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ION. ANT.—33

IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)

July 1979—December 1979

CONTENTS

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	Specificatons
Frequency Range	500 kHz−15 MHz
Transmitting Power	10 kW (peak value)
Duration of Sweep	30 sec
Transmitted Pulse Width	100 μsec
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

fxI — Top frequency of spread *F* trace

foF2, *foF1*, *foE*, *foEs* — 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, *Es*.

B Measurement influenced by, or impossible because of, absorption in the vicinity of *fmin*.

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 made accurately.

H Measurement influenced by, or impossible because of, the presence of stratification.

K Presence of particle *E* 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 infuenced 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 Volue 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 tabuation sheets.

A Less than. Uused only when *fbEs* is deduced from f_oEs 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 extra-ordinary component.

M Mode interpretation uncertain.

O Extraordinary component characterisitic 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 *foEs* must be written first. the number of multiple traces is indicated after the type letter.

The types are :

f An *Es* trace which shows no appreciable increase of height with frequency.

l A flat *Es* trace at or below normal *E* layer minimum virtual height or below the particle *E* layer minimum virtual height.

c An *Es* trace showing a relatively symmetrical cusp at or below *foE*.

h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above *foE*. The cusp is not symmetrical, the lower frequency end of the *Es* trace laying clearly above the high frequency end of the normal *E* trace.

q An *Es* trace which is diffuse and non-blaketing over a wide frequency range.

r An *Es* trace showing an increase in virtual height at the high frequency end similar to group retardation.

a An *Es* trace having a well-defined fiat or gradually rising lower edge with stratified and diffuse tracedpresent above it.

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

d A weak diffuse trace at heights below 95 km associated with high absorption and large *fmin*.

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

k The designation k is used to show the presence of particle *E*. When *foEs* > *foE* (particle *E*) the *Es* type precedes k.

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

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

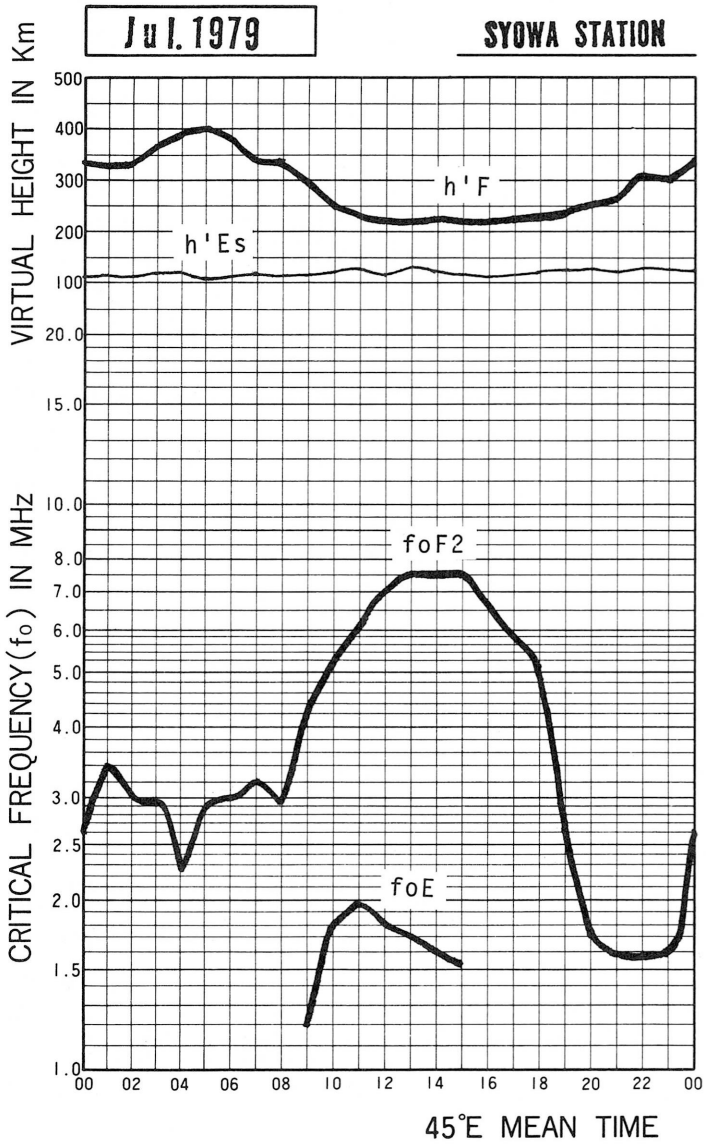
Median (MED) of a set of numbers is the middle value when the numbers are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

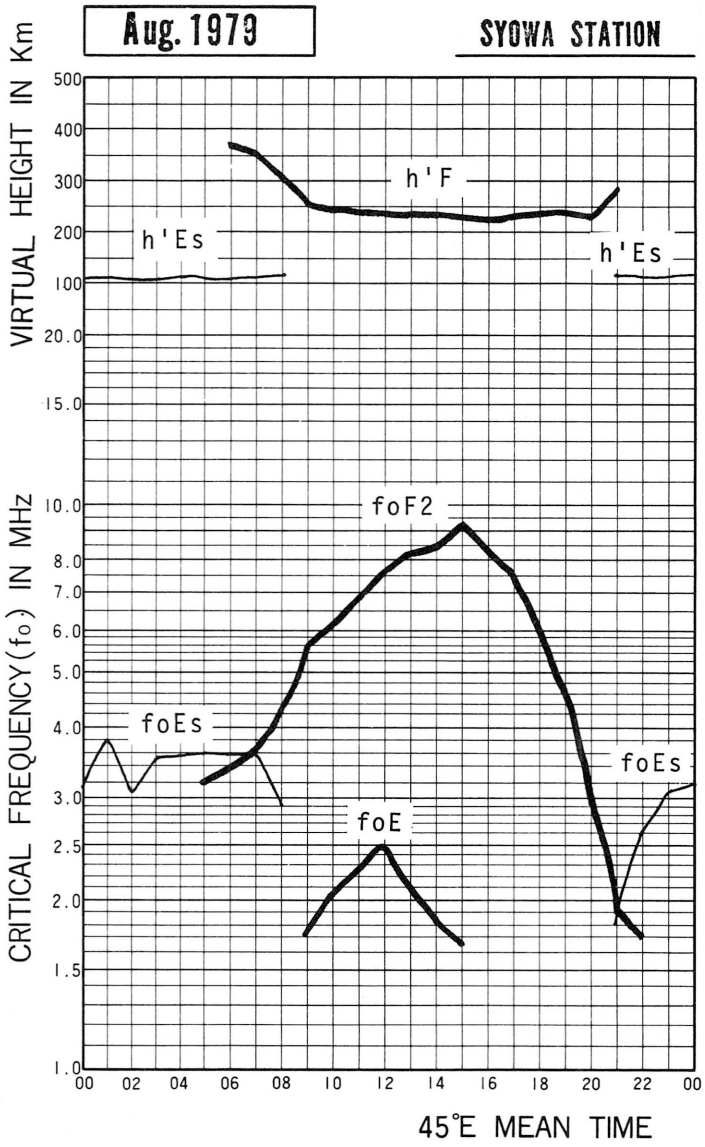
Upper quartile (UQ) is the median value the upper half of the values when they are ranked accrding to magnitude ; the lower quartile (LQ) is the median value of the lower half.

d. *f*-plot.

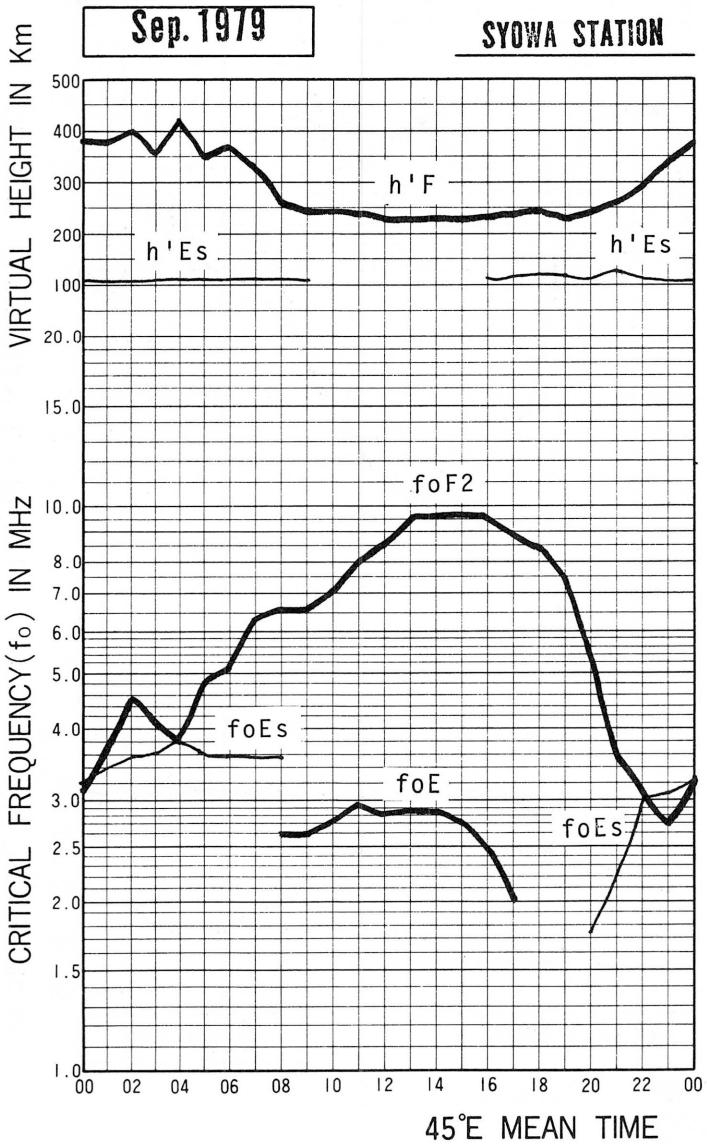
f-plots of ionospheric data are illustrated only the periods of the Regular World Days of every month.

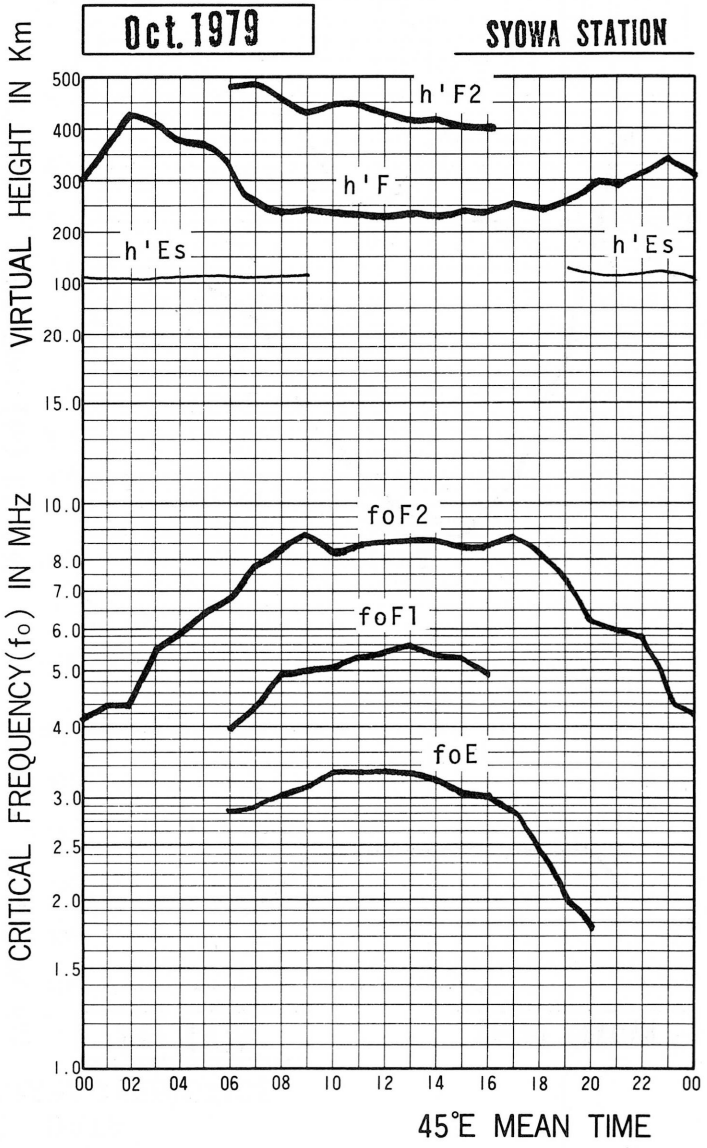
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



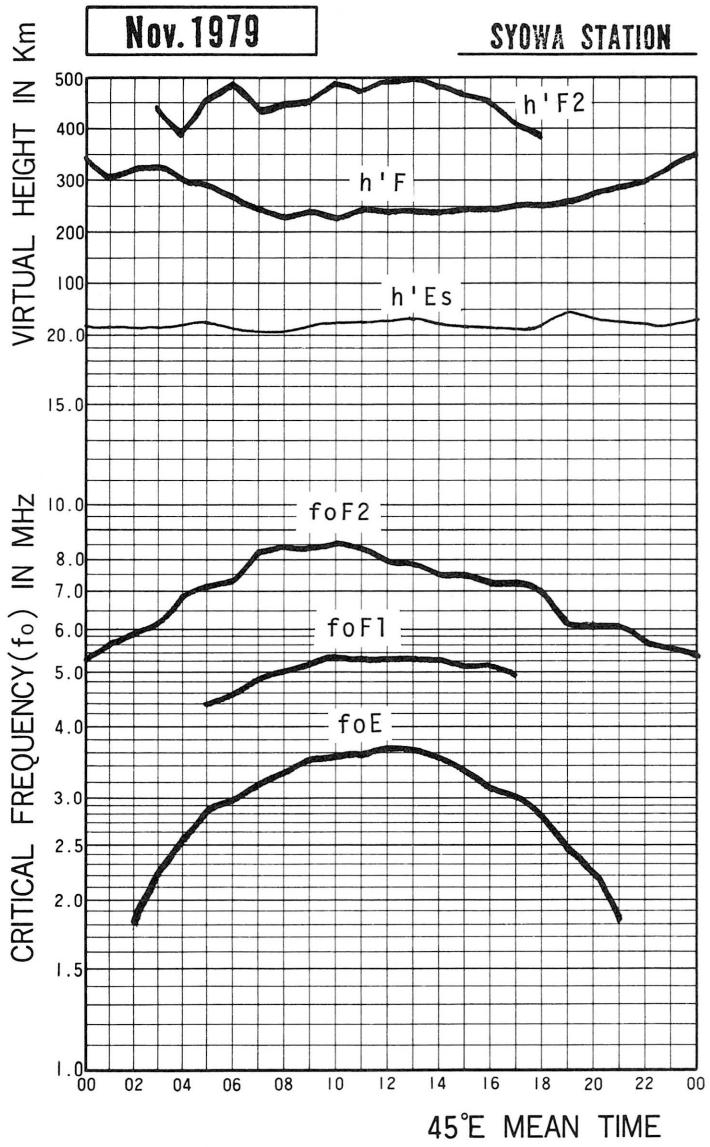


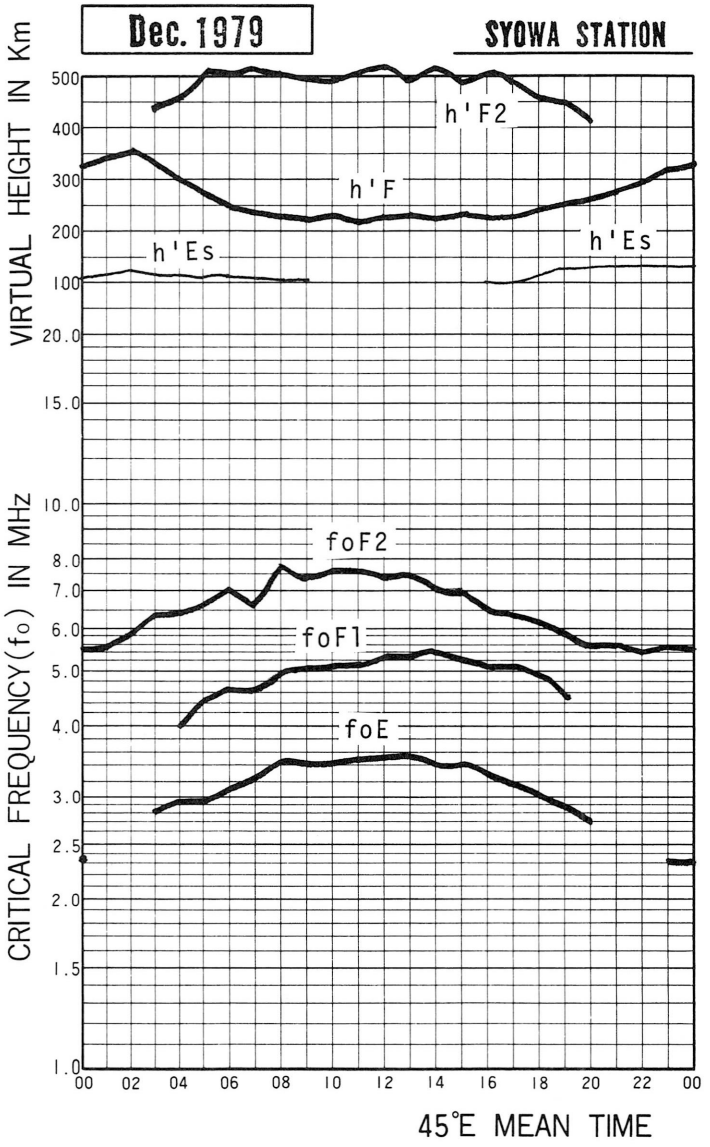
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

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

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	F	A	A	F 32	F 36	39	F	F	F 55	F 60	71	65	50	F 41	B	Y	B	F	A	A
2	A	A	A	A	A	A	A	F 32	F	F	U F 50	F	64	U R 67	83	F 75	47	F 40	F	U F 17	U R 21	U R 18	A	B
3	U F 20	A	A	A	U F 16	20	U R 20	U F 22	F 23	F	F	J F 64	J F 63	F 66	J S 70	70	63	72	61	V 41	A	A	A	A
4	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	69	Z 71	50	R 35	26	B	B	17	F
5	A	34	A	30	F 31	F 32	F 33	F 40	F 44	J F 48	J F 64	F 74	84	84	U R 102	74	74	60	50	B	B	A	15	A
6	A	A	A	A	A	A	F 30	F 26	F	F 35	C	C	F 70	F 76	75	F 76	B	B	B	B	B	B	B	A
7	B	B	B	B	B	B	B	B	B	B	F 48	B	B	R 72	U R 82	U R 81	80	J R 71	B	B	B	B	B	B
8	B	B	B	B	B	B	B	A	F 43	F 43	F 44	F 54	64	B	U R 72	B	Y	58	60	30	B	A	A	A
9	V 36	A	A	A	A	F 30	F 33	F 36	B	U F 42	F 54	B	U R 74	80	J R 87	77	74	64	F 60	F 27	A	B	Y	A
10	16	F 25	F 20	20	A	F 27	28	Y	F	F 47	F 55	64	F 66	U R 92	74	U R 77	U Y 58	F 50	U R 57	B	B	B	B	A
11	26	A	35	30	F 31	A	F 31	F	F	F 46	F 56	F 61	F 73	80	F 80	68	60	33	27	B	B	B	B	B
12	Y	A	29	A	A	F	F	F	J F 42	J F 42	J F 54	F 65	F 76	J R 96	75	66	64	J F 40	J F 40	F 22	F 15	A	A	A
13	B	A	A	A	A	B	A	A	A	A	52	F 68	F 65	F 70	R 71	F 79	F 70	R 77	67	A	A	A	A	A
14	A	F	F	A	A	A	V 35	A	F 35	F	J F 44	F 61	69	R 66	72	R 78	U R 66	R 60	56	F 33	F 15	15	F 18	F 54
15	A	B	B	B	B	B	A	B	B	A	B	B	B	B	B	B	B	J F 74	52	F 20	A	B	A	U Y 40
16	35	A	A	B	A	B	B	A	30	F 37	F 36	B	63	73	Z 78	R 63	R 72	U F 49	F 37	F 19	U R 19	16	A	A
17	A	U F 32	U Y 55	B	A	B	B	Y	B	B	42	F 55	F 70	72	75	B	F 70	72	U R 72	A	A	A	A	A
18	A	F	B	A	A	B	A	42	A	A	B	B	Z 76	F 75	F 76	Y	B	B	Y	B	15	A	A	A
19	34	A	B	B	A	A	A	B	B	F 34	41	49	60	72	F 73	U R 82	F 44	F 46	F 32	29	B	B	A	A
20	A	B	A	A	F 25	F 32	U F 30	F 32	A	B	F 41	F 64	J F 65	D Y 72	U Y 87	B	R 91	J R 92	58	A	A	A	A	A
21	A	A	A	B	B	A	B	B	B	Y	B	53	58	U R 75	B	B	J F 86	U F 72	35	18	A	A	A	A
22	A	A	A	B	B	B	A	A	B	Y	F 40	F 61	U R 71	V 75	V 70	F 65	C	49	U F 33	F	Y	U R 16	A	A
23	A	A	30	A	A	F 35	F 22	F 24	Y	F 39	F 57	F 50	J F 76	J R 79	J F 79	J F 79	U R 41	Z 51	Z 55	V 42	Y	B	Y	A
24	A	A	A	A	B	A	B	Y	A	F 41	B	F 60	79	J R 89	J R 86	61	H 55	R 72	50	Z 21	Y	Y	U Y 17	A
25	A	A	F	A	A	A	A	A	U R 46	F 48	J F 63	F 65	J R 79	R 78	74	79	61	58	F 33	F 15	B	F 15	A	15
26	A	F 21	15	F 17	R 21	F 21	F 26	U F 26	F 27	F 27	B	F 61	65	72	R 82	R 101	J R 85	J R 80	U F 77	F 33	A	A	A	A
27	A	A	A	A	B	A	U F 30	A	Y	F 45	F 54	F 55	F 57	65	67	65	F 56	F 39	U Y 32	F 23	A	A	A	A
28	A	F	A	A	A	B	B	Y	43	F 40	49	69	70	R 71	R 104	D Y 88	U R 60	43	50	22	Y	E 13	15	15
29	23	40	F 53	F 41	F	F	F	U F 63	F	F	U F 62	F 73	81	J R 99	Y	100	J R 84	F 75	J F 74	F 35	29	A	A	A
30	A	A	F	A	A	A	A	A	J R 46	F	60	70	U R 85	R 89	79	D Y 85	U R 81	D Y 90	F 71	B	Y	Y	A	U R 14
31	A	A	A	A	F 21	F 28	F 22	U F 23	F 31	F 45	66	71	J R 98	J R 89	R 104	U R 62	U Y 62	U R 50	48	31	B	U R 16	U R 15	U R 16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	5	7	5	6	8	12	12	12	17	22	22	28	28	27	25	26	29	26	19	6	7	6	6
MED	26	F 32	30	30	F 23	F 29	F 30	F 32	F 39	F 42	F 53	F 62	70	75	76	76	65	58	51	F 26	17	16	16	16
UQ	34	34	44	30	F 31	F 32	F 32	F 35	44	F 45	F 57	F 68	76	R 82	82	79	74	72	60	32	U R 21	U R 16	17	U 40
LQ	22	F 25	24	20	F 21	F 24	F 24	F 25	F 30	F 39	F 44	F 55	64	72	72	66	58	49	35	F 20	F 15	15	15	15

JUL. 1979 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

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

JUL. 1979 | FOF1 (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									K 175	B	A	A	A	A	160	A	A							
2		K 310	U A 260						K 200	U K 120	A	A	A	A	A	A	A							
3									A	A	A	A	H 180	180	A	A	A							
4									B	B	B	B	B	B	B	B	B							
5	K 190								A	130	A	160	A	A	B	B	B					K 160	K 110	
6								K 190	A	B	C	C	B	B	B	B	B							
7									B	B	B	B	B	B	B	B	B							
8									A	A	B	B	B	B	B	B	B							
9	U A 300	K 440							B	A	B	B	B	A	A	A	B							
10									A	A	A	A	180	A	A	B	B							
11								K 170	K 170	150	160	B	R	B	B	B								
12									B	110	A	110	A	A	A	A	B							
13									B	B	B	B	A	200	B	B	B							
14									B	A	180	A	A	A	A	H 120	100							
15									B	B	B	B	B	B	B	B	B			K 140			J K 330	K 340
16									B	B	150	B	B	B	B	U R 210	B	K 190				K 115		K 320
17		U K 250	K 320						B	B	A	A	A	B	160	B	B						K 220	
18									B	B	B	B	B	B	B	B	B							K 360
19					K 360				B	B	K 340	B	B	B	B	B	B	U F 150						K 130
20							K 180		A	B	A	A	190	B	B	B	B	K 190		K 190	J K 320	U K 300	K 390	K 170
21	K 400								B	B	B	B	B	B	B	B	B				K 150			K 120
22									B	B	B	A	B	B	B	B	C							
23			K 200	K 310					B	A	A	U R 200	B	195	180	F 160	B							
24	J K 360	J K 370	K 320						A	B	B	B	B	B	B	B	B							
25	K 320	K 400	K 190						B	A	A	A	200	A	165	H 155	A							
26									A	A	B	B	B	B	B	B	B				K 300	J K 350	K 620	K 510
27								K 300	A	A	A	190	R 180	B	160	B	B	135		K 120	U K 200			
28				K 380					A	190	H 190	A	155	A	A	A	B							
29		K 340	K 270	K 285			U K 330		A	A	180	200	A	160	B	A	A							
30	K 400	J K 400							U K 300	A	190	A	A	A	A	A	A							K 160
31	J K 240					K 110	U A 100		A	A 90	140	H 200	A	A	A	H 155	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	7	7	6	3	1	1	3	3	4	6	8	6	6	4	5	5	1	4		3	4	4	5	8
MED	K 320	K 370	K 265	K 310	K 360	K 110	U K 180	K 190	K 188	125	180	195	180	188	160	H 155	100	170		K 140	K 250	K 230	K 330	K 245
UQ	K 380	K 400	K 320	K 345			K 255	K 245	K 250	150	190	200	190	198	165	160		K 190		K 165	K 310	K 325	K 390	K 350
LQ	K 270	K 325	K 200	K 298			140	K 180	K 172	110	155	160	180	170	160	H 155		142		K 130	K 175	K 138	K 220	K 145

JUL. 1979 | FOE (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	H 32	J A 47	43	41	22	48	44	36	27	J A 32	42	27	30	21	J A 21	16	15	22	B	14	B	14	21	J A 29
2	J A 32	K 31	J A 49	J A 34	45	45	J A 38	40	26	16	18	18	18	J A 27	J A 24	J A 22	J A 37	J A 30	13	J A 21	12	J A 36	J A 15	B
3	18	H 29	J A 31	J A 27	19	24	J A 29	J A 31	J A 21	23	20	J A 30	G 18	24	21	J A 23	J A 33	18	24	17	J A 33	36	32	35
4	34	J A 78	50	43	J A 39	J A 35	36	B	B	B	B	B	B	B	B	E B 35	E B 17	E B 47	E B 33	E B 22	B	B	15	24
5	33	32	35	32	22	J A 23	22	J A 21	20	G 11	J A 29	G	J A 60	J A 12	E B 31	E B 34	E B 28	E B 20	E B 22	B	B	K 16	14	J A 30
6	J A 33	33	H 44	44	36	32	21	J A 15	18	E B 19	C	C	E B 22	E B 20	E B 37	E B 19	B	B	B	B	B	B	B	J A 54
7	36	B	44	B	B	B	B	B	B	B	E B 24	B	B	E B 51	E B 33	E B 45	E B 25	E B 23	B	B	B	28	27	34
8	35	31	35	B	B	36	B	J A 36	35	29	E B 34	32	27	B	E B 49	B	E B 41	E B 34	E B 14	E B 20	B	33	33	H 29
9	38	51	43	36	30	25	J A 25	J A 22	B	J A 38	20	B	E B 51	18	17	14	E B 13	E B 16	E B 12	E B 14	J A 21	B	17	24
10	17	J A 29	21	19	21	24	34	29	J A 21	21	21	18	J A 30	22	15	E B 23	E B 28	E B 20	E B 34	B	B	B	B	25
11	25	J A 37	36	50	39	37	25	K 17	G 15	G	21	E B 32	G 18	E B 26	E B 16	E B 15	19	E B 19	E B 22	B	B	B	B	B
12	20	F 33	38	J A 37	J A 37	J A 22	12	14	11	15	15	J A 30	28	J A 32	J A 27	25	15	E B 12	28	J A 38	11	38	J A 38	J A 42
13	B	J A 62	39	J A 87	J A 51	49	50	47	54	60	40	E B 22	22	21	E B 28	E B 19	E B 25	E B 10	36	32	43	29	37	36
14	38	J A 31	26	43	39	42	28	35	J A 30	J A 28	19	18	18	30	22	G 11	G	11	13	16	11	11	16	J A 31
15	J A 64	36	44	B	B	B	28	B	B	36	B	B	B	B	B	B	B	E B 21	E B 21	K 14	30	B	K 33	K 34
16	26	36	45	52	28	B	B	47	36	17	G	B	E B 49	E B 52	25	G	E B 23	K 19	18	E B 12	E B 12	13	19	K 32
17	32	28	34	B	38	52	B	36	B	B	31	21	21	E B 20	G	B	E B 33	E B 25	33	26	26	23	28	J A 67
18	70	J A 34	B	40	40	B	J A 46	40	47	49	B	B	E B 35	E B 25	E B 21	E B 42	B	B	35	B	15	18	30	K 36
19	Z 62	42	J A 44	B	K 36	34	37	B	B	E B 15	K 34	E B 20	E B 22	E B 26	E B 33	E B 20	E B 16	20	E B 19	J A 17	B	B	21	J A 38
20	J A 33	36	38	33	26	21	J A 19	J A 30	37	B	25	26	26	E B 60	E B 60	B	E B 13	31	17	26	J K 32	37	K 39	28
21	42	J A 40	J A 74	B	B	J A 38	36	B	B	36	B	E B 28	E B 28	E B 30	B	B	E B 16	27	E B 20	15	15	21	23	J A 27
22	46	40	38	27	45	52	53	36	B	33	20	22	E B 33	75	36	E B 31	C	28	19	J A 23	11	14	J A 21	22
23	H 25	29	22	K 31	J A 50	J A 21	19	J A 16	36	26	26	20	27	G 19	18	G	E B 34	E B 24	E B 21	17	18	B	13	J A 23
24	J K 36	J K 37	J K 32	26	B	J A 40	B	36	38	43	B	E B 26	23	E B 20	22	E B 16	E B 16	23	21	17	17	15	15	J A 29
25	K 32	K 40	J A 34	J A 36	31	J A 40	37	50	44	J A 34	23	21	G 18	23	G 14	G 15	18	E B 14	E B 13	E B 13	B	E B 12	16	J A 14
26	16	J A 30	J A 32	J A 25	J A 18	15	J A 25	J A 37	J A 29	J A 30	B	E B 23	E B 41	E B 51	E B 45	E B 39	E B 24	E B 20	J A 21	11	K 30	J K 35	K 62	K 51
27	39	37	34	38	B	38	24	26	32	29	55	26	G	26	24	E B 18	E B 24	G	E B 19	16	26	J A 31	J A 44	J A 46
28	J A 39	J A 36	48	58	29	B	47	28	37	24	20	29	26	27	26	23	15	18	E B 20	E B 13	15	11	12	J A 29
29	26	36	J A 31	40	J A 33	22	36	40	36	22	G 15	G 16	20	46	30	J A 33	J A 20	28	E B 12	E B 17	J A 32	J A 37	J A 40	J A 50
30	K 40	K 40	J A 27	J A 50	J A 47	J A 40	J A 42	J A 30	J A 31	J A 25	G 13	J A 28	J A 36	J A 44	J A 36	21	18	E B 30	E B 20	B	21	14	J A 24	J A 19
31	J K 24	J A 31	J A 36	29	J A 37	46	J A 38	J A 21	J A 50	16	J A 22	G 14	J A 30	17	J A 72	G 15	16	J A 17	15	E B 18	B	E B 13	E B 12	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	30	25	25	26	26	26	23	27	24	24	28	28	28	26	27	29	28	24	20	23	28	29
MED	33	36	37	37	36	36	35	33	32	26	21	20	U 22	U 22	U 22		E B 19	E B 20	E B 20	16	20	21	22	J A 30
UQ	39	40	44	43	39	42	38	37	37	34	29	27	U 30	U 32	E B 34	E B 31	E B 26	U 24	22	22	30	34	33	J A 36
LQ	26	31	32	31	28	24	25	J A 22	24	17	20	18	19	19	21	E G 15	16	E B 18	E B 16	13	14	14	16	J A 25

JUL. 1979 | FOES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A A 32	A A 47	A A 43	A A 41	22	A A 48	A A 44	23	12	32	38	23	24	19	12	14	12	15	B	U Y 14	B	12	A A 21	A A 29
2	A A 32	A A 31	A A 49	A A 34	A A 45	A A 45	A A 38	25	G	U K 12	12	17	17	16	19	11	28	21	11	12	12	12	A A 15	B
3	17	A A 29	A A 31	A A 27	14	14	15	13	10	12	12	15	G 14	15	15	13	16	12	19	16	A A 33	A A 36	A A 32	A A 35
4	A A 34	E B 40	A A 50	A A 43	A A 39	A A 35	A A 36	B	B	B	B	B	B	B	B	E B 35	E B 17	E B 47	E B 33	E B 22	B	B	15	U Y 24
5	A A 33	30	A A 35	21	20	20	19	15	14	G 9	12	G	20	12	E B 31	E B 34	E B 28	E B 20	E B 22	B	B	A A 16	12	A A 30
6	A A 33	A A 33	A A 44	A A 44	A A 36	A A 32	21	G 14	16	E B 19	C	C	E B 22	E B 20	E B 37	E B 19	B	B	B	B	B	B	B	A A 54
7	E B 27	B	E B 33	B	B	B	B	B	B	B	E B 24	B	B	E B 51	E B 33	E B 45	E B 25	E B 23	B	B	B	E B 23	E B 22	E B 23
8	E B 20	E B 25	E B 22	B	B	E B 25	B	A A 36	32	24	E B 34	32	E B 25	B	E B 49	B	E B 41	E B 34	E B 14	E B 20	B	A A 33	A A 33	A A 29
9	32	A A 51	A A 43	A A 36	A A 30	21	21	22	B	22	U Y 20	B	E B 51	17	16	12	E B 13	E B 16	E B 12	E B 14	A A 21	B	U Y 17	A A 24
10	14	19	15	19	A A 21	21	22	U Y 29	18	16	13	17	16	19	15	E B 23	E B 28	E B 20	E B 34	B	B	B	B	A A 25
11	24	A A 37	28	28	24	A A 37	22	K 17	G 15	G	G	E B 32	U Y 18	E B 26	E B 16	E B 15	19	E B 19	E B 22	B	B	B	B	B
12	U Y 20	A A 33	23	A A 37	A A 37	18	12	12	11	12	12	16	16	16	16	21	15	E B 12	18	10	10	A A 38	A A 38	A A 42
13	B	A A 62	A A 39	A A 87	A A 51	E B 30	A A 50	A A 47	A A 54	A A 60	33	E B 22	22	G	E B 28	E B 19	E B 25	E B 10	35	A A 32	A A 43	A A 29	A A 37	A A 36
14	A A 38	28	21	A A 43	A A 39	A A 42	29	A A 35	23	24	G	16	15	16	14	G 10	G	11	12	15	10	10	14	22
15	A A 64	E B 25	E B 25	B	B	B	A A 28	B	B	A A 36	B	B	B	B	B	B	B	E B 21	E B 20	K 14	A A 30	B	K 33	K 34
16	26	A A 36	A A 45	E B 32	A A 28	B	B	A A 47	26	16	G	B	E B 49	E B 52	24	G	E B 23	K 19	12	E B 12	E B 12	13	A A 19	A A 32
17	A A 32	U F 32	33	B	A A 38	E B 33	B	U Y 36	B	B	20	21	19	E B 20	G	B	E B 33	E B 25	33	A A 26	A A 26	A A 23	A A 28	A A 67
18	A A 70	18	B	A A 40	A A 40	B	A A 46	35	A A 47	A A 49	B	B	E B 35	E B 25	E B 21	E B 42	B	B	U Y 35	B	14	A A 18	A A 30	K 36
19	33	A A 42	E B 32	B	A A 36	A A 34	A A 37	B	B	E B 15	K 34	E B 20	E B 22	E B 26	E B 33	E B 20	E B 16	18	E B 19	16	B	B	A A 21	A A 38
20	A A 33	E B 26	A A 38	A A 33	22	20	15	18	A A 37	B	22	26	G	E B 60	E B 60	B	E B 13	K 19	U Y 17	A A 26	J K 32	G	K 39	A A 28
21	A A 42	A A 40	A A 74	B	B	A A 33	E B 23	B	B	U Y 24	B	E B 28	E B 28	E B 30	B	B	E B 16	22	E B 20	12	A A 15	A A 21	A A 23	A A 27
22	A A 46	A A 40	A A 38	E B 24	E B 33	E B 35	A A 53	A A 36	B	U Y 33	U Y 20	21	E B 33	E B 41	E B 31	E B 31	C	22	13	11	U Y 11	14	A A 21	A A 22
23	A A 25	A A 29	K 20	K 31	A A 50	21	22	16	U Y 36	21	21	17	21	G 18	16	G	E B 34	E B 24	E B 24	17	U Y 18	B	U Y 13	A A 23
24	K 36	K 37	K 32	A A 26	B	A A 40	B	U Y 36	A A 38	32	B	E B 26	23	E B 20	22	E B 16	E B 16	16	20	14	U Y 17	U Y 15	15	A A 29
25	K 32	K 40	21	A A 36	A A 31	A A 40	A A 37	A A 50	35	23	18	19	G 17	19	U Y 14	G 14	14	E B 14	E B 13	E B 13	B	E B 12	A A 16	11
26	A A 16	13	14	12	12	12	12	22	18	18	B	E B 23	E B 41	E B 51	E B 45	E B 39	E B 24	E B 20	15	11	K 30	K 35	K 62	K 51
27	A A 39	A A 37	A A 34	A A 38	B	A A 38	24	A A 30	U Y 32	24	23	G	G	24	G	E B 18	E B 24	G	E B 19	13	A A 26	A A 31	A A 44	A A 46
28	A A 39	21	33	A A 58	A A 29	B	E B 29	U Y 28	30	G	G	21	21	20	20	21	13	16	E B 20	E B 13	U Y 15	10	12	13
29	21	K 34	U K 27	U K 29	31	U F 22	U K 33	40	23	18	G 12	G 14	20	20	24	18	12	23	E B 12	E B 17	23	A A 37	A A 40	A A 50
30	A A 40	A A 40	21	A A 50	A A 47	A A 40	A A 42	A A 30	U K 30	20	G 12	23	28	23	24	21	18	E B 30	E B 20	B	18	U Y 14	A A 24	12
31	A A 24	A A 31	A A 36	A A 29	17	17	14	12	21	15	16	G 14	21	21	21	G 14	13	15	13	E B 18	B	E B 13	E B 12	13
	00	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	25	25	26	26	26	23	27	24	24	28	28	28	26	27	29	28	24	20	23	28	29
MED	A A 32	A A 32	33	A A 34	A A 31	U 27	24	28	23	20	U 14	U 18	U 18	U 17	U 17		E B 17	E B 19	E B 19	13	18	16	A A 22	A A 29
UQ	A A 38	A A 40	A A 39	A A 41	A A 39	A A 38	A A 37	A A 36	34	24	21	22	E B 26	E B 26	E B 31	E B 23	E B 25	E B 22	E B 22	17	A A 28	A A 30	A A 33	A A 36
LQ	24	28	22	28	22	20	20	17	16	14	12	16	17	17	15	12	13	14	12	12	13	12	15	A A 23

JUL. 1979 | FBES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	9	16	13	12	12	24	12	8	10	20	13	13	18	16	9	11	9	13	B	12	B	8	8	8
2	8	8	9	21	21	25	19	10	12	10	9	11	10	9	8	9	8	8	8	9	9	10	9	B
3	9	8	8	8	12	10	12	10	8	9	9	8	9	9	12	9	8	9	15	R 11	9	9	8	8
4	17	40	18	16	16	20	21	B	B	B	B	B	B	B	B	35	17	47	33	22	B	B	10	12
5	9	8	12	8	8	9	8	8	8	8	8	10	14	16	31	34	28	20	22	B	B	10	8	8
6	12	9	8	19	13	12	13	10	13	19	C	C	22	20	37	19	B	B	B	B	B	B	B	21
7	27	B	33	B	B	B	B	B	B	B	24	B	B	51	33	45	25	23	B	B	B	23	22	23
8	20	25	22	B	B	25	B	25	16	18	34	25	25	B	49	B	41	34	14	20	B	14	14	14
9	17	22	17	16	13	13	13	13	B	13	17	B	51	16	11	10	13	16	12	14	14	B	10	10
10	12	10	9	12	12	12	12	25	13	9	12	9	9	16	12	23	28	20	34	B	B	B	B	8
11	9	11	11	12	12	16	9	9	9	10	14	32	16	26	16	15	16	19	22	B	B	B	B	B
12	12	9	9	9	12	9	9	8	9	8	8	8	10	9	8	9	10	12	10	9	8	13	9	11
13	B	10	26	15	14	30	16	22	9	31	21	22	17	14	28	19	25	10	11	12	12	11	9	8
14	9	8	9	16	11	11	12	16	10	10	9	9	11	9	9	8	9	8	9	9	9	9	8	8
15	8	25	25	B	B	B	13	B	B	8	B	B	B	B	B	B	B	21	21	8	10	B	8	25
16	18	20	21	32	17	B	B	22	17	12	12	B	49	52	23	16	23	16	11	12	12	9	8	8
17	22	12	16	B	23	33	B	23	B	B	16	17	10	20	14	B	33	25	22	10	17	13	9	9
18	8	8	B	21	20	B	12	11	23	23	B	B	35	25	21	42	B	B	25	B	12	10	8	8
19	12	17	32	B	16	17	17	B	B	15	17	20	22	26	33	20	16	9	19	12	B	B	14	8
20	8	26	20	13	12	9	11	12	16	B	17	21	9	60	60	B	13	9	12	11	9	8	9	12
21	9	9	23	B	B	20	23	B	B	24	B	28	28	30	B	B	16	17	20	10	10	12	11	9
22	13	21	20	24	33	35	22	20	B	20	15	14	33	41	31	31	C	14	10	9	8	10	8	8
23	8	8	8	8	8	9	8	10	26	12	16	12	20	14	12	12	34	24	21	12	14	B	12	8
24	8	10	16	14	B	15	B	33	16	13	B	26	19	20	19	16	16	12	12	9	13	10	13	9
25	10	10	9	9	14	9	12	14	9	13	10	12	13	19	9	9	7	14	13	13	B	12	9	8
26	R 12	8	8	8	8	8	8	8	8	10	B	23	41	51	45	39	24	20	12	9	12	8	12	12
27	9	14	18	14	B	13	20	8	12	16	9	12	15	18	15	18	24	10	19	9	19	8	12	9
28	8	8	10	12	13	B	29	21	10	12	12	15	12	13	12	12	12	13	20	13	12	8	9	8
29	8	8	9	8	9	8	12	14	9	9	8	12	12	13	22	14	8	20	12	17	8	8	8	9
30	9	8	8	21	16	12	10	12	21	10	8	9	14	14	17	14	13	30	20	B	R 16	9	8	8
31	8	9	9	8	9	8	8	8	8	8	8	9	13	11	12	13	14	12	12	18	B	13	12	12
	00	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	30	30	31	31	31	31	30	31	31	31	31	31	31	31
MED	9	10	13	15	14	15	13	14	13	13	14	16	17	19	19	18	16	16	19	12	14	11	9	9
UQ	12	18	20	22	22	23	22	24	D B 26	20	24	28	30	36	33	37	28	22	22	21	B	D B 23	12	12
LQ	8	8	9	10	12	10	12	10	9	10	9	11	12	14	12	12	12	12	12	10	10	9	8	8

JUL. 1979 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	F	A	A	F 250	F 250	250	F	F	F 290	F 290	325	330	315	F 310	B	Y	B	F	A	A
2	A	A	A	A	A	A	A	F 250	F	F	U F 285	F	320	U R 320	340	F 340	340	F 310	F	U F 320	U R 310	U R 360	A	B
3	U F 310	A	A	A	F	260	U R 260	U F 260	F 250	F	F	J F 310	J F 330	F 300	J S 270	285	275	300	320	V 320	A	A	A	A
4	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	320	Z 310	B	B	350	B	B	A	F
5	A	300	A	270	F 260	F 260	F 240	F 270	F 260	J F 250	J F 300	F 300	285	300	U R 300	280	290	300	320	B	B	A	280	A
6	A	A	A	A	A	A	F 250	F 250	F	F 270	C	C	F 290	F 300	300	F 300	B	B	B	B	B	B	B	A
7	B	B	B	B	B	B	B	B	B	B	F 290	B	B	R 310	U R 310	U R 315	315	J R 300	B	B	B	B	B	B
8	B	B	B	B	B	B	B	A	F 290	F 285	F 320	F 300	330	B	U R 320	B	Y	325	320	350	B	A	A	A
9	V 310	A	A	A	A	F 270	F 260	F 260	B	U F 280	F 300	B	U R 310	330	J R 335	320	310	310	F 300	F 340	A	B	Y	A
10	290	F 300	F 295	280	A	F 270	260	Y	F	F 290	F 330	330	F 320	U R 330	320	U R 320	U Y 310	F 305	U R 305	B	B	B	B	A
11	270	A	320	A	F 260	A	F 275	F	F	F 290	F 290	F 300	F 290	315	F 330	340	325	325	325	B	B	B	B	B
12	Y	A	310	A	A	F	F	F	J F 300	J F 315	J F 320	F 340	F 300	J R 340	320	330	345	J F 330	J F 350	F 310	F 290	A	A	A
13	B	A	A	A	A	B	A	A	A	A	270	F 310	F 300	F 300	R 320	F 320	F 320	R 320	290	A	A	A	A	A
14	A	F	F	A	A	A	A	A	F 250	F	J F 295	F 330	310	R 310	320	R 330	U R 340	R 320	305	F 350	F 350	300	F 320	F 340
15	A	B	B	B	B	B	A	B	B	A	B	B	B	B	B	B	B	J F 320	340	F 310	A	B	A	U Y 340
16	300	A	A	B	A	B	B	A	250	F 270	F 310	B	335	340	Z 335	R 330	R 330	U F 320	F 380	F 310	U R 300	290	A	A
17	A	U F 310	U Y 300	B	A	B	B	Y	B	B	300	F 320	F 320	315	310	B	F 300	285	U R 335	A	A	A	A	A
18	A	F	B	A	A	B	A	285	A	A	B	B	Z 320	F 330	F 320	Y	B	B	Y	B	320	A	A	A
19	320	A	B	B	A	A	A	B	B	F 290	320	300	360	330	F 320	U R 335	F 320	F 320	F 340	R 320	B	B	A	A
20	A	B	A	A	F 270	F 270	U F 270	F 270	A	B	F 290	F 320	J F 300	Y	U Y 310	B	R 295	J R 310	325	A	A	A	A	A
21	A	A	A	B	B	A	B	B	B	Y	B	300	310	U R 330	B	B	U F 330	U F 360	340	390	A	A	A	A
22	A	A	A	B	B	B	A	A	B	Y	F 290	F 320	U R 320	V 350	V 310	F 320	C	330	U F 330	F	Y	U R 300	A	A
23	A	A	280	A	A	F 270	F 260	F 270	Y	F 290	F	F 350	J F 340	J R 330	J F 330	J F 370	U R 330	Z 320	Z 340	V 380	Y	B	Y	A
24	A	A	A	A	B	A	B	Y	A	F 280	B	F 330	310	J R 350	J R 390	300	H 320	R 330	390	Z 330	Y	Y	U Y 320	A
25	A	A	F	A	A	A	A	A	U R 285	F 320	J F 310	F 350	J R 350	R 370	320	340	350	340	F 380	F 320	B	F 310	A	310
26	A	F 300	290	F 270	R 245	F 270	F 250	U F 270	F 270	F 295	B	F 300	320	315	R 340	R 310	J R 315	J R 320	U F 340	F 320	A	A	A	A
27	A	A	A	A	B	A	U F 310	A	Y	F 300	F 290	F 280	F 300	310	320	340	F 320	F 300	U Y 310	F 330	A	A	A	A
28	A	F	A	A	A	B	B	Y	275	F 300	280	320	320	R 350	R 350	Y	U R 360	J R 280	370	370	Y	320	290	A
29	A	A	F 350	F 300	F	F	F	U F 260	F	F	U F 290	F 300	310	J R 330	Y	310	J R 285	F 315	J F 320	F 310	310	A	A	A
30	A	A	F	A	A	A	A	A	J R 245	F	310	290	U R 320	R 340	330	Y	U R 310	Y	F 335	B	Y	Y	A	U R 340
31	A	A	A	A	F 260	F 240	F 260	U F 250	F 270	F 295	320	310	J R 350	J R 350	R 340	U R 310	Y	U R 260	350	350	B	U R 320	U R 340	U R 285
	00	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	4	7	4	5	8	11	12	12	17	21	22	28	27	27	23	25	27	25	19	6	7	5	5
MED	305	F 300	300	275	F 260	F 270	F 260	F 260	F 265	F 290	F 300	F 310	320	330	320	320	320	320	335	F 330	310	310	320	U 340
UQ	310	305	315	290	F 260	F 270	F 265	F 270	F 280	F 295	F 310	F 330	325	R 340	332	332	330	322	340	350	320	320	U 320	U 340
LQ	290	F 300	292	270	F 260	F 260	F 255	F 250	F 250	F 280	F 290	F 300	300	310	315	310	310	302	320	F 320	300	300	290	U R 310

IONOSPHERIC DATA

JUL. 1979 | H'F2 (KM) | 45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00' .4 S, Long. 39° 35' .4 E Sweep 5 MHz to 15 MHz in 20 sec in automatic operation

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

JUL. 1979 | H'F2 (KM)

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	Q 350	A	A	E A 430	385	A	A	255	230	240	230	210	205	210	B	Y	B	A	A	A
2	A	A	A	A	A	A	A	A	340	250	235	230	205	200	210	195	230	225	220	275	270	230	A	B
3	A	A	A	A	E A 425	400	400	350	290	300	255	235	230	225	295	220	240	250	235	250	A	A	A	A
4	A	B	A	A	A	A	A	B	B	B	B	B	B	B	B	250	250	B	B	255	B	B	A	290
5	A	370	A	385	410	415	400	315	340	325	250	250	235	250	B 240	E B 290	270	230	245	B	B	A	350	A
6	A	A	A	A	A	A	A 400	375	H 335	340	C	C	270	225	B 240	255	B	B	B	B	B	B	B	A
7	B	B	B	B	B	B	B	B	B	B	290	B	B	E B 295	215	265	225	255	B	B	B	B	B	B
8	B	B	B	B	B	B	B	A	A 355	330	E B 300	300	230	B	275	B	E Y 265	275	235	B 250	B	A	A	A
9	E A 325	A	A	A	A	420	405	375	B	275	245	B	275	220	205	210	230	230	230	240	A	B	Y	A
10	A	330	A	A	A	A 390	E A 440	Y	245	275	235	205	215	235	H 205	240	220	250	285	B	B	B	B	A
11	A	A	E A 360	A	E A 435	A	A	290	295	290	245	255	245	220	220	200	225	250	E B 290	B	B	B	B	B
12	375	A	340	A	A	A	335	240	255	200	235	225	220	210	195	205	225	200	215	225	290	A	A	A
13	B	A	A	A	A	B	A	A	A	A	335	245	215	225	225	235	245	235	325	A	A	A	A	A
14	A	370	F	A	A	A	A	A	375	300	265	220	200	210	215	205	200	210	225	225	220	305	A 305	210
15	A	B	B	B	B	B	A	B	B	A	B	B	B	B	B	B	B	230	230	290	A	B	A	290
16	A 330	A	A	B	A	B	B	A	A	320	275	B	E B 280	B 250	225	200	235	260	225	280	E B 310	360	A	A
17	A	270	300	B	A	B	B	Y	B	B	270	230	210	210	210	B	200	E B 305	240	A	A	A	A	A
18	A	F 320	B	A	A	B	A	400	A	A	B	B	B 245	225	225	250	B	B	Y	B	E A 330	A	A	A
19	A	A	B	B	A	A	A	B	B	E B 325	325	235	225	225	215	215	205	200	260	220	B	B	A	A
20	A	B	A	A	A	385	340	350	A	B	290	260	220	E B 310	B	B	B	A	230	A	A	A	A	A
21	A	A	A	B	B	A	B	B	B	Y	B	B 260	250	235	B	B	B	F 205	240	215	A	A	A	A
22	A	A	A	B	B	B	A	A	B	Y	290	240	230	B 220	235	225	C	235	235	225	U Y 285	E A 390	A	A
23	A	A	380	A	A	350	Q 320	315	Y	350	225	195	225	230	210	205	E B 290	260	240	210	Y	B	Y	A
24	A	A	A	A	B	A	B	Y	A	E A 350	B	225	225	225	205	225	H 180	225	205	240	Y	Y	A 325	A
25	A	A	F 350	A	A	A	A	A	350	270	225	225	220	200	235	205	195	225	200	B 275	B	B 235	A	300
26	A	A 320	A 400	E A 375	A 390	A 365	A 345	E A 400	A 335	A 325	B	E B 290	E B 275	E B 275	E B 255	235	220	225	225	230	A	A	A	A
27	A	A	A	A	B	A	E A 340	A	Y	285	285	H 240	H 200	250	230	230	240	H 200	E B 270	255	A	A	A	A
28	A	U F 360	A	A	A	B	B	Y	310	260	235	230	200	215	225	200	H 170	250	225	220	Y	285	E A 350	A
29	A	325	225	340	A	F	Q 520	E A 430	370	260	230	220	225	230	240	210	200	240	210	255	E A 340	A	A	A
30	A	A	U F 300	A	A	A	A	A	455	325	245	225	A 240	235	H 200	200	225	230	225	B	225	Y	A	290
31	A	A	A	A	A	440	370	340	A 380	255	210	225	240	235	230	200	185	325	220	225	B	E B 300	E B 225	E A 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	3	8	8	3	5	8	12	13	16	21	23	24	28	28	27	26	25	27	26	20	8	7	5	6
MED	A 330	328	332	375	U A 380	395	372	U 332	340	292	248	231	226	225	225	211	222	230	229	240	U 255	U 268	A 315	290
UQ	352	365	370	380	E A 425	418	401	U 375	372	325	284	250	240	236	234	235	235	250	240	255	E E 320	318	A 350	295
LQ	A 328	320	300	349	390	375	340	315	302	270	235	225	218	220	210	205	200	225	225	225	248	U 246	A 305	290

JUL. 1979 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	115	105	100	105	115	100	100	105	120	105	100	105	120	115	100	100	100	100	B	175	B	150	H 125	120
2	110	K 110	110	125	110	105	100	100	145	170	140	130	125	120	110	120	105	100	120	120	100	105	100	B
3	140	115	110	115	110	100	105	110	105	130	100	100	105	115	105	100	95	100	135	130	120	100	105	110
4	105	105	100	105	105	110	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	160	120
5	H 130	125	125	120	H 110	120	115	120	H 125	110	125	G	105	110	B	B	B	B	B	B	B	K 135	140	105
6	120	120	H 105	105	115	115	130	115	110	B	C	C	B	B	B	B	B	B	B	B	B	B	B	105
7	115	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	115	120	115
8	115	125	115	B	B	125	B	120	105	110	B	115	125	B	B	B	B	B	B	B	B	120	115	H 115
9	125	115	130	115	110	125	125	130	B	120	140	B	B	125	105	105	B	B	B	B	125	B	155	135
10	120	125	120	115	115	160	130	100	135	125	120	125	100	140	105	B	B	B	B	B	B	B	B	130
11	130	120	120	115	110	115	110	K 120	105	G	130	B	115	B	B	B	105	B	B	B	B	B	B	B
12	135	110	120	110	105	125	125	120	150	140	235	105	110	105	100	105	110	B	115	110	150	105	110	120
13	B	100	115	105	110	110	105	120	105	120	105	B	125	E G 150	B	B	B	B	110	120	115	105	120	105
14	A 120	120	115	115	100	105	A 130	110	110	115	150	115	120	110	110	105	G	110	140	125	125	120	135	120
15	105	115	115	B	B	B	110	B	B	100	B	B	B	B	B	B	B	B	B	K 130	110	B	K 100	K 115
16	120	110	110	100	100	B	B	95	105	130	G	B	B	B	125	G	B	K 130	115	B	B	160	130	K 110
17	130	120	150	B	100	100	B	110	B	B	110	120	115	B	G	B	B	B	125	125	110	105	160	140
18	125	120	B	110	110	B	105	105	110	100	B	B	B	B	B	B	B	B	115	B	145	130	A 120	K 105
19	105	100	100	B	K 110	105	105	B	B	B	K 100	B	B	B	B	B	B	120	B	100	B	B	135	125
20	115	100	100	110	105	100	105	125	100	B	115	110	155	B	B	B	B	130	150	130	K 110	155	K 110	115
21	145	105	110	B	B	100	100	B	B	100	B	B	B	B	B	B	B	120	B	150	110	105	105	130
22	115	100	110	120	105	105	110	100	B	100	100	100	B	115	100	B	C	125	120	110	115	135	140	120
23	H 115	115	E G 200	K 115	100	100	130	135	130	100	100	95	135	100	100	G	B	B	B	100	100	B	120	150
24	K 115	K 110	K 125	130	B	100	B	105	100	100	B	B	135	B	145	B	B	100	105	105	105	105	150	125
25	K 120	K 110	130	105	125	115	100	100	100	110	145	160	100	120	100	100	100	B	B	B	B	B	105	110
26	170	120	110	110	100	100	100	100	95	95	B	B	B	B	B	B	B	B	100	100	K 125	K 120	K 100	A 105
27	100	A 115	115	A 115	B	105	115	100	125	110	110	135	G	145	150	B	B	G	B	185	150	135	110	105
28	A 115	110	110	125	100	B	120	100	100	E G 180	140	130	130	125	105	115	115	110	B	B	105	175	150	125
29	115	105	140	135	110	110	125	100	110	125	105	105	125	125	125	105	100	100	B	B	105	110	115	100
30	K 110	K 105	125	100	100	100	105	100	100	115	105	120	120	105	105	105	105	B	B	B	180	150	120	155
31	K 110	120	H 110	105	150	140	110	105	100	150	140	100	120	105	110	150	110	110	110	B	B	B	B	140
	00	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	25	25	26	26	26	23	24	21	17	19	17	17	11	10	13	13	16	19	21	27	29
MED	115	112	115	115	110	105	110	105	105	111	115	115	120	115	105	105	105	110	115	122	115	120	120	120
UQ	125	120	125	115	110	115	125	120	122	126	140	125	125	125	110	110	110	120	125	130	125	135	138	125
LQ	115	105	110	105	100	100	105	100	100	100	105	105	112	110	100	102	100	100	110	108	108	105	110	110

JUL. 1979 | H'ES (KM)

IONOSPHERIC DATA

JUL. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	RF 51	R 2	R 2	R 2	FS 11	F 1	R 2	R 3	RKS 11	R 1	R 2	C 1	L 1	C 1	L 1	L 1	L 1	F 1		R 1		R 2	RA 11	RR 21
2	R 2	K 4	CK 55	R 1	R 1	R 1	R 1	R 2	HK 11	RKL 11	CL 11	HL 11	C 1	C 2	L 3	L 2	L 4	F 2	F 1	F 1	F 1	F 1	F 1	
3	FFS 11	RF 21	R 3	F 2	R 1	RS 11	F 1	F 2	C 1	RL 11	L 1	L 1	L 2	LL 11	L 1	L 1	L 1	F 1	F 1	FS 11	RS 21	R 2	RR 41	R 4
4	R 1	F 1	R 2	R 2	R 2	R 1	R 1																RR 11	R 1
5	RK 24	RR 43	RR 11	R 2	R 2	R 2	RR 22	R 2	RL 12	L 1	CL 21		L 1	L 1								K 1	RK 11	R 3
6	R 2	RR 21	R 2	R 1	R 2	RS 21	R 1	KF 11	L 1															R 1
7	R 1		R 1																			R 1	R 1	R 1
8	R 2	R 1	R 1			R 1		R 1	R 1	R 1		R 1	C 1									R 1	R 1	R 1
9	CK 22	CK 11	RR 11	R 2	R 3	R 1	RA 11	R 2		RA 11	C 1			L 1	L 1	L 1					RA 11		F 1	FR 22
10	RA 11	F 2	RR 21	R 1	R 1	RF 11	RR 11	F 1	LR 11	RLS 11	L 1	CL 11	L 1	HL 11	L 1									RF 21
11	RF 22	R 3	R 2	R 2	RS 11	R 2	R 2	KFF 14	KL 11		C 1		L 1				L 1							
12	AF 11	R 2	RS 21	R 3	R 3	RAF 11	RF 11	FF 21	CL 11	HL 11	RL 11	C 2	C 2	C 1	L 1	L 1	C 2		F 3	F 2	R 1	R 2	R 4	R 3
13		F 1	F 1	R 3	RF 11	R 1	R 2	RF 11	RL 11	CL 11	CA 11		C 1	HL 11					FS 31	R 2	R 2	FS 11	RF 11	RF 21
14	RF 12	RF 21	F 3	R 2	R 2	R 3	RF 11	R 1	C 1	R 2	HL 21	CL 21	C 1	C 1	CL 31	L 1		F 2	R 1	FF 11	F 1	R 1	F 2	F 3
15	FR 13	R 1	R 1				F 1			R 1										K 1	R 2		K 5	K 1
16	RF 11	R 1	R 1	R 1	R 1			R 1	R 1	C 1					C 1			K 1	F 1			HK 11	RA 11	K 5
17	RS 11	RK 11	HK 11		R 1	F 1		R 1			L 1	L 1	CL 11						F 1	F 1	F 1	F 1	HKF 11	FF 21
18	FF 31	F 4		R 1	R 1		RF 11	R 3	C 1	R 1									F 1		F 1	R 1	RF 12	K 4
19	R 2	R 1	F 1		KF 21	R 1	R 1				K 1							HK 11		F 1			R 1	HK 23
20	R 3	F 1	F 1	R 2	R 2	RF 11	FK 11	RF 11	RL 11		C 1	C 1	HL 11					RK 11	F 1	HKA 11	K 3	HK 11	KF 31	RK 21
21	HK 12	RF 41	RF 11			R 1	F 1			R 1								F 1		F 1	FK 11	F 1	F 2	HK 33
22	FA 21	R 1	R 1	F 1	FF 11	R 1	R 1	R 1		L 1	L 1	L 1		L 1	L 1			R 1	F 1	F 2	F 1	RF 11	AF 11	RA 11
23	RA 21	RF 21	HK 12	KF 32	F 4	F 2	RF 21	F 1	L 1	L 1	L 1	L 1	C 1	L 1	L 1					F 1	F 1		F 1	RF 11
24	KF 51	K 3	K 2	RF 11		R 1		F 1	R 2	R 2			C 1		H 1				F 2	F 1	F 1	F 1	F 1	FA 11
25	K 3	K 3	HK 22	RF 31	RR 21	R 2	RF 11	R 1	R 2	R 2	HRL 11	HL 11	L 1	L 1	L 1	L 1	L 1						F 2	F
26	F 1	FA 21	F 3	F 2	FA 11	F 1	F 2	F 3	L 3	L 3									F 1	F 1	K 1	K 5	K 2	KF 11
27	RAF 11	RAF 11	RR 11	RF 11		RS 11		KR 13	RL 11	CLA 11	LR 11	HL 11		R 1	H 1					KS 11	HK 11	RR 12	R 3	R 2
28	RF 31	F 2	FS 21	RKS 12	R 1		R 1	R 1	R 2	H 1	H 1	L 1	HL 21	C 2	C 1	C 1	C 1	F 1			F 1	R 1	F 1	FA 11
29	F 3	RK 41	RKF 31	RK 34	F 3	RFS 22	FKS 21	RA 21	R 2	RL 21	L 1	L 1	CLS 11	H 1	C 1	L 1	L 1	F 1			R 2	RF 41	RF 31	RS 21
30	KF 22	KF 21	RFS 21	F 1	R 1	RFS 11	R 3	FA 11	LK 11	R 2	L 1	CL 21	C 2	L 3	L 3	L 1	L 1				F 1	FA 11	RS 11	RK 12
31	K 1	C 3	R 2	R 1	FR 11	HKR 11	CK 21	C 2	L 3	RL 11	L 1	L 1	C 1	CL 11	CL 11	L 1	L 1	F 1	F 1					F 1
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

JUL. 1979 | TYPES OF ES

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	O R 21	U R 22	27	27	R 23	O R 30	35	38	42	65	U R 73	77	U R 85	U R 87	U R 94	U R 97	72	X 90	S 82	U R 71	O R 33	A	A	A
2	A	A	A	A	A	A	U R 52	45	57	B	B	R 58	B	B	U R 88	U R 87	80	R 75	69	S 51	B	B	A	A
3	O R 29	A	A	A	46	A	A	B	O R 43	A	60	B	B	R 89	B	U R 79	80	B	B	U R 40	B	B	A	A
4	A	A	A	A	B	B	A	A	A	B	B	72	B	B	U R 85	U R 92	O R 88	R 107	67	45	B	A	A	A
5	A	A	A	A	A	38	37	B	B	B	S 56	70	R 76	R 81	R 83	R 81	R 64	R 69	55	O R 30	O R 28	R 26	A	A
6	A	A	A	A	A	46	A	A	B	A	65	B	B	U R 78	B	O R 82	B	B	R 95	55	A	A	A	A
7	A	A	A	A	A	A	A	A	A	Y	B	B	B	92	R 95	B	U R 112	95	68	R 31	A	A	A	A
8	A	A	B	A	A	A	A	A	A	B	70	X 75	R 89	U R 94	R 113	R 102	R 106	74	60	U R 40	U R 21	O R 21	A	A
9	A	O R 41	A	B	A	A	A	A	A	B	B	R 74	R 86	R 94	X 90	R 89	V 86	U R 91	71	37	26	A	A	A
10	A	A	A	A	A	A	A	O R 40	54	B	B	X 80	85	88	X 88	X 90	U R 91	Y	81	9	B	A	O R 31	30
11	A	A	O R 48	A	A	A	A	A	45	48	X 53	X 65	R 79	X 82	S 79	X 88	88	80	65	R 53	B	B	O R 22	A
12	A	A	A	A	A	A	A	A	O R 44	B	63	75	R 84	R 85	U R 100	110	R 108	U R 70	U R 69	B	B	Y	A	A
13	A	A	A	A	A	A	A	A	66	67	X 65	X 70	O R 64	82	R 90	B	O R 63	37	37	A	A	A	A	B
14	A	A	B	A	B	A	A	A	B	B	O R 57	R 74	80	R 86	X 85	R 100	82	65	57	R 40	33	R 25	24	O R 22
15	A	A	A	O R 31	A	34	O R 42	46	Y	66	80	81	87	R 100	R 100	109	100	80	70	60	24	U R 21	A	63
16	A	A	A	A	A	O R 40	41	40	52	58	B	U R 80	86	U R 100	R 91	103	X 103	R 81	62	57	37	O R 22	A	O R 19
17	O R 32	A	43	44	A	A	A	52	46	62	75	81	X 80	X 105	R 112	U R 102	95	71	65	60	44	O R 20	A	A
18	A	33	C	A	A	44	44	45	53	B	72	82	R 87	R 97	90	R 102	80	R 80	65	55	R 27	24	O R 23	A
19	A	A	30	A	B	A	Y	40	42	A	B	B	B	U R 58	U R 68	R 81	B	O R 59	55	41	A	A	A	A
20	O R 40	A	A	A	A	B	B	A	B	B	B	B	B	B	O R 86	O R 98	B	O R 71	U R 67	U R 52	B	B	B	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	O R 40	B	B	B	B
22	B	A	B	B	B	B	B	B	B	B	B	B	B	B	O R 92	R 98	Y	R 106	R 88	F 79	48	B	B	A
23	A	U R 36	O R 37	25	25	41	D Y 35	R 25	B	O R 60	R 79	R 97	R 102	R 109	R 111	R 111	R 91	100	R 88	R 61	R 36	R 25	B	B
24	A	A	A	A	O R 31	41	66	66	O R 50	O R 66	O R 81	99	115	O R 117	111	110	100	91	90	80	73	A	A	A
25	A	A	A	A	A	57	A	60	72	78	78	70	V 76	R 79	80	O R 88	B	R 119	U R 98	U R 48	30	41	75	54
26	60	A	52	A	A	A	O R 48	B	58	U R 61	B	B	80	R 87	R 96	R 94	R 91	R 96	U R 90	R 67	42	A	A	A
27	Y	A	A	50	O R 42	R 43	B	Y	O Y 49	B	R 67	B	O R 78	B	B	B	O R 89	U R 116	D R 100	R 91	B	A	A	31
28	A	A	A	45	B	B	Y	A	75	B	B	R 91	Y	R 116	U C 111	R 126	U C 116	118	120	U C 90	B	37	U R 27	B
29	A	A	A	B	B	B	B	B	B	B	B	B	B	O R 47	100	120	U R 72	62	A	35	B	A	B	A
30	A	63	A	42	B	A	A	B	B	A	B	O R 48	B	B	R 59	O R 66	67	R 58	R 53	O R 41	V 35	O R 27	O R 21	26
31	50	A	U R 44	A	A	37	43	56	58	R 67	76	90	R 97	X 100	R 114	118	R 110	R 112	D R 101	R 77	67	24	O R 25	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	6	5	7	7	5	11	10	12	17	11	17	21	19	24	27	27	25	27	28	28	16	12	8	7
MED	O R 36	R 36	43	42	R 31	41	43	45	52	65	70	75	R 85	R 88	R 91	R 98	89	R 80	69	R 52	34	R 24	O R 24	30
UQ	50	R 41	46	44	O R 42	44	48	54	58	66	76	81	R 87	R 100	R 100	R 106	R 100	R 98	89	64	43	R 26	R 29	42
LQ	O R 29	U R 33	34	29	R 25	38	U 39	40	45	60	63	70	80	R 82	R 86	R 88	80	70	64	R 40	28	R 22	O R 22	24

AUG. 1979 | FXI (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	15	F 16	F 17	F 17	U R 17	24	F 22	F 26	F 28	F 50	67	F 68	J R 79	R 81	J R 88	J R 91	F 63	J R 84	J S 76	U R 65	U R 27	A	A	A
2	A	A	A	A	A	A	U F 46	J F 38	F	B	B	52	B	B	R 82	R 81	73	69	F 57	S 45	B	B	A	A
3	23	A	A	A	F 40	A	A	B	R 37	A	F 52	B	B	R 83	B	R 73	F 70	B	B	U R 34	B	B	A	A
4	A	A	A	A	B	B	A	A	A	B	B	F 65	B	B	J R 79	U R 86	U R 82	J R 101	F 43	F 35	B	A	A	A
5	A	A	A	A	A	F 32	F 30	B	B	B	S 50	S 59	R 70	R 75	J R 77	75	R 58	63	J F 44	S 24	S 22	R 20	A	A
6	A	A	A	A	A	J R 38	A	A	B	A	F 51	B	B	R 72	B	R 76	B	B	J R 89	J F 49	A	A	A	A
7	A	A	A	A	A	A	A	A	A	Y	B	B	B	F 82	89	B	R 106	F 77	F 57	25	A	A	A	A
8	A	A	B	A	A	A	A	A	A	B	F 52	J R 69	F 83	88	J R 107	R 96	J R 100	F	J F 49	F 34	F 15	F 15	A	A
9	A	R 35	A	B	A	A	A	A	A	B	B	68	80	R 88	R 84	R 83	V 80	R 85	F 58	F 26	F 20	A	A	A
10	A	A	A	A	A	A	A	R 34	F 32	B	B	J R 74	F 75	F 80	J R 82	84	R 85	Y	U F 73	B	B	A	25	F 23
11	A	A	R 42	A	A	A	A	A	F 37	F 39	47	S 59	J R 73	76	R 73	R 82	F 80	F 72	F 58	J R 47	B	B	F 16	A
12	A	A	A	A	A	A	A	A	F 36	B	F 55	64	78	79	J R 94	F 95	J R 102	R 64	R 63	B	B	Y	A	A
13	A	A	A	A	A	A	A	A	F 55	F 57	59	64	R 58	F 74	84	B	57	F 30	J R 30	A	A	A	A	B
14	A	A	B	A	B	A	A	A	B	B	R 51	68	F 73	80	J R 79	R 94	F 75	F 55	V 48	J F 34	F 27	F 19	F 17	F 16
15	A	A	A	R 25	A	F 25	F 36	F 40	Y	F 55	J F 74	F 73	75	F 94	R 94	J F 103	F 94	J F 74	J F 64	F 46	J F 18	F 15	A	A
16	A	A	A	A	A	S 34	F 34	F 33	F 46	F 47	B	R 74	F 80	R 94	R 85	F 95	R 97	75	F 55	F 47	F 31	R 16	A	F 13
17	F 25	A	F 36	35	A	A	A	F 36	F 40	R 51	J F 69	F 74	J R 74	J R 99	J R 106	R 96	J F 85	F 54	F 55	J F 48	F 34	F 14	A	A
18	A	F 26	C	A	A	F 35	F 35	J F 36	J F 38	B	Z 64	F 76	R 81	F 91	F 80	J R 96	F 73	R 74	J F 59	J F 49	F 21	F 14	F 14	A
19	A	A	F 23	A	B	A	Y	F 32	F 36	A	B	B	B	R 52	R 62	75	B	R 53	F 48	F 33	A	A	A	A
20	U R 34	A	A	A	A	B	B	A	B	B	B	B	B	B	R 80	R 92	B	U R 65	R 61	U R 46	B	B	B	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R 34	B	B	B	B
22	B	A	B	B	B	B	B	B	B	B	B	B	B	B	R 86	R 92	D Y 80	U R 100	J R 82	F 73	F 42	B	B	A
23	A	F 30	F 31	F	J F 19	F 26	Y	J R 19	B	R 54	R 73	U R 90	96	F 103	J R 105	F 105	R 85	R 84	R 82	R 55	J R 30	J R 19	B	B
24	A	A	A	A	R 25	R 16	R 21	B	R 44	R 60	R 75	R 93	R 105	111	102	F 102	R 91	81	F 84	72	F 65	A	A	A
25	A	A	A	A	A	A	A	J R 38	V 62	56	F 61	F 64	V 70	R 73	F 72	R 82	B	R 113	U R 92	Z 42	F 23	F 24	A	A
26	F 44	A	F	A	A	A	F 42	B	F 51	55	B	B	72	81	90	88	R 85	90	R 84	R 61	U F 34	A	A	A
27	Y	A	A	Y	R 36	F 37	B	Y	U Y 43	B	R 61	B	U R 72	B	B	B	U R 83	J R 110	R	J R 85	B	A	A	F 24
28	A	A	A	A	B	B	Y	A	F 66	B	B	R 85	Y	110	U C 105	F 120	U C 110	U F 112	J F 114	U C 84	B	F 30	R 21	B
29	A	A	A	B	B	B	B	B	B	B	B	B	B	H 41	F	F 112	U R 66	J R 54	A	J F 27	B	A	B	A
30	A	F 43	A	F	B	A	A	B	B	A	B	R 42	B	B	53	60	58	R 52	47	F 35	V 29	F 21	F 15	A
31	A	A	F 38	A	A	F 31	U F 29	F	F 42	F 60	66	80	R 91	93	R 108	F 106	J R 104	R 106	D R 95	R 71	J F 61	J F 17	19	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	5	6	3	5	10	9	10	16	11	17	21	19	24	26	27	26	26	27	28	16	12	7	4
MED	25	F 30	F 34	25	R 25	F 32	F 34	F 35	F 41	F 55	61	68	75	82	R 84	R 92	83	R 74	F 59	46	F 28	F 18	F 17	F 20
UQ	F 34	F 35	F 38	30	R 36	F 35	F 36	J F 38	F 48	56	67	R 74	80	94	R 94	F 96	R 94	R 90	R 82	58	F 34	F 20	20	F 24
LQ	23	F 26	F 23	21	R 19	F 25	F 29	F 32	F 36	50	52	64	72	76	R 79	R 82	73	63	F 52	34	F 22	F 15	F 16	F 14

AUG. 1979 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13															340L									
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																400L								
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															340L	400L								
UQ																								
LQ																								

AUG. 1979 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									B	U R 115	R 165	A	A	B	B	B	135							
2									185	B	B	B	B	B	B	B	B							
3	K 175								B	B	B	B	B	B	B	B	B							
4									B	B	B	A	B	B	B	B	B							
5		K 360	K 325						B	B	B	B	A	B	B	B	B							
6									B	B	A	B	B	B	B	B	B		U K 240	K 200				
7									B	B	B	B	B	B	B	B	B							
8									B	B	A	B	B	B	B	A	B	K 170		U K 140			J K 320	K 300
9	K 300	F 280							B	B	B	B	B	B	A	185	U R 160				K 100	F 255	F 260	J K 320
10	J K 310	K 310	J K 300	J K 280	J K 300				A	B	B	B	B	A	R 210	U R 175	B							K 180
11									A	A	205	210	H 225	H 215	H 215	F 180	B						K 105	
12									A	B	B	220	F 235	B	B	A	B							K 460
13									K 200	H 175	H 185	215	B	B	R 205	B	B	U K 200						
14									B	B	B	B	A	R 235	A	H 180	U R 175					K 175		
15	J K 300		K 135		J K 260				A	195	R 220	215	R 220	A	205	A	A					K 100		J K 380
16	J K 400								K 240	170	B	B	B	B	B	F 215	B							
17	K 190		K 265						A	A	B	A	A	A	B	U R 175	A							J K 380
18	K 370				K 390		K 180	K 120	B	B	A	215	225	A	A	A	A			K 110	K 100	K 90		
19								K 155	K 250	A	B	B	B	B	B	B	B							
20	K 250								B	B	B	B	B	B	B	B	B							
21									B	B	B	B	B	B	B	B	B							
22									B	B	B	B	B	B	B	B	B							
23									B	B	B	B	B	B	B	B	B							
24		K 215	K 225	K 210	K 180				B	B	B	B	B	R 265	R 255	U R 230	B							
25									U K 220	B	210	A	B	B	B	B	B							
26			K 155				K 350		K 280	B	B	B	B	B	B	P	B					K 310	J K 300	K 310
27				K 300					B	B	B	B	B	B	B	B	B							
28		K 290							A	B	B	B	B	B	B	B	B					K 115		
29	K 240								B	B	B	B	B	B	B	U R 235	B							
30									B	B	B	B	B	B	B	B	B							
31	K 255		K 300						A	210	B	260	240	265	B	A	U R 220	K 180					K 210	J K 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	10	5	7	3	4		2	2	6	5	5	6	5	4	5	8	4	3	1	3	2	6	5	8
MED	K 278	K 290	K 265	K 280	K 280		K 265	K 138	K 230	175	205	215	225	250	R 210	182	U R 168	K 180	U K 240	K 140	K 100	K 145	K 260	K 315
UQ	J K 310	K 310	K 300	K 290	K 345				K 250	195	210	220	235	265	R 215	222	U R 198	K 190		K 170		K 255	J K 300	J K 380
LQ	K 240	K 280	K 190	K 245	K 220				K 200	170	185	215	225	225	R 205	178	148	K 175		K 125		K 100	K 210	K 300

AUG. 1979 | FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E 3 12	J A 30	J A 24	J A 24	18	18	15	E B 12	15	10	16	J A 66	31	E B 23	E B 28	E B 17	16	11	15	E B 23	E B 20	24	27	34
2	J A 69	J A 79	J A 77	J A 43	J A 32	37	26	20	G	B	B	E B 38	B	B	E B 65	E B 61	E B 26	E B 21	E B 19	E B 16	B	B	15	20
3	23	J A 30	30	J A 37	J A 36	J A 41	J A 50	B	E B 33	J A 39	E B 22	B	B	E B 35	B	E B 43	E B 24	B	B	E B 21	B	B	29	J A 14
4	J A 31	J A 48	J A 73	F 28	B	B	J A 50	J A 56	45	B	B	35	B	B	E B 60	E B 22	E B 59	E B 39	E B 26	E B 21	B	J A 32	J A 74	J A 69
5	J A 66	38	35	32	28	J A 27	28	B	B	B	E B 26	24	28	E B 21	E B 22	E B 21	E B 22	E B 19	E B 15	E B 17	E B 12	11	29	J A 61
6	39	43	F 39	32	J A 27	J A 65	42	J A 46	47	53	26	B	B	E B 53	B	E B 45	B	B	U K 24	K 20	J A 32	J A 33	36	34
7	32	36	J A 62	F 37	36	J A 37	38	37	45	36	B	B	B	E B 40	E B 21	B	E B 56	E B 22	E B 12	J F 23	32	J A 36	J A 59	53
8	J A 58	J A 75	42	J A 30	J A 31	J A 30	38	56	J A 47	B	31	E B 55	E B 34	E B 48	E B 28	27	E B 16	23	20	17	16	14	J K 32	K 30
9	K 30	K 28	52	B	39	38	J A 38	J A 45	58	B	B	E B 47	E B 28	25	22	G 18	G	E B 13	15	E B 9	K 10	K 26	F 26	J K 32
10	J K 31	K 31	J K 30	J K 28	J K 30	F 43	41	37	28	B	B	E B 43	E B 24	23	G	G	E B 21	E B 60	E B 34	B	B	J A 30	F 21	24
11	J A 27	J A 29	J A 36	J F 28	41	43	47	32	22	25	G	G	G	G	G	G	E B 23	E B 21	J A 15	J A 18	B	B	G 9	F 26
12	54	M 36	J A 23	42	37	J A 38	43	39	J A 32	B	E B 22	G	G 21	E B 28	E B 61	J A 32	E B 30	34	E B 28	B	B	14	F 23	K 46
13	43	48	49	44	38	38	J A 42	F 44	J A 26	G 16	J A 22	G	E B 42	E B 29	G 17	B	E B 50	F 25	35	J A 31	47	J A 41	J A 51	J A 120
14	J A 57	J A 57	B	35	B	27	H 25	31	B	B	E B 34	E B 27	24	G 23	26	F 22	18	E B 18	15	12	14	K 12	14	19
15	J K 30	J A 26	23	26	J K 26	J A 25	J A 28	J A 55	J A 40	F 24	G	F 24	26	27	J A 21	24	F 20	14	17	J A 30	J A 20	12	27	J K 38
16	J K 40	40	J A 26	J A 46	J A 38	J A 35	27	J A 27	26	G 11	B	E B 31	E B 41	E B 44	E B 34	G 18	E B 21	E B 18	E B 19	E B 13	10	17	J A 52	15
17	F 19	J A 39	J A 27	31	J A 84	36	J A 39	27	J A 23	36	28	26	28	28	E B 49	24	18	15	12	16	16	11	28	J K 38
18	K 37	37	C	J A 38	J K 39	J A 30	G 11	12	14	B	28	G	30	J A 29	26	J A 31	J A 23	E B 17	E B 10	K 11	11	K 10	30	J A 31
19	J A 37	J A 43	J A 22	51	43	37	24	27	J A 31	J A 40	B	B	B	26	E B 46	E B 34	B	E B 29	E B 15	16	34	28	30	36
20	38	J A 61	45	38	32	B	B	44	B	B	B	B	B	B	E B 76	E B 57	B	E B 33	E B 24	E B 22	B	B	B	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 23	B	B	B	30
22	28	39	B	M 35	B	B	B	57	B	B	B	B	B	B	E B 47	E B 47	E B 55	E B 33	E B 22	E B 23	E B 21	B	B	F 26
23	29	25	23	22	15	E B 21	E B 23	E B 18	B	E B 31	E B 44	E B 52	E B 44	E B 30	E B 29	E B 30	E B 31	E B 22	26	E B 21	E B 26	E B 16	B	B
24	24	31	24	K 21	K 18	E B 13	E B 13	B	E B 30	E B 47	E B 44	E B 28	E B 31	G	G	G 20	E B 21	E B 18	E B 14	18	J A 22	J A 31	31	J A 30
25	55	J A 40	34	J A 47	34	31	41	J A 35	U K 22	E B 20	G	26	E B 39	E B 48	25	E B 62	B	E B 30	E B 60	32	J A 23	31	J A 48	J A 45
26	J A 74	42	J A 29	42	37	35	K 35	B	K 28	E B 29	B	B	E B 70	E B 49	E B 28	E B 26	E B 21	E B 21	E B 23	E B 28	E B 13	K 31	J K 30	H 31
27	24	37	36	35	32	30	B	35	E B 31	B	E B 43	B	E B 55	B	B	B	E B 56	E B 54	E B 42	E B 14	B	29	21	J A 23
28	F 27	31	28	J A 28	36	36	37	J A 46	41	B	B	E B 31	E B 57	E B 33	E B 64	E B 35	E B 32	J A 20	J A 25	E B 24	B	17	E B 24	B
29	26	J A 64	30	B	B	B	B	B	B	B	B	B	B	31	E B 52	G	E B 41	E B 25	J A 32	E B 20	B	J A 27	B	41
30	26	39	31	20	36	38	36	B	B	44	B	E B 29	B	B	E B 31	E B 53	E B 22	E B 22	E B 20	E B 21	E B 20	11	17	21
31	K 26	37	J A 85	J A 38	38	31	22	J A 14	18	G	24	G	26	30	E B 32	23	G	21	16	E B 23	20	J A 32	24	J K 30
	00	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	27	28	26	26	26	24	23	16	17	21	20	24	27	27	26	28	29	29	20	25	26	28
MED	32	38	31	35	36	36	36	36	29	U 25	E G 26	E G 28	E B 30	E B 29	E B 28	E B 26	E B 22	E B 22	E B 20	E B 21	U 18	26	28	31
UQ	43	J A 43	44	40	38	38	41	46	40	39	E B 31	E G 38	E B 42	E B 38	E B 48	E B 39	E B 32	E B 30	E B 26	E B 23	23	J A 31	J 32	J 40
LQ	26	31	26	28	30	30	25	27	23	U 14	E G 22	E G 24	26	24	E G 22	19	E B 20	E B 18	E B 15	U 14	U 12	13	22	25

AUG. 1979 | FOES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	EB 12	12	11	12	12	UY 18	13	EB 12	12	10	15	21	22	EB 23	EB 28	EB 17	11	10	14	EB 23	EB 20	AA 24	AA 27	AA 34
2	AA 69	AA 79	AA 77	AA 43	AA 32	AA 37	24	20	G	B	B	EB 38	B	B	EB 65	EB 61	EB 26	EB 21	EB 19	EB 16	B	B	AA 15	AA 20
3	K 18	AA 30	AA 30	AA 37	28	AA 41	AA 50	B	EB 33	AA 39	EB 22	B	B	EB 35	B	EB 43	EB 24	B	B	EB 21	B	B	AA 29	AA 14
4	AA 31	AA 48	AA 73	AA 28	B	B	AA 50	AA 56	AA 45	B	B	31	B	B	EB 60	EB 22	EB 59	EB 39	EB 26	EB 21	B	AA 32	AA 74	AA 69
5	AA 66	AA 38	AA 35	AA 32	AA 28	24	21	B	B	B	EB 26	UY 24	26	EB 21	EB 22	EB 21	EB 22	EB 19	EB 15	EB 17	EB 12	10	AA 29	AA 61
6	AA 39	AA 43	AA 39	AA 32	AA 27	33	AA 42	AA 46	EB 43	AA 53	21	B	B	EB 53	B	EB 45	B	B	UK 24	K 20	AA 32	AA 33	AA 36	AA 34
7	AA 32	AA 36	AA 62	AA 37	AA 36	AA 37	AA 38	AA 37	AA 45	UY 36	B	B	B	EB 40	EB 21	B	EB 56	EB 22	EB 12	22	AA 32	AA 36	AA 59	AA 53
8	AA 58	AA 75	EB 27	AA 30	AA 31	AA 30	AA 38	AA 56	AA 47	B	31	EB 55	EB 34	EB 48	EB 28	26	EB 16	14	16	14	E	11	AA 32	AA 30
9	AA 30	K 28	AA 52	B	AA 39	AA 38	AA 38	AA 45	AA 58	B	B	EB 47	EB 28	24	21	G 17	G	EB 13	13	EB 9	K 10	AA 26	AA 26	AA 32
10	AA 31	AA 31	AA 30	AA 28	AA 30	AA 43	AA 41	31	26	B	B	EB 43	EB 24	23	G	G	EB 21	EB 60	EB 34	B	B	AA 30	21	18
11	AA 27	AA 29	35	AA 28	AA 41	AA 43	AA 47	AA 32	17	21	G	G	G	G	G	G	EB 23	EB 21	E	E	B	B	G 9	AA 26
12	AA 54	AA 36	AA 23	AA 42	AA 37	AA 38	AA 43	AA 39	24	B	EB 22	G	G 18	EB 28	EB 61	24	EB 30	32	EB 28	B	B	UY 14	AA 23	AA 46
13	AA 43	AA 48	AA 49	AA 44	AA 38	AA 38	AA 42	AA 44	15	G 15	15	G	EB 42	EB 29	G 19	B	EB 50	UK 20	33	AA 31	AA 47	AA 41	AA 51	EB 55
14	AA 57	AA 57	B	AA 35	B	AA 27	AA 25	AA 31	B	B	EB 34	EB 27	23	G 21	23	21	15	EB 18	13	10	E	9	12	12
15	AA 30	AA 26	AA 23	20	AA 26	15	32	20	40	22	G	23	23	25	17	21	16	16	13	13	13	11	AA 27	AA 38
16	AA 40	AA 40	AA 26	AA 46	AA 38	31	22	21	K 24	G 10	B	EB 31	EB 41	EB 44	EB 34	G 17	EB 21	EB 18	EB 19	EB 13	10	12	AA 52	10
17	K 19	AA 39	UK 27	31	AA 84	AA 36	AA 39	19	20	30	22	24	24	24	EB 49	21	17	13	10	13	11	10	AA 28	AA 38
18	AA 37	22	C	AA 38	AA 39	25	G 11	9	13	B	23	G	27	25	23	24	19	EB 17	EB 10	K 11	K 10	K 9	13	AA 31
19	AA 37	AA 43	17	AA 51	EB 34	AA 37	UY 24	21	25	AA 40	B	B	B	27	EB 46	EB 34	B	EB 29	EB 15	15	AA 34	AA 28	AA 30	AA 36
20	K 25	AA 61	AA 45	AA 38	AA 32	B	B	AA 44	B	B	B	B	B	B	EB 76	EB 57	B	EB 33	EB 24	EB 22	B	B	B	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	EB 23	B	B	B	EB 24
22	EB 24	AA 39	B	EB 25	B	B	B	EB 41	B	B	B	B	B	B	EB 47	EB 47	EB 55	EB 33	EB 22	EB 23	EB 21	B	B	AA 26
23	AA 29	23	21	17	UY 15	EB 21	EB 23	EB 18	B	EB 31	EB 44	EB 52	EB 44	EB 30	EB 29	EB 30	EB 31	EB 22	16	EB 21	EB 26	EB 16	B	B
24	AA 24	AA 31	AA 24	AA 21	K 18	EB 13	EB 13	B	EB 30	EB 47	EB 44	EB 28	EB 31	G	G	G 20	EB 21	EB 18	EB 14	17	14	AA 31	AA 31	AA 30
25	AA 55	AA 40	AA 34	AA 47	AA 34	AA 31	AA 41	UY 35	UK 22	EB 20	G	25	EB 39	EB 48	25	EB 62	B	EB 30	EB 60	24	19	21	AA 48	AA 45
26	33	AA 42	22	AA 42	AA 37	AA 35	K 35	B	K 28	EB 29	B	B	EB 70	EB 49	EB 28	EB 26	EB 21	EB 21	EB 23	EB 28	EB 13	AA 31	AA 30	AA 31
27	UY 24	AA 37	AA 36	UY 35	31	25	B	UY 35	EB 31	B	EB 43	B	EB 55	B	B	B	EB 56	EB 54	EB 42	EB 14	B	AA 29	AA 21	22
28	AA 37	AA 31	AA 28	AA 28	EB 27	EB 33	UY 37	AA 46	38	B	B	EB 31	UY 57	EB 33	EB 64	EB 35	EB 32	18	18	EB 24	B	K 12	EB 24	B
29	AA 26	AA 64	AA 30	B	B	B	B	B	B	B	B	B	B	29	EB 52	G	FB 41	EB 25	AA 32	EB 20	B	AA 27	B	AA 41
30	AA 26	34	AA 31	20	EB 32	AA 38	AA 36	B	B	AA 44	B	EB 29	B	B	EB 31	EB 53	EB 22	EB 22	EB 20	EB 21	EB 20	11	13	AA 21
31	AA 26	AA 37	UK 30	AA 38	AA 38	21	17	13	16	G	23	G	26	26	EB 32	23	G	UK 18	UY 16	EB 23	20	15	18	AA 30
	00	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	27	28	26	26	26	24	23	16	17	21	20	24	27	27	26	28	29	29	20	25	26	28
MED	AA 31	AA 38	AA 30	AA 34	AA 32	AA 33	AA 36	33	U 24	U 24	EG 22	EG 27		EB 28	EB 28	EB 24	EB 22	EB 21	EB 18	EB 20	U 13	21	AA 28	AA 30
UQ	AA 40	AA 43	AA 38	AA 40	AA 38	AA 38	AA 41	AA 44	U 36	39	EB 31	EB 31	EB 42	EB 38	EB 48	EB 39	EB 32	EB 30	EB 24	EB 23	U 22	AA 30	AA 32	AA 39
LQ	AA 26	AA 31	24	AA 28	28	24	23	20	18	U 14	EG 15	EG 21	24	24	EG 22	18	EG 17	U 14	14	U 12	10	11	20	AA 22

AUG. 1979 | FBES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	12	9	8	8	12	12	12	12	9	9	13	16	21	23	28	17	9	8	10	23	20	11	13	13
2	13	17	14	26	20	22	13	13	13	B	B	38	B	B	65	61	26	21	19	16	B	B	10	13
3	12	13	11	10	9	13	18	B	33	16	22	B	B	35	B	43	24	B	B	21	B	B	14	8
4	8	13	12	21	B	B	24	12	32	B	B	19	B	B	60	22	59	39	26	21	B	9	22	8
5	9	17	12	10	12	9	8	B	B	B	26	20	18	21	22	21	22	19	15	17	12	9	8	8
6	8	9	9	8	8	20	14	25	43	26	13	B	B	53	B	45	B	B	17	9	9	9	8	9
7	10	12	13	15	23	19	12	13	20	21	B	B	B	40	21	B	56	22	12	12	10	8	12	8
8	13	22	27	19	13	16	23	22	14	B	23	55	34	48	28	17	16	12	10	11	10	9	10	9
9	10	15	9	B	13	13	12	11	20	B	S	47	28	21	18	13	14	13	10	9	9	9	10	9
10	9	8	9	9	10	16	13	12	9	B	B	43	24	21	15	17	21	60	34	B	B	10	10	8
11	9	10	12	12	14	18	17	18	10	12	13	15	18	15	13	13	23	21	10	11	B	B	8	9
12	13	22	9	22	14	13	23	26	10	B	22	19	9	28	61	16	30	26	28	B	B	10	8	9
13	17	15	17	15	12	12	14	13	9	9	8	19	42	29	13	B	50	9	9	9	18	9	8	55
14	8	10	B	22	B	12	9	21	B	B	34	27	20	17	18	14	13	18	13	8	10	8	7	8
15	7	8	10	9	9	9	12	9	10	10	19	20	19	9	9	14	10	12	9	10	12	9	8	8
16	8	12	9	9	12	9	10	9	8	9	B	31	41	44	34	14	21	18	19	13	9	9	8	8
17	10	8	8	8	10	14	12	9	10	10	17	16	9	19	49	15	13	9	9	12	10	8	8	9
18	9	9	C	13	10	8	8	8	8	B	17	18	9	8	8	14	10	17	10	8	8	8	8	8
19	13	9	9	17	34	17	13	12	12	10	B	B	B	23	46	34	B	29	15	12	14	13	13	20
20	17	17	17	22	20	B	B	23	B	B	B	B	B	B	76	57	B	33	24	22	B	B	B	B
21	3	3	3	3	3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	23	B	B	B	24
22	24	24	B	25	B	3	B	41	B	B	B	B	B	B	47	47	55	33	22	23	21	B	B	17
23	16	21	18	16	13	21	23	18	B	31	44	52	44	30	29	30	31	22	14	21	26	16	B	B
24	14	14	13	15	12	13	13	50	30	47	44	28	31	23	22	18	21	18	14	13	9	13	13	13
25	13	13	12	13	13	12	14	12	14	20	18	22	39	48	23	62	B	30	60	12	10	10	10	9
26	12	9	10	21	23	19	13	B	20	29	B	B	70	49	28	26	21	21	23	28	13	9	9	9
27	21	23	13	13	15	12	B	27	31	B	43	B	55	B	B	B	56	54	42	14	B	11	14	12
28	12	13	12	17	27	33	28	16	17	B	B	31	57	33	64	35	32	15	13	24	B	9	24	B
29	C 18	22	20	B	B	B	B	B	B	B	B	B	B	25	52	20	41	25	20	20	B	14	B	24
30	15	15	24	12	32	17	16	B	B	25	B	29	B	B	31	53	22	22	20	21	20	10	9	9
31	10	22	13	13	15	13	12	9	9	17	22	19	18	21	32	18	18	10	14	23	12	8	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	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	12	13	12	15	14	16	14	18	20	47	44	31	42	30	31	22	24	21	15	16	18	10	10	9
UQ	14	19	17	22	25	20	23	34	D E 43	B	B	B	B	51	60	50	56	32	24	22	B	14	14	15
LQ	9	10	9	11	12	12	12	12	10	16	20	20	20	21	22	16	20	16	11	12	10	9	8	8

AUG. 1979 | F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	285	F 275	F 280	F 270	U R 270	260	F 280	F 265	F 300	F 305	305	F 315	J R 315	R 325	J R 320	J R 315	F 280	J R 290	J S 315	U R 325	U R 290	A	A	A
2	A	A	A	A	A	A	U F 285	J F 295	F	B	B	305	B	B	R 330	R 335	325	300	F 325	S 330	B	B	A	A
3	295	A	A	A	F 290	A	A	B	R 275	A	F 315	B	B	R 300	B	R 320	F 310	B	B	U R 325	B	B	A	A
4	A	A	A	A	B	B	A	A	A	B	B	F 310	B	B	J R 325	U R 325	U R 310	J R 315	F 325	F 335	B	A	A	A
5	A	A	A	A	A	F 265	F 270	B	B	B	S 300	S 315	R 320	R 325	J R 325	325	R 315	320	J F 340	S 335	S 325	R 315	A	A
6	A	A	A	A	A	J R 295	A	A	B	A	F 285	B	B	R 305	B	R 305	B	B	J R 305	J F 305	A	A	A	A
7	A	A	A	A	A	A	A	A	A	Y	B	B	B	F 315	315	B	R 320	F 320	F 320	U A 295	A	A	A	A
8	A	A	B	A	A	A	A	A	A	B	F 320	J R 305	F 305	320	J R 335	R 325	J R 305	F	J F 315	F 320	F 325	F 320	A	A
9	A	R 300	A	B	A	A	A	A	A	B	B	310	310	R 320	R 330	R 300	V 300	R 325	F 335	F 310	F 310	A	A	A
10	A	A	A	A	A	A	A	A	A	B	B	J R 315	F 300	F 305	J R 315	310	R 315	Y	U F 310	B	B	A	A	F 285
11	A	A	R 290	A	A	A	A	A	F 280	F 320	305	S 300	J R 325	325	R 310	R 315	F 310	F 305	F 320	J R 335	B	B	F 310	A
12	A	A	A	A	A	A	A	A	F 250	B	F 305	305	310	315	J R 325	F 310	J R 320	R 330	R 330	B	B	Y	A	A
13	A	A	A	A	A	A	A	A	F 285	F 295	285	250	R 295	F 305	270	B	B	F 280	A	A	A	A	A	B
14	A	A	B	A	B	A	A	A	B	B	R 320	320	F 325	330	J R 335	R 325	F 330	F 310	V 350	J F 335	F 335	F 290	F 320	F 295
15	A	A	A	R 245	A	F 245	A	F 270	Y	F 315	J F 315	F 325	305	F 320	R 325	J F 320	F 335	J F 340	J F 325	F 340	J F 340	F 315	A	A
16	A	A	A	A	A	A	F 280	F 250	F 275	F 300	B	R 305	F 320	R 315	R 325	F 315	R 335	330	F 325	F 315	F 340	R 305	A	F 270
17	F 285	A	F 310	A	A	A	A	F 275	F 270	R 305	J F 335	F 335	J R 325	J R 325	J R 335	R 320	J F 335	F 310	F 325	J F 335	F 335	F 275	A	A
18	A	F 280	C	A	A	F 245	F 250	J F 260	J F 260	B	Z 315	F 325	R 320	R 325	F 315	J R 325	F 330	R 335	J F 345	J F 340	F 320	F 315	A	A
19	A	A	F 295	A	B	A	Y	F 250	F 280	A	B	B	B	R 285	R 290	280	B	R 285	F 295	F 305	A	A	A	A
20	U R 350	A	A	A	A	B	B	A	B	B	B	B	B	B	B	R 325	B	U R 325	R 335	U R 335	B	B	B	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R 315	B	B	B	B
22	B	A	B	B	B	B	B	B	B	B	B	B	B	B	R 310	R 305	Y	U R 330	J R 315	F 335	F 350	B	B	A
23	A	F 270	F 305	F	J F 260	F 265	Y	J R 300	B	R 325	R 320	U R 315	335	F 305	J R 310	F 310	R 300	R 305	R 305	R 310	J R 335	J R 325	B	B
24	A	A	A	A	R 255	R 260	R 265	B	R 310	R 305	R 315	R 320	R 330	290	290	F 315	R 290	300	F 300	300	F 315	A	A	A
25	A	A	A	A	A	A	A	A	V 285	275	F 270	F 250	V 260	R 310	F 275	R 285	B	R 295	U R 310	Z 315	F 280	F 285	A	A
26	F 295	A	F	A	A	A	F 300	B	F 275	280	B	B	B	295	305	310	R 315	290	R 320	R 325	U F 310	A	A	A
27	Y	A	A	Y	R 255	F 250	B	Y	U Y 275	B	R 295	B	U R 285	B	B	B	U R 330	J R 305	R	J R 300	B	A	A	F 260
28	A	A	A	A	B	B	Y	A	F 275	B	B	R 300	Y	290	U C 290	F 305	U C 305	U F 310	J F 325	U C 320	B	F 320	R 305	B
29	A	A	A	B	B	B	B	B	B	B	B	B	B	H 300	F	F 225	U R 255	J R 260	A	J F 250	B	A	B	A
30	A	F 280	A	F	B	A	A	B	B	A	B	R 320	B	B	295	290	285	R 315	320	F 300	V 325	F 325	F 270	A
31	A	A	F 330	A	A	F 240	U F 240	F	F 280	F 295	290	295	R 285	270	R 300	F 315	J R 295	R 305	R	R 310	J F 335	J F 300	285	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	5	5	6	2	5	9	8	8	15	11	17	21	18	24	25	27	24	26	25	28	16	12	5	4
MED	295	F 280	F 300	253	R 260	F 260	F 275	F 268	F 275	F 305	305	310	312	312	R 315	R 315	R 312	R 310	F 320	320	F 325	F 315	F 305	F 278
UQ	295	F 280	F 310		F 270	265	F 282	F 285	F 282	310	315	320	P 325	322	J R 325	R 322	R 328	R 325	F 325	335	F 335	F 320	F 310	F 290
LQ	F 285	F 275	F 290		R 255	F 245	F 258	F 255	F 275	295	295	305	300	300	300	305	300	R 300	315	308	F 312	F 295	285	F 265

AUG. 1979 | M(3000)F2 (0.01)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1979 | H'F2 (KM) | 45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13															335									
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27																								
28																								
29																395Q								
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															335	395Q								
UQ																								
LQ																								

AUG. 1979 | H'F2 (KM)

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E B 350	350	330	350	380	E Y 400	345	295	225	230	220	205	235	225	225	225	235	250	200	250	E B 300	A	A	A
2	A	A	A	A	A	A	310	280	F 295	B	B	240	B	B	E B 270	E B 250	225	245	250	230	B	B	A	A
3	375	A	A	A	375	A	A	B	E B 445	A	250	B	B	280	B	E B 250	235	B	B	E B 270	B	B	A	A
4	A	A	A	A	B	B	A	A	A	B	B	265	B	B	E B 270	245	E B 315	270	240	250	B	A	A	A
5	A	A	A	A	A	E A 400	410	B	B	B	280	245	235	230	225	215	210	225	200	E A 245	250	295	A	A
6	A	A	A	A	A	A	A	A	B	A	270	B	B	E B 300	B	E B 255	B	B	235	270	A	A	A	A
7	A	A	A	A	A	A	A	A	A	Y	B	B	B	B 245	230	B	E B 255	220	H 235	A	A	A	A	A
8	A	A	B	A	A	A	A	A	A	B	230	E B 300	240	H 240	230	235	235	205	225	240	230	A 300	A	A
9	A	360	A	B	A	A	A	A	A	B	B	E B 275	230	225	225	215	210	230	200	230	F 295	A	A	A
10	A	A	A	A	A	A	A	A	A	B	B	250	235	230	235	220	225	E B 295	Q 250	B	B	A	A	E A 395
11	A	A	E A 370	A	A	A	A	A	330	265	255	245	230	225	235	230	235	225	210	225	B	B	285	A
12	A	A	A	A	A	A	A	A	E A 420	B	260	245	250	230	E B 265	210	215	230	220	B	B	Y	A	A
13	A	A	A	A	A	A	A	A	505	260	H 205	250	B	245	275	B	B	345	A	A	A	A	A	B
14	A	A	B	A	B	A	A	A	B	B	E B 275	240	220	225	215	220	205	225	200	220	230	330	A	A
15	A	A	A	A	A	E A 420	A	375	A	235	225	215	225	220	205	225	200	225	195	225	A 235	280	A	A
16	A	A	A	A	A	A	345	E A 405	355	H 230	B	240	240	245	230	230	210	200	220	210	200	A 280	A	E A 400
17	410	A	320	A	A	A	A	345	350	285	245	220	220	225	B 230	215	210	195	H 170	215	220	A	A	A
18	A	E A 400	C	A	A	E A 475	395	360	300	B	230	235	230	225	H 200	225	210	225	195	215	245	F 260	A	A
19	A	A	E A 315	A	B	A	Y	Q 455	Q 390	A	B	B	B	275	E B 330	B 275	B	B 290	240	290	A	A	A	A
20	265	A	A	A	A	B	B	A	B	B	B	B	B	B	E B 410	B 255	B	225	225	240	B	B	B	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 280	B	B	B	B
22	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B 225	E B 245	B 235	240	225	225	225	B	B	A
23	A	B 390	325	B 400	440	390	E B 425	375	B	245	250	270	235	230	220	230	210	210	205	215	255	275	B	B
24	A	A	A	A	500	E B 450	E B 395	B	E B 290	B	B 240	230	240	225	220	210	225	215	225	240	230	A	A	A
25	A	A	A	A	A	A	A	A	280	H 275	260	250	B	E B 250	240	B	B	225	E B 275	280	A	A	A	A
26	A	A	A	A	A	A	380	B	300	E 295	B	B	B	E B 275	240	235	225	245	210	250	270	A	A	A
27	Y	A	A	Y	E A 480	E A 460	B	Y	E B 375	B	B	B	B	B	B	B	265	275	245	245	B	A	A	A
28	A	A	A	A	B	B	Y	A	310	B	B	B 245	B	240	E B 255	240	240	225	230	225	B	H 260	E B 280	B
29	A	A	A	B	B	B	B	B	B	B	B	B	B	275	B	320	B	370	A	E B 400	B	A	B	A
30	A	A 400	A	A	B	A	A	B	B	A	B	290	B	B	280	B	250	230	235	B 275	B 255	260	E A 445	A
31	A	A	300	A	A	A 495	Q 450	Q 365	275	230	240	225	230	230	240	220	225	230	Q 200	225	215	E A 340	E A 390	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	4	5	6	2	5	8	9	9	16	10	16	21	15	24	26	25	24	28	27	27	15	10	4	2
MED	362	375	316	375	U 410	E A 435	U 370	362	303	252	245	242	235	230	228	228	225	226	222	232	232	279	E E 338	E A 398
UQ	392	A 400	328		480	E A 468	402	375	U 342	275	259	250	238	245	U 250	240	235	246	235	254	254	298	E A 418	
LQ	U 286	360	315		380	E E 400	345	345	292	230	230	235	230	225	225	220	210	225	200	225	228	260	282	

AUG. 1979 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	155	135	120	120	H 125	145	B	140	150	135	120	120	B	B	B	105	150	140	B	B	145	H 110	H 120
2	105	100	130	100	100	110	160	110	G	B	B	B	B	B	B	B	B	B	B	B	B	B	145	135
3	145	H 120	110	105	H 100	100	105	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	135	H 120
4	105	110	100	120	B	B	100	95	105	B	B	105	B	B	B	B	B	B	B	B	B	110	105	100
5	100	E G 155	E G 180	110	110	105	145	B	B	B	B	125	110	B	B	B	B	B	B	B	B	190	135	130
6	145	145	95	100	105	130	100	115	115	120	100	B	B	B	B	B	B	B	K 120	K 110	105	100	105	H 100
7	105	110	110	120	110	100	95	105	115	100	B	B	B	B	B	B	B	B	B	120	110	105	110	105
8	95	120	120	120	115	115	120	110	100	B	115	B	B	B	B	115	B	105	100	E G 175	165	150	K 115	K 115
9	K 110	K 140	115	B	H 100	105	110	105	105	B	B	B	B	145	135	130	G	B	105	B	G	K 120	K 125	K 120
10	K 115	K 110	K 110	K 110	K 115	110	105	100	110	B	B	B	B	135	G	G	B	B	B	B	B	110	H 115	E G 150
11	115	115	110	110	110	110	100	115	110	110	G	G	G	G	G	G	B	B	140	120	B	B	100	H 125
12	H 115	100	90	105	105	105	120	115	95	B	B	G	95	B	B	130	B	130	B	B	B	150	145	K 100
13	110	100	105	105	120	115	105	105	105	105	90	G	B	B	95	B	B	130	100	105	105	110	105	125
14	110	135	B	105	B	120	105	110	B	B	B	B	120	115	115	140	115	B	135	125	150	K 175	H 130	110
15	K 110	H 105	130	120	K 100	130	110	100	100	130	G	E G 175	140	175	90	145	135	105	110	105	125	180	160	K 105
16	K 105	105	A 125	100	95	100	100	105	120	95	B	B	B	B	B	105	B	B	B	B	135	110	100	135
17	H 120	105	110	120	120	95	95	105	110	100	120	125	125	130	B	140	115	165	100	100	125	145	110	K 100
18	K 110	110	C	115	K 105	105	95	95	120	B	95	G	175	100	100	95	100	B	B	E B 150	110	E B 190	140	100
19	105	105	100	100	125	110	105	145	130	110	B	B	B	150	B	B	B	B	B	185	110	140	130	125
20	160	120	100	110	120	B	B	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
21	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125
22	125	120	B	135	B	B	B	B 120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	120
23	120	E B 130	125	125	E B 125	B	B	B	B	B	B	B	B	B	B	B	B	B	105	B	B	B	B	B
24	175	145	E G 195	K 145	K 115	B	B	B	B	B	B	B	B	G	G	105	B	B	B	100	95	120	110	115
25	110	120	110	100	125	120	110	115	K 150	B	G	125	B	B	E G 140	B	B	B	B	120	110	140	110	130
26	130	105	125	95	110	130	K 110	B	K 110	B	B	B	B	B	B	B	B	B	B	B	B	K 120	K 110	K 110
27	150	115	F 105	175	120	120	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	110	115	125
28	110	E G 190	120	120	125	125	100	100	105	B	B	B	B	B	B	B	B	115	120	B	B	125	B	B
29	E G 155	105	115	B	B	B	B	B	B	B	B	B	B	175	B	G	B	B	115	B	B	115	B	115
30	H 120	H 105	130	125	125	100	105	B	B	105	B	B	B	B	B	B	B	B	B	B	B	175	120	120
31	K 125	140	140	H 115	120	120	A 180	140	105	G	135	G	E G 150	E G 150	B	130	G	145	100	B	125	110	140	K 110
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	27	28	26	24	24	22	19	11	7	6	8	9	6	10	5	8	13	12	13	24	25	28
MED	112	112	112	112	114	110	105	108	110	105	115	124	121	140	103	130	115	130	110	U 114	110	121	115	119
UQ	125	U 128	126	120	120	120	115	115	118	115	128	125	138	150	U 125	140	115	148	120	U 129	125	149	135	125
LQ	110	105	108	105	105	105	100	105	105	100	98	120	115	130	95	105	105	110	100	105	110	110	110	108

AUG. 1979 | H'ES (KM)

IONOSPHERIC DATA

AUG. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		FF 11	FF 11	FF 12	R 1	R 1	F 1		RL 11	L 1	L 1	L 1	L 1				L 1	F 1	F 1			RR 11	R 1	R 2
2	F 2	R 2	RF 11	R 1	R 1	R 1	FF 11	F 1															F 1	R 1
3	HK 11	F 2	R 2	R 2	F 2	FS 11	R 1			R 1													F 1	F 1
4	R 4	R 2	R 2	R 1			F 1	F 1	R 1			R 2										R 4	RR 11	R 2
5	R 3	HK 11	HK 12	R 2	R 2	R 3	FRF 11					L 1	L 1									R 1	RR 11	RF 12
6	RR 11	RR 11	R 1	R 2	R 2	FF 11	R 2	FF 11	L 1	R 1	L 2								K 1	K 1	R 4	R 3	F 3	R 3
7	R 3	R 2	R 2	R 2	R 1	R 1	R 2	RF 11	RL 11	R 1										A 1	R 3	R 4	RF 11	R 4
8	R 2	F 1	R 1	R 1	R 1	R 1	R 1	R 1	RL 21		C 1					R 1		CRK 11	R 1	HRK 11	F 1	R 1	K 5	K 3
9	K 5	K 1	R 3		R 1	R 2	R 2	RF 21	RL 11					H 1	R 1	L 1			F 1		K 1	K 3	K 1	K 4
10	K 3	K 3	K 3	KL 31	KL 41	R 2	R 2	R 2	RL 21					L 1								RS 21	R 1	HLK 11
11	R 2	R 2	F 2	R 1	R 2	R 2	R 1	R 1	R 1	R 1									F 1	F 1			LK 11	R 2
12	FRA 11	F 1	F 1	R 1	R 2	R 1	RF 11	R 1	R 2				L 1			C 2		F 1				RF 11	RF 21	K 3
13	R 2	RF 21	RF 11	RF 11	RF 21	RF 21	RS 11	R 2	RKS 11	L 2	L 1				L 1			RKL 21	RA 21	R 2	R 1	RS 31	R 4	A 1
14	RF 31	RRF 11		R 1		R 2	RF 21	R 1					L 1	L 1	L 1	H 1	L 1		F 1	F 1	F 1	KL 21	FF 11	R 2
15	K 3	R 3	HK 21	RFF 11	K 3	RA 12	R 2	FA 11	R 2	R 1		H 1	H 1	HCL 11	L 1	HL 11	AL 11	F 1	F 1	F 1	FF 11	HKL 11	ARF 11	K 7
16	K 4	R 2	RF 22	R 2	R 2	R 2	R 2	RF 31	HKL 12	L 1						L 1					F 1	FF 11	F 2	RA 11
17	KA 11	RF 33	RK 31	RRF 33	RRF 12	R 1	F 1	R 2	RL 21	R 1	L 1	CL 11	CL 11	R 1		H 1	C 1	FF 11	F 1	F 1	F 1	RFA 11	R 1	K 5
18	K 5	R 4		R 2	K 3	RFS 52	KLS 31	LKS 12	CL 11		AL 11		HL 21	LHL 11	LL 11	L 1	L 1			HKL 11	LKH 11	KK 11	RS 11	R 2
19	RS 11	RF 21	FF 12	R 2	R 1	R 1	FS 11	HK 11	HLK 11	RLS 11				H 1						R 1	R 2	RR 11	RR 21	R 1
20	HK 11	RR 12	R 1	R 1	R 1			R 1																
21																								R 1
22	R 1	R 1		F 1				R 1																R 1
23	R 1	R 1	R 1	R 1	R 1														F 1					
24	RR 11	HK 11	HK 11	K 1	K 1											L 1				F 1	F 1	R 1	RS 21	FS 11
25	RAS 11	RS 21	R 2	FS 21	RF 11	FFS 11	R 2	F 2	K 1			C 1			H 1					R 1	RS 11	RR 11	R 2	RR 22
26	RF 31	R 3	HK 21	F 1	FA 11	RF 11	K 3		K 1													K 3	K 3	K 3
27	R 1	R 1	FA 11	HK 11	R 1	RS 21		R 1														R 1	R 1	F 2
28	R 2	HK 12	R 2	R 2	R 1	R 1	F 1	R 1	R 1									F 1	F 1			LK 11		
29	HK 11	F 1	R 1											H 1					F 1			FA 11		R 1
30	RA 11	R 1	F 1	F 1	R 1	R 1	R 1			R 1												F 1	F 1	R 1
31	K 2	RF 11	FKR 12	R 2	R 2	R 2	RR 11	R 1	CL 11		C 1		H 1	H 1		C 1		RKL 11	F 1		F 1	RA 11	HK 12	K 5
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	53	72	70	Y	71	64	73	75	82	X 95	X 106	R 104	X 110	X 109	O R 104	R	U R 95	R 85	58	A	A	A
2	B	A	42	B	A	A	75	75	81	84	90	X 87	X 99	X 105	X 112	R	U R 120	X 100	R	R 90	71	Y	O R 31	O R 26
3	A	A	A	R	A	A	A	X 50	A	R 87	O R 78	O R 90	O R 104	O R 109	X 120	X 117	R 99	R 121	B	95	O R 69	O R 43	A	A
4	A	X 43	A	48	50	56	61	60	68	A	X 73	91	U R 97	O R 97	O R 110	U R 120	U R 118	R 116	R 110	76	48	X 22	A	A
5	X 31	A	O R 42	A	71	O R 55	Y	B	B	B	X 71	X 91	X 90	X 110	X 97	R 106	X 110	U R 108	R 118	90	A	A	A	A
6	A	A	A	63	Y	B	A	B	B	B	B	O R 57	X 64	O R 64	X 76	X 86	X 88	X 96	90	54	Y	34	R 30	A
7	A	A	A	69	A	62	A	A	O R 66	X 73	81	X 99	X 102	X 113	U R 104	R 98	R 101	R 109	R 116	X 81	38	A	A	A
8	A	A	A	A	A	A	A	65	74	75	X 82	95	R 90	B	117	115	119	R 106	R	82	75	42	30	A
9	A	A	40	A	A	A	A	Y	70	77	B	90	X 105	X 110	X 112	U R 110	R 96	R 92	X 86	76	55	24	A	A
10	A	A	A	65	59	A	60	70	79	72	X 85	X 97	X 91	X 104	X 115	X 115	X 117	X 124	X 119	100	A	A	A	A
11	A	57	A	55	Y	48	60	A	A	A	O R 72	X 80	X 80	90	B	B	B	R 97	X 77	O R 36	A	A	A	A
12	40	A	55	A	A	Y	O R 39	70	60	72	X 82	X 95	X 100	O R 106	X 99	X 101	S 101	X 106	R 100	90	83	52	24	A
13	A	A	A	A	81	70	Y	74	76	77	80	X 85	X 91	X 102	X 103	X 107	X 105	X 92	92	X 87	X 75	56	35	O R 23
14	A	A	A	A	A	A	66	83	84	90	R 98	R	X 117	X 119	X 113	X 114	X 110	X 102	X 95	X 91	X 77	57	46	99
15	62	48	81	47	A	56	47	47	61	65	X 71	X 80	X 82	X 86	X 81	87	X 82	X 81	R 85	X 77	70	51	41	41
16	75	57	A	X 37	A	A	A	A	O R 58	O R 70	B	X 70	R 75	X 65	X 71	X 72	O R 72	B	O R 77	X 80	63	R	A	A
17	A	A	A	A	O R 44	A	B	B	B	B	B	B	U R 91	O R 89	R	R 95	R 111	B	R	X 89	82	O R 50	B	X 30
18	A	A	B	B	B	O R 56	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	O R 47	A
19	O R 35	A	O R 40	31	44	O R 42	B	B	B	B	B	O R 86	Y	Y	Y	U R 106	R 101	X 88	X 90	X 77	X 67	X 50	O R 36	O R 29
20	X 37	80	70	O R 48	A	Y	Y	B	O R 72	77	B	X 93	R 106	U R 108	X 114	X 111	R 93	O R 86	B	B	A	A	O R 43	40
21	O R 39	39	A	A	B	B	B	B	B	Y	B	X 66	O R 67	O R 73	O R 75	O R 75	O R 77	O R 78	O R 80	68	63	40	A	A
22	O R 44	44	A	A	A	Y	O R 56	X 74	O R 78	X 83	X 91	X 90	O R 98	R 96	O R 100	X 107	X 101	O R 92	R	X 96	64	67	46	38
23	34	61	61	62	60	69	X 65	Y	Y	O R 71	X 85	X 90	100	X 110	X 116	X 116	X 115	X 115	X 110	X 100	82	B	O R 32	A
24	44	45	69	O R 36	70	81	73	X 70	X 71	O R 82	O R 81	90	X 96	110	X 116	125	X 122	R 120	X 100	76	52	47	44	A
25	B	X 70	72	85	64	90	B	B	B	B	B	X 75	X 91	X 100	100	X 100	X 102	X 99	X 84	X 59	A	A	A	A
26	A	A	58	B	70	B	B	B	67	74	O R 75	B	X 90	X 94	X 95	X 91	R 96	90	87	X 86	53	A	A	B
27	A	70	O R 44	70	B	B	B	O R 51	B	B	75	X 76	X 86	O R 87	X 91	R 102	X 101	O R 96	X 96	X 90	81	38	A	38
28	O R 42	O R 48	80	80	A	Y	Y	Y	B	B	B	O R 69	X 71	B	X 89	X 90	X 90	X 91	X 91	90	X 46	A	45	44
29	A	A	80	95	Y	Y	85	O R 75	Y	X 66	X 72	X 75	80	O R 85	X 86	X 85	X 81	X 90	X 86	82	51	36	A	A
30	A	X 59	B	B	75	80	B	B	B	B	B	B	B	B	O R 85	90	X 86	X 85	X 90	81	46	32	X 30	O R 41
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	11	13	15	16	12	12	12	14	16	18	19	25	27	25	26	27	28	26	23	28	23	17	15	11
MED	40	57	58	62	67	59	63	70	72	75	81	X 90	X 91	102	X 102	X 106	101	96	X 91	84	64	43	36	38
UQ	44	61	71	71	70	75	72	74	77	82	84	X 91	X 100	X 109	X 113	X 112	110	R 108	100	90	75	51	44	41
LQ	36	45	43	48	54	56	58	60	66	72	74	X 76	X 84	R 89	X 89	90	92	X 90	X 86	76	52	36	30	30

SEP. 1979 | FXI (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	J F 46	F 66	F 56	Y	F	F 56	J F 66	F 67	F 75	89	100	J R 98	104	J R 103	U R 98	R	U R 89	R 79	R 51	A	A	A
2	B	A	J R 32	B	A	A	F	F 55	U F 71	F 70	83	81	93	99	106	R	U R 114	R 94	R	R 84	F 62	Y	25	20
3	A	A	A	R	A	A	A	R 44	A	R 80	R 72	U R 84	U R 99	U R 103	R 114	110	U R 92	J R 115	B	R 85	63	37	A	A
4	A	F 37	A	F	F 43	F 48	F 53	F	F	A	66	F 84	R 91	U R 91	U R 104	R 113	112	110	U R 104	F 64	F 41	16	A	A
5	25	A	F 36	A	F	F 49	Y	B	B	B	65	R 84	84	104	J R 91	100	104	J R 102	R 112	Z 77	A	A	A	A
6	A	A	A	F 46	Y	B	A	B	B	B	B	51	58	58	70	80	81	90	F 83	F 25	Y	22	24	A
7	A	A	A	F	A	F 50	A	A	R 60	67	F 71	92	96	107	U R 98	92	R 95	U R 103	U R 100	F 74	F 31	A	A	A
8	A	A	A	A	A	A	A	56	F 65	66	76	F 84	U R 84	B	F 104	F 105	F 110	R 100	R	F 75	R	F 35	F 24	A
9	A	A	F	A	A	A	A	Y	F 61	F 66	B	F 79	99	J R 104	J R 106	R 93	J R 90	J R 86	80	68	45	15	A	A
10	A	A	A	F	A	A	A	F 53	F 68	F 65	79	J R 91	85	98	109	S 109	111	118	112	J F 94	A	A	A	A
11	A	F	A	F 45	Y	F 40	F 45	A	A	A	R 66	73	74	F 79	B	B	B	91	R 70	F 29	A	A	A	A
12	F	A	F 45	A	A	Y	F 32	Y	F 52	F 64	76	89	J R 94	100	J R 93	J R 95	J R 95	J R 100	R 94	F 84	F 75	F 45	F 18	A
13	A	A	A	A	F	F 44	Y	F 64	F 67	F 64	F 70	79	85	96	97	100	99	86	86	81	69	F 47	J F 28	17
14	A	A	A	A	A	A	F	J F 77	F 75	F 79	92	R	J R 111	113	107	108	S 104	96	89	J R 85	71	F	J F 39	F
15	F	F	A	F 35	A	31	F 35	F	F 54	56	65	74	76	80	75	F 80	76	75	79	71	F 62	F 44	F 30	F 24
16	A	F 34	A	F 31	A	A	A	A	R 52	64	B	64	69	J R 59	65	66	66	B	71	74	F 56	R	A	A
17	A	A	A	A	F 38	A	B	B	B	B	B	B	U R 85	U R 83	R	U R 89	U R 105	B	R	83	F 72	F 41	B	R 24
18	A	A	B	B	B	50	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	F 40	A
19	R 29	A	F	F	31	36	B	B	B	B	B	80	Y	Y	Y	R 100	R 95	82	84	71	61	44	F 29	23
20	31	A	F 60	U R 42	A	Y	Y	B	66	U Y 70	B	R 92	U R 100	R 102	107	R 105	R 86	R 80	B	B	A	A	F 35	F
21	F 31	F 27	A	A	B	B	B	B	B	Y	B	54	R 61	66	69	69	71	72	74	F 62	F 55	F 30	A	A
22	F 38	F 38	A	A	A	Y	U R 51	68	72	77	85	R 84	92	R 90	94	101	U R 95	U R 86	R	90	F 52	F	F 36	F 29
23	F 20	28	35	F	F 25	B	60	Y	Y	65	79	R 84	90	104	109	J R 110	109	J R 109	104	94	F 71	B	F 25	A
24	F 32	F 25	32	30	36	59	R 64	64	65	76	H 75	73	90	101	110	R 114	116	R 114	94	F 60	F 45	F 40	F 35	A
25	B	64	F 55	F	F 54	F 62	B	B	B	B	B	70	85	95	90	94	96	93	77	53	A	A	A	A
26	A	A	46	B	F	B	B	B	F 60	F 60	69	B	84	88	89	85	90	84	F 76	80	F 40	A	A	B
27	A	F	R 38	A	B	B	B	F 64	B	B	F 67	70	F 80	81	85	96	95	U R 88	90	84	71	J R 32	A	F 31
28	36	42	F 72	F	A	Y	Y	Y	B	B	B	63	66	B	83	84	84	85	85	82	40	A	F 37	F
29	A	A	F	F	Y	Y	F	66	Y	60	66	69	70	79	80	79	75	83	80	F 75	F 44	F 26	A	A
30	A	B 53	B	F	F	B	B	B	B	B	B	B	B	B	79	F 80	80	79	84	F 75	J F 40	F	F 24	S 35
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	11	7	7	10	7	11	15	18	19	25	27	25	26	27	28	26	23	28	22	14	15	8
MED	31	F 37	F 45	F 42	F 38	F 48	F 51	F 64	F 65	66	72	80	85	96	96	96	95	90	85	76	F 56	F 36	F 29	24
UQ	34	42	F 50	F 46	F 42	F 50	56	65	F 68	70	78	84	94	102	106	105	104	R 102	94	84	F 69	F 44	F 36	F 30
LQ	27	F 28	36	33	34	F 40	F 40	F 56	F 60	F 64	66	70	78	81	83	84	85	84	80	F 70	F 44	26	F 24	22

SEP. 1979 | FOF2 (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2											L													
3																								
4																								
5																								
6																								
7														L										
8																								
9									L				L											
10												L												
11														L										
12																								
13														L										
14																								
15									L	400	450	L 450		L										
16												U R 440	B											
17																								
18																								
19																								
20															L	L								
21													R 450											
22											R		L	L										
23																L		L 250						
24									R	B					L	L								
25																								
26																								
27								350			L	L	L 510	B										
28												L	B											
29								B	Y	450	460	460	L 500	B	B		L							
30															B	L								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								1		2	2	3	3					1						
MED								350		425	455	450	L 500					L 250						
UQ												455	L 505											
LQ												445	475											

SEP. 1979 | FOF1 (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			K 180						A	A	240	245	260	260	250	H 240	A	H 160	A				K 430	
2							A	R	H 200	H 240	250	270	275	265	260	B	B	B	B			B	B	K 160
3	K 300			K 350					K 320	B	B	B	B	B	260	215	H 200	B	B	B	B	B		
4	K 340	K 300	K 350	J K 300	K 280			A	A	A	A	B	B	B	B	B	A	B	B	B	K 170		K 260	
5		K 340				K 420			B	B	B	B	B	B	B	B	210	B	R		K 340	K 410		
6				K 260					B	B	B	300	260	B	B	B	B	B	R					
7	K 230	J K 280			K 410		B	A	5	280	260	285	H 290	280	R 260	B	210	175	B				J K 250	K 270
8									210	A	285	R 295	B	B	280	B	230	B	B					
9									A	260	B	A	280	295	270	250	225	190	B					
10								A	300	B	B	B	285	275	275	R 260	R	B	B		K 370			
11								A	A	A	A	B	B	300	B	B	B	B	K 350					
12									280	H 270	H 275	280	290	280	A	A	A	200	180				K 170	J K 340
13								A	A	240	245	A	A	A	A	260	220	175	130	R				
14	K 300	K 280						A	240	250	280	B	320	R	310	280	245	200	230					
15							A	A	A	B	275	300	R 280	285	A	275	230	220	B					
16							B	B	B	B	B	B	B	B	B	B	B	B	B					
17	K 330						B	B	B	B	B	B	B	B	B	B	B	B	B					
18								B	B	B	B	B	B	B	B	B	B	B	B					
19		K 260	K 230			K 290		B	B	B	B	B	B	B	B	B	B	B	B					
20							B	B	B	B	B	B	B	B	285	A	B	B	B					
21								B	B	B	B	B	B	B	B	B	B	B	B					
22							B	B	B	B	B	R	295	285	285	275	H 250	B	B					
23		K 240	K 250	K 240			K 360	B	B	A	B	315	285	295	300	R	255	R	B					
24	K 260		K 280				A	B	A	B	B	B	310	310	295	285	B	B	B		K 220	K 190		K 250
25							B	B	B	B	B	320	B	B	B	295	B	B	B	K 290				
26							B	B	A	355	B	B	B	320	305	285	255	B	B	175				
27								280	B	B	310	315	R	B	300	295	250	B	B	B	145	K 290	K 310	U K 290
28	K 260						B	A	B	B	B	B	B	B	B	B	B	H 240	U R 210	B	U K 190			
29							A	B	A	B	B	B	B	B	B	B	260	B	B	B		K 190	K 330	K 280
30	K 320						B	B	B	B	B	B	B	B	B	300	B	245	215	175				
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	4	2	2	1	1	6	7	9	10	12	12	14	13	13	9	6	3	6	4	6	6
MED	K 300	K 280	K 250	K 280	K 345	K 355	K 360	280	260	260	275	298	285	285	282	275	230	200	212	175	K 205	K 240	K 285	K 275
UQ	K 325	K 300	K 280	K 325					300	275	280	315	292	298	300	285	250	220	230	232	K 340	K 350	K 330	K 290
LQ	K 260	K 260	K 230	K 250					210	245	250	280	278	278	260	260	220	175	180	175	K 170	K 190	K 250	K 250

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	JA 52	42	30	36	32	36	EB 35	39	28	21	G	28	G	27	27	25	23	G	9	EB 8	9	JA 29	K 43	JA 44
2	B	35	26	B	38	35	29	G	G	G	27	G	29	31	32	EB 48	EB 55	EB 30	EB 21	EB 20	EB 19	EB 25	EB 18	20
3	K 30	JA 41	38	K 35	40	39	JA 54	JA 36	K 52	EB 56	EB 51	EB 56	EB 70	EB 61	28	26	JA 22	EB 32	B	EB 34	EB 30	EB 23	JA 31	36
4	38	35	49	JK 30	34	30	JA 23	JA 27	81	56	41	EB 29	EB 47	EB 73	FB 56	EB 31	JA 28	EB 23	EB 22	EB 16	JA 24	EB 13	K 26	30
5	31	K 34	34	39	JA 40	K 42	36	B	B	B	EB 32	EB 43	EB 32	EB 31	EB 34	EB 44	24	EB 44	G	EB 17	39	K 41	50	47
6	JA 40	42	35	K 26	40	B	60	B	B	B	B	36	G	EB 52	EB 32	EB 31	EB 21	EB 19	EB 22	24	21	20	25	21
7	K 23	JK 28	JA 50	JA 50	K 41	45	60	JA 56	EB 56	G	G	G	30	32	G	EB 47	G	G 15	15	EB 13	EB 11	JA 24	JK 25	K 27
8	24	24	JA 34	JA 45	46	44	45	35	35	36	G 16	G	EB 57	B	G	EB 41	G	EB 60	EB 26	EB 15	EB 24	EB 14	JA 24	34
9	33	JA 30	JA 36	JA 42	41	50	50	36	35	G	B	32	30	G	31	G	G	18	EB 14	12	EB 8	17	JA 32	35
10	JA 32	JA 65	JA 45	JA 35	36	45	43	46	35	EB 42	EG 30	EB 30	30	G	G	G	23	EB 21	EB 21	21	K 37	JA 54	JA 64	35
11	36	36	44	JA 30	30	28	36	44	50	59	51	EB 40	EB 44	G	B	B	B	EB 45	K 35	27	31	37	35	31
12	55	52	JA 84	JA 45	41	30	24	36	G 14	G	G	G	32	33	31	31	24	G 16	G 13	18	12	16	K 17	JK 34
13	JA 40	40	JA 59	55	44	JA 46	41	44	30	G 23	G	31	35	32	28	G	G	21	G 14	G	14	9	JA 21	EB 13
14	K 30	57	37	30	37	46	35	34	27	G	G	EB 62	G	G	G	G	G 16	G 13	G	EB 9	12	9	12	40
15	26	34	JA 30	JA 30	45	F 34	F 26	32	37	EB 30	G	G	G	G	30	G	28	G	EB 28	EB 19	EB 11	EB 12	15	22
16	32	28	29	18	JA 51	JA 44	51	B	EB 45	EB 52	B	EB 34	EB 55	EB 42	EB 59	EB 32	EB 32	B	EB 60	EB 25	EB 18	23	35	30
17	56	45	B	36	31	39	B	B	B	B	B	B	EB 61	EB 60	EB 45	EB 30	EB 45	B	EB 49	EB 35	EB 31	EB 18	B	22
18	40	48	JA 75	JA 57	B	40	B	B	B	B	B	B	B	B	B	B	B	B	B	B	34	38	35	34
19	27	K 26	K 23	20	26	K 29	B	B	B	B	B	EB 61	EB 45	EB 49	EB 46	EB 34	EB 32	EB 45	EB 48	EB 24	EB 14	EB 13	EB 15	EB 15
20	29	71	JA 57	32	42	35	36	B	EB 59	EB 61	B	EB 72	EB 32	EB 32	G 24	36	EB 27	EB 55	B	B	28	34	36	35
21	32	13	55	36	B	B	B	B	B	39	B	EB 50	EB 35	EB 55	EB 50	EB 42	EB 50	EB 34	EB 31	EB 24	EB 17	19	35	32
22	35	F 30	38	52	46	37	29	EB 53	EB 45	EB 31	EB 33	G	G	31	G	G	G	EB 25	EB 46	EB 17	EB 16	EB 19	14	15
23	19	K 24	K 25	K 24	22	B	K 36	37	36	41	EB 40	G	G	G	G	G	G	G	EB 23	EB 20	30	B	25	30
24	K 26	21	K 28	45	26	27	36	32	35	EB 72	EB 35	EB 32	G	G	G	G	EB 58	EB 35	28	24	31	JA 60	39	30
25	55	EB 55	35	30	36	23	B	B	B	B	B	G	EB 35	EB 35	EB 32	G	EB 30	EB 25	EB 24	K 29	41	30	35	JA 50
26	75	50	35	B	36	B	B	B	46	37	EB 51	B	EB 45	G	G	G	27	24	EB 22	G	33	36	JA 54	B
27	33	JA 30	JA 36	36	B	B	B	G	B	B	G	G	G	EB 65	G	G	G	EB 45	EB 55	EB 32	G	K 29	K 31	44
28	30	32	67	33	44	35	35	48	B	B	B	EB 32	EB 46	B	EB 34	EB 32	EB 26	G	G	EB 20	28	JA 32	30	36
29	30	89	JA 38	JA 64	38	36	29	EB 55	35	EB 40	EB 34	EB 32	EB 34	EB 60	EB 61	EB 30	G	25	EB 26	EB 19	26	K 19	K 33	K 28
30	K 32	31	G	B	38	26	B	B	B	B	B	B	B	B	EB 62	G	EB 29	G	G	G	20	JA 24	21	28
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	28	27	27	25	22	19	20	21	19	26	28	26	28	28	28	27	27	28	30	29	29	29
MED	32	34	36	36	38	36	36	36	36	EG 37	EG 30			EG 32	EG 30	EG 28	EG 24	EB 24	EB 22	EB 20	U 18	22	31	31
UQ	40	46	50	45	42	44	45	44	U 42	EB 52	EB 38	EB 40	EB 45	EB 52	EB 40	EB 33	EB 30	EB 34	EB 30	EB 24	31	32	35	35
LQ	30	30	32	30	35	30	29	33	32	EG 21	G	G	G	G	G	G	G	EG 16	EG 14	EB 14	EB 14	U 13	21	27

SEP. 1979 | FOES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A A 52	A A 42	21	30	28	U Y 36	E B 53	34	26	21	G	27	G	27	26	25	22	G	8	E B 8	8	A A 29	A A 43	A A 44
2	B	A A 35	23	B	A A 38	A A 35	24	G	G	G	26	G	29	28	31	E B 48	E B 55	E B 30	E B 21	E B 20	E B 19	E B 25	E B 18	K 16
3	K 30	A A 41	A A 38	K 35	A A 40	A A 39	A A 54	30	A A 52	E B 56	E B 51	E B 56	E B 70	E B 61	28	24	17	E B 32	B	E B 34	E B 30	E B 23	A A 31	A A 36
4	38	31	49	K 30	28	20	20	18	34	A A 56	40	E B 29	E B 47	E B 73	E B 56	E B 31	25	E B 23	E B 22	E B 16	G	E B 13	A A 26	A A 30
5	31	K 34	30	A A 39	21	U Y 42	U Y 36	B	B	B	E B 32	E B 43	E B 32	E B 31	E B 34	E B 44	20	E B 44	G	E B 17	A A 39	A A 41	A A 50	A A 47
6	A A 40	42	A A 35	K 26	U Y 40	B	A A 60	B	B	B	B	27	G	E B 52	E B 32	E B 31	E B 21	E B 19	E B 22	20	U Y 21	20	18	A A 21
7	K 23	A A 28	A A 50	18	A A 41	39	A A 60	J A 56	E B 56	G	G	G	G	G	G	E B 47	G	G 15	14	E B 13	E B 11	A A 24	A A 25	A A 27
8	A A 24	A A 24	A A 34	A A 45	A A 46	A A 44	A A 45	32	15	35	U Y 16	G	E B 57	B	G	E B 41	G	E B 60	E B 26	E B 15	E B 24	E B 14	14	A A 34
9	A A 33	A A 30	30	A A 42	A A 41	A A 50	A A 50	U Y 36	30	C	B	32	30	G	G	G	G	16	E B 14	12	E B 8	13	A A 32	A A 35
10	A A 32	A A 65	A A 45	32	A A 36	A A 45	A A 43	46	G	E B 42	E B 30	E B 30	30	G	G	G	23	E B 21	E B 21	15	A A 37	A A 54	A A 64	A A 35
11	A A 36	31	A A 44	25	U Y 30	28	31	A A 44	A A 50	A A 59	U Y 51	E B 40	E B 44	G	B	B	B	E B 45	K 35	18	A 31	A A 37	A A 35	A A 31
12	21	A A 52	25	A A 45	A A 41	U Y 30	U Y 24	U Y 36	G 14	G	G	G	32	29	29	29	22	15	G 13	15	10	12	K 16	A A 34
13	A A 40	A A 40	A A 59	A A 55	U Y 44	22	U Y 41	32	24	G 23	G	28	30	28	28	G	G	19	G	G	8	8	9	E B 13
14	A A 30	A A 57	A A 37	A A 30	A A 37	A A 46	30	22	G	G	G	E B 62	G	G	G	G	G 16	G 13	G	E B 9	10	9	12	30
15	19	34	A A 30	23	A A 45	27	25	30	27	E B 30	G	G	G	G	30	G	24	G	E B 28	E B 19	E B 11	E B 12	14	19
16	A A 32	24	A A 29	U Y 18	A A 51	A A 44	A A 51	B	E B 45	E B 52	B	E B 34	E B 55	E B 42	E B 59	E B 32	E B 32	B	E B 60	E B 25	E B 18	22	A A 35	A A 30
17	A A 56	A A 45	B	A A 36	30	A A 39	B	B	B	B	B	B	E B 61	E B 60	E B 45	E B 30	E B 45	B	E B 49	E B 35	E B 31	E B 18	B	19
18	A A 40	A A 48	E B 30	E B 31	B	40	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A A 34	A A 38	30	A A 34
19	27	A A 26	K 23	20	21	K 29	B	B	B	B	B	E B 61	E B 45	E B 49	E B 46	E B 34	E B 32	E B 45	E B 48	E B 24	E B 14	E B 13	E B 15	E B 15
20	28	A A 71	29	32	A A 42	U Y 35	U Y 36	B	E B 59	E B 61	B	E B 72	E B 32	E B 32	G 24	32	E B 27	E B 55	B	B	A A 28	A A 34	31	30
21	27	18	A A 55	A A 36	B	B	B	B	B	U Y 39	B	E B 50	E B 35	E B 55	E B 50	E B 42	E B 50	E B 34	E B 31	E B 24	E B 24	15	A A 35	A A 32
22	32	28	A A 38	A A 52	A A 46	U Y 37	U Y 29	E B 53	E B 53	E B 31	E B 33	G	G	31	G	G	G	E B 25	E B 46	E B 17	E B 16	E B 19	11	14
23	18	K 24	K 25	K 24	22	B	K 36	U Y 37	U Y 36	U Y 41	E B 40	G	G	G	G	G	G	G	E B 23	E B 20	26	B	21	A A 30
24	K 26	19	K 28	26	24	U Y 27	U Y 36	U Y 32	35	E B 72	E B 35	E B 32	G	G	G	G	E B 58	E B 35	U Y 28	23	K 22	22	20	A A 30
25	E B 41	E B 55	32	30	U Y 36	U Y 23	B	B	B	B	B	G	E B 35	E B 35	E B 32	G	E B 30	E B 25	E B 24	K 29	A A 41	A A 30	A A 35	A A 50
26	A A 75	A A 50	30	B	22	B	B	B	U Y 46	30	E B 51	B	E B 45	G	G	G	27	24	E B 22	G	25	A A 36	A A 54	B
27	A A 33	22	34	A A 36	B	B	B	G	B	B	G	G	G	E B 65	G	G	G	E B 45	E B 55	E B 32	G	K 29	A A 31	K 29
28	23	30	28	26	A A 44	U Y 35	U Y 35	U Y 48	B	B	B	E B 32	E B 46	B	E B 34	E B 32	E B 26	G	G	E B 20	U K 19	A A 32	26	19
29	A A 30	A A 89	30	30	U Y 38	U Y 36	29	E B 55	U Y 35	E B 40	E B 34	E B 32	E B 34	E B 60	E B 61	E B 30	G	25	E B 26	E B 19	20	K 19	A A 33	A A 28
30	A A 32	30	B	B	38	24	B	B	B	B	B	B	B	B	E B 62	G	E B 29	G	G	G	19	20	19	28
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	28	27	27	25	22	19	20	21	19	26	28	26	28	28	28	27	27	28	30	29	29	29
MED	A A 32	A A 33	30	30	38	36	36	33	U 30	E G 35	E G 30			E G 30	E G 28	E G 27	E G 22	E B 24	E B 22	E B 18	U 14	21	26	A A 30
UQ	A A 37	A A 46	A A 38	A A 36	A A 42	A A 40	A A 48	U 40	U 42	E B 52	E B 38	E B 40	E B 45	E B 52	E B 40	E B 32	E B 30	E B 34	E B 30	E B 24	26	A A 30	A A 35	A A 34
LQ	27	28	28	26	29	28	29	30	20	E G 21	G	G	G	G	G	G	G	E G 15	E G 14		E G 11	U 12	18	21

SEP. 1979 | FBES (0.1 MHZ)

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	12	13	9	20	14	31	35	12	12	15	18	16	18	15	17	12	12	9	7	8	7	9	9	20
2	B	21	14	B	25	13	16	26	12	14	9	14	12	15	22	48	55	30	21	20	19	25	18	8
3	8	8	7	9	26	16	22	22	21	56	51	56	70	61	23	12	10	32	B	34	30	23	7	11
4	15	12	11	9	9	8	9	8	19	23	22	29	47	73	56	31	17	23	22	16	12	13	8	7
5	8	12	11	13	10	15	24	B	B	B	32	43	32	31	34	44	15	44	18	17	10	8	10	8
6	11	19	20	11	32	B	19	B	B	B	B	25	20	52	32	31	21	19	22	11	12	12	9	7
7	7	7	9	8	18	11	32	12	56	22	15	16	18	19	23	47	12	14	13	13	11	8	7	8
8	8	8	8	16	14	15	13	11	8	11	14	24	57	B	23	41	18	60	26	15	24	14	8	5
9	10	18	15	25	19	14	22	21	21	18	B	25	18	18	15	17	15	16	14	10	8	8	8	15
10	8	10	8	11	15	25	14	14	14	42	30	30	19	22	20	24	19	21	21	9	7	8	6	6
11	16	13	22	13	21	21	18	21	19	20	21	40	44	25	B	B	B	45	20	8	7	10	6	11
12	8	8	21	15	15	19	8	15	11	15	15	15	17	17	14	16	14	12	8	7	7	6	7	8
13	7	10	21	18	18	8	21	14	15	15	14	14	15	14	15	13	14	12	10	7	7	6	7	13
14	6	8	12	10	14	12	12	14	16	13	18	62	24	21	16	15	11	11	8	9	8	7	7	15
15	9	11	10	11	13	7	10	11	14	30	18	22	15	15	16	18	14	18	28	19	11	12	11	11
16	12	13	14	14	19	22	27	B	45	52	B	34	55	42	59	32	32	B	60	25	18	18	14	15
17	15	15	B	22	22	24	B	B	B	B	B	B	61	60	45	30	45	B	49	35	31	18	B	16
18	19	19	30	31	B	20	B	B	B	B	B	B	B	B	B	B	B	B	B	B	21	19	20	17
19	18	18	15	14	18	15	P	B	P	P	B	61	45	49	46	34	32	45	48	24	14	13	15	15
20	15	19	20	25	21	22	31	B	59	61	B	72	32	32	17	22	27	55	B	B	20	13	19	14
21	13	14	17	21	B	B	B	B	B	32	B	50	35	55	50	42	50	34	31	24	17	11	14	15
22	12	14	14	16	17	20	20	53	45	31	33	23	19	18	16	21	20	25	46	17	16	19	18	10
23	9	11	11	14	21	B	19	30	30	25	40	23	20	15	20	19	20	15	23	20	15	B	10	8
24	10	11	11	13	11	12	19	30	22	72	35	32	23	18	16	19	58	35	22	15	13	13	11	10
25	41	55	14	11	13	21	B	B	B	B	B	29	35	35	32	22	30	25	24	14	15	10	11	12
26	11	24	16	B	11	B	B	B	25	19	51	B	45	23	23	24	22	21	22	16	12	9	11	B
27	22	8	20	25	B	B	S	20	B	B	16	20	21	65	22	22	23	45	55	32	11	7	8	11
28	15	18	10	10	18	34	28	21	B	B	B	32	46	B	34	32	26	19	18	20	9	9	11	8
29	10	28	14	14	25	31	22	55	25	40	34	32	34	60	61	30	18	23	26	19	6	10	7	11
30	9	14	B	B	17	15	B	B	B	B	B	B	B	B	62	24	29	16	18	11	9	12	13	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	30	30	30	30	30	30	30
MED	11	13	14	14	18	20	22	28	28	36	34	31	32	32	23	24	20	24	22	16	12	12	10	11
UQ	15	18	20	22	22	31	B	B	B	B	B	56	46	60	46	34	32	45	46	24	17	14	14	15
LQ	8	10	11	11	14	14	18	14	16	19	18	23	19	18	17	19	15	16	18	11	8	8	7	8

SEP. 1979 | F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	J F 275	F 260	F 235	Y	F	F 260	F 280	F 310	F 335	280	290	J R 330	295	J R 320	U R 340	R	U R 320	R 320	R 315	A	A	A
2	B	A	J R 260	B	A	A	F	F 275	U F 285	F 315	305	310	280	310	310	R	U R 310	R 295	R	R 315	F 320	Y	295	285
3	A	A	A	R	A	A	A	R 305	A	280	R 285	U R 300	U R 300	U R 330	R 300	290	U R 305	J R 305	B	R 310	310	315	A	A
4	A	F 265	A	F	F 235	F 255	F 245	F	F	A	295	F 285	R 305	U R 305	U R 310	R 300	290	305	U R 315	F 310	F 285	295	A	A
5	250	A	F 255	A	F	A	Y	B	B	B	315	R 285	300	300	J R 305	280	295	J R 285	R 295	325	A	A	A	A
6	A	A	A	F 275	Y	B	A	B	B	B	B	290	270	B	275	290	295	310	F 295	A	Y	270	300	A
7	A	A	A	F	A	F 260	A	A	B	285	F 285	285	280	290	U R 285	315	R 310	U R 305	U R 330	F 325	F 305	A	A	A
8	A	A	A	A	A	A	A	270	280	275	290	305	315	B	320	320	310	330	R	320	R	320	280	A
9	A	A	F	A	A	A	A	Y	260	270	B	275	300	J R 300	J R 315	R 310	U R 335	J R 340	310	310	310	280	A	A
10	A	A	A	F	A	A	A	250	300	F 300	285	J R 310	305	280	275	S 285	300	310	315	305	A	A	A	A
11	A	F	A	F 290	Y	315	275	A	A	A	A	290	270	270	B	B	B	300	305	280	A	A	A	A
12	F	A	F 260	A	A	Y	F 240	Y	F 275	F 275	280	280	J R 300	315	J R 320	J R 365	U R 325	J R 345	R 350	F 325	F 315	F 300	F 270	A
13	A	A	A	A	F	F 280	Y	F 270	F 290	F 270	F 280	280	275	300	280	290	285	320	325	315	315	F 330	J F 300	275
14	A	A	A	A	A	A	F	J F 275	F 285	F 270	280	R	J R 280	290	295	300	S 305	315	310	J R 315	320	F	J F 315	F
15	F	F	A	F 275	A	A	F 240	F	F 240	250	255	275	285	270	280	F 300	300	310	315	315	F 305	F 300	F 310	F 280
16	A	F 300	A	F 300	A	A	A	A	B	255	B	240	275	J R 315	B	300	310	B	320	320	F 320	R	A	A
17	A	A	A	A	F 260	A	B	B	B	B	B	B	U R 320	U R 345	R	U R 325	U R 315	B	R	305	F 320	F 315	B	R 285
18	A	A	B	B	B	250	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	F 280	A
19	A	A	F	F	265	280	B	B	B	B	B	315	Y	Y	Y	R 320	R 325	320	320	315	305	325	F 320	280
20	280	A	F 300	U R 300	A	Y	Y	B	255	U Y 265	B	R 290	U R 280	R 270	275	R 275	R 275	R 270	B	B	A	A	F 275	F
21	F 265	F 275	A	A	B	B	B	B	B	Y	B	B	R 240	250	255	290	275	305	300	F 300	F 290	F 290	A	A
22	F 285	270	A	A	A	Y	U R 290	270	275	255	270	R 300	300	R 300	310	290	U R 310	U R 325	R	320	F 310	F	F 300	F 285
23	F 240	265	265	F	F 230	B	250	Y	Y	Y	275	R 285	280	300	285	J R 300	300	J R 310	305	300	F 305	B	F 260	A
24	F 240	F 275	270	240	240	255	R 250	265	230	B	H 270	280	280	280	280	R 275	270	R 300	300	F 305	F 300	F 305	F 285	A
25	B	B	F 250	F	F 270	F 290	B	B	B	B	B	265	315	280	290	300	300	305	320	300	A	A	A	A
26	A	A	260	B	F	B	B	B	F 250	F 315	275	B	280	265	270	280	280	285	F 285	290	F 300	A	A	B
27	A	F	A	A	B	B	B	F 235	B	B	F 270	250	265	280	300	300	300	U R 320	300	300	300	J R 230	A	A
28	270	265	F 270	F	A	Y	Y	Y	B	B	B	250	245	B	260	270	275	280	300	300	260	A	F 250	F
29	A	A	F	F	Y	Y	F	240	Y	240	245	240	250	255	B	265	250	275	305	F 305	F 280	F 280	A	A
30	A	270	B	B	F	F	B	B	B	B	B	B	B	B	280	F 275	285	280	300	F 300	J F 275	F	F 285	S 285
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	8	10	7	7	8	7	11	13	16	18	24	27	24	24	27	28	26	23	27	22	14	15	7
MED	F 265	270	F 262	F 275	F 240	270	250	270	F 275	272	280	285	280	295	288	300	300	305	310	310	F 305	300	F 285	285
UQ	275	F 275	F 270	F 295	262	285	262	272	F 285	F 292	290	295	300	R 308	308	305	R 310	320	320	318	F 315	F 315	F 300	285
LQ	F 245	265	F 260	F 268	F 235	255	F 242	255	255	260	270	275	275	275	278	282	285	295	300	300	F 300	280	F 278	280

SEP. 1979 | M(3000)F2 (0.01)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1979 | H'F2 (KM) | 45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00'.4 S, Long. 39° 35'.4 E Sweep 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2											250													
3																								
4																								
5																								
6																								
7														250										
8																								
9									380				245											
10												275												
11														310										
12																								
13														260										
14																								
15									500	455	455	340		320										
16												480	400 B											
17																								
18																								
19																								
20															260	270								
21													550											
22											E R 355		270	280										
23																260		240						
24									580	B					275	280								
25																								
26																								
27								580			420	L 380	380	E B 350										
28												L	450											
29								B	Y	500	450	455	420	405	B		360							
30															E B 380	L 330								
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	3	2	5	5	7	7	3	4	1	1						
MED								580	500	478	420	380	400	U 295	268	275	360	240						
UQ									540		450	455	435	325	U 302	305								
LQ									440		355	340	325	270	268	265								

SEP. 1979 | H'F2 (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	H 290	370	420	Y	380	345	260	225	H 210	225	230	225	225	220	225	225	205	200	200	A	A	A
2	B	A	380	B	A	A	375	320	260	240	225	H 225	230	240	235	230	255	255	230	220	220	E B 275	300	380
3	A	A	A	450	A	A	A	A 300	A	E B 340	E B 320	B 280	E B 300	B 255	230	240	215	240	B	245	250	285	A	A
4	A	470	A	375	430	410	370	370	A 270	A	300	275	270	E B 310	B 255	230	220	225	210	220	315	340	A	A
5	A	A	A 460	A	370	A	Y	B	B	B	250	B 285	250	250	245	270	230	260	255	215	A	A	A	A
6	A	A	A	350	Y	B	A	B	B	B	B	E Y 350	260	B	260	260	250	245	230	A 400	Y	A 400	310	A
7	A	A	A	380	A	A 430	A	A	B	250	225	250	225	225	230	230	220	235	220	215	240	A	A	A
8	A	A	A	A	A	A	A	A 390	270	A 300	250	245	E B 270	B	220	230	220	230	220	210	240	240	340	A
9	A	A	A	A	A	A	A	Y	320	255	B	H 240	230	230	230	220	220	210	220	200	H 210	370	A	A
10	A	A	A	290	A	A	A	A	260	E B 280	245	245	240	230	240	230	240	220	230	260	A	A	A	A
11	A	360	A	A 300	Y	300	370	A	A	A	A	305	E B 300	245	B	B	B	255	305	380	A	A	A	A
12	F 380	A	A 420	A	A	Y	U Y 600	Y	320	260	250	230	240	H 220	220	230	H 180	230	210	210	220	250	A	A
13	A	A	A	A	Y 450	310	Y	355	270	230	245	245	230	220	H 220	230	210	215	220	210	220	205	245	400
14	A	A	A	A	A	A	350	275	260	240	240	R	245	230	225	230	225	220	210	210	215	210	240	220
15	240	350	A	320	A	A	A 490	600	320	260	250	240	225	230	245	240	230	230	245	230	230	225	270	350
16	A	320	A	305	A	A	A	B	B	B	B	250	B	E B 275	B	250	255	B	E B 310	220	225	380	A	A
17	A	A	B	A	A 470	A	B	B	B	B	B	B	B	E B 275	255	240	240	B	240	230	240	230	B	E A 400
18	A	A	B	B	B	E A 500	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	355	A
19	A	A	350	350	410	370	B	B	B	B	B	E B 300	250	255	230	230	230	230	255	230	220	220	225	310
20	A	A	280	A 390	A	Y	Y	B	B	B	B	E B 355	240	240	230	240	260	B	B	B	A	A	A 355	A
21	A	320	A	A	B	B	B	B	B	Y	B	B	E B 260	B	B	E B 305	B	255	245	240	255	240	A	A
22	A	E A 440	A	A	A	Y	U Y 350	B	E B 350	245	230	E R 275	220	H 220	225	230	245	245	250	210	220	255	255	300
23	A	400	400	270	550	B	445	Y	Y	Y	255	H 220	220	H 220	230	225	225	210	230	220	255	B	A	A
24	520	A 400	A 400	E A 560	450	Y	Y	Y	320	B	255	H 250	230	230	230	230	E B 290	255	260	250	275	280	250	A
25	B	B	440	F 355	E Y 400	270	B	B	B	B	B	245	250	255	230	230	245	230	240	320	A	A	A	A
26	A	A	400	B	390	B	B	B	Y	H 290	E B 400	B	E B 280	250	240	240	240	250	250	270	310	A	A	B
27	A	390	A	A	B	B	B	A 300	B	B	250	240	240	B	240	H 240	240	E B 250	E B 250	230	245	A	A	A
28	370	420	380	440	A	Y	Y	Y	B	B	B	220	B	B	255	250	250	255	250	250	370	A	440	F 350
29	A	A	410	380	Y	Y	380	B	Y	B	270	250	255	B	B	250	255	250	230	255	H 310	355	A	A
30	A	460	B	B	400	380	B	B	B	B	B	B	B	B	B	240	260	255	245	H 230	340	420	A 400	400
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	4	11	12	16	11	8	10	9	12	13	18	24	25	22	24	28	27	26	27	28	23	18	13	9
MED	375	395	400	357	420	358	378	345	270	250	249	245	235	232	230	230	235	235	235	230	240	258	300	350
UQ	450	420	415	382	450	408	445	370	320	270	252	U 264	252	250	242	240	249	255	249	250	265	355	355	400
LQ	305	355	365	312	400	305	370	300	260	240	240	240	230	225	228	230	222	225	220	212	220	230	250	310

SEP. 1979 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	110	110	130	110	115	120	B	100	110	120	G	170	G	170	145	170	120	G	100	B	150	150	K 110	100
2	B	110	130	B	110	105	120	G	G	G	175	G	160	140	130	B	B	B	B	B	B	B	B	120
3	K 110	120	100	K 100	110	100	100	105	A 115	B	B	B	B	B	130	120	100	B	B	B	B	B	105	110
4	140	130	150	H 110	140	115	110	120	110	105	110	B	B	B	B	B	125	B	B	B	120	B	K 110	105
5	105	K 110	105	105	110	K 110	115	B	B	B	B	B	B	B	B	B	115	B	G	B	160	K 105	105	110
6	100	105	110	K 110	125	B	100	B	B	B	B	120	G	B	B	B	B	B	B	115	155	140	125	110
7	K 105	K 105	H 130	110	K 110	105	105	100	B	G	G	G	130	130	G	B	G	105	150	B	B	110	K 110	K 110
8	110	110	110	110	110	100	100	110	130	100	100	G	B	B	G	B	G	B	B	B	B	B	120	110
9	110	110	110	110	110	100	100	100	110	G	B	120	130	G	110	G	G	130	B	100	B	140	120	110
10	110	110	100	105	110	110	105	110	150	B	B	B	130	G	G	G	120	B	B	130	K 130	105	110	110
11	110	110	110	110	130	110	110	110	110	100	105	B	B	G	B	B	B	B	K 130	115	110	110	100	110
12	130	110	110	100	105	105	110	110	100	G	G	G	130	130	110	110	110	110	105	120	120	150	K 140	K 110
13	110	110	110	100	105	120	105	105	115	115	G	110	110	110	110	G	G	155	120	G	100	110	105	B
14	K 110	H 120	110	110	110	100	100	105	140	G	G	B	G	G	G	G	105	105	G	B	110	110	155	115
15	110	110	110	115	110	105	115	110	110	E	G	G	G	G	110	G	160	G	B	B	B	B	155	120
16	120	130	120	120	100	100	105	B	E	B	B	B	B	B	B	B	B	B	B	B	B	145	115	120
17	145	120	B	120	120	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	140
18	115	110	155	105	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	120	120	130	120
19	130	K 130	K 130	140	130	K 120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
20	140	120	130	120	115	115	115	B	B	B	B	B	B	B	105	105	B	B	B	B	155	120	120	120
21	120	130	110	125	B	B	B	B	B	110	B	B	B	B	B	B	B	B	B	B	B	130	120	120
22	110	A 120	130	100	105	105	130	B	B	B	B	G	G	120	G	G	G	B	B	B	B	B	110	130
23	H 110	K 115	K 115	K 120	120	B	K 115	110	110	110	B	G	G	G	G	G	G	G	B	B	110	B	110	110
24	K 110	A 110	K 115	120	115	120	120	110	110	B	B	B	G	G	G	G	B	B	150	140	140	120	120	H 160
25	B 135	B	115	115	115	115	B	B	B	B	B	G	B	B	B	G	B	B	B	K 110	110	110	110	130
26	110	105	120	B	120	B	B	B	110	110	B	B	B	G	G	G	145	170	B	G	120	110	115	B
27	130	130	110	130	B	B	B	G	B	B	G	G	G	B	G	G	G	B	B	B	G	K 115	K 110	150
28	115	130	110	110	120	120	100	105	B	B	B	B	B	B	B	B	B	G	G	B	E G 190	120	125	140
29	110	105	105	120	125	125	125	B	115	B	B	B	B	B	B	B	G	155	B	B	110	K 115	K 110	K 110
30	K 110	H 120	B	B	110	120	B	B	B	B	B	B	B	B	B	G	B	G	G	G	H 110	130	130	115
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	29	28	27	27	25	21	15	15	8	4	4	6	6	8	4	9	7	6	7	18	21	27	27
MED	110	110	110	110	110	110	110	110	110	110	108	120	130	130	110	115	120	130	125	115	120	120	115	115
UQ	120	120	130	120	120	120	115	110	115	112	142	145	130	140	130	145	125	155	150	125	145	130	122	120
LQ	110	110	110	108	110	105	100	105	110	102	102	115	130	120	110	108	110	108	105	112	110	110	110	110

SEP. 1979 | H'ES (KM)

IONOSPHERIC DATA

SEP. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R 2	R 2	RCK 11	R 1	RS 11	R 1		R 1	RL 12	L 1		H 1		H 1	H 1	H 1	C 2		L 1		RF 11	RF 11	K 6	R 1
2		R 1	R 1		R 1	R 1	RL 11				HL 11		H 1	H 1	C 1									LKS 11
3	K 5	RF 11	R 2	K 2	RR 11	FR 11	F 1	F 1	KL 11						H 1	CL 21	L 1						F 3	FR 11
4	HK 11	HK 11	FKF 11	K 4	RK 14	R 3	R 3	RR 21	C 1	R 1	R 1						C 2				CKS 11		K 4	R 4
5	R 3	K 3	R 2	R 1	FA 21		R 1										L 1				HK 12	K 3	F 2	R 3
6	F 2	F 1	R 1	K 1	F 1		R 1					L 1								RS 11	F 1	F 2	F 2	F 2
7	K 5	R 4	RF 11	RF 21		R 4	R 1	R 2					H 1	H 1				L 1	H 1			R 1	K 3	K 2
8	R 2	RF 31	R 4	R 2	R 3	R 1	F 2	R 2	RL 12	R 1	L 1												R 1	R 5
9	R 3	RF 11	RF 11	F 1	FA 11	R 2	R 1	F 1	L 1			C 1	H 1		R 1			L 1		F 1		R 2	R 4	RA 11
10	R 3	R 3	RR 12	R 2	R 2	R 1	R 2	R 2	HL 11				H 1				L 1			FA 11	KL 33	FA 11	R 2	FA 21
11	R 2	R 2	R 1	R 1	AF 11	R 1	R 1	R 1	RL 11	R 1	R 1								K 1	R 3	R 2	R 2	R 2	RF 21
12	RF 21	R 2	F 1	F 1	R 1	F 1	F 1	R 1	L 1				H 1	H 1	C 1	L 1	L 1	L 1	L 1	FF 11	F 1	R 1	K 3	K 5
13	R 4	R 3	FA 11	R 2	R 1	FF 21	R 1	R 1	R 1	L 1		C 1	C 1	C 2	C 2			HL 11	L 1		H 2	F 1	F 2	
14	K 4	RK 14	R 2	RF 22	R 2	R 1	F 1	R 1	R 1								L 1	L 1			F 1	F 1	R 1	RA 11
15	F 1	R 2	R 3	F 2	R 3	R 2	R 1	RL 21	R 1						C 1		H 1						RF 11	R 1
16	R 2	R 1	R 2	R 1	R 1	F 1	R 1															R 1	FR 11	R 1
17	HK 11	RF 11		F 1	F 1	F 1																		R 1
18	R 1	R 1	FA 11	F 1		R 2															R 1	R 1	RR 11	R 1
19	FA 11	KL 11	K 1	RS 11	R 1	K 1																		
20	R 1	F 1	F 1	R 1	R 1	F 1	R 1								L 1	L 1					R 1	R 1	R 1	R 2
21	R 2	R 1	R 2	AF 11						R 1												F 1	R 2	R 1
22	R 1	RF 11	R 2	R 1	R 1	R 1	L 1							C 1									F 1	R 1
23	R 1	K 2	K 1	K 1	F 1		K 1	L 1	L 1	L 1											R 1		R 2	R 2
24	K 1	RF 22	K 2	R 2	R 2	R 1	R 1	L 1	C 1										H 1	H 1	HK 11	CK 21	F 2	HK 23
25	AS 11		R 2	R 2	R 1	F 1														K 1	RS 11	FAS 11	R 2	FR 11
26	R 3	FF 11	RF 11		FA 11				R 1	L 1							H 1	H 1			R 2	R 1	RA 41	
27	R 1	R 3	FA 11	R 1																		K 3	K 5	HK 12
28	LK 11	R 1	R 3	RF 21	F 1	F 1	L 1	R 1													HRK 11	R 3	RA 11	FA 21
29	RA 11	F 2	FS 21	FA 31	R 1	R 1	L 1		C 1									H 1			RF 31	KA 11	K 3	K 2
30	K 3	R 2			R 1	R 2															R 2	F 1	F 1	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																								
UQ																								
LQ																								

SEP. 1979 | TYPES OF ES

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	O R 50	Y	B	B	B	Y	80	87	U R 88	O R 87	X 100	X 109	X 117	X 122	X 124	U R 112	X 90	X 83	X 95	X 92	80	72
2	57	50	46	42	62	81	90	92	101	106	X 120	121	R 129	X 130	140	140	140	R 140	X 125	X 96	80	A	A	O R 45
3	A	50	45	A	53	70	B	A	Y	O R 76	O R 74	R 80	X 81	X 85	X 86	X 89	X 95	X 94	X 91	X 80	X 48	A	42	49
4	A	51	A	56	B	Y	73	84	92	X 97	X 102	X 108	Y	O R 108	X 118	U R 120	O R 109	U S 106	R 110	U R 103	X 90	82	X 66	66
5	55	52	50	64	70	72	76	X 88	X 100	X 111	X 114	X 122	X 126	X 129	X 126	X 126	X 123	X 118	X 103	X 88	78	70	16	A
6	A	50	A	72	81	74	73	B	B	Y	O R 67	B	B	X 86	X 90	X 90	88	79	69	70	A	A	A	57
7	51	51	43	A	42	44	A	Y	A	A	Y	B	O R 57	X 62	X 73	82	X 85	75	47	65	65	48	38	A
8	47	A	53	A	65	58	A	B	A	Y	70	R 69	B	80	91	80	O R 71	C	72	69	A	A	A	O R 49
9	67	B	B	B	B	A	O R 48	B	B	B	Y	B	B	B	X 90	B	U R 84	O R 72	X 65	60	O R 41	O R 41	A	A
10	A	A	B	A	70	70	B	A	B	B	U R 69	74	X 78	80	R 86	R 91	X 99	X 92	B	O R 82	72	U R 61	A	A
11	63	79	89	73	83	81	90	95	X 100	X 102	X 105	X 102	R 92	X 105	R 115	X 111	X 116	X 116	X 107	82	62	U R 73	50	48
12	X 42	62	67	62	70	72	80	91	X 101	X 99	X 100	R 110	U R 111	113	114	X 119	X 127	125	X 92	X 79	72	39	A	52
13	61	71	A	B	A	B	70	79	76	90	90	X 89	X 90	R 87	X 86	X 85	X 84	X 88	X 87	X 87	83	61	A	57
14	A	A	A	A	A	61	70	O R 57	71	77	75	X 78	X 34	X 85	X 85	X 83	X 84	X 83	X 79	X 79	X 79	X 76	71	65
15	61	62	60	69	70	73	81	90	X 90	R 93	R 103	X 110	X 112	X 111	X 111	Y	R 110	X 107	R 88	X 70	70	70	66	40
16	A	62	70	62	53	O R 52	84	X 77	A	62	O R 70	X 89	90	90	X 92	R 96	X 90	X 94	X 90	X 87	X 82	X 71	60	A
17	59	54	70	80	72	80	88	86	98	99	X 98	X 110	X 107	R 106	X 101	X 100	X 98	X 96	X 90	X 85	X 82	77	79	80
18	71	56	70	71	72	Y	80	90	92	99	X 94	X 101	X 103	R 102	R 102	100	X 91	U R 93	X 90	X 85	X 80	X 81	X 79	X 75
19	67	60	61	66	80	80	R 92	X 97	R 101	O R 101	R 102	O R 100	R 104	X 110	R 108	B	U R 108	R 102	R 98	101	X 92	X 86	X 88	X 79
20	X 71	X 61	72	O R 67	S	X 81	X 96	X 108	X 113	X 116	X 115	X 120	R 108	X 111	X 118	X 99	R 105	X 101	U R 96	92	X 88	84	71	67
21	70	72	70	72	98	90	81	80	88	93	91	92	X 95	99	101	105	R 106	X 99	X 100	X 83	X 69	60	C	45
22	70	O R 64	72	81	88	100	75	60	A	B	Y	X 69	O R 76	B	U R 83	X 81	X 82	X 82	X 81	X 80	61	45	51	A
23	60	67	72	70	72	80	70	72	80	X 76	80	O R 77	O R 75	X 81	88	X 89	X 89	X 91	X 80	X 71	70	70	X 51	A
24	49	61	70	80	73	70	70	75	72	B	65	B	B	R 81	88	R 88	90	81	72	X 64	56	X 49	X 49	43
25	48	62	72	68	72	76	77	O R 68	Y	A	A	B	R 77	X 85	86	X 85	X 85	79	71	O R 57	64	X 56	46	A
26	45	48	84	80	62	70	F 220	70	71	70	O R 73	73	R 76	R 76	X 79	80	X 82	X 78	X 83	X 84	X 68	65	48	46
27	O R 48	B	Y	R 67	80	90	X 101	X 107	X 113	U Y 113	105	90	O R 90	X 91	R 92	X 91	X 89	X 87	X 80	X 77	X 78	X 75	X 72	O R 42
28	69	65	70	80	88	90	72	B	90	93	X 96	X 90	98	R 98	110	110	U Y 90	X 72	80	80	74	78	74	80
29	R 53	60	U Y 74	X 86	85	75	70	A	O R 58	69	67	X 69	70	X 72	X 73	X 73	X 74	73	72	X 64	48	O Y 43	A	45
30	62	60	71	60	62	X 52	70	O R 63	R 76	84	X 86	X 80	O R 76	X 80	R 84	X 80	X 79	O R 84	X 72	U R 70	O R 70	X 71	U R 76	70
31	71	73	C	C	80	90	100	111	X 110	X 114	X 112	X 113	X 109	E Y 110	Y	X 104	100	100	X 91	X 80	X 60	R 52	R 68	60
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	25	23	22	25	26	26	22	22	23	27	26	26	29	30	28	31	30	30	31	29	27	22	23
MED	60	61	70	70	72	74	78	85	91	93	91	X 90	91	X 90	92	X 91	X 90	X 92	X 88	X 80	72	70	66	57
UQ	68	64	72	80	80	81	90	92	X 101	102	X 102	X 110	X 107	X 108	111	108	X 107	X 102	X 92	X 85	X 80	76	74	68
LQ	50	52	56	64	65	70	70	72	76	80	74	X 78	R 77	X 81	X 86	X 84	X 84	X 81	X 72	X 70	64	54	49	46

OCT. 1979 | FXI (0.1 MHZ)

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	U R 44	D Y 66	B	B	B	Y	U R 71	80	81	81	94	R 102	111	116	R 118	U R 106	U F 84	76	89	86	F 70	F
2	F 46	F 42	F 35	F	36	F 71	58	F 78	F 89	Z 98	113	111	R 117	R 124	131	132	132	134	R 119	90	32	A	A	39
3	A	F	J F 36	A	44	F 44	B	A	Y	70	U R 68	R 73	75	79	80	83	89	88	84	74	42	A	F 25	F 26
4	A	F	A	F	B	Y	F 65	F 78	R 84	91	96	102	Y	U R 102	112	U R 113	U R 103	100	U R 104	J R 97	83	R 74	60	F 52
5	F 45	F 45	F 42	F 45	F 47	F 57	F 69	82	94	R 105	J R 107	R 115	J R 120	J R 123	120	120	116	112	97	R 81	F 68	F 34	F	A
6	A	U F 40	A	F 65	F	F 62	F 67	B	B	Y	61	B	B	80	84	84	F 77	F 70	F 55	F	A	A	A	F 44
7	F	F	F 35	A	F	F 34	A	Y	A	A	Y	B	51	56	68	F 72	79	F 56	F 40	49	58	F 40	F 32	A
8	J F 36	A	44	A	44	45	A	B	A	Y	F 62	63	B	F	F 80	F 72	65	C	65	61	A	A	A	43
9	F 43	B	B	B	B	A	42	B	B	B	Y	B	B	B	84	B	79	66	59	41	F 35	35	A	A
10	A	A	B	A	F 59	F	B	A	B	B	63	F 67	72	F 72	80	R 85	R 93	87	B	U R 76	F 57	J R 55	A	A
11	R 37	F	F 61	56	F 65	F 69	F 80	F 85	94	96	99	96	R 86	99	109	J R 105	109	110	101	U R 66	41	U R 67	F 40	F
12	36	F	30	F 41	F 51	F 64	F 72	F 84	J R 95	R 93	94	104	J R 105	107	108	113	J R 121	F 118	86	73	F 44	F	A	J F 45
13	J F 38	F	A	B	A	B	F 58	58	F 67	F 81	F 82	83	84	81	80	79	78	82	81	R 81	F 76	J F 53	A	F
14	A	A	A	A	A	F	F	51	F 62	F	F 68	72	78	79	79	R 78	78	77	73	73	72	70	F 58	F 56
15	F 48	F	F	48	F 56	F 65	F 70	F 81	84	R 87	R 97	J R 104	106	R 105	R 105	Y	U R 104	101	R 82	64	F 53	F 60	F 48	F 32
16	A	F 44	F 42	F	F 48	U R 46	F	71	A	F	64	83	F 80	F 83	86	90	84	88	84	81	R 76	65	F 45	A
17	30	39	F	F	52	Y	F 74	F 79	90	J R 90	92	J R 104	101	100	95	R 93	92	90	84	79	76	F 70	F 68	F 68
18	F 64	F 48	F 48	F 56	F 60	Y	F	F	F 81	84	88	95	97	J R 96	J R 96	J R 94	85	R 87	84	79	74	U R 75	73	69
19	F 60	F 52	F 44	U Y 55	58	F 71	86	J R 91	R 95	R 95	96	U R 94	U P 98	R 103	J R 102	B	102	R 96	R 92	91	85	80	87	73
20	65	55	F	F 60	S	75	90	101	109	110	109	113	U R 102	U R 105	111	R 93	99	95	R 90	J F 86	82	F 76	F 62	F 51
21	44	F 40	F 39	48	F 58	F 80	F	F 69	F 77	F 85	F 79	84	89	92	R 92	96	100	92	94	77	63	F 45	C	F 35
22	U R 50	R 58	F	F 64	F 77	F 78	66	F 50	A	B	Y	63	70	B	R 77	R 75	76	76	75	73	54	37	F 42	A
23	F 35	F 40	F	F 52	57	F	F 61	F 60	64	70	F 70	71	69	74	F 79	R 83	83	85	74	65	F 57	F 59	F 45	A
24	F 38	F 52	F 60	F 62	F 66	F 43	F 60	F 62	F 56	B	F 58	B	B	R 75	80	U R 82	83	74	F 66	58	44	43	F 43	F 36
25	F	F 44	F 41	F 55	F 61	F 65	F 70	F 62	Y	A	A	B	71	79	79	79	79	F 63	64	51	54	50	F 39	A
26	F 38	U F 42	F 60	F	F 50	F	630	F 52	F 59	F 60	67	F 69	70	70	72	F 70	76	72	77	78	62	F 57	F 43	F 32
27	42	B	Y	F 61	72	F 84	95	J R 101	107	U Y 107	U F 39	F 82	84	U R 85	J R 86	R 84	83	81	74	71	72	69	67	F 35
28	37	42	F 58	F 65	F 79	F	F 64	B	F 80	F 83	90	84	88	J R 92	R 102	R 103	U Y 82	66	F 72	72	F 66	F 70	J F 65	J F 73
29	48	F 51	U Y 68	80	F 78	F 62	F 59	A	R 52	F 62	60	63	R 62	66	67	67	68	F 66	F 65	58	F 41	37	A	F 36
30	F 37	F 45	F	R 47	F 54	J R 40	50	57	70	F 76	80	74	R 70	74	78	74	73	U R 78	66	64	64	65	F 70	F 62
31	F 65	F 66	C	C	F 73	F 82	F 92	J F 104	104	108	R 106	106	R 103	Y	Y	J R 98	93	91	85	74	54	F 46	62	F 52
	00	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	18	17	16	23	20	22	21	22	21	27	26	26	27	30	28	31	30	30	30	29	26	21	20
MED	F 42	F 44	F 44	F 56	F 58	F 64	F 68	F 73	82	87	82	84	85	85	85	84	84	87	82	74	62	60	F 58	F 44
UQ	F 48	F 52	F 58	F 64	F 66	F 73	F 80	F 84	94	96	96	104	R 101	R 102	105	R 100	101	96	86	79	74	70	F 67	F 59
LQ	F 37	F 42	F 39	F 48	F 50	F 46	F 60	F 60	F 67	F 80	68	72	71	77	79	78	78	74	66	64	53	F 45	F 43	F 36

OCT. 1979 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1													L		L									
2													L											
3											B	B	L	L										
4								L	L 500	L 460	L	L	B	B										
5																								
6											U Y 470		B	L 520	L 500	450	L	L						
7												B	460	B	L	L		L	L					
8											450	B	B	U Y 400	L 490	L								
9											450				460									
10											Y	490	500	L	490									
11							L 390	420	450	500	L	540	L	L			L							
12							L	L	L	L	L		L	L										
13							400	Y	490	U Y 480	480	L	U L 550	B	L	L								
14								Y	420	450	470	500	H 520	590	L 550	L								
15						L	390	440	500	U L 580	L	L 560	L 600	L 600	L	B								
16								A	A	500	B	U L 610	L	580	L	L								
17							U L 500	H 450	510	510	520	550	L	L 600	L									
18							H 420	440	480	500	510	L	590	L	L	L								
19							L	450	490	510	520	L	L	L	L	B								
20								L 520	L 540	L	590	520	B	L	L 600	L	L							
21								A	540	F 550	L 580	570	L 610	L	L 600		L							
22						A	Y	410	A	B	Y	500	B	B	Y	L	L							
23							A	A	R 510	500	R 520	B	B	R 520	L 550	U L 520	L 510	L						
24							400	420	Y	B	500	B	B	B	L 540	B	L	L						
25													520	550	L	490	480	L						
26							410	410	Y	510	B	R 510	Y	Y	520	520	L							
27						L	L	L 500	530	Y	L	U L 560	530	L 560	U L 520	U L 560	L							
28						U F 410	A	B	Y	510	520	530	570	L	R 570	550	L							
29						L 400	A	A	A	490	490	500	R 520	R 510	L 550	520	510							
30								A	500	500	470	480	B	Y	510	510	L 500	B						
31						L	L	L	510	L 560	L 600	560	U L 600	L 560	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	10	14	16	16	15	12	11	14	8	4							
MED						405	400	440	500	500	505	530	540	560	L 530	520	505							
UQ							415	450	510	510	520	560	L 595	L 585	L 550	535	510							
LQ							395	420	490	495	470	500	520	520	500	500	490							

OCT. 1979 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U R 340	K 365	K 380					B	B	B	B	B	335	305	B	R 280	260	B	175	160	B	B	B	B
2	K 180	K 170			A	A	A	220	260	300	H 315	305	310	315	305	300	275	240	180	180	A			
3						A	D	B	B	B	B	B	B	310	E B 310	U R 305	275	240	210	175	A	K 320		K 175
4		K 250				B	B	300	280	285	305	315	B	B	320	B	B	B	U R 225	B				K 150
5	K 130					B	200	240	280	285	310	315	325	325	320	B	A	H 260	200	185	A			
6						B	B	B	B	A	B	B	P	B	U R 320	275	260	220	R	A			K 400	
7						B	B	A	A	A	B	B	B	B	R 315	300	275	U R 245	210	U R 170	K 290	K 200		
8					K 310	B	B	B	B	B	K 360	B	B	A	J R 300	B	B	C	B	B	K 300	K 340	K 370	K 310
9						K 340	K 300	B	B	B	K 380	B	B	B	B	B	B	B	245	210	A	K 340		
10					K 255	B	B	B	B	B	K 360	B	310	315	B	B	275	260	B	B			K 380	K 370
11	K 340					K 270	225	250	280	300	310	315	320	330	325	310	295	K 270	210	K 240	K 280	K 290	K 210	K 275
12	K 260	K 270	K 280	K 300	K 310	K 250	U K 260	A	305	310	315	320	B	A	A	305	290	260	A	210	K 310	K 300		
13							A	B	A	310	320	325	H 330	B	325	315	300	270	F 240	175	H 150	F 110	K 400	
14	K 390	K 410	K 370	K 420		U K 250	A	B	A	310	340	330	345	350	325	315	305	275	H 250	H 210	H 175	A		
15			K 330	K 280	K 250	H 200	240	H 270	H 300	H 315	320	R	A	B	330	B	295	280	A	K 250	K 310	U K 290	90	
16		K 270					A	B	A	A	B	B	355	345	320	315	300	A	H 245	H 205	H 160	B		J K 270
17	K 210	K 260	U K 200	K 380	K 380		H 240	280	295	A	345	330	345	350	340	305	300	265	255	F 210	H 175	R 120		
18							A	H 280	300	320	325	330	A	R 360	A	A	300	275	250	H 210	130	A	B	B
19						K 300	H 220	225	270	305	315	320	325	320	340	305	B	310	280	H 250	H 205	H 180	A	70	B
20		A		B			K 400	H 270	280	300	335	325	350	B	B	320	B	A	300	F 255	A	B	160		
21				U K 210	U K 210	K 350	K 340	A	A	340	330	350	350	355	335	325	305	285	240	A	125	U K 290	C	
22				U K 275	190	A	B	290	K 420	P	A	350	B	B	U R 360	315	300	280	230	200	210	K 250	K 290	K 400
23	K 300			K 290	K 290	A	K 380	A	K 410	340	340	B	B	U R 325	320	310	300	275	250	A	A	A	A	
24		U K 300		K 300	K 300	A	K 340	K 350	R	B	350	B	B	B	340	305	H 300	250	A	K 330	J K 340	K 215		
25		180	A	A	A	K 310	K 400	K 530	R	A	A	B	320	B	B	310	305	280	B	200	U A 160	K 290	J K 300	
26			K 300	K 250	A	K 360	A	320	A	345	B	B	B	R	B	320	300	H 285	250	205	140	A	100	
27					K 310	250	260	280	R	R 365	345	350	B	B	B	325	305	290	250	210	150	B	U K 150	
28	K 330	K 210	B	A	280	R 260	K 450	B	350	315	350	355	A	B	325	R 320	295	280	A	A	A	A	A	B
29				A	H 290	H 340	A	K 520	K 460	365	330	R 340	R 335	B	B	R 320	305	290	260	210	125	B	B	
30		K 260		K 320	A	B	280	A	K 425	350	350	R 340	R	R	U R 315	315	300	B	B	B	B	B	B	B
31	B	B			185	240	A	A	305	325	R 340	350	345	310	A	335	310	290	250	200	A	B	K 305	K 265
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	11	6	10	14	14	15	15	16	19	23	18	14	14	21	22	26	25	22	22	18	14	12	8
MED	K 300	K 260	K 315	K 295	K 290	K 265	270	280	302	315	330	330	332	328	320	312	300	275	245	205	175	K 290	K 295	K 272
UQ	K 340	K 285	K 370	K 320	K 310	K 340	K 340	310	350	340	348	350	345	350	325	320	305	280	250	210	K 290	K 300	K 375	K 340
LQ	K 210	K 230	K 260	K 275	250	250	240	270	288	310	320	320	320	315	315	305	290	260	210	185	150	K 200	125	K 220

OCT. 1979 | FOE (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	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 K 34	U K 36	K 38	39	B	B	B	53	E B 53	E B 55	E B 56	E B 61	G	32	E B 32	G	G	E B 54	G	G	18	14	E B 14	15
2	20	25	28	33	39	36	31	25	G	G	G	32	34	G	G	G	G	26	23	G	31	F 40	J A 40	J A 39
3	J A 52	26	J A 21	52	38	34	B	52	50	50	E B 52	E B 55	E B 33	33	E B 31	G	G	G	G	G	38	K 32	22	19
4	36	J A 45	38	36	B	35	38	34	G	G	G	G	E B 58	E B 53	G	E B 46	E B 56	E B 30	B	E B 24	14	E B 17	15	K 15
5	K 13	16	15	17	E B 17	E B 17	G	G	G	G	G	G	G	G	33	36	30	G 16	25	G 12	J A 24	J A 35	39	49
6	40	37	44	42	J A 33	41	34	B	B	46	E B 40	B	B	E B 34	G	G	G	K 32	K 38	38	56	44	K 40	40
7	J A 32	24	J A 38	60	J A 29	J A 25	43	31	44	F 39	43	B	E B 34	E B 48	G	G	G	G	G	27	32	J A 31	30	43
8	18	38	37	J A 67	K 31	35	51	B	44	40	K 36	E B 50	B	35	G	E B 33	E B 30	C	29	22	K 30	K 34	K 37	K 31
9	J A 28	B	B	B	37	K 34	K 30	B	B	B	38	B	B	B	E B 31	B	E B 50	E B 46	G	G	J A 35	K 34	J A 60	J A 30
10	J A 40	J A 38	B	J A 68	K 25	E B 50	B	45	B	B	K 36	E B 35	G	G	E B 34	E B 35	G	G 16	B	E B 52	E B 25	E B 22	K 38	K 37
11	K 34	J A 45	J A 25	40	33	K 27	G 12	G	G	G	G	G	G	G	G	G	G	29	30	K 24	36	36	25	31
12	K 26	K 27	K 28	K 30	K 31	J A 34	39	39	G	32	35	36	35	35	34	G	G	G	30	G	K 31	31	30	40
13	28	J A 30	54	B	36	B	33	40	32	G	G	G	G	E B 74	G	G	G	G	G 12	21	G	G	J A 64	J A 63
14	K 39	K 41	K 37	K 42	46	31	37	35	33	G	G	34	G	36	G	G	G	30	G 20	G	G	15	18	H 17
15	22	25	33	K 28	K 25	G	J A 30	G	G	G	35	36	37	E B 40	G	E B 60	G	G	27	K 25	34	J K 29	J A 30	J A 30
16	40	K 27	30	J A 26	40	41	33	45	60	39	E B 52	E B 47	G	G	G	G	G	29	G	G	G	15	31	J A 27
17	24	K 26	J A 25	K 38	K 38	40	37	36	33	35	G	G	G	G	G	33	G	30	G 10	G 15	G 15	J A 26	12	12
18	12	J A 31	J A 36	J A 36	31	47	33	G	G	G	35	38	37	G	34	32	G 24	G 15	G 11	G 11	16	12	10	12
19	20	21	35	43	K 30	G	G	G	G	G	35	35	35	G	35	B	G	G	G	G	G	12	9	9
20	10	21	31	41	37	K 40	30	G	G	G	G	G	E B 61	E B 37	G	E B 45	32	G	G	26	E B 21	25	J A 26	J A 32
21	J A 30	J A 25	J A 27	25	23	K 35	K 34	51	39	G	G	G	G	G	G	G	G 15	G	26	28	24	36	C	36
22	J A 40	J A 63	27	33	J A 39	49	35	G 15	K 42	B	36	G	E B 61	B	G	G	G	G	32	25	27	K 25	K 29	K 40
23	32	J A 30	J A 74	35	K 29	27	K 38	38	K 41	G	G	E B 52	E B 56	G	G	G	G	G	G	J A 35	J A 27	34	23	35
24	34	33	30	K 30	K 30	25	K 34	37	C 31	B	G	B	B	E B 61	G	E B 61	G	G	G	35	K 33	J K 34	34	J A 30
25	33	29	44	21	26	K 31	K 40	K 53	D Y 35	56	50	B	G	E B 44	E B 50	G	G	31	E B 34	33	31	K 29	J K 30	J A 40
26	32	35	K 30	29	30	K 36	33	G	40	G	E B 57	E B 39	E B 47	Y	E B 35	G	G	G	G	27	27	J A 27	27	J A 31
27	39	B	46	40	K 31	G	G	G	G	G	G	G	E B 46	E B 47	E B 35	G	G	G	G	26	25	E B 22	20	36
28	K 33	36	J A 36	25	G 16	G	K 45	B	G	G	G	G	36	E B 55	G	G	G	G	J A 59	37	45	30	J A 28	J A 25
29	27	J A 32	38	J A 30	G	G 14	41	J A 94	K 46	G	G	G	G	E B 44	E B 35	G	G	G	30	25	26	16	37	32
30	33	J A 49	35	K 32	J A 26	31	G	50	K 43	G	G	G	E B 62	G	G	G	G	E B 60	E B 28	E B 41	E B 36	E B 20	E B	22
31	18	15	C	C	29	25	26	31	G	35	36	37	37	35	35	G	G	G	30	G	J A 32	35	K 31	Z 27
	00	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	29	28	28	29	29	28	27	28	27	31	26	27	28	31	29	31	30	29	31	31	31	30	31
MED	32	30	35	36	31	32	34	35	32	G	E G 35	E G 33	E G 34	E G 34	G	G	G	G	U G 16	22	27	29	30	31
UQ	35	J A 37	38	42	37	36	38	45	42	36	36	E B 38	U 38	E B 44		E G 33	G	U 23	30	27	32	34	37	38
LQ	23	25	28	30	26	25	30	G	G	G	G	G	G	G	G	G	G	G	G	G	U 18	U 16	20	24

OCT. 1979 | FOES (0.1 MHZ)

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	UK 34	K 36	K 38	UK 39	B	B	B	Y	EB 53	EB 55	EB 56	EB 61	G	32	EB 32	G	G	EB 54	G	G	17	UY 14	EB 14	15
2	K 18	K 17	22	30	29	30	21	24	G	G	G	32	G	G	G	G	G	G	22	G	28	A	A	34
3	AA 52	20	17	AA 52	38	32	B	AA 52	UY 50	UY 50	EB 52	EB 55	EB 33	33	EB 31	G	G	G	G	G	34	AA 32	16	19
4	AA 36	25	AA 38	28	B	UY 35	UY 38	25	G	G	G	G	EB 58	EB 53	G	EB 46	EB 56	EB 30	G	EB 24	14	EB 17	15	K 15
5	K 13	16	15	17	EB 17	EB 17	G	G	G	G	G	G	G	G	G	36	30	G 16	22	G 12	18	30	34	AA 49
6	AA 40	25	AA 44	UY 42	31	41	UY 34	B	B	UY 40	EB 40	E	B	EB 34	G	G	G	K 32	K 38	UK 38	AA 56	AA 44	AA 40	22
7	21	20	20	AA 60	21	20	AA 43	UY 31	AA 44	AA 39	UY 43	B	EB 34	EB 48	G	G	G	G	G	23	31	21	24	AA 43
8	17	AA 38	34	AA 67	K 31	K 34	AA 51	B	AA 44	UY 40	K 36	EB 50	B	32	G	EB 33	EB 30	C	28	20	K 30	K 34	K 37	UY 31
9	25	B	B	B	EB 37	AA 34	K 30	B	B	B	UY 38	B	B	B	EB 31	B	EB 50	EB 46	G	G	32	K 34	AA 60	AA 30
10	AA 40	AA 38	B	AA 68	K 25	EB 50	B	AA 45	B	B	UY 36	EB 35	G	G	EB 34	EB 35	G	G 16	B	EB 52	EB 25	EB 22	AA 38	AA 37
11	K 34	35	17	40	31	K 27	G	G	G	G	G	G	G	G	G	G	G	K 27	24	K 24	K 28	K 29	21	27
12	K 26	K 27	K 28	K 30	K 31	24	UK 26	34	G	G	34	G	35	34	34	G	G	G	25	G	K 31	29	A 30	33
13	26	28	AA 54	B	AA 36	B	33	UY 40	32	G	G	G	G	EB 74	G	G	G	G	UY 12	21	G	G	AA 64	23
14	AA 39	AA 41	AA 37	K 42	AA 46	UY 30	UY 37	UY 35	30	G	G	34	G	36	G	G	G	G	G 20	G	G	15	15	15
15	18	21	K 33	K 28	K 25	G	G	G	G	G	34	36	37	EB 40	G	FB 60	G	G	UY 27	K 25	K 31	UK 29	30	27
16	AA 40	K 27	UY 30	24	35	UY 41	33	UY 45	AA 60	31	EB 52	EB 47	G	G	G	G	G	27	G	G	G	15	20	AA 27
17	24	K 26	UK 20	38	UY 38	UY 40	19	30	G	31	G	G	G	G	G	32	G	28	G 10	G 15	G 15	10	12	11
18	11	21	32	35	31	UY 47	22	G	G	G	35	36	36	G	34	32	G 24	G 15	G 11	G 11	15	10	9	11
19	9	14	21	40	30	G	G	G	G	G	35	35	35	G	34	B	G	G	G	G	G	22	8	9
20	10	21	31	41	UY 37	UY 40	20	G	G	G	G	G	EB 61	EB 37	G	EB 45	31	G	G	22	EB 21	G	19	25
21	23	21	UY 27	UK 21	UK 21	K 35	UY 34	51	35	G	G	G	G	G	G	G	G 15	G	26	23	19	UK 29	C	29
22	35	42	27	UK 28	21	UY 49	UY 35	G 15	AA 42	B	UY 36	G	EB 16	B	G	G	G	G	27	23	24	K 25	K 29	AA 40
23	K 30	27	21	29	K 29	22	UY 38	UY 38	UY 41	G	G	EB 52	EB 56	G	G	C	G	G	G	32	26	26	20	AA 35
24	31	30	21	30	30	24	K 34	UY 37	UY 31	B	G	B	B	EB 61	G	EB 61	G	G	G	35	K 33	K 34	31	25
25	27	24	29	18	25	K 31	K 40	K 53	DY 35	AA 56	AA 50	B	G	EB 44	FB 50	G	G	30	EB 34	33	29	K 29	K 30	AA 40
26	30	34	K 30	28	24	JY 36	31	G	UY 40	G	EB 57	EB 39	EB 47	Y	E 35	G	G	G	G	27	27	20	27	29
27	39	B	UY 46	40	K 31	G	G	C	G	G	G	G	EB 46	EB 47	EB 35	G	G	G	G	23	21	EB 22	UK 15	29
28	33	K 21	32	21	G 16	G	K 45	B	G	G	G	G	36	EB 55	G	G	G	G	33	29	27	22	20	20
29	23	31	UY 38	29	G	G 14	41	AA 94	K 46	G	G	G	G	EB 44	EB 35	G	G	G	G	25	24	UY 16	AA 37	30
30	26	28	20	32	24	32	G	UY 50	K 43	G	G	G	EB 62	G	G	G	G	EB 60	EB 28	EB 41	EB 36	EB 20	EB 20	19
31	18	15	C	C	29	25	20	30	G	35	36	37	36	35	35	G	G	G	28	G	31	31	31	K 27
	00	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	29	28	28	29	27	28	26	28	27	31	26	27	28	31	29	31	30	30	31	31	31	30	31
MED	26	26	30	31	30	30	32	30	30	G	EG 34	EG 32	EG 33	EG 34	G	G	G	G	G 11	22	25	22	26	27
UQ	34	31	30	40	31	36	38	UY 45	42	32	36	E 37	EB 36	EB 44		EG 32	G	U 21	26	25	30	30	34	32
LQ	20	21	21	28	24	22	20	G	G	G	G	G	G	C	G	G	G	G	G	G	16	U 14	16	20

OCT. 1979 | FBES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	30	17	18	37	B	B	B	49	53	55	56	61	23	17	32	21	17	54	15	14	15	12	14	11
2	11	12	13	15	12	14	17	14	14	17	16	14	16	15	14	19	15	17	14	11	14	17	7	7
3	6	7	7	12	15	14	B	22	30	30	52	55	33	25	31	25	15	19	16	12	8	8	9	10
4	19	9	21	12	B	31	32	18	15	13	18	18	58	53	24	46	56	30	20	24	10	17	12	12
5	8	13	13	14	17	17	16	14	20	23	17	18	20	20	15	35	21	14	14	9	8	11	14	21
6	23	12	21	18	15	19	25	B	B	22	40	B	B	34	26	17	15	16	13	11	11	12	8	7
7	8	7	7	15	10	11	20	14	15	14	30	B	34	48	25	18	15	15	14	15	13	9	9	11
8	8	11	11	13	18	17	23	B	25	30	31	50	B	20	16	33	30	C	21	15	11	12	13	11
9	11	B	B	B	31	21	21	B	B	B	30	B	B	B	31	B	50	46	22	15	11	11	14	10
10	7	20	B	13	15	50	B	21	B	B	28	35	24	18	34	35	23	13	B	52	25	22	7	14
11	14	7	8	20	20	12	10	15	16	15	18	18	20	21	20	15	24	17	14	12	8	9	12	8
12	7	8	8	10	11	11	12	15	18	18	16	21	33	20	15	12	15	14	12	13	9	12	18	7
13	8	8	20	B	29	B	20	28	21	22	22	15	15	74	15	20	14	18	11	15	10	8	8	9
14	12	19	20	13	20	11	21	31	13	12	15	12	15	15	15	15	15	10	9	11	18	9	7	8
15	7	8	13	12	12	12	7	8	10	12	12	21	31	40	30	60	19	23	23	9	11	10	7	9
16	10	10	15	8	15	19	15	31	21	21	52	47	23	23	15	13	12	10	16	12	11	7	7	7
17	8	9	7	18	21	20	15	16	14	14	21	21	20	12	20	12	12	9	8	7	8	8	9	8
18	7	9	10	11	13	20	12	10	9	12	15	12	15	21	17	13	10	11	8	8	9	8	8	6
19	7	7	8	12	8	8	8	8	13	10	12	12	12	15	12	B	13	10	9	7	8	8	6	7
20	7	7	13	18	19	15	11	8	9	20	17	17	16	37	15	45	20	25	21	12	21	12	8	7
21	9	8	7	9	12	15	21	24	19	15	14	20	19	20	19	20	14	18	14	15	10	10	C	7
22	10	20	18	18	8	20	25	11	15	B	20	22	61	B	22	20	18	15	13	18	13	8	10	13
23	12	17	9	19	21	10	21	15	20	20	21	52	56	25	19	18	15	17	16	14	12	14	9	25
24	6	12	12	15	15	8	17	15	8	B	19	B	B	61	22	61	20	17	20	11	10	12	8	9
25	9	9	9	7	19	13	19	15	21	20	15	B	25	44	50	16	12	10	34	19	12	8	12	8
26	17	20	14	12	10	22	14	19	20	22	57	39	47	26	35	12	14	14	11	15	9	7	8	8
27	18	B	22	12	12	12	12	11	21	31	24	25	46	47	35	25	21	21	15	8	10	22	10	9
28	8	9	15	8	10	20	21	B	25	19	19	19	16	55	25	22	15	14	14	8	8	8	7	8
29	18	12	20	10	15	8	21	20	15	16	15	20	20	44	35	15	12	20	8	9	10	15	12	19
30	12	8	8	15	8	21	14	22	13	15	20	19	62	21	24	21	22	60	28	41	36	20	20	15
31	14	11	C	C	15	8	10	8	12	14	16	16	13	12	19	18	12	9	9	20	9	20	19	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	30	31
MED	9	10	13	13	15	15	19	16	18	20	19	21	24	25	22	20	15	16	14	12	10	11	9	9
UQ	13	15	20	18	20	20	21	26	21	26	29	51	52	46	30	34	20	20	20	15	12	13	12	12
LQ	8	8	8	12	12	12	13	14	14	14	16	18	18	20	16	16	14	13	12	10	9	8	8	8

OCT. 1979 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	UR 240	Y	B	B	B	Y	UR 245	250	UR 260	290	280	R 265	260	265	R 275	UR 285	UF 290	290	300	295	F 300	F
2	F 290	F 270	F 250	F	250	F 245	240	F 245	F 260	Z 290	270	270	R 260	R 270	260	265	270	280	R 290	300	260	A	A	260
3	A	F	JF 280	A	235	F 250	B	A	Y	250	UR 250	R 270	260	250	270	285	285	290	310	310	280	A	F 260	F 280
4	A	F	A	F	B	Y	F 250	F 250	R 240	R 260	245	260	Y	UR 260	260	UR 285	UR 300	290	UR 310	JR 300	315	R 300	300	F 290
5	F 290	F 290	F 270	F 265	F 260	F 250	F 260	250	260	R 260	JR 270	R 270	JR 280	JR 280	280	290	285	290	290	R 280	F 280	F 290	F	A
6	A	UF 265	A	F 280	F	F 285	F 280	B	B	Y	210	B	B	260	260	230	F 255	F 260	F 245	F	A	A	A	F 280
7	F	F	F 245	A	F	F 260	A	Y	A	A	Y	B	360	230	250	F 250	285	F 250	F 250	310	300	F 295	F 250	A
8	JF 290	A	235	A	250	260	A	B	A	Y	F 235	220	B	F	F 240	F 265	280	C	330	290	A	A	A	240
9	F 285	B	B	B	B	A	230	B	B	B	Y	B	B	B	240	B	270	285	270	290	F 260	245	A	A
10	A	A	B	A	F 290	F	B	A	B	B	260	F 250	265	F 240	265	R 270	R 280	270	B	UR 320	F 320	JR 290	A	A
11	R 270	F	F 275	240	F 250	F 230	F 240	F 245	245	250	265	240	R 255	245	240	JR 270	270	280	270	UR 280	250	UR 265	F 275	F
12	270	F	240	F 240	F 250	F 235	F 240	F 240	JR 260	R 240	260	235	JR 265	270	250	250	JR 265	F 285	285	300	F 260	F	A	JF 275
13	JF 240	F	A	B	A	B	F 250	250	F 230	F 230	F 260	245	250	260	260	270	270	290	300	R 310	F 300	JF 270	A	F
14	A	A	A	A	A	F	F	230	F 225	F	F 235	240	250	240	260	R 280	280	280	295	285	300	300	F 285	F 275
15	F 285	F	F	250	F 250	F 260	F 240	F 235	250	R 270	R 250	JR 240	250	R 250	R 270	Y	UR 260	250	R 290	285	F 280	F 225	F 280	F 250
16	A	F 245	F 280	F	F 240	UR 235	F	240	A	F	260	250	F 245	F 250	250	265	280	250	300	300	R 310	300	F 280	A
17	240	280	F	F	230	Y	F 240	F 230	220	JR 245	245	JR 235	260	250	250	R 265	260	270	275	280	280	F 290	F 295	F 290
18	F 280	F 270	F 235	F 245	F 240	Y	F	F	F 230	245	240	245	250	JR 270	JR 275	JR 265	290	R 285	290	295	300	UR 290	290	285
19	F 270	F 240	F 240	UY 255	230	F 210	250	JR 240	R 240	R 240	R 260	UR 275	UR 250	R 250	JR 250	B	260	R 270	R 290	280	290	290	300	300
20	280	255	F	F 250	S	245	230	235	235	245	245	250	UR 245	UR 245	245	R 245	260	260	R 300	JF 270	290	F 290	F 270	F 265
21	260	F 250	F 250	250	F 260	F 230	F	F 235	F 230	F 230	F 240	240	230	245	R 250	245	250	245	265	280	270	F 280	C	F 250
22	UR 240	R 245	F	F 260	F 230	F 235	220	F 225	A	B	Y	230	235	B	R 260	R 260	265	265	280	285	275	265	F 280	A
23	F 250	F 240	F	F 285	300	F	F 225	F 245	230	240	F 245	240	250	250	F 245	R 260	250	280	260	280	F 280	F 260	F 250	A
24	F 230	F 280	F 260	F 225	F 255	F 245	F 230	F 225	F 215	B	F 225	B	B	R 245	240	UR 250	250	260	F 270	270	265	270	F 250	F 250
25	F	F 280	F 240	F 260	F 265	F 240	F 250	F 230	Y	A	A	B	235	245	255	250	250	F 245	275	280	270	290	F 270	A
26	F 245	UF 250	F 240	F	F 250	F	F 220	F 220	F 230	F 230	245	F 240	230	260	250	F 250	245	275	280	300	240	F 280	F 260	F 260
27	250	B	Y	F 260	245	F 235	245	JR 225	245	UY 245	UF 250	F 265	260	UR 250	JR 255	R 260	260	275	285	270	285	285	280	220
28	260	245	F 245	F 250	F 250	F	F 225	B	F 235	F 245	220	245	255	JR 245	R 235	R 220	UY 240	260	F 255	290	F 260	F 300	JF 270	JF 280
29	295	F 250	UY 260	275	F 245	F 270	F 230	A	R 205	F 230	230	235	R 240	240	245	260	250	F 275	F 270	275	F 270	225	A	F 260
30	F 235	F 240	F	R 240	F 240	JR 240	220	200	245	F 235	245	235	R 240	235	230	245	255	UR 240	270	260	280	290	F 270	F 270
31	F 265	F 270	C	C	F 245	F 240	F 250	JF 240	250	245	R 250	250	R 250	Y	Y	JR 270	245	250	270	265	270	F 280	270	F 285
	00	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	18	17	17	25	20	22	21	22	21	27	26	26	27	30	28	31	30	30	30	29	26	21	20
MED	F 263	F 252	F 245	F 250	F 250	F 242	F 240	F 235	238	245	245	245	250	250	250	262	265	272	282	285	280	290	F 275	F 272
UQ	F 285	F 270	F 260	F 260	F 252	F 255	F 250	F 245	245	250	260	260	260	260	260	270	280	285	290	300	300	290	F 285	F 282
LQ	F 245	F 245	F 240	F 245	F 240	F 235	F 230	F 230	F 230	F 240	240	240	245	245	245	250	252	260	270	280	270	270	F 270	F 255

OCT. 1979 | M(3000)F2 (0.01)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 1979 | H'F2 (KM) | 45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	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 L 325		L 300									
2													315											
3											E B 450	B 410	L 370	L 355										
4								L	400	380	350	340	350	B										
5																								
6											600		B	415	360	455	L 470	360						
7												B	745	650	460	L 370		400	L 500					
8											545	B 580	B	520	470	400								
9											Y				455									
10											U Y 500	455	420	L 495	390									
11							400	400	395	400	370	400	L 420	L 390			325							
12							445	L 400	355	375	350		350	L 330										
13							495	E Y 550	550	440	400	420	400	B	L 420	L 350								
14								625	545	520	510	470	440	450	L 390	320								
15						375	430	450	420	415	L 375	400	390	380	360	B 340								
16								510	A	Y	500	455	U L 425	430	L 400	370								
17							450	480	460	420	445	445	370	400	L									
18							510	515	490	450	470	235	430	375	L 380	L 350								
19							425	440	420	430	445	380	400	380	L 330	B								
20								410	400	395	430	425	440	390	430	L 420	L							
21								A 520	520	450	450	460	475	L 400	400		L 360							
22						480	E Y 490	690	A	B	Y	570	B	B	U Y 430	L 380	L 370							
23							560	570	555	410	500	500	520	495	430	400	400	L 300						
24							510	500	670	B	640	B	B	E B 505	470	B 440	400	395						
25													525	455	390	430	430	410						
26							630	630	660	F 610	E B 500	500	530	E Y 455	450	480	L							
27						400	L 400	380	400	395	400	375	450	425	420	400	L 360							
28						395	625	B	455	425	440	455	455	460	450	440	L							
29						L 390	525	A	820	580	600	525	570	530	515	470	440							
30								Y 755	460	480	480	505	E B 550	495	480	470	410	E B 450						
31						U L 380	L 360	370	400	390	405	400	395	380	L 390	L 330								
	00	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	15	18	19	18	24	22	25	24	24	19	10	6	1					
MED						392	490	498	460	422	448	450	422	418	420	400	400	388	L 500					
UQ						400	518	570	548	450	500	500	465	486	452	440	430	405						
LQ						L 380	420	410	400	395	401	400	390	385	390	360	L 360	360						

OCT. 1979 | H'F2 (KM)

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	480	E Y 410	B	B	B	Y	B	B	E B 375	E B 350	240	240	240	250	235	E B 270	240	260	235	225	230	245
2	275	300	E A 400	450	A	A 400	340	265	245	230	230	225	225	240	225	240	235	215	235	250	470	A	A	E A 475
3	A	A 280	240	A	A	A	B	A	Y	A	B	B	255	245	240	240	240	230	225	225	E A 360	A	365	340
4	A	350	A	A	B	Y	Y 430	300	255	230	235	230	B	B	240	235	260	240	230	230	220	230	230	245
5	270	285	325	340	335	315	275	245	245	245	240	240	H 230	230	230	235	230	225	230	245	310	A	A 300	A
6	A	380	A	U Y 400	355	355	U Y 350	B	B	Y	B	B	B	245	245	225	260	350	450	A 400	A	A	A	340
7	270	310	450	A	F 375	390	A	Y	A	A	Y	B	260	B	230	245	245	340	390	285	295	300	A 450	A
8	290	A	E A 490	A	420	445	A	B	A	Y	310	B	B	250	250	E B 300	310	C	245	255	A	A	A	510
9	305	B	B	B	B	A	580	B	B	B	E Y 350	B	B	B	260	B	B	B 325	280	340	A	A	A	A
10	A	A	B	A	320	B	B	A	B	B	280	225	250	250	240	250	240	255	B	E B 300	270	280	A	A
11	A	370	280	A	420	400	H 260	240	240	225	H 225	230	230	230	230	H 230	245	250	250	300	A 400	345	300	380
12	370	F 480	550	450	440	385	320	325	255	240	230	225	230	230	240	230	235	240	230	240	420	450	A	345
13	480	370	A	B	A	B	350	Y	280	250	225	215	230	B	245	225	230	245	240	240	240	260	A	340
14	A	A	A	A	A	U Y 440	U Y 550	Y	260	225	H 245	255	230	230	225	240	H 240	250	250	250	240	240	250	270
15	300	400	500	450	400	335	290	255	250	240	230	235	250	250	230	B	H 245	270	255	275	340	300	A 310	400
16	A	450	450	F 450	520	A	550	A	A	300	B	270	225	245	235	240	H 230	250	240	230	230	230	305	A
17	A	345	A	405	U Y 530	Y	335	H 200	240	H 220	250	250	230	225	240	H 225	245	245	245	240	245	240	240	240
18	250	360	470	A 445	A 445	A	H 260	250	250	240	245	240	225	245	240	230	230	240	245	235	H 220	H 250	245	240
19	255	360	450	490	470	345	270	245	250	H 245	240	230	230	225	225	B	H 235	240	240	245	230	H 240	240	230
20	250	310	210	455	E Y 540	460	H 320	245	240	230	250	220	B	250	240	255	245	H 240	270	255	255	270	295	380
21	390	395	440	400	380	400	Y 470	A	270	250	240	230	220	250	225	245	250	250	245	270	295	355	C	470
22	A 500	A	355	355	350	A	Y	230	A	B	Y	255	B	B	Y	240	245	H 260	260	260	320	410	340	A
23	490	500	380	345	350	300	A	A	E Y 350	250	250	B	B	U Y 275	230	230	250	250	275	290	300	340	330	A
24	A	375	F 350	340	325	300	300	Y	Y	B	255	B	B	B	250	B	245	290	280	A 350	425	400	450	430
25	450	320	460	325	350	410	H 340	600	Y	A	A	B	260	260	B	250	250	280	B 320	350	325	325	405	A
26	A 470	520	410	500	350	360	360	270	E Y 345	255	B	245	B	Y	H 250	240	240	245	245	250	280	295	400	A
27	A	B	Y	420	380	340	270	240	260	U Y 300	245	230	E B 275	E B 310	245	230	230	245	245	220	210	260	210	60
28	470	420	A 305	370	370	270	A	B	Y	240	225	225	245	B	H 260	250	H 200	280	280	300	280	290	300	290
29	280	350	Y	310	H 410	270	A	A	A	260	215	230	H 210	E B 280	230	240	H 225	250	H 260	270	355	Y	A	420
30	510	470	Q 500	450	320	375	655	A	A 410	270	255	240	B	Y	250	240	240	B	260	E B 310	315	280	280	280
31	295	300	C	C	390	280	245	240	245	240	230	225	225	H 210	240	230	H 240	H 245	260	270	370	390	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	20	24	21	21	24	21	22	15	18	21	24	23	21	22	29	27	30	29	30	31	28	24	22	22
MED	302	365	425	410	379	375	338	245	251	240	241	230	230	244	240	240	240	250	248	258	292	285	300	330
UQ	470	410	465	450	425	400	430	268	265	250	251	241	248	250	245	244	245	270	270	288	340	342	340	390
LQ	272	315	338	350	350	315	275	240	245	230	230	225	225	230	230	230	235	240	240	242	240	245	245	245

OCT. 1979 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	K 110	K 110	E B 155	B	B	B	E B 170	B	B	B	B	G	120	B	G	G	B	G	G	145	150	B	145
2	115	145	115	125	115	115	125	120	G	G	G	E G 150	130	G	G	G	G	175	160	G	120	150	100	100
3	105	100	120	100	110	110	B	105	110	115	B	B	B	145	B	G	G	G	G	G	110	K 105	120	115
4	120	115	120	115	B	125	110	115	G	G	G	G	B	B	G	B	B	B	G	B	100	B	145	K 145
5	K 125	170	140	140	B	B	G	G	G	G	G	G	G	G	125	120	110	100	170	105	140	120	A 130	105
6	110	115	110	100	120	120	125	B	B	115	B	B	B	B	G	G	G	K 135	K 120	110	100	110	K 110	115
7	115	110	120	110	125	130	110	110	100	110	115	B	B	B	G	G	G	G	G	140	140	130	110	105
8	105	115	115	110	K 115	115	115	B	110	110	K 115	B	B	110	G	B	B	C	130	135	K 110	K 110	K 110	K 105
9	120	B	B	B	110	K 115	K 115	B	B	B	K 120	B	B	B	B	B	B	B	G	G	115	K 115	105	110
10	115	100	B	110	K 120	B	B	105	B	B	K 110	B	G	G	B	B	G	100	B	B	B	B	K 110	K 110
11	K 110	110	110	110	120	K 120	100	G	G	G	G	G	G	G	G	G	G	115	145	K 145	115	115	125	115
12	K 115	K 115	K 115	K 115	K 120	105	110	100	G	E G 200	125	130	125	115	110	G	G	G	145	G	K 115	115	110	105
13	115	110	115	B	120	B	120	115	120	G	G	G	G	B	G	G	G	G	100	150	G	G	175	130
14	K 110	K 110	K 110	K 100	110	110	110	115	110	G	G	E B 160	G	130	G	G	G	E G 180	105	G	G	120	120	H 120
15	120	115	K 120	K 115	K 120	G	105	G	G	G	120	120	120	B	G	B	G	G	155	K 110	170	K 120	120	110
16	110	K 115	115	110	115	110	110	105	110	105	B	B	G	G	G	G	G	105	G	G	G	125	115	K 110
17	140	K 110	110	K 115	K 120	120	115	145	145	110	G	G	G	G	G	115	G	E G 170	100	100	100	100	120	115
18	110	115	105	110	120	110	110	G	G	G	140	115	110	G	105	100	100	100	100	100	130	130	120	115
19	115	H 120	105	105	K 110	G	G	G	G	G	125	120	115	G	110	B	G	G	G	G	G	120	125	120
20	100	110	130	115	115	K 110	110	G	G	G	G	G	B	R	G	B	110	G	G	120	B	180	130	120
21	115	115	110	110	115	K 115	K 110	110	110	G	G	G	G	G	G	G	100	G	E G 190	140	140	125	C	140
22	105	105	110	130	130	110	130	100	105	B	110	G	B	B	G	G	G	G	E G 190	150	160	K 115	K 115	K 110
23	150	120	110	125	K 140	120	K 115	105	K 105	G	G	B	B	G	G	G	G	G	G	125	130	125	125	150
24	100	125	115	K 115	K 110	115	115	150	105	B	G	B	B	B	G	B	G	G	G	150	K 115	K 125	145	H 110
25	110	130	110	110	130	K 110	K 110	K 105	110	100	100	B	G	B	B	G	G	E G 190	B	130	125	K 110	K 125	105
26	110	110	K 110	160	130	K 120	115	G	100	G	B	B	B	Y	B	G	G	G	G	140	125	125	120	120
27	H 110	B	110	100	K 110	G	G	G	G	G	G	G	B	B	B	G	G	G	G	E G 180	140	B	150	115
28	H 110	140	100	A 140	105	G	K 110	B	G	G	G	G	105	B	G	G	G	G	120	125	125	120	120	125
29	150	125	100	100	G	100	115	150	K 100	G	G	G	G	B	B	G	G	G	170	145	130	110	100	140
30	130	155	120	K 115	100	120	G	110	K 105	G	G	G	B	G	G	G	G	B	B	B	B	B	B	125
31	125	115	C	C	140	155	105	110	G	E G 150	140	130	125	130	110	G	G	G	175	G	115	125	K 125	K 120
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	28	28	27	23	24	19	15	9	11	7	7	6	5	3	4	10	16	19	24	26	28	31
MED	115	115	110	111	120	115	110	110	110	110	120	125	120	125	110	115	105	U 112	U 135	132	125	120	120	115
UQ	120	120	118	118	120	120	115	116	110	112	125	135	125	130	110	118	110	E G 175	164	144	140	125	125	122
LQ	110	110	110	110	110	110	110	105	105	110	112	120	112	115	110	108	100	100	112	115	115	115	110	110

OCT. 1979 | H'ES (KM)

IONOSPHERIC DATA

OCT. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	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 1	K 1	K 1	R 1				R 1						C 1							H 1	H 1		HL 11
2	RK 11	HK 11	R 1	R 1	R 1	R 1	R 1	C 1				H 1	H 1					H 1	R 1		R 1	RA 11	RA 11	R 1
3	R 2	FA 21	FF 21	R 2	RF 11	C 1		R 1	R 1	C 1				H 1							R 3	K 3	R 1	RK 11
4	R 1	RK 21	R 1	R 2		R 1	L 1	L 1													F 1		F 1	F 1
5	K 1	R 1	R 1	R 1											HL 11	C 1	C 1	L 1	H 1	L 1	RL 11	R 3	RF 11	R 1
6	R 1	R 2	R 1	R 1	F 2	C 1	C 1			R 1								K 1	K 2	R 1	R 1	R 2	K 4	F 1
7	F 2	R 3	F 2	R 2	F 2	C 1	R 1	C 1	R 2	R 2	R 1									C 1	HK 12	HK 22	R 3	R 2
8	FA 21	RF 21	RF 21	R 2	K 1	R 1	R 1		R 1	R 1	K 1			R 1					H 1	H 1	K 1	K 2	K 1	KL 11
9	F 3				F 1	K 1	K 1				K 1										R 3	K 3	RR 21	R 1
10	R 4	F 1		F 3	KL 11			R 1			K 1							L 1					K 3	K 1
11	K 1	R 3	R 3	F 1	R 1	KL 11	L 1											RK 11	RL 11	K 2	R 4	RK 41	RKF 11	LK 52
12	K 4	K 3	K 3	K 3	K 1	LK 22	RK 11	RL 11		HL 11	H 2	H 1	C 1	C 1	C 1				H 1		K 3	LK 22	F 1	R 2
13	F 2	RF 21	RF 11		R 1		R 1	R 1	R 1										L 1	H 1			HK 13	R 2
14	K 2	R 1	K 1	K 2	R 1	LK 11	R 1	R 1	R 2			H 1		H 1				H 1	L 2			L 1	R 2	R 2
15	RF 32	R 4	K 2	K 2	K 1		L 1				C 1	C 1	C 1						H 1	K 3	HK 12	K 4	C 5	RA 11
16	RF 21	K 2	RF 11	RF 33	F 1	F 1	R 1	L 1	R 1	R 1								LL 22				C 3	R 4	K 4
17	HK 13	K 3	RF 32	K 1	K 1	R 1	R 1	R 1	H 1	C 2						CL 11		HL 13	L 1	L 2	L 1	L 1	L 1	F 1
18	F 3	R 3	R 3	R 2	R 2	R 1	R 2				H 1	C 2	C 2		L 2	L 2	L 2	L 1	L 2	L 1	H 1	CL 11	C 1	CL 11
19	F 1	RS 11	RA 11	R 2	KL 31						H 2	C 1	C 1		C 1							CL 31	C 1	C 1
20	F 2	C 2	C 2	R 1	R 1	K 1	RA 11										C 1			RL 11		H 1	R 2	R 4
21	R 3	R 4	R 4	RK 21	RK 11	K 2	KS 11	RS 11	R 2								L 1		H 1	R 1	H 1	R 3		RR 21
22	R 2	R 2	R 1	RK 11	HL 21	R 1	H 1	L 1	K 1		R 1								H 1	HA 11	R 1	K 1	K 3	K 2
23	RK 12	R 1	FRS 11	LK 11	K 1	C 2	K 1	R 1	K 1											C 1	C 3	C 2	C 2	R 1
24	RR 11	RKL 21	R 1	K 2	K 1	CL 21	K 1	HK 11	L 1											HL 12	K 2	K 3	RK 21	RA 21
25	R 2	R 2	R 2	R 2	L 1	K 1	K 1	K 2	L 1	R 1	R 2							H 1		H 1	C 2	K 3	K 3	R 2
26	R 1	R 1	K 2	HK 11	H 1	K 1	R 2		LA 11											H 2	R 2	R 3	R 3	R 4
27	R 1		R 2	R 2	K 2															HL 11	H 2		HK 11	R 2
28	K 2	HK 13	L 4	RL 11	L 1		K 1						C 1						C 2	RL 21	CL 21	CL 21	RL 22	CL 21
29	R 1	F 2	RS 11	LR 22		L 2	R 1	HK 11	K 1										HL 11	HL 11	H 1	L 1	L 1	R 2
30	R 1	RK 11	R 1	K 1	LS 21	R 1	S 1	R 1	K 2															C 1
31	C 1	C 1			HA 11	HL 12	L 3	CL 21		H 1	H 1	H 1	H 1	H 1	C 1				HL 12		RL 21	RA 11	KA 11	K 2
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

OCT. 1979 | TYPES OF ES

IONOSPHERIC DATA

NOV. 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 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	52	53	60	65	Y	70	O R 86	Y	Y	O R 77	O R 77	X 80	X 78	X 79	X 80	X 80	X 81	X 82	X 72	X 73	X 54	X 43	50	A
2	70	R	B	R 76	B	72	75	B	Y	B	B	O R 75	O R 71	O R 73	O R 77	O R 78	U R 78	65	O R 70	U R 56	C	51	U R 47	U R 49
3	54	59	63	67	72	30	85	82	X 86	R 91	R 93	X 91	X 89	O R 84	X 82	X 79	X 79	X 80	X 82	X 64	X 52	O R 48	Y	61
4	Y	X 70	72	80	75	65	Y	B	C	X 80	X 79	X 81	X 80	O R 77	O R 75	O R 81	X 85	X 80	X 76	X 73	X 64	X 52	O R 54	X 55
5	X 52	60	B	Y	X 72	84	X 89	X 94	X 96	X 91	X 91	X 91	R 92	R 91	U R 94	X 92	X 92	X 92	X 94	X 87	X 82	X 80	X 76	X 70
6	80	X 85	X 89	X 91	R 95	X 121	X 115	X 112	X 100	O R 86	X 96	X 97	X 99	U R 99	R 102	O R 100	R 90	X 89	X 82	X 64	Y	45	48	51
7	59	69	63	80	X 86	90	R 96	X 102	X 109	X 109	R 108	U R 100	O R 95	O R 96	R 100	U R 94	C	X 88	X 87	X 85	X 84	X 79	X 77	F 78
8	41	R 54	58	60	61	62	72	X 59	A	O R 62	Y	67	B	B	Y	X 90	R 68	69	69	X 65	68	X 65	R 62	60
9	X 62	63	X 61	X 58	69	O R 67	X 67	75	X 78	X 86	X 85	R 83	X 80	X 79	X 76	R 74	O R 75	R 68	O R 54	B	43	A	A	O R 48
10	O R 49	Y	Y	X 61	X 63	U R 75	R 65	65	71	X 81	R 85	X 86	R 81	X 80	77	X 73	X 73	U R 68	69	X 64	X 65	X 64	X 60	52
11	X 59	A	60	B	R 86	X 78	O R 76	X 72	Y	82	X 81	X 84	X 80	X 77	X 76	R 74	X 72	X 72	X 70	X 67	X 67	X 66	X 63	55
12	59	66	70	X 52	U R 62	60	70	X 75	X 81	X 84	R 85	O R 78	O R 85	U R 86	O R 82	O R 79	X 77	R 76	X 68	X 65	X 61	58	X 59	51
13	50	50	60	58	Y	72	O R 70	Y	Y	Y	Y	B	88	O R 81	O R 64	O R 58	O G 51	Y	62	57	62	67	O R 44	42
14	B	66	60	B	O R 67	60	Y	Y	Y	Y	Y	B	B	B	B	O R 58	O G 54	O R 67	X 62	U R 62	O R 62	X 63	X 63	X 66
15	X 68	X 68	X 70	X 74	X 80	83	83	V 89	R 89	X 91	X 90	U R 86	O R 85	U R 83	X 71	X 78	X 77	X 77	78	X 76	X 75	X 76	U R 74	X 74
16	X 74	X 76	X 84	R 91	R	R 96	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	O R 57	B	O R 76	70	69	R 79	O R 79	X 82	X 81	R 81	O R 79	O R 77	O R 76	X 72	X 76	X 76	R 76	R 76	R 75	R 74	X 75
18	70	65	X 66	69	76	X 85	80	X 87	X 89	X 90	X 91	X 92	X 90	O R 88	O R 91	R 86	R 85	X 81	X 79	R 74	X 76	X 76	X 76	X 76
19	X 73	R 75	O S 79	X 82	X 78	90	X 98	X 98	X 100	R 105	B	U R 98	O R 94	O R 87	B	R 88	R	X 79	77	R 72	X 70	X 76	X 73	X 73
20	60	X 58	B	B	R 76	73	69	O R 75	81	80	O R 79	O R 83	R 82	X 87	R 82	U R 80	X 81	X 80	X 75	Y	U R 56	X 66	60	R 66
21	X 55	R 58	X 66	64	75	79	Y	Y	A	72	O R 75	O R 77	X 88	R 86	X 84	X 81	X 82	X 81	X 75	X 71	X 71	X 71	X 71	72
22	72	72	75	X 70	X 76	89	99	104	R 101	X 99	R 98	X 98	O R 95	U R 89	X 89	U R 86	X 79	X 75	X 74	X 74	X 76	X 74	X 74	X 71
23	X 74	80	X 84	X 89	X 91	U R 98	106	X 100	X 107	O R 105	O R 102	O R 101	R	U R 93	X 91	O R 88	A	U R 87	U R 78	R 66	R 66	X 63	61	X 56
24	59	Y	Y	Y	R 73	67	Y	Y	Y	Y	Y	Y	O G 52	O G 54	O R 58	70	64	X 56	62	X 57	X 51	Y	O R 54	X 59
25	70	A	O R 50	73	A	47	R 54	B	A	62	O R 62	B	O G 54	O G 53	O G 54	X 65	70	71	X 66	X 65	X 67	X 64	X 60	62
26	64	X 65	O R 64	70	72	72	83	X 88	99	O R 95	X 85	R 79	X 79	R 76	X 75	X 74	70	X 68	72	X 71	X 70	A	X 61	60
27	62	O R 50	68	71	Y	70	87	90	X 88	95	99	99	U R 90	X 90	R 85	R 85	X 85	X 81	X 79	X 79	R 75	X 70	X 70	X 67
28	X 64	65	66	X 71	76	82	90	X 96	R 100	X 99	X 99	R 95	R 90	X 90	X 88	U R 85	X 85	X 76	R 76	X 74	R 75	R 74	R 75	R 74
29	X 73	X 78	X 86	X 91	X 98	X 109	R	X 110	X 118	X 117	X 111	X 111	X 102	X 101	X 94	X 90	X 87	X 86	X 84	X 80	82	X 75	X 67	82
30	71	B	73	74	75	76	74	80	81	100	100	X 97	U R 90	84	84	90	80	X 82	X 67	X 65	X 70	X 67	X 61	65
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	24	25	23	30	24	21	19	25	23	25	26	27	26	29	26	28	29	27	27	26	27	28
MED	62	65	66	71	75	76	78	X 88	X 89	90	90	86	36	R 84	82	R 80	X 78	X 78	X 75	X 71	X 68	X 66	X 62	64
UQ	70	71	74	80	79	85	90	X 98	X 100	X 99	98	X 97	R 90	R 90	89	R 88	X 85	X 82	X 78	X 74	X 75	X 75	X 74	X 72
LQ	57	58	60	64	72	70	70	75	81	80	82	R 81	80	79	76	R 74	72	70	X 69	X 64	X 62	X 63	60	55

NOV. 1979 | FXI (0.1 MHZ)

IONOSPHERIC DATA

NOV. 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 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	F 46	F 45	F 58	Y	F 61	60	Y	Y	U R 71	F 70	74	72	73	R 74	R 74	R 75	76	66	57	48	38	41	A
2	Y	U R 74	B	70	B	Y	F 68	B	Y	B	B	F 63	R 65	67	R 71	R 72	71	F 57	R 53	50	44	F 44	F 41	43
3	F 42	51	F 56	F 60	F 65	F 72	73	F 74	80	R 84	R 86	85	83	78	76	R 73	R 73	R 74	76	58	46	42	Y	F
4	Y	R 64	F 66	J F 74	F	F 54	Y	B	C	74	73	75	74	71	69	U R 75	79	R 74	70	67	58	46	48	49
5	46	F 52	B	Y	R 66	F 76	83	88	R 90	85	R 85	85	J R 86	R 85	U R 88	86	86	86	88	80	76	74	70	64
6	F 74	79	83	85	R 89	115	109	106	94	F 80	90	91	93	U R 93	U R 96	R 94	R 84	83	76	58	Y	U F 28	F	J F 46
7	F 48	F 59	F 56	64	80	F 81	90	J R 96	R 102	J R 103	102	U R 93	U R 89	U R 90	U R 94	R 88	C	82	81	79	78	72	71	F 72
8	F	R 47	F	F 50	45	F	F 50	52	A	56	Y	F 60	B	B	Y	84	62	F 62	60	59	61	59	57	F 53
9	56	J F 56	55	52	J F 63	U R 61	61	F 68	72	80	79	78	74	73	70	68	69	62	R 48	B	35	A	A	42
10	43	Y	Y	55	57	U R 69	60	F 55	F 58	74	F 79	R 81	U R 75	R 74	69	68	67	62	62	58	59	58	54	41
11	53	A	49	B	F 80	72	U R 70	65	Y	F 70	J R 75	79	74	71	70	68	67	66	64	61	61	60	49	F 47
12	F 47	F 54	F 51	H 46	56	F 51	F 58	69	74	79	79	R 72	79	80	U R 76	R 73	71	70	61	59	55	F 50	R 53	F 44
13	F 44	J F 42	F 52	F 45	Y	F 58	F 60	Y	Y	Y	Y	B	R 69	75	F 58	52	E G 45	Y	F 44	F 44	U F 37	A	F 38	F
14	B	R 44	A	B	F 60	52	Y	Y	Y	Y	Y	B	B	B	B	52	E G 48	61	56	56	56	57	57	60
15	62	62	64	68	74	F 76	F 76	V 81	R 83	R 85	84	80	79	78	65	72	71	70	F 71	70	69	70	68	68
16	68	70	78	U R 85	U R 88	R 90	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	51	B	70	62	58	73	72	76	74	75	72	71	70	66	70	70	70	70	69	68	69
18	56	F 53	60	R 60	R 64	79	V 82	81	R 83	R 83	R 85	J R 86	J R 84	R 82	85	80	79	74	73	68	70	70	70	70
19	67	69	72	76	72	F 81	92	92	J R 94	99	B	U R 92	R 88	R 81	B	82	U R 81	73	F 70	66	64	70	67	57
20	R 52	52	B	B	70	F 65	62	R 69	F 72	F 73	R 72	U R 76	R 76	81	U R 76	74	J R 75	74	69	Y	50	60	52	60
21	49	52	60	F 57	F 68	F 67	Y	Y	A	F 62	R 69	71	82	80	78	75	76	74	69	65	65	65	64	F 65
22	F 65	J F 66	F 68	64	70	F 74	R 87	92	R 95	R 92	J R 92	92	R 87	R 82	R 83	80	73	69	68	68	70	68	68	65
23	68	F 70	78	83	85	J R 92	J R 100	R 94	101	R 99	U R 96	U R 95	R	U R 87	R 85	R 82	A	R 81	72	60	60	57	53	50
24	F 51	Y	Y	Y	R 67	F 59	Y	Y	Y	Y	Y	Y	E G 46	E G 47	52	F 61	F 55	R 50	F 50	51	45	Y	48	52
25	F	A	44	50	A	R 41	48	B	A	F 54	U R 56	B	E G 48	E G 47	E G 48	59	F 60	F 62	60	59	60	58	54	F 46
26	F 53	59	58	F 61	F 64	F 56	F 76	81	89	89	79	R 72	73	70	69	68	F 62	62	F 65	65	64	A	55	44
27	R 43	U R 44	R 52	F	Y	F 64	F 68	76	82	R 84	R 85	R 89	84	R 84	78	79	79	75	J R 73	72	69	63	64	61
28	58	F 57	F 58	65	F 69	F 75	R 82	R 90	J R 94	R 93	J R 93	J R 89	R 84	84	82	79	R 74	70	70	68	69	68	69	68
29	67	72	80	R 85	J R 92	R 103	D R 90	R 103	112	111	R 105	104	J R 96	94	R 88	84	81	80	78	74	F 71	69	61	F 42
30	F 54	B	F 52	F 63	F	F	F	64	F 71	F 85	F 91	91	J R 84	F 77	F 72	F 75	F 72	76	61	59	63	61	55	57
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	22	24	22	27	24	21	19	25	23	25	26	27	26	29	27	28	29	27	28	25	26	26
MED	53	56	58	62	68	F 70	72	81	83	83	R 84	81	79	78	75	74	72	72	69	61	61	60	56	55
UQ	64	68	68	72	80	78	85	92	R 94	R 89	R 90	R 91	R 84	R 83	R 83	80	78	76	72	68	69	69	68	65
LQ	46	52	F 52	54	64	F 60	60	68	74	73	76	74	74	72	69	68	66	62	61	58	52	57	52	46

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 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 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						Y	B	Y	Y	A	R 490	R 510	510	R 520	500	530	510	L						
2			B		B		410	B	Y	B	B	510	B	510	B	R 510	500	420	L	L				
3							460	490	520	510	510	520	540	550	520	510	L 510	L						
4							A	B	C	Y	520	R 510	510	R	B	510	L	L						
5			B			L	L 490	490	490	510	520	550	560	U L 570	550	L	L							
6					L	L 450	U L 520	L 510	U R 510	R 590	560	550	580	590	600	L 600	U L 590	L 530	L		Y			
7					L	L	L	510	540	550	580	R 560	L 610	570	600	L 600	C	L						
8							410	450	A	R 450	Y	490	B	B	R 500	500	R 500	470		L 380				
9				L		440	U R 460	R 490	Y	H 510	500	530	530	530	530	520	490	L	Y	B	A			
10					L	R	410	460	490	500	510	540	R 520	Y	R 520	510	510	L 500	L			220		
11				B		A	A	A	A	500	U R 530	530	U R 520	R 550	530	510	510	U L 510		L				
12				290	F 330	F 450	500	450	450	500	R 510	R 510	R 510	U R 530	R 520	R 520	510	U L 500		L	L			
13		240	L	A	Y	F 400	U Y 440	Y	Y	Y	Y	B	U R 510	R 530	U R 490	U Y 450	F 450	Y						
14	B	A	A	B	390	U L 420	Y	Y	Y	Y	R 480	B	B	B	B	500	480	R 480	L 460	L				
15					L	410	450	440	470	R 480	520	530	540	R 540	520	L 550	L 540	L	L					
16					B	L 490	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	B	B	U R 420	U R 430	Y	B	B	U R 520	R 520	R 520	B	R 520	R 510	L 540	L	L					
18						430	470	470	500	R 510	R 540	530	550	U R 540	560	L 560	L	L						
19		H 210			L	F 450	480	520	520	520	B	540	R 550	B	B	540	U L 580	U L 510	L	L				
20			B	B	400	Y	B	Y	R 490	R 490	B	U R 510	R 530	R 520	R 520	Y	510	490		Y				
21					L	U R 440	Y	Y	A	500	U R 530	B	B	R 520	B	520	B		L					
22					U L 400	460	460	430	480	R 510	510	510	A	520	530	520	L 530							
23				L	L	U L 460	460	L 510	R 540	R 560	530	U R 520	U R 540	R 510	520	510	A	L	L					
24				Y	A	A	Y	Y	R 440	Y	Y	Y	460	470	480	450	R 460	460	L					
25		A	A		A	380	390	B	A	450	A	B	480	470	480	490	500							
26			Y	L	410	L	420	430	460	470	500	500	500	500	510	520	L 520	L 490	L			A		
27						A	440	H 480	H 490	490	R 500	U R 510	H 500	R 520	U R 520	510	A	500	L 460					
28			220	L 370	390	L 450	470	480	500	510	R 520	520	R 520	530	R 550	H 550	L	L	L					
29					L	L 450	U L 460	L 520	520	520	520	A	540	530	L	510	L 520	L	L					
30		B	U F 340	L 400	L	F 400	450	H 520	H 520	H 520	510	500	B	R 510	510	L	500	L	L	L	L			
31																								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		2	2	3	6	17	21	18	18	22	22	23	23	23	23	26	21	12	2	1		1		
MED		225	280	L 370	395	440	460	485	495	510	520	520	520	530	520	510	510	495	L 460	L 380		220		
UQ				L 385	400	L 450	470	510	520	520	530	530	540	540	530	530	L 520	L 505						
LQ				330	390	420	430	460	480	490	510	510	510	515	510	510	500	475						

NOV. 1979 | FOF1 (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 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 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 280	U K 210	K 280	B	K 325	B	A	K 380	K 550	375	B	R 350	R	345	R 315	300	295	255	210	K 250	K 320	185	K 410
2	K 370	B	B	B	B	A	R 315	B	R	B	B	355	B	B	B	B	R 300	290	265	190	K 300	B	K 310	K 270
3	U K 300	A	K 280	K 260	250	275	H 290	335	315	320	320	325	U R 330	R 325	R 330	330	315	280	275	210	K 300	K 310	B	A
4			B	K 300	A	K 360	K 380	B	A	320	R 340	R 340	R 330	B	B	320	305	290	275	225	H 240	K 310	J K 300	K 290
5	K 310	J K 300	B	B	B	K 300	265	290	315	325	340	340	360	U A 355	360	A	R 325	310	300	270	210	H 180	A	A
6	A	145	H 160	150	215	260	285	320	B	U R 365	R	365	370	370	380	375	R 365	315	B	255	B	F 210		K 330
7		A	A	150	H 190	220	290	310	325	360	370	R 370	B	370	355	325	C	H 310	290	260	H 220	150	A	A
8		F 310	100	B	A	K 280	A	360	K 450	A	410	400	B	B	R	365	R 345	H 325	H 305	H 275	190	135	A	F 130
9	K 155	A	180	165	A	A	K 400	A	350	360	355	390	380	375	360	355	325	320	R	B	R 175	K 400	K 420	K 250
10	K 250	B	A	K 300	A	275	285	315	340	350	H 360	370	365	H 375	370	350	335	325	305	270	H 220	150	R 140	
11	K 360	J K 460	225	B	A	K 420	K 500	K 530	A	365	R 370	R 360	R 360	R 360	350	H 350	345	310	H 300	345	H 245	160	R	115
12	A	F 250	145	210	A	295	310	315	325	355	365	355	360	360	345	315	B	A	290	245	H 190	K 250	K 220	U K 200
13	A	A	U A 180	A	K 375	290	K 360	R	R	R	385	B	R 360	360	R 370	R 355	310	R 290	R 280	250	R	R	K 310	A
14	B	K 310	A	B	A	A	R	R	A	370	U R 350	B	B	B	B	340	320	U R 300	270	B	U R 250	180	R	R 175
15	R	165	175	H 180	240	A	290	H 305	320	345	355	355	350	A	A	335	330	310	290	260	210	145	140	A
16	130	H 150	A	H 210	B	U R 285	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	B	B	B	B	355	B	B	R 375	R	R 370	B	R	R	R	310	280	R 250	B	180	B	B
18	B	K 240	K 250	K 250	210	250	280	305	320	350	R 365	370	365	360	A	A	R 325	H 310	290	275	220	H 180	B	B
19	A	A	H 180	H 200	220	275	295	310	325	350	B	U R 360	370	B	B	345	U R 325	290	280	B	B	R 170	U R 125	U K 240
20	K 360	K 360	B	B	K 300	B	B	310	R 325	350	B	U R 365	360	R 375	R 350	R	310	300	290	U R 260	K 290	K 230	B	K 185
21	230	285	R 310	R 310	350	K 380	R 350	K 410	A	U K 400	B	B	B	B	B	345	B	B	255	B	B	B	A	185
22	B	B	B	250	H 265	H 280	290	300	300	R	330	U A 340	B	R	A	330	A	305	A	A	A	B	B	B
23	A	B	A	K 235	200	340	275	290	315	R 315	340	R	R 340	U R 350	R 350	330	310	300	B	250	B	B	B	115
24	R 125	U K 300	B	K 370	K 310	K 360	K 410	R	A	R	R	A	350	R	H 360	300	U R 290	K 305	K 310	240	210	K 360	K 400	K 375
25	A	A	A	185	K 400	A	R	B	A	320	A	B	R 345	R 325	R 330	330	305	H 300	U A 280	340	215	U A 200	A	F 200
26	125	175	K 330	K 300	K 300	260	280	290	305	325	325	R 340	A	A	A	315	310	290	A	A 250	220	A	175	K 300
27	A	A	U R 280	A	K 420	A	R 325	290	310	320	325	R	U R 335	R 345	330	A	A	A	A	270	225	B	H 155	110
28	125	130	180	200	190	A	280	295	310	315	R 330	335	345	330	310	315	305	A	280	250	R 240	180	A	R 130
29	110	A	R 140	185	210	255	A	300	315	340	R 320	R 315	A	340	345	320	R 310	H 305	280	260	A	B	U A 170	K 310
30	K 310	B	A	A	A	K 300	K 300	K 380	320	340	335	355	B	U R 330	340	350	R	300	H 275	250	215	H 200	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	14	15	16	20	17	21	22	21	19	23	22	20	20	17	18	23	22	25	23	24	21	21	13	19
MED	K 240	280	180	222	250	285	292	310	320	350	352	355	360	360	350	330	312	305	280	252	220	180	185	K 200
UQ	K 310	K 305	265	K 290	K 310	K 325	K 350	335	325	360	370	368	365	370	360	350	325	310	290	270	245	K 250	K 310	K 295
LQ	125	170	168	185	210	275	285	300	315	322	330	340	R 345	R 340	340	320	305	295	275	248	210	170	155	152

NOV. 1979 | FOE (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 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 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	31	K 28	52	K 28	39	K 33	E B 49	40	K 38	K 55	G	E B 46	G	G	G	G	G	G	30	27	34	K 32	J A 64	K 41
2	K 37	E B 60	B	E B 31	B	40	G	B	G	B	B	G	E B 52	E B 41	E B 54	E B 33	G	G	G	J A 32	K 30	35	K 31	29
3	36	29	K 28	K 26	G 15	G 14	G 13	G 12	G 14	G	G	G	G	G 31	G 29	G 25	G	31	29	25	K 30	K 31	36	J A 62
4	44	41	31	K 30	25	K 36	K 38	B	D C 42	G	G	G	G	E B 49	E B 55	G	G	G	29	30	27	K 31	J K 30	K 29
5	K 31	J K 30	B	32	36	31	G 12	G 18	G 14	35	G	G	40	38	G 35	J A 42	G 28	J G 26	G 26	28	24	G	20	25
6	36	G	G	19	G	G	G	G	E B 41	48	G	G	G	G	40	G	G	G	E B 30	G	35	49	45	K 33
7	J A 22	21	22	22	G 14	J A 32	G 25	G	G	G	G	39	E B 57	42	44	40	C	G 27	G 25	G 15	G 13	29	16	15
8	70	K 31	J A 33	35	29	K 28	37	G	K 45	36	G	G	B	B	G	G	G	G	35	31	25	24	18	G
9	19	29	28	24	35	J A 36	K 40	42	G	G	G	G	G	G	38	48	G	G	G	B	F 30	K 40	K 42	39
10	35	36	33	K 30	36	G	G	34	G	G	G	44	43	40	G	G	G	G	G 21	31	29	20	18	28
11	K 36	J K 46	G	B	39	K 42	K 50	K 53	54	G	G	G	G	G	G	G	G	33	G 12	37	G	G	28	J A 29
12	J A 26	K 25	22	29	25	40	36	G	G	40	G	G	44	40	41	42	33	36	J A 30	29	27	K 25	24	25
13	28	30	J A 45	31	K 38	G	K 36	G	G	G	G	B	G	G	G	G	G	G	35	G	36	J A 58	K 31	30
14	B	K 31	53	B	32	32	G	G	38	G 25	G	B	B	B	B	G	G	G	G	E B 31	G	23	G	G
15	G	20	21	25	G	30	G 15	G	G	40	40	39	42	40	35	G	G	G 30	31	29	27	30	18	21
16	14	G 14	21	G 12	E B 45	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	E B 41	B	E B 33	E B 40	G	E B 55	E B 65	G	G	G	E B 63	35	G	G	G	G	G	24	G	E B 21	22
18	E B 21	25	G 18	K 25	26	28	G	G	G	G	G	G	40	40	42	37	G 22	G 15	G 24	G 23	25	22	17	17
19	48	16	G	G	25	G 12	G	G 21	G	G 25	B	G	G	E B 60	B	G	G	G	G	E B 28	29	25	28	27
20	K 36	K 36	B	B	K 30	30	E B 59	36	G	G	E B 56	G	G	G	G	G	G	G	32	G	K 29	K 23	22	28
21	29	G	G	G	G 30	35	G 34	K 41	58	49	E B 46	E B 53	E B 56	E B 48	E B 52	G	E B 52	E B 49	G	E B 33	E B 22	E B 26	23	G
22	E B 18	E B 19	E B 23	G	G	G	30	32	G	G	35	41	50	G	35	G	J A 36	35	38	38	30	27	21	26
23	24	20	J A 26	G 18	26	38	G 26	G 28	G 26	G	G	G	G	G 25	G	40	J A 124	35	E B 31	26	25	24	23	J A 28
24	J A 30	U K 30	47	K 37	36	K 36	K 41	G	42	G	G	37	G	G	G	G	G	37	37	31	31	K 36	K 40	41
25	F 35	J A 62	38	33	K 40	34	G	B	53	G	44	B	G	G	G	G	G	G	30	29	28	39	F 25	F 20
26	28	23	K 33	K 30	K 30	J A 35	30	40	G	34	36	G	J A 40	J A 40	J A 49	37	50	J A 80	J A 84	28	31	J A 105	J A 35	35
27	34	F 32	G	38	45	40	G 19	G 12	G 25	G 29	G 27	G	36	37	38	42	74	J A 65	31	G 25	50	31	25	G 10
28	24	37	33	25	22	22	G 26	J G 28	G 26	G	36	35	40	35	49	34	33	33	G 27	G 24	G 22	22	21	15
29	16	14	30	22	25	27	36	G 24	33	42	36	52	36	G	G	G	G	G	G	G	21	E B 24	25	K 31
30	K 31	B	J A 34	F 30	34	G 15	G 25	G 15	G	G	35	G 21	E B 67	G	G 12	G	G	G	32	28	30	26	24	22
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	26	27	28	30	29	26	29	28	27	26	27	27	27	29	28	29	29	28	29	29	29	29
MED	30	28	28	26	30	31	G 26	G 16	E G 14	G	G	G	E G 36	E G 35	U 24	G	G	G	28	27	28	26	24	27
UQ	36	33	34	30	36	36	36	34	40	37	U 34	U 37	41	39	U 40	37	U 28	33	31	30	30	32	31	30
LQ	23	20	20	22	25	G 15	G 12	G	G	G	G	G	G	G	G	G	G	G	G 12	U G 22	24	22	21	20

NOV. 1979 | FOES (0.1 MHZ)

IONOSPHERIC DATA

NOV. 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 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	28	K 28	U K 21	K 28	U Y 39	U Y 33	E B 49	U Y 40	U Y 38	U Y 55	G	E B 46	G	G	G	G	G	G	29	27	30	K 32	30	A A 41
2	U Y 37	E B 60	B	E B 31	B	U Y 40	G	B	G	B	B	G	E B 52	E B 41	E B 54	E B 33	G	G	G	31	30	29	K 31	28
3	30	25	K 28	K 26	G 15	G 14	G 13	G 12	G 14	G	G	G	G	G 31	G 29	G 25	G	30	29	25	K 30	K 31	U Y 36	28
4	U Y 44	40	31	K 30	25	K 36	U Y 38	B	D C 42	G	G	G	G	E B 49	E B 55	G	G	G	29	30	G	31	K 30	K 29
5	K 31	K 30	B	U Y 32	U Y 36	K 30	G 12	G 18	G 14	35	G	G	40	38	G 35	41	G 28	G 25	G 26	G	23	G	18	20
6	24	G	G	19	G	G	G	G	E B 41	41	G	G	G	G	40	G	G	G	E B 30	G	U Y 35	G	21	33
7	19	19	21	21	G 14	20	19	G	G	G	G	39	E B 57	42	44	39	C	G 27	G 25	G 15	G 13	29	16	15
8	29	K 31	30	32	U Y 29	K 28	35	G	A A 45	U Y 36	G	G	B	B	G	G	G	G	34	30	25	21	U Y 18	G
9	U Y 19	29	28	U Y 24	32	34	K 40	39	G	G	G	G	G	G	38	40	G	G	G	B	U Y 30	A A 40	A A 42	35
10	34	U Y 36	U Y 33	K 30	36	G	G	31	G	G	G	42	43	U Y 40	G	G	G	G	G 21	28	27	19	18	25
11	K 36	A A 46	G	B	38	K 42	K 50	K 53	U Y 54	G	G	G	G	G	G	G	G	G	U Y 12	36	G	G	25	22
12	25	K 25	22	G	24	G	G	G	G	40	G	G	U Y 44	40	41	42	33	32	26	28	25	K 25	U K 22	U K 20
13	25	20	23	31	U Y 38	G	K 36	G	G	G	G	B	G	G	G	G	G	G	31	G	30	A A 58	K 31	29
14	B	K 31	A A 53	B	30	29	G	G	U Y 38	G 25	G	G	B	B	B	G	G	G	G	E B 31	G	21	G	G
15	G	20	21	23	G	26	G 15	G	G	G	38	39	42	40	35	G	G	G 30	30	29	27	23	18	19
16	12	G 13	21	U Y 12	E B 45	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	E B 41	B	E B 33	E B 40	G	E B 55	E B 65	G	G	G	E B 63	U Y 35	G	G	G	G	G	24	G	E B 21	U R 22
18	E B 21	25	U Y 18	K 25	26	27	G	G	G	G	G	G	40	U Y 40	41	36	G 21	G 15	G 23	G 22	24	22	U Y 17	17
19	29	13	G	G	25	G 12	G	G 21	G	G 25	B	G	G	E B 60	B	G	G	G	G	E B 28	29	22	19	U K 24
20	K 36	K 36	B	B	K 30	U Y 30	E B 59	U Y 36	G	G	E B 56	G	G	G	G	G	G	G	31	G	K 29	K 23	22	24
21	28	G	G	G	G 30	35	G 34	U Y 41	A A 58	U K 40	E D 46	E B 53	E B 56	E B 48	E B 52	G	E B 52	E B 49	G	E B 33	E B 22	E B 26	22	G
22	E B 18	E B 19	E B 23	G	G	G	30	32	G	G	35	41	U Y 50	G	35	G	32	29	30	28	26	27	21	26
23	19	19	21	G 16	24	38	G 26	G 28	G 25	G	G	G	G	G 25	G	38	A A 124	34	E B 31	26	24	E B 21	22	21
24	30	U Y 30	U Y 47	U Y 37	36	19	U Y 41	G	41	G	G	U Y 37	G	G	G	G	G	36	35	30	30	U Y 36	40	41
25	F 35	A A 62	36	32	A A 40	31	G	B	A A 53	G	U Y 44	B	G	G	G	G	G	G	29	29	28	27	20	K 20
26	27	22	U Y 33	K 30	K 30	G	30	G	G	34	35	G	36	36	45	37	32	36	37	26	26	A A 105	26	K 30
27	28	32	G	20	U Y 45	U Y 40	G 19	G 12	G 20	G 29	G 27	G	36	U Y 37	U Y 38	42	71	43	30	G 25	50	25	19	G 10
28	17	24	20	G	22	21	G 26	G 28	G 26	G	35	35	U Y 40	35	49	34	33	31	G 27	G 23	G 22	17	20	14
29	16	13	30	22	25	27	29	G 24	33	36	35	52	36	G	G	G	G	G	G	G	21	E B 24	21	K 31
30	31	B	25	29	31	G 15	G 15	G 15	G	G	G	G 21	E B 67	G	U Y 12	G	G	G	30	27	28	24	20	19
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	26	27	28	30	29	26	29	28	27	26	27	27	27	29	28	29	29	28	29	29	29	29
MED	28	25	22	24	30	26	U G 20	G 14	E G 14	G	G	G	E G 36	E G 35	U 24	G	G	G	28	26	26	24	21	22
UQ	31	32	30	30	36	33	U 33	31	40	35	U 31	U 37	U 40	U 38	40	36	U 27	30	30	29	30	29	26	29
LQ	19	19	20	18	24	G 12	G	G	G	G	G	G	G	G	G	G	G	G	G 12	G 18	23	20	18	19

NOV. 1979 | FBES (0.1 MHZ)

IONOSPHERIC DATA

NOV. 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 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	14	8	11	25	28	49	20	22	19	21	46	21	24	13	14	12	15	12	8	8	9	12	21
2	27	60	B	31	B	20	20	B	20	B	B	25	52	41	54	33	20	14	21	8	15	15	9	20
3	11	11	12	13	9	9	11	9	10	13	15	14	15	18	15	15	19	15	15	11	10	15	22	10
4	19	15	14	12	8	8	12	B	20	21	18	19	19	49	55	22	19	15	15	10	12	12	8	8
5	12	12	B	21	24	8	8	11	11	11	15	15	18	16	15	16	15	13	10	8	8	12	12	9
6	9	8	12	8	9	8	13	18	41	29	26	31	20	22	16	21	21	20	30	23	21	18	10	8
7	8	8	8	8	9	8	9	18	15	30	21	21	57	22	21	18	C	17	15	10	8	8	8	8
8	10	10	8	10	10	11	11	15	18	28	28	21	B	B	25	16	24	19	12	10	8	11	9	8
9	9	9	11	11	17	15	15	15	18	19	19	18	18	18	18	13	15	14	12	B	11	15	19	12
10	15	21	14	14	15	21	13	15	14	19	19	17	20	14	15	15	15	16	10	12	11	8	8	9
11	15	10	15	B	15	19	19	15	20	20	22	21	21	19	20	19	14	12	10	12	11	10	10	10
12	9	10	8	12	9	11	14	14	15	13	12	15	21	20	22	21	31	21	11	19	8	11	8	8
13	11	10	8	12	15	15	21	25	15	21	14	B	21	30	25	14	15	13	13	13	12	11	12	10
14	B	18	21	B	12	12	25	15	30	10	25	B	B	B	B	18	18	18	18	31	22	12	E C 16	15
15	13	11	12	15	10	15	8	11	12	12	11	19	12	14	12	18	11	9	20	12	10	8	8	8
16	9	8	8	9	45	26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	41	B	33	40	25	55	65	19	31	21	63	26	25	28	15	15	20	21	17	21	20
18	21	13	15	20	15	20	14	10	10	15	20	15	14	14	15	14	14	11	15	11	11	8	16	15
19	8	8	9	9	12	8	11	8	13	12	B	21	25	60	B	24	25	20	21	28	25	15	9	12
20	18	14	B	B	18	26	59	18	12	18	56	25	15	15	16	25	14	13	14	14	12	10	14	9
21	9	15	14	17	21	12	21	20	18	15	46	53	56	48	52	18	52	49	17	33	22	26	15	15
22	18	19	23	19	15	15	13	15	20	19	16	21	42	21	12	14	11	10	11	10	10	20	15	17
23	13	18	10	10	9	12	12	8	8	13	12	21	19	14	19	19	12	15	31	20	20	21	18	8
24	8	22	21	25	20	10	21	19	20	21	15	20	14	34	25	E C 18	E C 20	12	8	9	9	8	10	12
25	8	13	8	8	9	16	16	B	19	11	15	3	20	20	22	21	15	21	8	12	20	7	22	8
26	8	8	14	10	12	8	10	8	8	20	9	10	9	8	15	12	10	8	8	7	7	8	8	15
27	16	14	22	8	15	12	8	8	8	10	12	21	22	26	21	21	12	12	15	12	13	22	14	8
28	8	9	9	12	8	9	8	8	8	11	11	14	12	12	10	14	12	9	8	8	8	12	9	10
29	8	7	8	8	9	9	8	10	9	14	8	21	12	8	13	15	9	10	8	8	10	24	12	11
30	10	B	9	8	10	8	8	10	10	10	10	10	67	20	10	18	12	21	12	12	11	11	8	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	30	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30
MED	11	12	12	12	14	12	13	15	15	18	18	21	20	20	20	18	15	15	14	12	11	12	12	10
UQ	16	18	21	20	18	19	21	20	20	21	25	31	42	41	25	21	20	19	17	20	20	17	16	15
LQ	9	9	8	9	9	9	10	10	10	12	12	17	15	15	15	14	12	12	10	10	9	9	9	8

NOV. 1979 | F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 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 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	250	F 280	F 295	F 215	Y	F 225	245	Y	Y	U R 205	F 220	225	230	225	R 235	R 240	R 235	260	270	255	240	235	240	A
2	Y	U R 230	B	240	B	Y	F 210	B	Y	B	B	F 235	R 215	220	R 225	R 245	245	F 225	R 235	255	250	F 260	F 270	245
3	F 260	270	F 260	F 250	F 250	F 240	235	F 230	235	R 230	R 240	245	245	245	235	R 235	R 245	R 270	280	270	245	265	Y	F
4	Y	R 230	R 260	J F 250	F	F 240	Y	B	C	250	235	225	235	230	260	U R 250	240	R 260	265	275	270	265	270	255
5	265	F 250	B	Y	R 240	F 240	235	270	R 235	240	R 250	250	J R 250	R 260	U R 260	255	265	280	255	280	280	290	280	260
6	F 260	260	250	260	R 265	245	235	235	225	F 225	215	210	220	U R 245	U R 245	R 230	R 240	255	260	245	Y	U F 210	F	J F 235
7	F 265	F 245	F 250	245	260	F 255	230	J R 235	R 235	J R 230	235	U R 245	U R 250	U R 245	U R 245	R 255	C	260	275	270	285	285	280	F 275
8	F	R 235	F	F 220	205	F	F 200	210	A	210	Y	F 200	B	B	Y	215	230	F 230	245	250	245	270	260	F 260
9	255	J F 250	220	220	J F 230	U R 210	200	F 210	210	215	210	215	215	225	230	235	215	225	R 205	B	230	A	A	265
10	240	Y	Y	215	210	U R 220	225	F 200	F 200	220	F 215	R 225	U R 230	R 230	235	210	215	235	245	245	250	260	255	235
11	255	A	235	B	F 250	230	U R 215	215	Y	F 220	J R 225	210	205	210	215	220	215	230	240	245	245	245	220	F 250
12	F 240	F 235	F 235	H 230	215	F 200	F 200	205	210	215	205	R 225	215	210	U R 230	R 220	240	235	250	245	230	F 270	R 270	F 255
13	F 235	J F 230	F 215	F 205	Y	F 200	F 205	Y	Y	Y	Y	B	R 200	210	F 200	200	G	Y	F 285	F 270	U F 270	A	F 245	F
14	B	R 240	A	B	F 245	250	Y	Y	Y	Y	Y	B	B	B	B	205	G	220	240	240	255	255	260	245
15	250	255	240	230	230	F 215	F 220	V 215	R 225	R 225	230	230	220	225	230	245	250	260	F 260	270	280	280	280	265
16	265	260	240	U R 245	U R 245	R 235	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	250	B	230	210	215	220	215	215	230	220	230	230	240	235	250	250	260	270	275	275	235
18	250	F 265	255	R 250	R 230	235	V 225	220	R 235	R 230	R 230	J R 240	J R 235	R 235	235	230	240	255	260	265	270	270	270	270
19	285	260	250	255	245	F 245	245	240	J R 250	250	B	U R 245	R 260	R 245	B	240	U R 265	265	F 265	285	280	280	285	265
20	R 260	235	B	B	225	F 235	235	R 250	F 230	F 235	R 240	U R 250	R 245	260	U R 245	245	J R 250	255	255	Y	270	290	310	300
21	285	250	260	F 235	F 245	F 230	Y	Y	A	F 230	R 235	225	230	220	225	250	275	260	265	280	310	310	305	F 285
22	F 275	J F 265	F 240	255	240	F 235	R 235	230	R 235	R 240	J R 240	235	R 245	R 240	R 240	240	245	265	260	270	280	285	285	280
23	270	F 250	255	250	245	J R 240	J R 240	R 245	240	R 240	U R 255	U R 255	R	U R 245	R 245	R 245	A	R 255	265	260	270	270	285	270
24	F 265	Y	Y	Y	R 265	F 270	Y	Y	Y	Y	Y	Y	G	G	200	F 210	F 205	R 220	F 250	280	265	Y	255	265
25	F	A	210	270	A	R 245	210	B	A	F 210	U R 220	B	G	G	G	315	F 230	F 255	250	270	290	290	275	F 265
26	F 270	255	235	F 255	F 250	F 245	F 220	230	235	235	235	R 245	245	240	250	255	F 260	240	F 270	285	285	A	280	255
27	R 255	U R 245	R 260	F	Y	F 230	F 235	230	240	R 235	R 245	R 235	245	R 240	245	250	250	255	J R 265	275	280	305	285	280
28	265	F 280	F 270	250	F 240	F 225	R 250	R 240	J R 245	R 240	J R 245	J R 255	R 260	255	250	255	R 270	270	270	280	295	290	300	285
29	280	265	260	R 260	J R 265	R 245	D R 305	R 255	250	250	R 255	250	J R 265	255	R 265	260	270	280	285	285	F 280	290	280	F 245
30	F 265	B	F 255	F 245	F	F	F	230	F 235	F 235	F 240	225	J R 235	F 225	F 245	F 255	F 245	270	240	255	290	290	300	290
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	24	24	22	24	22	27	24	21	19	25	23	25	26	27	26	29	27	28	29	27	28	25	26	26
MED	262	260	250	248	245	F 235	228	230	235	230	R 235	235	232	230	235	240	240	255	260	270	270	275	278	265
UQ	268	262	260	252	250	245	235	240	R 238	240	R 240	R 245	R 245	R 245	R 245	250	250	262	265	278	280	290	285	275
LQ	252	238	235	230	230	F 228	210	215	225	220	220	225	215	222	230	230	230	235	250	255	250	265	260	250

IONOSPHERIC DATA

NOV. 1979 | H'F2 (KM) | 45° E Mean Time (G.M.T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						540	455	Y	Y	U Y 670	550	520	500	505	475	490	455	L 350						
2			B		B		485	B	Y	B	B	550	600	545	525	455	470	560	L	L 420				
3							430	450	455	440	440	425	440	450	460	470	425	L 360						
4							570	B	C	460	520	470	470	505	520	455	415	L 370						
5			B			L 380	430	435	430	450	430	440	430	410	385	L	L 360							
6					L 300	360	380	400	480	540	525	540	490	455	440	425	L 450	400	L 320		Y			
7					370	380	400	430	410	425	430	440	440	440	405	400	C	L						
8							800	655	A	Y	Y	710	B	B	470	580	520	510		400				
9				L 460		630	710	600	575	505	545	540	540	550	540	500	550	L 505	670	B	A 560			
10					340	Y 570	560	840	760	455	555	520	520	525	540	590	595	520	L 450			310		
11				B		525	600	A	Y	570	550	550	600	610	580	570	575	L 480		L 380				
12				H 475	550	670	705	405	560	540	580	575	565	575	525	530	490	L 430		400	L 395			
13		470	520	640	Y	660	710	Y	Y	Y	Y	B	710	625	850	880	G	Y						
14	B	475	A	B	490	460	Y	Y	Y	Y	Y	B	B	B	B	755	G	R 590	460	L 410				
15					L 420	470	490	490	470	495	480	500	515	510	490	455	425	L	L 400					
16					375	420	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	B 420	B	560	U Y 600	Y	550	E B 620	530	525	550	B	510	480	510	410	L 400					
18						440	470	500	450	480	480	460	470	470	480	460	400	L 380						
19		325			425	430	420	430	440	440	B	460	425	490	B	445	L 450	L 410	L 410	L 345				
20			B	B	425	E Y 520	B	Y 530	520	520	525	515	505	460	520	Y 520	580	460		Y				
21					415	580	Y	Y	A	520	550	535	460	495	490	460	405		L 350					
22					400	455	425	415	420	430	415	440	430	455	440	410	420							
23				350	360	375	400	380	400	400	400	410	430	440	440	440	A	L 370	L 340					
24				U Y 500	400	400	Y	Y	Y	Y	Y	Y	G	G	610	640	715	620	L 500					
25		A	620		A	550	640	B	A	650	E Y 630	B	G	G	G	620	550							
26			E Y 520	420	435	L	510	460	400	440	425	460	450	460	455	430	L 440	455	360			A		
27						E A 500	455	440	440	440	Y 430	420	440	430	430	410	A	380	355					
28			300	380	400	F 450	400	385	400	400	400	395	400	400	400	410	L 310	L 280	275					
29					350	355	280	350	355	365	360	375	380	375	360	355	350	325	L 300					
30		B	420	440	L 360	460	520	570	480	440	415	470	B	510	460	L 400	400	350	L	L	310			
31																								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		3	5	9	17	25	25	19	19	24	23	25	26	26	27	28	26	22	14	6	3	1		
MED		470	520	440	400	453	485	440	450	455	480	470	480	492	480	460	452	410	L 380	L 400	395	310		
UQ		472	520	475	425	550	600	515	500	525	543	535	550	545	525	550	550	505	L 450	L 410	478			
LQ		398	U 360	420	360	420	425	410	415	440	428	440	440	450	440	428	415	L 370	L 340	L 380	352			

NOV. 1979 | H'F2 (KM)

IONOSPHERIC DATA

NOV. 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 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	380	305	280	440	Y	Y	2	Y	Y	A	260	270	225	255	225	230	245	245	245	280	A 400	500	460	A
2	Y	B	B	375	B	E Y 550	Y 300	B	Y	B	B	Y 315	B	260	R	240	245	260	280	370	400	400	390	370
3	385	320	330	365	340	305	280	280	245	230	225	230	225	225	225	230	230	H 220	245	270	405	420	Y	425
4	Y	A 480	355	365	300	A 395	A	B	C	230	250	235	205	B	R	240	245	245	245	255	290	355	345	360
5	360	355	B	Y	420	305	265	240	230	240	225	230	240	225	225	255	230	245	245	245	240	255	270	310
6	280	295	300	290	275	260	260	255	280	260	250	250	250	260	240	250	260	250	260	300	Y	F 640	F 500	570
7	320	320	330	350	320	280	255	255	250	250	250	230	B	250	A 270	240	C	245	250	250	250	250	270	270
8	A	480	A	F 470	320	F 300	290	250	A	260	Y	250	B	B	E B 300	260	250	260	275	305	325	270	300	325
9	325	300	E A 400	375	360	370	375	300	Y	H 230	245	255	240	250	230	245	245	265	Y	B	A	A	A	A 370
10	420	Y	Y	H 410	260	360	295	260	255	270	E Y 280	260	A 270	Y	240	260	245	250	260	270	300	205	320	415
11	370	A	400	B	340	A	A	A	A	255	270	255	260	245	245	240	250	255	250	270	290	325	380	370
12	400	420	430	215	290	315	295	255	250	255	250	250	280	250	260	255	245	245	255	270	320	340	315	325
13	415	F 260	A	A	Y	330	370	Y	Y	Y	Y	B	255	255	E Y 330	E Y 330	250	Y	F 250	300	F 400	A	510	610
14	B	A	A	B	340	320	Y	Y	Y	Y	220	B	B	B	B	240	260	250	260	270	295	300	300	325
15	325	330	325	325	300	275	260	230	240	260	240	230	245	230	225	225	225	225	225	250	265	270	270	280
16	295	300	315	300	B	275	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	B	B	E B 325	B	E Y 320	B	B	R 270	250	250	B	240	240	245	230	250	255	270	280	270	370
18	340	305	325	330	H 300	260	255	H 230	245	230	230	230	230	260	245	220	240	240	245	255	255	270	275	275
19	290	H 220	305	305	280	275	250	250	225	230	B	275	255	B	B	225	240	240	250	H 240	270	275	280	320
20	400	445	B	B	330	Y	B	Y	H 225	245	B	250	240	230	240	Y	240	240	270	Y	E Y 430	295	260	280
21	290	360	345	420	325	A 380	Y	Y	A	270	260	B	B	E C 280	B	230	R	B 325	230	B 270	280	280	280	270
22	275	260	320	320	295	270	250	240	220	E Y 310	230	240	A	240	225	225	230	225	240	255	255	270	265	275
23	275	290	305	260	275	270	230	220	225	255	220	245	225	220	240	230	A	230	255	H 240	H 250	H 280	270	320
24	345	Y	Y	Y	A	A	Y	Y	250	Y	Y	Y	260	270	240	240	250	285	H 225	245	300	Y	450	400
25	470	A	A	325	A	320	E Y 300	B	A	300	A	B	230	225	260	240	230	H 220	230	H 240	H 260	270	H 285	320
26	H 210	330	Y	280	345	280	240	225	225	220	230	220	220	210	E A 280	230	240	250	A 240	240	A 245	A	280	400
27	410	A 470	415	290	Y	A	320	H 225	H 220	200	205	230	H 200	E Y 300	250	A 270	A	240	230	245	A 270	255	260	265
28	H 220	270	H 220	H 220	250	240	225	225	225	215	210	215	E Y 270	205	A	H 205	220	220	210	230	H 225	245	270	250
29	260	270	275	250	255	245	230	220	225	225	220	A	205	210	H 200	215	225	225	225	225	210	245	260	460
30	355	B	295	345	F 260	250	225	H 200	H 200	H 205	220	225	B	270	225	245	230	240	240	235	280	290	260	260
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	22	19	23	22	25	21	19	18	23	22	23	22	23	23	28	25	28	28	27	27	25	27	28
MED	340	312	322	325	300	290	260	240	228	235	232	245	240	245	240	240	245	245	245	255	275	280	280	325
UQ	385	360	344	370	340	322	295	255	250	256	250	252	255	258	248	246	245	250	255	270	305	325	332	385
LQ	290	290	302	290	275	270	250	225	225	228	220	230	225	225	225	230	230	230	235	242	255	270	270	278

NOV. 1979 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 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 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	120	K 115	110	K 110	110	K 125	B	110	K 110	K 110	G	B	G	G	G	G	G	G	150	140	120	K 110	150	K 105
2	K 110	B	B	B	B	110	G	B	G	B	B	G	B	B	B	B	G	G	G	140	K 125	120	K 105	160
3	120	120	K 110	K 110	100	100	100	100	100	G	G	G	G	100	100	100	G	120	155	145	K 110	K 125	125	110
4	105	100	115	K 110	120	K 110	K 130	B	110	G	G	G	G	B	B	G	G	G	E G 190	145	E G 200	K 120	K 120	K 115
5	K 120	K 120	B	120	105	170	100	100	100	140	G	G	120	115	110	100	100	100	100	170	155	G	155	125
6	100	G	G	140	G	G	G	G	B	155	G	G	G	G	130	G	G	G	B	G	145	150	145	K 110
7	120	120	170	150	100	100	100	G	G	G	G	140	B	120	110	110	C	100	100	100	100	125	125	100
8	115	K 115	120	110	110	K 110	105	G	K 110	110	G	G	B	B	G	G	G	G	140	130	125	115	125	G
9	115	145	130	120	120	110	K 110	105	G	G	G	G	G	G	120	120	G	G	G	B	145	K 105	A 130	130
10	130	105	105	K 115	115	G	G	145	G	G	G	120	120	115	G	G	G	G	100	160	125	140	155	120
11	K 110	K 110	G	B	A 120	K 100	K 100	A 130	100	G	G	G	G	G	G	G	G	E G 150	100	165	G	G	E G 190	130
12	130	K 125	145	125	130	170	150	G	G	130	G	G	120	120	115	110	115	110	105	160	150	K 145	140	140
13	125	125	130	115	K 115	G	K 115	G	G	G	G	B	G	G	G	G	G	G	170	G	150	140	K 110	130
14	B	K 120	A 130	B	120	130	G	G	110	100	G	B	B	B	B	G	G	G	G	B	G	130	G	G
15	G	150	130	130	G	120	100	G	G	130	125	125	115	115	105	G	G	100	E G 155	130	120	115	120	100
16	100	100	100	100	B	G	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	B	B	B	B	G	B	B	G	G	G	B	115	G	G	G	G	G	125	G	B	150
18	B	E G 175	110	K 130	140	140	G	G	G	G	G	G	130	120	110	100	100	100	100	100	130	130	E G 220	110
19	100	120	G	G	155	95	G	100	G	100	B	G	G	B	B	G	G	G	G	B	130	130	125	120
20	K 110	K 110	B	B	K 115	130	B	125	G	G	B	G	G	G	G	G	G	G	160	G	K 115	K 110	120	120
21	120	G	G	G	110	100	100	K 100	100	100	B	B	B	B	B	G	B	B	G	B	B	B	115	G
22	B	B	B	G	G	G	E G 160	130	G	G	140	110	105	G	110	G	100	100	100	100	100	110	110	110
23	110	105	100	100	120	110	110	100	100	G	G	G	G	100	G	120	110	110	B	150	150	160	130	130
24	120	K 130	100	K 110	100	K 110	K 110	G	105	G	G	90	G	G	G	G	G	150	140	140	E G 190	K 105	K 110	130
25	150	100	100	125	K 105	110	G	B	105	G	100	B	G	G	G	G	G	G	130	135	140	125	125	K 110
26	145	140	K 110	K 115	K 110	100	140	E G 170	G	145	120	G	115	100	100	125	125	115	115	120	120	110	125	E G 220
27	130	115	G	130	105	100	100	95	95	100	100	G	130	125	115	110	100	100	105	110	120	125	120	100
28	160	105	100	125	130	100	100	100	100	G	120	135	110	130	110	115	115	110	100	100	105	130	100	110
29	100	100	155	140	150	140	100	100	140	120	115	110	100	G	G	G	G	G	G	G	105	B	145	K 120
30	K 120	B	130	105	120	95	90	100	G	G	115	95	B	G	95	G	G	G	160	140	E G 130	170	150	140
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	20	22	24	24	19	16	14	12	8	8	10	11	14	10	8	13	20	20	26	24	27	26
MED	120	116	112	118	115	110	100	100	102	115	118	115	118	115	110	110	105	105	U 114	140	124	125	125	120
UQ	125	124	130	130	120	128	111	123	110	135	122	130	120	120	115	120	115	112	150	148	145	135	140	130
LQ	110	105	102	K 110	108	100	100	100	100	100	108	102	110	108	105	100	100	100	100	115	120	112	120	110

NOV. 1979 | H'ES (KM)

IONOSPHERIC DATA

NOV. 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 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 2	K 2	RRK 21	K 2	R 1	K 1		RL 11	K 1	K 1									H 1	HL 21	RK 21	KS 21	HR 11	K 1
2	K 1					R 1														HL 21	K 3	RA 11	KA 11	HK 11
3	RK 31	CL 22	K 2	K 2	L 1	L 1	L 1	L 1	L 1					L 2	L 2	L 2		CL 11	H 1	HA 11	K 2	K 2	R 1	RL 21
4	R 1	F 1	R 1	K 1	CL 22	KL 21	KLL 11		C										H 1	H 2	H 1	K 3	K 4	K 6
5	K 2	K 2		R 1	R 1	HL 12	L 1	L 2	L 1	H 1			C 1	CL 11	LL 21	L 3	L 1	L 2	L 1	HL 11	HL 11		HA 11	RA 11
6	L 4			H 1						H 1					H 1						RA 11	A 1	R 1	K 2
7	R 2	C 2	HCL 11	H 1	L 1	L 1	L 1					H 1		H 1	C 1	C 2		L 1	L 2	L 1	L 1	HL 31	CL 22	L 1
8	RA 11	K 2	RC 21	R 2	C 2	K 2	L 1		K 1	L 1									H 2	H 1	HL 21	C 1	CH 21	
9	CK 11	H 1	C 1	C 1	C 1	R 1	K 1	R 1							H 1	C 1					RA 11	K 1	KL 11	HK 21
10	HK 11	R 1	L 1	KL 11	R 1			H 1				C 1	C 1	C 1					L 1	H 1	H 2	H 1	H 1	RL 21
11	K 1	K 2			RL 11	K 1	K 1	K 1	R 1									HL 11	L 1	H 1			H 2	R 2
12	H 3	K 2	HS 11	H 1	HL 11	HL 11	H 1			H 1			H 1	H 1	C 1	C 1	C 1	C 2	L 2	H 1	RL 21	K 2	RK 11	HKL 11
13	C 2	C 1	HA 21	R 2	KL 11		K 1												H 1		H 1	HS 11	K 1	H 3
14		K 1	RL 11		HL 11	H 1			L 1	L 1												H 1		
15		H 1	H 1	H 1		C 1	L 1			H 1	H 2	H 1	C 1	C 1	C 1			L 1	H 1	H 1	CL 21	CL 22	CL 21	L 2
16	L 2	L 1	L 2	L 1																				
17															C 1						C 1			H 1
18		HK 11	KL 11	K 1	H 1	HL 11							H 1	CL 11	CL 11	L 2	L 1	L 1	L 1	L 1	HL 11	HL 11	H 1	L 1
19	L 3	L 1			H 1	L 1		L 1		L 1											H 1	C 1	H 1	RK 11
20	K 1	K 2			K 1	H 1		H 1											H 1		K 1	K 1	C 1	CK 31
21	C 2				L 1	L 1	L 1	K 1	R 1	RK 11													C 1	
22							H 1	H 1			H 1	C 1	L 1		C 1		L 1	L 2	L 2	L 2	L 1	L 2	L 1	L 1
23	C 1	L 1	L 3	KL 21	CL 22	CL 21	LL 21	L 2	L 2					L 1		H 1	C 2	C 1		H 1	H 1	H 1	H 1	HA 21
24	CS 21	K 1	L 1	K 1	LK 11	KL 11	K 2		R 1			L 1						HK 11	HK 11	HL 21	H 1	K 1	KL 21	RK 12
25	RL 11	R 2	R 1	R 2	K 1	R 1			R 1		R 1								H 2	H 1	H 1	CL 21	R 1	K 1
26	H 1	H 1	K 1	KL 21	K 1	LH 11	HL 22	H 1		H 1	C 1		C 2	L 2	L 2	H 1	H 2	C 3	C 2	H 2	H 3	CL 31	HL 31	HK 11
27	R 1	R 1		CRL 11	KL 11	R 1	L 1	L 1	L 1	L 2	L 2		H 1	H 1	C 1	C 1	L 2	L 2	L 2	LL 11	CL 21	C 1	C 2	L 1
28	H 1	LC 11	LH 21	CA 11	HL 11	L 2	L 2	L 2	L 2		C 1	H 1	C 1	H 1	C 2	C 1	CL 21	CL 21	L 2	L 2	LL 21	HL 12	L 2	C 1
29	L 1	L 1	HL 11	HL 11	HL 11	HL 11	L 2	L 2	HL 11	C 1	C 1	C 1	C 2								L 2		H 2	K 3
30	KL 21		R 1	R 2	CL 11	LK 11	LK 11	LK 12			C 1	L 1			L 1				HL 11	H 1	H 2	H 1	RL 11	H 2
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	X 59	X 67	X 61	68	X 61	75	85	90	91	X 90	96	X 90	X 90	X 91	90	90	X 60	56	X 60	Y	70	X 56	X 66	O R 60
2	R 47	X 52	X 55	B	64	R 61	Y	B	R 65	U R 66	F 68	F 70	X 71	X 76	90	O R 85	X 81	B	R 66	X 65	X 59	X 61	X 56	F 61
3	V 62	60	X 61	65	B	65	71	70	A	Y	Y	O R 62	O R 71	B	B	C	C	C	66	O R 67	B	65	65	X 70
4	78	78	X 81	81	71	80	67	A	Y	Y	B	B	B	O R 81	O R 80	B	E G 52	E G 51	Y	B	71	A	X 53	X 48
5	Y	X 52	60	64	X 60	62	60	62	68	X 65	X 66	B	B	O R 71	O R 71	X 76	X 70	X 66	X 64	X 59	X 58	67	X 58	R 56
6	A	X 57	A	70	65	R	O R 64	O R 67	X 78	X 80	X 83	X 82	O R 80	X 80	X 72	X 70	X 67	X 66	X 65	X 65	X 66	X 68	X 70	X 67
7	X 69	65	74	X 71	79	81	81	78	80	X 81	X 82	81	X 80	X 80	X 76	R 75	X 71	X 70	X 71	X 70	X 70	X 70	X 67	X 66
8	X 60	X 66	X 68	74	75	32	X 81	Y	77	R 86	32	X 80	X 77	R 77	X 76	X 77	X 75	X 75	X 66	X 64	X 55	X 51	X 60	O R 52
9	64	65	X 59	60	67	68	70	O R 58	66	66	O R 67	Y	O R 71	O R 70	O R 67	O R 67	R 65	X 66	B	X 65	X 65	X 65	X 65	X 64
10	66	64	X 65	71	74	X 85	87	91	X 92	X 90	X 96	X 92	X 90	O R 87	O R 81	O R 72	X 75	X 70	X 70	X 67	X 64	Y	X 64	X 64
11	X 66	X 68	X 66	B	O R 66	73	61	O R 89	94	X 97	X 99	O R 91	O R 88	O R 87	X 81	X 79	R 75	O R 76	X 71	X 71	X 66	X 63	X 53	X 61
12	V 66	X 66	69	70	75	79	80	C R 66	Y	X 70	71	X 72	O R 75	O R 72	O R 70	O R 70	X 70	X 70	X 69	X 71	X 69	X 68	X 64	65
13	75	X 59	X 70	X 76	X 86	U R 85	O Y 94	X 96	X 86	81	X 86	O R 86	O R 80	O R 77	O R 77	X 80	X 76	X 76	X 76	X 72	X 72	X 72	X 70	66
14	X 60	66	X 68	75	79	74	X 76	O R 71	76	81	X 80	X 83	X 82	X 78	R 77	X 75	X 72	O R 74	X 74	X 71	X 71	X 65	X 61	X 61
15	X 61	64	X 66	74	76	76	80	75	B	68	74	X 76	X 80	R 86	X 82	O R 80	B	X 68	X 70	X 68	X 63	O R 57	X 57	X 67
16	X 61	X 63	68	70	62	65	72	70	64	Y	Y	65	65	O R 65	68	X 69	O R 68	X 66	X 62	X 64	X 61	X 59	X 57	X 61
17	X 60	B	73	71	74	75	80	80	O R 79	75	O R 85	O R 77	O R 81	O R 77	77	X 76	X 76	X 70	X 60	X 55	X 56	O R 52	X 66	X 61
18	64	48	X 60	Y	O R 66	72	70	X 71	X 76	X 77	X 81	X 80	X 78	X 80	X 77	X 77	X 72	X 64	X 71	X 70	X 63	X 62	X 67	X 69
19	X 66	64	X 67	73	80	80	X 76	O R 70	Y	75	X 71	X 78	X 80	X 80	X 80	O R 79	X 78	X 80	X 76	X 76	X 77	X 71	X 61	O R 61
20	70	X 61	X 64	78	90	93	91	96	X 96	R 92	Y	R 96	R 90	X 89	X 88	X 87	X 81	80	X 67	R 55	X 56	O R 52	52	X 52
21	55	X 58	Y	X 60	70	73	76	X 81	X 81	X 83	X 84	X 81	X 80	X 79	O R 72	X 76	X 76	X 80	X 71	X 65	61	X 48	O R 55	X 60
22	X 52	57	74	63	70	65	B	60	Y	O R 62	69	70	X 62	X 70	O R 69	B	O R 79	O R 62	69	X 60	O R 51	A	A	60
23	Y	65	74	X 61	64	75	80	X 87	X 91	R 90	X 88	R 86	X 80	A	X 79	X 76	X 72	68	X 66	X 65	X 66	X 68	X 68	X 71
24	74	X 71	78	80	81	80	86	X 104	103	110	105	101	Z 96	X 90	X 90	X 90	X 90	91	X 78	X 65	X 58	X 58	X 60	X 62
25	X 61	60	O R 64	72	X 77	86	X 101	X 103	X 101	X 101	Y	O R 93	X 89	X 86	X 81	X 79	X 73	X 71	X 72	X 75	X 71	X 67	X 60	X 60
26	62	75	75	84	86	82	71	74	91	R 91	X 88	Z 92	X 87	X 85	X 82	X 86	X 86	X 80	81	X 78	60	X 59	X 60	X 50
27	Y	O R 52	X 62	64	66	62	70	74	O Y 68	78	81	O R 80	R 72	R 80	R 77	O R 76	X 76	X 69	E G 47	O R 50	59	X 56	X 58	X 55
28	X 59	V 62	X 60	B	72	Y	66	72	Y	80	85	81	80	X 74	78	R 80	72	R 70	O R 65	X 60	X 56	R 59	X 60	X 62
29	X 59	X 64	B	B	70	B	Y	Y	Y	Y	B	B	B	B	B	B	Y	O R 55	B	67	A	Y	51	B
30	Y	X 50	O R 52	56	54	E G 46	A	E G 52	A	Y	Y	B	B	B	O R 70	X 73	O R 70	X 67	X 62	X 57	X 59	61	X 67	X 55
31	V 55	61	B	70	70	71	76	X 80	X 86	X 89	X 36	X 86	R	X 80	X 76	X 72	X 68	V 66	X 68	X 66	X 66	V 64	O R 52	U R 52
	00	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	30	27	26	30	28	27	27	22	26	24	26	26	27	29	27	28	29	28	29	29	27	30	30
MED	62	64	X 66	70	70	75	76	74	80	81	X 82	81	X 80	X 80	77	X 76	X 72	X 70	X 68	X 65	X 63	X 62	X 60	X 61
UQ	66	66	72	74	77	80	81	88	X 91	X 90	X 87	90	X 87	X 86	X 81	X 80	X 76	X 75	X 71	X 70	X 69	X 67	X 66	X 65
LQ	X 59	X 57	X 61	64	66	66	70	70	76	75	72	77	X 75	R 76	R 72	X 74	X 70	X 66	X 65	X 64	X 59	X 58	X 57	X 56

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IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	53	F 59	55	F 60	65	F 64	F 75	F 85	F 84	R 84	85	84	84	85	F 84	F 83	54	F 51	54	Y	50	50	60	54
2	41	46	49	B	F 55	54	Y	B	59	R 60	F 60	F 64	65	70	80	79	75	B	60	59	54	55	50	F 52
3	V 56	F 50	55	F	B	F 58	F 60	F 64	A	Y	Y	56	R 65	B	B	C	C	C	F 60	61	B	F 58	F 59	64
4	F 69	F 70	F 75	F 75	F 65	F 70	F 59	A	Y	Y	B	B	B	75	74	B	E G 46	E G 45	Y	B	A	A	46	42
5	Y	45	F 50	F 55	54	F	50	46	Y	58	60	B	B	65	65	70	64	60	58	53	52	F 56	52	50
6	A	51	A	F 60	F 58	R	58	61	72	74	77	76	74	74	66	64	61	60	59	59	60	62	64	61
7	J R 63	F	F 65	65	F 69	F 74	F	F 71	F 74	75	76	F 75	74	74	70	69	65	64	65	64	64	64	61	60
8	54	60	F 62	F 65	F 65	F 75	75	Y	F 70	F 80	F 75	R 74	71	71	70	71	69	69	60	58	49	45	54	46
9	44	50	53	F 50	U F 55	F	F 64	F 52	F 59	F 60	61	Y	65	64	R 61	61	R 59	60	B	59	59	59	59	58
10	F 59	F 57	59	F 65	F 65	79	F 80	F 84	86	84	R 89	86	84	81	75	R 66	69	64	64	61	58	Y	58	58
11	60	62	60	B	F 60	F 66	F 55	83	F 86	91	R 92	U R 85	82	81	75	73	69	70	65	65	60	57	47	55
12	V 60	60	F	F 63	F 66	F 73	F 70	60	Y	64	F 64	65	69	66	64	64	64	64	63	65	63	62	58	55
13	F 57	59	64	70	80	R 81	U Y 88	91	80	73	80	U R 80	U Y 74	R 71	R 71	R 73	70	70	70	66	66	66	63	F 59
14	54	F 60	R 62	F 68	F 69	F 65	70	65	F 70	F 73	74	77	76	72	71	69	66	68	68	65	65	59	55	55
15	55	F 57	60	F 65	F 68	F 70	F 72	66	B	U F 60	F 64	70	F 74	80	R 76	74	B	62	64	62	57	51	51	61
16	55	57	F 59	F	F 55	F 55	F	F	F	Y	Y	F	F	59	F 62	63	62	60	56	58	55	53	51	55
17	54	B	F	F	F	F	F 73	J F 74	F 70	F	79	71	75	71	F 70	70	70	64	55	49	50	46	61	54
18	55	R	54	Y	F 60	F	F 62	66	70	71	75	74	72	74	71	71	66	64	65	64	57	56	61	62
19	60	55	61	F 63	F 71	F 70	70	F 60	Y	Y	65	72	R 74	74	74	73	72	74	70	70	71	65	55	U R 55
20	F 64	55	57	F 69	F	F 84	F 85	F 89	R 90	U R 86	Y	90	84	83	82	81	75	F 74	61	J R 49	50	H 46	F 41	46
21	45	50	Y	54	F 60	F 64	F 69	75	75	77	78	75	74	R 73	66	70	70	75	65	59	F 45	42	49	54
22	46	45	F 62	F	F	F 46	B	F	Y	R 56	F	F 61	56	64	63	B	73	56	F 61	54	H 49	A	A	F 52
23	Y	F	F	55	F 54	F 62	F 70	81	85	R 84	82	80	74	A	R 73	70	66	61	60	59	60	62	62	65
24	F 62	64	F	F 65	F	F	F	98	F 102	J F 104	F 98	F 95	Z 90	84	84	84	R 84	F 83	72	59	52	52	54	56
25	55	45	58	S 65	71	F 74	95	102	J R 95	R 95	Y	87	R 83	80	75	73	67	65	66	69	65	61	60	60
26	F 55	F 60	F 59	F 74	F 80	F	F 59	F 64	F 82	R 85	82	Z 86	81	79	76	80	80	74	F 72	72	F 52	53	54	44
27	Y	R 46	56	F 50	F 58	F	F 55	F 64	U Y 62	F 70	F 74	74	66	R 73	71	70	70	63	E G 41	44	F 49	50	52	49
28	53	V 56	54	B	F 64	Y	F 59	66	Y	F 69	F 70	F 74	F 74	68	68	J R 68	R 64	R 64	59	54	50	J R 53	54	56
29	53	58	B	B	F 63	B	Y	Y	Y	Y	B	B	B	B	B	B	Y	49	B	57	A	Y	F 44	B
30	Y	45	F 45	F 44	F 44	E G 40	A	E G 46	A	Y	Y	B	B	B	64	67	64	61	56	51	53	47	61	49
31	V 49	51	B	F 59	F 60	F 55	F 70	74	80	R 83	80	80	R	74	70	66	62	V 61	62	60	60	V 58	46	F 46
	00	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	23	22	26	21	24	25	20	24	23	25	25	27	29	27	28	29	28	29	28	27	30	30
MED	55	56	59	F 64	F 64	F 66	F 70	66	78	74	76	75	74	74	71	70	66	64	62	59	56	56	54	55
UQ	60	60	62	F 65	F 68	F 74	F 74	83	86	84	81	84	81	80	75	73	70	69	65	64	60	60	60	59
LQ	53	50	54	F 55	F 58	F 58	F 59	64	70	66	63	72	71	70	66	68	64	60	59	57	50	50	51	50

DEC. 1979 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				A	A	H 420	H 440	460	R 500	470	500	500	500	R 520	540	500	500	440	L	450				
2					410	Y	Y	B	500	Y	500	500	500	510	R 550	B	500	B	L	L				
3				A	B	400	440	500	A	Y	Y	490	B	B	B	C	C	C	A	B	B			
4				L	L 450	460	A	A	A	Y	B	B	B	B	B	B	460	450	Y	B	A	A		
5				400	410	400	410	F 420	460	490	500	B	B	B	530	510	500	500	490	L	L			
6				L	L	A	A	A	500	510	520	520	R 520	520	530	540	510	510	L	L				
7					L	450	R 500	500	500	520	510	520	540	550	550	540	540	510	L 500	L	L			
8				L	L 410	L 500	500	Y	510	500	540	540	R 540	R 550	R 540	540	550	510	530	L	L			
9					400	F 420	450	460	470	500	500	490	R 520	540	R 540	R 530	520	500	B	L				
10				L 420	L 420	480	470	500	520	R 530	R 550	560	560	550	R 560	550	540	520	500	460	L	460		
11						470	490	520	510	530	550	U R 550	550	550	550	530	530	520	L	L 490				
12	L	L	L	L	L	470	490	A	A	R 510	510	520	R 530	R 550	R 550	540	R 520	500	500					
13				L	450	450	470	500	450	550	550	R 540	Y	U R 550	R 550	R 520	540	510	L 500	L				
14				L	440	450	450	A	540	R 560	550	R	U R 550	550	R 560	550	530	530	520	L	L	L		
15					L	480	500	R 500	B	520	530	540	540	540	R 550	540	B	500	490	L	L			
16				L	F 400	440	F 440	F 500	500	Y	Y	510	510	500	520	510	500	490	460	450	L			
17				L	F 450	450	490	500	A	510	Y	R 520	B	R 550	R 540	530	500	490	520	530				
18					Y	450	R 460	470	490	H 500	R 510	R 540	R 530	530	530	530	520	490	L					
19				L 400	Y	Y	Y	450	Y	Y	500	R	540	R 550	560	540	L	L	L					
20				L	L	400	440	460	500	500	R 510	510	540	530	510	510	500	500	420	R 430				
21				360	L 460	H 420	420	460	470	R 500	R 520	520	530	530	R 550	520	500	490	L	L	400	A	A	
22				L	F 400	390	B	R 490	R 460	Y	490	500	500	490	B	B	B		L		A			
23						L 490	450	460	490	R 500	A	500	510	A	R 520	H 510	510							
24						420	500	450	500	500	500	510	520	520	510	500	530	L 520	L	400	L 410			
25				B	400	430	450	470	500	500	H 510	R 520	510	510	500	520	L 510			L				
26					400	L	460	440	490	480	490	500	L	520	R 510	510	L	L	L	L	380	A	A	
27	Y			400	400	F 410	410	470	Y	480	470	B	B	B	500	B	510	460	410	400				
28	280				R 400		H 490	R 500	A	510	500	500	H 500	H 510	R 520	R 500	R 490	H 510		L	L			
29					400	3	Y	Y	Y	Y	B	B	B	B	B	B	480	460	B					
30		A			F 390	400	A	460	A	Y	Y	B	B	B	500	500	B	480	460	430				
31					F 380	F 440	H 460	460	H 480	500	500	510	B	510	530	510	510	L	460			L		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1			5	19	25	24	24	21	23	24	24	21	24	27	25	25	23	14	9	3	1		
MED	280			400	400	440	460	470	500	500	510	515	530	530	540	520	510	500	495	450	400	460		
UQ				L 400	430	460	490	500	500	515	525	530	540	550	R 550	540	530	510	500	460	405			
LQ				400	400	420	440	460	480	500	500	500	510	515	520	510	500	490	460	430	390			

DEC. 1979 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Day \ Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	120	120	A	A	A	260	260	290	305	320	310	330	350	345	340	320	320	320	280	K 300	A	A	K 360	K 310
2	R	A	A	B	260	A	B	B	A	A	320	325	340	340	B	B	315	B	B	B	195	160	A	A
3	A	A	A	A	B	A	300	320	A	A	A	350	B	B	B	C	C	C	300	B	B	210	160	145
4	B	160	A	A	280	290	K 410	A	A	A	B	B	B	B	B	B	300	290	A	B	K 250	B	A	A
5	A	K 340	205	190	200	A	A	310	340	340	R 340	B	B	B	B	340	300	300	300	280	220	A	A	B
6	A	A	A	A	A	K 440	K 450	A	340	330	330	350	B	350	R	325	R	330	R	260	250	240	A	R
7	K 310	A	A	A	A	K 400	K 360	K 390	K 380	330	350	370	355	R	R	350	330	H 340	315	290	A	A	180	200
8	A	A	K 360	A	A	K 400	A	K 410	K 410	350	350	370	365	A	355	350	330	325	305	H 310	K 320	K 300	A	250
9	K 310	K 410	K 390	K 300	K 280	K 300	K 300	K 350	H 340	R 345	350	370	370	365	A	R	330	330	B	290	250	320	A	A
10	A	A	K 300	280	300	340	345	350	R	R 360	360	365	R 370	360	R 380	R	A	330	305	275	A	K 280	K 250	220
11	210	K 250	K 300	B	K 410	K 355	290	320	345	350	360	360	385	R	R	340	340	325	315	290	280	K 250	K 290	230
12	H 200	H 210	290	310	290	300	310	K 490	K 500	340	350	360	365	350	345	350	340	330	R 305	300	260	250	F 250	150
13	A	K 240	190	230	H 270	260	300	340	330	355	360	360	370	360	355	R	R	340	320	300	250	240	210	K 240
14	140	B	B	A	295	290	330	K 450	360	355	340	355	360	360	340	330	340	330	A	310	250	250	A	A
15	A	A	275	280	A	A	310	K 390	B	350	350	350	R	360	R	R	B	340	320	A	240	K 310	A	A
16	A	A	A	A	A	290	310	K 430	K 410	K 420	K 390	350	355	340	330	350	330	330	310	270	K 300	A	A	K 320
17	155	B	A	A	A	A	320	340	K 460	355	365	B	B	B	R	R	340	310	330	K 340	K 360	A	K 330	310
18	A	A	A	A	A	A	K 380	A	330	335	330	350	340	R	330	320	295	310	290	250	A	A	A	A
19	A	K 310	K 310	A	K 370	A	K 420	310	A	A	340	340	345	350	R 330	B	B	R 320	280	280	230	R	B	B
20	K 310	A	220	230	250	H 260	300	305	330	340	350	345	355	350	350	345	335	340	305	B	250	K 310	R	A
21	A	A	A	300	B	280	H 300	305	310	330	330	350	355	360	340	345	330	305	300	260	250	K 360	K 400	K 350
22	A	K 310	A	A	300	A	B	A	K 390	R	R	R 330	R	340	B	B	B	B	290	B	K 390	A	K 420	A
23	B	A	165	K 320	K 320	A	A	290	310	320	330	345	330	330	310	R	A	A	A	A	250	A	A	210
24	A	160	A	K 400	A	A	K 350	A	R	325	340	R	R 350	R	320	R	R	R	A	K 310	A	A	A	190
25	K 330	K 310	K 370	B	K 320	A	280	290	310	325	340	350	340	A	A	A	325	A	290	275	250	220	200	A
26	200	240	A	280	K 240	270	A	310	325	340	325	350	350	340	335	330	310	310	265	270	260	K 400	K 450	F 300
27	B	K 350	K 370	280	A	H 280	290	U A 300	A	350	340	B	B	B	B	B	A	300	290	260	280	230	210	A
28	A	A	320	B	320	B	300	R	A	360	R 350	340	R	A	A	B	R 330	R 305	B	290	H 270	B	A	H 230
29	260	275	B	B	A	B	R	R	A	A	B	B	B	B	B	B	R 340	R 305	B	K 390	K 480	R	A	B
30	A	K 360	K 240	K 350	K 290	290	A	330	A	A	A	B	B	B	B	R 330	B	310	B	290	230	K 350	K 320	K 350
31	K 340	K 350	B	K 220	230	H 300	K 360	290	290	R	R 340	350	B	R	R	335	A	320	295	270	H 255	315	280	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	16	15	14	18	18	23	23	20	23	26	24	19	16	14	15	19	25	21	24	25	18	15	16
MED	235	K 292	K 300	280	290	290	310	320	340	340	340	350	355	350	340	340	330	320	300	290	250	265	K 280	235
UQ	K 310	K 345	K 340	K 310	320	K 340	K 355	K 370	K 385	352	350	360	365	360	350	348	338	330	310	300	280	K 315	K 345	K 310
LQ	178	225	230	230	260	280	300	305	318	330	330	345	348	340	330	330	318	310	290	270	250	240	210	205

DEC. 1979 | FOE (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	25	25	36	40	36	G	G	G	G	G	G 31	G 19	G	G	G	G	G	G	36	35	31	37	K 36	K 31
2	39	40	36	B	30	36	40	B	36	39	G	G	G	G	E B 45	E B 60	G	B	36	28	29	40	35	35
3	29	35	36	J A 69	B	36	36	40	66	45	36	G	E B 56	B	B	C	C	C	J A 62	E B 52	B	80	33	20
4	24	23	28	30	32	45	K 41	54	50	44	B	B	B	E B 60	E B 60	B	G	G	26	B	J A 65	70	35	36
5	35	K 34	28	30	26	34	34	G	G	G	G	B	B	E B 60	E B 45	G	G	G	34	G	32	32	J A 34	35
6	60	33	J A 75	38	40	K 44	K 45	47	36	39	38	38	E B 45	G	G 35	34	G 30	G 25	G 30	G 24	28	30	24	21
7	K 30	40	27	33	35	K 40	K 36	K 39	G 29	G 24	G	G	G	G	G 17	G	G 28	G 29	G	G 17	34	25	25	G 17
8	30	37	K 36	31	36	K 40	37	K 41	K 41	G	G	G	G	41	38	G	G	G	G	G	K 32	35	29	40
9	50	K 41	K 39	K 30	K 28	K 30	38	K 35	G	G	G	G	G	38	37	G	G 30	G	B	G	35	31	32	22
10	25	28	K 30	G 23	G	G	G 24	36	G 35	G	G 31	42	41	50	G	G 33	36	G	G	30	35	K 28	K 25	24
11	25	K 25	K 30	B	K 41	K 36	33	36	G 26	G	G	G	G	G	G 35	G 32	G	G	G	G	G	G	K 29	G
12	G	G	30	G	G	G	33	K 49	K 50	G	G	G	G	G	G	G	G	G	G	30	28	G 12	G	34
13	30	G 13	24	G	G	30	G	G	G	G	G	G	G	G	G	G 35	G 32	G	G	G	30	27	24	27
14	37	33	29	31	G 16	34	G	K 45	G	G	G	41	G	G	38	G	G	G	33	G	36	35	37	31
15	30	31	G 16	G 17	36	42	G	45	B	G	G	G	G	G	G	G	B	46	42	44	35	K 31	36	40
16	J A 38	35	25	27	J A 64	G	G	K 43	K 41	K 42	K 39	G	40	G	G	G	G	G	G	30	34	38	35	K 32
17	26	B	J A 30	35	32	62	G	G	K 46	G	G	E B 41	E B 54	E B 45	G	G	G	G	G	K 34	K 36	36	K 33	G
18	39	54	35	33	30	38	K 38	40	G	G	35	G	35	G	35	G	34	G	G	31	28	29	25	28
19	30	K 31	K 31	32	K 37	40	K 42	G	39	36	G	G	G	G	G	E B 39	E B 35	G 24	G	G	27	27	E B 23	E B 45
20	K 31	30	G	G 22	G	G	G	G 25	G	G	G	G	G	G	G	G	G	G	G	E B 34	32	K 31	33	32
21	31	31	30	G 16	E B 32	G	G	G	G	37	G	G	40	G	37	G	35	G	G	32	36	K 36	K 40	K 35
22	36	K 31	38	31	32	31	B	44	K 39	G 31	G	G	G 25	G	E B 52	B	E B 50	E B 44	G	E B 30	K 39	40	K 42	40
23	36	J A 30	44	K 32	K 32	35	J A 40	35	35	41	44	39	37	J A 84	104	G	J A 46	46	J A 36	40	G 22	24	25	G 20
24	25	28	30	K 40	65	44	K 35	38	G	G 16	38	G	G	G	36	G	G	G	35	K 31	37	35	J A 40	33
25	K 33	K 31	K 37	E B 40	K 32	33	G	G	G	G	G	37	54	J A 74	36	34	G 22	38	G 21	G 23	30	25	G 14	25
26	23	27	31	K 28	27	30	46	G	G	G	G	40	38	44	J A 56	36	J A 47	J A 50	J A 50	43	34	K 40	K 45	K 30
27	36	K 35	K 37	33	27	G	38	40	40	G	G	E B 50	E B 51	E B 60	E B 36	E B 49	31	G	G	G	32	30	26	32
28	27	26	G 22	B	G	E B 48	36	32	46	G	G	G	G	37	40	E B 38	G	G	36	G	28	27	25	G 11
29	30	35	B	B	35	B	G	G	41	38	B	B	B	B	B	B	36	G	B	41	F 48	G	J A 36	B
30	27	K 36	F 34	K 35	K 29	51	46	G	49	36	44	B	B	B	E B 41	G	E B 54	32	E B 34	35	27	K 35	K 32	K 35
31	K 34	K 35	B	26	26	G	K 36	35	G	35	G	G	E B 60	G	G	G	36	G 28	33	G	G	G	35	35
	00	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	30	29	27	30	30	30	30	30	31	29	27	27	28	29	27	29	29	29	30	30	31	31	30
MED	30	31	31	31	32	34	36	36	35	G	G	G	G	G	E G 36	G	E G 28	G	E G 21	U 27	32	31	33	32
UQ	36	35	36	34	36	40	38	41	41	36	G 31	U 28	U 35	U 40	U 38	E G 34	34	G 26	35	33	35	36	36	35
LQ	26	28	28	26	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	28	27	25	22

DEC. 1979 | FOES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	U Y 26	23	31	40	36	G	G	G	G	G	G 31	G 16	G	G	G	G	G	G	34	35	30	30	U Y 36	K 31
2	30	40	U Y 36	B	28	U Y 36	U Y 40	B	U Y 36	U Y 39	G	G	G	G	E B 45	E B 60	G	B	U Y 36	28	29	35	35	33
3	26	35	35	44	B	35	34	40	A A 66	U Y 45	U Y 36	G	E B 56	B	B	C	C	C	50	E B 52	B	24	22	20
4	21	21	23	28	32	34	K 41	A A 54	U Y 51	U Y 44	B	B	B	E B 60	E B 60	B	G	G	U Y 26	B	A A 65	A A 70	35	34
5	U Y 35	K 34	28	26	26	32	33	G	G	G	G	B	B	E B 60	E B 60	G	G	G	34	G	30	33	33	33
6	A A 60	31	A A 75	27	40	K 44	U Y 45	U Y 47	35	39	38	38	E B 45	G	U Y 35	U Y 34	G 30	G 25	U Y 30	G 24	27	24	23	21
7	K 30	40	27	U Y 33	30	U Y 40	K 36	K 39	G 29	G 23	G	G	G	G	G 17	G	G 28	G 29	G	G 17	27	25	22	G 25
8	26	35	U Y 36	31	30	K 40	37	U Y 41	K 41	G	G	G	G	40	U Y 38	G	G	G	G	G	K 32	K 30	26	35
9	30	K 41	U K 31	K 30	K 28	K 30	33	K 35	G	G	G	G	G	U Y 38	U Y 37	G	G 29	G	B	G	33	30	23	22
10	24	22	K 30	G 23	G	G	G 24	31	U Y 35	G	G 31	42	U Y 41	48	G	U Y 33	35	G	G	30	32	K 28	K 25	G
11	22	K 25	K 30	B	U Y 41	K 36	31	35	G 26	G	G	G	G	G	U Y 35	G 32	G	G	G	G	G	G	K 29	G
12	G	G	30	G	G	G	33	U Y 49	U Y 50	G	G	G	G	G	G	G	G	G	G	27	28	G 14	G	31
13	28	G 13	22	G	G	30	G	G	G	G	G	G	G	G	G	U Y 35	U Y 32	G	G	G	29	27	23	K 24
14	29	34	U Y 29	30	G 16	U Y 34	G	U Y 45	G	G	G	U Y 41	G	G	U Y 38	G	G	G	33	G	28	28	28	30
15	29	29	U Y 16	G 15	32	35	G	K 39	B	G	G	G	G	G	G	G	B	35	35	34	30	K 31	U Y 36	U Y 40
16	35	34	24	25	32	G	G	K 43	K 41	U Y 42	U Y 39	G	26	G	G	G	G	G	G	30	K 30	25	35	K 32
17	26	B	29	34	31	35	G	G	U Y 46	G	G	E B 41	E B 54	E B 45	G	G	G	G	G	K 34	K 36	35	K 33	G
18	39	40	34	U Y 37	U Y 36	U Y 38	K 38	35	G	G	35	G	35	G	35	G	34	G	G	30	27	25	24	24
19	27	K 31	K 31	30	U Y 37	U Y 40	U Y 42	G	U Y 39	U Y 36	G	G	G	G	G	E B 39	E B 35	G 24	G	G	27	25	E B 23	E B 45
20	K 31	25	G	20	G	G	G	G 25	G	G	G	G	G	G	G	G	G	G	G	E B 34	31	K 31	31	30
21	30	30	35	U Y 16	E B 32	G	G	G	G	23	G	G	40	G	36	G	35	G	G	30	30	K 36	K 40	K 35
22	32	K 31	30	29	30	U Y 31	B	41	K 39	U Y 32	G	G	G 20	G	E B 52	B	E B 50	E B 44	G	E B 30	K 39	A A 40	K 42	U Y 40
23	U Y 36	22	25	K 32	K 32	32	34	32	34	45	52	36	U Y 37	A A 84	44	G	40	32	30	28	G 21	23	25	G 19
24	22	25	29	K 40	55	30	K 35	34	G	G 16	35	G	G	G	35	G	G	G	32	K 31	30	30	24	25
25	K 33	K 31	K 37	E B 40	K 32	31	G	G	G	G	G	37	46	36	36	34	G 22	32	G 21	G 22	29	24	G 14	25
26	23	27	U Y 30	K 28	27	28	40	G	G	G	G	39	38	39	45	36	42	40	45	34	30	K 40	K 45	U K 30
27	U Y 36	U Y 35	K 37	32	26	G	31	38	U Y 40	G	G	E B 50	E B 51	E B 60	E B 36	E B 49	U Y 31	G	G	G	31	30	27	32
28	20	26	G 22	B	G	E B 48	35	U Y 32	U Y 46	G	G	G	G	37	36	E B 38	G	G	36	G	28	27	25	G 11
29	30	32	B	B	34	B	G	G	U Y 41	U Y 36	B	B	B	B	B	B	36	G	B	41	K 48	G	31	B
30	U Y 27	K 36	K 34	K 35	K 29	32	A A 46	G	A A 49	U Y 36	U Y 44	B	B	B	E B 41	G	E B 54	32	E B 34	31	27	K 35	K 31	K 35
31	K 34	K 35	B	23	G	G	K 36	32	G	35	G	G	E B 60	G	G	G	34	G 28	32	G	G	G	32	34
	00	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	30	29	27	30	30	30	30	30	31	29	27	27	28	29	27	29	29	29	30	30	31	31	30
MED	29	31	30	30	30	32	33	33	34	G	G	G	G	G	E G 35	G	E G 28	G	E G 21	U 26	30	28	28	30
UQ	32	35	34	33	32	36	37	40	U Y 41	36	G 31	U 26	U 32	U 38	37	E G 34	34	G 26	34	30	31	32	34	34
LQ	26	25	27	24	25	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	27	24	24	22

DEC. 1979 | FBES (0.1 MHZ)

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	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	8	12	11	11	10	9	10	11	10	8	10	9	19	19	15	19	8	9	9	8	10	20	22
2	9	16	15	B	10	22	30	B	25	19	15	22	19	19	45	60	22	B	31	25	11	8	8	14
3	9	15	19	10	B	19	15	19	19	15	20	19	56	B	B	C	C	C	15	52	B	19	8	8
4	15	8	9	8	13	12	15	15	22	20	B	B	B	60	60	B	14	11	15	B	11	24	8	8
5	10	8	8	8	8	9	11	10	8	15	15	B	B	60	45	20	19	12	9	14	14	9	12	25
6	10	15	13	8	21	10	10	15	11	10	11	15	45	14	15	12	10	10	8	9	8	9	9	8
7	18	15	11	19	16	15	14	10	8	8	11	14	13	14	13	11	10	8	11	11	10	8	8	8
8	14	10	16	16	9	14	20	18	18	12	14	14	10	11	14	14	13	10	10	15	15	10	12	15
9	9	14	11	7	9	8	6	15	10	12	14	10	14	21	18	15	10	10	B	15	8	9	6	15
10	8	8	18	15	16	16	11	15	21	25	14	15	21	14	16	15	13	10	12	12	10	14	11	12
11	13	12	11	B	20	15	9	10	11	15	11	14	14	15	10	20	15	13	12	10	9	10	8	10
12	14	8	10	9	10	9	11	15	10	16	12	12	15	14	11	11	11	13	13	9	8	11	8	14
13	9	9	8	8	11	12	10	10	10	9	14	14	15	14	10	14	14	16	12	11	10	9	8	5
14	10	21	22	5	9	15	20	11	14	15	10	14	15	14	14	11	12	12	12	11	8	9	9	8
15	14	14	14	10	3	3	11	11	B	11	11	12	14	20	22	20	B	14	20	24	8	10	10	11
16	13	22	9	11	9	9	10	15	18	19	21	14	14	14	10	11	20	12	19	20	18	8	8	8
17	7	B	7	8	10	8	8	10	11	14	15	41	54	45	32	16	15	13	12	14	10	21	16	24
18	18	15	9	20	19	14	8	10	10	15	14	12	11	18	19	10	13	12	12	14	17	9	8	7
19	7	14	12	11	15	20	14	22	22	21	14	10	18	14	21	39	35	18	10	9	10	15	23	45
20	8	14	15	15	12	14	14	10	10	15	21	15	14	16	15	19	21	15	10	34	10	25	10	14
21	15	17	19	15	32	15	10	12	14	12	12	13	10	14	14	15	10	10	8	15	19	14	18	20
22	8	10	13	10	14	11	B	14	20	21	15	10	10	14	52	B	50	44	12	30	10	10	12	15
23	22	8	12	20	18	10	8	9	11	10	14	18	14	15	16	14	10	10	10	10	8	13	10	7
24	9	10	12	15	7	10	8	15	15	10	10	15	10	14	10	14	14	14	9	8	10	19	12	13
25	9	21	20	40	24	10	8	10	10	9	14	15	14	12	11	10	8	8	10	8	8	8	7	7
26	9	13	16	10	9	8	12	9	10	14	11	9	10	18	10	11	10	10	14	9	9	10	13	8
27	31	22	10	12	7	8	11	10	24	19	11	50	51	60	36	49	19	14	10	10	14	10	8	9
28	8	8	14	B	19	43	15	25	21	19	14	15	12	14	12	38	19	23	32	13	12	22	12	8
29	8	22	B	B	20	B	22	22	16	22	B	B	B	B	B	B	22	15	B	15	19	21	15	B
30	18	13	8	9	10	9	21	14	20	22	20	B	B	B	41	24	54	13	34	12	22	10	11	20
31	19	13	B	14	9	12	16	14	12	12	15	15	60	31	15	14	11	10	13	12	8	10	8	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	31	31	31	31	31	31	31	30	30	30	31	31	31	31	31	31
MED	10	14	12	11	11	12	11	14	14	15	14	15	14	15	16	15	14	12	12	12	10	10	10	12
UQ	14	16	17	18	18	15	15	15	20	19	15	18	48	26	34	24	20	14	15	15	14	14	12	18
LQ	8	10	10	9	9	9	10	10	10	12	11	12	12	14	12	12	11	10	10	10	8	9	8	8

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	F 265	280	F 250	250	F 240	F 250	F 240	F 250	R 260	245	250	255	260	F 260	F 250	230	F 225	270	Y	275	285	300	300
2	285	245	240	B	F 240	260	Y	B	250	R 240	F 235	F 225	240	240	240	270	260	B	275	270	280	270	280	F 280
3	V 280	F 275	270	F	B	F 230	F 230	F 235	A	Y	Y	230	R 270	B	B	C	C	C	F 245	280	B	F 275	F 270	270
4	F 300	F 280	F 275	F 250	F 250	F 240	F 220	A	Y	Y	B	B	B	240	230	B	G	G	Y	B	A	A	290	290
5	Y	270	F 270	F 230	240	F	225	220	Y	215	225	B	B	235	250	250	245	235	225	270	250	F 275	270	280
6	A	270	A	240	235	R	210	220	240	230	235	230	240	240	230	240	240	250	260	270	280	290	280	290
7	J R 290	F	F 280	250	F 255	F 240	F	F 230	F 225	235	235	225	230	235	240	235	250	255	280	280	280	285	280	280
8	270	250	F 250	F 275	F 250	F 250	225	Y	210	F 230	F 235	R 240	240	230	235	240	230	230	225	250	250	270	300	270
9	250	250	270	F 280	U F 230	F	F 225	F 200	F 230	F 225	210	Y	240	230	R 230	230	R 230	240	B	245	275	275	280	265
10	F 270	F 240	240	F 250	F 240	230	F 230	F 230	230	240	R 260	240	250	240	240	240	235	250	240	250	240	Y	250	285
11	290	280	250	B	F 230	F 235	F 225	240	F 225	225	R 240	U R 250	250	240	250	240	250	250	250	250	270	270	250	250
12	V 275	255	F	F 250	F 230	F 230	F 225	220	Y	210	210	215	230	225	230	235	235	250	245	270	260	270	265	270
13	F 260	270	230	250	240	R 260	U Y 260	235	230	230	230	U R 230	U Y 235	R 245	R 245	R 245	245	240	250	250	255	280	280	270
14	240	F 250	R 250	F 240	F 230	F 240	240	220	F 230	F 225	230	225	230	230	230	235	240	240	260	240	270	270	250	270
15	270	F 270	240	F 255	F 240	F 230	F 230	225	B	U F 200	F 215	215	F 220	225	R 230	235	B	240	235	250	245	235	250	270
16	240	250	F 240	F	F 220	F 195	F	F	F	Y	Y	F	F	215	F 215	230	235	240	225	235	250	255	255	260
17	260	B	F	F	F	F	250	J F 225	F 230	F	240	240	230	240	F 235	240	230	225	220	220	260	260	280	320
18	290	230	255	Y	F 240	F	F 230	225	225	225	230	235	230	235	230	235	235	240	255	270	270	275	285	280
19	270	250	250	F 240	F 240	F 240	230	F 225	Y	Y	220	230	R 240	250	255	250	270	275	260	275	290	295	290	U R 305
20	F 290	275	240	F 240	F	F 230	F 230	F 230	R 245	R 250	Y	250	250	250	245	250	255	F 250	240	220	310	H 305	F 265	270
21	250	260	Y	220	F 245	F 230	F 230	230	235	235	235	240	250	R 245	245	250	240	250	275	250	F 225	240	255	300
22	270	F 235	F 260	F	F	F 215	B	F	Y	R 225	F	F 230	220	225	225	B	260	280	F 265	300	H 270	A	A	F 250
23	Y	F	F	270	270	F 230	F 235	250	250	R 255	260	240	255	A	R 250	270	270	280	270	280	285	300	290	285
24	F 280	280	F	F 270	F	F	F	240	F 250	J F 250	F 255	F 255	Z 260	250	260	250	R 260	F 265	270	250	250	310	280	290
25	290	255	245	235	235	F 250	240	255	J R 255	R 255	Y	270	R 270	260	275	275	270	275	285	300	305	320	300	295
26	F 300	F 280	F 280	F 275	F 260	F	F 220	F 225	F 235	R 265	250	Z 250	250	255	255	250	280	280	F 280	305	F 250	260	280	290
27	Y	R 280	280	F 250	F 255	F	F 240	F 230	U Y 230	F 230	F 240	235	240	R 260	270	250	255	245	G	210	F 280	305	275	275
28	305	V 295	300	B	F 250	Y	F 235	225	Y	F 240	F 250	F 250	F 250	250	250	J R 230	R 240	R 270	300	250	270	J R 290	300	305
29	300	300	B	B	F 240	B	Y	Y	Y	Y	B	B	B	B	B	B	Y	195	B	280	A	Y	320	B
30	Y	240	F 250	F 265	200	G	A	G	A	Y	Y	B	B	B	240	255	240	250	250	240	285	265	300	285
31	V 270	280	B	F 260	F 240	F 230	F 230	230	240	R 250	235	240	R	250	250	240	235	V 255	270	275	270	V 270	300	F 275
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	28	23	22	26	21	24	25	20	24	23	25	25	27	29	27	28	29	28	29	28	27	30	30
MED	272	268	250	F 250	F 240	F 230	F 230	230	232	232	235	240	240	240	240	240	240	250	258	250	270	275	280	280
UQ	290	280	272	F 265	F 250	F 240	F 238	235	248	R 250	242	250	250	250	250	250	258	255	270	275	280	290	290	290
LQ	270	250	242	F 240	F 235	F 230	F 225	225	230	225	230	230	230	232	230	235	235	240	240	250	250	270	265	270

DEC. 1979 | M(3000)F2 (0.01)

IONOSPHERIC DATA

DEC. 1979 | H'F2 (KM) | 45° E Mean Time (G.M.T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				480	480	505	420	450	450	450	455	455	450	450	420	430	690	660	400	520				
2					500	Y 440	Y	B	580	Y 590	570	600	540	510	480	B 370	440	B	400	400				
3				460	B	560	520	540	A	Y	Y	620	400	B	B	C	C	C	490	E B 390	B			
4				370	420	460	590	A	Y	Y	B	B	B	E B 600	E B 600	B	G	G	Y	B	A	A		
5				500	490	510	600	690	Y	705	600	B	B	B	520	460	505	590	590	420	410			
6				410	L	700	Y	E Y 640	480	500	490	510	520	480	530	530	540	490	L 460	410				
7					375	460	455	580	510	500	495	530	510	520	520	505	500	455	395	L 350	360			
8				375	440	440	560	Y	620	525	505	520	550	555	570	515	550	500	570	455	430			
9					520	F 600	640	750	610	670	660	Y	570	380	645	620	640	570	B	L 450				
10				430	455	500	390	490	500	505	450	480	500	480	490	R 520	525	520	500	460	440	Y		
11						520	520	480	510	500	470	475	490	490	490	520	490	475	L	440				
12	330	350	380	450	420	520	550	Y	Y	610	640	600	570	600	590	575	550	480	470					
13				405	460	400	410	450	510	540	520	520	520	540	540	R 490	505	495	400	L				
14				420	500	520	500	640	550	550	550	R 530	530	550	550	540	540	Y	440	L	L 360	355		
15					455	550	545	600	B	760	640	510	580	555	520	540	B	510	505	L 410	410			
16				F 450	610	700	525	690	775	Y	Y	720	740	705	625	570	555	590	600	520	405			
17				500	555	500	440	530	570	630	510	555	550	520	520	500	540	510	590	655				
18					520	550	550	570	550	520	500	505	520	505	505	500	505	480	L 390					
19				440	460	475	E Y 550	570	Y	E Y 650	605	520	490	485	455	430	L 370	350	L					
20				L 420	420	420	470	440	420	430	420	440	450	450	450	440	420	440	480	560				
21				500	450	490	430	455	455	Y 470	455	455	450	470	520	475	470	400	375	445	600	450	450	
22				420	F 455	650	B	640	Y	Y	560	510	650	580	580	B	405		350		550			
23						520	455	420	400	425	400	425	440	A	430	410	430							
24						550	450	405	375	360	400	400	400	420	420	420	400	355	350	460	420			
25				475	450	425	390	355	400	385	360	375	400	400	380	400	375			280				
26					300	350	620	560	480	405	405	390	400	410	420	440	340	370	L	280	480	405	360	
27	Y			470	380	F 530	490	505	640	520	460	500	530	410	410	470	440	480	G	750				
28	280				420		F 550	540	Y	F 430	405	420	450	450	480	550	R 450	405		L 405	410			
29					475	B	Y	Y	Y	Y	B	B	B	B	B	B	Y	760	B					
30		460			780	G	A	G	A	Y	Y	B	B	B	520	475	E B 540	500	505	540				
31					360	F 550	520	460	450	425	480	460	E B 455	440	460	480	550	L 460	420			380		390
	00	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	18	26	29	26	26	21	25	26	26	27	26	29	27	28	25	22	21	12	4	2	1
MED	305	405	380	445	455	520	515	538	510	502	492	508	510	485	512	490	504	490	465	445	415	392	405	390
UQ				475	500	550	550	640	570	570	560	530	545	545	535	525	545	520	505	520	460	428		
LQ				420	420	460	450	455	450	450	450	455	450	450	455	440	435	455	400	405	408	368		

DEC. 1979 | H'F2 (KM)

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	270	320	300	A	A	H 190	H 240	220	220	225	220	230	250	230	H 220	220	220	225	255	250	320	320	310	320
2	400	A	Y 470	B	295	Y	Y	B	250	Y	230	230	240	230	B 275	B	210	B	U Y 290	H 250	290	350	355	360
3	320	320	370	A	B	370	240	A 300	A	Y	Y	240	B	B	B	C	C	C	A	B	B	270	270	300
4	270	275	300	A 320	H 280	280	A	A	A	Y	B	B	B	B	B	B	245	E Y 305	Y	B	A	A	A 350	340
5	Y	370	350	330	300	A 300	300	220	220	300	245	B	B	B	260	245	220	240	245	240	280	A 330	310	340
6	A	360	A	295	E A 350	A	A	A	H 230	220	230	220	B 260	210	255	220	225	225	225	230	250	260	270	270
7	345	360	280	Y 380	325	A	330	285	240	205	205	220	220	220	H 205	240	H 220	230	240	245	245	260	270	295
8	320	405	445	320	300	310	260	Y	275	225	220	220	240	225	210	230	240	240	260	260	295	310	290	400
9	440	A 500	410	340	290	270	A 290	260	240	245	225	220	250	250	240	210	220	220	B	255	A 270	A 270	275	300
10	350	H 340	405	340	300	280	275	240	U Y 290	230	230	240	245	A 270	225	225	220	245	245	255	310	280	320	270
11	280	305	320	B	U Y 550	345	240	250	225	220	230	225	220	230	H 220	H 210	225	220	225	220	250	280	460	340
12	320	280	280	360	260	270	250	A	A	240	225	220	230	225	230	205	230	H 220	240	240	255	255	290	350
13	370	305	280	280	260	260	240	230	245	225	210	210	Y	230	225	230	240	225	230	250	255	270	270	300
14	405	390	Y	340	290	340	240	A	220	220	225	230	210	250	240	225	240	200	240	245	260	280	375	360
15	295	320	355	H 320	H 275	320	260	H 205	B	220	H 210	225	220	H 220	250	230	B	230	250	260	270	405	Y 380	Y 400
16	470	370	320	280	A 290	250	220	F 260	290	Y	Y	210	205	250	240	240	225	240	240	255	285	270	420	370
17	355	B	F 300	355	300	350	250	220	A	H 200	Y	230	B	250	220	225	240	230	270	310	380	A 410	320	280
18	330	A	405	Y	Y	Y	A 290	250	205	H 200	225	260	225	230	220	225	220	220	225	240	250	H 250	285	300
19	320	390	385	350	Y	Y	A	270	Y	Y	220	H 205	230	250	230	220	225	225	230	240	250	255	300	E B 310
20	290	340	320	275	270	270	240	210	210	205	230	210	225	250	210	220	220	225	255	E B 260	250	H 280	320	380
21	300	370	A 400	Y	355	H 220	240	245	230	H 200	220	220	225	240	220	225	230	225	225	255	280	A	A	300
22	A 370	H 320	340	300	280	Y 310	B	A	275	Y	245	225	220	225	B	B	B	E B 300	230	245	A	A	A	E Y 410
23	Y	270	A 340	350	320	280	245	230	225	A	A	210	Y 250	A	260	H 195	250	210	225	230	240	250	260	270
24	270	295	250	305	A	260	190	230	H 195	200	210	205	220	205	200	220	210	210	230	310	A 300	260	270	280
25	300	420	470	B	355	290	230	220	250	225	220	205	E A 275	210	205	200	200	220	220	225	230	245	255	275
26	270	280	350	270	250	255	A	230	200	H 195	225	240	210	220	A 260	230	A 250	255	E A 300	A 240	310	A	A	315
27	Y	Y 440	350	340	270	250	250	275	A	220	225	B	B	B	205	B	225	205	275	295	275	250	250	340
28	H 250	320	300	B	300	B 270	H 240	Y 260	A	230	225	200	H 195	H 220	220	240	230	H 210	240	260	230	270	255	275
29	300	320	B	B	A	B	Y	Y	A	Y	B	B	B	B	B	B	250	260	B	355	A	Y	240	B
30	Y	A	390	A 450	290	245	A	210	A	Y	A	B	B	B	250	240	B	225	245	270	260	370	300	390
31	380	350	B	260	255	260	H 270	240	H 205	225	220	260	B	Y 260	210	210	220	220	220	230	250	A 340	290	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	26	27	27	22	25	25	23	23	21	22	24	26	22	24	27	25	27	29	27	29	27	26	28	29
MED	320	340	350	325	290	270	245	240	230	220	225	220	225	230	225	225	225	225	240	250	260	270	290	308
UQ	370	370	395	350	300	310	265	260	250	225	230	230	242	250	245	230	240	235	250	260	288	320	320	355
LQ	290	312	300	295	275	260	240	220	220	205	220	210	220	220	215	220	220	220	228	240	250	260	270	288

DEC. 1979 | H'F (KM)

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	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	130	115	105	105	G	G	G	G	G	95	95	G	G	G	G	G	G	140	130	100	130	K 115	K 120
2	140	115	110	B	170	105	130	B	110	105	G	G	G	G	B	B	G	B	140	150	140	130	120	120
3	110	120	120	115	B	130	140	130	100	95	100	G	B	B	B	C	C	C	130	B	B	120	120	130
4	150	130	130	120	140	170	K 105	100	100	100	B	B	B	B	B	B	G	G	105	B	130	160	120	115
5	110	K 105	140	130	130	110	130	G	G	G	G	B	B	B	B	G	G	G	150	G	130	130	125	140
6	100	110	105	110	110	K 105	K 105	95	150	120	115	110	B	G	100	110	100	100	95	100	150	130	110	155
7	K 115	145	140	130	120	K 110	K 105	K 100	95	95	G	G	G	G	95	G	95	100	G	100	95	110	150	100
8	H 120	120	K 120	120	120	K 105	140	K 105	K 100	G	G	G	G	115	120	G	G	G	G	G	K 105	150	120	125
9	115	K 105	K 105	K 105	K 105	K 100	140	K 100	G	G	G	G	G	110	105	G	100	G	B	G	125	125	120	120
10	150	120	K 120	115	G	G	100	100	100	G	100	115	115	110	G	100	100	G	G	E G 175	110	K 110	K 120	E G 190
11	155	K 110	K 110	B	K 110	K 105	155	155	100	G	G	G	G	G	100	100	G	G	G	G	G	G	K 105	G
12	G	G	150	G	G	G	145	K 105	K 100	G	G	G	G	G	G	G	G	G	G	100	160	100	G	120
13	120	100	150	G	G	140	G	G	G	G	G	G	G	G	G	100	100	G	G	G	130	130	145	E G 210
14	120	130	170	125	100	130	G	K 100	G	G	G	115	G	G	110	G	G	G	100	G	120	E G 210	130	125
15	120	120	115	100	110	120	G	145	B	G	G	G	G	G	G	G	B	140	130	115	150	K 105	100	105
16	110	140	140	110	105	G	G	K 105	K 100	K 100	K 100	G	100	G	G	G	G	G	G	155	150	140	115	K 110
17	120	B	130	115	110	120	G	G	K 100	G	G	B	B	B	G	G	G	G	G	K 105	K 105	155	K 120	G
18	115	110	110	110	100	100	K 100	115	G	G	120	G	130	G	120	G	110	G	G	125	110	115	150	120
19	115	K 115	K 110	120	K 115	100	K 105	G	105	100	G	G	G	G	G	B	B	100	G	G	140	120	B	B
20	K 110	120	G	105	G	G	G	100	G	G	G	G	G	G	G	G	G	G	G	B	130	E B 155	150	110
21	115	125	160	90	B	G	G	G	G	100	G	G	125	G	130	G	125	G	G	155	150	K 110	K 110	K 130
22	110	K 110	110	120	150	110	B	H 105	K 110	90	G	G	90	G	B	B	B	B	G	B	K 105	105	K 100	100
23	130	120	160	K 125	K 120	100	95	125	130	110	110	125	125	110	110	G	100	100	100	95	100	130	115	95
24	A 110	120	130	K 110	120	110	K 110	100	G	95	115	G	G	G	110	G	G	G	100	K 100	105	155	110	130
25	K 115	K 140	K 125	B	K 130	120	G	G	G	G	G	125	110	110	110	100	95	100	100	100	125	130	100	160
26	170	140	140	K 110	130	140	105	G	G	G	G	130	130	125	110	130	110	110	110	130	160	K 105	K 110	K 100
27	110	K 110	K 110	130	120	G	130	130	100	G	G	B	B	B	B	B	110	G	G	G	160	130	125	110
28	120	120	110	B	G	B	130	120	110	G	G	G	G	110	110	B	G	G	150	G	150	130	120	100
29	155	170	B	B	130	B	G	G	100	105	B	B	B	B	B	B	150	G	B	160	K 110	G	145	B
30	100	K 100	K 110	K 120	K 120	130	100	G	100	100	100	B	B	B	B	G	B	E G 155	B	160	160	K 110	K 110	K 120
31	K 120	K 105	B	130	170	G	K 110	130	G	130	G	G	B	G	G	G	100	100	130	G	G	G	150	140
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	28	24	24	21	20	20	18	14	9	7	8	7	13	6	13	9	14	17	28	28	29	27
MED	118	120	120	115	120	110	110	105	100	100	100	115	120	110	110	100	100	100	120	120	130	129	120	120
UQ	130	130	140	122	130	130	135	128	110	105	115	125	128	112	110	110	110	105	140	152	150	132	125	129
LQ	110	K 110	110	110	110	105	K 105	100	100	95	100	112	105	110	105	100	100	100	100	100	108	110	K 110	110

DEC. 1979 | H'ES (KM)

IONOSPHERIC DATA

DEC. 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 5 MHz to 15 MHz in 20sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	H 2	H 2	CS 21	R 2	R 2						L 2	L 1							H 1	HK 12	R 2	HR 21	K 1	K 1
2	HS 11	R 2	R 1		H 1	R 1	R 1		R 1	R 1									H 1	H 1	RS 11	R 3	RL 31	R 2
3	R 2	R 1	RS 11	C 2		HL 11	H 1	H 1	R 1	L 1	L 1								H 2			H 2	CL 21	RA 11
4	H 1	HL 21	H 1	CL 21	H 2	H 1	K 2	R 1	R 1	R 1											HA 11	HA 11	H 1	R 3
5	CL 11	K 2	HS 21	H 2	HL 21	C 1	HL 11												H 2		H 2	HL 21	H 3	H 1
6	R 2	R 1	L 2	C 2	R 1	K 2	K 2	R 1	HL 11	HL 21	C 1	C 1			L 1	C 1	L 1	L 1	L 2	L 1	HL 11	HL 21	C 2	HC 12
7	K 2	H 2	H 1	R 1	RL 11	K 2	K 2	K 2	KL 11	L 1					L 1		L 2	L 2		L 1	L 2	CL 22	HL 11	L 1
8	R 1	RL 11	K 2	R 1	CA 11	K 1	H 1	K 1	K 1					CL 11	C 1						K 1	HK 12	C 3	H 1
9	LK 11	K 2	K 2	K 2	K 2	K 2	HKL 12	K 1						C 1	C 1		L 1				HL 21	HL 22	CL 32	CLS 21
10	RC 11	CL 21	K 1	L 2			L 2	L 1	L 1		L 1	C 1	C 1	C 1		L 1	L 1			H 1	RL 21	K 1	K 1	H 1
11	H 1	K 1	K 2		K 1	K 1	R 1	H 1	L 1						L 1	L 1							K 1	
12			H 1				H 1	K 2	K 1											L 2	HL 22	L 2		R 2
13	RL 21	L 1	HL 11			H 1										L 1	L 2				HL 22	HL 22	HL 21	HKL 21
14	R 2	R 1	R 1	HL 21	L 2	HS 11		K 1				C 1			C 1				L 2		CL 12	H 2	RLA 21	RL 21
15	R 2	R 2	L 1	L 1	RL 11	RLA 11		HK 11										H 1	H 1	C 1	H 1	K 2	LS 11	R 1
16	RA 11	H 1	HL 21	R 2	RS 21			K 1	K 1	K 1	K 1		L 1							H 1	HK 12	HL 11	RL 31	K 2
17	RL 21		HL 21	C 2	RL 21	RL 22			K 1											K 1	K 1	RL 11	K 1	
18	C 1	R 1	R 1	RA 11	R 1	R 1	K 1	CL 11			H 1		H 1		H 1		C 1			C 1	C 2	C 2	HL 21	CL 32
19	RL 21	K 2	K 2	C 2	K 2	L 1	K 2		R 1	L 1								L 1			H 1	C 1		
20	KL 21	R 1		L 2				L 2													H 1	K 1	H 1	R 1
21	R 1	R 1	HR 11	L 1						L 1			HL 11		H 1		H 1			H 1	R 1	K 1	K 1	K 1
22	R 2	K 2	RA 11	RL 22	H 1	C 1		RS 11	K 1	L 1			L 1								K 2	RAS 21	K 1	R 1
23	R 1	CL 21	H 1	K 1	K 1	LH 21	L 2	HL 12	HL 12	CL 21	CL 21	H 1	H 1	C 2	C 2		C 3	L 2	L 2	L 2	L 1	HL 11	CL 21	L 1
24	RL 12	RA 11	RAL 11	K 2	RL 22	RL 21	KL 11	R 1		L 1	C 1				C 1				L 2	K 2	RA 11	H 1	C 2	H 2
25	KL 31	K 1	K 1		K 1	R 1						H 1	C 1	C 1	C 1	L 2	L 1	L 2	L 2	L 2	HL 22	HL 11	L 1	HL 21
26	H 1	H 2	R 1		H 2	H 1	R 2					H 1	H 1	H 1	C 2	HL 12	C 2	C 2	C 2	HL 22	R 1	K 2	K 2	KA 21
27	L 1	K 1	K 2	H 1	CH 21		H 1	HL 12	L 1								C 1				H 1	H 1	H 2	R 2
28	C 2	CL 21	L 2				HL 11	C 1	RL 11					C 2	C 1				H 1		H 1	H 1	C 1	L 1
29	HL 11	H 2			H 1				R 1	R 1							H 1			HK 11	K 1		RA 11	
30	L 1	K 1	KL 21	KL 11	KL 11	HS 21	R 1		R 1	L 1	L 1							H 1		H 1	H 1	K 1	K 2	K 1
31	K 1	K 2		RKL 12	H 1		K 1	H 1		H 1							L 2	L 1	H 1				HL 21	RA 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																								

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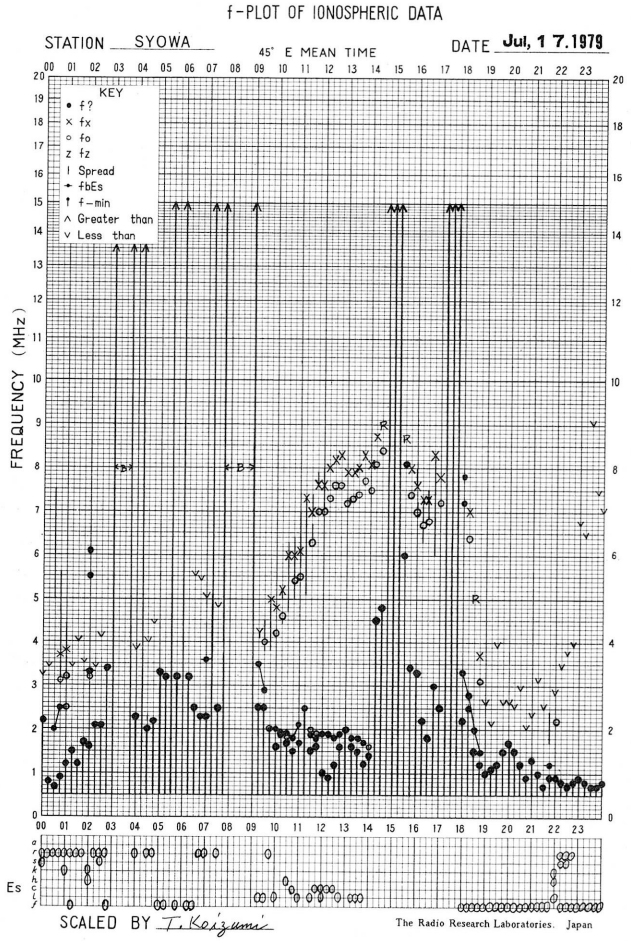
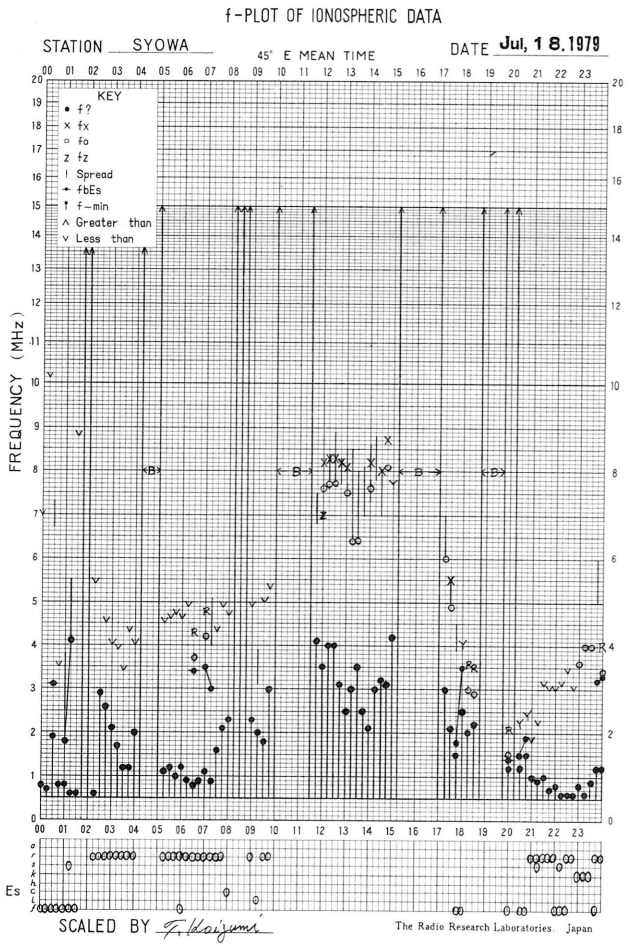
DEC. 1979 | TYPES OF ES


f-PLOT OF IONOSPHERIC DATA
STATION SYOWA
45° E MEAN TIME
DATE Jul, 17.1979
KEY
• f?
× fx
○ fo
z fz
! Spread
+ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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STATION SYOWA
45° E MEAN TIME
DATE Jul, 18.1979
KEY
• f?
× fx
○ fo
z fz
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↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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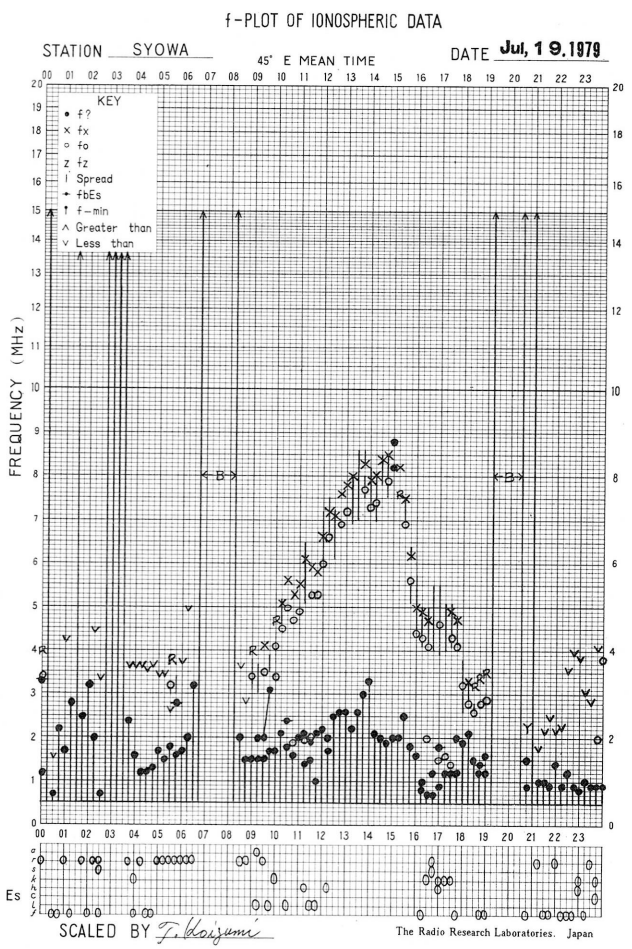
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DATE Jul, 19.1979
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○ fo
z fz
! Spread
+ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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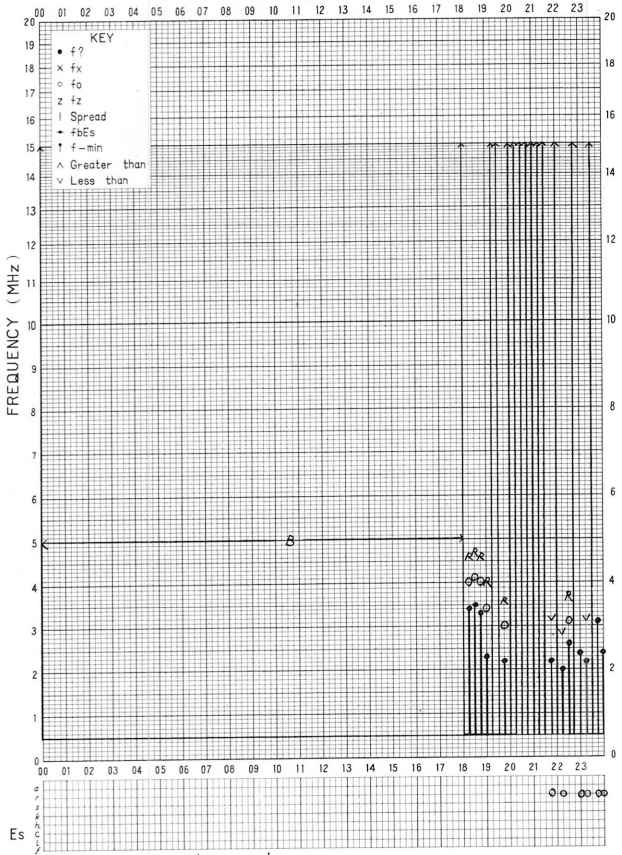
f-PLOT OF IONOSPHERIC DATA

STATION SYOWA 45° E MEAN TIME DATE Aug. 21.1979



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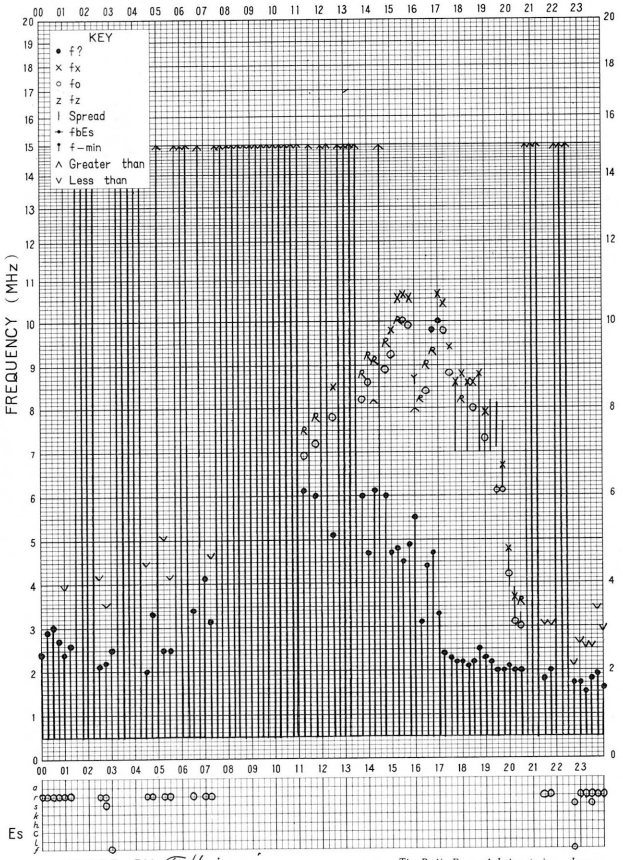
f-PLOT OF IONOSPHERIC DATA

STATION SYOWA 45° E MEAN TIME DATE Aug. 22.1979



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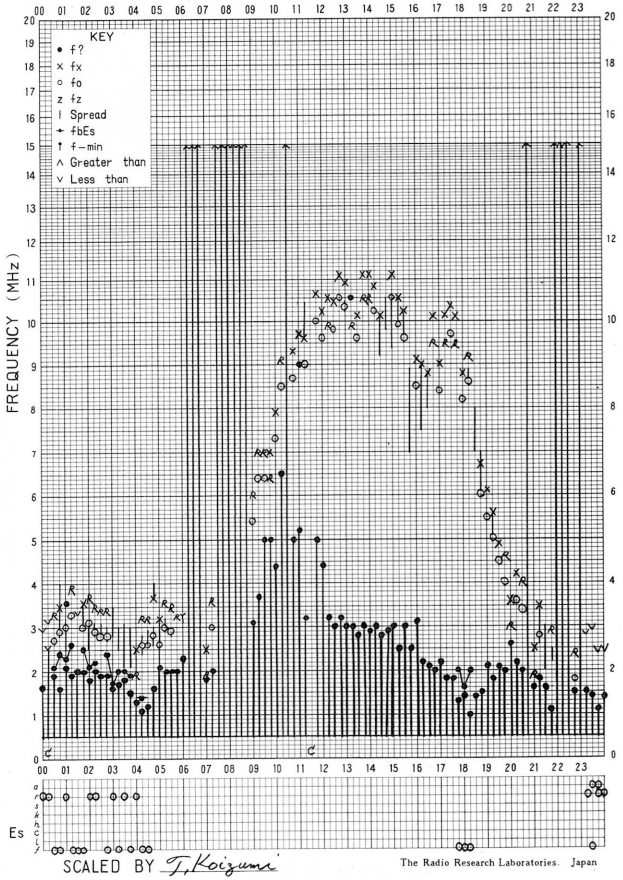
f-PLOT OF IONOSPHERIC DATA

STATION SYOWA 45° E MEAN TIME DATE Aug. 23.1979



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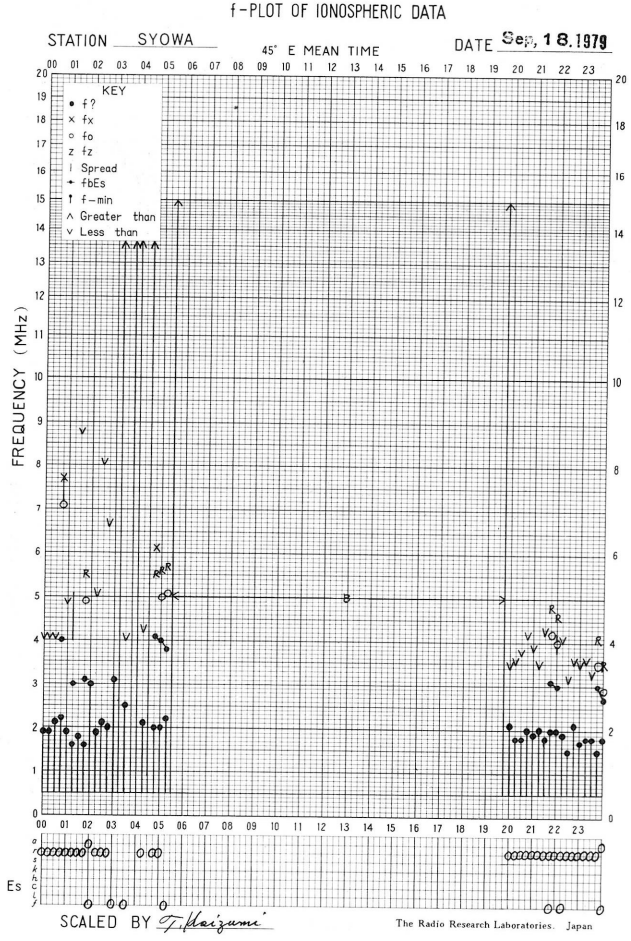
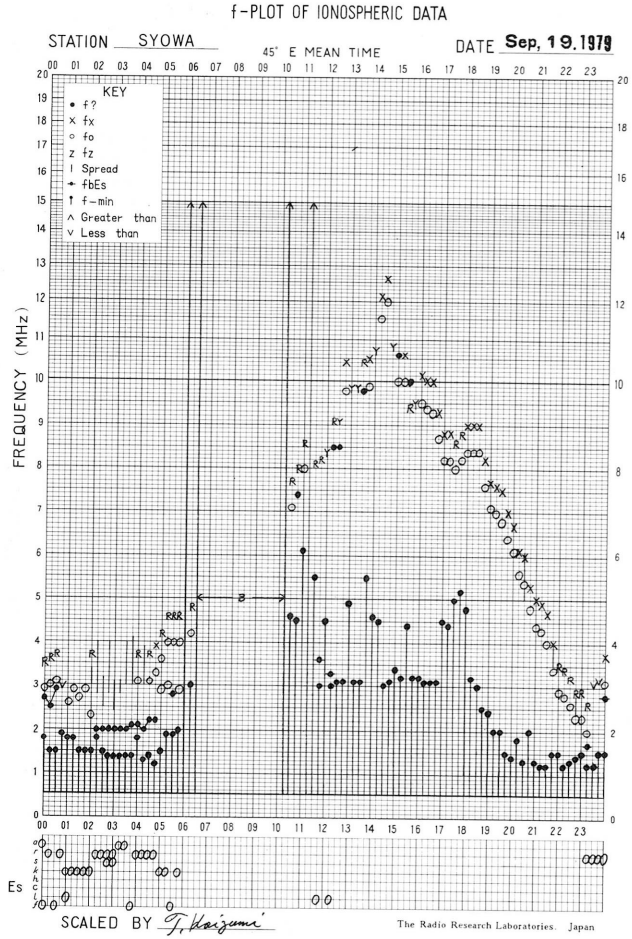
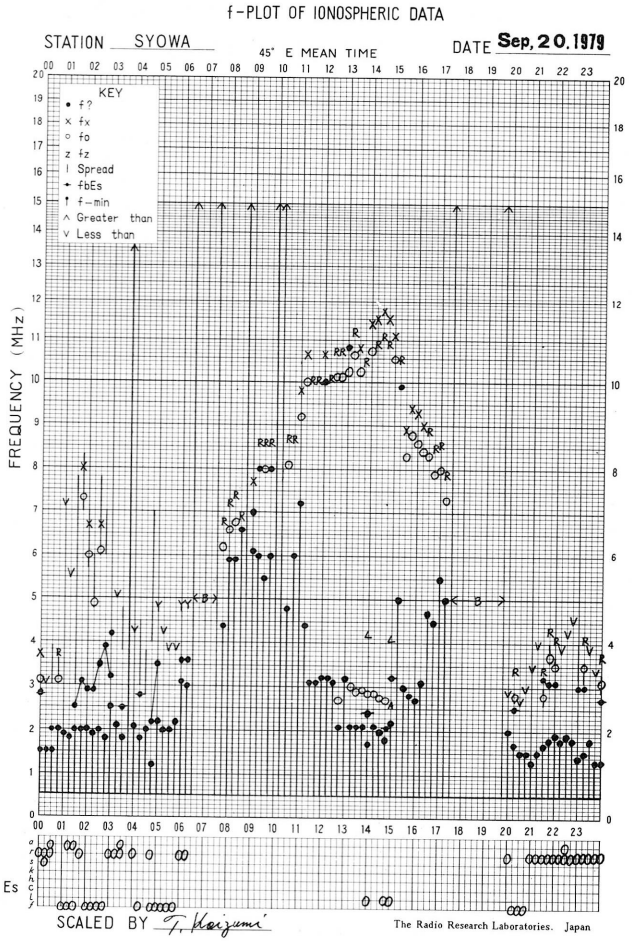

f-PLOT OF IONOSPHERIC DATA
STATION SYOWA
45° E MEAN TIME
DATE Sep, 18, 1979
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan


f-PLOT OF IONOSPHERIC DATA
STATION SYOWA
45° E MEAN TIME
DATE Sep, 19, 1979
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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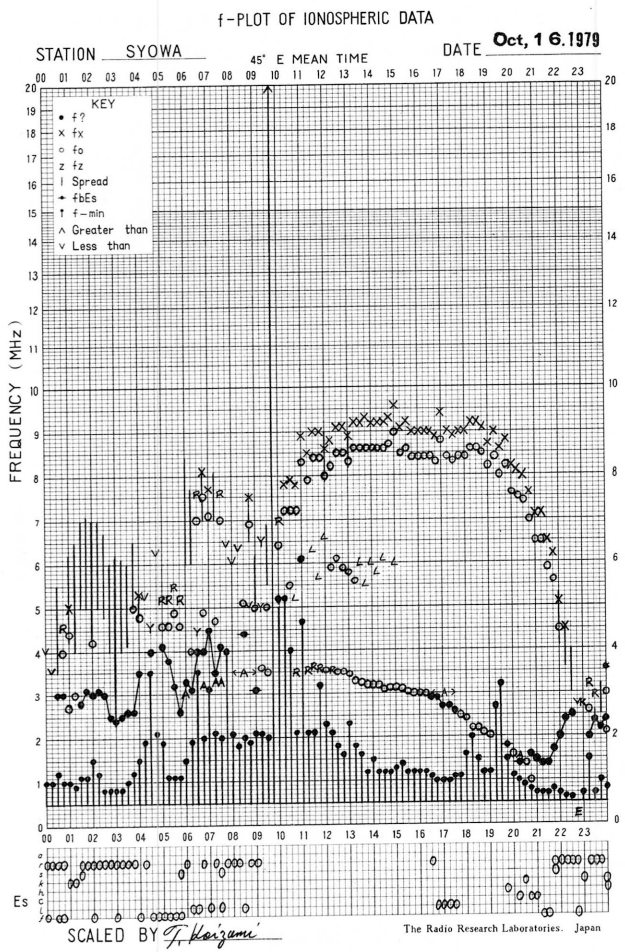
45° E MEAN TIME
DATE Sep, 20, 1979
KEY
• f?
× fx
○ fo
z fz
| Spread
+ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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STATION SYOWA
45° E MEAN TIME
DATE Oct, 1 6.1979
KEY
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| Spread
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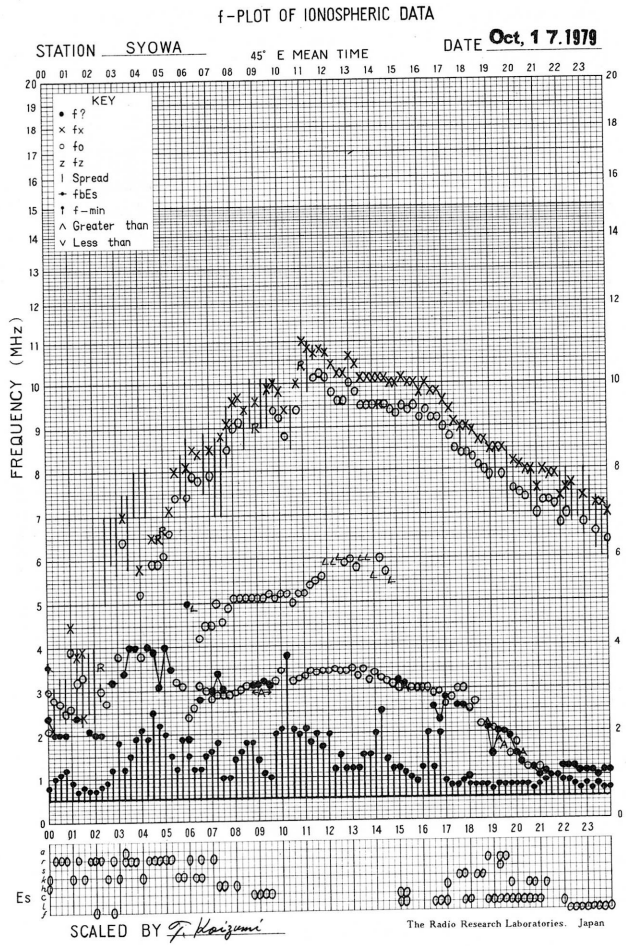
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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DATE Oct, 1 7.1979
KEY
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∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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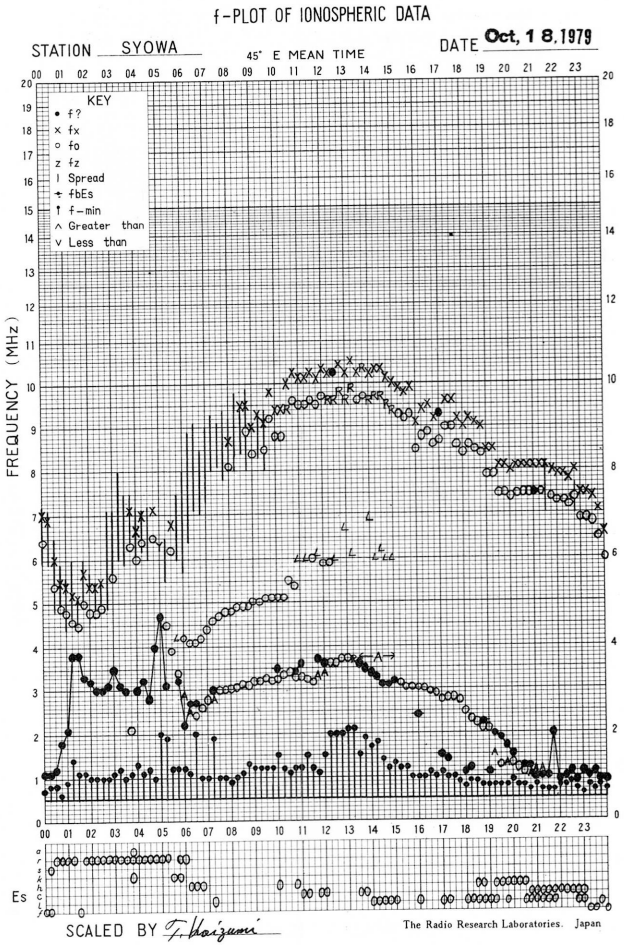
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DATE Oct, 1 8.1979
KEY
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∧ Greater than
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FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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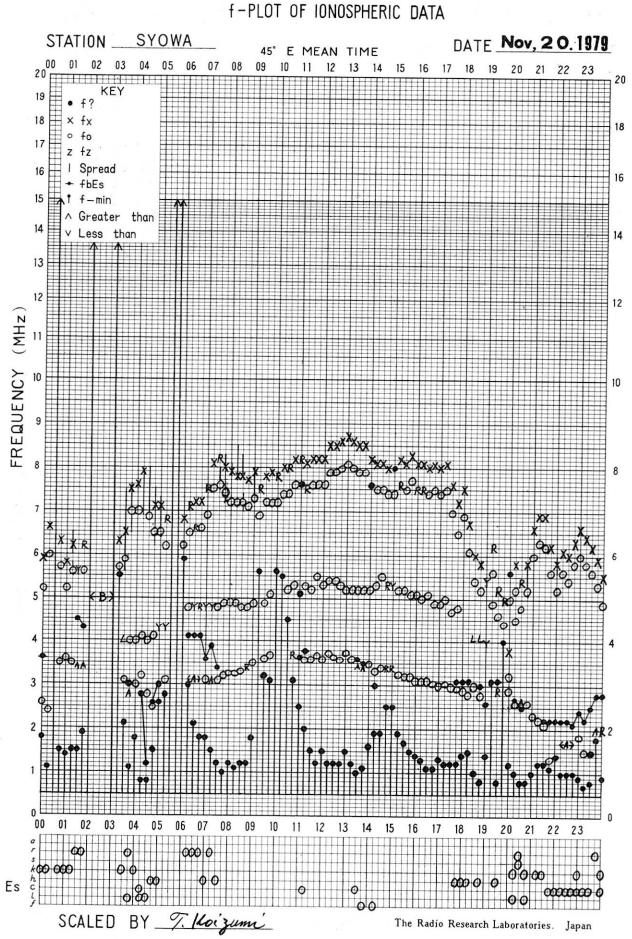
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DATE Nov, 20, 1979
KEY
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○ fo
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| Spread
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↑ f-min
^ Greater than
v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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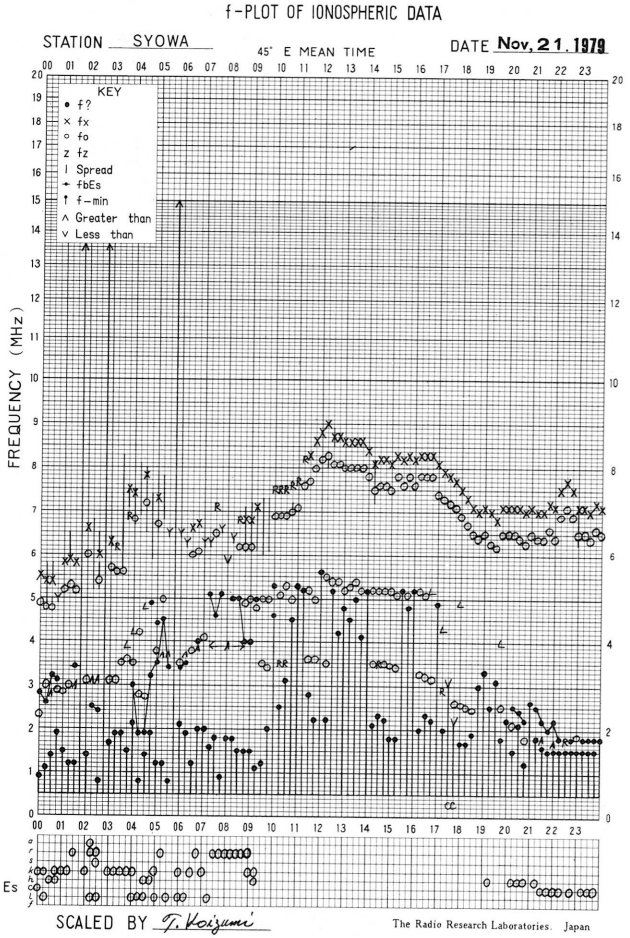
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v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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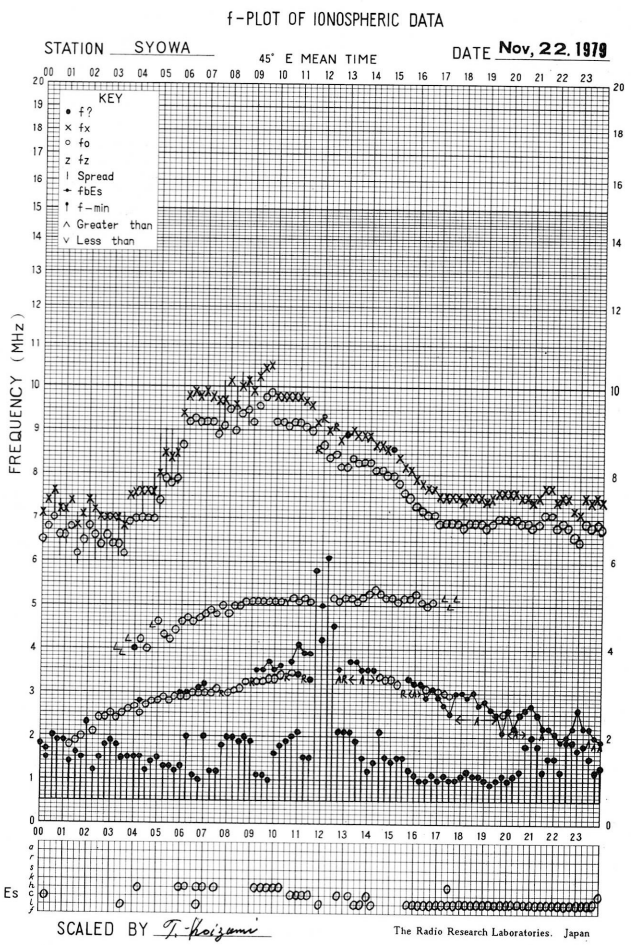
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○ fo
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v Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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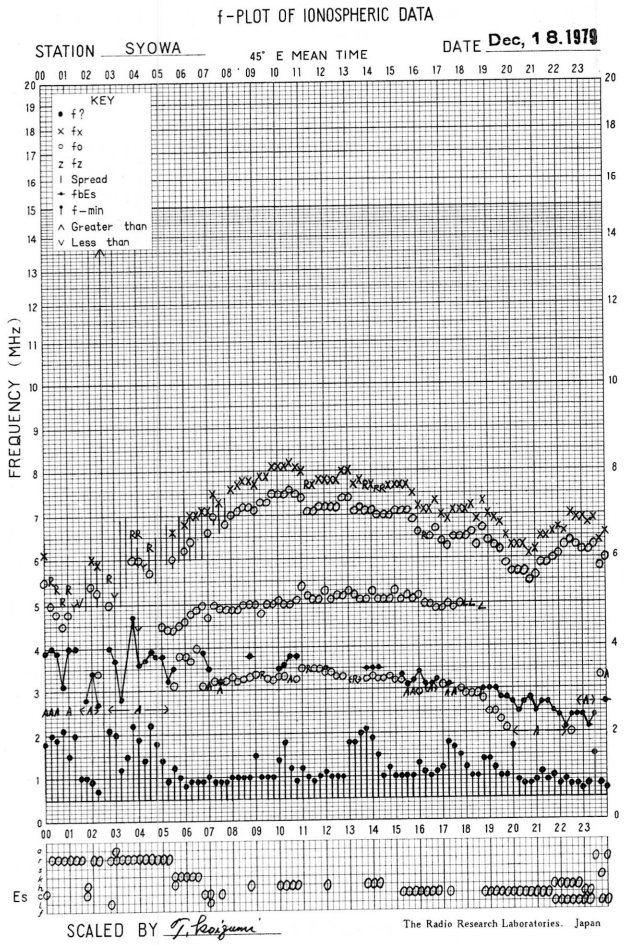
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45° E MEAN TIME
DATE Dec, 18.1979
KEY
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× fx
○ fo
z fz
| Spread
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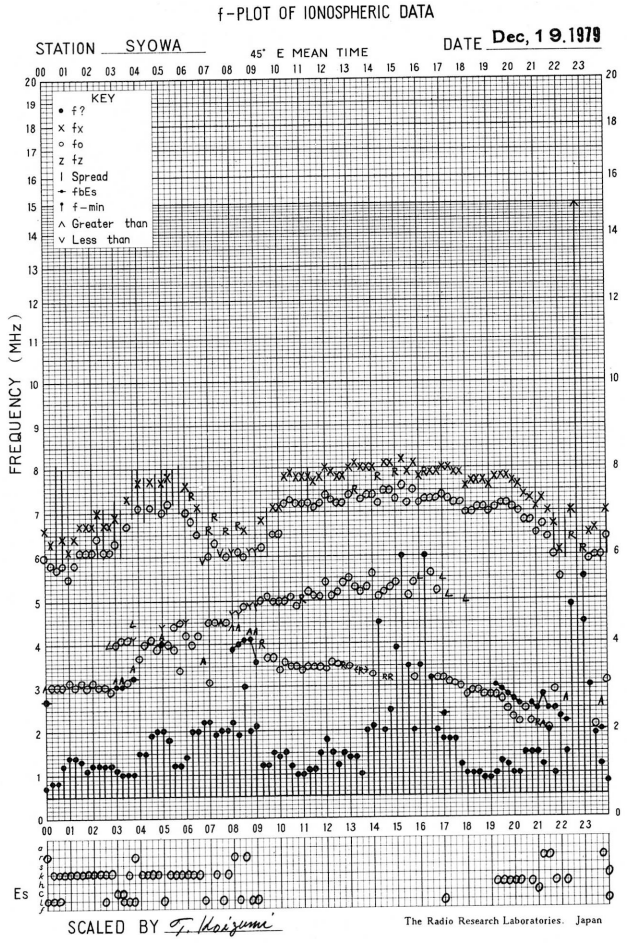
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan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DATE Dec, 19.1979
KEY
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○ fo
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∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
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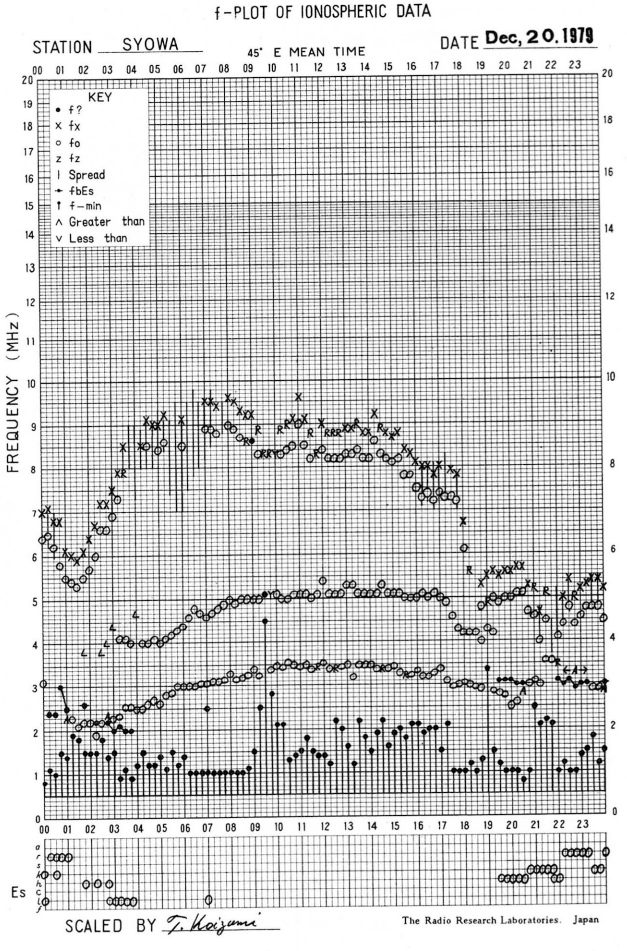
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DATE Dec, 20.1979
KEY
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× fx
○ fo
z fz
| Spread
→ fbEs
↑ f-min
∧ Greater than
∨ Less than
FREQUENCY (MHz)
Es
SCALED BY T. Koizumi
The Radio Research Laboratories. Japan