

ION.ANT.—23

IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)

July 1974 — December 1974

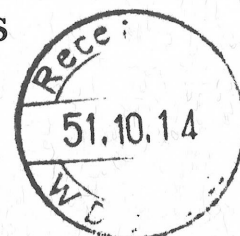
CONTENTS

	Page
Introduction	1
Location of Syowa Station	1
Specifications of the Ionosonde used at Syowa Station	1
Symbols and Terminology	1
Ionospheric Data	5
Graph of Monthly Median Values	5
Tables of Hourly Values	9
<i>f</i> -plots (Regular World Days)	75

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° 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 Es including particle E layers respectively
f_oF1	
f_oE	
f_oEs	
f_{min}	Lowest frequency which shows vertical ionospheric reflections
$M(3000)F2$	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 $F2$, whole F and Es layers respectively.
$h'F$	
$h'Es$	
Types of Es	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>fmin</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 the echo lies outside the height range recorded.
X	Measurement refers to the extraordinary component.
Y	Lacuna phenomena, severe layer tilt.
Z	Third magneto-electronic component present.

(ii) Qualifying Letters

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

A	Less than. Used only when <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 the 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 <i>Es</i> 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.

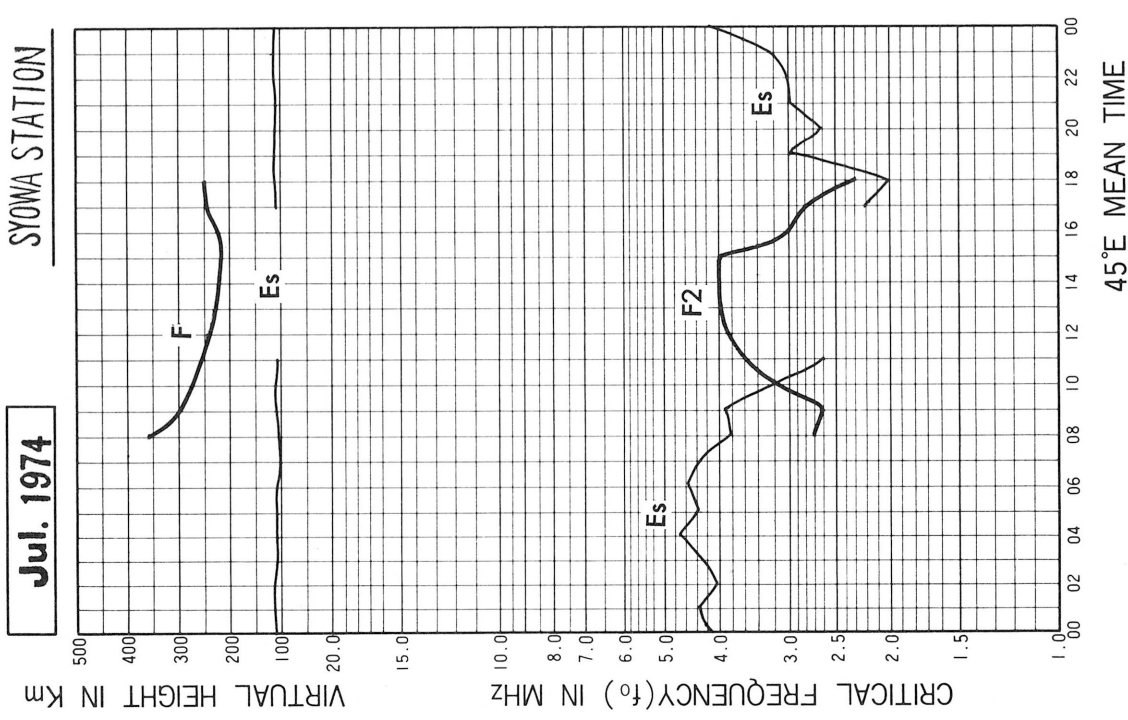
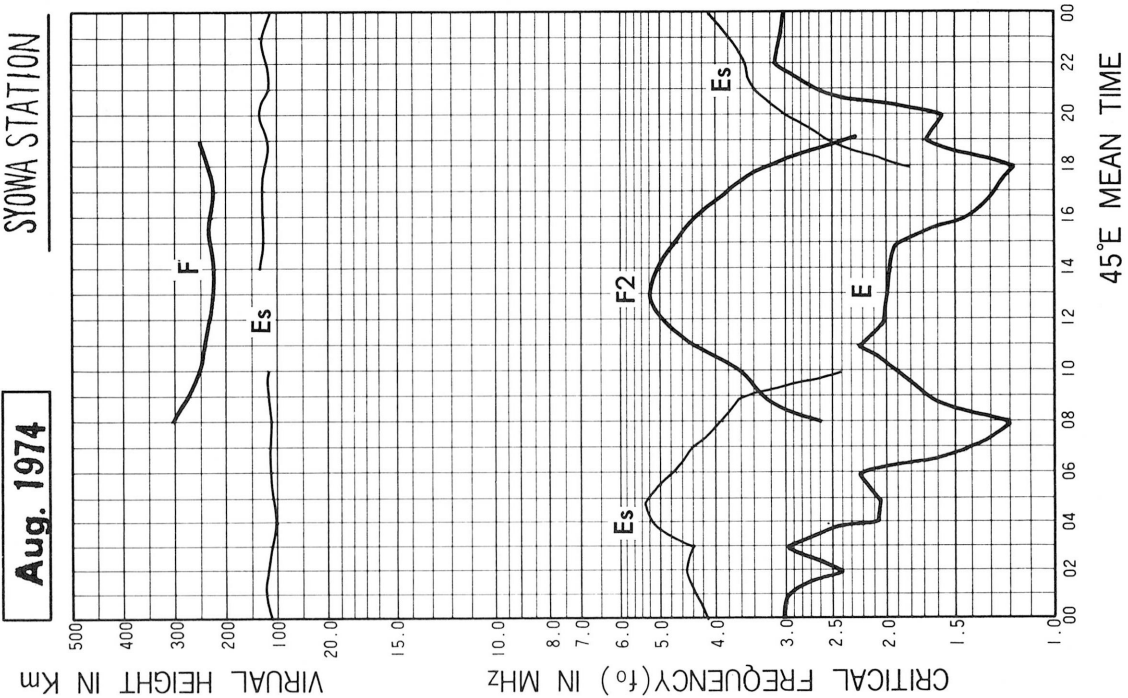
Median (MED) of a set of numbers is the middle value when the numbers are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

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



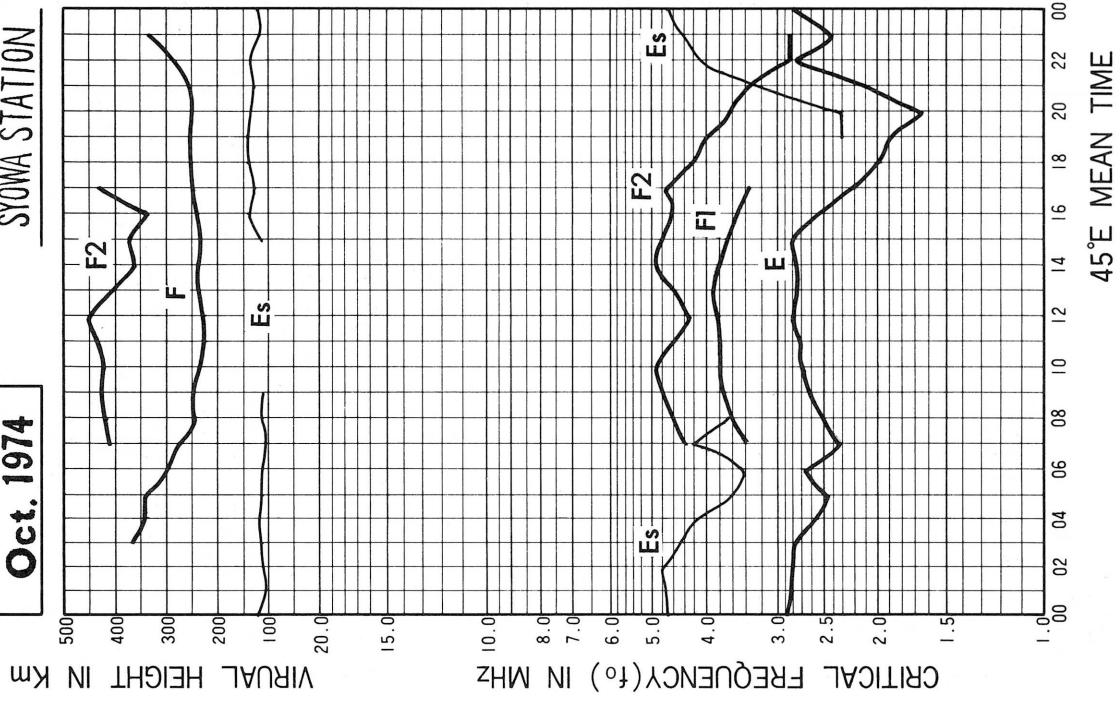
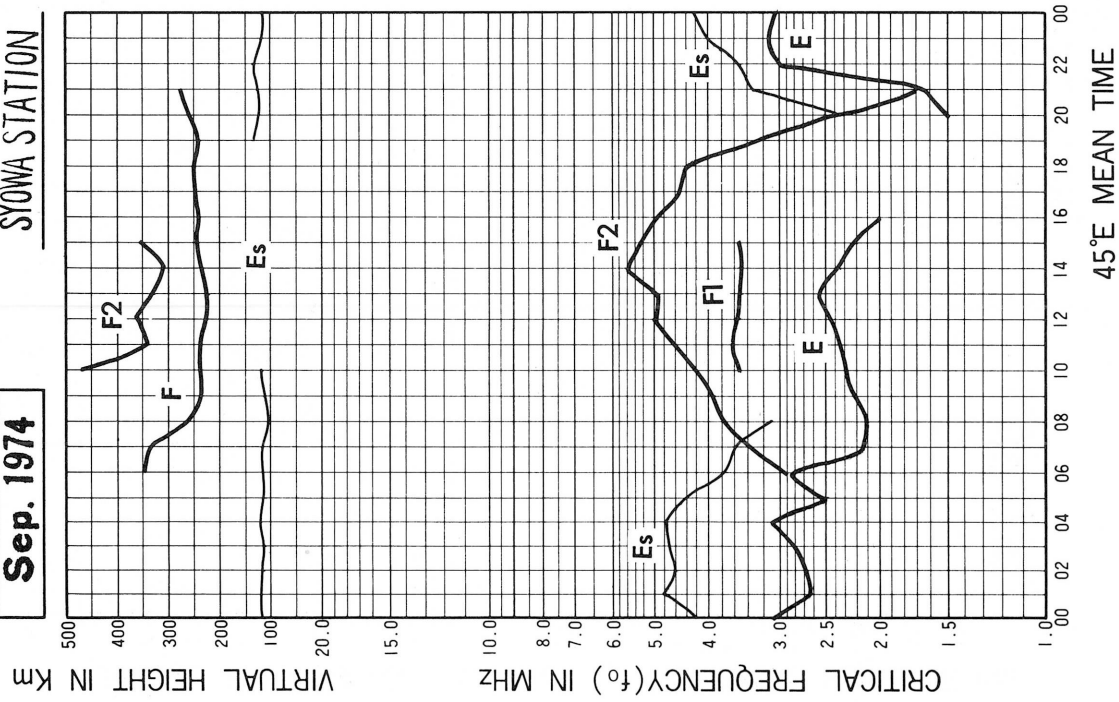
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

Sep. 1974

SYOWA STATION

Oct. 1974

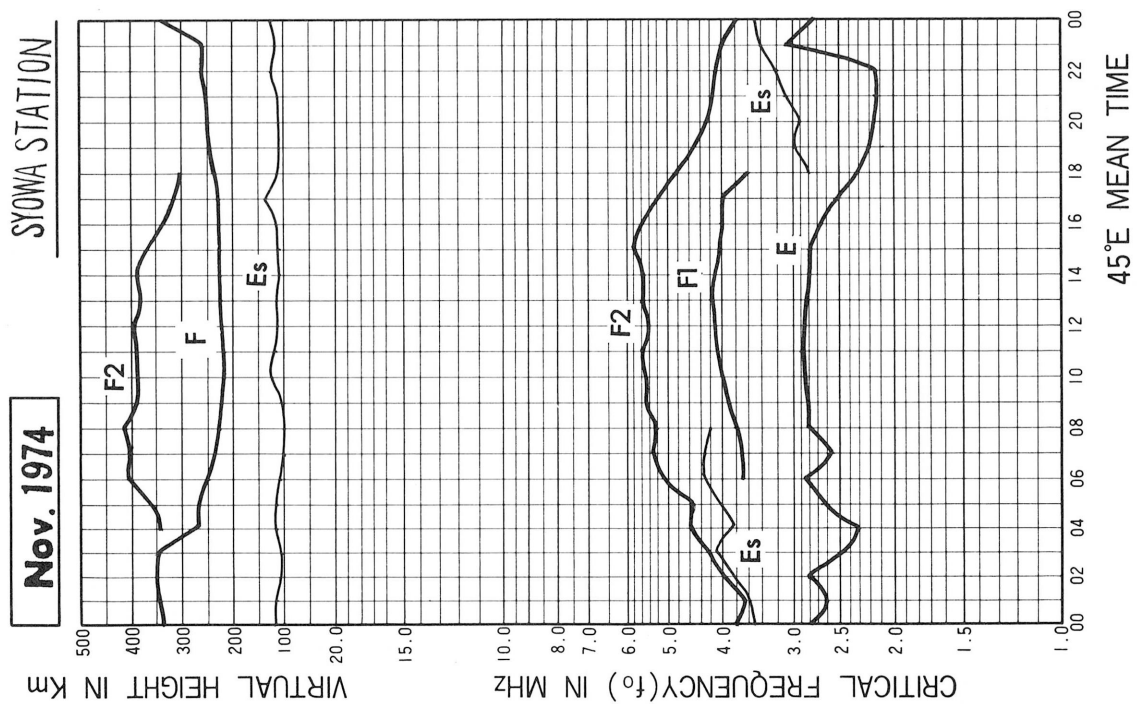
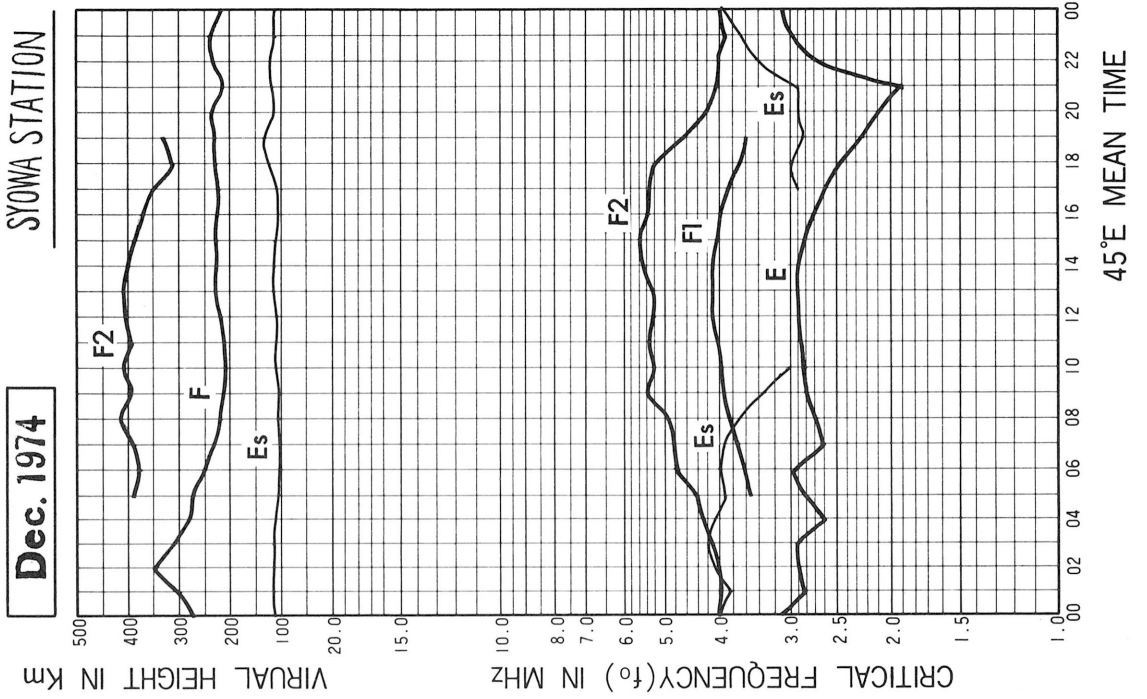
SYOWA STATION



45°E MEAN TIME

45°E MEAN TIME

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA

JUL. 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 0.5 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	A	B	A	A	A	R	B	B	B	R	0 R 45	B	B	B	B	B	B	B	B	B	A	39
2	A	A	A	A	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A
3	C	A	A	A	A	R	A	R	A	A	0 R 32	B	B	B	B	B	B	B	B	B	B	A	B	B	
4	B	A	B	B	B	B	B	B	B	B	B	B	B	0 R 46	0 R 46	B	B	B	B	A	A	28	A		
5	A	B	A	B	S	A	B	B	A	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
6	B	B	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B	B	
7	B	B	B	A	B	A	B	B	A	R	B	R	B	B	B	B	B	B	R	R	R	R	R	43 X 42	
8	A	A	A	A	A	A	A	A	A	A	B	0 R 37	0 R 37	B	B	R	B	B	R	9.8	A	A	R	B	
9	B	B	B	B	B	B	B	A	B	B	B	C	0 R 34	0 R 34	0 R 41	B	R	B	B	B	B	A	A		
10	A	B	A	A	B	A	A	B	A	A	R	B	B	B	B	B	B	B	0 R 32	R	R	A	A	54	
11	A	A	B	B	A	A	B	A	A	B	A	0 R 36	0 R 40	R	46	X 48	0 R 40	B	0 R 33	20	A	B	A	A	
12	A	A	A	A	A	B	A	B	B	A	A	0 R 37	X 44	X 44	X 45	51	B	B	B	B	R	A	A	A	
13	A	B	A	B	B	B	B	B	A	B	B	B	B	B	B	B	43	B	B	B	B	B	A	R	
14	A	A	B	B	A	B	B	B	R	0 R 34	B	B	B	0 R 34	0 R 36	B	0 R 40	R	B	B	B	B	A	A	
15	A	A	A	A	A	B	B	A	B	B	B	B	B	0 R 52	0 R 39	X 36	32	31	30	B	B	B	A	A	
16	A	A	A	B	A	A	B	B	R	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A	
17	A	A	A	A	B	A	A	A	B	B	R	0 R 41	0 R 52	48	0 R 51	X 42	B	0 R 32	B	B	B	B	R	A	
18	R	A	R	R	0 R 35	52	52	66	61	46	49	48	49	60	66	43	0 R 26	28	0 R 24	0 R 26	R	A	A	A	
19	A	A	A	X 44	46	0 R 32	45	46	42	31	46	48	50	48	46	50	31	32	29	25	A	R	A	A	
20	A	A	A	A	A	A	0 R 26	32	31	B	B	0 R 40	48	56	54	49	38	32	0 R 18	A	0 R 17	A	R	A	
21	A	A	A	B	A	A	A	A	28	29	37	0 R 48	47	47	47	52	46	50	0 R 26	B	B	A	A	A	
22	45	A	A	A	A	A	A	R	41	38	0 R 37	B	B	R	68	R	0 R 32	36	R	R	B	B	A	A	
23	A	A	90	A	A	A	A	B	A	B	A	0 R 46	0 R 39	B	B	B	62	61	A	8.6	A	A	A	A	
24	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	45	R	R	B	A	A	B	
25	A	A	B	A	A	B	B	A	A	B	B	B	B	B	B	B	B	X 41	46	36	R	A	44	R	
26	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	X 56	37	0 R 35	0 R 35	B	B	A	A	A	
27	A	B	A	A	A	A	B	B	A	B	B	B	B	B	B	B	0 R 62	R	42	B	B	A	56	A	
28	A	A	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	50	R	B	B	A	30	A	
29	0 R 28	A	A	A	A	A	A	B	B	A	B	B	B	B	B	B	B	0 R 45	48	A	0 R 18	33	A	A	
30	A	A	A	A	A	A	A	B	33	36	41	B	B	66	B	B	B	0 R 35	R	B	R	A	A		
31	A	A	A	A	A	A	A	A	A	A	44	X 54	X 61	51	58	X 42	44	45	42	A	B	B	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	2		1	1	2	2	3	3	6	6	7	10	11	13	13	11	13	14	13	6	2	1	5	3	
MED	36		90	X 44	40	42	45	46	37	35	41	0 R 44	47	48	46	48	40	38	0 R 33	31	0 R 18	33	43	42	
UQ							48	56	42	38	45	48	50	52	54	50	44	45	42	86			44	48	
LQ						36	39	31	31	37	0 R 37	0 R 40	44	0 R 44	0 R 45	X 42	32	32	0 R 29	25			30	40	

The Radio Research Laboratories, Japan

JUL. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

JUL. 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 0.5 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	A	B	B	A	A	A	B	H	B	38	37	B	B	B	B	B	B	B	B	A	F													
2	A	A	A	A	B	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	A	A													
3	C	A	B	B	A	A	A	A	A	A	26	B	B	B	B	H	B	B	B	B	B	A	B	B													
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	40	40	B	B	B	B	A	A	A													
5	B	B	B	B	S	H	B	B	A	B	B	B	B	B	B	H	B	B	B	B	B	B	B	B													
6	B	B	B	B	B	B	B	B	B	B	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	B	R	A	B	B	F	U ₃₆													
8	A	A	A	A	A	A	A	B	A	A	B	31	31	B	B	R	B	B	A	A	A	A	B	B													
9	B	B	B	B	B	B	B	B	B	B	B	C	28	28	35	B	R	B	B	B	B	B	A	A													
10	A	B	A	A	B	A	A	B	A	A	B	B	B	B	B	B	B	B	23	B	A	A	A	U ₄₄													
11	A	A	B	B	B	A	B	A	A	B	A	F	30	34	37	39	42	34	B	F	23	F	A	H	A	A											
12	A	A	B	A	B	B	A	B	B	B	A	F	30	37	38	39	43	B	H	B	B	A	A	A	A												
13	A	B	B	B	B	B	B	B	A	B	H	H	B	B	B	B	H	F	B	B	B	B	B	A	A												
14	A	A	B	B	A	B	B	B	B	U ₂₆	H	B	B	28	30	H	34	R	B	R	B	B	A	A													
15	A	A	B	A	B	B	B	A	B	B	H	B	B	U ₄₆	33	30	F	26	F	24	U ₂₃	B	B	B	A												
16	A	A	B	B	A	A	B	B	R	A	B	B	B	B	B	H	B	H	B	B	B	B	A	A													
17	A	A	A	B	B	A	A	A	B	B	A	35	46	38	45	35	B	26	B	B	B	B	R	A													
18	A	A	R	R	29	F	F	F	F	U ₁₆	F	U ₃₈	U ₄₀	J	U ₄₇	F	20	20	18	19	A	A	A	A													
19	A	A	A	R	F	F	U ₃₀	F	F	U ₂₅	F	U ₃₆	44	40	40	42	U ₂₅	U ₂₃	U ₂₂	F	17	A	R	A	A												
20	A	A	A	A	A	A	F	20	20	18	B	B	34	41	46	43	40	U ₂₅	U ₂₄	U ₁₂	A	11	B	A	A												
21	A	A	A	B	B	A	A	A	F	U ₂₁	F	F	42	41	41	F	40	U ₄₀	U ₃₃	F	20	B	B	A	A	A											
22	F	A	A	A	A	A	A	A	F	U ₃₁	31	B	B	R	U ₅₁	R	26	F	R	B	B	B	A	A	A												
23	A	A	F	A	A	A	A	B	A	B	A	U ₃₈	33	B	B	B	B	F	53	A	F	A	A	A	A												
24	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	F	A	A	B	A	A	B												
25	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	35	36	F	A	A	F	28	A												
26	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	50	F	29	F	27	B	B	A	A	A											
27	B	B	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	U ₅₆	R	F	B	B	A	F	A												
28	A	A	A	A	A	A	B	B	A	B	R	B	B	B	B	B	B	B	F	R	B	B	A	U ₂₂	A												
29	22	A	A	A	A	A	A	B	B	A	B	H	B	B	B	B	B	B	U ₃₉	F	A	12	F	A	A												
30	A	B	B	A	A	A	A	B	F	27	F	30	35	B	B	F	52	B	B	B	U ₂₉	B	B	A	A	A											
31	A	A	A	A	A	A	A	A	A	A	F	37	H	54	F	45	F	51	V	U ₃₆	U ₃₈	F	32	A	B	H	A	A									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23													
CNT	1			1	2	1	2	1	5	6	6	10	12	13	13	11	10	10	11	2	2		2	2													
MED	22			R	38	27	F	22	F	25	F	20	F	27	U ₂₆	32	F	36	39	F	40	40	40	F	30	F	28	F	23	F	18	12		F	25	U ₄₀	
UQ											F	30	U ₃₀	35	U ₃₈	42	F	46	F	45	42	U ₃₄	F	38	F	28											
LQ										F	20	U ₂₁	30	F	31	34	37	39	36	F	25	F	24	F	21												

The Radio Research Laboratories, Japan

JUL. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUL. 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 0.5 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																												
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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																												

JUL. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JUL. 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 0.5 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	B	B	B	B	B	B	B								
2								A	B	B	B	B	B	B	B	B	B	B						175 ^K		
3								B	180	A	200	B	B	B	B	B	B	B								
4								B	B	B	B	B	B	B	B	B	B	B								
5								B	B	B	B	B	B	B	B	B	B	B								
6								B	B	B	B	B	B	B	B	B	B	B								
7								B	B	B	B	B	B	B	B	B	B	B					250 ^K	230 ^K		
8	295 ^K	300 ^K			355 ^K			B	B	A	B	A	A	B	B	B	B	B								
9								B	B	B	B	C	B	220	B	B	B	B								
10								B	A	A	B	B	B	B	B	B	B	B								
11	160 ^K							B	B	B	B	U A 200	B	180	130	120	B	B								
12								B	B	B	B	185	A	A	155	140	B	B								
13								B	S	B	B	B	B	B	B	B	B	B								
14								B	B	A	B	B	B	B	B	B	B	B								
15								B	B	B	B	B	B	B	B	140	A	A								
16								B	B	B	B	B	B	B	B	B	B	B								
17								A	B	B	B	A	A	A	B	A	B	B					120 ^{U K}			
18	150 ^K	215 ^K	270 ^K	280 ^K	190 ^K	220 ^{U K}	170 ^{U K}	U A 125	A	B	A	A	160	A	A	U A 120	B	B								
19	100 ^K	210 ^K	245 ^K	270 ^K	180 ^K	180 ^K	A	100	A	U A 105	B	C	A	A	150	A	A	A								
20		U K 200						A	U A 130	B	B	B	170	170	C	A	A	A								
21								A	130	130	165	A	A	R	R	155	A	A								
22					105 ^K			165 ^K	240 ^K	U F 165	B	B	B	B	B	B	B	B								
23								B	B	B	B	B	B	B	B	B	B	B	A					295 ^K		
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				115	180 ^{U K}	300 ^K	
26								B	B	B	B	B	B	B	B	B	B	B	B							
27								B	A	B	B	B	B	B	B	B	B	B	B					290 ^K	320 ^K	
28								B	B	B	B	B	B	B	B	B	B	B	B						90 ^K	140 ^K
29	170 ^K	170 ^K				U K 260		B	B	B	B	B	B	B	B	B	B	B	B							
30								B	B	U A 180	A	B	B	B	B	B	B	B	B					160 ^K	170 ^K	
31								A	A	A	K 260	B	U R 200	B	B	B	B	B	B							
Hour Day	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	6	2	2	3	4	1	3	4	4	3	2	4	4	4	4		2	2			1	6	5		
MED	160 ^K	205 ^K	258 ^K	275 ^K	190 ^K	200 ^K	170 ^{U K}	125	155	U 148	200	192	185	175	152	130		205	148			160 ^K	175 ^K	230 ^K		
UQ	232 ^K	215 ^K			272 ^K	U K 240		145	210	U 172	230		205 ^R	200	155	140						250 ^K	300 ^K			
LQ	125 ^K	170 ^K			185 ^K	142 ^K		112	130	118	182		165	168	140	120						120 ^K	175 ^K			

The Radio Research Laboratories, Japan

JUL. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

JUL. 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 0.5 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	30	J A 32	30	34	B	40	33	32	25	B	B	B	E B 25	E B 21	B	B	B	B	B	B	B	B	35	J A 26	
2	38	33	J A 36	43	52	53	J A 43	34	B	B	32	B	B	B	B	B	B	B	B	B	B	B	62	30	
3	30	32	52	J A 41	J A 45	24	J A 26	26	J A 28	J A 29	21	B	B	B	B	B	B	B	B	B	B	22	B	B	
4	B	76	B	38	B	B	B	B	B	59	49	B	B	B	E B 34	E B 31	B	B	B	B	36	40	36	19	40
5	42	35	J A 126	B	59	49	B	108	J A 76	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	40	104	28	33	B	63
7	40	70	79	99	48	43	B	B	31	43	B	B	B	B	B	B	B	B	E B 18	21	26	20	29	27	
8	31	J A 44	J A 41	41	J A 40	53	40	48	J A 38	J A 41	B	27	26	B	B	E B 26	B	B	J A 22	J A 32	37	35	38	27	
9	48	B	35	B	B	B	B	31	B	B	B	C	E B 21	30	E B 23	B	E B 26	B	B	B	27	B	23	30	
10	33	26	39	38	B	J A 42	46	B	J A 39	31	B	B	B	B	B	B	B	B	21	B	21	23	38	46	
11	J A 64	J A 73	39	B	31	37	49	J A 49	50	B	33	26	E B 23	26	16	31	E B 30	B	E B 14	23	26	B	J A 37	J A 47	
12	53	J A 43	53	48	J A 51	B	48	B	B	31	32	G	J A 25	J A 22	18	G	B	B	B	B	19	34	J A 35	40	
13	D C 140	40	40	B	B	B	B	B	J A 37	B	B	B	B	B	B	B	E B 14	B	B	B	B	B	J A 33	19	
14	28	34	75	80	52	B	B	100	28	J A 41	B	B	B	E B 25	E B 26	B	E B 24	E B 26	B	B	B	24	J A 39		
15	45	52	45	46	43	51	B	48	B	B	B	B	B	E B 35	E B 25	G	16	J A 24	J A 22	B	B	23	31		
16	J A 69	J A 62	54	45	49	J A 35	55	B	51	31	B	B	B	B	B	B	B	B	B	B	B	B	J A 21	J A 53	
17	34	31	38	J A 63	B	J A 42	46	32	B	B	35	J A 35	30	26	E B 28	31	B	E B 24	B	30	B	B	K 12	23	
18	20	J A 39	J A 33	K 28	23	70	J A 46	J A 74	J A 54	J A 64	J A 64	J A 107	J A 59	J A 54	J A 26	31	24	J A 46	J A 70	22	J A 19	31	25	J A 24	
19	J A 53	28	26	30	36	42	32	J A 32	J A 38	J A 38	J A 32	J C 15	J A 21	J A 21	G	J A 26	34	53	J A 39	18	22	14	J A 30	J A 30	
20	J A 53	J A 26	32	42	J A 49	36	J A 31	16	19	B	B	E B 24	G	G	E C 18	35	37	20	19	J A 27	47	J A 24	16	32	
21	J A 61	J A 52	37	J A 62	50	J A 52	42	J A 30	J A 29	42	19	32	G	25	20	20	35	18	17	B	B	19	70	36	
22	J A 89	47	32	66	J A 25	J A 25	J A 30	J A 27	J A 28	J A 40	28	B	B	E B 32	E B 35	E B 30	E B 21	E B 16	E B 18	B	B	26	J A 31		
23	46	42	69	J A 64	80	74	59	B	J A 77	B	J A 65	E B 30	E B 27	B	B	B	28	J A 44	43	J A 42	48	J A 44	J A 74	J A 44	
24	B	B	35	35	103	B	41	B	B	B	B	32	B	B	B	B	B	32	30	30	B	35	40	48	
25	J A 45	44	45	40	J A 60	B	B	44	48	B	B	B	B	B	B	B	B	E B 29	19	23	26	30	29	32	
26	32	46	J A 40	B	46	46	51	B	B	48	B	B	B	B	B	E B 27	E B 23	E B 22	E B 18	B	B	26	37	J A 27	
27	J A 81	39	36	42	41	46	B	75	J A 39	B	B	B	B	B	B	B	E B 33	E B 39	E B 19	B	B	91	77	47	
28	94	J A 87	J A 51	42	140	61	B	48	47	B	B	B	B	B	B	B	B	E B 22	E B 19	B	52	35	18	42	
29	37	J A 51	52	32	34	35	58	B	B	35	B	B	B	B	B	B	B	E B 25	65	J A 34	J A 26	J A 26	J A 38	32	
30	J A 74	J A 61	36	41	40	J A 42	J A 65	B	J A 27	J A 27	25	B	B	E B 28	B	B	B	B	E B 16	B	B	20	29	J A 47	
31	51	45	J A 88	J A 44	43	J A 65	53	46	43	J A 33	30	24	G	E B 26	E B 28	E B 19	E B 22	26	J A 28	J A 34	B	B	21	29	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	28	28	29	25	24	23	20	19	21	16	13	11	12	14	13	13	14	16	20	14	15	19	28	29	
MED	41	44	40	42	47	43	46	44	J A 38	39	32	26	E G 24	U 24	E B 25	E G 27	E B 25	U 22	20	30	26	30	30	32	
UQ	62	52	52	48	52	52	52	48	J A 48	42	35	32	26	U 28	E B 28	31	33	U 32	34	J A 34	38	35	38	44	
LQ	33	34	36	38	40	38	36	32	J A 28	31	28	24	E G 21	E G 22	E G 18	E G 20	E B 22	E B 22	E B 18	23	24	22	23	29	

JUL. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

JUL. 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 0.5 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	10	9	10	10	B	20	16	10	10	B	A	B	25	21	B	B	B	B	B	B	B	B	8	8	
2	10	9	10	13	18	15	11	9	B	B	24	H	B	B	B	H	B	B	B	B	B	B	10	9	
3	E C 24	10	21	18	14	14	11	10	9	10	13	H	B	B	B	H	B	H	B	B	B	13	B	B	
4	B	20	B	25	B	B	B	B	B	36	44	H	B	B	34	31	B	B	B	33	16	16	15	15	
5	16	23	16	H	E S 26	21	B	52	22	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	26	41	25	24	37	
7	28	23	35	21	37	25	B	B	26	36	A	A	B	B	B	B	B	B	18	15	23	15	13	15	
8	14	15	15	15	16	18	14	26	16	14	B	20	15	B	B	26	B	B	13	12	10	11	15	24	
9	22	B	24	B	B	B	B	24	B	B	B	C	21	18	23	B	26	B	B	B	23	B	11	9	
10	9	22	13	11	B	16	14	B	13	11	B	B	B	B	B	B	B	B	13	A	11	9	10	30	
11	11	10	24	B	23	17	29	12	21	B	21	15	23	17	12	10	30	B	14	11	10	B	9	10	
12	11	11	24	17	21	B	20	B	B	26	22	14	12	12	10	10	B	B	B	B	9	10	11	10	
13	10	23	22	H	B	H	B	B	E S 15	B	A	B	B	B	B	B	14	B	B	B	B	B	11	10	
14	8	10	20	43	12	B	B	72	25	11	B	B	B	B	B	B	24	26	B	B	B	B	12	10	
15	12	16	21	18	22	44	B	23	B	B	A	B	B	B	35	25	13	11	10	12	B	B	B	16	10
16	11	11	21	28	11	11	38	B	45	23	B	B	B	B	B	B	B	B	B	B	B	B	12	9	
17	8	E C 13	11	22	B	12	13	10	B	B	20	15	16	17	28	12	B	24	B	25	B	B	10	10	
18	9	8	9	9	9	8	9	9	8	11	9	10	11	12	10	12	13	10	12	14	12	10	14	11	
19	8	8	8	8	11	10	10	8	10	8	13	E C 18	15	12	11	9	10	9	10	9	15	12	9	11	
20	9	9	9	18	16	10	11	9	9	B	B	24	15	14	E C 18	9	9	10	9	9	10	15	9	9	
21	10	10	12	21	19	13	E C 18	10	10	10	12	17	19	16	15	10	10	10	16	B	B	9	9	9	
22	10	13	10	10	11	9	10	9	9	16	23	B	B	32	35	30	21	16	18	B	B	B	9	9	
23	9	13	9	16	12	20	18	B	18	B	18	30	27	B	B	B	15	9	10	9	E C 10	9	9	9	
24	B	B	29	9	40	B	36	B	B	B	B	25	B	B	B	B	B	10	10	10	B	9	10	24	
25	16	20	29	19	13	B	B	21	25	B	B	B	B	B	B	B	B	29	10	10	15	10	10	9	
26	17	18	20	B	20	26	30	B	B	32	B	B	B	B	B	B	27	23	22	18	B	B	10	9	9
27	19	30	15	17	10	15	B	63	14	B	B	B	B	B	B	B	33	39	19	B	B	22	10	13	
28	25	9	20	18	15	20	B	28	25	B	B	B	B	B	B	B	B	22	19	B	49	9	8	10	
29	9	E C 9	9	10	15	15	18	B	B	24	B	A	B	B	B	B	B	25	22	E C 17	10	9	11	10	
30	9	18	19	14	15	16	10	B	21	13	16	H	B	28	B	B	B	B	16	B	B	11	10	9	
31	12	10	13	12	E C 15	20	16	12	10	10	10	21	15	26	28	19	22	22	12	11	B	B	10	10	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	
MED	11	13	19	18	17	20	20	28	22	36	B	B	B	B	B	B	B	39	18	B	B	15	10	10	
UQ	17	21	23	26	38	D B 44	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	12	14	
LQ	9	10	10	12	13	14	13	10	11	14	20	21	20	20	26	16	22	19	12	12	14	10	9	9	

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JUL. 1974

F=MIN (0.1 MHz)

IONOSPHERIC DATA

JUL. 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 0.5 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	A	B	B	A	A	A	B	B	B	330	F	B	B	B	B	B	R	B	B	A	F		
2	A	A	A	A	B	A	A	A	B	B	A	B	B	B	B	H	B	B	B	B	B	B	A	A		
3	C	A	B	B	A	A	A	A	A	A	310	B	B	B	B	B	B	H	B	R	B	A	B	B		
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	340	R	320	B	H	B	R	A	A	A	A	
5	B	B	B	B	S	B	B	B	A	B	B	R	B	B	B	H	B	B	B	R	B	B	B	B		
6	B	B	B	R	B	B	B	B	B	B	B	H	B	B	B	B	B	B	B	H	B	B	B	B		
7	B	B	B	R	B	B	B	R	B	B	B	R	B	B	B	B	B	B	R	R	R	R	F	U ^R ₂₉₀		
8	A	A	A	A	A	A	A	B	A	A	A	315	325	B	B	R	B	B	A	A	A	A	B	B		
9	B	B	B	B	B	B	B	B	B	B	B	B	320	F	320	330	H	R	B	B	R	B	A	A		
10	A	B	A	A	B	A	A	B	A	A	R	H	B	B	B	H	B	B	305	F	B	A	A	A	U ^F ₃₁₅	
11	A	A	B	B	B	A	B	A	A	B	A	255	F	325	320	335	F	320	345	B	305	F	A	B	A	A
12	A	A	B	A	B	A	B	B	B	B	A	335	F	325	345	340	320	F	B	B	B	R	A	A	A	A
13	A	B	B	R	B	B	B	B	A	B	B	R	R	B	B	B	F	B	B	B	B	B	A	A	A	
14	A	A	B	B	A	B	B	B	B	U ^F ₂₇₀	R	B	B	B	320	325	B	325	R	B	B	B	B	A	A	
15	A	A	B	A	B	B	B	A	B	B	B	R	B	U ^R ₃₃₅	335	335	345	F	335	U ^F ₃₅₀	B	B	B	B	A	
16	A	A	B	B	A	A	B	B	R	B	B	B	B	B	B	B	B	B	B	B	R	B	B	A	A	
17	A	A	A	B	B	A	A	A	B	B	A	335	350	340	335	340	B	330	B	R	B	B	R	A	A	
18	A	A	R	R	225	F	F	F	F	U ^F ₂₉₀	320	U ^F ₃₃₅	F	340	F	345	335	300	335	355	A	A	A	A	A	
19	A	A	A	R	320	270	265	U ^F ₂₆₅	F	285	U ^F ₃₁₀	F	U ^F ₃₂₀	350	330	330	345	U ^F ₂₈₀	U ^F ₃₂₅	U ^F ₃₂₀	295	F	A	R	A	A
20	A					A	265	F	290	290	B	B	325	320	350	325	350	F	U ^F ₃₅₅	F	A	365	B	A	A	
21	A	A	A	B	B	A	A	A	300	U ^F ₂₈₅	300	335	345	340	330	U ^F ₃₅₀	F	F	350	B	B	A	A	A	A	
22	F	A	A	A	A	A	A	A	280	U ^F ₂₉₀	295	B	B	R	F	R	310	F	R	B	B	B	A	A	A	
23	A	A	F	A	A	A	A	B	A	B	A	U ^F ₂₉₀	275	B	B	B	F	245	A	F	A	A	A	A	A	
24	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	F	A	A	B	A	A	B	B	
25	A	B	B	B	A	B	B	B	B	B	R	B	B	B	B	B	B	315	330	F	A	A	320	A	A	
26	A	A	B	B	B	B	B	B	B	B	R	B	B	B	B	340	F	355	335	F	B	B	A	A	A	
27	B	B	A	A	A	A	B	B	A	B	B	B	B	B	B	B	U ^F ₂₉₀	R	F	B	B	A	F	A	A	
28	A	A	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	F	R	B	B	A	U ^F ₃₁₀	A	A	
29	320	A	A	A	A	A	A	B	B	A	B	R	B	B	B	B	B	U ^F ₂₉₅	F	A	B	F	A	A	A	
30	A	B	B	A	A	A	A	B	295	305	330	R	B	B	320	B	B	B	U ^F ₃₁₀	B	B	A	A	A	A	
31	A	A	A	A	A	A	A	A	A	A	340	315	350	320	355	320	U ^F ₃₃₅	U ^F ₃₂₅	350	A	B	B	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	1			1	2	1	2	1	5	6	6	10	11	13	11	11	8	10	10	2	1		2	2		
MED	320			320 ^R	248	265 ^F	265 ^F	290 ^F	290 ^F	290 ^F	315 ^F	322 ^F	325	335 ^F	335	340	330	325 ^F	332 ^F	325 ^F	365		315 ^F	302 ^U		
UQ									295 ^F	305 ^F	330 ^F	335 ^F	348	340 ^F	338 ^F	345 ^F	340	335 ^F	350 ^F							
LQ									285 ^F	285 ^{U^F}	300	315 ^F	322	320	330	320	300	300 ^F	310 ^F							

JUL. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

JUL. 1974

H^oF₂ (KM)

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

Station SYOWA STATION Lat. 69^o 00.4' S, Long. 39^o 35.4' E Sweep 0.5 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																								
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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																								

JUL. 1974

H^oF₂ (KM)

IONOSPHERIC DATA

JUL. 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 0.5 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	A	B	B	B	A	A	B	B	B	250	220	B	B	B	B	B	B	B	B	A	F
2	A	A	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A
3	C	A	B	B	B	B	A	A	A	A	310	B	B	B	B	B	B	B	B	B	B	A	B	B
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	280	B	B	B	B	B	B	B
5	B	B	B	B	S	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
6	B	B	B	B	B	B	B	B	B	B	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	B	260	B	B	B	300	290
8	A	A	A	A	A	B	B	B	A	A	B	300	285	B	B	260	B	B	A	A	A	A	B	B
9	B	B	B	B	B	B	B	B	B	B	B	C	300	B	280	270	B	250	B	B	B	B	A	A
10	A	B	A	A	B	B	A	B	A	A	B	B	B	B	B	B	B	B	305	B	A	A	A	B
11	A	A	B	B	B	B	B	A	B	B	B	270	250	265	240	225	E B 280	B	275	F	A	B	A	A
12	A	A	B	B	B	B	B	B	B	B	B	245	245	225	215	250	B	B	B	B	A	A	A	A
13	A	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	230	B	B	B	B	B	A	A
14	A	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	265	260	B	B	B	B	A	A
15	A	B	B	B	B	B	B	B	B	B	B	B	B	250	250	250	200	235	225	B	B	B	B	A
16	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A
17	A	A	A	B	B	A	A	A	B	B	A	280	250	225	250	225	B	B	B	B	B	B	R	A
18	A	A	R	250	400	315	330	345	395	F E 310	B 230	225	215	230	200	220	A	250	E A 270	250	A	A	B	
19	A	A	A	290	E A 410	450	A	F	300	300	275	240	215	200	210	225	205	E A 280	A 230	250	260	B	A	A
20	A	A	A	B	B	A	A	300	370	B	B	260	230	215	225	200	200	210	A	A	B	B	A	A
21	A	A	A	B	B	A	C	A	340	300	275	250	235	210	210	215	200	250	E B 240	B	B	A	A	A
22	A	A	A	A	A	A	A	A	380	300	350	B	B	230	225	225	E B 300	250	230	B	B	B	A	A
23	A	A	A	B	A	B	B	B	A	B	A	305	E B 370	B	B	B	A	375	A	A	A	A	A	A
24	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	280	A	A	B	A	A	B
25	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	250	A	A	A	300	A
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	230	B 230	B 245	250	B	B	A	A	A
27	B	B	B	B	A	A	B	B	A	B	B	B	B	B	B	B	B	250	250	245	B	B	A	U F 330 405
28	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	F 260	240	B	B	A	280	A
29	A	A	A	A	A	A	A	B	B	A	B	B	B	B	B	B	B	280	275	275	A	A	A	A
30	A	B	B	A	A	A	B	310	265	250	B	B	230	B	B	B	B	250	B	B	B	A	A	A
31	A	A	A	A	B	A	A	A	A	280	245	220	220	225	235	220	250	205	A	B	B	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				2	2	2	1	3	6	6	7	10	12	14	12	13	12	14	15	3			4	2
MED				270	402	382	330	300	355	294	275	255	244	228	225	225	U 225	250	250	260			300	348
UQ								322	380	310	295	280	259	250	250	250	261	260	260	268			315	
LQ								300	310	275	245	245	225	220	220	220	210	245	240	255			290	

JUL. 1974

H'F (KM)

IONOSPHERIC DATA

JUL. 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 0.5 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	110	100	105	105	B	100	105	100	110	B	B	B	B	B	B	B	B	B	B	B	B	B	100	115	
2	100	100	120	115	100	100	100	100	B	B	105	B	B	B	B	B	B	B	B	B	B	B	100	125	
3	C	110	100	110	110	115	110	110	105	105	110	B	B	B	B	B	B	B	B	B	B	120	B	B	
4	B	160	B	115	B	B	B	B	B	110	120	B	B	B	B	B	B	B	B	B	B	120	110	145	115
5	110	130	150	B	105	110	B	145	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	140	150	120	120	B	125
7	125	115	100	125	150	105	B	B	135	125	B	B	B	B	B	B	B	B	B	125	130	130	110	140	
8	110	150	120	105	115	105	110	120	100	100	B	120	105	B	B	B	B	B	110	110	105	100	150	100	
9	100	B	125	B	B	B	B	90	B	B	B	B	B	130	B	B	B	B	B	B	110	B	115	100	
10	105	145	110	90	B	100	105	B	100	110	B	B	B	B	B	B	B	B	130	B	120	105	105	125	
11	115	140	95	B	130	105	120	100	100	B	105	105	B	100	140	100	B	B	B	130	110	B	105	100	
12	100	105	115	100	100	B	115	B	B	110	115	G	100	100	110	G	B	B	B	B	115	105	110	105	
13	150	100	105	B	B	B	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	105	110	
14	100	110	110	130	95	B	B	150	100	105	B	B	B	B	B	B	B	B	B	B	B	B	115	110	
15	110	105	100	100	105	115	B	100	B	B	B	B	B	B	B	B	G	100	100	100	B	B	B	115	110
16	170	115	105	115	100	100	120	B	125	110	B	B	B	B	B	B	B	B	B	B	B	B	100	100	
17	110	110	115	135	B	100	100	100	B	B	105	105	105	105	B	100	B	B	B	130	B	B	B	125	
18	115	130	100	105	150	120	125	110	100	130	180	150	125	140	115	140	125	110	140	110	105	100	100	100	
19	150	130	125	100	100	100	110	160	150	115	100	C	100	100	G	100	100	130	110	105	110	175	105	125	
20	110	110	110	120	100	100	100	110	120	B	B	B	G	G	C	100	100	100	100	100	100	150	150	110	
21	105	100	115	110	100	110	105	110	115	100	130	105	G	135	135	100	100	140	100	B	B	140	170	115	
22	105	100	100	100	125	130	100	100	120	140	120	B	B	B	B	B	B	B	B	B	B	115	125		
23	115	110	140	100	100	100	100	B	100	B	100	B	B	B	B	B	B	125	100	100	115	105	100	100	150
24	B	B	130	100	130	B	130	B	B	B	B	B	B	B	B	B	B	B	130	110	100	B	105	100	130
25	100	100	110	100	100	B	B	100	100	B	B	B	B	B	B	B	B	B	B	110	105	115	100	105	110
26	125	150	100	B	100	100	100	B	B	100	B	B	B	B	B	B	B	B	B	B	B	140	105	105	
27	105	130	100	110	150	110	B	105	100	B	B	B	B	B	B	B	B	B	B	B	B	100	105	175	
28	145	100	100	100	130	100	B	100	100	B	B	B	B	B	B	B	B	B	B	B	B	115	105	140	130
29	125	170	100	105	110	110	105	B	B	105	B	B	B	B	B	B	B	B	B	110	115	100	105	110	115
30	105	150	120	110	110	120	100	B	130	110	110	B	B	B	B	B	B	B	B	B	B	150	150	125	
31	100	100	140	110	105	105	100	100	100	100	130	150	G	B	B	B	B	B	110	100	100	B	130	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	27	28	29	25	24	23	20	19	21	16	13	7	5	7	4	6	6	8	13	13	15	19	27	29	
MED	110	110	110	105	105	105	105	100	100	110	110	105	105	105	125	100	100	110	110	110	110	105	110	115	
UQ	120	135	120	115	128	110	112	110	120	112	120	135	105	132	138	100	125	130	110	125	118	135	122	125	
LQ	105	100	100	100	100	100	100	100	100	102	105	105	100	100	112	100	100	100	100	105	105	102	105	110	

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JUL. 1974

H^oES (KM)

IONOSPHERIC DATA

JUL. 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 0.5 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	R1	F2	R3	R3		F1	R2	R3	R2														R4	AF11	
2	R2	R4	RS41	R1	R1	R1	R1	R3			R1												F1	HK11	
3	R4	RS31	R1	F1	R2	R1	R2	R2	C1	R2	R1											F1			
4		RR11		R1						L1	R1								R1	R2	FS11	F1	RS21		
5	RF11	R1	FFF11		R1	R1		HR11	L1																
6																			F1	F1	F1	R1		R1	
7	R1	R1	F1	FR11	R1	R1			R1	C1									F1	F1	F1	F1	CK21	HK11	
8	RK12	HK11	R2	R2	LK11	R2	R2	R1	R1	L1		C1	L1					F1	R2	R3	R3	FF11	F1		
9	R1		R1					L1						C1							F1		R1	R4	
10	R5	F1	R3	F1		F2	R2		L1	LL11									R1		R1	R2	R5	R1	
11	R3	HKH11	F1		R1	RS11	F1	R2	L1		R1	C1		L1	H1	L1			R1	A1		RS61	F4		
12	R3	F4	R1	R2	F1		FS11			L1	R1		L1	L1	L1					RS11	RS41	R3	R6		
13	FF11	R1	R1						L1														R2	R1	
14	R4	R5	R1	FF11	R1			H1	L1	R1												A1	R4		
15	R2	R2	R1	F1	R1	R1		R1									L1	L1	F1			F1	R6		
16	FR13	FR13	F1	R1	RS11	FS21	F1		C1	R1												FF11	FR14		
17	R6	R6	R5	FF11		R2	R1	R2			R1	R1	L1	L1		L2			F1			K1	R1		
18	HK11	HK31	HK44	K5	HK11	CKL11	CK31	C4	LL32	HC11	HHL11	HHL11	H1	HLH11	C1	H1	R1	C3	FF12	F1	F1	F1	F1	F1	
19	CKH11	HKL11	HKL11	LKH12	RKH11	RK11	R2	HA11	HL11	C1	LH11	L1	C1	C1		L1	L1	HL2	FF21	F1	F1	R1	FA11	A1	
20	R4	LKH12	R4	R1	R2	R2	FR11	R1	C1							L1	L1	L1	F1	F2	FF11	FF11	F1	R3	
21	R4	R3	R3	FR11	R1	R3	R3	R3	RL21	L1	H1	R1		H1	H1	LH11	L1	H1	F1			R2	FA11	R6	
22	F2	R3	R2	FER12	F1	HK11	FE12	LK11	CK13	H1	H1												RF41	A1	
23	R3	R3	FF11	R2	RR11	R1	R1		RS11		R1						R1	RKS12	E2	A1	RS11	F2	F2	RR14	
24			R1	R2	FR11		R1					L1						H1	R2	R2		RS51	R2	FF11	
25	R1	R1	R1	R1	RR11			L1	R1										C1	R1	R1	R2	RK11	RK33	
26	R2	RR11	R1		F1	F1	F1			L1												R1	R6	R1	
27	FR11	R1	R2	R2	RR13	R2		L1	L1													F1	RKH11	HK12	
28	FR11	R3	R2	R1	FRF11	R1		L1	R1												F1	RS61	HK11	CK21	
29	CK21	HKC11	F5	RS31	R2	RK21	R1			L1									F1	F1	F1	R3	FR12	R4	
30	FR14	RR11	R1	R2	R3	R1	R2		H1	C1	R1											HK11	HKR11	FR15	
31	RR11	FR11	FR12	RS31	RS21	R2	R1	R3	R3	R2	HK11	H1						L1	LK11	F1		R1	R1		
	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																									

JUL. 1974

TYPES OF ES

IONOSPHERIC DATA

AUG. 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 0.5 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	A	A	A	A	A	A	A	0 R 37	42	0 R 61	0 R 52	B	B	B	B	32	42	C	B	B	A	A
2	A	A	A	A	B	A	A	A	A	A	32	X 41	0 R 49	X 62	X 63	X 51	56	43	56	60	A	A	A	A	A
3	A	A	A	36	A	A	A	A	A	A	B	R	R	B	B	B	B	R	A	A	A	A	A	A	
4	B	A	A	A	B	B	B	A	A	B	B	B	R	B	B	B	B	B	B	B	R	A	R	A	A
5	B	B	A	R	B	B	B	B	R	R	R	R	B	B	B	B	B	B	B	B	B	A	A	R	R
6	R	A	A	R	B	A	A	B	B	B	0 R 38	0 R 48	48	B	B	62	0 R 51	B	B	B	B	A	A	B	
7	B	A	B	A	B	B	B	A	B	B	R	B	B	B	B	0 R 52	0 R 49	B	B	B	B	A	A	R	
8	R	A	B	A	B	B	B	B	B	R	R	B	B	B	B	52	53	45	B	R	A	A	70	A	
9	A	A	A	A	A	A	A	A	A	B	B	B	52	60	56	62	0 R 45	0 R 42	0 R 38	A	A	A	A	A	
10	A	R	A	A	A	A	B	B	A	B	B	0 R 39	X 43	B	B	B	B	0 R 44	40	R	0 R 17	A	A	A	
11	A	A	A	A	A	A	A	A	R	R	0 R 43	B	B	B	B	B	B	B	31	0 R 22	0 R 17	B	B	R	
12	A	A	A	A	A	A	A	35	37	45	60	62	70	62	64	64	60	58	36	A	A	A	0 R 17	0 R 17	
13	A	37	34	31	29	37	43	40	57	47	B	67	69	73	68	53	56	38	36	0 R 28	0 R 23	B	R	A	
14	A	A	R	X 39	A	A	46	41	40	48	55	67	74	65	62	55	59	40	42	X 30	B	R	A	B	
15	A	R	40	R	A	A	A	A	45	47	58	72	76	60	60	72	58	58	36	0 R 24	B	0 R 18	A	A	
16	R	X 47	0 R 36	39	36	46	47	55	54	B	57	69	61	66	62	66	53	49	39	R	B	B	A	A	
17	A	A	55	68	52	60	50	45	47	48	56	57	63	69	60	X 53	52	48	X 47	43	0 R 24	R	A	A	
18	A	X 39	38	0 R 30	A	A	A	30	39	42	46	49	0 R 66	R	60	70	60	58	46	36	27	A	0 R 18	A	
19	A	A	62	68	A	A	A	A	A	X 36	37	X 40	B	B	B	R	83	X 44	A	R	A	A	A	A	
20	A	A	A	A	A	A	R	A	B	B	A	B	B	B	B	B	0 R 49	B	37	R	A	R	R	A	
21	A	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	A	B	42	R	R	A	A	B	
22	A	A	A	A	B	R	A	A	B	B	B	B	B	B	B	B	B	B	B	A	A	R	A	A	
23	A	A	A	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	R	A	B	R	59	A	
24	A	A	A	A	A	B	B	B	B	B	0 R 38	B	B	B	B	78	75	B	R	B	A	A	A	A	
25	A	A	A	A	A	B	B	B	B	0 R 36	0 R 42	X 45	B	B	B	B	B	B	64	42	R	R	R	A	
26	A	A	A	A	A	A	A	R	0 R 36	X 40	X 46	X 46	X 51	X 55	54	53	58	48	52	48	40	A	A	A	
27	A	A	A	A	A	A	A	B	A	B	B	B	B	B	0 R 54	X 61	B	R	B	B	A	R	B	B	
28	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	R	R	53	42	44	90	A	R	R
29	A	B	A	B	A	B	A	B	B	A	B	B	B	B	B	B	B	B	A	0 R 38	A	A	A	A	
30	A	B	A	A	B	A	A	A	A	A	41	X 40	X 42	X 43	45	X 48	42	59	48	B	B	R	A	B	
31	A	A	A	A	A	44	R	A	0 R 34	A	B	B	0 R 37	X 46	X 44	0 R 43	49	0 R 42	0 R 39	0 R 32	R	A	R	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		3	6	7	3	4	4	6	9	11	15	15	15	11	13	17	18	17	19	11	7	1	4	1	
MED		X 39	39	39	36	45	46	40	40	42	43	49	61	62	60	56	53	48	42	36	0 R 24	0 R 18	38	0 R 17	
UQ		X 43	55	54	44	53	48	45	47	47	56	64	68	66	62	64	59	56	46	42	34		64		
LQ		38	36	34	32	40	44	35	37	36	41	46	50	58	54	53	49	42	38	0 R 29	0 R 20		0 R 18		

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AUG. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

AUG. 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 0.5 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	A	B	A	A	A	A	F ₃₀	F ₃₄	45	46	B	B	B	B	F	F ₃₀	C	B	B	A	A	
2	A	A	A	A	B	B	A	A	A	F ₂₅	V ₃₄	43	56	57	45	F ₄₉	F ₃₅	F ₄₄	U ₄₅	A	A	A	A	B	
3	A	A	A	F	A	A	A	A	A	B	B	B	B	B	B	B	B	R	A	A	A	A	A	A	
4	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	R	A	A	
5	B	B	A	R	B	B	B	B	R	A	R	R	B	B	B	B	B	B	B	B	A	A	R	R	
6	R	A	A	R	B	A	A	B	B	B	32	F ₄₁	F ₄₂	B	B	Z ₅₃	45	B	B	B	B	A	A	B	
7	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	F ₄₅	43	B	B	B	B	A	A	R	
8	R	A	B	A	B	B	B	B	B	R	B	B	B	B	B	F ₄₅	F ₄₆	U ₃₅	B	R	A	A	F ₂₃	A	
9	A	A	A	A	A	A	A	A	A	B	B	B	F ₄₅	F ₅₂	F ₅₀	56	U ₃₉	F ₃₅	F ₃₂	A	A	A	A	A	
10	A	R	A	A	A	A	B	B	A	B	B	33	37	B	B	R	B	F ₃₈	F	R	11	A	A	A	
11	A	A	A	A	A	A	A	A	R	A	F ₃₇	R	B	B	B	B	B	B	F	16	U ₁₁	B	B	R	
12	A	A	A	A	A	A	A	U ₂₅	U ₂₅	F ₃₃	F ₅₁	F ₅₂	U ₆₃	U ₅₅	F ₅₁	F	F ₄₇	F	F	A	B	A	11	11	
13	A	U ₂₉	F	F ₂₁	F ₂₁	U ₁₉	F ₁₆	F	F	U ₃₉	B	F	F	F	F	F	F	U ₃₀	U ₂₆	F	U ₁₄	B	R	A	
14	A	A	R	33	A	A	F	U ₃₃	F	U ₃₄	U ₄₃	U ₅₇	U ₅₉	F	F ₅₃	F ₄₉	J ₅₀	F ₃₂	F	23	B	R	B	B	
15	A	R	F	A	A	A	A	A	F ₂₆	U ₃₃	F	U ₅₈	F	U ₅₂	F ₅₃	J ₆₅	U ₄₇	F	U ₂₉	U ₁₄	B	U ₁₂	A	A	
16	A	40	U ₂₈	F	U ₂₈	F	F	F	U ₂₀	B	F	U ₅₂	U ₅₃	U ₅₆	U ₅₅	U ₄₈	U ₄₁	F	U ₂₉	R	B	B	A	A	
17	A	A	F	F	F	U ₂₈	F	F	U ₃₆	F ₄₈	F ₄₇	F ₅₆	F	F	F ₅₂	46	F ₄₄	F	F ₄₁	F ₃₆	18	R	A	A	
18	A	U ₃₂	F	24	A	A	A	F	F	F ₃₅	F ₃₇	F	U ₆₀	R	F	F	U ₅₀	U ₄₂	U ₃₅	U ₂₈	F ₁₉	A	12	A	
19	A	A	F	F	A	A	A	A	A	30	F ₃₀	U ₃₂	B	B	B	R	F	V ₃₈	A	R	A	A	A	A	
20	A	A	A	A	A	A	R	A	B	B	A	B	B	B	B	B	F ₄₀	B	F ₂₉	R	A	R	R	A	
21	A	B	A	B	B	B	A	B	B	B	B	B	B	B	B	B	A	B	F ₃₄	A	R	A	A	B	
22	A	A	A	A	B	R	A	A	B	B	B	B	B	B	B	B	B	B	B	A	A	R	A	A	
23	A	A	A	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	R	A	B	R	F	A	
24	A	A	A	A	B	B	B	B	B	B	32	R	B	B	B	B	F	F	B	R	B	A	A	A	A
25	A	A	A	A	A	B	B	B	B	30	36	39	R	B	B	B	B	B	U ₄₅	F	R	R	R	A	
26	A	A	A	A	A	A	A	A	30	33	39	40	45	49	U ₄₆	U ₄₅	F	U ₃₈	U ₃₃	U ₃₈	F	A	A	A	
27	A	A	A	A	A	A	A	B	A	B	B	B	B	B	48	F ₅₄	F	B	R	B	B	A	R	R	B
28	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	R	F ₄₇	F ₃₅	U ₂₂	F	A	R	R	
29	A	B	A	B	A	B	A	B	B	A	B	R	B	B	B	B	B	B	A	32	A	A	A	A	
30	A	B	A	A	B	A	A	A	A	A	F ₃₅	33	36	36	F ₃₉	41	F ₄₆	F ₅₂	U ₄₂	B	B	R	A	B	
31	B	A	A	A	A	F ₃₄	R	A	28	A	B	B	F	31	39	37	F ₄₂	F ₃₆	F ₃₃	F ₂₅	R	A	R	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		3	1	3	2	2	2	3	5	11	13	13	14	8	12	14	14	12	15	10	5	1	3	1	
MED		U ₃₂	U ₂₈	24	F ₂₄	F ₂₆	F ₂₂	U ₂₅	F ₂₆	F ₃₃	F ₃₆	43	50	52	F ₅₀	F ₄₇	F ₄₄	F ₃₈	U ₃₃	F ₂₄	14	U ₁₂	12	11	
UQ		36		28				U ₂₉	28	U ₃₄	F ₃₉	F ₅₂	U ₅₉	F ₅₆	F ₅₂	F ₅₃	F ₄₇	F ₄₃	U ₃₈	F ₃₂	F ₁₈		18		
LQ		U ₃₀		22				F ₂₂	U ₂₅	30	34	39	42	44	46	F ₄₅	F ₄₁	F ₃₅	F ₃₀	F ₁₉	U ₁₁		12		

The Radio Research Laboratories, Japan

AUG. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

AUG. 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 5 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																								
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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																								

AUG. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

AUG. 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 25 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	U K 250	A 190	B	B	B	B	B	B	B									
2							A	A	A	170	180	B	B	B	B	U R 130	120	120	B								
3							B	B	A	B	B	B	B	B	B	B	B	B	A								
4							B	B	B	B	B	B	B	B	B	B	B	B				K 130		K 300			
5				U K 260			B	B	K 215	B	B	B	B	B	B	B	B	B				K 270	K 195	K 340			
6	K 335	K 345					B	B	B	B	B	250	B	B	B	B	B	B									
7							B	B	B	B	B	B	B	B	B	B	B						K 270	K 350			
8	K 350						B	B	B	B	B	B	B	B	B	B	B	B									
9		K 320					B	K 425	B	B	B	B	B	B	B	B	B	B									
10	U K 320	U K 320	K 320				B	B	B	B	B	B	B	B	B	B	B	B									
11	K 370	K 380	K 240				B	K 310	A	B	K 300	B	B	B	B	B	B	B						K 310			
12	K 270	U K 200	K 305	K 325	K 290	A	A	145	U F 110	115	B	B	200	190	B	B	145	B	B					K 90			
13	U K 290	U K 220		K 100	K 120	K 120	110	U A 130	A	K 240	B	B	U A 225	190	200	200	125	A	B	100				U K 115	K 165		
14		K 180	K 330				U K 195	U K 220	A	B	B	B	B	B	B	190	180	140	B	B							
15	K 180	U K 240	K 240	U K 220			K 250	A	A	U A 150	U A 180	A	200	200	170	A	B	B	A					U K 110			
16	K 120	K 200	K 200	K 190	A	U K 175	120	130	120	B	B	190	200	190	B	B	150	U R 130	115								
17	U K 180	K 310	U K 210	U K 310	A	U K 180	A	U F 140	U F 110	F 140	U A 200	200	195	195	195	A	110	B	B	B				130	K 135	K 190	
18		K 295	K 225				B	95	A	170	170	B	B	B	B	B	B	A	B	105	U K 95				K 250		
19	K 165	U K 300	U K 220	K 300			A	A	A	195	U A 170	205	B	B	B	B	B	B	K 270	K 320	K 170						
20	K 290	K 185		K 350		K 300	K 320	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A			K 360		
21							B	B	B	B	B	B	B	B	B	B	B	B	B	B	A				K 145	K 345	
22	K 400	K 330				K 340	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	130			U K 320		
23	K 360	K 400	U K 360				B	B	B	B	B	B	B	B	B	B	B	B	B	B	A				K 365	K 270	
24	K 300						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B				K 350	K 380	K 370
25	K 300			K 300			B	B	B	B	B	B	240	B	B	B	B	B	B	120	200	U K 170	K 265	K 190	K 200		
26	K 350	K 350	K 360	K 385			B	A	A	200	A	190	A	235	210	205	255	A	120	B	A				K 315	K 340	
27		K 280		K 265			A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	200	K 330	K 350			
28							B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	U K 370			K 350	K 340	
29	K 250						B	K 265	B	B	B	B	B	B	B	B	B	B	B	B	K 345	K 365			K 380	K 360	
30	K 370						B	A	B	B	B	220	265	220	H 210	190	B	B	B	B	B				K 120	U K 280	
31		K 180					K 225	B	B	A	B	B	B	B	B	B	B	B	B	B	B	110				K 350	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	18	18	11	11	2	6	6	8	5	8	9	6	7	8	7	4	7	4	4	7	10	9	19	18			
MED	K 300	K 298	K 240	K 300	K 205	K 202	K 222	K 142	K 120	K 170	K 190	K 222	K 200	K 198	K 195	K 190	K 140	K 125	K 118	K 170	K 158	K 265	K 315	K 305			
UQ	K 350	K 330	K 325	K 318		K 300	K 265	K 265	K 200	K 218	K 200	K 250	K 222	K 210	K 200	K 228	K 148	K 200	K 220	K 225	K 320	K 330	K 355	K 340			
LQ	K 250	K 200	K 222	K 240		U K 175	K 120	K 130	U F 110	K 145	K 180	K 200	K 200	K 190	K 190	K 155	K 122	K 120	K 108	K 125	K 130	K 130	K 198	K 200			

The Radio Research Laboratories, Japan

AUG. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

AUG. 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 0.5 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	117	J A 71	30	J A 44	J A 49	J A 54	48	J A 47	45	58	22	E H 37	E B 35	B	B	B	B	E B 18	E B 10	C	B	37	J A 26	28			
2	J A 32	35	J A 39	45	J A 52	50	J A 54	42	24	J A 29	57	E B 28	26	E B 23	E B 20	17	16	18	J A 26	J A 45	J A 53	45	45	73			
3	80	J A 51	43	47	J A 61	50	J A 55	J A 50	71	B	B	B	B	B	B	B	B	E B 40	J A 42	J A 39	J A 71	J A 51	45	J A 69			
4	B	52	45	D C 140	83	B	B	74	43	47	B	B	B	B	B	B	B	B	B	B	31	25	J A 44	55			
5	B	B	42	28	B	B	B	B	26	24	30	B	B	B	B	B	B	B	B	B	B	34	35	25	37		
6	K 33	J A 63	43	42	B	J A 56	55	45	B	B	E B 27	G	28	B	B	E B 25	E B 39	B	B	B	B	40	57	B			
7	49	38	B	54	B	B	54	54	B	B	B	B	B	B	B	E B 40	E B 34	B	B	B	B	J A 39	J A 38	K 35			
8	K 35	J A 99	58	47	B	53	B	B	B	26	B	B	B	B	B	E B 23	E B 19	E B 19	B	G	24	31	28	J A 37			
9	J A 41	J A 66	J A 57	J A 36	J A 48	J A 41	44	J A 51	J A 59	B	B	B	E B 27	E B 23	E B 24	E B 32	E B 33	E B 26	E B 23	J A 32	42	K 35	39	48			
10	J A 50	J A 41	J A 57	40	45	53	B	B	52	B	B	E B 27	23	B	B	B	B	E B 26	E B 14	E B 17	E B 9	K 12	29	37			
11	42	K 38	J A 43	J A 54	52	J A 54	47	39	31	37	34	B	B	B	B	B	B	E B 23	E B 13	F 10	B	B	B	59			
12	36	J A 37	J A 33	37	33	47	J A 36	19	G	16	E B 22	E H 26	23	22	20	E B 18	G	E B 20	22	J A 63	J A 30	J A 30	32	11			
13	J A 40	J A 30	J A 23	48	J A 65	19	40	J A 25	38	J A 39	B	E B 20	30	30	J A 24	26	18	18	13	E B 11	E B 10	B	11	K 31			
14	59	J A 29	K 33	J A 39	J A 42	J A 53	J A 41	40	54	J A 68	34	E B 30	E B 28	E B 23	20	20	20	E B 13	E B 18	E B 18	B	12	20	B			
15	J A 28	J A 31	43	36	45	77	J A 39	35	J A 39	J A 71	20	27	22	G	22	21	E B 16	20	25	J A 71	29	66	25	38			
16	20	J A 35	J A 31	J A 31	35	34	J A 52	21	30	B	33	23	25	30	E B 26	E B 23	29	25	21	17	B	B	23	J A 33			
17	J A 35	J A 45	55	J A 46	64	47	J A 64	J A 35	40	36	22	G	27	28	23	23	16	E B 10	E B 27	E B 22	E B 13	K 13	29	26			
18	J A 39	43	J A 36	112	56	59	57	J A 40	J A 31	22	G	E B 30	E B 39	E B 31	37	31	E B 22	J A 29	16	J A 64	26	J A 30	27	37			
19	27	J A 50	47	95	55	44	38	64	54	35	19	G	B	B	B	E H 39	E B 28	33	41	23	50	51	44	J A 70			
20	J A 63	J A 30	J A 36	J A 66	119	J A 68	J A 40	J A 81	B	B	50	B	B	B	B	B	E B 28	B	34	26	48	22	41	45			
21	42	B	71	B	B	B	53	47	B	B	B	B	B	B	B	B	B	32	B	E B 15	34	K 14	27	40	39		
22	K 41	46	J A 64	J A 42	B	K 34	49	62	B	B	B	B	B	B	B	B	B	B	B	25	42	16	J A 36	J A 119			
23	J A 54	42	42	B	B	60	43	36	B	B	B	B	B	B	B	B	B	B	E B 26	J A 39	B	J A 24	J A 42	35			
24	36	D S 70	J A 59	44	65	74	B	B	B	B	E B 27	B	B	B	B	E B 53	E B 38	B	25	B	29	K 35	50	J A 41			
25	J A 61	J A 49	42	42	57	65	47	42	B	E B 26	E B 31	G	B	B	B	B	B	B	16	J A 27	25	28	26	J A 52			
26	K 33	K 35	47	43	45	45	44	30	G	20	23	33	G	26	35	31	19	16	E B 20	15	E B 11	67	K 32	K 34			
27	J A 81	47	57	42	55	J A 52	52	B	J A 39	B	B	B	B	B	E B 35	E B 35	B	E B 38	B	B	27	K 33	K 35	B			
28	B	B	B	B	28	B	B	B	B	B	B	B	B	B	B	B	E B 38	E B 26	20	E B 14	40	J A 42	K 35	K 34			
29	83	51	J A 57	B	45	B	J A 65	B	J A 69	46	B	B	B	B	B	B	B	B	40	40	K 37	J A 44	K 40	K 40			
30	42	B	52	46	B	J A 64	J A 45	J A 50	46	42	G	28	24	G	G	E H 21	E B 28	E B 28	E B 18	B	17	35	34				
31	41	J A 39	54	53	57	J A 32	31	48	36	36	B	B	E B 26	G	24	E B 28	G	E B 27	E B 21	E B 16	G	40	K 35	J A 110			
	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	29	27	23	25	25	24	21	18	17	15	15	12	13	18	20	19	24	23	24	28	30	28			
MED	41	J A 43	45	44	52	53	47	44	39	36	U 24	E G 27	24	E G 23	U 22	E H 26	E B 25	E B 25	U 18	25	29	34	35	38			
UQ	56	J A 51	57	50	59	59	54	50	52	46	33	E B 29	27	28	25	E H 32	E B 32	E B 28	26	J A 39	41	41	41	54			
LQ	35	J A 36	42	41	45	45	41	36	31	26	20	E G 20	24	E G 22	20	E B 21	16	17	E B 17	E B 16	14	24	27	34			

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AUG. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

AUG. 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 0.5 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	9	9	9	22	10	10	10	26	12	15	37	35	B	B	B	B	18	10	C	B	24	11	11				
2	E ₁₂ C	9	10	12	21	22	10	10	10	10	11	28	23	23	20	12	10	10	9	22	12	13	11	22				
3	E ₁₁ C	12	17	E ₉ C	22	22	14	12	12	B	B	B	B	B	B	B	B	40	9	9	10	12	10	9				
4	B	16	16	16	26	B	B	31	31	43	B	B	B	B	B	B	B	B	B	B	11	21	9	10				
5	B	B	24	13	B	B	B	B	19	18	26	B	B	B	B	B	B	B	B	B	22	10	10	9				
6	16	33	27	26	B	22	16	30	B	B	27	23	22	B	B	25	39	B	B	B	B	9	9	B				
7	40	18	B	25	B	B	38	30	B	B	B	B	B	B	B	40	34	B	B	B	10	14	11					
8	10	16	29	20	B	31	B	B	B	24	B	B	B	B	B	23	19	19	B	11	9	E ₉ C	8	E ₁₀ C				
9	9	10	9	15	15	11	10	12	13	B	B	B	27	23	24	32	33	26	23	10	9	9	10	11				
10	11	10	10	28	31	17	B	B	27	B	B	27	19	B	B	B	B	26	14	17	9	10	9	9				
11	8	11	10	25	22	20	20	22	23	24	18	B	B	B	B	B	B	B	23	13	10	B	B	9				
12	15	9	9	21	16	10	11	10	10	9	22	26	19	18	18	18	14	20	14	17	12	10	9	8				
13	8	8	8	9	9	9	8	8	11	17	B	20	20	15	14	15	10	14	9	11	10	B	10	9				
14	8	8	9	11	E ₁₅ C	10	9	12	10	18	23	30	28	23	18	17	13	13	18	18	B	11	16	B				
15	10	9	9	9	12	10	9	10	10	13	16	17	17	16	15	14	16	15	10	9	15	10	11	10				
16	9	10	9	9	9	9	8	8	9	B	24	15	12	15	26	25	14	12	11	13	B	B	12	16				
17	10	10	9	9	10	9	9	9	8	11	14	14	15	15	17	15	10	10	27	22	13	9	E ₁₃ C	9				
18	9	9	9	8	11	14	10	9	10	10	14	30	39	31	30	20	22	9	10	10	9	13	11	22				
19	16	9	9	10	18	17	12	22	14	12	15	11	B	B	B	39	28	22	10	10	9	11	9	E ₁₁ C				
20	9	8	12	11	11	12	20	10	B	B	26	B	B	B	B	B	28	B	17	10	11	11	10	22				
21	20	B	22	B	B	B	21	34	B	B	B	B	B	B	B	B	22	B	15	10	14	9	10	29				
22	21	11	10	11	B	10	29	16	B	B	B	B	B	B	B	B	B	B	B	11	11	E ₁₂ C	9	14				
23	14	20	26	B	B	26	34	27	B	B	B	B	B	B	B	B	B	B	26	9	B	12	10	12				
24	9	32	22	24	28	39	B	B	B	B	27	B	B	B	B	53	38	B	22	B	13	9	13	13				
25	14	19	16	9	18	39	36	38	B	26	31	20	B	B	B	B	B	B	10	15	9	9	8	9				
26	9	E ₁₄ C	12	26	15	19	12	11	15	16	16	21	20	20	11	19	13	10	20	10	11	18	8	27				
27	E ₂₅ C	10	8	12	28	12	15	B	24	B	B	B	B	B	35	35	B	38	B	B	10	8	9	B				
28	B	B	B	B	22	B	B	B	B	B	B	B	B	B	B	B	38	26	16	14	10	11	9	9				
29	11	40	9	B	23	B	12	B	35	28	B	B	B	B	B	B	B	B	22	11	9	9	9	10				
30	10	B	20	14	B	24	15	22	26	23	18	17	15	16	14	21	28	28	18	B	B	9	9	44				
31	28	10	25	20	22	10	28	34	12	23	B	B	26	17	17	28	18	27	21	16	10	9	9	10				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31				
MED	10	10	10	14	22	19	15	22	24	26	27	B	B	B	B	39	33	27	18	14	11	10	10	11				
UQ	17	20	22	25	D ₃₁ B	35	35	36	B	B	B	B	B	B	B	B	B	B	26	22	18	12	11	22				
LQ	9	9	9	10	15	10	10	10	12	16	18	22	21	22	19	20	17	16	10	10	10	9	9	9				

AUG. 1974

F-MIN (0.1 MHz)

IONOSPHERIC DATA

AUG. 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 0.5 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	A	B	A	A	A	A	F 305	F 325	F 355	F 335	B	B	H	B	F	F 335	C	B	B	A	A
2	A	A	A	A	B	B	A	A	A	F 365	F 345	F 345	F 370	F 355	F 365	F 315	F 320	F 310	A	A	A	A	A	B
3	A	A	A	F	A	A	A	A	A	B	B	B	B	B	B	H	B	R	A	A	A	A	A	A
4	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	R	A	A
5	B	B	A	R	B	B	B	B	R	A	R	B	B	B	B	B	B	B	B	H	A	A	R	R
6	R	A	A	R	B	A	A	B	B	B	F 335	F 315	F 330	B	B	F 340	F 330	B	B	B	B	A	A	B
7	B	A	B	R	B	B	B	B	B	B	B	B	B	B	B	F 335	F 345	H	B	B	B	A	A	R
8	R	A	B	A	B	B	B	B	B	R	R	B	B	B	B	F 335	F 345	F 345	B	R	A	A	F 305	A
9	A	A	A	A	A	A	A	A	A	B	B	B	F 335	F 345	F 340	F 355	F 335	F 355	F 345	A	A	A	A	A
10	A	R	A	A	A	A	B	B	A	B	B	F 305	F 320	B	B	H	B	F 330	F	R	F 230	A	A	A
11	A	A	A	A	A	A	A	A	R	A	F 305	B	B	B	B	B	B	B	F	F 355	F 355	B	B	R
12	A	A	A	A	A	A	A	F 315	F 310	F 335	F 325	F 330	F	F 335	F	F 340	F	F	F	A	A	A	F 355	A
13	A	F 305	F	F 285	F 285	F	F 265	F	F	F 310	B	F	F 345	F	F 355	F 350	F	F 335	F	F 315	F 315	B	R	A
14	A	A	R	F 305	A	A	F	F	F	F 315	F	F 330	F	F	F 305	F 335	F 350	F 345	F	F 350	B	R	B	B
15	A	R	F	A	A	A	A	A	F 280	F	F	F	F	F 340	F 340	F 345	F	F	F	F 295	B	A	A	A
16	A	F 275	F	F	F	F	F	F	F	B	F 345	F 340	F	F 325	F 325	F	F	F 310	R	B	B	A	A	
17	A	A	F	F	F	F 285	F	F	F	F 345	F 320	F 340	F	F 350	F 350	F 340	F	F 315	F 335	F 345	R	A	A	A
18	A	A	F	F 285	A	A	A	F 260	A	F 300	F 295	F	F 305	R	F	F	F 340	F 340	F 315	F	F 320	A	F 325	A
19	A	A	F	F	A	A	A	A	A	F 275	F 295	F 275	B	B	B	R	F	F 255	A	R	A	A	A	A
20	A	A	A	A	A	A	R	A	B	B	A	B	B	B	B	B	B	F 285	B	F 285	R	A	R	A
21	A	B	A	B	B	B	A	B	B	B	R	B	B	B	B	B	R	A	B	F 290	A	R	A	B
22	A	A	A	A	B	R	A	A	B	B	R	B	B	B	B	B	B	B	B	B	A	A	R	A
23	A	A	A	B	B	A	B	A	B	B	R	H	R	B	B	B	H	B	R	A	B	R	F	A
24	A	A	A	A	A	B	B	B	B	B	B	B	H	R	B	B	F	F	B	R	B	A	A	A
25	A	A	A	A	A	B	B	B	R	F 300	F 310	F 310	B	B	B	H	B	B	F 330	F	R	R	R	A
26	A	A	A	A	A	A	A	A	F 325	F 320	F 340	F 325	F 335	F 325	H	F	F	F	F 320	F 320	F 315	F	A	A
27	A	A	A	A	A	A	A	B	A	B	B	H	B	B	F 315	F 295	B	R	B	B	A	R	R	B
28	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	H	R	F 340	F 310	F 310	F	A	R	R
29	A	B	A	B	A	B	A	B	B	A	B	R	B	B	B	B	B	B	A	F 340	A	A	A	A
30	A	B	A	A	B	A	A	A	A	A	F 305	F 350	F 310	F 335	F 305	F 305	F 330	F 330	B	B	R	A	B	
31	B	A	A	A	A	F 355	R	A	A	A	B	H	F 350	F 335	F 345	F 320	F 330	F 335	F 350	F 335	R	A	R	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		3	1	1	2	1	3	9	12	12	13	6	11	13	12	12	13	9	5		3	
MED		290		285	F 285	F 355	F 275	F 260	F 315	F 310	F 320	F 325	F 335	F 338	F 340	F 335	F 338	F 335	F 315	F 335	F 320		F 325	
UQ				295					F 320	F 315	F 338	F 345	F 340	F 345	F 348	F 350	F 342	F 342	F 330	F 340	F 345		F 340	
LQ				285					F 298	F 300	F 305	F 312	F 330	F 335	F 320	F 325	F 322	F 325	F 310	F 315	F 315		F 315	

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AUG. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 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 0.5 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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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																								

AUG. 1974

H'F2 (KM)

IONOSPHERIC DATA

AUG. 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 0.5 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	A	B	A	A	A	B	340	267	250 ^H	250	B	B	B	B	250 ^B	230	C	B	B	A	A	
2	A	A	A	A	B	B	A	A	A	340	250	245 ^H	220	225	195	205	225	225	250	A	A	A	A	B	
3	A	A	B	A	B	B	A	A	A	B	B	B	B	B	B	B	B	E ^B ₂₉₀	A	A	A	A	A	A	
4	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	
5	B	B	B	R	B	B	B	B	R	A	A	B	B	B	B	B	B	B	B	B	C	A	A	R	
6	R	A	A	R	B	A	A	B	B	B	295 ^B	270	250	B	B	240	B	B	B	B	B	A	A	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E ^B ₂₉₀	250 ^B	B	B	B	B	A	330	R	
8	R	A	B	B	B	B	B	B	B	R	R	B	B	B	B	245	225	245	B	R	A	A	355	A	
9	A	U ^A ₂₅₀	A	A	A	A	A	A	A	B	B	R	240	240	225	225	B	250	250	A	A	A	A	A	
10	A	R	A	A	B	A	B	B	B	B	B	E ^B ₃₀₀	245	B	B	B	B	250 ^H	225	E ^R ₂₅₀	300	A	A	A	
11	A	A	A	B	B	A	A	A	R	A	305	R	B	B	B	B	B	B	B	E ^B ₂₄₀	B	B	B	A	
12	A	A	A	A	A	A	A	300	300	250	250	210	220	200	210	200	210	215	200	B	B	A	A	A	
13	A	320	300	305	295	345 ^F	365	F	F ₂₉₀	295	R	230	240	220	200	200	210	210	H ₂₃₀	230	E ^B ₂₅₀	B	R	A	
14	A	A	R	325	A	A	365 ^F	F ₃₁₀	F ₃₂₀	280	270 ^B	250	235	210	210	220	210	205	270 ^F	250 ^R	B	R	B	B	
15	A	R	F ₃₄₀	255	A	A	A	A	E ^A ₃₅₀	250	240	235	215	200	H ₂₁₅	230	210	205	F ₂₃₀	E ^R ₂₄₅	B	B	B	A	
16	A	400	A	F ₂₉₀	F ₃₅₀	355	360	330	330	B	250	240	230	230	220	225	225	205	F ₂₃₀	R	B	B	A	B	
17	A	A	U ^A ₂₂₅	U ^F ₃₀₀	F ₃₂₀	350	340	F ₂₉₀	F ₂₉₀	240	225	220	230	225	220	220	215	H ₁₉₀	B ₂₇₅	250	230	A	A	A	
18	A	U ^A ₃₂₅	U ^F ₂₉₅	A	A	A	A	360	350	260	240	275 ^H	280	U ^H ₂₀₀	245	230	230	220	225	260	240	A	B	A	
19	A	A	F	A	A	A	A	A	A	380	245	220	B	B	B	B	U ^H ₃₀₀	430	A	A	A	A	A	A	
20	A	A	A	A	A	A	R	A	B	B	A	B	B	B	B	B	B	305 ^B	B	A	A	A	R	R	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	300	A	R	A	A	B
22	A	A	A	A	B	R	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A	R	A	A
23	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E ^B ₃₀₀	A	B	A	280 ^F	A	
24	A	B	B	B	B	B	B	B	B	B	E ^R ₃₁₀	R	B	B	B	B	E ^B ₂₅₀	300	B	R	B	A	A	A	
25	A	A	A	A	A	B	B	B	B	B	B	R	275	B	B	B	B	B	B	F ₂₃₀	275	A	R	A	A
26	A	A	A	A	A	A	A	A	280	240	215	220 ^H	235	220	220	230	210	215	240	245	250	A	A	A	
27	A	A	A	A	B	A	A	B	A	B	R	B	B	B	305	300	B	E ^B ₃₂₀	B	B	A	R	R	B	
28	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	230 ^B	225	260	290	F	A	R	R
29	A	B	A	B	A	B	A	B	B	B	B	R	B	B	B	B	B	B	A	A	270	A	A	A	A
30	A	B	A	A	B	B	A	B	B	A	250	250	230	230	205	215	275	250	225	R	B	R	A	B	
31	B	A	B	A	A	240	B	B	A	A	B	R	270	240	245	265 ^B	255	250 ^B	225	240	R	A	R	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		4	4	5	2	4	4	5	8	10	14	15	15	12	13	17	17	19	18	12	5			3	
MED		322	298	300	322	332	362	330	302	270	250	242	235	222	220	228	225	222	230	250	250			330	
UQ		362	320	305		350	365	340	332	340	268	255	248	230	225	238	255	250	255	265	250			342	
LQ		285	U ₂₆₀	F ₂₉₀		280	355	310	290	250	240	225	230	205	210	220	210	212	225	236	235			305	

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AUG. 1974

H^oF (KM)

IONOSPHERIC DATA

AUG. 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 0.5 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	100	165	110	105	100	100	100	105	145	100 ^K	115	R	B	B	B	B	B	B	B	C	B	125	145	125	
2	115	115	115	100	100	100	100	100	105	105	100	R	120	B	B	100	100	120	115	115	140	115	130	150	
3	100	105	110	120	100	100	100	100	100	B	R	B	B	B	B	B	B	B	105	110	175	100	105	100	
4	B	100	105	100	110	B	B	105	125	120	B	R	B	B	B	B	B	B	B	B	175 ^K	175	115 ^K	160	
5	B	B	110	105 ^K	B	B	B	B	130 ^K	115	110	B	B	B	B	B	B	B	B	B	130	150 ^K	130 ^K	150 ^K	
6	110 ^K	160 ^K	120	125	B	100	100	115	B	B	R	G	145	B	B	B	B	B	B	B	B	100	125	B	
7	125	100	B	115	B	B	130	110	B	B	R	B	B	B	B	B	B	B	B	B	B	110	125 ^K	100 ^K	
8	110 ^K	105	100	145	B	120	B	B	B	130	B	B	B	B	B	B	B	B	B	G	145 ^K	150 ^K	150 ^K	110 ^K	
9	110	110 ^K	100	110	100	110	105	105 ^K	100	B	R	B	B	B	B	B	B	B	B	B	125 ^K	135 ^K	100 ^K	105 ^K	
10	110 ^K	105 ^K	180 ^K	125	100	100	R	B	100	B	B	R	130	B	B	B	B	B	B	R	B	180 ^K	150 ^K	140 ^K	
11	150 ^K	110 ^K	150 ^K	100	100	105	140 ^K	100	105	115	115 ^K	B	B	B	B	B	B	B	B	B	B	B	B	120 ^K	
12	145 ^K	110 ^K	105 ^K	115 ^K	170 ^K	100	105	125	G	100	B	B	150	135	150	B	G	B	115	110	110	140	175	140 ^K	
13	115 ^K	150 ^K	135	125 ^K	95 ^K	145 ^K	100	100	165	120 ^K	R	B	150	150	130	120	125	120	120	B	B	B	155 ^K	155 ^K	
14	110	140 ^K	105 ^K	110	110	105	150 ^K	110 ^K	155	150	105	B	B	B	115	170	130	B	B	B	B	120	125	B	
15	135 ^K	130 ^K	105 ^K	105 ^K	100	120	130 ^K	100	110	105	150	130	140	G	160	125	B	125	105	100	150	100	100	100 ^K	
16	115 ^K	100 ^K	155 ^K	180 ^K	110	110 ^K	130	125	130	B	120	120	160	130	B	B	125	125	125	100	B	B	100	155	
17	130 ^K	130 ^K	110 ^K	100 ^K	100	115 ^K	100	150	100	170	140	G	150	140	145	130	125	B	B	R	B	110	135 ^K	165 ^K	
18	150	150 ^K	150 ^K	105	150	150	100	105	110	125	G	B	B	B	140	130	B	115	110	105	160 ^K	130	110	150 ^K	
19	120 ^K	125 ^K	140 ^K	120 ^K	100	120	125	100	100	115	115	G	B	B	B	B	B	160 ^K	120 ^K	170 ^K	105	105	100	145	
20	100 ^K	115 ^K	100	175 ^K	105	180 ^K	130 ^K	120	B	R	100	B	B	B	B	B	B	B	B	120	105	105	105	125 ^K	100
21	105	B	100	B	B	B	145	140	B	B	B	R	B	B	B	B	110	B	B	100	B	100	160 ^K	100	
22	105 ^K	200 ^K	100	100	B	100 ^K	100	130	B	B	B	B	B	B	B	B	B	B	B	120	105	115	100	150 ^K	
23	120 ^K	145 ^K	120 ^K	B	B	130	145	120	B	B	R	R	R	B	B	B	B	B	B	100	B	120	100 ^K	120 ^K	
24	130 ^K	100	100	100	100	100	B	B	B	B	R	R	B	B	B	B	B	B	120	R	110	105 ^K	150 ^K	110 ^K	
25	120 ^K	100	100	130 ^K	100	100	120	125	B	B	B	G	B	B	B	B	B	B	125	170 ^K	140 ^K	110 ^K	115 ^K	135 ^K	
26	105 ^K	110 ^K	115 ^K	125 ^K	105	110	100	105	G	105	140	110	G	125	115	115	100	160	B	125	B	105	105 ^K	130 ^K	
27	100	145 ^K	130	140 ^K	100	100	100	B	100	B	B	B	B	B	B	B	B	B	B	B	125 ^K	110 ^K	100 ^K	B	
28	B	B	B	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	120	B	100 ^K	110	110 ^K	110 ^K	
29	100 ^K	130	100	R	120	B	180 ^K	B	145	100	B	B	R	B	B	B	B	B	160	145 ^K	110 ^K	100	100 ^K	115 ^K	
30	105 ^K	B	110	100	B	100	100	105	105	100	G	E 160	150	G	G	B	B	B	B	B	B	170 ^K	110 ^K	145	
31	125	130 ^K	100	100	100	130 ^K	125	110	100	115	B	B	B	G	140	B	G	B	B	B	G	110	105 ^K	150	
	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	29	27	23	25	25	24	19	17	11	4	9	5	8	7	7	7	13	15	17	28	30	28	
MED	112 ^K	115 ^K	110	110	100	105	105	110	105	115	115	120	150	135	140	125	125	125	120	110	130	110	120 ^K	132 ^K	
UQ	125 ^K	142 ^K	120 ^K	125 ^K	110	120	130	125	130	120	130	U 138	150	140	148	130	125	142	120	125	145 ^K	128	145 ^K	150 ^K	
LQ	105 ^K	105	100	100	100	100	100	105	100	105	108	115	140	130	122	118	105	120	115	102	110	105	105 ^K	110 ^K	

The Radio Research Laboratories, Japan

AUG. 1974

H⁺ES (KM)

IONOSPHERIC DATA

AUG. 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 2.5 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 15	FR 15	R 3	RF 51	R 1	R 3	R 3	R 3	HL 11	LKC 11	C 1											F 1	F 1	R 2	
2	R 3	RS 1	R 3	R 1	R 1	R 1	R 2	R 2	R 3	L 1	L 1		C 1			L 1	L 1	L 1	C 1	F 1	RR 13	R 1	A 1	FF 11	
3	RS 31	FR 21	F 2	FA 11	R 1	R 1	R 2	R 2	LR 13										RS 31	FS 41	FR 11	R 3	R 3	R 4	
4		R 1	FS 11	F 2	R 1			R 1	H 1	H 1											HK 11	F 1	LK 11	RR 13	
5			R 1	RK 11					CK 11	R 1	L 1										F 1	HK 11	HK 12	HKS 16	
6	K 2	HK 11	R 1	R 1		R 1	R 2	R 1					H 1									RS 51	FR 14		
7	F 1	R 1		R 1			R 1	R 1														RS 41	CK 11	KS 21	
8	K 4	F 2	F 1	FF 11		FS 11				H 1											HK 11	AK 13	HK 15	AK 14	
9	R 5	AK 13	R 4	R 2	R 2	R 3	R 4	RK 33	R 2											CK 32	RKS 13	KS 61	HKS 16	RK 31	
10	RK 51	RK 12	HKR 11	F 1	F 1	R 2			L 1				H 1									K 1	RKR 11	HK 16	
11	HK 16	K 3	AK 13	F 1	F 1	F 2	R 1	HKL 11	L 1	L 1	CK 11													CK 15	
12	CKR 11	LKH 11	LK 51	RK 11	HK 11	R 3	R 2	CL 11		L 1			C 1	C 1	H 1				L 1	F 1	FF 11	FF 12	FF 11	HK 11	
13	LKA 11	AKA 11	A 1	CK 11	LKC 11	KH 11	LA 11	LH 11	HR 11	RK 11			C 1	AL 11	C 1	L 1	CL 11	C 1	C 1				K 1	AK 11	
14	FA 11	AK 11	K 4	R 2	R 3	R 4	HKR 11	CK 11	HHL 11	HL 11	R 1				L 1	H 1	H 1					F 1	F 1		
15	CKH 11	CK 24	LKA 11	RK 11	R 2	FR 13	RK 54	L 1	C 1	LH 11	H 1	C 1	H 1	H 1	C 1			C 1	L 1	F 1	FF 11	FF 11	FF 11	LK 11	
16	LK 11	LKH 11	HKL 11	AKH 13	C 1	LK 11	CH 11	C 1	R 1	C 1	CH 11		HL 11	H 1			C 1	C 1	C 1	F 1			F 1	F 1	
17	AK 11	AK 15	LKA 51	RKL 31	R 2	CK 11	L 3	A 1	LC 11	H 1	C 1		H 1	H 1	H 1	H 1	H 1					KS 11	CK 11	AK 11	
18	FF 12	HK 14	HK 12	F 1	FR 11	FFF 11	R 3	R 2	R 2	CH 11					H 1	H 1			C 1	C 1	C 2	HKC 11	FF 11	F 1	HKC 11
19	CK 21	CK 13	CKL 11	CK 11	R 1	R 2	CLS 11	RS 11	R 1	R 1	C 1							CK 11	CK 13	HK 11	FS 51	RS 21	FS 21	FF 12	
20	RK 21	CK 64	F 3	HKR 11	R 2	HK 13	HK 11	CHR 11			R 1								R 1	R 1	RS 21	R 1	CK 33	R 1	
21	R 1		F 1				HR 11	R 1										R 1		R 3	K 1	R 1	HK 14	R 1	
22	K 1	HK 11	R 3	R 2		K 3	L 1	HR 11												RH 11	R 3	R 1	RS 31	HK 12	
23	CK 21	HKS 11	CK 11			FFF 11	R 1	R 1												RS 31		RS 11	RK 31	RK 11	
24	CK 23	F 1	R 1	F 1	F 1	L 1													R 1		R 1	KS 13	HK 13	RK 22	
25	CKR 11	R 1	FR 21	HK 13	R 2	L 1	R 1	C 1											C 1	CK 11	RK 11	RK 33	CKH 13	HK 33	
26	KS 51	KS 21	CK 23	CK 11	R 2	RS 11	L 1	R 1		L 1	H 1	R 1		C 1	C 1	C 1	L 1	H 1		C 1		F 1	K 3	K 1	
27	F 1	RK 11	AF 11	AK 13	F 1	R 2	R 2		L 1												AK 11	K 6	KS 51		
28					F 1														C 1		RK 11	RS 21	KS 51	KS 41	
29	LK 11	R 1	R 4		R 2		HKR 11		HR 11	L 1									H 1	HK 11	KS 31	RS 51	K 5	KS 51	
30	RKS 55		R 2	R 1		L 1	R 1	R 1	R 1	R 1		H 1	H 1									HK 11	RK 56	F 1	
31	R 1	CKA 11	RR 11	R 1	FS 11	CKL 11	C 1	L 1	L 1	R 1					C 1							RS 51	KS 61	FR 14	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

The Radio Research Laboratories, Japan

AUG. 1974

TYPES OF ES

IONOSPHERIC DATA

SEP. 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 0.5 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	A	A	A	R	R	B	B	B	B	B	B	O ₄₆ R	B	X ₄₆	O ₅₀ R	B	B	R	R	A	A	
2	55	58	56	A	A	A	B	B	B	B	B	B	O ₄₉ R	B	B	B	B	54	49	B	R	A	A	A	
3	B	A	B	B	A	A	A	A	74	O ₃₅ R	X ₃₈	41	B	B	B	B	B	56	46	A	R	A	R		
4	A	A	A	A	A	A	B	B	A	B	B	B	B	B	O ₅₀ R	O ₅₂ R	B	47	51	51	O ₂₆ R	O ₁₉ R	A	A	
5	A	A	B	B	B	A	A	A	B	B	O ₃₇ R	O ₃₈ R	B	B	B	B	B	B	B	33	O ₂₆ R	B	R	A	
6	A	A	A	A	B	B	R	B	B	O ₃₉ R	X ₄₀	X ₄₄	O ₄₆ R	B	B	O ₅₇ R	X ₅₁	O ₄₈ R	54	48	R	B	A	A	
7	A	B	A	A	A	A	A	A	O ₃₇ R	X ₄₂	X ₄₄	X ₄₉	X ₄₇	B	50	62	O ₅₅ R	52	56	55	36	R	R	47	
8	R	A	A	R	B	A	R	44	X ₄₆	49	O ₄₉ R	O ₅₂ R	56	B	62	O ₅₆ R	58	56	O ₅₀ R	O ₄₀ R	O ₂₈ R	O ₂₁ R	O ₁₈ R	A	
9	A	A	A	A	A	A	50	X ₄₃	56	60	61	62	X ₆₁	X ₄₃	63	62	62	60	60	52	50	32	32	24	
10	A	A	A	A	B	A	A	46	53	56	X ₅₆	X ₅₉	62	X ₆₃	X ₆₆	X ₆₂	X ₆₅	61	60	52	37	34	B	R	
11	R	O ₅₁ R	R	A	A	A	42	41	46	X ₅₂	X ₅₅	62	62	70	70	62	70	60	55	46	C	O ₂₅ R	O ₂₄ R	O ₂₂ R	
12	O ₂₁ R	R	40	34	37	47	53	42	B	O ₄₉ R	O ₅₅ R	R	72	74	71	70	73	X ₅₄	X ₅₂	42	38	A	R	A	
13	A	A	A	R	A	A	B	B	B	B	O ₅₃ R	F	O ₅₆ R	B	53	R	B	B	B	O ₄₇ R	A	A	B	R	
14	A	A	R	49	50	R	A	B	B	B	B	X ₅₄	X ₅₈	X ₅₇	X ₆₁	65	59	X ₅₂	49	40	38	B	R	A	
15	A	A	A	A	A	A	O ₃₇ R	O ₄₁ R	B	O ₄₅ R	O ₄₈ R	X ₄₉	X ₅₆	X ₅₃	X ₅₂	X ₅₆	X ₅₉	X ₅₄	B	B	B	A	40	A	
16	A	A	A	A	B	B	A	A	R	B	B	B	B	B	B	B	B	B	O ₃₅ R	O ₃₈ R	A	R	A	R	
17	39	A	45	A	R	A	R	O ₃₄ R	R	X ₄₁	O ₄₆ R	X ₅₀	X ₅₂	X ₅₅	X ₅₉	X ₅₉	X ₆₁	X ₅₁	X ₅₀	O ₄₄ R	31	B	B	R	
18	R	B	B	R	O ₃₀ R	O ₃₆ R	40	X ₄₃	X ₅₀	X ₅₂	58	50	62	B	70	68	65	66	50	A	A	R	R	R	
19	R	34	A	A	A	A	R	37	X ₄₁	X ₄₁	42	B	B	B	49	B	O ₅₂ R	O ₄₇ R	42	B	A	A	A	A	
20	A	A	A	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
21	B	B	B	B	B	B	A	B	O ₄₂ R	O ₄₈ R	X ₅₄	X ₅₆	X ₅₆	R	O ₆₆ R	X ₇₅	B	O ₅₆ R	O ₄₃ R	O ₄₁ R	66	A	A	X ₃₇	
22	A	70	A	A	B	B	B	B	B	B	B	B	B	B	B	O ₅₁ R	B	48	O ₄₇ R	50	B	R	R	R	
23	A	B	B	B	A	A	B	B	O ₄₆ R	X ₄₅	X ₄₅	B	B	B	B	B	60	B	O ₄₈ R	45	O ₁₈ R	A	A		
24	A	A	A	R	R	A	O ₃₈ R	B	B	B	B	B	B	B	B	X ₅₃	X ₅₃	B	O ₅₄ R	R	B	A	31	A	
25	R	A	A	A	31	A	A	R	O ₄₀ R	B	B	O ₄₆ R	X ₄₉	O ₄₇ R	B	B	51	O ₅₀ R	B	O ₃₇ R	A	A	A	A	
26	B	74	A	A	B	B	A	B	B	B	R	R	B	B	B	B	B	B	R	B	R	R	A	R	
27	A	A	R	A	R	47	O ₃₉ R	B	B	O ₃₉ R	O ₃₉ R	B	B	O ₅₃ R	69	74	B	O ₄₆ R	41	34	R	A	A	A	
28	A	A	A	A	R	40	A	B	A	A	B	R	O ₄₈ R	X ₅₄	O ₅₁ R	O ₅₁ R	X ₅₃	X ₅₈	O ₅₀ R	48	49	42	A	A	
29	A	A	A	A	A	54	R	A	A	O ₃₇ R	B	B	B	O ₄₉ R	48	O ₄₈ R	B	X ₄₅	45	36	A	A	A	A	
30	A	A	A	A	A	A	B	B	B	R	B	B	O ₄₁ R	O ₄₇ R	B	R	O ₅₀ R	O ₅₂ R	50	O ₄₂ R	O ₃₈ R	32	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	3	5	3	2	4	5	7	9	11	16	17	15	17	13	18	19	18	23	22	22	13	7	5	4	
MED	39	58	45	42	34	47	40	42	46	45	48	X ₅₀	56	54	60	59	58	52	50	45	37	O ₂₅	31	30	
UQ	47	70	50		44	47	46	43	52	50	55	X ₅₆	61	X ₆₁	66	64	62	56	54	48	45	33	32	42	
LQ	50	51	42		30	40	O ₃₈ R	41	O ₄₂ R	40	42	48	R	O ₄₉ R	50	O ₅₂ R	52	49	45	O ₃₈ R	31	O ₂₀	O ₂₄ R	23	

SEP. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

SEP. 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 05 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	A	A	A	R	R	B	B	B	B	B	B	40	40	40	F	B	B	R	R	A	A	
2	F ₄₄	F	F	A	A	A	A	B	B	B	B	B	40	B	B	B	B	F ₄₂	U ₃₈	B	R	A	A	A	
3	B	A	B	B	A	A	A	A	29	29	31	F ₃₄	B	B	B	B	B	F ₄₃	B	F	A	R	A	R	
4	A	A	A	A	A	A	B	B	A	B	B	B	B	B	44	46	B	F ₄₀	F ₄₅	F ₃₄	20	15	A	A	
5	A	A	B	B	B	A	A	A	B	B	31	32	B	B	B	B	B	B	B	U ₂₆	20	B	R	A	
6	A	A	A	A	B	B	R	B	B	B	33	33	38	40	B	B	51	45	F ₄₁	U ₄₄	F ₃₃	R	B	A	A
7	A	B	A	A	A	A	A	A	31	35	37	43	41	B	F ₆₀	U ₅₃	49	46	J ₄₃	U ₄₃	J ₃₀	R	R	F	
8	R	A	A	R	B	A	A	F ₃₄	40	H ₄₀	43	46	U ₄₉	B	F ₅₅	50	50	F ₄₉	F ₄₄	F ₃₄	U ₂₂	15	12	A	
9	A	A	A	A	A	A	U ₂₈	U ₃₃	F ₄₁	F ₄₉	F ₅₃	F ₅₆	F ₅₅	F ₅₇	F ₅₆	F ₅₂	F ₅₃	U ₄₉	F ₄₂	U ₃₆	U ₃₁	U ₂₂	U ₁₉	F ₁₆	
10	A	A	A	A	B	A	A	U ₃₆	U ₄₆	F ₄₉	50	53	F ₅₆	U ₅₇	60	V ₅₇	V ₅₉	F ₅₄	U ₄₅	U ₃₁	U ₂₂	U ₂₃	B	R	
11	R	U ₄₅	R	A	A	A	U ₂₆	U ₃₄	F ₄₀	46	49	56	F ₅₅	F ₆₂	F ₆₂	F ₅₆	F ₆₂	F ₅₂	F ₄₈	U ₃₃	C	F ₁₇	U ₁₇	F ₁₆	
12	F	R	F	F	U ₃₁	U ₄₁	F	U ₃₁	B	43	49	B	F	F ₆₇	U ₆₂	F ₆₁	F ₆₆	48	45	F ₃₅	U ₃₀	A	R	A	
13	A	A	A	R	A	A	B	B	B	B	47	F ₅₀	V ₅₀	B	F	R	B	B	B	41	A	A	B	R	
14	A	A	R	U ₄₀	F ₄₂	R	A	B	B	B	B	48	51	V ₅₁	55	F ₅₅	F ₅₁	46	F ₄₂	F ₃₃	U ₃₀	B	R	A	
15	A	A	A	A	A	A	F ₃₀	35	B	39	42	43	V ₅₀	48	46	50	52	Z ₄₉	B	B	B	A	F	A	
16	A	A	A	A	B	B	A	A	R	B	B	B	B	B	B	B	B	B	29	F ₃₁	A	R	A	R	
17	F	A	F	A	R	A	R	28	A	35	F ₃₇	44	V ₄₆	V ₄₉	52	52	55	45	44	38	F ₂₅	B	B	R	
18	R	B	B	R	U ₂₄	U ₂₈	24	37	H ₄₃	46	U ₅₂	U ₄₉	F ₅₆	B	U ₆₁	F	F ₅₈	U ₅₆	F ₄₄	A	A	R	R	R	
19	R	F	A	A	A	A	A	F ₃₀	35	35	E ₃₃	B	B	B	F	B	46	41	F ₃₄	B	A	A	A	A	
20	A	A	A	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
21	B	B	B	B	B	B	A	B	36	42	48	50	50	55	60	69	B	50	37	F ₃₄	F	A	A	U ₃₀	
22	A	F	A	B	B	B	B	B	B	B	B	B	B	B	B	45	B	F ₄₁	F ₄₀	26	B	R	R	R	
23	A	B	B	B	A	A	B	B	F ₃₈	39	38	B	B	B	B	B	F ₅₂	B	U ₄₆	F ₄₁	F ₃₈	12	A	A	
24	B	A	A	B	R	A	32	B	B	B	B	B	B	B	B	47	47	B	F ₄₇	R	B	A	J ₂₄	A	
25	R	A	A	A	A	A	A	R	34	B	B	40	42	41	B	B	F ₄₄	U ₄₂	B	F ₃₀	A	A	A	A	
26	B	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	R	R	A	R
27	A	A	R	A	R	F	U ₃₂	B	B	E ₃₃	E ₃₃	B	B	47	U ₆₁	U ₅₂	B	40	F ₃₄	U ₂₆	R	A	A	A	
28	A	A	A	A	R	F	A	B	A	A	B	B	42	48	R ₄₅	45	47	51	44	U ₃₉	F	F ₂₆	A	A	
29	A	A	A	A	A	F	A	A	A	E ₃₁	B	B	B	43	42	42	B	39	F ₃₈	U ₂₇	A	A	A	A	
30	A	A	A	A	A	A	B	B	B	A	B	R	E ₃₅	41	B	F ₄₃	F ₄₅	F ₄₂	F ₃₄	U ₂₉	U ₁₈	R	A	A	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	1	1		1	3	2	6	9	11	16	17	15	16	13	16	18	18	23	22	21	11	7	4	3	
MED	F ₄₄	U ₄₅		U ₄₀	F ₃₁	U ₃₄	F ₂₉	F ₃₄	38	39	42	46	50	49	56	52	50	F ₄₅	F ₄₄	F ₃₃	U ₂₅	F ₁₇	F ₁₈	F ₁₆	
UQ				F ₃₆	F ₃₂	F ₃₅	F ₄₀	44	49	50	53	57	60	55	55	49	45	F ₃₆	F ₃₀	F ₂₂	F ₂₂	F ₂₃			
LQ				28	U ₂₆	U ₃₁	34	34	33	42	42	47	46	46	46	46	46	F ₄₁	F ₃₈	U ₃₀	21	14	14	F ₁₆	

The Radio Research Laboratories, Japan

SEP. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 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 0.5 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												B	330	F	B									
3																								
4																								
5																								
6												L	340	B										
7												340			L									
8																								
9										320	L	L	L	L	L									
10								L	L	360	L	L	L	U	L	L								
11									L	L	L	L												
12												B	B	L	L									
13											A	360	370	B										
14											B	360		L										
15											Y	370	U	L	L	350		300						
16											B	B	B	B	B									
17										350	360	L	L	L										
18										L		B	B	L			L							
19											330	B	B	B	350		B	B						
20										B	B	B	B	B	B	B	B	B						
21										R	350	350	370	380	B	B	360	B	B					
22										B	B	B	B	B	B	U	R	B						
23								L	L			B	B	B	B	B	340							
24									B	B	B	B	B	B	B	L								
25									B	B		350	360	350	B	B	F	350	290					
26									B	B	B	B	B	B	B	B	B	B						
27									R	330	330	B	B	B	340	340	F	B						
28									A	B	B	B	370	B	L	L								
29										310	B	B	B	350	360	F	L	B	L					
30									A	B	B		350	350	B	L	L	L						
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	5	7	7	5	3	5	2	2						
MED										325	350	360	350	350	350	350	345	295						
UQ										R	340	350	365	365	370	355	360							
LQ													315	330	355	345	350							

SEP. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

45° E Mean Time (G. M. T. + 3 h)

SEP. 1974 FOE (0.01 MHz)

Station **SYOWA STATION** Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep 0.5 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	K 300	B	B	B	B	B	B	B	B	B	B	B	B	B	R	K 220	K 230		K 275		
2	K 300	U 200	K 180			B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	F	K 130	K 335				
3						B	B	B	B	185	230	220	B	B	B	B	B	160	B	U 110	F	A	K 130	U 360	K 350		
4	K 260		K 300	K 280	B	B	B	B	B	B	R	R	B	B	B	B	B	B	B	B	B				K 320		
5	K 500					B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	R	150		K 105	U 150		
6	K 345	K 340		K 305	B	B	K 305	B	B	B	240	B	B	B	B	B	B	B	B	B	B	140	B	U 270			
7				K 340	K 330	B	B	A	A 240	230	B	220	B	B	B	B	B	B	B	B	B	U 140	K 330	K 320	U 220		
8	K 270	K 340	K 380	U 305	B	B	A	190	I 190	195	B	B	B	B	B	B	B	B	B	B	B			K 115	K 320		
9	K 340	K 310	K 280		B	320	160	A	210	220	225	230	230	H 225	225	215	170	165	B	A	A			K 95	K 95		
10	220	K 200	K 240	K 310	B	B	A	220	170	I 210	C 230	230	240	250	235	220	U 200	A	B	B	B	B	110	F	K 265		
11	K 310	K 340	K 305	B	K 390	290	165	185	R	B	B	U 220	B	U 255	R 260	230	230	R	B	B	B	B	C				
12	K 110	K 125	K 220	K 230	F 115	U 105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	K 235	K 360		
13				K 280	B	220	B	B	B	B	B		255	235	B	B	B	B	B	B	B	B	B	B	B		
14			U 300	U 260	K 310	K 265	B	B	B	B	B	B	B	A	235	230	220	200	B	B	B	B	B		K 300	K 380	
15					B	B	230	B	B	B	B	B	235	235	235	220	A 200	200	B	B	R	B	B		K 270	K 320	
16			K 360		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	200	210	K 365	K 250	K 310	K 300		
17	K 280	K 240	K 210	K 210	K 325	K 370	K 300	H 215	B	245	255	270	250	260	260	235	190	B	B	B	B	B	B				
18	U 140			120	150	170	B	B	B	B	230	250	B	B	250	R 230	B	B	B	B	B	B	A	A	290	K 235	K 260
19	K 340	U 215	U 205	A	B	B	330	210	210	240	265	B	B	B	B	B	B	B	B	B	B	B	A	A	K 310	K 390	
20				K 330	B	K 310	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
21					B	B	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	K 350	R	U 280		K 230	
22	U 360	K 205			B	B	B	B	B	B	B	B	B	B	B	B	B	B	195	H	B	R	B		K 105	K 300	K 310
23					B	B	B	B	220	220	A	B	B	B	B	B	B	275	B	F	170	B	B		K 260	K 360	
24		U 160			K 290	A	K 305	B	B	B	B	B	B	B	B	B	B	260	B	B	A	B		125	200	U 285	
25	K 260	K 280	K 255		A	A	A	270	K 315	B	B	B	B	R 250	B	B	B	B	B	B	B	B	B	K 310	K 200	K 370	
26		K 415	K 330	U 245	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	K 185	K 330	K 300	K 310
27			K 250		K 305	A	K 260	B	B	B	A	R	B	B	B	B	B	B	B	B	175	U 180	U 120	K 350			
28	K 350			120	U 350	K 200	B	B	A	A	B	R	R	270	B	B	B	235	R	B	B	130	120	190	K 315	U 380	
29					B	U 230	B	A	A	260	B	B	B	B	U 265	B	B	B	215	H	230	A	K 260	K 150	K 150	K 265	
30	K 320	K 280			B	A	B	B	B	B	B	B	280	280	B	B	B	B	B	B	B	U 180	A	K 170		K 390	
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	16	14	14	13	9	10	9	6	7	9	8	8	8	8	8	7	8	4	6	5	13	16	19	21			
MED	K 305	K 260	K 268	K 280	K 310	K 248	K 300	212	210	220	230	232	245	255	232	220	200	180	215	U 180	150	K 215	K 300	K 310			
UQ	K 342	K 340	K 305	K 305	K 330	K 310	K 305	220	230	240	248	252	252	265	255	230	248	205	230	U 180	K 260	K 310	K 312	K 350			
LQ	K 260	K 200	K 220	K 230	K 290	200	230	190	200	210	228	225	235	235	228	218	195	162	175	U 130	K 130	K 140	K 218	K 265			

The Radio Research Laboratories, Japan

SEP. 1974 FOE (0.01 MHz)

IONOSPHERIC DATA

SEP. 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 0.5 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	48	55	67	56	J A 60	60	32	36	B	B	B	B	B	B	E B 38	B	E B 22	E B 25	B	B	32	32	52	J A 51	
2	35	J A 52	J A 46	57	64	56	46	69	B	B	B	B	E B 26	B	B	B	B	E B 26	E B 16	B	G	38	J A 94	53	
3	39	55	54	R	J A 60	J A 67	56	40	26	36	G	G	B	B	B	B	B	G	B	20	37	20	J A 43	40	
4	J A 108	41	45	36	52	J A 51	B	40	J A 49	B	B	B	B	B	E B 34	E B 35	B	E B 22	E B 21	E B 21	18	J A 29	32	J A 72	
5	J A 84	46	B	B	36	45	44	J A 55	B	B	E B 26	E B 26	B	B	B	B	B	B	B	E B 20	22	B	K	27	
6	K 35	J A 41	J A 54	39	B	B	32	B	B	E B 29	G	E B 24	E B 33	B	B	E B 37	E B 28	E B 26	E B 18	E B 17	G	B	35	J A 46	
7	36	B	42	37	K 33	67	39	35	31	24	G	G	28	B	E B 28	E B 31	E B 38	E B 36	E B 21	E B 15	J A 34	K 33	35	31	
8	34	42	46	32	57	53	33	21	E B 20	G	E B 37	E B 34	E B 29	B	E B 36	E B 38	E B 23	E B 24	E B 26	E B 24	E B 20	J A 38	K 11	K 32	
9	K 34	K 31	K 28	47	48	J A 40	19	39	G	G	J A 58	19	G 17	30	G	26	25	18	E B 15	24	J A 42	J A 53	16	12	
10	18	J A 45	27	J A 65	76	58	50	J A 34	78	42	24	G	G	G	G	G	23	E B 19	E B 14	21	E B 10	J A 24	B	K 27	
11	35	43	42	48	76	36	28	G	E B 24	E B 27	G	E B 25	G	G	G	26	G	E B 23	E B 19	E B 14	C	E B 12	E B 12	E B 11	
12	16	23	J A 35	K 23	15	G	E B 13	E B 23	B	E B 36	E B 48	E B 46	E B 45	E B 30	28	E B 25	E B 24	E B 21	E C 32	E C 27	27	J A 35	K 36	50	
13	42	39	45	K 28	48	44	45	45	B	B	B	35	G	G	B	E B 29	E B 49	B	B	B	42	35	38	B	39
14	J A 46	86	37	E B 26	77	K 29	52	B	B	B	R	E B 27	28	26	G	24	G	E B 24	E B 23	E B 18	E B 15	B	31	J A 51	
15	54	44	J A 56	48	39	42	J A 25	E B 31	B	E B 34	E B 28	G	G	G	G	G	E B 23	B	B	B	J A 49	J A 126	J A 61		
16	J A 136	91	77	88	B	B	124	50	31	B	R	R	B	B	B	29	B	B	G	G	36	J A 30	J A 44	K 30	
17	K 28	89	J A 54	J A 63	K 33	K 37	K 35	31	33	26	G	31	28	G	29	G	E B 18	E B 22	E B 25	20	B	B	20		
18	16	B	B	G	G	E B 16	E B 22	E B 20	E B 29	25	G	E B 39	B	G	20	E B 24	E B 23	G	J A 71	J A 45	35	30	30		
19	K 34	J A 81	J A 59	33	55	51	35	32	31	G	G	B	B	B	E B 28	B	E B 36	E B 28	E B 27	B	34	J A 34	35	K 39	
20	J A 59	115	J A 40	85	B	36	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	104	
21	J A 73	69	60	B	46	42	B	E B 33	E B 30	30	E B 27	25	E B 40	E B 41	E B 25	B	E B 38	K 35	E B 22	J A 47	38	J A 64	J A 69		
22	J A 74	J A 118	44	J A 81	B	B	B	B	B	B	R	R	B	B	B	E B 32	B	25	28	E B 21	B	G	K 30	36	
23	J A 61	57	59	B	45	45	88	B	34	31	31	R	B	B	B	B	G	B	G	E B 27	E B 14	E B 10	31	J A 52	
24	47	90	J A 88	B	29	46	35	B	B	B	B	R	B	B	B	E B 27	30	B	E B 24	32	B	49	J A 30	32	
25	K 26	40	38	47	57	43	32	K 27	E B 31	B	R	E B 26	G	E B 28	B	B	E B 24	30	B	E B 27	40	J A 49	40	J A 82	
26	B	45	37	103	B	B	39	B	B	B	R	R	B	B	B	B	B	B	33	B	K 18	K 33	J A 54	K 31	
27	73	50	K 25	45	K 33	J A 26	K 26	B	B	E B 32	29	R	B	E B 39	E B 31	E B 28	B	E B 27	J A 36	28	17	40	J A 44	48	
28	45	44	67	40	J A 37	25	44	B	J A 51	45	R	R	F 40	G	E B 43	E B 30	G	E B 28	E B 32	16	G	J A 26	K 32	J A 50	
29	55	46	52	43	J A 45	35	44	48	41	27	R	B	B	E B 31	G	E B 27	B	G	G	29	32	25	J A 62	48	
30	K 32	J A 65	J A 81	J A 64	J A 62	42	46	71	B	40	R	R	G	G	B	E B 26	E B 30	E B 23	E B 21	G	J A 30	24	J A 42	K 41	
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	29	28	28	25	24	26	26	20	16	18	17	16	17	13	18	21	18	23	23	24	25	25	26	30	
MED	42	48	46	47	48	44	37	36	31	E 30	E 26		E 26	E 26	E 27		E 25	E 21	E 22	27	33	35	40		
UQ	J A 59	75	59	63	60	51	46	46	38	36	30	E B 27	E B 29	E B 30	E B 34	E B 31	E B 28	E B 26	E B 28	25	35	38	J A 44	J A 51	
LQ	34	42	39	36	34	36	32	U 26	E 26	G	G	G	G	G	G	E 25	G	E 22	E 16	E 17	F 17	25	30	31	

SEP. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

SEP. 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 25 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	27	24	36	22	18	21	18	29	B	B	B	B	B	B	38	B	22	23	B	B	9	9	9	8
2	14	9	9	32	29	27	12	44	B	B	B	B	26	B	B	B	B	26	16	B	10	9	15	26
3	27	9	35	B	21	22	28	26	19	16	16	18	B	B	B	B	B	15	B	9	10	10	11	12
4	18	17	15	11	28	19	B	34	19	B	B	B	B	B	34	35	B	22	21	21	15	9	9	13
5	18	B	B	B	32	22	12	25	B	B	26	26	B	B	B	B	B	B	B	20	10	B	9	9
6	9	10	10	14	B	B	13	B	B	29	22	24	33	B	B	37	28	26	18	12	11	B	10	11
7	20	B	23	18	11	22	25	20	20	9	25	20	24	B	28	31	38	36	21	15	9	10	9	9
8	10	18	18	30	49	19	12	10	20	18	37	34	29	B	36	38	23	24	26	24	20	10	9	9
9	9	9	9	30	14	13	10	11	15	19	18	16	15	15	18	17	15	12	15	9	9	9	9	9
10	11	9	9	10	70	22	12	11	16	22	22	18	20	19	20	16	15	19	14	10	10	9	B	10
11	9	18	14	35	13	10	10	18	24	27	19	25	15	15	12	20	18	23	19	14	C	12	12	11
12	10	10	11	14	10	10	13	23	B	36	48	46	45	30	26	25	24	21	E ₃₂ C ₃₂	E ₂₂ C ₂₂	15	15	30	19
13	26	18	19	19	20	19	B	38	B	B	25	21	22	B	29	49	B	B	B	26	23	21	B	26
14	25	28	25	26	20	21	26	B	B	B	B	27	16	14	15	17	18	24	23	18	15	B	19	18
15	23	26	25	23	25	21	19	31	B	34	28	22	18	16	15	13	15	23	B	B	B	25	15	15
16	27	12	15	15	B	B	25	25	27	B	B	B	B	B	B	27	B	B	18	15	10	11	10	13
17	E ₂₀ C ₂₀	10	10	10	19	12	11	12	25	22	17	17	23	18	18	15	17	18	22	25	17	B	B	15
18	12	B	B	11	11	13	16	22	20	29	18	19	39	B	23	21	24	23	20	13	10	10	9	9
19	10	10	10	10	25	23	15	11	14	14	18	B	B	B	28	B	36	28	27	B	9	9	11	22
20	10	15	14	23	B	26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	58
21	29	37	25	B	B	37	32	B	33	30	26	27	20	40	41	25	B	38	25	22	21	17	13	E ₁₅ C ₁₅
22	14	10	12	26	B	B	B	B	B	B	B	B	B	B	B	32	B	14	25	21	B	9	9	9
23	13	31	39	B	26	25	78	B	17	10	17	B	B	B	B	B	19	B	13	27	14	10	10	14
24	25	11	20	B	24	19	16	B	B	B	B	B	B	B	B	27	17	B	24	15	B	9	10	11
25	10	10	25	16	11	16	19	25	31	B	B	26	19	28	B	B	24	22	B	22	10	10	10	12
26	B	26	23	22	B	B	22	B	B	B	B	B	B	B	B	B	B	B	22	B	14	10	15	15
27	18	E ₁₆ C ₁₆	9	13	10	10	17	B	B	32	23	B	B	39	31	28	B	27	17	10	10	12	10	26
28	14	E ₁₁ C ₁₁	12	9	10	10	26	B	22	22	B	B	40	26	43	30	22	28	32	11	10	9	9	11
29	23	18	23	12	18	11	37	22	14	19	B	B	B	31	22	27	B	18	13	9	9	10	8	9
30	9	18	19	9	18	10	39	63	B	32	B	B	26	27	B	26	30	23	21	17	9	E ₁₀ C ₁₀	8	11
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30
MED	15	16	18	20	22	21	19	30	32	32	32	40	40	B	37	30	29	24	22	20	10	10	10	12
UQ	25	26	25	30	49	25	32	B	B	B	B	B	B	B	B	B	B	38	32	26	17	17	15	15
LQ	10	10	11	12	14	13	13	22	20	22	22	22	22	27	23	25	19	22	18	13	10	9	9	9

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SEP. 1974 F-MIN (0.1 MHz)

IONOSPHERIC DATA

SEP. 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 5 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	A	A	A	R	R	B	B	R	B	B	B	355	B	280	285	F	B	B	R	R	A	A									
2	F	F	F	A	A	A	A	B	B	B	B	B	F	B	B	B	B	335	U	F	B	R	A	A	A									
3	B	A	B	B	A	A	A	A	255	310	320	325	F	B	B	B	B	F	B	F	A	R	A	R										
4	A	A	A	A	A	A	B	B	A	B	B	B	B	B	325	325	B	325	335	355	340	310	A	A										
5	A	A	B	B	B	A	A	A	B	B	345	340	B	B	B	B	B	B	U	F	300	B	R	A										
6	A	A	A	A	B	B	R	B	B	325	315	275	275	B	B	350	335	310	U	F	310	R	B	A	A									
7	A	B	A	A	A	A	A	A	295	315	305	300	365	B	300	U	F	330	325	J	F	F	R	R	F									
8	R	A	A	R	B	A	A	F	310	330	325	H	300	320	U	F	B	330	335	335	345	335	335	325	A									
9	A	A	A	A	A	A	U	F	275	U	F	295	F	305	F	260	325	V	325	V	345	355	345	F	315									
10	A	A	A	A	B	A	A	U	F	285	U	F	295	290	310	305	U	H	330	335	315	V	345	V	335									
11	R	U	R	R	A	A	A	U	F	270	U	F	275	295	305	320	310	F	F	335	340	340	F	370	345	345	U	F	360	C	295	F	295	315
12	F	R	F	F	U	F	F	U	F	280	U	F	305	B	295	B	R	F	325	U	F	360	355	355	350	305	F	A	R	A				
13	A	A	A	R	A	A	B	B	B	B	270	300	260	V	B	F	R	B	B	B	300	A	A	B	R									
14	A	A	R	U	F	F	R	A	B	B	B	B	310	310	280	V	290	325	335	330	335	335	U	F	315	B	R	A						
15	A	A	A	A	A	A	F	305	B	B	280	270	305	V	290	325	305	310	245	Z	B	B	B	A	F	A								
16	A	A	A	A	B	B	A	A	R	B	B	B	B	B	B	B	B	B	B	270	285	F	A	R	A	R								
17	F	A	F	A	R	A	R	275	A	315	F	300	325	V	315	330	345	360	350	340	330	320	F	B	B	R								
18	R	B	B	R	R	F	290	305	290	H	325	U	F	F	320	F	B	F	F	345	F	F	A	A	R	R	R							
19	R	F	A	A	A	A	R	F	270	310	290	G	B	B	B	F	B	300	295	240	F	B	A	A	A	A								
20	A	A	A	A	B	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	B								
21	B	B	B	B	B	B	A	B	280	275	290	300	285	280	285	260	B	260	A	F	F	A	A	U	R	360								
22	A	F	A	B	B	B	B	B	B	B	B	B	B	B	B	270	B	305	290	F	310	B	R	R	R									
23	A	B	B	B	A	A	B	B	285	310	315	B	B	B	B	B	290	F	B	F	F	310	F	F	A	A								
24	B	A	A	B	R	A	280	B	B	B	B	B	B	B	B	305	280	B	F	300	R	B	A	F	A									
25	R	A	A	A	A	A	A	R	265	B	B	220	285	260	B	B	F	U	F	260	B	325	A	A	A	A								
26	B	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	A	B	R	R	A	R										
27	A	A	R	A	R	F	F	B	B	G	G	B	B	215	F	F	B	315	325	U	F	270	R	A	A	A								
28	A	A	A	A	R	F	A	B	A	A	B	B	260	315	B	320	310	335	325	U	F	F	F	A	A									
29	A	A	A	A	A	F	A	A	A	G	R	B	B	275	285	F	305	B	285	305	F	265	A	A	A	A								
30	A	A	A	A	A	A	B	B	B	A	B	B	G	265	B	F	290	310	305	U	F	U	F	R	A	A								
31																																		
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
CNT	1	1		1	2		5	9	11	15	15	14	15	13	13	17	18	22	18	19	9	6	3	3										
MED	F	U	R		U	F	F	F	F	290	305	290	305	305	290	325	325	332	320	325	310	315	302	U	F	315								
UQ							280	305	300	315	310	320	315	325	335	340	345	335	335	332	U	F	335	315	338									
LQ							U	F	U	F	278	292	275	300	280	275	300	305	300	290	F	F	298	F	300	285	F	U	F	315				

SEP. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 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 0.5 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												B	F 400	B										
3																								
4																								
5																								
6												L	400	B										
7												345			280									
8																								
9										285	L	255	250	245	230									
10									L	L	330	L	L	275		L								
11										L	L	280		250										
12												B	270	250	L									
13											385	310	415	B										
14											B	325		L										
15											Y	420	295	L	L	300	410							
16											B	B	B	B	B									
17											550	350	L	L	270									
18											L		280	B	265		245							
19											G	B	B	B	F 420	B	305							
20											B	B	B	B	B	B	B	B						
21											400	350	330	330	350	330	350	B	370					
22											B	B	B	B	B	B	380	B						
23										L	L		B	B	B	B	B	325						
24											B	B	B	B	B	B	L							
25											B	B	500	380	460	B	B	500	F 370					
26											B	B	B	B	B	B	B	B	B					
27											G	G	B	B	480	390	350	B						
28											A	B	B	B	300	B	L	L						
29											G	B	B	B	415	400	L	B	L					
30											A	B	B	G	475	B	L 400	L	300					
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	6	9	10	10	8	5	4	4						
MED										D G 400	G 468	330	355	325	305	350	302	370						
UQ										G	G	350	400	460	395	380	315	390						
LQ										342	350	310	280	250	268	350	272	335						

The Radio Research Laboratories, Japan

SEP. 1974

H'F2 (KM)

IONOSPHERIC DATA

SEP. 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 0.5 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	A	A	R	A	B	B	B	B	B	B	B	B	270	305	B	B	A	A	A	A				
2	295	U F 230	F	B	B	B	A	B	B	B	B	B	250	B	B	B	B	240	280	H	R	A	A	B				
3	B	A	B	R	B	B	B	A	E A 355	280	265	210	H	B	B	B	B	265	B	260	A	R	A	R				
4	A	A	A	A	B	A	B	B	A	B	B	B	B	B	290	275	B	B	235	240	230	A	E A 275	A	A			
5	A	A	B	B	B	B	A	A	B	B	E B 260	H 240	B	B	B	H	B	B	B	B	270	300	B	R	A			
6	A	A	A	A	B	B	A	B	B	E B 300	H 230	240	B	B	B	255	245	250	220	215	R	B	A	A				
7	B	B	B	A	A	B	B	A	E A 350	250	255	245	220	B	250	230	240	B	225	230	405	R	A	300				
8	A	A	A	R	B	A	A	295	245	225	E B 325	B 275	260	B	260	245	220	225	225	230	B	E B 255	U R 310	A				
9	A	A	A	A	A	A	350	360	270	225	200	210	230	210	230	225	225	210	230	210	200	250	260	290				
10	A	A	A	A	B	A	A	345	240	225	250	240	220	200	H 210	H 210	210	215	205	205	210	225	275	B	R			
11	R	300	R	A	A	A	375	380	250	265	225	210	220	220	230	220	230	220	220	210	C	B 280	E B 280	B 260				
12	F	A	F	F	315	330	310	F 290	B	B	B	B	B	B	240	210	230	225	215	240	C 245	E C 245	260	A	R	A		
13	A	A	A	R	A	A	B	B	B	B	A	260	225	B	235	B	B	B	B	B	E B 325	B	B	B	A			
14	A	A	A	240	250	A	A	B	B	B	B	250	245	205	H 200	240	205	225	225	225	225	225	B	R	A			
15	B	B	B	B	B	B	E A 400	B	B	B	E B 245	220	210	H 225	240	235	245	300	B	B	B	B	B	F	A			
16	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	370	350	A	A	A	R			
17	F	A	F	A	R	R	R	A	B	255	245	260	230	205	200	240	235	225	225	250	A	A	B	B	A			
18	R	B	R	R	R	E Y 375	290	255	240	230	B 230	225	B	B	240	230	240	240	275	A	A	R	R	R				
19	F	F	A	A	B	B	A	340	260	270	250	B	B	B	275	B	B	300	320	B	B	A	A	A	A			
20	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
21	B	B	B	B	B	B	B	B	B	E B 300	F 270	250	230	B	B	245	B	B	A	275	U F 245	A	A	295				
22	A	F	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	250	260	E R 320	B	R	R	R				
23	A	B	B	B	B	B	B	B	275	220	250	B	B	B	B	B	275	B	250	300	250	B	A	A				
24	B	A	B	B	R	A	A	430	B	B	B	B	B	B	B	B	250	530	B	250	A	B	A	255	A			
25	R	A	A	A	A	A	A	R	480	B	B	235	220	H 220	H 220	B	B	225	E A 330	B	275	A	A	A	A			
26	B	A	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	R	R	A	R			
27	A	A	R	A	R	A	F	B	B	B	270	B	B	B	E B 300	B 290	B	280	250	365	A	A	A	B				
28	A	A	A	A	A	F	A	B	A	A	B	B	B	B	230	B	245	250	250	250	B	260	500	A	A	A		
29	B	A	B	A	A	F 255	B	A	A	290	B	B	B	B	B	230	230	240	B	260	250	A	A	A	A			
30	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	235	260	B	250	270	280	295	A	A	A	A
31																												
CNT	1	2		1	2	3	6	7	10	13	15	15	13	11	15	18	17	21	21	21	10	6	4	4				
MED	295	265		240	282	U 292	346	340	256	U 242	240	240	230	220	232	240	240	245	250	240	255	275	264	292				
UQ					341	A 400	352	310	272	256	250	235	230	250	B 250	250	268	260	285	260	280	295	298					
LQ					292	310	292	245	225	234	222	220	208	220	230	225	225	225	228	225	E E 255	258	275					

The Radio Research Laboratories, Japan

SEP. 1974

H^oF (KM)

IONOSPHERIC DATA

SEP. 1974

H[°]E S (KM)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep 5 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	110	120	115	130	115	125 ^K	120	B	B	R	R	B	B	B	B	B	B	B	R	130 ^K	120 ^K	150	100 ^K	
2	120 ^K	150 ^K	150 ^K	100	125	100	100	190	B	B	B	B	B	B	B	B	B	B	B	B	G	160 ^K	110	100	
3	125	125	110	R	100	100	105	115	110	110	G	G	B	B	B	B	B	G	B	150	110	145 ^K	150 ^K	155 ^K	
4	100 ^K	105	160 ^K	105 ^K	100	100	B	105	100	B	B	R	B	B	B	B	B	B	B	B	100	100	105	150 ^K	
5	170 ^K	100	B	B	140	100	95	100	B	B	R	B	B	B	B	B	B	B	B	B	170	B	150 ^K	110 ^K	
6	110 ^K	130 ^K	110	140 ^K	B	B	100 ^K	B	B	B	G	B	B	B	B	B	B	B	B	B	G	B	110 ^K	100	
7	115	B	100	130 ^K	110 ^K	105	100	100	115	120	B	R	165	B	B	B	B	B	B	B	105	110	150 ^K	150 ^K	
8	105 ^K	110 ^K	110 ^K	R	B	100	110	E G 150	B	G	R	R	B	B	B	B	B	B	B	R	B	110	155 ^K	105 ^K	
9	110 ^K	110 ^K	110 ^K	100	105	110 ^K	155	110	G	G	125	105	100	100	G	150	130	100	B	100	100	125	130 ^K	125 ^K	
10	165 ^K	115 ^K	150 ^K	175 ^K	175	100	100	120	100	100	E G 160	G	G	G	G	G	130	B	B	B	140	B	150	B ^K	115 ^K
11	125 ^K	140 ^K	110 ^K	110	150 ^K	190 ^K	105	G	B	B	G	B	G	G	G	150	G	B	B	B	C	B	B	B	
12	125 ^K	125 ^K	140 ^K	130 ^K	130	G	B	B	R	B	B	B	B	B	130	B	B	B	C	C	150	130 ^K	150 ^K	110	
13	115	120	130	130 ^K	110	180 ^K	B	130	B	B	115	G	G	B	B	B	B	B	B	130	125	125	B	130	
14	140	125	145 ^K	B	150 ^K	145 ^K	115	B	B	B	R	B	125	110	G	160	G	B	B	R	B	B	180 ^K	160 ^K	
15	105	120	110	110	130	125	150	B	B	B	B	G	110	105	100	G	G	B	B	B	B	110	160 ^K	170 ^K	
16	105	170	160 ^K	155	B	B	175	120	120	B	B	B	B	B	B	B	B	B	G	G	110 ^K	125 ^K	110 ^K	130 ^K	
17	130 ^K	110 ^K	110 ^K	150 ^K	125 ^K	105 ^K	115 ^K	140	115	140	G	115	125	G	150	G	G	B	B	B	110	B	B	115	
18	125 ^K	B	B	G	G	G	B	B	R	B	125	G	B	B	G	160	B	B	G	100	105	160 ^K	105 ^K	110	
19	110 ^K	105 ^K	110 ^K	100	120	100	105 ^K	110	100	G	G	B	B	B	B	B	B	B	B	R	105	105	150 ^K	105 ^K	
20	130	100	100	150 ^K	B	150 ^K	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	110	
21	110	145	110	B	B	100	110	B	B	B	120	R	105	B	B	B	B	B	B	120 ^K	R	150 ^K	110	165	115 ^K
22	125 ^K	110 ^K	100	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	150	B	110 ^K	150 ^K	
23	100	155	175	B	100	105	130	B	100	100	110	R	B	B	B	B	B	G	B	G	R	B	180 ^K	160 ^K	
24	120	100 ^K	130	B	115 ^K	105 ^K	105 ^K	R	B	B	R	B	B	B	B	B	155	B	B	110	B	100	100 ^K	105 ^K	
25	105 ^K	130 ^K	130 ^K	100	130	100	110	120	B	B	B	B	B	R	B	B	B	B	B	125	R	160 ^K	150 ^K	110 ^K	170
26	B	170 ^K	150 ^K	100 ^K	B	R	125	B	B	B	B	B	B	R	B	B	B	B	B	115	R	155 ^K	110 ^K	155 ^K	110 ^K
27	180	115 ^C	110 ^K	110	100 ^K	150	125 ^K	B	B	B	115	R	B	B	B	B	B	B	B	130	150	140	110 ^K	105	100
28	100 ^K	100	100	180	110 ^K	150	100	B	100	115	R	B	B	G	B	B	B	G	B	B	150	G	150 ^K	105 ^K	160 ^K
29	100	100	105	100	115	105 ^K	125	100	100	125	B	B	B	B	G	H	B	B	G	G	110	155 ^K	140 ^K	120 ^K	100 ^K
30	105 ^K	125 ^K	105	100	110	100	120	155	B	110	B	B	G	G	B	H	B	B	B	G	115	150 ^K	105	110 ^K	
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	22	22	24	24	16	10	8	7	2	6	3	3	4	3	3	4	9	18	27	25	29	
MED	115 ^K	118	110	110	118	105	110	119	100	112	118	110	118	105	130	155	130	125	125	130	120	125 ^K	130 ^K	115 ^K	
UQ	125 ^K	130	142 ^K	140 ^K	130	135	125	130	115	122	124		125	108	140	160	142	138	140	150	150 ^K	150 ^K	150 ^K	150 ^K	
LQ	105 ^K	108	110	100	110	100	102	108	100	105	115		105	102	115	150	130	112	118	110	105	110	110 ^K	105 ^K	

The Radio Research Laboratories, Japan

SEP. 1974

H[°]E S (KM)

IONOSPHERIC DATA

SEP. 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 0.5 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	RR 11	R 1	R 1	RS 11	RR 11	R 1	LK 11	C 1													CK 12	CKH 12	RR 15	LK 14		
2	RK 11	AKR 11	AKL 12	F 1	FF 11	L 1	R 2	HR 11														HK 16	RR 21	R 1		
3	R 1	FRS 13	F 1		R 1	L 1	L 1	R 1	R 1	R 1									R 1	R 2	AK 11	HKR 11	HK 13			
4	LKH 11	R 2	HK 11	RK 21	R 1	R 1		L 1	L 1												F 1	F 1	RS 41	HK 13		
5	HK 12	R 1			F 1	LC 11	L 1	L 1												H 1		K 1	RK 31			
6	KS 61	RK 55	RA 31	HK 22			RK 11																RK 31	R 3		
7	R 1		R 1	HK 12	K 3	H 1	R 1	R 1	C 1	C 1			H 1								RS 31	K 4	HK 16	HK 12		
8	RK 31	RK 21	RK 12	HK 11	R 1	L 1	R 2	H 1														F 2	K 1	K 3		
9	K 5	KS 51	K 3	R 1	R 2	RK 13	H 1	R 2			C 1	L 1	L 1	L 1		H 1	C 1	L 1		L 2	C 3	FF 12	HKC 11	CK 11		
10	HKR 11	LKH 13	HK 23	HKC 13	H 1	R 1	R 2	C 2	L 1	L 1	H 1						R 1			H 1		A 1		K 1		
11	RK 14	CK 12	RK 21	L 1	HK 12	HK 13	L 1									H 1										
12	CK 11	CK 11	AK 12	K 1	C 1										C 1						R 1	RK 11	K 1	R 1		
13	R 1	R 1	F 1	K 1	R 1	RKR 11		R 1		R 1										R 1	R 1	R 1		R 1		
14	R 1	A 1	RK 11		AK 11	K 1	LL 11						C 1	C 1		H 1							HK 11	HK 12		
15	R 1	R 1	R 1	R 1	R 1	R 1	C 1						L 1	L 1	L 1							F 1	HK 11	HK 11		
16	F 1	RFF 11	HKL 11	FF 11			HHH 11	C 1	C 1								R 1					K 4	CK 32	LK 31	K 4	
17	K 2	LKA 13	RK 21	RKA 13	K 1	K 3	K 3	R 1	L 1	C 1		L 1	C 1		HL 11						L 1			F 1		
18	CK 11										C 1					H 1				L 1	RS 31	HKS 15	RKS 14	RK 23		
19	K 5	RKR 11	AK 12	F 1	RL 11	R 1	K 2	LH 11	L 1												RS 41	RS 31	HKS 12	K 1		
20	R 2	F 1	F 1	HKL 11		HK 11																		F 1		
21	RR 11	R 1	R 2			L 1	R 1				C 1		L 1									K 1	HK 11	R 1	RR 11	RK 21
22	RK 21	CK 11	R 1	R 1														H 1	H 1					K 3	RK 15	
23	R 1	FR 11	F 1		L 1	R 1	H 1		R 1	L 1	R 1													HK 13	HK 12	
24	R 1	RKH 11	RR 11		K 1	R 2	RK 11										H 1			R 1		L 1	LKA 11	RK 22		
25	K 2	CKS 34	RK 11	R 2	HHL 11	R 1	R 1	K 1										R 1				HKS 11	HKR 11	RKS 44	FA 11	
26		HK 11	HK 11	LKH 11			R 1												R 1		K 1	KS 41	HK 23	K 2		
27	RR 11	A 1	K 3	RF 11	K 1	RL 11	K 1				R 1								C 1	HR 11	C 1	RK 11	R 1	R 1		
28	RK 12	R 2	R 3	AH 11	RK 33	R 1	R 1		L 1	R 1										H 1		CK 11	K 6	HK 12		
29	F 1	R 2	R 1	R 2	R 1	RK 11	R 1	R 1	R 2	R 1										RS 21	HK 13	HK 21	CKR 11	LKH 13		
30	KS 51	LKR 12	R 1	AR 14	R 2	R 2	CS 11	HS 11		L 1											C 2	HK 11	RS 41	K 3		
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																										

SEP. 1974

TYPES OF ES

IONOSPHERIC DATA

OCT. 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 0.5 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	B	B	R	B	R	O	R	O	X	X	O	B	O	O	44	42	R	R	A	A
2	A	A	A	B	B	A	A	X	41	O	R	B	B	O	X	O	X	X	O	B	43	O	R	A	A
3	B	B	B	A	A	38	B	42	43	B	B	O	O	O	X	X	X	X	50	48	38	R	A	31	
4	R	X	A	A	A	A	A	50	53	53	52	X	X	X	X	X	X	X	X	52	46	42	O	R	
5	O	R	54	A	A	A	A	O	51	55	57	59	62	63	63	61	X	X	55	56	55	46	42	45	37
6	A	A	A	44	B	B	40	52	51	55	X	O	O	O	X	X	X	X	X	54	51	47	45	35	
7	A	25	45	56	60	70	57	65	59	O	R	72	70	69	X	74	78	73	X	65	59	52	C	C	
8	34	X	68	A	A	45	50	54	58	X	X	X	68	X	X	78	80	76	70	64	66	63	R	A	
9	A	47	B	45	A	B	B	A	B	B	B	O	R	O	X	47	62	52	R	R	A	46	R	65	
10	A	68	A	30	R	A	A	A	A	B	R	O	R	52	O	X	X	50	50	X	50	47	41	41	
11	A	R	A	50	56	B	R	56	65	64	71	68	64	70	70	69	65	62	62	58	52	46	47	43	
12	A	A	39	47	46	56	60	64	65	O	R	O	B	69	73	70	66	65	60	X	67	58	60	60	
13	65	60	A	A	B	R	R	B	R	B	B	X	A	R	64	R	45	46	35	40	68	31	A	A	
14	A	B	A	R	A	B	A	R	R	X	R	X	X	X	51	52	X	55	55	56	55	78	60	59	
15	A	A	42	A	R	B	R	R	A	B	B	B	B	R	R	75	72	51	49	42	40	32	A	46	
16	42	A	A	R	42	B	A	A	B	R	B	B	B	B	B	B	R	B	44	37	70	A	A	A	
17	A	35	A	B	B	B	42	A	A	B	B	B	B	B	50	B	B	B	B	O	R	49	40	R	
18	B	75	A	B	B	B	B	B	B	B	B	B	B	B	B	B	46	47	R	A	R	A	A	A	
19	45	56	A	A	51	R	B	B	B	B	R	B	O	R	B	O	B	O	52	49	X	40	A	A	
20	A	A	A	A	B	R	A	B	B	B	B	B	B	B	B	B	B	B	41	70	68	A	A	R	
21	A	B	B	A	R	R	O	R	X	43	B	B	B	O	R	O	X	X	45	45	44	45	42	A	31
22	R	R	A	40	B	B	40	52	53	53	X	50	B	B	O	R	O	B	O	O	R	45	R	A	
23	A	38	44	A	48	X	47	A	A	43	47	X	46	X	X	X	X	49	48	X	50	53	55	57	
24	46	A	R	O	46	57	B	B	R	B	B	R	B	B	B	O	R	50	56	55	42	A	A	A	
25	A	35	35	A	B	B	A	B	X	46	A	B	B	B	R	O	R	B	B	O	R	52	O	R	
26	A	A	A	A	R	48	B	B	B	B	B	B	B	B	B	B	Y	46	38	O	R	35	A	A	
27	A	A	A	B	A	35	B	B	B	R	46	X	50	46	X	47	O	52	O	47	A	A	A	A	
28	A	B	B	A	A	B	B	B	B	R	B	B	O	R	O	R	O	O	C	O	R	O	R	35	
29	B	A	B	R	B	B	R	O	R	B	R	B	B	B	B	B	R	B	50	49	X	41	43	46	
30	R	B	A	B	O	R	R	46	B	B	47	57	52	O	R	55	57	57	B	O	R	49	43	46	
31	30	A	A	A	B	A	A	B	O	R	56	56	X	X	X	X	55	53	52	51	X	X	37	R	
	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	12	6	8	8	8	9	12	13	13	13	16	20	21	23	22	24	25	28	27	24	15	15	14	
MED	42	42	43	46	47	47	46	52	53	55	57	52	50	X	53	53	53	52	49	49	46	42	45	40	
UQ	46	58	45	51	54	56	50	55	58	57	60	61	62	X	63	62	61	56	58	54	52	48	52	46	
LQ	32	36	39	42	44	42	40	46	46	47	50	47	O	R	48	49	X	50	46	44	42	40	38	37	

The Radio Research Laboratories, Japan

OCT. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

OCT. 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 0.5 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	A	B	B	R	B	R	E ₃₄ G	E ₃₄ G	E ₃₅ G	E ₃₄ G	39	B	45	30	F	F	F	A	R	A	A			
2	A	A	A	B	B	A	A	33	F	E ₃₄ G	B	B	43	45	43	48	52	35	B	F	F	A	A	F				
3	B	B	B	A	A	U ₂₉ F	B	F	F	B	B	45	43	45	47	46	48	46	F	F	F	R	A	U ₂₂ F				
4	R	32	A	A	A	A	A	42	F	F	46	48	152	52	52	52	48	50	45	46	40	U ₃₄ F	U ₂₈ F	A				
5	19	F	A	A	A	B	B	U ₄₂ F	U ₄₆ F	F	51	56	57	57	55	54	54	F	F	F	F	U ₃₆ F	U ₂₉ F	F				
6	A	A	A	F	B	B	F	45	U ₄₄ F	F	53	51	54	56	56	58	56	52	49	48	U ₄₀ F	U ₃₉ F	U ₂₆ F	F				
7	A	F	F	F	F	F	F	47	F	F	55	65	62	67	68	70	66	64	56	52	46	C	C	F				
8	F	31	F	A	A	F	F	F	F	F	54	54	57	62	66	70	U ₆₉ F	U ₆₅ F	U ₆₂ F	U ₅₇ F	U ₅₅ F	R	A	A				
9	A	F	B	F	A	B	B	A	B	B	B	E ₄₀ G	E ₃₆ G	E ₃₈ G	F	F	45	R	R	A	F	A	F	A				
10	A	F	A	F	R	A	A	A	A	B	R	F	46	46	45	45	44	44	42	42	40	F	U ₃₁ F	R				
11	A	A	A	F	F	B	A	F	F	U ₅₆ F	F	60	56	65	62	61	58	U ₅₃ F	U ₅₄ F	U ₄₅ F	U ₄₅ F	39	U ₃₁ F	U ₂₇ F				
12	A	A	F	F	F	F	F	U ₅₀ F	U ₅₂ F	51	53	B	F	F	62	60	J ₅₆ F	U ₅₂ F	49	F	U ₄₅ F	F	U ₄₅ F	U ₃₅ F				
13	F	F	A	A	B	B	R	B	R	B	B	E ₃₅ G	A	R	F	R	F	F	U ₂₈ F	F	F	U ₂₅ F	A	A				
14	A	B	A	R	A	B	A	R	R	E ₃₆ G	R	E ₃₈ G	43	46	45	44	47	47	48	43	F	F	F	F				
15	A	A	U ₃₄ F	A	R	B	R	A	A	B	B	B	B	B	R	F	F	F	F	42	35	U ₃₀ F	U ₂₃ F	A	F			
16	F	A	A	A	U ₃₄ F	B	A	A	B	R	B	B	B	B	B	B	R	B	U ₃₇ F	U ₃₀ F	F	F	A	A	A			
17	A	F	A	B	B	B	U ₃₄ F	A	A	B	B	B	B	F	B	B	B	B	33	F	J ₃₁ F	A	A	A	F			
18	B	F	A	B	B	B	B	B	B	B	B	B	B	B	B	B	U ₄₁ F	R	A	R	A	A	A	A	A			
19	F	F	A	A	U ₃₀ F	R	B	B	B	B	R	B	39	B	45	B	40	45	U ₃₉ F	34	A	A	A	A	A			
20	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	J ₃₁ F	F	U ₄₃ F	A	A	R	A	A			
21	B	B	B	A	A	R	F	E ₃₂ G	F	B	B	B	43	42	41	42	38	F	F	F	U ₃₅ F	A	F	A	A			
22	R	R	A	F	B	B	F	45	46	46	44	B	B	55	61	B	B	55	52	F	R	A	A	A	A			
23	A	F	F	A	F	J ₄₀ F	F	A	A	F	F	40	39	41	44	45	43	F	F	F	F	F	F	U ₃₅ F	A			
24	F	A	R	U ₄₆ F	F	F	B	B	A	B	A	R	B	B	B	40	44	48	45	F	33	A	A	A	A	A		
25	A	F	J ₂₆ F	B	B	B	R	A	40	B	B	B	B	R	F	F	B	B	37	F	25	F	F	A	A			
26	A	A	A	A	R	F	B	B	B	B	B	B	B	B	B	B	46	F	F	F	U ₂₄ F	A	A	U ₂₈ F	A			
27	A	A	A	B	A	F	B	B	B	R	40	43	40	42	41	45	U ₄₅ F	40	U ₄₀ F	A	A	A	A	A	A			
28	A	B	B	B	A	B	B	B	B	R	B	B	F	41	42	43	42	44	C	39	R	27	F	F	A			
29	B	B	B	R	R	B	R	44	B	R	B	B	B	B	B	R	B	F	U ₄₀ F	37	F	34	F	U ₂₃ F	F			
30	R	B	A	B	33	A	F	B	B	U ₄₃ F	F	F	46	49	51	51	B	49	U ₄₂ F	37	36	35	F	28	A			
31	F	A	A	A	B	A	A	B	46	F	F	54	52	55	52	48	48	F	F	F	44	42	F	A	A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	1	2	3	2	4	4	5	11	12	13	12	16	19	19	20	20	22	23	27	24	19	12	9	7				
MED	19	32	31	39	34	39	38	44	46	48	49	46	43	46	49	48	46	47	42	40	36	34	U ₂₈ F	U ₂₈ F				
UQ			32		35	40	44	46	49	51	53	55	55	56	58	56	54	51	48	47	42	38	U ₃₁ F	U ₃₂ F				
LQ			28		32	34	34	38	38	43	42	40	40	42	44	44	44	40	38	36	30	27	U ₂₆ F	F	24			

OCT. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 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 0.5 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	U ^R	340	340	350	340	350	B	B							
2								L	320	340	B	B	350	370	B	B	U ^L	340	290					
3								F	310	320	B	B	B	390	380	L	L	L						
4								L	L	390	380	380	380	400	390	U ^L	L							
5								A	370	380	390	400	400	400	L	L	U ^L	350						
6								U ^F	300	330	360	380	410	410	400	410	400	U ^L	L	L				
7								L	L	380	410	410	410	L	400	L	L							
8													L	420	420	L	L							
9								B	A	B	B	B	400	360	380	390	380	350	330					
10								A	A	A	B	R	380	380	390	400	L	L						
11								A	350	370	370	400	410	420	420	420	L	L						
12								F	320	350	U ^F	360	400	R	B	410	410	B	410	L	L	L		
13								R	B	R	B	B	U ^F	350	A	R	U ^F	360	350	F	350	U ^F	320	
14								A	A	A	360	350	380	380	380	L	L	L						
15								R	A	A	B	B	B	B	B	B	U ^Y	350	360	L				
16								A	A	B	R	B	B	B	B	B	B	340	B					
17								A	A	B	B	B	B	B	360	B	B	B	B	B				
18								B	B	B	B	B	B	B	B	B	B	330	R					
19								B	B	B	B	B	B	360	B	B	B	B	B					
20								B	B	B	B	B	B	B	B	B	B	B	B					
21								F	320	330	B	B	B	360	360	360	U ^L	360						
22								F	330	350	360	360	B	R	360	B	B	B	B					
23								A	A	360	360	370	370	L	360	370		L	L					
24								B	B	A	B	A	R	B	B	B	340	340	330	320	F			
25								A	A	A	B	B	B	B	360	360	360	B	B					
26								B	B	B	B	B	B	B	B	B	B	360	350	F				
27								F	280	B	B	B	360	360	360	360	370	U ^R	370	370	350			
28								B	B	B	A	B	B	370	380	370	370	U ^R	350	340				
29								R	350	B	350	B	B	B	B	B	B	B	360	F				
30								F	B	B	F	370	380	380	400	400	400	B	L	L				
31								A	B	B	380	390	400	400	400	410	400	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	3	8	10	16	13	15	18	21	15	14	11	8	1					
MED						F	F	340	F	360	370	380	380	380	390	380	370	350	335	320	F			
UQ						315	350	F	370	380	400	405	400	400	400	380	355	350						
LQ						F	F	330	360	360	375	360	360	360	360	360	340	325						

The Radio Research Laboratories, Japan

OCT. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 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 **0.5 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	K 380	B	B	A	B	B	B	275	H 260	260	250	B	B	B	B	180	A	K 330	K 310	K 340	
2				B	B	B	A	220	215	U R 255	B	B	B	B	B	B	280	B	B	B	155	105			
3				B	B	A	B	215	230	B	B	B	B	B	B	245	B	205	B	140	B	110	K 210	K 180	
4	K 270	K 300		B	B	B	B	K 305	250	265	265	270	265	270	H 265	250	H 230	200	195	B	B	100	K 180		
5	K 160	U K 250	A	B	B	B	B	A	250	250	H 260	H 265	260	260	260	260	245	R 210	B	B	B	B	B	120	
6	K 260	A	B	U K 320	B	B	A	A	A	250	250	B	I R 270	275	260	B	B	B	B	B	U R 140	B	105	100	
7	K 310	K 125	K 140	K 115	110	110	180	225	B	B	B	270	285	280	280	270	R 260	215	195	B	B	C	C	F 110	
8	K 160	K 220	K 280	B	A	A	A	H 225	250	265	270	270	H 285	H 285	280	275	255	B	B	B	120	A	A		
9	U K 340		B	U K 270	A	B	B	A	B	B	B	A	A	270	280	260	245	H 275	A	280	U K 235	K 380	U K 280		
10			B	U A 115	245	B	A	A	A	B	K 350	B	R 280	I B 280	280	260	250	220	H 180	A	A	A	100	K 280	
11	K 300	K 350	K 405	U K 295	A	B	B	280	315	Y	300	290	280	H 290	290	265	250	230	225	F	A	A	A	U A 110	
12	K 320	K 320	K 280	K 275	K 265	K 260	H 230	230	270	B	K 345	B	300	300	B	B	A	F 265	250	A	A	B	A	A	
13		K 380	B	A	B	B	B	B	B	B	B	B	310	330	310	310	300	265	210	160	130	140	B	A	
14		B	A	K 350	A	B	A	B	A	A	280	275	280	275	260	230	A 250	A	B	U F 200	A	F	A	K 240	
15		B	A	A	B	B	A	A	B	B	B	B	B	B	B	B	U A 255	R	250	H 220	H 180	H 170	A 320	K 280	
16		A	140	A	K 265	B	B	B	B	B	B	B	B	B	B	B	B	B	H 240	215	F 175	A 350	A	U F 150	
17		U K 210	B	B	B	B	270	275	A	B	B	B	B	B	B	B	B	B	B	B	K 280	A	295	A	C
18		A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	B	A	A	165	K 320	K 420	B
19		A	B	A	200	B	B	B	B	B	B	B	B	B	B	B	B	B	225	200	155	A	360	K 330	A
20	U K 290	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	175	A	K 380	K 360	U K 280	B
21	B	B	B	B	B	K 320	K 300	225	240	H	B	B	B	280	U B 270	265	A	250	235	180	150	130	A	A	K 300
22	K 280	U K 250	A	A	B	B	A	U A 240	240	250	265	B	B	B	B	B	B	B	B	B	A	U K 250	K 430	K 380	K 380
23	K 325	U K 260	A	280	220	K 280	K 295	A	A	U K 330	U A 270	260	275	270	270	250	240	A 225	180	160	A	A	A	K 170	
24	A	K 315	K 290	K 240	U K 230	A	B	B	A	B	B	A	B	B	B	B	U B 245	210	200	140	A	A	K 350	K 355	
25	A	A	110	B	B	B	B	A	A	B	B	B	B	R 300	265	A	B	B	B	A	165	150	A	K 340	
26	K 320	A	B	B	A	230	B	B	B	B	B	B	B	B	B	B	B	B	200	170	215	180	K 210	K 330	U K 200
27	B	K 340	A	B	B	230	B	B	B	260	260	270	280	280	275	B	260	R	215	A	A	K 300	K 390	K 390	
28	B	B	B	B	K 320	B	B	B	B	A	B	B	265	270	B	B	B	210	B	B	B	B	H 160	H 170	A
29	B	B	B	K 280	A	B	B	290	B	B	B	B	B	B	B	B	B	B	220	200	165	135	115	H 145	150
30	K 270	B	A	B	A	A	H 270	B	B	A	270	B	R	275	280	B	B	B	B	H 180	H 225	H 170	H 110	A	K 260
31	K 220	B	B	B	B	B	A	B	B	280	300	280	280	255	275	275	245	240	220	230	140	U B 100	100	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	12	7	11	8	6	6	11	9	9	13	11	16	19	17	12	16	17	18	16	16	19	17	19	
MED	K 285	K 280	K 280	K 275	K 255	K 245	270	230	250	260	270	270	280	275	275	260	250	220	198	190	165	K 210	K 280	K 240	
UQ	K 320	K 330	K 285	K 288	K 292	K 280	K 295	278	250	265	300	278	282	282	280	272	258	230	220	222	180	K 340	K 330	K 320	
LQ	K 260	U K 235	140	220	225	230	H 230	225	240	250	265	270	268	270	265	250	245	210	180	152	140	112	170	150	

OCT. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

OCT. 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 05 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 ₅₄ ^A	J ₄₈ ^A	B	B	45	B	B	36	103	E ₃₀ ^B	E ₂₉ ^B	G	G	G	G	B	E ₃₈ ^B	E ₂₂ ^B	E ₂₀ ^B	23	J ₃₇ ^A	K ₃₃ ^A	J ₈₉ ^A	50	
2	42	49	49	88	B	51	38	G	G	G	B	B	E ₃₃ ^B	E ₂₈ ^B	E ₃₉ ^B	E ₃₇ ^B	G	E ₂₆ ^B	B	E ₂₀ ^B	19	J ₃₉ ^A	J ₅₄ ^A	70	
3	76	42	76	36	42	23	B	G	G	B	B	E ₄₁ ^B	E ₄₁ ^B	E ₃₀ ^B	E ₂₆ ^B	G	E ₂₄ ^B	G	E ₂₀ ^B	G	E ₁₃ ^B	22	31	27	
4	K ₂₇ ^A	K ₃₀ ^A	43	57	52	50	45	33	G	G	G	G	G	G	G	G	G	31	G	E ₁₈ ^B	38	12	J ₃₁ ^A	25	
5	27	J ₆₄ ^A	44	43	37	B	46	42	G	G	G	G	G	32	G	G	G	G	E ₂₄ ^B	E ₂₆ ^B	E ₁₈ ^B	E ₁₉ ^B	E ₁₁ ^B	30	
6	J ₃₆ ^A	J ₄₉ ^A	56	K ₃₂ ^A	B	B	34	35	35	G	G	E ₄₂ ^B	E ₄₂ ^B	G	G	E ₃₄ ^B	E ₃₁ ^B	E ₂₈ ^B	E ₂₅ ^B	E ₁₈ ^B	G	17	16	35	
7	35	66	21	18	J ₇₄ ^A	18	J ₃₆ ^A	G	58	E ₃₄ ^B	E ₃₈ ^B	G	G	G	G	29	G	27	22	E ₂₈ ^B	E ₂₀ ^B	C	C	47	
8	J ₃₀ ^A	31	28	K ₄₅ ^A	J ₄₈ ^A	41	25	54	G	76	G	33	G	G	G	35	28	E ₂₈ ^B	E ₂₅ ^B	E ₂₂ ^B	G	37	78	48	
9	J ₄₉ ^A	J ₉₂ ^A	B	33	103	B	B	55	B	B	B	45	35	34	G	31	G	G	42	69	J ₃₄ ^A	42	71	J ₉₉ ^A	
10	103	50	J ₇₉ ^A	J ₈₇ ^A	31	46	50	45	45	B	44	G	G	E ₃₀ ^B	G	G	G	26	G	23	21	23	J ₂₁ ^A	K ₂₈ ^A	
11	J ₆₁ ^A	45	K ₄₅ ^A	32	65	B	46	45	34	G	G	31	30	G	G	G	G	30	29	J ₂₅ ^A	19	J ₂₄ ^A	32	15	
12	46	J ₃₆ ^A	29	31	30	K ₂₆ ^A	G	28	G	68	G	B	G	30	E ₄₂ ^B	E ₃₁ ^B	32	32	G	J ₃₂ ^A	J ₃₃ ^A	E ₁₈ ^B	J ₆₁ ^A	40	
13	62	K ₃₈ ^A	J ₅₂ ^A	J ₄₆ ^A	46	43	30	B	42	B	B	G	J ₄₆ ^A	G	42	G	G	33	62	57	J ₃₈ ^A	J ₇₉ ^A	J ₁₀₆ ^A	J ₁₃₆ ^A	
14	J ₃₉ ^A	B	67	J ₃₆ ^A	42	43	47	43	34	32	35	36	38	J ₄₆ ^A	33	71	53	26	E ₂₄ ^B	23	24	42	33	J ₆₄ ^A	
15	J ₈₀ ^A	45	42	38	88	B	30	41	70	B	B	B	B	E ₄₇ ^B	E ₆₄ ^B	33	33	33	28	G	23	27	45	85	
16	J ₅₀ ^A	J ₆₀ ^A	J ₄₇ ^A	36	30	B	46	71	B	E ₃₃ ^B	B	B	B	B	B	B	E ₃₁ ^B	B	G	25	70	42	56	44	
17	77	J ₂₆ ^A	47	B	B	B	30	46	J ₅₀ ^A	B	B	B	B	E ₂₉ ^B	B	B	B	B	E ₂₄ ^B	32	56	33	58	63	
18	B	45	J ₈₅ ^A	B	B	B	B	B	B	B	B	B	B	B	B	E ₄₀ ^B	G	30	129	24	60	K ₃₂ ^A	J ₅₂ ^A	50	
19	J ₉₅ ^A	48	40	J ₄₁ ^A	94	41	B	B	B	B	B	40	B	E ₂₈ ^B	B	E ₃₈ ^B	B	E ₃₆ ^B	29	31	21	38	40	47	J ₆₄ ^A
20	J ₅₀ ^A	82	47	47	B	34	60	B	B	B	B	B	B	B	B	B	B	E ₃₃ ^B	J ₅₂ ^A	65	77	43	33	55	
21	47	67	57	47	38	K ₃₂ ^A	K ₃₀ ^A	65	J ₃₅ ^A	B	B	B	G	G	G	29	G	G	G	G	20	J ₄₁ ^A	32	J ₃₇ ^A	
22	K ₂₈ ^A	30	J ₄₈ ^A	J ₅₃ ^A	B	B	34	J ₃₇ ^A	G	G	G	B	B	E ₃₀ ^B	E ₄₃ ^B	B	B	E ₄₅ ^B	E ₃₃ ^B	31	35	43	46	43	
23	43	31	D ₆₀ ^S	62	27	31	35	43	43	42	30	J ₉₃ ^A	G	30	G	30	G	23	G	20	17	21	J ₃₆ ^A	21	
24	J ₃₃ ^A	43	J ₃₉ ^A	27	J ₂₆ ^A	J ₂₈ ^A	B	B	45	B	43	34	B	B	B	E ₃₀ ^B	B	B	J ₄₂ ^A	G	J ₅₄ ^A	35	43	J ₄₄ ^A	
25	J ₆₄ ^A	46	19	55	43	B	34	49	64	52	B	B	B	G	G	26	B	B	E ₂₇ ^B	38	G	21	48	38	
26	J ₄₄ ^A	J ₆₀ ^A	53	71	32	32	B	B	72	B	B	B	B	B	B	B	E ₂₉ ^B	28	28	G	G	J ₄₅ ^A	39	J ₈₉ ^A	
27	67	J ₄₀ ^A	J ₁₀₄ ^A	B	50	28	B	B	B	G	G	35	G	G	G	E ₃₅ ^B	31	E ₂₆ ^B	30	40	42	J ₃₉ ^A	J ₄₄ ^A	80	
28	J ₇₅ ^A	B	B	57	J ₄₂ ^A	B	B	B	B	36	B	B	G	G	E ₃₃ ^B	E ₂₉ ^B	E ₃₀ ^B	G	84	28	E ₂₁ ^B	27	20	38	
29	B	53	B	32	32	B	33	G	B	E ₃₀ ^B	B	B	B	B	B	E ₄₁ ^B	B	G	29	23	26	20	G	J ₃₁ ^A	
30	30	B	52	B	43	38	G	B	B	B	34	G	E ₃₇ ^B	E ₃₁ ^B	G	G	E ₃₀ ^B	B	E ₃₄ ^B	G	G	G	18	K ₂₆ ^A	
31	29	57	51	64	B	46	53	B	E ₄₃ ^B	G	G	33	33	31	31	28	G	J ₂₇ ^A	27	26	20	20	31	30	
CNT	29	28	27	26	24	18	22	21	22	19	17	17	21	24	24	24	25	28	30	31	31	30	30	31	
MED	47	47	48	44	42	36	34	42	36	E ₃₀ ^G	G	E ₃₃ ^G	G	E ₂₈ ^G	G	E ₃₀ ^G	G	E ₂₇ ^G	E ₂₆ ^G	23	23	32	41	44	
UQ	J ₆₄ ^A	58	56	57	51	43	46	46	50	35	U ₃₂ ^A	36	E ₃₃ ^B	30	E ₃₆ ^B	E ₃₄ ^B	E ₃₁ ^B	29	30	30	38	41	54	64	
LQ	35	39	42	33	32	28	30	33	G	G	G	G	G	G	G	E ₂₉ ^G	G	E ₂₂ ^G	E ₂₀ ^G	E ₁₉ ^G	E ₁₈ ^G	21	31	30	

The Radio Research Laboratories, Japan

OCT. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

OCT. 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 0.5 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	24	B	B	11	B	B	16	41	30	29	20	18	21	23	B	38	22	20	16	9	9	16	10
2	12	25	23	51	B	22	15	15	16	23	B	B	33	28	39	37	25	26	B	20	15	8	9	10
3	39	28	31	19	20	12	B	20	19	B	B	41	41	30	26	23	24	20	20	13	13	10	9	9
4	12	13	18	23	28	31	27	20	20	16	13	21	14	17	13	E ₂ C ₂₄	12	14	15	18	10	9	9	8
5	8	10	13	17	23	B	40	17	15	15	16	16	15	15	18	20	18	20	24	26	18	19	11	9
6	9	12	18	10	B	B	20	18	16	15	22	42	42	20	23	34	31	28	25	18	12	9	9	9
7	10	9	10	10	9	9	10	11	26	34	38	21	22	18	19	19	23	13	15	28	20	C	C	9
8	9	10	15	30	20	17	13	10	13	11	11	11	14	12	13	16	12	28	25	22	10	12	9	13
9	10	10	B	13	19	B	B	19	B	B	B	27	27	18	20	18	12	12	13	15	9	9	8	26
10	11	E ₂ C ₂₂	19	9	16	26	22	10	18	B	24	32	14	30	23	19	18	18	14	11	10	10	9	9
11	10	16	13	18	22	B	29	17	14	26	25	20	17	20	18	14	14	11	14	10	10	10	9	9
12	9	14	10	13	10	9	9	10	11	33	29	B	16	13	42	31	18	13	22	10	11	18	10	10
13	12	11	15	13	41	38	21	B	23	B	B	16	18	23	20	16	14	11	12	10	9	15	8	10
14	9	B	24	12	16	40	20	27	18	13	19	17	16	16	16	17	13	16	24	11	10	9	8	11
15	10	21	12	22	25	B	23	23	28	B	B	B	B	47	64	30	18	27	18	13	11	9	9	10
16	9	10	13	11	10	B	26	33	B	33	B	B	B	B	B	B	31	B	16	11	9	10	9	9
17	10	8	15	B	B	B	12	19	22	B	B	B	B	29	B	B	B	B	24	12	10	18	10	E ₁ C ₁₈
18	B	9	15	B	B	B	B	B	B	B	B	B	B	B	B	40	20	26	15	12	9	12	24	29
19	12	9	27	15	13	33	B	B	B	B	B	28	B	B	38	B	36	19	18	15	9	17	13	9
20	9	30	24	25	B	28	40	B	B	B	B	B	B	B	B	B	B	33	15	E ₁ C ₁₇	12	15	12	28
21	31	42	54	28	27	18	16	12	16	B	B	B	24	27	22	18	21	20	16	12	10	9	9	15
22	9	10	15	9	B	B	17	14	13	14	13	B	B	30	43	B	B	45	33	19	13	10	9	10
23	13	12	10	18	10	17	14	15	18	13	14	13	13	12	14	15	12	13	13	12	12	9	9	10
24	9	23	9	9	E ₂ C ₂₀	11	B	B	26	B	30	29	B	B	B	30	24	15	16	12	9	9	15	11
25	11	10	9	28	40	B	24	16	13	42	B	B	B	17	24	17	B	B	27	15	14	9	9	9
26	13	16	20	24	10	11	B	B	54	B	B	B	B	B	B	B	29	17	14	20	12	12	9	10
27	28	10	15	B	23	15	B	B	B	16	16	16	16	15	19	35	12	26	21	19	10	11	15	16
28	18	B	B	32	11	B	B	B	B	22	B	B	22	20	33	29	30	18	26	22	21	12	9	9
29	B	31	B	14	23	B	27	27	B	30	B	B	B	B	B	41	B	15	14	10	11	10	9	8
30	9	B	19	B	19	22	13	B	B	23	16	37	31	17	24	30	B	34	17	18	11	9	9	9
31	9	26	18	25	B	35	20	B	43	15	14	15	13	10	12	13	10	12	11	18	10	10	9	10
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31
MED	10	14	18	19	22	35	24	20	23	33	30	41	27	21	24	30	23	20	17	15	10	10	9	10
UQ	12	26	24	29	40	B	B	B	B	B	B	B	B	38	54	40	34	28	24	18	12	12	10	10
LQ	9	10	13	13	13	18	16	16	16	16	18	20	16	17	19	18	14	14	14	12	10	9	9	9

OCT. 1974

F-MIN (0.1 MHz)

IONOSPHERIC DATA

OCT. 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 **0.5** 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	A	B	B	R	B	R	G	G	G	G	245	B	290	300	F	F	305	A	R	A	A	
2	A	A	A	B	B	A	A	250	F	G	B	B	255	290	255	310	310	255	B	330	300	F	A	A	F	
3	B	B	B	A	A	F	B	280	F	235	B	B	275	270	265	295	310	315	325	320	310	F	R	A	F	
4	R	320	A	A	A	A	A	270	F	275	275	250	275	290	290	300	315	315	320	315	330	300	F	A	A	
5	A	F	A	A	A	B	B	U	F	260	F	270	F	260	270	280	F	300	290	295	330	315	F	F	F	
6	A	A	A	F	B	B	F	240	F	255	280	270	275	290	280	295	320	315	325	325	F	U	F	U	F	
7	A	F	F	F	F	F	290	F	F	255	295	305	275	310	290	315	325	335	340	325	315	C	C	F		
8	F	275	F	A	A	275	280	F	260	F	265	270	270	275	280	300	F	F	330	U	320	315	R	A	A	
9	A	F	B	F	A	B	B	A	B	B	B	G	G	G	F	250	F	240	R	R	A	F	A	F	A	
10	A	F	A	F	R	A	A	A	A	B	R	245	245	240	260	270	275	295	310	310	F	F	U	F	R	
11	A	A	A	F	F	B	A	230	F	255	245	F	270	270	285	290	295	310	F	305	F	F	U	F	F	
12	A	A	250	F	250	F	F	U	F	260	U	260	250	270	B	F	F	285	250	F	310	305	305	F	F	
13	F	F	A	A	B	B	R	B	R	B	B	G	A	R	F	R	F	F	F	F	F	F	F	A	A	
14	A	B	A	R	A	B	A	R	R	G	R	G	250	270	290	310	335	330	330	325	F	F	F	F	F	
15	A	A	A	A	R	B	R	A	A	B	B	B	B	B	R	F	F	F	275	290	300	240	A	F	F	
16	F	A	A	A	U	F	B	A	A	B	R	B	B	B	B	B	R	B	F	300	F	A	A	A	A	
17	A	F	A	B	B	B	U	F	A	A	B	B	B	B	F	B	B	B	280	F	F	A	A	A	F	
18	B	F	A	B	B	B	B	B	B	B	B	B	B	B	B	F	U	245	R	A	R	A	A	A	A	
19	F	F	A	A	U	F	R	B	B	B	B	R	B	230	B	240	B	315	320	U	F	310	320	A	A	
20	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	F	F	F	F	F	A	R	A	
21	B	B	B	A	A	R	245	G	240	F	B	B	B	275	285	270	290	315	315	305	U	305	305	A	F	
22	R	R	A	F	B	B	F	265	270	280	255	B	B	270	285	B	B	275	290	310	F	R	A	A	A	
23	A	F	F	A	F	F	F	A	A	235	270	260	R	245	285	310	325	340	335	330	F	F	F	F	F	
24	F	A	R	F	F	F	B	B	A	B	A	R	B	B	B	255	260	240	290	280	F	A	A	A	A	
25	A	F	F	B	B	B	R	A	225	B	B	B	B	R	F	240	B	B	325	F	310	275	285	F	A	
26	A	A	A	A	R	295	F	B	B	B	B	B	B	B	B	B	295	275	325	290	U	290	A	A	U	355
27	A	A	A	B	A	F	B	B	B	R	225	265	215	245	230	270	U	F	255	F	A	A	A	A	A	
28	A	B	B	B	A	B	B	B	B	R	B	B	B	F	240	235	240	250	275	C	320	R	305	275	270	A
29	B	B	B	R	R	B	R	250	B	R	B	B	B	B	B	R	B	235	F	310	320	295	F	F	F	
30	R	B	A	B	290	A	F	B	B	F	265	240	260	265	275	260	B	325	U	F	295	330	330	315	F	250
31	F	A	A	A	B	A	A	B	260	255	255	280	270	290	290	295	295	300	F	325	320	320	325	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		2	1	1	4	3	5	11	9	12	12	16	18	19	20	20	20	21	22	22	16	9	4	4		
MED		298	250	250	292	280	290	260	260	255	262	268	265	270	285	295	310	310	318	315	310	305	288	280		
UQ					U	F	288	290	262	265	270	272	275	290	290	310	318	320	325	325	318	310	300	322		
LQ					270	278	280	245	240	240	252	240	240	245	258	258	275	275	305	305	300	275	278	260		

The Radio Research Laboratories, Japan

OCT. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1974

H'F2 (KM)

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

Station Hour Day	SYOWA STATION				Lat. 69 00.4 S	Long. 39 35.4 E	Sweep 0.5 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							A	B	R	G	G	G	G		530	B	350							
2							L	U	F	G	B	B	490	360	490	330	295	500						
3							400	520	B	B	410	E	B	420	360	L	290	L						
4							L	L		390	490	400	360	350	330	270	L							
5							450	410	F	400	400	365	350	320	300	300	260							
6							F	375	450	F	420	360	395	385	330	340	300	265	255					
7							L	L	F	375	380	295	300	L	295	L	255							
8							345	390	390	375	390	380	330	345	290	L								
9							B	A	B	B	B	G	G	G	F	445	510	R						
10							A	A	A	B	R		500	500	520	480	L	L						
11							A	515	400	430	400	345	380	320	305	L	L							
12							395	410	415	445	R	B	425	305	330	300	300	L						
13							R	B	R	B	B	G	A	R	F	U	F	F	F					
14							A	A	R	G	R	G	520	420	L	L	L							
15							R	A	A	B	B	B	B	B	B	F	315	F						
16							A	A	B	R	B	B	B	B	B	B	R	B						
17								A	A	B	B	B	B	U	F	B	B	B	B					
18							B	B	B	B	B	B	B	B	B	B	510	R						
19							B	B	B	B	A	B				B	B							
20							B	B	B	B	B	B	B	B	B	B	B							
21							500	G	570	B	B	B	440	415	450	L								
22								400	400	400	450	B	B	390	325	B	B	360						
23								A	A	L	480	495	L	L	345	H	330	L	L					
24							B	B	A	B	A	R	B	B	B		500	425	460	355				
25							A	A	A	B	B	B	B	R	R	565	B	B						
26							B	B	B	B	B	B	B	B	B	B	350	450						
27							F	B	B	B	R	590	450	565	520	590	420	U	F	500				
28							B	B	B	R	B	B	F	570	580	555	525	390	R	F				
29							R	490	B	R	B	B	B	B	B	U	R	B	400					
30							F	B	B	470	400	500	450	415	390	410	B	280	L					
31							A	B	E	B	425	445	390	405	350	350	355	L	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							3	9	11	12	12	16	18	20	18	16	14	8	1					
MED							395	410	412	422	422	430	450	402	355	368	338	425	355					
UQ							448	490	488	458	485	D	G	565	480	490	472	425	480					
LQ							370	400	400	395	395	385	382	338	330	300	295	320						

OCT. 1974

H'F2 (KM)

IONOSPHERIC DATA

OCT. 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 0.5 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	A	B	B	A	B	B	R	H	220	240	H	B	B	295	265	270	A	R	A	A
2	A	A	A	B	B	A	A	290	250	250	B	B	E	H	B	B	275	E	H	B	240	330	A	A
3	B	B	B	A	A	355	B	280	245	B	B	B	B	240	H	240	240	240	250	250	260	A	A	375
4	R	325	A	A	B	B	A	330	250	245	230	210	200	225	225	220	225	240	250	230	240	250	A	A
5	A	A	A	A	A	B	B	A	H	H	230	215	225	210	H	225	230	230	250	250	240	H	250	350
6	A	A	A	U	F	B	B	A	E	A	H	H	I	B	245	215	B	260	255	240	245	230	245	300
7	A	U	F	360	350	330	275	235	230	230	E	B	E	B	210	215	200	245	230	225	240	225	245	350
8	F	A	R	B	A	410	A	290	245	230	225	225	200	H	210	210	225	230	225	240	235	250	225	A
9	A	A	B	F	A	B	B	A	B	B	B	E	A	E	A	300	255	250	250	300	295	A	A	A
10	A	F	A	A	A	A	A	A	A	B	R	275	240	H	245	245	240	250	255	250	250	250	255	260
11	A	U	A	A	A	B	A	360	300	260	245	250	230	210	240	230	230	250	250	245	240	245	300	230
12	A	A	A	470	410	350	300	270	H	275	R	B	220	240	B	260	255	250	265	250	275	260	250	320
13	A	F	A	A	B	B	A	B	A	B	B	Y	A	R	280	270	260	260	280	300	F	B	A	A
14	A	B	A	R	A	B	A	B	A	300	250	280	E	A	E	A	260	275	240	240	250	245	A	F
15	A	A	A	A	R	B	A	A	A	B	B	B	B	B	B	E	A	E	A	300	330	300	430	A
16	A	A	A	A	340	B	A	B	B	B	B	B	B	B	B	B	B	B	300	300	F	A	A	A
17	A	565	A	B	B	B	300	A	A	B	B	B	B	250	B	B	B	B	300	350	400	A	A	A
18	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	E	Y	A	A	A	A	A	B
19	A	320	B	A	330	B	B	B	B	B	B	A	B	225	B	B	B	B	250	290	265	A	A	A
20	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	250	255	A	A	A	B
21	B	B	B	B	B	R	A	260	240	B	B	B	250	H	230	H	250	265	250	255	275	A	A	A
22	R	R	A	F	B	B	A	245	H	210	H	210	B	B	260	B	B	B	B	310	285	A	A	A
23	A	F	A	A	320	350	325	A	A	280	215	220	H	200	H	210	220	230	215	210	230	H	230	245
24	330	A	A	F	250	300	B	B	A	B	A	A	B	B	B	E	B	265	265	275	325	300	A	A
25	A	U	F	310	B	B	B	A	A	A	B	B	B	B	250	235	215	B	B	260	A	300	250	310
26	A	A	A	A	A	H	B	B	B	B	B	B	B	B	B	B	240	230	E	A	295	320	A	250
27	A	A	A	B	A	325	B	B	B	210	250	250	230	225	250	B	235	240	250	A	A	A	A	A
28	A	B	B	B	A	B	B	B	B	A	B	B	225	230	E	B	230	240	B	250	250	A	300	320
29	B	B	B	R	R	B	R	R	B	B	R	B	B	B	B	B	B	B	245	235	H	250	285	310
30	A	B	A	B	E	A	A	290	B	B	275	220	B	220	240	245	230	B	B	225	H	250	250	280
31	F	A	A	A	B	B	A	B	B	235	200	220	H	200	230	220	225	220	230	240	250	240	240	280
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	6	2	6	7	8	6	11	11	15	13	13	19	22	19	19	22	24	27	26	21	13	12	10
MED	355	350	335	365	330	338	295	275	245	248	230	220	222	230	238	230	240	249	250	250	250	250	280	335
UQ		U	F	F	348	352	300	298	250	272	242	250	230	240	246	242	258	256	266	285	300	260	310	375
LQ		320		345	325	288	290	252	230	225	220	210	218	215	222	228	230	240	245	245	240	245	250	275

The Radio Research Laboratories, Japan

OCT. 1974

H'F (KM)

IONOSPHERIC DATA

OCT. 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 0.5 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	105	B	B	140 ^K	B	B	105	180	B	B	G	G	G	G	B	B	B	B	150	100	110 ^K	130 ^K	150 ^K
2	105	100	105	150	B	100	105	G	G	G	B	B	B	B	B	B	G	B	B	B	140	105	110	110
3	175	105	165	110	125	110	B	G	G	B	B	B	B	B	B	G	B	G	B	G	B	150	180 ^K	150 ^K
4	125 ^K	120 ^K	110	100	110	100	100	105 ^K	G	G	G	G	G	G	G	G	G	100	G	B	100	125	120 ^K	105
5	135 ^K	105 ^K	100	110	130	B	120	105	G	G	G	G	G	100	G	G	G	G	B	B	B	B	B	165
6	110 ^K	105	100	130 ^K	B	B	120	110	110	G	G	B	B	G	G	B	B	B	B	B	G	125	170	130
7	160 ^K	135 ^K	150 ^K	135	140	125	100	G	130	B	B	G	G	G	G	110	G	160	130	B	B	C	C	110
8	175 ^K	130 ^K	125 ^K	105	100	100	120	120	G	125	G	120	G	G	G	100	110	B	B	B	G	120	100	105
9	150 ^K	105	B	110 ^K	160	B	B	110	B	B	B	110	145	170	G	E G 180	G	G	115	100 ^K	135 ^K	180 ^K	105 ^K	100
10	170	120	145	160	120 ^K	120	100	100	105	B	175 ^K	G	G	B	G	G	G	170	G	150	105	100	100	115 ^K
11	140 ^K	110 ^K	110 ^K	115 ^K	130	B	110	105	105	G	G	125	120	G	G	G	G	170	155	120	120	100	100	160
12	150 ^K	100 ^K	115 ^K	125 ^K	115	105 ^K	G	165	G	180	G	B	G	115	B	B	110	110	G	120	130	B	100	150
13	170	110 ^K	100	105	120	115	110	B	115	B	B	G	125	G	150	G	G	100	110	100	100	160	130	155
14	140	B	155	100 ^K	100	110	105	110	120	100	125	120	115	115	110	105	145	110	B	150	140	140	190	120 ^K
15	100	105	105	125	130	B	120	120	110	B	B	B	B	B	B	140	160	145	140	G	165	130	140 ^K	140 ^K
16	100	105	125	100	180 ^K	B	110	100	B	B	B	B	B	B	B	B	B	B	G	145	135	140 ^K	100	150
17	100	100 ^K	110	B	B	B	100	150	100	B	B	B	B	B	B	B	B	G	160	145	130	150	G	100
18	B	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	G	125	130	105	100	115 ^K	140 ^K	110
19	120	105	130	100	170	125	B	B	B	B	110	B	B	B	B	B	B	150	160	150	100	110 ^K	100 ^K	160
20	105 ^K	100	105	105	B	110	100	B	B	B	B	B	B	B	B	B	B	B	145	150	190 ^K	105 ^K	125 ^K	100
21	100	180	150	100	115	115 ^K	110 ^K	180	100	B	B	B	G	G	G	120	G	G	G	G	145	110	110	125 ^K
22	110 ^K	110 ^K	140	100	B	B	100	105	G	G	G	B	B	B	B	B	B	B	B	180	130 ^K	110 ^K	140 ^K	110 ^K
23	125 ^K	120 ^K	125	160	150	130 ^K	170 ^K	105	100	100 ^K	105	120	G	130	G	125	G	110	G	100	130	125	130	130 ^K
24	115	165 ^K	110 ^K	180 ^K	120 ^K	115	B	B	105	B	115	125	B	B	B	B	G	G	130	G	100	105	115 ^K	105 ^K
25	100	110	125	100	120	B	115	100	100	105	B	B	B	G	G	110	B	B	B	115	G	150	130	105 ^K
26	105 ^K	105	100	110	100	140	B	B	130	B	B	B	B	B	B	B	B	170	170	G	G	115 ^K	150 ^K	100 ^K
27	150	100 ^K	100	B	100	105	B	B	B	G	G	130	G	G	G	B	145	B	150	120	100	150 ^K	145 ^K	145 ^K
28	100	B	B	100	100 ^K	B	B	B	B	100	B	B	G	G	B	B	B	G	145	115	B	150	140	105
29	B	100	B	100 ^K	110	B	140	G	B	B	B	B	B	B	B	B	B	G	160	145	130	150	G	100
30	160 ^K	B	100	B	105	110	G	B	B	110	G	B	B	G	G	B	B	B	G	G	G	G	145	110 ^K
31	110 ^K	140	100	100	B	100	100	B	B	G	G	130	125	105	110	105	G	100	170	170	130	125	120	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	29	28	27	26	24	18	20	17	14	7	5	8	5	6	3	9	5	13	15	19	22	27	27	31
MED	120	105	110	108	120	110	110	105	108	105	115	122	125	115	110	110	145	125	145	145	130	125	130	115
UQ	150 ^K	120 ^K	128	125	135	120	120	120	120	118	125	128	125	130	130	122	145	160	160	150	135	150	140	148
LQ	105	102	100	100	108	105	100	105	100	100	110	120	120	105	110	105	110	110	130	115	100	110	108	105

OCT. 1974

H⁺ES (KM)

IONOSPHERIC DATA

OCT. 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 **0.5 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	RA 11	R 1			HK 11			R 1	HR 11											H 1	RS 31	K 4	CK 11	RK 12	
2	R 1	R 1	R 1	H 1		R 1	R 2															C 1	R 5	A 1	FA 11
3	FRR 11	R 1	FR 11	R 1	RR 11	R 1																	R 1	AKR 11	RK 11
4	K 2	K 2	R 2	L 1	R 1	R 1	R 1	RK 11											L 1			L 1	H 1	RK 13	R 4
5	CK 12	RKA 11	R 2	R 2	R 1		R 1	R 1						L 1											RR 11
6	RKH 55	R 1	R 1	KL 21			R 1	R 1	R 1														C 1	H 1	CH 11
7	HK 15	CKR 11	HK 11	H 1	HH 12	C 1	L 1		C 1						L 1			H 1	H 1						L 1
8	HKL 11	RKC 32	K 1	L 1	L 1	R 1	R 1	C 1		C 1		C 1				L 1	R 2						RS 1	RA 11	R 4
9	RK 13	A 1		RK 31	HR 11			RS 11				R 1	HC 11		H 1				RS 11	L 2R	B 3	R 5	AK 13	FR 11	
10	FRR 11	RA 11	RR 11	HC 13	CKS 22	R 1	R 1	R 2	R 2		HK 11							H 1		RL 11	LR 11	L 1	LH 11	K 5	
11	CK 11	RK 11	K 3	RK 11	C 1		R 1	L 1	R 2			C 1	C 1				H 1	H 1	A 1	C 1	L 1	L 1	L 1	H 1	
12	RK 15	LK 13	LK 13	RK 13	RK 13	K 2		H 1		H 1				L 1			R 1	R 1		A 1	C 1	L 1	L 1	HR 11	
13	AR 14	K 4	R 1	RS 11	C 1	L 1	LS 11		LS 11			S 1	C 1		A 1			C 1	CH 11	LH 11	LA 11	HA 11	HAC 11	FRR 11	
14	FR 32		HC 11	LK 32	R 1	L 1	L 1	R 1	RL 11	R 1	C 1	C 2	C 2	C 3	C 2	C 3	C 12	R 1		R 2	A 1	A 1	RA 11	LKR 11	
15	FA 21	R 1	RL 11	C 1	CC 11		R 1	R 1	R 1						H 1	AR 11	H 1	C 1			H 1	C 2	CK 45	AKR 11	
16	F 3	R 2	RR 11	R 1	HK 12		LR 11	R 1													R 1	A 1	HK 33	AR 13	R 1
17	R 2	RK 13	RL 11				L 1	R 1	R 1																A 1
18		R 3	CH 21																R 1	HHR 11	R 1	LR 11	K 2	CK 11	R 1
19	A 1	R 1	R 1	L 1	HR 11	C 1					R 1								H 1	H 1	H 1	RS 31	K 2	RK 21	AA 11
20	RK 13	L 1	R 1	LH 11		R 1	R 1													A 1	HA 11	HK 11	RK 31	AK 12	LC 11
21	R 1	HH 11	H 1	L 1	R 1	K 2	K 1	H 1	C 1							C 1						A 1	LR 14	R 3	AK 13
22	KS 41	RK 12	HR 11	L 3			R 1	R 1													HH 11	RK 11	K 3	RK 33	RK 33
23	RK 12	RK 11	LR 11	HKC 11	A 1	RK 11	HK 12	R 2	R 1	LKR 11	R 1	C 1		H 1		C 1			R 1		L 1	C 1	C 1	HK 11	
24	R 3	RK 12	RK 14	AKL 15	RK 12	C 1			L 1		L 1	R 1								H 1		RS 21	R 3	RK 12	RK 12
25	L 1	R 2	C 1	R 1	C 1		R 1	R 1	LS 12	R 1						R 1							H 1	HHR 11	K 5
26	RK 11	R 2	R 1	RR 11	R 1	H 1			H 1										H 1	H 1			CK 21	HKS 14	LKA 11
27	HR 11	RK 13	LRH 11		L 1	R 1						H 1						R 1		C 1	R 1	RS 1	RK 12	HK 11	HK 11
28	L 1			L 1	RK 21					R 1										HH 11	C 1		R 1	R 1	R 5
29		L 1		RK 11	R 1		H 1													H 1	H 1	H 1	H 1		L 1
30	HK 25		R 1		R 1	R 1				R 1														R 1	K 2
31	RK 31	R 1	R 2	R 1		L 1	R 1					H 1	H 1	C 2	C 1	C 1			L 1	H 1	H 1	C 1	C 1	L 1	R 2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

OCT. 1974

TYPES OF ES

IONOSPHERIC DATA

NOV. 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 0.5 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	R	A	B	B	O ₅₈	O ₅₈	X ₆₁	64	X ₆₂	X ₆₂	X ₆₀	X ₅₉	X ₆₀	X ₅₈	X ₅₆	X ₅₆	X ₅₆	54	X ₅₃	X ₅₁	X ₅₀	U ₅₀	
2	R	A	O ₄₆	B	B	R	60	R	72	73	65	X ₆₀	X ₆₀	X ₅₉	X ₅₉	X ₅₉	X ₆₁	X ₅₈	X ₅₉	59	X ₅₄	X ₅₇	X ₅₄	X ₅₉	
3	X ₅₇	S ₅₁	O ₅₁	53	60	70	76	79	86	93	82	74	76	71	X ₆₂	61	63	64	60	60	67	55	57	57	
4	58	A	A	46	53	57	57	60	61	63	67	68	X ₆₁	X ₆₂	X ₆₈	X ₆₆	X ₆₂	X ₅₈	X ₅₅	X ₅₂	X ₅₀	X ₅₂	X ₅₀	U ₄₇	
5	56	45	46	50	U ₅₄	R ₅₈	X ₇₀	77	78	79	79	70	72	76	77	67	65	X ₆₄	66	X ₆₁	61	59	60	65	
6	A	A	A	A	A	A	R	R	A	R	X ₅₈	O ₅₅	55	55	X ₅₇	X ₅₈	X ₅₉	61	52	47	45	X ₄₃	40	44	
7	46	45	47	55	55	66	70	71	71	67	60	62	62	67	60	X ₆₃	62	56	X ₅₅	X ₅₆	X ₄₈	R ₄₅	O ₄₅	X ₄₁	
8	51	R	45	46	O ₄₀	49	A	R	57	61	67	62	65	65	X ₆₃	X ₆₇	X ₆₃	X ₅₈	X ₆₀	X ₅₇	X ₅₂	X ₄₈	A	56	
9	A	A	A	60	A	O ₄₈	53	B	B	A	B	R	R	73	76	73	C	O ₄₃	52	X ₄₅	X ₃₉	39	R	R	
10	A	R	R	B	B	B	B	A	B	B	B	O ₅₃	R	B	B	O ₅₁	O ₅₁	X ₅₃	X ₅₁	X ₄₉	44	45	R	R	
11	A	58	B	A	A	R	55	X ₅₄	56	X ₅₉	60	B	O ₅₈	O ₆₀	X ₆₀	O ₅₆	52	R	50	56	R	A	A	A	
12	44	B	A	A	B	B	R	B	R	B	B	B	R	B	O ₇₀	R	O ₄₈	R	62	55	R	60	B	A	
13	O ₄₂	A	44	B	R	50	R	R	R	B	B	B	B	B	76	86	45	56	50	X ₄₄	O ₄₆	A	B	A	
14	42	48	A	B	O ₄₀	O ₃₆	B	B	A	B	B	R	B	B	67	67	R	B	48	48	43	43	42	42	
15	40	44	48	50	X ₅₂	54	60	64	X ₆₆	X ₆₆	X ₆₄	X ₅₈	X ₅₄	X ₅₄	60	62	65	R	O ₄₈	X ₄₈	51	X ₅₅	46	O ₄₁	
16	R	44	X ₄₆	B	O ₄₇	O ₅₁	56	52	52	O ₅₂	54	B	O ₆₁	67	72	R	B	57	R	51	48	49	A	R	
17	R	50	O ₄₉	A	R	B	B	A	A	A	R	C	X ₄₉	X ₄₉	X ₅₁	X ₅₄	X ₅₉	O ₅₁	47	O ₄₄	49	R	A	A	
18	R	47	38	46	A	A	R	51	52	52	55	O ₅₆	56	59	C	X ₆₁	X ₆₄	X ₅₈	X ₅₄	X ₄₈	X ₄₂	41	38	A	
19	A	S ₅₂	48	56	56	A	47	51	62	74	74	72	68	68	68	62	61	59	61	X ₅₈	42	60	41	R	
20	47	U ₄₇	A	A	39	48	B	A	O ₄₂	X ₄₄	52	53	58	60	62	70	O ₆₄	60	54	B	X ₄₂	48	49	A	
21	O ₃₈	R	43	R	B	O ₅₁	O ₆₀	C	57	65	69	O ₆₉	R	71	B	B	O ₆₀	59	49	R	50	48	48	A	
22	F	R	B	A	B	B	R	B	R	B	B	O ₄₉	R	B	B	B	60	X ₅₇	56	O ₄₅	X ₄₉	54	50	45	
23	43	A	A	B	O ₄₂	A	A	A	53	X ₆₀	O ₅₉	X ₆₂	66	O ₆₃	X ₆₆	X ₆₅	O ₆₅	61	B	O ₄₆	X ₄₇	X ₄₆	B	O ₄₆	
24	A	R	48	A	R	R	A	R	B	R	61	R	O ₅₄	O ₅₆	60	O ₆₈	X ₆₄	65	B	56	45	B	O ₄₆	R	
25	47	R	B	B	42	A	R	R	A	B	B	B	B	B	C	C	X ₅₆	60	54	52	47	O ₄₆	47	39	
26	R	B	B	B	R	B	B	R	62	62	65	X ₆₆	X ₆₆	B	O ₆₄	X ₆₄	69	O ₆₉	R	O ₄₆	48	55	X ₄₇	X ₄₈	
27	A	B	A	A	B	B	57	66	66	66	61	O ₆₂	X ₆₃	X ₆₂	X ₆₁	O ₆₅	O ₆₃	60	X ₅₄	X ₅₆	X ₅₂	X ₄₆	X ₄₆	U ₅₀	
28	X ₅₄	O ₄₆	O ₄₅	50	O ₅₄	R	60	60	O ₅₅	B	O ₆₄	X ₆₅	64	X ₆₆	X ₆₆	X ₇₀	X ₆₆	X ₆₁	X ₅₈	X ₅₄	X ₅₂	X ₅₃	X ₅₀	X ₅₁	
29	55	S	59	60	65	70	71	70	69	72	79	X ₇₇	X ₇₇	X ₇₅	X ₇₁	78	76	65	X ₆₁	X ₅₈	X ₅₈	X ₅₆	X ₅₆	X ₅₇	
30	X ₅₇	U ₆₅	X ₇₀	X ₇₇	X ₈₃	89	X ₈₅	87	X ₈₆	X ₈₄	C	X ₈₂	85	X ₈₄	X ₇₉	X ₇₃	X ₆₅	X ₆₃	X ₆₂	X ₆₀	X ₆₁	X ₆₀	X ₅₆	X ₅₅	
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	16	13	16	12	15	14	16	14	20	19	21	21	22	23	25	25	27	26	26	28	28	25	21	18	
MED	47	47	46	52	53	52	60	62	62	65	64	62	62	63	X ₆₄	65	62	59	54	53	48	51	48	49	
UQ	56	51	48	58	56	66	70	71	70	72	67	69	66	70	70	68	64	61	X ₆₀	X ₅₆	X ₅₂	X ₅₅	X ₅₀	56	
LQ	42	45	45	48	42	O ₄₉	56	54	56	60	60	58	58	X ₅₉	X ₆₀	X ₆₁	59	X ₅₇	51	48	45	46	46	44	

NOV. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

NOV. 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 0.5 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	A	B	B	52	52	F	F	56	56	54	53	54	51	50	50	F	F	47	45	F	F						
2	R	A	U ₃₈	B	B	A	F	R	F	U ₅₂	55	52	54	52	53	52	55	52	53	52	48	51	48	53						
3	51	45	F	F	F	F	U ₆₇	F	F	F	U ₆₃	U ₆₉	F	F	F	U ₅₇	F	U ₅₁	U ₅₁	U ₄₉	U ₄₆	U ₄₆	U ₄₆							
4	F	A	A	U ₃₉	F	F	F	F	F	F	J	F	55	56	62	60	56	52	49	46	43	46	44	U ₃₈						
5	F	F	F	F	47	52	U ₅₁	U ₆₂	U ₆₆	F	U ₇₀	61	66	68	60	60	58	58	58	55	U ₅₃	U ₄₉	U ₄₉	F						
6	A	A	A	A	A	A	A	R	A	A	52	49	49	49	51	52	53	F	U ₄₅	U ₄₀	F	V	32	U ₃₂						
7	U ₃₄	U ₃₆	U ₄₀	F	F	F	F	F	F	U ₅₇	U ₅₃	55	54	57	J	55	57	F	F	50	42	R	F	34						
8	F	R	F	F	34	U ₄₂	A	A	F	J	F	U ₅₈	55	57	58	57	61	56	52	54	51	46	42	A	F					
9	A	A	A	F	A	42	F	B	B	A	B	R	B	F	F	F	C	E	G	F	39	32	32	R	R					
10	A	R	R	B	B	B	B	A	B	B	B	U ₄₇	R	B	B	F	45	F	45	43	36	35	R	R						
11	A	F	B	A	B	R	U ₄₅	F	F	53	52	B	U ₅₂	S	54	50	F	B	F	F	R	A	A	A						
12	U ₃₂	B	A	A	B	B	R	B	R	B	B	B	R	B	64	R	41	R	F	F	40	A	F	B	A					
13	F	A	F	B	A	F	R	R	R	B	B	B	B	B	F	U ₇₈	U ₄₈	U ₄₆	F	F	38	40	A	B	A					
14	F	F	A	B	U ₃₁	30	B	B	A	B	B	R	B	B	U ₅₂	U ₅₂	R	B	F	F	U ₃₅	F	F	F	F					
15	U ₃₁	U ₃₂	F	U ₄₂	F	47	J	52	56	60	60	58	52	48	48	52	55	F	R	42	42	44	F	35						
16	R	U ₂₈	F	B	U ₄₁	F	F	U ₄₅	45	U ₄₅	U ₄₇	B	U ₅₂	F	F	R	B	F	R	F	45	41	42	A	A					
17	R	U ₄₂	U ₄₃	A	R	B	B	A	A	A	R	C	H	42	42	45	48	53	45	U ₃₅	38	39	R	A	A					
18	A	U ₃₃	U ₃₁	F	A	A	A	F	45	46	48	50	49	52	I	53	55	58	52	48	H	35	35	U ₂₉	A					
19	A	F	F	F	F	A	F	F	F	F	F	U ₆₀	U ₅₄	56	56	54	54	52	54	51	U ₃₆	F	U ₃₃	R						
20	F	U ₃₆	A	A	F	U ₃₉	B	A	E	G	E	G	U ₄₃	45	50	53	55	U ₆₀	58	U ₅₀	U ₄₈	B	36	U ₄₀	U ₄₀	A				
21	32	R	U ₃₆	B	B	F	U ₄₂	C	U ₅₀	U ₅₆	U ₆₀	U ₆₂	B	F	B	B	54	F	U ₄₂	R	F	F	41	A						
22	A	B	A	A	B	F	R	B	R	B	B	U ₄₃	B	B	B	B	F	51	F	39	42	38	42	F						
23	U ₃₇	A	A	B	U ₃₆	A	A	A	F	54	53	56	60	57	60	59	59	55	B	40	40	40	B	40						
24	A	R	U ₃₉	A	R	R	A	R	B	R	F	R	48	48	53	62	58	58	B	U ₄₁	31	B	U ₃₇	A						
25	F	R	B	B	F	A	R	R	A	B	B	B	B	B	C	C	60	F	52	F	45	F	38	40	U ₄₀	F				
26	R	B	B	B	A	B	B	R	F	53	55	U ₅₅	60	60	B	58	U ₅₈	F	63	R	40	F	F	41	52					
27	A	B	A	A	B	B	F	U ₅₃	U ₅₉	F	59	52	56	57	56	55	59	57	53	48	50	46	40	40	U ₃₆					
28	U ₄₇	U ₃₆	39	F	48	R	53	53	49	B	58	58	56	60	60	64	60	55	52	48	60	47	44	45						
29	U ₄₃	S	F	F	U ₅₁	F	U ₅₅	F	U ₅₈	U ₆₂	F	70	70	70	66	65	60	V	F	58	55	52	52	50	50	F				
30	51	F	J	S	J	S	J	S	F	F	80	80	78	I	C	76	79	78	73	67	59	57	56	53	55	53	50	48		
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	12	8	10	4	10	10	11	11	16	16	19	21	22	21	23	24	26	25	22	26	28	22	20	15						
MED	F	U ₃₆	U ₄₀	F	46	45	F	F	F	F	F	F	56	54	56	55	58	56	F	F	48	45	42	41	41	F	40			
UQ	45	U ₃₉	42	57	48	49	F	52	F	58	58	59	61	60	60	60	58	55	53	51	46	47	45	47						
LQ	U ₃₃	U ₃₂	U ₃₈	U ₄₀	U ₃₆	F	42	F	48	F	50	F	47	F	52	F	52	F	53	F	50	F	45	40	F	38	F	38	F	34

The Radio Research Laboratories, Japan

NOV. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

NOV. 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 **0.5** 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	360	360	380	410	420	430	420	420	L	L	L	L					
2							A	A	390	410	410	420 ^H	430	420	420	420	400	L	L	L				
3					L	350	U ^H 350	F 360	F 400	F 410	F 410	F 420	420	440	L	L	L	370	L					
4					L	U ^H 370	370	370	400	F 400	F 400	F 400	410	430	420	420	L	L	L					
5							F 360	F 380	F 390	F 400	F 410	440	430	440	L	L	L	L	L					
6							A	A	A	A	370	400	410	410	410	410	400	400	U ^F 380					
7							F	330	350	U ^F 360	F 380	400	410	420	F 420	F 410	400	400	L	L				
8							A	A	360	380	390	410	400	420	420	400	390	L	L	L				
9							A	U ^F 370	B	B	A	B	R	B	370	360	380	C	340	F				
10							B	B	A	B	B	B	B	390	B	B	390	380	370	360	L			
11							330	U ^A 350	A	370	400	F	B	B	B	380	B	370	F	B				
12							A	B	A	B	B	B	U ^R 390	B	B	360	360	360						
13							R	R	R	B	B	B	B	B	380	U ^F 390	U ^F 380	L	370					
14							B	B	A	B	B	370	B	B	370	350	F	R	B	340	U ^F 330			
15							U ^R 320	U ^H 370	350	370	380	390	400	400	400	390	F 380	F 380	R	L	L			
16							A	A	360	F 360	F 380	U ^Y 390	B	B	B	B	B	400	F 350	L				
17							B	B	A	B	A	R	400	F	U ^H 410	400	380	370	B					
18							A	A	A	370	F 380	380	Y	400	410	I ^C 410	410	390	380	L				
19					U ^F 320	A	A	F	410	420	400	F 400	410	420	410	410	400	U ^L 380	U ^L 360					
20					U ^F 310	B	A	360	380	380	390	400	400	400	400	F 400	B	L	L					
21						L	U ^F 360	C	A	380	390	B	B	B	B	B	B	B	F 380					
22						F	R	B	A	B	B	400	B	B	B	B	U ^L 420	F 400			L			
23						A	A	A	380	400	400	400	420	420	410	400	F	B	400	B				
24						A	A	A	B	R	400	400	410 ^R	410 ^F	410	400	400	400	B					
25						A	A	A	A	B	B	B	B	B	C	C	410	400	L					
26						B	B	A	380	400	410	410	400	B	B	410	400	F	B	370				
27						B	370	390	U ^H 410	U ^H 410	420	B	R	420	420	420	U ^R 400	U ^L 400	L	L		L	L	
28					310 ^F	A	U ^F 330	390	400	410	B	B	420	430	420	420	420	U ^L 420	L					
29			L	L	A	U ^F 350	U ^H 390	U ^H 390	400	410	420	420	420	430	440	430	420	400	L	L	L	L	L	
30					310	330	A	U ^L 390	F 400	420	A	C	430	430	440	A	A	L	L	L	L	L	L	L
31																								
CNT					2	2	5	12	13	18	18	20	20	21	20	20	21	19	16	7	1			
MED					310	325	U ^F 330	370	370	380	390	400	405	410	420	410	400	400	400	360	U ^F 330			
UQ							U ^F 350	U ^H 380	390	400	410	410	420	420	425	420	410	400	400	370				
LQ							U ^F 320	355	360	360	380	390	400	400	410	395	390 ^F	380	375	355				

The Radio Research Laboratories, Japan

NOV. 1974

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

NOV. 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 0.5 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	295 ^K	A	B	B	A	A	B	300	280	280	280	270	280 ^H	280	260	230	210	200 ^H	160	120	100	100	
2	305 ^K	A	A	B	B	B	A	B	A	290	290	290	300	300	280	280	260	260	220	180	175	120	C	A	
3	95	250 ^K	280 ^K	180	180 ^A	210 ^H	250	A	270	A	285	300	B	B	305 ^U	290 ^R	260	250 ^U	240	B	B	B	A	A	
4	120	B	A	U ^K 320	240 ^K	220 ^H	225 ^H	250	265	270	295	300	310	295	285	290	265	240 ^H	220	200 ^H	170	115	U ^A 95	A	
5	C	140	A	U ^R 275	A	380 ^K	280 ^K	245	260	280	300	290	300	300	300	290	275	250	230	220	165	A	B	B	
6	B	B	B	B	B	B	B	B	A	A	U ^B 310	A	310	305	290	280	275 ^A	275	220	A	200 ^H	230 ^K	A	210 ^K	
7	180	U ^K 265	U ^K 290	U ^K 240	180 ^F	220	U ^F 220	250	A	U ^R 280	U ^R 290	295	295	280	280	B	A	U ^A 250	U ^A 240	220	195 ^H	330 ^K	320 ^K	U ^K 270	
8	365 ^K	325 ^K	300 ^K	310 ^K	A	A	A	A	290	265	270	295	300	300	285	270	260	240	210	B	B	B	370 ^K	250 ^K	
9	B	B	B	A	A	A	285 ^K	B	B	A	B	A	B	B	B	280	C	R	320 ^K	275 ^K	280 ^K	300 ^K	280 ^K	320 ^K	
10	A	U ^K 280	A	B	B	B	B	B	B	B	B	B	310	B	B	B	B	230	215 ^R	180	150	130	160	310 ^K	
11	U ^K 330	A	B	B	B	B	270	290 ^A	290	300	280 ^H	B	B	B	B	B	310	B	B	170	U ^K 350	A	A	450 ^K	
12	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	R	B	420 ^K	355 ^K	350 ^K	140	B	B	
13	A	A	220 ^K	B	B	270 ^K	A	B	A	B	B	B	B	B	R	B	295	240	210	U ^K 300	A	A	B	A	
14	260 ^K	A	B	B	260 ^K	270 ^K	B	B	B	B	B	A	B	B	B	B	A	B	310 ^K	220	245 ^K	150	150	200	
15	230 ^K	220 ^K	280 ^K	280 ^K	290 ^K	280 ^K	230	240	260	265	280	280	280	270	265	265 ^U	250	B	B	220	180	170	195	300 ^K	
16	305 ^K	160 ^A	320 ^K	B	A	A	A	310	310	A	A	B	B	B	B	B	B	250	B	240 ^F	225 ^H	350 ^K	350 ^K	330 ^K	
17	A	280 ^K	350 ^K	A	A	B	B	B	B	A	350	290	270	280	280	260	B	B	270 ^K	330 ^K	340 ^K	330 ^K	U ^K 340	320 ^K	
18	U ^K 290	U ^K 270	A	200	A	A	A	A	A	A	280	Y	275	275	U ^C 275	U ^A 270	250	245	210	190	165	A	230 ^K	340 ^K	
19	350 ^K	U ^K 325	U ^K 260	230 ^K	A	A	A	A	A	A	280	280	280	280	U ^R 280	275	270	260	230	200	285 ^K	405 ^K	280 ^K	360 ^K	
20	320 ^K	U ^A 180	A	B	U ^A 220	195	B	A	320	280	280	280	280	275	U ^A 260	U ^R 275	B	250	230	B	270 ^K	360 ^K	345 ^K	A	
21	265 ^K	A	U ^K 225	B	B	B	A	C	A	A	280	B	B	B	B	B	B	240	U ^K 280	A	225	360 ^K	360 ^K	A	
22	B	B	B	B	B	260 ^K	330 ^K	B	A	B	B	B	B	B	B	B	B	265 ^R	255	250	B	225	280 ^K	190	355 ^K
23	350 ^K	A	A	B	B	A	A	A	280	R	B	290	U ^R 290	B	B	B	B	U ^B 265	B	B	170	200 ^H	B	360 ^K	
24	B	A	275 ^K	B	A	B	A	A	B	R	300	B	B	280 ^H	B	B	270 ^R	260	B	370 ^K	U ^R 215	B	320 ^K	A	
25	160 ^A	B	B	B	A	A	A	A	A	B	B	B	B	B	C	C	R	250 ^H	215	300 ^K	225	330 ^K	265 ^K	250 ^K	
26	380 ^K	B	B	B	B	B	B	A	A	270	280	290	B	B	B	280	270	B	R	A	360 ^K	U ^K 325	185	380 ^K	
27	B	B	A	A	B	B	A	290	320	280 ^H	290	B	B	U ^R 300	A	B	B	B	B	210	190	170	U ^H 150	165	
28	U ^F 180	U ^K 260	A	250 ^K	A	B	370 ^K	260	A	B	B	290	280	305 ^H	290 ^H	295	265	R	B	225	215 ^R	170	120	115	
29	130	130	170 ^H	A	A	280 ^K	270 ^H	255	275	300	300	300	280	A	A	280	A	A	245	A	A	A	120	A	
30	A	A	A	170 ^A	A	A	A	A	A	B	C	B	A	A	A	A	A	A	A	250	230	190 ^R	175	130	
31																									
CNT	18	13	12	10	6	10	10	9	11	12	19	15	16	15	14	16	16	19	22	21	26	22	22	19	
MED	278 ^K	260 ^K	280 ^K	245 ^K	230	265 ^K	270	255	280	280	285	290	285	280	280	280	265	250	230	220	215	215	212	310 ^K	
UQ	330 ^K	U ^K 280	U ^K 298	280 ^K	260 ^K	280 ^K	285 ^K	290	300	295	298	295	300	300	290	285	272	258	250	275 ^K	270 ^K	330 ^K	320 ^K	348 ^K	
LQ	180	180	242 ^K	200	180 ^A	220	230	250	268	270	280	285	280	278	280	272	260	240	215	200	175	150	150	230 ^K	

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NOV. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

NOV. 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 0.5 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		35	55	36	J A 64	B	B	48	33	E B 35	G	G	35	31	29	G	G	G	G	G	G	G	13	12	10	13
2		34	45	38	B	B	45	J A 46	46	34	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E C 20	J A 32
3		G	30	K 28	27	J A 36	G	J A 41	45	43	32	G	G	E B 35	E B 42	G	G	G	G	27	E B 24	E B 18	E B 16	14	14	
4		28	60	49	J A 41	K 24	J A 36	J A 53	80	G	G	44	G	G	31	G	27	30	G	G	G	J A 35	G	10	11	13
5		J A 36	20	30	33	43	47	46	35	G	G	G	G	G	G	J A 39	G	G	G	J A 38	31	24	24	E B 20	E B 16	
6		90	42	42	42	47	47	45	42	57	51	G	32	G	G	G	G	30	G	G	38	28	31	J A 52	28	
7		26	J A 36	31	30	25	J A 60	39	44	40	G	41	35	87	J A 61	36	49	30	30	45	36	G	33	42	33	
8		K 36	36	K 30	K 31	34	41	51	49	41	G	G	34	J A 46	33	31	J A 30	J A 29	55	G	E B 24	E B 27	E B 25	57	45	
9		94	67	137	J A 52	78	40	K 28	B	B	49	B	33	B	F B 34	E B 33	34	C	G	J A 111	K 27	35	30	K 28	K 32	
10		47	32	35	55	B	51	69	52	B	B	B	E B 43	G	B	B	E B 32	E B 30	G	G	G	G	20	32	31	
11		J A 64	J A 39	B	50	44	41	40	57	42	G	G	B	E B 49	E B 45	E B 35	E B 40	G	R	38	J A 43	K 35	79	J A 82	J A 51	
12		J A 62	B	41	40	B	94	40	B	43	B	B	B	E B 35	B	E B 43	E B 34	G	E B 30	42	J A 42	J A 42	J A 40	B	78	
13		35	48	J A 36	B	36	K 27	68	35	33	B	B	B	R	B	G	32	G	G	G	32	J A 40	40	B	123	
14		43	J A 29	42	B	31	29	B	B	46	B	B	34	B	B	E B 31	G	32	R	K 32	28	30	22	45	J A 30	
15		31	26	K 28	K 28	K 29	K 28	G	31	G	G	G	31	34	36	34	G	G	E B 44	G	G	J A 40	28	J A 35	K 30	
16		K 33	21	K 32	B	41	36	46	41	J A 35	37	36	B	E B 40	F B 43	E B 52	E B 64	B	28	E B 32	30	G	K 35	82	39	
17		36	J A 41	39	53	42	B	B	118	99	J A 54	G	G	G	G	G	G	E B 30	E B 39	33	K 33	34	35	J A 54	37	
18		33	32	J A 40	31	44	51	43	38	44	35	G	G	31	G	C	30	G	G	J A 50	G	24	33	25	36	
19		K 35	J A 35	J A 31	41	35	J A 51	53	35	43	40	J A 41	G	G	34	G	G	G	24	J G 26	33	39	K 40	J A 35	K 36	
20		K 32	47	52	51	J A 62	30	B	48	43	G	G	G	35	J A 41	J A 36	G	E B 43	30	J A 53	B	30	K 36	100	46	
21		30	34	30	42	R	35	43	C	42	J A 36	G	E B 45	R	E B 43	B	B	E B 51	G	34	40	31	K 36	K 36	J A 96	
22		78	B	46	50	B	32	37	B	44	B	R	E B 39	B	B	B	B	G	31	31	E B 30	32	31	25	35	
23		39	45	47	B	E B 28	44	45	43	32	G	E B 35	G	G	E B 40	E B 33	E B 31	E B 42	30	B	E B 28	J A 22	18	B	K 36	
24		51	J A 36	K 27	49	37	38	J A 49	38	B	G	42	E B 35	E B 34	G	E B 35	E B 33	G	G	B	K 37	26	B	K 32	37	
25		18	38	B	B	J A 101	40	37	42	61	B	B	B	B	B	C	C	G	30	G	K 30	27	K 33	J A 31	J A 31	
26		K 38	B	B	B	35	B	B	J A 47	35	G	G	G	E B 32	B	E B 46	G	G	E B 46	G	36	K 36	38	24	K 38	
27		46	B	54	J A 57	B	B	34	35	G	G	G	E B 51	E B 36	G	32	E B 36	E B 39	E B 30	E B 26	25	J A 32	G	J A 24	25	
28		22	31	39	K 25	38	E B 32	K 37	43	J A 44	B	E B 51	G	31	G	G	G	G	G	27	26	28	26	25	19	
29		G	20	18	J A 54	38	30	28	J A 32	36	39	33	36	J A 74	35	40	35	J A 61	J A 44	29	J A 34	J A 40	J A 44	J A 41	J A 29	
30		J A 28	J A 27	J A 44	J A 23	J A 46	58	J A 63	68	69	42	C	38	38	J A 58	J A 74	77	52	36	29	30	24	G	G	J A 39	
31																										
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT		30	26	27	23	23	26	26	25	27	23	22	25	24	23	25	27	28	28	28	29	30	29	27	30	
MED		35	36	38	41	38	40	44	43	42	G	G	E G 32	E G 35	E G 34	E G 32	E G 30	E G 24	E G 28	28	30	29	31	32	34	
UQ		46	45	43	50	44	47	49	48	44	38	34	34	36	U 38	E B 36	U 32	U 28	30	36	34	35	36	44	39	
LQ		30	30	30	31	34	32	37	35	34	G	G	G	G	G	G	G	G	G	G	E G 24	23	19	24	29	

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NOV. 1974

FOES (0.1 MHz)

IONOSPHERIC DATA

NOV. 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 0.5 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	20	11	21	15	B	B	22	23	35	24	15	12	13	13	12	11	13	11	E ₁₁ C	12	11	9	8	9	
2	10	14	17	B	B	30	18	39	16	12	18	11	12	13	12	12	11	14	13	10	12	9	E ₂₀ C	9	
3	8	15	27	10	9	9	12	25	21	15	16	25	35	42	26	25	20	23	15	24	18	16	9	9	
4	9	27	16	12	12	10	9	10	10	11	11	13	11	12	12	15	11	11	E ₁₂ C	9	9	9	9	8	
5	E ₁₂ C	9	14	15	18	18	10	9	10	E ₁₂ C	10	13	11	10	11	10	13	11	10	10	13	13	20	16	
6	18	20	28	28	27	31	27	25	23	24	31	28	21	20	16	16	16	20	12	12	14	13	12	10	
7	10	10	11	10	10	15	11	10	11	20	20	10	14	9	13	31	15	10	10	10	E ₁₁ C	12	E ₁₈ C	11	
8	10	13	11	10	25	19	18	13	10	10	10	14	17	14	13	13	12	9	10	24	27	25	15	14	
9	35	26	30	11	10	15	10	B	B	25	B	23	B	34	33	14	C	11	10	10	12	10	23	9	
10	10	12	13	41	B	40	46	26	B	B	B	43	27	B	B	32	30	15	15	17	11	11	9	10	
11	10	10	B	24	36	28	15	18	13	25	11	B	49	45	33	40	16	B	26	9	9	9	24	9	
12	10	B	11	13	B	38	27	B	29	B	B	B	35	B	43	34	17	30	12	14	18	9	B	22	
13	17	10	9	B	24	15	22	29	26	B	B	B	B	B	22	29	20	11	12	11	9	10	B	10	
14	11	9	26	B	10	11	B	B	27	B	B	25	B	B	31	27	16	B	11	E ₁₁ C	9	9	9	9	
15	9	9	10	10	23	19	9	9	12	17	21	21	16	14	10	25	20	44	26	21	15	13	9	15	
16	12	10	22	B	22	21	16	17	12	17	28	B	40	43	52	64	B	21	32	11	12	10	16	25	
17	21	22	26	29	22	B	B	37	39	15	22	13	12	13	12	10	30	39	11	21	12	10	E ₂₀ C	10	
18	10	9	10	10	18	21	24	12	15	16	13	17	11	18	C	16	15	13	10	10	10	E ₁₉ C	9	9	
19	9	9	9	9	9	14	E ₁₆ C	20	15	11	10	11	10	10	11	10	14	9	11	9	10	9	E ₁₀ C	9	
20	14	12	15	24	11	10	B	22	16	10	11	12	10	10	10	16	43	13	11	B	13	10	11	21	
21	20	15	10	38	B	26	23	C	14	15	18	45	B	43	B	B	51	14	27	10	12	10	E ₁₇ C	12	
22	29	B	23	19	B	13	27	B	24	B	B	39	B	B	B	B	16	16	12	30	13	10	13	9	
23	12	23	11	B	28	23	22	20	14	24	35	14	23	40	33	31	42	26	B	28	12	15	B	22	
24	21	15	8	28	14	28	E ₂₂ C	25	B	24	20	35	34	18	35	33	23	12	B	10	12	B	15	21	
25	12	24	B	B	9	24	15	22	21	B	B	B	B	B	C	C	22	10	10	11	10	9	17	16	
26	26	B	B	B	24	B	B	16	13	18	11	12	32	B	46	22	11	46	11	14	9	8	11	11	
27	22	B	11	21	B	B	11	11	12	10	10	51	36	26	21	36	39	30	26	14	10	9	10	9	
28	9	15	11	12	23	32	12	15	11	B	51	20	13	13	12	11	14	23	26	21	15	21	10	10	
29	10	9	10	13	13	12	9	E ₁₄ C	10	10	13	13	12	21	11	11	10	13	9	10	10	10	9	9	
30	10	9	9	9	9	9	E ₁₀ C	10	9	36	C	31	22	15	14	15	11	11	12	16	14	10	10	9	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	29	30	30	29	30	30	30	28	29	29	30	30	30	30	30	30	30	30
MED	12	14	14	20	22	21	18	20	15	19	20	22	22	20	18	22	16	14	12	12	12	10	11	10	
UQ	20	23	26	41	36	31	27	26	26	36	51	43	40	45	34	32	23	26	26	21	13	13	20	15	
LQ	10	10	10	11	11	14	11	12	12	12	11	13	12	13	12	13	13	11	10	10	10	9	9	9	

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NOV. 1974

F-MIN (0.1 MHz)

IONOSPHERIC DATA

NOV. 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 0.5 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	A	B	B	250	250	270	270	280	275	270	270	280	295	305	320	330	320	320	330	295	F
2	R	A	F	B	B	A	F	R	F	F	285	275	285	285	280	290	305	310	320	325	325	315	310	320
3																								
4	F	A	A	F	265	265	250	265	260	255	250	260	275	270	295	250	320	335	305	325	315	315	295	290
5	F	F	F	F	260	250		F	F	F	285	260	275	295	280	290	305	315	330	335	340		F	F
6	A	A	A	A	A	A	A	A	A	A	260	245	255	250	270	275	270	265	F	290	315	310	305	280
7	F	F	F	F	F	F	F	F	F	265	F	275	270	260	F	295	295	305	305	330	310	R	F	275
8	300	R	F	F	A	300	A	A	245	260	265	255	265	275	270	300	315	305	315	315	325	310	A	F
9	A	A	A	F	A	310	F	B	B	A	B	R	R	F	F	F	C	G	F	335	315	280	R	R
10	A	R	R	B	B	B	B	A	B	B	B	260	R	B	B	F	255	295	285	290	305	310	R	R
11	A	F	B	A	B	R	255	255	245	265	280	B	R	285	280	240	240	B	F	F	R	A	A	A
12	F	B	A	A	B	B	A	B	R	B	B	B	R	B	235	R	230	R	F	275	A	F	B	A
13	F	A	F	B	A	F	R	R	R	B	B	B	R	B	F	F	285	300	340		A	A	B	A
14	265	F	A	B	F	305	B	B	A	B	B	R	R	B	225	230	R	R	275	F	265	325	295	295
15	275	270	F	F	325	255	F	280	265	285	275	275	270	250	270	275	295	R	315	315	325	315	295	295
16	R	270	265	B	R	250	260	F	285	245	F	B	F	F	F	R	B	F	R	305	315	315	A	A
17	R	275	R	A	R	B	B	A	A	A	R	C	R	240	260	250	265	265	320	305	295	R	A	A
18	A	265	250	F	A	A	A	F	240	255	270	250	270	285	C	270	300	300	315	325	315	305	305	A
19	A	F	F	F	F	A	F	225	F	F	F	F	275	285	300	285	295	300	305	300	230	F	265	R
20	295	F	A	A	F	235	B	A	G	G	F	245	260	260	265	255	275	305	305	B	290	F	285	A
21	270	R	280	B	B	300	F	C	240	255	260	255	B	245	B	B	300	305	355	R	310	F	290	A
22	A	B	A	A	B	F	R	B	R	B	B	R	B	B	B	B	F	275	F	330	330	290	305	F
23	270	A	A	B	330	A	A	A	235	255	250	255	265	270	275	290	300	305	B	325	285	300	B	290
24	A	R	F	A	R	R	A	R	B	R	F	R	260	245	260	285	265	285	B	F	325	B	F	A
25	F	R	B	B	F	A	R	R	A	B	B	B	B	B	C	C	290	290	290	285	290	320	F	310
26	R	B	B	B	A	B	B	R	250	270	260	255	255	B	270	270	270	300	R	A	285	335	310	335
27	A	B	A	A	B	B	255	275	270	285	250	280	275	280	265	285	310	300	320	330	330	285	290	F
28	305	F	255	255	290	R	265	245	250	B	265	270	270	265	285	295	290	305	325	320	320	340	315	320
29	300	S	F	F	F	F	F	F	265	265	275	280	285	285	290	285	285	310	320	325	335	325	320	335
30	295	F	S	S	S	F	260	275	265	260	270	275	275	285	290	305	300	315	325	325	335	340	340	325
31																								
CNT	10	5	5	1	5	10	7	8	15	15	16	18	18	21	21	23	25	23	20	23	26	19	16	12
MED	295	270	265	255	290	278	255	260	250	260	268	260	270	270	275	285	295	305	315	325	315	315	300	302
UQ	300	270	275		325	300	260	275	265	268	278	275	275	285	280	290	300	308	322	328	325	325	310	322
LQ	270	270	255		265	250	252	248	242	255	260	255	265	260	265	262	270	292	305	305	295	308	292	290

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NOV. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

NOV. 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 0.5 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 A 460	400	375	385	355	370	400	400	375	L	L	L	L					
2							395	A	380	330	350	395	350	370	365	370	310	L	L	240				
3					330	340	U H 330	350	350	330	340	360	320	320	L	L	L	275	L					
4					L		430	400	400	415	400	375	370	380	320	290	L	260	L					
5							410	350	385	350	330	390	355	300	L	310	L	250	L					
6							A	A	A	A		420	475	470	470	405	395	380	390	405	F			
7							F	390	400	395	390	400	375	400	410	330	305	305	L	L				
8							A	A	470	430	380	405	400	345	380	305	290	290	230	L				
9					350		F	B	B	A	B	R	B	500	470	460	C	G						
10					B	B	A	B	B	B	B	B	Y	B	B	490	470	350	350	L				
11							425	A	460	400	375	B	B	380	380	490	530	B						
12							A	B	A	B	B	B	R	B	480	R	565	R						
13							R	R	R	B	B	B	R	B	F 460	330	400	L	360					
14							B	B	A	B	R	R	R	B	U H 525	510	R	B	390	360	F			
15							420	375	350	355	340	350	395	425	470	400	395	310	B	L	L			
16					455	420	U F 495	430	520	445	B	B	450	U F 430	B	B	B	395	R	L				
17					B	B	A	A	A	R	U F 700	L	L	480	475	405	430							
18					A	A	U F 515	500	450	425	390	400	375	I G 385	395	325	300	L						
19					F 340	A	F	600	F 480	F 410	365	345	390	365	325	350	330	300	300					
20					500	B	A	G	G		500	510	430	435	415	400	350	L	L					
21					L	F 540	C	510	435	400	425		425	B	B	B	E B 360	340						
22					F	R	B	A	B	B	R	R	B	B	B	B	375	380				L		
23					A	A	A	530	440	450	R 430	380	380	370	340	300	305	B						
24					A	A	R	B	R	F	R	R	500	470	340	375	325	B						
25					A	A	A	A	B	B	B	B	B	B	C	C	325	350	L					
26					B	B	A	445	385	415	400	420	B	400	380	390	310	R						
27					B	450	U F 380	370	345	L	B	380	380	415	355	305	310	L	270		L	L		
28					R	410	465	470	B	405	380	405	395	340	320	330	305	260						
29				L	U F 360	360	295	380	365	390	375	340	340	340	330	350	320	280	260	250	250			
30					305	295	300	285	315	340	330	I C 350	330	330	300	320	300	L	290	275	L	250	230	225
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				3	5	7	14	14	20	19	20	19	19	22	23	23	22	21	9	4	2	1	1	
MED				360	340	350	406	400	415	390	390	390	400	380	385	355	335	310	300	260	250	230	225	
UQ				385	360	438	428	480	475	432	418	415	412	430	438	398	390	350	360	315				
LQ				332	330	320	380	350	378	348	350	372	362	365	352	325	310	290	260	245				

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NOV. 1974

H^oF₂ (KM)

IONOSPHERIC DATA

NOV. 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 **0.5** 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	A	B	B	A	290	B	240	210	205 ^H	225	225	200	225	230	230	230	240	235	250	245	240
2	A	A	A	B	B	A	A	A	230	210	200 ^H	200	205 ^H	220	205	200	225	225	225	230	240	240	235	245
3	245	310	380	350	270	240	225	250	210	200 ^H	210	215	240	220	220	210	220	230 ^H	230	250	245	245	240	250
4	280	A	A	450	315	260	230	225 ^H	220	220	200	215	225	210 ^H	230	205	225 ^H	225	200	230	245	250	245	250
5	290	340	350	390	E 440 ^A	460	290	220	210 ^H	200	225	210	215 ^H	215 ^H	225	205	225	225	225	240	240	240	250	250
6	A	A	A	A	A	A	A	A	A	A	260	300	230	225	220	210	240	260	265	360	265	290	300	325
7	330	350	350	260	U 250 ^H	F	250	240	220	200	285	220	200 ^H	240 ^A	225	A	205	225	240	250	250	R	A	350
8	355	A	355	340	A	A	A	A	250	200	205	230	225	245	210	215	215	210	225	230	250	255	A	290
9	B	A	A	A	A	A	215	B	B	A	B	R	B	270	E 250 ^B	240	C	R	U 250 ^F	265	325	400	R	R
10	A	A	R	B	B	B	B	A	B	B	B	B	E 300 ^Y	B	B	250	250	230 ^H	240	230	245	255	A	R
11	A	U 360 ^F	B	A	R	A	350	275	A	250	230 ^H	B	B	B	B	B	310	B	F	U 270 ^F	R	A	A	A
12	400 ^A	B	A	A	B	B	A	B	A	B	B	B	260	B	B	B	220	240	F	430 ^A	A	F	B	A
13	A	A	U 335 ^F	B	A	220	A	A	R	B	B	B	B	B	220 ^H	240	300 ^F	230	240	250	A	A	B	A
14	390	240	A	B	F	A 350	B	B	A	B	B	E 255 ^A	B	B	260	265	A	B	A	250	400	250	300	305
15	370 ^A	360	350	355	375	A	250	240	220	220	200	210	195 ^H	200	205	220	230	R	255	240	260	250	280	350
16	R	380	390	B	A	A	A	275	230	250	A	B	B	B	B	B	B	B	B	265	245	310	A	A
17	A	375	A	A	A	B	B	B	B	A	R	195 ^H	210	200	230	220	240	R	260	355	350	R	A	A
18	A	420	450 ^A	A	A	A	A	A	E 310 ^A	245	200	Y	200	200 ^H	I 205 ^C	220	230	220	240	240	225	E 335 ^A	350	A
19	A	F	380	F	260	A	A	230	315 ^A	235	210	200	200	200 ^H	230	210	225	230	230	250	550	305	385 ^A	R
20	360	U 300 ^F	A	A	U 250 ^H	255	B	A	330	225	210	220	215	220	230	225 ^H	B	200 ^H	250 ^F	B	375	380	355	A
21	430	A	340	B	B	A	250	C	A	230 ^A	220	B	B	B	B	B	B	230	250	A	315	U 300 ^F	375	A
22	B	B	A	A	B	U 275 ^F	A	B	A	B	B	B	B	B	B	B	240	225	F	250 ^B	250	350	280	F
23	440 ^A	A	A	B	270	A	A	A	240	275	E 245 ^B	200 ^H	240	B	210	225	I 230 ^B	225	B	230	250	255	B	380
24	A	A	320	A	A	A	A	A	B	R	250	220	U 200 ^B	220	230	220	220	230	B	F	250	B	350	A
25	300	A	B	B	300	A	A	A	A	B	B	B	B	B	C	C	230	225	220	280	270	315	275	330
26	R	B	B	B	A	B	B	A	225	245 ^Y	220	210	230	B	B	220	215	B	300	A	370	250	250 ^H	250
27	A	B	A	A	B	B	A	A	230	200	210	B	225	215	230	E 250 ^B	B	225	225	230	230	250	250	265
28	255	330	A	315	A	B	A	240	A	B	B	205	215	200	225	210	220	220	240	230	250	240	250	255
29	275	250	275	U 360 ^F	A	290	245	235	205	245	225	210 ^H	205 ^H	220	200	210	215	225	215 ^H	220	230	230	245	245
30	260	270	290 ^A	250	250	A	220 ^A	220	215	A	C	250	E 245 ^A	200 ^A	A	A	220	215	225	225	230	225	225	250
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	15	13	13	9	10	8	10	12	16	18	19	19	22	19	21	22	24	24	23	26	27	24	20	17
MED	330	340	350	350	268	268	248	240	225	228	210	210	218	220	222	220	225	225	240	245	250	251	262	255
UQ	380	360	380	360	308	320	250	262	240	245	226	220	228	222	230	225	235	230	250	265	292	310	325	325
LQ	278	300	335	315	250	248	225	228	218	200	208	205	205	200	210	210	220	225	225	230	242	248	245	250

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NOV. 1974 H * F (KM)

IONOSPHERIC DATA

NOV. 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 **0.5 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	100	150 ^K	100	B	B		110	125	B	G	G	110	110	110	G	G	G	G	G	100	100	100	130			
2	120 ^K	105	115	B	B		110	100	115	105	G	G	G	G	G	G	G	G	G	G	G	G	C	130			
3	G	150 ^K	160 ^K	150	100	G		135	105	130	105	G	G	B	B	G	G	G	G	140	B	B	B	125	125		
4	150	120	100	100	115 ^K	100	120	100		G	G	120	G	G	G	110	100	130	G	G	G	100	100	100	130		
5	100	110	125	120 ^K	115	110 ^K	110 ^K	170		G	G	G	G	G	G	G	105	G	G	100	100	120	130	B	B		
6	130	115	115	120	110	120	115	110	105	105		G	120	G	G	G	G	110	G	G	110	145	135 ^K	125 ^K	120 ^K		
7	130 ^K	105 ^K	110 ^K	150 ^K	130	175	140	100	100	G		150	120	165	110	105	105	100	100	100	100	G	115 ^K	110 ^K	115 ^K		
8	115 ^K	120 ^K	115 ^K	100 ^K	130	110	105	100	100	G		G	125	120	120	120	110	110	115	G	B	B	B	150 ^K	190 ^K		
9	120	110	180	120	150	110	105 ^K	B	B		100	B	105	B	B	B	165	C	G	180 ^K	100 ^K	105 ^K	105 ^K	145 ^K	105 ^K		
10	150	110 ^K	100	110	B		115	105	100		B	B	B	B	B	B	B	B	G	G	G	G	125	125	105 ^K		
11	150 ^K	100	B	100	135	120	105	110	105	G		G	B	B	B	B	B	G	R	150	170	100 ^K	185	140	125 ^K		
12	100	B	120	100	B	140	120	B	120	B	B	B	B	B	B	B	B	G	R	100 ^K	150 ^K	150 ^K	135	B	115		
13	110	100	100 ^K	B	100	100 ^K	180	105	110		B	B	B	B	B	G	180	G	G	G	130 ^K	100	100	B	100		
14	115 ^K	100	125	B	150 ^K	100 ^K	B	B		100	B	B	110		B	B	B	G		105	B	105 ^K	150	100	125	100	110
15	110 ^K	100 ^K	105 ^K	100 ^K	130 ^B	125 ^K	G	130		G	G	G	115	110	115	110		G	G	R	G	G	125	140	115	120 ^K	
16	110 ^K	120	130 ^K	B	110	110	100	180	150	100	125	B	R	B	B	B	B	R		170	B	150	G	110 ^K	125 ^K	180 ^K	
17	125	160 ^K	160 ^K	100	100	B	B	145	100	100	G	G	G	G	G	G	G	B	B	105 ^K	125 ^K	125 ^K	120 ^K	150 ^K	140 ^K		
18	105 ^K	100 ^K	100	120	125	105	125	100	100	100	G	G	100	G	C	100	G	G	150	G	140	120	170 ^K	105 ^K			
19	100 ^K	100 ^K	100 ^K	150 ^K	150	100	105	110	100	100	100	G	G	100	G	G	100	G	100	100	100	105 ^K	100 ^K	105 ^K	105 ^K		
20	125 ^K	150	100	100	100	135	B	100	100	G	G	G	110	105	105	G	B	150	140	B	180 ^K	110 ^K	180 ^K	100			
21	120 ^K	110	140 ^K	135	B	125	100	C	100	100	G	B	B	B	B	B	B	B	G	200 ^K	100	150	100 ^K	110 ^K	100		
22	100	B	95	100	B	130 ^K	140 ^K	B	100	B	B	B	B	B	B	B	B	G	150	145	B	100	100 ^K	150	100 ^K		
23	150 ^K	115	100	B	B	100	105	100	100	G	B	G	G	B	B	B	B	B	150	B	B	135	145	B	125 ^K		
24	100	100	100 ^K	100	95	100	100	100		B	G	125	B	B	G	B	B	G	G	B	100 ^K	170	B	100 ^K	125		
25	130	100	B	B	120	100	105	100	170	B	B	B	B	B	B	C	C	G	140	G	105 ^K	105	100 ^K	130 ^K	150 ^K		
26	125 ^K	B	B	B	110	R	B	100	100	G	G	G	B	B	B	G	G	R	G	110	105 ^K	100 ^K	135	115 ^K			
27	105	B	100	100	B	B	100	100	G	G	G	B	B	G	105	B	B	B	B	145	100	G	105	170			
28	145	125 ^K	100	105 ^K	115	B	100 ^K	110	100	B	R	G	110	G	G	G	G	G	F	165 ^G	150	130	120	115	115		
29	G	180	105	130	100	110 ^K	100	95	100	125	120	110	105	100	100	100	130	100	100	100	100	115	105	105	100		
30	100	100	100	100	100	100	115	100	100	125	C	115	105	100	100	100	100	100	100	100	100	130	G	G	110		
31																											
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	28	26	27	23	22	24	25	25	22	10	6	9	9	8	8	9	8	9	16	19	24	24	24	29			
MED	120	110	105	100	115	110	105	100	100	100	122	115	110	108	105	105	108	140	U	114	110	118	112	125	115 ^K		
UQ	130	120	125 ^K	120	130	122	120	110	105	105	125	120	110	112	110	110	120	150	149	148	138	128	142	130 ^K			
LQ	105	100	100	100	100	100	100	100	100	100	120	110	105	100	102	100	100	100	100	100	100	100	100 ^K	105	105		

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NOV. 1974

H⁺ES (KM)

IONOSPHERIC DATA

NOV. 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 **0.5 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 ₂	HK ₁₁	R ₁			R ₁	R ₁				C ₁	C ₁	C ₁								L ₁	L ₁	L ₁	HL ₁₁	
2	RK ₃₃	R ₂	R ₂			R ₁	L ₁	L ₁	R ₁																H ₁	
3		HK ₁₁	K ₁	H ₁	CR ₁₁		HS ₁₁	L ₁	C ₁	R ₁								H ₁					C ₁	C ₁		
4	H ₁	R ₁	R ₂	RK ₂₁	KA ₁₁	LC ₁₁	C ₁	L ₁			C ₁				C ₁	L ₁	H ₁				L ₁	L ₁	L ₁	R ₁		
5	L ₁	R ₁	R ₁	RKL	R ₁	RK ₁₁	RK ₂₁	H ₁								LC ₁₁			L ₁	LH ₁₁	C ₁	C ₁				
6	AA ₁₁	R ₁	R ₁	R ₁	R ₁	R ₁	R ₁	R ₁	R ₁	R ₁		C ₁					C ₁			R ₁	R ₁	CK ₂₁	C ₂	RK ₂₁		
7	RKL	LK ₃₃	BK ₂₂	CK ₁₁	C ₁	HH ₁₁	H ₁	LH ₂₁	L ₁		H ₁	C ₁	HH ₁₁	C ₃	C ₁	L ₁	L ₂	C ₁	L ₃	L ₃		K ₁	RK ₂₁	RK ₂₁		
8	K ₃	RK ₃₃	K ₂	K ₂	C ₁	R ₁	RH ₁₁	R ₂	RH ₂₁			C ₁	C ₂	C ₁	C ₁	C ₁	C ₁	L ₁					HK ₁₂	HK ₁₁		
9	R ₁	LR ₁₁	HHR ₁₁	RL ₁₁	RR ₁₁	RL ₁₁	K ₁			R ₁		R ₁				H ₁			HK ₁₁	K ₁	RK ₁₁	K ₂	K ₁	K ₁		
10	RR ₁₁	RKL	R ₁	L ₁		R ₁	L ₁	R ₁														H ₁	R ₃	K ₁		
11	HK ₁₂	R ₁		L ₁	R ₁	R ₁	R ₁	L ₁	R ₁										A ₁	AA ₁₁	KS ₂₁	AR ₁₁	HR ₁₁	CK ₁₃		
12	CC ₃₁		RL ₁₁	R ₁		H ₁	R ₁		R ₁										K ₂	HK ₁₁	HK ₁₁	HA ₁₁		RL ₁₁		
13	CL ₁₁	RH ₁₁	LKA ₁₁		L ₁	K ₁	HR ₁₁	L ₁	R ₁							H ₁				HK ₁₁	BS ₂₁	R ₁		C ₁		
14	CKL ₁₂	L ₂	C ₁		HKL ₁₁	RK ₁₁			L ₁		R ₁						R ₁			RK ₁₁	CR ₁₁	RK ₂₁	H ₁	LH ₁₁	C ₂	
15	CK ₃₃	RK ₁₂	K ₂	K ₂	K ₁	K ₁		C ₁				C ₁	C ₁	C ₁	C ₁							C ₂	H ₁	C ₃	K ₁	
16	RK ₂₂	R ₁	RKL		R ₁	R ₁	R ₁	HR ₁₁	H ₁	R ₁	R ₁							H ₁		H ₁		KS ₂₁	CK ₁₁	HK ₁₁		
17	R ₁	CK ₁₁	HK ₁₁	R ₁	LR ₁₁			HR ₁₁	RR ₁₁	L ₁										RK ₁₁	K ₁	K ₃	K ₃	HK ₁₁	HK ₁₁	
18	RK ₁₁	RK ₁₁	R ₁	BL ₂₂	RL ₁₁	R ₁	RL ₁₁	R ₁	R ₁	R ₁			C ₁			C ₁				HHL		H ₁	R ₁	HK ₁₂	RK ₃₃	
19	K ₂	RK ₂₁	RK ₂₁	RK ₁₂	RC ₁₂	R ₂	R ₂	RR ₁₁	LR ₁₁	R ₁	L ₁			L ₁			L ₁		L ₂			RK ₁₁	K ₃	RK ₂₁	KS ₃₁	
20	K ₂	RR ₁₁	R ₂	R ₁	R ₁	R ₁		L ₁	R ₁				C ₁	C ₂	C ₁			H ₁	H ₁			CK ₁₁	K ₃	HK ₁₂	R ₁	
21	RK ₁₁	R ₁	RKR ₁₁	R ₁		R ₁	R ₁		R ₁	R ₁										HK ₁₁	RS ₁₁	R ₁	K ₃	K ₄	LRR	
22	L ₁		L ₁	L ₁		CK ₁₁	HK ₁₁		L ₁										H ₁	H ₁			L ₁	RK ₁₁	H ₁	K ₃
23	HK ₁₂	R ₁	L ₁			R ₁	R ₁	R ₁	R ₁										H ₁				H ₁	C ₁		K ₁
24	R ₁	L ₁	K ₁	L ₁	LR ₁₁	L ₁	R ₁	R ₁			C ₁											K ₂	R ₁		K ₁	R ₁
25	CL ₁₁	L ₁			C ₁	L ₁	R ₁	R ₁	HR ₁₁										H ₁			RK ₁₁	RC ₁₁	K ₂	RK ₁₁	HK ₁₁
26	KL ₁₁				R ₁			R ₁	R ₁													R ₁	K ₃	RK ₁₁	R ₁	K ₂
27	L ₁		RH ₂₁	L ₁			R ₁	R ₁							C ₁						H ₁	LH ₁₁		LC ₁₁	R ₁	
28	RL ₁₁	RK ₁₁	R ₂	K ₁	R ₁		K ₂	R ₁	L ₁				C ₁							H ₁	H ₁	H ₁	C ₂	C ₂	C ₂	
29		H ₁	L ₁	RL ₁₁	R ₂	RK ₁₁	L ₁	L ₁	L ₂	CL ₁₁	C ₁	C ₁	C ₂	C ₁	L ₂	L ₁	H ₂	L ₂	CC ₁₁	L ₂	CL ₁₂	L ₂	L ₂	C ₃	C ₂	
30	L ₂	L ₂	L ₃	L ₂	L ₃	L ₄	AL ₁₃	AL ₁₂	L ₂	C ₁		C ₁	L ₁	L ₂	L ₂	L ₂	L ₂	L ₂	L ₂	L ₁	L ₁	H ₁			C ₂	
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT																										
MED																										
UQ																										
LQ																										

NOV. 1974

TYPES OF ES

IONOSPHERIC DATA

DEC. 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 0.5 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	X 58	S 60	S	B	R	78	R	85	87	88	X 83	X 86	X 83	X 82	X 84	X 74	X 68	X 61	X 61	X 67	X 61	X 62	R	X 42
2	R	47	S 62	60	52	46	A	49	B	B	R	R	B	O 54	62	66	82	85	66	59	A	56	53	O 57
3	O 50	50	58	54	A	R	A	A	A	58	60	50	52	53	57	64	71	72	68	56	54	48	69	A
4	A	A	A	O 43	B	70	R	R	50	B	B	B	62	62	O 57	X 56	X 57	59	X 60	X 59	X 56	X 52	50	46
5	46	50	47	49	59	68	70	76	X 75	76	X 73	68	55	54	51	50	52	58	62	55	F 43	41	F	F 40
6	R	O 44	U 50	B	R	O 47	R	O 47	56	65	67	59	X 54	X 54	X 57	X 57	X 57	X 62	X 66	X 60	X 58	X 52	X 52	X 53
7	X 53	X 58	X 58	S 50	60	70	S 72	80	83	75	66	62	X 63	X 67	X 65	67	72	70	X 68	67	54	43	45	41
8	X 48	O 42	O 52	52	49	55	R	57	65	61	61	53	48	X 61	62	66	64	X 59	54	49	R	42	46	A
9	A	S 60	A	A	O 41	52	A	R	R	R	47	R	O 50	R	72	69	R	O 45	R	60	83	66	A	A
10	R	55	A	A	R	R	B	B	R	O 43	B	B	O 49	56	61	X 61	X 61	R	R	43	X 42	46	45	R
11	R	R	52	R	A	B	47	B	B	B	O 48	B	B	B	B	B	O 50	B	A	X 48	X 46	R	R	A
12	A	A	O 47	B	B	B	A	R	R	B	B	B	C	C	61	67	R	O 47	R	51	X 43	X 46	49	46
13	O 39	B	O 39	R	A	A	A	A	X 51	O 50	X 50	X 52	X 58	63	O 69	O 69	O 56	X 55	R	X 41	52	50	65	R
14	B	B	B	A	B	B	A	B	B	B	R	B	B	R	B	O 58	61	X 61	56	X 52	X 46	45	46	X 49
15	O 42	R	R	A	O 52	O 48	58	61	O 52	R	B	O 59	B	B	B	68	O 67	X 53	58	R	50	O 45	X 47	R
16	O 46	B	R	R	O 52	56	67	69	69	X 71	X 70	X 70	O 74	X 73	71	63	63	61	X 55	X 51	X 48	O 44	O 47	46
17	47	50	53	B	B	O 53	R	R	O 53	66	68	65	60	60	62	X 63	X 56	X 56	X 57	X 52	O 52	A	A	R
18	A	67	A	41	A	R	O 52	O 52	R	R	C	C	C	C	C	C	C	C	C	C	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	59	O 56	50	O 48	B	B
20	A	A	54	53	63	A	R	R	A	R	B	B	B	O 51	B	B	B	54	B	52	58	X 44	X 50	R
21	O 46	B	R	R	R	R	45	R	R	O 48	52	53	X 56	B	O 49	O 52	X 60	X 52	53	X 51	O 44	X 43	O 52	B
22	R	R	A	B	B	B	B	R	B	B	O 50	O 47	R	O 51	R	O 52	X 56	O 61	62	52	O 44	X 46	X 43	X 46
23	A	A	A	R	A	R	R	R	52	X 54	X 54	X 56	O 52	55	O 54	54	56	X 59	X 51	52	X 46	X 50	A	A
24	A	B	42	B	R	R	O 41	57	50	56	62	59	X 54	X 55	X 58	X 60	O 59	58	X 59	52	46	43	X 44	52
25	43	R	B	A	R	O 50	53	55	65	X 61	X 56	X 60	X 61	A	57	O 53	X 56	X 57	60	61	B	O 47	A	B
26	R	R	R	R	45	A	58	A	56	58	57	59	O 57	63	B	67	O 57	B	O 58	X 57	X 50	56	O 49	O 44
27	A	O 44	68	R	52	A	R	O 46	A	A	R	B	B	O 59	76	B	B	B	63	48	52	48	X 42	O 45
28	X 46	X 48	B	B	R	R	58	67	70	70	66	O 72	O 72	68	B	73	X 64	67	58	50	50	48	45	O 43
29	X 46	X 48	B	B	A	R	O 54	62	69	67	68	66	X 61	70	X 63	69	63	B	R	50	48	47	A	O 42
30	O 40	O 39	45	50	45	56	50	66	70	83	60	56	60	56	A	X 53	X 52	X 54	X 54	X 52	X 56	X 54	X 53	43
31	O 49	A	46	O 46	68	R	B	B	A	O 54	61	63	55	X 54	X 52	X 54	61	X 56	61	52	X 49	48	48	45
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	14	14	15	10	12	13	13	15	17	19	21	20	21	22	21	26	25	24	23	29	27	28	21	17
MED	46	50	52	50	52	55	54	61	65	61	61	59	57	58	61	63	60	58	59	52	50	48	48	45
UQ	49	58	56	53	60	68	58	68	70	70	67	66	61	63	65	67	64	61	62	57	54	51	52	46
LQ	O 43	O 44	46	46	47	O 50	50	54	52	55	54	54	54	54	57	X 54	X 56	X 54	X 56	51	X 46	44	45	43

The Radio Research Laboratories, Japan

DEC. 1974

FXI (0.1 MHz)

IONOSPHERIC DATA

DEC. 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 0.5 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	51	U 52	S	B	R	F	R	F	U 80	F 81	77	80	77	76	78	68	62	54	55	61	55	V 46	R	U 46				
2	R	F	F	F	F	F	A	F	B	B	R	R	B	U 47	U 52	F 60	U 76	F	U 56	F 50	A	F 48	U 46	F 40				
3	U 44	F	F	F	A	R	A	A	A	U 45	F	F	F	U 46	F 50	F 58	F	F	F 62	U 46	F 46	F 38	F	A				
4	A	A	A	F	B	F	A	R	F 44	B	B	B	F	55	55	49	50	51	F 52	53	52	50	45	F 44	F 39			
5	F 33	F	F 41	43	U 43	F 55	U 59	F	68	F 67	66	62	55	54	51	50	52	58	62	F 55	F 43	F 41	F	F 40				
6	A	38	F	B	A	F 39	A	41	F 49	U 57	F 58	53	48	48	51	50	51	56	60	53	52	46	F 46	47				
7	46	52	52	U 41	F	F	F	F	F	U 65	F 58	56	57	61	59	61	U 60	J 62	61	F 49	F 48	F 36	F 37	F 34				
8	U 39	F 35	U 42	F	F	F	R	F 48	U 51	F 50	45	47	40	55	F 56	U 59	F 56	53	F 47	F 39	A	F 35	F 39	A				
9	A	F	A	A	U 31	F	A	R	R	R	F	R	44	R	U 57	F 62	R	39	R	F	F	F	A	A				
10	R	F	A	A	R	R	B	B	R	E 37	B	B	43	F 48	F 55	55	55	R	R	F 37	F 36	F 37	F 36	R				
11	R	A	R	R	A	B	F	B	B	B	F	B	B	B	B	B	44	B	A	42	H 39	R	R	A				
12	A	R	41	B	B	B	A	R	R	B	B	B	C	C	F 55	F 60	R	F	R	45	U 37	40	F 40	F 39				
13	33	B	33	A	A	B	B	B	45	44	44	F 46	52	F 56	63	U 63	50	49	R	E 34	U 39	F 42	F	A				
14	B	B	B	A	B	B	A	B	B	B	R	B	B	R	B	52	53	55	50	46	40	F 33	F 37	F 42				
15	F 36	A	R	A	46	42	F 52	F 52	F	R	B	53	B	B	B	U 62	61	47	F 51	R	F 41	F 39	F 41	R				
16	F 39	B	R	R	46	F 48	U 57	F 62	F 63	65	63	66	68	67	F 64	F 56	F 57	F 54	49	45	V 41	F 38	F 39	F 39				
17	F 40	F 43	F 45	B	B	47	A	R	47	F 54	F 54	U 55	F 54	F 53	F 55	56	50	50	51	46	46	A	A	R				
18	A	F	A	F	A	R	F 45	46	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C				
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	U 49	U 49	F 42	U 40	B	B				
20	A	A	F 36	U 36	U 31	A	R	R	A	R	B	B	B	45	B	B	B	48	B	F 43	F 50	F 37	F 44	R				
21	40	B	R	A	A	R	F	R	A	F	F 46	F 47	50	B	F	46	54	46	U 46	V 45	F 38	F 36	46	B				
22	A	A	A	B	B	B	B	A	B	B	44	E 49	R	45	R	46	50	55	F 55	F	F 38	F 39	F 37	V 40				
23	A	A	A	R	A	R	R	R	F 44	48	48	50	46	F 49	48	U 48	F 49	53	44	F	40	44	A	A				
24	A	B	F 35	B	R	A	E 35	F 43	F 42	F 50	F 52	52	48	49	52	53	53	52	52	F 46	U 39	U 37	F 37	F 42				
25	F	R	B	A	R	F 44	F 45	F 46	F 56	54	49	53	55	A	51	F 47	F 50	51	F 52	45	B	U 41	A	B				
26	R	R	R	A	U 32	A	F	A	F 48	F 51	F 49	F 51	51	F 56	B	F 60	51	B	52	51	44	F 49	U 40	U 36				
27	A	38	F	A	U 45	A	R	E 39	A	A	R	B	B	F 52	F	B	B	B	F 52	F 40	F 40	F 40	F 36	F 39				
28	A	A	A	A	R	R	F 48	U 56	U 59	F 62	F 59	66	66	U 62	B	F 67	58	J 60	U 48	U 42	F 42	F 41	F 38	F 37				
29	40	42	B	B	A	R	U 52	F	F 55	F 55	U 55	U 55	55	F 62	U 68	F 63	F 57	B	R	F 43	F 40	U 36	A	F 36				
30	F 33	F 31	F 34	F 43	F	F 40	F	U 50	F	U 56	U 51	50	53	U 49	A	47	46	48	47	46	50	48	47	F 36				
31	43	A	U 40	U 36	F	R	B	B	A	F	U 50	U 54	U 48	48	46	48	F 54	F 60	F 54	F 45	F 43	F 40	U 41	F 37				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
CNT	13	8	10	5	7	7	8	11	13	18	18	19	21	22	19	26	24	21	23	26	26	27	19	17				
MED	40	40	F 40	U 41	U 43	F 44	F 48	F 48	F 49	F 54	F 52	53	52	F 52	F 55	F 56	53	53	52	46	F 42	F 40	F 40	F 39				
UQ	43	48	F 42	F 43	46	F 48	F 54	F 52	F 59	F 62	F 58	56	55	F 56	F 58	F 61	F 57	55	55	49	46	43	F 44	F 40				
LQ	F 36	F 36	F 35	U 36	U 32	F 41	45	44	F 45	F 48	F 48	50	48	F 48	51	50	50	49	49	F 43	F 39	F 37	F 37	F 37				

The Radio Research Laboratories, Japan

DEC. 1974

FOF2 (0.1 MHz)

IONOSPHERIC DATA

DEC. 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 **0.5** 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					U F 370	F 370	B 390		410	410	A	A	A	450	430	430	A	L	L	L				
2					F	F	A	F	B	B	R	390	B	390	400	B	370	380	360	L	B	L		
3						A	A	A	A	U F 360	U F 390	400	400	420	400	F	400	390	L	L				
4						F	A	A		390	B	B	B	410	400	420	390	L	390	L	L	L		
5					330	R 340	F 360	370	H 380	400	400	400	410	420	420	400	400	390	370	350	L			
6						A	A	370	380	400	400	410	420	410	410	410	410	390	370	L	L	L		
7				330	340	F 350	F 370	F 370	F 370	390	400	390	400	400	410	400	400	F 370	F 370					
8				U F 330		A	A	370	390	400	F 390	390	F 390	F 400	410	400	400	380	F 360	F 330	A			
9							A	F	A	F	F	F	U R 380	B	390	380	380	360	A					
10					350	B	B		350	370	B	B	380	380	400	370	390	380	A					
11						B	F 340	B	B	B	R 380	B	B	B	B	B	380	R	A					
12						B	A	R	R	B	B	B	C	C	390	380	B	A	360	L				
13						B	B	B	380	390	390	400	H 410	400	B	B	380	390	U F 360	340				
14						B	A	B	B	B	390	B	B	B	390	400	380	370	350	L	L			
15						A	F 360	F 380	400	R	B	400	B	B	B	U R 390	B	380	360	330	F			
16					A	350	360	360	380	400	410	B	R	420	430	430	410	400	U I 390	L	L			
17						A	A	A	400	410	410	410	410	410	410	410	410	400	370	360				
18						A	A	A	A	A	C	C	C	C	C	C	C	C	C	C				
19						C	C	C	C	C	C	C	C	C	C	C	C	C	400	U F 380	L	320		
20						A	A	A	A	A	B	B	B	410	B	B	B	400	F	B	U F 360			
21						A	F	A	A	400	400	410	420	B	410	390	410	390	F	U F 370				
22						B	B	A	B	B	U R 380	H 410	R	410	410	400	H 400	400	400	380	L			
23						A	A	370	380	380	380	400	400	410	410	400	F 400	F 400	400	F 370	F 360			
24						A	350	360	380	390	400	410	410	410	410	410	400	390	Y	360	330	F		
25						A	360	350	380	400	400	400	410	A	420	420	410	410	400	370	B			
26						A	F 340	B	380	390	400	400	390	400	B	390	B	B	380	360	L	L		
27						A	U F 360	F 390	A	A	A	B	B	B	390	390	F	B	B	390				
28						A	F 360	370	380	400	400	B	B	B	B	400	390	400	F 360	F				
29						A	A	A	380	F 390	F 400	410	A	A	A	390	400	B	370	360				
30						U F 350	390	F 370	F 390	F 390	400	400	410	420	A	400	400	390	L	A	L		250	
31						A	B	B	A	A	400	F 400	410	400	410	400	380	F 400	360	360	L			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				2	3	6	11	13	18	19	21	19	17	20	20	24	22	23	21	13	2	1	1	
MED			330	340	350	F 360	F 370	380	390	400	400	410	410	410	400	400	390	370	360	330	F 320	250		
UQ				355	350	F 360	370	390	400	400	410	410	415	415	405	400	400	380	360					
LQ				335	350	F 355	F 370	380	390	390	400	400	400	400	400	390	390	380	360	350				

The Radio Research Laboratories, Japan

DEC. 1974

FOF1 (0.01 MHz)

IONOSPHERIC DATA

DEC. 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 0.5 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 140	A 160	B	230	230	B	A	A	H 295	H 300	H 300	A 290	A	A	A	A	A 260	A 250	H 210	A	165	B	K 400		
2	K 410	U K 210	A 310	K	A 305	A 270	B	B	A	A	B	B	B	B	B	B	H 290	H 245	H 220	B	B	B	A		
3	U K 340	A 280	F 160	A	A	A	A	A	A	A	295	290	290	290	280	280	275	A 250	A 240	240	200	145	K 285	A	
4	A	A	B	A	B	A	B	A	A	B	B	B	U R 300	300	280	280	265	255	240	H 225	H 195	H 190	140	F 135	
5	A	250	290	K 280	190	280	230	260	A	A	280	280	295	290	280	270	A	255	245	A	180	180	K 340	K 240	
6	A	K 330	K 290	B	A	K 340	A	A	A	310	280	290	280	260	A	A	A	A	A	A	210	180	U A 150	130	
7	140	170	A	K 300	A	270	260	250	265	A	A	280	300	B	290	280	260	250	240	210	U K 340	185	A	K 270	
8	K 275	U K 330	U K 370	U K 300	260	A	A	A	U A 270	270	280	285	285	A	R 300	A	A	A	230	Y	A	K 300	K 370	A	
9	A	A	A	A	240	215	A	255	A	A	270	280	B	B	280	265	B	270	B	K 340	260	160	A	A	
10	K 300	U K 240	K 350	A	B	K 265	B	B	A	K 330	B	B	R	270	280	265	B	B	A	200	190	215	K 260	K 340	
11	A	B	A	B	H	B	K 300	B	B	B	B	B	B	B	B	B	305	B	B	210	210	K 340	K 340	A	
12	K 375	K 360	K 345	B	B	B	A	A	A	B	B	B	C	C	B	B	B	A	A	H 210	195	160	K 270	K 230	
13	K 285	B	K 320	A	B	B	B	B	290	270	H 290	280	285	280	B	B	B	245	A	R	220	U K 275	B	B	
14	B	B	B	B	B	B	A	A	A	A	A	B	B	B	B	B	265	250	230	220	180	U K 220	A	K 260	
15	A	A	B	A	A	A	K 315	290	A	A	B	B	B	B	B	B	B	B	B	255	B	H 190	K 350	K 340	A
16	A	B	A	A	K 330	K 280	250	250	260	U A 280	280	B	A	300	290	270	275	260	240	220	180	A	K 255	U K 240	
17	170	210	A	B	B	A	A	A	A	K 340	H 290	310	305	280	290	280	280	260	250	225	K 360	A	A	C	
18	B	U K 290	A	K 260	A	A	K 400	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	F 250	B	U K 280	K 230	B	B
20	B	B	280	U K 270	U K 260	A	A	A	A	A	B	B	B	290	B	B	B	260	B	250	360	K 180	K 330	K 370	
21	K 340	B	A	A	K 340	A	A	A	A	320	295	U A 300	280	B	A	B	A	A	K 260	300	230	220	250	K 360	B
22	B	B	B	B	B	B	B	A	B	B	A	B	290	290	B	B	280	B	B	F 220	225	180	140	K 365	
23	B	A	A	A	A	K 380	K 390	K 345	265	265	270	280	280	R 300	300	280	260	260	260	A	K 340	U K 325	K 310	K 400	
24	B	B	K 265	B	A	A	270	250	270	280	280	290	A	280	290	290	B	B	B	220	A	A	K 305	K 275	
25	K 250	A	B	A	A	A	A	280	260	280	270	290	290	285	A	270	280	260	250	215	B	A	A	B	
26	B	B	A	B	225	B	250	B	A	290	290	280	B	280	B	B	B	B	B	B	225	K 240	K 395	K 350	U K 340
27	K 360	K 340	K 260	K 300	K 370	U K 380	A	A	A	A	A	B	B	R	290	B	B	B	B	K 350	K 320	K 350	K 320	K 320	
28	K 320	K 350	B	B	A	A	K 345	255	265	270	280	B	B	B	B	B	270	U B 260	240	230	F 160	H 160	A		
29	H 185	U K 280	B	B	A	A	A	A	280	280	290	295	290	290	U R 280	B	260	B	R	225	190	180	230	K 330	
30	U K 315	K 280	U K 305	K 300	U K 300	U K 295	U K 325	290	280	270	A	280	A	A	A	260	270	A	A	A	180	170	U A 160	K 220	
31	K 360	A	K 295	K 290	U K 315	A	B	B	A	A	300	280	300	290	285	280	260	250	240	225	200	K 260	K 210	K 340	
CNT	16	13	13	10	11	11	11	11	10	15	17	17	15	16	14	13	13	17	19	22	25	25	21	18	
MED	K 308	K 280	K 290	K 295	K 260	K 280	K 300	260	268	280	280	285	290	290	288	280	270	260	250	222	210	190	270	K 298	
UQ	K 350	K 330	K 320	K 300	K 322	K 322	K 335	285	280	302	290	290	298	290	290	280	280	260	258	230	K 260	K 275	K 340	K 340	
LQ	218	K 240	K 280	K 270	235	268	255	252	265	270	280	280	285	280	280	270	260	250	240	215	190	180	210	K 240	

DEC. 1974

FOE (0.01 MHz)

IONOSPHERIC DATA

DEC. 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 0.5 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 30	J A 23	21	B	30	26	E B 46	30	42	33	J A 45	J A 54	J A 77	J A 55	J A 34	42	J A 74	32	G	G	J A 29	31	36	K 40	
2	41	J A 87	43	J A 51	J A 41	34	J A 49	G	68	B	37	32	B E 35	E B 35	E B 43	E B 33	G	J A 62	37	60	J A 106	40	J A 52		
3	J A 54	38	K 28	31	J A 61	42	51	J A 52	J A 51	J A 47	G	32	G	G	G	G	35	J A 48	J A 61	J A 51	J A 28	J A 83	48		
4	J A 53	J A 43	102	30	75	J A 82	43	40	37	B	B	B	G	34	34	G	G	30	35	33	17	J A 24	G	21	
5	26	J A 29	J A 42	J A 124	J A 61	32	29	30	J A 31	J A 42	J A 69	73	J A 81	93	90	63	J A 77	30	G	23	G	22	K 34	28	
6	40	K 33	33	B	40	37	46	J A 45	48	G	G	G	30	33	37	32	J A 37	J A 30	J A 34	J A 28	J A 24	J A 28	J A 23	J A 28	
7	21	30	J A 30	K 30	35	K 27	J A 33	G	J A 32	J A 31	J A 34	31	G	37	38	J A 54	30	32	29	30	38	26	J A 27	K 27	
8	32	35	41	35	D S 67	42	42	J A 43	32	30	30	36	J A 33	31	G	33	33	28	G	31	J A 41	35	K 37	49	
9	90	J A 52	J A 51	46	30	35	J A 70	39	37	47	G	G	E B 36	E B 45	G	30	E B 30	G	38	J A 56	62	J A 30	J A 72	56	
10	K 30	53	93	57	36	30	B	B	35	K 33	B	B	G	30	G	G	E B 30	E B 28	J A 36	G	G	23	30	36	
11	34	36	J A 63	39	45	B	33	B	B	B	E B 33	B	B	B	B	B	G	B	57	27	29	K 36	K 36	46	
12	J A 45	39	K 34	58	B	B	45	35	J A 34	B	B	B	C	C	E B 32	E B 32	E B 60	J A 39	29	J A 61	26	J A 23	K 27	J A 42	
13	33	B	K 32	35	41	B	B	B	G	G	G	G	G	G	E B 45	E B 45	E B 33	G	34	G	31	J A 33	37	41	
14	B	B	61	42	B	B	49	B	B	B	40	B	B	E B 45	B	E B 33	G	G	G	G	J A 21	24	28	38	
15	J A 35	J A 36	38	J A 63	44	40	36	G	40	30	B	E B 34	B	B	B	E B 35	E B 45	E B 27	27	E B 26	G	K 35	K 34	35	
16	J A 64	B	40	36	K 33	K 28	G	G	G	33	31	E B 45	34	39	G	34	33	G	G	G	G	34	28	32	
17	22	24	36	B	B	43	51	39	40	38	35	29	G	G	G	G	G	G	G	28	41	80	J A 84	34	
18	46	38	J A 87	67	62	39	K 40	43	J A 50	50	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	32	27	30	K 23	B	B
20	48	60	28	J A 44	J A 70	41	39	41	55	42	B	B	B	G	B	B	B	B	31	B	G	K 36	G	39	K 37
21	36	B	J A 41	J A 44	40	41	31	40	J A 44	G	G	32	G	B	32	E B 31	40	34	33	G	28	J A 61	K 36	B	
22	38	39	46	B	B	B	B	J A 41	B	B	72	G	G	36	E B 33	E B 34	G	E B 35	E B 27	35	26	G	35	K 36	
23	47	J A 59	J A 94	37	50	K 38	K 39	41	30	G	G	G	G	32	32	42	32	G	30	29	36	J A 34	J A 84	K 40	
24	40	B	31	B	36	40	32	G	G	G	G	G	36	32	G	G	E B 31	E B 29	E B 34	G	26	26	32	35	
25	J A 60	36	B	44	40	34	40	32	53	G	G	G	J A 55	89	J A 49	G	G	32	29	J A 65	101	107	J A 50	B	
26	32	34	J A 34	35	J A 36	40	J A 69	117	37	G	35	30	E B 32	G	B	E B 32	E B 45	B	E B 35	30	K 24	K 39	42	39	
27	40	J A 57	40	40	J A 59	J A 55	J A 37	J A 44	J A 55	J A 55	40	B	B	G	32	B	B	B	38	33	K 35	K 32	29	37	
28	J A 62	J A 51	50	57	41	J A 42	K 34	28	29	33	29	E B 52	E B 52	E B 46	B	E B 30	E B 30	G	29	28	34	G	23	J A 34	
29	J A 34	J A 31	B	B	45	J A 44	46	38	J A 34	28	70	J A 64	80	J A 74	39	E B 34	G	B	31	27	30	28	D S 67	J A 42	
30	J A 64	J A 94	45	35	35	K 30	40	47	46	J A 34	J A 31	G	J A 30	40	62	J A 46	39	42	36	55	25	J A 24	J A 23	26	
31	40	J A 109	D C 140	41	J A 69	35	B	B	J A 51	38	G	G	36	35	37	G	G	30	30	38	G	J A 34	29	D S 50	
	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	25	28	24	26	25	26	25	27	24	24	22	22	25	23	26	27	25	29	30	30	30	29	27	
MED	40	38	41	42	41	39	40	39	37	33	30	E G 30	E G 31	34	32	E G 32	E G 31	29	30	28	29	29	35	37	
UQ	48	J A 53	56	54	61	42	46	43	49	40	38	U 34	36	U 41	38	U 38	U 35	32	35	35	36	35	40	42	
LQ	33	34	34	35	36	34	34	30	32	G	G	G	G	30	G	G	G	G	G	27	G	24	24	28	34

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DEC. 1974

FOES (0.1 MHZ)

IONOSPHERIC DATA

DEC. 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 0.5 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	7	9	B	22	15	46	24	11	10	10	11	10	10	10	9	11	10	10	10	10	10	27	9	
2	8	9	15	9	E ₁₀ C	9	10	17	61	B	20	15	B	35	35	43	33	15	15	13	32	17	20	13	
3	9	9	10	9	11	9	11	10	15	11	10	9	10	13	12	14	15	15	15	13	13	10	14	15	
4	9	11	33	14	56	11	30	15	13	B	B	B	26	11	25	13	14	11	14	11	11	10	10	10	
5	10	10	12	13	10	10	9	10	10	9	9	10	10	10	10	11	14	10	12	10	10	10	10	11	
6	16	22	12	B	11	12	13	13	10	11	9	10	10	10	12	12	12	10	11	10	10	9	9	10	
7	8	8	8	14	13	10	10	10	E ₁₄ C	10	10	11	15	31	22	12	13	12	23	10	10	9	10	8	
8	9	14	10	15	9	10	15	9	14	10	10	10	10	22	15	16	14	10	12	13	10	11	9	15	
9	20	8	10	10	10	9	17	12	22	11	10	24	36	45	23	11	30	26	33	10	10	9	13	10	
10	8	9	24	22	25	10	B	B	10	16	B	B	22	15	18	13	30	28	9	12	10	10	10	22	
11	13	21	11	34	30	B	E ₁₀ C	B	B	B	33	B	B	B	B	B	16	B	28	12	9	9	11	24	
12	15	14	16	55	B	B	23	24	15	B	B	B	C	C	32	32	60	11	11	10	12	11	10	10	
13	15	B	15	22	26	B	B	B	15	15	E ₁₅ C	10	13	13	45	45	33	15	10	11	10	17	24	22	
14	B	B	56	21	B	B	23	B	B	B	24	B	B	45	B	33	16	17	15	11	10	11	16	9	
15	10	15	27	20	16	20	E ₂₆ C	11	13	22	B	34	B	B	B	35	45	27	25	26	9	12	12	23	
16	14	B	16	20	24	E ₁₃ C	11	10	10	12	15	45	27	16	22	16	13	12	11	10	10	13	10	10	
17	11	10	10	B	B	21	20	26	17	11	10	9	10	11	10	10	10	10	10	9	14	10	15	E ₂₁ C	
18	20	10	21	10	9	10	11	21	17	20	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	24	23	10	8	B	B
20	27	22	9	10	9	20	15	25	23	17	B	B	B	23	B	B	B	17	B	14	12	12	10	9	
21	15	B	20	16	16	21	10	15	10	10	15	16	13	B	14	31	15	11	9	10	20	9	13	B	
22	32	21	26	B	B	B	B	20	B	B	15	32	23	15	33	34	23	35	27	10	22	13	10	15	
23	25	10	16	15	21	16	21	11	9	9	9	11	20	23	19	10	11	9	9	13	11	13	20	12	
24	27	B	9	B	17	18	16	9	9	9	9	9	10	10	10	21	31	29	34	11	9	10	11	9	
25	10	13	B	15	15	10	12	10	9	9	10	10	10	11	10	14	10	14	9	E ₁₄ C	60	15	9	B	
26	21	26	14	23	8	26	15	38	12	14	10	9	32	11	B	32	45	B	35	20	9	9	14	15	
27	10	9	9	12	10	13	9	11	10	12	21	B	B	27	11	B	B	B	15	10	9	E ₁₃ C	9	8	
28	10	10	34	23	19	12	10	9	9	9	9	52	52	46	B	30	30	11	26	13	15	9	9	10	
29	9	8	B	B	22	10	23	20	10	10	9	9	8	9	27	34	14	B	15	E ₁₁ C	9	9	8	13	
30	8	9	10	E ₁₀ C	9	8	22	9	9	9	9	9	9	10	9	9	E ₁₇ C	10	9	9	8	8	8	8	
31	10	22	13	8	20	22	B	B	10	25	10	12	10	14	16	15	15	9	9	9	9	9	9	9	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	29	29	28	28	29	29	29	29	30	30	30	30	30	30	
MED	10	12	14	18	16	13	16	15	12	12	10	12	18	15	22	16	16	14	14	10	10	10	10	11	
UQ	20	22	24	34	25	21	23	25	17	22	21	52	44	33	35	34	31	27	25	13	12	12	14	21	
LQ	9	9	10	12	10	10	11	10	10	10	10	10	10	11	12	12	14	10	10	10	9	9	9	9	

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DEC. 1974 F-MIN (0.1 MHZ)

IONOSPHERIC DATA

DEC. 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 0.5 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	310	U F 285	S	B	R	F	R	F	U F 265	F 270	270	275	275	280	295	310	305	295	295	310	315	V 315	R	R		
2	R	F	F	F	F	F	A	F	B	B	R	R	B	F	U F 245	245	F	F	F	F	280	A	F 310	F	A	
3	U R 265	F	F	F	A	R	A	A	A	F	F	F	250	U F 260	240	F	F	F	F	F	345	F 310	F	A		
4	A	A	A	F	B	F	A	R	F	B	B	B	305	F 270	255	275	265	295	305	315	320	325	330	F 320		
5	F 340	F	F 275	315	U F 255	F 275	U F 275	F	250	F 275	280	285	275	285	280	280	285	290	295	325	F 315	335	F	320		
6	A	300	F	B	A	F	A	250	255	U F 260	F 280	290	290	265	280	280	275	285	300	305	335	330	320	320		
7	300	290	280	S U 270	F	F	F	F	F	F	290	F 270	265	275	295	280	F	U 285	305	305	340	F 320	305	F 275		
8	U F 280	F 265	U F 250	F	F	F	R	F	U F 250	F 280	245	255	315	F 270	265	F	285	285	280	F 275	A	255	F 290	A		
9	A	F	A	A	U F 325	F	A	R	R	R	F	R	240	R	F	F	R	215	R	F	F	F	A	A		
10	R	F	A	A	R	R	B	B	R	G	B	B	235	F 260	F 280	270	275	R	R	F	350	F 305	F 320	F 310	R	
11	R	A	R	R	A	B	F	B	B	B	F	B	B	B	B	B	225	B	A	310	275	H	R	R	A	
12	A	R	260	B	B	B	A	R	R	B	B	B	C	C	245	F 240	R	F	R	335	U 325	300	330	F 295		
13	295	B	R	A	A	B	B	B	265	245	240	255	265	270	285	U R 310	285	290	R	G	F	F 310	F	A		
14	B	B	B	A	B	B	A	B	B	B	R	B	B	R	B	275	300	305	320	325	290	325	F 295	F 305		
15	F 280	A	R	A	R	270	F 275	300	F	R	B	265	B	B	B	U F 275	260	265	335	F	R	295	F 300	F 300	R	
16	F 255	B	R	R	285	F 250	F	F	F 270	F 275	270	260	260	280	280	F 285	F 305	F 315	295	285	310	V 290	F 295	F 315		
17	F 300	F 280	F 275	B	B	275	A	R	255	265	265	U F 275	265	F 255	265	F 285	280	290	310	290	280	A	A	R		
18	A	F	A	F	A	R	260	F 285	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	F	U F 285	F 290	F	F	B	B
20	A	A	340	F	U F 305	A	R	R	A	R	B	B	B	270	B	B	B	300	B	F	F 315	350	F 320	R		
21	A	B	R	A	A	R	F	R	R	F	235	F 245	280	B	F	240	280	255	U F 300	F 310	V 340	310	305	B		
22	A	A	A	B	B	B	B	A	B	B	235	G	R	R	R	245	260	275	285	F	F 305	315	315	V 295		
23	A	A	A	R	A	R	R	R	240	F 250	245	255	245	265	F 265	U F 275	270	290	250	F	315	330	A	A		
24	A	B	300	F	B	R	A	G	F 245	F 245	230	290	295	255	260	265	285	265	280	325	300	F	U F 315	F 290	F 305	
25	F	R	B	A	R	275	F 260	F 260	F 255	F 265	245	265	275	A	290	F 245	280	290	295	F 275	B	F	A	B		
26	R	R	R	A	U F 295	A	F	A	F 265	F 290	F 265	F 260	255	255	F	B	F 285	295	B	305	320	295	300	U F 315	F	
27	A	265	F	A	F	A	R	G	A	A	R	B	B	250	F	B	B	B	B	300	F 335	F 270	F 310	F 335	290	
28	A	A	A	A	R	R	270	U F 270	U F 270	F 275	F 255	F 260	285	F	B	F 290	275	F	305	F 310	F 295	F 310	F 315	F 325		
29	300	300	B	B	A	R	265	F	F	F	U F 275	F	265	F 270	U H 265	F 285	260	B	R	F	315	U H 305	A	F 280		
30	F 250	F 260	F 285	F 325	F	270	F	F	F	F	U F 275	280	300	U F 295	A	285	270	310	330	305	310	325	335	F 310		
31	265	A	F	F	F	R	B	B	A	F	U F 260	U F 290	F	275	240	265	280	F 290	F 320	F 300	F 315	F 300	F	F 280		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	12	8	8	3	5	7	7	10	13	15	18	18	20	19	18	25	22	20	21	24	24	25	17	14		
MED	288	282	278	315	U F 295	F 270	F 265	F 260	255	F 265	F 265	265	265	270	F 265	275	278	290	300	305	312	310	315	F 305		
UQ	300	295	292	320	U F 305	F 275	F 272	F 270	F 265	F 275	F 275	280	282	275	280	285	285	295	310	318	318	325	320	F 320		
LQ	265	F 265	F 268	292	U F 285	F 262	F 260	F 250	F 250	F 248	F 245	255	255	260	F 255	F 265	265	282	295	F 288	295	F 305	F 300	F 290		

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DEC. 1974

M(3000)F2 (0.01)

IONOSPHERIC DATA

DEC. 1974

H¹F² (KM)

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

Station SYOWA STATION				Lat. 69 00.4 S.	Long. 39 35.4 E	Sweep 0.5 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					U F 350	310	290	300	320	340	335	330	330	320	300	295	310 ^A	L	L	L									
2					F	F	A	F	B	B	R	R	B	U F 510	455	430	355	280	270	L	A	275							
3						A	A	A	A	F	550	400	550	F	515	F 450	490	375	330	315	295	L							
4						F	A	A			B	B	B					L	330	310	285	L							
5					425	350	340	350	340	350	345	340	390	370	410	350	370	395	305	280									
6						450 ^F		A	510	450	380	345	350	390	450	395	390	400	345	295	L	250	L						
7					F 400	F 390	370	350	330	325	325	330	375	390	355	325	345	305	300	295									
8					U F 440		A	A	450	450	370	500	460	410	400	400	340	345	355	370	420	A							
9							A	R	R	R	R	F	R					R	660	A									
10						R	B	B	R	G	B	B		570	440	360	395	375	R	A									
11						B	R	B	B	B	R	B	B	B	B	B	B	630	B	A									
12						B	A	R	R	B	B	B	C	C		460	450	B	A	R	L								
13						B	B	B										R		R	G								
14						B	A	B	B	B	R	B	B	U R 390		B	400	350	315	300	280	L		L					
15						A	375	325		R	R	B	425	B	B	B	360	400	420	270		340							
16						375	430	370	375	350	350	375	375	R	345	325	370	320	280	L	L	L							
17						A 360		A	R	475	400	405	365	400	445	400	350	390	365	300	350								
18						A	465	A	A	A	A	A	A	C	C	C	C	C	C	C	C	C							
19						C	C	C	C	C	C	C	C	C	C	C	C	C	C	U F 350	L	L	L						
20						A	A	A	A	A	B	B	B	B	455	B	B	B	U H 350	B	F								
21						A	F	A	A	F	540	490	400	B	F	545	360	475	375										
22						B	B	A	B	B	540	G	R	R	400	E R 525	440	R 380	350	L									
23						R	R	R																					
24						A	G		475	530	420	360	350	450	450	420	370	400	370	300	U H 310	U F 360							
25						410	435	450	400	400	460	425	380	A	365	545	385	350	330	400	B								
26						A	F	A	440	R 360	405	420	445	425	B	U H 330	360	B	315	280	L								
27						A	R	G	A	A	R	B	B		450	385	B	B	R	325									
28						A	400	350	340	350	405	370	B	B	B	B	400	390	400	F 360	F								
29						A	A	A	380	F 390	F 400	410		A	A	A	390	400	B	370	355								
30						U F 430	F	390	390	345	380	380	U H 350	U H 380	A	400	445	340	300	330	L		250						
31						R	B	B	A	495	420	350	455	400	540	435	375	320	275	330	L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT				2	4	8	9	12	16	18	19	20	18	21	20	26	24	22	22	13	3	1	1						
MED				F 420	382	390	375	382	415	385	405	395	405	410	400	391	375	350	308	330	340	275	250						
UQ					408	430	435	462	462	450	470	455	455	450	452	415	400	380	350	400	350								
LQ					362	355	350	340	345	350	368	358	390	390	362	350	352	320	295	285	295								

DEC. 1974

H¹F² (KM)

IONOSPHERIC DATA

DEC. 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 0.5 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	245	250	290	B	A	220	B	A	215	H	A	A	A	230	230	220	A	200	230	230	240	250	A	UR		
2	R	300	UF	UF	270	A	F	B	B	R	295	A	B	270	250	B	E	B	220	230	245	B	A	A		
3	425	UF	F	240	A	A	A	A	A	UF	H	200	210	250	230	240	220	235	A	A	280	260	F	A		
4	A	A	B	A	B	F	A	A	A	B	B	B	230	215	225	205	230	215	290	E	A	230	H	H		
5	270	300	350	280	255	275	A	230	225	200	A	200	205	A	E	A	240	200	230	220	225	225	H	250		
6	A	375	400	B	A	A	A	A	A	240	210	200	200	230	200	225	230	240	215	H	210	225	235	240		
7	250	260	300	H	A	275	280	200	200	H	200	200	195	A	240	A	225	A	225	280	260	225	300	370		
8	300	A	450	350	F	A	A	E	A	270	200	265	215	215	240	240	240	210	A	H	240	A	A	A		
9	A	250	A	A	280	F	A	F	A	270	270	250	B	B	H	250	220	210	B	325	F	240	A	A		
10	A	300	A	A	A	A	B	B	A	H	275	B	B	250	210	235	225	230	220	A	230	255	260	310	A	
11	A	A	390	A	A	B	250	B	B	B	245	B	B	B	B	B	250	B	A	H	220	270	R	R	A	
12	A	A	430	B	B	B	A	275	R	B	B	B	C	C	225	250	B	A	R	220	240	230	H	275	295	
13	E	A	B	A	A	A	B	B	B	225	210	200	230	200	230	B	B	225	225	A	230	250	280	A	A	
14	B	B	B	A	B	B	A	B	B	B	250	B	B	B	B	B	225	230	225	225	225	240	255	270	290	
15	A	A	A	A	A	A	270	235	A	R	B	230	B	B	B	B	B	220	230	245	250	350	345	A		
16	A	B	A	A	A	280	230	210	200	220	H	B	R	230	H	200	205	200	205	220	240	A	H	280		
17	290	295	360	B	B	A	A	A	E	A	290	230	210	245	230	200	H	H	225	210	H	H	230	240	405	
18	A	245	A	UF	A	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	225	250	280	275	B	B	
20	A	A	270	F	300	A	A	A	A	A	B	B	B	230	B	B	B	220	B	260	325	235	280	R		
21	A	B	A	A	A	A	210	A	A	240	240	215	240	B	200	200	225	H	210	260	230	230	275	350	B	
22	B	A	A	B	B	B	B	A	B	B	A	H	U	H	E	A	230	E	B	H	E	B	H	250	A	
23	A	A	A	A	A	A	A	300	225	200	225	250	220	220	210	230	225	230	250	245	340	300	Q	A	A	
24	A	B	350	B	A	A	310	240	205	210	H	200	200	H	200	210	220	230	215	B	215	240	H	R	295	
25	A	A	B	A	A	A	275	225	210	220	230	200	E	A	235	A	210	225	230	220	210	265	B	A	A	
26	A	A	A	A	U	F	A	250	B	A	205	200	210	200	255	B	225	B	B	B	220	H	340	360	A	
27	A	E	A	300	A	UF	A	A	A	A	A	A	B	B	240	230	B	B	R	A	265	400	300	245	350	
28	A	A	A	A	A	A	E	A	310	225	195	H	200	H	200	B	B	B	B	210	205	220	H	240	H	
29	255	280	B	B	A	A	A	A	215	210	200	240	A	A	A	220	275	B	250	220	240	250	A	410	A	
30	A	F	390	295	330	F	250	250	220	H	H	H	205	225	H	A	H	H	A	210	A	240	225	210	275	
31	A	A	350	335	F	A	B	B	A	A	H	200	225	225	210	H	220	210	230	220	210	215	230	U	H	
	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	13	14	9	7	4	11	12	13	18	21	18	16	19	20	23	23	22	20	28	25	26	18	14		
MED	271	298	350	310	280	275	250	228	212	210	200	215	211	230	225	225	225	220	228	230	240	260	280	295		
UQ	U	322	300	390	350	F	315	278	275	254	222	240	240	230	229	240	232	230	230	222	242	248	270	280	310	375
LQ	252	260	300	280	270	248	240	218	200	200	200	H	200	200	218	210	210	218	215	212	220	240	240	245	280	

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H'F (KM)

IONOSPHERIC DATA

DEC. 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 0.5 MHz to 15 MHz in 30 sec in automatic operation																							
File No. Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	110	100	100	B	170	170	B	100	100	115	110	105	140	130	100	100	100	100	G	G	110	150	140	100 ^K				
2	100 ^K	135 ^K	140	100 ^K	140	95 ^K	100	G	100	B	100	100	B	B	B	B	B	G	155	130	125	130	130	110				
3	100 ^K	130	105 ^K	100	100	110	100	100	100	100	G	125	G	E	G	G	G	150	130	125	125	100	115 ^K	110				
4	100	100	160	115	190	140	150	100	100	B	B	B	G	100	120	G	G	140	125	130	95	110	G	140				
5	115	115 ^K	115 ^K	100 ^K	130	100 ^K	100	100	100	100	115	145	115	175	180	110	100	100	G	105	G	155	115 ^K	130 ^K				
6	115	120 ^K	150 ^K	B	100	100 ^K	105	100	100	G	G	G	100	105	100	100	100	100	100	100	100	100	95	100				
7	110	100	110	125 ^K	120	105 ^K	100	G	100	100	100	100	G	115	110	115	100	110	145	150	110 ^K	140	130	100 ^K				
8	125 ^K	115 ^K	115 ^K	115 ^K	145 ^K	100	100	100	100	100	100	150	100	100	G	105	100	100	G	160	100	150 ^K	110 ^K	110				
9	140	150	100	100	100 ^K	140	110	130	95	100	G	G	B	B	G	100	B	G	125	180 ^K	105 ^K	135	160	100				
10	100 ^K	130 ^K	145 ^K	100	105	120 ^K	B	B	100	100 ^K	R	B	G	110	G	G	R	R	100	G	G	115 ^K	150 ^K	125 ^K				
11	110	105	130	130	105	B	E	G	B	B	B	B	B	B	B	B	G	B	130	135	100	100 ^K	110 ^K	110				
12	100 ^K	110 ^K	110 ^K	160	B	B	100	105	100	B	B	B	C	C	B	B	B	100	100	125	130	115	100 ^K	110 ^K				
13	130 ^K	B	110 ^K	115	110	B	B	B	G	G	G	G	G	G	B	B	B	G	100	G	160	125 ^K	130	100				
14	B	B	160	100	B	B	100	B	B	B	110	B	B	B	B	B	B	G	G	G	120	120 ^K	125	100 ^K				
15	110	110	110	110	110	105	95 ^K	G	100	100	B	B	B	B	B	B	B	B	E	G	140	B	G	110 ^K	115 ^K	110		
16	155	B	95	125	120 ^K	100 ^K	G	G	G	120	120	B	110	115	G	125	115	G	G	G	G	115	115 ^K	115 ^K				
17	115	130 ^K	100	B	B	110	110	100	100	100 ^K	155 ^K	100	G	G	G	G	G	G	G	170	160 ^K	100	150	100				
18	100	110 ^K	150	140 ^K	100	100	100 ^K	100	100	100	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	150	150	100 ^K	150 ^K	B	B			
20	100	100	100 ^K	130 ^K	155 ^K	100	100	100	100	100	B	B	B	G	B	B	B	160	B	G	100 ^K	G	130 ^K	100 ^K				
21	140 ^K	B	100	100	100 ^K	125	100	95	95	G	G	125	G	B	100	B	95	95	140 ^K	G	150	100 ^K	110 ^K	B				
22	105	100	100	B	B	B	B	100	B	B	125	G	G	160	B	B	G	R	B	150	160	G	105	120 ^K				
23	120	100	145	100	100	105 ^K	110 ^K	100 ^K	100	G	G	G	G	130	130	110	140	G	100	105	170 ^K	100 ^K	105 ^K	105 ^K				
24	100	B	125 ^K	B	100	100	110	G	G	G	G	G	105	110	G	G	B	R	B	G	100	110	110	105 ^K				
25	130 ^K	100	B	100	95	100	100	110	180	G	G	G	100	100	100	G	G	130	130	150	160	125	100	B				
26	100	110	100	105	130	115	140	175	100	G	105	100	B	G	B	B	B	B	B	150	100 ^K	100 ^K	155 ^K	175 ^K				
27	100 ^K	150 ^K	100 ^K	130 ^K	115 ^K	150 ^K	100	100	100	100	95	B	B	G	125	B	B	R	155 ^K	100 ^K	100 ^K	100 ^K	160 ^K	150 ^K				
28	125 ^K	100 ^K	120	100	100	100	100 ^K	100	100	100	100	B	B	B	B	B	B	G	150	110	145	G	135	110				
29	100	105 ^K	B	B	100	100	100	100	95	100	110	110	100	110	110	B	G	B	105	100	100	130	125 ^K	130 ^K				
30	100 ^K	100 ^K	180 ^K	170 ^K	100 ^K	100 ^K	100 ^K	175	100	100	100	G	100	100	100	130	100	100	100	150	110	100	105	100 ^K				
31	165 ^K	150	180 ^K	125 ^K	125 ^K	100	B	B	100	105	G	G	130	125	125	C	C	100	100	100	G	100 ^K	140 ^K	180 ^K				
CNT	29	25	28	24	26	25	24	20	24	17	14	10	10	16	12	9	9	13	20	21	25	27	28	27				
MED	110	110	112	112	108	100	100	100	100	100	108	108	102	111	110	110	100	100	126	130	110	115	120 ^K	110 ^K				
UQ	125	130 ^K	145	128 ^K	130	115	109	102	100	100	115	125	115	128	125	115	100	130	142	150	145	130	138 ^K	122 ^K				
LQ	100	100	100	100	100	100	100	100	100	100	100	100	100	102	100	100	100	100	100	105	100	100	110 ^K	100 ^K				

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DEC. 1974

H'ES (KM)

IONOSPHERIC DATA

DEC. 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 0.5 MHz to 15 MHz in 30 sec in automatic operation

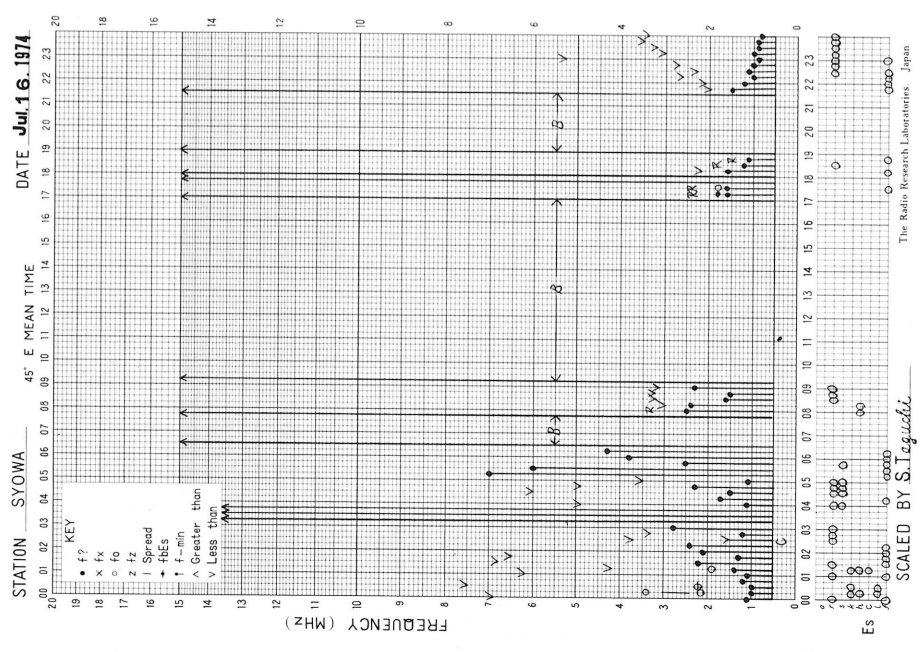
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1	C1	LH11	LH11		H1	H1		L1	L2	C1	C2	C2	HC13	HC12	L2	L2	L3	L1			C1	A1	R1	RKS21	
2	KL21	CK12	RL12	RKL11	HL12	LKS11	L2		L1		L1	R1							HH11	H1	C1	C2	R1	R2	
3	RK31	A1	K3	LH11	R2	RL21	R1	RH11	R2	R1		H1		HL11				H1	H2	C2	C2	LC11	LHK11	R1	
4	R2	R3	RL11	CL11	H1	HC11	RR11	LR11	R2					R1	C1			H1	C2	H2	L1	L1		H1	
5	A1	LK21	CK31	LK11	HRL11	LKC21	L2	L2	L2	L4	C1	HH12	C2	HC12	HHC11	CH21	C2	C1		R1		R1	K3	RK2	
6	R1	K1	K2		R3	RK12	R2	LR11	R2				C1	C1	C1	C2	L2	L2	L2	L2	L1	L1	L3	L2	
7	L1	L2	RL2	K1	R1	K1	R1		L2	L2	L1	L1		C1	C1	C2	L1	C2	R1	R1	RK21	R2	C2	K4	
8	RK24	RK11	RK31	RK21	HK12	R2	R1	R2	R1	C1	L1	HL11	C1	C1		L1	C2	R1		H1	RS11	HK31	K1	R2	
9	RH11	HL13	R1	RS11	LKR11	H1	R1	R1	L1	R1						R1			CS11	AK11	AK11	C2	HR11	R1	
10	K2	C2	CK11	HK11	R1	CKL11			L1	K1				C1					R1			RK11	RK21	RK11	
11	R1	RHS11	RL11	R1	R1		HK11												H1	H1	L1	K3	K3	R1	
12	RK11	RK11	K1	H1			L1	R1	R1									RS11	C1	C1	C1	C1	K2	CK32	
13	CK11		K1	R1	L1														R1		R1	AK11	R1	R1	
14			H1	R1			R1				C1										C1	AK11	R1	LK11	
15	R2	C2	R1	L1	R1	R1	LK12		R1	L1									H1			K2	K3	R1	
16	HC11		L1	R1	K1	K1				C1	C1		C1	C1		C1	C1					R1	RK11	RK11	
17	C1	RK11	R2			R1	R1	L1	R1	RK11	H1	L1								HRL11	HK11	L2	HK11	L1	
18	R1	RK11	HR11	RK12	RS21	RL11	K1	R1	R1	RS11															
19																			H1	H1	RK11	HKL11			
20	R1	R1	K2	CKL11	HK11	R1	R1	L1	R1	L1								H1			K2		CK12	K2	
21	HK11		L1	L1	RK11	RR11	RL11	L1	L1			C1			C1		L1	L1	HKL12		H1	LK12	K2		
22	L1	R1	R1					L1			C1			H1						A1	H1	L1	L1	K2	
23	R1	R1	HR11	L1	R1	K1	K1	RK11	L1					H1	H1	C1	H1		R1	R1	HK11	RKS11	LKH11	K3	
24	L1		AKR11		L1	R1	R1						C1	C1							R1	R1	RK11	RK12	
25	CKC11	R2		R1	L1	R1	R1	C1	HL11				C2	C3	C2			H1	R1	H1	H1	CRL11	R2		
26	R1	R1	R1	L1	RLH11	R1	HH11	HR11	R1		C1	L1								H1	K1	K3	HK12	HK11	
27	KS21	HK11	RLK11	RK11	RKL11	HK11	RS11	R1	R2	LH11	L1				C1				HK11	K2	K3	K4	HK11	HK14	
28	CK33	RK21	R1	L1	L1	R1	K2	L1	C1	C1	L2								H1	R1	CHA11		C1	R2	
29	LH11	CK41			R1	R2	L1	L1	LR11	L1	C1	C2	C3	C3	C1				R1	R1	L1	H1	CK43	RK13	
30	RK31	AK11	HKL11	HK12	RK12	KL21	RK11	HR11	R1	L1	L1		L1	L2	C3	HCL12	CH11	L3	L3	L3	HL13	C2	LC11	CH11	RK11
31	HK13	HR11	HKH11	RK11	RK11	R1			RR11	R1			H1	H1	H1				L1	L1	L1		RK21	CK23	RK44
	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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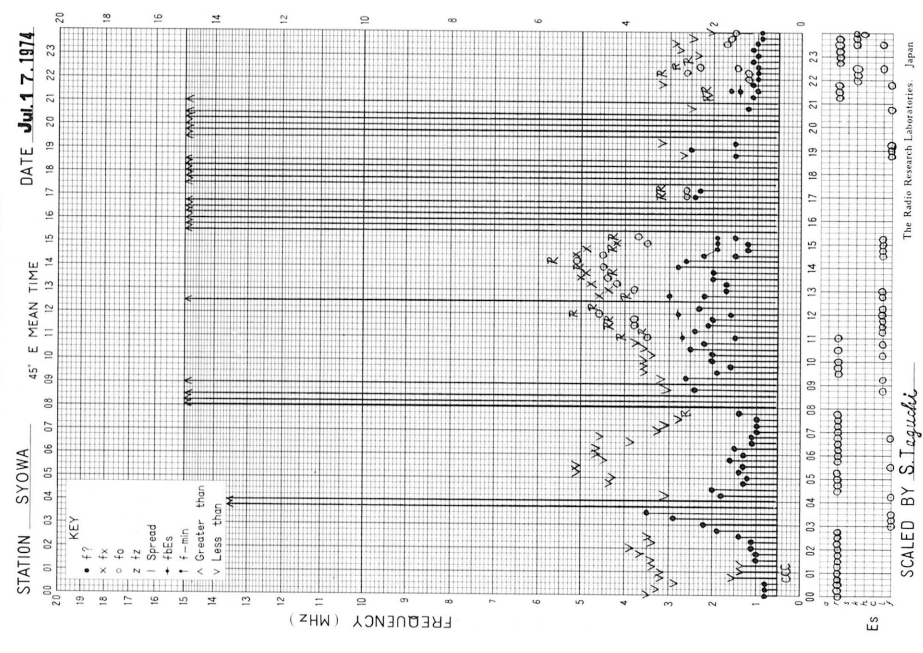
DEC. 1974

TYPES OF ES

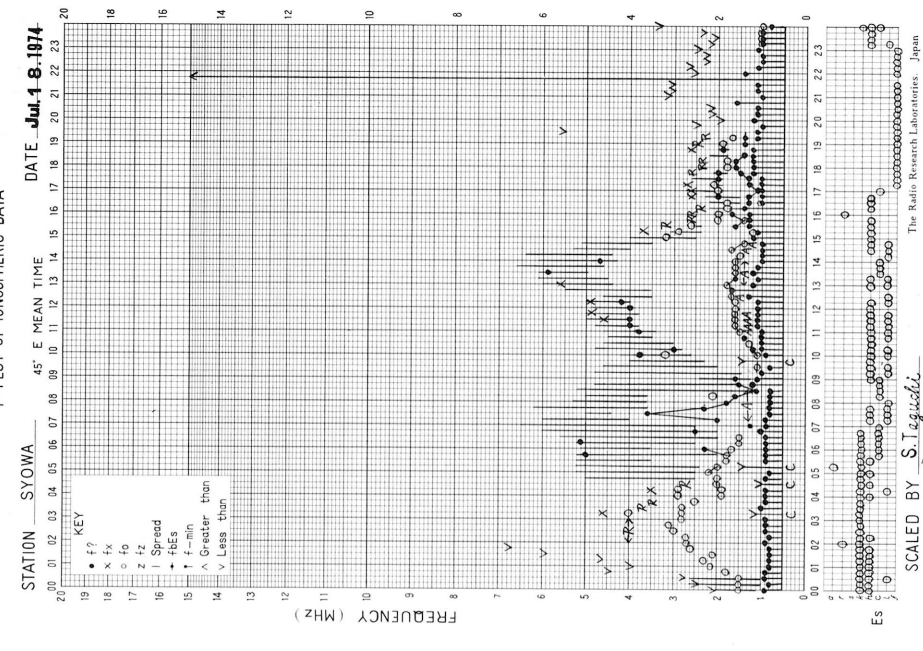
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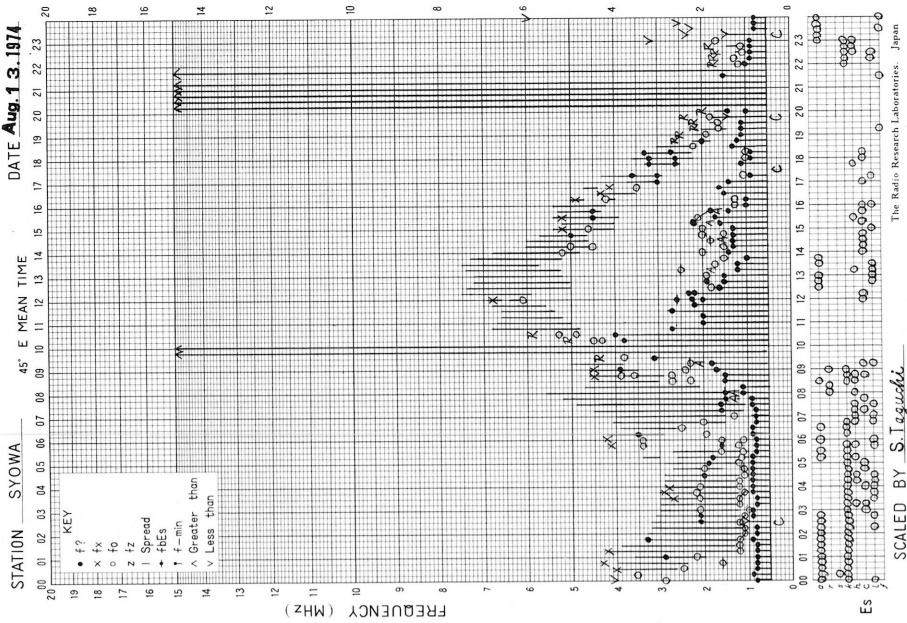
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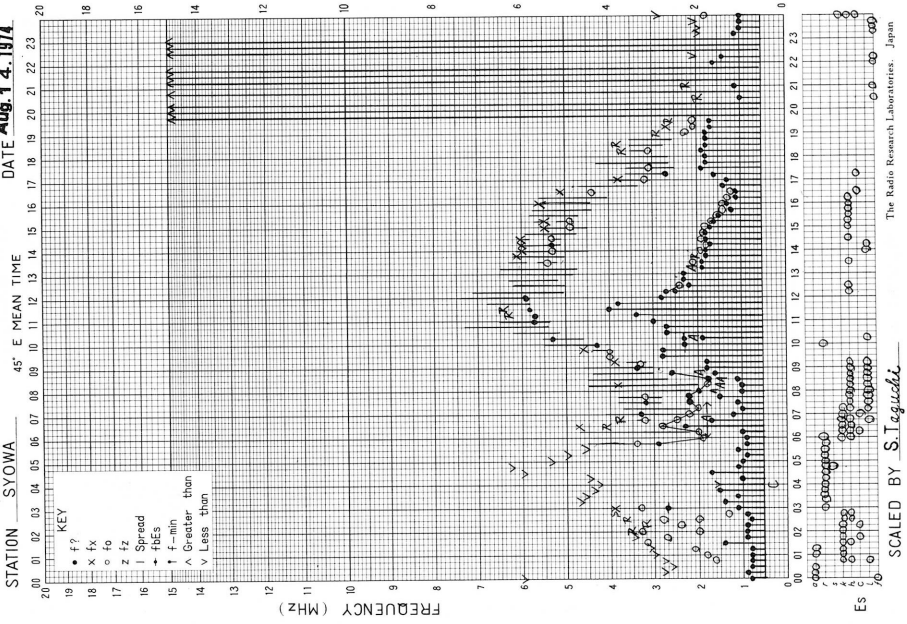
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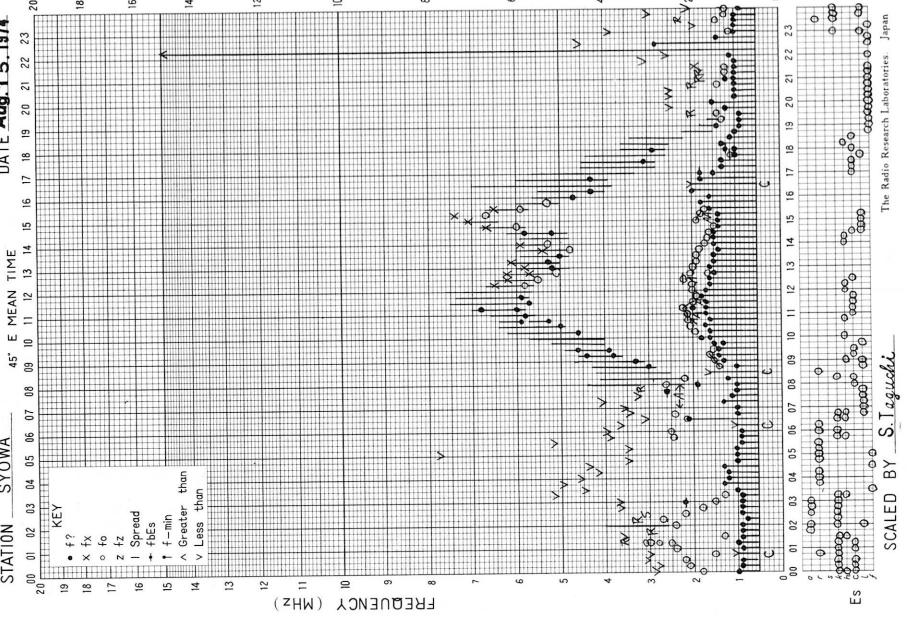
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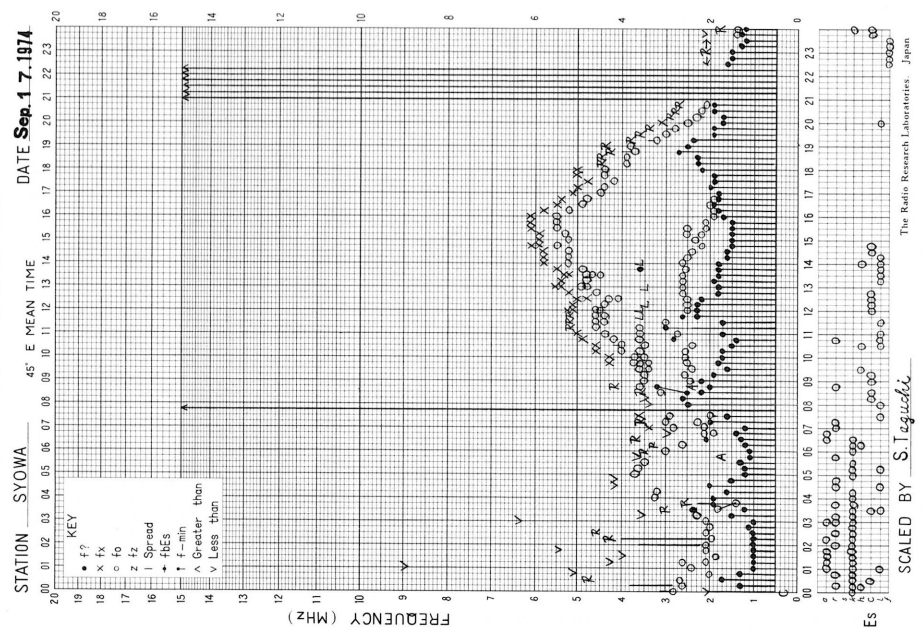
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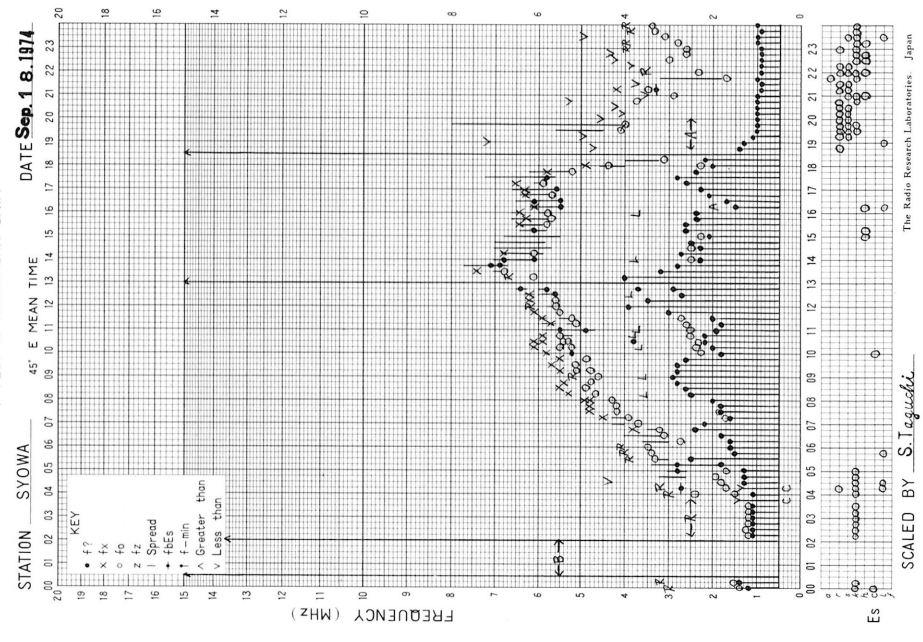
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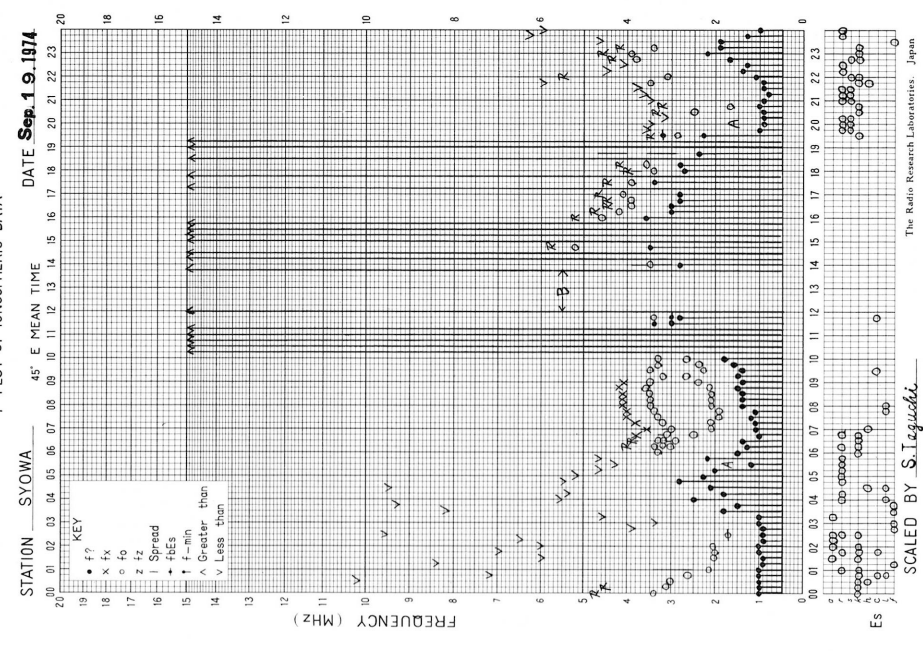
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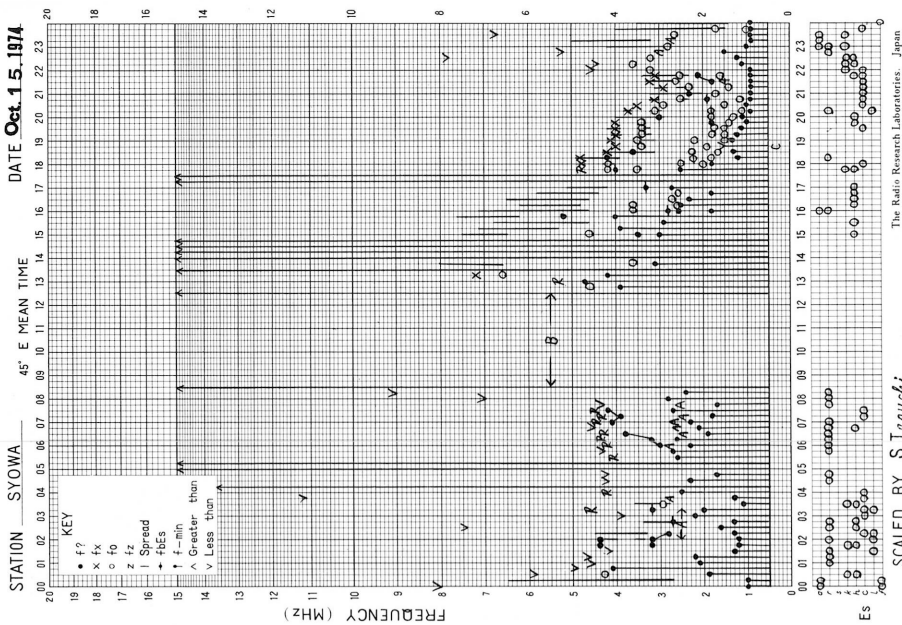
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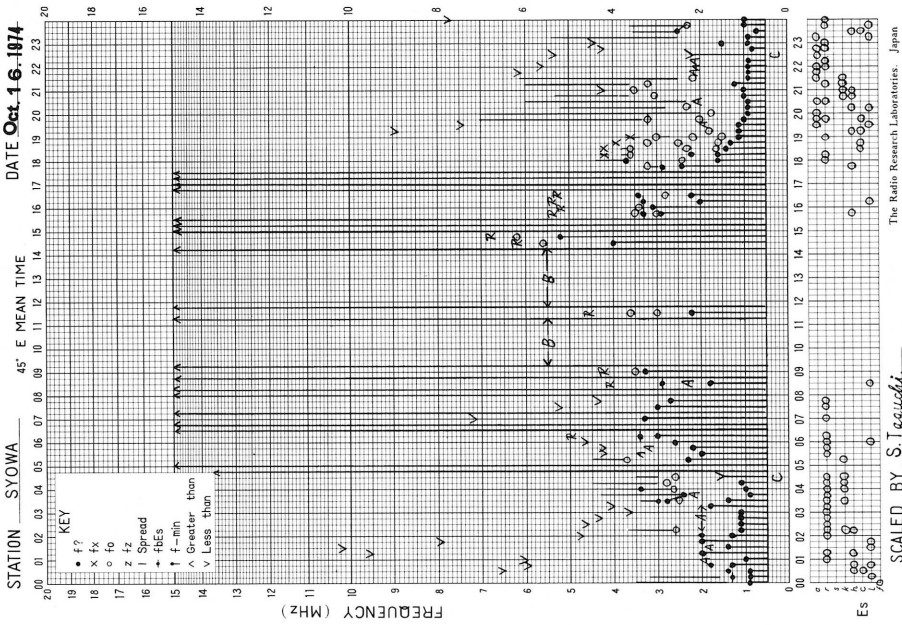
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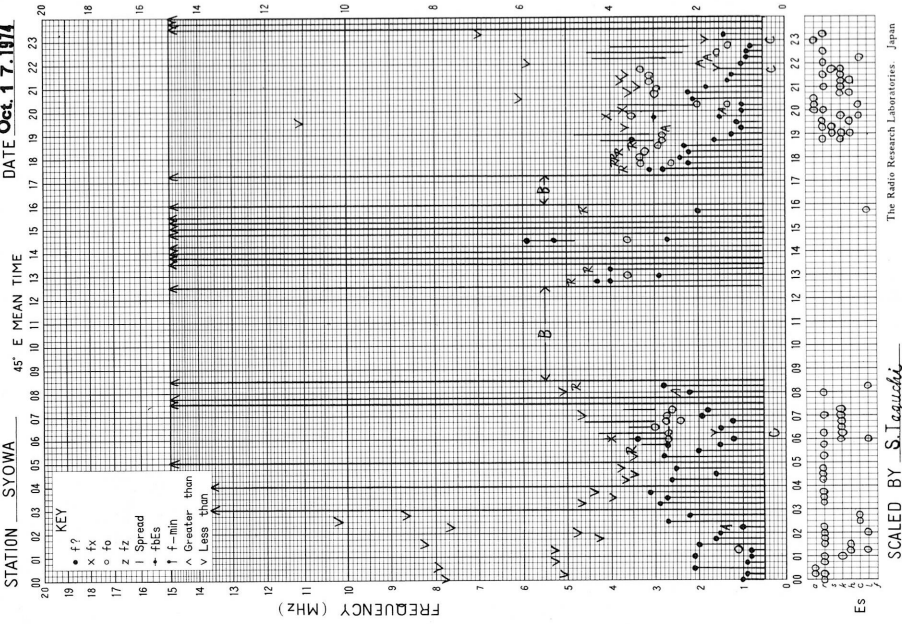
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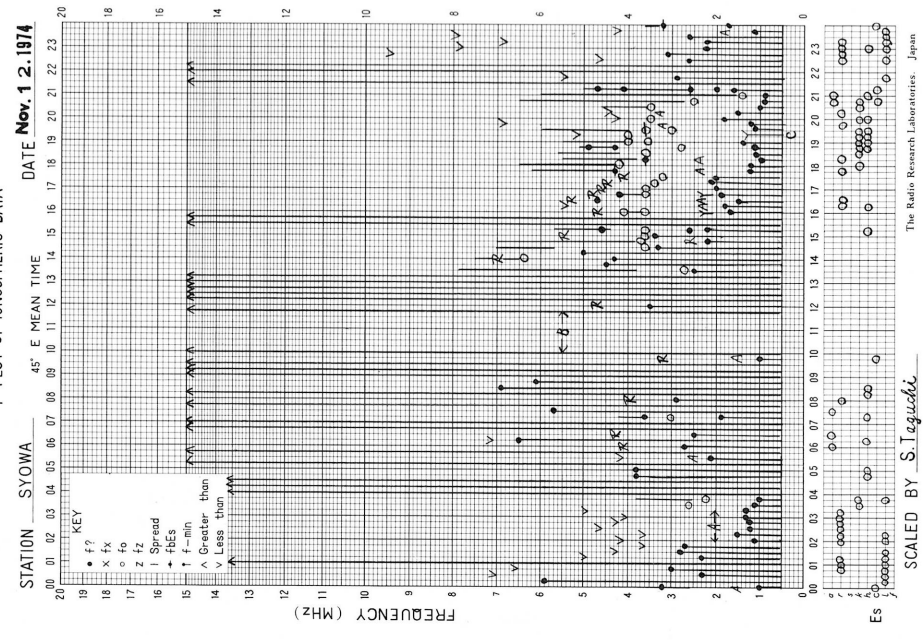
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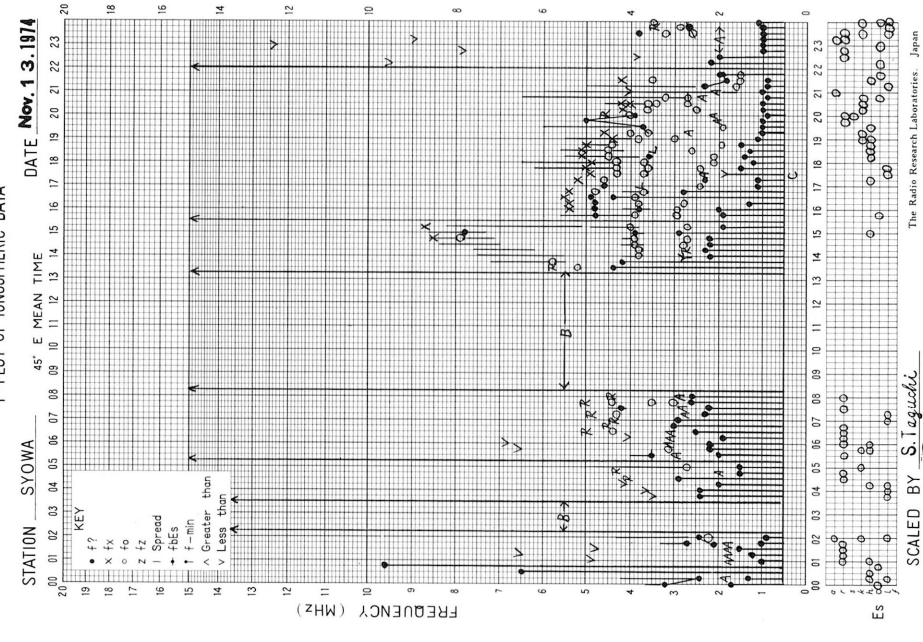
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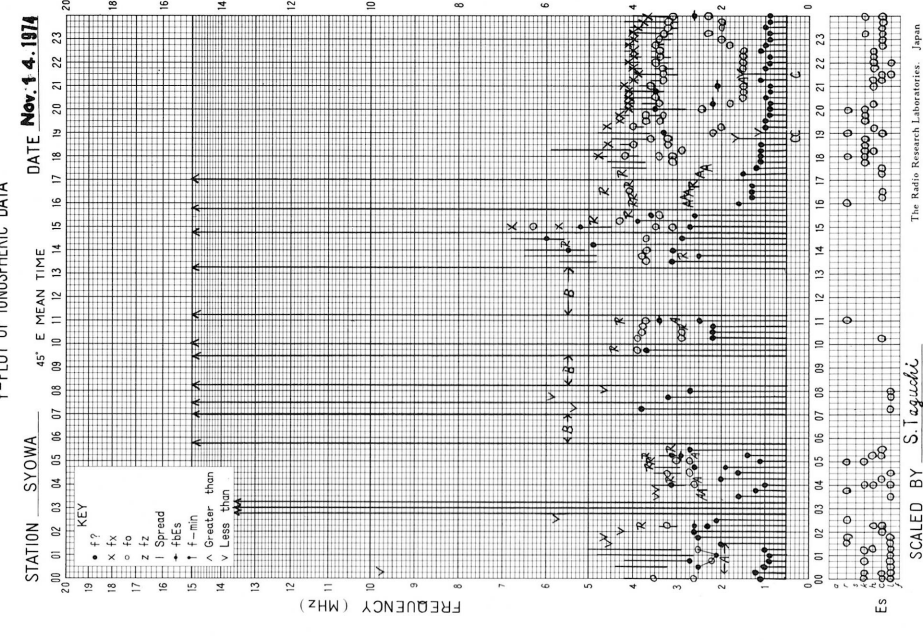
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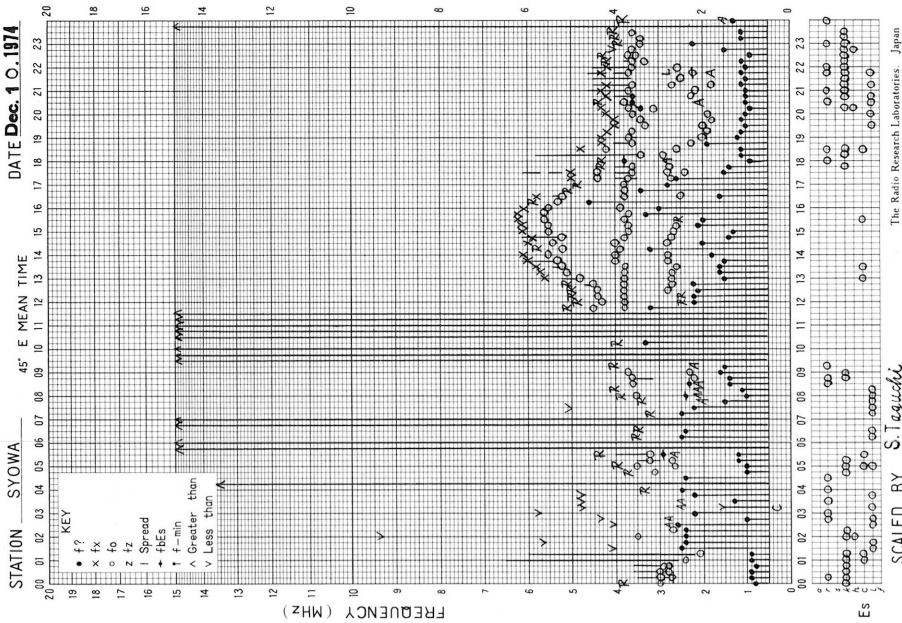
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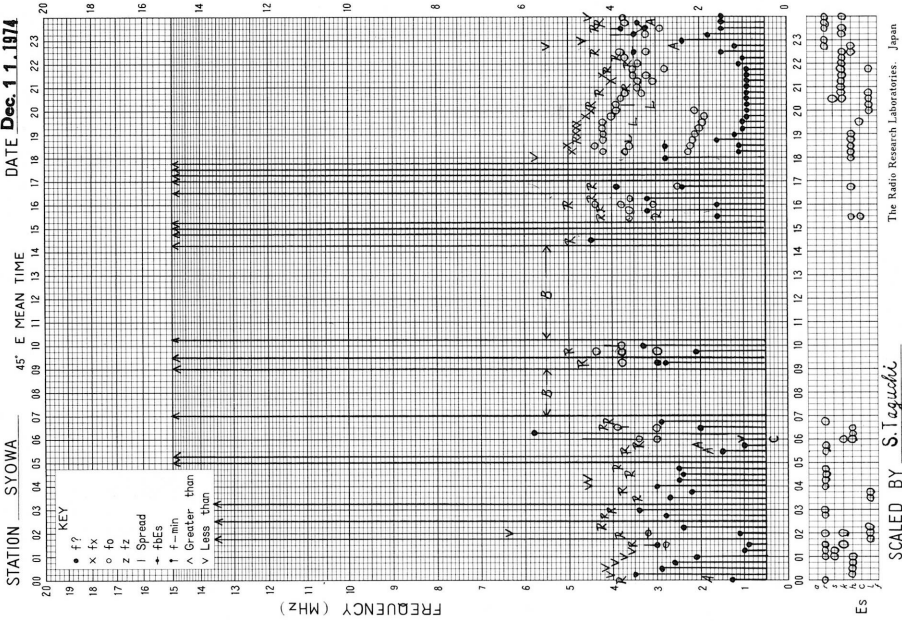
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f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

