ION. ANT.— 27

IONOSPHERIC DATA AT SYOWA STATION

(ANTARCTICA)

July 1976—December 1976

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

f_xI — Top frequency of spread F trace

f_oF2, f_oF1, f_oE, f_oEs — Ordinary wave critical frequency for the $F2$, $F1$, E and Es including particle E layers respectively

$fmin$ — 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 Type of *Es*

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

The types are :

f An *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 f_oE.

h An *Es* trace showing a discontinuity in height with the normal *E* layer trace at or above f_oE. 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 $f_oEs > f_oE$ (particle *E*) the *Es* type precedes k.

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

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

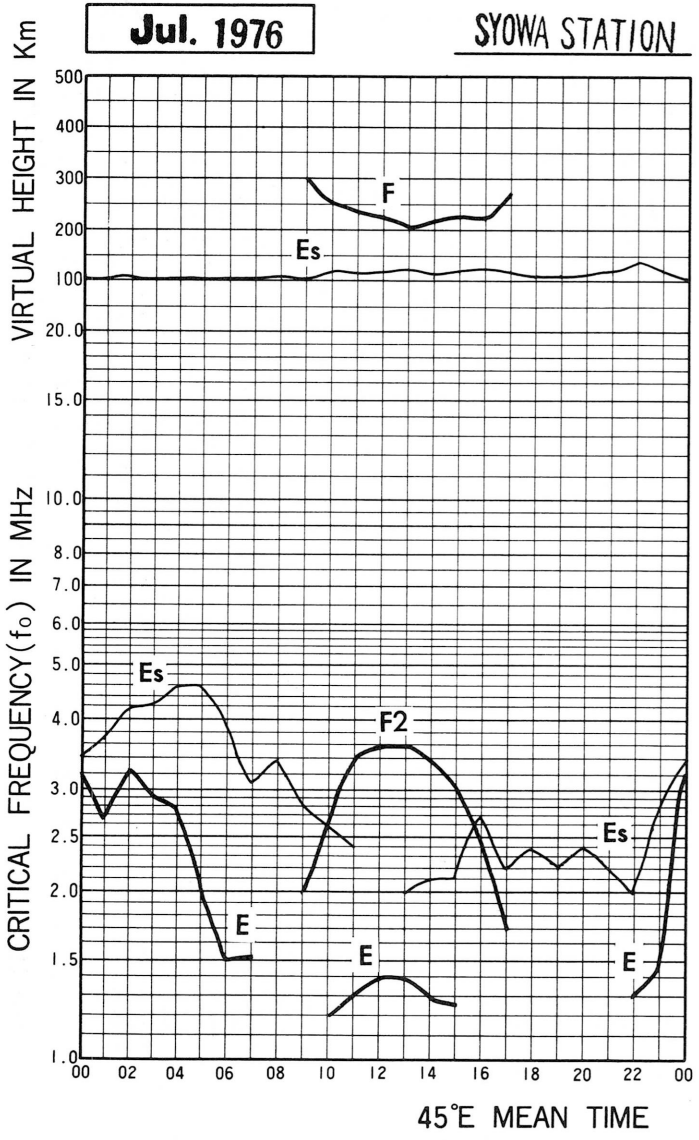
Median (MED) of a set of numbers is the middle value when the numbers are arranged in order of magnitude, or the average of the two middle values if there is an even number of values.

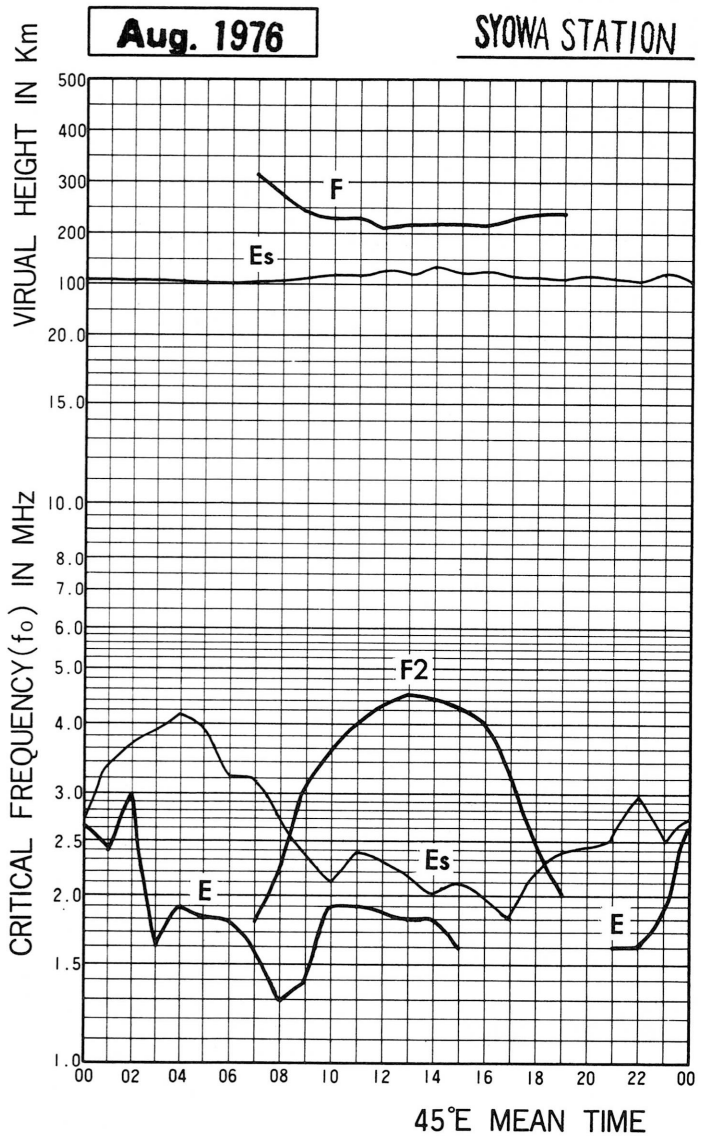
Upper quartile (UQ) is the median value the upper half of the values when they are ranked accrding to magnitude ; the lower quartile (LQ) is the median value of the lower half.

d. *f*-plot.

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

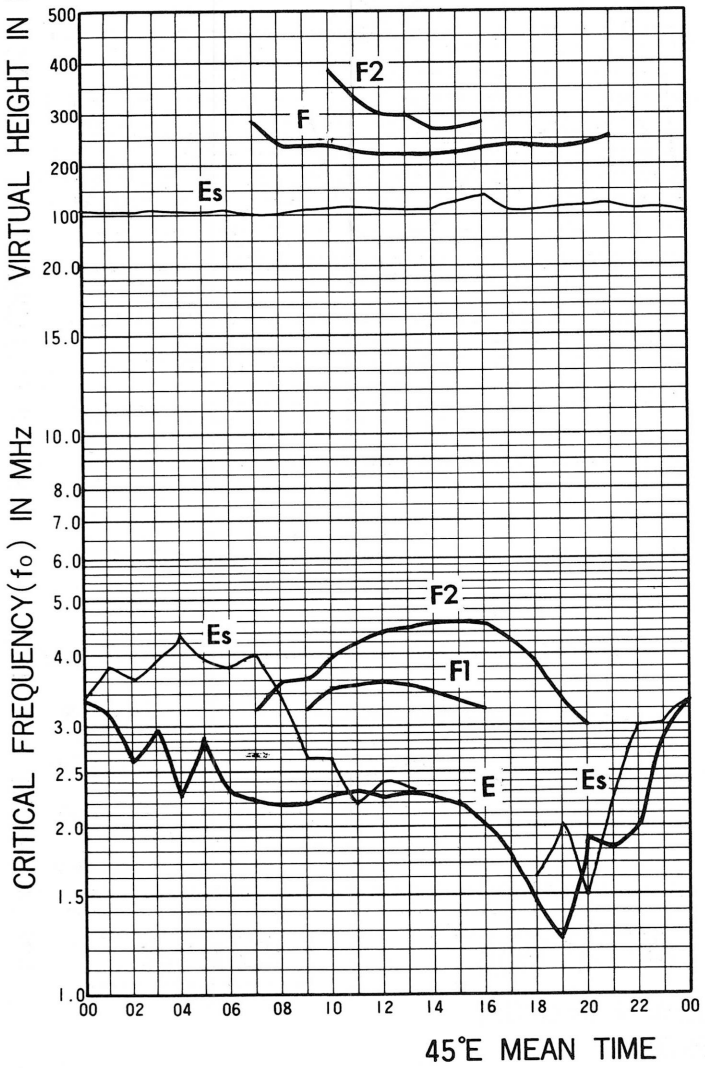
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

Sep. 1976 SYOWA STATION



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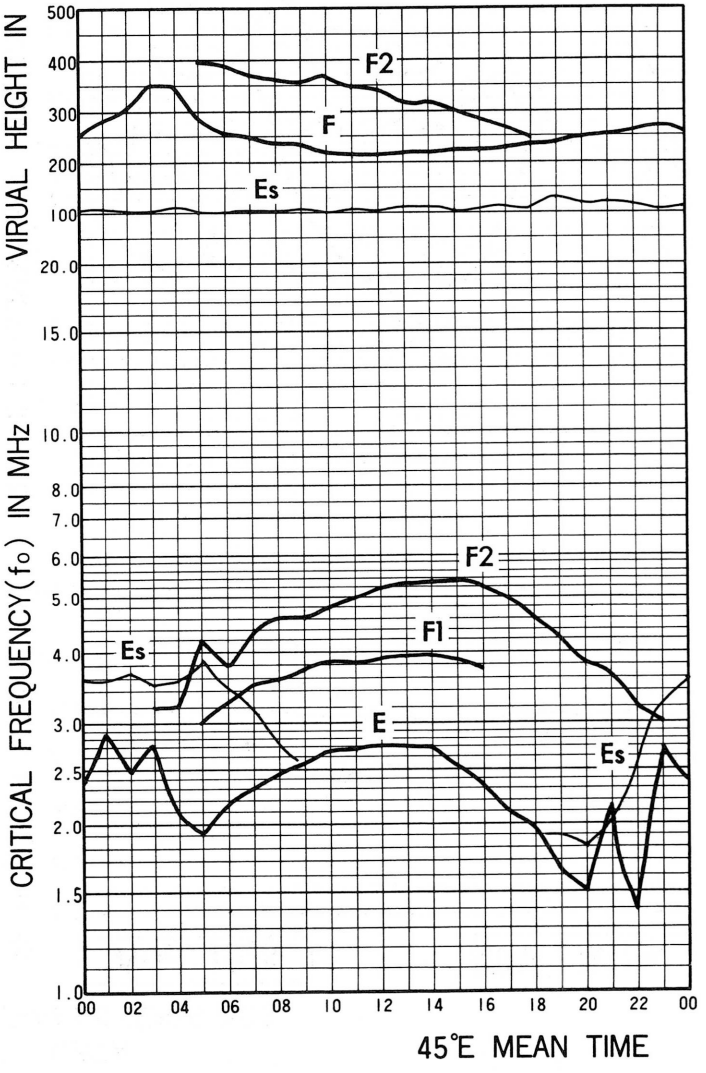
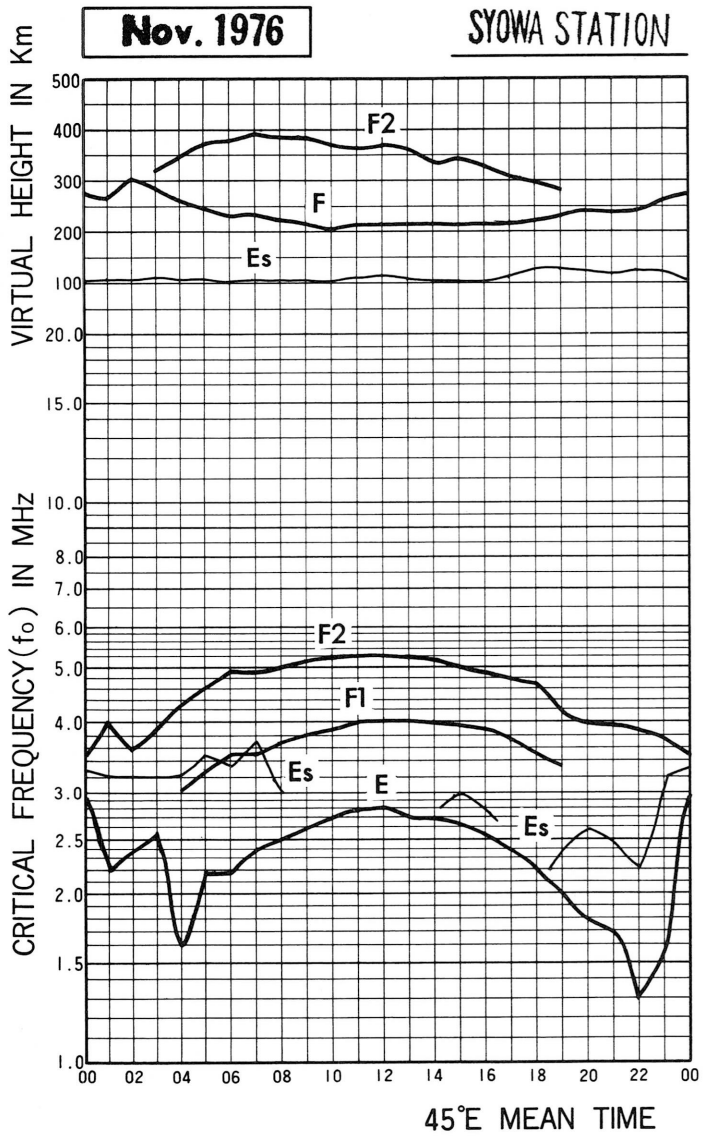
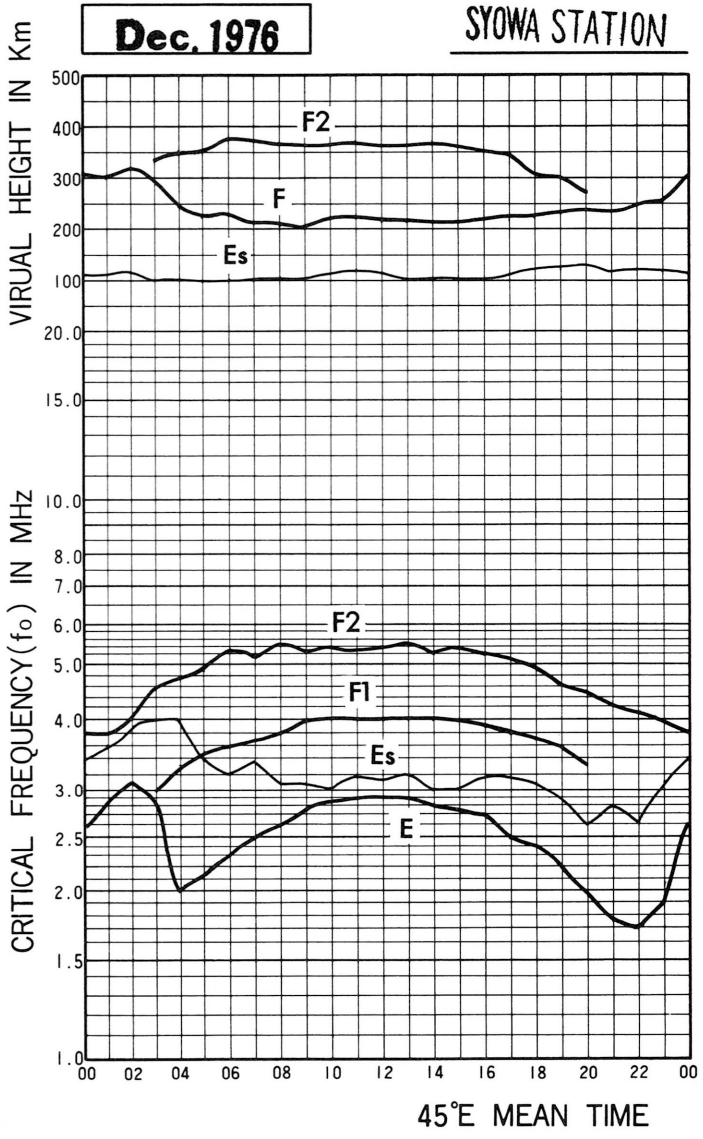


IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS





IONOSPHERIC DATA

JUL. 1976 | FXI (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	B	C	A	C	B	B	C	C	C	B	B	B	B	B	B	B	B	B	B	R	R	A
2	A	C	A	A	B	B	B	A	A	A	A	B	B	B	B	B	B	B	B	B	B	C	B	A
3	A	A	A	A	A	C	A	R	B	B	A	B	B	B	B	B	B	B	B	B	B	B	R	A
4	A	A	A	A	A	C	C	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B
5	C	A	A	A	A	A	A	A	A	B	B	B	O R 42	B	B	B	B	B	B	B	B	B	R	A
6	A	A	A	A	A	B	A	R	R	R	O R 29	O R 36	42	39	O R 36	O R 33	O R 26	A	B	B	B	B	B	A
7	A	A	A	A	A	B	B	A	A	R	B	A	B	O R 38	O R 48	B	B	O R 28	B	B	B	B	R	A
8	A	A	A	A	A	R	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A
9	A	A	A	B	C	A	C	A	B	B	B	B	B	B	B	B	B	B	B	B	R	R	R	A
10	A	A	A	A	A	A	R	C	C	C	C	C	R	O R 42	R	O R 34	B	A	B	B	B	B	B	A
11	A	C	A	A	B	A	A	R	R	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	A	A	A	B	A	A	A	A	A	28	30	43	52	42	42	B	R	C	C	C	C	C	C	C
16	C	C	A	A	A	B	A	A	A	A	B	B	B	B	B	O R 36	B	B	B	60	B	A	A	B
17	A	B	A	A	A	A	A	A	A	A	31	36	B	O R 42	O R 42	O R 38	O R 31	A	A	A	A	R	B	R
18	A	A	A	A	A	A	A	B	A	A	O R 33	O R 41	R	45	O R 41	33	O R 31	O R 24	A	A	R	O R 19	R	A
19	A	A	A	A	A	A	A	A	O R 26	O R 27	30	O R 39	X 42	42	35	O R 41	29	O R 26	O R 23	B	B	B	O R 20	R
20	A	C	C	43	R	A	32	A	A	O R 24	35	O R 42	52	65	36	35	O R 32	B	B	B	A	B	C	A
21	A	A	A	A	A	A	A	A	24	25	32	39	43	42	36	54	34	O R 21	B	A	A	C	A	R
22	A	A	A	A	A	46	D C 55	55	55	43	D C 45	O R 40	53	37	X 46	36	C	A	A	A	A	C	C	C
23	A	A	A	29	A	A	A	A	A	31	38	43	42	43	43	38	37	26	C R 21	O R 20	O R 21	B	B	C
24	A	A	A	A	27	27	30	32	B	O R 24	33	40	53	54	41	42	27	27	O R 26	R	O R 21	A	A	A
25	A	A	A	A	A	B	A	A	A	33	32	B	O R 42	O R 43	O R 44	41	O R 36	B	B	B	B	B	B	A
26	A	A	A	A	B	B	O R 32	29	25	27	X 33	X 40	X 42	X 43	X 44	X 41	31	R	O R 19	O R 18	O R 19	A	A	A
27	A	A	A	A	A	A	A	R	B	R	32	38	40	35	O R 42	B	B	B	O R 21	B	B	A	A	A
28	A	57	A	U A 44	A	B	A	A	A	A	B	B	B	B	B	B	B	B	B	A	A	A	A	A
29	A	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	O R 48	B	R	A	R	A	A
30	A	A	A	A	B	A	B	B	B	B	B	B	O R 47	51	X 47	B	B	B	B	B	R	R	A	A
31	A	A	B	A	A	A	A	R	A	28	B	B	B	B	B	B	B	B	B	B	A	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1		3	1	2	4	3	4	10	13	12	13	16	15	13	10	7	5	3	3	1	1	
MED		57		43	27	36	32	32	26	28	32	40	42	42	42	38	31	O R 26	O R 21	O R 20	O R 21	O R 19	O R 20	
UQ				44			44	44	40	31	33	42	52	44	44	41	O R 34	O R 28	O R 23	40	O R 21			
LQ				36			31	30	24	O R 25	31	38	42	40	38	35	29	O R 25	O R 21	O R 19	O R 20			

The Radio Research Laboratories, Japan

JUL. 1976 | FXI (0.1 MHZ)

IONOSPHERIC DATA

JUL. 1976 | 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 2 MHz to 15 MHz in 30 sec in automatic operation

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

JUL. 1976 | FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUL. 1976 | FOF1 (0.01 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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

The Radio Research Laboratories, Japan

JUL. 1976 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JUL. 1976 | FOE (0.01 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00.4' S, Long. 39° 35.4' E Sweep 0.1 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 415									C	C	B	B	B	B	B						K 150	K 150	K 260
2	K 330									B	B	B	B	B	B	B								U K 100
3				U K 120		K 155				B	B	B	B	B	B	B							K 125	U K 125
4		U K 230								B	B	B	B	B	B	B								
5			K 350	U K 330						B	B	B	C	B	B	B								
6	K 335								U K 140	C	A	U A 150	150	U B 140	A	B	U K 125							
7		K 315	J K 330	U K 290	U K 375					B	B	B	B	C	B	B								K 155
8			K 315				U K 160			B	B	B	B	B	B	B							K 360	
9										B	B	B	B	B	B	B						K 120	U K 125	
10						K 350				C	C	C	B	B	B	B								K 130
11							U K 220	K 180		C	C	C	C	C	C	C								
12										C	C	C	C	C	C	C								
13										C	C	C	C	C	C	C								
14										C	C	C	C	C	C	C								
15	U K 120									A	A	A	U A 145	140	U A 120	B								
16										A	B	B	B	B	B	B								
17										B	120	170	B	B	B	B	K 220	U K 120	U K 100					
18	K 260	J K 320	K 230	J K 290	K 280	K 260			B	A	150		B	B	150	U C 150	F 130	A	U K 120	U K 190	K 130		K 130	
19									A	130	A 120	A	B	B	130	U B 115	A	U K 110	U K 105					
20		K 180		K 230	U K 220				B	C	U A 120	A	140	A	A	B	B							
21									C	C	A	A	U A 140	A	A	A	C							
22							K 125	U K 120	K 120	C	U A 110	C	B	140	B	U K 200	C						U K 100	U K 100
23	U K 100	U K 125							C	U A 115	125	A	R	A	A	A	A							
24						U K 120	U K 120		B	B	A	U A 125	A	A	U A 120	A	A							
25									B	A	A	B	B	B	C 160	A	C							
26								U K 145	A	110	U A 120	U A 120	130	A	A	120	A							
27							K 150	K 160	B	B	A	130	A	A	B	B	B							
28									A	A	B	B	B	B	B	B	B							
29									B	B	B	B	B	B	B	B	B							
30									B	B	B	B	B	A	B	B	B				U K 115	K 160	K 200	K 330
31	K 320	U K 300							A	A	B	B	B	B	B	B	B							U K 160
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	6	4	5	3	4	5	4	2	3	7	5	5	4	5	4	2	3	3	1	1	3	7	8
MED	K 320	K 265	K 322	U K 290	U K 280	K 208	U K 150	K 152	K 130	115	A 120	U A 130	140	140	U 130	125	K 172	U K 120	U K 105	K 130	U K 115	K 150	K 130	K 142
UQ	K 332	K 315	K 340	U K 290	K 328	K 305	U K 160	K 170		122	122	150	145	145	C 150	165		U K 120	U K 148			K 155	K 175	K 210
LQ	K 190	U K 180	K 272	K 230	K 250	K 138	K 125	U K 132		112	U A 120	U A 125	140	140	U A 120	118		U K 115	U K 102			K 135	K 125	U K 112

The Radio Research Laboratories, Japan

JUL. 1976 | FOE (0.01 MHZ)

IONOSPHERIC DATA

JUL. 1976 | FOES (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	47	JA 46	42	40	JA 49	C	B	B	DC 16	C	C	B	B	B	B	B	B	B	B	B	B	16	K 16	K 26
2	K 33	JA 44	42	JA 77	68	55	B	41	51	DC 43	C 37	B	B	B	B	B	B	B	B	B	B	DC 16	B	JA 27
3	JA 26	JA 38	32	JA 30	JA 40	DC 16	36	20	45	B	35	B	B	B	B	B	B	B	B	B	B	B	15	JA 24
4	34	JA 82	JA 45	JA 44	JA 47	C	C	JA 39	JA 37	B	B	B	B	B	B	B	B	B	B	B	B	JA 37	B	
5	37	C 35	K 35	JA 37	JA 36	JA 58	JA 42	42	JA 34	B	B	B	EC 30	B	B	B	B	B	B	B	B	B	16	JA 27
6	K 33	JA 45	JA 44	JA 45	JA 60	46	JA 46	25	18	17	23	20	G	15	30	21	16	JA 29	B	B	B	B	B	JA 27
7	JA 26	K 31	JK 33	K 29	JA 39	JA 70	B	30	42	26	B	34	B	EC 20	EB 23	B	B	18	B	B	B	B	13	22
8	24	32	42	41	DC 25	22	23	B	B	B	B	B	B	B	B	B	B	B	B	B	B	JA 38	K 36	JA 89
9	C 37	JA 45	JA 45	JA 46	DC 55	DC 54	C	JA 70	48	B	B	B	B	B	B	B	B	B	B	B	DC 16	15	DC 17	22
10	JA 34	JA 27	JA 31	JA 40	35	K 35	27	C	C	C	C	C	27	EB 20	EB 26	EB 20	B	30	B	B	B	B	B	JA 29
11	42	JA 41	JA 44	JA 62	B	JA 38	DC 25	22	JA 21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	63	27	40	37	JA 34	JA 49	JA 46	JA 46	JA 36	JA 26	32	30	JA 25	20	JA 29	B	35	C	C	C	C	C	C	C
16	C	C	JA 50	JA 49	JA 36	JA 41	52	52	JA 51	JA 61	B	B	B	B	B	EB 21	B	B	B	B	B	JA 30	JA 44	56	
17	JA 64	DC 104	55	JA 47	JA 49	43	43	JA 34	JA 36	35	26	G	B	EB 22	EB 22	26	27	JA 29	JA 49	JA 61	JA 49	16	B	14
18	K 26	JK 32	33	JK 29	K 28	K 26	44	B	33	32	27	EB 20	EB 20	25	26	22	22	15	25	22	16	18	K 13	JA 22
19	JA 35	JA 43	JA 61	JA 64	JA 35	JA 53	JA 37	JA 26	22	G	13	17	EB 15	EB 16	16	G	JA 29	14	16	B	B	B	16	12
20	DC 20	K 18	DC 20	K 23	JA 24	JA 51	33	JA 29	45	30	JA 26	JA 24	25	22	DC 15	20	EB 13	B	B	B	DC 25	B	DC 17	83
21	JA 32	JA 30	JA 72	JA 50	50	JA 47	JA 41	JA 31	16	JA 19	17	30	JA 22	23	20	JA 25	JA 27	JA 24	24	JA 20	25	DC 16	25	13
22	JA 25	JA 26	JA 28	22	JA 26	JA 20	K 12	JA 24	K 12	JA 36	JA 26	25	JA 24	22	EB 20	14	C	DC 35	JA 48	23	22	16	17	DC 17
23	JA 25	22	33	JA 29	JA 51	JA 49	40	JA 40	JA 28	JA 30	15	JA 47	G	22	JA 20	16	JA 22	12	18	JA 18	16	B	B	JA 26
24	20	21	JA 29	JA 24	64	21	JA 25	31	B	EB 12	13	JA 24	19	JA 25	JA 24	JA 29	JA 40	JA 50	DC 24	17	13	JA 19	JA 19	DC 20
25	JA 35	JA 26	JA 32	DC 78	JA 89	56	JA 49	JA 36	JA 30	JA 25	34	B	EB 25	EB 26	DC 17	22	EC 20	B	B	B	B	B	B	JA 39
26	JA 32	JA 37	JA 49	59	46	B	JA 43	22	27	G	42	23	G	16	JA 40	13	JA 28	17	21	JA 21	EB 9	JA 24	JA 25	JA 37
27	JA 36	JA 44	JA 36	JA 46	JA 44	JA 24	JA 26	K 16	B	24	JA 27	JA 20	JA 24	17	EB 27	B	B	B	13	B	B	JA 24	17	JA 31
28	JA 40	78	JA 44	JA 29	56	36	JA 56	JA 51	JA 47	JA 40	B	B	B	B	B	B	B	B	B	30	JA 35	JA 36	JA 42	JA 34
29	JA 41	JA 76	JA 64	JA 83	JA 61	46	36	57	B	B	B	B	B	B	B	B	B	E B 25	B	23	31	20	23	39
30	JA 34	JA 32	JA 42	43	43	20	B	B	B	B	B	B	EB 27	21	EB 20	B	B	B	B	B	16	23	27	K 33
31	K 32	JA 50	53	JA 37	JA 49	JA 45	JA 36	23	JA 29	JA 31	B	B	B	B	B	B	B	B	B	B	25	JA 24	22	39
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	27	28	28	27	25	22	23	22	18	15	13	15	16	16	13	11	12	9	9	13	16	20	25
MED	JA 34	JA 37	JA 42	JA 42	JA 46	46	39	31	34	28	26	24	EG 24	U 20	21	21	27	22	24	22	24	U 22	U 20	28
UQ	JA 37	JA 45	JA 47	JA 50	JA 53	JA 51	JA 44	JA 42	JA 45	JA 35	33	30	24	22	26	22	JA 28	30	U 36	23	25	JA 24	26	JA 37
LQ	28	28	33	J 30	JA 36	U 30	U 30	24	U 24	19	20	20	EG 17	17	19	14	21	16	18	JA 20	16	16	16	23

The Radio Research Laboratories, Japan

JUL. 1976 | FOES (0.1 MHZ)

IONOSPHERIC DATA

JUL. 1976 | F-MIN (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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	12	E C 10	22	E C 30	16	C	B	B	E C 10	C	C	B	B	B	B	B	B	B	B	B	B	E C 10	11	8
2	8	E C 30	18	8	25	30	B	15	11	12	15	B	B	B	B	B	B	B	B	B	B	12	B	8
3	E C 10	E C 10	12	E C 10	E C 10	E C 10	21	E C 10	30	B	16	B	B	B	B	B	B	B	B	B	B	B	11	11
4	13	21	16	13	15	C	C	16	15	B	B	B	B	B	B	B	B	B	B	B	B	B	E C 10	B
5	E C 30	11	12	12	E C 20	13	9	E C 20	12	B	B	B	E C 30	B	B	B	B	B	B	B	B	B	10	E C 10
6	E C 10	E C 10	10	12	9	25	11	13	E C 10	E C 10	10	12	12	14	13	15	8	E C 10	B	B	B	B	B	10
7	8	E C 10	E C 10	E C 10	E C 10	22	B	20	15	12	B	21	B	E C 20	23	B	B	E C 10	B	B	B	B	E C 10	12
8	11	8	16	21	13	E C 10	11	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E C 10	7	E C 10
9	11	13	15	22	E C 20	15	C	E C 20	41	B	B	B	B	B	B	B	B	B	B	B	14	8	8	8
10	E C 10	14	14	9	10	10	21	C	C	C	C	C	21	20	26	20	B	15	B	B	B	B	B	10
11	10	E C 20	15	E C 10	B	13	13	12	11	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	E C 10	16	17	22	9	13	13	11	8	7	12	12	12	13	10	B	14	C	C	C	C	C	C	C
16	C	C	10	12	E C 10	22	16	10	E C 10	E C 10	B	B	B	B	B	21	B	B	B	B	B	13	E C 10	25
17	10	20	16	14	15	15	10	12	12	13	11	12	B	22	22	20	E C 20	12	10	E C 10	E C 10	12	B	E C 10
18	8	E C 10	12	E C 10	E C 10	10	22	B	12	11	12	20	20	14	14	12	E C 10	E C 10	E C 10	12	E C 10	E C 10	8	E C 9
19	8	E C 10	14	13	11	E C 20	11	10	E C 10	E C 10	9	13	15	16	11	11	12	11	E C 10	B	B	B	E C 10	7
20	7	E C 9	10	10	E C 10	20	E C 10	10	12	E C 10	10	13	10	12	12	13	13	B	B	B	E C 10	B	12	E C 10
21	E C 9	7	E C 10	E C 10	E C 11	E C 10	E C 10	9	E C 10	E C 10	10	E C 10	E C 10	E C 10	E C 10	E C 10	E C 10	11	20	10	13	11	13	11
22	E C 10	E C 10	E C 10	E C 10	E C 10	8	E C 10	E C 10	7	E C 10	E C 10	E C 20	20	13	20	15	C	11	E C 15	13	15	10	10	10
23	E C 10	12	E C 10	E C 10	E C 10	10	10	E C 10	E C 10	8	E C 10	E C 10	12	11	E C 10	E C 10	8	E C 10	E C 10	E C 10	E C 10	B	B	E C 20
24	14	9	10	E C 10	8	E C 10	E C 10	E C 10	B	12	11	E C 10	11	E C 10	E C 10	E C 10	E C 10	6	E C 10	7	8	11	14	8
25	8	9	10	10	15	35	E C 20	12	12	E C 10	11	B	25	26	12	15	E C 20	B	B	B	B	B	B	10
26	8	11	13	13	25	B	10	10	8	9	E C 10	E C 10	12	12	11	E C 10	E C 10	8	8	9	9	10	8	7
27	E C 11	9	9	E C 10	E C 10	10	E C 9	9	B	12	E C 10	9	11	13	27	B	B	B	11	B	B	12	15	9
28	E S 10	10	9	9	13	26	14	14	E C 9	10	B	B	B	B	B	B	B	B	B	20	E C 10	E C 10	6	E C 10
29	15	E C 10	7	14	10	22	13	43	B	B	B	B	B	B	B	B	B	25	B	13	11	E C 9	9	E C 9
30	8	E C 9	14	16	20	16	B	B	B	B	B	B	27	18	20	B	B	B	B	B	10	9	E C 10	E C 9
31	7	10	24	E C 20	12	12	10	E C 10	E C 10	E C 10	B	B	B	B	B	B	B	B	B	B	C 19	12	10	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	27	27	28	28	28	26	26	27	27	25	25	26	27	27	27	27	26	26	26	26	26	26	26	26
MED	9	9	12	10	10	14	12	12	12	11	12	D B 21	26	20	23	B	B	B	B	B	D B 19	12	10	9
UQ	10	12	16	14	16	22	21	20	22	B	B	B	B	B	B	B	B	B	B	B	B	B	15	10
LQ	8	E C 10	10	E C 10	E C 10	10	10	10	E C 10	E C 10	10	12	12	13	12	14	U 10	11	10	13	10	10	10	8

The Radio Research Laboratories, Japan

JUL. 1976 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUL. 1976 | M(3000)F2 (0.01) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	B	C	B	C	B	B	C	C	C	B	B	B	B	B	B	B	B	B	B	R	R	A
2	A	C	B	A	B	B	B	A	A	A	A	B	B	B	B	B	B	B	B	B	B	A	B	A
3	A	A	A	A	A	C	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	R	A
4	A	A	B	A	B	C	C	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B
5	C	A	A	A	C	A	A	C	A	B	B	B	345	B	B	B	B	B	B	B	B	B	A	A
6	A	A	A	A	A	B	A	A	A	A	F	F 300	F 330	J F 350	F 335	F 320	F 370	A	B	B	B	B	B	A
7	A	A	A	A	A	B	B	B	A	A	B	A	B	F	355	B	B	F 300	B	B	B	B	A	A
8	A	A	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A
9	A	A	B	B	C	A	C	C	B	B	B	B	B	B	B	B	B	B	B	B	R	R	A	A
10	A	A	A	A	A	A	B	C	C	C	C	C	R	F 335	R	U F 345	B	A	B	B	B	B	B	A
11	A	C	B	A	B	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	A	B	B	B	A	A	A	A	A	F 300	F	F	F	F 370	J F 350	B	A	C	C	C	C	C	C	C
16	C	C	A	A	A	B	B	A	A	A	B	B	B	B	B	340	B	B	B	B	B	A	A	B
17	A	B	B	A	A	A	A	A	A	A	F 320	F 355	B	F 335	F 335	F 315	330	A	A	A	A	A	B	A
18	A	A	A	A	A	A	B	B	A	A	F 315	F 330	R	F	U F 360	F	F 310	F 335	A	A	A	F	A	A
19	A	A	A	A	A	C	A	A	F 295	F	F 310	355	F 360	F 360	F 380	U F 340	F 335	F 395	F 355	B	B	B	370	R
20	A	C	C	F	R	B	F	A	A	F 295	J F 360	F 360	F	F	U F 365	F	F 370	B	B	B	A	B	A	A
21	A	A	A	A	A	A	A	A	F	F 305	F 330	J F 335	F	F	J F 340	F	F	365	B	A	A	A	A	R
22	A	A	A	A	A	A	R	A	R	F	F 310	F	F	F 345	J C 345	F	C	A	A	A	A	A	A	A
23	A	A	A	F	A	A	A	A	A	F 285	U F 300	J F 345	340	J F 335	F	F 340	J F 345	F 355	F	F	F	B	B	C
24	B	A	A	A	U F 280	F 285	F 285	F	B	F 295	F	J F 345	F 360	F 355	J F 360	F	F	F	F 350	A	U F 330	A	B	A
25	A	A	A	A	B	B	A	A	A	U F 300	F 320	B	F 360	350	F	F 345	F 345	B	B	B	B	B	B	A
26	A	A	A	A	B	B	F 285	F	F 305	F 350	350	370	335	375	365	380	F	A	F 330	F	F 385	A	A	A
27	A	A	A	A	A	A	A	R	B	A	U F 310	F 330	J F 350	J F 370	340	B	B	B	U F 355	B	B	A	B	A
28	A	A	A	A	A	B	A	A	A	A	B	B	B	B	B	B	B	B	B	B	A	A	A	A
29	B	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	285	B	R	A	A	A	A
30	A	A	A	A	B	A	B	B	B	B	B	B	340	F 355	340	B	B	B	B	B	R	A	A	A
31	A	A	B	C	A	A	A	A	A	F 300	B	B	B	B	B	B	B	B	B	B	B	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	1	2		2	8	10	10	9	12	13	8	7	6	4		2		1	
MED					U F 280	F 285	F 285		F 300	F 300	F 318	F 345	F 345	F 352	F 350	F 340	F 345	F 345	F 352		F 358		370	
UQ										F 302	F 330	F 355	F 360	F 365	F 360	345	F 358	F 365	F 355					
LQ										295	F 310	F 330	340	F 340	F 340	F 330	F 332	F 300	F 340					

The Radio Research Laboratories, Japan

JUL. 1976 | M(3000)F2 (0.01)

IONOSPHERIC DATA

JUL. 1976 | H'F2 (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

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

The Radio Research Laboratories, Japan

JUL. 1976 | H'F2 (KM)

IONOSPHERIC DATA

JUL. 1976 | H'F (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	B	C	B	C	B	B	A	C	C	B	B	B	B	B	B	B	B	B	B	R	R	A
2	A	C	B	A	B	B	B	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A
3	A	A	B	A	A	C	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	A	A
4	B	A	B	A	B	C	C	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B
5	C	A	A	A	C	A	A	C	A	B	B	B	C 295	B	B	B	B	B	B	B	B	B	A	A
6	A	A	A	A	A	B	A	A	A	A	C 340	250	230	205	245	250	220	A	B	B	B	B	B	A
7	A	A	A	A	A	B	B	B	A	A	B	B	B	C 200	210	B	B	270	B	B	B	B	C	A
8	B	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A
9	B	B	B	B	C	B	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A
10	A	B	B	A	A	A	B	C	C	C	C	C	A	230	230	B 230	B	A	B	B	B	B	B	A
11	A	C	B	A	B	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
12	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	A	B	B	B	A	A	A	A	A	300	C	225	210	205	195	B	A	C	C	C	C	C	C	C
16	C	C	A	A	A	B	B	A	A	A	B	B	B	B	B	B 225	B	B	B	B	B	A	A	B
17	A	B	B	B	B	B	A	A	A	A	260	245	B	250	250	245	A	A	A	A	A	B	B	A
18	A	A	A	A	A	A	B	B	A	A	295	250	225	205	210	230	300	275	A	A	A	C	A	A
19	A	A	B	B	A	C	A	A	350	F	255	240	225	210	190	200	210	210	235	B	B	B	C 230	A
20	A	C	C	290	A	B	A	A	A	325	250	200	225	200	200	210	200	B	B	B	C	B	B	C
21	A	A	A	A	A	A	A	A	A	275	240	205	210	200	210	220	190	B	B	A	B	B	B	B
22	A	A	A	A	A	A	R	A	R	300	250	300 F	225	225	230	200	C	A	B	B	B	A	A	A
23	A	A	A	F	A	A	A	A	A	305	250	225	220	205	210	205	195	180	C	C	C	B	B	C
24	B	A	A	A	A	360	310	F	B	B 270	230	215	205	205	190	190	F	A	C 210	A	E A 240	C	B	A
25	A	A	A	A	B	B	C	A	A	315	265	B	240	250	215	215	C 250	B	B	B	B	B	B	A
26	A	A	A	A	B	B	A	310	300	230	240	225	H 200	205	210	205	F 225	A	A 250	B	250	B	A	A
27	A	A	A	A	A	A	A	R	B	A	F 240	230	225	220	250	B	B	B	A	B	B	B	B	A
28	A	A	A	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	A	A	A	A
29	B	A	A	B	A	B	A	B	B	B	B	B	B	B	B	B	B	B 300	B	A	A	A	A	A
30	A	A	B	B	B	B	B	B	B	B	B	B	230	220	H 230	B	B	B	B	B	A	A	A	A
31	A	A	B	C	A	A	A	A	A	310	B	B	B	B	B	B	B	B	B	B	B	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				1		1	1	1	2	9	12	12	14	16	16	13	8	5	3		2		1	
MED				290		360	310	310	325	300	250	228	225	205	210	215	215	270	235		245		C 230	
UQ										310	262	248	230	222	230	230	238	275	242					
LQ										275	240	220	210	205	205	205	198	210	222					

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JUL. 1976 | H'F (KM)

IONOSPHERIC DATA

JUL. 1976 | H'ES (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

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

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JUL. 1976 | H'ES (KM)

IONOSPHERIC DATA

JUL. 1976 | TYPES OF ES | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	RKA 12	R 2	R 1	R 1	R 2				R 1													RK 11	K 1	K 3
2	K 4	R 1	R 1	R 3	R 1	R 1		R 1	R 2	R 3	R 1											R 1		RK 11
3	R 3	RS 21	R 2	CK 11	F 4	HK 11	F 1	F 2	R 1		R 1												CK 11	RK 11
4	R 1	RKS 11	R 2	R 3	RA 41			R 1	R 1														R 6	
5	RS 11	R 3	K 3	CK 22	F 2	R 1	R 2	R 1	R 1														F 1	R 2
6	K 6	RS 31	RS 31	RS 31	RA 21	R 1	R 2	R 2	HK 11	R 2	C 1	C 1		C	C	C	RK 11	F 2						RA 11
7	R 1	K 5	K 4	K 4	RK 41	R 1		R 1	R 1	R 1		R 1						F 1					R 1	CK 11
8	R 1	R 6	CK 11	F 1	R 1	R 1	RK 11															R 4	KS 51	AR 11
9	R 3	R 3	R 2	R 1	R 1	R 2		R 1	R 1												R 1	HK 11	HK 11	R 1
10	R 2	R 2	R 2	R 3	R 2	KL 11	F 2						L 1					F 1						RK 11
11	R 3	R 4	R 3	RA 21		R 2	HK 13	CK 13	R 2															
12																								
13																								
14																								
15	RK 11	R 1	F 1	FA 11	F 2	RA 21	R 2	R 3	R 2	A 1	A 1	CA 11	C 1	C 1	C 1		F 1							
16			R 2	R 2	RA 11	RA 11	R 1	R 2	R 2	R 1												R 2	RS 61	RA 11
17	RA 11	AR 11	AR 11	R 3	R 2	R 1	R 2	R 1	RA 11	R 1	R 1					C 1	HK 11	HK 11	CK 31	F 4	F 1	F 1		RA 11
18	K 1	K 4	CK 11	K 3	K 5	K 1	R 1		R 1	R 1	H 1			C 1	R 1	R 1	RA 11	RK 11	HK 12	HK 11	AR 11	FA 11	KA 11	R 1
19	R 5	R 3	R 2	R 2	RA 11	R 2	R 2	R 2	R 2		L 1	R 1			H 1		L 1	RK 11	RK 11				R 1	RF 11
20	F 1	K 1	RF 11	K 1	RK 21	RA 11	R 1	R 3	R 1	R 1	R 1	R 1	H 1	H 1	L 1	H 1					F 1		R 1	F 1
21	RF 12	R 2	RR 12	RF 21	R 2	R 2	R 2	R 3	R 2	L 1	C 1	L 1	L 1	RL 11	RL 11	C 2	C 1	FA 11	F 1	F 1	R 1	F 1	RA 11	F 1
22	RA 11	FA 11	RA 11	R 1	RA 31	R 2	K 1	RK 21	K 1	R 2	LA 11	H 1	RR 11	C 1		CK 11		F 1	R 1	R 1	F 1	R 1	CK 11	CK 21
23	CK 11	CK 11	R 3	R 1	R 4	R 2	RF 21	R 2	RL 41	L 1	H 1	C 1		R 1	LA 11	R 1	RA 11	F 1	R 1	FA 11	A 1			F 1
24	R 1	RA 11	R 1	R 1	F 1	RKA 21	AHK 11	FA 11			R 1	LC 11	R 1	C 1	L 1	LR 12	CA 31	FA 11	R 1	F 1	R 1	F 1	A 1	R 1
25	RA 71	R 2	R 4	AR 14	RA 11	R 1	R 1	R 2	R 2	RA 11	CA 11				C 1	C 1								R 2
26	RA 41	R 2	R 3	R 2	RR 11		FR 11	RK 11	LA 11		LH 11	CL 11		C 1	C 2	R 1	L 2	RF 11	AR 11	F 1		FR 11	R 1	R 6
27	RA 41	R 3	R 2	R 3	R 5	R 4	LK 13	K 3		LA 11	CA 11	HA 11	CA 11	C 1					F 1			R 1	F 1	R 1
28	RA 31	RA 21	R 4	RA 41	R 1	F 1	R 2	R 2	R 4	RA 21										R 1	RR 11	RA 41	RS 41	R 3
29	R 2	RA 21	RA 41	R 2	RA 21	RA 11	R 2	R 1												FA 11	R 3	RA 11	RA 11	RS 51
30	R 4	R 3	R 2	R 1	R 1	F 1								C 1							HLK 11	HK 11	HK 11	KS 41
31	K 6	RK 23	R 1	F 1	R 2	R 3	R 3	R 2	LR 11	LRA 11											R 1	R 1	RA 11	CK 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																								

JUL. 1976 | TYPES OF ES

IONOSPHERIC DATA

AUG. 1976 | FXI (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	30	25	R	A	O R 43	43	X 46	52	64	51	31	O R 35	O R 29	A	B	O R 19	A	B
2	B	A	A	A	A	B	B	C	C	C	C	C	C	C	O R 43	O R 44	C	C	B	B	B	A	R	R
3	C	B	A	A	A	A	A	B	B	B	B	B	O R 48	48	O R 46	45	45	42	35	30	A	R	A	A
4	A	A	B	A	C	B	A	A	B	A	X 41	O R 48	45	O R 51	44	X 46	46	R	B	R	A	A	A	A
5	A	A	A	A	55	A	A	A	O R 26	33	42	45	X 56	48	52	44	41	R	B	A	B	B	A	A
6	A	A	A	A	A	A	B	A	O R 27	O R 34	O R 37	O R 42	O R 51	O R 49	R 49	X 46	43	30	B	O R 24	B	A	B	A
7	A	A	A	A	29	26	A	A	30	35	41	45	R 44	B	O R 52	O R 43	O R 41	B	B	B	B	B	B	A
8	B	A	A	A	B	A	A	R	A	B	X 43	X 45	O R 55	X 50	X 47	44	46	32	20	O R 18	R	R	B	A
9	28	A	A	A	A	A	28	X 28	27	54	113	B	O R 44	R	R	75	54	57	U C 45	A	A	A	A	A
10	A	A	A	A	A	A	B	B	B	B	X 40	X 44	O R 48	X 52	X 52	B	B	B	B	B	B	B	B	A
11	A	A	A	57	A	A	A	B	B	A	B	B	O R 56	X 56	O R 49	B	B	B	B	B	B	B	B	R
12	A	A	A	A	65	A	O R 30	O R 28	33	47	45	55	X 51	53	O R 50	O R 52	O R 43	O R 31	O R 35	O R 19	B	R	A	A
13	A	A	A	A	A	30	30	31	35	X 38	X 45	51	56	51	52	R	R	O R 34	31	25	O R 20	O R 18	C	B
14	A	35	28	33	32	44	50	50	O R 19	O R 34	O R 50	O R 44	50	58	O R 50	O R 59	X 68	B	B	R	A	A	A	B
15	C	C	A	A	A	A	A	A	31	38	43	51	48	53	54	65	53	O R 41	27	A	A	A	B	A
16	A	A	A	27	R	25	R	A	36	C 40	42	53	53	56	52	X 47	48	O R 44	R	29	A	A	A	A
17	A	A	A	B	A	A	A	23	28	X 36	X 42	X 44	X 44	46	54	47	X 57	A	35	27	17	13	16	A
18	R	A	R	O R 21	A	A	57	A	35	39	47	47	48	X 48	X 52	X 52	45	37	28	A	A	A	R	B
19	R	A	A	29	30	U S 30	29	A	R	B	46	O R 51	R	51	56	41	O R 47	O C 38	O R 28	O R 22	B	B	R	R
20	R	36	26	O R 36	A	A	A	A	A	X 38	X 44	53	52	53	55	41	X 43	40	31	27	22	A	A	A
21	R	R	A	29	36	35	30	31	31	37	35	B	52	55	B	B	O R 46	O R 36	O R 26	O R 23	R	R	A	A
22	A	A	A	A	A	Y	B	O R 30	33	X 36	X 42	X 46	X 48	X 52	X 48	O R 51	51	53	27	21	B	R	B	A
23	A	64	A	B	A	A	B	B	A	O R 38	O R 51	38	B	B	B	B	B	43	A	A	A	A	C	C
24	U A 76	A	A	B	A	72	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	R	A	A
25	A	A	B	A	A	A	B	B	A	B	B	B	B	B	B	B	R	O R 46	B	B	A	A	A	A
26	A	A	A	A	A	A	B	B	O R 33	B	B	B	B	B	B	B	B	B	B	B	B	A	A	O R 21
27	A	B	A	B	B	B	A	O R 24	X 31	X 37	X 42	X 42	R	X 50	B	B	B	B	B	36	R	A	A	A
28	B	A	B	B	U A 56	A	B	A	O R 32	O R 36	O R 39	X 42	B	B	B	B	R 51	O R 55	52	37	B	A	C	B
29	A	A	A	A	A	A	A	A	B	O R 44	X 45	X 49	B	B	O R 52	O R 50	O R 46	46	O R 36	B	B	O R 19	R	22
30	A	A	A	A	B	A	A	A	B	B	X 52	X 55	X 55	X 62	56	54	55	43	46	36	24	A	A	A
31	A	A	A	A	R	R	R	27	R 37	X 44	O R 47	O R 49	56	57	57	56	54	O R 43	37	35	33	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	2	3	2	7	7	7	8	10	17	19	25	23	22	22	23	21	22	20	17	15	5	4	1	2
MED	52	36	27	29	36	30	30	28	31	38	43	46	50	52	52	47	46	42	31	27	22	O R 18	16	22
UQ		50		34	56	40	40	31	33	40	46	51	55	55	54	52	53	45	36	32	24	O R 19		
LQ		36		28	31	28	30	25	28	36	42	44	48	50	B 49	46	43	O 36	28	O R 22	20	16		

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AUG. 1976 | FXI (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1976 | FOF2 (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3h)

Station SYOWA STATION Lat. 69° 00'.4 S, Long. 39° 35'.4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	F 24	F	A	A	U F 32	F 37	J R 40	U F 42	U R 40	J F 44	F	F	F	B	B	F	A	B
2	B	A	B	A	A	B	B	C	C	C	C	C	C	C	37	F 35	C	C	B	B	B	A	A	A
3	C	B	A	A	A	A	A	B	B	B	B	B	F 41	F 42	F 38	J F 39	F 37	J F 30	J F 27	F 20	B	A	A	A
4	A	B	B	A	C	B	A	A	B	A	35	42	F 40	F 43	F 37	40	F 38	R	B	A	A	A	A	A
5	A	A	A	A	F	A	A	A	U F 17	F 27	J F 35	J F 39	50	F	J F 45	J F 37	J F 34	R	B	A	B	B	A	A
6	A	A	A	A	A	A	B	A	U R 21	F 28	F 31	F 36	45	U H 40	43	40	J F 32	F 22	B	F 15	B	A	B	B
7	A	A	A	A	F	F	A	A	F 23	F 28	F 35	J F 39	37	B	U R 46	F 33	35	B	B	B	B	B	B	A
8	B	A	A	A	B	A	A	A	A	B	37	39	U H 49	44	40	F 38	F 40	F 26	F	12	R	R	B	A
9	F	A	A	A	A	A	F	21	F 20	F 25	Y	B	U F 38	R	R	F	F	F	F	A	B	A	A	A
10	A	A	A	A	A	A	B	B	B	B	F 33	38	U H 42	46	U H 46	B	B	B	B	B	B	B	B	A
11	A	A	A	B	A	A	A	B	B	A	B	B	F 47	F 49	U R 43	B	B	B	B	B	B	B	B	A
12	A	A	A	A	R	A	24	F	F 26	J F 34	F 36	J F 49	44	F 47	F 44	46	F 36	25	F 28	U F 12	B	R	A	A
13	A	A	A	A	A	F 22	F 22	U F 18	F 20	31	R 39	F 45	J F 50	F 41	U F 46	R	R	F 24	F 24	F 19	U F 13	F 12	C	B
14	A	F	C	F	F 26	Y	Y	A	13	27	F 43	F 36	F	F	44	53	62	B	B	R	A	A	A	B
15	C	C	A	A	A	A	A	C	F 22	J F 32	F 36	F 44	J F 42	J F 47	F 41	J F 44	F	F 32	F	A	A	B	B	A
16	A	A	A	F	A	F	R	A	F	J F 34	F 36	J F 46	F 46	F 50	F 46	41	F 41	37	R	F 23	A	A	A	A
17	A	A	A	B	A	A	A	F 16	F 22	F 30	36	37	37	F 38	F 46	F	J R 51	A	J F 25	F 20	F	F	F	A
18	A	A	A	F	A	A	F	A	F 21	F	F	F 41	J F 41	42	46	46	F	J F 26	F 22	A	A	R	R	B
19	A	A	A	F	F	F	F	A	A	B	F	45	R	U F 45	F 48	F 41	F 41	F 32	F 18	16	B	B	R	R
20	R	F	F	F	A	A	A	A	A	32	38	U F 46	J F 45	J F 46	J F 49	F	37	J F 31	U F 24	F 20	F 15	A	A	A
21	R	R	A	F	R	J F 29	F	F	F 25	F	U F 26	B	F	F	B	B	40	F 30	F 19	17	A	A	A	A
22	A	A	A	C	A	Y	B	F	F 26	31	36	40	42	V 46	U V 42	F 45	F	F	F	F	B	A	B	A
23	A	A	A	B	A	B	B	B	C	F 31	F 40	F	B	B	B	B	B	F	A	A	A	A	C	C
24	F	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A
25	B	A	B	A	A	A	B	B	A	B	B	B	B	B	B	B	R	40	B	B	A	A	A	A
26	A	A	A	A	B	B	B	B	27	B	B	B	B	B	B	B	B	B	B	B	B	A	A	F
27	A	B	B	B	B	B	A	U C 18	25	31	36	36	R	44	B	B	B	B	B	F	R	A	A	A
28	B	A	B	B	B	B	B	A	26	30	33	36	B	B	B	B	U R 45	U R 49	J F 39	J F 30	B	A	C	B
29	A	A	A	A	A	A	A	B	B	38	39	43	B	B	46	F 42	40	U F 40	30	B	B	F 12	A	F
30	A	A	A	A	B	A	A	A	B	B	F 45	49	48	56	F	J F 47	U F 44	F 35	F	J F 28	F	A	A	A
31	A	A	A	A	A	R	A	F 21	31	38	41	43	F 48	F 50	U F 50	U F 49	J F 47	F 35	J F 30	F	F 26	A	A	A

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	2	3	5	16	17	22	22	20	19	22	18	17	16	11	12	3	2		
MED					F 26	F 26	F 24	F 18	F 22	F 31	F 36	40	43	F 45	44	F 42	F 40	F 32	F 25	F 20	F 15	F 12		
UQ							24	F 21	26	32	F 39	F 45	48	F 47	F 46	F 46	F 44	F 36	J F 29	F 22	F 20			
LQ							23	U F 18	F 20	F 28	F 35	37	40	F 42	41	F 39	F 37	F 26	F 23	16	F 14			

The Radio Research Laboratories, Japan

AUG. 1976 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1976 | FOF1 (0.01 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4													L											
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14															L									
15																								
16														L										
17																								
18											L													
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27														350										
28																								
29												L												
30														L										
31														L		L								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT														1										
MED														350										
UQ																								
LQ																								

The Radio Research Laboratories, Japan

AUG. 1976 | FOF1 (0.01 MHZ)

IONOSPHERIC DATA

AUG. 1976 | FOE (0.01 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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	UK 160	A	K 310	K 325			UK 180		B	A	B	A	B	B	B	A	A							
2									C	C	C	C	C	C	B	B	C							
3								B	B	B	B	B	B	B	B	130	B	C		UK 80			UK 120	
4								B	B	B	A	A	175	155	B	A 120	B	B						UK 120
5					UK 360			C	A	125	A	A	UA 150	A	A	A	A	B						
6		125 K	UK 290	UK 120				B	A	B	UK 270	B	B	B	B	C 160	A	A						
7			UK 120					A	A	120	A	A	B	B	B	B	B	B						
8	K 320	K 210	UK 370					K 235	JK 300	B	C	225	UC 185	170	180	140	130	A				K 100		
9	K 170	K 210	JK 300			UK 300	UK 220	120	130	A	Y	B	B	B	B	UA 165	B	K 165					JK 320	UK 150
10	K 160	K 340			UK 360			B	B	B	B	A	A 220	170	UR 160	B	B	B						
11	K 300		UK 320					B	B	B	B	B	B	B	B	B	B	B						UK 125
12	K 125	K 150	UK 100	UK 125	UK 125	K 220	UK 160	A	F	A	UR 170	170	UA 170	A	B	B	B	B				K 95	K 320	K 330
13						K 120	UK 120	A	A	125	130	F 170	A	170	C	B	B	B						
14	UK 260	UK 180		UK 160	UK 200	K 125		B	A	B	B	B	UC 190	200	B	B	B	B				K 320		
15					UK 180			C	A	A	A	A	A	UC 180	A	F 160	B	B						
16		JK 270	UK 250	UK 125	JK 160	JK 140	K 180	B	A	A	C	A	UC 200	A	UC 190	C 170	150	B	K 360	UK 145				
17								C	H 130	H 160	175	170	170	H 180	170	A	A	A	UR 110				UK 80	
18			K 180					B	A	A	A	180	170	180	A 180	A	A	A				UK 100	K 130	
19	UK 140						C	A	A	B	UR 215	B	B	UC 180	B	A	A	A	A				UK 150	K 180
20	K 200	JK 260		UK 200			B	A	A	A	UA 190	A 230	C	200	C 180	F 160	A	A	A					
21	K 190	UK 220		K 100	UK 110	A	C	C	A	A	A	B	A	A	B	B	B	B	B			UK 170		
22							B	UK 175	160	A	UA 160	A	A	220	H 180	C	UC 160	B	B			UK 160	UK 115	K 130
23							B	B	B	A	205	A	B	B	B	B	B	B	A					
24							B	B	B	B	B	B	B	B	B	B	B	B	B					K 355
25							B	B	B	B	B	B	B	B	B	B	B	B	B				K 360	
26	K 400	K 380	K 370				B	B	C	B	B	B	B	B	B	B	B	B	B			K 210		UK 190
27	K 330						B	150	130	150	175	UC 180	B	C 200	B	B	B	B	B				UK 160	
28							B	B	A	H 200	H 215	220	B	B	B	B	B	B	UK 220	A		K 360		
29	K 320	K 325	K 330	K 350	K 280	K 300	K 370	B	B	B	A	220	B	B	B	B	B	B	B					
30	UK 300	JK 320	K 300	K 360			B	B	B	B	190	200	220	A 220	A	A	B	UA 165	A	UA 110	UK 100	K 120	UK 175	K 270
31	JK 310						C	A	A	B	B	B	215	225	A 210	200	F 170	R 140	B				K 360	K 320
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	12	12	9	8	6	6	4	5	6	11	10	11	14	8	9	4	3	3	3	1	9	11	10
MED	K 260	K 240	K 300	UK 160	UK 190	K 180	UK 180	162	130	138	190	190	185	180	180	160	155	165	UK 220	UK 110	UK 100	K 160	UK 160	K 185
UQ	K 315	K 322	K 325	K 325	UK 320	K 300	UK 220	K 205	160	H 160	210	220	208	200	185	165	165	165	K 290	U 128		K 210	K 320	K 320
LQ	K 165	K 195	UK 215	UK 125	UK 142	K 125	UK 160	135	130	125	172	170	170	170	175	140	140	152	U 165	U 95		K 100	UK 125	UK 130

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IONOSPHERIC DATA

AUG. 1976 | FOES (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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	27	J A 47	33	K 32	J A 44	J A 36	J A 77	J A 25	25	37	28	32	E B 23	E B 20	E B 27	J A 29	35	22	21	50	B	J A 30	J A 40	40
2	28	J A 40	42	46	43	46	B	C	C	C	C	C	C	C	E B 27	E B 20	C	C	B	B	B	J A 25	16	16
3	C	B	J A 26	J A 37	J A 42	36	42	B	B	B	B	B	E B 23	E B 21	E B 20	23	J A 18	19	J A 27	J A 20	27	19	J A 36	J A 31
4	J A 41	J A 44	36	J A 49	C	B	37	34	B	J A 32	22	22	23	22	20	22	J A 25	E B 26	B	25	J A 24	J A 24	J A 24	J A 19
5	J A 29	52	32	37	39	43	J A 46	J A 32	J A 34	16	20	24	J A 23	30	25	J A 26	J A 20	E B 22	B	J A 30	B	B	22	J A 21
6	J A 26	J A 51	42	36	J A 41	56	B	J A 35	J A 31	J A 25	28	E B 29	E B 24	E B 21	E B 20	21	22	15	B	J A 31	B	J A 22	B	25
7	J A 26	20	36	J A 99	J A 25	J A 30	J A 33	J A 34	J A 27	18	20	24	29	B	E B 28	20	E B 22	B	B	B	B	B	B	24
8	K 32	J A 94	K 37	J A 39	42	42	J A 30	K 23	J K 30	B	G	31	26	20	G	G	19	J A 24	13	E B 10	E C 10	K 10	26	J A 22
9	J A 24	26	J K 30	J A 46	J A 60	J A 60	K 22	J A 25	G	15	Y	B	E B 25	E B 36	E B 43	J A 20	E B 21	J A 24	37	J A 29	32	J A 27	K 32	J A 34
10	23	K 34	J A 64	53	K 36	J A 78	B	49	B	B	22	24	26	23	G 15	B	B	B	B	B	B	B	B	26
11	K 30	J A 38	42	44	J A 59	J A 46	J A 39	B	B	37	B	B	E B 22	E B 23	E B 30	B	B	B	B	B	B	B	B	18
12	26	25	J A 37	15	20	30	J A 44	J A 30	30	30	21	23	25	19	22	E B 30	E B 20	E B 19	E B 15	32	B	13	K 32	K 33
13	43	36	J A 53	J A 62	J A 31	16	J A 24	15	23	18	19	G	22	26	22	E B 25	E B 23	E B 15	E B 10	12	E B 10	E B 10	C	B
14	J A 36	J A 24	30	24	J A 30	K 12	Y	20	16	E B 20	21	E B 19	22	G	E B 23	E B 21	20	B	B	24	35	K 32	D C 25	B
15	C	C	41	J A 36	24	J A 37	J A 24	D C 25	114	J A 24	J A 39	J A 26	30	20	30	21	E B 13	E B 13	32	31	J A 24	B	B	22
16	J A 26	J K 27	J A 30	J A 36	22	19	K 18	J A 40	J A 40	J A 24	G	26	J A 25	36	G	G	G	E C 20	37	J A 24	J A 24	J A 30	25	J A 29
17	J A 26	57	J A 34	50	J A 51	J A 52	J A 33	22	G	G	G	G 16	G	25	27	22	19	J A 22	16	16	18	20	19	J A 20
18	13	J A 29	25	J A 25	J A 24	J A 40	J A 24	50	J A 31	30	24	22	G	25	24	22	J A 50	44	J A 28	J A 30	36	14	K 13	B
19	K 14	J A 25	J A 41	J A 34	J A 78	31	32	J A 44	J A 26	B	26	E B 30	E B 33	21	30	J A 47	30	20	17	15	B	B	K 15	K 18
20	K 20	J K 26	33	J A 46	J A 46	J A 49	42	J A 40	34	23	24	35	31	30	27	22	31	23	22	15	J A 18	J A 26	J A 24	J A 24
21	K 19	K 22	J A 30	J A 29	21	14	J A 24	J A 25	J A 29	J A 26	28	B	25	30	B	B	E B 22	E B 19	25	E B 14	17	25	J A 34	23
22	J A 20	59	46	J A 39	J A 44	76	B	27	G	19	21	26	26	J A 26	G	E C 20	G	25	16	J A 20	B	K 16	16	21
23	J A 19	J A 29	J A 35	67	42	46	B	B	42	23	G	32	B	B	B	B	B	31	J A 50	J A 46	J A 47	J A 44	C	C
24	J A 29	36	J A 46	B	57	J A 39	31	B	B	B	B	B	B	B	B	B	B	B	B	J A 41	B	23	J A 39	K 35
25	39	J A 32	42	45	J A 46	37	B	B	42	B	B	B	B	B	B	B	E B 31	E B 25	B	B	J A 43	J A 39	K 36	40
26	K 40	K 38	K 37	J A 48	52	J A 68	B	B	27	B	B	B	B	B	B	B	B	B	B	B	B	38	J A 40	J A 30
27	K 33	47	42	J A 47	B	45	J A 30	G	G	G	21	26	E B 23	G	B	B	B	B	B	E B 20	21	42	J A 33	J A 36
28	26	30	91	B	J A 76	64	B	J A 40	25	G	G	G	B	B	B	B	E B 31	E B 34	35	20	B	K 36	44	37
29	K 32	K 32	K 33	K 35	K 28	K 30	K 37	34	B	40	28	G	B	B	E B 30	E B 20	E B 30	E B 13	E B 23	B	B	J A 21	12	16
30	32	J K 32	K 30	K 36	B	J A 37	J A 76	43	B	B	G	25	24	26	16	22	24	26	15	J A 39	J A 19	J A 36	30	K 27
31	J K 31	J A 52	J A 39	26	17	14	20	J A 25	18	E B 20	E B 22	G	G	G	24	G	G	G	E B 19	E B 20	J A 25	J A 39	K 36	K 32
	00	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	31	29	28	30	22	24	23	22	24	23	24	23	24	22	24	23	19	24	17	25	24	27
MED	27	J 34	37	J A 39	J A 42	40	J A 32	32	27	23	21	24	23	22	U 20	21	U 20	U 18	22	24	24	25	30	25
UQ	32	47	42	J A 47	J A 48	49	J A 42	J A 40	J 32	30	25	27	26	26	U 26	22	U 26	24	30	J A 31	J A 32	J A 36	36	32
LQ	24	J 27	32	35	26	30	J A 24	25	20	16	E G 19	20	E G 22	E G 20	U 18	E G 20	E G 19	E E 19	16	16	18	20	20	21

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AUG. 1976 | FOES (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1976 | F-MIN (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	10	6	E C 10	E C 10	10	12	7	E C 10	13	12	16	12	23	20	27	10	12	12	13	20	B	9	6	26
2	27	14	16	13	15	25	B	C	C	C	C	C	C	C	27	20	C	C	B	B	B	11	10	E C 9
3	C	B	9	13	10	12	12	B	B	B	B	B	23	21	20	10	11	E C 10	E C 10	6	23	E C 10	11	6
4	12	15	21	12	C	B	14	10	B	15	13	15	16	15	15	10	14	26	B	15	12	12	13	12
5	10	10	10	E C 10	12	10	E C 10	E C 10	E C 10	E C 10	10	12	11	12	E C 10	E C 10	10	22	B	6	B	B	6	E C 9
6	9	6	9	12	14	13	B	13	10	16	12	29	24	21	20	15	11	E C 10	B	10	B	E C 13	B	17
7	10	10	12	10	9	10	10	E C 10	E C 10	9	12	14	19	B	28	16	22	B	B	B	B	B	B	10
8	22	11	11	16	35	19	10	10	9	B	16	15	17	15	16	11	9	9	E C 10	10	E C 10	9	18	10
9	6	E C 8	9	11	12	11	10	E C 10	9	8	Y	B	25	36	43	13	21	12	11	10	17	13	E C 10	7
10	9	9	15	17	12	15	B	32	B	B	17	15	18	16	14	B	B	B	B	B	B	B	B	E C 10
11	6	11	16	26	17	20	C 19	B	B	20	B	B	22	C 23	30	B	B	B	B	B	B	B	B	12
12	12	11	10	9	10	10	12	7	E C 10	E C 13	15	15	14	15	20	30	20	19	15	10	B	8	6	8
13	9	11	14	10	7	F C 10	E C 10	6	6	E C 10	12	15	12	13	E C 20	25	23	15	10	E C 10	10	10	C	B
14	14	15	E C 27	E C 10	12	E C 10	Y	10	9	20	16	19	17	16	23	21	15	B	B	21	21	20	18	B
15	C	C	9	8	E C 10	7	E C 10	E C 20	8	E C 10	E C 10	10	11	15	15	15	13	13	15	12	14	B	B	10
16	E C 10	8	9	9	7	7	E C 10	13	9	10	15	14	14	15	15	15	12	20	25	E C 11	7	E C 10	E C 9	10
17	8	13	8	24	13	E C 10	10	E C 10	E C 10	E C 10	11	10	13	12	12	10	E C 12	8	9	6	E C 9	8	7	E C 9
18	8	E C 8	E C 9	6	6	E C 10	E C 10	13	9	10	13	12	12	11	12	11	10	6	10	10	E C 10	7	11	B
19	9	9	12	8	E C 10	6	E C 10	E C 10	13	B	20	30	33	17	18	12	11	15	10	12	B	B	9	9
20	8	10	10	12	E C 20	12	14	12	12	E C 10	13	20	E C 20	13	12	12	E C 10	E C 10	E C 10	E C 10	E C 10	7	9	10
21	10	9	10	E C 9	9	6	E C 10	E C 10	E C 10	11	12	B	E C 20	15	B	B	22	C 19	14	14	13	10	9	9
22	8	13	13	E C 20	16	60	B	10	11	10	12	13	E C 20	13	12	E C 20	16	16	13	9	B	10	10	E C 10
23	8	9	12	44	18	22	B	B	20	18	17	18	B	B	B	B	B	20	11	12	10	13	C	C
24	9	E C 10	8	B	20	13	12	B	B	B	B	B	B	B	B	B	B	B	B	E C 10	B	9	E C 10	9
25	18	9	21	15	19	17	B	B	15	B	B	B	B	B	B	B	31	25	B	B	E C 10	9	10	13
26	E C 10	14	13	12	23	21	B	B	E C 20	B	B	B	B	B	B	B	B	B	B	B	B	E C 10	E C 10	E C 10
27	E C 10	25	17	25	B	30	12	12	12	12	17	17	23	15	B	B	B	B	B	20	16	8	6	9
28	22	10	30	B	25	21	B	14	14	15	16	20	B	B	B	B	31	34	10	E C 10	B	E C 10	E C 20	20
29	E C 10	8	8	10	12	14	11	20	B	20	20	17	B	B	30	20	30	13	23	B	B	E C 10	E C 10	7
30	6	E C 10	9	16	B	12	16	16	B	B	16	15	15	15	12	13	15	13	10	E C 10	10	E C 10	6	8
31	7	16	13	17	10	11	E C 10	9	12	20	22	22	20	20	15	15	15	13	19	20	7	8	11	E C 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	29	30	31	31	30	31	30	30	30	30	29	30	30	30	31	31	30	30	31	31	31	31	29	30
MED	10	10	10	12	12	12	12	12	12	15	16	17	20	16	20	16	16	18	15	12	21	10	10	10
UQ	10	13	14	16	18	20	B	20	20	B	20	30	25	36	36	B	31	34	B	20	B	13	U 16	12
LQ	8	8	9	10	10	10	E C 10	10	10	10	12	14	14	15	14	12	12	12	10	U 8	10	8	8	8

AUG. 1976 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

AUG. 1976 | M(3000)F2 (0.01) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	F 275	F	A	A	U F 350	F 340	J R 340	U F 355	U R 320	F	F	F	F	B	B	F	A	B
2	B	A	B	A	A	B	B	C	C	C	C	C	C	C	340	F 330	C	C	B	B	B	A	A	A
3	C	B	A	A	A	A	A	B	B	B	B	B	F 365	F 360	F 340	J F 365	F 365	J F 325	J F 315	F 300	B	A	A	A
4	A	B	B	A	C	B	A	A	B	A	330	350	F 330	F 340	F 350	340	F 330	R	B	A	A	A	A	A
5	A	A	A	A	F	A	A	A	U F 295	F 320	F	J F 345	360	F	F	J F 360	F	R	B	A	B	B	A	A
6	A	A	A	A	A	A	B	A	A	F 305	F 340	F 320	350	U H 330	330	380	J F 350	F 345	B	F 335	B	A	B	B
7	A	A	A	A	F	F	A	A	F 290	F 320	F 330	J F 335	390	B	U R 345	F 365	345	R	B	B	B	B	B	A
8	B	A	A	A	B	A	A	A	A	B	340	365	U H 345	360	370	F 370	F 350	F 345	F	335	R	R	B	A
9	F	A	A	A	A	A	F	320	F 300	F 320	Y	B	U F 350	R	R	F	F	F	F	A	B	A	A	A
10	A	A	A	A	A	A	B	B	B	B	F 360	360	U H 320	340	U H 335	B	B	B	B	B	B	B	B	A
11	A	A	A	B	A	A	A	B	B	A	B	B	F 360	F 360	U R 325	B	B	B	B	B	B	B	B	A
12	A	A	A	A	R	A	290	F	F 320	F	F 360	F	385	F 365	F 365	335	F 370	320	F 365	U F 350	B	R	A	A
13	A	A	A	A	A	F 300	F 300	F	F 300	355	R 360	F 335	R	F 365	U F 365	R	R	F 335	F 335	F 340	F	B	C	B
14	A	F	C	F	F 270	Y	Y	A	285	295	F 350	F 315	F	F	300	335	325	B	B	R	A	A	A	B
15	C	C	A	A	A	A	A	C	F 295	J F 330	F 335	F 340	J F 360	F	F 340	J F 340	F	F 340	F	A	A	B	B	A
16	A	A	A	F	A	F	R	A	F	F	F 350	F	F 350	F 350	F 370	340	F 340	305	R	F 325	A	A	A	A
17	A	A	A	B	A	A	A	F 305	F 310	F 330	345	350	370	F 355	F 355	F	R	A	F	F 335	F	F	F	A
18	A	A	A	F	A	A	F	A	F 310	F	F	F 360	J F 360	390	370	370	F	F	F 335	A	A	R	R	B
19	A	A	A	F	F	F	F	A	A	B	F	350	R	F	F 360	F 355	F 345	F 365	F 320	A	B	B	R	R
20	R	F	F	F	A	A	A	A	A	320	325	F	F	F	F	F	380	F	U F 340	F 345	F 335	A	A	A
21	R	R	A	F	R	F	F	F	F 320	F	F	B	F	F	B	B	375	F 355	F 305	330	A	A	A	A
22	A	A	A	C	A	Y	B	F	F 340	340	345	340	345	V 370	U V 330	F 330	F	F	F	F	B	A	B	A
23	A	A	A	B	A	B	B	B	C	F 325	F 330	F	B	B	B	B	B	F	A	A	A	A	C	C
24	F	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A
25	B	A	B	A	A	A	B	B	A	B	B	B	B	B	B	B	R	325	B	B	A	A	A	A
26	A	A	A	A	R	B	B	B	320	B	B	B	B	B	B	B	B	B	B	B	B	A	A	F
27	A	B	B	B	B	B	A	C	330	325	305	330	R	305	B	B	B	B	B	F	R	A	A	A
28	B	A	B	B	B	B	B	A	310	345	350	320	R	B	B	B	R	U R 325	J F 335	F	B	A	C	B
29	A	A	A	A	A	A	A	B	B	315	335	330	B	B	370	F 355	350	F	325	B	B	F 335	A	F
30	A	A	A	A	B	A	A	A	B	B	F 350	345	355	340	F	F	U E 365	F 350	F	F	F	A	A	A
31	A	A	A	A	A	R	A	F 310	325	330	355	370	F 350	F 340	F	F	F	F 335	F	F	F 310	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	1	3	3	15	15	20	19	18	16	19	15	13	13	9	9	2	1		
MED					F 270	F 300	F 290	F 310	F 310	325	345	340	352	F 355	345	F 355	F 350	F 335	F 335	F 335	F 322	F 335		
UQ							295	315	F 320	330	F 350	350	360	362	F 365	F 365	F 365	F 345	F 335	F 340				
LQ							282	F 308	F 298	320	332	F 332	345	340	332	338	F 345	325	F 320	F 330				

The Radio Research Laboratories, Japan

AUG. 1976 | M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 1976 | H'F2 (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4													L											
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								
13																								
14															L									
15																								
16														240										
17																								
18											225													
19																								
20																								
21																								
22																								
23																								
24																								
25																								
26																								
27														325										
28																								
29												L												
30														L										
31														230		L								

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT											1			3										
MED											225			240										
UQ														282										
LQ														235										

AUG. 1976 | H'F2 (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1976 | H'F (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	400	U F 350	A	A	245	240	220	220	B	205	A	255	A	B	B	A	A	B
2	B	B	B	B	B	B	B	C	C	C	C	C	C	C	B 250	225	C	C	B	B	B	A	A	A
3	C	B	A	A	A	A	A	B	B	B	B	B	220	225	220	215	200	245	205	290	B	A	A	A
4	A	B	B	A	C	B	A	A	B	A	245	240	200	210	205	210	210	B	B	A	A	A	B	A
5	A	A	A	A	F	A	A	A	A 320	250	230	240	215	205	205	215	215	230	B	A	B	B	A	A
6	A	A	A	A	A	A	B	A	A	280	280	E B 275	240	200	225	195	225	H 210	B	E A 240	B	A	B	B
7	A	A	A	A	A	A	A	A	300	250	225	225	205	B	240	205	205	B	B	B	B	B	B	A
8	B	A	A	A	B	B	A	A	A	B	245	205	210	210	210	200	220	195	F 290	B	C	R	B	A
9	380	A	A	A	A	A	F	300	340	255	Y	B	250	B	B	225	290	255	U A 220	A	B	A	A	A
10	A	A	B	B	A	A	R	B	B	R	235	235	230	250	225	B	B	B	B	B	B	B	B	A
11	A	A	A	B	B	B	B	B	B	A	B	B	240	225	B 250	B	B	B	B	B	B	B	B	A
12	A	A	A	A	A	A	A	A	245	225	200	225	200	205	210	B 230	200	B 255	210	A	B	A	A	A
13	A	A	B	A	A	330	295	U F 300	295	225	230	205	210	200	200	205	210	B 225	215	230	B	B	C	B
14	A	290	C	370	425	Y	Y	A	A	E B 285	225	240	210	225	235	220	250	B	B	B	C	A	B	B
15	C	C	A	A	A	A	A	C	265	225	240	200	H 195	210	205	230	H 180	H 210	A	A	A	B	B	A
16	A	A	A	A	A	A	A	A	300	200	220	230	225	230	200	210	225	B 255	A	255	A	A	A	A
17	A	B	A	B	B	A	A	330	275	225	230	H 190	205	210	225	H 190	200	A	255	220	C	A	A	A
18	A	A	A	A	A	A	A	A	275	240	210	220	200	200	220	210	200	A	240	A	A	A	R	B
19	A	A	A	A	A	A	A	A	A	B	230	230	240	220	220	A 220	200	230	255	A	B	B	R	R
20	R	F	A	U F 340	C	A	A	A	A	260	245	245	215	210	205	H 200	200	210	H 195	210	C 230	A	A	A
21	R	R	A	A	310	U H 325	A	F	245	200	225	B	H 200	230	B	B	220	225	E B 270	E B 260	B	A	A	A
22	A	A	A	C	A	Y	B	325	255	230	225	240	H 205	205	205	220	220	215	F	A	B	A	B	A
23	A	A	A	B	B	B	B	B	A	240	240	A	B	B	B	B	B	U F 420	A	A	A	A	C	C
24	A	A	A	B	B	A	A	B	B	B	B	B	B	B	B	B	B	R	B	A	B	A	A	A
25	B	A	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B 220	240	B	B	A	A	A	A
26	A	A	A	A	B	B	B	B	A	B	B	B	B	B	B	B	B	R	B	B	B	A	A	U A 280
27	A	B	B	B	B	B	A	C	255	255	255	225	U H 210	225	B	B	B	B	B	255	R	A	A	A
28	B	A	B	B	B	B	B	A	E A 310	245	245	H 240	B	B	B	B	B 225	E B 250	245	260	B	A	C	B
29	A	A	A	A	A	A	A	B	B	A	250	240	B	B	225	215	225	200	E B 270	B	B	C	C	A
30	A	A	A	A	B	A	A	A	B	B	230	210	205	225	200	220	215	220	225	225	210	A	A	A
31	A	B	A	B	A	A	A	255	200	225	225	225	230	220	205	220	225	220	260	250	A	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	1		2	2	2	2	6	14	18	24	22	24	22	22	22	23	20	14	11	2			1
MED	380	290		355	368	328	348	312	272	238	230	229	210	215	215	215	215	226	232	240	220			U A 280
UQ								330	300	252	245	240	228	225	225	220	225	252	258	256				
LQ								300	255	225	225	220	205	205	205	205	200	212	215	225				

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AUG. 1976 | H'F (KM)

IONOSPHERIC DATA

AUG. 1976 | 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 1 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 125	K 120	K 100	K 100	100	100	K 105	110	140	100	125	120	B	B	B	100	150	100	100	100	B	125	100	130
2	100	100	100	105	100	100	B	C	C	C	C	C	C	C	B	B	C	C	B	B	B	100	100	100
3	C	B	100	100	100	100	115	B	B	B	B	B	B	B	B	125	140	110	100	K 95	120	145	K 140	100
4	105	100	100	100	C	B	95	100	B	100	100	110	150	130	125	110	110	B	B	150	105	100	95	K 140
5	115	110	110	105	K 100	90	90	95	100	145	110	100	100	100	130	95	90	B	B	100	B	B	130	130
6	110	K 115	K 105	K 110	110	110	B	100	100	125	K 120	B	B	B	B	135	120	105	B	90	B	100	B	135
7	140	170	K 120	110	100	100	105	100	90	140	130	120	140	B	B	100	B	B	B	B	B	B	B	130
8	K 130	K 120	K 110	115	105	100	100	K 105	K 95	B	G	125	105	110	G	G	130	100	115	B	C	K 145	185	120
9	K 115	K 135	K 105	105	100	K 105	K 120	90	G	105	Y	B	B	B	B	100	B	K 120	100	105	110	105	K 105	K 105
10	K 110	K 100	105	100	K 100	100	B	100	B	B	120	105	125	150	105	B	B	B	B	B	B	B	B	135
11	K 100	100	K 150	150	110	95	95	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	K 150
12	K 130	K 120	K 105	K 100	K 100	K 150	K 100	100	95	150	150	140	125	90	130	B	B	B	B	140	B	K 155	K 100	K 100
13	100	105	100	100	105	K 120	K 110	115	90	150	140	G	100	130	140	B	B	B	B	120	B	B	C	B
14	K 155	K 100	180	K 130	K 120	K 125	Y	135	120	B	100	B	150	G	B	B	155	B	B	100	125	K 115	125	B
15	C	C	145	175	K 120	100	100	105	110	100	100	90	90	100	110	140	B	B	100	100	110	B	B	125
16	105	K 100	K 105	K 130	K 125	K 115	K 105	100	170	110	G	130	130	125	G	G	G	C	K 110	K 140	140	110	115	100
17	100	120	100	100	100	95	100	120	G	G	G	95	G	150	130	130	140	155	145	140	140	140	K 130	130
18	105	105	K 115	100	100	105	115	100	105	110	170	150	G	140	125	120	105	105	110	105	100	K 120	K 155	B
19	K 140	100	110	105	110	100	100	120	100	B	110	B	B	105	100	100	100	100	95	100	B	B	K 150	K 145
20	K 125	K 115	115	K 100	100	100	100	100	100	100	125	105	125	120	150	145	105	110	110	105	100	105	105	120
21	K 150	K 125	115	K 120	K 105	K 130	90	110	150	105	130	B	105	100	B	B	B	B	95	B	115	K 150	100	100
22	100	105	105	100	100	180	B	K 100	G	110	110	105	110	100	G	C	G	105	140	95	B	K 140	K 160	K 150
23	115	105	110	130	105	100	B	B	100	110	G	100	B	B	B	B	B	120	100	105	105	100	C	C
24	125	100	100	B	95	110	100	B	B	B	B	B	B	B	B	B	B	B	B	100	B	100	100	K 100
25	115	100	100	110	120	100	B	B	100	B	B	B	B	B	B	B	B	B	B	B	100	100	K 100	105
26	K 100	K 105	K 115	150	105	100	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	K 100	100	K 135
27	K 105	100	110	120	B	105	100	G	G	G	135	120	B	G	B	B	B	B	B	B	130	100	K 100	100
28	110	100	150	B	105	100	B	100	100	G	G	G	B	B	B	B	B	B	K 110	120	B	K 105	100	105
29	K 100	K 100	K 100	K 105	K 105	K 110	K 100	100	B	100	105	G	B	B	B	B	B	B	B	B	B	130	100	100
30	K 100	K 100	K 105	K 105	B	90	95	100	B	B	G	145	140	120	140	130	120	115	125	120	K 130	K 125	K 105	K 105
31	K 105	105	100	110	120	120	105	95	100	B	B	G	G	G	140	G	G	G	B	B	130	105	K 105	K 105
	00	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	31	29	28	30	22	23	19	17	17	16	14	15	12	13	12	12	15	20	15	24	24	27
MED	K 110	105	105	105	105	100	100	100	100	110	120	115	125	120	130	120	120	108	110	105	115	108	105	120
UQ	K 125	K 115	115	120	110	110	105	108	108	125	130	128	140	130	140	130	140	118	112	120	130	K 135	K 130	132
LQ	100	100	100	100	100	100	100	100	100	100	110	102	105	100	118	100	105	102	100	100	105	100	100	100

AUG. 1976 | H'ES (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

AUG. 1976 | TYPES OF ES | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	CK 21	RK 31	CK 41	K 4	R 2	RA 41	LRK 12	R 2	RL 11	L 1	C 1	CL 11				L 1	HL 11	F 1	F 1	F 1		AF 11	RS 61	RS 11
2	R 1	R 2	R 2	R 3	RA 11	RR 11																FF 11	F 1	F 2
3			R 3	R 2	R 3	R 2	R 3									H 1	H 1	C 1	FF 11	LK 11	R 1	F 1	HAK 11	R 4
4	R 3	R 1	F 1	R 2			R 1	R 2		R 1	L 1	C 1	H 1	C 1	C 1	C 1	C 1			F 1	F 1	F 1	F 1	HK 11
5	F 4	F 3	R 3	R 4	RAK 11	RA 11	RA 11	R 3	R 2	HA 11	C 1	C 1	LH 11	LH 11	RL 11	L 2	L 1			RA 11			RA 11	R 1
6	R 1	CAK 21	RLK 51	RAK 11	R 3	RA 21		R 1	R 2	R 1	KL 11					H 1	C 1	L 1		FF 11		FF 11		R 1
7	R 1	RA 11	CK 11	F 1	RA 11	R 1	RA 41	R 4	LA 11	HL 11	H 1	CHL 11	H 1			L 1								R 2
8	KA 11	RK 11	K 4	R 2	R 1	R 1	R 2	K 3	K 2			C 1	C 1	C 1			H 1	AL 11	F 1			K 1	RA 11	RA 11
9	CK 11	CCK 11	K 6	R 4	R 2	RK 12	K 4	L 1		R 1						R 1		RK 11	R 1	R 2	R 1	R 1	K 6	RK 53
10	CK 51	K 7	R 2	R 2	KA 21	R 2		R 1			R 1	R 1	C 1	H 1	L 1									RA 11
11	K 7	RS 31	RK 11	A 1	RA 11	R 1	F 1			R 1														HK 11
12	HK 21	CK 21	RK 11	CK 21	C 2	HK 11	RAK 11	RA 11	LA 11	HA 11	H 1	H 1	HL 11	L 1	H 1					FF 11		CK 11	KS 61	KA 71
13	R 4	R 3	F 2	R 3	R 1	CKA 11	CAK 11	RL 11	LR 11	HL 11	H 1		LH 11	H 1	H 1					R 1				
14	HK 11	RK 11	A 1	HAK 11	CA 11	K 1		R 1	CA 11		L 1		H 1				H 1			F 1	R 1	K 1	R 1	
15			RA 11	AF 13	CKA 11	FA 31	FA 11	C 1	C 1	C 1	CA 21	L 1	LC 11	L 1	C 1	C 1			F 1	FR 11	R 1			RA 11
16	R 3	K 2	RK 14	RAK 11	CK 11	CLK 11	KA 21	RA 11	AR 11	CCA 11		RC 11	C 1	C 1					RK 11	ARK 11	RA 11	RA 11	R 3	F 2
17	R 4	R 1	RA 51	R 1	R 2	R 3	R 4	CA 11				L 1		H 1	CL 11	R 1	R 1	RAC 11	HA 11	FFA 11	R 1	FA 11	CK 11	RA 21
18	F 1	FF 11	CKA 14	FA 11	FA 11	R 3	RA 31	RA 11	RA 11	CA 11	AC 11	H 1		H 1	C 1	R 1	C 1	C 6	RA 11	R 2	FA 21	HK 11	K 1	
19	K 1	R 1	RA 21	RA 11	FA 11	FA 11	FA 11	AL 12	AL 11		C 1			C 1	C 1	L 2	LH 11	L 1	L 1	F 1			K 1	K 1
20	K 4	K 1	R 2	RK 21	R 2	R 2	R 2	R 2	R 2	CR 11	C 1	C 1	CA 11	CA 11	H 1	HC 11	CA 11	AR 11	R 1	FA 11	FA 11	FA 11	FA 11	FA 11
21	K 1	K 1	R 3	CRK 11	RAK 11	HAK 11	LA 11	CA 11	CA 11	RA 11	RC 11		C 1	C 1					L 1		F 1	AK 11	R 5	RA 21
22	R 2	R 2	R 3	R 2	R 1	A 1		RK 21		C 1	C 1	R 1	R 1	L 1				C 1	H 1	F 1		K 1	HK 11	HK 11
23	R 2	R 3	R 3	R 1	RR 11	R 1			R 1	C 1		C 1						R 1	RS 21	RS 31	RS 31	RS 11		
24	R 5	RA 21	RA 21		R 1	R 2	R 2													RS 31		RS 41	RS 51	KS 41
25	R 1	RA 21	R 1	R 2	R 1	R 1			R 1												RS 41	RA 31	KS 31	R 2
26	KA 41	K 2	K 1	AR 12	R 1	R 1			R 1													RKA 11	RS 51	RHK 11
27	K 5	R 1	R 1	R 1		R 1	R 2				H 1	C 1									R 1	RS 61	RKS 44	RS 51
28	R 1	RF 11	AR 11		R 1	R 1		R 1	R 1										RK 11	RA 11		KS 71	R 2	R 2
29	K 4	K 5	K 6	K 4	K 2	K 2	K 3	LH 11		R 1	R 1											FR 11	F 1	RA 11
30	KR 41	K 4	K 3	K 2		R 1	R 1	R 1				H 1	H 1	C 1	HC 11	AC 11	C 1	C 1	CA 11	CAL 11	HK 11	HK 11	KA 11	K 2
31	K 6	R 2	R 1	R 1	R 2	F 1	C 2	C 1	L 1						H 1						RA 11	RA 21	K 3	K 3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

AUG. 1976 | TYPES OF ES

IONOSPHERIC DATA

SEP. 1976 | FXI (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	A	B	B	R	O R 44	O R 47	O R 50	X 49	X 46	X 48	X 48	X 46	47	55	53	A	A	A
2	A	A	A	B	A	R	A	O R 36	O R 38	B	B	B	B	O R 41	B	B	O R 46	O R 46	O R 50	R	R	R	A	A
3	B	A	A	A	A	B	A	R	B	B	B	O R 46	B	B	O R 51	B	B	B	B	C	B	B	A	O R 24
4	B	B	A	A	B	A	B	A	A	B	O R 40	B	B	B	O R 51	O R 43	B	O R 49	46	B	B	B	B	A
5	B	A	O R 37	B	A	A	A	A	B	O R 42	X 46	X 48	52	B	B	B	52	B	48	45	O R 23	R	A	A
6	A	A	A	A	A	A	B	B	A	X 42	X 43	52	O R 54	B	O R 61	O R 63	O R 54	51	O R 42	O R 37	O R 31	A	B	B
7	A	A	A	A	B	B	B	A	O R 40	X 44	X 43	O R 44	B	B	O R 52	O R 51	O R 44	R	O R 42	39	28	16	A	A
8	A	A	A	B	B	A	A	A	X 40	X 42	X 46	X 48	O R 49	X 51	H 47	X 48	57	O R 47	40	O R 36	23	A	A	A
9	C	24	A	A	A	A	A	A	O R 38	X 41	X 44	X 51	B	54	56	56	O R 65	P	B	B	A	B	A	A
10	A	A	A	R	U A 84	A	O R 32	O R 41	43	R	43	B	B	B	52	51	O R 48	X 48	46	42	37	R	A	A
11	A	A	O R 25	24	21	23	30	31	36	R	O R 40	O R 45	46	46	X 47	46	X 49	46	X 43	O R 44	O R 36	O R 30	A	A
12	A	A	A	A	A	A	A	A	A	O R 42	R	X 46	47	X 47	X 49	X 50	X 50	X 49	X 45	X 39	X 51	A	A	A
13	A	A	B	A	A	B	A	O R 36	39	X 42	46	49	49	53	53	55	50	54	57	52	31	25	O R 22	A
14	R	R	R	38	38	R	O R 36	X 41	40	48	O R 50	51	52	60	60	63	O R 71	70	53	O R 41	A	A	A	A
15	A	U A 57	A	47	A	U S 47	U S 36	55	B	A	B	B	B	O R 48	O R 43	X 46	B	O R 40	O R 41	O R 37	O R 34	O R 23	A	A
16	A	A	A	A	A	R	A	O R 41	X 43	O R 46	O R 47	53	X 55	55	60	X 56	57	X 46	46	X 45	38	29	22	28
17	A	A	A	A	U S 53	A	B	A	45	52	52	X 53	X 56	X 52	55	51	52	50	46	45	42	24	22	A
18	A	A	A	B	B	A	41	B	A	B	B	B	B	B	B	66	68	O R 45	A	R	A	A	A	A
19	A	A	A	U A 66	A	A	R	X 38	X 43	53	47	47	48	52	R	O R 56	B	55	44	R	A	A	A	A
20	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	O R 54	B	B	A	B	A	A	A	A
21	B	B	A	B	R	R	B	B	B	B	R	O R 42	B	B	B	B	B	X 42	B	R	R	R	A	A
22	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	50	A
23	A	A	A	A	A	A	A	A	O R 42	O R 44	X 42	O R 42	B	B	B	B	B	65	B	O R 41	B	O R 27	A	A
24	A	A	A	A	A	B	A	O R 41	X 42	42	47	X 51	X 59	X 60	X 64	X 63	O R 65	O R 54	56	53	47	R	O R 26	21
25	A	A	A	A	B	B	A	A	A	A	O R 49	O R 52	B	B	B	65	66	52	A	A	A	A	A	A
26	A	A	U S 75	A	O R 40	35	A	A	B	B	O R 45	O R 46	O R 46	O R 49	X 50	X 53	B	O R 51	O R 46	O R 39	37	R	R	R
27	R	R	A	A	U A 35	A	A	A	R	R	X 47	B	B	B	B	O R 52	X 52	56	X 48	46	46	28	B	B
28	A	A	B	A	A	A	A	42	45	X 48	X 51	O R 51	X 55	X 58	X 55	54	X 55	X 53	48	47	58	45	O R 27	25
29	A	A	R	28	36	U S 45	42	A	46	B	52	55	X 58	X 56	X 59	X 58	X 59	52	X 49	X 46	46	43	39	R
30	A	A	A	A	A	A	A	A	R	41	X 43	X 45	X 47	X 48	X 52	X 52	X 55	X 50	X 46	X 46	46	40	X 36	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		2	3	5	7	4	6	10	15	15	22	22	16	17	20	24	21	24	22	20	18	11	8	4
MED		40	O R 37	38	38	40	36	41	42	42	46	48	51	52	52	52	54	50	46	44	37	28	26	24
UQ			56	47	46	U S 46	41	41	43	47	47	51	X 55	55	58	57	59	54	48	46	46	35	38	26
LQ			O R 31	28	36	29	32	O R 36	40	42	43	O R 46	48	48	50	50	50	46	44	O R 39	31	24	22	22

IONOSPHERIC DATA

SEP. 1976 | FOF2 (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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

The Radio Research Laboratories, Japan

SEP. 1976 | FOF2 (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1976 | FOF1 (0.01 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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													L	L										
2																								
3												L			L									
4															U L 320									
5												L	L											
6												350	360	B										
7										L		L	R	B	L									
8												L 320	L 330	L	U H 320									
9												L	B	L	L	U L 330								
10												B	B	B	L 330									
11														U L 350	L	U L 300								
12												350	L	L	L									
13											340	L	L	L	U L 340									
14										L	L	F 360	U L 350	L 350	L	L								
15											B	B	B	330	F 330	R 330	R							
16											350	350	350	350	U L 350	L								
17									320	L	U L 350	U L 360	L 360		340	L		L						
18										R	B	B	B	B	B	A	F 300							
19									L	F 340	F 350	F 350	L 360	F 360	340	F 320	B							
20									B	B	B	B	R	B	B	310	B							
21									B	B	R	F 330	B	B	B	B	B	L						
22									B	R	B	B	R	B	B	B	B							
23											F 350	H 350	B	B	B	B	B							
24											360	L 370	370	370	U L 360	340								
25										A	350	350	B	B	B	360	F 340	L						
26												350		350	360	L 360	B							
27									F 320	350	340	B	R	B	B	B	L							
28									310	340	360	360	370	360	U L 360	L								
29									A	B	360	360	L	390	380	U L 360	L							
30									320	330	340	360	360	360	360	L	U L 320							
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									4	4	11	15	9	10	13	9	3							
MED									320	340	350	350	360	355	340	330	F 320							
UQ									320	345	355	360	360	360	U L 360	L 360	330							
LQ									315	335	345	350	L 350	350	330	320	310							

SEP. 1976 | FOF1 (0.01 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1976 | 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 2 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 330	K 350	K 240				B	B	B	B	B	B	215	210	190	180	150	140	C	U K 130		K 150	J K 340	K 360
2	K 350	U K 280				K 350	B	U K 215	K 220	B	B	B	B	B	B	B	B	B	B	K 310	U K 130	K 210		
3		K 360					B	B	B	B	B	B	B	B	B	B	B	B	B					
4							B	B	B	B	B	B	B	B	H 230	B	B	B	A					K 125
5			U K 250				B	C	B	A	A	U A 225	220	B	B	B	B	B	B			U K 120	U K 240	J K 290
6	K 330	J K 320					B	B	B	U K 245	210	210	B	B	B	B	B	B	B			U K 150		
7		U K 230	U K 240	K 350			B	B	A	H 210	U A 220	U B 230	B	B	B	B	B	B	B					U K 160
8	K 270						B	A	A	220	H 225	220	225	195	H 205	U A 205	B	B	B	B		K 230		
9		U K 100	U K 110				B	A	A	K 270	230	220	B	230	A	B	B	B	B	B			U K 200	K 195
10	U K 110		K 130	K 200	J K 240		U K 205	A	A	B	200	B	B	B	170	160	B	B	140	B			K 370	U K 160
11			K 160	U K 130	U K 120	A	A	130	170	B	225	210	210	215	210	H 210	160	U A 140	A	B		K 100		
12	K 340		U K 325				B	A	B	U K 310	A	U A 230	225	230	210	H 210	200	H 170	R 120	A		U K 320	K 330	K 350
13		U K 360		J K 300	J K 350		B	A	A	180	H 200	225	225	A 220	A 220	220	A	155	A	A				
14	U K 160	J K 300	K 280		U K 210		A	U K 230	A	B	B	230	U A 260	245	225	220	190	A	R	B	K 380	K 330		K 390
15		A				U K 280	J K 260	B	B	A	B	B	B	U A 250	A	B	B	B	B	B			K 115	
16		U K 215				B	A	U K 290	U K 230	B	B	270	250	U A 260	240	225	A	125	U A 110	C		U K 100		U K 145
17			U K 270	K 290		B	B	A	A	220	220	245	240	H 230	230	H 210	200	A 190	U A 120	B				
18						A	U K 290	B	B	B	B	B	B	B	B	B	U A 230	U K 325	U K 220	K 360	U K 230	K 200	U K 200	K 300
19	K 310	J K 320	J K 290	U K 220	J K 290	K 270	K 230	U K 210	A	A	205	220	A 215	C 200	B	B	B	C 200	A	A				
20						B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	K 330	U K 405		
21			K 250		U K 240	K 300	B	B	B	B	A	255	B	B	B	B	B	A	B	A	K 140	K 160	K 350		
22	K 360	K 380				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	U K 150		K 170	K 350
23	K 330			U K 330		K 350	A	A	U K 240	U K 250	230	230	B	B	B	B	B	B	B	B		U K 125	U K 200	K 330
24	K 330	J K 350	K 350	J K 370		B	A	K 230	C 200	220	230	245	230	225	230	R 220	B	B	U F 155	U R 110				
25	K 230	K 320	K 300	U K 350	B	B	B	B	A	B	A	U R 260	B	B	B	B	B	U R 170	B	A	A	K 400		
26					K 225	U K 285	A	A	B	B	U A 230	A	A	A	A	230	B	B	B	B	B		K 120	K 145
27	U K 110	K 170	K 350		K 210	B	B	B	A 215	B	A	B	B	B	B	B	B	B	B	U A 100	A			
28	K 330				B	B	A	A	220	A 210	A 230	B	A	250	230	230	215	190	A	A	A			
29	K 330		K 260	K 130	95	100	120	B	K 300	B	Y	260	260	C 265	225	230	220	200	H 150	120	B	B		
30	J K 300	K 365			B	B	A	A	K 260	250	245	260	260	255	240	245	230	H 210	H 160	125	C	C	U K 80	
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	16	15	15	10	9	7	5	6	9	11	14	18	13	15	14	14	9	12	8	7	6	14	12	13
MED	K 330	K 320	K 260	K 295	K 225	K 285	K 230	U K 222	K 220	220	225	230	225	230	225	220	200	180	145	125	K 190	K 180	K 200	K 290
UQ	K 330	K 355	K 295	K 350	J K 240	K 325	K 260	U K 230	K 240	K 250	230	255	250	250	230	230	220	200	158	K 220	K 330	K 320	K 335	K 350
LQ	K 250	K 255	K 240	K 200	K 210	K 275	K 205	U K 210	215	215	210	220	220	218	210	210	190	148	120	115	U K 140	U K 125	K 145	K 160

The Radio Research Laboratories, Japan

SEP. 1976 | FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1976 | FOES (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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	K 33	J A 40	42	95	J A 61	42	52	67	B	32	37	21	G	G	22	G	G	G	E C 10	J A 23	30	34	J K 34	K 36
2	J A 40	J A 45	J A 34	J A 80	J A 53	K 35	42	41	34	B	B	B	B	E B 30	B	B	E B 20	E B 22	E B 18	K 31	20	K 21	J A 41	J A 31
3	79	K 36	J A 52	70	45	B	37	J A 29	B	B	B	25	B	B	E B 25	B	B	B	B	E B 21	B	B	J A 34	18
4	B	B	36	36	42	55	B	42	55	B	E B 31	B	B	B	G	E B 30	B	E B 23	28	B	B	B	B	J A 26
5	J A 51	35	70	B	J A 64	52	46	J A 49	B	35	J A 24	26	G	B	B	B	E B 40	B	18	25	E B 10	K 12	K 24	J K 29
6	K 33	J K 32	J A 48	53	51	J A 57	75	57	37	28	G	G	E B 30	B	E B 46	E B 42	E B 35	E B 19	E B 23	E B 13	E B 17	J A 27	B	B
7	J A 49	J A 38	J A 40	K 35	B	B	B	J A 46	34	G	29	G	B	B	E B 30	E B 23	E C 29	E B 30	E B 25	21	15	E C 10	27	25
8	K 27	J A 124	43	55	B	J A 52	J A 37	32	J A 22	G	G	G	G	G	G	22	E B 22	E B 18	20	28	E C 10	K 23	30	J A 35
9	C	J A 31	J A 27	39	J A 53	J A 42	36	J A 39	32	K 27	25	G	B	25	43	E B 22	E B 36	B	B	B	28	B	26	25
10	50	36	J A 21	K 20	J A 29	44	J A 29	J A 30	40	E B 31	31	B	B	B	J A 51	J A 43	E B 21	E B 18	G	E B 12	E B 14	J A 29	K 37	20
11	J A 27	J A 30	K 16	23	J A 26	21	30	16	G	E B 22	32	26	24	29	G	G	18	J A 26	J A 32	J A 49	51	20	J A 26	J A 26
12	K 34	J A 38	J A 84	J A 46	52	J A 40	82	44	37	33	36	29	G	G 21	G	G	G	G	16	21	J A 26	K 32	K 33	K 35
13	45	J A 52	42	J K 30	J K 35	42	35	J A 29	30	G	25	30	29	31	25	G	23	25	16	J A 24	J A 25	J A 25	J A 17	J A 25
14	J A 24	J K 30	K 28	J A 36	J A 31	35	33	J A 26	J A 34	E B 28	E B 28	29	32	27	30	G	22	23	21	E B 21	K 38	K 33	J A 30	K 39
15	J A 46	90	J A 51	32	J A 31	K 28	J K 26	E B 30	B	42	B	B	B	31	27	E B 26	B	E B 28	E B 22	15	15	J A 36	22	J A 32
16	J A 74	48	40	55	J A 49	J A 25	44	38	27	E B 30	E B 29	30	36	30	27	24	24	G	13	E C 10	E C 10	15	J A 34	19
17	J A 26	J A 25	K 27	K 29	J A 45	J A 48	56	J A 46	35	26	G	G	G	27	G	G	G	22	12	E B 15	E C 10	J A 15	32	59
18	J A 98	J A 39	J A 58	44	42	J A 32	K 29	B	47	B	B	B	B	B	B	37	29	J A 39	64	41	J A 74	34	43	K 30
19	K 31	J K 32	J K 29	J A 31	J K 29	K 27	K 23	J A 29	22	25	24	28	J A 24	J A 38	E B 27	E B 25	B	30	J A 36	22	J A 40	J A 40	J A 76	J A 50
20	J A 58	J A 46	J A 56	J A 70	B	45	B	B	B	B	B	B	B	B	B	E B 25	B	B	J A 41	B	K 33	50	J A 94	70
21	B	B	32	37	30	K 30	B	B	B	B	32	G	B	B	B	B	B	26	B	25	K 14	K 16	K 35	55
22	K 36	K 38	J A 50	37	37	38	B	B	B	B	B	B	B	B	B	B	B	B	B	B	K 15	B	K 17	K 35
23	K 33	40	30	J A 69	J A 51	K 35	J A 39	41	J A 32	28	G	G	B	B	B	B	B	E B 33	B	E B 19	B	16	J A 26	K 33
24	K 33	J K 35	K 35	J K 37	J A 41	B	J A 35	K 23	G	G	G	25	28	25	G	G	E B 31	E B 24	G	G	E C 10	E B 10	E C 10	11
25	K 23	K 52	K 30	J A 76	B	B	J A 38	J A 53	J A 55	44	30	G	B	B	B	E B 26	E B 24	G	35	J A 36	J A 51	K 40	J A 44	40
26	J A 44	J A 39	J A 36	J A 69	J A 78	35	42	39	B	B	24	30	24	32	26	G	B	E B 35	E B 30	E B 24	E B 11	20	K 12	K 14
27	14	K 17	K 35	J A 34	K 21	37	42	51	34	E B 26	28	B	B	B	B	E B 42	E B 30	E B 20	E B 20	16	14	25	B	B
28	K 33	J A 62	B	J A 49	J A 60	55	43	27	G	27	27	E B 30	29	G	30	G	G	G	25	J A 26	12	16	20	J A 21
29	K 33	47	32	K 13	13	12	G	50	38	B	G	G	G	38	G	G	G	G	G	G	E B 12	10	J A 32	J A 26
30	J K 30	K 56	41	57	53	52	52	45	30	G	J A 77	G	G	G	G	G	G	G	G	G	E C 11	12	13	J A 50
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	28	29	29	26	26	25	26	22	21	24	22	16	17	21	24	21	25	25	26	27	26	27	28
MED	33	J 58	36	39	J A 44	39	38	40	34	26	U 26	22	24	27	E G 25	E G 22	E G 22	E G 22	U 16	20	15	22	30	30
UQ	J A 48	J A 46	J A 48	57	J A 53	48	44	46	37	31	31	28	28	31	28	E B 26	E B 29	U 24	26	25	29	33	J 34	38
LQ	K 30	K 32	30	34	J 31	32	33	29	27	E G 22	E G 24	G	G	G 21	G	G	G	G	E G 13	E E 15	E E 12	15	23	25

SEP. 1976 | FOES (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1976 | F-MIN (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	7	8	9	10	9	E C 10	15	42	B	24	16	20	18	17	15	15	13	E C 10	E C 10	10	17	E C 10	E C 10	E C 18
2	9	E C 10	11	30	14	15	25	16	15	B	B	B	B	C 30	B	B	20	22	18	22	8	E C 10	E C 10	E C 10
3	34	15	E C 10	26	23	B	22	10	B	B	B	22	B	B	25	B	B	B	B	21	B	B	E C 10	7
4	B	B	20	20	30	24	B	26	20	B	31	B	B	B	19	30	B	23	12	B	B	B	B	10
5	23	16	9	B	24	22	15	25	B	16	13	13	12	B	B	B	40	B	15	E C 20	10	9	E C 9	E C 12
6	8	9	E C 20	16	14	17	42	51	20	12	10	17	30	B	46	42	35	19	23	13	17	13	B	B
7	21	12	7	12	B	B	B	18	17	18	15	23	B	B	30	23	C 29	30	25	10	11	E C 10	13	E C 10
8	9	12	13	29	B	13	12	12	10	12	13	16	17	16	11	E C 10	22	18	15	13	E C 10	8	20	9
9	C	9	9	11	12	12	26	11	14	12	12	12	B	17	E C 12	22	36	B	B	B	22	B	E C 10	10
10	10	10	E C 10	8	8	16	12	15	12	31	16	B	B	B	16	15	21	18	13	12	14	6	6	6
11	E C 20	6	8	8	E C 9	6	8	E C 10	E C 10	22	21	18	14	15	14	13	12	10	10	13	10	9	8	8
12	10	10	18	15	9	10	20	12	20	16	15	12	10	10	E C 10	14	15	10	11	10	6	9	E C 10	E C 9
13	20	10	22	13	E S 13	32	25	15	13	13	12	12	11	10	15	E C 20	16	10	E C 10	10	E C 10	9	6	6
14	7	12	10	9	10	10	10	10	12	28	28	20	16	13	12	11	E C 10	10	13	21	20	10	E C 9	10
15	10	10	8	8	7	6	7	30	B	12	B	B	B	15	19	26	B	28	22	10	12	12	E C 10	8
16	11	21	E C 20	15	16	10	12	11	10	30	29	20	17	21	15	16	12	E C 12	E C 10	E C 10	E C 10	E C 10	9	8
17	9	10	10	10	11	16	43	15	12	15	15	14	15	15	14	12	14	10	E C 10	15	E C 10	9	9	10
18	9	9	14	26	30	10	9	B	20	B	B	B	B	B	B	23	18	15	16	27	10	7	E C 10	7
19	E C 10	10	E C 10	16	E C 10	7	7	16	15	17	E C 20	14	15	17	27	23	B	15	12	8	E C 10	E C 10	9	15
20	E C 10	17	20	E C 9	B	21	B	B	B	B	B	B	B	B	B	25	B	B	12	B	9	E C 10	12	11
21	B	B	E C 10	25	17	16	B	B	B	B	23	20	B	B	B	B	B	14	B	9	E C 10	12	10	11
22	12	14	10	30	15	15	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E C 10	B	E C 10	20
23	12	15	11	23	16	21	15	15	E C 20	17	15	18	B	B	B	B	B	33	B	19	B	10	E C 9	6
24	E C 10	10	16	13	15	B	11	16	16	17	15	17	14	19	16	18	31	24	11	10	E C 10	10	E C 10	E C 10
25	8	12	17	18	B	B	20	20	15	25	23	22	B	B	B	26	24	16	16	E C 10	E C 10	6	10	9
26	E C 10	9	E C 10	20	12	6	C 18	18	B	B	22	21	19	16	15	11	B	35	30	24	11	E C 10	10	E C 10
27	E C 10	10	10	17	10	30	30	19	15	26	15	B	B	B	B	42	30	20	20	9	8	E C 10	B	B
28	E C 10	17	B	15	20	21	10	E C 20	16	13	15	30	20	15	17	15	E C 20	15	E C 12	E C 10	9	8	E C 10	E C 10
29	9	10	11	E C 10	8	6	E C 10	15	E C 20	B	23	E C 20	15	19	12	12	11	12	10	10	12	8	E C 10	6
30	E C 9	15	16	12	21	17	12	16	E C 20	13	12	12	11	12	10	E C 10	11	10	8	E C 11	E C 11	E C 10	6	9
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
MED	10	10	10	15	14	16	16	16	17	23	17	20	25	20	18	22	26	18	14	12	10	10	10	9
UQ	12	15	16	23	23	22	30	26	B	B	29	B	B	B	B	42	B	30	23	21	14	10	10	10
LQ	8	10	10	10	10	10	11	15	14	15	15	15	15	15	14	14	14	12	10	10	E C 10	8	E C 9	8

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SEP. 1976 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1976 | 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 σ, ∫ MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	A	B	B	A	F	F 340	F 325	V 340	350	345	355	330	F 330	F 310	F	A	A	A
2	A	A	A	B	A	R	A	F	F 350	B	B	B	B	365	B	B	325	F 310	U F 270	R	R	R	A	A
3	B	A	A	B	B	B	A	R	B	B	B	320	R	B	320	B	B	B	B	C	B	B	A	F
4	B	B	B	B	B	A	B	A	A	B	B	B	B	B	345	350	B	340	F 320	B	B	B	B	A
5	B	A	F 270	B	A	A	A	A	B	F	305	330	U F 315	B	B	B	U R 350	B	F	F	F 305	R	A	A
6	A	A	C	A	A	A	B	B	A	320	R	F 305	315	B	320	335	370	F 350	335	F 310	F 345	A	B	B
7	B	A	A	A	B	B	B	A	F 305	340	350	285	B	B	V 335	350	355	R	335	F 340	F	F	A	A
8	A	A	A	B	B	A	A	A	325	305	330	335	325	340	320	325	U F 350	U F 355	F 345	F 330	F	A	B	A
9	C	F 300	A	A	A	A	B	A	A	305	305	325	B	F 335	F 330	F	320	B	B	B	A	B	A	A
10	A	A	A	A	A	A	260	F	F 305	R	F 350	B	B	B	F 345	J F 340	335	340	J F 335	J F 315	F 315	A	A	A
11	C	A	F	F	F 265	F	U F 295	F 335	F	R	R 315	345	F 335	F 325	355	F 345	335	F 325	345	F 325	F 310	F 310	A	A
12	A	A	A	A	A	A	A	A	A	F 305	R	295	F 310	325	315	320	V 335	330	355	F 340	J R 280	A	A	A
13	B	A	B	A	A	B	A	F 310	F 315	315	F 300	F 315	F	F	F	F	F	F	F	F	U F 330	F 335	A	
14	A	A	R	F 280	F 275	A	F	325	F	F 320	U F 325	F	F 310	F 335	F 320	J F 305	R	F	F	F 350	A	A	A	A
15	A	A	A	A	A	F	F	F	B	A	B	B	B	F 295	F	310	B	325	F 335	F 305	F 325	F 330	A	A
16	A	A	B	A	A	A	A	F 305	310	305	285	F 310	C 330	F 325	F 325	340	J F 350	350	325	330	F 320	F	F	E 345
17	A	A	A	A	A	A	B	A	F 295	F 305	F 320	310	310	310	F 345	F 340	F 360	J F 350	F 285	F	U F 320	F 330	F	A
18	A	A	A	B	B	A	F	B	A	B	B	B	B	B	B	F	F	F 270	A	A	A	A	A	A
19	A	A	A	A	A	A	R	295	300	F	F 295	F 300	F 315	F 300	R	F 270	B	F	F 335	R	A	A	A	A
20	A	A	B	A	B	A	B	B	B	B	B	B	B	B	B	F 355	B	B	A	B	A	A	A	A
21	B	B	A	B	A	R	B	B	B	B	R	F	B	B	B	B	B	F 285	B	R	R	R	A	A
22	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	R	A
23	A	A	A	A	A	A	A	A	F 310	F 320	G	R	B	B	B	B	B	R	B	F 310	B	F	A	A
24	A	A	A	A	A	B	A	F 325	305	F 370	F 295	305	V 320	325	J R 340	345	F 355	370	F	J F 370	J F 300	R	U F 280	F
25	A	A	A	A	B	B	A	A	A	A	F 275	F 290	B	B	B	F	F	U F 295	A	A	A	A	A	A
26	A	A	F	A	F 275	F	A	A	B	B	320	290	325	310	320	310	B	340	350	350	F 325	A	R	R
27	R	R	A	A	F	B	B	A	R	R	270	B	B	B	B	315	310	F 345	340	J F 305	F	F	B	B
28	A	A	B	A	A	A	A	F 305	F 285	280	290	295	310	335	345	F 335	345	355	F	F	F	F	F 315	F 315
29	A	A	R	F	F 270	F	F 305	A	F	B	F 300	F 315	320	310	320	325	360	F 350	F 350	340	F 340	F	F	A
30	A	A	A	A	A	A	A	A	R	R	240	255	290	285	310	325	345	340	350	325	F 315	J F 300	J R 305	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1	1	1	4		3	7	11	12	19	19	15	16	18	20	17	20	17	16	12	5	4	2
MED		F 300	F 270	F 280	F 272		F 295	F 310	F 305	310	300	310	315	325	328	335	350	340	F 335	F 328	F 318	F 330	F 310	F 330
UQ					F 275		F 300	F 325	F 312	320	320	322	325	335	345	345	355	350	345	F 340	F 325	F 330	F 325	
LQ					F 268		278	F 305	F 302	305	288	295	310	310	320	318	335	325	F 330	F 310	F 308	F 310	292	

IONOSPHERIC DATA

SEP. 1976 | H'F2 (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1													L	L										
2																								
3												L			L									
4															260									
5												L	L											
6												310	310	B										
7										L		L	B	B	275									
8												290	300	275	250									
9												280	B	255	280	270								
10												B	B	B	255									
11														300	250	250								
12												360	L	L	L									
13											330	L	L	L	250									
14										L	265	F	300	255	L	L								
15											B	B	B	355	F	350	B							
16											400	305	275	300	270	245								
17									350	L	275	325	300		240	250		L						
18										B	B	B	B	B	B	A	340							
19									L	F	375	330	320	350	R 430	400	B							
20									B	B	B	B	B	B	B	F	B							
21									B	B	R	U F 520	B	B	B	B	B	L						
22									B	B	B	B	R	B	B	B	B							
23											G	R	B	B	B	B	B							
24											395	320	300	290	275	250								
25										A	400	375	B	B	B	280	U F 300	L						
26												400		330	325	305	B							
27									R	R	440	B	B	B	B	B	280							
28									370	380	355	365	325	280	250	L								
29									305	B	340	300	280	310	300	275	230							
30									R	655	550	C	400	390	315	L	245							
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	2	12	13	10	12	15	10	5							
MED									350	518	385	325	300	300	270	272	280							
UQ									360		420	365	320	340	290	305	300							
LQ									328		335	305	300	278	250	250	245							

The Radio Research Laboratories, Japan

SEP. 1976 | H'F2 (KM)

IONOSPHERIC DATA

SEP. 1976 | H'F (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	A	B	B	A	A	205	205	210	230	225	220	230	230	250	290	A	A	A
2	A	A	A	B	A	R	B	320	240	B	B	B	B	C 250	B	B	250	250	345	R	A	R	A	A
3	B	A	A	B	B	B	B	A	B	B	B	A 240	B	B	210	B	B	B	B	B 220	B	B	A	F
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	225	B 250	B	240	275	B	B	B	B	A
5	B	B	430	B	B	B	A	B	B	A	200	225	205	B	B	B	B	B	240	215	250	R	A	A
6	A	A	C	B	A	A	B	B	A	275	240	210	C 230	B	B	B 250	225	225	B 230	250	B 245	A	B	B
7	B	A	A	A	B	B	B	A	A 310	240	245	230	B	B	B	230	250	B 255	250	230	240	C	B	A
8	A	A	A	B	B	A	A	A	H 240	225	245	210	220	240	200	200	230	210	230	240	C	A	B	A
9	C	300	A	A	A	A	B	A	A	300	270	230	B	220	225	220	250	B	B	B	B	B	A	A
10	A	A	A	A	A	A	A	300	F 270	B	225	B	B	B	210	200	210	230	230	230	250	A	A	A
11	C	A	U F 430	320	400	355 F	310 S	250	230	B	250	225	200	205	215	210	230	U H 210	230	250	250	280	A	A
12	A	A	A	A	A	A	B	A	A	350	A	275	225	200	230	H 210	225	220	225	225	305	A	A	A
13	B	A	B	A	A	B	B	315	240	C 250	225	H 200	205	210	210	H 205	220	215	215	205	240	240	240	A
14	A	A	A	A 375	365	A	A	275	A	265	245	245	220	225	215	200	245	215	205	250	A	A	A	A
15	A	A	A	A	A	365	A	B	B	A	B	B	B	220	250	255	B	B 275	250	240	250	275	A	A
16	A	A	B	A	A	A	A	340	260	E B 250	255	225	240	220	235	H 220	H 210	H 200	215	230	230	250	A	275
17	A	A	A	A	A	A	B	A	A	225	245	200	225	200	210	205	230	200	210	200	210	275	A	A
18	A	A	B	B	B	A	F	B	A	B	B	B	B	B	B	A	280	F 400	A	B	A	A	A	A
19	A	A	A	A	A	A	R	280	240	240	205	205	205	230	B 240	240	B	250	245	A	A	A	A	B
20	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	250	B	B	A	B	A	A	A	A
21	B	B	A	B	A	R	B	B	B	B	R	250	B	B	B	B	B	305	B	A	R	R	A	A
22	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	R	A
23	A	A	A	A	A	A	A	A	270	245	205	200	B	B	B	B	B	265	B	250	B	F	A	A
24	A	A	A	A	A	B	A	280	230	H 220	210	210	220	245	H 200	215	225	205	205	220	225	255	E C 290	C
25	A	A	A	A	B	B	A	A	A	A	A 245	250	B	B	B	225	250	245	A	A	A	A	A	A
26	A	A	F	B	375	F	A	A	B	B	230	250	225	210	200	250	B	B 240	235	245	240	A	R	R
27	R	R	A	A	F	B	B	A	245	260	225	B	B	B	B	B	E B 260	H 235	U H 230	235	250	F 330	B	B
28	A	B	B	A	B	B	A	275	260	235	230	B 235	H 220	205	205	220	H 215	H 215	210	220	210	H 195	250	280
29	A	A	A	380	350	275	250	A	A	B	240	210	210	245	210	240	215	H 200	225	230	220	240	310	A
30	A	A	A	A	B	A	A	A	E A 310	240	230	210	225	210	230	210	210	210	225	225	230	230	225	A
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1	2	3	4	3	2	9	13	15	20	22	16	17	19	22	20	25	22	21	17	10	5	2
MED		300	430	375	370	355	280	280	242	242	235	225	220	220	215	220	226	230	230	230	240	252	245	278
UQ				378	388	360		315	265	262	245	240	225	230	230	240	249	250	240	245	250	275	290	
LQ				348	358	315		275	240	238	225	210	205	210	210	210	218	210	215	220	230	240	240	

SEP. 1976 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

SEP. 1976 | H'ES (KM) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	105K	105K	105K	100	100	130	100	130	B	100	100	130	G	G	130	G	G	G	C	120K	150	105K	100K	110K
2	105K	105K	100	100	100	110K	100	110K	100K	B	B	B	B	B	B	B	B	B	B	125K	105K	105K	105	100
3	120	100K	100	140	100	B	100	100	B	B	B	110	B	B	B	B	B	B	B	B	B	B	100	150
4	B	B	100	110	120	105	B	100	100	B	B	B	B	B	G	B	B	B	115	B	B	B	B	140K
5	150	105	100K	B	100	105	105	105	B	105	110	105	G	B	B	B	B	B	105	105	B	165K	105K	105K
6	100K	105K	100	100	100	100	130	160	95	100K	G	G	B	B	B	B	B	B	B	B	B	150K	B	B
7	110	140K	100K	105K	B	B	B	100	110	G	110	G	B	B	B	B	C	B	B	115	115	C	120	130K
8	105K	100	100	100	B	100	100	100	100	G	G	G	G	G	G	125	B	B	110	155	C	150K	145	110
9	C	110K	105K	100	100	100	105	100	100	100K	145	G	B	105	120	B	B	B	B	B	100	B	180K	145K
10	120K	110	120K	105K	100K	100	100K	130	130	B	180	B	B	B	105	110	B	B	G	B	B	110	100K	110K
11	130	100	105K	130K	100K	120	110	125	G	B	155	125	115	110	G	G	120	105	100	125	100	165K	125	110
12	110K	110	110K	100	100	100	100	100	100	110K	100	100	G	105	G	G	G	G	185	105	145	100K	110K	110K
13	140	110K	120	110K	110K	115	120	100	115	G	155	130	150	130	125	G	150	100	100	95	100	100	95	95
14	155K	120K	120K	120	100K	100	105	100K	100	B	B	120	105	130	100	G	155	110	150	B	120K	115K	125	110K
15	110	110K	100	110	105	100K	110K	B	B	95	B	B	B	120	105	B	B	B	B	140	130	140	140K	105
16	100	145K	100	100	100	90	100	115K	100K	B	B	130	125	120	130	125	110	G	100	C	C	145K	125	125K
17	110	120	110K	105K	120	105	160	100	100	170	G	G	G	110	G	G	G	120	100	B	C	125	100	110
18	100	100	100	100	130	100	105K	B	95	B	B	B	B	B	B	125	145	110K	120K	125K	125K	115K	110K	100K
19	105K	105K	105K	130K	105K	100K	100K	110K	145	100	130	120	105	105	B	B	B	185	130	130	105	100	100	105
20	100	110	100	100	B	90	B	B	B	B	B	B	B	B	B	B	B	B	100	B	100K	130K	90	100
21	B	B	140K	130	105K	100K	B	B	B	B	100	G	B	B	B	B	B	100	B	100	C	170K	115K	150
22	100K	105K	120	100	100	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	175K	B	105K	105K
23	110K	110	110	125K	100	110K	105	100	100K	105K	G	G	B	B	B	B	B	B	B	B	B	165K	110K	100K
24	105K	105K	120K	110K	110	B	95	105K	G	G	G	125	110	110	G	G	B	B	G	G	C	B	C	125
25	100K	105K	115K	100K	B	B	105	100	100	110	115	G	B	B	B	B	B	G	110	105	100	100K	100	100
26	105	100	110	100	100K	125K	110	100	B	B	125	110	110	105	105	G	B	B	B	B	B	C 120	150K	150K
27	150K	100K	100K	105	100K	120	105	100	105	B	105	B	B	B	B	B	B	B	B	135	140	110	B	B
28	100K	100	B	100	100	100	100	120	G	105	105	B	110	G	100	G	G	G	125	100	125	100	110	115
29	100K	100	145K	130K	100	125	G	100	100K	B	G	G	G	140	G	G	G	G	G	G	B	120	125	105
30	100K	105K	110	100	100	105	100	95	100K	G	100	G	G	G	G	G	G	G	G	G	C	120	110K	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	27	28	29	29	26	26	24	25	19	11	15	11	8	12	9	4	5	7	14	15	16	24	26	28
MED	105K	105K	105K	105	100	102	105	100	100	105	110	120	110	110	105	125	145	110	110	120	118	120K	110	110
UQ	115	110K	115K	110K	105	110	108	110	102	108	138	128	120	125	125	125	150	115	125	128	135	148K	125K	125
LQ	100K	100K	100	100	100	100	100	100	100	100	102	110	108	105	105	118	120	102	100	105	100	105	100	105

The Radio Research Laboratories, Japan

SEP. 1976 | H'ES (KM)

IONOSPHERIC DATA

SEP. 1976 | TYPES OF ES | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 7	RK 15	RKA 42	RA 21	RA 41	RRA 11	RS 21	R 1		R 1	R 1	H 1			H 1					RKA 11	R 1	RK 12	KS 51	K 6
2	RKA 16	RK 16	RA 21	R 1	R 2	K 2	R 1	AK 11	RK 11											K 1	RK 11	KA 11	RS 11	R 4
3	R 1	KA 11	RA 31	FA 11	R 1		L 1	R 2				C 1											RS 51	RA 11
4			R 1	R 1	R 1	R 1		R 1	R 1										R 2					HK 11
5	RRA 11	R 1	RAK 11		R 1	R 1	R 1	R 1		R 2	R 1	C 1							C 1	F 1		K 1	KA 11	K 5
6	KLS 62	KS 51	R 2	R 2	R 2	R 1	R 1	R 1	L 1	RK 11												HK 11		
7	F 1	HK 11	RK 51	K 3				R 1	R 1		C 1									FF 11	F 1		FF 11	HK 11
8	KA 11	RA 21	R 2	R 1		F 3	R 2	R 2	R 1							CL 11			C 1	HC 11		K 1	RA 11	RA 31
9		CK 21	CK 21	RA 21	RS 21	R 3	R 1	C 1	R 2	K 2	H 1			L 1	C 2						F 1		HK 11	HK 11
10	CKA 11	RA 11	RK 12	KA 21	RK 13	RFA 11	RAK 11	HA 11	AL 11		H 1				C 1	C 1						R 4	K 7	RK 13
11	R 3	R 3	K 2	CKL 11	LK 11	CL 41	C 1	H 1			H 1	C 1	C 1	C 1			C 1	C 1	C 2	C 2	F 3	RK 11	R 1	R 2
12	K 7	RS 61	RK 11	R 1	R 3	R 4	R 1	R 2	R 1	RKL 11	R 1	R 1		L 1					H 1	C 1	R 1	K 4	K 7	KS 61
13	RR 11	RK 11	R 1	K 1	K 3	R 1	R 1	R 1	RA 11		H 1	H 1	H 1	HC 11	C 1		R 1	L 1	L 1	L 1	F 2	A 1	F 1	F 1
14	RCK 11	KL 21	K 3	R 3	RK 11	R 3	R 4	RK 31	RC 11			C 1	C 1	H 1	L 1		HA 11	RA 11	H 1		K 2	K 4	R 5	KLS 61
15	R 3	CK 11	FA 11	RF 11	RF 11	KL 61	K 2			R 1				R 1	R 1					R 1	F 1	F 1	CK 11	R 5
16	R 2	HKA 11	R 2	FA 21	R 1	L 1	R 2	RK 12	RK 21			C 1	C 1	C 1	H 1	C 1	C 1		C 1			RK 11	R 1	RK 11
17	R 4	R 3	K 5	K 6	FR 11	R 2	H 1	L 1	R 2	R 1				C 1				RL 11	L 1			A 1	FRA 11	RA 21
18	R 4	RA 21	R 2	R 1	R 1	RS 31	KS 31		RS 11							R 1	CA 11	RK 12	CK 21	RK 11	CK 44	CK 44	RKA 46	K 6
19	K 6	K 6	K 4	RK 11	K 5	KA 41	K 4	CK 21	HC 11	C 1	H 1	C 1	C 1	C 2				H 1	H 1	R 3	RS 61	RS 61	RA 31	R 1
20	R 2	RA 21	R 1	RA 11		L 1													R 2		KS 51	CKA 13	RA 11	RA 11
21			HKA 11	R 1	RK 11	K 1					R 1							R 1		R 2	K 1	K 1	K 4	AR 11
22	K 3	K 3	RA 31	F 1	R 1	R 2															K 1		K 1	K 1
23	K 6	R 1	F 1	RK 11	R 1	K 1	R 2	R 1	RK 11	RK 11												CK 11	RK 21	KS 61
24	K 5	K 3	K 1	K 3	RS 21		R 1	K 1				H 1	C 1	C 1										F 1
25	K 3	K 1	K 2	RK 11			R 1	R 1	R 2	R 1	R 1								R 1	RS 31	RS 21	KS 51	RS 21	RS 11
26	RA 31	RS 21	R 4	R 1	RKA 11	CK 12	R 1	R 2			C 1	C 1	C 1	C 1	C 1							R 1	K 1	K 1
27	HK 11	K 2	K 3	R 2	KA 11	R 1	R 1	R 1	R 1		R 1									H 1	H 1	RA 11		
28	KS 51	R 2		R 1	R 1	R 1	R 2	C 1		CH 11	L 1		R 1		L 1				R 1	LRA 11	C 1	F 1	A 1	FA 11
29	K 5	R 3	HK 11	K 1	C 1	H 1		R 2	RK 11					H 1								C 1	RA 11	RA 41
30	KL 51	K 2	R 2	R 1	R 1	R 1	R 2	R 1	RK 11		L 1											R 1	CK 11	RA 11
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

SEP. 1976 | TYPES OF ES

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 1976 | FXI (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00′ 4 S, Long. 39° 35′ 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	30	A	A	A	A	A	A	X 43	45	46	X 48	O R 51	B	55	B	81	66	B	B	B	B	33	O R 33	O R 24
2	U A 44	B	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	62	50	42	O R 31	25	R	A
3	A	A	A	B	A	B	O R 42	A	B	O R 45	O R 47	O R 48	X 52	X 60	B	B	B	O R 54	O R 51	B	O R 37	O R 31	O R 31	O R 31
4	A	R	R	A	A	U S 42	44	46	U C 52	X 52	X 56	X 63	65	70	63	60	61	70	C 58	57	64	R	35	31
5	35	A	A	R	U S 64	B	B	B	A	O R 43	45	45	X 49	B	B	B	O R 49	O R 52	X 46	50	46	U S 45	U S 43	A
6	A	A	A	A	A	A	40	45	A	R	R	R	B	B	B	71	B	B	B	O R 42	B	B	B	A
7	39	A	A	A	A	B	O R 40	O R 42	X 45	X 46	X 51	X 56	X 56	X 56	55	X 53	X 56	54	52	57	U S 45	A	46	A
8	A	R	39	40	U S 62	X 36	X 42	X 46	49	52	X 58	42	C	66	X 63	62	66	X 67	O R 62	C	C	C	38	46
9	R	A	O R 28	24	O R 37	A	R	R	46	X 50	X 50	X 58	X 60	X 56	X 59	65	67	69	66	65	57	27	A	A
10	A	A	A	O R 33	A	A	A	50	53	58	X 63	61	63	59	58	X 59	58	X 63	X 60	S 50	B	28	O R 26	A
11	A	A	A	A	U S 50	A	A	O R 53	57	55	X 53	X 52	X 52	X 54	X 57	59	60	60	O R 62	59	U S 55	U C 37	A	A
12	A	A	A	R	A	A	40	B	R	47	53	56	X 53	X 52	X 56	O C 55	X 58	X 55	X 50	X 46	X 46	U S 45	R	U S 46
13	35	B	A	A	U C 40	A	A	A	A	R	B	B	O R 58	B	B	B	53	X 54	X 53	X 48	O R 43	O R 40	O R 43	32
14	31	O R 26	S 27	40	37	42	50	56	55	X 56	X 58	59	58	X 60	60	X 60	X 58	X 56	X 54	X 56	S 52	46	U S 45	30
15	41	U A 56	A	A	U S 40	55	51	A	R	B	R	B	O R 47	X 54	B	60	R	54	R	R	39	A	A	B
16	B	A	A	A	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	43	37	A	31
17	A	A	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	B	O R 39	O R 44	O R 34	A	A	A
18	A	A	A	B	B	O R 26	B	B	B	B	B	B	B	B	B	B	B	B	R 48	O R 40	O R 36	B	25	A
19	A	A	A	O R 31	41	42	45	48	X 48	O R 46	O R 47	X 52	O R 49	O R 51	X 51	56	59	60	X 50	O R 36	O R 36	A	A	A
20	A	A	A	A	B	R	45	46	X 46	X 47	O R 49	B	B	O R 51	R 52	B	45	X 53	X 53	X 54	X 51	39	U S 38	C
21	U R 28	A	A	B	R	R	X 50	B	49	B	53	57	58	61	63	57	X 58	X 57	X 52	49	X 48	X 46	S 47	R
22	A	30	R	R	B	A	A	51	X 53	X 53	X 53	X 58	X 62	X 63	X 65	62	X 60	X 56	X 61	54	U S 52	U S 57	U S 56	47
23	X 46	U S 42	39	O R 39	U S 46	X 48	R	63	66	65	64	C	63	69	65	63	60	O R 52	62	63	41	R	U S 37	A
24	A	R	A	R	O R 43	47	55	S 64	X 58	X 59	X 60	X 63	65	67	X 60	X 58	X 59	53	X 57	52	X 47	53	U S 47	A
25	A	U S 38	39	O R 39	B	A	A	52	56	X 56	X 54	X 52	54	X 52	X 51	X 52	52	52	X 50	45	42	X 43	X 47	X 47
26	X 43	R	37	O R 42	A	A	60	78	76	69	58	59	X 57	X 60	X 60	X 60	X 58	X 56	X 53	X 50	47	S 47	S 48	R
27	X 47	R	A	S	U S 50	S	U S 67	S	79	76	75	66	64	58	X 60	61	60	X 60	X 58	X 56	X 48	X 51	A	A
28	A	U A 57	U S 47	B	O R 46	S 53	60	66	67	66	62	65	62	62	68	X 57	X 60	62	60	58	47	46	U S 47	S 40
29	A	A	A	R	O R 42	S 50	60	S 64	Y	57	60	58	57	60	60	55	53	X 52	X 51	X 50	52	48	48	R
30	U S 57	U S 56	U S 52	R	S	X 52	60	66	70	68	65	68	70	73	69	61	58	X 68	58	55	45	A	A	A
31	A	42	B	B	O R 56	68	U A 68	57	60	B	B	B	R	B	B	67	63	O R 49	65	U C 68	45	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	8	8	8	14	12	18	19	20	22	23	21	22	23	20	23	24	26	27	26	27	20	19	11
MED	40	U 42	39	O R 39	44	48	50	52	54	54	54	58	58	60	60	60	58	56	X 53	51	46	44	43	32
UQ	45	U 56	43	40	U S 50	52	60	64	63	59	60	61	63	62	63	62	60	X 62	60	57	50	46	S 47	46
LQ	33	34	32	O R 32	40	42	42	46	48	47	50	52	X 53	54	X 56	57	57	53	X 50	46	42	35	36	31

The Radio Research Laboratories, Japan

OCT. 1976 | FXI (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1976 | FOF2 (0.1 MHz) | 45° E Mean Time (G. M. T. + 3 h)

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

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

OCT. 1976 | FOF2 (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

OCT. 1976 | FOF1 (0.01 MHz) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' S. Long. 39° 35' 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L 360	360	360	370	B	360	B	B	B							
2									B	B	B	B	B	B	B	B	B	B						
3									B	L	370	370	370	390	B	B	B							
4							L	L	330	360	370	370	F 380	F 380	L	L	L							
5											350	360	370	B	B	B	L							
6								F 320	A	A	A	370	B	B	B	B	B							
7									340	L	370	390	390	390	L	L	L	L						
8							L	320	F 350	360	380	390	C	400	L 410	L	L	L	L					
9							A	A	F 350	360	L	L	390	L	U L 370	U L 380	L	L						
10								A	F 360	370	380	L	L 380	L 390	H 410	L	L	L						
11								A	F 370	L	380	380	390	L 370	380	L	L	L						
12								B	F 360	F 360	380	380	L 390	390	380	I C 380	I	L						
13								A	A	350	B	B	370	B	B	B	L	L						
14						L 260	F 310	F 330	F 350	370	380	390	L 410	400	390	U L 370	L	L						
15								A	A	B	A	B	360	380	B	360	A							
16								B	B	R	B	B	B	B	B	B	B							
17								B	B	R	B	B	B	B	B	B	B	B						
18							B	B	B	B	B	B	B	B	B	B	B	B						
19						F 270	300	320	350	360	360	370	390	380	380	F 380	360	L 340	L 320					
20							U A 320	L 350	360	360	370	B	B	390	380	B	L	L						
21							320	B	F 350	B	370	390	390	390	390	U L 380	L	L						
22							A	F 360	360	380	380	380	370	400	380	L	L	L	L					
23						F 300	A	F 350	U F 370	F 380	400	I C 400	F 400	400	400	390	L	B	L					
24						300	F 350	350	360	370	380	390	400	400	400	390	L	L	L					
25						A	A	F 340	350	360	370	370	F 390	F 380	390	390	L	L	L					
26							A	F 360	F 370	F 370	F 380	390	400	400	400	L 380	L 360	L	L	L				
27						L	U F 350	F 370	F 370	F 380	F 400	400	400	U F 420	400	L 400	L	L	L					
28						F 320	F 320	F 350	F 350	370	F 380	F 380	400	F 400	400	F 400	L 370	L 360	L					
29						F 320	F 330	F 350	Y	F 390	F 390	F 400	F 400	F 390	400	390	L	L	L					
30					L	U R 330	330	F 360	F 360	F 370	380	390	400	400	400	400	380	360	L	L				
31							U F 340	A	F 350	B	B	B	370	B	B	370	370	Y	U F 290					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						7	10	14	20	19	22	21	23	22	18	15	5	3	2					
MED						F 300	F 325	F 350	F 355	370	380	380	390	390	395	380	370	L 360	305					
UQ						F 320	F 340	F 360	F 360	370	380	390	400	400	400	390	370	360						
LQ						285	320	F 330	F 350	360	370	370	375	380	380	380	360	350						

The Radio Research Laboratories, Japan

OCT. 1976 | FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 1976 | FOE (0.01 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4 S. Long. 39° 35' 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

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	UK 110				B	K 320	K 360	UK 310	UK 270	UA 250	230	255	B	B	B	B	B	B	B	B	B	B	UK 120	K 120
2	UK 240				B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	UK 280	A	105	100	K 200
3	K 250	K 320			B	B	UK 275	B	B	A	245	C 280	260	250	B	B	B	B	B	B	B	C		
4	K 110	K 130	K 130		B	K 210	C	UC 200	215	240	265	B	280	UF 270	UH 260	230	220	205	160	F 130	B	C	UK 115	
5				K 325	B	B	B	B	B	A	A	250	H 260	B	B	B	B	B	B	K 215	B	A		
6	K 155	K 330	UK 310	UK 310	B	B	K 280	H 220	A	A	A	A	B	B	B	B	B	B	B	B	B	B		
7					B	B	K 330	A	230	225	240	250	240	260	255	250	220	205	160	145	B	K 350	K 200	K 280
8	K 350	K 290	UK 230	UK 150	US 140	H 130	130	200	205	245	H 260	UB 260	IC 270	H 275	320	H 295	230	A 205	165	C	C	C		
9	UK 210	K 340	UK 105	UK 140	K 210	A	B	B	K 270	265	270	260	265	260	260	H 250	240	205	B	B	B	A	K 260	JK 320
10		JK 320	K 250	UK 150	A	B	A	A	250	300	280	260	265	260	255	245	230	200	H 285	160	B	A	115	K 360
11				UK 325	140		B	A	K 275	245	255	260	260	250	225	240	230	200	120	B	UA 125	UK 190	JK 350	
12				B	K 310	B	K 280	B	K 275	A	A	260	255	255	250	IC 240	H 225	H 205	H 170	H 125	120	B	S	UK 260
13	UK 120			B	A	B	B	A	A	C	B	B	B	B	B	B	230	210	B	B	B	B	UK 140	UK 120
14	UK 150	UK 120		UB 110	UK 200	150	170	205	220	240	250	260	270	270	H 270	255	250	210	185	140	R 120	R 105	B	
15		UK 260		B	A	UK 220	A	A	A	B	A	B	A	280	B	240	A	K 320	K 405	A	H 150	K 360	A	B
16			B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	UK 240	K 360	K 150
17			B	B	B	B	UA 225	B	B	B	B	B	B	B	B	B	B	B	C 195	210	170	B	UK 290	UK 310
18	K 330		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	120	K 330
19	K 350	K 300	K 250	K 200	K 180	160	170	200	225	250	250	265	275	265	260	230	220	205	165	B	165	K 350	K 350	K 350
20	UK 380	K 380	K 330	B	B	B	UK 270	K 280	A	265	265	B	B	B	UC 270	B	235	205	B	140	H 140	A	90	C
21	UK 170		B	B	B	B	A	B	B	B	UA 270	290	275	270	300	250	250	210	B	170	150	110	C	UK 200
22	JK 330	UK 140	K 140	B	B	B	A	K 270	240	H 250	260	275	B	275	265	255	240	B	UA 205	B	A	UA 110	A	80
23		UK 180	A	A	165	A	B	F 260	A	UC 260	280	IC 280	275	A	270	265	250	B	195	140	C	B	UK 180	A
24		B	A	K 375	UK 250	UK 220	H 200	210	245	UA 260	265	270	270	270	A	255	240	225	UC 200	160	B	C	75	UK 370
25		UK 280	K 280	K 285	B	A	A	K 300	240	250	270	270	275	265	270	260	245	220	195	175	160	A	C	A
26	A	A	K 250	K 305	B	B	A	UA 230	235	260	275	280	280	280	260	250	A	A	200	A	F 150	A	C	A
27	C	A	A	UK 260	UK 230	A	A	A	245	270	285	A	A	F 290	270	H 270	B	230	B	B	A	A	A 115	A
28	C	A	A	B	A	A	210	230	245	270	270	270	260	A	A	A 255	240	230	200	170	A	A	A	A
29	JK 360	JK 350	A	K 310	A	A 170	C 195	250	Y	A	UA 270	JR 280	280	A	275	245	A	230	UA 200	A	135	A	C	A
30	B	A	A	120	A	A 170	205	UA 220	245	260	265	265	UC 270	IB 280	H 270	260	B	B	B	A	A	A	B	A
31	A	UK 190	B	B	K 330	K 300	A	A	250	B	B	B	280	B	B	B	B	A	B	A	UK 360	JK 360	K 270	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	15	15	10	14	10	10	14	15	18	18	21	20	20	18	18	20	17	18	17	14	13	10	17	14
MED	K 240	K 290	K 250	K 272	K 205	190	218	230	245	255	265	265	270	270	268	250	235	208	195	160	150	K 215	K 140	K 270
UQ	K 340	K 325	K 280	K 310	K 250	K 220	K 280	265	250	265	270	278	275	275	270	258	240	225	200	175	160	K 350	K 270	K 330
LQ	UK 152	UK 185	K 140	UK 150	165	160	195	208	230	245	255	260	260	260	260	242	230	205	165	140	135	110	115	K 150

OCT. 1976 | FOE (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1976 | 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 f MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	J A 81	J A 46	44	37	37	K 32	K 36	35	31	J A 30	J A 25	G	B	E B 30	B	E B 36	F B 44	B	B	B	70	89	24	22
2	J A 46	45	J A 38	J A 45	46	B	J A 57	B	B	B	B	B	B	B	B	B	B	E B 35	E B 40	31	16	20	19	25
3	K 25	K 32	37	B	52	B	39	45	B	32	G	G	G	G	B	B	B	E B 30	E B 33	B	E B 26	E C 20	57	J A 47
4	J A 29	20	J A 25	35	32	K 21	G	G	23	G	G	E B 35	G	30	30	30	G	25	G	30	E B 16	E C 10	13	18
5	63	36	J A 62	K 32	33	B	B	B	J A 49	J A 36	34	30	G	B	B	B	F B 28	E B 29	F B 20	K 21	E B 12	13	J A 33	J A 40
6	27	39	J A 39	J A 104	52	42	K 28	G	46	42	38	36	B	B	B	E B 51	B	B	B	E B 30	B	B	B	J A 29
7	J A 77	J A 30	J A 76	J A 60	J A 47	B	K 33	32	G	G	G	30	G	G	G	G	G	G	G	16	J A 26	K 35	K 20	K 28
8	K 35	K 29	32	J A 24	G	G	19	G	G	G	G	G	C	G	G	G	32	32	28	C	C	C	J A 26	J A 33
9	J A 31	K 34	J A 28	28	31	J A 47	30	38	K 27	G	G	G	G	G	G	G	G	G	B	E B 24	E B 26	22	K 26	J K 32
10	30	J K 32	41	J A 52	50	42	51	J A 37	37	G	G	G	30	32	27	G	G	20	G	G	B	20	18	K 36
11	J A 38	J A 52	J A 51	J A 36	35	J A 44	J A 50	50	40	G	30	G	G	31	32	25	30	G	20	25	24	J A 32	J K 35	J A 53
12	J A 84	J A 52	J A 35	32	37	53	K 28	B	K 27	30	32	G	32	G	G	C	G	G	18	G	G	E B 10	30	J A 78
13	33	44	41	35	53	41	50	56	J A 56	45	B	B	E B 34	B	B	B	G	G	E B 20	E B 22	E B 22	E B 19	32	J A 24
14	J A 24	16	20	23	J A 24	19	G	G	G	G	G	G	G	31	G	G	G	G	G	19	G	G	E B 9	J A 32
15	J A 61	32	J A 64	115	J A 32	38	32	J A 47	36	B	39	B	33	G	B	G	40	35	K 40	J A 37	G	K 36	J A 106	B
16	B	J A 115	47	35	B	B	B	B	B	31	B	B	B	B	B	B	B	B	B	B	21	J A 30	K 36	J A 49
17	J A 76	J A 51	B	B	55	B	30	B	B	B	B	B	B	B	B	B	B	B	27	27	G	J A 74	J A 74	J A 40
18	J A 38	J A 57	J A 62	B	B	34	B	B	B	B	B	B	B	B	B	B	B	B	E B 23	E B 29	28	B	G	K 33
19	K 35	K 30	32	22	K 18	G	G	G	G	G	G	G	G	G	28	26	G	G	G	E B 22	G	K 35	K 35	K 35
20	59	K 38	K 33	45	B	J A 39	32	K 28	27	G	G	B	B	F B 31	G	B	G	G	F B 21	18	G	14	15	C
21	J A 26	J A 41	J A 39	B	34	41	J A 60	B	37	B	39	G	G	G	G	G	G	24	E B 21	G	30	16	11	J A 31
22	J K 33	34	J A 30	32	B	J A 50	J A 50	30	G	G	G	G	E B 31	G	G	G	G	F B 24	23	E B 21	38	J A 22	15	15
23	J A 21	J A 26	J A 33	J A 37	J A 32	45	37	J A 45	44	27	G	C	J A 29	J A 29	G	G	G	F B 34	22	G	E C 20	27	31	J A 45
24	58	J A 62	45	J A 41	J A 51	46	27	G	G	32	J A 31	J A 31	G	J A 30	28	G	G	J A 27	J A 22	G	G	16	J A 20	K 37
25	43	31	K 28	K 28	B	45	J A 50	43	G	G	G	G	32	G	G	30	G	J A 24	G	G	G 14	16	13	31
26	J A 25	J A 32	K 25	35	J A 52	46	J A 47	31	G	30	G	G	G	G	30	31	32	24	23	22	J A 27	20	19	J A 21
27	J A 17	J A 49	J A 34	J A 31	K 23	38	J A 41	J A 38	G	G	G	39	36	32	G	G	F B 27	G	E B 23	E B 20	21	20	J A 36	J A 41
28	66	47	J A 24	B	36	33	G	G	G	G	G	G	J A 30	30	J A 29	26	28	J A 25	G	21	J A 25	J A 27	18	30
29	J K 36	J K 35	J A 39	K 31	J A 36	35	J A 34	J A 30	Y	J A 47	J A 44	G	G	35	33	30	J A 26	30	22	46	J A 25	J A 16	17	J A 23
30	E B 10	20	J A 24	J A 22	22	J A 26	G	J A 24	J A 30	G	G	30	G	E B 20	G	G	E B 27	E B 30	30	J A 33	J A 33	40	37	J A 70
31	J A 49	36	B	B	K 33	K 30	J A 42	J A 45	G	B	B	B	G	B	B	E B 30	G	32	E B 21	J A 61	K 36	J K 36	32	J A 84
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	29	25	26	25	28	24	25	25	25	22	23	23	20	22	25	26	27	27	28	28	30	29
MED	J A 36	36	J A 37	35	36	39	34	32	27	G	G	G	G	E G 20	G	G	G	E G 24	E G U 21	U 19	U 18	20	25	J A 33
UQ	J A 59	J A 46	J A 44	J A 41	50	45	J A 48	44	37	31	31	30	30	30	28	U 28	E G 28	U 28	22	30	26	34	35	J A 41
LQ	J 27	32	J A 30	31	32	30	28	G	G	G	G	G	G	G	G	G	G	G	E G 18	E G 17	E G 12	16	17	28

The Radio Research Laboratories, Japan

OCT. 1976 | FOES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1976 | F-MIN (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	E C 10	16	15	16	22	12	11	11	10	9	E C 10	12	B	30	B	36	44	B	B	B	50	15	10	10
2	11	31	12	15	C 29	B	E C 30	B	B	B	B	B	B	B	B	B	B	35	40	10	9	E C 10	9	E C 10
3	E C 10	12	E C 13	B	25	B	19	24	B	16	E C 20	14	20	20	B	B	B	30	33	B	C 26	E C 20	13	12
4	10	E C 10	7	21	12	14	14	E C 10	13	12	15	35	23	18	17	E C 20	12	11	11	10	C 16	E C 10	9	E C 10
5	11	10	8	15	25	B	B	B	22	16	13	12	12	B	B	B	28	C 29	20	16	12	E C 10	E C 10	10
6	E C 10	12	12	20	21	19	10	10	16	20	20	19	B	B	B	51	B	B	B	30	B	B	B	14
7	8	10	E C 10	15	13	B	20	14	12	13	12	12	11	12	10	14	13	10	11	11	13	E C 10	7	10
8	9	9	8	E C 9	E C 10	9	12	11	10	10	15	26	C	15	24	18	10	F C 10	9	C	C	C	E C 10	7
9	E C 10	9	10	13	15	15	27	24	14	13	E C 10	11	13	12	12	11	11	17	29	24	26	E C 10	8	E C 10
10	28	10	9	13	14	20	11	12	11	17	15	10	13	13	20	24	C 19	12	12	15	B	9	6	10
11	17	19	15	15	10	20	20	15	E C 10	E C 10	11	11	10	10	10	10	10	7	8	14	10	6	E C 9	17
12	E C 12	16	12	20	10	22	20	B	23	14	C 18	12	11	16	15	C	8	8	F C 10	10	E C 10	10	E S 10	11
13	9	34	20	16	10	20	20	16	18	E C 28	B	B	34	B	B	B	20	F C 20	20	22	22	C 19	12	E C 10
14	E C 10	10	8	11	11	11	11	10	10	10	10	10	10	12	10	16	16	14	12	13	E C 10	E C 10	9	7
15	8	11	9	25	12	12	12	14	20	B	24	B	17	18	B	18	15	20	12	11	E C 10	10	10	B
16	B	10	24	11	B	B	B	B	B	26	B	B	B	B	B	B	B	B	B	B	13	E C 10	E C 10	E C 10
17	C 29	11	B	B	45	B	20	B	B	B	B	B	B	B	B	B	B	B	19	C 17	13	20	11	10
18	15	21	16	B	B	20	B	B	B	B	B	B	B	B	B	B	B	B	23	29	11	B	10	E C 10
19	10	10	12	10	11	10	14	13	13	12	17	15	20	20	15	13	C 17	15	12	22	E C 10	9	E C 10	12
20	12	C 18	12	25	B	18	13	12	15	16	20	B	B	31	21	B	11	C 18	21	12	10	E C 10	6	C
21	E C 10	12	12	B	23	23	12	B	25	B	16	19	13	11	E C 10	11	18	11	21	16	12	E C 10	E C 10	E C 10
22	8	E C 10	6	20	B	C 18	15	11	10	10	E C 10	12	31	22	15	12	C 17	24	20	21	13	10	7	7
23	E C 10	E C 10	11	E C 10	E C 10	F C 10	C 27	15	13	12	13	C	E C 10	11	23	20	13	34	14	12	E C 20	15	7	7
24	E C 10	12	11	12	12	11	E C 10	8	9	9	11	10	E C 10	E C 10	7	10	10	F C 10	E C 20	E C 10	20	E C 10	7	10
25	12	9	9	22	B	15	12	10	E C 10	10	F C 12	E C 10	E C 10	E C 10	11	E C 11	10	9	9	10	E C 10	10	E C 10	6
26	7	8	12	20	20	21	E C 10	E C 10	E C 10	15	23	12	10	10	12	E C 10	E C 10	10	10	E C 10	E C 10	10	E C 10	8
27	E C 10	E C 10	10	10	E C 10	6	E C 10	E C 10	E C 10	E C 10	15	20	21	13	11	20	27	18	23	20	E C 10	6	10	10
28	E C 10	E C 10	E C 10	B	12	10	10	10	9	12	11	10	11	10	10	10	11	E C 10	12	E C 10	10	10	E C 10	9
29	9	12	12	17	12	E C 10	8	E C 10	Y	12	9	9	E C 20	10	10	E C 10	E C 10	9	F C 11	10	E C 10	E C 10	E C 10	9
30	10	E C 9	E C 10	E C 10	E C 10	E C 10	E C 10	8	9	E C 10	14	15	24	20	15	10	C 27	30	20	10	E C 10	12	20	E C 10
31	E C 10	E C 10	B	B	15	E C 10	12	13	13	B	B	B	21	B	B	30	24	12	21	12	10	E C 10	10	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	30	31	31	30	30	31	31	30	31	31	31	30	30	30	31	30
MED	9	10	12	16	14	18	12	13	13	13	15	14	20	18	17	18	17	16	20	14	11	9	10	10
UQ	12	12	12	24	25	22	20	24	22	U 20	22	B	34	D B 31	B	B	28	30	22	22	20	11	10	10
LQ	E C 10	10	10	12	11	10	11	10	10	10	12	11	11	12	11	11	11	10	12	10	E C 10	E C 10	8	8

OCT. 1976 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1976 | M(3000)F2 (0.01) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	F	A	A	A	A	A	A	325	F 315	F 295	280	F	B	F	B	B	F	B	B	B	B	F	F 300	F
2	R	B	A	A	B	B	A	B	B	B	B	B	B	B	B	B	B	305	R	F	F	F	A	A
3	A	A	A	B	A	B	F 275	A	B	C 290	260	305	295	315	B	B	B	335	335	B	R 330	C	F 355	F
4	A	R	R	A	A	F	F 300	F 290	270	275	280	310	F 310	F	F	F	F	F	R	F	F	R	U F 295	F 295
5	F	A	A	A	A	B	B	B	A	325	F 295	F 245	260	B	B	B	325	345	340	F 325	F 305	R	F	A
6	A	A	A	A	A	A	F	F 255	A	A	R	R	B	B	B	U F 310	B	B	B	335	B	B	B	A
7	F	A	A	A	A	B	260	265	290	300	290	310	300	315	F 290	H 320	345	F	F 335	F	F	A	F	A
8	A	R	F	F 290	U F 295	F 295	335	290	F 275	F	300	F 310	C	J F 320	320	F	F	R	F 345	C	C	C	F	A
9	A	A	F	F	F 265	A	R	A	F 260	290	275	310	325	300	315	F 320	F	F 325	F	F	F	F 285	A	A
10	B	A	A	F	A	A	A	F	F 265	F 290	315	F 300	U F 320	F 320	F 300	320	330	350	335	F 345	B	F	F 275	A
11	A	A	A	A	F	A	A	F 275	J F 280	F 275	295	280	295	320	320	J F 310	F	J F 315	F	F	F	F	A	A
12	A	A	A	A	A	A	F	B	R	F	F 280	F 305	300	290	300	I C 300	310	330	350	340	340	F 335	A	U F 320
13	F	B	A	A	F	A	A	A	A	R	B	B	290	B	B	B	F 315	315	330	335	320	F 320	F 305	F 280
14	F 285	F 300	F	U F 285	F 295	F	F 275	J F 285	U F 290	280	300	F 315	F 290	315	F 330	335	345	350	J R 340	345	F	J F 325	J F 300	F
15	F	F	A	A	F	F	F	A	R	B	R	B	F	F 310	B	U F 275	R	F	R	A	F 315	A	A	B
16	B	A	B	A	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	U F 280	F	A	F
17	B	A	B	B	B	B	R	B	B	B	B	B	B	B	B	B	B	B	F 315	F 325	F 305	A	A	A
18	A	A	A	B	B	F	B	B	B	B	B	B	B	B	B	B	B	R	335	355	U F 275	B	F	A
19	A	A	A	F 260	F 290	F 270	F 275	F 270	260	C	270	290	285	295	290	F 300	F 285	F 300	305	C 350	F 295	A	A	A
20	A	A	A	A	B	A	F 275	F 285	C	245	255	B	B	270	280	B	F 315	325	345	340	335	F	F	C
21	F	A	A	B	A	R	260	B	F	B	F	F 295	F 305	F 290	F 300	F 310	325	340	335	325	330	300	S 305	R
22	A	F	A	A	B	A	A	F 275	285	275	275	270	285	295	305	F 320	325	320	F 350	F 355	U F 330	F	U F 310	F
23	R	F	280	U R 280	F	260	R	U F 275	F	F	U F 280	C	F 295	F 290	F	F	F 335	345	F 335	F 335	F 315	R	F	A
24	A	R	A	R	F 265	F	J F 265	J F 285	280	275	275	285	F 290	F 310	315	315	340	F 330	C 345	F 330	305	J F 320	J F 300	A
25	A	U F 280	F	C	B	A	A	F 265	F 275	270	265	275	F 285	295	290	305	F 315	F 335	360	F	J F 335	R	R	R
26	R	R	F	C 260	A	A	F	F	F	F	F 295	F 290	290	300	315	320	325	335	340	365	F 350	F	F	R
27	R	R	A	S	S	S	F	F	F	F	F	F	F	F 315	310	F 310	F 325	330	340	320	325	R	A	A
28	A	F	F	B	F	F	F	J F 270	J F 285	F 275	F 280	F 295	F 290	F 310	F 310	310	315	F 315	F 340	335	F 320	F	F	F
29	A	A	A	R	250	J F 285	F	J F 270	Y	F 260	F	U F 300	280	F 300	F 300	310	F 340	335	335	330	F 335	J F 335	F	R
30	R	R	R	R	S	R	J F 275	F	J F 285	F 285	F 285	F 285	F 275	F 295	F 310	F 315	F 280	255	F	J F 315	F	A	A	A
31	A	F	B	B	F	F	F	F 255	U F 265	B	B	B	R	B	B	F	U F 305	210	Y	A	F 300	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	2	1	5	6	4	10	16	15	16	20	19	20	21	18	18	19	22	21	19	20	7	9	3
MED	F 285	F 290	280	F 280	F 278	F 278	F 275	F 275	F 280	F 278	280	F 295	290	300	308	310	325	330	340	335	F 320	F 320	F 300	F 295
UQ				U F 285	F 295	F 290	F 275	F 285	F 285	290	295	F 308	300	315	315	320	332	335	345	345	F 332	F 330	F 305	F 308
LQ				260	F 265	265	F 265	F 268	F 268	275	275	285	285	295	F 300	F 310	F 315	315	335	F 328	F 305	F 310	F 300	F 288

The Radio Research Laboratories, Japan

OCT. 1976 | M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1976 | 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 of MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1									L	450	400	F	B	F 410	B	250	250							
2									B	B	B	B	B	B	B	B	B	300						
3									B	L	500	355	350	300	B	B	B							
4							L	L	400	395	355	300	300	270	250	L	L							
5											345	520	450	B	B	B	345							
6								475	A	A	A	R	B	B	B	315	B							
7									380	L	380	315	340	300	L	325	240	L						
8							L	365	400	U C 340	330	305	C	290	280	L	L	240	230					
9							R	A	450	395	L	300	295	L	300	280	275	240						
10								415	390	350	290	300	280	300	330	265	L	255						
11								A	360	L	355	395	355	300	300	L	L	L						
12								B	R	F	385	340	315	370	340	C	290	250						
13								A	A	R	B	B	340	B	B	B	L	L						
14						340	375	345	350	350	320	300	325	300	290	260	L	L						
15								A	R	B	R	B	530	330	B	370	R							
16								B	B	R	B	B	B	B	B	B	B							
17								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						420	400	395	440	C	460	370	400	380	395	345	345	280	305					
20							410	L	C	530	455	B	B	425	380	B	L	L						
21							405	B	390	B	U F 430	350	340	330	320	285	280	L						
22							A	400	350	400	405	375	340	325	290	280	265	L	245					
23						400	A	380	350	F 350	360	I C 385	350	320	300	280	280	250	L					
24						U R 395	390	350	350	350	375	345	340	300	300	305	L	L	250					
25						A	A	425	360	380	405	410	380	375	390	325	L	L	L					
26							430	325	300	340	350	345	370	340	310	290	285	270	245	230				
27						L	360	330	310	310	310	305	C	300	325	295	280	255	245					
28						400	330	350	350	350	365	330	345	310	310	320	300	290	245					
29						380	355	350	Y	405	380	370	380	345	315	315	L	L	L					
30					L	350	330	330	325	315	340	325	350	300	290	290	380	390	L	290				
31							430	455	395	B	B	B	R	B	B	325	295	680	Y					
	00	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	11	15	18	16	22	21	21	22	19	19	14	12	7	2				
MED						395	390	365	360	350	370	345	345	315	310	295	282	262	245	260				
UQ						400	408	408	395	398	405	370	370	345	328	322	300	295	248					
LQ						365	357	348	350	345	345	305	340	300	295	280	275	250	245					

OCT. 1976 | H'F2 (KM)

IONOSPHERIC DATA

OCT. 1976 | H'F (KM) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S. Long. 39° 35' 4" E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	B	A	A	B	A	A	360	280	A	215	200	B	B 250	B	B	B	B	B	B	B	A	290	A
2	U A 290	B	A	A	B	B	C	B	B	B	B	B	B	B	B	B	B	B	B	340	310	A 300	A	A
3	A	A	A	B	B	B	360	A	B	225	230	245	U H 200	250	B	B	B	245	B 250	B	E B 275	C	A 290	A
4	A	A	A	B	A	305	250	225	H 200	250	220	B	220	200	210	220	205	H 225	220	215	220	220	250	275
5	A	A	A	A	B	B	B	B	A	300	A	220	H 230	B	B	B	B 280	250	240	240	230	260	A	A
6	A	A	A	A	A	A	U F 455	250	A	A	A	A	B	B	B	B	B	B	B	E B 270	B	B	B	A
7	A	A	A	A	A	B	510	A	230	230	H 205	U H 215	210	205	200	Y 220	230	210	225	220	275	A	300	A
8	A	270	325	320	325	265	230	240	225	230	205	255	C	205	245	240	210	220	210	C	C	C	290	A
9	A	A	A	A	375	A	A	A	245	Y 230	H 225	240	210	210	210	250	215	230	F 225	230	B	330	A	A
10	B	A	A	A	A	A	A	A	275	260	240	225	205	205	230	240	230	245	H 235	220	B	A 310	380	A
11	B	B	A	A	A	A	A	A	F 255	250	260	210	225	210	205	U H 190	245	205	230	245	270	450	A	A
12	A	A	A	A	A	A	F	B	260	240	270	225	225	200	230	I C 220	240	230	H 225	225	225	235	A	300
13	255	B	B	A	F	A	A	A	A	A	B	B	E B 255	B	B	B	225	220	H 230	245	240	B 255	250	295
14	330	315	A	355	330	280	240	210	H 200	200	H 220	200	225	220	205	225	220	220	220	225	215	230	250	A
15	F	310	A	A	A	300	Q 250	A	A	B	A	B	250	225	B	230	A	350	A	A	300	A	A	B
16	B	A	B	A	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	290	F	A	U A 245
17	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	270	250	280	A	A	A
18	A	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	255	B 250	A	B	440	A
19	A	A	A	440	350	250	245	250	210	205	200	200	220	C 220	205	200	220	230	245	230	290	A	A	A
20	A	A	A	B	B	A	A	260	260	255	215	B	B	215	230	B	210	205	240	240	220	345	Q 420	C
21	A	A	A	B	B	360	340	B	A	B	220	260	200	H 200	250	220	240	220	H 230	250	240	245	245	305
22	A	A	A	B	B	A	A	250	H 205	220	215	220	210	225	220	215	210	230	220	220	230	235	240	260
23	265	310	A	A	A	295	A	240	240	210	210	I C 205	H 200	200	230	225	210	B	220	240	260	A	500	A
24	A	A	A	380	380	A 320	U H 245	240	235	230	210	210	230	220	205	205	H 210	205	230	H 225	275	240	250	A
25	A	U A 425	U F 400	C	B	A	A	275	200	H 210	225	200	205	215	230	205	205	210	220	H 220	230	240	240	230
26	250	A	S	A 430	A	A	A	U F 250	200	H 200	225	220	210	205	210	220	205	215	225	210	230	230	250	240
27	250	280	A	U S 340	S	A	A	250	Y 225	200	205	200	H 195	H 195	200	240	240	225	240	240	250	260	A	A
28	A	250	U F 280	B	A	280	255	215	210	205	205	200	205	200	225	205	200	225	235	H 220	255	255	250	320
29	A	A	A	R	A	265	H 210	H 205	Y	300	225	205	205	200	200	225	210	225	225	250	240	230	235	250
30	240	240	250	295	230	230	215	210	205	210	200	200	200	210	200	205	240	E B 300	255	260	A	A	A	A
31	A	280	B	B	450	F	A	A	230	B	B	B	210	B	B	230	240	A	U F 270	A	370	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	9	4	7	7	11	13	16	20	21	22	21	23	23	20	21	23	23	26	25	24	18	18	10
MED	255	280	302	355	350	280	250	245	228	230	218	210	210	210	210	220	220	225	230	235	248	250	250	268
UQ	278	310	362	405	378	302	340	250	250	250	225	225	224	220	230	230	240	230	240	248	278	300	300	300
LQ	250	270	265	330	328	265	240	220	205	210	205	200	205	200	205	205	210	218	225	220	230	235	250	245

The Radio Research Laboratories, Japan

OCT. 1976 | H'F (KM)

IONOSPHERIC DATA

OCT. 1976 | H'Es (KM) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 150	100	100	100	125	K 100	K 100	K 100	K 100	105	100	G	B	B	B	B	B	B	B	B	150	125	K 145	K 125
2	K 175	100	100	100	110	B	140	B	B	B	B	B	B	B	B	B	B	B	B	K 100	140	125	125	K 100
3	K 120	K 115	110	B	105	B	K 100	100	B	105	G	G	G	G	B	B	B	B	B	B	B	C	150	110
4	K 110	K 110	K 105	100	100	K 105	G	G	110	G	G	B	G	105	150	180	G	150	G	170	B	C	K 100	125
5	115	110	105	K 110	120	B	B	B	100	100	100	145	G	B	B	B	B	B	B	K 125	B	140	105	105
6	K 110	K 110	K 115	K 100	105	100	K 100	G	100	100	95	100	B	B	B	B	B	B	B	B	B	B	B	125
7	100	110	115	100	100	B	K 100	100	G	G	G	140	G	G	G	G	G	G	G	150	120	K 110	K 100	K 105
8	K 105	K 105	K 100	K 105	G	G	130	G	G	G	G	G	C	G	G	G	140	125	100	C	C	C	140	115
9	K 110	K 105	K 120	K 125	K 130	110	100	100	K 105	G	G	G	G	G	G	G	G	G	B	B	B	K 130	K 110	K 110
10	110	K 110	K 110	K 105	105	100	100	100	100	G	G	G	140	150	130	G	G	110	G	G	B	130	170	K 110
11	115	130	105	K 105	130	100	100	100	K 180	G	95	G	G	120	110	120	125	G	110	160	155	K 105	K 105	100
12	100	100	100	100	K 100	105	K 110	B	K 130	110	105	G	120	G	G	C	G	G	100	G	G	B	105	K 100
13	K 110	110	100	105	130	100	100	100	100	105	B	B	B	B	B	B	G	G	B	B	B	B	K 135	K 125
14	K 130	K 105	140	140	K 100	130	G	G	G	G	G	G	G	120	G	G	G	G	G	140	G	G	B	105
15	160	K 105	155	105	115	K 115	100	100	100	B	100	B	100	G	B	G	105	K 115	K 105	105	G	K 110	115	B
16	B	130	95	100	B	B	B	B	B	125	B	B	B	B	B	B	B	B	B	B	140	K 105	K 110	K 125
17	100	100	B	B	100	B	110	B	B	B	B	B	B	B	B	B	B	B	150	130	G	170	K 150	K 105
18	K 105	105	100	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	170	B	G	K 100
19	K 105	K 105	K 110	K 145	K 110	G	G	G	G	G	G	G	G	G	110	110	G	G	G	B	G	K 105	K 110	K 115
20	K 130	K 115	K 110	110	B	100	K 105	K 105	105	G	G	B	B	B	G	B	G	G	B	150	G	150	165	C
21	K 105	105	110	B	125	105	105	B	120	B	105	G	G	G	G	G	G	130	B	G	110	120	100	K 100
22	K 120	K 110	K 100	100	B	100	100	K 185	G	G	G	G	B	G	G	G	G	B	125	B	110	110	130	140
23	125	K 110	120	100	125	105	110	100	100	100	G	C	110	100	G	G	G	B	150	G	C	135	K 120	100
24	100	110	100	K 100	K 105	K 105	125	G	G	100	115	110	G	110	100	G	G	100	100	G	G	140	120	K 110
25	110	K 110	K 110	K 120	B	100	100	K 100	G	G	G	G	105	G	G	100	G	100	G	G	115	125	125	115
26	105	110	K 120	K 125	110	100	100	100	G	130	G	G	G	G	100	105	100	110	100	100	95	100	100	105
27	120	105	100	K 100	K 120	100	100	100	G	G	G	100	105	145	G	G	B	G	B	B	135	135	120	100
28	105	100	100	B	100	100	G	G	G	G	G	G	105	100	100	100	105	105	G	160	130	110	120	120
29	K 105	K 120	120	K 125	115	140	100	95	Y	120	150	G	G	105	110	105	100	100	100	95	95	125	120	100
30	B	130	100	125	115	95	G	100	95	G	G	105	G	B	G	G	B	B	155	115	105	105	105	100
31	100	100	B	B	K 100	K 100	120	100	G	B	B	B	G	B	B	B	G	100	B	110	K 105	K 105	K 110	100
	00	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	31	29	25	25	23	23	17	14	11	9	6	7	9	8	7	6	11	11	14	15	23	28	29
MED	K 110	110	105	105	110	100	100	100	100	105	100	108	105	110	110	105	105	110	105	128	120	125	120	105
UQ	K 120	K 110	K 115	K 120	120	105	110	100	K 110	115	105	140	115	120	120	115	125	120	138	150	140	132	132	115
LQ	105	105	100	100	100	100	100	100	100	100	100	100	105	105	100	102	100	100	100	105	108	108	105	100

OCT. 1976 | H'Es (KM)

IONOSPHERIC DATA

OCT. 1976 | TYPES OF ES | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00′ 4 S, Long. 39° 35′ 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	ACK 11	R 1	RS 11	R 1	R 1	K 1	K 2	RK 21	RK 13	RL 31	L 1										H 1	C 1	RK 11	RKA 11
2	HK 11	R 1	R 2	R 2	R 1		R 1													RK 21	H 1	R 1	C 3	RK 13
3	K 4	K 1	R 2		R 1		LK 11	L 1		R 1													FF 11	F 1
4	CK 31	CK 51	CK 41	R 1	R 2	K 1			R 1					R 1	H 1	A 1		H 1		A 1			LK 11	A 1
5	RA 11	R 3	R 4	K 2	R 1				RA 11	RA 11	C 2	H 1								K 1		RA 11	R 4	R 7
6	RKS 21	RK 15	RK 14	RK 11	R 1	R 2	K 3		R 1	R 1	R 1	R 1												R 2
7	RRA 11	R 3	R 3	R 2	R 2		K 1	R 1				H 1								H 1	CL 11	K 7	K 1	K 3
8	KA 51	K 6	RKL 14	RA 11			H 1										AH 11	CL 12	LH 11				RA 11	RA 11
9	RK 13	K 3	RK 21	RK 11	RK 11	R 1	R 1	R 1	K 1													R 1	KA 31	K 3
10	RA 11	K 5	KR 35	RA 11	R 3	R 1	R 2	R 3	R 2				HR 11	H 1	H 1			C 1				R 1	R 1	K 7
11	R 1	R 1	RA 21	RKS 13	RA 21	R 1	R 1	R 2	HK 12		L 1			H 1	C 1	C 1	C 1		C 1	RA 11	R 1	RLK 31	K 6	RA 11
12	RA 21	R 1	RS 11	RS 11	RK 22	R 1	K 1		K 1	R 1	R 1		C 1						R 1				RA 31	RAK 11
13	CK 11	R 1	R 1	RA 11	RAP 11	R 1	R 1	R 1	R 1	R 1													AK 11	RAK 11
14	RAK 11	CAK 21	R 2	H 1	LHK 11	H 1								C 1						H 1				R 2
15	AR 11	RAK 11	AR 12	FA 11	RL 11	CK 11	RA 11	R 2	RA 11		R 1		R 1				R 1	RK 11	K 2	RS 21		KA 31	AR 13	
16		AF 12	F 1	R 2						R 1											H 1	RK 31	KA 51	RAK 11
17	F 1	RA 21			L 1		C 1												H 1	C 1		AR 11	AK 11	RAK 11
18	RK 21	R 1	RA 21			CA 11															AR 11			K 5
19	KS 31	K 4	CK 13	HK 11	K 1										C 1	C 1						K 4	K 7	KS 51
20	AK 12	K 1	K 2	C 1		R 1	RK 11	K 2	R 1											H 1		R 1	R 1	
21	RAK 11	R 3	R 3		R 1	R 1	RA 11		C 1		R 1							H 1			C 1	C 1	L 1	RK 11
22	KL 51	RK 31	LRK 14	R 1		R 1	R 2	HK 12											C 1		C 2	C 1	HL 11	HA 11
23	R 1	RK 51	RA 11	R 2	RA 11	R 2	R 1	RA 11	R 1	R 1			C 1	R 1					H 1			R 1	RK 22	RA 21
24	RA 31	C 1	R 2	RK 31	RK 21	RAK 11	CA 11			R 1	C 1	C 1		C 1	C 4			C 3	L 1			H 1	H 1	K 5
25	R 3	RK 23	K 4	K 1		R 2	R 2	RK 21					C 1			L 1		C 1				R 1	R 1	C 1
26	LR 11	RL 31	K 1	RK 11	R 1	R 1	R 2	R 3		H 1					C 1	C 1	L 3	CL 11	L 2	L 2	L 2	L 1	C 2	C 2
27	C 1	R 2	RA 21	RK 13	KAL 11	RI 11	RA 31	RA 21				R 1	R 1	H 1							RA 11	RA 11	R 3	RS 31
28	RA 11	LA 11	LA 31		R 1	RA 11							C 1	C 1	C 1	C 1	L 1	C 1		H 1	R 1	R 2	CA 11	R 1
29	K 7	K 6	R 3	K 1	R 3	RI 11	L 2	L 1		AL 11	HAL 11			C 1	C 1	C 1	C 1	C 1	L 1	L 4	L 2	C 1	C 1	L 1
30		H 1	CC 21	R 1	R 1	LR 11		L 1	L 2			C 1							H 1	R 1	RS 21	RS 11	RA 11	AR 12
31	R 2	LA 21			K 1	KI 21	RR 11	R 2										RS 21	S 1	AR 11	K 4	K 4	RKA 12	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																								

The Radio Research Laboratories, Japan

OCT. 1976 | TYPES OF ES

IONOSPHERIC DATA

NOV. 1976 | FXI (0.1 MHz) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	A	B	O R 41	R	R	O R 46	O R 46	B	B	B	O R 47	B	B	B	O R 50	O R 46	X 46	X 44	X 41	X 43	41	37
2	A	A	A	B	B	O R 40	B	O R 46	O R 47	51	50	B	O R 52	X 58	O R 58	X 56	X 53	O R 54	O R 49	47	37	R	A	A
3	U S 57	C	A	43	A	A	O R 46	X 48	X 50	X 48	X 49	O R 52	O R 53	B	O R 55	53	X 51	X 50	X 50	X 46	X 46	O R 50	46	U S 45
4	A	A	A	R	46	52	54	59	X 58	X 56	X 56	X 55	X 58	X 60	X 57	O R 54	X 50	X 48	X 48	X 46	X 46	X 42	45	42
5	40	O R 34	40	46	U S 48	U S 58	X 61	X 64	S 62	57	57	60	X 60	60	X 56	57	52	51	50	X 50	O R 49	X 48	X 47	X 48
6	X 47	R	X 47	O R 47	U S 55	B	54	58	67	X 58	X 56	X 55	X 58	X 64	59	A	O R 52	52	53	50	52	47	S 47	U S 46
7	O R 36	42	U S 45	54	56	60	66	60	58	B	O R 52	X 55	X 51	X 52	X 52	X 53	X 51	X 51	X 51	50	46	47	S 57	47
8	S 45	58	U S 47	S 57	X 47	X 54	58	70	60	X 54	X 56	X 59	X 62	X 60	X 55	X 53	X 50	X 54	X 53	53	X 53	49	41	R
9	A	A	40	U S 50	U A 66	57	56	R	X 45	51	52	52	X 55	X 55	60	59	O R 55	51	52	50	47	47	43	43
10	X 42	A	R	R	R	49	A	A	A	B	O R 54	59	53	X 52	X 50	56	X 60	70	R	46	42	A	A	37
11	B	R	A	R	R	B	R	B	B	A	O R 46	O R 51	R	O R 54	B	O R 56	X 55	P	U R 64	46	A	A	A	A
12	44	36	B	A	A	B	R	R	R	B	B	B	O R 52	X 53	O R 57	O R 56	O R 57	X 46	B	41	X 41	O R 36	A	A
13	O R 41	B	B	B	B	B	R	A	B	R	B	B	O R 63	B	61	59	R	X 44	57	45	O R 44	R	A	A
14	C	C	C	C	C	C	R	R	X 49	X 50	X 49	X 52	X 51	X 53	X 58	59	51	R	B	R	39	46	40	R
15	R	B	B	B	B	R	R	O R 46	52	X 56	X 56	X 50	X 50	O R 51	X 53	O R 54	X 56	O R 56	O R 48	X 46	O R 44	37	42	X 39
16	S 45	O R 36	40	O R 46	49	50	S 60	56	59	X 56	X 58	X 56	X 61	X 57	X 58	X 54	X 55	X 57	X 59	53	O R 50	43	40	X 38
17	42	R	O R 41	R	A	A	R	57	62	59	X 61	X 59	X 62	X 62	60	61	X 62	X 58	R 55	X 49	U R 56	50	45	R
18	O R 41	O R 41	O R 43	B	R	X 53	O R 50	52	58	60	62	C	X 64	X 58	X 52	X 51	X 52	X 51	X 53	X 53	X 48	X 50	X 52	R
19	A	A	B	R	56	60	B	A	58	70	72	69	63	X 60	X 59	X 57	X 50	X 51	X 53	X 56	57	46	41	A
20	U A 50	U S 47	A	40	53	50	A	52	54	58	60	59	X 54	X 56	X 51	X 54	56	55	C	X 51	X 51	X 48	X 40	R
21	S 41	O R 46	S 49	50	S 56	51	60	58	66	62	65	X 65	X 58	X 60	X 62	X 56	X 57	X 56	X 52	X 53	X 50	X 50	S 49	X 48
22	X 48	X 46	S	X 46	X 51	64	66	70	73	71	X 70	X 81	X 80	X 69	X 66	X 60	X 60	X 61	X 60	X 60	X 55	58	R	R
23	R	S 52	R	O R 46	A	X 58	55	66	68	69	65	68	X 65	X 63	X 57	X 53	X 52	X 53	X 56	X 58	X 52	X 49	X 46	X 38
24	X 38	R	X 46	X 51	50	57	70	62	60	60	62	62	63	X 67	X 62	X 61	X 62	X 57	X 59	X 58	55	S 53	48	58
25	U S 56	58	60	60	S 70	67	69	A	62	R	R	59	64	84	B	85	84	64	55	48	52	X 42	A	A
26	A	U S 44	U S 42	U S 48	U R 45	50	60	57	R	O R 58	62	60	X 57	54	X 57	X 59	X 57	X 58	X 56	50	42	X 40	A	A
27	A	36	U S 43	U S 55	49	A	R	A	R	R	R	B	O R 50	O R 52	O R 51	O R 51	X 51	X 54	X 50	X 48	46	X 48	R 50	X 48
28	A	R	42	50	54	58	60	X 60	X 60	62	X 64	X 65	X 65	X 62	X 63	X 63	X 58	X 53	X 50	X 51	X 48	X 48	X 50	X 62
29	O R 52	X 47	S 52	52	57	O R 64	60	X 60	X 62	X 65	X 66	X 73	X 88	X 74	X 73	X 61	X 57	X 57	X 58	50	R	44	X 52	X 47
30	O R 49	X 48	B	50	A	O R 50	U A 70	A	A	63	69	60	X 55	X 51	X 53	X 56	X 59	X 55	X 54	52	46	O R 43	43	F 45
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	18	15	15	18	18	20	18	20	23	22	25	24	29	27	27	28	29	28	26	29	28	26	22	17
MED	44	46	43	50	52	56	60	58	59	58	58	59	X 58	X 58	X 57	X 56	X 55	X 54	X 53	X 50	48	47	46	45
UQ	49	48	47	52	56	59	66	61	62	62	64	64	X 63	X 62	X 60	59	X 57	X 57	X 56	X 53	52	X 49	49	X 48
LQ	41	38	42	46	48	50	55	52	53	X 56	X 54	X 55	X 53	X 54	X 54	X 54	X 51	X 51	X 50	46	44	43	41	39

NOV. 1976 | FXI (0.1 MHz)

IONOSPHERIC DATA

NOV. 1976 | FoF2 (0.1 MHz) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	A	B	35	R	R	F 39	40	B	B	B	41	B	B	B	44	C 40	40	38	35	37	J F 34	F 30
2	A	A	A	B	B	F	B	F	U F 40	F 44	F 42	B	46	51	52	50	47	48	43	F 40	F	R	A	A
3	R	C	A	F	A	A	F	41	F 42	41	42	46	47	B	49	F 47	44	44	43	40	40	F 43	F 40	F 31
4	A	A	A	R	F 40	F 46	U F 46	U F 50	52	50	50	49	51	54	51	48	44	41	42	40	40	F 36	F 39	36
5	F	U R 28	F	F 40	F	U F 46	J F 55	58	F 55	F 51	F 51	F 53	54	F 53	50	F 50	F 46	F 44	J F 44	43	F 42	F 41	J R 41	J R 42
6	J R 41	R	J F 41	U R 40	J F 46	B	F 46	U F 47	F 51	51	50	49	52	58	F 52	A	46	F 46	F 47	F 42	F 45	F 40	J F 39	U F 35
7	30	F	F	F	F	F	U F 43	J F 51	U F 46	B	46	49	45	46	46	47	45	45	45	F 42	F 38	U F 38	F	J F 40
8	F	F	U F 34	U F 38	40	R 47	F	F	F 48	F 48	50	52	56	53	49	47	43	48	47	F 47	47	J F 42	F 35	A
9	A	A	F 33	F	C	F	Y	A	E G 38	F 44	F 45	F 45	49	F 49	F 52	F 51	U R 49	F 45	F 46	F 44	J F 39	U F 38	F 37	F
10	J R 36	A	R	R	A	F	A	A	A	B	F 48	F 50	F 46	45	44	F 49	F 54	I F 57	R	U F 40	U F 35	A	A	F
11	B	A	A	R	R	B	R	B	B	A	40	U F 44	B	48	B	F 49	49	R	R	A	A	A	A	A
12	F	F	B	A	A	B	R	A	R	B	B	B	46	47	51	50	51	40	B	F 33	34	30	A	A
13	U F 34	B	B	B	B	B	R	A	B	R	B	B	57	B	F 54	F 53	R	U F 38	F	U F 39	38	R	A	A
14	C	C	C	C	C	C	R	R	43	43	42	46	45	47	51	F 53	F 44	R	B	A	F 30	F	F 33	A
15	R	B	B	B	B	A	A	F 40	F 45	50	50	43	44	45	48	48	50	R 50	42	40	U F 34	F 30	J F 36	33
16	34	F 29	F 33	F 37	F 40	F 43	F 47	F 47	F 52	49	52	50	55	50	51	48	49	50	52	42	F 40	F 38	F 32	32
17	F	R	F 35	R	A	A	R	F 50	J F 53	F 51	54	53	56	56	U F 53	U F 54	J R 56	F 52	49	43	F 45	F 43	J F 39	R
18	F	F	F 34	B	R	47	44	U F 42	F 50	F 52	F 56	I C 55	58	52	46	45	46	44	47	47	41	44	45	R
19	A	B	B	R	F	F	B	A	F 48	U F 54	F	F 60	F 57	54	52	51	44	45	47	50	F 49	F 39	F 34	A
20	F	F	A	F 34	F	F	A	U F 45	F 48	F 51	F 52	F 51	48	50	45	48	F 50	F 49	I C 47	45	F 44	42	J R 34	A
21	F 34	40	U S 43	J F 44	F 45	F 40	F 44	49	F 52	F 54	F 56	58	52	54	56	50	50	50	46	47	44	44	43	42
22	42	J R 40	S	R 40	45	F 47	U F 54	J F 57	F	J F 64	63	75	74	63	60	53	53	55	53	F 54	48	U F 47	R	R
23	R	R	A	40	A	52	F 46	U F 49	J F 61	J F 60	F 59	F 60	59	57	50	48	45	47	50	52	46	43	40	J R 32
24	J R 32	R	40	U S 45	U F 43	F	F 53	F 55	F 52	F 52	F 52	F 52	F 57	61	56	55	56	51	53	51	J F 48	U F 42	F	F
25	F	F	F	F	F	F	J F 60	A	F	A	R	U F 52	U F 52	F	B	F	J F 66	F 57	F 49	F 42	F	36	A	A
26	A	F	F	F	A	U F 42	U F 52	F	R	U R 52	F 55	F 53	50	F 48	50	52	50	52	50	F 41	F 34	33	A	A
27	A	F	F	F	F 42	A	R	A	R	R	R	B	44	46	45	45	45	48	43	41	F 39	42	44	42
28	A	R	J F 36	J F 42	J F 45	U F 50	J F 54	F 53	F 54	F 55	58	59	59	56	57	57	51	47	44	45	42	42	44	F 45
29	U F 42	40	42	U F 44	F 50	F 54	F 54	F 54	56	59	60	66	72	68	67	55	50	51	51	F 42	R	J F 37	J R 46	J R 41
30	U R 43	J R 42	B	F	A	F 44	F	A	A	F	U F 55	F 50	F 49	45	47	50	53	49	48	F 44	F	37	J F 37	F 39
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	6	10	11	11	12	14	17	21	21	24	25	29	26	27	27	29	28	25	28	25	25	20	14
MED	35	40	F 36	F 40	F 43	F 46	F 50	F 49	F 50	F 51	52	52	52	52	51	50	49	48	47	42	F 40	F 40	F 39	38
UQ	R 42	J R 40	41	F 43	F 45	48	F 54	F 53	F 52	F 54	F 56	55	57	56	52	52	51	50	49	46	45	F 42	42	42
LQ	34	29	F 34	39	F 40	F 44	F 46	F 45	F 45	49	47	49	46	47	48	48	45	44	44	F 40	F 38	F 37	F 34	32

The Radio Research Laboratories, Japan

NOV. 1976 | FoF2 (0.1 MHz)

IONOSPHERIC DATA

NOV. 1976 | 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 of 15 MHz to 30 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						F	A	330	350	B	B	B	370	B	B	B	B	L	L					
2							B	320	350	370F	370	B	B	380	380	380	370L	360	L					
3						A	A	350F	360	360	360	380	390	B	380	380F	370UF	360L	L	L				
4						330F	330F	340F	360	370	370	380	380	380	400	390	L							
5					280F	310F	330	350F	360	380	380	380F	390F	400	380	390	390UF	L	L					
6				L	270UR	B	300UF	330F	350F	370	390UA	380	A	400	400	A	A	L	L	L				
7				L	290UF	370F	320F	350F	360F	B	380	390	390	390	390	380	370	L	L	L				
8					270	330F	320F	340F	350F	360	390	390	A	400	400	L	L	360UL	350UL	L				
9						F	Y	A	380F	380F	370	380	380	370F	380	380	380	360	350	320L	L			
10							A	A	A	B	B	400F	390	390	380	370	370	360	330UF					
11						B	R	B	B	R	360	380	B	380	B	370	360	A	A					
12						B	A	A	A	B	B	B	370	380	380	B	370							
13						B	R	A	B	370	B	B	B	B	370	370	R	340UF	330F					
14						C	A	350	370	370	380	370	390	390	380	380	370F	370F	B					
15					B	A	A	340	370F	380	380	390	390	390	380	380	370	370IB	350	340L				
16					300	330F	340F	360UF	370F	380	390	400	400	400	400	400	380	370	350	330				
17					A	A	A	380	390F	380	380	400	400	400	410	400F	390F	L	L					
18					A	A	A	360	390F	390	400	400IC	400	410	410	400	400UL	L	L	L	L			
19					310	L	B	A	370F	390	390	400	400	400H	400H	400	L	380	350	L	L			
20							A	350	380F	380	380	400	400	400	400	400	390	380	C	L	L	L		
21					320	330UA	350F	370	370	380	400	400	410	400	400	400	400	360	L	L	L			
22				290	L	320	370F	370F	370	400	400	400	410	430	410	400	400	390L	L	L				
23					A	A	360UF	370	370	380	390	400	400	400	410	400	L	380	360L	340L	L			
24					330	360F	370F	380F	380	400	390	400	400	410	A	400	400	L	360	330UL	L			
25			L	L	L	F	350UF	A	F	A	A	390	390	400	B	380	390F	390	350L	A				
26					A	F	A	370UF	R	A	390F	400	400	400	400	400	400	380	360	L				
27						A	F	A	A	A	R	B	400	Y	380	380	380	370	L	L		L		
28			L	290	310F	330F	350	370	370F	390F	390	400	400	400	400	400	400	380	L	350	320L	L		
29			L	290UF	330F	350	360	370	A	390	400	400	410	410UR	400	400	390F	370	350L	L				
30					A	A	A	A	A	400	400F	400F	400	400	400	400F	390	390	360UL	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				3	10	10	13	21	21	22	24	25	25	26	26	26	23	20	13	6	1			
MED				290	305	330F	350F	350	370F	380	390	400	400	400	400	395	390	370	350	335L	320L			
UQ				290	320	330F	360F	370	370F	390	390	400	400	400	400	400	395	380	360	340L				
LQ				290	280	320F	330F	340F	360	370	380	380	390	390	380	380	370	360	350	330L				

IONOSPHERIC DATA

NOV. 1976 | FOE (0.01 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

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	B	B	B	B	U K 280	B	A 240	U A 280	B	B	B	U C 280	B	B	B	B	B	200	170	H 170	150	120	K 160
2	B	U K 320	K 350	B	B	K 290	B	A	265	260	275	B	B	U C 280	B	280	U R 260	B	B	B	U A 130	K 330	U K 340	U K 350
3	K 285	C	A	K 220	A	A	A	230	235	250	260	B	B	B	U R 290	F 260	240	210	200	160	B	A	A	K 160
4	A	A	B	K 315	K 310	K 270	205	220	250	265	270	270	280	270	U R 270	U R 270	250	230	H 210	170	H 150	H 130	110	100
5	A	K 220	K 230	K 255	U A 155	165	200	H 240	250	A	270	270	280	270	280	265	A	230	220	200	A 130	A	A	A
6	A	U A 105	A 100	U A 115	H 160	B	200	220	250	A 255	270	280	280	280	280	A	U A 230	A	205	180	A	A	A	R 100
7	B	100	90	100	F 150	180	200	230	U F 250	B	Y	300	270	270	275	H 270	A 270	250	H 215	170	B	B	B	B
8	B	A	A	U A 120	150	R 210	A 190	225	250	260	280	280	270	270	A	A	250	235	210	180	160	F 160	F 120	B
9	A	U K 200	U K 270	A	U A 150	180	A	A	U K 320	F 255	270	A	A	280	A	A	A	F 230	H 205	180	130	A	B	A
10	A	A	A	A	B	K 280	A	A	U K 370	B	B	270	285	270	260	R 245	250	230	200	U B 180	U K 280	K 420	A	140
11	B	B	B	B	A	B	A	B	B	I R 295	305	275	B	B	B	250	255	K 420	U K 400	A	U K 420	A	A	B
12	A	110	B	B	B	B	B	A	B	B	B	B	B	250	A	B	B	220	B	200	H 200	A	A	A
13	U K 260	B	B	B	B	B	B	B	B	280	B	B	B	B	U R 270	B	A	245	235	190	K 280	K 340	B	B
14	C	C	C	C	C	C	B	250	H 240	250	265	260	260	255	R 290	A	A	B	B	A	150	K 300	K 200	U K 220
15	K 300	B	B	B	B	A	A	A	F 270	310	265	270	265	270	A 250	A	A	B	B	170	190	180	H 150	160
16	U K 230	K 230	K 230	K 290	A	200	215	230	250	260	280	285	285	270	U R 250	255	245	U R 230	205	170	B	U A 170	U A 130	H 140
17	K 300	A	U K 320	B	A	A	A	K 350	255	260	270	270	275	260	I B 270	270	250	245	I B 240	235	155	120	U K 185	A
18	K 300	K 290	K 250	B	B	A	A	280	265	260	270	I C 280	280	R 290	275	260	260	A 270	230	200	U A 170	A	U A 115	U K 330
19	C	B	B	K 280	K 290	K 270	B	A	H 300	280	275	280	280	255	250	A	A	240	220	200	165	135	U F 140	B
20	A	A	A	U K 300	A	A	A	U K 320	230	260	280	A	295	260	270	265	A	250	I C 220	210	H 185	160	U H 130	K 330
21	K 190	A	U K 280	K 270	K 250	A	250	230	250	265	275	280	280	A	A	U A 270	A	250	240	200	185	H 150	110	90
22	110	U R 105	K 200	U A 190	205	U A 230	A	240	H 250	265	290	280	280	265	295	A	A 260	240	230	205	U R 175	A	170	U K 350
23	K 340	K 320	A	K 350	A	A	225	240	255	270	270	270	H 280	H 290	275	A	U A 265	230	220	H 210	170	H 150	125	A
24	A	K 250	K 250	K 280	K 240	220	F 250	290	A	315	H 300	270	280	275	U A 260	A	A	U A 245	215	190	200	U F 175	U A 140	B
25	B	A	B	U R 140	A	205	230	A	260	A	A	A	B	R 290	B	R 285	270	250	230	A 200	A	U K 320	A	A
26	A	A	A	A	A	U K 260	A	A	A	A	265	265	270	H 280	260	260	255	H 250	220	A 200	A 195	K 250	K 370	A
27	U K 380	A	U K 260	A	A	A	K 285	A	A	A	A	B	B	310	A	280	260	250	220	200	180	165	U F 155	U A 150
28	U K 370	A	U F 180	U A 145	U A 160	A 200	220	230	250	260	280	280	275	265	A	250	240	220	230	200	180	H 170	A	U F 125
29	U A 110	A	140	150	160	A	A	A	235	H 265	260	280	270	B	B	B	H 270	A	220	A 180	K 370	A	U A 120	A
30	A	A	B	K 300	A	A	A	A	A	A	275	H 270	270	R 280	270	270	250	240	215	200	A	A	130	120
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	12	11	14	17	12	15	12	17	23	21	23	21	22	24	19	17	19	24	26	27	24	19	19	16
MED	K 292	K 220	K 240	K 255	160	220	218	240	250	260	270	275	280	270	270	265	255	240	220	200	178	170	130	155
UQ	K 320	K 270	U K 270	K 290	K 245	K 270	240	250	265	270	280	280	280	280	278	270	260	250	230	200	198	K 275	U 162	K 275
LQ	K 210	108	180	U 145	152	200	200	230	250	260	270	270	270	265	260	260	250	230	210	180	158	150	120	122

NOV. 1976 | FOE (0.01 MHZ)

IONOSPHERIC DATA

NOV. 1976 | FOES (0.1 MHz) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	42	45	B	E B 31	J A 50	37	37	37	B	B	B	G	B	B	B	F B 41	F B 28	G	24	G	18	20	J A 26
2	37	40	K 35	B	B	K 29	B	33	G	G	G	B	E B 41	G	E B 31	G	G	E B 28	F B 29	E B 20	J A 28	K 33	40	K 35
3	33	C	J A 74	J A 71	J A 41	J A 50	44	28	G	G	G	E B 32	E B 33	B	G	G	G	G	G	G	E B 18	17	20	26
4	J A 64	47	40	K 31	K 31	K 26	34	G	G	G	G	G	G	G	G	G	G	G	G	21	G 11	G	G	G
5	J A 28	32	32	32	24	G	G	G	30	J A 29	35	33	G	31	G	31	30	30	27	G	J A 22	20	22	J A 24
6	31	18	20	J A 32	J A 21	B	G	G	29	27	43	39	52	40	30	J A 116	61	J A 34	21	J A 36	J A 43	J A 63	20	32
7	25	J A 25	19	J A 25	J A 25	G	22	J A 25	32	B	G	G 23	G	G	30	G	28	G	G	25	J A 35	21	J A 25	J A 25
8	32	J A 34	25	J A 24	15	23	29	G	27	G	42	37	J A 57	33	J A 52	J A 34	J A 36	G	G	G	G	20	G	J A 35
9	J A 84	78	J A 36	J A 49	D C 24	J A 25	31	J A 44	J A 46	G	G	32	34	32	31	20	29	30	27	J A 24	J A 26	J A 29	J A 25	J A 35
10	J A 39	J A 42	37	J A 39	41	J A 32	59	52	J A 44	B	E B 40	30	G	G	G	G	G	G	J A 27	23	K 28	K 42	80	59
11	B	40	J A 99	28	J A 36	B	34	J A 135	B	45	G	G	B	E B 30	B	G	G	K 42	K 40	J A 41	K 42	J A 84	42	39
12	J A 36	J A 64	109	93	52	B	37	44	37	B	B	B	E B 35	G	32	E B 41	F B 27	G	B	30	G	32	J A 37	J A 110
13	117	B	B	B	B	B	32	54	B	G	B	B	E B 54	B	G	E B 30	30	31	G	G	106	K 34	93	40
14	C	C	C	C	C	C	38	G	G	G	G	G	G	G	G	30	28	E B 28	B	J A 35	27	K 30	J A 36	32
15	31	B	B	B	B	J A 38	39	40	32	G	G	G	27	G	26	29	42	F B 40	E B 25	G	36	G	16	26
16	J A 24	31	31	33	30	26	G	J A 37	J A 32	G	G	30	31	34	30	30	G	G	G	G	E B 28	24	17	25
17	K 30	J A 53	35	32	58	53	46	38	J A 30	G	31	G	G	G	E B 30	G	G	G	E B 27	38	J A 27	25	J A 29	30
18	K 30	31	J A 31	B	38	42	44	43	G	G	26	C	29	G	G	34	J A 29	J A 29	35	30	23	J A 24	12	K 33
19	J A 76	47	B	K 28	K 29	37	B	56	G	G	G	G	G	G	G	J A 32	30	G	G	29	24	J A 21	21	40
20	81	J A 37	47	J A 32	J A 34	J A 35	54	J A 40	30	29	G	30	G	G	27	G	28	28	C	27	G	21	20	K 33
21	25	26	30	30	40	J A 38	G	G	G	G	32	40	G	30	J A 29	J A 30	J A 39	J A 28	G	33	23	G	15	13
22	18	21	29	26	23	59	32	G	J A 30	G	G	G	32	32	G	32	27	G	G	28	J A 39	J A 62	30	35
23	K 34	K 32	58	J A 78	47	54	G	G	G	J G 26	G	G	G	G	30	J A 34	32	G	G	G	G	G	18	22
24	20	28	K 25	40	28	31	J A 30	32	38	G	G	30	32	33	J A 59	46	J A 33	25	G 20	24	J A 43	J A 78	83	82
25	34	20	21	J A 25	J A 25	J A 37	29	88	G	52	39	39	E B 34	G	B	G	J A 62	33	J A 49	J A 63	J A 35	J A 41	40	J A 37
26	J A 41	J A 32	J A 29	J A 53	59	J A 27	37	J A 36	50	46	G	30	G	G	G	30	G	G	G	33	J A 24	K 25	K 37	70
27	82	66	50	J A 36	J A 57	J A 59	30	J A 54	45	45	34	B	E B 33	G	31	G	G	G	27	26	23	31	J A 24	20
28	90	32	27	32	J A 32	J A 32	24	33	36	36	G	38	J A 45	37	28	32	33	25	G	G	G	G	16	14
29	13	18	19	16	17	J A 39	J A 34	J A 42	J A 48	32	31	30	37	37	34	32	G	28	G	21	K 37	25	22	J A 25
30	21	J A 25	B	K 30	45	40	45	J A 50	J A 57	34	G	G	G	G	G	G	G	G	G	J A 25	27	37	21	20
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	25	24	26	25	28	30	28	26	27	24	29	27	27	29	30	30	27	30	30	30	30	30
MED	33	32	32	32	32	35	33	37	30	G	G	30	E G 29	G	27	30	28	F G 25	G	24	26	25	22	32
UQ	52	42	45	J A 40	41	J A 42	38	44	38	32	32	32	32	32	30	32	32	28	26	30	35	34	37	37
LQ	26	26	27	28	25	27	26	G	G	G	G	G	G	G	G	G	G	G	G	G	18	20	18	25

NOV. 1976 | FOES (0.1 MHz)

IONOSPHERIC DATA

NOV. 1976 | F-MIN (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S. Long. 39° 35' 4" E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

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	C 18	24	B	31	15	C 26	16	20	B	B	B	23	B	B	B	41	28	16	15	13	12	10	9
2	C 18	15	20	B	B	C 17	B	20	16	13	17	B	41	23	31	21	20	28	29	20	E C 10	E C 10	11	12
3	20	C	12	15	17	13	10	9	10	10	11	32	33	B	25	12	17	13	16	12	18	12	E C 10	7
4	7	12	24	15	11	12	8	11	20	15	12	13	14	13	15	21	19	15	13	12	9	8	9	9
5	7	10	10	11	13	13	10	9	11	10	12	10	10	10	13	12	11	10	10	E C 10	E C 10	8	7	6
6	6	9	8	8	8	B	10	10	12	10	15	23	22	15	18	18	14	11	10	11	10	8	9	7
7	18	7	8	8	7	10	9	9	E C 10	B	23	20	16	17	19	18	18	19	15	12	17	15	13	11
8	13	10	10	7	12	12	10	10	10	10	10	10	11	10	10	10	11	10	7	7	E C 10	10	10	12
9	10	10	8	7	8	10	12	10	10	10	11	17	20	13	15	19	20	12	12	10	9	9	14	12
10	9	9	13	10	20	12	12	10	10	B	40	11	15	10	10	6	15	10	16	18	11	10	8	11
11	B	23	27	18	18	B	20	27	B	23	20	20	B	30	B	16	13	12	11	10	10	9	12	21
12	10	7	55	27	25	B	27	18	30	B	B	B	35	20	17	41	27	10	B	10	12	9	10	10
13	9	B	B	B	B	B	22	30	B	19	B	B	54	B	20	30	16	14	12	14	12	11	25	20
14	C	C	C	C	C	C	26	15	15	10	10	15	15	11	26	25	11	28	B	9	10	8	10	13
15	23	B	B	B	B	20	20	18	13	15	12	15	12	15	17	24	18	40	25	11	9	12	11	10
16	14	10	10	12	10	12	10	9	9	12	20	15	20	20	18	12	13	22	19	15	28	14	11	8
17	7	15	15	22	20	20	12	8	10	9	7	10	10	12	30	10	10	10	27	23	14	9	10	13
18	7	12	12	B	25	13	15	9	9	10	9	C	10	10	9	11	11	10	E C 12	10	9	7	9	11
19	E C 12	31	B	17	12	10	B	13	10	10	10	10	11	10	10	10	9	8	9	10	11	12	10	25
20	9	6	7	7	10	11	15	10	10	9	E C 10	9	E C 11	10	11	12	10	15	C	12	10	10	10	9
21	9	8	8	11	15	13	11	10	10	9	10	10	10	10	9	10	10	10	10	8	6	7	6	7
22	E C 10	8	11	9	17	10	9	10	10	8	9	10	10	10	10	10	10	10	9	8	17	11	10	9
23	12	11	16	12	12	14	10	9	8	9	9	8	10	9	11	10	9	10	9	8	10	10	10	9
24	8	10	10	10	10	9	10	10	15	16	10	12	10	10	10	E C 11	10	10	10	E C 13	10	12	12	14
25	17	11	13	10	9	8	9	12	13	12	14	11	34	25	B	28	24	21	15	13	E C 13	9	12	10
26	9	11	8	9	9	9	10	12	24	18	20	12	11	12	10	12	14	10	10	10	12	9	14	8
27	27	14	E C 22	11	12	12	6	12	9	10	14	B	33	26	25	21	14	14	13	E C 11	E C 14	10	6	11
28	20	13	10	9	8	8	7	7	E C 15	10	19	12	12	12	15	12	11	12	14	14	12	10	10	10
29	10	9	9	8	9	8	8	9	10	E C 13	10	10	22	29	30	28	15	24	20	8	10	9	9	10
30	6	9	B	20	13	19	21	12	20	10	10	8	10	10	10	10	14	13	10	10	9	14	11	8
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	28	29	29	29	29	30	30	30	30	30	29	30	30	30	30	30	30	29	30	30	30	30	30
MED	10	10	12	11	12	12	10	10	10	10	12	12	14	12	16	12	14	12	13	10	10	10	10	10
UQ	18	14	22	20	20	17	20	13	16	16	20	20	23	23	25	21	18	19	16	13	12	12	11	12
LQ	8	9	10	9	10	10	10	9	10	10	10	10	10	10	10	10	11	10	10	10	10	9	9	9

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NOV. 1976 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

NOV. 1976 | M(3000)F2 (0.01)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4 S. Long. 39° 35' 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	A	B	315	R	R	F 235	235	B	B	B	250	B	B	B	320	C 335	385	340	315	315	J F 310	F 300
2	A	A	A	B	B	F	B	F	U F 240	F 265	F 260	B	280	300	305	300	295	315	325	F 325	F	R	A	A
3	R	C	A	F	A	A	F	275	F 270	265	255	280	275	B	295	F 320	310	320	325	325	330	F 320	F 310	F 290
4	A	A	A	R	F 270	F 275	U F 255	U F 270	270	270	280	280	290	315	305	330	330	355	335	345	330	F 310	F 310	305
5	F	U R 320	F	F 275	F	U F 295	J F 285	300	F 290	F 280	F 275	F 295	295	F 310	315	F 320	F 305	F 335	J F 330	335	F 340	F 340	J R 315	J R 310
6	R	R	J F 290	R	J F 285	B	F 270	U F 260	F 280	285	290	285	290	310	F 330	A	340	F 325	F 330	F 355	F 340	F 325	J F 330	U F 305
7	265	F	F	F	F	F	F	J F 285	U F 260	B	270	305	285	280	280	320	310	325	335	F 350	F 315	U F 340	F	J F 310
8	F	F	F	F	285	R 285	F	F	F 275	F 275	280	290	305	310	305	295	300	330	310	F 330	340	J F 335	F 315	A
9	A	A	F 270	F	C	F	Y	A	G	F 260	F 285	F 250	265	F 280	F 275	F 285	U R 300	F 305	F 320	F 320	J F 335	F	F 320	F
10	J R 310	A	R	R	A	F	A	A	A	B	F 265	F 290	F 280	290	F 250	F 270	F 285	J F 300	R	U F 325	U F 315	A	A	F
11	B	A	A	R	R	B	R	B	B	A	245	F	B	275	B	F 245	240	R	R	A	A	A	A	A
12	F	F	B	A	A	B	R	A	R	B	B	B	270	265	270	275	305	305	B	F 335	335	310	A	A
13	U F 235	B	B	B	B	B	R	A	B	R	B	B	215	B	F 250	F 270	R	F	F	U F 335	270	R	A	A
14	C	C	C	C	C	C	R	R	275	280	245	270	265	260	290	F 300	F 250	R	B	A	F 345	F	F 320	A
15	R	B	B	B	B	A	A	F	F 265	280	285	255	250	265	270	280	285	R 330	300	320	U F 325	F 315	J F 305	305
16	320	F 255	F 270	F 250	F 280	F 275	F 270	F 255	F 270	265	280	260	310	285	300	280	280	280	290	310	F 325	F 335	F 345	300
17	F	R	F 265	R	A	A	R	F 270	J F 275	F 265	295	275	295	285	U F 295	U F 275	J R 285	F 305	325	325	F 320	F 325	J F 295	R
18	F	F	F	B	R	270	250	U F 265	F 270	F 275	F 285	I C 285	305	310	285	265	305	305	320	340	325	320	310	R
19	A	B	B	R	F	F	B	A	F 250	U F 260	F	F 275	F 285	280	310	310	290	295	280	310	F 320	F 305	F 325	A
20	F	F	A	F 295	F	F	A	U F 255	F 245	F 275	F 275	F 280	275	290	270	270	F 285	F 320	I C 330	330	F 330	F 335	J R 340	A
21	F 310	280	U S 315	J F 285	F 275	F 275	F 290	260	F 280	F 280	F 290	295	290	290	315	290	315	340	325	325	340	320	360	325
22	310	J R 315	S	R 280	275	F 285	U F 265	J F 280	F	J F 275	280	295	310	315	310	300	325	310	325	F 335	335	F	R	R
23	R	R	A	265	A	285	F 275	U F 270	J F 280	J F 285	F 270	F 285	285	305	300	285	305	295	315	325	330	330	330	J R 310
24	J R 310	R	300	U S 310	F	F	F 295	F 270	F 270	F 275	F 290	F 280	F 300	315	305	290	310	315	320	350	J F 335	F	F	F
25	F	F	F	F	F	F	J F 255	A	F	A	R	F	F	F	B	F	J F 285	F 310	F 340	F 330	F	305	A	A
26	A	F	F	F	A	F	F	F	R	R	F 290	F 285	290	F 270	280	280	270	270	295	F 280	F 325	F 335	A	A
27	A	F	F	F	F 335	A	R	A	R	R	R	B	265	270	275	285	285	310	315	320	F 315	310	320	335
28	A	R	F	J F 285	J F 280	F	J F 280	F 285	J F 275	F 270	275	285	285	270	295	305	315	295	305	335	315	320	320	F 300
29	U F 320	315	290	F	F 280	F 295	F 290	F 280	265	280	265	280	285	290	300	325	300	300	350	F 300	R	J F 315	J R 335	J R 305
30	R	J R 315	B	F	A	F 295	F	A	A	F	F	F 285	F 285	255	275	285	315	305	310	F 315	F	320	J F 350	F 305
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	7	8	10	10	12	16	21	20	23	23	28	26	27	27	29	27	25	28	25	22	20	14
MED	310	315	F 290	F 282	F 280	F 285	F 272	F 270	F 270	F 275	280	285	285	288	295	285	300	310	325	328	F 330	F 320	F 320	305
UQ	315	R 315	295	F 290	F 285	F 295	F 288	F 280	F 275	F 280	285	288	292	310	305	302	310	325	330	335	335	F 335	F 332	310
LQ	288	280	F 270	270	F 275	F 275	F 260	F 260	F 260	F 265	268	278	272	270	275	278	285	302	310	320	F 320	315	F 310	F 300

The Radio Research Laboratories, Japan

NOV. 1976 | M(3000)F2 (0.01)

IONOSPHERIC DATA

NOV. 1976 | H'F2 (KM) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4 S, Long. 39° 35' 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						455	A	525	435	B	B	B	520	B	B	B	B 330	L	L					
2							B	455	530	420	455	B	R 410	345	320	345	325	295	L					
3						A	490	400	430	470	455	400	400	B	350	320	310	290	L	L				
4						380	405	360	370	390	370	395	370	310	330	300	290							
5					350	330	320	300	320	370	375	350	345	320	320	310	310	L	L					
6				295	325	B	380	395	355	360	345	360	355	305	280	A	A	290	L	245				
7				L	325	340	370	350	405	B	400	330	400	385	365	320	330	L	L	L				
8					340	350	380	380	380	375	370	350	330	320	325	L	L	280	300	250				
9						F	Y	A	G	445	390	450	410	380	350	340	325	350	300	280	L			
10							A	A	A	B	425	350	390	395	475	400	355	320	R					
11						B	R	B	B	R	530	450	B	380	B	465	470	A	A					
12						B	A	A	R	B	B	B	420	430	400	400	325							
13						B	R	A	B	R	B	B	B	B	425	390	R	F	F					
14						C	A	R	425	420	520	410	450	440	355	320	500	R	B					
15					B	A	A	500	440	365	350	495	475	450	410	380	355	290	355	320				
16					375	400	380	415	355	415	360	425	315	375	330	400	380	370	345	325				
17					A	A	A	390	380	400	350	390	340	350	325	370	330	L	270					
18					A	400	A	440	395	380	350	I C 360	305	320	400	435	330	L	L	250	L			
19					385	L	B	A	440	405	375	345	350	360	325	325	L	370	370	280	270			
20							A	430	455	395	390	390	415	370	450	420	345	300	C	275	L	L		
21					385	420	380	420	360	355	350	325	350	345	305	345	325	275	L	280	230			
22				345	L	350	390	350	350	350	345	300	275	280	300	300	290	300	290	L				
23					A	390	410	410	350	345	360	345	345	320	345	370	L	350	300	275	L			
24					320	345	345	350	390	395	355	390	350	300	315	350	300	290	290	250	L			
25			295	280	290	F	380	A	F	A	R	380	400	380	B	305	300	300	275	295				
26					A	U F 500	465	430	R	A	345	350	365	380	380	375	400	375	325	L				
27						A	R	A	A	A	R	B	455	Y	Y	395	395	330	L	L		L		
28			L	355	360	350	340	350	370	380	350	340	340	395	330	320	305	340	L	280	300	L		
29			L	320	350	325	330	350	390	350	400	325	310	330	310	280	340	330	250	L				
30					A	375	A	A	A	400	325	355	370	490	410	370	315	310	300	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	5	11	15	15	20	22	21	25	25	28	26	26	27	25	20	13	13	3			
MED			295	320	350	375	380	398	390	390	370	360	368	365	338	350	330	305	300	280	270			
UQ				345	368	400	398	430	435	405	400	395	410	385	400	392	355	345	325	280	285			
LQ				295	325	348	358	350	360	365	350	345	342	320	320	320	310	290	290	250	250			

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NOV. 1976 | H'F2 (KM)

IONOSPHERIC DATA

NOV. 1976 | H'F (KM) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00′ S, Long. 39° 35′ E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	B	B	290	A	C 280	270	B	B	B	240	B	B	B	B	240	225	230	250	250	255	300
2	A	A	A	B	B	340	B	A	225	255	H 220	B	B	H 220	225	230	230	250	250	H 240	300	R	A	A
3	R	C	A	F	A	A	A	240	225	225	200	H 240	280	B	250	H 195	220	225	230	230	H 230	250	245	320
4	A	A	B	R	400	340	210	230	220	220	200	210	200	245	240	220	210	215	H 210	225	240	240	240	245
5	U H 325	A	350	375	280	230	200	210	200	210	250	215	215	240	200	245	220	200	220	225	230	225	230	240
6	250	255	280	250	250	B	230	205	205	240	A	A 220	A	E A 240	220	A	A	220	225	225	A 260	240	240	275
7	E A 350	355	265	245	245	225	225	225	230	B	B 220	205	200	230	220	H 200	220	230	230	230	245	240	240	250
8	280	240	305	275	260	F 260	235	215	205	225	E A 250	210	A	230	A	210	205	240	205	225	H 220	245	245	A
9	A	A	405	A	A	250	A	A	275	200	205	220	220	220	230	230	240	225	250	230	240	255	245	275
10	255	A	A	A	A	Q 300	A	A	A	B	B	230	200	225	H 200	205	H 225	225	F 200	275	325	A	A	245
11	B	A	A	A	A	B	A	B	B	A	225	250	B	210	B	215	230	A	A	A	A	A	A	A
12	A	A	B	B	A	B	A	A	A	B	B	B	E B 250	200	A	B	230	230	B	250	250	A	A	A
13	525	B	B	B	B	B	A	A	B	220	B	B	B	B	225	240	R	240	265	H 240	440	R	A	A
14	C	C	C	C	C	C	A	250	H 240	200	205	225	230	235	230	A 240	220	220	B	A	260	345	A 270	A
15	R	B	B	B	B	A	A	265	210	250	215	230	200	230	H 200	265	240	I B 225	230	250	U H 250	H 250	260	A 275
16	290	A	410	F 440	300	H 200	220	205	H 195	210	200	210	220	200	230	200	200	230	225	230	270	240	240	325
17	U S 300	A	400	A	A	A	A	390	H 195	235	200	U H 200	245	H 220	240	200	210	220	230	255	245	240	255	A
18	U F 430	F 375	440	B	A	A	A	240	250	240	250	C	270	205	220	205	210	225	A 275	240	210	245	250	R
19	A	B	B	R	A	250	B	A	U H 270	210	250	220	200	220	220	250	215	205	210	H 245	255	245	250	B
20	F	A	A	370	F	A	A	400	240	205	215	260	200	245	230	220	210	220	I C 210	225	230	210	250	A
21	280	330	300	330	U H 355	A	270	220	H 195	210	H 255	H 200	200	H 200	H 200	205	205	220	210	A	225	240	225	245
22	245	260	280	300	230	260	H 250	250	225	H 205	205	210	H 200	240	H 200	200	195	220	205	230	230	230	235	R
23	R	R	A	425	A	A	280	215	210	220	200	200	200	H 205	200	205	200	200	220	210	215	240	235	260
24	270	320	325	255	300	260	240	240	A	H 225	190	210	220	220	A	205	210	205	215	220	230	230	230	240
25	270	255	260	250	230	250	U H 210	A	195	A	A	A	E B 260	250	B	240	225	260	250	A	325	340	A	A
26	A	A	A	A	A	220	A	A	A	A	205	205	205	210	200	H 205	220	H 220	210	A 275	265	280	A	A
27	A	A	330	300	290	A	F	A	A	A	A	B	250	Y	245	250	225	225	215	220	H 230	250	250	245
28	A	A	300	270	240	230	H 200	230	A	255	265	A	E A 255	215	205	210	205	H 205	U H 200	230	225	230	245	240
29	250	240	250	250	225	230	A 245	E A 250	A	200	200	U H 200	240	A	A 235	230	200	215	220	220	R	250	250	275
30	260	255	B	U Q 280	A	A	A	A	A	225	200	240	H 195	205	220	220	225	200	H 200	205	A	A 290	230	250
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	15	10	15	15	13	16	13	19	20	22	23	22	25	25	24	27	27	29	27	26	27	25	23	17
MED	275	258	305	280	260	250	230	235	222	220	205	212	210	220	220	215	220	220	220	230	245	245	245	260
UQ	304	330	375	350	300	275	245	250	240	235	230	230	238	232	230	235	225	230	230	240	260	250	250	275
LQ	258	255	280	252	240	230	210	218	202	210	200	205	200	210	200	205	208	215	210	225	230	240	238	245

NOV. 1976 | H'F (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 1976 | H'Es (KM) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' S, Long. 39° 35' E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	100	100	B	B	K 155	105	100	100	B	B	B	G	B	B	B	B	B	G	160	G	140	125	K 100
2	105	K 110	K 110	B	B	K 105	B	100	G	G	G	B	B	G	B	G	G	B	B	B	145	K 110	K 150	K 110
3	K 155	C	100	K 165	100	100	105	150	G	G	G	B	B	B	G	G	G	G	G	G	B	120	110	K 150
4	100	95	105	K 115	K 105	K 105	145	G	G	G	G	G	G	G	G	G	G	G	G	140	100	G	G	G
5	105	K 105	K 105	K 110	125	G	G	G	100	100	100	100	G	110	G	150	100	120	100	G	100	100	100	95
6	95	125	100	100	150	B	G	G	105	100	130	120	110	110	115	100	100	100	100	95	95	115	130	150
7	145	140	130	120	100	G	100	95	100	B	G	100	G	G	140	G	110	G	G	130	115	135	120	120
8	140	105	100	145	105	140	105	G	140	G	110	105	100	100	100	100	100	G	G	G	G	180	G	130
9	100	K 120	K 130	95	95	125	100	100	K 100	G	G	100	120	100	100	95	100	150	145	130	110	115	110	110
10	100	110	100	110	110	K 125	100	100	K 100	B	B	120	G	G	G	G	G	G	140	130	K 130	K 100	170	145
11	B	110	175	90	95	B	100	110	B	165	G	G	B	B	B	G	G	K 100	K 100	100	K 105	100	100	110
12	100	160	100	100	100	B	95	100	115	B	B	B	B	G	100	B	B	G	B	150	G	100	100	100
13	K 100	B	B	B	B	B	100	100	B	G	B	B	B	B	G	B	100	150	G	G	K 180	K 110	175	110
14	C	C	C	C	C	C	100	G	G	G	G	G	G	G	G	100	100	B	B	100	155	K 100	K 130	K 120
15	K 120	B	B	B	B	95	100	100	125	G	G	G	95	G	105	100	100	B	B	G	180	G	130	135
16	K 130	K 115	K 110	K 155	110	140	G	100	95	G	G	125	120	110	110	120	G	G	G	G	B	145	120	130
17	K 100	150	K 125	105	100	100	100	K 170	100	G	95	G	G	G	B	G	G	G	B	120	170	125	K 130	115
18	K 100	K 125	K 125	B	105	100	100	100	G	G	95	C	95	G	G	110	100	95	125	120	105	95	95	K 120
19	115	140	B	K 125	K 105	K 95	B	95	G	G	G	G	G	G	G	95	100	G	G	140	145	125	145	130
20	100	100	95	K 100	100	100	100	K 100	130	110	G	95	G	G	100	G	100	150	C	110	G	150	140	K 105
21	K 150	100	K 100	K 150	K 105	105	G	G	G	G	130	120	G	100	100	100	95	95	G	120	155	G	110	120
22	130	140	K 105	130	180	105	100	G	95	G	G	G	115	100	G	100	115	G	G	125	110	125	160	K 110
23	K 120	K 110	100	K 100	100	100	G	G	G	95	G	G	G	G	100	95	95	G	G	G	G	G	140	130
24	125	K 120	K 120	K 100	K 100	145	130	170	100	G	G	120	105	110	100	95	100	95	100	100	120	125	120	130
25	105	105	135	125	100	95	125	100	G	90	90	105	B	G	B	G	100	140	130	125	100	K 110	120	100
26	100	100	100	100	100	K 100	100	95	175	100	G	110	G	G	G	100	G	G	G	135	145	K 120	K 130	100
27	K 110	115	K 100	100	95	90	K 90	90	100	100	90	B	B	G	105	G	G	G	150	155	130	115	140	140
28	K 150	110	175	120	100	110	120	105	105	115	G	110	110	105	105	105	110	105	G	G	G	G	110	110
29	105	100	100	100	100	100	95	95	100	110	110	110	100	105	105	105	G	110	G	110	K 110	105	125	130
30	100	100	B	K 125	100	115	105	100	95	100	G	G	G	G	G	G	G	G	G	120	100	110	125	170
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	27	26	25	24	25	23	23	22	19	11	9	14	10	10	14	16	17	12	9	21	22	25	28	29
MED	105	110	105	110	100	105	100	100	100	100	100	110	108	105	102	100	100	108	125	125	118	115	125	120
UQ	128	125	K 125	K 125	105	130	105	100	110	110	110	120	115	110	105	105	100	145	140	135	145	125	140	130
LQ	100	100	100	100	100	100	100	100	100	100	95	100	100	100	100	98	100	98	100	110	105	105	110	110

The Radio Research Laboratories, Japan

NOV. 1976 | H'Es (KM)

IONOSPHERIC DATA

NOV. 1976 | TYPES OF ES | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00′ 4 S, Long. 39° 35′ 4 E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1		R 2	L 1			ARK 11	R 1	R 1	R 1											H 1		C 1	C 1	RK 41
2	C 1	RK 12	K 1			K 1		R 1													RAC 11	K 3	AK 11	KA 11
3	HK 11		R 2	ARK 11	R 1	R 2	RL 21	HL 11														C 1	C 2	RK 11
4	R 4	R 1	R 1	K 1	K 2	K 1	R 1													H 1	L 1			
5	R 2	RK 21	RK 11	RK 21	C 1				C 1	C 1	C 1	C 1		C 3		H 1	R 1	C 1	C 1		L 2	L 2	L 2	L 3
6	L 4	R 1	R 1	LR 11	HA 11				C 1	C 1	H 2	H 2	C 3	C 1	C 1	C 3	C 2	C 2	L 2	L 2	L 2	CL 11	H 1	R 1
7	R 1	RA 11	H 1	CL 11	LH 11		C 2	L 1	RA 21			L 1			H 1		C 1			H 1	C 1	H 1	C 1	CL 11
8	HL 11	C 2	CA 11	HL 11	I 1	H 1	CL 21		H 1		C 3	C 2	C 3	C 1	LA 31	L 2	L 2					H 1		R 2
9	RA 11	RAK 11	RCK 11	LA 21	C 1	C 1	RS 11	RA 21	RAK 21			R 1	C 1	R 1	R 1	LR 11	C 1	H 1	H 1	H 1	C 2	R 2	C 1	C 1
10	C 2	R 4	R 2	RC 33	RR 11	CK 12	R 3	R 2	RK 11			C 1								H 1	K 1	K 3	AR 11	AC 11
11		R 1	AR 11	L 1	R 1		R 1	AA 11		H 1								K 2	K 1	RS 11	KA 31	RA 11	R 2	R 1
12	RA 11	AC 12	A 1	RR 11	R 1		L 1	R 1	R 1						R 1					H 1		RS 11	R 3	C 2
13	ARK 12						L 1	R 1									C 1	H 1			AK 11	K 2	AC 11	R 1
14							L 1									C 1	R 2			RS 21	H 1	K 2	CKC 22	CK 21
15	CK 11					C 1	L 1	R 1	C 1				L 1		C 1	L 1	L 1				H 1		C 1	H 1
16	CK 11	CK 22	CK 12	HK 12	RL 11	H 1		L 1	L 1			H 1	C 1	C 1	C 1	C 1						H 1	CH 11	H 2
17	K 3	AC 11	RK 11	RA 11	LR 11	R 1	R 2	HK 12	L 1		L 1									C 1	HC 11	H 1	RK 13	R 1
18	K 3	RK 11	CK 11		R 1	R 2	R 2	RL 11			L 1		C 2			C 1	C 1	L 2	CL 32	CL 11	CL 11	L 2	L 1	K 2
19	R 1	R 1		KH 11	K 1	RK 11		R 1								L 2	C 2			H 1	H 2	C 1	C 1	R 1
20	RA 11	RA 31	R 2	RK 12	RA 11	R 2	R 2	RLK 21	H 1	C 1		R 1			L 2		L 3	H 1		LH 11		H 1	HA 11	K 3
21	HKA 11	R 2	RK 22	HK 11	RK 11	R 2					H 1	C 1		C 1	R 2	R 2	L 2	L 2		CL 41	H 1		C 2	C 1
22	RA 11	H 1	RK 11	R 1	HA 11	LR 11	R 2		L 1				C 1	C 2		C 1	C 1			C 1	C 1	C 1	HA 11	K 2
23	KA 21	K 3	R 1	RK 11	R 2	R 1				L 1					L 1	L 2	L 1						H 1	RA 11
24	R 1	RK 12	KA 11	RK 11	RK 11	H 1	CA 11	H 1	R 1			C 2	C 2	C 1	C 3	CA 21	L 1	C 1	L 2	L 1	C 1	C 1	CA 11	AC 11
25	C 1	C 1	H 1	R 1	RA 11	L 2	C 1	R 1		R 1	L 1	RL 11					L 1	H 1	H 1	C 2	RS 21	RK 21	R 3	R 3
26	RS 21	R 2	RA 11	RA 21	RA 21	RK 12	RL 21	RA 11	AL 11	C 1		C 1				L 2				R 1	R 1	K 3	KA 11	RA 11
27	CK 11	RA 11	LAK 11	LA 11	L 2	L 2	LK 11	L 1	RL 21	RL 21	L 1				C 1				H 1	H 1	C 1	CL 31	C 1	HC 11
28	RK 11	R 1	H 1	CL 21	LC 12	CL 42	C 1	C 3	C 3	C 1		C 2	C 2	C 1	C 1	C 1	C 2	C 1					C 1	C 1
29	LH 11	L 2	L 2	L 2	L 1	L 4	L 3	L 4	C 2	C 2	C 2	C 1	C 1	C 1	C 1	C 1		C 1		C 1	K 2	RA 11	CA 11	AR 11
30	R 1	R 2		KC 11	R 1	R 1	R 1	RL 11	R 1	R 2										C 1	RA 11	R 1	C 1	HHA 11
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

NOV. 1976 | TYPES OF ES

IONOSPHERIC DATA

DEC. 1976 | FXI (0.1 MHz) | 45° E Mean Time (G. M. T. + 3 h)

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

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

The Radio Research Laboratories, Japan

DEC. 1976 | FXI (0.1 MHz)

IONOSPHERIC DATA

DEC. 1976 | FOF2 (0.1 MHz) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00′ S. Long. 39° 35′ E Sweep 0.5 MHz to 15 MHz in 30 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	U F 38	35	F 41	A	F	F 49	U F 54	F	U F 59	62	F 62	F 60	F 58	F 54	F 55	F 54	F 55	F 56	F 50	F 48	U F 46	F	F 38	J F 36
2	F	F	39	42	F 50	F 57	F 61	F 64	F 61	F 59	59	57	59	60	51	51	53	52	50	46	46	42	43	40
3	40	S	J S 44	J R 47	J F 50	F	U F 57	J F 60	J F 60	F 62	J F 60	F 58	F 63	F 60	F 53	54	50	46	F 45	46	F 44	45	43	F 36
4	J R 40	S	S	U S 46	U S 50	F	F	56	F 54	F	F	J F 60	F 60	F 70	70	69	U F 68	F 58	F	U F 38	F 41	F 41	F 40	36
5	F 37	F	A	A	R	R	46	F 44	F 50	F 50	49	51	46	48	50	49	50	52	43	44	41	40	F 40	34
6	38	38	R	J R 47	U F 50	F	F	F	U F 63	F	U F 58	F 51	F 54	A	50	54	50	52	J F 50	F 42	40	45	46	F
7	S	R 34	R	A	F 41	F	Y	Y	F 41	F 45	F	F 52	F 52	F 51	F 49	49	52	54	53	47	J F 43	F 41	J F 41	F
8	U R 36	F	A	F	A	B	A	40	F 49	F 45	A	A	F 42	B	U F 52	F	F	F 39	U F 40	F 36	32	J F 38	F 38	F 40
9	F 39	F 42	F 42	F	U F 45	J F 50	F	U F 54	F 52	53	B	B	R	B	B	F 73	U F 51	F	F	40	F	F 42	A	F 39
10	F 33	A	A	F	R	U F 46	F	R	R	A	B	U R 47	49	B	52	50	56	53	52	F	F 31	U H 45	F 38	42
11	F 38	F 35	A	A	B	F	F	R	B	B	B	51	B	R	F	F	U F 59	F 48	46	45	F 50	F 40	F 44	F 38
12	F	F 36	A	U F 40	F	B	F 50	F 43	F 55	F 50	F 52	57	F 59	R 55	58	U F 60	58	F 46	F	U F 45	F 42	J F 40	39	F
13	B	Y	R	B	R	F	F 52	F	F	F 60	F	F	F	F 56	F 62	U F 59	F 60	54	50	F 47	F 47	43	43	42
14	35	S 40	U F 39	A	U F 37	F 45	J F 51	F 54	U F 57	F	F 53	F 52	F 54	F 48	52	52	51	52	52	50	47	46	46	A
15	45	45	J S 47	J R 49	F 53	J F 64	J F 66	F	F 76	79	76	75	67	A	60	56	57	A	A	50	50	F 42	F 46	U F 44
16	F 46	S	U S 57	J R 62	J R 64	J F 65	70	F 70	U F 63	F 68	F 74	73	68	60	60	52	57	58	F 58	F 54	F 53	U F 36	F	F 43
17	A	F	A	F	A	A	R	F 40	F 49	F 54	48	45	49	A	50	46	50	50	50	F 47	49	F	F 45	A
18	F	A	A	A	A	A	A	A	R	A	B	R	R	R	R	43	44	46	47	F 46	45	J R 43	F 36	R 44
19	A	A	A	A	A	F	R	A	B	F 46	R	R	R	F 43	45	45	F 46	51	51	49	45	40	F 39	F 37
20	37	F 40	F	A	A	F 40	F 45	F 46	F 47	53	54	51	52	49	42	44	49	47	46	47	44	40	38	41
21	32	J R 38	38	F 41	F 47	F 51	U F 54	F 58	F 58	F 56	F 55	F 54	F 55	52	52	A	45	44	50	50	F 47	40	S 41	J R 41
22	F 37	F 38	U S 40	J S 47	F	F	J F 62	F	A	A	U F 52	F 54	F 55	U F 55	F 55	F 56	62	F 48	F 49	F 44	F 40	40	C	C
23	A	F 38	F	F	44	40	A	R	F 48	U F 50	U F 52	U F 53	F 53	52	51	49	49	49	V 48	48	49	46	44	44
24	41	J R 41	R	F	48	F	F	U F 60	J F 63	F 66	F	F	U F 66	U F 70	J F 75	U F 60	J F 59	U F 48	F 45	F 46	F 40	J F 45	J F 36	F 35
25	35	F	S	S	U F 55	F	F	F 52	F	F	U F 52	J F 57	F	U F 63	69	66	62	48	40	F 43	J F 46	J R 42	41	U H 39
26	S	32	F 40	U F 43	A	A	44	F 45	F 49	52	F 56	F 58	F 56	55	F 52	50	50	52	53	50	53	48	41	42
27	45	R 41	U F 40	F	F	F	F	F	F	J F 60	55	F 50	F 51	F 55	56	60	56	56	U F 47	F 48	F 47	J F 42	R	A
28	A	F	F	A	R	A	A	U F 50	J F 55	F 50	F 52	53	55	57	56	F 57	55	F 54	F 54	F 55	F 49	47	45	41
29	38	F	F	F	F	B	Y	U F 43	F	F	Y	B	B	R	53	Y	Y	Y	A	A	31	31	31	32
30	F 36	U F 36	U F 38	U F 39	F 44	F 46	F 47	48	48	48	48	50	51	51	U F 50	F	F 48	R	R	A	R	40	R	A
31	A	A	A	A	U F 39	F	F	A	Y	Y	E G 39	E G 39	E G 39	E G 39	F 45	F	R	F 42	F	U F 43	U F 44	R	U F 40	U F 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	20	16	12	11	15	11	14	18	21	21	20	24	24	22	28	25	28	27	24	28	29	28	26	23
MED	38	38	40	46	F 48	F 49	F 53	F 51	F 55	F 53	F 54	53	F 54	55	52	54	52	51	50	F 46	F 45	42	41	40
UQ	40	40	S 43	J R 47	F 50	F 54	F 61	F 58	F 60	F 60	F 58	F 58	F 59	F 60	57	F 59	58	54	52	48	F 47	45	44	42
LQ	36	F 36	F 39	U F 42	F 44	F 46	F 47	F 44	F 49	F 50	F 52	51	51	51	50	49	50	48	46	F 44	F 41	40	F 38	F 36

The Radio Research Laboratories, Japan

DEC. 1976 | FOF2 (0.1 MHz)

IONOSPHERIC DATA

DEC. 1976 | FOF1 (0.01 MHz) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					A	F 350	F 360	360	F 370	380	390	390	400	400	F 400	400	F 390	390	U L 370	L	F			
2				F 300	F 320	F 330	350	F 370	370	400	390	400	400	400	400	400	380	390	360		L			
3			Y	L	F	U F 330	F 360	360	380	F 380	A	F 400	F 400	400	400	400	A	L	L	L	L	L		
4				F	350	F 390	A	400	F 410	F 400	F 400	400	F 400	400	400	390	F 390	F 370	A					
5					A	A	A	F 370	F 370	F 390	390	400	400	400	400	400	390	380	L	U L 350				
6				300	U F 340	U F 330	350	U F 370	F 370	390	400	410	410	A	410	400	400	380	U L 360	L		L		
7						F	Y	Y	370	370	F 380	F 380	400	400	400	390	390	F 380	370	L	L			
8					A	B	A	370	360	380	A	A	380	B	380	380	U F 380							
9					U F 310	F 330	F 350	F 370	F 370	390	B	B	B	B	B	390	380	F 370	F 350					
10					A	U F 350	Y	A	A	A	B	400	400	B	B	400	390	370	370	Y				
11						F 350	F 350	A	B	B	B	390	B	B	B	R 400	400	380	L 370	350	330	L		
12					F	B	A	F 380	400	400	400	400	B	R	400	400	I B 390	F 380						
13					A	Y	F 360	F 370	F 380	400	F 400	400	400	400	400	390	390	390	370	350	L			
14					A	F 350	360	370	A	F 400	F 400	400	400	410	410	400	400	400	370	L		L		
15				F 320	F 320	F 340	F 360	F 370	380	400	410	410	410	A	A	A	A	A	A	L	L			
16		L	L	L	F 330	F 340	F 370	370	H 380	R 400	400	410	400	420	410	420	400	390	A	H 380	340	L		
17					A	A	340	350	360	370	400	400	400	A	410	400	A	R	400	360	L			
18					A	A	A	A	A	A	B	F 380	400	400	370	390	370	370	U L 360	L	L	L		
19					A	A	F	A	B	400	390	400	400	400	400	400	400	380	370	L				
20					A	A	U R 360	370	380	380	400	400	400	400	400	390	390	390	L 370	360	L	L		
21			L	L	320	350	360	370	F 400	F 400	400	400	400	410	410	A	400	L	370	L 360	L			
22			L	F 310	U L 350	F 350	U F 360	U F 420	A	A	F 400	400	F 400	400	400	390	380	380	380	A				
23					A	A	A	H 380	400	U R 400	400	400	400	410	410	400	400	390	390	L	L 330	L	L	
24					350	F 370	F 370	390	390	400	400	Y	410	400	400	400	400	L	U L 370	A		L		
25			L	F 300	A	F	F 360	F 380	F	F 400	400	F 400	F 400	F 400	400	400	390	390	L		L			
26					A	A	380	400	F 390	I R 390	400	410	410	400	400	H 410	400	400	390	L	U L 330	L		
27					A	F 350	U F 360	F 370	F 370	400	400	F 400	400	400	420	400	400	400	L	F 360	L	L		
28					A	A	A	A	F 400	390	400	400	400	420	410	420	400	400	370	350	L 340	L		
29							A	F 370	A	A	A	B	B	370	Y	Y	Y	Y	A	A				
30					A	320	340	350	370	380	380	390	400	400	F 390	F 390	F 380	F 380	U F 380	A	320			
31					A	F 320	F 330	A	Y	A	390	390	390	390	F 390	F 400	F 400	F 360	F	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				5	9	17	20	24	22	25	24	27	27	23	26	28	27	24	20	9	6			
MED				F 300	F 330	F 350	F 360	370	380	400	400	400	400	400	400	400	390	380	370	360	330			
UQ				F 310	350	F 350	F 360	F 380	390	400	400	400	400	400	410	400	400	390	375	360	340			
LQ				F 300	F 320	F 330	F 350	370	370	380	390	400	400	400	400	390	390	380	370	350	L 330			

The Radio Research Laboratories, Japan

DEC. 1976 | FOF1 (0.01 MHz)

IONOSPHERIC DATA

DEC. 1976 | FOE (0.01 MHz) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION, Lat. 69° 00' 4" S, Long. 39° 35' 4" E, Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 320	A	K 310	K 330	K 340	U K 260	U A 220	230	250	275	275	280	280	H 300	A 270	260	U A 265	250	230	220	210	A	B	A
2	K 370	K 340	K 330	A	185	200	210	250	250	275	270	A	295	A 270	300	U A 270	U A 270	250	230	200	A 190	U A 170	H 170	130
3	115	B	A	A	A 170	A 195	215	H 245	260	A	A	290	290	H 300	285	285	A	A	230	H 205	H 200	170	140	A
4	A	A	B	A	A 200	A	250	U A 265	A	280	280	300	285	280	U A 280	U A 280	270	265	A	U K 270	K 330	U K 280	A	U K 270
5	K 325	U K 275	A	A	A	A	A	A	250	260	270	A 275	280	290	280	280	U A 270	250	B	220	180	A 140	120	H 140
6	B	115	A	U A 170	200	210	U A 225	230	265	270	290	290	300	290	A 290	A	A	245	240	U A 230	H 200	H 180	A	K 200
7	K 390	A	K 370	A	U K 300	U K 270	A	A	300	H 285	H 275	290	290	290	H 270	275	260	250	230	215	200	A	U A 150	A
8	U K 300	A	A	A	A	B	A	U A 270	260	270	A	A	A	B	280	Y	U K 325	K 290	230	215	195	170	B	A
9	A 150	A	A	K 260	A	200	A 225	250	A 260	270	B	B	B	B	B	A	B	U B 245	270	K 380	K 370	K 320	U K 360	K 325
10	A	B	A	U K 250	A	210	Y	A	A	A	B	310	290	B	B	275	250	235	H 230	A	200	185	U K 220	K 250
11	K 310	A	B	B	B	K 300	245	A	B	B	B	315	B	B	B	B	B	B	230	210	190	A	A	U K 320
12	K 340	A	C	U K 360	U K 240	B	A	A	260	270	R	R	B	B	B	U R 290	B	230	K 390	K 375	K 340	200	C	C
13	B	Y	K 310	B	B	B	220	260	A	Y 290	295	A 295	290	A	A	B	B	250	B	B	U B 205	170	H 150	H 170
14	A	U K 270	K 290	B	A	A	220	250	A	300	290	280	285	285	U A 295	270	A	A 255	250	A	200	H 175	A	A
15	A	A	A 150	170	A	U A 220	U F 240	A	U A 270	300	285	R 295	290	U A 275	A	A	A	A	A	A	200	A	A	A
16	A	U A 150	A	A	200	210	230	255	B	B	R 280	295	280	290	280	280	A	K 295	U K 280	220	U K 260	160	K 350	K 360
17	B	U K 350	A	A	A	A	A	U A 250	A 240	280	295	295	295	290	280	A 250	A	H 260	245	U A 215	215	K 330	K 345	A
18	K 250	A	A	A	A	A	A	A	A	B	B	U A 300	310	R 310	300	270	270	275	240	220	210	U A 200	U K 310	K 325
19	K 400	B	A	A	A	A	230	A	B	K 340	B	R 300	300	295	285	280	260	250	240	230	200	H 155	A	140
20	A	A	K 330	A	A	A	A	A	250	265	270	270	U A 280	U A 290	A 280	A 275	U A 270	255	240	210	195	170	160	H 120
21	A 155	K 195	U A 160	H 195	A	200	220	A 245	A	275	A	290	275	A	A	A	275	A	A	220	200	A	160	140
22	K 225	K 280	A	A	U A 200	220	220	A	A	A	A	A	300	U A 280	280	270	I B 260	260	230	A	A	K 320	C	C
23	A	U K 315	A	U K 320	A	A	A	280	A	A	310	280	A	U A 280	280	U A 275	A	250	235	215	210	H 195	U A 160	155
24	A	U K 205	K 350	U K 360	K 300	H 200	240	250	260	280	A	B	H 295	295	A	A	270	K 295	K 280	H 240	U R 230	A 170	U A 165	A
25	H 150	A	A	A	A	U A 230	A	A	A	295	285	280	280	295	I B 290	285	255	260	240	215	200	U A 180	H 170	K 310
26	U K 220	A	K 305	K 320	A	A	K 350	K 290	A	B	B	A	A 280	A 290	A	U A 285	275	245	250	220	A 205	U A 190	H 160	130
27	140	U K 310	U K 345	U K 280	A	A	A	250	A 255	260	295	300	300	300	A 285	A	A	A	A	B	210	160	K 365	K 440
28	A	U K 350	U K 290	B	U K 260	A	A	A	260	280	305	295	R 295	300	A 290	295	280	280	260	240	200	H 170	170	U A 150
29	K 250	U K 305	U K 320	U K 350	170	B	A	260	A	A	300	B	B	R 300	A	270	A	A	U K 340	K 350	210	195	190	U A 180
30	K 270	K 260	K 290	K 260	A 190	A	U A 250	240	245	255	260	280	U A 290	B	H 310	H 270	B	B	A 235	K 400	K 280	175	K 365	A
31	A	B	A	A	A	A	A 230	A	A	A	H 280	H 290	290	285	280	280	260	250	230	215	A 200	A 170	K 315	U K 240
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	14	14	13	13	14	18	18	16	21	19	23	25	23	21	22	17	24	25	25	30	26	21	20
MED	K 260	U K 278	K 310	U K 280	200	210	228	250	260	275	285	290	290	290	280	275	270	250	240	220	200	175	170	190
UQ	K 325	U K 315	K 330	U K 330	K 260	U 230	240	260	260	285	295	298	295	298	290	280	270	262	250	240	210	195	K 315	K 315
LQ	155	U K 205	K 290	K 250	190	200	220	245	250	270	275	280	280	285	280	270	260	250	230	215	200	170	160	140

The Radio Research Laboratories, Japan

DEC. 1976 | FOE (0.01 MHz)

IONOSPHERIC DATA

DEC. 1976 | FOES (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 32	33	39	43	42	32	J A 26	G	G	G	31	G	30	G	28	G	30	G	G	G	G	20	E B 19	18
2	40	K 34	40	30	G	G	28	G	G	G	31	36	35	J A 30	G	32	J A 34	27	G	22	20	J A 24	G	G
3	18	J A 26	20	21	20	21	G	G	J A 28	J A 32	J A 54	G	G	G	30	30	J A 60	J A 76	34	G	26	J A 28	18	20
4	J A 33	32	J A 32	J A 35	42	44	J A 46	53	42	G	G	G	G	J A 68	30	29	33	32	J A 35	32	K 33	32	J A 33	32
5	K 32	J A 33	40	45	37	39	44	44	G	J A 30	G	32	G	G	G	G	32	G	F B 25	29	J A 34	J A 30	G	18
6	E B 32	26	24	25	27	24	J A 32	G	G	J A 73	G	32	35	J A 61	J A 42	36	J A 33	37	J A 31	27	G	G	J A 22	30
7	K 39	J A 35	44	46	39	J A 34	30	30	G	G	G	31	31	34	G	30	G	G	J A 36	J A 23	J A 53	J A 59	32	J A 23
8	J A 32	J A 60	J A 75	J A 34	J A 39	B	J A 69	40	G	36	46	64	38	B	G	G	37	36	60	J A 51	J A 63	J A 31	33	J A 36
9	J A 128	J A 62	30	K 26	65	25	25	28	29	G	B	B	E B 55	B	B	30	E B 27	G	37	K 38	K 37	40	J A 101	K 32
10	33	47	J A 76	40	40	40	G	42	44	44	B	G	G	B	E B 46	G	G	G	G	30	G	J A 26	26	32
11	K 31	39	52	50	B	33	32	40	B	B	B	G	B	E B 53	E B 42	E B 33	E B 31	F B 30	G 21	25	J A 24	30	25	34
12	K 34	35	J A 36	J A 61	27	B	40	30	G	G	G	G	E B 42	E B 34	B	G	F B 46	G	K 39	K 37	K 34	24	37	E C 40
13	B	Y	K 31	B	40	34	30	G	32	G	G	34	31	35	31	E B 35	F B 30	G	F B 30	E B 25	24	26	21	23
14	29	J A 30	K 29	40	39	J A 35	28	28	40	G	G	G	36	35	30	30	J A 44	40	25	J A 30	J A 46	J A 41	J A 39	J A 61
15	45	J A 31	J A 34	J A 36	J A 23	J A 34	J A 26	J A 34	J A 29	J A 68	40	32	J A 44	J A 146	73	65	45	83	64	38	25	J A 36	40	36
16	J A 39	J A 31	40	J A 29	J A 35	G	G	G	E B 30	E B 32	32	31	31	G	G	G	J A 39	37	47	G	31	25	K 35	K 36
17	42	J A 43	46	J A 34	40	J A 44	40	J A 35	J A 34	31	33	39	44	105	J A 146	J A 109	J A 70	29	G	25	G	J A 38	J A 85	J A 45
18	70	50	40	43	40	J A 40	40	J A 73	40	50	B	J A 75	G	G	G	G	33	J A 101	J A 74	J A 88	33	31	J A 34	K 33
19	K 40	50	J A 39	J A 49	J A 61	52	29	44	B	38	E B 36	32	G	G	G	G	G	28	41	28	23	29	22	41
20	J A 40	40	J A 51	47	50	40	J A 46	42	J A 34	G	32	32	34	37	33	34	32	32	30	G	21	G	27	28
21	J A 25	K 19	19	58	J A 40	G	J A 26	30	J A 33	G	J A 46	G	37	J A 47	J A 57	J A 70	J A 60	J A 37	J A 49	J A 26	G	27	G	21
22	29	K 28	31	J A 27	33	30	J A 33	J A 47	J A 125	50	J A 31	33	G	30	G	G	E B 31	35	29	40	30	K 32	C	C
23	67	68	49	J A 74	45	50	51	40	J A 38	37	G	G	30	33	30	J A 34	J A 61	G	G	25	J A 42	G	20	J A 24
24	32	32	K 35	45	43	G	G 20	G	G	G	32	33	G	G	32	30	G	32	36	J A 42	70	J A 61	24	26
25	21	30	J A 26	30	47	32	45	J A 54	J A 42	35	30	31	G	G	E B 38	G	G	36	G	30	J A 26	J A 40	23	K 31
26	J A 48	J A 41	K 30	K 32	46	46	36	32	31	E B 49	E B 34	40	35	32	31	29	30	G	27	J A 34	J A 31	22	G	G
27	21	J A 36	J A 61	J A 36	38	J A 53	J A 33	J A 31	33	33	G	35	42	45	J A 70	J A 58	39	J A 32	27	E B 26	23	24	38	K 44
28	J A 41	J A 37	33	45	35	49	55	J A 55	G	G	G	32	G	32	32	32	32	G	J A 27	G	22	G	G	20
29	K 25	38	J A 84	J A 62	J A 35	B	40	J A 36	51	J A 69	38	B	B	G	36	G	30	34	J A 46	J A 47	27	J A 35	38	59
30	J A 79	J A 40	40	J A 39	J A 65	J A 59	J A 30	G 23	50	G	31	G	32	E B 32	35	31	E B 26	E B 29	40	K 40	K 28	G	K 36	45
31	J A 44	J A 109	46	43	36	32	27	38	31	37	G	G	33	33	40	40	57	35	J A 38	J A 63	25	25	35	28
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	30	31	30	30	28	31	31	29	30	27	29	29	28	29	31	31	31	31	31	31	31	30	30
MED	34	36	39	40	40	34	32	34	31	31	30	32	31	32	30	30	32	32	31	29	26	28	26	31
UQ	42	J A 43	46	46	43	44	40	42	40	38	33	33	36	U 38	U 38	34	40	36	40	38	34	J A 34	36	36
LQ	30	31	31	J A 32	35	28	26	26	G	G	G	G	G	G	G	G	E G 30	G	U 23	24	22	24	20	23

The Radio Research Laboratories, Japan

DEC. 1976 | FOES (0.1 MHZ)

IONOSPHERIC DATA

DEC. 1976 | F-MIN (0.1 MHZ) | 45° E Mean Time (G. M. T. + 3 h)

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

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	10	15	16	19	10	10	10	E C 10	10	10	8	10	11	10	12	9	10	11	11	14	9	12	19	8
2	10	11	13	10	10	10	20	9	10	10	12	11	11	10	E C 17	9	10	9	10	10	10	9	8	10
3	10	15	8	10	9	8	8	9	9	10	11	11	10	10	10	8	8	11	10	9	9	9	10	9
4	10	10	17	11	12	10	10	12	10	10	9	10	10	E C 12	10	10	E C 10	11	10	10	12	10	10	7
5	7	8	10	11	13	16	14	13	9	8	10	10	10	10	10	10	9	18	25	13	10	10	10	9
6	32	9	9	8	10	8	15	9	8	8	10	10	10	12	11	14	12	11	11	9	8	8	9	10
7	E C 18	10	18	9	10	16	20	22	10	10	10	12	10	9	10	10	10	10	9	9	9	15	11	8
8	10	10	8	8	11	B	16	9	10	8	20	12	10	B	23	20	10	20	12	10	10	11	17	11
9	12	14	12	20	10	10	11	9	9	19	B	B	55	B	B	22	27	24	10	9	12	13	10	8
10	9	21	10	8	20	10	19	10	10	12	B	22	15	B	46	15	13	10	20	10	12	10	10	10
11	20	17	24	21	B	8	11	16	B	B	B	20	B	53	42	33	31	30	15	11	10	10	12	8
12	7	12	E C 25	13	10	B	E C 18	11	12	10	23	19	42	34	32	18	46	12	13	9	10	7	E C 32	E C 40
13	B	Y	17	B	30	26	10	10	20	22	15	18	23	11	24	35	30	19	30	25	20	9	8	10
14	8	10	13	30	16	8	8	8	24	13	14	10	10	10	10	11	11	11	13	13	12	8	E C 11	10
15	8	9	9	9	9	9	9	E C 12	8	15	17	15	14	16	25	23	22	20	21	19	12	13	10	10
16	9	7	7	8	7	10	10	12	30	32	20	20	20	15	12	11	9	23	20	10	11	12	10	11
17	22	7	15	8	10	13	10	10	10	10	10	10	10	12	12	13	12	10	9	9	9	10	10	11
18	11	13	9	10	11	8	12	10	20	30	B	14	22	14	21	19	14	17	14	16	12	11	11	9
19	13	27	15	15	11	20	13	12	B	15	36	20	29	21	17	15	10	12	15	14	15	9	10	8
20	10	7	18	18	15	10	10	10	10	10	10	10	10	10	10	10	10	12	12	10	9	9	9	8
21	10	10	9	10	10	10	10	9	9	9	E C 11	10	10	10	10	10	10	15	9	8	9	18	11	8
22	15	17	12	8	8	8	8	13	10	8	13	21	12	13	11	10	31	14	16	9	10	10	C	C
23	8	8	9	15	18	8	12	10	13	20	20	14	11	10	10	10	10	11	12	10	12	11	10	7
24	8	9	15	14	12	10	9	9	9	10	20	31	13	13	13	13	10	18	25	15	19	11	13	10
25	9	9	9	8	11	8	7	12	10	10	11	9	10	11	38	15	13	18	16	16	11	9	10	9
26	10	9	24	13	15	16	9	9	11	49	34	12	14	14	11	11	11	10	10	14	10	11	12	12
27	11	14	17	13	15	10	9	9	9	9	E C 20	9	10	F C 10	10	11	11	13	11	26	9	13	11	24
28	12	12	17	20	12	10	20	10	8	8	18	14	13	13	19	17	21	20	17	18	12	10	10	10
29	10	12	14	7	E C 9	B	14	12	15	10	11	B	B	E C 18	10	15	10	13	10	10	E C 10	7	E C 11	10
30	13	10	12	10	8	10	9	9	8	10	18	22	20	32	12	9	26	29	15	14	11	12	8	10
31	13	19	11	12	12	10	9	12	16	22	10	9	15	10	13	10	15	12	11	10	10	9	10	10
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	30
MED	10	10	12	11	11	10	10	10	10	10	14	12	12	12	12	11	11	13	12	10	10	10	10	10
UQ	12	14	16	15	14	14	14	12	14	17	20	20	20	16	22	16	18	18	16	14	12	12	11	10
LQ	9	9	9	8	10	8	9	9	9	10	10	10	10	10	10	10	10	11	10	10	10	9	10	8

DEC. 1976 | F-MIN (0.1 MHZ)

IONOSPHERIC DATA

DEC. 1976 | M(3000)F2 (0.01) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S, Long. 39° 35' 4" E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	UF 315	280	F 280	A	F	F 275	UF 285	F	UF 280	275	F 280	F 295	F 290	285	F 300	F 285	F 300	F 310	F 315	F 320	F	F	F 340	JF 310
2	F	F	280	275	F 280	F 290	F 280	F 280	F 285	F 280	295	280	280	310	295	305	320	310	340	340	345	355	325	320
3	300	S	JS 295	JR 290	JF 270	F	UF 275	JF 290	JF 285	F 290	JF 285	F 270	F 300	F 315	F 315	315	310	330	F 310	345	F 315	335	335	F 305
4	JR 300	S	S	S	US 260	F	F	260	F 255	F	F	JF 285	F 260	F 280	280	275	F	F 275	F	UF 325	F 315	F 335	F 340	320
5	F 295	F	A	A	R	R	A	F 255	F 270	F 260	265	285	280	270	290	270	280	305	325	335	315	305	F 325	325
6	310	315	R	JR 295	UF 275	F	F	F	F	F	UF 285	F 275	F 295	A	270	300	310	325	JF 320	F 350	325	300	300	F
7	S	R 275	R	A	F	F	Y	Y	F 265	F 245	F	F 275	F 290	F 305	285	275	285	300	325	305	JF 320	JF 315	JF 315	F
8	R	F	A	F	A	B	A	235	F 275	F 245	A	A	F 240	B	F	F	F	F 340	F	F 335	345	JF 310	F 305	F 295
9	F 270	F 285	F 275	F	UF 265	JF 280	F	UF 275	F 285	265	B	B	R	B	B	F 255	UF 265	F	F	265	F	F 335	A	F 245
10	F 270	A	A	F	R	F	F	R	R	A	B	R	270	B	270	265	265	250	290	F	F 345	UH 320	F 325	330
11	F 290	F 295	A	A	B	F	F	R	B	B	B	260	B	R	F	F	F	F 290	295	285	F 300	F 320	F 340	F 315
12	F	F 290	A	F	F	B	F 300	F 295	F 285	F 270	F 265	270	F 285	R 270	270	UF 290	295	F 255	F	UF 350	F 315	JF 305	285	F
13	B	Y	R	B	R	F	F 270	F	F	F 275	F	F	F	F 275	F 290	UF 290	F 300	C 295	305	F 340	F 320	330	325	335
14	285	S 275	F	A	F	F 265	JF 265	F 275	UF 275	F	F 285	F 290	F 295	F 270	280	285	275	305	315	320	320	310	330	A
15	310	305	S	JR 265	F 264	JF 275	JF 285	F	F 270	280	280	290	290	A	295	290	305	A	A	320	340	F 340	F 335	F
16	F 305	S	S	JR 295	JR 280	JF 300	280	F 280	UF 275	F 265	F 285	285	300	295	310	265	295	305	F 310	F 295	F 305	UF 320	F	F 355
17	A	F	A	F	A	A	R	F 235	F 255	F 270	260	250	285	A	300	280	275	290	275	F 285	325	F	F 335	A
18	F	A	A	A	A	A	A	A	R	A	B	R	R	R	R	255	235	280	295	F 302	330	JR 315	F 275	R 340
19	A	A	A	A	A	F	R	A	B	F 260	R	R	R	F 240	250	255	F 245	295	305	315	335	325	F 305	F 325
20	325	F 325	F	A	A	F 250	F 265	F 260	F 285	285	285	265	300	295	250	260	295	295	310	320	320	320	330	340
21	320	JR 305	280	F 290	F 290	F 295	UF 275	F 295	F 275	F 285	F 285	F 275	F 290	305	280	A	285	270	315	310	F 320	325	S 330	JR 345
22	F 320	F 300	US 275	S	F	F	JF 265	F	A	A	F	F 295	F 280	F	F 270	F 265	F 260	285	F 320	F 305	F 350	325	C	C
23	A	F 270	F	F	225	A	A	R	F 260	UF 280	F	F	F 285	285	300	285	285	295	V 290	310	325	330	325	320
24	315	JR 290	R	F	260	F	F	UF 285	JF 275	F 270	F	F	F	F	F	UF 300	JF 300	F	F 300	F 310	F 300	JF 315	JF 335	F 310
25	290	F	S	S	UF 310	F	F	F 240	F	F	F	JF 290	F	UF 275	280	270	260	295	345	305	F 330	JR 335	335	UH 255
26	S	270	F 285	UF 265	A	A	285	F 260	F 265	280	F 270	F 290	F 290	310	F 315	270	300	295	305	300	330	335	340	330
27	295	R 280	F	F	F	F	F	F	F	JF 290	290	F 295	F 275	F 285	275	295	315	320	F	F 320	F 320	JF 320	R	A
28	A	F	F	A	R	A	A	F	JF 290	F 270	F 280	280	295	300	275	F 295	285	F 310	F 315	F 320	F 345	330	335	340
29	315	F	F	F	F	B	Y	F	F	F	Y	B	B	R	210	Y	Y	Y	A	A	325	320	320	305
30	F 305	F	F	F	F 255	F 270	F 265	270	270	270	255	285	275	270	F	F	F 250	R	R	A	R	350	R	A
31	A	A	A	A	A	F	F	A	Y	Y	G	G	G	G	F 275	F	R	F 280	F	F	F	R	UF 300	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	15	7	7	12	9	13	16	20	21	17	22	23	20	25	25	26	26	22	27	27	28	26	21
MED	305	290	280	JR 290	F 268	F 275	F 275	F 272	F 275	F 270	F 280	F 282	F 285	285	280	280	285	295	310	F 320	F 325	322	328	320
UQ	315	302	282	JR 292	F 280	F 290	F 285	F 282	F 285	F 280	F 285	F 290	F 292	302	295	290	300	310	320	F 330	332	335	335	335
LQ	292	278	278	270	260	F 270	F 265	F 258	F 268	F 265	265	270	278	F 270	270	265	265	285	300	305	F 318	315	F 315	F 310

The Radio Research Laboratories, Japan

DEC. 1976 | M(3000)F2 (0.01)

IONOSPHERIC DATA

DEC. 1976 | H'F2 (KM) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' S, Long. 39° 35' E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					410	370	340	325	345	345	340	325	350	355	340	355	325	305	290	280	290			
2				385	350	330	330	330	320	360	325	350	350	300	350	330	310	300	275		245			
3			L	L	F 370	305	345	325	345	325	330	380	320	300	320	305	A 340	290	300	250	L	L		
4				A 390	U S 420	400	A 380	A 410	440	340	330	350	400	330	320	345	295	350	A					
5					R	R	A	U H 440	400	400	420	370	400	420	365	405	370	310	L	290				
6				330	355	320	375	330	330	330	350	355	350	A	400	340	330	295	275	L		300		
7						F	Y	Y	450	485	400	370	370	345	380	400	370	315	280	270	L			
8					A	B	A	U R 550	375	500	A	A	545	B	F 460	455	R							
9					390	370	350	380	360	405	B	B	B	B	B	350	380	U R 550	F					
10					315	F 430	Y	A	A	A	B	425	425	B	B 410	430	380	420	330	Y				
11						500	U F 455	R	B	B	B	430	B	E B 390	320	300	285	345	340	380	305	L		
12					F	B	350	380	350	400	400	370	350	390	375	330	340	475						
13					A	F	390	400	400	375	400	380	440	390	330	350	300	340	305	280	L			
14					495	425	400	365	380	370	360	375	350	415	380	365	370	320	300	L		L		
15				335	350	330	340	345	345	300	325	300	330	A	330	350	310	A	A	L	245			
16		L	275	290	310	300	320	320	350	345	320	305	300	325	300	410	340	320	280	320	300	L		
17					A	A	R	520	445	380	440	500	380	A	350	400	A	355	400	370	275			
18					A	A	A	A	A	A	B	R	R	R	R	490	525	400	345	330	275	L		
19					A	U F 305	R	A	B	455	R	R	R	515	500	470	R 500	345	325	300				
20					A	475	400	430	445	360	350	380	360	370	540	475	350	360	325	300	L	L		
21			L	L	330	340	350	310	345	350	360	375	350	330	R	A	380	L	300	310	L			
22			L	330	315	350	350	330	A	A	375	345	365	350	380	395	380	375	300	350				
23					A	A	A	R	450	400	380	370	355	380	350	380	365	345	350	L	270	260	L	
24					435	350	300	305	340	345	350	355	330	345	290	320	325	L	330	300		295		
25			L	370	330	U H 350	375	450	415	335	390	350	400	360	340	350	380	350	L		260			
26					A	A	390	430	400	B	365	350	345	325	325	400	340	340	320	L	265	245		
27					345	345	375	350	330	330	350	350	405	375	390	330	300	295	L	280	L	L		
28					R	A	A	350	350	400	390	400	350	325	380	350	350	305	300	275	250	L		
29							Y	440	A	A	Y	B	B	R	570	Y	Y	Y	A	A				
30					480	395	405	400	400	410	455	385	390	405	440	380	470	R	R	A	R			
31					A	F	470	A	Y	A	G	G	G	G	405	430	R	410	F	L	310			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			1	7	16	19	21	24	24	24	24	26	26	23	28	29	27	25	20	16	12	4		
MED			275	335	352	350	375	372	368	365	362	370	358	358	370	365	350	345	302	300	272	278		
UQ				378	415	398	390	430	408	400	400	380	400	390	402	405	380	360	330	325	295	298		
LQ				330	330	330	345	330	345	342	345	350	350	330	330	345	325	310	295	280	255	252		

DEC. 1976 | H'F2 (KM)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 1976 | H'F (KM) | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' 4" S, Long. 39° 35' 4" E Sweep 0.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	310	A	380	A	A	A	H 190	220	200	200	U H 275	H 200	220	215	225	200	200	195	U H 200	215	H 210	220	245	250
2	U F 420	450	385	330	230	220	200	200	H 195	200	240	200	205	295	200	H 195	200	225	225	210	230	225	240	240
3	250	Q 295	245	Y	Y	225	200	200	U H 190	200	A	225	H 195	200	210	200	A	230	A	220	220	225	225	A 240
4	275	270	A	A	U H 280	U H 225	A	240	A	190	200	200	H 180	H 215	210	210	215	210	A	280	300	250	250	270
5	350	415	A	A	A	A	A	205	205	200	200	U H 180	245	H 200	195	200	250	220	200	240	265	230	250	230
6	B	250	240	270	240	220	240	205	195	190	245	205	200	A	200	220	225	240	205	210	230	230	280	310
7	S	360	450	A	285	U H 200	A	A	230	U H 185	195	195	240	200	215	230	H 205	200	230	220	220	A 280	245	245
8	350	230	A	A	A	B	A	320	H 275	255	A	A	270	B	240	250	255	255	A	A	A	265	270	H 300
9	340	330	355	245	290	225	205	200	225	205	B	B	B	B	B	225	230	200	345	450	320	285	A	505
10	A	A	A	U Q 350	A	F 210	Y	A	A	A	B	230	H 200	B	B	270	250	220	220	A	265	230	245	280
11	340	A	A	A	B	300	240	A	B	B	B	245	B	B	B	210	220	225	220	230	240	290	250	305
12	U F 450	A	A	F	U F 255	B	A	225	200	205	H 205	245	B	E B 250	220	210	I B 220	210	330	255	340	295	370	C
13	B	Y	R	B	B	A	230	H 200	H 210	Y	200	265	210	200	230	B 230	220	240	225	240	245	H 225	240	245
14	330	355	400	B	A	315	205	H 200	A	215	H 190	200	195	200	200	200	A	230	220	240	250	A 220	H 230	A
15	265	260	260	250	240	220	200	220	205	225	230	200	A	A	A	A	A	A	A	240	220	230	245	245
16	A 285	250	250	250	220	235	250	225	F 230	230	200	200	200	225	210	200	210	230	A	225	275	230	U H 300	260
17	A	Q 345	A	A	A	A	290	200	A 225	200	220	E A 270	E A 250	A	200	195	A	H 225	220	230	240	275	280	A
18	Q 340	A	A	A	A	A	A	A	A	A	B	A	220	230	220	200	245	A	A	255	240	A 250	380	280
19	A	B	A	A	A	A	245	A	B	260	235	220	220	225	215	210	210	200	E A 245	220	250	260	255	250
20	255	280	Q 300	A	A	A	A	230	H 200	H 195	220	U H 200	210	220	200	200	230	210	210	H 200	225	220	250	240
21	245	270	250	240	A 230	200	225	H 200	H 195	200	200	225	230	230	A 220	A	H 200	200	240	215	220	220	230	225
22	290	300	280	310	230	230	190	U F 250	A	A	260	225	205	225	210	220	225	A	225	A	H 245	305	C	C
23	A	Q 420	A	F	A	A	A	240	250	A	220	240	200	205	210	200	215	215	210	205	205	225	225	230
24	255	295	305	350	260	245	240	210	U H 190	230	225	Y	H 200	230	225	220	215	215	240	A	E A 275	265	240	255
25	275	300	295	290	A	250	225	A	U F 250	230	190	220	225	200	I B 220	230	200	A 255	220	230	220	210	250	425
26	345	A	375	400	A	A	290	225	H 205	B	B 230	H 200	210	200	200	200	200	200	205	250	240	225	230	250
27	255	370	U F 340	A	A	A	225	200	200	220	H 200	225	A 225	A	E A 250	H 200	210	205	H 195	210	U H 230	220	R	A
28	A	350	U F 350	A	A	A	A	A	225	250	235	225	225	H 200	H 200	235	210	215	200	210	215	220	230	250
29	295	A	A	F	255	B	A	A	A	A	A	B	B	270	A	Y	Y	Y	A	A	300	A	A	A 315
30	325	355	345	390	A	270	250	205	220	H 195	H 190	H 225	235	210	220	205	200	220	A	A	Y	245	R	A
31	A	A	A	A	A	A	230	A	A	A	230	220	205	205	215	245	A 230	200	215	250	240	230	350	F 310
	00	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	21	18	12	12	16	20	22	22	22	24	26	26	23	26	28	26	27	23	25	29	30	26	25
MED	302	300	322	300	248	225	228	208	205	202	220	220	210	212	211	210	215	215	220	230	240	230	248	250
UQ	340	355	375	350	270	248	242	225	225	230	232	225	225	226	220	228	230	228	226	240	258	265	270	300
LQ	265	270	260	250	230	230	202	200	H 200	200	200	200	200	200	200	200	205	202	208	215	220	225	240	245

The Radio Research Laboratories, Japan

DEC. 1976 | H'F (KM)

IONOSPHERIC DATA

DEC. 1976 | H'Es (km) | 45° E Mean Time (G. M. T. + 3 h)

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

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

DEC. 1976 | H'Es (km)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

DEC. 1976 | TYPES OF FS | 45° E Mean Time (G. M. T. + 3 h)

Station SYOWA STATION Lat. 69° 00' S. Long. 39° 35' 4 E Sweep 2.5 MHz to 15 MHz in 30 sec in automatic operation

Hour / Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	K 3	R 1	RK 11	RK 11	RKL 21	RKL 11	C 1				C 1		C 1		C 1		R 1					CA 11		C 1
2	RK 13	K 3	RK 21	R 2			C 2				C 1	C 1	C 1	C 1		C 1	L 1	LC 21		C 2	CL 11	C 3		
3	C 4	R 1	R 1	RA 11	C 1	C 1			C 1	C 2	C 3				L 2	C 1	C 3	LA 31	CC 11		C 1	C 1	H 1	C 1
4	R 1	R 1	RR 11	RA 11	RA 11	RA 11	RA 11	R 1	R 2					C 1	C 1	L 2	C 1	H 1	RS 11	HK 12	K 2	K 3	R 3	RK 21
5	K 4	RK 21	R 2	RA 11	RL 11	RL 11	R 2	R 1		L 2		C 1					L 1			C 1	C 3	LC 11		CL 11
6		C 1	C 2	C 1	R 1	CC 11	RAL 11			C 1		H 1	CA 11	C 3	C 1	C 1	L 2	C 1	L 1	C 1			R 1	RK 12
7	K 3	R 3	RK 11	R 2	RAK 11	RK 11	L 1	L 1				C 1	C 1	C 1		L 1			C 3	L 2	H 1	H 2	C 1	R 1
8	RK 15	CA 11	ARL 11	AR 12	RLA 11		L 1	RL 11		R 1	L 1	L 1	L 1				RK 11	HK 11	C 3	C 3	C 5	C 2	C 1	CA 11
9	CA 11	C 2	RL 11	K 1	L 1	H 1	R 1	H 1	C 1							R 1			C 1	K 2	KS 21	RK 11	RK 21	KL 11
10	LR 11	R 1	RA 11	LAK 21	R 1	L 1		R 2	R 2	R 2										RS 21		LC 11	CK 11	CK 31
11	K 3	RC 11	L 1	L 1		RKL 11	CA 11	R 1											L 1	R 1	HA 11	R 1	R 2	RK 41
12	K 3	R 2	RA 11	ARK 11	RAK 11		R 1	R 1											K 1	KS 21	KA 21	R 1	R 1	
13			K 1		R 1	R 1	R 1		R 1			C 1	C 1	C 1	L 1						H 1	H 1	H 1	H 1
14	R 3	RK 31	KC 11	L 1	R 1	CR 21	C 2	C 3	R 1				C 1	C 1	R 2	C 1	C 3	C 3	C 1	L 2	C 2	C 3	L 2	L 3
15	L 5	L 3	C 3	CC 12	L 1	HC 11	C 1	C 3	C 2	H 1	C 1	C 1	C 2	C 2	CC 11	L 1	L 1	L 1	L 1	HL 11	H 1	L 2	L 2	L 2
16	L 3	R 2	L 3	L 2	L 1						C 1	C 1	C 1				L 2	CK 11	CK 11		RKR 11	R 1	K 3	K 4
17	RS 11	RK 31	RA 21	RA 31	R 1	RA 21	RL 11	C 2	C 2	C 1	H 1	C 3	C 3	C 2	AC 12	C 1	L 2	R 2		R 2		RK 12	ARK 11	RA 11
18	AHK 11	R 1	RL 21	R 1	RL 21	RA 21	R 1	RLS 11	L 1	R 1		HC 11					H 1	HH 11	H 1	HC 12	H 1	RA 11	RK 31	K 2
19	K 2	R 1	L 1	L 1	LR 12	RAC 11	C 1	R 2		CK 11		H 1						H 1	C 2	H 1	H 1	H 1	HAC 11	H 2
20	C 3	C 5	LRK 11	R 1	R 1	R 2	L 3	L 3	L 2		C 2	C 1	C 2	C 2	C 1	C 1	L 1	CL 21	H 1		R 2		CL 41	C 3
21	C 1	K 1	R 1	CL 13	L 4		L 1	C 1	C 2		LA 21		C 2	C 2	CA 31	L 2	C 1	L 1	L 2	C 1		H 1		H 1
22	HK 11	K 1	R 1	HC 12	L 2	L 1	L 1	RA 11	ARL 11	LA 11	L 2	R 1		R 1				R 1	H 1	R 2	R 2	K 2		
23	R 3	RKA 13	RAC 11	AK 11	R 1	RI 21	R 2	R 1	R 1	R 1			C 1	C 1	C 1	L 1	L 2			R 1	C 1		C 1	C 3
24	L 3	CK 43	K 1	RK 21	RK 21		L 2				R 1	L 1			R 1	R 1		HK 11	HK 11	H 2	HC 12	CA 11	HC 11	R 1
25	R 1	R 3	R 2	R 2	R 2	LR 11	RL 12	AR 11	RA 11	C 1	H 1	H 1						H 1		H 1	H 1	C 2	C 1	K 3
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27	C 4	RAK 11	AK 11	CK 11	R 1	ARL 12	LA 21	L 1	C 2	H 1		C 1	C 2	C 2	C 2	C 2	C 2	L 2	L 1		H 1	R 1	RK 12	K 1
28	R 1	RK 11	RAK 11	R 1	HK 11	LR 21	R 1	R 2				H 1		C 1	C 1	C 1	R 1		LC 11		H 1			CA 11
29	K 3	RK 14	ARK 11	RAK 21	HA 11		LS 11	HA 11	RA 11	RA 21	RS 11				R 1		R 1	CS 11	HKA 11	RK 11	H 2	C 1	H 3	H 3
30	CK 21	CK 32	CK 22	CK 22	C 4	CC 11	C 2	L 1	LC 12		H 1		H 1		HC 11	H 1			R 2	K 1	K 1		K 4	R 3
31	R 1	RA 11	RL 11	RL 21	RI 11	RA 11	R 1	CL 11	R 1	R 1			C 1	H 1	H 1	C 1	C 2	C 1	AH 11	H 1	C 1	L 1	RK 12	RK 22
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MED																								
UQ																								
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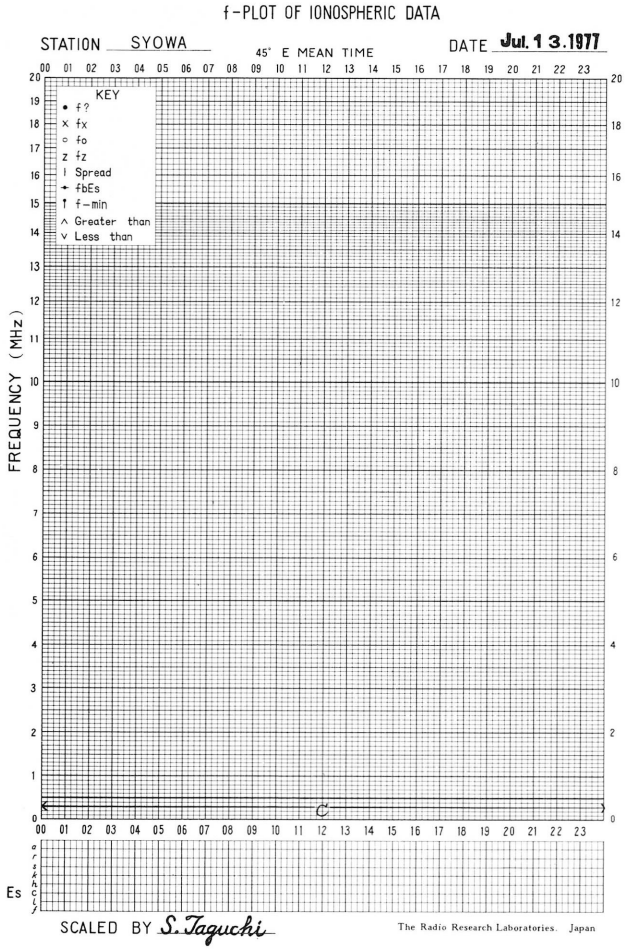
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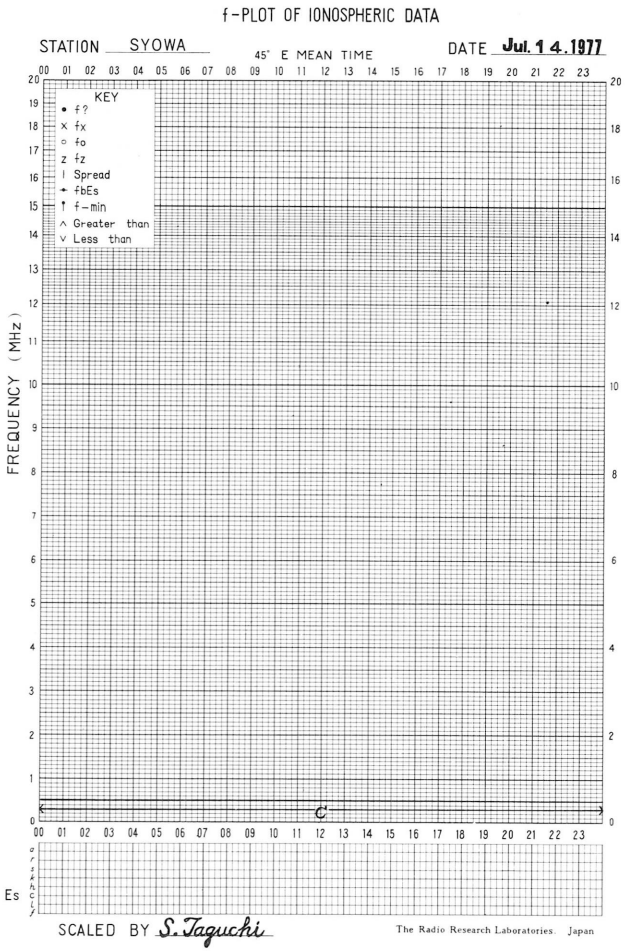
Es
SCALED BY S. Taguchi
The Radio Research Laboratories. Japan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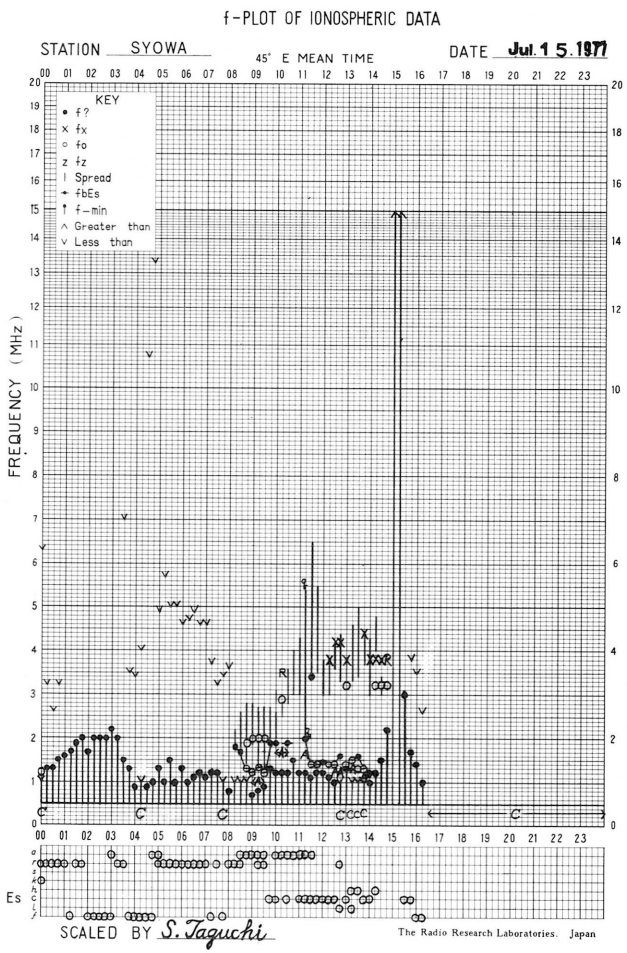
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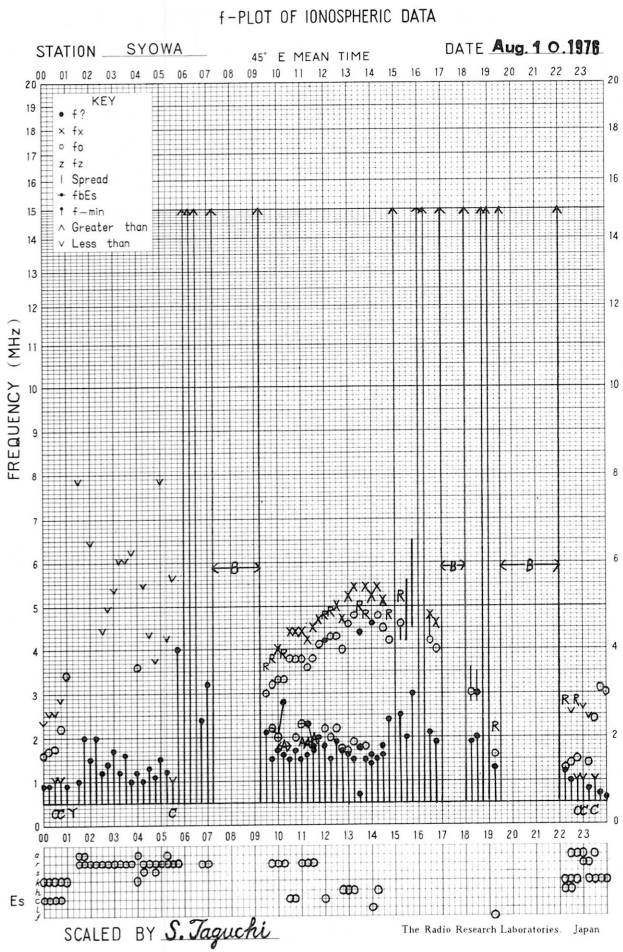
The Radio Research Laboratories. Japan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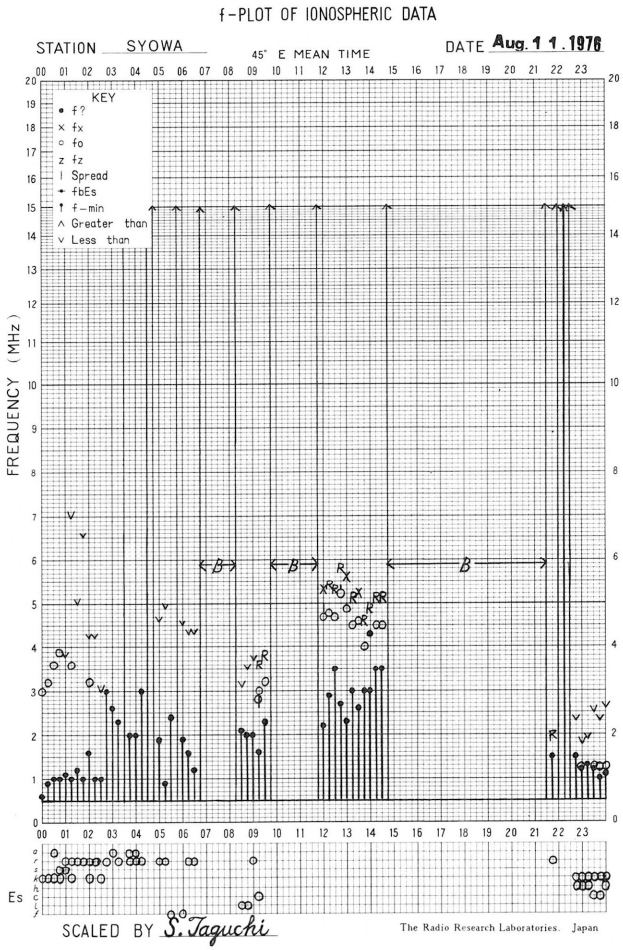
The Radio Research Laboratories. Japan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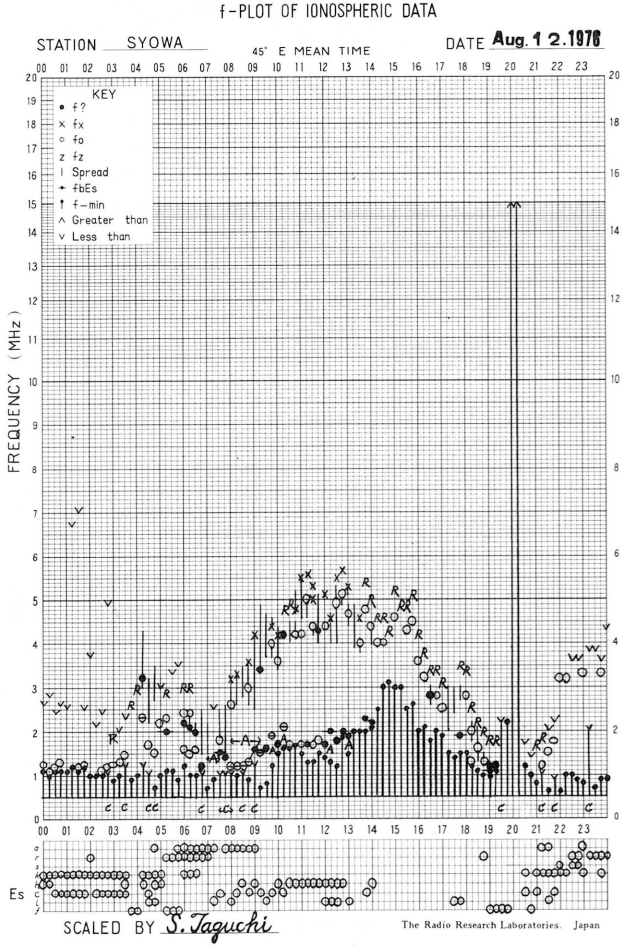
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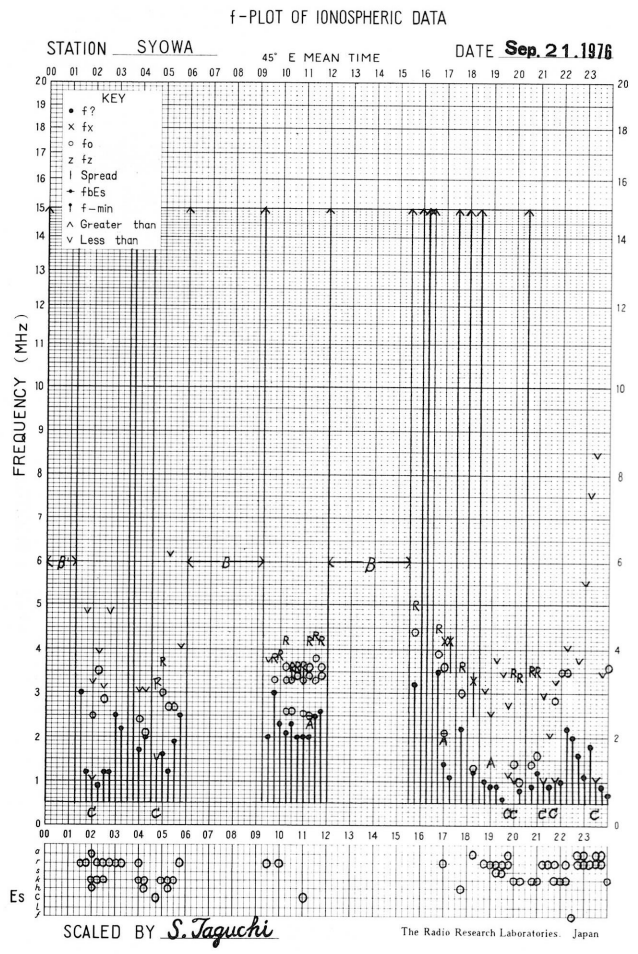
The Radio Research Laboratories. Japan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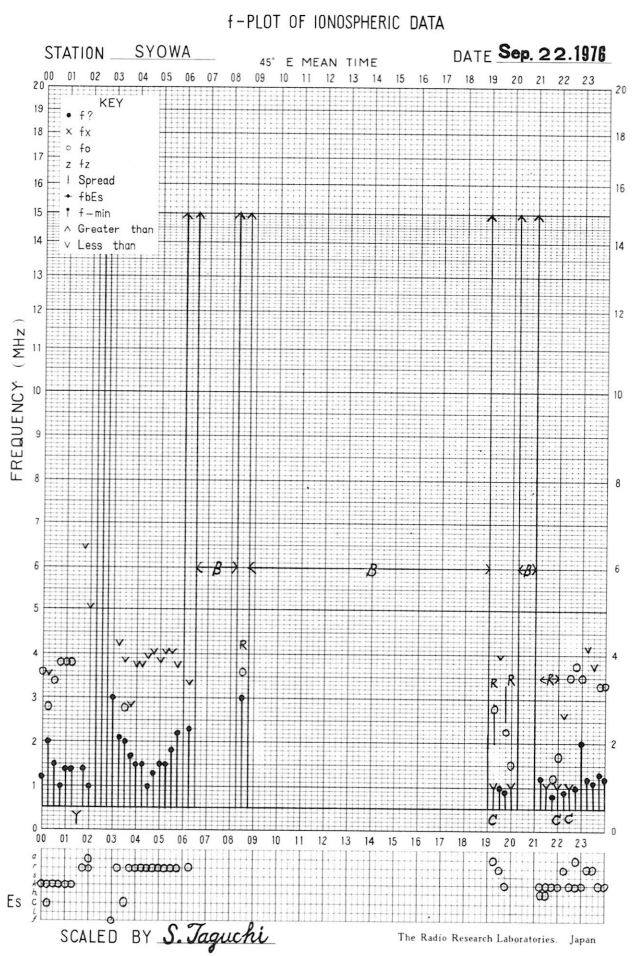
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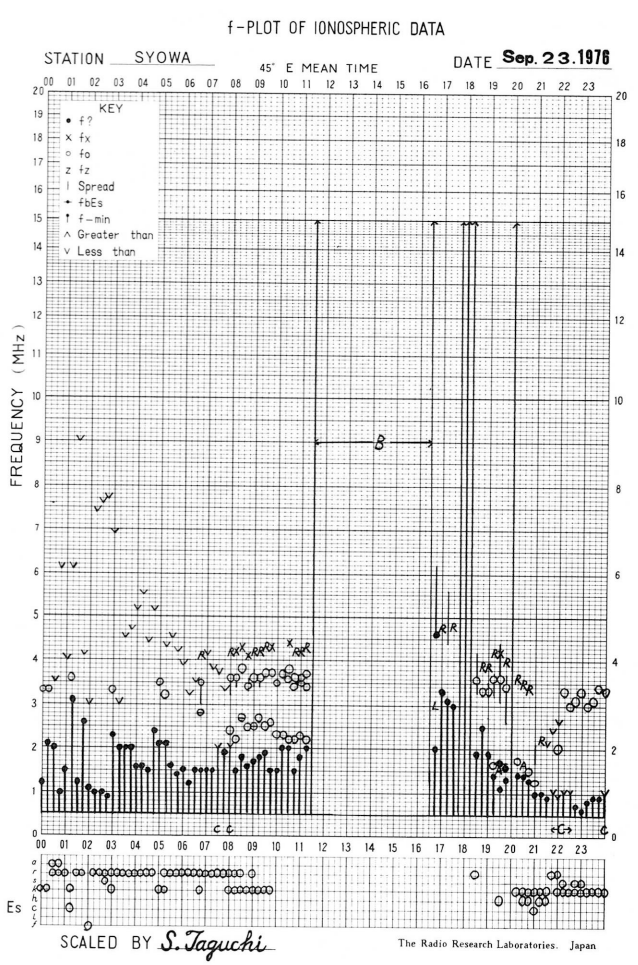
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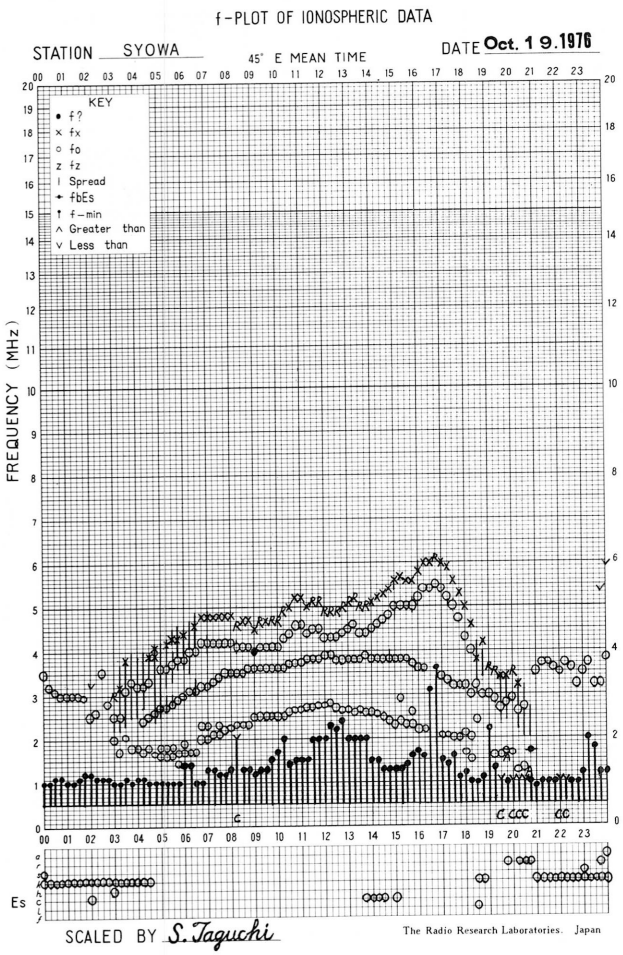
The Radio Research Laboratories. Japan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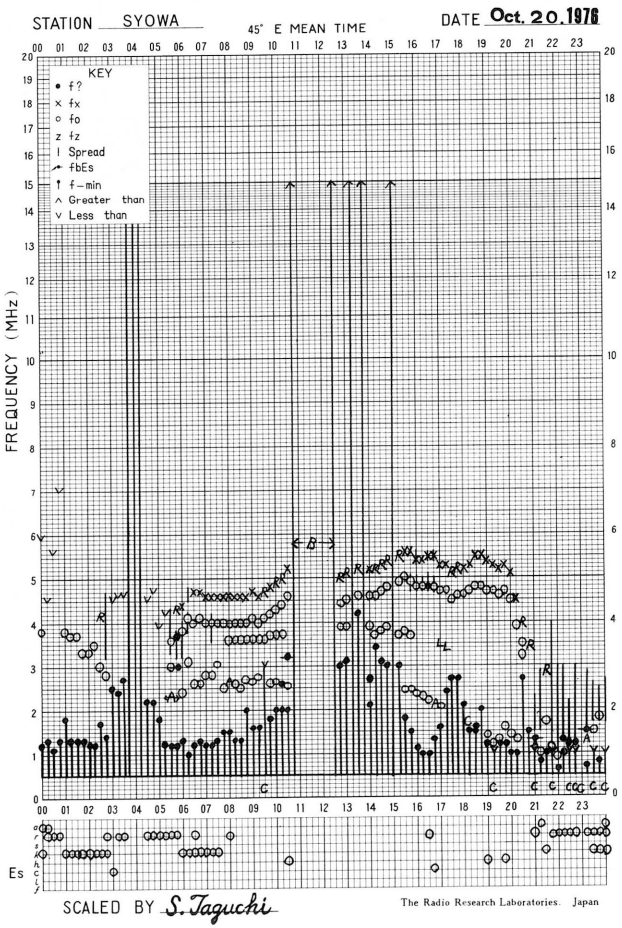
The Radio Research Laboratories. Japan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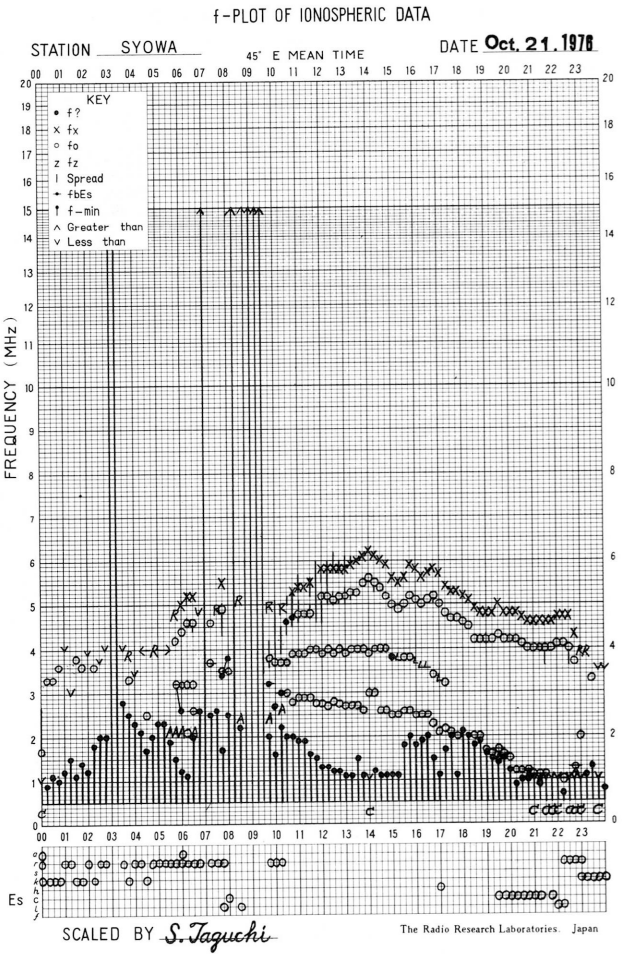
The Radio Research Laboratories. Japan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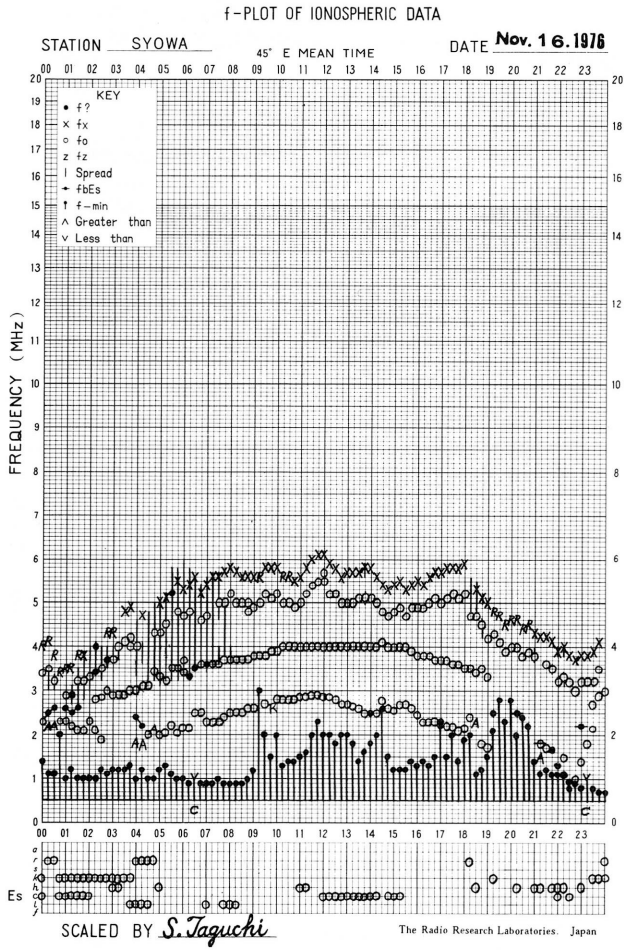
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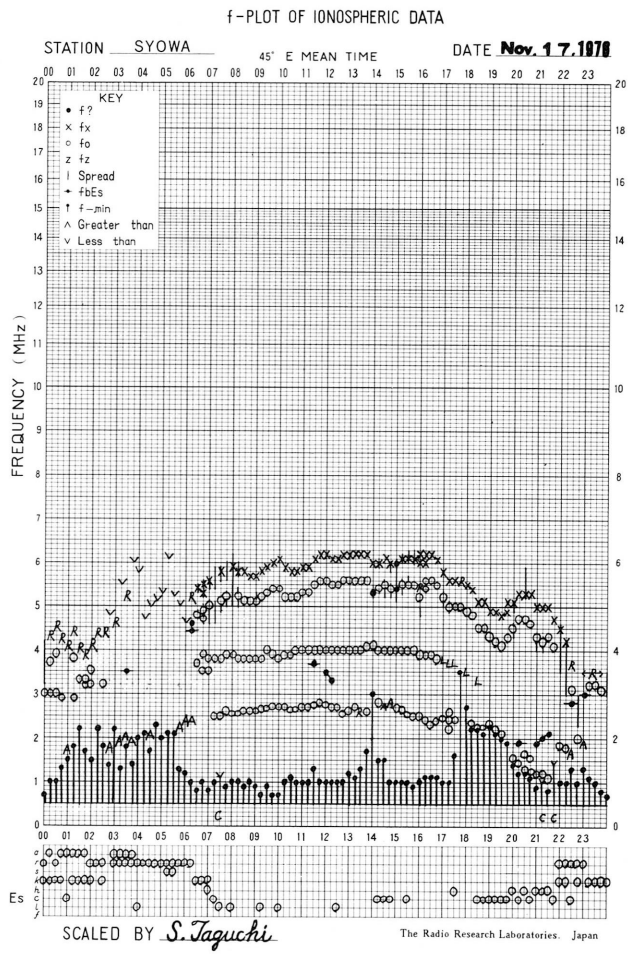
SCALED BY S. Taguchi
The Radio Research Laboratories. Japan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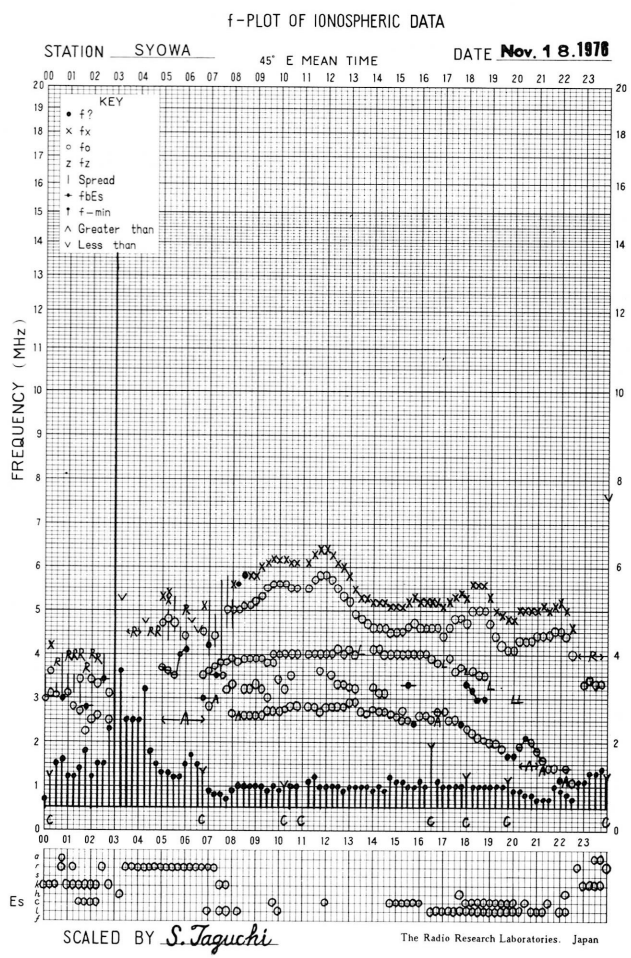
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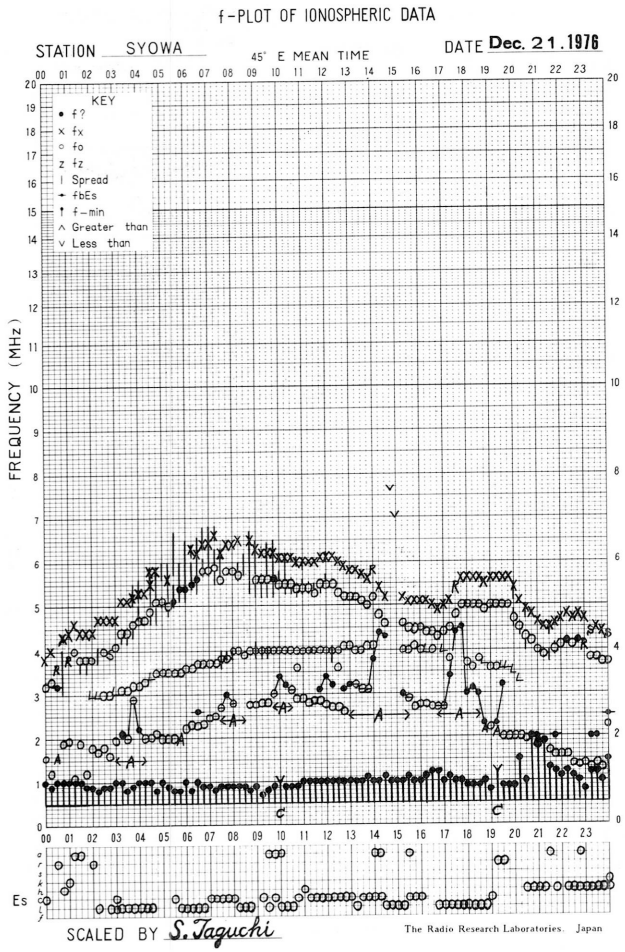
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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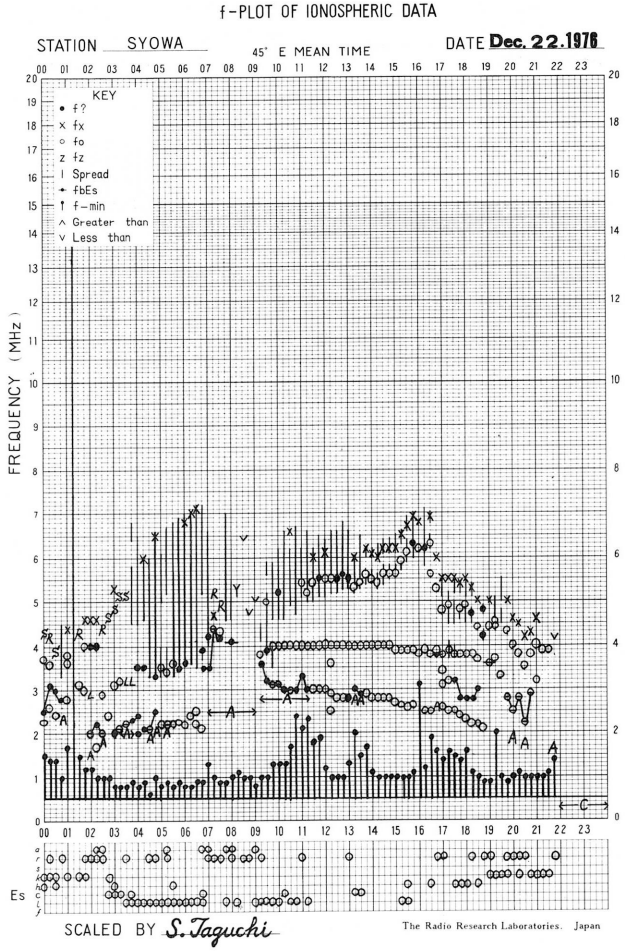
The Radio Research Laboratories. Japan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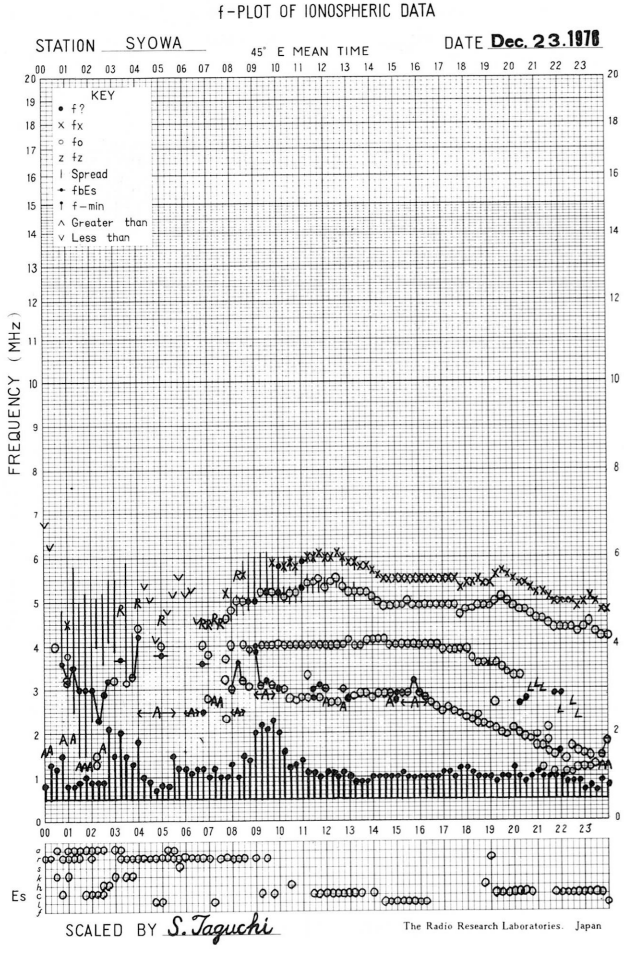
The Radio Research Laboratories. Japan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FREQUENCY (MHz)
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