

ION.ANT.— 32

IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)

January 1979—June 1979

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)	81

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	69.8° S	78.2° 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

$f_x I$	Top frequency of spread F trace
$f_o F2$ $f_o F1$ $f_o E$ $f_o Es$	Ordinary wave critical frequency for the $F2$, $F1$, E and Es including particle E layers respectively
$fbEs$	Blanketing frequency of the Es layer, e. g. the lowest ordinary wave frequency visible through Es
$fmin$	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.
$h'F2$ $h'F$ $h'Es$	Minimum virtual height on the ordinary wave for the $F2$, whole F and Es layers respectively.
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>f_{min}</i> .
C	Measurement influenced by, or impossible because of, any non-ionospheric reason.
D	Measurement influenced by, or impossible because of, the upper limit of the normal frequency range.
E	Measurement influenced by, or impossible because of, the lower limit of the normal frequency range.
F	Measurement influenced by, or impossible because of, the presence of spread echoes.
G	Measurement influenced or impossible because the ionization density of the layer is too small to enable it to be made accurately.
H	Measurement influenced by, or impossible because of, the presence of stratification.
K	Presence of particle <i>E</i> layer.
L	Measurement influenced by or impossible because the trace has no sufficiently definite cusp between layers.
M	Interpretation of measurement questionable because the ordinary and extraordinary components are not distinguishable.
N	Conditions are such that the measurement cannot be interpreted.
O	Measurement refers to the ordinary component.
P	Man-made perturbation of parameters—Presence of polar spur traces.
Q	Range spread present.
R	Measurement influenced by, or impossible because of, attenuation in the vicinity of a critical frequency.
S	Measurement influenced by, or impossible because of, interference or atmospherics.
T	Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
V	Forked trace which may influence the measurement.
W	Measurement influenced or impossible because 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>f_bEs</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 Types 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.

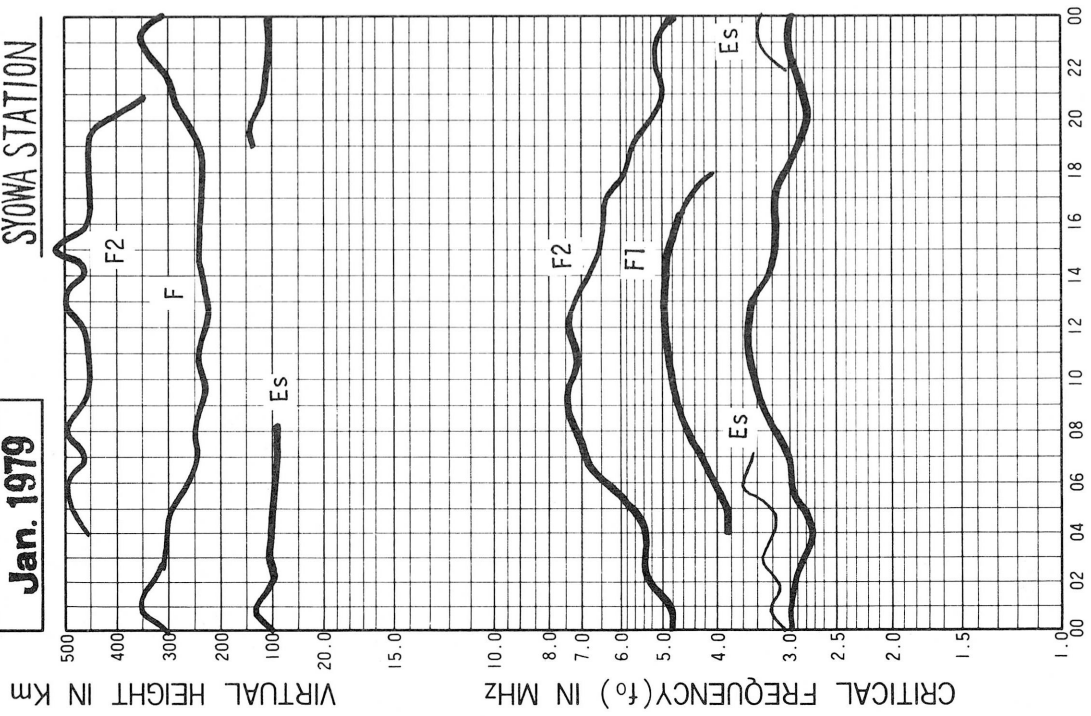
d. *f*-plot.

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

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

Jan. 1979

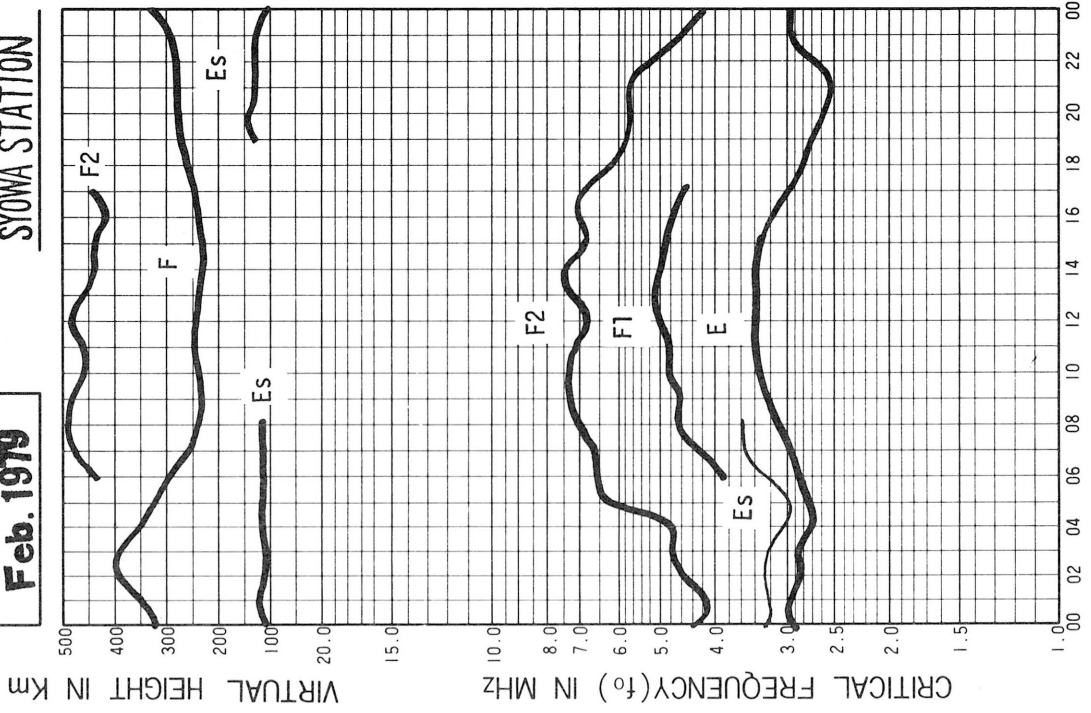
SYOWA STATION



45°E MEAN TIME

Feb. 1979

SYOWA STATION

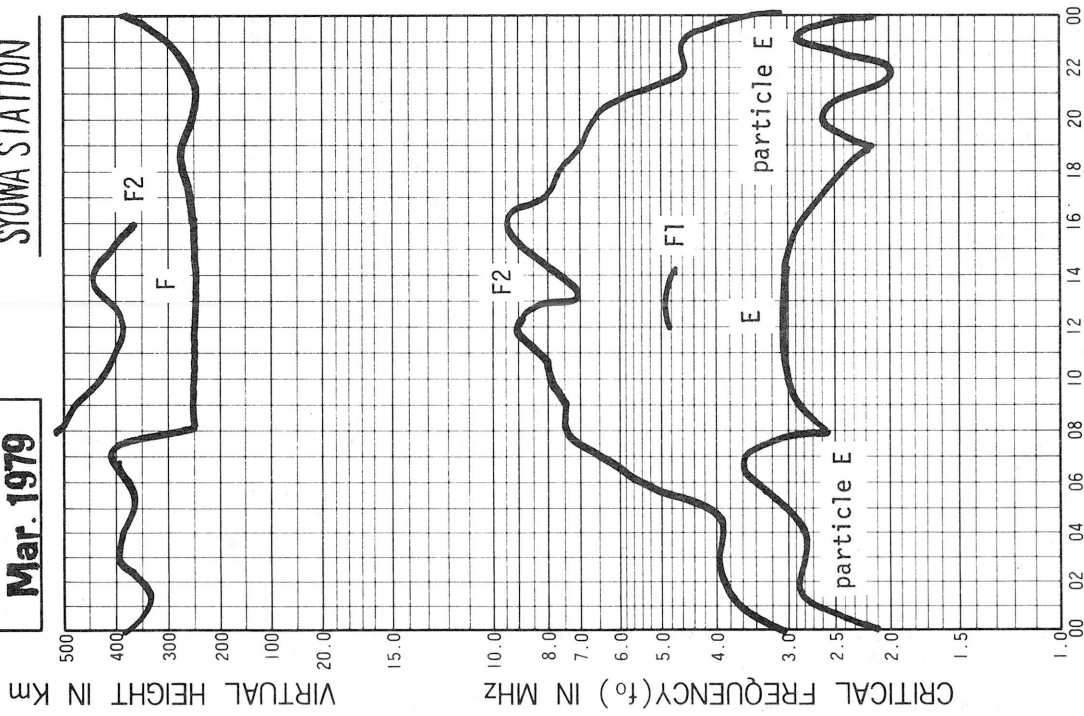


45°E MEAN TIME

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

Mar. 1979

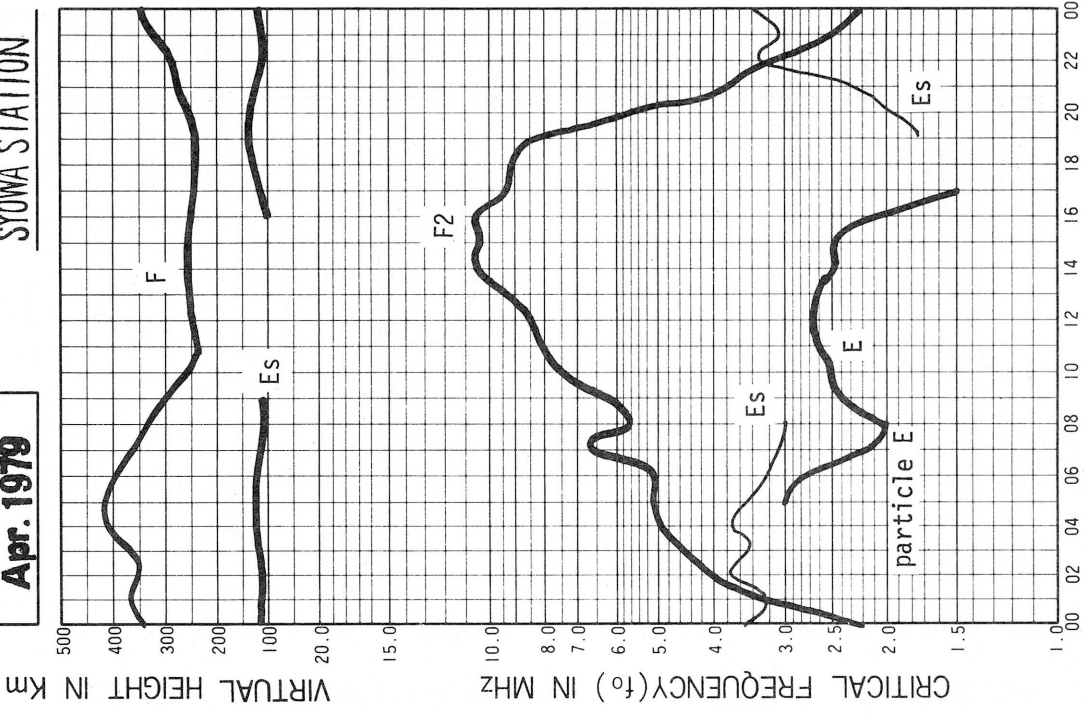
SYOWA STATION



45°E MEAN TIME

Apr. 1979

SYOWA STATION

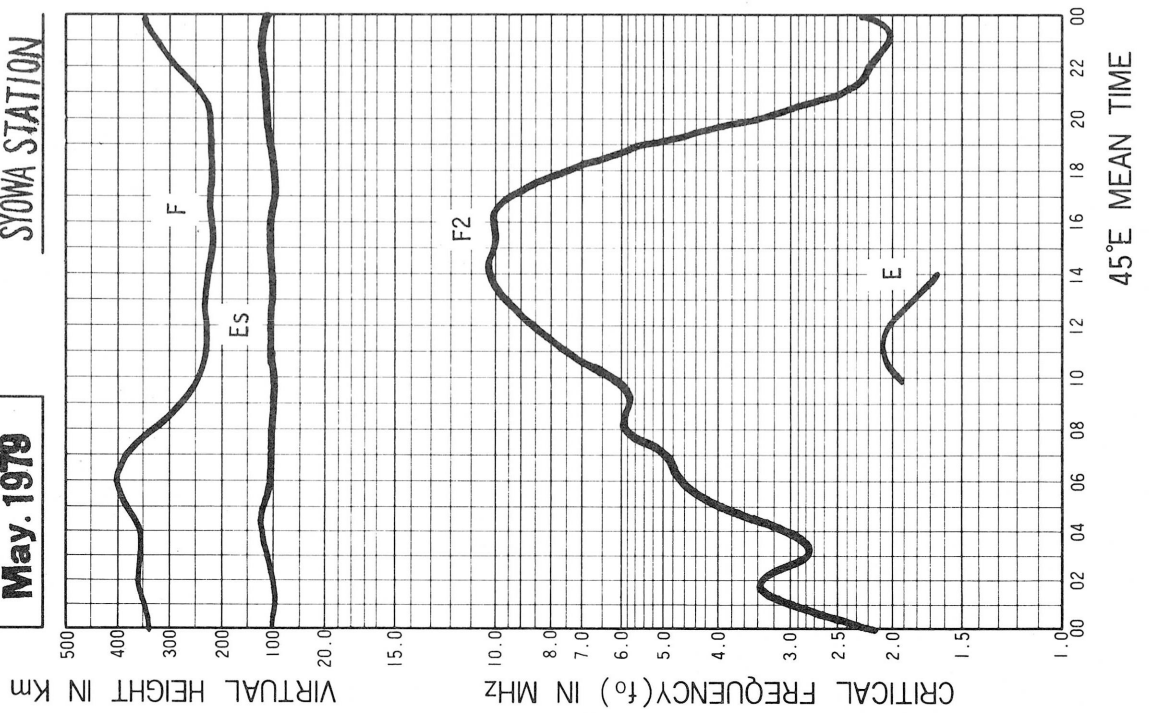


45°E MEAN TIME

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

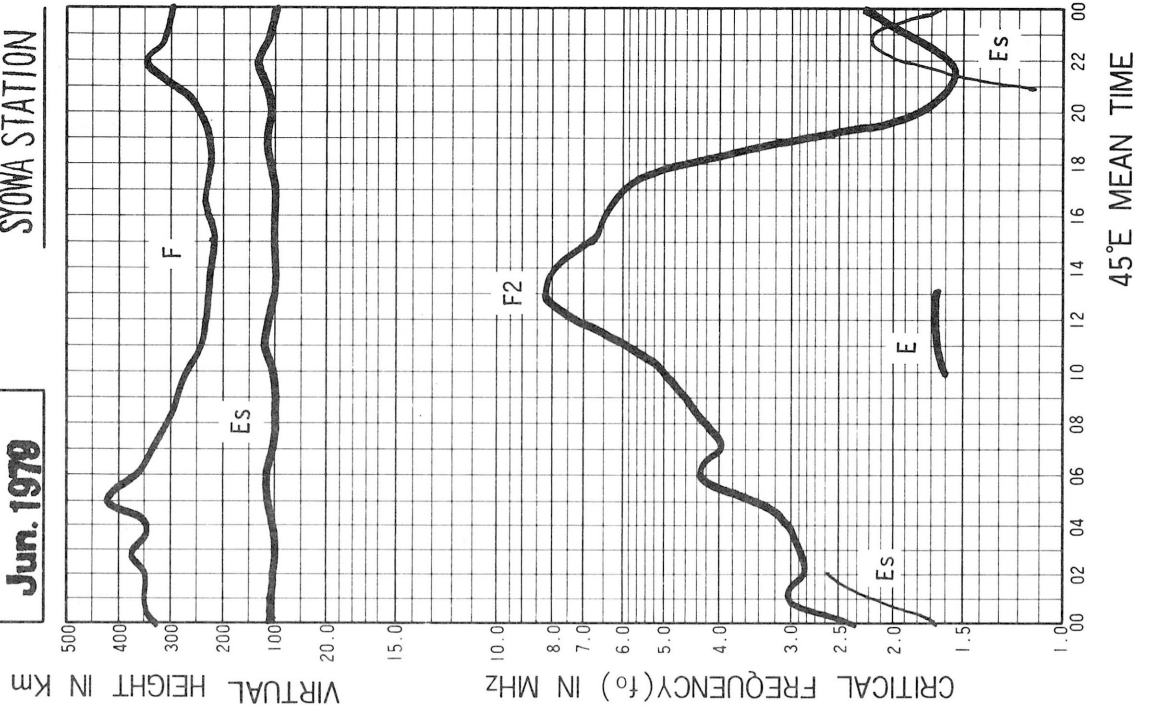
May. 1979

SYOWA STATION



Jun. 1979

SYOWA STATION



45°E MEAN TIME

45°E MEAN TIME

IONOSPHERIC DATA

JAN. 1979

FXI (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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	S 57	R	R	B	O R 58	S	X 62	O S 66	S	R	O S 66	76	U S 71	O S 72	R	O S 69	X 75	O R 68	O S 71	X 65	X 68	X 69	X 68	X 65	
2	X 69	X 68	R	B	O S 64	O S 63	S	S	X 82	X 83	R	S	Y	Y	Y	Y	O R 78	B	O S 63	-59	R	O S 54	S	B	
3	R	O S 52	Y	R	R	R	R	R	R	R	Y	R	B	B	B	B	B	R	S	O R 60	O R 50	O S 55	S	X 56	
4	Y	Y	O R 50	45	O S 52	B	R	B	B	B	B	B	B	B	B	R	Y	Y	R	46	O S 52	47	B	O R 50	
5	A	R	B	A	B	S	S	R	R	R	B	B	B	B	B	R	R	R	S	O S 58	Y	R	R	O S 56	
6	X 50	B	A	Y	Y	B	R	B	X 71	O S 64	R	R	R	R	Y	O R 62	B	R	B	S	O S 52	O R 58	X 52	X 57	
7	U S 60	S	X 61	60	S 66	O S 61	O S 71	83	O R 78	X 81	P	R	R	O R 80	R 76	X 76	73	R	Y	R	R	50	B	R	
8	50	X 46	R	R	R	R	R	Y	O R 56	R	R	O S 61	R	R	R	S	O S 62	S	O S 61	O S 59	U S 59	X 58	X 52	S 49	
9	X 54	55	55	S	O S 54	S 59	S 66	S	X 77	85	Y	O S 79	B	O S 72	R	O R 67	65	X 67	X 68	X 64	X 58	X 51	X 57	X 58	
10	O S 55	52	60	71	75	65	X 79	C	C	C	X 79	X 73	O R 75	X 75	O R 71	X 73	O R 68	X 66	R	69	X 65	X 67	X 68	X 50	
11	58	O S 62	X 66	X 67	O S 65	O S 68	R	X 70	74	82	X 78	Y	X 76	X 75	X 77	R	O R 72	X 74	70	X 68	X 68	X 71	X 71	X 68	
12	69	72	X 78	X 79	X 80	X 70	Y	R	S	X 80	X 77	O R 66	R	S	R	O R 64	X 68	O R 67	X 70	X 71	X 64	62	O S 62	60	
13	54	52	S	B	O R 62	U S 62	X 78	X 82	X 87	X 91	Y	U R 89	X 86	X 82	U R 77	O R 70	R	R	O R 66	X 67	X 67	X 67	X 65	X 66	
14	X 65	S 69	X 69	X 79	80	90	94	94	S	S	S	S	B	O R 68	X 78	B	79	X 78	O S 58	60	X 65	X 68	O R 64	S 66	
15	O S 66	66	60	60	72	77	79	80	77	82	X 87	X 86	X 86	X 84	R	X 82	B	B	B	X 58	O R 62	O S 61	60	R	
16	Y	70	70	A	Y	Y	R	R	R	R	O S 56	O R 59	R	R	B	B	R	X 67	X 65	B	O R 60	O R 59	X 60	X 58	
17	X 55	X 58	X 63	X 69	71	81	88	93	96	X 92	90	X 88	X 83	X 83	X 80	X 76	X 76	70	U R 71	R	70	58	X 54	60	O R 57
18	B	U S 58	U S 56	Y	Y	69	Y	69	66	71	R	X 77	Y	X 78	X 81	Y	X 85	B	X 66	B	O R 49	R	R	X 53	
19	O R 56	P	62	66	58	O R 52	9	O R 53	B	R	B	Y	O R 63	Y	B	O R 74	74	X 72	X 67	63	X 60	X 54	X 60	X 58	
20	50	53	53	S	62	3	70	B	R	S	O R 66	70	B	O R 73	O S 71	B	O R 68	R	O S 57	68	53	62	X 56	X 55	
21	X 65	X 55	X 58	S	68	74	R	62	79	81	X 85	O R 85	S	B	R	O R 83	O R 85	X 73	62	62	O R 49	X 52	C	O S 61	
22	X 56	Y	B	X 53	C	C	C	C	C	X 97	C	X 85	O S 81	X 78	X 76	X 73	X 75	X 72	X 76	X 68	X 63	66	B	A	
23	S	O S 54	B	B	U S 48	U S 55	S	S	U S 74	R	B	B	88	B	B	Y	B	R	R	R	C	45	B	A	
24	C	C	Y	Y	49	Y	Y	Y	Y	R	Y	B	B	B	B	B	B	B	R	X 60	X 56	X 56	X 52	X 49	
25	S 65	53	R	O R 57	Y	67	Y	B	Y	Y	B	B	B	R	R	P	X 65	X 68	Y	O R 52	X 51	57	46	42	
26	B	B	O S 47	A	Y	R	51	O R 54	R	Y	B	B	B	B	B	B	B	O R 58	X 56	B	O R 42	52	A	B	
27	B	O R 47	B	Y	B	60	A	A	Y	B	B	B	B	B	B	B	R	R	O R 63	X 60	R	50	X 53	B	
28	C	B	47	R	55	50	70	B	R	B	E	B	Y	B	R	B	B	B	X 66	O R 62	B	O R 54	O R 52	O S 50	
29	B	O R 56	B	O R 52	B	Y	Y	B	52	B	B	B	B	R	O R 63	O R 64	X 65	B	B	R	X 56	55	X 55	O R 47	
30	49	O S 49	Y	B	B	R	67	B	R	X 66	66	B	B	B	B	O R 69	O R 69	O R 66	O R 65	X 70	3	X 55	X 46	X 45	
31	R	Y	Y	S	52	3	B	B	O R 65	O R 68	9	O R 66	B	B	B	O R 65	B	O R 63	O R 64	X 66	O R 64	X 60	X 61	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	19	20	16	12	13	18	12	11	15	14	10	14	9	12	10	15	18	15	20	25	24	30	22	24	
MED	56	58	60	63	63	64	70	70	74	82	78	76	81	76	76	O R 70	72	X 68	66	62	58	56	X 58	56	
UQ	64	64	64	X 70	71	70	79	82	78	85	85	X 85	X 86	X 81	X 78	X 75	76	X 72	X 69	X 68	X 64	62	X 62	X 59	
LQ	54	53	56	58	S 55	S 60	66	64	68	71	O R 66	O R 66	O 75	O 72	O R 71	O 66	68	66	62	59	52	54	X 52	50	

JAN. 1979

FXI (0.1 MHz)

IONOSPHERIC DATA

JAN. 1979

F0F2 (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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

JAN. 1979

F0F2 (0.1 MHz)

IONOSPHERIC DATA

JAN. 1979

FOF1 (0.01 MHZ)

45° E Mean Time (G.M.T. + 3h)

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					400	R	R	470	Y	500	500	500	520	520	I R 520	520	500	510	L			L		
2					A	Y	S	430	Y	450	Y	Y	Y	Y	U Y 500	Y	U R 490	B	470					
3					R	R	U F 380	U S 400	R	R	Y	R	B	B	B	B	B	B	F	450	430	L		L
4					R	B	R	B	B	B	B	B	B	B	B	B	460	Y	Y	R	430			
5					B	350	380	U S 400	450	460	B	B	B	B	B	R	470	460	470	L				
6					Y	B	A	B	440	450	450	R	R	R	Y	460	B	R	B	R				
7			L	380	F	U S 400	410	F	430	460	460	R	R	U R 520	490	490	480	510	H	460	Y	390	F	
8				U F 370	380	390	R	Y	430	450	450	490	R	U R 500	R	500	500	490	500	L				
9					A	Y	Y	430	Y	470	Y	470	B	500	500	500	480	480	470					
10					U F 380	F	450	C	C	C	510	C	R	510	510	510	500	500	460	L				
11					A	A	P	440	450	470	470	Y	U S 540	510	510	H	U R 500	L	L	L				
12			L		L	R	Y	R	450	490	Y	U R 480	R	500	I R 500	490	490	480	470	L	L			
13					Y	Y	U R 420	H	U R 470	480	Y	Y	R	R	R	R	500	500	U L	480	L		L	
14					L	F	450	470	I R 500	490	R	R	B	500	U R 500	B	490	480	440					
15					U F 420	430	460	F	480	490	U R 500	I R 500	R	500	Y	490	480	B	B	B	410	L		
16					A	Y	R	R	R	R	U Y 470	Y	R	470	B	B	480	450	L					
17					L	420	440	470	I B 480	490	490	A	U R 490	490	510	500	L	F	U L	480	L	L		
18					A	A	A	Y	450	460	480	510	Y	510	U R 500	Y	480	B						
19					A	U R 390	B	410	4	3	B	Y	500	Y	B	500	L	L	L	L				
20					F	B	400	B	R	Y	U R 480	U R 490	E	B	B	B	470	470	430	L				
21					L	F	Y	470	R	U R 480	U R 500	Y	B	B	Y	Y	490	480	460					
22					C	C	C	C	C	R	C	520	500	R	500	510	500	490	480	L				
23					F	380	380	420	S	R	B	B	B	B	B	Y	B	R	R					
24					Y	350	A	Y	Y	440	Y	B	B	B	Y	B	B	B	R	L				
25							Y	B	Y	Y	E	B	B	B	U R 470	I R 470	470	470	460	Y				
26					A	340	400	400	F	R	Y	B	B	B	B	B	B	B	R	430	450			
27					B	390	A	A	Y	B	B	B	B	B	B	B	U R 460	470	450					
28					L	Y	400	3	R	B	B	B	Y	B	480	B	B	B	L	L				
29					B	A	A	B	R	B	B	B	B	480	480	470	480	B	B					
30					B	R	Y	B	R	R	470	B	B	B	B	490	470	460	L					
31					B	B	B	440	450	B	B	B	B	B	B	500	B	470	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				2	7	11	13	15	13	17	12	8	9	14	16	17	20	19	14	3				
MED				375	390	390	410	430	450	470	480	495	500	500	500	500	490	480	460	410				
UQ				400	405	450	465	480	490	500	505	520	R	510	510	500	495	490	470	445				
LQ				F	380	355	400	415	450	450	470	485	R	500	490	490	480	475	460	440	400			

JAN. 1979

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JAN. 1979

FOE (0.01 MHz)

45° E Mean Time (G.M.T. + 3h)

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	K 300	B 300	B 300	D 310	K 310	K 320	K 390	K 380	Y	Y	Y	Y	Y	R	R	R	R	300	B	280	H 260	230	H 190	140		
2	150	K 320	B 300	B 300	A 310	A 300	A 300	A 300	Y	R 340	Y	U R 360	Y	Y	A	A	Y	B	290	270	A	A	A	B		
3	K 375	U K 300	Y 300	B 300	K 370	K 370	300	A	A	A	A	R	B	B	B	B	B	R	280	290	250	250	A	A		
4	A 380	K 300	K 300	K 300	260	B	A	B	B	B	B	B	B	B	B	Y	Y	Y	U R 290	U R 290	290	K 310	B	A		
5	A 350	A 350	B 350	K 350	B 350	A 290	300	R	R	B	B	B	B	B	B	R	310	U R 320	295	290	Y	U R 250	K 380	K 320		
6	K 280	D 300	A 300	B 300	B 300	B 300	A 300	B 300	R	R	R	R	R	R	Y	330	B	B	B	R	K 385	K 390	K 340	K 330		
7	K 300	K 300	K 250	K 290	H 260	U R 290	H 320	300	Y	340	R	U R 360	350	340	A	320	Y	320	Y	Y	U R 280	A	B	B		
8	K 260	A 300	A 300	K 310	H 310	K 350	K 300	K 315	R 330	Y	U R 330	350	R 350	330	330	330	U R 330	320	300	260	270	250	K 300	K 300		
9	K 360	K 290	K 300	B 300	A 300	A 300	A 300	A 300	305	R	Y	U Y 330	B	R	R	350	340	330	300	280	260	K 305	K 320	K 350		
10	K 340	K 230	290	U A 230	230	A 330	C	C	C	U R 340	C	R	Y	R	330	R	R	290	300	280	240	230	190	250		
11	190	175	150	280	K 300	A 300	A 300	300	H 320	340	350	R	Y	Y	Y	Y	Y	A	R	320	305	H 295	250	H 210	200	190
12	H 170	170	170	220	H 250	H 290	Y	A 325	340	330	U Y 330	R	Y	Y	A	A	U A 320	U R 300	300	280	260	340	K 320	K 320	K 320	
13	A 270	U K 280	B 280	B 300	A 300	A 300	H 320	300	310	Y	Y	340	350	Y	320	R	B	310	320	U R 300	H 280	H 260	H 240	H 210	190	
14	A 170	180	A 260	270	290	A 300	A 300	A 300	A 300	A 300	A 300	A 300	B	B	360	B	U R 320	310	U R 330	280	A 290	K 300	K 300	K 245		
15	190	270	310	315	325	A 300	A 300	A 300	330	340	350	350	350	350	340	Y	B	B	B	320	250	270	350	K 350		
16	B 280	K 250	K 250	A 300	A 300	A 300	A 300	R 300	R 300	A 300	Y 300	Y 300	R 300	B 300	B 300	B 300	U R 330	325	300	B 300	B 300	B 300	170	160		
17	160	K 260	K 280	K 280	U A 250	260	A 300	B 300	B 300	R 335	A 350	A 350	Y 350	Y 350	Y 350	Y 350	Y 320	B 300	300	280	285	H 270	K 340	K 270	K 395	
18	B 350	K 300	K 300	A 300	A 300	A 300	A 300	Y 350	340	R 350	Y 350	R 350	Y 350	Y 350	Y 350	Y 320	B 300	300	B 300	B 240	260	370	K 360	K 360		
19	K 400	B 380	K 225	A 300	A 300	B 300	325	B 300	B 300	B 300	380	R 380	Y 380	B 350	U R 320	330	300	300	300	270	A 340	K 310	U K 310	K 310		
20	K 330	K 310	K 430	340	A 300	B 310	B 300	A 300	A 300	B 300	R 300	B 300	B 300	B 300	B 300	B 300	B 300	B 300	300	A 300	300	350	K 300	K 320	K 320	
21	U K 310	K 310	A 310	A 310	K 310	R 300	A 300	A 300	350	Y 350	Y 350	360	B 350	B 350	Y 340	295	320	300	310	280	260	C 320	K 320	K 320		
22	K 315	K 300	B 300	A 300	C 300	C 300	C 300	C 300	R 300	C 300	360	350	350	350	350	340	340	325	315	285	250	210	B 300	A 300		
23	S 270	K 270	B 270	B 270	H 270	300	300	320	320	320	B 300	B 300	B 300	B 300	B 300	Y 300	B 300	R 300	R 300	R 300	R 300	H 250	B 300	A 300		
24	C 260	C 260	A 260	A 260	Y 260	260	A 320	A 320	A 320	A 320	B 320	B 320	B 320	B 320	B 320	R 320	B 320	B 320	B 320	B 320	270	270	250	H 200	H 350	
25	K 330	K 310	A 320	K 320	A 320	A 320	A 320	B 320	Y 320	Y 320	B 320	B 320	B 320	B 320	Y 320	Y 320	R 320	U R 330	320	Y 320	Y 320	K 350	K 280	K 300	K 250	
26	B 270	B 270	A 270	A 270	A 270	270	270	A 270	A 270	Y 270	B 270	B 270	B 270	B 270	B 270	B 270	B 270	B 270	R 300	300	B 270	A 270	A 170	B 270		
27	B 290	A 290	B 290	A 290	B 290	B 290	A 290	Y 290	B 290	B 290	B 290	B 290	B 290	B 290	B 290	B 290	B 290	R 300	290	260	A 300	K 320	K 320	B 300		
28	C 300	A 300	K 300	K 270	250	A 300	A 300	B 300	A 300	B 300	B 300	B 300	360	B 300	Y 300	B 300	B 300	B 300	300	290	B 300	B 300	A 360	K 360		
29	B 295	K 295	B 295	A 295	B 295	A 295	A 295	B 295	Y 295	B 295	B 295	B 295	B 295	Y 295	330	330	320	R 320	B 320	B 275	270	250	H 200	K 300		
30	K 270	K 300	B 300	B 300	B 300	K 300	310	A 350	360	R 350	R 360	B 350	B 350	B 350	B 350	Y 320	320	Y 320	B 275	B 275	H 225	K 305	K 320	K 320		
31	K 360	B 360	B 360	B 360	A 360	B 360	B 360	B 360	350	R 350	B 350	B 350	B 350	B 350	B 350	Y 350	B 350	320	300	280	B 350	B 350	A 290	K 290		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	19	21	15	13	13	13	12	11	11	8	6	10	5	6	7	10	14	18	22	23	22	24	22	22		
MED	K 300	K 295	K 290	K 290	260	290	305	300	330	340	U R 338	355	350	350	330	330	R 320	320	300	280	270	255	K 300	K 315		
UQ	K 355	K 310	K 300	K 315	K 310	320	320	320	350	340	U R 350	360	350	350	345	340	U R 330	320	300	290	280	302	K 320	K 330		
LQ	225	K 270	K 250	K 270	250	270	295	300	320	340	U R 330	350	350	340	330	330	R 320	300	295	278	250	H 235	200	K 250		

JAN. 1979

FOE (0.01 MHz)

IONOSPHERIC DATA

JAN. 1979

FOES (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

Station SYCWA 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	K 30	B 42	B 31	G 39	K 38	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	J A 24	J A 39		
2	G 32	K 32	B 32	G 32	G 38	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40		
3	K 37	J A 65	K 42	K 37	K 37	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40		
4	31	41	K 30	K 30	G 34	G 34	G 36	G 36	G 38	G 38	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40	G 42	G 40	G 40		
5	30	37	B 57	B 31	G 31	G 31	G 33	G 33	G 35	G 35	G 37	G 37	G 39	G 39	G 41	G 41	G 43	G 43	G 45	G 45	G 47	G 47	K 38	K 32		
6	K 28	B 74	J A 41	38	B 44	B 44	G 46	G 46	G 48	G 48	G 50	G 50	G 52	G 52	G 54	G 54	G 56	G 56	G 58	G 58	G 60	K 38	K 39	K 34	K 33	
7	37	35	K 25	K 29	G 33	G 33	G 35	G 35	G 37	G 37	G 39	G 39	G 41	G 41	G 43	G 43	G 45	G 45	G 47	G 47	G 49	G 49	G 51	G 51		
8	36	46	32	K 31	K 32	K 35	K 40	37	G 37	G 37	G 39	G 39	G 41	G 41	G 43	G 43	G 45	G 45	J A 59	31	G 31	G 31	K 30	K 30		
9	K 36	K 29	K 30	46	39	40	38	40	G 40	G 40	G 42	G 42	G 44	G 44	G 46	G 46	G 48	G 48	G 50	G 50	G 52	G 52	K 30	K 35		
10	38	25	J A 51	47	30	41	G 41	C 41	C 41	C 41	G 43	E 43	G 43	G 45	G 45	G 47	G 47	G 49	G 49	33	34	40	G 40	22	30	
11	21	29	25	K 28	40	45	40	36	G 36	G 36	G 38	G 38	G 40	G 40	G 42	G 42	G 44	G 44	G 46	G 46	J A 74	29	29	G 29		
12	G 10	20	G 20	G 30	J A 30	G 30	G 30	36	G 36	G 36	G 38	G 38	G 40	G 40	G 42	G 42	G 44	G 44	G 46	G 46	G 48	G 48	K 34	K 32	K 32	
13	J A 47	37	42	B 30	35	G 35	G 35	G 37	G 37	G 39	G 39	G 41	G 41	G 43	G 43	E 45	G 45	G 47	G 47	G 49	G 49	G 51	G 51	G 51	21	
14	26	22	26	35	G 41	G 41	G 43	37	46	46	35	B 45	E 45	G 45	G 47	G 47	G 49	G 49	G 51	G 51	37	39	37	K 29	K 24	
15	G 33	K 31	K 31	K 32	31	37	38	G 38	G 38	G 40	G 40	G 42	G 42	G 44	G 44	G 46	G 46	G 48	G 48	G 50	G 50	G 52	G 52	K 35	47	
16	30	K 28	K 25	70	47	34	38	G 38	G 38	40	G 40	G 40	G 42	E 43	B 43	B 43	G 45	G 45	G 47	G 47	G 49	G 49	35	26	J A 45	26
17	23	32	K 28	34	27	31	32	35	E 52	47	45	J A 86	40	G 40	G 40	G 42	G 42	G 44	G 44	G 46	G 46	G 48	G 48	K 34	K 27	K 39
18	B 35	K 30	K 30	42	42	42	40	G 40	G 40	47	G 47	G 47	39	G 39	G 39	G 41	G 41	G 43	G 43	G 45	G 45	G 47	G 47	G 49	K 37	38
19	47	42	K 38	G 41	J A 41	39	B 39	G 39	B 39	B 39	41	G 41	G 41	B 41	G 41	G 43	G 43	G 45	G 45	G 47	G 47	32	30	32	42	J A 40
20	K 33	J A 58	K 43	K 34	35	B 35	G 35	40	36	E 39	G 39	B 39	E 55	E 62	B 62	E 37	E 39	G 39	G 39	32	G 32	K 35	K 30	K 32	32	
21	U 31	K 31	K 37	45	K 31	G 31	40	42	G 42	G 42	G 44	G 44	B 44	B 44	G 44	46	40	G 40	G 40	G 42	G 42	G 44	G 44	C 44	K 32	
22	K 31	K 30	B 30	C 30	C 30	C 30	C 30	C 30	C 30	G 30	C 30	38	40	47	40	37	G 37	G 37	G 39	G 39	45	37	30	B 30	51	
23	42	27	B 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	B 27	E 62	B 62	B 62	G 62	G 62	G 64	G 64	G 66	G 66	G 68	G 68	B 68	J A 37	
24	C 40	C 40	G 40	G 40	25	41	39	40	37	B 37	B 37	B 37	B 37	B 37	B 37	B 37	B 37	B 37	E 38	B 38	32	G 32	G 32	25	K 35	
25	K 33	K 31	40	K 32	40	30	43	B 43	G 43	G 43	B 43	B 43	B 43	B 43	B 43	B 43	B 43	B 43	G 43	G 43	G 45	K 35	34	K 30	40	
26	B 70	72	36	G 36	G 36	32	40	G 40	G 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	G 40	G 40	B 40	G 40	93	J A 51	B 93	
27	B 40	B 27	B 27	G 27	59	50	G 50	B 50	B 50	B 50	B 50	B 50	B 50	B 50	B 50	B 50	B 50	B 50	G 50	G 50	G 50	G 50	29	K 30	K 32	B 29
28	C 30	K 30	K 27	28	37	35	40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	B 40	35	38	B 38	E 42	30	K 36	
29	B 32	B 40	B 40	B 41	41	41	G 41	B 41	B 41	B 41	B 41	B 41	B 41	B 41	B 41	B 41	B 41	B 41	B 41	B 41	30	G 30	G 30	G 30	K 30	
30	K 27	K 30	40	B 38	K 38	37	B 37	G 37	G 37	G 37	B 37	B 37	B 37	B 37	B 37	B 37	B 37	B 37	G 37	G 37	E 38	B 38	G 38	K 30	K 32	
31	K 36	35	29	B 30	B 30	B 30	B 30	G 30	G 30	B 30	E 55	B 55	B 55	B 55	B 55	B 55	B 55	B 55	G 55	G 55	G 55	33	27	29	K 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	25	26	24	25	26	26	28	21	27	25	20	21	17	20	21	23	23	25	28	28	29	31	26	28		
MED	31	32	30	34	32	31	37	35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	28	30	32	
UQ	37	37	40	42	38	33	40	38	38	G 37	E 37	39	G 39	E 40	37	G 37	G 37	G 37	E 34	G 34	32	35	34	35	38	
LQ	27	K 29	K 28	K 30	27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	G 27	K 29	

JAN. 1979

FCES (0.1 MHz)

IONOSPHERIC DATA

JAN. 1979

FBES (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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	K 30	B 32	U Y 42	B 31	K 31	G 39	K 39	K 38	G 38	G 38	G 38	G 38	G 38	G 38	G 38	G 38	G 38	G 38	E B 35	G 35	G 35	G 35	22 35	B 35		
2	G 30	K 32	B 32	B 32	U Y 32	G 32	S 32	G 32	G 32	G 32	G 32	40	G 32	G 32	U Y 39	Y 39	G 39	B 39	G 39	G 39	36	U Y 36	S 36	B 36		
3	K 37	K 30	Y 30	R 30	K 37	K 37	G 37	38	R 37	R 37	Y 37	G 37	B 37	B 37	B 37	B 37	B 37	G 37	G 37	G 37	G 37	G 37	U Y 29	39		
4	Y 30	Y 30	K 30	K 30	G 30	9 30	R 30	B 30	B 30	B 30	B 30	B 30	B 30	B 30	B 30	B 30	G 30	G 30	G 30	G 30	G 30	A 45	B 30	30		
5	A 80	R 80	B 80	A 80	B 80	30	G 80	G 80	G 80	G 80	B 80	B 80	B 80	B 80	B 80	B 80	G 80	G 80	G 80	G 80	G 80	G 80	K 38	K 32		
6	K 28	B 28	A 74	Y 74	Y 74	B 74	R 74	B 74	G 74	G 74	G 74	G 74	G 74	G 74	G 74	G 74	G 74	B 74	E B 38	B 38	G 38	K 38	K 39	K 34	K 35	
7	32	35	25	K 29	G 29	G 29	G 29	33	G 29	G 29	G 29	R 29	40	47	U Y 41	G 41	G 41	G 41	G 41	G 41	G 41	R 27	E 27	R 27		
8	30	23	R 31	K 31	27	K 35	K 40	Y 40	G 40	G 40	G 40	G 40	G 40	G 40	G 40	G 40	G 40	37	37	33	30	G 30	K 30	K 30		
9	K 36	K 29	K 30	A 46	39	U Y 40	U Y 38	38	G 38	G 38	G 38	G 38	B 38	G 38	G 38	G 38	G 38	G 38	G 38	G 38	G 38	G 38	K 32	K 35		
10	36	19	K 29	G 29	G 40	G 40	C 40	C 40	C 40	G 57	E C 57	G 57	G 57	G 57	G 57	G 57	G 57	G 57	G 57	G 57	34	38	G 28	28		
11	21	28	U Y 25	K 28	40	45	R 45	34	G 45	G 45	G 45	G 45	G 45	G 45	G 45	G 45	U Y 35	G 35	G 35	35	33	45	26	23	G 23	
12	G 20	G 20	20	G 20	G 20	G 20	G 20	R 20	G 20	G 20	G 20	G 20	G 20	G 20	R 20	35	31	G 31	G 31	G 31	G 31	G 31	K 34	K 32	K 32	
13	38	K 27	U S 46	B 46	U Y 30	U Y 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	E B 45	G 45	G 45	G 45	G 45	G 45	G 45	G 45	G 21	21	
14	20	22	21	24	G 24	G 24	G 24	32	R 24	46	R 46	R 46	B 46	E B 45	G 45	B 45	G 45	G 45	G 45	37	35	37	K 29	K 30	K 24	
15	G 27	K 31	K 31	K 31	K 32	31	36	36	G 36	G 36	G 36	G 36	G 36	G 36	U Y 37	U Y 41	G 41	B 41	B 41	B 41	G 41	G 41	G 41	K 35	A 47	47
16	Y 28	K 28	K 25	A 70	Y 70	Y 70	U Y 38	G 38	G 38	R 38	G 38	G 38	G 38	E B 43	B 43	B 43	G 43	G 43	G 43	G 43	G 43	B 35	U Y 26	25	G 25	
17	20	31	K 28	K 28	G 28	G 28	U Y 32	32	E B 52	45	45	52	39	G 39	G 39	G 39	G 39	G 39	G 39	G 39	G 39	G 39	K 34	K 27	K 39	
18	B 35	K 35	K 30	Y 30	Y 42	Y 42	Y 42	G 42	37	G 42	G 42	U Y 39	G 39	G 39	G 39	G 39	G 39	G 39	B 39	G 39	B 39	30	G 30	K 37	K 36	
19	41	R 41	K 38	G 38	39	35	B 35	G 35	B 35	B 35	B 35	Y 35	G 35	G 35	B 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	G 35	35	
20	K 33	40	K 43	K 34	29	B 29	G 29	B 29	R 29	U Y 36	E B 39	G 39	B 39	E B 55	E B 62	B 62	E B 37	E B 39	G 39	32	G 32	K 35	K 30	K 32	32	
21	U K 31	K 31	K 37	S 37	K 31	G 40	U Y 42	G 42	G 42	G 42	G 42	B 42	B 42	G 42	U Y 46	40	G 40	G 40	G 40	G 40	G 40	G 40	G 40	C 40	K 32	
22	K 31	K 30	B 30	30	C 30	C 30	C 30	C 30	C 30	G 30	C 30	38	40	42	40	37	G 37	G 37	G 37	G 37	38	37	26	B 26	A 51	51
23	S 27	K 27	B 27	B 27	G 27	G 27	G 27	G 27	G 27	G 27	B 27	B 27	E B 62	B 62	B 62	G 62	B 62	G 62	G 62	G 62	G 62	G 62	G 62	B 62	A 37	37
24	C 27	C 27	Y 27	G 27	G 27	Y 27	G 27	Y 27	40	Y 40	B 40	B 40	B 40	B 40	37	B 37	B 37	B 37	E B 38	29	G 29	G 29	22	K 22	22	
25	K 33	K 31	U Y 40	K 32	Y 30	Y 30	B 30	G 30	G 30	B 30	B 30	B 30	B 30	B 30	G 30	G 30	G 30	G 30	G 30	G 30	G 30	K 35	K 28	K 30	U 25	25
26	B 30	B 30	A 72	Y 72	G 72	G 72	29	37	G 72	B 72	B 72	B 72	B 72	B 72	B 72	B 72	B 72	G 72	C 72	B 72	G 72	28	A 51	A 51	B 51	
27	B 35	B 35	Y 35	B 35	G 35	A 59	A 50	G 50	G 50	B 50	B 50	B 50	B 50	B 50	B 50	B 50	B 50	G 50	G 50	G 50	G 50	G 50	R 50	K 30	K 32	B 32
28	C 30	B 30	K 30	K 27	U Y 27	35	B 35	R 35	B 35	B 35	B 35	B 35	G 35	B 35	G 35	B 35	B 35	B 35	B 35	34	35	B 34	E B 42	U Y 30	K 36	36
29	B 32	B 32	40	B 40	Y 40	Y 40	B 40	G 40	B 40	B 40	B 40	B 40	B 40	B 40	G 40	G 40	G 40	G 40	B 40	B 40	30	G 30	G 30	G 30	K 30	30
30	K 27	K 30	Y 30	B 30	B 38	U Y 37	B 37	G 37	G 37	G 37	B 37	B 37	B 37	B 37	B 37	G 37	G 37	G 37	E B 38	G 38	B 38	G 38	G 38	K 30	K 32	32
31	K 36	Y 36	Y 36	B 36	29	B 29	B 29	B 29	G 29	G 29	B 29	E B 55	B 55	B 55	B 55	G 55	B 55	G 55	G 55	G 55	G 55	U Y 33	25	23	K 29	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	22	22	21	19	21	24	20	19	22	23	17	18	17	20	20	22	23	25	28	28	27	31	25	27		
MED	31	K 30	K 30	30	29	30	E G 32	32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	G 32	K 30	K 32	K 32	
UQ	K 36	K 32	K 39	37	32	37	38	37	G 37	G 37	G 37	E G 39	G 39	E G 40	38	G 38	G 38	G 38	E G 33	30	35	30	K 32	K 36	K 36	
LQ	21	K 27	K 27	28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	G 28	23	K 30	30

JAN. 1979

FBES (0.1 MHz)

IONOSPHERIC DATA

JAN. 1979

F-MIN (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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	B	21	B	10	26	10	11	21	18	19	15	19	16	23	11	10	10	35	23	13	11	10	10
2	10	9	B	a	20	23	20	10	10	13	17	15	12	24	26	25	20	B	15	20	11	10	10	B
3	11	10	Y	25	22	12	10	11	14	16	24	25	B	B	B	B	B	14	14	16	15	12	10	23
4	10	11	10	15	24	B	25	B	B	B	a	B	9	B	B	11	15	15	13	10	9	10	B	10
5	10	10	B	10	B	16	12	11	11	11	B	B	B	B	B	14	20	30	11	10	10	12	30	16
6	20	B	18	24	25	B	18	B	14	12	10	13	13	13	12	13	B	38	B	11	11	10	15	11
7	13	18	12	10	10	22	10	10	12	10	11	18	12	10	23	13	13	10	13	10	10	11	B	20
8	10	19	10	9	10	9	17	10	11	11	14	12	13	12	15	12	10	12	10	10	16	11	10	10
9	10	9	10	25	15	11	23	15	11	10	11	11	B	20	20	10	10	11	12	10	10	10	9	10
10	19	10	15	9	10	12	24	C	C	C	11	E C 57	12	11	13	12	11	10	10	10	10	10	10	10
11	9	10	10	10	12	14	20	11	15	12	15	18	12	11	12	13	16	11	11	14	16	12	10	10
12	12	10	10	10	10	14	18	22	15	10	21	22	20	15	12	11	10	10	10	10	25	15	10	10
13	10	10	22	B	16	20	15	12	12	17	24	18	12	16	13	45	15	18	11	11	9	10	9	13
14	11	10	10	10	10	12	10	15	29	15	20	25	B	45	20	B	16	10	13	13	20	10	10	10
15	11	10	11	20	19	20	14	13	12	13	18	25	13	20	21	15	B	B	B	10	10	11	10	20
16	23	10	9	22	20	23	12	22	22	22	14	23	22	43	B	B	21	10	12	B	27	24	10	10
17	12	11	11	10	9	10	18	22	52	35	21	18	20	14	15	13	10	11	12	11	13	14	11	17
18	B	10	10	18	10	14	24	12	11	12	18	15	24	15	15	25	15	B	18	B	12	12	22	14
19	13	32	10	10	13	17	B	19	B	B	B	20	11	10	B	16	15	16	11	11	20	11	10	9
20	10	10	10	27	14	B	10	B	20	17	39	15	B	55	62	B	37	39	15	21	21	11	10	9
21	10	15	18	18	18	10	15	13	15	12	12	20	B	B	21	15	12	11	10	18	11	12	C	15
22	14	24	B	12	C	C	C	C	C	11	C	14	13	13	21	13	13	13	13	19	15	15	B	E
23	E S 22	10	B	B	9	10	10	19	10	15	B	B	62	B	B	24	B	16	14	11	10	10	B	14
24	C	C	10	13	10	10	15	10	12	20	18	B	B	B	18	B	B	B	38	20	23	10	12	10
25	11	10	23	20	17	10	20	B	17	11	B	B	B	20	19	13	12	10	13	11	10	10	9	11
26	B	B	17	10	20	9	10	13	15	20	B	B	B	B	B	B	B	18	10	B	24	20	9	B
27	B	15	a	21	a	23	37	25	11	B	B	B	B	B	B	B	23	18	16	13	23	15	15	B
28	C	B	24	25	10	10	10	B	20	B	B	B	17	B	20	B	B	B	14	20	B	42	10	10
29	B	15	B	21	H	22	23	B	15	B	B	B	B	20	17	13	14	B	B	24	10	12	15	13
30	10	11	22	B	B	10	18	B	19	15	14	B	B	B	B	18	12	24	38	15	B	15	9	10
31	16	20	20	B	10	a	B	B	15	21	B	55	B	B	B	15	B	15	10	18	25	19	15	18
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	31	30	30	30	29	29	30	30	31	31	31	31	31	31	31	31	31	31	31	30	31
MED	11	10	14	20	14	14	18	15	15	15	20	22	24	20	21	15	15	15	13	14	13	11	10	11
UQ	18	19	23	25	20	23	23	B	20	21	B	B	B	a	B	D B 45	D B 37	34	16	20	20	13	15	16
LQ	10	10	10	10	10	10	10	11	12	12	14	16	13	14	16	13	12	11	11	11	10	10	10	10

JAN. 1979

F-MIN (0.1 MHz)

IONOSPHERIC DATA

JAN. 1979

M(3000)F2 (0.01)

45° E Mean Time (G.M.T. + 3h)

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	295	B	R	B	235	S	230	235	S	R	240	F	F	235	R	240	270	260	270	275	290	300	290	285					
2	275	J S	B	B	260	265	S	S	215	225	R	S	Y	Y	Y	Y	245	B	260	290	F	R	275	S	B				
3	R	275	Y	R	R	R	R	R	R	R	Y	R	B	B	B	B	B	R	S	290	330	255	285	280					
4	Y	Y	265	F	260	B	R	B	B	B	B	B	B	B	B	R	Y	Y	R	F	F	A	B	F	255				
5	A	R	E	A	B	S	S	R	R	R	B	B	B	B	B	R	R	R	S	250	Y	R	R	S	300				
6	265	B	A	Y	Y	B	R	B	225	U S	R	R	R	R	Y	215	B	R	B	S	S	310	305	275					
7	U S	300	S	250	245	250	235	215	220	J S	230	R	240	R	R	R	230	235	240	F	R	Y	R	R	F	B	R		
8	F	310	R	R	R	R	R	Y	F	205	R	R	U S	210	R	R	R	S	S	S	270	285	275	270	260	F	265		
9	280	250	270	A	F	240	225	225	J S	225	F	Y	S	B	U S	235	240	F	250	J R	275	H	H	255	265	280	300		
10	280	260	F	S	F	F	F	230	C	C	C	240	J R	240	230	245	245	245	255	250	I R	275	280	270	295	280	275		
11	F	270	260	250	S	S	R	205	F	F	230	235	Y	230	230	J R	245	R	U R	J R	F	R	275	275	275	275	290	285	
12	S	275	255	S	U F	250	235	Y	R	235	245	U R	240	240	R	S	R	225	255	U R	245	260	270	280	315	F	U S	295	
13	255	F	S	B	240	280	240	230	240	240	Y	U R	240	250	U R	255	U R	265	R	R	265	265	275	295	295	295	295		
14	295	265	270	250	F	U F	260	F	U F	235	S	S	S	S	B	240	260	B	U F	230	230	235	270	255	305	315	310		
15	F	290	R	260	F	F	F	245	F	F	F	240	F	235	240	240	250	I R	230	U R	225	B	B	B	240	285	275	310	A
16	Y	U F	F	A	Y	Y	R	R	R	R	220	U R	225	R	R	B	B	R	255	255	B	290	315	280	295	285			
17	260	300	275	265	F	U F	R	R	235	245	R	245	245	J R	255	255	U R	255	245	F	260	260	265	260	280	305	F	285	
18	B	F	F	Y	Y	245	Y	F	F	U F	245	R	245	Y	J S	J R	240	Y	250	B	285	B	280	320	R	275			
19	F	R	F	F	F	R	B	200	B	B	B	Y	235	Y	B	235	265	285	260	245	F	295	270	295	300	S	300		
20	F	245	265	S	225	B	235	B	R	S	235	U F	230	B	U R	240	U S	245	B	260	R	F	235	F	255	275	280	285	
21	315	285	280	S	F	F	R	F	F	F	225	240	240	B	B	R	235	245	255	235	315	F	F	R	270	I C	C	S	285
22	300	Y	B	J R	C	C	C	C	C	235	C	250	250	U S	J S	S	250	S	240	255	295	290	280	290	F	B	A	285	
23	S	U S	B	B	F	F	S	S	U S	235	R	B	B	F	B	B	Y	B	R	R	R	C	F	B	A	300	F	B	A
24	C	C	Y	Y	Y	220	Y	Y	Y	R	Y	B	B	B	Y	B	B	B	B	R	255	260	280	285	270	F	F	F	
25	S	265	F	F	270	F	Y	F	Y	S	Y	Y	B	B	B	R	R	R	220	230	Y	260	310	F	260	F	F		
26	B	S	245	A	Y	R	F	F	R	Y	B	B	B	B	B	B	B	B	240	220	B	320	F	A	B	F	A	B	
27	B	255	B	Y	B	F	A	A	Y	B	B	B	B	B	B	B	B	R	R	275	285	R	255	315	B	F	B		
28	C	B	F	R	F	F	F	B	R	B	B	B	Y	B	R	B	B	B	B	265	270	B	290	285	275	F	F	275	
29	B	F	B	B	Y	Y	B	F	B	B	B	B	B	R	R	230	250	B	B	275	260	290	295	295	F	F	F		
30	F	270	Y	S	B	R	F	B	R	220	235	F	B	B	B	B	240	R	300	R	255	280	B	270	280	255	F	F	
31	R	Y	Y	B	F	B	B	B	220	220	B	245	B	B	B	235	B	270	245	275	295	280	290	F	F	F	F	F	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	18	16	12	9	10	11	6	7	11	14	9	12	8	11	10	15	16	15	21	23	23	26	23	22					
MED	282	270	265	250	250	245	230	220	225	235	235	240	238	240	245	235	248	255	260	275	280	280	285	285					
UQ	295	282	272	265	260	252	235	232	235	240	240	245	248	248	255	242	255	265	275	282	290	300	295	295					
LQ	275	255	258	250	240	235	225	210	218	225	235	U	235	230	235	240	232	240	248	255	262	268	270	280	275				

JAN. 1979

M(3000)F2 (0.01)

IONOSPHERIC DATA

JAN. 1979

H*F2 (KM)

45° E Mean Time (G.M.T. + 3h)

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	525	R	545	540	Y	R	510	460	525	530	I R	490	530	400	R	L		300		
2					A	420	S	450	Y	Y	U Y	450	470	Y	Y	Y	475	B	450					
3					R	R	R	R	R	R	Y	R	B	B	B	B	B	R	R	350		435		
4					R	B	R	B	B	B	B	B	B	B	B	R	Y	Y	R					
5					B	S	R	R	R	R	B	B	B	B	B	R	R	R	S		475			
6					Y	B	R	B	525	S	R	R	R	R	Y	650	B	R	B	R				
7			400	450	475	550	550	475	R	480	R	R	R	470	500	500	500	R	Y	R				
8				R	R	R	R	Y	650	R	R	690	R	R	R	S	S	S	L					
9					500	590	540	S	500	480	Y	450	B	500	R	530	550	485	400					
10					450	S	500	C	C	C	450	R	525	490	500	460	460	480	320					
11					425	460	R	630	550	470	460	Y	500	E S	530	475	R	450	R	375	L			
12			330		400	R	Y	R	500	450	470	530	R	U S	540	R	590	450	490	420	350	340		
13					500	450	410	450	440	420	Y	425	420	R	430	S	410	R		390	L			
14					370	390	400	425	S	S	S	S	B	S	550	450	B	495	480	600				
15					400	440	475	U S	370	520	445	445	R	450	Y	500	520	B	B	B	500	350		
16					Y	Y	R	R	R	R	690	Y	R	R	B	B	R		460	L				
17					L	400	450	395	400	400	U S	420	440	420	R	425	430	L	430	390	L	L		
18					Y	505	Y	Y	S	575	415	490	475	Y	500	450	Y	430	B					
19					A	R	B	720	B	B	B	Y	550	Y	B	470	L	310	L	L				
20					480	B	495	B	R	Y	530	525	B	500	B	B	450	R	555	300				
21					400	405	R	650	R	475	430	440	B	B	470	450	400	410	510					
22					C	C	C	C	C	400	C	430	410	S	490	450	480	455	430	300				
23					610	S	650	S	490	R	B	B	B	B	B	Y	B	R	R					
24					Y	625	A	Y	Y	R	Y	B	B	B	Y	B	B	B	R	L				
25							Y	B	Y	Y	B	B	B	R	R	R	610	540	Y					
26					Y	R	R	650	R	Y	B	B	B	B	B	B	B	B	550	600				
27					B	R	A	A	Y	B	B	B	B	B	B	B	R	R	400					
28					L	500	450	L	R	B	B	B	Y	B	R	B	B	B	L	L				
29					B	Y	Y	B	580	B	B	B	B	R	R	580	505	B	B					
30					B	R	Y	B	R	580	550	B	B	B	B	500	500		450	330				
31					B	B	B	575	550	B	E B	530	B	B	B	R	B	440	430	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			2	1	12	14	11	11	12	12	12	12	9	11	11	14	16	13	14	8	3	1		
MED			365	450	462	480	495	475	522	460	465	460	450	500	470	510	458	460	425	350	340	435		
UQ					500	590	542	640	575	480	520	514	525	530	495	540	500	485	510	432	345			
LQ					400	420	450	438	495	418	448	435	440	490	450	470	440	430	390	340	320			

JAN. 1979

H*F2 (KM)

IONOSPHERIC DATA

JAN. 1979

H·F (KM)

45° E Mean Time (G.M.T. + 3h)

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep 0.5 MHz to 15 MHz in 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	300	B	A	B	R 310	R 310	R		Y	Y	225	225	H 200	Y 250	I R 225	240	230	275	245	240	250	255	250	A	
2	290	300	B	B	A	Y	A	260	225	H 200	Y	225	Y	Y	A	A	245	B	245	250	A	A	A	B	
3	R	375	Y	A	R	R	Y	A	A	A	A	R	B	B	B	B	B	R	R	270	260	340	E Y	350	
4	Y	Y	370	R	R	B	R	B	B	B	B	B	B	B	B	H	250	Y	Y	R	R	A	B	390	
5	A	A	B	A	B	E A 340	R	K	230	E R 250	B	B	B	B	B	R	225	255	245	250	Y	315	350	340	
6	345	B	A	A	Y	B	A	B	260	240	225	225	R	220	Y	240	B	B	B	R	S	340	350	350	
7	325	350	320	340	260	290	245	240	220	240	R	R	230	A	Y 250	225	230	240	Y	250	R	250	B	A	
8	360	295	A	R	300	330	R	Y	270	245	260	210	P 230	R 225	230	225	245	250	250	H 245	250	H 260	375	420	
9	350	420	350	A	A	A	A	A	Y	H 230	Y	H 220	B	R	240	225	230	245	245	250	250	350	330	320	
10	350	320	370	Q U Q 250	Q 250	A	280	C	C	C	220	C	225	210	215	225	225	230	240	250	A 270	250	290	350	
11	295	280	330	340	A	A	A	270	330	230	230	Y	215	250	220	250	240	245	230	250	A	265	260	265	
12	280	300	300	280	270	300	Y	R	240	240	Y	U R 240	250	230	R	225	220	230	240	250	250	300	350	300	
13	420	370	A	B	Y	A	250	225	230	H 205	Y	Y	225	225	R E B 245	250	225	H 230	230	250	250	250	260	260	
14	270	295	305	295	300	275	250	250	A	A	A	R	B	E B 250	R 260	B	250	250	330	285	330	280	280	270	
15	265	300	325	280	R	300	280	240	230	200	250	R	Y	Y	E Y 280	240	B	B	B	325	290	300	300	A	
16	Y U Q 430	Q 350	A	A	Y	A	R	R	A	250	Y	E R 245	B	B	B	240	250	250	B	275	Y	290	280		
17	300	330	305	320	320	275	A	230	B	A	A	A	240	Y	235	220	205	240	230	250	270	370	300	350	
18	B	Q 430	G 295	A	A	A	A	Y	225	240	250	225	H	Y	205	220	Y	R	B	250	B	295	275	R 370	
19	310	A	300	275	Q	A	A	B	245	B	B	B	A	250	Y	B	230	245	250	H 240	275	E A 295	320	300	
20	400	470	430	S	380	B	255	B	A	Y	240	240	B	B	B	B	225	E B 270	250	255	275	360	300	320	
21	295	300	350	A	300	250	A	A	250	220	200	Y	B	B	Y	A	250	240	250	250	265	I C 320	350	330	
22	295	Y	B	340	C	C	C	C	C	230	C	235	210	250	220	220	230	230	240	275	A 290	280	B	A	
23	A	410	B	B	270	250	220	220	260	240	B	B	B	B	B	Y	B	R	R	R	C	295	B	A	
24	C	C	A	Y	Y	H 300	A	Y	Y	A	Y	B	B	B	B	230	B	B	B	270	250	250	305	300	400
25	390	350	A	350	A	250	A	B	Y	Y	B	B	B	Y	240	Y 240	240	250	250	Y	350	310	240	405	250
26	B	B	A	A	A	325	270	250	275	Y	B	B	B	B	B	B	B	B	240	260	B	295	310	A	B
27	B	A	B	Y	B	330	B	A	Y	B	B	B	B	B	B	B	R	250	250	260	R	390	300	B	
28	C	B	R	R	335	A	A	B	R	B	B	B	Y	B	Y	B	B	B	B	240	260	B	B	A	400
29	B	350	B	A	B	A	A	B	250	B	B	B	B	220	230	250	250	B	B	250	H 270	300	295	350	
30	345	360	A	B	B	R	Y	B	R	R	H 220	B	B	B	B	240	250	250	250	250	B	H 290	375	380	
31	R	A	A	B	A	B	B	B	260	230	B	B	B	B	B	240	B	250	250	250	280	270	280	360	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	19	20	15	10	11	14	9	11	15	16	11	9	11	11	15	18	21	23	24	26	22	27	23	24	
MED	310	350	330	308	300	298	255	245	250	232	230	225	228	225	230	238	230	245	248	250	272	295	300	345	
UQ	350	392	360	340	315	318	280	255	260	240	250	235	238	250	241	240	245	250	250	260	290	318	350	365	
LQ	295	300	305	280	270	275	250	235	230	225	222	225	220	220	222	225	225	240	240	250	250	265	290	290	

JAN. 1979

H·F (KM)

IONOSPHERIC DATA

JAN. 1979

H°ES (KM)

45° E Mean Time (G.M.T. + 3h)

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	K 100	B 100	B 100	B 100	K 100	G 100	K 100	K 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	B 100	G 100	G 100	G 100	130	110	
2	G 100	K 100	B 100	B 100	125	G 100	105	G 100	G 100	G 100	G 100	145	G 100	G 100	100	100	G 100	B 100	G 100	G 100	100	100	100	B 100	
3	K 100	K 130	Y 100	100	K 110	K 100	G 100	100	100	100	100	G 100	B 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	G 100	G 100	100	125	
4	100	K 140	K 100	K 100	G 100	B 100	110	B 100	B 100	B 100	B 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	K 150	B 100	135	
5	100	100	B 100	K 150	B 100	100	G 100	G 100	G 100	G 100	B 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	K 150	K 130	
6	K 150	B 100	100	100	100	B 100	100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	B 100	B 100	B 100	G 100	K 100	K 100	K 125	K 125	
7	K 130	K 130	K 100	K 100	G 100	G 100	G 100	125	G 100	G 100	G 100	125	110	110	100	G 100	G 100	G 100	G 100	G 100	170	100	B 100	100	
8	K 140	K 130	100	K 100	K 150	K 100	K 100	125	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	145	135	125	130	G 100	115	115	K 100	K 100
9	K 100	K 100	K 100	110	100	100	110	100	G 100	G 100	G 100	G 100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	130	G 100	K 100	K 100	K 100	
10	K 150	K 145	K 150	125	100	100	G 100	C 100	C 100	C 100	G 100	C 100	G 100	G 100	G 100	G 100	G 100	G 100	100	130	125	G 100	110	110	
11	140	140	140	K 110	100	100	100	140	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	110	G 100	150	150	125	125	110	G 100	
12	G 100	130	125	G 100	G 100	100	G 100	100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	100	100	100	G 100	G 100	G 100	K 100	K 100	K 100
13	100	K 150	K 150	B 100	100	100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	150
14	150	135	130	100	G 100	G 100	G 100	105	100	100	100	100	B 100	B 100	G 100	B 100	G 100	G 100	160	160	130	K 100	K 100	K 100	
15	G 100	K 140	K 110	K 140	K 125	110	100	100	G 100	G 100	G 100	G 100	G 100	G 100	120	110	G 100	B 100	B 100	B 100	G 100	G 100	K 100	110	
16	100	K 100	K 170	100	100	110	100	G 100	G 100	110	G 100	G 100	G 100	B 100	B 100	B 100	G 100	G 100	G 100	G 100	B 100	125	125	125	130
17	155	K 135	K 100	K 140	110	120	105	140	B 100	115	110	100	100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	G 100	K 115	K 110	K 110	
18	B 100	K 100	K 100	100	100	100	125	G 100	125	G 100	G 100	150	G 100	G 100	G 100	G 100	G 100	B 100	G 100	B 100	150	G 100	K 125	K 130	
19	K 150	K 150	100	G 100	100	150	B 100	G 100	B 100	B 100	B 100	130	G 100	G 100	B 100	G 100	G 100	G 100	G 100	100	175	100	K 150	K 140	
20	100	K 100	K 105	K 170	100	B 100	G 100	B 100	100	100	B 100	G 100	B 100	B 100	B 100	B 100	B 100	B 100	G 100	125	G 100	K 100	K 100	K 100	
21	K 100	K 130	125	105	K 115	G 100	100	100	G 100	G 100	G 100	G 100	B 100	B 100	G 100	110	110	G 100	G 100	G 100	G 100	G 100	C 100	K 125	
22	K 130	K 140	B 100	C 100	C 100	C 100	C 100	C 100	C 100	G 100	C 100	120	110	110	110	125	G 100	G 100	G 100	135	140	130	B 100	100	
23	100	K 100	B 100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	B 100	B 100	B 100	B 100	B 100	G 100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	B 100	100
24	C 100	C 100	100	130	G 100	100	100	G 100	100	105	100	B 100	B 100	B 100	125	B 100	B 100	B 100	B 100	150	G 100	G 100	170	K 110	
25	K 110	K 110	125	K 120	110	140	100	B 100	G 100	G 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	G 100	G 100	G 100	K 100	K 195	K 100	K 150	
26	B 100	B 100	100	110	100	G 100	G 100	100	105	G 100	B 100	B 100	B 100	B 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	G 100	150	130	B 100
27	B 100	100	B 100	B 100	B 100	G 100	105	110	G 100	B 100	B 100	B 100	B 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	G 100	140	K 135	K 120	B 100
28	C 100	C 100	K 120	K 170	155	100	100	B 100	100	B 100	B 100	B 100	G 100	B 100	G 100	B 100	B 100	B 100	140	140	B 100	B 100	110	K 110	
29	B 100	K 145	B 100	B 100	B 100	110	110	110	B 100	G 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	B 100	B 100	150	G 100	G 100	G 100	K 125	
30	K 110	K 115	100	B 100	B 100	K 100	140	B 100	G 100	G 100	B 100	B 100	B 100	B 100	B 100	G 100	G 100	G 100	B 100	G 100	B 100	G 100	K 100	K 110	
31	K 120	K 100	100	B 100	140	B 100	B 100	B 100	G 100	G 100	B 100	B 100	B 100	B 100	B 100	G 100	B 100	G 100	G 100	G 100	130	130	120	K 130	
	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	22	26	24	23	20	18	18	13	7	6	4	7	3	3	6	4	4	1	5	11	13	18	24	27	
MED	K 110	K 130	K 100	110	100	100	100	100	100	102	100	125	110	110	105	105	110	135	140	135	130	115	110	K 110	K 110
UQ	140	140	125	128	120	110	110	125	102	110	105	138	110	115	110	118	128		150	150	140	130	125	130	K 100
LQ	K 100	K 100	100	100	100	100	100	100	100	100	100	110	105	110	100	100	105		125	130	125	K 100	K 100	K 100	K 100

JAN. 1979

H°ES (KM)

IONOSPHERIC DATA

JAN. 1979

TYPES OF ES

45° E Mean Time (G.M.T. + 3h)

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	K2		R1		K1		K1	K1															C1	C2	
2		K2			R1		R1					H1			C1	L1					R1	R1	R1		
3	K1	RK11		R1	K1	K1		R1	R1	R1	R1												R1	R1	
4	L1	HK11	K1	K1				R1														CK11		CL11	
5	R1	R1		RK11		R1																	K1	K1	
6	K1		C1	R1	R1		R1															K1	K1	K2	
7	CK11	CK11	K1	KA11				C1				C1	C1	C1	C1						H1	P1		L1	
8	CK11	R1	R1	KA21	RA11	K2	K1	C1									H1	H1	C1	C1		C1	K2	K2	
9	K1	K2	K2	R1	R1	R1	R1	R1													C1		K2	K2	
10	CK11	RK11	HK11	C1	L1	R1														L1	CL11	C2	C1	RK11	
11	H1	H1	H1	K1	R1	R1	R1	H1									C1		H1	H1	C3	C2	C3		
12		H2	H2			L1		R1							L1	L1	L1					K2	K2	K2	
13	R1	HK11	HK11		R1	L1																		H1	
14	RC11	H1	R1	LCH11				C1	R1	R1	R1	R1							H1	H1	R1	K1	K2	K1	
15		CK12	K2	KA11	K1	CH11	R1	R1							C1	C1							K3	RA11	
16	L1	K1	KCL11	R1	R1	C1	R1			R1												C1	C1	C2	H1
17	H1	HK21	K2	CK13	C2	C1	R1	H1		C1	C1	C1	R1										K1	K1	K1
18		K2	K2	R1	R1	R1	R1		R1			H1										R1		K1	KR21
19	HK12	R1	K2		R1	RCA11						H1									R1	H1	R2	HK13	CK42
20	K3	RK13	K2	K1	R1				R1	R1											R1		K2	K2	K2
21	K2	K2	R1	C1	K1		R1	R1								C1	C1								K2
22	K2	K1		R1									C1	C1	C1	C1	H1				C1	C2	C1		R1
23	R1	K1																							R1
24			LR11	RLA11		L1	R1		R1	R1	R1				H1						H1			H1	K2
25	K1	K1	R1	K1	R1	H1	R1															K1	KA11	K2	HK11
26			RA11	C1	R1			R1	R1														RA11	R2	
27		CH11		L1			R1	R1														R1	K2	K1	
28			K1	K1	H1	R1	R1		R1										H1	C1			R1	K1	
29		HK11		RA11		R1	L1													H1					K1
30	K2	K1	R1			K1	H1																	K2	K2
31	K1	L1	L1		RL11																	H1	H1	C1	K1
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

JAN. 1979

TYPES OF ES

IONOSPHERIC DATA

FEB. 1979

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	54	R	O R 54	R	58	C	C	C	C	C	O R 71	O R 70	O R 69	R	R	R	X 68	O R 66	X 67	66	X 65	X 64	X 63	S 61
2	S 62	X 69	68	X 61	50	B	B	R	R	B	B	B	B	B	B	B	B	R	B	B	X 63	X 53	46	X 58
3	66	R	Y	60	60	69	B	R	O R 60	71	70	72	O R 72	X 75	R	O R 71	O R 71	O R 71	S 71	X 72	X 71	64	R	R
4	A	S	S 55	56	56	O R 51	Y	O R 59	Y	O R 63	C	C	O R 63	O R 64	B	B	B	O R 64	X 61	U A 70	Y	50	R	R
5	45	55	55	O R 58	X 45	61	Y	R	R	R	B	B	R	X 65	R	R	O R 70	B	O R 64	64	O R 63	O R 62	O R 57	O R 56
6	O R 54	52	60	O R 57	58	68	B	R	B	B	B	B	B	R	O R 65	O R 68	O R 69	X 71	U R 67	R	A	O R 54	47	O R 43
7	51	B	O R 56	R	66	72	78	79	X 80	X 82	81	R	R	R	X 78	X 74	X 71	X 71	O R 68	67	X 61	X 62	X 64	X 49
8	45	47	O R 52	61	60	B	X 68	70	R	R	B	O R 63	O R 67	R	R	R	B	B	B	O R 59	X 63	X 51	R	X 44
9	O R 51	R 48	B	R	B	B	B	B	R	R	B	B	O R 65	B	B	O R 66	X 70	O R 66	X 66	X 61	X 54	X 59	X 58	O R 52
10	O R 48	O R 51	47	48	R 56	O R 55	O R 50	R	O R 59	O R 63	O R 66	R	B	B	R	O R 66	O R 64	O R 66	O R 64	X 65	X 64	X 58	47	X 41
11	X 45	55	R	O R 52	O R 62	R	R	O R 56	R	R	X 70	U R 65	R	R	O R 77	R	R	74	X 70	X 69	X 68	X 65	S 62	X 51
12	A	R	53	X 55	57	R	R	B	B	B	B	B	B	B	B	B	B	X 68	X 69	X 64	X 67	X 63	63	60
13	58	63	60	62	69	75	75	79	84	90	X 97	X 92	88	X 87	X 89	O R 86	X 84	X 82	X 81	79	X 70	70	70	72
14	71	76	80	85	90	S 96	104	111	X 114	X 115	X 117	X 115	112	X 106	X 99	X 98	X 94	X 90	X 84	X 80	X 78	X 75	X 76	X 72
15	60	60	65	70	S 72	X 70	79	76	85	92	X 99	97	98	103	107	110	106	89	80	61	55	59	58	57
16	56	O R 43	55	60	70	75	80	70	R 73	O R 76	79	79	78	77	82	O R 88	O R 88	80	X 73	70	70	71	72	70
17	74	75	77	80	80	X 88	94	108	100	C	C	107	105	100	X 98	X 97	X 95	X 90	X 91	X 84	X 88	X 81	75	52
18	C 58	60	60	60	68	R	O R 69	B	C 69	72	O R 86	88	87	X 86	X 89	80	80	76	70	X 56	X 56	O R 46	O R 41	R
19	A	A	O R 50	R	R	58	58	B	R	O R 68	B	O R 76	X 73	78	O R 74	X 74	X 71	O R 67	X 69	X 69	65	X 47	38	38
20	43	46	57	X 58	S	O S 73	80	89	103	105	105	102	X 96	X 92	X 89	X 86	X 85	X 84	X 83	X 75	X 64	49	A	
21	O R 46	56	A	68	70	70	72	B	B	B	B	B	B	R	O R 62	70	71	58	X 68	70	40	56	45	O R 52
22	63	63	47	45	O R 41	A	R	X 52	X 60	X 61	X 69	B	B	B	90	R	81	70	65	X 56	X 53	50	R	60
23	A	48	60	60	57	70	A	R	R	B	R	O C 56	O R 64	X 66	67	70	71	X 71	X 65	X 64	67	70	75	58
24	37	C	X 51	O R 46	R	B	B	B	B	R	B	R	R	B	B	78	79	80	X 67	63	O R 53	55	40	A
25	B	B	C	B	40	B	B	B	B	B	R	B	B	B	B	X 72	80	O R 84	X 83	O R 75	72	68	68	R
26	A	A	56	A	B	47	58	A	R	B	R	B	R	R	O R 65	O R 85	103	80	80	46	O R 44	Y	A	A
27	66	R	42	45	B	B	B	R	B	R	R	B	B	B	O R 59	64	70	72	66	58	48	46	47	44
28	R	48	A	44	B	B	63	O R 51	68	80	80	X 75	75	83	89	X 103	X 97	88	80	X 46	O R 43	A	A	A
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	21	18	22	22	21	16	14	12	12	13	13	14	15	14	17	20	23	25	26	26	26	26	22	20
MED	54	55	56	59	60	70	74	73	76	76	80	78	75	X 80	82	76	79	72	X 69	X 64	X 64	60	58	54
UQ	62	63	60	61	69	74	80	84	92	90	X 97	97	92	X 92	X 89	88	87	84	X 80	X 70	X 70	65	68	60
LQ	46	48	52	52	56	60	63	58	64	O R 68	70	O R 70	O R 68	X 75	O R 67	70	70	O R 68	X 66	61	54	53	46	46

FEB. 1979

FXI (0.1 MHz)

IONOSPHERIC DATA

FEB. 1979

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	U 47	R 47	F 47	A 45	F 45	C	C	C	C	C	R 65	64	63	R	R	R	R 62	60	60	F 59	58	58	57	55	
2	F 56	63	62	54	U 44	B	B	R	R	B	B	B	B	B	B	B	B	R	B	B		57	47	38	52
3	F 42	R	Y	F	U 52	U 58	B	R	54	65	64	65	66	68	R	U 65	65	65	65	66	65	57	R	R	
4	A	S	F	F	U 46	U 47	U 45	Y	53	Y	57	C	C	R 57	58	B	B	B	58	H 54	Y	Y	F 44	A	A
5	F	F 42	F 47	F 47	39	F	Y	R	A	R	B	B	R	59	R	R	U 64	B	58	F 56	57	56	51	50	
6	48	F 42	F 46	R 51	F	U 53	B	R	B	B	B	B	B	R	59	62	U 63	65	U 60	A	A	R 48	F 41	37	
7	F	B	U 50	R	F	U 64	F 71	R 72	R 74	U 76	R 75	R	R	J 72	68	65	65	62	60	F 55	56	58	38	43	
8	U 39	F	46	U 50	F	B	R 62	F	R	R	B	U 57	R 61	R	R	R	B	B	B	U 53	56	45	R	38	
9	R 45	42	B	R	B	B	B	B	R	R	B	B	U 59	B	B	60	64	R 59	60	55	48	52	51	46	
10	U 42	45	U 38	F 40	R 50	49	R 44	R	53	57	60	I 60	B	B	R	60	U 58	60	58	59	58	R 52	F 37	35	
11	J 39	F 39	R	46	56	R	R	50	R	R	63	U 59	R	R	U 71	R	R		67	64	63	61	58	56	45
12	A	R	F 45	49	F	R	A	B	B	B	B	B	B	B	B	B	B	J 62	63	58	61	57	F 55	U 50	
13	F	F	F	F	F	F	F	U 66	F 78	F 86	90	U 85	F 82	81	81	83	80	78	76	F 75	F 72	64	U 63	U 64	
14	J 64	F	F	F	F	U 89	U 94	J 104	R 108	109	111	R 109	J 106	100	93	92	88	84	78	74	71	69	70	66	
15	U 50	F	F	F	F	64	F	U 67	F 78	U 87	93	F	90	96	101	U 102	U 97	83	U 68	U 53	F 48	U 50	F 48	U 47	
16	U 34	37	F	F	U 59	F 68	U 68	F	67	70	F	70	F 70	70	76	80	F 81	F 73	68	F 63	F 64	65	J 65	63	
17	F 66	F 68	F 70	F 72	F 74	81	F	J 102	F 94	I 104	C	U 99	98	94	92	90	89	84	85	78	81	75	U 64	F 46	
18	F	F	F	F	F	R	63	B	63	F	U 79	F 82	V 81	80	83	F	72	69	F 63	50	50	38	F 31	R	
19	A	A	F	A	R	F	F	B	R	62	B	70	66	72	68	68	65	61	63	63	59	41	F	F	
20	U 30	F	F	52	S	67	73	82	F	96	99	95	90	86	83	80	80	79	78	77	69	58	R 36	A	
21	F 37	F	A	F	F	U 64	F	B	B	B	B	B	B	R	56	F	F	F	52	62	U 62	F	R	F	46
22	F	F	F	F	F	A	R	46	54	55	63	B	B	B	F 81	R	F	F	55	50	47	F 41	R	F	
23	A	U 40	U 35	F	F	F	A	R	R	B	A	50	58	59	60	62	65	65	59	58	58	U 60	U 53	F	
24	F	C	45	40	R	B	B	B	B	R	B	R	R	B	B	U 70	U 70	U 72	61	56	F 46	F 44	F 33	A	
25	B	B	C	B	F	B	B	B	B	B	R	B	B	B	B	66	73	78	77	69	66	F 57	F 59	R	
26	A	A	F	A	B	F	U 48	A	R	B	R	B	R	R	59	V 79	U 97	F 68	U 68	F 40	F	F	Y	A	A
27	A	R	F	F	B	B	B	R	B	R	R	B	B	B	U 53	57	63	U 64	F 56	F 50	F 41	F 39	F 40	F	
28	R	U 29	A	F 36	B	B	F	41	F	F	F 72	68	68	77	83	96	91	F	59	40	U 34	A	A	A	
29																									
30																									
31																									
CNT	14	10	11	12	10	11	8	10	10	12	12	14	15	14	17	18	21	22	26	25	24	25	20	16	
MED	F 44	F 42	F 46	48	F 48	U 64	F 66	66	70	73	74	69	68	74	76	69	70	65	62	58	58	56	F 51	46	
UQ	F 50	F 45	F 48	52	F 56	F 68	F 72	82	78	92	92	85	86	86	83	83	81	78	68	63	64	58	F 58	54	
LQ	U 39	F 39	F 45	F 43	F 44	U 56	R 55	50	54	60	64	60	62	68	60	62	64	61	59	53	49	45	F 38	44	

FEB. 1979

FOF2 (0.1 MHz)

IONOSPHERIC DATA

FEB. 1979

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						C	C	C	C	C	480	480	480	R	R	480	480	480						
2						B	B	A	R	B	B	B	B	B	B	B	B							
3						U F	B	R	A	460	I R	R	510	500	R	U L	500	500						
4							Y	Y	A	Y	C	C	B	B	B	B	B	450						
5						F	Y	400	A	R	B	B	470	490	490	U R	R	B						
6							B	R	B	B	B	B	B	490	U R	490	490	I R	470	460	A			
7						360	400	410	430	460	U R	R	460	480	I R	500	500	490	490	480	R	L		
8						B	R	U R	R	R	B	R	U R	R	A	R	B	B	B	B	L			
9						B	B	B	R	R	B	B	480	B	B	480	500	U R	480	L	L			
10						R	350	R	R	450	U R	R	B	B	470	500	480	R	450	450				
11						A	R	380	R	R	480	480	R	R	B	R	B	L	L					
12						R	B	B	B	B	B	B	B	B	B	B	B	B	B	L				
13							L	U H	F	490	490	U R	540	520	L	L	L	L						
14						L	L	U L	L	U L	550	550	560	550	U L	530	530	L	L					
15							F	470	490	500	500	500	500	B	B		L							
16							L	430	470	Y	500	U H	520	520	500	U L	U L	L						
17					L	L	360	420	460	L	C	C	520	F	550	L	570	L						
18						B	B	B	Y	Y	U R	480	540	520	500	U F	500	460	L					
19						B	U R	B	R	460	B	B	B	B	B	L	470	450	L					
20						A	390	460	480	500	510	510	520	520	U L	L	L							
21							400	B	B	B	B	B	B	U R	470	460	480	480	450	F	L			
22							U R	380	U R	430	440	450	B	B	B	500	B	500	F	460	F			
23							A	A	R	B	A	430	450	470	480	480	480	F						
24							B	B	B	A	B	460	460	B	B	L	L	L						
25							B	B	B	B	450	B	B	B	B	490	L	B						
26							A	A	A	B	R	B	460	R	B	B	B							
27							B	A	B	R	A	B	B	B	R	450	450	L	L					
28							A	350	450	450	450	I B	R	B	L	L	L							
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						3	7	12	9	10	14	14	17	12	12	16	13	10	1					
MED						360	390	420	470	460	480	480	500	510	495	490	480	460	450					
UQ						380	400	460	480	500	500	510	520	520	500	510	500	480						
LQ						360	375	390	430	450	460	460	470	490	475	480	480	450						

FEB. 1979

FOF1 (0.01 MHz)

IONOSPHERIC DATA

FEB. 1979

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	B	K 370	A	A	C	C	C	C	C	R 320	340	350	U 340	U 340	R 335	R 310	R 320	R 290	270	250	170	160	B	
2	180	140	H 220	A	A	B	B	A	R	B	B	B	B	B	B	B	B	300	B	B	B	210	210	270	
3	K 330	B	A	A	260	A	B	A	A	350	350	U 330	U 360	U 350	U 350	U 340	305	A	R	270	230	205	H B	B	
4	A	K 360	K 350	220	220	A	A	A	A	A	C	C	B	B	B	B	B	300	280	Y	K 400	K 340	A	A	
5	K 360	K 320	K 260	K 280	250	250	290	A	A	A	B	B	335	U 350	I 350	350	R	B	B	B	250	B	B	B	
6	K 260	K 300	K 220	A	A	300	B	A	B	B	B	B	B	B	B	B	R	300	300	U 260	A	B	B	K 320	
7	250	B	A	K 320	K 300	U 270	H 300	H 310	310	320	320	330	U R	R	U 330	335	310	R	280	290	270	220	190	180	150
8	K 330	A	A	U 300	K 250	F	B	A	300	A	A	B	R	R	U 350	R	R	B	B	B	250	H 230	H 200	K 320	K 250
9	K 300	K 270	B	A	B	B	B	B	B	B	B	B	B	R	B	B	R	B	B	270	A	H 250	H 200	R	B
10	K 290	A	A	K 310	K 350	350	280	350	360	Y	Y	B	B	B	R	U 340	R	R	300	260	210	150	130	130	
11	120	190	K 270	A	A	B	A	290	A	A	R	B	R	R	B	R	B	R	280	250	190	A	A	150	
12	A	A	A	F 220	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	170	A
13	U 280	A	A	A	170	A	260	290	290	320	330	B	A	R	U 350	R 340	B	B	R	300	B	B	B	A	
14	B	A	A	B	R 180	B	R 250	280	300	Y	U 340	U 350	U 350	350	350	335	310	270	A	220	A	H 220	A	A	R
15	A	A	A	150	I 160	R	A	K 370	325	315	330	360	330	B	B	B	U 310	H 300	280	A	F 250	250	180	A	
16	K 245	K 290	200	U 200	F	R	270	280	270	A	B	360	340	330	340	310	325	B	280	250	250	A	A	A	A
17	A	A	A	A	160	185	250	275	300	I 320	C	340	350	R	R	R	310	R	R	B	B	B	B	A	A
18	K 330	K 270	K 320	A	B	B	B	B	A	A	U 360	R 350	R	R	R	310	R	R	B	B	B	250	B	230	K 380
19	A	A	B	B	K 360	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	K 270
20	180	A	K 270	A	B	A	305	320	Y	U 310	R	U 330	U 330	U 330	310	280	290	R	H 270	240	210	B	K 300	A	
21	A	B	A	K 320	A	H 280	A	B	B	B	B	B	B	B	U 340	U 340	B	290	280	A	A	A	A	A	
22	A	A	A	A	A	U 290	F	300	315	340	U 350	B	B	B	U 350	B	R	300	250	220	280	K 280	K 410	U 270	
23	A	K 350	A	F 150	U 170	A	A	A	A	A	B	A	R	330	345	340	320	305	285	250	200	B	A	A	A
24	A	C	K 300	A	A	B	B	B	B	A	B	B	B	B	B	B	H 310	A	280	B	K 310	B	200	290	K A
25	B	B	C	B	R	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	A	A	K 320
26	K 370	U 410	K 310	A	B	A	A	A	A	B	A	B	330	B	B	B	B	300	B	A	B	A	A	A	A
27	A	K 350	A	U 280	B	B	B	A	B	A	A	B	B	B	B	B	B	280	240	300	K 300	K 280	K 300	K 280	
28	K 290	A	A	A	B	B	A	B	330	300	300	B	U 330	I 315	B	300	300	280	275	240	250	B	A	A	A
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	15	11	11	11	12	7	9	11	8	8	10	10	11	10	14	14	9	16	19	16	14	12	13	11	
MED	K 290	K 300	K 270	K 280	235	270	280	300	312	320	335	R 340	335	R 340	R 340	335	310	295	280	250	240	202	230	K 270	
UQ	K 330	K 350	K 315	K 305	280	290	290	315	328	330	U 350	350	350	U 350	U 350	340	R 310	300	290	270	250	265	K 300	K 300	
LQ	K 248	K 270	240	210	170	260	260	285	300	312	320	U 330	330	340	310	320	305	280	250	245	220	195	180	200	

FEB. 1979

FOE (0.01 MHz)

IONOSPHERIC DATA

FEB. 1979

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 84	42	K 37	48	35	C	C	C	C	C	G	G	G	47	42	39	G	G	G	30	G	G	G	E B 20	
2	G	G	G	J A 30	39	B	B	45	G	B	B	B	B	B	B	B	B	G	B	B	26	G	G	K 27	
3	K 33	30	36	29	G	30	B	37	42	G	G	G	G	G	G	G	G	34	G	40	G	G	51	47	
4	50	K 36	K 35	25	26	25	31	42	45	42	C	C	E B 50	E B 55	B	B	B	G	G	G	K 40	K 34	J A 41	40	
5	K 36	K 32	J A 39	K 28	28	J A 104	G	37	51	40	B	B	G	G	G	G	E B 37	B	E B 38	G	E B 46	30	E B 30	E B 25	
6	K 26	K 30	27	41	35	G	B	36	B	B	B	B	B	E B 41	E B 40	E B 36	G	35	80	60	70	E B 41	K 31	K 32	
7	J A 36	B	37	K 32	K 30	G	G	G	G	G	G	G	G	G	G	40	47	J A 41	G	35	40	G	G	G	
8	K 33	57	46	32	G	B	36	37	40	41	B	G	G	G	59	G	B	B	B	G	G	G	K 32	28	
9	K 30	K 27	B	37	B	B	B	B	44	46	B	B	G	B	B	G	E B 35	E B 35	G	30	G	25	G	25	
10	K 29	J A 79	J A 37	J A 34	K 35	K 35	G	G	G	G	G	E B 44	B	B	G	G	G	G	G	G	G	G	G	G	
11	G	G	K 27	37	40	46	36	G	41	42	G	E B 43	G	G	E B 53	G	E B 55	G	31	29	29	J A 34	J A 25	25	
12	45	49	J A 21	42	30	30	46	B	B	B	B	B	B	B	B	B	B	E B 53	38	31	38	36	G	J A 23	
13	U K 28	25	28	J A 30	22	26	G	G	G	G	G	E B 45	37	G	G	39	E B 37	E B 33	G	E B 28	E B 25	E B 23	E B 17	17	
14	E B 14	J A 23	J A 22	E B 19	G	E B 25	G	G	G	G	G	G	38	G	G	39	39	39	37	30	30	G	29	17	
15	22	J A 19	20	G	22	G	J A 40	K 37	G	G	G	G	G	E B 55	E B 56	E B 40	G	J A 62	31	30	G	30	G	22	
16	J A 39	K 29	38	J A 45	29	G	G	43	47	35	G	G	G	36	35	G	E B 35	G	32	30	J A 54	J A 40	J A 47	70	
17	30	J A 41	J A 33	19	G	G	G	G	G	C	C	G	G	G	G	G	G	G	G	G	G	20	E B 24	17	33
18	K 33	32	K 32	35	E B 31	E B 35	E B 54	B	43	42	G	G	G	G	G	G	G	E B 33	28	E B 35	G	E B 27	G	K 38	
19	80	J A 49	42	42	K 36	E B 37	E B 35	B	35	E B 37	B	E B 58	E B 55	E B 55	E B 53	E B 38	E B 34	E B 35	E B 30	E B 32	E B 33	28	25	K 27	
20	G	26	K 27	30	E B 44	41	G	G	G	G	G	G	37	G	40	35	32	G	G	22	G	E B 20	K 30	41	
21	33	30	61	K 32	30	22	35	B	B	B	B	B	B	E B 35	G	G	E B 35	G	G	36	32	J A 34	J A 85	J A 88	
22	38	J A 33	30	J A 34	J A 34	J A 59	G	G	G	G	G	B	B	B	G	E B 60	G	37	32	28	30	K 28	K 41	J A 74	
23	109	J A 45	J A 33	G	22	J A 31	J A 56	41	47	B	53	G	G	36	G	G	G	33	37	J A 34	J A 64	40	J A 31	23	
24	21	C	32	33	37	B	B	B	B	45	B	E B 40	E B 36	B	B	G	J A 22	G	E B 33	K 31	E B 25	G	K 29	38	
25	B	B	C	B	G	B	B	B	B	B	E B 38	B	B	B	B	G	E B 36	E B 47	E B 40	E B 65	29	J A 37	J A 25	K 32	
26	70	139	K 31	J A 131	B	36	32	56	47	B	41	B	37	40	E B 56	E B 50	E B 60	G	E B 35	27	45	36	J A 67	J A 44	
27	100	K 35	34	56	B	B	B	38	B	40	47	B	B	B	E B 35	E B 34	E B 32	G	G	K 30	K 30	K 28	K 30	K 28	
28	K 29	56	54	40	B	B	37	E B 33	G	G	G	E B 52	36	E B 50	G	G	G	G	G	G	38	40	38	J A 54	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	27	25	26	27	24	20	20	20	21	19	17	17	20	20	22	25	24	26	26	27	28	28	28	28	
MED	33	32	33	33	29	U 28	E G 32	36	35	E G 35	G	G	G	E G 35	E G 35	G	E G 32	E G 33	E G 29	30	U 26	28	26	28	
UQ	42	45	37	40	35	36	36	40	44	42	G	E B 43	E G 36	E B 44	E B 42	E B 39	E B 36	34	32	32	38	34	35	40	
LQ	27	27	27	30	22	E G 22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	23	G	E G 20	G	22

FEB. 1979

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1979

FBES (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	42	R	K 37	A A 48	34	C	C	C	C	C	G	G	G	R	R	39	G	G	G	G	G	G	G	E B 20
2	G	G	G	30	39	B	B	R	G	B	B	B	B	B	B	B	B	G	B	B	26	G	G	K 27
3	K 33	R	Y	25	G	26	B	R	U Y 42	G	G	G	G	G	G	G	G	33	G	29	G	G	R	R
4	A A 50	K 36	K 35	G	G	U Y 25	Y	U Y 42	Y	U Y 42	C	C	E B 50	E B 55	B	B	B	G	G	G	K 40	K 34	A A 41	A A 40
5	K 36	K 32	K 26	K 28	G	G	G	37	A A 51	R	B	B	G	G	G	G	E B 37	B	E B 38	G	E B 46	25	E B 30	E B 25
6	K 26	K 30	G	U Y 41	U Y 35	G	B	R	B	B	B	B	B	E B 41	E B 40	E B 36	G	35	55	A A 60	A A 70	E B 41	K 31	K 32
7	K 25	B	37	K 32	K 30	G	G	G	G	G	G	G	G	G	G	38	37	40	G	30	29	G	G	G
8	K 33	34	46	K 30	G	B	35	35	R	R	B	G	G	G	R	G	B	B	B	G	G	G	K 32	K 25
9	K 30	K 27	B	R	B	B	B	B	R	R	B	B	G	B	B	G	E B 35	E B 35	G	30	G	23	G	U Y 25
10	K 29	37	22	K 31	K 35	K 35	G	G	G	G	G	E B 44	B	B	G	G	G	G	G	G	G	G	G	G
11	G	G	K 27	U R 37	U R 40	R	R	G	R	R	G	E B 43	G	G	E B 53	G	E B 55	G	31	29	27	26	22	17
12	A A 45	35	19	25	29	U Y 30	A A 46	B	B	B	B	B	B	B	B	B	B	E B 53	35	U R 31	34	24	G	17
13	U K 28	21	17	17	G	22	G	G	G	G	G	E B 45	37	G	G	35	E B 37	E B 33	G	E B 28	E B 25	E B 23	E B 17	15
14	E B 14	15	16	E B 19	G	E B 25	G	G	G	G	G	38	G	G	39	36	35	33	29	26	G	27	17	G
15	17	17	15	G	17	G	32	K 37	G	G	G	G	G	E B 55	E B 56	E B 40	G	32	G	30	G	29	G	18
16	K 25	K 29	G	17	25	G	G	41	44	U Y 35	G	G	G	G	35	G	E B 35	G	31	30	53	37	31	
17	20	U A 30	22	19	G	G	G	G	G	C	C	G	G	G	G	G	G	G	G	G	20	E B 24	15	30
18	K 33	30	K 32	32	E B 31	E B 35	E B 54	B	U Y 43	U Y 42	G	G	G	G	G	G	G	E B 33	28	E B 35	G	E B 27	G	K 38
19	A A 80	A A 49	40	A A 42	K 36	E B 37	E B 35	B	R	E B 37	B	E B 58	E B 55	E B 55	E B 53	E B 38	E B 34	E B 35	E B 30	E B 32	E B 33	28	25	K 27
20	G	24	K 27	30	E B 44	U Y 41	G	G	G	G	G	G	37	G	40	35	32	G	G	22	G	E B 20	K 30	A A 41
21	U Y 33	29	A A 61	K 32	29	G	35	B	B	B	B	B	B	E B 35	G	G	E B 35	G	G	28	25	34	25	39
22	38	28	22	21	25	A A 59	G	G	G	G	G	B	B	B	G	E B 60	G	32	G	26	K 28	K 28	K 41	U K 27
23	A A 109	K 35	16	G	14	25	A A 56	R	38	B	A A 53	G	G	G	G	G	G	G	32	23	20	22	16	20
24	16	C	K 30	33	R	B	B	B	B	R	B	E B 40	E B 36	B	B	G	31	G	E B 33	K 31	E B 25	G	K 29	A A 38
25	B	B	C	B	G	B	B	B	B	B	E B 38	B	B	B	B	G	E B 36	E B 47	E B 40	E B 65	29	22	15	K 32
26	A A 70	A A 139	K 31	A A 131	B	36	32	A A 56	R	B	40	B	37	U Y 40	E B 56	E B 50	E B 60	G	E B 35	U Y 27	35	Y	A A 67	A A 44
27	A A 100	K 35	30	U K 28	B	B	B	R	B	R	R	B	B	B	E B 35	E B 34	E B 32	G	G	30	K 30	K 28	K 30	K 28
28	K 29	20	A A 54	29	B	B	U F 37	E B 33	G	G	G	E B 52	35	E B 50	G	G	G	G	G	G	32	A A 40	A A 38	A A 54
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	23	25	26	23	19	18	15	15	13	16	17	20	19	20	25	24	26	26	27	28	27	27	27
MED	30	30	27	30	U 21	24	E G 32	G	G	G	G	G	G	G	G	G	E G 32	G	G	27	U 23	23	U 20	27
UQ	40	35	35	32	33	U 32	35	37	40	E G 35	G	E B 43	E G 36	E B 40	E B 40	E G 36	E B 36	E G 33	U 30	30	31	28	30	35
LQ	22	22	17	19	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E G 22	G	E G 20	G	18

FEB. 1979

FBES (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1979

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	27	10	19	10	C	C	C	C	C	13	12	19	22	22	13	15	14	10	11	15	10	10	20	
2	15	10	10	13	15	B	B	21	14	B	B	B	B	B	B	B	B	22	B	B	22	15	15	10	
3	13	20	19	12	10	15	B	11	14	13	12	13	13	12	20	15	13	13	13	11	13	11	24	22	
4	10	10	9	10	10	15	23	15	15	18	C	C	50	55	B	B	B	14	13	14	16	11	15	10	
5	14	11	13	13	10	11	15	13	23	18	B	B	20	25	22	16	37	B	38	19	46	20	30	25	
6	20	11	10	18	15	16	B	20	B	B	B	B	B	41	40	36	22	28	16	24	32	41	15	10	
7	10	B	16	15	15	13	11	20	10	14	16	22	18	20	16	20	15	15	15	12	9	14	11	10	
8	10	10	14	10	15	B	17	15	23	20	B	20	24	20	25	24	B	B	B	15	15	13	15	9	
9	13	10	B	15	B	B	B	B	36	35	B	B	22	B	B	23	35	35	11	15	17	15	13	23	
10	10	11	10	10	10	15	17	23	17	19	24	44	B	B	25	21	24	24	15	11	17	13	10	10	
11	10	10	23	18	20	35	22	16	23	25	22	43	24	20	53	21	55	17	15	15	15	12	10	10	
12	10	10	10	11	15	20	40	B	B	B	B	B	B	B	B	B	B	53	33	27	25	17	13	11	
13	11	11	10	10	15	17	16	17	20	25	19	45	25	24	17	20	37	33	25	28	25	23	17	12	
14	14	13	10	19	17	25	22	20	20	17	22	17	24	16	25	20	17	19	16	17	14	10	10	11	
15	10	10	9	9	13	24	15	15	15	11	21	21	23	55	56	40	24	15	15	15	20	10	10	13	
16	13	20	12	10	18	23	17	25	28	33	21	19	16	15	17	24	35	26	15	24	15	14	12	10	
17	9	9	10	11	10	10	22	17	17	C	C	16	20	20	15	17	17	16	16	16	17	24	10	10	
18	11	14	15	20	31	35	54	B	25	29	35	20	17	16	17	27	33	33	25	35	23	27	16	15	
19	15	15	24	25	29	37	35	B	26	37	B	58	55	55	53	38	34	35	30	32	33	21	16	15	
20	14	13	12	15	44	25	25	20	23	22	22	25	25	27	23	21	20	17	17	15	17	20	15	15	
21	14	25	12	17	17	20	25	B	B	B	B	B	B	35	24	25	35	20	20	24	20	15	17	15	
22	13	11	10	10	11	15	20	21	12	23	21	B	B	B	25	60	25	20	17	15	13	11	14	13	
23	15	11	10	10	10	15	19	17	23	B	25	20	24	20	25	15	15	17	20	15	15	13	10	10	
24	10	C	21	17	24	B	B	B	B	22	B	40	36	B	B	21	19	20	33	15	25	19	10	10	
25	B	B	C	B	13	B	B	B	B	B	38	B	B	B	B	16	36	47	40	65	25	15	10	10	
26	15	15	25	17	B	24	22	18	22	B	20	B	23	36	56	50	60	23	35	15	25	14	10	14	
27	16	26	15	14	B	B	B	25	B	20	31	B	B	B	35	34	32	27	20	20	16	10	10	11	
28	16	14	12	14	B	B	26	33	20	17	15	52	20	50	22	23	17	24	17	16	23	16	10	10	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	28	27	27	28	28	27	27	27	27	26	26	27	28	28	28	28	28	28	28	28	28	28	28	28	28
MED	13	11	12	14	15	24	23	20	23	24	24	44	24	36	25	23	32	22	17	16	17	14	12	11	
UQ	15	18	16	18	26	D B 37	D B 54	D B 33	32	B	B	B	B	B	56	37	37	33	32	24	25	20	15	15	
LQ	10	10	10	10	10	15	18	17	17	18	21	20	20	20	22	20	18	17	15	15	15	12	10	10	

FEB. 1979

F-MIN (0.1 MHz)

IONOSPHERIC DATA

FEB. 1979

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	U F 270	R	F 270	A	F 280	C	C	C	C	C	R 230	240	230		R	R	R	R 255	250	280	F 280	295	295	280	275	
2	F 270	F 265	F 260	F 255	U F 240	B	B	R	R	B	B	B	B	B	B	B	B	R	B	B	295	290	F 280	F 310		
3	F 270	R	Y	F 230	U F 260	B	R	205	220	F 230	F 230	F 240	255		R	U R 275	R 260	R 275	R 275	275	290	290	R	R		
4	A	S	F	F 305	U F 305	Y	Y	210	225		C	C	R 230	235		B	B	B	245	240	H	Y	Y	F 250	A	A
5	F	F 235	F 245	F 235	F 310	F	Y	R	A	R	B	B	R	235	R	R	U R 240	B	290	F 285	300	305	290	295		
6	290	F 285	F 250	R 245	F 255	B	R	B	B	B	B	B	B	R	245	235	R	235	R	A	A	R 290	F 275	265		
7	F	B 240	R	F	U F 235	240	235	245		R	R	R	R	R	250	C	C	280	260	F	275	285	260	290	280	
8	F	F	255	U F 260	F	B	R	275	F	R	R	B	R	R	245	R	R	R	B	B	B	U R 275	275	275	R	260
9	R 265	275	B	R	B	B	B	B	R	R	B	B	U R 225	B	B		260	250	R 270	250	240	280	290	295	285	
10	U R 260	280	F	F 270	R 280	215	215	R	220	225	230	I R 235	B	B	R	225	U R 240	250	265	290	285	285	R 285	F 285	285	
11	J R 280	280	F 260	R	250	R	R	225	R	R	220	R	R	R	U R 255	R	R	255	260	280	285	295	270	250		
12	A	R	F 250	225	F	R	A	B	B	B	B	B	B	B	B	B	B	R	240	285	275	280	275	270	U F 260	
13	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
14	J F 280	F	F	F	F	F	F	J R 240	250	250	245	R 250	R 245	R 250	245	255	260	270	280	295	295	290	285	290	290	
15	U F 260	F	F	F	F	225	F	U F 235	245	U F 225	230	F	220	230	230	U F 240	U F 265	255	U F 275	U F 250	265	F 280	F 285	U F 275		
16	U F 250	F 260	F	F	U F 235	F 265	F	F	225	230	F	245	F 245	F 235	F 240	F 245	F 250	F 275	F 280	F 275	F 295	F 285	J F 290	F 270		
17	F 275	F 265	F 255	F 250	F 235	F 235	F	F	235	265	C	C	U F 255	245	245	240	255	260	260	270	275	295	280	U F 295	F 240	
18	F	F	F	F	F	R	240	B	205	F	U F 230	F 215	V 230	225	230	F	F 235	F 230	F 250	F 275	300	265	F 240	R		
19	A	A	F	A	R	F	F	B	R	225	B	240	225	250	R 245	245	240	245	255	270	290	F 275	R 290	F	F	
20	U F 255	F	F	230	S	225	235	230	F	255	240	240	245	245	250	260	275	275	280	285	290	280	U F 270	A		
21	Y	F	A	F	F	U F 255	F	B	B	B	B	B	B	B	R	210	F	F	F	240	F	F	R	F	260	
22	F	F	F	F	F	A	R	205	205	210	220	B	B	B	B	220	R	F	F	225	260	270	275	R	F	
23	A	U F 225	F	F	F	F	A	R	R	B	A	210	220	220	235	F	F 235	F 230	F 275	255	265	F 275	U F 295	U F 275	F	
24	F	C	225	275	R	B	B	B	B	B	R	B	R	R	B	B	F	F	F	280	F 260	F 285	F 290	F 240	A	
25	B	B	C	B	F	B	B	B	B	B	R	B	B	B	B	250	260	F 270	285	310	B 290	F 300	F 290	F 290	R	
26	A	A	F	A	B	F	U F 250	A	R	B	R	B	R	R	235	V 250	U F 240	F 280	U F 240	F	F	F	Y	A	A	
27	A	R	F	F	B	B	B	R	B	R	R	B	B	B	U R 225	F 230	F 250	F 255	F 270	F 255	F 275	F 270	F 275	F	F	
28	R	U F 310	A	F 270	B	B	F	230	F	F	F	230	240	230	245	240	265	245	F	265	255	U F 235	A	A	A	
29																										
30																										
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	12	10	9	12	10	9	6	9	10	10	12	12	15	13	17	16	18	21	25	24	24	25	20	15		
MED	F 270	F 270	F 250	258	F 245	F 235	240	230	235	225	230	240	230	245	240	250	250	255	270	275	288	285	F 282	F 275		
UQ	F 278	F 280	F 255	F 270	280	U F 255	F 250	F 235	F 245	235	235	245	245	250	245	258	260	275	280	282	295	290	F 290	F 285		
LQ	U F 260	F 260	F 245	F 240	U F 235	225	R 235	225	205	225	230	232	228	235	230	238	F 240	F 245	255	260	278	275	F 272	F 260		

FEB. 1979

M(3000)F2 (0.01)

IONOSPHERIC DATA

FEB. 1979

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						C	C	C	C	C	490	510	550		R	R	480	460	470					
2						B	B	R	R	B	B	B	B	B	B	B	B							
3						440	B	R		650	510	510	505	490	R	490	395	430						
4							Y		600	Y	Y	C	C	R	B	B	B	B						475
5						550	Y	R	A	R	B	B	R		550	550	R	470	B					
6							B	R	B	B	B	B	B	U R	545	530	R	S	A					
7						450	450	480	450	480		R	R	R	R	400	C	C	400	420				
8						B	R	R	R	R	B	R		510	R	A	R	B	B	B	L			
9						B	B	B	R	R	B	B	R	B	B		495	480		R	410	410		
10						R	600	660	R	645	600	550	I R	545	B	B	500	R	R	480	400			
11						R	R		600	R	R	520	R	R	R	R	460	R	400	420	L			
12						R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	330			
13							420	500	425	425	400	425	425	380	400	375		L						
14						350	350	360	350	350	375	375	380	385	380	375	340		L					
15							F	470	410	430	425	425	480	450	440		330							
16							360	425	530	600	445	465	450	480	450	430	395		L					
17						380	390	400	400	390	C	C	370	380	375	380	375		L					
18						430	B	B	600	Y	470	500	450	480	450	440	460	470	475					
19						425	440		B	R	545	B	B	B	450	R	500	450	455	450	L			
20						450	460	455	420	410	395	395	400	400	390		L	L						
21							430	B	B	B	B	B	B	B	R	700	495	440	500		L			
22							R	720	670	670	550		B	B	B	520	425	360	410	F				
23							A	R	R	B	A	650	575	600	550	510	450							
24							B	B	B	R	B	R	R	B	B		400	L	350					
25							B	B	B	B	R	B	B	B	B		440	380	320					
26							450		A	R	B	R	B	R	R	B	380	350						
27							B	R	B	R	R	B	B	B	R		525	380	350					
28							U R	U R		610	475	450	470	490	410		L	300	L					
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	9	12	11	12	11	12	14	14	13	16	18	16	13	5	1				
MED					380	440	435	480	490	480	460	470	485	450	455	435	415	450	410	410				
UQ					450	455	600	628	572	515	510	540	490	532	495	458	475	420						
LQ					425	380	440	415	428	412	425	425	400	400	380	370	400	400						

FEB. 1979

H^oF₂ (KM)

IONOSPHERIC DATA

FEB. 1979

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	400	A	A	C	C	C	C	C	235	230	H	R	A	A	240	240	240	H	250	260	265	275	285					
2	305	300	300	370	A	B	B	A	R	B	B	B	B	B	B	B	B	250	B	B	280	300	H	340	295					
3	410	A	Y	420	350	350	B	A	A	250	I	R	R	240	250	225	240	225	230	240	R	250	260	290	A	A				
4	A	540	435	295	270	Y	Y	A	A	A	C	C	B	B	B	B	B	230	245		Y	Y	R	A	A					
5	500	R	500	400	500	300	330	Y	A	A	R	B	B	250	230	235	235	240	B	B	B	260	B	280	E	B	300	310		
6	310	350	360	A	A	290	B	R	B	B	B	B	B	B	270	B	250	250	250	A	A	A	E	B	360	395	430			
7	A	B	A	R	430	R	330	275	250	230	240	240	245	240	230	240	225	250	A	250	290	350	295	305	300					
8	490	A	430	350	300	B	A	A	R	R	B	U	R	240	250	250	R	A	250	B	B	B	280	285	300	R	395			
9	R	350	B	A	B	B	B	B	A	A	B	B	R	B	B	R	250	250	250	B	U	H	300	275	260	275	300			
10	460	E	A	U	Q	415	370	R	E	R	350	R	R	280	Y	B	B	B	240	250	R	250	250	260	275	300	330	300		
11	300	350	R	A	A	A	A	250	A	A	250	B	R	R	B	R	B	250	250	280	275	275	280	340						
12	A	A	310	440	400	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	R	300	300	290	295	310				
13	330	Q	275	300	290	325	280	260	250	245	H	225	H	I	B	250	230	225	240	250	250	250	250	250	260	250				
14	260	290	295	300	310	325	B	275	250	250	245	230	230	230	230	250	240	250	250	H	250	250	270	250	245					
15	300	425	430	360	U	Q	430	320	360	240	240	230	245	240	B	B	250	B	H	250	250	H	310	H	350	340	275	290		
16	425	R	U	Q	300	320	325	290	A	A	Y	225	220	H	H	240	240	250	250	245	250	250	A	290	A	275	280			
17	275	300	325	320	350	300	290	250	250	230	I	C	C	200	250	225	230	230	240	240	250	250	250	250	245	400	Q			
18	R	500	420	400	470	B	B	B	A	A	R	250	240	H	245	250	245	250	275	290	B	275	E	B	350	445	R			
19	A	A	A	A	R	B	B	B	R	275	B	B	B	B	B	B	250	250	275	270	275	270	355	350	A	R				
20	Q	395	410	415	430	E	B	A	R	300	255	245	250	250	230	235	250	245	245	245	250	255	250	230	430	A				
21	A	300	A	450	400	400	A	B	B	B	B	B	B	B	H	210	250	260	250	225	280	350	A	A	A	A	430			
22	A	490	A	450	A	A	R	360	R	300	250	B	B	B	260	B	250	260	250	290	355	350	R	275	Q					
23	A	555	345	U	Q	275	360	300	A	A	A	B	A	255	280	245	250	250	250	250	270	290	275	270	340	A				
24	270	C	460	E	A	A	B	B	B	B	A	B	B	260	B	B	250	250	260	E	B	280	380	300	260	490	A			
25	B	B	C	B	R	B	B	B	B	B	B	B	B	B	B	B	250	260	B	B	270	B	255	250	260	R				
26	A	A	Q	A	B	A	A	A	A	A	B	A	B	250	A	B	B	B	280	300	A	A	A	A	A	A				
27	A	R	A	530	B	B	B	A	B	A	A	B	B	245	270	250	260	300	380	350	385	345	360							
28	R	300	A	380	B	B	A	E	B	H	330	310	270	250	I	B	255	250	B	240	250	245	250	Q	H	360	A	A	A	A
29																														
30																														
31																														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	14	18	18	20	17	10	7	9	7	11	11	13	17	13	15	22	22	24	24	22	21	24	21	19						
MED	320	358	392	382	338	325	290	262	250	245	235	240	250	235	240	250	250	250	250	278	275	284	288	300						
UQ	425	490	425	435	385	350	315	330	252	272	250	250	250	245	250	250	250	255	272	300	300	310	345	350						
LQ	300	300	325	310	310	300	282	250	248	240	228	230	240	230	238	240	245	245	250	250	260	262	275	288						

FEB. 1979

H^oF (KM)

IONOSPHERIC DATA

FEB. 1979

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 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		150	110	K100	110	100	C	C	C	C	C	G	G	G	120	120	120	G	G	G	160	G	G	G	B	
2		G	G	G	150	105	B	B	100	G	B	B	B	B	B	B	B	B	G	B	B	155	G	G	K120	
3		K120	110	100	100	G	120	B	100	100	G	G	G	G	G	G	G	G	120	G	130	G	G	125	125	
4		100	K100	K100	160	150	105	100	110	100	100	C	C	B	B	B	B	B	G	G	G	K125	K125	125	100	
5		K125	K110	K170	K110	100	150	G	110	120	110	B	B	G	G	G	G	B	B	B	G	B	130	B	B	
6		B150	K110	135	110	120	G	B	100	B	B	B	B	B	B	B	B	G	160	140	130	140	B	K115	K130	
7		140	B	100	120	110	G	G	G	G	G	G	G	G	G	140	130	125	G	165	140	G	G	G	G	
8		K130	105	110	K110	G	B	125	140	120	100	B	G	G	G	120	G	B	B	B	G	G	G	K125	K170	
9		K120	K120	B	130	B	B	B	B	120	120	B	B	G	B	B	G	B	B	G	120	G	140	G	150	
10		K130	100	100	150	K100	K110	G	G	G	G	G	B	B	B	G	G	G	G	G	G	G	G	G	G	
11		G	G	K140	120	125	125	120	G	120	115	G	B	G	G	B	G	B	G	145	140	125	120	110	140	
12		115	120	105	150	100	130	140	B	B	B	B	B	B	B	B	B	B	B	140	140	130	130	G	140	
13		K130	140	130	100	160	140	G	G	G	G	G	B	100	G	G	130	B	B	G	B	B	B	B	120	
14		B	100	100	B	G	B	G	G	G	G	G	140	G	G	130	125	120	115	110	110	G	100	100	G	
15		110	125	125	G	145	G	110	110	K110	G	G	G	G	G	B	B	B	G	145	170	110	G	145	145	
16		K100	K150	150	140	145	G	G	140	100	100	G	G	G	130	125	G	B	G	130	130	115	110	100	100	
17		100	100	100	100	G	G	G	G	G	C	C	G	G	G	G	G	G	G	G	G	G	150	B	100	100
18		K120	K145	K130	140	B	B	B	B	115	120	G	G	G	G	G	G	G	B	175	B	G	B	G	K125	
19		100	100	125	100	130	K130	B	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	125	150	K125
20		G	125	K120	125	B	120	G	G	G	G	G	G	125	G	110	110	120	G	G	105	G	B	K125	120	
21		100	150	100	K110	140	110	130	B	B	B	B	B	B	B	G	G	B	G	G	150	150	130	140	100	
22		100	120	100	100	100	100	G	G	G	G	G	B	B	B	G	B	G	150	150	140	150	K120	K125	K130	
23		135	K110	110	G	140	120	115	120	100	B	100	G	G	140	G	G	G	155	145	130	140	125	125	130	
24		120	C	K120	120	120	B	B	B	B	115	B	B	B	B	B	G	120	G	B	K120	B	G	K130	115	
25		B	B	C	B	G	B	B	B	B	B	B	B	B	B	B	B	G	B	B	B	110	130	115	K130	
26		K170	K125	K150	100	B	130	130	120	100	B	110	B	125	130	B	B	B	G	B	120	140	110	120	120	
27		100	K125	125	125	B	B	B	120	B	100	110	B	B	B	B	B	B	G	G	K140	K130	K125	K125	K125	
28		K130	120	110	110	B	B	120	B	G	G	G	B	145	B	G	G	G	G	G	G	150	110	105	120	
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		23	23	25	24	17	12	9	11	11	9	3	1	4	4	5	5	4	7	9	17	15	16	18	23	
MED		120	120	110	115	120	120	120	110	115	110	110	140	125	130	120	125	120	145	145	130	140	125	125	125	
UQ		K130	125	130	135	140	130	130	120	120	115	110		135	135	125	130	125	152	150	140	150	130	125	130	
LQ		100	108	100	105	100	110	115	105	100	100	105		112	125	120	120	120	122	140	120	128	115	110	120	

FEB. 1979

H[°]E S (KM)

IONOSPHERIC DATA

FEB. 1979

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	AAC 11	R 1	K 2	R 1	R 1									C 1	C 1	C 1				H 1					
2				RC 11	R 1			R 1													H 1			K 1	
3	K 2	R 1	R 1	R 1		R 1		R 1	R 1									C 1		C 1			R 1	R 1	
4	R 1	K 2	K 2	H 1	H 1	R 1	L 1	R 1	R 1	L 1											K 1	K 2	R 1	R 1	
5	KL 11	KL 11	HK 11	K 1	R 1	HA 11		R 1	R 1	R 1												H 1			
6	K 1	K 1	C 2	R 1	R 1			R 1										H 1	H 1	H 1	H 1		K 1	K 1	
7	RKA 11		R 1	K 1	K 1										H 1	H 1		C 1		H 1	H 2				
8	K 2	R 1	R 1	K 21			R 1	H 1	R 1	R 1					C 1								K 1	HK 11	
9	K 1	K 1		R 1					R 1	R 1											R 1	C 1		R 1	
10	K 1	L 1	L 1	HK 11	K 1	K 1																			
11			K 1	R 1	R 1	R 1	R 1		R 1	R 1									H 1	H 1	C 1	C 1	L 1	R 1	
12	R 1	R 1	L 1	H 1	L 1	R 1	R 1													H 1	H 1	H 1		R 1	
13	K 2	R 3	R 1	L 2	H 1	R 1							L 1			H 1								C 1	
14		C 1	L 2									H 1			H 1	C 1	C 1	C 1	C 1	C 2	C 2		L 2	R 1	
15	R 1	RA 11	R 1		H 1		R 1	K 2										H 1	H 1	R 1		H 1		RC 11	
16	LKR 11	K 1	RA 11	RA 11	H 1			R 1	RR 11	L 1				C 1	C 1				H 1	H 1	C 3	C 3	L 3	L 6	
17	L 3	L 3	L 5	L 1																		H 1	L 1	R 2	
18	K 3	CK 11	K 1	R 1					R 1	R 1										H 1				K 2	
19	R 2	R 1	RA 11	R 1	K 1				R 1														R 1	R 1	K 1
20		R 1	K 2	R 1		R 1							H 1		C 1	C 1	C 1				L 1		K 2	R 1	
21	R 1	H 1	R 2	K 1	RL 11	L 1	R 1														R 1	R 1	R 1	C 1	L 2
22	R 1	CA 11	L 2	L 2	L 1	R 1												H 1	H 1	C 1	HK 11	K 2	K 2	RKA 11	
23	RA 21	RK 22	L 1		HL 11	R 1	R 1	R 2	R 1		L 1				H 1				H 1	H 1	H 1	H 1	C 2	C 2	R 1
24	C 1		RK 11	R 1	R 1					R 1								C 1				K 2		K 3	R 4
25																						L 1	C 1	C 3	K 3
26	HK 11	CK 11	K 1	RR 11		R 1	RL 11	R 1	R 1		R 1			C 1	H 1						R 1	HH 11	R 1	AR 12	R 1
27	LH 11	K 1	R 1	RK 11				R 1		R 1	R 1										K 1	K 2	K 4	K 3	K 3
28	K 1	R 2	R 2	R 2			R 1							H 1								R 1	RA 11	R 1	R 1
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

FEB. 1979

TYPES OF ES

IONOSPHERIC DATA

MAR. 1979

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	70	70	A	38	62	0 R 50	R	R	R	70	X 71	X 71	X 69	X 69	X 71	X 77	0 R 81	80	74	58	60	38	A	A	
2	44	45	42	47	A	A	70	B	B	B	B	B	B	0 R 63	X 67	X 74	X 77	X 70	X 65	65	67	56	57	39	
3	A	0 R 51	61	44	63	62	59	X 65	68	74	72	0 R 75	X 78	X 79	X 77	X 77	76	74	67	B	R	R	A		
4	A	49	68	65	74	38	R	0 R 52	R	R	B	X 67	B	B	B	B	X 66	X 60	X 59	X 64	X 59	R	R	R	
5	R	R	48	R	54	53	B	B	B	R	R	B	B	0 R 62	X 64	X 73	X 72	X 75	73	71	65	57	46	0 R 28	
6	A	A	41	A	R	60	F 79	B	B	B	B	70	B	R	X 82	X 108	76	X 58	X 47	X 46	0 R 48	R	R	R	
7	0 R 33	B	X 49	62	A	B	R	0 R 63	B	B	R	0 R 62	B	0 R 63	0 R 65	X 67	X 71	X 71	X 75	X 75	X 70	X 60	34	R	
8	R	A	R	42	B	B	R	R	R	R	61	X 65	X 76	X 82	X 90	U R 92	X 100	X 102	R	R	X 75	60	43	33	
9	29	A	A	0 R 68	R	B	B	R	86	X 97	X 101	X 103	100	B	B	X 94	X 99	X 100	X 100	X 97	X 85	66	64	0 S 53	
10	46	57	0 R 51	43	54	B	R	B	B	B	B	B	71	B	X 86	X 106	X 110	X 106	X 89	X 78	66	76	52	A	
11	B	R	69	53	Y 0 R 40	R	B	R	R	B	B	65	X 62	X 66	0 R 67	B	73	0 R 66	B	B	S	B	25		
12	31	31	28	33	X 54	59	B	B	X 76	B	X 86	X 99	107	X 115	X 113	107	X 111	X 108	X 100	X 105	X 94	X 86	68	R	
13	0 R 37	0 R 34	X 45	X 49	X 41	X 52	X 64	B	B	X 68	84	0 R 86	X 84	X 89	X 92	X 94	X 92	X 94	0 R 96	X 90	X 92	X 80	68	66	
14	56	X 50	51	75	76	78	X 59	X 72	X 87	100	111	0 R 117	0 R 124	X 126	R 126	R 124	X 122	X 119	X 111	X 103	X 93	78	72	56	
15	46	54	61	58	72	78	65	X 78	X 106	X 106	X 119	X 125	R 132	X 133	0 R 133	X 125	X 121	X 114	X 115	X 111	X 101	X 87	65	X 51	
16	46	A	51	41	60	58	0 R 71	54	X 68	X 78	X 95	X 113	X 116	X 121	X 115	X 106	X 103	X 100	X 111	X 104	X 97	X 79	75	X 63	
17	X 54	X 50	X 32	41	A	62	64	62	74	65	0 R 67	B	0 G 51	0 G 57	61	75	X 82	X 85	X 86	X 86	81	73	68	66	
18	59	55	A	R	65	63	69	86	85	B	X 93	X 112	X 111	X 118	X 117	X 126	X 117	X 118	X 118	X 106	X 96	S 82	X 76	X 65	
19	59	56	53	53	60	X 65	66	73	X 82	R 87	B	B	98	106	113	120	125	S 128	U R 122	R	B	55	46	40	
20	X 31	0 R 37	62	56	R	100	R	0 R 67	X 82	X 85	X 85	X 86	B	B	R	X 117	X 117	X 123	X 126	X 115	X 98	X 75	X 51	X 28	
21	47	R	50	X 52	X 56	X 62	X 62	X 68	X 82	X 82	R	R	X 115	X 117	X 117	X 115	X 112	X 114	X 113	X 110	X 92	X 75	X 44	35	
22	X 33	50	53	51	52	60	65	87	C U R 79	R 91	0 R 109	X 115	X 116	X 121	B	X 131	X 76	X 59	X 51	X 41	X 60	A	65		
23	A	51	50	55	53	A	B	62	62	73	R	X 70	X 74	X 75	X 73	X 76	X 77	X 76	X 76	X 75	X 64	X 50	Y	R	
24	51	Y	A	B	B	A	B	Y	Y	Y	B	B	B	R	R	R	R	R	X 82	X 84	X 80	X 68	32	A	R
25	B	B	B	R	B	B	B	B	B	B	B	B	B	B	63	83	0 R 92	X 107	X 95	X 81	0 R 48	R	R	A	R
26	A	B	A	A	A	B	B	R	R	B	R	B	B	B	B	X 88	X 90	X 80	X 72	X 63	R	B	A	A	
27	A	A	0 R 38	40	43	R	57	B	B	B	B	B	B	0 R 73	0 R 78	U R 94	X 79	X 103	X 93	0 R 40	A	R	A	R	
28	32	B	A	52	B	B	B	B	B	0 R 58	0 R 59	B	B	0 R 66	110	110	R	86	66	X 56	B	B	A	A	
29	0 R 39	A	A	B	A	0 R 42	A	B	B	B	B	B	B	B	U R 73	X 106	C	B	0 R 54	0 R 42	0 R 40	0 R 33	B	A	
30	R	52	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	0 R 57	B	B	X 41	0 R 32	R	R	
31	R	B	R	R	B	B	B	B	B	R	B	B	B	B	R	111	R	115	107	103	X 56	R	X 46	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	19	16	20	23	16	18	13	13	12	15	14	16	17	22	26	27	27	29	29	28	23	23	16	15	
MED	46	50	50	51	58	60	65	67	82	79	86	X 86	X 98	X 77	X 84	X 94	X 99	X 86	X 84	X 75	X 70	60	60	51	
UQ	52	54	57	56	64	63	69	73	86	86	95	X 110	X 115	X 116	X 113	X 109	X 114	X 106	X 103	X 104	X 92	77	68	64	
LQ	33	47	44	42	54	52	X 62	62	71	72	71	X 70	X 74	0 R 63	X 73	X 77	X 78	X 76	X 72	57	62	52	46	34	

MAR. 1979

FXI (0.1 MHz)

IONOSPHERIC DATA

MAR. 1979

FOF2 (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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	F	F	A	F	F	UR	Y	R	R	F	65	65	63	63	65	71	75	F	F	U	F	F	F	A	A											
2	F	U	F	U	F	A	A	F	B	B	B	B	B	B	57	61	68	71	64	58	59	F	U	F	F											
3	A	UR	U	F	F	F	F	F	52	56	U	F	66	69	72	73	71	F	70	F	F	B	R	R	A											
4	A	F	F	F	F	F	R	R	46	R	R	B	B	B	B	B	UR	60	54	53	57	53	R	R	R											
5	R	R	F	R	F	F	B	B	B	R	R	B	B	B	56	58	67	66	69	67	65	F	58	51	37	22										
6	A	A	F	A	R	F	F	B	B	B	B	F	B	R	76	99	F	52	41	40	42	R	R	R	R											
7	27	B	45	U	F	A	B	R	57	B	B	R	56	B	57	59	61	65	65	68	68	63	54	27	R											
8	R	A	R	32	B	B	R	R	R	R	F	59	J	R	70	75	83	UR	85	93	R	R	68	53	33	F	23									
9	F	A	A	R	R	B	B	R	F	91	UR	UR	F	B	B	B	88	93	94	94	91	67	F	S	S	47										
10	F	F	48	45	F	40	F	48	B	R	B	B	B	B	F	65	B	80	100	J	R	J	R	100	76	72	U	F	62	F	F	A				
11	B	R	F	F	Y	34	R	B	R	R	B	B	F	57	56	60	61	B	F	67	60	B	B	S	B	F	F									
12	F	F	24	F	48	F	B	B	70	B	B	80	93	J	R	J	R	R	J	R	J	R	100	94	99	88	80	62	R							
13	31	28	39	43	35	46	58	B	B	62	F	R	80	78	83	86	J	R	88	86	88	90	84	86	74	62	F	60								
14	F	47	40	F	F	F	39	53	66	81	94	J	R	UR	UR	UR	UR	R	R	109	J	R	S	87	S	F	F	50								
15	F	40	F	F	F	36	F	F	72	J	R	86	100	113	J	R	119	126	127	127	R	119	115	108	109	105	95	81	F	45						
16	F	A	F	F	F	F	UR	F	62	72	89	107	110	115	109	100	R	R	97	94	UR	UR	98	91	73	69	57	F								
17	48	38	26	F	A	F	F	F	68	F	61	B	E	G	E	G	45	51	55	69	76	79	80	80	F	F	F	F	F							
18	F	F	A	R	F	F	F	63	F	F	78	B	87	106	105	112	111	120	111	112	112	100	90	76	S	70	59	F								
19	F	F	F	F	F	44	F	F	76	81	R	B	B	F	R	F	F	F	F	R	UR	UR	UR	B	32	32	F	28								
20	25	31	F	F	R	F	R	61	76	79	79	80	B	B	R	111	R	111	111	117	120	109	92	69	45	22	F									
21	F	A	F	40	40	44	49	62	76	76	R	R	R	109	111	111	109	UR	J	R	J	R	R	86	69	38	F									
22	27	F	F	F	F	40	51	F	I	C	UR	R	R	85	103	109	110	115	B	125	70	F	F	F	54	A	A									
23	A	F	F	F	F	A	B	F	F	F	67	R	64	68	69	67	70	71	70	R	70	69	58	44	Y	A	A									
24	F	Y	A	B	B	A	B	Y	Y	Y	B	B	B	R	R	81	76	76	76	78	74	62	F	A	A	A										
25	B	B	B	R	B	B	B	B	B	B	B	B	B	B	B	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR		
26	A	B	A	A	A	B	B	R	R	B	R	B	B	B	B	B	82	80	74	66	57	F	R	B	A	A	A									
27	A	A	32	34	37	R	F	51	B	B	B	B	B	B	R	R	67	72	88	J	R	91	97	86	35	A	R	A	R							
28	F	B	A	F	B	B	B	B	B	B	B	B	B	B	B	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR			
29	UR	33	A	A	B	A	36	A	B	B	B	B	B	B	B	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR		
30	A	F	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	51	B	B	35	26	R	R	A								
31	R	B	R	R	B	B	B	B	B	B	R	B	B	B	B	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR	UR		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23												
CNT	11	8	12	11	8	10	8	7	12	14	13	16	17	22	24	26	25	29	28	27	19	18	13	10												
MED	31	37	38	40	38	44	56	61	76	74	80	80	90	71	77	88	93	80	77	69	67	54	45	46												
UQ	44	42	45	42	47	46	64	64	77	81	89	104	109	110	108	101	106	100	101	98	88	73	62	57												
LQ	26	30	32	36	36	39	51	54	65	64	65	64	68	57	66	71	75	70	66	54	58	44	37	23												

MAR. 1979

FOF2 (0.1 MHz)

IONOSPHERIC DATA

MAR. 1979

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							Y	A	A	F	U R	B	R	490	510	L	L	B						
2							A	B	B	B	B	B	B	B	470	460	460	L						
3									410	430	450	B	B	R	500	500	L	L	L					
4							R	A	380	R	B	R	B	B	B	B								
5							B	B	B	370	450	B	B	R	470	B	L	490						
6								B	B	B	B	B	B	U R	440	470		B	L					
7									B	B	R	U R	B	B	B	U L	490	L						
8							R	R	R	R	B	480	U L	550	L	L								
9							B	A	B	L	L	U L	550	B	B	L	L							
10							R	B	B	B	B	B	U L	500	B	U L	590	L						
11							R	B	R	R	B	B	470	U R	470	U R	450	B	B					
12							B	B	B	B	L	B	L	L	L	L	B							
13								B	B	U R	L	R	U L	520	U L	530								
14													L	L										
15																								
16											L	L		L										
17							R	H	F	B	B	450	510	L	L	L	L							
18							L		B	L	L	L												
19											B	B												
20										L	L	L	B	B	B									
21												L	L	L										
22											L				L	B								
23									L	L	L	L	L											
24											B	B	B											
25							B	B	B	B	B	B	U R	450										
26										B		B	B	B	B									
27								B	B	B	B	B	B											
28										B	R	B	B	B	B	L								
29							B	B	B	B	B	B	B	B	L									
30																								
31											B	B	B	B										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									4	6	4	4	7	9	6	4	1							
MED									415	445	460	480	480	490	485	490	460							
UQ									450	480	485	485	510	510	510	495								
LQ									395	430	450	465	475	470	470	475								

MAR. 1979

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAR. 1979

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			K 280			B	B	A	B	A	K 330	K 400	B	B	B	310	300	B	280	H 270	A	K 350					
2		K 280	K 260	K 200		B	A	A	B	B	B	B	B	B	310	300	290		B	B		230	A				
3			K 390	K 260	K 260	K 290	K 260	K 350	K 360	270	290	B	B	B	B	A	280	R 270	U R 260	R 250							
4		K 360	K 300	K 300		A	A	A	A	A	A	B	R 330	B	B	B	B	B	B	B	B	B	B	K 390			
5						A	B	B	B	B	R 280	B	B	B	B	B	300	B	B	B	B	B	B				
6						A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	K 250	K 350			
7				K 300	K 210		A	B	A	K 400	B	B	B	B	B	B	B	280		B	210	190	150	170	150		
8					K 290	B	B	A	A	A	A	B	350	U R 350	U R 350	U R 340	310	290		B	B	B	B	K 190			
9		K 130			K 370	A	B	B	B	B	B	B	290	R 295	305	B	B	B	B	270	240	140	A	K 230	K 340	K 360	
10			K 430	K 360	K 290	K 240	B	A	B	B	B	B	B	R	B	R	B	R 270	B	250	B	200					
11					K 140	A	A	A	B	A	A	B	B	B	R	R	B	B	260	B	B	B	B	K 150			
12					K 190	A	B	B	B	B	U R 290	B	B	B	B	B	B	B	250	B	B	B	B				
13						A	B	A	B	B	A	B	295	B	300	B	R 285	280	260	B	B	B	B				
14		K 150	K 160			A	A	170	220	250	270	280	290		R	R	R	280	270	260	220	B	B				
15			K 260			A	B	B	B	250	R	R	310	310	300	300	290	270	250	B	B	B	B				
16		K 250			K 270	K 360	K 390	B	K 430	265	275	280	290	R	B	R	300	300	R 280	250	220	H	B	B			
17					U K 200	A	K 330	K 340	A	A	290	B	B	B	280	280	290	270	225	B	B	A		K 140	K 150		
18		K 160				A	K 250	A	A	A	B	B	B	300	300	300	K 300	300	275	250	H	B	B	B			
19			K 160	K 150		A	A	150	200	250	B	B	B	300	290	B	B	B	B	B	B	B	B	B		K 200	K 155
20		K 240	K 250	K 410	K 350	K 390	A	K 410	K 400	K 310	280	B	B	B	B	B	B	B	B	B	210	B	R				
21		K 330			K 210	B	B	B	B	240	B	B	B	B	B	B	B	B	B	R	A	B	B		K 200		
22		K 210			K 260	A	K 200	K 190	K 350	C	B	R	300	300		R	B	B	B	B	A	A	B				
23					U K 250	A	A	B	K 350	K 300	K 340	B	300	U R 310	310	295	270	250	230	170	130	100	120	K			
24						B	K 300	B	B	A	B	B	B	B	B	B	B	B	B	220	B	B	B			K 275	
25						B	B	B	B	B	B	B	B	B	B	B	B	B	250	240	220	A			K 340		
26						A	B	B	A	A	B	A	B	B	B	B	B	H 270	H 250	H 240	220	290					
27			K 350	K 280	K 190	K 190	K 330	K 350	B	B	B	B	B	B	B	B	B	B	B	240	240	A	K 300		K 350		
28		K 200			K 300	B	B	B	B	B	B	B	B	B	B	B	B	B	B	K 290	B	B	B				
29		K 210				A	K 260	A	B	B	B	B	B	B	B	B	B	C	B	B	200	220	K				
30						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		K 190	K 240	
31		K 230				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	K 320	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		12	10	9	13	6	8	7	8	8	8	5	9	7	7	8	11	13	16	12	10	8	8	6	7		
MED		K 220	K 270	K 280	K 260	K 265	K 280	K 340	K 355	258	285	290	300	305	300	300	300	275	250	240	220	255	K 210	K 195	K 275		
UQ		K 265	K 350	K 300	K 290	K 360	K 330	K 350	K 400	285	310	290	310	310	R 305	310	300	280	265	245	240	335	K 325	K 200	K 345		
LQ		K 180	K 250	K 200	K 210	K 190	K 255	K 180	K 285	250	278	280	295	300	295	298	288	270	250	215	190	175	K 160	K 150	K 198		

MAR. 1979

FOE (0.01 MHZ)

IONOSPHERIC DATA

MAR. 1979

FOES (0.1 MHz)

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

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	49	K 28	70	52	E 45	36	40	45	46	K 33	K 40	E 49	E 36	36	33	G 55	E 31	G	34	K 35	37	38	33			
2	38	K 26	K 20	29	J 47	46	44	B	B	B	B	B	B	E 52	G	G	G	30	27	G	33	30	30	38		
3	60	K 39	K 26	K 26	K 29	K 26	K 35	K 36	G	G	E 33	E 55	E 59	38	36	35	G	G	G	B	39	29	43			
4	54	34	K 30	25	36	36	37	35	36	44	B	B	B	B	B	B	E 34	E 31	J 48	47	46	45	34	36		
5	30	32	21	34	29	E 24	B	B	B	G	E 35	B	B	35	E 51	G	E 35	E 34	31	25	E 21	E 16	25	26		
6	39	41	25	J 64	42	E 35	B	B	B	B	E 54	B	E 35	E 35	E 34	E 53	E 32	E 30	K 25	K 35	25	34	J 29			
7	23	B	K 30	K 21	55	B	45	40	B	B	45	E 39	B	E 54	E 52	E 33	G	E 26	G	G	G	K 17	K 15	30		
8	37	53	E 29	K 29	B	B	45	46	50	47	E 45	G	G	G	G	G	E 36	E 50	E 40	E 20	K 19	20	20			
9	20	28	50	K 37	45	B	B	53	53	38	G	G	33	B	B	E 35	E 45	G	23	28	30	K 34	K 36			
10	35	K 43	K 36	K 29	31	B	39	B	B	B	B	B	G	B	G	E 35	G	E 40	J 42	E 40	22	46	40	J 44		
11	B	43	29	K 14	17	60	31	B	42	38	B	B	E 40	G	G	E 45	B	28	E 39	B	B	25	B	24		
12	20	23	23	22	19	22	B	B	E 45	B	G	E 65	E 50	E 45	E 48	E 85	E 30	G	E 25	E 27	E 20	21	E 15	31		
13	22	18	20	21	20	16	32	B	B	34	E 45	G	E 45	G	E 37	G	G	G	E 24	E 20	E 12	E 15	E 16	15		
14	K 15	24	25	25	25	20	G	G	G	G	31	G	30	29	28	25	20	G	17	14	E 19	E 13	E 10	E 16		
15	E 12	K 26	23	21	20	E 19	E 20	E 23	G	G	G	27	29	28	G	G	G	17	G	16	E 22	E 20	E 15	E 14	E 12	26
16	K 25	45	40	K 27	K 36	K 39	E 45	K 43	35	29	G	G	E 54	G	G	G	G	G	G	E 18	E 13	E 13	E 13	24		
17	J 25	25	32	27	J 64	K 33	K 34	35	29	15	E 51	B	E 36	G	G	G	G	27	25	18	25	18	K 14	K 15		
18	K 21	K 24	J 61	35	33	27	31	36	33	B	E 45	E 40	G	25	G	25	G	G	E 21	E 30	E 17	E 20	E 20	E 15		
19	14	K 16	K 15	18	20	20	15	K	G	G	E 41	B	B	G	G	E 55	E 30	E 42	E 47	E 37	E 55	B	29	20	20	
20	29	K 25	K 41	K 35	K 39	42	K 41	K 40	31	G	E 30	E 31	B	B	E 100	E 75	E 35	E 27	G	E 20	17	17	17	15		
21	K 33	J 32	26	K 21	E 16	E 19	E 17	E 20	G	E 27	E 55	E 40	E 50	E 46	E 37	E 39	E 54	25	29	E 32	25	21	K 20	E 19		
22	K 21	25	28	K 26	K 23	20	25	35	C	E 47	G	G	25	23	E 36	B	E 40	E 36	J 22	35	J 43	46	46	36		
23	J 46	53	39	30	22	53	B	K 35	K 30	K 34	E 40	G	G	26	25	22	G	G	G	G	G	K 12	26	32		
24	40	34	43	B	B	K 30	B	39	41	51	B	B	B	E 36	E 36	E 44	E 28	24	21	E 25	E 19	29	28	47		
25	B	B	B	25	B	B	B	B	B	B	B	B	B	E 35	E 34	E 48	E 38	G	G	G	33	31	36	K 34		
26	57	B	36	35	34	B	B	27	31	B	31	B	B	B	B	E 39	G	G	G	33	45	B	41	37		
27	45	K 35	K 28	K 19	23	K 33	K 35	B	B	B	B	B	B	E 49	E 37	E 35	E 50	E 35	G	K 24	J 104	K 30	80	K 35		
28	57	B	52	K 30	B	B	B	B	B	E 47	E 38	B	B	E 44	E 44	E 37	E 55	29	26	21	B	B	38	40		
29	K 21	47	40	B	45	26	36	B	B	B	B	B	B	B	E 36	E 36	C	B	E 22	G	K 22	J 59	B	34		
30	35	32	60	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E 29	B	B	E 18	E 18	K 19	K 24		
31	K 23	B	36	24	B	B	B	B	B	E 45	B	B	B	B	E 50	E 50	E 39	E 26	E 21	28	K 32	K 35	J 64	59		
	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	26	30	28	25	22	21	18	18	20	19	17	17	23	27	28	28	30	30	29	27	29	29	31		
MED	30	32	30	26	30	28	34	36	31	E 34	E 35	E 31	E 33	E 35	E 36	E 34	E 29	E 26	E 22	E 24	22	25	26	31		
UQ	40	41	40	32	40	39	40	40	U 39	U 39	E 45	E 40	E 45	E 41	E 40	E 39	E 41	E 31	U 26	U 28	33	31	36	36		
LQ	21	25	25	22	22	20	U 28	27	G	E 15	E 28	G	G	E 23	G	G	G	G	G	E 18	E 17	U 14	16	22		

MAR. 1979

FOES (0.1 MHz)

IONOSPHERIC DATA

MAR. 1979

FBES (0.1 MHz)

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

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	39	K 28	A 70	A 29	E 45	B 35	U 40	Y 45	Y 46	K 33	K 40	E 49	E 36	B 35	33	G 55	E 31	G	34	K 35	35	A 38	A 33		
2	31	K 26	K 20	22	A 47	A 46	42	B	B	B	B	B	B	E 52	G	G	G	30	27	G	25	22	22	26	
3	A 69	A 39	K 26	K 26	K 29	K 26	K 35	K 36	G	G	E 33	E 55	E 59	38	U 36	34	G	G	G	G	B	U 39	U 29	A 43	
4	A 54	34	K 30	16	36	35	37	34	35	44	B	B	B	B	B	E 34	E 31	35	34	35	45	U 34	U 36		
5	U 30	U 32	20	U 34	25	E 24	B	B	B	G	E 35	B	B	35	E 51	G	E 35	E 34	30	25	E 21	E 16	21	20	
6	A 39	A 41	20	A 64	U 42	39	E 35	B	B	B	B	E 54	B	E 35	E 35	E 34	E 53	E 32	E 30	K 25	K 35	U 25	U 34	U 29	
7	23	B	K 30	K 21	A 55	B	U 45	K 40	B	B	R	E 39	B	E 54	E 52	E 33	G	E 26	G	G	G	K 17	K 15	U 30	
8	U 37	A 53	E 29	K 29	B	B	U 45	U 46	U 50	U 47	E 45	G	G	G	G	G	G	E 36	E 50	E 40	E 20	K 19	15	18	
9	15	A 28	A 50	K 37	U 45	B	B	53	53	38	G	G	B	B	E 35	E 45	G	G	20	25	23	K 34	K 36		
10	31	K 43	K 36	K 29	K 24	B	U 39	B	B	B	B	B	G	B	G	E 35	G	E 40	28	E 40	G	40	40	A 44	
11	B	U 43	29	K 14	U 17	30	U 31	B	U 42	U 38	B	B	E 40	G	G	E 45	B	28	E 39	B	B	21	B	21	
12	17	17	20	20	K 19	20	B	B	E 45	B	G	E 65	E 50	E 45	E 48	E 85	E 30	G	E 25	E 27	E 20	20	E 15	U 31	
13	20	16	20	20	19	16	30	B	B	34	E 45	G	E 45	G	E 37	G	G	G	E 24	E 20	E 12	E 15	E 16	13	
14	K 15	K 16	20	20	20	14	G	G	G	G	31	G	30	29	28	25	20	17	14	19	13	10	E 14	E 16	
15	E 12	K 26	21	16	14	E 19	E 20	E 23	G	G	27	29	28	G	G	G	G	17	16	E 22	E 20	E 15	E 14	E 12	24
16	K 25	A 45	40	K 27	K 36	K 39	E 45	K 43	35	G	G	G	E 54	27	G	G	G	G	G	E 18	E 13	E 13	E 13	16	
17	20	22	U 20	25	A 64	K 33	K 34	33	25	15	E 51	B	E 36	G	G	G	G	26	24	18	15	19	14	K 15	
18	K 16	20	A 61	29	21	25	30	25	30	B	E 45	E 40	G	25	G	25	G	G	E 21	E 30	E 17	E 20	E 20	E 15	
19	14	K 16	K 15	15	15	15	15	G	G	E 41	B	B	G	G	E 55	E 30	42	47	37	55	B	25	20	K 16	
20	K 24	K 25	K 41	K 35	K 39	38	U 41	K 40	31	G	E 30	E 31	B	B	E 100	E 75	E 35	E 27	G	E 20	17	17	17	15	
21	K 33	A 32	24	21	E 16	E 19	E 17	E 20	G	E 27	E 55	E 40	E 50	E 46	E 37	E 39	E 54	25	29	E 32	U 24	21	K 20	E 19	
22	K 21	23	25	15	22	15	25	35	C	E 47	G	G	25	G	23	E 36	B	E 40	E 36	21	30	30	40	A 46	A 36
23	A 46	27	24	25	20	A 53	B	K 35	K 30	K 34	E 40	G	G	G	G	22	G	G	G	G	G	K	U 26	A 32	
24	39	U 34	A 43	B	B	K 20	B	U 39	U 41	51	B	B	B	E 36	E 36	44	28	24	20	25	19	20	28	A 47	
25	B	B	B	U 25	B	B	B	B	B	B	B	B	B	B	E 35	E 34	E 48	E 38	G	G	G	U 33	U 31	A 36	K 34
26	A 57	B	A 39	A 35	A 34	B	B	R	R	B	R	B	B	B	B	E 39	G	G	G	27	29	B	A 41	A 37	
27	A 45	K 35	K 28	K 19	K 19	K 33	K 35	B	B	B	B	B	B	E 49	E 37	E 35	E 50	E 35	G	K 24	104	K 30	A 80	K 35	
28	K 20	B	A 52	K 30	B	B	B	B	B	E 47	E 38	B	B	E 44	E 37	E 55	K 29	25	21	B	B	A 38	A 40		
29	K 21	A 47	A 40	B	A 45	K 26	A 36	B	B	B	B	B	B	E 36	E 36	C	B	E 22	G	K 22	25	B	A 34		
30	A 35	30	A 60	B	B	B	B	B	B	B	B	B	B	B	B	B	E 29	B	B	E 18	E 18	K 19	K 24		
31	K 23	B	U 36	20	B	B	B	B	B	E 45	B	B	B	B	E 50	E 50	E 39	E 26	E 21	22	K 32	K 35	A 64	A 59	
CNT	29	26	30	28	25	22	21	17	17	20	17	17	17	23	27	28	28	30	30	29	27	29	29	31	
MED	25	29	29	25	24	26	34	35	30	E 34	E 35	E 31	E 33	E 35	E 36	E 34	E 29	E 26	E 22	E 22	U	18	21	22	30
UQ	39	39	A 40	K 29	40	35	U 40	40	K	U 38	U 39	E 45	E 40	E 45	E 41	E 40	E 39	E 41	E 31	E 28	U 26	30	30	A 36	A 36
LQ	K 20	23	20	20	19	U 17	U 28	25	G	G	E 27	G	G	E 23	G	G	G	G	G	E 18	E 15	U 14	16	18	

MAR. 1979

FBES (0.1 MHz)

IONOSPHERIC DATA

MAR. 1979

F-MIN (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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	16	12	15	16	45	31	22	36	23	23	30	49	36	33	21	23	55	25	20	20	15	20	15	11	
2	18	15	8	15	24	25	25	B	B	B	B	B	B	52	24	23	23	27	24	15	15	15	11	20	
3	13	20	15	15	16	21	21	24	24	25	33	55	59	34	35	21	24	22	22	19	B	15	16	15	
4	25	15	15	12	29	24	20	25	24	25	B	25	B	B	B	B	34	31	23	20	21	35	15	13	
5	11	14	10	20	14	24	B	B	B	25	35	B	B	34	51	24	35	34	25	20	21	16	19	14	
6	14	15	15	21	19	23	35	B	B	B	B	54	B	35	35	34	53	32	30	23	28	15	15	10	
7	15	B	15	10	28	B	27	30	B	B	36	39	B	54	52	33	20	26	17	15	13	14	8	8	
8	10	20	29	15	B	B	25	25	26	18	45	19	20	20	20	20	20	36	50	40	20	15	10	15	
9	9	12	22	15	15	B	B	43	53	38	26	22	24	B	B	35	45	24	15	12	15	10	9	13	
10	15	13	13	16	11	B	25	B	B	B	B	B	21	B	30	35	26	40	20	40	14	14	20	15	
11	B	24	20	10	15	15	21	B	25	21	B	B	40	25	26	45	B	24	39	B	B	13	B	12	
12	10	12	10	11	10	12	B	B	45	B	23	65	50	45	48	85	30	22	25	27	20	15	15	11	
13	12	11	11	9	9	13	18	B	B	25	45	24	45	28	37	26	20	20	24	20	12	15	16	10	
14	10	10	10	10	10	12	16	17	19	20	16	23	17	25	20	20	16	15	13	19	13	10	14	16	
15	12	12	13	13	12	19	20	23	21	24	20	21	23	28	21	20	15	14	22	20	15	14	12	12	
16	11	13	14	13	15	15	45	20	21	19	19	22	54	24	25	23	20	25	15	18	13	13	13	10	
17	10	11	12	11	12	13	17	16	19	13	51	B	36	17	20	20	19	20	20	14	11	12	11	11	
18	10	10	15	20	11	13	14	15	15	B	45	40	25	21	26	20	20	17	21	30	17	20	20	15	
19	11	11	10	11	11	11	13	15	18	41	B	B	27	26	55	30	42	47	37	55	B	11	15	10	
20	11	19	21	16	20	25	27	19	17	20	30	31	B	B	100	75	35	27	19	20	14	11	11	10	
21	12	13	15	13	16	19	17	20	15	27	55	40	50	46	37	39	54	20	21	32	23	10	10	19	
22	15	10	14	10	11	11	15	23	C	47	24	20	22	21	36	B	40	36	14	12	13	13	8	9	
23	10	10	9	9	10	25	B	14	20	20	40	21	20	20	20	15	15	15	15	10	8	9	8	9	
24	12	11	19	B	B	11	B	27	21	45	B	B	B	36	36	44	28	21	19	25	19	6	10	19	
25	B	B	B	20	B	B	B	B	B	B	B	B	B	35	34	48	38	23	20	15	20	20	11	20	
26	29	B	27	13	19	B	B	21	23	B	25	B	B	B	B	39	25	14	15	13	12	B	12	11	
27	13	21	19	13	12	22	14	B	B	B	B	B	B	49	37	35	50	35	18	11	13	22	24	25	
28	13	B	15	20	B	B	B	B	B	47	38	B	B	44	44	37	55	25	21	20	B	B	23	28	
29	19	35	28	B	26	16	27	B	B	B	B	B	B	B	36	36	C	B	22	13	13	12	B	21	
30	14	12	27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	29	B	B	18	18	15	13	
31	12	B	21	13	B	B	B	B	B	45	B	B	B	B	50	50	39	26	21	16	24	15	14	20	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	
MED	12	13	15	13	16	23	25	30	26	41	45	55	54	35	36	35	32	25	21	20	15	15	14	13	
UQ	15	20	20	18	28	B	B	B	B	B	B	B	B	D	B	54	50	44	45	32	24	26	17	16	18
LQ	11	12	12	11	12	14	19	20	21	24	30	24	26	26	26	23	20	20	18	15	13	12	11	10	

MAR. 1979

F-MIN (0.1 MHz)

IONOSPHERIC DATA

MAR. 1979

M(3000)F2 (0.01)

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

Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep 0.5 MHz to 15 MHz in 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	F	F	A	F	F	UR	R	R	R	F	235	235	240	245	245	255	265	F	F	UF	F	F	A	A					
2	F	UF	UF	UF	A	A	F	B	B	B	B	B	B	235	235	225	245	240	280	270	F	UF	F	F					
3	A	UR	UF	F	F	F	F	230	240	UF	235	235	245	265	255	255	F	F	F	F	B	R	R	A					
4	A	F	F	F	F	F	R	R	R	R	B	255	B	B	B	B	UR	260	255	280	300	R	R	R					
5	R	R	F	R	250	255	B	B	B	R	R	B	B	225	235	260	265	270	285	295	275	275	295	225					
6	A	A	F	A	R	F	F	B	B	B	B	F	B	R	225	225	F	265	315	320	260	R	R	R					
7	225	B	220	UF	235	B	R	235	B	B	R	220	B	225	235	245	245	275	300	295	305	305	265	F	R				
8	R	A	R	220	B	B	R	R	R	R	F	230	JR	255	240	215	UR	270	250	285	R	R	300	285	F	240	260		
9	F	A	A	R	R	B	B	R	F	230	235	UR	JR	250	240	F	B	B	250	245	260	255	280	300	F	S	S		
10	F	235	235	225	280	B	R	B	B	B	B	B	B	260	B	255	240	JR	JR	270	290	290	UF	275	F	F	A		
11	B	R	F	F	Y	250	R	B	R	R	B	B	F	245	230	240	255	B	F	260	285	B	B	S	B	F			
12	F	F	F	F	210	F	B	B	220	B	250	225	245	JR	JR	240	240	JR	JR	265	270	280	250	265	285	290	F	R	
13	260	285	260	245	270	240	240	B	B	225	F	345	R	245	255	255	JR	260	275	280	290	280	285	295	282	F	285		
14	F	255	F	F	F	F	230	260	255	245	JR	UR	R	UR	UR	UR	R	R	275	270	JR	S	300	305	305	F	F		
15	F	F	F	F	220	F	F	265	JR	270	260	255	JR	260	250	260	260	R	265	270	260	275	285	295	295	F	215		
16	F	A	F	F	F	F	UR	F	240	265	215	245	245	245	255	R	R	250	285	UR	270	290	265	280	F	235			
17	215	F	F	F	A	F	F	F	225	F	220	B	G	G	236	225	270	260	280	280	F	F	F	F	F	F	F		
18	F	F	A	R	F	F	F	230	F	270	F	B	245	260	260	260	255	260	265	285	280	290	295	290	S	285	295		
19	F	F	F	F	F	260	F	F	270	240	R	B	B	F	R	F	F	F	R	UR	UR	B	230	280	290	F	290		
20	240	260	F	F	R	F	R	220	234	225	230	245	B	B	R	270	R	275	265	300	280	295	305	265	270	F	290		
21	F	A	F	F	F	230	225	225	235	225	275	295	275	R	R	R	260	265	280	275	UR	JR	JR	R	290	295	295	240	F
22	255	F	F	F	F	225	235	F	IC	UR	R	R	R	280	265	260	245	245	255	240	B	250	265	F	F	F	A	A	
23	A	F	F	F	F	A	B	F	F	240	F	R	255	250	260	260	270	290	285	290	295	285	295	Y	A	A			
24	F	Y	A	B	B	A	B	Y	Y	Y	B	B	B	255	285	R	R	260	275	280	290	260	290	F	A	A			
25	B	B	B	R	B	B	B	B	B	B	B	B	B	B	B	B	UR	UR	UR	R	R	R	R	R	A	R	R		
26	A	B	A	A	A	B	B	R	R	B	R	B	B	B	B	B	275	260	270	285	290	F	R	B	A	A			
27	A	A	250	240	220	255	B	B	B	B	B	B	B	R	R	270	205	260	JR	270	250	275	270	A	R	A	R		
28	F	B	A	F	B	B	B	B	B	240	225	B	B	250	F	F	R	JR	285	F	300	B	B	A	A	A			
29	UR	A	A	B	A	255	A	B	B	B	B	B	B	B	UR	270	250	C	B	240	UR	UR	275	B	A	A			
30	A	F	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	275	B	B	245	255	R	R	R			
31	R	B	R	R	B	B	B	B	B	R	B	B	B	B	UR	270	R	UR	265	275	290	265	R	275	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	11	8	12	11	8	10	8	7	12	14	13	16	17	22	24	26	25	29	28	27	19	18	13	10					
MED	250	250	255	F	F	235	222	245	238	240	248	240	235	245	245	248	255	260	265	270	285	280	290	285	280	F	265		
UQ	260	262	295	F	F	242	260	255	258	262	270	260	250	258	260	260	265	275	275	290	290	298	295	285	290	F	F		
LQ	238	F	232	F	F	228	220	235	230	232	232	235	225	232	245	235	236	250	250	260	278	268	275	275	265	235	F		

MAR. 1979

M(3000)F2 (0.01)

IONOSPHERIC DATA

MAR. 1979

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							Y	R	R		505	495	490	475	475	470	405	390 ^B						
2							Q		B	B	B	B	B	E B	560	525	490	425	375					
3									550	490	510	480	425	425	400	340 ^L	375							
4							R	470	R	R	B		B	B	B	B								
5							B	B	B	R	R	B	B		630	450	400							
6								B	B	B	B	E B	520	B	R	555	495 ^Q	370						
7									B	B	R	600	B	605	E B	530	460	365						
8							R	R	R	R		545	550	380	400	370								
9							B	535	490	390	365	330	380	B	B	370	365							
10							R	B	B	B	B	B		420	B	450	350							
11							R	B	R	R	B	B	530	570	475	520	B							
12							B	B	530	B	380	E B	405	360	315	335	E B	425						
13								B	B	575	400	450	405	375										
14													315	375										
15																								
16										435	300		335											
17								580	515	585	610	B	G	G	500	480	340	300						
18								360		B	350	325	290											
19										B	B													
20										365	380	380	B	B	400 ^B									
21											300	300	295											
22											370				355	B								
23									580	450	535	370	375											
24											B	B	B											
25							B	B	B	B	B	B	B	525										
26										B	B	B	B	B										
27								B	B	B	B	B	B											
28								B	B	E B	525	540	B	B	E B	500	400	375						
29								B	B	B	B	B	B	B		365								
30																								
31											B	B	B	B										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT							1	4	5	8	13	14	13	15	15	11	7	3						
MED							Q	502	530	484	435	U	402	380	U	438	U	425	402	375	370			
UQ								558	550	550	535	495	425	565	480	470	408	372						
LQ								415	515	420	380	328	360	375	385	372	365	335						

MAR. 1979

H^oF₂ (KM)

IONOSPHERIC DATA

MAR. 1979

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	450	300	A	E A	425	E A	Y	A	A	295	310	B	E B	270	245	245	245	B	H	275	350	400	A	A	A				
2	A	360	220	Q	350	A	A	A	B	B	B	B	B	B	250	250	255	270	H	270	305	275	255	325	270				
3	A	515	320	Q	430	400	325	550	505	280	250	250	B	B	255	E Y	275	240	250	275	270	310	B	R	R	A			
4	A	450	360	Q	360	415	A	R	A	340	R	B	275	B	B	B	B	H	H	275	270	275	280	330	R	R	R		
5	R	R	320	Q	390	355	B	B	B	300	245	B	B	270	B	250	E B	275	290	280	275	270	275	330	Q	E B	520		
6	A	A	400	Q	A	R	470	310	B	B	B	B	B	B	E B	E B	275	H	B	315	E B	400	380	520	R	R	R		
7	525	B	525	390	A	B	R	520	B	B	R	B	250	B	B	B	H	H	250	255	255	260	250	245	260	340	R		
8	R	A	355	625	B	B	R	R	R	R	B	275	250	250	250	H	245	H	260	275	B	260	250	250	375	360			
9	E A	400	A	A	400	R	B	B	A	B	255	245	250	250	B	B	B	B	H	260	270	260	260	260	310	350	470	460	
10	280	475	475	490	375	B	R	B	B	B	B	B	260	B	250	260	255	275	265	275	265	275	295	255	260	A			
11	B	R	300	290	Y	E A	R	B	R	R	B	B	E B	275	255	260	B	B	275	300	B	B	350	350	B	350			
12	370	E A	400	440	355	340	B	B	B	B	250	B	E B	300	275	260	B	250	250	245	260	245	245	255	R				
13	375	280	330	405	375	345	350	B	B	295	B	260	B	255	250	H	250	H	250	255	250	245	240	230	250	255			
14	295	370	365	455	435	420	315	265	255	250	250	250	235	240	245	230	235	230	225	225	225	225	225	235	235				
15	300	275	375	395	405	380	300	260	240	240	255	H	H	240	H	240	240	235	240	230	225	240	235	235	250	435			
16	275	A	620	550	550	530	400	645	300	255	235	250	E B	330	245	H	245	250	250	250	250	240	235	235	255	300			
17	500	400	630	505	A	500	475	225	210	280	B	B	E B	280	235	250	250	250	265	275	270	270	265	285	275				
18	300	330	A	250	350	350	445	295	300	B	315	250	250	H	245	245	245	H	240	250	245	245	240	250	255	255			
19	275	340	350	360	375	350	300	240	230	260	H	B	B	H	225	250	E B	275	250	260	250	255	E B	300	B	E A	475	330	295
20	E A	510	350	355	395	375	350	A	515	380	H	275	260	250	B	B	B	E B	300	250	245	230	225	230	230	250	E A	350	
21	375	A	E A	410	395	355	335	280	250	240	E B	300	255	B	250	245	H	245	245	250	245	230	245	250	240	310	440		
22	430	350	355	410	435	400	445	505	C	E B	280	240	240	250	240	275	B	245	305	305	470	525	400	A	A				
23	A	340	415	410	375	A	B	550	225	300	305	275	250	250	250	H	250	250	245	250	240	240	250	Y	A				
24	450	Y	A	B	B	A	B	Y	Y	Y	B	B	B	E B	275	260	E B	295	255	275	250	290	255	425	A	A			
25	B	B	B	A	B	B	B	B	B	B	B	B	B	B	E B	275	H	E B	300	245	270	280	300	A	A	A	R		
26	A	B	A	A	A	B	B	A	A	B	A	B	B	B	B	B	250	280	275	285	290	A	B	A	A				
27	A	A	450	355	450	R	430	B	B	B	B	B	B	B	E B	300	255	275	290	270	265	410	A	R	A	R			
28	550	B	A	425	B	B	B	B	B	B	B	B	B	B	E B	325	275	275	250	275	B	B	A	A					
29	495	A	A	B	A	430	A	B	B	B	B	B	B	B	E B	305	275	C	B	355	380	600	E A	415	B	A			
30	A	345	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E B	300	B	B	275	E B	360	A	A			
31	A	B	A	240	B	B	B	B	B	E B	350	B	B	B	B	270	290	255	255	250	325	A	415	A	A				
CNT	18	16	21	24	17	17	12	12	11	15	14	13	15	20	23	26	26	30	30	29	23	23	16	14					
MED	380	349	362	405	395	368	375	400	255	265	251	250	245	248	250	250	250	261	261	275	255	252	272	305					
UQ	472	400	432	442	425	425	445	518	300	292	U	282	260	E B	272	260	258	262	258	275	275	305	302	U	312	330	U	398	
LQ	300	335	350	360	375	350	312	262	235	252	245	250	250	245	248	245	250	250	250	245	240	242	252	270					

MAR. 1979

H^oF (KM)

IONOSPHERIC DATA

MAR. 1979

H°ES (KM)

45° E Mean Time (G.M.T. + 3h)

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	115	125 ^K	115	130	B	130	105	105	105	110 ^K	125 ^K	B	B	130	130	G	B	170	G	125	130 ^K	125	125	120	
2	135	130 ^K	120 ^K	125	105	115	130	B	B	B	B	B	B	B	G	G	G	150	145	G	130	120	135	130	
3	110	110 ^K	115 ^K	125 ^K	125 ^K	120 ^K	125 ^K	125 ^K	G	G	B	B	B	130	125	115	G	G	G	G	B	120	120	120	
4	130	130	120 ^K	130	110	130	120	130	125	120	B	150	B	B	B	B	B	B	130	130	130	195	125	120	
5	120	130	125	120	125	B	B	B	B	G	B	B	B	145	B	G	B	B	150	150	B	B	150	135	
6	125	125	125	120	110	125	B	B	B	B	B	B	B	B	B	B	B	B	155 ^K	155 ^K	125	125	140		
7	130	B	120 ^K	130 ^K	125	B	115	120 ^K	B	B	120	B	B	B	B	B	G	B	G	G	G	165 ^K	160 ^K	125	
8	110	100	B	125 ^K	B	B	115	110	110	115	B	G	G	G	G	G	G	B	B	B	B	150 ^K	135	150	
9	165	130	120	120 ^K	110	B	B	150	B	B	G	G	125	B	B	B	B	G	G	150	140	120	130	125	
10	135	110 ^K	110 ^K	115 ^K	100	B	125	B	B	B	B	B	G	B	G	B	G	B	140	B	150	120	135	120	
11	B	125	100	125 ^K	100	125	125	B	120	125	B	B	B	G	G	B	B	170	B	B	B	140	B	120	
12	115	150	120	120	120 ^K	125	B	B	B	B	G	B	B	B	B	B	B	G	B	B	B	180	B	120	
13	130	140	135	115	110	150	130	B	B	125	B	G	B	G	B	G	G	G	B	B	B	B	B	170	
14	145 ^K	130	125	120	120	125	G	G	G	G	125	G	125	125	120	120	115	110	110	B	B	B	B	B	
15	B	150 ^K	145	140	130	B	B	B	G	G	125	125	120	G	G	G	110	110	B	B	B	B	B	140	
16	145 ^K	120	120	140 ^K	125 ^K	130 ^K	B	120 ^K	175 ^E	180 ^G	G	G	B	120	G	G	G	G	G	B	B	B	B	150	
17	140	135	125 ^K	120	125	125 ^K	125 ^K	125	130	100	B	B	B	G	G	G	G	150	150	145	130	130	130 ^K	130 ^K	
18	125 ^K	125	150	135	130	170	120	130	125	B	B	B	G	110	G	125	G	G	B	B	B	B	B	B	
19	100	120 ^K	125 ^K	135	130	125	150 ^K	G	G	B	B	B	B	G	G	B	B	B	B	B	B	115	145 ^K	125 ^K	
20	115 ^K	150 ^K	120 ^K	125 ^K	130 ^K	145	140 ^K	125 ^K	125 ^K	G	B	B	B	B	B	B	B	B	B	G	B	100	100	100	100
21	125 ^K	125	125	130 ^K	B	B	B	B	G	B	B	B	B	B	B	B	B	100	100	B	100	100	175 ^K	B	
22	145 ^K	130	125	125 ^K	130	140	135	130 ^K	C	B	G	G	125	115	B	B	B	B	170	130	125	125	110	110	
23	110	125	125	125 ^K	125	125	B	125 ^K	125 ^K	125 ^K	B	G	G	120	125	125	G	G	G	G	130	130	120		
24	110	110	125	B	B	150 ^K	B	120	115	145	B	B	B	B	B	B	B	160	145	B	B	125	125	130	
25	B	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	G	G	G	110	110	110	130 ^K
26	130	B	130	120	125	B	B	120	125	B	125	B	B	B	B	B	B	G	G	G	125	130 ^K	B	110	110
27	125	115 ^K	140 ^K	125 ^K	125	135 ^K	125 ^K	B	B	B	B	B	B	B	B	B	B	B	G	110 ^K	125	155 ^K	100	140 ^K	
28	125	B	120	125 ^K	B	B	B	B	B	B	B	B	B	B	B	B	B	160 ^K	150	150	B	B	125	130	
29	140 ^K	130	130	B	125	125 ^K	125	B	B	B	B	B	B	B	B	B	C	B	B	G	175 ^K	125	B	125	
30	125	105	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	135 ^K	125 ^K	
31	125 ^K	B	125	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	150 ^K	140 ^K	115	130
CNT	28	26	29	28	23	19	16	14	11	9	5	2	4	8	4	4	2	9	10	11	15	22	23	28	
MED	125	125	125	125	125	125	125	125	125	122	125	138	125	122	125	122	112	150	145	145	130	125	125	125	
UQ	135	130	125	130	125	138	130	130	125	125	125		125	130	128	125		160	150	150	145	140	135	132	
LQ	115	120	120	120	110	125	120	120	118	115	125		122	118	122	118		110	130	128	125	120	118	120	

MAR. 1979

H°ES (KM)

IONOSPHERIC DATA

MAR. 1979

TYPES OF ES

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

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	A1	K2	AR11	A1		C1	R1	R1	R1	K1	K1			C1	C1			H1		R1	K2	RL11	RA11	R1	
2	CK21	K1	KA31	CA11	F1	R1	R1											H1	H1		C1	C2	C2	R1	
3	RA11	KC11	K1	KA11	K1	K1	K1	K1						C1	C1	C1						R1	R1	R1	
4	CK11	CK21	K2	RA11	R1	R1	R1	R1	R1	R1		H1							C1	C1	C1	HK11	R1	RA21	
5	R2	R2	R1	R1	R1									H1					H1	H1			R1	R1	
6	R2	R1	RA11	A1	R1	R1														K1	K1	R1	R1	R2	
7	RA11		K1	K1	RA11		R1	K1			R1											K1	K1	R3	
8	R1	LA11		K1			R1	R1	R1	R1												K1	R1	R1	
9	RK11	R1	R1	KL11	R1			R1						C1						H1	R1	RK23	K3	K2	
10	RA11	K1	KL11	KA11	LK11		R1													C1	H1	R1	CA11	CA11	
11		RA11	LA11	K1	L1	A1	R1		R1	R1									H1			HK11		C1	
12	F2	HC11	R1	R1	K1	R1																H1		R1	
13	R1	H1	R1	R1	R1	H1	R1			R1														R1	
14	K1	RK11	R1	R2	R1	R1						C1		C1	C1	C1		L1	L1	L1					
15		K1	R1	R1	R1							C1	C1	C1						L1	L1			R1	
16	KA11	R2	R2	KA21	K1	K1		K1	H1	H1				L1										R1	
17	F1	R1	RK11	R2	A1	KR11	K1	R1	R1	L1									H1	H1	H1	C1	R1	K1	
18	RK11	R1	A1	R1	R2	RK11	R1	C1	R1					L1		L1									
19	F1	K1	K1	R1	R1	R1	K1																R2	K1	RK11
20	RK12	K1	K1	K1	K2	R1	K1	K1	K1													L1	L1	F1	F1
21	K2	R1	R1	K1																L1	L1		L1	KL11	
22	K1	R1	R1	KL11	RL11	KL11	H1	K1					L1	L1						A1	A1	A1	R2	R3	RR12
23	A1	RA21	R2	RK12	R2	R1		K1	K1	K1				L1	L1	L1						K1	R2	R3	
24	R2	R1	R1			KL11		R1	R1	R1									H1	H1			R1	R3	RKA11
25				L1																		R1	R1	A1	K1
26	A1		R1	R1	R1			R1	R1		R1										R1	AK12		R1	R1
27	A1	K1	K1	K1	RK11	K1	K1														K1	AR11	K1	FA11	K1
28	RK11		R1	K1															K1	H1	H1		A1	A1	
29	K1	R1	R1		R1	K1	R1															K1	C1		FA11
30	R1	R1	A1																					K1	K1
31	K1		R1	R1																	R1	K1	KA21	AR11	RA11
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

MAR. 1979

TYPES OF ES

IONOSPHERIC DATA

APR. 1979

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	38	A	A	A	65	74	Y	50	Y	61	65	70	70	86	96	80	71	71	71	40	41	A	A						
2	A	B	B	A	B	B	A	40	Y	B	B	B	B	B	B	X	X	X	60	80	A	A	A	B						
3	Y	A	A	A	A	46	A	A	50		B	B	B		65			84	83	68	50	A	A	82						
4	A	B	B	B	B	0 R	46	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B					
5	B	B	B	B	B	0 R	70	Y	B	B	B	0 R	62	69	79	110	96	X	85	65	47	A	Y	A	44					
6	R	59	47	A	A	A	71	0 R	50	52	B	B	B	B	75	70				X	61	39	B	B	A					
7	40	A	A	65	70	73	71	73	75	70	81	82							X	100	X	85	73	49	A	0 R	30			
8	40	39	A	A	A	A	75	70	73	B					109				X	90	U R	80	82	A	A	A				
9	A	0 R	51	70	55	A	A	60	A					83							75	63	52	40	40					
10	43	47	62	55	70	70	75	95	90	Z	75	87	99		115	110	110	114	0 R	126	U R	116	U R	90	U R	80	47	66		
11	60	43	60	72	70	60	70	80	83	90									X	111	X	100	76	44	45	54				
12	50	43	0 R	A	80	77	80	92	91	90	95								X	123	X	112	U R	83	73	50	A			
13	63	A	Y	B	0 R	81	81	81	80	86	88								X	130	X	131	X	105	X	62	67	0 R	44	39
14	41	Y	A	A	65	70	72	0 R	67	80	83							R		0 R	128	R	104	70	45	A	F			
15	44	A	B	76	73	72	B	A	65	78					R					R	X	92	65	0 R	35	A	A			
16	64	A	61	72	66	Y	B	B	B		B	B		B	R				U R	105	83	75	52	40	0 R	270				
17	B	25	26	41	65	79	79	79	83		B	91				110			R	108	R	109	88	65	0 R	38	X	47		
18	A	A	B	A	0 R	57	75	79	80	B	71	88		B	Y				X	100	X	87	X	77	67	51	A			
19	A	47	A	A	78	80	84	79	B	B									X	111	X	88	70	36	0 R	36	0 R	33		
20	0 R	24	A	C	C	C	C	C	C	C	C	C	C	C	R				X	86	X	74	61	X	48	0 R	33	0 R	27	
21	22	0 R	23	56	55	57	70	70	57	B	B	96	106									69	54	55	51	48				
22	48	63	62	63	A	B	49	48	40	Y	Y			B	81	72					61	48	A	A	A	A	A	B		
23	A	A	46	A	A	0 R	36	34	B	B							B				80	A	A	A	0 R	43	A			
24	A	Y	B	A	B	A	A	B	B	B	B	B	B							X	75	B	B	A	B					
25	B	Y	B	B	B	B	B	Y		B	B	B	Y	W	50	68	A				65	48	A	A	A	A	A	A		
26	B	A	A	B	A	A	A	A		51	73	73	98	105							69	X	46	35	0 R	26	70	61		
27	A	A	A	B	A	B	B	B	56	B	B	67	72								110	111	110	62	A	66	40	A		
28	A	0 R	46	60	0 R	44	A	B	B	48	70	A	B	B	0 R	48	B	110	94	83	90	D R	75	A	45	A	A	B		
29	A	A	A	35	75	A	A	B	B			B	B	56			B	R	136	112	75	65	68	A	A	A	A	A		
30	45	A	B	B	B	A	0 R	52	A	A	B	B		B	B	B	B			0 R	99	0 R	101	B	B	A	A	A		
31																														
CNT	14	12	10	11	13	16	18	15	14	9	8	8	7	4	8	8	7	14	24	24	20	17	14	13						
MED	44	44	60	55	70	70	72	73	74	78	84	78	72	80	79	103	96	88	98	80	68	52	44	47						
UQ	59	47	62	68	75	76	79	80	83	88	92	95	79	93	110	110	110	111	110	96	76	66	50	61						
LQ	40	38	56	50	65	68	52	54	56	71	68	68	63	74	68	86	86	75	70	68	52	44	0 R	40	39					

APR. 1979

FXI (0.1 MHz)

IONOSPHERIC DATA

APR. 1979

FOF2 (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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	F	A	A	A	F	J	F	Y	F	Y	F	F	F	Z	F	F	J	F	65	65	F	F	A	A
2	A	B	B	A	B	B	A	F	Y	B	B	B	B	B	B	72	Z	79	F	F	A	A	A	A	B
3	Y	A	A	A	A	F	A	A	F	B	B	B	B	B	F	59	63	70	75	76	60	44	A	A	F
4	A	B	B	B	B	B	40	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	B	B	B	B	B	F	Y	B	B	B	F	F	F	F	Z	F	F	F	F	F	A	Y	A	A	
6	53	F	A	A	A	F	F	F	B	B	B	B	F	F	F	67	66	64	60	55	F	B	B	A	
7	F	A	A	F	F	F	F	F	F	F	F	F	F	70	80	80	100	Z	100	94	79	67	F	F	
8	F	F	A	A	A	F	F	F	B	75	85	82	92	100	103	99	104	F	J	A	U	R	F	A	
9	A	45	F	F	A	A	F	A	37	48	55	65	77	83	85	85	82	82	76	66	F	F	F	F	
10	F	F	F	F	F	J	A	F	F	Z	F	F	F	80	88	82	100	107	99	100	F	U	R	F	
11	F	F	45	F	F	F	J	F	F	F	F	F	F	82	92	105	110	112	119	120	112	109	105	F	
12	F	F	54	A	F	F	F	F	F	F	F	F	F	85	106	109	109	105	118	J	R	J	R	A	
13	F	A	Y	B	F	J	F	F	F	F	F	F	F	85	99	101	119	124	115	110	J	R	J	R	
14	F	Y	A	A	J	F	F	F	F	Z	R	R	R	82	102	104	112	112	111	R	U	R	U	R	
15	F	A	B	F	F	F	B	A	F	F	Z	J	R	J	A	R	J	R	J	R	R	J	R	A	
16	F	A	F	F	F	Y	B	B	B	U	R	B	B	80	B	R	J	R	J	R	U	R	F	F	
17	B	F	20	A	R	F	F	F	F	72	75	68	B	F	J	R	102	104	105	105	J	R	J	R	
18	A	A	B	A	51	F	F	F	B	F	F	F	F	90	98	111	Y	117	104	94	81	71	61	45	
19	A	F	A	A	F	F	F	J	F	B	B	B	B	Z	79	97	108	113	112	107	106	J	R	F	
20	18	A	C	C	C	C	C	C	C	C	C	C	C	R	J	R	J	R	R	J	R	J	R	R	
21	F	17	33	18	18	17	17	F	B	B	F	93	110	121	136	125	122	124	104	F	F	F	F	F	
22	U	F	F	F	A	B	F	F	F	Y	Y	55	B	F	F	67	55	54	42	A	A	A	A	B	
23	A	A	F	A	A	F	F	B	B	B	B	B	B	56	62	B	R	R	F	A	A	A	A	A	
24	A	Y	B	A	B	A	A	B	B	B	B	B	B	77	77	U	R	R	J	R	89	69	B	B	
25	B	Y	B	B	B	B	B	Y	F	B	B	B	Y	W	F	F	A	J	F	F	A	A	A	A	
26	B	A	A	B	A	A	A	A	F	F	F	F	F	90	96	J	R	106	104	94	89	63	40	28	
27	A	A	A	B	A	B	B	B	F	B	B	F	F	61	64	88	109	94	J	R	J	F	F	F	
28	A	R	F	F	A	B	B	F	F	A	B	B	F	B	70	84	75	82	75	F	D	R	A	A	
29	A	A	A	F	U	F	A	A	B	B	U	R	B	B	46	57	B	130	F	F	F	F	A	A	
30	F	A	B	B	B	A	R	A	A	B	B	46	B	B	B	B	R	F	F	95	B	B	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	8	6	5	5	8	8	12	12	14	15	14	20	21	22	23	25	27	29	27	20	17	13	10	7	
MED	F	33	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
UQ	F	40	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
LQ	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	

APR. 1979

FOF2 (0.1 MHz)

IONOSPHERIC DATA

APR. 1979

FOF1 (0.01 MHz)

45° E Mean Time (G.M.T. + 3h)

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									340		U L 430	U L 470	U L 470	U L 460		L 400	340								
2										B	B	B	B	B	B										
3									F 320			B	B	B	L 440	U L 460		L							
4									B	B	B	B	B	B	B	B	B								
5									B	B		470		U L 520	U L 530										
6									B	B	B	B													
7																									
8										B															
9											400	U L 440		L	L										
10									500																
11																									
12																									
13																									
14																									
15																									
16									B		B	B		B											
17											B														
18									B					B											
19									B	B															
20									C	C	C	C	C												
21									B	B															
22													B	380	U L 370										
23									B		B	B	B		L	B									
24									B	B	B	B	B												
25										B	B	B		F 300	F 320		B								
26									L 330																
27									B	B															
28										B	B			B											
29									B		B	B	U L 370			B									
30										B	B		B	B	B	B									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT									2	2	2	3	2	5	4	1	1								
MED									330	415	415	U L 470	L 420	U L 440	U L 415	L 400	340								
UQ											470		U L 460	U L 495											
LQ											455		380	345											

APR. 1979

FOF1 (0.01 MHz)

IONOSPHERIC DATA

APR. 1979

FOE (0.01 MHz)

45° E Mean Time (G.M.T. + 3h)

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	285	290	B	B	B	260	B	K		K													
2								205	B	B	B	B	B	B	B	B	B	B	B	K													
3									170	260	B	B	B	B	280	270	240	K	K	K	K	150	105										
4									B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B								
5							K		B	B		280	285	A	B		250	260	B	U	K												
6								B	B	B	B	B	B	B	B	B	245	225	B			150											
7							U	K	U	K		155	B	B	B	B	B	B	B	B	B	B	B	B	B								
8								K			220	220	B	B	B	R	R	270	280	260	B	B	B	B	B								
9							U	K		A	A		280	B	270	260	250	240	A	B		160		K									
10			U	K		U	K		B		K		390	240	B	B	B	B	R	B	B			U	K								
11			U	K	U	K	U	K	310	K	150	155	190	210	235	A	250	R	240	A	A	A			K								
12							K	U	K	U	K	U	K	240	240	H	H	260	265	260	225	B	B	B	B								
13							U	K	300	K	230	K	220	210	250	H	B	B	B	H	250	B	200	B	B								
14							U	K	230		A	A	B	B		270	250	240	B	B	B	B	B	B	B								
15								A		190	220	240	240	B	B	B	B	B	B	140	B	K			200								
16									B	B	B	B	B	B	B	B	B	U	R	175	B			K	K								
17								K			270	B	B	B	B	B	B	B	B	B	B	B	B	B	B								
18								150	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B								
19									B	B	B	B	B	B	B	B	B	B	B	H	150		K		170								
20									C	C	C	C	C	C	A	A	B	B	B	B	B	B	B	B	B								
21									B	B	B	B	B	250	240	230	215	180	B			K			300								
22									B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B								
23									B	B	B	B	B	B	B	B	B	B	B	B	R												
24									B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B								
25									B	B	B	B	A	B	U	K	230	B	B	U	K	250											
26									B	230	R	B	240	R	B	B	B	B	B	B	B	B			K	K							
27									B	B	B	B	B	B	B	B	B	B	B	U	R	150											
28								K	A	K		B	B	B	B	B	B	B	B	B	B	B	B	B	B								
29									B	B	B	B	B	B	B	B	B	B	205	B		140											
30									K	B	B	B	B	B	B	B	B	B	B	B	B	B			K	K	K						
31									450										195						200	320	300						
	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	1	5	7	8	7	8	8	5	7	6	10	7	6	8	6	3	1	1	3	5									
MED			K	K	U	K	U	K	300	260	K	212	210	245	252	260	265	255	245	245	202	202	155	200	K	170	K	200	300	K	270		
UQ					U	K	320	290	240	215	325	280	285	270	260	250	260	225	235	250	222									K	310	K	300
LQ					U	K	265	195	165	162	210	230	240	245	250	230	235	180	150	150	152									K	235	K	125

APR. 1979

FOE (0.01 MHz)

IONOSPHERIC DATA

APR. 1979

FOES (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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 85	55	J A 74	40	35	29	25	37	30	36	G	G	E B 30	E B 32	E B 28	G	E B 30	K 26	27	29	J A 34	J A 33	34	F 35	
2	25	B	B	J A 34	46	B	27	31	24	B	B	B	B	B	B	E B 40	E B 40	E B 32	31	33	26	34	34	B	
3	37	J A 69	39	43	26	J A 39	40	35	28	10	B	B	B	E B 31	G	G	J A 28	18	G 12	K 11	20	45	73	34	
4	44	B	B	B	B	B	E B 30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
5	B	B	B	B	B	38	41	B	B	B	B	G	G	E B 29	E B 27	G	30	23	23	21	25	18	38	40	
6	J A 40	48	J A 60	J A 55	J A 46	J A 30	28	30	B	B	B	B	E B 34	E B 44	E B 50	G	G	E B 20	G	E B 9	E B 15	B	B	20	
7	22	32	J A 63	31	32	21	18	19	19	E B 42	E B 30	E B 35	E B 63	E B 55	E B 52	E B 65	E B 42	E B 21	E B 15	E B 15	11	26	33	J A 24	
8	22	25	36	34	39	44	35	22	15	B	E B 57	E B 32	G	G	21	E B 26	E B 48	E B 48	E B 50	E B 50	E B 22	37	J A 38	J A 46	
9	47	38	23	30	J A 57	46	34	45	34	37	G	E B 30	G	G	G	26	23	E B 20	G 15	14	E B 15	13	29	J A 23	
10	18	32	34	32	38	33	24	22	33	39	37	E B 34	E B 36	E B 36	E B 31	G	E B 22	E B 51	E B 30	E B 60	17	J A 25	J A 31	41	
11	27	21	34	J A 27	J A 28	J A 41	31	K 28	F J A 37	G	G	G 22	G 27	G 23	G 23	J A 30	J A 25	J A 24	J A 24	14	E B 10	15	18	F 18	
12	20	J A 31	33	32	Z 37	K 34	J A 39	J A 40	26	24	G	G 21	G	G	G	E B 23	E B 19	E B 15	E B 13	E B 13	10	E B 15	33	J A 49	
13	70	J A 55	38	B	42	33	28	25	G	G	G	E B 42	E B 75	E B 30	G	E B 23	G	E B 23	E B 16	E B 15	18	J A 20	29	27	
14	H 31	32	50	37	44	27	J A 34	E B 55	27	26	E B 42	E B 33	G	22	G	E B 29	E B 42	E B 34	E B 33	E B 18	37	J A 38	42	33	
15	36	J A 70	B	36	J A 76	31	B	J A 44	J A 38	G	G	G 20	G 22	E B 27	E B 42	E B 59	E B 22	G 9	E B 10	25	24	E B 25	25	27	
16	J A 38	J A 44	J A 37	J A 33	25	45	B	B	B	34	B	B	E B 52	B	E B 42	E B 23	J A 21	E B 20	E B 22	E B 26	E B 20	E B 16	J A 24	18	
17	B	18	24	28	33	J A 35	K 27	31	E B 25	E B 41	B	E B 30	E B 29	E B 24	E B 25	E B 22	E B 61	E B 25	E B 41	E B 31	E B 18	E B 17	E B 22	E B 32	
18	47	32	B	37	40	25	18	J A 18	B	E B 30	E B 24	E B 25	E B 25	B	E B 51	E B 70	E B 50	E B 21	E B 21	E B 16	E B 23	E B 14	E B 13	30	
19	31	J A 31	J A 54	J A 42	34	26	18	17	B	B	E B 43	E B 59	E B 24	E B 26	E B 25	E B 21	E B 18	G	E B 13	E B 12	K 17	E B 13	E B 19		
20	16	29	C	C	C	C	C	C	C	C	C	C	C	C	24	26	E B 21	17	16	E B 15	E B 13	E B 15	E B 20	E B 15	16
21	E B 15	J A 24	26	23	18	J A 28	E B 13	E B 40	B	B	E B 36	E B 34	G	G	G	G	G	E B 16	K 30	J A 38	J A 51	44	J A 42	J A 25	
22	J A 62	J A 40	J A 30	40	57	B	32	25	J A 30	35	J A 36	E B 43	B	E B 26	E B 23	E B 40	E B 42	E B 24	E B 19	J A 40	36	J A 65	J A 34	B	
23	37	J A 32	50	45	J A 32	J A 30	40	B	B	E B 40	B	E B 42	B	E B 44	E B 23	B	E B 25	20	21	25	26	33	35	35	
24	39	28	B	27	B	32	J A 49	B	B	B	B	B	B	B	E B 46	E B 48	E B 48	E B 38	E B 22	E B 20	B	B	28	B	
25	B	32	B	B	B	60	44	44	B	B	B	B	40	30	30	F 44	70	30	32	J A 33	J A 43	J A 40	J A 46	J A 34	
26	B	34	27	B	30	J A 34	J A 37	36	J A 39	16	14	G 24	G 24	17	G 24	E B 21	E B 26	E B 14	E B 11	E B 12	11	30	K 30	29	
27	36	44	Z 41	B	36	B	B	B	47	B	B	E B 27	E B 32	E B 43	E B 37	E B 32	E B 24	G	H 18	J A 34	J A 76	J A 100	J A 35	J A 37	
28	Z 36	36	27	J A 72	40	65	B	K 28	J A 33	J A 57	B	B	E B 30	B	E B 50	E B 26	E B 26	E B 20	E B 36	J A 30	J A 34	J A 35	34	44	
29	33	J A 33	J A 71	31	J A 58	J A 87	J A 32	B	B	E B 39	B	B	E B 26	E B 44	B	E B 35	27	E B 23	G	J A 33	J A 34	J A 42	J A 47	J A 74	
30	J A 64	J A 75	B	B	B	26	J A 70	43	K 45	B	B	E B 37	B	B	B	B	E B 24	24	24	B	B	24	K 32	K 30	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	27	21	22	24	24	25	22	19	18	16	20	22	24	26	27	29	29	29	28	27	27	28	26	
MED	36	32	37	34	38	33	32	30	30	U 24	E G 19	E B 31	E B 28	E B 27	E B 25	E B 26	E B 26	E B 21	E B 21	U 17	U 20	26	33	30	
UQ	44	44	J A 50	40	45	40	39	38	38	U 37	E B 36	E B 36	E B 34	E B 40	E B 37	E B 38	E B 42	E B 25	U 26	32	34	J A 38	36	37	
LQ	25	31	30	31	32	28	26	25	26	U G 13	G	E G 22	E G 22	E G 21	E B 21	E B 22	E B 18	E B 15	E B 14	E B 16	U 16	26	26	24	

APR. 1979

FOES (0.1 MHz)

IONOSPHERIC DATA

APR. 1979

FBES (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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 85	A 22	A 74	A 40	A 35	26	20	U Y 37	30	U Y 36	G	G	E 30	E 32	E 28	G	E 30	K 26	24	29	22	25	A 34	A 35	
2	A 25	B	B	A 34	A 46		A 27	20	U Y 24	B	B	B	B	B	B	E 40	E 40	E 32	K 25	30	A 26	A 34	A 34	B	
3	A 37	A 69	A 39	A 43	A 26	25	A 40	A 35	21	U Y 10	B	B	B	E 31	G	G	21	G 18	K 11	18	A 34	A 73	U Y 34		
4	A 44	B	B	B	B	B	E 30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
5	B	B	B	B	B	U Y 38	K 41	B	B	B	G	G	U Y 29	E 27	G	G	23	U K 21	18	13	A 25	U Y 18	A 38	A 40	
6	28	26	A 60	A 55	A 46	21	U Y 28	28	B	B	B	B	E 34	E 44	E 50	G	G	E 20	G	E 15	E 15	B	B	A 20	
7	18	A 32	A 63	29	27	20	U K 16	U K 18	14	E 42	E 30	E 35	E 63	E 55	E 52	E 65	E 42	E 21	E 15	E 15	11	18	A 33	18	
8	17	16	A 36	A 34	A 39	A 44	26	22	U Y 15	B	E 57	E 32	G	G	21	E 26	E 48	E 48	E 50	E 50	E 22	A 37	A 38	A 46	
9	A 47	U Y 38	18	30	A 57	A 46	U K 13	A 45	A 34	U Y 37	G	E 30	G	G	G	23	22	E 20	G 14	12	E 15	11	11	9	
10	15	28	U K 23	20	U Y 38	K 26	17	15	U Y 33	K 39	22	E 34	E 36	E 36	E 31	G	E 22	E 51	E 30	E 60	17	16	30	U K 31	
11	14	17	30	U K 23	U K 16	U K 32	K 31	K 10	14	G	G	22	27	22	21	25	23	18	16	11	E 10	13	15	15	
12	14	22	U Y 33	A 32	31	34	U K 26	U K 26	U K 21	24	G	G	G	U Y 18	E 23	E 19	E 15	E 13	E 13	U Y 10	E 15	33	A 49		
13	25	A 55	U Y 38	B	41	U K 30	K 23	K 22	G	G	G	E 42	E 75	E 30	G	E 23	G	E 23	E 16	E 15	16	18	U Y 29	20	
14	27	U Y 32	A 50	A 37	22	U K 23	U Y 34	E 55	21	22	E 42	E 33	G	G	22	E 29	E 42	E 34	E 33	E 18	33	31	A 42	33	
15	U Y 36	A 70	B	U Y 36	42	U Y 31	B	A 44	33	G	G	U Y 20	22	E 27	E 42	E 59	E 22	U Y 9	E 10	21	18	E 25	A 25	A 27	
16	38	A 44	36	31	25	U Y 45	B	B	B	U Y 34	B	B	E 52	B	E 42	E 23	16	E 20	E 22	E 26	E 20	E 16	14	16	
17	B	17	17	A 28	32	25	K 27	28	E 25	E 41	B	E 30	E 29	E 24	E 25	E 22	E 61	E 25	E 41	E 31	E 18	E 17	E 22	E 32	
18	A 47	A 32	B	A 37	40	22	18	G	B	E 30	E 24	E 25	E 25	B	E 51	E 70	E 50	E 21	E 21	E 16	E 23	E 14	E 13	A 30	
19	A 31	30	A 54	A 42	32	22	18	17	B	B	E 43	E 59	E 24	E 26	E 25	E 21	E 18	G	E 13	E 12	K 17	E 13	E 17	E 19	
20	14	A 29	C	C	C	C	C	C	C	C	C	C	U Y 24	25	E 21	17	15	E 15	E 13	E 15	E 20	E 15	15	15	
21	E 15	14	26	14	14	12	E 13	E 40	B	B	E 36	E 34	G	G	G	G	G	E 16	K 30	29	35	A 44	38	20	
22	26	36	25	40	A 57	B	U Y 32	22	17	U Y 35	U Y 36	43	B	E 26	E 23	E 40	E 42	E 24	E 19	A 40	A 36	A 65	A 34	B	
23	A 37	A 32	K 36	A 45	A 32	25	25	B	B	E 40	B	E 42	B	E 44	E 23	B	E 25	19	20	A 25	A 26	A 33	34	A 35	
24	A 39	U Y 28	B	A 27	B	A 32	A 49	B	B	B	B	B	B	E 46	E 25	E 48	E 48	E 38	E 22	E 20	B	B	A 28	B	
25	B	U Y 32	B	B	B	B	E 43	U Y 44	42	B	B	B	U Y 40	26	26	E 44	A 70	U 25	31	A 33	A 43	A 40	A 46	A 34	
26	B	A 34	A 27	B	A 30	A 34	A 37	A 36	30	U Y 16	14	U Y 14	E 24	21	17	E 24	E 21	E 26	E 14	11	12	11	16	A 30	A 29
27	A 36	A 44	A 41	B	A 36	B	B	B	36	B	B	E 27	E 32	E 43	E 37	E 32	E 24	G	16	34	A 76	100	A 35	A 37	
28	A 36	35	27	27	A 40	E 52	B	K 28	32	A 57	B	B	E 30	B	E 50	E 26	E 26	E 20	E 36	A 30	A 34	A 35	A 34	E 36	
29	A 33	A 33	A 71	30	27	A 87	A 32	B	B	E 39	B	B	E 26	E 44	B	E 35	25	E 23	G	A 33	A 34	A 42	A 47	A 74	
30	28	A 75	B	B	B	A 26	40	A 43	A 45	B	B	E 37	B	B	B	B	E 24	22	23	B	B	A 24	A 32	A 30	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	27	21	22	24	24	25	22	19	18	16	20	22	24	26	27	29	29	29	28	27	27	28	26	
MED	30	32	36	A 33	34	27	26	U 26	25	U 24	E 18	E 31	E 28	E 26	E 25	E 23	E 24	E 21	E 19	U 16	18	U 21	A 33	30	
UQ	A 37	A 37	A 50	A 40	A 40	35	33	U 38	33	U 37	E 36	E 36	E 34	E 40	E 37	E 38	E 42	E 25	E 25	30	A 30	A 34	A 36	A 35	
LQ	18	27	27	28	27	24	20	K 20	18	U 13	G	E 21	E 22	E 21	E 21	E 21	E 18	E 18	E 14	E 13	U 13	U 14	24	20	

APR. 1979

FBES (0.1 MHz)

IONOSPHERIC DATA

APR. 1979

F-MIN (0.1 MHz)

45° E Mean Time (G.M.T. + 3h)

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	14	8	25	22	10	11	9	25	21	25	20	24	30	32	28	21	30	21	17	9	8	10	10	16	
2	9	B	B	10	40	B	19	11	22	B	B	B	B	B	B	40	40	32	10	8	10	11	10	B	
3	26	15	12	23	9	11	30	20	15	9	B	B	B	31	25	23	18	13	10	9	16	23	25	23	
4	27	B	B	B	B	B	30	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
5	B	B	B	B	B	33	26	B	B	B	25	21	23	27	21	22	20	18	10	9	21	15	13	11	
6	10	11	14	23	15	12	21	20	B	B	B	B	34	44	50	22	21	20	11	9	15	B	B	8	
7	9	10	18	15	12	10	11	10	11	42	30	35	63	55	52	65	42	21	15	15	10	9	8	8	
8	11	10	23	22	22	28	16	16	13	B	57	32	23	24	10	26	48	48	50	50	22	11	10	10	
9	23	12	9	9	11	14	10	11	9	15	21	30	25	19	20	15	15	20	12	10	15	10	9	8	
10	8	9	10	10	16	10	9	7	23	12	11	34	36	36	31	21	22	51	30	60	14	9	10	9	
11	9	8	10	9	8	10	10	8	10	16	17	18	19	17	17	15	13	10	8	9	10	11	8	9	
12	9	9	13	13	13	14	14	15	8	16	18	16	18	22	15	23	19	15	13	13	9	15	14	14	
13	8	9	26	B	23	15	14	15	19	15	18	42	75	30	20	23	16	23	16	15	15	10	11	10	
14	12	27	16	22	11	12	16	55	16	16	42	33	19	17	19	29	42	34	33	18	11	10	15	10	
15	22	16	B	16	22	23	B	23	16	15	20	16	21	27	42	59	22	8	10	11	16	25	10	10	
16	12	9	8	15	15	25	B	B	B	32	B	B	52	B	42	23	15	20	22	26	20	16	10	11	
17	B	12	8	11	21	15	15	15	25	41	B	30	26	24	25	22	61	25	41	31	18	17	22	32	
18	22	21	B	22	22	21	12	12	B	30	24	25	25	B	51	70	50	21	21	16	23	14	13	11	
19	14	13	11	12	14	14	11	10	B	B	43	59	24	26	25	21	18	12	13	12	8	13	17	19	
20	11	20	C	C	C	C	C	C	C	C	C	C	C	C	20	20	21	15	14	15	13	15	20	15	15
21	15	10	11	11	11	8	13	40	B	B	36	34	21	20	21	20	15	16	15	13	22	12	12	11	
22	14	14	14	15	21	B	15	13	13	20	25	43	B	26	23	40	42	24	19	12	15	12	23	B	
23	16	13	23	25	22	14	20	B	B	40	B	42	B	44	23	B	25	16	15	12	12	12	12	14	
24	19	24	B	15	B	24	26	B	B	B	B	B	B	46	25	48	48	38	22	20	B	B	19	B	
25	B	24	B	B	B	B	43	27	26	B	B	B	23	25	19	44	15	15	14	12	12	12	12	12	
26	B	23	14	B	20	20	20	20	15	15	13	24	15	14	24	21	26	14	11	12	11	10	9	9	
27	19	16	20	B	21	B	B	B	19	B	B	27	32	43	37	32	24	13	11	10	12	12	11	13	
28	19	18	22	18	29	52	B	13	13	33	B	B	30	B	50	26	26	20	36	9	10	11	12	36	
29	26	25	29	18	19	29	19	B	B	39	B	B	26	44	B	35	19	23	12	9	14	13	11	21	
30	12	27	B	B	B	20	21	23	21	B	B	37	B	B	B	B	24	16	16	B	B	12	9	10	
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	29	29	29	29	29	29	29	29	29	29	29	29	30	30	30	30	30	30	30	30	30	30	
MED	14	14	20	18	21	20	19	20	21	39	43	35	30	30	25	24	23	20	15	12	15	12	12	12	
UQ	23	24	B	25	23	29	26	55	B	B	B	B	75	46	50	44	42	24	22	18	20	16	15	21	
LQ	11	10	12	13	13	12	13	13	15	16	21	27	23	24	20	21	18	15	11	9	11	11	10	10	

APR. 1979

F-MIN (0.1 MHz)

IONOSPHERIC DATA

APR. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	F	A	A	A	F	J F 265	Y	F 240	Y	F 240	F 230	F 240	F 240	Z F 240	F 230	U F 250	J F 260	F 240	F	F	F 255	A	A
2	A	B	B	A	B	B	A	F 250	Y	B	B	B	B	B	B	290	Z 270	280	F 280	F	A	A	A	B
3	Y	A	A	A	A	F	A	A	F 215	F 210	B	B	B	F 260	F 280	F 280	F 280	F 290	F 290	F 280	F 340	A	A	F
4	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	B	B	B	B	B	F	Y	B	B	B	F 250	F 230	F 240	F 220	Z 210	F 280	F 250	F 285	F 260	F 270	A	Y	A	A
6	R 300	F	A	A	A	F 240	F 240	F 240	B	B	B	B	F 280	F 290	F 280	F 290	F 290	F 300	F 290	F 270	F 270	B	B	A
7	A	A	A	F	F	F	F	F 250	F 270	F 280	F 290	F 260	F 260	F 270	F 280	F 310	F 280	Z 290	F 310	R 300	F 260	F 310	A	F 280
8	F 260	F 255	A	A	A	A	F 250	F 250	F 260	B	F 290	F 300	F 290	F 290	F 390	F 240	F 280	F 300	F 310	J A 300	U R 300	F	A	A
9	A	290	F	F 340	F	A	A	F 270	A	A	F 220	F 240	F 250	F 260	F 260	F 270	F 290	F 290	F 290	F 310	F 290	F 310	F 320	F 300
10	F 270	F	F	F	F	J A 240	F	F	F	F	Z 220	F 230	F 260	F 240	F 250	F 250	F 250	F 250	F 250	U R 260	U R 290	U R 290	U R 280	F 270
11	F	F	F 270	F	F	F 230	J F 250	F 260	J F 280	F 270	F 260	F 270	F 280	F 290	F 290	F 300	F 280	F 300	F 290	F 290	J F 300	F 310	F	F
12	F 270	F 250	F 330	A	F	F	F 250	J F 250	J F 260	F 250	F 260	F 270	F 280	F 260	F 250	F 270	J R 290	J R 300	J R 300	U R 300	U R 290	F	A	A
13	F	A	Y	B	F	J F 250	F 250	F 260	F 270	F 260	F 300	F 260	F 280	F 280	U R 290	R 290	R 290	F 290	J R 300	J R 290	J R 280	F 280	F 260	F 280
14	F	Y	A	A	J F 260	F	F	F 230	F 260	F 250	F 260	R 280	R 280	J R 290	J R 280	J R 280	R 280	R 300	U R 290	J R 305	F 300	F 290	A	F
15	F	A	B	F	F	F 240	B	A	F 240	F 250	F 260	F 260	F 260	F 260	R 270	F 270	F 260	F 260	F 310	J R 310	F 310	F 300	A	A
16	F	A	F	F 240	F 260	Y	B	B	B	U R 240	B	B	F 260	B	R	J R 260	F 290	J R 290	U R 300	F	J F 310	F 300	F 260	F 270
17	B	F	F 270	A	R 280	F	F	F 275	F 275	F 270	B	F 280	J R 290	F 275	F 290	F 280	F 300	F 300	J R 280	J R 305	J R 310	F 310	F 300	F 295
18	A	A	B	A	245	F	F	F	B	F	F 275	F 290	F 290	F 305	B	F 295	Y	F 315	F 300	F 305	F 320	F 330	F 320	F 320
19	A	F 270	A	A	F	F	F	J F 275	B	B	F 305	Z 320	F 305	R 300	F 305	R 285	F 300	F 300	J R 280	F 315	F 305	F 320	F 295	F 310
20	330	A	C	C	C	C	C	C	C	C	C	C	C	C	R	J R 310	J R 320	R 330	J R 310	F 320	J F 330	F 340	F 330	R 330
21	F	280	F 280	F 250	F 250	F 250	F 250	F	B	B	F	F 285	F 310	F 310	F 310	F 320	F 300	U R 290	J A 280	F	F 245	A	F	F
22	U F 280	F	F	F	F	A	B	F	F	F	Y	Y	F 250	B	F 250	F 220	F 270	F 320	F 300	F 265	A	A	A	A
23	A	A	F	A	A	F	F	B	B	B	B	B	B	B	B	B	B	R 275	R 280	F	A	A	A	R 300
24	A	Y	B	A	B	A	A	B	B	B	B	B	B	B	B	B	B	U R 310	R 295	J R 310	R 310	F 320	B	B
25	B	Y	B	B	B	B	B	Y	F 265	B	B	B	B	Y	W	F	F	A	F 250	F 260	A	A	A	A
26	B	A	A	B	A	A	A	A	F 350	F 260	F 270	F 300	F 300	F 300	F 310	F 320	F 320	F 340	F 350	F 340	F 340	F 250	A	A
27	A	A	A	B	A	B	B	B	F 250	F	B	B	F 280	F 280	F 300	F 300	F 300	J R 300	J F 290	F 310	F 280	A	A	A
28	A	R 270	F 290	F 240	A	B	B	F 240	F	A	B	B	F 270	B	U R 270	F 290	F 290	F 290	R	A	A	A	A	B
29	A	A	A	F	U F 230	A	A	B	B	U R 235	B	B	F 230	F 270	B	F 280	F 280	F 270	F 290	F	A	A	A	A
30	F	A	B	B	B	A	R 340	A	A	B	B	B	B	B	B	B	B	R 300	F 280	F 310	B	B	A	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	6	6	5	4	8	8	12	12	13	15	14	20	22	23	23	25	27	29	26	20	16	13	9	7
MED	F 275	F 270	F 280	F 245	F 250	F 240	F 250	F 250	F 260	F 250	F 260	F 275	F 280	F 280	F 290	F 280	F 290	F 290	F 290	F 300	F 300	F 310	F 300	F 295
UQ	300	280	290	F 295	F 260	F 250	F 262	F 270	F 275	F 270	F 270	F 282	F 290	F 290	F 302	F 290	R 300	F 300	F 310	F 310	F 312	F 310	F 310	F 305
LQ	F 270	F 255	F 270	F 240	F 242	F 235	F 250	F 240	F 250	F 238	F 250	F 255	F 260	F 260	F 250	F 270	F 280	F 280	F 280	F 280	F 285	F 285	F 290	F 280

APR. 1979

M(3000)F2 (0.01)

IONOSPHERIC DATA

APR. 1979

H'F2 (KM)

45° E Mean Time (G.M.T. + 3h)

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									525		U L 520 550	L 500	L 510			L 360	L 400							
2										B	B	B	B	B	B									
3									660		B	B	B	L 400	L 450	L 280								
4									B	B	B	B	B	B	B	B	B							
5									B	B			L 630	L 560	L 570									
6									B	B	B	B												
7																								
8										B														
9											U L 525 375	L 310	L 280											
10									620															
11																								
12																								
13																								
14																								
15																								
16									B		B	B		B										
17											B													
18									B					B										
19									B	B														
20									C	C	C	C	C											
21									B	B														
22													B	L 375	L 475									
23									B		B		B		L 350		B							
24									B	B	B	B	B											
25									B	B	B		A 400	700	425									
26									400															
27									B	B														
28										B	B		B											
29									B		B	B	L 580			B								
30										B	B		B	B	B	B								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									2	2	2	3	3	6	5	3	1							
MED									592	510	522	550	L 500	L 400	L 475	L 360	L 400							
UQ												L 590	L 540	L 510	L 570	L 392								
LQ												L 462	L 405	L 375	L 450	L 320								

APR. 1979

H'F2 (KM)

IONOSPHERIC DATA

APR. 1979

H*F (KM)

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

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	550	A	A	A	405	340	Y	A	Y	275	270	260 ^H	280	270	270	E ^B 360	320	270	420	375	380	A	A		
2	A	B	B	A	B	B	A	400	Y	B	B	B	B	B	B	350	300	280	350	390	A	A	A	B		
3	Y	A	A	A	A	A	A	A	375	620	B	B	B	250	255	255	255	250	240	275	220	A	A	320		
4	A	B	B	B	B	B	E ^B 420	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
5	B	B	B	B	B	480	Y	B	B	B	280	275	300	270	260	260	250 ^H	255	300	320	A	Y	A	A		
6	300	300	A	A	A	420	U ^Y 580	470	B	B	B	B	285	320	E ^B 350	250	250	250	255	260 ^H	320	B	B	A		
7	E ^A 550	A	A	E ^A 500	480	425	350	290	275	E ^B 330	275	280	E ^B 400	E ^B 325	280	295	255	235	230	225	225	290	A	400		
8	350	E ^A 420	A	A	A	A	400	335	320	B	300	275	245	245	245	225	250 ^B	265 ^B	250 ^B	280	240	A	A	A		
9	A	435	350	260	A	A	320	A	A	E ^A 625	300	280	270	260	250	255	235	245	225	230	235	225	250	285		
10	350	E ^A 400	325	300	480	450	410	400	Y	425	260	275	280	250 ^B	260	265	265	E ^B 305	265	E ^B 275	250	290	400	335		
11	U ^F 400	320	375	325	325	540	425	345	295	270	250	240	240	240	235	230	225	225	215	220	220	255	275	F 405		
12	400	A	260	A	A	230	390	350	265	265	235	245	235	250	235	245	225	220	230	225	235	250	A	A		
13	300	A	Y	B	405	405	375	345	300	275	260	E ^B 275	345	245	235	235	250	225	220	225	280	400	525	380		
14	350	Y	A	A	F 375	400	450	B	295	275	300	225	250	245	235	230	230	250	230	220	345 ^A	410	A	350		
15	Y	A	B	450	470	495	B	A	400	280	250	260	250	250	270 ^B	285 ^B	250	235	250	295	280	E ^B 345	A	A		
16	F 300	A	F 405	450	400	Y	B	B	B	U ^R 450	B	B	B	350 ^B	B	B	260 ^B	250	245	235	235	265	245	280	380	400
17	B	320	400	A	320	400	355	355	300	300	B	B	250	250	255	245	E ^B 270	225	255	255	240	225	E ^B 270	E ^B 300		
18	A	A	B	A	490	370	350	345	B	E ^B 290	245	250	250	B	250 ^B	E ^B 255	250	205	225	225	225	240	230	A		
19	A	410	A	A	400	280	345	345	B	B	E ^B 290	E ^B 300	240	240	240	230	220	210	210	225	250	270	255	300 ^B		
20	320	A	C	C	C	C	C	C	C	C	C	C	C	230	225	215	200	200	200	215	225	225	245	265		
21	375	410	400	450	445	440	460	400	F	B	B	260	235	220	230	230	225	230	210	290	330	E ^A 430	A	305	F	
22	A 345	360	335	400	A	B	600	600	385	Y	Y	470 ^B	B	285	325	325	275	260	300 ^B	A	A	A	A	B		
23	A	A	425	A	A	E ^A 610	575	B	B	E ^B 525	B	450 ^B	B	390	275	B	260	250	295	A	A	A	400	A		
24	A	Y	B	A	B	A	A	B	B	B	B	B	B	280	260	265	265	240	235	245	B	B	A	B		
25	B	Y	B	B	B	B	B	Y	450	B	B	B	Y	A	365	B	A	430	405	A	A	A	A	A		
26	B	A	A	B	A	A	A	A	E ^A 550	345	265	235	240	225	225	220	220	220	200	220	240	A	A	A		
27	A	A	A	B	A	B	B	B	A	450	B	B	270	285	250	230	225	205	250	215	400 ^A	A	A	A		
28	A	A	A	A	A	B	B	475	535	A	B	B	350	B	390	255	300	260	290	A	A	A	A	B		
29	A	A	A	A	A	A	A	B	B	E ^B 500	B	B	E ^B 325	375	B	275	250	325	295	A	A	A	A	A		
30	320	A	B	B	B	A	A	A	A	B	B	E ^B 360	B	B	B	B	260	280	230	B	B	A	A	A		
31																										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	13	10	10	8	12	15	18	14	14	15	15	20	21	23	26	26	28	29	29	23	19	14	11	11		
MED	348	U 372	362	U 394	425	412	388	352	U 329	U 302	262	264	255	250	254	251	250	248	240	250	240	268	275	335		
UQ	362	420	400	450	480	455	450	400	U 425	U 410	282	278	292	278	270	265	260	260	290	288	272	345	390	390		
LQ	320	320	330	312	388	400	350	345	295	275	255	248	245	245	235	230	230	225	225	225	230	240	250	300		

APR. 1979

H*F (KM)

IONOSPHERIC DATA

APR. 1979

H°ES (KM)

45° E Mean Time (G.M.T. + 3h)

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	115	115	120	120	H 115	125	130	130	105		G	G	B	B	B	G	B	E B 155	140	140	150	120	110	115		
2	100		B	B	110	125		105	125	105		B	B	B	B	B	B	B		130	110	110	105	100	B		
3	140	180	120	125	125	130	150	130	120	90		B	B	B	B	G	G	100	100	100	E B 200	135	135	125	105		
4	140		B	B	B	B	B	B	B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B		
5		B	B	B	B		130	130		B	B	B	G	G		B	G	G	150	140	110	130	180	105	135	150	
6	180	120	120	120	120	120	120	130		B	B	B	B	B	B	B	G	G	B	G	B	B	B	B	150		
7	155	115	105	105	120	120	135	135	90		B	B	B	B	B	B	B	B	B	B	B	B	125	110	110	120	
8	130	125	100	95	105	125	H 125	K 130	100		B	B	B	G	G		105	B	B	B	B	B	120	110	120		
9	110	120	125	125	115	105	160	125	125	110		G	B	G	G	G	120	100	B	100	130		120	105	105		
10	145	125	130	125	130	H 125	120	115	155	110	120		B	B	B	B	G	B	B	B	B	140	120	125	115		
11	130	130	105	105	115	125	K 130	175	95		G	G	120	105	105	105	100	95	95	90	95	B	170	140	145		
12	150	H 120	125	125	120	K 125	115	105	115	120		G	115	G	G	95	B	B	B	B	B	100	B	130	110		
13	110	105	100		B 120	115	150	135		G	G	G	B	B	B	G	B	G	B	B	B	155	125	H 125	140		
14	H 110	140	150	115	185	125	100		B	95	130		B	B	G	110	105	B	B	B	B	110	115	120	115		
15	150	100		B 130	115	125		105	115		G	G	110	105		B	B	B	B	100	135	155		115	110		
16	130	105	105	125	110	115		B	B	B	130		B	B	B	B	B	B	95	B	B	B	B	125	150		
17		B 130	125	115	105	105	K 115	110		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
18	105	115		B 110	115	130	115	110		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	115		
19	120	110	110	105	115	115	115	115		B	B	B	B	B	B	B	B	B	G	B	B	K 155	B	B	B		
20	150	125		C	C	C	C	C	C	C	C	C	C	C	C	105	100	B	100	100	B	B	B	B	115		
21		B 100	130	135	130	120		B	B	B	B	B	B	G	G	G	G	G	B	K 130	125	140	115	105	135		
22	120	120	120	160	105		B 115	125	120	105	115		B	B	B	B	B	B	B	B	150	120	155	115	B		
23	105	100	160	115	125	125	175		B	B	B	B	B	B	B	B	B	B	155	155	155	115	115	120	120		
24	125	145		B 130	B	100	110		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	B		
25		B 105		B	B	B		125	125	130		B	B	B		120	155	155	B	110	145	115	105	130	105	110	115
26		B 120	125		B 125	120	100	120	105	105	100		B	105	90	B	B	B	B	B	B	B	135	115	K E G 180		
27	120	105	105		B 145		B	B	100		B	B	B	B	B	B	B	B	G	H 125	110	110	155	110	125		
28	H 120	120	140	120	130	180		B	K 110	135	160		B	B	B	B	B	B	B	B	130	110	120	125	130		
29	100	125	105	120	120	155	100		B	B	B	B	B	B	B	B	B	150	B	G	105	120	105	100	100		
30	140	100		B	B	B		115	135	110	125		B	B	B	B	B	B		155	150		155	115	K 110		
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	25	27	21	22	24	24	23	20	17	10	3	3	5	5	6	2	8	9	11	14	18	20	24	24			
MED	125	120	120	120	120	122	120	125	115	110	115	115	105	105	105	110	100	U 120	125	129	128	120	115	116			
UQ	140	125	125	125	125	125	132	130	125	130	118	118	120	110	105		130	155	135	138	150	135	125	135			
LQ	110	105	105	110	115	115	115	110	100	105	108	112	105	105	100		98	100	105	110	110	112	110	112			

APR. 1979

H°ES (KM)

IONOSPHERIC DATA

APR. 1979

TYPES OF ES

45° E Mean Time (G.M.T. + 3h)

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	F1	RR11	AF11	R1	RF11	R3	RF11	A1	RC11	C1								K1	F1	HK22	RR22	R3	RA21	R1		
2	R2			RF31	R1		F1	H1	C1										HK11	R3	R1	R1	R1			
3	R1	RFF11	R2	R1	RR23	RF11	F1	R1	LL11	L1							LK11	KL11	KL11	K1	F1	R1	RA11	F1		
4	R1																									
5						R1	K1						L1				H1	RK11	R1	R1	R1	F1	R2	RR22		
6	FF11	RR21	RF21	R1	R2	R2	F1	C1																RF21		
7	RR12	R1	F1	R1	RF21	RF11	RRK21	RKL21	L1												F1	R2	R3	R2		
8	R1	RA21	F1	F1	R1	R1	R2	K1	L1						LL11							R1	RR51	R2		
9	RF11	RF11	RF21	RF21	RF11	RS11	HRK11	R1	RL21	RL11						LL11	L1		L1	FF11		FF11	F2	FKF21		
10	R2	R3	RK11	R3	R2	RK31	RF21	RF11	R1	KL21	RL11										F1	A1	R5	RK21		
11	F1	R2	R2	RK21	RK31	RKF21	K1	RKL11	L1			L1	L1	L1	L1	L1	L2	L2	F2	R1		R1	R1	R1		
12	RF11	RF31	R3	RA31	R3	K2	RK21	RK11	RKL11	K1		L1			L1						F1		RR32	R2		
13	R3	R3	F1		R1	RK11	RK11	RK11													A1	RA11	R3	RFR11		
14	R3	R1	RR11	R1	RR11	RK21	R1		L1	H1				L1	L1					R3	R3	R2	R4			
15	RR11	R2		RA11	RR11	R1		R1	R2			R1	L1					L1		HK11	RA11		RA21	R2		
16	RR21	RF21	RF21	RF11	R1	RA11				R1							LH11						RK21	RK11		
17		F1	RF11	R2	F1	R2	K1	RF11																		
18	R1	R1		R1	RF11	F1	R1	L1																R3		
19	R2	RA11	R2	R2	R2	F2	F3	FF11																	R3	
20	A1	F1																L1	L1		L1	A1			F1	
21		RA11	R1	R1	R1	FR11														K2	R2	F1	R2	R1	A1	
22	R2	RR12	R2	HK11	R1		R1	RA11	R2	R1	R1										RFS11	R1	RF11	R1		
23	R2	FR21	HK11	R1	R1	R1	A1												H1	R1	RR12	R2	R3	R2	R3	
24	RR11	R1		RF11		A1	R1																	R1		
25		F1					R1	R1	R1																	
26		R1	RS11		A1	RA11	R1	R1	R2	L1	L1												A1	K4	HK13	
27	R2	R2	R1		R1				L1												R1	R3	R1	FR11	RR12	R2
28	R1	R2	R1	RR11	R1	A1		K1	RR12	HK11											R3	RR13	R4	R1	R1	
29	R1	R1	R1	R1	R2	RF11	R1															RR21	R1	R1	R1	FRA11
30	RF11	F1				F1	FRA11	R1	K1														HK11	K3	K4	
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																										

APR. 1979

TYPES OF ES

IONOSPHERIC DATA

MAY. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	A	A	A	B	B	B	B	A	B	B						B	O	R	X				A	A	A	
2	A	A	A	A	Y	63	B	B	O	R	B	B	B				X	X	X		X		B	A	A	
3	A	X	O	A	O	A	B	A		61	60					133	115	111	110	O		Y		A		
4		O	R	A	O	A	Y	X	X		70					123	113	106	X					A		
5	A	A	A	B	A	A	A	A	B	B						X	X	X	U	Y		Y	Y	B		
6	A	X	41	U	66	56	66	62	O	R	40					126	X	R	O	R		X	O	R		
7	37	45	61	48	56	O	R	72	73	72	78				B		X	X	X		B	X	A			
8	B	A	A	A	55	Y	58	66	O	R	80	71		89		O	R	X	X	Y	Y	R	O	R		
9	A	A	A	A	B	A	Y	U	R	48	52		B	Y	B	B	C		R		96	B	A	X		
10	A	B	X	A	A	A		66	74	71	78					X	X	X	X	X		O	R	O	R	
11	A	A	O	A	A	72	68	72	B	77	56	B				121	115	112	102	X		A	60	A		
12	A	45	B	A	52	42	B	66	B	B	B		89			O	R	O	R	R	X	O	R	O	R	
13	A	A	A	A	51	A	O	R	63	66	77	87				R	X	X	X	X		R	O	R	A	
14	35	41	X	X	56	A	A	71	X	67	65	73				O	R	108	111	O	R	85	50	A		
15	A	68	O	R	42	37	A	O	R	56	60	B	B			X	X	X	X	R	R	O	R	O	R	
16	A	A	A	A	A	A	B	O	R	49	74	72		B		B	B	Y	O	R		O	R	O	R	
17	35	30	46	56	O	R	A	A	A		60	63		R	100	108		X	X	U	R	O	R	O	R	
18	O	R	X	43	35	41	60	64	63	47	73						X	U	R	X		A	A	A		
19	A	A	A	A	B	B	A	B	Y	Y	Y	B				B	R	R	R	R		A	A	A	A	
20	X	B	A	B	B	B	B	Y	Y	Y	B	B				X	R	85	77	34		A	A	A	B	
21	A	65	A	A	A	R	X	46	48	55	58	55	64	75	B		X	X	X		75	61	A	B	B	
22	69	A	X	A	A	A	A	A	A	Y	E	B	B	B		100	Y	X	53		A	A	A	A	A	
23	A	B	B	B	B	A	B	B	Y	B	B						77	58	O	R		B	B	B	A	A
24	A	A	A	A	40	A	52	B	B	Y	37	B	B	83	B	B	101	111	X		B	A	A	A	X	
25	A	A	B	A	A	A	42	B	B	B	B	B	B	B		R	X	90	A	A	A	A	A	A	B	
26	B	B	B	B	B	A	O	R	39	37	B	B	B	B	B	U	R	U	R	X		A	A	A	A	B
27	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	U	R	Y	B		B	A	A	46	A
28	O	R	A	Y	B	B	B		40	43		B				X	56	B	O	R		B	B	Y	42	A
29	A	A	A	B	B	Y	A	X	B	R	43					R	B	O	R	B	B	B	Y	A	Y	
30	B	61	A	72	72	63	68	36	B	A		65	90		88	80	U	R	R	O	R	Y	O	Y	O	R
31	O	R	A	O	R	29	29	36	43	45	43	47	64				71	67	46	O	R		O	R	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	9	11	11	8	14	9	14	19	16	14	8	3	2	5		22	27	29	24	19	17	13	12	8		
MED	36	42	43	45	47	60	57	60	62	71	64	89	94	85		107	106	101	82	66	44	O	R	31	29	44
UQ	38	53	48	61	56	63	66	68	70	77	72	90		88		118	112	109	96	80	50	O	R	36	46	46
LQ	O	R	39	40	36	40	46	48	44	50	60	60	82		83	90	94	X	86	76	54	36	O	R	O	R

MAY. 1979

FXI (0.1 MHz)

IONOSPHERIC DATA

MAY. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	A	A	A	B	B	B	B	A	B	B	50	B	61	70	B	77	R	75	73	F	J	F	A	A	A	
2	A	A	A	A	Y	F	B	B		B	B	B	B	79	85	95	111	103	77	J	F	F	B	A	A	
3	A	32	35	A	F	A	B	A	F	50	62	74	92	J	R	112	112	109	105	Y	U	Y	J	F	A	
4	J	F	35	A	A	37	A	Y	64	64	64	75	J	R	96	102	122	J	R	J	F	F	F	A	A	
5	A	A	A	B	A	A	A	A	B	B	72	77	J	R	88	J	R	97	111	106	110	100	86	Y	Y	B
6	A	36	35	60	F	F	A	22	F	45	67	J	R	80	91	110	118	J	R	120	104	96	J	R	76	
7	16	20	27	A	45	F	J	F	J	F	J	F	J	F	82	101	100	B	107	109	108	F	J	R	B	
8	B	A	A	A	F	Y	F	J	F	60	71	F	60	F	U	R	J	F	83	106	115	112	100	84	Y	
9	A	A	A	A	B	A	Y	J	R	42	42	R	B	Y	B	B	C	F	100	110	101	F	D	R	89	
10	A	B	44	A	A	A	F	F	F	68	F	66	75	82	U	R	J	R	J	R	J	R	J	R	86	
11	A	A	34	A	A	F	F	F	B	J	F	71	F	B	61	J	F	78	J	105	J	F	J	R	96	
12	A	F	B	A	F	F	B	F	B	B	U	F	83	101	J	R	U	R	U	R	J	R	J	R	88	
13	A	A	A	A	F	A	F	U	F	60	J	F	71	75	100	J	R	J	R	J	R	J	R	J	R	
14	F	U	F	F	F	A	A	F	F	65	61	59	F	63	86	99	J	R	J	R	J	R	J	R	109	
15	A	F	40	A	A	A	F	50	F	B	B	60	79	99	J	R	J	R	100	111	105	102	101	U	R	
16	A	A	A	A	A	A	B	J	F	66	J	F	66	57	B	J	R	J	R	J	R	J	R	J	R	
17	F	18	21	F	F	F	A	A	A	F	J	F	55	65	R	U	R	91	101	101	100	J	R	89		
18	17	18	20	22	22	23	F	F	F	32	F	47	F	68	82	J	R	J	R	J	R	110	J	R	97	
19	A	A	A	A	B	B	A	B	Y	Y	Y	B	55	R	F	62	B	R	R	J	R	121	R	A		
20	32	B	A	B	B	B	B	Y	Y	Y	B	B	57	71	81	J	R	J	R	U	R	F	F	A		
21	A	A	A	A	A	F	F	F	F	43	57	58	B	85	R	105	102	J	R	J	R	J	R	J	R	
22	A	A	F	A	A	A	A	A	A	Y	B	B	B	B	R	F	85	Y	J	F	F	F	A	A	A	
23	A	B	B	B	B	A	B	B	Y	B	B	73	79	J	R	85	85	86	F	46	F	30	B	B	B	
24	A	A	A	A	F	A	F	B	B	Y	F	29	B	B	F	77	B	B	F	95	105	J	F	83	B	
25	A	A	B	A	A	A	F	B	B	B	B	B	B	B	Z	J	R	J	R	J	R	F	A	A	A	
26	B	B	B	B	B	A	F	F	B	B	B	B	B	B	U	R	89	101	Z	U	R	93	R	A	A	
27	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	82	Y	B	B	B	B	A	A	F	
28	U	R	A	Y	B	B	B	B	F	F	36	B	48	62	R	76	86	J	R	94	75	48	B	36	B	
29	A	A	A	B	B	Y	A	F	B	F	37	57	69	86	J	R	94	92	J	R	84	B	R	79	B	
30	B	49	A	F	F	F	F	F	B	A	F	72	81	82	F	84	74	F	65	64	43	Y	U	Y		
31	F	17	A	18	19	F	F	F	F	34	F	41	57	64	R	80	95	J	R	94	F	61	J	F	44	
CNT	8	8	10	6	7	3	8	13	11	16	20	19	23	25	26	27	25	28	23	17	12	11	8	5		
MED	24	32	34	28	F	F	F	F	F	F	60	57	62	77	89	94	103	101	102	94	75	59	F	F	23	
UQ	31	36	40	60	F	F	F	F	F	F	66	70	82	100	106	112	110	105	102	87	74	42	26	25	28	
LQ	17	20	27	22	F	F	F	F	F	54	44	57	70	80	82	R	89	86	90	79	70	42	28	20	17	

MAY. 1979

FOF2 (0.1 MHz)

IONOSPHERIC DATA

MAY. 1979

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

MAY. 1979

FOF1 (0.01 MHz)

IONOSPHERIC DATA

MAY. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1										B	B	B	B	B	B									
2										B	B	B	B	B	B									
3		K 290							K 170	K 180	B	R	R	A	B			K 100						
4	K 290	K 280	K 250							160	A	B	B	B	B									
5										B	B	B	B	B	B									
6		K 280	K 250	K 260	K 260					B	B	B	B	B	B									
7										A	A	B	B	B	B									
8				U K 230		U K 330	U K 230		U K 180	B	B	B	B	B	B	175								
9									B	B	B	B	B	B	C							K 310		
10						K 290	K 190	K 210	B	170	B	B	B	B	B	U K 170								
11									U K 220	B	B	B	B	B	B				K 130					K 320
12									B	B	B	B	B	B	B									
13							U K 250	K 160	B	B	B	R	B	A										
14	U K 190								B	B	B	B	200	180	F 170									
15									B	B	B	B	B	B	B									K 180
16								U K 230	U K 190	B	B	B	H 230	B										
17									A	B	B	B	230	180	145									
18									A	A	200	210	B	B	110		K 120							
19			K 385						B	B	B	B	B	B	B									
20									B	B	B	B	B	B	B	U K 150								
21					K 265	K 235	K 190	K 150	115	140	180	B	B	180	B				K 200					
22									B	B	B	B	B	B	B	K 210								
23	K 310								B	B	B	B	R 200	A	B									
24									B	B	B	B	B	B	B	B			K 180					
25									B	B	B	B	B	B	B									
26									B	B	B	B	B	B	B			K 220			K 150	K 185	K 300	
27									B	B	B	B	B	B	B									K 220
28	K 225								B	B	B	230	A	A										
29									B	A	220	A	A	A	155									
30		K 270		K 310	K 280	K 360	K 350	K 305	B	B	B	A	U A 150	A	B									
31									A	A	A	A	A	A	B									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	3	5	2	3	3	2	4	5	5	6	2	3	3	4	4	7		3	3		1	2	3	1
MED	K 290	K 280	K 250	K 310	K 260	K 312	K 310	K 230	K 170	K 180	155	200	210	215	180	170		K 120	K 180		K 150	K 248	K 220	K 320
UQ	K 300	K 280		K 348	K 270		K 340	U K 250	K 210	U K 190		210	220	230	180	172		K 170	K 190					K 260
LQ	K 258	K 270		K 285	K 245		K 262	K 190	K 160	K 160		190	180	200	168	148		K 110	K 155					K 200

MAY. 1979

FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1979

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	31	39	37	B	B	B	B	J A 50	B	B	E B 33	B	E B 43	E B 61	B	E B 61	E B 54	E B 34	E B 14	E B 22	13	25	H 28	45
2	J A 57	J A 72	J A 67	J A 55	26	31	B	B	52	B	B	B	E B 41	E B 35	E B 39	E B 35	E B 24	E B 14	F 17	J A 21	B	25	J A 38	
3	J A 34	31	31	29	21	36	B	42	K 17	G	E B 25	G 12	G 10	30	E B 22	21	E B 14	13	E B 38	E B 52	E B 35	14	24	29
4	K 29	K 28	26	J A 38	37	37	44	J A 41	30	G	19	26	E B 25	24	E B 25	E B 22	E B 22	E B 31	E B 36	E B 20	E B 33	E B 20	J A 29	J A 74
5	J A 75	50	J A 84	B	J A 32	J A 55	J A 46	52	B	B	E B 40	E B 43	E B 25	E B 34	E B 34	E B 31	E B 34	E B 21	E B 42	E B 41	E B 32	B	26	29
6	31	K 28	28	K 26	K 26	21	27	E B 18	E B 20	E B 31	E B 33	E B 25	E B 24	E B 25	E B 23	23	E B 15	E B 20	E B 14	E B 11	11	E B 13	E B 15	E B 16
7	21	J A 17	J A 25	28	J A 75	J A 46	J A 33	23	15	13	18	E B 21	26	B	E B 50	E B 17	E B 40	E B 23	E B 35	B	15	32	27	J A 40
8	B	33	32	J A 26	F 27	32	J A 36	39	38	J A 35	E B 21	E B 55	E B 38	E B 23	E B 22	G 13	11	11	E B 17	E B 17	E B 17	E B 17	B	24
9	32	36	27	33	27	26	22	E B 17	E B 17	E B 17	B	E B 27	B	B	C	E B 25	E B 11	E B 11	E B 48	E B 25	B	35	J A 33	J A 54
10	49	B	36	J A 110	42	42	K 29	K 19	K 21	J A 18	G	E B 21	23	E B 21	17	17	12	12	11	E B 17	E B 20	E B 18	E B 18	30
11	34	J A 35	J A 30	J A 75	J A 36	33	43	36	B	J A 22	E B 33	B	E B 46	E B 27	E B 47	E B 20	E B 15	E B 11	K 13	F 30	39	35	J A 37	34
12	J A 39	J A 75	B	J A 42	30	J A 34	J A 32	J A 37	B	B	B	E B 24	E B 22	E B 31	E B 32	E B 27	E B 14	E B 26	E B 56	E B 21	E B 13	E B 22	19	31
13	33	J A 37	J A 30	J A 42	J A 39	47	40	27	15	E B 14	E B 21	E B 24	15	E B 21	20	J A 29	J A 23	29	19	19	E B 17	E B 15	16	33
14	J A 24	J A 26	J A 25	J A 26	23	33	J A 50	J A 41	21	27	E B 32	E B 22	J A 24	G	G	G 14	E B 11	E B 11	J A 13	E B 22	E B 12	J A 36	J A 37	34
15	43	40	41	J A 35	30	J A 36	36	28	B	B	E B 33	E B 26	E B 24	E B 40	E B 51	E B 31	E B 20	E B 12	E B 10	E B 17	E B 18	E B 23	K 18	J A 31
16	32	42	41	33	28	J A 39	B	42	30	23	E B 34	B	29	G	E B 21	B	B	E B 22	E B 25	E B 21	E B 13	E B 12	10	E B 12
17	19	19	26	28	J A 29	J A 41	42	36	25	23	E B 55	E B 54	E B 26	G 18	G 13	G 10	13	15	14	11	14	12	10	B
18	18	E B 15	18	E B 13	15	E B 12	15	10	E B 12	17	19	G 19	23	E B 20	E B 19	J A 26	J A 21	G 10	E B 16	E B 13	E B 13	28	41	37
19	J A 36	J A 50	38	45	B	J A 45	36	B	36	37	B	E B 50	E B 44	E B 22	B	E B 58	E B 40	19	E B 22	33	29	J A 35	J A 36	J A 36
20	26	B	J A 63	B	B	63	B	J A 29	32	45	B	B	E B 40	E B 48	E B 20	17	E B 17	E B 42	E B 15	J A 24	J A 27	35	J A 31	36
21	J A 66	36	41	37	33	K 27	J A 27	J A 21	20	G 11	G	G	B	E B 52	G	E B 17	E B 12	J A 28	K 20	23	J A 30	40	B	42
22	J A 35	66	J A 42	37	34	36	35	30	45	26	B	B	B	B	E B 42	22	E B 52	F 25	21	31	41	J A 76	37	41
23	34	B	B	B	B	49	B	B	38	B	B	E B 22	E B 34	G	17	17	18	E B 19	E B 18	B	B	B	19	J A 29
24	75	35	38	55	25	32	H 25	B	B	22	E B 22	B	B	E B 31	B	B	E B 18	25	27	B	30	J A 36	36	J A 42
25	35	J A 27	41	J A 46	32	J A 35	27	B	B	B	B	B	B	B	E B 32	E B 51	E B 29	23	27	J A 40	J A 39	J A 36	J A 55	B
26	B	B	B	B	B	J A 44	J A 31	J A 21	B	B	B	B	B	B	E B 46	E B 18	E B 18	K 22	E B 33	J A 38	22	23	36	B
27	J A 36	J A 45	J A 39	B	B	B	B	B	B	B	B	B	B	B	B	E B 59	E B 35	E B 45	B	B	30	30	26	29
28	27	J A 30	29	B	B	B	B	J A 32	J A 29	B	E B 33	E B 33	G	21	17	E B 13	E B 16	B	E B 17	B	B	23	25	J A 30
29	32	J A 39	J A 61	B	B	J A 29	33	32	B	E B 19	20	26	19	22	18	E B 32	B	E B 43	B	B	B	22	39	25
30	B	K 27	50	K 31	J A 35	K 36	G 31	G 26	B	J A 39	J A 26	22	J A 20	J A 21	E B 16	30	22	E B 20	E B 24	E B 26	E B 17	15	16	15
31	J A 16	22	J A 26	29	J A 55	J A 25	J A 26	29	J A 30	18	J A 26	J A 24	J A 21	20	E B 14	10	11	13	J A 23	18	10	11	15	27
CNT	28	27	28	23	23	28	23	25	20	21	21	21	23	25	26	29	29	30	29	25	27	28	29	28
MED	34	35	36	35	30	36	33	30	27	U 20	E B 26	E B 24	E B 23	E B 23	E B 22	E B 22	E B 18	E B 22	E B 20	E B 22	U 16	23	26	32
UQ	J A 38	41	41	J A 44	36	43	38	39	34	26	E B 33	E B 27	E B 32	E B 31	E B 34	E B 31	E B 29	E B 26	E B 27	U 26	29	35	36	39
LQ	28	28	28	28	26	32	27	23	17	U 14	E G 20	E B 22	U 20	E G 21	E G 17	U 14	E B 14	E B 13	E B 14	E B 17	E B 14	E B 16	18	29

MAY. 1979

FOES (0.1 MHz)

IONOSPHERIC DATA

MAY. 1979

FBES (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 **30sec** in **automatic operation**

Hour Day	00	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 31	A 39	A 37	B	B	B	B	A 50	B	B	E 33	B	E 43	E 61	B	E 61	E 54	E 34	E 14	E 22	13	A 25	A 28	A 45
2	A 57	A 72	A 67	A 55	U Y 26			B	B		B	B	B	E 41	E 35	E 39	E 35	E 24	E 14	14	21		B 25	A 38
3	A 34	31	31	A 29	20	A 36	B	A 42	K 17	G	E 25	U 12	U 10	25	E 22	21	E 14	11	E 38	E 52	E 35	13	A 24	A 29
4	K 29	K 28	A 26	A 38	24	A 37	U 44	31	24	G	19	25	E 25	24	E 25	E 22	E 22	E 31	E 36	E 20	E 33	E 20	A 29	A 74
5	A 75	A 50	A 84	B	A 32	A 55	A 46	A 52	B	B	E 40	E 43	E 25	E 34	E 34	E 31	E 34	E 21	E 42	E 41	E 32	B	A 26	A 29
6	A 31	K 28	K 25	K 26	K 26	21	A 27	E 18	E 20	E 31	E 33	E 25	E 24	E 25	E 23	20	E 15	E 20	E 14	E 11	10	E 13	E 15	E 16
7	14	13	25	A 28	42	41	33	15	13	13	18	E 21	22	B	E 50	E 17	E 40	E 23	E 35	B	E 23	A 32	A 27	A 40
8	B	A 33	A 32	A 26	17	U 32	U 33	U 23	36	U 18	E 21	E 55	E 38	E 23	E 22	U 13	U 11	U 11	E 17	E 17	E 17	E 17	B	A 24
9	A 32	A 36	A 27	A 33	E 23	26	U 22	E 17	E 17	E 17	B	E 27	B	B	C	E 25	E 11	E 11	E 48	E 25	B	A 35	33	20
10	A 49	B	33	A 110	A 42	A 42	11	K 19	U 10	U 18	G	E 21	23	E 21	U 17	17	12	11	9	E 17	E 20	E 18	E 18	A 30
11	A 34	A 35	29	A 75	A 36	33	32	33	B	U 22	E 33	B	E 46	E 27	E 47	E 20	E 15	E 11	K 13	29	A 39	34	A 37	A 34
12	A 39	31	B	A 42	23	26	E 32	21	B	B	B	E 24	E 22	E 31	E 32	E 27	E 14	E 26	E 56	E 21	E 13	E 22	18	A 31
13	A 33	A 37	A 30	A 42	39	A 47	39	U 25	12	E 14	E 21	E 24	U 15	E 21	18	17	12	20	14	16	E 17	E 15	12	A 33
14	19	U 19	23	23	23	A 33	A 50	26	20	U 27	E 32	E 22	E 21	G	G	G	E 13	E 11	E 11	12	E 22	E 12	A 36	A 34
15	A 43	40	34	A 35	A 30	A 36	34	22	B	B	E 33	E 26	E 24	E 40	E 51	E 31	E 20	E 12	E 10	E 17	E 18	E 23	K 18	A 31
16	A 32	A 42	A 41	A 33	A 28	A 39	B	38	U 23	U 19	E 34	B	U 29	G	E 21	B	B	E 22	E 25	E 21	E 13	E 12	U 10	E 12
17	15	15	23	21	26	A 41	A 42	A 36	22	22	E 55	E 54	E 26	U 18	U 13	U 10	13	14	13	U 11	12	12	U 10	B
18	15	E 15	14	E 13	13	E 12	11	10	E 12	12	17	18	19	E 20	E 19	10	9	9	E 16	E 13	E 13	A 28	A 41	A 37
19	A 36	A 50	A 38	A 45	B	E 32	A 36	B	U 36	U 37	B	E 50	E 44	E 22	B	E 58	E 40	18	E 22	A 33	A 29	A 35	A 36	A 36
20	26	B	A 63	B	B	E 41	B	U 29	U 32	U 45	B	B	E 40	E 48	E 20	U 15	E 17	E 42	E 15	19	27	35	31	E 26
21	A 66	A 36	A 41	A 37	A 33	21	21	16	10	G 10	G	G	B	E 52	G	E 17	E 12	20	K 20	20	A 30	A 40	B	E 25
22	A 35	A 66	38	A 37	A 34	A 36	A 35	A 30	A 45	U 26	B	B	B	B	E 42	17	E 52	22	21	A 31	A 41	A 76	A 37	A 41
23	A 34	B	B	B	B	A 49	B	B	U 38	B	B	E 22	E 34	G	16	17	17	E 19	E 18	B	B	B	A 19	A 29
24	A 75	A 35	A 38	A 55	25	A 32	25	B	B	U 22	E 22	B	B	E 31	B	B	E 18	24	18	K 18	B	A 30	A 36	A 36
25	A 35	A 27	E 32	A 46	A 32	A 35	25	B	B	B	B	B	B	B	E 32	E 51	E 29	22	A 27	A 40	A 39	A 36	A 55	B
26	B	B	B	B	B	A 44	26	18	B	B	B	B	B	B	E 46	E 18	E 18	22	K 22	E 33	A 38	A 22	A 33	A 36
27	A 36	A 45	E 33	B	B	B	B	B	B	B	B	B	B	B	B	E 59	E 35	E 45	B	B	A 30	A 30	25	A 29
28	26	A 30	U 29	B	B	B	B	28	23	B	E 33	E 33	G	20	17	E 13	E 16	B	E 17	B	B	U 23	22	A 30
29	A 32	A 39	A 61	B	B	U 29	A 33	24	B	E 19	20	G	U 19	20	18	E 32	B	E 43	B	B	B	U 22	A 39	24
30	B	K 27	A 50	K 31	21	U 36	G 31	G 26	B	A 39	21	19	19	19	E 16	19	21	E 20	E 24	E 26	E 17	12	A 16	15
31	15	A 22	17	15	20	13	12	12	12	12	18	17	18	18	E 14	9	11	12	15	13	9	10	A 15	A 27
CNT	28	27	28	23	23	28	23	25	20	21	21	21	23	25	26	29	29	30	29	25	27	28	29	28
MED	A 34	A 35	32	A 35	26	A 35	32	25	21	18	E 22	E 24	E 24	E 23	E 22	E 19	E 17	E 20	E 18	E 21	U 15	23	A 26	A 30
UQ	A 38	A 40	A 40	A 44	A 32	A 41	36	31	34	U 24	E 33	E 27	E 32	E 31	E 34	E 31	E 29	E 24	E 27	E 29	A 29	A 35	A 36	A 36
LQ	28	28	26	27	23	27	24	18	12	12	18	E 19	18	E 20	E 17	U 15	E 12	10	E 14	E 17	E 13	E 16	18	26

MAY. 1979

FBES (0.1 MHz)

IONOSPHERIC DATA

MAY. 1979

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	11	16	16	B	B	B	B	33	B	B	33	B	43	61	B	61	54	34	14	22	10	9	14	13	
2	9	9	20	22	22	20	B	B	16	B	B	B	B	41	35	39	35	24	14	9	13	B	9	16	
3	10	10	10	16	12	12	B	12	10	13	25	7	7	10	22	15	14	8	38	52	35	12	16	9	
4	9	10	16	20	14	22	33	12	8	9	14	23	25	14	25	22	22	31	36	20	33	20	8	10	
5	9	9	18	B	22	20	25	13	B	B	40	43	25	34	34	31	34	21	42	41	32	B	10	8	
6	12	12	9	9	10	12	16	18	20	31	33	25	24	25	23	17	15	20	14	11	9	13	15	16	
7	11	9	8	9	12	16	10	9	9	9	14	21	22	B	50	17	40	23	35	B	14	9	9	9	
8	B	12	9	9	13	22	12	8	17	9	21	55	38	23	22	10	8	9	17	17	17	17	B	14	
9	13	15	17	12	23	14	12	17	17	17	B	27	B	B	C	25	11	11	48	25	B	10	11	11	
10	15	B	17	14	22	12	9	9	8	12	15	21	20	21	14	13	9	9	8	17	20	18	18	9	
11	10	8	9	13	13	12	13	16	B	14	33	B	46	27	47	20	15	11	12	11	10	9	9	12	
12	13	11	B	18	12	16	30	12	B	B	B	24	22	31	32	27	14	26	56	21	13	22	11	11	
13	9	9	9	12	13	14	14	9	8	14	21	24	13	21	9	8	7	9	8	E	17	15	8	8	
14	8	9	9	9	9	13	13	9	12	23	32	22	21	19	17	9	11	11	9	22	13	14	12	11	
15	20	13	12	12	14	12	13	9	B	B	33	26	24	40	51	31	20	12	10	17	18	23	17	10	
16	9	11	12	18	17	23	B	20	8	17	34	B	24	21	21	B	B	22	25	21	13	12	8	12	
17	8	8	9	9	14	21	15	17	9	9	55	54	26	12	10	9	10	12	8	8	8	7	9	B	
18	8	15	10	13	12	12	8	9	12	9	9	13	15	20	19	8	7	8	16	13	13	8	9	10	
19	9	8	19	22	B	32	24	B	21	23	B	50	44	22	B	58	40	14	22	9	8	8	8	8	
20	9	B	13	B	B	41	B	24	24	32	B	B	40	48	20	12	17	42	15	9	9	10	14	26	
21	23	17	15	20	12	12	8	9	9	9	11	12	B	52	15	17	12	15	12	10	8	8	B	25	
22	12	8	12	12	9	9	20	12	9	16	B	B	B	B	42	15	52	20	15	8	12	10	21	12	
23	12	B	B	B	B	22	B	B	22	B	B	22	34	17	13	12	12	19	18	B	B	B	9	12	
24	15	21	19	25	15	21	9	B	B	17	22	B	B	31	B	B	18	21	15	B	8	8	20	9	
25	21	20	32	25	19	12	16	B	B	B	B	B	B	B	32	51	29	14	9	8	9	9	8	B	
26	B	B	B	B	B	25	12	10	B	B	B	B	B	B	B	46	18	18	12	33	9	10	11	9	B
27	14	19	33	B	B	B	B	B	B	B	B	B	B	B	B	59	35	45	B	B	12	9	13	13	
28	12	19	23	B	B	B	B	17	14	B	33	33	17	16	12	13	16	B	17	B	B	14	19	21	
29	22	19	23	B	B	22	21	14	B	19	15	15	14	16	12	32	B	43	B	B	B	18	20	17	
30	B	14	20	14	16	21	16	16	B	23	14	12	12	13	16	13	15	20	24	26	17	10	10	12	
31	10	8	8	9	9	8	8	8	9	8	8	8	11	12	14	8	9	9	9	9	8	9	8	8	
	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	30	31	31	31	31	31	31	31	31	31	
MED	12	12	16	18	15	20	16	14	17	19	33	27	25	25	22	17	16	19	16	17	13	11	11	12	
UQ	15	19	20	D B 25	D B 23	22	D B 33	22	B	B	B	B	D B 46	50	46	32	34	24	34	34	19	18	16	16	
LQ	9	9	10	12	12	12	12	9	9	12	18	22	20	18	15	12	12	11	12	9	10	9	9	10	

MAY. 1979

F-MIN (0.1 MHz)

IONOSPHERIC DATA

MAY. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23													
1	A	A	A	B	B	B	B	A	B	B	245	B	275	280	B	320	R	310	310	320	F	J	F	A	A	A											
2	A	A	A	A	Y	F	B	B	245	B	B	B	B	300	300	295	315	315	310	J	F	F	B	A	A												
3	A	A	A	A	A	A	B	A	F	F	300	310	310	J	R	300	300	305	310	Y	U	Y	J	F	A	A											
4	J	F	285	A	A	A	Y	270	285	300	320	J	R	310	305	305	J	R	J	R	J	F	F	F	A	A											
5	A	A	A	B	A	A	A	A	B	B	320	320	J	R	J	R	U	R	J	R	J	R	U	Y	Y	B	A	A									
6	A	310	280	290	F	F	A	R	F	300	310	J	R	330	335	320	305	J	R	330	305	315	J	R	320	325	350	350	R	R							
7	270	275	300	A	305	A	J	F	J	F	J	F	J	F	320	J	R	J	R	B	280	290	290	F	J	R	B	290	A	A	A						
8	B	A	A	A	F	Y	240	F	J	F	260	255	280	270	U	R	J	F	305	Z	310	315	325	310	Y	Y	R	350	330	B	A						
9	A	A	A	A	B	A	Y	J	R	275	Y	300	R	B	Y	B	B	C	270	F	275	270	F	R	280	B	A	A	260	A	A						
10	A	B	260	A	A	A	F	F	F	F	255	F	295	300	310	U	R	J	R	J	R	J	R	J	R	U	Y	Y	B	A	A						
11	A	A	A	A	A	F	F	F	B	J	F	295	F	B	280	J	R	J	R	J	R	J	R	J	R	U	Y	Y	B	A	A						
12	A	F	B	A	F	F	B	245	B	B	U	F	300	310	J	R	U	R	U	R	J	R	J	R	U	R	J	R	F	F	A	A					
13	A	A	A	A	F	A	F	240	U	F	J	F	J	F	Z	305	J	R	J	R	J	R	J	R	J	R	J	R	F	F	A	A					
14	F	U	F	F	F	A	A	250	F	F	F	280	F	305	320	305	J	R	J	R	J	R	J	R	U	R	300	325	F	A	A	A					
15	A	F	270	A	A	A	F	F	B	B	250	290	290	Z	J	R	J	R	280	295	305	315	J	R	U	R	U	F	F	270	A	A					
16	A	A	A	A	A	A	B	260	J	F	J	F	J	R	320	B	J	R	J	R	J	R	J	R	J	R	U	R	U	F	F	310	345	330	320	310	
17	F	290	290	F	F	F	A	A	A	F	J	F	295	290	R	U	R	310	325	J	R	330	330	J	R	U	R	370	375	360	340	B	B				
18	310	275	280	270	255	250	250	260	270	295	305	310	J	325	J	R	J	R	J	R	295	J	R	U	R	R	310	325	315	F	A	A	A				
19	A	A	A	A	B	B	A	B	Y	Y	B	280	280	R	260	F	B	R	R	J	R	265	R	A	A	A	A	A	A	A	A	A	A				
20	300	B	A	B	B	B	B	Y	Y	Y	B	B	310	315	305	J	R	J	R	U	R	310	J	R	U	R	340	330	F	A	A	A	B				
21	A	A	A	A	A	F	F	F	F	F	290	285	320	B	315	325	315	J	R	J	R	J	R	J	R	310	315	315	320	F	A	A	B	B			
22	A	A	F	A	A	A	A	A	A	Y	B	B	B	B	R	270	285	F	Y	J	F	F	F	F	F	F	F	F	A	A	A	A	A	A			
23	A	B	B	B	A	B	B	Y	B	B	300	320	J	R	320	325	325	F	F	F	F	F	F	F	F	F	F	F	B	B	B	A	A	A			
24	A	A	A	A	F	A	F	B	B	Y	F	B	B	F	B	B	B	B	B	F	B	B	F	300	R	J	F	320	B	A	A	A	A	A			
25	A	A	B	A	A	A	F	B	B	B	B	B	B	B	Z	J	R	J	R	280	285	285	300	F	A	A	A	A	A	A	A	A	B				
26	B	B	B	B	B	A	F	245	F	B	B	B	B	B	B	U	R	310	290	295	Z	U	R	310	R	A	A	A	A	A	A	B	B				
27	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	Y	285	Y	B	B	B	A	A	F	A	A	A	F	A	A	A	A	A	A			
28	U	R	A	Y	B	B	B	F	F	B	310	360	340	335	J	R	330	330	315	F	B	335	B	B	Y	325	310	325	310	305	305	305	305	A	A		
29	A	A	A	B	B	Y	A	F	B	F	300	V	330	320	J	R	315	R	J	R	330	B	R	315	B	B	B	Y	A	Y	A	Y	A	Y			
30	B	350	A	F	F	F	F	F	B	A	F	F	F	F	J	R	J	R	J	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	A	A	
31	F	270	A	280	265	F	F	F	F	F	280	F	300	305	255	R	320	335	J	R	J	R	290	F	J	F	J	F	340	355	360	360	400	F	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	8	7	8	6	6	2	8	12	11	16	20	19	23	25	26	27	25	28	22	17	12	11	5	3													
MED	288	285	275	270	280	250	248	260	270	295	305	310	310	315	310	300	305	310	320	320	320	342	325	320	305												
UQ	305	300	280	290	290		262	272	280	300	315	320	320	J	R	J	R	318	315	315	330	330	350	340	325	308											
LQ	270	275	265	265	255		242	252	248	290	292	298	292	300	300	290	295	302	310	F	310	F	315	F	270	282											

MAY. 1979

M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1979

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																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23														225										
24																								
25																								
26																								
27																								
28																								
29													250											
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT													1	1										
MED													250	225										
UQ																								
LQ																								

MAY. 1979

H^oF2 (KM)

IONOSPHERIC DATA

MAY. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	A	A	A	B	B	B	B	A	B	B	E B 400	B	310	E B 400	B	E B 300	275	250	230	U F 255	225	A	A	A		
2	A	A	A	A	340	340	B	B	E A 510	B	B	B	B	275	265	260	245	220	215	250	245	B	A	A		
3	A	A	A	A	A	A	B	A	350	275	240	230	240	230	230	210	220	210	235	E B 290	240	245	A	A		
4	240	400	A	A	360	A	Y	365	280	200 ^H	230	240	230	225	225	225	215	210	250	Q 250	240	240	A	A		
5	A	A	A	B	A	A	A	A	B	B	B	B	265	245	255	240	235	220	240	215	240	B	B	A	A	
6	A	350	340	320	360	395	A	E B 460	U B 370	E B 300	240	225	230	220	225	210	200	220	220	210	210	225	E B 290	E B 310		
7	A	375	E A 380	A	E A 375	A	380	315	280	190 ^H	230	220	240	B	250	225	250	B	B	245	B	305	A	A	A	
8	B	A	A	A	340	350	475	375	350	280	280	E B 335	250	220	225	205	200 ^H	210	225	225	210	255	B	A	A	
9	A	A	A	A	B	A	Y	330	340	280	B	260	B	B	C	250	240	250	E B 260	220	B	A	A	320	A	
10	A	B	315	A	A	A	400	350	325	275	235	230	230	230	220	225	225	225	210	225	F	E B 275	340	A	A	
11	A	A	A	A	A	400	U A 445	380	B	255	E B 350	B	E B 280	260	E B 250	240	220	225	235	315	F	A	F	A	A	
12	A	U F 350	B	A	E A 370	F	B	380	B	B	B	240	230	220	250	210	210	E B 235	E B 260	235	230	E B 310	380	A	A	
13	A	A	A	A	A	A	A	400	345	260	230	230	205	220	210 ^H	210	200 ^A	210	200	215	225	290	350	A	A	
14	345	340	410	475	460	A	A	400	370	E Y 340	270	230	215	230	210	210	195	215	245	215	260	A	A	A	A	
15	A	290	A	A	A	A	E A 450	400	B	B	E B 350	250	250	250	E B 250	235	240	225	225	225	225	220	235	300	A	A
16	A	A	A	A	A	A	B	A	300	250	E B 270	B	230	220	225	B	B	E B 220	200	215	220	250	270	280	B	A
17	320	350	A	A	U A 375	A	A	A	310	290	E B 325	E B 285	220	230	220	200	200	200	200	215	220	230	280	B	A	A
18	340	B	355	350	385	365	350	320	295	260 ^H	210	230	220	205	210	195 ^H	200	200 ^H	210	205	210	A	A	A	A	A
19	A	A	A	A	B	B	A	B	Y	Y	B	B	E B 355	305	B	E B 340	245	205	260	A	A	A	A	A	A	A
20	A	B	A	B	B	B	B	Y	Y	Y	B	B	B	E B 270	265	245	230	210	E B 245	235	260	A	A	A	B	A
21	A	A	A	A	A	425	400	370	320	245	250	230	B	255	B	205	230	195	245	250	280	A	A	B	B	A
22	A	A	A	A	A	A	A	A	A	Y	B	B	B	B	E B 305	260	E B 320	250	300	A	A	A	A	A	A	A
23	A	B	B	B	B	A	B	B	Y	B	B	245	250	200	210	225	205	230	235	B	B	B	A	A	A	
24	A	A	A	A	360	A	360	B	B	Y	E B 380	B	B	230	B	B	255	240	F	220	B	A	A	A	A	A
25	A	A	B	A	A	A	H 300	B	B	B	B	B	B	B	B	275	320	255	360	A	A	A	A	A	B	A
26	B	B	B	B	B	A	A	500	F	330	B	B	B	B	B	E B 260	230	200	240	210	A	A	A	A	B	A
27	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 270	B	B	A	A	250	A	A
28	340	A	Y	B	B	B	B	A	450	330	B	E B 290	230	230	210	215	195	200	B	245	B	B	Y	295	A	A
29	A	A	A	B	B	Y	A	A	360	B	275	235	235	215	240	195	E B 245	B	E B 270	B	B	B	Y	A	350	A
30	B	270	A	280	365	460	280	350	B	A	310	245	225	230	225	225	225	225	250	250	265	E B 310	300	A	380	A
31	A	A	E A 410	A	A	360	340	300	270	F	255	210	200	225	225	230	H 160	H 170	H 190	210	205	235	200	A	A	A
CNT	7	8	7	5	11	8	12	18	16	16	21	20	23	25	26	29	29	30	28	21	18	13	9	5		
MED	340	350	355	350	362	380	380	365	325	263	U 248	231	230	230	224	225	218	222	232	225	226	245	295	320		
UQ	342	362	382	400	375	412	435	390	349	278	E B 310	244	248	245	240	238	242	245	246	258	242	U 272	340	350		
LQ	298	315	348	320	360	355	345	330	298	252	235	230	225	220	215	210	200	210	212	215	220	235	275	310		

MAY. 1979

H^oF (KM)

IONOSPHERIC DATA

MAY. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	115	115	120	B	B	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	130	125	120 ^H	105		
2	140	100	100	135	120	125	B	B	105	B	B	B	B	B	B	B	B	B	B	125 ^F	140	B	110	160		
3	110	130	110	120	130	120	B	100	115 ^K	G	B	90	90	90	B	100	B	180	B	B	B	125	175	115		
4	110 ^K	120 ^K	150	110	110	120	120	115	115	G	100	150	B	100	B	B	B	B	B	B	B	B	B	125	105	
5	110	110	110	B	110	105	115	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	120	130	
6	125	120 ^K	125	115 ^K	120 ^K	130	120	B	B	B	B	B	B	B	B	105	B	B	B	B	100	B	B	B		
7	175	150	110	120	120	110	110	130	140	100	100	B	110	B	B	B	B	B	B	B	B	140	110	110		
8	B	110	125	140	120	130	115	115	110	100	B	B	B	B	B	95	95	95	B	B	B	B	B	165		
9	125	130	130	125	130	130	155	B	B	B	B	B	B	B	C	B	B	B	B	B	B	160	115	110		
10	110	B	130	115	110	110	115 ^K	125 ^K	130 ^K	130	G	B	170	B	100	105	100	100	100	B	B	B	B	120		
11	115	110	120	105	100	105	105	105	B	120	B	B	B	B	B	B	B	B	E	B	150	110	115	110	110	150
12	120	110	B	115	115	140	105	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	155	130	
13	120	125	130	120	120	105	105	110	95	B	B	B	100	B	100	100	100	100	100	100	100	B	B	135	115	
14	130	110	115	105 ^H	110	110	105	120	130	110	B	B	105	G	G	100	B	B	140	B	B	120	115	110		
15	120	110	110	115	115	100	100	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	155	115	
16	115	110	100	115	120	100	B	100	100	120	B	B	110	G	B	B	B	B	B	B	B	B	100	B		
17	150	145	110	110	140	100	100	105	110	110	B	B	B	95	90	95	100	140	135	95	95	90	95	B		
18	150	B	150	B	125	B	110	95	B	105	110	110	105	B	B	100	100	100	B	B	B	135	115	115		
19	135	120	110	130	B	110	120	B	140	145	B	B	B	B	B	B	B	150	B	110	105	100	105	125		
20	135	B	105	B	B	150	B	115	125	105	B	B	B	B	B	150	B	B	B	155	110	115	135	140		
21	100	110	105	110	110	130 ^K	95	95	110	105	G	G	B	B	G	B	B	100	130 ^K	135	120	100	B	110		
22	110	110	110	110	110	110	110	110	105	110	B	B	B	B	B	105	B	105	100	110	110	105	110	110		
23	E	G	B	B	B	100	B	B	110	B	B	B	B	G	110	150	150	B	B	B	B	B	140	115		
24	110	110	110	115	130	110	110 ^H	B	B	110	B	B	B	B	B	B	B	155	170	B	110	110	110	110		
25	120	110	130	120	120	100	120	B	B	B	B	B	B	B	B	B	B	125	105	100	105	105	130	B		
26	B	B	B	B	B	120	110	175	B	B	B	B	B	B	B	B	B	B	115	B	100	140	150	140	B	
27	120	120	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	110	105	140	110	
28	140	110	130	B	B	B	B	100	110	B	B	B	G	120	110	B	B	B	B	B	B	120	170	120		
29	130	120	100	B	B	110	105	110	B	B	110	150	105	115	120	B	B	B	B	B	B	120	110	150		
30	B	135 ^K	120	125 ^K	110	125 ^K	130	120	B	100	105	115	110	100	B	100	110	B	B	B	B	140	160	140		
31	155	140	110	105	105	100	135	120	110	105	100	100	100	130	B	100	135	125	120	110	105	140	140	150		
CNT	28	26	28	22	23	27	23	23	17	15	6	6	10	7	6	13	8	13	10	11	14	20	27	26		
MED	120	112	110	115	120	110	110	110	110	110	102	112	105	100	105	100	100	115 ^U	118	110	110	120	120	115		
UQ	136	125	128	120	120	125	120	125	115	110	150	110	118	110	105	122	140	138	118	120	138	140	140	140		
LQ	112	110	110	110	110	105	105	105	110	105	100	100	100	98	100	100	100	100	100	100	105	105	110	110		

MAY. 1979

H°ES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

MAY. 1979

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 30sec in automatic operation

Hour Day	00	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 4	R 1	R 1					R 1													R 1	RF 21	R 1	R 1	
2	RR 11	R 2	F 2	RF 11	F 1	R 1			F 2											A 1	AR 11		R 3	RR 11	
3	R 3	HK 23	R 3	R 1	FF 11	RF 21		F 1	K 1			L 1	L 1	L 1		F 1		HKL 11			R 1	R 1	R 2		
4	K 2	K 3	HK 11	R 1	R 1	R 1	R 1	R 2	RL 21		L 1	H 1		L 1									RF 21	R 2	
5	F 1	R 3	F 1		R 1	R 1	R 1	R 1															A 1	R 1	
6	R 1	K 2	HK 33	K 3	K 3	R 1	F 1									F 1					F 1				
7	RR 11	RFR 11	R 3	R 2	F 2	F 2	F 3	R 1	A 1	L 1	L 1										R 1	RR 32	R 2	R 3	
8		R 2	RF 31	RR 11	RKA 11	R 1	RK 31	RKF 11	A 1	LK 31						L 1	F 1	F 1						RR 11	
9	R 2	RF 21	RR 11	R 2	R 1	R 1	R 1															HK 12	R 2	A 2	
10	R 1		RF 11	FA 11	R 1	RF 21	KL 21	K 3	KL 21	RC 11			H 1		L 1	LK 11	F 1	F 1	F 1				R 2		
11	R 2	RF 51	RF 21	FR 12	R 1	R 2	R 2	R 1		FK 11										K 1	R 2	RF 32	R 5	RF 41	HK 24
12	R 2	RA 21		R 1	F 2	RF 22	F 1	FR 11															AF 11	FF 22	
13	RF 21	RF 31	RF 32	FF 12	R 3	F 2	R 2	RKL 21	LK 11				L 1		LL 11	FF 21	F 7	F 2	F 2	FF 31		RF 11	RF 31		
14	RF 21	CK 21	RF 32	RF 42	R 3	F 1	F 2	F 4	RA 11	F 1			L 1			L 1			FRF 11		R 2	R 3	R 4		
15	R 1	R 2	R 2	RF 31	R 2	R 1	F 1	RF 11															K 1	R 4	
16	RF 11	R 3	R 2	R 2	RS 11	R 1		R 1	RK 21	RK 11			L 1										F 1		
17	AF 11	RFF 11	RF 31	RF 21	RR 11	R 1	R 2	R 1	RF 21	RL 21				L 1	L 1	L 1	F 1	F 1	FF 11	F 1	FF 11	F 1	F 1		
18	RF 21		F 1		F 1		F 2	F 1		L 1	C 1	L 1	L 1			L 1	FR 11	KL 11				R 2	R 5	R 4	
19	RF 32	FF 51	R 1	HK 11		F 1	RD 11		RL 11	AL 11								A 1		R 3	R 4	R 4	R 6	RF 32	
20	RF 51		RF 11			R 1		FD 11	R 1	R 1						RK 11				AR 11	R 2	R 5	RF 11	RF 11	
21	FF 11	R 1	R 2	R 2	R 2	KL 21	LK 31	LK 21	LKL 11	L 1					D 1			F 1	K 1	R 2	R 4	RS 11		R 1	
22	F 3	R 3	F 3	R 2	RF 11	R 2	R 2	R 2	R 3	L 1						LK 11		A 1	A 1	R 2	R 2	RA 21	R 1	R 2	
23	HK 13					R 1			F 1						L 1	HL 11	A 1						AF 11	RA 21	
24	RRF 21	R 1	R 2	R 1	FF 11	F 1	R 2			L 1								F 1	HK 11		R 3	R 5	R 1	R 2	
25	R 1	R 1	R 1	R 1	R 1	R 2	R 1											RA 11	R 2	F 2	F 2	F 2	FR 11		
26						RF 11	R 2	RR 11										K 1		R 2	RK 21	RK 11	RK 23		
27	R 2	FR 12	R 1																			R 2	R 2	RK 11	R 1
28	HK 11	R 1	R 1					R 1	RA 11					L 1	L 1							R 1	R 1	R 1	
29	R 1	R 1	F 1			AF 11	R 1	R 1			L 1	H 1	L 1	CL 11	C 1							R 1	R 2	AR 11	
30		K 1	RF 21	K 1	LK 11	K 1	KR 12	KR 11		RR 11	RA 11	R 1	C 1	C 1		F 1	F 1					F 1	RF 11	R 1	
31	FRR 11	RFR 11	R 1	FS 11	F 2	RR 12	FF 12	FF 11	F 2	L 2	L 2	L 2	L 1	RL 11		F 1	RF 11	F 1	FFF 12	F 1	F 1	A 1	FF 21	RRF 11	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

MAY. 1979

TYPES OF ES

IONOSPHERIC DATA

JUN. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	U R 32	43	38	40	42	45	57	60	46	B		R 88	U R 78		60	R 59	R 46	X 34	33	O R 22	Y	A	
2	A	O R 36	A	A	A	A	A	A	B	60	70			84		74	73	56		R 32	B	O R 20	B	O R 23	
3	A	A	A	A	A	61	63	63	61	61	67	71			X 87	R 75	60	55	48	53	O R 25	B	A	A	
4	A	54	A	A	A	60	68	75	68	67	65	82	80	R 97		108	110	103	R 83	U R 68	U R 40	B	O R 23	A	
5	O R 37	38	38	60	30	45	64	60	64	64	70	81	X 90				70	52	U 54	37	R 27	O R 23	U R 22	O R 22	
6	41	63	61	64	46	67	O R 63	46	60	71	74	84	R 91				95	X 83	68	66	X 45	36	A	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B
8	B	B	B	B	B	B	B	B	B	B	B	B		B	B		R 78	R 85	R 59	O R 55		B	B	B	B
9	A	X 39	B	B	B	B	A	A	B	45		70	X 85		B	R 90	R 90	R 80	X 50	B	B	Y	A	X 47	
10	A	B	B	A	A	B	B	B	B	62	B	B	B	B		B	B	U R 96	B	X 50	B	Y	A	O R 29	
11	O R 27	A	A	A	A	A	A	B	O R 44	72	71	B						R 115	B	B	Y	A	34	30	
12	A	A	A	A	A	A	A	O S 49	R 48		B						R 75	U R 70	U R 56	O R 34	O R 24	B	O R 22	A	
13	A	32	A	A	A	42	47	52	R 40	55	60						U R 69	60	U R 61	R 59	B	B	B	A	
14	A	A	A	A	U R 48	64	B	Y	R 61	R 61	R 62	64					80	U R 52	X 40	O R 22	B	O R 21	B	B	
15	O R 26	R 25	R 28	A	48	54	A	B	62	67	70	O R 71		R 93	90		R 85	R 90	R 80	49	B	O R 22	A	A	
16	A	A	A	A	A	B	B	A	B	Y	B	B	B				70	73	83	71	B	A	A	A	46
17	A	A	A	A	A	Y	A	A	Y	34	O R 50	70					R	B	C	R 45	A	A	A	A	A
18	O R 41	A	A	A	44	46	52	X 46	Y	57	65	R 67	80	82	78	74	53	46	X 36	R 37	A	A	A	70	
19	70	55	62	60	A	A	A	43	A	49	O R 50	O R 54	B		92			R 71	B	B	B	B	B	B	B
20	A	A	A	A	A	A	A	A	42	48	52	60	70	71			61	X 43	36	O R 24	O R 22	O R 23	A	A	
21	A	A	A	A	A	A	50	51	Y	A	Y	O R 49	B	X 87			R 79	Y	B	B	A	A	62	A	
22	50	A	A	A	B	A	A	A	A	B	B	B	B				R 72	X 74	X 68	A	A	46	A	A	
23	47	A	A	A	A	Y	B	A	A	Y	B	B	O R 42	B			R 46	B	R 47	B	A	A	A	A	
24	56	R 42	A	B	B	B	B	B	B	B	B	B	B		81	73	B	B	B	B	B	B	A	A	A
25	A	A	A	A	A	A	A	A	Y	B	B	65	80				B	B	B	B	B	B	B	B	A
26	A	A	A	A	A	38	40	38	38	O R 42		B	B	X 79	80		R	R	O R 51	O R 38	A	A	A	A	A
27	A	A	A	A	A	A	A	A	A	B	B	B	B	B	O R 80		R	U R 66	R 68	57	Y	A	A	A	A
28	O R 29	A	A	A	34	R 38	45	45	48	56	52	60	81	X 94			42	R 42	R 38	U R 33	O R 23	O R 20	O R 22	A	
29	A	30	A	A	A	A	A	44	42	U R 44	49	R 67	75	R 81			72	U R 58	O R 54	R 45	B	O R 23	A	A	X 38
30	A	A	O R 41	A	A	A	A	O R 56	O R 54	B	59	R 73	R 89	R 90	R 85	80	R 65	69	O R 38	O R 29	O R 22	B	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	10	10	6	4	7	11	10	14	15	19	17	16	11	11	9	8	22	23	22	17	10	9	6	8	
MED	41	38	40	60	44	46	51	48	54	60	62	68	80	R 87	81	74	71	R 68	R 51	R 37	O R 24	O R 22	R 22	34	
UQ	50	54	61	62	47	60	63	56	61	63	70	72	87	R 92	87	78	79	R 83	R 68	53	33	R 23	34	46	
LQ	O R 29	32	R 32	52	36	41	45	45	43	48	52	62	78	82	80	72	60	53	R 40	O R 33	O R 23	O R 21	O R 22	O R 26	

JUN. 1979

FXI (0.1 MHz)

IONOSPHERIC DATA

JUN. 1979

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 30sec in automatic operation

Hour Day	00	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	F 26	F 34	F 32	F	F 36	J 39	J 46	J 51	J 40	B	R 78	J 82	F 72	J 70	J 54	R 53	F 40	F 28	F	F 16	Y	A	
2	A	30	A	A	A	A	A	A	B	F 50	F 50	J 67	R 79	J 78	R 92	J 68	J 66	J 48	R	R 26	B	14	B	17	
3	A	A	A	A	A	F 50	F 55	F 55	F 44	F 52	J 59	F 65	J 84	J 91	J 81	F 69	F 51	J 47	U 42	J 41	19	B	A	A	
4	A	48	A	A	A	U 48	F 55	U 58	F 45	F 43	F 46	J 76	F 74	F 91	J 97	F 101	J 104	J 97	U 77	F 62	F 34	B	17	A	
5	F 31	J 32	F 31	F 29	F 29	F 35	J 52	F 51	F 44	U 54	J 64	J 74	F 84	104	90	J 72	U 64	U 45	48	F 32	F 21	R 17	F 16	F 15	
6	F 16	F 20	F 21	F 21	R 22	F 38	F	40	F 49	F 57	F 68	F 78	R 85	J 95	J 99	J 90	F 80	F 77	F 62	F 48	J 39	F 30	A	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B
8	B	B	B	B	B	B	B	B	B	B	B	B	B	R 71	B	U 75	R 70	R 79	53	R 49	B	B	B	B	
9	A	34	B	B	B	B	A	A	B	37	48	56	F 79	U 81	B	R	J 84	R	R 74	J 44	B	B	Y	41	
10	A	B	B	A	A	B	B	B	B	53	B	B	B	U 83	B	B	U 90	B	U 44	B	Y	A	23		
11	R 21	A	A	A	A	A	A	B	38	F 65	F 65	B	B	J 99	R 100	J 82	R	U 109	B	B	Y	A	R 23	J 19	
12	A	A	A	A	A	A	A	F 43	F 42	B	R 60	R 65	R 89	J 94	J 94	J 66	R 69	R 64	R 50	F 28	R 18	B	16	A	
13	A	F 26	A	A	A	F 32	F 35	F 39	F 34	F 35	F 49	F 61	78	U 91	U 97	69	63	54	55	53	B	B	B	A	
14	A	A	A	A	R 42	F	B	Y	F 55	F 55	F 56	F 58	J 74	78	J 84	J 74	J 68	R 46	F 34	16	B	F 15	B	B	
15	R 20	R 19	F 22	A	R 29	R 32	A	B	F 55	F 61	F 62	F 64	J 85	R 87	R 81	76	79	84	J 74	J 43	B	16	A	A	
16	A	A	A	A	A	B	B	A	B	Y	B	B	B	R 82	U 85	65	F 65	76	F 54	B	A	A	A	F 34	
17	A	A	A	A	A	Y	A	A	Y	F 28	F 44	F 58	70	R 85	R 85	R	B	C	R 39	A	A	A	A	A	
18	U 35	A	A	A	V 34	F 40	F 44	40	Y	F 44	F 59	F 61	F 71	72	F 72	F 68	F 42	J 39	30	31	A	A	A	A	
19	F	A	F 32	F 32	A	A	A	F 35	A	F	F 40	F 48	B	S 58	F 84	J 64	F 65	J 65	B	B	B	B	B	B	
20	A	A	A	A	A	A	A	A	F 34	F 40	F 44	F 49	F 64	62	J 75	61	J 54	37	F 20	F 16	16	17	A	A	
21	A	A	A	A	A	A	F 43	F 46	Y	A	Y	F 40	B	U 80	U 76	79	J 73	Y	B	B	A	A	A	A	
22	A	A	A	A	B	A	A	A	A	B	B	B	B	R 89	70	71	J 66	R 68	62	A	A	F 23	A	A	
23	35	A	A	A	A	Y	B	A	A	Y	B	B	F 36	B	63	R	40	B	J 41	B	A	A	A	A	
24	A	36	A	B	B	B	B	B	B	B	B	B	B	U 86	F 75	50	B	B	B	B	B	A	A	A	
25	A	A	A	A	A	A	A	A	Y	B	B	F 49	R 65	J 74	U 68	B	B	B	B	B	B	B	B	A	
26	A	A	A	A	A	F 31	F 34	F 30	F 32	F 33	U 37	B	B	F 73	67	R	R	F 44	F 32	A	A	A	A	A	
27	A	A	A	A	A	A	A	A	A	B	B	B	B	B	74	R	F 60	J 62	R 36	Y	A	A	A	A	
28	R 23	A	A	A	F 28	F 32	F 32	F 32	F 32	F 39	F 45	F 54	F 75	F 88	J 75	60	F 36	F 36	F 32	U 27	R 17	14	U 15	A	
29	A	23	A	A	A	A	A	F 32	F 33	F 38	F 43	F 61	F 67	J 75	R 94	F 65	F 52	R 47	R 39	B	17	A	A	32	
30	A	A	F 32	A	A	A	A	50	R 48	B	F 50	F 67	F 83	F 84	J 79	F 66	F 59	R 60	R 32	F 23	F 16	B	A	A	
31																									
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	7	9	6	4	7	9	9	14	15	18	20	19	20	25	27	22	23	23	22	17	9	9	5	7	
MED	R 23	30	28	F 30	29	F 35	F 43	F 40	F 44	F 47	F 50	F 61	76	84	R 81	69	F 65	R 60	42	F 32	18	16	16	23	
UQ	33	34	F 32	F 33	33	F 40	F 52	F 50	F 47	F 54	F 60	F 66	84	91	R 91	75	70	R 76	55	F 44	21	F 17	17	33	
LQ	R 20	23	F 22	F 25	28	F 32	F 35	F 35	F 34	F 38	F 44	F 55	F 70	78	74	65	F 54	46	34	F 27	17	15	16	18	

JUN. 1979

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUN. 1979

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																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
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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																								

JUN. 1979

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JUN. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	K 100		K 120								B	B	B	B	B	B								K 120	
2		K 260									B	A	A	A	U R 170	B								K 140	
3	K 235		K 440				K 130	K 95			105	A	145	140	150	A								K 195	
4		K 400	U K 285				U K 270				B	A	B	B	B	B							K 140	K 180	
5	K 225	K 235				K 200				A	B	A	R	U R 120	B	B									
6		U K 100		K 125						A	A	A	A	A	A	A					K 120				
7										B	B	B	B	B	B	B									
8										B	B	B	B	B	B	B									
9										B	B	B	B	B	B	B								K 180	K 310
10	K 365									B	B	B	B	B	B	B							K 175		
11	U K 140		K 300							175	180	R	B	B	B	B							U K 145		
12										B	B	B	B	A	B	B								K 220	
13	K 140	K 125					K 130			105	A	110	160	R	190	140	A								
14				U K 290						B	145	A	U B 130	170	A	B							K 100		
15		K 120	K 160		K 205	K 170	K 390		K 260	A	180	B	B	R	160	A	B						K 110		
16										B	B	B	B	B	B	B					K 160			K 220	
17										B	B	A	B	B	B	B					K 255				
18										B	B	A	A	B	130	115				K 235					
19	K 180						K 280	U K 250		B	K 340	B	B	B	B	B									
20										B	A	A	H	180	200	B	B				K 90				
21							K 180	K 200		B	B	B	B	B	B	B								K 460	
22		K 245								B	B	B	B	B	B	B					K 220		K 115		
23										B	B	B	B	B	B	B							K 125		
24		K 220								B	B	B	B	B	B	B								K 215	K 225
25								K 250		B	B	B	B	B	B	B									
26										B	B	B	B	B	B	B									
27										B	B	B	B	B	B	B							K 255		K 215
28	K 150									B	120	160	150	A	B								K 105	K 120	
29		K 115								K 125	120	150	A	A	A	B									
30			K 240							A	230	215	B	B	B									K 270	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	8	9	6	1	2	2	6	4	1	3	6	4	6	7	4	1			1	3	1	2	6	7	9
MED	K 165	K 220	K 262	K 125	K 248	K 185	K 225	K 225	K 260	125	162	135	160	160	145	115			K 235	K 220	K 90	K 122	K 112	K 180	K 215
UQ	K 230	K 245	K 300				K 280	K 250		150	180	190	180	180	160					K 238			K 175	K 242	K 220
LQ	K 140	K 120	K 160				K 130	K 148		115	120	115	145	145	135						K 190		K 105	K 142	K 180

JUN. 1979

FOE (0.01 MHz)

IONOSPHERIC DATA

JUN. 1979

FOES (0.1 MHz)

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

Stations **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	J A 50	J A 53	56	J A 31	J A 22	16	J A 22	15	14	E B 23	B	E B 41	E B 32	26	J A 20	18	E B 14	E B 14	E B 12	9	11	11	19	
2	51	38	J A 51	J A 31	55	J A 58	J A 56	J A 41	B	J A 32	27	25	J A 39	20	J A 16	E B 23	E B 19	E B 20	E B 23	E B 16	B	E B 11	B	J A 14	
3	30	31	47	J A 44	J A 44	J A 33	K 13	J A 14	11	E B 9	G 10	25	J A 22	J A 38	J A 44	J A 55	36	30	11	18	E C 14	B	11	K 20	
4	J A 74	45	J A 44	50	J A 50	J A 36	38	J C 47	37	J A 30	32	29	E B 25	E B 26	E B 28	E B 20	E B 16	21	E B 15	E B 12	E B 21	B	K 14	K 18	
5	30	J A 27	31	J A 28	J A 36	J A 39	32	F 22	J A 33	J A 21	22	J A 31	J A 27	J A 33	J A 35	J A 40	J A 74	J A 47	J A 48	J A 32	13	14	11	11	
6	12	19	15	F 15	J A 24	J A 33	34	30	J A 31	J A 19	15	16	J A 20	18	16	16	13	E B 10	16	J A 24	23	J A 28	26	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B
8	B	B	B	B	B	B	B	B	B	B	B	B	E B 69	B	B	E B 42	E B 28	E B 22	E B 21	E B 22	B	B	B	B	
9	29	33	B	B	B	B	38	52	B	27	E B 31	E B 22	E B 19	E B 67	B	E B 71	E B 39	E B 26	E B 18	E B 20	B	B	K 18	K 31	
10	44	B	B	37	J A 42	B	B	B	B	E B 29	B	B	B	B	E B 41	B	B	E B 17	B	E B 34	B	K 18	27	E B 17	
11	18	23	32	37	37	J A 40	38	B	34	24	G	B	B	E B 32	E B 23	E B 12	E B 33	E B 23	B	B	20	28	J A 20	16	
12	28	31	J A 32	J A 40	J A 51	J A 44	44	43	J A 31	B	E B 46	E B 43	E B 21	28	15	17	E B 17	E B 17	E B 21	E B 15	E B 14	B	15	K 22	
13	27	22	31	38	31	23	21	J A 21	29	16	J A 21	26	G	20	16	15	E B 13	E B 13	E B 25	E B 16	B	B	B	22	
14	J A 30	44	40	F 36	34	J A 32	B	36	25	21	G	23	16	17	15	E B 17	E B 21	19	16	J A 35	B	K 10	B	B	
15	15	18	23	J A 40	30	35	J A 74	B	36	J A 36	J A 37	E B 50	25	G	J A 21	J A 22	17	14	20	E B 21	B	K 11	J A 32	38	
16	33	J A 40	38	J A 64	36	B	B	45	B	46	B	B	B	E B 43	E B 39	E B 34	E B 13	E B 12	K 16	B	24	J A 36	J A 37	J A 67	
17	J A 56	J A 64	39	38	J A 40	32	37	42	28	J A 32	25	24	E B 30	E B 47	E B 50	E B 59	B	C	K 25	J A 39	40	38	J A 31	35	
18	J A 49	J A 51	45	36	31	28	23	36	38	37	28	27	16	E B 23	G	J A 19	21	K 23	E B 12	31	23	20	25	34	
19	25	31	J A 29	33	J A 39	47	42	F 31	43	J A 41	40	E B 35	B	E B 41	E B 29	E B 42	E B 22	E B 40	B	B	B	B	B	B	
20	25	J A 36	46	J A 50	J A 52	60	47	42	30	30	29	J A 28	G	G	19	E B 15	34	J A 26	15	K 9	20	16	20	J A 52	
21	J A 40	52	45	43	44	J A 45	30	G 18	44	50	45	27	B	E B 31	E B 31	E B 20	E B 50	E B 43	B	B	33	J A 35	48	35	
22	42	J A 35	31	J A 27	B	43	43	42	42	B	B	B	B	E B 41	E B 34	E B 26	E B 35	E B 35	K 22	J A 44	J A 38	45	J A 39	40	
23	J A 36	37	48	49	J A 34	36	B	J A 47	50	36	B	B	34	B	E B 35	E B 45	E B 28	B	E B 22	B	21	J A 30	J A 26	30	
24	J A 54	J A 54	38	49	B	B	B	B	B	B	B	B	B	B	E B 41	E B 20	E B 28	B	B	B	B	20	28	28	
25	J A 34	J A 34	J A 40	J A 42	43	J A 48	38	38	36	B	B	E B 22	E B 40	E B 33	E B 53	B	B	B	B	B	B	B	B	J A 32	
26	35	41	J A 40	36	46	J A 21	J A 31	J A 43	J A 59	J A 30	27	B	B	E B 28	E B 28	E B 50	E B 52	E B 19	29	36	J A 37	J A 35	J A 74	53	
27	29	46	32	46	29	J A 54	J A 67	J A 46	56	B	B	B	B	B	E B 60	E B 50	E B 18	E B 12	E B 19	21	24	29	27	27	
28	J A 31	J A 37	J A 28	J A 28	J A 26	18	15	14	15	11	J A 20	22	G	15	J A 23	E B 12	E B 14	E B 14	15	J A 46	18	11	16	38	
29	J A 23	24	J A 41	42	J A 45	34	30	F 21	15	G 10	G	17	J A 22	22	21	14	E B 25	E B 40	E B 21	B	E B 12	22	33	J A 31	
30	J A 34	37	28	J A 51	J A 28	J A 51	50	J A 40	43	B	31	28	G	22	E B 31	E B 23	E B 20	E B 20	E B 22	J A 31	15	B	30	32	
31																									
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	28	27	26	27	25	24	23	24	23	22	21	19	20	25	27	27	25	25	23	21	19	20	23	25	
MED	30	37	38	40	J A 37	J A 36	38	39	34	30	U 24	25	E G 22	E B 28	E B 28	E B 23	E B 21	E B 20	E B 20	U 20	21	21	26	31	
UQ	J A 41	44	45	48	J A 44	J A 46	44	43	42	J A 36	30	28	U 27	E B 38	E B 35	E B 42	E B 34	E B 26	E B 22	J A 34	24	32	32	35	
LQ	26	31	31	36	31	32	30	22	28	18	U 18	22	E G 16	18	U 18	E B 17	E B 17	E B 14	E B 14	E B 16	12	12	17	20	

JUN. 1979

FOES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1979

FBES (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 30sec in automatic operation

Hour Day	00	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 20	A A 50	20	24	20	12	12	12	11	11	E B 23	B	E B 41	E B 32	21	17	16	E B 14	E B 14	E B 12	9	11	U Y 11	A A 19	
2	A A 51	U K 26	A A 51	A A 31	A A 55	A A 58	A A 56	A A 41	B	28	23	21	22	16	G	E B 23	E B 19	E B 20	E B 23	E B 16	B	E B 11	B	12	
3	A A 30	A A 31	A A 47	J A 44	J A 44	21	K 13	12	11	E B 9	G 9	14	17	17	14	12	30	11	11	12	E C 14	B	A A 11	A A 20	
4	A A 74	U K 40	A A 44	A A 50	A A 50	33	U K 27	23	25	25	23	22	E B 25	E B 26	E B 28	E B 20	E B 16	E	E B 15	E B 12	E B 21	B	K A 14	A A 18	
5	K 22	U K 24	23	24	24	U K 20	20	12	11	10	14	18	14	16	13	30	28	16	14	12	10	11	10	10	
6	11	12	11	13	19	20	34	U Y 30	13	14	14	15	15	17	16	13	11	E B 10	12	13	17	21	A A 26	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B
8	B	B	B	B	B	B	B	B	B	B	B	B	E B 69	B	B	E B 42	E B 28	E B 22	E B 21	E B 22	B	B	B	B	
9	A A 29	33	B	B	B	B	A A 38	A A 52	B	23	E B 31	E B 22	E B 19	E B 67	B	E B 71	E B 39	E B 26	E B 18	E B 20	B	B	K 18	K 31	
10	A A 44	B	B	A A 37	A A 42	B	B	B	B	E B 29	B	B	B	B	E B 41	B	B	E B 17	B	E B 34	B	K 18	A A 27	E B 17	
11	17	A A 23	A A 32	A A 37	A A 37	A A 40	A A 38	B	29	G	G	B	B	E B 32	E B 23	E B 12	E B 33	E B 23	B	B	U Y 20	A A 28	13	16	
12	A A 28	A A 31	A A 32	A A 40	A A 51	A A 44	A A 44	33	28	B	E B 46	E B 43	E B 21	20	U Y 15	E B 17	E B 17	E B 17	E B 21	E B 15	E B 14	B	14	A A 22	
13	A A 27	20	A A 31	A A 38	A A 31	19	12	16	13	9	10	16	G	14	10	14	E B 13	E B 13	E B 25	E B 16	B	B	B	A A 22	
14	A A 30	A A 44	A A 40	A A 36	U K 29	27	B	U Y 36	21	17	G	20	15	16	14	E B 17	E B 21	18	13	13	B	K 10	B	B	
15	14	K 12	15	A A 40	U K 21	22	A A 74	B	21	20	19	E B 50	24	G	16	16	15	12	16	E B 21	B	K 11	A A 32	A A 38	
16	A A 33	A A 40	A A 38	A A 64	A A 36	B	B	A A 45	B	U Y 46	B	B	B	E B 43	E B 39	E B 34	E B 13	E B 12	K	B	A A 24	A A 36	A A 37	U K 22	
17	A A 56	A A 64	A A 39	A A 38	A A 40	U Y 32	A A 37	A A 42	U Y 28	E B 20	25	20	E B 30	E B 47	E B 50	E B 59	B	C	K 25	A A 39	A A 40	A A 38	A A 31	A A 35	
18	27	A A 51	A A 45	A A 36	28	27	19	24	U Y 38	18	23	19	15	E B 23	G	G	16	K 23	E B 12	15	A A 23	A A 20	A A 25	A A 34	
19	20	A A 31	29	27	A A 39	A A 47	A A 42	U K 25	A A 43	34	K 34	E B 35	B	E B 41	E B 29	E B 42	E B 22	E B 40	B	B	B	B	B	B	
20	A A 25	A A 36	A A 46	A A 50	A A 52	A A 60	A A 47	A A 42	25	21	21	23	G	G	18	E B 15	17	18	13	K 9	14	16	A A 20	A A 52	
21	A A 40	A A 52	A A 45	A A 43	A A 44	A A 45	22	18	U Y 44	A A 50	U Y 45	27	B	E B 31	E B 31	E B 20	E B 50	E B 43	B	B	A A 33	A A 35	A A 48	A A 35	
22	A A 42	A A 35	A A 31	A A 27	B	A A 43	A A 43	A A 42	A A 42	B	B	B	B	E B 41	E B 34	E B 26	E B 35	E B 35	K	A A 44	A A 38	U K 11	A A 39	A A 40	
23	31	A A 37	A A 48	A A 49	A A 34	U Y 36	B	A A 47	A A 50	U Y 36	B	B	30	B	E B 35	E B 45	E B 28	B	E B 22	B	A A 21	A A 30	A A 26	A A 30	
24	A A 54	21	A A 38	E B 44	B	B	B	B	B	B	B	B	B	E B 41	E B 20	E B 28	B	B	B	B	B	A A 20	A A 28	A A 28	
25	A A 34	A A 34	A A 40	A A 42	A A 43	A A 48	A A 38	A A 38	U Y 36	B	B	E B 22	E B 40	E B 33	E B 53	B	B	B	B	B	B	B	B	B	A A 32
26	A A 35	A A 41	A A 40	A A 36	A A 46	17	13	15	13	14	U Y 27	B	B	E B 28	E B 28	E B 50	E B 52	E B 19	25	A A 36	A A 37	A A 35	A A 74	A A 53	
27	A A 29	A A 46	A A 32	A A 46	A A 29	A A 54	A A 67	A A 46	A A 56	B	B	B	B	B	E B 60	E B 50	E B 18	E B 12	E B 19	U Y 21	A A 24	29	A A 27	A A 27	
28	17	A A 37	A A 28	A A 28	21	14	13	12	12	10	16	16	G	14	14	E B 12	E B 14	E B 14	14	14	12	K 10	11	A A 38	
29	A A 23	14	A A 41	A A 42	A A 45	A A 34	A A 30	15	12	G 9	G	G	18	18	13	12	E B 25	E B 40	E B 21	B	E B 12	A A 22	A A 33	A A 31	
30	A A 34	A A 37	U K 24	A A 51	A A 28	A A 51	A A 50	40	40	B	24	24	G	21	E B 31	E B 23	E B 20	E B 20	E B 22	12	10	B	A A 30	A A 32	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	28	27	26	27	25	24	23	24	23	22	21	19	20	25	27	27	25	25	23	21	19	20	23	25	
MED	A A 30	A A 35	A A 38	A A 38	A A 37	34	A A 37	32	25	18	U 20	U 18	E G 18	E B 23	E B 21	E B 20	E B 20	E B 18	E B 18	14	18	20	A A 26	A A 30	
UQ	A A 38	A A 40	A A 44	A A 44	A A 44	A A 46	A A 44	A A 42	39	26	24	22	E B 28	E B 33	E B 32	E B 38	E B 28	E B 23	E B 22	E B 21	A A 24	A A 30	A A 32	A A 35	
LQ	22	25	A A 29	A A 34	28	20	20	16	13	10	U 12	17	14	16	14	E B 16	E B 13	13	12	12	11	14	A A 20		

JUN. 1979

FBES (0.1 MHz)

IONOSPHERIC DATA

JUN. 1979

F-MIN (0.1 MHZ)

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

Stations **SYOWA STATION** Lat. **69 00.4 S**, Long. **39 35.4 E** Sweep **0.5 MHz to 15 MHz** in **30sec** in **automatic operation**

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	8	9	9	9	8	E	9	8	9	9	23	B	41	32	20	13	12	14	14	12	8	8	9	8	
2	12	16	17	14	13	15	13	12	B	13	17	13	14	12	14	23	19	20	23	16	B	11	B	9	
3	9	18	12	13	15	9	9	8	9	9	8	10	9	9	9	9	9	9	10	E C	14	B	9	9	
4	9	10	12	25	20	11	9	10	9	9	17	14	25	26	28	20	16	15	15	12	21	B	11	15	
5	11	9	9	9	9	9	9	9	8	8	9	9	9	9	10	9	9	9	10	9	9	9	9	9	
6	9	9	8	9	9	9	9	20	9	8	10	10	10	9	12	9	9	10	9	8	9	10	17	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B
8	B	B	B	B	B	B	B	B	B	B	B	B	69	B	B	42	28	22	21	22	B	B	B	B	
9	24	22	B	B	B	B	21	34	B	22	31	22	19	67	B	71	39	26	18	20	B	B	13	16	
10	16	B	B	23	22	B	B	B	B	29	B	B	B	B	41	B	B	17	B	34	B	13	10	17	
11	10	10	12	23	16	24	29	B	22	12	15	B	B	32	23	12	33	23	B	B	14	17	10	9	
12	9	10	10	15	14	25	13	14	21	B	46	43	21	15	13	17	17	17	21	15	14	B	9	9	
13	9	10	10	15	12	12	8	10	10	8	9	10	10	10	9	9	13	13	25	16	B	B	B	9	
14	8	11	14	16	12	10	B	26	17	12	12	12	13	14	11	17	21	14	12	9	B	9	B	B	
15	12	9	9	9	10	13	19	B	17	11	9	50	22	13	9	9	10	8	15	21	B	10	10	9	
16	12	8	22	17	22	B	B	34	B	43	B	B	B	43	39	34	13	12	12	B	11	9	12	9	
17	16	16	14	13	12	22	13	17	22	20	19	16	30	47	50	59	B	C	18	12	9	8	9	21	
18	21	15	20	12	13	12	8	12	20	9	13	13	12	23	12	10	12	18	12	13	12	10	9	9	
19	8	8	9	8	14	21	21	8	27	17	15	35	B	41	29	42	22	40	B	B	B	B	B	B	
20	10	8	9	11	17	17	20	12	12	12	11	13	12	12	11	15	12	12	10	8	10	10	8	18	
21	10	19	15	21	25	16	9	7	22	20	30	21	B	31	31	20	50	43	B	B	9	9	21	18	
22	9	12	9	11	B	20	26	22	20	B	B	B	B	41	34	26	35	35	14	10	14	8	8	8	
23	9	12	13	14	12	23	B	21	34	22	B	B	21	B	35	45	28	B	22	B	10	8	9	9	
24	10	15	21	44	B	B	B	B	B	B	B	B	B	41	20	28	B	B	B	B	B	8	9	9	
25	9	8	24	16	20	20	19	13	26	B	B	22	40	33	53	B	B	B	B	B	B	B	B	9	
26	10	12	12	12	12	10	8	8	9	9	24	B	B	28	28	50	52	19	10	20	12	10	15	9	
27	16	14	20	19	15	16	22	21	20	B	B	B	B	B	60	50	18	12	19	13	9	9	9	9	
28	9	8	9	8	9	9	8	9	9	9	9	9	8	9	9	12	14	14	10	9	9	8	8	8	
29	8	8	8	10	13	9	9	8	9	8	9	13	9	10	9	10	25	40	21	B	12	8	9	8	
30	10	27	19	12	10	21	20	15	14	B	16	16	19	20	31	23	20	20	22	11	9	B	9	8	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	29	30	30	
MED	10	12	12	14	14	16	19	14	20	15	18	22	24	30	26	22	20	18	18	16	14	10	10	9	
UQ	12	16	20	21	22	24	29	34	34	B	B	B	B	43	39	45	39	35	25	B	B	B	21	18	
LQ	9	9	9	11	12	10	9	9	9	9	11	13	12	12	11	12	13	13	12	11	9	9	9	9	

JUN. 1979

F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUN. 1979

M(3000)F2 (0.01)

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

Stations **YOWA** STATION Lat. 69 00.4 S Long. 39 35.4 E Sweep 0.5 MHz to 15 MHz in 30sec in automatic operation

Hour Day	00	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	F 280	F 265	F 265	F 245	J 250	F 230	J 245	J 245	J 300	B	310	J 300	F 310	J 320	J 320	R 320	F 340	F 310	F 280	Y	A			
2	A	280	A	A	A	A	A	A	B	F 280	F 295	F 310	F 325	J 290	F 305	F 315	J 290	J 295	R	R 335	B	315	B	315		
3	A	A	A	A	A	F 250	F 255	F 280	F 280	F 290	J 310	F 310	J 325	J 330	J 335	F 335	F 320	J 325	U 325	J 360	F 305	B	A	A		
4	A	290	A	A	A	U 250	F 255	F 250	F 265	F 270	F 280	F 290	F 295	F 285	F 280	F 290	F 305	J 310	U 305	F 320	F 315	B	290	A		
5	F 270	J 285	F 285	F 240	F 245	F 225	F 255	F 275	F 290	U 290	F 295	F 295	F 310	F 320	F 325	J 335	U 320	U 310	F 325	F 320	F 320	R 285	F 285	F 280		
6	F 275	F 260	F 270	F 260	F 240	F 245	F	F 240	F 245	F 260	F 290	F 305	F 315	J 315	J 315	J 310	F 290	F 310	F 310	F 300	J 305	F 265	A	B		
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
9	A	A	B	B	B	B	A	A	B	275	300	285	295	F 310	U 310	B	R 295	R	J 300	J 295	B	B	Y	315		
10	A	B	B	A	A	B	B	B	B	265	B	B	B	B	B	B	B	B	U 305	B	U 340	B	Y	A	290	
11	R 265	A	A	A	A	A	A	B	245	F 250	F 265	B	B	J 310	R 295	J 305	R	U 300	B	B	Y	A	265	J 285		
12	A	A	A	A	A	A	A	F 245	F 250	B	F 270	F 305	F 315	J 315	J 315	J 310	F 325	F 315	R 325	F 325	F 310	B	295	A		
13	A	F 285	A	A	A	F 250	F 265	F 255	F 275	F 275	F 290	F 300	F 320	U 320	U 315	F 330	F 310	F 295	F 305	F 325	B	B	B	A		
14	A	A	A	A	R 280	F	B	Y	F 280	F 275	F 300	F 295	J 305	F 320	J 315	J 315	J 320	F 335	F 335	F 315	B	F 305	B	B		
15	R 310	R 305	F 285	A	275	255	R	A	B	F 255	F 275	F 305	F 275	F 325	F 325	F 300	F 295	F 300	F 315	J 325	J 320	B	270	A	A	
16	A	A	A	A	A	B	B	A	B	Y	B	B	B	B	B	B	B	B	B	B	B	A	A	A	F 320	
17	A	A	A	A	A	Y	A	A	Y	F 265	F 265	F 285	F 300	R 315	R 305	R	B	C	R 310	A	A	A	A	A	A	
18	U 325	A	A	A	V 245	F 240	F 255	F 260	Y	F 265	F 290	F 285	F 300	F 315	F 325	F 330	F 330	F 335	F 355	F 335	R	A	A	A	A	
19	F	A	F 270	F 280	A	A	A	F 260	A	F	F 250	F 270	F	B	S 305	F 315	J 310	F 320	J 310	B	B	B	B	B	B	
20	A	A	A	A	A	A	A	A	F 255	F 260	F 285	F 305	F 315	F 330	F 325	F 320	F 310	F 330	F 285	F 300	F 270	F 300	A	A	A	
21	A	A	A	A	A	A	F 270	F 285	Y	A	Y	F 280	B	U 310	U 310	F 310	J 295	Y	B	B	A	A	A	A	A	
22	A	A	A	A	B	A	A	A	A	B	B	B	B	B	R 335	F 320	F 320	J 305	R 315	F 310	A	A	F 280	A	A	
23	A	A	A	A	A	Y	B	A	A	Y	B	B	B	B	F 290	B	F 310	R	F 300	B	J 295	B	A	A	A	A
24	A	295	A	B	B	B	B	B	B	B	B	B	B	B	B	U 315	F 335	F 305	B	B	B	B	A	A	A	
25	A	A	A	A	A	A	A	A	Y	B	B	F 315	F 315	R 325	J 330	U 330	B	B	B	B	B	B	B	B	A	
26	A	A	A	A	A	F 270	F 285	F 290	F 265	F 265	U 300	B	B	B	F 335	F 295	R	R	F 290	F 300	A	A	A	A	A	
27	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	315	R	F 295	J 315	F 325	Y	A	A	A	A	
28	R 300	A	A	A	F 270	F 265	F 275	F 275	F 285	F 290	F 295	F 295	F 325	F 325	F 330	F 330	F 320	F 325	F 340	F 335	F 355	F 310	U 270	A	A	
29	A	270	A	A	A	A	A	F 270	F 280	F 305	F 300	F 320	F 325	F 320	F 315	F 320	F 310	F 315	F 330	B	335	A	A	320		
30	A	A	F 335	A	A	A	A	270	265	B	F 290	F 300	F 300	F 315	F 310	F 310	F 315	F 325	F 320	F 325	F 375	B	A	A	A	
31																										
CNT	6	8	6	4	7	9	9	14	15	18	20	19	20	25	27	22	23	23	22	17	9	9	5	7		
MED	R 288	285	F 282	F 262	F 265	F 250	F 255	F 265	F 265	F 272	F 292	F 295	F 315	F 315	F 315	F 315	F 310	F 315	F 315	F 315	F 325	F 315	285	285	315	
UQ	R 310	292	F 285	F 272	F 272	F 255	F 270	F 275	F 280	F 280	F 300	F 305	F 325	F 325	F 325	F 330	F 320	F 322	F 325	F 335	F 335	F 305	F 290	F 318		
LQ	F 270	F 275	F 270	F 250	F 245	F 245	F 255	F 250	F 252	F 265	F 282	F 285	F 300	F 310	F 308	F 310	F 298	F 310	F 305	F 315	F 305	F 280	F 270	R 288		

JUN. 1979

M(3000)F2 (0.01)

IONOSPHERIC DATA

JUN. 1979

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 30sec in automatic operation

Hour Day	00	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																								

JUN. 1979

H^oF2 (KM)

IONOSPHERIC DATA

JUN. 1979

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 30sec in automatic operation

Hour Day	00	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	E A 350	A 370	A 350	F 410	400	335	320	260	235	B	B 245	230	230	220	230	235	230	240	215	E A 300	Y	A	
2	A	450	A	A	A	A	A	A	B	295	245	235	240	225	235	225	200	215	250	240	B	E B 295	B	340	
3	A	A	A	A	A	395	340	300	255	H 195	250	200	220	205	200	205	A 250	210	240	230	290	B	A	A	
4	A	A	A	A	A	A	440	400	340	A 345	310	320	265	280	250	275	240	215	235	240	225	275	B	E A 355	A
5	380	350	E A 350	E A 495	E A 485	470	350	300	250	280	235	230	235	220	200	A 220	A 240	A 215	A 225	230	240	A 320	270	280	
6	335	A 390	A 360	E A 350	E A 530	A 425	490	A 580	400	330	230	230	H 200	225	200	205	235	205	225	250	285	380	A	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B
8	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	B	B 280	210	240	235	225	B	B	B	B
9	A	A	B	B	B	B	A	A	B	A	350	295	250	250	B	B	B	255	260	245	265	B	B	Y	315
10	A	B	B	A	A	B	B	B	B	B	350	B	B	B	B	245	B	B	245	B	255	B	Y	A	360
11	A 370	A	A	A	A	A	A	B	E A 450	280	280	B	B	240	235	210	250	250	B	B	Y	A	A	345	350
12	A	A	A	A	A	A	A	E A 450	E A 400	B	B 370	270	235	205	200	200	225	200	240	240	260	B	A	A	
13	A	330	A	A	A	410	345	345	280	295	240	A 210	205	230	215	200	205	240	B 270	240	B	B	B	A	
14	A	A	A	A	280	E A 450	B	Y	280	H 245	240	260	210	225	210	215	250	205	240	A 270	B	295	B	B	
15	280	310	335	A	380	425	A	B	370	300	275	B	245	215	230	235	245	225	230	240	B	390	A	A	
16	A	A	A	A	A	B	B	A	B	Y	B	B	B	260	250	B 225	265	255	275	B	A	A	A	300	
17	A	A	A	A	A	Y	A	A	Y	380	330	260	245	245	250	B 255	B	C	300	A	A	A	A	A	
18	300	A	A	A	A	E A 475	380	425	Y	340	255	245	220	230	210	H 200	195	250	220	240	A	A	A	A	
19	270	A	A	A	A	A	A	430	A	A	440	370	B	260	250	250	240	B 250	B	B	B	B	B	B	
20	A	A	A	A	A	A	A	A	A	430	400	320	270	225	200	220	205	225	220	270	E A 340	A 330	A	A	
21	A	A	A	A	A	A	375	300	Y	A	Y	350	B	250	220	235	E B 300	B 260	B	B	A	A	A	A	
22	A	A	A	A	B	A	A	A	A	B	B	B	B	240	240	245	275	280	280	A	A	F 300	A	A	
23	A	A	A	A	A	Y	B	A	A	Y	B	B	E A 365	B	250	240	245	B	245	B	A	A	A	A	
24	A	345	A	B	B	B	B	B	B	B	B	B	B	240	205	245	B	B	B	B	B	A	A	A	
25	A	A	A	A	A	A	A	A	Y	B	B	250	E B 260	240	E B 250	B	B	B	B	B	B	B	B	A	
26	A	A	A	A	A	370	295	295	300	350	350	B	B	225	250	E B 295	B 280	280	350	A	A	A	A	A	
27	A	A	A	A	A	A	A	A	A	B	B	B	B	B	E B 300	B 250	250	245	260	Y	A	A	A	A	
28	360	A	A	A	E A 420	380	340	305	285	225	255	245	230	235	195	200	240	235	225	245	240	350	445	A	
29	A	E A 370	A	A	A	A	A	355	280	265	260	245	200	235	235	205	B 245	B	245	B	250	A	A	E A 300	
30	A	A	300	A	A	A	A	400	430	B	300	265	250	235	240	240	210	225	250	255	250	B	A	A	
31																									
CNT	7	8	6	4	6	11	10	14	15	18	20	18	19	24	27	26	25	24	23	17	10	9	5	7	
MED	335	350	350	378	U A 340	418	362	340	U 302	298	268	250	232	232	232	224	240	238	245	240	252	320	355	A 315	
UQ	365	A 380	A 355	U A 424	E A 485	A 435	400	412	U 379	350	320	265	246	240	246	242	250	250	265	250	280	350	A 360	345	
LQ	290	338	U 318	A 360	350	402	340	300	280	265	242	235	220	225	210	205	225	218	232	240	240	300	U A 308	300	

JUN. 1979

H'F (KM)

IONOSPHERIC DATA

JUN. 1979

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 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	130	110	115	110	105	95	100	100	100	120	B	B	B	B	130	100	100	B	B	B	145	140	150	140		
2	100	135	110	95	100	100	100	100	B	100	110	110	105	110	105	B	B	B	B	B	B	B	B	130		
3	150	125	150	105	110	120	K	130	110	105	B	110	120	120	110	105	100	100	100	105	110	C	B	K		
4	140	150	130	130	100	105	125	105	95	95	100	125	B	B	B	B	B	150	B	B	B	B	K	K		
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7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	B	B	
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
9	130	130	B	B	B	B	105	105	B	120	B	B	B	B	B	B	B	B	B	B	B	B	K	K		
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13	120	145	110	110	105	125	95	130	125	130	140	130	G	100	100	95	B	B	B	B	B	B	B	F		
14	110	110	105	105	115	105	B	100	120	115	G	120	125	115	145	B	B	110	115	100	B	K	B	B		
15	135	170	H	145	175	140	130	B	120	105	125	B	110	G	95	100	95	100	105	B	B	K	180	110	105	
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22	135	135	100	115	B	120	130	100	110	B	B	B	B	B	B	B	B	B	K	130	105	105	145	H	H	
23	H	105	100	160	100	100	B	95	110	110	B	B	110	B	B	B	B	B	B	B	B	H	145	105	105	105
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31																										
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CNT	28	27	26	27	25	24	23	24	23	20	15	14	9	10	12	8	7	7	11	12	15	19	23	24		
MED	115	115	110	110	110	115	105	115	110	105	128	110	110	105	100	100	110	115	110	115	125	140	115			
UQ	138	132	120	122	120	122	130	112	125	120	128	135	120	120	125	105	108	125	122	128	140	155	150	138		
LQ	110	110	110	105	105	100	102	100	108	100	102	120	105	105	100	100	100	100	105	105	110	110	110	105		

JUN. 1979

H°ES (KM)

IONOSPHERIC DATA

JUN. 1979

TYPES OF ES

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

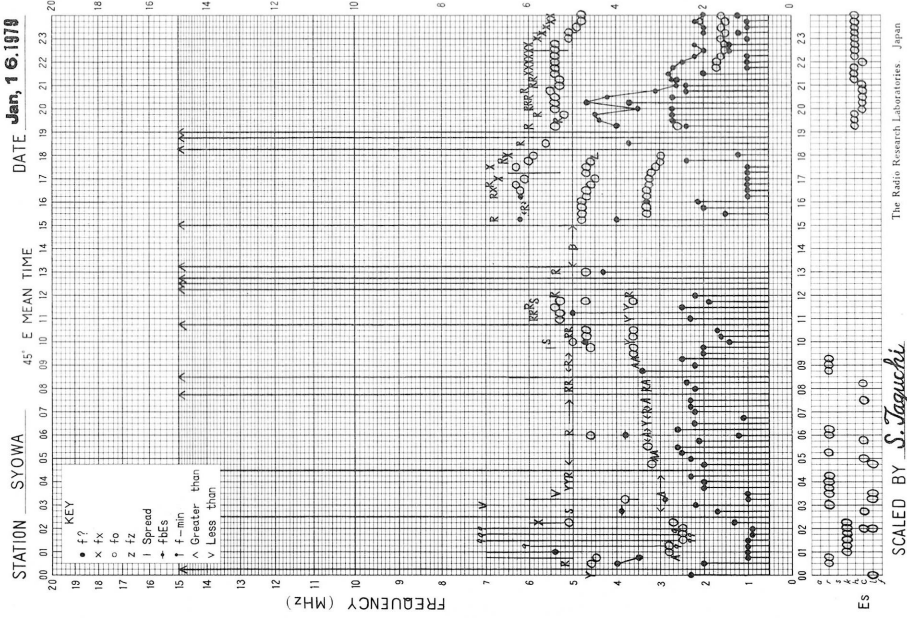
Station SYOWA STATION Lat. 69 00.4 S, Long. 39 35.4 E Sweep 0.5 MHz to 15 MHz in 30sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	HK 21	F 2	HK 21	F 3	F 2	F 2	R 2	F 2	F 1	F 1					F 1	F 1	F 1				R 1	R 1	R 1	RK 21	
2	R 1	HK 11	F 1	F 1	R 2	R 2	R 2	R 1		F 1	C 1	L 1	L 1	L 1	L 1									LK 11	
3	HK 11	R 1	HK 11	R 1	R 1	R 2	K 1	CKL 11	F 1		L 1	C 1	C 1	C 1	R 2	C 1	F 3	F 2	F 2	F 1			R 1	K 1	
4	FF 12	HK 13	CK 11	RF 11	F 1	F 3	RK 21	R 3	R 1	F 1	L 1	CL 11						FFF 11					K 1	K 1	
5	CLK 11	RK 21	R 3	R 3	F 3	RK 21	RF 11	RF 12	FF 31	L 4	HC 12	C 3	C 1	C 2	L 1	C 2	F 4	F 2	F 2	FF 21	FF 11	F 1	FF 11	F 1	
6	FF 11	CK 21	F 2	HK 21	FF 12	FR 12	R 1	RF 11	CL 11	LR 12	R 1	RL 11	L 1	LC 21	L 2	R 1	F 1		F 1	F 1	RK 11	RF 11	F 1		
7																									
8																									
9	R 1	R 1					R 1	R 1		R 1														K 1	K 2
10	HK 22			F 1	F 1																		K 1	R 2	
11	HK 11	R 2	HK 12	R 1	R 2	F 1	F 1		F 1	H 1											FF 11	F 1	LK 11	F 1	
12	R 3	R 3	R 3	R 1	F 1	F 1	R 2	R 1	R 1					L 1	H 1								R 1	K 1	
13	RK 21	CK 11	R 3	R 1	R 1	R 1	LHK 11	F 3	F 2	L 1	L 1	C 1		L 1	L 1	L 3								R 1	
14	R 3	RR 12	R 2	R 1	RK 21	R 3		R 1	R 1	F 1		R 1	C 1	L 1	L 1			R 1	F 1	F 1		K 1			
15	F 1	HKL 11	RK 11	RR 24	HKL 11	RCK 11	CK 11		LK 11	L 1	C 1		C 1		L 1	L 1	F 1	F 1	R 1			K 1	R 5	R 5	
16	RR 11	R 1	R 1	FR 11	R 1			R 1		L 1									K 1		R 1	R 5	R 2	RK 31	
17	RR 12	FR 11	RR 12	R 1	F 1	R 1	F 2	RR 12	R 1	C 1	R 1	RL 11							K 1	R 2	R 5	R 5	R 3	R 1	
18	RR 11	RF 12	R 1	R 3	R 2	R 3	RR 11	FR 11	FR 11	RF 12	L 2	RL 11	L 2			C 1	F 2	K 1		F 1	R 1	R 1	RR 11	R 5	
19	RKS 11	RS 31	R 3	RS 41	FS 21	R 1	RK 11	RKF 11	R 1	RA 11	RK 11														
20	RF 11	R 3	R 3	R 3	R 1	R 1	R 1	R 2	R 2	R 2	RS 21	C 2		C 1			F 1	FF 12	F 1	K 1	F 1	F 1	R 2	FR 11	
21	RS 31	R 1	R 2	R 1	RF 11	R 2	RKF 11	KL 31	RF 11	R 1	R 1	R 1									RR 24	RS 31	HK 12	R 1	
22	FR 12	CK 21	R 2	R 2		R 1	RF 11	R 1	R 1										K 1	F 1	FR 21	RK 11	R 2	R 3	
23	R 4	F 2	RR 11	R 2	R 2	R 1		R 1	R 1	R 1			R 1								RK 11	R 4	R 3	R 3	
24	R 1	RKL 21	R 1	R 1																		R 1	HKL 11	HKR 11	
25	F 3	R 5	R 1	R 2	R 1	R 1	R 1	RK 11	R 1															R 3	
26	R 3	R 3	R 3	RF 23	F 3	F 1	FF 11	FF 31	FF 11	F 1	L 1							R 2	R 1	R 2	F 3	RFR 11	R 2		
27	R 1	R 2	R 1	R 1	RF 11	F 1	F 1	F 1	F 2												R 1	HK 12	R 2	HK 12	
28	CK 21	R 3	R 3	R 4	R 2	R 2	FFF 11	FR 11	RF 21	F 1	L 1	CL 11		L 1	L 1			F 1	F 1	F 1	HKL 11	LK 21	RR 12		
29	R 2	RCK 11	F 3	R 1	R 2	R 3	R 2	R 2	F 1	LK 11		L 1	L 2	CL 11	LC 11	L 1						R 1	R 2	R 3	
30	R 3	R 1	CK 11	R 2	FF 11	R 1	R 1	R 1	R 2		R 1	CL 11		C 1					F 1	F 1			HK 12	R 4	
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																									
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LQ																									

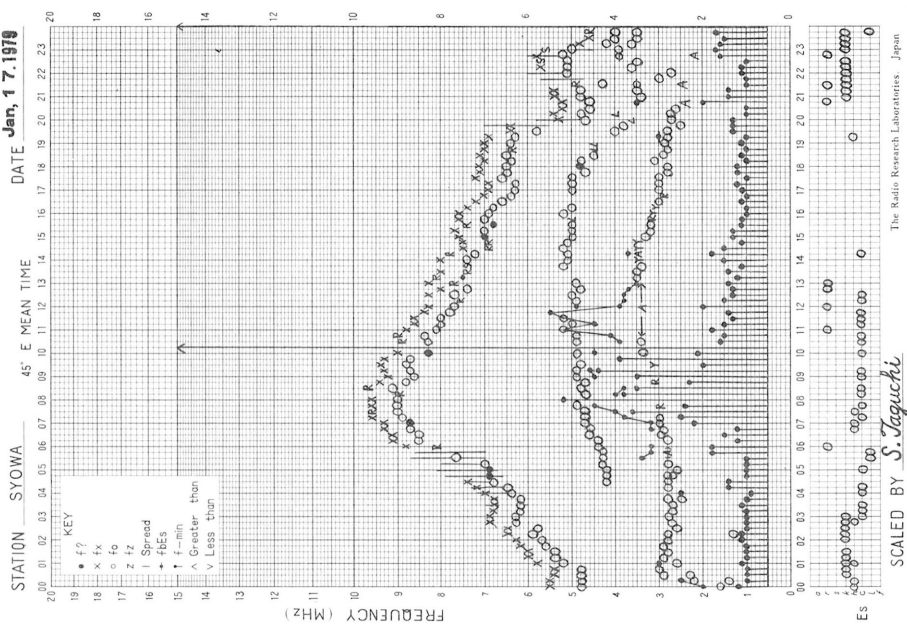
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TYPES OF ES

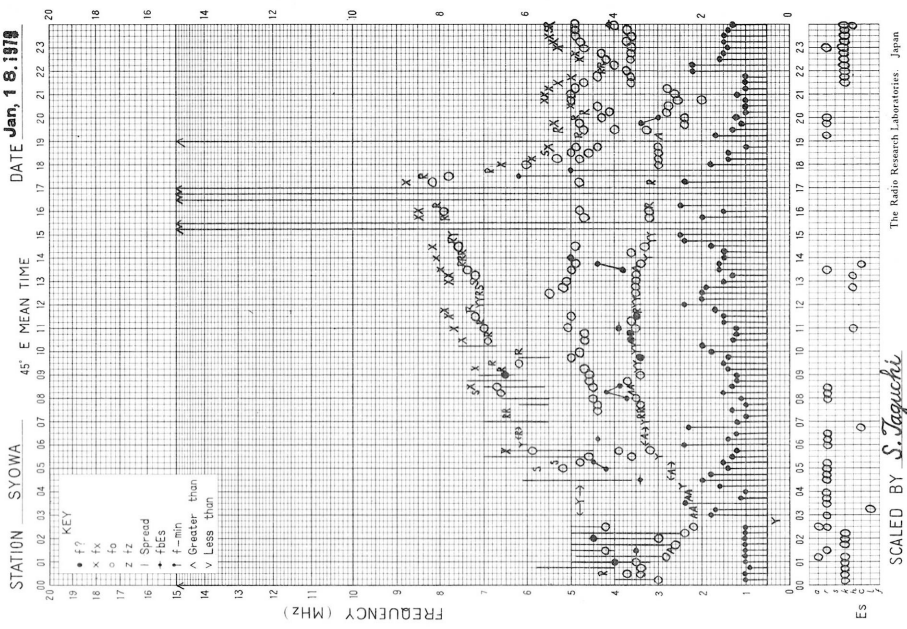
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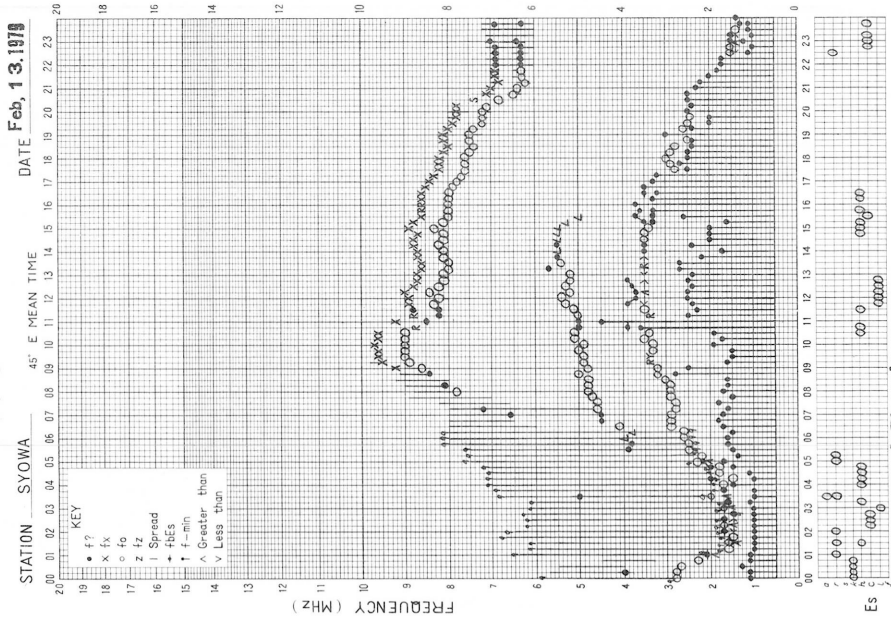
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f-PLOT OF IONOSPHERIC DATA



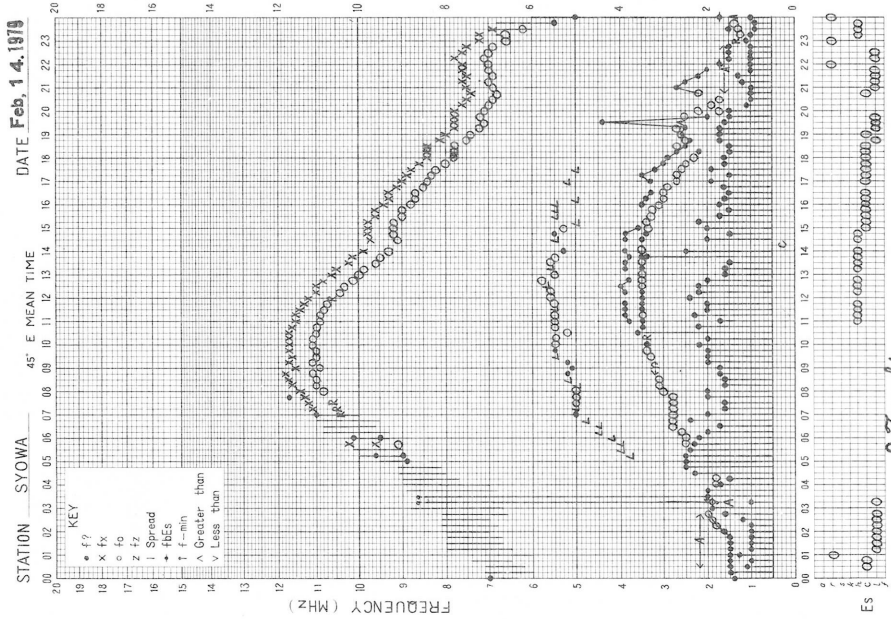
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The Radio Research Laboratories, Japan

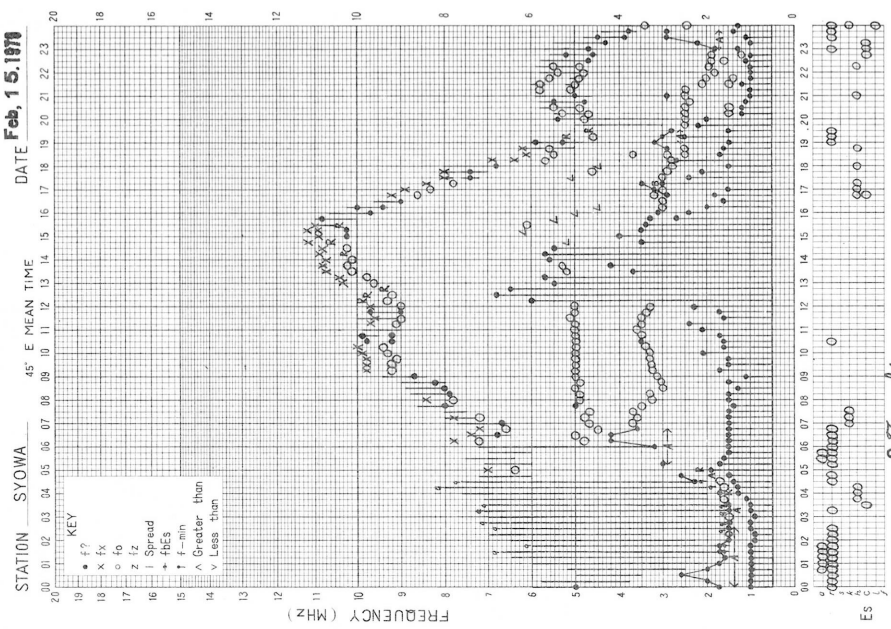
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SCALED BY S. Taguchi

The Radio Research Laboratories, Japan

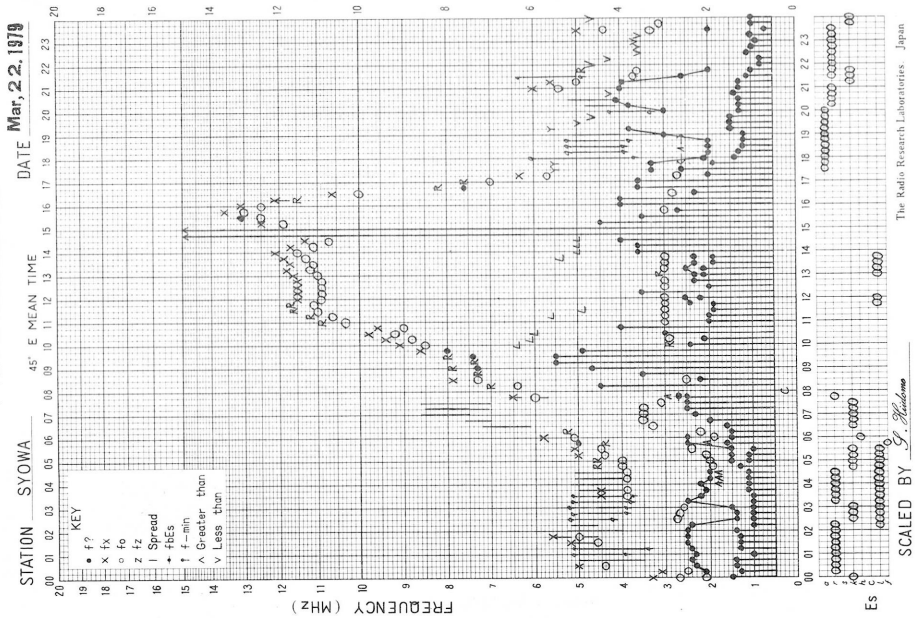
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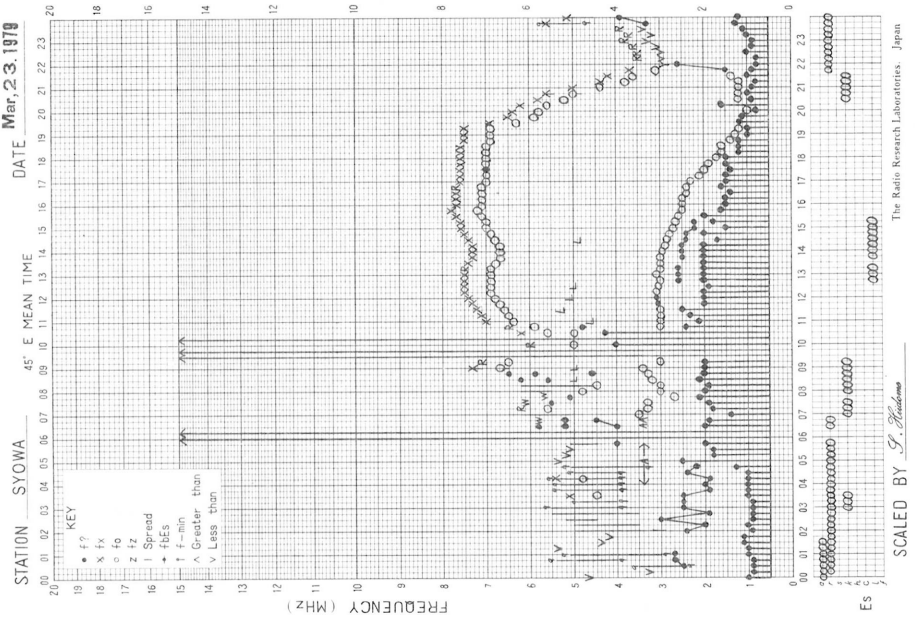
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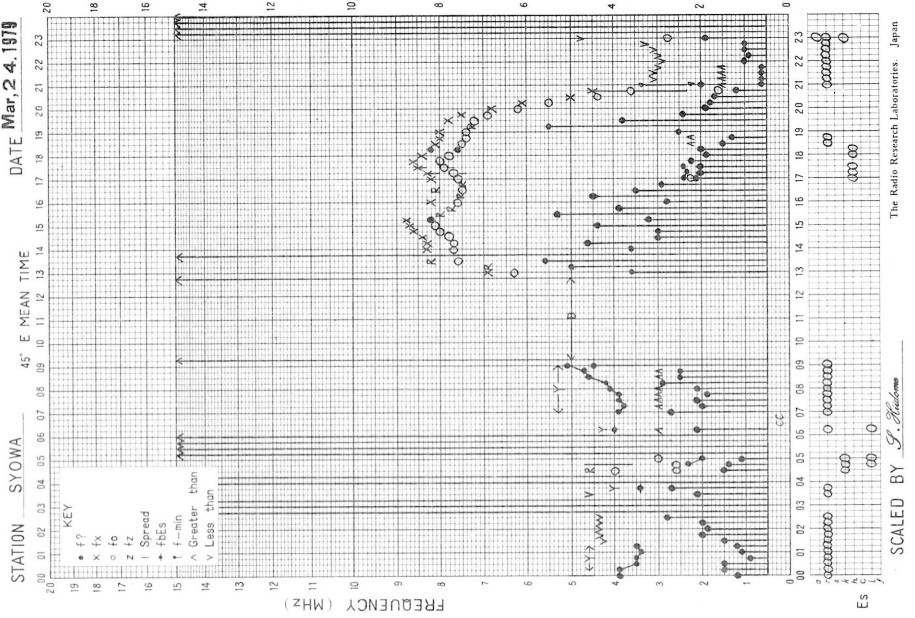
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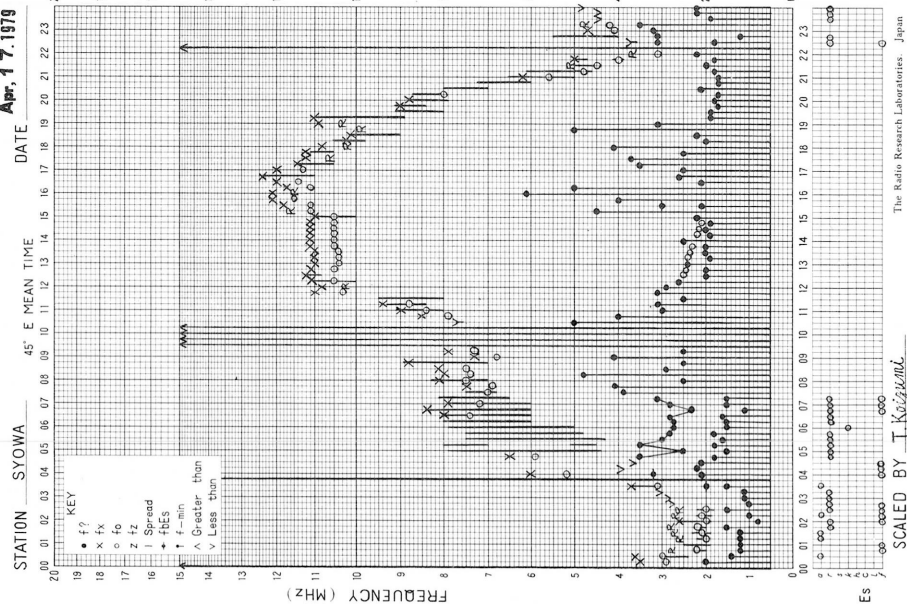
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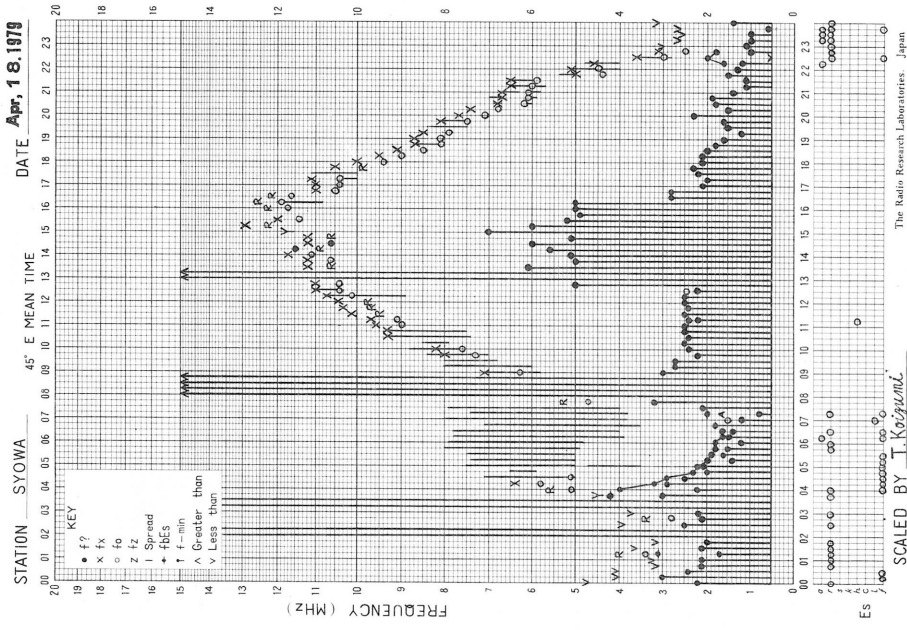
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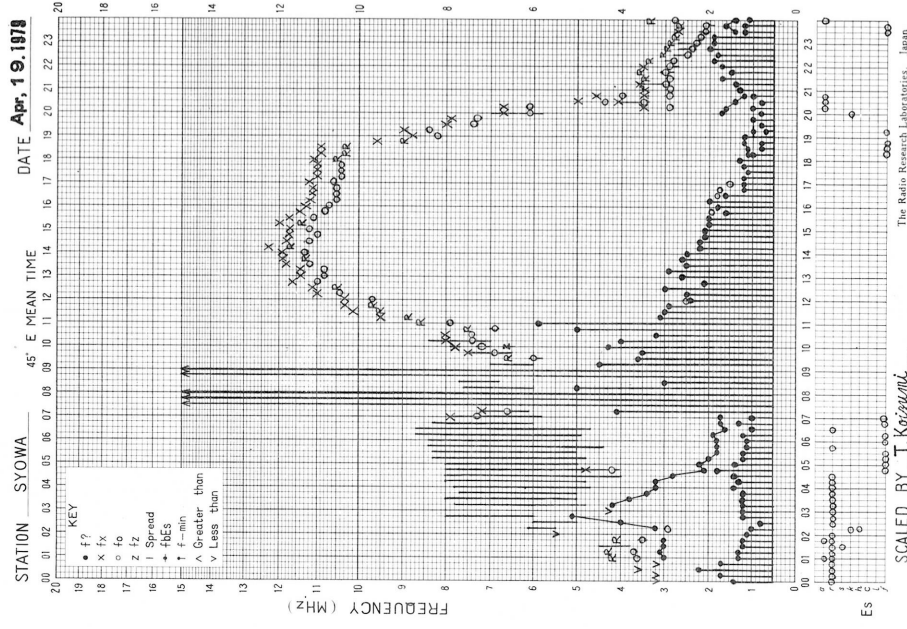
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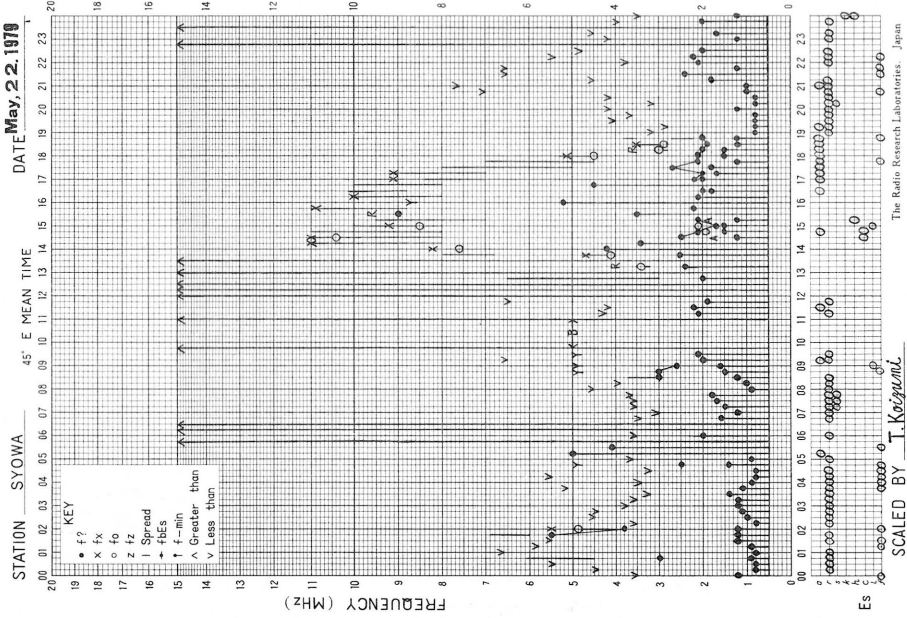
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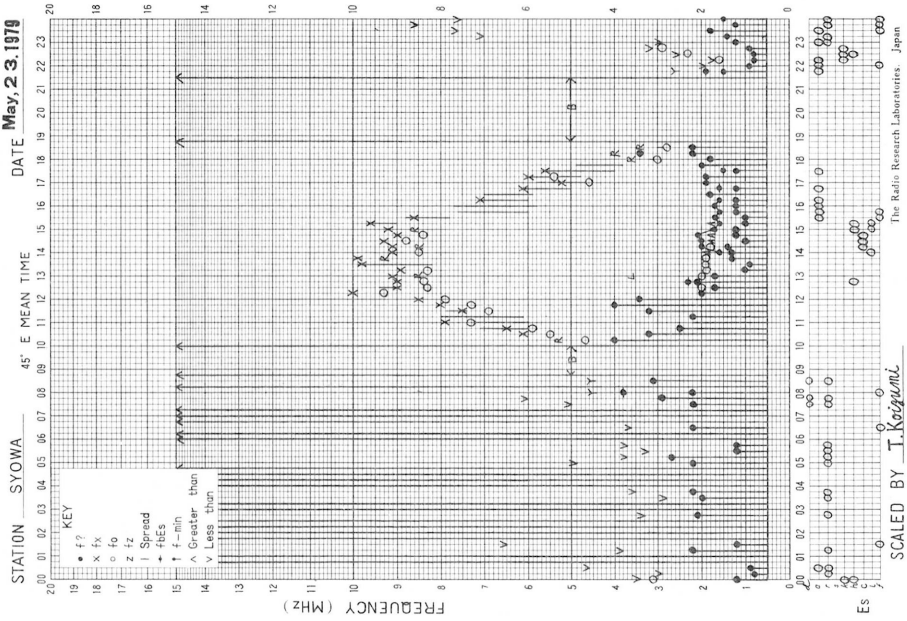
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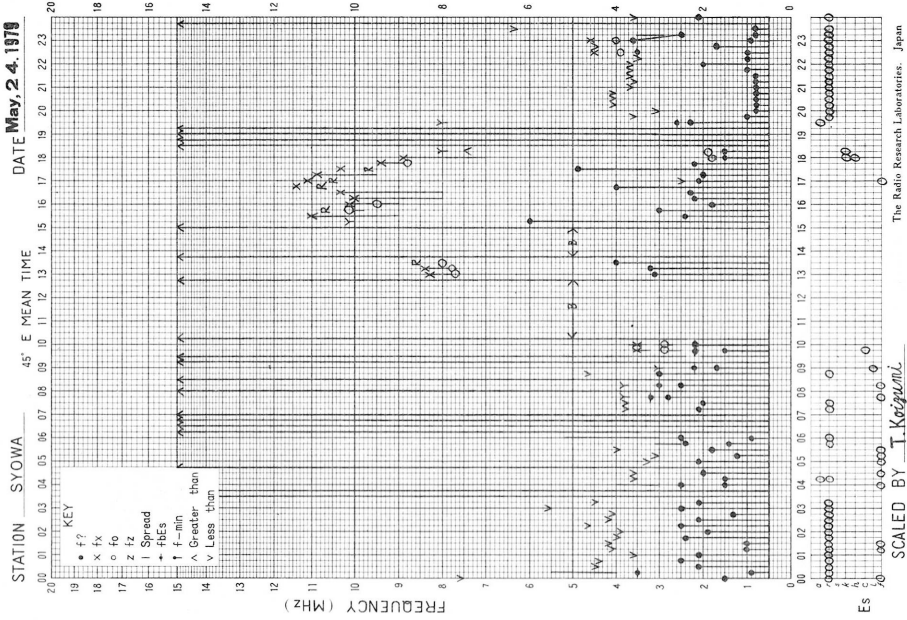
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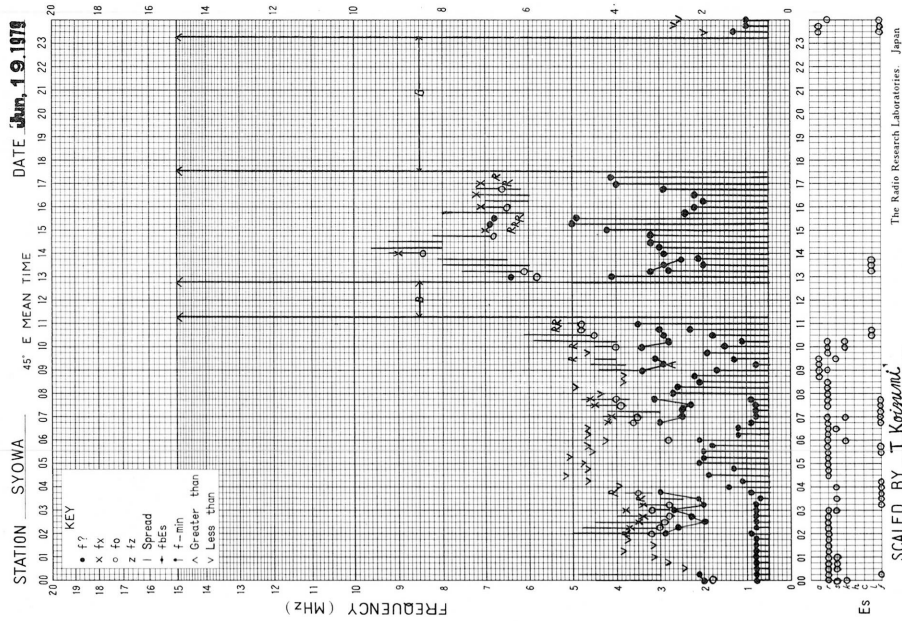
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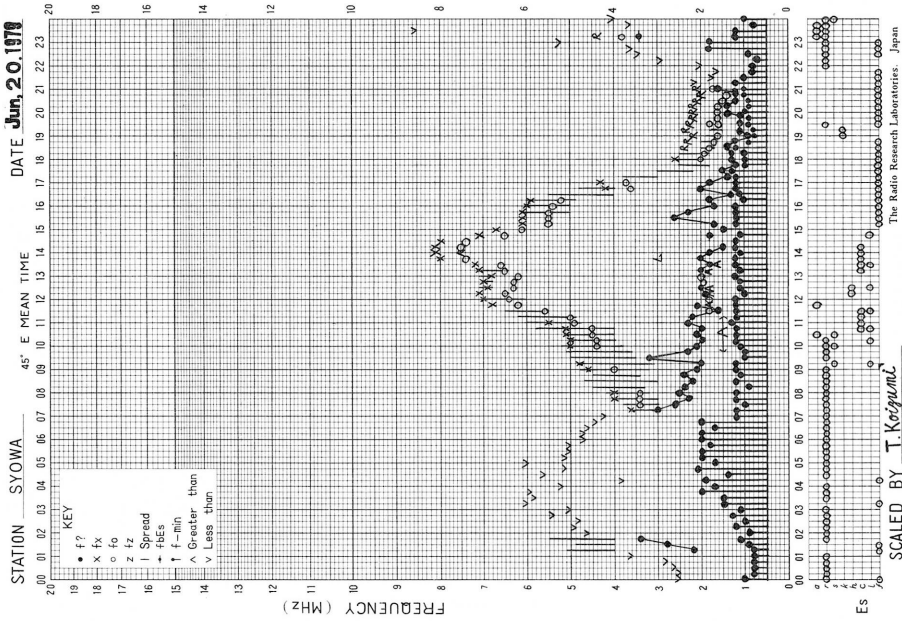
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f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA



f-PLOT OF IONOSPHERIC DATA

