

ION. ANT.—15

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

February 1970—January 1971

Issued in April 1972

Prepared by

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

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



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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 respectively.
f_oF1	
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.

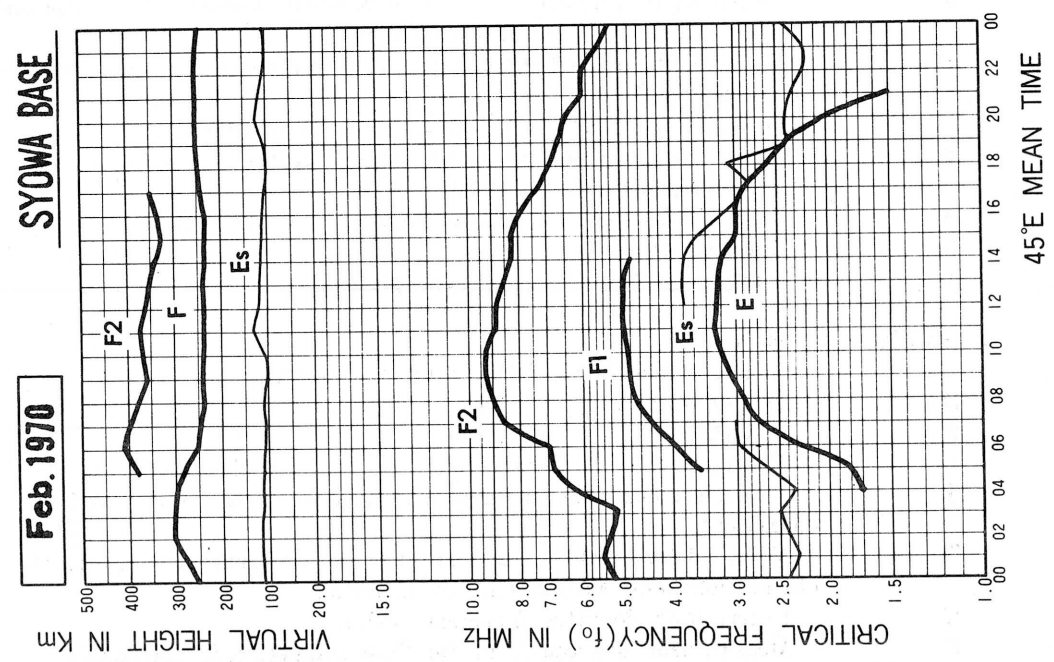
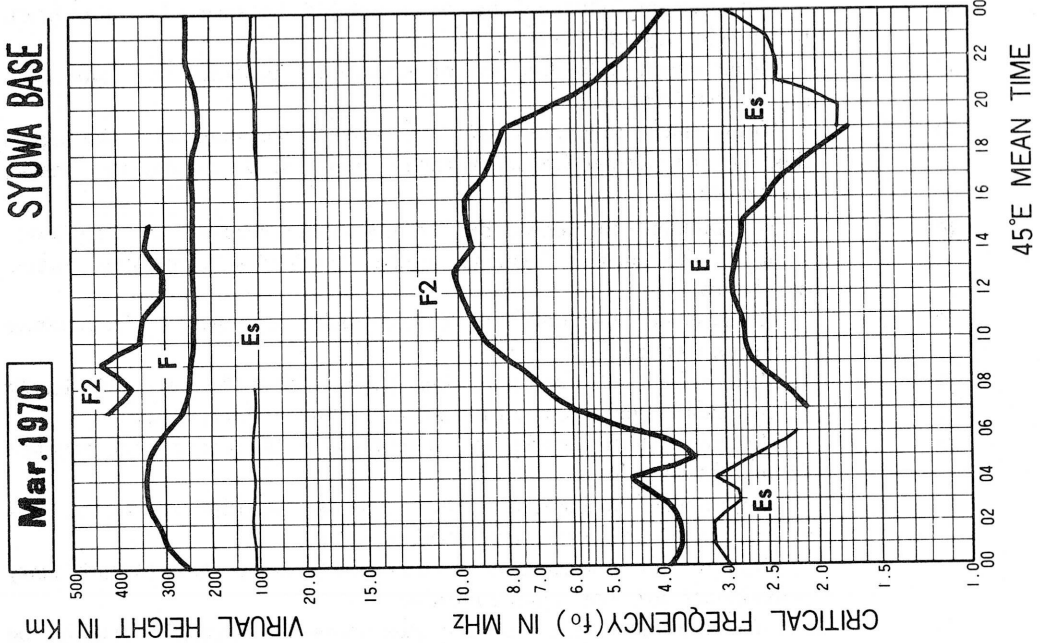
- A Measurement influenced by, or impossible because of, the presence of a lower thin layer, for example E_s .
- B Measurement influenced by, or impossible because of, absorption in the vicinity of f_{min} .
- C Measurement influenced by, or impossible because of, any non-ionospheric reason.
- D Measurement 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 atmospherics.
- 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.

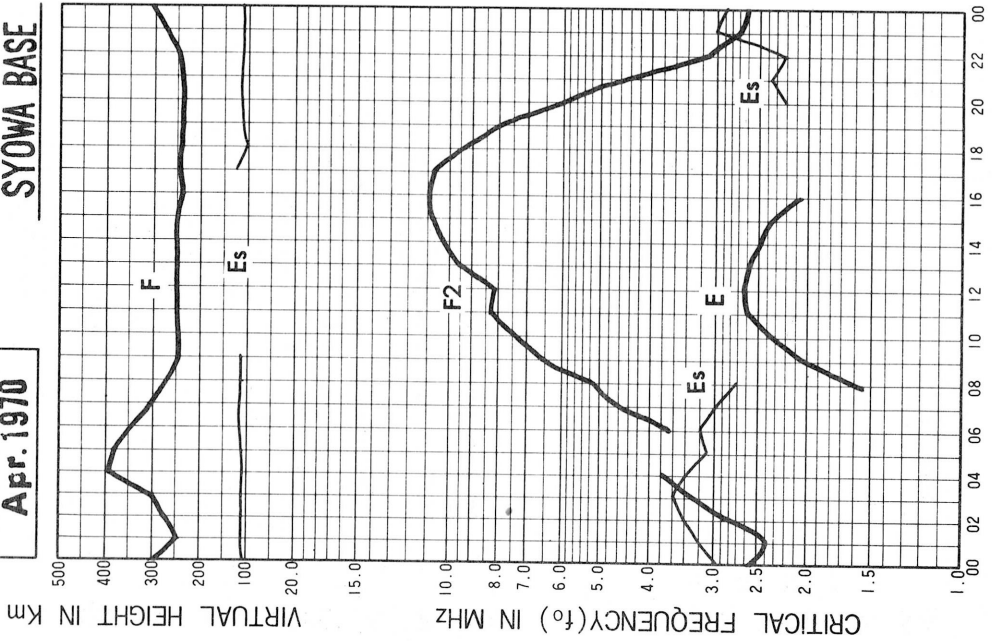
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

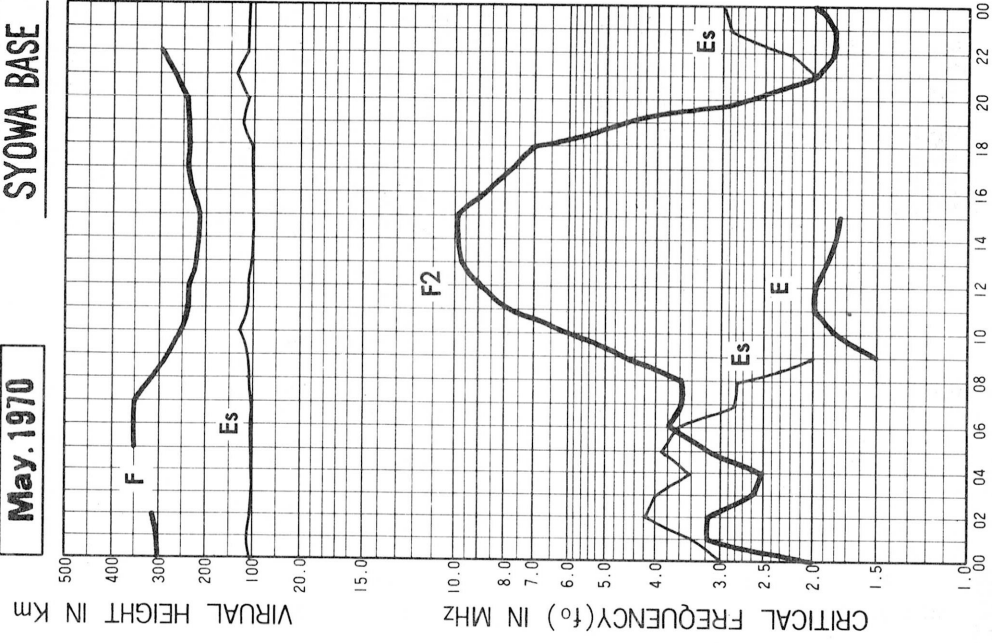
Apr. 1970

SYOWA BASE



May. 1970

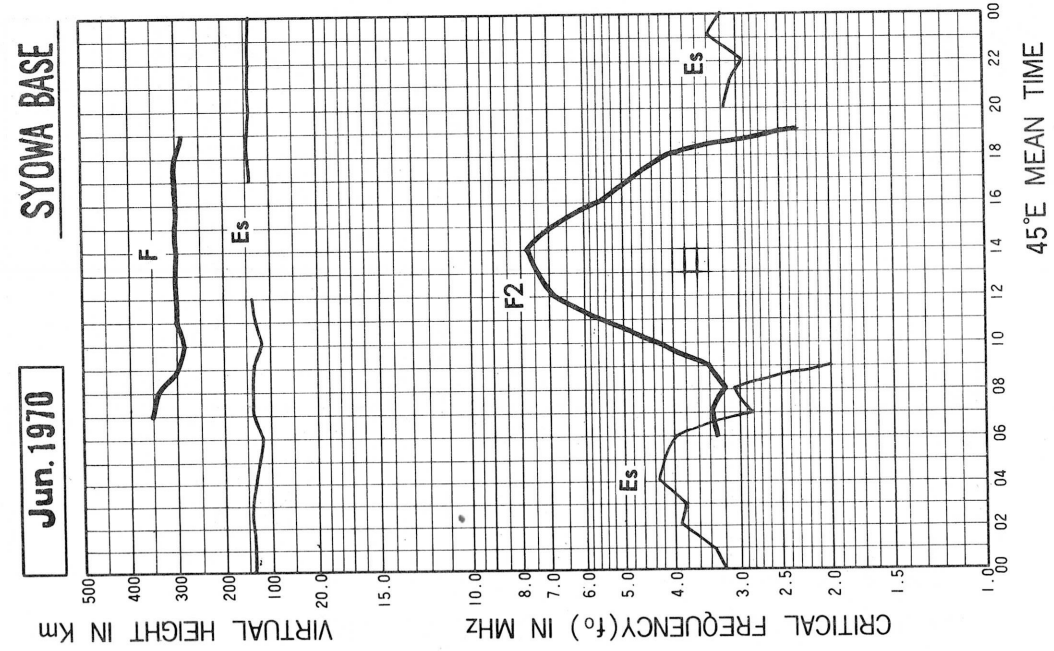
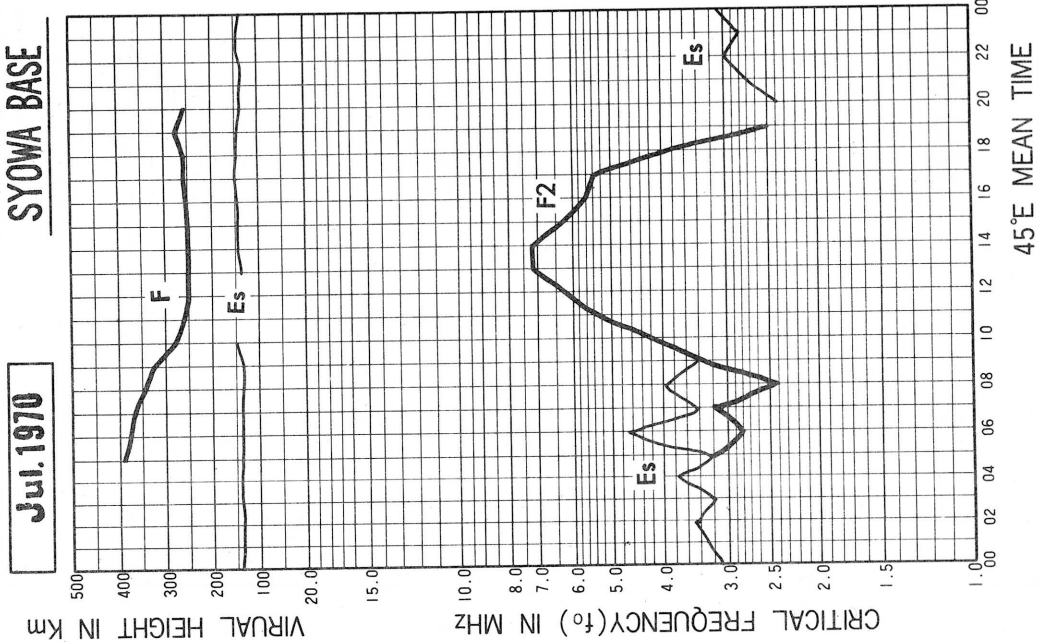
SYOWA BASE



45°E MEAN TIME

45°E MEAN TIME

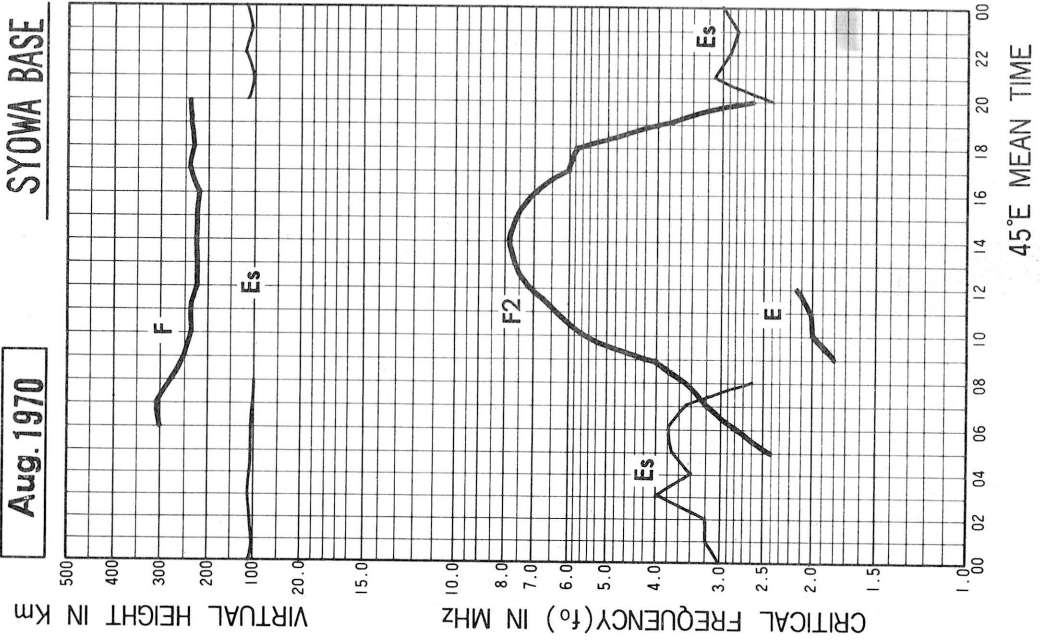
IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

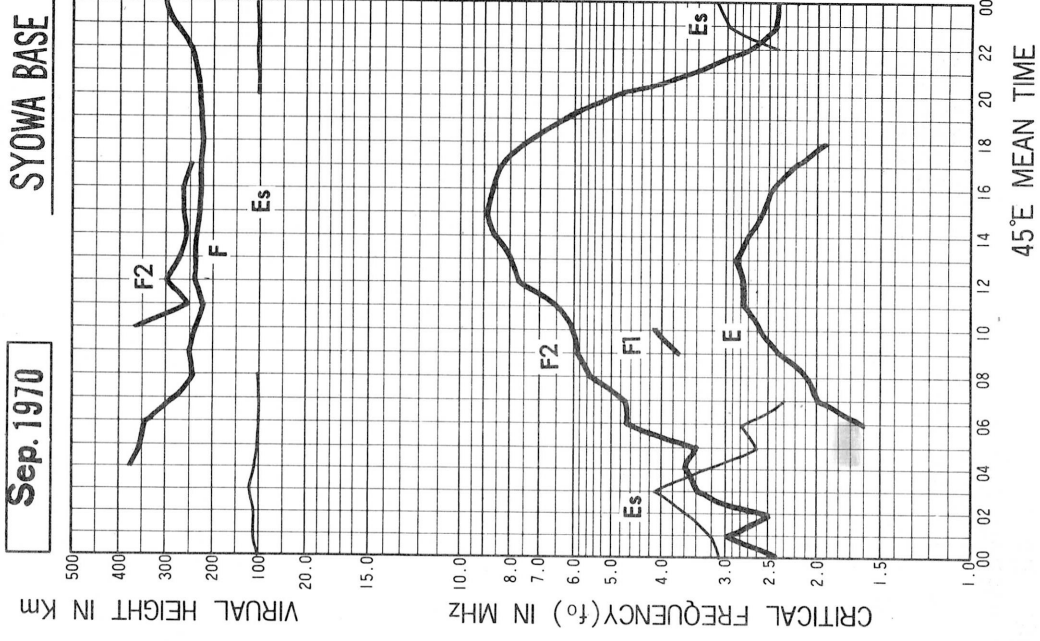
Aug. 1970

SYOWA BASE



Sep. 1970

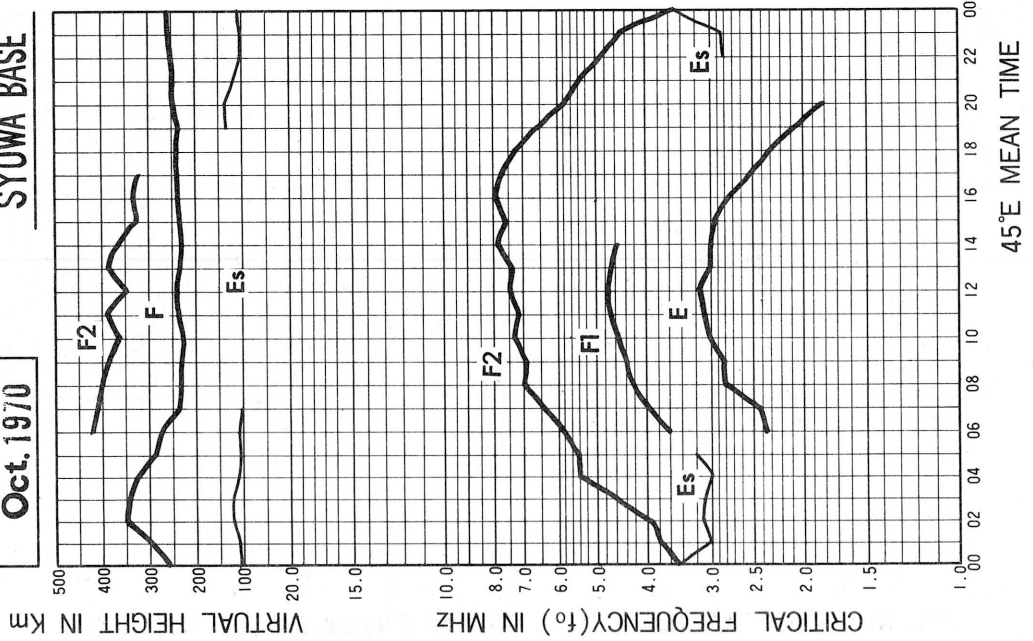
SYOWA BASE



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

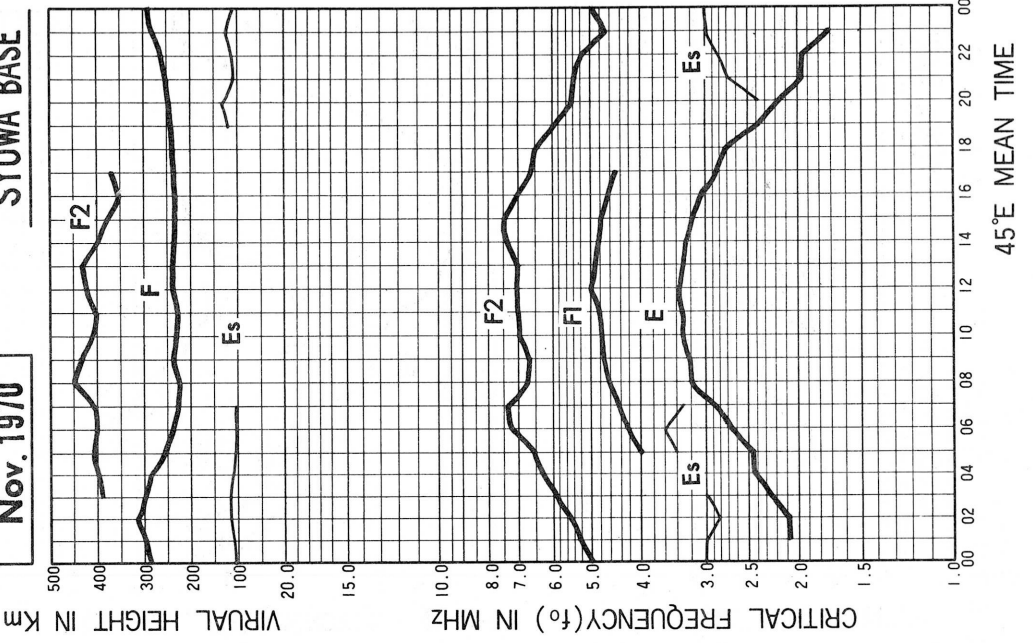
Oct. 1970

SYOWA BASE



Nov. 1970

SYOWA BASE



IONOSPHERIC DATA
MONTHLY MEDIAN CHARACTERISTICS

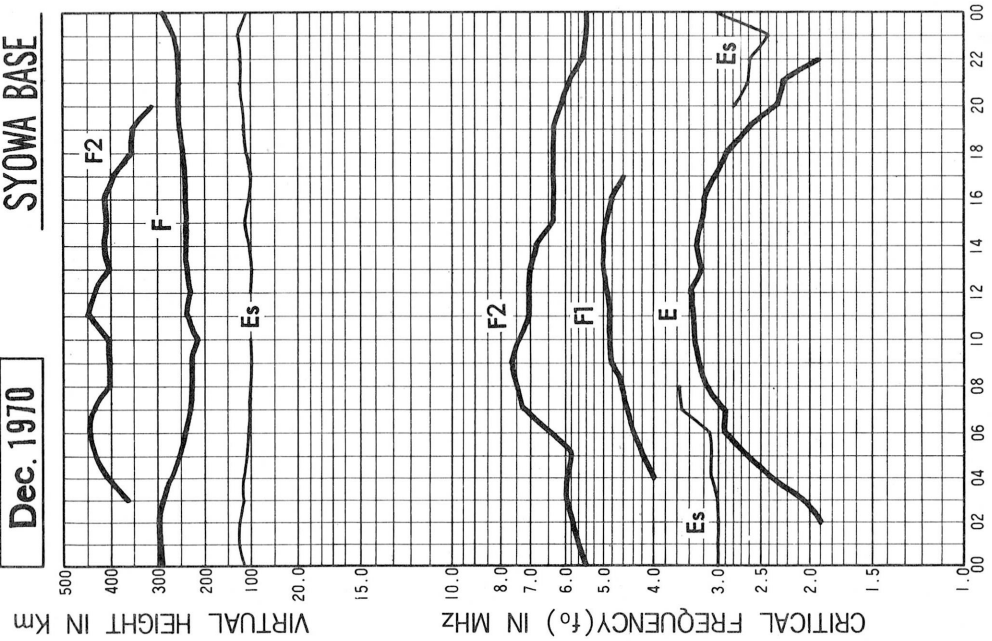
Dec. 1970

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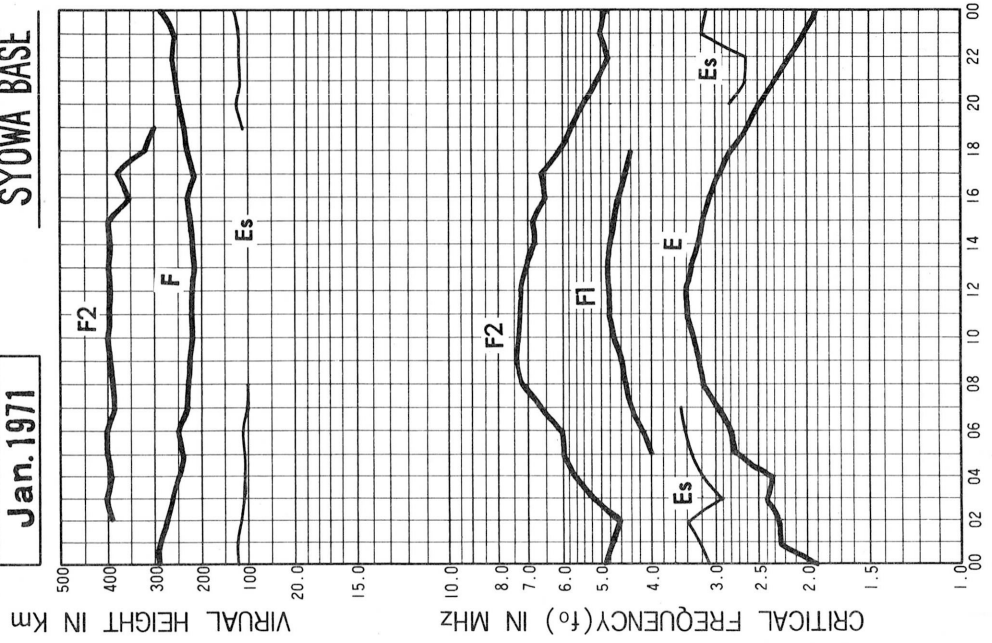
SYOWA BASE

Jan. 1971

SYOWA BASE



45°E MEAN TIME



45°E MEAN TIME

IONOSPHERIC DATA

FEB. 1970

FOF2 (0.1 MHz)

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

Station	SYQWA BASE				Lat. 69 00.4 S.		Long. 39 35.4 E		Sweep MHz to 15 MHz in 30 sec in automatic operation															
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	35	B	B	R	R	R																
4	51	55	JF58	56	60	59	F	JF82	90	JR88	UR85	85	86	B	92	78	86	UR79	74	59	45	41	41	37
5	38	B	F39	R	B	B	R	R	B	R	57	58	57	60	61	61	59	60	B	56	52	48	51	F
6	41	44	B	46	55	61	69	72	67	72	79	82	82	82	83	75	74	74	69	69	65	65	60	62
7	60	UR55	JF53	F	F	JF69	F	86	JF99	JR100	99	96	91	85	83	78	79	71	65	62	64	57	59	55
8	55	62	65	69	JR75	JR84	97	108	111	108	106	104	101	99	96	UR91	85	83	JR70	70	69	70	61	UR55
9	47	F	F	F0	48	F	75	86	90	90	92	JR96	93	90	88	85	78	73	71	69	69	65	61	F
10	64	F	F	81	86	90	99	105	110	105	102	96	81	87	83	83	80	70	68	66	B	40	39	40
11	35	41	40	43	JR49	60	69	83	89	96	98	96	89	JR86	94	95	UR82	73	66	64	69	68	61	56
12	F	F	F	F	75	JR83	F	100	106	109	109	105	101	97	96	93	91	83	79	74	70	68	68	62
13	61	61	66	F	70	F	F	F	97	UR101	110	R	97	90	JR87	88	90	87	88	84	75	71	69	F
14	JF66	F	JF64	F	F	66	60	B	62	JF70	70	UR71	70	71	76	B	83	77	UR68	56	45	JR48	50	55
15	54	55	JF65	JF74	JF77	80	55	F64	F	70	B	F	F	70	JR80	B	70	67	66	60	58	50	F	F
16	F	37	37	R	R	62	69	85	90	90	92	JR87	JR91	96	91	77	76	75	73	72	70	70	65	F
17	F	JF55	A	F	JF62	70	81	F	F	F	91	88	87	86	86	87	84	74	69	69	69	R	B	A
18	A	49	B	B	R	F	R	64	63	75	76	F	76	80	73	69	68	66	B	B	59	55	49	JF41
19	F	R	46	F	B	72	JR79	87	96	UR95	90	94	90	UR88	84	80	76	72	68	65	65	59	58	56
20	55	56	61	66	72	82	93	98	104	107	107	B	B	B	105	103	97	94	84	80	76	63	57	57
21	62	F	F	F	F	F	JF85	89	97	104	104	102	98	100	94	95	90	87	81	80	75	70	60	58
22	48	JF49	JF49	F	F	F	F	JF91	99	105	108	107	105	103	105	104	97	91	83	79	74	69	64	54
23	F	F	F	F	F	F	F	F	S	102	105	105	109	108	R	97	97	90	84	79	74	70	60	55
24	54	F	JF52	F	F	JF67	F	F	71	JF78	89	UR88	R	JR101	97	92	88	85	78	72	JR54	A	F	A
25	44	F	F	F	55	F	JF69	JF72	79	UR84	80	JR84	JR82	76	68	66	65	60	60	57	60	58	49	46
26	F	F	F	F	F	61	66	F	F	F	F	74	B	59	63	75	76	54	45	50	47	41	41	36
27	36	39	F	JR46	45	56	59	62	70	77	80	75	69	B	71	B	B	70	B	66	61	52	60	35
28	36	A	F	JR51	F	B	47	JR67	F	R	B	B	B	63	60	65	71	UR79	66	65	F	R	R	R
29																								
30																								
31																								
CNT	18	13*	14	11	13	16	16	18	22	22	23	21	21	23	25	23	25	26	23	25	24	23	22	18
MED	52	55	52	51	62	68	69	86	90	92	92	88	89	86	84	83	80	74	69	66	65	59	60	55
UQ	60	55	JF64	68	75	81	83	91	99	104	104	96	97	96	94	92	88	83	78	72	70	68	61	56
LQ	41	44	40	46	55	61	63	72	70	77	80	82	81	74	73	75	74	70	66	60	57	51	50	41

The Radio Research Laboratories, Japan

FEB. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

FEB. 1970

FOF1 (0.01 MHZ)

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

Station	SYOWA BASE				Lat.	69 00 45				Long.	39 35 45 E				Sweep	MHz to	15	MHz in	30	sec	in automatic operation				
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C					
2					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
3					B	R		R	R	R	R	R	R	R	R	R	R	R	R	L	L				
4					300	360	390	400	430	450		R	R	480	B	B	R	R	L	L		320			
5					B	B	A	A	B	R		440	R	R	R	R	R	R	R	B	B				
6					310	360	400	410		B	B	R	R	R	R	B	B	R	L						
7						350	390	440	460	480	480		R	R	500	480		L	L						
8						L	L	L	L	L	R	R	L	L	L	L	L								
9					L	L	L	440		L	500	L	R	510	510	A	L	L							
10								L	470	480	R	B	B	R	R	R	L	A							
11						L	400	440	490	490	L	B	540	510	L	L	L								
12							L	L	L	490	L	L	L	A	A	L	L								
13						L	L	L	450	B	B	R	L	L	L	L	L								
14						340	A	B	A	460	480	480	490	480	490	B	L	L	L	L					
15						L	L	450	A	A	B	500	490	500	B	B	A	L							
16							L	L	470	480	480	490	490	510	500	L	L								
17						350	410	450	480	L	L	L	510	500	A	L									
18						A	360	A	B	R	500	500	B	500	B	500	500	L	B						
19						R	400	420	480	480	490	R	500	A	R	L	490		L						
20							L	L	L	R	B	B	B	B	B	R	L	L							
21						L	L	L	L	500	L	L	520	L	L	L	L								
22							L	L	L	L	L	L	L	A	A	L									
23						L	L	L	L	L	L	L	L	L	L	L									
24						320	370		L	L	L	L	B	B	L	L	L								
25						A	A	L	400	420	L	460	R	R	R	L	L								
26							A	440	450	460	R	B	B	B	450	470	440	410	350						
27							L	L	470	460	B	500	B	B	B	B	B								
28							R	A	A	B	B	B	B	B	480	R	L	B							
29																									
30																									
31																									
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT				2	6	9	10	11	12	7	5	9	8	5	2	3	1	1	1						
MED				305	350	390	440	470	480	480	500	500	500	480	485	490	410	350	320						
UQ				360	400	440	475	490	485	500	510	510	490		495										
LQ				360	370	410	450	460	470	490	490	500	480		465										

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FEB. 1970

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

FEB. 1970

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 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
3	C	C	A	B	B	A	270	A	A	R	R	325	340	330	R	R	B	A	A	245	200	R	155	150			
4	150	A	A	A	A	A	240	260	280	R	R	R	320	B	B	B	300	B	B	225	A	A	A	A			
5	B	B	A	A	B	B	B	A	B	R	325	R	R	R	R	280	R	B	B	B	200	B	A				
6	A	A	B	A	R	A	270	275	B	B	B	R	B	B	B	B	B	R	270	240	220	190	A	A			
7	A	A	A	A	A	A	A	270	A	A	A	330	R	325	320	A	A	A	A	240	210	170	A	A			
8	A	A	A	A	A	200	220	250	280	R	R	R	R	A	A	A	320	300	270	240	220	A	A	A			
9	A	140	A	A	A	A	A	A	305	310	330	350	340	325	320	315	A	300	265	A	225	A	A	A			
10	A	B	A	B	B	B	A	270	300	R	R	B	B	R	A	A	320	A	A	240	B	B	A	A			
11	A	A	A	A	A	A	250	280	305	325	A	B	R	340	330	305	280	A	A	A	A	175	A	A			
12	A	A	A	140	180	A	A	280	300	325	A	R	340	330	325	300	275	A	A	A	200	160	A	A			
13	A	A	A	A	170	200	240	275	305	B	B	R	345	325	305	290	A	A	260	240	220	140	A	A			
14	A	A	A	A	A	200	A	B	A	A	320	330	335	330	320	B	B	290	250	205	160	A	A	A			
15	A	A	A	A	190	A	A	A	A	A	B	350	R	320	B	B	B	305	A	B	200	A	A	A			
16	A	A	A	B	B	A	250	270	295	310	320	330	A	R	325	300	A	290	265	240	A	A	A	A			
17	A	A	A	B	A	A	220	270	290	305	320	325	330	320	A	A	A	300	A	A	220	A	B	A			
18	B	A	B	B	B	A	A	A	B	330	350	B	B	B	B	R	305	285	B	B	B	A	150	A			
19	A	A	A	A	B	A	240	275	300	310	315	300	290	A	330	A	A	290	A	245	205	A	135	A			
20	A	125	130	A	150	165	225	265	A	R	B	B	B	B	B	A	A	295	A	A	A	A	A	A			
21	A	A	A	A	140	145	220	240	275	290	300	330	R	340	325	A	300	275	A	220	160	125	A	A			
22	115	A	A	A	140	160	220	260	290	310	R	A	A	310	A	A	300	290	250	220	200	150	B	B			
23	A	A	A	A	A	A	210	260	280	300	310	315	325	315	300	R	295	280	255	225	180	125	100	B			
24	B	A	A	A	A	150	200	A	A	290	295	B	B	B	R	320	300	270	225	170	B	A	A	A			
25	A	A	A	A	A	A	A	220	260	290	300	R	310	305	300	290	A	275	250	180	170	A	A	A			
26	A	A	A	A	A	A	A	295	A	A	B	B	B	B	B	B	B	A	A	270	190	135	A	A			
27	120	150	170	175	180	190	220	270	275	B	B	B	B	B	B	B	B	B	B	220	175	150	A	A			
28	A	A	A	A	A	B	A	A	A	A	B	B	B	B	300	B	B	B	R	B	180	A	A	A			
29																											
30																											
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	3	3	2	2	7	8	15	17	16	12	11	10	10	13	12	7	11	14	10	17	18	11	4	1			
MED	120	140	150	158	170	178	225	270	292	310	320	330	332	325	320	300	300	290	258	240	200	150	142	150			
UQ	135	145			180	200	245	275	300	318	322	330	340	330	325	310	302	300	265	240	220	172	152				
LQ	118	132			145	155	220	260	280	295	305	325	320	320	302	295	288	280	250	220	180	138	118				

The Radio Research Laboratories, Japan

FEB. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

FEB. 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	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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
3	C	C	J ₉₁	B	B	27	G	J ₃₄	J ₃₁	G	G	G	G	38	G	E ₃₅	J ₃₂	J ₃₂	G	G	G	19	17		
4	G	J ₂₆	J ₂₂	D	J ₃₀	J ₄₁	31	G	G	G	G	G	34	B	E ₅₅	E ₃₄	G	E ₂₉	E ₂₈	29	J ₂₆	J ₃₅	31	34	
5	J ₃₁	B	27	J ₃₂	B	B	J ₃₂	J ₃₃	B	G	G	G	37	37	37	34	31	G	B	E ₅₀	E ₂₈	G	30	J ₂₂	
6	24	J ₃₇	B	27	G	J ₂₆	31	30	E ₅₀	E ₄₈	E ₃₅	G	41	39	E ₅₈	55	38	G	G	G	J ₄₁	J ₄₆	22	J ₂₂	
7	14	15	J ₂₂	18	J ₅₇	22	J ₃₉	J ₃₄	J ₉₁	J ₃₂	J ₄₂	36	37	J ₄₁	J ₄₅	J ₄₂	J ₃₆	J ₃₃	J ₃₂	31	G	G	17	14	
8	17	11	12	J ₂₅	23	28	28	G	G	G	G	G	J ₃₈	J ₃₅	J ₃₅	36	G	G	G	G	G	J ₂₄	J ₃₀	J ₂₆	
9	J ₂₁	J ₂₃	21	J ₂₄	J ₂₅	J ₂₆	37	J ₃₅	G	G	G	41	39	J ₄₂	J ₅₄	J ₄₆	J ₄₄	35	32	J ₄₁	26	20	J ₃₀	23	
10	16	E ₁₆	J ₂₅	E ₂₃	E ₂₃	E ₃₀	31	32	G	G	G	E ₅₇	E ₅₈	G	39	34	G	J ₄₂	J ₆₅	31	B	29	J ₄₇	J ₃₀	
11	J ₃₁	32	32	30	30	J ₂₅	J ₃₂	31	G	J ₃₆	33	E ₅₂	J ₄₄	J ₄₇	J ₄₂	J ₄₆	J ₄₁	J ₅₄	J ₄₇	J ₃₄	28	G	J ₂₄	J ₄₀	
12	J ₃₁	J ₂₃	J ₂₄	G	23	23	25	G	G	G	J ₄₂	38	42	J ₅₆	J ₆₆	J ₆₇	J ₄₀	J ₃₈	J ₃₈	J ₄₅	30	24	25	J ₂₀	
13	J ₂₆	J ₂₂	J ₃₂	27	G	G	G	G	E ₅₇	E ₅₅	G	38	J ₆₄	J ₃₉	34	J ₄₁	J ₃₁	G	G	G	G	18	16	J ₂₄	
14	J ₂₃	J ₂₁	J ₂₃	J ₂₁	18	J ₂₆	J ₄₂	B	J ₄₇	35	G	G	G	G	G	B	E ₃₆	G	G	G	J ₂₇	J ₂₉	J ₂₄	22	
15	J ₂₁	J ₂₇	J ₂₅	J ₂₅	25	J ₉₀	J ₄₄	37	J ₃₄	J ₃₈	B	G	G	G	E ₇₅	B	J ₆₄	G	31	E ₂₅	G	22	J ₂₂	17	
16	17	21	31	J ₃₁	J ₃₆	J ₃₄	J ₄₀	G	G	G	G	G	38	J ₃₅	J ₄₂	J ₄₀	J ₃₂	G	G	G	26	26	J ₃₂	24	17
17	17	J ₃₅	J ₆₃	30	J ₂₃	J ₂₆	J ₃₉	G	35	G	G	39	J ₄₆	J ₄₁	J ₄₂	J ₄₅	J ₄₆	G	J ₄₇	J ₃₇	J ₂₅	J ₃₉	B	J ₄₄	
18	J ₄₄	J ₃₉	B	B	32	30	29	J ₄₆	E ₅₉	G	G	E ₃₆	E ₅₈	E ₄₀	E ₆₀	G	G	G	B	B	J ₃₅	J ₃₄	G	14	
19	J ₂₇	J ₃₇	J ₃₄	J ₄₂	B	J ₃₁	G	G	G	G	G	34	J ₃₅	J ₇₂	36	35	33	G	J ₃₂	30	G	J ₂₂	G	25	
20	J ₂₄	G	19	22	G	18	G	G	J ₃₂	G	E ₅₈	B	B	B	E ₅₉	37	J ₃₆	36	33	J ₃₁	26	J ₄₁	J ₃₉	J ₂₄	
21	J ₂₇	J ₄₅	J ₉₆	J ₈₄	J ₃₈	19	G	G	G	G	J ₆₃	G	37	J ₅₄	36	38	G	32	G	21	G	15	J ₂₁		
22	17	J ₂₁	J ₁₈	16	G	G	G	G	G	G	40	J ₄₁	J ₆₉	J ₆₂	38	G	G	G	27	J ₂₃	G	E ₁₉	E ₉		
23	J ₂₆	23	24	18	21	23	G	31	33	G	G	35	J ₃₈	J ₃₇	J ₃₂	G	G	G	G	G	G	G	G	E ₉	
24	E ₁₁	11	24	J ₂₅	17	G	24	30	J ₃₆	33	35	E ₆₀	E ₅₈	E ₅₃	G	G	G	G	22	J ₂₄	J ₃₃	J ₄₂	J ₄₁		
25	J ₄₂	J ₃₆	J ₄₁	J ₃₄	J ₃₂	J ₃₂	J ₂₉	J ₂₇	31	G	G	G	G	G	33	33	29	G	G	22	G	16	20	23	
26	J ₂₅	J ₂₁	J ₂₄	23	J ₂₂	J ₄₆	J ₄₁	J ₄₄	J ₃₆	J ₃₈	J ₄₄	E ₅₁	B	E ₅₂	E ₃₄	E ₃₅	E ₃₀	J ₃₂	31	31	24	J ₂₅	J ₂₁	17	
27	18	J ₁₈	23	G	G	G	G	G	E ₃₆	E ₅₇	E ₃₃	E ₅₈	B	E ₅₉	B	B	E ₃₅	B	G	G	20	15	27		
28	J ₆₂	J ₇₈	J ₃₂	J ₂₂	J ₆₀	B	J ₃₁	J ₃₂	J ₃₅	J ₄₁	B	B	B	E ₅₁	G	E ₃₅	E ₃₃	E ₅₈	G	E ₅₀	G	J ₃₁	J ₃₂	J ₃₂	
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	25	24	24	24	23	24	26	25	25	26	24	24	23	23	26	23	25	26	23	25	25	26	25	26	
MED	J ₂₄	J ₂₃	J ₂₄	25	23	26	30	30	E ₃₁	G	G	E ₃₄	38	38	U ₃₈	35	32	G	31	U ₂₄	24	23	22	22	
UQ	J ₂₇	J ₃₆	J ₃₂	J ₃₀	J ₃₁	J ₃₀	J ₃₇	J ₃₃	J ₃₄	U ₃₄	E ₃₈	U ₃₈	U ₄₀	J ₄₇	J ₅₀	41	J ₃₈	J ₃₄	J ₃₂	31	26	J ₃₂	J ₃₀	J ₂₇	
LQ	17	20	22	21	18	20	G	G	G	G	G	G	34	36	33	E ₃₄	G	G	G	G	G	G	16	17	

The Radio Research Laboratories, Japan

FEB. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

FEB. 1970

F-MIN (0.1 MHZ)

45 E Mean Time (G. M. T. + 9h)

Station	SYOWA BASE				Lat. 69 00 45	Long. 39 35 4 E	Sweep	MHz to 15	MHz in 30	sec	in automatic	operation												
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	14	B	B	18	15	27	23	15	17	20	18	15	20	17	35	28	22	15	15	15	13	10
4	8	6	11	12	13	13	14	17	12	13	23	23	15	B	55	34	21	29	28	13	15	10	10	11
5	23	B	13	22	B	B	26	25	B	26	15	14	14	20	23	18	23	24	B	50	28	15	23	13
6	14	11	B	19	14	20	15	14	50	48	35	19	35	35	58	49	34	25	22	11	11	10	11	11
7	9	5	9	11	11	13	11	11	13	12	17	19	11	15	14	15	26	21	13	13	11	13	11	10
8	7	5	5	4	7	10	5	12	16	15	23	35	26	17	19	23	19	13	10	5	10	10	10	E
9	E	10	10	10	11	13	13	12	13	13	15	15	13	13	16	15	14	15	11	13	15	12	11	15
10	12	16	15	23	23	30	23	12	20	23	22	57	58	34	31	25	21	22	15	11	B	23	11	7
11	10	10	13	14	15	6	12	14	12	18	13	52	27	19	18	15	14	13	16	14	10	9	4	4
12	6	E	E	E	4	7	11	11	12	13	12	28	16	21	14	15	11	13	10	11	5	E	E	E
13	E	E	10	10	5	12	13	10	13	57	53	25	15	13	13	13	14	11	13	11	12	9	9	5
14	5	7	8	7	11	12	10	B	20	14	13	13	13	11	13	B	36	17	11	12	10	7	7	6
15	4	E	E	6	11	12	14	14	17	16	B	19	20	19	79	B	34	26	21	25	12	11	13	E
16	8	10	10	27	27	21	22	13	14	13	14	16	21	18	15	15	23	13	12	23	20	18	10	6
17	10	10	9	20	14	11	12	10	12	12	10	14	14	14	19	12	15	13	11	12	10	14	B	10
18	19	10	B	B	26	13	14	25	59	23	23	36	58	40	60	27	15	11	B	B	25	13	9	9
19	6	13	17	13	B	16	13	13	13	13	16	20	22	21	19	15	19	19	18	13	11	11	8	9
20	5	E	5	E	9	11	10	13	12	23	58	B	B	B	57	28	18	12	11	12	15	10	6	4
21	10	4	E	10	9	13	5	12	11	14	13	22	24	22	13	15	15	15	14	13	13	10	10	7
22	6	E	5	7	9	12	15	16	21	20	22	24	23	26	22	23	16	14	12	13	10	11	19	9
23	E	5	8	5	5	10	11	11	12	14	16	15	13	12	11	16	16	14	12	11	12	10	5	7
24	11	5	7	7	6	10	11	23	15	12	12	60	58	53	15	14	12	11	10	11	20	15	10	12
25	12	12	11	10	10	10	10	7	10	15	18	20	18	15	13	13	13	11	12	9	6	E	5	E
26	E	E	5	7	5	15	12	13	13	12	17	51	B	52	34	35	30	14	11	15	11	10	7	10
27	10	9	7	11	7	7	13	15	25	36	57	33	58	B	59	B	B	35	B	18	13	10	12	13
28	13	10	6	11	14	B	22	26	26	23	B	B	B	51	25	35	33	58	25	50	13	10	5	10
29																								
30																								
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	26	25	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
MED	8	7	9	10	11	12	13	13	14	15	17	22	22	20	19	18	19	14	13	13	12	10	10	9
UQ	12	10	13	19	15	16	15	17	21	23	23	36	58	40	34	34	30	24	22	15	15	13	11	10
LQ				7	7	10	11	12	12	13	14	19	15	15	14	15	15	13	11	11	10	10	7	

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FEB. 1970

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

FEB. 1970

M(3000)F₂ (0.01)

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

Station	SYOWA BASE				Lat.	69 00 4 S				Long.	39 35 4 E				Sweep	MHz to	15	MHz in	30	sec in automatic operation					
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C		
3	C	C	290	B	B	R	R	R	250	235	255	260	255	260	255	265	275	285	315	300	320	305	305	310	
4	290	275	F	270	250	255	F	F	250	F	R	U ^B	255	245	B	260	265	265	U ^B	295	275	265	270	305	290
5	255	B	255	R	B	B	R	R	B	R	235	250	235	260	270	275	285	260	B	305	310	300	305	F	
6	290	310	B	255	270	260	245	240	240	245	255	260	270	255	275	295	295	310	320	325	325	325	310	295	
7	285	275	F	F	F	F	F	260	F	R	255	260	275	270	275	280	290	310	325	325	315	320	320	300	
8	285	275	275	275	R	R	260	265	270	260	255	260	265	265	280	U ^B	285	315	U ^B	315	320	330	330	U ^B	
9	275	F	F	F	250	F	245	245	255	255	250	R	260	270	275	270	290	290	300	305	320	320	305	F	
10	275	F	F	270	275	260	255	245	260	255	255	265	260	260	265	275	290	285	285	290	B	255	270	285	
11	255	275	275	265	R	235	245	240	235	235	245	240	245	R	250	280	U ^B	295	300	280	305	305	295	285	
12	F	F	F	F	255	R	F	235	245	255	255	255	255	260	260	270	285	285	295	310	295	310	320	290	
13	310	285	255	F	260	F	F	F	225	U ^B	245	265	R	245	270	R	260	275	265	285	310	305	310	320	F
14	F	F	F	F	F	240	215	B	220	F	235	U ^B	270	250	235	B	265	270	U ^B	285	290	R	300	305	
15	260	265	F	F	F	240	240	250	F	255	B	F	F	270	R	B	275	285	305	295	295	300	F	F	
16	F	280	270	R	R	255	245	235	255	245	250	R	R	240	255	265	265	280	290	285	315	310	300	F	
17	F	F	A	F	F	245	255	F	F	F	250	250	250	250	245	260	280	295	295	290	290	R	B	A	
18	A	245	B	B	R	F	R	235	255	240	250	F	230	255	245	265	265	260	B	B	305	305	285	F	
19	F	R	250	F	B	250	R	245	245	U ^B	235	245	245	U ^B	260	280	280	290	305	305	305	305	295	285	
20	275	270	265	260	265	255	255	245	260	250	255	B	B	B	275	275	280	270	280	285	330	310	285	285	
21	270	F	F	F	F	F	F	240	235	240	250	255	260	260	265	275	290	295	305	315	305	315	300	295	
22	275	F	F	F	F	F	F	F	250	250	260	255	255	255	265	280	290	295	300	315	310	305	295	260	
23	F	F	F	F	F	F	F	F	S	255	250	255	255	260	R	285	290	300	310	315	310	315	315	290	
24	280	F	F	F	F	F	F	F	230	F	255	U ^B	240	R	R	270	280	300	295	295	305	R	A	F	A
25	260	F	F	F	235	F	F	F	240	U ^B	240	230	R	R	255	265	260	290	300	310	300	300	315	295	260
26	F	F	F	F	F	260	240	F	240	F	F	F	230	B	235	240	245	235	235	260	320	280	270	295	270
27	265	260	F	R	260	270	265	240	240	240	250	245	265	B	265	B	B	285	B	290	295	270	290	255	
28	280	A	F	R	F	B	230	U ^B	255	250	R	B	B	B	270	285	250	260	U ^B	275	310	F	R	R	R
29																									
30																									
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	17	11	8	8	9	12	13	15	21	18	23	18	19	21	23	23	25	26	23	25	23	22	22	17	
MED	275	275	268	268	260	255	245	245	245	245	250	255	255	260	265	275	280	285	300	305	305	308	300	285	
UQ	285	278	275	270	265	260	255	248	255	255	255	260	262	265	272	280	290	295	308	315	315	315	310	295	
LQ	265	268	255	258	250	242	240	240	240	240	248	245	245	245	255	265	275	270	288	290	295	300	295	285	

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FEB. 1970

M(3000)F₂ (0.01)

IONOSPHERIC DATA

FEB. 1970

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	MHz to 15	MHz in 30	sec	in automatic operation													
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
2					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				
3					B	R	R	R	500	500	400	400	445	450	R	420	390	R	290	300				
4					400	400	420	415	370	370	400	355	400	B	340	350	330	340	275	300				
5					B	B	R	R	B	R	505	475	R	450	405	R	390	R	B	B				
6					360	400	405	415	465	425	390	375	355	375	340	315	305	270						
7					370	355	350	350	350	350	350	350	350	350	335	325	300							
8					350	350	330	315	325	350	335	330	305	300	300	300								
9					355	365	405	350	340	355	355	390	350	340	330	325	L							
10							355	345	325	360	345	370	350	360	325	300	300							
11					L	400	375	375	355	350	370	375	390	350	305	L								
12					330	355	360	345	330	325	340	340	340	305	300	300								
13					350	350	340	400	355	325	300	L	325	350	355	320								
14					365	A	B	A	440	450	425	400	410	450	B	340	355	300	300					
15					375	455	450	450	430	B	405	400	400	B	B	380	L							
16					410	430	380	390	370	395	395	395	365	350	L	340								
17					400	400	400	350	350	365	L	390	390	380	350									
18					345	540	A	B	450	410	450	460	400	B	390	390	380	B						
19					390	350	365	375	355	395	375	390	375	350	315	390			L					
20						L	L	340	350	340	B	B	B	305	290	290	270							
21					310	L	L	L	355	350	L	350	325	305	300	255								
22						L	L	350	L	325	335	330	320	300	305									
23					L	L	L	340	330	340	315	335	L	230	L									
24					435	410	400	455	L	305	390	355	300	290	L									
25					375	390	420	440	400	400	405	375	345	330	350	L								
26						445	420	415	410	400	450	B	B	500	440	425	500	405						
27						L	400	425	450	400	420	B	B	E	B	B	B							
28						440	450	R	B	B	B	B	400	415	450	400	350							
29																								
30																								
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					4	14	16	18	22	22	24	22	20	21	23	18	18	8	4	3				
MED					368	372	405	400	375	355	362	375	362	365	345	325	335	345	295	300				
UQ					388	400	420	420	425	425	400	405	398	400	362	355	390	368	352	300				
LQ					358	350	352	355	350	350	345	345	348	330	305	305	300	285	282	300				

The Radio Research Laboratories, Japan

FEB. 1970

H¹F² (KM)

IONOSPHERIC DATA

FEB. 1970

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 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	A	B	B	A	^B 300	A	A	210	240	200	R	240	200	240	240	A	250	225	250	250	250	250
4	255	275	305	315	300	280	240	230	215	200	200	225	210	B	B	225	215	240	240	250	320	240	245	245
5	A	B	^B 400	A	B	B	A	A	B	250	210	220	230	A	A	225	240	290	B	B	250	255	250	260
6	300	290	B	400	340	A	300	250	B	B	200	240	A	A	B	B	240	210	240	250	245	240	245	250
7	250	275	290	300	A	255	250	215	220	200	A	225	250	A	250	225	240	225	205	240	240	225	240	225
8	250	270	270	300	270	250	225	250	240	240	240	A	225	240	210	205	210	225	250	240	235	230	220	255
9	260	300	300	305	300	255	305	300	240	215	215	A	250	250	A	230	240	235	245	255	250	245	250	250
10	250	255	255	300	280	300	250	240	240	240	240	B	B	R	A	215	230	A	240	250	B	A	250	305
11	A	A	A	A	A	290	265	245	220	250	210	B	A	A	A	A	210	A	A	255	255	250	240	265
12	250	250	260	275	280	270	250	225	225	225	250	280	250	A	A	220	210	210	250	250	240	250	225	240
13	250	250	270	290	270	255	250	250	240	B	B	250	240	A	220	220	A	240	245	240	235	240	230	250
14	255	265	265	300	315	305	A	B	A	225	250	205	200	220	240	B	250	220	240	240	290	280	250	250
15	270	300	300	300	310	340	250	A	A	A	B	250	225	250	B	B	A	250	255	250	250	290	325	350
16	300	250	A	A	A	A	300	250	250	240	230	225	250	A	250	240	215	240	250	250	250	250	250	250
17	250	350	A	370	410	340	265	250	230	240	240	250	A	250	A	^A 260	230	225	A	265	220	A	B	A
18	A	A	B	B	A	A	A	A	B	250	240	240	B	250	B	240	230	245	B	B	260	250	285	280
19	A	A	A	A	B	A	280	265	250	225	220	230	A	A	250	225	215	240	225	245	245	240	250	250
20	255	255	285	290	300	265	250	250	260	240	B	B	B	B	B	A	205	240	240	240	230	A	A	275
21	290	325	300	300	300	260	250	250	220	235	240	230	240	250	230	245	200	240	245	240	225	225	225	220
22	255	300	300	300	305	255	250	250	250	240	240	A	A	A	A	235	240	250	240	240	225	225	250	250
23	305	300	310	310	300	280	250	250	240	225	240	225	225	220	220	220	250	235	245	230	220	225	220	220
24	250	225	300	350	340	290	250	275	240	215	225	B	B	B	240	225	220	245	250	250	350	A	A	A
25	A	A	A	A	A	A	240	230	250	225	215	225	220	220	225	240	245	245	250	250	245	245	220	250
26	270	300	300	325	325	A	220	A	250	245	300	B	B	B	220	250	250	^A 305	A	275	300	250	290	305
27	325	340	330	315	315	300	300	250	260	250	B	240	B	B	B	B	B	265	B	260	255	295	255	270
28	A	A	A	A	300	B	A	A	A	A	B	B	B	B	240	250	260	B	275	B	330	A	A	A
29																								
30																								
31																								
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	19	19	17	18	18	17	22	19	19	22	20	17	13	10	13	20	23	22	20	23	25	21	22	23
MED	255	275	300	300	300	280	250	250	240	238	240	230	230	245	230	228	230	240	245	250	250	245	250	250
UQ	280	300	300	315	315	300	280	250	250	240	240	240	250	250	240	240	240	245	250	250	255	250	250	268
LQ	250	255	270	300	300	255	250	242	228	225	215	225	225	220	220	222	215	225	240	240	235	240	230	250

The Radio Research Laboratories, Japan

FEB. 1970

H¹F (KM)

IONOSPHERIC DATA

FEB. 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 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	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
3	C	C	150	B	B	100	G	120	110	G	G	G	G	140	G	G	B	115	100	G	G	G	155	140
4	G	100	105	110	110	110	150	G	G	G	G	G	130	B	B	B	G	B	B	155	125	105	105	115
5	120	B	110	110	B	B	105	100	B	G	G	G	140	130	125	110	115	G	B	B	B	G	140	150
6	150	115	B	110	G	125	120	150	B	B	B	G	130	125	B	105	105	G	G	G	100	130	105	100
7	105	110	105	120	100	100	100	100	100	100	100	140	125	115	110	105	110	100	100	100	G	G	105	120
8	120	110	110	100	100	100	105	G	G	G	G	G	120	100	105	105	G	G	G	G	G	100	100	100
9	100	140	125	100	100	100	100	100	G	G	G	115	140	110	105	105	100	100	100	100	100	125	100	100
10	125	B	115	B	B	B	100	100	G	G	G	B	B	G	105	110	G	100	100	140	B	140	115	115
11	110	115	125	120	120	100	150	105	G	110	100	B	130	110	110	105	100	100	100	100	100	G	100	100
12	100	100	100	G	100	100	100	G	G	G	100	150	120	110	110	105	100	100	100	100	100	100	100	100
13	100	100	115	105	G	G	G	G	G	B	B	G	140	110	105	105	100	100	G	G	G	125	100	100
14	100	100	125	100	100	100	100	B	105	100	G	G	G	G	G	B	B	G	G	G	150	140	115	105
15	150	100	100	100	150	130	100	100	105	100	B	G	G	G	B	B	120	G	105	B	G	150	125	145
16	125	120	105	140	125	120	150	G	G	G	G	G	100	115	110	105	105	G	G	160	140	105	110	100
17	140	115	120	150	125	105	150	G	110	G	G	120	110	105	105	100	100	G	100	100	150	120	B	105
18	105	115	B	B	110	100	100	105	B	G	G	B	B	B	B	G	G	G	B	B	120	140	G	140
19	105	110	115	105	B	100	G	G	G	G	G	110	105	105	140	100	105	G	100	100	G	100	G	105
20	105	G	100	100	G	150	G	G	100	G	B	B	B	B	B	120	100	100	100	100	100	100	100	100
21	100	125	105	120	100	150	G	G	G	G	G	130	G	140	120	105	120	G	105	G	155	G	100	100
22	150	200	110	140	G	G	G	G	G	G	G	130	120	105	105	105	G	G	G	100	100	G	B	B
23	150	115	130	110	110	110	G	100	100	G	G	120	115	110	110	G	G	G	G	G	G	G	G	B
24	B	115	120	110	140	G	110	125	125	120	120	B	B	B	G	G	G	G	G	150	150	110	105	115
25	105	115	150	100	100	120	120	140	115	G	G	G	G	G	125	110	110	G	G	150	G	100	100	100
26	100	100	150	120	105	100	100	100	105	100	100	B	B	B	B	B	B	105	105	165	155	125	115	125
27	110	105	130	G	G	G	G	G	G	B	B	B	B	B	B	B	B	B	B	G	G	140	120	130
28	120	100	100	100	100	B	115	120	125	115	B	B	B	B	G	B	B	B	G	B	G	110	105	110
29																								
30																								
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	23	22	24	21	17	19	18	14	11	7	5	8	14	15	15	16	14	9	12	14	14	19	21	24
MED	110	112	115	110	105	100	105	102	105	100	100	125	122	110	110	105	105	100	100	100	122	120	105	105
UQ	125	115	125	120	120	120	120	120	112	112	100	135	130	120	115	108	110	100	102	150	150	135	115	124
LQ	102	100	105	100	100	100	100	100	102	100	100	118	115	108	105	105	100	100	100	100	100	102	100	100

The Radio Research Laboratories, Japan

FEB. 1970

H'ES (KM)

IONOSPHERIC DATA

FEB. 1970

TYPES OF ES

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

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

FEB. 1970

TYPES OF ES

IONOSPHERIC DATA

MAR. 1970

FOF2 (0.1 MHz)

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

Station SYOWA BASE Lat. 69 00' 4 5' Long. 39 35' 4 E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	R	R	A	R	A	47	B	B	R	R	A	B	B	R	B	B	64	46	R	47	JR	49	40	34	36					
2	R	A	A	A	F	B	R	B	B	B	R	48	B	B	B	62	B	63	63	65	62	47	43	JF	43					
3	F	28	A	A	A	47	47	60	67	68	75	73	69	B	73	75	75	76	75	70	F	64	35	22	B					
4	B	A	A	B	R	B	B	52	59	63	65	70	65	B	61	B	B	58	B	37	39	A	A	A						
5	A	A	B	B	A	A	42	47	56	61	62	B	60	64	65	70	65	66	69	66	57	R	A	A						
6	F	A	A	B	A	B	43	49	57	F	60	62	B	62	B	B	R	54	50	F	45	R	R	R	A					
7	B	A	A	B	A	B	B	B	B	B	B	B	B	66	B	80	B	62	B	B	B	B	A	R						
8	R	R	38	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R						
9	47	R	R	F	F	31	B	B	B	B	B	B	B	B	B	B	B	B	47	B	A	R	F	R						
10	A	A	A	B	76	F	F	F	85	88	87	87	80	80	77	74	70	70	65	63	55	39	R	F						
11	30	F	F	F	F	F	56	64	75	84	90	96	JR	95	C	C	C	80	74	65	64	F	F	31						
12	R	R	F	F	F	F	F	63	F	82	UR	87	88	JR	98	104	B	B	B	B	R	F	F	65	F	47				
13	40	39	36	34	F	37	50	66	72	76	92	R	111	112	115	B	111	108	97	91	97	F	F	R						
14	35	F	JF	43	30	40	A	F	72	UR	77	76	F	JR	86	F	JR	92	90	94	92	88	80	69	F	F	F	JF	45	
15	40	37	38	39	F	41	R	59	64	R	JF	77	84	84	92	96	94	97	95	87	85	85	F	72	F	F	F	F		
16	B	B	B	B	B	B	B	B	67	76	94	98	108	113	111	102	C	98	93	86	74	69	64	47						
17	39	27	29	F	26	26	37	52	B	75	92	97	98	108	108	102	105	102	98	102	JR	85	67	F	F					
18	F	A	A	F	R	F	F	F	F	83	92	92	92	101	95	90	99	92	95	96	80	67	54	F	C					
19	A	A	A	F	A	C	C	C	C	C	C	92	98	100	94	93	94	89	C	82	65	52	45	F						
20	R	34	37	R	52	F	F	72	81	93	101	101	98	97	94	88	C	JR	98	JR	97	72	50	F	A	F				
21	B	A	34	42	46	A	A	67	C	C	C	C	C	C	101	C	96	98	91	95	F	F	47	44						
22	F	F	F	F	F	F	F	62	74	89	104	JR	102	R	110	106	102	105	JR	101	89	90	JR	78	54	51	42			
23	42	37	37	F	F	F	38	55	67	81	89	101	107	112	106	104	104	103	97	85	82	67	F	F						
24	F	F	F	F	F	R	34	30	48	62	74	85	94	97	108	109	113	110	100	85	82	69	57	48	40					
25	36	F	38	F	F	JF	41	38	40	F	70	79	97	98	110	115	116	115	109	105	JR	101	89	72	60	55	46			
26	F	JF	65	F	F	F	F	28	B	F	F	86	95	YR	YF	109	122	127	115	112	100	105	F	90	JF	73	JF	55	F	27
27	21	A	R	F	F	47	18	F	55	68	75	85	93	107	103	108	127	108	98	95	90	F	55	63	A					
28	F	B	B	F	JR	54	R	F	B	R	B	B	B	68	C	F	C	111	JF	84	64	R	24	A	31	A				
29	A	A	37	B	F	F	B	B	B	B	B	B	B	81	91	96	96	R	65	B	B	R	B	A						
30	A	42	37	B	A	R	47	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	R	R						
31	B	A	A	A	A	R	B	B	B	B	B	B	B	B	73	B	B	F	B	R	39	A	R	F						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	9	9	11	5	9	9	11	16	16	19	19	20	19	20	21	19	19	25	23	23	21	14	13	11						
MED	39	37	37	39	46	34	43	61	69	77	89	92	98	102	94	97	96	89	85	82	65	54	47	43						
UQ	40	39	38	40	52	38	48	65	76	85	93	98	107	111	108	103	108	100	96	90	73	60	55	46						
LQ	35	34	35	34	41	28	39	52	64	75	84	85	86	86	90	84	92	70	67	66	55	47	39	38						

The Radio Research Laboratories, Japan

MAR. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

MAR. 1970

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 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	A		A	B	B	R	B	B	440	390		R				
2								B	B	B				B	B	B	L	B	L					
3							A	400	L	450	B	R	B	B	B	L	L							
4							B	A	400	R	R	R	B	B	B	B	B	L	B					
5									R	410	B	B	B	R	L	480	L							
6									390	400	400	R	B	B	B	B	R	L						
7							B	B	B	B	B	B	B	B	B	B	B	B						
8							B	B	B	B	B	B	B	B	B	B	B	B						
9							B	B	B	B	B	B	B	B	B	B	B	B						
10					A	A	370	L	R	R	R	R	R	R	L	L								
11							L	L	L	L	L	L	L	C	C	C	C							
12								A	L	L	L	L	L	B	B	B	B							
13								L	L	560	L	B	B	L	B	B	L							
14								L	L	L	L	B	L											
15							B	L		L	B	B	L	L										
16								B	L	L	B	B	B	L	L		C							
17									B				L	L										
18									L				L	L		L	L							
19								C	C	C	C	L	L											
20																								
21									C	C	C	C	C	C										
22																								
23												L												
24										L	L													
25																								
26																								
27																								
28								B		B	B	B	L	C	L	C								
29								B	B	B	B	B	B	B	B									
30								B	B	B	B	B	B	B	B	B	B							
31								B	B	B	B	B	B	B	L	B	B	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								2	2	4	1					1	1	1						
MED								385	395	430	400					480	440	390						
UQ										505														
LQ										405														

The Radio Research Laboratories, Japan

MAR. 1970

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAR. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				B	A	B	B	B	A	A	A	B	B	R	B	B	290	A	R	B	A	A		
2				A	A	B	B	B	B	B	A	315	B	B	B	R	B	B	260	B	B	A		
3				B	A	A	A	250	270	300	B	B	B	B	B	295	290	270	235	A	A	A		
4				B	B	B	B	A	280	300	B	R	B	B	B	B	B	250	B	A	A	A		
5				B	B	B	A	A	A	280	B	B	B	300	290	285	280	225	A	190	160	B		
6				B	A	B	A	A	275	290	295	B	B	B	B	R	270	220	200	A	A			
7				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
8				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
9				B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
10				B	B	A	A	250	255	R	290	295	310	R	270	A	B	A	B	B	150	A		
11				A	190	B	215	245	270	290	280	295	C	C	C	C	250	220	170	135				
12				A	A	A	A	A	A	310	B	B	B	B	B	B	B	B	B	B	B			
13				A	A	A	A	R	270	295	B	B	300	B	B	B	B	B	B	B	B			
14				A	B	A	230	240	285	B	B	B	300	290	285	270	240	200	A	A				
15					A	B	B	B	A	B	B	B	305	290	R	B	B	240	160	B				
16					B	B	B	B	B	B	B	B	B	A	B	B	C	230	210	A				
17					B	B	B	B	B	B	B	B	R	A	300	275	250	225	A	A				
18					A	A	210	220	250	260	275	270	A	280	A	250	230	200	A					
19					C	C	C	C	C	C	C	295	300	A	295	280	245	225	C	A				
20						R	180	220	245	275	280	290	270	275	270	C	200	150						
21					A	A	A	C	C	C	C	C	C	C	280	C	240	205	190	140				
22					A	A	180	225	250	255	285	285	A	280	B	B	R	165	A					
23					150	A	170	220	245	275	280	295	B	B	B	250	220	A	A					
24					A	B	B	B	255	270	285	295	300	280	275	250	220	A	A					
25					B	B	B	225	240	275	280	275	290	295	A	A	A	A	A					
26					A	B	A	A	265	260	275	280	275	280	270	225	210	175	120					
27					A	A	A	200	235	255	270	290	280	275	270	250	A	175	R					
28					A	180	B	B	B	B	B	290	C	B	C	B	250	A	A					
29					A	B	B	B	B	B	B	B	B	B	B	B	B	B	B					
30					B	A	B	B	B	B	B	B	B	B	B	B	B	B	B					
31					B	B	B	B	B	B	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	1	8	12	15	13	12	13	9	13	9	12	17	13	5	3				
MED					170	180	212	232	265	275	280	290	290	280	275	250	230	200	170	150				
UQ							240	262	282	290	290	295	300	290	285	275	250	220	190	155				
LQ							180	220	248	260	278	285	280	280	270	248	220	175	140	142				

MAR. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

MAR. 1970

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 MHz to **15** MHz in **30** sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	10	22	22	20	14	26	B	B	22	26	23	B	B	27	B	B	26	15	13	22	11	9	10	10
2	12	13	18	10	15	B	27	B	B	B	27	18	B	B	B	26	B	34	22	52	37	11	20	10
3	10	10	28	22	16	16	18	16	13	16	50	40	53	B	51	26	18	16	15	12	14	5	10	B
4	B	13	23	B	23	B	B	18	23	27	33	26	60	B	50	B	B	13	B	13	23	10	13	E
5	7	7	B	B	23	25	15	20	24	22	57	B	51	21	21	21	13	23	11	15	11	16	15	11
6	14	28	13	B	14	B	23	22	20	15	20	36	B	55	B	B	25	11	15	14	13	14	13	10
7	B	18	18	B	17	B	B	B	B	B	B	B	B	57	B	54	B	54	B	B	B	B	22	23
8	18	15	23	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	23
9	16	23	17	17	13	22	B	B	B	B	B	B	B	B	B	B	B	B	27	B	23	15	15	15
10	14	11	16	B	22	16	18	23	22	22	22	23	27	23	22	23	34	23	23	23	13	6	10	9
11	10	10	12	14	12	14	20	17	20	21	23	24	22	C	C	C	C	16	16	14	11	13	11	6
12	7	7	11	10	14	15	14	25	20	21	20	34	57	60	B	B	B	B	B	60	34	33	35	18
13	12	7	9	11	11	13	12	5	13	12	23	74	57	23	58	B	35	25	23	34	59	27	15	10
14	10	12	10	11	14	22	23	15	21	27	34	60	34	17	16	14	14	14	12	12	12	10	10	5
15	10	E	7	14	11	16	47	26	39	15	47	52	12	15	23	35	29	17	13	20	20	13	9	E
16	B	B	B	B	B	B	B	B	27	30	57	60	58	27	56	50	C	13	10	13	11	11	14	13
17	14	13	11	13	13	16	23	23	B	54	57	57	28	22	21	16	12	10	9	9	6	9	11	E
18	9	12	13	6	20	13	10	10	12	12	13	15	13	14	13	16	14	14	15	12	6	10	10	C
19	E	23	15	22	29	C	C	C	C	C	C	15	16	18	16	15	12	12	C	12	13	11	10	11
20	6	10	15	23	22	11	10	10	12	13	13	11	10	13	11	12	C	10	5	7	5	5	7	E
21	B	7	12	18	13	13	14	14	C	C	C	C	C	C	12	C	11	10	10	10	E	10	13	10
22	10	14	13	14	11	13	9	14	18	20	16	20	21	20	10	27	27	14	11	11	13	8	12	6
23	7	13	11	7	9	10	7	12	11	12	13	13	14	35	34	26	22	11	12	13	6	12	7	10
24	11	11	10	10	10	11	22	34	30	21	21	23	19	20	15	15	15	14	13	12	7	7	10	11
25	14	7	7	7	E	10	13	17	11	11	16	15	18	15	13	12	14	10	7	9	10	10	11	7
26	6	7	7	10	7	11	B	20	15	11	11	14	11	14	14	14	13	12	13	11	7	E	13	12
27	11	11	10	10	11	11	10	11	15	15	16	12	14	16	15	15	13	8	10	10	10	12	13	12
28	10	B	B	21	15	16	11	B	32	B	B	B	23	C	33	C	28	22	15	13	9	10	10	22
29	11	10	14	B	24	15	B	B	B	B	B	B	B	B	58	55	36	57	71	52	B	B	21	B
30	11	15	15	B	24	33	22	B	B	B	B	B	B	B	B	B	B	B	58	B	B	B	21	20
31	57	12	21	21	20	23	B	B	B	B	B	B	B	B	34	B	B	23	B	27	13	15	13	12
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	30	30	30	29	29	29	30	30	28	30	28	28	31	30	31	31	31	31	30
MED	11	12	14	18	14	16	22	22	22	22	27	38	42	25	34	26	26	15	15	13	13	11	13	10
UQ	14	15	20	B	22	26	B	B	B	B	57	B	B	D	B	B	B	24	27	30	23	15	15	15
LQ	10	10	11	10	12	13	13	15	15	15	20	18	18	18	15	16	14	12	11	12	10	10	10	7

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F-MIN (0.1 MHz)

IONOSPHERIC DATA

MAR. 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 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	R	A	R	A	230	B	B	R	R	A	B	B	R	B	B	240	215	R	285	R	295	255	235
2	R	A	A	A	F	B	R	B	B	B	R	315	B	B	B	275	B	300	305	295	280	280	280	F
3	F	240	A	A	A	245	235	250	265	240	265	260	270	B	280	305	295	285	295	300	300	255	250	B
4	B	A	A	B	R	B	B	235	250	225	230	265	255	B	250	B	B	255	B	250	275	A	A	A
5	A	A	B	B	A	A	215	220	230	245	255	B	235	265	275	270	290	295	305	320	300	R	A	A
6	F	A	A	B	A	B	240	235	225	F	240	225	B	240	B	B	R	275	280	255	R	R	R	A
7	B	A	A	B	A	B	B	B	B	B	B	B	B	210	B	260	B	275	B	B	B	B	A	R
8	R	R	290	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R
9	220	R	R	F	F	240	B	B	B	B	B	B	B	B	B	B	B	B	255	B	A	R	245	R
10	A	A	A	B	245	F	F	F	240	260	255	255	255	265	275	275	285	315	320	330	300	275	R	F
11	300	F	F	F	F	F	280	295	255	255	265	265	R	C	C	C	C	300	310	310	330	F	F	305
12	R	R	F	F	F	F	F	245	F	255	250	250	R	250	B	B	B	B	B	R	F	F	290	F
13	280	280	280	250	F	280	260	245	260	235	250	R	295	275	270	B	265	295	280	295	315	F	F	R
14	245	F	F	250	245	A	F	245	260	265	F	R	F	R	280	285	300	295	305	320	F	F	F	F
15	300	290	265	255	270	R	235	240	R	F	260	275	270	285	280	300	305	300	305	315	295	F	F	F
16	B	B	B	B	B	B	B	B	280	270	265	285	285	270	285	285	C	300	310	325	310	305	315	320
17	285	260	270	F	240	250	280	255	B	255	270	275	270	270	285	295	295	300	305	315	R	295	F	F
18	F	A	A	F	R	F	F	F	270	230	260	260	275	275	265	275	285	295	290	315	300	315	F	C
19	A	A	A	F	A	C	C	C	C	C	C	260	275	300	290	300	310	305	C	320	310	305	305	F
20	R	300	270	R	265	F	F	280	270	270	270	275	275	290	300	295	C	R	R	320	320	F	A	F
21	B	A	265	240	245	A	A	225	C	C	C	C	C	C	305	C	315	305	310	305	F	F	300	305
22	F	F	F	F	F	F	F	290	295	270	260	R	R	285	265	285	285	R	315	305	R	320	315	290
23	285	270	270	F	F	F	270	280	300	280	265	275	280	295	295	280	305	320	310	320	365	325	F	F
24	F	F	F	F	F	240	265	280	290	290	280	285	300	285	290	300	305	320	320	315	320	315	320	305
25	285	265	F	F	F	255	250	F	255	285	260	285	275	285	285	305	295	315	R	305	320	300	295	295
26	F	F	F	F	F	F	B	F	F	260	265	R	F	295	305	305	295	300	325	305	F	F	F	295
27	295	A	R	F	F	220	F	290	310	300	275	280	270	270	240	285	280	280	285	290	F	265	255	A
28	F	B	B	F	R	R	F	B	R	B	B	B	255	C	F	C	270	F	280	R	265	A	330	A
29	A	A	270	B	F	F	B	B	B	B	B	B	B	295	275	290	290	R	290	B	B	R	B	A
30	A	260	250	B	A	R	255	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	R	R
31	B	A	A	A	A	R	B	B	B	B	B	B	B	B	245	B	B	F	B	R	255	A	R	F
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	8	9	5	7	9	11	16	16	18	19	17	16	19	21	19	19	22	21	23	17	13	13	9
MED	285	268	270	250	245	245	255	248	262	260	260	275	272	275	280	285	295	300	305	310	300	300	295	300
UQ	295	285	270	255	260	250	268	280	285	270	265	280	278	288	290	300	302	305	310	320	320	315	315	305
LQ	280	260	265	250	245	240	238	238	252	245	255	260	262	268	270	278	285	285	290	298	295	280	255	295

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M(3000)F2 (0,01)

IONOSPHERIC DATA

MAR. 1970

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 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	A		A	B	B	R	B	B								
2								B	B	B			B	B	B	L	450	640	440					
3							450	425	L	415	375	390	340	B	300	290	275							
4							B	R		410	505	500	330	B	B	450	B	B	L	B				
5									500	450	B	B	B	390	350	340	L							
6									500	480	460	R	B	B	B	B	R	L						
7							B	B	B	B	B	B	B	B	B	350	B	B						
8							B	B	B	B	B	B	B	B	B	B	B	B						
9							B	B	B	B	B	B	B	B	B	B	B	B						
10							345	400	400	340	370	345	365	350	350	330	325							
11								350	300	350	340	340	310	300	C	C	C	C						
12								440	320	350	L	350	L	350	B	B	B							
13								L	365	455	L	350	290	270	300	B	290							
14								L	L	L	350	350	350											
15							B	425		430	315	320	290	270										
16								B	L	L	285	290	300	290	L		C							
17									B				L	L										
18									L				310	290		260	L							
19								C	C	C	C	L	290											
20																								
21									C	C	C	C	C	C										
22																								
23											L													
24										L	L													
25																								
26																								
27																								
28								B		B	B	B	L	C	350	C								
29								B	B	B	B	B	B	B	310	300								
30								B	B	B	B	B	B	B	B	B	B							
31								B	B	B	B	B	B	B	365	B	B	340						
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					1	3	6	7	9	8	9	9	9	8	8	5	3	3	1					
MED					345	400	425	365	430	348	350	300	300	340	325	290	340	440						
UQ					425	440	455	455	418	350	340	350	358	340	370	490								
LQ					375	400	345	370	328	320	290	280	300	290	282	320								

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H^oF2 (KM)

IONOSPHERIC DATA

MAR. 1970

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 **MHz to 15 MHz in 30 sec in automatic operation**

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	A	A	A	A	B	B	A	A	A	B	B	290	B	B	255	A	R	A	A	A	A	A	
2	A	A	A	A	A	B	A	B	B	B	A	250	B	B	B	250	B	270	255	B	290	290	290	295	
3	A	A	B	A	A	A	A	305	250	255	B	260	B	B	B	230	240	240	240	250	250	A	A	B	
4	B	A	A	B	A	B	B	A	290	250	230	250	B	B	B	B	B	250	B	250	350	A	A	A	
5	A	A	B	B	A	A	A	A	A	250	B	B	B	250	240	230	240	240	250	245	250	A	A	A	
6	A	B	A	B	A	B	A	A	300	250	250	290	B	B	B	B	250	270	275	295	A	A	A	A	
7	B	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	
8	A	A	325	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	
9	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	300	B	A	A	A	A	
10	A	A	A	B	A	A	A	290	250	250	240	240	225	245	250	250	250	250	240	240	250	260	A	A	
11	A	A	350	355	345	330	305	250	240	240	240	240	220	C	C	C	C	245	240	215	240	250	250	265	
12	A	A	A	A	350	395	A	A	A	260	245	250	B	B	B	B	B	B	B	280	255	275	290	275	
13	290	305	300	355	355	305	290	250	245	250	240	B	B	225	B	B	250	250	250	240	250	260	250	A	
14	A	350	A	A	A	A	A	265	230	250	250	B	250	245	245	250	240	225	220	215	220	225	240	250	
15	250	300	310	340	315	A	B	A	B	A	B	B	240	225	240	250	250	240	245	240	210	225	250	305	
16	B	B	B	B	B	B	B	B	250	250	B	B	B	240	B	B	C	225	210	220	210	225	230	250	
17	290	A	350	290	B	B	B	255	B	B	B	B	240	250	230	230	240	230	210	225	210	215	A	A	
18	300	A	255	A	A	A	310	280	250	250	250	250	A	A	230	230	220	230	240	220	240	250	300	C	
19	A	A	A	A	B	C	C	C	C	C	C	225	210	250	220	230	230	215	C	205	215	240	245	265	
20	A	A	A	A	A	370	310	250	240	240	240	240	240	240	225	225	C	220	205	200	200	250	A	A	
21	B	A	A	A	A	A	A	A	C	C	C	C	C	C	C	250	C	240	220	220	225	225	220	245	240
22	240	225	340	375	390	330	280	250	245	245	245	240	240	240	240	240	250	235	210	215	215	210	240	250	
23	250	300	300	300	340	370	305	255	250	240	240	240	230	250	250	225	225	220	210	220	225	220	250	300	
24	A	A	A	A	A	A	330	290	240	225	250	240	240	225	235	240	225	215	215	205	215	240	245	250	
25	250	250	300	305	340	320	315	290	245	245	240	245	240	240	240	250	240	220	210	220	220	225	240	240	
26	250	280	300	325	325	345	B	350	290	240	240	240	240	250	240	240	225	215	240	215	215	225	250	210	
27	A	A	A	400	325	B	300	255	245	240	240	250	240	245	200	240	240	225	220	240	250	325	A	A	
28	275	B	B	A	A	A	325	B	B	B	B	B	225	C	B	C	250	255	295	A	230	A	250	A	
29	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	250	B	B	B	B	B	B	A	B	A
30	A	A	A	B	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A
31	B	B	A	B	B	220	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	9	7	10	9	9	9	10	14	16	18	15	16	14	16	15	17	19	23	22	22	23	19	16	13	
MED	250	300	305	340	340	330	308	260	248	250	240	241	240	245	240	240	240	230	240	222	225	240	250	250	
UQ	290	302	340	355	350	370	315	290	250	250	248	250	240	250	242	250	250	248	250	240	250	255	250	275	
LQ	250	265	300	305	325	320	300	250	242	240	240	240	225	240	230	230	235	220	210	215	215	225	242	250	

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H^oF (KM)

IONOSPHERIC DATA

MAR. 1970

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 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	105	125	105	100	100	110	B	B	100	115	115	B	B	G	B	B	G	105	160	130	105	110	110	115	
2	115	110	100	105	120	B	140	B	B	B	105	G	B	B	B	G	B	B	G	B	B	115	B	120	
3	120	105	150	100	105	105	105	G	140	G	B	B	B	B	B	120	G	G	105	110	155	100	125	B	
4	B	100	110	B	110	B	B	105	150	G	B	G	B	B	B	B	B	G	B	110	B	105	100	100	
5	100	100	B	B	100	120	125	120	110	G	B	B	B	125	125	110	G	105	105	G	G	120	110	100	
6	110	105	100	B	105	B	105	105	G	G	G	B	B	B	B	B	G	G	155	G	115	105	105	110	
7	B	105	100	B	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	120	
8	110	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	100	
9	125	150	140	135	150	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	105	120	120	100	
10	110	115	100	B	100	120	125	G	G	G	G	G	G	G	G	110	B	120	B	B	100	100	110	100	
11	105	105	105	110	105	G	B	G	G	G	E ₄₀	G	120	C	C	C	C	G	G	G	G	140	120	100	
12	105	105	115	110	105	105	110	120	110	120	G	B	B	B	B	B	B	B	B	B	B	B	B	110	
13	100	100	150	100	100	100	100	100	100	G	G	B	B	G	B	B	B	B	B	B	B	B	110	115	
14	110	115	110	150	115	125	115	G	G	G	B	B	B	G	G	G	G	G	G	G	100	100	100	100	
15	100	100	100	B	145	100	B	120	120	100	B	B	G	G	G	B	B	G	155	B	B	140	120	100	
16	B	B	B	B	B	B	B	B	B	B	B	B	B	115	B	B	C	G	100	100	100	100	110	100	
17	110	100	150	150	B	B	B	B	B	B	B	B	G	105	G	G	100	100	100	100	100	150	150	110	
18	130	115	105	100	105	105	115	G	110	G	130	120	100	100	G	100	G	G	G	140	100	125	150	C	
19	105	100	100	105	170	C	C	C	C	C	C	G	G	105	G	G	130	G	C	180	105	110	110	115	
20	110	120	110	105	115	100	G	G	G	130	G	G	G	110	G	G	C	G	G	B	100	100	110	150	
21	B	115	120	105	100	100	100	100	C	C	C	C	C	C	G	C	G	G	G	G	100	100	B	100	
22	100	B	B	B	B	140	100	G	G	G	G	G	140	105	G	B	B	G	G	100	100	100	B	B	
23	B	100	145	140	120	115	125	G	G	G	G	125	G	B	B	B	G	G	100	105	100	100	160	150	
24	125	125	120	130	125	100	B	B	B	G	G	G	G	G	G	G	G	G	G	100	100	100	100	100	
25	B	100	100	100	100	B	B	B	G	G	G	G	G	G	G	100	100	100	100	100	100	100	B	105	
26	100	105	B	B	140	140	B	105	125	G	G	G	G	G	G	G	G	G	G	G	100	100	B	B	
27	130	140	140	140	140	140	120	100	G	G	G	G	G	G	G	G	100	100	100	G	100	110	120	130	
28	125	B	B	130	120	120	150	B	105	B	B	B	G	C	B	C	B	G	140	105	105	110	120	110	
29	105	105	115	B	105	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	B	155	
30	110	140	125	B	105	145	130	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	125	
31	140	135	125	140	125	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	130	120	110	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	25	28	25	19	27	19	15	9	10	4	3	3	3	7	1	5	4	6	12	14	20	26	23	27	
MED	110	105	110	110	105	110	115	105	110	118	115	122	120	105	125	110	100	102	102	105	100	108	110	110	
UQ	120	118	125	138	122	122	125	120	125	125	122	128	130	112		110	115	105	148	130	105	120	122	120	
LQ	105	100	100	102	105	100	105	100	105	108	110	122	110	105		100	100	100	100	100	100	100	110	100	

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MAR. 1970

H^oES (KM)

IONOSPHERIC DATA

MAR. 1970

TYPES OF ES

45° E Mean Time (G. M. T. + 3^h)

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

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

The Radio Research Laboratories, Japan

MAR. 1970

TYPES OF ES

IONOSPHERIC DATA

APR. 1970

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	MHz to 15				MHz in 30 sec				in automatic operation			
How Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	31	A	F	B	42	F	F	47	B	58	69	81	90	100	96	97	100	83	73	65	54	43	35	22			
2	20	18	R	R	F	19	27	42	52	B	77	91	89	96	109	108	110	96	86	81	61	40	30	28			
3	23	A	A	A	A	A	A	A	B	B	B	69	R	R	JR 103	JR 118	121	JF 120	96	88	44	F	32	JR 42			
4	F 25	29	A	27	39	A	51	F	70	74	70	69	81	97	113	117	118	R	98	84	66	52	F	48	36		
5	28	24	A	37	20	22	26	40	53	67	78	87	88	103	114	106	104	112	101	F	75	JF 69	JF 55	24			
6	R	R	F	F	F 39	38	A	57	A	F 66	B	B	70	78	B	112	115	111	B	29	F	F 23	F	F 23			
7	31	A	A	A	A	A	34	41	47	62	B	75	B	120	130	124	121	116	JR 103	83	67	R	R	B			
8	B	20	R	35	R	A	F	F 70	B	F 73	78	92	88	B	B	116	R	122	107	115	93	76	65	F	35		
9	26	A	37	39	F	F	F	55	B	F 65	F 83	86	B	UR 105	UR 137	126	126	B	B	F	F	F	F	29			
10	26	A	A	F	48	R	Z 54	F 64	JF 87	95	114	120	130	131	F	129	129	125	126	104	88	68	45	31	27		
11	25	21	A	A	F	F	F	F	F	F	105	103	94	102	110	113	R	F	112	F	R	F	25	A			
12	A	F 25	F 23	F	F	F	40	R	R	R	75	JF 87	F	R	F	112	F	110	96	86	63	F	23	30			
13	A	A	A	A	36	F	38	F	F	73	F	95	106	108	103	101	110	107	93	80	57	36	28	F 21			
14	F 24	F 20	F 17	F 18	F 18	17	F 28	49	67	88	105	107	112	114	111	111	111	99	75	60	47	31	22				
15	C	54	35	31	F 30	F	F 34	F	F	70	87	94	108	JR 122	124	122	R	117	102	87	F	A	A	A			
16	A	R	R	R	R	A	A	A	B	B	B	65	64	69	71	R	70	67	55	53	F	R	20	F			
17	B	A	F	F	B	B	A	A	A	A	61	66	71	B	113	F	113	95	81	JR 38	R	R	B	B			
18	A	F 31	F	B	A	F	F 38	F	61	65	75	91	82	76	92	F	B	119	F 93	R	37	31	A	A			
19	F	A	B	B	B	A	B	B	A	B	B	B	B	B	B	R	F	115	97	76	57	F	F	27			
20	A	A	A	A	A	A	A	A	B	B	67	62	74	93	95	95	93	B	102	R	R	A	A	A			
21	A	F	A	A	F	B	40	A	A	B	B	B	B	B	F	F 90	F	F	F	F 31	A	F	F 30	R	A		
22	B	B	F	B	B	A	B	B	B	B	B	B	B	B	B	B	UR 52	37	24	19	B	A	A	A			
23	A	A	A	A	R	B	A	A	39	51	48	B	72	71	UR 70	88	102	107	90	R	R	A	A	A			
24	R	A	B	R	B	R	B	B	B	B	B	B	B	B	40	61	64	F	57	B	A	A	A	A			
25	28	A	B	B	B	B	B	B	B	B	B	B	B	B	71	91	B	B	B	B	B	B	R	A			
26	A	R	A	A	B	B	B	A	37	43	54	64	68	71	77	UR 81	78	79	B	B	B	R	A	A			
27	A	A	R	B	B	R	B	B	A	B	B	B	65	70	75	88	B	B	B	B	B	B	A	A			
28	R	A	A	A	B	B	A	A	A	B	B	68	80	JR 88	JR 91	97	R	81	R	R	R	B	18	17			
29	R	R	R	A	A	A	A	A	50	45	64	74	80	JR 87	95	95	97	F	86	F	42	A	A	A			
30	A	A	A	B	R	B	B	A	B	65	62	B	B	63	F	95	95	84	A	A	A	A	A	A			
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	11	9	4	6	8	4	12	9	10	15	18	22	21	20	25	24	20	21	24	16	15	11	13	14			
MED	26	24	F 29	33	38	20	37	47	51	66	75	84	82	96	103	107	110	107	94	80	60	43	31	27			
UQ	28	29	36	37	40	30	40	57	61	72	83	92	94	106	113	116	120	115	102	86	66	50	35	30			
LQ	24	20	F 20	F 27	25	18	30	41	47	60	65	68	72	77	77	93	96	95	82	59	49	34	25	22			

APR. 1970

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

APR. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

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

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APR. 1970

FOF1 (0.01 MHz)

IONOSPHERIC DATA

APR. 1970

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 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	B	A	R	R	275	270	R	255	225	210	180	A			125	120
2	115	150	165	170	175	145	A	175	R	B	260	280	280	275	270	250	225	B	R	B				
3						B	A	B	B	B	B	B	B	B	B	B	B		190	B	B	155		170
4	225					B	A	A	A	230	260	B	B	B	B	250	B	B	B	B				
5						A	160	195	220	225	260	265	260	B	B	B	B	B						
6						B	B	A	A	B	B	280	B	B	B	B	B	B				170		
7						A	B	B	B	B	275	B	B	B	B	B	B	B						
8						A	A	B	B	280	B	270	B	B	B	B	B	B						
9	135				150	A	A	B	B	B	B	B	B	B	B	B	230	B	B				145	180
10						A	A	170	A	220	A	A	A	250	A	A	A	A						
11	100					B	B	210	A	260	255	B	B	B	B	B	B	B						
12						180	A	B	B	B	270	R	A	255	B	200	R	A						
13					A	A	125	125	200	230	R	A	A	240	220	210	A	A						
14						A	120	140	175	225	260	260	255	250	225	205	165	A						
15						A	A	155	195	225	260	265	260	250	A	200	R	A						
16						A	B	B	B	B	B	B	B	B	B	B	B	R	B					
17						B	B	B	A	B	B	B	B	B	B	B	B	A	B			130		
18						A	A	150	175	R	A	245	B	B	B	B	B	A	B					
19						B	B	B	B	B	B	B	B	B	B	B	B	A	B					
20						A	B	B	B	B	275	250	240	245	B	195	B	B						
21						A	A	A	B	B	B	B	B	A	B	B	A	A						
22							B	B	B	B	B	B	B	B	B	B	B	B						
23							A	A	B	B	B	280	B	B	B	B	B	B						
24							B	B	B	B	B	B	B	B	B	B	B	B						
25							B	B	B	B	B	B	B	B	B	B	B	B						
26							B	A	B	B	B	245	B	A	200	170	B							
27							B	B	B	B	B	B	B	B	B	B	B	B						
28							B	A	B	B	B	B	B	B	B	A	B							
29							A	A	A	240	250	B	B	B	B	B	A							
30							B	B	B	A	B	B	B	B	B	B	B							
31																						170		
CNT	4	1	1	1	1	2	1	4	7	6	10	9	11	6	7	6	9	3	2	1	2	1	2	2
MED	125	150	165	170	175	148	180	142	155	198	235	260	265	260	250	238	205	190	175	130	162	125	132	175
UQ	180						168	182	220	260	275	278	270	252	250	225	200							
LQ	108						122	145	175	225	260	255	255	248	220	200	178							

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APR. 1970

FOE (0.01 MHz)

IONOSPHERIC DATA

APR. 1970

FOES (0.1 MHz)

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

Station **SYOWA BASE** Lat. **69 00 45 S** Long. **39 35 4 E** Sweep MHz to **15** MHz in **30** sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	J X 27	J X 41	23	B	J X 36	30	J X 22	J X 22	B	26	G	G	G	G	G	G	G	G	G	18	20	G	17	J X 31	
2	G	18	G	G	G	G	19	G	G	B	G	G	G	G	G	G	G	E B 20	G	E B 34	E B 23	E B 14	16	16	
3	27	J X 37	J X 37	J X 32	J X 41	J X 42	J X 41	J X 35	B	B	B	E B 58	E B 59	E B 62	E B 58	E B 86	E B 34	G	E B 20	E B 20	G	24	17	G	
4	G	29	J X 67	J X 69	J X 57	J X 37	J X 42	J X 39	27	G	G	E B 51	E B 33	E B 54	E B 26	G	E B 49	E B 57	E B 34	E B 15	E B 14	E B 11	13	E B 14	
5	J X 25	27	J X 78	J X 25	24	J X 24	17	G	G	G	G	27	G	G	E B 48	E B 52	E B 48	E B 20	E B 26	E B 22	J X 25	17	E B 22	J X 29	
6	J X 34	J X 32	J X 31	33	J X 32	J X 23	J X 32	J X 42	J X 42	J X 51	B	B	G	E B 52	B	E B 75	E B 51	E B 48	B	E B 23	J X 24	J X 20	21	20	
7	28	36	J X 35	J X 27	J X 42	J X 31	J X 32	E B 20	E B 22	E B 35	B	G	B	E B 61	E B 58	E B 32	E B 24	E B 58	E B 58	E B 34	E B 25	E B 25	E B 23	B	
8	B	E B 12	20	J X 44	J X 44	J X 36	J X 22	J X 20	B	E B 31	G	E B 30	G	B	B	E B 98	E B 47	E B 44	E B 47	E B 13	17	E B 12	17	E B 15	
9	23	J X 31	J X 32	J X 42	23	20	J X 34	23	B	E B 26	E B 27	E B 27	B	E B 53	E B 58	E B 57	G	B	B	J X 21	E B 25	J X 23	J X 32	J X 37	
10	J X 30	J X 45	J X 46	J X 32	J X 39	J X 31	J X 41	22	22	25	J X 37	J X 32	J X 45	J X 33	G	J X 35	23	J X 26	17	J X 17	18	E B 18	E B 9	11	
11	14	26	J X 64	J X 48	J X 44	31	J X 31	E B 30	G	28	G	G	E B 58	E B 55	E B 55	E B 74	E B 58	E B 57	E B 34	E B 53	E B 52	E B 22	28	29	
12	J X 25	J X 24	24	J X 23	15	23	J X 42	J X 32	E B 27	E B 30	E B 28	G	G	29	G	E B 46	G	G	15	E B 12	29	28	J X 32	J X 30	
13	32	29	J X 32	36	30	J X 22	J X 31	G	16	G	G	G	35	35	G	G	G	J X 25	J X 21	17	J X 22	17	16	J X 22	
14	13	14	15	14	20	J X 22	17	G	G	G	G	G	G	G	G	G	G	G	16	E B 11	E B 12	E B 10	E B 8	E B 10	
15	C	J X 30	34	J X 27	J X 28	J X 32	J X 21	J X 22	J X 18	G	G	G	G	G	G	J X 32	G	G	J X 23	13	23	J X 36	J X 34	J X 31	
16	J X 41	35	J X 36	J X 45	J X 32	J X 48	J X 59	J X 64	B	B	B	E B 45	E B 28	E B 34	E B 28	E B 55	E B 27	G	E B 20	E B 22	E B 12	E B 20	15	J X 64	
17	B	J X 46	J X 35	J X 48	B	B	J X 55	J X 67	J X 42	J X 35	E B 31	E B 25	E B 29	B	E B 52	E B 28	E B 25	E B 25	G	J X 21	J X 32	B	B		
18	J X 56	J X 54	J X 37	B	38	E B 28	17	14	J X 23	20	G	33	G	E B 29	E B 33	E B 35	B	E B 60	J X 66	E B 26	J X 32	26	35	36	
19	30	J X 44	B	B	B	39	B	B	J X 52	B	B	B	B	B	B	E B 28	E B 24	27	E B 34	J X 29	J X 26	J X 30	18	22	
20	32	30	J X 38	J X 45	J X 32	J X 37	J X 47	J X 35	B	B	E B 28	G	G	G	G	E B 23	G	B	E B 18	J X 34	J X 36	J X 34	37	J X 45	
21	J X 54	J X 76	J X 90	J X 36	J X 47	B	J X 32	J X 42	J X 47	B	B	B	B	B	J X 24	E B 28	E B 25	J X 25	J X 24	J X 25	J X 97	J X 66	E B 35	J X 39	
22	B	B	J X 39	B	B	J X 35	B	B	B	B	B	B	B	B	B	B	B	B	E B 35	E B 10	15	16	B	J X 21	J X 33
23	J X 28	J X 27	J X 54	J X 31	J X 59	B	J X 31	J X 43	J X 41	E B 42	E B 32	B	G	E B 27	E B 42	E B 26	E B 16	E B 51	26	36	32	J X 51	J X 72	J X 41	
24	J X 27	J X 38	B	J X 40	B	J X 21	B	B	B	B	B	B	B	B	E B 35	E B 26	E B 38	E B 19	E B 22	B	28	J X 10	J X 42	J X 33	
25	J X 61	J X 49	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 60	E B 26	B	B	B	B	B	B	25	J X 65
26	J X 41	J X 31	32	J X 69	B	B	B	J X 38	J X 29	E B 20	E B 23	E B 22	G	E B 27	23	G	G	E B 23	B	B	B	J X 28	J X 55	J X 27	
27	J X 30	J X 46	E B 28	B	B	24	B	B	J X 37	B	B	B	E B 49	E B 27	E B 26	E B 35	B	B	B	B	B	B	29	27	
28	J X 33	J X 42	J X 31	J X 41	B	B	J X 41	J X 47	J X 43	B	B	E B 23	E B 34	E B 28	E B 36	E B 23	17	E B 15	E B 15	E B 20	E B 16	B	E B 10	17	
29	J X 25	31	22	J X 42	J X 43	J X 40	J X 42	J X 30	27	29	G	G	E B 23	E B 63	E B 51	E B 30	E B 48	22	E B 50	E B 20	E B 20	32	J X 41	J X 30	
30	J X 35	J X 114	J X 26	B	J X 25	B	B	B	J X 55	B	J X 31	E B 32	B	B	E B 37	E B 30	E B 34	E B 15	J X 22	J X 79	J X 39	J X 40	J X 38	J X 42	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	29	27	23	22	23	23	24	21	18	19	22	22	22	26	29	26	26	25	26	27	26	29	28	
MED	J X 29	J X 32	J X 34	J X 36	J X 34	J X 31	J X 32	J X 30	J X 27	E G 26	G	E G 22	G	E B 29	E B 30	E B 30	E B 24	E B 24	E B 23	E B 20	22	24	22	J X 30	
UQ	J X 34	J X 44	J X 38	J X 44	J X 43	J X 36	J X 42	J X 40	J X 42	U 28	E B 28	E B 32	E B 34	E B 53	E B 51	E B 46	E B 38	E B 44	E B 34	E B 34	28	J X 32	J X 35	J X 38	
LQ	25	29	26	J X 29	25	22	J X 22	U 17	E G 18	G	G	G	G	G	G	E B 23	G	E B 15	E B 19	E B 15	17	E B 17	16	18	

The Radio Research Laboratories, Japan

APR. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

APR. 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	MHz to 15				MHz in 30				sec in automatic operation			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	11	12	9	B	15	12	10	15	B	19	23	16	22	17	23	20	20	16	15	11	10	10	5	10			
2	5	11	11	12	8	7	7	7	13	B	24	24	26	22	23	12	13	20	12	34	23	14	10	11			
3	10	13	21	22	21	19	25	22	B	B	B	58	59	62	58	86	34	17	20	20	13	10	11	11			
4	9	10	20	7	13	23	15	13	13	20	22	51	33	54	26	22	49	57	34	15	14	11	11	14			
5	11	13	10	11	10	9	9	10	17	18	17	22	23	20	48	52	48	20	26	22	11	10	22	8			
6	7	11	4	11	4	13	23	20	20	23	B	B	25	52	B	75	51	48	B	23	10	9	6	5			
7	6	17	20	16	35	22	13	20	22	35	B	21	B	61	58	32	24	58	58	34	25	25	23	B			
8	B	12	13	10	26	21	15	20	B	31	23	30	23	B	B	98	47	44	47	13	11	12	12	15			
9	12	10	13	13	12	12	10	15	B	26	27	27	B	53	58	57	16	B	B	11	25	10	10	11			
10	11	10	11	10	14	13	10	9	13	14	16	16	14	13	13	13	15	10	7	5	9	10	7	5			
11	6	7	10	11	9	10	29	30	16	11	11	13	58	55	55	74	58	57	34	53	52	22	10	22			
12	10	10	8	4	11	12	11	19	27	30	28	23	22	23	19	46	10	11	11	12	16	9	10	11			
13	9	9	10	11	10	9	10	5	9	9	9	11	16	11	13	13	12	11	3	10	7	3	10	6			
14	9	7	E	7	5	7	E	5	10	11	11	14	15	15	14	13	11	10	11	11	12	10	8	10			
15	C	7	7	9	7	6	E	E	E	12	12	12	22	20	12	21	12	11	8	8	E	10	9	7			
16	7	14	10	13	30	11	11	24	B	B	B	45	28	34	28	55	27	13	20	22	12	20	9	10			
17	B	20	15	14	B	B	25	48	25	27	31	25	29	B	52	25	26	19	57	11	10	12	B	B			
18	20	10	11	B	32	26	10	E	7	20	14	22	15	29	33	35	B	60	13	26	7	7	10	7			
19	9	16	B	B	B	30	B	B	30	B	B	B	B	B	B	28	24	16	34	9	8	6	6	5			
20	10	10	10	10	10	21	13	28	B	B	28	21	21	21	23	23	14	B	18	10	9	7	6	20			
21	12	5	10	12	5	B	14	16	12	B	B	B	B	B	14	28	25	E	E	11	E	9	35	10			
22	B	B	12	B	B	25	B	B	B	B	B	B	B	B	B	B	B	35	10	11	10	B	12	11			
23	10	10	24	25	22	B	25	15	12	42	32	B	20	27	42	26	16	51	11	14	14	11	11	8			
24	11	11	B	23	B	14	B	B	B	B	B	B	B	B	35	26	38	19	24	B	11	11	13	10			
25	10	9	B	B	B	B	B	B	B	B	B	B	B	B	60	26	B	B	B	B	B	B	14	11			
26	16	24	13	12	B	B	B	23	14	20	23	22	20	27	20	16	11	23	B	B	B	10	11	22			
27	11	22	28	B	B	13	B	B	26	B	B	B	49	27	26	35	B	B	B	B	B	B	9	6			
28	7	11	20	15	B	B	20	20	15	B	B	23	34	28	36	23	10	15	15	20	16	B	10	13			
29	7	8	9	13	17	16	15	13	12	12	16	20	23	63	51	30	48	14	50	20	20	11	19	21			
30	11	25	13	B	13	B	B	B	28	B	22	32	B	B	37	30	34	15	8	6	10	10	6	10			
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	29	30	30	30	30	30	29	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30			
MED	10	11	12	13	16	18	15	20	21	30	28	24	27	43	36	28	26	20	20	14	12	10	10	10			
UQ	11	14	20	25	B	30	25	28	B	B	B	B	B	B	58	52	48	57	50	26	20	14	12	14			
LQ	9	10	10	11	10	12	10	13	13	19	17	21	22	22	23	22	14	14	11	11	10	10	9	8			

APR. 1970

F-MIN (0.1 MHz)

IONOSPHERIC DATA

APR. 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 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	240	A	F	B	240	F	245	255	B	270	290	285	290	300	310	340	320	325	315	320	335	320	320	280						
2	275	280	R	R	F	225	235	285	300	B	300	310	290	285	305	295	310	320	315	310	295	325	325	320						
3	280	A	A	A	A	A	A	A	B	B	B	260	R	R	R	R	290	F	305	300	295	F	315	R						
4	280	260	A	260	245	A	255	F	280	295	285	290	285	290	290	300	295	R	325	315	320	300	335	315						
5	285	260	A	250	225	240	250	270	320	300	295	285	275	270	295	290	285	305	295	F	320	F	F	290						
6	R	R	F	F	245	370	A	245	A	240	B	B	260	255	B	235	280	285	B	260	F	285	F	265						
7	290	A	A	A	A	A	235	270	275	260	B	275	B	290	290	310	310	305	R	315	315	R	R	B						
8	B	250	R	290	R	A	F	255	B	280	310	295	290	B	B	300	300	290	305	300	330	325	F	315						
9	275	A	270	235	F	F	F	255	B	290	275	280	B	255	285	285	260	B	B	F	F	F	290	275						
10	240	A	A	F	235	R	240	265	F	275	285	275	290	295	300	300	305	315	310	320	325	310	325	295						
11	290	240	A	A	F	F	F	F	F	F	260	270	245	260	265	275	R	F	295	F	R	F	280	A						
12	A	280	F	F	F	F	F	245	R	R	R	285	F	F	R	275	295	F	310	300	295	300	F	275	265					
13	A	A	A	A	235	F	265	F	F	290	F	285	290	295	280	280	300	310	295	325	310	335	315	285						
14	290	290	265	250	265	230	235	270	295	315	305	285	305	305	305	290	305	315	310	335	350	340	315	320						
15	C	350	285	240	250	F	250	F	F	315	295	300	305	R	290	305	R	315	315	315	F	A	A	A						
16	A	R	R	R	R	A	A	A	B	B	B	270	290	290	305	R	315	305	320	290	F	R	325	F						
17	B	A	F	F	B	B	A	A	A	A	255	275	270	B	265	F	310	295	295	R	R	R	B	B						
18	A	260	F	B	A	F	230	F	280	290	305	285	285	275	285	F	B	300	260	R	285	260	A	A						
19	F	A	B	B	B	A	B	B	A	B	B	B	B	B	B	R	F	305	300	305	280	F	F	280						
20	A	A	A	A	A	A	A	A	B	B	315	320	310	310	305	320	260	B	315	R	R	A	A	A						
21	A	F	A	A	F	B	250	A	A	B	B	B	B	B	F	245	F	F	265	A	F	315	R	A						
22	B	B	F	B	B	A	B	B	B	B	B	B	B	B	B	B	B	U	R	290	325	315	290	B	A	A				
23	A	A	A	A	R	B	A	A	250	285	275	B	315	295	270	260	275	280	295	R	R	A	A	A						
24	R	A	B	R	B	R	B	B	B	B	B	B	B	B	B	365	280	295	F	280	B	A	A	A	A					
25	320	A	B	B	B	B	B	B	B	B	B	B	B	B	B	290	285	B	B	B	B	B	B	R	A					
26	A	R	A	A	B	B	B	A	245	300	300	300	325	325	325	310	310	305	B	B	B	R	A	A						
27	A	A	R	B	B	R	B	B	A	B	B	B	325	330	320	310	B	B	B	B	B	B	A	A						
28	R	A	A	A	B	B	A	A	A	B	B	305	325	R	R	310	R	325	R	R	R	B	335	295						
29	R	R	R	A	A	A	A	A	245	280	325	325	315	310	310	305	305	F	295	F	315	A	A	A						
30	A	A	A	B	R	B	B	B	A	B	260	235	B	B	285	F	295	285	285	A	A	A	A	A						
31																														
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
CNT	11	9	4	6	8	4	12	9	9	15	18	21	21	18	23	23	20	20	23	15	15	10	12	13						
MED	280	260	268	250	242	235	245	265	280	290	292	285	290	292	290	295	300	305	300	315	315	318	318	290						
UQ	290	280	278	260	248	305	250	270	295	298	305	300	310	305	305	308	310	315	315	318	322	325	325	315						
LQ	275	260	262	240	235	228	235	255	250	278	275	275	285	275	285	282	288	292	295	300	295	300	302	280						

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APR. 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

APR. 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 MHz to 15 MHz in 30 sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1													L																			
2																																
3													B	B	B	B																
4														B																		
5												L																				
6									430	B	B		355	360	B	B																
7								L		B	L		B	B																		
8														B	B	B																
9																																
10								L																								
11								L			L		B	B	B	B																
12										300																						
13																																
14																																
15																																
16													L																			
17																																
18																																
19																																
20																																
21															450																	
22																																
23																																
24																																
25																																
26																																
27																																
28																																
29																																
30																																
31																																
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
CNT										1	1		1	1	1	1																
MED									430	300			355	360	450	440																
UQ																																
LQ																																

APR. 1970

H^oF₂ (KM)

IONOSPHERIC DATA

APR. 1970

H¹F (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	280	B	A	A	400	345	B	275	280	250	240	245	225	240	225	205	215	210	220	245	245	335	
2	350	340	R	R	R	R	A	290	250	B	250	245	240	240	240	240	225	205	205	240	250	235	240	290	
3	A	250	A	A	A	A	A	A	B	B	B	B	B	B	B	B	240	220	205	245	260	255	275	270	
4	A	A	A	A	A	A	A	A	275	250	240	B	240	B	250	245	240	250	235	215	215	240	230	205	
5	305	A	A	400	A	A	350	300	250	245	245	245	235	240	255	255	250	245	240	225	225	240	250	A	
6	A	215	A	300	400	240	A	A	A	A	B	B	280	B	B	B	260	265	B	A	350	325	A	A	
7	A	A	A	A	B	A	A	335	300	B	B	250	B	B	B	220	240	250	250	245	250	240	265	B	
8	B	B	A	240	A	A	355	310	B	255	250	245	245	B	B	B	250	250	240	225	210	240	225	250	
9	305	A	A	A	390	355	345	350	B	250	250	250	B	265	250	250	240	B	B	250	320	280	305	A	
10	A	A	A	A	A	A	A	305	250	240	240	240	240	225	225	220	225	215	200	215	205	210	240	265	
11	300	A	A	A	A	A	A	400	315	225	255	230	B	B	B	B	260	275	250	260	B	245	340	A	
12	A	A	A	A	400	400	A	405	300	300	230	250	250	250	250	250	220	225	225	225	265	300	A	A	
13	A	A	A	A	A	A	350	300	265	250	250	250	250	245	240	240	225	210	210	220	215	225	250	275	
14	280	295	A	400	A	A	400	300	245	250	240	240	230	225	230	210	210	205	200	200	205	205	225	250	
15	C	250	A	A	400	400	350	300	250	230	230	225	240	240	220	205	205	205	205	205	240	A	A	A	
16	A	A	A	A	A	A	A	A	B	B	B	340	255	275	250	B	250	240	240	250	230	270	290	265	
17	B	A	375	300	B	B	A	A	A	A	300	260	275	B	E B	275	240	240	270	B	250	A	A	B	
18	A	A	A	B	A	B	355	330	290	255	255	250	245	250	290	250	B	265	250	320	A	A	A	A	
19	A	A	B	B	B	B	B	B	A	B	B	B	B	B	B	275	210	225	280	250	260	320	360	A	
20	A	A	A	A	A	A	A	A	B	B	250	250	250	250	240	240	250	B	225	305	A	A	A	A	
21	A	A	A	A	A	B	A	A	A	B	B	B	B	B	300	325	B	A	A	A	A	A	A	A	
22	B	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	225	255	325	B	A	A	
23	A	A	A	A	270	B	A	A	A	E B	340	300	B	255	255	B	250	255	E B	290	255	440	A	A	A
24	A	A	B	A	B	A	B	B	B	B	B	B	B	B	320	300	290	290	300	B	A	A	A	A	
25	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	250	B	B	B	B	B	B	A	A	
26	A	A	A	A	B	B	B	A	A	290	275	255	250	245	240	240	220	250	B	B	B	A	A	A	
27	A	A	240	B	B	A	B	B	A	B	B	B	B	245	245	250	B	B	B	B	B	B	A	A	
28	A	A	A	A	B	B	A	A	A	B	B	265	250	240	250	245	200	265	220	230	225	B	255	300	
29	320	A	A	A	A	A	A	A	350	305	250	245	240	250	B	250	265	210	270	250	255	A	A	A	
30	A	A	A	B	360	B	B	B	A	B	A	300	B	B	290	250	245	250	260	A	A	A	A	A	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	6	5	3	5	6	4	8	13	12	15	18	20	19	17	22	24	25	24	23	23	19	16	15	10	
MED	305	250	280	300	395	378	352	310	270	250	250	250	245	245	250	248	240	245	235	245	240	242	250	268	
UQ	320	295	328	400	400	400	378	345	300	274	255	252	250	250	252	250	250	262	250	250	260	275	282	290	
LQ	300	250	260	300	360	298	350	300	250	248	240	245	240	240	240	240	225	212	212	222	218	238	240	250	

The Radio Research Laboratories, Japan

APR. 1970

H¹F (KM)

IONOSPHERIC DATA

APR. 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 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
1	120	105	105	B	105	105	110	110	B	115	G	G	G	G	G	G	G	G	G	100	100	G	100	105
2	G	105	G	G	G	G	100	G	G	B	G	G	G	G	G	G	G	B	G	B	B	B	100	150
3	120	115	105	105	100	105	115	110	B	B	B	B	B	B	B	B	B	G	B	B	G	125	125	G
4	G	120	150	115	125	110	105	105	150	G	G	B	B	B	B	G	B	B	B	B	B	B	B	B
5	140	125	125	100	110	140	150	G	G	G	G	G	G	G	B	B	B	B	B	B	100	100	B	115
6	105	110	110	105	105	110	105	115	100	140	B	B	G	B	B	B	B	B	B	B	125	140	120	105
7	105	110	100	110	140	100	110	B	B	B	B	G	B	B	B	B	B	B	B	B	B	B	B	B
8	B	B	150	120	105	100	140	135	B	B	G	B	G	B	B	B	B	B	B	B	130	B	125	B
9	150	110	120	100	120	105	120	140	B	B	B	B	B	B	B	B	G	B	B	125	B	120	120	110
10	125	105	105	110	105	105	120	120	130	125	110	105	105	105	G	100	100	100	100	100	100	B	B	120
11	150	115	105	105	100	100	140	B	G	100	G	G	B	B	B	B	B	B	B	B	B	B	105	150
12	140	105	105	125	110	100	100	125	B	B	B	G	G	120	G	B	G	G	100	B	140	120	105	120
13	110	110	115	120	100	100	100	G	125	G	G	G	105	100	G	G	G	100	100	100	100	100	100	100
14	125	105	100	125	125	100	100	G	G	G	G	G	G	G	G	G	G	100	B	B	B	B	B	B
15	C	105	110	125	100	100	100	100	100	G	G	G	G	G	G	100	G	G	100	100	100	110	115	120
16	105	125	105	110	110	105	180	140	B	B	B	B	B	B	B	B	B	G	B	B	B	B	130	155
17	B	120	110	150	B	B	150	170	155	105	B	B	B	B	B	B	B	170	B	G	120	115	B	B
18	170	155	160	B	140	B	100	100	110	140	G	105	G	B	B	B	B	B	120	B	110	105	105	105
19	140	130	B	B	B	130	B	B	130	B	B	B	B	B	B	B	B	150	B	115	125	110	150	105
20	115	105	105	150	115	105	105	120	B	B	B	G	G	G	G	B	G	B	B	125	105	110	115	120
21	100	130	120	100	125	B	115	110	115	B	B	B	B	B	150	B	B	150	130	120	150	105	B	110
22	B	B	110	B	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	140	125	B	160	110
23	105	110	155	140	185	B	110	105	100	B	B	B	G	B	B	B	B	B	125	120	140	105	105	105
24	120	105	B	145	B	115	B	B	B	B	B	B	B	B	B	B	B	B	B	105	165	105	105	105
25	105	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	155	140
26	110	140	110	105	B	B	B	100	105	B	B	B	G	B	105	G	G	B	B	B	B	150	125	120
27	100	135	B	B	B	110	B	B	110	B	B	B	B	B	B	B	B	B	B	B	B	B	110	110
28	110	110	125	120	B	B	100	100	100	B	B	B	B	B	B	B	100	B	B	B	B	B	B	155
29	110	110	110	110	110	105	100	100	105	105	G	G	B	B	B	B	B	100	B	B	B	115	130	140
30	105	105	125	B	110	B	B	B	100	B	105	B	B	B	B	B	B	B	150	150	105	110	105	110
31																								
CNT	24	28	25	22	21	21	23	18	15	7	2	3	2	3	2	2	2	6	9	11	17	17	23	24
MED	112	110	110	112	110	105	110	110	110	115	108	105	105	105	128	100	100	125	100	120	110	110	115	112
UQ	132	122	125	125	125	110	120	125	128	132	U	116		112			150	125	125	125	120	128	130	
LQ	105	105	105	105	105	100	100	100	100	105		105		102				100	100	100	100	105	105	105

APR. 1970

H'ES (KM)

IONOSPHERIC DATA

APR. 1970

TYPES OF ES

45° E Mean Time (G. M. T. + 3^h)

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	R	R	F		R	R	R	R		R										F	F		F	F
2		L					L																R	R
3	R	R	R	L	L	L	L															F	F	
4		B	F	F	R	R	L	R	R														F	
5	R	R	R	F	R	R	R															R	R	R
6	R	R	B	B	L	L	L	L	L	R												L	R	R
7	B	R	F	R	R	L	L																	R
8			R	B	F	F	L	R														R		F
9	R	R	R	R	R	R	R	R														F	F	F
10	F	R	R	R	R	R	R	R	C	L	C	L	L	L	L	L	L	L	L	R	F			F
11	H	R	B	B	B	R	R			R														R
12	F	F	R	R	F	F	C	R						L								R	B	R
13	B	B	B	B	B	L	L		H				L	L							L	L	F	F
14	R	R	R	R	R	F	R															L		
15		R	R	B	F	F	R	L	L						L						L	F	R	B
16	B	R	R	F	F	R	FR	A															F	FR
17		R	R	FR			RL	R	LR	L								R				R	R	
18	FR	FR	FR		F		R	R	H	C		L									L	B	B	B
19	B	R				F			L												L	R	R	B
20	B	B	B	FB	B	R	R	R														R	R	R
21	A	FR	B	R	RF		R	R							LR						R	R	R	R
22			R			F																F	R	FR
23	B	B	F	R	FR		L	L	R													R	R	R
24	B	R		L		F																R	FR	F
25	F	FR																						R
26	R	R	R	F				L	R						L								R	LR
27	R	R					R		L														R	R
28	B	B	R	R			L	L	L															F
29	R	B	R	R	R	R	L	L	R	R													R	R
30	R	FR	R		L				L		R											L	AF	
31																							R	R

APR. 1970

TYPES OF ES

IONOSPHERIC DATA

MAY. 1970

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		MHz to 15		MHz in 30 sec		in automatic operation												
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	38	44	50	A	B	B	102	106	106	R	96	90	85	R	F	F	A	J A 30
2	A	F	A	A	31	42	A	A	B	58	68	B	85	86	106	109	97	90	77	48	32	27	A	A
3	23	A	A	A	A	30	F	F	F	58	75	J B 85	101	R	R	105	101	J R 84	J F 85	R	51	30	F	A
4	A	31	A	A	A	40	47	F	49	60	68	81	96	96	108	109	93	J R 87	74	J B 67	47	E	19	17
5	A	37	40	A	A	A	A	32	39	51	62	77	92	96	B	B	R	J R 115	91	F	R	A	31	29
6	A	A	A	A	A	F 34	F 35	F 34	F	52	67	77	81	97	102	98	82	82	71	62	F	16	17	B
7	A	A	A	29	36	42	F	55	F	53	71	88	R	101	101	104	96	89	82	R	R	E 15	F 17	17
8	16	17	F	F 26	F 25	F	F	F 41	F	F 58	81	91	99	110	100	96	72	60	49	44	22	E	17	A
9	A	A	A	A	B	44	46	F	A	48	F	R	J R 92	96	R	98	J R 83	72	F	F 56	F	B	B	B
10	18	17	15	F 18	F 19	F 18	F	18	A	R	R	99	102	102	98	94	88	68	41	38	23	19	17	B
11	B	A	B	16	16	15	17	20	23	R	76	91	98	J R 102	90	90	84	51	55	38	27	R	B	17
12	18	A	A	A	A	R	F	A	S	F	F	91	84	99	107	R	108	106	J R 92	U R 77	R	A	A	F
13	A	R	R	B	R	23	B	A	B	R	55	F	90	91	93	95	J B 82	63	48	23	17	20	16	18
14	F	A	A	A	27	R	38	A	37	A	B	B	B	R	97	U B 87	87	91	81	48	24	R	A	A
15	C	C	28	R	B	B	A	F 47	36	38	B	S 78	F	B	B	B	B	S	70	R	31	R	23	A
16	R	32	36	A	A	A	30	30	32	42	A	R	B	B	R	R	67	R	R	40	24	B	A	A
17	A	J R 42	A	B	B	A	31	29	B	B	63	78	101	105	95	100	84	78	F	73	49	33	27	A
18	36	37	38	A	A	40	A	A	60	60	68	80	91	R	98	91	64	75	60	47	31	20	B	B
19	20	18	F 20	20	F	29	27	A	F 65	F	B	80	F	R	R	103	99	F	F	F	B	B	F 22	F 48
20	48	A	A	A	R	A	A	53	A	B	53	R	J R 89	B	B	R	J R 120	109	B	A	A	A	31	B
21	A	B	A	B	A	A	A	39	33	F 42	58	71	J B 85	92	B	R	J R 89	F	S	B	B	B	R	R
22	25	F 25	A	A	R	B	A	A	36	U F 40	52	B	J R 93	J R 100	R	102	R	R	R	34	R	A	22	20
23	A	A	A	31	A	Z 32	A	F 31	U F 34	F 40	F	61	75	97	R	U R 91	U B 85	56	52	35	27	19	A	A
24	A	F	A	A	R	A	47	F	F	42	60	71	R	J B 97	J R 106	R	R	71	62	42	38	21	B	18
25	A	35	A	A	A	A	A	B	B	J R 38	B	B	F	J R 92	93	J R 101	89	J R 90	F	R	21	B	F 18	A
26	R	A	A	A	F 22	27	27	29	30	38	51	J R 79	J B 77	87	J R 74	R	R	U R 46	F 29	F 28	F 22	F 18	F 14	F 16
27	16	F	A	25	28	31	41	37	F	40	48	54	75	U R 97	R	J R 100	75	74	77	56	R	A	A	A
28	A	R	R	A	B	R	39	F	F	68	F	75	76	60	F	J F 92	F	R	R	R	A	R	R	A
29	A	F	F	A	B	A	A	A	A	B	B	B	76	93	F	U R 83	74	69	58	F	30	19	B	R
30	A	A	A	A	A	A	A	A	B	47	56	62	68	B	B	R	B	B	B	39	B	R	R	B
31	R	R	R	47	R	45	48	56	J B 67	R	R	68	82	87	81	83	58	B	B	U R 54	B	B	18	14
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	9	10	6	8	8	15	14	16	14	20	18	21	24	23	17	21	24	23	20	20	17	15	16	11
MED	20	32	32	26	25	32	38	36	36	48	62	78	90	97	98	98	86	78	70	46	27	20	18	18
UQ	25	37	38	30	30	41	46	46	50	58	68	85	97	100	106	102	96	90	82	56	32	25	23	24
LQ	18	18	20	19	F 20	28	30	30	33	40	55	71	79	92	93	91	74	68	54	38	23	18	17	17

MAY. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

MAY. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

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

NO DATA

MAY. 1970

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

MAY, 1970

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		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	B	B	B	B	B	B	B							
2									B	B	B	B	B	B	B	B	B	B	140						
3									120	120	150	B	B	B	B	B	A	A	A						
4									125	A	A	180	B	B	B	A	A	A	A						
5									A	A	165	B	B	B	B	B	B	B	130						
6									130	140	170	180	200	205	200	B	175	A	A						
7									A	A	150	160	200	A	210	200	180	130	A						
8									A	A	A	175	205	220	205	180	175	A	A						
9									A	B	B	A	180	190	A	A	A	A	A						
10									A	B	A	180	200	215	200	190	180	A	A						
11									A	A	A	190	A	A	200	190	170	B	B						
12									B	A	A	170	200	200	180	B	B	B	B						
13									B	B	B	B	220	180	175	B	B	B	B						
14									A	A	A	B	B	B	B	B	B	B	B						
15									A	A	200	B	B	B	B	B	B	B	B						
16									A	130	A	B	B	B	B	B	B	B	A						
17									145	B	B	B	200	225	B	180	150	B	B						
18									A	A	150	160	A	200	190	160	150	A	A						
19									A	A	A	B	B	B	B	B	B	B	B						
20									A	B	B	B	B	225	B	B	B	B	A						
21									A	150	155	180	195	195	A	B	B	B	B						
22									A	A	185	200	B	B	190	180	175	B	B						
23									A	140	150	B	B	B	B	B	B	B							
24									A	120	140	160	200	180	A	B	B	B							
25									B	A	B	B	B	B	B	B	B	B							
26									A	140	150	A	200	A	150	B	B	B							
27									A	B	B	B	190	175	150	B	B	B							
28									A	A	A	A	A	B	B	A	A	A							
29									B	B	B	B	B	B	B	B	B	B							
30									B	A	200	A	B	B	B	B	B	B							
31									B	B	B	B	B	B	B	B	B	B							
		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT									4	4	11	14	10	13	11	9	8	1	2						
MED									128	135	150	178	200	200	190	180	175	130	135						
UQ									138	145	168	180	200	215	200	190	178								
LQ									122	125	145	160	195	195	180	160	160								

MAY, 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

MAY. 1970

FOES (0.1 MHz)

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

Station	SYOWA BASE							Lat.	69 00' 45" S			Long.	39 35' 4" E			Sweep	MHz to 15			MHz in 30			sec in automatic operation		
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	J ₃₅	J ₄₁	J ₄₇	J ₄₅	J ₃₁	J ₄₈	J ₄₂	J ₄₂	J ₃₆	J ₃₅	B	B	E ₇₄	E ₅₃	E ₂₆	E ₅₁	E ₁₉	G	27	E ₂₂	19	23	32	J ₆₃	
2	J ₃₄	J ₁₀₉	J ₇₀	J ₃₈	J ₃₂	J ₂₈	J ₃₆	J ₃₁	B	E ₃₃	E ₄₅	B	E ₅₂	E ₅₀	E ₃₄	E ₃₀	24	17	E ₁₈	E ₁₈	E ₁₀	J ₂₁	J ₄₁	30	
3	J ₂₂	J ₅₃	J ₄₁	J ₄₁	J ₄₂	J ₂₁	17	15	G	G	E ₂₁	E ₂₂	E ₂₃	E ₂₅	E ₂₂	22	17	17	E ₁₂	E ₁₃	12	26	J ₃₁	32	
4	J ₅₂	J ₉₉	J ₅₆	J ₄₆	J ₄₆	J ₄₂	27	21	16	16	G	E ₂₁	E ₂₄	E ₂₇	23	20	21	17	E ₁₂	E ₉	17	J ₂₁	23	J ₃₀	
5	30	32	J ₃₆	J ₄₇	J ₄₈	J ₄₇	31	21	24	G	E ₂₀	E ₂₁	E ₂₁	B	B	E ₅₇	G	J ₂₄	19	23	J ₃₀	J ₁₇	J ₃₅		
6	J ₂₇	J ₃₂	J ₅₇	J ₈₅	J ₄₁	J ₂₁	19	G	G	G	G	G	G	E ₂₀	G	14	J ₂₂	16	11	E ₁₀	E ₁₀	E ₁₄	B		
7	23	J ₂₉	J ₂₆	J ₂₅	J ₃₀	G	J ₂₀	J ₃₂	J ₃₂	17	22	G	27	G	J ₃₄	21	17	J ₂₂	17	E ₁₁	E ₁₀	E ₅	13	J ₁₈	
8	16	J ₃₂	J ₄₁	18	J ₂₂	J ₃₂	18	17	15	17	G	G	G	J ₃₂	G	G	21	14	11	12	11	E ₉	17	28	
9	26	J ₃₂	J ₅₂	J ₅₃	B	J ₄₁	J ₃₆	22	33	J ₂₅	27	G	G	J ₂₈	20	18	23	J ₂₁	23	E ₁₀	E ₁₀	B	B	B	
10	E ₇	17	23	15	14	17	23	J ₂₁	J ₃₇	J ₃₉	27	G	G	G	G	G	24	16	14	19	E ₁₄	E ₁₃	E ₁₀	B	
11	B	16	B	J ₁₆	J ₃₁	26	20	17	21	19	24	21	22	G	G	G	E ₁₁	E ₁₁	E ₁₃	E ₁₁	E ₁₁	E ₁₂	B	E ₁₀	
12	14	J ₃₁	J ₇₀	J ₄₁	J ₄₂	J ₅₂	J ₆₂	J ₄₇	32	J ₂₂	20	G	26	21	E ₃₀	E ₃₀	E ₂₁	E ₃₀	E ₂₂	J ₃₅	J ₄₃	J ₇₂	J ₄₈	J ₃₅	
13	J ₅₂	J ₄₁	J ₂₈	B	32	J ₃₉	B	33	B	J ₃₅	E ₂₄	G	22	G	E ₂₀	E ₂₀	E ₂₂	E ₁₂	E ₁₄	E ₁₃	E ₁₄	16	14	16	
14	J ₂₁	J ₄₃	J ₄₈	J ₉₁	J ₃₇	J ₃₀	J ₃₆	J ₄₅	J ₃₅	J ₂₂	B	B	B	E ₆₉	E ₄₆	E ₄₉	E ₂₁	E ₂₂	E ₁₄	18	J ₂₃	27	30	J ₃₉	
15	C	C	J ₃₀	E ₇₆	B	B	J ₅₄	J ₂₂	26	J ₂₉	B	E ₅₅	E ₃₆	B	B	B	B	E ₅₂	E ₄₅	E ₂₃	E ₁₉	16	17	J ₂₉	
16	J ₂₇	J ₂₅	J ₄₁	J ₄₂	J ₄₂	25	23	16	G	J ₂₁	J ₅₂	E ₅₈	B	B	E ₅₀	E ₂₉	E ₂₇	18	E ₂₇	E ₂₇	E ₁₇	B	27	J ₃₂	
17	J ₄₀	J ₃₈	J ₆₅	B	B	J ₄₀	J ₂₈	G	B	B	J ₄₂	27	G	E ₂₂	G	18	E ₃₆	E ₁₅	E ₃₀	E ₂₈	E ₁₅	18	J ₂₄	J ₃₂	
18	J ₃₁	J ₅₃	J ₆₁	J ₅₂	42	J ₄₂	J ₄₂	J ₄₄	28	G	20	27	G	G	20	G	13	16	13	11	17	17	B	B	
19	17	17	17	17	J ₄₁	J ₃₄	J ₆₆	J ₄₈	J ₅₆	J ₄₂	B	E ₃₈	E ₄₃	E ₄₆	E ₅₈	E ₂₃	E ₄₈	E ₂₆	E ₁₉	E ₂₁	B	B	18	J ₂₉	
20	J ₃₃	J ₄₂	J ₄₉	38	35	J ₄₇	J ₄₈	J ₄₆	44	B	E ₂₃	E ₂₉	G	B	B	E ₄₇	E ₂₄	J ₂₀	B	J ₃₇	J ₃₀	35	37	B	
21	J ₈₈	B	J ₄₂	B	J ₃₂	J ₃₉	J ₄₇	J ₃₀	J ₂₁	G	G	G	G	J ₂₅	B	E ₅₈	E ₂₂	E ₂₆	E ₅₀	B	B	B	J ₂₁	26	
22	24	22	J ₃₂	J ₃₀	J ₃₂	B	J ₅₅	J ₅₁	J ₃₀	J ₂₄	J ₂₆	B	E ₂₃	G	G	G	E ₅₄	E ₃₄	E ₁₄	E ₂₀	E ₁₂	J ₄₂	17	22	
23	27	J ₆₇	J ₄₉	J ₄₅	34	21	J ₃₈	J ₂₇	18	G	G	E ₂₅	E ₂₅	E ₂₇	E ₂₀	E ₂₃	E ₂₈	E ₂₂	E ₂₀	E ₁₃	E ₁₅	E ₁₁	J ₂₆	J ₂₅	
24	32	J ₇₁	J ₃₇	J ₄₀	J ₃₁	J ₄₉	J ₄₂	40	J ₂₅	18	G	G	G	20	18	E ₂₃	E ₁₉	E ₂₉	E ₂₀	E ₂₂	E ₂₀	18	B	J ₂₂	
25	32	28	J ₄₂	J ₃₃	J ₄₂	J ₄₇	J ₅₄	B	B	J ₃₀	B	B	E ₂₇	E ₂₀	E ₂₁	E ₂₂	E ₄₈	16	E ₁₇	E ₂₄	17	B	15	16	
26	J ₂₇	J ₃₅	J ₃₉	J ₂₈	16	16	J ₄₂	16	J ₃₇	17	17	20	G	J ₃₀	G	E ₁₄	E ₁₄	E ₂₁	E ₁₀	E ₁₀	23	12	12	14	
27	J ₂₂	J ₂₉	32	J ₂₆	J ₄₄	J ₃₀	23	J ₂₇	J ₂₉	E ₁₄	E ₂₇	E ₂₃	G	G	G	E ₁₃	E ₁₉	E ₂₉	E ₂₈	E ₂₀	J ₃₂	J ₄₇	J ₄₆	J ₈₈	
28	J ₄₂	J ₃₉	J ₄₉	J ₉₆	B	J ₄₈	J ₆₅	J ₄₂	J ₄₁	J ₃₆	J ₃₃	J ₃₂	22	E ₂₀	E ₂₄	J ₂₃	J ₁₉	J ₂₁	J ₂₉	J ₃₁	J ₄₅	J ₄₁	J ₃₇	J ₁₀₂	
29	J ₆₀	J ₅₄	J ₈₈	J ₁₁₄	B	42	J ₄₂	J ₄₂	J ₄₁	B	B	B	E ₃₀	E ₅₂	E ₅₁	E ₃₇	E ₄₉	E ₂₂	E ₂₁	16	E ₁₃	J ₂₀	B	J ₂₆	
30	J ₈₀	J ₃₃	J ₇₄	J ₄₇	J ₄₆	J ₄₁	J ₄₆	J ₄₆	B	J ₄₂	27	J ₂₅	E ₆₃	B	B	E ₅₀	B	B	B	E ₂₂	B	J ₂₉	30	B	
31	31	29	E ₄₀	E ₂₇	33	32	E ₃₅	E ₂₇	E ₂₇	E ₂₁	E ₂₂	E ₂₃	E ₅₂	E ₂₆	E ₄₅	E ₁₆	E ₁₈	B	B	E ₄₂	B	B	E ₁₃	13	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	29	30	28	26	29	30	30	26	28	25	25	29	27	26	29	29	29	28	30	27	25	26	25	
MED	J ₃₀	J ₃₅	J ₄₂	J ₄₀	J ₃₄	J ₃₉	J ₃₇	J ₂₈	28	20	E ₂₂	E ₂₁	E ₂₂	E ₂₂	E ₂₀	E ₂₂	E ₂₁	E ₁₉	E ₁₈	E ₁₉	E ₁₇	20	22	J ₂₉	
UQ	J ₃₅	J ₄₃	J ₅₆	J ₄₈	J ₄₂	J ₄₂	J ₄₇	J ₄₂	J ₃₆	J ₃₁	26	E ₂₇	E ₂₇	E ₂₉	E ₃₄	E ₃₀	E ₂₇	E ₂₂	E ₂₆	E ₂₃	22	J ₂₉	J ₃₁	J ₃₂	
LQ	J ₂₃	J ₂₉	J ₃₄	J ₂₈	J ₃₁	J ₂₆	23	U ₁₉	20	E ₁₅	E ₁₇	G	G	G	G	E ₁₄	E ₁₉	16	E ₁₄	E ₁₂	E ₁₂	13	15	22	

The Radio Research Laboratories, Japan

MAY. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

MAY. 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 MHz to 15 MHz in 30 sec in automatic operation																	
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	10	11	18	22	10	14	12	10	14	22	B	B	74	53	26	51	19	13	12	22	10	10	6	10
2	10	4	6	13	11	14	11	25	B	33	45	B	52	50	34	30	11	10	18	18	10	5	9	5
3	11	21	15	15	16	11	11	10	10	10	21	22	23	25	22	11	11	10	12	13	7	5	4	8
4	5	10	21	27	21	16	11	10	10	10	14	21	24	27	18	14	10	6	12	9	7	9	12	11
5	10	11	12	15	17	11	10	12	13	13	20	21	21	21	B	B	57	11	10	11	10	11	10	7
6	8	11	10	13	12	12	10	10	7	6	13	15	14	17	20	14	11	9	10	9	10	10	14	B
7	10	11	10	11	10	10	10	9	10	10	11	15	14	14	12	11	7	7	12	11	10	5	10	10
8	9	7	5	E	10	11	10	10	4	5	E	7	13	11	10	5	5	5	8	6	E	5	7	10
9	10	11	11	10	B	13	13	10	27	21	11	13	12	13	12	10	6	5	5	10	10	B	B	B
10	7	5	10	E	4	E	E	5	17	15	13	14	17	13	11	10	10	13	11	13	14	13	10	B
11	B	13	B	11	10	13	11	12	11	13	13	12	14	13	11	11	11	11	13	11	11	12	B	10
12	5	11	28	15	11	22	12	19	13	18	14	14	14	12	30	30	21	30	22	13	8	7	6	5
13	23	16	23	B	25	12	B	28	B	23	24	19	15	15	20	20	22	12	14	13	14	12	10	8
14	5	10	14	22	14	15	13	25	13	13	B	B	B	69	46	49	21	22	14	10	7	14	14	13
15	C	C	15	76	B	B	21	13	14	13	B	55	36	B	B	B	B	52	45	23	19	13	10	10
16	12	13	12	34	19	12	11	10	11	11	49	58	B	B	50	29	27	13	27	27	17	B	13	12
17	13	14	23	B	B	14	12	11	B	B	24	15	22	22	17	9	36	15	30	28	15	13	5	13
18	10	7	6	15	11	12	12	11	10	10	11	18	18	16	11	E	9	10	7	5	5	10	B	B
19	10	E	6	10	5	5	4	22	11	11	B	38	43	46	58	23	48	26	19	21	B	B	11	7
20	10	11	14	11	12	13	12	12	32	B	23	29	16	B	B	47	24	12	B	11	10	10	13	B
21	14	B	38	B	30	29	21	11	9	13	11	13	14	14	B	58	22	26	50	B	B	B	8	8
22	9	11	12	15	27	B	26	13	11	10	13	B	23	16	13	13	54	34	14	20	12	E	10	10
23	10	11	12	13	11	11	12	12	10	7	10	25	25	27	20	23	28	22	20	13	15	11	5	7
24	11	11	14	40	24	24	14	12	11	9	10	13	18	12	11	23	19	29	20	22	20	12	B	11
25	10	9	11	9	14	16	14	B	B	19	B	B	27	20	21	22	48	13	17	24	11	B	10	10
26	8	10	18	10	12	10	10	10	10	10	11	12	15	14	13	14	14	21	10	10	7	5	9	9
27	8	10	9	13	11	10	11	13	11	14	27	23	15	13	14	13	19	29	28	20	10	11	10	E
28	12	10	9	14	B	17	13	13	11	11	11	12	13	20	24	10	11	12	10	10	10	14	10	8
29	10	9	10	11	B	12	14	13	22	B	B	B	30	52	51	37	49	22	21	10	15	11	B	18
30	10	10	13	13	35	11	13	20	B	20	17	14	63	B	B	50	B	B	B	22	B	26	25	B
31	23	23	40	27	27	25	35	27	27	21	22	23	52	26	45	16	18	B	B	42	B	B	13	10
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	10	11	12	14	14	13	12	12	11	13	17	21	21	20	21	20	19	13	14	13	10	11	10	10
UQ	11	11	18	24	27	16	14	16	24	20	36	46	33	48	48	34	32	26	24	22	15	14	14	13
LQ	9	10	10	11	11	11	10	10	10	11	14	14	14	14	13	11	11	10	12	10	10	10	9	8

MAY. 1970

F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

MAY, 1970

M(3000)F2 (0.01)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	A	A	A	A	240	250	265	A	B	B	305	325	320	R	315	290	295	R	F	305	A	A	
2	A	F	A	A	215	315	A	A	B	295	280	B	270	360	295	320	310	320	340	315	315	350	A	A	
3	285	A	A	A	A	260	F	F	F	295	320	R	320	R	R	305	320	R	F	R	320	275	285	A	
4	A	290	A	A	A	245	245	F	285	275	310	320	315	325	315	310	310	R	325	R	310	280	340	295	
5	A	340	350	A	A	A	A	250	255	285	290	325	300	300	B	B	R	R	295	F	R	A	325	360	
6	A	A	A	A	A	245	250	270	F	300	330	330	315	315	320	320	305	310	340	345	F	315	325	B	
7	A	A	A	240	250	240	F	260	F	300	310	305	R	300	300	300	320	315	315	R	R	300	295	275	
8	280	295	F	310	290	F	F	270	F	F	320	340	335	325	340	335	330	350	335	350	280	325	295	A	
9	A	A	A	A	B	250	240	F	A	290	F	R	R	320	R	340	R	320	F	330	F	B	B	B	
10	280	265	280	280	265	255	F	280	A	R	R	315	325	305	320	340	305	340	315	340	350	315	295	B	
11	B	A	B	300	280	280	280	260	275	R	315	310	340	R	355	335	345	315	345	335	355	R	B	290	
12	280	A	A	A	A	R	F	A	S	F	F	295	275	285	290	R	295	305	R	300	R	A	A	F	
13	A	R	R	B	R	285	B	A	B	R	290	F	320	320	335	325	R	350	350	305	305	300	315	330	
14	F	A	A	A	250	R	245	A	230	A	B	B	B	R	325	315	315	295	320	310	280	R	A	A	
15	C	C	310	R	B	B	A	245	245	265	B	285	F	B	B	B	B	S	315	R	350	R	315	A	
16	R	290	305	A	A	A	250	250	280	280	A	R	B	B	R	R	330	R	R	350	315	B	A	A	
17	A	R	A	B	B	A	230	260	B	B	255	275	305	325	325	290	300	295	F	330	330	295	295	A	
18	285	295	315	A	A	325	A	A	265	285	305	300	320	R	325	330	295	320	330	325	330	305	B	B	
19	300	280	260	260	F	250	260	A	265	F	B	300	F	R	R	295	305	F	F	F	B	B	285	295	
20	275	A	A	A	R	A	A	265	A	B	305	R	R	B	B	R	R	305	B	A	A	A	325	B	
21	A	B	A	B	A	A	A	240	260	285	305	290	R	325	B	R	R	F	S	B	B	B	R	R	
22	300	320	F	A	A	R	B	A	A	255	270	300	B	R	R	R	335	R	R	R	325	R	A	320	290
23	A	A	A	295	A	245	A	240	250	295	F	330	320	320	R	310	300	315	325	330	335	315	A	A	
24	A	F	A	A	R	A	235	F	F	335	335	305	R	R	R	R	R	310	335	315	330	325	B	305	
25	A	320	A	A	A	A	A	B	B	R	B	B	F	R	310	R	315	R	F	R	285	B	360	A	
26	R	A	A	A	240	260	260	275	300	290	315	R	R	355	R	R	R	325	295	320	340	360	335	300	
27	315	F	A	280	250	250	245	255	F	275	290	290	265	R	R	R	300	295	325	305	R	A	A	A	
28	A	R	R	A	B	R	220	F	F	260	F	320	290	235	F	F	F	R	R	R	A	R	R	A	
29	A	F	F	A	B	A	A	A	A	B	B	B	290	325	F	R	295	305	295	F	335	300	B	R	
30	A	A	A	A	A	A	A	A	B	285	305	315	290	B	B	R	B	B	B	315	B	R	R	B	
31	R	R	R	320	R	250	265	270	R	R	R	325	305	320	310	315	285	B	B	335	B	B	305	320	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	9	9	6	8	8	15	14	16	13	18	18	19	19	18	15	17	20	19	18	19	17	15	16	10	
MED	285	295	308	288	250	250	245	260	265	285	305	310	305	320	320	320	308	315	325	325	330	305	315	298	
UQ	300	320	315	305	275	270	260	270	275	295	315	322	320	325	325	335	318	320	335	335	335	320	325	320	
LQ	280	290	280	270	245	248	240	250	255	275	290	298	290	305	310	310	300	305	315	315	310	300	295	290	

The Radio Research Laboratories, Japan

MAY, 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

MAY. 1970

H¹F₂ (KM)

45° E Mean Time (G. M. T. + 3h)

Station	SYOWA BASE				Lat.	69° 00.4' S				Long.	39° 35.4' E				Sweep	MHz to	15	MHz in	30	sec	in automatic	operation		
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT																								
MED																								
UQ																								
LQ																								

NO DATA

MAY. 1970

H¹F₂ (KM)

IONOSPHERIC DATA

MAY. 1970

H¹F (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	A	A	A	A	A	A	A	B	B	B	B	225	B	240	240	250	250	230	300	A	A
2	A	270	A	A	A	300	A	A	B	300	B	B	B	B	250	240	210	205	225	240	250	250	A	A
3	A	A	A	A	A	410	355	330	280	240	225	220	225	220	240	210	205	200	240	210	215	290	A	A
4	A	A	A	A	A	A	395	350	290	250	245	240	250	210	225	210	200	225	225	215	255	310	300	A
5	A	A	265	A	A	A	A	A	400	275	250	245	250	250	B	B	B	205	240	240	250	A	295	250
6	A	A	A	A	A	A	350	310	265	250	235	225	230	240	220	200	200	225	205	205	275	B	B	B
7	A	A	A	A	A	430	320	350	300	250	220	225	235	210	205	210	250	205	230	220	215	B	B	A
8	A	A	275	300	305	A	350	300	250	240	220	210	215	205	205	200	205	200	200	215	205	205	350	A
9	A	A	A	A	B	A	390	350	A	300	250	215	205	205	210	205	215	205	205	210	225	B	B	B
10	300	A	A	315	355	350	345	320	A	295	250	235	205	210	200	205	205	200	200	230	240	290	280	B
11	B	A	B	A	A	B	A	A	305	225	225	205	210	210	210	200	205	200	225	200	200	260	B	E B 300
12	305	A	A	A	A	A	330	A	A	360	300	250	240	240	240	250	250	240	230	265	A	A	A	A
13	A	A	A	B	A	A	B	A	B	A	305	225	240	225	215	215	200	200	220	250	B	B	300	A
14	A	A	A	A	A	A	A	A	A	A	B	B	B	B	B	B	215	240	215	225	A	A	A	A
15	C	C	A	B	B	B	A	A	A	350	B	300	255	B	B	B	B	B	B	250	250	340	310	A
16	A	A	A	B	A	A	415	355	310	300	280	B	B	B	B	240	240	250	230	240	A	B	A	A
17	A	A	A	B	B	A	A	350	B	B	A	225	230	215	205	200	230	250	250	240	240	260	305	A
18	405	340	380	A	A	280	A	A	305	255	230	225	225	215	200	200	225	240	205	210	225	255	B	B
19	305	300	350	365	400	A	400	A	A	325	B	280	260	250	B	225	265	250	240	250	B	B	320	325
20	A	A	A	A	A	A	A	A	A	B	270	250	240	B	B	255	250	250	B	A	A	A	280	B
21	A	B	B	B	B	B	A	410	350	275	245	240	220	210	B	255	250	250	265	B	B	B	A	A
22	A	305	A	A	A	B	A	A	340	300	250	B	240	235	205	205	260	250	225	260	250	A	A	A
23	A	A	A	A	A	440	A	455	340	245	240	240	230	240	210	240	250	255	240	250	250	275	A	A
24	A	A	A	B	A	B	A	400	290	205	230	205	210	205	220	240	200	240	250	255	225	A	B	A
25	A	A	A	A	A	A	A	B	B	360	B	B	245	200	240	230	250	215	225	E B 300	300	B	275	A
26	275	A	A	A	400	350	350	305	285	240	250	225	205	205	200	200	200	210	235	240	240	225	B	A
27	300	270	A	A	A	440	390	A	310	290	300	270	250	225	250	205	225	300	250	255	345	A	A	A
28	A	A	A	A	B	A	A	A	390	330	275	240	250	300	300	275	390	A	A	A	A	A	A	A
29	A	A	A	A	B	A	A	A	A	B	B	B	275	270	250	230	B	250	270	240	250	A	B	A
30	A	A	A	A	A	A	A	A	B	300	260	240	B	B	B	B	B	B	B	260	B	A	A	B
31	380	A	310	290	A	320	B	350	330	280	250	225	270	250	255	230	225	B	B	B	B	B	270	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	5	5	4	4	10	11	14	18	25	23	24	26	24	23	27	27	27	26	27	21	12	11	3
MED	305	300	310	308	378	350	355	350	308	280	250	230	238	218	220	215	225	240	230	240	240	268	300	300
UQ	342	305	350	340	400	430	392	355	340	300	255	240	250	240	245	240	250	250	240	250	250	295	308	312
LQ	300	270	275	295	330	320	350	320	290	250	232	225	220	210	205	205	205	205	220	218	225	252	280	262

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H¹F (KM)

IONOSPHERIC DATA

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H^oES (KM)

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

Station	SYOWA BASE																							Lat.	69 00 4 5		Long.	39 35 4 E		Sweep	MHz to	15	MHz in	30	sec in automatic operation									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23																				
1	105	105	110	105	100	105	115	105	110	110	B	B	B	B	B	B	B	G	140	B	140	150	110	110																				
2	125	130	105	105	115	105	125	105	B	B	B	B	B	B	B	B	100	100	B	B	B	140	105	110																				
3	115	125	100	100	105	115	130	150	G	G	B	B	B	B	B	100	105	100	B	B	100	150	110	110																				
4	105	110	100	110	120	110	120	150	130	100	G	B	B	B	100	100	100	100	B	B	170	150	155	150																				
5	110	110	110	105	105	105	105	100	110	G	B	B	B	B	B	B	B	G	110	140	140	105	105	110																				
6	115	115	140	100	100	105	100	G	G	G	G	G	G	G	B	G	100	100	100	100	B	B	B	B																				
7	120	120	105	110	105	G	100	115	100	100	140	G	120	G	105	100	100	100	100	B	B	B	160	140																				
8	140	105	100	140	140	150	120	120	105	125	G	G	G	100	G	G	100	100	100	100	100	B	140	105																				
9	140	115	110	115	B	100	105	110	120	110	105	G	G	100	100	100	100	100	100	B	B	B	B	B																				
10	B	125	120	115	105	155	100	105	130	120	120	G	G	G	G	G	100	110	110	110	B	B	B	B																				
11	B	110	B	110	100	130	150	150	125	120	130	105	150	G	G	G	B	B	B	B	B	B	B	B																				
12	150	120	140	100	100	125	105	105	100	105	130	G	115	175	B	B	B	B	B	120	105	105	100	105																				
13	160	105	140	B	125	155	B	100	B	105	B	G	150	G	B	B	B	B	B	B	B	150	140	150																				
14	170	110	105	125	140	100	105	105	100	105	B	B	B	B	B	B	B	B	B	150	150	120	120	105																				
15	C	C	150	B	B	B	105	115	110	110	B	B	B	B	B	B	B	B	B	B	B	155	110	110																				
16	120	150	115	125	105	105	120	140	G	115	180	B	B	B	B	B	B	105	B	B	B	B	145	115																				
17	110	105	105	B	B	105	105	G	B	B	100	150	G	B	G	190	B	B	B	B	B	150	105	120																				
18	110	105	110	105	100	105	100	100	105	G	130	120	G	G	100	G	105	100	100	130	100	100	B	B																				
19	125	145	155	120	150	100	155	105	100	105	B	B	B	B	B	B	B	B	B	B	B	150	115	115																				
20	105	105	105	100	100	105	100	105	140	B	B	B	G	B	B	B	B	125	B	125	110	105	125	B																				
21	105	B	130	B	105	105	105	105	150	G	G	G	G	100	B	B	B	B	B	B	B	B	105	105																				
22	110	125	105	100	105	B	100	100	110	100	110	B	B	G	G	G	B	B	B	B	B	105	150	135																				
23	105	150	105	110	110	140	105	105	120	G	G	B	B	B	B	B	B	B	B	B	B	B	110	125																				
24	110	105	100	100	125	105	105	105	115	140	G	G	G	150	150	B	B	B	B	B	B	170	B	130																				
25	105	105	110	100	100	100	100	B	B	110	B	B	B	B	B	B	B	100	B	B	150	B	150	110																				
26	110	110	100	105	105	105	100	120	100	110	110	105	G	100	G	B	B	B	B	B	105	130	105	125																				
27	145	140	105	120	105	110	115	100	105	B	B	B	G	G	G	B	B	B	B	B	140	105	105	100																				
28	100	140	100	100	B	105	120	110	100	105	105	115	110	B	B	150	100	105	100	105	100	110	105	105																				
29	100	125	105	100	B	100	100	100	100	B	B	B	B	B	B	B	B	B	B	120	B	125	B	140																				
30	115	120	100	105	105	100	105	100	B	125	140	110	B	B	B	B	B	B	B	B	B	130	125	B																				
31	150	130	B	B	150	150	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150																				
CNT	28	29	29	26	26	28	29	27	22	19	12	6	5	6	5	6	10	13	9	10	13	19	23	24																				
MED	112	115	105	105	105	105	105	105	110	110	125	112	120	100	100	100	100	100	100	120	110	130	110	112																				
UQ	132	125	115	115	120	120	120	115	120	118	135	120	150	150	105	150	100	105	110	130	140	150	142	132																				
LQ	105	105	105	100	100	105	100	102	100	105	108	105	115	100	100	100	100	100	100	105	100	105	105	108																				

MAY. 1970

H^oES (KM)

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IONOSPHERIC DATA

MAY, 1970

TYPES OF ES

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

Station SYOWA BASE Lat. 69 00' 45" S Long. 39 35' 4" E Sweep MHz to 15 MHz in 30 sec in automatic operation

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

The Radio Research Laboratories, Japan

MAY, 1970

TYPES OF ES

IONOSPHERIC DATA

JUN. 1970

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 **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	R		22	23	A	A	B	B	57	71	71	71	B	103	95	C	84	U ₉₂ R	70	R	25	A	A
2	A	A	A	A	B	A	A	A	A	A	48	65	93	91	J ₁₀₃ R	83	63	57	42	30	17	B	R	R	
3	28	24	A	R	A	A	A	B	B	B	47	B	B	B	J ₉₀ R	B	B	B	77	B	B	B	A	20	
4	A	A	A	A	A	B	B	31	B	34	40	B	B	68	90	B	64	55	B	B	B	B	B	A	
5	R	R	R	A	R	F ₂₇	B	B	44	B	B	54	66	74	80	65	B	B	R	23	B	B	B	B	
6	B	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
8	F ₃₀	A	A	B	A	R	A	R	A	B	B	B	F ₆₂	J ₇₃ F	64	F ₇₁	58	R	B	B	A	B	A	A	
9	F ₅₁	R	R	R	R	R	R	34	F ₃₂	F ₃₀	F ₃₈	49	64	R	72	52	44	F ₄₅	28	18	B	R	A	F	
10	R	R	R	R	R	R	R	R	27	29	F ₄₄	52	58	J ₆₅ F	70	U ₆₆ R	F ₅₈	F ₄₂	35	A	F ₂₄	A	A		
11	A	A	A	A	A	A	A	23	F ₂₈	F ₃₁	41	53	73	74	57	R	45	F ₅₀	21	19	B	B	R	R	
12	B	B	R		22	48	R	A	B	37	35	U ₅₉ F	59	65	73	66	64	R	R	B	B	B	B	A	
13	F ₂₉	55	A	A	A	A	33	F	37	J ₃₂ R	B	B	C	C	C	C	C	C	C	C	C	C	C	C	
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	A	B	A	A	A	A	R	B	B	71	F ₇₅	R	R ₈₅	71	55	B	A	A	A	A	
16	A	A	A	A	A	A	A	A	A	A	35	53	J ₇₄ F	83	85	69	67	67	38	22	B	B	A	A	
17	R	A	R	A	A	32	F ₃₄	F ₃₅	35	34	47	60	U ₈₃ F	83	85	79	70	J ₇₀ F	48	47	B	A	A	A	
18	A	A	A	A	B	A	A	36	J ₃₀ F	B	F ₄₁	B	41	78	B	R	R	R	A	R	A	A	A	41	
19	29	A	B	B	B	A	B	B	R	B	B	50	74	76	78	69	F	41	U ₄₁ R	B	B	B	A	32	
20	R	R	B	A	B	B	B	B	B	B	B	B	B	B	81	98	R	F	R	R	A	A	A	A	
21	A	R	A	A	A	B	R	B	A	B	B	A	B	49	F	B	B	R	B	R	R	A	A	A	
22	A	R	R	50	A	A	A	F ₄₂	F	F	F	59	70	J ₈₈ R	J ₈₂ F	J ₇₂ R	50	45	B	26	B	B	A	A	
23	A	A	A	A	A	A	A	36	38	40	47	58	74	78	70	56	J ₅₂ F	34	41	16	B	B	B	B	
24	16	16	18	21	A	A	42	J ₄₉ F	F	F ₄₂	57	63	69	69	F	J ₅₅ F	J ₄₈ F	32	24	B	B	B	15	R	
25	27	21	A	A	A	A	F ₄₃	F ₄₆	F	35	B	B	63	59	75	73	R	B	B	B	B	B	B	16	
26	A	A	A	A	A	23	25	A	A	B	B	B	B	61	R	54	47	U ₄₅ F	32	A	B	A	A	A	
27	A	A	A	A	R	A	B	B	B	B	B	B	B	35	F	116	U ₉₂ R	53	R	R	A	A	R	A	
28	R	A	A	36	B	A	A	A	B	B	36	48	F ₆₂	73	B	C	C	C	B	B	B	B	B	B	
29	A	32	A	A	A	22	23	24	23	27	36	55	69	71	71	J ₅₇ F	37	37	27	22	A	A	A	A	
30	A	A	A	A	A	A	24	30	27	30	36	B	B	B	B	R	F ₅₀	41	R	A	25	16	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	7	5	1	5	2	4	7	11	11	13	16	15	18	21	19	18	16	16	14	11	2	3	1	4	
MED	29	24	18	22	36	25	33	34	32	34	42	55	69	73	78	69	55	48	41	23	21	24	15	26	
UQ	30	32	36		30	38	39	37	35	48	60	74	78	85	79	66	62	48	32		24		36		
LQ	28	21	22		22	24	30	28	30	37	52	63	68	70	57	48	41	28	20		20		18		

JUN. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUN. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

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

NO DATA

JUN. 1970

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JUN. 1970

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 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	175	B	B	B	B	C										
2									B	B	A	A	A	A	A	140	B	110									
3									B	B	B	B	B	B	B	B	B										
4									A	B	B	B	B	B	B	B											
5									B	B	B	B	B	B	B	B											
6									C	C	C	C	C	C	C	C											
7									C	C	C	C	C	C	C	C											
8									B	B	B	B	B	B	B	B											
9									A	A	A	A	160	B	B												
10									B	B	B	B	B	B	B	B											
11									B	160	B	175	B	B	B	125											
12									A	A	180	B	B	B	B												
13									A	B	B	C	C	C	C												
14									C	C	C	C	C	C	C												
15									B	B	B	B	B	B	B	B											
16									B	B	B	B	B	B	B	B											
17									B	B	160	175	160	130	B												
18									B	B	B	B	B	B	B	B											
19									B	B	B	B	B	B	B	B											
20									B	B	B	B	B	B	B	B											
21									B	B	B	B	B	B	B	B											
22									A	A	A	B	B	B	B	B											
23									B	B	B	A	B	B	B	B											
24									A	120	130	170	B	B	B												
25									A	B	B	B	B	B	B	B											
26									B	B	B	B	B	B	B	B											
27									B	B	B	B	B	B	B	B											
28									B	B	B	B	B	B	B	C											
29									B	B	B	B	B	B	B	B											
30									A	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	4	3	2	1	1	1	1									
MED											140	168	175	160	130	140	125	110									
UQ												178	175														
LQ												145	172														

JUN. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

JUN. 1970

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 **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	J ₂₄ X	J ₂₇ X	J ₂₄ X	J ₂₁ X	J ₄₁ X	J ₄₅ X	B	B	E ₃₉ B	E ₂₅ B	21	E ₂₃ B	B	E ₆₄ B	E ₄₀ B	C	F ₅₈ B	E ₅₈ B	E ₂₇ B	J ₃₃ X	J ₁₉ X	J ₃₂ X	31	
2	J ₃₃ X	35	J ₉₀ X	J ₃₉ X	B	J ₃₆ X	J ₄₀ X	J ₄₆ X	J ₄₁ X	33	J ₂₅ X	J ₃₃ X	26	20	20	16	E ₁₃ B	15	E ₁₀ B	E ₁₀ B	14	B	16	J ₁₅ X	
3	J ₁₉ X	25	J ₃₉ X	35	J ₂₈ X	J ₄₆ X	J ₄₆ X	B	B	B	E ₂₆ B	B	B	B	E ₅₇ B	B	B	B	E ₃₀ B	B	B	B	32	27	
4	29	30	J ₃₃ X	J ₈₂ X	J ₅₂ X	B	B	J ₂₄ X	B	J ₂₅ X	J ₃₂ X	B	B	E ₃₄ B	E ₃₃ B	B	E ₃₂ B	F ₂₁ B	B	B	B	B	B	15	
5	24	27	J ₄₁ X	37	32	J ₂₇ X	B	B	E ₃₁ B	B	B	E ₃₂ B	E ₄₁ B	E ₂₈ B	E ₂₉ B	E ₃₁ B	B	B	E ₂₁ B	E ₂₀ B	B	B	B	B	
6	B	J ₃₈ X	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
8	J ₃₁ X	J ₈₂ X	J ₆₁ X	B	J ₄₉ X	J ₅₁ X	J ₅₅ X	J ₄₉ X	J ₅₆ X	B	B	B	E ₂₃ B	E ₂₁ B	E ₁₆ B	E ₂₃ B	E ₃₂ B	F ₂₉ B	B	B	J ₂₆ X	B	24	25	
9	J ₃₅ X	J ₄₂ X	J ₄₁ X	44	J ₄₂ X	J ₃₂ X	J ₄₀ X	27	J ₃₂ X	J ₂₀ X	23	20	21	21	E ₁₅ B	E ₁₂ B	E ₁₂ B	E ₁₁ B	E ₁₇ B	E ₁₂ B	B	25	J ₂₉ X	J ₃₆ X	
10	J ₃₁ X	J ₃₁ X	J ₄₉ X	J ₄₈ X	J ₄₇ X	J ₄₉ X	J ₄₉ X	J ₃₀ X	22	17	E ₁₅ B	E ₁₂ B	E ₃₁ B	E ₁₉ B	E ₁₈ B	E ₃₀ B	E ₂₉ B	E ₂₃ B	E ₁₈ B	E ₁₅ B	J ₂₄ X	J ₁₉ X	24	J ₃₂ X	
11	32	31	J ₂₇ X	J ₃₆ X	44	J ₅₀ X	J ₃₀ X	J ₂₆ X	E ₁₆ B	E ₁₅ B	G	E ₁₈ B	G	E ₁₈ B	E ₁₅ B	E ₁₃ B	G	E ₁₆ B	E ₁₅ B	E ₁₂ B	B	B	13	15	
12	B	B	24	J ₂₅ X	J ₃₈ X	J ₄₂ X	J ₄₂ X	B	38	J ₁₉ X	22	G	E ₁₈ B	E ₂₀ B	E ₁₈ B	E ₁₈ B	E ₁₈ B	E ₂₉ B	B	B	B	B	15	J ₃₈ X	
13	26	33	J ₃₃ X	J ₃₉ X	J ₅₄ X	J ₃₁ X	J ₃₁ X	J ₂₃ X	25	15	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	J ₅₅ X	B	J ₄₉ X	J ₅₀ X	35	J ₄₅ X	J ₃₇ X	B	B	E ₄₀ B	E ₂₁ B	E ₃₃ B	E ₃₁ B	E ₅₁ B	E ₃₂ B	B	33	34	29	J ₃₅ X	
16	J ₈₅ X	J ₄₂ X	J ₅₀ X	J ₄₆ X	J ₄₆ X	J ₄₉ X	J ₄₂ X	J ₅₅ X	J ₄₁ X	35	E ₂₄ X	J ₂₆ X	E ₁₉ B	E ₁₉ B	E ₂₂ B	E ₁₈ B	E ₁₆ B	E ₁₈ B	E ₁₉ B	E ₁₅ B	B	B	23	25	
17	34	J ₄₇ X	J ₃₉ X	J ₄₀ X	J ₃₁ X	22	17	16	E ₁₁ B	E ₁₁ B	E ₁₃ B	G	G	G	G	E ₁₁ B	E ₁₃ B	J ₂₈ X	E ₃₀ B	J ₅₄ X	B	J ₃₉ X	J ₃₇ X	J ₆₄ X	
18	J ₃₈ X	J ₆₅ X	J ₇₇ X	J ₃₂ X	B	J ₇₂ X	J ₄₁ X	35	J ₃₀ X	B	E ₁₈ B	B	E ₁₀ B	E ₅₂ B	B	E ₆₃ B	J ₂₉ X	27	J ₃₇ X	J ₂₈ X	J ₄₅ X	J ₄₈ X	J ₄₇ X	J ₃₅ X	
19	J ₃₅ X	J ₄₄ X	B	B	B	J ₅₅ X	B	B	J ₃₆ X	B	B	E ₃₈ B	E ₃₁ B	E ₄₁ B	E ₄₀ B	E ₄₃ B	F ₃₉ B	E ₂₄ B	E ₁₄ B	B	B	B	J ₂₇ X	J ₃₅ X	
20	J ₄₀ X	J ₄₀ X	B	J ₉₂ X	B	B	B	B	B	B	B	B	B	B	E ₄₀ B	E ₄₄ B	E ₄₈ B	E ₂₀ B	J ₃₁ X	25	J ₈₅ X	J ₇₂ X	J ₆₅ X	J ₉₆ X	
21	J ₄₇ X	24	J ₅₆ X	J ₃₂ X	J ₅₂ X	B	J ₂₈ X	B	J ₅₄ X	B	B	J ₄₁ X	B	E ₃₉ B	E ₂₀ B	B	B	E ₃₁ B	B	27	31	J ₃₉ X	J ₇₅ X	J ₅₂ X	
22	J ₄₄ X	J ₂₇ X	J ₄₂ X	J ₇₂ X	J ₇₂ X	J ₃₈ X	J ₄₁ X	J ₄₂ X	J ₃₂ X	J ₅₂ X	J ₅₄ X	J ₅₄ X	23	E ₂₁ B	J ₄₅ X	E ₁₃ B	E ₁₃ B	E ₂₃ B	B	E ₂₁ B	B	B	22	J ₃₀ X	
23	37	J ₃₂ X	J ₃₂ X	34	J ₄₂ X	J ₆₅ X	J ₃₈ X	26	E ₂₂ B	E ₂₀ B	E ₁₉ B	27	24	E ₂₀ B	E ₂₀ B	E ₁₇ B	E ₁₈ B	E ₁₈ B	E ₁₂ B	E ₁₂ B	B	B	B	B	
24	E ₁₁ B	E ₁₃ B	13	J ₃₁ X	J ₄₆ X	J ₅₀ X	J ₄₀ X	23	15	14	G	G	G	E ₂₀ B	E ₁₆ B	E ₁₈ B	E ₁₁ B	E ₁₇ B	E ₁₄ B	B	B	B	E ₁₀ B	34	
25	J ₂₆ X	J ₄₆ X	J ₉₀ X	J ₄₃ X	J ₈₂ X	51	J ₃₉ X	J ₂₇ X	15	J ₂₀ X	B	B	B	E ₄₈ B	E ₄₁ B	E ₄₈ B	E ₄₉ B	E ₃₉ B	B	B	B	B	B	B	E ₁₄ B
26	J ₂₆ X	J ₃₅ X	39	J ₃₃ X	J ₃₂ X	24	J ₂₅ X	J ₃₉ X	J ₄₀ X	B	B	B	B	B	E ₄₀ B	E ₄₆ B	E ₁₉ B	E ₁₉ B	E ₂₀ B	E ₁₆ B	J ₃₃ X	B	J ₂₈ X	J ₆₇ X	J ₄₉ X
27	J ₃₆ X	35	34	J ₄₆ X	J ₄₂ X	J ₄₂ X	B	55	B	B	B	B	B	B	E ₂₆ B	E ₁₉ B	E ₂₀ B	24	J ₂₅ X	35	J ₃₂ X	28	J ₃₀ X	34	J ₄₁ X
28	32	35	J ₃₂ X	35	B	J ₄₇ X	J ₄₉ X	J ₅₀ X	B	B	E ₂₉ B	E ₂₉ B	26	E ₃₀ B	B	C	C	C	B	B	B	B	B	B	B
29	J ₃₀ X	J ₃₁ X	35	37	J ₂₆ X	20	20	13	14	E ₁₅ B	E ₂₁ B	E ₁₃ B	E ₁₉ B	E ₂₀ B	E ₁₉ B	E ₁₅ B	E ₁₈ B	E ₁₇ B	E ₁₈ B	E ₁₀ B	J ₃₂ X	J ₃₂ X	J ₃₂ X	37	
30	J ₄₉ X	37	J ₂₇ X	J ₄₂ X	J ₃₁ X	23	20	15	14	J ₂₇ X	E ₁₈ B	B	B	B	B	E ₁₃ B	E ₁₃ B	F ₁₉ B	E ₁₉ B	J ₂₅ X	J ₃₂ X	27	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	24	26	24	24	22	23	22	20	21	17	18	16	18	22	23	22	21	22	19	17	11	12	20	22	
MED	J ₃₂ X	J ₃₅ X	J ₃₉ X	J ₃₈ X	J ₄₃ X	J ₄₂ X	J ₄₀ X	J ₂₈ X	31	20	E ₂₂ B	E ₂₄ B	E ₂₃ B	E ₂₁ B	E ₂₀ B	E ₁₈ B	E ₁₈ B	F ₂₂ B	E ₁₉ B	E ₂₁ B	J ₃₂ X	J ₃₁ X	29	J ₃₄ X	
UQ	J ₃₈ X	J ₄₂ X	J ₅₀ X	J ₄₅ X	J ₅₂ X	J ₅₀ X	J ₄₅ X	J ₄₈ X	J ₃₈ X	J ₃₀ X	24	U ₂₉	E ₂₆ B	E ₃₉ B	E ₄₀ B	E ₃₃ B	E ₃₁ B	F ₂₈ B	E ₃₀ B	J ₂₇ X	J ₃₃ X	J ₃₉ X	J ₃₆ X	J ₃₈ X	
LQ	28	30	J ₃₂ X	J ₃₄ X	J ₃₂ X	J ₃₂ X	J ₃₀ X	24	15	14	E ₁₈ B	E ₁₂ B	E ₁₈ B	E ₂₀ B	E ₁₈ B	E ₁₅ B	E ₁₃ B	E ₁₈ B	E ₁₆ B	E ₁₂ B	27	J ₂₆ X	22	25	

The Radio Research Laboratories, Japan

JUN. 1970

FOES (0.1 MHZ)

IONOSPHERIC DATA

JUN. 1970

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 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	11	11	12	12	15	20	B	B	39	25	12	23	B	64	40	C	58	58	27	10	10	10	11	
2	11	11	12	15	B	22	19	11	23	25	15	12	17	15	11	12	13	9	10	10	10	B	11	9	
3	11	12	11	26	16	21	14	B	B	B	26	B	B	B	57	B	B	B	30	B	B	B	7	E C 13	
4	10	13	13	10	12	B	B	22	B	14	22	B	B	34	33	B	32	21	B	B	B	B	B	12	
5	11	11	17	20	20	19	B	B	31	B	B	32	41	28	29	31	B	B	21	20	B	B	B	B	
6	B	19	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
8	12	18	15	B	32	38	31	30	22	B	B	B	23	21	16	23	32	29	B	B	16	B	10	11	
9	11	12	12	18	15	18	18	22	15	12	12	12	15	12	15	12	12	11	17	12	B	19	10	10	
10	12	18	19	43	20	16	19	11	11	13	15	12	31	19	18	30	29	23	18	15	12	10	11	11	
11	15	11	11	12	18	20	20	11	16	15	12	18	13	18	15	13	11	16	15	12	B	B	11	12	
12	B	B	10	11	31	22	11	B	18	12	12	15	18	20	18	18	18	29	B	B	B	B	11	18	
13	11	12	18	15	19	12	12	11	11	11	B	B	C	C	C	C	C	C	C	C	C	C	C	C	
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	22	B	21	20	21	29	30	B	B	40	21	33	31	51	32	B	11	12	12	13	
16	20	10	18	30	23	29	20	21	34	30	24	20	19	19	22	18	16	18	19	15	B	B	19	15	
17	11	19	29	20	15	11	11	11	11	11	13	14	11	13	11	11	13	11	30	21	B	11	11	11	
18	15	46	18	20	B	16	16	19	18	B	18	B	10	52	B	63	22	19	14	12	11	12	15	12	
19	15	15	B	B	B	49	B	B	31	B	B	38	31	41	40	43	39	24	14	B	B	B	11	11	
20	21	29	B	21	B	B	B	B	B	B	B	B	B	B	40	44	48	20	12	14	22	15	15	29	
21	12	14	13	16	19	B	19	B	52	B	B	31	B	39	20	B	B	31	B	19	15	12	11	13	
22	14	20	18	14	50	20	20	19	15	12	11	18	20	21	18	13	13	23	B	21	B	B	12	11	
23	14	14	19	22	24	22	31	20	22	20	19	19	18	20	20	17	18	18	12	12	B	B	B	B	
24	11	13	11	11	12	18	11	11	10	11	10	10	15	20	16	18	11	17	14	B	B	B	10	18	
25	12	10	12	12	10	13	12	14	11	10	B	B	48	41	48	49	39	B	B	B	B	B	B	14	
26	11	11	14	20	14	12	12	20	30	B	B	B	B	40	46	19	19	20	16	21	B	20	21	28	
27	23	20	20	29	30	31	B	49	B	B	B	B	B	26	19	20	15	21	28	12	12	17	11	12	
28	19	18	12	18	B	20	21	19	B	B	29	29	18	30	B	C	C	C	B	B	B	B	B	B	
29	18	15	18	15	15	15	10	11	10	15	21	13	19	20	19	15	18	17	18	10	10	10	10	29	
30	18	18	20	20	18	12	10	12	11	11	18	B	B	B	B	13	13	19	19	21	22	19	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	27	27	26	26	27	27	27	27	27	27	27	27	26	26	26	25	24	25	26	26	26	26	26	26	26
MED	14	14	16	19	20	20	19	20	22	25	24	31	23	27	20	20	18	21	20	21	B	B	11	13	
UQ	18	18	19	22	32	30	26	D B 49	43	B	B	B	B	41	46	43	36	29	B	B	B	B	21	28	
LQ	11	12	12	14	15	16	12	12	13	12	15	14	18	20	18	15	13	18	15	12	12	12	11	11	

JUN. 1970

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JUN. 1970

M(3000)F2 (0.01)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	R	R	275	260	A	A	B	B	245	280	280	255	B	290	275	C	260	300	290	R	250	A	A
2	A	A	A	A	B	A	A	A	A	A	290	310	335	330	R	295	300	335	335	335	340	B	R	R
3	320	280	A	R	A	A	A	B	B	B	280	B	B	B	325	B	B	B	295	B	B	B	A	310
4	A	A	A	A	A	B	B	270	B	280	300	B	B	305	310	B	330	290	B	B	B	B	B	A
5	R	R	R	A	R	265	B	B	260	B	B	295	315	340	330	325	B	B	R	320	B	B	B	B
6	B	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	285	A	A	B	A	R	A	R	A	B	B	B	325	F	315	325	325	R	B	B	A	B	A	A
9	330	R	R	R	R	R	R	245	280	295	280	305	295	R	345	330	315	350	330	300	B	R	A	F
10	R	R	R	R	R	R	R	R	250	270	275	310	335	F	320	335	335	F	335	350	A	325	A	A
11	A	A	A	A	A	A	A	255	270	280	315	315	335	340	355	R	305	340	345	355	B	B	R	R
12	B	B	R	245	300	R	A	B	270	280	300	325	325	330	305	330	R	R	B	B	B	B	R	A
13	345	350	A	A	A	A	250	F	270	R	B	B	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	A	B	A	A	A	A	R	B	B	295	295	R	295	295	310	B	A	A	A	A
16	A	A	A	A	A	A	A	A	A	A	275	310	F	315	300	320	305	365	335	290	B	B	A	A
17	R	A	R	A	A	250	250	265	255	270	265	285	300	310	305	305	315	F	290	330	B	A	A	A
18	A	A	A	A	B	A	A	245	F	B	260	B	265	280	B	R	R	R	A	R	A	A	A	320
19	250	A	B	B	B	A	B	B	R	B	B	290	310	315	310	305	F	300	330	B	B	B	A	280
20	R	R	B	A	B	B	B	B	B	B	B	B	B	B	285	300	R	F	R	R	A	A	A	A
21	A	R	A	A	A	B	R	B	A	B	B	A	B	285	F	B	B	R	B	R	R	A	A	A
22	A	R	R	300	A	A	A	245	F	F	F	320	315	R	F	R	350	335	B	325	B	B	A	A
23	A	A	A	A	A	A	A	255	265	270	300	305	325	335	315	315	F	295	350	365	B	B	B	B
24	325	315	255	250	A	A	260	F	F	290	300	315	320	320	F	F	F	280	315	B	B	B	300	R
25	275	285	A	A	A	A	A	245	265	F	285	B	B	320	320	325	330	R	B	B	B	B	B	315
26	A	A	A	A	A	235	220	A	A	B	B	B	B	310	R	335	305	315	295	A	B	A	A	A
27	A	A	A	A	R	A	B	B	B	B	B	B	B	245	F	275	290	300	R	R	A	A	R	A
28	R	A	A	300	B	A	A	A	B	B	290	315	315	330	B	C	C	C	B	B	B	B	B	B
29	A	295	A	A	A	225	260	255	240	265	290	310	305	315	325	F	290	330	335	310	A	A	A	A
30	A	A	A	A	A	A	250	255	265	295	320	B	B	B	B	R	280	330	R	A	270	325	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	7	5	1	5	2	4	7	10	10	12	16	15	17	18	17	15	14	15	14	11	2	3	1	4
MED	320	295	255	275	280	242	250	255	265	280	290	310	315	315	315	320	305	315	330	325	305	325	300	312
UQ	328	315		300		258	255	265	270	288	300	315	325	330	325	330	325	335	335	342		325		318
LQ	280	285		250		230	248	245	255	270	278	300	305	305	305	302	295	295	300	305		288		295

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M(3000)F2 (0.01)

IONOSPHERIC DATA

JUN. 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	MHz to 15				MHz in 30 sec				in automatic operation			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1																											
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	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT																											
MED																											
UQ																											
LQ																											

NO DATA

JUN. 1970

H^oF₂ (KM)

IONOSPHERIC DATA

JUN. 1970

H^oF (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	A	A	A	A	A	A	B	B	B	300	255	300	B	B	255	C	B	B	300	A	A	A	A
2	A	A	A	A	B	A	A	A	A	A	265	265	240	240	200	230	225	205	215	250	290	B	A	A
3	265	A	A	A	A	A	A	B	B	B	300	B	B	B	B	B	B	B	300	B	B	B	A	300
4	A	A	A	A	A	B	B	A	B	360	310	B	B	260	250	B	225	255	B	B	B	B	B	A
5	A	260	A	A	A	A	B	B	B	B	B	300	270	240	240	225	B	B	240	B	B	B	B	B
6	B	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	A	A	A	B	A	A	A	A	A	B	B	B	250	250	240	220	270	265	B	B	A	B	A	A
9	275	A	A	A	A	A	A	A	350	320	250	255	250	210	205	205	205	205	250	280	B	A	A	A
10	A	A	A	B	A	A	A	A	400	350	225	240	250	210	240	250	255	255	225	230	300	300	A	A
11	A	A	A	A	A	A	A	A	355	300	250	240	225	205	200	200	250	240	250	240	B	B	A	A
12	B	B	A	A	290	A	A	B	A	300	250	240	240	240	250	225	205	B	B	B	B	B	200	A
13	265	250	A	A	A	A	A	355	340	275	B	B	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	C	C	C	C	A	B	A	A	A	B	B	B	B	310	255	320	250	B	260	B	A	A	A	A
16	A	A	A	A	A	A	A	A	B	A	340	265	250	240	240	225	255	250	245	275	B	B	A	A
17	A	A	A	A	A	450	390	355	300	300	300	275	250	250	250	250	250	250	B	250	B	A	A	A
18	A	B	A	A	B	A	A	A	450	B	325	B	325	B	B	B	315	350	A	A	A	A	A	A
19	A	A	B	B	B	B	B	B	A	B	B	300	260	290	290	300	270	265	250	B	B	B	A	350
20	A	A	B	A	B	B	B	B	B	B	B	B	B	B	305	290	300	255	A	A	A	A	A	A
21	A	A	A	A	A	B	A	B	B	B	B	B	B	355	275	B	B	250	B	A	A	A	A	A
22	A	A	A	A	B	A	A	A	320	275	255	250	255	275	240	250	250	290	B	B	B	B	A	A
23	A	A	A	A	A	A	A	A	375	340	290	250	245	250	245	240	250	245	245	275	B	B	B	B
24	300	B	A	A	A	A	A	300	270	265	255	245	240	245	240	250	245	300	260	B	B	B	B	A
25	A	A	A	A	A	A	A	320	290	290	B	B	300	260	290	265	315	B	B	B	B	B	B	375
26	A	A	A	A	A	A	A	A	A	B	B	B	B	300	300	240	255	225	295	A	B	A	A	A
27	A	A	A	A	240	B	B	B	B	B	B	B	B	B	300	290	255	315	A	A	A	A	305	A
28	210	A	A	A	B	A	A	A	B	B	B	290	250	270	B	C	C	C	B	B	B	B	B	B
29	A	A	A	A	A	A	A	400	410	345	300	250	225	240	240	230	285	265	260	290	B	A	A	A
30	A	A	A	A	A	A	A	390	340	305	260	B	B	B	B	250	250	250	240	A	325	A	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	5	2			2	1	2	6	12	13	16	15	18	20	21	21	21	19	15	9	3	1	2	3
MED	265	255			265	450	400	355	345	300	278	255	250	250	245	250	250	255	250	275	300	300	252	350
UQ	275							390	388	340	300	270	260	272	275	255	270	265	260	280	312			362
LQ	265							320	310	290	252	248	240	240	240	225	250	248	242	250	295			325

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H^oF (KM)

IONOSPHERIC DATA

JUN. 1970

H¹ES (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	125	110	110	110	110	100	B	B	B	B	150	B	B	B	B	C	B	B	B	105	105	105	110	
2	105	105	110	105	B	105	100	100	105	125	120	100	110	110	140	105	B	150	B	B	155	B	155	105	
3	140	115	105	105	110	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	105	120	
4	105	110	110	100	100	B	B	120	B	105	115	B	B	B	B	B	B	B	B	B	B	B	B	155	
5	105	110	110	110	120	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
6	B	100	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
8	125	100	110	B	105	125	105	105	100	B	B	B	B	B	B	B	B	B	B	B	145	B	105	105	
9	110	110	110	110	105	115	105	135	115	105	115	105	110	140	B	B	B	B	B	B	B	105	125	110	
10	120	125	105	130	105	105	100	105	120	140	B	B	B	B	B	B	B	B	B	B	150	125	150	120	
11	110	110	105	105	105	105	105	105	B	B	G	B	G	B	B	B	G	B	B	B	B	B	160	150	
12	B	B	110	115	105	105	100	B	110	120	110	G	B	B	B	B	B	B	B	B	B	B	150	120	
13	145	115	110	115	105	105	105	125	110	110	B	B	C	C	C	C	C	C	C	C	C	C	C	C	
14	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
15	C	C	C	C	125	B	135	130	140	145	140	B	B	B	B	B	B	B	B	B	140	130	140	140	
16	135	130	125	150	140	140	140	125	150	150	B	150	B	B	B	B	B	B	B	B	B	B	150	110	
17	100	110	150	135	140	150	110	160	B	B	B	G	G	G	G	B	B	140	B	140	B	140	135	140	
18	140	130	150	150	B	140	140	150	140	B	B	B	B	B	B	B	140	140	140	155	125	130	140	140	
19	150	140	B	B	B	130	B	B	150	B	B	B	B	B	B	B	B	B	B	B	B	B	145	140	
20	140	130	B	175	B	B	B	B	B	B	B	B	B	B	B	B	B	B	145	150	150	135	140	150	
21	140	150	140	140	140	B	140	B	150	B	B	140	B	B	B	B	B	B	B	B	150	140	140	135	140
22	140	140	140	125	150	140	130	140	150	150	145	140	140	B	140	B	B	B	B	B	B	B	150	130	
23	140	140	140	150	150	125	150	140	B	B	B	150	145	B	B	B	B	B	B	B	B	B	B	B	
24	B	B	160	150	130	125	125	150	150	200	G	G	G	B	B	B	B	B	B	B	B	B	B	145	
25	150	150	140	140	140	125	140	150	140	140	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
26	150	140	140	140	140	145	145	125	125	B	B	B	B	B	B	B	B	B	B	150	B	150	155	150	
27	150	150	150	190	150	150	B	B	B	B	B	B	B	B	B	B	150	150	155	140	140	140	140	140	
28	150	145	140	145	B	130	120	125	B	B	B	B	150	B	B	C	C	C	B	B	B	B	B	B	
29	150	150	145	140	145	160	150	155	140	B	B	B	B	B	B	B	B	B	B	B	125	130	125	140	
30	140	140	150	150	150	145	140	150	155	150	B	B	B	B	B	B	B	B	B	160	150	150	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	23	25	24	24	22	23	22	19	17	12	6	7	5	2	2	1	2	4	3	7	11	12	19	21	
MED	140	130	132	138	128	125	122	130	140	140	118	140	140	125	140	105	145	145	145	150	140	132	140	140	
UQ	148	140	142	150	140	140	140	150	150	150	140	150	145				150	150	152	150	140	150	140		
LQ	115	110	110	110	105	108	105	122	115	115	115	122	110				140	142	145	132	128	130	120		

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JUN. 1970

H¹ES (KM)

IONOSPHERIC DATA

JUN. 1970

TYPES OF ES

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

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

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

JUN. 1970

TYPES OF ES

IONOSPHERIC DATA

JUL. 1970

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	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	A	49	A	A	A	A	A	A	B	61	B	F	79	62	61	55	56	B	B	B	A	A					
2	30	A	33	32	31	F	F	F	F	F	26	A	B	R	64	67	R	B	R	F	R	23	B	B	R	R			
3	R	A	R	A	A	A	A	A	B	B	B	B	B	B	B	C	C	B	41	35	R	R	R	R					
4	A	A	A	B	A	F	A	R	A	A	B	B	B	B	R	55	46	53	41	U	R	27	R	R	B	R			
5	R	21	A	R	R	R	R	R	B	B	B	B	R	91	R	56	52	64	F	R	50	25	A	R	R				
6	39	A	R	A	B	B	A	A	A	B	B	B	B	55	71	73	80	B	B	R	R	B	A	A					
7	A	A	A	33	R	31	24	25	32	A	B	B	B	71	75	67	B	B	A	B	B	B	B	A					
8	A	A	A	A	A	A	A	A	A	A	A	53	61	75	71	62	59	66	45	23	B	A	A	A					
9	A	A	R	A	A	A	A	A	A	54	A	54	F	B	B	B	57	63	R	R	F	A	A	A					
10	A	A	A	B	B	R	A	A	A	F	33	36	55	62	72	79	R	48	36	39	33	B	R	A	A				
11	A	A	A	A	B	A	A	A	F	F	24	30	34	B	52	60	69	65	60	60	B	B	A	R	A	A			
12	F	A	A	B	B	R	B	B	B	F	36	43	48	F	58	B	85	J	R	94	65	54	F	33	B	B	A	R	
13	A	B	A	A	B	A	B	A	A	B	39	54	F	63	J	B	75	64	61	58	33	20	B	R	A	R	A		
14	A	A	B	B	A	B	A	R	24	F	31	39	52	B	B	R	71	56	J	F	48	B	B	B	B	A	R		
15	R	A	A	A	A	A	A	A	24	F	37	44	60	60	B	J	R	71	R	B	39	B	B	B	B	B	B		
16	B	R	R	A	A	A	C	C	C	C	C	C	C	62	70	71	62	F	B	B	B	B	B	R	R				
17	B	R	27	25	24	F	A	F	31	A	R	R	50	J	R	J	F	60	42	F	R	39	R	23	R	A	A	A	
18	A	A	A	A	A	A	A	A	A	B	40	F	54	55	U	R	83	R	U	F	56	38	R	R	B	B	B	A	A
19	A	R	A	A	27	25	F	B	B	B	F	55	U	R	64	F	63	61	F	54	B	B	B	R	B	A	B	R	
20	A	A	A	R	A	A	A	34	34	33	R	52	61	J	F	72	50	62	36	F	35	34	A	A	B	A	A		
21	F	A	A	A	A	32	A	36	A	48	47	51	F	56	F	63	72	R	70	82	R	R	R	R	A	B			
22	R	A	A	A	B	A	A	B	R	B	43	B	B	B	B	R	R	B	R	U	R	41	B	A	R	A	A		
23	A	A	B	B	B	B	A	A	B	B	54	60	64	78	58	46	45	45	20	B	R	R	R						
24	A	A	R	R	A	B	A	A	B	B	B	B	79	72	66	70	C	C	C	C	C	C	C	C	C	C	R		
25	B	B	A	B	B	B	A	B	B	B	B	B	B	B	F	F	R	B	B	B	R	B	A	A	A				
26	A	B	A	R	B	B	A	B	A	B	B	B	B	B	B	F	R	R	R	B	B	B	B	B	R	R			
27	34	A	R	A	A	A	A	A	B	B	B	61	70	75	81	R	60	55	48	B	B	R	A	A					
28	A	A	A	B	A	A	23	23	22	35	U	R	55	66	74	81	78	69	48	F	30	31	23	F	17	17	B	R	
29	B	A	A	A	R	32	F	R	B	B	B	B	B	B	J	R	40	83	F	F	35	54	R	R	A	A	A	A	
30	R	R	R	A	R	R	33	36	B	R	F	53	63	R	63	75	70	63	55	60	36	20	B	A	18				
31	A	A	A	A	A	R	A	R	B	B	B	B	B	B	B	R	B	81	R	R	R	U	R	58	R	A			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
CNT	3	1	2	4	3	5	5	6	6	10	12	17	18	20	19	19	20	19	14	10	3	2	1						
MED	34	21	30	32	27	32	28	32	24	34	42	54	62	72	72	62	56	54	41	25	20	38	18						
UQ	36			41	29	32	33	36	32	37	46	60	64	75	78	70	60	62	48	33	22								
LQ	32			28	26	31	24	25	24	31	39	52	58	63	70	59	46	42	39	23	18								

JUL. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

JUL. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

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

NO DATA

JUL. 1970

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

JUL. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								B	B	B	B	B	B	B	B	B	B	B						
2								A	A	B	B	B	B	B	B	B	B	B	A					
3								A	B	B	B	B	B	B	B	C	C	B						
4								B	B	A	B	B	B	B	B	B	B	B						
5								B	B	B	B	B	B	B	B	B	B	B						
6								B	B	B	B	B	B	B	B	B	B	B						
7								A	A	A	B	B	B	B	B	B	B	B						
8								B	B	B	A	B	B	B	B	B	B	B						
9								B	B	B	B	B	B	B	B	B	B	B						
10								B	B	160	170	180	200	A	B	B	B	B						
11								B	A	A	B	B	B	B	B	B	B	B						
12								B	B	A	A	B	B	B	B	B	B	B						
13								B	B	B	B	B	B	A	A	A	B	B						
14								B	B	B	B	B	B	B	B	B	B	B						
15								B	B	B	B	B	B	B	B	B	B	B						
16								C	C	C	C	C	B	B	B	B	B	B						
17								B	B	A	B	B	B	A	A	B	B	B						
18								B	B	B	B	175	B	B	B	B	B	B						
19								B	B	B	B	B	B	B	B	B	B	B						
20								A	A	A	A	B	B	B	B	A	B	B						
21								B	B	B	A	A	A	A	170	A	A	A						
22								B	B	B	B	B	B	B	A	A	B	B						
23								B	B	B	B	B	B	B	B	A	A	B						
24								B	B	B	B	B	B	B	A	A	C	C						
25								B	B	B	B	B	B	B	B	A	B	B						
26								B	B	B	B	B	B	B	B	A	A	B						
27								B	B	B	B	B	B	B	A	A	A	B						
28								B	B	B	B	B	B	B	A	A	B	B						
29								B	B	B	B	B	B	B	B	B	B	B						
30								A	B	B	B	B	B	A	A	175	A	A						
31								B	B	B	B	B	B	B	B	B	B	B						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										1	1	2	1		1	1								
MED										160	170	178	200		170	175								
UQ																								
LQ																								

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JUL. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

JUL. 1970

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 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	J X 35	J X 32	28	J X 48	J X 47	J X 57	J X 52	J X 52	B	E 41	B	E 42	E 41	E 13	E 20	F 11	E 23	B	B	B	J X 18	J X 30
2	J X 32	J X 73	J X 31	31	J X 32	28	J X 49	J X 51	J X 47	J X 29	J X 54	B	E 44	E 30	E 26	B	E 19	25	23	23	B	B	19	J X 25
3	21	J X 26	30	J X 32	J X 40	J X 47	J X 49	J X 46	B	B	B	B	B	B	B	C	C	B	E 30	J X 30	24	J X 28	24	23
4	J X 31	J X 40	J X 65	B	J X 48	J X 29	J X 85	26	J X 65	J X 59	B	B	B	B	E 40	E 40	E 30	F 30	E 18	E 20	24	15	B	23
5	23	J X 28	J X 30	24	J X 32	23	29	25	B	B	B	B	E 49	E 42	E 33	E 11	E 12	E 29	E 14	E 19	E 19	J X 28	23	29
6	26	J X 33	J X 39	J X 42	B	B	J X 52	J X 55	58	B	B	B	B	E 42	E 11	E 12	E 31	B	B	E 30	E 19	B	J X 28	J X 28
7	J X 31	J X 31	J X 29	J X 27	26	J X 42	E 18	19	J X 45	J X 48	B	B	B	E 42	E 31	E 30	B	B	J X 51	B	B	B	B	25
8	31	31	45	J X 29	J X 41	J X 56	J X 56	J X 54	J X 54	J X 38	J X 37	E 30	E 40	E 30	E 18	E 13	E 15	E 23	E 21	E 19	B	J X 32	J X 39	J X 52
9	J X 62	J X 64	J X 30	J X 107	J X 56	J X 65	J X 44	J X 49	J X 59	J X 64	J X 44	25	E 24	B	B	B	E 43	F 30	36	J X 39	J X 31	J X 41	J X 45	J X 56
10	J X 64	J X 46	J X 61	B	B	48	37	J X 48	J X 31	22	G	G	G	23	E 17	E 16	E 11	E 18	E 21	E 18	B	20	J X 36	J X 75
11	J X 53	J X 43	J X 32	J X 58	B	J X 51	J X 47	J X 49	J X 25	21	E 21	B	E 35	E 26	E 18	E 11	E 43	F 17	B	B	J X 29	25	J X 33	35
12	J X 35	J X 42	J X 31	B	B	32	B	B	B	J X 34	J X 25	E 24	E 31	B	E 29	E 11	E 12	E 24	E 18	25	B	B	J X 31	35
13	J X 34	B	J X 52	J X 53	B	36	B	J X 33	35	B	E 26	25	E 19	24	J X 30	J X 30	J X 30	E 15	E 15	B	16	J X 30	J X 32	33
14	J X 66	J X 65	B	B	J X 37	B	J X 46	33	J X 27	27	E 20	E 19	B	B	E 41	E 32	E 11	F 11	B	B	B	B	J X 40	J X 20
15	17	J X 28	J X 37	J X 48	J X 41	J X 31	J X 29	J X 34	J X 29	E 16	E 19	E 20	E 19	B	E 43	E 11	B	F 20	B	B	B	B	B	B
16	B	26	J X 31	J X 31	J X 38	J X 30	C	C	C	C	C	C	E 20	E 12	E 11	E 13	E 13	B	B	B	B	B	24	22
17	B	22	J X 29	J X 48	E 18	J X 18	J X 39	J X 39	J X 28	25	25	E 32	E 32	24	J X 29	J X 29	E 13	F 15	22	E 13	J X 19	17	J X 30	J X 27
18	J X 70	J X 82	J X 87	42	45	J X 41	J X 51	J X 50	J X 45	B	E 18	G	E 18	E 20	E 20	E 20	E 20	F 23	E 20	B	B	B	J X 28	J X 21
19	J X 30	J X 31	J X 45	J X 31	J X 29	J X 24	J X 30	B	B	B	E 15	E 20	26	E 20	E 20	E 22	B	B	B	E 19	B	J X 27	B	17
20	J X 31	J X 40	J X 54	J X 32	J X 60	J X 39	J X 65	J X 32	24	J X 39	J X 32	E 40	J X 57	J X 29	24	24	E 20	E 18	J X 48	J X 72	J X 31	B	J X 29	J X 30
21	22	J X 30	J X 42	J X 79	J X 41	27	J X 47	23	J X 56	J X 54	J X 18	22	22	J X 29	G	25	25	20	E 30	26	24	J X 30	J X 107	B
22	36	J X 47	J X 96	J X 92	B	J X 42	J X 38	B	33	B	27	B	B	B	24	25	B	F 23	E 20	B	J X 30	J X 20	J X 21	J X 50
23	J X 38	35	B	B	B	B	J X 49	35	B	B	B	E 49	E 29	E 31	E 40	23	J X 20	F 26	26	E 12	B	J X 28	J X 30	25
24	31	J X 31	29	32	J X 50	B	J X 54	J X 63	B	B	B	B	E 45	E 30	J X 20	J X 20	C	C	C	C	C	C	C	J X 27
25	B	B	J X 80	B	B	B	J X 57	B	B	B	B	B	B	E 30	E 44	24	B	B	B	33	B	J X 63	J X 57	J X 32
26	30	B	J X 38	28	B	B	B	J X 38	B	J X 34	B	B	B	B	E 41	24	25	F 40	B	B	B	B	28	27
27	J X 40	J X 91	35	J X 30	J X 29	J X 30	J X 30	J X 30	B	B	B	E 44	E 28	E 44	24	24	23	F 20	E 21	B	B	27	J X 30	J X 50
28	26	J X 27	E 27	B	J X 30	26	E 18	E 15	E 15	E 20	E 22	J X 48	J X 108	24	23	E 31	E 21	E 19	E 14	E 12	E 12	B	14	
29	B	25	J X 31	33	J X 36	27	21	J X 29	B	B	B	B	B	E 40	E 41	E 23	J X 27	32	J X 30	J X 31	J X 31	J X 34	J X 69	J X 36
30	32	J X 32	J X 28	J X 30	J X 31	31	27	23	B	E 29	E 28	E 45	E 32	24	25	24	21	J X 20	E 24	J X 29	J X 27	B	16	18
31	J X 20	J X 53	J X 45	J X 31	J X 49	J X 29	J X 55	J X 32	B	B	B	B	B	B	B	E 53	B	34	J X 34	E 24	J X 31	36	36	J X 34
CNT	26	27	29	24	22	25	27	26	18	17	17	17	20	22	28	28	23	24	22	19	15	18	25	29
MED	J X 31	J X 33	J X 35	J X 32	J X 38	J X 31	J X 47	J X 34	J X 40	J X 34	E 25	E 25	E 30	E 30	E 26	E 23	E 20	F 22	E 22	E 24	J X 24	J X 28	J X 30	J X 28
UQ	J X 38	J X 46	J X 45	J X 48	J X 45	J X 42	J X 52	J X 49	J X 54	J X 48	J X 28	E 40	E 42	E 42	E 40	24	U 24	E 28	30	30	J X 30	J X 32	J X 36	J X 35
LQ	26	J X 29	J X 30	J X 30	J X 30	J X 28	J X 30	29	J X 27	24	E 19	E 20	E 21	24	20	E 13	E 14	E 18	E 20	E 19	19	20	J X 24	23

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JUL. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

JUL. 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 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	16	19	16	30	30	22	22	21	B	41	B	42	41	13	20	11	23	B	B	B	12	13							
2	10	11	11	14	14	12	12	10	11	21	43	B	44	30	26	B	19	14	11	18	B	B	13	13							
3	12	11	11	16	22	18	18	12	B	B	B	B	B	B	B	C	C	B	30	20	18	19	16	19							
4	15	24	20	B	30	12	19	15	43	18	B	B	B	B	40	40	30	30	18	20	20	12	B	18							
5	12	11	11	11	18	12	18	17	B	B	B	B	49	42	33	11	12	29	14	19	19	11	15	12							
6	11	10	26	30	B	B	31	22	42	B	B	B	B	42	11	12	31	B	B	30	19	B	23	20							
7	11	13	21	12	17	12	18	12	14	19	B	B	B	42	31	30	B	B	31	B	B	B	B	11							
8	11	12	29	21	21	20	32	32	29	21	21	30	40	30	18	13	15	23	21	19	B	12	11	20							
9	12	16	21	30	29	18	12	33	30	29	28	20	24	B	B	B	43	30	24	12	21	12	11	11							
10	18	16	11	B	B	21	19	18	20	11	11	12	16	13	17	16	11	18	21	18	B	10	12	11							
11	22	19	13	18	B	42	19	18	11	11	21	B	35	26	18	11	43	17	B	B	12	12	12	12							
12	15	19	18	B	B	15	B	B	B	11	13	24	31	B	29	11	12	24	18	21	B	B	12	13							
13	11	B	18	45	B	21	B	30	19	B	26	20	19	15	13	12	15	15	15	B	12	10	11	11							
14	33	27	B	B	22	B	30	28	18	16	20	19	B	B	41	32	11	11	B	B	B	B	11	11							
15	11	11	31	29	30	18	21	28	15	16	19	20	19	B	43	11	B	20	B	B	B	B	B	B							
16	B	15	12	19	20	20	C	C	C	C	C	C	20	12	11	13	13	B	B	B	B	B	12	12							
17	B	14	11	15	18	11	20	15	18	15	21	32	32	19	15	19	13	15	12	13	10	10	11	10							
18	18	20	42	29	18	19	18	18	19	B	18	14	18	20	20	20	20	23	20	B	B	B	20	12							
19	12	12	15	16	13	12	11	B	B	B	15	20	20	20	20	22	B	B	B	19	B	11	B	12							
20	10	11	15	30	21	22	16	13	11	13	20	40	26	21	20	16	20	18	18	18	18	B	10	10							
21	9	10	22	20	25	18	20	19	19	19	14	18	20	18	13	11	11	13	30	19	18	11	20	B							
22	18	11	18	51	B	18	18	B	22	B	21	B	B	B	11	11	B	23	20	B	11	10	12	11							
23	32	31	B	B	B	B	20	25	B	B	B	49	29	31	40	11	11	26	18	12	B	11	11	11							
24	11	12	11	11	21	B	50	43	B	B	B	B	45	30	11	11	C	C	C	C	C	C	C	22							
25	B	B	41	B	B	B	49	B	B	B	B	B	B	30	44	11	B	B	B	20	B	21	24	20							
26	20	B	31	21	B	B	B	30	B	22	B	B	B	B	41	11	11	40	B	B	B	B	18	12							
27	15	20	29	21	18	18	22	21	B	B	B	44	28	44	13	13	14	20	21	B	B	15	11	12							
28	20	18	27	B	21	18	18	15	15	15	20	22	25	22	13	13	31	21	19	14	12	12	B	12							
29	B	12	14	15	30	18	16	26	B	B	B	B	B	40	41	23	19	27	15	12	19	12	11	12							
30	12	20	18	20	11	12	12	11	B	29	28	45	32	13	11	11	11	13	24	12	12	B	9	10							
31	12	11	15	12	20	20	22	22	B	B	B	B	B	B	B	53	B	19	22	24	15	11	15	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	31	31	31	31	31	31	30	30	30	30	30	30	31	31	31	30	29	30	30	30	30	30	30	31							
MED	15	15	18	21	22	18	20	22	30	26	28	44	35	31	20	13	19	23	22	20	B	16	12	12							
UQ	21	20	28	48	B	26	30	30	B	B	B	B	B	B	41	22	43	30	B	B	B	B	20	16							
LQ	11	11	14	16	18	16	18	15	18	16	20	20	24	20	13	11	12	17	18	18	18	11	11	11							

JUL. 1970

F=MIN (0.1 MHZ)

IONOSPHERIC DATA

JUL. 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 **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	A	345	A	A	A	A	A	A	B	280	B	F	305	310	310	275	305	F	B	B	B	A	A	
2	275	A	275	260	240	240	250	F	F	260	A	B	310	285	R	B	R	F	R	270		B	B	R	R	
3	R	A	R	A	A	A	A	A	B	B	B	B	B	B	B	C	C	B	315	325		R	R	R	R	
4	A	A	A	B	A	F	A	R	A	A	B	B	B	B	R	310	295	315	335	F	U R	R	R	B	R	
5	R	265	A	R	R	R	R	R	B	B	B	B	R	305	R	285	275	315	320	F	R	350	A	R	R	
6	295	A	R	A	B	B	A	A	A	B	B	B	B	315	280	300	290	B	B	R	R	B	A	A		
7	A	A	A	290	R	250	260	280	280	A	B	B	B	325	335	360	B	B	A	B	B	B	B	A		
8	A	A	A	A	A	A	A	A	A	A	A	285	295	310	315	320	295	320	315	350		B	A	A	A	
9	A	A	R	A	A	A	A	A	A	295	A	260	245	F	B	B	B	255	240	R	R	F	A	A	A	
10	A	A	A	B	B	R	A	A	A	235	270	295	305	345	330	R	325	280	315	320		B	R	A	A	
11	A	A	A	A	B	A	A	A	245	F	265	295	B	290	315	305	325	325	335	B	B	A	R	A	A	
12	F	A	A	B	B	R	B	B	B	270	F	285	290	F	B	R	R	300	330	F	325	B	B	A	R	
13	A	B	A	A	B	A	B	A	A	B	280	315	F	315	R	330	310	345	340	340	B	R	A	R	A	
14	A	A	B	B	A	B	A	R	250	F	280	310	310	B	B	R	340	355	F	B	B	B	B	A	R	
15	R	A	A	A	A	A	A	A	275	F	280	305	330	B	R	R	B	330	B	B	B	B	B	B	B	
16	B	R	R	A	A	A	C	C	C	C	C	C	C	320	330	330	325	F	B	B	B	B	B	R	R	
17	B	R	280	300	270	F	A	F	250	A	R	R	320	R	F	F	F	310	F	R	R	R	R	A	A	
18	A	A	A	A	A	A	A	A	A	B	295	325	F	340	U R	350	R	U F	340	365	R	R	B	B	A	A
19	A	R	A	R	270	270	275	F	B	B	B	285	350	U R	345	310	310	F	B	B	B	R	B	A	B	R
20	A	A	A	R	A	A	A	265	300	310	R	325	320	F	325	325	290	330	F	355	A	A	B	A	A	
21	F	A	A	A	A	360	A	290	A	280	300	F	295	290	280	290	R	285	280	R	R	R	R	A	B	
22	R	A	A	A	B	A	A	B	R	B	310	B	B	B	R	R	B	R	U R	335	B	A	R	A	A	
23	A	A	B	B	B	B	A	A	B	B	B	320	335	315	335	335	310	300	335	350		B	R	R	R	
24	A	A	R	R	A	B	A	A	B	B	B	B	315	320	320	300	C	C	C	C	C	C	C	C	R	
25	B	B	A	B	B	B	A	B	B	B	B	B	B	B	F	F	R	B	B	B	R	B	A	A	A	
26	A	B	A	R	B	B	B	A	B	A	B	B	B	B	F	R	R	R	R	B	B	B	B	R	R	
27	325	A	R	R	A	A	A	A	B	B	B	325	315	305	320	R	315	295	290	B	B	R	A	A		
28	A	A	A	B	A	A	260	285	295	290	U R	310	320	335	335	335	335	335	305	F	350	320	355	370	B	R
29	B	A	A	A	R	255	F	R	B	B	B	B	B	R	225	F	F	265	R	R	A	A	A	A	A	
30	R	R	R	A	R	R	240	265	B	R	305	350	R	360	320	325	325	320	315	355	320	B	A	305		
31	A	A	A	A	A	R	A	R	B	B	B	B	B	B	B	R	B	310	R	R	R	U R	330	R	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	3	1	2	4	3	5	5	6	6	10	12	17	17	16	18	17	20	18	14	10	3	2		1		
MED	295	265	278	295	270	255	260	272	278	275	295	315	315	315	320	325	310	312	328	325	350	350		305		
UQ	310			322	270	270	260	285	295	290	308	325	330	332	330	335	325	330	340	350	352					
LQ	285			275	255	250	250	265	250	260	282	295	295	308	305	310	290	280	315	320	335					

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JUL. 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

JUL. 1970

H¹F² (KM)

45° E Mean Time (G. M. T. + 3h)

Station	SYQWA BASE				Lat. 69° 00.4' S.	Long. 39° 35.4' E	Sweep	MHz to 15	MHz in 30	sec	in automatic	operation												
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
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28																								
29																								
30																								
31																								
CNT																								
MED																								
UQ																								
LQ																								

NO DATA

JUL. 1970

H¹F² (KM)

IONOSPHERIC DATA

JUL. 1970

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 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	A	250	A	B	B	A	A	A	B	B	B	B	275	265	250	270	260	270		B	B	B	A	A
2	A	A	A	A	A	450	400	330	390	A	B	B	300	300	255	B	250	240	255	A	B	B	A	A		
3	A	A	A	A	A	A	A	A	B	B	B	B	B	B	B	C	C	B	300	300		A	B	A	A	
4	A	A	A	B	A	A	A	A	A	A	B	B	B	B	250	B	325	290	255	B	A	A	B	A		
5	200	A	A	340	A	A	A	A	B	B	B	B	B	280	250	255	255	260	250	250	200	A	A	A		
6	370	A	A	A	B	B	B	A	B	B	B	B	B	B	255	255	290	B	B	B	B	200	B	A	A	
7	A	A	A	A	A	360	390	B	A	340	A	B	B	B	275	250	250	B	B	B	B	B	B	B	A	
8	A	A	B	A	A	A	A	A	A	A	A	300	300	265	225	240	245	275	250	275		B	A	A	A	
9	A	A	A	A	A	A	A	B	B	B	B	340	350	B	B	B	B	E	B	A	A	340	A	280	A	
10	A	A	A	B	B	A	A	A	A	A	240	250	240	240	240	200	240	250	300	250		B	A	A	A	
11	A	A	A	A	B	B	A	A	A	A	350	300	B	330	260	240	240	290	250	B	B	A	A	A	A	
12	300	A	A	B	B	330	B	B	B	345	290	300	275	B	270	240	240	240	255	B	B	B	A	A		
13	A	B	A	B	B	A	B	A	A	B	E	B	265	240	240	225	240	225	240	250	B	225	A	325	A	
14	A	A	B	B	A	B	B	A	A	350	275	250	B	B	250	255	240	240	B	B	B	B	B	A	220	
15	A	A	A	A	A	A	A	A	350	305	255	240	240	B	265	250	B	280	B	B	B	B	B	B	B	
16	B	A	A	A	A	A	C	C	C	C	C	C	240	250	230	250	220	B	B	B	B	B	B	A	A	
17	B	A	380	E	B	B	A	A	400	A	300	325	275	250	235	225	210	250	260	230	250	A	A	A	A	
18	A	A	A	A	A	A	A	A	A	A	B	270	245	225	240	240	250	230	300	250	B	B	B	A	A	
19	A	280	A	A	340	430	E	A	B	B	B	295	240	240	250	240	225	B	B	B	280	B	A	B	A	
20	A	A	A	A	A	A	A	A	400	320	290	300	300	250	250	225	245	240	255	250	A	A	B	A	A	
21	290	A	A	A	A	230	A	350	A	A	245	255	290	290	275	A	300	300	325	A	A	A	A	A	B	
22	A	A	A	B	B	A	A	B	A	B	280	B	B	B	A	A	B	250	250	B	A	A	A	A	A	
23	B	B	B	B	B	B	A	A	B	B	B	B	250	250	250	A	290	300	250	240	B	A	A	A	A	
24	A	A	A	A	A	B	B	B	B	B	B	B	B	B	275	250	250	250	C	C	C	C	C	C	A	
25	B	B	B	B	B	B	B	B	B	B	B	B	B	B	375	B	A	B	B	B	A	B	A	A	A	
26	A	B	B	A	B	B	B	B	B	A	B	B	B	B	300	A	A	B	B	B	B	B	B	A	A	
27	250	A	A	A	A	A	A	A	B	B	B	B	250	275	280	A	275	265	320	B	B	A	A	A	A	
28	A	A	240	B	A	A	E	B	370	320	280	230	250	240	260	225	230	250	290	260	280	250	230	B	300	
29	B	A	A	A	A	A	350	A	B	B	B	B	B	B	B	B	300	325	310	300	305	A	A	A	A	
30	A	A	A	A	A	A	A	430	B	355	275	270	260	225	250	225	240	A	275	225	280	B	A	A	A	
31	A	A	A	A	A	A	A	260	B	B	B	B	B	B	B	B	265	B	265	230	280	310	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	5	1	2	4	1	5	4	7	5	8	14	14	19	20	25	21	21	22	20	11	7	1	2	2		
MED	290	280	310	320	340	390	375	370	340	325	276	260	250	255	250	250	250	261	255	275	250	230	302	260		
UQ	300			355	430	402	400	350	350	298	300	282	275	255	250	290	290	288	280	295						
LQ	250			295	330	362	340	320	295	255	250	240	245	240	240	240	250	250	250	212						

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H^oF (KM)

IONOSPHERIC DATA

JUL. 1970

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 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	150	145	140	150	140	120	140	120	B	B	B	B	B	B	B	B	B	B	B	B	B	155	150
2	145	130	130	140	140	145	150	140	150	140	150	B	B	B	B	B	B	150	140	180	B	B	150	150	
3	140	140	140	140	125	125	120	120	B	B	B	B	B	B	B	C	C	B	B	150	150	150	180	155	
4	140	130	140	B	140	140	130	140	135	140	B	B	B	B	B	B	B	B	B	B	B	175	150	B	170
5	150	140	140	130	140	140	140	140	B	B	B	B	B	B	B	B	B	B	B	B	B	B	145	155	140
6	125	125	140	140	B	B	125	125	140	B	B	B	B	B	B	B	B	B	B	B	B	B	B	180	150
7	130	140	150	145	150	150	B	155	150	150	B	B	B	B	B	B	B	B	150	B	B	B	B	165	
8	140	145	150	110	125	125	125	125	125	125	125	B	B	B	B	B	B	B	B	B	B	B	145	140	150
9	125	125	150	150	145	145	140	150	145	150	150	150	B	B	B	B	B	B	170	140	150	140	140	140	
10	140	130	115	B	B	140	140	125	145	190	G	G	G	130	B	B	B	B	B	B	B	B	180	140	140
11	130	125	140	140	B	140	120	120	140	150	B	B	B	B	B	B	B	B	B	B	B	140	140	140	130
12	150	150	150	B	B	145	B	B	B	140	140	B	B	B	B	B	B	B	B	180	B	B	130	130	
13	130	B	140	150	B	150	B	140	125	B	B	140	B	145	130	125	125	B	B	B	170	140	140	130	
14	140	150	B	B	125	B	140	160	145	145	B	B	B	B	B	B	B	B	B	B	B	B	125	145	
15	150	140	150	130	130	125	150	150	140	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
16	B	155	140	140	140	125	C	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	170	155	
17	B	160	150	145	B	140	140	145	155	145	150	B	B	145	145	150	B	B	150	B	140	155	155	130	
18	125	125	150	140	125	125	125	120	120	B	B	G	B	B	B	B	B	B	B	B	B	B	150	155	
19	150	130	140	150	140	140	150	B	B	B	B	B	170	B	B	B	B	B	B	B	B	175	B	180	
20	140	140	135	150	125	145	125	145	150	150	140	B	145	140	140	145	B	B	140	135	140	B	160	150	
21	155	140	130	120	140	140	140	140	125	140	155	150	155	140	G	155	150	145	B	150	140	175	130	B	
22	140	140	140	150	B	125	135	B	140	B	145	B	B	B	150	155	B	B	B	B	130	150	150	125	
23	140	125	B	B	B	B	125	140	B	B	B	B	B	B	B	155	150	B	150	B	140	150	150		
24	140	140	140	140	125	B	150	130	B	B	B	B	B	B	160	150	C	C	C	C	C	C	C	150	
25	B	B	150	B	B	B	140	B	B	B	B	B	B	B	B	150	B	B	B	155	B	140	140	150	
26	150	B	140	150	B	B	B	140	B	125	B	B	B	B	B	150	150	B	B	B	B	B	140	140	
27	140	125	150	140	140	140	150	140	B	B	B	B	B	B	155	150	150	B	B	B	B	145	140	140	
28	140	140	B	B	140	140	B	B	B	B	B	B	150	140	150	150	B	B	B	B	B	B	B	175	
29	B	160	135	130	140	135	140	135	B	B	B	B	B	B	B	B	145	150	150	125	125	130	125	125	
30	140	150	150	150	145	125	125	140	B	B	B	B	B	B	155	150	155	150	155	B	125	125	B	180	160
31	150	170	125	130	115	140	125	180	B	B	B	B	B	B	B	B	B	150	150	B	140	130	130	130	
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	26	27	28	24	21	25	25	25	17	14	8	3	4	7	8	12	7	5	8	9	12	17	25	29	
MED	140	140	140	140	140	140	140	140	140	142	148	150	152	140	150	150	150	150	150	150	140	145	140	150	
UQ	150	148	150	150	140	145	140	145	145	150	150	150	162	145	152	155	150	150	150	155	150	150	155	155	
LQ	140	130	140	135	125	125	125	125	135	140	140	145	148	140	142	150	148	150	145	135	135	140	140	140	

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JUL. 1970

H°ES (KM)

IONOSPHERIC DATA

JUL. 1970

TYPES OF ES

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

Station **SYOWA BASE** Lat. **69 00' 45"** Long. **39 35' 40" E** Sweep MHz to **15** MHz in **30** sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1			F	H	R	F	F	L	L	L													F	R	
2	R	F	F	R	R	R	F	L	L	L							F	R	R				R	R	
3	R	F	R	F	F	F	F	F											F	F	F	F	F	F	
4	R	F	F		F	R	F	R	L	L										F	F			F	
5	R	R	F	R	R	R	R	R														R	R	R	
6	R	R	F	R			F	F	R														F	R	
7	R	R	F	F	R	F		L	L	L									F					F	
8	R	R	R	F	F	F	F	L	L	L	L											R	R	F	
9	F	F	F	F	F	F	F	F	F	F	F	R							R	R	F	R	F	F	
10	F	F	F		R	R	F	R	H				R									F	R	F	
11	F	R	R	F	F	F	L	R	R												R	R	R	R	
12	R	F	F		R				L	R										R			F	R	
13	R		F	R	R		R	R			L		R	L	L	L					R	R	R	R	
14	F	F		R		L	R	L	L														R	R	
15	R	R	F	F	F	F	L	L																	
16		R	R	F	F	F																	R	F	
17		F	F	F	F	F	F	F	F	F			L	L	L				F		F	F	F	F	
18	F	F	F	R	R	R	F	L	L														F	F	
19	F	F	F	R	R	F	F						L									F		F	
20	R	F	F	F	F	F	F	L	R	L	L		L	L	L	L			F	F	F	F	F	R	
21	R	F	F	F	F	R	F	L	L	L	L	L	L	R		L	R		F	F	F	R	F	F	
22	R	R	F	F		R	R		L		R				L	L					F	R	R	F	
23	F	F				F	L								L	L			R			R	R	R	
24	R	F	R	R	F		F	L							L	L								R	
25			F			F														F		F	F	R	
26	R		R	R			R		L						L	L	L						R	R	
27	F	F	F	R	R	R	R	R							L	L	L					R	R	R	
28	F	R			F	R							L	L	L	L								F	
29		F	R	R	R	F	R	L									L	R	F	F	F	F	F	R	
30	R	R	R	R	F	R	R	R							L	L	L			F	F		R	R	
31	R	R	R	R	F	R	F	R										L1	F1			R2	R5	R2	R3
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

JUL. 1970

TYPES OF ES

IONOSPHERIC DATA

AUG. 1970

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 MHz to 15 MHz in 30 sec in automatic operation																							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	A	A	A	A	A	A	A	31	F	R	48	67	62	87	68	71	66	J	R	35	40	R	B	B	B	R				
2	R	R	A	A	A	B	B	R	A	F	54	59	65	B	R	80	F	F	R	B	B	R	R	B						
3	B	B	24	R	R	31	20	18	16	B	34	F	60	83	J	F	76	77	F	J	R	83	55	F	50	27	B	B	B	R
4	R	B	R	16	F	F	F	F	32	33	F	60	60	U	R	76	76	63	63	69	46	39	R	B	B	R	A			
5	A	A	F	F	A	A	A	F	38	28	F	55	59	R	76	65	J	R	70	43	F	52	F	F	24	13	13	13	13	
6	16	17	17	19	20	21	19	18	E	25	41	F	J	R	60	J	E	85	74	R	45	45	F	23	R	18	B	13	R	17
7	A	F	A	A	A	A	A	F	44	47	43	50	60	70	81	80	76	J	F	52	F	50	F	J	35	29	22	A	A	
8	A	A	A	A	A	A	R	R	B	36	43	B	B	R	F	U	R	123	J	R	83	R	F	25	A	A	A	F		
9	R	R	B	R	B	B	R	B	B	B	B	B	B	B	56	72	B	B	B	B	B	B	B	B	R	A	R	R		
10	R	R	R	R	R	A	B	A	30	39	50	B	58	B	73	76	F	75	70	B	62	R	B	B	R	R				
11	A	A	A	A	A	A	A	A	B	R	52	60	71	B	B	B	62	71	F	B	B	B	B	A						
12	R	A	A	B	B	B	B	B	B	B	56	57	B	R	R	61	R	47	R	B	B	B	B	A						
13	A	B	A	A	A	A	A	F	32	35	37	54	73	77	R	79	77	54	50	50	B	B	B	A	A					
14	A	A	A	A	A	24	A	A	A	B	60	74	84	78	67	68	63	56	41	R	B	B	B	B						
15	B	B	R	A	A	A	A	A	33	B	B	54	71	71	85	91	B	55	46	30	B	B	B	B						
16	B	B	B	B	A	B	B	B	B	B	B	B	B	R	R	72	74	60	R	B	B	B	B							
17	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A						
18	A	R	B	A	B	B	R	B	B	B	A	B	B	B	F	57	F	63	B	R	R	A	A	R	R					
19	R	A	A	A	B	R	B	B	B	B	64	74	R	B	81	R	R	60	R	R	R	24	R							
20	R	R	R	R	R	U	F	F	F	24	39	55	70	F	64	F	78	R	F	86	F	R	F	R	R	B	B	R		
21	R	R	R	R	A	A	A	F	49	47	51	65	74	80	81	R	85	R	F	60	F	U	A	46	F	29	A	A	B	
22	R	A	A	R	25	U	F	F	24	27	F	34	B	70	75	71	80	89	86	96	74	J	F	70	54	R	R	A	A	
23	C	A	A	A	A	A	A	B	A	B	53	59	R	65	65	80	76	F	J	F	80	75	70	F	45	22	R	B	R	
24	A	A	A	A	A	30	A	R	F	57	F	75	76	77	F	F	73	77	60	F	F	B	B	B	B					
25	R	R	A	R	A	R	A	A	A	B	F	54	F	55	B	71	76	93	Y	F	101	R	R	B	B	B	R	R		
26	R	A	R	A	A	A	F	B	B	B	B	B	B	B	B	F	68	B	B	B	R	R	A	R	A					
27	A	A	A	A	B	B	B	A	A	B	B	B	65	R	R	71	71	69	69	B	R	A	R	A						
28	R	A	A	A	A	A	34	35	37	B	55	65	R	65	80	75	65	F	66	56	R	55	R	A	A	A				
29	A	A	A	A	35	A	A	B	B	B	B	52	B	B	82	79	81	77	70	B	B	B	A	R						
30	A	A	R	A	B	A	A	A	51	B	63	80	83	R	90	85	84	81	65	F	55	F	31	20	R	R				
31	A	F	J	F	F	F	F	J	F	32	37	B	R	B	74	F	F	F	F	88	93	F	80	F	55	R	A	A	A	
CNT	1	2	4	2	4	6	5	11	13	10	20	22	21	16	18	26	22	20	16	12	6	3	3	2						
MED	16	22	26	18	28	24	27	F	F	32	35	40	55	64	71	76	78	76	70	60	58	39	26	20	13	15				
UQ			F		33	30	34	F	F	36	39	51	60	74	76	80	82	85	81	72	70	54	F	29	21	18				
LQ			20		22	21	19	28	33	36	52	59	65	71	68	71	62	48	48	26	18	16	13							

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AUG. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

AUG. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

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

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AUG. 1970

FOF1 (0.01 MHz)

IONOSPHERIC DATA

AUG. 1970

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 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	180	B	B	B	B	B	B	B	B						
2								B	B	B	B	200	220	B	B	A	A	160						
3									B	B	A	A	A	A	A	A	A							
4								A	B	B	A	200	B	B	B	B	155	B						
5								A	A	175	180	200	A	225	A	A	A	B						
6									B	A	200	A	210	205	B	B	B							
7								A	155	170	180	195	200	A	180	A	A	A						
8								B	B	A	205	B	B	B	A	A	A	B						
9								B	B	B	B	B	B	B	B	B	B	B						
10								B	B	190	200	B	B	B	B	B	B	B						
11								B	B	B	B	B	B	B	B	B	B	B						
12								B	B	B	B	B	B	B	B	B	B	B						
13								B	A	B	B	B	B	230	B	B	B	B						
14								B	B	B	B	B	B	B	B	B	B	B						
15								B	B	B	B	B	B	B	B	B	B	B						
16								B	B	B	B	B	B	B	B	B	B	B						
17								B	B	B	B	B	B	B	B	B	B	B						
18								B	B	B	B	B	B	B	B	B	B	B						
19								B	B	B	B	B	B	B	B	B	B	B						
20						130	A	150	205	B	B	B	B	B	B	B	A	B	B					
21						B	A	B	B	B	B	B	A	B	A	A	A	B	A					
22						B	B	B	B	B	B	B	B	B	220	B	B	B	B					
23						B	B	B	B	B	B	B	B	B	B	B	B	B	B					
24						A	B	B	A	230	B	B	B	205	A	A	A	B						
25						A	A	B	B	B	B	B	B	B	B	B	B	B	B					
26						B	B	B	B	B	B	B	B	B	B	B	B	B	B					
27						B	B	B	B	B	B	B	B	B	B	B	B	A	B					
28						B	A	A	B	B	225	250	A	230	220	200	A	A						
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						B	145	B	B	B	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						1	1	2	5	6	5	4	3	4	1	2	1							
MED						130	145	152	180	200	200	215	225	212	220	178	160							
UQ									190	205	200	235	228	225										
LQ									175	180	200	205	215	192										

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AUG. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

AUG. 1970

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 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 ₃₁ X ₆₇	J ₆₇ X ₄₅	J ₅₄ X ₃₇	J ₄₃ X ₄₇	J ₄₇ X ₃₈				23	G	E ₂₀	E ₂₃	E ₂₁	E ₂₉	E ₂₆	E ₂₁	E ₂₀	E ₂₀	E ₂₀	E ₁₈	B	B	B	J ₁₇ X
2	J ₂₇ X	J ₂₅ X	J ₂₈ X	J ₄₁ X	J ₄₉ X	B	B	34	J ₄₇ X	J ₄₀ X	E ₁₉	J ₂₆ X	G	B	E ₄₂	25	23	24	E ₁₄	B	B	J ₂₇ X	J ₂₉ X	B
3	B	B	25	25	J ₂₇ X	13	E ₁₂	E ₁₁	B	E ₂₉	20	27	24	33	24	25	J ₂₇ X	23	E ₁₁	E ₁₁	B	B	B	22
4	23	B	15	E ₁₄	J ₂₇ X	22	19	J ₄₁ X	E ₁₉	E ₁₂	18	G	E ₂₂	E ₂₈	E ₂₉	E ₂₀	G	E ₁₅	E ₁₂	25	B	B	14	J ₃₀ X
5	32	J ₂₈ X	J ₂₈ X	J ₄₇ X	34	J ₂₆ X	J ₃₀ X	J ₂₅ X	J ₂₉ X	G	J ₂₇ X	J ₂₇ X	26	J ₂₇ X	J ₂₈ X	J ₃₀ X	J ₂₀ X	E ₁₂	16	J ₂₁ X	E ₁₀	E ₁₁	E ₁₂	13
6	13	22	16	25	J ₁₇ X	22	E ₁₂	E ₁₂	E ₁₁	J ₄₄ X	J ₂₁ X	22	G	G	E ₂₅	E ₂₅	E ₂₅	E ₂₄	E ₁₆	E ₁₅	E ₁₂	B	11	E ₁₀ X
7	J ₃₁ X	J ₅₆ X	J ₅₂ X	J ₅₃ X	J ₄₉ X	J ₅₀ X	J ₅₀ X	37	G	G	25	24	26	26	24	26	17	J ₁₉ X	27	E ₁₂	E ₁₁	14	J ₂₆ X	J ₃₀ X
8	36	J ₆₆ X	J ₅₂ X	J ₄₇ X	J ₂₄ X	J ₅₀ X	E ₄₈	J ₃₇ X	B	J ₃₀ X	G	B	B	E ₃₁	26	J ₂₀ X	J ₂₈ X	E ₃₀	J ₃₂ X	J ₃₀ X	J ₃₀ X	J ₃₁ X	J ₅₂ X	33
9	J ₃₀ X	J ₂₆ X	B	J ₃₆ X	B	B	34	B	B	B	B	B	B	E ₅₀	E ₄₀	B	B	B	B	B	24	J ₃₁ X	25	28
10	J ₂₇ X	J ₃₂ X	J ₃₁ X	J ₃₀ X	J ₃₁ X	J ₅₄ X	B	J ₂₉ X	26	G	G	B	E ₃₁	E ₄₂	E ₂₁	E ₂₂	E ₂₃	B	E ₂₈	E ₁₉	B	B	J ₂₀ X	J ₁₈ X
11	J ₂₇ X	J ₄₀ X	J ₅₀ X	J ₄₀ X	J ₆₆ X	J ₃₄ X	45	J ₃₉ X	B	E ₃₁	E ₃₀	E ₂₈	E ₃₀	B	B	B	E ₂₂	E ₂₂	E ₂₅	B	B	B	B	J ₂₀ X
12	23	26	J ₅₂ X	B	B	B	B	B	B	B	B	B	B	E ₅₃	E ₅₈	E ₄₂	E ₄₄	E ₃₀	E ₂₉	B	B	B	B	J ₃₂ X
13	J ₅₄ X	B	37	34	24	27	J ₄₅ X	29	22	E ₂₁	E ₃₁	E ₃₅	E ₃₁	G	E ₃₀	E ₃₂	E ₄₁	E ₂₃	E ₃₀	B	B	B	J ₃₀ X	28
14	J ₃₀ X	J ₆₄ X	J ₃₅ X	J ₃₆ X	J ₂₈ X	26	30	J ₄₂ X	43	B	E ₃₁	E ₄₂	E ₂₈	E ₃₀	E ₂₅	E ₂₂	E ₂₁	E ₂₁	E ₁₆	E ₁₅	B	B	B	B
15	B	B	22	J ₄₀ X	42	J ₄₉ X	J ₄₉ X	J ₃₉ X	J ₂₆ X	B	B	E ₄₂	E ₄₅	E ₅₁	E ₄₇	E ₅₁	B	E ₄₃	E ₂₄	E ₂₂	B	B	B	B
16	B	B	B	B	J ₄₁ X	B	B	B	B	B	B	B	B	E ₅₈	E ₄₆	E ₃₁	E ₄₇	E ₄₃	E ₃₀	B	B	B	B	B
17	B	B	B	B	B	B	B	44	B	B	B	B	B	B	B	B	B	B	B	B	J ₇₅ X	J ₅₄ X	J ₈₄ X	50
18	J ₄₉ X	28	B	J ₅₃ X	B	B	26	B	B	B	J ₆₅ X	B	B	B	E ₄₈	E ₃₁	E ₃₀	B	23	J ₃₀ X	J ₇₄ X	J ₇₀ X	J ₃₁ X	J ₃₁ X
19	J ₃₁ X	J ₅₀ X	J ₇₂ X	66	B	34	B	B	B	B	B	E ₅₀	E ₃₁	E ₅₄	B	E ₅₂	E ₅₈	E ₃₁	E ₂₁	E ₁₈	20	J ₂₉ X	E ₁₈	25
20	22	18	J ₂₁ X	J ₂₇ X	J ₂₆ X	E ₁₉	G	16	G	G	28	E ₂₆	36	E ₅₈	J ₅₆ X	E ₃₀	23	E ₂₁	E ₂₃	E ₂₀	E ₂₀	B	B	E ₁₁ X
21	17	32	30	J ₄₂ X	J ₇₁ X	J ₅₄ X	J ₅₄ X	J ₃₂ X	35	23	E ₂₃	E ₂₄	31	E ₂₅	J ₂₆ X	J ₃₀ X	J ₃₇ X	J ₉₇ X	J ₇₀ X	103	23	25	J ₂₇ X	B
22	19	J ₄₀ X	32	J ₃₀ X	23	15	E ₁₂	E ₁₂	E ₁₈	B	E ₄₁	E ₃₁	E ₃₀	E ₃₀	24	E ₂₂	E ₄₂	E ₂₀	E ₂₉	E ₁₈	J ₃₁ X	32	36	J ₃₁ X
23	C	J ₃₀ X	J ₃₂ X	J ₄₀ X	J ₄₄ X	J ₄₂ X	J ₅₃ X	B	J ₃₅ X	B	E ₅₀	E ₄₉	E ₅₀	E ₄₆	E ₃₉	E ₃₀	E ₂₀	E ₁₉	E ₁₆	E ₁₈	E ₁₁	24	B	24
24	J ₂₉ X	J ₃₈ X	37	28	J ₃₁ X	30	J ₅₁ X	35	22	23	G	E ₂₆	E ₃₀	E ₂₉	28	27	26	J ₅₀ X	J ₂₉ X	E ₁₉	B	B	B	B
25	14	J ₂₁ X	J ₂₉ X	13	J ₃₇ X	J ₄₀ X	J ₄₇ X	J ₄₈ X	49	B	E ₂₁	E ₄₂	B	E ₅₀	E ₄₃	E ₄₂	E ₂₂	E ₆₀	E ₃₀	B	B	B	25	J ₃₀ X
26	J ₃₀ X	J ₆₆ X	J ₃₄ X	J ₉₀ X	J ₇₈ X	J ₅₀ X	J ₃₂ X	B	B	B	B	B	B	B	B	E ₃₉	B	B	B	J ₃₁ X	31	J ₃₉ X	J ₄₈ X	J ₃₇ X
27	J ₃₆ X	J ₄₀ X	J ₃₉ X	J ₄₆ X	B	B	B	J ₃₈ X	J ₅₅ X	B	B	B	E ₂₉	E ₅₁	E ₄₈	E ₄₆	E ₃₂	16	E ₁₆	B	J ₃₀ X	J ₃₉ X	33	33
28	J ₃₂ X	J ₄₁ X	J ₄₁ X	J ₄₉ X	J ₇₀ X	J ₄₉ X	J ₃₇ X	23	24	B	E ₃₇	26	G	29	G	G	22	17	26	J ₃₀ X	J ₂₇ X	33	31	J ₇₄ X
29	J ₇₅ X	J ₄₇ X	J ₈₃ X	J ₆₄ X	33	41	J ₆₁ X	B	B	B	B	E ₄₂	B	B	E ₄₈	E ₃₁	E ₄₁	E ₂₂	E ₂₀	B	B	B	35	22
30	J ₂₆ X	32	21	29	B	J ₅₄ X	J ₆₂ X	J ₅₆ X	J ₃₈ X	B	E ₄₉	E ₃₂	E ₃₀	E ₂₈	E ₃₀	E ₂₆	E ₂₀	E ₂₀	E ₂₀	E ₂₀	23	E ₁₁	14	J ₁₇ X
31	J ₂₉ X	J ₂₂ X	14	15	17	14	E ₁₁	G	E ₃₁	B	E ₄₁	B	E ₃₂	E ₃₀	E ₂₉	E ₂₃	E ₂₃	E ₁₇	E ₃₀	E ₂₀	J ₄₈ X	J ₇₇ X	J ₇₄ X	J ₅₆ X
	00	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	25	27	28	24	24	24	23	20	14	23	22	22	25	27	28	27	26	28	21	17	16	21	25
MED	J ₃₀ X	J ₃₂ X	J ₃₂ X	J ₄₀ X	J ₃₄ X	J ₃₇ X	J ₃₈ X	J ₃₅ X	26	E ₂₂	E ₂₇	E ₂₈	E ₃₀	E ₃₀	E ₂₉	E ₂₈	E ₂₃	E ₂₂	E ₂₄	E ₂₀	24	J ₃₁ X	29	J ₂₈ X
UQ	J ₃₂ X	J ₄₇ X	J ₄₃ X	J ₄₈ X	J ₄₆ X	J ₅₀ X	J ₅₀ X	J ₃₉ X	36	U ₂₆	E ₃₄	E ₄₂	E ₃₁	E ₅₀	E ₄₄	E ₃₂	E ₃₄	E ₃₀	E ₂₉	J ₂₅ X	J ₃₁ X	J ₃₉ X	J ₃₅ X	J ₃₂ X
LQ	23	J ₂₆ X	26	28	J ₂₆ X	24	22	24	20	G	E ₂₀	26	E ₂₄	E ₂₈	25	E ₂₂	E ₂₂	E ₁₉	E ₁₆	E ₁₈	E ₂₀	24	20	20

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AUG. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

AUG. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	16	26	18	31	31	31	22	14	12	12	20	23	21	29	26	21	20	20	20	18	B	B	B	11
2	11	11	11	30	15	B	B	31	30	29	19	18	19	B	42	14	13	13	14	B	B	12	20	B
3	B	B	12	11	9	11	12	11	B	29	18	18	22	21	13	14	14	14	11	11	B	B	B	10
4	12	B	10	14	11	11	12	12	19	12	16	16	22	28	29	20	13	15	12	11	B	B	12	10
5	11	11	10	12	12	11	11	11	12	12	16	18	18	15	16	15	12	12	11	12	10	11	12	10
6	10	10	10	12	12	12	12	12	11	11	15	18	18	19	25	25	25	24	16	15	12	B	9	10
7	11	10	25	19	18	20	15	11	13	11	15	16	16	16	15	12	13	11	11	12	11	9	11	12
8	13	18	10	22	12	21	45	32	B	20	19	B	B	31	13	11	14	30	12	12	11	10	12	11
9	11	11	B	31	B	B	30	B	B	B	B	B	B	50	40	B	B	B	B	B	13	11	13	12
10	16	12	12	21	20	12	B	20	20	16	19	B	31	42	21	22	23	B	28	19	B	B	11	10
11	12	18	20	25	38	16	20	22	B	31	30	28	30	B	B	B	22	22	25	B	B	B	B	11
12	10	11	32	B	B	B	B	B	B	B	29	30	B	53	58	42	44	30	29	B	B	B	B	12
13	28	B	24	23	20	16	12	16	15	21	31	35	31	22	30	32	41	23	30	B	B	B	12	21
14	21	18	32	29	20	16	21	21	22	B	31	42	28	30	25	22	21	21	16	15	B	B	B	B
15	B	B	12	20	19	15	40	18	20	B	B	42	45	51	47	51	B	43	24	22	B	B	B	B
16	B	B	B	B	42	B	B	B	B	B	B	B	B	58	46	31	47	43	30	B	B	B	B	B
17	B	B	B	B	B	B	B	38	B	B	B	B	B	B	B	B	B	B	B	B	21	21	19	16
18	18	20	B	32	B	B	19	B	B	B	58	B	B	B	48	31	30	B	21	17	18	23	20	20
19	18	19	19	21	B	26	B	B	B	B	B	50	31	54	B	52	56	31	21	18	15	17	18	12
20	16	16	14	12	14	19	11	11	11	15	22	26	30	58	26	30	20	21	23	20	20	B	B	11
21	11	15	20	17	19	18	19	15	18	20	23	24	21	25	E	15	14	19	12	13	10	12	11	B
22	12	11	12	15	15	11	12	12	18	B	41	31	30	30	14	22	42	20	29	18	16	13	11	11
23	C	11	12	30	15	16	20	B	18	B	50	49	50	46	39	30	20	19	16	18	11	14	B	12
24	11	11	11	11	16	13	16	25	18	18	20	26	30	29	18	14	14	14	15	19	B	B	B	B
25	10	10	10	11	12	14	12	16	29	B	21	42	B	50	43	42	22	60	30	B	B	B	10	10
26	12	24	11	11	30	15	15	B	B	B	B	B	B	B	B	39	B	B	B	15	11	11	11	11
27	15	22	21	21	B	B	B	30	51	B	B	B	29	51	48	46	32	13	16	B	17	12	11	11
28	14	11	30	19	16	14	15	16	17	B	37	21	20	21	20	13	13	12	11	11	11	13	11	18
29	13	19	30	16	18	19	30	B	B	B	B	42	B	B	48	31	41	22	20	B	B	B	21	12
30	11	12	15	17	B	22	26	18	20	B	49	32	30	28	30	26	20	20	20	20	20	11	9	9
31	9	9	10	10	11	10	11	11	31	B	41	B	32	30	29	23	23	17	30	20	18	12	11	10
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	12	16	15	20	19	16	20	20	22	B	31	35	30	42	30	26	22	21	20	19	20	23	13	12
UQ	18	23	28	30	40	28	42	D B 38	B	B	D B 58	B	B	56	48	40	42	37	29	B	B	B	B	19
LQ	11	11	11	13	14	14	12	13	18	19	20	24	22	28	20	18	14	16	14	15	12	12	11	10

AUG. 1970

F-MIN (0.1 MHz)

IONOSPHERIC DATA

AUG. 1970

M(3000)F2 (0.01)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	A	A	A	A	A	265	F	R	325	300	340	355	340	335	365	R	340	R	B	B	B	R	
2	R	R	A	A	A	B	B	R	A	F	335	355	325	B	R	340	F	F	R	B	B	R	R	B	
3	B	B	280	R	240	275	250	315	B	295	315	335	F	325	330	R	325	280	345	365	B	B	B	R	
4	R	B	R	265	F	F	F	280	295	F	335	335	340	340	335	335	345	325	350	R	B	B	R	A	
5	A	A	340	F	A	A	A	230	255	F	345	355	R	340	340	R	305	345	F	335	345	325	345	340	
6	325	320	295	265	270	250	265	280	280	310	335	R	305	F	340	R	335	315	F	350	290	B	345	295	
7	A	F	A	A	A	A	A	275	270	285	325	300	315	310	325	345	F	F	340	F	330	355	A	A	
8	A	A	A	A	A	A	R	R	B	280	290	B	B	R	F	300	R	R	F	310	A	A	A	F	
9	R	R	B	R	B	B	R	B	B	B	B	B	B	340	335	B	B	B	B	B	R	A	R	R	
10	R	R	R	R	R	A	B	A	295	320	340	B	330	330	365	320	300	B	370	R	B	B	R	R	
11	A	A	A	A	A	A	A	A	B	R	325	330	350	B	B	B	355	325	F	B	B	B	B	A	
12	R	A	A	B	B	B	B	B	B	B	350	340	B	R	R	360	R	340	R	B	B	B	B	A	
13	A	B	A	A	A	A	A	270	310	285	315	345	325	R	315	340	350	315	340	B	B	B	A	A	
14	A	A	A	A	A	280	A	A	A	B	340	325	320	345	345	330	365	355	340	R	B	B	B	B	
15	B	B	R	A	A	A	A	A	250	B	B	350	335	325	330	365	B	345	365	335	B	B	B	B	
16	B	B	B	B	A	B	B	B	B	B	B	B	B	R	R	350	365	365	R	B	B	B	B	B	
17	B	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	
18	A	R	B	A	B	B	R	B	B	B	A	B	B	B	260	295	290	B	R	R	A	A	R	R	
19	R	A	A	A	B	R	B	B	B	B	B	330	340	R	B	295	R	R	335	R	R	R	335	R	
20	R	R	R	R	R	U	F	F	295	315	330	305	F	R	F	325	F	R	F	R	R	B	B	R	
21	R	R	R	R	A	A	A	270	300	335	320	340	340	325	R	345	R	335	F	330	315	A	A	B	
22	R	A	A	R	270	F	280	F	315	B	330	350	325	300	330	295	315	325	F	320	R	R	A	A	
23	C	A	A	A	A	A	A	B	A	B	325	320	340	315	330	315	340	F	F	350	355	340	R	B	R
24	A	A	A	A	A	255	A	R	F	305	F	330	315	340	F	330	355	325	F	F	B	B	B	B	
25	R	R	A	R	A	R	A	A	A	B	325	295	B	290	290	290	F	R	R	B	B	B	R	R	
26	R	A	R	A	A	A	F	B	B	B	B	B	B	B	B	285	B	B	B	R	R	A	R	A	
27	A	A	A	A	B	B	B	A	A	B	B	B	330	R	R	325	340	305	305	B	R	A	R	A	
28	R	A	A	A	A	A	F	270	295	B	310	310	340	325	365	345	355	310	305	305	R	A	A	A	
29	A	A	A	A	285	A	A	B	B	B	B	290	B	B	340	325	310	325	330	B	B	B	A	R	
30	A	A	R	A	B	A	A	A	285	B	335	325	315	R	335	320	330	345	340	345	325	310	R	R	
31	A	260	F	F	F	F	F	F	295	B	R	B	285	F	F	F	305	310	325	315	R	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	1	2	3	2	4	5	5	10	13	10	20	21	19	15	18	24	19	18	15	11	6	3	3	2	
MED	325	290	295	265	270	255	265	270	295	308	328	330	330	325	335	328	340	325	340	335	328	325	345	318	
UQ			318		278	275	275	280	295	320	335	340	340	340	340	342	355	345	348	348	340	340	345		
LQ			288		255	250	255	265	280	285	322	310	318	320	330	308	312	315	332	318	315	318	340		

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AUG. 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

AUG. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

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

380 360

1 1

380 360

AUG. 1970

H^oF₂ (KM)

IONOSPHERIC DATA

AUG. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	A	A	A	A	A	A	A	225	225	225	225	225	200	240	200	255	245	245		B	B	B	A
2	A	310	A	B	A	B	B	B	B	280	220	205	215	B	225	230	200	245	200	B	B	A	A	B	
3	B	B	A	A	400	A	B	B	B	B	230	225	230	210	225	205	205	250	205	200	B	B	B	A	
4	A	B	A	B	330	A	300	300	325	250	235	200	210	245	215	215	210	215	230	A	B	B	R	A	
5	A	A	280	300	A	A	A	410	A	255	220	200	225	215	210	200	200	220	210	220		B	B	290	A
6	A	A	A	A	350	B	B	B	B	300	250	225	225	205	210	240	205	220	250	225	240	210	B	B	E B 300
7	A	200	A	A	A	A	A	320	255	250	250	230	225	240	225	225	200	230	240	225	230	220	A	A	
8	A	A	A	A	A	A	R	A	B	330	250	B	B	340	R	250	230	265	A	A	A	A	A	A	
9	A	A	B	A	B	B	A	B	B	B	B	B	B	B	250	B	B	B	B	B	B	A	A	A	A
10	375	A	A	A	A	A	B	A	325	245	225	B	250	230	200	230	220	B	215	225	B	B	A	A	
11	A	250	A	A	A	A	A	A	B	E B 300	230	230	225	B	B	B	230	240	220	B	B	B	B	A	
12	A	A	B	B	B	B	B	B	B	B	220	230	B	B	B	230	225	245	B	B	B	B	B	A	
13	B	B	A	A	A	A	220	A	290	290	250	225	225	220	205	225	240	245	230	B	B	B	A	A	
14	A	A	B	B	A	A	A	A	A	B	225	245	225	205	200	205	200	215	210	225	B	B	B	B	
15	B	B	A	A	A	A	B	A	A	B	B	B	250	250	240	225	B	B	220	245	B	B	B	B	
16	B	B	B	B	B	B	B	B	B	B	B	B	B	B	250	205	220	225	220	B	B	B	B	B	
17	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	A	A	A	
18	A	A	B	A	B	B	A	B	B	B	B	B	B	B	B	300	305	B	A	A	A	A	A	A	
19	A	A	A	A	B	B	B	B	B	B	B	275	250	B	B	B	B	215	225	225	A	A	B	A	
20	A	A	A	A	A	380	350	E A 350	240	240	240	230	225	B	210	210	210	225	230	240	R	B	B	220	
21	200	A	A	A	A	A	A	E A 380	265	215	240	230	225	225	R	205	200	225	220	240	240	A	A	B	
22	A	A	A	A	E B 395	375	350	300	275	B	250	225	225	220	225	240	230	225	240	230	A	A	A	A	
23	C	A	A	B	A	A	A	B	A	B	B	B	240	250	250	225	200	205	225	225	250	A	B	A	
24	A	A	A	A	A	A	A	A	250	205	230	225	230	240	200	220	230	240	225	250	B	B	B	B	
25	A	A	A	A	A	A	A	A	A	B	230	260	B	E B 300	280	275	245	B	250	B	B	B	A	A	
26	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	300	B	B	B	A	A	A	A	A	
27	A	A	A	A	B	B	B	B	B	B	B	B	240	230	250	250	230	240	250	B	A	A	A	A	
28	A	A	B	A	A	A	A	310	275	B	300	240	220	220	215	215	200	235	255	290	A	A	A	A	
29	A	A	A	A	A	A	A	B	B	B	B	B	B	B	230	240	250	250	230	B	B	B	A	A	
30	A	A	A	A	B	A	A	A	A	B	B	250	225	220	215	200	200	215	205	225	280	225	A	A	
31	A	A	350	325	350	350	300	270	B	B	260	B	260	225	220	225	225	220	230	275	A	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	2	3	2	2	5	3	5	8	10	13	20	19	22	20	23	27	26	24	25	17	5	2	1	2	
MED	288	250	315	312	350	375	300	308	275	250	230	230	225	225	225	225	220	232	225	230	240	222	290	240	
UQ		280			395	378	350	342	300	268	250	235	240	241	240	240	230	245	230	245	250				
LQ		225			350	362	300	300	255	240	225	225	225	220	210	208	200	220	220	225	230				

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H^oF (KM)

IONOSPHERIC DATA

AUG. 1970

H¹ES (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	125	100	100	100	100	150	100	105	130	G	B	B	B	B	B	B	B	B	B	B	B	B	B	140	
2	125	105	105	130	115	B	B	100	100	100	B	130	G	B	B	130	125	130	B	B	B	100	150	B	
3	B	B	110	140	100	125	B	B	B	B	150	125	125	125	140	140	140	140	B	B	B	B	B	125	
4	125	B	150	B	130	140	130	180	B	B	155	G	B	B	B	B	G	B	B	150	B	B	145	140	
5	115	115	115	140	100	105	110	115	110	G	130	125	140	125	110	100	100	B	100	100	B	B	B	150	
6	130	130	125	100	130	100	B	B	B	100	120	100	G	G	B	B	B	B	B	B	B	B	150	B	
7	105	120	100	100	105	110	105	105	G	G	G	145	160	140	150	150	130	145	140	B	B	150	150	100	
8	115	100	100	105	110	100	B	150	B	100	G	B	B	B	140	140	140	B	105	100	100	105	100	105	
9	100	100	B	120	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	100	125	150
10	100	100	105	105	105	100	B	100	105	G	G	B	B	B	B	B	B	B	B	B	B	B	B	150	110
11	100	110	100	100	155	100	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	100
12	100	105	115	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	100
13	140	B	105	110	150	100	100	100	105	B	B	B	B	G	B	B	B	B	B	B	B	B	B	100	100
14	125	100	110	100	100	120	100	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
15	B	B	140	100	100	100	105	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
16	B	B	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
17	B	B	B	B	B	B	B	125	B	B	B	B	B	B	B	B	B	B	B	B	B	110	100	120	115
18	100	175	B	145	B	B	125	B	B	B	125	B	B	B	B	B	B	B	120	145	105	150	105	110	
19	120	100	100	100	B	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	100	B	145	
20	140	140	110	110	110	B	G	135	G	G	140	B	130	B	140	B	145	B	B	B	B	B	B	B	B
21	140	110	125	130	100	110	100	100	100	140	B	B	130	B	100	115	125	100	100	150	100	105	120	B	
22	100	100	100	100	135	110	B	B	B	B	B	B	B	B	150	B	B	B	B	B	125	115	110	100	
23	C	100	110	110	100	110	100	B	100	B	B	B	B	B	B	B	B	B	B	B	B	160	B	125	
24	125	100	105	115	105	105	100	125	125	150	G	B	B	B	140	125	145	130	115	B	B	B	B	B	
25	130	115	145	140	130	100	100	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	100
26	100	150	105	120	105	100	100	B	B	B	B	B	B	B	B	B	B	B	B	110	120	100	105	105	
27	105	120	100	105	B	B	B	100	130	B	B	B	B	B	B	B	130	B	B	105	100	100	105	105	
28	100	105	105	105	100	100	100	110	100	B	B	120	G	105	G	G	140	140	130	125	120	105	110	150	
29	100	120	100	100	140	100	150	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	145	
30	100	105	125	110	B	100	100	100	100	B	B	B	B	B	B	B	B	B	B	B	110	B	150	140	
31	120	100	100	130	100	110	B	G	B	B	B	B	B	B	B	B	B	B	B	B	120	100	105	100	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	25	27	27	24	23	18	19	14	5	6	6	5	4	8	7	9	7	7	7	12	14	19	23	
MED	115	105	105	110	105	105	100	100	100	100	135	125	130	125	140	130	140	130	115	125	115	102	120	110	
UQ	125	120	115	125	130	110	110	120	110	140	150	130	140	132	145	140	140	140	125	148	122	115	150	140	
LQ	100	100	100	100	100	100	100	100	100	100	125	120	130	115	125	120	125	130	102	105	105	100	105	100	

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AUG. 1970

H¹ES (KM)

IONOSPHERIC DATA

AUG. 1970

TYPES OF ES

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

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

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

AUG. 1970

TYPES OF ES

IONOSPHERIC DATA

SEP. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	F ₃₀	F ₄₁	49	50	45	B	B	64	F	J ₉₁	R	87	F	J ₄₄	A	R	A	A
2	A	A	A	A	A	A	A	A	A	42	45	52	54	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	58	B	80	84	J ₁₀₃	J ₁₂₁	110	R	60	R	A	R	R
4	A	B	A	R	31	34	A	A	39	F ₄₇	47	55	70	65	74	71	83	F ₈₄	68	F	29	B	R	R
5	R	A	A	B	B	A	A	B	B	B	52	60	61	71	82	77	77	83	82	54	B	R	A	A
6	A	A	A	B	27	F ₂₈	F ₂₈	F ₃₆	45	57	62	75	79	87	92	R	85	85	68	J ₇₀	F ₄₈	B	R	R
7	A	A	A	R	A	B	48	F	F ₅₆	65	75	84	89	94	93	99	98	90	F ₈₁	R	F	F	F ₂₄	23
8	A	A	A	A	31	F ₃₇	F ₄₃	F ₄₉	F ₅₇	F ₅₉	B	70	F ₉₆	101	J ₁₀₃	R	96	J ₉₀	83	F	B	A	A	A
9	A	A	A	A	F ₄₁	F	J ₄₀	42	38	46	62	72	77	87	90	84	F ₈₃	82	F ₇₄	65	42	F ₂₈	21	A
10	A	A	B	A	R	B	B	B	B	45	54	62	68	75	82	80	86	76	67	49	36	30	27	24
11	22	F ₂₁	F ₂₁	19	22	23	23	F ₄₇	F ₆₂	72	82	91	97	R	98	86	91	96	65	J ₅₂	J ₄₃	35	25	B
12	B	B	17	17	20	22	30	A	53	R	70	R	J ₉₁	R	R	J ₉₇	103	91	73	63	F ₅₀	35	F ₃₄	24
13	F ₂₄	F ₂₀	R	B	F	J ₄₇	B	43	B	B	B	B	B	B	B	R	U ₁₁₉	U ₁₀₄	F ₈₉	R	R	R	R	R
14	R	A	R	A	U ₄₀	B	B	A	A	46	51	58	B	72	78	U ₈₈	92	F ₇₃	F	A	R	R	A	F
15	A	39	A	A	F ₃₃	B	B	B	B	B	50	61	77	85	90	94	101	87	F	61	R	R	A	A
16	A	A	A	35	A	A	B	F	F ₅₄	B	59	65	75	76	87	J ₈₈	107	U ₁₂₂	81	58	41	22	A	A
17	A	R	25	F ₃₄	42	A	A	47	F ₅₆	B	B	B	77	R	U ₈₇	91	91	99	86	67	50	B	B	R
18	23	A	A	A	A	K	A	B	58	60	60	B	B	R	69	75	72	73	82	70	48	B	B	R
19	B	A	A	34	F	F ₃₇	F ₄₇	B	R	B	B	B	B	68	R	75	F ₇₃	64	54	54	A	A	A	A
20	A	A	A	A	A	A	F ₄₅	F ₅₅	53	B	B	U ₅₆	57	B	B	78	79	78	F ₇₆	55	A	17	A	A
21	A	A	A	B	B	B	49	B	B	B	J ₅₃	B	B	B	B	60	71	J ₆₄	R	R	R	A	A	A
22	B	A	A	B	B	B	B	B	B	53	60	60	63	70	79	81	78	F ₇₇	73	J ₆₅	55	A	B	22
23	A	A	A	A	B	A	J ₅₄	F ₅₅	61	65	70	71	79	U ₈₇	94	112	109	94	J ₉₃	80	F ₇₁	45	R	25
24	A	A	33	B	A	A	54	B	F ₆₁	F ₇₀	73	76	84	87	96	90	85	79	75	70	60	U ₄₀	A	25
25	25	F	A	50	F	F	J ₆₈	B	B	58	F ₆₃	F ₆₅	70	79	76	78	73	75	68	70	52	J ₄₀	A	A
26	A	A	A	32	F ₄₆	F	52	B	F ₄₈	F ₆₁	65	70	79	82	84	88	81	82	75	J ₆₇	J ₅₈	35	17	17
27	30	30	A	A	A	B	B	B	A	A	B	B	B	B	B	U ₈₆	76	62	A	F	A	A	A	A
28	A	A	A	B	F	A	F	53	60	63	61	64	67	69	67	F ₆₅	64	61	60	55	60	F ₄₂	F ₃₀	F ₂₆
29	24	A	38	37	F ₅₂	F	F	F	F ₇₅	80	R	94	91	95	96	90	U ₈₈	F ₈₀	70	65	F ₆₀	R	43	38
30	34	30	A	R	F ₄₃	F	F ₆₀	B	F	F ₅₉	F ₇₀	73	84	90	92	94	92	83	88	77	66	F ₅₅	F ₅₀	U ₄₄
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	7	5	5	8	12	7	15	10	17	19	22	22	22	21	22	25	28	29	24	22	17	12	9	10
MED	24	30	25	34	36	F ₃₄	F ₄₇	F ₄₇	56	59	60	65	77	80	87	88	86	83	74	64	50	35	27	24
UQ	28	30	33	36	F ₄₂	F ₃₇	53	F ₅₃	F ₆₀	64	70	73	84	87	93	91	97	90	82	70	60	F ₄₁	F ₃₆	26
LQ	24	F ₂₁	21	26	29	26	F ₃₅	42	49	48	52	60	68	71	79	78	78	76	68	55	43	29	24	23

SEP. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

SEP. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	B	B											
2										340	370	370	L	C	C	C								
3										C	C	B	B	B	B	B	B							
4											370	L	B		B									
5										B	L	L	L	L										
6									L	L	L	L												
7											L													
8											B	L	B	B										
9												L	L		L									
10									B	370	L		L		L									
11												L												
12												B	B		B	B	B	B						
13									B	B	B	B	B	B	B									
14										L	L	B	B	B	L	B	B							
15									B	B	390	B	L	L	L	B	B	B						
16										B	B	R	B	B	L	B	B	B						
17								L	B	B	B	B	B	B	B	B								
18							B	B	L	L	B	B	B	B	B	B	B							
19							B	R	B	B	B	B	B	B	B	B	B	B						
20							L	L	B	B	B	B	B	B	B	B	B	B						
21							B	B	B	A	B	B	B	B	B	L	B	B						
22							B	B	L	B	L	L	B	B	B									
23											L	L	L	B	B	B	B							
24							B	A	L	L		L		L	L									
25							B	B	A	L	L	L	B	L	L	B								
26							B	B	L	440	L	L	L	L	L									
27							B	B	A	B	B	B	B	B	B	B	B							
28								A	L	450	430	U	L	L			L							
29					L	L	L	L	L	L	L	L	L	L	L	L								
30						B	R		460	L		L		420										
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT										3	6	2	1	1										
MED										370	415	400	430	420										
UQ										415	450													
LQ										355	370													

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SEP. 1970

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	175	R	180	A	245	B	B	280	240	A	B	B	A	A				
2						B	A	A	A	R	B	240	250	C	C	C	C	C	C	C				
3						C	C	C	C	C	C	B	B	B	B	B	B	B	A	B				
4						A	B	A	A	225	230	250	B	B	B	B	B	B	B	B				
5						B	B	B	B	B	B	B	B	B	B	B	B	B	B	150				
6						B	B	B	B	B	230	255	275	B	255	245	R	B	B	B				
7						B	A	B	B	B	B	B	250	240	240	220	215	B	B	B				
8						R	160	170	180	230	B	B	B	B	B	250	220	200	B	A				
9						155	140	150	190	215	225	260	280	275	265	B	205	A	B	B				
10						B	B	B	B	A	A	B	B	R	B	B	B	B	B	B			130	
11						B	B	B	210	240	245	250	260	255	240	230	B	160	B	B				
12						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B				
13						B	B	A	B	B	B	B	B	B	B	B	B	B	A	B				
14						B	B	B	B	235	R	B	B	B	B	B	B	R	B	A				
15						B	B	B	B	B	B	B	B	B	A	B	B	B	B	B				
16						B	B	B	A	B	B	B	B	B	B	B	B	B	B	B				
17						A	B	A	A	B	B	B	B	B	B	B	B	B	B	B				
18						B	B	B	B	B	275	B	B	B	B	B	B	B	B	B				
19						B	A	B	B	B	B	B	B	B	B	B	B	B	B	B				
20						B	A	200	245	B	B	B	B	B	B	B	B	B	B	B				
21						B	A	B	B	B	B	B	B	B	B	240	B	B	B	B				
22						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			130	
23						B	A	205	230	260	B	B	B	B	B	B	B	B	B	B				
24						B	B	B	A	A	290	300	B	300	290	280	B	B	B	B				
25						B	B	200	B	B	B	350	350	B	B	B	B	B	220	190	B	B		
26						B	190	A	B	B	A	290	295	300	295	290	280	255	250	B	B	B		
27	195					B	B	B	B	B	B	B	B	B	B	B	B	250	200	B	A			
28						B	B	A	A	A	B	B	290	295	290	280	260	250	230	195	150	B		
29						A	A	160	200	230	260	B	R	B	295	290	275	265	225	B	B	B		
30						B	A	A	B	B	280	290	295	300	290	280	260	250	220	190	140	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					2	5	5	7	8	10	10	8	10	10	10	7	8	4	3	1	1		
MED	195					172	160	200	210	238	260	275	278	285	272	255	250	222	192	150	130	130		
UQ						175	200	230	260	290	295	298	295	290	275	252	240	198	150					
LQ						160	170	185	228	230	250	255	275	240	240	218	210	190	145					

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SEP. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

SEP. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	24	G	G	24	G	B	B	G	G	25	E ₃₀	E ₂₀	18	J ₃₇	J ₄₀	J ₂₇	J ₄₄	J ₅₃	
2	J ₄₇	46	J ₇₁	J ₆₇	36	J ₃₅	J ₃₉	J ₄₄	J ₃₀	G	E ₂₂	G	G	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	E ₃₅	B	E ₄₃	E ₄₆	E ₄₁	E ₄₈	E ₄₃	23	E ₁₈	J ₃₀	J ₃₀	23	J ₃₃	
4	J ₅₇	B	J ₅₁	39	J ₃₀	J ₂₀	J ₄₂	J ₄₂	23	G	G	G	E ₅₀	E ₃₁	E ₄₂	E ₂₃	E ₂₉	E ₂₈	E ₂₁	E ₁₁	J ₃₀	B	27	31	
5	J ₂₇	J ₂₈	J ₃₁	B	B	J ₂₇	J ₃₉	B	B	B	E ₂₉	E ₂₉	E ₃₀	E ₃₀	E ₂₉	E ₂₉	E ₂₄	E ₁₇	E ₁₄	G	B	17	J ₃₁	30	
6	J ₂₄	J ₅₅	J ₃₈	B	E ₁₉	E ₂₀	E ₂₀	E ₁₉	E ₃₁	E ₂₆	G	G	E ₃₀	G	G	G	E ₂₁	E ₁₅	E ₁₂	E ₁₀	E ₁₀	B	J ₂₅	23	
7	J ₄₃	J ₄₈	J ₃₆	33	38	B	J ₃₃	23	E ₂₀	E ₂₈	E ₃₁	E ₃₂	G	G	G	24	G	E ₁₈	E ₁₇	E ₃₀	E ₁₇	E ₁₄	E ₁₄	26	
8	J ₇₁	J ₆₄	36	J ₃₁	36	G	G	G	G	G	B	E ₃₀	E ₄₃	E ₄₆	E ₃₁	G	G	G	E ₁₇	25	B	J ₃₁	J ₄₆	J ₄₂	
9	J ₃₂	J ₃₃	34	43	24	G	G	G	G	G	G	G	G	G	34	E ₂₃	G	22	E ₁₄	E ₁₂	E ₁₁	E ₁₁	E ₁₁	J ₂₉	
10	J ₃₀	J ₅₄	B	35	J ₃₃	B	B	B	B	J ₄₁	J ₃₃	E ₃₀	E ₃₁	G	E ₃₀	E ₃₀	E ₃₀	E ₁₉	E ₂₉	E ₁₉	E ₁₉	G	13	E ₁₂	
11	E ₁₂	13	13	18	E ₁₄	E ₁₅	E ₁₉	E ₂₂	G	G	G	G	G	28	27	G	E ₂₉	20	E ₂₉	E ₁₁	E ₁₁	E ₁₁	E ₁₅	B	
12	B	B	E ₂₂	E ₁₄	E ₁₃	E ₁₅	E ₁₉	36	E ₃₁	E ₅₀	E ₄₃	E ₃₃	E ₃₁	E ₄₇	E ₅₀	E ₄₂	E ₄₂	E ₃₁	E ₁₉	E ₂₂	E ₂₁	E ₁₄	E ₁₁	E ₁₉	
13	E ₁₂	15	15	B	23	E ₂₁	B	33	B	B	B	B	B	B	B	E ₃₁	E ₂₂	E ₄₂	J ₂₇	J ₃₈	J ₃₇	J ₃₀	23	32	
14	44	J ₄₂	J ₃₁	J ₈₂	29	B	B	35	J ₃₁	G	G	E ₄₁	B	E ₅₂	E ₂₅	E ₆₇	E ₄₁	G	E ₂₃	J ₃₂	J ₃₁	J ₃₂	J ₄₃	J ₃₅	
15	J ₄₆	J ₃₁	37	J ₉₆	J ₂₉	B	B	B	B	B	E ₃₁	E ₅₂	E ₃₀	E ₃₂	27	E ₇₀	E ₄₃	E ₄₈	E ₄₁	E ₃₀	E ₂₅	E ₂₀	J ₃₁	J ₃₀	
16	J ₃₃	J ₄₉	J ₄₂	J ₄₁	J ₃₅	J ₄₁	B	J ₂₅	33	B	E ₄₁	E ₃₁	E ₅₀	E ₅₂	E ₃₀	E ₆₉	E ₄₇	E ₆₁	E ₂₉	E ₂₆	E ₂₀	E ₁₁	J ₂₀	J ₃₁	
17	26	28	J ₃₁	27	J ₄₂	45	J ₅₃	J ₃₁	J ₂₉	B	B	B	E ₅₀	E ₆₈	E ₅₀	E ₅₀	E ₂₃	E ₂₇	E ₁₉	E ₁₉	E ₂₀	B	B	26	
18	J ₂₉	J ₄₈	J ₄₃	J ₄₂	J ₅₁	J ₃₈	J ₅₂	B	E ₄₀	E ₃₁	G	B	B	E ₅₆	E ₄₅	E ₄₃	E ₄₈	E ₂₂	E ₂₁	E ₂₈	E ₂₉	B	B	J ₂₀	
19	B	J ₃₅	J ₄₉	30	22	23	J ₃₁	B	35	B	B	B	B	E ₄₂	E ₅₀	E ₅₀	E ₄₂	E ₄₀	E ₃₂	E ₂₀	J ₄₄	36	J ₀₄	J ₃₈	
20	J ₃₁	J ₄₅	J ₃₁	J ₆₅	J ₇₄	45	25	G	G	B	B	E ₄₉	E ₄₆	B	B	E ₄₃	E ₄₁	E ₅₁	E ₃₀	E ₂₁	J ₄₁	16	30	J ₃₂	
21	36	J ₄₀	J ₇₀	B	B	B	30	B	B	B	33	B	B	B	B	G	E ₄₂	E ₄₁	E ₃₀	E ₃₀	30	J ₄₉	J ₃₂	J ₃₂	
22	B	J ₄₉	J ₃₄	B	B	B	B	B	B	E ₃₀	E ₅₂	E ₃₁	E ₃₈	E ₅₀	E ₄₇	E ₄₂	E ₂₉	24	E ₂₉	E ₂₁	G	J ₃₄	B	21	
23	30	J ₃₂	J ₃₄	J ₁₀₄	B	J ₄₄	27	G	G	G	E ₂₉	E ₅₀	E ₃₉	E ₄₃	E ₆₈	E ₄₃	E ₆₈	E ₃₀	E ₂₁	E ₃₀	E ₁₉	E ₁₉	E ₁₅	J ₂₈	
24	J ₂₈	29	J ₂₇	B	J ₃₇	J ₄₂	39	B	33	J ₂₉	G	G	E ₃₂	G	G	G	E ₂₆	E ₂₆	E ₂₂	E ₁₆	E ₂₁	E ₁₅	32	J ₂₃	
25	15	27	J ₄₃	J ₃₂	J ₃₃	E ₂₁	27	B	B	J ₃₉	G	G	E ₄₉	E ₃₀	E ₃₂	E ₄₈	E ₃₂	G	G	E ₂₀	E ₁₅	23	33	J ₃₂	
26	J ₄₁	J ₃₀	J ₃₃	28	E ₁₈	26	J ₃₀	B	B	34	G	G	G	G	G	G	G	G	E ₂₀	E ₂₀	E ₁₅	E ₁₁	E ₁₂	E ₁₁	
27	G	J ₂₉	J ₄₈	J ₅₆	J ₅₄	B	B	B	J ₄₂	J ₅₆	B	B	B	B	B	B	E ₄₂	G	G	J ₃₈	29	J ₄₃	J ₄₁	J ₄₀	
28	J ₃₂	J ₃₂	J ₄₉	B	J ₆₃	J ₇₈	J ₂₀	J ₃₈	32	E ₂₉	E ₃₀	G	G	G	G	G	G	G	G	G	E ₁₁	E ₁₂	E ₁₂	24	
29	J ₅₁	30	J ₆₀	J ₄₉	30	J ₂₅	G	G	G	G	E ₃₀	G	E ₃₂	G	G	G	G	G	23	E ₁₉	E ₂₁	E ₂₁	E ₂₀	E ₁₀	
30	E ₁₂	21	J ₃₀	J ₄₇	J ₄₀	J ₄₂	J ₃₀	B	33	32	G	G	G	G	G	G	G	G	G	G	E ₁₁	E ₁₁	E ₁₀	E ₁₁	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	25	26	27	21	24	21	22	17	21	21	23	23	22	25	25	28	29	29	29	29	27	25	26	28	
MED	J ₃₁	J ₃₂	J ₃₆	J ₄₁	33	26	28	23	E ₃₀	E ₂₈	E ₂₂	E ₂₉	E ₃₁	E ₃₀	E ₃₀	E ₃₀	E ₂₉	E ₂₂	E ₂₁	E ₂₀	E ₂₁	E ₁₉	24	J ₃₀	
UQ	J ₄₃	J ₄₈	J ₄₆	J ₅₆	J ₃₉	J ₄₂	J ₃₉	J ₃₅	32	30	E ₃₁	E ₃₂	E ₄₃	E ₄₆	E ₄₅	E ₄₃	E ₄₂	E ₃₁	E ₂₉	E ₃₀	30	J ₃₀	J ₃₂	J ₃₂	
LQ	26	29	J ₃₁	31	24	E ₂₀	20	G	G	G	G	G	G	G	G	G	G	G	E ₁₇	E ₁₈	E ₁₅	E ₁₂	E ₁₄	22	

The Radio Research Laboratories, Japan

SEP. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

SEP. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	12	11	14	18	18	B	B	24	20	12	30	20	12	12	11	11	12	17
2	13	15	13	12	31	21	17	18	19	18	22	19	19	C	C	C	C	C	C	C	C	C	C	C
3	C	C	C	C	C	C	C	C	C	C	C	35	B	43	46	41	48	43	13	18	18	16	13	11
4	22	B	18	20	16	14	31	17	12	15	20	21	50	31	42	23	29	28	21	11	11	B	12	12
5	11	12	15	B	B	18	20	B	B	B	29	29	30	30	29	29	24	17	14	10	B	11	11	13
6	15	29	30	B	19	20	20	19	31	26	20	20	19	30	20	20	18	21	15	12	10	B	12	12
7	11	18	18	19	30	B	17	19	20	28	31	32	20	22	20	14	20	18	17	30	17	14	14	14
8	18	30	26	19	16	12	12	11	15	16	B	30	43	46	31	19	16	13	17	12	B	11	11	19
9	18	11	15	21	15	11	11	11	14	18	15	15	16	18	15	23	18	13	14	12	11	11	11	10
10	11	14	B	21	31	B	B	B	B	21	21	30	31	20	30	30	30	19	29	17	17	11	11	12
11	12	10	11	11	14	15	19	22	18	18	19	20	19	20	18	13	29	11	29	11	11	11	15	B
12	B	B	22	14	13	15	19	28	31	50	43	33	31	47	56	42	42	31	19	24	21	14	11	15
13	12	10	11	B	13	21	B	16	B	B	B	B	B	B	B	31	22	42	15	23	14	11	14	10
14	22	11	14	19	10	B	B	31	20	20	23	41	B	52	25	67	41	19	23	14	15	10	11	12
15	11	13	20	19	16	B	B	B	B	B	31	52	30	32	20	70	43	48	41	30	25	20	11	10
16	11	19	11	18	21	31	B	20	19	B	41	31	50	52	30	69	47	61	29	26	20	11	10	12
17	10	11	11	19	20	18	30	20	19	B	B	B	50	68	50	50	23	27	19	19	20	B	B	12
18	11	19	21	18	42	19	31	B	40	31	18	B	B	56	45	43	48	22	21	28	29	B	B	13
19	B	14	18	15	14	16	15	B	32	B	B	B	B	42	50	50	42	40	32	20	16	10	18	30
20	12	18	15	17	48	21	15	15	19	B	B	49	46	B	B	43	41	51	30	21	11	11	12	16
21	11	20	49	B	B	B	18	B	B	B	31	B	B	B	B	13	42	41	30	30	11	11	16	21
22	B	12	15	B	B	B	B	B	B	30	52	31	38	50	47	42	29	20	29	21	10	10	B	11
23	11	12	29	19	B	20	15	16	19	20	29	50	39	43	68	43	68	30	21	30	19	19	15	15
24	11	14	10	B	11	31	19	B	25	21	20	26	32	22	22	22	26	26	22	16	21	15	10	11
25	11	18	17	18	17	21	15	B	B	31	25	21	49	30	32	48	32	20	14	20	15	11	10	11
26	10	11	11	13	18	12	19	B	B	21	19	19	20	20	18	19	11	20	20	20	15	11	12	11
27	11	12	19	26	30	B	B	B	30	51	B	B	B	B	B	B	42	22	14	20	11	18	12	11
28	25	11	31	B	15	30	16	21	19	29	30	17	18	20	19	19	15	14	13	12	11	12	12	11
29	12	12	19	19	12	12	13	15	15	16	30	22	32	18	16	20	16	19	20	19	21	21	20	16
30	12	12	20	14	14	14	18	B	29	20	18	20	15	18	23	18	15	13	12	12	11	11	10	11
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	28	28	28	28	28	28	29	29	29	29	29	30	30	29	29	29	29	29	29	29	29	29	29	29
MED	12	14	18	19	18	20	19	22	25	28	29	31	38	32	30	30	29	21	20	19	15	11	12	12
UQ	18	18	22	D ₃ B ₃₀	31	D ₃ B ₃₁	31	B	B	B	43	52	B	52	50	43	42	31	29	23	20	18	15	15
LQ	11	12	14	18	14	15	15	17	19	20	20	21	20	22	20	19	20	19	14	12	11	11	11	11

SEP. 1970

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	265	255	280	300	280	B	B	315	F	R	R	345	F	R	A	R	A	A	
2	A	A	A	A	A	A	A	A	A	245	260	285	315	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	330	B	315	300	F	R	320	R	320	R	A	R	R	
4	A	B	A	R	265	300	A	A	280	275	250	270	290	325	325	310	315	325	340	F	270	B	R	R	
5	R	A	A	B	B	A	A	B	B	B	290	300	300	305	315	325	325	305	330	295	B	R	A	A	
6	A	A	A	B	260	250	255	285	285	315	310	305	305	300	270	R	280	345	295	F	345	B	R	R	
7	A	A	A	R	A	B	265	F	305	295	280	300	305	300	300	325	305	335	320	R	F	F	335	300	
8	A	A	A	A	240	270	280	285	285	290	B	290	315	315	R	R	335	R	300	F	B	A	A	A	
9	A	A	A	A	245	F	F	F	265	290	270	305	305	325	300	310	310	305	320	340	340	350	330	285	A
10	A	A	B	A	R	B	B	B	B	305	280	305	295	305	305	325	325	335	340	345	335	330	320	315	
11	275	285	260	235	255	260	285	310	325	335	315	320	300	R	325	280	340	345	345	F	F	310	300	B	
12	B	B	255	265	250	250	260	A	270	R	295	R	R	R	R	R	310	340	330	335	325	315	300	315	
13	300	265	R	B	F	F	B	280	B	B	B	B	B	B	B	R	U ₂₇₀	U ₂₉₀	325	R	R	R	R	R	
14	R	A	A	R	U ₂₉₀	B	B	A	A	260	275	275	B	320	295	U ₂₇₅	285	290	F	A	R	R	A	F	
15	A	260	A	A	275	B	B	B	B	B	275	310	315	295	300	310	305	345	F	345	R	R	A	A	
16	A	A	A	250	A	A	B	F	295	B	280	280	275	290	335	R	305	320	345	345	345	340	A	A	
17	A	R	260	235	245	A	A	245	265	B	B	B	310	R	U ₃₁₅	320	300	315	335	330	305	B	B	R	
18	285	A	A	A	A	R	A	B	280	285	280	B	B	R	290	335	320	315	320	340	340	B	B	R	
19	B	A	A	295	F	240	270	F	B	R	B	B	B	280	R	305	310	310	295	305	A	A	A	A	
20	A	A	A	A	A	A	270	285	255	B	B	U ₂₇₅	265	B	B	295	305	300	305	275	A	265	A	A	
21	A	A	A	B	B	B	285	B	B	B	R	B	B	B	B	285	290	R	R	R	R	A	A	A	
22	B	A	A	B	B	B	B	B	B	250	285	320	285	280	295	305	320	320	340	F	275	A	B	290	
23	A	A	A	A	B	A	F	290	280	275	285	270	280	U ₂₉₀	295	285	305	320	R	325	305	290	R	290	
24	A	A	280	B	A	A	260	B	275	255	265	265	265	280	305	335	305	325	335	330	335	U ₃₀₅	A	280	
25	280	F	A	240	F	F	F	B	B	265	270	265	285	305	315	310	315	335	310	345	325	F	A	A	
26	A	A	A	250	260	F	250	B	215	260	265	270	280	295	300	305	310	330	320	F	F	315	305	295	
27	300	275	A	A	A	B	B	B	A	A	B	B	B	B	B	B	U ₂₈₀	305	305	A	F	A	A	A	
28	A	A	A	B	F	A	F	255	265	275	265	270	285	295	295	300	F	300	330	320	320	335	305	305	325
29	270	A	295	245	255	F	F	F	F	275	265	295	285	295	300	290	U ₃₂₀	325	330	325	350	R	330	315	
30	310	305	A	R	265	F	265	B	F	295	295	290	275	290	290	300	300	320	320	340	330	315	300	320	
31																									
CNT	7	5	5	8	12	6	12	10	17	19	21	22	21	21	21	21	27	27	23	17	15	11	9	10	
MED	285	275	260	248	258	255	265	282	280	275	280	290	290	300	300	305	305	320	325	330	335	315	305	308	
UQ	300	285	280	258	265	270	275	285	285	292	290	305	305	305	315	320	318	335	338	340	342	322	320	315	
LQ	278	265	260	238	248	250	260	255	270	260	270	270	280	290	295	295	300	315	315	320	315	305	305	290	

The Radio Research Laboratories, Japan

SEP. 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

SEP. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	B	B											
2										515	L	375	295	C	C	C								
3											C	C	250	B	285	280	275	245						
4											480	L	300		250									
5											B	L	L	L	L									
6									L	L	L	250												
7											L													
8												B	L	230	230									
9												L	240		230									
10									B	600	L		300		255									
11											L													
12											265	250		265	240	250	240							
13									B	B	B	B	B	B	B									
14											L	L	340	B	265	290	B	250						
15									B	B		B	395	340	250	275	260	280	250	240				
16										B	325	B	R	300	280	255	300	250	230					
17									L	B	B	B	B	300	290	250	250							
18								B	340	L	295	B	B	270	280	250	270							
19								B	R	B	B	B	B	310	325	250	260	240						
20									310	L	B	B	B	465	B	B	270	280	280					
21									B	B	B	A	B	B	B	B	340	300	300					
22										B	B	L	B	L	L	E	B	B	290					
23												L	L	L	265	B	255	260						
24									B	300	L	L		L		L	230							
25									B	B	A	400	L	320	265	255	275							
26									B	B	L	365	L	300	280	250	250							
27									B	A	A	B	B	B	B	B	B	290						
28										340	350	400	355	310	295	L		L						
29								L	L	310	L	L	255	275	250	L	L							
30									B	R	L	L		L	265									
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	3	9	9	12	17	13	14	11	5						
MED								310	325	515	365	255	300	268	255	262	260	240						
UQ									340	558	400	340	305	282	280	280	275	280						
LQ									305	432	325	250	285	265	250	250	250	240						

SEP. 1970

H^oF₂ (KM)

IONOSPHERIC DATA

SEP. 1970

H⁺F (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	400	325	295	265	250	B	B	245	255	250	250	225	290	A	A	A	A	A	
2	A	A	A	A	B	A	A	A	A	300	210	255	265	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	230	215	250	A	A	A	A	
4	A	B	A	A	A	280	B	A	330	255	225	230	B	230	B	230	240	230	230	240	A	B	A	A	
5	A	A	A	B	B	A	A	B	B	B	240	245	245	240	250	240	210	230	215	250	B	A	A	A	
6	A	A	B	B	B	400	380	330	E B	310	240	245	220	200	225	250	220	220	200	215	200	B	A	A	
7	A	A	A	A	B	B	355	300	230	250	230	200	220	220	200	215	225	200	200	210	210	230	260	300	
8	A	A	B	A	A	415	315	265	240	240	B	220	B	B	220	200	210	215	225	300	B	A	A	A	
9	A	A	A	A	380	350	315	290	240	250	225	200	240	200	220	225	205	210	200	205	200	210	250	A	
10	A	A	B	B	A	B	B	B	B	A	250	250	245	H	230	240	240	240	220	220	220	240	240	255	270
11	300	340	A	A	390	A	B	255	240	225	215	210	215	240	225	205	215	225	220	200	220	205	B	B	
12	B	B	B	B	E B	390	400	350	B	300	290	B	B	230	B	B	B	B	225	215	240	250	240	240	290
13	275	340	B	B	A	330	B	A	B	B	B	B	B	B	B	240	250	260	240	260	A	A	A	A	
14	A	A	A	A	320	B	B	B	A	250	250	B	B	B	225	B	B	265	300	A	A	A	A	A	
15	A	A	A	A	A	B	B	B	B	B	275	B	240	B	230	B	B	B	225	240	240	240	A	A	
16	A	A	A	A	A	B	B	250	265	B	B	220	B	B	230	B	B	B	215	205	225	245	A	A	
17	A	A	A	380	A	A	A	A	A	A	B	B	B	B	B	B	230	240	220	220	260	B	B	A	
18	A	A	A	A	B	A	A	B	B	250	225	B	B	B	B	B	B	240	200	240	250	B	B	A	
19	B	A	A	440	355	350	430	B	R	B	B	B	B	B	B	B	B	B	275	220	A	A	A	B	
20	A	A	A	A	B	A	340	280	200	B	B	B	B	B	B	B	B	B	275	340	A	A	A	A	
21	A	A	B	B	B	B	340	B	B	B	B	B	B	B	B	240	B	B	320	290	A	A	A	A	
22	B	A	A	B	B	B	B	B	B	250	B	220	B	B	B	B	230	225	230	225	250	A	B	A	
23	A	A	A	A	B	A	325	250	240	240	200	H	B	250	B	B	B	225	225	240	240	300	290	A	
24	A	A	A	B	A	B	A	B	A	245	245	245	240	240	240	225	240	225	215	220	230	230	A	A	
25	355	A	A	450	A	350	310	B	B	A	A	250	B	245	240	B	250	245	210	220	225	260	A	A	
26	A	A	A	A	390	350	A	B	B	250	290	240	215	240	230	225	240	225	220	245	225	245	E B	E B	
27	340	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	B	255	255	A	380	A	A	A	
28	B	A	B	B	350	B	A	A	A	290	230	220	220	215	220	225	220	225	230	205	210	210	245	350	
29	A	A	A	A	A	400	210	245	225	210	210	200	200	180	200	200	215	225	205	220	225	210	240	250	
30	260	255	A	A	450	380	A	B	A	225	225	230	225	205	220	225	225	210	215	205	220	220	225	230	
31																									
CNT	5	3		3	8	11	12	10	12	18	18	17	15	15	17	16	18	24	29	26	19	14	9	7	
MED	300	340		440	376	350	340	272	240	250	230	220	230	230	230	225	228	225	220	222	225	235	248	280	
UQ	340	340		445	390	400	368	300	289	255	250	245	242	240	240	240	240	235	230	245	245	245	258	308	
LQ	275	298		410	352	350	315	250	235	240	225	220	218	218	220	218	215	222	215	215	220	210	240	260	

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H⁺F (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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	160	G	G	120	G	B	B	G	G	155	B	B	155	120	120	140	110	125	
2	110	115	110	135	140	120	100	100	115	G	B	G	G	C	C	C	C	C	C	C	C	C	C	C	
3	C	C	C	C	C	C	C	C	C	C	C	B	B	B	B	B	B	B	120	B	140	115	125	125	
4	150	B	105	100	110	125	100	100	120	G	G	G	B	B	B	B	B	B	B	B	100	B	115	100	
5	105	100	105	B	B	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	G	B	155	105	100
6	105	120	130	B	B	B	B	B	B	B	G	G	G	B	G	G	G	B	B	B	B	B	150	100	
7	100	100	100	110	115	B	100	120	B	B	B	B	G	G	G	150	G	B	B	B	B	B	B	170	
8	105	160	130	115	100	G	G	G	G	G	B	B	B	B	B	G	G	G	B	110	B	100	100	100	
9	100	105	105	100	130	G	G	G	G	G	G	G	G	G	140	B	G	125	B	B	B	B	B	100	
10	110	110	B	125	140	B	B	B	B	140	120	B	B	G	B	B	B	B	B	B	B	G	125	B	
11	B	140	150	125	B	B	B	B	G	G	G	G	G	140	125	G	B	150	B	B	B	B	B	B	
12	B	B	B	B	B	B	B	150	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
13	B	125	130	B	115	B	B	150	B	B	B	B	B	B	B	B	B	B	115	150	100	100	120	105	
14	105	100	100	120	100	B	B	100	100	G	G	B	B	B	B	B	B	G	B	105	100	100	100	100	
15	100	100	100	165	105	B	B	B	B	B	B	B	B	B	120	B	B	B	B	B	B	B	110	100	
16	100	115	100	110	105	110	B	105	100	B	B	B	B	B	B	B	B	B	B	B	B	B	100	100	
17	100	105	100	145	110	100	100	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	
18	150	110	125	105	100	100	100	B	B	B	G	B	B	B	B	B	B	B	B	B	B	B	B	150	
19	B	105	100	120	110	100	100	B	100	B	B	B	B	B	B	B	B	B	B	B	B	100	100	100	
20	100	100	105	100	110	100	105	G	G	B	B	B	B	B	B	B	B	B	B	B	B	100	145	100	
21	105	100	100	B	B	B	B	B	B	B	120	B	B	B	B	G	B	B	B	B	B	100	100	100	
22	B	140	100	B	B	B	B	B	B	B	B	B	B	B	B	B	155	B	B	G	100	B	150		
23	115	120	105	100	B	100	105	G	G	G	B	B	B	B	B	B	B	B	B	B	B	B	B	140	
24	120	125	115	B	105	100	105	B	125	120	G	G	B	G	G	G	B	B	B	B	B	B	105	115	
25	150	125	110	125	100	B	190	B	B	100	G	G	B	B	B	B	B	G	G	B	B	150	105	105	
26	105	120	110	130	B	150	110	B	B	120	G	G	G	G	G	G	G	G	B	B	B	B	B	B	
27	G	110	100	100	100	B	B	B	100	100	B	B	B	B	B	B	B	G	G	125	105	100	100	100	
28	130	100	115	B	100	100	120	100	100	B	B	G	G	G	G	G	G	G	G	G	B	B	B	100	
29	100	100	105	130	100	100	G	G	G	G	B	G	B	G	G	G	G	G	100	B	B	B	B	B	
30	B	100	115	100	100	100	100	B	130	125	G	G	G	G	G	G	G	G	G	G	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	21	26	26	20	20	14	16	9	10	7	2			1	3	2		3	4	5	9	12	17	23	
MED	105	110	105	118	105	100	100	100	100	120	120		140	125	152		150	118	120	100	100	105	100		
UQ	115	120	115	128	112	110	108	120	120	122			132				152	138	125	105	142	115	125		
LQ	100	100	100	100	100	100	100	100	100	110			122				138	108	110	100	100	100	100		

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H⁺ES (KM)

IONOSPHERIC DATA

SEP. 1970

TYPES OF ES

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

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

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

The Radio Research Laboratories, Japan

SEP. 1970

TYPES OF ES

IONOSPHERIC DATA

OCT. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F ₃₃	F	A	A	B	B	F ₄₈	F ₅₄	60	64	71	67	75	72	75	80	82	80	80	85	F ₇₁	F ₅₄	R	A	
2	R	45	A	B	F	A	43	50	F ₅₈	F ₆₁	64	67	66	67	73	75	70	72	71	68	54	F ₄₀	A	A	
3	A	A	A	A	A	A	R	A	B	F ₄₇	54	50	55	65	65	70	67	65	63	61	R	A	A	A	
4	A	F	B	A	A	B	A	B	B	B	B	B	B	B	B	B	B	R	B	B	J ₃₇	R	R	R	
5	A	B	B	A	B	B	B	B	51	54	B	B	60	B	B	B	68	68	70	65	F ₅₃	F	35	J ₂₉	
6	A	F ₂₈	F ₂₅	F ₃₇	J ₃₉	B	F ₄₇	55	F ₅₉	66	71	72	71	77	77	81	86	82	73	R	F ₆₀	49	J ₄₂	J ₃₁	
7	A	R	R	F ₃₇	F ₃₆	F ₄₇	55	U ₆₃	67	72	75	77	R ₈₂	89	84	86	90	84	81	70	58	52	46	45	
8	38	35	J ₃₀	F ₃₃	50	J ₅₃	56	R	74	78	79	85	90	91	97	91	88	80	73	69	60	54	46	F ₃₅	
9	J ₃₅	F	J ₄₁	F ₄₈	47	F ₅₄	F	73	81	86	F	U ₈₉	100	97	C	96	95	85	73	71	65	60	50	J ₃₆	
10	F	F	F ₃₇	F	F	54	J ₇₁	F	B	R	B	B	B	J ₁₁₀	U ₉₆	U ₉₁	95	90	90	80	65	R	R	R	
11	A	F ₅₀	A	A	A	K	R	A	A	B	B	B	B	B	54	F	66	58	F ₅₃	39	R	R	A	A	
12	A	A	F	B	A	R	B	B	B	B	B	B	B	55	B	60	56	53	50	48	46	45	F	34	
13	30	28	29	F ₃₄	F	J ₅₀	F ₅₆	53	62	68	70	70	72	72	71	70	72	74	70	58	J ₄₆	R	A	R	
14	R	F	F	F ₄₅	A	A	A	B	61	F ₆₁	68	70	B	83	93	R	U ₈₇	U ₈₅	80	73	69	56	U ₃₇	28	
15	35	A	R	57	A	53	61	66	70	73	76	79	82	86	86	84	81	79	79	76	69	F ₆₀	F	F ₅₄	
16	F	F ₃₀	F ₃₀	F ₃₃	F	F ₆₇	65	75	84	87	98	97	98	U ₁₀₂	U ₁₀₃	J ₁₀₇	F ₉₀	75	J ₆₀	F	F ₃₃	A	A	F	
17	F ₃₀	F	F	A	F	39	A	B	B	B	F ₄₇	B	B	60	B	78	76	48	R	R	F ₃₅	F	F ₂₀	A	A
18	A	A	A	A	B	A	B	A	A	R	B	B	B	B	B	B	48	45	33	23	29	A	A	A	
19	R	A	A	F ₄₃	B	F ₄₈	57	55	B	B	64	63	B	73	R	76	F	F ₈₀	78	Y ₆₆	40	A	F ₂₉	35	
20	36	F ₅₆	56	B	B	F ₅₀	F	A	A	B	B	B	J ₆₄	J ₆₅	B	76	B	78	76	73	72	63	56	F ₄₉	
21	40	30	34	F ₄₅	50	F ₆₀	R	F ₇₀	76	79	82	82	80	83	85	79	79	76	76	69	J ₆₄	60	61	J ₅₀	
22	F	F ₃₈	B	F ₅₃	60	62	F	B	B	A	F ₆₀	58	B	73	F ₇₉	F ₇₆	F	79	56	48	A	A	A	A	
23	A	A	R	R	F	R	46	R	R	A	R	R	R	F	50	F ₆₀	58	F ₅₁	R	R	A	R	A	A	
24	A	A	F	A	F ₃₇	F ₃₈	F	B	R	B	B	54	B	64	63	66	60	F ₅₇	54	B	B	43	A	A	
25	R	33	43	55	65	64	63	77	77	81	90	B	96	94	R	94	R ₉₂	89	B	64	J ₅₈	40	40	F	F
26	F ₃₀	F ₃₁	35	43	J ₆₅	F ₆₀	58	62	F ₇₀	75	J ₈₂	84	80	82	87	90	U ₈₈	87	79	B	72	J ₆₈	J ₆₄	J ₆₅	
27	J ₆₄	F ₅₄	53	F	U ₆₃	60	F ₅₈	61	F ₇₀	81	83	J ₉₂	105	94	100	B	90	94	76	69	75	71	69	64	
28	A	46	F ₅₃	50	B	J ₅₀	R	R	R	54	56	B	55	56	60	62	B	61	58	50	49	F	A	A	
29	R	A	43	F ₄₇	63	F ₇₆	Z ₆₉	F ₇₂	J ₇₃	70	76	70	77	72	85	80	77	F ₇₇	73	66	53	A	A	A	
30	F	42	B	B	B	B	B	B	B	B	F ₅₄	F ₅₃	57	60	62	60	63	62	61	55	51	53	50	F ₅₁	
31	55	55	F ₄₅	F ₅₁	F ₅₇	F ₆₆	F ₇₂	F ₇₅	77	R	79	74	69	73	75	73	74	73	66	65	59	61	60	55	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	11	15	14	16	12	19	16	15	17	20	20	20	21	25	23	25	25	29	27	25	25	19	14	15	
MED	35	38	39	F ₄₅	54	F ₅₄	58	63	70	69	73	71	75	73	78	76	79	77	73	66	58	54	48	F ₄₅	
UQ	39	48	45	F ₅₀	63	61	64	72	76	78	80	83	82	89	86	86	88	82	77	70	65	60	60	F ₅₂	
LQ	F ₃₂	30	F ₃₀	F ₃₇	43	F ₅₀	52	55	61	58	64	65	64	67	68	70	67	65	60	55	49	44	F ₄₆	34	

The Radio Research Laboratories, Japan

OCT. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

OCT. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1								L	370	B	440	480	470	L	L										
2								360	370	400	L	430	L	L	L	B									
3									B	380	420	430	450	L	L	L	L								
4									B	B	B	B	B	B	B	B	B	B							
5									380	400	B	B	R	B	B	B	L								
6							R	370	390	B	440	L	L	L	L	L	L								
7							L	L	L	U	L	450	L	L	L										
8							360	370	L	L	L	L	L	L	L	L									
9							L	L	L	L	L	L	L	L	C										
10							L	L	B	B	B	B	B	B	B	L	L								
11									B	B	B	B	B	B	B	450	B								
12								B	B	B	B	B	B	430	B	L	L	L							
13					L	L	B		390	440	B	B	L	L	450	L	L	L							
14								B	L	460	L	460	B	B	L	B	B	B	B						
15						A	R		430	L	L	L	L	L	L	L									
16								B	L	L	L	L	L	L	L	L					L				
17								B	B	390	B	B	420	B	470	B	400	340							
18						B	A	A	R	B	B	B	B	B	B	B	B								
19					L	B	A	B	B	B	B	B	B	B	B	L	L	L							
20						B	A	A	B	B	B	470	B	B	B	B	B								
21						L	L	L	L	L	L	L	L	L	L	L									
22						L	B	B	A	450	B	B	L	L	L	L	450	420	400	R					
23						350	F	A	A	R	R	R	450	B	L	430	L								
24					290	330	B	R	B	B	440	B	B	450	L	R	B								
25					A	B	B	470	L	B	B	B	B	L	L	L	B								
26					R	R	450	450	480	480	480	L	L	L	L	B	L								
27							B	440	450	480	L	L	L												
28						A	A	R	R	450	B	L	500	480	470	B									
29					380	400	440	430	440	B	500	L	U	550	L	L	L								
30					B	B	B	B	430	470	R	480	480	L	L	L									
31					370	390	420	450	B	480	480	500	B	L	L	L	L								
CNT						3	5	6	12	11	10	8	6	6	4	2	3	2	1						
MED						370	360	395	420	430	450	470	470	465	460	460	430	380	400						
UQ						375	390	440	445	445	480	480	480	500	475		440								
LQ						330	350	370	385	400	440	435	450	430	450		415								

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OCT. 1970

FOF1 (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1970

FOE (0.01 MHZ)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1					B	B	A	235	270	B	B	B	300	290	280	255	250	195	190	150	B						
2					B	B	B	250	250	255	270	295	300	B	B	B	B	B	B	B	B	B					
3					A	B	225	B	B	280	290	R	B	300	280	265	250	225	200	A	145						
4					B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B					
5					B	B	B	B	265	280	B	B	R	B	B	B	B	B	200	170	B						
6					B	B	B	A	260	B	290	305	B	300	295	R	265	240	B	B	B						
7				B	B	B	B	220	250	275	290	B	B	290	280	A	A	240	B	B	A	B					
8					A	220	200	R	285	295	300	305	305	290	285	A	275	250	205	170	B						
9				A	B	A	200	235	255	280	295	300	305	300	C	A	275	B	220	B	B	B					
10				B	B	B	B	250	B	B	B	B	B	B	B	R	280	B	215	A	130	B					
11					B	B	B	B	B	B	B	B	B	B	B	B	B	250	A	A	B	B					
12					B	A	A	B	B	B	B	B	B	325	B	B	B	240	A	B	B	B					
13					B	A	B	220	B	B	B	B	B	B	B	295	265	B	230	A	A	A					
14					B	B	B	B	B	A	320	B	B	B	B	B	B	B	B	B	B	B					
15					B	B	A	B	A	B	290	305	310	310	305	300	280	275	260	B	B	B					
16				A	150	170	B	B	290	B	B	B	B	305	300	280	A	240	230	A	A	B					
17					B	A	A	A	B	285	B	B	B	B	B	B	B	B	A	A	180	B					
18					B	B	A	B	A	A	B	B	B	B	B	B	B	240	250	B	140	B					
19					B	B	A	B	B	B	B	B	B	B	B	B	280	240	B	A	A	A					
20					B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B					
21				A	A	195	200	B	B	280	B	B	305	B	A	300	295	270	260	240	A	A	A	B			
22				B	A	B	A	B	B	B	A	305	B	B	B	B	300	R	R	A	B	B	B	B			
23				A	B	180	A	270	A	A	B	320	A	B	A	B	300	R	260	A	B	B	A	B			
24				A	B	B	A	260	B	A	B	B	B	B	B	B	B	B	B	275	B	B	175	A			
25					A	B	B	B	B	B	B	B	B	B	B	B	330	R	B	B	B	B	B	150	130		
26				A	A	200	A	B	B	B	330	R	340	R	320	325	320	310	B	280	B	B	B	A			
27				B	A	150	190	A	A	A	A	A	B	330	325	320	B	300	280	255	225	200	B	B			
28				B	B	B	B	B	A	B	B	A	A	B	330	325	320	R	B	280	250	190	A	B	A	A	
29				B	B	B	A	A	A	245	A	300	305	B	R	R	R	330	B	R	280	260	220	210	A	A	B
30				A	A	B	B	B	B	B	A	330	R	330	R	B	B	300	B	260	230	200	B	160	150		
31				R	170	B	195	200	250	275	295	B	B	340	335	B	A	A	B	R	245	230	A	A	A	A	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	1		2	2	4	4	8	6	13	10	12	7	10	13	12	10	12	17	16	B	7	1	2	2			
MED	150		160	195	188	200	235	242	280	282	302	305	315	300	300	295	275	250	235	205	180	175	155	140			
UQ					195	210	255	250	295	295	320	308	330	325	320	300	280	260	252	228	200						
LQ					165	185	210	235	260	280	290	302	305	290	282	280	265	240	210	170	142						

The Radio Research Laboratories, Japan

OCT. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

OCT. 1970

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 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 23	41	37	48	B	B	J 31	G	G	E ₄₅	E ₃₀	E ₃₁	G	G	G	G	G	G	G	G	E ₁₂	E ₁₂	34	J 48	
2	38	J 52	J 57	B	J 37	J 50	37	G	G	G	G	G	G	E ₃₀	E ₄₁	E ₂₉	E ₂₇	E ₂₂	E ₁₈	E ₁₉	E ₁₅	30	32		
3	35	45	J 43	J 47	48	J 46	30	J 56	B	G	G	G	E ₃₁	G	G	G	G	G	G	22	G	J 29	J 34	J 50	
4	38	J 30	B	42	J 31	B	J 47	B	B	B	B	B	B	B	B	B	E ₅₀	B	B	E ₂₀	16	17	J 21		
5	42	B	B	J 38	B	B	B	B	G	G	B	B	G	B	B	B	E ₂₉	E ₂₇	G	G	E ₁₅	E ₁₂	E ₁₅	J 22	
6	J 35	26	J 20	30	30	B	E ₂₂	J 30	G	E ₅₂	G	G	E ₃₂	G	G	G	G	G	E ₂₁	E ₂₅	E ₂₀	E ₁₅	E ₁₂	22	
7	J 30	J 34	E ₃₀	E ₁₈	E ₁₆	E ₁₉	E ₂₀	G	G	G	G	E ₄₀	E ₃₄	33	33	32	33	G	E ₂₁	E ₂₀	19	E ₁₅	E ₁₃	E ₁₄	
8	J 24	21	17	30	25	G	G	G	G	G	G	33	34	38	33	29	G	G	G	G	E ₁₂	E ₁₁	E ₁₀	E ₁₁	
9	E ₁₁	E ₁₁	16	J 28	J 30	29	23	G	G	G	G	G	G	C	J 30	G	E ₃₀	G	E ₂₂	E ₁₇	E ₁₈	E ₁₁	24		
10	E ₁₂	E ₁₄	E ₁₂	E ₁₄	E ₂₁	E ₂₅	E ₂₃	G	B	E ₆₈	B	B	B	E ₅₀	E ₄₀	G	G	E ₂₈	G	23	G	J 34	41	J 30	
11	J 39	J 31	J 49	J 63	J 49	41	J 55	J 29	J 48	B	B	B	B	B	E ₄₇	E ₃₀	E ₃₉	J 30	J 30	J 38	28	J 32	J 76	J 30	
12	44	J 48	J 27	B	J 107	39	B	B	B	B	B	B	B	G	B	E ₃₅	E ₃₀	26	24	E ₂₀	24	33	J 35	36	
13	J 54	J 30	J 30	J 29	J 29	E ₂₀	G	E ₄₂	E ₃₀	E ₃₁	E ₄₇	E ₅₂	E ₄₂	E ₃₃	E ₃₀	G	G	E ₂₉	G	J 29	23	26	J 31	J 28	
14	20	32	J 37	J 25	J 57	J 52	J 45	B	E ₃₃	33	G	E ₃₄	B	E ₆₈	E ₄₂	E ₅₁	E ₅₀	E ₅₀	E ₄₂	E ₃₂	E ₃₂	E ₁₅	E ₂₂	22	
15	30	38	37	35	44	J 45	36	J 30	E ₂₉	G	G	G	33	G	G	G	33	G	E ₂₅	E ₂₀	E ₂₁	E ₁₅	E ₁₂	E ₁₂	
16	33	J 23	24	21	G	20	E ₂₂	E ₅₀	G	E ₃₀	E ₃₂	E ₃₂	E ₃₆	34	G	G	32	32	G	J 31	24	J 64	Y 29	J 42	
17	J 47	25	J 68	J 39	J 28	J 107	J 41	B	B	G	B	B	E ₃₂	B	E ₃₁	E ₄₃	E ₃₁	34	J 46	27	J 26	E ₁₀	J 10	33	
18	D	J 39	J 38	J 97	B	J 67	B	J 38	J 55	J 33	B	B	B	B	B	B	B	G	G	J 24	23	22	28	J 02	
19	30	45	J 31	J 31	B	26	E ₄₅	J 42	B	B	E ₅₁	E ₅₃	B	E ₆₅	E ₄₈	E ₃₀	G	G	E ₃₀	J 28	J 28	33	21	31	
20	J 42	39	J 36	B	B	J 28	E ₃₉	J 51	J 52	B	B	B	E ₄₅	E ₅₁	B	E ₆₇	B	E ₄₉	E ₃₀	E ₃₁	E ₄₀	E ₂₁	E ₂₂	E ₁₉	
21	J 26	J 28	26	21	G	G	E ₂₉	E ₂₅	G	E ₄₄	E ₃₉	34	E ₃₉	J 34	G	G	G	G	G	G	23	23	16	E ₁₁	E ₁₄
22	23	23	B	J 49	J 41	33	E ₃₂	B	B	J 49	34	E ₄₈	B	E ₄₉	E ₃₃	G	G	G	J 30	E ₂₃	J 107	J 72	J 74	J 57	
23	J 50	28	J 31	40	G	J 27	G	J 27	J 38	E ₃₁	G	40	E ₃₁	32	E ₄₉	G	G	G	J 29	J 30	J 37	32	J 44	J 37	
24	J 57	J 34	J 71	J 51	J 24	24	G	B	J 45	B	B	E ₃₉	B	E ₅₀	E ₃₁	E ₃₃	E ₃₀	E ₄₆	G	B	B	G	J 28	28	
25	E ₂₆	23	J 31	J 30	J 32	J 37	E ₅₁	E ₄₉	G	G	E ₄₇	B	E ₅₀	E ₄₂	E ₄₁	G	G	E ₄₃	B	E ₅₄	E ₃₁	E ₂₀	G	G	
26	E ₁₄	27	26	22	32	37	33	37	G	G	G	G	G	G	G	G	E ₆₇	G	E ₄₈	B	E ₃₇	E ₁₈	E ₁₈	J 20	
27	31	J 29	30	37	26	J 38	J 48	43	J 38	J 33	36	E ₄₂	G	G	G	B	G	G	G	G	G	E ₁₆	E ₁₅	E ₁₄	
28	J 58	J 70	J 29	J 27	B	J 37	J 41	J 49	J 37	35	34	B	G	G	G	G	B	G	G	24	J 29	28	J 60	J 43	
29	J 37	46	J 57	J 32	21	J 31	G	31	G	G	E ₆₈	G	G	G	G	E ₄₀	G	30	G	24	G	36	J 64	J 51	
30	J 38	24	B	B	B	B	B	B	B	36	G	G	G	G	E ₃₃	E ₃₅	G	E ₃₂	G	G	G	E ₃₈	G	G	
31	G	G	G	E ₁₈	G	23	33	G	33	E ₅₀	E ₄₅	G	36	E ₅₀	38	37	E ₃₁	G	G	G	J 28	24	J 31	26	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	30	27	27	24	26	27	23	23	25	22	21	22	26	25	27	27	31	29	28	30	31	31	31	
MED	35	30	J 31	J 31	30	32	E ₃₂	28	G	E ₃₁	E ₃₀	E ₃₂	E ₃₂	E ₃₂	E ₃₁	E ₂₉	G	E ₂₆	G	E ₂₃	E ₂₃	E ₂₀	28	28	
UQ	J 42	J 39	J 38	J 41	J 39	J 41	U ₃₈	U ₄₀	J 38	E ₃₈	E ₃₉	E ₄₀	E ₃₀	E ₄₉	E ₃₈	E ₃₅	E ₃₁	E ₃₁	E ₂₉	U ₂₆	U ₂₆	31	J 38	J 36	
LQ	24	24	26	26	21	24	E ₂₂	G	G	G	G	G	G	G	G	G	G	G	G	E ₁₉	E ₁₅	E ₁₅	E ₁₄	20	

The Radio Research Laboratories, Japan

OCT. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

OCT. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	11	15	17	18	B	B	16	16	16	45	30	31	20	20	17	19	19	15	16	11	12	12	10	16
2	21	21	31	B	19	30	29	19	20	19	21	22	24	20	30	41	29	27	22	18	19	15	11	10
3	11	17	18	40	18	30	15	30	B	23	21	20	31	20	18	17	11	15	11	13	11	10	11	18
4	16	12	B	20	20	B	21	B	B	B	B	B	B	B	B	B	B	50	B	B	20	11	11	14
5	13	B	B	30	B	B	B	B	21	20	B	B	13	B	B	B	29	27	19	15	15	12	15	10
6	14	18	14	21	20	B	22	19	21	52	21	28	32	22	19	20	21	21	21	25	20	17	12	13
7	11	21	30	18	16	19	20	18	21	20	16	40	34	13	20	20	19	18	21	20	15	15	13	14
8	10	12	12	14	15	13	17	22	19	20	19	19	20	21	20	18	18	17	14	14	12	11	10	11
9	11	11	11	11	17	12	12	15	14	14	17	18	16	15	C	16	16	30	19	22	17	18	11	11
10	12	14	12	14	21	25	23	20	B	68	B	B	B	50	40	25	21	28	19	13	10	15	20	16
11	25	17	21	24	30	27	45	30	29	B	B	B	B	B	47	30	39	18	19	15	19	20	12	21
12	22	22	12	B	13	20	B	B	B	B	B	B	B	25	B	35	30	21	21	20	19	21	12	12
13	12	10	11	12	11	20	20	42	30	31	47	52	42	33	30	23	19	29	20	15	14	11	11	11
14	12	12	12	15	41	31	30	B	33	23	21	34	B	68	42	51	50	50	42	32	32	15	22	12
15	15	24	29	19	30	22	28	19	29	20	20	18	21	19	19	20	18	20	25	20	21	15	12	12
16	11	11	11	11	11	15	22	50	27	30	32	32	36	21	20	21	11	11	19	11	13	15	20	11
17	10	10	13	15	12	14	18	B	B	22	B	B	32	B	31	43	31	29	22	14	10	10	15	23
18	15	19	31	25	B	18	B	12	22	29	B	B	B	B	B	B	B	22	21	18	10	14	19	14
19	22	38	30	19	B	21	45	29	B	B	51	53	B	65	48	30	20	18	30	14	13	11	11	15
20	15	16	20	B	B	21	39	31	29	B	B	B	45	51	B	67	B	49	30	31	40	21	22	19
21	11	11	11	11	11	14	29	25	22	44	39	22	39	21	18	19	20	18	20	16	13	11	11	14
22	11	16	B	12	31	20	32	B	B	21	22	48	B	49	33	20	11	11	19	23	21	21	11	24
23	22	16	11	28	15	18	17	18	22	31	26	30	31	21	49	20	23	13	19	28	19	16	20	22
24	17	20	11	20	18	14	16	B	29	B	B	39	B	50	31	33	30	46	22	B	B	14	11	12
25	26	14	22	20	21	30	51	49	29	21	47	B	50	42	41	30	12	43	B	54	31	20	12	12
26	14	12	12	15	16	30	30	30	29	23	20	20	21	21	18	18	67	23	48	B	37	18	18	11
27	14	11	14	15	19	21	20	21	19	19	20	42	23	21	11	B	18	12	15	15	15	16	15	14
28	18	21	20	21	B	23	29	29	29	30	30	B	21	20	21	18	B	19	16	12	14	18	14	11
29	27	23	20	14	15	12	19	18	16	18	68	32	31	30	28	40	19	18	19	20	13	13	11	18
30	11	16	B	B	B	B	B	B	B	22	28	28	21	29	33	35	21	32	15	12	18	30	12	12
31	11	11	11	18	11	12	16	15	19	50	45	30	21	50	31	28	31	16	17	19	20	17	16	13
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31
MED	14	16	17	19	19	21	23	29	29	29	32	39	32	29	31	28	21	21	20	18	17	15	12	13
UQ	18	20	30	24	36	30	36	D B 50	D B 33	51	B	B	B	50	47	40	31	29	22	24	20	18	16	16
LQ	11	12	12	14	15	16	18	19	21	20	21	28	21	21	20	20	18	18	19	14	13	12	11	12

OCT. 1970

F-MIN (0.1 MHZ)

IONOSPHERIC DATA

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	F 275	F	A	A	B	B	F 240	F 245	255	250	270	255	280	280	295	300	305	325	315	330	F 325	F 315	R	A	
2	R	265	A	B	F	A	235	245	F 260	F 260	255	270	275	250	285	305	315	335	335	325	315	300	A	A	
3	A	A	A	A	A	A	R	A	B	250	230	245	255	290	290	315	315	325	325	310	R	A	A	A	
4	A	F	B	A	A	B	A	B	B	B	B	B	B	B	B	B	B	R	B	B	R	R	R	R	
5	A	B	B	A	B	B	B	B	255	250	B	B	270	B	B	B	310	325	315	335	F 325	F	300	F	
6	A	F 270	F 240	F 245	R	B	255	255	F 255	260	270	290	285	290	295	285	315	330	330	R	F 335	F 325	F	F	
7	A	R	R	F 270	F 270	F 280	275	240	265	280	265	285	305	305	300	315	305	310	345	345	345	325	325	310	
8	290	255	F	F 260	F 260	F	265	R	260	270	270	270	285	325	305	310	320	325	330	335	350	350	F 325	F	
9	F	F	F	F 275	255	260	F	260	255	275	F	U 270	280	290	C	290	315	330	330	325	325	340	340	F	
10	F	F	305	F	F	285	F	F	B	R	B	B	B	R	305	U 295	315	310	330	340	325	R	R	R	
11	A	F 245	A	A	A	R	R	A	A	R	R	B	B	B	B	245	F	290	295	285	285	R	R	A	A
12	A	A	F	B	A	R	B	B	B	B	B	B	B	F 240	B	315	F 280	F 285	320	315	275	F 315	F	295	
13	265	280	250	265	F	F	255	230	245	245	255	270	265	280	295	285	280	305	315	295	F	R	A	R	
14	R	F	F	F 245	A	A	A	B	270	260	265	270	B	265	270	R	U 295	U 320	325	340	320	305	U 330	270	
15	285	A	R	255	A	235	260	250	245	255	265	265	270	280	280	290	305	305	315	315	320	F 315	F	F 295	
16	F	F 245	F 250	F 240	F	F 255	250	260	255	275	255	280	280	U 255	235	R	F 245	315	R	F	F 275	A	A	F	
17	F 240	F	F	A	F	265	A	B	B	230	B	B	220	B	230	240	245	R	R	F 315	F	F 300	A	A	
18	A	A	A	A	B	A	B	A	A	R	B	B	B	B	B	B	B	315	325	260	320	295	A	A	
19	R	A	A	F 245	B	F 255	265	260	B	B	255	265	B	265	R	270	F	F 290	F 295	290	300	A	F 270	255	
20	250	260	245	B	B	F 240	F	A	A	B	B	B	R	R	B	265	B	280	300	315	320	315	315	F 295	
21	260	245	250	265	265	F 265	R	F 250	265	260	260	265	285	285	295	295	300	315	330	320	F	305	295	F	
22	F	F 275	B	F 260	250	265	F	B	B	A	F 250	240	B	240	F 260	F 270	F	260	255	270	A	A	A	A	
23	A	A	R	R	F	R	250	R	R	R	R	R	R	F	F 260	F 270	F 265	F 265	R	R	A	R	A	A	
24	A	A	F	A	F 230	F 235	F	B	R	B	B	230	B	250	255	260	265	270	320	B	B	300	A	A	
25	R	235	250	255	275	260	270	245	265	260	265	B	270	275	R	275	F 285	290	B	330	R	300	F 300	F	
26	F 265	F 265	265	265	F	F 240	250	245	F 260	255	R	265	275	265	260	255	U 275	295	305	B	315	F	F	F	
27	F	F 295	F 285	F 285	U 285	F 275	F 260	240	F 235	250	260	R	255	260	270	B	290	265	315	305	320	320	320	310	
28	A	265	F 280	F 270	B	R	R	R	R	230	255	B	240	250	265	275	B	295	280	285	295	F	A	A	
29	R	A	265	F 245	F 275	F 295	F 240	F 240	F	235	245	285	260	250	260	275	285	F 275	290	320	285	A	A	A	
30	F	285	B	B	B	B	B	B	B	F 235	F 235	230	240	255	260	265	285	290	315	310	315	320	300	F 295	
31	275	275	F 255	F 270	F 265	F 260	F 245	F 235	245	R	275	260	240	260	265	260	285	280	315	310	300	310	300	280	
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	9	15	12	16	10	16	15	15	16	20	19	19	20	23	23	24	25	29	26	25	21	18	12	9	
MED	265	265	252	F 260	265	F 260	255	245	255	255	260	265	270	265	270	280	290	305	315	315	320	315	308	295	
UQ	275	275	272	F 268	275	F 270	262	252	262	260	265	270	280	282	295	298	310	320	330	330	325	320	325	295	
LQ	260	250	250	F 245	F 255	F 248	F 248	240	250	248	255	258	255	252	260	268	280	285	305	305	300	300	300	280	

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OCT. 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

OCT. 1970

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 MHz to 15 MHz in 30 sec in automatic operation																				
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								L	400	445	350	400	310	L	L									
2							490	400	395	390	380	340	400	L	250									
3								B	520	550	520	450	310	L	270	L								
4								B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
5									455	455	B	B	390	B	B	B	255							
6							450	425	410	B	345	275	305	L	L	L	250							
7							L	L	360	310	345	L	270	L										
8							400	380	355	300	310	L	L	250	L	L								
9							L	390	365	315	L	300	L	L	C									
10							L	L	B	B	B	B	B	250	240	250	L							
11									R	B	B	B	B	B	B	340	300							
12							B	B	B	B	B	B	B	540	B	305	355	335						
13						L	375	B	425	400	390	390	350	325	280	310	L							
14								B	390	430	355	370	B	B	L	290	260	250	240					
15							420	375	350	350	L	350	300	280	L	L								
16								325	L	290	300	300	305	340	350	400					320			
17								B	B	595	B	B	650	B	415	375	510	R						
18							B	A	A	R	B	B	B	B	B	B	B							
19						L	420	A	B	B	B	430	B	B	370	L	300	L						
20							380	A	A	B	B	B	375	385	B	B	B	300						
21							340	360	350	350	350	350	340	305	280									
22							350	B	B	A	475	500	B	450	370	350	350	350	420	R				
23							500	R	A	A	R	650	R	540	550	350	400	415						
24							520	645	B	R	B	B	550	B	450	455	400	440	415					
25							400	B	390	350	350	340	B	350	275	300	300	270	250					
26						R	450	460	400	390	360	345	305	355	L	275	B	255						
27								500	450	390	370	320	300	L										
28							A	A	R	R	480	B	L	510	440	375	B							
29							300	420	445	440	450	B	340	380	430	L	L	340						
30							B	B	B	B	530	550	550	545	470	415	425	350						
31							375	415	445	410	390	365	400	490	425	L	L	330	320					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	14	12	16	20	17	19	18	19	12	16	14	9	3					
MED						388	418	408	400	390	360	380	345	385	370	325	335	320	320					
UQ						460	450	452	418	448	390	465	390	450	428	375	355	350	370					
LQ						338	378	378	358	350	345	342	305	308	290	282	270	255	280					

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H^oF₂ (KM)

IONOSPHERIC DATA

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H^oF (KM)

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

Station SYOWA BASE Lat. 69° 00.4' S. Long. 39° 35.4' E Sweep 15 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	290	A	A	A	B	B	A	265	260	B	230	225	240	200	200	225	225	225	215	205	220	215	A	A		
2	A	A	A	B	A	A	B	300	250	245	215	200	240	230	240	B	240	240	200	210	245	250	A	A		
3	A	A	A	B	A	B	A	B	B	225	210	245	250	240	225	245	235	240	240	250	350	A	A	A		
4	A	A	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	340	A	A	A		
5	A	B	B	B	B	B	B	B	240	230	B	B	R	B	B	B	250	240	230	220	225	240	260	250		
6	A	A	A	A	A	B	230	260	220	B	225	240	230	200	220	230	225	240	210	240	220	210	220	325		
7	A	A	R	310	320	310	275	205	235	220	210	B	230	225	215	220	240	220	210	200	200	220	225	230		
8	250	355	350	A	350	280	250	250	225	235	215	225	205	A	225	215	215	215	210	215	205	205	210	230		
9	250	275	300	320	A	360	275	240	225	200	215	210	200	200	C	240	240	235	210	215	210	210	210	255		
10	255	280	275	290	280	275	250	225	B	B	B	B	B	B	B	B	220	220	230	220	205	225	A	A	A	
11	B	A	A	A	B	B	B	B	A	B	B	B	B	B	B	250	B	250	325	A	A	A	A	A		
12	A	A	A	B	A	A	B	B	B	B	B	B	B	280	B	E	290	265	R	300	250	285	300	300	305	
13	350	A	400	390	340	295	275	B	250	220	B	B	B	230	220	230	240	235	245	290	255	A	A	A		
14	A	A	A	A	B	B	B	B	245	255	255	240	B	B	B	B	B	B	B	B	230	250	245	290	375	
15	A	B	A	A	B	A	A	R	H	225	225	H	H	205	220	225	225	220	230	245	230	240	225	230	250	240
16	A	A	370	350	345	280	250	B	230	225	225	250	240	220	225	240	310	250	290	A	340	A	A	A		
17	A	310	350	A	350	A	A	B	B	250	B	B	260	B	260	B	300	B	A	300	A	245	A	B		
18	A	A	B	A	B	A	B	A	A	A	B	B	B	B	B	B	B	260	265	A	400	350	A	A		
19	200	B	B	A	B	250	B	B	B	B	B	B	B	B	B	B	225	245	230	270	270	295	A	355	A	
20	A	A	A	B	B	A	B	B	A	B	B	B	B	B	B	B	B	B	B	250	250	250	250	250	280	
21	325	A	A	350	300	280	280	240	230	B	B	240	250	240	225	230	230	250	250	230	230	245	250	255		
22	345	A	B	350	B	310	290	B	B	A	225	B	B	B	240	240	240	250	R	A	200	A	A	A	A	
23	A	A	A	A	255	A	275	240	A	B	A	240	265	240	B	250	250	265	280	200	A	A	A	A		
24	A	A	390	A	A	A	315	B	A	B	B	B	B	B	250	245	250	B	255	B	B	275	A	A		
25	R	A	400	400	350	A	B	B	240	230	B	B	B	B	B	225	240	B	B	B	330	295	255	275		
26	325	A	350	330	330	A	A	A	270	250	230	230	245	235	240	230	B	240	B	B	250	240	260	270		
27	260	280	250	405	350	A	A	B	300	250	230	260	220	230	225	B	220	240	240	225	240	220	225	225		
28	A	A	A	A	B	A	B	B	B	A	R	B	H	H	240	240	B	250	250	275	295	340	A	A		
29	A	A	380	330	300	280	250	270	240	240	B	250	250	R	230	255	220	240	285	240	290	A	A	A		
30	A	310	B	B	B	B	B	B	B	250	300	255	250	220	240	240	230	240	245	250	255	250	245	250		
31	260	290	300	305	290	250	240	225	220	B	B	230	240	B	250	A	250	240	250	200	255	250	255	290		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	11	7	12	12	13	11	13	11	17	16	14	16	18	16	20	22	24	25	25	24	26	21	16	15		
MED	260	290	350	340	330	280	275	240	240	232	225	240	240	230	228	232	240	240	245	230	250	245	250	255		
UQ	325	310	385	370	350	302	275	262	250	250	230	248	250	240	240	242	250	250	255	250	295	250	260	285		
LQ	252	280	300	315	300	278	250	232	225	225	215	225	230	220	225	225	228	235	220	208	225	220	225	245		

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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 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	115	105	110	B	B	100	G	G	B	B	B	G	G	G	G	G	G	G	G	B	B	110	105	
2	120	120	135	B	120	100	100	G	G	G	G	G	G	G	B	B	B	B	B	B	B	B	100	100	
3	105	100	125	130	100	100	140	125	B	G	G	G	B	G	G	G	G	G	G	140	G	100	105	100	
4	105	120	B	125	140	B	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	150	150	115
5	100	B	B	110	B	B	B	B	G	G	B	B	G	B	B	B	B	B	B	G	G	B	B	B	140
6	110	110	110	130	140	B	B	115	G	B	G	G	B	G	G	G	G	G	B	B	B	B	B	B	155
7	100	100	B	B	B	B	B	G	G	G	G	B	B	110	100	100	105	G	B	B	100	B	B	B	B
8	100	110	150	110	125	G	G	G	G	G	G	110	100	100	100	100	G	G	G	G	B	B	B	B	B
9	B	B	140	130	110	105	140	G	G	G	G	G	G	G	C	100	G	B	G	B	B	B	B	B	120
10	B	B	B	B	B	B	B	G	B	B	B	B	B	B	B	G	G	B	G	150	G	105	105	100	
11	100	100	100	115	100	125	125	105	100	B	B	B	B	B	B	B	B	150	125	125	140	145	100	100	
12	100	115	135	B	100	115	B	B	B	B	B	B	B	G	B	B	B	140	145	B	175	180	140	140	
13	125	120	120	120	110	B	G	B	B	B	B	B	B	B	B	G	G	B	G	135	130	110	100	100	
14	110	115	110	125	100	100	115	B	B	125	G	B	B	B	B	B	B	B	B	B	B	B	B	B	125
15	115	110	100	110	100	100	100	105	B	G	G	G	110	G	G	G	100	G	B	B	B	B	B	B	B
16	120	100	125	150	G	140	B	B	G	B	B	B	B	125	G	G	115	150	G	140	150	120	100	100	
17	105	100	120	110	110	105	100	B	B	G	B	B	B	B	B	B	B	155	150	125	175	B	105	105	
18	100	100	110	140	B	105	B	100	100	110	B	B	B	B	B	B	B	G	G	110	150	145	140	100	
19	130	125	125	105	B	125	B	100	B	B	B	B	B	B	B	B	G	G	B	130	120	100	125	105	
20	100	100	100	B	B	100	B	100	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
21	110	115	100	125	G	G	B	B	G	B	B	105	B	110	G	G	G	G	G	G	125	145	140	B	B
22	105	115	B	140	115	130	B	B	B	100	105	B	B	B	B	G	G	G	G	110	B	125	125	120	125
23	110	110	100	130	G	100	G	120	105	B	G	125	B	105	B	G	G	G	G	120	150	120	100	105	105
24	110	110	140	130	110	100	G	B	105	B	B	B	B	B	B	B	B	B	G	B	B	G	100	115	
25	B	125	125	100	105	110	B	B	G	G	B	B	B	B	B	B	G	G	B	B	B	B	B	G	G
26	B	105	125	130	105	125	120	120	G	G	G	G	G	G	G	G	B	G	B	B	B	B	B	B	140
27	145	110	150	140	125	115	105	100	100	100	120	B	G	G	G	B	G	G	G	G	G	B	B	B	B
28	180	160	100	115	B	105	100	100	110	110	110	B	G	G	G	G	B	G	G	145	150	130	100	100	
29	125	115	120	130	120	110	G	100	G	G	B	G	G	G	G	B	G	100	G	130	G	100	150	100	100
30	100	100	B	B	B	B	B	B	B	100	G	G	G	G	B	B	G	B	G	G	G	B	G	G	G
31	G	G	G	B	G	120	130	G	100	B	B	G	110	B	100	100	B	G	G	G	100	100	100	100	100
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	27	24	24	18	21	13	12	8	6	3	3	3	5	3	4	3	5	5	12	13	15	18	23	
MED	110	110	120	125	110	105	115	102	100	105	110	110	110	110	100	100	105	150	125	132	140	120	105	105	
UQ	120	115	130	130	120	120	125	118	105	110	115	118	110	110	100	100	110	150	145	142	150	142	125	122	
LQ	100	100	102	110	100	100	100	100	100	100	108	108	105	105	100	100	102	140	120	125	120	100	100	100	

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H⁺ES (KM)

IONOSPHERIC DATA

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TYPES OF ES

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

Station	SYOWA BASE				Lat. 69 00.4 S.		Long. 39 35.4 E		Sweep MHz to 15 MHz in 30 sec in automatic operation																
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	R1	R1	R2	R1			Y																R4	R2	
2	R1	FR21	R1		R1	Y	Y																R2	R3	
3	R3	R2	R1	R1	R1	Y	H1	R1												R1		R2	R3	F1	
4	R2	F1		R1	Y		Y														R1	R1	R1		
5	R2			F1																				R1	
6	R2	R1	F1	R1	R1			Y																R1	
7	R2	R1											Y	Y	Y	Y					Y				
8	F2	R1	R1	R1	R1						Y	Y	Y	Y	Y	Y									
9			R1	R1	Y	R2	H1									Y								R1	
10																					R1	R1	R1	F1	
11	R1	R1	R1	Y	Y	R1	Y	Y	R1									H1	Y	R2	R1	R1	F1	R1	
12	R1	F1	F1		Y	R1												Y	Y		R1	Y	F1	F1	
13	F1	R1	R2	R2	Y																R1	R1	R3	R2	R2
14	R1	R2	F2	R1	Y	Y	Y			R1														R1	
15	R2	R1	R1	R1	Y	Y	R1	R1					Y				Y								
16	R3	R1	R1	R1		H1							Y				R1	H1		Y	Y	Y	F1	F3	
17	F2	F2	F2	R3	R2	Y	Y											R1	R1	R2	Y		F2	F1	
18	F2	R1	R1	R1		Y		Y	R1											R1	Y	R1	R1	FR21	
19	R1	R1	R1	R1		Y		Y												Y	Y	R2	R1	R2	
20	R2	R1	R1		R1		Y	Y																	
21	R2	R2	R1	R1								Y		Y							Y	Y	Y		
22	R1	R2		Y	R1	R1				Y	Y									R1		Y	Y	Y	F1
23	F1	Y	R2	Y		R1		R1	R1		Y		Y							Y	Y	Y	Y	R1	R1
24	F1	R1	FR12	Y	R1	R1		R1															R2	R3	
25		R1	R1	R1	R1	Y																			
26		R2	R1	R1	Y	R1	R1	Y																R1	
27	R1	R3	H1	H1	R1	R1	R1	R1	Y	Y	Y														
28	FR1	FR1	Y	R1		R1	Y	Y	R1	R1	Y									H1	Y	R1	Y	Y	
29	R1	R1	Y	Y	R1	R1		R1										R2		R1		R2	Y	Y	
30	R1	Y								Y															
31					Y	H1		Y				Y		Y	Y							Y	Y	Y	Y
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT																									
MED																									
UQ																									
LQ																									

OCT. 1970

TYPES OF ES

IONOSPHERIC DATA

NOV. 1970

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	MHz to 15 MHz in 30 sec in automatic operation																				
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	F	F	47	57	F	65	75	74	81	83	85	90	95	93	92	92	90	84	78	75	67	67	67	66				
2	68	69	J	F	80	89	96	97	98	96	98	97	98	97	98	J	R	89	J	R	88	91	88	77	67	70	66	67
3	F	F	F	F	56	R	R	R	R	F	63	62	64	63	71	69	72	71	71	62	62	33	R	R				
4	F	R	A	52	A	R	B	F	54	54	58	57	59	57	60	61	64	63	62	57	55	54	54	46	32	F		
5	43	F	39	45	B	R	50	R	R	R	B	B	60	62	62	63	63	61	59	56	56	55	B	B				
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
8	B	B	B	B	B	B	B	B	B	57	58	57	60	68	77	81	R	80	73	69	63	65	67	58	40			
9	50	46	53	B	59	68	72	80	B	B	F	70	74	B	79	80	82	B	B	65	59	47	44	J	F	55	45	
10	39	48	51	54	B	A	B	61	B	B	F	66	F	63	70	B	B	R	74	51	45	52	47	44	F	41		
11	B	B	B	A	B	47	B	B	60	56	B	76	71	78	82	77	F	56	57	51	R	49	50	57	47	F		
12	B	B	B	59	70	55	B	B	63	66	73	65	B	80	80	84	R	56	B	49	F	55	56	51	55			
13	55	59	62	63	63	65	B	B	76	73	B	76	F	78	79	80	81	80	F	58	51	50	45	44	36	43		
14	F	F	R	F	F	54	57	F	71	72	69	76	70	70	65	65	65	68	67	66	J	R	52	43	49	47	F	
15	B	45	F	57	65	F	72	77	85	85	B	B	83	79	78	77	73	70	67	65	65	57	53	44				
16	45	55	58	F	71	75	70	86	90	R	R	83	J	R	B	77	78	B	70	66	60	55	53	43	48	F		
17	53	56	J	55	B	61	66	B	65	66	F	70	B	70	77	76	71	69	66	65	65	67	64	60	62			
18	62	66	F	F	F	67	F	F	105	R	100	93	90	83	80	80	76	75	B	50	55	F	60	52	F	F		
19	F	F	40	A	F	F	R	R	B	B	R	B	R	R	49	B	50	53	B	B	52	53	54	56				
20	58	60	65	64	69	84	84	81	84	86	86	85	80	76	75	75	76	71	71	66	67	63	63	64				
21	62	F	57	J	F	F	F	B	55	F	65	70	J	R	B	J	R	R	R	R	B	R	F	48	F	41	35	
22	A	F	A	F	F	F	R	R	B	F	F	60	59	68	72	75	58	46	R	A	45	A	A	B				
23	B	F	F	B	F	B	A	B	B	B	B	B	B	F	B	F	75	R	F	F	54	49	48	F	F			
24	F	F	A	R	46	46	B	53	57	57	58	59	63	60	63	57	54	F	53	53	46	42	46	A	F	46		
25	R	F	F	F	R	R	R	R	52	F	59	60	62	65	63	62	60	57	53	48	39	R	46	46				
26	47	46	B	F	A	A	R	55	60	67	73	70	64	65	66	65	61	62	55	48	42	F	50	46	41			
27	F	46	50	F	F	57	B	R	59	F	F	69	67	70	72	74	71	71	R	54	54	F	44	41	46			
28	48	F	F	54	57	F	R	65	62	B	B	62	63	62	F	63	65	B	63	55	48	54	54	53	52			
29	48	F	55	60	68	73	72	58	F	69	72	75	76	71	69	65	66	64	62	61	60	60	63	60	57			
30	56	60	63	67	70	80	90	90	93	93	R	R	R	80	B	77	77	73	70	68	66	75	63	61				
31																												
CNT	18	19	18	18	15	19	12	13	20	18	19	22	23	25	26	24	22	25	21	23	28	25	24	24				
MED	50	53	55	59	63	65	72	74	67	66	70	70	70	70	74	75	70	66	65	59	54	54	52	47				
UQ	58	60	63	63	70	72	85	85	84	83	80	76	79	79	80	80	76	71	69	65	64	63	59	56				
LQ	47	46	50	54	57	55	68	58	60	60	63	62	63	65	65	65	61	58	55	50	48	47	46	44				

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FOF2 (0.1 MHz)

IONOSPHERIC DATA

NOV. 1970

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1					L 400	L 380	L 430	L 450	L 500	L 520	L 560	L	L	L	L	L	L							
2					L 400	L 400	L 440	L	L 500	L 570	L	L	B	L	L	L	L							
3					A	A	A	R	A	470	480	R	490	500	L	L	L	L						
4					A	R	B	A	A	450	450	460	B	B	480	470	480	L						
5					B	A	A	A	A	R	B	B	B	B	R	480	L	L						
6					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B					
7					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B					
8					B	B	B	B	B	B	B	B	B	B	L	L	L	B	B					
9					B	B	450	R	B	B	B	B	B	B	B	B	B	B	B	B	L			
10					B	A	B	A	B	B	490	500	510	480	B	B	B	B	R					
11					B	A	B	B	B	B	B	460	B	B	B	B	L	L	L					
12					B	A	B	B	B	470	R	490	B	B	B	B	B	430	B	L				
13					L	B	B	B	470	530	B	B	500	500	500	500	L	450	B					
14				A	350	A	A	470	480	490	R	490	490	500	L	L	L	L						
15					L	390	420	450	460	L	B	B	B	L	L	L	L	L						
16					B	B	L	A	450	450	L	R	L	500	B	R	500	B	R			L		
17					B	B	B	B	A	470	480	R	B	B	500	L	B	L	L					
18					A	A	B	U	460	480	480	500	500	530	510	520	520	500	L	L	L	B	380	
19					A	A	R	A	B	B	R	B	440	460	470	B	460	450	B	B				
20					360	430	430	430	450	480	500	L	500	510	L	L	L	L	L					
21				370	R	400	450	B	470	470	470	B	B	B	B	430	R	430	B	A		L		
22					A	A	A	R	R	B	460	480	470	B	470	B	460	460	400	400	R	A	A	
23					B	370	B	A	B	B	B	B	B	B	450	B	460	460	R	A	B	B		
24					A	350	370	B	A	R	450	R	480	480	470	480	L	L	L	450	400	A	A	
25					A	A	A	A	430	450	R	460	R	480	480	480	480	450	430	L	A			
26					A	A	A	R	R	B	460	R	L	460	480	480	L	460	L	L	L			
27					L	A	A	B	A	450	460	470	480	480	B	B	B	460	450	B	B		L	
28					A	A	A	A	R	B	B	B	460	500	490	480	480	B	470	L	L			
29					L	L	L	410	410	430	460	470	470	480	500	490	500	490	480	L	L			
30					L	L	420	A	450	460	480	480	L	L	500	500	L	L	L					
31																								
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				1	4	8	8	10	12	17	14	13	12	16	11	12	7	9	3	2				
MED				370	355	400	425	445	460	470	480	480	500	490	480	480	460	450	430	390				
UQ				365	415	450	450	470	490	500	490	500	500	500	495	480	450	440						
LQ				350	395	405	430	450	460	470	460	485	470	480	465	460	430	415						

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FOF1 (0.01 MHZ)

IONOSPHERIC DATA

NOV. 1970

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 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	190	225	250	280	300	320	330	335	340	330	305	A	A	A	260	230	200	A	A	A	
2	A	A	B	170	175	210	250	R	B	B	B	330	B	B	325	300	295	280	260	B	A	A	A	B	
3	B	B	175	A	B	A	B	A	A	A	325	330	330	B	315	310	A	280	250	235	210	A	B	A	
4	A	B	B	B	B	B	B	A	A	A	310	320	B	B	B	B	300	280	B	B	200	B	175	A	
5	A	B	B	B	B	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
9	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	260	B	A	B	B	
10	B	B	B	B	B	A	B	A	B	B	B	B	B	B	B	B	B	B	R	B	285	225	A	215	
11	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	260	A	255	210	190	A	
12	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	240	A	A	A	A	
13	A	A	R	220	R	B	B	B	335	330	B	B	B	R	B	B	B	R	B	A	A	B	A	B	
14	B	B	B	A	250	B	A	340	320	B	R	B	B	B	R	330	325	300	280	260	240	A	A	A	
15	B	B	B	A	270	260	270	300	B	R	B	B	B	B	330	A	310	300	280	A	225	180	A	A	
16	A	215	B	B	B	R	A	280	R	B	340	B	R	B	B	A	B	A	A	240	270	260	A	A	
17	A	A	B	B	B	B	B	B	A	R	B	B	B	340	R	B	R	R	250	245	210	180	165	150	
18	B	170	250	B	A	B	B	290	R	340	R	B	A	350	A	315	310	280	B	R	A	A	A	A	
19	A	A	A	A	240	A	R	A	B	B	A	B	340	330	R	B	310	B	B	B	B	175	A	160	
20	155	210	A	240	250	265	270	270	320	B	R	B	330	325	320	A	300	A	A	260	200	B	160	B	
21	R	220	A	250	A	A	B	B	A	325	330	B	B	B	B	R	305	R	B	B	A	260	250	A	
22	A	A	A	A	A	A	A	B	B	320	330	325	B	R	B	B	R	320	320	A	A	A	A	B	
23	B	A	A	B	270	B	B	B	B	B	B	B	B	325	B	B	B	R	270	A	A	A	265	255	
24	A	A	A	A	270	R	B	A	A	R	R	320	R	330	A	B	300	280	270	240	A	A	A	A	
25	A	A	A	230	B	A	A	A	320	R	R	R	R	R	B	B	325	305	R	250	230	B	A	A	B
26	B	B	B	A	B	A	B	300	B	B	325	R	R	330	325	320	A	R	280	220	210	B	B	A	
27	A	A	B	B	B	B	B	A	330	R	335	R	340	B	B	B	315	R	B	B	A	A	220	190	
28	A	A	A	A	A	B	B	A	B	B	B	B	B	R	B	330	B	B	270	240	230	A	B	A	
29	200	205	210	R	240	250	270	A	310	320	330	335	340	330	325	320	300	A	275	240	205	A	200	170	
30	170	180	200	225	230	240	270	280	315	B	340	A	A	R	330	310	A	R	275	R	240	180	A	170	
31																									
00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	3	6	4	6	10	6	6	8	8	6	10	7	6	9	8	9	12	8	15	13	14	8	8	7	
MED	170	208	205	228	245	245	270	285	320	322	330	330	340	330	325	320	305	280	270	240	218	195	195	170	
UQ	185	215	230	240	270	260	270	300	325	330	335	332	340	330	328	325	310	300	278	245	240	242	235	202	
LQ	162	180	188	220	230	225	250	280	312	320	325	322	330	330	318	310	300	280	260	235	205	180	170	165	

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FOE (0.01 MHZ)

IONOSPHERIC DATA

NOV. 1970

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 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 ₁₃ B ₁₅	E ₁₅ B ₁₉	E ₂₁ B ₁₉	E ₁₉	G	G	G	G	G	G	35	J ₄₁ X	44	39	39	34	J ₂₇ X	J ₂₇ X	G	G	G	24	J ₃₂ X	J ₃₅ X	
2	J ₂₈ X	23	E ₁₅ B	G	20	G	G	G	E ₃₁ B	E ₄₀ B	E ₄₇ B	37	E ₆₈ B	E ₄₁ B	35	32	G	35	G	E ₂₈ B	J ₃₄ X	J ₂₇ X	27	E ₁₆ B	
3	E ₁₈ B	E ₂₀ B	26	J ₃₂ X	J ₄₇ X	J ₅₄ X	J ₅₆ X	36	J ₅₄ X	J ₄₄ X	G	G	G	E ₄₁ B	G	33	32	32	31	24	G	32	25	J ₃₀ X	
4	J ₃₂ X	J ₃₈ X	J ₄₀ X	E ₂₅ B	J ₄₃ X	35	B	J ₃₉ X	J ₃₅ X	J ₃₂ X	G	G	E ₅₀ B	E ₅₀ B	E ₃₄ B	E ₃₁ B	G	G	E ₃₀ B	E ₂₅ B	G	E ₁₈ B	G	28	
5	39	J ₃₈ X	J ₃₀ X	J ₄₅ X	B	46	J ₃₇ X	43	J ₄₆ X	J ₄₀ X	B	B	E ₅₀ B	E ₅₁ B	E ₄₀ B	E ₄₀ B	E ₄₁ B	E ₃₉ B	E ₃₁ B	E ₃₄ B	E ₅₃ B	E ₃₁ B	B	B	
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
8	B	B	B	B	B	B	B	B	B	E ₄₈ B	E ₅₀ B	E ₅₁ B	E ₅₀ B	E ₅₁ B	E ₅₁ B	E ₅₁ B	E ₄₂ B	E ₄₄ B	E ₄₀ B	E ₄₄ B	E ₄₇ B	E ₂₈ B	E ₂₈ B	E ₂₁ B	
9	E ₂₁ B	E ₂₄ B	E ₃₁ B	B	E ₄₂ B	E ₄₉ B	E ₃₉ B	E ₃₁ B	B	B	E ₅₀ B	E ₅₀ B	E ₅₁ B	E ₅₁ B	E ₅₂ B	E ₆₉ B	B	B	E ₅₀ B	G	E ₃₀ B	32	28	30	
10	J ₃₀ X	29	26	E ₄₂ B	B	J ₅₅ X	B	J ₃₆ X	B	B	E ₄₃ B	E ₃₈ B	E ₄₁ B	E ₄₁ B	B	B	E ₅₀ B	E ₆₈ B	G	E ₃₁ B	32	G	27	G	
11	B	B	B	J ₈₄ X	B	34	B	B	E ₄₈ B	E ₅₂ B	B	E ₃₉ B	E ₅₂ B	E ₅₃ B	E ₅₀ B	E ₅₁ B	E ₃₁ B	G	G	27	G	G	G	27	
12	B	B	B	E ₄₉ B	E ₅₁ B	35	B	B	E ₄₉ B	E ₄₀ B	E ₄₃ B	E ₄₁ B	B	E ₅₂ B	E ₅₁ B	E ₅₀ B	E ₄₈ B	E ₃₀ B	B	G	25	23	J ₄₀ X	J ₃₁ X	
13	J ₄₆ X	J ₃₁ X	G	G	G	E ₄₇ B	B	B	G	G	B	E ₅₀ B	E ₄₁ B	G	E ₃₈ B	E ₄₄ B	E ₃₂ B	G	E ₄₂ B	31	33	33	J ₃₁ X	J ₃₁ X	
14	J ₃₀ X	31	J ₅₅ X	J ₇₅ X	G	J ₄₁ X	J ₃₉ X	G	G	E ₃₉ B	G	E ₄₁ B	E ₃₉ B	E ₃₉ B	G	G	G	G	G	G	G	35	35	35	
15	B	J ₃₅ X	30	29	G	G	G	G	E ₃₂ B	G	B	B	E ₄₉ B	E ₄₂ B	G	35	G	G	G	32	28	J ₃₄ X	J ₃₁ X	34	
16	29	G	E ₃₀ B	E ₃₉ B	E ₅₂ B	G	35	G	G	E ₄₁ B	38	E ₄₀ B	G	B	41	J ₅₉ X	B	30	J ₃₀ X	G	G	G	J ₃₀ X	J ₃₀ X	
17	J ₃₃ X	J ₄₁ X	45	B	B	E ₅₁ B	E ₅₁ B	B	J ₃₆ X	G	E ₃₉ B	B	E ₅₀ B	G	G	E ₄₉ B	G	G	G	G	23	26	G	G	
18	E ₁₉ B	23	G	J ₃₅ X	J ₃₇ X	E ₄₈ B	E ₃₉ B	G	G	G	G	E ₃₉ B	37	G	36	G	G	34	B	G	30	J ₃₁ X	J ₃₂ X	J ₃₄ X	
19	33	J ₃₁ X	J ₄₁ X	J ₄₈ X	J ₃₀ X	35	G	33	B	B	43	B	G	G	G	B	G	E ₃₀ B	B	B	E ₂₉ B	25	23	G	
20	G	G	24	G	G	34	34	G	G	E ₃₉ B	G	E ₄₁ B	41	35	G	36	34	J ₅₀ X	35	G	G	E ₂₁ B	G	E ₁₈ B	
21	G	G	33	G	J ₃₁ X	35	E ₄₁ B	B	37	G	G	E ₅₁ B	E ₆₈ B	B	E ₄₄ B	G	G	G	B	38	J ₃₀ X	G	G	34	
22	J ₄₂ X	J ₃₂ X	J ₄₁ X	J ₃₅ X	J ₄₉ X	J ₄₃ X	J ₉₁ X	37	B	G	G	G	E ₅₁ B	G	E ₅₂ B	E ₄₀ B	G	G	G	J ₆₃ X	J ₃₀ X	J ₅₅ X	J ₆₅ X	B	
23	B	30	27	B	G	B	J ₅₆ X	B	B	B	B	B	B	G	B	E ₄₀ B	E ₃₇ B	G	33	35	J ₇₂ X	J ₄₇ X	G	J ₅₄ X	
24	31	J ₃₇ X	J ₆₁ X	33	G	G	B	J ₃₅ X	37	G	G	G	G	G	34	E ₃₇ B	G	G	G	G	37	J ₅₇ X	J ₇₅ X	J ₇₃ X	
25	J ₂₉ X	31	30	J ₂₉ X	J ₃₉ X	J ₄₂ X	J ₄₁ X	J ₄₀ X	G	G	G	G	G	E ₄₂ B	E ₃₅ B	G	G	G	G	G	25	J ₃₀ X	33	34	
26	J ₃₇ X	J ₃₈ X	B	J ₅₄ X	J ₅₀ X	J ₄₄ X	36	G	E ₃₇ B	E ₅₂ B	G	G	G	G	G	G	33	G	G	G	G	E ₃₂ B	E ₂₀ B	33	
27	33	30	E ₃₂ B	E ₃₁ B	35	J ₃₇ X	B	35	G	G	G	G	G	E ₅₅ B	E ₅₀ B	E ₄₉ B	G	G	E ₄₈ B	J ₈₄ X	J ₇₂ X	28	G	G	
28	J ₃₂ X	J ₃₄ X	J ₃₁ X	J ₃₁ X	J ₃₁ X	E ₂₉ B	34	35	E ₄₅ B	B	B	E ₄₂ B	E ₄₁ B	G	E ₄₂ B	G	B	E ₃₈ B	G	G	33	E ₄₃ B	24		
29	G	G	G	G	G	G	G	J ₂₉ X	G	G	39	36	G	G	G	35	34	30	G	G	25	J ₂₈ X	G	G	
30	G	G	G	30	G	G	63	33	G	E ₃₈ B	G	J ₃₇ X	37	G	37	36	36	G	G	G	G	J ₂₁ X	J ₃₁ X	G	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	23	25	24	24	23	26	20	21	22	23	22	23	25	26	26	26	25	27	24	27	28	28	27	26	
MED	30	30	U	28	30	E	G	34	U	36	33	E	G	E	G	36	E	G	27	G	G	24	27	28	30
UQ	J	J	J	J	J	J	U	36	36	E	E	E	E	E	E	E	E	U	30	U	29	31	32	J	J
LQ	E	E	E	E	G	G	E	G	G	G	G	G	G	G	G	31	G	G	G	G	G	22	G	E	G

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NOV. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

NOV. 1970

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	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	13	15	21	19	14	18	18	19	19	21	19	21	20	20	26	20	21	19	20	19	15	13	16	15			
2	13	13	15	15	16	15	15	19	31	40	47	32	68	41	21	15	19	18	16	28	18	18	18	16			
3	18	20	13	18	20	20	30	28	29	20	21	20	29	41	22	19	19	18	15	15	10	16	20	20			
4	18	19	29	25	30	29	B	22	26	21	20	21	50	50	34	31	22	20	30	25	14	18	13	11			
5	14	20	19	20	B	21	20	33	30	30	B	B	50	51	40	40	41	39	31	34	53	31	B	B			
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
9	21	24	31	B	42	49	39	31	B	B	50	50	B	51	52	69	B	B	50	22	30	20	20	22			
10	21	20	20	42	B	21	B	22	B	B	43	38	41	41	B	B	50	68	20	31	18	18	19	19			
11	B	B	B	43	B	27	B	B	48	52	B	39	52	53	50	51	31	21	20	18	19	17	16	17			
12	B	B	B	49	51	28	B	B	49	40	43	41	B	52	51	50	48	30	B	19	20	15	14	15			
13	12	14	18	14	22	47	B	B	30	30	B	50	41	31	38	44	32	19	42	24	19	28	19	23			
14	21	22	42	19	21	30	22	24	22	39	30	41	39	39	21	20	20	19	18	13	16	15	18	18			
15	B	18	19	19	18	15	15	16	32	22	B	B	49	42	23	29	25	20	20	20	18	15	15	20			
16	15	19	30	39	52	22	20	21	21	41	32	40	30	B	34	30	B	27	15	13	13	20	15	20			
17	14	15	20	B	B	51	51	B	29	31	39	B	50	31	30	49	20	18	16	15	16	16	14	14			
18	19	14	16	30	20	48	39	19	29	30	30	39	22	20	20	22	18	19	B	19	16	11	15	15			
19	15	12	18	19	15	10	20	20	B	B	28	B	30	30	23	B	23	30	B	B	29	15	15	15			
20	14	18	15	19	16	18	18	18	18	39	34	41	30	22	21	21	20	18	18	21	18	21	15	18			
21	13	15	21	19	23	20	41	B	21	21	21	51	68	B	44	21	18	20	B	33	15	10	15	21			
22	12	12	12	15	14	18	18	30	B	31	31	30	51	28	52	40	20	18	18	20	18	23	15	B			
23	B	20	21	B	20	B	41	B	B	B	B	B	B	22	B	40	37	19	18	20	18	15	18	15			
24	13	18	22	22	20	24	B	22	20	18	20	20	20	24	20	37	18	16	19	15	20	18	15	14			
25	20	14	18	18	28	21	20	20	21	18	21	21	21	42	35	30	21	19	13	14	21	18	14	30			
26	21	19	B	18	29	20	28	20	37	52	28	23	20	23	18	19	27	22	19	13	18	32	20	18			
27	18	18	32	31	28	29	B	21	20	20	21	19	40	55	50	49	22	22	48	41	22	15	18	15			
28	16	22	16	19	22	29	30	28	45	B	B	42	41	21	42	21	B	38	18	18	22	20	43	15			
29	14	15	17	18	18	15	15	18	20	19	21	21	20	23	28	26	28	21	18	16	13	16	14	13			
30	13	17	14	15	18	12	19	18	21	38	21	21	20	25	29	21	21	19	16	16	16	13	11	16			
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	18	18	20	20	22	23	34	23	30	38	33	40	41	41	34	34	24	20	20	20	18	18	16	18			
UQ	21	22	32	43	52	47	B	B	B	52	B	51	52	51	51	50	42	30	48	31	22	21	20	21			
LQ	14	15	17	18	18	18	20	20	21	21	21	21	22	24	23	21	20	19	18	16	16	15	15	15			

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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. + 3h)

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	F	F	280	270	F	250	245	245	260	245	260	250	265	280	270	275	290	300	320	315	310	310	300	290		
2	280	260	F	265	255	250	260	255	250	245	260	250	250	245	R	260	R	275	300	325	330	315	295	285		
3	F	F	F	F	250	R	R	R	R	F	265	245	265	250	280	275	290	290	310	305	305	240	R	R		
4	F	R	A	290	A	R	B	F	260	235	245	240	240	250	250	250	265	290	300	310	300	290	285	250		
5	255	235	F	250	245	B	R	210	R	R	R	B	B	245	235	260	255	270	280	305	285	300	310	B	B	
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
8	B	B	B	B	B	B	B	B	B	245	235	245	235	265	275	290	285	300	320	305	325	315	310	275		
9	300	305	285	B	260	265	255	250	B	B	F	245	B	255	255	350	B	B	290	305	320	295	F	295		
10	255	270	F	260	250	B	A	B	245	B	B	F	275	F	270	245	B	B	R	325	265	255	290	320	F	255
11	B	B	B	A	B	275	B	B	235	255	B	245	230	245	245	265	260	300	315	R	295	320	320	285		
12	B	B	B	255	260	245	B	B	260	255	260	275	B	240	245	260	R	270	B	285	325	320	310	305		
13	290	290	275	255	265	250	B	B	260	255	B	275	260	255	255	260	265	250	280	270	290	300	280	280		
14	F	F	R	265	F	230	245	235	F	255	250	240	255	250	255	260	260	280	290	285	315	R	280	305	285	
15	B	270	F	260	250	250	F	230	240	255	240	B	B	260	255	260	275	275	290	310	305	325	310	290	230	
16	265	275	255	275	265	235	265	245	235	R	R	245	R	B	255	260	B	270	300	300	275	275	300	240		
17	285	250	F	B	B	265	275	B	245	260	255	F	B	260	255	265	270	285	295	290	305	300	310	295	290	
18	290	265	F	280	F	260	255	245	F	250	R	250	260	255	265	265	265	265	265	B	235	325	315	F	305	280
19	F	F	250	A	F	240	R	R	B	B	R	B	R	R	225	B	R	270	B	B	295	300	295	285		
20	290	270	260	250	245	245	245	245	245	245	260	255	265	270	275	280	295	310	305	310	310	310	300	305		
21	295	F	250	F	F	F	F	B	230	F	240	230	R	B	205	R	R	R	B	R	315	F	310	300		
22	A	F	A	F	F	F	R	R	B	F	255	250	245	240	240	240	245	220	R	A	295	A	A	B		
23	B	F	F	B	F	B	A	B	B	B	B	B	B	215	B	F	260	R	F	F	295	295	270	F	F	
24	F	F	A	R	245	225	B	225	235	250	245	235	255	245	280	250	295	285	F	275	260	235	245	A	285	
25	R	F	F	F	R	R	R	R	230	F	240	245	250	255	255	255	270	265	260	310	310	R	320	285		
26	265	270	B	F	A	A	R	235	230	235	245	255	245	255	260	280	285	290	290	270	265	335	325	295		
27	F	280	260	245	F	260	260	B	R	235	250	255	255	255	245	255	270	250	255	R	295	295	260	300	295	
28	270	F	F	260	265	265	R	245	235	B	B	280	265	260	260	270	B	275	275	290	305	300	300	290		
29	290	275	265	265	260	250	245	260	F	230	240	255	255	265	270	260	285	295	280	300	300	300	305	315	300	
30	290	295	295	260	250	255	255	255	255	255	R	R	R	275	275	275	290	300	300	310	315	305	315	310		
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	19	16	17	15	19	12	13	20	18	18	22	21	25	25	24	20	25	21	23	27	25	23	24		
MED	288	275	260	260	260	250	245	245	245	248	255	250	255	255	260	268	278	285	300	305	300	305	300	285		
UQ	290	282	270	265	260	258	258	250	255	255	260	255	265	260	265	275	290	295	305	310	315	315	310	295		
LQ	265	270	258	250	250	245	240	240	235	245	245	245	245	245	255	260	265	270	285	285	295	295	295	280		

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M(3000)F2 (0.01)

IONOSPHERIC DATA

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H¹F₂ (KM)

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

Station	SYOWA BASE				Lat. 69 00.4 S	Long. 39 35.4 E	Sweep	MHz to 15		MHz in 30 sec		in automatic operation												
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						400	425	420	375	400	365	400	L	L	L	L	L							
2					L	340	325	350	350	375	350	350	400	350	340	350	L							
3					A	A	A	R	A	600	410	490	425	495	340	L	290	L						
4					A	R	B	A	480	530	490	490	525	500	475	430	380	340						
5					B	A	R	A	A	R	B	B	490	480	445	425	360	L						
6					B	B	B	B	B	B	B	B	B	B	B	B	B	B						
7					B	B	B	B	B	B	B	B	B	B	B	B	B	B						
8					B	B	B	B	B	B	B	B	500	400	L	L	L	B	250					
9					B	B	375	380	B	B	410	440	B	400	330	B	B	B	B	280				
10					B	A	B	475	B	B	460	350	440	450	B	B	290	B	L					
11					B	A	B	B	510	B	B	450	500	450	415	350	L	330	265					
12					B	475	B	B	450	450	420	420	B	420	405	380	350	400	B	L				
13					380	430	B	B	350	410	B	375	390	380	375	385	350	455	B					
14				375	550	A	520	490	400	400	440	410	440	420	430	L	350	315						
15					375	400	405	400	375	400	B	B	375	400	390	350	L	300						
16				350	350	355	395	405	395	365	370	390	390	B	410	390	B	R			L			
17				B	B	B	B	B	500	440	410	B	400	400	325	340	340	L						
18				310	390	410	325	395	375	350	350	350	375	355	365	370	350	L	B	545				
19					350	520	R	R	B	B	R	B	R	R	650	B	R	440	B	B				
20					400	375	375	390	400	400	375	355	355	365	355	325	300	L	265					
21				440	440	440	475	B	580	445	455	495	B	B	595	R	R	445	B	R		L		
22				A	A	A	R	R	B	650	445	475	B	450	450	445	495	650	R	A	A			
23				B	440	B	A	B	B	B	B	B	B	650	B	500	355	R		300	350	350		
24				R	540	630	B	R	540	485	440	525	450	490	390	L	L	L	425	450	R	A		
25					A	A	A	A	550	480	490	500	475	440	440	440	410	400	450	L	265			
26					A	A	A	560	R	470	410	400	L	440	380	360	355	350	L	L	L			
27				400	A	445	B	R	530	440	400	410	430	440	400	390	425	375	290	A		L		
28				410	425	420	R	460	500	B	B	400	440	440	445	390	B	370	L	L				
29			L	L	380	355	400	440	490	450	395	350	405	390	445	360	350	L	L					
30				L	375	345	350	350	355	350	350	350	350	360	355	L	330	325						
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				6	12	15	12	13	19	20	20	22	20	24	24	18	17	14	5	5	2	1		
MED				388	395	410	398	405	450	440	410	405	428	430	402	382	350	372	290	300	308	350		
UQ				410	440	442	450	460	505	475	442	475	462	450	445	425	360	440	425	450				
LQ				350	378	375	360	390	375	400	372	355	390	395	360	350	340	330	265	280				

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H¹F₂ (KM)

IONOSPHERIC DATA

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H^oF (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	320	300	315	300	280	255	240	250	225	220	225	225	250	240	250	225	230	245	230	245	225	245	250	285			
2	265	260	290	290	260	250	250	225	205	250	B	240	B	250	240	225	220	240	240	240	225	250	240	250			
3	275	290	300	380	A	A	A	A	A	A	200	225	R	290	B	230	245	225	250	255	250	A	A	A			
4	A	A	B	300	B	B	B	A	A	240	200	200	B	B	240	230	240	240	250	265	265	260	290	A			
5	A	A	A	A	B	A	A	B	A	A	B	B	B	B	260	260	B	B	260	300	B	260	B	B			
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	230	B	B	B	B	250	240	260	300		
9	250	265	290	B	B	B	B	235	B	B	B	B	B	B	B	B	B	B	B	B	260	B	350	250	305		
10	A	345	325	B	B	A	B	A	B	B	B	230	255	260	B	B	B	B	R	E	300	340	250	275	340		
11	B	B	B	B	B	A	B	B	B	B	B	250	B	B	B	B	240	260	225	A	240	240	250	300			
12	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	240	B	240	250	250	240	250	255			
13	280	280	300	300	310	B	B	B	240	230	B	B	250	220	240	B	245	250	B	340	350	325	A	A			
14	330	A	A	A	200	A	A	300	240	250	250	280	240	240	250	240	225	240	250	250	290	390	305	350			
15	B	A	A	370	340	275	250	225	225	240	B	B	B	255	240	A	R	240	230	245	250	240	270	A			
16	A	345	340	B	B	300	A	225	225	300	240	225	B	E	250	B	A	A	B	A	240	250	290	340	275	340	
17	320	A	A	B	B	B	B	B	A	240	240	B	B	275	A	B	230	230	240	250	250	250	250	250			
18	270	300	340	A	A	B	E	300	240	270	R	245	240	240	240	235	245	250	B	A	310	240	290	325			
19	350	A	A	A	A	A	R	A	B	B	A	B	280	240	255	B	240	240	B	B	270	275	275	280			
20	290	305	320	350	300	240	240	250	240	250	240	B	240	210	210	200	230	250	225	230	250	250	250	250			
21	255	295	400	360	A	250	B	B	A	240	200	B	B	B	B	R	230	R	B	A	300	A	290	A			
22	A	A	A	A	A	A	300	A	B	A	245	210	B	240	B	E	255	235	250	290	A	A	A	A	B		
23	B	E	A	400	B	A	B	B	B	B	B	B	B	B	230	H	B	E	B	275	R	270	A	B	B	330	400
24	430	400	A	A	300	330	B	A	A	230	225	210	210	250	240	235	205	225	225	250	A	A	A	A			
25	A	300	280	290	A	A	A	A	230	200	215	220	215	B	230	230	230	210	250	240	A	A	300	B			
26	A	A	B	300	A	A	A	250	250	B	240	225	240	210	255	220	215	230	225	225	250	280	240	A			
27	340	350	390	B	A	A	B	A	200	R	E	250	215	210	B	B	B	230	225	B	B	275	A	260	255		
28	A	A	A	A	A	A	A	A	B	B	B	B	240	250	250	240	B	B	250	240	255	260	B	260			
29	280	300	295	300	250	240	235	225	210	205	225	235	225	R	230	225	225	210	230	225	245	250	250	250			
30	265	250	290	290	250	250	225	205	205	240	230	220	250	230	240	240	220	220	220	240	240	250	245	250			
31																											
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	15	16	15	12	9	9	8	11	13	14	16	16	15	17	17	16	21	20	19	20	22	21	22	18			
MED	280	300	315	300	280	250	242	235	225	240	232	225	240	240	240	231	230	240	240	246	250	250	260	282			
UQ	325	335	340	355	300	275	262	250	240	250	241	238	250	250	250	239	240	248	250	255	290	275	290	325			
LQ	268	285	292	295	250	250	238	225	210	230	220	218	232	230	240	225	225	225	228	240	250	250	250	250			

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H^oF (KM)

IONOSPHERIC DATA

NOV. 1970

H^oES (KM)

45° E Mean Time (G. M. T. + 3^h)

Station SYOWA BASE				Lat. 69 00.4 S.	Long. 39 35.4 E	Sweep MHz to 15 MHz in 30 sec in automatic operation																			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	B	B	B	G	G	G	G	G	G	140	100	100	100	100	100	100	100	G	G	G	100	100	100	
2	100	100	B	G	150	G	G	G	B	B	B	130	B	B	100	100	G	110	G	B	110	115	115	B	
3	B	B	140	105	100	100	100	100	100	100	G	G	G	B	G	100	100	105	100	150	G	125	110	120	
4	100	100	105	B	100	130	B	100	140	100	G	G	B	B	B	B	G	G	B	B	G	B	G	125	
5	125	110	120	110	B	105	100	105	110	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
6	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
7	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
8	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
9	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	G	B	105	120	125
10	115	100	100	B	B	105	B	100	B	B	B	B	B	B	B	B	B	B	G	B	150	G	120	G	
11	B	B	B	100	B	120	B	B	B	B	B	B	B	B	B	B	B	G	G	100	G	G	G	105	
12	B	B	B	B	B	115	B	B	B	B	B	B	B	B	B	B	B	B	B	G	125	105	100	100	
13	100	100	G	G	G	B	B	B	G	G	B	B	B	G	B	B	B	G	B	150	125	150	105	125	
14	110	135	130	100	G	100	100	G	G	B	G	B	B	B	G	G	G	G	G	G	G	115	120	115	
15	B	105	115	130	G	G	G	G	B	G	B	B	B	B	G	100	G	G	G	100	130	110	125	120	
16	125	G	B	B	B	G	100	G	G	B	125	B	G	B	100	100	B	100	100	G	G	G	150	110	
17	110	105	120	B	B	B	B	B	100	G	B	B	B	G	G	B	G	G	G	G	130	135	G	G	
18	B	150	G	110	105	B	B	G	G	G	G	B	105	G	100	G	G	115	B	G	130	110	105	125	
19	140	140	105	120	110	105	G	105	B	B	100	B	G	G	G	B	G	B	B	B	B	140	150	G	
20	G	G	125	G	G	120	125	G	G	B	G	B	115	110	G	100	105	100	100	G	G	B	G	B	
21	G	G	140	G	140	110	B	B	110	G	G	B	B	B	B	G	G	G	B	155	130	G	G	140	
22	105	125	105	120	100	105	100	125	B	G	G	G	B	G	B	B	G	G	G	120	155	150	120	B	
23	B	120	110	B	G	B	100	B	B	B	B	B	B	G	B	B	B	G	105	110	170	105	G	170	
24	100	150	100	135	G	G	B	105	100	G	G	G	G	G	100	B	G	G	G	G	120	120	100	125	
25	120	120	125	140	110	100	100	100	G	G	G	G	G	B	B	G	G	G	G	G	150	105	105	150	
26	110	110	B	125	110	100	110	G	B	B	G	G	G	G	G	G	100	G	G	G	G	B	B	115	
27	100	105	B	B	110	100	B	100	G	G	G	G	G	B	B	B	G	G	B	125	125	105	G	G	
28	115	110	100	100	105	B	110	100	B	B	B	B	B	G	B	G	B	B	G	G	125	B	140		
29	G	G	G	G	G	G	G	100	G	G	100	100	G	G	G	100	100	100	G	G	100	100	G	G	
30	G	G	G	115	G	G	100	100	G	B	G	100	100	G	105	100	100	G	G	G	100	100	G	G	
31																									
CNT	15	17	15	13	11	14	11	12	6	3	4	4	4	2	6	8	6	7	4	8	14	19	16	17	
MED	110	110	115	115	110	105	100	100	105	100	112	100	102	105	100	100	100	100	100	122	130	110	112	125	
UQ	118	125	125	125	110	115	105	105	110	105	132	115	110		100	100	100	108	102	150	150	125	120	125	
LQ	100	105	105	105	102	100	100	100	100	100	100	100	100		100	100	100	100	100	105	125	105	102	115	

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NOV. 1970

H^oES (KM)

IONOSPHERIC DATA

NOV. 1970

TYPES OF ES

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

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

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

NOV. 1970

TYPES OF ES

IONOSPHERIC DATA

DEC. 1970

FOF2 (0.1 MHz)

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

Station SYOWA BASE Lat. 69° 00' 45" S Long. 39° 35' 4" E Sweep MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	51	63	67	71	J ₇₅	J ₉₀	95	Y ₁₀₄	107	93	R	A	91	92	90	R	75	73	71	69	63	63	85	65	
2	68	72	73	80	F ₈₀	R	95	U ₁₀₅	U ₁₀₆	R	90	88	86	82	79	77	70	65	63	62	70	64	60	F ₅₅	
3	45	F ₅₅	F	66	B	R	F ₅₈	65	75	78	78	80	80	76	70	66	61	63	63	63	63	64	65	63	
4	62	F ₆₀	F ₅₇	54	60	70	F	88	93	92	90	90	85	80	79	75	70	70	69	65	65	65	65	55	
5	45	F ₆₀	B	B	F	F	R	R	56	56	F ₆₇	F ₆₃	73	F ₇₀	F ₇₂	67	67	65	63	60	64	60	60	63	
6	67	68	70	F ₇₂	67	F ₆₆	R	71	F ₇₆	F	F	77	B	R	85	F	75	63	R	B	50	48	50	46	
7	B	F	F ₅₀	58	60	53	64	F	62	74	F	63	70	70	69	67	70	71	69	49	50	53	55	43	
8	F ₅₂	F ₅₀	F ₅₀	R	F	J ₄₇	B	B	R	B	55	B	B	65	B	71	F ₆₀	B	54	47	55	52	F ₄₃	R	
9	R	B	57	F ₆₀	F ₅₄	B	60	F ₇₀	69	71	78	75	70	68	71	B	R	63	61	64	58	60	59	61	
10	55	F ₅₇	F ₅₉	F ₆₀	F ₆₀	F	F	F ₇₇	80	85	85	85	83	80	80	77	71	69	66	65	62	60	60	55	
11	57	F ₅₆	F ₅₅	F ₆₁	F ₇₅	F ₇₄	82	90	R	92	91	90	86	82	78	72	70	U ₆₈	67	67	64	66	68	65	
12	66	70	78	86	89	91	91	F ₈₆	F ₇₇	F	F	100	99	95	85	80	77	72	77	73	70	69	64	51	
13	F ₅₂	56	56	62	64	56	F	J ₇₂	81	80	76	70	71	70	64	61	62	61	62	63	61	57	58	59	
14	59	58	58	53	60	B	R	B	B	B	B	R	B	B	B	55	F	50	56	51	F ₅₅	R	F	47	
15	R	47	R	R	48	B	B	R	B	B	B	R	B	B	J ₆₄	B	F	56	53	52	52	49	49	52	
16	49	44	F ₅₅	49	53	51	F ₅₁	R	A	53	58	56	58	57	55	56	61	60	61	57	56	55	43	54	
17	54	56	F ₅₃	B	59	63	F	F ₇₇	74	75	74	65	64	62	64	65	66	64	61	60	65	61	61	60	
18	60	60	63	67	F ₇₆	87	91	96	97	100	U ₁₀₂	B	B	B	80	71	69	71	70	J ₇₂	72	71	68	61	59
19	60	F ₇₀	F ₆₃	65	B	F ₇₈	83	F	J ₉₂	82	84	82	R	B	B	62	F ₅₉	60	F ₆₃	63	61	59	54	49	
20	55	B	B	55	B	58	66	69	68	64	70	70	B	73	81	F	F	71	R	70	63	61	55	F ₅₁	
21	F	F ₅₆	57	57	63	57	54	57	F ₆₂	63	64	67	68	64	63	64	63	64	65	66	62	65	62	65	
22	60	F ₄₃	F	57	F ₅₆	59	56	A	R	A	R	57	60	60	F ₅₉	60	61	65	63	65	66	58	54	F ₅₀	
23	F ₄₆	47	53	49	F	F ₅₈	B	50	F ₅₄	F	F	F	67	65	61	63	63	58	61	60	52	54	50	54	
24	62	60	60	B	53	R	B	B	B	R	R	R	R	R	B	B	52	53	59	53	53	55	51	40	
25	R	B	45	R	R	F ₄₈	55	59	62	63	60	60	A	60	R	52	54	A	59	66	57	58	52	50	
26	33	36	46	R	43	50	52	59	55	B	B	B	B	B	B	56	59	62	65	65	65	62	50	50	
27	F ₅₀	48	F ₅₀	F ₅₀	54	J ₅₆	53	55	F ₆₂	F ₆₃	61	F ₆₂	60	64	59	59	62	74	73	56	45	50	46	R	
28	F ₄₂	A	B	F	F ₅₃	42	B	R	R	R	R	R	R	R	56	58	60	58	F	B	46	F	A	44	
29	A	43	39	F ₄₈	R	J ₄₇	R	50	R	B	55	J ₅₃	51	B	52	51	52	56	55	53	50	45	52	R	
30	R	41	A	43	50	A	R	B	R	R	R	F	58	U ₅₆	54	59	58	55	53	53	45	44	48	47	
31	45	50	51	62	F ₆₀	F ₆₉	F ₇₂	77	79	79	69	67	A	67	67	66	63	61	60	60	59	59	58	56	
CNT	24	26	24	23	23	22	17	20	21	18	19	21	19	23	25	25	27	29	28	29	31	29	29	28	
MED	54	56	57	60	60	58	64	72	75	76	74	70	70	70	69	64	63	63	63	63	61	59	55	54	
UQ	60	60	62	66	66	70	83	87	81	85	84	82	84	80	79	69	70	69	66	65	64	63	61	60	
LQ	48	47	50	54	54	51	55	59	62	63	62	63	62	64	61	59	60	60	60	56	52	54	50	50	

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DEC. 1970

FOF2 (0.1 MHz)

IONOSPHERIC DATA

DEC. 1970

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 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				350	L	L	430	470	460	480	510	A	A	A	500	L	L	470	L					
2				L	L	R	450	460	470	A	480	500	490	510	510	L	L	L	L					
3				A	B	A	430	450	460	480	480	480 ^R	490	500	500	L	L	470	L	L				
4					430	450	440	450	470	500	500	500	500	510	500	L	L	L	L					
5						370	A	A	A	450	500	500	B	520	510	520	500	480						
6				L	L	R	B	450	490	480	500	500	B	B	510	B	500	470	440	B	A	350		
7			A	A	400	A	450	460 ^B	450 ^R	490	500	B	R	R	500	A	480	480	L					
8				A	370	B	B	B	A	B	R	B	B	B	B	B	480	B						
9				A	B	B	A	A	A	B	B	500	500	500	490	B	B	B	B					
10				L	L	L	450	R	470	R	500	500	530	510	520	520	530	L	L	L				
11			L	L	400	420	R	470	A	490	R	480 ^R	500 ^{UR}	520 ^H	520	520	520	L	L					
12				L	L	L	470	480	480	500	500	510	530 ^B	510	490	520	500	L	L					
13				A	A	430	R	R	460	470	490 ^R	500	490	500	490	500	490	L	L					
14				B	B	B	A	B	B	B	B	A	B	B	B	R	450	R	L	420				
15				A	370	B	B	R	B	B	B	450	B	B	490	B	470	450	450	450				
16				A	A	A	A	A	A	460	B	470	R	460	490	480	B	480	L	L				
17				B	A	390	430	440	440	460	460	480	460	A	500	490	490	L	L	L	L			
18			L	350	410	440	450	470	480	500	490	B	B	A	A	L	500	L	L	L	L			
19					B	420	450	460	460	480	500	490	B	B	B	510	A	L	L	L				
20				A	B	A	410	450	470	R	470	470	B	B	500	500	480	480						
21				A	A	R	A	440	450	470	470	R	490	490	490	490	L	450	L	L				
22				A	400	R	A	A	A	A	450	480	480	R	L	480	500	450	L					
23				L	L	410	B	R	440	450	460	470	470	480	480	490	480	R	440	L				
24				B	B	R	B	B	B	R	460	440	450	450	B	B	470	450	L		L			
25				R	A	390	400	410	440	R	460	460	A	UR	470	470	460	450	A	L	L	L		
26			L	390	R	R	R	UR	400	440	B	B	B	B	B	A	A	450	L	L	L			
27				350	A	A	R	B	450	470	470	450 ^R	R	R	L	460	460	460	450	420				
28					A	A	B	A	R	R	450	460	450	450	450	460	B	L	B	A				
29				A	A	R	R	A	A	B	480	B	B	B	460	450	450	450	L	L	L			
30				A	A	A	R	B	A	R	R	470	480	R	B	470	460	450	L	330				
31			L	L	400	L	UL	420	430	R	460	480	480	A	A	500	490	L	A	A	L			
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT				4	8	9	13	16	18	17	23	23	15	15	24	18	21	15	4	3	1	1		
MED				350	400	420	440	450	460	480	480	480	490	500	500	490	480	460	445	420	330	350		
UQ				370	405	430	450	465	470	490	500	500	500	510	500	510	500	475	450	435				
LQ				350	385	390	430	440	450	460	465	470	475	475	490	470	460	450	440	420				

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DEC. 1970

FOF1 (0.01 MHz)

IONOSPHERIC DATA

DEC. 1970

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 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	170	A	180	A	250	275	320	325	330	335	325	335	330	325	R	R	R	A	A	A	A	170
2	175	180	185	195	240	B	A	R	310	325	330	A	A	R	325	325	310	300	295	260	230	220	190	B
3	B	B	A	B	B	B	A	A	R	330	335	R	350	A	325	320	B	R	280	260	230	180	A	B
4	A	A	B	B	220	240	R	290	300	330	340	R	345	B	B	R	325	300	R	240	235	200	A	A
5	A	B	B	B	A	A	B	A	A	A	A	R	340	B	B	B	325	A	300	280	260	B	B	B
6	B	A	A	A	240	R	B	A	A	320	R	R	B	B	335	B	B	B	R	B	A	A	A	B
7	B	B	A	210	225	A	290	A	A	R	R	B	R	A	R	335	330	300	B	A	A	A	B	B
8	B	A	A	A	A	B	B	B	A	B	A	B	B	B	B	B	B	B	310	260	240	A	B	B
9	B	B	B	B	B	B	B	A	A	B	B	B	340	R	R	B	B	B	B	B	230	225	B	B
10	A	A	A	A	240	R	290	295	320	340	345	R	330	R	A	340	315	305	280	260	R	B	190	B
11	A	R	B	180	225	280	290	A	A	320	A	R	340	350	A	325	R	A	A	250	245	225	A	180
12	A	A	190	230	240	250	B	A	320	345	350	350	350	A	B	R	A	305	300	270	A	A	A	A
13	A	A	A	A	A	A	290	A	R	320	330	340	350	B	335	330	B	305	R	275	B	B	B	B
14	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	330	325	305	280	250	220	B	A	A
15	B	A	A	A	270	B	B	A	B	B	B	R	B	B	B	B	B	320	B	290	A	250	230	A
16	A	A	A	A	A	A	A	B	A	A	B	B	R	R	330	R	B	R	305	R	230	225	190	220
17	175	230	B	B	B	A	270	275	A	325	330	340	345	R	325	R	320	R	R	B	B	230	B	B
18	190	A	200	A	210	225	230	A	R	R	330	B	B	B	B	B	B	310	290	A	270	A	A	A
19	210	A	A	A	B	R	R	R	315	325	A	330	B	B	B	R	A	A	300	R	250	225	180	B
20	B	B	B	A	B	A	280	290	315	320	R	B	B	B	B	B	330	B	B	B	A	250	A	A
21	A	A	A	A	A	A	A	A	A	340	330	R	B	320	330	B	B	B	B	B	270	240	R	B
22	A	B	A	A	280	R	A	A	A	A	320	R	330	B	335	325	R	B	B	270	225	A	180	A
23	A	A	A	A	A	280	B	A	310	315	320	325	320	330	325	300	A	R	275	260	B	A	220	B
24	A	200	210	B	B	A	B	B	B	A	A	340	B	B	B	B	A	R	B	B	B	B	B	B
25	B	B	A	A	A	300	R	310	R	320	300	325	330	310	B	R	320	300	R	A	R	235	210	200
26	205	B	B	255	R	290	300	320	A	B	B	B	B	B	B	B	B	B	B	B	230	A	B	B
27	175	A	A	200	220	240	A	A	330	325	350	R	R	B	R	B	A	R	B	260	270	A	A	B
28	B	B	B	B	A	A	B	A	A	A	R	330	R	R	B	B	310	B	R	B	B	250	A	B
29	A	A	A	A	A	A	A	A	A	B	325	B	B	B	B	R	B	310	300	295	225	A	A	B
30	B	A	A	A	A	B	A	B	A	A	340	R	B	R	B	325	310	300	280	240	A	195	A	A
31	A	A	R	B	240	R	R	R	B	305	300	305	A	A	320	A	A	A	A	A	250	205	A	A
CNT	6	3	5	6	13	8	9	7	9	17	17	11	12	6	11	12	10	13	13	16	16	15	8	4
MED	182	200	190	205	240	265	290	290	315	325	330	335	340	325	330	325	320	305	290	260	232	225	190	190
UQ	205	215	200	230	240	285	290	302	320	330	340	340	348	335	332	330	325	305	300	270	250	238	215	210
LQ	175	190	185	195	220	240	270	282	310	320	325	328	330	320	325	325	310	300	280	255	230	212	185	175

DEC. 1970

FOE (0.01 MHZ)

IONOSPHERIC DATA

DEC. 1970

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 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 ₃₇	J ₂₇	26	23	24	J ₃₀	30	36	G	G	J ₃₇	J ₇₂	J ₅₀	J ₅₆	39	G	G	G	G	J ₃₀	J ₃₂	J ₂₈	J ₂₇	G	
2	G	G	G	22	33	E ₃₀	J ₃₂	G	G	J ₅₆	38	J ₄₆	J ₃₇	G	G	G	G	35	G	G	32	G	G	J ₃₀	
3	J ₂₇	30	24	31	B	36	34	35	G	G	G	G	G	36	G	G	E ₃₄	G	G	30	G	23	19	E ₂₀	
4	23	J ₃₀	J ₃₅	J ₃₄	25	G	G	33	G	G	G	37	38	E ₄₃	E ₃₉	G	G	G	G	G	J ₃₂	J ₄₂	J ₄₈	J ₂₉	
5	J ₅₇	J ₇₁	B	B	J ₃₆	28	J ₄₁	J ₅₆	J ₄₄	J ₃₅	J ₃₆	G	E ₅₁	E ₄₂	E ₄₀	G	33	G	G	G	E ₄₂	E ₃₀	25	23	
6	J ₂₉	J ₆₂	J ₃₁	23	27	J ₃₆	E ₅₂	32	32	G	G	G	B	E ₅₁	J ₄₀	E ₅₀	E ₃₈	E ₃₀	G	B	36	J ₃₈	31	E ₃₉	
7	B	J ₃₀	26	J ₂₇	33	J ₄₅	G	J ₄₃	36	G	G	E ₅₄	G	40	G	J ₅₈	G	G	E ₂₉	33	31	J ₃₅	J ₃₈	J ₅₁	
8	42	J ₈₃	J ₁₁₁	J ₃₁	J ₃₀	E ₄₃	B	B	J ₄₂	B	35	B	B	E ₅₂	B	E ₅₈	E ₃₇	B	G	34	J ₅₀	J ₃₄	26	36	
9	J ₃₃	B	35	J ₃₃	E ₅₀	B	35	J ₃₆	J ₃₉	E ₅₁	E ₅₁	E ₄₁	42	45	E ₄₂	B	E ₄₈	E ₄₈	E ₄₈	E ₃₀	26	23	23	E ₂₁	
10	J ₂₈	26	J ₂₉	J ₃₁	G	G	G	37	35	G	37	G	G	G	J ₃₄	38	G	G	31	G	E ₂₃	22	J ₂₅		
11	J ₂₇	30	23	24	25	G	G	J ₅₅	J ₅₀	G	37	G	39	G	38	G	G	J ₃₄	33	27	G	24	J ₃₁	24	
12	J ₂₂	J ₂₁	23	24	27	30	E ₃₂	J ₃₂	G	G	G	G	44	40	E ₃₂	G	33	G	41	39	32	J ₃₈	34	23	
13	23	31	J ₃₀	J ₄₀	J ₃₇	J ₃₉	35	J ₃₃	J ₄₂	G	G	G	G	40	G	G	E ₃₇	G	G	G	E ₃₁	E ₅₁	E ₃₂	E ₃₀	
14	E ₂₃	E ₃₂	35	E ₄₂	E ₄₉	B	43	B	B	B	B	E ₄₇	B	B	B	38	G	35	36	33	35	J ₂₆	J ₅₁	42	
15	35	J ₃₂	35	J ₂₉	G	B	B	J ₃₂	B	B	B	B	B	B	E ₄₀	B	E ₄₂	G	E ₃₀	G	31	31	27	30	
16	32	J ₃₀	J ₃₂	J ₃₁	35	J ₃₁	44	J ₃₈	J ₇₂	J ₃₅	E ₅₀	E ₄₂	G	G	G	G	E ₄₈	35	G	G	G	G	G	G	
17	21	G	J ₂₉	B	36	35	28	J ₄₈	32	G	G	37	39	J ₄₇	G	G	G	G	G	E ₃₀	E ₂₈	24	23	E ₂₀	
18	G	22	G	24	J ₃₀	33	J ₃₁	30	G	G	G	B	B	J ₅₆	J ₅₆	43	E ₃₇	41	36	34	G	J ₂₇	J ₂₇	27	
19	G	J ₅₃	32	30	B	G	G	G	G	G	35	G	E ₅₂	B	B	G	J ₄₉	33	G	G	G	G	21	J ₂₆	
20	E ₄₈	B	B	J ₃₀	B	48	G	G	G	G	G	E ₄₀	B	E ₅₁	E ₄₁	E ₄₁	G	42	J ₄₇	36	34	34	J ₃₀	31	
21	33	J ₈₅	J ₄₈	J ₃₆	J ₃₆	35	44	37	35	G	G	G	E ₄₃	G	G	E ₃₇	E ₃₅	E ₃₃	E ₃₂	E ₂₉	G	G	G	E ₂₂	
22	J ₃₀	J ₂₈	34	J ₃₉	J ₃₈	35	J ₄₁	J ₅₅	J ₄₀	J ₅₅	G	G	G	E ₃₅	G	G	G	E ₃₄	E ₃₀	J ₄₇	J ₅₅	34	24	30	
23	J ₃₇	J ₄₀	J ₇₁	J ₃₁	31	G	B	33	35	G	G	G	36	G	G	G	31	G	G	G	E ₃₀	J ₃₀	J ₂₉	23	
24	J ₃₀	23	G	B	E ₄₅	34	B	B	B	J ₃₇	J ₃₃	G	E ₄₁	E ₄₀	B	B	36	G	E ₃₀	E ₃₉	E ₃₀	J ₇₅	E ₃₀	E ₂₇	
25	E ₂₁	B	J ₂₇	J ₃₃	G	G	G	G	37	G	G	G	J ₅₇	41	36	G	39	J ₅₄	36	32	G	G	G	23	
26	G	E ₂₁	J ₃₈	33	G	G	G	G	D	B	B	B	B	B	B	44	42	E ₄₁	35	E ₃₀	26	26	E ₂₈	E ₂₂	
27	J ₀₇	27	24	23	J ₃₂	J ₄₇	J ₃₇	J ₃₉	G	G	G	G	G	E ₄₀	G	E ₃₄	33	G	E ₃₀	G	G	J ₂₇	J ₃₁	35	
28	J ₇₀	J ₄₇	B	J ₃₄	35	34	B	36	35	36	G	G	G	G	E ₄₂	E ₃₃	G	E ₅₁	G	B	J ₇₄	G	J ₃₀	J ₂₄	
29	J ₀₄	J ₄₈	J ₆₄	J ₂₈	42	30	32	J ₃₇	J ₃₉	B	39	E ₅₂	E ₄₈	B	E ₄₂	G	E ₃₂	G	G	33	28	25	43	38	
30	43	J ₆₄	J ₀₂	J ₃₇	J ₃₀	J ₃₉	34	B	45	36	G	G	E ₄₀	G	E ₅₂	G	G	G	G	G	J ₃₁	24	25	20	
31	29	30	G	E ₃₁	G	G	G	G	E ₄₉	G	34	38	J ₈₂	J ₄₉	G	J ₄₉	J ₅₁	J ₆₉	J ₄₇	J ₃₁	G	G	J ₆₀	33	
	00	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	28	28	28	28	28	26	27	28	26	28	28	24	26	26	28	31	30	31	29	31	31	31	31	
MED	30	J ₃₀	30	J ₃₀	31	31	31	35	35	G	G	G	E ₃₉	E ₄₀	E ₃₅	G	E ₃₃	E ₃₀	E ₂₉	E ₃₀	U ₂₈	26	26	24	
UQ	J ₃₇	J ₄₈	J ₃₅	J ₃₄	36	36	36	J ₃₈	J ₄₂	35	36	E ₄₀	U ₄₂	U ₄₄	E ₄₀	E ₄₀	E ₃₈	34	33	33	32	J ₃₃	J ₃₂	31	
LQ	23	26	24	25	26	G	G	31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	23	23	22

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DEC. 1970

FOES (0.1 MHz)

IONOSPHERIC DATA

DEC. 1970

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	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	13	13	13	14	15	14	15	20	15	20	21	29	21	20	21	20	21	18	12	15	16	13	13	
2		16	13	15	15	16	30	11	20	16	19	20	33	23	22	21	19	16	19	19	20	20	18	15	20
3		20	20	16	20	B	29	18	19	20	21	20	20	28	26	23	22	34	13	19	18	17	15	16	20
4		16	12	19	20	18	13	15	20	16	18	19	20	22	43	39	19	19	19	20	20	19	19	16	12
5		15	23	B	B	22	15	28	20	22	22	29	24	51	42	40	30	28	20	18	13	42	30	20	22
6		20	20	19	18	18	20	52	23	19	19	19	22	B	51	23	50	38	30	20	B	20	18	19	39
7		B	19	15	14	20	22	26	26	31	28	21	54	31	31	20	20	18	23	29	22	19	15	20	19
8		20	18	18	20	16	43	B	B	30	B	27	B	B	52	B	58	37	B	30	19	19	15	22	29
9		28	B	22	29	50	B	30	21	30	51	51	41	29	24	42	B	48	48	48	30	19	19	20	21
10		16	16	16	15	21	16	19	16	18	16	18	21	21	20	21	21	23	16	18	19	23	23	18	19
11		16	20	18	13	20	18	13	15	18	20	21	22	23	21	20	19	20	21	18	16	16	15	18	15
12		13	13	16	16	16	16	32	20	20	20	18	19	21	19	32	29	22	20	26	18	20	20	20	19
13		18	20	21	21	20	22	20	23	27	29	21	22	21	35	22	23	37	20	20	20	31	51	32	30
14		23	32	30	42	49	B	30	B	B	B	B	47	B	B	B	23	21	23	21	20	20	23	19	18
15		20	18	21	20	20	B	B	21	B	B	B	23	B	B	40	B	42	20	30	20	18	18	18	17
16		20	20	20	20	20	21	21	30	12	22	50	42	23	21	21	23	48	22	23	19	18	20	17	18
17		16	16	22	B	28	21	18	18	19	18	19	20	21	20	21	21	20	19	22	30	28	18	19	20
18		17	16	14	14	16	20	16	21	20	21	30	B	B	42	42	34	37	19	21	18	20	15	20	18
19		19	23	21	21	B	20	18	20	18	18	22	22	52	B	B	29	25	18	22	22	19	18	13	20
20		48	B	B	20	B	21	18	21	20	21	23	40	B	51	41	41	31	32	39	29	22	20	18	16
21		20	18	19	17	20	21	19	19	21	19	20	21	43	18	21	37	35	33	32	29	20	20	20	22
22		12	22	18	20	16	22	21	21	23	20	16	18	23	35	19	19	31	34	30	22	16	18	16	15
23		15	18	16	19	22	18	B	20	19	20	20	19	16	18	18	21	26	22	19	18	30	21	15	19
24		13	18	14	B	45	23	B	B	B	23	21	20	41	40	B	B	27	22	30	39	30	43	30	27
25		21	B	23	22	21	20	21	21	21	22	21	21	21	21	31	21	31	20	21	20	22	22	19	18
26		16	21	20	20	18	20	21	20	21	B	B	B	B	B	B	42	32	41	30	30	20	21	28	22
27		16	18	17	18	20	21	20	28	26	21	20	21	30	40	21	34	22	23	30	22	18	18	16	28
28		20	30	B	23	23	22	B	31	28	28	25	23	29	23	42	33	29	51	19	B	30	22	18	25
29		16	16	18	21	21	22	29	21	20	B	20	52	48	B	42	23	32	23	29	20	22	21	21	23
30		20	16	20	20	19	31	22	B	23	22	20	20	40	31	52	22	19	16	20	18	16	18	15	16
31		18	18	21	31	20	20	20	22	49	29	20	22	31	22	23	22	19	18	16	15	18	17	12	17
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
MED	18	18	19	20	20	21	21	21	21	21	21	21	22	30	31	31	23	28	21	21	20	20	19	18	19
UQ	20	22	21	22	22	22	30	24	28	28	26	40	52	47	42	36	34	26	30	26	22	21	20	22	
LQ	16	16	16	18	18	20	18	20	19	20	20	20	23	21	21	21	20	19	19	18	18	18	16	18	

DEC. 1970

F-MIN (0.1 MHZ)

The Radio Research Laboratories, Japan

IONOSPHERIC DATA

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	295	285	Z	Z	F	F	255	R	250	250	R	A	260	265	270	R	280	290	295	295	305	305	235	290			
2	290	280	265	250	250	R	255	U	U	R	R	255	255	265	260	265	285	275	290	300	280	310	315	285	305		
3	295	275	F	F	B	R	210	250	255	255	245	250	255	265	265	280	280	285	285	305	315	310	310	300			
4	290	270	F	F	260	245	F	250	265	250	250	250	260	265	280	280	265	275	305	295	305	325	310	295			
5	270	300	B	B	F	F	R	R	240	225	255	240	230	255	280	245	280	290	300	280	315	315	300	285			
6	285	285	275	Z	255	250	R	255	255	F	F	245	B	R	250	F	280	255	R	B	300	310	300	305			
7	B	F	270	275	255	245	235	F	240	245	F	265	245	270	245	240	250	250	250	265	295	270	290	260			
8	240	235	230	R	F	F	B	B	R	B	220	B	B	240	B	245	240	B	295	320	295	305	255	R			
9	R	B	265	245	245	B	220	255	230	240	245	265	245	250	245	B	R	255	260	295	295	300	305	310			
10	290	280	270	F	265	F	F	235	250	245	245	250	240	250	255	260	255	285	265	285	305	285	295	275			
11	300	285	270	Z	255	230	245	245	R	250	245	245	255	250	260	265	280	U	U	R	290	285	300	290	305	310	290
12	290	275	265	255	270	255	240	235	245	F	F	250	240	255	245	255	260	250	275	290	300	295	285	295			
13	290	275	270	250	250	255	F	F	240	250	250	235	255	245	265	250	270	265	280	290	310	275	290	290			
14	285	295	280	245	250	B	R	B	B	B	B	R	B	B	B	225	F	210	270	245	290	R	F	285			
15	R	245	R	R	220	B	B	R	B	B	B	R	B	B	R	B	F	240	240	255	325	325	285	325			
16	305	275	265	245	245	230	245	R	A	220	230	235	240	260	235	245	250	265	280	290	280	310	280	295			
17	290	290	290	B	245	250	F	235	235	245	255	245	250	245	250	255	265	265	275	285	300	295	305	290			
18	270	280	275	260	245	240	255	260	245	260	U	B	B	275	275	250	270	275	R	290	310	310	310	305			
19	285	285	285	270	B	235	240	F	R	260	250	255	R	B	B	275	F	275	285	300	310	320	295	265			
20	265	B	B	280	B	240	245	235	235	240	235	235	B	245	240	F	F	270	R	290	300	310	285	270			
21	F	270	265	230	255	260	240	245	250	250	245	255	250	250	255	265	255	285	285	290	325	310	305	305			
22	285	255	F	270	250	265	265	A	R	A	R	240	260	260	255	260	250	285	270	295	305	290	295	285			
23	295	285	265	245	F	260	B	220	235	F	F	F	F	260	270	260	245	255	240	255	280	325	320	305	280		
24	295	285	270	B	270	R	B	B	B	R	R	R	R	R	R	B	B	235	245	270	285	300	300	300	260		
25	R	B	270	R	R	230	260	245	245	245	255	255	A	285	R	275	250	A	295	240	295	325	325	300			
26	310	280	265	R	245	240	245	255	270	B	B	B	B	B	B	255	275	275	275	295	295	325	320	300			
27	285	290	280	260	250	F	255	240	240	245	255	245	260	280	290	270	260	260	275	285	335	300	315	R			
28	290	A	B	F	265	220	B	R	R	R	R	R	R	R	R	265	260	250	265	F	B	285	F	A	275		
29	A	250	235	255	R	R	R	230	R	B	230	R	240	B	255	235	245	270	300	285	300	310	270	R			
30	R	285	A	280	240	A	R	B	R	R	R	F	260	U	U	B	245	275	285	280	310	290	300	295	335	340	
31	285	265	260	290	265	250	250	260	260	260	260	265	A	270	260	290	280	295	285	305	305	295	305	305			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	24	26	24	23	22	18	17	18	20	18	19	20	19	23	24	25	27	29	27	29	31	29	29	28			
MED	290	280	270	260	250	245	245	245	245	248	250	250	255	260	258	260	265	270	280	290	300	310	300	292			
UQ	295	285	275	270	260	255	255	255	255	250	255	255	260	270	265	275	278	285	295	295	310	315	310	305			
LQ	285	270	265	250	245	235	240	235	240	245	245	242	242	250	248	245	250	255	270	285	295	295	285	282			

The Radio Research Laboratories, Japan

DEC. 1970

M(3000)F2 (0.01)

IONOSPHERIC DATA

DEC. 1970

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 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				370	345	360	350	375	350	350	385	A	340	350	350	350	300	320	L					
2				L	390	390	375	360	350	350	355	370	350	380	560	345	L	L	L					
3				340	B	R	570	440	390	375	400	400	400	400	400	380	L	340	L	L				
4					420	410	390	350	340	360	370	370	365	390	345	350	395	L	L					
5						450	R	A	A	600	445	550	450	410	375	420	390	365						
6				345	390	R	480	410	390	350	405	430	B	400	385	355	340	410	R	B	330	310		
7			340	350	400	A	440	550	500	440	450	470	450	400	450	500	430	420	400					
8				A	570	550	B	B	A	B	R	B	B	500	B	B	510	B						
9				A	B	B	A	400	500	450	430	395	450	475	450	B	L	440	B					
10				360	L	L	440	440	405	405	395	400	420	425	410	395	420	350	390	340				
11			355	L	400	425	430	400	385	400	390	400	395	400	400	365	365	330	330					
12				L	350	340	425	390	400	400	385	365	390	390	360	400	390	440	L					
13				450	440	500	450	450	425	390	425	480	425	450	390	490	410	L	350					
14				B	425	B	R	B	B	B	B	R	B	B	B	R	690	680	400	510				
15				R	600	B	B	R	B	B	B	R	B	B	535	B	450	530	530	460				
16				A	500	A	A	A	A	650	B	555	530	490	590	540	455	405	355	L				
17				B	455	425	450	445	440	400	400	460	450	500	455	445	400	L	L	L	305			
18			L	350	400	390	350	350	360	350	330	B	B	375	365	L	390	345	L	L	260			
19					B	400	395	440	375	365	395	380	410	B	B	390	A	390	340	310				
20				350	B	500	455	440	490	495	450	495	B	490	415	390	375	365						
21				500	405	460	540	500	440	450	455	R	425	480	450	410	L	355	345	L				
22				395	450	420	455	A	R	A	R	520	440	430	300	430	455	350	380					
23				L	390	390	B	600	510	450	400	455	400	400	410	450	415	490	405	350				
24				B	440	R	B	B	B	R	R	R	R	R	B	B	L	510	L		320			
25				R	R	600	450	475	405	450	510	450	A	370	490	450	500	A	350	355	L			
26			365	R	R	480	500	430	425	B	B	B	B	B	B	500	380	360	350	315	295			
27				410	A	A	R	B	490	440	425	460	500	390	L	405	440	395	325	355				
28					450	R	B	R	R	R	R	R	R	R	R	470	450	450	430	390	B	A		
29					425	R	500	500	A	A	B	550	B	B	B	R	600	550	440	335	370	L		
30					A	A	A	R	B	R	R	R	590	450	R	B	395	400	L		355	340		
31				400	350	400	390	385	400	385	365	400	400	A	375	405	350	355	A	A	295			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			4	13	20	19	20	20	21	22	22	21	19	23	23	25	25	23	16	11	6	1		
MED			360	360	412	425	445	435	405	400	400	450	425	400	410	405	410	395	352	355	312	310		
UQ			382	410	450	490	468	448	440	450	445	480	450	462	452	450	450	440	395	362	330			
LQ			348	350	395	390	392	395	385	365	390	400	398	390	380	380	390	352	342	328	295			

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DEC. 1970

H^oF2 (KM)

IONOSPHERIC DATA

DEC. 1970

H'F (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	300	300	260	A	A	245	220	240	240	A	A	A	A	230	250	230	230	220	240	250	250	250	255	
2	270	275	275	250	255	260	240	215	205	A	A	210	200	210	220	240	250	220	210	250	250	240	250	A	
3	A	350	285	A	B	B	250	275	220	200	200	225 ^R	225	210 ^H	230	225	220	220	230	230	250	250	245	250	
4	260	305	A	A	290	250	210	230	200	225	200	A	200	250	240 ^B	230	200	220	205	245	275	245	270	260	
5	A	A	B	B	A	A	A	A	A	A	A	260	265	B	230	225	250	230	225	225	240	260	270	260	290
6	275	A	290	300	250	A	B	210	210	200	210	200	B	B	240 ^A	B	240	255	290	B	A	250	275	B	
7	B	A	A	A	A	A	R	240	A	225	250	B	240	A	240	A	210	250	245	265	280	340	A	A	
8	510	A	510	A	290	B	B	B	A	B	A	B	B	B	B	B	260	B	240	250	A	290	A	A	
9	A	B	A	A	B	B	B	A	A	B	B	230	240	A	240	B	B	B	B	240	250	255	255	255	
10	250	250	310	A	290 ^R	250	225	A	225	255	240	230	220	230	230	240	210	215	225	240	240	250	275	330	
11	295	320	305	280	250	250	240	240	A	230	A	225	205	230 ^H	225	225	230	A	230	240	240	250	255	245	
12	250	255	270	275	260	245	240	240	200	200	200	210	240 ^A	240	240	225	240	240	270	260	250	260	290	270	
13	290	350	390	A	A	A	A	A	225	250	245	225	225	245	240	220	240	240	240	250	260 ^B	B	280	280	
14	260	290	A	B	B	B	A	B	B	B	A	B	B	B	B	A	245	A	A	295	260	A	A	A	
15	A	460	A	A	310	B	B	A	B	B	B	240	B	B	240	B	B	250	260	275	290	290	280	260	
16	300	350	390	A	A	A	A	A	A	255	B	250	R	230	230	225	B	240	250	230	250	280	250	275	
17	265	305	310	B	A	310 ^A	250	230	205	245	240	240	230	240	210	250	240	240	240	240	255	250	255	260	
18	290	250	275	250	250	240	205	200	230	220	230 ^B	B	B	B	B	A	240	A	A	240	240	250	245	250	
19	290	280	300	330	B	250	220	200	240	230	210	250	B	B	B	250	A	220	230	240	250	250	255	350 ^A	
20	B	B	B	A	B	A	230	225	225	R	R	B	B	B	B	250 ^B	240	250 ^A	350 ^A	250 ^A	260	290	285	325	
21	360 ^A	A	A	A	A	A	A	A	A	250	205	R	B	250	245	240	245	250	250	250	250	250	250	255	
22	300	B	390	A	290	A	A	A	A	A	200	210 ^H	270	240	210	235	250	225	280 ^A	305	275	245	250	290	
23	350 ^A	A	A	A	A	200	B	A	240	200 ^H	220	205	225	210	200	205	200	200	230	250	250	250	250	260	
24	260	255	250	B	B	A	B	B	B	A	260	230	280	250 ^B	B	B	230	250	245	B	300 ^E	A	280	B	
25	200	B	400 ^A	A	A	280	245	215	245	205	205 ^H	245	A	A	225	200 ^H	290 ^E	A	240 ^A	225	245	245	250	280	
26	290	280	200	310	200	230	270	255	275 ^A	B	B	B	B	B	B	B	A	B	A	240 ^B	230	250	240	255	
27	290	300 ^A	300	325	A	230	A	A	240	220	200	225	R	230	240	230	205	260 ^E	230	250	230	300	300	B	
28	290	B	B	A	A	A	B	A	R	A	200	280	220	250 ^E	B	230	225	B	240	B	B	R	A	350 ^A	
29	A	A	A	A	A	A	A	A	A	B	260	B	B	B	270 ^E	240	240	250	280	310	245	255	A	A	
30	A	330 ^A	A	A	A	B	250	B	A	A	200	240	240	230	B	200	200	240	230	230	A	250	260	250	
31	300	330	A	290	280	240	230	225	B	235	200 ^H	240	A	A	240	240	A	A	A	250 ^A	245	240	250	250	
CNT	22	19	18	10	12	13	15	15	16	18	21	21	15	17	22	22	25	22	26	28	27	27	26	23	
MED	290	300	300	285	270	250	240	225	225	225	210	230	225	230	232	232	235	240	240	248	250	250	255	260	
UQ	300	330	390	310	290	250	248	240	240	240	240	240	240	242	240	240	240	250	250	250	260	265	275	285	
LQ	260	278	275	260	250	240	228	215	208	205	200	225	220	230	225	225	220	220	230	240	245	250	250	255	

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DEC. 1970

H'F (KM)

IONOSPHERIC DATA

DEC. 1970

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

DEC. 1970

H^oES (KM)

IONOSPHERIC DATA

DEC. 1970

TYPES OF E5

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

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

Hour Day	00 01 02 03				04 05 06 07				08 09 10 11				12 13 14 15				16 17 18 19				20 21 22 23				
	1	h	t	H	t	f	t	f	f			f	f	f	f					h	h	h	h		
2				H	t		t			f	f	t	t				f			f			R		
3	R	R	t	R		t	R	R				t	t					H		f	t				
4	t	t	R	R	f			f			H	f								f	f	h	t		
5	t	t			R	R	t	t	R	t	t					t						t	t		
6	t	h	t	R	H	H		t	t					f					R	R	R	R			
7		t	R	R	R	t		R	t				t		f				R	R	R	R	t		
8	R	t	t	R	R				t		t								H	h	R	R	t		
9	R		t	t			t	t	t			H	H							H	f	t			
10	h	t	t	t			f	H	H					t	f			H				R	R		
11	t	f	R	f	H			t	h		t		f		t			h	t	H		f	h	f	
12	t	f	R	R	f	f		R	t				f	t			t		f	f	f	f	t	R	
13	t	R	R	t	R	R	H	t	t					t											
14			t				t								H			H	H	H	f	R	t	R	
15	R	t	t	R				t													R	R	R	R	
16	R	R	R	R	R	t	t	R	t	R									H						
17	H		R		R	R	f	f	t			H	f	f							H	f			
18		R		R	f	f	f	t						t	t	t			f	f	t		h	t	t
19		h	t	R							t						t	t					H	t	
20				t		R												t	t	t	t	H	t	R	
21	R	t	t	t	R	t	R	R	R																
22	R	R	R	R	R	H	t	t	t	R										h	h	t	H	R	
23	R	h	h	R	R			t	f				H				t					t	f	t	
24	h	t				t				R	R									f			t		
25			t	t	R				H				f	f	t			f	f	f	t			f	
26			t	f				H	R							t		f		t		f	t		
27	t	R	R	f	h	f	R	t												t		R	R	t	
28	t	t		R	t	t		t	t													t	t	t	
29	t	t	t	R	R	R	t	R	R		f								H	f	t	R	R		
30	R	t	t	t	R	R	R		R	t											R	R	R	t	
31	R	R										f	f	h	h			t	t	h	h	t		h	t

DEC. 1970

TYPES OF E5

IONOSPHERIC DATA

JAN. 1971

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 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	59	60	64	F	F	B	55	67	72	70	76	70	70	70	69	68	65	60	59	62	64	50	45	F	48
2	F 52	55	57	F 60	R	R	55	R	R	B	65	65	F 66	R	R	66	60	63	56	44	45	51	50	F 45	
3	44	46	B	46	B	F	B	B	B	50	55	B	B	B	B	70	B	B	47	49	54	50	A	A	
4	B	47	A	R	R	R	A	R	54	B	B	B	B	60	66	70	67	66	48	R	48	49	43	44	
5	46	46	R	B	B	R	53	F 62	F	75	77	80	78	77	79	70	68	72	73	66	F 56	B	47	50	
6	50	F 54	45	50	B	62	U 74	82	85	81	82	80	71	72	66	64	60	61	60	60	60	57	48	44	
7	51	F 50	F 57	F 63	70	80	88	93	91	86	84	81	82	77	74	71	71	71	68	61	63	65	66	63	
8	58	62	72	72	J 74	R	F	94	105	100	93	91	85	79	B	B	B	C	C	C	C	C	C	C	
9	C	C	C	C	C	C	C	107	U 106	J 111	U 108	U 104	97	84	78	77	75	72	65	67	70	68	60	57	
10	61	65	F	F	F	F	82	86	R 93	J 93	92	89	80	73	73	70	69	70	66	62	60	60	51	45	
11	41	R	F	58	58	U 61	F 64	F	73	F	72	72	67	64	63	63	71	70	68	56	47	52	48	52	
12	51	F 53	B	53	65	56	R	F	76	81	86	77	73	66	63	64	62	61	57	55	55	57	53	52	
13	54	60	F	60	64	65	71	79	91	95	94	R	78	71	R	69	J 65	69	81	68	68	61	56	57	
14	57	50	44	48	57	51	F 59	F 60	55	57	63	68	72	R	B	78	B	60	R	E 44	47	51	48	49	
15	51	47	43	50	F 57	F 60	F 53	62	60	55	55	B	61	59	67	F	B	B	50	J 49	53	48	46	52	
16	35	45	B	F	F 53	52	F 61	F 60	65	69	72	70	81	B	B	89	F	75	F 66	64	63	57	56	52	
17	49	F	F	F 60	F 65	F	F 75	F 78	85	F	Z 85	78	78	70	70	73	70	65	66	59	50	57	53	55	
18	41	45	R	B	48	53	R	60	F	J 73	C	C	C	C	73	C	C	78	66	60	58	R	45	46	
19	F 41	F 34	A	43	F	R	44	48	53	F 60	59	60	59	60	63	65	63	63	60	58	F 50	48	48	45	
20	F 43	B	B	R	43	R	F	R	B	A	B	B	B	B	B	60	60	B	52	43	49	F 47	40	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
23	C	C	C	C	C	C	C	C	C	C	F 54	F 54	55	59	60	58	55	54	55	52	48	42	36	44	
24	42	43	47	45	F	F	B	R	51	53	61	53	53	58	62	58	B	60	60	54	51	51	34	R	
25	B	43	42	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	J 102	B	B	B	B	B	B	B	B	B	
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	A	A	
29	B	A	B	B	B	59	B	B	B	B	B	B	B	C	C	B	B	B	49	R	48	B	B	R	
30	35	43	42	B	43	A	B	B	B	B	52	51	48	B	60	R	R	70	49	52	50	F 43	A	A	
31	47	A	A	41	U 55	R	47	58	U 59	62	65	B	B	B	R	63	60	59	56	54	57	R	37	A	
CNT	21	19	10	14	13	10	14	15	16	17	21	17	19	16	17	20	16	20	23	22	24	20	21	18	
MED	49	47	46	52	57	60	60	67	72	73	72	72	72	70	67	68	65	66	60	57	54	51	48	50	
UQ	52	54	57	60	65	62	F 74	84	88	86	85	80	79	75	73	70	70	70	66	62	60	57	53	52	
LQ	42	45	43	46	53	53	53	60	56	60	61	65	64	60	63	64	60	60	54	52	48	48	45	45	

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JAN. 1971

FOF2 (0.1 MHZ)

IONOSPHERIC DATA

JAN. 1971

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1			L	R	L	B	B	L	480	480	480	530	490	480	500	500	480	L	L	L		L		
2					A	A	A	A	A	B	R	480	480	B	B	B	470	450	L	L				
3			B	A	B	L	B	B	B	460	R	B	B	B	B	480	B	B	430					
4				A	A	B	A	A	B	B	B	B	B	B	480	500	460	450	L					
5				B	B	A	A		440	460	470	480	480	B	B	480	470	470	470	L	L			
6				A	B	B		430	430	450	460	R	480	480	R	500	520	L	L	L		L		
7			330	L	430	410	420	440	450	L	490	L	500	500	500	530	460							
8				L	L	400	L	450	450	470	R	R	L	L	B	B	B	C	C	C				
9			C	C	C	C	C	460	L	500	A	500	500	500	500	500	L		L					
10				L	L	400	420	440	460	450	470	480	500	500	490	L	A	L	L	L	L			
11				A	A	R		410	400	R	450	450	460	480	490	L	470	L	L	L	420	L		
12			B	A	L	R		400	410	440	450	460	480	480	L	480	470	470	L	L	L			
13				L	L	A	A		470	470	470	490	500	500	B	L	L	A	A	L				
14		L	290	A	A	A	H	410	430	440	480	470	490	470	B	B	B	B	L	R	440	L		
15			300	350	350	360	A	440	450	A	450	B	480	450	480	450	B	B		R				
16					A	A	R		450	470	480	B	B	B	B	R	L	B	450	L	L			
17			340	R	B	400	440	450	470	460	480	490	480	A	B	480	470	480	L	L	L			
18				B	A	A	A	A	450	450	C	C	C	C	C	C	C	440	440		L			
19				A	L	R		390	A	A	430	450	450	470	470	480	470	490	450	450	L	370		
20					A	350	350	A	B	A	B	B	B	B	B	B	B	B	410	390	R			
21				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
22				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
23				C	C	C	C	C	C	C	440	450	460	460	450	460	450	L	L					
24				B	B	L	B	A	A	A	440	450	450	450	450	470	B	B	B					
25				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
26			B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
27				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
28				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
29				B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	L	R	B		
30				B	L	A	B	B	B	B	450	450	450	B	B	B	B	L	L					
31				A	A	A	A	A	R	A	470	B	B	B	B	470	450	B	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			4	1	2	6	9	11	13	15	16	15	16	10	12	15	10	6	5	3	1			
MED			315	350	390	400	410	440	450	460	470	480	480	485	480	470	470	450	440	420	370			
UQ			335			400	420	445	460	470	480	490	495	500	500	500	470	470	450	430				
LQ			295			360	400	430	450	450	450	455	470	460	480	470	460	450	430	405				

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JAN. 1971

FOF1 (0.01 MHz)

IONOSPHERIC DATA

JAN. 1971

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 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	A	A	B	B	360	365	R	335	340	R	335	R	R	R	300	B	260	260	260	A	B	
2	A	225	250	295	A	A	A	A	A	B	340	350	345	B	B	B	B	295	R	B	225	225	A	A	
3	A	A	B	A	B	A	B	B	B	R	R	B	B	B	B	B	B	B	R	270	R	A	A	B	
4	B	295	B	B	A	B	A	A	B	B	B	B	B	B	R	R	310	B	300	B	260	A	245	225	
5	280	B	B	B	B	B	A	A	B	B	B	B	B	B	320	330	A	A	295	B	275	B	225	215	
6	A	270	A	A	B	B	325	320	R	330	340	340	B	335	330	325	320	305	275	265	250	230	215	200	
7	A	200	A	A	225	A	275	290	305	R	315	325	R	B	B	R	A	A	A	A	A	A	A	195	A
8	180	185	190	A	230	250	280	A	310	325	340	340	B	B	B	B	B	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	290	325	B	B	A	R	R	B	325	310	A	A	A	255	220	200	175	
10	A	180	185	210	225	245	275	290	A	330	340	330	330	320	A	315	300	A	280	250	B	A	185	B	
11	A	B	A	A	A	A	R	280	300	R	B	R	B	R	330	325	315	B	280	260	250	230	200	180	
12	190	225	B	A	280	300	325	300	335	340	R	350	R	330	R	330	R	300	280	270	225	A	A	B	
13	A	A	A	210	230	A	280	B	A	310	320	330	340	330	B	A	A	A	A	R	225	A	A	A	
14	A	A	A	A	A	A	335	335	340	B	330	R	A	B	B	B	B	B	B	250	230	B	220	195	
15	A	270	250	A	220	275	A	350	365	A	R	B	B	B	B	310	B	B	270	A	265	250	250	A	
16	A	270	B	A	250	A	310	A	300	310	320	B	B	B	B	B	330	B	315	B	245	A	A	B	
17	A	A	A	320	B	280	A	A	A	R	320	B	330	R	B	320	310	280	275	240	225	220	215	A	
18	180	A	A	B	A	A	A	A	310	300	C	C	C	325	B	C	C	280	B	290	260	A	A	A	
19	A	A	A	240	215	A	280	A	A	R	330	340	345	340	325	310	305	A	280	275	A	B	225	A	
20	240	B	B	A	A	A	285	A	B	A	B	B	B	B	B	B	B	B	B	B	A	230	A	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
24	A	A	A	B	A	A	B	A	A	A	330	325	R	330	325	B	B	B	B	B	230	200	A	A	
25	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
29	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	B	B	B	A
30	A	A	A	B	A	A	B	B	B	B	330	325	320	B	B	B	B	B	B	260	A	230	A	A	
31	A	B	A	A	A	B	B	A	A	B	325	B	B	B	B	B	A	B	B	B	B	B	A	A	
CNT	5	9	4	5	8	5	10	9	10	7	15	12	7	9	6	10	8	7	11	12	16	11	11	6	
MED	190	225	220	240	228	275	282	300	318	325	330	340	340	330	325	322	310	295	280	260	248	230	215	198	
UQ	240	270	250	295	240	280	325	335	340	330	340	345	345	335	330	325	318	300	288	270	260	230	225	215	
LQ	180	200	188	210	222	250	280	290	305	310	322	328	330	330	325	310	308	280	275	252	225	222	200	180	

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JAN. 1971

FOE (0.01 MHZ)

IONOSPHERIC DATA

JAN. 1971

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 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 ₂₈ X	23	E ₂₃ B	26	30	B	E ₄₈ B	G	G	G	36	G	G	G	G	G	G	E ₄₀ B	G	G	G	J ₂₆ X	25		
2	23	G	G	G	J ₄₇ X	J ₄₇ X	J ₄₈ X	51	J ₄₇ X	B	42	G	G	E ₅₁ B	E ₅₀ B	E ₅₁ B	E ₃₈ B	G	G	E ₃₀ B	J ₂₇ X	27	40	33	
3	36	J ₄₉ X	B	J ₇₂ X	B	32	B	B	B	G	G	B	B	B	E ₄₁ B	B	B	G	G	G	J ₇₂ X	J ₈₂ X	38		
4	B	35	J ₅₁ X	J ₃₈ X	35	E ₄₁ B	J ₅₄ X	J ₄₇ X	E ₄₈ B	B	B	B	B	E ₅₂ B	G	G	G	E ₃₀ B	G	E ₄₂ B	G	32	G	G	
5	35	36	39	B	B	J ₄₇ X	J ₄₁ X	40	E ₃₃ B	E ₃₄ B	E ₄₁ B	E ₄₅ B	E ₆₄ B	E ₅₃ B	G	G	36	31	G	E ₃₁ B	G	B	G	G	
6	27	32	36	J ₃₈ X	B	E ₄₂ B	G	G	G	G	G	G	E ₄₃ B	G	G	36	G	G	G	G	G	G	G	G	
7	J ₃₀ X	G	J ₃₁ X	22	32	33	36	G	G	G	G	J ₄₃ X	G	E ₄₂ B	E ₃₉ B	G	33	35	39	J ₈₅ X	J ₅₅ X	J ₃₀ X	23	J ₅₆ X	
8	G	G	G	J ₂₆ X	G	G	G	J ₃₁ X	G	G	G	G	E ₄₄ B	E ₄₃ B	B	B	B	C	C	C	C	C	C	C	
9	C	C	C	C	C	C	C	G	G	E ₄₁ B	J ₄₇ X	J ₃₉ X	G	G	E ₃₇ B	36	37	38	35	J ₂₉ X	G	G	G	G	
10	J ₂₅ X	G	G	G	30	G	G	G	34	G	G	G	38	J ₅₇ X	39	J ₄₄ X	J ₇₄ X	J ₃₈ X	30	27	J ₃₅ X	J ₈₆ X	30	J ₄₄ X	
11	32	J ₃₉ X	J ₄₁ X	40	35	J ₂₉ X	G	G	G	E ₄₃ B	G	E ₃₉ B	G	G	G	G	G	E ₃₂ B	G	G	G	G	G	G	
12	22	G	B	J ₃₄ X	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	J ₂₈ X	J ₂₇ X	J ₂₉ X	E ₁₉ B	
13	18	J ₃₁ X	J ₃₇ X	G	G	29	J ₃₄ X	37	34	34	37	37	37	37	E ₄₈ B	33	J ₃₇ X	J ₆₄ X	J ₅₀ X	31	28	25	J ₂₇ X	25	
14	31	26	J ₂₉ X	48	51	J ₅₀ X	G	G	39	E ₃₇ B	G	G	35	E ₅₉ B	B	E ₄₉ B	B	E ₃₁ B	J ₄₀ X	G	28	E ₃₉ B	G	G	
15	J ₄₆ X	G	G	J ₂₇ X	23	G	44	G	G	J ₃₉ X	G	B	E ₄₀ B	E ₃₄ B	E ₃₉ B	G	B	B	34	J ₃₁ X	34	G	32	J ₄₅ X	
16	31	J ₆₃ X	B	J ₄₁ X	35	37	37	40	G	G	G	E ₅₁ B	E ₅₂ B	B	B	E ₄₃ B	G	E ₅₂ B	G	E ₃₀ B	35	J ₃₅ X	J ₅₅ X	34	
17	J ₃₂ X	J ₃₀ X	36	G	E ₄₈ B	34	34	J ₃₅ X	36	G	G	E ₄₂ B	37	J ₅₀ X	E ₅₀ B	J ₅₇ X	G	G	G	29	28	27	27	J ₃₇ X	
18	26	J ₃₁ X	50	B	J ₃₁ X	J ₃₈ X	45	J ₄₀ X	G	J ₄₂ X	C	C	C	37	36	C	C	C	E ₃₀ B	34	31	34	J ₃₄ X	J ₂₉ X	
19	J ₃₇ X	J ₇₃ X	J ₇₅ X	G	G	J ₂₇ X	32	38	J ₃₅ X	G	G	G	G	G	37	J ₄₆ X	J ₃₆ X	32	G	G	36	E ₂₉ B	G	J ₃₂ X	
20	G	B	J ₁₀₂ X	37	39	36	36	35	B	J ₄₈ X	B	B	B	B	B	E ₅₁ B	E ₅₁ B	B	E ₃₀ B	E ₃₀ B	35	28	27	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	C	G	G	G	42	G	33	G	G	G	29	G	G	24	J ₂₈ X
24	J ₃₁ X	32	J ₃₀ X	E ₃₂ B	J ₄₄ X	33	B	J ₃₈ X	J ₃₇ X	J ₃₆ X	G	34	35	G	G	E ₃₆ B	B	E ₅₀ B	E ₄₃ B	E ₃₁ B	G	G	25	36	
25	B	J ₃₂ X	31	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E ₆₉ B	B	B	B	B	B	B	B	B	B
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	E ₃₀ B	J ₇₂ X	J ₉₀ X
29	B	J ₅₀ X	B	B	B	E ₄₅ B	B	B	B	B	B	B	B	C	C	B	B	B	E ₃₁ B	E ₂₉ B	E ₃₄ B	B	B	34	
30	35	J ₄₆ X	J ₄₉ X	B	33	J ₃₈ X	B	B	B	B	G	G	G	B	E ₃₈ B	E ₅₃ B	E ₅₁ B	E ₃₃ B	E ₃₀ B	32	33	G	J ₃₁ X	44	
31	J ₃₆ X	J ₃₄ X	J ₃₀ X	J ₃₁ X	30	J ₃₄ X	J ₃₄ X	J ₃₆ X	35	41	G	B	B	B	E ₅₀ B	E ₃₇ B	31	E ₄₈ B	E ₂₈ B	E ₄₈ B	E ₃₀ B	35	J ₂₆ X	44	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	21	23	20	19	19	22	19	21	20	20	21	18	19	19	20	22	18	20	24	24	24	23	24	24	
MED	31	32	34	U ₂₉	32	33	34	35	E ₃₃ G	G	G	G	E ₃₅ G	E ₃₇ G	E ₃₇ G	E ₃₆ G	E ₃₂ G	E ₃₂ G	E ₃₀ G	E ₃₀ G	28	26	26	32	
UQ	35	J ₃₈ X	J ₄₅ X	J ₃₈ X	36	U ₃₉	40	38	36	36	E ₃₈ G	E ₃₉ G	E ₄₀ B	E ₅₀ B	E ₄₄ B	E ₄₆ B	36	U ₃₅	U ₃₂	E ₃₁ B	34	32	J ₃₂ X	40	
LQ	25	E ₂₃ G	26	E ₂₂ G	26	29	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E ₁₉ G	

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JAN. 1971

FOES (0.1 MHz)

IONOSPHERIC DATA

JAN. 1971

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	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	18	18	23	19	21	B	48	20	20	21	20	21	29	20	21	21	21	22	40	20	18	20	18	20	
2	16	16	18	18	25	23	31	28	30	B	21	20	22	51	50	51	38	20	21	30	18	18	16	18	
3	18	20	B	23	B	20	B	B	B	30	31	B	B	B	B	41	B	B	19	23	16	29	23	29	
4	B	19	31	30	20	41	29	29	48	B	B	B	B	52	22	17	24	30	20	42	20	18	16	18	
5	18	31	28	B	B	31	23	20	33	34	41	45	64	53	22	21	19	20	22	31	19	B	17	19	
6	18	14	22	23	B	42	20	18	19	23	30	23	43	33	30	31	22	21	18	16	18	15	15	17	
7	16	16	17	16	14	13	16	18	16	20	21	21	22	42	39	31	26	26	28	26	18	18	15	16	
8	12	12	15	15	18	20	15	18	18	19	20	23	44	43	B	B	B	C	C	C	C	C	C	C	
9	C	C	C	C	C	C	C	C	20	21	41	40	31	31	30	37	22	30	20	20	18	18	16	16	16
10	15	12	13	16	18	16	16	16	18	20	17	20	20	20	21	19	19	20	23	20	28	22	16	21	
11	18	25	20	21	20	18	15	15	16	18	43	30	39	32	29	21	23	32	18	18	21	19	18	15	
12	17	16	B	20	21	19	23	20	21	20	28	20	28	21	21	21	20	18	19	21	17	18	18	19	
13	12	13	13	16	15	18	22	30	20	21	21	21	30	30	48	20	21	20	20	20	21	20	16	16	
14	15	19	16	16	18	19	18	20	26	37	20	20	20	59	B	49	B	31	33	17	22	39	19	16	
15	14	18	18	13	20	18	20	18	21	21	30	B	40	34	39	20	B	B	22	16	16	18	18	17	
16	21	19	B	23	20	20	20	20	20	20	20	51	52	B	B	43	31	52	28	30	21	20	20	23	
17	18	15	18	21	48	22	18	20	20	23	25	42	21	21	50	22	18	23	19	18	19	20	18	16	
18	12	16	23	B	20	20	22	23	19	20	C	C	C	18	33	C	C	21	30	25	23	20	17	20	
19	12	18	16	18	10	21	18	20	20	21	20	20	19	20	20	22	24	21	18	18	18	29	18	18	
20	20	B	49	25	20	18	18	12	B	23	B	B	B	B	B	51	51	B	30	30	18	18	20	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
23	C	C	C	C	C	C	C	C	C	C	C	22	29	30	21	29	21	22	21	19	20	14	18	17	12
24	15	18	16	32	18	21	B	18	23	19	20	20	22	30	20	36	B	50	43	31	21	18	12	20	
25	B	21	22	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	69	B	B	B	B	B	B	B	B	B	
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	30	41	29	
29	B	31	B	B	B	45	B	B	B	B	B	B	B	C	C	B	B	B	31	29	34	B	B	22	
30	21	19	20	B	22	28	B	B	B	B	30	29	18	B	38	53	51	33	30	12	20	19	18	18	
31	20	22	26	21	21	28	29	23	23	29	25	B	B	B	50	37	22	45	29	49	30	32	18	21	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	27	27	27	27	27	27	27	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	27	
MED	18	19	22	23	21	21	23	20	22	23	29	30	40	42	39	34	30	30	26	24	20	20	18	19	
UQ	21	24	D B 49	B	B	42	B	D B 30	B	B	D B 43	B	B	B	B	52	B	B	32	31	26	31	20	22	
LQ	15	16	18	18	19	19	18	18	20	20	20	21	22	26	26	21	22	21	20	18	18	18	16	16	

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F-MIN (0.1 MHZ)

IONOSPHERIC DATA

JAN. 1971

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	295	285	275	F	F	B	245	255	260	270	270	260	265	270	275	280	290	300	305	315	330	300	310	315 ^F
2	325 ^F	290	285	265 ^F	R	R	240	R	R	B	255	255	240 ^F	R	R	275	285	265	270	330	295	295	320	290 ^F
3	300	265	B	250	B	F	B	B	B	240	255	B	B	B	B	235	B	B	230	315	350	305	A	A
4	B	300	A	R	R	R	A	R	235	B	B	B	B	250	290	260	260	270	310	R	335	295	325	285
5	260	285	R	B	B	R	245	250 ^F	F	255	240	250	250	245	270	275	255	265	285	305	305 ^F	B	280	305
6	300	280 ^F	245	260	B	245	240 ^{UF}	250	255	245	250	255	255	280	275	265	275	290	270	290	295	315	335	320
7	315	285 ^F	260 ^F	285 ^F	245	265	250	270	275	260	275	260	260	270	275	270	285	295	320	310	310	315	325	320
8	305	275	290	265	F	R	F	255	260	265	270	265	270	255	B	B	B	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	270	205 ^{UR}	R	270	205 ^{UR}	290	275	275	285	295	290	310	310	315	335	335	300
10	310	295	F	F	F	F	255	255	R	R	260	280	265	265	265	270	270	280	305	305	315	320	305	295
11	295	R	F	260	265	250 ^{UF}	250 ^F	F	245	F	260	265	280	280	265	260	285	285	305	280	300	345	300	310
12	295	300 ^F	B	290	220	255	R	F	245	250	260	260	265	275	270	280	280	300	305	290	315	330	315	300
13	295	315	F	270	275	275	240	265	260	255	255	R	270	295	R	280	R	295	270	310	325	345	320	295
14	270	260	240	240	255	235	250 ^F	265 ^F	245	255	255	255	265	R	B	280	B	270	R	G	320	335	335	305
15	295	290	255	240	245	255	250 ^F	245	260	245	240	B	245	230	255	F	B	B	320	R	300	355	345	345
16	265	260	B	F	265	250	260 ^F	260 ^F	270	250	250	245	260	B	B	260	F	275	275 ^F	310	310	325	305	310
17	265	F	F	250 ^F	220 ^F	F	255 ^F	255 ^F	255 ^F	F	260 ^F	255	275	250	270	280	285	265	265	300	320	335	300	345
18	295	305	R	B	250	245	R	255 ^F	F	270 ^{JF}	C	C	C	C	265	C	C	C	C	C	C	R	C	C
19	C	C	A	C	F	R	C	C	C	C	C	C	C	C	C	C	335	C	C	C	C	C	C	C
20	C	B	B	R	C	R	F	R	B	A	B	B	B	B	C	C	C	B	280	C	R	315 ^F	300	C
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	C	C	C	C	C	C	C	C	C	C	F	250 ^F	270	270	290	270	290	300	295	300	300	285	290	295
24	290	255	285	260	F	F	B	R	235	245	260	265	230	260	275	250	B	270	290	315	295	315	290	R
25	B	290	245	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	B	B	B	B
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	A	A
29	B	A	B	B	B	250	B	B	B	B	B	B	B	C	C	B	B	B	305	R	280	B	B	R
30	255	280	260	B	260	A	B	B	B	B	245	240	220	B	230	R	R	305	285	295	320	285 ^F	A	A
31	270	A	A	245	285 ^{UR}	R	220	245	335 ^{UR}	250	260	B	B	B	R	280	285	270	300	285	315	R	295	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	19	18	10	13	11	10	13	14	15	14	20	16	18	15	15	18	14	18	21	18	21	19	19	16
MED	295	285	260	260	255	250	250	255	255	252	258	258	265	270	270	272	285	282	295	305	315	315	310	305
UQ	300	295	285	265	265	255	250 ^F	265	260	260	260	265	270	275	275	280	290	295	305	310	320	335	325	318
LQ	270	275	245	250	245	245	240	250	245	245	250	252	250	252	265	260	275	270	275	290	300	302	300	295

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M(3000)F2 (0.01)

IONOSPHERIC DATA

JAN. 1971

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 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			330	410	300	B	510	L	390	400	360	415	390	400	390	355	350	325	300	290			320	
2					A	A	A	A	A	B	405	420	455	430	390	395	370	400	425	L				
3			B	A	B	L	B	B	B	590	475	B	B	B	B	450	B	B	600					
4				A	A	B	A	A	B	B	B	B	B	490	380	400	430	390	L					
5				B	B	A	A	450	415	395	410	400		B	420	350	360	400	380	L	300			
6				A	B	440	450	355	375	420	400	395	400	370	420	425	400	350	250		315			
7			380	305	400	375	355	335	300	L	325	355	360	355	350	390	325							
8				300	350	300	340	330	300	325	325	350	340	L	B	B	B	C	C	C				
9			C	C	C	C	C	320	305	320	320	325	300	320	350	320	320		270					
10				300	L	350	360	360	325	350	350	320	355	375	390	340	390	L	L	300	L			
11				400	340	380	395	410	400	420	400	355	340	345	425	420	325	340	300	375	L			
12			B	340	415	430	320	380	400	390	355	370	395	375	400	355	380	L	L	L				
13				L	360	450	390	355	360	355	355	355	355	360	340	L	330	A	290	275				
14		385	500	540	A	A	450	400	500	480	425	410	400	400	B	345	B	380	R	G	L			
15			400	455	430	410	A	450	425	R	515	B	500	505	440	405	B	B		340				
16					500	400	R	390	410	400	415	400	B	B	345	360	340	355	L	275				
17			390	400	380	400	400	375	370	350	350	360	350	425	390	350	310	390	L	270	260			
18				B	A	A	A	A	350	350	C	C	C	C	C	C	C	C	C	C	C			
19				C	C	R	C	A	A	C	C	C	C	C	C	C	C	C	C	C	C			
20					R	C	C	R	B	A	B	B	B	B	B	B	B	B	B	C	C	R		
21				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
22			C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
23				C	C	C	C	C	C	C	510	500	450	415	360	420	L	L	L					
24				350	430	400	B	A	A	550	445	475	530	445	395	425	B	390	325					
25				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
26			B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
27				B	B	B	B	B	B	B	B	B	B	B	350	B	B	B	B	B	B			
28				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
29				B	B	430	B	B	B	B	B	B	B	C	C	B	B	B	340	R	350			
30				B	420	A	B	B	B	B	520	550	670	B	500	415	340	300	L					
31				500	355	A	A	480	500	R	400	B	B	B	390	400	350	405	L					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT		1	5	11	10	12	11	13	16	15	20	17	17	16	18	19	15	12	10	8	4	1		
MED		385	390	400	390	400	400	380	382	395	400	395	395	400	390	395	350	380	312	300	295	320		
UQ			400	432	420	430	450	410	408	420	435	415	450	428	400	418	385	390	355	358	332			
LQ			380	322	350	368	358	355	338	350	352	355	355	365	350	352	328	340	290	282	268			

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H^oF₂ (KM)

IONOSPHERIC DATA

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H^oF (κM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	270	275	290	A	255	B	B	290	250	230	220	215	200	200	200	210	230	215	230	240	250	265	260	300		
2	260	290	300	335	A	A	A	A	A	B	220	200	250	B	B	B	240	210	250	230	275	280	305	310		
3	310	340	B	A	B	255	B	B	B	275	R	B	B	B	B	250	B	B	325	230	250	340	A	A		
4	B	340	B	B	A	B	300	A	B	B	B	B	B	B	225	230	230	230	240	340	245	350	260	300		
5	340	A	A	B	B	A	A	A	205	200	E	B	B	B	210	200	210	225	215	240	245	B	285	255		
6	295	300	A	A	B	B	230	225	210	200	200	240	250	240	230	R	210	200	200	230	245	250	250	205		
7	250	270	A	260	230	240	205	215	220	205	200	250	200	240	230	230	210	R	A	A	A	255	250	250		
8	240	255	250	250	A	250	240	225	215	200	200	210	200	260	E	B	B	B	C	C	C	C	C	C		
9	C	C	C	C	C	C	C	C	200	225	260	A	230	E	B	205	215	200	240	250	230	210	250	230	225	225
10	250	250	255	265	225	210	215	220	200	200	200	250	220	A	240	210	A	200	200	200	230	A	275	255	325	
11	A	A	A	A	A	A	250	200	220	225	B	230	210	205	200	225	225	225	240	265	250	225	230	250		
12	245	250	B	A	310	R	250	240	200	200	230	205	200	200	200	240	225	215	210	210	240	250	230	250		
13	270	255	255	255	240	300	A	A	230	240	R	205	210	215	B	225	235	A	A	A	230	250	240	250	255	
14	290	A	A	200	210	210	R	265	245	250	200	245	200	B	B	B	B	B	A	250	250	275	250	250		
15	300	315	A	320	275	250	A	280	265	A	R	B	230	200	255	200	B	B	260	300	250	235	280	215		
16	A	A	B	A	A	325	A	270	A	H	200	220	200	B	B	B	B	B	240	B	250	250	240	250	270	285
17	350	A	240	R	B	290	275	240	240	215	215	B	200	A	B	240	200	210	225	225	220	255	265	250		
18	340	310	A	B	A	A	A	A	200	H	A	C	C	C	A	C	C	C	C	C	C	C	A	C	C	
19	C	C	C	A	C	C	C	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	
20	C	B	B	A	C	C	C	A	B	C	B	B	B	B	B	B	B	B	C	C	C	C	C	C	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
23	C	C	C	C	C	C	C	C	C	C	250	220	230	250	225	200	230	205	215	230	250	275	325	330		
24	300	A	330	B	B	230	B	A	A	A	210	245	240	215	225	250	B	B	B	250	250	255	300	250		
25	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
29	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	250	250	B	B	B	A		
30	A	350	400	B	A	B	B	B	B	B	220	200	230	B	B	B	B	250	250	270	255	290	A	A		
31	A	A	A	A	A	B	B	A	A	B	225	B	B	B	B	240	225	B	230	B	265	B	340	A		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
CNT	15	13	8	7	9	9	9	11	15	14	16	14	16	11	12	15	14	12	17	19	19	18	18	17		
MED	290	290	272	260	250	240	250	225	220	218	215	225	220	210	225	225	228	215	230	240	250	255	260	250		
UQ	305	315	315	292	275	255	270	252	235	240	225	245	240	234	230	240	235	228	250	250	250	275	285	300		
LQ	255	255	252	252	230	230	225	215	200	200	200	205	200	202	205	205	210	208	215	230	245	250	250	250		

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H^oF (κM)

IONOSPHERIC DATA

JAN. 1971

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 MHz to 15 MHz in 30 sec in automatic operation

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	100	105	B	110	140	B	B	G	G	G	130	G	G	G	G	G	G	B	G	G	G	140	140		
2	150	G	G	G	100	105	125	100	125	B	100	G	G	B	B	B	B	G	G	B	140	150	105	110	
3	115	125	B	100	B	125	B	B	B	G	G	B	B	B	B	B	B	B	G	G	G	140	100	120	
4	B	130	100	100	100	B	150	105	B	B	B	B	B	B	G	G	G	B	G	B	G	105	G	G	
5	125	125	125	B	B	100	115	105	B	B	B	B	B	B	G	G	100	105	G	B	G	B	G	G	
6	140	145	130	105	B	B	G	G	G	G	G	G	B	G	G	140	G	G	G	G	G	G	G	G	
7	125	G	115	120	150	105	100	G	G	G	G	100	G	B	B	G	100	100	105	100	100	100	150	100	
8	G	G	G	100	G	G	G	100	G	G	G	G	B	B	B	B	B	C	C	C	C	C	C	C	
9	C	C	C	C	C	C	C	G	G	B	105	105	G	G	B	105	105	105	100	100	G	G	G	G	
10	125	G	G	G	150	G	G	G	100	G	G	G	100	100	115	100	100	100	140	145	120	100	150	150	
11	130	130	115	130	125	115	G	G	G	G	B	G	B	G	G	G	G	B	G	G	G	G	G	G	
12	175	G	B	100	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	120	110	115	B
13	125	105	105	G	G	100	100	100	100	110	110	100	100	100	B	100	100	100	100	125	125	105	100	105	
14	100	150	145	100	100	100	G	G	125	B	G	G	100	B	B	B	B	B	140	G	140	B	G	G	
15	100	G	G	105	125	G	100	G	G	100	G	B	B	B	B	G	B	B	110	105	115	G	105	100	
16	150	125	B	135	140	100	105	100	G	G	G	B	B	B	B	B	G	B	G	B	110	105	100	150	
17	130	120	120	G	B	140	110	100	100	G	G	B	110	100	B	100	G	G	G	160	130	135	125	105	
18	140	105	100	B	100	100	100	100	G	100	C	C	C	100	100	C	C	G	B	C	C	C	C	130	
19	C	C	C	G	G	C	C	C	C	G	G	G	G	G	C	C	C	C	G	G	C	B	G	C	
20	G	B	C	C	C	C	C	C	B	C	B	B	B	B	B	B	B	B	B	B	C	C	C	C	
21	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
23	C	C	C	C	C	C	C	C	C	C	G	G	G	100	G	100	G	G	G	180	G	G	155	125	
24	120	120	105	B	105	140	B	115	100	105	G	105	125	G	G	B	B	B	B	B	G	G	140	140	
25	B	110	140	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
26	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
27	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
28	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
29	B	100	B	B	B	B	B	B	B	B	B	B	B	C	C	B	B	B	B	B	B	B	B	105	115
30	150	150	100	B	100	140	B	B	B	B	G	G	G	B	B	B	B	B	B	140	125	G	105	110	
31	110	105	105	105	105	130	140	115	115	125	G	B	B	B	B	B	115	B	B	B	B	130	135	110	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	18	16	13	12	13	13	10	10	7	5	4	4	5	5	2	6	6	5	6	8	10	10	15	16	
MED	125	122	115	105	105	105	108	100	100	105	108	102	100	100	108	100	100	100	108	132	122	108	115	118	
UQ	140	130	125	115	140	130	125	105	120	110	120	105	110	100		105	105	105	140	152	130	135	140	135	
LQ	115	105	105	100	100	100	100	100	100	100	102	100	100	100		100	100	100	100	102	115	105	105	108	

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H⁺ES (KM)

IONOSPHERIC DATA

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TYPES OF ES

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

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

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

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TYPES OF ES