

# IONOSPHERIC DATA AT SYOWA STATION (ANTARCTICA)

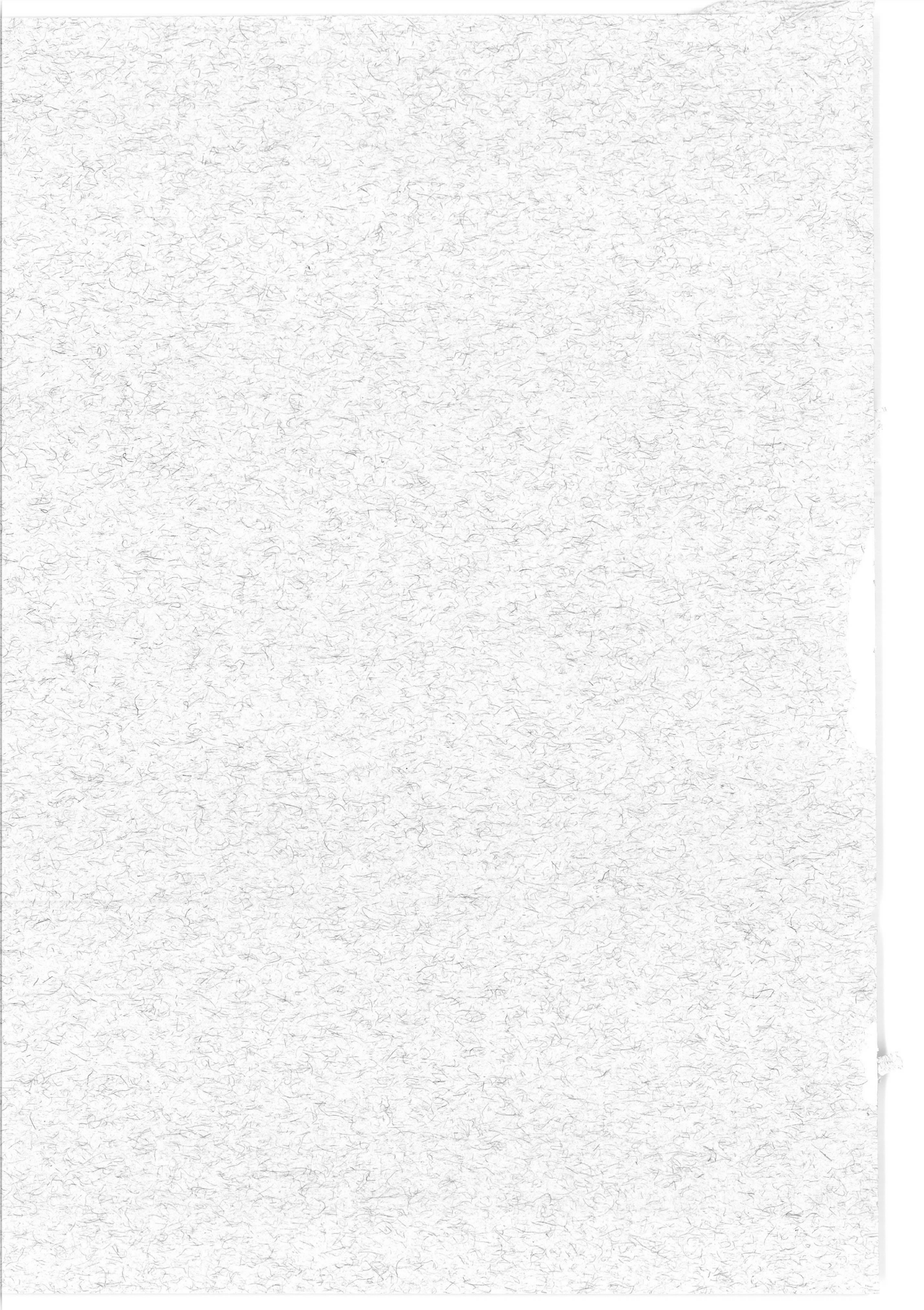
July 1971—December 1971

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**RADIO RESEARCH LABORATORIES**  
**MINISTRY OF POSTS AND TELECOMMUNICATIONS**  
**TOKYO, JAPAN**





## PREFACE

Vertical soundings of ionosphere at Syowa Station, Antarctica, have been carried out through the sponsorship of the Polar Research Center, National Science Museum, Ministry of Education and the data have been prepared at the Radio Research Laboratories.

### LOCATION OF SYOWA STATION

Geographic		Geomagnetic	
Latitude	Longitude	Latitude	Longitude
69°00.4'S	39°35.4'E	69.6°S	77.1°E

### MAIN CHARACTERISTICS OF THE IONOSONDE USED AT SYOWA STATION

Item	Specification
Frequency Range	500 kHz ~ 15 MHz
Transmitting power	10 KW (peak value)
Duration of Sweep	30 sec
Transmitted Pulse Width	100 $\mu$ 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	25m high vertical delta terminated by 600 $\Omega$
Receiving Antenna	25 m high vertical delta terminated by 600 $\Omega$

### 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, 1 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 $Es$ .                                |
| 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.                                |

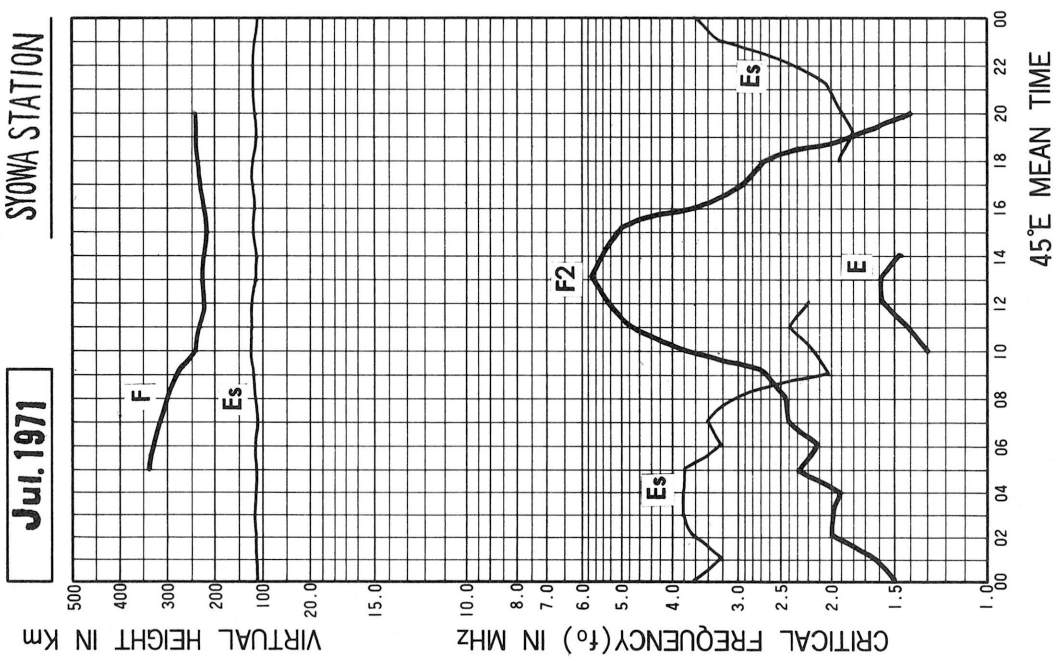
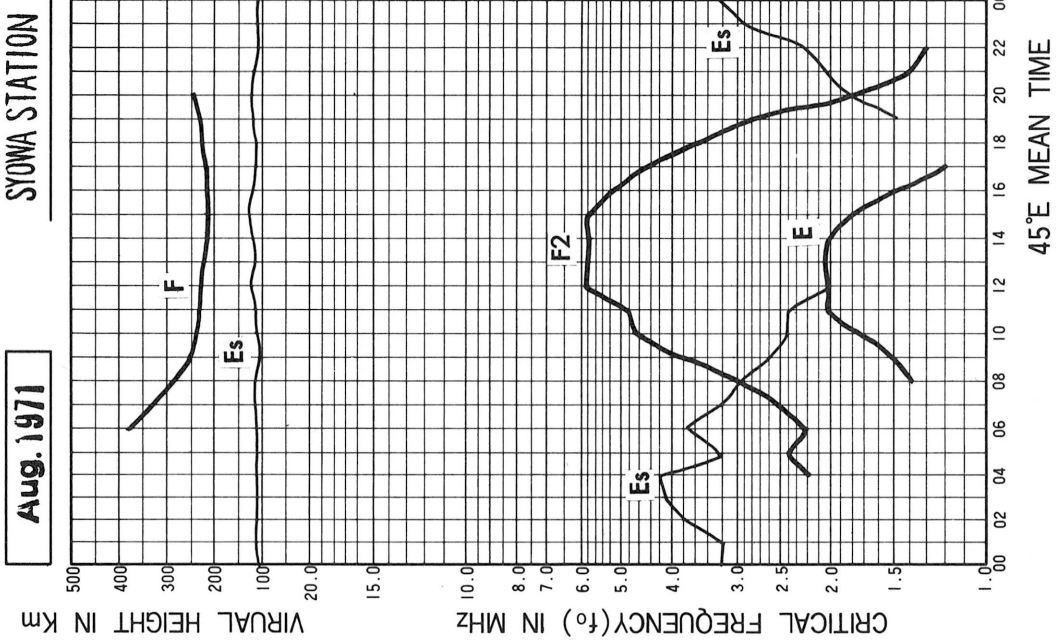
M	Measurement questionable because the ordinary and extraordinary components are not distinguishable.
N	Conditions are such that the measurement cannot readily be interpreted, for example, in the presence of oblique echoes.
O	Measurement refers to the ordinary component.
R	Measurement influenced by, 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	<i>greater than</i> .....
E	<i>less than</i> .....
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.

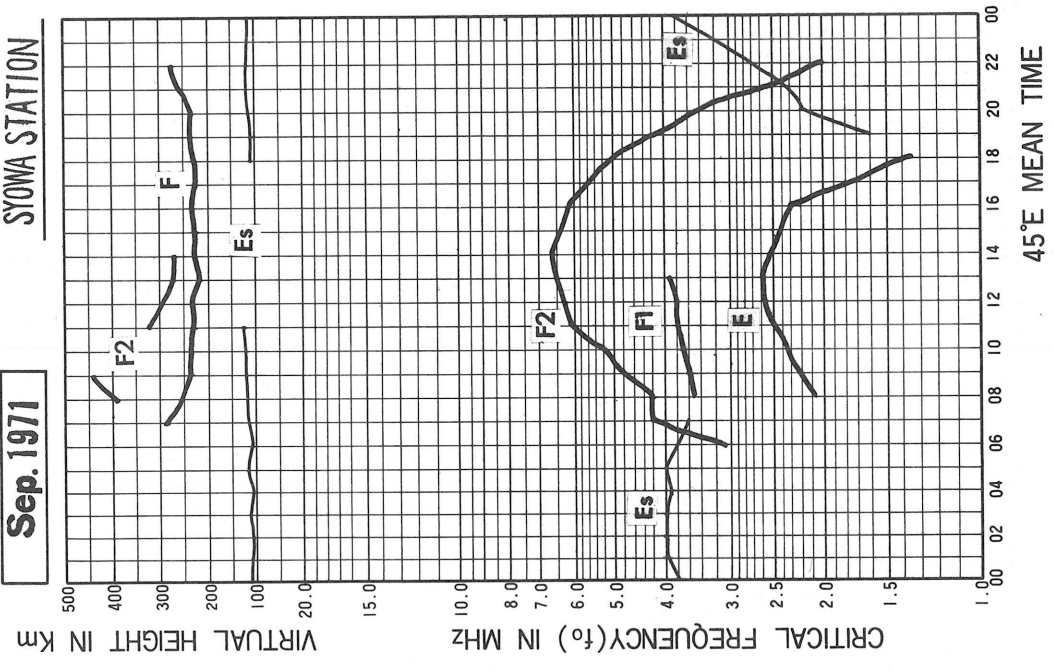
IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS



IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS

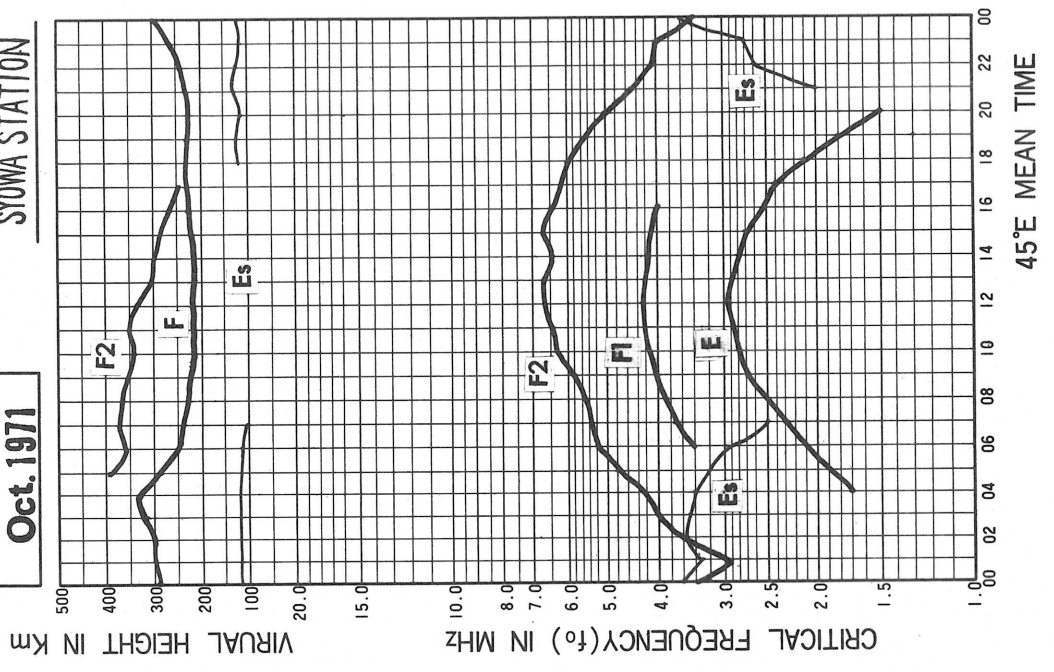
Sep. 1971

SYOWA STATION

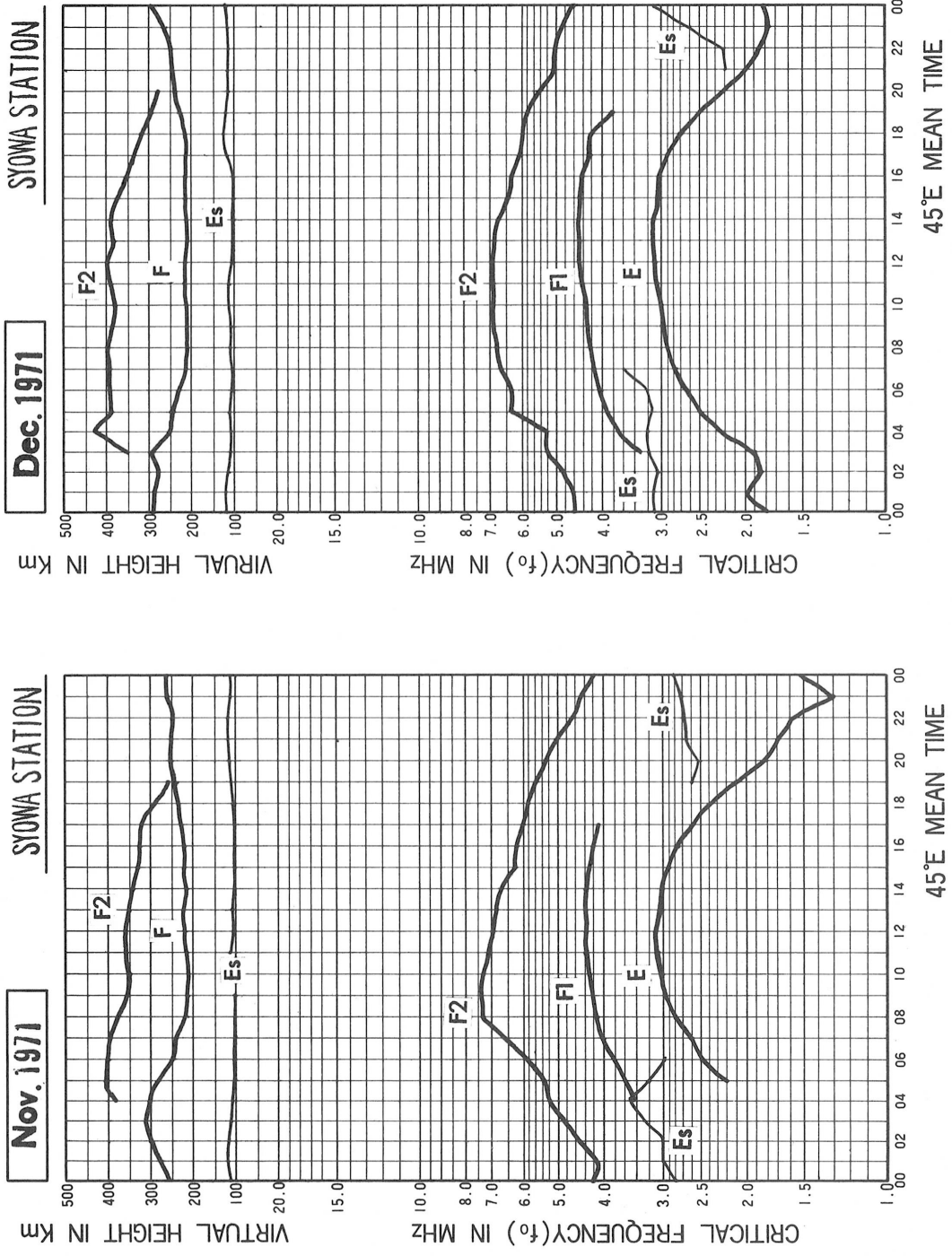


Oct. 1971

SYOWA STATION



IONOSPHERIC DATA  
MONTHLY MEDIAN CHARACTERISTICS





# IONOSPHERIC DATA

JUL. 1971

FOF2 (0.1 MHZ)

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

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

Hour Day	00	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	A	B	B	B	B	B	B	B	B	B	65	55	R	F	U	F	R	B	B	B	B	R	A								
2	A	A	A	A	A	B	B	B	F	R	B	B	B	B	B	51	44	B	B	B	B	B	R	A	A									
3	A	A	B	A	B	A	21	21	F	F	36	49	I	R	65	R	B	41	B	B	B	B	B	R	R									
4	15	A	A	A	B	A	B	A	A	A	B	40	R	J	F	52	F	F	R	J	R	R	R	R	R									
5	A	A	A	A	A	A	A	A	B	A	32	B	B	55	U	R	B	R	B	B	R	R	B	R	A									
6	A	A	A	A	B	A	A	F	F	F	B	F	R	51	47	48	J	R	R	F	F	F	R	A	A	16								
7	R	U	R	F	F	F	U	F	U	F	F	F	J	R	53	55	45	42	F	F	F	F	13	15	A	A	F	15						
8	F	U	A	U	F	A	A	A	A	B	R	A	F	55	57	52	B	B	J	R	B	B	B	B	A	A	A							
9	B	A	A	A	A	A	A	A	U	F	B	B	F	R	F	F	R	R	J	F	17	A	A	R	A	A								
10	F	18	F	F	F	F	F	F	F	F	F	44	J	F	42	57	F	F	F	B	13	I	A	12	F	18	F	13	A	A				
11	F	U	F	F	F	F	F	R	B	F	F	B	U	R	U	F	J	R	R	F	F	A	F	12	R	A	A	A						
12	A	A	A	A	F	R	F	F	J	F	F	F	J	R	J	R	F	F	F	F	A	R	A	R	A	A	A	A						
13	A	A	A	F	A	A	A	U	F	J	F	J	F	30	B	B	41	R	F	F	R	B	B	B	B	A	A	A	A					
14	A	A	A	A	A	A	A	A	A	A	A	F	32	F	41	55	B	B	B	B	U	F	R	B	B	B	A	A	A					
15	A	A	A	A	A	A	A	A	A	B	A	F	42	F	52	55	60	B	U	R	B	B	B	A	R	R	A	A	A					
16	A	A	A	A	A	A	A	F	F	F	U	R	51	51	45	F	R	R	32	B	B	A	R	R	A	A	A	A						
17	A	A	A	A	A	B	A	F	F	F	F	F	48	65	53	52	36	J	A	A	B	A	A	A	A	A	A	A						
18	13	U	F	A	U	F	F	R	A	A	A	A	F	38	50	51	59	50	R	51	34	33	F	27	18	17	F	13	A	A	A			
19	A	A	B	A	B	B	B	A	F	F	F	F	J	R	I	R	63	52	35	J	F	F	F	F	14	A	A	A	A					
20	A	A	A	A	A	A	F	F	F	F	U	R	J	R	51	56	60	45	52	F	F	F	F	F	A	R	F	21	F	20				
21	F	F	A	A	B	A	23	24	F	F	24	26	38	48	52	63	67	J	F	F	F	F	A	A	A	A	A	A	A					
22	B	A	A	B	B	R	B	B	B	A	B	28	32	37	38	40	38	F	R	R	R	R	R	R	A	A	A	A	A					
23	A	A	A	A	18	18	19	19	19	30	43	U	R	55	55	F	R	50	J	R	F	F	F	F	F	A	A	A	A	A				
24	A	A	A	B	A	R	30	31	U	F	31	31	F	32	42	48	50	J	R	55	R	63	53	38	U	R	44	22	13	14	A	A	A	
25	F	F	F	F	17	17	F	F	F	F	18	29	45	57	52	F	61	68	45	U	R	F	32	28	B	B	R	11	F	F	F			
26	J	A	A	A	A	F	F	F	U	F	U	F	F	46	U	R	60	60	58	44	42	24	27	16	14	A	A	A	A	A				
27	A	F	A	A	A	A	A	32	F	F	F	F	48	55	65	54	J	R	65	J	R	56	F	F	F	F	A	B	C	C				
28	A	A	A	A	B	A	B	B	B	B	F	J	R	48	B	B	R	U	R	55	J	R	60	F	F	20	U	R	13	A	A	U	A	15
29	F	F	F	F	F	F	F	F	F	F	16	25	R	49	R	57	R	62	R	R	R	F	F	F	F	F	A	A	A	A	A			
30	A	A	A	B	B	B	A	A	A	A	B	B	47	50	55	R	B	B	B	B	A	B	A	A	A	A	A	A	A	A	A			
31	A	A	A	34	35	A	A	A	U	F	F	F	F	40	50	64	F	65	58	R	B	B	B	B	B	B	R	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	8	7	7	9	9	8	11	13	20	19	17	25	24	26	23	17	23	19	14	13	10	2	2	4										
MED	F	U	F	F	F	19	23	21	F	F	24	F	26	37	48	52	57	54	51	36	F	F	F	18	14	F	13	16	16					
UQ	F	U	F	F	F	25	28	F	F	F	F	F	40	50	55	63	59	53	41	32	F	F	F	18					18					
LQ	F	F	F	F	F	F	F	F	F	F	F	F	F	36	43	50	53	48	42	32	F	F	F	13	14					15				

The Radio Research Laboratories, Japan

JUL. 1971

FOF2 (0.1 MHZ)

# IONOSPHERIC DATA

JUL. 1971

FOF1 (0.01 MHZ)

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

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

Hour Day	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																								

The Radio Research Laboratories, Japan

JUL. 1971

FOF1 (0.01 MHZ)

# IONOSPHERIC DATA

JUL. 1971

FOE (0.01 MHZ)

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

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

Hour Day	00	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	A							
2										B	B	B	B	B	B	B								
3										A	A	A	B	B	B	B								
4										A	B	B	B	160	150	B								
5										B	B	B	B	B	B	B								
6										A	B	A	150	160	A	A	A							
7											A	A	125	B	B	B	B							
8										B	A	A	A	B	B	B								
9										B	B	B	B	B	B	B								
10										A	R	110	110	105	B	B	B							
11										B	B	B	B	A	B	A	A							
12						A	100	A	A	A	A	120	A	A	A	A	A							
13										A	B	B	B	B	A	B								
14										B	A	B	B	B	B	B								
15										B	A	170	195	B	B	B								
16						A	A	A	A	110	A	B	B	B	B	B								
17										130	130	130	A	B	A	A	A							
18										B	A	160	175	150	A	120	110	B						
19										A	A	170	B	B	B	A	C							
20						160	120	A	100	B	100	130	A	A	A	A	A	A						
21										110	120	130	140	130	R	150	B	B	B	B				
22										A	B	B	205	190	165	150	B	B	B	B				
23	130	120	115	125	90	125	110	105	B	140	130	B	145	B	B	A	A	A	A	A	B	B	100	
24									80	B	130	170	165	A	B	B	130	A						
25										B	120	140	155	B	B	B	B	B						
26										A	A	155	150	165	135	120	B	B						
27										A	130	150	150	160	A	150	A	A	110	110	A			
28										B	B	A	B	B	B	B	B	B	120	B				
29	100	A								B	B	B	A	B	B	A	130	B						
30										B	A	B	B	A	200	170	B	B	B					
31										A	A	A	180	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	2	1	1	1	1	2	3	3	4	9	13	12	9	6	4	1	2	2		1	1	1	1
MED	130	110	115	125	90	125	135	105	100	130	130	140	158	160	145	125	130	115	118		135	100	130	120
UQ								112	105	135	130	160	185	165	150	140								
LQ							102	90	125	120	130	148	150	135	115									

JUL. 1971

FOE (0.01 MHZ)

### IONOSPHERIC DATA

JUL. 1971

FOES (0.1 MHZ)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	38	43	37	42	B	B	B	B	B	B	B	B	E <sub>52</sub>	E <sub>35</sub>	17	18	E <sub>32</sub>	B	B	B	B	22	45		
2	J <sub>23</sub>	J <sub>34</sub>	J <sub>39</sub>	40	J <sub>56</sub>	B	B	B	27	17	B	B	B	B	E <sub>21</sub>	E <sub>13</sub>	B	B	B	B	B	17	27	32	
3	J <sub>36</sub>	30	41	35	40	37	32	38	19	16	J <sub>16</sub>	17	E <sub>20</sub>	E <sub>15</sub>	E <sub>25</sub>	B	E <sub>20</sub>	B	B	B	B	J <sub>19</sub>	17		
4	J <sub>25</sub>	J <sub>28</sub>	J <sub>54</sub>	35	B	J <sub>47</sub>	B	J <sub>52</sub>	42	J <sub>46</sub>	B	E <sub>33</sub>	22	22	G	E <sub>20</sub>	E <sub>12</sub>	16	J <sub>14</sub>	28	J <sub>26</sub>	J <sub>26</sub>	J <sub>25</sub>	J <sub>28</sub>	
5	J <sub>46</sub>	J <sub>42</sub>	J <sub>29</sub>	38	40	42	J <sub>54</sub>	J <sub>46</sub>	B	52	E <sub>21</sub>	B	B	E <sub>35</sub>	E <sub>31</sub>	B	E <sub>26</sub>	B	B	20	16	B	20	J <sub>41</sub>	
6	J <sub>39</sub>	37	40	34	B	J <sub>46</sub>	44	30	16	J <sub>21</sub>	B	29	23	G	21	16	25	E <sub>20</sub>	12	E <sub>9</sub>	J <sub>18</sub>	22	22	24	
7	J <sub>21</sub>	32	J <sub>37</sub>	J <sub>26</sub>	31	J <sub>20</sub>	J <sub>31</sub>	J <sub>62</sub>	J <sub>22</sub>	28	16	J <sub>20</sub>	J <sub>39</sub>	38	E <sub>15</sub>	E <sub>12</sub>	J <sub>23</sub>	15	22	E <sub>10</sub>	16	J <sub>28</sub>	J <sub>21</sub>	17	
8	J <sub>26</sub>	J <sub>26</sub>	J <sub>24</sub>	27	35	J <sub>54</sub>	J <sub>58</sub>	J <sub>53</sub>	B	33	44	36	J <sub>29</sub>	E <sub>28</sub>	26	B	B	E <sub>21</sub>	B	B	B	B	32	J <sub>37</sub>	
9	B	J <sub>44</sub>	J <sub>41</sub>	J <sub>44</sub>	J <sub>65</sub>	J <sub>40</sub>	62	42	J <sub>35</sub>	B	B	E <sub>29</sub>	E <sub>22</sub>	J <sub>19</sub>	E <sub>14</sub>	E <sub>14</sub>	E <sub>15</sub>	E <sub>12</sub>	17	25	J <sub>24</sub>	13	17	18	
10	20	J <sub>20</sub>	15	17	17	20	J <sub>38</sub>	J <sub>24</sub>	E <sub>9</sub>	11	29	J <sub>24</sub>	23	J <sub>24</sub>	20	E <sub>15</sub>	E <sub>13</sub>	B	43	J <sub>13</sub>	16	J <sub>21</sub>	J <sub>24</sub>	J <sub>25</sub>	
11	J <sub>26</sub>	J <sub>25</sub>	J <sub>32</sub>	J <sub>28</sub>	25	J <sub>25</sub>	26	J <sub>54</sub>	J <sub>34</sub>	J <sub>44</sub>	J <sub>24</sub>	B	E <sub>29</sub>	J <sub>21</sub>	E <sub>15</sub>	43	J <sub>36</sub>	J <sub>38</sub>	J <sub>27</sub>	16	12	E <sub>11</sub>	J <sub>21</sub>	J <sub>36</sub>	
12	32	J <sub>32</sub>	J <sub>39</sub>	J <sub>53</sub>	J <sub>39</sub>	J <sub>26</sub>	32	14	J <sub>26</sub>	20	J <sub>29</sub>	J <sub>39</sub>	J <sub>38</sub>	20	18	J <sub>15</sub>	17	21	31	20	J <sub>37</sub>	15	18	30	
13	39	J <sub>42</sub>	J <sub>25</sub>	J <sub>65</sub>	J <sub>52</sub>	J <sub>75</sub>	J <sub>52</sub>	J <sub>46</sub>	31	19	B	B	E <sub>28</sub>	E <sub>29</sub>	17	E <sub>15</sub>	E <sub>29</sub>	B	B	B	J <sub>33</sub>	45	J <sub>36</sub>	J <sub>41</sub>	
14	J <sub>49</sub>	37	36	37	J <sub>52</sub>	J <sub>51</sub>	J <sub>41</sub>	J <sub>47</sub>	J <sub>30</sub>	J <sub>34</sub>	31	29	26	B	B	B	B	E <sub>15</sub>	E <sub>23</sub>	B	B	B	J <sub>32</sub>	J <sub>32</sub>	
15	J <sub>36</sub>	J <sub>32</sub>	J <sub>32</sub>	J <sub>39</sub>	43	46	J <sub>42</sub>	49	38	B	39	24	G	E <sub>19</sub>	E <sub>28</sub>	B	E <sub>28</sub>	B	B	B	J <sub>27</sub>	20	34	38	
16	J <sub>36</sub>	J <sub>36</sub>	J <sub>36</sub>	J <sub>33</sub>	J <sub>35</sub>	J <sub>43</sub>	J <sub>33</sub>	J <sub>32</sub>	J <sub>32</sub>	21	14	17	E <sub>15</sub>	J <sub>21</sub>	J <sub>53</sub>	J <sub>29</sub>	E <sub>20</sub>	B	B	J <sub>46</sub>	19	17	27	J <sub>32</sub>	
17	J <sub>34</sub>	J <sub>31</sub>	35	40	43	B	J <sub>32</sub>	27	38	G	20	17	E <sub>15</sub>	20	J <sub>25</sub>	J <sub>23</sub>	57	J <sub>38</sub>	B	38	J <sub>32</sub>	38	38	45	
18	38	20	J <sub>32</sub>	38	40	38	39	J <sub>83</sub>	J <sub>83</sub>	J <sub>46</sub>	22	G	J <sub>20</sub>	19	J <sub>20</sub>	15	14	E <sub>9</sub>	13	E <sub>13</sub>	27	14	J <sub>24</sub>	42	
19	33	33	38	48	B	B	B	40	30	25	22	24	E <sub>20</sub>	E <sub>23</sub>	E <sub>25</sub>	20	E <sub>16</sub>	E <sub>12</sub>	14	11	15	19	J <sub>21</sub>	28	
20	J <sub>39</sub>	J <sub>63</sub>	J <sub>46</sub>	43	42	29	G	G	120	E <sub>10</sub>	15	17	J <sub>21</sub>	J <sub>19</sub>	J <sub>23</sub>	J <sub>26</sub>	19	J <sub>36</sub>	J <sub>30</sub>	J <sub>23</sub>	35	17	34	30	
21	J <sub>52</sub>	J <sub>21</sub>	31	J <sub>36</sub>	B	J <sub>36</sub>	20	23	G	G	18	J <sub>25</sub>	G	G	17	E <sub>21</sub>	E <sub>20</sub>	E <sub>10</sub>	J <sub>89</sub>	J <sub>125</sub>	J <sub>98</sub>	J <sub>33</sub>	35	J <sub>52</sub>	
22	40	38	38	B	J <sub>84</sub>	J <sub>61</sub>	B	J <sub>36</sub>	B	37	B	21	G	G	22	G	E <sub>15</sub>	E <sub>15</sub>	20	17	19	18	G	22	
23	22	22	21	21	J <sub>29</sub>	J <sub>24</sub>	G	19	21	18	17	J <sub>75</sub>	J <sub>61</sub>	E <sub>22</sub>	E <sub>25</sub>	J <sub>21</sub>	17	J <sub>22</sub>	J <sub>24</sub>	J <sub>20</sub>	E <sub>12</sub>	17	18	18	
24	25	J <sub>25</sub>	43	B	38	39	20	18	17	13	17	23	J <sub>36</sub>	43	E <sub>20</sub>	E <sub>13</sub>	G	J <sub>26</sub>	E <sub>17</sub>	E <sub>10</sub>	E <sub>11</sub>	17	15	J <sub>26</sub>	
25	J <sub>31</sub>	J <sub>30</sub>	17	J <sub>19</sub>	17	J <sub>21</sub>	15	J <sub>21</sub>	J <sub>27</sub>	17	20	23	J <sub>52</sub>	E <sub>18</sub>	E <sub>20</sub>	E <sub>30</sub>	E <sub>18</sub>	17	E <sub>14</sub>	B	B	E <sub>18</sub>	15	12	
26	J <sub>21</sub>	J <sub>26</sub>	J <sub>62</sub>	J <sub>42</sub>	J <sub>32</sub>	J <sub>24</sub>	J <sub>25</sub>	J <sub>25</sub>	J <sub>34</sub>	13	J <sub>24</sub>	25	25	19	26	G	17	E <sub>20</sub>	J <sub>19</sub>	16	12	30	J <sub>54</sub>	38	
27	J <sub>45</sub>	J <sub>40</sub>	J <sub>30</sub>	J <sub>75</sub>	30	J <sub>45</sub>	37	32	32	18	J <sub>21</sub>	G	18	J <sub>24</sub>	J <sub>23</sub>	J <sub>23</sub>	17	14	11	G	J <sub>12</sub>	13	J <sub>22</sub>	B	J <sub>24</sub>
28	37	J <sub>36</sub>	41	46	B	35	B	B	B	B	27	E <sub>32</sub>	B	B	E <sub>33</sub>	E <sub>23</sub>	E <sub>18</sub>	18	15	16	15	J <sub>25</sub>	15	21	
29	16	13	25	14	J <sub>32</sub>	18	J <sub>26</sub>	30	13	E <sub>15</sub>	E <sub>18</sub>	23	E <sub>37</sub>	E <sub>29</sub>	J <sub>22</sub>	J <sub>32</sub>	J <sub>23</sub>	J <sub>21</sub>	J <sub>29</sub>	19	J <sub>21</sub>	20	J <sub>39</sub>	32	
30	J <sub>64</sub>	J <sub>64</sub>	J <sub>36</sub>	B	B	J <sub>37</sub>	J <sub>26</sub>	J <sub>32</sub>	J <sub>33</sub>	J <sub>56</sub>	B	B	32	G	E <sub>21</sub>	E <sub>47</sub>	B	B	B	J <sub>19</sub>	B	26	33	37	
31	36	J <sub>52</sub>	J <sub>36</sub>	J <sub>30</sub>	26	J <sub>50</sub>	J <sub>48</sub>	J <sub>41</sub>	J <sub>39</sub>	J <sub>27</sub>	E <sub>22</sub>	E <sub>40</sub>	E <sub>24</sub>	E <sub>26</sub>	E <sub>25</sub>	B	B	B	B	B	15	33	J <sub>44</sub>		
	00	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	28	24	27	25	28	26	27	23	25	27	28	29	26	27	22	20	22	23	26	30	31	
MED	J <sub>36</sub>	J <sub>32</sub>	J <sub>36</sub>	38	38	J <sub>38</sub>	J <sub>32</sub>	J <sub>34</sub>	30	20	21	24	22	E <sub>21</sub>	E <sub>22</sub>	E <sub>20</sub>	E <sub>18</sub>	U <sub>16</sub>	19	18	19	20	24	32	
UQ	J <sub>39</sub>	J <sub>39</sub>	40	42	43	J <sub>46</sub>	J <sub>42</sub>	J <sub>46</sub>	J <sub>35</sub>	34	27	U <sub>27</sub>	U <sub>31</sub>	E <sub>26</sub>	E <sub>26</sub>	U <sub>23</sub>	U <sub>20</sub>	J <sub>22</sub>	28	23	J <sub>27</sub>	26	33	38	
LQ	J <sub>25</sub>	J <sub>26</sub>	J <sub>30</sub>	29	30	J <sub>26</sub>	26	24	21	16	17	18	E <sub>20</sub>	19	18	E <sub>15</sub>	E <sub>16</sub>	E <sub>15</sub>	14	13	15	17	19	24	

The Radio Research Laboratories, Japan

JUL. 1971

FOES (0.1 MHZ)

# IONOSPHERIC DATA

JUL. 1971

F=MIN (0.1 MHZ)

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

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

Hour Day	00	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	28	33	14	B	B	B	B	B	B	B	B	B	52	35	14	12	32	B	B	B	B	12	11	
2	7	10	11	17	22	B	B	B	12	13	B	B	B	B	B	21	13	B	B	B	B	12	10	8	
3	15	11	33	13	27	11	11	10	11	10	11	11	20	15	25	B	20	B	B	B	B	B	9	9	
4	9	8	15	10	B	15	B	15	13	12	B	33	17	12	12	20	12	13	8	12	10	7	10	7	
5	11	18	14	15	30	21	15	10	B	18	21	B	B	35	31	B	26	B	B		12	12	B	9	11
6	10	12	12	12	B	10	13	9	10	10	B	13	12	10	9	8	9	E <sub>20</sub> C	8	9	10	15	11	7	
7	7	7	7	7	7	7	8	E <sub>11</sub> C	7	8	9	11	17	13	15	12	11	10	11	10	10	7	7	7	
8	8	8	9	8	9	12	11	21	B	25	10	12	14	28	15	B	B	21	B	B	B	B	9	9	
9	B	15	15	10	11	13	13	20	10	B	B	29	22	14	14	14	15	12	13	12	10	10	9	8	
10	8	7	8	8	9	8	9	9	9	8	7	8	10	10	14	15	13	B	10	10	8	8	7	7	
11	7	8	7	8	7	8	9	16	20	10	20	B	29	15	15	7	7	7	E <sub>13</sub> C	10	9	11	8	8	
12	8	9	10	11	10	10	9	9	8	8	12	11	11	11	10	11	11	14	16	14	12	9	8	8	
13	8	8	9	9	11	E <sub>13</sub> C	14	10	10	10	B	B	28	29	12	15	29	B	B	B	27	16	E <sub>12</sub> C	10	
14	12	10	10	12	15	13	12	11	16	29	12	20	23	B	B	B	8	15	23	B	B	B	10	9	
15	10	9	10	10	22	15	11	16	16	B	13	12	14	19	28	B	28	B	B	B	16	15	11	12	
16	8	9	8	4	15	9	10	9	8	8	9	13	15	14	20	20	20	B	B	16	13	10	8	9	
17	9	10	9	12	16	B	11	12	10	10	11	10	15	15	10	10	11	E	B	16	14	16	16	10	
18	10	10	10	9	10	10	E <sub>10</sub> C	20	14	14	11	13	12	12	10	9	10	9	10	13	12	9	8	15	
19	8	10	26	11	B	B	B	13	12	10	11	14	20	23	25	13	E <sub>16</sub> C	12	10	8	8	9	8	8	
20	10	13	20	12	12	10	10	10	10	10	8	10	12	10	10	10	9	8	8	8	14	8	E <sub>10</sub> C	8	
21	8	8	8	11	B	E <sub>13</sub> C	11	11	10	9	10	11	10	13	14	21	20	10	9	10	10	15	E <sub>11</sub> C	20	
22	32	19	22	B	44	12	B	26	B	11	B	17	12	15	14	14	15	15	15	11	11	9	8	8	
23	8	7	8	9	8	8	8	8	9	10	11	16	13	22	25	10	11	12	13	13	12	8	8	9	
24	8	8	22	B	13	11	10	8	7	9	10	12	12	14	20	13	11	8	E <sub>17</sub> C	10	11	12	10	8	
25	8	8	8	9	9	9	8	7	7	10	10	13	13	18	20	30	18	11	14	B	B	18	10	9	
26	8	7	9	9	7	7	8	7	9	10	11	13	13	11	11	E <sub>11</sub> C	11	20	11	10	8	10	9	10	
27	13	10	12	10	13	15	14	11	10	E <sub>11</sub> C	8	11	11	10	11	8	10	10	8	9	7	7	B	E <sub>23</sub> C	
28	8	11	11	11	B	13	B	B	B	B	15	32	B	B	33	23	18	10	10	10	10	10	9	10	
29	9	8	8	8	8	8	8	8	9	15	18	15	37	29	15	15	20	15	10	8	9	8	9	10	
30	9	11	11	B	B	32	20	15	15	13	B	B	12	13	21	47	B	B	B	10	B	10	8	8	
31	10	10	13	10	9	12	19	10	11	13	12	22	40	24	26	25	B	B	B	B	B	12	10	10	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
MED	9	10	10	10	13	12	11	11	10	10	12	13	15	15	15	15	14	14	14	12	12	10	9	9	
UQ	10	11	14	12	37	15	17	16	16	14	D <sub>21</sub> B	30	26	26	25	24	20	B	B	B	D <sub>27</sub> B	16	10	10	
LQ	8	8	8	9	9	10	10	9	9	10	10	12	12	12	12	11	11	10	10	10	10	9	8	8	

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JUL. 1971

F=MIN (0.1 MHZ)

### IONOSPHERIC DATA

JUL. 1971

M(3000)F2 (0.01)

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

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

Hour Day	00	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	A	B	B	B	B	B	B	B	B	B	B	355	345	R	F	U	F	R	B	B	B	B	R	A									
2	A	A	A	A	A	B	B	B	300	F	R	B	B	B	B	B	330	295	B	B	B	B	B	R	A	A										
3	A	A	B	A	B	A	A	285	265	F	320	305	340	I	330	345	R	B	310	B	J	R	B	B	R	R										
4	300	A	A	A	B	A	B	A	A	A	B	345	R	J	F	370	345	335	F	365	R	J	R	345	R	R	R	R								
5	A	A	A	A	A	A	A	A	B	A	315	B	B	B	325	U	R	335	B	315	B	B	R	R	B	R	A									
6	A	A	A	A	B	A	A	F	260	F	295	F	270	B	F	325	335	340	315	365	J	R	365	F	360	F	365	F	355	R	A	A	275			
7	R	U	R	F	F	F	U	F	300	F	280	U	F	285	F	340	365	360	345	335	355	320	F	300	F	335	F	345	335	A	A	F	305			
8	F	U	A	U	F	A	A	A	A	B	R	A	305	F	335	R	345	B	B	J	R	315	B	B	B	B	A	A	A	A	F	305				
9	B	A	A	A	A	A	A	A	U	F	285	B	B	F	310	R	345	F	R	R	J	F	335	305	A	A	R	A	A	A	A	A				
10	F	F	F	F	F	F	U	F	F	290	F	320	F	340	J	F	320	350	335	F	F	395	B	325	I	A	340	F	320	370	A	A	A			
11	F	U	F	F	F	F	F	R	B	F	F	B	U	R	J	F	J	R	325	R	F	310	345	A	F	355	360	R	A	A	A	A				
12	A	A	A	A	265	F	260	285	F	300	J	F	F	305	305	355	J	R	345	F	F	370	R	F	A	R	A	R	A	A	A	A				
13	A	A	F	265	A	A	A	U	F	J	F	F	B	B	330	R	F	F	R	B	B	B	B	B	A	A	A	A	A	A	A	A	A			
14	A	A	A	A	A	A	A	A	A	A	A	F	320	330	F	325	B	B	B	B	U	R	320	R	B	B	B	A	R	R	A	A	A			
15	A	A	A	A	A	A	A	A	A	B	A	315	F	325	F	365	340	B	U	R	315	B	B	B	A	R	R	A	A	A	A	A	A			
16	A	A	A	A	A	A	A	F	265	F	295	F	310	295	U	R	335	355	F	R	R	345	B	B	A	R	R	A	A	A	A	A	A			
17	A	A	A	A	A	B	A	285	F	290	F	290	F	345	315	355	R	340	325	325	J	A	360	A	B	A	A	A	A	A	A	A	A			
18	270	U	F	A	U	F	315	F	R	A	A	A	A	315	F	300	340	335	340	R	335	310	325	F	350	335	340	330	F	A	A	A	A			
19	A	A	B	A	B	B	B	A	300	F	275	F	295	F	300	R	I	R	345	355	345	325	F	350	335	320	F	A	A	A	A	A				
20	A	A	A	A	A	A	F	255	285	F	315	320	F	355	U	R	R	340	375	310	355	F	310	F	335	320	F	A	R	F	295	F	300			
21	F	F	A	A	B	A	260	290	F	305	F	310	295	330	315	315	330	F	F	F	310	F	A	A	A	A	A	A	A	A	A	A	A			
22	B	A	A	B	B	R	B	B	B	A	B	295	315	305	315	350	345	345	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	A		
23	A	A	A	A	280	280	275	275	285	275	325	U	R	345	325	F	R	350	R	290	F	315	U	F	335	F	F	A	A	A	A	A	A			
24	A	A	A	B	A	R	F	U	F	285	305	F	330	335	335	J	R	325	R	340	340	U	R	340	340	325	355	A	A	A	A	A	A			
25	F	F	F	F	265	295	265	F	270	F	280	285	325	335	325	F	310	370	300	U	R	360	315	355	B	B	R	300	F	F	F	F	F			
26	A	A	A	A	A	F	290	F	295	F	300	U	F	315	330	350	U	R	320	350	365	320	400	270	370	315	285	A	A	A	A	A	A			
27	A	F	A	A	A	A	A	255	270	F	290	F	295	F	335	345	355	315	J	R	330	J	R	340	F	F	F	A	B	C	C	C	C			
28	A	A	A	A	B	A	B	B	B	B	B	F	J	R	345	B	B	R	U	R	335	J	R	350	F	F	355	F	U	R	310	A	A	U	A	315
29	F	F	F	F	F	F	F	F	F	F	F	315	320	R	325	R	R	345	R	R	345	F	R	F	325	295	F	A	A	A	A	A	A			
30	A	A	A	B	B	B	A	A	A	A	A	B	B	340	330	325	R	B	B	B	B	A	B	A	B	A	A	A	A	A	A	A	A	A		
31	A	A	A	295	265	A	A	A	U	F	235	265	325	320	330	340	285	R	B	B	B	B	B	B	R	A	A	A	A	A	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	7	7	7	9	9	8	10	13	20	18	17	24	23	26	23	16	22	18	13	13	10	2	2	4												
MED	280	F	U	F	290	F	275	F	280	F	280	F	290	F	320	330	335	345	335	335	340	322	F	345	335	328	350	F	298	302	302	302	302	302		
UQ	F	U	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	310
LQ	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	288

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M(3000)F2 (0.01)

# IONOSPHERIC DATA

JUL. 1971

H<sup>o</sup>F<sub>2</sub> (KM)

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

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

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

The Radio Research Laboratories, Japan

JUL. 1971

H<sup>o</sup>F<sub>2</sub> (KM)

# IONOSPHERIC DATA

JUL. 1971

H<sup>o</sup>F (KM)

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

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

Month Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	B	B	B	A	B	B	B	B	B	B	B	B	B	E <sub>250</sub>	B <sub>250</sub>	B <sub>220</sub>	240	B	B	B	B	B	A	A
2	A	A	A	B	B	B	B	B	325	A	B	B	B	B	B	215	250	B	B	B	B	B	A	A
3	A	A	B	A	B	A	A	E <sub>350</sub>	I <sub>320</sub>	250	230	200	200	215	230	B	270	B	B	B	B	B	A	A
4	A	A	A	A	B	A	B	A	A	A	B	B	220	220	200	220	210	250	230	A	A	A	A	A
5	A	B	A	A	B	B	A	A	B	B	B	B	B	270	280	B	B	B	B	A	R	B	A	A
6	A	A	A	A	B	A	A	A	320	330	B	265	225	200	220	190	H <sub>200</sub>	I <sub>200</sub>	225	230	A	B	A	A
7	A	300	300	330	305	320	310	A	300	295	225	210	215	210	210	200	I <sub>200</sub>	A <sub>240</sub>	A <sub>240</sub>	B	A	A	A	A
8	A	A	A	A	A	A	A	B	B	B	A	280	230	225	225	B	B	B	B	B	B	B	A	A
9	B	A	A	A	A	A	A	B	A	B	B	285	220	205	220	225	B <sub>215</sub>	B	B	A	A	A	A	A
10	A	A	A	E <sub>350</sub>	E <sub>360</sub>	A	330	290	260	275	230	205	210	200	225	195	215	B	B	A	E <sub>250</sub>	B <sub>200</sub>	A	A
11	A	300	290	310	300	315	330	B	B	A	A	B	215	220	220	210	220	230	A	B <sub>260</sub>	E <sub>260</sub>	B	A	A
12	A	A	A	A	A	A	320	280	280	265	A	235	225	225	230	220	205	230	B	B	A	A	A	A
13	A	A	A	E <sub>350</sub>	A	A	A	A	A	310	B	B	265	230	210	215	B	B	B	B	B	B	A	A
14	A	A	A	A	A	A	A	A	A	B	290	250	240	B	B	B	B	240	250	B	B	B	A	A
15	A	A	A	A	B	B	A	A	A	B	A	230	230	210	225	B	E <sub>275</sub>	B	B	B	B	B	A	A
16	A	A	A	A	B	A	A	350	320	280	250	220	220	210	A	230	225	B <sub>250</sub>	B	B	B	R	A	A
17	A	A	A	A	A	B	A	A	290	300	235	220	210	215	215	210	A	A	B	A	A	A	A	A
18	A	A	A	A	A	280	A	B	A	A	270	240	200	225	200	215	215	240	200	B	B	B	A	B
19	A	A	B	A	B	B	B	A	350	335	270	250	240	225	210	230	230	200	230	A <sub>220</sub>	B	A	B	B
20	A	A	B	A	A	A	375	325	280	230	220	250	210	215	190	210	200	220	230	A <sub>255</sub>	A	A	A	340
21	E <sub>310</sub>	A	A	A	B	A	A	A	310	300	300	265	240	225	240	220	220	230	255	320	A	A	A	A
22	B	B	B	B	B	A	B	B	B	A	B	315	280	280	240	225	230	220	A	A	R	R	R	A
23	A	A	A	A	A	390	370	370	280	275	230	220	220	225	230	200	195	280	260	240	230	A	A	A
24	A	A	A	B	A	A	330	295	255	230	230	225	205	240	215	210	220	195	C	B	B	B	A	A
25	A	A	A	A	380	I <sub>360</sub>	345	310	A	280	220	215	200	215	210	270	B <sub>200</sub>	A <sub>230</sub>	A <sub>220</sub>	B	B	B	B	B
26	A	A	A	A	A	360	375	A	E <sub>280</sub>	265	225	200	225	225	205	200	195	B	A	E <sub>250</sub>	B <sub>290</sub>	A	A	A
27	B	A	A	A	A	A	A	A	360	280	270	230	220	225	230	220	215	180	225	230	A	A	B	C
28	A	A	A	A	B	A	B	B	B	B	280	240	B	B	230	220	250	205	220	240	A	B	A	A
29	A	280	315	315	A	A	A	A	300	270	A	260	225	220	E <sub>250</sub>	B <sub>225</sub>	220	215	A <sub>230</sub>	225	245	230	A	A
30	A	A	A	B	B	B	B	A	A	A	B	B	A	250	230	225	B	B	B	B	A	B	A	A
31	A	A	A	A	A	A	A	A	500	A	250	245	250	B <sub>225</sub>	B <sub>250</sub>	250	B	B	B	B	B	R	A	A
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT	1	3	3	6	4	6	9	10	17	17	20	24	27	28	29	25	24	17	14	9	6	1		2
MED	E <sub>310</sub>	300	300	326	317	340	330	308	300	280	242	232	220	225	220	215	216	230	230	235	U <sub>242</sub>	B <sub>200</sub>		360
UQ		300	308	E <sub>350</sub>	370	360	370	350	320	300	270	250	232	226	230	220	232	240	245	250	A <sub>290</sub>			
LQ		290	295	315	302	315	330	295	280	265	228	220	212	215	210	210	202	205	225	230	228			

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H<sup>o</sup>F (KM)



### IONOSPHERIC DATA

JUL. 1971

M'ES (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	125	125	100	100	B	B	B	B	B	B	B	B	B	B	B	125	150	B	B	B	B	B	155	125	
2	120	115	100	115	100	B	B	B	100	95	B	B	B	B	B	B	B	B	B	B	B	150	155	105	
3	100	105	120	95	100	110	105	80	115	110	120	110	B	B	B	B	B	B	B	B	B	B	140	130	
4	130	105	100	95	B	100	B	100	100	100	B	B	120	125	G	B	B	150	130	120	115	120	105	110	
5	110	105	110	110	125	100	100	100	B	110	B	B	B	B	B	B	B	B	B	B	145	130	B	110	100
6	100	110	125	125	B	100	100	100	115	100	B	110	140	G	105	105	130	C	120	B	110	150	140	140	
7	120	155	110	105	110	100	115	140	140	130	120	120	130	110	B	B	100	125	100	B	100	100	95	130	
8	115	112	115	120	115	115	110	100	B	125	100	100	100	B	100	B	B	B	B	B	B	B	110	110	
9	B	100	100	100	150	100	100	100	110	B	B	B	B	120	B	B	B	B	B	130	100	100	180	130	130
10	120	115	120	115	110	130	100	100	B	110	95	100	120	115	130	B	B	B	B	160	110	110	110	105	115
11	130	110	110	110	100	120	120	150	120	130	130	B	B	110	B	150	150	100	115	115	120	B	130	110	
12	105	120	110	100	150	115	110	140	130	120	100	130	160	100	110	120	125	100	115	115	105	160	150	130	
13	115	110	110	100	110	150	105	100	105	130	B	B	B	B	95	B	B	B	B	B	110	110	110	110	
14	105	115	115	110	110	100	110	105	110	115	105	115	115	B	B	B	B	B	B	B	B	B	105	110	
15	130	110	110	110	110	100	100	105	105	B	100	130	G	B	B	B	B	B	B	B	110	105	105	105	
16	110	110	110	110	100	100	100	95	100	110	110	125	B	105	170	130	B	B	B	105	110	150	140	105	
17	105	105	110	110	100	B	100	115	100	G	130	110	B	130	110	120	110	160	B	100	105	100	100	100	
18	110	105	110	105	105	105	105	100	100	100	100	G	100	100	100	125	125	B	125	B	130	170	150	120	
19	105	115	120	110	B	B	B	100	110	110	115	140	B	B	B	125	C	B	150	125	140	140	130	115	
20	115	125	115	105	105	100	G	G	125	B	130	110	110	105	100	100	100	100	110	180	115	100	120	120	
21	115	100	110	115	B	100	110	125	G	G	130	120	G	G	110	B	B	B	125	150	110	105	100	115	
22	120	110	120	B	170	110	B	110	B	110	B	125	G	G	125	G	B	B	130	110	160	130	G	130	
23	130	120	125	115	100	100	G	130	125	150	130	120	110	B	B	115	105	115	115	110	B	190	140	130	
24	110	100	130	B	100	120	115	110	115	120	125	130	120	115	B	B	G	105	C	B	B	115	155	135	
25	120	105	100	110	110	110	120	115	120	130	145	130	115	B	B	B	B	120	B	B	B	170	150		
26	110	120	110	140	100	100	100	100	100	120	130	130	130	100	120	G	105	B	100	105	145	120	110	115	
27	115	170	125	100	120	110	100	100	100	140	130	G	100	95	100	105	120	120	100	100	140	120	B	100	
28	105	115	110	100	B	100	B	B	B	B	105	B	B	B	B	B	B	130	120	110	100	140	150	140	
29	110	120	100	115	110	105	100	100	100	B	B	150	B	B	105	105	110	110	100	105	115	120	110	115	
30	100	100	130	B	B	130	120	95	95	100	B	B	120	G	B	B	B	B	B	125	B	110	105	105	
31	110	100	110	105	105	110	100	100	110	105	100	B	B	B	B	B	B	B	B	B	160	105	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	30	31	31	28	24	27	23	27	24	23	21	19	15	13	14	12	12	12	17	18	21	24	29	31	
MED	112	110	110	110	110	105	105	100	110	110	120	120	120	110	108	120	115	118	120	110	110	120	120	115	
UQ	120	118	120	115	112	112	110	112	118	128	130	130	125	115	120	125	128	128	130	125	130	150	140	130	
LQ	105	105	110	100	100	100	100	100	100	108	100	110	110	100	100	105	105	102	110	105	110	110	105	108	

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M'ES (KM)

# IONOSPHERIC DATA

JUL. 1971

TYPES OF E5

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	R1	R1	F1	R1												R1	RL11						RF11	R1	
2	N2	R2	R2	R1	R1				R1	R1											F1	RR12	R3		
3	R1	R2	R1	R1	R1	R1	R2	FR11	R1	L1	R1	R1											FF11	RF11	
4	R1	R2	R1	R1		R1		R1	FR11	RR11			R1	R1				F1	R1	R1	R2	R2	FR11	FR11	
5	FR11	F1	R1	R2	R1	R1	R1	R2		R1										FF11	R1		R2	FR12	
6	R2	R2	R1	R1		R2	R2	R2	R1	R1	H1	H1			R1	L1	C1		F1		R1	FF11	R1	RR11	
7	R4	RR11	F1	F3	RR11	F3	F2	FF11	FF11	F1	R1	C1	LR11	R1			F1	F1	F1		F2	F2	F2	F2	
8	R3	F1	R1	N1	R2	R2	R2	R1		R1	R1	R1	L1		R1								R1	R1	
9		R1	R1	R2	FF11	R1	R1	R1	R1				L1						F1	F1	R1	N1	N1	R3	
10	N1	R1	R1	R1	R1	RF21	FR11	F1		LR11	LR11	LR11	R1	L1	L1				FR11	N1	F1	F1	FR11	R2	
11	F	FR11	FR11	FR11	F2	F1	F1	FF11	F1	RR11	L1			L1		L1	L1	F1	F1	F1	FF11	R2	R3		
12	FR11	R2	R2	R2	RR12	RF21	L1	H1	LR11	LL11	R1	C1	LL11	R1	L1	RL11	LL11	F1	F1	R1	F1	R1	R1	R2	
13	R5	R5	R2	FR22	R3	NR11	R1	R2	R2	R2					R1						F1	F1	R5	R1	
14	R2	R4	R3	R2	R1	R1	R2	R2	F1	R1	R1	L1	L1										FR11	FR12	
15	FF11	FR11	FR12	R5	R1	R1	R2	R1	F1		R1	H1								F1	F1	FR11	FR11		
16	R4	RF51	R4	FR11	F1	R2	RF31	LR12	L1	LL11	L1	R1		R1	L1	L1				F1	F1	R1	RF11	FR11	
17	R1	FR11	FR11	R2	R1	F1	F1	F1	F1		HL11	C1		R1	C1	L1	F2	F1		F1	F1	F1	F1	FF11	
18	FF11	FF11	F2	FR11	F2	FF21	FR11	FR1	F1	R1	R1		L1	C1	H1	R1	L1		R1		R1	R1	R1	R2	
19	R1	R4	R1	R2				R1	R2	R2	R1	H1				L1			R1	R1	R1	R1	RR11	R3	
20	R3	R1	R1	R2	R2	RF21			L1		R1	C1	R1	R1	L1	L1	LR11	LR11	FR21	RR11	R1	R1	R1	R2	
21	F3	R2	R4	R2		R1	R1	RR21			H1	H1				L1				SR11	FR11	F1	R1	R2	F1
22	R1	R1	R1		F1	RF11		R1		R2		L1			H1					CL11	C1	HL11	RL11	H5	
23	H4	H5	H5	C3	C4	L1		H2	H1	CL11	C1	C1	C1			R1	L1	R1	L1	R1		H1	R3	RF11	
24	R2	FR11	R1		R1	RR11	R1	R2	H2	H1	H1	H1	H1	L1					LR11			F1	R1	R1	
25	F2	F2	R1	F1	F1	F1	R1	F2	F2	R1	H1	H1	H1						R1				R1	F1	
26	F1	F1	F4	FF11	R2	R1	F1	F1	F1	R1	RF11	H1	H1	L1	H1		C1		F1	F1	R1	R2	R3	R3	
27	R1	RR12	N1	R2	R2	R2	R1	R1	R2	H1	L1		C1	C1	C1	L1	R1	R1	H1	L1	L1	R1	N1	R1	
28	R1	R1	R3	R5		R1					R1								H1	L1	R1	R	R1	RR11	R1
29	F1	C1	LL11	R2	F2	R1	F3	R2	R1			R1			R1	C1	L1	F1	F2	R2	R1	N1	R3	R3	
30	R3	R1	R3			R1	F1	F1	L1	R1			H1							F1		R1	R5	R5	
31	R3	R2	R1	R2	R3	R2	R1	R2	R2	R2	L1											R1	R3	R2	
	00	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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TYPES OF E5

# IONOSPHERIC DATA

AUG. 1971

FOF2 (0.1 MHz)

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

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

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

The Radio Research Laboratories, Japan

AUG. 1971

FOF2 (0.1 MHz)

# IONOSPHERIC DATA

AUG. 1971

FOF1 (0.01 MHZ)

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

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

Hour Day	00	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																		L						
7																								
8																								
9																								
10																								
11															L									
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21														L	L									
22												L												
23																								
24															L									
25														L										
26																								
27												L		L	320	L								
28																								
29															L	L								
30											L	L	L	L	L									
31												320	320 <sup>R</sup>	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		1									
MED											320	320 <sup>R</sup>			320									
UQ																								
LQ																								

AUG. 1971

FOF1 (0.01 MHZ)

### IONOSPHERIC DATA

AUG. 1971

FOE (0.01 MHZ)

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

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

Hour Day	00	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	160	200	180	A	A	B						
2								B	B	B	B	B	B	B	B	B	B	B						
3								A	A	130	140	140	150	170	155	150	150	120						
4								B	B	B	A	A	230	185	180	150	A	B	B					
5								B	B	B	B	B	B	B	B	B	B	B						
6								A	110		B	A	A	195	A	A	A	A	100					
7									B	R	140	B	B	170	A	130	B							
8								B	B	B	B	B	B	B	B	B	B	B						
9								A	B	B	A	215	B	B	B	B	B	B						
10								B	B	B	B	B	B	B	A	R	160	B	B					
11								B	B	B	B	B	B	B	B	B	B	B						
12								C	A	B	B	B	B	B	B	B	B	B						
13								B	B	B	B	B	B	B	B	B	B	B	B					
14								A	A	B	B	B	200	B	B	B	B	B						
15								B	A	A	140	A	A	B	B	B	B	B	A					
16								B	R	A		175	175	200	205	200	A	140	B	B				
17								A	A	U	A	130	150	175	R	A	190	190	190	150	A	A	A	
18								B	B	B	B	B	190	200	200	200	140	110	130					
19								A	A	A	160	B	B	B	B	B	B	B						
20								B	125	160	180	185	210	230	185	A	A	B						
21								A	A	B	B	B	205	270	B	B	B	B	B					
22								B	B	A	B	B	B	B	B	B	B	B	B					
23								B	B	B	B	B	B	B	B	190	160	B	B					
24								B	B	A	190	B	230	225	230	200	190	A	A	B				
25								A	B	B	A	200	220	215	A	B	B	B	B					
26								B	A	A	B	B	B	B	B	B	B	B	B					
27								B	A	160	170	205	195	220	225	220	180	150	125	A	A	I	A	100
28								A	130	A	140	155	195	205	230	200	200	170	A	A	120	A	85	A
29								A	140	150	160	180	220	H	240	250	215	A	A	150	120	B		
30								A	A	135	150	205	220	I	A	220	230	210	200	150	A	I	A	B
31								B	A	A	B	B	A	B	B	B	R	200	B	B	C	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	5	11	9	12	15	16	12	13	7	6	4	1	1			
MED								135	140	150	175	202	200	202	200	180	150	120	105	I	A	110	100	
UQ								150	160	195	220	220	228	212	190	150	125	120						
LQ								A	135	135	150	178	188	192	185	150	145	120	92					

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AUG. 1971

FOE (0.01 MHZ)

# IONOSPHERIC DATA

AUG. 1971

FOES (0.1 MHZ)

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

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

Hour Day	00	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 <sub>40</sub> X	45	42	35	J <sub>44</sub> X	J <sub>43</sub> X	45	36	50	B	B	24	19	G	J <sub>21</sub> X	25	41	E <sub>13</sub> B	E <sub>15</sub> B	B	B	B	18	J <sub>32</sub> X	
2	32	J <sub>23</sub> X	J <sub>42</sub> X	33	J <sub>41</sub> X	J <sub>52</sub> X	44	B	B	B	B	B	B	B	B	E <sub>48</sub> B	E <sub>22</sub> B	B	J <sub>17</sub> X	B	22	17	22	J <sub>40</sub> X	
3	25	J <sub>32</sub> X	J <sub>26</sub> X	J <sub>39</sub> X	42	27	39	J <sub>39</sub> X	46	G	G	44	J <sub>21</sub> X	G	G	20	G	G	15	16	13	14	13	18	
4	J <sub>27</sub> X	35	B	34	43	B	J <sub>44</sub> X	J <sub>47</sub> X	B	J <sub>34</sub> X	35	26	26	G	22	16	E <sub>57</sub> B	B	B	B	B	15	28	29	
5	J <sub>27</sub> X	J <sub>29</sub> X	J <sub>27</sub> X	36	B	B	B	B	B	38	B	B	B	B	E <sub>28</sub> B	E <sub>30</sub> B	E <sub>26</sub> B	E <sub>27</sub> B	B	B	B	B	15	J <sub>23</sub> X	
6	J <sub>41</sub> X	32	43	33	20	J <sub>34</sub> X	J <sub>19</sub> X	16	16	21	E <sub>28</sub> B	25	27	J <sub>31</sub> X	J <sub>34</sub> X	J <sub>18</sub> X	22	16	22	18	J <sub>19</sub> X	16	J <sub>21</sub> X	J <sub>21</sub> X	
7	18	J <sub>18</sub> X	27	J <sub>18</sub> X	J <sub>22</sub> X	J <sub>22</sub> X	23	20	17	E <sub>13</sub> B	G	E <sub>20</sub> B	E <sub>21</sub> B	G	17	18	G	E <sub>13</sub> B	J <sub>19</sub> X	20	E <sub>11</sub> B	E <sub>10</sub> B	B	16	17
8	33	38	J <sub>69</sub> X	30	J <sub>42</sub> X	J <sub>32</sub> X	J <sub>27</sub> X	J <sub>51</sub> X	B	B	B	28	E <sub>30</sub> B	B	B	E <sub>35</sub> B	B	E <sub>25</sub> B	24	28	J <sub>40</sub> X	J <sub>31</sub> X	38	J <sub>40</sub> X	
9	J <sub>46</sub> X	J <sub>47</sub> X	47	41	44	B	J <sub>44</sub> X	J <sub>39</sub> X	42	J <sub>43</sub> X	35	G	B	E <sub>30</sub> B	E <sub>29</sub> B	B	B	E <sub>37</sub> B	B	B	28	15	J <sub>41</sub> X	J <sub>54</sub> X	
10	J <sub>53</sub> X	39	J <sub>48</sub> X	45	J <sub>45</sub> X	22	J <sub>50</sub> X	J <sub>52</sub> X	B	39	B	B	B	26	20	G	E <sub>16</sub> B	E <sub>14</sub> B	F <sub>15</sub> B	E <sub>15</sub> B	B	12	J <sub>22</sub> X	33	
11	J <sub>34</sub> X	J <sub>29</sub> X	38	46	B	B	B	B	B	B	B	E <sub>22</sub> B	26	E <sub>20</sub> B	B	B	B	B	B	B	B	20	20	22	
12	33	J <sub>36</sub> X	37	42	42	B	J <sub>34</sub> X	30	B	B	B	B	E <sub>37</sub> B	B	E <sub>47</sub> B	B	B	E <sub>17</sub> B	B	B	B	B	B	17	
13	27	J <sub>29</sub> X	J <sub>40</sub> X	38	38	J <sub>40</sub> X	37	30	B	30	B	B	E <sub>30</sub> B	B	B	E <sub>29</sub> B	E <sub>21</sub> B	15	E <sub>14</sub> B	B	B	B	B	B	
14	B	21	B	J <sub>36</sub> X	J <sub>44</sub> X	32	33	29	25	E <sub>22</sub> B	E <sub>23</sub> B	E <sub>21</sub> B	G	E <sub>28</sub> B	E <sub>22</sub> B	E <sub>22</sub> B	E <sub>21</sub> B	E <sub>26</sub> B	E <sub>11</sub> B	E <sub>13</sub> B	B	12	B	23	
15	17	J <sub>25</sub> X	32	J <sub>35</sub> X	J <sub>24</sub> X	17	17	B	33	22	24	23	E <sub>23</sub> B	E <sub>25</sub> B	E <sub>25</sub> B	E <sub>30</sub> B	20	J <sub>49</sub> X	J <sub>40</sub> X	J <sub>32</sub> X	26	B	J <sub>23</sub> X	19	
16	J <sub>38</sub> X	J <sub>54</sub> X	J <sub>85</sub> X	J <sub>40</sub> X	J <sub>39</sub> X	J <sub>29</sub> X	J <sub>64</sub> X	B	40	33	27	27	28	G	G	20	G	E <sub>22</sub> B	E <sub>11</sub> B	18	J <sub>22</sub> X	17	J <sub>26</sub> X		
17	J <sub>26</sub> X	J <sub>30</sub> X	J <sub>26</sub> X	J <sub>39</sub> X	J <sub>52</sub> X	J <sub>20</sub> X	J <sub>44</sub> X	J <sub>28</sub> X	J <sub>24</sub> X	18	G	G	G	25	25	G	J <sub>20</sub> X	J <sub>19</sub> X	16	15	E <sub>12</sub> B	16	18	J <sub>30</sub> X	
18	32	J <sub>37</sub> X	J <sub>34</sub> X	J <sub>61</sub> X	J <sub>49</sub> X	J <sub>31</sub> X	53	J <sub>52</sub> X	J <sub>41</sub> X	B	E <sub>30</sub> B	25	22	24	G	22	G	16	G	J <sub>14</sub> X	J <sub>21</sub> X	J <sub>12</sub> X	17	26	
19	18	27	47	46	30	45	35	J <sub>26</sub> X	25	21	45	E <sub>26</sub> B	B	E <sub>44</sub> B	E <sub>34</sub> B	E <sub>23</sub> B	E <sub>23</sub> B	E <sub>21</sub> B	E <sub>21</sub> B	16	16	J <sub>20</sub> X	J <sub>17</sub> X	17	
20	18	17	J <sub>21</sub> X	J <sub>38</sub> X	13	J <sub>12</sub> X	17	J <sub>22</sub> X	G	G	G	G	G	G	G	G	24	17	E <sub>11</sub> B	J <sub>20</sub> X	J <sub>23</sub> X	J <sub>24</sub> X	J <sub>25</sub> X	J <sub>22</sub> X	
21	J <sub>26</sub> X	34	30	J <sub>41</sub> X	27	33	J <sub>39</sub> X	J <sub>52</sub> X	55	B	J <sub>42</sub> X	28	26	G	E <sub>47</sub> B	E <sub>48</sub> B	E <sub>27</sub> B	E <sub>33</sub> B	E <sub>23</sub> B	E <sub>21</sub> B	20	J <sub>37</sub> X	J <sub>39</sub> X	42	
22	41	37	76	60	J <sub>45</sub> X	53	54	43	J <sub>47</sub> X	J <sub>57</sub> X	B	E <sub>26</sub> B	B	B	E <sub>23</sub> B	E <sub>25</sub> B	E <sub>26</sub> B	E <sub>14</sub> B	E <sub>23</sub> B	E <sub>14</sub> B	32	33	40	J <sub>52</sub> X	
23	J <sub>46</sub> X	J <sub>64</sub> X	J <sub>32</sub> X	133	B	40	B	53	35	25	E <sub>22</sub> B	B	B	B	E <sub>25</sub> B	G	J <sub>22</sub> X	E <sub>31</sub> B	B	B	C	C	C	30	
24	J <sub>27</sub> X	28	J <sub>37</sub> X	41	31	30	37	B	42	22	E <sub>20</sub> B	G	G	G	G	G	20	17	E <sub>21</sub> B	E <sub>16</sub> B	E <sub>15</sub> B	21	30	B	
25	30	32	J <sub>38</sub> X	48	45	J <sub>47</sub> X	J <sub>41</sub> X	32	B	33	28	G	G	G	25	E <sub>22</sub> B	27	E <sub>27</sub> B	E <sub>21</sub> B	E <sub>10</sub> B	E <sub>15</sub> B	E <sub>11</sub> B	B	J <sub>20</sub> X	
26	32	J <sub>70</sub> X	J <sub>104</sub> X	106	103	J <sub>54</sub> X	42	31	25	27	B	30	B	B	B	B	E <sub>55</sub> B	E <sub>48</sub> B	E <sub>25</sub> B	B	30	34	J <sub>37</sub> X	J <sub>54</sub> X	
27	47	42	45	41	47	42	J <sub>35</sub> X	21	G	26	J <sub>35</sub> X	J <sub>23</sub> X	G	G	G	26	G	19	17	J <sub>24</sub> X	14	14	J <sub>24</sub> X	30	
28	22	32	J <sub>41</sub> X	J <sub>42</sub> X	J <sub>34</sub> X	25	20	G	21	J <sub>24</sub> X	J <sub>25</sub> X	J <sub>26</sub> X	G	30	26	J <sub>24</sub> X	J <sub>24</sub> X	J <sub>24</sub> X	16	18	14	23	30	32	
29	J <sub>34</sub> X	31	J <sub>35</sub> X	J <sub>34</sub> X	J <sub>44</sub> X	J <sub>47</sub> X	27	G	J <sub>23</sub> X	J <sub>20</sub> X	J <sub>24</sub> X	24	28	G	26	22	17	17	J <sub>20</sub> X	10	E <sub>10</sub> B	31	16	17	
30	C	31	J <sub>32</sub> X	J <sub>52</sub> X	40	26	21	20	G	29	G	G	28	G	G	27	17	16	E <sub>10</sub> B	E <sub>10</sub> B	E <sub>11</sub> B	B	17	J <sub>33</sub> X	
31	J <sub>34</sub> X	J <sub>45</sub> X	J <sub>42</sub> X	J <sub>45</sub> X	J <sub>41</sub> X	J <sub>70</sub> X	41	60	J <sub>46</sub> X	48	B	34	E <sub>30</sub> B	B	B	G	E <sub>21</sub> B	E <sub>23</sub> B	E <sub>15</sub> B	E <sub>11</sub> B	J <sub>29</sub> X	J <sub>40</sub> X	J <sub>52</sub> X	J <sub>65</sub> X	
CNT	29	31	29	31	28	26	28	25	23	24	20	25	22	23	24	28	27	27	26	21	22	23	26	29	
MED	32	32	J <sub>38</sub> X	41	42	J <sub>32</sub> X	38	32	30	26	24	24	20	E <sub>20</sub> G	E <sub>22</sub> G	E <sub>22</sub> G	E <sub>21</sub> G	E <sub>19</sub> B	E <sub>17</sub> B	15	18	20	22	29	
UQ	J <sub>38</sub> X	38	45	46	J <sub>44</sub> X	J <sub>45</sub> X	44	J <sub>47</sub> X	42	34	32	26	27	U <sub>24</sub>	E <sub>26</sub> B	E <sub>28</sub> B	E <sub>25</sub> B	E <sub>26</sub> B	U <sub>19</sub>	18	26	28	J <sub>30</sub> X	J <sub>33</sub> X	
LQ	26	29	J <sub>32</sub> X	36	32	26	27	22	22	20	E <sub>20</sub> G	E <sub>20</sub> G	G	G	G	E <sub>16</sub> G	E <sub>17</sub> G	16	E <sub>15</sub> B	E <sub>13</sub> B	E <sub>14</sub> B	14	17	21	

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AUG. 1971

FOES (0.1 MHZ)

# IONOSPHERIC DATA

AUG. 1971

F=MIN (0.1 MHZ)

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

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

Hour Day	00	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	20	E C 28	11	10	11	10	12	25	B	B	15	10	14	10	10	13	13	15	B	B	B	10	8	
2	7	8	8	10	10	12	10	B	B	B	B	B	B	B	48	22	B	13	B	19	13	9	7		
3	8	10	11	13	21	22	13	8	E C 11	9	11	12	13	12	13	12	E C 11	9	9	10	10	9	10	10	
4	8	10	B	13	23	B	15	14	B	16	14	15	15	14	12	13	57	B	B	B	B	12	8	8	
5	8	9	8	10	B	B	B	B	B	25	B	B	B	B	28	30	26	27	B	B	B	B	12	10	
6	E C 11	8	10	8	8	8	8	9	9	11	28	17	14	14	12	12	10	9	9	8	8	7	7	8	
7	8	8	8	8	7	8	8	10	11	13	12	20	21	15	13	12	13	15	10	11	10	B	9	8	
8	8	21	13	12	11	12	15	15	B	B	B	26	30	B	B	35	B	25	10	13	11	10	9	10	
9	11	27	15	15	10	B	15	10	20	16	15	19	B	30	29	B	B	37	B	B	10	9	9	20	
10	14	11	12	8	10	10	15	16	B	22	B	B	B	22	17	14	16	14	15	15	B	10	8	12	
11	25	10	26	19	B	B	B	B	B	B	B	22	22	20	B	B	B	B	B	B	B	11	10	10	
12	E C 13	10	30	12	25	B	25	E C 13	13	B	B	B	B	37	B	47	B	B	17	B	B	B	B	10	
13	9	10	E C 15	18	16	13	13	21	B	22	B	B	30	B	B	29	21	12	14	B	B	B	B	B	
14	B	17	B	14	13	11	10	13	11	22	23	21	18	28	22	22	21	26	11	13	B	10	B	18	
15	10	9	12	10	E C 11	10	10	B	13	11	14	19	23	25	25	30	17	11	19	21	21	B	10	9	
16	8	11	13	10	8	10	12	B	14	14	13	13	15	15	18	15	13	22	11	12	10	9	8	9	
17	7	8	9	8	7	11	11	9	9	10	13	14	17	13	15	13	10	10	10	10	12	10	10	10	
18	9	E C 14	8	10	11	11	15	14	23	B	30	19	15	13	15	12	11	10	12	13	10	10	9	7	
19	7	8	17	13	15	10	15	10	10	11	20	26	B	44	34	23	23	21	21	10	10	11	10	10	
20	E C 12	10	8	8	8	9	8	8	10	12	14	14	15	15	15	12	12	11	11	8	8	8	8	8	
21	8	8	8	10	9	10	9	9	11	B	22	20	18	21	47	48	27	33	23	21	11	9	10	29	
22	11	13	11	10	11	21	17	13	11	21	B	26	B	B	23	25	26	14	23	14	13	9	13	10	
23	10	13	15	22	B	34	B	25	22	20	22	B	B	B	25	15	11	31	B	B	C	C	C	9	
24	8	8	13	21	10	14	22	B	14	15	20	16	18	19	15	13	13	13	21	16	15	8	20	B	
25	8	15	21	14	15	13	E C 17	10	B	20	15	14	12	14	12	22	22	27	21	10	15	11	B	10	
26	10	22	15	24	18	23	21	14	14	20	B	23	B	B	B	B	55	48	25	B	15	8	10	12	
27	16	16	E C 26	24	23	20	12	10	10	11	10	11	15	11	14	13	10	9	9	9	9	10	9	8	
28	8	8	15	12	11	11	10	9	10	10	10	10	13	12	11	10	10	9	8	9	9	10	9	9	
29	E C 19	9	10	10	11	10	10	10	9	9	12	12	12	15	14	14	13	10	10	9	10	9	9	9	
30	C	9	9	12	25	13	12	10	10	11	15	17	15	15	15	14	13	10	10	10	11	B	10	10	
31	10	10	10	14	10	15	22	12	13	25	B	19	30	B	B	16	21	23	E C 15	11	8	8	16	9	
	00	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	30	30	30	31
MED	9	10	12	12	11	12	13	13	13	20	22	19	18	20	18	15	17	15	15	13	12	10	10	10	
UQ	11	14	16	14	20	22	17	18	D B 25	25	B	26	B	D B 44	40	30	26	29	22	B	B	13	12	10	
LQ	8	8	10	10	10	10	10	10	10	11	14	14	15	14	14	13	12	10	10	10	10	9	9	8	

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AUG. 1971

F=MIN (0.1 MHZ)

# IONOSPHERIC DATA

AUG. 1971

M(3000)F2 (0.01)

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

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

Hour Day	00	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	C	A	F <sub>260</sub>	A <sub>275</sub>	A	R	R	B	B	315	F	345	J <sub>R</sub> 340	J <sub>R</sub> 355	F	U <sub>R</sub> 350	345	B	B	B	R	A								
2	A	R	U <sub>A</sub> 305	A	A	A	A	B	B	B	B	B	B	B	B	I <sub>R</sub> 340	325	B	J <sub>R</sub> 345	B	R	R	R	A								
3	A	A	A	A	A	B	A	280	F	J <sub>F</sub> 310	F	330	355	335	V	370	365	310	325	405	J <sub>F</sub> 295	F	375	F	375	345	335	A	A			
4	A	A	B	A	B	B	A	A	B	A	U <sub>R</sub> 305	325	F	350	320	315	330	R	B	B	B	B	R	A	A							
5	A	A	A	A	B	B	B	B	B	A	B	B	B	B	B	290	345	R	340	R	B	B	B	B	R	A						
6	A	A	A	A	F	F	F	F	320	F	J <sub>F</sub> 330	360	350	R	F	325	360	335	355	360	F	385	A	A	A							
7	F	315	F	315	A	U <sub>F</sub> 305	F	260	F	290	U <sub>F</sub> 275	U <sub>F</sub> 290	F	345	340	335	325	335	325	355	U <sub>R</sub> 345	365	F	350	355	B	335	F	A			
8	A	B	A	A	A	A	A	A	B	B	B	U <sub>R</sub> 275	290	B	B	300	B	325	285	A	A	A	A	A								
9	A	B	A	A	A	B	A	A	A	A	325	325	B	R	355	320	B	B	R	B	B	A	R	A	A							
10	A	A	A	A	A	R	A	A	B	R	B	B	B	295	335	360	325	335	350	305	B	R	A	A								
11	B	A	B	A	B	B	B	B	B	B	B	305	320	325	B	B	B	B	B	B	B	B	R	R	A							
12	A	A	B	A	B	B	B	F	A	B	B	B	B	R	B	R	B	B	R	B	B	B	B	B	R							
13	A	A	A	A	A	A	A	A	B	315	B	B	345	B	B	I <sub>R</sub> 340	350	320	360	B	B	B	B	B								
14	B	R	B	A	A	A	A	A	320	F	325	340	I <sub>R</sub> 325	360	365	365	345	340	325	F	340	350	F	B	R	B	B					
15	R	A	A	A	A	F	F	B	U <sub>R</sub> 310	J <sub>R</sub> 340	R	R	J <sub>R</sub> 355	J <sub>R</sub> 350	R	345	365	350	300	F	A	R	B	A	A							
16	A	A	A	A	F	A	A	B	A	F	295	315	345	340	340	320	365	U <sub>F</sub> 340	R	345	F	360	345	300	325	A						
17	A	A	U <sub>A</sub> 275	A	F	A	A	U <sub>F</sub> 280	J <sub>F</sub> 295	F	320	F	J <sub>F</sub> 335	J <sub>R</sub> 350	335	375	340	350	350	F	F	325	F	335	355	A	A	A				
18	A	A	A	A	A	A	A	A	A	B	270	300	325	320	350	350	330	360	335	375	310	345	A	A								
19	A	A	A	A	A	A	A	F	315	F	300	F	325	340	B	315	335	335	355	325	345	J <sub>F</sub> 320	J <sub>F</sub> 320	315	F	310	310					
20	I <sub>A</sub> 300	F	315	F	285	290	250	F	285	F	F	305	F	J <sub>F</sub> 345	335	355	350	355	355	365	J <sub>R</sub> 340	340	345	300	355	F	290	315	F	265		
21	U <sub>F</sub> 250	A	A	A	A	F	F	A	F	B	320	315	F	305	F	295	315	300	340	U <sub>R</sub> 320	R	295	A	A	A	B						
22	A	A	A	A	A	B	A	A	A	A	B	330	B	B	340	345	325	325	F	325	300	F	A	A	A	A						
23	A	A	A	A	B	B	B	A	R	290	295	B	B	B	330	355	330	335	B	B	C	C	C	A								
24	U <sub>R</sub> 265	A	A	B	A	A	B	B	310	F	330	345	335	330	345	320	335	F	J <sub>F</sub> 350	F	340	J <sub>R</sub> 305	R	A	B	B						
25	A	A	B	A	A	A	A	J <sub>F</sub> 270	B	310	300	310	330	350	J <sub>F</sub> 355	335	360	R	325	350	F	F	335	355	B	A						
26	A	B	A	B	A	A	A	F	300	F	315	300	B	R	B	B	B	325	R	F	B	R	A	A	A							
27	A	A	A	A	A	A	A	F	285	315	295	295	335	325	325	330	335	355	350	U <sub>R</sub> 345	J <sub>F</sub> 340	F	340	335	A							
28	A	A	A	A	A	A	F	260	F	280	305	315	325	320	320	345	345	315	U <sub>R</sub> 365	325	J <sub>F</sub> 330	F	320	F	R	A	A					
29	C	A	A	A	A	A	F	250	F	290	F	295	300	310	200	F	285	F	300	J <sub>F</sub> 325	345	335	350	F	370	F	340	350	F	280		
30	C	A	A	A	B	F	260	F	265	F	270	285	300	300	315	290	315	325	335	340	F	320	F	J <sub>F</sub> 325	F	B	310	A				
31	A	A	A	A	A	A	A	A	A	A	B	R	R	B	B	305	R	295	330	335	305	A	A	A	A							
CNT	4	2	3	2	6	6	7	12	14	18	19	22	20	21	23	27	25	21	20	18	12	8	7	3								
MED	282	315	F	U <sub>A</sub> 285	298	268	F	275	F	265	F	282	310	F	315	325	325	330	340	330	340	340	330	340	342	F	342	338	F	315	F	280
UQ	308		295		280	F	285	F	275	F	295	315	F	330	340	335	348	350	340	350	350	350	345	355	F	352	348	F	330	F	295	
LQ	U	258		280	260	F	260	F	258	F	280	295	F	300	302	315	320	320	320	335	330	325	325	305	F	322	315	F	310	F	272	

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M(3000)F2 (0.01)



# IONOSPHERIC DATA

AUG. 1971

H<sup>o</sup>F<sub>2</sub> (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2																								
3																								
4																								
5																								
6																	L							
7																								
8																								
9																								
10																								
11														255										
12																								
13																								
14																								
15																								
16																								
17																								
18																								
19																								
20																								
21													280	280										
22												275												
23																								
24														L										
25													240											
26																								
27												L		L	215	210								
28																								
29														L	L									
30												L	280	L	260	250								
31												R	R	B	B									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT												2	2	3	2	1								
MED												278	260	260	232	210								
UQ													270											
LQ													258											

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H<sup>o</sup>F<sub>2</sub> (KM)

### IONOSPHERIC DATA

AUG. 1971

H<sup>o</sup>F (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	B	C	A	A	A	A	330	B	B	B	220	210	220	210	225	215	225	240	B	B	B	A	A	
2	A	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	240	B	220	B	B	B	A	A	
3	A	A	A	A	A	B	A	340	280	250	225	210	210	220	205	205	195	225	200	230	260	A	A	A	
4	A	A	B	A	B	B	A	A	B	A	A	230	225	200	230	230	B	B	B	B	B	R	A	A	
5	A	A	A	A	B	B	B	B	B	B	B	B	B	B	B	265	235	225	B	B	B	B	B	A	A
6	A	A	A	A	A	E A 360	A 325	A 300	290	230	230	210	215	215	220	215	190	205	245	A	A	A	A	A	
7	A	A	A	E A 330	A 360	A 365	A 320	A 330	315	250	230	220	230	220	220	200	220	210	210	250	250	B	230	A	
8	A	B	A	A	A	A	A	A	B	B	B	B	B	B	B	B	B	B	E A 350	A	A	A	A	A	
9	A	B	A	A	A	B	A	A	B	A	280	260	B	230	B	B	B	B	B	B	A	R	A	B	
10	A	A	A	A	A	A	A	A	B	B	B	B	B	250	220	225	245	220	215	230	B	R	A	A	
11	B	A	B	B	B	B	B	B	B	B	B	250	265	250	B	B	B	B	B	B	B	A	A	A	
12	A	A	B	A	B	B	B	A	A	B	B	B	B	E B 250	B	B	B	B	225	B	B	B	B	A	
13	A	A	A	A	A	A	A	B	B	B	B	B	245	B	B	230	220	225	215	B	B	B	B	B	
14	B	B	B	A	A	A	A	A	E A 320	270	240	230	230	225	220	210	230	E B 250	225	225	B	R	B	B	
15	A	A	A	A	A	A	A	B	A	230	225	230	230	230	220	225	200	210	A	B	B	B	A	A	
16	A	A	A	A	325	A	A	B	A	A	240	225	230	230	220	220	215	200	215	220	B	B	B	A	
17	A	A	A	A	A	A	A	330	280	240	220	210	205	200	215	215	200	215	245	250	250	A	A	A	
18	A	A	A	A	A	A	B	A	B	B	B	260	230	225	240	220	230	210	230	E B 230	B	B	B	A	
19	A	A	B	A	A	A	A	320	305	255	260	260	B	B	B	220	225	240	245	205	250	B	B	B	
20	C	A	A	A	A	A 305	A 400	B	260	230	225	215	220	220	215	250	220	200	205	205	250	275	275	A	
21	A	A	A	A	A	A	A	A	A	B	B	280	250	225	215	I B 250	B	245	E B 250	B 300	B 295	A	A	A	B
22	A	A	A	A	A	B	B	A	A	A	B	260	B	B	250	230	250	230	250	295	A	A	A	A	
23	A	A	A	A	B	B	B	B	A	R 315	265	B	B	B	230	215	230	230	B	B	C	C	C	A	
24	A	A	A	B	A	A	B	B	300	250	220	245	220	230	230	230	230	215	230	245	B	A	B	B	
25	A	A	B	A	A	A	A	370	B	A	255	230	215	230	200	230	225	E B 245	B	230	250	B	B	A	
26	A	B	B	B	B	B	B	A	220	310	B	R	B	B	B	B	B	B	B	B	330	A	A	A	A
27	A	A	C	B	B	B	A	300	280	250	240	230	220	220	200	220	220	230	200	210	230	265	A	A	A
28	A	A	A	A	A	A	A	400	330	265	240	215	230	230	230	220	200	215	215	250	280	A	A	A	
29	C	A	A	A	A	A	A	A	315	250	240	225	230	230	225	210	215	215	210	200	200	220	230	255	260
30	C	A	A	A	B	420	380	E A 400	280	255	240	200	245	200	230	230	200	215	220	205	240	B	B	A	
31	A	A	A	A	A	A	B	A	A	A	B	A	B	B	B	240	275	250	220	280	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	4	5	11	13	15	18	22	20	22	24	24	25	23	24	18	11	3	3	1	
MED				E A 330	342	362	380	A 330	280	250	235	230	228	224	220	222	220	218	221	230	250	265	255	260	
UQ					392	400	A 332	295	255	255	250	230	230	230	230	230	230	228	244	250	250	270	265		
LQ					A 318	A 325	A 318	265	240	225	220	218	220	215	215	215	215	210	215	208	235	248	242		

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H<sup>o</sup>F (KM)

### IONOSPHERIC DATA

AUG. 1971

H<sup>+</sup>E<sup>s</sup> (KM)

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

Station	SYOWA STATION				Lat. 69 00.4 S.	Long. 39 35.4 E				Sweep	MHz to 15 MHz in 30 sec in automatic operation														
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	120	105	110	115	110	100	105	130	120		B	B	120	125	G	100	130	135	B	B	B	B	B	130	110
2	105	120	115	120	100	100	100		B	B	B	B	B	B	B	B	B	B	170	B	150	150	105	100	
3	105	120	110	105	120	115	150	105	105	G	G	110	120	G	G	130	G	G	150	100	115	170	165	130	
4	105	120	B	100	115	B	100	100	B	100	100	100	130	G	120	120	B	B	B	B	B	B	130	110	110
5	120	115	115	100	B	B	B	B	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	120	120
6	105	105	105	100	105	100	100	100	100	130	B	125	120	120	120	120	105	105	100	100	100	130	100	100	
7	115	110	100	115	130	130	115	120	120	B	G	B	B	115	120	G	B	115	100	B	B	B	100	120	
8	110	125	110	110	100	110	100	110	B	B	B	130	B	B	B	B	B	B	110	125	120	115	105	100	
9	125	120	100	100	130	B	100	100	105	105	115	G	B	B	B	B	B	B	B	B	110	150	100	120	
10	100	110	105	105	100	110	100	100	B	100	B	B	B	130	130	G	B	B	B	B	B	150	105	120	
11	125	100	100	100	B	B	B	B	B	B	B	B	110	B	B	B	B	B	B	B	B	150	130	130	
12	115	110	130	105	115	B	100	100	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	17	
13	100	105	105	105	100	105	110	100	B	115	B	B	B	B	B	B	B	125	B	B	B	B	B	B	
14	B	150	B	110	100	100	110	100	100	B	B	B	G	B	B	B	B	B	B	B	B	180	B	125	
15	125	110	110	100	110	125	135	B	110	145	130	140					115	105	105	115	110	B	100	100	
16	105	105	100	100	110	100	105	B	150	100	130	130	130	G	G	150	G	B	B	100	100	100	175	160	
17	110	115	130	115	140	115	100	115	130	100	G	G	G	110	140	G	100	100	130	160	B	120	100	150	
18	115	105	115	100	100	100	100	100	105	B	B	165	110	110	G	130	G	125	G	120	115	110	110	100	
19	110	100	110	105	120	100	100	110	115	110	110	B	B	B	B	B	B	B	B	100	110	120	100	115	
20	115	100	100	100	120	120	135	100	G	G	G	G	G	G	G	G	130	120	B	120	140	115	120	125	
21	140	100	110	100	110	110	105	100	100	B	110	110	125	G	B	B	B	B	B	B	125	115	110	125	
22	100	100	105	130	100	100	100	105	100	100	B	B	B	B	B	B	B	B	B	B	115	110	105	140	
23	100	110	110	120	B	110	B	115	110	110	B	B	B	B	B	G	100	B	B	B	C	C	C	105	
24	105	105	125	120	110	80	100	B	130	130	B	G	G	G	G	G	125	120	B	B	B	110	100	B	
25	100	120	110	100	100	100	130	110	B	110	110	G	110	105	130	B	125	B	B	B	B	B	B	150	
26	105	120	100	100	110	120	100	110	120	120	B	100	B	B	B	B	B	B	B	B	120	105	105	115	
27	100	100	105	130	125	100	105	125	G	100	100	100	G	G	G	100	G	100	100	100	120	110	100	100	
28	105	105	100	100	100	105	110	G	100	100	100	100	G	110	100	100	100	100	105	130	170	120	110	105	
29	120	110	105	120	130	100	105	G	100	100	100	105	110	G	120	110	100	105	100	125	B	100	100	100	
30	C	105	105	105	100	105	120	105	G	100	G	G	120	G	G	130	120	110	B	B	B	B	100	100	
31	105	100	105	100	100	100	100	100	100	125	B	105	B	B	B	G	B	B	C	B	120	105	110	165	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	29	31	29	31	28	26	28	23	20	20	10	14	11	7	9	10	11	12	10	12	16	22	26	29	
MED	105	110	105	105	110	102	102	105	108	102	110	110	120	110	120	125	115	108	105	118	118	118	105	115	
UQ	115	118	110	115	120	110	110	110	120	118	115	130	125	118	130	130	125	120	130	125	122	150	110	125	
LQ	105	105	105	100	100	100	100	100	100	100	100	100	110	110	120	110	100	102	100	100	110	110	100	100	

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H<sup>+</sup>E<sup>s</sup> (KM)

# IONOSPHERIC DATA

AUG. 1971

TYPES OF ES

45° E Mean Time (G. M. T. + 3h)

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

Hour Day	00	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	R1	RF31	R3	R3	R2	R1	L1			R1	H1		L1	RL11	LR11						R1	FR12	
2	R3	R1	F2	R1	R2	R2	R1												LL11		R1	R1	RN21	FR17	
3	R3	F3	R2	R3	R1	R1	RR11	R2	L1			C1	H1			H1			F1	F1	R1	R1	R1	R1	
4	N1	R3		R1	R1		R1	R1		R1	R2	R1	C1		H1	C1						F1	RR23	R4	
5	F2	R2	R3	R3						R1														R1	R2
6	R4	R6	R2	R2	R3	F2	R2	F2	F1	H1		L1	R1	HL11	LL11	LL11	L1	L1	L1	F1	F1	R2	FR13	FR16	
7	R2	F3	R2	N1	RR11	R1	R1	R1	F1					L1	RL11				F1	F1			RR11	R1	
8	R1	R1	R2	R1	R1	R1	R1	R1				R1							R2	R1	N2	N3	R3	R3	
9	R3	R1	R1	R1	RF11		R1	R2	R1	R1	R1										R2	R1	R3	R1	
10	FF11	R2	R2	R4	R3	R1	R1	R1		R1				R1	C1							R1	R3	R2	
11	F1	R5	F1	R1									R1									R1	R1	RR11	
12	R4	R5	R1	R2	R1		F1	R2	R1															R1	
13	R2	R2	R2	R2	R1	R1	R1	R1		R1										L1					
14		R1		R1	R2	R2	R3	R1	R1													R1		F1	
15	R1	R2	R1	R2	R1	R1	R1		R1	R1	R1	L1					L1	LL11	F1	F1	F1		FR11	FR11	
16	R2	RF11	R2	R2	F1	R2	R2		R1	R1	H1	H1	H1			H1				F1	R1	FR11	FR11	NF11	
17	A1	R2	NF11	F4	RR11	FF11	R1	R1	RL11	L1				L1	H1		L1	L1	L1	R1		F1	F1	FF11	
18	FR12	R2	F3	R3	R1	R1	R1	R1	R1			H1	L1	L1		R1			C1		F1	F1	R1	F1	
19	R4	R2	R2	R2	R2	RF11	R1	R1	R1	R1	L1									F1	F1	F1	R1	R1	
20	FR11	F1	F1	F1	R1	F1	FF11	F1									R1	L1		L1	F1	F1	FR11	R1	
21	R2	FR11	R3	R3	R3	R2	R2	R3	R2		L1	R1	C1								R2	R5	R2	R1	
22	R1	R1	RF21	R1	R1	R1	R2	R1	R2	R1											R1	R2	R1	NR11	
23	R2	R1	R1	N1		F1		R1	R1	L1							L1							R1	
24	R1	R1	R1	R1	R4	F1	R1		RR11	H1							R1	L1				R1	F1		
25	R5	R1	R1	R1	R1	F1	RR11	R1		R1	R1			L1	L1	CL11		R1						N1	
26	R5	F1	F1	F1	FR11	R1	R1	L1	L1	R1	L1										R1	R5	R4	R1	
27	R2	R1	R1	R1	R1	R1	R2	RL11		C1	L1	L1				L1		L1	C1	F1	H1	F1	F1	FR11	
28	R1	R5	R1	R2	R2	R1	R2		C1	L1	L1	L1		C1	L1	L1	L1	C1	C1	R1	R1	R1	R3	R5	
29	F4	R5	R7	R3	NF11	R3	R4		L1	C1	C1	L1		L1	L1	L1	L1	C1	L1	F1		F1	F1	F1	
30		R1	R1	F1	R1	R1	R1	R2		L1						H1	L1	L1					R1	R3	
31	R4	R4	R3	R1	F1	F1	F1	F1	R1	R1		R1									N1	R5	R1	RR11	
	00	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. 1971

TYPES OF ES

### IONOSPHERIC DATA

SEP. 1971

FOF2 (0.1 MHz)

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

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

Hour Day	00	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	A	B	A	A	A	B	B	37	40	B	R	45	45	48	47	38	UR	B	B	B	A							
2	A	B	A	B	R	R	B	B	B	B	B	B	B	B	B	B	B	B	B	31	24	16	B	B							
3	B	R	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R							
4	B	A	R	R	A	18	UF	20	26	JR	28	R	50	55	R	65	UR	58	59	60	UR	46	33	32	25	A	A	A			
5	A	A	A	A	A	A	A	A	B	B	B	B	B	B	49	B	B	B	R	47	F	42	A	A	A	A	A				
6	A	A	A	A	A	A	22	30	37	46	46	B	52	56	66	62	62	55	43	35	A	A	A	A							
7	A	A	A	A	R	B	B	A	B	UR	40	41	48	B	B	B	F	57	49	44	R	A	A	A	A						
8	A	B	B	B	A	B	B	R	B	B	B	B	B	B	B	UR	63	51	54	40	B	B	R	R							
9	A	A	A	A	B	A	F	31	F	34	42	50	55	62	55	64	65	71	UR	60	F	51	53	R	R	B	A	A			
10	A	A	A	A	A	A	A	A	42	47	B	US	60	69	72	68	62	60	60	60	R	F	32	F	23	16	F	F			
11	UF	15	A	A	A	A	F	F	45	UF	49	F	48	45	F	71	F	70	72	70	F	66	R	UC	69	F	50	R	A	A	
12	A	C	A	A	A	A	A	42	F	44	49	54	60	66	JR	74	F	59	52	55	50	40	33	22	20	15					
13	A	A	A	A	A	C	B	B	B	45	R	B	B	B	F	B	B	60	50	48	F	36	F	25	R	A					
14	A	A	B	A	A	A	A	A	F	39	43	F	42	B	57	58	57	65	UR	63	58	47	40	F	33	F	24	A	A		
15	A	A	A	B	A	A	A	F	38	F	42	49	51	60	R	67	71	F	JF	74	F	61	F	J	50	J	F	U	F	F	A
16	R	A	A	A	A	A	B	F	42	F	45	50	55	60	B	74	F	81	82	F	70	58	R	JR	50	F	36	F	26	F	B
17	A	A	R	A	A	A	A	41	B	52	61	64	75	77	74	79	72	66	F	F	F	F	F	F	F	27	A	A			
18	A	A	A	F	A	A	B	B	B	A	A	R	B	52	52	B	58	B	F	47	F	40	F	A	A	A	A				
19	A	A	A	A	R	A	R	A	42	42	43	50	54	52	B	49	52	50	55	F	48	F	40	F	F	A	A				
20	A	A	A	A	A	R	R	R	B	B	34	50	B	66	73	77	UR	73	F	JR	62	46	R	R	R	R					
21	B	A	B	A	A	A	A	36	42	47	51	51	55	55	61	62	61	62	IR	55	51	F	40	F	A	B					
22	A	F	16	17	F	17	A	B	47	50	58	60	64	70	75	85	JR	83	76	70	F	F	F	J	40	F	F				
23	R	F	F	UF	F	F	F	31	41	51	B	58	70	81	UR	86	82	74	70	C	C	C	C	C	C	C					
24	F	F	F	UF	F	F	JF	35	49	JR	59	69	80	80	JR	84	75	F	89	JR	73	69	70	63	C	C	C				
25	A	A	A	B	A	A	B	A	A	B	B	B	B	B	B	B	R	49	F	F	F	F	A	A	A	A					
26	A	A	A	A	A	A	A	A	40	42	43	45	UR	43	46	55	50	47	47	45	45	F	36	F	26	A	A				
27	A	B	B	A	46	F	B	R	A	R	R	B	R	B	R	39	B	41	F	41	31	R	A	A	A						
28	A	A	A	A	B	A	B	A	R	40	B	B	B	B	B	56	54	JR	66	R	54	F	R	UF	21	J	F	20			
29	F	F	A	A	A	A	F	40	45	46	50	52	54	55	62	60	62	66	60	F	60	53	UF	50	F	40	J	F	F		
30	V	15	A	B	A	F	34	40	45	47	49	B	B	56	62	64	73	B	B	C	46	A	A	A	F	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	4	3	2	3	2	3	7	14	17	19	19	17	16	21	18	22	22	23	23	20	13	11	5	4							
MED	20	F	16	22	UF	20	32	F	21	F	31	42	42	48	51	60	62	65	66	64	62	55	50	42	36	F	25	F	20	F	16
UQ	F	F	18	UF	23	F	28	F	38	45	47	50	55	62	70	74	73	74	70	60	58	50	40	F	26	F	20	F	18		
LQ	18	16	F	18	F	20	F	26	36	42	44	43	50	55	56	58	59	57	50	44	34	33	F	24	F	20	F	16			

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FOF2 (0.1 MHz)

# IONOSPHERIC DATA

SEP. 1971

FOF1 (0.01 MHZ)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1											L	L													
2																									
3																									
4																									
5												B	B	350	B										
6									L	L	B		L												
7										B	360	B	B												
8																									
9											L	L	L	L											
10													L	L											
11												L	L	L	B										
12														L	L										
13									340	A	B	B	B	B	B										
14									L	380	B	B	L												
15										L	L	L	L												
16									L	L	L	B		L											
17											L	L	L	L											
18												350	B	390	380	B									
19										L	R	380	B	B											
20										L	390	B	B	B	L										
21								310	340	360	370	380	380	L	L	L	L								
22									A	380	410	420	L	L	L	L									
23									L	B	L	L		L	L				L						
24											L		L	L		L									
25													B	B	B	B	340	L							
26									340	360	360	380	390	390	L	L	L								
27									A	350	B	B	360	B	380	350	B	L							
28									360	360	B	B	B	B	B	B	L	L							
29											L	L	R	U	L	L									
30								320	360	380	B	B	410	400	U	C	L								
31								L	320	350	400			410	410	410									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT								3	5	7	6	8	5	5	4	2	1								
MED								320	350	360	375	380	380	390	380	360	340								
UQ								320	360	380	380	400	390	400	395										
LQ								315	340	360	360	355	380	390	365										

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FOF1 (0.01 MHZ)

# IONOSPHERIC DATA

SEP. 1971

FOE (0.01 MHZ)

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

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

Hour Day	00	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	210	220	B	B	B	B	B	B	B						
2							B	B	B	B	B	B	B	B	B	B	B	B	B						
3							B	B	B	B	B	B	B	B	B	B	B	B	B						
4							A	B	B	B	B	B	B	B	B	B	B	B	B						
5							B	B	B	B	B	B	B	B	B	B	B	B	120						
6						150		A	R	170	200	205	B	B	B	230	210	B	B	B					
7						B	B	B	B	B	B	245	B	B	B	B	B	B	R						
8						B	B	B	B	B	B	B	B	B	B	B	B	B	B						
9						A	165	H	170	H	195	H	225	H	245	H	250	235	220	210	I	B	180	B	B
10						A	A	A	A	A	B	S	B	220	225	S	B	A	B						
11						B	A	A	A	210	245	250	240	225	B	B	B	B	B	B	B	B	B	120	
12						A	B	A	A	210	230	250	250	B	220	205	190	150	A	B					
13						B	B	B	B	250	A	B	B	B	B	B	B	B	B	B					
14						A	B	A	A	225	240	B	B	260	250	B	B	B	B	B					
15						A	A	A	A	225	230	250	250	A	A	B	B	A	A						
16						B	A	210	215	U	A	250	250	B	B	R	H	230	215	175	I	A	125		
17						B	B	B	215	230	235	A	265	260	255	240	A	200	185	B	B				
18						B	B	B	A	A	A	A	B	B	B	B	B	B	160	A					
19						B	B	A	A	B	B	B	B	B	B	B	B	B	A	A					
20						C	B	B	B	B	290	B	B	B	B	A	155	150	140						
21						A	H	205	H	205	H	210	H	230	H	250	250	255	255	240	210	160	H	120	90
22						B	B	B	220	230	250	260	250	250	250	245	195	150	B						
23						B	B	B	B	B	B	B	B	B	250	I	B	240	230	C	C	C			
24						B	180	225	260	270	280	290	I	A	290	270	250	190	A	A					
25						B	B	B	B	B	B	B	B	B	B	B	A	230	A	A	A				
26						B	A	170	230	260	265	270	275	260	245	C	C	130	125	B					
27						A	B	B	A	A	A	B	B	B	B	B	B	R	180	A	130				
28						B	B	B	B	B	B	B	B	B	B	230	185	B	C						
29						B	A	A	235	240	250	255	B	280	265	260	230	210	140	B					
30						A	B	190	225	240	B	B	280	275	270	240	B	B	A	A					
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT							1	4	8	15	14	14	10	12	13	12	11	11	8	4			1		
MED						150	185	208	220	230	250	255	258	250	240	230	180	135	128			120			
UQ							198	225	235	250	255	270	275	260	248	230	188	150	135						
LQ							172	170	210	230	245	250	242	230	220	205	168	122	108						

SEP. 1971

FOE (0.01 MHZ)

# IONOSPHERIC DATA

SEP. 1971

FOES (0.1 MHZ)

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

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

Hour Day	00	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 40	J X 31	B	J X 39	53	40	B	B	G	23	B	E B 36	E B 30	E B 22	E B 20	E B 23	E B 24	E B 21	B	B	B	J X 30	
2	33	40	38	39	23	17	B	B	B	B	B	B	B	B	B	B	B	B	B	E B 15	24	16	B	B	
3	B	20	B	25	39	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	14	
4	B	23	17	20	28	18	13	E B 15	E B 26	E B 30	E B 32	E B 27	E B 48	28	E B 27	E B 27	E B 22	E B 29	E B 27	35	E B 16	23	37	60	
5	J X 89	J X 74	J X 79	J X 51	J X 36	38	41	41	B	B	B	B	B	E B 28	B	B	B	E B 25	G	38	40	37	46	J X 94	
6	48	47	50	32	34	51	28	23	G	G	G	B	E B 30	E B 25	G	G	E B 20	E B 25	E B 14	37	31	25	30	31	
7	42	J X 52	J X 82	J X 84	30	42	35	J X 54	B	E B 30	E B 36	G	B	B	B	E B 50	E B 32	E B 26	G	32	J X 39	J X 53	J X 107	59	
8	J X 70	B	B	40	35	B	45	39	B	B	B	B	B	B	B	E B 48	E B 25	23	E B 24	B	B	B	26	22	
9	32	J X 60	42	40	B	J X 31	26	G	G	G	G	G	G	G	G	E B 22	G	E B 21	E B 10	17	B	17	J X 26		
10	J X 62	J X 62	J X 84	J X 53	J X 43	32	43	J X 46	37	31	B	E B 30	E B 28	G	G	E B 25	E B 20	17	19	15	25	31	J X 24	J X 24	
11	22	J X 32	32	31	J X 37	48	34	46	45	22	31	G	G	G	E B 58	E B 60	E B 30	E B 25	E B 25	E B 17	23	18	27	35	
12	40	C	30	43	50	J X 51	46	J X 44	28	30	27	G	G	E B 26	G	G	G	G	17	15	J X 22	E B 12	E B 15	E B 11	
13	25	58	57	48	50	C	B	B	39	J X 43	39	B	B	B	E B 50	B	B	E B 20	E B 29	E B 23	E B 15	J X 30	20	43	
14	59	45	56	42	55	J X 52	J X 46	40	J X 38	30	G	B	E B 50	G	G	E B 57	E B 54	E B 29	E B 31	E B 17	E B 13	13	26	76	
15	70	J X 49	48	47	36	30	J X 45	44	28	25	G	32	31	29	28	E B 26	E B 27	23	27	31	32	32	J X 30	31	
16	17	32	30	36	50	40	B	25	G	26	27	G	B	E B 33	G	G	G	G	15	E B 11	13	20	J X 24	B	
17	29	J X 64	J X 12	53	39	42	43	E B 32	B	G	G	J X 26	G	G	G	30	30	G	E B 20	E B 12	19	J X 20	J X 26	37	
18	J X 33	40	35	J X 84	J X 71	38	B	B	B	61	48	33	B	E B 27	E B 37	B	E B 45	B	26	J X 32	52	52	30	28	
19	J X 36	J X 30	J X 46	33	23	30	28	40	47	33	E B 32	E B 30	E B 33	E B 48	B	E B 33	E B 32	23	29	28	E B 10	J X 26	J X 64	J X 84	
20	J X 63	31	41	47	51	J X 50	J X 32	J X 32	B	B	E B 28	G	B	E B 61	E B 50	E B 31	29	G	J X 25	20	32	23	31	33	
21	B	39	B	32	45	J X 46	38	G	G	G	G	31	G	G	G	G	G	G	G	13	15	18	30	B	
22	23	27	27	20	18	43	B	27	40	G	G	G	G	G	G	G	G	G	17	E B 12	E B 14	E B 16	14	18	
23	27	14	15	J X 23	18	15	E B 15	E B 24	E B 31	B	E B 28	E B 32	E B 32	E B 31	G	E B 27	G	C	C	C	C	C	C	C	
24	30	E B 12	E B 11	E B 10	E B 15	E B 15	E B 13	30	G	G	G	G	G	J X 32	G	G	G	G	J X 24	23	C	C	C	C	
25	J X 63	J X 63	125	B	40	65	B	40	J X 68	B	B	B	B	B	B	E B 45	26	30	J X 32	J X 32	32	J X 29	32	33	
26	115	J X 105	J X 45	J X 30	J X 64	J X 44	46	43	G	G	G	G	G	G	G	E B 25	E B 25	G	G	E B 10	19	33	J X 84		
27	J X 42	B	B	45	42	58	B	31	45	32	31	B	E B 28	B	E B 29	E B 27	B	G	32	G	27	32	32	32	
28	J X 40	38	40	J X 39	B	39	B	47	E B 30	E B 30	B	B	B	B	B	B	G	G	E B 19	E C 22	E C 25	E C 22	22	J X 24	
29	26	30	30	J X 47	J X 120	46	40	30	G	G	G	G	E B 33	G	G	G	G	G	E B 15	E B 15	E B 12	22	E B 10		
30	14	18	28	B	36	22	E B 20	G	G	G	B	B	G	G	G	G	B	B	31	44	39	48	J X 26	J X 60	
31																									
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	26	26	26	28	27	27	21	26	21	22	22	19	18	22	22	23	24	25	27	28	25	24	25	25	
MED	38	40	40	40	39	40	38	36	E G 28	E G 26	E G 27	G	E G 28	E G 26	G	E F 25	E E 22	E B 20	E G U 16	22	23	27	32		
UQ	J X 62	J X 58	50	47	50	47	45	43	39	30	U 29	U 26	E B 32	E B 31	E B 29	E B 30	E B 30	E B 25	26	32	32	32	32	59	
LQ	27	30	30	31	32	30	28	24	G	G	G	G	G	G	G	G	G	G	E G 16	E B 14	E B 15	18	24	24	

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FOES (0.1 MHZ)



# IONOSPHERIC DATA

SEP. 1971

F-MIN (0.1 MHZ)

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

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

Hour Day	00	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	21	12	B	23	16	25	B	B	18	15	B	36	30	22	20	23	24	21	B	B	B	9	
2	10	20	15	23	15	13	B	B	B	B	B	B	B	B	B	B	B	B	B	15	11	11	B	B	
3	B	14	B	14	16	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	12	
4	B	15	13	12	13	11	12	15	26	30	32	27	48	26	27	27	22	29	27	20	16	13	14	13	
5	13	13	11	12	21	17	14	26	B	B	B	B	B	28	B	B	B	25	10	10	11	11	21	11	
6	15	17	20	18	18	15	10	10	13	15	15	B	30	25	15	18	20	25	14	11	E <sub>17</sub> C	10	10	9	
7	9	10	9	12	14	31	27	15	B	30	36	15	B	B	B	50	32	26	10	15	11	9	11	9	
8	10	B	B	33	16	B	39	31	B	B	B	B	B	B	B	B	48	25	15	24	B	B	13	9	
9	10	11	14	20	B	12	13	13	130	130	13	14	16	14	18	13	22	12	21	10	9	B	9	9	
10	13	12	20	15	10	11	13	13	15	15	B	30	28	20	18	E <sub>25</sub> S	20	12	11	12	10	9	8	8	
11	9	8	10	10	10	14	18	15	15	15	18	22	19	20	58	60	30	25	25	17	20	10	10	10	
12	11	C	10	10	15	14	11	20	15	13	15	13	14	26	18	20	11	13	11	11	10	12	15	11	
13	10	10	12	16	14	C	B	B	32	12	14	B	B	B	50	B	B	20	29	23	15	13	15	10	
14	9	15	28	13	13	11	13	21	19	13	13	B	50	25	23	57	54	29	31	17	13	9	E	14	
15	E <sub>15</sub> C	9	11	26	15	22	14	15	12	11	13	10	11	15	23	26	27	18	15	10	10	9	9	9	
16	9	10	9	14	17	16	B	15	15	13	12	13	B	33	20	16	18	13	11	11	9	10	9	B	
17	10	11	55	18	18	21	16	32	B	11	11	10	12	19	15	13	11	13	20	12	11	10	9	E <sub>13</sub> C	
18	10	11	9	9	10	10	B	B	B	21	22	21	B	27	37	B	45	B	14	10	18	18	9	10	
19	13	12	13	23	13	12	22	18	18	18	32	30	33	48	B	33	32	19	14	10	10	9	11	9	
20	14	13	14	20	16	20	E <sub>24</sub> C	20	B	B	28	20	B	61	50	31	15	13	14	10	9	11	9	10	
21	B	21	B	12	12	14	12	12	13	10	10	11	17	15	13	13	15	11	10	9	9	E <sub>12</sub> C	9	B	
22	12	10	10	9	9	15	B	23	22	15	11	16	12	13	13	15	15	14	11	12	14	16	10	10	
23	9	9	9	9	9	10	15	24	31	B	28	32	32	31	22	27	15	C	C	C	C	C	C	C	
24	11	12	11	10	15	15	13	12	20	14	14	20	15	13	16	14	18	12	10	9	C	C	C	C	
25	9	10	21	B	20	23	B	23	31	B	B	B	B	B	B	45	15	11	12	10	9	9	16	9	
26	20	15	15	9	12	15	16	12	E <sub>16</sub> C	10	10	E <sub>25</sub> C	E <sub>25</sub> C	E <sub>25</sub> C	E <sub>25</sub> C	E <sub>24</sub> C	E <sub>25</sub> C	E <sub>25</sub> C	11	10	10	9	9	10	
27	23	B	B	10	12	10	B	25	15	13	21	B	28	B	29	27	B	17	11	12	10	9	11	10	
28	14	15	16	17	B	26	B	19	30	30	B	B	B	B	B	B	17	15	19	E <sub>22</sub> C	E <sub>25</sub> C	E <sub>22</sub> C	10	9	
29	10	11	10	23	22	15	15	14	17	15	14	15	33	19	22	15	21	14	13	15	15	12	10	10	
30	9	11	10	B	10	11	20	15	15	E <sub>20</sub> C	B	B	15	20	13	13	B	B	15	11	9	11	10	9	
31																									
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	30	29	30	30	30	29	30	30	30	30	30	30	30	30	30	30	30	29	29	29	28	28	28	28	
MED	10	12	14	14	15	15	16	20	24	16	20	26	33	26	26	27	22	18	14	12	10	10	10	10	
UQ	15	15	21	20	18	21	B	25	B	B	B	B	B	B	B	60	48	25	21	16	16	14	14	12	
LQ	10	10	10	10	12	12	13	15	15	13	13	15	16	20	18	16	17	13	11	10	10	9	9	9	

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	B	B	B	A	B	A	A	A	B	B	275 315	B	R	335 335	315 335 345	UR 345	B	B	B	A					
2	A	B	A	B	R	R	B	B	B	B	B	B	B	B	B	B	B	B	B	355	375 375	B	B		
3	B	R	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R		
4	B	A	R	R	A	280	UF 265	310	JR 270	R	330 325	R	350	UR 340	345	350	UR 350	365	345	360	A	A	A		
5	A	A	A	A	A	A	A	A	B	B	B	B	B	280	B	B	B	R	F	A	A	A	A		
6	A	A	A	A	A	A	275 290	305 305	295	B	310 340	320 355	F	350	360	320	280	F	A	A	A	A	A		
7	A	A	A	A	R	B	B	A	B	UR 290	305 290	B	B	B	F	350	345	305	R	A	A	A	A		
8	A	B	B	B	A	B	B	R	B	B	B	B	B	B	B	UR 335	355	335	340	R	B	B	R		
9	A	A	A	A	B	A	300	F 325	320 315	310 335	345 340	340	350	UR 365	335	320	R	R	B	A	A	A			
10	A	A	A	A	A	A	A	A	300 310	B	US 315	305 330	325 340	350	335	350	R	F	355	350	315	F 275			
11	UF 245	A	A	A	A	A	F	290	UF 320	F 335	310	F	F 295	F 285	305 320	F	R	UC 305	F	UF 320	R	A	A		
12	A	C	A	A	A	A	A	310	295	305 295	300	290	F 320	F	335	345	355	345	330	F	335	325 300 300			
13	A	A	A	A	A	C	B	B	B	240	R	B	B	B	F	B	B	330	340	315	330	F 320	R	A	
14	A	A	B	A	A	A	A	A	280	F 280	250	F	B	300	310	315	340	UR 350	360	340	330	F 335	F 335	A	A
15	A	A	A	B	A	A	A	A	285	F 310	305 285 290	300	290	295	F 340	F	345	335	JF 310	JF 335	UF 320	F	A	A	
16	R	A	A	A	A	A	B	F	310	F 310	300 315 300	B	325	295	315	345	345	R	JR 320	F	360	F 325	F 255	B	
17	A	A	R	A	A	A	A	255	B	295 310 315	320 310	340 330	335	335	B	295	B	300	300	F	F	F	F	A	A
18	A	A	A	F	A	A	B	B	B	A	A	R	B	275	230	B	295	B	300	300	A	A	A	A	A
19	A	A	A	A	R	A	R	A	290	305 280 240	285 275	B	335	310	340	340	315	F	325	F	F	A	A	A	
20	A	A	A	A	A	R	R	R	B	B	380 280	B	295	300	310	UF 300	F 315	JR 340	305	R	R	R	R	R	
21	B	A	B	A	A	A	A	250	265 250	280 275	305 320	330 320	335	345	340	320	325	UR 340	320	F	F	A	B	B	
22	A	F 230	245	F 255	F 255	A	B	255	280 280	280 280	300 310	305 315	330	330	F	F	F	F	F	F	J 325	F	F	F	
23	R	F	F 275	UF 240	F	F	F 305	295	315	B	295 295	320	UR 315	305 340	345	C	C	C	C	C	C	C	C	C	
24	F 335	F 280	F	UF 280	F	F 285	JF 285	285	JR 290	290 290	290 290	290	JR 285	305	F	360	JR 330	350	345	345	C	C	C	C	
25	A	A	A	B	A	A	B	A	A	B	B	B	B	B	B	R	265	F	F	F	295	A	A	A	A
26	A	A	A	A	A	A	A	A	270 250	240 245	R	R	260 275	320	330	335	335	330	F	330	F 310	A	A	A	
27	A	B	B	A	260	F	B	R	A	R	R	B	R	B	R	215	B	295	315	315	R	A	A	A	
28	A	A	A	A	B	A	B	A	R	225	B	B	B	B	B	B	340	345	JR 320	R 350	F	R	UF 315	F	
29	F 285	F	A	A	A	A	F 275	265	285 270	290 285	295 325	320 335	335	340	350	340	F	320	JF 280	F	F	F	F	F	
30	V 290	265	A	B	A	F	280	290 295	270 265	B	B	280 280	265 275	B	B	C	285	A	A	A	A	F	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	4	3	2	3	2	3	7	14	17	19	19	17	15	21	18	22	22	23	23	20	12	11	5	3	
MED	F 288	F 265	F 260	UF 255	258	F 280	F 285	290	290	290	295	290	300	310	310	335	335	340	335	325	F 335	F 325	F 300	F 300	
UQ	312	272		F 268		282	F 295	310	310	305	310	315	308	325	330	340	350	348	342	342	F 358	F 330	F 315	F 300	
LQ	F 265	F 248		F 248		280	F 275	265	280	268	280	280	292	285	295	315	330	335	318	312	F 328	F 320	F 280	F 288	

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M(3000)F2 (0.01)

# IONOSPHERIC DATA

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H<sup>1</sup>F<sup>2</sup> (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1											L	300												
2																								
3																								
4																								
5												B	B	370	B									
6										260	L	B		L										
7											B	365	B	B										
8																								
9											L	280	230	260										
10													260	250										
11											L	L	L	B										
12														L	L									
13									460	R	B	B	B	B	B									
14									L	L	B	B	250											
15											L	310	L	275										
16									L	L	L	B		L										
17											210	275	265	245										
18											R	B	400	445	B									
19											L	465	350	B	B									
20											L	360	B	B	270	260								
21								480	410	450	360	370	295	L	250	230								
22								370	315	340	320	300	255	L	L									
23								285	B	L	300		230	230		230								
24											L		L	L		230								
25													B	B	B	B	300	L						
26								440	500	530	R	R	450	330	300	L								
27									A	R	B	R	B	R	L	B	L							
28								R	600	B	B	B	B	B	B	B	260	240						
29								400	380	400	L	350	R	280	L	L								
30								325	395	425	B	B	360	360	350	L								
31																								
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT								3	6	8	3	11	7	12	7	4	3	1						
MED								400	388	438	360	320	295	270	270	245	260	240						
UQ								440	410	480	445	362	325	365	340	280	280							
LQ								362	370	358	350	300	268	252	248	230	245							

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H<sup>1</sup>F<sup>2</sup> (KM)

# IONOSPHERIC DATA

SEP. 1971

H<sup>+</sup>F (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	B	B	B	A	B	B	A	B	B	B	230	250	B	B	250	220	235	220	250	B	B	B	B	A			
2	A	B	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	220	210	240	B	B			
3	B	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A			
4	B	A	A	A	A	A	A	310	B	280	250	230	B	230	220	225	230	E	B	B	260	250	A	A	A		
5	A	A	A	A	B	A	A	B	B	B	B	B	B	B	B	B	B	250	280	A	A	A	A	B	A		
6	A	B	B	B	B	A	380	280	250	225	230	B	250	215	250	220	230	220	240	330	A	A	A	A	A		
7	A	A	A	A	A	B	B	A	B	B	B	240	B	B	B	B	230	225	250	A	A	A	A	A	A		
8	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	210	225	230	B	B	A	A	A		
9	A	A	A	A	B	A	A	265	245	250	225	220	205	200	230	215	210	215	230	250	375	B	A	A	A		
10	A	A	B	A	A	A	A	A	E	A	275	A	B	230	230	210	230	220	215	215	215	200	225	230	260	A	270
11	A	A	A	A	A	A	A	300	250	225	230	225	220	215	B	B	230	230	225	250	250	270	A	A	A		
12	A	C	A	A	A	A	A	A	265	250	230	210	230	240	225	230	215	210	210	210	230	250	B	B	B		
13	A	A	A	B	B	C	B	B	B	255	A	B	B	B	B	B	B	230	240	250	250	260	A	A	A		
14	A	A	B	A	A	A	A	B	360	230	240	B	B	230	220	B	B	220	230	230	230	260	A	A	A		
15	A	A	A	B	A	A	A	365	255	230	225	225	230	210	245	230	220	210	230	245	230	300	A	A	A		
16	A	A	A	A	A	A	B	260	250	230	225	200	B	255	230	210	210	210	215	215	205	225	300	B	B		
17	A	A	R	B	B	B	A	B	B	230	240	205	215	210	225	215	230	220	215	210	240	275	A	A	A		
18	A	A	A	A	A	A	B	B	B	A	A	A	220	B	H	250	B	B	B	B	250	275	A	A	A	A	
19	A	A	A	A	A	A	A	A	350	275	290	250	B	275	B	B	255	250	225	230	230	230	A	A	A	A	
20	A	A	A	B	A	B	A	A	B	B	230	240	B	B	B	B	255	260	230	220	245	A	A	A	A	A	
21	B	B	B	A	A	A	A	300	250	250	240	225	230	210	220	215	215	210	220	205	220	255	A	B	B		
22	A	A	A	A	A	A	B	375	A	225	215	220	220	215	225	210	225	215	215	210	215	215	255	A	A	A	
23	A	340	340	380	380	345	280	255	270	B	B	200	230	250	230	210	225	220	C	C	C	C	C	C	C	C	
24	255	325	350	355	B	E	B	280	240	230	220	225	225	210	215	220	225	205	215	215	220	C	C	C	C	C	
25	A	A	A	B	A	A	B	A	B	B	B	B	B	B	B	B	B	260	275	310	370	A	A	A	A	A	
26	A	A	A	A	A	A	A	A	325	225	230	200	270	240	230	225	230	250	240	215	225	290	A	A	A	A	
27	B	B	B	A	A	350	B	A	A	A	A	B	260	B	280	260	B	270	300	280	A	A	A	A	A	A	
28	A	A	A	A	B	B	B	A	290	B	250	B	B	B	B	B	230	230	240	230	250	270	B	270	A	A	
29	295	A	A	A	A	A	A	280	250	215	225	210	240	B	210	210	220	240	210	215	225	220	230	350	B	B	
30	A	A	A	B	A	330	280	250	230	230	B	B	200	210	215	220	B	B	A	A	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	3	2	2	2	2	4	4	12	16	19	18	19	16	19	18	19	21	25	26	24	17	14	5	1			
MED	295	332	345	368	390	343	280	280	251	230	230	225	230	215	225	220	230	220	230	230	230	258	270	270	A		
UQ	310				352	330	305	294	250	240	230	250	235	230	228	230	230	250	250	250	270	300					
LQ	275				338	280	258	250	225	225	215	218	210	220	218	215	212	215	215	220	230	260					

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H<sup>+</sup>F (KM)

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H<sup>1</sup>ES (KM)

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

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

Hour Day	00	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	100	105	B	100	100	100	B	B	G	100	B	B	B	B	B	B	B	B	B	B	B	115
2	110	130	100	110	125	120	B	B	B	B	B	B	B	B	B	B	B	B	B	B	105	110	B	B
3	B	125	B	140	105	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	160
4	B	120	180	115	125	120	125	B	B	B	B	B	B	150	B	B	B	B	B	105	B	110	120	100
5	170	110	180	150	110	120	120	105	B	B	B	B	B	B	B	B	B	B	G	110	110	115	115	100
6	105	105	105	120	130	130	170	110	G	G	G	B	B	B	G	G	B	B	B	110	115	125	110	110
7	110	125	140	105	115	110	130	110	B	B	B	G	B	B	B	B	B	B	G	110	110	150	150	170
8	100	B	B	110	105	B	125	130	B	B	B	B	B	B	B	B	B	B	100	B	B	B	120	105
9	110	105	110	115	B	100	105	G	G	G	G	G	G	G	G	G	B	G	B	B	140	B	125	105
10	110	110	100	100	100	100	100	100	105	110	B	S	B	G	G	S	B	100	100	100	100	100	100	100
11	145	100	120	110	110	120	105	110	150	125	105	G	G	G	B	B	B	B	B	130	105	115	120	
12	110	C	110	130	105	100	105	105	110	125	130	G	G	B	G	G	G	G	100	100	100	B	B	B
13	110	150	105	110	105	C	B	B	110	100	110	B	B	B	B	B	B	B	B	B	150	175	105	
14	110	110	150	100	100	100	100	110	150	110	G	B	B	G	G	B	B	B	B	B	165	100	115	
15	100	110	100	105	100	110	100	100	105	100	G	130	120	125	130	B	B	140	130	120	110	110	110	120
16	160	130	105	110	100	100	B	110	G	120	110	G	B	B	G	G	G	G	130	B	110	150	100	B
17	150	105	120	100	105	100	100	B	B	G	G	100	G	G	G	100	100	G	B	B	160	140	105	105
18	130	105	100	100	100	120	B	B	B	100	110	120	B	B	B	B	B	B	130	130	100	100	100	105
19	105	110	115	130	130	110	110	110	110	110	B	B	B	B	B	B	B	160	115	105	B	110	155	100
20	100	100	100	110	100	180	120	120	B	B	B	G	B	B	B	B	120	G	155	150	105	120	100	110
21	B	120	B	115	100	100	100	G	G	G	G	150	G	G	G	G	G	G	G	125	100	120	110	B
22	110	110	130	105	110	100	B	110	110	G	G	G	G	G	G	G	G	G	100	B	B	B	110	130
23	140	140	110	100	110	115	B	B	B	B	B	B	B	B	G	B	G	C	C	C	C	C	C	C
24	100	B	B	B	B	B	B	100	G	G	G	G	G	110	G	G	G	G	100	100	C	C	C	C
25	100	105	100	B	100	105	B	110	105	B	B	B	B	B	B	B	110	150	110	105	105	110	110	105
26	100	100	105	100	110	100	100	100	G	G	G	G	G	G	G	G	C	C	G	G	B	150	110	160
27	100	B	B	100	100	110	B	110	100	100	130	B	B	B	B	B	B	G	105	G	110	100	105	130
28	115	110	105	110	110	110	110	105	G	G	G	G	B	B	B	B	G	G	B	C	C	C	145	110
29	115	110	105	110	110	110	110	105	G	G	G	G	B	G	G	G	G	G	G	B	B	B	160	B
30	110	130	105	B	100	110	B	G	G	G	B	B	G	G	G	G	B	B	120	105	105	105	130	110
31																								
CNT	26	25	25	27	27	26	19	20	10	10	6	5	1	3	1	1	3	4	13	14	17	20	24	23
MED	110	110	105	110	105	110	105	110	110	110	110	120	120	125	130	100	110	145	110	108	110	112	110	110
UQ	115	125	120	115	110	120	120	110	110	120	130	130	138				115	155	130	120	110	145	128	120
LQ	100	105	100	102	100	100	100	102	105	100	110	100	118				105	120	100	105	105	108	105	105

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H<sup>1</sup>ES (KM)

# IONOSPHERIC DATA

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TYPES OF ES

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

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

Hour Day	00	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		F1	F1	F1				L1									F1	F1		R1	
2	R3	R1	R1	R1	R1	R1															F1	F1			
3		R1		R1	R1																			R1	
4		F1	R1	R1	F1	R1	L1						L1							F2		R1	R3	RR21	
5	RRF11	R2	RRR11	RR11	R1	R1	R1	R1												R1	R3	R4	R1	FR11	
6	R1	R1	RR11	R1	R1	R2	H1	L1												R1	R3	R3	R3	R6	
7	R5	R2	FF11	FR11	RF11	R1	R1	R1												R1	RS11	RR14	FR11	FR11	
8	RF31			F1	R2		L1	R1												L1			R1	R5	
9	R4	R2	R2	R1		F1	R1														R1		R1	R1	
10	F1	RF21	FR11	R1	R2	R3	R2	R1	R1	R1									L1	L1	F1	F2	F1	F1	
11	RR12	F2	R3	R3	R3	R1	R1	R1	LL11	L1	R1										L1	L1	R1	RF61	
12	R2		R6	R1	R2	R1	R3	L1	C1	H1	H1									L1	L1	F1			
13	R3	RR11	FR12	R2	R1				L1	R1	R1											R1	F1	R4	
14	A1	R2	R1	R1	R2	R2	R2	R1	HR11	R1												R1	R3	R2	
15	F2	R3	R1	R1	R1	R1	R2	R1	R1	R1		H1	H1	C1	L1				R1	R1	R1	R1	R5	A1	
16	R1	RR11	R1	R1	R1	R1		R1		H1	R1									L1		F1	R1	FR11	
17	N1	R1	R1	R1	R2	R1	R1					L1				L1	L1				R1	R1	R3	R5	
18	R1	R3	R1	R1	R2	RF11				R1	R1	L1								H1	R1	RS21	RS31	RS41	
19	R1	R1	R1	R1	R1	R2	LL11	R1	R1	R1										R1	R1	R1	A1	RR12	
20	F1	R1	R1	R1	RR11	RR11	R1	R1												R1	C1	L1	R4	R1	
21		R1		R2	R1	R2	R2					H1									R1	FR11	R1	R6	
22	R1	R1	R1	R1	R1	R1		R1	R1											L1			F1	R1	
23	A1	R1	R1	FR11	R1	F1																			
24	F1							L1						L1						L1	L1				
25	R4	A1	F1		R1	R1		R1	R1											R1	RL11	A1	R1	R4	
26	F1	F1	R1	R3	R1	R1	R1	R2														R1	R5	R4	RR11
27	R1			R1	R2	A1		L1	R1	R1	RL11									R1		R1	R3	R2	
28	R2	R2	R2	RS21		R1		R1															R1	R1	
29	R1	R2	R3	R1	F1	R1	R1	R1																R1	
30	R1	R1	R2		R2	R2														R1	R1	R5	R2	R1	
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																									
MED																									
UQ																									
LQ																									

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TYPES OF ES

### IONOSPHERIC DATA

OCT. 1971

FOF2 (0.1 MHz)

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

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

Hour Day	00	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	B	A	B	B	R	B	B	B	B	B	B	B	62	B	B	B	A	A	A									
2	A	A	A	A	B	B	52	B	B	B	B	B	R	B	B	B	B	53	B	47	35	F	A	27	R								
3	A	B	A	A	A	B	B	A	B	B	B	B	54	B	B	67	B	R	B	46	F	F	F	F									
4	A	A	A	A	B	B	B	B	B	53	58	B	U	60	67	B	70	74	U	63	63	J	52	53	F	A							
5	F	F	A	A	B	B	B	B	B	B	B	B	B	U	70	B	70	65	65	B	46	R	F	J	F	26							
6	A	F	A	A	B	B	A	A	R	50	55	64	60	59	61	61	65	65	59	52	50	R	R	A	F								
7	F	U	A	F	F	F	35	40	43	45	49	52	54	59	60	58	55	53	51	49	43	F	A	A									
8	B	B	A	F	B	B	B	B	B	B	B	B	B	B	53	65	B	B	B	B	R	U	F	U	A								
9	R	A	A	F	R	B	B	B	B	B	B	B	B	B	B	52	53	U	50	46	30	29	F	A	B								
10	A	A	A	A	A	A	42	B	47	U	53	B	54	B	B	66	71	R	69	59	56	56	50	45	40	F							
11	A	A	A	R	R	F	F	53	F	60	70	66	63	65	72	71	75	F	70	63	B	47	R	R	A	A							
12	F	A	A	A	A	R	43	46	U	52	55	50	51	52	54	58	60	64	63	F	R	40	A	A	A								
13	A	A	A	A	B	A	A	A	F	40	F	44	42	B	B	C	B	B	47	42	30	F	A	A	A								
14	A	A	A	B	B	B	R	F	43	48	51	B	65	F	67	62	65	68	70	R	R	F	F	A	A								
15	A	A	A	A	A	A	40	B	B	50	47	45	47	51	54	57	58	56	57	54	50	50	40	F	F								
16	U	F	A	A	A	F	F	55	U	F	F	69	67	70	72	67	67	65	66	60	62	50	U	F	F	F							
17	F	F	F	F	U	F	U	57	F	F	F	70	70	72	76	80	75	75	69	61	56	49	43	U	F	U	S						
18	U	F	F	F	39	40	54	60	65	70	70	73	77	J	84	82	75	72	63	63	J	59	J	49	46	45	44						
19	U	F	U	F	F	52	F	F	F	F	F	F	F	F	65	F	67	71	F	67	62	60	C	C	C	S	S						
20	S	S	F	31	S	S	S	J	R	72	F	U	R	68	70	67	70	70	70	63	J	60	60	61	56	50	47	R	A				
21	A	35	A	A	A	A	U	F	J	R	62	68	64	64	64	66	F	64	63	64	62	60	60	59	I	S	S	A	A				
22	A	A	A	A	43	J	S	51	60	65	67	66	65	J	F	59	U	R	62	62	B	70	R	R	52	52	B	A	A	A			
23	A	A	A	F	U	F	36	43	R	47	51	55	62	63	66	68	70	64	68	U	F	65	F	U	66	I	S	53	45	J	S	A	
24	A	A	A	R	F	A	A	U	R	45	53	54	56	60	F	60	56	53	55	58	C	C	C	C	C	C	A	A	A	A			
25	A	A	A	A	A	A	A	48	52	52	53	B	61	65	63	66	R	F	68	56	54	45	F	F	A	A	A	A	A	A			
26	A	A	33	43	46	J	R	54	62	67	69	70	72	71	69	65	61	60	61	58	J	R	U	R	J	R	43	43	S	S	S		
27	U	S	F	F	44	B	48	I	R	54	U	F	53	62	68	74	73	71	75	70	67	65	64	60	55	51	U	F	S	S	S		
28	S	F	F	38	F	S	S	U	S	63	F	F	F	F	U	F	73	U	F	75	U	R	80	81	F	F	67	62	55	52	R	A	A
29	A	F	A	A	A	A	B	R	A	R	B	B	B	B	B	B	R	47	45	F	43	33	F	30	F	A	A	A	A	A	A		
30	F	A	A	B	B	B	B	B	B	B	B	B	B	B	52	B	R	50	50	49	F	43	B	B	40	35	F	F	F	F	F	F	
31	F	F	40	43	50	I	R	48	46	50	58	58	60	64	67	70	77	75	66	61	60	56	52	47	F	F	31	R	R	R	R		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
CNT	5	5	4	8	8	10	17	16	17	21	20	21	22	22	21	26	22	26	23	25	20	15	11	4									
MED	U	F	F	36	42	48	52	53	55	58	64	64	66	67	64	67	65	62	60	54	50	45	40	40									
UQ	U	F	F	39	46	52	57	64	64	67	70	67	70	70	71	70	68	64	61	56	52	48	44	44									
LQ	U	F	U	F	F	43	46	47	50	53	54	59	60	61	61	63	60	56	52	47	42	F	F	30									

OCT. 1971

FOF2 (0.1 MHz)

# IONOSPHERIC DATA

OCT. 1971

FOF1 (0.01 MHZ)

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

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

Hour Day	00	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													R	B	B	B	B							
3													400	B	B	B	B							
4										B	B	B	B	B	B	B	L							
5										B	B	B	B	B	B	L	L							
6										I R	400	400	400	410	400	400	L							
7						L	350	L	L	410	410	430	410	410	L	L	L							
8							B	B	B	B	B	B	B	B	400	400	B							
9							B	B	B	B	B	B	B	B	B	360	360	350						
10							A	B	B	B	B	B	B	B	B	B	B	L						
11						R	320	360	380	390	410	420	430	U L	430	L	L	L	L					
12							A	350	I B	380	380	400	420	L	430	410	L	L	L					
13								A	340	350	370	390	B	B	C	B	B							
14							A	340	350	380	B	B	440	L	420	L	410	L	L					
15								B	B	370	390	410	410	410	L	L	L	L						
16						U L	350	370	390	420	420	L	430	430	420	L	L							
17							320	360	380	400	410	420	420	420	L	L	L	L	L					
18							330	370	390	400	420	L	430	430	410	L	L							
19							350	360	F	380	F	400	410	420	430	430	U L	L	L					
20						L	340	370	390	400	410	440	420	U R	420	420	410	L	L	L				
21							330	370	390	400	420	420	420	420	L	L	L	L	L					
22							310	350	380	380	400	420	420	430	B	B	B	B	B					
23					L	300	340	390	390	410	430	440	L	U L	430	L	L	L						
24						A	A	370	370	380	380	390	400	410	410	400	390	C						
25						A	A	370	380	400	400	B	400	420	430	410	L							
26						340	370	370	400	410	420	420	430	420	U L	L	L	L						
27						A	A	370	400	410	420	430	430	430	L	L	L	L						
28					L	340	360	380	400	430	420	420	B	B	440	430	L	410						
29						A	B	A	A	A	B	B	B	B	B	B	B	400	370	L				
30						B	B	B	B	B	B	B	B	R	B	R	U L	L	L					
31						A	A	380	400	420	420	450	450	I R	440	440	L	L						
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT						4	11	18	18	21	20	17	19	19	14	9	5	2						
MED						325	340	370	385	400	410	420	430	420	415	410	400	360						
UQ						340	350	370	390	410	420	420	430	430	420	410	400							
LQ						305	330	360	380	380	400	410	415	420	410	400	390							

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OCT. 1971

FOF1 (0.01 MHZ)



# IONOSPHERIC DATA

OCT. 1971

FOE (0.01 MHZ)

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

Station	SYOWA STATION				Lat.	69 00.4 S.				Long.	39 35.4 E				Sweep	MHz to 15 MHz in 30 sec in automatic operation											
Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B							
2					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B						
3					B	B	B	B	B	B	B	B	290	B	B	B	B	B	B	B	A						
4					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
5					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B						
6					B	B	B	A	A	R	I B							A									
7					125	140	180	205	220	250	250	270	275	270	260	250	230	205	150	130	105						
8					B	B	B	B	B	B	B	B	B	B	R	B	B	B	B	B	B						
9					B	B	B	B	B	B	B	B	B	B	B	B	B	230	A	195	B						
10					B	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	140	B					
11					B	B	180	200		R	B	280	280		B	B	270	260	250	210	B	170	A				
12					B	A	A	A	B	280	I A	280	I A	280	280	275	260	270	220	220	190	H	180	A			
13					B	A	B	B	250	250	275	285		B	B	C	B	B	B	B	H	215	180	150			
14					B	B	B	230	240	260	B	B		280	275	270	270		A	B	185	A	A				
15					A	A	A	B	B	270	290	280	280	280	270	260	250	235		A	B	B					
16					A	A	A	B	250	255	275	290	295	300	290	280	250	230		B	B	B					
17				A	A	A	150	200	230	B	B	280	285	300	I A	R	270	I B	B	B	160	B	B				
18				B	C	H	165	215	220	240	265	270	270	295	290	285	255	250	230	190	180	A	B				
19				A	A	B	B	A	A	275	280	290	290	290	270	270	265	250	200	C	C	C					
20				A	A	A	205	235	250	265	280	280	300	290	285	290	H	255	H	240	210	180	150	B			
21				B	A	A	A	H	250	230	260	285	295	A	285	280	270	250	250	205	160	B	A				
22				A	A	A	225	230	H	230	250	270	R	A	B	B	B	B	B	B	B	B	A				
23				A	A	H	170	200	H	210	230	255	265	290	300	300	300	290	270	250	250	210	170	160	A		
24				A	A	A	A	A	230	250	290	300	R	300	300	295	290	280	250	C	C	C	C	C			
25				B	B	A	A	A	265	280	300	R	B	B	300	290	H	B	B	B	B	B	130	115			
26				A	170	190	210	245	255	280	290	290	300	300	H	290	290	260	250	220	190	F	A	A	A		
27				B	A	B	A	A	290	270	280	285	300	300	300	280	285	270	240	220	H	190	A	A	A	A	
28	A	A	A	A	175	190	225	A	A	A	300	300		B	B	300	B	B	I A	250	225	180	A	A	A	A	
29	A	A	A	A	B	A	B	A	A	A	B	B		B	B	B	B	B	B	B	A	190	A	A	B		
30	A	B	A	B	B	B	B	B	B	B	B	B		290	B	B	B	B	B	H	250	H	220	B	B	B	A
31	125	140	160	H	H	B	A	A	280	280	280	300	H	S	B	B	R	U R	280	250	215	190	B	B	A	B	
Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	1	1	1	1	5	7	9	12	14	17	19	18	16	17	17	17	16	15	15	17	9	1					
MED	125	140	160	H	170	190	210	230	250	270	280	288	295	290	280	270	250	240	210	180	150	115					
UQ					175	195	215	240	255	280	290	300	300	300	290	280	262	250	220	190	160						
LQ					170	158	200	225	240	260	278	280	280	280	270	260	250	230	195	160	130						

OCT. 1971

FOE (0.01 MHZ)

### IONOSPHERIC DATA

OCT. 1971

FOES (0.1 MHZ)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	JX <sub>43</sub>	JX <sub>141</sub>	JX <sub>46</sub>	32	37	B	34	B	B	B	B	B	B	B	B	B	B	E <sub>32</sub>	B	B	B	25	30	32			
2	39	JX <sub>64</sub>	90	40	B	B	27	B	B	B	B	E <sub>32</sub>	B	B	B	B	B	E <sub>23</sub>	B	27	E <sub>14</sub>	35	19	20			
3	33	B	38	37	39	B	B	45	B	B	B	B	G	B	B	E <sub>53</sub>	B	E <sub>50</sub>	B	41	JX <sub>21</sub>	13	26	19			
4	22	21	JX <sub>46</sub>	JX <sub>49</sub>	B	B	B	B	B	E <sub>39</sub>	E <sub>45</sub>	B	E <sub>57</sub>	E <sub>60</sub>	B	B	E <sub>31</sub>	E <sub>57</sub>	F <sub>26</sub>	E <sub>23</sub>	E <sub>19</sub>	E <sub>13</sub>	25	JX <sub>60</sub>			
5	JX <sub>47</sub>	JX <sub>70</sub>	JX <sub>68</sub>	35	B	64	B	B	B	B	B	B	B	E <sub>58</sub>	B	B	E <sub>30</sub>	E <sub>25</sub>	E <sub>30</sub>	B	E <sub>26</sub>	E <sub>38</sub>	23	18	JX <sub>24</sub>		
6	25	22	36	JX <sub>38</sub>	B	B	JX <sub>46</sub>	55	45	G	E <sub>30</sub>	G	32	G	31	G	G	G	G	G	G	13	22	43	JX <sub>24</sub>		
7	JX <sub>36</sub>	JX <sub>22</sub>	25	25	20	21	G	G	G	G	29	31	G	G	G	G	G	G	G	G	G	G	11	32	28		
8	JX <sub>106</sub>	B	31	JX <sub>53</sub>	B	B	B	B	B	B	B	B	B	B	G	E <sub>31</sub>	B	B	B	B	E <sub>26</sub>	JX <sub>22</sub>	25	28			
9	16	20	33	21	42	B	B	B	B	B	B	B	B	B	B	E <sub>25</sub>	E <sub>27</sub>	G	25	G	E <sub>21</sub>	17	86	B			
10	36	36	32	33	40	39	28	B	E <sub>38</sub>	E <sub>48</sub>	B	E <sub>50</sub>	B	B	E <sub>58</sub>	E <sub>50</sub>	E <sub>50</sub>	E <sub>26</sub>	E <sub>21</sub>	G	E <sub>18</sub>	E <sub>17</sub>	E <sub>13</sub>	E <sub>12</sub>			
11	28	25	30	35	42	23	G	G	G	E <sub>30</sub>	G	G	E <sub>29</sub>	E <sub>30</sub>	G	G	G	G	B	G	33	29	126	JX <sub>52</sub>			
12	32	JX <sub>42</sub>	40	41	35	27	34	39	E <sub>38</sub>	G	30	G	32	G	G	G	G	G	G	G	G	38	38	JX <sub>65</sub>			
13	37	JX <sub>64</sub>	55	57	B	33	37	52	G	G	G	G	B	B	C	B	B	E <sub>25</sub>	26	G	G	36	JX <sub>36</sub>	JX <sub>41</sub>			
14	JX <sub>36</sub>	33	JX <sub>32</sub>	B	B	B	40	G	G	JX <sub>36</sub>	B	E <sub>52</sub>	G	G	G	G	27	E <sub>30</sub>	G	26	JX <sub>22</sub>	18	32	35			
15	36	32	30	45	JX <sub>54</sub>	42	35	B	B	42	G	G	G	G	G	G	G	G	25	E <sub>26</sub>	E <sub>15</sub>	18	17	20			
16	JX <sub>26</sub>	JX <sub>97</sub>	JX <sub>44</sub>	30	JX <sub>32</sub>	35	28	E <sub>25</sub>	G	G	G	G	G	G	G	G	27	G	E <sub>28</sub>	E <sub>20</sub>	17	13	E <sub>10</sub>	17			
17	22	31	15	15	14	19	G	G	E <sub>27</sub>	E <sub>26</sub>	G	G	G	31	G	G	E <sub>26</sub>	E <sub>25</sub>	E <sub>23</sub>	G	E <sub>14</sub>	20	13	15			
18	26	26	32	33	31	22	G	JX <sub>25</sub>	G	G	G	G	G	G	G	G	G	G	G	G	15	20	JX <sub>20</sub>	JX <sub>17</sub>	JX <sub>17</sub>		
19	15	JX <sub>22</sub>	16	JX <sub>21</sub>	18	E <sub>19</sub>	E <sub>26</sub>	JX <sub>39</sub>	31	32	G	G	G	G	G	G	G	G	G	C	C	C	15	19			
20	13	14	JX <sub>26</sub>	JX <sub>26</sub>	31	JX <sub>26</sub>	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E <sub>10</sub>	32	JX <sub>26</sub>			
21	36	35	42	53	JX <sub>46</sub>	45	38	G	G	G	G	G	32	G	G	30	G	G	G	G	E <sub>14</sub>	18	JX <sub>26</sub>	28			
22	29	JX <sub>51</sub>	41	44	JX <sub>49</sub>	31	G	G	G	G	G	50	E <sub>30</sub>	E <sub>50</sub>	B	E <sub>47</sub>	E <sub>58</sub>	E <sub>45</sub>	E <sub>33</sub>	E <sub>20</sub>	B	40	JX <sub>46</sub>	41			
23	36	39	JX <sub>37</sub>	JX <sub>29</sub>	24	G	G	G	G	G	G	G	34	G	G	G	G	G	25	13	16	JX <sub>34</sub>	JX <sub>24</sub>	32			
24	JX <sub>51</sub>	40	35	30	25	JX <sub>47</sub>	JX <sub>46</sub>	34	G	G	G	G	G	G	G	G	G	C	C	C	C	C	31	JX <sub>89</sub>			
25	42	JX <sub>39</sub>	47	41	41	42	41	35	G	G	G	B	E <sub>33</sub>	G	G	G	E <sub>28</sub>	E <sub>26</sub>	E <sub>23</sub>	E <sub>26</sub>	G	G	18	32			
26	42	32	31	22	G	G	G	G	G	G	G	G	G	G	G	G	G	G	24	G	18	18	JX <sub>25</sub>	JX <sub>24</sub>			
27	JX <sub>25</sub>	25	32	JX <sub>39</sub>	B	36	47	G	G	G	G	G	G	G	G	G	G	G	JX <sub>26</sub>	JX <sub>26</sub>	JX <sub>26</sub>	JX <sub>31</sub>	30	12			
28	JX <sub>26</sub>	JX <sub>26</sub>	JX <sub>36</sub>	26	G	G	31	32	31	JX <sub>35</sub>	G	G	E <sub>62</sub>	E <sub>60</sub>	G	E <sub>31</sub>	E <sub>31</sub>	31	40	53	22	29	JX <sub>43</sub>	JX <sub>47</sub>			
29	46	JX <sub>39</sub>	JX <sub>36</sub>	48	JX <sub>46</sub>	JX <sub>63</sub>	B	38	79	46	B	B	B	B	B	B	E <sub>31</sub>	E <sub>26</sub>	E <sub>27</sub>	35	27	19	JX <sub>34</sub>	JX <sub>38</sub>			
30	JX <sub>74</sub>	42	36	B	B	B	B	B	B	B	B	B	B	G	B	E <sub>35</sub>	E <sub>28</sub>	E <sub>26</sub>	G	G	B	B	E <sub>15</sub>	JX <sub>18</sub>			
31	JX <sub>23</sub>	G	G	G	G	37	41	34	G	G	G	G	G	E <sub>32</sub>	E <sub>32</sub>	G	G	G	G	G	E <sub>22</sub>	E <sub>14</sub>	14	E <sub>11</sub>			
CNT	31	29	31	29	22	22	24	22	22	25	21	21	23	23	21	26	26	29	24	27	26	28	31	30			
MED	36	33	36	35	34	32	30	25	G	G	G	G	G	G	G	G	G	E <sub>24</sub>	F <sub>22</sub>	E <sub>13</sub>	E <sub>18</sub>	20	26	27			
UQ	40	JX <sub>42</sub>	42	41	42	42	39	38	E	G	E	G	G	G	G	E	B	F	B	E	B	26	26	21	29	33	38
LQ	26	25	31	26	20	21	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E	G	14	14	18	19	

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FOES (0.1 MHZ)

### IONOSPHERIC DATA

OCT. 1971

F=MIN (0.1 MHZ)

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

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

Hour Day	00	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	23	20	17	B	25	B	B	27	B	B	B	B	B	B	B	32	B	B	B	10	15	9	
2	14	12	13	15	B	B	22	B	B	B	B	B	32	B	B	B	B	23	B	15	14	13	11	10	
3	18	B	26	25	32	B	B	25	B	B	B	B	27	B	B	53	B	50	B	21	10	9	10	10	
4	10	16	10	13	B	B	B	B	B	39	45	B	57	60	B	56	31	57	26	23	19	13	11	11	
5	9	11	25	26	B	37	B	B	B	B	B	B	B	58	B	30	25	30	B	26	38	13	11	10	
6	10	10	12	11	B	B	25	22	19	26	30	16	18	14	15	20	18	15	13	10	10	10	10	E <sup>C</sup> <sub>12</sub>	
7	18	9	9	9	9	9	11	11	10	12	14	14	18	17	15	11	12	11	12	10	9	9	9	11	
8	57	B	13	13	B	B	B	B	B	B	B	B	B	B	21	31	B	B	B	B	26	15	11	12	
9	12	10	18	15	27	B	B	B	B	B	B	B	B	B	B	25	27	18	16	12	21	10	21	B	
10	18	16	15	15	20	24	15	B	38	48	B	50	B	B	58	50	50	26	21	12	18	17	13	12	
11	9	10	22	15	15	17	12	13	19	30	13	13	29	30	20	24	22	11	B	11	15	21	10	10	
12	12	12	15	16	21	16	15	19	38	16	13	13	13	15	24	18	12	11	12	12	10	10	9	13	
13	21	10	23	43	B	14	23	26	11	13	15	20	B	B	C	B	B	25	13	12	10	10	10	10	
14	15	13	23	B	B	B	23	13	11	11	B	52	23	26	15	E <sup>C</sup> <sub>17</sub>	11	30	18	11	10	9	10	10	
15	12	22	9	15	12	15	12	B	B	17	19	15	15	13	12	12	13	10	12	26	15	11	9	9	
16	9	18	18	19	16	13	11	25	14	10	10	14	11	12	12	11	11	13	28	20	14	10	10	12	
17	12	9	10	9	9	10	14	17	27	26	18	21	27	26	26	17	26	25	23	15	14	12	10	10	
18	13	10	10	11	E <sup>C</sup> <sub>23</sub>	11	10	10	10	10	13	13	12	12	10	E <sup>C</sup> <sub>15</sub>	10	10	10	10	9	9	8	8	
19	8	9	9	9	9	19	26	14	11	11	13	11	13	10	11	11	12	13	11	C	C	C	9	9	
20	9	8	9	9	8	10	9	10	10	10	11	11	11	15	18	13	12	10	15	16	12	10	17	8	
21	9	9	21	21	13	15	13	10	11	14	12	12	14	11	10	10	12	10	10	11	14	9	9	10	
22	10	25	14	11	13	10	10	10	10	11	22	15	30	50	B	47	58	45	33	20	B	10	12	14	
23	11	15	14	13	10	11	11	10	12	10	12	13	13	12	13	11	13	10	10	9	8	8	9	10	
24	10	9	10	9	10	15	12	10	10	18	28	20	12	12	20	10	11	C	C	C	C	C	9	10	
25	21	17	36	27	28	17	15	13	13	13	14	B	33	22	19	15	28	26	23	26	10	10	9	11	
26	22	24	18	13	10	10	11	10	10	11	13	13	15	15	13	13	10	13	10	9	9	10	9	9	
27	9	9	13	12	B	15	13	11	10	10	11	11	10	10	10	10	10	10	10	12	10	9	9	9	
28	9	9	11	10	10	9	9	10	21	22	14	12	62	60	14	31	31	26	15	11	12	11	9	9	
29	10	8	9	13	23	10	B	12	13	21	B	B	B	B	B	B	31	26	27	13	12	11	12	21	
30	13	23	14	B	B	B	B	B	B	B	B	B	B	23	B	35	28	26	14	15	B	B	15	11	
31	9	10	10	11	10	27	15	15	E <sup>C</sup> <sub>18</sub>	18	17	14	18	32	32	23	26	21	15	12	22	14	10	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	31	31	31	31	31	31	31	31	31	30	31	31	30	30	29	29	29	31	31
MED	11	11	14	13	18	16	15	15	18	18	18	16	27	26	20	20	25	22	16	12	14	10	10	10	
UQ	14	16	20	20	B	B	26	B	B	34	B	B	D <sup>B</sup> <sub>62</sub>	D <sup>B</sup> <sub>60</sub>	B	41	31	26	28	20	19	13	11	12	
LQ	9	9	10	11	10	11	12	10	10	11	13	13	14	14	13	12	12	11	12	11	10	10	9	10	

OCT. 1971

F=MIN (0.1 MHZ)

IONOSPHERIC DATA

OCT. 1971

M(3000)F2 (0.01)

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

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

Hour Day	00	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	B	A	B	B	R	B	B	B	B	B	B	B	325	B	B	B	A	A	A		
2	A	A	A	A	B	B	250	B	B	B	B	B	R	B	B	B	B	340	B	320	315	A	290	R		
3	A	B	A	A	A	B	B	A	B	B	B	B	285	B	B	310	B	R	B	305	F	F	F	F		
4	A	A	A	A	B	B	B	B	B	275	285	B	U R 285	285	B	315	325	U R 315	335	J R 335	U R 335	335	F	A		
5	F	F	A	A	B	B	B	B	B	B	B	B	B	U R 285	B	330	340	325	B	330	R	325	J F 320	F		
6	A	F 260	A	A	B	B	A	A	R	250	255	280	265	270	255	280	285	325	320	310	300	R	R	A	F	
7	F	F	A	F	280	265	255	265	280	300	275	275	295	300	300	310	335	350	325	325	325	F	A	A		
8	B	B	A	F	B	B	B	B	B	B	B	B	B	B	265	255	B	B	B	B	R	U F 335	U F 265	A		
9	R	A	A	F 260	R	B	B	B	B	B	B	B	B	B	B	260	275	U F 285	300	300	285	305	A	B		
10	A	A	A	A	A	A	265	B	250	U R 265	B	300	B	B	310	330	335	355	320	315	335	310	320	F		
11	A	A	A	R	R	F	270	275	265	F	285	275	275	275	290	310	320	315	285	B	310	R	R	A	A	
12	F	A	A	A	A	R	265	250	R	275	305	265	290	295	310	310	330	350	345	R	320	A	A	A		
13	A	A	A	A	B	A	A	A	235	F	265	F	250	215	B	B	C	B	B	305	315	300	285	A	A	A
14	A	A	A	B	B	B	R	255	F	270	255	B	270	F	285	305	305	310	295	310	R	R	F	A	A	
15	A	A	A	A	A	A	265	B	B	270	275	235	270	295	305	315	330	340	325	335	R	330	320	300	F	
16	U F 290	A	A	A	295	F	275	F	275	U F 265	F	285	295	270	290	310	300	315	310	335	335	350	320	U F 315	F	F
17	F	F	F	F	U F 305	U S 300	F	265	F	F	270	285	300	290	290	315	300	335	335	345	340	325	345	U F 320	U S 310	
18	U F 295	F	F	265	275	280	S	275	270	270	280	285	280	285	J R 300	315	335	345	350	350	S	U S 340	325	315	310	315
19	U F 315	U F 285	F	U F 275	F	270	250	F	F	F	F	F	300	300	F	315	330	330	340	335	C	C	C	S	S	
20	S	S	F 265	260	S	S	S	J R 280	F	U R 265	295	275	285	290	315	315	J R 310	330	345	340	340	320	R	A		
21	A	275	A	A	A	A	U F 260	J R 265	280	280	275	280	305	315	300	315	325	335	325	320	J S 325	S	A	A	A	
22	A	A	A	A	255	J S 255	285	275	285	275	275	J F 255	U R 260	275	B	320	R	R	325	310	B	A	A	A	A	
23	A	A	A	F	U F 280	U F 280	270	260	275	270	275	290	295	330	315	325	U F 310	F	U S 340	I S 340	340	310	F	J S 280	A	A
24	A	A	A	R	F	A	A	U R 225	265	260	265	265	280	285	285	265	275	C	C	C	C	C	A	A	A	
25	A	A	A	A	A	A	A	270	280	265	265	B	260	290	285	295	R	325	F	345	315	330	F	F	A	
26	A	A	255	280	285	J R 280	275	285	260	285	280	285	290	310	320	315	345	330	320	J R 345	J R 325	315	300	S	S	
27	U S 315	F	F	275	B	250	J R 260	U F 265	275	F	265	285	275	295	305	305	315	325	345	335	345	345	U F 310	S	S	
28	S	F	F	F	S	S	U S 270	F	F	F	U F 290	U F 275	U R 265	240	260	F	315	F	315	320	315	R	A	A	A	
29	A	F	A	A	A	A	B	R	A	R	B	B	B	B	B	B	R	290	300	280	F	335	300	F	A	A
30	F	A	A	B	B	B	B	B	B	B	B	B	B	B	285	B	R	300	310	295	320	F	B	B	300	315
31	F	F	275	290	300	R	235	270	275	275	265	280	285	285	300	320	330	335	325	330	340	320	305	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	5	4	4	8	8	9	17	15	16	21	20	21	22	22	21	26	22	26	23	25	20	15	11	4		
MED	U F 300	280	268	270	282	275	265	270	270	270	278	275	285	292	305	315	325	330	325	320	325	315	300	312		
UQ	U F 315	295	272	278	298	280	270	275	278	280	285	280	290	305	315	320	335	340	338	340	335	322	F	315	315	
LQ	U F 295	268	260	262	278	265	260	262	262	265	275	265	275	285	300	300	310	315	318	310	320	310	F	295	295	

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M(3000)F2 (0.01)

# IONOSPHERIC DATA

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H<sup>o</sup>F<sub>2</sub> (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1																								
2														R	B	B	B	B						
3															B	B	B	B						
4										330	325	B		B	B	B	280	270						
5										B	B	B		B	B	B	265	250						
6									450	340	375	375	400	330	310	255								
7						L	L	L	L	400	390	365	320	315	L	L								
8							B	B	B	B	B	B	B	B	405	420	B							
9								B	B	B	B	B	B	B	B	450	450	465						
10						400	B	480	B	B	B	B	B	B	B	270	250	230						
11					400	360	375	355	305	330	350	350	300	275	270	260	L							
12						430	430	380	360	400	425	360	355	300	300	260	230							
13							A	550	450	480	650		B	B	C	B	B							
14						A	450	430	430	B	360	330	290	300	290	L	L							
15							B	B	400	400	570	425	360	L	280	250	250							
16						350	360	350	320	300	L	315	300	300	L	L								
17						350	370	350	355	330	300	300	300	275	250	250	240							
18						325	350	330	320	320	320	300	280	260	260	230								
19						440	400	365	310	290	280	325	300	270	255	245								
20						355	340	320	350	340	320	350	330	305	290	280	260	L						
21						410	355	310	330	350	350	320	300	L	280	L	L							
22						400	345	350	310	350	345	400	380	365	B	300	B	B						
23					400	390	400	400	380	365	340	340	325	280	260	L	L							
24						A	A	R	440	440	420	400	350	380	360	375	370	C						
25						A	A	430	380	410	420	B	380	310	320	305	290							
26						360	350	310	350	330	340	325	320	300	295	L	260	L						
27						420	420	400	365	345	315	325	315	290	275	275	255	245						
28					350	340	350	350	330	350	330	350	E	B	B	400	340	300						
29						A	B	A	A	A	B	B	B	B	B	B	R	340	L					
30						B	B	B	B	B	B	B	B	410	B	R	330	330	L					
31						R	A	420	365	370	380	330	345	300	295	270	265							
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT					2	7	14	16	19	21	21	19	21	20	18	21	19	8						
MED					375	390	355	372	365	350	340	350	338	300	298	280	260	248						
UQ					400	410	410	380	400	400	395	365	358	320	305	280	335							
LQ					358	350	350	350	330	325	328	320	300	275	270	250	235							

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H<sup>o</sup>F<sub>2</sub> (KM)

### IONOSPHERIC DATA

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H<sup>o</sup>F (KM)

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

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

Hour Date	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	B	B	A	B	B	B	B	A	B	B	B	B	B	B	B	260	B	B	B	A	A	A	
2	A	A	A	A	B	B	R	B	B	B	B	B	260	B	B	B	B	250	B	250	300	A	A	350	
3	B	B	B	B	B	B	B	A	B	B	B	B	250	B	B	B	B	B	B	270 <sup>A</sup>	280	295	A	A	
4	A	B	A	A	B	B	B	B	B	B	B	B	B	B	B	B	250	I <sup>B</sup> 240	225	220	220	230	280	A	
5	A	A	B	B	B	B	B	B	B	B	B	B	B	B	B	230	230	260	B	250	B	230	270	360	
6	A	A	A	A	B	B	A	A	A	R	250	250	230	225	220	225	245	230	250	275	R	A	A	320	
7	300	330	A	A	370	330	275	250	240	230	210	215	225	225	230	215	215	225	225	210	240	250	A	A	
8	B	B	A	A	B	B	B	B	B	B	B	B	B	B	230	E <sup>B</sup> 290	B	B	B	B	270	270	A	A	
9	A	A	B	A	B	B	B	B	B	B	B	B	B	B	B	255	260	260	275	300	315 <sup>B</sup>	315 <sup>A</sup>	A	B	
10	B	B	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	230	225	225	225	230	230	270	
11	A	A	B	A	A	A	255	230	220	230	210	200	200 <sup>H</sup>	225	220	225	220	205	B	275	A	B	A	A	
12	A	A	A	A	A	A	A	E <sup>B</sup> 315	B	230	200	220	195 <sup>H</sup>	220	210	240	250	225	225	210	260	A	A	A	
13	B	A	B	B	B	A	A	A	250	200	250	250	B	B	C	B	B	250	250	300	350	A	A	A	
14	A	A	A	B	B	B	A	260	225	205	B	B	220	220	210	220	220	260 <sup>B</sup>	220	225	210	275	A	A	
15	A	B	A	A	A	A	A	B	B	220	215	250	220	210	210	215	210	215	220	230	220	225	225	250	
16	A <sup>340</sup>	B	B	B	355	350	290	250 <sup>B</sup>	210	230	205	210 <sup>H</sup>	230	215	210 <sup>H</sup>	230	220	230	225	220	220	215	230	270	
17	A <sup>320</sup>	290	280	280	275	255	250	230	230	210	200 <sup>H</sup>	220	220	210	230	225	220	230	220	220	220	225	235	250	
18	A	A	A	A	350	280	250	230	210 <sup>H</sup>	220	205 <sup>H</sup>	210	220	220	210	205	205	210 <sup>H</sup>	230	210	215	220	220	240	
19	220	250	275	300	280	260	300	250	210	205	215	200	200	200	225	225	220	230	230	C	C	C	225	225	
20	230	245	330	350	345	280	250	230	210	210	210	210	210	210	210	215	225	230	220	230	210	230	B	A	
21	A	360	A	A	A	A	A	230	250	200	205	215	210	210	210	215	225	225	230	230	225	250	A	A	
22	A	B	A	A	A	310	270	220	220	210	275 <sup>B</sup>	240	205	B	B	B	B	B	260 <sup>B</sup>	260	B	A	A	A	
23	A	A	A	370	365	295	250	240 <sup>H</sup>	215	240	210	215	250	275	210	220	210	225	230	225	210	230	260	A	
24	A	A	A	A	A	A	A	290	210	225	240	225	230	230	230	225	250	C	C	C	C	C	A	A	
25	A	A	B	B	B	A	A	A	220	250	245	B	255	225	225	230	250	250	230	230	240	260	A	A	
26	B	B	A	315	300	250	230	225	225	210 <sup>H</sup>	220	215 <sup>H</sup>	210	200	200 <sup>H</sup>	210	210	210	230	220	225	230	240	245	
27	240	300	A	A	B	A	A	250	210	220	210	200	220	230	215	200	205	215	230	230	210	225	250	225	
28	290	A	A	350	315	255	230	210	240	225	200	200	B	B	230	230	250	250	250	270	245	A	A	A	
29	A	A	A	A	A	A	B	A	A	A	B	B	B	B	B	B	B	260 <sup>B</sup>	250	255	A	260	300	A	B
30	340	A	A	B	B	B	B	B	B	B	B	B	B	225	B	E <sup>B</sup> 250	230	240	255	250	B	B	275	265	
31	280	300	295	280	275	A	A	E <sup>A</sup> 300	220	215	205	210	200	200	230	220	230	225	220	230	235	240	255	300	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	9	7	4	7	10	10	11	17	18	20	20	19	21	19	20	23	24	27	24	26	23	20	13	13	
MED	290	300	288	315	330	280	250	235	220	220	210	215	220	220	218	222	225	230	230	230	225	230	240	265	
UQ	320	315	312	350	355	310	272	250	230	230	230	222	230	225	230	229	250	250	250	260	260	265	260	300	
LQ	240	270	278	290	280	255	250	230	210	210	205	210	210	210	210	215	218	225	225	220	220	228	230	245	

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H<sup>o</sup>F (KM)

### IONOSPHERIC DATA

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H<sup>o</sup>ES (KM)

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

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

Hour Day	00	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	100	100	120	105	B	105	B	B	100	B	B	B	B	B	B	B	B	B	B	B	120	130	110	
2	110	100	100	100	B	B	120	B	B	B	B	B	B	B	B	B	B	B	B	130	B	110	130	110	
3	120	B	150	120	110	B	B	100	B	B	B	B	G	B	B	B	B	B	B	130	110	145	100	110	
4	100	130	125	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	125	120
5	115	100	105	105	B	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	130	130	130
6	150	165	100	100	B	B	120	100	100	G	B	G	125	G	110	G	G	115	G	G	130	110	125	105	
7	110	105	105	100	120	120	G	G	G	G	105	125	G	G	G	G	G	G	G	G	G	150	100	105	
8	125	B	110	110	B	B	B	B	B	B	B	B	B	B	G	B	B	B	B	B	B	140	100	130	
9	110	150	110	125	120	B	B	B	B	B	B	B	B	B	B	B	B	G	115	G	B	130	130	B	
10	110	115	110	100	105	105	110	B	B	B	B	B	B	B	B	B	B	B	B	G	B	B	B	B	
11	105	105	110	110	105	120	G	G	G	B	G	G	B	B	G	G	G	G	B	G	115	115	100	140	
12	130	150	125	105	115	115	115	110	B	G	105	G	105	G	G	G	G	G	G	G	G	110	110	100	
13	120	100	100	170	B	105	115	100	G	G	G	G	B	B	C	B	B	B	150	G	G	110	110	110	
14	110	110	105	B	B	B	100	G	G	100	B	B	G	G	G	G	100	B	G	140	130	130	110	110	
15	115	130	105	100	100	105	110	B	B	150	G	G	G	G	G	G	G	G	110	B	B	130	125	115	
16	110	120	105	110	105	110	110	B	G	G	G	G	G	G	G	G	100	G	B	B	100	100	B	120	
17	110	105	105	125	110	125	G	G	B	B	G	G	G	120	G	G	B	B	B	G	B	125	125	120	
18	120	120	100	100	110	125	G	100	G	G	G	G	G	G	G	G	G	G	G	100	105	120	115	115	
19	115	105	150	100	115	B	B	150	105	100	G	G	G	G	G	G	G	G	G	C	C	C	125	100	
20	120	110	150	140	120	125	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	B	125	110	
21	155	150	110	100	100	105	105	G	G	G	G	G	105	G	G	100	G	G	G	G	B	155	125	110	
22	125	130	100	100	100	130	G	G	G	G	G	160	B	B	B	B	B	B	B	B	B	150	150	105	
23	110	110	120	115	120	G	G	G	G	G	G	G	110	G	G	G	G	G	115	100	100	100	100	110	
24	100	100	100	120	100	105	100	145	G	G	G	G	G	G	G	G	G	C	C	C	C	C	100	150	
25	100	105	120	105	100	105	105	100	G	G	G	B	B	G	G	G	B	B	B	B	G	G	100	110	
26	150	130	110	130	100	G	G	G	G	G	G	G	G	G	G	G	G	100	G	G	100	150	125	110	
27	120	105	110	110	B	110	100	G	G	G	G	G	G	G	G	G	G	G	125	125	120	110	110	110	
28	105	140	110	110	G	G	160	100	110	110	G	G	B	B	G	B	B	120	125	120	110	140	110	100	
29	100	130	105	100	120	110	B	100	125	100	B	B	B	B	B	B	B	B	B	105	120	150	110	105	
30	120	105	100	B	B	B	B	B	B	B	B	B	B	G	B	B	B	B	G	G	B	B	B	125	
31	125	G	G	G	G	100	100	100	G	G	G	G	G	B	B	G	G	G	G	G	B	B	150	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	31	28	30	28	20	18	15	11	4	6	2	2	4	1	1	1	2	3	6	8	11	23	28	28	
MED	115	110	108	108	108	110	110	100	108	100	105	142	108	120	110	100	100	115	120	122	110	130	120	110	
UQ	120	130	110	120	118	120	115	105	118	110			118					118	125	130	120	142	125	120	
LQ	110	105	100	100	100	105	102	100	102	100			105					108	115	102	102	110	105	108	

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H<sup>o</sup>ES (KM)

# IONOSPHERIC DATA

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TYPES OF ES

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

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

Hour Day	00	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	F1	R1	R1	R1		R1			R1												R1	R1	R4
2	R1	R2	R1	R1			R1												R1			R2	R1	R1
3	R1		RR11	R1	R1			R1											R1		LR11	R1	FR11	R1
4	R1	R1	R1	R2																			R1	R2
5	A1	R2	R1	F1		R1																R1	R1	RR11
6	RR11	RR11	RS22	R2			R1	R1	R1				H1		C1			R1			R1	R2	F1	R1
7	R1	R2	R4	FR13	H2	C2					L1	H1										R1	R5	R2
8	F1		R1	R1																		R1	F1	FR11
9	R1	RR11	R1	R1	R1														R1			R1	FR11	
10	R2	R1	R1	R1	R1	LL11	R1																	
11	R5	R2	R1	R1	R1	R1															R1	F1	F2	RR11
12	RR11	FR11	R1	R2	R1	R1	R1	R1			R1		R1									R2	R6	R1
13	R1	R2	R1	R1		R1	R1	R1											R1			R3	R4	R5
14	FR11	R2	R1				R1				L1						R1			R1	N1	R1	R3	R5
15	R4	R1	R2	R1	R2	R2	R1				H1											R1	R1	R1
16	R2	RR11	R1	R1	R1	R1	R3										R1					L1	L1	F1
17	F1	F1	R1	R1	R1	R1								L1								F1	R1	R1
18	R1	R1	R2	R2	R1	R1		L1												L1	L1	R1	R1	R1
19	R1	F1	R1	FR11	RL11			LL11	R1	R1													FF11	F1
20	R1	R1	RR11	R1	R1	R1																	R1	R1
21	RR11	RR11	R1	R1	R2	R2	R2						R1			R1						R1	R1	R3
22	R3	R1	R2	R2	R1	R1						R1										RR11	RR11	R1
23	R2	R2	R2	R2	R2	R1							L1						H1	L1	L1	L1	L1	R5
24	RO	R4	R3	RL51	R1	R1	R3	H1															R5	NR15
25	R1	R2	R1	R1	R1	R1	R1																FR11	R4
26	R1	R1	R1	R1	L1														L1			L1	R1	R1
27	R1	R2	R1	R2		R1	R1												H1	H1		L1	R1	R1
28	R2	RR11	R1	R1			HL11	R1	L1	R1								L1	C1	C2		L1	R3	R4
29	R4	L3	R3	R2	RL11	R2		R1	RR11	R1										R2	R1	R1	R1	R1
30	N1	R1	R1																					R1
31	H1					R1	R1	R1																R1
	00	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. 1971

TYPES OF ES



### IONOSPHERIC DATA

NOV. 1971

FOF2 (0.1 MHZ)

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

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

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

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FOF2 (0.1 MHZ)

### IONOSPHERIC DATA

NOV. 1971

FOF1 (0.01 MHz)

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

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

Hour Day	00	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	410	440	430	440	430	440	440	420	L	L	L					
2					L	L	390	400	410	430	450	450	450	450	I R	R	L	L	L					
3					320	350	400	400	410	440	430	450	450	450	450	L	U L	L	L					
4						A	380	390	420	440	440	440	H	440	440	440	420	410	L	L				
5							350	390	I R	400	420	I R	420	430	440	450	440	420	420	U L	400	L	L	L
6							350	370	400	410	420	410	420	R	430	440	440	420	L	L	L		L	
7						B	B	R	410	390	420	420	H	440	430	440	440	410	U L	410	L			
8					L	A	A	390	400	410	410	430	440	440	I A	440	440	430	L	L	L	L		
9						A	A	A	400	400	410	430	440	440	440	440	440	U L	430	L	L			
10					L	L	400	420	420	430	430	440	430	U L	450	L	U L	430	L	L	L	A		
11					A	A	A	370	A	A	420	420	420	420	450	430	L	L			A			
12						F	U F	R	390	400	B	B	B	I R	430	430	R	L	L	L	L			
13					R	370	370	400	420	430	440	460	450	450	440		L	L	L	L	L			
14					330	360	380	390	400	410	420	420	430	460	450	430	U L	440	L	L				
15							370	380	400	R	430	420	420	U R	450	R	450	450	440	L	L	L		
16							370	370	400	400	410	I R	420	430	440	450	440	L	L	L	L	L		
17				L	340	360	390	400	430	430	440	450	H	450	470		L	L	L	L				
18					C	C	A	C	C	C	430	C	430	U R	440	420	430	420	L	L	L			
19					350	F	370	390	400	410	440	440	450	440	I A	440	430	420	L	L	L			
20					350	350	360	380	420	410	420	430	430	440	450	430	H	420	400	L	L			
21					A	360	R	400	400	410	I R	410	410	R	430	U R	B	430	410	420				
22						A	A	R	390	R	B	B	B	B	B	B	B	B	B	R	A			
23						A	370	360	A	B	B	B	B	420	430	430	L	410	410	370	370	L		
24						A	B	B	B	A	B	B	B	B	B	B	B	400	410	R	350			
25						R	A	B	B	B	B	B	B	B	410	B	B	400	R	R	A			
26						A	F	B	B	F	B	B	B	B	B	B	B	B	L	380	L			
27				340		B	R	400	400	420	420	450	450	450	450	440	440		R	U L	400	350	L	
28						A	R	A	400	410	410	R	R	B	460	450	B	B	B	B	L			
29					350	F	R	R	410	430	I R	430	450	450	R	450	450	450	430	L	L	L	L	
30						A	A	A	400	420	410	410	420	I R	430	430	440	450	U L	410	L			
31																								
CNT				1	6	14	17	23	25	23	23	22	24	27	22	18	17	7	3	3				
MED				340	345	360	380	400	410	420	430	440	440	440	440	430	420	410	380	350				
UQ					F	350	370	390	400	420	430	435	450	450	450	440	430	410	390	360				
LQ					330	350	370	395	400	410	420	420	430	435	440	420	410	405	375	350				

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FOF1 (0.01 MHz)

# IONOSPHERIC DATA

NOV. 1971

FOE (0.01 MHZ)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	110	A	A	B	B	B	B	A	A	300	300	300	305	300	290	270	270	250	230	190	170	120	B	B					
2	A	B	A	140	160	210	H	H	250	H	270	290	300	305	310	310	I	B	290	280	250	H	220	H	160	125	A	A	
3	A	A	A	B	215	210	H	230	250	265	300	300	310	310	300	300	285	270	250	H	B	B	B	B	B	B			
4	A	B	A	A	B	B	265	265	A	A	290	305	310	310	305	280	280	250	230	220	190	H	160	A	A				
5	A	B	A	A	250	240	H	230	A	R	B	B	310	310	310	300	280	275	I	R	245	225	195	150	B	B	A		
6	A	A	A	A	A	H	230	H	250	250	275	290	305	300	310	H	A	A	295	275	270	230	200	H	160	A	A	120	
7	115	A	A	A	B	B	B	A	A	300	290	290	300	300	A	A	A	A	250	230	200	A	A	A	A	A	A		
8	A	A	A	A	A	A	A	A	270	275	300	300	H	300	H	300	A	A	A	A	A	200	H	200	H	B	A	A	
9	A	B	B	A	A	A	A	A	290	300	300	300	H	295	H	295	295	290	270	250	240	210	H	200	H	170	H	150	120
10	B	B	125	125	A	A	260	280	290	H	290	300	310	310	300	290	250	A	A	260	200	H	185	H	120	110	A		
11	115	150	A	A	B	A	B	A	A	A	305	310	R	A	H	310	300	270	250	235	210	A	A	A	A	B			
12	B	B	B	B	B	A	A	A	270	280	B	B	B	R	290	H	290	R	270	260	230	205	B	B	B	B	B		
13	B	B	B	B	A	A	240	250	270	280	290	295	A	A	300	290	H	A	270	250	210	180	165	130	A				
14	A	130	220	190	A	280	250	255	280	280	H	310	H	300	H	305	300	300	300	280	270	H	250	225	180	A	A	A	
15	A	125	A	A	A	250	235	265	280	H	300	305	305	310	320	305	300	270	250	A	A	A	A	A	160	A	130		
16	A	B	A	B	A	A	225	250	290	300	300	300	A	I	A	310	310	310	295	280	260	245	210	160	A	A	A		
17	A	A	A	A	A	200	250	265	285	300	310	310	310	300	A	A	A	A	270	235	I	A	205	170	185	H	A	A	
18	A	A	A	A	C	C	A	C	C	C	300	C	R	R	295	295	270	250	230	210	160	A	A	A	A				
19	A	A	A	B	A	210	250	260	260	275	300	305	310	305	300	280	270	I	A	260	240	210	180	B	B	A			
20	A	A	A	A	A	A	250	260	290	300	H	305	310	A	A	A	A	A	270	260	220	H	200	H	180	A	A		
21	A	A	A	B	A	A	A	A	275	280	B	R	310	R	B	B	285	270	260	B	B	B	B	190	170	A	B		
22	A	A	A	A	B	A	A	A	A	R	B	B	B	B	B	B	B	B	B	A	A	A	A	A	A	A	A	A	
23	B	B	A	A	A	A	260	A	B	B	B	B	310	315	300	290	275	250	A	240	200	205	A	A	A	A	A		
24	A	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	275	260	A	R	A	A	180	A	A	A	A		
25	A	B	B	B	B	A	B	B	B	B	B	B	B	B	B	B	B	A	250	A	A	A	A	A	A	A	A		
26	A	A	B	B	A	A	B	B	280	B	B	B	B	B	B	B	B	B	270	260	H	250	B	170	160	270			
27	255	280	260	290	B	B	A	A	A	315	320	310	310	305	310	295	300	H	B	250	220	180	200	H	180	A			
28	190	B	B	B	A	A	A	305	320	R	R	B	B	310	310	B	B	B	B	B	B	B	B	B	H	180	H	A	
29	250	R	A	B	250	B	A	270	280	B	R	310	R	305	300	A	A	295	280	250	230	185	175	B	B	B			
30	B	B	B	B	A	A	A	295	280	295	300	310	300	300	300	290	290	R	230	230	200	180	130	140					
31																													
CNT	6	5	3	4	4	8	14	15	19	20	20	21	20	19	19	20	20	23	22	23	20	15	9	5					
MED	152	150	220	165	232	220	250	260	280	298	300	305	310	300	300	290	275	260	238	210	180	170	160	130					
UQ	250	250	240	240	250	245	250	268	288	300	305	310	310	310	305	295	280	270	250	220	195	182	180	140					
LQ	115	130	172	132	188	210	230	250	270	280	300	300	305	300	295	282	270	250	230	202	165	160	130	120					

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FOE (0.01 MHZ)

### IONOSPHERIC DATA

NOV. 1971

FOES (0.1 MHZ)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	G	22	20	B	45	B	B	35	32	G	33	G	G	G	G	G	G	G	33	G	G	G	E <sub>13</sub>	E <sub>18</sub>	
2	27	E <sub>15</sub>	28	G	G	G	G	G	G	33	G	G	G	G	E <sub>33</sub>	G	G	G	G	G	G	G	26	27	
3	23	28	26	29	G	G	G	G	G	G	G	G	G	G	G	G	G	E <sub>25</sub>	E <sub>23</sub>	E <sub>26</sub>	E <sub>25</sub>	E <sub>22</sub>	E <sub>17</sub>		
4	23	17	20	28	B	38	G	G	35	35	G	G	G	G	G	G	G	G	G	J <sub>26</sub>	G	G	31	J <sub>33</sub>	
5	38	32	32	J <sub>36</sub>	30	G	G	34	G	E <sub>31</sub>	E <sub>32</sub>	G	G	G	G	32	G	G	G	32	25	21	E <sub>29</sub>	J <sub>21</sub>	
6	26	J <sub>36</sub>	42	23	26	G	G	G	G	31	G	G	G	34	J <sub>42</sub>	G	G	G	G	G	J <sub>24</sub>	20	33	18	
7	13	38	25	33	42	B	B	31	36	G	G	G	G	G	J <sub>51</sub>	J <sub>47</sub>	35	31	J <sub>29</sub>	40	70	J <sub>47</sub>	J <sub>34</sub>	J <sub>41</sub>	
8	J <sub>32</sub>	J <sub>31</sub>	26	J <sub>25</sub>	J <sub>28</sub>	50	45	33	G	G	G	G	35	J <sub>39</sub>	J <sub>75</sub>	J <sub>46</sub>	52	52	J <sub>36</sub>	25	G	B	41	33	
9	J <sub>34</sub>	J <sub>84</sub>	B	40	41	43	35	28	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	
10	E <sub>10</sub>	20	G	26	30	34	G	G	G	G	34	36	G	G	J <sub>41</sub>	J <sub>39</sub>	42	32	J <sub>44</sub>	J <sub>38</sub>	28	41	16		
11	G	27	42	43	52	49	73	30	J <sub>46</sub>	43	G	35	G	32	G	G	G	G	G	J <sub>34</sub>	31	J <sub>37</sub>	36	38	
12	B	40	42	33	B	33	J <sub>32</sub>	34	G	G	B	B	E <sub>50</sub>	G	G	G	G	G	G	G	G	27	26	E <sub>17</sub>	32
13	42	40	35	B	32	31	G	G	G	G	G	J <sub>39</sub>	40	33	G	G	J <sub>38</sub>	G	G	J <sub>25</sub>	G	G	G	15	
14	28	G	19	J <sub>26</sub>	33	17	G	G	G	G	G	G	G	32	G	G	G	G	G	23	27	J <sub>24</sub>	J <sub>27</sub>	J <sub>23</sub>	23
15	23	16	30	33	33	G	G	G	G	G	G	G	G	G	37	J <sub>62</sub>	G	G	J <sub>32</sub>	J <sub>29</sub>	J <sub>41</sub>	J <sub>30</sub>	J <sub>24</sub>	G	
16	30	30	33	45	40	J <sub>34</sub>	G	G	G	G	37	35	35	G	G	G	32	G	G	G	G	28	J <sub>27</sub>	35	31
17	14	14	22	25	31	J <sub>24</sub>	30	G	31	34	35	35	35	33	34	J <sub>36</sub>	34	G	G	J <sub>26</sub>	G	G	18	J <sub>21</sub>	
18	J <sub>20</sub>	20	30	J <sub>43</sub>	C	C	J <sub>57</sub>	C	C	C	G	C	G	G	G	G	G	G	G	61	51	J <sub>64</sub>	38	30	
19	J <sub>31</sub>	J <sub>20</sub>	J <sub>24</sub>	B	35	31	G	32	G	G	G	40	42	49	40	J <sub>39</sub>	G	30	G	27	31	J <sub>32</sub>	B	J <sub>25</sub>	
20	32	J <sub>47</sub>	41	J <sub>43</sub>	J <sub>44</sub>	J <sub>37</sub>	38	33	30	G	G	J <sub>49</sub>	J <sub>39</sub>	J <sub>48</sub>	J <sub>59</sub>	50	J <sub>35</sub>	28	31	29	G	33	24	23	
21	J <sub>38</sub>	43	34	36	35	32	J <sub>33</sub>	42	G	G	45	G	G	E <sub>34</sub>	B	G	G	G	E <sub>30</sub>	J <sub>69</sub>	J <sub>40</sub>	26	J <sub>62</sub>	38	
22	J <sub>45</sub>	J <sub>62</sub>	38	J <sub>65</sub>	B	38	38	75	34	G	B	B	B	B	B	B	B	B	30	40	42	36	40	J <sub>96</sub>	
23	B	B	J <sub>30</sub>	75	J <sub>42</sub>	32	G	44	B	B	B	B	G	G	G	G	G	G	37	G	G	G	J <sub>44</sub>	J <sub>41</sub>	
24	45	B	B	B	35	B	B	B	76	B	B	B	B	B	B	E <sub>49</sub>	G	G	38	G	32	33	19	37	
25	J <sub>39</sub>	B	B	B	32	35	B	B	B	B	B	B	B	E <sub>36</sub>	B	B	E <sub>35</sub>	29	G	J <sub>100</sub>	J <sub>100</sub>	43	32	31	
26	29	70	38	38	33	32	B	B	G	B	B	B	B	B	E <sub>60</sub>	B	B	33	35	J <sub>46</sub>	J <sub>36</sub>	G	32	G	
27	G	G	G	G	B	37	36	42	39	G	G	G	32	G	G	G	G	E <sub>31</sub>	G	G	G	G	G	31	
28	20	B	B	B	38	33	38	G	G	G	G	E <sub>61</sub>	E <sub>51</sub>	G	G	B	B	E <sub>58</sub>	E <sub>51</sub>	43	E <sub>32</sub>	30	G	32	
29	J <sub>50</sub>	J <sub>38</sub>	34	B	J <sub>38</sub>	E <sub>37</sub>	J <sub>34</sub>	G	G	E <sub>32</sub>	G	J <sub>34</sub>	G	37	32	32	G	G	G	G	G	30	32	B	
30	31	41	52	E <sub>34</sub>	J <sub>46</sub>	40	36	G	G	G	G	G	G	G	G	G	G	G	G	G	G	34	J <sub>50</sub>	27	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	28	26	26	23	25	26	25	26	27	25	24	23	26	27	26	26	27	29	30	30	30	29	29	29	
MED	28	30	30	33	35	32	30	E <sub>28</sub>	G	G	G	G	G	G	G	G	G	G	G	G	26	25	27	27	27
UQ	36	40	38	42	41	37	36	34	32	E <sub>31</sub>	G	34	35	33	36	38	32	E <sub>29</sub>	32	40	36	J <sub>33</sub>	35	33	
LQ	20	20	24	26	31	24	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	E <sub>19</sub>	18	

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FOES (0.1 MHZ)

## IONOSPHERIC DATA

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F=MIN (0.1 MHZ)

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

Station	SYOWA STATION				Lat.	69 00.4 S.				Long.	39 35.4 E				Sweep	MHz to 15				MHz in 30 sec				in automatic operation			
Line Day	00	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	10	10	B	22	B	B	20	16	26	26	20	12	14	13	17	15	13	15	13	11	10	13	18			
2	13	15	10	10	11	11	11	11	10	11	11	14	21	29	33	13	13	13	13	10	10	10	10	9			
3	10	9	E <sub>12</sub> C	21	13	13	10	10	10	17	21	20	12	10	11	11	11	19	25	23	26	25	22	17			
4	10	13	10	11	B	22	12	11	13	13	12	11	11	10	12	11	10	10	9	9	10	10	10	10			
5	12	25	11	15	18	10	11	11	20	31	32	16	12	12	10	11	12	13	11	10	13	19	25	10			
6	9	12	12	10	10	10	10	10	10	10	11	14	13	12	11	11	11	10	10	E <sub>14</sub> C	10	10	10	9			
7	9	10	13	15	33	B	B	25	11	20	15	11	11	12	11	14	10	9	13	13	15	10	10	9			
8	9	9	10	10	10	18	13	10	12	10	10	10	10	10	11	10	12	10	9	9	10	B	19	11			
9	17	20	B	15	17	18	15	10	13	22	13	13	14	12	11	10	11	12	12	10	9	11	10	10			
10	10	13	10	10	12	10	10	10	10	10	10	10	10	11	12	10	10	9	10	9	9	10	9	9			
11	9	10	14	13	20	11	22	10	13	20	11	13	23	16	15	15	12	12	9	10	9	9	11	26			
12	B	21	22	20	B	11	10	20	13	12	B	B	50	27	18	15	14	11	13	11	22	22	17	20			
13	16	29	20	B	16	11	9	10	11	12	13	11	11	15	12	11	11	E <sub>16</sub> C	10	9	15	15	13	10			
14	9	9	9	12	13	10	10	9	10	10	10	12	10	12	15	12	11	10	10	10	E <sub>14</sub> C	10	10	10			
15	10	10	11	10	12	10	10	10	10	11	13	13	15	18	12	13	10	10	10	9	10	9	10	10			
16	13	24	14	30	17	10	10	10	10	11	10	11	10	11	11	11	10	10	11	10	9	9	9	10			
17	10	9	10	10	10	10	10	10	10	10	10	11	10	10	10	13	13	10	10	10	9	10	10	9			
18	9	10	14	13	C	C	15	C	C	C	E <sub>23</sub> C	C	13	10	12	21	12	10	10	11	10	10	10	10			
19	10	10	9	B	10	10	10	10	10	10	10	10	13	12	12	11	10	10	11	10	13	17	B	9			
20	13	10	10	10	10	9	10	10	10	10	10	12	12	12	13	15	11	13	13	11	12	10	20	10	9		
21	11	14	14	20	10	10	13	14	12	15	42	24	19	34	B	18	14	12	30	45	13	11	10	26			
22	13	10	13	18	B	22	12	26	25	20	B	B	B	B	B	B	B	B	11	13	15	11	9	10			
23	B	B	10	13	11	11	E <sub>13</sub> C	15	B	B	B	B	B	B	B	B	B	B	11	13	15	11	9	10			
24	10	B	B	B	11	B	B	B	32	B	B	B	B	B	B	49	13	20	20	13	12	10	10	14			
25	9	B	B	B	25	13	B	B	B	B	B	B	B	B	36	B	B	35	18	13	13	14	20	13	13		
26	11	12	24	20	11	12	B	B	15	B	B	B	B	B	60	B	B	15	21	15	23	12	10	10			
27	12	11	11	11	B	29	15	12	15	13	10	12	14	13	13	12	20	31	16	11	12	12	12	11			
28	15	B	B	B	21	17	15	21	20	15	27	61	51	14	13	B	B	58	51	24	32	13	12	14			
29	10	22	24	B	12	37	20	12	11	32	24	20	13	13	13	15	16	13	11	11	10	11	20	B			
30	25	24	42	34	15	10	15	10	11	11	11	13	14	13	11	12	13	15	18	14	11	13	10	10			
31																											
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
CNT	30	30	30	30	29	29	30	29	29	29	30	29	30	30	30	30	30	30	30	30	30	30	30	30			
MED	10	12	12	15	13	11	12	11	12	13	13	13	13	13	12	13	12	12	11	11	12	11	10	10			
UQ	13	24	22	34	21	18	15	20	15	22	32	24	23	27	18	18	15	16	15	13	15	15	13	14			
LQ	10	10	10	11	11	10	10	10	10	11	11	11	11	12	11	11	11	10	10	10	10	10	10	10			

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F=MIN (0.1 MHZ)

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# IONOSPHERIC DATA

NOV. 1971

M(3000)F2 (0.01)

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

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

Hour Day	00	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	U	F	U	F	B	A	B	B	265	J	F	270	285	285	275	F	U	F	F	F	290	300	310	320	325	315	320	310	310					
2	J	R	F	F	F	F	J	R	250	260	265	270	275	280	275	290	305	300	325	325	330	335	320	325	300	F	305	F							
3	F	F	275	250	R	J	R	J	S	260	265	270	270	270	J	R	285	270	290	295	300	305	315	315	320	320	R	310	300	R	285				
4	F	F	S	R	B	R	255	250	F	C	245	275	270	260	F	255	295	315	325	315	310	325	310	315	R	U	R	265	F						
5	A	R	270	R	R	R	270	265	R	245	260	275	R	280	270	275	285	285	285	290	F	310	305	R	315	F	R	315	F						
6	300	290	J	R	275	255	250	265	255	245	265	255	250	275	270	290	305	300	310	310	315	310	R	310	J	R	295	R	F						
7	290	265	F	J	R	R	B	B	R	F	260	260	260	250	270	270	270	290	270	310	315	320	305	300	R	300	R	300	R						
8	U	R	S	J	R	255	J	R	A	235	265	250	250	255	F	275	F	260	F	I	A	290	285	300	290	315	280	305	B	A	290				
9	A	305	B	A	A	A	245	240	F	255	J	F	265	280	265	260	275	270	280	285	315	325	325	315	310	300	310	300	310	310					
10	305	F	F	F	285	J	R	J	R	290	265	265	280	270	275	280	290	265	315	310	310	325	320	330	325	325	R	295	F	295					
11	290	J	S	R	R	A	A	A	F	R	235	F	260	250	F	260	265	265	295	285	285	325	315	S	F	300	F	A	A						
12	B	A	A	R	B	R	R	215	255	J	R	250	B	B	270	265	280	295	290	310	320	J	R	300	325	325	310	R	R	R					
13	A	A	265	B	255	245	255	245	265	F	265	265	260	265	275	290	275	285	300	F	300	315	305	325	320	R	310	310	310						
14	290	295	U	S	270	J	R	260	J	F	250	245	J	R	J	R	260	270	270	280	285	305	295	310	315	315	305	315	J	S	310				
15	U	R	290	275	R	F	F	265	255	F	275	265	265	265	265	280	295	300	310	320	310	310	310	310	315	300	J	R	320	R					
16	R	R	R	A	R	270	R	245	U	F	255	255	265	255	275	290	295	290	305	300	330	345	315	300	S	S	S	S	S						
17	S	285	R	R	J	R	R	J	R	R	270	270	260	260	270	270	285	295	295	310	315	325	320	330	305	R	R	300	R	R					
18	S	320	R	C	C	C	A	C	C	C	275	C	275	270	295	285	290	295	300	315	F	315	A	R	R	R	R	R	R	R					
19	R	S	S	B	280	270	R	J	R	J	R	265	J	R	260	265	270	275	275	300	310	305	290	305	315	F	335	310	B	S	S				
20	R	A	A	260	A	255	240	245	F	F	260	250	245	F	265	280	280	F	J	R	J	R	295	J	F	295	295	305	335	305	R	F	275	R	
21	S	A	R	R	R	U	F	245	240	245	265	R	U	R	255	260	J	R	B	245	250	260	J	R	305	A	305	295	A	R	R	R			
22	260	F	A	A	B	R	250	R	R	R	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B		
23	B	B	U	F	A	A	R	R	A	B	B	B	B	R	255	260	260	250	270	R	R	290	J	R	295	280	F	A	A	A	A	A			
24	A	B	B	B	310	B	B	B	A	B	B	B	B	B	B	B	260	F	235	F	R	R	R	R	R	300	320	A	A	A	A	A	A		
25	U	F	B	B	B	R	R	B	B	B	B	B	B	B	R	B	B	R	R	R	R	A	U	F	325	A	F	260	280	F	F	F			
26	275	295	F	A	A	U	R	245	265	B	B	R	B	B	B	B	B	F	B	B	285	275	310	300	295	335	290	290	290	290	290	290	290		
27	310	290	285	270	B	R	250	F	F	F	F	J	F	265	285	265	250	265	280	F	280	290	295	300	335	325	305	305	305	305	305	305	305		
28	310	B	B	B	R	260	245	250	245	265	255	275	285	280	250	B	B	B	B	B	310	295	315	325	300	R	R	R	R	R	R	R			
29	265	270	R	B	260	F	R	R	F	260	255	270	270	260	270	270	285	280	290	290	295	305	295	290	R	B	B	B	B	B	B	B			
30	275	A	B	R	A	235	265	250	245	F	255	270	270	260	270	275	275	280	295	295	315	310	315	300	310	S	310	310	310	310	310	310	310		
31																																			
CNT	16	16	9	8	13	15	18	21	19	23	22	22	25	26	25	26	26	26	26	26	24	27	23	21	17										
MED	290	285	270	270	265	R	260	252	250	255	260	268	270	270	275	285	290	290	298	310	315	310	310	300	305	305	305	305	305	305	305	305	305	305	
UQ	298	292	285	275	270	R	268	265	265	265	265	275	275	275	290	295	305	305	310	320	325	318	322	320	310	310	310	310	310	310	310	310	310	310	
LQ	275	275	265	258	260	255	245	245	248	255	260	260	260	270	270	275	285	285	300	310	305	300	300	290	290	290	290	290	290	290	290	290	290	290	

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M(3000)F2 (0.01)

# IONOSPHERIC DATA

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H<sup>o</sup>F<sub>2</sub> (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1								430	350	315	340	350	365	340	330	325	L	280	255					
2					L	L	350	350	345	330	320	325	340	300	280	250	L	L						
3					345	380	370	350	330	350	330	330	345	330	300	300	275	L						
4						R	430	400	I	C	E	C	405	450	345	350	375	355	330	290	280	L	L	
5						395	400	R	410	360	345	370	345	355	350	330	315	300	L	270	275			
6						475	380	390	400	350	375	400	360	375	330	315	L	L	L					
7						B	B	R	F	410	400	450	430	380	370	330	310	345	280					
8					L	A	550	400	420	390	395	370	425	320	I	A	330	305	L	270	L			
9					A	A	R	390	380	350	350	360	365	355	350	340	330	290	245					
10					295	375	350	350	350	325	330	325	325	290	L	280	280	L	L	260				
11					A	A	A	R	A	R	395	430	425	420	450	350	350	L		L				
12						R	R	R	470	410	B	B	380	I	R	385	370	360	L	325	L	L		
13					R	410	380	380	350	350	350	360	390	350	330	L	L	270	L	260				
14					380	405	400	400	355	350	345	345	345	330	330	300	330	L	L					
15						375	345	320	340	350	350	350	315	310	300	310	270	L	L					
16						375	375	420	415	370	370	390	350	325	330	280	300	L	L	240				
17					325	325	310	320	340	330	340	350	330	310	315	300	280	280	250					
18					C	C	A	C	C	C	310	C	330	330	330	330	330	310	300	245				
19					380	380	330	320	330	340	325	350	325	325	305	290	L	L	290					
20					430	A	450	475	465	380	400	420	430	380	350	350	320	300	320	L	255			
21					A	450	475	490	495	425	R	U	R	425	B	B	500	430	475					
22						A	430	R	R	R	B	B	B	B	B	B	B	B	B	R	A			
23					A	R	R	A	B	B	B	B	R	500	475	L	500	400	R	L	L			
24					320	B	B	B	A	B	B	B	B	B	B	390	480	450	R	R				
25					R	R	B	B	B	B	B	B	B	R	B	B	R	410	R	A				
26					U	R	450	B	B	R	B	B	B	B	B	B	B	B	L	350	L			
27					340	B	R	445	430	400	375	370	370	345	400	450	380	350	360	310	290	L		
28						R	430	430	400	375	350	375	360	330	330	400	B	B	B	B	310			
29					430	R	R	395	370	380	340	345	375	360	350	330	330	305	320	L	L			
30					A	560	425	425	410	400	350	360	390	380	350	355	355	325	L					
31																								
CNT					2	9	15	19	20	22	24	23	23	25	26	24	24	20	16	9	8	1		
MED					332	380	405	400	398	378	352	350	360	360	350	340	328	322	322	290	260	275		
UQ					430	450	430	422	410	398	372	380	380	380	362	345	350	380	310	280				
LQ					325	378	360	350	350	350	340	348	340	325	330	295	290	295	270	250				

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H<sup>o</sup>F<sub>2</sub> (KM)

# IONOSPHERIC DATA

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H<sup>o</sup>F (KM)

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

Station **SYOWA STATION** 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	240	280	300	B	A	B	B	A	250	230	220	220	220	215	190	220	220	225	230	235	250	230	240	250			
2	270	300	255	295	255	245	230	220	205	210	210	205	200	230	230	210	205	205	230	225	220	215	260	250			
3	330	370	350	360	330	245	210	220	205	200	205	210	210	200	200	210	220	220	230	240	240	250	255	270			
4	250	275	260	R	B	A	250	210	250	C	230	200	200	205	210	205	215	215	220	240	245	250	300	A			
5	A	B	380	310	350	300	250	I A 250	250	210	220	230	260	230	205	200	220	225	225	250	265	B	B	260			
6	330	A	330	340	320	275	230	240	225	215	220	215	225	220	205	210	220	225	215	225	230	230	240	240			
7	250	A	380	400	B	B	B	R	250	200	200	200	210	200	H	210	225	220	230	250	255	260	255	260	250		
8	260	260	300	340	300	A	A	280	215	205	200	205	200	H	225	I A 220	230	225	230	230	230	255	B	A	325		
9	A	A	B	A	A	A	A	240	220	210	H	200	200	200	H	H	205	220	230	220	240	240	245	250	255		
10	260	290	290	280	250	A	250	240	220	H	220	205	215	200	250	215	220	A	220	230	A	A	230	A	230	250	
11	260	220	A	A	A	A	A	260	A	A	225	230	250	H	R	250	220	220	210	240	245	230	310	A	A	A	
12	B	A	A	A	B	310	270	A	200	200	B	B	B	B	R	205	225	220	225	240	260	255	250	250	A		
13	A	B	A	B	A	325	240	210	200	225	200	280	225	205	220	240	220	210	260	240	240	240	250	250			
14	250	250	295	300	330	310	230	230	205	205	195	200	205	200	H	205	200	205	H	225	225	230	245	250	245	245	
15	250	250	300	400	400	250	200	220	200	200	H	250	225	225	230	H	200	225	215	200	205	230	245	245	250	250	
16	A	R	360	350	A	A	320	250	230	210	200	200	225	205	225	210	220	215	215	230	230	245	240	250	230		
17	245	270	260	260	250	250	240	210	210	205	210	205	230	225	H	200	245	210	200	H	225	230	240	240	240	245	
18	260	240	A	A	C	C	A	C	C	C	200	C	200	H	215	210	220	210	210	240	230	230	250	240	250		
19	265	280	290	B	290	A	240	215	210	210	265	230	H	250	A	250	A	240	210	225	225	240	250	275	B	280	
20	A	A	A	430	A	320	255	240	200	200	220	A	230	240	A	A	230	210	235	225	230	250	A	350	350		
21	290	A	A	A	A	A	270	B	260	200	220	I B 215	210	210	B	B	230	200	330	260	B	B	270	280	A	A	
22	A	A	A	A	B	A	A	R	230	A	R	B	B	B	B	B	B	B	B	B	R	A	A	290	A	275	
23	B	B	400	A	A	A	210	A	B	B	B	B	R	230	210	230	240	250	A	270	260	325	A	A			
24	A	B	B	B	A	B	B	B	A	B	B	B	B	B	B	B	250	230	A	275	310	300	A	260	A		
25	340	B	B	B	A	A	B	B	B	B	B	B	B	B	E B 260	B	B	B	R	R	A	250	A	450	360		
26	360	300	A	A	A	A	B	B	225	B	B	B	B	B	B	B	B	230	250	250	250	280	300	350			
27	300	320	350	310	B	R	A	A	250	250	225	200	205	200	210	220	195	215	R	240	220	240	245	245	A		
28	250	B	B	B	A	A	A	245	220	H	R	210	R	B	205	210	B	B	B	B	250	250	245	250	375		
29	355	A	375	355	B	300	B	A	210	H	220	215	195	H	210	H	225	225	215	210	220	230	230	240	300	A	B
30	360	A	B	260	A	A	A	260	205	H	200	H	200	230	210	H	H	205	220	215	215	H	250	E A 280	255	265	
31																											
CNT	21	16	17	13	11	12	16	21	25	21	24	21	23	25	24	25	26	26	25	26	28	25	22	22			
MED	260	280	300	310	300	288	240	240	210	210	210	210	210	222	210	220	215	225	230	232	250	250	250	252			
UQ	330	310	350	360	330	315	250	250	225	220	220	225	226	230	219	230	220	230	240	250	255	280	260	280			
LQ	250	255	290	295	272	248	222	220	205	200	200	200	200	205	202	210	210	215	225	230	240	240	245	250			

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H<sup>o</sup>F (KM)



# IONOSPHERIC DATA

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H<sup>1</sup>ES (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	G	105	170	B	100	B	B	110	100	G	110	G	G	G	G	G	G	G	115	G	G	G	B	B
2	105	B	155	G	G	G	G	G	G	110	G	G	G	G	B	G	G	G	G	G	G	G	190	140
3	140	105	110	150	G	G	G	G	G	G	G	G	G	G	G	G	G	G	B	B	B	B	B	B
4	115	110	140	120	B	100	G	G	100	100	G	G	G	G	G	G	G	G	G	100	G	G	115	120
5	115	110	100	125	125	G	G	105	G	B	B	G	G	G	G	100	G	G	G	140	140	150	B	125
6	110	110	115	110	110	G	G	G	G	100	G	G	G	100	100	G	G	G	G	G	100	115	100	110
7	105	115	120	125	130	B	B	100	100	G	G	G	G	G	100	100	100	100	105	130	110	100	100	100
8	100	110	105	110	105	100	100	100	G	G	G	G	110	130	100	100	100	100	100	100	G	B	130	115
9	120	130	B	100	100	115	100	100	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
10	B	120	G	140	120	100	G	G	G	G	G	120	100	G	G	100	100	100	110	110	115	110	105	105
11	G	140	130	110	110	100	130	100	100	100	G	140	G	110	G	G	G	G	G	100	100	120	120	100
12	B	110	110	100	B	100	100	110	G	G	B	B	B	G	G	G	G	G	G	G	130	125	B	125
13	105	140	125	B	125	100	G	G	G	G	G	100	100	100	G	G	100	G	G	100	G	G	G	100
14	100	G	100	120	110	100	G	G	G	G	G	G	G	100	G	G	G	G	G	100	100	100	100	115
15	100	160	125	100	100	G	G	G	G	G	G	G	G	G	130	130	G	G	100	100	100	125	125	G
16	125	130	125	155	100	105	G	G	G	G	125	100	100	G	G	G	120	G	G	G	120	120	120	110
17	110	130	130	120	110	105	125	G	130	120	125	125	115	110	100	100	100	G	G	100	G	G	100	100
18	105	100	125	110	C	C	100	C	C	C	G	C	G	G	G	G	G	G	G	120	110	110	130	100
19	100	100	100	B	110	140	G	110	G	G	G	125	115	110	110	110	G	100	G	150	140	145	B	110
20	125	140	105	110	100	130	130	160	100	G	G	105	100	100	100	125	100	100	130	145	G	125	150	110
21	115	100	100	130	100	120	100	100	G	G	130	G	G	B	B	G	G	G	B	140	130	140	145	120
22	120	150	105	105	B	110	105	115	110	G	B	B	B	B	B	B	B	B	100	110	120	110	100	120
23	B	B	100	100	110	100	G	100	B	B	B	B	G	G	G	G	G	G	110	G	G	G	110	100
24	100	B	B	B	100	B	B	B	100	B	B	B	B	B	B	B	G	G	110	G	100	100	100	120
25	100	B	B	B	130	100	B	B	B	B	B	B	B	B	B	B	B	110	G	110	150	100	110	110
26	100	150	100	100	100	100	B	B	G	B	B	B	B	B	B	B	B	150	150	125	150	G	125	G
27	G	G	G	G	B	130	105	100	100	G	G	G	100	G	G	G	G	B	G	G	G	G	G	110
28	150	B	B	B	100	105	100	G	G	G	G	B	B	G	G	B	B	B	B	130	B	150	G	110
29	150	130	125	B	100	B	100	G	G	B	G	100	G	105	100	100	G	G	G	G	G	130	125	B
30	140	140	120	B	100	100	105	G	G	G	G	G	G	G	G	G	G	G	G	G	130	120	115	G
31																								
CNT	24	23	24	20	23	20	13	13	9	5	4	8	8	9	8	9	7	7	11	18	17	19	21	23
MED	110	120	118	110	105	100	100	100	100	100	125	112	100	105	100	100	100	100	110	110	120	120	120	110
UQ	122	140	125	125	110	112	105	110	100	110	128	125	112	110	105	110	100	105	112	130	130	128	125	120
LQ	100	110	102	102	100	100	100	100	100	100	118	100	100	100	100	100	100	100	100	100	100	110	105	102

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H<sup>1</sup>ES (KM)

# IONOSPHERIC DATA

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TYPES OF E5

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		R1	RR11		R1			R1	R1		R1								C1					R1	R1
2	L1		RL11							L1														R1	R1
3	R1	R1	R1	R1																					
4	R1	R1	R1	R1		R1			L1	R1										L1			R1	R2	
5	R2	R1	R2	R1	R1			R2								C1				H1	R1	R1		R1	
6	R3	R3	R1	R1	R1				L1				L1	L1								L1	L1	LL11	L1
7	L1	R2	R2	R1	R1			L1	R1					L2	L2	L2	L1	H1	C1	H1	L2	L3	L3	L4	
8	L1	L1	R1	R1	R1	R1	R1	R1					H1	LC11	L2	L2	L2	L3	L2	L1			R1	R2	
9	R1	A1		R1	R1	R1	R1	R1																	
10		R1		R1	R1	R2						H1	H1		C1	L2	L2	HC11	H5	C7	C2	A3	L1		
11		R1	A1	A1	R1	R1	L1	R1	R2	R1		H1		L1						L1	R4	R3	R3	R1	
12		R1	R1	R1		A1	A1	R1													L1	L1		R1	
13	R1	R1	R1		R1	R1						L1	R1	L1			L3			L1				R2	
14	L2		L1	R1	R1	L1								L1					L2	L1	L1	L2	RL11	LL11	
15	L1	H1	R1	R2	R1										H1	H1			L3	L2	L3	H1	R1		
16	R1	R1	R1	RR11	R1	R1					H1	C1	R1				H1					HL12	HL11	LL21	R1
17	L1	RR11	R1	R1	R1	H1	HL11		H1	H2	H2	H1	H1	H1	C2	L3	L2			L2			R1	L2	
18	L1	R2	R1	R1			R1													H1	H2	LL21	LL11	L1	
19	L2	L1	L1		A1	R1		H1				H1	H2	H1	H1	H2		R1		H1	R1	N1		LL1R	
20	R1	LR11	R2	R2	LR11	LL12	R1	HL11	L2			H2	L2	L1	L1	LL12	L1	L1	HL11	HL11		R1		R1	
21	R2	R1	R1	R1	R1	RL11	R1	R1				L1								L1	H1	R2	RR11	R1	
22	A1	AR11	R1	R1	R1	R1	R1	R1	R1										R1	R1	R2	R2	R2	A1	
23			R1	A1	RL11	R1		R1											R1					A1	R1
24	R1				R1				R1											R1		R1	R2	L1	R2
25	A2				R1	R1												R1		A1	A1	R1	R1	R1	
26	R1	LL12	L1	L1	R1	R1												H1	C1	H1	L1		R1		
27						R1	R1	R1	R1				L1												R2
28	R1				R1	R1	R1	R1												H1		H1		R1	
29	H1	C1	C1		L1		H1					L1		H2	L1	R1						R1	R1		
30	R1	R1	L1		L1	R2	R2														H1	C2	C2		
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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TYPES OF E5

# IONOSPHERIC DATA

DEC. 1971

FOF2 (0.1 MHZ)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	53	R	43	JR 54	R	B	53	63	68	F 64	JF 67	F 67	69	72	70	70	65	65	64	60	JF 54	50	I 51	U 54
2	C	43	R	52	C	C	75	78	78	72	73	73	72	72	67	64	65	59	61	B	48	47	43	JR 40
3	R	40	R	A	53	R	59	R	47	F 61	F 60	68	74	U 77	F 70	72	71	71	61	F 58	51	39	44	42
4	42	B	R	45	UF 43	R	R	JR 47	50	I 50	F 51	F 53	59	52	56	56	52	57	58	49	51	45	43	41
5	UR 47	44	R	B	R	R	50	55	68	69	67	66	69	69	64	67	63	60	59	57	60	53	53	55
6	S	R	44	54	US 64	JF 70	72	80	80	84	87	84	75	75	70	F 65	64	61	60	61	60	59	S	S
7	47	47	47	59	S	F	71	76	80	82	80	75	73	70	72	72	65	60	61	60	58	51	50	51
8	50	46	50	52	B	R	UF 59	UF 70	72	80	82	76	70	69	66	63	65	66	60	63	S 60	57	60	S 60
9	60	S 60	US 66	65	73	JR 84	UR 91	B	B	F 81	80	80	83	78	A	A	A	66	58	60	62	55	55	S 52
10	R	S	43	47	UR 50	58	63	71	80	78	75	73	72	67	65	59	57	56	51	61	60	62	50	50
11	41	42	J 54	S	R 65	68	F	65	F	80	79	76	69	70	73	73	70	67	64	60	US 58	R 49	50	R
12	45	UR 42	45	45	A	R	R	F 53	F 61	68	61	53	60	61	55	56	58	61	57	50	35	42	42	R
13	B	F 42	R	B	B	B	R	R	51	51	50	UR 50	55	60	UF 60	61	61	57	43	R	48	45	43	A
14	A	A	A	R	UR 52	60	F 61	F 70	70	72	71	66	69	65	63	63	62	60	58	52	53	51	51	54
15	57	US 63	S	S 69	R	R	45	52	59	69	72	F 69	69	65	63	63	62	60	58	52	53	51	51	54
16	B	53	55	J 64	70	F 74	J 83	83	88	84	83	77	83	79	79	63	63	60	65	60	58	60	53	UR 46
17	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	52	R	R	R	R	R
18	A	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	A	37	36	39
19	40	40	41	43	46	51	R 52	56	57	62	63	67	71	76	77	80	F 66	F 56	61	57	50	47	JR 76	UR 47
20	JR 46	R 46	UR 46	J 45	50	53	59	65	F 70	68	F 63	65	61	60	60	60	59	56	56	57	I 53	A 54	53	46
21	R	B	R 45	B	R	R	J 70	80	88	89	87	87	80	77	77	69	67	67	64	62	57	51	51	A
22	F	55	R	R	F 51	R	R	R	F 55	54	F 61	UF 66	69	76	77	71	62	51	48	50	58	R	R	B
23	A	44	B	R	B	B	R	B	B	B	B	60	F 60	F 62	70	70	66	58	R 60	50	JR 53	42	47	40
24	40	52	50	UR 50	B	B	B	R	F 58	65	67	69	70	70	69	71	70	64	B	59	60	53	52	51
25	43	45	JR 48	UF 50	B	A	F 63	JF 68	69	F	F	F	UF 65	F 65	F 63	63	60	60	64	63	57	50	50	52
26	50	54	UR 51	R	B	B	R	UF 52	B	B	F 60	F	F	F 62	60	60	61	61	63	59	55	R 46	R	42
27	R	B	B	R	B	R	B	R	45	51	54	60	63	65	64	69	66	67	62	60	57	59	59	UR 59
28	S	S 60	66	70	74	R	JR 87	JR 87	R	JR 88	JR 88	83	75	69	72	70	66	63	63	64	66	64	R	S
29	R	R	52	R	48	R	R	R	R	A	B	B	53	B	F	F	R	58	52	51	I 47	49	43	42
30	39	JR 47	R	R	B	R	R	B	R	B	R	R	B	R	54	B	B	R	52	B	F 50	49	43	45
31	42	B	R	B	B	R	B	B	UF 56	UF 63	F	UF 62	F 62	F 62	59	58	53	53	51	53	52	50	41	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	17	20	17	16	13	8	17	20	22	24	24	25	27	27	27	26	26	28	29	26	29	29	26	22
MED	46	46	48	52	52	64	63	66	68	69	69	68	69	69	67	64	64	60	60	58	55	50	50	48
UQ	50	54	52	62	65	72	72	77	78	80	80	76	72	74	71	70	66	64	61	60	59	54	53	54
LQ	42	42	45	46	50	56	59	54	56	62	61	65	64	63	62	61	61	58	56	52	51	47	43	42

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FOF2 (0.1 MHZ)

IONOSPHERIC DATA

DEC. 1971

FOF1 (0.01 MHZ)

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

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

Hour Day	00	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	R	B	R	400	410	I R 420	430	I R 430	H 460	460	460	460	R 430	400	L	L	L			
2					C	C	410	400	420	430	430	430	450	450	450	450	L 430	420	420	B	L			
3					A		380	400	A	A	400	420	B	B	R 450	B	B	B	B	L	R			
4						R	340	380	400	410	I R 420	R 420	440	440	450	440	L 440	420	L		L	L		
5					B	R		360	380	I R 400	410	420	420	B	R	450	UR 450	R 430	430	430	L	L		
6				L	L	390	410	410	420	440	440	450	UR 450	430	UR 440	440	I B 450	430	420	L	H 400	380	L	
7				330	340	400	410	480	430	I B 450	470	450	460	460	460	450	L	L	L	390	L	L	L	
8					B	A		400	420	420	430	440	450	460	460	460	450	440	440	L	L	L		
9				350	370	400	400		B	B	440	450	450	460	A	A	A	A	420	L	L	L		
10					390	390	400	410	410	430	430	450	470	470	460	440	440	L	420	L	L			
11				L	340	380	390	400	410	I A 420	430	440	460	UR 470	480	470	470	470	L	410	L	360		
12					A	R	A	R	430	420	450	460	450	430	490	H 480	450	420	L					
13					B	B	R	A	410	420	420	430	430	440	440	I B 450	430	420	L	H 400	380	L		
14				320	350	370	390	390	420	420	I R 420	I R 430	450	450	460	450	440	L	L		L			
15				U L 300	L	A	A	A	420	R 430	440	440	450	I R 450	450	450	450	L	430	L	L	L		
16				350	370	390	410	420	440	440	450	450	460	450	460	510	460	L	U 430	L	L	L		
17					B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	410	380			
18					R	350	370	H	R	400	I R 420	420	430	420	420	410	410	400	390	390	360			
19			310	310	330	F 350	390	400	410	420	430	I R 430	450	I A 450	460	460	450	420	420	400				
20					R	A	UR 380	390	I A 400	420	I R 430	440	450	450	460	H 450	460	450	L	L	A	A		
21					B	A	R	410	420	420	440	470	470	450	430	450	460	460	450	430	400	L		
22				330	370	R	A	A	440	H 440	450	R 470	450	R	B	B	460	410	430	420	L			
23					R	B	B	A	B	B	B	B	B	450	B	B	R 450	UR 450	R	B	L	L		
24					B	B	B	R	430	450	450	R 450	460	460	450	460	450	B	B	L				
25					B	B	A	A	R 420	R	R	H 450	440	460	470	460	450	L	470	420	L	L	B	
26					L	B	B	A	400	B	B	420	440	B	440	UR 460	450	I R 450	450	B	L	L		
27					R	B	A	B	R	390	390	420	420	B	B	R	R	R	L	400	L	L		
28				L	330	370	400	400	410	B	R	R	R	470	A	A	L	A	L	L	L	L	L	
29					A	A	A	A	A	F 410	A	B	B	420	B	440	430	410	420	410	L		L	
30					A	B	R	R	B	R	B	R	420	B	420	420	B	B	A	L	B	F 350		
31					B	B	380	B	B	B	420	430	440	440	440	450	450	450	410	420	L	L		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CNT			2	9	11	14	18	17	22	24	26	25	25	24	24	25	24	17	17	6	2			
MED			305	330	370	385	400	410	420	430	435	440	450	450	450	450	445	420	420	380	355			
UQ				340	375	400	410	420	430	440	450	450	460	460	460	460	450	430	420	400				
LQ				330	345	370	390	400	410	420	420	430	450	440	450	450	430	420	400	380				

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DEC. 1971

FOF1 (0.01 MHZ)

# IONOSPHERIC DATA

DEC. 1971

FOE (0.01 MHz)

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

Station	SYOWA STATION				Lat.	69 00.4 S.				Long.	39 35.4 E				Sweep	MHz to 15 MHz in 30 sec in automatic operation									
Hour Day	00	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 180	B	A	A	B	B	A	250	275	A	325	R	300	R	310	310	R	B	B	B	215	210	350	C	A
2	A	A	B	A	C	C	290	290	290	300	305	305	A	R	A	A	290	270	250	B	210	B	150	145	
3	B	A	B	A	A	A	A	A	A	280	300	B	B	325	B	B	B	B	290	R	200	A	A	A	
4	A	B	A	A	230	B	290	260	270	A	300	310	305	305	290	290	300	270	B	255	200	180	160	170	
5	A	A	B	B	A	A	A	A	280	290	295	B	305	310	310	300	300	285	240	250	210	200	150	A	
6	A	A 160	H 190	A	220	225	A	U A 270	U A 285	I A 300	300	B	310	310	310	300	300	270	250	250	210	A	A	160	
7	130	165	140	205	220	A	260	I A 280	290	B	R	305	310	H 310	320	310	300	290	A	250	250	230	170	160	130
8	A	A 150	A 160	H 255	B	A	270	275	270	300	H 305	310	305	310	310	300	300	285	240	250	210	A 200	150	A	
9	B	B	165	170	A	A	A	B	B	320	325	325	320	I A 310	A	A	A	A	290	250	250	240	200	A	A
10	A	250	A	A	320	260	265	280	290	300	305	305	305	305	310	310	H 290	290	260	245	230	200	A	A	
11	170	170	200	180	200	230	255	275	300	300	310	325	340	320	320	315	300	285	275	250	220	A	A	A	
12	A	A	A	A	A	A	A	270	285	295	300	300	325	210	R 305	300	295	290	270	230	200	A	A	B	
13	B	A	B	B	B	B	A	A	A	300	305	300	B	B	B	B	300	I B 300	270	230	A	300	310	A	
14	A	B	A	A	A	250	250	275	295	300	300	I B 300	300	320	320	310	300	290	265	260	230	H 170	A	A	
15	A	A	175	A	A	A	A	A	320	300	310	310	320	320	320	300	295	275	270	250	230	200	200	195	
16	B	B	215	A	225	230	250	270	300	310	300	A	315	310	A	A	305	300	270	260	240	205	205	H B	
17	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	A	B	B	A
18	C	A	A	A	235	265	295	A	300	R	R	300	300	305	305	300	R	R	270	260	210	A	A	A	
19	230	A	A	A	A	250	260	275	U A 295	300	H 300	A 300	305	I A 300	300	300	B	R	B	240	210	200	240	210	
20	200	260	285	B	A	A	245	280	295	300	300	310	300	300	A	A	A	A	280	245	220	190	150	160	
21	B	B	A	B	A	300	300	280	290	310	320	320	320	300	A 305	A	310	290	285	245	220	200	190	A	
22	A	A	B	A	275	A	A	A	300	310	310	R 330	B	B	B	B	310	300	270	250	320	A	A	B	
23	B	A	B	A	B	B	A	B	B	B	B	B	R	B	B	B	B	B	B	B	A	A	300	305	
24	300	300	R 300	A	B	B	B	A	300	300	300	B	U R 300	320	I A 310	305	290	B	B	B	B	B	180	A	
25	A	A	A	B	B	A	A	A	A	A	300	310	310	315	310	300	300	300	270	B	B	A	H 170	165	
26	165	200	A	A	B	B	A	A	B	B	A	300	B	B	B	B	B	R 290	B	B	200	205	B	R	
27	B	B	B	B	B	A	B	A	305	300	R 300	300	B	B	A	R	B	A	265	I B 230	230	B	200	190	
28	150	B	140	190	200	230	270	R	B	B	R	310	300	A	A	A	A	290	270	245	210	200	185	180	
29	B	A	A	A	A	B	A	A	R	A	B	B	R	B	310	R 300	300	R	260	235	230	270	150	H 210	
30	A	285	A	A	B	A	A	B	R	B	R	R	B	B	B	B	B	B	B	B	250	210	225	170	
31	210	B	B	B	B	B	B	B	B	300	R 300	300	310	H 310	310	300	300	280	270	235	220	200	H 200	180	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	9	9	10	5	9	9	13	14	20	20	23	21	21	21	18	16	19	19	23	23	26	19	19	14	
MED	180	200	182	190	225	250	265	275	292	300	300	305	305	310	310	300	300	290	270	250	220	200	185	175	
UQ	210	260	215	205	235	260	290	280	300	300	308	310	315	320	310	302	300	290	270	250	230	205	202	195	
LQ	165	165	160	180	220	230	255	270	285	300	300	300	300	305	305	300	295	282	255	238	210	200	155	160	

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DEC. 1971

FOE (0.01 MHz)

IONOSPHERIC DATA

DEC. 1971

FOES (0.1 MHZ)

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

Station SYOWA STATION 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	G	27	35	32	36	B	35	G	G	35	G	G	G	33	G	G	E <sub>32</sub>	E <sub>33</sub>	E <sub>35</sub>	31	31	G	C	33	
2	29	34	32	35	C	C	G	G	32	G	G	G	34	G	J <sub>36</sub>	J <sub>46</sub>	33	G	G	B	G	E <sub>23</sub>	G	25	
3	33	35	38	J <sub>64</sub>	42	39	44	41	J <sub>42</sub>	G	G	E <sub>59</sub>	E <sub>50</sub>	G	E <sub>57</sub>	E <sub>60</sub>	E <sub>50</sub>	E <sub>59</sub>	J <sub>45</sub>	G	29	33	37	39	
4	31	B	28	32	G	35	G	G	36	38	G	G	G	G	G	30	G	G	E <sub>28</sub>	29	G	G	G	G	
5	30	31	30	B	34	40	37	38	G	G	G	E <sub>50</sub>	G	G	E <sub>36</sub>	E <sub>35</sub>	E <sub>31</sub>	E <sub>40</sub>	E <sub>29</sub>	G	J <sub>64</sub>	90	J <sub>24</sub>	41	
6	J <sub>32</sub>	23	24	33	39	23	32	34	30	31	G	E <sub>35</sub>	G	G	G	G	G	G	G	G	24	22	32	G	
7	G	23	20	26	G	J <sub>30</sub>	G	J <sub>45</sub>	G	E <sub>56</sub>	G	G	G	36	34	G	G	J <sub>35</sub>	31	G	G	30	G	21	
8	J <sub>33</sub>	J <sub>34</sub>	G	G	B	40	31	G	G	G	G	G	G	G	G	G	G	G	G	G	G	22	G	20	
9	30	E <sub>26</sub>	20	J <sub>32</sub>	25	J <sub>26</sub>	J <sub>30</sub>	B	B	35	38	J <sub>46</sub>	D <sub>105</sub>	D <sub>105</sub>	D <sub>105</sub>	J <sub>90</sub>	D <sub>105</sub>	40	G	27	J <sub>34</sub>	G	J <sub>27</sub>	34	
10	33	G	J <sub>36</sub>	40	G	G	G	G	G	G	33	42	52	41	G	G	G	G	G	30	G	30	23	21	22
11	G	G	J <sub>34</sub>	J <sub>23</sub>	J <sub>24</sub>	25	G	33	42	G	36	40	44	J <sub>46</sub>	G	G	G	G	G	G	G	34	J <sub>40</sub>	35	
12	35	J <sub>39</sub>	J <sub>42</sub>	J <sub>37</sub>	J <sub>51</sub>	35	41	39	G	G	G	G	G	G	35	G	G	G	G	32	G	G	32	35	35
13	B	46	40	B	B	B	36	47	43	G	G	G	37	E <sub>39</sub>	E <sub>32</sub>	E <sub>53</sub>	33	E <sub>35</sub>	G	36	36	G	G	J <sub>61</sub>	
14	J <sub>62</sub>	41	43	31	29	G	G	G	G	G	G	E <sub>35</sub>	G	G	G	G	G	G	G	32	G	23	46	J <sub>38</sub>	
15	J <sub>31</sub>	J <sub>24</sub>	J <sub>31</sub>	J <sub>29</sub>	J <sub>47</sub>	39	39	43	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	25	
16	B	E <sub>26</sub>	G	20	24	J <sub>37</sub>	G	29	G	G	35	34	34	G	G	34	35	G	G	G	G	G	G	E <sub>24</sub>	
17	B	42	B	B	B	B	B	B	B	B	B	B	B	B	B	E <sub>60</sub>	B	B	E <sub>30</sub>	E <sub>30</sub>	30	29	37	28	
18	J <sub>127</sub>	37	33	30	G	33	G	33	G	G	G	G	G	G	G	G	G	G	G	G	41	J <sub>34</sub>	J <sub>43</sub>	J <sub>26</sub>	
19	31	29	28	28	27	G	G	G	J <sub>47</sub>	34	35	37	J <sub>68</sub>	96	G	G	E <sub>34</sub>	33	40	35	G	G	G	G	
20	G	G	G	G	J <sub>43</sub>	30	32	J <sub>41</sub>	G	41	40	35	38	J <sub>55</sub>	J <sub>40</sub>	J <sub>37</sub>	J <sub>31</sub>	33	40	J <sub>60</sub>	J <sub>52</sub>	J <sub>37</sub>	G		
21	30	B	30	B	37	G	G	G	G	G	G	G	G	33	G	33	G	G	G	G	G	G	G	80	
22	80	36	43	32	G	32	42	51	G	G	G	G	E <sub>39</sub>	E <sub>55</sub>	E <sub>47</sub>	E <sub>33</sub>	G	G	G	G	G	38	37	B	
23	J <sub>59</sub>	J <sub>58</sub>	B	33	B	B	40	B	B	B	B	E <sub>47</sub>	G	E <sub>50</sub>	E <sub>54</sub>	E <sub>35</sub>	E <sub>33</sub>	E <sub>35</sub>	E <sub>52</sub>	E <sub>29</sub>	30	31	G	G	
24	33	G	G	31	B	B	B	39	G	G	G	E <sub>37</sub>	G	G	32	G	G	E <sub>52</sub>	B	E <sub>33</sub>	E <sub>36</sub>	E <sub>26</sub>	G	31	
25	27	32	36	E <sub>37</sub>	B	J <sub>65</sub>	J <sub>55</sub>	37	37	40	G	G	G	G	G	G	G	G	G	E <sub>35</sub>	E <sub>33</sub>	22	J <sub>38</sub>	J <sub>42</sub>	
26	J <sub>33</sub>	G	30	35	B	B	45	38	B	B	36	G	E <sub>50</sub>	E <sub>35</sub>	E <sub>37</sub>	E <sub>33</sub>	E <sub>33</sub>	G	E <sub>50</sub>	E <sub>28</sub>	J <sub>27</sub>	32	E <sub>26</sub>	G	
27	E <sub>39</sub>	B	B	28	B	41	B	39	G	G	G	G	E <sub>50</sub>	E <sub>47</sub>	34	G	E <sub>34</sub>	31	29	E <sub>27</sub>	G	E <sub>26</sub>	G	G	
28	G	E <sub>20</sub>	20	G	G	G	G	G	E <sub>56</sub>	36	G	G	33	60	J <sub>56</sub>	J <sub>52</sub>	J <sub>95</sub>	43	38	70	J <sub>37</sub>	G	G	22	
29	31	40	40	42	37	42	42	45	G	J <sub>57</sub>	B	B	G	B	29	33	G	G	G	32	J <sub>38</sub>	J <sub>37</sub>	J <sub>53</sub>	27	
30	33	36	33	42	B	38	40	B	G	B	G	G	B	E <sub>36</sub>	E <sub>33</sub>	B	B	50	43	B	30	31	29	26	
31	G	B	30	B	B	E <sub>30</sub>	B	B	E <sub>45</sub>	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
CNT	28	27	28	26	20	24	27	26	27	27	28	29	29	29	30	30	29	30	30	29	31	31	30	30	
MED	31	31	30	32	32	31	32	36	G	G	G	G	G	E <sub>33</sub>	E <sub>32</sub>	E <sub>30</sub>	G	G	E <sub>28</sub>	G	E <sub>27</sub>	22	22	26	
UQ	33	36	36	35	38	39	40	41	U	34	35	G	E	G	U	36	U	37	35	U	32	E	G	33	35
LQ	28	24	22	28	E	G	E	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G

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DEC. 1971

FOES (0.1 MHZ)

# IONOSPHERIC DATA

DEC. 1971

F=MIN (0.1 MHZ)

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

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

Hour Day	00	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	20	12	12	29	B	13	11	12	27	25	21	14	11	13	26	32	33	35	16	10	13	C	12
2	10	12	30	23	C	C	E <sub>23</sub>	E <sub>25</sub>	E <sub>23</sub>	E <sub>23</sub>	E <sub>25</sub>	E <sub>25</sub>	E <sub>25</sub>	E <sub>25</sub>	E <sub>25</sub>	E <sub>25</sub>	10	10	10	B	15	23	13	10
3	26	13	23	20	13	15	13	10	12	E <sub>15</sub>	12	59	50	20	57	60	50	59	22	25	15	15	18	19
4	20	B	10	15	11	25	13	13	11	13	20	14	12	14	13	13	14	13	28	22	19	13	12	12
5	12	19	22	B	20	13	19	13	12	11	15	50	27	19	36	35	31	40	29	25	15	11	11	10
6	11	11	14	12	11	11	11	11	12	13	15	35	15	12	12	25	20	13	14	10	20	16	12	12
7	10	10	9	10	10	10	10	10	11	56	23	13	11	E <sub>13</sub>	12	12	12	11	10	10	10	12	11	12
8	11	10	10	10	B	14	11	13	10	10	11	13	10	11	11	11	11	10	10	13	10	12	12	12
9	21	26	16	11	16	13	10	B	B	10	17	10	10	10	12	26	14	13	12	19	15	10	17	10
10	12	10	12	13	11	11	11	11	12	11	10	10	13	11	10	13	11	11	10	11	10	10	12	10
11	10	10	10	10	10	10	10	10	14	12	10	10	15	14	13	14	11	10	10	10	10	20	13	14
12	16	10	11	12	13	19	15	12	10	10	10	10	11	11	10	12	10	11	11	10	11	10	10	27
13	B	15	21	B	B	B	22	25	19	12	13	14	32	39	32	52	19	35	12	13	20	14	10	10
14	9	27	13	14	14	13	13	11	10	13	21	35	21	20	14	15	13	17	15	15	13	15	11	10
15	10	10	9	10	22	16	21	15	13	12	11	11	11	11	14	10	10	10	10	10	13	15	13	15
16	B	26	15	10	13	13	15	19	15	25	19	17	12	12	11	12	12	11	12	13	11	16	13	24
17	B	26	B	B	B	B	B	B	B	B	B	B	B	B	B	60	B	B	30	30	25	25	28	16
18	E <sub>25</sub>	13	14	13	14	13	15	12	13	13	22	12	10	12	14	11	17	17	15	25	15	14	15	12
19	14	14	12	11	10	12	13	11	11	15	12	20	15	20	12	15	34	20	30	14	15	14	15	16
20	15	13	16	26	18	15	13	15	12	12	11	12	11	13	15	15	12	10	10	13	12	11	13	14
21	28	B	21	B	25	26	13	12	13	15	12	12	13	12	12	12	10	12	13	14	13	12	15	15
22	16	22	24	14	14	25	14	15	10	12	23	20	39	55	47	33	14	20	15	14	12	11	19	B
23	21	12	B	20	B	B	20	B	B	B	B	47	22	50	54	35	33	35	52	29	13	12	13	21
24	22	20	17	22	B	B	B	12	12	14	15	37	20	12	13	19	15	52	B	33	36	26	15	11
25	13	20	12	37	B	23	21	15	24	20	11	11	13	13	11	14	11	11	17	35	33	20	10	10
26	10	11	11	22	B	B	22	10	B	B	19	19	50	35	37	33	33	19	50	28	13	11	36	13
27	39	B	B	26	B	21	B	18	15	18	22	13	50	47	30	26	34	20	14	27	20	26	19	14
28	10	20	11	10	12	10	10	14	56	33	26	25	15	25	21	15	10	10	10	E <sub>15</sub>	11	13	11	11
29	25	19	15	19	16	35	20	20	19	14	B	B	18	B	17	20	14	21	12	10	22	11	9	9
30	11	15	10	18	B	21	20	B	19	B	23	25	B	36	33	B	B	31	29	B	15	12	12	13
31	12	B	25	B	B	30	B	B	45	14	20	13	13	11	11	10	12	12	12	10	E <sub>14</sub>	13	11	10
CNT	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	30	31
MED	14	15	14	15	17	18	14	13	13	14	18	16	15	14	14	15	14	13	14	15	14	13	13	12
UQ	23	24	22	24	B	30	20	19	20	24	22	30	26	30	31	30	32	26	28	26	17	16	15	15
LQ	11	12	11	12	13	13	13	11	12	12	12	12	12	12	12	12	11	11	10	11	12	12	11	10

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DEC. 1971

F=MIN (0.1 MHZ)

IONOSPHERIC DATA

DEC. 1971

M(3000)F2 (0.01)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	285	R	255	J R 270	R	B	245	255	250	F 265	J F 270	F 265	260	265	280	280	270	290	295	290	J F 280	290	I C 310	U S 315	
2	C	300	R	270	C	C	265	250	255	260	265	265	275	290	285	280	305	290	280	B	335	330	315	J R 300	
3	R	265	R	A	255	R	235	R	220	F 245	F 250	235	250	U F 260	F 255	290	270	295	F 295	F 275	300	270	295	305	
4	315	B	R	275	U F 260	R	R	J R 275	230	I R 235	F 240	F 265	270	260	270	275	270	280	310	300	315	310	300	R 300	
5	U R 320	295	R	B	R	R	R	R	255	265	260	270	260	260	260	265	285	295	285	290	305	315	315	320	300
6	S 280	R	295	280	U S 265	F	265	265	265	F 255	265	275	280	295	285	F 275	315	310	300	330	315	320	S	S	
7	305	275	275	270	S	F	270	265	265	260	265	265	275	260	290	305	300	285	295	315	310	315	310	295	
8	300	285	255	260	B	R	U F 270	U F 250	250	F 250	270	275	255	275	275	270	275	305	285	315	S 330	315	315	315	
9	300	265	S	S	260	260	J R 250	U R 255	B	B	F 255	265	265	280	270	A	A	A	320	295	315	305	310	290	S 310
10	R	S	255	255	U R 240	240	240	250	250	265	260	270	275	270	285	295	300	285	280	310	315	325	300	300	
11	295	260	J S 275	S	R	245	F	260	F	250	260	265	260	265	275	290	300	285	295	280	U S 285	R 280	280	R	
12	290	U F 285	285	280	A	R	R	230	F 235	245	250	245	280	295	240	265	275	295	300	280	330	285	300	R	
13	B	310	F	R	B	B	R	R	235	245	230	U R 210	240	245	U F 265	260	270	280	250	R	280	345	325	A	
14	A	A	A	R	U R 230	240	240	F 270	F 270	150	250	R 270	260	250	270	265	270	270	285	310	310	320	310	290	295
15	275	U S 270	S	S	R	R	290	235	230	250	255	255	F 260	F 250	280	285	280	280	280	305	310	310	320	320	
16	B	300	280	J S 265	265	255	F 250	235	260	260	265	260	270	275	290	280	285	285	310	315	300	295	300	U R 305	
17	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	R	B	B	265	R	R	R	R	R	
18	A	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	A	310	285	260
19	275	265	270	255	250	255	R 245	255	245	240	240	235	255	255	240	240	F 240	F 260	295	325	315	300	J R 290	J R 330	
20	J R 310	295	U R 295	J R 250	260	250	235	245	F 255	255	F 255	250	280	260	260	255	290	285	305	310	I A 310	315	315	310	
21	R	B	R	B	R	R	F	260	260	255	265	265	275	270	275	265	290	290	275	305	325	310	315	A	
22	F	255	R	R	250	R	R	R	F 255	240	F 245	F 275	250	240	260	255	230	280	290	285	340	R	R	B	
23	A	290	B	R	B	B	R	B	B	B	B	255	250	F 245	F 280	285	270	250	R 285	305	J R 300	315	340	295	
24	260	310	265	U R 270	B	B	B	R	F 250	260	265	260	255	260	260	270	280	270	B	290	315	320	300	300	
25	300	280	J R 250	U F 265	B	A	F 265	J F 245	245	F	F	F	U F 275	275	F 270	285	270	265	300	310	300	325	300	315	
26	300	295	U R 305	R	B	B	R	U F 260	B	B	F 260	F	F	F 265	260	260	285	310	300	305	310	305	R	R	325
27	R	B	B	R	B	R	B	220	240	245	245	260	270	255	270	265	290	290	315	300	300	305	R 305	U R 295	
28	S	S	290	270	S	R	J R 255	J R 260	R	J R 260	J R 265	290	295	260	305	315	305	315	315	310	310	295	R	S	
29	R	R	295	R	265	R	R	R	R	A	B	B	245	B	F	F	R	295	270	300	I R 300	305	300	285	
30	270	J R 285	R	R	B	R	R	B	R	B	R	R	B	R	240	B	B	R	290	B	F 280	325	300	310	
31	315	B	R	B	B	R	B	B	U F 240	U F 270	F	U F 260	F 285	F 290	265	280	270	295	295	290	310	300	315	F	
CNT	17	20	16	16	13	7	15	20	22	24	24	25	27	27	27	26	26	28	29	26	29	29	26	22	
MED	300	285	275	270	260	250	255	255	250	255	262	260	270	265	270	278	280	285	295	305	310	310	300	302	
UQ	305	295	292	272	260	252	265	260	255	260	265	265	275	272	280	285	295	295	300	310	315	315	315	315	
LQ	280	268	260	260	250	242	242	245	235	245	250	255	255	260	260	265	270	280	285	290	300	300	300	295	

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M(3000)F2 (0.01)



# IONOSPHERIC DATA

DEC. 1971

H<sup>o</sup>F<sub>2</sub> (KM)

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

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1				375	R	B	R		400	400	390	380	360	380	360	350	325	340	310	310	310	330		
2					C	C		370	350	370	360	360	350	355	330	330	340	305	340	350	B	260		
3				490	R		460	R		600	445	450	470	B	405	395	410	350	360	330	260	280		
4				450	R	R	R		560	I R	555	550	R	450	400	475	400	400	400	350	290	280	L	
5				B	R	R	R		460	380	380	375	390	370	380	380	350	310	330	325	L			
6				360	350	360	355	325	330	340	330	325	350	330	300	300	H	300	300	265	265	245		
7				350	300	350	310	400	350	350	350	350	340	370	340	300	330	L	280	L	265			
8				B	R		360	410	395	375	345	330	400	350	350	350	350	305	L	290	250			
9				350	350	355	350	B	B		350	350	350	330	350	A	A	A	280	300	L			
10				R	450	400	400	395	370	350	370	370	350	350	350	325	345	L	345	L	L			
11				350	390	400	400	405	350	370	360	350	400	380	355	315	300	320	300	L	280			
12				A	R	R	R	520	460	420	425	530	400	320	530	450	370	350	L					
13				B	B	R	A		500	520	530	R	500	450	400	400	390	350	540	R	370			
14				370	460	430	450	340	400	400	360	R	400	400	400	400	350	330	280	L				
15				290	305	A	R	400	A	510	400	395	370	425	450	395	355	375	L	355	L	L	270	
16				350	340	370	360	400	355	355	350	390	350	350	310	375	350	L	320	L	L	L		
17				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	R	R			
18					R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R		
19				440	450	450	430	475	R	450	R	R	475	460	405	450	440	420	450	L	340	290		
20				R	430	450	470	R	430	380	380	430	380	375	450	430	430	350	L	L	310	A		
21				B	R	R	R		375	360	360	350	350	360	360	350	375	345	350	340	340	L		
22				405	450		R	A		460	540	500	400	400	420	380	410	500	430	375	L			
23				R	B	B	R	B	B	B	B	B	450	450	460	375	350	380	440	R	B	L	L	
24					B	B	B	R		450	405	400	400	400	395	395	375	360	B	B	L			
25				R	430	B	A	395	R	450	410	360	415	400	375	400	360	380	360	330	300	270		
26				L	B	B	A		450	B	B	430	430	B	400	420	410	350	300	320	300	L		
27					R	B	R	B	R	500	480	450	410	380	440	390	395	350	340	300	L	300		
28				L	310	325	350	365	360	375	360	350	315	320	A	320	300	A	300	290	290	L	L	
29				A	R	R	R	R	R	A	B	B		510	R	B	425	450	R	340	400	R		
30				A	B	R	R	B	R	B	R	R		B	R	R	B	B	R	L	B	395		
31				B	B	R	B	B	B	500	400	395	400	365	360	395	375	430	L	350	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	12	14	10	15	16	23	24	26	25	27	26	27	27	25	20	23	10	11	1		
MED			365	355	430	385	395	400	400	385	378	390	400	380	390	375	350	335	320	295	280	270		
UQ			390	450	430	425	440	480	415	430	415	400	440	400	400	380	350	348	310	315				
LQ			350	350	355	360	368	370	360	350	350	358	350	350	345	345	308	295	290	262				

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H<sup>o</sup>F<sub>2</sub> (KM)

### IONOSPHERIC DATA

DEC. 1971

H<sup>+</sup>F (KM)

45° E Mean Time (G. M. T. + 3h)

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
1	270	330	A	A	B	B	A	250	205	R	250	I <sub>220</sub>	200	230	H	220	220	230	260	240	260	330	C	265			
2	A	350	B	A	C	C	280	230	210	210	H	220	220	230	205	H	205	205	230	220	220	B	240	255	245	300	
3	B	A	A	A	A	A	E <sub>330</sub>	A	A	220	220	B	B	245	B	B	B	B	225	R	270	430	350	350	A		
4	340	B	365	370	A	250	A	290	255	260	A	200	200	240	220	240	220	210	220	240	230	260	230	250	250		
5	290	330	R	B	A	300	275	A	225	210	200	B	210	200	225	220	220	B	225	225	250	250	240	250			
6	295	250	310	350	250	240	225	200	H	210	210	200	200	205	200	200	200	H	200	200	210	210	220	225	240	245	
7	250	295	250	260	250	225	240	200	200	I <sub>200</sub>	B	H	225	200	200	225	200	H	230	205	220	225	220	225	250	250	
8	250	250	260	390	B	A	260	210	200	200	H	200	H	225	200	200	210	200	220	205	230	225	240	250	245		
9	250	265	295	270	260	220	205	B	B	205	200	230	200	A	A	A	A	225	H	200	240	250	245	325	260		
10	300	260	A	A	350	260	230	220	220	210	220	I <sub>225</sub>	H	210	H	200	200	200	H	210	240	245	230	250	250		
11	280	275	270	250	210	250	250	210	I <sub>210</sub>	A	200	200	225	230	210	200	H	220	220	205	200	H	225	260	330	340	A
12	360	355	360	A	A	A	A	A	205	230	205	230	200	200	200	210	205	220	230	230	255	350	360	A	A		
13	B	295	A	B	B	B	A	A	H	230	H	195	210	205	230	E <sub>255</sub>	B	230	I <sub>220</sub>	220	250	250	A	A	260	290	A
14	A	A	A	A	A	265	230	200	H	215	215	210	220	200	215	200	210	220	215	210	220	H	210	240	250	290	A
15	290	280	260	A	A	A	A	A	R	220	215	220	200	H	200	H	215	200	200	H	200	200	200	200	245	250	250
16	B	260	275	255	250	240	210	200	200	200	200	270	195	240	210	210	200	205	220	240	210	230	250	270	R	R	
17	B	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	245	290	260	250	R	R			
18	A	A	A	A	220	210	230	R	225	I <sub>220</sub>	R	220	205	240	225	210	H	245	210	240	250	245	A	270	A	310	
19	340	A	A	340	270	250	230	200	205	225	220	A	210	A	245	230	220	215	H	A	240	250	260	340	255		
20	270	300	340	R	A	260	240	I <sub>220</sub>	200	I <sub>220</sub>	A	H	E <sub>250</sub>	195	210	250	230	210	215	H	A	A	260	250	260		
21	B	B	400	B	A	R	245	210	H	215	205	230	200	200	200	240	200	H	215	220	230	230	210	255	A		
22	A	420	A	A	225	R	A	A	200	205	220	205	225	B	B	225	220	220	220	225	260	A	A	B			
23	A	340	B	R	B	B	A	B	B	B	B	B	220	B	B	230	220	225	B	B	250	230	290	290	325		
24	R	305	280	370	B	B	B	A	230	210	230	230	220	200	H	200	H	210	220	B	B	250	270	250	250	300	
25	310	370	405	B	B	A	A	275	R	200	200	220	215	190	H	230	210	210	H	220	220	B	B	245	250	230	
26	240	260	260	E <sub>300</sub>	B	B	A	A	B	B	200	240	B	225	260	225	230	H	I <sub>210</sub>	230	230	280	B	320			
27	310	B	B	R	B	A	B	A	230	200	200	225	B	B	R	R	220	210	220	240	225	250	250	250			
28	250	260	245	255	240	230	230	230	B	R	210	200	200	A	A	260	A	205	210	205	240	240	255	250			
29	R	A	A	A	A	B	A	A	250	R	A	B	B	220	B	250	225	250	225	275	250	250	300	A	350		
30	A	370	250	A	B	A	A	B	R	B	R	250	B	250	B	230	B	B	A	A	250	B	250	250	280	310	
31	290	B	R	B	B	B	B	B	B	240	225	220	240	200	200	205	H	210	205	220	270	245	250	230	260		
	00	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	21	16	11	11	13	17	15	21	23	27	25	26	23	24	26	26	26	28	25	27	30	25	25			
MED	290	295	278	300	250	250	235	210	210	210	210	220	210	208	210	220	220	215	220	230	245	250	250	260			
UQ	310	340	350	360	255	260	255	230	225	220	220	228	225	224	230	225	220	220	235	240	258	270	290	300			
LQ	250	260	260	256	232	230	230	200	205	200	200	205	200	200	200	210	205	205	210	225	228	240	250	250			

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H<sup>+</sup>F (KM)

### IONOSPHERIC DATA

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H°ES (KM)

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

Station	SYOWA STATION																								Lat.	69 00.4 S.		Long.	39 35.4 E		Sweep	MHz to 15		MHz in 30 sec		in automatio		operation	
Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23															
1	G	150	100	120	110	B	100	G	G	G	G	G	G	115	G	G	B	B	B	130	150	G	C	110															
2	140	115	140	125	C	C	G	G	110	G	G	G	100	G	100	100	100	G	G	B	G	B	G	130															
3	125	120	120	100	105	110	100	100	100	G	G	B	B	G	B	B	B	B	130	G	130	110	130	110															
4	110	B	105	110	G	110	G	G	125	100	G	G	G	G	G	100	G	G	B	140	G	G	G	G															
5	110	125	110	B	120	100	110	105	G	G	G	B	G	G	B	B	B	B	B	G	150	110	120	120															
6	115	130	120	100	100	100	100	100	100	100	G	B	G	G	G	G	G	G	G	G	125	120	115	G															
7	G	160	140	140	G	105	G	100	G	B	G	G	G	100	100	G	G	100	100	G	G	100	G	125															
8	125	120	G	G	B	100	100	G	G	G	G	G	G	G	G	G	G	G	G	G	G	110	G	115															
9	120	B	130	105	100	105	100	B	B	120	120	110	105	100	100	100	100	100	G	130	125	G	115	110															
10	110	G	110	100	G	G	G	G	G	G	130	110	110	110	G	G	G	G	100	G	100	140	130	115															
11	G	G	100	120	105	120	G	110	120	G	100	130	120	105	G	G	G	G	G	G	G	120	115	110															
12	125	100	100	105	100	110	110	130	G	G	G	G	G	G	115	G	G	G	150	G	G	110	105	130															
13	B	125	100	B	B	B	100	100	105	G	G	G	105	B	B	B	150	B	G	130	125	G	G	100															
14	100	100	100	110	110	G	G	G	G	G	G	B	G	G	G	G	G	G	120	G	G	110	100	100															
15	100	100	100	105	100	100	110	100	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	150															
16	B	B	110	155	105	G	115	G	G	110	100	120	G	G	100	100	G	G	G	G	G	G	G	B															
17	B	110	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	140	130	165	150															
18	105	100	110	100	G	140	G	100	G	G	G	G	G	G	G	G	G	G	G	G	125	120	120	110															
19	120	110	105	100	100	G	G	G	110	125	105	100	110	125	G	G	B	160	140	120	G	G	G	G															
20	G	G	G	G	105	110	105	105	G	110	G	110	105	100	100	100	100	100	100	125	115	110	105	G															
21	150	B	120	B	130	G	G	G	G	G	G	G	G	100	G	100	G	G	G	G	G	G	G	115															
22	120	150	110	100	110	140	100	100	G	G	G	G	B	B	B	B	G	G	G	G	G	100	110	B															
23	110	125	B	100	B	B	100	B	B	B	B	B	G	B	B	B	B	B	B	B	105	110	G	G															
24	140	110	G	110	B	B	B	100	G	G	G	B	G	G	100	G	G	B	B	B	B	B	G	110															
25	165	130	120	B	B	100	100	100	100	100	G	G	G	G	G	G	G	G	G	B	B	115	120	110															
26	100	G	130	110	B	B	100	100	B	B	100	G	B	B	B	B	B	G	B	B	100	150	B	G															
27	B	B	B	100	B	100	B	100	G	G	G	G	B	B	105	G	B	100	115	B	G	B	G	G															
28	G	B	110	G	G	G	G	G	B	100	G	G	110	100	100	100	100	140	120	115	110	G	G	120															
29	125	120	110	100	110	150	100	100	G	100	B	B	G	B	100	95	G	G	G	140	125	120	110	120															
30	110	140	100	100	B	120	100	B	G	B	G	G	B	B	B	B	B	120	130	B	110	140	130	140															
31	G	B	125	B	B	B	B	B	B	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G															
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23															
CNT	21	20	25	22	15	17	17	16	8	10	6	6	8	9	10	8	5	7	10	8	15	18	15	21															
MED	120	120	110	105	105	110	100	100	108	100	102	110	108	100	100	100	100	100	120	130	125	112	115	115															
UQ	125	130	120	110	110	120	105	102	115	110	120	120	110	110	100	100	100	130	130	135	128	120	125	125															
LQ	110	110	100	100	100	100	100	100	100	100	100	110	105	100	100	100	100	100	100	122	110	110	110	110															

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

Hour Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1		R1	R1	R1	R1		R1			R1				H1						H1	R1			R2	
2	RR11	R2	R1	R1					H1				L1		L2	L2	L1							R1	
3	R1	R2	R1	R1	R1	R1	R1	R1	R1										H1		R1	R1	R1	R1	
4	R1		R1	R1		R1			R1	R1						R1				H1					
5	R2	R1	R1		R1	R1	R1	R1														LH11	C2	HL11	H2
6	LR11	R1	C1	L1	L1	L1	L2	L2	R1												C1	C1	C1		
7		R1	R1	H1		C2		L2						C1	L1			L2	C1			L1		C1	
8	L1	C1				R1	R1																R1	C1	
9	L1		H1	C2	L1	L1	L1			H1	H1	H1	C1	C2	C2	L2	L2	C1		H1	H1		R1	R1	
10	R1		R2	R1						H1	H2		H1	H1						R1	L1	H1	R1	R1	
11			L1	H1	L1	H1		H1	H1		L1	H1	H1	C1								R1	R3	R1	
12	R1	A1	A1	A1	R1	R1	R2	R1							H1					H1		R2	R3	R1	
13		R1	L1				L1	R1	R1					C1				H1		R1	R1			R1	
14	R2	L1	R1	R2	R1															HL11		C1	L2	L2	
15	L2	L2	L1	C1	LR11	R1	R1	L1																H1	
16			L1	LL11	L1		C1			C1	C1	H1				C1	C1								
17		R1																				L1	L1	R1	L1
18	A1	R1	R1	LR11		H1		R1													H1	L1	L2	L1	
19	C1	R1	R1	R1	R1				H1	H1	H1	C1	H1	LL11					H1	H1	C1				
20					L1	LL11	H1	C1		H2	H2		C1	C2	L1	L2	L1	L1	L1	H1	H1	C2	C2		
21	R1		R1		R1									C1		C1								R1	
22	RR11	R1	R1	R1	L1	R1	R1	R1														R1	R1		
23	L1	A1		L1			R1															R1	R1		
24	H1	L1		R1				R1							R1									R1	
25	R1	R1	R1			L1	L1	R1	L1	R1													L1	H1	C1
26	L1		RR11	L1			L1	R1			R1											L1	R1		
27			R1				L1	R1								L1			L1	H1					
28			C1							L1			H1	L1	L1	L2	L3	H1	H1	H1	H1			C1	
29	R1	R1	R1	R1	R1	R1	R1	R1		L1					L1	L1				H1	H1	H3	H4	H2	
30	R1	H1	R1	R1		R1	R1												L1	C1		R1	H1	H1	R1
31			L1																						
	00	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																									

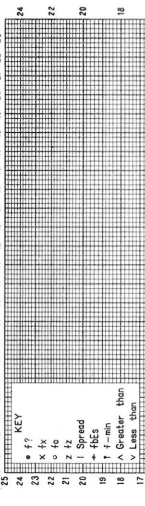
DEC. 1971

TYPES OF ES

f-plot of IONOSPHERIC DATA

STATION SYMA STATION DATE Jul 20, 1971

135°E MEAN TIME



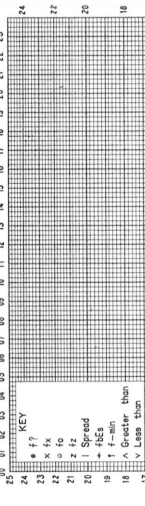
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 o F<sub>o</sub>  
 F Spread  
 + h'ES  
 F F-min  
 A Greater than  
 V Less than

SCALED BY S. Teguchi  
The Radio Research Laboratories, Japan

f-plot of IONOSPHERIC DATA

STATION SYMA STATION DATE Jul 21, 1971

135°E MEAN TIME



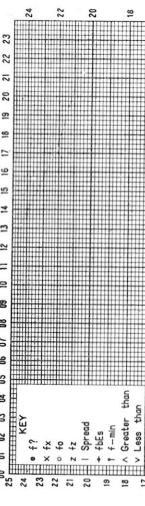
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 F F-min  
 A Greater than  
 V Less than

SCALED BY S. Teguchi  
The Radio Research Laboratories, Japan

f-plot of IONOSPHERIC DATA

STATION SYMA STATION DATE Jul 22, 1971

135°E MEAN TIME



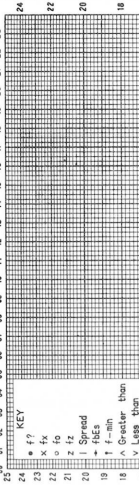
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 A Greater than  
 V Less than

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f-PLOT OF IONOSPHERIC DATA

STATION STOMA STATION DATE Aug. 17, 1971

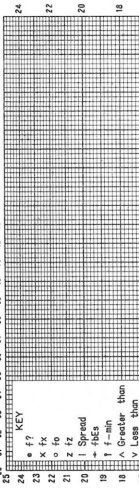
135°E MEAN TIME



f-PLOT OF IONOSPHERIC DATA

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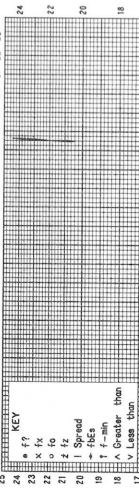
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f-PLOT OF IONOSPHERIC DATA

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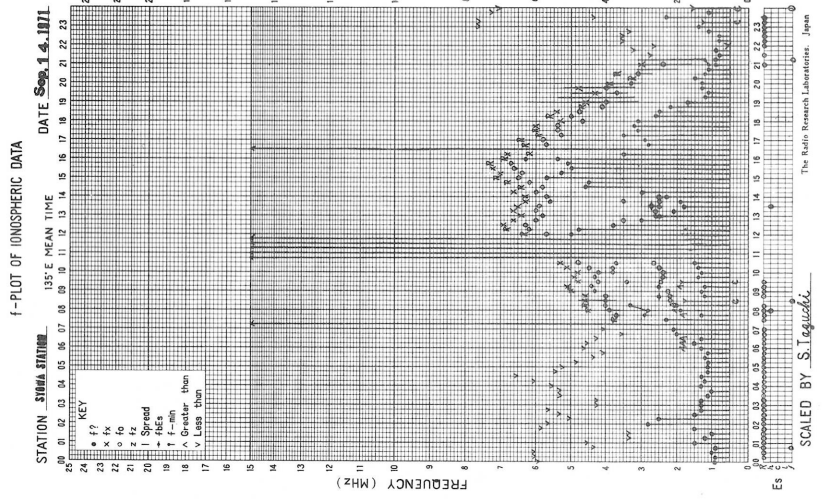
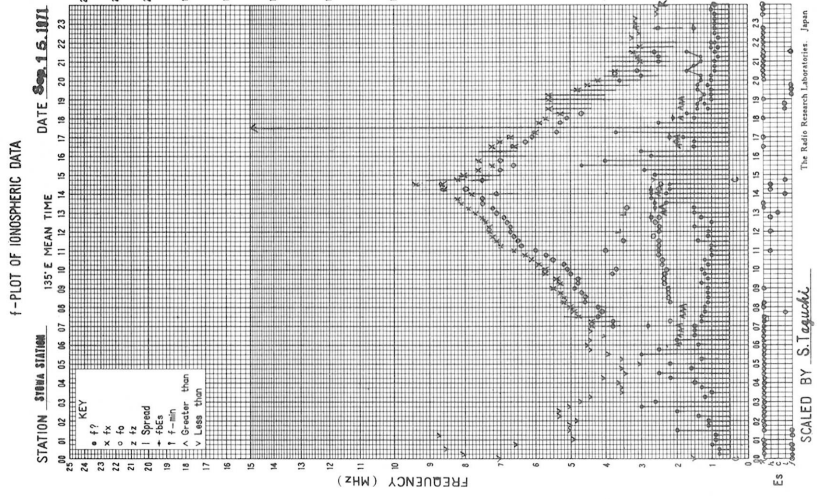
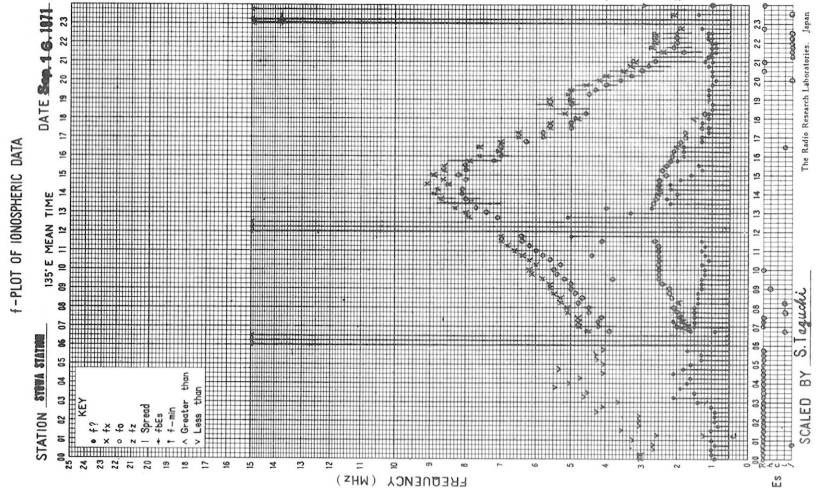
135°E MEAN TIME



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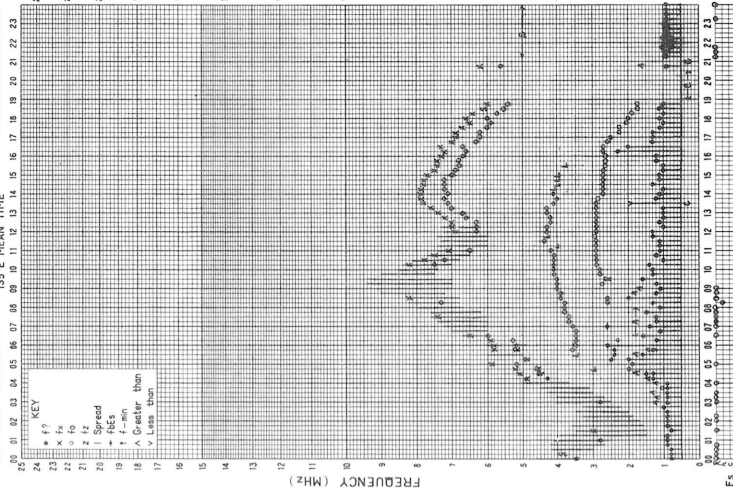
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STATION SWMA STATION DATE Oct. 19. 1971

135° E MEAN TIME



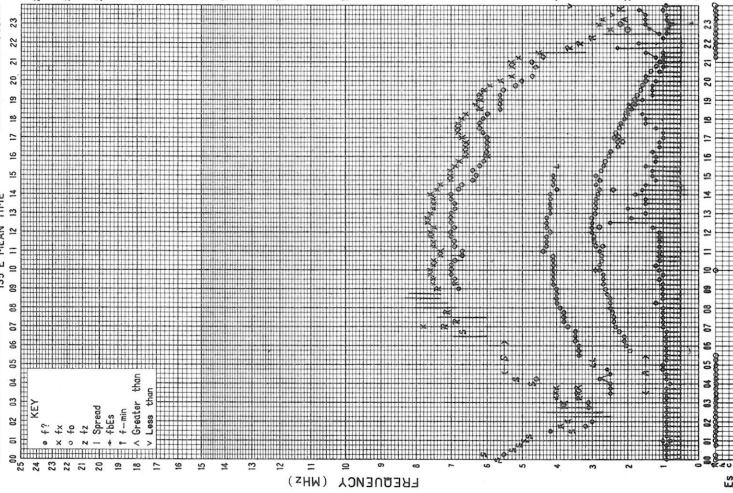
SCALED BY S. Ieguchi

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STATION SWMA STATION DATE Oct. 20. 1971

135° E MEAN TIME



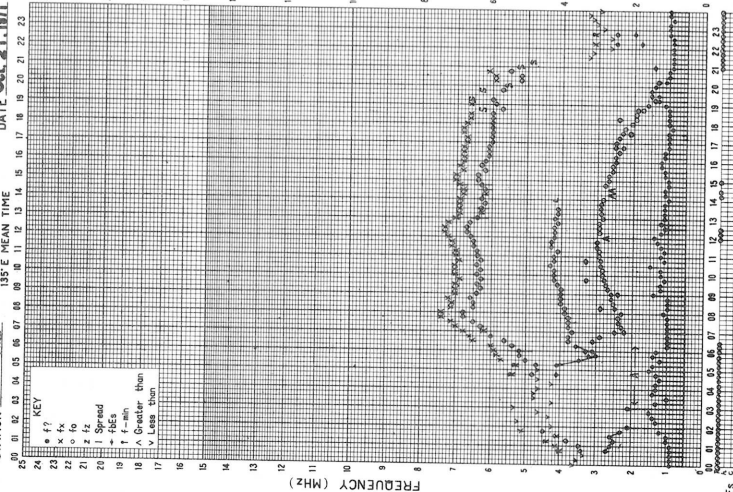
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STATION SWMA STATION DATE Oct. 21. 1971

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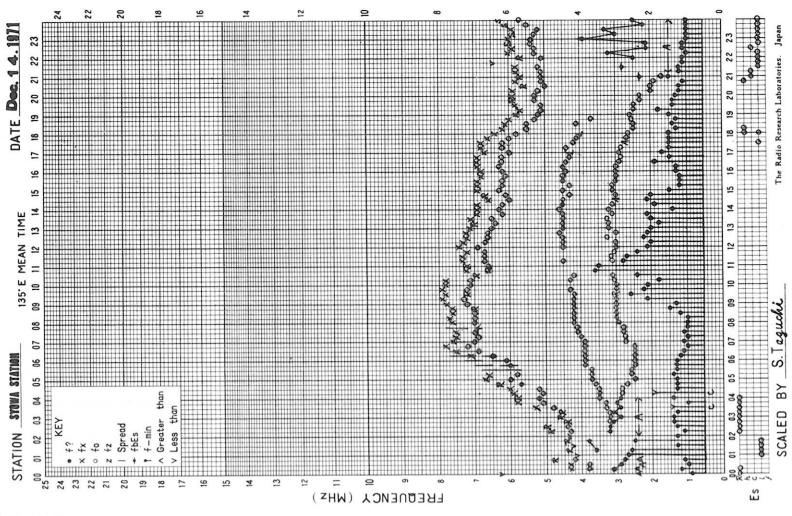
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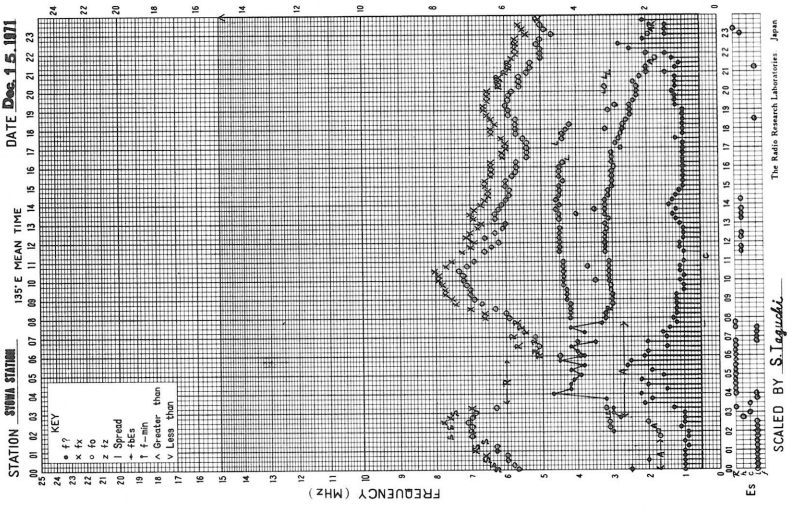




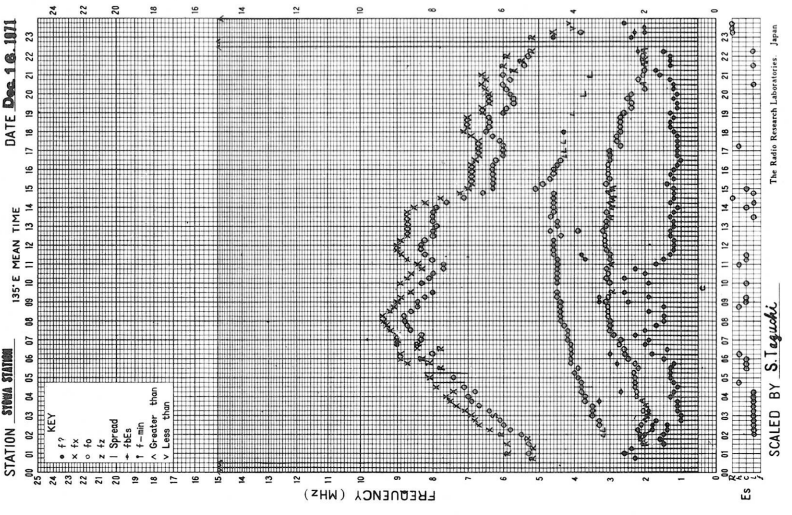
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f--PLOT OF IONOSPHERIC DATA



f--PLOT OF IONOSPHERIC DATA



80-212