

ION. ANT. -14

**IONOSPHERIC DATA AT SYOWA BASE
(ANTARCTICA)**

August 1969—January 1970

Issued in July 1971

Prepared by

**THE RADIO RESEARCH LABORATORIES
MINISTRY OF POSTS AND TELECOMMUNICATIONS**

NUKUI-KITAMACHI, KOGANEI-SHI, TOKYO, JAPAN.



ION. ANT. — 12

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**MAIN CHARACTERISTICS OF THE IONOSONDE
USED AT SYOWA BASE**

Item	Specification
Frequency Range	400 kHz ~ 15 MHz
Transmitting power	10 kW (peak value)
Duration of Sweep	30 sec
Transmitted Pulse width	100 μ sec
Recurrence Frequency of Transmitted Pulse	50 Hz (by power 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 running
Power Supply	100 Volt AC, 2.5 kVA
Transmitting Antenna	25 m high vertical delta terminated by 600 Ω
Receiving Antenna	25 m high vertical delta terminated by 600 Ω

SYMBOLS AND TERMINOLOGY

All symbols and terminology in the table of ionospheric data are used in accordance with the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, September 2, 1956, and the Second Report of the Committee, May, 1957, supplementary to the First Report.

Terminology

- f_oF2 } The ordinary-wave critical frequency for the $F2$, $F1$ and E layers
 f_oF1 } respectively.
 f_oE }
 f_oEs } The ordinary wave top frequency corresponding to highest frequency at which a mainly continuous trace is observed.
- f -min That frequency below which no echoes are observed.
- $M(3000)F2$ The maximum usable frequency factor for a path of 3000 km for transmission by $F2$ layer.
- $h'F2$ The minimum virtual height of the ordinary wave trace for the highest stable stratification in the F region.
- $h'F$ The natural and most significant F region virtual height parameter is that for lowest F region stratification. This will be denoted by $h'F$. Thus $h'F$ is identical with the current $h'F2$ when F region stratification is absent, e. g., at night, and with the current $h'F1$ when $F1$ stratification is present.
- $h'Es$ The lowest virtual height of the trace used to give the f_oEs .

a. Descriptive Symbols

Used following the numerical value on monthly tabulation sheets.

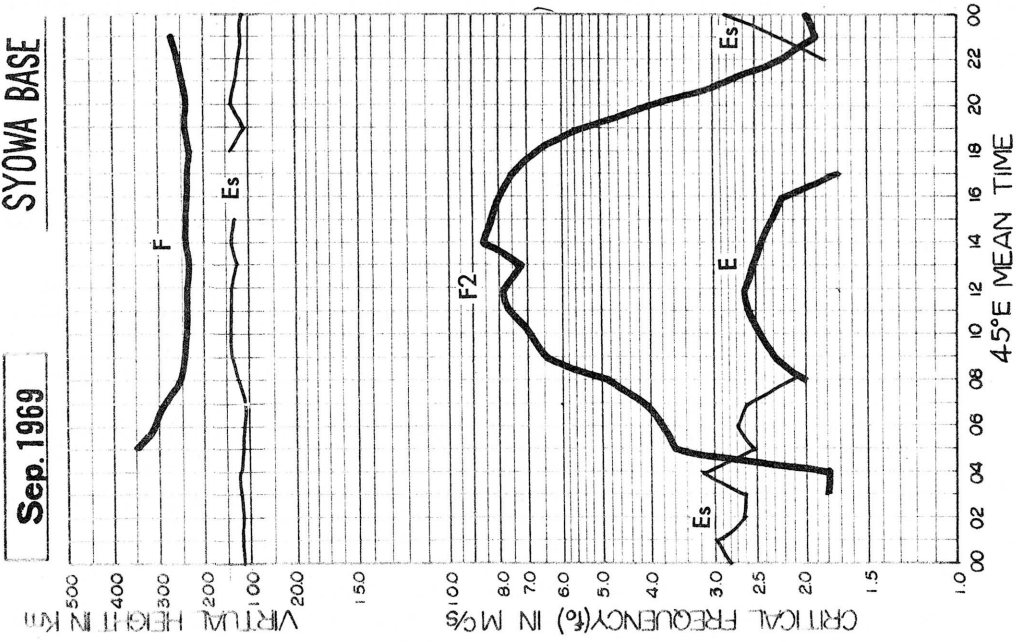
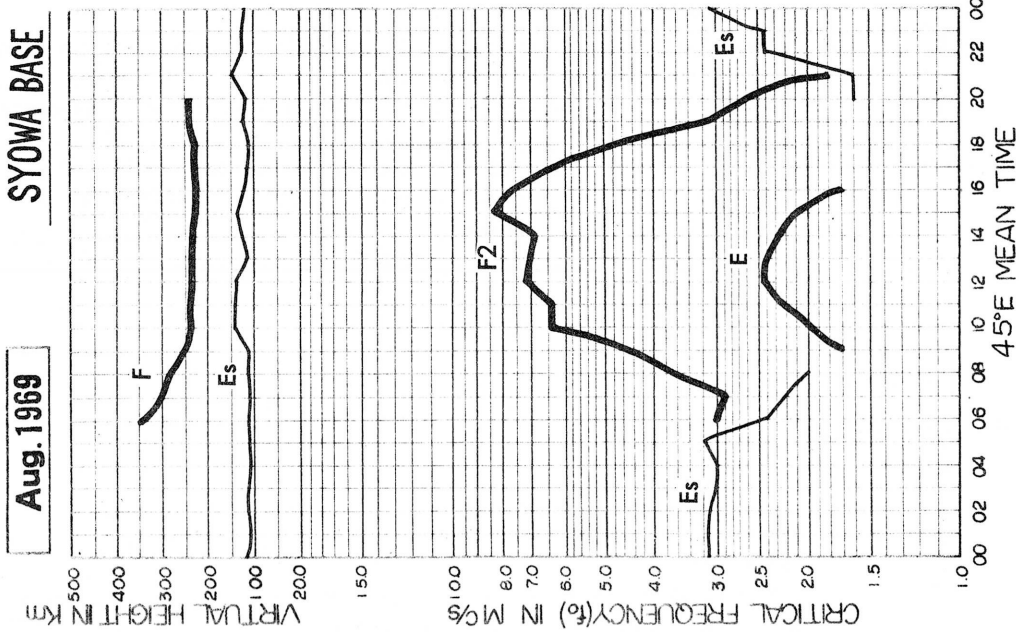
- A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example E_s .
- B Measurement influenced by, or impossible because of, absorption in the vicinity of f -min.
- C Measurement influenced by, or impossible because of, any non-ionospheric reason.
- D Measurement influenced by, or impossible because of, the upper limit of the normal frequency range. Used in a qualifying sense, see below.
- E Measurement influenced by, or impossible because of, the lower limit of the normal frequency range. Used in a qualifying sense, see below.
- F Measurement influenced by, or impossible because of, the presence of spread echoes.
- G Measurement influenced or impossible because the ionization density is too small compared with that of a lower thick layer.
- H Measurement influenced by, or impossible because of, the presence of a stratification.
- L Measurement influenced by or impossible because the trace has no sufficiently definite cusp between layers.
- M Measurement questionable because the ordinary and extraordinary components are not distinguishable.
- N Conditions are such that the measurement cannot readily be interpreted, for example, in the presence of oblique echoes.
- O Measurement refers to the ordinary component.
- R Measurement influenced by, or impossible because of, absorption in the vicinity of a critical frequency.
- S Measurement influenced by, or impossible because of, interference or atmospheric.
- 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 Intermittent trace.
- Z Third magneto-ionic component present.

b. Qualifying Symbols

Used as a preceding symbol on monthly tabulation sheets.

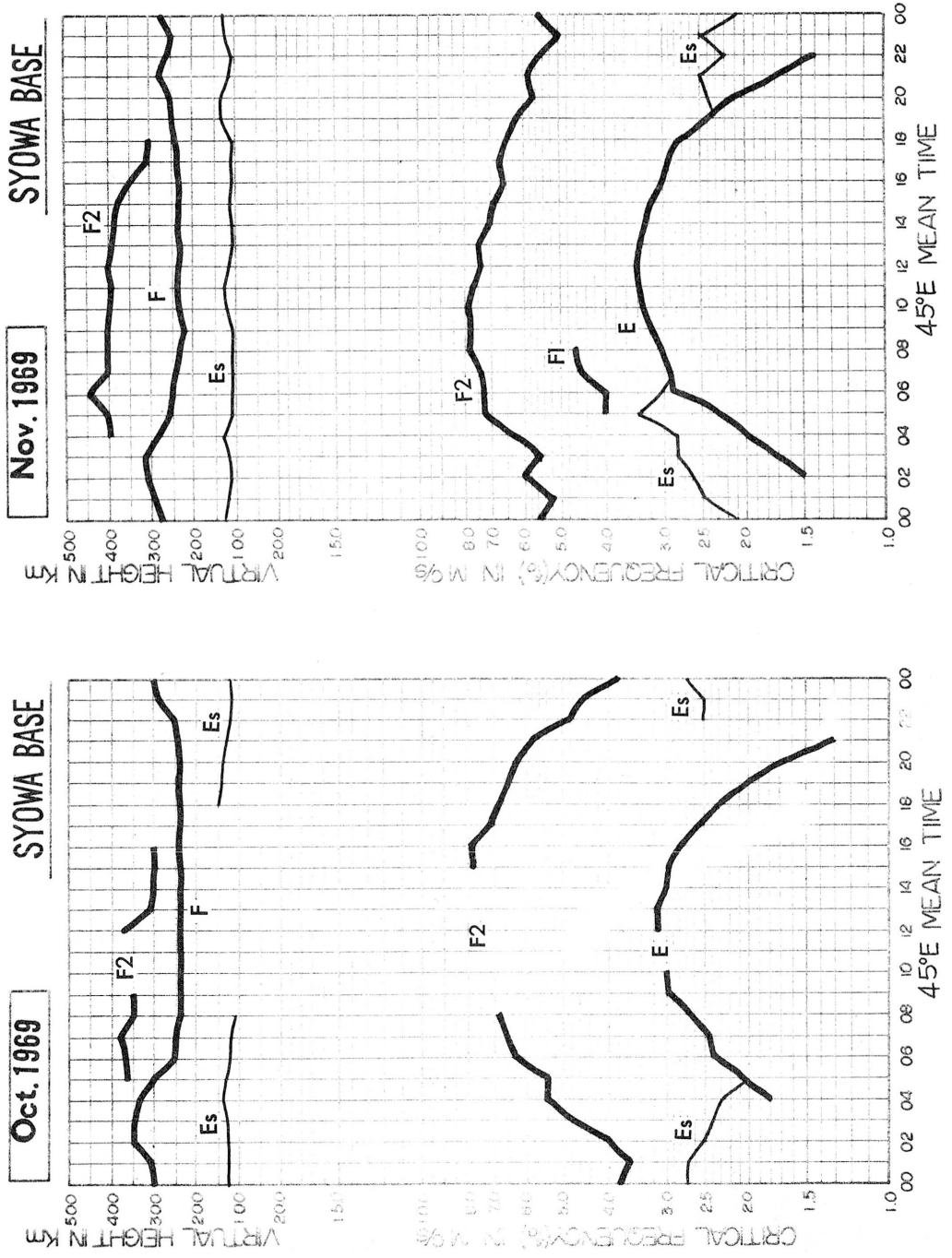
- D *greater than.....*
- E *less than.....*
- I Missing value has been replaced by an interpolated value.
- J Ordinary component characteristic deduced from the extraordinary component.
- T Value determined by a sequence of observations, the actual observation being inconsistent or doubtful.
- U Uncertain or doubtful numerical value.
- Z Measurement deduced from the third magnetoionic component.

IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



5.4

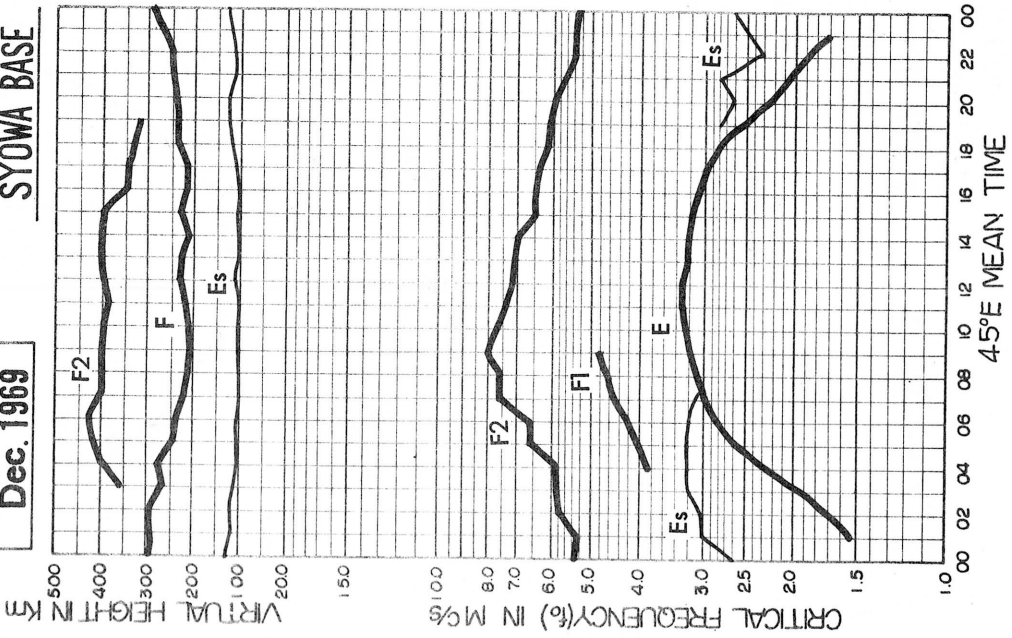
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

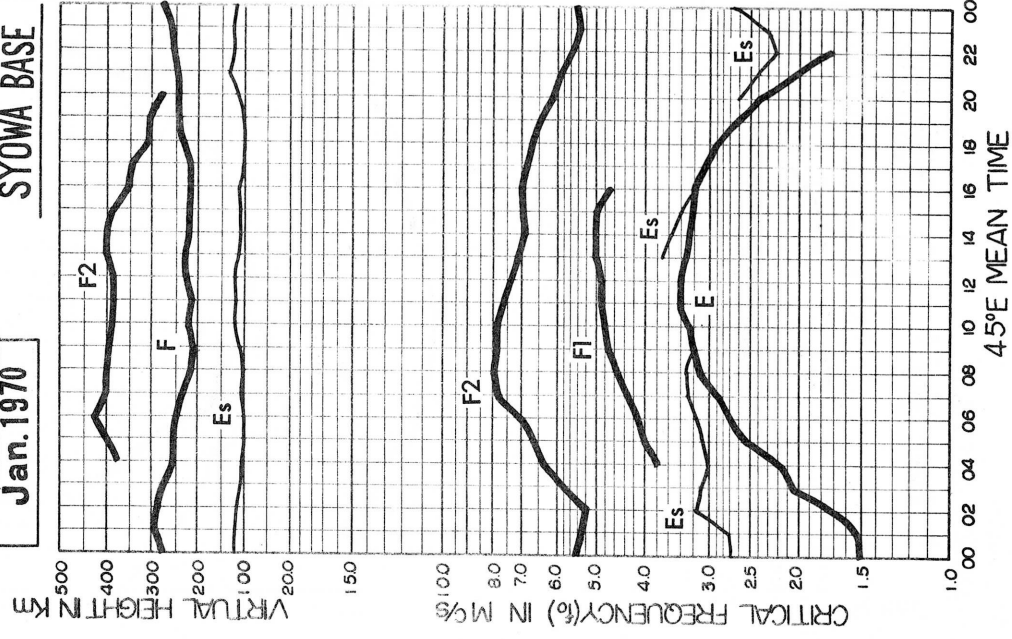
Dec. 1969

SYOWA BASE



Jan. 1970

SYOWA BASE



IONOSPHERIC DATA

AUG. 1969

FOF2 (0.1 MHz)

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

Station	SYOWA BASE				Lat. 69 00.4 S	Long. 39 35.2 E	Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation																	
Day	00	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	A	A	A	A	F	R ₂₅	28	F ₂₇	36	C	R	J ₆₅	J ₆₉	69	65	J ₄₆	R	R	28	B	B	B	B
2	B	A	A	R	A	31	R	R	26	R	R	R	R	R	J ₆₉	J ₆₆	R ₅₅	J ₄₁	J ₄₁	24	B	B	B	A
3	A	F	A	24	24	19	A	A	J ₅₃	R	F	64	R	68	J ₈₁	R	R ₇₇	C	R	30	A	A	A	C
4	A	B	A	C	A	B	B	B	A	B	B	B	J ₇₂	66	B	B	B	B	B	B	A	B	A	A
5	A	B	A	A	A	A	B	B	B	B	B	64	J ₇₁	R	R	R	B	B	B	B	B	R	A	B
6	A	A	23	23	A	B	B	A	37	B	B	J ₆₉	R	77	R	77	R	58	R	R	B	B	B	R
7	R	17	17	17	A	31	F	33	F ₃₈	R	B	B	B	R	R	R	J ₇₀	64	R	R	24	B	A	A
8	A	A	A	A	A	A	R	B	J ₃₈	F ₃₈	48	65	R	72	R	R	B	R	B	B	B	A	A	A
9	A	A	A	A	A	A	R	B	F	63	67	65	R	R	J ₉₈	76	J ₈₇	U ₈₂	R	R	B	B	B	A
10	A	A	A	A	A	A	B	A	A	B	B	B	B	B	B	B	R	U ₇₃	R	B	B	B	B	B
11	A	B	A	A	B	B	A	A	B	R	R	B	B	B	U ₉₁	R	63	56	36	27	15	B	A	
12	B	24	A	A	R	A	A	A	A	B	B	R	B	B	B	B	B	B	R	B	A	A	R	R
13	A	A	A	A	A	A	A	B	A	R	63	R	B	B	B	B	B	B	48	31	26	B	B	A
14	A	A	A	A	A	A	37	F ₂₈	35	R	B	B	B	R	R	R	R	B	B	B	B	B	A	A
15	A	A	A	A	26	F ₂₇	30	F	J ₃₇	R	61	R	R	R	R	R	R	B	R	30	15	A	15	15
16	15	A	18	15	16	R	R	R	30	J ₄₆	R	R	U ₇₆	U ₇₉	R	J ₈₆	69	69	48	36	22	18	A	A
17	A	A	A	A	R	B	A	B	B	A	B	B	B	B	66	R	R	R	R	R	R	B	A	25
18	A	B	A	A	A	B	B	30	37	41	R	61	73	72	R	R	63	58	U ₆₀	B	B	B	B	R
19	A	A	A	A	B	A	B	A	A	B	B	R	B	B	B	R	B	B	B	B	A	B	A	A
20	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	J ₇₄	U ₆₃	B	B	B	B	B	R
21	A	30	B	A	A	A	A	B	B	B	R	59	U ₆₇	65	U ₆₈	R	R	50	R	38	B	B	B	A
22	A	A	A	A	A	26	26	27	30	41	R	62	R	70	61	R	R	R	R	R	20	17	A	A
23	A	A	B	R	A	A	A	A	B	A	45	R	R	B	70	R	B	B	65	28	R	A	A	A
24	A	A	A	A	B	B	B	B	38	R	59	J ₆₅	R	75	R	90	J ₉₅	R	R ₄₉	B	B	B	A	A
25	A	A	A	B	B	B	A	A	40	R	73	R	R	R	J ₆₈	J ₉₅	78	58	J ₆₁	R	B	B	B	B
26	A	13	R	R	R	R	R	26	38	R	B	B	B	76	R	B	B	B	B	B	B	B	B	R
27	R	A	A	A	B	B	B	B	B	B	B	R	R	B	B	B	B	B	47	A	A	A	A	A
28	A	A	A	A	A	A	B	A	B	B	B	B	74	R	B	R	B	R	R	R	C	C	C	C
29	A	A	A	A	A	26	31	30	R	R	J ₆₇	R	R	R	J ₈₈	J ₈₃	90	F	R	64	36	21	17	16
30	16	R	R	R	R	41	B	B	B	B	B	B	93	R	R	93	94	U ₇₄	R	J ₅₈	34	B	B	B
31	R	R	B	B	B	B	R	F	R	J ₅₂	J ₅₈	R	B	B	B	R	R	B	B	R	32	26	B	R
Day	00	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	4	3	4	3	7	5	8	15	7	8	8	9	10	10	10	12	12	9	11	9	5	2	3
MED	16	20	18	20	24	27	30	29	37	46	64	64	R ₇₂	71	R ₆₉	84	R ₇₆	63	49	31	26	18	16	16
UQ	22	27	20	24	25	31	31	32	38	53	67	65	74	76	J ₈₁	R ₉₁	88	71	R ₆₀	37	32	21		20
LQ	16	15	18	16	20	26	26	28	32	41	60	62	J ₇₁	68	R ₆₈	76	R ₆₆	58	48	29	22	17		16

AUG. 1969

FOF2 (0.1 MHz)

IONOSPHERIC DATA

AUG. 1969

FOF1 (0.01 MHz)

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

Station SYOWA BASE Lat. 69 00.4 S Long. 39 35.4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Station	SYOWA	BASE	Lat.	69	00.4	S	Long.	39	35.4	E	Sweep	0.4	MHz	to	15	MHz	in	30	sec	in	automatic	operation			
Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1												C													
2																									
3																									
4											B	B	B			B	B								
5											B	B													
6											B	B													
7												B	B	B											
8																							B		
9																									
10											B	B	B	B	B	B	B								
11												B	B	B											
12											B	B		B	B	B	B								
13													B	B	B	B									
14												B	B	B											
15																									
16																									
17												B	B	B	B										
18																									
19											B	B		B	B	B									
20											B	B	B	B	B	B	B								
21											B														
22																									
23															B										
24																									
25																									
26												B	B	B											
27											B	B	340	350	B	B	B								
28											B	B	B			B	B								
29																									
30											B	B	B												
31												B	B	B											
CNT												1	1												
MUF												340	350												
UoF																									
LQ																									

The Radio Research Laboratories, Japan

AUG. 1969

FOF1 (0.01 MHz)

IONOSPHERIC DATA

AUG. 1969

FOE (0.01 MHZ)

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

Station	SYOWA BASE				Lat. 69 00.4 S.	Long. 39 35.4 E	Sweep 0.4 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	R 125	C	A	A	A	A	A	B	B	B					
2							A	B	A	B	180	B	B	B	200	A	A	A	B					
3							A	A	A	A	A	A	B	B	B	B	B	B	B					
4							B	B	B	B	B	B	B	B	B	B	B	B	B					
5							B	B	B	B	B	B	B	B	B	R	B	B	B					
6							B	A	A	B	B	B	A	B	R	B	B	B	B					
7							A	A	B	120	B	B	B	B	B	B	A	A	B					
8							A	A	145	A	A	B	B	B	B	B	B	B	B					
9							B	B	A	175	210	R	B	B	B	B	140	120	B					
10							B	B	B	B	B	B	B	B	B	B	B	B	B					
11							B	B	B	B	B	B	B	B	B	B	B	B	B					
12							B	B	B	B	B	B	B	B	B	B	B	B	B					
13							B	B	B	A	215	B	B	B	B	B	B	B	B					
14							B	B	B	170	B	B	B	B	B	B	B	B	B					
15							B	A	B	130	B	B	B	B	B	B	B	B	B	A				
16							A	A	A	140	190	B	235	B	B	B	B	B	B					
17							A	B	B	B	B	B	B	B	B	B	A	B	B					
18							B	A	B	180	200	200	B	225	B	B	170	120	B					
19							B	B	A	B	B	A	B	B	B	B	B	B	B					
20							B	B	B	B	B	B	B	B	B	B	B	B	B					
21							A	B	B	B	B	250	240	250	B	B	R	A	B					
22							A	A	A	180	190	225	250	225	200	B	B	A	B					
23							A	B	B	A	A	B	B	B	250	B	B	B	B					
24							B	B	B	B	A	B	B	240	230	220	200	B	B					
25							B	B	A	A	200	220	245	A	A	225	180	B	A					
26							A	B	140	B	B	B	B	245	B	B	B	B	B					
27									B	B	B	B	R	B	B	B	B	B	B					
28							B	B	B	B	B	B	B	B	B	B	B	B	B					
29							B	120	A	B	230	245	255	A	240	A	A	A	A					
30							B	B	B	B	B	B	B	B	B	A	170	B	B					
31							A	110	R	190	B	B	B	B	B	B	B	B	B					
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	2	9	8	5	5	5	5	2	5	2						
MED								115	142	170	200	225	245	240	230	222	170	120						
UQ									180	212	245	250	245	240			180							
LQ									130	190	220	240	225	200			170							

AUG. 1969

FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 1969

FOES (0.1 MHz)

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

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 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	17	J X 28	J X 29	J X 35	J X 25	15	13	13	12	G	C	17	25	21	23	23	E B 15	E B 14	E B 26	E B 17	B	B	B	B
2	B	J X 17	J X 20	18	J X 32	J X 28	12	E B 14	14	E B 23	G	E B 25	E B 25	E B 24	G	22	18	17	E B 10	E B 10	B	B	B	J X 25
3	34	J X 26	J X 34	J X 24	J X 22	J X 32	J X 42	J X 41	18	17	22	21	23	G	E B 50	J X 22	E B 26	C	E B 13	E B 21	J X 22	35	J X 32	C
4	J X 65	B	J X 35	C	J X 27	B	B	B	J X 35	B	B	B	E B 26	E B 52	B	B	B	B	B	B	J X 24	B	34	29
5	J X 40	B	J X 30	J X 21	J X 21	J X 42	B	B	B	B	E B 22	E B 22	E B 22	E B 28	G	B	B	B	B	B	B	17	J X 27	B
6	J X 30	J X 47	J X 24	J X 21	J X 30	B	B	J X 33	J X 27	B	B	E B 23	24	E B 24	G	E B 18	E B 14	E B 13	E B 14	E B 12	B	B	B	13
7	15	J X 17	J X 21	J X 21	J X 24	J X 28	J X 21	13	E B 10	G	B	B	B	E B 26	29	E B 28	17	14	E B 25	E B 26	15	B	J X 21	J X 30
8	J X 31	J X 59	J X 94	J X 34	J X 43	J X 38	J X 29	J X 22	G	17	25	E B 26	E B 57	E B 35	E B 25	B	E B 35	B	B	B	B	15	J X 31	J X 35
9	J X 32	J X 32	J X 61	J X 72	J X 47	J X 41	J X 34	B	J X 27	G	G	G	E B 28	E B 24	E B 23	E B 22	G	G	E B 23	E B 23	B	B	B	J X 24
10	J X 47	J X 37	J X 35	J X 29	J X 24	J X 33	B	J X 34	J X 31	B	B	B	B	B	B	B	E B 36	E B 23	E B 34	B	B	B	B	B
11	J X 28	B	J X 21	23	B	B	26	E B 16	B	E B 23	E B 27	B	B	B	E B 34	E B 22	E B 22	E B 15	E B 13	E B 10	E B 9	E B 9	B	20
12	B	17	J X 22	J X 23	J X 32	J X 34	J X 34	J X 47	J X 37	B	B	E B 26	B	B	B	B	B	B	E B 15	B	J X 36	J X 31	J X 20	J X 21
13	J X 34	J X 31	J X 32	J X 36	J X 31	J X 34	J X 26	B	28	J X 27	26	E B 23	B	B	B	B	B	B	E B 25	20	19	B	B	J X 22
14	J X 39	30	25	24	J X 30	J X 31	21	21	E B 22	20	B	B	B	E B 33	E B 28	E B 27	E B 22	B	B	B	B	B	26	J X 33
15	37	J X 42	J X 32	J X 29	21	17	E B 11	13	E B 11	G	20	E B 21	E B 29	E B 20	E B 25	E B 24	E B 25	B	17	E B 13	E B 11	14	12	J X 31
16	J X 32	J X 30	21	12	14	33	17	J X 24	23	G	G	E B 23	G	E B 24	E B 22	E B 23	E B 19	E B 30	E B 15	E B 10	13	E B 12	17	18
17	J X 42	J X 40	J X 42	J X 44	J X 34	B	J X 32	B	B	J X 32	B	B	B	B	E B 28	E B 38	21	E B 14	E B 14	E B 15	E B 14	B	J X 25	J X 21
18	J X 29	B	37	J X 46	J X 39	B	B	J X 25	E B 15	G	G	G	E B 23	G	E B 22	E B 25	G	G	E B 15	B	B	B	B	21
19	J X 28	J X 31	J X 34	J X 31	B	J X 32	B	J X 34	J X 32	B	B	28	B	B	B	E B 15	B	B	B	B	38	B	29	J X 73
20	38	J X 45	J X 32	29	B	J X 33	B	B	B	B	B	B	B	B	B	B	E B 56	E B 21	B	B	B	B	B	23
21	31	J X 26	B	J X 33	J X 34	J X 34	J X 39	B	B	B	E B 34	G	G	G	E B 37	E B 28	G	14	E B 25	E B 17	B	B	B	J X 30
22	28	21	J X 25	J X 32	J X 32	J X 22	16	17	J X 28	G	24	31	28	G	26	27	E B 28	30	E B 23	E B 18	E B 14	20	J X 23	23
23	J X 27	J X 65	B	30	J X 46	J X 41	40	J X 51	B	J X 32	J X 22	E B 26	E B 26	B	G	E B 26	B	B	E B 21	16	J X 21	24	J X 23	J X 35
24	31	J X 37	J X 29	J X 37	B	B	B	B	E B 26	E B 26	27	E B 30	E B 26	G	G	24	G	E B 16	E B 22	B	B	B	J X 23	J X 32
25	J X 36	J X 38	31	B	B	B	36	31	20	24	27	29	29	25	26	26	21	E B 17	16	E B 10	B	B	B	B
26	17	16	16	16	12	12	12	E B 10	17	E B 20	B	B	B	G	E B 29	B	B	B	B	B	B	B	B	J X 21
27	J X 28	J X 70	J X 42	30	B	B	B	B	B	B	B	E B 27	G	B	B	B	B	B	E B 15	22	J X 23	J X 23	26	J X 27
28	J X 29	30	31	31	42	43	B	J X 48	B	B	B	B	E B 29	E B 29	B	E B 51	B	E B 26	E B 16	E B 27	C	C	C	C
29	17	31	J X 31	J X 32	27	17	E B 22	G	17	E B 29	25	26	27	29	27	27	24	J X 22	13	E B 10	E B 10	E B 14	13	13
30	12	J X 21	J X 21	J X 20	16	E B 23	B	B	B	B	B	B	E B 29	E B 58	E B 30	J X 21	22	E B 19	E B 14	E B 22	E B 19	B	B	B
31	J X 28	J X 21	B	B	B	B	J X 23	G	G	G	E B 32	B	B	B	E B 37	E B 57	B	B	B	E B 25	E B 10	E B 14	B	16
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	27	28	28	24	22	20	21	22	20	16	20	20	21	23	23	21	18	23	20	16	12	16	24
MED	J X 31	J X 31	J X 31	J X 30	J X 30	J X 32	24	22	20	E B 18	22	E B 24	E B 26	E B 24	E B 26	E B 24	E B 21	E B 16	E B 16	E B 17	16	16	J X 24	J X 24
UQ	J X 36	J X 39	J X 34	J X 34	J X 34	J X 34	J X 34	J X 34	J X 28	U	22	26	E B 26	E B 28	E B 29	E B 29	E B 25	E B 22	E B 23	E B 22	J X 22	24	28	J X 30
LQ	J X 28	J X 24	J X 23	J X 22	J X 23	J X 23	15	13	13	G	E B 20		E B 23	G	E B 22		E B 15	E B 14	E B 14	E B 11	E B 12	E B 14	J X 20	21

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AUG. 1969

FOES (0.1 MHz)

IONOSPHERIC DATA

AUG. 1969
F-MIN (0.1 MHz)
45 E Mean Time (G. M. T. + 3h)

Station	SYOWA BASE				Lat. 69 00.4 S				Long. 39 35.4 E				Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation											
Month Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	6	9	9	11	11	10	9	10	9	10	C	14	15	15	11	15	14	26	17	B	B	B	B	
2	B	11	11	10	8	10	10	14	11	23	15	25	25	24	15	13	13	13	10	10	B	B	B	10
3	10	10	11	10	9	10	13	11	7	8	13	14	14	15	50	11	26	C	13	21	10	11	10	C
4	11	B	20	C	13	B	B	B	26	B	B	B	26	52	B	B	B	B	B	10	B	10	25	
5	36	B	15	15	15	14	B	B	B	B	B	22	22	22	28	15	B	B	B	B	B	10	11	B
6	11	9	9	9	10	B	B	14	15	B	B	23	22	24	17	18	14	13	14	12	B	B	B	9
7	9	8	7	7	10	10	11	10	10	10	B	B	B	26	26	28	11	10	25	26	10	B	8	9
8	25	10	15	23	23	18	14	13	10	11	14	26	57	35	25	B	35	B	B	B	B	13	9	9
9	11	12	7	17	14	10	23	B	15	14	15	16	28	24	23	22	11	10	23	23	B	B	B	11
10	10	9	11	12	14	20	B	22	28	B	B	B	B	B	B	B	36	23	34	B	B	B	B	B
11	21	B	14	14	B	B	16	16	B	23	27	B	B	B	34	22	22	15	13	10	9	9	B	10
12	B	12	9	8	16	22	21	23	21	B	B	26	B	B	B	B	B	B	15	B	9	11	15	13
13	12	21	25	23	15	26	16	B	23	15	18	23	B	B	B	B	B	B	25	10	10	B	B	7
14	10	23	11	14	15	15	14	14	22	13	B	B	B	33	28	27	22	B	B	B	B	B	16	10
15	13	11	11	12	13	11	11	10	11	11	16	21	29	20	25	24	25	B	10	13	11	10	10	7
16	8	9	5	7	9	11	8	9	9	12	14	23	21	24	22	23	19	30	15	10	9	12	9	9
17	10	10	11	11	15	B	13	B	B	28	B	B	B	B	28	38	18	14	14	15	14	B	9	7
18	10	B	26	15	22	B	B	14	15	15	16	15	23	15	22	25	13	8	15	B	B	B	B	11
19	10	10	12	14	B	13	B	23	15	B	B	25	B	B	B	15	B	B	B	B	14	B	16	23
20	26	20	25	15	B	23	B	B	B	B	B	B	B	B	B	B	56	21	B	B	B	B	B	12
21	9	9	B	12	22	23	14	B	B	B	34	21	16	23	37	28	14	12	25	17	B	B	B	9
22	10	11	10	10	10	11	10	9	10	14	14	18	15	20	15	23	28	15	23	18	14	10	11	11
23	19	27	B	17	22	24	15	24	B	14	15	26	26	B	23	26	B	B	21	11	14	14	10	9
24	10	16	13	22	B	B	B	B	26	26	21	30	26	21	17	17	16	16	22	B	B	B	13	9
25	9	10	10	B	B	B	23	17	10	15	15	22	23	20	16	15	15	17	11	10	B	B	B	B
26	10	9	8	9	9	7	9	10	10	20	B	B	B	22	29	B	B	B	B	B	B	B	B	15
27	9	13	10	23	B	B	B	B	B	B	B	27	21	B	B	B	B	B	15	10	11	10	8	10
28	9	15	11	10	20	27	B	22	B	B	B	B	29	29	B	51	B	26	16	27	C	C	C	C
29	12	9	13	13	13	14	22	9	14	29	18	23	12	23	17	23	14	9	9	10	10	14	8	8
30	9	9	9	9	9	23	B	B	B	B	B	B	29	58	30	15	14	19	14	22	19	B	B	B
31	10	10	B	B	B	B	15	10	12	15	32	B	B	B	37	57	B	B	B	25	10	14	B	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
CHT	31	31	31	30	31	31	31	31	31	31	30	31	31	31	31	31	31	30	31	31	30	30	30	29
MED	10	11	11	12	15	22	16	17	15	23	33	26	28	26	28	25	25	22	22	22	16	B	16	10
UQ	12	18	15	17	22	B	B	B	B	B	B	B	B	B	D ₃₀	D ₅₇	B	B	D ₃₄	B	B	B	B	15
LQ	10	9	10	10	10	11	13	10	10	14	15	22	22	22	22	18	14	14	14	12	10	12	10	9

AUG. 1969
F-MIN (0.1 MHz)
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IONOSPHERIC DATA

AUG. 1969

M(3000)F2 (0.01)

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

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 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	325	A	A	A	A	F	260 ^R	265	295 ^F	310	C	R	JR	JR	310	340	315 ^{JR}	R	R	360	B	B	B	B			
2	B	A	A	R	A	285	R	R	290	R	R	R	R	R	JR	JR	365 ^R	JR	JR	355 ^{JR}	355	B	B	B	A		
3	A	F	A	290	270	245	A	A	R	R	F	315	R	255	JR	R	310 ^R	C	R	325	A	A	A	C			
4	A	B	A	C	A	B	B	B	A	B	B	B	JR	310	315	B	B	B	B	B	A	B	A	A			
5	A	B	A	A	A	A	B	B	B	B	B	B	JR	330	300	R	R	R	B	B	B	B	B	R	A	B	
6	A	A	275	285	A	B	B	A	295	B	B	JR	325	R	350	R	350	R	315	R	R	B	B	B	R		
7	R	290	260	265	A	275	F	280	295 ^F	R	B	B	B	R	R	R	JR	320 ^R	315	R	R	315	B	A	A		
8	A	A	A	A	A	A	R	325	JF	275	280	310	R	295	R	R	B	R	B	B	B	B	A	A	A		
9	A	A	A	A	A	A	R	B	F	290	330	325	R	R	JR	335	285	JR	JR	315	R	R	B	B	B	A	
10	A	A	A	A	A	A	B	A	A	B	B	B	B	B	B	B	R	UR	320	R	B	B	B	B	B		
11	A	B	A	A	B	B	A	A	B	R	R	B	B	B	R	UR	350	R	330	340	325	335	285	B	A		
12	B	265	A	A	R	A	A	A	A	B	B	R	B	B	B	B	B	B	R	B	A	A	R	R			
13	A	A	A	A	A	A	A	B	A	R	315	R	B	B	B	B	B	B	325	340	325	B	B	A	A		
14	A	A	A	A	A	A	270	F	280	R	B	B	B	R	R	R	R	B	B	B	B	B	A	A	A		
15	A	A	A	A	260	F	280	295	F	F	R	345	R	R	R	R	R	R	B	R	345	365	A	280	285		
16	305	A	250	265	270	R	R	R	300	R	R	R	JR	330	R	R	R	330	350	350	330	320	280	A	A		
17	A	A	A	A	R	B	A	B	B	A	B	B	B	B	310	R	R	R	R	R	R	R	B	A	320		
18	A	B	A	A	A	B	B	275	295	310	R	310	340	290	R	R	350	330	UR	315	B	B	B	B	R		
19	A	A	A	A	B	A	B	A	A	B	B	R	B	B	B	R	B	B	B	B	A	B	A	A	A		
20	A	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	UR	325	UR	315	B	B	B	B	R		
21	A	305	B	A	A	A	A	B	B	B	R	315	JR	330	325	R	R	R	320	R	310	B	B	B	A		
22	A	A	A	A	A	250	270	275	305	310	R	325	R	355	330	R	R	R	R	R	R	310	325	A	A		
23	A	A	B	R	A	A	A	A	B	A	290	R	R	B	330	R	B	B	340	330	R	A	A	A	A		
24	A	A	A	A	B	B	B	B	305	R	320	JR	340	R	335	R	295	JR	R	305	B	B	B	A	A		
25	A	A	A	B	B	B	A	A	300	R	315	R	R	R	JR	JR	325	325	345	335	JR	320	R	B	B	B	
26	A	275	R	R	R	R	R	260	305	R	B	B	B	285	R	B	B	B	B	B	B	B	B	B	R		
27	R	A	A	A	B	B	B	B	B	B	B	R	R	B	B	B	B	B	300	A	A	A	A	A	A		
28	A	A	A	A	A	A	B	A	B	B	B	B	340	R	B	R	B	R	R	R	C	C	C	C	C		
29	A	A	A	A	A	245	260	300	R	R	JR	300	R	R	R	JR	JR	315	335	305	F	R	345	335	320	300	275
30	315	R	R	R	R	275	B	B	B	B	B	B	300	R	R	310	315	UR	340	R	JR	330	350	B	B	B	
31	R	R	B	B	B	B	R	F	R	R	R	B	B	B	R	R	B	B	B	R	320	325	B	R	R		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	3	4	3	4	3	7	5	8	13	5	8	8	9	9	9	9	12	12	9	11	9	5	2	3			
MED	315	282	260	275	270	275	270	278	295	310	315	325	330	325	JR	325	335	325	325	325	330	325	320	290	285		
UQ	320	298	268	288	270	278	270	290	305	310	325	328	330	335	JR	330	350	342	332	340	345	335	325		302		
LQ	310	270	255	265	265	248	260	270	295	290	305	315	300	290	JR	310	310	315	315	315	328	320	285		280		

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M(3000)F2 (0.01)

IONOSPHERIC DATA

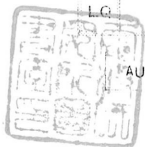
AUG. 1969

H^oF₂ (KM)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.2 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											C													
2																								
3																								
4										B	B	B			B	B								
5										B	B													
6										B	B													
7										B	B	B												
8																B								
9																								
10										B	B	B	B	B	B	B								
11												B	B	B										
12										B	B		B	B	B	B								
13													B	B	B	B								
14											B	B	B											
15																								
16																								
17											B	B	B	B										
18																								
19										B	B		B	B	B									
20										B	B	B	B	B	B	B								
21										B														
22																								
23															B									
24																								
25																								
26											B	B	B											
27										B	B	400	500	B	B	B								
28										B	B	B			B	B								
29																								
30										B	B	B												
31												B	B	B										
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
GNT												1	1											
MUF												400	500											
UQ																								
LC																								



AUG. 1969

H^oF₂ (KM)

IONOSPHERIC DATA

AUG. 1969

H^oF (KM)

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

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 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	250	A	A	A	A	A	350	330	300	240	C	200	210	210	220	205	205	250	240	240	B	B	B	B	
2	B	A	A	A	A	A	340	300	340	200	225	225	210	215	205	215	230	250	205	205	B	B	B	A	
3	A	A	A	A	A	A	A	A	305	245	240	210	240	240	B	240	230	C	210	250	A	A	A	C	
4	A	B	A	C	A	B	B	B	B	B	B	B	260	B	B	B	B	B	B	B	A	B	A	B	
5	B	B	A	A	A	A	B	B	B	B	B	B	225	225	225	230	225	B	B	B	B	B	A	A	B
6	A	A	A	A	A	B	B	A	A	B	B	225	240	215	215	200	200	210	220	200	B	B	B	A	
7	A	A	A	A	A	A	A	350	300	280	250	B	B	B	240	240	220	240	225	250	230	250	B	A	A
8	B	A	A	B	B	B	A	275	240	205	240	235	B	250	240	B	250	B	B	B	B	A	A	A	
9	A	A	A	A	A	A	A	B	350	250	240	215	250	240	240	205	225	220	225	245	B	B	B	A	
10	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	240	240	240	B	B	B	B	B	
11	B	B	A	A	B	B	A	A	B	245	210	B	B	B	225	225	200	225	205	200	225	B	B	A	
12	B	A	A	A	A	A	A	A	B	B	B	275	B	B	B	B	B	B	240	B	A	A	A	A	
13	A	A	B	B	A	B	A	B	B	300	235	240	B	B	B	B	B	B	250	240	275	B	B	A	
14	A	B	A	A	A	A	300	300	310	250	B	B	B	B	230	225	205	B	B	B	B	B	A	A	
15	A	A	A	A	A	350	295	290	H	225	260	300	240	215	240	225	225	210	B	195	210	240	A	A	A
16	A	A	A	A	A	370	350	A	225	230	240	220	245	240	225	240	205	220	225	225	240	B	A	A	
17	A	A	A	A	A	B	A	B	B	B	B	B	B	B	B	260	240	205	215	220	220	240	B	A	A
18	A	B	A	A	B	B	B	A	275	250	240	240	240	210	225	240	225	230	230	B	B	B	A	A	
19	A	A	A	A	B	A	B	A	A	B	B	260	B	B	B	240	B	B	B	B	A	B	A	A	
20	B	A	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	240	B	B	B	B	B	A	
21	A	245	B	A	A	A	A	B	B	B	250	240	250	225	250	215	225	205	230	240	B	B	B	A	
22	A	A	A	A	A	A	350	325	275	250	250	235	230	225	225	245	240	225	240	240	B	A	A	A	
23	A	B	B	225	B	B	A	A	B	A	270	240	250	B	250	240	B	B	225	275	A	A	A	A	
24	A	A	A	B	B	B	B	B	300	260	240	240	250	240	230	225	240	215	250	B	B	B	A	A	
25	A	A	A	B	B	B	B	B	285	240	250	240	220	250	205	225	210	210	220	215	B	B	B	B	
26	A	A	A	A	A	A	A	300	270	250	B	B	B	240	230	B	B	B	B	B	B	B	B	A	
27	A	A	A	A	B	B	B	B	B	B	B	260	250	B	B	B	B	B	250	A	A	A	A	A	
28	A	A	A	A	A	B	B	B	B	B	B	B	250	250	B	B	B	250	225	240	C	C	C	C	
29	B	A	A	A	A	A	B	325	250	250	240	240	245	250	250	240	240	220	225	215	245	275	300	340	
30	300	A	A	A	A	390	B	B	B	B	B	B	240	250	240	215	225	240	225	240	230	B	B	B	
31	A	A	B	B	B	B	A	250	255	230	250	B	B	B	265	250	B	B	B	240	240	255	B	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	2	1		1		3	7	10	16	18	16	20	19	19	22	22	20	18	23	19	9	2	1	1	
MED	275	245		225		370	350	300	278	250	240	240	240	240	230	225	225	225	225	240	240	265	300	340	
UQ						380	350	325	302	250	250	240	250	245	240	240	240	240	240	240	245				
LQ						360	320	290	252	240	240	225	228	225	225	215	205	215	220	215	240				

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H^oF (KM)

IONOSPHERIC DATA

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H⁺ES (KM)

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

Station	SYOWA BASE				Lat. 69 00.4 S				Long. 39 35.4 E				Sweep 0.4 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	125	125	110	110	105	150	120	125	130	G	C	130	120	110	115	105	B	B	B	B	B	B	B	B
2	B	140	125	130	110	115	135	B	115	B	G	B	B	B	G	110	105	120	B	B	B	B	145	
3	105	120	125	120	105	100	100	105	125	115	120	125	150	G	B	110	B	C	B	B	130	100	105	C
4	110	B	110	C	110	B	B	B	110	B	B	B	B	B	B	B	B	B	B	B	110	B	120	145
5	145	B	110	115	115	120	B	B	B	B	B	B	B	B	B	G	B	B	B	B	B	160	105	B
6	120	105	105	100	105	B	B	105	110	B	B	B	130	B	G	B	B	B	B	B	B	B	B	125
7	125	110	110	110	100	105	105	125	B	G	B	B	B	B	125	B	105	105	B	B	135	B	150	110
8	145	105	140	110	125	100	110	115	G	125	125	B	B	B	B	B	B	B	B	B	B	170	120	110
9	120	120	140	125	105	105	110	B	105	G	G	G	B	B	B	B	G	G	B	B	B	B	B	140
10	120	110	105	100	100	105	B	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
11	110	B	105	105	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150
12	B	165	115	105	125	100	105	100	125	B	B	B	B	B	B	B	B	B	B	B	115	105	120	105
13	110	125	125	105	105	115	105	B	115	110	145	B	B	B	B	B	B	B	B	125	120	B	B	110
14	115	125	115	125	125	100	135	130	B	175	B	B	B	B	B	B	B	B	B	B	B	B	115	110
15	115	110	115	115	115	125	B	110	B	G	150	B	B	B	B	B	B	B	110	B	B	150	150	120
16	115	110	100	115	150	125	125	130	140	G	G	B	G	B	B	B	B	B	B	115	B	150	150	
17	115	115	110	120	125	B	100	B	B	105	B	B	B	B	B	B	140	B	B	B	B	125	145	
18	120	B	125	105	105	B	B	105	B	G	G	G	B	G	B	B	G	G	B	B	B	B	140	
19	125	115	120	125	B	115	B	105	105	B	B	150	B	B	B	B	B	B	B	105	B	110	120	
20	125	120	130	120	B	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	
21	115	115	B	105	115	105	105	B	B	B	B	G	G	G	B	B	G	120	B	B	B	B	115	
22	125	120	115	125	125	125	130	115	G	170	150	140	G	150	135	B	120	B	B	B	155	125	140	
23	140	140	B	130	110	120	120	140	B	125	135	B	B	B	G	B	B	B	140	150	150	140	110	
24	110	115	125	120	B	B	B	B	B	B	130	B	B	G	G	150	G	B	B	B	B	130	110	
25	105	110	110	B	B	B	105	110	110	110	150	140	140	125	120	125	150	B	150	B	B	B	B	
26	125	140	140	125	125	120	120	B	170	B	B	B	B	G	B	B	B	B	B	B	B	B	140	
27	115	120	110	110	B	B	B	B	B	B	B	B	G	B	B	B	B	B	B	110	140	140	110	110
28	110	115	120	140	110	110	B	100	B	B	B	B	B	B	B	B	B	B	B	C	C	C	C	
29	135	115	125	120	125	130	B	G	145	B	155	140	170	115	150	140	100	105	100	B	B	125	125	
30	125	115	110	110	110	B	B	B	B	B	B	B	B	B	B	140	155	B	B	B	B	B	B	
31	110	125	B	B	B	B	150	G	G	G	B	B	B	B	B	B	B	B	B	B	B	B	150	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	29	27	28	28	24	21	18	16	15	7	9	6	6	3	5	8	6	5	3	3	9	8	16	24
MED	120	115	115	115	110	115	115	110	115	115	145	140	140	115	125	130	122	120	110	125	120	150	122	125
UQ	125	125	125	125	125	125	125	128	128	145	150	150	150	120	150	140	150	120	130	132	135	158	135	142
LQ	110	112	110	108	105	105	105	105	110	110	130	130	130	112	120	110	105	105	105	118	115	122	112	110

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AUG. 1969

H⁺ES (KM)

IONOSPHERIC DATA

SEP. 1969

FOF2 (0.1 MHz)

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

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.2 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Day	00	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	40	F ₃₈	B	47	60	70	77	J ₉₉	R	U ₈₆	90	76	R	53	53	J ₄₄	23	21	17
2	16	A	15	17	18	19	F	J ₃₅	R	B	B	J ₈₈	R	R	R	J ₈₀	J ₈₄	J ₇₅	J ₆₇	R	30	27	17	16
3	14	16	B	F ₁₆	16	16	F	F ₄₃	65	76	90	J ₉₃	R	R	R	R	78	R	R	48	F ₃₀	F ₂₂	16	F ₁₆
4	R	F ₂₇	A	A	A	A	A	A	R	62	65	77	J ₇₃	76	72	R	J ₇₂	R	R	38	F	28	16	A
5	A	A	A	30	35	R	F	R	56	67	69	R	R	R	J ₈₇	R	R	J ₉₂	A	A	R	A	A	A
6	A	A	A	B	B	A	A	B	B	B	B	B	U ₆₃	66	R	B	B	B	B	B	29	17	A	A
7	A	B	A	37	A	B	A	41	48	R	R	68	B	B	B	B	B	B	B	R	B	A	A	A
8	B	B	B	B	48	B	B	B	B	B	B	B	B	B	B	B	B	B	64	48	35	23	A	A
9	A	R	R	R	A	A	B	R	49	R	B	B	J ₈₉	B	R	U ₈₅	J ₈₃	B	B	A	B	A	A	A
10	A	A	B	B	B	B	A	B	B	56	R	U ₇₅	J ₈₄	R	J ₈₆	J ₈₇	J ₈₆	R	J ₆₈	66	40	R ₁₈	A	J ₂₀
11	A	A	A	20	B	B	B	B	B	B	B	B	B	B	B	R	77	B	B	B	30	21	A	A
12	A	A	17	A	A	A	35	A	B	B	B	B	R	B	B	B	B	B	66	R	40	21	18	B
13	B	B	B	B	B	B	B	B	47	R	B	67	71	B	76	77	77	R	R	B	42	28	22	B
14	B	B	B	R	A	A	B	B	R	66	R	R	R	B	B	B	B	R	R	R	J ₃₂	29	A	A
15	A	A	A	B	B	A	R	B	B	A	B	B	B	R	R	R	60	B	R	A	A	A	A	A
16	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	73	64	63	R	R	40	34	23	22
17	A	A	A	A	A	A	40	46	R	R	R	R	R	71	74	R	92	68	J ₇₅	J ₅₉	R	F	R	F
18	A	A	A	R	A	R	B	B	B	B	B	B	B	B	R	B	B	59	63	44	A	A	A	A
19	A	A	B	A	B	B	B	B	B	B	B	B	R	B	B	R	R	B	B	B	B	31	16	B
20	A	A	B	A	A	A	R	B	A	R	B	B	B	B	B	B	B	B	B	R	R	R	B	R
21	B	A	A	A	B	B	A	A	R	B	B	B	B	R	B	B	R	R	R	R	B	35	27	19
22	A	R	A	A	A	41	A	A	R	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B
23	20	B	B	17	15	F	30	37	R	R	R	R	B	R	J ₉₀	R	R	J ₈₉	J ₉₂	R	R	A	A	A
24	F	A	28	B	A	36	A	R	B	B	R	J ₆₀	68	65	B	64	B	B	65	R	J ₅₂	R	31	27
25	20	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B
26	A	A	A	A	B	45	U ₄₀	B	R	64	61	B	R	B	B	B	B	R	R	R	R	J ₄₉	39	32
27	27	23	22	18	19	28	39	R	62	J ₆₈	R	R	J ₉₅	R	R	R	J ₉₇	87	R	J ₉₀	58	41	F ₂₉	F ₁₈
28	A	A	B	A	B	B	B	B	B	B	R	R	R	U ₈₆	R	J ₉₅	95	B	B	B	B	B	B	B
29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B
30	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B	B
31																								
Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
GRN	5	3	4	7	6	7	7	5	7	8	5	8	8	5	7	8	14	7	8	9	13	16	12	9
MED	20	23	20	18	18	36	38	41	49	65	69	76	J ₇₈	71	86	82	80	75	66	53	40	28	22	19
UO	20	25	25	25	35	40	40	43	59	68	70	82	J ₉₇	76	J ₈₆	88	89	J ₉₀	J ₆₈	66	42	32	28	22
LC	16	20	16	17	16	24	32	37	48	61	65	68	70	66	75	75	76	66	64	48	30	22	16	17

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SEP. 1969

FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 1969

FOF1 (0.01 MHz)

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

Station	SYOWA BASE				Lat. 69 00.4 S	Long. 39 35.4 E	Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation																	
No. Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2										B	B													
3																								
4										L	L	L												
5																								
6										B	B	B	L	L		B								
7													B	B	B	B								
8										B	B	B	B	B	B	B								
9											B	B		B										
10																								
11										B	B	B	B	B	B									
12										B	B	B		B	B	B								
13											B			B	B									
14														B	B	B								
15											B	B	B	390	400	380								
16										B	B	B	B	B	B									
17										L	L	R			L									
18										B	B	B	B	B		B								
19										B	B	B	R	400	B	B	R							
20										R	B	B	B	B	B	B								
21									L	B	B	B	B	L	B	B								
22										B	B	B	B	B	B									
23										L			B											
24										B	B		R	R		B	B	B						
25										B	B	B	B	B	B	B	B							
26										R		B	B	B	B	B								
27											L													
28										B	B	R	R	R	R	R								
29										B	B	B	B	B	B	B	B							
30										B	B	B	B	B	B	B	B							
31																								
No. Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CN													1	1	1	1								
MUF													400	390	400	380								
UQ																								
LQ																								

The Radio Research Laboratories, Japan

SEP. 1969

FOF1 (0.01 MHz)

IONOSPHERIC DATA

SEP. 1969

FOE (0.01 MHz)

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

Station SYOWA BASE Lat. 69 00.4 S Long. 39 35.4 E Sweep 0.4 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							140	B	A	R	230	250	260	250	230	225	220	B	B					
2							A	R	B	B	B	255	260	A	225	A	205	B	B					
3							A	R	180	200	240	245	260	250	A	235	B	B	B					
4							A	A	170	230	240	250	265	250	240	220	R	125	80					
5							110	150	170	230	245	250	260	255	245	220	200	150	R	A				
6							A	B	B	B	B	B	260	250	B	B	B	B	B					
7							A	A	B	230	250	B	B	B	B	B	B	B	B					
8							B	B	B	B	B	B	B	B	B	B	B	B	B					
9							B	A	A	A	B	B	B	B	B	B	225	B	B					
10							B	B	B	220	225	240	250	245	240	230	200	170	B					
11							B	B	B	B	B	B	B	B	B	B	B	B	B					
12							B	A	A	B	B	B	B	B	B	B	B	B	B	B				
13							B	B	B	A	B	B	B	A	B	B	230	B	B	B	B			
14							A	B	B	B	A	B	B	A	B	B	B	B	B	B				
15							B	B	B	B	A	B	B	B	B	B	B	B	B	A	A			
16							B	B	B	B	B	B	B	B	B	B	B	B	B	B				
17							B	A	180	200	230	245	A	A	290	260	R	A	A	B	B			
18							A	B	B	B	B	B	B	B	A	B	B	B	170	A				
19							B	B	B	B	B	B	B	B	B	B	B	B	B	B				
20							B	A	B	B	B	B	B	B	B	B	B	B	B	B				
21							B	B	B	B	B	B	B	B	B	B	B	B	B	B				
22							A	A	B	A	B	B	B	B	B	B	B	B	B	B				
23							B	120	180	220	R	280	290	B	280	275	260	250	205	160	B			
24							B	B	A	B	B	A	280	300	280	B	B	B	B	B				
25							B	B	B	B	B	B	B	B	B	B	B	B	B	B				
26							B	B	B	200	260	280	B	B	B	B	B	B	B	B				
27							125	160	225	270	280	290	300	280	300	R	B	270	240	190	B			
28							B	B	B	B	B	290	295	300	B	B	265	B	B	B				
29							B	B	B	B	B	B	B	B	B	B	B	B	B	B				
30							B	B	B	B	B	B	B	B	B	B	B	B	B	B				
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						1	4	4	7	8	11	10	10	10	7	8	7	5	4					
MED						125	130	180	200	230	245	252	260	252	240	230	220	170	165					
UC						150	202	210	245	280	290	280	280	292	248	238	205	180						
LQ						115	165	175	225	240	250	260	250	235	222	202	150	120						

The Radio Research Laboratories, Japan

SEP. 1969

FOE (0.01 MHz)

IONOSPHERIC DATA

SEP. 1969

FOES (0.1 MHz)

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

Station **SYOWA BASE** Lat. **69 00.4 S** Long. **39 35.4 E** Sweep **0.4 MHz** to **15 MHz** in **30 sec** in **automatic operation**

Time Day	00	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 X 22	33	J X 33	J X 31	32	16	G	B	J X 22	G	G	G	G	G	27	25	G	E B 16	E B 11	E B 9	E B 11	E B 12	E B 14	19
2	E H 10	J X 30	15	11	14	17	15	G	E B 19	B	B	28	28	29	J X 27	J X 33	G	E B 18	E B 12	E B 13	12	12	E B 12	14
3	12	J X 17	B	16	13	15	15	G	G	25	27	26	30	28	27	G	E B 37	E B 23	E B 23	E B 14	E B 10	E B 12	E B 11	J X 18
4	24	22	J X 36	J X 41	J X 46	J X 46	J X 52	J X 40	24	G	31	29	G	28	30	25	G	G	G	E B 8	E B 11	E B 10	14	J X 24
5	J X 41	J X 40	J X 38	J X 18	J X 22	13	G	G	20	G	G	28	G	G	G	G	27	G	38	J X 29	24	J X 29	J X 54	31
6	J X 42	J X 35	J X 46	B	B	J X 25	J X 49	B	B	B	B	B	G	G	E B 28	B	B	B	B	B	14	18	J X 31	22
7	35	B	J X 30	26	34	B	J X 32	26	E B 22	25	G	E B 28	B	B	B	B	B	B	B	J X 24	B	14	J X 31	J X 56
8	B	B	B	B	J X 40	B	B	B	B	B	B	B	B	B	B	B	B	E B 25	18	E B 22	18	17	J X 29	J X 29
9	J X 26	J X 35	J X 21	J X 33	J X 44	J X 33	B	J X 31	J X 22	28	B	B	E B 35	B	E B 32	E B 26	G	B	B	32	B	26	18	J X 21
10	26	J X 57	B	B	B	B	J X 37	B	B	G	G	G	G	G	G	G	G	G	E B 14	E B 10	E B 23	14	J X 21	16
11	J X 37	J X 34	J X 22	24	B	B	B	B	B	B	B	B	B	B	B	E B 34	E B 57	B	B	B	E B 23	E B 14	29	30
12	30	30	26	31	J X 36	J X 42	30	J X 40	B	B	B	B	E B 33	B	B	B	B	B	E B 14	E B 12	E B 9	E B 10	E B 10	B
13	B	B	B	B	B	B	B	B	J X 24	E B 32	B	E B 28	27	B	E B 57	27	E B 57	E B 51	E B 21	B	E B 21	E B 15	E B 11	B
14	B	B	B	18	J X 40	J X 46	B	B	31	29	E B 31	E B 28	27	B	B	B	E B 22	E B 26	E B 26	E B 26	E B 24	E B 27	J X 40	J X 88
15	J X 92	J X 31	J X 30	B	B	J X 41	E B 37	B	B	J X 36	B	B	B	E B 31	E B 28	E B 27	E B 34	B	J X 31	J X 61	J X 92	J X 21	J X 30	33
16	J X 31	J X 30	J X 26	100	B	J X 33	J X 36	B	B	B	B	B	B	B	B	E B 28	E B 37	E B 24	E B 34	E B 15	E B 22	E B 15	E B 11	E B 12
17	J X 24	J X 32	J X 28	J X 26	27	J X 34	J X 24	20	G	G	28	31	31	G	G	G	27	23	20	J X 38	15	18	J X 35	J X 32
18	J X 41	J X 64	J X 89	J X 26	J X 41	J X 19	B	B	B	B	B	B	B	B	27	B	B	E B 23	18	17	J X 23	J X 95	J X 42	J X 39
19	J X 37	J X 30	B	37	B	B	B	B	B	B	B	B	E B 29	B	B	E B 30	E B 24	B	B	B	B	E B 13	E B 13	B
20	18	J X 23	B	J X 27	J X 31	J X 25	J X 21	B	26	E B 28	B	B	B	B	B	B	B	B	E B 20	E B 23	16	15	B	17
21	B	J X 18	22	24	B	B	J X 32	J X 32	E B 27	B	B	B	B	E B 33	B	B	25	E B 30	E B 22	E B 22	B	E B 15	E B 15	E B 13
22	18	21	J X 21	J X 31	J X 31	J X 24	33	J X 27	J X 23	B	B	B	B	B	B	B	B	B	B	B	B	E B 23	B	B
23	E B 14	B	B	16	14	13	15	G	G	G	G	G	G	B	G	G	G	G	G	E B 30	J X 21	J X 35	27	J X 53
24	J X 72	J X 78	J X 25	B	J X 34	J X 37	J X 36	J X 29	B	B	J X 27	G	G	G	B	E B 56	B	B	E B 26	E B 23	E B 14	E B 11	E B 14	13
25	13	20	J X 20	J X 24	J X 32	J X 28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	23
26	J X 28	J X 38	28	J X 30	B	E B 22	E B 26	B	G	G	29	B	E B 57	B	B	B	B	E B 32	E B 29	E B 22	E B 13	E B 14	E B 11	E B 10
27	E B 13	E B 14	J X 18	17	17	G	G	G	G	G	G	G	31	G	G	E B 34	G	G	G	E B 17	E B 22	E B 10	E B 10	E B 10
28	30	J X 31	B	33	B	B	B	B	B	B	G	G	G	E B 30	E B 29	G	E B 68	B	B	B	B	B	B	B
29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 68	B	B
30	J X 31	27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	J X 95	J X 57	B
31																								
Time Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	25	24	19	22	18	21	19	13	16	15	13	14	17	14	15	17	17	16	20	22	22	28	25	22
MED	J X 28	J X 30	J X 26	26	J X 32	J X 25	U 27	26	21	G	G	E G 27	E G 27	G	E G 27	E G 26	E G 25	E B 22	E B 20	E B 22	E B 20	E B 15	18	22
UQ	J X 37	J X 35	J X 32	J X 31	J X 40	J X 34	J X 35	J X 31	24	26	28	28	U 29	E G 29	E B 28	E B 30	E B 37	E B 24	E B 26	26	E B 23	U 21	J X 30	J X 32
LQ	18	22	J X 22	18	22	16	15	G	G	G	G	G	G	G	G	G	G	G	E B 14	E B 13	E B 12	E B 12	E B 12	14

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SEP. 1969

FOES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1969

F-MIN (0.1 MHZ)

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

Station SYOWA BASE Lat. 69 00.4 S Long. 39 35.4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Mc Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	11	13	14	26	11	10	10	B	13	16	16	15	14	16	13	14	15	16	11	9	11	12	14	11	
2	10	8	8	8	7	7	7	9	19	B	B	21	20	20	15	15	16	18	12	13	10	10	12	10	
3	9	9	B	8	9	9	9	10	15	15	18	18	18	14	12	18	37	23	23	14	10	12	11	7	
4	7	8	11	17	10	9	10	11	10	10	10	13	14	23	12	12	12	7	7	8	11	10	6	9	
5	11	9	10	10	8	8	7	10	12	12	13	13	13	14	13	12	10	8	11	11	11	7	11	22	
6	22	10	11	B	B	14	11	B	B	B	B	B	24	20	28	B	B	B	B	B	11	10	10	10	
7	28	B	20	15	24	B	13	20	22	16	22	28	B	B	B	B	8	B	B	13	B	9	10	11	
8	B	B	B	B	11	B	B	B	B	B	B	B	B	B	B	B	B	25	14	22	11	13	9	10	
9	9	10	11	15	15	22	B	16	17	22	B	B	35	B	32	26	19	B	B	17	B	11	10	9	
10	10	28	B	B	B	B	18	B	B	15	15	15	16	18	22	15	15	14	14	10	23	9	9	9	
11	10	14	12	10	B	B	B	B	B	B	B	B	B	B	B	34	57	B	B	B	23	14	10	10	
12	10	11	10	10	28	14	11	16	B	B	B	B	33	B	B	B	8	B	14	12	9	10	10	B	
13	B	B	B	B	B	B	B	B	15	32	B	28	19	B	57	19	57	51	21	B	21	15	11	B	
14	B	B	B	10	19	13	B	B	22	18	31	28	22	B	B	B	B	22	26	26	24	27	11	10	
15	16	24	26	B	B	22	37	B	B	20	B	B	B	31	28	27	34	B	15	11	15	15	14	13	
16	14	13	20	22	B	23	22	B	B	B	B	B	B	B	B	28	37	24	34	15	22	15	11	12	
17	11	10	9	10	11	22	12	13	13	22	15	22	23	22	22	23	14	17	13	12	11	9	11	8	
18	11	15	13	12	11	10	B	B	B	B	B	B	B	B	23	B	B	23	12	9	12	15	22	10	
19	21	22	B	22	B	B	B	B	B	B	B	B	29	B	B	30	24	B	B	B	B	13	13	B	
20	10	9	B	15	23	20	13	B	23	28	B	B	B	B	B	B	B	B	20	23	12	11	B	11	
21	B	12	11	13	B	B	22	23	27	B	B	B	B	33	B	B	23	30	22	22	B	15	15	13	
22	10	10	14	24	14	13	13	20	16	B	B	B	B	B	B	B	B	B	B	B	B	23	B	B	
23	14	B	B	10	10	14	11	15	17	19	22	23	B	23	11	13	15	14	15	30	11	14	9	12	
24	10	23	15	B	11	14	23	15	B	B	22	24	20	15	B	56	B	B	26	23	14	11	14	10	
25	10	10	10	10	23	23	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	14	B
26	19	17	23	22	B	22	26	B	22	23	23	B	57	B	B	B	B	32	29	22	13	14	11	10	
27	13	14	10	10	10	10	11	14	16	17	16	17	15	23	23	34	21	18	14	17	22	10	10	10	
28	22	23	B	26	B	B	B	B	B	B	24	20	21	30	29	22	68	B	B	B	B	B	B	B	
29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	68	B	B	
30	15	23	B	B	B	23	B	B	B	B	B	B	B	B	B	B	B	B	B	23	28	16	B	B	
31																									
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
MED	12	14	18	16	23	22	22	B	25	B	B	B	34	B	B	34	57	42	22	22	18	13	11	11	
UQ	22	24	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	15	14	B	
LQ	10	10	11	10	11	13	11	15	16	18	22	21	20	22	22	19	19	18	14	12	11	10	10	10	

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SEP. 1969

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

SEP. 1969				M(3000)F2 (0.01)								45 E Mean Time (G. M. T. + 3h)													
Station	SYOWA BASE				Lat. 69 00.4 S	Long. 39 35.4 E								Sweep 0.4 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	245	260	B	315	315	345	310	R	R	300	310	340	R	285	315	R	345	335	345	
2	315	A	280	255	250	265	F	F	R	B	B	JR	R	R	R	JR	JR	JR	JR	R	350	315	360	315	
3	285	265	B	280	265	275	285	300	310	305	300	300	JR	R	R	R	320	R	R	290	315	340	315	325	
4	R	265	A	A	A	A	A	A	R	310	295	330	JR	330	330	330	R	JR	R	R	320	F	355	325	A
5	A	A	A	275	270	R	F	R	295	300	280	R	R	R	R	R	R	JR	A	A	R	A	A	A	
6	A	A	A	B	B	A	A	B	B	B	B	B	UR	300	310	R	B	B	B	B	B	340	320	A	A
7	A	B	A	285	A	B	A	295	300	R	R	280	B	B	B	B	B	B	B	R	B	A	A	A	
8	B	B	B	B	310	B	B	B	B	B	B	B	B	B	B	B	B	R	315	315	325	285	A	A	
9	A	R	R	R	A	A	B	R	315	R	B	B	R	B	R	UR	UR	B	B	A	B	A	A	A	
10	A	A	B	B	B	B	A	B	B	335	R	UR	R	R	R	R	R	R	JR	330	325	280	A	R	
11	A	A	A	260	B	B	B	B	B	B	B	B	B	B	B	R	340	B	B	B	350	315	A	A	
12	A	A	265	A	A	A	280	A	B	B	B	B	R	B	B	B	B	B	365	R	340	300	300	B	
13	B	B	B	B	B	B	B	B	315	R	B	305	295	B	315	320	325	R	R	B	335	355	360	B	
14	B	B	B	R	A	A	B	B	R	290	R	R	R	B	B	B	B	R	R	R	R	330	A	A	
15	A	A	A	B	B	A	R	B	B	A	B	B	B	R	R	R	285	B	R	A	A	A	A	A	
16	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	320	335	335	R	R	325	325	315	295	
17	A	A	A	A	A	A	270	285	R	R	R	R	R	295	290	R	305	310	JR	JR	R	F	R	F	
18	A	A	A	R	A	R	B	B	B	B	B	B	B	B	R	B	B	320	335	295	A	A	A	A	
19	A	A	B	A	B	B	B	B	B	B	B	B	R	B	B	R	R	B	B	B	B	355	315	B	
20	A	A	B	A	A	A	R	B	A	R	B	B	B	B	B	B	B	B	R	R	R	R	B	R	
21	B	A	A	A	B	B	A	A	R	B	B	B	B	R	B	B	R	R	R	R	B	340	335	325	
22	A	R	A	A	A	250	A	A	R	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B
23	275	B	B	255	265	F	285	295	R	R	R	R	B	R	JR	R	315	JR	R	R	R	A	A	A	
24	F	A	310	B	A	285	A	R	B	B	R	UR	280	275	B	310	B	B	330	R	R	R	325	335	
25	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	
26	A	A	A	A	B	250	UR	B	R	280	270	B	R	B	B	B	B	R	R	345	R	R	335	315	
27	285	270	250	240	235	275	280	R	280	R	R	R	R	R	R	R	R	300	R	R	325	335	295	280	
28	A	B	A	B	B	B	B	B	B	B	R	R	R	UR	260	R	R	280	B	B	B	B	B	B	
29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	
30	A	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	B	B	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	5	3	4	7	6	7	7	4	7	7	5	8	4	5	5	6	12	7	8	8	10	15	12	8	
MED	290	265	272	260	265	265	280	295	310	305	295	305	298	295	310	315	320	320	328	315	330	330	325	320	
UQ	295	298	295	278	270	275	285	298	315	312	300	315	315	310	315	320	335	328	332	325	340	342	335	330	
LQ	285	265	256	255	250	250	275	290	298	295	280	290	288	275	300	310	308	305	315	295	325	315	315	305	

IONOSPHERIC DATA

SEP. 1969

H^oF2 (KM)

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

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 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										B	B													
3																								
4										L	L	L												
5																								
6										B	B	B	R	300		B								
7													B	B	B	B								
8										B	B	B	B	B	B	B								
9											B	B		B										
10																								
11										B	B	B	B	B	B									
12										B	B	B		B	B	B								
13											B			B	B									
14														B	B	B								
15											B	B	B	R	R	R								
16										B	B	B	B	B	B									
17										R	L	R			305									
18										B	B	B	B	B	B	B								
19										B	B	B	R	B	B	R								
20										R	B	B	B	B	B	B								
21									R	B	B	B	B	265	B	B								
22										B	B	B	B	B	B	B								
23										R			B											
24										B	B		R	R		B	B	B						
25										B	B	B	B	B	B	B	B							
26										R		B	300	B	B	B	B							
27											L													
28										B	B	R	R	R	R	R								
29										B	B	B	B	B	B	B	B	B						
30										B	B	B	B	B	B	B	B	B						
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT													1	2	1									
MED													300	282	305									
UQ																								
LQ																								

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SEP. 1969

H^oF2 (KM)

IONOSPHERIC DATA

SEP. 1969				H ^o F (KM)				45 E Mean Time (G. M. T. + 3 ^h)																								
Station	SYDWA BASE				Lat. 69 00.4 S				Long. 39 35.4 E				Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation																			
Day	00	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	370	350	B	270	250	240	225	250	210	225	220	215	215	200	220	215	240	B	B								
2	B	A	A	A	A	350	350	290	250	B	B	240	240	230	235	210	225	220	215	220	200	240	250	A								
3	A	A	B	A	A	A	300	260	240	240	240	220	240	240	240	210	230	240	210	210	205 ^H	260	225	A								
4	A	A	A	A	A	A	A	A	275	240	240	250	240	240	235	225	220	220	215	200	200	230	330	A								
5	A	A	A	A	A	350	310	280	250	240	225	220	220	220	240	240	250	260	A	A	320	A	A	B								
6	B	A	A	B	B	A	A	B	B	B	B	B	250	235	250	B	B	B	B	B	230	A	A	A								
7	A	B	A	370	B	B	A	300	275	250	220	250	B	B	B	B	B	B	B	290	B	A	A	A								
8	B	B	B	B	315	B	B	B	B	B	B	B	B	B	B	B	B	B	B	260	260	250	250	300	A	A						
9	A	A	A	A	A	A	A	B	A	260	260	B	B	250	B	240	240	240	B	B	B	B	A	A	A							
10	A	B	B	B	B	B	A	B	B	240	240	240	240	230	240	240	240	200	230	225	255	A	A	A								
11	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	250	B	B	B	B	260	300	A	A								
12	A	A	A	A	B	A	A	A	B	B	B	B	230	B	B	B	B	B	220	210	230	250	300	B								
13	B	B	B	B	B	B	B	B	280	250 ^A	B	205	230	B	B	240	B	B	240	B	240	225	250	B								
14	B	B	B	A	A	A	B	B	A	250	250	225	205	B	B	B	B	240	240	235	260	B	A	A								
15	A	A	A	B	B	A	230	B	B	A	B	B	B	290	260	280	300	B	A	A	A	A	A	A								
16	A	A	A	A	B	B	A	B	B	B	B	B	B	B	B	240	250	250	240	240	255	250	260	300								
17	A	A	A	A	A	A	A	290	220	240	205	250	290	250	225	250	240	250	225	290	250	250	A	A	A							
18	A	A	A	A	A	A	B	B	B	B	B	B	B	B	240	B	B	260	235	275	A	A	A	A								
19	A	A	B	A	B	B	B	B	B	B	B	B	230	B	B	250	240	B	B	B	B	230	B	B								
20	A	A	B	A	B	B	A	B	B	250	B	B	B	B	B	B	B	B	250	275	A	A	B	A								
21	B	A	A	A	B	B	B	B	270	B	B	B	B	230	B	B	240	240	220	250	B	240	260	270								
22	A	A	A	B	A	A	A	A	255	B	B	B	B	B	B	B	B	B	B	B	B	250	B	B								
23	B	B	B	A	A	350	300	240	250	230	240	A	B	230	250	230	240	240	230	260	250	A	A	A								
24	A	A	A	B	A	350	A	A	B	B	A	240	250	250	B	B	B	B	240	240	230	210	250	265								
25	340	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B								
26	A	A	B	B	B	360	310	B	250	250	275	B	B	B	B	B	240	230	225	200	220	230	250									
27	290	350	A	A	A	320	275	260	250	240	250	250	220	225	240	250	240	210	215	220	225	210	255	300								
28	B	B	B	B	B	B	B	B	B	B	250	225	245	250	250	250	B	B	B	B	B	B	B	B								
29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B								
30	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B								
31																																
CNT	2	1		1	1	7	B	7	14	14	12	13	16	14	14	16	14	15	18	18	18	16	10	5								
MED	315	350		370	315	350	305	280	252	245	240	240	240	232	240	240	240	240	230	238	235	240	252	270								
UQ						355	330	290	270	250	250	250	250	250	250	250	240	250	240	260	255	250	260	300								
LQ						350	288	260	250	240	232	225	230	230	235	228	230	220	215	220	215	228	250	265								

IONOSPHERIC DATA

SEP. 1969

H⁺ES (KM)

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

Station SYOWA BASE Lat. 69 00.4 S Long 39 35.4 E Sweep 0.4 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	140	125	105	115	105	125	G	B	120	G	G	G	G	G	140	160	G	B	B	B	B	B	B	125
2	B	105	110	110	125	115	110	G	B	B	B	120	160	110	120	110	G	B	B	B	105	115	B	120
3	115	120	B	130	140	120	120	G	G	150	165	140	150	145	100	G	B	B	B	B	B	B	B	125
4	150	120	115	105	105	105	105	155	G	140	155	G	125	130	140	G	G	G	B	B	B	B	150	140
5	115	125	105	110	115	110	G	G	140	G	G	140	G	G	G	G	100	G	110	110	140	110	115	110
6	110	130	110	B	B	110	120	B	B	B	B	B	G	G	B	B	B	B	B	B	150	140	120	115
7	150	B	115	140	125	B	105	125	B	160	G	B	B	B	B	B	B	B	B	110	B	150	115	110
8	B	B	B	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	140	B	140	140	120	125
9	115	115	125	125	125	105	B	105	130	130	B	B	B	B	B	B	G	B	B	110	B	125	150	110
10	110	110	B	B	B	B	105	B	B	G	G	G	G	G	G	G	G	G	B	B	B	125	140	140
11	115	125	115	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	120	120
12	115	120	110	110	120	105	110	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
13	B	B	B	B	B	B	B	B	120	B	B	B	105	B	B	120	B	B	B	B	B	B	B	B
14	B	B	B	135	150	105	B	B	125	140	B	B	140	B	B	B	B	B	B	B	B	B	120	115
15	120	130	120	B	B	110	B	B	110	B	B	B	B	B	B	B	B	B	120	125	125	105	120	125
16	125	135	120	150	B	110	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	125	115	110	115	115	125	120	140	G	G	160	115	140	G	G	G	125	125	140	110	150	150	140	110
18	120	120	125	120	105	125	B	B	B	B	B	B	B	B	140	B	B	B	150	150	140	125	125	115
19	110	115	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
20	125	120	B	120	130	120	110	B	130	B	B	B	B	B	B	B	B	B	B	B	140	165	B	140
21	B	110	120	125	B	B	110	110	B	B	B	B	B	B	B	B	145	B	B	B	B	B	B	B
22	125	125	110	115	105	115	120	110	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
23	B	B	B	140	140	120	140	G	G	G	G	G	B	G	G	G	G	G	G	B	150	110	120	120
24	105	105	140	B	120	115	120	120	B	B	120	G	G	G	B	B	B	B	B	B	B	B	B	130
25	155	140	120	115	110	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	130	B
26	120	120	130	130	B	B	B	B	G	G	125	B	B	B	B	B	B	B	B	B	B	B	B	B
27	B	B	150	140	105	G	G	G	G	G	G	G	110	G	G	B	G	G	G	B	B	B	B	B
28	140	110	B	130	B	B	B	B	B	B	G	G	G	B	B	G	B	B	B	B	B	B	B	B
29	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
30	125	120	B	B	B	130	B	B	B	B	B	B	B	B	B	B	B	B	B	130	150	115	B	B
31																								
CNT	22	23	19	22	18	19	14	8	8	5	5	5	6	3	5	4	3	1	5	7	10	13	14	18
MED	120	120	115	122	120	115	112	110	128	140	140	140	140	125	130	130	125	125	140	110	140	125	120	120
UQ	125	125	122	130	125	120	120	122	135	150	160	140	150	135	140	150	135		140	128	150	140	140	125
LQ	115	115	110	115	105	110	110	108	120	130	125	120	110	118	120	115	112		120	110	140	115	120	115

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SEP. 1969

H⁺ES (KM)

IONOSPHERIC DATA

OCT. 1969

FOF2 (0.1 MHz)

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

Station SYOWA BASE Lat. 69 00.4 S Long. 39 35.4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

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

The Radio Research Laboratories, Japan

OCT. 1969

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1969

FOF1 (0.01 MHz)

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

Station SYOWA BASE Lat. 69 00.4 S Long. 39 35.4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Time	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	B	B	B	B	B	B	B	B	B	B	B	B					
2							B	B	B	B	B	B	B	B	B	B	B	B	B					
3							B	B	B	B	B	B	B	B	B	R	B	B						
4							B	B	B	B	R	R	B	B	B	B	B	B						
5								390	R	350	B	R	R	B	B	L	L							
6							B	B	B	B	B	B	B	B	B	B	B	B	B					
7							B	B	B	B	B	B	B	B	B	B	B	B	B					
8						L	L	L	R	R	R	B	B	B	R	R	L	L						
9							R	L	L	R	R	B	R	R	R									
10							B	B	B	B	R	B	400	B	B	B								
11							B			B	B	B	B	B	B	B		B	B					
12							B	B	B	B	B	B	B	B	B	B	B	B	B					
13									L	B	B	B	B	B	B	B	B	B						
14							R	B	R	B	B	B	B	R	R	L								
15						L	370	U L 380	R	430	B	B	B	B	B	L	B	L						
16								L 400	L	B	B	B	B	B	L	L	L							
17								R	R	R	440	450	R	R	R	L								
18									R	R	B	B	B	B	B	B	B	B						
19									R	R	R	B	B	B	L	L	B							
20								B	B	R		R		B	B	L								
21								370	400	R	R	R	R	B	B	B	R	B						
22										B	R	B	R	R	B		B	B						
23							L	R	B	B	B	B	B	B	B	B	B	B						
24							B	B	B	B	B	B	B	B	B	R	B	B						
25								R	B	B	B	B	B	B	B	B	B							
26							L	L	L	L	R	C	B	B	R	R	R							
27							L	R	R	B	R	R	R	R	R	B	R	L						
28										R	R	R	B	R	R	R	R	R						
29								R	B	R	R	R	R	B	R	R	R	R	R	L				
30					L	L	L	R	L	L	R	R	R	B	R	R	L	L	L					
31							L	L	B	B	B	R	B	B	R	R	B	B						
CNT							4	4	1	3	1	1	1											
MED							365	385	400	400	440	450	400											
UQ							380	395		415														
LQ							345	375		375														

The Radio Research Laboratories, Japan

OCT. 1969

FOF1 (0.01 MHz)

IONOSPHERIC DATA

OCT. 1969

FOE (0.01 MHz)

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

Station **SYOWA BASE** Lat. **69 00.4 S** Long. **39 35.4 E** Sweep **0.4 MHz** to **15 MHz** in **30 sec** in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	170	A	A
2	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	A	A	A	
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	B	
4	B	B	A	B	B	B	A	B	B	B	B	285	305	B	B	B	B	B	200	B	B	150	B	B	
5	B	B	A	B	B	B	R	R	235	275	B	R	B	B	B	275	260	250	B	B	B	B	A	B	
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	195	B	B	A	A	
7	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	200	B	B	B	B	
8	B	A	A	A	R	B	200	240	260	275	300	B	B	B	300	A	270	230	210	200	150	A	A	B	
9	B	A	B	B	A	160	180	225	255	275	290	B	305	R	R	290	270	B	B	190	B	B	B	A	
10	B	B	B	B	B	160	B	B	B	B	A	B	R	B	B	B	B	B	B	190	A	A	A	A	
11	A	A	A	A	B	B	B	A	A	B	B	B	B	B	B	B	B	B	B	150	A	A	A	A	
12	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	205	B	A	A	A	
13	A	A	A	A	A	210	200	220	250	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	
14	A	A	A	A	R	R	B	B	B	B	B	B	B	310	B	300	275	240	220	A	B	B	B	A	
15	B	A	A	B	140	175	225	240	265	290	B	B	B	B	B	300	B	B	190	B	B	B	A	A	
16	A	A	A	R	185	190	205	225	260	B	B	B	B	B	300	295	275	250	215	150	A	A	A	A	
17	A	A	A	A	A	B	A	230	270	290	300	A	325	310	285	275	270	255	225	190	150	B	B	120	
18	A	B	A	A	A	A	A	A	A	300	B	B	B	B	B	B	B	B	B	B	B	B	B	A	
19	B	A	A	A	A	B	A	B	280	295	300	B	B	B	R	300	B	B	A	A	A	A	A	A	
20	A	B	A	A	B	B	A	B	B	A	A	A	R	B	B	300	295	270	250	220	R	R	B	150	
21	A	B	A	A	A	A	A	250	290	300	310	R	R	B	B	B	290	B	B	210	175	B	A	A	
22	A	A	A	A	A	B	A	A	A	B	325	B	R	R	B	B	B	B	B	B	B	B	B	A	
23	A	A	A	A	B	B	250	260	B	B	B	B	B	B	B	B	B	B	260	225	170	B	B	A	
24	B	A	A	B	R	B	B	B	B	B	B	B	B	B	B	R	B	B	260	200	195	B	A	A	
25	B	A	A	B	B	B	255	270	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	B	
26	B	A	A	A	190	210	250	275	300	315	C	B	B	330	R	315	280	B	230	B	180	140	135	A	
27	A	A	A	B	180	250	240	260	B	A	R	330	340	335	B	R	305	B	B	B	150	110	A	A	
28	B	B	B	B	A	B	A	A	A	325	330	335	B	R	R	A	305	275	240	190	120	110	A	B	
29	B	B	B	B	B	B	A	B	310	340	R	A	R	B	R	A	325	300	280	250	220	180	120	A	A
30	A	A	A	A	170	220	240	275	300	310	R	R	R	B	R	325	280	275	250	220	A	A	A	B	
31	B	B	B	B	A	225	255	B	B	B	R	B	B	R	R	B	B	B	B	225	A	B	B	B	
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT				3	5	9	11	12	12	12	7	3	4	4	3	11	13	9	14	16	9	6	1	2	
MED				170	180	210	240	245	268	298	300	330	315	320	300	300	280	255	228	200	170	130	135	135	
UQ				175	185	220	250	265	295	312	318	332	332	332	300	308	295	275	250	220	180	150			
LQ				162	170	175	202	228	258	282	300	308	305	310	292	292	270	250	210	190	150	110			

The Radio Research Laboratories, Japan

OCT. 1969

FOE (0.01 MHz)

IONOSPHERIC DATA

OCT. 1969

FOES (0.1 MHZ)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 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 X 31	25	B	B	23	B	B	B	B	B	B	B	B	B	B	E B 57	B	B	B	29	B	J X 22	33	32
2	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 23	J X 72	33	J X 22	J X 29	27
3	27	B	J X 27	29	B	B	B	B	B	B	B	B	B	B	B	E B 31	B	B	30	J X 25	J X 30	29	30	B
4	B	18	J X 22	B	B	B	J X 27	B	B	B	B	33	G	B	B	B	B	B	G	E B 21	E B 15	J X 22	B	B
5	B	B	J X 25	J X 42	B	B	G	G	G	G	B	G	E B 38	E B 52	B	G	G	G	E B 23	E B 21	E B 22	E B 15	J X 31	B
6	32	31	E B 27	27	30	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 28	G	E B 43	J X 30	27	J X 30
7	J X 32	B	J X 26	B	28	27	B	B	B	B	B	B	B	B	B	B	B	B	E B 27	G	E B 27	E B 28	E B 20	E B 23
8	E B 16	J X 27	J X 23	19	G	E B 18	G	G	G	G	G	B	B	B	G	30	G	G	27	G	G	15	J X 26	E B 15
9	E B 14	28	J X 32	J X 40	27	18	20	G	G	G	G	B	G	G	G	G	G	E B 25	E B 23	G	E B 15	E B 11	E B 10	38
10	J X 35	B	B	B	J X 33	23	B	B	B	B	31	B	G	B	B	B	E B 26	E B 57	B	G	J X 31	J X 42	J X 63	J X 38
11	J X 36	J X 41	J X 39	J X 39	B	B	B	J X 32	31	B	B	B	B	B	B	B	E B 34	B	B	J X 32	J X 21	J X 24	J X 25	J X 27
12	27	35	27	E B 21	J X 31	B	B	B	B	B	B	B	B	B	B	B	E B 58	E B 63	29	J X 32	34	J X 32	30	J X 28
13	J X 25	J X 24	29	28	J X 24	G	G	27	G	B	B	B	B	E B 60	E B 58	E B 56	E B 67	E B 53	E B 26	B	E B 28	E B 26	31	J X 29
14	J X 25	J X 22	J X 23	20	G	G	E B 26	B	E B 29	B	B	B	B	32	E B 57	G	G	G	G	21	E B 23	E B 13	B	28
15	J X 21	J X 21	14	E B 13	G	G	G	G	G	G	B	B	B	B	E B 51	G	B	E B 25	22	E B 34	E B 24	E B 13	17	J X 20
16	32	J X 20	17	G	G	G	G	G	G	B	B	B	E B 58	E B 50	G	G	G	G	G	20	19	28	31	J X 68
17	J X 38	J X 41	J X 33	J X 32	J X 30	J X 41	J X 30	27	33	G	G	33	G	G	31	G	G	G	G	G	G	E B 10	E B 11	G
18	J X 27	J X 32	J X 26	J X 28	23	J X 24	J X 28	J X 33	J X 35	G	B	B	B	B	B	B	B	B	E B 51	E B 50	E B 28	E B 23	E B 13	15
19	E B 24	J X 22	27	27	23	B	J X 23	J X 32	G	G	G	B	B	E B 51	G	G	E B 57	E B 37	28	J X 21	J X 24	J X 33	J X 27	J X 32
20	31	J X 40	J X 23	24	B	J X 30	J X 32	B	B	29	33	34	G	E B 57	B	G	G	G	G	G	G	G	E B 15	J X 23
21	28	J X 30	J X 28	G	J X 23	J X 32	29	G	G	G	G	G	G	G	E B 52	B	G	E B 57	E B 26	G	G	E B 27	18	20
22	22	J X 36	J X 22	20	26	J X 34	J X 40	J X 31	J X 32	B	G	B	G	G	B	E B 34	B	B	B	B	E B 24	B	B	J X 18
23	13	22	16	17	E B 23	B	28	G	B	B	B	B	B	B	B	B	B	E B 33	G	G	G	E B 19	E B 25	13
24	J X 32	33	17	E B 17	G	B	B	B	B	B	B	B	B	B	B	G	B	B	G	27	G	E B 20	21	J X 22
25	B	J X 22	J X 25	J X 32	B	J X 34	G	28	B	B	B	B	B	B	B	B	B	G	E B 31	E B 26	B	B	B	E B 11
26	32	J X 29	J X 25	26	24	G	G	G	G	G	C	B	B	G	G	G	30	E B 29	24	E B 24	G	G	G	12
27	15	24	25	23	G	G	26	G	B	30	G	G	G	G	B	G	G	E B 29	E B 31	E B 23	18	17	J X 19	J X 32
28	J X 47	B	33	J X 34	J X 31	B	29	J X 32	35	G	G	G	B	G	G	32	G	G	G	24	20	19	34	J X 64
29	J X 32	J X 29	J X 21	B	B	34	J X 29	B	G	G	31	G	B	G	31	G	G	G	G	G	G	G	14	J X 24
30	20	J X 20	J X 18	16	G	G	G	G	G	G	G	G	G	B	G	G	G	G	G	24	20	17	15	E B 10
31	E B 10	E B 13	E B 15	E B 16	20	G	G	B	B	B	G	B	B	G	G	B	B	B	27	30	30	E B 34	E B 23	E B 27
CNT	27	25	28	25	23	19	22	18	17	14	13	9	11	14	14	19	18	20	27	29	29	29	27	28
MED	27	J X 27	J X 25	24	23	18	23	G	G	G	G	G	G	G	G	G	G	E B 23	E B 21	E B 21	E B 22	25	25	
UQ	J X 32	J X 32	J X 27	J X 29	28	J X 31	J X 29	J X 31	31	G	G	33	G	E B 51	E B 51	E B 30	E B 30	E B 35	E B 28	26	E B 28	J X 25	30	J X 31
LQ	21	J X 22	J X 22	16	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E B 15	15	

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OCT. 1969

FOES (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1969

F-MIN (0.1 MHz)

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

Station	SYQWA BASE				Lat. 69 00' 4 5 S	Long. 39 35' 4 E				Sweep 0.4 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	26	18	B	B	14	B	B	B	B	B	B	B	B	B	B	57	B	B	B	24	B	13	12	13
2	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	23	11	28	18	13	11
3	15	B	21	26	B	B	B	B	B	B	B	B	B	B	B	31	B	B	18	12	10	11	11	B
4	B	15	15	B	B	B	23	B	B	B	B	27	28	B	B	B	B	B	16	21	15	10	B	B
5	B	B	15	26	B	B	16	22	15	20	B	22	38	52	B	15	19	23	23	21	22	15	11	B
6	16	19	27	22	27	B	B	B	B	B	B	B	B	B	B	B	B	B	28	14	43	23	14	10
7	11	B	22	B	22	21	B	B	B	B	B	B	B	B	B	B	B	B	27	17	27	28	20	23
8	16	11	14	15	13	18	13	16	19	23	19	B	B	B	26	22	15	11	14	13	11	9	11	15
9	14	9	23	27	20	13	12	14	14	16	12	B	23	25	16	18	22	25	23	14	15	11	10	15
10	22	B	B	B	24	13	B	B	B	B	26	B	26	B	B	B	26	57	B	14	13	11	11	10
11	12	13	10	10	B	B	B	15	22	B	B	B	B	B	B	B	34	B	B	12	14	10	10	10
12	23	25	22	21	26	B	B	B	B	B	B	B	B	B	B	B	58	63	15	14	15	10	10	10
13	9	10	11	10	11	12	11	15	14	B	B	B	B	60	58	56	67	53	26	B	28	26	10	10
14	10	12	12	11	10	14	26	B	29	B	B	B	B	27	57	19	15	20	14	12	23	13	B	10
15	14	11	10	13	10	14	11	17	16	14	B	B	B	B	51	22	B	25	14	34	24	13	10	12
16	14	9	10	10	11	14	11	13	17	B	B	B	58	50	22	15	11	11	14	9	10	10	10	10
17	10	10	14	15	16	23	12	10	12	11	15	15	24	15	13	12	10	10	10	11	12	10	11	9
18	9	23	15	11	11	17	21	17	13	14	B	B	B	B	B	B	B	B	51	50	28	23	13	11
19	24	12	10	11	10	B	15	26	26	15	15	B	B	51	23	27	57	37	22	11	11	10	9	11
20	11	37	10	14	B	23	15	B	B	20	22	29	21	57	B	21	17	13	15	15	13	10	15	10
21	11	21	14	10	14	15	22	15	15	11	15	23	26	B	52	B	24	57	26	10	10	27	12	11
22	11	12	14	11	14	20	22	14	13	B	22	B	22	20	B	34	B	B	B	B	24	B	B	11
23	11	10	13	9	23	B	23	15	B	B	B	B	B	B	B	B	B	33	22	15	14	19	25	10
24	15	13	13	17	14	B	B	B	B	B	B	B	B	B	B	21	B	B	22	15	15	20	19	10
25	B	15	9	21	B	23	15	15	B	B	B	B	B	B	B	B	B	24	31	26	B	B	B	11
26	15	13	15	11	11	11	14	14	15	21	C	B	B	23	26	22	15	29	14	24	12	11	10	11
27	10	8	12	20	14	11	11	23	B	26	23	22	20	20	B	15	26	29	31	23	11	8	9	4
28	15	B	23	26	22	B	23	21	21	21	20	23	B	25	25	23	14	11	10	11	10	10	10	23
29	22	21	22	B	B	28	24	B	23	21	20	15	B	23	20	14	16	14	14	11	13	10	10	6
30	9	10	14	10	10	10	11	11	13	13	23	26	26	B	21	20	15	15	13	13	13	11	10	10
31	10	13	15	16	13	11	13	B	B	B	25	B	B	26	26	B	B	B	24	21	13	34	23	27
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	14	13	14	16	16	23	22	22	26	B	B	B	B	B	B	B	31	57	37	22	14	14	11	11
UQ	22	24	22	26	27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	28	22	24	22	17
LQ	11	11	12	11	12	14	13	15	15	20	22	28	27	26	26	20	16	22	14	12	12	10	10	10

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F-MIN (0.1 MHz)

IONOSPHERIC DATA

OCT. 1969

M(3000)F2 (0.01)

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

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	A	A	B	B	260	B	B	B	B	B	B	B	B	B	B	265	B	B	B	R	B	R	A	A			
2	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	A	R	R	A	A			
3	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	280	B	B	R	UR	R	R	A	B			
4	B	A	A	B	B	B	A	B	B	B	B	R	R	B	B	B	B	B	R	R	R	B	B				
5	B	B	A	A	B	B	R	R	R	R	B	R	280	290	B	285	R	R	315	R	R	305	A	B			
6	A	A	255	R	R	B	B	B	B	B	B	B	B	B	B	B	B	B	R	335	R	R	A	A			
7	A	B	R	B	A	290	B	B	B	B	B	B	B	B	B	B	B	B	R	340	R	R	325	315			
8	285	A	R	R	R	R	R	R	260	R	R	R	B	B	B	R	R	R	305	R	R	320	310	A	315		
9	265	R	A	A	255	275	270	R	270	R	R	B	R	R	R	R	R	R	R	320	R	305	315	A			
10	A	B	B	B	A	UR	330	B	B	B	B	R	B	B	B	B	R	R	B	R	R	A	A	A			
11	315	A	R	R	B	B	B	A	R	B	B	B	B	B	B	B	R	B	B	R	R	300	305	A			
12	A	A	R	R	A	B	B	B	B	B	B	B	B	B	B	B	R	R	R	R	R	R	R	R			
13	F	R	R	R	270	275	260	R	R	B	B	B	B	R	R	290	285	R	R	B	R	R	A	A			
14	A	F	A	R	260	250	R	B	R	B	B	B	B	R	R	R	R	335	R	320	R	UR	295	B	A		
15	A	265	F	275	F	R	260	R	R	R	B	B	B	B	R	R	B	315	R	R	320	310	300	F			
16	R	255	260	260	265	280	260	F	R	B	B	B	R	R	R	R	R	R	325	320	285	R	R	A			
17	A	A	A	R	R	A	275	260	260	265	290	295	265	270	R	295	315	325	330	R	UR	325	320	290	305		
18	F	A	285	265	R	R	R	R	R	R	B	B	B	B	B	B	B	B	320	320	310	330	285	R			
19	280	285	R	R	R	B	R	A	R	245	R	B	B	295	R	R	R	R	R	325	R	R	R	A			
20	R	A	270	R	B	A	R	B	B	R	R	R	R	R	B	R	R	315	340	340	UR	315	R	R	R		
21	R	A	R	255	UR	275	A	R	240	245	R	R	R	R	B	UR	295	B	R	UR	310	310	310	295	R	F	F
22	275	R	240	R	R	R	A	R	235	B	R	B	265	R	B	R	B	B	B	B	310	B	B	F			
23	270	290	R	R	R	B	R	250	B	B	B	B	B	B	B	B	B	UR	300	310	320	325	315	R	305		
24	A	260	265	255	250	B	B	B	B	B	B	B	B	B	B	260	B	B	R	285	295	R	R	285			
25	B	R	260	R	B	R	R	R	B	B	B	B	B	B	B	B	B	B	R	R	320	B	B	B	270		
26	250	245	UR	250	R	265	260	265	R	R	R	C	B	B	R	R	R	280	R	315	300	315	300	F	F		
27	285	UR	270	260	245	255	245	R	R	B	R	R	R	R	R	B	R	290	R	R	R	310	R	R	285		
28	A	B	R	R	R	B	R	R	R	R	R	R	B	R	R	R	270	290	300	300	R	R	R	A			
29	A	A	R	B	B	R	245	B	R	245	250	265	275	R	R	275	280	295	305	315	345	315	R	270			
30	260	260	R	F	250	265	R	R	R	R	R	R	R	B	R	R	R	R	320	310	325	310	300	300			
31	290	F	R	R	R	R	R	B	B	B	R	B	B	R	B	B	B	R	R	295	UR	310	R	R			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	10	8	10	7	10	8	7	4	4	3	2	2	4	4	1	7	6	9	11	17	15	14	7	9			
MED	278	262	260	255	262	275	260	255	252	245	270	280	270	285	UR	295	280	282	310	315	320	315	310	300	300		
UQI	285	278	265	262	265	285	268	260	265	255			278	292		288	290	315	322	320	322	315	310	305			
LQ	265	258	255	252	255	255	260	245	240	245			265	275		270	280	300	310	310	302	305	295	285			

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M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1969

H^oF₂ (KM)

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

Station	SYOWA BASE				Lat. 69 00.4 S.	Long. 39 35.4 E	Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation																	
Freq. Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							B	B	B	B	B	B	B	B	B	B	B	B	B					
2							B	B	B	B	B	B	B	B	B	B	B	B	B					
3							B	B	B	B	B	B	B	B	B	R	B	B						
4							B	B	B	B	R				B	B	B	B						
5								360	335	275	B	R		365	330	B	300	L						
6							B	B	B	B	B	B	B	B	B	B	B	B						
7							B	B	B	B	B	B	B	B	B	B	B	B						
8								355	345	305		R	R	R	B	B	300	270	250	240				
9								K	350	350	350		R	B	R	R	R							
10							B	B	B	B	R	B	R	B	B	B								
11							B			B	B	B	B	B	B	B			B	B				
12							B	B	B	B	B	B	B	B	B	B	L	B						
13									350		B	B	B	B	B	310	280	B						
14							R	B	R	B	B	B	B	300	290	L								
15						L	370	350	R	350	B	B	B	B	290	285	B	275						
16								400	350	B	B	B	320	290	250	270	265							
17							390	R	400	R	360	350	400	315	310	300								
18										R	B	B	B	B	B	B	B	B						
19									R	R	R	B	B	310	300	295	300							
20							B	B	R		R			310	B	300								
21								450	450	400	R	395	430	B	310	B	R	B						
22										B	R	B	450	R	B		B	B						
23							L	R	B	B	B	B	B	B	B	B	B							
24							B	B	B	B	B	B	B	B	B	R	B	B						
25							R	R	B	B	B	B	B	B	B	B	B							
26							395	L	400	400	R	C	B	B	R	R	415							
27							425	R	R	B	370	320	390	370	355	B	300	340						
28										R	R	R	B	R	R	R	R							
29								R	B	R	475	R	R	B	R	R	400	390	R	290				
30						L	365	340	390	350	345	R	R	350	B	340	350	300	L	L				
31							350	390	B	B	B	R	B	B	390	385	B	B	B					
Freq. Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						5	5	8	8	7	2	3	8	8	10	12	6	3	1					
MED						365	370	375	350	350	340	390	368	312	305	300	300	275	290					
UQ						395	390	400	400	385		392	415	342	310	325	340	302						
LO						355	345	350	350	348		370	335	305	290	282	265	258						

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H^oF₂ (KM)

IONOSPHERIC DATA

OCT. 1969

H⁺F (KM)

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

Station	SYOWA BASE				Lat. 69 00' 4 5		Long. 39 35' 4 E		Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation																
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	300	B	A	A	A	
2	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	260	A	B	A	A	A	
3	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A	B	
4	B	A	A	B	B	B	A	B	B	B	B	240	210	B	B	B	B	B	235	240	240	A	B	B	
5	B	B	A	A	B	B	B	340	255	230	210	B	240	250	B	B	240	250	250	225	250	225	240	A	B
6	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	280	265	B	B	A	A	
7	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	230	230	240	250	210	290	
8	305	A	350	365	340	305	260	240	225	250	250	B	B	B	240	245	230	225	230	225	240	225	A	300	
9	B	A	B	B	430	325	270	240	240	200	240	B	225	225	240	235	240	240	225	220	230	210	230	A	
10	B	B	B	B	B	250	B	B	B	B	A	B	240	B	B	B	300	B	B	300	A	A	A	A	
11	A	A	350	A	B	B	B	A	A	B	B	B	B	B	B	B	360	B	B	290	250	290	320	A	
12	B	B	A	340	B	B	B	B	B	B	B	B	B	B	B	B	B	B	240	320	365	A	A	A	
13	A	325	A	A	350	300	250	250	245	B	B	B	B	B	B	B	B	B	250	B	250	250	A	A	
14	A	A	A	A	380	300	290	B	230	B	B	B	B	220	B	240	245	230	240	225	240	245	B	A	
15	A	A	350	305	305	290	255	240	230	240	B	B	B	B	B	240	B	245	250	250	240	240	260	300	
16	A	A	A	350	340	300	245	230	240	B	B	B	B	B	215	200	240	240	240	230	305	A	A	A	
17	A	A	A	A	A	B	A	270	205	240	240	225	240	240	220	225	200	240	235	215	240	230	225	250	
18	240	B	A	400	A	A	A	A	A	250	B	B	B	B	B	B	B	B	B	B	250	250	240	245	
19	310	350	A	A	275	B	A	B	255	220	200	B	B	B	240	245	B	250	250	230	240	300	A	A	
20	A	B	250	270	B	B	A	B	B	A	A	A	230	B	B	240	250	240	250	230	240	240	250	300	
21	A	B	A	350	350	A	A	250	245	245	225	250	250	B	B	B	245	B	250	250	285	320	315	330	
22	A	240	A	350	325	A	A	A	A	B	250	B	235	250	B	250	B	B	B	B	250	B	B	280	
23	300	315	350	320	300	B	300	250	B	B	B	B	B	B	B	B	B	250	250	245	245	230	250	250	
24	B	A	350	350	355	B	B	B	B	B	B	B	B	B	B	240	B	B	205	275	265	250	275	375	
25	B	A	A	B	B	270	245	B	B	B	B	B	B	B	B	B	B	250	250	250	B	B	B	275	
26	A	A	A	A	370	290	255	250	240	245	C	B	B	230	A	240	250	240	245	250	240	240	250	250	
27	260	305	340	350	A	305	250	R	B	A	240	240	240	240	B	R	250	250	250	250	245	260	275	A	
28	B	B	B	B	B	B	A	A	A	255	225	R	B	R	R	A	250	250	250	260	300	275	A	B	
29	B	B	B	B	B	B	A	B	270	250	A	R	B	225	A	250	240	250	245	250	230	240	240	355	
30	340	A	355	350	240	255	250	230	240	230	A	220	220	B	R	225	240	240	230	245	245	240	240	245	
31	250	265	280	245	265	250	250	B	B	B	R	B	B	245	240	B	B	B	260	250	290	275	275	275	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	7	6	10	13	14	12	13	12	13	12	B	6	10	B	6	14	15	16	25	26	25	21	15	15	
MED	300	310	350	350	340	300	255	248	240	242	240	240	238	235	240	240	245	242	245	250	245	245	250	280	
UQ	308	325	350	350	355	305	270	250	245	250	245	240	240	242	240	245	250	250	250	260	250	260	275	300	
LQ	255	265	340	320	300	272	250	240	230	225	225	225	225	225	225	220	235	240	240	235	230	240	240	250	

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OCT. 1969

H⁺F (KM)

IONOSPHERIC DATA

OCT. 1969

H^oES (KM)

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

Station SYOWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 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	125	150	B	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	B	130	130	115	
2	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	115	130	140	115	115	
3	140	B	120	150	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	125	105	115	110	B	
4	B	120	120	B	B	B	105	B	B	B	140	G	B	B	B	B	B	B	G	B	B	130	B	B	
5	B	B	115	120	B	B	G	G	G	G	B	G	B	B	B	G	G	G	B	B	B	B	120	B	
6	120	115	B	130	135	B	B	B	B	B	B	B	B	B	B	B	B	B	B	G	B	110	115	100	
7	100	B	135	B	130	140	B	B	B	B	B	B	B	B	B	B	B	B	B	G	B	B	B	B	
8	B	115	125	150	G	B	G	G	G	G	B	B	B	G	125	G	G	170	G	G	135	120	B	B	
9	B	120	120	110	140	160	145	G	G	G	B	G	G	G	G	G	B	B	G	B	B	B	120	B	
10	105	B	B	B	150	150	B	B	B	B	125	B	G	B	B	B	B	B	B	G	120	120	110	120	
11	120	125	115	120	B	B	B	110	130	B	B	B	B	B	B	B	B	B	B	125	140	125	125	125	
12	150	120	140	B	130	B	B	B	B	B	B	B	B	B	B	B	B	B	150	140	120	115	120	120	
13	115	115	120	125	125	G	G	150	G	B	B	B	B	B	B	B	B	B	B	B	B	B	110	115	
14	120	150	120	150	G	G	B	B	B	B	B	B	140	B	G	G	G	G	140	B	B	B	105	B	
15	140	140	130	B	G	G	G	G	G	G	B	B	B	B	B	G	B	B	140	B	B	B	155	150	
16	115	145	125	G	G	G	G	G	G	B	B	B	B	B	G	G	G	G	G	155	150	120	120	110	
17	110	105	120	130	120	105	115	150	140	G	G	115	G	G	110	G	G	G	G	G	G	B	B	G	
18	130	120	120	115	115	130	120	110	110	G	B	B	B	B	B	B	B	B	B	B	B	B	B	130	
19	B	120	110	125	140	B	125	125	G	G	G	B	B	B	G	G	B	B	150	150	150	120	110	110	
20	120	165	105	140	B	125	115	B	B	115	115	125	G	B	B	G	G	G	G	G	G	G	B	140	
21	140	110	120	G	120	115	125	G	G	G	G	G	G	B	B	B	G	B	B	G	G	B	150	125	
22	120	125	120	140	120	125	110	110	105	B	G	B	G	G	B	B	B	B	B	B	B	B	B	130	
23	130	125	150	130	B	B	150	G	B	B	B	B	B	B	B	B	B	B	G	G	G	B	180	B	
24	115	110	140	B	G	B	B	B	B	B	B	B	B	B	B	G	B	B	G	150	G	B	125	120	
25	B	140	110	110	B	120	G	150	B	B	B	B	B	B	B	B	B	G	B	B	B	B	B	B	
26	120	140	125	115	140	G	G	G	G	G	C	B	B	G	G	G	140	B	135	B	G	G	G	135	
27	120	115	120	150	G	G	150	G	B	125	G	G	G	G	B	G	G	B	B	B	150	150	140	120	
28	100	B	140	105	125	B	120	105	105	G	G	G	B	G	G	125	G	G	G	175	150	150	120	150	
29	105	125	140	B	B	150	145	B	G	G	110	G	B	G	115	G	G	G	G	G	G	G	160	150	
30	150	145	150	100	G	G	G	G	G	G	G	G	G	B	G	G	G	G	G	G	150	125	125	120	B
31	B	B	B	B	140	G	G	B	B	B	G	B	B	G	G	B	B	B	160	150	125	B	B	B	
CNT	23	24	26	19	15	10	12	8	5	2	3	3		1	2	2	1		7	12	11	14	19	22	
MED	120	122	120	125	130	128	122	118	110	120	115	125		140	112	125	140		150	145	130	125	120	120	
UO	130	140	135	140	140	150	145	150	130		120	132							155	150	150	135	128	135	
LO	115	115	120	115	122	120	115	110	105		112	120							138	125	122	120	115	115	

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H^oES (KM)

IONOSPHERIC DATA

NOV. 1969

FOF2 (0.1 MHz)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	F	F	55	A	A	65	JR77	R	R	R	R	R	R	R	R	R	R	R	B	JR70	67	63	66	
2	R	R	59	R	B	R	R	R	R	R	R	R	R	B	B	B	B	B	B	B	B	B	B	B	
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
5	B	B	B	B	B	B	B	R	B	B	R	R	B	70	R	69	65	68	R	64	B	B	56	54	
6	56	55	61	65	73	R	85	91	96	104	98	91	85	80	73	67	62	62	60	63	65	62	61	64	
7	R	R	54	B	56	B	R	60	64	F	F	R	F	F	70	69	R	70	B	54	55	56	55	37	
8	R	B	B	B	B	B	B	B	B	B	B	B	72	65	80	68	66	67	B	B	B	B	B	R	
9	A	R	B	A	B	R	R	R	R	B	B	B	R	B	B	60	54	R	R	R	47	59	A	45	
10	F	F	F	JF44	F	F	R	B	R	B	B	B	B	B	B	B	R	56	R	38	R	A	A	34	
11	B	R	B	49	R	B	53	F60	F	69	70	70	71	64	B	B	R	58	51	49	50	43	38	F	
12	39	38	B	B	B	B	62	73	75	80	85	B	R	R	B	71	B	67	63	60	53	38	R	B	
13	45	47	51	50	50	B	R	69	75	76	75	76	73	75	71	68	69	68	66	58	55	43	38	41	
14	43	44	R	48	52	50	56	R	F	59	F	54	60	63	65	63	63	60	59	56	56	59	55	55	
15	55	60	JF63	60	F	F	F	F	F	97	92	92	93	UR87	81	R	R	71	70	65	66	61	60	JF59	58
16	F64	64	73	81	84	90	F99	JR102	102	104	101	100	R	89	80	72	70	65	65	64	61	61	63	60	
17	F59	63	71	F71	81	87	9U	93	94	91	91	89	88	R	R	R	JR70	69	UR67	64	65	64	66	68	
18	JR56	51	R	JR54	60	JF69	63	77	85	75	74	74	74	73	73	R	72	69	66	65	64	B	40	48	
19	F43	52	48	60	53	59	71	JF72	JR76	B	JR80	JR83	78	73	70	JR68	67	66	65	58	56	46	43	45	
20	A	B	A	F	F	69	64	55	71	71	69	66	66	65	64	62	59	60	59	58	60	61	57	53	
21	55	F	58	53	JF69	74	84	JR87	88	89	JR87	87	R	76	R	66	64	60	JF59	62	66	UF67	65	68	
22	60	65	JF65	F	70	74	75	B	64	R	69	67	68	68	67	67	64	67	66	65	65	55	R	A	
23	A	52	C	UR62	R	R	R	63	68	72	73	76	76	77	77	75	71	69	65	62	64	JR54	44	43	
24	B	46	R	B	63	76	72	80	80	84	79	78	80	B	85	B	A	70	67	65	55	R	54	51	
25	R	R	R	B	R	64	73	83	86	83	85	84	84	77	75	71	74	69	70	R	55	45	46	50	
26	F	F	A	R	R	B	B	R	R	R	B	55	B	R	59	R	60	61	60	53	R	R	50	A	
27	F	F	F	F	C	C	F	71	B	B	R	R	R	B	66	74	C	R	R	R	54	48	R	B	
28	R	B	B	A	B	B	B	B	R	66	66	B	B	B	B	65	61	63	B	B	58	60	49	41	
29	B	C	B	B	B	F	R	63	F57	66	69	B	73	75	67	B	69	64	R	R	50	45	B	R	
30	R	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	54	B	43	F	38	40
31																									
CNT	11	12	10	13	11	10	14	17	16	16	17	16	15	16	16	17	19	23	18	19	23	20	20	20	
MED	55	52	60	55	63	72	72	73	78	78	79	77	74	74	70	68	66	67	65	62	56	58	54	50	
UQ	58	62	65	62	72	76	84	83	91	90	87	88	82	77	76	71	70	69	66	64	64	61	60	59	
LQ	44	46	54	50	54	64	63	63	70	70	70	68	72	66	66	66	62	62	59	57	54	46	44	42	

NOV. 1969

FOF2 (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

NOV. 1969

FOF1 (0.01 MHz)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	L	R	R	R	R	R	R	R	R								
2						400		R	R	R	L	R	B	B	B	B	B	B	B					
3						B	B		B	B	B	B	B	B	B	B	B	B	B					
4						B	B		B	B	B	B	B	B	B	B	B	B	B					
5						B	B		B	B	B	R	B	B	R	R	R	R	R					
6						B	B	L	R	R	B	R	B	R	470	L	L	L	L					
7					L	B	A	R	R	R	R	R	450	B	B	R	L	L	B					
8					B	B	B	B	B	B	B	B	B	B	B	B	B	L	B	B	B			
9					B	R	R	R	A	B	B	B	R	B	B	R	400	400	350	L				
10					F	F	350	390	B	A	B	B	B	B	B	B	400	400	400	360	300			
11						A	400	420	R	B	R	B	B	B	B	B	R	B	L					
12					B	B	420	430	R	R	R	B	R	R	B	B	B	L	B					
13						B	R	430	R	440	R	R	470	R	R	L	450	L	B	L				
14					L	A	400	R	420	440	R	R	460	R	R	R	L	L						
15					L	400	L	450	L	R	R	R	A	R	R	R	R	L						
16					L	L	420	450	460	470	470	A	A	A	A	A	L							
17					360	400	400	450	460	A	R	A	A	A	A	R	L							
18					370	380	370	R	R	450	R	480	480	520	R	R	A							
19							R	450	R	B	R	R	R	R	R	470	L	L	L					
20					L	A	B	A	R	R	R	R	R	500	R	470	L	L						
21				L	L	410	L	L	470	R	R	R	R	R	R	R	R	R	L	L				
22				L	L	L	460	B	R	R	R	510	490	L	R	R	R	L	R					
23						400	R	410	R	R	R	A	500	510	R	L								
24					R	420	470	460	460	R	500	R	510	B	R	B	A	L	L					
25							R	R	R	R	480	B	B	B	510	R	L	L	L					
26						B	B	R	A	R	B	R	B	R	R	R	R	R	L	L				
27				L	C	C	400	R	B	B	R	R	R	B	R	R	C	R	R	300				
28					B	B	B	B	R	B	R	B	B	B	B	R	R	R	B	B				
29								R	350	R	B	B	B	B	B	B	470	R	R	R				
30				B	B	B	B	A	B	B	B	B	B	B	B	B	B	B						
31																								
CNT				1	2	7	10	9	7	4	3	2	7	3	2	2	4	2	2	2	1			
MED				330	365	400	400	450	460	445	480	495	480	510	490	470	425	400	375	330	300			
UQ					405	420	450	460	460	490		495	515			460								
LQ					390	400	430	420	440	475		465	505			400								

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FOF1 (0.01 MHz)

IONOSPHERIC DATA

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FOE (0.01 MHZ)

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

Station SYOWA BASE Lat. 69 00 .4 S Long. 39 35 4 E Sweep 0.4 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	A	B	A	A	285	290	R	R	330	340	A	R	R	A	260	B	B	190	A	125	B
2	105	A	A	A	B	A	A	275	280	300	320	B	B	B	B	B	B	B	B	B	B	B	B	B
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	280	270	B	B	B	B	B	B	B
6	B	B	B	B	B	B	B	R	B	300	B	R	A	330	310	300	A	270	240	205	200	160	140	B
7	B	B	B	B	A	B	A	A	A	A	A	340	330	B	B	B	B	B	B	B	B	A	B	A
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
9	B	B	B	B	B	B	A	A	A	B	B	B	330	B	B	305	R	R	B	A	A	A	A	B
10	B	A	A	140	A	A	A	B	A	B	B	B	B	B	B	B	275	240	A	R	A	A	A	A
11	B	B	B	B	B	B	A	270	285	B	B	B	B	B	B	B	B	B	240	220	B	A	150	B
12	A	A	B	B	B	B	290	295	300	R	B	B	R	R	B	B	B	B	B	B	170	160	B	B
13	B	A	A	A	A	B	A	290	300	305	310	315	325	320	310	305	295	280	B	215	170	A	A	A
14	A	A	A	A	240	A	A	B	A	310	320	325	A	320	310	305	A	290	265	A	A	170	140	A
15	A	130	A	A	200	235	A	275	300	320	330	335	345	A	R	A	310	280	265	245	225	175	120	100
16	100	120	150	190	200	230	260	290	310	A	335	340	A	340	A	A	R	290	270	240	200	140	A	A
17	A	A	150	175	200	230	255	280	310	320	325	330	R	330	325	310	280	A	280	240	210	170	A	140
18	B	150	215	220	A	A	270	300	310	325	R	345	350	340	335	320	A	A	A	250	B	B	A	A
19	A	A	165	A	A	A	295	300	R	B	R	R	R	A	R	340	300	280	275	240	230	A	A	A
20	B	B	A	R	A	A	B	A	325	330	335	340	A	A	340	325	310	290	275	250	225	200	A	A
21	A	A	A	145	205	A	A	275	A	A	330	335	325	340	A	320	300	295	270	230	225	175	115	105
22	A	A	145	170	200	230	A	B	A	A	B	340	345	340	325	R	300	290	275	250	205	140	A	A
23	B	B	C	A	A	B	290	300	315	315	330	340	350	A	A	325	320	300	290	265	250	A	A	A
24	B	B	B	B	B	A	A	295	300	310	320	350	350	B	R	B	A	320	A	R	B	B	B	B
25	A	A	A	B	B	A	280	300	310	340	345	B	B	B	R	R	B	A	290	280	A	A	A	A
26	160	A	A	A	A	B	B	A	A	A	B	R	B	335	R	330	325	310	280	240	A	A	A	A
27	A	A	A	A	C	C	310	A	B	B	A	B	R	B	B	B	C	R	R	290	A	A	A	B
28	B	B	B	B	B	B	B	B	A	B	A	B	B	B	B	A	320	285	B	B	260	B	160	A
29	B	C	B	B	B	A	A	320	295	325	B	B	B	B	B	B	300	B	B	B	A	B	B	B
30	B	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	275	B	A	B	A	B
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	3	3	5	6	6	4	8	15	14	12	11	13	10	9	7	12	13	15	14	15	13	9	7	3
MED	105	130	150	172	200	230	285	290	300	318	330	340	342	335	325	315	300	290	275	240	210	170	140	105
UQ	132	140	165	190	205	232	292	300	310	325	332	340	350	340	330	325	310	292	280	250	225	175	145	125
LQ	102	125	150	145	200	230	265	278	295	308	320	330	330	330	310	305	295	280	265	235	200	160	122	102

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FOE (0.01 MHZ)

IONOSPHERIC DATA

NOV. 1969

FOES (0.1 MHZ)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	E ₂₃	J ₂₉	J ₂₉	J ₂₀	J ₃₅	J ₃₅	J ₂₈	30	G	G	G	G	G	36	G	G	31	29	E ₂₇	B	G	24	G	E ₁₃	
2	G	16	J ₂₇	J ₄₇	B	J ₃₀	30	G	G	G	E ₃₅	E ₅₂	B	B	B	B	B	B	B	B	B	B	B	B	
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
5	B	B	B	B	B	B	B	E ₆₀	B	B	E ₆₈	E ₃₅	B	E ₅₃	G	32	28	E ₃₀	E ₂₈	E ₃₀	B	B	E ₂₃	E ₁₅	
6	E ₁₈	J ₂₂	E ₂₇	E ₃₁	E ₂₇	E ₅₃	E ₅₁	G	E ₃₄	G	E ₆₃	G	38	G	G	35	J ₃₁	33	27	23	G	G	G	E ₁₃	
7	E ₁₆	E ₃₆	J ₂₂	B	28	B	J ₃₂	J ₂₉	35	35	35	G	G	E ₅₃	E ₅₀	E ₃₇	E ₃₄	E ₃₆	B	E ₃₇	24	28	E ₂₂	33	
8	E ₄₃	B	B	B	B	B	B	B	B	B	B	B	E ₅₇	E ₅₇	E ₆₇	E ₅₃	E ₅₅	E ₃₂	B	B	B	B	B	J ₃₁	
9	J ₇₁	J ₃₀	B	J ₃₆	B	34	J ₃₀	J ₃₂	J ₄₅	B	B	B	G	B	B	G	G	G	E ₃₀	J ₂₈	23	J ₂₆	J ₅₂	38	
10	J ₇₀	J ₂₅	J ₃₉	J ₃₈	J ₂₀	J ₂₁	J ₂₆	B	J ₄₁	B	B	B	B	B	B	B	G	G	J ₃₅	G	24	J ₉₀	J ₈₆	J ₆₁	
11	B	J ₂₉	B	B	31	B	J ₄₁	G	G	E ₃₅	E ₄₇	E ₃₄	E ₅₇	E ₅₂	B	B	E ₃₅	E ₅₃	G	G	E ₂₄	J ₁₈	G	E ₁₆	
12	J ₂₀	26	B	B	B	B	G	G	G	G	E ₃₄	B	G	G	B	E ₅₇	B	E ₃₀	E ₅₂	E ₂₅	G	G	E ₂₂	B	
13	E ₁₄	16	J ₃₂	30	J ₂₅	B	31	G	G	G	G	G	G	G	G	G	31	G	E ₅₃	26	23	J ₃₀	J ₂₉	25	
14	J ₂₁	30	J ₂₆	J ₂₃	27	J ₄₂	J ₃₂	J ₄₂	32	G	G	38	37	G	G	G	J ₃₂	G	29	J ₃₂	J ₃₂	J ₂₁	16	13	
15	14	15	J ₂₀	22	J ₂₀	G	J ₃₀	36	G	G	37	37	38	36	G	J ₃₂	G	G	G	G	G	G	17	16	
16	15	15	G	25	G	G	G	G	37	J ₃₉	J ₄₁	J ₇₁	J ₇₂	J ₅₇	J ₆₁	J ₆₀	G	G	G	G	27	22	J ₂₃	16	
17	13	15	G	G	G	24	28	G	35	J ₆₅	35	J ₄₂	J ₇₄	38	J ₃₆	36	J ₃₄	29	G	J ₃₃	J ₂₄	20	J ₄₆	17	
18	E ₂₂	18	37	J ₃₂	J ₄₆	J ₃₇	J ₃₃	G	G	G	G	G	39	J ₃₇	37	37	J ₃₈	J ₅₇	J ₄₅	G	E ₃₅	B	20	18	
19	J ₂₁	17	20	J ₂₂	J ₄₂	J ₃₆	G	G	G	B	G	G	G	35	G	G	J ₃₉	37	G	G	G	29	21	J ₃₂	
20	J ₅₃	B	J ₄₈	G	30	J ₄₂	E ₆₄	J ₃₃	G	G	38	37	38	34	G	G	G	G	G	G	28	31	28	J ₃₂	21
21	J ₂₅	J ₂₄	J ₂₆	J ₂₂	27	J ₂₃	J ₂₇	33	36	J ₃₂	35	37	36	G	J ₃₃	G	G	G	29	G	G	26	16	14	
22	14	15	J ₂₅	J ₃₁	G	29	J ₃₉	B	38	J ₄₀	E ₃₃	G	G	G	G	G	G	G	G	G	31	22	J ₃₇	J ₈₀	
23	J ₃₅	J ₃₆	C	J ₃₂	42	36	G	G	G	G	38	J ₅₇	38	37	36	G	G	33	G	G	30	32	25	31	
24	B	J ₇₁	E ₃₁	B	32	J ₃₃	36	36	35	G	G	G	G	B	35	B	J ₆₉	G	31	G	E ₂₇	E ₂₆	E ₂₅	E ₂₅	
25	32	33	J ₃₁	B	J ₃₈	J ₃₃	G	G	G	G	G	E ₅₂	E ₅₂	E ₅₆	G	G	E ₃₄	31	G	G	28	J ₂₅	25	23	
26	J ₂₇	J ₃₂	J ₃₈	J ₃₂	J ₃₅	B	B	J ₃₂	J ₄₂	J ₃₁	B	G	B	G	G	G	G	G	G	29	J ₃₃	38	J ₄₀	J ₄₁	
27	J ₃₇	29	J ₂₄	24	C	C	36	J ₃₉	B	B	37	E ₃₈	G	B	E ₃₈	E ₃₇	C	G	G	G	30	33	J ₂₄	B	
28	J ₄₁	B	B	J ₃₂	B	B	B	B	36	E ₅₈	36	B	B	B	B	36	G	G	B	B	G	E ₂₅	G	J ₂₅	
29	B	C	B	B	B	J ₇₄	J ₃₂	G	G	G	E ₅₈	B	E ₅₆	E ₅₇	E ₅₂	B	G	E ₃₂	E ₃₅	E ₂₉	J ₃₂	J ₁₁	B	38	
30	J ₃₃	B	J ₆₄	B	B	B	B	J ₈₉	B	B	B	B	B	B	B	B	B	B	B	G	B	35	E ₃₇	J ₈₄	31
31																									
CNT	24	22	20	19	19	18	23	24	24	21	23	21	23	21	21	22	24	26	24	23	25	24	25	25	
MED	21	25	J ₂₆	J ₂₈	28	J ₃₄	30	E ₂₉	E ₃₂	G	E ₃₅	E ₃₅	E ₃₈	E ₃₆	G	E ₃₂	E ₃₀	E ₂₉	E ₂₇	G	24	25	22	25	
UQ	J ₃₄	J ₃₀	J ₃₄	J ₃₂	35	J ₃₆	33	J ₃₄	36	U ₃₃	37	38	U ₄₅	E ₅₃	U ₃₅	U ₃₄	32	30	28	J ₂₆	30	30	J ₃₂	32	
LQ	15	16	J ₂₂	22	21	J ₂₄	26	G	G	G	G	G	G	G	G	G	G	G	G	G	G	20	E ₁₇	15	

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FOES (0.1 MHZ)

IONOSPHERIC DATA

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F-MIN (0.1 MHZ)

45° E Mean Time (G. M. T. + 3 h)

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	23	10	13	11	26	22	23	16	19	14	26	22	21	23	23	23	20	22	27	B	B	15	10	13
2	8	9	10	14	B	22	18	11	14	14	13	35	52	B	B	B	B	B	B	B	B	B	B	B
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	B	B	B	B	B	B	B	60	B	B	68	35	B	53	26	25	14	30	28	30	B	B	23	15
6	18	17	27	31	27	53	51	23	34	24	63	33	33	23	15	14	14	17	11	19	16	14	11	13
7	16	36	21	B	20	B	24	23	17	17	21	23	30	53	50	37	34	36	B	37	22	18	22	23
8	43	B	B	B	B	B	B	B	B	B	B	B	57	57	67	53	55	32	B	B	B	B	B	26
9	62	21	B	25	B	26	24	23	22	B	B	B	26	B	B	20	23	25	30	21	15	15	15	14
10	15	8	9	7	9	10	15	B	26	B	B	B	B	B	B	B	15	14	14	15	14	15	11	9
11	B	25	B	B	22	B	17	9	11	35	47	34	57	52	B	B	35	53	21	13	24	10	12	16
12	14	13	B	B	B	B	14	14	14	27	34	B	57	52	B	B	35	53	21	13	24	10	12	16
13	14	13	13	15	17	B	13	13	14	11	15	16	22	22	23	23	14	10	53	10	11	10	10	13
14	11	10	14	14	11	16	15	38	14	13	14	14	15	21	21	23	15	16	13	11	10	10	11	9
15	9	10	9	10	10	11	11	11	13	13	17	22	16	23	23	18	18	14	13	11	13	9	8	8
16	9	9	8	6	10	9	10	11	11	12	14	16	27	26	22	16	23	22	13	14	10	10	10	11
17	8	7	8	9	9	10	10	11	10	19	21	21	18	21	12	11	11	12	12	13	11	10	9	8
18	22	10	11	9	9	10	10	15	14	15	19	21	15	25	26	24	18	17	10	11	35	B	12	12
19	11	11	10	12	20	21	12	13	25	B	26	25	23	25	26	20	14	19	15	13	11	9	13	13
20	29	B	15	13	11	10	64	13	12	12	11	21	15	23	14	13	13	10	11	11	11	10	10	10
21	10	9	10	10	10	10	9	11	11	11	22	22	26	17	18	11	13	12	9	11	14	13	7	8
22	8	8	9	10	9	9	10	B	22	27	33	19	22	14	13	18	13	11	15	11	11	11	16	25
23	24	22	C	22	18	26	14	13	14	22	14	26	13	23	32	14	14	13	12	12	11	10	13	13
24	B	25	31	B	26	25	11	12	11	11	13	13	11	B	27	B	22	22	20	15	27	26	25	25
25	21	15	21	B	28	23	22	14	15	15	22	52	52	56	23	21	34	23	22	16	23	15	14	14
26	11	15	15	23	23	B	B	27	23	21	B	25	B	12	21	13	13	14	14	13	11	11	10	11
27	9	9	9	9	C	C	20	23	B	B	25	38	28	B	38	37	C	26	17	12	14	13	12	B
28	29	B	B	28	B	B	B	B	28	58	27	B	B	B	B	28	13	22	B	B	25	25	13	21
29	B	C	B	B	B	26	25	14	E	14	58	B	56	57	52	B	25	32	35	29	24	24	B	33
30	25	B	13	B	B	B	B	26	B	B	B	B	B	B	B	B	B	B	26	B	11	37	10	24
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	29	29	30	29	29	30	30	30	30	30	30	30	30	30	30	29	30	30	30	30	30	30	30
MED	20	15	15	22	23	26	19	16	16	22	26	30	29	52	26	24	18	22	20	14	16	14	12	14
UQ	43	36	B	B	B	B	64	38	28	B	68	B	57	B	B	B	34	32	35	37	27	26	22	25
LQ	11	10	10	10	11	11	12	13	13	14	17	21	21	23	22	18	14	14	13	12	11	10	10	11

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F-MIN (0.1 MHZ)

IONOSPHERIC DATA

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M(3000)F2 (0.01)

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

Station	SYDWA BASE				Lat. 69 00 4 S . Long. 39 35 4 E							Sweep 0.4 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	F	F	265	A	A	245	R	R	R	R	R	R	R	R	R	R	R	R	B	R	315	315	305
2	R	R	270	R	B	R	R	R	R	R	R	R	R	B	B	B	B	B	B	B	B	B	B	B
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	B	B	B	B	B	B	B	R	B	B	R	R	B	280	R	295	305	290	R	305	B	B	320	295
6	290	280	275	260	260	R	250	250	260	260	265	265	260	275	290	300	305	310	315	315	325	315	320	320
7	R	R	290	B	270	B	R	240	240	F	F	R	F	F	265	260	R	300	B	280	290	300	280	290
8	R	B	B	B	B	B	B	B	B	B	B	B	270	255	275	280	295	305	B	B	B	B	B	R
9	A	R	B	A	B	R	R	R	R	B	B	B	R	B	B	235	230	R	R	R	295	290	A	270
10	F	F	F	F	F	F	R	B	R	B	B	B	B	B	B	B	R	265	R	245	R	A	A	295
11	B	R	B	265	R	B	245	255	F	260	255	270	280	285	B	B	R	295	295	315	310	300	315	F
12	270	265	B	B	B	B	250	260	250	260	270	B	R	R	B	280	B	315	315	315	310	310	R	B
13	310	275	295	275	275	B	R	255	255	265	255	270	250	265	270	270	275	300	315	310	305	300	290	310
14	325	290	R	270	260	240	240	R	F	255	F	280	265	260	290	285	285	300	320	315	320	320	315	310
15	305	285	F	265	F	F	F	F	260	255	260	270	265	280	R	R	310	315	320	300	320	320	F	295
16	295	285	280	275	260	260	260	R	255	260	260	265	R	270	280	290	290	310	305	315	315	320	315	300
17	290	270	280	265	245	255	260	250	255	255	260	260	260	R	R	R	R	285	300	305	310	315	305	305
18	R	310	R	R	265	F	230	255	255	245	270	255	270	270	275	R	290	305	305	300	315	B	300	315
19	280	305	265	285	265	235	250	F	R	B	250	R	265	265	270	R	285	290	285	330	290	290	280	305
20	A	B	A	F	F	285	240	235	255	255	260	260	260	270	260	270	285	290	305	325	305	310	310	300
21	270	F	255	280	F	245	245	R	250	255	R	255	R	270	R	275	285	285	S	290	320	300	310	310
22	295	270	F	F	270	255	255	B	235	R	235	270	275	270	285	270	265	280	290	295	310	295	R	A
23	A	270	C	U	R	R	R	240	240	235	245	255	250	260	285	275	280	300	300	290	285	305	275	300
24	B	265	R	B	255	245	245	245	245	260	260	250	250	B	255	B	A	280	300	310	290	R	315	285
25	R	R	R	B	R	240	235	245	235	245	245	250	250	270	265	255	265	275	280	R	310	290	305	310
26	F	F	A	R	R	B	B	R	R	R	B	245	B	R	255	R	275	280	295	285	R	R	275	A
27	F	F	F	F	C	C	F	265	B	B	R	R	R	B	235	250	C	R	R	R	355	335	R	B
28	R	B	B	A	B	B	B	B	R	240	250	B	B	B	B	275	250	275	B	B	305	310	305	275
29	B	C	B	B	B	F	R	255	255	250	245	B	260	265	250	B	250	250	R	R	295	310	B	R
30	R	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	270	B	275	F	315	305
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	10	12	8	11	10	9	14	13	15	16	16	15	15	16	16	16	18	23	17	19	22	20	19	20
MED	292	278	278	270	262	245	245	250	255	255	258	260	260	270	270	275	285	290	300	305	310	310	310	302
UQ	305	288	285	275	270	255	250	255	255	260	260	270	268	272	282	282	290	302	315	315	315	315	315	310
LQ	280	270	268	265	260	240	240	245	242	248	248	250	255	265	258	265	265	280	295	292	295	300	295	295

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M(3000)F2 (0.01)

IONOSPHERIC DATA

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H¹F² (KM)

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

Station SYOWA BASE

Lat. 69 00 4 S Long. 39 35 4 E

Sweep 0.4 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	400	R	R	R	R	R	R	R	R	R								
2							400	360	330	375	L	375	390	B	B	B	B	B	B						
3							B	B	B	B	B	B	B	B	B	B	B	B	B						
4							B	B	B	B	B	B	B	B	B	B	B	B	B						
5							B	B	B	B	B	B	B	330	390	325	315	300	300						
6							385	370	355	365	350	345	390	350	340	340	325	L	290	L					
7							400	B	A	R	490	480	450	450	440	450	400	315	300	305	B				
8							B	B	B	B	B	B	B	390	450	375	470	340	300	B	B	B			
9							B	R	R	R	R	B	B	R	B	B	R	560	R	525	R				
10							400	400	560	B	A	B	B	B	B	B	B	R	415	R	570	R			
11									440	440	405	400	400	R	375	385	B	B	R	B	345				
12							B	B	450	400	395	400	340	B	450	355	B	B	B	300	300				
13							B	R	450	400	375	400	355	410	380	390	355	360	300	300	L				
14							400	A	515	R	595	450	450	440	425	425	355	365	350	315					
15							395	395	350	360	350	355	355	340	350	340	340	315	300	290					
16							310	350	350	350	350	350	340	350	A	320	335	330	L						
17							360	350	350	365	375	380	365	360	350	330	365	375	350						
18							405	410	500	400	400	400	375	400	390	390	390	340	310						
19									440	440	420	B	400	350	400	400	395	390	L	300	L				
20							360	340	B	A	430	400	400	440	450	420	400	395	L	L					
21							L	400	400	400	355	390	390	390	370	370	375	R	380	380	R	270	L		
22							360	350	400	375	B	550	R	R	420	400	400	390	400	L	345	350			
23									510	R	460	460	450	425	405	400	390	350	320						
24							385	425	460	405	400	400	385	410	425	B	400	B	A	350	290				
25									450	405	390	390	400	390	390	390	400	440	350	350	330				
26							B	B	R	R	R	B	R	B	R	490	R	415	400	L	320				
27							420	C	C	550	505	B	B	R	R	R	B	R	400	C	R	R	R		
28							B	B	B	B	R	B	R	B	B	B	B	400	450	R	B	B			
29									465	425	475	480	B	400	400	400	B	440	450	R	R				
30							B	B	B	B	A	B	B	B	B	B	B	B	B	B					
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT				2	11	11	16	17	19	17	18	17	19	19	18	19	14	15	9	2					
MED				390	395	400	440	400	400	400	395	390	400	390	390	375	350	305	300	445					
UQ				400	405	480	440	428	400	400	410	418	400	400	400	415	350	345							
LQ				360	368	372	360	382	375	365	355	382	348	355	328	315	300	300							

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H¹F² (KM)

IONOSPHERIC DATA

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H*F (KM)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	280	300	380	350	B	A	A	250	230	R	R	230	R	A	235	R	A	250	245	B	240	225	240	250
2	250	250	325	A	B	A	300	240	240	225	230	230	B	B	B	B	B	B	B	B	B	B	B	B
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	B	B	B	B	B	B	B	B	B	B	B	225	B	B	225	240	230	250	250	280	B	B	250	250
6	280	300	300	325	300	B	B	250	230	235	B	R	B	205	215	225	215	240	230	240	250	240	240	230
7	255	B	B	B	A	B	A	A	230	240	290	250	250	B	B	B	250	285	B	350	300	275	295	A
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	240	B	B	B	B	B	B
9	B	B	B	B	B	B	A	A	A	B	B	B	250	B	B	240	290	265	250	290	280	285	A	A
10	425 ^A	300	A	290	270	260	255	B	A	B	B	B	B	B	B	B	265	245	A	A	310 ^A	A	A	350
11	B	B	B	B	A	B	A	240	220	240	B	235	B	B	B	B	250	B	250	245	255	300	270	300
12	350	A	B	B	B	B	250	230	230	R	235	B	R	265	B	B	B	250	B	250	255	270	290	B
13	255	255	305	360	A	B	A	245	200	200	215	230	220	215	240	220	225	240	B	240	270	315	340	255
14	250	330	A	330	320	A	A	B	260	220	215	240	240	230	220	240	220	225	240	200	250	255	250	250
15	265	260	280	300	265	245	225	225	225	220	240	235	A	A	A	205	225	240	240	240	250	250	240	250
16	250	265	280	260	250	240	240	220	240	210	250	A	A	A	A	A	215	240	235	250	250	250	250	250
17	250	260	260	275	275	265	250	240	230	A	235	A	A	A	A	240	225	250	250	250	250	265	250	250
18	305	285	395	380	300	260	260	240	235	215	225	220	240	A	260	240	215	A	A	245	275	B	280	250
19	290	255	310	A	A	A	250	240	225	B	230	240	210	265	250	225	230	240	225	250	260	290	300	275
20	A	B	A	A	320	A	B	A	205	200	200	275	250	A	240	220	215	225	240	250	250	255	250	250
21	305	315	350	325	260	255	240	230	230	220	240	220	225	230	215	225	240	220	225	240	250	250	245	250
22	255	290	300	290	290	250	240	B	A	A	B	200	230	240	225	220	240	230	250	245	255	260	A	A
23	A	B	C	A	A	310	290	230	240	225	250	A	230	260	250	230	240	230	230	250	250	300	310	335
24	B	A	B	B	A	A	A	225	210	220	215	240	205	B	A	B	A	230	240	240	250	275	260	270
25	390	300	A	B	A	A	290	240	225	235	R	B	B	B	B	235	230	240	240	270	250	300	260	260
26	260	310	A	A	A	B	B	A	A	A	B	R	B	205	205	220	240	225	250	250	A	A	A	A
27	A	A	320	300	C	C	255	380	B	B	250	250	255	B	260	250	C	240	300	350	250	275	A	B
28	440	B	B	B	B	B	B	B	A	B	225	B	B	B	B	R	240	240	B	B	250	275	300	400
29	B	C	B	B	B	A	A	240	220	205	B	B	B	B	B	B	210	250	275	250	300	310	B	250
30	B	B	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	250	B	405 ^A	350	350	260
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	18	15	12	12	10	8	13	17	19	15	16	15	12	9	14	17	21	24	20	22	24	22	20	20
MED	272	290	308	312	282	258	250	240	230	220	232	235	235	230	235	230	230	240	242	250	250	275	260	250
UQ	305	300	338	340	300	262	260	240	232	230	245	240	250	260	250	240	240	250	250	250	272	300	298	272
LQ	255	260	290	290	265	248	240	230	222	212	220	228	222	215	220	220	220	230	238	240	250	255	250	250

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NOV. 1969

H*F (KM)

IONOSPHERIC DATA

NOV. 1969 H*ES (KM) 45 E Mean Time (G. M. T. + 3 h)

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	125	125	130	140	120	125	140	G	G	G	G	G	110	G	G	115	115	B	B	G	105	G	B
2	G	120	115	140	B	100	115	G	G	G	G	B	B	B	B	B	B	B	B	B	B	B	B	B
3	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
4	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5	B	B	B	B	B	B	B	B	B	B	B	B	B	B	G	130	125	B	B	B	B	B	B	B
6	B	105	B	B	B	B	B	G	B	G	B	G	115	G	G	110	105	120	125	125	G	G	G	B
7	B	B	150	B	140	B	105	105	120	105	105	G	G	B	B	B	B	B	B	B	115	150	B	150
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150
9	150	125	B	125	B	145	125	105	105	B	B	B	G	B	B	G	G	G	B	140	150	110	105	120
10	125	130	100	100	100	100	110	B	115	B	B	B	B	B	B	B	G	G	105	G	150	115	100	125
11	B	105	B	B	105	B	105	G	G	B	B	B	B	B	B	B	B	B	G	G	B	140	G	B
12	125	110	B	B	B	B	G	G	G	G	B	B	G	G	B	B	B	B	B	B	G	G	B	B
13	B	130	105	105	125	B	105	G	G	G	G	G	G	G	G	G	125	G	B	160	150	125	125	140
14	130	105	140	105	150	110	105	120	105	G	G	125	105	G	G	G	105	G	120	100	100	100	100	120
15	110	125	100	105	100	G	100	125	G	G	140	135	105	100	G	100	G	G	G	G	G	G	150	120
16	120	155	G	150	G	G	G	G	115	100	125	105	115	105	105	100	G	G	G	G	140	115	100	190
17	160	125	G	G	G	150	115	G	115	115	105	125	100	125	105	105	105	105	G	125	125	150	100	155
18	B	145	115	135	105	105	125	G	G	G	G	G	115	110	120	110	105	105	100	G	B	B	150	125
19	125	125	140	115	135	105	G	G	G	B	G	G	G	110	G	G	105	110	G	G	G	180	150	120
20	150	B	105	G	105	100	B	100	G	G	125	155	115	105	G	G	G	G	G	130	140	115	115	115
21	115	115	130	120	135	100	100	105	100	100	130	125	105	G	100	G	G	G	105	G	G	115	105	105
22	100	105	105	145	G	120	115	B	140	105	B	G	G	G	G	G	G	G	G	G	140	145	125	140
23	115	110	C	125	105	125	G	G	G	G	125	105	120	105	105	G	G	100	G	G	155	120	120	140
24	B	105	B	B	140	105	100	120	105	G	G	G	B	110	B	100	G	100	G	G	B	B	B	B
25	110	130	125	B	140	125	G	G	G	G	G	B	B	B	B	G	B	120	G	G	150	140	145	140
26	125	105	100	100	100	B	B	100	105	105	B	G	B	G	G	G	G	G	G	160	100	110	105	100
27	110	105	110	100	C	C	150	105	B	B	100	B	G	B	B	B	C	G	G	G	110	105	100	B
28	190	B	B	100	B	B	B	B	100	B	120	B	B	B	B	125	G	G	B	B	G	B	G	130
29	B	C	B	B	B	125	105	G	G	G	B	B	B	B	B	B	G	B	B	B	140	110	B	115
30	105	B	100	B	B	B	B	125	B	B	B	B	B	B	B	B	B	B	B	G	100	B	100	150
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	17	21	16	16	15	15	16	11	11	6	9	7	9	8	6	7	9	7	6	7	15	18	17	20
MED	125	120	112	118	125	110	108	105	105	105	125	125	115	108	105	110	105	110	105	130	140	115	105	128
UQ	130	125	128	132	140	125	120	122	115	105	125	130	115	110	110	118	115	118	120	150	150	140	125	145
LQ	110	105	102	102	105	102	105	105	105	100	105	115	105	105	105	102	105	105	100	125	112	110	100	120

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NOV. 1969 H*ES (KM)

IONOSPHERIC DATA

DEC. 1969

FOF2 (0.1 MHz)

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

Station	SYOWA BASE				Lat. 69 00 4 S	Long. 39 35 4 E	Sweep 0.4 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	40	B	B	B	R	C	C	C	C	C	C	C	63	64	R	B	B	B	59	50	44	42	R	R	
2	54	49	52	63	71	79	89	89	81	85	U ₈₄	R	85	U ₈₂	J ₈₃	B	U ₇₀	J ₇₀	J ₇₀	J ₆₉	61	56	49	U ₄₆	
3	J ₅₄	J ₅₅	F	59	66	74	81	F	90	93	87	88	R	R	R	66	64	62	62	61	66	64	62	60	
4	54	R	F	F	F ₅₂	F ₅₃	60	F	F	74	77	71	70	71	75	74	69	J ₆₈	64	B	B	U ₄₉	51	R	
5	F	53	B	F	59	67	68	F	86	B	76	72	U ₆₈	R	R	B	75	F	53	48	R	R	R	R	
6	F	A	R	B	R	B	B	B	B	B	B	B	B	B	B	B	B	R	R	R	R	R	R	U ₄₉	B
7	B	B	B	B	B	64	67	82	84	86	88	J ₈₄	76	77	R	R	R	58	64	61	58	59	58	54	
8	R	R	B	C	R	F	64	F	F ₆₄	68	71	74	U ₇₆	70	68	66	65	61	61	60	59	56	67	B	
9	F	39	B	R	B	B	B	60	B	B	B	B	B	B	B	B	B	72	71	66	R	49	54	J ₅₆	
10	C	C	C	C	C	R	71	J ₇₅	82	J ₈₄	B	R	B	C	C	C	C	C	R	R	53	53	J ₅₃	A	
11	A	48	R	B	54	F ₅₄	F	F	R	R	B	B	B	B	B	R	60	63	62	64	58	54	49	50	
12	A	41	R	47	F ₄₅	R	R	B	R	R	R	B	R	R	R	60	60	60	60	60	58	J ₅₅	56	52	
13	50	42	J ₅₃	U ₆₁	57	R	R	R	63	69	69	J ₆₇	68	61	R	61	J ₆₃	U ₆₇	U ₆₅	61	60	57	59	55	
14	48	53	59	F	61	C	C	C	C	C	C	C	C	C	C	65	U ₆₅	63	61	64	62	55	U ₅₅	J ₄₈	
15	37	44	53	58	65	F	A	72	79	J ₈₆	R	71	J ₇₃	U ₇₆	J ₆₈	64	71	U ₆₂	62	62	61	R	49	J ₄₇	
16	52	A	R	R	R	R	R	B	64	67	63	B	64	J ₆₅	63	61	64	60	58	U ₅₆	R	51	R	61	
17	R	46	B	55	56	R	R	F ₆₄	F ₇₄	71	B	65	U ₆₇	U ₆₆	69	68	66	61	R	57	58	57	R	48	
18	J ₄₈	54	62	54	59	55	F ₆₄	76	J ₈₅	85	77	75	72	71	70	64	63	61	62	J ₆₀	61	62	58	57	
19	50	R	R	R	R	R	65	70	74	J ₈₇	J ₉₁	U ₈₅	R	81	71	66	R	68	65	67	67	62	63	59	
20	58	U ₆₂	56	F	F	R	55	69	71	72	80	80	71	71	60	65	64	64	65	65	66	63	62	62	
21	63	F ₆₅	J ₅₆	60	R	58	R	R	58	69	J ₆₅	R	R	J ₇₀	63	65	63	60	60	65	65	64	60	55	
22	56	60	60	F	J ₅₄	F ₆₄	F ₇₀	77	J ₈₄	80	86	B	74	B	R	62	64	60	64	61	59	R	45	J ₅₄	
23	56	59	R	F	68	F	A	F ₆₆	63	70	71	72	72	72	B	R	U ₇₅	53	B	R	55	55	47	44	
24	R	50	B	F	B	R	B	65	66	65	66	64	63	64	63	66	68	67	B	56	B	56	54	54	
25	R	R	B	J ₅₆	A	R	55	F	65	68	R	R	B	B	B	64	64	65	B	B	53	J ₅₄	51	48	
26	50	49	A	R	55	60	60	58	69	72	75	B	B	76	76	72	66	67	61	52	47	R	49	43	
27	52	55	R	B	B	R	R	B	B	B	64	B	71	B	B	B	B	B	61	60	60	59	48	R	
28	58	64	64	66	69	76	80	93	91	96	95	85	J ₇₅	72	75	72	71	70	66	64	64	54	49	U ₅₁	
29	53	50	49	56	59	71	F	92	100	95	90	J ₈₄	B	U ₈₂	U ₈₀	80	R	U ₆₇	66	65	70	68	59	56	
30	60	F ₆₂	F	R	83	J ₉₃	J ₉₇	J ₉₄	R	J ₉₂	89	90	J ₈₃	81	B	B	71	69	67	68	71	69	59	51	
31	R	61	65	69	71	J ₈₅	H	J ₉₇	100	J ₁₀₅	101	94	87	81	R	B	R	J ₇₆	71	69	70	J ₇₃	65	58	
CNT	19	22	12	12	18	14	14	18	22	23	21	16	19	20	14	19	22	26	25	26	25	26	27	24	
MED	53	53	58	59	59	66	66	76	76	80	77	74	72	72	70	65	65	64	62	61	60	56	54	54	
UQ	56	60	61	64	69	79	71	90	85	86	88	84	76	79	75	67	70	68	65	65	65	62	59	56	
LQ	50	48	53	56	55	58	60	66	65	70	71	71	68	68	63	64	64	61	61	60	58	54	49	48	

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DEC. 1969

FOF2 (0.1 MHz)

IONOSPHERIC DATA

DEC. 1969

FOF1 (0.01 MHz)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	R	C	C	C	C	C	C	C				B	B	B						
2			350	390	420	440	440	470	R	R	R	R	B	B	B	B	B							
3			L	380	400	R	R	R	R	R	R	R	R	A	A	R	A	L	L					
4		380	R	A	400	390	410	440	450	R	R	R	R	R	R	L	R	L	B	B				
5				400	410	480	R	R	R	B	R	R	R	B	R	B	R	460	450					
6				B	R	B	B	B	B	B	B	B	B	B	B	B	B	R	R					
7				B	B	R	R	R	460	R	R	R	L	R	R	R	R	R	L					
8				C	R		B	450	L	R	R	R	R	R	R	R	R	L						
9					B	B	B	B	B	B	B	B	B	B	B	B	B	L	L	L				
10				C	C	L	400	R	L	R	B	R	B	C	C	C	C	C	L	L				
11				B	350	F 380	F 380	400	R	R	B	B	B	B	B	R	L	R	440	L				
12					F 390	A	R	B	R	R	R	B	R	R	R	R	R	L	L					
13				L	L	R	R	R	L	R	R	R	R	R	R	A	R	L	L					
14		L		L	L	C	C	C	C	C	C	C	C	C	C	R	R	L	R					
15				L	400	A	A	L	R	R	R	R	R	R	R	R	R	L	L					
16				A	A	A	R	B	R	R	R	B	B	R	R	UR 450	R	R	R	360				
17			350	380	R	A	R	R	R	R	B	R	R	B	R	A	R	R	R					
18				A	A	R	R	R	R	R	R	R	R	R	R	A	A	R	L					
19					R	R	R	R	R	R	R	R	R	R	R	R	R	R	L	L				
20				A	A	R	R	R	R	R	R	R	R	A	R	R	L	L	A					
21				L	R	R	A	A	R	R	R	R	R	A	A	R	R	A	L					
22				L	L	400	420	420	L	R	A	B	R	B	R	R	A	R	L	L				
23				A	A	R	A	R	A	490	R	R	R	R	B	R	L	R	B	L				
24			350	B	R 420	B	A	R	R	R	R	R	R	R	A	R	R	L	B					
25			380	A	A	A	470	B	B	R	R	B	B	B	B	B	R	R	B	B				
26				R	A	R	450	450	450	R	L	B	B	B	B	L	L	L	L	L				L
27				B	B	R	R	B	B	B	B	B	R	B	B	B	B	B	B	L	380		L	
28				L	380	400	L	L	470	480	490	R	R	R	R	A	A	L	L	L	L			
29				L	L	L 420	L	460	R	R	R	R	B	R	R	B	R	R	L	L				
30		L		B	L	L	L	R 450	B	B	R	R	B	R	B	B	R	R	R					L
31				L	L	L	B	R	B	R	R	R	R	B	B	B	B	R	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	4	8	9	8	9	5	3	1		1			1	1	1	2	1	1			
MED			380	350	385	400	420	450	460	480	490		500			UR 450	580	460	445	360	380			
UQ				365	395	420	445	450	470	485														
LQ				350	380	400	395	420	450	465														

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DEC. 1969

FOF1 (0.01 MHz)

IONOSPHERIC DATA

DEC. 1969

FOE (0.01 MHZ)

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

Station SYOWA BASE Lat. 69 00 .4 S Long. 39 35 4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	B	B	B	A	C	C	C	C	C	C	C	320	R	R	B	B	B	285	280	275	A	220	A	
2	A	B	200	225	230	240	275	300	310	320	325	R	B	B	B	B	B	B	B	B	B	B	180	A	
3	A	140	A	180	225	240	280	A	A	A	340	A	315	B	B	A	A	R	A	240	200	A	A	A	
4	A	B	A	A	A	A	280	280	310	315	320	335	345	A	320	A	315	290	B	B	B	195	B	A	
5	A	A	B	A	A	A	280	285	310	B	R	R	R	B	R	B	310	300	285	225	A	A	A	A	
6	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	310	295	B	B	195	150	B	
7	B	B	B	B	B	A	280	290	A	325	330	A	340	R	R	R	A	295	270	240	215	A	A	170	
8	A	B	B	C	B	A	B	A	300	R	320	325	R	R	325	R	R	295	R	240	A	200	195	B	
9	A	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	285	270	240	200	A	190	A	
10	C	C	C	C	C	250	270	275	290	A	B	R	B	C	C	C	C	C	R	240	195	A	A	A	
11	A	A	B	B	A	A	280	295	A	R	B	B	B	B	B	R	310	A	280	250	220	190	A	A	
12	B	A	A	A	A	A	A	B	A	A	R	B	325	A	A	315	305	300	275	250	230	225	175	A	
13	A	A	170	190	A	A	A	A	A	A	R	R	R	R	R	A	A	290	270	245	220	200	190	A	
14	A	A	A	A	205	C	C	C	C	C	C	C	C	C	C	C	325	315	300	290	250	225	200	210	A
15	A	190	A	A	A	A	A	A	305	310	310	R	A	330	R	320	R	310	280	250	240	A	A	A	
16	A	A	A	A	A	A	A	B	300	R	325	B	B	R	R	R	B	B	280	280	A	260	A	A	
17	A	A	B	A	A	A	A	300	315	320	B	R	R	B	325	A	A	R	295	270	250	230	A	A	
18	A	A	A	B	A	A	320	300	305	310	315	R	330	325	320	A	A	310	280	250	200	A	195	180	
19	A	B	A	A	A	A	285	300	R	R	R	R	R	R	R	R	R	R	280	265	220	175	A	A	
20	A	220	A	A	A	280	R	B	R	B	R	R	A	A	330	325	310	305	285	250	220	195	200	A	
21	A	A	170	A	225	A	A	A	300	310	R	R	R	310	A	300	A	305	295	270	A	225	205	A	
22	150	155	B	180	200	250	265	280	A	A	A	B	A	B	A	R	320	R	B	270	245	A	A	150	
23	A	A	B	A	A	280	A	A	A	325	R	R	R	R	B	R	315	310	B	270	R	A	A	B	
24	A	A	B	A	B	290	B	A	330	315	320	R	A	K	A	A	R	R	B	270	B	230	180	A	
25	B	B	B	A	B	A	A	A	B	B	R	R	B	B	B	B	R	300	B	B	225	A	A	A	
26	A	A	B	A	A	A	300	320	325	A	A	B	B	B	B	R	R	R	R	265	230	B	A	A	
27	B	A	B	B	B	A	R	B	B	B	B	B	R	B	B	B	B	B	B	275	240	A	B	B	
28	B	A	160	190	250	270	280	295	300	A	A	R	A	K	A	A	290	A	A	270	250	240	170	B	
29	A	A	215	A	A	A	300	305	315	320	325	R	B	A	R	B	R	R	B	260	240	210	190	A	
30	A	A	B	B	B	B	295	305	B	B	R	R	B	R	B	B	A	A	A	A	A	A	190	140	
31	A	A	B	B	A	B	B	B	B	315	325	B	330	B	B	B	B	A	A	280	230	220	195	180	
	00	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	5	5	6	8	14	14	14	11	11	2	7	4	5	5	9	15	16	26	21	16	16	5	
MED	150	155	170	190	225	260	280	298	308	315	325	330	330	325	325	320	310	300	280	255	225	205	190	170	
UQ		190	200	190	230	280	295	300	315	320	325		335	328	325	325	315	308	288	270	240	228	198	180	
LQ		140	170	180	205	245	280	285	300	312	320		322	318	320	315	310	295	278	245	220	195	180	150	

The Radio Research Laboratories, Japan

DEC. 1969

FOE (0.01 MHZ)

IONOSPHERIC DATA

DEC. 1969

FOES (0.1 MHz)

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

Station SYWA BASE Lat. 69 00.4 S. Long. 39 35.4 E Sweep 0.4 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 ₂₅	B	B	B	34	C	C	C	C	C	C	C	G	G	G	B	B	B	G	G	29	28	G	23	
2	27	E ₃₄	23	G	G	G	G	36	35	G	G	G	E ₆₀	E ₆₇	E ₆₈	B	E ₅₇	E ₃₄	E ₃₄	E ₃₅	E ₃₆	J ₄₂	21	27	
3	J ₂₆	26	J ₂₈	J ₂₈	J ₃₂	G	J ₃₂	J ₄₀	J ₃₈	J ₃₇	J ₃₈	J ₃₆	39	J ₄₁	41	36	J ₄₆	G	27	31	24	J ₃₂	J ₄₁	J ₂₅	
4	28	J ₄₀	J ₄₁	30	36	J ₃₇	G	32	G	35	G	G	G	37	35	36	35	G	E ₅₈	B	B	J ₂₁	E ₂₁	31	
5	23	29	B	J ₃₂	J ₃₈	J ₃₂	G	G	G	B	G	G	G	E ₅₈	G	B	G	G	G	36	J ₄₁	J ₄₁	J ₄₂	J ₃₉	
6	J ₃₈	J ₉₂	J ₃₇	B	31	B	B	B	B	B	B	B	B	B	B	B	B	G	G	E ₃₂	E ₃₅	J ₂₄	J ₂₃	B	
7	B	B	B	B	B	J ₃₀	G	G	32	G	G	38	G	G	G	G	36	G	29	G	J ₄₃	J ₄₅	21	J ₂₅	
8	J ₂₆	J ₂₅	B	C	31	J ₃₂	E ₆₀	J ₄₂	31	G	G	G	G	G	G	G	G	G	G	27	J ₂₅	G	G	B	
9	20	20	B	J ₃₂	B	B	B	E ₅₁	B	B	B	B	B	B	B	B	B	30	G	27	G	23	23	J ₂₂	
10	C	C	C	C	C	G	G	31	32	33	B	G	B	C	C	C	C	C	G	G	23	J ₁₇	20	J ₃₇	
11	J ₉₀	J ₅₂	E ₂₆	B	J ₃₃	J ₃₁	35	G	J ₄₂	G	B	B	B	B	B	G	G	30	G	31	25	J ₂₇	J ₃₅	34	
12	J ₃₄	34	J ₄₀	J ₃₅	J ₃₄	J ₄₅	J ₃₄	B	J ₃₃	34	G	B	34	33	33	G	G	G	30	27	G	J ₃₇	J ₃₆	20	
13	23	24	20	23	26	41	J ₃₇	J ₃₁	J ₃₁	31	G	G	G	G	J ₄₀	33	G	G	27	27	22	J ₂₂	J ₂₂		
14	J ₂₂	19	25	J ₂₄	28	C	C	C	C	C	C	C	C	C	C	38	37	J ₄₅	G	27	25	G	G	33	
15	J ₂₅	G	J ₂₂	J ₂₉	32	J ₇₄	J ₇₇	J ₃₅	37	G	G	38	37	G	G	G	G	G	31	30	G	35	31	24	
16	32	J ₄₆	J ₃₉	J ₄₂	J ₄₁	J ₄₂	J ₃₆	B	G	G	G	B	E ₅₆	G	G	G	E ₃₆	E ₃₄	G	30	34	29	30	J ₅₅	
17	J ₃₁	J ₃₀	B	31	32	J ₃₂	J ₃₁	G	G	G	B	G	G	E ₅₇	37	J ₄₂	J ₃₂	G	G	31	G	G	34	J ₃₃	
18	27	J ₂₅	J ₂₈	J ₃₂	J ₃₂	J ₃₈	J ₃₂	G	G	G	G	G	J ₃₅	38	37	J ₄₆	J ₅₄	G	34	32	J ₃₁	22	G	G	
19	J ₂₂	31	J ₄₅	J ₄₄	J ₃₂	34	G	G	G	G	G	G	G	G	G	G	G	J ₃₁	31	J ₃₁	J ₆₄	J ₃₈	J ₂₅		
20	J ₂₄	22	31	J ₆₂	J ₃₇	35	G	E ₃₆	G	38	G	J ₃₄	37	J ₄₅	38	36	37	J ₃₇	J ₄₆	J ₇₂	J ₄₁	28	G	23	
21	19	22	G	J ₃₂	29	32	J ₄₇	J ₄₂	G	G	G	G	38	J ₄₄	J ₄₂	35	J ₃₁	J ₇₃	36	32	31	J ₃₂	24	20	
22	18	18	J ₃₄	J ₄₅	J ₂₄	28	32	30	33	J ₃₆	J ₄₇	B	38	B	38	G	J ₅₇	G	E ₃₀	G	29	J ₃₀	J ₂₈	23	
23	J ₃₃	J ₃₁	J ₃₄	38	33	30	J ₈₆	J ₃₅	J ₄₂	G	G	G	G	G	B	G	G	G	B	G	G	J ₃₄	J ₂₇	38	
24	J ₄₉	30	B	J ₃₂	B	J ₃₃	B	J ₃₇	G	G	G	G	38	G	J ₅₃	36	G	G	B	29	B	25	J ₂₅	36	
25	31	J ₃₂	B	J ₃₂	J ₆₄	J ₄₅	37	37	E ₅₇	E ₅₇	G	G	B	B	B	E ₅₅	G	G	B	B	29	J ₃₀	33	32	
26	32	33	J ₆₁	31	J ₃₂	J ₃₂	32	36	G	34	35	B	B	E ₅₂	E ₅₆	G	G	G	G	G	G	E ₂₇	27	34	
27	31	31	J ₃₄	B	B	32	G	B	B	B	E ₅₈	B	G	B	B	B	B	B	E ₅₇	30	28	28	E ₂₂	E ₃₀	
28	26	J ₆₅	J ₃₁	G	G	G	G	G	G	J ₃₂	J ₄₂	G	38	G	37	J ₆₄	J ₄₂	J ₅₈	J ₃₆	29	G	G	21	E ₂₂	
29	J ₂₅	J ₂₅	G	J ₂₆	31	J ₄₅	G	G	G	G	G	G	B	37	G	E ₅₇	G	G	E ₃₂	G	G	G	G	20	
30	J ₂₁	J ₂₁	27	E ₃₇	E ₂₇	E ₂₇	G	G	E ₅₉	E ₅₂	G	G	E ₇₀	G	B	B	38	J ₃₆	J ₃₂	J ₃₅	30	J ₃₂	G	G	
31	J ₂₂	J ₃₂	E ₂₃	E ₂₃	30	E ₃₃	B	E ₃₉	E ₅₈	G	38	41	40	E ₅₂	E ₅₇	B	E ₅₇	J ₃₂	J ₃₀	G	26	G	G	G	
	00	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	22	24	26	27	25	25	26	25	24	21	23	23	22	22	26	28	28	29	29	31	31	29	
MED	J ₂₆	30	J ₃₀	J ₃₂	32	J ₃₂	32	31	E ₃₁	G	G	G	E ₃₅	E ₃₃	E ₃₆	E ₃₆	E ₃₂	G	E ₃₀	28	26	28	23	25	
UQ	J ₃₁	J ₃₄	J ₃₇	J ₃₅	J ₃₄	J ₃₈	J ₃₆	36	U ₃₅	34	E ₃₅	G	38	U ₄₀	U ₃₉	U ₃₈	38	32	32	31	30	J ₃₂	J ₃₀	33	
LQ	J ₂₂	23	22	27	29	30	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	20	E ₂₀	22

The Radio Research Laboratories, Japan

DEC. 1969

FOES (0.1 MHz)

IONOSPHERIC DATA

DEC. 1969

F-MIN (0.1 MHz)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	25	B	B	B	26	C	C	C	C	C	C	C	16	23	22	B	B	B	16	11	10	13	14	10
2	11	34	13	14	11	10	12	11	11	15	14	21	60	67	68	B	57	34	34	35	36	26	15	7
3	10	10	10	9	7	10	11	10	11	13	18	26	26	35	33	26	18	15	13	10	13	12	10	12
4	15	21	9	9	19	11	26	13	10	11	10	13	13	15	13	16	15	11	58	B	B	14	21	12
5	10	12	B	15	12	23	11	11	24	B	27	25	25	58	22	B	22	11	14	11	13	20	13	10
6	E	25	25	B	27	B	B	B	B	B	B	B	B	B	B	B	B	25	15	32	35	12	11	B
7	B	B	B	B	B	25	15	13	11	11	12	11	12	20	16	23	20	11	13	11	11	13	11	10
8	13	22	B	C	26	22	60	24	12	11	10	11	13	14	14	11	12	12	11	11	10	E	10	B
9	10	B	B	27	B	B	B	51	B	B	B	B	B	B	B	B	B	13	11	13	12	11	14	10
10	C	C	C	C	C	12	10	10	10	14	B	19	B	C	C	C	C	C	20	12	9	11	11	14
11	15	11	26	B	11	10	11	15	22	12	B	B	B	B	B	23	14	11	12	11	9	10	14	12
12	23	13	19	11	11	14	22	B	16	14	20	B	12	16	14	14	13	14	11	12	10	13	14	15
13	14	11	13	12	10	20	12	18	12	12	12	16	13	14	14	22	15	13	13	11	13	12	11	E
14	11	12	15	11	7	C	C	C	C	C	C	C	C	C	C	13	11	11	11	10	10	13	18	12
15	11	10	11	11	11	13	13	11	15	13	13	14	13	15	14	17	16	12	12	13	E	10	14	11
16	10	15	15	21	16	19	29	B	14	14	13	B	56	23	20	13	36	34	15	8	22	15	9	18
17	13	10	B	18	12	20	22	15	13	10	B	15	20	57	13	14	13	21	15	12	15	10	12	13
18	13	12	12	28	20	11	13	11	11	12	12	15	15	15	18	23	18	11	12	11	11	13	14	15
19	14	21	15	21	25	15	14	15	18	17	14	15	14	14	15	15	14	19	13	13	11	14	15	11
20	12	11	12	14	11	16	22	36	24	36	22	21	20	15	16	15	14	13	13	12	12	15	14	13
21	13	13	13	12	14	14	20	19	15	15	14	15	16	14	15	14	13	14	12	12	12	10	12	11
22	10	11	23	11	10	11	11	11	11	12	11	B	23	B	22	13	14	17	30	14	16	23	10	10
23	9	11	24	15	13	13	22	22	17	13	22	12	15	23	B	28	15	13	B	13	11	10	10	24
24	11	18	B	11	B	13	B	15	10	15	12	11	16	12	13	13	26	15	B	21	B	10	11	13
25	26	21	B	9	29	20	10	11	57	57	27	23	B	B	B	55	28	18	B	B	15	12	14	15
26	13	13	24	14	15	26	15	13	10	13	21	B	B	52	56	22	18	19	21	13	13	27	13	14
27	28	14	27	B	B	23	23	B	B	B	58	B	18	B	B	B	B	B	57	20	14	12	22	30
28	16	15	12	13	10	11	10	10	12	10	11	14	21	18	28	18	17	22	21	14	12	11	13	22
29	11	14	13	15	23	12	13	11	14	15	15	21	B	20	23	57	23	21	32	11	11	12	13	16
30	14	15	23	37	27	27	16	13	59	52	23	21	70	21	B	B	26	28	23	15	23	22	14	11
31	13	15	23	23	25	33	B	39	58	15	23	35	43	52	57	B	57	27	21	16	14	14	13	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	30	30	30	29	30	29	29	29	29	29	29	29	30	29	29	30	30	30	31	31	31	31	31	31
MED	13	14	23	15	16	15	15	15	14	14	18	21	20	23	22	22	18	15	15	12	12	12	13	12
UQ	15	21	B	27	26	23	23	24	24	17	27	B	70	58	68	B	28	22	26	14	15	14	14	15
LQ	11	11	13	11	11	12	12	11	11	12	12	15	15	15	15	14	14	12	12	11	11	11	11	11

DEC. 1969

F-MIN (0.1 MHz)

IONOSPHERIC DATA

DEC. 1969

M(3000)F2 (0,01)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	B	B	B	R	C	C	C	C	C	C	C	255	255	R	B	B	B	275	305	295	285	R	R	
2	350	295	260	270	240	255	255	245	255	245	U _B 260	R	255	U _B 255	R	B	U _B 275	R	R	R	315	275	305	U _B 295	
3	R	R	F 280	260	255	245	F	245	260	265	250	R	R	R	R	280	280	290	315	310	305	315	325	305	
4	295	R	F	F	F 235	F 235	240	F	F	230	245	260	250	260	265	275	290	R	265	B	U _R 335	305	R	R	
5	F	285	B	F	255	240	250	F	255	B	270	280	U _R 285	R	R	B	245	F	265	250	R	R	R	R	
6	F	A	R	B	R	B	B	B	B	B	B	B	B	B	B	B	B	R	R	R	R	R	R	U _R 335	B
7	B	B	B	B	B	245	250	245	250	260	255	R	270	265	R	R	R	265	300	325	335	305	300	295	
8	R	R	B	C	R	F	255	F	240	255	255	255	U _B 275	270	270	290	305	300	285	315	305	310	270	B	
9	F	260	B	R	B	B	B	265	B	B	B	B	B	B	B	B	B	290	295	295	R	325	310	R	
10	C	C	C	C	C	R	255	R	255	R	B	R	B	C	C	C	C	C	R	R	300	300	R	A	
11	A	275	R	B	260	F 245	F	F	R	R	B	B	B	B	B	R	265	270	275	280	295	315	305	280	U
12	A	250	R	265	F 235	R	R	B	R	R	R	B	R	R	R	270	275	285	295	305	310	R	305	300	
13	300	285	R	U _B 280	270	R	R	R	250	245	255	R	265	260	R	255	S	U _B 300	U _B 290	295	315	305	315	290	
14	290	295	290	F	240	C	C	C	C	C	C	C	C	C	C	290	290	285	280	295	310	300	U _B 300	F	
15	270	290	285	250	245	F	A	255	240	R	R	260	R	U _B 275	R	255	265	U _B 275	275	305	300	R	285	R	
16	310	A	R	R	R	R	R	B	235	240	245	B	260	R	275	280	280	260	275	U _B 235	R	335	R	285	
17	R	260	B	240	270	R	R	F 250	F 250	255	B	250	U _B 250	U _B 250	250	270	270	280	R	285	295	300	R	320	
18	R	275	275	280	260	240	235	255	R	245	255	265	260	270	270	275	285	285	315	R	300	305	320	300	
19	280	R	R	R	R	R	250	245	245	R	R	U _B 260	R	260	270	245	R	285	275	280	300	310	305	290	
20	275	U _B 285	255	F	F	R	240	250	240	240	250	265	265	280	275	260	280	275	290	305	305	300	290	305	
21	285	F 270	U _B 270	265	R	240	R	R	250	245	R	R	R	R	285	260	270	265	275	280	295	315	315	290	U
22	270	275	255	F	F	250	250	F 245	R	240	230	B	245	B	R	255	255	240	260	285	300	R	280	R	
23	270	300	R	F	255	F	A	F 235	255	245	255	255	250	245	B	R	U _B 270	230	B	R	335	315	285	275	
24	R	245	B	F	B	R	B	215	225	235	255	250	245	250	240	245	260	280	B	280	B	295	280	255	
25	R	R	B	F	A	R	220	F	230	245	R	R	B	B	B	245	250	260	B	B	290	R	340	285	
26	290	270	A	R	275	235	245	245	250	245	245	B	B	250	255	265	265	285	295	265	250	R	310	280	
27	290	255	R	B	B	R	R	B	B	B	255	B	255	B	B	B	B	B	275	265	295	290	275	R	
28	295	295	280	260	245	240	250	245	260	250	255	240	R	275	265	275	280	275	300	300	295	300	325	U _B 300	
29	290	300	260	255	255	270	F	240	R	250	255	U _B 250	B	U _B 250	U _B 260	265	R	U _B 285	275	290	300	325	315	305	
30	285	285	F	R	245	R	R	R	R	U _B 250	260	260	R	270	B	B	280	290	285	295	305	325	315	295	
31	R	280	290	290	265	R	B	R	260	R	255	275	255	260	R	B	R	R	285	285	300	R	325	310	
CNT	17	21	11	11	17	12	13	15	19	19	19	14	16	18	12	19	21	23	24	24	25	23	26	20	
MED	290	280	275	265	255	242	250	245	250	245	255	260	255	260	268	265	275	280	282	292	300	305	305	295	
UQ	295	285	282	275	260	248	250	250	255	250	255	265	265	270	272	275	280	285	295	305	305	315	315	304	
LQ	280	265	260	258	245	240	240	245	240	242	250	250	250	250	258	255	265	268	275	280	295	300	290	285	

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DEC. 1969

M(3000)F2 (0,01)

IONOSPHERIC DATA

DEC. 1969

H¹F² (KM)

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

Station SYOWA BASE				Lat. 69 00 4 S . Long. 39 35 4 E								Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation												
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		R	C	C	C	C	C	C	C				B	B	B						
2			355		400	400	390	395	400	400	400	365	400		B	350	B	475						
3			400		385	420	R	400	355	375	375	350		R	R	R	R	A	L	300				
4			455	350	550	565	500	500	420	460	420	410	450	405	400	355	350	370	B	B				
5					450	450	415	430	400		B	405	400	400	455	R	B	430	445	450				
6			B		R	B	B	B	B	B	B	B	B	B	B	B	B	B	R	R				
7			B		B	R	R	390	380	365	365	365	370	400	365	R	R	405	315					
8			C		R		B	400	450	410	400	400	350	380	375	R	305	300						
9					B	B	B	425		B	B	B	B	B	B	B	B	340	280	290				
10			C		C	355	390	400	400		R	B	R	B	C	C	C	C	C	250	300			
11			B		405	465	455	575	R	R	B	B	B	B	B	R	440	405	395	350				
12					550	R	R	B	R	R	R	B	R	R	R	R	400	350	325					
13			320		340	R	R	R	440	440	400	L	R	R	R	R	R	340	305					
14			L		315	400	C	C	C	C	C	C	C	C	C	R	365	330	R					
15			435		395	450	A	405	410	400	360	400	400	355	400	405	350	385	340					
16			R		R	R	R	B	R	450	R	B	B	R	400	400	R	R	R	450				
17			450		400	R	R	R	400	400	B	450	R	B	R	370	R	R	340					
18					400	A	500	400	350	400	375	390	400	390	390	355	375	R	300					
19					R	R	R	400	425	375	360	370	400	400	400	475	R	350	315	320				
20			410		F	R	R	450	R	R	400	380	400	385	400	R	350	390	340					
21			380		R	R	A	A	475	425	R	R	R	400	A	R	R	A	L					
22			375		460	450	425	430	400	405	400	B	R	B	R	450	A	R	400	330				
23			375		340	450	A	500	A	455	425	420	R	450	B	415	350	580	B	L				
24			355		B	R	B	R	500	450	445	R	R	R	A	R	R	350	B					
25			350		A	A	A	F	B	B	R	R	B	B	B	B	R	435	B	B				
26					R	R	R	470	440	405	R	440	B	B	400	400	400	305	305	330	L	L		
27					B	B	R	R	B	B	B	B	440	B	B	B	B	B	B	B	L	370	280	
28			355		400	390	425	390	355	350	365	340	350	400	390	370	340	350	330	260	L			
29			360		425	370	410	400	355	365	355	R	B	400	400	350	340	310	350	L	310			
30			315	330	365	350	310	400	400	355	370	370	390	380	B	B	350	355	350		290			
31			300		350	370	B	350	380	345	350	345	365	350	400	B	350	330	310					
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
CNT			2	17	17	13	11	20	20	19	19	15	13	16	13	11	16	20	19	7	3	1		
MED			385	355	400	420	425	400	400	400	400	380	400	400	400	400	350	350	330	320	310	280		
UQ			380		425	450	462	435	422	432	402	400	400	402	400	410	388	398	345	340	340			
LQ			350		385	370	400	400	380	370	365	365	370	382	390	362	345	335	308	295	300			

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DEC. 1969

H¹F² (KM)

IONOSPHERIC DATA

DEC. 1969

H¹F (KM)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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	325	B	B	B	A	C	C	C	C	C	C	C	230	225	205	B	B	B	240	250	275	340	295	265	
2	250	340	350	305	255	250	225	205	210	205	225	220	B	B	B	B	B	235	240	260	270	250	260	300	
3	280	305	300	290	275	250	240	A	205	200	250	220	250	B	B	A	A	235	210	240	250	250	245	250	
4	300	A	250	R	A	A	R	205	205	225	240	230	235	225	230	240	240	220	B	B	B	250	275	355	
5	300	350	B	A	275	A	250	225	235	B	250	R	R	B	200	B	250	215	205	A	A	A	A	300	
6	290	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	250	250	250	300	255	215	B	
7	B	B	B	B	B	A	250	205	205	205	240	205	200	225	220	220	215	210	215	225	250	300	250	275	
8	315	A	B	C	A	A	B	230	200	200	205	200	200	200	200	200	250	205	240	250	230	230	200	B	
9	300	350	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	200	215	215	225	250	240	250	
10	C	C	C	C	C	250	220	240	200	205	B	R	B	C	C	C	C	C	210	230	250	240	250	A	
11	A	355	A	B	A	275	230	240	A	230	B	B	B	B	B	R	215	230	250	245	255	265	300	350	
12	B	A	A	A	300	A	A	B	A	225	R	B	A	A	A	240	215	220	250	250	240	250	265	255	
13	280	255	290	250	A	A	A	A	200	205	205	220	R	R	R	A	200	235	230	240	245	250	255	255	
14	265	290	300	265	200	C	C	C	C	C	C	C	C	C	C	240	220	A	240	225	210	240	250	305	
15	300	275	265	A	290	280	A	225	220	200	200	A	R	205	215	205	225	210	240	240	225	250	340	270	
16	250	A	A	A	A	A	A	B	210	200	200	B	B	240	220	205	230	210	240	A	A	255	260	280	
17	A	A	B	A	310	A	A	220	205	200	B	210	R	B	A	A	230	A	240	250	240	250	310	265	
18	310	340	350	B	A	A	255	220	215	200	210	A	A	A	A	A	A	200	240	250	250	240	250	225	
19	305	R	A	A	A	A	240	215	235	200	R	R	R	R	210	240	215	220	245	240	230	260	260	250	
20	290	300	A	A	A	A	A	B	240	B	250	A	A	A	205	230	200	255	A	A	240	250	250	250	
21	260	275	300	270	320	280	A	200	215	200	R	R	A	A	A	225	240	A	250	220	240	245	245	245	
22	250	275	A	230	215	210	240	225	220	205	A	B	A	B	A	215	A	230	250	250	270	A	300	275	
23	280	A	A	A	A	275	A	275	A	230	R	R	R	R	B	R	235	255	B	230	200	300	305	375	
24	440	380	B	305	B	250	B	A	220	250	225	200	200	R	A	A	240	225	B	240	B	270	255	405	
25	345	A	B	290	A	A	A	270	B	B	R	R	B	B	B	B	200	240	B	B	250	275	280	325	
26	305	250	A	A	A	290	265	205	A	230	B	B	B	B	B	240	205	230	230	245	250	250	270	390	
27	A	360	B	B	B	A	R	B	B	B	B	B	R	B	B	B	B	B	B	B	235	250	250	300	300
28	255	270	255	260	250	255	230	200	200	210	200	R	A	A	A	A	A	210	215	225	240	250	250	260	
29	270	250	300	A	325	300	250	220	215	200	210	R	B	R	230	B	210	210	210	220	240	240	250	250	
30	250	290	250	B	250	240	225	210	B	B	200	R	B	R	B	B	A	A	250	260	250	250	240	250	
31	265	260	250	250	250	B	B	240	B	R	205	230	240	B	B	B	B	A	225	240	225	250	250	250	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	25	19	12	10	13	12	14	20	20	20	17	9	7	6	10	12	19	23	25	26	27	29	30	28	
MED	290	290	295	268	275	252	240	222	210	205	210	220	230	225	212	228	220	220	240	240	245	250	255	268	
UQ	305	345	300	290	300	278	250	240	220	218	240	220	238	225	220	240	238	235	245	250	250	255	280	302	
LQ	265	272	252	250	250	250	230	208	205	200	205	205	200	205	205	210	212	210	215	230	235	250	250	250	

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DEC. 1969

H¹F (KM)

IONOSPHERIC DATA

DEC. 1969				H'ES (KM)				45 E Mean Time (G. M. T. + 3 h)																			
Station SYOWA BASE				Lat. 69 00 4 S . Long. 39 35 4 E				Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation																			
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	120	C	C	C	C	C	C	C	G	G	G	B	B	B	G	G	175	130	G	105			
2	140	B	130	G	G	G	G	115	110	G	G	G	B	B	B	B	B	B	B	B	B	B	175	170			
3	100	140	125	120	100	G	100	100	100	100	100	100	105	105	100	100	100	G	100	120	120	105	105	110			
4	155	120	100	105	105	100	G	150	G	125	G	G	G	100	100	100	140	G	B	B	B	150	B	110			
5	110	110	B	125	100	125	G	G	G	B	G	G	G	B	G	B	G	G	G	135	100	105	100	100			
6	100	105	105	B	140	B	B	B	B	B	B	B	B	B	B	B	B	G	G	B	B	115	125	B			
7	B	B	B	B	B	105	G	G	100	G	G	100	G	G	G	G	100	G	150	G	105	105	115	105			
8	100	120	B	C	140	115	B	105	120	G	G	G	G	G	G	G	G	G	G	110	125	G	G	B			
9	140	150	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	140	G	180	G	100	160	125			
10	C	C	C	C	C	G	G	100	125	100	B	G	B	C	C	C	C	C	G	G	140	105	110	105			
11	125	100	B	B	100	100	110	G	100	G	B	B	B	B	B	G	G	100	G	125	150	150	115	115			
12	130	120	110	100	100	105	105	B	100	100	G	B	125	100	100	G	G	G	140	140	G	120	125	120			
13	120	130	165	150	100	105	105	100	100	100	G	G	G	G	G	100	100	G	G	125	125	155	105	120			
14	140	140	125	110	145	C	C	C	C	C	C	C	C	C	C	115	115	125	G	130	140	G	G	125			
15	140	G	120	105	100	100	100	100	120	G	G	115	120	G	G	G	G	G	140	125	G	120	110	145			
16	125	105	100	100	100	105	115	B	G	G	G	B	B	G	G	G	B	B	G	100	140	170	105	120			
17	100	100	B	125	105	100	100	G	G	G	B	G	G	B	125	100	100	G	G	115	G	G	105	125			
18	115	105	105	120	100	100	100	G	G	G	G	G	120	105	100	100	100	G	120	105	105	105	G	G			
19	120	140	105	100	105	105	G	G	G	G	G	G	G	G	G	G	G	G	G	120	120	120	105	105	120		
20	125	130	120	110	105	155	G	B	G	140	G	100	100	100	140	110	150	125	115	110	105	110	G	105			
21	125	130	G	140	150	105	105	105	G	G	G	G	110	105	105	100	100	115	130	120	105	100	125	100			
22	140	150	150	125	110	150	110	110	100	100	100	B	100	B	105	G	115	G	B	G	155	140	120	120			
23	110	120	175	115	110	150	100	100	100	G	G	G	G	G	B	G	G	G	B	G	G	100	105	125			
24	100	130	B	105	B	100	B	100	G	G	G	G	100	G	100	100	G	G	B	140	B	150	125	105			
25	145	120	B	100	100	100	100	100	B	B	G	G	B	B	B	B	G	G	B	B	115	105	115	125			
26	110	110	115	130	105	125	150	160	G	100	100	B	B	B	B	G	G	G	G	G	G	B	125	115			
27	150	120	130	B	B	105	G	B	B	B	B	B	G	B	B	B	B	B	B	150	155	110	B	B			
28	130	125	110	G	G	G	G	G	G	100	100	G	115	G	120	105	105	105	100	100	G	G	140	B			
29	120	105	G	110	120	100	G	G	G	G	G	G	B	100	G	B	G	G	B	G	G	G	G	150			
30	140	125	120	B	B	B	G	G	B	B	G	G	B	G	B	B	105	105	105	100	100	140	G	G			
31	125	135	B	B	105	B	B	B	B	G	125	120	120	B	B	B	B	105	100	G	140	G	G	G			
CNT	28	26	18	20	23	21	13	13	11	9	5	5	10	7	10	10	12	8	11	19	19	23	21	24			
MED	125	120	120	112	105	105	105	100	100	100	100	100	112	100	102	100	102	110	120	120	125	110	115	120			
UQ	140	130	130	125	115	115	110	110	115	100	100	115	120	105	120	105	115	125	135	132	140	140	125	125			
LQ	110	105	105	105	100	100	100	100	100	100	100	100	100	100	100	100	100	105	102	110	105	105	105	105			

IONOSPHERIC DATA

JAN. 1970

FOF2 (0.1 MHz)

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

Station SYOWA BASE Lat. 69 00 4 S . Long. 39 35 4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	51	42	F	F	J ₇₅	F	R	102	96	J ₈₈	90	88	85	J ₈₂	J ₇₃	70	72	J ₇₈	76	70	49	B	R	57
2	53	52	47	R	R	R	K	A	A	R	R	B	B	B	69	72	R	B	R	R	R	54	40	B
3	B	J ₄₈	R	R	F	55	B	B	55	J ₅₇	62	B	68	B	B	B	B	R	B	B	B	58	60	59
4	59	57	F	60	68	80	U ₉₅	J ₁₀₅	96	96	95	90	87	R	B	R	J ₇₀	66	65	62	61	59	57	58
5	55	J ₅₃	52	60	66	80	88	94	J ₉₇	J ₉₈	96	89	81	71	74	U ₇₅	J ₇₃	76	76	75	69	62	56	78
6	60	B	58	R	47	66	77	85	86	85	85	70	R	U ₇₁	66	67	64	68	B	63	60	56	43	46
7	R	53	53	61	72	81	77	R	J ₈₇	Z	J ₉₁	76	78	73	68	U ₆₈	71	76	72	66	60	R	48	A
8	R	A	R	53	50	62	64	54	62	68	76	73	69	70	66	62	64	66	70	65	59	53	40	47
9	J ₄₉	50	56	R	R	B	R	R	A	B	63	71	B	65	64	67	65	61	63	58	53	48	45	44
10	47	J ₅₃	49	C	R	R	B	63	66	72	75	72	71	70	67	62	63	62	61	59	59	56	55	53
11	49	55	60	65	68	57	R	64	67	U	73	73	69	J ₇₀	73	74	69	63	64	61	59	59	60	56
12	58	R	R	53	B	B	R	62	F	70	R	72	J ₇₃	J ₇₄	A	A	A	66	A	A	56	52	41	45
13	51	J ₅₂	F	F	61	59	67	85	87	R	J ₈₆	J ₇₆	71	66	67	65	A	A	64	58	59	56	R	53
14	54	54	50	58	65	70	71	R	R	R	67	65	68	68	69	71	69	70	65	64	62	61	62	65
15	67	69	R	A	R	R	R	R	R	54	60	60	67	71	70	U ₆₉	67	64	64	65	64	59	56	54
16	49	45	59	R	A	B	B	R	F ₆₃	R	B	B	62	60	69	B	76	57	B	A	A	R	43	A
17	40	A	48	B	R	B	A	A	B	B	B	B	B	B	R	R	B	B	B	51	56	52	50	41
18	55	56	60	B	B	B	R	59	62	65	B	B	68	66	67	69	69	69	67	66	65	61	59	62
19	61	F	51	F	F	J ₆₉	73	8U	J ₈₃	J ₈₅	77	77	U ₇₂	69	65	64	65	61	60	62	61	61	54	51
20	J ₄₆	R	B	B	62	62	55	F	68	71	76	76	R	71	70	70	70	68	U ₆₉	65	60	B	57	A
21	R	B	R	B	B	65	70	73	76	78	82	79	R	R	C	C	66	C	C	64	C	C	C	C
22	F	J ₅₃	J ₅₃	B	B	58	68	78	U ₈₆	88	U ₈₅	81	78	75	J ₇₃	75	J ₇₃	U ₇₀	68	67	66	58	55	52
23	47	48	47	54	59	65	R	R	63	69	72	76	75	73	71	72	68	69	65	64	64	63	61	60
24	64	60	R	A	61	67	68	77	86	90	U ₈₄	87	J ₈₈	R	B	88	90	83	81	70	U ₆₅	56	54	R
25	B	55	46	R	J ₅₄	67	77	83	J ₈₄	84	84	80	78	74	R	70	71	68	68	70	68	64	59	59
26	65	F	F	F	68	68	64	75	F	78	79	78	78	85	79	76	74	69	70	67	67	62	56	55
27	58	61	J ₆₂	U ₇₃	81	83	J ₈₉	86	J ₉₈	J ₁₀₂	95	U ₉₈	91	88	88	83	80	77	79	72	70	55	43	40
28	45	R	R	R	53	61	72	J ₈₂	90	87	U ₈₅	84	J ₈₀	U ₇₂	71	70	70	68	67	62	J ₆₀	57	48	37
29	F	45	51	46	R	56	65	78	76	74	75	74	85	87	84	J ₈₃	75	76	75	72	68	64	58	53
30	61	62	65	R	R	R	F ₆₁	75	70	69	69	64	69	67	67	66	67	67	65	60	62	R	F	R
31	R	B	A	R	R	B	B	R	60	61	60	57	57	60	61	62	62	60	59	58	58	53	R	B
CNT	23	21	18	10	16	20	18	20	24	25	26	26	25	25	24	25	26	26	24	27	27	25	26	23
MED	54	53	52	59	64	66	70	78	80	78	78	76	73	71	69	70	70	68	67	64	61	58	55	53
UQ	60	56	59	61	68	70	77	84	87	88	85	81	80	74	73	74	73	70	71	67	65	61	58	58
LQ	49	50	49	53	56	60	65	68	64	69	72	72	69	68	67	67	66	64	64	62	59	55	45	46

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JAN. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JAN. 1970

FOF1 (0.01 MHz)

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

Station **SYDWA BASE** Lat. **69 00.4 S** Long. **39 35.4 E** Sweep **0.4 MHz to 15 MHz** in **30 sec** in automatic operation

Date	00	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	L 430		L	L	R	R	R	L	R	R	R	R	R 500	L	L		380			
2		360		A	L 380		L	A	A	R	R	B	B	B	R	R	R	B	R	R		R		
3					350 380		B	B	R	R	L	B	B	B	B	B	B	R	B	B	B	B	L	
4				L	380	L	430		R	R	R	R	R	B	B	R	R	L	L	L	L	L		
5				L	L 430		R	R 430	R	R	480	R	R	500	R	R	R	L	R	L	L	L		
6					380 390	400	400	430	R	R	R	R	R	R	R	470	470	L	B	B	L			
7		350			370	L	B	R	R	440	480	R	R	R	L	A	450	L	400	L	310			
8			A		380	A	R	410	R	430	R	R	R	R	480	490	R	R	L	L				
9			R		A	B	A	A	A	B	R	R	B	A	R	R	R	R	R	L	350			
10			C		R	R	B	420	450	470	R	R	R	R	R	500	R	R	L	L	L			
11				L	L 400	A	450	R	R	R	R	480	R	500	A	A	A	A						
12				A	B	B	A	R	A	R	R	R	R	A	A	A	A	A	A	A	L	L		
13				L	A	A	440	R	440	R	R	R	R	A	R	A	A	A	L	L	L			
14		360			L 410	L	R	R	R	R	R	R	R	R	510	R	L	L	L	L				
15					A	R	R	R	R	A	R	R	R	R	A	510	L	R	L					
16					A	B	B	R	A	R	B	B	B	B	B	B	R	R	B	A	A			
17				B	R	B	A	A	B	B	B	B	B	B	R	R	B	B	B					
18				B	B	B	R	R	R	R	B	B	B	R	530	530	R	R						
19					L	L	450	R	470	R	B	R	B	B	R	510	L	380	L	L				
20					410	400	R	R	480	R	R	R	R	R	R	R	490	L	R					
21				B	B	380	R	R	R	R	R	R	A	A	C	C	R	C	C					
22				B	B	400	420	R	470	R	R	R	R	R	R	L	L	R	L					
23					L	L	R	A	470	R	R	R	R	500	R	R	490	L						
24				A	R	410	430	450	R	480	R	R	R	R	B	R	R	L	L					
25				A	L	400	400	430	450	B	R	490	500	510	500	L	L	L						
26					L	390	410	440	L	470	L	500	R	480	L	R	L	L	L					
27					L	L	L	460	470	470	480	490	490	R	R	L	L	480	L					
28					A	380	410	420	R	R	470	R	490	A	R	490	L	L	L					
29					A	A	R	430	440	460	R	R	R	490	R	500	L	L	L					
30					R	380	400	430	R	B	450	R	R	480	480	470	L	L	L					
31					A	B	B	A	R	R	R	R	R	R	R	R	R	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	2	5	14	11	12	10	8	4	4	4	5	6	9	5	3	1		3			
MFD		360	355		380	400	410	430	450	470	480	490	490	500	500	500	470	480	400		350			
UQ					380	410	430	445	470	475	480	495	495	500	510	510	490	490			365			
LQ					370	380	400	415	440	450	475	470	485	490	480	490	470	430			330			

The Radio Research Laboratories, Japan

JAN. 1970

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JAN. 1970

FOE (0.01 MHz)

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

Station SYOXA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Time	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	180	180	205	A	250	280	300	320	A	R	340	R	A	A	330	320	R	295	270	A	B	A	A	
2	A	A	A	A	A	270	300	A	A	R	A	B	B	B	R	305	R	B	R	A	A	195	A	B	
3	B	A	A	A	230	275	B	B	A	325	R	B	B	B	B	B	R	B	B	B	B	B	A	A	
4	190	A	A	220	A	250	270	285	A	310	325	R	A	B	B	A	A	280	250	240	230	220	180	A	
5	A	A	A	185	215	260	265	290	R	R	315	325	330	A	R	320	300	295	R	250	B	220	150	B	
6	A	B	A	A	A	260	270	275	295	300	315	A	A	A	A	315	305	285	B	B	B	210	180	A	
7	A	140	A	A	200	A	B	A	R	310	R	A	340	330	325	310	290	A	270	A	225	B	A	B	
8	B	B	B	A	A	A	A	A	330	R	R	320	325	310	295	A	285	A	A	275	225	A	160	A	
9	190	A	A	A	A	B	A	A	A	B	320	R	B	A	A	310	300	A	285	250	220	A	A	A	
10	A	A	A	C	A	A	B	320	325	330	335	340	345	A	A	A	320	305	290	260	220	175	A	155	
11	150	165	A	A	A	A	A	A	A	R	A	340	345	R	330	300	A	A	A	A	260	240	A	A	
12	140	A	A	A	B	B	A	A	A	R	R	R	R	A	325	A	A	A	A	A	240	190	A	B	
13	A	A	A	235	A	A	270	290	305	R	325	R	R	R	R	325	295	A	280	270	245	205	A	A	
14	A	A	A	A	A	A	260	A	A	R	R	R	R	R	A	310	A	A	295	R	B	B	B	B	
15	B	140	A	A	A	A	A	290	A	A	R	R	R	A	A	340	330	320	295	250	240	210	140	A	
16	A	A	A	A	A	B	B	A	A	A	B	B	B	B	B	B	R	B	B	B	A	R	A	A	
17	A	A	B	B	A	B	A	A	B	B	B	B	B	B	A	B	B	B	B	B	240	A	A	A	
18	A	A	A	B	B	B	A	A	340	330	R	B	B	B	R	R	330	320	R	305	B	250	210	200	A
19	155	A	A	A	A	250	275	300	315	R	B	A	B	B	A	A	340	325	300	270	B	B	B	130	
20	A	B	B	B	B	A	A	A	A	325	A	350	R	350	345	340	330	320	R	R	A	B	A	A	
21	A	B	B	B	B	A	310	315	320	330	R	R	A	R	C	C	320	305	C	295	C	C	C	C	
22	A	A	155	B	B	A	A	280	R	325	340	R	350	R	R	A	R	320	295	260	240	190	160	130	
23	150	A	A	A	270	280	A	A	A	A	340	R	350	R	R	R	325	315	290	260	240	200	A	A	
24	A	A	A	B	A	A	A	280	300	310	R	R	R	R	B	R	R	305	290	260	215	200	190	B	
25	B	A	B	A	235	250	260	270	A	B	R	345	355	350	A	340	320	R	280	245	A	200	A	A	
26	A	A	A	A	190	A	A	A	310	315	325	330	340	A	330	R	320	300	A	270	250	190	A	A	
27	A	A	A	175	180	240	A	280	300	320	325	335	340	R	A	R	300	290	280	A	A	175	A	B	
28	B	B	B	A	A	A	260	275	300	R	R	R	340	R	350	320	A	A	280	250	240	A	A	A	
29	A	A	A	A	A	A	A	285	300	310	340	B	R	R	B	325	300	A	280	R	A	200	A	A	
30	A	A	R	A	A	A	A	260	R	325	B	A	B	330	325	320	290	R	A	240	220	A	A	A	
31	A	B	B	A	A	B	B	A	A	320	325	330	A	A	315	300	R	290	A	270	A	B	B	B	
CNT	6	4	2	5	7	10	11	16	13	15	12	10	11	5	9	17	19	14	17	18	17	17	8	3	
MED	152	152	168	205	215	255	270	285	310	320	325	338	340	330	325	320	320	305	290	260	240	200	170	130	
MR	190	172		220	232	270	278	295	320	325	338	340	348	350	330	330	320	320	295	270	240	210	185	142	
LR	150	140		185	195	250	262	278	300	310	322	330	340	330	325	310	300	290	280	250	225	190	155	130	

The Radio Research Laboratories, Japan

JAN. 1970

FOE (0.01 MHz)

IONOSPHERIC DATA

JAN. 1970

FOES (0.1 MHz)

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

Station	SYOWA BASE							Lat. 69 00 4 S	Long. 39 35 4 E	Sweep 0.4 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 ₁₉	G	23	J ₄₁	J ₃₀	G	G	G	G	37	G	36	G	38	J ₃₄	G	G	G	G	G	J ₃₅	B	J ₃₃	J ₃₂	
2	J ₃₄	J ₄₆	J ₇₈	J ₃₅	J ₄₂	31	G	J ₄₂	J ₄₄	G	37	B	B	B	G	G	G	B	G	J ₃₅	36	J ₃₀	J ₂₅	B	
3	B	J ₄₀	J ₃₃	J ₂₆	27	G	B	B	37	G	G	B	E ₆₃	B	B	B	B	G	B	B	B	28	J ₂₆	J ₃₁	
4	J ₂₇	J ₂₄	J ₃₂	26	J ₂₅	30	30	31	J ₃₄	G	36	G	J ₃₄	E ₅₈	B	34	J ₃₅	32	28	27	26	24	21	J ₂₂	
5	J ₂₉	J ₂₁	J ₂₅	22	24	G	G	G	G	G	37	36	38	J ₃₄	G	G	33	G	G	G	E ₂₅	G	22	E ₁₅	
6	27	B	J ₃₆	J ₄₁	J ₃₅	G	G	35	G	G	33	37	36	37	34	G	G	31	B	E ₃₉	E ₃₀	G	23	J ₂₅	
7	J ₂₈	J ₂₁	J ₂₃	J ₂₂	G	32	E ₆₀	37	G	G	G	37	37	36	J ₃₅	J ₅₇	J ₃₆	J ₃₂	32	J ₃₀	28	E ₂₂	J ₅₇	40	
8	33	J ₄₅	J ₃₄	34	30	J ₃₀	35	J ₃₃	38	G	G	34	39	38	J ₃₈	J ₃₇	33	29	32	32	24	28	J ₂₂	18	
9	25	22	J ₃₂	31	J ₄₁	B	J ₃₈	J ₄₀	J ₉₇	B	37	37	B	J ₅₆	34	33	36	J ₃₃	G	27	25	26	27	18	
10	19	24	J ₃₅	C	37	41	B	G	G	G	G	38	36	J ₃₅	38	J ₃₂	G	37	G	G	28	J ₃₃	20	G	
11	G	G	20	J ₂₅	J ₂₆	J ₄₉	J ₄₇	J ₄₇	36	G	38	G	41	J ₃₉	J ₄₃	J ₆₁	J ₅₇	J ₅₉	J ₄₇	J ₄₆	J ₃₂	27	J ₅₇	J ₃₆	
12	J ₄₁	J ₃₁	43	J ₉₆	B	B	J ₃₅	J ₃₅	J ₄₂	G	G	G	G	J ₆₄	J ₁₀₄	J ₁₀₄	D	J ₆₅	J ₁₂₂	J ₈₇	G	28	28	E ₂₇	
13	J ₇₁	J ₄₂	J ₃₇	27	40	J ₄₀	28	G	G	G	37	37	G	J ₅₄	39	J ₅₅	J ₆₇	J ₆₈	34	G	28	31	23	J ₂₂	
14	J ₂₃	J ₉₁	J ₃₇	J ₂₆	J ₃₀	31	J ₄₁	J ₃₆	37	G	G	G	G	G	37	38	35	38	32	G	E ₄₈	E ₃₈	E ₂₇	22	
15	26	27	J ₃₄	J ₄₁	J ₄₀	J ₃₂	J ₃₃	J ₃₂	J ₃₅	36	G	G	G	J ₃₉	J ₆₀	J ₄₀	39	39	J ₄₈	J ₃₈	G	G	J ₂₂	J ₂₇	
16	J ₂₂	J ₂₅	J ₄₂	J ₄₁	J ₆₈	B	B	J ₃₅	38	38	B	B	E ₅₁	E ₅₄	E ₅₉	B	G	E ₃₅	B	J ₁₃₅	J ₁₀₃	G	J ₁₂₄	J ₁₀₉	
17	D	J ₉₆	J ₃₁	B	J ₃₀	B	J ₅₄	J ₉₀	B	B	B	B	B	B	37	38	B	B	B	E ₃₀	G	29	J ₃₁	J ₃₁	
18	J ₂₄	J ₂₄	J ₂₆	B	B	B	J ₃₂	38	G	G	B	B	E ₅₄	G	G	G	36	G	G	E ₂₉	G	G	G	J ₂₂	
19	20	J ₂₇	25	J ₂₄	27	29	G	G	G	G	E ₅₁	36	E ₅₀	E ₅₁	J ₃₅	36	G	G	G	G	E ₄₈	E ₂₅	E ₂₂	20	
20	J ₃₀	J ₃₅	B	E ₃₉	31	J ₃₂	J ₄₀	36	36	36	G	G	G	G	G	38	36	G	G	G	27	B	J ₂₄	J ₆₄	
21	35	B	J ₃₄	B	B	33	G	G	G	G	G	G	J ₃₅	G	C	C	G	G	C	G	C	C	C	C	
22	J ₃₁	J ₂₂	21	B	B	31	32	30	G	G	G	G	G	G	G	34	G	G	G	G	G	G	21	21	
23	J ₂₅	J ₃₀	J ₂₈	29	G	J ₄₂	J ₃₅	J ₄₁	J ₃₅	38	G	G	G	G	G	G	G	G	G	G	G	24	J ₃₀	J ₂₂	
24	16	27	30	J ₈₀	J ₃₅	J ₃₂	31	G	36	37	G	G	G	G	B	G	G	G	G	G	G	G	G	E ₃₀	
25	B	J ₃₂	J ₃₇	J ₂₉	28	G	29	31	J ₃₂	E ₄₆	G	G	G	37	37	G	G	G	G	G	25	22	J ₂₁	22	
26	J ₂₆	16	J ₂₁	J ₂₆	27	J ₃₄	J ₃₆	34	37	G	G	J ₄₀	39	38	G	G	G	G	J ₂₉	30	G	23	20	17	
27	J ₃₄	J ₂₆	J ₂₂	G	21	30	J ₃₂	G	G	G	G	G	38	G	38	G	G	G	G	G	31	J ₂₈	24	J ₃₆	J ₄₁
28	J ₃₆	J ₃₇	E ₄₁	J ₃₅	J ₃₉	J ₂₉	32	33	G	G	G	G	37	J ₄₅	41	J ₄₆	40	31	G	J ₃₂	J ₄₂	27	J ₂₂	J ₂₉	
29	26	32	J ₃₇	J ₄₆	J ₄₅	37	33	G	32	G	G	E ₃₈	G	G	E ₃₄	38	33	30	G	G	30	G	21	21	
30	17	24	G	J ₃₇	J ₃₉	30	31	G	G	G	E ₅₇	J ₃₇	E ₃₇	40	39	J ₄₁	32	G	28	G	28	J ₂₄	J ₂₀	30	
31	J ₄₁	B	J ₆₅	J ₃₄	J ₃₈	B	B	J ₃₉	38	G	G	G	37	38	37	35	G	G	J ₃₀	G	J ₂₉	E ₂₃	E ₃₄	B	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	28	30	25	27	25	27	30	30	29	28	26	28	28	27	28	29	29	26	30	29	28	30	28	
MED	J ₂₇	J ₂₇	J ₃₂	J ₃₁	J ₃₀	31	32	33	33	G	G	G	E ₃₆	37	36	34	32	G	G	E ₂₇	26	24	22	23	
UQ	J ₃₄	J ₃₆	J ₃₇	J ₄₁	J ₃₉	33	J ₃₅	J ₃₈	37	G	35	37	38	U ₄₀	38	J ₃₉	36	32	32	32	29	28	J ₂₉	J ₃₁	
LQ	23	23	J ₂₅	J ₂₆	27	29	28	G	G	G	G	G	G	G	E ₃₄	G	G	G	G	G	G	G	21	21	

JAN. 1970

FOES (0.1 MHz)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

JAN. 1970

F-MIN (0.1 MHZ)

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

Station	SYOWA BASE				Lat. 69 00 4 S				Long. 39 35 4 E				Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation											
Hz/Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	13	12	13	13	17	14	13	14	13	27	15	18	13	14	12	15	13	13	13	12	13	B	18	13
2	10	13	14	15	11	11	11	13	24	24	20	B	B	B	24	12	23	B	14	11	11	11	13	B
3	B	10	26	20	11	13	B	B	15	15	14	B	63	B	B	B	B	26	B	B	B	24	19	14
4	11	9	16	13	11	11	11	12	12	11	22	23	15	58	B	24	28	18	11	11	14	15	14	13
5	13	13	12	11	12	13	14	10	11	13	15	15	13	14	23	17	14	13	13	24	25	15	13	15
6	13	B	18	20	19	16	12	11	13	13	13	15	20	22	19	14	15	12	B	39	30	11	15	11
7	13	11	11	11	12	11	60	23	23	13	15	13	11	14	14	16	12	11	11	10	11	22	10	20
8	28	25	26	19	20	19	15	11	11	11	11	13	14	11	11	12	15	12	13	11	10	10	13	13
9	10	7	9	22	18	B	19	18	15	B	23	23	B	24	17	18	19	15	17	19	19	22	15	15
10	13	12	14	C	18	27	B	30	14	10	11	18	22	15	15	15	13	18	17	13	14	11	11	11
11	11	11	12	11	13	14	18	12	14	17	14	15	11	15	15	14	15	16	13	14	14	20	18	12
12	6	7	20	14	B	B	23	27	14	12	11	19	23	23	17	15	21	13	11	10	11	6	15	27
13	13	15	11	10	13	13	11	11	14	14	15	16	15	14	19	13	14	13	11	11	11	14	18	13
14	13	13	14	14	11	11	10	23	23	23	20	14	24	22	15	14	14	17	12	20	48	38	27	19
15	23	7	21	14	22	12	11	18	22	13	14	18	17	15	14	13	12	12	14	12	14	11	7	11
16	13	8	11	22	24	B	B	15	17	23	B	B	51	54	59	B	26	35	B	36	14	14	11	7
17	11	13	25	B	20	B	23	23	B	B	B	B	B	B	24	35	B	B	B	30	14	14	13	14
18	11	14	13	B	B	B	21	19	15	28	B	B	54	20	18	18	22	21	21	29	15	11	15	13
19	10	10	12	13	13	12	12	12	15	22	51	23	50	51	46	14	15	15	14	13	48	25	22	11
20	10	23	B	B	39	26	22	22	14	19	15	20	22	15	16	23	24	18	23	22	22	B	9	16
21	18	B	26	B	B	13	13	10	12	13	15	15	18	21	C	C	14	14	C	21	C	C	C	C
22	10	13	11	B	B	19	15	13	13	11	14	22	15	19	17	14	13	14	11	14	11	11	10	10
23	9	10	11	12	12	15	24	14	14	14	15	28	16	15	13	15	13	15	13	12	22	16	14	12
24	5	11	10	34	16	18	15	12	12	14	19	19	13	27	B	23	23	14	16	13	14	18	15	30
25	B	9	21	20	14	12	12	10	11	46	23	16	23	11	21	22	11	15	16	10	10	10	11	9
26	E	E	10	10	11	12	13	14	14	13	14	15	16	17	13	22	15	13	12	13	11	10	12	12
27	10	10	11	10	9	9	11	13	12	11	11	19	15	12	22	17	17	13	11	12	11	10	10	25
28	23	22	41	26	15	13	11	11	13	13	14	15	15	12	19	10	12	11	17	12	10	12	11	12
29	11	12	13	14	13	14	13	13	13	11	22	38	26	23	34	24	17	13	26	14	11	13	15	14
30	12	12	15	22	21	15	15	16	16	16	57	16	37	23	14	20	14	13	14	15	14	14	14	11
31	13	B	22	20	23	B	B	23	15	15	15	15	21	19	19	18	25	14	10	20	13	23	34	B
50	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	30	31	31	31	31	31	31	31	31	31	31	30	30	31	31	30	31	30	30	30	30
MED	12	12	14	17	16	14	15	14	14	14	15	18	20	19	18	16	15	14	14	13	14	14	14	13
US	13	14	21	22	22	22	22	20	15	22	22	23	32	24	24	22	22	18	17	20	19	22	15	16
LQ	10	10	11	13	12	12	12	12	13	13	14	15	15	14	15	14	14	13	12	12	11	11	11	11

The Radio Research Laboratories, Japan

JAN. 1970

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JAN. 1970

M(3000)F2 (0.01)

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

Station SYOWA BASE		Lat. 69 00 4 S		Long. 39 35 4 E		Sweep 0.4 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	275	280	F	F	F	F	R	250	260	R	260	275	255	R	R	270	250	R	275	295	265	B	R	300				
2	275	290	280	R	R	R	R	A	A	R	R	B	B	B	275	230	R	B	R	R	R	335	325	B				
3	B	R	R	R	F	255	B	B	235	R	255	B	255	B	B	B	B	R	B	B	B	310	305	295				
4	285	275	F	250	250	250	UR	R	260	260	255	260	265	R	B	R	R	290	290	290	310	340	315	310				
5	290	R	290	250	260	255	260	255	R	R	265	270	285	260	270	R	R	270	275	300	315	325	305	220				
6	290	B	280	R	225	260	255	255	240	240	270	255	R	UR	270	260	270	265	280	B	305	305	310	300	290			
7	R	285	265	265	265	250	250	R	UR	255	255	Z	R	265	270	285	265	UR	285	300	320	320	300	R	240	A		
8	R	A	R	265	245	235	E	260	245	240	250	265	270	270	270	275	255	265	275	300	305	315	300	310	320			
9	R	270	280	R	R	B	R	R	A	B	240	270	B	260	265	280	285	290	300	310	305	290	330	235				
10	275	R	285	C	R	R	B	240	260	260	255	265	270	270	285	265	275	290	295	305	315	315	310	300				
11	305	290	275	260	260	255	R	230	270	255	255	265	265	R	265	295	295	300	295	305	300	315	330	305				
12	280	R	R	280	B	B	R	265	F	240	R	250	R	R	A	A	A	290	A	A	305	290	310	290				
13	295	R	F	F	285	245	245	240	255	R	R	R	255	260	260	270	A	A	280	275	315	315	R	285				
14	295	295	F	280	260	260	245	245	R	R	R	255	245	260	255	260	270	270	285	295	310	305	310	305	290			
15	285	290	R	A	R	R	R	R	R	215	225	235	255	265	270	UR	275	285	265	275	280	305	320	305				
16	280	265	270	R	A	B	B	R	F	R	B	B	215	235	225	B	230	240	B	A	A	R	325	A				
17	275	A	290	B	R	B	A	A	B	B	B	B	B	B	R	R	B	B	B	305	285	290	290	285				
18	285	275	250	B	B	B	R	255	255	245	B	B	250	250	255	260	275	285	285	290	300	300	295	290				
19	280	F	255	F	F	F	255	240	R	R	260	245	UR	260	265	255	275	280	265	285	310	310	300	295				
20	UR	285	R	B	B	265	240	255	F	240	245	250	250	R	260	255	255	255	265	UR	275	300	B	290	A			
21	R	B	R	B	B	245	245	255	245	255	255	255	R	R	C	C	270	C	C	295	C	C	C	C				
22	F	R	R	B	B	245	250	265	UR	250	255	255	255	255	245	R	265	R	UR	295	295	300	305	310	295	310		
23	275	290	300	280	260	260	R	R	240	260	255	245	255	260	255	280	265	285	285	315	310	300	295	285				
24	280	285	R	A	250	245	245	245	245	255	UR	245	250	R	R	B	255	255	265	295	285	UR	310	305	305	R		
25	B	305	260	R	R	255	240	255	R	245	260	265	265	275	R	305	310	305	310	320	325	330	320	290				
26	275	F	F	F	265	260	250	255	F	265	255	260	265	275	290	275	295	300	305	315	320	325	320	310				
27	290	285	UR	UR	270	260	R	245	F	F	265	260	260	260	275	270	275	275	295	315	330	310	265	285				
28	265	R	R	R	240	F	245	F	245	255	UR	255	R	UR	270	265	285	290	300	305	R	315	275	285				
29	F	265	265	245	R	230	245	255	255	245	255	245	Z	265	275	R	280	290	295	305	310	320	305	285				
30	265	270	275	R	R	R	255	255	250	245	245	225	260	265	270	275	265	285	295	270	290	R	F	R				
31	R	B	A	R	R	B	B	R	245	260	260	245	245	250	260	275	275	295	300	310	315	300	R	B				
CNT	22	16	17	10	14	18	17	18	20	20	24	25	22	22	22	23	23	25	24	27	26	25	26	23				
MED	280	285	280	262	260	250	250	255	248	255	255	255	260	260	265	270	275	285	295	305	308	310	305	290				
UQ	290	290	285	275	265	255	255	255	255	258	260	265	265	270	275	275	282	290	300	310	315	315	320	302				
LQ	275	272	265	250	250	245	245	245	240	245	252	245	255	260	260	262	265	280	282	290	300	300	295	285				

JAN. 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

JAN. 1970

H^oF₂ (KM)

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

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 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			360	365	400	375	350	340	355	375	370	370	390	350	405	380	415	475	L	L	450			
2			395	R	400	440	320	A	A	R	R	B	B	B	360	430	R	B	R	340	R			
3					650	420	B	B	530	500	L	B	B	B	B	B	B	365	B	B	B	290		
4				390	380	395	350	350	330	350	350	350	350	365	B	345	350	340	315	320	300			
5				350	350	390	355	355	340	350	340	350	350	400	390	365	350	340	340	300	275			
6					580	325	385	390	395	400	340	R	440	400	395	375	330	350	B	300	L			
7				375	375	350	B	380	400	365	320	390	350	340	L	A	335	310	255	270	250			
8				400	480	475	425	490	460	425	360	375	380	390	390	455	R	365	300	300				
9				R	A	B	500	R	A	B	490	325	B	A	430	355	365	350	340	300	280			
10				C	R	R	B	450	405	400	395	390	390	390	R	425	R	340	350	300	L			
11				350	350	440	A	500	410	430	400	390	400	400	380	A	345	A						
12				305	B	B	425	R	A	450	390	410	R	A	A	A	A	A	A	A	255	L		
13				L	375	455	440	400	395	R	390	375	405	440	R	380	A	A	350	350	L			
14				365	375	400	405	R	R	R	460	R	440	425	405	400	325	350	L	285				
15					A	R	R	R	R	R	R	R	R	450	425	430	400	L	300	380				
16					A	B	B	R	R	R	B	B	B	B	B	B	480	510	B	A	A			
17					B	R	B	A	A	B	B	B	B	B	B	R	R	B	B	B				
18					B	B	B	R	455	455	R	B	B	455	470	450	425	355	350					
19					L	400	390	400	415	400	405	410	400	425	425	450	390	L	L	L				
20						R	450	R	460	435	410	420	405	440	450	415	405	400	390					
21					B	B	450	440	450	425	405	325	405	400	450	C	C	405	C	C				
22					B	B	420	440	355	390	360	360	405	405	400	420	L	L	375	300				
23						375	380	R	R	500	425	420	425	400	400	400	350	400	350					
24					A	R	425	425	400	370	355	400	365	390	400	B	365	350	315	300				
25					385	410	400	400	365	390	400	355	355	350	360	340	305	300	250					
26					345	355	430	400	400	350	385	390	390	390	305	340	300	300	300					
27					300	305	345	400	350	340	350	350	350	355	340	350	345	340	280					
28					A	415	405	490	365	365	365	365	365	375	400	395	320	290	260					
29					A	505	440	370	375	400	405	440	390	350	320	320	315	300	300					
30						R	440	390	400	410	B	500	390	405	400	390	390	350	300	350				
31					A	B	B	A	480	440	440	R	R	R	420	390	R	315	300					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			2	9	15	21	21	20	24	23	24	22	24	24	21	23	21	24	17	11	6	1		
MED			378	365	375	400	425	400	400	400	388	390	390	400	400	380	350	345	300	300	278	290		
UQ			385	405	440	440	450	440	440	425	405	410	405	425	420	408	390	358	340	330	300			
LQ			350	362	380	385	368	372	362	352	365	372	370	380	352	330	312	300	300	255				

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H^oF₂ (KM)

IONOSPHERIC DATA

JAN. 1970				H'F (KM)								45° E Mean Time (G. M. T. + 3 h)															
Station SY0WA BASE				Lat. 69 00.4 S				Long. 39 35.4 E				Sweep 0.4 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	300	290	300	270	255	235	240	210	210	R	210	210	R	225	210	200	205	240	230	240	A	B	340	255			
2	250	280	250	A	300	210	220	A	A	270	240	B	B	B	215	250	250	B	240	A	250	255	260	B			
3	B	400	A	A	260	300	B	B	305	225	230	B	B	B	B	B	B	230	B	B	B	240	265	240			
4	275	320	320	260	250	250	205	225	200	205	230	200	A	B	B	A	A	210	220	245	240	245	255	250			
5	260	A	A	275	250	240	250	260	215	205	200	205	240	210	220	230	220	200	240	240	245	240	250	265			
6	265	B	A	A	A	245	245	230	240	220	200	A	240	250	240	215	220	215	B	B	B	250	260	290			
7	300	260	290	300	255	280	B	310	R	225	230	220	210	225	240	A	210	225	235	220	200	280	A	A			
8	A	B	B	A	A	A	A	290	250	R	210	210	230	205	230	205	220	200	225	240	240	230	270	275	250		
9	290	330	305	A	A	B	A	A	A	B	240	205	B	A	240	240	220	225	225	250	220	260	255	250			
10	250	295	250	C	A	A	B	250	215	220	205	220	210	A	220	210	220	225	225	220	250	240	250	255			
11	210	220	260	255	260	350	A	300	245	225	230	225	225	A	A	A	A	A	250	A	250	250	250	255			
12	300	300	A	A	B	B	A	240	A	215	220	200	R	A	A	A	A	A	A	A	240	280	270	310			
13	340	A	A	300	A	A	250	220	240	205	240	200	240	A	A	A	A	A	245	240	240	250	255	260			
14	265	300	260	A	290	250	250	A	A	R	200	210	225	240	205	240	240	225	220	225	B	B	300	260			
15	285	255	A	A	A	A	A	300	A	A	250	210	R	290	A	A	200	220	A	A	250	220	250	250			
16	270	305	305	A	290	B	B	A	A	A	B	B	B	B	B	B	250	240	B	B	A	200	260	300			
17	A	A	A	B	A	B	A	A	B	B	B	B	B	B	230	240	B	B	B	250	245	255	300	340			
18	305	300	340	B	B	B	A	255	250	210	B	B	B	R	210	240	240	240	230	250	240	250	255	275			
19	275	305	350	300	250	250	245	220	205	220	B	R	B	B	A	205	200	200	220	220	B	250	250	255			
20	305	A	B	B	360	A	240	255	A	205	220	225	225	210	215	210	215	240	R	240	250	B	255	A			
21	340	B	B	B	B	A	260	240	210	200	225	215	A	A	C	C	210	220	C	245	C	C	C	C			
22	350	340	305	B	B	300	260	225	200	210	210	240	225	225	240	200	R	215	225	230	250	240	250	260			
23	275	260	250	300	300	255	A	A	A	205	200	225	205	200	210	225	240	210	240	225	250	250	250	250			
24	275	290	305	B	A	320	255	210	200	225	240	205	225	R	B	225	220	225	240	240	240	245	250	300			
25	B	275	A	A	325	265	240	250	240	B	200	205	220	210	215	220	205	200	220	220	240	250	240	250			
26	255	300	280	275	250	300	345	300	240	205	215	215	225	210	235	215	210	205	205	240	250	240	235	250			
27	260	260	260	260	255	240	220	205	205	200	210	205	225	225	220	205	210	220	220	225	250	240	A	A			
28	A	A	250	A	A	315	250	220	215	210	250	240	220	A	A	225	225	205	220	235	250	250	300	355			
29	295	A	270	A	A	A	A	200	240	210	240	250	R	240	225	240	220	225	240	240	240	250	240	260			
30	275	280	275	A	A	A	240	225	210	240	B	210	245	225	260	A	215	230	245	250	255	255	270	A			
31	290	B	A	A	A	B	B	A	A	235	240	225	240	A	A	220	230	200	240	250	250	255	300	B	B		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	26	21	19	10	15	17	17	23	20	24	26	24	18	15	19	21	24	26	23	24	24	27	28	24			
MED	275	295	280	275	260	255	245	240	215	210	222	212	225	225	220	220	220	222	230	240	248	250	255	258			
UQ	300	305	305	300	295	300	250	258	240	225	240	225	240	235	238	240	228	225	240	245	250	255	270	282			
LQ	265	275	260	260	252	245	240	220	208	205	210	205	220	210	212	210	210	210	220	225	240	240	250	250			

IONOSPHERIC DATA

JAN. 1970

H⁺ES (KM)

45° E Mean Time (G. M. T. + 3h)

Station SYOWA BASE Lat. 69 00 4 S Long. 39 35 4 E Sweep 0.4 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	150	G	140	125	110	G	G	G	G	110	G	125	G	100	100	G	G	G	G	G	105	B	125	130
2	120	120	105	100	100	125	G	100	100	G	105	B	B	B	G	G	G	B	G	100	100	135	120	B
3	B	175	120	105	150	G	B	B	100	G	G	B	B	B	B	B	B	G	B	B	B	140	120	120
4	125	120	105	105	100	100	115	115	100	G	125	G	100	B	B	105	110	110	105	150	150	135	130	115
5	100	115	125	140	145	G	G	G	G	G	130	125	115	105	G	G	115	G	G	G	B	G	115	B
6	175	B	130	100	125	G	G	125	G	G	130	125	140	105	105	G	G	120	B	B	B	G	170	125
7	150	125	120	105	G	105	B	110	G	G	G	100	140	130	120	120	110	100	110	105	130	B	105	110
8	140	125	120	125	130	100	100	100	100	G	G	130	165	110	110	110	110	100	105	115	135	115	160	140
9	155	115	110	130	100	B	100	100	105	B	140	125	B	110	100	130	115	100	G	175	140	160	140	130
10	120	140	115	C	110	115	B	G	G	G	G	120	130	100	100	105	G	125	G	G	135	110	120	G
11	G	G	130	115	100	110	100	105	100	G	100	G	125	120	110	100	105	100	100	100	105	145	115	110
12	110	110	115	120	B	B	125	130	100	G	G	G	G	100	105	100	100	100	100	100	G	140	145	B
13	115	115	100	100	105	105	140	G	G	G	120	120	G	120	110	110	100	100	100	G	165	150	140	125
14	120	125	115	110	105	100	140	100	105	G	G	G	G	G	115	105	100	100	100	G	B	B	B	150
15	140	125	120	100	100	100	100	105	105	100	G	G	G	100	125	140	140	125	115	110	G	G	125	125
16	150	100	100	100	100	B	B	100	105	100	B	B	B	B	B	B	G	B	B	150	120	G	105	115
17	100	100	105	B	100	B	115	105	B	B	B	B	B	B	105	125	B	B	B	B	G	100	105	125
18	140	130	110	B	B	B	100	105	G	G	B	B	B	G	G	G	120	G	G	B	G	G	G	140
19	120	120	120	100	110	105	G	G	G	G	B	110	B	B	105	100	G	G	G	G	B	B	B	150
20	120	110	B	B	B	125	105	105	150	140	100	G	G	G	G	120	125	G	G	G	130	B	110	100
21	125	B	125	B	B	105	G	G	G	G	G	G	100	G	C	C	G	G	C	G	C	C	C	C
22	110	120	120	B	B	105	105	130	G	G	G	G	G	G	G	100	G	G	G	G	G	G	150	150
23	125	110	110	105	G	150	105	100	100	100	G	G	G	G	G	G	G	G	G	G	G	150	120	140
24	100	115	115	105	100	100	105	G	100	150	G	G	G	G	B	G	G	G	G	G	G	G	G	B
25	B	105	125	115	160	G	120	100	100	B	G	G	G	120	100	G	G	G	G	G	100	155	100	100
26	100	140	120	105	110	100	100	100	125	G	G	120	120	115	G	G	G	G	100	110	G	140	140	140
27	120	110	105	G	155	125	100	G	G	G	G	G	110	G	100	G	G	G	G	100	100	155	125	120
28	120	125	B	100	105	110	100	100	G	G	G	G	140	115	120	110	100	100	G	100	100	120	125	130
29	140	120	140	105	100	120	105	G	170	G	G	B	G	G	B	130	125	105	G	G	100	G	150	100
30	140	125	G	140	115	110	100	G	G	G	B	100	B	130	115	105	110	G	105	G	150	150	150	120
31	110	B	110	100	100	B	B	105	100	G	G	G	100	120	110	105	G	G	100	G	100	B	B	B
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	26	28	24	24	20	20	20	17	6	8	11	12	16	18	18	15	13	11	12	17	16	25	24
MED	120	120	118	105	105	105	105	105	100	105	122	120	122	112	108	108	110	100	100	108	120	140	125	125
UQ	140	125	122	118	120	118	115	108	105	140	130	125	140	120	115	120	118	110	105	132	135	150	140	140
LQ	112	110	110	100	100	100	100	100	100	100	102	115	105	102	100	105	102	100	100	100	100	128	115	115

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