F 270	300	260	F 260	U F 270	F	A	A	230	F 260	F	F 270	285	275	285	285	280	275	U F 295	280	F	R	B	
11	F	F	A	B	335	A	R	R	F 265	F 290	B	B	280	290	285	290	295	275	300	305	305	320	325	315	
12	F 295	300	F 260	F 270	F	F	F	F	F	F	F	F	280	305	290	310	275	290	290	290	F 275	F 325	F 325	320	
13	315	U F 285	F	290	F 260	250	F 290	270	U F 265	U F 270	F	F	U F 265	F 290	F 290	F 290	F 290	290	305	F	315	320	F 335	300	
14	R	A	285	R	F	A	F	280	F 265	260	275	275	265	285	280	285	305	300	300	310	320	F	R 290	285	
15	F	A	A	A	F	280	F	F	F	F	F	F	F	F 290	F 270	265	250	U R 235	B	F 325	F 325	F 275	F 280	320	320
16	A	A	F 260	F	F	B	B	B	B	B	B	B	B	245	270	250	265	U F 245	B	325	330	F 330	310	290	
17	B	B	F 280	A	U R 255	B	B	A	F 235	F 260	265	285	B	B	B	B	B	B	285	300	280	F 335	F 310	A	
18	B	B	R	A	R	B	B	265	F 260	255	B	B	B	B	B	B	R	B	R	B	R	B	300	F 310	
19	B	A	A	B	F	B	B	B	F	270	265	280	265	275	280	R	290	285	320	280	295	295	A	A	
20	B	B	B	F	F	F	R	R	A	R	245	B	B	275	B	295	265	B	290	305	295	F 310	B	315	
21	R	B	B	A	A	270	R	B	B	B	B	B	B	B	U F 260	B	B	B	U R 250	285	330	335	335	325	
22	310	300	F 310	310	F 295	F 270	F 290	F 275	275	265	265	285	295	285	295	290	300	310	280	310	335	335	300	F 310	
23	F	F	F 310	A	250	260	260	280	F	270	275	280	285	300	305	270	295	320	320	335	320	295	310	305	
24	305	295	300	F 305	C	C	C	C	F 280	C	C	290	305	300	315	300	340	335	320	340	350	310	340	F 300	
25	F 310	F	U F 310	A	A	A	F	R	A	A	R	A	R	F	G 220	F 225	R	A	A	A	A	A	A	F	
26	A	A	A	B	B	A	B	B	B	B	R	B	B	B	B	B	B	B	B	340	F 325	A	A	B	
27	B	A	F 295	A	B	B	B	B	A	B	B	B	B	B	B	B	B	275	R	325	280	A	R	A	
28	A	B	R	R	B	B	B	B	B	R	R	B	R	B	B	B	290	275	310	315	310	A	A	A	
29	A	A	A	B	A	R	A	B	B	B	B	B	R	B	B	B	B	B	C	C	C	F 315	A	R	
30	A	A	A	B	B	B	B	R	250	R	R	R	R	R	R	R	B	B	B	335	B	335	A	A	
31	F	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	350	B	U F 275	A	
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	12	11	14	7	9	9	8	9	12	17	13	14	15	17	21	17	21	20	19	23	24	21	20	17	
MED	F 310	F 290	F 295	F 290	F 290	F 270	F 280	F 270	F 265	F 270	265	278	280	285	280	285	285	290	305	315	312	F 320	F 315	310	
UQ	320	300	300	F 308	F 295	F 275	F 290	F 280	F 275	F 270	275	285	285	295	295	295	295	302	318	325	325	335	325	315	
LQ	F 295	F 270	F 280	F 268	F 260	F 260	F 270	265	F 260	F 260	260	270	265	275	270	270	275	278	290	298	295	F 310	308	F 300	

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M(3000)F2 (0.01)

IONOSPHERIC DATA

JAN. 1974

H^oF2 (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S.		Long. 39° 35' 4" E		Sweep		MHz to 15		MHz in 30		sec in automatic		operation												
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						A	B	R	415	R	B	R	R	R	430	400	B	B	360	R	B	280				
2							R	B	A	490	400	510	420	450	410	390	395	380	375	B	350	390	R		380	
3							R	R	A	A	460	375	395	450	490	395	440	380	B	R	280	B				
4							R	B	A	445	400	390	410	R	R	420	350	410	390	B		L				
5							F	F	A	F	R	540	475	500	U	F	R	B	R	460	L	295	330			
6							A	B	R	A	B	R	R	R	350	R	B	R	430	R	360	355	295	280		
7			300			350	430	325	410	390	410	375	465	440	365	350	R	395	365	305	L	L				
8						365	340	355	350	375	355	B	370	335	325	370	355	360	385	400						
9						U	F	380	400	355	400	370	340	440	370	420	470	470	375	325	290	275	R	260		
10						380	F	F	A	A	530	420	355	375	390	400	380	390	385	390	360					
11							A	A	A	450	340	B	B	380	375	395	400	385	420	340	L	L	280	240		
12			335			F	U	F	415	375	375	355	350	375	350	320	360	310	400	350	325	350	L			
13						440	F	480	360	350	370	340	350	350	400	350	340	380	L	345	320	L	L			
14						F	A	370	420	390	360	350	350	400	365	395	390	345	330	325	300	280				
15						U	F	480	400	F	375	340	375	395	380	360	420	425	440	525	B	310	L			
16							B	B	B	B	B	B	B	B	525	400	480	400	500	B						
17							B	B	A	550	440	430	395	B	B	B	B	B	B	B	360	320	350	L		
18							R	B	R	450	490	480	B	B	B	B	B	B	R	B	R	B	A			
19							B	B	B	500	400	430	410	430	R	430	425	R	375	L	300	350	350			
20						F	F	F	A	R	A	R	540	F	B	B	390	B	390	E	B	420	B	350	L	L
21							450	A	B	B	B	B	B	B	B	420	B	B	B	B	R	385				
22							450	415	375	350	370	380	340	380	380	400	385	375	L	L	300					
23							410	420	390	390	375	345	340	345	325	315	L	350	300	300	290	L				
24							C	C	C	330	C	C	340	340	340	330	370	300	300	L						
25							A	F	A	A	A	R	A	R	F	G	605	580	A	A						
26								B	B	B	B	R	B	B	B	B	B	B	B	B	B					
27								B	B	A	B	B	B	B	B	B	B	B	B	410	365	280	L			
28								B	B	B	R	R	B	R	B	B	B	B	400	415	350	L				
29								A	B	B	B	B	B	R	B	B	B	B	B	B	C	C				
30								B	B	R	500	R	R	R	R	R	R	R	B	B	B					
31								B	B	B	B	B	B	B	B	B	B	B	R	B	B					
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT			1	1	6	9	10	11	16	18	16	17	16	20	21	16	20	18	16	14	8	1	2	1		
MED			300	335	385	430	385	390	390	400	385	375	390	378	400	390	390	375	332	300	305	280	250	380		
UQ					F	440	450	415	412	470	440	430	410	440	425	420	440	410	410	358	350	350				
LQ						365	400	360	375	362	360	360	350	355	350	370	375	375	350	315	290	280				

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H^oF2 (KM)

IONOSPHERIC DATA

JAN. 1974

H'F (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S.		Long. 39° 35' 4" E		Sweep		MHz to 15 MHz in 30 sec		in automatic operation																			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	305	B	A	A	A	B	A	260	A	B	R	250	U	A	270	H	B	B	225	B	B	250	230	230	A				
2	260	B	A	A	E	A	A	A	260	200	200	200	210	215	220	210	225	B	250	S	250	250	295	305					
3	295	A	A	A	B	A	280	A	270	250	200	220	200	200	H	225	205	210	B	E	B	230	B	280	E	A	305		
4	280	290	A	B	A	A	B	A	250	210	195	200	200	230	A	H	230	200	225	B	230	250	250	A	315				
5	A	340	A	260	A	275	275	A	200	A	230	200	255	200	230	B	225	270	225	225	210	250	A	A					
6	A	A	A	B	A	A	B	A	A	B	R	210	H	190	245	B	225	220	260	225	245	250	275	250	280				
7	255	275	250	R	A	345	230	225	200	200	205	200	215	210	220	200	200	200	210	205	200	230	220	240	230				
8	250	245	290	U	R	430	A	290	200	205	200	200	B	195	205	230	215	210	200	225	H	195	A	A	A	A			
9	A	A	F	F	F	250	250	225	200	200	200	H	195	E	A	250	200	245	200	H	250	H	220	220	R	210	280		
10	265	315	325	420	F	H	270	260	A	A	A	225	230	240	200	245	225	220	230	220	250	250	A	A	A	B			
11	A	A	A	B	U	H	275	A	A	A	300	225	B	B	A	205	H	200	195	H	220	210	220	230	250	250	A	240	240
12	240	250	295	A	A	255	A	250	290	215	250	210	200	195	240	205	195	205	220	225	250	200	250	225	250	225	250		
13	250	260	275	300	A	F	H	190	200	H	200	230	205	200	240	A	230	245	250	210	210	230	255	240	240				
14	R	400	400	A	F	A	A	250	200	205	205	200	240	230	220	230	230	220	210	225	240	505	360	A					
15	F	280	A	A	A	320	A	H	180	200	250	240	220	190	180	225	220	220	A	B	220	230	F	300	F	405	330	340	
16	A	A	420	F	F	B	B	B	B	B	B	B	B	B	B	215	H	205	230	R	260	B	250	245	230	260	410		
17	B	B	A	A	A	B	B	A	225	200	200	210	B	B	B	B	B	B	B	220	210	270	250	U	C	A			
18	B	B	A	A	A	A	B	A	250	260	B	B	B	B	B	B	B	200	B	275	B	A	B	215	280				
19	B	A	A	B	A	B	B	B	240	200	240	255	245	230	220	210	220	210	230	250	240	255	B	A	A				
20	B	B	B	U	F	230	A	A	A	A	A	A	H	190	B	B	B	B	230	B	B	250	240	225	260	B	265		
21	R	B	B	A	A	A	A	B	B	B	B	B	B	B	B	225	B	B	B	B	250	245	230	240	250	250			
22	330	345	305	280	250	275	225	225	220	200	210	225	200	210	200	200	200	220	240	A	250	250	280	310					
23	H	310	310	A	A	A	A	290	200	190	200	H	200	H	200	240	225	200	200	225	225	225	230	225	240	C	240		
24	245	260	275	290	C	C	C	C	200	C	C	200	200	200	220	200	230	245	225	250	H	200	200	240	H	275			
25	325	F	250	A	A	A	220	A	A	A	A	A	225	230	250	245	230	A	A	A	A	A	A	A	A	A			
26	A	A	A	B	B	A	B	B	B	B	B	260	B	B	B	B	B	B	B	B	B	250	280	A	A	B			
27	B	A	F	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	275	E	A	280	250	220	A	A	A		
28	A	B	A	A	B	B	B	B	B	A	215	B	210	B	B	B	B	235	230	250	235	255	B	A	A	A			
29	A	A	A	B	A	A	F	250	B	B	B	B	B	B	A	220	B	B	B	B	B	C	C	C	255	A	A		
30	A	A	A	B	B	B	B	B	220	H	200	200	210	230	R	200	245	200	B	B	B	H	220	B	280	A	A		
31	390	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	230	B	B	B	240	B	360	A				
CNT	15	11	12	7	8	6	11	10	18	18	19	20	22	21	22	20	22	20	22	20	22	24	24	22	19	17			
MED	265	290	300	290	270	268	225	225	218	205	205	202	201	230	220	208	220	225	225	235	240	250	250	278					
UQ	300	328	325	360	300	275	250	260	250	240	225	218	222	240	225	222	230	248	245	250	250	260	288	305					
LQ	250	260	275	270	260	250	210	200	200	200	200	200	200	205	205	200	200	220	220	220	225	228	240	240	250				

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H'F (KM)

IONOSPHERIC DATA

JAN. 1974

H^oES (KM)

4.5 E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION	Lat. 69 00 .4 S, Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	115	B	100	105	100	B	105	G	105	B	G	110	125	G	G	B	B	B	B	B	130	130	120	125	
2	115 ^K	B	100	100	125	100	B	100	100	100	G	115	115	G	130	G	G	B	B	G	G	120	105 ^K	180	
3	105	120	110	120	B	120	110	110	105	120	G	100	105	G	100	100	B	B	B	130	B	G	G	130	
4	130	120	100	B	100	100	B	100	G	G	G	G	125	120	100	120	G	G	B	B	140	135	110	105	
5	120	150 ^K	100	105	100	100 ^K	180 ^K	115	G	120	120	G	120	G	G	B	B	G	125	125	G	G	110	105	
6	125	110	100	B	105	100	B	100	100	B	G	120	G	G	B	B	B	B	110	130	150	145	G	145	
7	100	140	130	115	110	105	100	115	150	G	G	110	110	110	100	100	G	130	115	110	120	125	115	115	
8	120	100	125	120 ^K	120	110	170	115	100	100	B	B	B	B	B	100	100	100	G	130	105	115	100	100	
9	100	130	100	180	100	100	G	G	G	100	G	G	110	100	105	120	115	110	115	110	105	G	100	105	
10	145	130	180 ^K	125 ^K	105	110	100	100	100	100	G	100	G	105	G	G	100	G	130	B	110	120	105	B	
11	105	125	100	B	100	100	110	100	100	G	B	B	120	120	110	G	G	G	G	G	120	120	110	100	
12	105	100	100	100	135	110	100	100	100	G	110	110	G	100	100	100	G	G	130	150	155	125	105	100	
13	100	105	100	105	130	110	130	125	110	G	G	100	110	100	100	100	100	100	105	100	G	130	125	130	
14	160 ^K	130 ^K	130 ^K	125	130	100	100	G	G	G	140	125	125	G	100	100	G	100	100	120	100	100	130 ^K	110	
15	150 ^K	110	105	170	115	110	100	G	150	100	100	G	G	105	100	G	105	B	100	115	140	105 ^K	105 ^K	110	
16	110	105	105 ^K	180	160	B	B	B	B	B	B	B	B	B	B	B	B	B	G	B	150	130	140	G	110 ^K
17	B	B	120	175	130	B	B	100	G	G	120	G	B	B	B	B	B	B	B	G	G	170	G	120 ^K	105
18	B	B	120	115	120	120	B	110	G	G	B	B	B	B	B	B	B	B	B	B	100	B	G	145	
19	B	105	110	B	100	B	B	B	G	G	G	G	120	G	G	G	G	G	150	130	G	G	120	120	
20	B	B	B	G	130	150	100	105	100	140	G	B	B	B	B	B	B	B	B	B	G	G	G	B	G
21	205 ^K	B	B	110	100	115	115	B	B	B	B	B	B	B	B	G	B	B	B	G	G	150	115	110	
22	110	125 ^K	125 ^K	115	150	G	G	G	100	130	100	130	G	G	120	G	145	155	125	120	115	110	G	160	
23	G	170	120 ^K	100	105	110	105	100	G	G	110	115	100	G	G	G	G	G	G	100	110	100	100	C	G
24	100	100	100	100	C	C	C	C	G	C	C	105	100	105	105	G	G	G	110	105	110	100	105	110	
25	150	190	130	100	100	125	100	110	140	100	100	150	150	G	160	105	G	110	100	105	100	105	100	105	
26	110	100	100	B	B	110	B	B	B	B	100	B	B	B	B	B	B	B	B	B	105	G	110	120	125
27	160	100	150	120	B	B	B	B	110	B	B	B	B	B	B	B	B	B	150	130	B	150	110	115	120
28	115	B	105	120	B	B	B	B	B	100	G	B	G	B	B	B	B	G	G	170	G	B	105	120	110
29	110	110	110	B	110	100	145	B	B	B	B	B	120	B	B	B	B	B	C	C	C	C	115	110	
30	110	110	120	B	B	B	B	B	G	G	G	G	125	G	G	G	B	B	B	G	B	B	100	100	
31	110	100	105	B	B	B	B	B	B	B	B	B	B	B	B	B	G	B	B	B	150	B	105	115	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	24	29	22	24	21	16	16	15	11	9	13	16	9	13	9	6	8	16	17	20	21	24	28	
MED	112	110	105	115	110	110	108	102	100	100	110	110	120	105	100	100	102	110	115	120	120	120	110	110	
UQ	130	130	120	125	130	110	122	112	110	120	120	120	125	110	110	105	115	140	130	130	145	130	120	125	
LQ	105	102	100	105	100	100	100	100	100	100	100	105	110	100	100	100	100	100	102	110	105	105	105	105	

The Radio Research Laboratories, Japan

JAN. 1974

H^oES (KM)

IONOSPHERIC DATA

JAN. 1974

TYPES OF ES

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S		Long. 39° 35' 4" E		Sweep		MHz to 15 MHz in 30 sec		in automatic operation															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	LR 11		R 2	L 1	R 1		R 1		R 1			R 1	C 1								C 1	R 1	L 1	R 1	
2	CK 11		R 1	R 1	LL 11	R 1		R 1	R 1	R 1		C 1	C 1		L 1							R 1	RK 33	R 1	
3	R 1	R 1	R 1	R 1		R 1	R 1	L 1	L 1	C 1		R 1	R 1		R 1	R 1				C 1				C 1	
4	C 1	L 1	R 2		R 1	R 1		R 1					C 1	C 1	L 1	C 1					C 11	C 1	R 1	R 1	
5	R 1	CK 11	R 2	R 1	R 1	K 2	HRK 11	R 1		R 1	C 1		C 1						C 1	C 1			R 2	R 5	
6	R 1	R 2	L 1		R 1	L 1		R 1	R 1			L 1							LC 11	C 1	HC 11	R 1		C 1	
7	L 1	C 1	C 1	C 1	L 1	L 2	L 1	C 1	C 1			C 1	C 1	R 1	L 1	L 1		C 1	C 1	C 1	C 1	C 1	L 1	C 1	
8	C 1	L 1	C 2	RK 11	C 1	C 1	HL 11	C 1	C 1	L 1					L 2	R 1	L 1	L 1	R 1	R 2	R 1	R 1	R 2		
9	RH 21	RR 22	LC 11	HR 11	R 2	RL 11				L 2			C 2	L 1	C 1	C 1	C 1	C 2	C 1	C 1	R 2		L 2	L 1	
10	RR 11	C 2	HK 11	K 1	R 2	R 1	R 1	R 1	R 2	R 1		R 1		L 1			L 2		R 1		R 1	R 1	R 1		
11	R 1	RL 11	R 2		L 1	R 1	R 1	R 1	R 2				C 1	C 1	C 1						C 2	C 2	C 1	L 1	
12	L 1	L 1	LR 21	LR 22	CC 11	R 2	R 2	L 2	L 2		C 1	R 1		L 1	C 2	L 1			C 1	R 1	C 1	CL 11	L 2	L 2	
13	L 3	R 1	L 2	R 2	L 1	R 1	R 1	R 1	C 1			L 1	C 1	L 1	L 2	L 2	L 3	L 2	C 1	L 1		C 1	L 1	C 1	
14	HK 11	CK 21	CK 11	R 1	R 1	L 1	R 2				C 1	C 1	C 1		L 2	L 2		L 1	L 2	C 1	R 2	R 2	RK 11	R 1	
15	RR 11	R 1	R 2	HR 11	L 1	RL 11	R 2		C 1	R 1	R 1			R 1	L 1		R 1		L 1	C 1	C 1	K 4	K 3	K 3	
16	R 2	R 2	RK 31	HC 11	R 1															R 1	C 1	C 1		K 3	
17			R 2	HR 11	R 1			L 1			C 1										R 1		RK 21	R 1	
18			R 1	R 1	R 1	R 1		R 2													R 2			C 1	
19		R 1	R 1		LR 11									C 1						C 1	C 1		R 2	R 1	
20					R 1	C 1	R 1	L 1	R 1	C 1															
21	HK 11			R 1	R 1	R 1	R 1															R 1	L 1	L 1	
22	R 1	CK 11	CK 11	R 1	R 1				L 1	C 1	L 1	C 1			C 1		C 1	C 1	C 1	C 2	C 2	C 2		RL 11	
23		RR 11	K 2	R 1	R 1	R 2	R 1	R 1			C 1	C 1	R 1						L 2	C 1	L 1	L 1	L 1		
24	L 2	L 1	L 1	L 1								R 1	R 1	L 1	L 1				C 1	L 2	L 1	L 1	L 1	LR 11	
25	H 1	HL 11	RC 11	R 1	R 1	R 1	R 1	R 1	RR 11	R 1	R 1	RR 11	RR 11		H 1	C 1		RS 11	R 2	R 1	R 1	R 2	R 1	R 1	
26	RR 11	R 1	R 1			R 1						R 1									R 1		LR 13	R 1	
27	RL 11	R 1	H 1	LR 11					L 1										C 1	C 1		C 1	R 1	R 1	R 1
28	R 1		L 1	R 1						R 1										H 1		R 1	R 1	R 2	
29	R 2	R 1	R 1		R 1	R 1	C 1							C 1									R 1	R 1	
30	R 1	R 2	R 1											C 1									R 2	R 1	
31	RR 11	R 1	R 1																		H 1		R 1	R 1	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

JAN. 1974

TYPES OF ES

IONOSPHERIC DATA

FEB. 1974

FXI (0.1 MHZ)

45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69 00.4 S Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	0 R 38	B	B	0 R 37	B	B	0 R 44	0 R 47	0 R 50	0 R 51	0 R 50	0 R 48	R	R	R	R	0 R 51	X 49	X 46	41	A	0 R 36	
2	A	B	A	A	B	0 R 36	B	R	0 R 52	0 R 45	0 R 48	R	0 R 48	R	R	0 R 49	B	R	B	0 R 46	0 R 42	0 R 37	0 R 37	37	
3	27	A	A	B	38	B	B	B	B	B	B	X 58	0 R 49	X 55	0 R 52	B	B	B	0 R 52	X 51	X 50	X 50	X 50	45	
4	R	A	B	A	0 R 50	B	A	A	A	R	R	49	R	R	R	B	R	R	0 R 48	X 49	X 52	X 49	R	A	
5	35	32	40	40	A	0 R 45	A	0 A 46	X 53	R 56	X 59	X 60	X 61	X 60	A	X 55	X 52	0 R 50	X 50	B	0 R 42	0 R 47	41	A	
6	A	A	A	X 36	45	0 R 40	A	A	45	X 49	X 51	X 53	X 52	0 R 51	0 R 50	X 52	X 49	X 49	0 R 49	0 R 46	X 46	34	A	A	
7	A	A	B	A	A	A	R	A	A	40	X 52	R	0 R 50	0 R 54	0 R 57	X 54	X 55	0 R 51	B	0 R 49	X 48	41	A	A	
8	A	34	0 R 34	39	47	52	X 53	X 55	X 56	X 56	X 59	X 60	X 62	X 58	X 55	X 52	0 R 53	X 51	X 51	X 50	X 38	B	34	35	
9	38	34	34	A	R	34	X 50	X 56	X 58	X 59	X 60	X 59	X 60	X 56	X 54	0 R 50	X 50	X 49	X 50	X 51	X 50	X 47	X 49	50	
10	46	R	A	A	0 R 44	A	0 R 50	0 R 50	59	60	65	70	X 72	R	R	0 R 55	X 57	X 56	X 55	X 50	X 48	A	62	40	
11	A	A	0 R 40	A	A	0 R 46	R	B	B	0 R 51	R	B	R	X 47	X 56	X 58	0 R 56	R	R	R	R	39	A	A	A
12	42	A	B	B	0 R 45	0 R 40	B	A	B	B	B	B	B	B	0 R 49	0 R 51	B	R	B	R	0 R 46	35	37	32	A
13	A	A	A	B	A	R	0 R 48	X 49	0 R 47	B	0 R 53	B	0 R 53	B	B	B	B	X 59	R	0 R 44	0 R 37	34	A	A	
14	A	A	A	A	B	B	0 R 49	B	0 R 45	51	50	0 R 51	0 R 56	0 R 54	B	B	61	X 56	0 R 51	0 R 47	X 44	X 41	40	A	
15	A	A	35	0 R 35	A	0 R 44	X 48	X 48	0 R 53	X 58	X 59	X 57	58	X 56	R	R	0 R 52	X 53	0 R 53	0 R 51	X 51	47	X 46	47	
16	46	42	36	45	52	52	58	60	62	66	69	64	0 R 62	X 59	61	60	59	57	56	X 56	X 55	X 55	R	A	
17	C	C	C	C	C	C	C	C	C	C	0 R 61	0 R 53	65	0 R 66	0 R 58	B	B	B	B	B	0 A 49	0 R 44	R	A	
18	A	A	A	0 R 31	41	X 43	X 50	X 55	X 58	X 62	X 65	X 64	0 R 59	X 57	X 56	0 R 52	X 52	X 52	X 50	X 50	X 46	X 48	X 47	X 47	
19	X 48	X 46	46	46	53	59	X 56	X 60	X 62	X 63	X 69	R	R	76	R	0 R 64	0 R 61	0 R 56	X 54	X 50	X 55	X 48	46	41	
20	41	40	37	A	52	R	56	70	64	65	0 R 62	X 63	0 R 67	X 69	X 68	X 62	X 57	X 55	X 56	50	R	R	A	A	
21	A	A	A	A	A	B	B	R	A	B	R	R	0 R 46	B	B	B	0 R 56	X 52	R	R	41	A	A	A	
22	A	A	A	A	A	B	R	A	B	B	B	R	C	R	B	B	B	C	0 R 46	X 50	0 R 50	X 41	32	A	
23	B	A	B	B	B	R	C	A	B	R	B	B	B	B	B	R	0 R 56	0 R 46	B	0 R 34	R	0 R 34	A	B	
24	A	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0 R 56	B	61	B	A	A	
25	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	56	B	B	0 R 29	R	B	A	
26	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	X 44	B	B	A	R	A	
27	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0 R 34	R	30	A	
28	A	B	A	A	B	B	0 R 45	B	B	B	B	B	B	B	B	B	0 R 52	B	R	0 R 36	0 R 29	A	R	A	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	8	6	9	7	10	12	10	10	14	16	15	15	16	17	12	13	16	16	17	20	25	18	13	9	
MED	42	37	37	39	46	0 R 44	50	55	54	56	X 59	X 58	58	X 56	56	X 53	56	X 52	X 51	50	X 46	42	41	41	
UQ	46	42	40	42	52	49	X 56	60	X 59	61	X 64	X 62	62	X 59	60	X 58	57	X 56	X 53	X 50	X 50	X 48	X 47	47	
LQ	36	34	35	36	44	0 R 38	0 R 46	0 R 48	0 R 48	48	X 52	53	0 R 50	0 R 53	53	52	52	X 50	X 50	0 R 46	39	37	34	37	

The Radio Research Laboratories, Japan

FEB. 1974

FXI (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1974

FOF2 (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station	SYOWA STATION																							
	Lat. 69° 00.4' S.												Long. 39° 35.4' E.											
	Sweep MHz to 15 MHz in 30 sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	U ₃₂ R	B	B	31	B	B	U ₃₈ R	F ₄₁	44	45	44	42	R	R	R	R	45	42	40	U ₃₅ F	A	30
2	A	B	A	A	B	F	B	R	46	39	42	R	42	R	R	45	B	R	B	40	36	31	31	27
3	F ₂₁	A	A	B	F	B	B	B	B	B	B	51	43	49	U ₄₆ R	B	B	B	46	45	44	44	44	38
4	R	A	B	A	U ₄₁ F	B	A	A	A	R	R	U ₄₂ F	R	R	R	B	R	R	42	42	46	42	R	A
5	U ₂₅ F	F ₂₅	F ₃₃	33	A	39	A	40	47	50	53	53	55	54	A	47	46	44	44	B	36	41	F ₃₅	A
6	A	A	A	J ₃₀ A	F	F ₃₂	A	A	F ₃₉	43	45	47	46	45	44	46	43	42	43	40	40	U ₂₇ F	A	A
7	A	A	B	A	A	A	R	A	A	F ₄₃	46	R	44	47	51	48	49	45	B	43	42	F ₃₂	A	A
8	A	F ₂₈	28	F ₃₂	E ₃₇	F ₄₁	47	49	50	50	53	54	55	51	49	46	47	45	45	43	31	B	F ₂₈	F ₂₇
9	F ₃₀	F ₂₇	F ₂₉	A	R	F ₃₈	44	F ₅₀	52	53	53	53	53	50	48	U ₄₄ R	44	42	43	45	44	41	42	44
10	F ₃₈	R	A	A	U ₃₇ F	A	U ₄₄ R	46	F	F ₅₂	F ₅₇	U ₆₂ F	U ₆₆ R	R	57	49	51	50	47	46	41	A	F	F
11	A	A	34	A	A	40	R	B	B	45	R	B	U ₄₉ R	50	50	52	50	R	R	R	F ₃₁	A	A	A
12	F ₃₄	A	B	B	39	F	B	A	B	B	B	B	B	43	45	B	R	B	R	40	U ₂₈ F	31	F ₂₆	A
13	A	A	A	B	B	A	R	42	43	U ₄₁ R	B	U ₄₆ F	B	U ₄₆ F	B	B	B	53	R	38	31	F ₂₈	A	A
14	A	A	A	A	B	B	F ₄₀	B	U ₃₉ F	F ₄₄	43	45	50	48	B	B	55	50	45	39	38	35	U ₂₇ F	A
15	A	A	F ₂₉	29	A	38	42	41	47	51	53	51	52	50	I ₄₅ R	46	46	47	47	45	45	F ₄₀	40	F ₄₁
16	F ₄₀	F ₃₅	F ₃₀	F ₃₃	U ₃₃ F	U ₄₀ F	F ₅₀	F ₅₂	55	F ₆₀	62	59	56	53	55	53	F ₅₂	U ₄₉ F	50	50	49	47	R	A
17	C	C	C	C	C	C	C	C	C	C	45	47	59	60	52	B	B	B	B	B	A ₄₃	38	R	A
18	A	A	A	25	R	37	44	49	52	56	59	58	53	51	50	46	46	45	44	44	40	42	40	41
19	42	40	F ₃₉	F ₃₉	F ₃₉	F ₄₄	50	54	56	57	62	R	R	70	R	58	55	50	48	44	49	41	F	U ₃₄ F
20	J ₃₂ F	J ₃₄ F	F ₂₈	A	F	R	F ₅₀	F	F	U ₅₇ F	U ₅₆ R	57	61	63	62	55	51	49	50	F ₄₂	R	R	A	A
21	A	A	A	A	A	B	B	R	A	B	R	R	U ₄₀ R	B	B	B	F ₅₀	45	R	R	F	A	A	A
22	A	A	A	A	A	B	R	A	B	B	B	R	C	R	B	B	B	C	40	43	44	35	F ₂₅	A
23	B	A	B	B	B	R	C	A	B	R	B	B	B	B	B	R	50	40	B	R ₂₈	I ₂₈ R	28	A	B
24	A	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	50	B	F ₃₅	B	A	A
25	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	50	B	B	23	R	B	A
26	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	38	B	B	A	R	A
27	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	F ₂₈	R	J ₂₅ F	A
28	A	B	A	A	B	B	U ₃₉ R	B	B	B	B	B	B	B	B	B	46	B	R	U ₃₀ R	23	A	R	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	8	6	9	7	6	10	10	9	12	16	15	15	17	17	13	13	16	16	17	20	25	18	11	8
MED	F ₃₃	F ₃₁	F ₃₀	32	F ₃₈	38	44	49	47	50	53	51	52	50	50	47	50	46	45	42	40	36	31	F ₃₆
UQ	F ₃₉	F ₃₅	F ₃₅	F ₃₅	F ₃₉	F ₄₀	50	50	52	54	56	56	55	53	52	52	51	50	47	44	44	41	40	F ₄₁
LQ	F ₂₈	F ₂₇	F ₂₉	30	U ₃₇ F	37	42	42	41	43	45	46	44	47	46	46	46	44	43	40	31	31	F ₂₆	F ₂₈

The Radio Research Laboratories, Japan

FEB. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

FEB. 1974

FOF1 (0.01 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S.		Long. 39° 35' 4" E		Sweep		MHz to 15		MHz in 30		sec in automatic		operation												
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1								B	B	360	370	370	380	390	380	390	U R 380	380	370	350	L					
2								B	A	350	360	360	380	380	390	380	380	B	360	B	L					
3								B	B	B	B	B	390	400	390	390	B	B	B	L						
4								A	A	A	360	370	380	390	380	380	B	370	350	360	L	L				
5								A		330	360	A	370	A	A	A	A	400	U L 370	L						
6								A	A	350	370	370	380	390	400	390	390	H 390	380	L		L				
7								A	A	A	370	380	390	H 400	400	400	400	380	390	B		L				
8						310	330	350	360	370	380	390	400	A	400	400	390	L	L	L						
9						300	330	350	360	380	400	400	390	410	410	410	L									
10								A	A	400	F 390	390	H 400	I B 400	410	400	390	L	L							
11								U F 330	B	B	R	R	B	390	400	400	400	380	R	A						
12						F 280		B	A	B	B	B	B	380	380	B	U R 350	B	R	340						
13								A	A	360	370	B	380	B	R 380	B	B	B	360	370						
14								L	B	A	370	370	380	380	380	B	B	380	370	350						
15								A	340	U R 350	360	380	400	400	410	410	400	400	L	L						
16						310	350	360	370	A	390	420	400	R	410	400	L	L	L							
17								C	C	C	C	A	B	390	B	B	B	B	B							
18						L	320	350	L	370	370	380	400	400	400	400	U L 380	A								
19						L	320	350	370	380	390	R	A	A	400	400	380	L								
20						B	320	F 350	380	380	U R 390	390	390	H 410	400	400	L	L	L	L						
21								B	A	A	B	R	R	U R 360	B	B	B	350	350	A						
22								A	A	B	B	B	380	I C 380	370	B	B	B	C							
23								C	A	B	A	B	B	B	B	B	R	B	350	B						
24								B	B	B	B	B	B	B	B	B	B	B	B							
25								B	B	B	B	B	B	B	B	B	B	B	350	B						
26									B	B	B	B	B	B	B	B	B	B	B	B	L					
27									B	B	B	B	B	B	B	B	B	B	B	B						
28									B	B	B	B	B	B	B	B	B	350	B							
29																										
30																										
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT						4	7	8	13	14	15	16	18	16	16	13	15	11	4	1						
MED						305	330	350	360	370	380	390	390	395	400	400	380	360	355	340						
UQ						310	330	350	370	380	390	400	400	400	405	400	390	370	365							
LQ						290	320	345	360	370	370	380	390	380	390	400	375	350	350							

FEB. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

FEB. 1974

FOE (0.01 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S		Long. 39° 35' 4" E		Sweep MHz to 15 MHz in 30 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	A	A	A	B	B	A	B	B	250	260	B	270	A	A	A	270	270	250	240	220	U R	155	A	A	A			
2	B	B	B	B	B	A	B	A	250	260	280	280	290	270	265		R	B	B	B	U R	200	R	B	150	105		
3	U A	A	A	B	A	B	B	B	B	B	B	280	280	280	275		B	B	B	230	200	170	165	130	110			
4	A	A	B	A	A	B	A	A	A	300	280	275	280	280	275		B	R	U R	U R	200	175	H	U A	A			
5	150	U A	A	A	A	A	A	A	280	A	280	290	280	270	250	260	240	240	H	260	B	A	160	U F	A			
6	B	B	A	A	200	A	A	A	280	A	270	I C	275	260	A	265	260	245	230	200	H	200	H	A	A			
7	A	A	B	B	B	A	A	B	A	A	260	290	275	280	250		A	A	250	B	B	180	F	A	A			
8	A	A	A	190	200	200	F	220	250	260	A	260	A	275	270	250		A	A	230	195	150	B	U A	110			
9	100	U A	A	A	C	A	225	230	H	A	265	260	280	260	U A	280	280	270	260	250	H	A	A	A	A			
10	U A	A	A	A	A	A	A	A	F	280	280	260	280	U R	I B	U R	A	270	A	210	180	170	A	A	A			
11	A	A	180	B	A	A	260	B	B	A	A	B	275	270	260	U R	265	250	A	A	200	200	A	A	A			
12	K	A	B	B	A	180	B	A	B	B	B	B	B	275	A	B	B	B	B	B	A	R	H	180	185	A		
13	A	A	A	B	B	A	B	A	U A	265	A	B	A	B	R	B	B	B	B	225	B	A	180	B	A			
14	A	A	B	B	B	B	A	B	A	A	275	275	280	260	B	B	250	250	R	190	A	150	F	A	A			
15	A	A	A	A	B	A	A	240	A	240	250	280	275	270	265	265	250	235	H	200	H	180	B	130	A			
16	95	A	125	A	100	H	A	310	K	250	A	290	275	R	R	A	275	265	250	F	200	B	B	B	A			
17	C	C	C	C	C	C	C	C	C	C	A	B	290	B	B	B	B	B	B	B	B	B	A	A	A			
18	B	B	A	A	A	170	180	220	230	250	250	250	250	A	265	270	265	255	245	220	180	180	A	A	A			
19	100	95	95	100	115	115	A	220	240	250	250	B	A	A	280	260	B	250	220	H	200	A	B	A	A			
20	S	A	C	B	A	B	255	220	A	220	230	R	U R	A	270	270	255	A	230	205	170	B	A	A	A			
21	B	S	A	B	A	B	B	A	A	B	A	A	B	B	B	B	250	B	A	A	A	A	A	B	B			
22	A	S	A	A	A	B	A	A	B	B	B	290	I C	270	260	B	B	B	C	A	195	B	130	120	A			
23	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	A	B	B	B	B	B	A	B	A	B			
24	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	160	B	A	B			
25	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	230	B	B	190	B	B	B			
26	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	240	B	B	A	B	A			
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A			
28	B	B	A	A	B	B	A	B	B	B	R	B	B	B	B	B	B	B	B	B	B	160	A	A	A			
29																												
30																												
31																												
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	8	3	3	2	4	5	6	7	11	10	13	16	14	16	14	11	12	13	15	15	13	10	8	3				
MED	105	U A	125	145	158	170	212	220	250	260	270	278	278	270	270	265	250	245	225	200	175	162	140	110				
UQ	140	U A	152		200	180	255	235	272	265	280	280	280	280	275	268	260	250	235	200	180	180	152	110				
LQ	100	102	110		108	170	180	220	245	250	260	270	275	268	265	260	250	240	220	192	160	160	125	108				

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FEB. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

FEB. 1974

FOES (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S		Long. 39° 35' 4" E		Sweep		MHz to 15		MHz in 30		sec in automatic		operation												
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		33	36	31	B	B	33	B	B	G	G	E ₂₈	G	32	30	29	G	G	G	23	G	G	28	36	34	
2		39	B	49	40	B	22	B	39	40	G	G	G	G	28	G	G	B	E ₂₆	B	G	G	E ₂₀	19	16	
3		28	J ₃₉	37	B	31	B	B	B	B	B	G	G	G	30	B	B	B	27	35	J ₄₄	J ₂₈	23	21		
4		31	J ₄₁	B	41	31	B	56	D ₅₀	46	36	G	G	G	29	G	B	G	G	G	25	23	G	J ₂₂	32	
5		G	22	26	30	49	38	40	J ₆₄	J ₃₅	J ₅₀	J ₃₅	J ₅₀	J ₆₉	J ₄₈	J ₇₅	43	29	30	29	B	24	G	J ₂₄	36	
6		43	38	42	32	J ₂₈	32	49	46	J ₈₉	30	G	30	32	31	36	G	G	G	G	22	24	G	34	34	
7		38	40	B	38	42	56	39	D ₅₃	41	34	G	G	G	30	34	29	29	G	B	E ₃₇	J ₃₄	25	30	50	
8		32	J ₂₈	30	J ₃₀	J ₂₇	J ₃₄	25	30	G	G	29	J ₃₅	36	J ₄₄	34	28	28	31	G	G	23	B	15	12	
9		15	20	27	35	33	32	G	G	32	32	G	G	J ₃₉	30	32	30	29	G	G	J ₂₉	J ₄₀	J ₃₇	J ₃₈	J ₃₀	
10		J ₂₉	30	J ₄₁	J ₄₀	J ₄₀	J ₄₇	40	35	G	G	60	32	G	E ₄₄	G	29	27	27	23	G	21	39	J ₁₀₄	J ₅₂	
11		46	J ₆₂	33	51	52	39	G	B	B	29	36	B	G	32	G	25	G	34	36	24	G	J ₄₁	J ₁₀₈	50	
12		K ₂₈	51	B	B	33	35	B	46	B	B	B	B	B	G	27	B	E ₃₁	B	30	28	G	G	24	34	
13		37	33	34	B	B	43	36	40	33	32	B	32	B	G	B	B	B	E ₃₀	28	E ₂₆	J ₃₄	G	77	38	
14		J ₅₃	J ₃₈	51	45	B	B	28	B	33	30	G	G	G	G	B	B	G	30	G	40	32	20	J ₂₄	33	
15		33	36	32	J ₃₃	36	34	31	G	30	26	G	J ₅₇	G	G	G	G	G	G	22	G	21	18	16	13	
16		G	11	G	16	12	G	J ₃₆	K ₃₁	G	40	G	33	G	G	J ₅₈	27	G	G	28	25	E ₂₂	E ₂₀	31	36	
17		C	C	C	C	C	C	C	C	C	C	C	C	C	C	E ₄₀	E ₄₃	E ₄₅	E ₄₅	B	B	B	B	B	B	35
18		43	32	28	29	28	G	G	G	G	30	37	J ₃₉	43	G	32	G	G	J ₃₇	30	J ₃₄	25	34	17	11	
19		G	26	J ₂₂	18	J ₂₂	G	19	J ₂₄	30	27	46	36	40	41	G	G	E ₃₀	29	25	26	J ₂₂	J ₅₄	J ₃₃	J ₂₇	
20		G	J ₂₄	28	J ₃₄	41	E ₃₆	47	25	G	G	G	G	29	G	26	29	J ₃₂	G	G	26	36	35	39	38	
21		33	33	J ₆₁	52	J ₄₉	B	B	41	52	B	35	33	E ₃₀	B	B	B	G	E ₂₈	39	36	J ₄₀	39	39	43	
22		J ₆₂	D ₅₅	J ₇₄	J ₅₉	46	B	D ₃₇	41	B	B	B	G	C	G	B	B	B	C	28	32	37	G	G	35	
23		B	J ₆₃	B	B	B	31	C	47	B	38	B	B	B	B	B	33	E ₃₈	E ₂₉	B	E ₂₅	24	24	38	B	
24		38	40	39	28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	27	B	G	B	39	39	
25		43	B	23	B	B	B	B	B	B	B	B	B	B	B	B	B	B	28	B	B	E ₂₀	G	B	45	
26		31	30	J ₇₆	44	B	B	B	B	B	B	B	B	B	B	B	B	B	B	28	B	B	35	D ₁₇	35	
27		B	33	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	23	26	32	39	
28		38	B	J ₂₈	33	B	B	34	B	B	B	B	B	B	B	B	B	E ₃₀	B	32	E ₂₄	G	J ₃₁	16	34	
29																										
30																										
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		25	24	22	20	17	17	17	18	17	18	18	20	19	21	18	15	19	20	22	22	27	26	27	27	
MED		33	34	32	34	33	34	36	40	32	30	E ₂₈	30	E ₂₉	E ₂₉	29	27	E ₂₇	E ₂₈	27	25	23	25	32	35	
UQ		39	40	42	42	42	38	40	46	40	34	36	35	34	31	34	29	29	30	29	30	34	35	38	38	
LQ		28	29	28	30	28	31	25	25	G	G	G	G	G	G	G	G	G	G	G	E ₂₂	E ₂₀	G	21	31	

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FEB. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1974

F-MIN (0.1 MHZ)

°
45 E Mean Time (G. M. T.+ 3 h)

Station	SYOWA STATION																							Lat. 69 00.4 S.	Long. 39 35.4 E	Sweep	MHz to 15 MHz in 30 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																									
1	9	11	9	B	B	10	B	B	E ₂₀ S	12	28	11	13	13	13	13	14	15	12	15	14	9	13	9																									
2	21	B	21	23	B	12	B	14	10	11	27	10	11	10	10	14	B	26	B	20	19	20	11	9																									
3	7	E ₉ S	E ₁₂ S	B	13	B	B	B	B	B	B	E ₂₀ S	13	10	16	B	B	B	15	14	12	15	11	9																									
4	9	9	B	16	12	B	20	19	26	13	10	11	10	10	15	B	20	20	9	15	10	9	10	10																									
5	9	8	9	10	24	11	13	10	8	9	9	10	11	10	10	10	10	11	9	B	16	13	10	10																									
6	16	15	10	10	9	15	11	12	10	10	10	E ₂₈ C	E ₁₃ C	11	10	9	10	10	15	14	13	10	9	E ₁₅ C																									
7	13	13	B	20	26	23	22	26	18	12	12	13	10	19	19	11	10	15	B	37	17	10	8	10																									
8	10	8	8	9	8	10	9	9	9	10	10	12	11	13	11	16	21	12	10	9	10	B	9	9																									
9	7	7	8	15	E ₂₃ C	11	9	9	9	10	10	15	12	11	10	11	14	10	10	10	10	9	9	7																									
10	E ₁₀ C	9	12	13	12	15	20	14	10	9	10	9	15	44	16	22	15	14	10	10	9	9	10	9																									
11	12	9	14	20	13	8	10	B	B	20	19	B	23	20	16	12	20	20	16	16	12	8	9	8																									
12	9	15	B	B	10	14	B	16	B	B	B	B	B	26	14	B	31	B	26	14	12	12	10	8																									
13	E ₁₂ C	9	9	B	B	15	25	12	15	21	B	20	B	19	B	B	B	31	16	26	10	12	20	10																									
14	10	7	19	21	B	B	15	B	14	10	12	14	14	19	B	B	20	16	22	E ₁₅ C	16	10	8	10																									
15	9	14	12	11	25	15	10	10	23	18	13	13	E ₂₀ C	12	14	13	13	11	14	12	14	13	12	8																									
16	8	8	9	9	9	9	11	11	18	13	18	12	20	21	13	E ₁₃ C	10	10	10	10	22	20	15	9																									
17	C	C	C	C	C	C	C	C	C	C	10	43	22	45	45	B	B	B	B	B	23	14	7	8																									
18	15	13	11	10	10	9	10	E ₁₅ C	10	11	E ₁₃ C	10	14	11	10	11	10	12	10	10	9	11	8	7																									
19	7	E ₉ C	6	8	8	9	8	10	10	10	10	27	27	21	20	19	30	21	15	12	11	15	9	9																									
20	9	9	E ₁₄ C	16	13	36	14	11	10	12	20	16	11	10	11	11	11	10	10	9	20	13	10	12																									
21	14	E ₁₈ S	10	21	15	B	B	21	20	B	20	19	30	B	B	B	20	28	15	11	10	12	13	13																									
22	9	E ₂₀ S	9	9	E ₉ S	B	E ₁₀ S	E ₁₁ S	B	B	B	E ₂₅ S	C	25	B	B	B	C	20	19	21	12	8	9																									
23	B	14	B	B	B	20	B	26	B	25	B	B	B	B	B	20	38	29	B	25	14	15	10	B																									
24	19	12	30	21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	22	B	B	13	25																									
25	18	B	19	B	B	B	B	B	B	B	B	B	B	B	B	B	B	18	B	B	20	10	B	17																									
26	10	12	22	20	B	B	B	B	B	B	B	B	B	B	B	B	B	B	15	B	B	10	12	8																									
27	B	13	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	12	10	11	11																									
28	16	B	10	13	B	B	20	B	B	B	B	B	B	B	B	B	30	B	27	24	15	8	10	9																									
29																																																	
30																																																	
31																																																	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																									
CNT	27	27	27	27	27	27	27	27	27	27	28	28	27	28	28	28	28	27	28	28	28	28	28	28																									
MED	10	10	12	20	23	15	20	16	20	13	20	U ₁₇	20	20	16	21	20	20	15	15	14	12	10	9																									
UQ	16	14	22	D ₂₃ B	B	B	B	B	B	B	B	B	D ₄₅ B	B	B	B	D ₃₁ B	26	32	18	14	12	10																										
LQ	9	9	9	10	10	11	10	10	10	10	10	12	12	11	12	12	14	12	10	11	10	10	9	8																									

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FEB. 1974

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1974

M(3000)F2 (0.01)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	U R 280	B	B	325	B	B	R	F	275	280	285	260	R	R	R	R	300	295	300	U F 305	A	A
2	A	B	A	A	B	F	B	R	305	240	260	R	255	R	R	R	B	R	B	300	335	325	325	340
3	265	A	A	B	F	B	B	B	B	B	B	295	R	290	R	B	B	B	305	325	320	315	320	315
4	R	A	A	A	U F 285	B	A	A	A	R	R	U F 260	R	R	R	B	R	R	315	305	325	325	R	A
5	F	320	290	A	A	A	A	A	265	A	270	275	300	315	A	320	305	305	290	B	320	295	330	A
6	A	A	A	A	F	250	A	A	240	255	260	275	260	290	275	325	280	285	310	335	305	F	A	A
7	A	A	B	A	A	A	R	A	A	F	280	R	245	270	315	275	290	265	B	350	320	315	A	A
8	A	285	270	280	285	275	275	280	270	265	275	285	300	295	285	300	300	310	295	300	325	B	300	300
9	325	295	275	A	R	F	275	270	290	270	275	280	285	300	290	R	305	325	320	320	335	325	330	315
10	290	R	A	A	F	A	U R 295	295	F	265	275	U F 285	275	R	320	295	315	305	325	310	305	A	F	F
11	A	A	255	A	A	275	R	B	B	230	R	B	R	295	265	290	285	R	R	R	340	A	A	A
12	265	A	B	B	280	F	B	A	B	B	B	B	B	265	260	B	R	B	R	300	U F 285	310	325	A
13	A	A	A	B	B	A	R	250	245	U R 245	B	F	B	F	B	B	B	285	R	335	290	305	F	A
14	A	A	A	A	B	B	290	B	F	255	265	265	280	250	B	B	310	320	320	315	320	315	U F 295	A
15	A	A	280	265	A	270	285	260	265	275	285	285	290	300	R	320	315	315	320	335	335	325	315	300
16	290	305	295	305	U F 280	U F 275	280	300	270	280	305	290	300	285	320	320	315	F	320	325	330	335	R	A
17	C	C	C	C	C	C	C	C	C	C	250	240	275	285	290	B	B	B	B	B	A	310	320	R
18	A	A	A	270	R	285	280	285	265	270	290	280	300	280	290	315	310	345	330	325	315	315	300	300
19	310	320	285	280	280	280	300	285	275	275	280	R	R	295	R	310	335	320	335	310	340	315	F	U F 310
20	295	290	295	A	F	R	280	F	F	U F 280	R	280	280	290	300	305	295	305	300	290	F	R	R	A
21	A	A	A	A	A	B	B	R	A	B	R	R	R	B	B	B	F	265	R	R	F	A	A	A
22	A	A	A	A	A	B	R	A	B	B	B	R	C	R	B	B	B	C	300	325	330	315	285	A
23	B	A	B	B	B	R	C	A	B	R	B	B	B	B	B	R	280	260	B	320	R	280	A	B
24	A	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	320	B	F	315	B	A
25	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	300	B	B	305	R	B	A
26	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	290	B	B	A	R	A
27	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	F	290	R	F
28	A	B	A	A	B	B	R	B	B	B	B	B	B	B	B	B	260	B	R	U R 330	285	A	R	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	6	9	5	5	9	9	8	10	15	14	14	14	16	11	11	16	15	17	20	24	17	10	7
MED	290	300	280	280	280	275	280	282	268	265	275	280	282	290	290	310	302	305	315	320	320	315	318	310
UQ	302	320	290	280	285	280	290	290	275	272	280	285	300	295	308	320	312	318	320	328	330	325	325	315
LQ	278	290	275	270	280	270	280	265	265	250	265	275	275	275	280	298	282	285	300	302	305	310	300	300

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FEB. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 1974

H^oF₂ (KM)

45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	B	R	F	475	430	410	400	480	R	R	R	380	335	L			
2							B	R		350	550	475	R	R	R	R	B	R	B	L				
3							B	B	B	B	B	360	R	360	R	B	B	B	L					
4							A	A	A	R	R	475	R	R	R	B	R	R	335	L	260			
5							A	A		450	385	380	330	320	A	330	350	350	L					
6							A	A		545	460	460	430	450	410	430	330	425	420	L		L		
7							A	A	A	505	400	R	580	460	R	330	405	365	430	B		L		
8						370	350	370	390	420	380	360	340	375	390	370	335	L	L	L				
9						410	400	380	350	380	370	375	360	355	395	R	L							
10						375	375	380	420	380	340	355	325	300	350	320	300	L						
11							R	B	B	R	R	B	I	R	400	370	420	340	380	R	R			
12						F	B	A	B	B	B	B	B	R	450	B	B	B	R	375				
13							R	460	480	570	B	U	F	B	F	B	B	B	355	475	R			
14							L	B	A	480	455	460	380	490	B	B	310	300	290					
15						350	450	425	375	370	370	370	390	R	410	R	325	L	L					
16					370	370	330	390	350	320	350	330	350	R	305	300	L	L						
17							C	C	C	C	520	530	R	380	320	E	B	B	B					
18						L	355	360	400	360	350	350	340	E	Y	410	375	330	330	260				
19						L	320	330	350	370	335	300	R	310	275	300	275	L						
20					330	350	U	F	325	370	370	350	340	320	310	320	L	L	L	L				
21							B	A	A	B	R	R	R	B	B	B	450	440	A					
22							A	A	B	B	B	R	C	R	B	B	B	C						
23							C	A	B	R	B	B	B	B	B	R	380	490	B					
24							B	B	B	B	B	B	B	B	B	B	B	B						
25							B	B	B	B	B	B	B	B	B	B	B	B	310	B				
26							B	B	B	B	B	B	B	B	B	B	B	B	B	L				
27							B	B	B	B	B	B	B	B	B	B	B	B	B	B				
28							B	B	B	B	B	B	B	B	B	B	425	B						
29																								
30																								
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	8	9	12	14	15	16	15	17	12	11	13	11	4	1	1			
MED						370	352	370	390	420	380	372	370	365	362	330	350	355	335	375	260			
UQ						390	372	380	438	480	442	435	400	410	408	360	380	425	405					
LQ						350	350	345	350	370	370	350	340	325	305	325	325	305	312					

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H^oF₂ (KM)

IONOSPHERIC DATA

FEB. 1974

H^oF (KM)

45 E Mean Time (G. M. T.+ 3 h)

Station **SYOWA STATION** Lat. 69 00.4 S, Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	A	B	B	E A 280	B	B	240	200	205	200	210	200	230	240	220	220	210	220	H 220	260	A	A	
2	A	B	A	A	B	280	B	A	200	210	200	230	200	230	215	230	B	225	B	205	240	260	275	255	
3	330	A	A	B	A	B	B	B	B	B	B	210	H 200	230	215	B	B	B	230	250	240	250	250	240	
4	A	A	B	A	A	B	A	A	A	A	240	195	210	240	200	B	225	230	250	225	250	240	305	A	
5	340	280	275	A	A	A	A	A	300	270	A	210	A	A	A	A	200	230	270	B	250	275	255	A	
6	A	A	A	A	245	A	A	A	215	250	H 200	H 200	H 210	H 195	210	210	210	210	240	230	250	250	A	A	
7	A	A	B	A	A	A	A	A	A	H 190	200	200	200	250	230	A	210	230	B	250	250	270	A	A	
8	A	A	E A 380	350	330	230	250	215	H 200	205	H 200	225	200	A	H 200	H 195	225	220	220	220	250	255	B	275	245
9	230	230	A	A	A	E A 330	270	220	220	H 200	H 205	200	200	195	H 200	H 200	220	225	220	240	250	A	265	250	
10	250	A	A	A	A	A	A	A	230	230	210	215	200	I B 200	220	H 200	245	220	215	220	H 225	A	A	A	
11	A	A	A	A	A	A	280	B	B	A	A	B	250	225	230	230	230	A	A	270	245	A	A	A	
12	430	A	B	B	A	280	B	A	B	B	B	B	B	230	R 240	B	230	B	B	R	A 310	330	275	255	A
13	A	A	A	B	B	A	A	A	250	275	B	250	B	225	B	B	B	250	235	250	E A 375	300	A	A	
14	A	A	A	A	B	B	305	B	A	235	210	220	230	220	B	B	230	245	230	225	240	210	290	A	
15	A	A	E A 380	E A 380	B	A	A	240	A	230	225	205	210	205	H 235	245	245	220	H 220	H 230	250	230	250	250	
16	240	250	220	275	280	255	A	325	220	A	225	210	200	245	200	200	225	200	225	250	235	230	340	A	
17	C	C	C	C	C	C	C	C	C	C	A	B	260	B	B	B	B	B	B	B	B	A	300	A	A
18	A	A	A	A	A	270	250	230	200	210	215	220	220	200	210	240	220	A	240	A 260	240	250	240	245	
19	250	245	250	270	270	240	250	225	240	225	205	A	A	A	230	230	R 215	220	230	230	230	240	240	240	
20	270	270	315	A	A	B	325	225	230	230	205	H 210	H 220	195	200	230	210	210	H 225	250	A	A	A	A	
21	A	A	A	A	A	B	B	A	A	B	A	A	H 220	B	B	B	230	270	A	A	A	A	A	A	
22	A	A	A	A	A	B	A	A	B	B	B	230	I C 200	200	B	B	B	C	260	270	A 270	255	310	A	
23	B	A	B	B	B	A	C	A	B	A	B	B	B	B	B	A	B	E B 250	B	B	A	A	A	B	
24	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	255	B	280	B	A	B	
25	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	250	B	B	B	R	B	A	
26	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	280	B	B	A	R	A	
27	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	320	A	A	A
28	A	B	A	A	B	B	A	B	B	B	B	B	B	B	B	B	E B 310	B	B	E B 260	310	A	A	A	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	8	5	6	4	4	8	7	8	12	14	15	16	18	17	16	14	18	18	18	20	22	16	13	7	
MED	260	250	U 265	U 292	275	U 262	270	228	225	228	205	210	210	220	215	230	224	224	230	248	250	252	265	245	
UQ	335	270	E A 380	358	305	280	292	270	240	235	212	222	220	230	230	235	230	238	250	252	262	272	290	250	
LQ	245	245	250	272	258	248	250	222	208	205	202	200	200	200	200	200	215	220	220	228	240	240	250	242	

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H^oF (KM)

IONOSPHERIC DATA

FEB. 1974

H⁺ES (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S.		Long. 39° 35' 4" E		Sweep		MHz to 15 MHz in 30 sec		in automatic operation														
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	120	115	105	B	B	105	B	B	G	G	B	G	105	105	105	G	G	G	110	G	G	150	125	105
2	120	B	110	110	B	105	B	100	115	G	G	G	G	100	G	G	B	B	B	G	G	B	150	150
3	120	115	120	B	110	B	B	B	B	B	B	G	G	G	125	B	B	B	140	130	135	125	110	170
4	110	120	B	100	110	B	100	100	100	125	G	G	G	100	G	B	G	G	G	140	130	G	120	110
5	G	125	110	125	110	100	120	100	100	100	120	125	115	110	105	110	110	120	100	B	130	G	150	110
6	115	105	100	100	100	110	100	100	120	100	G	120	115	110	100	G	G	G	G	120	160	G	120	120
7	125	105	B	110	125	105	110	100	105	100	G	G	G	120	105	100	105	G	B	B	135	130	120	150
8	120	130	110	120	105	100	110	110	G	G	100	115	100	110	110	110	105	105	G	G	160	B	125	120
9	150	105	105	105	100	110	G	G	100	100	G	G	110	100	125	120	130	G	G	100	100	100	100	100
10	110	105	105	105	105	125	100	100	G	G	100	120	G	B	G	115	100	100	120	G	140	120	125	110
11	100	125	135	125	100	110	G	B	B	130	115	B	G	110	G	105	G	120	120	150	G	105	105	100
12	110 ^K	100	B	B	100	180	B	110	B	B	B	B	B	G	105	B	B	B	145	115	G	G	125	110
13	115	115	120	B	B	100	120	105	130	120	B	110	B	G	B	B	B	B	160	B	120	G	130	110
14	120	100	100	100	B	B	150	B	110	105	G	G	G	G	B	B	G	E G 150	G	130	130	135	130	115
15	115	110	115	105	125	100	100	G	105	120	G	125	G	G	G	G	G	G	120	G	145	150	130	140
16	G	100	G	120	120	G	110	100 ^K	G	105	G	115	G	G	100	100	G	G	170	190	B	B	170	110
17	C	C	C	C	C	C	C	C	C	C	100	B	150	B	B	B	B	B	B	B	130	150	100	110
18	120	115	110	115	120	G	G	G	G	115	110	110	105	G	130	G	G	125	120	120	120	110	110	115
19	G	105	100	100	100	G	125	110	110	120	115	110	105	110	G	G	B	140	150	175	120	120	110	110
20	G	145	125	115	110	B	120	110	B	G	G	G	100	G	100	105	100	G	G	150	120	125	110	105
21	125	130	105	120	110	B	B	110	105	B	110	110	B	B	B	B	G	B	125	125	120	125	120	120
22	100	105	100	140	110	B	100	105	B	B	B	G	C	G	B	B	B	C	105	125	130	G	G	115
23	B	110	B	B	B	130	C	105	B	110	B	B	B	B	B	120	B	B	B	115	150	110	B	B
24	100	100	130	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	B	G	B	110	130
25	125	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	155	B	B	B	G	B	140
26	105	120	180	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	175	B	B	120	125	100
27	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	140	110	110	110
28	120	B	100	100	B	B	120	B	B	B	B	B	B	B	B	B	B	B	140	B	G	110	150	110
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	24	21	20	17	13	14	15	11	13	8	10	9	10	11	9	6	8	16	15	19	17	26	27
MED	120	110	110	108	110	105	110	105	105	110	110	115	105	110	105	110	105	121	132	130	130	125	120	110
UQ	120	120	120	120	110	110	120	110	112	120	115	120	115	110	118	115	110	138	150	150	138	135	130	120
LQ	110	105	100	100	100	100	100	100	102	100	100	110	105	100	102	105	100	112	120	120	120	110	110	110

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FEB. 1974

H⁺ES (KM)

IONOSPHERIC DATA

FEB. 1974

TYPES OF ES

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S. Long. 39° 35' 4" E											Sweep MHz to 15 MHz in 30 sec in automatic operation												
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	R ₁	R ₂	R ₂		R ₁								R ₁	L ₁	L ₁				L ₁			R ₁	R ₁	R ₁	
2	R ₁		R ₁	R ₁		R ₁		R ₁	L ₁					R ₁									C ₁	C ₁	
3	R ₁	R ₂	R ₁		R ₁										C ₁				C ₁	C ₁	C ₁	C ₁	C ₁	H ₁	
4	R ₃	R ₁		R ₁	R ₁		R ₁	R ₁	R ₁	C ₁				R ₁					C ₁	C ₁		R ₁	R ₂		
5		C ₁	R ₁	C ₁	R ₁	R ₁	RL ₁₁	LR ₁₁	RL ₂₁	L ₂	C ₁	C ₂	C ₂	C ₂	C ₂	C ₂	C ₁	C ₁	L ₁		R ₁	C ₁	R ₃		
6	R ₁	R ₁	R ₂	R ₁	L ₁	R ₂	R ₁	R ₁	L ₁	R ₂		L ₁	C ₁	C ₁	L ₁				C ₁	C ₁		R ₃	R ₂		
7	R ₁	R ₁		R ₁	R ₁	R ₁	R ₁	R ₁	R ₁	R ₂				C ₁	C ₁	L ₁	C ₁				C ₁	R ₁	R ₂	RR ₁₃	
8	R ₃	R ₂	R ₃	C ₂	L ₁	L ₁	C ₁	C ₁			R ₁	C ₁	R ₁	C ₂	C ₁	C ₁	L ₁	C ₂			R ₁		L ₁	L ₁	
9	H ₁	R ₁	R ₄	R ₁	R ₁	R ₁			L ₂	C ₁			C ₁	R ₁	C ₁	C ₁	C ₁			L ₂	L ₃	L ₄	L ₄	L ₃	
10	L ₂	R ₂	R ₂	R ₁	R ₁	RL ₁₁	R ₁	R ₁			L ₁	C ₁				C ₁	L ₁	L ₁	CL ₁₁		C ₁	R ₂	R ₁	R ₂	
11	L ₁	LR ₂	CC ₁₁	R ₁	R ₁	RL ₂₁				LL ₁₁	R ₁			C ₁		L ₁		R ₁	R ₁	C ₁		R ₂	RR ₁₁	R ₁	
12	K ₃	L ₁			R ₁	H ₁		R ₁							C ₁				R ₁	R ₁			CH ₁₁	R ₃	
13	R ₂	R ₄	R ₃		R ₁	L ₁	R ₁	R ₁	R ₁	R ₁		R ₁							C ₁		L ₁		R ₁	R ₂	
14	L ₃	R ₂	L ₁	R ₁			R ₁		R ₁	R ₁								H ₁		C ₁	C ₁	R ₁	R ₁	R ₃	
15	R ₃	R ₂	R ₂	R ₁	R ₁	R ₁	R ₁		R ₁	C ₁		L ₁							C ₁		C ₁	C ₁	C ₁	C ₁	
16		L ₁		R ₁	C ₁	R ₂	K ₂		R ₁		C ₁				L ₁	L ₁			C ₁	H ₁		R ₁	R ₃		
17										R ₁			C ₁									L ₁	R ₁	R ₃	R ₃
18	RL ₁₁	R ₂	RL ₂₁	R ₁	R ₁					C ₁	C ₁	C ₂	C ₁		C ₁				C ₂	C ₁	C ₂	C ₁	L ₂	L ₂	L ₁
19		L ₁	L ₁	L ₁	L ₁		CL ₁₁	R ₁	L ₁	C ₁	C ₁	L ₁	L ₁	L ₁					C ₁	C ₁	H ₁	L ₁	L ₁	L ₂	L ₁
20		R ₁	R ₁	R ₁	R ₁		R ₁	R ₁					L ₁		L ₁	C ₁	L ₁				R ₁	R ₁	R ₁	R ₂	R ₁
21	R ₂	R ₁	RR ₂₁	R ₁	R ₁			R ₁	R ₁		L ₁	R ₁								R ₁	R ₁	R ₂	R ₃	R ₂	R ₂
22	RR ₁₂	R ₁	LR ₁₁	RR ₁₁	R ₁		R ₁	R ₁												L ₁	C ₁	CC ₁₁			R ₄
23		L ₁				R ₁		R ₁		R ₁						R ₁						R ₁	R ₁	R ₃	
24	R ₁	R ₁	R ₁	L ₁																C ₁				R ₂	R ₁
25	R ₂		L ₁																	C ₁					CR ₁₁
26	R ₂	R ₁	RL ₁₁	R ₁																H ₁			R ₂	R ₁	R ₂
27		L ₁																				R ₁	R ₁	R ₂	R ₃
28	R ₁		L ₁	L ₁			R ₁													C ₁			R ₂	R ₁	R ₂
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

The Radio Research Laboratories, Japan

FEB. 1974

TYPES OF ES

IONOSPHERIC DATA

MAR. 1974

FXI (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA Hour Day		STATION											MHz to 15 MHz in 30 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	
1	C	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	O ₄₃	O ₃₆	R	A	C		
2	A	A	A	A	B	B	B	B	B	B	B	B	R	B	B	B	B	B	O ₄₆	B	B	O ₃₅	30	A		
3	50	B	41	A	B	B	B	O ₄₂	O ₄₂	O ₄₄	R	B	B	B	B	B	B	B	B	B	O ₃₈	37	A	R		
4	A	A	A	A	A	B	B	B	B	B	O ₄₈	R	R	B	O ₅₃	B	B	B	R	B	O ₄₄	39	31	O ₂₂		
5	R	R	A	A	B	B	B	R	A	B	B	B	B	B	O ₅₃	O ₅₅	R ₅₅	O ₅₇	R ₅₃	O ₅₁	43	A	A	A		
6	B	A	A	A	A	B	B	B	A	A	R	R	R	O ₄₆	B	B	52	X ₅₆	B	O ₄₅	X ₃₄	R	R	A		
7	A	A	A	B	A	A	B	B	B	R	X ₅₁	O ₅₁	O ₅₀	O ₆₁	B	R	O ₅₁	X ₅₅	X ₅₂	R ₃₇	A	A	A	A		
8	A	C	A	B	R	R	O ₃₉	A	A	B	B	B	B	B	B	O ₅₇	58	O ₅₀	B	O ₄₆	B	A	A	A		
9	A	A	A	B	A	A	A	B	B	B	B	B	R	B	R	R	X ₄₈	X ₄₅	R	R	A	A	A	A		
10	A	A	A	46	A	A	A	A	R	B	B	B	B	B	O ₅₅	O ₆₀	O ₅₈	O ₄₉	B	O ₄₁	A	A	A	A		
11	B	A	A	42	A	R	O ₅₄	B	B	B	B	B	B	B	B	B	B	B	O ₅₂	O ₄₁	29	A	A	A		
12	A	A	B	B	B	B	B	B	A	B	B	B	B	O ₅₈	O ₅₉	B	B	O ₅₉	O ₅₉	B	X ₅₁	B	O ₃₅	B	A	
13	A	A	B	A	A	A	O ₃₉	A	B	B	B	B	B	O ₅₂	O ₅₆	B	O ₆₁	62	X ₆₁	X ₅₇	B	O ₅₀	X ₅₁	48	39	O ₃₀
14	O ₂₂	R	35	R	26	A	R	53	60	B	B	B	67	75	O ₇₃	83	85	R	61	A	R	A	A	A		
15	A	A	A	A	A	28	51	U ₄₆	X ₄₆	B	52	55	X ₅₅	X ₅₇	X ₅₆	X ₅₅	X ₅₃	X ₅₂	X ₄₇	X ₄₈	X ₄₅	32	31	25		
16	O ₂₄	O ₂₆	R	30	68	A	60	64	60	R	62	R	B	R	X ₆₁	61	X ₆₁	64	B	40	40	A	A	A		
17	40	50	33	40	35	36	55	R	R	B	B	X ₅₂	42	X ₅₀	X ₅₂	X ₅₀	X ₄₉	X ₄₆	X ₄₅	X ₄₅	X ₄₂	38	32	30		
18	O ₂₂	A	40	A	60	R	46	C	C	59	62	X ₆₁	X ₆₁	X ₆₄	X ₆₂	X ₅₈	X ₅₅	X ₅₅	X ₅₂	51	52	44	31	25		
19	25	27	29	52	50	40	39	49	55	X ₆₀	X ₆₇	X ₇₃	X ₇₈	79	80	70	68	X ₅₆	X ₅₂	X ₄₇	43	39	35	30		
20	25	A	A	71	A	70	67	60	70	63	64	75	79	82	86	81	75	X ₆₉	X ₆₈	O ₄₂	45	A	A	B		
21	A	B	A	A	A	B	A	B	B	B	B	B	O ₄₆	B	B	B	67	62	O ₄₂	O ₃₇	74	60	A	B	A	
22	B	B	A	A	B	R	R	B	B	B	B	B	B	B	B	B	62	B	50	O ₃₈	O ₃₄	R	R	A	R	
23	A	B	B	B	R	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	O ₃₀	R	A	A	
24	A	35	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	O ₄₄	B	R	A	A	A	
25	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	X ₄₉	47	B	B	A	A	A		
26	A	A	B	B	A	B	B	B	B	R	B	B	B	B	B	B	B	B	O ₄₆	R	R	R	A	A		
27	A	A	B	B	B	A	A	O ₃₄	B	B	B	B	B	B	B	B	B	B	B	O ₄₀	B	A	A	32		
28	29	A	A	A	A	A	A	A	R	B	B	B	B	B	O ₅₃	O ₅₅	B	R	B	B	55	O ₃₄	A	R	A	
29	A	B	B	B	B	R	A	B	B	B	B	B	B	B	B	B	B	O ₄₂	B	B	O ₃₄	A	A	B	A	
30	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	54	X ₄₆	B	R	37	R	A	
31	A	A	R	B	B	A	A	A	A	B	B	B	B	B	B	B	B	B	O ₄₃	37	A	A	A	A		
CNT	8	4	5	6	5	4	9	7	6	4	7	8	9	10	12	13	17	18	17	21	16	10	7	7		
MED	25	31	35	44	50	38	51	49	58	60	62	54	58	60	58	61	58	X ₅₄	47	O ₄₃	42	38	31	30		
UQ	34	42	40	52	60	55	55	56	60	62	63	X ₆₇	67	75	68	67	61	X ₅₇	X ₅₂	50	45	39	34	30		
LQ	O ₂₃	26	33	40	35	32	39	44	46	52	52	O ₅₂	O ₅₅	O ₅₃	O ₅₄	57	52	X ₄₉	O ₄₃	O ₄₀	35	37	31	25		

The Radio Research Laboratories, Japan

MAR. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

MAR. 1974

FOF2 (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Hour Day	Station SYOWA STATION Lat. 69° 00' 4" S, Long. 39° 35' 4" E Sweep MHz to 15 MHz in 30 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		
1	C	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	37	30	R	A	C		
2	A	A	B	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	40	B	B	F ₂₈	F ₂₃	A		
3	F	B	F	A	B	B	B	36	U ₃₆	38	R	B	B	B	B	B	B	B	B	U ₃₂	F ₃₁	A	R			
4	A	A	A	A	A	B	B	B	B	42	R	R	B	47	B	B	B	R	B	38	F ₃₂	F ₂₄	16			
5	A	A	A	A	B	B	B	A	A	B	B	B	B	47	49	49	51	47	45	F ₃₆	A	A	A			
6	B	A	A	A	A	B	B	B	A	A	R	R	R	40	B	B	F ₄₅	50	B	37	28	R	R	A		
7	A	A	A	B	A	A	B	B	B	R	45	U ₄₅	44	45	B	R	45	47	46	31	A	A	A	B		
8	A	C	A	B	R	A	U ₃₃	A	A	B	B	B	B	B	B	F ₅₁	F ₅₁	44	B	40	B	A	A	A		
9	A	A	A	B	A	A	A	B	B	B	B	B	R	B	R	R	42	39	A	R	A	A	A	A		
10	B	A	A	F	A	A	A	A	A	B	B	B	B	B	49	54	52	U ₄₃	B	35	A	A	A	A		
11	B	A	A	U ₃₅	A	R	U ₄₈	A	A	A	A	A	B	B	B	B	B	B	46	35	F	A	A	A		
12	A	A	B	B	B	B	B	B	A	B	B	B	U ₅₂	53	B	B	U ₅₃	F ₅₃	B	45	B	U ₂₅	B	A		
13	A	A	B	A	A	A	33	A	B	B	B	F ₄₆	50	B	U ₅₅	56	54	51	B	44	U ₄₅	U ₄₁	F ₃₁	U ₂₀		
14	U ₁₅	A	F ₂₈	A	F ₂₁	A	R	F ₄₇	F ₅₂	B	B	B	F	U ₆₈	U ₆₇	F	F	R	U ₅₄	A	A	A	A	A		
15	A	A	A	A	A	U ₂₁	U ₃₂	38	40	B	F	49	49	51	50	49	47	45	41	42	39	F ₃₂	F ₂₄	F ₁₆		
16	F ₁₅	U ₁₅	A	F	F	A	F ₅₂	U ₅₃	J ₅₃	R	U ₅₃	R	B	R	54	F ₅₃	54	F ₅₈	B	F	F	A	A	A		
17	F	F	F	F	F	F	F	R	A	B	B	F	F	46	46	43	46	44	42	40	39	39	36	F ₃₀	F ₂₅	F ₂₀
18	16	A	F	A	F	R	F ₄₀	C	C	F ₅₂	F ₅₅	55	55	58	55	52	49	49	46	45	F ₄₀	U ₃₆	U ₂₅	U ₁₉		
19	U ₁₉	F ₁₉	F ₂₀	F ₂₁	F ₂₂	F ₂₄	U ₃₁	F ₄₁	F ₄₈	54	61	67	71	J ₇₁	U ₇₁	U ₆₅	F ₆₀	50	46	41	36	F ₃₁	U ₂₇	U ₂₂		
20	F ₁₆	A	A	F	A	F	F	U ₄₇	F	J ₅₅	F	U ₆₄	73	75	F	U ₇₃	F ₆₈	63	60	36	F	A	A	B		
21	B	B	A	A	A	B	A	B	B	B	B	40	B	B	B	U ₆₁	F ₅₃	36	31	F	F	A	B	A		
22	B	B	B	A	B	R	R	B	B	B	B	B	B	B	B	U ₅₅	B	F ₄₅	32	28	R	R	A	A		
23	A	B	B	B	A	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	F ₂₂	R	A	A	
24	A	U ₂₅	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	38	B	R	A	A	A		
25	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	43	F ₄₀	B	B	A	A	A	
26	B	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	40	A	R	R	A	A		
27	B	A	B	B	B	B	A	28	B	B	B	B	B	B	B	B	B	B	B	B	34	B	A	A	F ₂₆	
28	F	A	A	A	A	A	A	A	A	B	B	B	B	47	49	B	R	B	B	F	F ₂₈	A	R	A		
29	A	B	B	B	B	A	A	B	B	B	B	B	B	B	B	B	36	B	B	28	A	A	B	A		
30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	F ₄₇	40	B	A	F ₃₁	A	A	
31	A	A	A	B	B	A	A	A	A	B	B	B	B	B	B	B	B	B	B	F ₃₅	F ₃₀	A	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	5	3	2	2	2	2	7	7	5	4	6	8	8	10	11	12	16	18	17	18	12	10	7	7		
MED	F ₁₆	U ₁₉	F ₂₄	F ₂₈	F ₂₂	F ₂₂	U ₃₃	F ₄₁	F ₄₈	53	50	48	51	52	50	54	50	47	40	31	36	F ₃₁	F ₂₅	F ₂₀		
UQ	F ₁₆	F ₂₂					44	F ₄₇	F ₅₂	54	55	60	63	68	55	U ₅₈	54	51	46	42	38	F ₃₂	F ₂₆	F ₂₁		
LQ	F ₁₅	F ₁₇					U ₃₂	37	40	45	45	46	48	45	48	50	45	43	39	34	29	F ₃₀	F ₂₄	F ₁₈		

The Radio Research Laboratories, Japan

MAR. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

MAR. 1974

FOF1 (0.01 MHZ)

°
45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION	Lat. 69 00.4 S.		Long. 39 35.4 E		Sweep		MHz to 15 MHz in 30 sec		in automatic operation															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	B	B	B	B	B	B	B	B	B							
2								B	B	B	B	B	370	B	B	B	B	B	L					
3								300	U R	350	350	B	B	B	B	B	B	B						
4								B	B	B	360	360	350	B	B	B	B	B						
5								A	A	B	B	B	B	B	B	380	350		L					
6								B	A	A	A	350	370	360	B	B	360	340	L	B				
7								B	B	350	360	360	370	380	B	L	R	L						
8								A	A	B	B	B	B	B	B	360	350	B						
9								B	B	B	B	B	350	B	A	A	L							
10									A	B	B	B	B	B	R	B	350	330						
11								B	B	B	B	B	B	B	B	B	B	B						
12								B	A	B	B	B	B	B	B	B	B	B						
13									B	B	B	390	B	B	B	L	L							
14								A	320	340	B	B	B	U L	R	B								
15								L	330	B	U L	370	380	380	L	U L	370							
16									U L	350	A	L	B	B	B	B	L	L	L					
17									A	B	B	360	360	370	360	L								
18									C	360	L	360	L	L	U L	370	L	L						
19										L	L	L	U L	380	L	L	L	L						
20										L	L	L	U L	400	U L	390	L	L	L					
21										B	B	A	B	B	B	U R	340	330						
22										B	B	B	B	B	B	340	B							
23										B	A	B	B	B	B	B	B							
24										B	B	B	B	B	B	B								
25										B	B	B	B	B	B	B	B	L						
26											B	B	B	B	B	B								
27										B	B	B	B	B	B	B								
28										B	B	B	B	L	B	B								
29										B	B	B	B	B	B	B	300	B						
30										B	B	B	B	B	B	B								
31										B	B	B	B	B	B	B								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	4	3	5	6	10	5	3	4	6	2						
MED								310	335	350	360	360	370	370	360	350	350	335						
UQ								345	355	360	380	U L	380	380	365	370	350							
LQ								330	350	360	360	360	370	360	340	330								

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MAR. 1974

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAR. 1974

FOE (0.01 MHZ)

45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69 00 .4 S, Long. 39 35 .4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	A	C
2	C	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	115	105
3	A	B	U A 160	A	B	B	B	A	A	R	B	B	B	B	B	B	B	B	B	B	B	A	A	A
4	A	B	B	A	A	B	B	B	B	B	275	240	275	B	B	B	B	B	B	B	B	A	S	B
5	A	A	A	A	B	B	B	A	B	B	B	B	B	B	B	R	R	B	B	B	F 150	C	A	B
6	B	B	B	B	B	B	B	B	B	B	B	260	260	250	B	B	230	B	B	B	U A 190	150	A	A
7	A	B	B	B	B	B	B	B	B	A	250	255	245	240	B	B	A	U R 205	160	150	C	A	A	B
8	B	C	B	B	B	B	A	B	B	B	B	B	B	B	B	B	225	B	B	B	B	100	B	A
9	A	B	B	B	B	A	A	B	B	B	B	B	B	B	B	A	230	200	A	B	A	A	B	B
10	B	B	B	A	A	A	B	A	A	B	B	B	B	B	B	B	B	230	B	B	A	A	A	B
11	B	B	B	K 270	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	F 120	A	B	B
12	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A
13	B	A	B	B	B	B	A	A	B	B	B	280	B	B	B	A	U R 225	B	B	B	B	A	A	B
14	U B 100	A	A	B	A	A	A	255	240	B	B	B	265	B	B	B	B	B	B	B	B	A	A	A
15	B	B	A	A	A	A	160	180	195	B	240	240	240	A	U A 240	A	220	205	A	A	A	A	A	A
16	95	90	A	B	A	A	K 285	200	210	B	A	B	B	B	B	B	220	B	B	F	A	A	A	A
17		A	A	A	A	U A 130	U K 280	A	B	B	A	A	A	A	A	A	A	A	A	A	130	A	A	B
18		A	A	A	K 300	A	A	C	C	220	230	230	A	A	A	A	A	A	A	160	A	B	A	A
19		A	A	A	A	A	A	150	180	200	230	240	245	230	A	A	210	190	155	A	A	A	A	
20			A	A	A	K 300	F 160	U A 140	180	210	235	250	245	220	A 245	230	210	B	C	A	A	A		
21			B	B	A	B	B	B	B	B	B	A	B	B	B	B	205	A	B	U A 120	F	A		
22			B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	190	A	U A 150	130	120		
23			B	B	A	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	A	
24			B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	
25				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	B	B	A	
26				B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	A	U A 130	115	
27				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	
28				A	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	A	A	C	
29				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	
30				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	K 260	B	A	K 210	
31				B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	U F 125	A		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	1	1	1	1	1	4	6	5	3	6	8	7	4	2	1	9	6	6	5	5	1	1	
MED	98	90	U A 160	K 270	K 300	K 300	160	190	195	210	238	245	245	235	242	230	220	202	160	U 130	130	120	115	105
UQ							222	255	210	215	250	258	262	245			225	205	170	150	150	150		
LQ							145	150	180	205	230	240	245	225			210	190	155	U 125	130	115		

The Radio Research Laboratories, Japan

MAR. 1974

FOE (0.01 MHZ)

IONOSPHERIC DATA

MAR. 1974

FOES (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S		Long. 39° 35' 4" E		Sweep MHz to 15 MHz in 30 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	C	40	51	B	B	B	41	B	B	B	B	B	B	B	B	B	B	B	B	E B 22	E C 20	E B 20	J A 36	J A 86				
2	33	38	30	34	B	B	B	B	B	B	B	B	E B 35	B	B	B	B	B	E B 23	B	B	19	16	35				
3	26	65	J A 72	46	B	B	B	26	27	G	E B 28	B	B	B	B	B	B	B	B	J A 29	J A 39	35	J A 22					
4	32	63	48	38	35	B	B	B	B	B	G	G	G	B	E B 46	B	B	B	E B 31	B	E B 24	J A 32	32	J A 20				
5	17	J A 22	30	J A 30	B	B	B	37	49	B	B	B	B	B	E B 43	G	G	E B 32	E B 22	E B 37	J A 21	J A 44	40	J A 44				
6	B	44	42	J A 39	40	B	B	B	42	40	36	G	G	27	B	B	J A 34	E B 24	B	J A 64	21	G	21	J A 34				
7	35	39	49	B	41	45	B	B	B	32	27	29	G	27	B	E B 35	32	G	25	24	33	33	36	40				
8	J A 39	C	40	B	26	36	31	46	43	B	B	B	B	B	B	E B 28	G	E B 32	B	E B 26	B	36	J A 46	J A 75				
9	35	J A 52	34	B	43	46	42	B	B	B	B	B	E B 27	B	35	40	31	G	33	28	70	24	J A 86	J A 47				
10	39	36	52	46	73	J A 74	44	45	39	B	B	B	B	B	E B 32	E B 45	E B 32	G	B	27	33	27	J A 39	J A 62				
11	B	40	39	K 30	46	28	E B 37	B	B	B	B	B	B	B	B	B	B	B	B	E B 28	E B 24	16	27	39	46			
12	45	31	B	B	B	B	B	B	J A 46	B	B	B	B	E B 45	E B 45	B	B	E B 49	E B 35	B	21	B	J A 24	B	J A 43			
13	35	J A 39	B	39	41	41	33	J A 46	B	B	B	G	E B 46	B	E B 48	27	G	E B 26	B	E B 26	E B 23	40	30	18				
14	16	16	J A 26	28	20	J A 74	41	G	G	B	B	B	G	E B 37	E B 50	E B 48	E B 48	E B 43	G	69	35	J A 39	101	J A 39				
15	38	40	33	31	30	26	17	J A 25	G	B	30	38	38	J A 52	30	J A 47	30	23	25	22	J A 32	20	J A 22	12				
16	J A 27	J A 24	24	27	J A 57	J A 45	K 34	J A 29	G	38	J A 44	E B 45	B	E B 48	E B 44	E B 27	G	E B 25	B	27	J A 77	J A 79	J A 84	92				
17	J A 42	J A 42	J A 26	23	30	30	J A 25	K 30	45	B	B	30	32	32	30	30	J A 29	32	25	23	14	35	J A 36	J A 27				
18	J A 25	39	28	J A 77	K 30	37	J A 34	C	C	30	G	G	35	49	J A 35	J A 40	J A 33	J A 33	17	18	30	J A 26	J A 25	J A 26				
19	26	J A 21	J A 28	12	20	J A 31	J A 34	J A 24	G	17	G	28	29	36	J A 46	J A 41	J A 46	J A 40	J A 32	17	J A 30	J A 31	J A 35	J A 23	J A 31			
20	J A 29	J A 29	24	J A 40	43	J A 42	24	29	J A 24	J A 26	27	29	27	29	25	G	24	E B 21	E C 17	28	J A 31	J A 51	J A 46	67				
21	41	81	35	37	32	B	60	B	B	B	B	35	B	B	B	E B 30	29	36	26	J A 35	J A 45	J A 45	B	J A 55				
22	B	B	J A 52	J A 50	B	33	35	71	B	B	B	B	B	B	B	E B 27	B	26	23	19	21	18	J A 42	26				
23	28	94	B	B	28	B	B	B	B	B	33	B	B	B	B	B	B	B	B	90	B	19	16	34	31			
24	46	J A 59	B	45	J A 44	B	B	B	B	B	B	B	B	B	B	B	B	B	B	29	B	28	J A 90	30	32			
25	73	41	B	45	B	B	B	B	B	B	B	B	B	B	B	B	B	B	21	19	B	B	J A 35	40	85			
26	74	40	B	B	40	B	B	B	B	35	B	B	B	B	B	B	B	B	B	E B 27	30	23	15	26	37			
27	62	33	B	B	B	34	J A 38	26	B	B	B	B	B	B	B	B	B	B	B	23	B	J A 30	33	33				
28	20	32	33	31	44	46	43	36	32	B	B	B	B	E B 27	E B 44	B	E B 55	B	B	J A 23	23	J A 57	19	35				
29	J A 64	42	J A 89	B	B	28	37	B	B	B	B	B	B	B	B	B	E B 26	B	B	29	42	121	42	32				
30	B	38	B	35	B	71	B	B	B	B	B	B	B	B	B	B	B	B	20	K 31	B	32	K 35	33	45			
31	J A 78	J A 82	31	B	B	52	56	46	58	B	B	B	B	B	B	B	B	B	B	28	23	J A 36	30	37	J A 120			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	26	29	23	21	20	19	19	15	14	8	10	11	13	11	13	15	18	19	20	24	26	31	29	31				
MED	35	40	34	37	40	41	37	30	36	31	28	29	E G 32	U 32	E B 41	E G 30	U 27	E G 26	24	24	30	35	36	37				
UQ	45	44	48	45	44	46	42	46	45	36	33	31	U 34	46	E B 44	U 38	32	U 29	28	29	33	J A 40	J A 40	J A 51				
LQ	27	33	29	30	30	32	33	26	G	17	E G 27	G	G	28	32	E G 24	E G 21	18	22	21	24	30	31					

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FOES (0.1 MHz)

IONOSPHERIC DATA

MAR. 1974

F-MIN (0.1 MHZ)

45° E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69° 00' .4" S. Long. 39° 35' .4" E Sweep MHz to 15 MHz in 30 sec in automatic operation

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

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F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAR. 1974

M(3000)F2 (0.01)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00' 4" S. Long. 39° 35' 4" E										Sweep MHz to 15 MHz in 30 sec in automatic operation																			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	C	B	A	R	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	310	300		R	A	C						
2	A	A	B	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	325	B	B	315	305	A							
3	F	B	F	A	B	B	B	255	U R 255	245	R	B	B	B	B	B	B	B	B	U R 315	325	F	A	R							
4	A	A	A	A	A	B	B	B	B	B	260	R	R	B	R	B	B	B	R	B	315	315	F	F	315						
5	A	A	A	A	B	B	B	A	A	B	B	B	B	B	275	285	280	325	320	315	305	F	A	A	A						
6	B	A	A	A	A	B	B	B	A	A	R	R	R	235	B	B	F	320	B	345	305		R	R	A						
7	A	A	A	B	A	A	B	B	B	R	290	U R 285	280	305	B	R	305	300	300	275	A	A	A	B							
8	A	C	A	B	R	A	U R 305	A	A	B	B	B	B	B	B	295	F	295	305	B	300	B	A	A	A						
9	A	A	A	B	A	A	A	B	B	B	B	B	R	B	R		285	270	A	R	A	A	A	A	A						
10	B	A	A	F	A	A	A	A	A	B	B	B	B	B	285	280	285	U R 270	B	320	A	A	A	A	A						
11	B	A	A	U F 310	A	R	U R 315	B	B	B	B	B	B	B	B	B	B	B	310	315	F	A	A	A	A						
12	A	A	B	B	B	B	B	B	A	B	B	B	R	270	B	B	U R 285	310	B	320	B	U F 300	B	A	A						
13	A	A	B	A	A	A	280	A	B	B	B	275	F	290	B	U R 320	305	330	325	B	320	U R 310	U F 315	F	U F 290						
14	U F 280	A	320	A	250	A	R	285	F	305	B	B	B	F	F	U R 255	F	F	R	U F 295	A	A	A	A	A						
15	A	A	A	A	A	F	U F 270	265	280	B	285	285	285	295	320	320	320	335	330	335	335	345	F	335	F	330					
16	F	265	F	A	F	F	A	F	U F 290	U F 295	J F 285	R	U F 285	R	B	R	335	325	295	310	B	F	F	A	A	A					
17	F	F	F	F	F	F	F	R	A	B	B	260	F	350	280	305	310	310	325	310	305	305	305	310	F	290					
18	270	A	F	A	F	R	250	C	C	290	F	290	295	310	310	325	345	345	330	330	325	F	315	U F 330	F	U F 315					
19	U F 275	290	F	280	F	285	F	280	F	290	F	290	305	F	295	290	300	310	J F 305	U F 325	U F 335	F	345	335	340	330	F	325	F	335	U F 295
20	315	A	A	F	A	F	F	U F 285	F	J F 290	F	F	290	295	F	F	325	320	330	300	F	A	A	A	B						
21	B	B	A	A	A	B	A	B	B	B	B	235	B	B	B	U R 260	F	290	285	250	F	F	A	B	A						
22	B	B	B	A	B	R	R	B	B	B	B	B	B	B	B	F	B	300	315	300	R	R	A	A							
23	A	B	B	B	A	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	320	R	A	A						
24	A	U F 270	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	315	B	R	A	A	A						
25	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	315	325	B	B	A	A	A						
26	B	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	310	A	R	R	A	A						
27	B	A	B	B	B	B	A	295	B	B	B	B	B	B	B	B	B	B	B	B	310	B	A	A	F	310					
28	F	A	A	A	A	A	A	A	A	B	B	B	B	320	300	B	R	B	B	F	305	F	A	R	A						
29	A	B	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	280	B	B	295	A	A	B	A					
30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	320	F	300	B	A	325	A	A					
31	A	A	A	B	B	A	A	A	A	B	B	B	B	B	B	B	B	B	B	300	F	275	A	A	A	A					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
CNT	5	2	2	2	2	1	7	7	5	4	6	7	7	9	10	10	16	18	17	18	12	10	6	7							
MED	275	280	300	298	265	290	U F 290	285	285	290	288	285	290	295	312	308	295	318	315	315	315	312	322	F	310						
UQ	U F 280						U 298	F 295	290	292	290	290	310	305	325	325	322	325	325	320	318	325	F	315	F						
LQ	270						275	275	280	268	285	268	288	280	285	285	285	300	300	300	300	305	315	F	292						

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M(3000)F2 (0.01)

IONOSPHERIC DATA

MAR. 1974

H^oF₂ (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	B	B	R	B	B	B	B	B	B							
2								B	B	B	B	R	B	B	B	B	B	B	L					
3								480	R 510	505	R	B	B	B	B	B	B	B						
4								B	B	B	460	R	R	B	B	B	B	B						
5								A	A	B	B	B	B	B	B	400	375	350		275				
6								B	A	A	R	R	R	600	B	B	405	290	B					
7								B	B	R	385	400	425	355	B	L	355	300						
8								A	A	B	B	R	B	B	B	350	310	310						
9								B	B	B	B	B	R	B	R	A	L							
10								A	B	B	B	B	B	B	400	355	365	420						
11								B	B	B	B	B	B	B	B	B	B	B						
12								B	A	B	B	B	B	B	400	B	B	B	280					
13								B	B	B	B	440	B	B	B	300	300	260						
14							A	350	325	B	B	B	300	310	B									
15							L	350	B	390	350	365	330	290										
16								310	R	L	B	B	B	315	275	L	300	280						
17								A	B	B	F 450	400	420	345	L									
18								C	340	315	310	300	270	L	250									
19								L	L	290	290	290	250	L	230									
20								L	L	325	300	290	275	250	245									
21								B	B	E 525	A	B	B	B	370	305								
22								B	B	B	B	B	B	B	400	B								
23								B	R	B	B	B	B	B	B	B								
24								B	B	B	B	B	B	B	B									
25								B	B	B	B	B	B	B	B	B	B	275						
26									R	B	B	B	B	B	B									
27								B	B	B	B	B	B	B	B									
28								B	B	B	B	B	300	B	B									
29								B	B	B	B	B	B	B	B	B	430	B						
30								B	B	B	B	B	B	B	B									
31								B	B	B	B	B	B	B	B									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	4	2	4	8	7	11	8	8	11	7	1					
MED								415	338	422	388	356	300	315	295	354	310	290	275					
UQ								430		425	432	382	378	372	374	360	305							
LQ								318		350	318	300	295	275	275	280	280							

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H^oF₂ (KM)

IONOSPHERIC DATA

MAR. 1974

H^oF (KM)

45 E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	280	305	B	A	C	
2	C	A	B	B	B	B	B	B	B	B	B	B	E B 250	B	B	B	B	B	250	B	B	280	300	A	
3	210	B	F	A	B	B	B	A	A	230	H 220	B	B	B	B	B	B	B	B	B	A	280	A	A	
4	A	A	A	A	A	B	B	B	B	B	R 230	H 200	230	B	B	B	B	B	B	B	265	A 460	250	E B 340	
5	A	A	A	A	B	B	B	A	B	B	B	B	B	B	230	R 250	270	250	E B 290	275	A	A	A		
6	B	B	B	A	A	B	B	B	A	B	A	240	255	240	B	B	230	245	B	250	300	R	A	A	
7	A	A	B	B	A	A	B	B	B	A	H 200	240	225	215	B	B	A	250	275	A 380	A	A	A	B	
8	A	C	A	B	A	A	A	A	B	B	B	B	B	B	240	230	B	B	275	B	A	A	A	A	
9	A	A	B	B	A	A	A	B	B	B	B	B	230	B	A	A	295	250	A	A	A	A	A	A	
10	B	A	A	A	A	A	A	A	B	B	B	B	B	B	E B 250	B	B	285	B	280	A	A	A	A	
11	B	B	B	335	A	A	310	B	B	B	B	B	B	B	B	B	B	B	285	290	330	A	A	A	
12	A	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	255	B	300	B	A
13	A	A	B	B	A	A	E A 380	A	B	B	B	230	B	B	B	220	240	245	B	B	240	250	250	E A 310	
14	A	A	280	A	A	A	A	300	260	B	B	B	230	B	B	270	270	250	270	B	A	A	A	A	
15	B	A	A	A	A	A	475	310	260	240	B	230	220	H 200	H 200	230	A	230	H 225	240	230	245	230	290	
16	E A 370	A	A	A	F	A	330	300	220	A	260	B	B	B	B	230	230	280	B	F	F	A	A	A	
17	F	F	A	A	F	F	U A 270	R	A	B	B	300	220	H 210	240	250	240	250	250	260	250	250	275	A	
18	375	A	F	A	395	A	420	C	C	240	225	240	240	230	225	250	235	240	240	230	250	240	250	270	
19	A 300	300	300	300	300	290	255	240	250	230	235	230	240	A	H 250	230	A 210	225	220	225	250	250	A 250	E A 300	
20	A	A	A	F	A	U F 390	330	250	250	245	240	225	225	225	240	230	230	240	230	A	415	A	A	B	
21	B	B	B	A	A	B	B	B	B	B	B	B	A	B	B	B	B	295	320	A	F	F	A	B	A
22	B	B	B	A	B	A	B	B	B	B	B	B	B	B	B	280	B	300	280	295	A	A	A	A	
23	A	B	B	B	A	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	320	A	A	C
24	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	280	B	A	A	A	B	
25	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	260	260	B	B	A	B	B	
26	B	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	280	A	A	R	A	A	
27	B	A	B	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	300	B	A	A	E A 345
28	U F 300	A	A	A	A	B	A	A	A	B	B	B	B	255	B	B	B	B	B	B	250	325	C	A	A
29	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	B	B	A
30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	250	305	B	A	280	A	B	
31	A	A	A	B	B	A	A	A	A	B	B	B	B	B	B	B	B	B	275	315	A	A	B	B	
	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	1	2	2	3	3	8	5	5	4	8	9	11	7	6	10	13	17	17	18	14	10	7	6	
MED	300	300	290	318	395	390	315	260	250	235	230	230	230	225	238	235	235	250	270	273	278	255	250	E E 305	
UQ	A 370				410	432	342	300	250	242	238	240	238	235	250	250	250	270	280	295	320	280	262	E A 340	
LQ	300				348	340	290	250	240	230	222	225	225	212	230	230	230	245	250	250	250	250	250	280	

The Radio Research Laboratories, Japan

MAR. 1974

H^oF (KM)

IONOSPHERIC DATA

MAR. 1974

H^oES (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S. Long. 39° 35' 4" E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	100	100	B	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	100	150	
2	125	115	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	130	110	
3	135	180	130	100	B	B	B	110	125	G	B	B	B	B	B	B	B	B	B	B	130	130	110	115	
4	110	110	105	100	100	B	B	B	B	B	G	G	G	B	B	B	B	B	B	B	B	120	150	150	
5	125	110	115	105	B	B	B	120	115	B	B	B	B	B	B	G	G	B	B	B	170	105	110	140	
6	B	140	125	105	130	B	B	B	115	115	115	G	G	125	B	B	100	B	B	150	150	G	130	120	
7	125	115	115	B	100	105	B	B	B	130	125	120	G	125	B	B	120	G	150	150	125	170	120	150	
8	115	C	100	B	125	125	110	120	120	B	B	B	B	B	B	B	G	B	B	B	B	110	150	100	
9	100	110	100	B	110	180	110	B	B	B	B	B	B	B	150	125	145	G	130	150	110	110	140	120	
10	145	115	100	140	120	100	115	115	110	B	B	B	B	B	B	B	B	G	B	150	115	110	105	110	
11	B	100	100	K 100	110	100	B	B	B	B	B	B	B	B	B	B	B	B	140	B	165	150	110	120	
12	105	130	B	B	B	B	B	B	105	B	B	B	B	B	B	B	B	B	B	140	B	145	B	105	
13	130	100	B	125	100	100	105	100	B	B	B	G	B	B	B	125	G	B	B	B	B	120	120	130	
14	115	120	105	150	120	110	100	G	G	B	B	B	G	B	B	B	B	B	G	155	120	115	155	100	
15	110	120	120	110	110	120	100	100	G	B	100	105	120	110	105	100	100	100	100	100	100	100	100	125	
16	150	100	110	140	110	110	K 110	100	G	105	105	B	B	B	B	B	G	B	B	150	125	110	100	130	
17	125	100	125	100	100	100	125	K 125	115	B	B	115	120	110	110	105	100	100	100	100	100	110	110	115	
18	100	110	140	140	K 130	100	110	C	C	100	G	G	100	100	100	100	100	100	100	100	100	100	100	105	
19	100	100	100	100	100	100	100	110	100	100	125	120	110	110	110	100	100	100	100	100	100	100	100	100	
20	100	100	100	135	105	100	100	130	100	100	115	100	120	110	110	G	130	B	C	150	170	125	110	120	
21	110	105	130	125	120	B	120	B	B	B	B	110	B	B	B	B	160	120	160	140	160	115	B	110	
22	B	B	130	145	B	125	110	180	B	B	B	B	B	B	B	B	B	165	150	140	150	130	110	120	
23	110	125	B	B	110	B	B	B	B	B	110	B	B	B	B	B	B	B	B	170	B	140	145	110	115
24	180	110	B	100	110	B	B	B	B	B	B	B	B	B	B	B	B	B	145	B	160	150	125	120	
25	120	100	B	110	B	B	B	B	B	B	B	B	B	B	B	B	B	160	150	B	B	105	105	120	
26	165	150	B	B	130	B	B	B	B	110	B	B	B	B	B	B	B	B	B	105	150	165	115	110	
27	130	105	B	B	B	100	110	130	B	B	B	B	B	B	B	B	B	B	B	140	B	120	120	115	
28	130	115	115	115	130	150	100	100	120	B	B	B	B	B	B	B	B	B	B	130	150	140	130	120	
29	180	125	130	B	B	115	120	B	B	B	B	B	B	B	B	B	B	B	B	130	100	100	115	120	
30	B	130	B	130	B	170	B	B	B	B	B	B	B	B	B	B	B	150	K 150	B	120	K 105	115	115	
31	100	110	120	B	B	100	105	105	100	B	B	B	B	B	B	B	B	B	150	150	110	110	125	175	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	29	23	21	20	19	18	14	11	7	7	6	5	7	6	6	9	8	14	19	23	29	29	31	
MED	122	110	115	110	110	105	110	112	115	105	115	112	120	110	110	102	100	110	148	140	125	115	115	120	
UQ	130	120	125	135	122	122	110	125	118	112	120	120	120	118	110	125	130	155	150	150	150	130	125	122	
LQ	110	100	100	100	102	100	100	100	102	100	108	105	110	110	105	100	100	100	100	118	110	110	110	110	

The Radio Research Laboratories, Japan

MAR. 1974

H^oES (KM)

IONOSPHERIC DATA

MAR. 1974

TYPES OF ES

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION	Lat. 69° 00.4' S.		Long. 39° 35.4' E		Sweep	MHz to 15 MHz in 30 sec in automatic operation																					
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1		R ₁	R ₁				L ₁																R ₃	HR ₁₁			
2	R ₃	R ₄	L ₁	L ₁																		R ₁	C ₂	R ₄			
3	R ₄	RR ₁₁	R ₁	R ₁				R ₁	L ₁												L ₁	L ₁	R ₃	R ₂			
4	R ₃	R ₁	R ₂	L ₂	R ₁																	L ₁	H ₁	HL ₁₁			
5	C ₁	R ₂	R ₂	L ₃				R ₁	L ₁												C ₁	R ₂	R ₂	RR ₁₁			
6		RL ₁₁	R ₁	R ₁	R ₁				R ₁	R ₁	R ₁			C ₁			L ₁			HL ₁₁	R ₁		R ₁	R ₂			
7	R ₃	R ₂	R ₁		R ₁	R ₁				R ₁	C ₁	C ₁		C ₁			R ₁		R ₁	R ₁	RR ₁₄	R ₄	R ₁				
8	R ₁		L ₁		R ₁	R ₁	R ₁	R ₁	R ₁													R ₁	RR ₁₁	L ₁			
9	R ₂	LR ₁₁	L ₁		R ₁	RR ₁₁	R ₁								R ₁	R ₁	R ₁		R ₁	R ₁	R ₁	R ₄	HR ₁₁	R ₁			
10	R ₁	R ₁	R ₁	RL ₂	RL ₂₁	R ₂	R ₁	R ₁	R ₁												R ₁	R ₄	R ₁	R ₃	L ₁		
11		L ₁	R ₁	RK ₂₂	RL ₁₁	L ₁													H ₁		R ₁	RR ₁₁	R ₂	R ₁			
12	R ₂	R ₁							R ₁												H ₁		H ₁		R ₃		
13	R ₁	L ₁		L ₁	L ₁	R ₁	R ₁									L ₁						L ₂	L ₁	R ₁			
14	C ₁	R ₁	R ₁	R ₁	L ₁	L ₁	R ₁														R ₁	R ₁	R ₂	RR ₁₁	R ₂		
15	R ₁	R ₃	R ₃	R ₄	R ₃	RL ₁	L ₁	L ₂			L ₁	C ₁	C ₁	C ₁	L ₁	L ₂	L ₁	L ₁	L ₁	L ₂	L ₂	L ₂	L ₂	L ₁			
16	H ₁	CH ₁₁	RL ₁	R ₁	R ₁	R ₂	RL ₁₁	L ₁		R ₁	L ₁									R ₁	R ₁	RR ₁₁	RR ₁₁	LR ₁₃			
17	R ₂	L ₁	LL ₁₁	L ₁	LR ₁₁	LC ₁₁	C ₁	RK ₂₁	R ₂			R ₁	L ₁	L ₁	L ₁	L ₁	L ₂	L ₁	L ₁	L ₁	L ₁	L ₂	L ₃	F ₆			
18	F ₂	R ₃	R ₁	RR ₁₂	RK ₂₂	RL ₂₁	R ₃			L ₁				L ₂	L ₂	L ₂	L ₂	L ₂	L ₂	L ₂	L ₁	L ₁	L ₂	L ₂	FF ₂₁		
19	F ₁	F ₂	L ₁	L ₁	L ₂	L ₁	L ₁	L ₁	L ₁	L ₁	C ₁	C ₁	C ₂₁	C ₃	L ₂	L ₂	L ₂	L ₂	L ₁	L ₃	L ₆	L ₅	L ₈	F ₃			
20	F ₃	F ₅	RR ₁₁	RL ₁₁	R ₃	RK ₂₁	R ₁	LL ₁₁	L ₁	L ₁	L ₁	L ₁	L ₁	C ₁	C ₁	C ₁				R ₁	RR ₁₁	R ₁	R ₃	F ₁			
21	R ₁	F ₁	RL ₁₂	RL ₁₂	RL ₁₁		RL ₁₁					R ₁					R ₁	R ₁	R ₁	R ₁	R ₁	R ₁	R ₂		R ₂		
22			R ₁	CR ₁₁		R ₁	L ₁	H ₁										H ₁	C ₁	C ₁	R ₁	C ₁	R ₃	R ₁			
23	R ₂	R ₁			RL ₁₁						R ₁									H ₁		C ₁	R ₂	R ₄	R ₃		
24	RR ₁₁	RR ₁₁		R ₁	R ₃																C ₁		RR ₁₁	RR ₁₁	R ₂	R ₂	
25	RR ₁₃	R ₁		L ₁															H ₁	H ₁			R ₃	R ₁	RR ₂₁		
26	R ₁	R ₁			RL ₁₁					R ₁											R ₁	C ₁	C ₁	R ₂	R ₂		
27	R ₁	R ₂				L ₁	R ₁	L ₁													R ₁		R ₁	R ₅	R ₃		
28	R ₂	R ₃	R ₄	R ₃	R ₁	R ₁	R ₁	R ₂	R ₁													RL ₁₁	R ₁	CR ₁₁	R ₁	R ₄	
29	FR ₁₁	R ₁	F ₁			L ₁	R ₁															R ₁	RS ₂₁	RR ₁₁	R ₁	RR ₂₂	
30		R ₁		R ₁		H ₁															C ₁	RK ₁₁		R ₃	RRK ₂₁	R ₃	R ₁
31	F ₃	FR ₁₁	R ₁			R ₁	R ₁	R ₁	R ₁													H ₁	R ₁	RS ₂₁	R ₂	R ₁	FR ₁₁
	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																											

MAR. 1974

TYPES OF ES

IONOSPHERIC DATA

APR. 1974

FXI (0.1 MHz)

°
45 E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	B	B	B	B	A	A	U R 36	R 40	O R 40	O R 40	B	B	B	B	B	O R 51	O R 46	A	A	R	R	R	A
2	R	A	A	A	A	A	A	A	A	B	O R 45	X 46	B	B	B	X 60	X 62	59	68	40	R	A	A	A
3	A	A	A	A	A	B	A	A	B	B	B	O R 46	O R 44	B	B	B	B	A	A	A	A	30	A	A
4	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	B	A	A	A	A	A	A
5	A	42	40	A	R	40	R	44	O R 41	R 42	O R 45	O R 45	R 50	X 52	65	H	80	B	B	31	R	R	A	A
6	35	B	A	A	A	A	A	O R 36	B	B	B	B	B	B	B	B	O R 51	O R 45	O R 44	40	B	R	R	A
7	A	A	A	A	B	B	B	A	B	O R 42	B	B	B	B	B	B	B	B	B	B	O R 31	B	R	A
8	A	A	A	A	R	R	R	R	O R 40	X 43	O R 47	X 51	X 58	X 61	X 61	O R 65	74	B	B	A	O A 30	A	A	31
9	A	A	A	A	A	A	O R 31	41	R	B	O R 46	B	65	R 64	B	B	B	R	R	O R 46	B	R	R	A
10	A	A	A	A	A	A	B	B	A	B	O R 46	B	B	B	B	B	B	B	B	B	O A 24	A	A	A
11	A	A	B	A	B	B	B	B	A	O R 44	B	B	R	O R 54	O R 52	B	X 54	45	B	B	B	A	B	A
12	A	R	R	R	X 36	R	35	O R 32	O R 41	O R 50	O R 52	X 64	64	X 65	O R 63	X 61	X 52	O R 42	O R 43	O R 34	O R 33	24	O R 23	O A 18
13	O A 22	O R 20	16	A	27	32	B	A	O R 43	R	B	68	79	78	74	76	67	68	48	41	30	O R 21	B	O R 18
14	R	R	X 32	A	O A 28	27	B	B	O R 43	X 53	60	67	71	X 70	X 71	X 71	X 64	55	45	42	28	28	O A 23	O A 19
15	A	28	O A 24	O R 30	A	31	38	46	50	X 50	X 59	X 66	X 66	X 68	X 67	X 69	X 59	57	57	38	32	25	O A 23	O A 22
16	O A 19	O A 19	A	33	37	42	50	46	68	58	63	73	80	84	78	X 78	X 59	X 56	X 47	35	31	26	O R 25	C
17	C	C	C	C	C	C	C	C	C	C	C	X 56	X 63	X 69	X 70	X 64	68	60	58	46	48	R	A	A
18	A	A	B	A	A	A	54	B	B	55	A	R	70	B	95	77	68	52	67	A	R	A	A	A
19	A	A	A	A	R	R	39	B	B	B	R	B	B	B	O R 55	O R 52	O R 47	O R 43	R	A	A	A	41	R
20	A	C	C	R	A	B	B	B	B	B	B	B	B	B	B	O R 43	B	B	A	B	R	A	A	A
21	A	B	B	A	A	A	B	A	B	B	B	B	B	B	O R 45	B	B	B	B	A	30	A	A	A
22	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	O R 53	R	R	R	A	B	A
23	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	49	44	A	A	A	A	A
24	B	B	A	B	B	B	A	B	B	B	B	O R 42	O R 46	O R 45	B	B	O R 45	B	O R 30	B	B	B	B	A
25	B	B	B	B	B	B	B	B	B	B	B	B	O R 44	B	B	B	B	B	B	R	R	R	A	A
26	A	B	B	B	B	B	B	A	A	B	O R 40	B	O R 50	B	O R 52	B	O R 44	B	B	X 25	B	B	A	A
27	A	B	A	R	A	B	B	A	A	B	R	B	B	B	B	B	B	B	B	B	B	B	R	B
28	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	X 55	B	O R 56	B	R	A	A	A	A
29	B	A	B	B	B	B	A	B	A	B	B	B	B	B	B	O R 48	B	O R 46	R	R	R	R	A	44
30	50	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	R	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	4	4	4	2	4	5	6	7	8	10	12	11	14	11	13	13	16	16	11	11	8	7	5	6
MED	28	24	28	32	32	32	38	41	O R 42	47	O R 46	62	64	X 65	64	65	59	52	46	40	30	26	O R 23	O 20
UQ	42	35	36		36	40	50	45	46	53	58	65	70	X 70	71	71	66	56	52	42	32	29	O R 25	31
LQ	O A 20	O 20	20		28	31	35	R 36	O R 40	O R 42	O R 45	46	O R 50	58	O R 55	O R 55	O R 51	O R 46	44	34	29	24	O A 23	O A 18

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APR. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

APR. 1974

FOF2 (0.1 MHz)

45 E Mean Time (G. M. T.+ 3 h)

Station	SYOWA	STATION	Lat. 69 00.4 S.	Long. 39 35.4 E	Sweep	MHz to	15 MHz in	30 sec	in automatic	operation														
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	B	B	H	B	B	A	30	34	34	34	B	B	B	B	B	45	40	A	A	R	R	R	A
2	A	A	A	H	B	A	A	A	A	B	39	40	B	B	B	53	56	F	F	F	A	A	A	A
3	A	A	A	A	A	B	A	A	B	B	B	40	38	B	B	B	B	A	A	A	A	F	A	A
4	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	H	B	B	A	A	A	A	A	A
5	A	F	F	A	A	U F	A	F	32	35	36	39	39	44	46	F	R	F	B	B	U F	A	A	A
6	F	B	A	A	A	A	A	30	B	B	B	H	B	B	B	B	U R	39	38	F	B	R	A	A
7	A	B	A	A	B	B	B	A	B	36	B	H	B	B	B	B	B	B	B	B	F	B	A	A
8	A	A	A	A	A	A	A	A	F	32	37	41	45	52	54	55	R	F	B	B	B	U F	A	A
9	C	A	A	A	A	A	F	F	R	B	R	H	F	F	B	B	B	R	R	40	B	A	A	A
10	B	B	B	A	B	A	B	B	A	B	40	B	B	B	B	B	B	B	B	B	B	18	A	A
11	A	A	B	A	B	B	B	B	A	38	B	B	R	48	U R	B	48	F	B	B	B	A	B	A
12	A	A	R	R	U R	R	F	F	21	35	U R	46	58	U F	59	U F	55	46	36	37	28	F	F	
13	F	F	F	A	F	F	B	B	37	R	B	U F	62	F	F	F	U F	U F	51	39	U F	U F	U F	
14	A	A	26	A	F	F	B	B	U R	37	47	50	55	63	63	65	65	58	49	34	J	F	F	
15	A	F	U A	U A	A	F	F	F	25	F	35	44	52	60	60	62	60	63	51	48	U F	U F	U F	
16	U F	U S	A	U F	F	U F	U F	F	F	U F	U F	F	F	F	F	F	71	52	50	40	F	F	F	
17	C	C	C	C	C	C	C	C	C	C	50	57	63	64	58	60	53	46	U F	U F	A	A	A	
18	A	A	B	B	B	A	F	B	B	F	A	R	F	B	F	F	F	F	F	F	A	A	A	
19	A	A	A	A	A	A	F	B	B	B	R	B	B	B	49	46	41	37	R	A	A	A	F	
20	A	C	C	A	A	B	B	B	B	B	B	B	B	B	B	B	37	B	B	A	B	A	A	
21	A	B	B	A	A	A	B	A	B	B	B	B	B	B	B	B	39	B	B	B	B	A	F	
22	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	47	R	R	R	A	
23	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	41	32	A	A	A	
24	B	B	A	H	B	H	A	B	B	B	B	36	40	39	B	B	39	B	F	B	B	B	A	
25	B	B	B	B	B	B	B	B	B	B	B	B	38	B	B	B	B	B	B	R	R	R	A	
26	A	B	B	B	B	B	B	A	A	B	34	H	U R	B	46	B	38	B	B	18	B	R	A	
27	A	B	A	H	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	
28	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	49	B	50	B	A	A	A	
29	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	U R	B	U R	R	A	A	R	A	
30	F	A	A	A	A	A	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	A	R	
31																								
CNT	2	2	2	2	3	3	2	6	7	9	12	10	10	10	11	12	14	15	9	10	8	5	4	
MED	12	12	22	U	30	U F	28	F	30	35	38	40	50	48	58	55	57	50	46	37	F	F	F	
UQ					30	U F		F	32	36	44	50	58	60	63	59	63	54	50	39	F	F	F	
LQ					F	F		F	26	30		F	34	36	39	40	40	48	48	48	45	40	F	

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APR. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

APR. 1974

FOF1 (0.01 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									280	300	320	B	B	B	B	B	L							
2										B	A	330	B	B	B	L	L							
3									B	B	B	U R 330	310	B	B	B								
4									B	A	B	B	B	B	B	B								
5											L	350	350	330	320	F	B							
6										B	B	B	B	B	B	B								
7									B	300	B	B	B	B	B	B								
8												340	L	L	U L 340	B								
9										B	B	B	L	B	B	B								
10											B	B	B	B										
11														L										
12												L	L											
13																								
14																								
15																								
16																								
17																								
18													F	B	300									
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	2	1	4	2	1	3									
MED									280	300	320	335	330	330	320									
UQ												345			330									
LQ												330			310									

The Radio Research Laboratories, Japan

APR. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

APR. 1974

FOE (0.01 MHZ)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69 00.4 S.		Long. 39 35.4 E		Sweep		MHz to 15 MHz in		30 sec in automatic operation														
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					B	B	A	U R 190	A	A	220	B	B	B	B	B	B	B	A	A	A			
2					B	B	A	A	B	B	A	260	B	B	B	B	B	B	B	130	A			
3					A	B	B	A	B	B	B	B	240	B	B	B	B	A	A	A	B			
4					A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A			
5					A	A	A	A	H	190	200	A	A	220	220	U A 200	B	B	B	B	A	A		
6					B	A	A	K 255	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
7					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A		
8					B	B	A	B	200	A	240	220	215	U R 220	A	B	B	B	B	B	B			
9					B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B		
10					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
11					B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	180	B	B		
12					135	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B			
13					130	B	B	B	B	B	B	B	240	240	U R 220	180	165	B	B	B				
14					U K 190	K 130	A	A	B	B	B	B	190	215	220	215	I B 210	185	160	A	A	A		
15					A	120	110	130	155	210	220	225	220	210	180	160	A	A	A	A				
16					U K 150	K 155	U A 100	A	F	150	U A 160	H 200	F 230	F 230	220	200	190	155	130	B	B			
17					C	C	C	C	C	200	210	220	220	B	B	A	140	A	A					
18					A	C	B	B	A	B	A	U R 250	B	B	B	B	B	330	K 300	A	300	K 300		
19					A	B	B	B	B	A	B	B	B	B	B	U R 220	185	A	B					
20					B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B				
21					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
22					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A			
23					B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	B				
24					B	B	B	B	B	B	B	B	B	B	B	B	B	B	A					
25					B	B	B	B	B	R	B	B	B	B	B	B	B	B	B					
26					B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B				
27					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B				
28					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B				
29					B	B	B	B	B	R	B	B	B	B	B	B	B	B	220	K 220	B	180	K 160	
30					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	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			1	2	1	3	1	3	4	3	6	6	9	7	5	4	5	6	1	1	2	2		
MED			U K 190	K 140	K 155	130	120	190	170	160	205	220	225	220	210	182	160	182	300	K 130	240	K 230		
UQ					132			222	195	180	220	230	240	220	210	188	165	220	K 220					
LQ					115			150	140	158	200	215	220	220	200	180	160	140						

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APR. 1974

FOE (0.01 MHZ)

IONOSPHERIC DATA

APR. 1974

FOES (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	J A 58	50	45	42	B	46	J A 51	G	21	23	G	B	B	B	B	E B 27	E B 21	J A 39	J A 31	15	20	18	J A 31		
2	23	J A 54	41	51	J A 58	51	52	38	40		32	G	B	B	B	E B 22	E B 19	E B 20	E B 19	31	25	28	32	J A 46	
3	J A 115	92	J A 44	42	47	B	51	32	B	B	B	E B 33	G	B	B	B	B	43	J A 43	J A 36	J A 59	J A 74	70	J A 62	
4	76	J A 79	J A 77	J A 64	52	B	B	B	B	61	B	B	B	B	B	B	B	B	45	J A 54	42	40	35	38	
5	38	J A 27	J A 31	J A 124	J A 31	32	32	J A 26	21	22	J A 32	27	G	G	70	E B 60	E B 45	B	B	J A 34	25	J A 22	37	39	
6	J A 57	52	J A 39	J A 71	105	J A 40	41	K 26	B	B	B	B	B	B	B	B	E B 32	E B 25	16	E B 13	B	18	23	34	
7	J A 37	45	34	48	B	B	B	43	B	E B 25	B	B	B	B	B	B	B	B	B	B	15	21	29		
8	26	31	32	34	29	29	71	30	28	29	G	G	30	G	21	E B 56	E B 24	B	B	89	J A 34	J A 29	33	J A 31	
9	J A 40	J A 59	J A 51	35	J A 43	42	50	21	31	B	E B 35	B	E B 29	E B 33	B	B	B	E B 37	E B 37	E B 25	B	J A 34	26	J A 44	
10	88	48	52	J A 36	40	40	B	B	38	B	E B 32	B	B	B	B	B	B	B	B	B	J A 26	J A 42	23	J A 61	
11	J A 51	J A 52	B	J A 41	B	53	B	B	J A 50	E B 30	B	B	E B 33	E B 28	E B 45	B	E B 23	28	B	B	68	J A 46	B	28	
12	30	J A 21	18	21	J A 25	60	E B 22	15	E B 23	E B 27	E B 24	25	24	E B 25	E B 38	E B 22	E B 20	E B 22	E B 19	E B 19	E B 12	24	56	25	
13	J A 34	20	30	27	70	J A 28	B	60	E B 32	E B 32	B	E B 33	G	G	G	G	18	E B 26	E B 15	E B 13	J A 24	E B 13	B	13	
14	20	25	J K 27	K 70	32	26	B	B	E B 22	38	29	G	G	G	E B 23	J A 19	G	J A 13	J A 29	18	18	25	60	25	J A 29
15	25	J A 34	27	27	36	J A 24	G	J A 62	40	68	G	G	G	G	G	22	J A 23	30	J A 34	J A 26	9	10	23	J A 34	
16	J A 24	19	46	J K 26	K 29	J A 23	J A 22	J A 25	J A 33	21	G	27	27	G	G	G	J A 27	G	E B 10	12	E B 10	11	20	C	
17	C	C	C	C	C	C	C	C	C	C	C	G	23	J A 26	G	E B 23	E B 21	J A 22	J A 24	40	J A 27	36	35	35	D S 60
18	J A 84	J A 59	D S 59	39	39	40	25	B	B	35	61	56	G	B	27	E B 34	J A 27	K 33	J K 40	J A 46	K 35	K 35	40	71	
19	J A 62	J A 77	39	50	28	30	28	B	B	B	39	B	B	B	E B 36	E B 26	G	G	27	85	38	48	J A 56	32	
20	J A 136	C	C	24	J A 62	B	B	B	B	B	B	B	B	B	B	E B 32	B	B	52	B	29	78	41	42	
21	J A 30	B	B	42	37	32	B	37	B	B	B	B	B	B	E B 31	B	B	B	B	B	J A 46	J A 25	34	35	
22	45	52	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 37	E B 25	J A 30	J A 29	J A 74	52	32	
23	B	B	36	32	32	B	B	B	B	B	B	B	B	B	B	B	B	19	29	35	J A 34	35	34	J A 74	
24	B	B	28	B	B	B	51	B	B	B	B	B	E B 30	E B 29	E B 31	B	B	E B 30	B	14	B	B	B	46	
25	B	45	B	B	35	B	B	B	B	B	B	B	B	B	B	B	B	B	B	22	21	18	27	39	
26	D C 42	B	42	37	B	B	B	D C 32	45	B	E B 27	B	E B 33	B	E B 32	B	E B 28	B	B	E B 15	B	B	J A 36	27	
27	D C 68	B	40	45	75	B	B	71	72	B	B	B	B	B	B	B	B	B	B	B	B	B	20	B	
28	35	53	44	42	35	J A 57	58	42	B	B	B	B	B	B	B	E B 27	B	E B 30	B	38	J A 41	33	38	51	
29	47	30	41	B	B	51	B	53	B	B	B	B	B	B	B	E B 36	B	K 26	30	36	K 30	K 20	45	J A 84	
30	27	J A 39	37	46	40	35	B	B	B	B	B	B	B	B	B	B	B	B	B	B	38	12	22	46	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	23	24	25	22	19	14	17	14	12	14	12	15	11	13	14	16	18	19	22	25	26	27	28	
MED	41	48	40	42	38	40	46	32	32	U 26	E G 28	E G 26	E G 26	G	E B 27	E B 24	E B 24	E G 26	28	30	29	31	34	38	
UQ	J A 69	54	44	48	52	48	51	U 48	40	36	32	U 30	E B 30	E B 26	E B 36	E B 34	E B 28	29	40	36	38	42	39	48	
LQ	30	30	32	34	32	30	25	26	22	23	G	G	G	G	E G 21	E G 21	U 16	E B 21	U 16	U 16	24	20	23	31	

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APR. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

APR. 1974

F-MIN (0.1 MHZ)

° E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION	Lat. 69 00.4 S, Long. 39 35.4 E		Sweep MHz to 15 MHz in 30 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	15	32	32	30	B	28	15	11	17	17	19	B	B	B	B	B	27	21	15	10	10	10	8	9	
2	8	16	14	22	22	15	15	10	21	B	20	19	B	B	B	22	19	20	19	10	7	10	10	15	
3	10	10	19	11	10	B	22	19	B	B	B	33	22	B	B	B	B	10	11	10	15	10	23	13	
4	10	7	9	10	11	B	B	B	B	26	B	B	B	B	B	B	B	B	10	9	10	10	10	11	
5	9	9	7	10	10	11	9	10	14	17	17	17	17	16	14	60	45	B	B	12	9	8	8	10	
6	7	28	8	9	21	9	13	15	B	B	B	B	B	B	B	B	32	25	14	13	B	10	9	10	
7	11	25	18	21	B	B	B	23	B	25	B	B	B	B	B	B	B	B	B	B	10	B	9	9	
8	10	10	12	14	13	13	12	23	25	15	21	19	21	13	17	56	24	B	B	27	10	9	10	9	
9	F ₂₄	9	9	9	13	13	10	10	17	B	35	B	29	33	B	B	B	37	37	25	B	10	10	12	
10	24	22	25	9	27	14	B	B	31	B	32	B	B	B	B	B	B	B	B	B	10	9	9	10	
11	10	8	B	15	B	38	B	B	25	30	B	B	33	28	45	B	23	11	B	B	43	12	B	14	
12	10	9	9	9	9	10	22	10	23	27	24	22	24	25	38	22	20	22	19	19	12	10	9	9	
13	9	8	8	8	7	9	B	33	32	32	B	33	16	19	19	13	12	26	15	13	10	13	B	10	
14	14	11	9	10	11	11	B	B	22	21	18	14	15	16	23	10	10	10	8	8	13	10	10	10	
15	9	9	10	12	10	9	9	9	10	11	13	12	14	14	12	12	10	9	7	7	7	8	9	9	
16	7	E ₈	C ₈	9	9	10	8	7	8	8	10	11	13	14	13	15	13	10	10	10	10	10	9	10	C
17	C	C	C	C	C	C	C	C	C	C	C	9	12	13	15	23	21	11	8	7	7	10	9	9	12
18	8	8	26	20	26	10	E ₁₃	C ₁₃	B	B	15	23	22	22	B	23	34	18	11	E ₂₀	C ₂₀	9	8	9	9
19	10	12	11	20	9	12	20	B	B	B	16	B	B	B	36	26	19	16	9	14	10	9	10	10	
20	13	C	C	11	15	B	B	B	B	B	B	B	B	B	B	32	B	B	9	B	9	14	15	15	
21	10	B	B	20	12	20	B	20	B	B	B	B	B	B	31	B	B	B	B	B	10	9	9	9	
22	22	33	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	37	25	9	10	11	27	10	
23	B	B	25	11	23	B	B	B	B	B	B	B	B	B	B	B	B	9	9	20	8	9	10	11	
24	B	B	18	B	B	B	26	B	B	B	B	B	30	29	31	B	B	30	B	8	B	B	B	10	
25	B	34	B	B	31	B	B	B	B	B	B	B	33	B	B	B	B	B	9	12	9	11	9		
26	17	B	26	23	B	B	B	E ₂₀	C ₂₀	23	B	27	B	33	B	32	B	28	B	B	15	B	B	E ₉	C ₉
27	15	B	15	32	14	B	B	23	24	B	B	B	B	B	B	B	B	B	B	B	B	B	13	B	
28	9	15	12	22	21	10	20	26	B	B	B	B	B	B	B	27	B	30	B	12	8	7	8	16	
29	36	10	31	B	B	21	B	31	B	B	B	B	B	B	B	36	B	21	26	10	9	9	10	8	
30	10	11	15	25	25	18	B	B	B	B	B	B	B	B	B	B	B	B	B	B	8	10	8	8	
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	28	28	29	29	29	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	29	
MED	10	12	15	15	21	18	B	26	B	B	B	B	D ₃₃	B	B	B	38	28	20	13	10	10	10	10	
UQ	16	32	26	23	31	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	13	11	11	12	
LQ	9	9	9	10	11	11	15	U ₁₃	23	25	20	22	22	25	23	26	19	11	10	10	9	9	9	9	

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APR. 1974

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

APR. 1974

M(3000)F2 (0.01)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00.4' S.		Long. 39° 35.4' E		Sweep		MHz to 15 MHz in		30 sec in automatic operation																				
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1		A	B	B	B	B	B	A		265	275	255	255	B	B	B	B	B	295	320	A	A	R	R	R	A				
2		A	A	A	B	B	A	A	A	A	B		270	275		B	B	B	340	320	F	F	F	A	A	A				
3		A	A	A	A	A	B	A	A	B	B	B	265	240	B	B	B	B	A	A	A	A	F	A	A					
4		A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A				
5		A	F	F	A	A	U F	A	F	270	280	305	280	250	270	260	280	R	F	B	B	U F	A	A	A	A				
6		F	B	A	A	A	A	A		300	B	B	B	B	B	B	B	B	R		335	310	310	F	B	R				
7		A	B	A	A	B	B	B	A	B		260	B	B	B	B	B	B	B	B	B	B	B	F	B	A				
8		A	A	A	A	A	A	A	A	F	280	290	315	295	315	335	325	305	305	B	B	B	U F	A	A	U F				
9		C	A	A	A	A	A	F	245	280	R	B	R	B	F	320	F	B	B	B	R	R	310	B	A	A				
10		B	B	B	A	B	A	B	B	A	B		295	B	B	B	B	B	B	B	B	B	B	295	A	A				
11		A	A	B	A	B	B	B	B	A		290	B	B	R	315	R	B		320	275	B	B	B	A	B				
12		A	A	R	R	U R	R	F	F	285	315	U R	320	325	U F	330	335	U R	345	345	350	355	345	320	350	325				
13		F	F	F	A	F	F	B	B	315	R	B	F	F	F	F	U F	350	F	335	340	F	U F	R	B	315				
14		A	A	335	A	F	A	B	B	U R	295	335	340	325	335	345	350	355	345	345	F	U F	365	340	355	U F				
15		A	F	U A	A	A	F	F	F	290	325	320	345	345	340	345	350	350	335	350	F	U F	F	335	325	330				
16		U F	S	A	U F	F	U F	F	F	F	U F	325	F	F	340	F	370	365	365	340	360	340	F	320	355	335				
17		C	C	C	C	C	C	C	C	C	C	305	315	335	330	330	350	350	350	350	U F	F	A	A	A	A				
18		A	A	B	B	B	A	F	B	B	B	F	A	R	F	B	F	F	F	F	F	F	A	A	A	A				
19		A	A	A	A	A	A	F	B	B	B	B	B	B	B	B	B	315	325	315	295	R	A	A	A	F				
20		A	C	C	A	A	B	B	B	B	B	B	B	B	B	B	B	270	B	B	A	B	A	A	A	A				
21		A	B	B	A	A	A	B	A	B	B	B	B	B	B	B	325	B	B	B	B	B	B	A	F	A				
22		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	340	R	R	R	A	B				
23		B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	315	260	F	A	A	A	A				
24		B	B	A	B	B	B	A	B	B	B	B	315	300	335	B	B	350	B	B	F	B	B	B	B	A				
25		B	B	B	B	B	B	B	B	B	B	B	B	310	B	B	B	B	B	B	B	B	R	R	R	A				
26		A	B	B	B	B	B	A	A	B		305	B	U R	315	B	335	B	350	B	B	280	B	B	A	A				
27		A	B	A	B	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A				
28		A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	320	B	315	B	A	A	A	A	A				
29		B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	U R	320	B	U R	320	R	A	A	R	A				
30		F	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	R	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		2	1	2	1	3	3	2	6	7	8	12	9	10	10	10	12	12	15	9	7	7	4	4	5					
MED		F	F	315	U F	F	U F	F	F	282	F	295	298	305	315	315	335	332	342	340	335	330	F	310	F	325	F	338	340	330
UQ						F	F		F	290	315	320	322	325	335	340	350	350	350	342	345	F	330	F	U F	F	F	F	F	
LQ						270	258		F	270	280	275	288	275	300	320	325	320	318	318	F	310	F	310	F	F	F	F	F	

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APR. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

APR. 1974

H'F2 (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00.4' S, Long. 39° 35.4' E		Sweep		MHz to 15 MHz in 30 sec		in automatic operation																
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									400	505	510	B	B	B	B	B	300							
2										B	415	405		B	B	B	260	255						
3									B	B	B	450	505		B	B	B							
4									B	A	B	B	B	B	B	B								
5											L	500	400	425	360	B								
6										B	B	B	B	B	B	B								
7									B	450		B	B	B	B	B								
8												350	275	255	270	B								
9										B	B	350	B	290	245	B								
10											320	B	B	B										
11															L									
12												280	245											
13																								
14																								
15																								
16																								
17																								
18														F	B	F								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									1	2	4	5	5	3	2	1	2							
MED									400	478	382	405	290	255	315	260	278							
UQ											462	450	400	340										
LQ											335	350	275	250										

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APR. 1974

H'F2 (KM)

IONOSPHERIC DATA

APR. 1974

H'F (KM)

45 E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	B	B	B	B	B	B	A	A	350	305	250	250	B	B	B	B	B	300	290	A	A	A	A	A					
2	A	A	A	B	B	A	A	A	B	B	A	255	B	B	B	230	250	240	240	305	A	A	A	A					
3	A	A	B	A	A	B	A	A	B	B	B	B	260	B	B	B	B	A	A	A	A	A	B	A					
4	A	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	B	A	A	A	A	A	A					
5	A	A	F	A	A	A	A	395	295	275	A	220	225	250	250	B	B	B	B	290	A	A	A	A					
6	A	B	A	A	B	A	A	365	A	B	B	B	B	B	B	B	250	255	280	265	B	A	A	A					
7	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	295	B	A	A					
8	A	A	A	A	A	A	A	B	320	260	260	225	250	230	235	B	275	B	B	B	310	A	A	A					
9	C	A	A	A	A	A	A	355	A	B	B	B	260	B	B	B	B	250	B	280	B	A	A	A					
10	B	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	350	A	A	A					
11	A	A	B	A	B	B	B	B	A	B	B	B	E B	290	260	B	B	255	365	B	B	B	A	B					
12	A	A	A	A	U A	460	430	450	290	260	250	240	240	220	235	230	235	220	215	230	E B	250	230	230	A	E B	300		
13	E B	305	A	A	A	F	455	B	B	B	325	B	270	250	230	220	240	210	225	225	245	240	B	B	B				
14	B	A	A	A	A	A	415	B	B	300	260	240	230	230	230	225	225	210	215	200	205	230	240	255	A	E A	300		
15	A	F	A	A	A	A	400	350	290	245	220	240	230	225	225	215	210	210	205	210	200	205	220	255	A	E A	300		
16	A	A	A	370	355	330	315	300	250	240	230	215	230	225	225	215	200	200	210	215	230	240	250	A	C				
17	C	C	C	C	C	C	C	C	C	C	C	230	240	240	240	225	215	215	200	210	240	A	A	A	A	A			
18	A	A	B	B	B	A	F	B	B	F	A	A	F	B	B	B	325	250	290	400	F	F	A	A	A	A	A		
19	A	A	A	B	A	A	F	B	B	B	A	B	B	B	B	B	300	260	260	300	A	A	A	A	F	A			
20	A	C	C	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	B	B				
21	A	B	B	B	A	B	B	A	B	B	B	B	B	B	B	B	350	B	B	B	B	B	A	A	A	A	A		
22	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	300	U B	350	A	A	A	B	A		
23	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	240	380	B	A	A	A	A	A			
24	B	B	B	B	B	B	B	B	B	B	B	B	E B	295	300	255	B	B	B	255	B	250	B	B	B	B	A		
25	B	B	B	B	B	B	B	B	B	B	B	B	B	325	B	B	B	B	B	B	A	A	A	A	A	A			
26	B	B	B	B	B	B	B	B	A	A	R	B	B	300	280	B	250	B	250	B	B	B	B	B	A	A			
27	A	B	A	B	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B			
28	A	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	250	B	255	B	A	A	A	A	A	A			
29	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	300	B	A	A	A	A	A	F			
30	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	R	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	1		1	1	3	5	3	7	7	9	7	11	14	10	12	10	15	17	11	10	8	4	4	2					
MED	E B		280	370	445	415	350	350	295	260	240	235	248	232	232	232	250	250	230	245	235	235	252	E	300				
UQ				A	452	430	400	360	302	275	245	255	270	250	275	250	258	300	265	280	302	240	255						
LQ				400	400	332	295	255	250	235	228	230	230	230	225	215	212	215	210	215	230	225	A	250					

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APR. 1974

H'F (KM)

IONOSPHERIC DATA

APR. 1974

H^oES (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00.4' S, Long. 39° 35.4' E		Sweep MHz to 15 MHz in 30 sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	170	100	110	125	B	110	110	G	110	105	G	B	B	B	B	B	B	B	120	105	145	125	110	150			
2	110	180	110	100	120	110	110	110	110	B	120	G	B	B	B	B	B	B	B	115	140	120	125	120			
3	135	100	130	125	125	B	110	120	B	B	B	B	G	B	B	B	B	100	110	110	110	105	110	105			
4	110	100	100	110	100	B	B	B	B	100	B	B	B	B	B	B	B	B	105	110	100	110	110	110			
5	110	115	130	140	130	125	120	120	130	125	115	110	G	G	100	B	B	B	B	125	130	100	110	125			
6	120	110	100	170	130	130	120	K	125	B	B	B	B	B	B	B	B	B	160	B	B	125	110	110			
7	125	110	100	110	B	B	B	105	B	B	B	B	B	B	B	B	B	B	B	B	120	B	165	110			
8	120	115	125	125	120	105	130	100	150	110	G	G	110	100	105	B	B	B	B	130	115	115	115	110			
9	110	105	110	105	110	110	125	125	110	B	B	B	B	B	B	B	B	B	B	B	B	110	100	115			
10	100	110	110	100	160	100	B	B	105	B	B	B	B	B	B	B	B	B	B	B	135	100	120	110			
11	115	105	B	100	B	130	B	B	105	B	B	B	B	B	B	B	B	B	125	B	B	125	115	B	110		
12	120	110	125	120	110	105	B	140	B	B	B	120	120	B	B	B	B	B	B	B	B	100	150	120			
13	100	100	100	100	140	100	B	150	B	B	B	B	G	G	G	G	100	B	B	B	100	B	B	120			
14	115	150	K	K	140	130	B	B	B	115	130	G	G	G	B	100	100	100	100	100	110	130	100	125			
15	160	130	135	120	105	100	G	115	130	140	G	G	G	G	G	105	100	100	100	100	100	120	130	100			
16	100	120	180	125	K	150	100	100	100	110	130	G	150	120	G	G	G	100	G	B	130	B	100	100	C		
17	C	C	C	C	C	C	C	C	C	C	C	G	115	105	G	B	B	100	100	130	100	110	115	120	110		
18	150	100	110	130	135	120	C	110	B	B	125	110	125	G	B	160	B	140	K	K	110	110	K	K	100	105	
19	100	120	100	120	100	110	120	B	B	B	110	B	B	B	B	B	B	G	G	120	110	105	100	140	120		
20	150	C	C	125	150	B	B	B	B	B	B	B	B	B	B	B	B	B	100	B	105	105	105	115			
21	105	B	B	100	115	120	B	105	B	B	B	B	B	B	B	B	B	B	B	B	110	110	105	105			
22	100	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	105	110	100	100	115			
23	B	B	150	150	125	B	B	B	B	B	B	B	B	B	B	B	B	B	130	130	120	105	110	105	100		
24	B	B	100	B	B	B	105	B	B	B	B	B	B	B	B	B	B	B	130	B	B	B	B	110			
25	B	125	B	B	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	115	130	145	115	105			
26	100	B	130	120	B	B	B	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	100	120		
27	110	B	110	120	100	B	B	165	150	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	B		
28	105	115	145	125	130	150	100	115	B	B	B	B	B	B	B	B	B	B	B	110	100	105	125	105			
29	150	100	115	B	B	105	B	140	B	B	B	B	B	B	B	B	B	B	K	170	190	125	K	K	110	110	
30	105	100	110	115	130	140	B	B	B	B	B	B	B	B	B	B	B	B	B	B	100	125	150	105	105		
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	26	23	24	25	22	19	12	16	11	8	5	5	4	1	3	2	6	8	13	17	23	25	27	28			
MED	110	110	110	120	128	110	110	118	110	120	115	120	115	100	105	102	100	110	120	110	110	110	110	110			
UQ	125	118	130	125	135	128	120	132	130	128	120	125	120		132		100	128	130	120	130	125	125	120			
LQ	105	100	105	110	110	105	108	105	108	108	110	115	108		102		100	100	105	105	105	105	105	105			

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APR. 1974

H^oES (KM)

IONOSPHERIC DATA

APR. 1974

TYPES OF ES

45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	FR ₁₁	R ₁	R ₁	R ₁		R ₁	R ₂		L ₁	L ₁								R ₂	R ₁	R ₁	F ₁	R ₂	FR ₁₃									
2	R ₃	RR ₁₁	R ₂	F ₁	RR ₁₁	R ₁	R ₁	R ₂	LR ₁₁		R ₁								R ₁	RL ₁₁	R ₃	RF ₃₁	R ₂									
3	FR ₁₁	F ₂	RF ₁₁	RF ₁₁	RLR ₁₁		LR ₁₁	R ₁										R ₁	L ₂	RS ₂₁	R ₁	FR ₁₁	RR ₁₁	R ₂								
4	F ₁	FR ₂₁	F ₄	RF ₁₂	RR ₁₁					R ₁									RH ₁₁	R ₁	R ₂	R ₄	R ₅	R ₄								
5	R ₄	FR ₁₅	RF ₁₁	FR ₁₃	R ₁	R ₂	RL ₄₂	CC ₁₁	C ₁	C ₁	L ₂	C ₁			L ₁					L ₁	RL ₃₁	RR ₂₁	R ₄	R ₄								
6	RR ₁₁	R ₁	R ₃	RR ₁₄	R ₁	RL ₁₂	RL ₁₁	RK ₁₁											H ₁			F ₂	R ₂	R ₃								
7	R ₃	F ₁	R ₁	R ₁				R ₁														LL ₁₁		RF ₁₁	R ₃							
8	R ₂	R ₃	R ₂	R ₂	R ₂	LC ₁₁	LL ₁₁	L ₁	C ₁	L ₁			L ₁	L ₁	L ₁					C ₁	L ₂	R ₃	R ₅	R ₂								
9	RF ₁₁	R ₃	RF ₃₁	R ₃	R ₂	R ₂	R ₂	R ₁	R ₁													RS ₂₁	R ₂	R ₁								
10	F ₁	FR ₁₁	R ₁	R ₂	R ₁	L ₁			L ₁													F ₁	R ₄	R ₂	R ₂							
11	R ₃	RR ₁₂		F ₁		L ₁			L ₁										R ₁			F ₁	F ₂	F ₁								
12	FR ₁₁	R ₂	R ₁	R ₂	FR ₁₁	LC ₁₁		H ₁				L ₁	L ₁									F ₁	FF ₁₁	F ₁								
13	F ₁	F ₁	F ₁	R ₁	FF ₁₁	L ₁		H ₁														F ₁		F ₁								
14	F ₁	R ₁	RK ₁₁	CK ₁₁	R ₁	R ₁				R ₁	C ₁											L ₁	F ₁	FF ₁₁	F ₁	F ₁						
15	RF ₁₁	FR ₁₁	R ₁	R ₂	R ₂	LR ₁₃			L ₁	C ₁	H ₁											L ₁	FF ₁₁	F ₁	F ₁							
16	FR ₁₁	R ₁	RR ₁₂	RK ₁₁	RKL ₁₁	LC ₁₁	LR ₁₁	L ₁	LL ₁₁	RL ₁₁		H ₁	C ₁									C ₁	F ₁	F ₁								
17												R ₁	L ₁									L ₁	L ₁	CL ₁₃	L ₂	R ₂	R ₃	RF ₄₁	R ₂			
18	RR ₁₂	R ₂	R ₁	R ₁	R ₁	R ₂	R ₁			C ₁	R ₁	R ₁			H ₁							C ₁	K ₃	RK ₄₁	R ₆	HK ₂₆	HK ₃₅	R ₃	R ₂			
19	R ₂	R ₂	R ₂	R ₁	R ₁	L ₁	R ₁				R ₁																				RF ₃₁	
20	FR ₁₁			RF ₂₁	RF ₁₁																										R ₁	
21	F ₃			R ₁	R ₂	R ₁				R ₁																					R ₂	
22	F ₁	F ₁																													R ₂	
23			RF ₁₁	RR ₁₁	R ₁																										R ₂	
24			F ₁																												R ₂	
25		R ₁			F ₁																										R ₅	
26	F ₁		F ₁	F ₁								L ₁	R ₁																		R ₂	
27	RR ₁₁		R ₁	R ₁	F ₂							RR ₁₁	HR ₁₁																		F ₁	
28	R ₃	R ₂	RR ₁₂	R ₁	R ₁	RR ₁₂	L ₁	R ₁																							R ₂	
29	FR ₁₁	R ₁	R ₁			R ₁																									R ₁	
30	R ₂	R ₁	R ₂	R ₁	R ₁	RF ₁₁																									R 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

APR. 1974

TYPES OF ES

IONOSPHERIC DATA

MAY. 1974

FXI (0.1 MHZ)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00.4' S.		Long. 39° 35.4' E		Sweep		MHz to 15 MHz in		30 sec		in automatic		operation										
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	73	B	B	A	A	A	A	O A 34	X 37	X 40	O R 43	X 46	X 47	X 46	X 43	40	32	O R 26	O R 20	O A 21	60	87	A
2	A	A	A	A	B	B	A	A	A	B	O R 40	O R 46	B	B	B	O R 46	O R 46	O R 47	57	53	R	A	A	A
3	A	A	59	A	A	A	A	A	A	Y	B	R	B	B	B	O R 45	O R 46	O R 45	O R 36	B	R	A	A	A
4	A	A	A	A	49	A	A	A	B	B	B	B	O R 52	B	B	B	B	O R 61	R	R	A	A	A	A
5	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	63	B	R	A	A	B	B
6	B	B	B	B	B	A	C	A	X 42	B	B	C	61	X 66	X 68	66	55	X 47	O R 38	R 36	O R 23	O R 22	O A 24	C
7	C	22	C	C	C	C	C	C	C	48	61	69	C	C	85	82	C	R	R	R	R	A	A	R
8	A	A	A	R	46	52	40	39	39	60	66	X 80	O R 73	X 74	102	98	X 56	R	B	O R 38	A	O R 23	B	A
9	67	A	B	A	B	B	A	A	B	B	B	C	B	B	B	B	B	B	O R 55	B	B	B	B	B
10	B	A	A	A	A	39	41	41	41	X 40	B	R	76	O X 69	X 70	X 56	52	66	39	X 31	34	O A 20	B	A
11	A	A	A	A	A	R	R	A	A	46	59	R	76	78	81	80	R 53	R 45	B	B	O A 20	R	B	O A 18
12	O A 18	A	O A 23	A	A	A	46	44	45	51	65	69	76	X 69	X 72	X 70	47	37	36	O A 24	O A 24	C	O R 23	21
13	38	30	37	39	36	41	59	32	36	40	51	X 63	76	X 78	X 65	X 64	38	X 44	R 37	O R 23	A	O R 20	O A 21	R
14	A	A	34	39	52	A	A	60	53	60	70	77	82	79	71	64	50	49	44	58	27	O R 21	A	A
15	B	B	A	A	A	A	B	R	R	40	B	B	B	B	B	B	B	49	R	A	A	A	A	A
16	38	R	A	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	35	A	A	C	A	A
17	A	A	A	B	A	A	40	R	B	B	B	B	B	B	B	B	B	B	B	R	B	R	A	60
18	A	B	B	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	R	B	B	A	A
19	B	B	A	B	A	A	R	B	R	B	R	B	B	B	B	B	B	O R 35	B	A	A	R	A	A
20	A	B	B	A	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	R	A	R	A	A
21	B	40	A	R	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A
22	B	A	A	A	B	A	A	B	B	B	B	B	B	B	B	O R 40	B	B	B	O R 23	A	B	A	A
23	B	B	A	B	B	B	A	O R 25	A	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B
24	B	B	B	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	R	A	A	A	B
25	A	A	B	B	B	B	B	B	A	A	O R 35	47	O R 56	O R 54	X 56	B	B	B	B	B	B	A	A	A
26	A	A	B	B	R	A	A	B	B	B	B	B	B	B	B	B	B	O R 30	B	B	B	A	A	A
27	A	A	49	B	A	B	A	A	A	B	R	B	B	O R 48	X 52	X 52	R	B	B	R	A	A	A	A
28	A	B	A	A	A	B	A	A	A	A	B	B	B	B	B	B	O R 38	B	B	B	B	R	A	B
29	A	A	A	A	A	B	A	A	A	B	B	B	B	B	B	B	B	B	O R 22	B	B	B	A	B
30	A	A	A	A	A	A	A	A	B	R	O R 44	X 46	X 52	X 54	53	61	56	R	O A 22	A	A	A	A	A
31	A	A	A	B	A	A	A	A	A	C	R	X 39	O R 42	X 46	X 52	71	B	B	B	B	B	B	B	B
CNT	4	4	5	2	4	3	5	6	7	9	10	10	12	12	13	15	13	14	11	9	6	6	4	3
MED	38	35	37	39	48	41	41	40	41	46	55	55	67	68	68	64	49	45	O R 37	O R 31	O A 24	O R 22	O A 24	21
UQ	52	56	49		50	46	46	44	44	51	65	69	76	X 76	72	70	53	49	42	38	27	O R 23	56	40
LQ	28	26	34		41	40	40	32	38	40	O R 40	46	52	X 51	X 53	49	46	35	O R 31	O R 23	O A 21	O R 20	O R 22	20

The Radio Research Laboratories, Japan

MAY. 1974

FXI (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1974

FOF2 (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	B	B	A	A	A	A	F 28	31	34	37	40	40	40	F 37	F 31	F 26	F 20	U F 14	F 15	U F 11	A	A
2	A	A	A	A	B	B	A	A	A	B	U R 34	40	B	B	B	40	40	U 41	F 46	R	A	A	A	A
3	A	A	A	A	A	A	A	B	A	Y	B	B	B	B	B	39	40	F 38	U 28	B	A	A	A	A
4	A	A	A	A	F	B	B	B	B	B	B	B	46	B	B	B	B	B	55	R	R	A	A	A
5	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	U 46	B	R	A	A	B	B
6	B	B	B	B	B	B	C	A	F 26	B	B	C	F 54	59	61	F 60	F 47	F 40	F 32	U F 30	U 15	U F 16	U 12	I C 14
7	C	F 15	C	C	C	C	C	C	C	J F 37	F 52	F 62	C	C	F	F	C	R	R	R	R	A	A	A
8	A	A	A	A	F 22	F 22	F 22	F 21	30	F 43	U F 55	74	R 67	J R 78	U R 92	F	U F 50	R	B	F 31	A	F 17	B	A
9	A	A	B	A	B	B	A	B	B	B	B	C	B	B	B	B	B	B	R 49	B	B	B	B	B
10	B	A	A	A	A	F 32	F 35	U F 32	F 30	F 34	B	R	F	63	63	50	40	44	31	F 25	F 18	F 11	B	B
11	A	A	A	A	A	R	R	A	A	F 38	J F 53	R	F 67	F	F	F	U R 47	U F 39	B	B	A 13	A	B	12
12	12	A	U F 17	A	A	A	F	U F 31	U F 35	U F 38	U F 54	F 62	H 70	62	66	63	F	F 30	F 29	F 17	F 17	I C 15	F 14	F 13
13	A	F	F	F	U F 17	F	F	U F 18	U F 19	U F 32	U F 45	57	J F 70	F 71	F 58	R 57	U F 31	37	F	17	A	F 12	F 13	A
14	A	A	F	F	A	A	A	F	F	F	U F 50	U F 63	F 71	U F 71	F 64	F 56	F 40	U F 35	U F 33	U F 33	U F 19	F 14	A	A
15	B	B	B	A	A	B	B	B	A	J F 31	B	B	B	B	B	B	B	F 41	A	A	A	A	A	A
16	A	A	B	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	J F 29	A	A	C	A	A
17	A	B	B	B	A	B	F	R	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	F
18	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	R	B	B	A	A
19	B	B	B	B	B	A	B	B	A	B	B	B	B	B	B	B	B	B	29	B	A	A	R	A
20	A	B	B	B	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	R	A	A	A	A
21	B	F	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A
22	B	A	B	A	B	A	A	B	B	B	B	B	B	B	B	34	B	B	B	17	A	B	A	B
23	B	B	A	B	B	B	A	19	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	B
24	B	B	B	B	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	A	A	A	A	B
25	B	A	B	B	B	B	B	B	A	A	F 29	F 41	50	48	50	B	B	B	B	B	B	A	A	A
26	A	A	B	B	R	A	A	B	B	B	B	B	B	B	B	B	B	24	B	B	B	A	A	A
27	A	A	B	B	A	B	A	B	A	B	R	R	B	42	46	F 44	R	B	B	R	A	A	A	A
28	A	B	B	A	A	B	A	A	A	A	B	B	B	B	B	B	32	B	B	B	B	B	A	B
29	B	A	A	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	16	B	B	B	B	B
30	A	A	A	A	A	A	B	B	B	A	F 36	40	46	F 48	F 47	F 48	U F 40	R	F 16	A	A	A	A	A
31	A	A	B	B	A	A	A	A	A	C	R	33	36	40	F 46	U F 56	B	B	B	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1	1	1	2	2	2	6	6	8	10	10	11	11	11	12	12	14	10	8	6	7	3	3
MED	12	F 15	U F 17	F 30	F 20	F 27	F 28	F 26	F 29	F 36	F 48	49	54	59	58	49	40	F 38	F 30	F 21	F 16	F 14	F 13	13
UQ								U F 32	F 30	F 38	U F 53	F 62	F 68	67	64	56	44	F 41	F 35	F 30	F 18	F 16	F 14	14
LQ								F 19	F 26	F 32	F 34	40	46	45	46	40	F 36	F 29	F 20	F 17	F 15	F 12	F 12	12

MAY. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

MAY. 1974

FOF1 (0.01 MHz)

45° E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

MAY. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

MAY. 1974

FOE (0.01 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station **SYOWA STATION** Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	A	A	190	A	B	A	U R 190	U R 205	U B 170	F 165	A	U B 90					
2							B	B	B	B	A	B	B	B	B	B	B	B	B					
3							B	B	B	Y	B	B	B	B	B	B	B	B	B					
4							B	B	B	B	B	B	B	B	B	B	B	B	B					
5							B	B	B	B	B	B	B	B	B	B	B	B	B					
6							C	A	A	B	B	C	B	B	A	A	B	R 120	B					
7							C	C	C	A	A	A	C	C	B	B	C	B	B					
8	K 180	K 260	K 200		K 200	K 150	U A 120	U A 100	A	150	A	A	B	B	B	B	B	B	B	B	B	B	B	B
9							B	B	B	B	B	C	B	B	B	B	B	B	B					
10						U K 220	U K 180	125	A	U A 130	B	B	B	B	B	B	A	A	A	B				
11							B	B	A	A	B	A	A	B	B	B	B	A	B					
12							K 210	U A 140	U A 95	100	A	B	B	A 200	B	A	B	B						
13							A	B	U A 100	150	B	B	B	B	140	B	B							
14							A	U F 120	U A 105	120	U B 140	A	B	A	A	A	105	100	A					
15							B	B	A	B	B	B	B	B	B	B	B	B						
16							B	B	B	B	B	B	B	B	B	B	B	B						
17							B	B	B	B	B	B	B	B	B	B	B	B						
18							B	B	B	B	B	B	B	B	B	B	B	B						
19							B	B	B	B	B	B	B	B	B	B	B	B						
20							B	B	B	B	B	B	B	B	B	B	B	B						
21							B	B	B	B	B	B	B	B	B	B	B	B						
22							B	B	B	B	B	B	B	B	B	B	B	B						
23							A	B	B	B	B	B	B	B	B	B	B	B						
24							B	B	A	B	B	B	B	B	B	B	B	B						
25							B	B	A	B	A	B	B	B	B	B	B	B						
26							B	B	B	B	B	B	B	B	B	B	B	B						
27							B	A	B	B	B	B	B	B	B	K 270	A	B						
28							B	A	B	B	B	B	B	B	B	B	B	B						
29							B	B	B	B	B	B	B	B	B	B	B	B						
30							B	B	A	U A 160	145	150	A	170	B	A	B							
31							B	B	C	B	A	B	B	B	B	B	B							
CNT	1	2	1		1	2	3	3	2	6	3	2	1	2	2	3	2	2	1		1	2	2	2
MED	K 180	K 180	K 200		K 200	K 185	U K 180	U A 125	U 108	118	150	142	150	195	188	170	135	110	U B 90		K 170	K 150	K 135	K 150
UQ							K 195	132		150	155					220								
LQ							U 150	112		U A 100	135					155								

The Radio Research Laboratories, Japan

MAY. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

MAY. 1974

FOES (0.1 MHz)

45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION		Lat. 69 00.4 S, Long. 39 35.4 E		Sweep		MHz to 15 MHz in 30 sec in automatic operation																			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	37	49	40	44	39	53	J A 47	J A 54	41	J A 23	28	E B 22	27	G	G	27	G	21	14	17	J A 24	31	J A 34	J A 37	
2	30	J A 70	J A 77	52	42	57	51	50	36	B	33	E H 30	B	B	B	E B 31	E B 25	E B 32	J A 24	33	33	40	46	J A 45	
3	40	43	48	62	J A 42	39	39	53	60	Y	B	B	B	B	B	E B 36	E B 25	E B 22	17	B	J A 24	J A 22	23	28	
4	36	J A 32	J A 69	J A 79	J A 62	50	43	63	B	B	B	B	E B 34	B	B	B	B	E B 23	36	35	39	33	36	J A 45	
5	B	35	42	40	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 22	B	26	J A 40	36	79	47	
6	45	D C 95	B	46	B	39	C	J A 42	J A 26	B	B	C	E B 25	E B 26	28	20	E B 15	G	23	15	16	71	25	C	
7	C	K 76	C	C	C	C	C	C	C	24	J A 24	27	C	C	E B 28	E B 25	C	E B 44	32	29	18	K 66	J K 24	K 18	
8	J K 25	K 28	K 26	28	K 23	K 19	18	42	20	42	29	28	F B 26	E B 27	E B 45	E B 21	E B 25	E B 32	B	E B 19	K 58	K 18	K 15	K 23	
9	J A 32	J A 38	B	J A 37	B	B	J A 28	31	B	B	B	C	B	B	B	B	B	B	E B 46	B	B	B	B	B	
10	B	J A 34	J A 34	34	J A 46	K 27	K 26	22	J A 21	43	B	E B 51	E B 22	E B 34	E B 23	21	J A 27	13	17	E B 10	J A 32	25	B	J A 52	
11	53	41	26	39	D C 140	20	23	J A 36	47	89	35	35	21	E B 23	E B 21	24	E B 20	27	B	B	28	14	B	J A 34	
12	32	J A 33	30	43	50	40	J K 27	J A 26	16	18	J A 22	E B 20	E B 22	40	25	19	J A 30	E B 10	18	J A 23	J A 23	C	18	J A 34	
13	21	J A 24	J A 63	J A 54	47	30	28	15	16	J A 29	J A 22	E B 20	19	E B 21	E B 8	17	E B 13	E B 12	E B 12	E B 11	21	18	30	16	
14	39	J A 50	29	28	32	J A 62	J A 49	29	16	15	G	22	25	25	26	J A 22	J A 52	J A 20	18	17	18	18	22	82	
15	46	37	37	73	64	38	34	38	38	J A 31	B	B	B	B	B	B	E B 15	J A 40	44	J A 94	J A 40	J A 54	38	35	
16	J A 33	25	38	J A 84	57	64	68	81	J A 77	43	B	B	B	B	B	B	B	E B 22	35	J A 34	28	32	34	34	
17	39	50	68	76	37	54	50	20	62	B	B	B	B	B	B	B	B	B	B	28	B	25	30	42	J A 80
18	78	B	41	B	43	B	B	B	J A 36	B	B	B	B	B	B	B	B	B	B	24	B	B	38	131	35
19	B	B	35	53	55	87	32	B	35	B	B	B	B	B	B	B	B	E B 20	B	35	38	15	J A 36	21	
20	J A 62	B	B	J A 50	38	B	44	46	53	B	B	B	B	B	B	B	B	B	B	16	31	20	38	50	40
21	B	66	34	18	62	B	B	59	B	B	B	B	B	B	B	B	B	B	B	B	B	26	J A 42	32	37
22	33	48	J A 70	J A 38	B	32	32	B	B	B	B	B	B	B	B	E B 24	B	B	B	18	27	B	36	D C 140	
23	50	125	J A 44	39	B	B	67	23	48	B	B	B	B	B	B	B	B	B	B	B	J A 41	J A 37	J A 84	J A 43	
24	B	58	B	40	40	77	52	B	33	J A 29	75	B	B	B	B	B	B	B	J A 24	J A 43	33	56	J A 40	B	
25	38	35	B	B	B	35	B	B	J A 36	J A 35	23	32	35	E B 25	E B 22	B	B	B	B	B	25	30	28	35	
26	36	33	35	B	16	J A 51	J A 42	B	B	B	B	B	B	B	B	B	B	E B 20	B	B	38	19	40	35	
27	33	33	35	B	J A 27	B	52	58	J A 61	B	E B 23	B	B	E B 34	25	K 27	28	B	B	24	55	25	J A 33	J A 32	
28	38	J A 100	J A 73	J A 47	34	57	69	J A 61	J A 49	39	B	B	B	B	B	B	E B 24	B	B	B	B	17	28	B	
29	25	32	J A 39	J A 46	J A 35	B	53	J A 47	40	B	B	B	B	B	B	B	B	B	E B 13	B	B	B	20	B	
30	31	31	33	34	41	46	58	41	B	J A 30	18	17	J A 22	J A 22	G	E B 15	25	25	J A 27	41	35	37	45	40	
31	J A 41	J A 47	D C 140	56	54	51	J A 53	34	45	29	24	27	27	30	25	E B 14	B	B	B	B	B	B	B	B	
CNT	25	28	25	26	24	22	25	23	23	15	13	12	12	12	13	15	14	18	19	19	26	26	27	25	
MED	37	40	39	45	42	48	44	42	38	30	24	U 24	U 22	E B 26	E G 25	U 20	E B 25	E B 22	24	26	28	32	34	35	
UQ	41	54	J A 63	54	54	57	52	54	48	40	29	30	26	E B 32	26	U 24	27	E B 27	29	34	38	38	41	45	
LQ	32	33	34	38	36	35	32	30	30	26	22	U 19	20	E B 21	19	E B 15	E B 20	17	18	24	19	26	34		

The Radio Research Laboratories, Japan

MAY. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

MAY. 1974

F-MIN (0.1 MHZ)

45° E Mean Time (G. M. T. + 3 h)

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	15	9	22	23	15	22	21	10	10	10	10	22	15	18	18	17	13	10	9	9	9	8	E C	7	
2	7	8	10	13	26	30	13	13	20	B	16	30	B	B	B	31	25	32	15	22	9	10	11	10	
3	10	10	9	9	15	11	15	32	24	Y	B	B	B	B	B	36	25	22	13	B	11	13	9	8	
4	9	9	11	11	8	27	28	27	B	B	B	B	34	B	B	B	B	23	26	21	9	9	9	9	
5	B	20	9	25	B	B	B	B	B	B	B	B	B	B	B	B	B	22	B	10	8	10	21	32	
6	30	48	B	20	B	26	C	11	10	B	B	C	25	26	11	15	15	11	15	10	9	9	9	C	
7	C	8	C	C	C	C	C	C	C	9	10	11	C	C	28	25	C	44	11	7	15	E C	E C	9	
8	8	8	9	9	9	9	8	9	9	9	10	10	26	27	45	21	25	32	B	19	16	9	13	8	
9	9	16	B	11	B	B	16	25	B	B	B	C	B	B	B	B	B	B	46	B	B	B	B	B	
10	B	9	9	15	11	9	9	9	10	12	B	51	22	34	23	15	10	10	11	10	8	8	B	13	
11	11	11	12	10	12	12	11	13	11	12	15	18	19	23	21	15	20	12	B	B	11	12	B	9	
12	10	9	8	10	14	14	10	10	9	9	10	20	22	13	18	10	11	10	10	9	8	C	9	8	
13	8	9	9	8	8	9	9	9	9	10	11	20	17	21	8	10	13	12	12	11	10	9	9	10	
14	10	9	9	10	14	20	10	9	9	9	10	14	15	16	12	9	9	9	11	10	8	9	10	10	
15	24	23	18	15	15	27	30	35	14	11	B	B	B	B	B	B	15	15	10	10	10	10	10	E C	
16	8	9	19	15	31	20	22	22	14	25	B	B	B	B	B	B	B	22	20	10	E C	25	9	9	10
17	12	20	18	26	16	26	11	13	32	B	B	B	B	B	B	B	B	B	11	B	10	8	11	9	
18	19	B	36	B	25	B	B	B	16	B	B	B	B	B	B	B	B	B	12	B	B	10	9	9	
19	B	B	16	34	22	13	26	B	23	B	B	B	B	B	B	B	B	20	B	11	12	12	9	9	
20	14	B	B	21	22	B	20	25	20	B	B	B	B	B	B	B	B	B	10	11	9	8	10	17	
21	B	9	10	12	44	B	B	23	B	B	B	B	B	B	B	B	B	B	B	B	B	9	9	10	10
22	25	13	20	11	B	21	23	B	B	B	B	B	B	B	B	24	B	B	B	9	9	B	8	15	
23	32	37	E C	13	28	B	B	11	10	24	B	B	B	B	B	B	B	B	B	B	8	10	10	20	
24	B	37	B	21	17	28	33	B	16	8	64	B	B	B	B	B	B	B	9	9	9	10	9	B	
25	16	E C	10	B	B	23	B	B	12	10	12	16	26	25	22	B	B	B	B	B	22	8	9	9	
26	10	10	21	B	10	12	10	B	B	B	B	B	B	B	B	B	B	20	B	B	29	10	E C	10	
27	9	9	20	B	12	B	13	28	10	B	23	B	B	34	22	E C	12	11	B	B	21	13	8	8	8
28	13	20	15	10	10	25	13	15	11	25	B	B	B	B	B	B	24	B	B	B	B	14	10	B	
29	14	9	13	10	10	B	23	14	16	B	B	B	B	B	B	B	B	B	13	B	B	B	14	B	
30	10	9	9	12	16	15	22	23	B	13	13	10	10	10	13	15	10	23	10	12	9	13	10	10	
31	9	9	15	20	14	10	13	15	20	E C	27	22	18	21	20	16	14	B	B	B	B	B	B	B	B
	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	31	30	30	30	30	29	30	30	30	31	29	30	30	31	31	30	31	31	31	31	30	31	30	
MED	12	10	15	15	16	24	16	22	16	D	27	B	B	B	B	B	B	32	15	19	10	10	10	10	
UQ	25	20	21	25	31	B	26	35	32	B	B	B	B	B	B	B	B	B	B	B	18	12	12	17	
LQ	9	9	9	10	12	13	11	11	10	10	14	20	22	25	22	15	15	18	11	10	9	9	9	9	

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MAY. 1974

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

MAY. 1974

M(3000)F2 (0.01)

45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION		Lat. 69 00.4 S.		Long. 39 35.4 E		Sweep		MHz to 15 MHz in 30 sec		in automatic operation															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	B	B	A	A	A	A	F 285	F 305	F 295	F 290	F 305	F 325	F 330	F 350	F 340	F 340	F 300	F 305	F 300	F	F	A	A
2	A	A	A	A	B	B	A	A	A	B	A	300	B	B	B	330	325	U 315	F 305	R	A	A	A	A	A
3	A	A	A	A	A	A	A	B	A	Y	B	B	B	B	B	310	320	F 290	U 320	F	B	A	A	A	A
4	A	A	A	A	F	B	B	B	B	B	B	B	B	B	B	B	B	290	R	R	A	A	A	A	A
5	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	U 300	B	R	A	A	B	B	B
6	B	B	B	B	B	B	C	A	F 270	B	B	C	F 335	F 340	F 345	F 335	F 320	F 350	F 325	U 335	U 300	U 315	U 335	C	C
7	C	F 285	C	C	C	C	C	C	C	J 305	F 315	F 340	C	C	F	F	C	R	R	R	R	R	A	A	A
8	A	A	A	A	A	F 265	F 275	F 275	F 250	F 325	U 310	F 350	320	J 300	U 305	F	U 305	R	B	F 330	A	F 335	B	A	A
9	A	A	B	A	B	B	A	B	B	B	B	C	B	B	B	B	B	B	325	R	B	B	B	B	B
10	B	A	A	A	A	F 275	F 290	F	F 300	F 295	B	R	F	350	350	360	300	330	F 355	F 360	F 300	F 335	B	B	B
11	A	A	A	A	A	R	R	A	A	F 320	J 320	R	F 350	F	F	F	U 325	R	F	B	B	A	A	B	310
12	315	A	F	A	A	A	F	U 330	F	U 315	U 350	F 355	H 345	355	335	365	F	F 335	F 370	F 325	F 335	I 335	C 345	F 360	F
13	A	F	F	F	F	F	F	U 280	U 305	F	F	320	J 330	V 350	F 335	350	R	F	325	F	340	A	F 335	F 310	A
14	A	A	F	F 275	A	A	A	F 270	F	F	F 320	U 315	F 325	U 325	F 335	F 350	300	F	U 335	F	315	F 335	F	A	A
15	B	B	B	A	A	B	B	B	A	F 290	B	B	B	B	B	B	B	F 295	A	A	A	A	A	A	A
16	A	A	B	A	B	A	A	A	A	A	B	B	B	B	B	B	B	J 295	A	A	C	A	A	A	A
17	A	B	B	B	A	B	F	R	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A	F
18	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	R	B	B	A	A	A
19	B	B	B	B	B	A	B	B	A	B	B	B	B	B	B	B	B	B	290	B	A	A	R	A	A
20	A	B	B	B	B	B	A	B	A	B	B	B	B	B	B	B	B	B	R	A	A	A	A	A	B
21	B	F	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A
22	B	A	B	A	B	A	A	B	B	B	B	B	B	B	B	B	325	B	B	B	305	A	B	A	B
23	B	B	A	B	B	B	A	F 275	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B
24	B	B	B	B	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	A	A	A	A	A	B
25	B	A	B	B	B	A	B	A	A	310	340	335	335	315	B	B	B	B	B	B	B	B	A	A	A
26	A	A	B	B	R	A	A	B	B	B	B	B	B	B	B	B	B	B	300	B	B	B	A	A	A
27	A	A	B	B	A	B	A	B	A	B	R	B	B	355	330	340	F	R	B	B	R	A	A	A	A
28	A	B	B	A	A	B	A	A	A	A	B	B	B	B	B	B	B	325	B	B	B	B	B	A	B
29	B	A	A	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	315	B	B	B	B	B
30	A	A	A	A	A	A	B	B	B	A	F 335	F 335	F 325	F 315	F 320	F 315	F	R	F 315	A	A	A	A	A	A
31	A	A	B	B	A	A	A	A	A	C	R	305	305	300	F 285	U 305	B	B	B	B	B	B	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	1	1		1		2	2	5	5	7	8	10	11	11	11	12	10	12	10	7	6	6	3	2	
MED	315	285		275		270	282	275	285	305	318	328	325	335	330	338	320	308	322	330	305	335	335	335	
UQ								U 280	F 300	F 318	F 328	F 340	335	350	335	350	325	332	335	338	315	335	340		
LQ								275	270	F 300	F 310	305	322	320	318	320	300	292	315	F 315	300	335	F 322		

The Radio Research Laboratories, Japan

MAY. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1974

H^oF₂ (KM)

45° E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1												L												
2																								
3																								
4																								
5																								
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28																								
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

MAY. 1974

H^oF₂ (KM)

IONOSPHERIC DATA

MAY. 1974

H'F (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00.4' S, Long. 39° 35.4' E		Sweep MHz to 15 MHz in 30 sec in automatic operation																						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	B	A	B	B	B	B	B	A	330	275	260	255	275	250	245	240	240	250	210	A	A	A	A	A		
2	A	A	A	B	B	B	A	A	B	B	A	B	B	B	B	B	260	250	B	260	A	A	A	A	A	
3	A	A	A	A	B	A	A	B	B	Y	B	B	B	B	B	B	275	280	255	B	A	A	A	A	A	
4	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	295	A	A	A	A	A	A	
5	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	285	B	A	A	A	B	B	
6	B	B	B	B	B	B	C	A	A	B	B	C	225	225	225	205	225	215	255	220	E 255	E 250	E 265	C		
7	C	325	C	C	C	C	C	C	C	250	225	235	C	C	225	210	C	B	A	A	B	A	A	A	A	
8	A	A	A	A	A	405	350	330	320	230	225	220	240	260	240	200	250	B	B	255	A	280	B	A	A	
9	A	B	B	A	B	B	B	B	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	B	
10	B	A	A	B	A	420	340	310	295	275	B	B	230	225	210	200	225	220	210	220	250	A	B	B		
11	B	B	B	A	A	A	A	A	A	250	220	220	210	230	225	200	230	210	B	B	B	B	B	B	B	
12	B	A	A	A	A	A	330	260	260	245	210	215	210	200	220	200	230	215	210	E 250	250	I 230	255	270		
13	A	F	A	300	330	340	330	320	A 280	245	225	225	210	205	200	195	200	225	215	225	A	B	B	B		
14	A	A	375	330	A	B	A	380	330	260	245	230	230	205	205	200	200	220	H 240	225	210	220	A	A		
15	B	B	B	B	B	B	B	B	A	330	B	B	B	B	B	B	290	A	A	A	A	A	A	A	A	
16	A	A	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	330	A	A	C	A	A	A	
17	A	B	B	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A	A	
18	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	A	B	B	A	A	A	
19	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	320	B	A	A	A	A	A
20	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	B	
21	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	
22	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	250	B	A	A	B	A	B
23	B	B	C	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B	
24	B	B	B	B	B	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	A	A	A	A	B	
25	B	A	B	B	B	B	B	B	A	A	290	250	260	B 250	245	B	B	B	B	B	B	B	A	A	A	
26	A	A	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	E 350	B	B	B	A	C	A
27	A	A	B	B	A	B	A	B	A	B	B	B	B	B	B	250	250	240	A	B	B	B	A	A	A	
28	B	B	B	A	A	B	A	A	A	B	B	B	B	B	B	B	B	B	250	B	B	B	B	A	B	
29	B	A	B	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
30	A	A	A	B	B	B	B	B	B	A	250	215	230	225	225	205	210	B	A	B	A	B	A	A	A	
31	A	A	B	B	B	A	A	A	B	C	A	300	300	A 280	280	230	B	B	B	B	B	B	B	B	B	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT		1	1	2	1	3	4	5	6	9	9	11	12	12	13	14	13	13	8	6	4	4	2	1		
MED		325	375	315	330	405	335	320	308	250	225	230	230	228	225	205	230	U 238	228	224	240	232	A 258	270		
UQ						412	345	330	330	275	250	252	268	250	245	240	250	290	255	250	251	265				
LQ						372	330	310	280	245	225	220	218	215	220	200	225	220	210	220	230	225				

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MAY. 1974

H'F (KM)

IONOSPHERIC DATA

MAY, 1974

H^oES (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	120	160	100	110	115	105	105	100	110	100	100	B	100	G	G	130	G	130	120	100	100	100	100	100
2	105	130	100	110	110	150	100	100	115	B	100	B	B	B	B	B	B	B	100	125	115	115	110	115
3	110	100	110	100	110	100	105	115	105	Y	B	B	B	B	B	B	B	B	145	B	145	130	110	110
4	110	100	110	110	130	100	125	100	B	B	B	B	B	B	B	B	B	B	125	125	100	105	105	105
5	B	115	105	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	110	100	115	100	110
6	125	130	B	100	B	125	C	105	110	B	B	C	B	B	100	105	B	G	125	130	100	125	100	C
7	C	K 130	C	C	C	C	C	C	C	100	100	100	C	C	B	B	C	B	110	105	160	K 125	K 105	K 150
8	K 115	K 100	K 115	100	110	K 130	K 110	150	105	140	100	100	B	B	B	B	B	B	B	B	K 125	K 170	B	K 100
9	105	115	B	100	B	B	150	130	B	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B
10	B	115	110	130	115	K 110	K 110	160	175	140	B	B	B	B	B	110	100	105	100	B	170	105	B	130
11	130	160	150	145	125	110	110	110	105	130	110	105	105	B	B	120	B	105	B	B	105	120	B	125
12	150	100	105	110	105	100	K 105	110	100	140	100	B	B	100	110	105	110	B	100	100	100	C	100	125
13	105	150	135	120	170	110	130	105	110	120	110	B	120	B	B	100	B	B	B	B	115	100	125	115
14	115	100	110	105	110	125	100	110	125	140	G	110	110	110	110	105	125	125	120	105	100	100	150	110
15	110	120	110	105	150	125	125	115	100	110	B	B	B	B	B	B	B	B	110	110	170	110	150	110
16	165	110	115	105	145	105	150	130	100	120	B	B	B	B	B	B	B	B	120	120	130	110	110	115
17	110	110	165	100	110	110	125	130	120	B	B	B	B	B	B	B	B	B	100	B	110	100	110	170
18	130	B	105	B	125	B	B	B	110	B	B	B	B	B	B	B	B	B	125	B	B	110	125	110
19	B	B	110	110	105	140	125	B	100	B	B	B	B	B	B	B	B	B	B	110	110	170	110	120
20	100	B	B	115	100	B	100	110	100	B	B	B	B	B	B	B	B	B	110	115	150	105	150	120
21	B	115	105	100	130	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	115	105	110	110
22	125	105	100	130	B	125	125	B	B	B	B	B	B	B	B	B	B	B	120	105	B	110	125	
23	130	150	100	110	B	B	130	110	110	B	B	B	B	B	B	B	B	B	B	B	100	105	150	105
24	B	120	B	100	100	105	150	B	100	105	130	B	B	B	B	B	B	B	140	105	100	120	150	B
25	110	100	B	B	B	105	B	B	125	110	125	120	115	B	B	B	B	B	B	B	130	105	110	110
26	115	115	140	B	90	100	105	B	B	B	B	B	B	B	B	B	B	B	B	B	130	130	100	110
27	110	110	130	B	110	B	120	175	95	B	B	B	B	B	105	K 105	100	B	B	105	115	110	110	105
28	130	115	110	100	100	115	170	100	100	105	B	B	B	B	B	B	B	B	B	B	B	150	120	B
29	125	110	115	100	105	B	105	100	110	B	B	B	B	B	B	B	B	B	B	B	B	B	130	B
30	115	105	105	115	115	115	100	100	B	100	125	110	100	100	G	B	125	130	150	100	100	100	100	120
31	100	100	150	100	100	100	105	110	110	130	120	115	105	105	110	B	B	B	B	B	B	B	B	B
	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	28	25	26	24	22	25	23	23	15	11	7	7	4	5	8	5	6	16	16	26	26	26	25
MED	115	115	110	108	110	110	110	110	110	120	110	110	105	102	110	105	110	118	120	110	110	110	110	110
UQ	125	125	115	115	125	125	125	122	110	135	122	112	112	108	110	115	125	130	125	122	130	125	125	120
LQ	110	102	105	100	105	105	105	100	100	105	100	102	102	100	105	105	100	105	105	105	100	105	105	110

The Radio Research Laboratories, Japan

MAY, 1974

H^oES (KM)

IONOSPHERIC DATA

MAY. 1974

TYPES OF ES

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	R2	RF11	R1	R1	R1	R1	R1	R3	R2	L1	L1		L1			H1		R1	C1	R1	F1	F1	R3	R5	
2	R5	RR41	RR11	R2	F1	F1	R2	R2	R1		R1								L1	R1	RR11	RS21	R3	R3	
3	R3	R3	RF51	R1	R2	R1	R1	R1	R1										C1		F1	F1	R1	RF51	
4	R5	R2	R2	R1	FFR11	R1	R1	L1											R1	R1	R6	R4	R5	RR21	
5		R1	R2	R1																R2	R5	R2	RF11	R1	
6	R1	FF11		R1		R1		R2	R1						L1	L1			R1	F1	F1	F1	F1		
7		FF11								L2	L2	L1							L1	R4	R1	CKR11	LK11	RK11	
8	CK13	K3	CK33	R3	CK33	HK12	L1	H1	R1	CC11	L1	L1									CK11	HK11	K1	RKH11	
9	R2	R1		R1			H1	R1																	
10		R1	R1	R1	R2	RK21	RK11	H1	H1	C1						C1	L2	L1	L1		FF11	F1		F1	
11	RF11	F1	FF11	FR11	FF11	F1	C2	L1	L2	CL12	C1	L1	L1			C1		L1			F2	F1		F1	
12	FF11	F4	F1	R1	R1	R1	RK12	RF11	L1	H1	L1			C1	L1	R1	L1		R1	F1	F1	F1	F1	FF11	
13	R3	R1	F2	F2	FF12	F1	FF12	R1	L2	L1	C1			C1		L1					F1	F1	F1	R1	
14	R4	R3	R2	R2	R1	R1	R2	R3	R1	C1		C1	L1	L1	C1	L1	LL11	C1	L1	C1	F1	FF11	R1	R1	
15	R1	F1	R2	R2	RF11	F1	R1	R1	R1	R2								RS11	RS21	FF11	R2	RR12	R4	R5	
16	RF15	R2	R1	R2	R1	R1	RFS11	CR11	R1	R1									RR11	R1	F1	RS11	R5	R1	
17	RS21	R1	FF11	F1	R2	R1	AF11	C1	C1										R1		R1	FR11	R2	FF11	
18	RF11		F1		R1				L1										R1			R4	FR13	RS41	
19			R1	R1	R1	RR12	R1		L1											R2	R3	R1	RS31	R1	
20	F1			RR11	F1		R1	R1	L1										R1	RF31	RS11	RS61	AR12	R2	
21		F3	R2	F1	R1			R1													R1	RS31	RF31	R4	
22	R1	R2	R1	FF21		R1	R1													RR11	R4		RS51	F1	
23	RF11	FF11	R1	R1			FR12	R1	R1												R2	RS21	RR12	R1	
24		R1		R1	R1	FR11	R1		R1	L1	C1								A1	RS21	R4	FR11	RR14		
25	R2	R2				R1			C1	R1	R1	R1	R1								R1	R3	R3	R3	
26	R3	R3	R1		F1	R2	R2														F1	A1	R5	R3	
27	R5	RF41	R1		R1		RF11	RR11	R1						L1	K2	R2			F1	FF11	AF11	R4	R4	
28	R1	R1	F1	R2	R2	R1	RF11	R1	R1	R1												F1	FR11		
29	R1	R5	R2	R2	R2		R1	R1	R1														R1		
30	A1	R3	R3	R2	R1	R2	R1	R1		R1	L1	C1	C1	L1			CL11	C1	FF11	RS11	R4	FS11	RS11	R4	
31	R2	R1	FFF11	R1	R1	R1	R2	R1	R1	C1	C1	L1	L1	C1	L1										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

The Radio Research Laboratories, Japan

MAY. 1974

TYPES OF ES

IONOSPHERIC DATA

JUN. 1974

FXI (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	
4	B	B	A	B	B	A	85	B	A	0 A 26	B	B	B	61	0 R 56	C	0 R 30	38	0 R 34	0 R 26	0 R 21	A	17	42	
5	A	A	B	A	R	R	R	30	B	A	B	B	67	54	50	41	32	31	26	B	B	B	B	B	
6	B	A	A	A	A	32	30	A	A	B	B	0 R 52	51	51	50	43	32	36	28	B	B	B	B	B	
7	A	B	B	B	B	B	B	B	B	B	B	46	48	53	44	0 A 38	0 A 27	A	R	A	A	A	0 A 17	16	
8	C	A	A	32	28	30	34	37	0 R 30	R	46	45	B	B	B	36	0 R 30	0 R 22	28	0 A 24	R	54	18	0 R 24	
9	A	A	16	25	0 A 24	32	38	30	36	30	39	51	50	55	46	45	0 A 34	30	27	A	B	B	A	B	
10	B	B	B	A	A	B	B	A	A	B	A	A	A	0 R 44	X 49	R	43	0 R 39	0 R 33	B	B	A	B	A	
11	A	A	A	A	A	A	35	B	A	30	30	34	37	B	B	78	62	64	R	35	R	A	55	B	
12	A	B	B	B	A	B	B	B	A	B	A	A	B	B	B	B	B	29	A	50	40	R	A	A	
13	50	B	A	B	A	A	B	B	B	B	B	B	B	B	B	46	B	B	27	32	B	B	A	A	
14	A	B	B	B	B	A	B	A	B	B	R	X 36	44	50	X 44	C	36	24	B	R	A	A	A	A	
15	A	53	A	A	B	A	B	B	A	B	B	B	B	B	B	B	0 R 41	B	C	C	C	C	C	A	
16	A	A	B	118	A	A	B	B	B	A	B	B	B	B	B	B	B	B	0 R 22	B	R	A	A	B	
17	B	A	B	B	B	B	A	B	B	B	B	B	B	B	61	X 44	B	B	B	B	B	B	R	Y	42
18	A	B	A	B	B	B	A	R	B	B	B	B	0 R 44	0 R 43	B	B	B	B	B	B	B	B	R	A	A
19	A	A	A	B	B	A	A	28	33	37	28	35	45	X 56	53	B	B	B	R	R	A	A	57	A	
20	A	B	A	A	46	A	A	A	A	A	B	B	B	B	B	B	B	B	B	A	B	B	A	A	
21	B	A	B	A	B	B	A	A	R	R	X 30	X 39	40	41	X 49	33	28	A	R	A	A	A	A	A	
22	A	A	A	A	A	B	B	B	A	R	X 31	X 37	X 39	X 41	X 40	X 38	24	B	B	R	A	B	R	A	
23	35	A	A	A	A	B	A	A	R	0 R 25	32	42	R	56	46	30	0 R 26	0 R 22	29	31	B	A	R	A	
24	A	A	A	A	A	B	A	A	B	A	28	0 R 39	B	X 46	45	46	B	B	B	B	B	R	A	A	
25	A	A	A	A	A	A	A	A	0 R 31	25	33	0 R 36	B	0 R 41	37	40	35	0 R 25	R	A	U A 18	A	18	A	
26	A	A	A	B	B	A	A	77	B	B	A	R	B	B	B	B	B	B	42	A	A	A	A	92	
27	A	A	52	B	B	A	B	B	B	B	B	B	B	B	B	B	B	0 A 32	A	A	A	A	A	A	
28	B	A	B	B	A	B	B	B	B	B	B	B	B	0 R 42	B	B	0 R 44	0 R 36	B	R	B	R	A	A	
29	A	A	A	A	A	100	B	A	A	R	B	B	B	0 R 44	B	B	B	B	0 R 35	40	R	R	A	38	
30	A	A	A	B	B	B	A	A	B	B	R	R	0 R 40	B	B	0 R 51	B	B	B	B	B	A	31	22	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	2	1	2	3	3	4	5	5	4	6	9	12	11	16	14	14	15	13	11	7	3	1	8	6	
MED	42	53	34	32	28	32	35	30	32	28	31	39	44	48	48	42	32	31	28	32	21	54	24	31	
UQ				75	37	66	38	37	34	30	33	46	49	54	50	46	38	36	34	38	30		48	42	
LQ				28	26	31	34	30	0 R 30	0 R 25	30	36	40	0 R 42	44	38	29	25	27	28	20		18	22	

The Radio Research Laboratories, Japan

JUN. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

JUN. 1974

FOF2 (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A	
4	B	B	A	B	B	A	Y	B	A	F ₁₉	B	B	B	U ₅₀	F ₅₀	U ₅₀	C	24	F	F ₂₃	F ₁₇	F ₁₂	A	A	F
5	A	A	B	B	A	A	U ₁₆	F	B	A	B	B	F	U ₄₆	F	J ₃₄	F ₂₀	F ₂₄	U ₂₀	B	B	B	B	B	
6	B	A	A	A	A	F ₂₆	U ₂₄	A	A	B	B	F	45	45	43	F ₃₆	U ₂₅	U ₂₆	U ₂₃	B	B	B	B	B	
7	A	B	B	B	B	B	B	B	B	B	B	F	38	41	J ₄₅	F ₃₆	32	U ₂₁	A	B	A	B	A	11	F
8	C	A	A	F ₂₃	F	U ₂₁	U ₁₉	U ₁₉	F ₁₈	R	F	F ₃₈	B	B	B	F ₃₀	U ₂₃	16	F	U ₁₆	R	F	F	U ₁₈	
9	A	A	F	U ₁₈	F	U ₁₈	F ₁₉	F ₁₉	F ₁₇	F ₁₇	U ₁₉	F	F ₄₂	40	U ₄₈	U ₃₈	F ₃₈	F ₂₆	F ₂₂	F ₂₀	A	B	B	B	B
10	B	B	B	B	B	B	B	A	A	B	A	A	A	38	43	R	U ₃₁	F ₃₂	F ₂₇	B	B	A	B	B	
11	A	A	A	A	A	A	F ₂₉	B	A	F	U ₂₅	U ₂₆	U ₃₀	B	B	F	F	F ₅₇	R	A	R	A	F	B	
12	A	B	B	B	A	B	B	B	A	B	A	A	B	B	B	B	B	B	F	A	F	F	A	A	A
13	A	B	A	B	B	A	B	B	B	B	B	B	B	B	B	F ₃₈	B	B	F ₁₉	F	B	B	A	A	A
14	A	B	B	B	B	B	B	B	B	B	A	F ₃₀	F ₃₇	44	F ₃₇	C	F ₂₉	F	B	A	A	A	A	A	
15	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	F ₃₃	B	C	C	C	C	C	C	A
16	A	B	B	Y	B	B	B	B	B	A	B	B	B	B	B	B	B	B	16	B	A	A	A	A	B
17	B	A	B	B	B	B	B	B	B	B	B	B	B	B	U ₃₈	J ₃₈	F	B	B	B	B	R	Y	F	A
18	A	B	B	B	B	B	A	A	B	B	B	B	38	37	B	B	B	B	B	B	B	R	A	A	A
19	A	A	A	B	B	B	A	20	F ₁₉	A	F ₂₁	F ₂₉	F ₃₉	50	46	B	B	B	R	R	A	A	A	A	A
20	B	B	A	B	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	A	B	B	A	A	A
21	B	B	B	A	B	B	A	A	R	R	F ₂₅	H ₃₄	F ₃₂	35	U ₄₃	F ₂₆	22	A	A	A	A	A	A	A	A
22	A	A	A	A	A	B	B	B	A	A	F ₂₅	F ₃₁	F ₃₃	35	F ₃₄	F ₃₃	U ₁₈	B	B	A	B	B	A	A	A
23	U ₂₆	A	A	A	A	B	A	A	A	U ₁₉	F ₂₆	J ₃₆	R	F	J ₃₉	F	F ₁₈	F	F ₁₆	U ₂₀	B	A	A	A	A
24	A	A	A	A	B	B	A	A	B	A	F ₂₁	F ₃₅	B	F ₃₉	F ₃₆	36	B	B	B	B	B	A	A	A	A
25	A	A	A	A	A	A	A	A	F ₂₁	F ₁₈	F ₂₂	30	B	35	F ₃₁	F ₃₁	F	F ₁₉	A	A	F ₁₂	B	F	A	
26	A	A	A	B	B	A	B	F	B	B	A	R	B	B	B	B	B	B	F ₃₅	A	A	A	A	A	A
27	A	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	U ₂₆	A	A	A	A	A	A	B
28	B	A	B	B	A	B	B	B	B	B	B	B	B	B	36	B	B	U ₃₇	F	B	R	B	A	A	A
29	B	A	A	B	A	A	B	B	A	A	B	B	B	38	B	B	B	B	F ₂₈	R	R	A	A	A	A
30	A	A	A	B	B	A	A	B	B	R	R	R	34	B	B	U ₄₅	B	B	B	B	B	A	A	A	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	1			2	1	3	5	3	4	4	7	11	10	15	13	12	13	8	10	3	2		1	1	
MED	U ₂₆			F ₂₀	U ₁₈	F ₂₁	U ₁₉	F ₁₉	F ₁₈	F ₁₉	F ₂₅	F ₃₃	F ₃₈	F ₃₉	F ₃₈	F ₃₅	F ₂₄	F ₂₅	F ₂₂	U ₁₇	F ₁₂		11	U ₁₈	
UQ						F ₂₄	U ₂₄	20	20	19	25	37	40	46	43	38	29	29	27	18					
LQ						F ₂₀	U ₁₉	F ₁₈	F ₁₈	F ₁₈	F ₂₂	F ₃₀	F ₃₃	36	36	F ₃₂	F ₂₁	F ₂₀	F ₁₉	F ₁₆					

The Radio Research Laboratories, Japan

JUN. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUN. 1974

FOF1 (0.01 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
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30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

JUN. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JUN. 1974

FOE (0.01 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								C	C	C	C	C	C	C	C	C	C	C						
2								C	C	C	C	C	C	C	C	C	C	C						
3								C	C	C	C	C	C	C	C	C	C	C						
4								B	B	A	B	B	B	B	B	C	B	B						
5					K: 160	U: 120	K: 150	130	B	A	B	B	225	B	B	150	A	120						
6					K: 150	U: 150		B	B	B	B	U: 310	K: 240	A	215	130	115	B						
7								B	B	B	B	A	A	A	A	A	A	B						
8								B	B	B	U: 160	F	A	B	B	B	B	B						
9								A	A	A	A	A	A	125	A	A	140	A						
10								B	B	B	B	B	B	B	B	B	B	B						
11								B	B	A	U: 105	A	F	A	B	B	B	B						
12								B	B	B	A	B	B	B	B	B	B	B	A					
13								B	B	B	B	B	B	B	B	B	B	B	K: 90					
14								B	B	B	B	A	A	K: 230	A	115	A	B						
15								B	B	B	B	B	B	B	B	B	B	B						
16								B	B	A	B	B	B	B	B	B	B	B						
17								B	B	B	B	B	B	B	B	B	B	B					U: 180	K: 290
18		K: 320						B	B	B	B	B	B	B	B	B	B	B						
19								A	A	C	A	A	A	195	B	B	B	B						
20								B	B	A	B	B	B	B	B	B	B	B						
21								B	B	A	H: 100	120	130	130	A	B	B	B						
22								B	B	B	A: 150	140	150	H: 150	A	125	A	B	B					
23		K: 150	K: 150					B	A	A	A	A	A	140	A	B	A	B	A					
24								B	B	A	A	C	B	B	A	B	B	B						
25								A	A	F: 110	100	B	B	B	A	A	U: 100	A						
26								B	B	B	B	U: 260	K: 260	B	B	B	B	B	U: 220	K: 220				
27								B	B	B	B	B	B	B	B	B	B	B						
28								B	B	B	B	B	B	B	B	B	B	B						
29								B	B	A	B	B	B	B	B	B	B	B						
30								B	B	B	B	B	B	B	B	B	B	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	2	1			1	2	2	1		1	5	5	4	5	2	3	3	1	2	1			1	1
MED	K: 235	K: 150			K: 160	K: 135	K: 150	130		F: 110	105	140	188	140	170	130	115	120	K: 155	K: 100			U: 180	K: 290
UQ											U: 150	A: 260	K: 232	195		140	128							
LQ											100	130	140	130		122	108							

The Radio Research Laboratories, Japan

JUN. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

JUN. 1974

FOES (0.1 MHz)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69 00.4 S.		Long. 39 35.4 E		Sweep		MHz to 15 MHz in		30 sec		in automatic		operation											
Hour	Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	D ₂₃	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	D ₃₂
2		C	C	C	D ₃₂	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	J ₃₅	J ₂₆	35	
4	56	39	35	B	B	J ₄₅	Y	B	30	36	B	B	B	E ₃₁	E ₂₅	C	E ₂₁	E ₁₃	27	E ₁₀	E ₁₁	24	16	27	
5	28	J ₅₃	J ₄₃	42	J ₂₆	K ₂₅	K ₁₈	25	B	37	B	B	G	E ₂₃	E ₂₂	J ₂₂	18	G	E ₁₁	B	B	B	B	B	
6	30	J ₃₃	J ₃₇	40	J ₂₈	J ₂₇	J ₄₆	41	40	B	B	K ₃₂	K ₂₈	30	K ₂₁	17	18	E ₁₅	28	B	B	B	B	27	
7	25	27	B	B	B	B	B	B	B	B	B	20	J ₅₀	47	J ₅₉	J ₁₂₆	103	J ₅₂	58	28	25	102	17	J ₂₅	
8	J ₂₆	J ₂₅	J ₂₈	23	24	J ₂₅	15	J ₂₄	E ₁₂	23	32	18	B	B	B	E ₂₀	E ₂₁	28	28	28	E ₁₂	20	J ₂₇	18	
9	J ₂₄	J ₂₉	23	J ₂₄	J ₂₇	J ₂₉	J ₂₆	60	J ₂₅	J ₂₅	J ₂₅	J ₂₆	J ₂₅	20	J ₅₂	J ₆₂	J ₄₀	J ₂₄	24	25	B	B	26	45	
10	B	52	41	36	71	76	B	72	61	64	40	41	35	27	E ₂₆	E ₃₆	17	E ₁₉	E ₁₅	B	B	33	38	47	
11	J ₆₁	46	48	45	J ₃₈	35	40	B	40	J ₂₉	J ₂₄	20	26	B	B	E ₂₂	E ₃₇	E ₂₂	39	32	23	26	55	34	
12	44	B	48	B	J ₄₄	J ₁₂₈	B	B	52	B	J ₅₀	39	B	B	B	B	B	J ₂₀	31	33	J ₂₉	28	36	38	
13	65	39	J ₆₄	57	52	40	B	B	B	B	B	B	B	B	B	E ₁₃	B	B	J ₂₃	17	B	B	42	34	
14	46	37	42	B	B	J ₃₄	52	62	38	B	30	25	17	K ₂₃	14	D ₂₁	22	23	B	20	37	J ₈₈	J ₈₆	40	
15	43	J ₇₁	J ₉₅	55	50	40	B	B	71	B	B	B	B	B	B	B	E ₂₂	B	C	C	C	C	C	J ₃₉	
16	60	46	B	Y	45	45	B	B	B	40	B	B	B	B	B	B	B	B	E ₁₃	B	19	42	38	B	
17	42	42	B	B	J ₅₀	38	B	B	B	B	B	B	B	B	E ₂₃	E ₁₆	B	B	B	B	12	14	J ₂₆	K ₃₃	
18	K ₃₅	51	J ₄₆	B	B	B	39	28	B	B	B	B	B	E ₃₅	E ₂₆	B	B	B	B	B	B	13	23	27	
19	34	40	56	B	60	46	42	25	19	J ₂₂	J ₂₇	28	24	25	E ₂₃	B	B	B	E ₂₃	E ₁₁	J ₂₇	35	J ₃₅	49	
20	37	33	36	41	38	J ₅₄	J ₅₂	J ₄₁	45	41	35	B	B	B	B	B	B	B	B	J ₃₂	B	37	31	37	
21	J ₁₀₇	54	B	J ₄₀	B	30	J ₄₉	35	21	16	17	18	19	16	E ₁₂	E ₁₁	27	17	J ₂₇	32	23	J ₂₆	19		
22	J ₃₀	J ₃₇	J ₄₁	47	J ₃₇	58	B	B	35	24	25	G	G	J ₂₄	18	J ₂₄	17	B	B	19	24	B	17	34	
23	K ₂₁	J ₃₅	41	J ₄₀	35	33	36	J ₄₂	J ₂₃	21	24	20	32	J ₂₆	29	J ₂₃	20	16	29	K ₁₈	B	24	18	J ₃₂	
24	32	J ₄₂	J ₃₉	50	J ₅₃	53	J ₅₄	52	B	52	22	24	B	J ₆₉	J ₁₆	E ₂₂	B	B	B	B	38	18	J ₃₆	37	
25	J ₆₄	J ₅₃	40	J ₃₆	29	51	51	29	24	18	17	E ₂₇	B	E ₂₅	27	19	16	25	J ₁₅	20	J ₂₅	16	J ₂₄	J ₂₈	
26	33	J ₆₁	40	B	B	J ₄₀	45	27	B	B	52	K ₃₆	B	B	B	B	B	B	J ₃₃	38	36	30	J ₄₂	35	
27	42	42	26	59	B	47	50	B	B	B	B	B	B	B	B	B	B	B	51	32	26	22	33	J ₄₀	32
28	42	J ₆₂	51	B	J ₄₄	38	51	58	B	B	B	B	B	B	E ₂₄	B	B	E ₃₄	26	B	18	B	18	J ₃₈	45
29	42	J ₆₄	J ₅₈	101	J ₈₇	J ₆₄	54	47	J ₃₉	28	B	B	B	B	E ₃₂	B	B	B	B	23	24	16	21	28	26
30	J ₄₆	30	31	57	B	B	J ₄₉	51	B	B	29	33	E ₂₇	B	B	E ₃₂	B	B	B	B	B	32	19	18	
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	27	26	23	18	18	24	19	17	16	15	15	16	13	16	14	16	15	15	18	18	16	22	25	27	
MED	42	42	41	43	41	42	45	41	36	28	27	25	25	U ₂₄	U ₂₀	U ₂₀	U ₁₉	23	26	24	24	27	28	34	
UQ	46	J ₅₃	48	55	52	52	50	52	42	38	34	32	U ₃₀	U ₂₈	27	J ₂₅	E ₂₈	26	31	28	30	35	38	38	
LQ	30	35	36	U ₃₈	J ₂₉	34	38	28	24	22	24	20	19	U ₂₁	17	E ₁₈	18		16	18	18	20	24	27	

The Radio Research Laboratories, Japan

JUN. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1974

F-MIN (0.1 MHz)

°
45 E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION		Lat. 69° 00.4' S.		Long. 39° 35.4' E		Sweep		MHz to 15 MHz in 30 sec		in automatic operation															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E ₂₃ C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	E ₂₃ C	
2	C	C	C	E ₂₄ C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	11	10	9	
4	40	20	10	B	B	16	Y	B	14	12	B	B	B	31	25	C	21	13	13	10	E ₁₁ C	10	10	8	
5	9	11	20	16	11	12	10	10	B	12	B	B	22	23	22	10	10	10	11	B	B	B	B	B	
6	26	9	9	12	9	9	10	20	15	B	B	23	22	22	19	10	9	15	17	B	B	B	B	22	
7	12	20	B	B	B	B	B	B	B	B	B	12	15	14	12	E ₁₂ C	12	14	15	13	14	10	9	9	
8	E ₁₈ C	8	9	10	10	9	9	9	12	20	12	16	B	B	B	20	21	15	13	9	12	9	9	9	
9	8	9	9	8	9	8	9	8	9	8	9	9	10	10	10	10	9	10	9	13	B	B	20	23	
10	B	35	24	21	22	26	B	19	24	43	23	20	26	23	26	36	14	19	15	B	B	14	25	17	
11	15	15	11	10	10	10	10	B	15	10	10	10	10	B	B	22	37	22	10	10	20	9	10	28	
12	10	B	23	B	16	52	B	B	15	B	12	31	B	B	B	B	B	11	9	10	E ₁₅ C	9	8	9	
13	10	23	11	27	22	17	B	B	B	B	B	B	B	B	B	13	B	B	8	8	B	B	9	7	
14	15	30	25	B	B	23	47	25	32	B	25	13	10	17	10	10	13	12	B	9	9	9	10	13	
15	16	10	19	23	27	12	B	B	25	B	B	B	B	B	B	B	22	B	C	C	C	C	C	10	
16	11	19	B	Y	26	25	B	B	B	11	B	B	B	B	B	B	B	B	13	B	10	9	10	B	
17	27	12	B	B	B	26	23	B	B	B	B	B	B	B	23	16	B	B	B	B	10	10	9	8	
18	9	22	15	B	B	B	12	10	B	B	B	B	35	26	B	B	B	B	B	B	B	11	10	11	
19	12	9	10	B	30	21	14	10	10	E ₁₅ C	10	10	10	10	23	B	B	B	23	11	9	9	15	15	
20	16	26	12	20	18	14	15	12	15	11	25	B	B	B	B	B	B	B	B	10	B	24	12	15	
21	26	15	B	14	B	25	14	13	10	10	8	10	11	11	12	12	11	14	E ₁₃ C	9	10	9	7	E ₉ C	
22	8	9	12	18	11	32	B	B	18	13	9	10	10	9	10	8	10	B	B	10	14	B	10	9	
23	9	10	10	12	15	27	12	10	11	10	9	11	15	10	14	14	9	10	8	9	B	10	10	E ₁₀ C	
24	9	8	9	16	22	31	13	17	B	11	11	E ₂₀ C	B	20	10	22	B	B	B	B	23	13	9	9	
25	13	12	12	10	10	14	14	10	9	9	9	27	B	25	15	10	9	9	11	10	8	12	9	8	
26	8	9	13	B	B	10	19	12	B	B	18	20	B	B	B	B	B	B	15	11	9	9	10	9	
27	E ₁₃ C	17	10	46	B	16	33	B	B	B	B	B	B	B	B	B	B	19	16	9	11	10	10	19	
28	26	9	24	B	13	32	27	36	B	B	B	B	B	24	B	B	34	14	B	12	B	11	9	10	
29	16	9	9	20	11	9	27	25	15	14	B	B	B	32	B	B	B	B	12	22	10	9	8	8	
30	12	10	14	22	B	B	15	18	B	B	15	24	27	B	B	32	B	B	B	B	B	11	8	9	
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	27	27	27	27	27	26	27	27	27	27	27	26	27	27	26	27	27	26	26	26	27	27	29	
MED	12	12	12	22	22	21	17	20	24	20	25	24	^D ₃₅ B	26	26	22	34	19	15	11	14	10	10	10	
UQ	^U ₁₈	20	24	B	B	29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	14	10	16	
LQ	10	9	10	15	11	12	12	11	14	11	10	12	15	18	14	12	12	14	11	10	10	9	9	9	

The Radio Research Laboratories, Japan

JUN. 1974

F-MIN (0.1 MHz)

IONOSPHERIC DATA

JUN. 1974

M(3000)F2 (0.01)

45° E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A
4	B	B	A	B	B	A	Y	B	A	A	B	B	B	U	U	C	305	F	F	F	F	A	A	F
5	A	A	B	B	A	A	A	F	B	A	B	B	F	F	F	F	290	335	F	B	B	B	B	B
6	B	A	A	A	A	F	F	A	A	B	B	F	335	315	345	335	F	U	F	F	B	B	B	B
7	A	B	B	B	B	B	B	B	B	B	B	F	340	330	J	F	F	U	A	A	B	A	A	F
8	C	A	A	F	F	U	F	F	F	R	F	F	340	B	B	B	F	F	315	F	F	R	F	U
9	A	A	F	U	F	F	F	F	F	F	F	F	F	U	F	F	F	F	F	F	A	B	B	B
10	B	B	B	B	B	B	B	A	A	B	A	A	A	335	300	R	F	315	295	F	B	B	A	B
11	A	A	A	A	A	A	F	B	A	F	U	F	F	B	B	F	F	F	R	A	R	A	F	B
12	A	B	B	B	A	B	B	B	A	B	A	A	B	B	B	B	B	F	A	F	F	A	A	A
13	A	B	A	B	B	A	B	B	B	B	B	B	B	B	B	F	B	B	F	F	B	B	A	A
14	A	B	B	B	B	B	B	B	B	B	A	F	300	320	340	310	C	F	F	B	A	A	A	A
15	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	275	B	C	C	C	C	C	A
16	A	B	B	Y	B	B	B	B	B	A	B	B	B	B	B	B	B	B	315	B	A	A	A	B
17	B	A	B	B	B	B	B	B	B	B	B	B	B	B	U	F	J	F	B	B	B	R	Y	F
18	A	B	B	B	B	B	A	A	B	B	B	B	340	325	B	B	B	B	B	B	B	R	A	A
19	A	A	A	B	B	B	A	280	265	A	295	310	315	340	335	B	B	B	R	R	A	A	A	A
20	B	B	A	B	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	A	B	B	A	A
21	B	B	B	A	B	B	A	A	R	R	280	295	320	355	U	R	330	365	A	A	A	A	A	A
22	A	A	A	A	A	B	B	B	A	A	290	320	335	330	320	355	F	B	B	A	B	B	A	A
23	U	F	A	A	A	A	A	A	A	U	F	310	J	F	330	R	F	J	F	F	315	U	F	A
24	A	A	A	A	B	B	A	A	B	A	325	335	B	F	F	330	B	B	B	B	B	A	A	A
25	A	A	A	A	A	A	A	A	285	280	310	325	B	370	325	350	F	315	A	A	335	B	F	A
26	A	A	A	B	B	A	B	F	B	B	A	A	B	B	B	B	B	B	F	255	A	A	A	A
27	A	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	U	F	A	A	A	A	B
28	B	A	B	B	A	B	B	B	B	B	B	B	B	360	B	B	F	F	B	R	B	A	A	A
29	B	A	A	B	A	A	B	B	A	A	B	B	B	340	B	B	B	B	285	R	R	A	A	A
30	A	A	A	B	B	B	A	A	B	B	R	R	320	B	B	U	R	B	B	B	B	A	A	F
31																								
CNT	1			2		3	2	2	4	2	7	10	9	14	12	11	8	8	8	2	2			1
MED	U	F		F		F	F	302	282	F	278	295	328	330	340	338	340	338	315	315	322	335		U
UQ						F			290		310	335	335	355	352	348	345	318	320					
LQ						F			272		285	310	320	335	322	332	298	295	290					

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JUN. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

JUN. 1974

H'F2 (KM)

45° E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

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

The Radio Research Laboratories, Japan

JUN. 1974

H'F2 (KM)

IONOSPHERIC DATA

JUN. 1974 H'F (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	A
4	B	B	A	B	B	A	Y	B	A	A	B	B	B	230	225	I C 240	B	255	245	250	C	B	A	F
5	A	A	B	B	A	A	A	A	B	A	B	B	230	225	230	225	300	250	240	B	B	B	B	B
6	B	A	A	A	A	A	370	420	B	A	B	B	250	245	240	230	220	250	B	B	B	B	B	B
7	B	B	B	B	B	B	B	B	B	B	B	220	230	210	200	A	A	A	B	B	B	B	A	A
8	C	A	A	325	F	E A 350	A	345	330	B	280	230	B	B	B	215	B	B	255	E A 250	B	F	F	A
9	A	A	A	A	A	U F 360	E A 350	315	300	250	230	210	225	210	205	A	230	A	250	275	A	B	B	B
10	B	B	B	B	B	B	B	B	B	B	B	B	B	300	280	E B 295	275	230	290	B	B	B	B	B
11	B	B	A	A	A	A	A	B	A	A	320	270	290	B	B	250	E B 320	300	A	A	B	A	A	B
12	A	B	B	B	A	B	B	B	A	B	A	B	B	B	B	B	B	250	A	A	310	F	A	A
13	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	230	B	B	255	F	B	B	A	A
14	B	B	B	B	B	B	B	B	B	B	B	270	250	230	245	210	C 250	U F 295	B	A	A	A	A	A
15	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	330	B	C	C	C	C	A
16	A	B	B	Y	B	B	B	B	B	A	B	B	B	B	B	B	B	B	E B 300	B	A	A	A	B
17	B	B	B	B	B	B	B	B	B	B	B	B	B	B	235	240	B	B	B	B	A	Y	U F 240	A
18	A	B	B	B	B	A	A	B	B	B	B	B	B	B	250	B	B	B	B	B	B	R	A	A
19	A	A	A	B	B	A	A	E A 370	A	300	A	265	250	225	220	B	B	B	B	B	A	A	B	B
20	B	B	B	B	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	A	B	B	B	B
21	B	B	B	A	B	B	A	A	A	A	270	240	200	200	200	200	225	A	C	A	A	A	A	A
22	A	A	A	B	A	B	B	B	B	A	290	245	215	H 190	245	200	280	B	B	A	B	B	A	A
23	255	A	A	A	A	B	A	A	A	A	255	230	A	220	230	200	F 250	A	280	250	B	A	A	A
24	A	A	A	B	B	B	A	B	B	A	E A 300	240	B	220	225	240	B	B	B	B	B	A	A	A
25	B	A	A	A	A	A	A	A	370	350	275	B	B	220	240	240	210	225	A	A	E A 265	B	A	A
26	A	A	B	B	B	A	B	A	B	B	A	A	B	B	B	B	B	B	395	A	A	A	A	A
27	C	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B
28	B	A	B	B	A	B	B	B	B	B	B	B	B	215	B	B	B	275	A	B	A	B	A	A
29	B	A	A	B	A	A	B	B	A	A	B	B	B	E B 260	B	B	B	B	325	R	A	A	A	A
30	A	A	B	B	B	B	A	B	B	B	A	B	E B 270	B	B	250	B	B	B	B	B	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	1			1		3	2	2	4	2	9	11	10	16	14	16	11	9	10	3	2			1
MED	255			325		360	A 385	330	U 332	300	278	240	234	221	230	229	262	250	272	250	288			U F 240
UQ						365			370		300	258	250	232	240	240	284	255	300	250				
LQ						355			315		270	230	225	212	220	212	250	250	255	250				

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JUN. 1974 H'F (KM)

IONOSPHERIC DATA

JUN. 1974

H⁺ES (KM)

45 E Mean Time (G. M. T.+ 3 h)

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	120	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	125
2	C	C	C	120	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	115	115	105
4	150	105	100	B	B	100	Y	B	115	150	B	B	B	B	B	C	B	B	120	B	C	100	115	130	
5	110	105	100	130	100	150	125	115	B	100	B	B	G	B	B	100	100	G	B	B	B	B	B	B	
6	130	125	110	120	115	125	130	100	100	B	B	110	115	120	120	125	100	B	130	B	B	B	B	B	150
7	125	140	B	B	B	B	B	B	B	B	B	120	115	110	115	115	120	120	140	110	110	100	140	110	
8	150	100	100	130	125	115	110	105	B	125	110	130	B	B	B	B	B	100	100	130	B	150	150	140	
9	130	115	110	150	110	100	110	150	100	105	100	110	100	130	100	125	110	125	100	110	B	B	125	110	
10	B	120	130	125	125	110	B	130	105	110	100	100	115	120	B	B	150	B	B	B	B	130	130	110	
11	140	110	105	100	110	110	110	B	100	125	150	145	100	B	B	B	B	B	105	105	160	105	110	125	
12	100	B	110	B	115	140	B	B	100	100	110	B	B	B	B	B	B	125	105	125	110	100	100	105	
13	110	125	100	100	100	110	B	B	B	B	B	B	B	B	B	B	B	100	100	B	B	100	100	100	
14	130	140	120	B	B	130	110	100	100	B	100	110	115	120	110	100	120	130	B	120	105	150	100	110	
15	110	100	110	110	105	100	B	B	110	B	B	B	B	B	B	B	B	B	C	C	C	C	C	105	
16	130	110	B	Y	100	110	B	B	B	110	B	B	B	B	B	B	B	B	B	B	B	140	105	110	B
17	110	105	B	B	B	110	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	145	105	K 150
18	K 130	100	105	R	B	B	100	105	B	B	B	B	B	B	B	B	B	B	B	B	B	165	125	110	
19	115	110	145	B	100	125	110	150	120	125	105	105	105	135	B	B	B	B	B	B	B	125	105	125	115
20	110	130	115	120	115	100	110	105	100	100	105	B	B	B	B	B	B	B	B	B	120	B	120	120	125
21	120	100	B	105	B	100	100	100	105	110	100	105	125	125	130	B	B	110	110	100	100	130	130	105	
22	105	100	100	100	100	100	B	B	100	110	95	G	G	105	105	100	100	B	B	110	100	150	110	110	
23	K 145	K 120	110	105	110	120	100	100	115	110	115	110	115	100	120	100	150	100	100	105	B	125	150	140	
24	105	105	105	110	110	110	105	110	B	150	120	140	B	120	120	B	B	B	B	B	150	100	110	110	
25	120	100	110	105	105	105	100	110	160	110	100	B	B	B	110	110	100	100	130	105	100	140	125	110	
26	110	150	120	B	B	100	105	110	B	B	100	125	K 125	B	B	B	B	B	145	K 110	105	105	110	105	
27	110	110	125	130	B	130	100	B	B	B	B	B	B	B	B	B	B	170	110	115	150	105	105	105	
28	125	140	100	B	100	145	105	110	B	B	B	B	B	B	B	B	B	160	B	110	B	125	105	100	
29	105	125	100	100	140	100	100	105	100	100	B	B	B	B	B	B	B	B	125	130	130	125	100	140	
30	135	100	120	145	B	B	125	100	B	B	100	105	B	B	B	B	B	B	B	B	B	110	150	105	
31																									
CNT	27	26	23	18	18	24	19	17	15	15	15	14	9	10	9	8	9	10	14	16	14	22	25	27	
MED	120	110	110	115	110	110	105	105	100	110	100	110	115	120	115	105	110	122	110	110	118	118	115	110	
UQ	130	125	118	130	115	125	110	110	112	125	108	125	115	125	120	120	120	130	130	120	150	130	130	125	
LQ	110	100	100	105	100	100	100	100	100	108	100	105	105	110	110	100	100	100	100	105	105	105	105	105	

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JUN. 1974

H⁺ES (KM)

IONOSPHERIC DATA

JUN. 1974

TYPES OF ES

45° E Mean Time (G. M. T. + 3 h)

Station **SYOWA STATION** Lat. **69° 00.4' S**, Long. **39° 35.4' E** Sweep **MHz to 15 MHz** in **30 sec** in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F1																							F1	
2				FF11																					
3																						R2	R3	R5	
4	R1	R1	RR21			F1			R1	RH11									F1		FR11	R1	AF11		
5	R1	R2	F1	FR11	LKH21	HKC11	HK21	R2		R1					L1	L1									
6	F1	F3	F5	R2	F3	RK22	HKL11	L1	R1			RK11	CK11	R1	K1	L1	L1		F1					F1	
7	F1	F1										R1	L1	C1	R1	L4	L3	L2	FF11	F1	F1	F3	R1	FF11	
8	FR11	R2	FF11	RF11	R1	F1	F1	L2		R1	C1	C1						L1	F1	F1		RRF11	RF11	R1	
9	F2	F3	R1	FF11	F1	F1	FF11	HR11	L1	L1	LH11	C1	CH11	HL11	L2	LL12	C1	L1	FF11	F1			R1	R1	
10		R1	R1	R1	R1	R1		R1	L1	R1	R1	R1	R1	R1			H1					F1	R1	RS11	
11	F1	R2	R3	R3	R2	R3	R3		R1	HL11	HL11	H1	L1						R4	R2	FF11	R4	R1	R1	
12	R3		R1		RS11	F1			L1		R1	L1						C1	R3	R2	F2	RS21	RS61	RS61	
13	RR41	R1	RR21	R1	R1	FS11														LK11	FR11		F2	R4	
14	FR12	R1	R1			R1	F1	L1	L1		R1	R1	C1	K1	L1	LH11	R1	H1		R1	R5	FF13	F3	F2	
15	R2	FF11	F1	R1	R1	F1			R1															R4	
16	RR13	R2			F1	R1				R1												F1	R6	R4	
17	R1	R2				R1	F1														R1	F1	RK11	HK14	
18	HK14	F1	R2				R1	R3															F1	R1	R2
19	RS31	RS51	RR13		R1	R1	R2	RR12	R1	CR11	R2	R1	R1	H1							RA11	R4	F1	RR11	
20	R2	R1	R2	R1	R1	R2	R1	R3	R2	R2	R1										RR11	R1	R1	R2	
21	FF11	R1		R2		F1	R2	R2	R3	L1	L1	L1	H1	H1	C1				R1	F1	F2	F3	FRF11	AR13	R3
22	FRF12	R4	F2	R1	R2	F1			R1	L1	L1			L1	L1	L1	L1			FF11	F1		R1	R6	
23	RK31	CK31	F1	F2	R1	F1	R2	R2	C1	R2	C1	C1	L1	LC11	RC11	L1	HL11	L1	L1	CK11		RF11	FF11	FR13	
24	R4	F3	F4	R2	R1	R1	F2	L1		HL11	C1	H1		C1	L1						F1	F1	R3	R5	
25	RR13	F2	R3	R3	R3	RF11	R2	R3	HR11	L1	C1				C1	C1	L1	LH11	F1	F1	FR11	F1	AF11	FF11	
26	R6	RR14	R1			F2	R1	L1			RS11	CK11								HK11	R2	R5	R3	R2	R1
27	R2	R1	RSF11	R1		RF11	F1												HH11	R1	R2	RR11	RS31	RS21	R1
28	R1	FR12	R1		R1	F1	R1	R1											RF11		R1		R1	RS31	R3
29	F1	RR12	R3	F1	FR12	R3	R1	L1	R1	R1										R1	F1	R1	A1	R5	FF11
30	RR11	R2	R2	FR21			FF11	R1			R1	R1											R2	RF21	R1
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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JUN. 1974

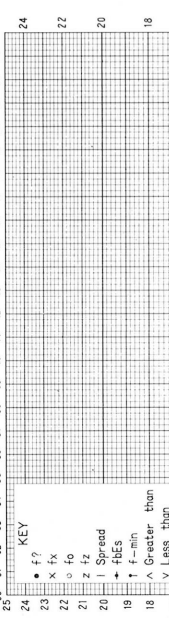
TYPES OF ES

f-PLOT OF IONOSPHERIC DATA

STATION SWOWA STATION DATE Jan. 15, 1974

45°E MEAN TIME

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



FREQUENCY (MHz)

Es

SCALED BY S. Iaguchi

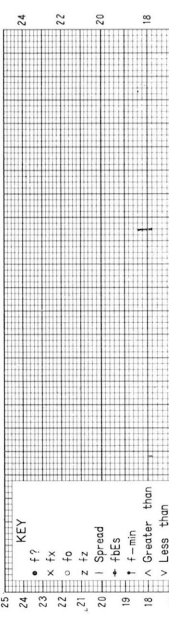
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f-PLOT OF IONOSPHERIC DATA

STATION SWOWA STATION DATE Jan. 16, 1974

45°E MEAN TIME

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



FREQUENCY (MHz)

Es

SCALED BY S. Iaguchi

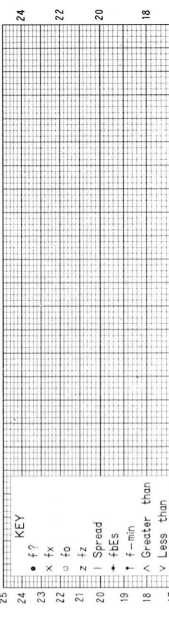
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f-PLOT OF IONOSPHERIC DATA

STATION SWOWA STATION DATE Jan. 17, 1974

45°E MEAN TIME

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



FREQUENCY (MHz)

Es

SCALED BY S. Iaguchi

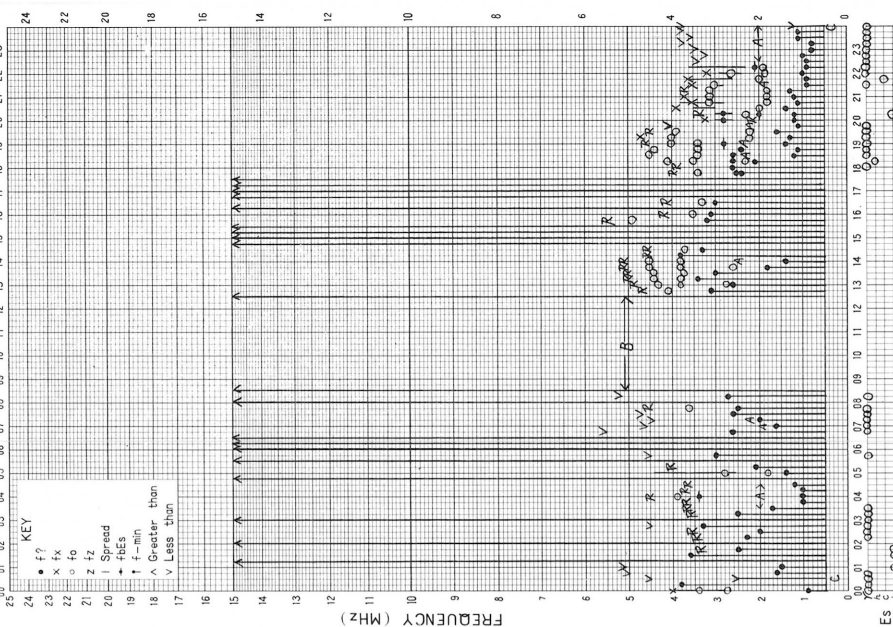
The Radio Research Laboratories, Japan



f-PLOT OF IONOSPHERIC DATA

STATION SIOWA STATION DATE Feb. 12, 1974

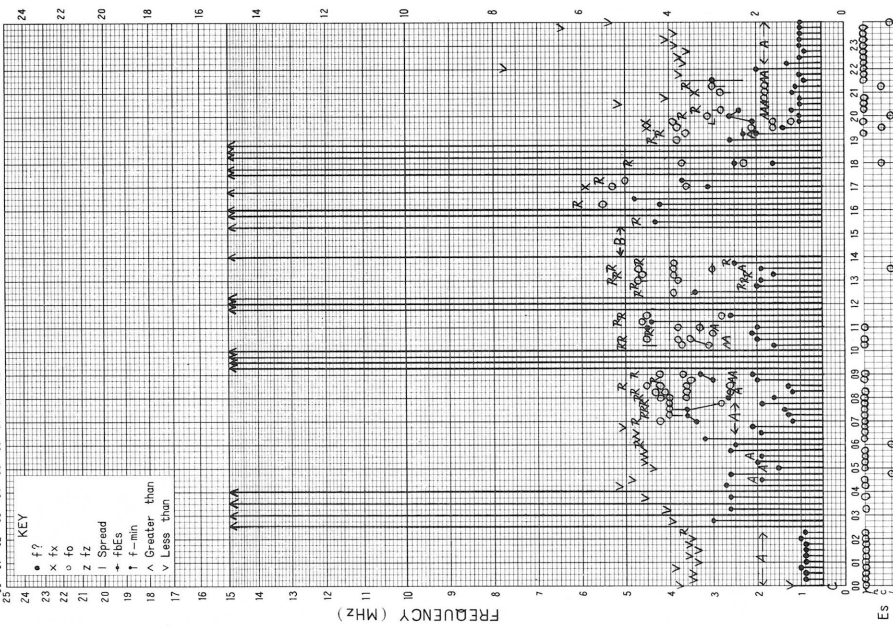
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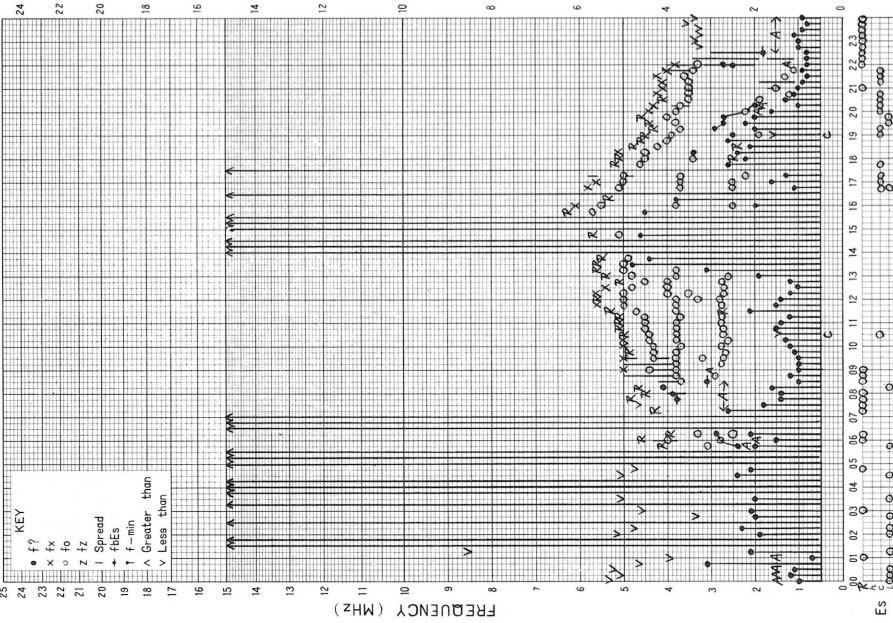
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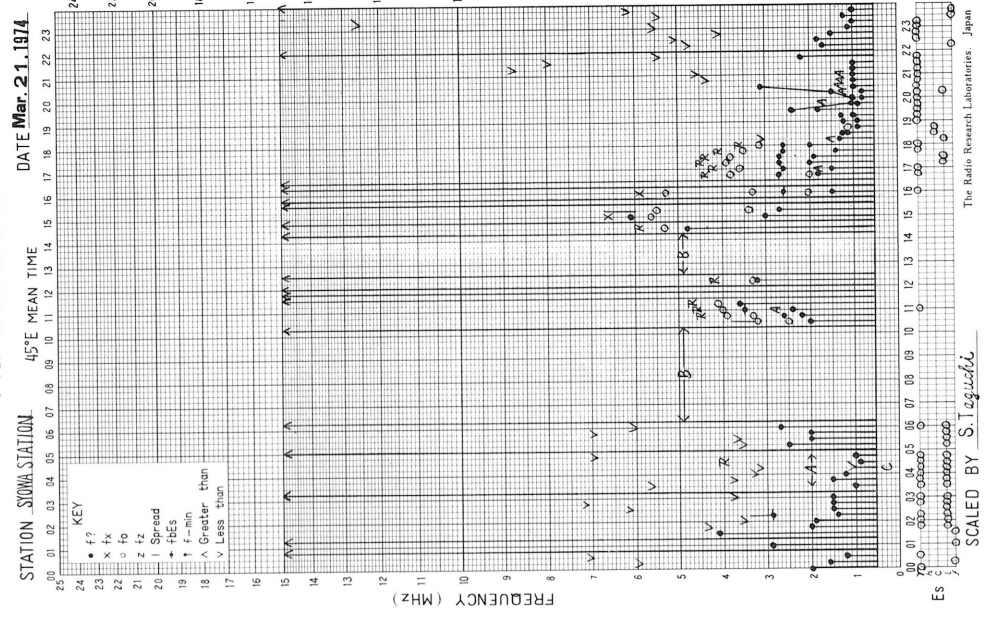
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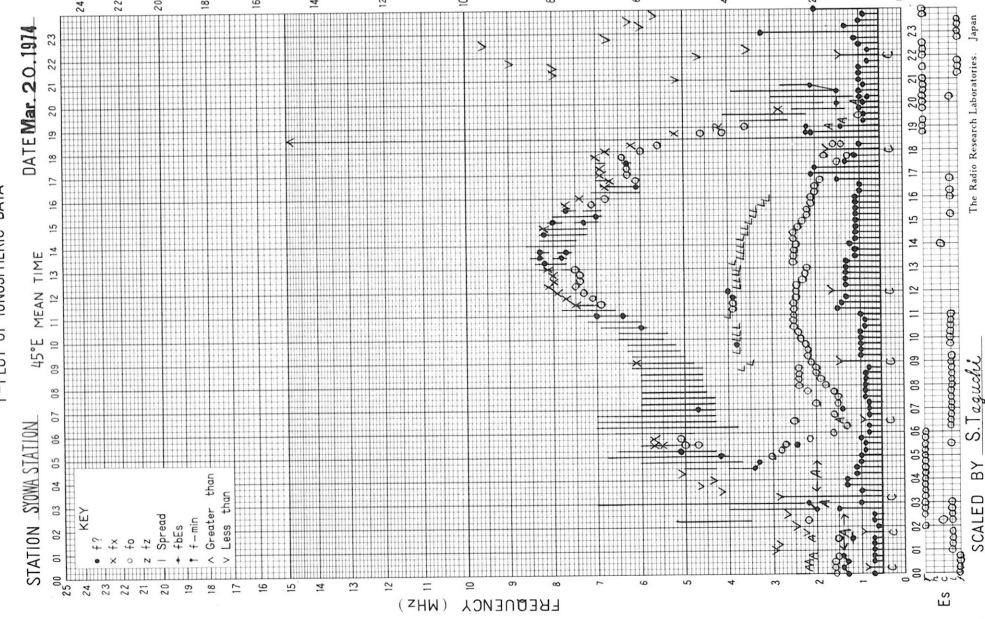
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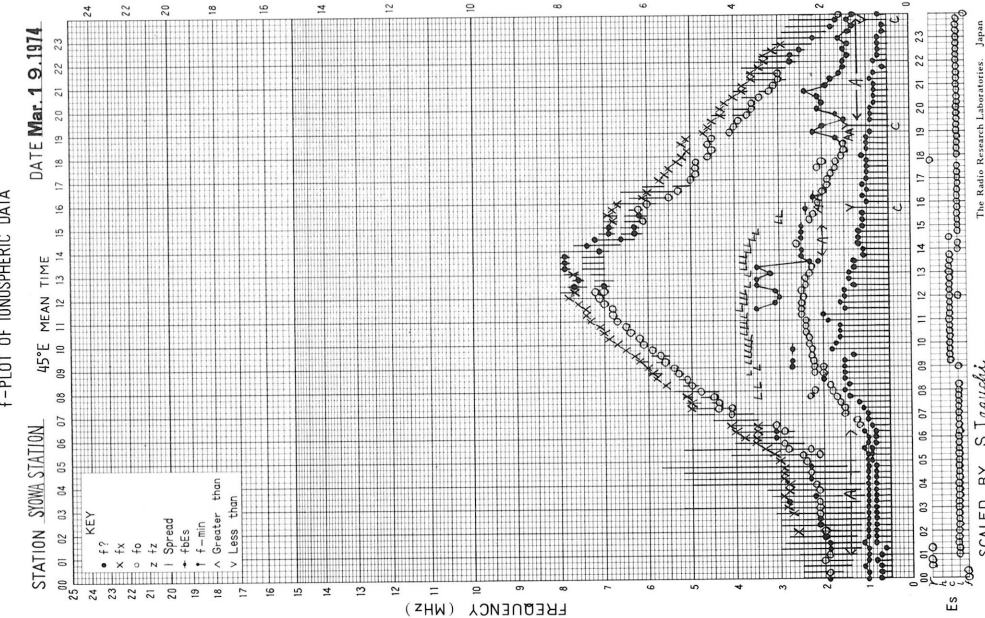
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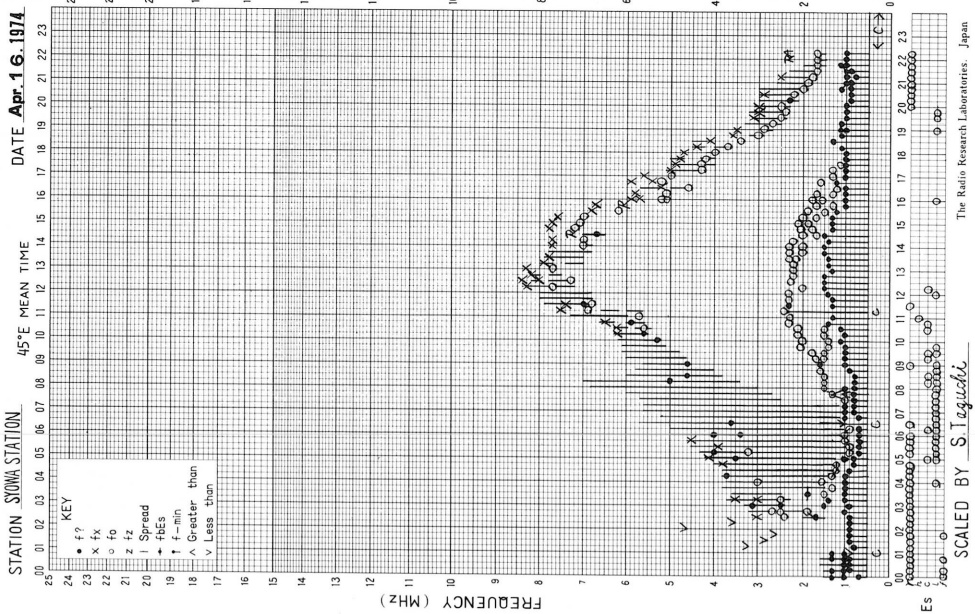
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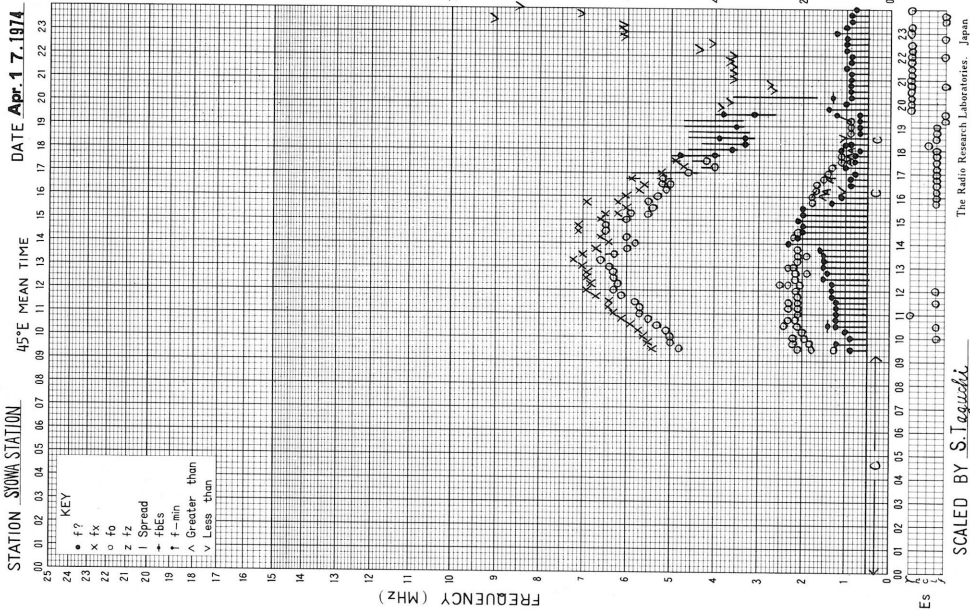
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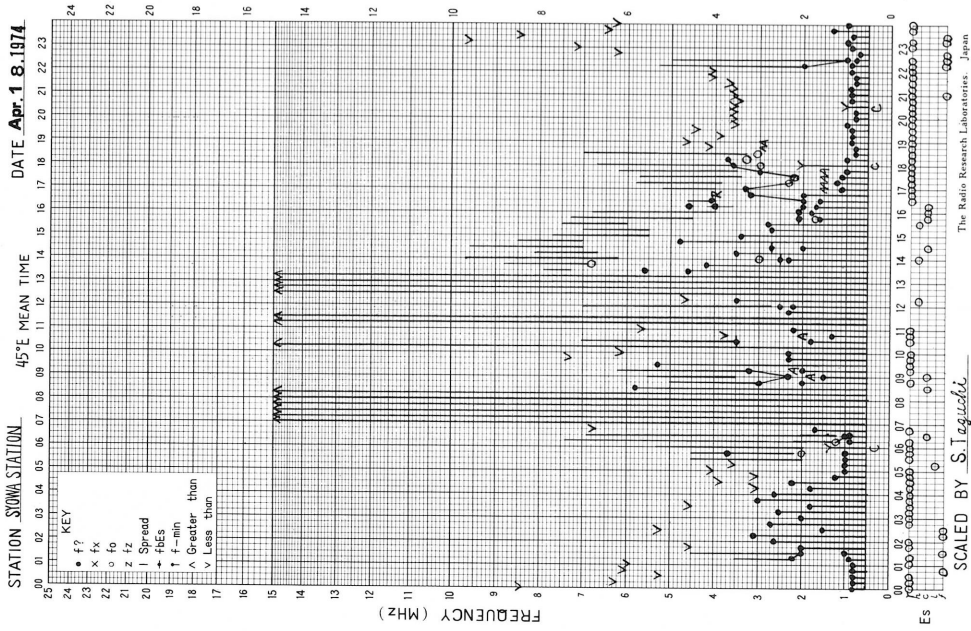
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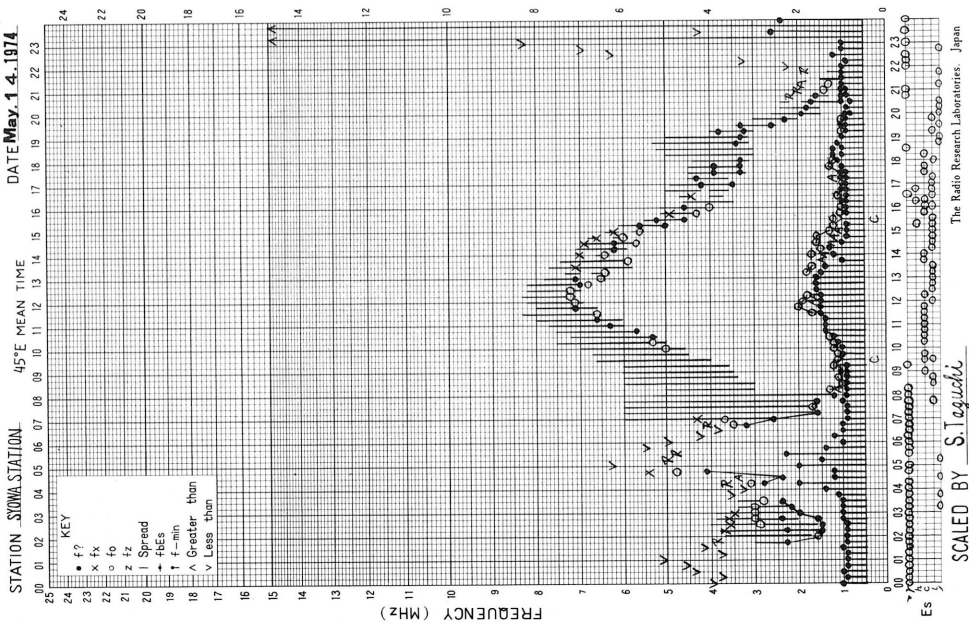
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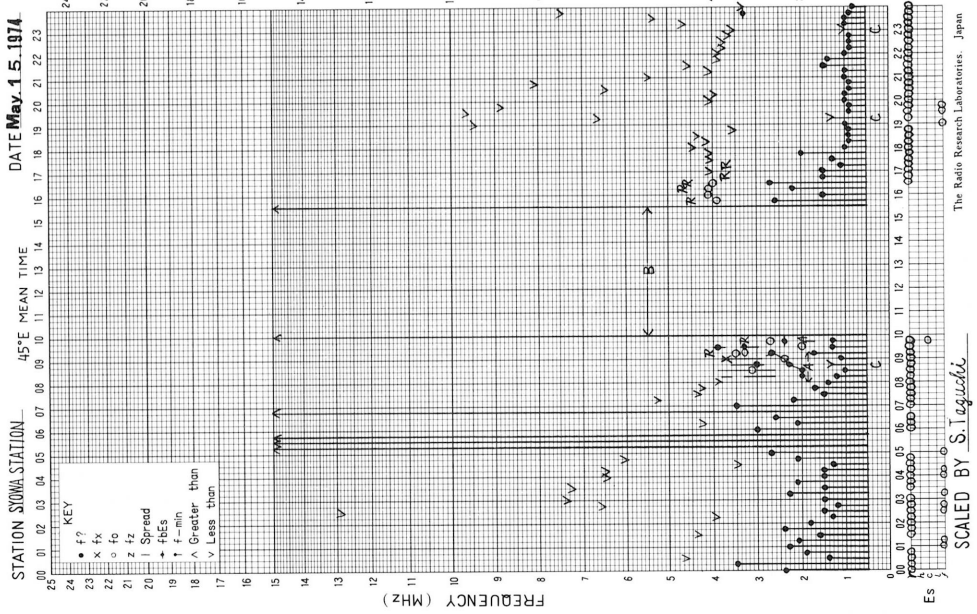
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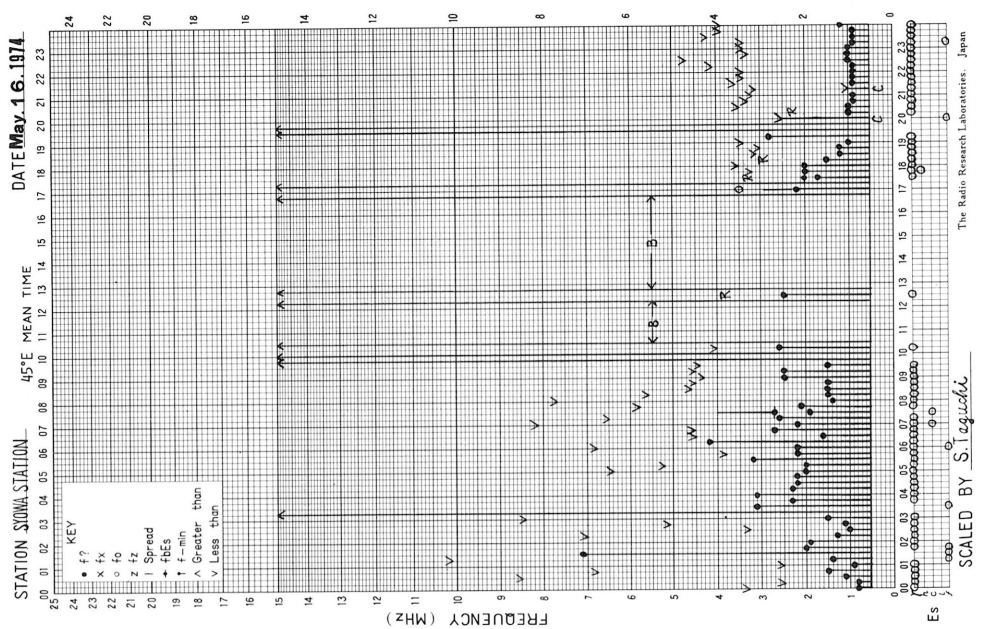
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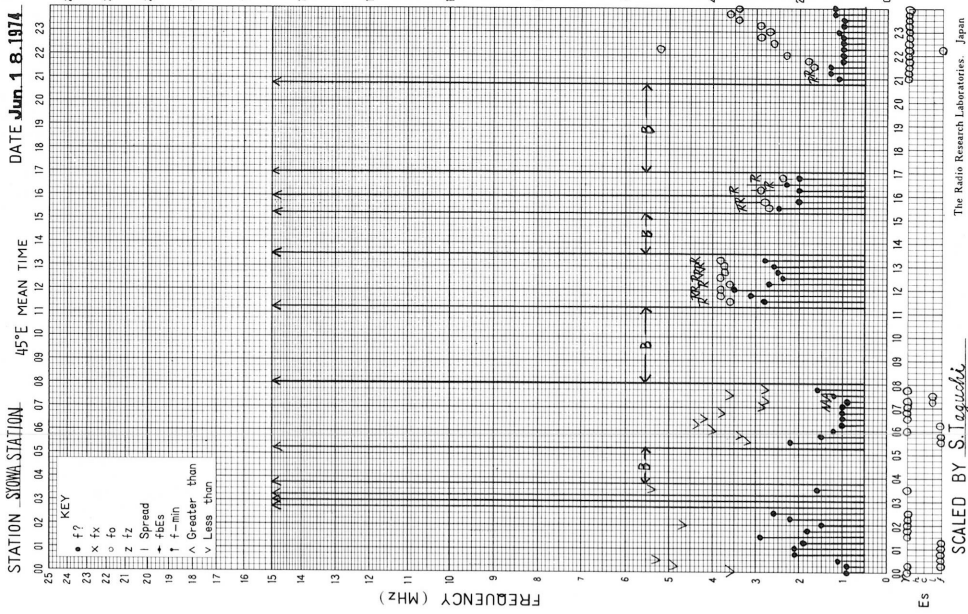
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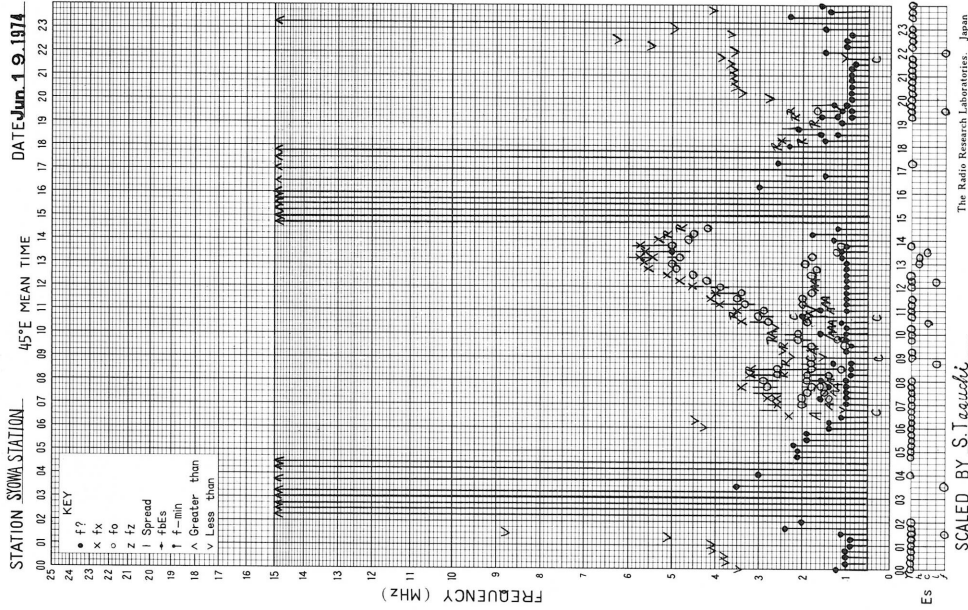
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f-PLOT OF IONOSPHERIC DATA



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f-PLOT OF IONOSPHERIC DATA

