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# IONOSPHERIC DATA IN JAPAN

FOR JUNE 1953

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KOKUBUNJI, TOKYO, JAPAN

THE RADIO RESEARCH LABORATORIES

KOKUBUNJI, TOKYO, JAPAN

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## P R E F A C E

The origin of ionospheric sounding in Japan dates back to 1931 and the results of the work have been published in the form of the monthly "Ionospheric Data in Japan" since 1949. As a result of the reform of administrative structure of the Japanese Government effective on August 1, 1952, the observation, data coordination and publication were handed over to the charge of the Radio Research Laboratories newly set up within the Ministry of Postal Services.

The Radio Research Laboratories consists of three Divisions, i.e., First, Second and Administrative Divisions, located in Tokyo and five local radio wave observatories established at Wakkanai, Akita, Hiraiso, Inubo and Yamagawa, respectively.

The First Division has the following three sections:

- Ionospheric Propagation Section which shall carry on researches on ionosphere and wave propagation;
- Tropospheric Propagation Section which shall carry on researches on troposphere and wave propagation; and
- Data Coordination Section which shall conduct the collection and arrangement of observational results, supply of operational data relating to radio propagation, preparation of radio propagation forecasts and radio disturbance warnings broadcast of URSIGRAM and physical basic studies of wave propagation in general.

The Second Division has the following two sections:

- Frequency Standard Section which shall carry on researches on the frequency standard and broadcast the standard frequencies and time signals (J. J. Y.); and
- Apparatus Section which shall carry on researches on radio apparatus used for radio regulatory purpose and conduct the approval service of types of radio equipments.

The Administrative Division shall conduct the general affairs of the Laboratories. The ionospheric sounding is, as heretofore, being carried out by the four observatories at Wakkanai, Akita, Kokubunji (Tokyo) and Yamagawa.

This report provides the results of ionospheric sounding with symbols determined and in the form established on an international basis in the same way as followed by the former Radio Regulatory Commission and it is hoped that it will make any contribution toward the progress in world-wide short wave communications.

This report is intended for distribution on request to the largest possible number of organizations concerned all over the world, and any and every information that the organizations concerned might forward to us in exchange therefor would be highly appreciated.

Shogo Amari  
Chief, Radio Research Laboratories,  
Ministry of Postal Services

Aug. 1952

## SITE OF THE IONOSPHERIC STATIONS

Ionospheric observation is carried out at four stations in Japan.  
The stations are situated as follows:

	longitude	latitude	site
Wakkanai	141° 41.1' E	45° 23.6' N	Wakkanai-shi, Hokkaido
Akita	140° 03.2' E	39° 43.5' N	Tegata Nishishin-machi, Akita-shi, Akita-ken
Kokubunji	139° 29.3' E	35° 42.4' N	Koganei-machi, Kitatama-gun, Tokyo-to
Yamagawa	130° 37.7' E	31° 12.5' N	Yamagawa-machi, Ibusuki-gun, Kagoshima-ken

## REMARKS ON SYMBOLS

All symbols in the table are used in accordance with "Production and Reduction of Ionospheric Information" of "RESOLUTION OF THE IX GENERAL ASSEMBLY OF URSI SEPTEMBER 1950" (CRWO-F25) except  $f_{\min}$  E and  $f_{\min}$  F for E and F regions respectively instead of  $f_{\min}$ , taken as  $f_{\min}$  s in the above Resolution, in order to avoid the interruption of preceding form of data.

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

Jun. 1953

foF2

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	5.8	5.6	5.4	5.5	5.5b <sup>P</sup>	5.6	5.7	5.9	(6.1) <sup>F</sup>	6.3 <sup>P</sup>	(6.5) <sup>P</sup>	(6.0) <sup>F</sup>	6.2	6.0 <sup>F</sup>	S	
2	S	5.3 <sup>P</sup>	4.9	5.0 <sup>P</sup>	4.8 <sup>J</sup>	5.0	6.2	5.8	A	A	A	A	5.3	5.5	5.8	5.9 <sup>F</sup>	6.1	5.5	6.4 <sup>P</sup>	7.0 <sup>H</sup>	(6.7) <sup>F</sup>	6.4 <sup>F</sup>	5.8	S	
3	(4.2) <sup>P</sup>	3.5 <sup>V</sup>	3.2 <sup>M</sup>	C	C	C	C	C	C	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	4.3 <sup>H</sup>	4.3 <sup>H</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	S <sup>K</sup>	4.7 <sup>M</sup>	4.6 <sup>H</sup>	S <sup>K</sup>	
4	4.1 <sup>M</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>K</sup>	B <sup>H</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>H</sup>	B <sup>H</sup>	4.8 <sup>H</sup>	4.5 <sup>H</sup>	4.5 <sup>H</sup>	4.5 <sup>H</sup>	4.9 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	4.3 <sup>K</sup>	5.0 <sup>K</sup>	3.4 <sup>M</sup>	4.2 <sup>K</sup>	(4.4) <sup>K</sup>	
5	4.1 <sup>K</sup>	4.0 <sup>R</sup>	(4.0) <sup>R</sup>	3.2 <sup>R</sup>	3.3 <sup>R</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	4.4 <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	4.4 <sup>K</sup>	4.4 <sup>K</sup>	4.8 <sup>K</sup>	(4.9) <sup>K</sup>	5.0 <sup>J</sup>	5.3 <sup>P</sup>	(4.8) <sup>P</sup>	(4.4) <sup>P</sup>	S	(4.4) <sup>P</sup>	
6	S	3.9	(3.6) <sup>F</sup>	3.7 <sup>V</sup>	3.4	3.8	[4.2] <sup>M</sup>	4.7 <sup>J</sup>	(4.8) <sup>C</sup>	4.9	4.8	4.9	A	A	A	B	5.4	(5.0) <sup>M</sup>	4.5	(4.7) <sup>J</sup>	4.9	5.5	4.9 <sup>F</sup>	4.8 <sup>J<sup>F</sup></sup>	
7	4.3 <sup>F</sup>	3.8 <sup>F</sup>	3.5 <sup>F</sup>	C	C	C	C	C	A	B	C	C	C	C	C	C	(5.3) <sup>P</sup>	(5.2) <sup>P</sup>	5.2	5.7	(5.2) <sup>P</sup>	5.3	5.1	(4.8) <sup>P</sup>	
8	(4.4) <sup>J</sup>	4.1 <sup>P</sup>	(5.0) <sup>R</sup>	(4.5) <sup>F</sup>	S	3.9	B	B	B	C	B	4.8 <sup>F</sup>	5.7	5.5	4.5	4.5	4.6	5.2	5.2	5.7	6.3	5.5	5.3	4.7	
9	(4.6) <sup>F</sup>	(4.5) <sup>F</sup>	(4.4) <sup>F</sup>	4.0 <sup>F</sup>	4.0	4.7 <sup>J</sup>	5.2	5.1	[4.9] <sup>B</sup>	4.7	5.0	5.4	4.8	4.8	4.8	5.1	6.2 <sup>F</sup>	5.7	5.2	5.3	(5.4) <sup>S</sup>	5.6	6.1	5.7	
10	S	S	S	(4.1) <sup>F</sup>	3.5	5.0	B	B	5.7	5.6 <sup>F</sup>	5.2 <sup>F</sup>	4.9	4.7 <sup>F</sup>	4.8	4.5	4.6 <sup>F</sup>	4.8 <sup>F</sup>	5.0 <sup>J</sup>	5.5	5.7	6.1 <sup>F</sup>	5.7	5.7	S	
11	4.0	5.7	5.7	5.7	4.1 <sup>F</sup>	B	B	A	A	A	A	5.1	5.0	4.7	5.0	A	A	A	B	(4.9) <sup>F</sup>	A	S	5.4	5.3 <sup>J</sup>	
12	5.3 <sup>J</sup>	4.4 <sup>P</sup>	(4.6) <sup>F</sup>	4.5	4.0	3.8	5.2 <sup>F</sup>	5.6	(5.3) <sup>B</sup>	5.0	5.4	5.5	5.3	5.5	5.2	4.5	4.8	5.2	C	C	C	6.1	4.8	(4.9) <sup>J</sup>	
13	4.6 <sup>P</sup>	4.7	4.6	4.6	5.2	5.5	C	C	C	5.3	5.0	4.8	C	C	C	C	C	A	A	A	A	S	S	C	
14	S	5.9 <sup>P</sup>	6.1	4.8	4.5 <sup>F</sup>	B	B	B	C	C	C	C	C	C	C	C	C	A	A	A	A	S	S	C	
15	S	S	(4.7) <sup>F</sup>	4.3	S	5.4	5.9	A	A	A	A	5.4 <sup>J</sup>	C	5.3 <sup>P</sup>	C	C	C	C	C	C	C	C	C	C	
16	C	C	C	C	C	C	C	C	C	C	C	C	C	A	B	A	A	A	B	A	5.7	6.5	(6.2) <sup>S</sup>	6.0 <sup>F</sup>	4.7 <sup>F</sup>
17	S	4.7 <sup>F</sup>	4.5	4.4 <sup>F</sup>	4.0 <sup>F</sup>	5.2 <sup>P</sup>	B	B	A	5.5	A	A	A	A	5.3	5.3	5.2 <sup>F</sup>	5.1	5.3	5.2 <sup>F</sup>	5.7 <sup>F</sup>	S	C	5.7	(5.4) <sup>S</sup>
18	5.2 <sup>P</sup>	5.2	(5.0) <sup>F</sup>	4.7 <sup>F</sup>	(5.2) <sup>S</sup>	5.7	(5.5) <sup>A</sup>	5.3 <sup>J</sup>	(5.3) <sup>O</sup>	5.3 <sup>F</sup>	A	5.0 <sup>F</sup>	4.9	4.9	5.0	5.0	5.0	A	A	A	(6.5) <sup>P</sup>	5.4 <sup>F</sup>	C	A	
19	4.9	4.7 <sup>F</sup>	5.0	4.7	4.4	5.0	6.3 <sup>F</sup>	C	C	A	A	A	A	A	5.6	A	5.3 <sup>J</sup>	(5.4) <sup>M</sup>	5.6	5.5	6.2 <sup>F</sup>	A	A	C	
20	C	C	C	4.5	4.5	4.8	A	A	5.8	A	A	5.5	A	A	A	A	5.5	6.0	6.0	(6.5) <sup>F</sup>	7.1	S	S	S	
21	A	5.3	(5.0) <sup>A</sup>	4.8	4.2	4.8	A	A	A	A	A	A	A	A	A	A	A	5.9	(6.0) <sup>A</sup>	6.1	5.7	A	A	A	
22	4.6 <sup>F</sup>	4.6	(3.8) <sup>P</sup>	4.1	3.8	4.2	5.5	6.3 <sup>F</sup>	5.3	5.3	5.7	A	A	A	5.8	5.5	(5.8) <sup>J</sup>	6.1	6.0	6.2 <sup>P</sup>	S	6.2 <sup>F</sup>	6.1	5.9	
23	5.3	4.9	5.0 <sup>P</sup>	4.9 <sup>F</sup>	5.3 <sup>P</sup>	5.0 <sup>F</sup>	5.3	(5.3) <sup>A</sup>	5.3 <sup>P</sup>	5.4	5.4	4.7 <sup>F</sup>	5	A	A	A	A	A	A	A	A	A	5.9	5.3	5.3 <sup>P</sup>
24	5.0	(5.0) <sup>F</sup>	4.9 <sup>V</sup>	4.6	4.5	4.5	A	A	5.3 <sup>F</sup>	5.5 <sup>F</sup>	5.3	(5.3) <sup>A</sup>	5.3	5.2	5.3	5.7	5.8	A	A	A	A	A	A	S	
25	5.8	(5.2) <sup>S</sup>	4.7	4.5	5	A	A	A	5.5	5.4 <sup>F</sup>	A	A	5.3	5.3	5.3	5.7	5.8	6.0	7.3 <sup>F</sup>	(7.2) <sup>F</sup>	7.0 <sup>P</sup>	A	A	4.8 <sup>F</sup>	
26	5.2	4.7	4.7	4.6	3.9	3.8	A	A	A	A	A	5.3	5.0 <sup>J</sup>	(5.2) <sup>A</sup>	4.7	5.1	5.3	C	C	A	6.3 <sup>F</sup>	6.2	4.7	5.2 <sup>P</sup>	
27	5.7 <sup>F</sup>	5.1	5.0	5.0	(3.5) <sup>P</sup>	A	A	A	A	6.8	6.5	5.7 <sup>F</sup>	5.3	B	C	6.0	6.0	(6.0) <sup>O</sup>	6.1	5.6	S	(6.5) <sup>P</sup>	S	S	
28	5.0	5.8 <sup>P</sup>	5.7	5.3	4.9	4.4 <sup>P</sup>	4.6	A	A	C	C	C	C	C	C	C	C	5.4	5.8	6.2	7.1	7.0	6.3 <sup>H</sup>	(6.4) <sup>J</sup>	
29	5.5	4.8	5.0	4.7	4.8	5.4	7.4 <sup>F</sup>	5.4	4.9	4.8	4.6	6.2	6.0	5.3	4.9	4.9	5.2 <sup>J</sup>	4.8	5.3	3.6	7.0	6.7	(5.6) <sup>K</sup>	4.8	
30	4.5	3.5	C	C	C	S	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	B <sup>K</sup>	4.7	4.5 <sup>K</sup>	4.3	4.4 <sup>K</sup>	4.6 <sup>K</sup>	(5.4) <sup>K</sup>	6.2 <sup>K</sup>	5.4 <sup>V</sup>	5.7 <sup>K</sup>	5.6 <sup>K</sup>	5.5 <sup>F</sup>	
31																									
Mean Value	4.8	4.7	4.6	4.5	4.3	4.7	5.6	5.4	5.3	5.4	5.3	5.2	5.3	5.2	5.0	5.0	5.3	5.4	5.7	5.7	6.0	5.6	5.2	5.1	
Max Value	4.8	4.7	4.7	4.6	4.2	4.8	5.5	5.4	5.3	5.4	5.3	4.9	5.3	5.3	4.9	5.0	5.3	5.4	5.6	5.7	6.2	5.8	5.3	5.0	
Count	20	23	23	22	21	20	11	8	11	14	11	17	12	16	17	17	19	20	20	20	19	20	19	16	

The Radio Research Laboratories  
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# IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

## Wakkanai

135° E Mean Time

h<sub>p</sub>F<sub>2</sub>

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	C	C	C	C	C	C	C	C	C	A	A	A	V	B	360	(400) <sup>P</sup>	360	(330) <sup>P</sup>	330 <sup>P</sup>	(320) <sup>P</sup>	(310) <sup>P</sup>	370 <sup>F</sup>	(340) <sup>F</sup>	S		
2	S	(350) <sup>P</sup>	(330) <sup>P</sup>	(290) <sup>F</sup>	(310) <sup>F</sup>	400	360	340	A	A	A	A	A	A	400	350 <sup>F</sup>	330	400	400 <sup>H</sup>	430	(380) <sup>H</sup>	S <sup>H</sup>	350 <sup>H</sup>	340 <sup>H</sup>	S	
3	(340) <sup>F</sup>	450V	420V	C	C	C	C	C	C	B <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	B <sup>H</sup>	B <sup>H</sup>	U <sup>H</sup>	U <sup>H</sup>	B <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	S <sup>H</sup>	350 <sup>H</sup>	340 <sup>H</sup>	S		
4	360 <sup>F</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	B <sup>H</sup>	U <sup>H</sup>	U <sup>H</sup>	U <sup>H</sup>	U <sup>H</sup>	U <sup>H</sup>	U <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	350 <sup>H</sup>	350 <sup>H</sup>	340 <sup>H</sup>	S		
5	330 <sup>F</sup>	340 <sup>K</sup>	(290) <sup>F</sup>	350 <sup>K</sup>	350 <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	U <sup>K</sup>	B <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	(330) <sup>F</sup>	(330) <sup>F</sup>	350 <sup>F</sup>	340 <sup>F</sup>	S		
6	S	350 <sup>F</sup>	(240) <sup>F</sup>	350 <sup>V</sup>	360	310	M	B	C	U	U	U	A	A	U	B	320	(320) <sup>F</sup>	320	(330) <sup>F</sup>	340	330	360 <sup>F</sup>	(330) <sup>F</sup>		
7	(330) <sup>F</sup>	(330) <sup>F</sup>	(340) <sup>F</sup>	C	C	C	C	C	A	C	C	C	C	C	C	C	(320) <sup>F</sup>	(350) <sup>F</sup>	(380) <sup>F</sup>	(330) <sup>F</sup>	(360) <sup>F</sup>	380	(310) <sup>F</sup>	(360) <sup>F</sup>		
8	(360) <sup>F</sup>	350 <sup>F</sup>	(340) <sup>F</sup>	(320) <sup>F</sup>	S	310	B	B	B	B	B	U	4.10	4.00	U	U	U	(400) <sup>F</sup>	(360) <sup>F</sup>	320	320	(320) <sup>F</sup>	(320) <sup>F</sup>	330		
9	(350) <sup>F</sup>	(370) <sup>F</sup>	(350) <sup>F</sup>	340 <sup>F</sup>	330	(300) <sup>F</sup>	(300) <sup>F</sup>	(360) <sup>F</sup>	B	U	U	U	U	U	U	U	U	U	300	300	300	320	350	350	330	
10	S	S	S	(320) <sup>F</sup>	270	340	B	B	A	300 <sup>F</sup>	A	U	U	U	U	U	U	(400) <sup>F</sup>	370	S <sup>F</sup>	A	S <sup>F</sup>	S	S		
11	300	S <sup>F</sup>	S <sup>F</sup>	S <sup>F</sup>	300 <sup>F</sup>	B	B	A	B	A	A	U	U	U	U	U	U	A	B	(340) <sup>F</sup>	A	S	370	(420) <sup>F</sup>		
12	(370) <sup>F</sup>	330 <sup>P</sup>	(370) <sup>F</sup>	320	310	300	340 <sup>F</sup>	320	A	B	U	U	U	U	U	U	U	U	C	C	C	S	350	320	(340) <sup>F</sup>	
13	350 <sup>F</sup>	330	350	370	300	290	C	C	C	U	U	U	C	C	C	C	A	A	380	A	S	310	(310) <sup>F</sup>	(330) <sup>F</sup>		
14	S	320 <sup>F</sup>	340	320	330 <sup>F</sup>	370 <sup>F</sup>	B	B	C	C	C	C	C	C	C	C	C	A	A	A	S	S	S	C		
15	S	S	(360) <sup>F</sup>	360	S	350	320	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C		
16	C	C	C	C	C	C	C	C	C	C	A	A	B	A	A	A	A	B	A	340	310	(320) <sup>F</sup>	320 <sup>F</sup>	S		
17	S	320 <sup>F</sup>	310	330 <sup>F</sup>	280 <sup>F</sup>	280 <sup>F</sup>	B	B	A	U	A	A	A	A	A	A	A	310	A	340 <sup>F</sup>	A	C	350	(340) <sup>F</sup>		
18	(340) <sup>F</sup>	360	(360) <sup>F</sup>	360 <sup>F</sup>	(320) <sup>F</sup>	290	A	A	C	A	A	U	U	U	U	U	U	A	A	A	(330) <sup>F</sup>	340 <sup>F</sup>	C	A		
19	360	350 <sup>F</sup>	410	360	360	410	360 <sup>F</sup>	C	C	A	A	A	A	A	A	A	A	A	A	A	320	A	A	C		
20	C	C	C	C	300	280	A	A	U	A	A	U	A	A	A	A	A	A	400	360	(350) <sup>F</sup>	330	S	S		
21	A	410	(380) <sup>F</sup>	350	380	390	A	A	A	A	A	U	A	A	A	A	A	A	350	(330) <sup>F</sup>	310	330	A	A		
22	340 <sup>F</sup>	360	(340) <sup>F</sup>	350	350	320	330	300 <sup>F</sup>	U	U	U	U	A	A	A	A	A	580	(470) <sup>F</sup>	360	330	340 <sup>F</sup>	S	360 <sup>F</sup>	370	380
23	400	400	(380) <sup>F</sup>	350 <sup>F</sup>	320 <sup>F</sup>	340 <sup>F</sup>	370	A	U	U	U	U	U	U	U	U	U	A	A	A	A	370	400	370 <sup>F</sup>		
24	380	(350) <sup>F</sup>	(380) <sup>F</sup>	350	(340) <sup>F</sup>	310	A	A	U	U	U	U	U	U	U	U	U	A	A	A	S	S	S	A		
25	370	(320) <sup>F</sup>	330	370	S	A	A	A	340	A	A	A	U	U	U	U	U	340	380	(330) <sup>F</sup>	(300) <sup>F</sup>	A	A	S		
26	350	400	370	380	330	U	A	A	A	A	A	U	U	U	U	U	U	360	C	C	A	310 <sup>F</sup>	320	320 <sup>F</sup>		
27	320 <sup>F</sup>	380	370	300	(310) <sup>F</sup>	A	A	A	A	350	350	A	U	B	C	360	340	(380) <sup>F</sup>	380	310	S	(350) <sup>F</sup>	S	S		
28	400	330 <sup>F</sup>	340	320	320	340 <sup>F</sup>	380	A	A	C	C	C	C	C	C	C	C	300	350	380	310	310	310 <sup>H</sup>	(300) <sup>F</sup>		
29	280	300	350	370	340	280	270 <sup>F</sup>	280	U	U	U	U	300	U	U	U	U	U	450	510	440	430	(400) <sup>F</sup>	350		
30	440	400	C	C	C	S <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	B <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	C <sup>K</sup>	C <sup>K</sup>	320 <sup>K</sup>	260 <sup>K</sup>	360 <sup>K</sup>	390 <sup>K</sup>		
31																										
Mean Value	350	360	360	340	330	340	320	340	340	330	350	260	360	370	380	4.10	350	360	350	340	340	340	340	350	360	
Median Value	350	350	360	350	320	310	340	320	340	320	350	260	360	380	380	360	340	360	350	330	330	350	350	340	360	
Count	20	23	23	22	21	19	9	5	1	2	1	1	5	2	2	5	10	14	19	18	18	20	19	15		

h<sub>p</sub>F<sub>2</sub>

Group 1.0 Mc in 1.5.5 Mc in 2 min

Manual  Automatic

Lat. 45° 23.8' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

Jun. 1953

R'F2

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	300A	A	A	340	C3500A	360	400A	350	300	320A	300B	260	290	270	270	
2	280	260	280	260	270	400	350	340	C	A	A	A	A	A	400	350A	330	400	360	330HA	290	290	310	290	
3	300	380	350	C <sup>H</sup>	C	C	C	C	C	A <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	B <sup>H</sup>	500 <sup>H</sup>	440 <sup>H</sup>	B <sup>K</sup>	A <sup>H</sup>	A <sup>K</sup>	330 <sup>H</sup>	300 <sup>H</sup>	300 <sup>H</sup>	290 <sup>H</sup>	
4	310 <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	AK	AK	AK	B <sup>H</sup>	410 <sup>H</sup>	610 <sup>H</sup>	550 <sup>H</sup>	490 <sup>H</sup>	440 <sup>H</sup>	A <sup>K</sup>	A <sup>K</sup>	300 <sup>H</sup>	280 <sup>H</sup>	330 <sup>H</sup>	300 <sup>H</sup>	320 <sup>H</sup>	
5	300A	290 <sup>K</sup>	250 <sup>K</sup>	300 <sup>K</sup>	300 <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	450 <sup>K</sup>	590 <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	590 <sup>K</sup>	660 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	330	320 <sup>H</sup>	C320A	330A	A	C	
6	300	290 <sup>F</sup>	270	280	290	270A	M	B	C	410	C420A	450	A	A	A	B	330	C320A	300A	300F	310	280	320A	290 <sup>F</sup>	
7	270 <sup>F</sup>	280	310 <sup>F</sup>	C	C	C	C	C	A	C	C	C	C	C	C	C	320	C310 <sup>F</sup>	300A	310	C300A	300	290	290	
8	300	300	300	300 <sup>F</sup>	290	270	B	B	B	B	B	440	410	400	550	460	390	400	340	280	260	280	260	240	
9	260	310	300	300	290	280	C290 <sup>B</sup>	360 <sup>B</sup>	1480 <sup>B</sup>	600	400	340	W	420	500	400	300	280	280	240	270	300	300	300	
10	280	260	300	250	260	310	B	B	B	360 <sup>B</sup>	300	330	400	500	460	400	400	400	350	290	300A	300	290	280 <sup>F</sup>	
11	290	300	290	290	290	200	B	A	A	A	A	410	440	500	420	A	A	B	370	300	C320A	290	300	320	
12	300	290	310	260	230	270	340	320	C340 <sup>B</sup>	350	380	350	370	330	310	410	370	340	C	C	240	280	250	C280 <sup>B</sup>	
13	300	310	300	290	280	260	C	C	C	350	340	400	C	C	C	C	A	A	360A	A	A	280	280	300	
14	290	270	270	280	300	330	B	B	C	C	C	C	C	C	C	C	C	C	A	A	250	260	S	C	
15	320	300	300	290	330	340	320 <sup>B</sup>	C	A	A	A	A	C	300	C	C	C	C	C	C	C	C	C	C	
16	C	C	C	C	C	C	C	C	C	A	A	A	B	A	A	A	B	A	340	300A	C300 <sup>F</sup>	300	260	A	
17	A	260	300A	270	280	280	B	B	C	A	A	A	A	A	350	350A	310	A	300	300A	A	C	C240 <sup>F</sup>	B10 <sup>F</sup>	
18	280	300	C280 <sup>F</sup>	260	260	280	A	A	C	A	A	500	W	A	400	500	A	A	A	A	320A	320A	A	A	
19	300	300	340	320	350	400	360	C	C	A	A	A	A	380	A	A	A	A	A	A	300	300	A	A	
20	C	C	C	C	280	270	A	A	A	A	A	550	A	A	A	A	A	A	A	A	390	340	300	360A	
21	A	380A	C360 <sup>F</sup>	C350 <sup>F</sup>	340	380	A	A	A	A	A	A	A	A	A	A	A	A	A	A	350	C320A	300A	A	
22	C330 <sup>F</sup>	320	300	330	300	260	330	290	300	380	500	A	A	A	500	580	440 <sup>B</sup>	A	340	300	270	330A	320	310	
23	C340 <sup>F</sup>	360A	330	270	320	370	C380 <sup>F</sup>	400	360	360	410	500	G	A	A	A	A	A	A	A	340	320	330	320	
24	280	290	320	290	300	280	A	A	420	360	420	C380 <sup>F</sup>	350	390	400	A	A	A	A	A	290	280	290	320A	
25	290	300	290	350	360	A	A	A	340	320	A	A	A	410	390	340	340	370	310	280	250	A	A	A	
26	C340 <sup>F</sup>	310	300	340	270	500	A	A	A	A	A	600	C350 <sup>F</sup>	C350 <sup>F</sup>	350	L	360	C	C	A	250	250	290		
27	260	340A	C370 <sup>F</sup>	270	280	280	A	A	A	340	350	400A	380	A	C	C	340	C350 <sup>F</sup>	360	310	300	280	300	300 <sup>H</sup>	
28	300	300	300	300	300	280	280	350	A	C	C	C	C	C	C	C	C	C	300	310	290	230	230	230	
29	250	260	300	310	280	270	260	280	300	380	600	250	300	340	450	520	400	500	400	510	350	360	350	S	
30	350	350	C	C	C	S <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	450	450	400 <sup>K</sup>	650 <sup>K</sup>	650 <sup>K</sup>	370 <sup>K</sup>	360	C330 <sup>F</sup>	300 <sup>K</sup>	240 <sup>K</sup>	226	240 <sup>H</sup>	340 <sup>H</sup>	
31																									
Mean Value	300	300	300	290	290	310	330	330	360	370	420	440	390	400	450	460	360	360	330	310	290	290	290	300	290
Median Value	300	300	300	290	280	280	340	330	340	350	410	410	410	400	420	460	350	350	330	300	300	300	290	300	300
Count	25	26	25	23	24	21	9	6	9	13	11	15	13	14	17	16	17	16	21	22	26	25	23	21	

Swamp 1.0 Mc to 15.5 Mc in 2 min  Manual  Automatic



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

Jun., 1953

f<sub>o</sub>F<sub>1</sub>

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	C	C	C	A	A	A	4.4	[4.3] <sup>A</sup>	4.2	[4.1] <sup>A</sup>	4.0	3.8	A					
2						3.5	3.8	(4.0) <sup>A</sup>	A	A	A	A	A	A	A	A	3.9	3.6	3.3					
3						C	C	C	C	3.8	A	A	A	4.1	4.0	3.8	3.7	3.5	A					
4						C	C	A	A	A	A	4.3	4.1	4.2	4.0	4.0	3.8	A	A					
5						3.3	3.5	A	A	A	4.0	4.2 <sup>F</sup>	4.2	(4.2) <sup>A</sup>	4.1	3.9	A	A	3.2					
6						Q	3.4	B	C	A	A	4.2	A	A	A	B	3.9	A	A					
7						C	C	C	A	C	C	C	C	C	C	C	3.9	C	Q					
8						Q	3.9	B	B	A	4.3	4.3 <sup>F</sup>	4.2	4.3	4.3	4.1	3.8	3.6	3.3					
9						3.4	3.6	3.9	[4.0] <sup>B</sup>	4.1	4.3	4.3	4.5	4.2	4.2	4.1	(4.1) <sup>A</sup>	Q	Q					
10						Q	3.4	3.7	B	A	A	4.3	(4.4) <sup>A</sup>	4.3	4.2	4.1	3.9 <sup>H</sup>	3.6	3.3					
11						Q	B	A	A	A	A	4.2	4.3	4.2	4.2	A	A	A	3.3	Q				
12						Q	3.7	A	B	4.2	4.3	4.4	4.4	4.3	4.4	4.1	3.9	3.7	C					
13						Q	C	C	C	4.2	4.3	C	C	C	C	C	C	A	A					
14						3.0	3.7	3.8	C	C	C	C	C	C	C	C	C	C	C					
15						3.2	B	A	A	S	A	A	C	A	C	C	C	C	C					
16						C	C	C	C	A	A	A	4.6	A	A	A	3.9	A	A					
17						3.3	3.6	B	A	A	A	A	A	A	A	4.3	(4.2) <sup>A</sup>	3.8	3.5					
18						3.3	A	A	C	A	A	(4.4) <sup>A</sup>	A	A	A	4.3	4.3	A	A					
19						3.6	B	C	C	A	A	A	A	4.4	A	A	A	A	A					
20						Q	A	A	A	A	A	4.3	A	A	A	A	A	A	(3.7) <sup>B</sup>	A				
21						3.3	A	A	A	A	A	A	A	A	A	A	A	A	A					
22						Q	A	4.0	4.2	4.6	4.6	A	A	A	4.4	4.2	A	A	3.2					
23						3.4	3.7	[4.0] <sup>A</sup>	(4.2) <sup>A</sup>	4.2	4.3	4.4	4.4	A	A	A	A	A	A					
24						Q	A	A	4.2	4.5	4.5	[4.6] <sup>A</sup>	4.6	4.6	4.4	A	A	A	A					
25						A	A	A	A	4.3	A	A	A	4.5	4.4	4.2	4.1	3.8	3.0					
26						3.2	A	A	A	A	A	4.4	A	A	A	[4.2] <sup>L</sup>	4.0	C	C					
27						A	A	A	A	(4.4) <sup>A</sup>	A	A	4.5	A	C	(4.0) <sup>A</sup>	3.9	[3.8] <sup>F</sup>	3.8					
28						Q	3.0	A	A	C	C	C	C	C	C	C	C	C	3.4					
29						3.3	3.6	4.0	4.1	4.3	4.4	4.2	4.3	4.3	4.3	4.1	(4.0) <sup>B</sup>	B	B					
30						2.8	B	A	B	B	4.1	A	B	4.2	4.1	4.1	3.8	3.5	C					
31																								
MEAN						3.3	3.6	4.0	4.1	4.3	4.3	4.3	4.4	4.3	4.2	4.1	3.9	3.7	3.3					
MIN						3.3	3.6	4.0	4.2	4.2	4.3	4.3	4.4	4.3	4.3	4.1	3.9	3.7	3.3					
MAX						14	12	6	5	10	10	15	13	14	17	16	17	12	10					
Count																								

f<sub>o</sub>F<sub>1</sub>

Swamp 1.0 Mc to 15.5 Mc in 2 min

Manual  Automatic

W 4

The Radio Research Laboratories  
Koganei-machi, Kitami-gun, Tokyo, Japan

Lat. 46° 28.6' N  
Long. 141° 41.1' E

# Wakanai

## IONOSPHERIC DATA

135° E Mean Time

Jun. 1953

R'F1

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	C	C	C	A	A	A	A	A	250A	[260A]	260	220	A					
2						290	290	A	A	A	A	A	A	A	A	A	230A	290	270					
3						C	C	C	C	310A	A	A	A	A	230	280	300A	260	A					
4						C	C	A	A	A	230	[240A]	240	230	230	230A	A	A	A					
5						250A	260A	A	A	A	(290A)	(310A)	(290A)	A	A	A	A	A	300A					
6						Q	290	A	C	A	A	220	A	A	A	A	230	A	A					
7						C	C	C	A	C	C	C	C	C	C	250	250	C	Q					
8						Q	280	260	B	A	A	(250)	(280)	(290)	240	220	230	220	270					
9						250	250	250A	240A	A	A	220A	260	220	210	A	A	A	Q					
10						Q	260	240	A	A	A	A	A	A	210	220	210	260	A					
11						Q	210	A	A	A	A	250A	290A	250A	(280)	A	A	A	250	Q				
12						Q	290	(280)	280	240	230	260	200	220A	220A	230	200	260	C					
13						Q	C	C	C	C	250	210	220A	C	C	C	A	A	A					
14						280	270	250	C	C	C	C	C	C	C	C	C	C	A					
15						(260)	B	A	A	S	A	A	A	A	A	A	A	C	C					
16						C	C	C	C	C	A	A	(250)	A	A	A	220	A	A					
17						(290)	200	250	A	A	A	A	A	A	A	A	A	A	250					
18						280	A	A	C	A	A	A	A	A	A	(270)	A	A	A					
19						270	A	C	C	A	A	A	A	A	A	A	A	A	A					
20						Q	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						300	A	A	A	A	A	A	A	A	A	A	A	A	250	A				
22						Q	A	250	280	A	A	A	A	A	A	A	A	A	A					
23						260	270A	A	A	A	A	250A	250A	290A	A	A	A	A	A					
24						Q	A	A	B	(270)	240	(240)	250A	290A	A	A	A	A	A					
25						A	A	A	A	A	210	A	A	A	A	A	(280)	260	300					
26						300	A	A	A	A	A	A	A	A	240A	(240)	250	C	C					
27						A	A	A	A	A	A	A	250	A	C	A	260	[240]	230					
28						Q	290	A	A	C	C	C	C	C	C	C	C	220	220					
29						210	210	220	210	220	(220)	210	(200)	200	A	B	B	B	B					
30						250	(250)	250A	A	B	290	250	280	280	220	260	230	250	C					
31																								
Mean Value						270	260	250	250	230	250	240	250	240	240	240	240	240	260					
Median Value						260	260	250	260	230	240	240	250	240	230	240	230	230	260	270				
Count						14	14	8	4	6	6	12	12	10	11	8	14	12	9					

Sweep 1.0 Mc to 15.5 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 45° 23.6' N  
Long. 141° 41.1' E

Wakkanai

Jun. 1953

foE

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						C	C	C	C	A	A	A	B	A	A	A	2.7	A	A						
2						2.0	2.4	(2.8) <sup>B</sup>	3.0	3.0 <sup>F</sup>	[3.2] <sup>B</sup>	3.3	[3.2] <sup>A</sup>	3.1	[3.1] <sup>A</sup>	3.1	[2.8] <sup>F</sup>	2.4	(2.2) <sup>B</sup>						
3						C	C	C	C	A	3.1 <sup>F</sup>	3.2	3.3	3.3	3.3	2.9 <sup>F</sup>	2.5	2.4	B						
4						C	C	C	2.8	A	A	3.1	3.1	3.1	3.0	2.7	2.7	2.4	B						
5						A	B	2.8 <sup>F</sup>	2.9 <sup>F</sup>	3.0	3.1	3.1	3.1	3.4	(2.2) <sup>B</sup>	3.0	2.8	2.4	B						
6						(2.0) <sup>B</sup>	2.4	2.7	[2.9] <sup>F</sup>	3.1	3.1	3.3	3.1	3.0	3.0	[3.0] <sup>B</sup>	2.8	2.3	2.1						
7						C	C	C	2.8	C	C	C	C	C	C	C	2.7 <sup>F</sup>	C	B						
8						B	B	B	3.1	3.0	[3.0] <sup>A</sup>	3.0	3.2	3.2 <sup>F</sup>	3.2	3.0	A	B	B						
9						(2.0) <sup>B</sup>	2.6	2.7	3.0	2.9	3.0	3.2	3.2	3.1	3.0	2.8	2.6	(2.4) <sup>B</sup>	2.3						
10					1.4	1.6	2.3	2.8	3.0	3.0	(3.2) <sup>B</sup>	3.1	[3.1] <sup>A</sup>	3.1	3.0	A	A	2.6	B						
11						B	(2.3) <sup>B</sup>	(2.7) <sup>B</sup>	3.0	3.1	A	A	A	A	A	A	2.9	2.5	B	B					
12						B	2.7	2.9	3.0	3.1 <sup>B</sup>	3.2	3.3	3.3	A	A	3.0	(2.7) <sup>B</sup>	2.4	C						
13						1.6	C	C	C	3.0 <sup>F</sup>	B	B	C	C	C	C	2.9	2.5	B						
14						B	B	2.8	C	C	C	C	C	C	C	C	C	2.6	B						
15						B	(2.4) <sup>B</sup>	B	B	S	B	A	C	B	C	C	C	C	C						
16						C	C	C	C	A	A	A	B	3.0	A	A	A	A	A						
17						A	A	2.9	[2.9] <sup>A</sup>	2.9	B	B	3.1	S	B	A	A	B	B						
18						2.0	2.5	2.9	[3.0] <sup>C</sup>	3.1	A	A	B	A	A	A	A	2.5	A						
19						B	2.6	C	C	B	A	A	A	A	A	A	A	A	A						
20						A	2.5	2.7	3.0	3.0	[3.1] <sup>A</sup>	3.2	(3.2) <sup>B</sup>	3.1	2.9	A	A	2.6	2.2						
21						2.1	2.6	2.8	3.0	3.2	3.3	3.4	3.3	3.2	3.0	2.9	2.7	A	A						
22						2.0	2.3	2.5	3.0	B	A	B	B	B	B	3.0	2.8	2.6	B						
23						1.8 <sup>F</sup>	2.5	3.0	[3.0] <sup>A</sup>	3.0	3.2	3.2	A	A	A	A	A	2.6	(2.0) <sup>B</sup>						
24						2.0	2.4	2.9	3.0	[3.1] <sup>B</sup>	3.2	3.3	A	A	3.1	3.0	2.8	2.8	(2.4) <sup>B</sup>						
25						2.0	2.5	2.8	3.0	3.1	3.1	3.2	3.2	[3.2] <sup>A</sup>	3.1	[3.0] <sup>A</sup>	2.8	2.5	A						
26						1.8	2.5	2.8	3.0	3.0	3.2	3.3	A	A	A	3.0	3.0	C	C						
27						2.1	2.6	2.8	3.0	3.0	3.0	3.1 <sup>F</sup>	3.2	2.8	C	A	A	C	2.6						
28						A	2.0	2.8	A	C	C	C	C	C	C	C	C	2.5	2.0						
29						1.8	2.2	2.8	3.0	3.1	A	A	A	A	A	A	A	A	B	B					
30						B	B	B	B	B	3.2	3.3	3.3	A	A	3.0	2.7	(2.3) <sup>B</sup>	C						
31																									
Mean Value					1.4	1.9	2.4	2.8	3.0	3.0	3.1	3.2	3.2	3.1	3.1	3.0	2.8	2.5	2.2						
Median Value					1.4	2.0	2.5	2.8	3.0	3.0	3.2	3.2	3.2	3.1	3.0	3.0	2.8	2.5	2.2						
Count					1	14	19	21	21	19	16	18	15	15	12	14	17	19	8						

Group 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

W 6

foE



Lat. 45° 28.6' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

R'E

135° E Mean Time

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						C	C	C	C	A	A	110	B	A	A	A	100	A	A					
2					120	(140) <sup>B</sup>	120	C	120	130 <sup>B</sup>	100	110	(110) <sup>A</sup>	110	(120) <sup>A</sup>	110	(120) <sup>A</sup>	130	B					
3					C	C	C	C	C	A	100	110	110	110	110	110	110	110	110	B				
4					C	C	C	120 <sup>B</sup>	100	A	A	100	110	110	110	110	100	110	110	B				
5					A	120	140	130	110	110	110	110	110	110	110	120	130	120	120					
6					110	120	110	(110) <sup>S</sup>	110	120	120	110	120	120	120	B	B	130	120					
7					C	C	C	C	C	C	C	C	C	C	C	C	120	C	B					
8					B	B	B	B	B	110	(110) <sup>A</sup>	110	120	120	110	110	A	B	130					
9					110	130 <sup>B</sup>	120 <sup>B</sup>	120	120	120	110	110	110	110	110	100	100	100	(100) <sup>B</sup>	110				
10					150	130	130	120	100	110	110	110	(110) <sup>A</sup>	110	110	A	A	120 <sup>B</sup>	B					
11					110	(120) <sup>B</sup>	120 <sup>B</sup>	120 <sup>B</sup>	110	A	A	A	A	A	120	A	100	130	(130) <sup>B</sup>	130				
12					110	120	110	110	110	110	110	110	110	A	A	110	110	110	110	C				
13					140	C	C	C	C	C	110	110	C	C	C	C	C	110	110	120				
14					100	110	130	C	C	C	C	C	C	C	C	C	C	C	130 <sup>B</sup>	120				
15					110	110	B	B	S	110	A	C	C	B	C	C	C	C	C					
16					C	C	C	C	C	A	A	A	B	110	A	A	A	A	A					
17					A	A	110	(110) <sup>A</sup>	110	B	B	B	110	S	B	A	A	110	110					
18					100	110	110	(110) <sup>S</sup>	110	A	A	A	110	A	A	A	A	A	A					
19					B	120	C	C	C	120	A	A	A	A	A	A	A	A	A					
20					A	130 <sup>B</sup>	(140) <sup>S</sup>	120	110	(110) <sup>A</sup>	110	110	110	120	120	A	A	120	A					
21					130	130	120	120	120	120	120	130	120	120	120	120	120	120	A					
22					130	130	130	130	B	A	A	A	B	120	110	110	100	130	B					
23					100	120	120	(120) <sup>A</sup>	120	110	120	120	A	A	A	A	A	120	130					
24					120	130	130	130	110	100	100	100	A	A	110	120	100	120	B					
25					120	120	120	120	110	100	100	100	100	(100) <sup>A</sup>	100	(100) <sup>A</sup>	110	130	A					
26					130	130	130	130	110	100	110	110	A	A	A	120	110	C	C					
27					120	110	120	120	110	110	110	110	120	120	C	A	A	C	120					
28					A	120	120	A	C	C	C	C	C	C	C	C	C	C	110	100				
29					110	100	110	110	110	110	A	C	A	110	A	A	A	A	B	B				
30					B	B	B	110	(120) <sup>B</sup>	120	110	100	100	A	A	100	110	B	C					
31																								
Mean Value					150	120	120	120	120	110	110	110	110	110	110	110	110	110	120	130				
Median Value					150	120	120	120	120	110	110	110	110	110	110	110	110	110	120	130				
Count					1	18	21	21	21	21	18	19	16	16	13	13	16	18	12	1				

Swamp 1.0 Mc to 15.5 Mc in 2 min  Manual  Automatic

W 7

The Radio Research Laboratories  
Koganei-machi, Kitama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 49° 28.6' N  
Long. 141° 41.1' E

Wakkanai

Jun. 1953

fEs

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	6.5	5.4	4.8	5.0	5.3	3.7	6.7	9	3.2	5.5	4.5	3.2	3.0	2.6	3.0
2	E	E	E	E	E	9	9	4.0	6.0	6.5	8.8	7.7	7.4	6.9	6.6	5.6	5.7	9	9	2.9	E	E	E	E
3	3.7	3.8	E	C	C	C	C	C	C	5.2	6.3F	6.2Y	6.0	4.8	4.0	9	4.1	9	5.6	6.0	3.9	E	E	E
4	E	C	C	C	C	C	C	4.0	6.0	6.4	5.5	5.0	5.5	4.9	3.8	9	3.3	7.0	6.9	6.0	E	E	3.9	3.8
5	5.5	3.9	3.0	3.0	1.6	3.8F	3.9	7.0	5.8	7.4F	6.2	5.0	4.6	6.3	5.1	5.8	6.8	6.0	8.7Y	5.2	6.2	4.0	3.8	C
6	2.6	2.4	2.6	2.6	1.5	3.2	3.6	3.0	C	5.2	6.6	6.4	9.2YF	5.6	6.0	B	9	6.0	5.7	3.7	3.9	3.5	4.5	3.2
7	E	E	3.0	C	C	C	C	C	6.0	C	C	C	C	C	C	C	9	C	3.8	2.9	3.6	3.8	2.6	6.0
8	3.6	E	E	E	E	B	B	B	9	4.7	4.7	4.6	4.0	3.9	4.0	4.2	3.5	B	9	2.9	3.2	3.8	3.3	1.6
9	1.3	3.5	3.0	3.5	3.4	3.6	9	3.6	3.7	5.5	4.9	5.5	6.8	3.8	3.9	4.3	4.8	3.8	4.4Y	3.8	4.2	3.8	3.8	E
10	E	3.6F	S	E	9	9	3.2	4.0	5.0Y	5.0	6.0	5.0	5.8	3.9	4.6	4.0	3.4F	3.9	3.8	3.6	6.0	3.6	E	E
11	3.6	3.8	3.0	3.0	E	E	3.5	3.8	6.5	9.7	6.5	6.6F	4.0	4.8	6.2	6.4	6.9	4.1	B	3.1	5.5	3.6	3.1	3.4
12	3.0	2.3	3.0	E	E	E	9	5.2	3.8	5.0	5.0	5.0	5.3	4.1	4.9	3.6	9	3.4	C	C	E	E	E	C
13	2.4	3.2	E	E	E	E	9	9	C	4.6	5.5	6.2	C	C	C	C	7.0	6.0	6.0	5.2	3.7	E	E	E
14	E	E	E	E	E	E	9	9	C	C	C	C	C	C	C	C	C	C	C	6.0	6.5	3.0	S	C
15	3.1	3.5	3.8	3.0Y	1.6	9	3.6	6.0	6.0	7.0	10.5	12.1F	C	8.0	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	14.6	14.5F	10.0F	4.4	7.3	7.2	6.0	3.9	6.5	3.8	6.0	C	E	E	4.1
17	4.0	3.2	4.0	3.0	3.5F	4.5	4.0	9	5.5	7.9	8.7	10.0F	6.0	7.0F	6.3	6.3	6.2	5.0	3.0	5.5	3.8	C	5.8	C
18	E	3.2	C	3.4	1.6	4.0	5.9	5.2	C	6.3	9.2	5.9	6.3F	7.5	8.9F	8.1F	8.5	8.0	7.5	6.0	3.0	4.5Y	C	6.0
19	3.0	2.4	4.6Y	E	E	E	B	3.8	C	8.5F	6.7	8.9F	8.5	6.4	8.2	8.4	7.2	6.2	6.0	6.0	6.0	6.0	6.0	C
20	C	C	C	C	3.0	3.4	6.0F	6.0	6.0	8.9	8.5	7.9	8.0	8.0	6.5	6.0	6.0	6.0Y	5.6	3.8	3.3	6.0	6.0	6.0
21	6.0	6.0	6.0	6.0	4.5	3.8	5.9	5.8	6.0	6.1	7.5Y	6.0	7.2	7.1Y	7.5	7.8	7.1	6.0F	8.0	6.0	5.5	6.0	6.0	6.0
22	4.5	5.0	3.8	3.0	4.5	3.4	6.0	4.5	9	4.8	5.1	7.5	6.8	7.3	6.0	8.9	7.0	6.0F	8.0	6.0	3.0	5.0	6.0	3.8
23	6.0	4.5	3.0	E	3.8	3.0	3.7	6.0	6.0	6.3	5.7	5.8	4.8	6.2	8.7	8.7	9.2	6.0	7.1	6.1	7.4	5.9	5.5	3.2
24	2.4	2.8	3.0	3.0	3.8	3.6	6.0	6.0	3.8	5.2	5.2	6.2	6.0	5.3	6.0	8.7Y	7.4	5.7	6.0	4.8	2.7Y	6.0	6.0	3.0
25	E	3.9	3.0	5.0	3.4	6.0	5.8	6.0	6.0	5.0	7.6	9.2F	7.2	5.4	5.6	5.6	4.0	4.8	6.0	4.5	3.6	6.0	4.6	4.7
26	5.0	3.4	3.9	6.0	3.8F	2.9Y	5.0	5.7	6.0	8.3	7.7	6.8	6.4	6.5	6.3	4.4	4.6	C	C	6.0	3.8	3.0	3.0	3.0
27	3.0	5.5	4.5	3.2	2.8	5.0	7.5	8.0	7.5	6.4	6.3	5.8	7.5	5.0	C	5.1	3.8	C	9	9	2.6	3.7	3.4	
28	3.0	2.9	S	3.0	S	2.8	9	4.5	5.5	C	C	C	C	C	C	C	C	C	9	2.8	2.2	2.5	2.1	E
29	3.1	3.4	3.8	3.6	3.5	9	3.0	4.7	4.0	4.4	5.0	4.4	4.2	4.8Y	4.0	3.4	3.5	3.0	B	B	E	E	S	
30	E	E	C	C	C	2.9	2.7	4.0	3.9	B	5.7	5.3	9	4.3	3.9	9	9	3.9	C	4.3	3.4	E	E	3.6
31																								
Mean Value	3.6	3.6	3.6	3.6	3.0	3.7	4.6	5.2	5.6	6.5	6.9	6.6	6.2	5.8	5.7	6.1	5.6	5.3	5.7	4.8	4.1	4.3	4.3	4.0
Median Value	3.0	3.3	3.0	3.0	1.6	3.2	3.8	5.2	5.9	6.3	6.3	6.0	6.0	5.5	6.0	5.7	4.6	5.7	5.6	4.8	3.6	3.6	3.3	3.2
Count	2.7	2.6	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.6	2.7	2.7	2.5	2.6	2.4	2.4	2.7	2.5	2.4	2.7	2.8	2.8	2.7	2.3

fEs

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual

Automatic

W 8

Lat. 40° 28.6' N  
Long. 141° 41.1' E

Wakkanai

IONOSPHERIC DATA

135° E Mean Time

(M3000)F2

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	3.4	A	A	3.1	F3.0 <sup>3</sup>	2.9	2.7	2.8	(3.0) <sup>F</sup>	2.9 <sup>F</sup>	(3.0) <sup>F</sup>	(3.1) <sup>F</sup>	2.7 <sup>F</sup>	2.9 <sup>F</sup>	S	
2	S	(3.0) <sup>F</sup>	(2.9) <sup>F</sup>	(3.1) <sup>F</sup>	(3.1) <sup>F</sup>	2.7	2.9	3.0	A	A	A	A	A	A	2.7	2.9 <sup>F</sup>	3.0	2.6	2.7 <sup>F</sup>	2.5 <sup>H</sup>	F2.8 <sup>F</sup>	3.0 <sup>F</sup>	2.7	S	
3	(2.9) <sup>F</sup>	2.6 <sup>V</sup>	2.6 <sup>V</sup>	C	C	C	C	C	C	B <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	B <sup>H</sup>	B <sup>H</sup>	2.5 <sup>H</sup>	2.7 <sup>H</sup>	B <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	S <sup>H</sup>	2.8 <sup>H</sup>	2.9 <sup>H</sup>	S <sup>K</sup>	
4	2.9 <sup>F</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	C <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	B <sup>H</sup>	2.5 <sup>H</sup>	2.3 <sup>H</sup>	F2.9 <sup>H</sup>	2.6 <sup>H</sup>	3.0 <sup>H</sup>	A <sup>H</sup>	A <sup>H</sup>	3.0 <sup>H</sup>	2.8 <sup>H</sup>	2.9 <sup>H</sup>	2.9 <sup>H</sup>	S <sup>K</sup>	
5	3.1 <sup>K</sup>	3.0 <sup>F</sup>	(3.2) <sup>F</sup>	2.8 <sup>K</sup>	2.8 <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	2.3 <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	2.3 <sup>K</sup>	2.1 <sup>K</sup>	3.0 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	(3.0) <sup>F</sup>	(3.0) <sup>F</sup>	(2.7) <sup>F</sup>	S	C	
6	S	2.9 <sup>F</sup>	(2.9) <sup>F</sup>	2.9 <sup>V</sup>	2.8	3.0	M	B	C	2.8	F2.7 <sup>A</sup>	2.6	A	A	A	B	3.1	F3.0 <sup>A</sup>	3.0	F2.9 <sup>F</sup>	2.8	2.9	2.8 <sup>F</sup>	(2.7) <sup>F</sup>	
7	(2.9) <sup>F</sup>	(2.8) <sup>F</sup>	(2.9) <sup>F</sup>	C	C	C	C	C	C	C	C	C	C	C	C	C	(3.0) <sup>F</sup>	(2.8) <sup>F</sup>	2.7	(3.0) <sup>F</sup>	2.7	3.1	(3.0) <sup>F</sup>	(2.7) <sup>F</sup>	
8	(2.8) <sup>F</sup>	2.8 <sup>F</sup>	(2.8) <sup>F</sup>	(2.9) <sup>F</sup>	S	3.0	B	B	B	B	2.7 <sup>F</sup>	2.7	2.5	2.7	2.7	2.7	2.9	2.8	2.8	2.9	2.9	3.0	(3.0) <sup>F</sup>	3.0	
9	(2.8) <sup>F</sup>	(2.7) <sup>F</sup>	(2.9) <sup>F</sup>	2.9 <sup>F</sup>	3.0	(3.2) <sup>F</sup>	(3.1) <sup>F</sup>	3.0	(2.6) <sup>P</sup>	2.2	2.8	3.0	W	2.8	2.5	2.8	2.9 <sup>F</sup>	3.1	3.1	3.0	F2.9 <sup>F</sup>	2.8	2.8	2.8	
10	S	S	S	(3.0) <sup>F</sup>	3.1	2.8	B	B	3.1	3.3 <sup>F</sup>	3.1 <sup>F</sup>	2.9	2.5 <sup>F</sup>	2.9	2.1	2.6 <sup>F</sup>	2.9 <sup>F</sup>	(2.8) <sup>F</sup>	2.8	2.8	2.8	2.8	2.8	S	
11	3.2	2.9 <sup>F</sup>	2.9 <sup>F</sup>	2.9 <sup>F</sup>	3.1 <sup>F</sup>	B	B	A	A	A	2.8	2.7	2.7	2.6	2.7	A	A	A	B	B	(2.8) <sup>F</sup>	A	S	2.7	(2.6) <sup>F</sup>
12	(2.8) <sup>F</sup>	2.9 <sup>F</sup>	(2.8) <sup>F</sup>	2.8	3.0	3.0	2.9 <sup>F</sup>	3.0	F3.0 <sup>F</sup>	3.1	2.9	3.0	3.0	3.2	3.2	2.8	3.0	2.9	C	C	C	S	2.8	3.0	(2.9) <sup>F</sup>
13	2.8 <sup>P</sup>	2.9	2.8	2.7	3.1	3.1	C	C	C	3.0	3.2	2.9	C	C	C	C	C	A	A	A	A	S	3.1	(3.2) <sup>F</sup>	(3.0) <sup>F</sup>
14	S	3.0 <sup>F</sup>	2.8	3.1	2.9 <sup>F</sup>	2.7 <sup>F</sup>	B	B	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
15	S	S	(2.8) <sup>F</sup>	2.8	S	2.9	3.0	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A
17	S	2.9 <sup>F</sup>	3.0	2.9 <sup>F</sup>	3.2 <sup>F</sup>	3.3 <sup>F</sup>	B	B	A	3.2	A	A	A	A	3.1	3.0 <sup>F</sup>	3.2	3.0	2.9	2.8 <sup>F</sup>	2.9 <sup>F</sup>	S	C	2.7	(2.8) <sup>F</sup>
18	(2.9) <sup>F</sup>	2.8	(2.8) <sup>F</sup>	2.9 <sup>F</sup>	F3.0 <sup>F</sup>	3.2	A	A	C	A	A	2.6 <sup>F</sup>	W	A	3.0	2.5	A	A	A	A	(3.1) <sup>F</sup>	2.9 <sup>F</sup>	C	A	
19	2.8	2.8 <sup>F</sup>	2.6	2.8	2.9	2.6	2.9 <sup>F</sup>	C	C	A	A	A	A	A	A	A	A	A	A	3.0	2.8 <sup>F</sup>	A	A	C	
20	C	C	C	C	3.1	3.2	A	A	C	A	2.3	A	A	A	A	A	A	A	2.7	2.8	(2.9) <sup>F</sup>	3.0	S	S	
21	A	2.7	(2.8) <sup>A</sup>	2.9	2.7	2.7	A	A	3.2	A	A	A	A	A	A	A	A	A	2.8	F3.0 <sup>A</sup>	3.1	2.9	A	A	
22	2.9 <sup>F</sup>	2.8	(2.7) <sup>F</sup>	2.8	2.8	2.9	3.0	3.1 <sup>F</sup>	3.3	2.9	2.7	A	A	A	2.5	2.2	F2.6 <sup>A</sup>	2.8	2.9	3.0 <sup>F</sup>	S	2.8 <sup>P</sup>	2.8	2.8	
23	2.7	2.7	(2.7) <sup>F</sup>	2.8 <sup>F</sup>	2.9 <sup>F</sup>	2.9 <sup>F</sup>	2.9	F2.8 <sup>A</sup>	2.8 <sup>P</sup>	2.9	2.7	2.5 <sup>F</sup>	G	A	A	A	A	A	A	A	A	A	2.7	2.7	
24	2.8	(2.8) <sup>F</sup>	(2.7) <sup>F</sup>	2.9	2.9	3.1	A	A	2.7 <sup>F</sup>	3.0 <sup>F</sup>	2.8	F3.0 <sup>A</sup>	3.1	2.9	2.9	A	A	A	A	A	A	S	S	S	
25	2.8	(2.8) <sup>F</sup>	2.9	2.8	S	A	A	A	3.0	3.2 <sup>F</sup>	A	A	A	2.8	2.9	2.9	2.9	2.7	2.8 <sup>F</sup>	F3.0 <sup>F</sup>	(3.1) <sup>F</sup>	A	AS	2.7 <sup>F</sup>	
26	2.8	2.6	2.7	2.6	2.9	2.5	A	A	A	A	2.2	A	A	A	3.0	2.6	2.9	C	C	3.0	3.1 <sup>F</sup>	2.9	3.0	2.7 <sup>F</sup>	
27	3.0 <sup>F</sup>	2.8	2.8	3.1	(3.0) <sup>F</sup>	A	A	A	A	2.9	2.9	2.8 <sup>F</sup>	3.0	B	C	2.8	2.9	F2.8 <sup>F</sup>	C	A	S	(2.9) <sup>F</sup>	S		
28	2.6	2.9 <sup>F</sup>	2.9	3.0	3.0	2.9 <sup>F</sup>	2.6	A	A	C	C	C	C	C	C	C	C	C	3.0	2.7	3.0	3.0	3.1 <sup>H</sup>	(3.1) <sup>F</sup>	
29	3.1	3.1	2.8	2.7	2.9	3.2	3.2 <sup>F</sup>	3.3	3.2	3.0	2.3	3.3	3.2	3.2	2.7	2.5	(2.8) <sup>F</sup>	2.5	2.3	2.3	2.5	2.4	(2.7) <sup>F</sup>	2.8	
30	2.4	2.5	C	C	C	S <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	B <sup>K</sup>	2.9 <sup>K</sup>	2.7 <sup>K</sup>	2.2 <sup>K</sup>	3.0 <sup>K</sup>	2.9 <sup>K</sup>	F2.9 <sup>K</sup>	2.9 <sup>K</sup>	3.1 <sup>VK</sup>	3.4 <sup>K</sup>	3.6 <sup>H</sup>	2.6 <sup>F</sup>	
31																									
Mean Value	2.9	2.8	2.8	2.9	3.0	2.9	2.9	3.0	3.0	2.8	2.7	2.9	2.9	2.9	2.7	2.6	2.9	2.8	2.8	2.9	2.9	2.9	2.9	2.8	
Median Value	2.8	2.8	2.8	2.9	3.0	2.9	3.0	3.0	3.0	2.8	2.8	2.7	2.7	2.9	2.7	2.6	2.9	2.8	2.8	2.8	2.8	2.9	2.9	2.8	
Count	20	23	23	22	21	20	9	6	9	13	10	15	12	12	17	17	17	18	20	20	19	20	19	16	

Sweep 1.0 Mc to 15.5 Mc in 2 min  Manual  Automatic

W 9

The Radio Research Laboratories  
Koganei-machi, Kitama-gun, Tokyo, Japan

# IONOSPHERIC DATA

Lat. 45° 28.6' N  
Long. 141° 41.1' E

## Wakkanai

fminF

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	C	C	C	C	C	C	C	C	C	5.3 <sup>A</sup>	5.3 <sup>A</sup>	4.3 <sup>A</sup>	4.2	[3.9] <sup>A</sup>	3.6 <sup>A</sup>	4.8 <sup>A</sup>	2.9	2.6	5.1 <sup>A</sup>	4.7	2.1 <sup>A</sup>	2.0 <sup>A</sup>	1.8	2.0 <sup>A</sup>	
2	1.8	E	2.2	2.0	2.1	2.4	2.9	4.0 <sup>A</sup>	A	A	A	A	5.1 <sup>A</sup>	5.1 <sup>A</sup>	4.5 <sup>A</sup>	4.8 <sup>A</sup>	3.3	2.6	2.4	2.2 <sup>A</sup>	1.8	1.5	1.5	1.5	
3	2.2 <sup>A</sup>	1.1	E	C	C	C	C	C	C	3.6 <sup>A</sup>	A	A	A	3.4	3.3	3.4	3.3	2.7	A	A	2.8 <sup>A</sup>	2.2	2.0	2.0	
4	1.4 <sup>F</sup>	C	C	C	C	C	C	C	A	A	A	3.5	3.9 <sup>A</sup>	3.4	3.4	3.1	3.3 <sup>A</sup>	A	A	3.0 <sup>A</sup>	1.5	2.0	1.5	2.0 <sup>A</sup>	
5	2.4 <sup>A</sup>	1.5	2.0 <sup>A</sup>	E	2.0	2.6 <sup>A</sup>	A	A	A	A	3.7 <sup>A</sup>	3.8 <sup>A</sup>	3.8	[3.9] <sup>A</sup>	4.0 <sup>A</sup>	3.8 <sup>A</sup>	4.7 <sup>A</sup>	[3.7] <sup>A</sup>	2.7 <sup>A</sup>	4.0 <sup>A</sup>	[3.2] <sup>A</sup>	2.3 <sup>A</sup>	A	C	
6	1.1	1.4	1.3	E	1.5	2.6	2.5	4.6	[4.4] <sup>o</sup>	4.1	4.2	3.8	A	A	A	B	2.8	[3.1] <sup>A</sup>	3.4 <sup>A</sup>	2.8 <sup>A</sup>	2.4	2.4 <sup>A</sup>	2.5 <sup>A</sup>	2.4 <sup>A</sup>	
7	E	1.4	2.4 <sup>A</sup>	C	C	C	C	C	C	C	C	C	C	C	C	C	2.8	[2.9] <sup>o</sup>	3.0 <sup>A</sup>	2.7	[2.8] <sup>o</sup>	2.8 <sup>A</sup>	2.2	1.5	
8	2.8 <sup>A</sup>	2.5	2.6	2.4	2.8	2.4	2.8	3.0	[4.0] <sup>B</sup>	5.0	4.2 <sup>A</sup>	4.0	4.0 <sup>A</sup>	3.9 <sup>A</sup>	3.4	3.1	2.7	2.6	2.3	2.2 <sup>A</sup>	2.2 <sup>A</sup>	2.8 <sup>A</sup>	2.2 <sup>A</sup>	1.2	
9	1.5	2.2 <sup>A</sup>	2.0	2.2 <sup>A</sup>	2.5 <sup>A</sup>	2.6	3.3	3.4	3.6	3.9 <sup>A</sup>	4.1 <sup>A</sup>	3.9	3.8	3.6	3.4	3.9	4.1 <sup>A</sup>	2.9	2.4	2.3	[2.8] <sup>A</sup>	3.4 <sup>A</sup>	2.4 <sup>A</sup>	1.4	
10	E	2.1 <sup>A</sup>	2.3	E	2.0	2.2	3.1	[4.2] <sup>A</sup>	5.2	4.1 <sup>A</sup>	4.5 <sup>A</sup>	3.8 <sup>A</sup>	4.4 <sup>A</sup>	3.4	3.4	3.5	2.9	3.0	3.2 <sup>A</sup>	2.5 <sup>A</sup>	5.5 <sup>A</sup>	2.1	1.5	2.2	
11	1.8	1.4	1.8	2.1	2.2	2.2	2.8	A	A	A	A	3.8 <sup>A</sup>	3.8 <sup>A</sup>	3.6 <sup>A</sup>	3.6 <sup>A</sup>	A	A	3.8	2.5	2.3	[2.4] <sup>A</sup>	2.6 <sup>A</sup>	2.2 <sup>A</sup>	2.2 <sup>A</sup>	
12	2.3 <sup>A</sup>	1.8	2.2 <sup>A</sup>	1.3	1.4 <sup>F</sup>	2.4	3.0	4.3 <sup>A</sup>	3.2	3.4	3.4	3.6	3.7	3.7 <sup>A</sup>	3.8 <sup>A</sup>	3.3	3.0	2.8	C	C	2.4	2.3	2.0	[1.9] <sup>o</sup>	
13	1.8	2.1 <sup>A</sup>	E	1.6	2.1	2.3	C	C	C	C	C	C	C	C	C	C	C	A	4.4 <sup>A</sup>	4.1 <sup>A</sup>	A	1.4	1.4	1.3	
14	2.0	1.4	1.4	2.2	2.0	2.3	2.6	3.3	C	C	C	C	C	C	C	C	C	C	A	A	2.8 <sup>A</sup>	2.2 <sup>A</sup>	S	C	
15	2.0 <sup>A</sup>	2.2 <sup>A</sup>	2.7 <sup>A</sup>	E	2.4	2.6	4.8	A	A	S	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	C	A	A	4.3	A	A	A	2.8	[3.6] <sup>A</sup>	4.5	5.0 <sup>A</sup>	[4.8] <sup>o</sup>	4.5	4.6	A	
17	A	2.0 <sup>A</sup>	3.6 <sup>A</sup>	E	2.5 <sup>A</sup>	3.0 <sup>A</sup>	2.6	3.5	[4.0] <sup>A</sup>	4.4 <sup>A</sup>	A	A	A	5.1 <sup>A</sup>	4.2 <sup>A</sup>	4.6 <sup>A</sup>	4.0 <sup>A</sup>	3.0 <sup>A</sup>	2.3	5.0 <sup>A</sup>	A	C	4.5 <sup>A</sup>	[3.0] <sup>o</sup>	
18	1.4	1.4	[1.4] <sup>o</sup>	1.3	1.8	2.3	[3.9] <sup>A</sup>	5.5	[5.2] <sup>o</sup>	4.9 <sup>A</sup>	[4.6] <sup>A</sup>	4.4 <sup>A</sup>	A	A	A	A	A	A	A	A	1.8	2.4 <sup>A</sup>	C	A	
19	2.3	2.2 <sup>A</sup>	2.4 <sup>A</sup>	1.4	2.1	2.0	4.1	C	C	A	A	A	A	A	4.3 <sup>A</sup>	A	5.5 <sup>A</sup>	[5.0] <sup>o</sup>	4.5 <sup>A</sup>	4.8 <sup>A</sup>	4.0 <sup>A</sup>	A	A	C	
20	C	C	C	C	2.0 <sup>A</sup>	2.1	A	A	A	A	A	4.3 <sup>A</sup>	A	A	A	A	A	A	2.8	4.0 <sup>A</sup>	2.5 <sup>A</sup>	4.0 <sup>A</sup>	5.0 <sup>A</sup>	4.0 <sup>A</sup>	
21	A	3.6 <sup>A</sup>	[3.8] <sup>A</sup>	4.0 <sup>A</sup>	2.4 <sup>A</sup>	3.3	A	A	A	A	A	A	A	A	A	A	A	A	4.0 <sup>A</sup>	4.5 <sup>A</sup>	4.0 <sup>A</sup>	5.0 <sup>A</sup>	4.0 <sup>A</sup>	4.5 <sup>A</sup>	
22	3.7 <sup>A</sup>	2.4 <sup>A</sup>	2.0 <sup>A</sup>	2.2 <sup>A</sup>	2.2 <sup>A</sup>	4.1 <sup>A</sup>	3.0	3.0	3.3	4.3 <sup>A</sup>	4.3 <sup>A</sup>	A	A	A	A	A	A	4.0 <sup>A</sup>	[4.2] <sup>A</sup>	4.5 <sup>A</sup>	4.5 <sup>A</sup>	4.0 <sup>A</sup>	2.2 <sup>A</sup>		
23	4.1 <sup>A</sup>	3.0 <sup>A</sup>	E	E	E	2.5	3.1 <sup>A</sup>	[3.6] <sup>A</sup>	4.2 <sup>A</sup>	4.1 <sup>A</sup>	4.1 <sup>A</sup>	4.0	4.0 <sup>A</sup>	A	B	4.1 <sup>A</sup>	4.1 <sup>A</sup>	4.0 <sup>A</sup>	4.0 <sup>A</sup>	A	A	4.7 <sup>A</sup>	4.0 <sup>A</sup>	3.2 <sup>A</sup>	
24	1.4	1.4	1.8	2.0 <sup>A</sup>	2.4 <sup>A</sup>	2.5	A	A	4.0	4.2 <sup>A</sup>	3.8	[4.0] <sup>o</sup>	4.1 <sup>A</sup>	4.0 <sup>A</sup>	4.1 <sup>A</sup>	A	A	A	A	A	3.0 <sup>A</sup>	2.1 <sup>A</sup>	4.0 <sup>A</sup>	2.4 <sup>A</sup>	
25	E	2.2 <sup>A</sup>	1.8 <sup>A</sup>	2.2 <sup>A</sup>	2.6 <sup>A</sup>	A	A	A	4.5 <sup>A</sup>	3.6	A	A	A	4.5 <sup>A</sup>	4.3 <sup>A</sup>	4.0 <sup>A</sup>	3.7 <sup>A</sup>	2.5 <sup>A</sup>	2.2	2.4 <sup>A</sup>	2.0 <sup>A</sup>	A	A	4.1 <sup>A</sup>	
26	4.0 <sup>A</sup>	2.2 <sup>A</sup>	2.4 <sup>A</sup>	2.2 <sup>A</sup>	1.3	2.2	A	A	A	A	4.3 <sup>A</sup>	A	A	A	A	A	A	C	C	A	E	2.1 <sup>A</sup>	1.8		
27	2.0 <sup>A</sup>	3.0 <sup>A</sup>	4.0 <sup>A</sup>	2.0 <sup>A</sup>	1.8	2.0	2.0	2.2	A	4.4 <sup>A</sup>	4.8 <sup>A</sup>	5.0 <sup>A</sup>	3.7	4.0 <sup>A</sup>	C	4.0 <sup>A</sup>	3.0	[2.8] <sup>o</sup>	2.6	2.4	1.8	1.8	4.0 <sup>o</sup>	[3.0] <sup>A</sup>	
28	2.0 <sup>A</sup>	2.4 <sup>A</sup>	3.0 <sup>o</sup>	2.2	2.0	2.0	2.2	A	A	C	C	C	C	C	C	C	C	2.7	2.2	1.4	1.2	1.5	1.4	1.2	
29	2.9 <sup>A</sup>	2.3 <sup>A</sup>	1.6	1.7	1.8	2.1	2.7	2.9	3.5	3.6	4.2 <sup>A</sup>	4.0	4.0 <sup>A</sup>	4.0 <sup>A</sup>	4.0 <sup>A</sup>	4.1	4.0	4.1	3.3	2.0	1.5	1.4	2.0	4.0 <sup>o</sup>	
30	2.0	2.0	C	C	C	2.3 <sup>A</sup>	3.0	3.2 <sup>A</sup>	A	B	3.4	3.9	3.4	3.6	3.4	3.3	2.8	2.5	[3.0] <sup>o</sup>	3.5 <sup>A</sup>	2.0 <sup>A</sup>	1.3	E	3.4 <sup>A</sup>	
31																									
Mean Value	2.2	2.0	2.3	2.1	2.1	2.4	3.1	3.7	4.1	4.2	4.1	4.0	4.0	4.0	3.8	3.9	3.5	3.2	3.2	3.1	2.7	2.6	2.5	2.4	
Median Value	2.0	2.1	2.0	2.0	2.0	2.3	3.0	3.5	4.0	4.1	4.2	4.0	4.0	3.9	3.8	3.9	3.3	2.9	3.0	2.8	2.3	2.2	2.2	2.2	
Count	25	26	25	23	24	23	17	13	13	16	15	18	15	17	18	17	20	23	21	22	26	25	23	23	

fminF

Sweep 1.0 Mc to 15.5 Mc in 2 min

Manual  Automatic



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 45° 23.6' N  
Long. 141° 41.1' E

**Wakkanai**

**IONOSPHERIC DATA**

**f<sub>minE</sub>**

**Jun. 1953**

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	C	C	C	C	C	C	C	C	C	2.6	2.2	1.9	4.0	2.6	2.2	2.2	2.1	2.2	2.2	1.6	1.5	1.6	1.5	1.5
2	E	E	E	E	E	E	2.2	1.5	2.2	2.5	1.3	2.1	2.0	2.1	2.3	1.9	2.8	2.0	2.2	1.5	E	E	E	E
3	E	E	E	C	C	C	C	C	C	1.3	1.3	2.2	2.2	2.2	2.0	2.0	1.8	2.1	2.2	1.7	1.4	E	E	E
4	E	C	C	C	C	C	2.1	1.8	1.3	1.3	1.4	1.5	1.8	1.6	1.6	1.6	1.6	2.0	1.5	1.4	E	E	2.6	1.5
5	E	E	E	E	E	E	1.4	2.4	2.2	1.6	1.5	2.5	1.9	2.4	2.0	2.0	2.1	1.5	1.5	1.5	E	E	1.5	C
6	E	E	E	E	E	E	1.5	1.5	[1.8] <sup>c</sup>	2.0	2.3	2.2	2.2	2.5	2.4	[2.5] <sup>B</sup>	2.6	2.0	1.8	2.0	1.4	1.4	1.5	2.1
7	E	E	E	C	C	C	C	C	C	2.4	C	C	C	C	C	C	2.2	[2.2] <sup>o</sup>	2.2	2.7	1.5	2.4	2.3	1.5
8	1.1	E	E	E	E	B	B	B	2.7	1.2	1.2	2.0	2.0	2.3	2.0	1.9	1.7	[1.6] <sup>B</sup>	1.5	E	E	E	1.5	1.5
9	E	E	E	E	2.2	E	2.4	2.4	2.5	1.6	2.0	2.2	2.2	2.2	2.2	1.2	F	2.4	2.0	1.4	1.6	1.6	1.4	E
10	E	E	S	E	E	E	2.0	2.3	2.2	1.8	1.9	2.1	1.3	2.1	2.0	E	1.2	2.3	2.3	1.5	1.4	2.2	E	E
11	1.5	E	E	E	E	E	2.3	2.1	2.3	1.3	F	1.9	1.9	1.3	1.2	1.2	1.4	2.0	[1.8] <sup>B</sup>	1.5	1.5	1.5	1.5	1.5
12	E	E	E	E	E	E	E	E	1.5	1.7	2.1	2.2	2.2	2.0	1.9	1.6	2.0	1.6	C	C	E	E	E	C
13	1.3	E	E	E	E	E	C	C	C	1.2	1.6	2.1	C	C	C	C	2.3	1.5	2.3	1.4	E	E	E	C
14	E	E	E	E	E	E	1.5	2.3	C	C	C	C	C	C	C	C	C	2.2	1.5	1.5	1.4	S	C	C
15	1.4	E	E	E	E	E	1.5	3.0	3.2	4.7	2.3	2.8	[3.4] <sup>c</sup>	3.9	C	C	C	C	C	C	C	C	C	C
16	C	C	C	C	C	C	C	C	C	1.6	1.8	2.6	3.5	1.9	2.6	2.4	2.4	2.2	1.8	2.0	C	E	E	1.4
17	E	E	E	E	E	E	2.1	2.2	2.4	1.7	3.4	3.9	2.4	3.5	3.3	2.5	2.1	1.5	1.5	1.5	1.5	[1.5] <sup>o</sup>	1.5	C
18	E	E	E	E	E	E	1.5	1.5	[1.8] <sup>f</sup>	2.1	2.2	2.4	2.6	2.4	2.1	2.3	2.2	2.0	1.8	1.4	1.4	1.4	[1.4] <sup>o</sup>	1.4
19	1.4	1.0	1.0	E	E	B	E	E	C	2.2	2.2	2.2	2.5	2.2	2.3	1.9	1.4	2.0	2.2	1.8	2.0	1.4	1.5	C
20	C	C	C	C	E	E	2.2	2.3	1.4	1.5	2.2	2.2	1.9	2.3	2.0	2.2	1.5	1.8	1.5	1.5	1.5	1.5	1.5	1.5
21	E	E	E	E	E	E	E	E	1.5	1.4	2.3	2.4	2.2	2.4	2.3	2.4	2.3	2.2	1.8	1.8	1.6	1.6	2.0	2.0
22	1.4	E	E	1.0	1.0	1.0	1.4	2.2	2.3	4.0	2.0	2.0	3.6	2.6	2.5	2.4	1.8	2.0	2.2	2.2	1.6	1.6	2.0	1.8
23	1.8	2.6	E	E	E	E	1.4	2.4	2.0	2.0	2.4	2.0	2.4	2.4	2.4	2.3	1.8	1.5	1.5	E	1.5	1.5	1.5	1.5
24	E	E	E	E	E	E	E	1.5	2.2	2.2	2.2	2.2	2.4	2.4	2.1	2.2	2.1	2.1	2.4	1.5	1.1	2.0	1.8	2.0
25	E	E	E	E	1.0	E	E	2.2	2.2	1.4	1.6	1.7	1.8	2.4	2.2	2.6	1.2	1.4	1.4	1.4	1.4	2.0	1.4	1.4
26	1.4	1.0	E	E	E	E	E	2.2	2.2	2.1	2.2	2.3	2.4	2.4	2.4	2.1	2.2	C	C	2.4	1.4	1.4	1.4	1.6
27	E	E	E	E	E	E	E	2.4	2.0	1.8	2.3	1.9	2.2	2.4	[2.3] <sup>c</sup>	2.2	2.2	[2.2] <sup>c</sup>	2.2	2.2	1.4	2.0	1.8	1.8
28	1.8	1.8	[2.0] <sup>s</sup>	2.2	S	E	E	E	2.0	C	C	C	C	C	C	C	C	1.2	1.2	1.2	1.2	1.2	1.2	E
29	1.2	1.2	E	E	E	E	E	1.4	1.8	2.4	1.4	4.2	2.4	2.4	2.4	2.4	2.4	2.4	B	B	E	E	E	S
30	E	E	C	C	C	1.9	2.3	2.7	2.4	[2.2] <sup>f</sup>	2.1	2.4	2.3	2.4	2.3	2.1	2.1	2.3	[2.0] <sup>f</sup>	1.8	1.2	E	E	1.2
31																								
Mean Value	1.4	1.5	1.7	1.6	1.4	1.4	1.9	2.1	2.1	2.0	2.0	2.3	2.4	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.5	1.6	1.6	1.6
Median Value	E	E	E	E	E	E	1.5	2.2	2.2	1.8	2.1	2.2	2.2	2.4	2.2	2.2	2.1	2.0	1.8	1.5	1.4	1.4	1.5	1.5
Count	27	26	23	23	23	23	23	23	24	27	27	27	26	26	25	25	27	28	26	27	28	29	28	23

Swamp 1.0 Mc to 1.5.5 Mc in 2 min  Manual  Automatic

W 11

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 48.5' N  
Long. 140° 08.9' E

**Akita**

**IONOSPHERIC DATA**

foF2

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	(4.7)F	4.6F	4.6	4.0F	3.9	4.3F	4.3	4.9	5.7P	5.0	5.4	(5.4)F	5.3	5.5	5.9	6.0P	6.6	6.7	6.7	6.6	5.6F	5.6F	5.6F	5.5F	
2	5.1	4.9	5.0	4.5	4.1F	5.1	5.7	6.6	5.6	(5.6)F	5.6	(5.6)F	5.7	A	A	A	6.6	6.7	6.0P	6.8	7.0	6.9	6.7	5.9P	
3	(6.0)P	4.8	(4.6)A	4.4F	3.5F	A	A	A	A	4.2K	4.4K	G	A	G	4.8P	4.2K	4.5K	4.7K	(4.8)A	4.8K	(4.9)P	(4.8)A	4.7K	4.8F	
4	3.9K	4.0K	4.0K	3.8K	3.5K	3.8K	4.2K	5.3K	6.1K	5.4K	A	A	A	A	A	A	5.1K	5.5K	5.1K	A	A	A	4.7K	4.7F	
5	4.4K	4.0K	4.0K	3.5K	3.0K	3.3K	3.6K	4.1K	4.3	C	A	A	A	A	A	4.7K	5.0K	5.2	C	C	A	A	A	A	
6	A	F	3.5F	3.3F	3.4P	4.6	3.9	4.4	5.0	A	A	4.8	5.0	5.0	5.4	6.2	6.5	4.7	4.5	5.0	5.2	5.0	4.7	4.9F	
7	3.9F	3.8F	3.8F	4.0F	3.6F	4.6	4.7	(6.0)P	5.0	4.8J	A	B	B	4.8P	5.2	5.8	6.3	4.9	4.5	A	A	5.0	5.0P	5.1F	
8	4.7	4.8	4.4	3.9F	3.5F	4.0F	4.1	4.8	5.2	5.1	5.2	4.7	(4.8)A	4.8	5.1	5.0	4.8	5.6	6.0	6.7	(6.1)P	5.6	4.7	4.6	
9	4.6	4.2	4.1F	4.2F	4.1F	4.6	5.6	4.7	4.7	5.2	5.2	A	A	4.8	5.2	5.5	(6.0)A	6.4P	A	A	5.9	5.8P	5.7	5.2F	
10	5.5F	5.5F	A	A	A	4.8	4.7	4.7	A	A	A	A	4.9	5.0	5.3	4.7	4.9	5.5	6.8P	6.7P	6.1	4.5F	4.2F	A	
11	A	3.9	3.8F	3.8F	3.8	4.1	4.3	4.0	A	A	A	A	A	5.5	(5.2)A	5.0	5.3	5.3	(5.3)A	5.3	5.4	5.2F	F	F	
12	4.7F	4.5F	4.1F	F	(3.6)F	(4.2)A	4.9	5.3	5.0	5.3	5.3	5.7	T	T	4.9J	A	A	5.2	5.9	6.5	6.4	4.2	4.5	4.5	
13	4.3	4.3	4.1	5.5	4.9	3.8	(4.4)B	5.1	5.9	5.3	T	T	B	T	T	6.5	7.4	6.0	5.9	6.3	(6.1)A	5.9	5.9	5.8	
14	5.6F	F	T	4.5P	4.0F	4.2	4.7	(6.1)A	7.5	5.3	5.0	A	A	A	6.1	6.5	6.0P	(5.8)A	5.7	(6.6)A	7.4	A	A	A	
15	4.7F	(4.6)F	4.4F	(4.2)A	4.1	4.9	5.5	5.3	A	A	A	5.5	A	A	5.4	C	C	C	C	C	7.5P	6.6	6.6	4.9F	
16	A	A	(4.5)A	(4.8)A	5.0P	5.0	5.1	A	A	A	A	A	A	A	5.5	5.7	5.5	5.4	5.9	6.8	6.3	6.8	A	A	A
17	5.2P	(4.9)A	4.6F	(4.3)F	4.0	4.6	5.1	A	A	5.2P	5.0	(5.0)A	4.9	A	A	A	A	A	A	5.9J	6.8	5.5	5.0Z	A	
18	A	A	A	4.7A	4.4F	4.7F	5.2	5.8	A	A	A	A	A	A	A	A	5.2	A	A	6.5Z	6.0	5.8	A	A	
19	A	A	A	4.7A	F	4.5F	5.9F	(5.5)P	(5.5)A	5.5	5.3	C	A	A	5.5	6.0	6.5	5.5	5.6	5.5	6.0	5.3	5.4	5.1P	
20	5.1	4.9F	4.9F	4.4F	4.0F	4.4	A	A	5.6	(5.6)F	5.5	5.6	5.2	5.2	(5.2)A	5.1	A	A	A	6.5	7.2P	7.6	6.0	5.8	
21	5.2F	4.8F	4.8F	4.7F	4.8	4.7	A	A	A	A	A	A	A	5.5	A	A	5.8P	6.7	7.3	7.0	5.1	4.6F	(4.6)A	4.5F	
22	4.7F	4.5F	4.2F	4.7F	3.6F	4.2	5.8	6.1	5.9	A	A	5.3	(5.2)A	5.0	5.9	6.8	6.5	6.2	6.6	7.7	6.9	5.6	5.1	4.8	
23	5.0	4.8	4.8	4.5F	3.8F	(4.8)A	5.9P	A	A	A	A	4.4	G	4.9	5.3	5.5	5.5	5.5	5.9P	6.6	5.4	(4.5)F	4.2F	4.4F	
24	4.3	A	F	A	F	3.8	A	6.2	A	A	A	5.6	5.6	A	A	6.5	6.8	6.0	5.9J	6.5	6.6	(5.7)A	4.8P	F	
25	A	F	4.6V	4.1V	4.0F	(4.9)A	5.8	6.2	C	C	C	C	C	C	C	C	C	6.5	8.2	7.6	5.7	4.8	4.5	A	
26	F	4.5F	4.1F	F	4.0F	4.0	4.5	4.8	5.6	5.4	5.4	5.4	A	A	A	A	5.7	6.5	6.5	6.7	6.4	A	A	4.7F	
27	4.4	A	A	A	A	4.4	A	A	A	A	A	A	A	5.9	(5.9)A	6.7	5.9	5.5	6.3	(6.4)A	6.4	6.3	6.0	6.0F	
28	5.9F	5.4	5.0F	4.3	4.3	4.6	5.8	6.0V	A	A	B	A	5.5	5.2	5.4	5.2	5.6	5.8	6.5	6.8	6.8	6.5	6.0	5.6	
29	5.2	5.0	4.6	4.6	4.5	5.4	5.8	5.2	5.3	(6.0)P	5.9	6.0	5.3	5.1	5.3	5.1	5.1	5.3	5.0	5.1	6.0	6.8	5.8	5.5	
30	4.6	5.1	4.6	3.9P	3.7	4.0K	4.2K	(4.2)A	4.3K	G	G	G	G	4.6K	4.7K	G	A	4.2K	4.6K	4.9K	A	A	4.8K	4.8K	
31																									
Mean Value	4.8	4.6	4.4	4.3	4.0	4.4	4.9	5.2	5.5	5.2	5.3	5.3	5.3	5.1	5.3	5.6	5.8	5.7	5.9	6.3	6.2	5.5	5.2	5.1	
Median Value	4.7	4.7	4.5	4.2	4.0	4.5	4.9	5.2	5.6	5.2	5.3	5.4	5.2	5.0	5.3	5.5	5.7	5.5	5.9	6.6	6.2	5.6	5.0	4.9	
Count	23	22	25	24	26	29	25	22	18	16	13	16	13	17	21	21	23	26	25	25	26	25	24	21	

foF2

Sweep 0.85 Mc to 2.20 Mc in 2 min.  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

**Akita**

**IONOSPHERIC DATA**

1.25

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	(360) <sup>F</sup>	350 <sup>F</sup>	350	330 <sup>F</sup>	310	300 <sup>F</sup>	300	260	270 <sup>F</sup>	A	A	A	U	V	350	340 <sup>F</sup>	310	320	300	280	300 <sup>F</sup>	370 <sup>F</sup>	340 <sup>F</sup>	380 <sup>F</sup>	
2	(320) <sup>F</sup>	350	310	310	340 <sup>F</sup>	330 <sup>F</sup>	340	270	310	A	A	A	A	A	A	A	U <sup>K</sup>	330	370 <sup>P</sup>	400	370	340	340	380 <sup>P</sup>	
3	(320) <sup>F</sup>	420	(380) <sup>F</sup>	330 <sup>F</sup>	310 <sup>F</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	U <sup>K</sup>	V <sup>K</sup>	G <sup>K</sup>	A <sup>K</sup>	G <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	370 <sup>K</sup>	(360) <sup>K</sup>	350 <sup>K</sup>	(360) <sup>K</sup>	(360) <sup>K</sup>	370 <sup>K</sup>	370 <sup>K</sup>	
4	380 <sup>K</sup>	370 <sup>K</sup>	270 <sup>K</sup>	320 <sup>F</sup>	310 <sup>F</sup>	310 <sup>K</sup>	U <sup>K</sup>	A <sup>K</sup>	300 <sup>K</sup>	350 <sup>K</sup>	A <sup>K</sup>	G <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	370 <sup>K</sup>	320 <sup>K</sup>	290 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	390 <sup>K</sup>	380 <sup>K</sup>	380 <sup>K</sup>	
5	350 <sup>K</sup>	350 <sup>K</sup>	330 <sup>K</sup>	310 <sup>F</sup>	310 <sup>F</sup>	310 <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	C <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	G <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	340	C	C	A	A	A	A	
6	A	F	320 <sup>F</sup>	(300) <sup>F</sup>	300 <sup>F</sup>	350	U	U	U	A	A	U	U	U	380	330	300	300	330	300	330	340	340	(290) <sup>F</sup>	
7	350 <sup>F</sup>	350 <sup>F</sup>	400 <sup>F</sup>	330 <sup>F</sup>	320 <sup>F</sup>	270	300	300	U	B	A	B	B	U	U	320	270	280	310	A	A	360	370 <sup>P</sup>	340 <sup>F</sup>	
8	340	340	310	260 <sup>F</sup>	260 <sup>F</sup>	250 <sup>F</sup>	U	340	U	U	U	U	A	U	U	U	U	330	310	310	(290) <sup>F</sup>	310	320	350	
9	350	350	340 <sup>F</sup>	340 <sup>F</sup>	320 <sup>F</sup>	310	280	U	U	A	A	A	A	U	U	400	(350) <sup>F</sup>	300 <sup>P</sup>	A	A	A	330	340 <sup>P</sup>	350	(350) <sup>F</sup>
10	350 <sup>F</sup>	A	A	A	A	A	280	U	A	A	A	A	U	U	U	U	U	350	330 <sup>P</sup>	270 <sup>P</sup>	270	360 <sup>F</sup>	(400) <sup>F</sup>	A	
11	A	360	350 <sup>F</sup>	300 <sup>F</sup>	260	260	270	U	U	A	A	A	U	U	A	U	U	320	A	A	320	370 <sup>F</sup>	F	A	
12	300 <sup>F</sup>	380 <sup>F</sup>	340 <sup>F</sup>	F	(300) <sup>F</sup>	310	270	A	U	U	U	U	T	T	(330)	A	A	350	(320) <sup>F</sup>	290	320	260	360	360	
13	360	350	340	250	270	(300) <sup>F</sup>	340	T	T	U	T	T	B	T	T	T	290	290	310 <sup>F</sup>	300	350	(340) <sup>F</sup>	340	360	
14	370 <sup>F</sup>	F	T	(310) <sup>F</sup>	310 <sup>F</sup>	A	420	(340) <sup>F</sup>	270	U	V	A	A	A	A	340	320	(320) <sup>F</sup>	350	350	(320) <sup>F</sup>	A	A	A	
15	370 <sup>F</sup>	(360) <sup>F</sup>	350 <sup>F</sup>	(360) <sup>F</sup>	360	300	290	310	A	A	A	A	A	A	U	C	C	C	C	C	C	330 <sup>P</sup>	300	290	350 <sup>F</sup>
16	A	A	(350) <sup>F</sup>	(340) <sup>F</sup>	(320) <sup>F</sup>	300	270	A	A	A	A	A	A	A	A	A	330	350	350	300	300	A	A	A	
17	350 <sup>F</sup>	(350) <sup>F</sup>	350 <sup>F</sup>	(320) <sup>F</sup>	280	300	270	A	A	U	U	A	A	A	A	A	U	A	(310) <sup>F</sup>	270	300	310 <sup>F</sup>	A	A	
18	A	A	A	340 <sup>F</sup>	300 <sup>F</sup>	320 <sup>F</sup>	300	270	A	A	A	A	A	A	A	A	U	A	A	A	300 <sup>F</sup>	310	300	A	
19	A	A	310 <sup>F</sup>	A	F	310 <sup>F</sup>	270 <sup>F</sup>	(270) <sup>F</sup>	A	U	U	C	A	A	A	350	310	300	310	320	350	350	350	310 <sup>P</sup>	
20	350	350 <sup>F</sup>	(350) <sup>F</sup>	350 <sup>F</sup>	300 <sup>F</sup>	280	A	A	A	C	U	U	U	A	A	A	A	A	A	330	300 <sup>P</sup>	270	340	350	
21	360 <sup>F</sup>	390 <sup>F</sup>	340 <sup>F</sup>	340 <sup>F</sup>	300 <sup>F</sup>	270	A	A	A	A	A	A	U	U	A	A	A	340	300	270	300	350 <sup>F</sup>	(360) <sup>F</sup>	(380) <sup>F</sup>	
22	(380) <sup>F</sup>	(320) <sup>F</sup>	350 <sup>F</sup>	310 <sup>F</sup>	310 <sup>F</sup>	320	300	280	260	A	A	U	A	U	A	300	300	320	330	290	290	330	360	370	
23	360	350	320	330 <sup>F</sup>	330 <sup>F</sup>	(300) <sup>F</sup>	270 <sup>F</sup>	A	A	A	A	U	G	U	U	U	U	350	300 <sup>P</sup>	260	280	(370) <sup>F</sup>	(360) <sup>F</sup>	350 <sup>F</sup>	
24	A	A	A	F	F	270	A	A	A	A	A	A	U	A	A	340	300	350	(290) <sup>F</sup>	300	290	(320) <sup>F</sup>	340 <sup>F</sup>	F	
25	A	F	370 <sup>F</sup>	340 <sup>F</sup>	310 <sup>F</sup>	A	A	A	C	C	C	C	C	C	C	C	C	370	290	260	300	380	400	A	
26	F	370 <sup>F</sup>	310 <sup>F</sup>	F	(350) <sup>F</sup>	330	350	360	A	A	A	A	A	A	A	A	330	290	280	300	290	A	A	340 <sup>F</sup>	
27	360	A	A	A	A	330	A	A	A	A	A	A	A	350	(350) <sup>F</sup>	300	310	320	300	(320) <sup>F</sup>	330	330	340	(320) <sup>F</sup>	
28	300 <sup>F</sup>	340 <sup>F</sup>	300 <sup>F</sup>	310	310	350	290	(310) <sup>F</sup>	U	A	B	A	A	B	A	U	340	330	290	280	300	310	320	310	
29	340	320	330	340	340	280	250	280	U	U	(320) <sup>F</sup>	330	310	U	U	U	350	300	300	360	370	300	360	300	
30	430	320	350	360 <sup>F</sup>	350	390 <sup>K</sup>	410 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	G <sup>K</sup>	G <sup>K</sup>	G <sup>K</sup>	G <sup>K</sup>	G <sup>K</sup>	U <sup>K</sup>	U <sup>K</sup>	A <sup>K</sup>	U <sup>K</sup>	360 <sup>K</sup>	330	A <sup>K</sup>	A <sup>K</sup>	380 <sup>K</sup>	320 <sup>F</sup>	
31																									
Mean	350	350	340	320	310	300	300	300	280	350	320	330	310	350	350	330	320	330	320	310	310	310	330	350	350
Median	350	350	340	350	310	300	300	290	270	G	G	G	G	G	G	340	310	320	310	300	300	340	350	350	
Count	22	21	25	24	26	27	21	14	5	2	2	4	3	3	5	10	15	25	24	24	26	25	24	21	

Automatic

Manual

Sweep 0.85 Mc to 2.22 Mc in 2 min

A 2

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 48.5' N  
Long. 140° 08.2' E

# Akita

## IONOSPHERIC DATA

135° E Mean Time

1953

1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	280	280	270	280	260	250	250	260	270	330 <sup>A</sup>	A	A	410	360	350	340	300	310	300	280	280 <sup>F</sup>	350 <sup>HF</sup>	260 <sup>F</sup>	270 <sup>F</sup>	
2	270	250	260	250	300 <sup>F</sup>	260 <sup>A</sup>	330	270	310	A	A	A	A	A	A	A	A	310	350	330	300	270	260	280	
3	250	310	[300] <sup>A</sup>	280 <sup>A</sup>	270 <sup>A</sup>	A	A	A	A	A	550 <sup>K</sup>	450 <sup>K</sup>	430 <sup>K</sup>	600 <sup>K</sup>	420 <sup>K</sup>	370 <sup>K</sup>	370 <sup>K</sup>	[330] <sup>K</sup>	290 <sup>K</sup>	300 <sup>K</sup>	300 <sup>K</sup>	[300] <sup>K</sup>	300 <sup>K</sup>	310 <sup>K</sup>	
4	300 <sup>K</sup>	310 <sup>K</sup>	240 <sup>K</sup>	260 <sup>K</sup>	260 <sup>K</sup>	310 <sup>K</sup>	510 <sup>K</sup>	370 <sup>A</sup>	300 <sup>K</sup>	350 <sup>K</sup>	A	A	A	A	A	A	A	370 <sup>K</sup>	270 <sup>K</sup>	A	A	320 <sup>K</sup>	300 <sup>K</sup>	300 <sup>K</sup>	
5	280 <sup>K</sup>	270 <sup>K</sup>	260 <sup>K</sup>	250 <sup>K</sup>	280 <sup>K</sup>	240 <sup>K</sup>	350 <sup>K</sup>	450 <sup>K</sup>	480 <sup>K</sup>	C	A	A	A	A	A	470 <sup>K</sup>	320 <sup>K</sup>	340	C	C	A	A	A	A	
6	A	300 <sup>F</sup>	260	280	250	350	360 <sup>L</sup>	560	390	A	A	480	410	430	380	330	300	300	330	290 <sup>A</sup>	A	270	300	250	
7	250 <sup>F</sup>	270 <sup>A</sup>	300 <sup>A</sup>	280 <sup>F</sup>	280	260	300	300	300	B	B	B	430	400	400	320	270	280	280	A	A	300	290	280	
8	280 <sup>F</sup>	270	260	240	240	230	400	340	320	360	390	300 <sup>H</sup>	[390] <sup>A</sup>	480	360	430	370	320	360	270	240	230 <sup>F</sup>	260 <sup>A</sup>	280 <sup>F</sup>	
9	280 <sup>F</sup>	280 <sup>F</sup>	280 <sup>F</sup>	260 <sup>F</sup>	220	260	270	300	350	A	A	A	A	480	390	400	[340] <sup>A</sup>	280	A	A	A	250	250	270	270 <sup>F</sup>
10	300 <sup>A</sup>	A	A	A	A	A	250	290	390	A	A	A	450	430	370	380	410	350 <sup>A</sup>	330 <sup>A</sup>	270 <sup>A</sup>	250	350 <sup>HF</sup>	340 <sup>HF</sup>	A	
11	A	350 <sup>A</sup>	[300] <sup>A</sup>	250 <sup>F</sup>	230	240	240	300	A	A	A	A	A	360	[390] <sup>A</sup>	420	370	320	A	A	A	290	270 <sup>F</sup>	290 <sup>F</sup>	
12	290 <sup>F</sup>	270 <sup>F</sup>	280 <sup>F</sup>	240 <sup>A</sup>	250 <sup>F</sup>	[280] <sup>A</sup>	310	270	370	330	370	300	T	T	330	A	A	350	[300] <sup>T</sup>	260	240	210	280	300	
13	300	280	270	240	210	250 <sup>A</sup>	[300] <sup>F</sup>	340	[320] <sup>T</sup>	290	T	T	B	T	T	T	280	280	300	260	250	[260] <sup>A</sup>	280	290	
14	290 <sup>F</sup>	320	[280] <sup>A</sup>	250 <sup>F</sup>	270 <sup>F</sup>	(400) <sup>A</sup>	420	[340] <sup>A</sup>	260	320	320	A	A	A	340	320	300	[310] <sup>H</sup>	320 <sup>A</sup>	[280] <sup>H</sup>	250 <sup>A</sup>	A	A	A	
15	300 <sup>F</sup>	270 <sup>F</sup>	270	[300] <sup>A</sup>	340	270	280	310	A	A	A	A	A	A	350	C	C	C	C	C	C	300	240 <sup>HF</sup>	300 <sup>A</sup>	
16	A	A	300 <sup>A</sup>	[290] <sup>HF</sup>	280	290	260	A	A	A	A	A	A	A	360	340	330	350	320 <sup>A</sup>	300 <sup>A</sup>	300 <sup>A</sup>	A	A	A	
17	300 <sup>A</sup>	[290] <sup>A</sup>	280 <sup>HF</sup>	[270] <sup>HF</sup>	260 <sup>A</sup>	250	270	A	A	A	300	A	A	A	A	A	A	A	A	A	A	240	270 <sup>A</sup>	A	
18	A	A	A	300	260	300	300	270	A	A	400	A	A	A	A	A	350	A	A	A	270	270 <sup>A</sup>	A	A	
19	A	A	[260] <sup>F</sup>	A	A	300	260	270	[310] <sup>A</sup>	350	400	C	A	A	A	350	310	290	290	[270] <sup>A</sup>	250 <sup>A</sup>	[280] <sup>A</sup>	320	260 <sup>F</sup>	
20	300	300 <sup>F</sup>	300 <sup>F</sup>	300 <sup>F</sup>	240	250	A	A	320	[350] <sup>C</sup>	380	320	370	A	A	A	A	A	A	A	260	280 <sup>A</sup>	270	280 <sup>A</sup>	
21	320 <sup>A</sup>	[300] <sup>A</sup>	280 <sup>F</sup>	[270] <sup>A</sup>	260 <sup>F</sup>	250	A	A	A	A	A	A	A	A	A	A	A	A	A	A	250	280	[300] <sup>A</sup>	320 <sup>F</sup>	
22	300 <sup>F</sup>	270 <sup>F</sup>	310 <sup>A</sup>	270	250	250 <sup>A</sup>	300	260	250	A	A	350	[400] <sup>H</sup>	440	370 <sup>A</sup>	300	300	300	310	250	220 <sup>A</sup>	250	280 <sup>A</sup>	300 <sup>A</sup>	
23	300	320 <sup>A</sup>	280	250 <sup>F</sup>	280	[280] <sup>A</sup>	270	A	A	A	A	320	G	430	390	350	360	350	280	250	220	300 <sup>F</sup>	310 <sup>F</sup>	310 <sup>F</sup>	
24	A	AF	A	250 <sup>F</sup>	260 <sup>F</sup>	250	A	A	A	A	A	A	350	A	A	340	280	300	270	250 <sup>A</sup>	270 <sup>A</sup>	[270] <sup>A</sup>	270	AF	
25	A	AF	A	300 <sup>A</sup>	270	A	A	A	C	C	C	C	C	C	C	C	C	340	270	240 <sup>A</sup>	300	A	A	A	
26	300	300 <sup>F</sup>	270 <sup>F</sup>	260 <sup>F</sup>	280	330	350	360 <sup>A</sup>	A	A	A	350	A	A	A	A	A	330	280	270	260	270 <sup>A</sup>	A	A	
27	330 <sup>A</sup>	A	A	A	A	260	A	A	A	A	A	A	A	350	350	300	300	310	280	[260] <sup>H</sup>	250	250	280	290 <sup>F</sup>	
28	260	250 <sup>F</sup>	250	300 <sup>A</sup>	280	340	280	300	A	A	B	A	B	A	350	360	340	330	270	250	240	240	250	250	
29	260	250	250	270	270	270	240	270	320	450	320	330	310	370	370	340	350	300	300	320	300	250	270	230	
30	330	250	300	270	320	390 <sup>K</sup>	410 <sup>K</sup>	A	A	A	G	G	G	500 <sup>K</sup>	450 <sup>K</sup>	G	A	470 <sup>K</sup>	350 <sup>K</sup>	290 <sup>K</sup>	A	A	A	270 <sup>K</sup>	
31																									
Mean Value	290	290	280	270	270	280	320	330	320	360	380	340	390	420	380	370	330	320	300	280	260	280	280	280	
Median Value	300	280	280	270	260	260	300	300	320	350	390	350	400	430	370	350	330	310	300	270	250	270	280	280	
Count	23	23	25	27	27	28	24	20	15	12	9	11	10	14	19	19	22	26	24	24	25	24	22	22	

1953

Sweep 0.85 Mc to 2.2 Mc in 2 min

Manual  Automatic



The Radio Research Laboratories  
Koganei-machi, Kitama-guni, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

**Akita**

**IONOSPHERIC DATA**

**f<sub>o</sub>F1**

**Jun. 1953**

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						Q	Q	A	4.0	A	A	A	4.3	4.3	4.1	4.0	3.9	A	A					
2						A	3.6	3.8	4.1 <sup>A</sup>	A	A	A	A	A	A	A	A	3.6	3.3					
3						A	A	A	A	3.7	3.9	3.9	{3.9 <sup>A</sup> }	3.9	3.8	3.9	3.6	A	A					
4				Q		A	A	A	A	A	A	4.2	4.2	A	A	A	4.0	3.6	T					
5						Q	3.4	3.5	3.9	C	A	A	A	4.0	4.0	3.9	3.7	A	C					
6						3.0 <sup>H</sup>	3.5 <sup>L</sup>	3.7	A	A	A	4.0	4.0	4.1	4.0	3.9	3.7	3.5	A					
7						2.9 <sup>L</sup>	3.5	3.8	4.0	4.3	{4.3 <sup>A</sup> }	4.3	4.2	4.0	{3.9 <sup>A</sup> }	3.8	3.7	3.5	2.9 <sup>L</sup>					
8						Q	3.6	3.9	4.0 <sup>A</sup>	4.3	4.2	4.1	{4.2 <sup>A</sup> }	4.3	4.1	4.0	3.9	3.7	3.2					
9						A	3.6 <sup>L</sup>	3.9	4.0	A	A	A	A	4.2	4.1	4.0	A	A	A					
10						Q	3.8 <sup>L</sup>	3.9	A	A	A	A	4.3	4.2	4.1	4.0	3.8	A	A					
11						Q	Q	3.8	A	A	A	A	4.3	{4.2 <sup>A</sup> }	4.1	4.1	3.8	3.6	{2.8 <sup>A</sup> }					
12						A	3.5	3.9	4.1	4.2	4.3	4.4 <sup>H</sup>	T	T	T	T	A	3.5	A					
13						A	3.5	3.7	{4.0 <sup>A</sup> }	4.2	T	T	4.1	T	T	T	3.9	3.6	3.3 <sup>L</sup>					
14						A	3.6 <sup>A</sup>	{3.8 <sup>A</sup> }	4.0	4.2	A	A	A	A	4.0	3.9	A	A	A					
15						2.9	3.5	3.8 <sup>A</sup>	A	A	A	A	A	A	4.3	C	C	C	C					
16						3.1 <sup>L</sup>	A	A	A	A	A	A	A	A	A	A	4.1	A	A					
17						Q	A	A	A	A	A	4.4	4.2	A	A	A	A	A	A					
18						2.9 <sup>J</sup>	{3.4 <sup>A</sup> }	3.9 <sup>A</sup>	A	A	A	A	A	A	A	A	4.0	A	A					
19						3.0 <sup>L</sup>	3.5	A	A	4.3	4.5	C	A	A	A	3.9	3.7	3.6	3.4					
20						Q	A	A	A	C	4.5	4.5	4.5	A	A	A	A	A	A					
21						2.9 <sup>L</sup>	A	A	A	A	A	A	A	A	A	A	A	A	3.1					
22						A	A	4.0	4.2	A	A	A	A	A	A	A	A	A	A					
23						A	A	A	A	A	A	4.1	4.3	{4.2 <sup>A</sup> }	4.1	4.0	4.0	3.6 <sup>A</sup>	3.3					
24						Q	A	A	A	A	A	A	4.5	A	A	A	4.0	3.7 <sup>L</sup>	A					
25						A	A	A	C	C	C	C	C	C	C	C	C	3.6	3.3					
26						3.1 <sup>L</sup>	A	A	A	A	A	A	A	A	A	A	4.0	{3.6 <sup>A</sup> }	3.3					
27						Q	A	A	A	A	A	A	A	A	A	A	4.0 <sup>H</sup>	3.7 <sup>H</sup>	3.2					
28						3.1	3.5	A	A	A	4.2	{4.2 <sup>A</sup> }	4.2	{4.2 <sup>A</sup> }	4.3	4.0	4.0	3.7 <sup>H</sup>	3.2	2.4				
29						3.1 <sup>L</sup>	3.5	3.7 <sup>L</sup>	4.0	4.4	4.3	4.2	4.3	4.4	4.2	4.0	4.0	3.6	3.2 <sup>H</sup>	2.6 <sup>L</sup>				
30						2.7	{3.1 <sup>A</sup> }	3.5	{3.7 <sup>A</sup> }	3.9	3.9	3.9	4.0	3.9	3.9	4.0	{3.8 <sup>A</sup> }	3.5	3.2 <sup>L</sup>					
31																								
Mean Value						3.0	3.5	3.8	4.0	4.2	4.2	4.2	4.2	4.2	4.1	4.0	3.9	3.6	3.2	2.5				
Median Value						3.0	3.5	3.8	4.0	4.2	4.3	4.2	4.2	4.2	4.1	4.0	3.9	3.6	3.2	2.5				
Count						11	17	16	12	9	9	12	15	13	15	15	20	19	14	2				

Sweep 0.55 Mc to 22.0 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 48.6' N  
Long. 140° 08.2' E

IONOSPHERIC DATA

Akita

Jun. 1953

f'F1

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1						Q	A	A	A	A	A	A	250	220	200	250	250	A	A						
2						A	230	230	A	A	A	A	A	A	A	A	A	240	250						
3						A	A	A	A	250	280	280	260	250	250	250	280	280	A						
4					Q	A	250	A	A	A	A	250	250	A	A	A	230	240	T						
5						Q	240	250	220	C	A	A	A	240	230	220	A	A	C						
6						230	250	250	A	A	A	A	240	A	A	A	230	250	A						
7						250	250	250	250	220	A	A	220	230	240	240	230	230	230						
8						Q	250	A	A	210	210	210	220	220	230	220	240	250	250						
9						A	260	220	250	A	A	A	A	A	260	250	A	A	A						
10						Q	240	250	A	A	A	A	210	240	250	250	A	A	A						
11						Q	220	220	A	A	A	A	A	A	200	A	250	250	(260)						
12						A	250	230	220	230	(220)	200	T	T	A	A	A	A	A						
13						A	240	230	250	240	T	T	240	T	T	T	A	240	250						
14						A	A	A	A	A	A	A	A	A	250	240	A	A	A						
15						260	250	A	A	A	A	A	A	A	250	C	C	C	C						
16						240	A	A	A	A	A	A	A	A	A	A	A	A	A						
17						Q	A	A	A	A	A	200	210	A	A	A	A	A	A						
18						260	A	A	A	A	A	A	A	A	A	A	220	A	A						
19						250	250	A	A	230	210	C	A	A	A	A	A	240	250						
20						Q	A	A	A	C	A	220	200	A	A	A	A	A	A						
21						240	A	A	A	A	A	A	A	A	A	A	A	(270)	260						
22						A	A	230	240	A	A	A	A	A	A	220	240	240	240						
23						A	A	A	A	A	A	190	210	(220)	240	220	240	[240]	240						
24						Q	A	A	A	A	A	A	230	A	A	A	A	A	A						
25						A	A	A	C	C	C	C	C	C	C	C	C	C	A	250					
26						260	A	A	A	A	A	A	A	A	A	A	A	A	A						
27						Q	A	A	A	A	A	A	A	A	A	A	220	240	250						
28						280	240	A	A	A	A	A	250	(250)	250	270	240	240	240	250					
29						230	220	210	240	250	210	200	200	200	200	250	200	200	220	270					
30						260	(260)	260	(230)	200	240	230	240	270	240	230	A	A	A						
31																									
Mean Value						250	250	240	240	230	220	220	230	230	240	240	240	240	240	260					
Median Value						250	250	230	240	230	220	210	230	230	240	240	240	240	240	250	260				
Count						11	15	12	8	7	6	9	15	11	13	12	12	14	13	2					

f'F1

Sweep 0.05 Mc to 22.0 Mc in 2 min

Manual

Automatic

A 5

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 48.5' N  
Long. 140° 08.3' E

# Akita

## IONOSPHERIC DATA

135° E Mean Time

foE

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1						1.6	2.4	2.8	3.0	3.2	3.2	3.2	3.3	3.3	3.0	2.7	2.5	A	A					
2						A	A	A	3.0	3.2	3.3	3.3	3.0	2.9	2.7	2.8	2.5	2.2						
3						1.6	2.2	2.5	2.7	3.0	3.1	3.3	3.4	3.3	3.0	2.9	2.7	2.4	1.8					
4			1.2			1.9	2.4	2.6	2.9	3.0	3.0	3.1	3.0	3.0	2.8	2.6	2.5	2.5	1.6					
5						1.8	2.1	2.6	2.8	[2.8] <sup>c</sup>	2.9	2.9	A	A	3.0	2.9	2.7	2.4	C					
6						1.9	2.3	2.6	2.8	3.0	3.3	3.2	3.3	3.2	3.0	3.0	2.5	2.3	A					
7						1.8	2.5	2.6	3.0	3.0	3.2	3.0	2.8	A	A	A	A	A	A					
8						1.6	2.4	2.7	2.8	3.1	3.2	3.3	3.3	3.2	3.0	2.5	A	A	A					
9						A	A	2.4	2.7	3.2	3.3	3.3	3.3	3.1	3.0	3.0	A	A	A	2.0				
10						A	2.5	2.7	2.9	3.1	3.2	3.2	3.1	3.0	2.9	2.8	2.5	2.4	1.8					
11						A	2.1	2.7	3.1	2.9	3.2	3.2	3.3	3.3	3.1	3.0	2.8	2.8	A					
12						A	A	2.7	2.8	3.0	3.4	3.2	3.0	3.0	2.7	A	A	T	A					
13						A	A	2.6	2.9	3.0	3.2	3.3	3.3	3.0	3.0	[2.9] <sup>A</sup>	2.8	2.5	2.0					
14						1.9	2.5	2.7	3.0	3.2	3.2	3.2	3.2	2.8	2.9	A	A	A	A					
15						A	2.3	2.7	3.0	3.2	3.2	3.2	3.2	3.2	3.0	C	C	C	C					
16						1.6	2.4	2.9	3.0	3.2	3.2	3.2	3.2	3.0	2.9	2.8	A	A	A					
17						A	2.3	2.6	2.9	3.2	[3.2] <sup>A</sup>	3.2	3.4	3.3	3.1	2.9	2.3	A	A					
18						A	2.4	2.7	3.0	3.2	[3.2] <sup>B</sup>	3.2	3.4	3.2	2.9	A	A	A	A					
19						A	2.8	2.9	2.9	3.2	3.2	[3.2] <sup>C</sup>	3.3	3.5	3.3	3.0	2.8	2.5	2.1					
20						A	2.5	2.8	2.8	[3.0] <sup>C</sup>	3.2	3.2	A	A	A	A	A	A	A					
21						1.9	2.4	2.7	3.0	3.2	3.2	3.4	3.4	3.2	3.0	2.8	2.7	A	A					
22						1.6	2.5	2.8	2.9	3.2	3.3	3.4	3.4	3.3	3.2	3.1	2.9	2.6	2.0					
23						A	2.4	2.5	2.6	2.9	3.0	3.3	3.4	3.5	3.3	3.1	2.9	2.5	2.1					
24						2.1	2.3	2.7	3.0	3.2	3.2	3.3	3.4	3.3	3.2	3.0	2.7	[2.5] <sup>A</sup>	2.3					
25						1.8	2.1	2.7	C	C	C	C	C	C	C	C	C	A	A					
26						1.8	2.3	2.8	3.0	3.0	3.1	3.0	[3.2] <sup>A</sup>	3.3	3.0	2.8	2.6	2.5	2.0					
27						A	2.3	2.7	2.9	3.1	3.1	3.1	3.0	3.0	2.8	A	A	2.5	1.5					
28						1.8	2.5	2.7	3.0	3.1	3.1	3.2	3.0	[2.9] <sup>A</sup>	2.8	2.6	2.4	2.5	1.8					
29						2.0	2.3	2.5	3.0	3.0	[3.0] <sup>A</sup>	3.2	3.3	3.3	3.0	2.8	2.7	2.5	1.9	S				
30						1.8	2.3	2.6	2.7	3.0	3.2	3.3	3.3	3.3	3.0	2.9	2.7	2.2	1.8	S				
31																								
Mean					1.2	1.8	2.4	2.7	2.9	3.1	3.2	3.2	3.2	3.2	3.0	2.9	2.7	2.5	1.9					
Median					1.2	1.8	2.4	2.7	2.9	3.1	3.2	3.2	3.3	3.2	3.0	2.9	2.7	2.5	2.0					
Value					1	1.7	2.6	2.9	2.9	2.9	2.9	2.9	2.7	2.6	2.7	2.2	1.9	1.7	1.5					
Count																								

Sweep 0.85 Mc to 22.0 Mc in 2 min

Manual

Automatic

The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

135° E Mean Time

1953  
r'E

Jun. 1953

Day	00	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	110	110	110	110	110	110	110	110	110	110	110	A	A					
2						A	A	A										120	110					
3						120	120	110	110	110	110	110	110	110	110	110	110	110	130					
4					140	140	120	110	110	110	110	110	110	110	110	110	110	120	120					
5						120	120	110	110	(110) <sup>c</sup>	110	110	A	A				110	110	C				
6						120	110	110	110	110	110	110	110	110	110	110	110	110	A					
7						150	120	110	110	110	110	110	110	110	A	A	A	A	A					
8						120	110	A	A	110	100	100	110	110	110	110	110	A	A					
9						A	A	110	110	110	100	110	110	110	110	110	110	A	A	130				
10						A	110 <sup>A</sup>	110	110	110	110	110	110	110	110	110	110	110	120	120				
11						A	110	110	110	110	110	110	110	110	110	110	110	110	110	A				
12						A	A	A	A	110	110	110	110	110	110	110	A	T	A					
13						A	A	110	110	110	110	110	100	100	110	(110) <sup>A</sup>	110	110	110					
14						110	120	110	110	110	100	100	100	110	110	A	A	A	A					
15						A	A	110	110	110	110	100	100	100	110	C	C	C	C					
16						110	110	110	110	100	100	110	100	110	110	110	110	A	A					
17						A	110	110	110	(110) <sup>A</sup>	110	110	(110) <sup>A</sup>	110	(110) <sup>A</sup>	110	110	110	A	A				
18						A	A	110	(110) <sup>B</sup>	110	(110) <sup>B</sup>	110	110	110	110	A	A	A	A					
19						A	110	110	110	100	100	(100) <sup>S</sup>	110	110	110	110	110	110	120					
20						A	110	110	110	(110) <sup>S</sup>	110	110	A	A	A	A	A	A	A					
21						150	110	110	110	110	100	110	110	110	110	110	110	A	A					
22						110	110	110	110	110	110	110	110	110	110	110	110	110	100	110				
23						A	110	110	110	110	110	110	110	110	110	110	110	110	110	120				
24						150 <sup>A</sup>	110	110	110	110	110	110	110	110	110	110	110	110	(110) <sup>S</sup>	110				
25						120	110	110	C	C	C	C	C	C	C	C	C	C	A	A				
26						110	110	110	110	100	100	100	(100) <sup>A</sup>	100	100	100	110	110	120					
27						A	110	110	110	110	110	110	110	110	110	110	(110) <sup>A</sup>	110	110					
28						110	110	110	110	110	110	110	110	(110) <sup>S</sup>	110	100	100	100	100	S				
29						A	110	100	100	110	(100) <sup>A</sup>	100	100	100	100	110	110	110	110	S				
30						110	110	110	110	110	100	110	110	120	110	110	130 <sup>A</sup>	120	130					
31																								
Mean Value					140	120	110	110	110	110	110	110	110	110	110	110	110	110	120					
Median Value					140	120	110	110	110	110	110	110	110	110	110	110	110	110	120					
Count					1	16	24	27	27	29	29	29	27	26	27	23	20	17	15					

1953  
r'E

Group 0.85 Mc to 22.0 Mc in 2 min

Manual

Automatic

Lat. 39° 43.5' N  
Long. 140° 08.2' E

**Akita**

**IONOSPHERIC DATA**

135° E Mean Time

**fEs**

**Jun. 1953**

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	4.0	4.2	2.9	3.3	2.5	3.0	3.2	4.5	4.7	5.1	6.5	6.5	5.4	4.2Y	4.2	3.7	3.5	6.5F	5.7	5.7	5.5F	4.7F	3.0F	2.3F
2	2.4	3.0	2.5	3.1	5.5	4.6Y	4.6	4.2	5.1	6.6	6.5	9.0	6.8	7.1	7.1	1.05	8.2	3.5	4.0	6.9F	3.0	2.7	2.3	1.8
3	2.4	2.5	1.0	3.5F	3.5F	5.3	7.2	7.2	4.8	4.4	G	G	9.5Y	G	4.0Y	3.5	4.0	4.8	6.6	3.2	3.5	6.5	2.5	2.3
4	4.2	3.0Y	2.9	3.0	3.0	4.0Y	3.5	8.0Y	6.1	6.3	6.8	4.8	7.2	7.9	7.1	7.8	3.5	3.5	1.24T	6.5	7.0	3.8	3.3	2.3
5	5.4Y	3.0	4.4	4.1F	2.5F	3.0	3.3	3.5	3.5	C	5.4	7.1	7.2	4.5	G	3.5	4.3	4.5	C	C	5.5	4.5	4.3	5.5
6	4.5	4.4	2.5	3.5	2.5	2.5	3.5	4.5	5.1	6.7	7.9	5.0	4.5	4.7	4.5	5.5	4.2	3.5	4.5	4.5	4.3	4.5	4.5	3.7
7	2.7	2.8	3.0	3.5	2.8	2.5	3.5	3.7	4.5	3.6	6.7	4.6	4.2Y	4.5	5.2	4.1	4.2	3.5	2.9	1.17	7.0	4.9F	3.0F	3.0F
8	3.5F	3.0F	3.4F	3.0F	2.9F	3.3Y	3.5	4.5	4.2	5.8	G	G	6.5	4.5	4.4	4.0	4.3	3.7	3.1	3.9	3.1	3.5	3.7F	3.9F
9	2.6	4.2F	3.8F	3.5F	3.5F	4.0	4.3F	4.3	5.1	5.6	5.5	6.6	1.05	6.8	8.0	G	9.0	6.2	6.8	7.0	3.9Y	2.5	2.9	4.2F
10	5.5F	5.5F	9.7F	4.4	5.5	3.9	3.0	4.3	6.0	6.5	6.5	7.5	5.5	4.3	5.1	4.5	6.6	5.9	6.7	6.7	3.7	5.3F	4.5F	6.8
11	5.4	4.5	4.2	3.5	3.0F	3.5	3.2	3.5	6.2	1.23	1.45	1.22	6.2	G	5.8	5.5	4.2	6.8	7.9	5.7	5.2	4.5	6.7	3.4
12	3.1	2.4	3.5	3.5Y	3.7	4.5	3.0	3.5	4.4	4.6	5.1	4.6	4.7	6.2	5.7	5.4	5.7	5.0	1.35T	3.5	3.0	2.5	2.0	3.3
13	2.5	2.5	3.0	3.1	3.5	3.5	3.5	3.2	3.5T	4.4	T	T	G	6.8	T	6.4	4.6	4.1	1.35T	6.6	6.7	7.1	4.2F	3.4
14	4.5F	5.0	1.35T	3.0	3.5F	6.5	5.5	7.0	4.8	4.3	5.3	6.5	1.03	7.6	5.1	4.2	6.1	9.3	6.8	1.10F	4.5F	9.6F	1.55F	1.5
15	1.5	7.5F	1.02	5.6F	6.6	1.04Y	4.3	4.0	7.9	7.5	1.12	6.2	1.06	1.65	4.8	C	C	C	C	C	C	3.5	4.3	3.5
16	7.4	6.6	9.5	7.3F	3.0F	3.0	4.2	7.2	1.25	9.5	9.5	1.03Y	9.7	1.00	5.7	5.6	4.5	5.4	5.9	1.40	9.7	1.36	1.17	6.8
17	5.5	6.4	4.4	6.4	5.0	4.2	5.0	7.8	1.18	9.2Y	1.00Y	6.5	6.5	1.45	1.49	1.45	1.43	1.2.1	1.25	5.7	4.3	4.5	4.3	9.5Y
18	7.3Y	9.0Y	7.2	4.2Y	3.5	3.2	4.5	6.2	6.6	8.1	1.18	1.55	7.2	1.1.4	1.20	7.6	7.1	7.0	1.0.1	4.3	7.4	5.8	6.8	7.0
19	9.5Y	6.8	6.5	5.2	4.2	4.3	4.2	5.6	7.5	1.05Y	6.5	C	8.3	9.0	6.5	7.6	4.7	4.2	4.5	6.7	8.7	6.5	5.6	5.5
20	5.0	4.7	5.0	4.3	4.2	3.2	1.0	7.5	7.0	C	4.7	4.2	4.4	5.5	9.8	6.5	5.9	9.5	7.0	8.6	6.5	4.3	5.4	6.7
21	6.6	6.7	6.6	5.1	4.9	3.2	6.8	6.8	7.8	7.0	5.0	6.0	9.0	1.0.6	1.25	1.55	1.20Y	6.9	6.5	5.4	7.5	7.5	9.5	4.2
22	3.0	3.5	4.6	5.0	3.0	3.5	5.3	6.7	6.1Y	6.3	5.2	5.3	5.4	5.4	5.9	5.5	5.2	4.4	5.1	6.8	3.0	5.4	4.3	5.6
23	5.0	3.5	4.3	3.5	3.3	5.2	4.6	5.9	1.07	9.7	6.5	G	G	5.3	4.4	G	4.0	4.5	3.1	3.1	3.0	4.4	5.4	5.6
24	7.3	5.6	7.9	4.5	4.3	3.0	5.1	7.6	6.5	7.9	1.15	6.1	4.3	7.1	7.0	9.5	5.5	5.4	5.0	5.9	7.5	1.05	9.5Y	5.5
25	5.4	4.5	5.4	7.2	5.6	6.1	6.5	6.5	C	C	C	C	C	C	C	C	C	5.1	4.3	5.2	4.2	4.3	4.7	6.5
26	6.8	4.5	4.7	5.5	3.3	3.5	4.5	5.3	6.2	5.8	7.7	6.8	5.4	4.9	8.1	7.5	5.4	5.1	3.5	4.5	6.6	1.18	6.3	3.6
27	8.0	5.6	5.4	4.2	4.3	3.5	6.5	9.4	8.0	1.05	1.12	1.25	1.15	4.8	5.4	5.6	4.5	G	3.1	7.0	2.6	4.4	4.5	4.5
28	6.5	3.0	3.0	7.0	4.0	3.5	3.5	5.0	9.0	7.6	4.2	6.5	4.1	5.7	4.5	4.5	4.1	3.0	G	2.6	2.4	2.3	3.2	4.2
29	5.4	1.8	4.4	2.8	2.5	3.1	4.1	3.5	4.7	5.2	4.4	4.3	4.5	4.5	4.1	3.6	3.5	3.1	G	E	E	E	1.7	2.2
30	2.0	2.1Y	2.4	3.0	2.5F	2.9	4.6	4.2	7.1	7.1	7.0	G	4.1	4.1	4.6	4.0	6.5	4.1	3.8	5.0	7.8	7.0	6.5	2.3
31																								
Mean Value	5.2	4.4	5.1	4.3	3.7	4.0	4.7	5.5	6.6	7.0	7.4	7.2	6.8	7.0	6.5	6.4	5.7	5.4	5.6	6.2	5.2	4.6	5.2	4.7
Median Value	5.2	4.3	4.4	3.8	3.5	3.5	4.3	5.2	6.2	6.6	6.5	6.2	6.2	5.5	5.6	5.5	4.6	4.8	5.0	5.7	4.4	4.5	4.4	4.2
Count	30	30	29	30	30	30	30	30	28	27	28	27	29	29	28	28	28	29	25	28	30	30	30	30

Sweep 0.85 Mc in 2.2.0 Mc in 2 min  Manual  Automatic



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 48.5' N  
Long. 140° 08.2' E

# Akita

## IONOSPHERIC DATA

135° E Mean Time

(M3000)F2

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	[28]F	29F	30	30F	30	31Z	32	35	35P	31	29	[28]A	27	29	29	30P	31	31	32	32	32F	27F	28F	27F	
2	30	30	30	31	28F	29	30	33	32	[30]A	29	[30]A	31	A	A	A	A	29	28P	27	28	30	29	28P	
3	(30)P	25	[27]A	29F	30F	A	A	A	A	23	27K	G	G	A	G	23K	27K	29K	[29]K	29K	(28)K	[28]K	27K	27K	
4	27K	27K	34K	30K	30K	31K	24K	29K	33K	30K	A	G	A	A	A	A	29K	30K	31K	A	A	25K	27K	26K	
5	28K	28K	30K	30K	30K	33K	31K	27K	26K	C	A	A	A	G	26K	26K	29K	30	C	A	A	A	27K	26K	
6	A	F	30F	(30)F	30P	29	29	23	29	A	A	27	29	28	29	30	31	32	30	31	29	31	30	(30)J	
7	28F	28F	26F	30F	30F	34	33	(31)P	33	B	A	B	B	27P	28	32	34	32	29	A	A	28	28P	29F	
8	29	29	32	34F	34F	34F	28	31	32	30	29	32H	[29]A	26	30	28	29	30	30	31	(32)P	32	30	28	
9	28	29	30F	29F	30F	30	33	33	32	31	32	A	A	26	28	27	[29]A	31P	A	A	29	29P	28	(29)F	
10	30F	30F	A	A	A	33	31	29	32	A	A	26	28	29	29	30	27	29	30P	32P	32	28F	(26)F	A	
11	A	28	29F	31F	34	34	32	35	A	A	A	A	A	29	[28]A	28	29	30	[30]A	30	30	27F	F	F	
12	30F	28F	30F	F	(30)F	[31]A	32	33	30	30	30	31	T	T	(32)J	A	A	30	31	32	32	33	28	28	
13	28	28	29	34	34	31	[31]B	31	(31)J	34	T	T	B	T	T	28	32	33	30	30	28	[29]A	30	28	
14	28F	F	T	(31)F	30F	27	26	[30]A	34	32	33	A	A	A	A	30	30P	C	C	C	29P	30	A	A	
15	28F	[28]F	29F	[28]A	28	32	33	32	A	A	A	30	A	A	A	C	C	C	C	C	29P	30	31	28F	
16	A	A	(28)F	[29]AF	(30)F	32	33	A	A	A	A	A	A	A	A	31	30	29	28	32	31	A	A	A	
17	29P	[28]A	27AF	[30]AF	32	32	33	A	A	32P	29	[28]A	26	A	A	A	A	A	A	A	(30)J	36	31	31Z	
18	A	A	A	29F	31F	31F	31	36	A	A	A	A	A	A	A	30	30	30	32	A	30	32	A	A	
19	A	A	30AF	A	F	31F	34F	(33)P	[32]A	30	28	C	A	A	31	30	30	31	30	29	28	28	29	31P	
20	29	29F	(28)F	29F	31F	32	A	A	33	[31]C	29	32	30	29	[29]A	29	A	A	30	33P	34	29	31	28	
21	28F	27F	29F	29F	32	34	A	A	A	A	A	A	A	30	A	A	28P	29	31	32	31	28F	[28]A	(27)F	
22	(27)F	(30)F	29F	(31)F	31F	30	32	33	35	A	A	31	[30]A	28	29	32	30	30	29	32	32	29	27	29	
23	29	28	31	28F	29F	[32]A	34P	A	A	A	A	32	G	27	28	30	29	29	31P	33	31	(27)F	(26)F	27F	
24	32	AF	A	F	F	32	A	A	33	A	A	32	30	A	A	29	32	29	(32)J	30	32	[31]A	30P	F	
25	A	F	27V	29F	30F	[30]A	31	30	C	C	C	C	C	C	C	C	C	28	31	33	31	27	27	A	
26	F	28F	31F	F	(28)F	29	29	29	32	27	29	29	A	A	A	A	30	32	34	32	31	A	A	27F	
27	28	A	A	A	A	29	A	A	A	A	29	(30)P	31	31	30	31	[30]A	29	29	29	29	29	29	(30)F	
28	32F	29	32F	30	30	29	32	(30)J	A	A	B	A	32	A	30	29	29	29	30	31	32	31	29	30	31
29	28	31	30	29	29	33	35	31	32	26	(30)P	31	31	30	30	31	30	31	30	27	28	32	28	30	
30	26	30	28	28P	28	28K	26K	[27]A	28K	G	G	G	G	25K	26K	G	A	A	25K	27K	29K	A	A	27K	
31																									
Mean Value	29	29	29	30	30	31	31	31	32	30	30	30	29	28	29	29	30	30	30	30	31	31	29	29	28
Median Value	28	28	30	30	30	31	32	31	32	30	29	30	29	28	29	29	30	30	30	30	31	31	29	28	28
Count	23	22	25	24	26	29	25	22	18	15	13	16	13	29	21	21	23	26	25	25	26	25	24	21	

A 9

Manual  Automatic

Group 0.85 Mc to 22.0 Mc in 2 min

(M3000)F2

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 39° 43.5' N  
Long. 140° 08.2' E

# Akita

## IONOSPHERIC DATA

f minF

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1.5	E	1.5	1.5	1.3	2.2	2.5	3.9A	3.9	4.4A	4.9A	[4.4]A	4.0	3.6	3.5	3.3	2.8	4.9A	4.6A	4.4A	4.0MF	4.0MF	1.5F	1.5F
2	1.5	1.0	1.6	1.7	1.5	2.7A	2.6	3.2	4.1A	[4.8]A	5.4A	[5.4]A	5.4A	A	A	A	A	2.6	2.3	3.3A	2.2A	2.0A	1.7	1.5
3	1.5	1.3	A	A	A	A	A	A	3.6	3.4	3.7	[3.6]A	3.5	3.3	3.2	3.2	3.4	4.0A	[3.0]A	1.9	2.8A	[2.2]A	1.7	1.6
4	1.5	1.5	1.5	1.0	1.4	3.0A	2.5	4.5A	5.1A	3.8A	[3.8]A	3.7	3.8	A	A	A	2.7	2.5	<3.3>	A	A	2.9A	1.5	1.5
5	1.5	E	1.5F	E	1.5	1.8	2.5	2.7	3.1	C	A	A	A	A	3.3	3.2	3.7A	3.5A	C	C	A	A	A	A
6	A	1.5	E	1.5	E	1.9	2.7	[3.4]A	4.1A	A	A	A	3.7	3.7	4.0A	3.9	[3.4]A	3.0A	3.3A	3.7A	1.7	1.5	2.5A	1.5
7	1.5F	1.3	1.0	1.9	1.3	2.1	3.0	3.1	3.5	3.3	[3.6]A	3.8	3.5	3.3	4.5A	3.0	2.7	2.5	1.9	A	A	1.5	1.5	1.5
8	1.8F	1.7	1.9	1.7	1.6	2.2	2.8	2.6	4.0A	3.4	3.5	3.4	[3.4]A	3.3	3.0	[2.8]A	2.7	2.6	2.3	2.9A	1.5	1.5	2.5F	1.5F
9	1.7	1.5	E	1.3	E	2.8A	2.7	3.1	3.0	4.8A	5.0A	A	A	A	4.0	3.8	3.5	3.7	A	A	1.5	1.5	1.5	1.5F
10	3.7A	A	A	A	A	1.5	2.8	3.4	A	A	A	A	3.3	3.5	3.4	3.5	3.3A	[4.4]A	5.5A	5.3A	1.5	3.5F	AF	A
11	A	2.8A	[2.0]A	1.3	1.0	2.2	2.8	3.2	A	A	A	A	A	A	A	A	4.7A	3.2A	2.6A	4.5A	4.2A	1.5	1.5	1.4F
12	1.4F	1.4	1.7F	2.2A	1.7F	[2.2]A	2.6	3.1	3.7	3.7	4.3	3.7	T	T	3.7A	A	A	3.3	[2.8]A	2.4A	1.5	1.5	1.5	2.4A
13	1.5	1.5	1.3	1.4	1.5	2.5A	2.7	3.2	2.9	3.6	T	T	3.8	T	T	<5.5>	3.7	2.6	2.5	2.2A	1.5	[1.8]A	2.2A	1.5
14	1.4F	1.5F	[1.5]A	1.5	1.5F	[2.6]A	3.6A	[3.8]A	3.9	4.1	4.5A	A	A	A	A	3.5	4.1A	A	A	A	3.5A	A	A	A
15	1.5F	1.5F	1.4F	[1.5]A	1.6	2.5F	2.6	3.8A	A	A	A	5.1A	A	A	3.9	C	C	C	C	C	2.8A	A	A	2.5A
16	A	A	2.4A	[2.0]A	1.6	2.2	A	A	A	A	A	A	A	A	4.7A	4.8A	3.7A	3.7A	4.0A	5.5A	5.5A	A	A	A
17	2.8A	[2.6]A	2.5A	[2.5]A	2.5A	2.2	3.5	A	A	4.5A	4.5A	3.6	3.9	A	A	A	A	A	A	4.8A	1.6	3.2A	3.5A	A
18	A	A	2.4A	2.3A	2.0	3.5A	3.8A	A	A	A	B	A	A	A	A	A	3.1	A	A	3.4A	3.5A	4.7A	A	A
19	A	A	2.4A	A	AF	2.3	2.8	3.9A	[3.7]A	3.9	3.8	C	A	A	5.0A	3.5	3.5	A	A	3.8A	[3.7]A	4.0A	2.8A	3.0F
20	3.0A	2.6A	3.0A	2.7MF	1.7	2.5	A	A	5.0A	[4.5]F	4.0	3.4	3.5	4.8A	[4.8]A	4.8A	A	A	5.0A	5.1A	2.3A	3.0A	2.5A	2.5A
21	[2.9]A	3.3A	1.5	[2.1]A	2.7A	2.2	A	A	A	A	A	A	5.0A	A	A	A	5.1A	3.4	2.9	3.6A	2.0A	1.5	[1.8]A	2.1A
22	1.6F	1.5	2.7A	1.8	2.0A	2.7A	4.0A	3.5	3.6	A	A	4.5A	[4.5]A	4.5A	5.5A	4.6A	4.5A	3.3	4.5A	1.5	[1.5]A	1.5	2.1A	2.1A
23	1.5	[1.5]A	1.5	1.5	1.4	[2.6]A	3.8A	A	A	A	A	3.5	3.5	4.5A	3.5	3.2	3.3	3.6A	[3.0]A	2.5A	1.6	2.3F	1.6F	2.7F
24	3.9A	AF	A	2.3MF	2.3MF	2.4	A	A	5.3A	A	A	5.0A	3.7	A	A	5.2A	3.6A	3.1	4.0A	2.5A	4.5A	[3.2]A	1.9	AF
25	A	AF	3.3A	2.4A	2.4A	[3.7]A	5.0A	5.4A	C	C	C	C	C	C	C	C	C	3.2	A	A	3.5A	1.9	3.5A	[2.5]A
26	1.5	1.8	2.0A	1.8F	1.5	2.2	3.5A	[4.4]A	5.4A	5.2A	5.0A	4.7A	4.6A	A	A	A	3.5A	4.4A	[4.7]A	5.0	4.2A	A	A	1.5
27	A	A	A	A	A	2.2	A	A	A	A	A	A	A	A	4.7A	4.8A	3.0	2.6	2.5	[2.0]A	1.6	1.7	1.9	2.8A
28	3.6A	1.0	1.3	[1.9]A	2.5A	2.5	2.7	4.2A	A	A	4.0	[3.9]A	3.8A	5.0A	3.7A	3.5A	3.0	2.5	2.2	1.5	1.5	1.5	1.5	1.5
29	1.4	1.0	1.0	1.3	1.4	2.0	2.5	2.9	3.4	3.8A	3.5	3.5	3.6	3.3	3.4	3.2	2.9	2.5	2.1	1.5	1.5	1.5	1.5	1.4
30	1.5	1.2	1.5	1.5	1.6	[2.6]A	3.5A	2.8	4.0A	3.3	3.3	3.5	3.3	3.4	3.4	3.2	3.2	3.2A	2.7	AF	A	A	3.0A	1.5
31																								
Mean	2.0	1.7	1.8	1.8	1.7	2.4	3.1	3.6	4.0	4.0	4.2	4.0	3.8	4.0	3.9	3.7	3.5	3.3	3.3	3.3	2.6	2.3	2.1	1.9
Median	1.5	1.5	1.5	1.7	1.6	2.2	2.8	3.4	3.9	3.8	4.0	3.8	3.7	3.8	3.7	3.5	3.4	3.2	2.9	3.4	2.1	1.8	1.8	1.5
Count	23	23	25	26	26	29	24	22	18	16	16	18	18	17	21	20	24	24	21	22	26	24	23	23

Sweep 0.85 Mc to 2.2.0 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 39° 43.5' N  
Long. 140° 08.2' E

Akita

f<sub>min</sub>E

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	1.5	E	E	E	E	1.0	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5F	1.4F	1.4F	1.5F	1.4F	1.4F	
2	1.5F	1.0	E	E	E	E	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4F	1.5	1.4	1.5	1.7	
3	1.0	E	E	E	E	E	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.5	
4	1.5	1.4	E	E	E	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.5	
5	1.1	E	E	E	E	E	1.4	1.4	1.5	(1.6F)	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	C	C	1.5	1.5	1.5	1.5	
6	1.5	E	E	E	E	E	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4F	1.5	
7	1.5	E	E	E	E	E	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5F	1.5F	1.5F	
8	1.4F	E	E	E	E	E	1.5F	1.4	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4F	1.4F	
9	1.0	E	E	E	E	E	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	
10	1.4F	1.5F	E	E	E	E	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5F	1.5F	1.4	
11	1.4	E	E	E	E	E	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
12	1.4	E	E	E	E	E	1.4	1.5	1.5	1.5	1.5	1.5	1.7	2.0	1.6	1.5	1.6	(1.6F)	1.5	1.5	1.5	1.5	1.5	1.5	
13	1.5	E	E	E	E	1.0	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.5F	1.4	
14	1.4F	E	E	E	E	E	1.4	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5F	1.5F	1.4F	
15	1.0	E	E	E	E	E	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	C	C	C	C	1.5	1.5	1.5	1.5	
16	1.5	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	
17	1.5	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	(1.5M)	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.4	1.5	1.5	1.4	1.4	
18	1.4	E	E	E	E	1.0	1.4	1.4	1.5	1.5	3.9	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	
19	1.5	1.3	1.0	E	E	E	1.5	1.5	1.5	1.5	1.5	(1.5F)	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.4	1.5	1.4	1.5	1.4	
20	1.0	1.0	E	E	E	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.4	1.5	1.4	
21	1.0	E	E	E	E	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.4	1.5	
22	1.5	1.0	1.0	E	E	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.4	1.5	
23	1.3	1.0	1.0	E	E	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.4	1.4	1.4	1.4	1.4	
24	1.4	1.0	E	E	E	1.1	1.0	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.5	
25	1.4	E	E	E	E	1.0	1.3	1.4	1.4	C	C	C	C	C	C	C	C	1.4	1.4	1.5	1.5	1.5	1.5	1.5	
26	1.4	E	E	E	E	E	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	
27	1.0	1.0	E	E	E	1.0	1.4	1.5	1.5	1.5	2.1	2.3	2.2	2.1	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.4	1.5	
28	1.1	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.5	1.5	1.5	1.4	1.5	
29	1.4	1.0	1.0	E	E	1.0	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	
30	1.6	1.0	1.0	1.0	1.0	1.0F	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.7	
31																									
Mean Value	1.3	1.1	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	
Median Value	1.4	E	E	E	E	E	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.5	
Count	30	30	30	30	30	30	30	30	29	29	29	29	29	29	29	28	28	29	28	28	30	30	30	30	

f<sub>min</sub>E

Sweep 0.35 Mc to 2.20 Mc in 2 min

Manual

Automatic

A 11



IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N  
Long. 139° 28.3' E

Jun. 1953

f<sub>o</sub>F<sub>2</sub>

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	A	4.6P	4.4P	A	B	B	C	C	C	C	C	C	6.7	7.5P	[8.0]A	8.5	8.5P	A	A	B	A	A	
2	A	5.4J	4.6	4.5	4.0	4.7	5.4J	6.0	6.0	5.5	A	A	A	6.3	[7.4]A	8.5	7.7P	7.2	[6.8]A	6.5	7.4	7.3P	7.2	B	
3	(6.5)F	5.6J	5.0	5.4	3.0	[3.4]A	3.7K	Ak	Ak	4.6K	4.6K	Ak	Ak	Ak	4.7K	4.4K	5.0K	5.0K	[4.8]A	5.3K	5.5P	[5.0]B	4.4K	4.2K	
4	4.2K	4.5K	4.0K	3.7K	3.7K	3.8K	4.3K	5.5K	7.1K	Ak	Ak	Ak	Ak	Ak	6.0K	6.2K	6.1K	5.7K	6.0K	[5.5]K	5.3K	5.5K	(4.5)F	[4.6]A	
5	(4.5)F	4.2P	3.9K	3.3K	3.3K	3.4K	3.6K	4.5K	4.7K	[4.6]A	4.5K	[5.0]B	(5.5)P	5.0K	5.4J	5.5K	5.5K	6.4	6.2	A	A	A	A	A	
6	F	A	AS	FS	4.4	4.0	[4.2]P	4.5	5.6	5.0P	[5.1]A	5.2	5.6J	5.8	6.4	6.8	6.6	4.8	4.8	[5.2]P	(5.5)P	5.5	4.8	[4.4]A	
7	4.1	4.6F	3.8F	3.9F	4.4F	5.0	C	C	(5.5)P	5.8	G	4.5	[5.0]A	5.6	6.5P	6.8	6.6	5.5	[5.2]A	5.0	5.7	5.2	5.5P	5.4F	
8	5.0	F	F	F	3.9F	[4.1]B	4.3	5.4	6.0	5.8J	6.4	5.0	5.1	5.2J	6.0	6.0	6.0	6.7	7.1	7.5	7.3	5.2	5.0P	4.5F	
9	4.5P	4.2F	4.3F	4.3F	[4.4]A	4.6	5.1	5.1	5.1	(5.6)P	A	A	A	A	(5.7)P	6.0	6.8	6.0	6.0P	5.9P	AF	A	A	4.9	
10	AF	AF	AF	AF	AF	4.8H	4.5F	A	A	A	A	A	A	A	A	A	A	A	A	7.5P	5.0P	5.2	4.3	4.4P	
11	F	F	F	4.3F	4.9P	3.3F	4.0	4.7P	4.2	A	A	B	A	A	A	5.7	5.7	6.3	6.3	6.1P	[5.4]A	4.8F	F	AF	
12	AF	F	F	3.5P	2.9P	[3.9]A	4.9	5.0	5.6	[5.4]B	5.1	5.6J	A	M	M	M	6.3	A	A	7.0	6.5J	[5.4]A	4.3P	4.5F	
13	F	F	F	5.8F	3.2	4.0	4.6	6.6	7.0	[5.6]B	5.1	4.8	5.1P	5.5	5.7	7.6	7.8	6.5	5.6	(5.1)P	5.9P	(5.0)F	5.7	5.8	
14	6.1E	5.2P	B	5.2F	4.5F	[5.4]A	7.3	7.5	A	A	A	A	A	A	A	7.2P	7.5	6.0	6.5	7.4	8.0P	BS	A	A	
15	A	AF	AF	AF	AF	4.9	6.1P	5.1	A	A	5.9	5.9	5.4	5.4	6.0	6.0	5.5	6.5	[7.2]A	8.0P	7.6	(5.5)P	4.8P	4.8P	
16	A	A	AF	F	4.9F	5.5	5.0	5.5	5.7	A	A	A	A	A	A	6.7	6.6	5.8	5.9P	[6.5]A	7.1	[5.8]A	(4.6)P	4.7	
17	A	A	A	A	A	A	5.7	5.0J	5.8	A	A	A	A	A	6.2	6.6	6.6	6.6	6.8P	7.3P	7.0	A	A	A	
18	AF	AF	4.5F	[4.4]A	4.4F	4.7	5.5P	6.0	5.5P	A	A	5.6	A	A	A	6.1	6.1	[6.4]A	6.8P	6.8P	6.5	A	A	BS	
19	A	A	AF	AF	F	5.0F	6.0	5.9	6.0P	A	A	5.5	6.0	6.7P	6.2	7.0	7.0	6.5	5.6	5.2P	FB	A	A	(5.2)F	
20	A	A	AF	(4.1)P	4.5F	4.5F	5.6	A	A	6.0	5.8	5.1	A	A	A	A	A	A	7.0P	FB	A	A	(5.2)F	AF	
21	A	AF	AF	F	4.5F	A	A	A	A	5.7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	5.5	5.6	[5.7]B	5.8	8.0P	7.3	7.4	(8.2)P	7.3	5.0P	AF	AF	AF	
23	A	AF	4.7F	(4.4)F	3.9F	AF	A	AF	6.2	A	A	B	B	5.5	5.7	6.5P	6.6	6.5	6.6	7.2P	5.4P	(4.2)F	4.2F	F	
24	F	F	A	A	2.9F	3.8P	4.6	A	A	A	6.3	A	A	A	A	7.3	7.2	6.5	6.8	7.0P	6.8	A	AF	AF	
25	4.8P	C	C	C	C	4.5	[5.8]A	7.0	A	A	A	A	5.7	6.0J	6.4	6.6	6.7	(8.5)P	[7.8]B	7.2	[6.0]A	4.8	4.6F	F	
26	F	AF	F	F	4.0F	3.8F	4.9	[5.4]A	5.9	6.2	A	A	5.8P	5.8P	5.8P	5.3	6.7	(8.0)P	6.8P	7.0P	5.3P	A	AF	AF	
27	4.5F	AF	AF	AF	3.2F	4.0H	5.6	7.0	(9.0)	6.6	A	A	A	A	A	A	A	A	6.6	A	B	6.2	6.0	5.0F	
28	BF	5.5F	[5.2]F	5.0F	4.9F	4.6	6.1P	6.1	6.5	A	A	A	A	5.8	[5.9]A	6.0	7.2	7.2	7.2	7.2	6.5	5.6	5.7	F	
29	A	AF	F	4.4F	4.4F	5.4P	5.5	4.8	5.3	5.8	6.6	5.5	5.7	6.2	5.6	6.3	6.1	B	5.3P	5.6	6.1F	6.5F	(4.9)F	6.0	
30	5.0P	6.2	FB	F	4.8F	4.1K	4.4K	4.5K	Ak	Ak	Ak	Ak	Ak	Ak	Ak	4.8K	4.8K	Bk	Mk	Mk	Mk	Mk	Mk	Mk	Mk
31																									
Mean Value	4.9	5.0	4.4	4.5	3.9	4.3	5.0	5.5	6.1	5.6	5.5	5.3	5.5	5.8	6.0	6.4	6.5	6.6	6.4	6.6	6.3	5.4	5.0	4.9	
Median Value	4.6	5.2	4.4	4.4	4.0	4.1	5.0	5.4	5.9	5.6	5.1	5.5	5.6	5.8	6.0	6.5	6.6	6.5	6.6	6.6	7.0	6.3	5.2	4.8	
Count	10	9	10	16	23	25	25	21	19	14	11	12	11	14	19	25	24	23	25	24	22	18	17	13	

Sweep J.L.O. Mc to J.7.2. Mc in 2. min

Manual  Automatic

K1

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 29.3' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

135° E Mean Time  
**f<sub>p</sub>F<sub>2</sub>**

**Jun. 1953**

Day	00	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	340 <sup>F</sup>	320 <sup>F</sup>	A	B	B	B	C	C	C	C	A	360	350 <sup>F</sup>	[330]A	310	270 <sup>F</sup>	A	A	B	A	A	
2	(320)E	(370)F	330	320	320	280	(350)F	320	270	A	A	A	A	A <sup>K</sup>	[340]A	320	340 <sup>F</sup>	330	[360]A	400	380	360 <sup>F</sup>	370	B	
3	380	370 <sup>K</sup>	330	340	330 <sup>K</sup>	310 <sup>F</sup>	380 <sup>K</sup>	380 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	340 <sup>K</sup>	370 <sup>K</sup>	340 <sup>K</sup>	310 <sup>K</sup>	(310)E	350 <sup>K</sup>	350 <sup>K</sup>	[350]A	(350)F	380 <sup>K</sup>	
4	(360)E	360 <sup>F</sup>	(290)E	290 <sup>K</sup>	320	300 <sup>F</sup>	(250)F	U <sup>K</sup>	U <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	(380)E	U <sup>K</sup>	360 <sup>K</sup>	370 <sup>K</sup>	300	280	A	A	A	A	A	
5	F	A	AS	FS	320	270	C	U	340	U	A	U	U	370	350	340	290	[310]A	330	[340]E	(360)E	340	300	[310]E	
6	320	370 <sup>F</sup>	350 <sup>F</sup>	370 <sup>F</sup>	340 <sup>F</sup>	270	C	C	(290)E	310	G	U	A	U	350 <sup>F</sup>	320	300	A	AF	360	340	350	350 <sup>F</sup>	350 <sup>F</sup>	
7	360	F	F	F	320 <sup>F</sup>	[300]E	290	380	300	(310)E	280	A	U	U	410	350	360	330	320	300	280	300	340 <sup>F</sup>	340 <sup>F</sup>	
8	370 <sup>F</sup>	340 <sup>F</sup>	340 <sup>F</sup>	330 <sup>F</sup>	[280]E	240	280	300	U	(380)E	A	A	A	A	(450)E	370	300	320	310 <sup>F</sup>	(290)E	AF	A	A	280	
9	AF	AF	AF	AF	AF	370H	320 <sup>F</sup>	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	400 <sup>F</sup>	
10	F	F	F	F	340 <sup>F</sup>	270 <sup>F</sup>	240	290 <sup>F</sup>	U	A	A	B	A	A	A	450	350	330	300	A	AF	370 <sup>F</sup>	F	AF	
11	AF	F	F	280 <sup>F</sup>	[320]E	260	[260]A	U	270	B	U	U	A	M	M	M	310	A	A	A	320	[330]A	360 <sup>F</sup>	360 <sup>F</sup>	
12	AF	F	F	270 <sup>F</sup>	380	U	U	300	270	B	U	U	U	U	U	360	280	270	310	(310)E	330 <sup>F</sup>	(360)E	340	370	
13	F	F	F	330 <sup>F</sup>	330 <sup>F</sup>	300 <sup>F</sup>	[290]A	280	270	A	A	A	A	A	A	300 <sup>F</sup>	300	310	350	310	320 <sup>F</sup>	BS	A	A	
14	(330)E	330 <sup>F</sup>	B	330 <sup>F</sup>	330 <sup>F</sup>	300 <sup>F</sup>	[290]A	280	270	A	A	A	A	A	A	360	350	360	350	[320]A	(300)E	270	(310)E	330 <sup>F</sup>	320 <sup>F</sup>
15	A	A	AF	AF	AF	310	(300)E	310	A	A	300	320	U	330	360	350	360	350	320 <sup>F</sup>	A	A	A	A	A	
16	A	A	AF	F	310 <sup>F</sup>	270	270	U	300	A	A	A	A	A	A	A	A	A	A	A	(450)E	A	A	A	A
17	A	A	A	A	A	A	310	(290)E	290	A	A	A	A	A	340	340	310	340	350 <sup>F</sup>	[330]A	310	[340]A	(360)E	A	
18	AF	AF	380 <sup>F</sup>	[350]E	(320)E	270	330 <sup>F</sup>	270	280 <sup>F</sup>	A	A	A	A	A	A	340	340	[320]A	310 <sup>F</sup>	280 <sup>F</sup>	280	A	A	A	
19	A	A	A	AF	F	310 <sup>F</sup>	280	320	(310)E	A	A	U	A	A	350	340	300	300	350	320 <sup>F</sup>	320	A	A	BS	
20	A	A	AF	(450)E	280 <sup>F</sup>	280 <sup>F</sup>	A	A	A	320	310	U	A	A	A	A	A	A	A	350 <sup>F</sup>	FB	A	A	AF	
21	A	AF	AF	F	A	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	U	B	340 <sup>F</sup>	330	350	350	350	(290)E	280	340 <sup>F</sup>	AF	AF	
23	A	AF	330 <sup>F</sup>	(320)E	360 <sup>F</sup>	AF	A	AF	A	A	A	B	U	U	350 <sup>F</sup>	[340]A	320	310	280 <sup>F</sup>	270 <sup>F</sup>	(370)E	360 <sup>F</sup>	F		
24	F	F	F	A	350 <sup>F</sup>	270 <sup>F</sup>	330	A	A	A	A	A	A	A	A	320	350	340	330	310 <sup>F</sup>	280	280	AF	AF	
25	320 <sup>F</sup>	C	C	C	C	300	[320]E	330	A	A	A	A	A	A	A	350	370	(320)E	[300]E	280	[320]A	370	400 <sup>F</sup>	F	
26	F	AF	F	F	340 <sup>F</sup>	270 <sup>F</sup>	300	A	A	300	A	A	U	A	350 <sup>F</sup>	400	320	(300)E	270 <sup>F</sup>	270 <sup>F</sup>	300 <sup>F</sup>	A	AF	AF	
27	340 <sup>F</sup>	AF	AF	AF	340 <sup>F</sup>	350 <sup>K</sup>	380	320	(290)E	270	A	A	A	A	A	A	A	A	A	A	A	B	360	340 <sup>F</sup>	
28	BF	(330)E	[322]E	(320)E	(320)E	320	310 <sup>F</sup>	300	A	A	A	A	A	A	A	380	320	320	B	330 <sup>F</sup>	290	320	340	370	
29	A	AF	F	320 <sup>F</sup>	340 <sup>F</sup>	300 <sup>F</sup>	270	270	U	340	290	U	U	350	U	310	320	B	330 <sup>F</sup>	370	370 <sup>F</sup>	320	(370)E	380	
30	420 <sup>F</sup>	350	FB	F	380 <sup>F</sup>	350 <sup>K</sup>	A <sup>K</sup>	U <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	U <sup>K</sup>	B <sup>K</sup>	M <sup>K</sup>	M <sup>K</sup>	M <sup>K</sup>	M <sup>K</sup>	M <sup>K</sup>	M <sup>K</sup>	M <sup>K</sup>	
31																									
Mean Value	350	350	340	330	330	290	300	310	290	320	300	320	380	350	360	350	330	320	320	320	320	340	350	350	
Minimum Value	350	350	340	320	320	300	300	300	290	310	300	320	380	350	350	350	330	320	320	320	320	340	350	350	
Count	10	9	10	16	23	23	19	15	12	7	5	1	1	5	11	21	23	21	23	23	21	18	17	12	

Sweep 1.0 Mc to 17.2 Mc in 2 min  
 Manual  Automatic

**f<sub>p</sub>F<sub>2</sub>**

**K 2**

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 29.3' E

### Kokubunji Tokyo

## IONOSPHERIC DATA

135° E Mean Time

Jun. 1953

R'F2

Day	00	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	260	270	(270)A	270	270	270	C	C	C	A	360	330	(310)A	290A	250A	A	A	A	310	A	A	
2	A	240	250	250	260	250	340	280	270	A	A	A	A	350	(320)M	300	340A	(340)A	330A	300	320	(280)K	290	300	
3	270	290	(320)K	280	A	A	(300)A	A	A	500K	450K	A	A	A	470K	570K	380K	350K	(320)K	280K	270K	(280)K	300K	320K	
4	310K	300K	250K	250K	300K	300K	450K	380K	300K	A	A	A	A	A	320K	350K	340K	300K	270K	270K	300A	(280)A	270K	270K	
5	300K	250K	(260)K	240K	270K	260K	240K	380K	410K	430K	550K	(460)K	380K	430K	380K	360K	370K	300	270	A	A	A	A	A	
6	260F	(280)A	300A	270F	270	250	(350)C	450	330	370	(400)A	440	410	370	350	330	280	(300)A	310A	(300)A	280	300A	250	260	
7	250	300A	300A	270	300A	250	C	C	290	300	G	500	(560)	620	340	310	300A	AF	AF	260	270	260	300	280	
8	280	290	300A	320F	270	(240)A	280	350	300	310	280A	(260)A	430	420	410	350	350	320	300	250	240	230	260	280	
9	300	300A	270	250	(240)A	240	280	300	330	380	A	A	A	A	450	360	300	320	280	270	AF	A	A	260F	
10	AF	AF	AF	250	AF	AH	310	A	A	A	A	A	A	A	A	A	A	A	A	250A	290A	280	370A	370A	
11	330A	340A	280	250A	230	220	270	360	A	A	A	390	A	A	A	440	350	310	300	250A	(280)A	320	310	(300)M	
12	300F	250	300F	220A	270	(260)A	260A	(260)A	270	(320)A	380	380	A	M	M	M	300	A	A	A	270A	(280)A	300	300	
13	300	280	250F	210	(330)A	450	420	280	260	300	370	560	440	400	430	340	270	270	270	250	290F	300	310	310	
14	290	280	270	300A	280	270	(270)A	270	260	A	A	A	A	A	A	300A	280	280	320	260	250	A	A	A	
15	A	A	AF	AF	250	250	270	300	A	A	300	350	400	330	350	340	360	330	(300)A	270	240	(320)A	290	290	
16	A	A	A	280	250	260	250	310	300	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
17	A	A	A	A	A	A	290	290	290	A	A	A	A	A	340	340	300	320	320	(280)A	250	(280)A	300A	A	
18	AF	AF	300A	300A	260	240	300	260	280	A	A	A	A	A	330	340A	(320)A	300A	260	260A	A	A	A	A	
19	A	A	A	260	260	250	A	310	310	A	A	450	(380)A	320	350	340	300	280	260	260	250	A	A	230	
20	A	A	290A	390A	210	250	A	A	A	320	310	370	450	A	A	A	A	A	A	280A	A	A	270A	310A	
21	(300)A	300	300A	290	A	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
23	A	AF	270F	250F	270F	AF	AF	AF	A	A	350A	A	A	A	420	350	(330)A	310A	290	230A	220	300	300F	300F	
24	360A	330F	A	300A	250	320A	A	A	A	A	A	A	A	A	360A	340	370	290	260	230	(260)A	300A	340A	370A	
25	270F	C	C	C	C	300A	(300)A	300	A	A	A	A	A	330	(340)A	400	310	270	260A	230A	230A	A	AF	AF	
26	A	AF	270	300A	260	250	300	(300)A	300A	A	A	A	A	A	350A	350	400	310	270	260A	230A	A	AF	AF	
27	300F	AF	AF	AF	270F	250H	380	310A	270	270	A	A	A	A	A	A	A	A	A	A	A	270	300A	290	260
28	300	260	260F	270	260	300	300	300	A	A	A	A	A	A	350	(360)A	380A	310	270	240	240	260	270	260F	
29	A	AF	260	260	280	270	250	L	330	340	280	360	400	350	380	300	320	350	320	270	270	250	290	290	
30	320	260	320	300	290	340K	(370)A	400K	A	A	A	A	A	A	A	430K	B	K	M	K	M	M	M	M	
31																									
Mean Value	300	280	280	270	270	270	310	320	300	350	370	410	420	390	370	350	320	310	290	260	260	290	290	290	
Median Value	300	280	280	260	270	250	300	300	300	320	370	380	410	370	360	340	320	310	300	260	260	300	290	290	
Count	17	16	21	24	24	24	24	21	18	11	11	12	12	13	19	23	23	22	23	22	23	18	18	19	

Sweep 1.0—Me to 1.7.2. Me in 2—min

Manual

Automatic

K3

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Kokubunji Tokyo

foF1

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	A	A	C	C	C	C	A	A	4.3	A	A						
2						A	3.6	4.0	A	A	A	A	A	A	A	A	4.2	A	A					
3							A	A	A	4.1	4.0	4.2	4.1	4.1	[3.9]A	3.7	A	A	A					
4							A	A	A	A	A	A	A	4.2	4.2	4.0	A	A	A					
5							Q	3.7	4.0H	[4.0]A	4.1	[4.2]B	4.2	4.2	4.0	4.0	3.8	[3.5]A	3.2					
6							Q	3.7	A	A	A	4.3	4.3A	4.2	4.2	4.1	3.8	A						
7							L	C	4.2	4.2	4.2F	4.2	A	A	A	A	A	AF						
8							B	3.5L	4.0	A	A	A	4.3	[4.3]A	4.3	4.2	3.9	3.6	3.4					
9							A	A	4.2	4.2	A	A	A	A	4.3	4.0	3.9	3.8	3.2L					
10							A	3.7	A	A	A	A	A	A	A	A	A	A	A					
11							Q	3.6L	3.9	A	A	4.5	A	A	A	4.3	3.9	3.6	3.2					
12							A	A	4.0	[4.2]A	4.3	A	A	M	M	M	4.0	A						
13							3.3	3.6	4.0	[4.2]A	4.5	4.5	4.3	4.3H	A	A	A	3.6	A					
14							Q	A	A	A	A	A	A	A	A	A	A	A	A					
15							A	3.5L	A	A	4.4	4.4	4.4	[4.4]A	4.3	4.2	4.0	3.9	A					
16							L	L	4.1	A	A	A	A	A	A	A	A	A	A					
17									A	A	A	A	A	A	A	4.2	4.1	3.7	3.3					
18							Q	A	4.2	A	A	A	A	A	A	A	A	A	A					
19							A	4.0	A	A	A	A	A	A	4.4	4.2	[3.8]A	3.5	L					
20							Q	A	A	4.4	4.5	[4.5]A	4.5	A	A	A	A	A	A					
21							A	A	A	A	C	C	C	C	C	C	C	C	C					
22							C	C	C	C	C	A	4.5A	A	A	A	4.1	3.9	3.3L					
23							A	AF	A	A	4.4	4.4	4.4	4.2	4.2	A	A	A	3.3					
24							Q	A	A	A	A	A	A	A	A	A	A	3.8	A					
25							A	A	A	A	A	A	A	A	A	4.2	A	A	L					
26							Q	3.5	A	A	A	A	A	A	4.2	4.3	4.0	Q	A					
27							Q	3.8	A	A	4.3	A	A	A	A	A	A	A	A					
28							L	3.7	4.0	A	A	A	A	A	A	A	A	A	A					
29							2.6L	A	L	4.1	4.2	4.3	4.4	4.4	4.2	4.0	3.9	3.9	3.6					
30							2.5	A	A	A	A	A	A	A	A	A	3.9	M	M					
31																								
Mean Value							2.8	3.6	3.9	4.1	4.2	4.3	4.4	4.3	4.2	4.1	4.0	3.7	3.3					
Minimum Value							2.6	3.6	3.9	4.0	4.2	4.3	4.4	4.4	4.2	4.2	3.9	3.7	3.3					
Count							3	10	10	8	9	8	10	10	9	11	14	14	11	10				

foF1

Energy J. O. Mc to J. O. 2. Mc in 2 min  
 Manual  Automatic

K4



The Radio Research Laboratories  
Koganei-machi, Kfkatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 22.3' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

135° E Mean Time

R'F1

Jun. 1953

Day	00	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	C	C	C	C	A	A	A	A	A	A					
2						A	240	250A	A	A	A	A	A	A	A	A	240A	A	A					
3						A	A	A	A	250	260	250A	230	220	[270A]	260	A	A	A					
4						A	260	A	A	A	A	A	A	220	(250A)	A	A	A	A					
5						Q	Q	220	200H	A	(280A)	[260B]	230	210	220	220	B	A	A					
6						Q	C	A	A	A	250A	[240A]	220	210	210	250A	A	A						
7						240	C	C	240	220	200	200	A	A	A	A	A	AF						
8						220	240	250	250	A	A	A	220	A	A	A	240	250	230					
9						A	A	250A	230	220	A	A	A	A	A	300	250A	250	260A					
10						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
11						Q	230	250	A	A	A	210	A	A	A	A	A	250	A					
12						A	A	A	260A	[260A]	270A	A	A	M	M	M	A	A						
13						270	240	A	A	A	A	210	200	250H	A	A	A	A	A					
14						Q	A	A	A	A	A	A	A	A	A	A	A	A	A					
15						A	240	A	A	A	200	[200A]	200	A	A	A	250	250	A					
16						230	230	A	A	A	A	A	A	A	A	A	A	A	A					
17						A	A	A	A	A	A	A	A	A	A	A	240	230	220					
18						Q	A	A	220	A	A	A	A	A	A	A	A	A	A					
19						A	A	270A	A	A	A	A	A	A	A	A	[240A]	220	240					
20						Q	A	A	A	220	200	[220A]	240A	A	A	A	A	A	A					
21						A	A	A	A	A	C	C	C	C	C	C	C	C	C					
22						C	C	C	C	C	C	A	(250A)	A	A	A	A	240A	250A					
23						A	AF	A	A	A	210	250A	240	230	230	A	A	A	A					
24						Q	A	A	A	A	A	A	A	A	A	A	A	A	A					
25						A	A	A	A	A	A	A	A	A	A	A	250A	A	A					
26						Q	250	A	A	A	A	A	A	A	A	A	250	A	Q					
27						Q	A	A	A	250	A	A	A	A	A	A	A	A	A					
28						250	[240A]	220	A	A	A	A	A	A	A	A	A	A	A					
29						250	[240A]	230	230	[240A]	250	220	240	240	200	220	250	220	220					
30						220	A	A	A	A	A	A	A	A	A	A	A	A	M					
31																								
Mean Value						240	240	240	230	240	240	220	230	240	240	240	250	230	240					
Median Value						240	240	250	230	240	250	220	240	240	230	250	250	220	240					
Count						7	10	8	7	7	7	10	10	7	7	11	9	6	8					

Sweep 1.0 Mc to 17.2 Mc in 2 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

# IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.8' E

Kokubunji Tokyo

Jun. 1953

f<sub>o</sub>E

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	B	3.0	C	C	C	C	A	A	3.0	2.4	A						
2						A	A	A	A	3.0	3.0	3.0	3.2	3.2	3.1	3.0	2.6	2.3	A					
3							2.3	2.5	2.8	2.9	[3.0] <sup>B</sup>	3.2	3.1	3.3 <sup>A</sup>	3.3 <sup>B</sup>	3.0	2.7	2.4	A					
4						1.6	2.2	2.8	2.9	3.1	3.2	A	A	A	A	A	A	A	A					
5						A	A	2.5	2.9	3.2 <sup>B</sup>	3.0	3.3 <sup>B</sup>	[3.2] <sup>B</sup>	3.0	3.0	3.0	2.7	2.4 <sup>A</sup>	1.8					
6						1.8	[2.2] <sup>C</sup>	2.6	2.8	[3.0] <sup>A</sup>	3.1	[3.1] <sup>A</sup>	3.1	[3.0] <sup>A</sup>	3.0	A	A	A						
7						A	C	C	A	3.2	3.2	A	A	A	A	A	2.5	A						
8						C	2.6	2.7 <sup>F</sup>	3.0	3.2	3.2 <sup>A</sup>	A	A	2.2	3.1	A	A	A	A					
9						A	A	A	2.8	[3.0] <sup>A</sup>	3.3 <sup>A</sup>	3.2	3.0	3.2	A	A	A	2.5	1.8 <sup>A</sup>					
10						A	A	2.7	2.9	3.0 <sup>A</sup>	3.1	3.1	3.1	3.1	2.8	2.6 <sup>A</sup>	2.7	A	A					
11						A	2.2 <sup>F</sup>	2.6	3.1	A	A	3.2	3.3	3.4	3.3 <sup>A</sup>	2.8	2.4	2.0	A					
12						1.8 <sup>A</sup>	2.3	2.7 <sup>A</sup>	3.0	A	A	3.2	B	M	M	M	2.6	2.4						
13						1.8	[2.3] <sup>B</sup>	2.8	3.0	3.2	3.3	3.3	3.3 <sup>B</sup>	3.1	3.1	3.2	3.0 <sup>A</sup>	2.4	A					
14						A	2.3	2.7	3.0	3.3	3.2	3.2	3.2	A	A	A	A	2.4 <sup>A</sup>	A					
15						A	2.7 <sup>A</sup>	3.1	[3.2] <sup>A</sup>	3.2	3.3	3.3	3.3	3.3	3.1	3.1	2.9	2.5	A					
16						1.7	2.3	2.7	3.0	3.2	3.2	3.3	3.2	3.2 <sup>A</sup>	A	B	A	A	A					
17							A	2.9	3.1	3.3	3.2	3.3 <sup>A</sup>	3.4	3.4	3.2	3.0	2.8	2.4	1.8					
18						1.4	2.4	2.7	[3.0] <sup>B</sup>	3.4	3.3 <sup>A</sup>	3.5 <sup>A</sup>	3.3	A	A	A	A	A	A					
19						A	2.0 <sup>A</sup>	2.7	3.0	3.1	3.2 <sup>P</sup>	3.5 <sup>A</sup>	3.4 <sup>A</sup>	3.3 <sup>A</sup>	3.3 <sup>A</sup>	3.0	2.7	2.5	2.0					
20						1.7	2.4	2.8	3.0	[2.1] <sup>A</sup>	3.2	[3.2] <sup>A</sup>	3.3	A	A	A	A	A	A					
21						A	2.2	2.7	3.0	3.2	C	C	C	C	C	C	C	C	C					
22						C	C	C	C	C	C	3.3	3.4	3.5	3.3	3.2 <sup>T</sup>	2.9	2.7 <sup>F</sup>	2.0					
23						A	2.2 <sup>F</sup>	[2.5] <sup>A</sup>	2.8	[2.9] <sup>A</sup>	3.0	3.2	3.3	3.2	3.3	3.0	2.8	2.5	1.9 <sup>F</sup>					
24						A	2.2	2.7	3.0 <sup>A</sup>	3.0	3.5	3.3	3.5	[3.4] <sup>B</sup>	3.3	3.2	A	A	2.0					
25						A	2.0 <sup>F</sup>	2.6 <sup>A</sup>	2.9	A	A	3.2 <sup>A</sup>	3.3	3.2	A	A	A	A	A					
26						1.8	2.4	2.7	3.0	3.2 <sup>A</sup>	3.3	3.3	3.3	3.2	[3.0] <sup>B</sup>	2.9 <sup>A</sup>	2.8	2.5	1.9 <sup>A</sup>					
27						A	2.3	2.7 <sup>F</sup>	[3.0] <sup>A</sup>	3.2	3.2	3.3	3.3	3.2	A	A	A	A	A					
28						1.4	2.4 <sup>F</sup>	2.7	3.0	3.0	3.2	3.1	3.2	3.2	3.2 <sup>A</sup>	A	A	2.0	A					
29						A	2.0 <sup>F</sup>	2.7 <sup>A</sup>	3.1	3.2	3.0	A	A	A	A	2.9 <sup>A</sup>	[2.6] <sup>A</sup>	2.4	A					
30						A	2.2 <sup>F</sup>	2.7	2.8	3.0	3.0	3.1	[3.2] <sup>A</sup>	3.2 <sup>A</sup>	3.0	3.0	A	M	M					
31																								
Mean Value						1.7	2.3	2.7	3.0	3.1	3.2	3.2	3.3	3.2	3.1	3.0	2.7	2.4	2.0					
Median Value						1.7	2.3	2.7	3.0	3.2	3.2	3.2	3.3	3.2	3.2	3.0	2.7	2.4	1.9					
Count						9	21	25	26	24	24	24	23	21	18	16	16	16	8					

Manual  Automatic

Sweep 4.0 Mc to 17.2 Mc in 2 min

f<sub>o</sub>E

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 42.4' N  
Long. 139° 29.3' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

**f<sub>o</sub>E**

**Jun. 1953**

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	110	110	C	C	C	C	A	A	110	110	A						
2						A	A	A	A	A	110	110	110	110	110	110	110	120	A					
3						130	120	110	110	110	110	110	110	110	110	110	110	110	A					
4						100	120	120	110	110	110	A	A	A	A	A	A	A	A					
5						A	A	110	110	110	110	110	110	110	110	120 <sup>A</sup>	110	110	120					
6						140 <sup>A</sup>	120 <sup>C</sup>	110	110	110	110	110	110	110	110	A	A	A						
7						A	C	C	A	110	110	A	A	A	A	A	110	A	A					
8						C	120	110	110	110	110	A	A	110	110	A	A	A	A					
9						A	A	A	A	110	110	110	110	110	110	A	A	120	130					
10						A	A	110	110	110	110	110	110	110	110	110	110	110	A					
11						A	120	110	110	110	110	110	110	110	110	110	110	110	A					
12						A	A	A	110	A	110	110	110	M	M	M	110	110	A					
13						140	120	110	110	110	110	110	110	110	110	110	110	110	A					
14						A	110	110	110	110	110	110	110	A	A	A	A	110	A					
15						A	A	110	A	A	110	110	110	110	110	110	120	110	A					
16						130	120	110	110	110	110	110	110	110	110	110	110	A	A					
17						A	110	A	110	110	110	110	110	110	110	110	110	120	120 <sup>A</sup>					
18						A	120	120 <sup>A</sup>	110	110	110	110	110	A	A	A	A	A	A					
19						A	110	110	110	110	110	110	110	110	110	110	110	110	130					
20						130	120	110	110	110	110	110	110	A	A	A	A	A	A					
21						A	120	120	110	110	C	C	C	C	C	C	C	C	C					
22						C	C	C	C	C	C	C	C	C	C	C	C	C	C					
23						A	120	120 <sup>A</sup>	110	110	110	110	110	110	110	110	110	110	120					
24						A	110	110	100	110	110	110	110	110	110	110	110	110	120					
25						A	120	110	110	A	A	110	110	110	110	A	A	A	A					
26						140 <sup>A</sup>	120	110	110	110	100	110	110	110	110	110	110	110	120					
27						A	110	110	110	110	110	110	110	110	110	A	A	A	A					
28						110	110	110	110	110	110	110	110	100	100	A	A	100	A					
29						A	100	110 <sup>A</sup>	100	110	110	A	A	A	A	110	110	110	A					
30						A	120	110	110	100	100	100	100	100	100	110	110	A	M					
31																								
Mean Value						130	120	110	110	110	110	110	110	110	110	110	110	110	120					
Minimum Value						130	120	110	110	110	110	110	110	110	110	110	110	110	120					
Count						7	20	25	25	24	25	24	24	24	21	19	17	17	17	8				

Sweep 1-0 Mc to 1.7 Mc in 2 min  Manual  Automatic

K7

The Radio Research Laboratories  
Koganei-machi, Kitama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.3' E

Kokubunji Tokyo

Jun. 1953

fEs

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	5.0Y	5.0Y	4.5Y	2.2	2.2	5.0Y	5.0Y	4.3Y	5.0	C	C	C	C	8.5	6.5	6.0Y	8.5	7.0YF	6.0F	7.2	4.5	3.1Y	4.5Y	6.0Y
2	4.5Y	2.0	2.5Y	2.2Y	2.5Y	2.5Y	2.9Y	5.5	7.0	7.0	7.0	10.0	7.0	6.5	7.0	6.0	4.6Y	7.5	7.2	4.7	3.0YF	4.3Y	4.3Y	2.6Y
3	2.8Y	2.1Y	2.8Y	2.0Y	4.0Y	5.0Y	3.8Y	4.5	9.0	9.2	4.0	7.0	5.0	5.0	4.2	G	4.8	7.0	8.8	4.3	4.5	3.1	4.5	3.2
4	3.8	2.2Y	2.0Y	3.0Y	4.3	3.2	4.3	4.5	7.5	9.0	6.5Y	7.5	10.0	5.5YF	7.0Y	6.5YF	4.5	4.4	4.0Y	2.5F	4.5YF	4.5YF	5.5	2.2
5	4.0Y	6.5Y	4.9Y	2.5Y	2.3	3.0YF	3.0Y	4.0	5.0Y	5.0	5.5Y	G	4.2	4.5	3.0	G	5.0	2.9	6.0	6.6	6.5	6.5	6.8	7.0
6	9.5	4.2	4.2	4.2S	4.3	3.0Y	C	5.0	4.8	5.5	6.5	6.8	6.0	4.4	4.6	4.6	5.0	5.5	4.7	7.0	4.5	5.5	3.1	5.5
7	5.0	4.0	4.2	4.5	4.2	2.7F	C	C	4.6	4.9	5.0	4.7	10.0	6.8	9.2	7.0F	6.8	5.5	5.1	2.9	3.2	3.5	4.3	2.7
8	3.8	4.2	4.3	3.0	3.0F	3.0	G	4.5	5.0	5.0	5.7	5.5	5.0	5.4	5.0	4.3	4.7	5.0F	2.5	2.7	3.2	3.0	2.5	3.3
9	3.0	3.7	2.5F	2.8	6.2	5.2	6.7	6.5	5.0	4.5F	7.6	7.5	8.5	6.4	6.9	7.0	5.0	3.8	4.5F	7.5	8.5F	8.5	9.5	7.5
10	6.0	4.5	7.0	5.5F	6.7	7.0F	4.9	6.5	7.3	5.5	6.4	7.0	7.5	11.0	9.7	7.5	7.5	8.5	7.2	5.0	7.0	4.5	2.8	5.2
11	3.1	5.4	3.0	3.5	3.0	3.0Y	2.6	G	5.0	7.5	10.5	5.0	10.0	10.0	7.3	4.5	5.0	4.3	6.7	5.0F	7.0Y	4.5	4.5	5.0
12	5.5F	3.2Y	3.0	4.3	5.0	5.6	5.5	6.5	4.5	5.0	5.0	6.5	9.5	M	M	M	5.0	7.0	9.0	7.0	6.7	5.7	2.6	2.6
13	2.2	3.0	2.2F	4.0	5.0	2.2	3.0	4.8	4.9	5.5	5.0	G	4.5Y	4.8	5.5Y	5.0Y	6.0	5.7	4.6	2.8	2.2	4.4Y	4.5	4.5
14	4.5Y	2.8	3.0Y	6.5Y	4.2	3.0Y	5.5	4.5	5.0	8.5	10.5	6.4	10.2	6.8	10.0	9.0Y	5.7	5.4	4.1	3.0	2.7Y	4.6	5.5	6.5
15	6.0	6.5	6.5	5.2	4.0	4.0	2.6	5.0	6.0	5.5	G	6.5	G	6.5	7.0	4.5	4.5	8.5	7.5	4.0	4.3Y	3.5	3.0	3.2
16	4.8	4.7Y	4.5F	2.2F	2.2F	2.2	3.5	4.7	6.0	7.2	10.3	10.3	9.5	10.0	8.5	7.2	9.5Y	9.5	7.3	5.5Y	6.0	5.5	7.0	10.0
17	7.0	8.5	6.0	6.5F	4.7F	6.5	4.5	5.5	5.5	10.0	6.8	7.5	6.8	6.5	5.0	4.5	4.9	3.8	3.6Y	6.5	4.2	6.8	5.0	6.7
18	4.7	5.5	5.5	4.8	2.9	2.0	5.4	5.0	4.7	7.0	9.0	7.0	6.7	10.0	7.0	6.5	6.0	7.5	6.5F	5.5	4.5F	7.0F	7.0	9.0
19	6.5	9.5	7.0	8.0	2.2	4.0Y	6.5	6.5	6.5	6.5	9.0	6.0	7.0	9.0	6.5	5.0	6.5	G	2.0	3.0	7.0	7.4	6.0	5.4Y
20	5.5F	6.7F	4.8	4.2	5.0F	2.0	6.0	10.0	7.1	7.0	5.0	6.5	5.2	7.5	9.0	9.7	7.7	9.5	7.0	6.0	7.0	7.0	7.0	6.8
21	6.5	7.0F	6.5F	6.5	7.0	7.0	6.5	7.5	9.5	7.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	4.5	4.5F	4.5F	5.0F	7.0F	5.0F	7.0	8.0F	7.0	7.5	5.4	4.5	5.0	4.8	G	7.0	7.2	5.5	3.2	3.0	5.5	4.2F	3.0	3.0
24	5.0	5.0F	7.2	7.0	5.2F	2.9	4.7	9.6	7.0	7.0	7.0	10.0	9.5	11.0	8.5	7.5	7.5	7.5	5.5	7.3	7.3	7.0	7.1F	6.7Y
25	4.0F	C	C	C	C	4.3	5.5	5.5	7.3	10.2	5.8	9.2	6.5	7.0	6.4	4.7	5.2	5.5	6.5	5.0	5.7	4.9	5.0F	5.0
26	4.5	5.0	7.0	4.8	2.7F	3.7	4.5	6.8	5.4	7.0	6.5	6.8	5.0	6.5	4.7	6.3	4.6	5.3	5.7	3.0	4.5	7.0F	7.0F	7.5F
27	7.5F	5.0F	4.9F	5.0F	4.2F	5.0F	4.5	7.0	9.5Y	7.5	10.5	7.4	5.4	10.1	10.0	9.6	7.1	7.4	7.3	7.2	4.5	4.5	3.2	2.6
28	4.2F	6.6	4.0Y	2.5YF	2.7Y	2.6	3.5	4.0	7.0	7.5	9.5	10.0	9.6	8.6	5.3	4.5	6.7	4.5	3.7	4.5	3.2	3.2	3.0	7.0
29	4.5	6.1	5.5	2.1Y	4.2	4.0	5.5	4.5F	G	5.5	6.6	4.7	5.0	4.5	4.3	4.5	5.0F	3.1	3.2	2.7	2.0	2.5	2.5	2.0
30	2.2	2.5	2.5	2.5	4.5	3.0	5.0	5.0	7.0	6.8	7.0	6.5	6.4	6.5	7.1	4.2	4.3	M	M	M	M	M	M	M
31																								
Mean	4.8	4.9	4.5	4.2	4.1	3.8	4.7	5.8	6.3	6.8	7.1	7.0	7.0	7.1	6.7	6.1	5.9	6.1	5.4	4.8	5.0	5.1	4.8	5.1
Median	4.5	4.8	4.5	4.2	4.2	3.2	4.7	5.0	6.0	7.0	6.5	6.6	6.6	6.5	6.7	6.0	5.0	5.5	5.3	4.8	4.5	4.6	4.5	5.1
Count	29	28	28	28	28	28	29	27	28	28	27	28	28	28	28	28	29	28	28	28	28	28	28	28

Sweep 1.0 Mc to 17.2 Mc in 2 min

Manual  Automatic

K 8

fEs



IONOSPHERIC DATA

Lat. 35° 42.4' N  
Long. 139° 28.3' E

Kokubunji Tokyo

Jun. 1953

(M3000)F2

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	A	A	A	3.2 P	2.9 P	A	B	B	B	C	C	C	C	A	2.8	2.9 P	3.0 A	3.0	3.1 P	A	A	B	A	A	
2	A	(3.1) A	3.1	3.1	3.0	3.3	3.2	3.3	3.3	A	A	A	A	3.0	3.0 A	3.0	2.9 P	3.1	(2.9) A	2.7	2.8	3.1 P	2.8	B	
3	(2.9) B	(2.7) A	2.9	3.1	3.1	3.2 A	3.3 K	A K	A K	A K	A K	A K	A K	A K	2.6 K	2.5 K	2.8 K	2.9 K	(2.9) K	2.9 K	3.0 K	(2.8) K	(2.9) K	2.7 K	
4	2.7 K	2.8 K	2.9 K	3.2 K	3.0 K	3.1 K	3.2 K	2.9 K	2.8 K	(2.7) K	2.6 K	2.8 K	2.9 K	2.8 K	2.7 K	2.9 K	2.9 K	3.1 K	(3.0) K	2.9 K	3.0 K	(2.7) K	(2.9) K	3.1 K	
5	(2.8) K	2.9 K	(3.3) A	3.2 K	3.0 K	3.1 K	(3.6) K	2.9 K	2.8 K	(2.7) K	2.6 K	(2.8) K	2.7 K	2.8 K	(2.9) K	2.9 K	2.8 K	3.2	3.3	A	A	A	A	A	
6	F	A	AS	FS	3.0	3.4	3.0 C	2.6	3.1	3.0 P	[2.8] A	2.7	(2.7) A	2.7	2.8	2.9	3.2	2.9	3.0	(2.9) A	(2.8) P	2.9	3.1	(3.0) A	
7	3.0	2.8 F	2.8 F	2.8 F	2.9 F	3.3	C	C	(3.2) P	3.1	G	2.6	[2.4] A	2.2	2.7 P	3.1	3.2	AF	AF	2.7	2.9	2.9	2.7 P	2.8 F	
8	2.8	F	F	F	3.0 F	(3.2) A	3.3	2.9	3.3	(3.2) A	3.2	2.9	2.8	(2.8) A	2.6	2.8	2.8	3.0	3.1	3.1	3.1	3.1	2.9 P	3.0 F	
9	3.0 P	2.9 F	2.8 F	2.9 F	(3.2) A	3.4	3.2	3.2	3.1	(2.8) P	A	A	A	A	(2.5) P	2.8	3.2	3.0	3.0 P	(3.0) P	AF	3.0 P	A	3.3	
10	AF	AF	AF	AF	AF	2.8 H	3.0 F	A	A	A	A	A	A	A	A	A	A	A	A	A	A	3.0 P	A	3.3	
11	F	F	2.8 P	3.0 F	3.3 F	3.5	3.3 P	3.4	3.3	3.3	A	A	A	A	A	M	3.1	3.1	A	3.0	(2.9) A	2.6 F	F	AF	
12	AF	F	F	3.2 P	(3.1) A	3.4	3.2	3.3	3.3	[3.1] B	2.9	(2.8) A	A	M	M	M	3.1	3.1	A	3.0	3.0 A	(2.8) A	2.7 P	2.7 F	
13	F	F	F	3.2 P	2.8	2.6	2.7	3.1	3.2	[3.1] B	3.0	2.4	2.8 P	2.9	2.7	2.9	3.3	3.4	3.0	(3.3) P	2.9 P	(2.8) P	2.9	2.8	
14	(2.9) P	3.0 P	B	2.9 F	3.1 F	3.1 P	(3.2) A	3.2	3.3	A	A	A	A	A	A	3.0 P	3.2	3.0	2.8	3.1	3.1 P	BS	2.9	A	
15	A	A	AF	AF	AF	3.1	(3.0) P	3.1	A	A	A	A	A	A	2.9	2.8	2.8	2.9	(3.0) A	(3.1) P	3.3	(3.0) P	3.0 P	3.1 P	
16	A	A	AF	AF	3.0 P	3.2	3.3	3.0	3.3	A	A	A	A	A	A	3.1	3.1	A	A	A	(2.5) P	A	A	A	
17	A	A	A	A	A	A	3.2	(3.4) A	3.2	A	A	A	A	A	3.0	3.0	3.0	2.8	2.8 P	(2.9) A	3.0	(3.0) A	(3.1) P	2.9	
18	AF	AF	2.7 F	(2.8) A	(3.0) F	3.3	3.0 P	3.3	(3.2) P	A	A	A	A	A	A	2.9	2.9	(3.0) A	3.1 P	3.2 P	3.3	A	A	A	
19	A	A	A	AF	F	3.1 F	3.3	3.0	(3.1) A	A	A	2.8	2.8	3.0 P	2.9	3.0	3.1	3.0	3.1	3.0 P	3.0	A	A	BS	
20	A	A	AF	(2.5) P	3.2 F	3.3 F	A	A	A	3.1	3.1	3.0	A	A	A	A	A	A	2.9 P	FB	A	A	(3.0) P	AF	
21	A	AF	AF	F	A	A	A	A	A	3.0	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	3.2	2.8	(2.8) B	2.9	2.9 P	3.0	2.9	2.9	(3.1) P	3.2	3.0 F	AF	AF	
23	A	AF	3.0 F	(3.0) P	2.8 F	AF	A	AF	3.0	A	B	A	B	2.6	2.7	2.8 P	2.7	3.0	3.1	3.1 P	3.2 P	(2.7) P	2.7 P	F	
24	F	F	A	A	2.9 F	3.2 P	3.1	A	A	A	2.8	A	A	A	A	A	3.0	2.9	2.8	2.9	3.1 P	3.2	A	AF	AF
25	3.1 P	C	C	C	C	3.0	(3.0) A	3.0	A	A	A	A	2.7	(2.7) A	2.8	2.8	2.8	(2.9) P	(3.0) B	3.2	3.2	2.8	2.6 F	F	
26	F	AF	F	F	2.8 F	3.2 F	3.2	(3.1) A	3.0	3.2	A	A	A	2.9	(3.0) A	2.8	3.1	3.1	3.3 P	3.2 P	3.1 P	A	AF	AF	
27	3.0 F	AF	AF	AF	2.9 F	2.9 H	2.8	3.1	(3.1) P	3.4	A	A	A	A	A	A	A	B	3.2	3.3	3.2	2.8	2.8	3.0 F	
28	BF	(2.9) P	(3.0) F	(3.0) F	3.0 F	3.2	3.0 P	3.2	3.2	A	A	A	A	A	2.9	(2.8) A	2.7	3.1	3.3	3.3	3.0	3.0	2.9	F	
29	A	AF	F	3.0 F	3.2 P	3.3	3.3	3.1	3.1	3.1	3.2	3.0	2.8	2.9	2.9	3.1	2.9	B	3.0 P	2.7	2.7 P	3.0 F	(2.8) P	2.6	
30	2.5 P	2.9	FB	F	2.7 F	2.9 K	2.6 K	2.8 K	A K	A K	A K	A K	A K	A K	A K	A K	2.8 K	B K	M K	M K	M K	M K	M K	M K	
31																									
Mean Value	2.9	2.9	2.9	3.0	3.0	3.1	3.1	3.1	3.2	3.0	3.0	2.9	2.8	2.8	2.8	2.9	2.9	3.0	3.0	3.0	3.0	3.0	2.9	2.9	
Median Value	2.9	2.9	2.9	3.0	3.0	3.2	3.2	3.1	3.2	3.1	2.9	2.8	2.8	2.8	2.9	2.9	2.9	3.0	3.0	3.0	3.0	2.9	2.9	2.9	
Count	10	9	10	16	23	25	25	21	19	14	11	12	11	14	19	25	24	21	24	24	22	18	17	13	

Every 1.0 Mc to 17.2 Mc in 2 min  Manual  Automatic

K9

The Radio Research Laboratories  
Koganei-machi, Kifutama-gun, Tokyo, Japan

# IONOSPHERIC DATA

Lat. 36° 42.4' N  
Long. 139° 29.3' E

## Kokubunji Tokyo

Jun. 1953

fminF

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	1.7	1.8	(2.9) <sup>A</sup>	4.0 <sup>A</sup>	4.0 <sup>A</sup>	4.4 <sup>A</sup>	C	C	C	C	A	5.0 <sup>A</sup>	3.8	(4.4) <sup>A</sup>	5.0 <sup>M</sup>	3.3 <sup>A</sup>	A	A	2.5 <sup>A</sup>	A	A
2	A	1.0	1.1	1.1	1.8	1.9	2.8	3.3	4.0 <sup>A</sup>	5.0 <sup>A</sup>	A	A	A	5.3 <sup>A</sup>	(4.9) <sup>A</sup>	4.5 <sup>A</sup>	3.5 <sup>A</sup>	6.0 <sup>A</sup>	A	A	1.8	4.0 <sup>A</sup>	1.7	1.7
3	1.7	1.4	3.4	3.5	A	A	3.4	A	A	3.5	3.5	3.7	3.4	3.7	4.1	3.4	4.0	3.3 <sup>A</sup>	(2.6) <sup>A</sup>	1.8	(1.7) <sup>A</sup>	1.6	1.7	1.7
4	1.6	1.2	1.2	1.6	2.8	2.5	2.9	3.7 <sup>A</sup>	6.0 <sup>A</sup>	A	A	A	A	3.5	3.5	3.5	4.0	3.5 <sup>A</sup>	2.4 <sup>A</sup>	1.7	2.8 <sup>A</sup>	1.9	(1.8) <sup>A</sup>	1.6
5	2.5 <sup>A</sup>	1.0	1.7	1.0	1.7	1.8	2.5	2.8	3.5	4.0	3.8	4.0	3.7	3.4	3.5	3.4	3.5	3.7 <sup>A</sup>	1.8	A	A	A	A	A
6	1.6	(2.0) <sup>M</sup>	2.5	1.8	1.8	1.8	(2.6) <sup>C</sup>	3.4	4.1 <sup>A</sup>	4.3 <sup>A</sup>	(4.2) <sup>A</sup>	4.0 <sup>A</sup>	4.3 <sup>A</sup>	3.5	3.4	3.7	3.3	4.3 <sup>A</sup>	3.3 <sup>A</sup>	(2.9) <sup>M</sup>	2.5 <sup>A</sup>	3.5 <sup>A</sup>	2.4 <sup>A</sup>	1.7
7	1.4	2.2 <sup>A</sup>	A	E	A	1.8	C	C	3.3	3.3	3.3	3.7	(4.1) <sup>M</sup>	4.5 <sup>A</sup>	4.4 <sup>A</sup>	4.9 <sup>A</sup>	5.5 <sup>A</sup>	5.0 <sup>A</sup>	AF	1.8	1.8	1.7	2.5 <sup>A</sup>	1.6
8	1.6	2.5 <sup>A</sup>	1.7	1.6	(2.4) <sup>A</sup>	3.3	2.6	3.3	3.3	4.2 <sup>A</sup>	5.0 <sup>A</sup>	4.4 <sup>A</sup>	3.6	4.4 <sup>A</sup>	4.0 <sup>A</sup>	3.5	3.3	3.3	3.3	1.8	1.7	1.6	1.5	1.7
9	AF	AF	AF	1.8	(2.6) <sup>A</sup>	3.3 <sup>A</sup>	3.3 <sup>A</sup>	A	A	3.3	A	A	A	A	3.9	3.8	3.3	3.3	2.8 <sup>A</sup>	3.3 <sup>A</sup>	AF	A	A	1.7
10	AF	AF	AF	1.6	2.2 <sup>A</sup>	2.4 <sup>A</sup>	3.3 <sup>A</sup>	A	A	A	A	A	A	A	A	A	3.3	3.3	A	3.5 <sup>A</sup>	3.5 <sup>A</sup>	3.5 <sup>A</sup>	1.7	3.0 <sup>A</sup>
11	2.3 <sup>A</sup>	2.5 <sup>A</sup>	1.6	2.2 <sup>A</sup>	1.7	1.8	2.7	3.3	A	A	A	3.5	A	A	A	A	3.3	3.3	3.3 <sup>A</sup>	3.3 <sup>A</sup>	(2.5) <sup>M</sup>	1.7	1.7	(1.6) <sup>M</sup>
12	1.6	1.0	1.8	(1.4) <sup>M</sup>	1.0	A	A	4.2 <sup>A</sup>	3.4	A	4.1	4.6 <sup>A</sup>	A	M	M	M	3.6 <sup>A</sup>	A	A	5.0 <sup>A</sup>	4.4 <sup>A</sup>	(3.0) <sup>M</sup>	1.6	1.8
13	1.7	1.2	E	E	2.5 <sup>A</sup>	1.9	2.7	3.6	3.3	4.3 <sup>A</sup>	4.3 <sup>A</sup>	3.7	3.6	4.0 <sup>A</sup>	4.4 <sup>A</sup>	4.1 <sup>A</sup>	4.2 <sup>A</sup>	3.5 <sup>A</sup>	2.8	1.8	1.6	2.5 <sup>A</sup>	3.5 <sup>A</sup>	2.7 <sup>A</sup>
14	2.5	1.7	1.8	(2.2) <sup>M</sup>	2.7 <sup>A</sup>	2.5 <sup>A</sup>	(3.4) <sup>M</sup>	4.2 <sup>A</sup>	A	A	A	A	A	A	A	A	4.6 <sup>A</sup>	4.2	3.0	2.5	1.5	A	A	A
15	A	A	AF	AF	E	2.4 <sup>A</sup>	2.7 <sup>A</sup>	3.6	A	A	3.5	4.0	3.6	5.2 <sup>A</sup>	4.0 <sup>A</sup>	3.3	3.3	3.5 <sup>A</sup>	(3.5) <sup>M</sup>	3.5 <sup>A</sup>	2.0 <sup>A</sup>	3.5 <sup>A</sup>	1.7	2.5 <sup>A</sup>
16	A	A	2.5 <sup>A</sup>	1.5	1.2	1.8	2.4	3.8	4.2 <sup>A</sup>	A	A	A	A	A	A	6.1 <sup>A</sup>	A	A	A	5.0 <sup>A</sup>	A	A	A	A
17	A	A	A	A	A	A	3.6	3.7	4.5 <sup>A</sup>	A	A	A	A	A	4.4 <sup>A</sup>	3.5	3.4	2.5	2.5 <sup>A</sup>	(2.5) <sup>M</sup>	2.5 <sup>A</sup>	A	A	4.0 <sup>A</sup>
18	AF	AF	A	2.7 <sup>A</sup>	1.7	2.4	3.4	3.7 <sup>A</sup>	3.5	A	A	5.0 <sup>A</sup>	A	A	A	4.4 <sup>A</sup>	5.0 <sup>A</sup>	A	4.0 <sup>A</sup>	4.7 <sup>A</sup>	A	A	A	A
19	A	A	A	1.7	1.0 <sup>F</sup>	1.7	5.0 <sup>A</sup>	3.5 <sup>A</sup>	4.2 <sup>A</sup>	A	A	4.5 <sup>A</sup>	5.4 <sup>A</sup>	5.3 <sup>A</sup>	4.1	3.5	4.3 <sup>A</sup>	2.8	2.6	1.8	1.6	A	A	1.5
20	A	A	2.7 <sup>A</sup>	2.5 <sup>A</sup>	E	2.4	5.0 <sup>A</sup>	A	A	3.5	3.5	4.5	4.0 <sup>A</sup>	A	A	A	A	A	3.3 <sup>A</sup>	4.5 <sup>A</sup>	A	A	2.5 <sup>A</sup>	3.3 <sup>A</sup>
21	(2.4) <sup>M</sup>	1.6	(1.4) <sup>M</sup>	1.2	A	A	A	A	A	5.0 <sup>A</sup>	C	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	5.0 <sup>A</sup>	4.2	(4.6) <sup>M</sup>	5.0 <sup>A</sup>	6.0 <sup>A</sup>	3.7	(3.0) <sup>A</sup>	2.4	2.3	2.4	2.4	3.3 <sup>A</sup>	3.5 <sup>A</sup>	C	C
23	A	AF	1.7	1.6	1.1	AF	A	AF	5.5 <sup>A</sup>	A	A	3.5	4.0	3.8	3.5	5.0 <sup>A</sup>	6.0 <sup>A</sup>	4.5 <sup>A</sup>	2.5	(2.0) <sup>A</sup>	1.6	1.7	1.6	1.7
24	2.4 <sup>A</sup>	1.7	A	A	A	1.8	3.5	A	A	A	5.5 <sup>A</sup>	A	A	A	A	6.0 <sup>A</sup>	6.0 <sup>A</sup>	3.3 <sup>A</sup>	4.9 <sup>A</sup>	5.0 <sup>A</sup>	4.5 <sup>A</sup>	A	AF	AF
25	2.0 <sup>A</sup>	C	C	C	C	3.3 <sup>A</sup>	(3.6) <sup>M</sup>	4.0 <sup>A</sup>	A	A	A	A	5.0 <sup>A</sup>	6.0 <sup>A</sup>	5.5 <sup>A</sup>	3.8 <sup>A</sup>	4.0 <sup>A</sup>	3.6 <sup>A</sup>	3.1 <sup>A</sup>	1.9	A	A	2.4 <sup>A</sup>	2.5 <sup>A</sup>
26	A	AF	1.7	(1.7) <sup>M</sup>	1.7	1.8	2.9	(4.0) <sup>M</sup>	5.1 <sup>A</sup>	5.0 <sup>A</sup>	A	A	4.2	(4.2) <sup>M</sup>	4.1	3.5	3.5	3.3 <sup>A</sup>	3.5 <sup>A</sup>	A	A	A	AF	AF
27	1.7	AF	AF	AF	1.3	2.4 <sup>A</sup>	3.3 <sup>A</sup>	5.5 <sup>A</sup>	4.2 <sup>A</sup>	4.0	A	A	A	A	A	A	A	A	6.0 <sup>A</sup>	(4.6) <sup>M</sup>	3.3 <sup>A</sup>	(2.8) <sup>M</sup>	2.4 <sup>A</sup>	1.8
28	2.5 <sup>A</sup>	1.6	1.7	E	1.2	1.8	3.4	3.0	5.5	A	A	A	A	A	4.5 <sup>A</sup>	(4.8) <sup>M</sup>	5.0 <sup>A</sup>	3.7 <sup>A</sup>	3.6 <sup>A</sup>	3.6 <sup>A</sup>	2.4 <sup>A</sup>	2.4 <sup>A</sup>	1.7	1.7
29	A	AF	1.7	E	2.4 <sup>A</sup>	1.9	3.4 <sup>A</sup>	3.1	3.5	3.8	4.0 <sup>A</sup>	4.0	4.0	4.0	3.5	3.3	3.5	2.7	2.3	1.7	1.7	1.6	1.6	1.6
30	1.7	1.5	1.1	1.1	1.0	1.8	3.8	3.5 <sup>A</sup>	A	A	A	A	A	A	4.1	3.6	3.6	M	M	M	M	M	M	M
31																								
Mean Value	1.9	1.6	1.8	1.8	1.8	2.2	3.3	3.7	4.1	4.0	4.1	4.1	4.1	4.4	4.2	4.1	4.1	3.7	3.1	3.0	2.6	2.5	2.0	2.1
Median Value	1.7	1.6	1.7	1.6	1.7	1.9	3.4	3.6	4.1	4.0	4.0	4.0	4.0	4.2	4.1	3.8	3.7	3.5	2.9	2.7	2.4	2.5	1.7	1.7
Count	17	15	18	24	23	24	25	22	19	13	11	15	14	15	19	24	25	22	22	24	21	17	17	20

fminF

Sweep J. O. Mc to 1.7.2. Mc in 2 min

Manual

Automatic

K10

Lat. 35° 42.4' N  
Long. 139° 29.3' E

**Kokubunji Tokyo**

**IONOSPHERIC DATA**

135° E Mean Time

f<sub>minE</sub>

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	1.7	1.8	E	1.0	E	1.2	1.8	1.8	1.8	1.7	1.8	C	C	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.7	1.6	1.6	
2	1.6	1.8	1.0	1.0	1.0	1.0	1.0	1.8	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
3	1.6	1.4	1.0	1.0	1.0	1.0	1.7	1.8	1.8	1.7	1.7	1.8	1.7	1.8	1.7	1.7	1.6	1.7	1.6	1.6	1.6	1.6	1.6	1.6	
4	1.5	1.0	1.0	1.0	E	1.0	1.6	1.6	1.7	1.7	1.8	1.8	1.7	1.7	1.8	1.7	1.6	1.7	1.6	1.6	1.6	1.5	1.6	1.6	
5	1.6	1.0	1.0	1.0	1.0	1.0	1.6	1.6	1.7	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.6	1.7	1.6	1.5	1.6	1.5	1.6	1.6	
6	1.5	1.6	E	E	1.0	E	C	1.6	1.6	1.7	1.8	1.8	1.7	1.7	1.7	1.7	1.6	1.7	1.6	1.5	1.6	1.5	1.5	1.5	
7	1.6	1.0	E	E	E	E	C	C	1.6	1.4	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.3	1.4	1.4	1.6	1.5	1.6	1.6	
8	1.4	E	E	E	E	C	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.5	1.6	1.5	1.5	
9	1.6	1.2	E	E	E	E	1.6	1.6	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.5	
10	1.6	E	E	E	E	1.0	1.4	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.7	1.6	1.5	1.5	
11	1.5	1.6	E	E	1.0	1.0	1.5	1.6	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.4	1.5	1.5	1.6	1.5	1.5	1.6	
12	1.6	1.4	E	E	E	E	1.5	1.6	1.6	1.6	1.6	1.7	1.7	M	M	1.6	1.6	1.7	1.5	1.5	1.5	1.7	1.6	1.6	
13	1.6	1.6	E	E	E	E	1.6	1.6	1.6	1.6	1.6	1.7	1.8	1.8	1.8	1.7	1.7	1.6	1.4	1.4	1.6	1.6	1.6	1.6	
14	1.4	1.2	1.0	E	E	E	1.6	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.7	1.6	1.4	1.8	1.8	1.6	1.6	
15	1.6	E	E	E	E	E	1.6	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.5	1.6	1.6	1.6	1.6	1.6	
16	1.6	1.2	1.0	1.0	1.0	1.0	1.5	1.6	1.7	1.7	1.5	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.6	1.5	1.6	1.6	
17	1.6	1.0	1.0	1.0	1.0	1.0	1.6	1.6	1.5	1.6	1.7	1.8	1.8	1.8	1.8	1.6	1.6	1.8	1.5	1.5	1.5	1.5	1.6	1.5	
18	1.6	1.0	E	E	E	1.0	1.6	1.7	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
19	1.0	1.0	1.0	1.0	1.0	1.0	E	E	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.6	1.6	1.5	1.6	1.5	1.5	1.7	
20	1.5	1.5	E	E	E	E	1.6	1.7	1.7	1.7	1.7	C	C	C	C	C	C	C	C	C	C	C	C	C	
21	1.5	1.0	E	E	E	E	1.6	1.6	1.7	1.7	1.7	C	C	C	C	C	C	C	C	C	C	C	C	C	
22	C	C	C	C	C	C	C	C	C	C	C	C	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.5	1.6	1.6	1.5	
23	1.6	1.2	E	E	E	E	1.5	1.6	1.6	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.5	1.5	1.5	1.5	1.6	1.5	
24	1.6	1.4	1.0	1.0	1.0	1.0	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.6	1.6	1.5	1.6	
25	1.6	C	C	C	C	C	1.0	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.6	1.5	1.5	1.5	1.6	1.6	1.6	
26	1.6	1.0	E	E	E	E	1.0	1.6	1.7	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.4	1.4	1.6	1.5	1.5	1.5	1.5	
27	1.6	1.5	E	E	E	E	1.6	1.5	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.6	1.6	1.7	1.5	1.6	1.6	1.7	
28	1.6	1.2	E	E	E	E	1.0	1.5	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.7	
29	1.6	E	E	E	E	E	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.6	1.7	1.6	1.7	1.7	
30	1.7	E	E	E	E	E	1.0	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7	M	M	M	M	M	M	
31																									
Mean	1.6	1.3	1.0	1.0	1.0	1.0	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.6	1.6	1.6	1.6	
Median	1.6	1.2	E	E	E	E	1.0	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.6	1.6	1.6	1.6	
Value	1.6	1.2	E	E	E	E	1.0	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.6	1.6	1.6	1.6	
Count	29	28	28	28	28	28	27	28	29	29	28	28	28	28	28	28	29	28	28	28	28	28	28	28	28

Sweep 1.0 Mc to 17.2 Mc in 2 min  Manual  Automatic

K11

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Kokubunji Tokyo

Lat. 35° 42.4' N  
Long. 139° 29.3' E

Jun. 1953

YPF2

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	A	A	A	50P	100P	A	B	B	B	C	C	C	C	A	80	80P	[80]A	80	100P	A	A	B	A	A
2	A	(70)J	60	90	90	90	(90)J	80	80	A	A	A	A	50	[60]A	70	90P	60	[60]A	60	80	60P	70	B
3	(80)F	(90)J	60	90	A	A	A	A	A	U	U	U	A	A	U	U	U	U	U	U	U	U	U	U
4	70K	110K	110K	70K	80K	90F	U	100K	A	A	A	A	A	50K	60K	80K	60K	70K	(90)P	60K	70K	(90)P	(70)K	80K
5	(60)P	70K	(50)K	80K	80K	100K	(50)K	U	U	A	A	A	(70)K	U	U	U	U	U	U	A	A	A	A	100K
6	F	A	AS	FS	80	C	C	C	U	U	U	U	U	U	U	U	U	U	U	[80]A	90	[80]A	80	[80]A
7	70	90F	70F	80F	100F	80	C	C	(60)P	90	G	U	U	U	U	U	U	U	U	U	U	U	U	U
8	100	F	F	F	80F	[80]B	80	90	70	(50)J	70	A	U	U	U	U	U	U	U	U	U	U	U	U
9	80P	60F	100F	100F	100F	100	70	50	U	(50)P	A	A	A	A	(60)P	60	60	80	90P	(90)P	AF	A	A	70
10	AF	AF	AF	AF	AF	50H	90F	A	A	A	A	A	A	A	A	A	A	A	A	80P	90P	90	80	90P
11	F	F	80F	90F	80F	80	100P	U	A	A	A	B	A	A	A	60	60	100	80	A	AF	60F	F	AF
12	AF	F	F	80F	(80)P	[80]A	80	[80]A	70	B	U	U	A	M	M	U	U	U	U	A	100	90Z	[80]A	80F
13	F	F	F	90F	110	U	U	U	80	B	U	U	U	U	U	U	U	U	U	70	(70)P	90P	(90)F	70
14	(70)F	60P	B	70F	70F	80P	[80]A	70	80	A	A	A	A	A	A	60P	70	90	110	90	90P	BS	A	A
15	A	A	AF	AF	AF	90	(60)P	50	A	A	70	80	U	U	U	U	U	U	U	[80]A	(80)P	70	(90)P	70P
16	A	A	AF	F	90F	60	90	U	60	A	A	A	A	A	A	A	A	A	A	(80)P	A	A	A	A
17	A	A	A	A	A	A	50	(30)J	60	A	A	A	A	A	60	60	90	80	100P	[100]A	90	[80]A	(60)P	A
18	AF	AF	100F	[90]S	(80)F	100	110P	80	(60)P	A	A	A	A	A	A	60	60	[60]A	70P	70P	50	A	A	A
19	A	A	A	AF	A	90F	50	50	(50)J	A	A	U	A	A	60	80	70	100	100	90P	80	A	A	BS
20	A	A	AF	(100)P	70F	110F	A	A	A	80	60	U	A	A	A	A	A	A	A	70P	FB	A	A	(90)P
21	A	AF	AF	F	A	A	A	A	A	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C
22	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
23	A	AF	90F	(80)P	80F	AF	A	AF	A	A	A	B	U	U	U	U	U	U	[80]A	80	80	100P	(80)P	
24	F	F	A	A	70F	90P	70	A	A	A	A	A	A	A	A	90	50	80	90	90P	60	A	AF	AF
25	80P	C	C	C	C	90	[100]A	100	A	A	A	A	A	A	A	100	80	(90)P	[80]B	70	[80]A	80	80F	F
26	AF	F	F	F	90F	80F	50	A	A	70	A	A	U	A	50P	50	60	(100)P	90P	80P	100P	A	AF	AF
27	60F	AF	AF	AF	100F	80H	50	60	(80)P	60	A	A	A	A	A	A	A	A	A	A	A	B	60	50F
28	BF	(100)F	[100]F	(100)F	60	70P	50	50	A	A	A	A	A	A	80	70	80	70	50	60	80	60	50	F
29	A	AF	F	90F	70F	60P	80	100	U	60	80	U	U	U	50	U	90	80	80P	80P	100P	80F	(70)P	80
30	80P	50	FB	F	70F	70K	A	U	A	A	A	A	A	A	A	U	B	M	M	M	M	M	M	M
31																								
Mean Value	80	80	80	90	90	80	70	70	60	70	80	80	70	80	70	80	70	80	80	80	80	80	80	80
Median Value	80	70	80	90	80	80	70	60	60	70	80	80	70	80	60	80	80	80	80	80	80	80	80	80
Count	10	9	10	16	23	23	19	15	12	7	4	1	1	5	11	21	23	21	23	23	21	18	17	12

K 12

Automatic

Manual

Sweep 1.0 Mc in 17.2 Mc in 1.72 min

YPF2



Lat. 31° 12.5' N  
Long. 130° 37.7' E

# Yamagawa

## IONOSPHERIC DATA

135° E Mean Time

Koganei-machi, Kitatama-gun, Tokyo, Japan

foF2

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	5.2	4.6 <sup>F</sup>	4.6 <sup>F</sup>	4.9 <sup>H</sup>	(5.6) <sup>H</sup>	4.3 <sup>F</sup>	5.3	(6.5) <sup>P</sup>	5.3	5.1 <sup>J</sup>	A	B	B	[6.9] <sup>A</sup>	7.2	8.4 <sup>J</sup>	10.2	10.8	S	5.2 <sup>P</sup>	5.8	5.8	5.8	5.7 <sup>F</sup>	
2	(5.6) <sup>F</sup>	(6.3) <sup>F</sup>	4.6	A	F	3.3 <sup>F</sup>	4.7	6.1 <sup>J</sup>	6.3	6.3	A <sup>K</sup>	B <sup>K</sup>	6.6	[6.9] <sup>A</sup>	A <sup>K</sup>	8.4 <sup>J</sup>	7.6	7.9	(8.2) <sup>P</sup>	6.2	(8.0) <sup>S</sup>	(6.5) <sup>H</sup>	(6.5) <sup>H</sup>	6.8 <sup>F</sup>	
3	7.5 <sup>P</sup>	6.7	6.2	5.5	5.0	3.0 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	5.1 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	4.9 <sup>K</sup>	[6.0] <sup>A</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	6.2 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	5.8 <sup>F</sup>	
4	A <sup>K</sup>	4.1 <sup>H</sup>	(3.7) <sup>K</sup>	3.3 <sup>K</sup>	(3.1) <sup>K</sup>	2.9 <sup>K</sup>	3.9 <sup>K</sup>	5.7 <sup>K</sup>	6.3 <sup>K</sup>	5.2 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	6.5 <sup>R</sup>	7.4 <sup>K</sup>	7.7 <sup>K</sup>	6.7 <sup>K</sup>	7.2 <sup>K</sup>	6.8 <sup>F</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	5.1 <sup>K</sup>	5.4 <sup>K</sup>	5.8 <sup>F</sup>	
5	4.1 <sup>H</sup>	4.9 <sup>F</sup>	(4.8) <sup>F</sup>	3.3 <sup>K</sup>	2.8 <sup>K</sup>	3.1 <sup>K</sup>	5.0 <sup>K</sup>	5.3 <sup>K</sup>	5.3 <sup>K</sup>	(5.0) <sup>K</sup>	4.8 <sup>K</sup>	5.1 <sup>K</sup>	5.7 <sup>K</sup>	5.4 <sup>K</sup>	5.7 <sup>K</sup>	5.9 <sup>K</sup>	6.9 <sup>K</sup>	6.9	7.2 <sup>P</sup>	4.9	4.4 <sup>P</sup>	3.9	3.7 <sup>F</sup>	A	
6	A	A	5.0	3.9 <sup>F</sup>	F	A	3.8 <sup>F</sup>	4.6 <sup>H</sup>	5.6	5.6	A	A	5.8	6.9	7.7	8.7 <sup>J</sup>	6.8	6.9	[6.2] <sup>A</sup>	5.7	(5.5) <sup>S</sup>	5.2	4.3	4.3 <sup>F</sup>	
7	(5.2) <sup>F</sup>	4.3 <sup>F</sup>	(4.1) <sup>F</sup>	3.9 <sup>F</sup>	3.4 <sup>F</sup>	3.6	4.9	5.0	C	C	C	C	5.6	6.5	7.0	6.6	7.1	5.8	5.7	[5.6] <sup>S</sup>	5.6	5.9	5.9	5.4	
8	5.1 <sup>H</sup>	4.9	4.8	4.2	3.6	3.2	3.9	5.3 <sup>P</sup>	4.8	6.5	A	B	4.9	5.1	6.6	7.4	7.8 <sup>P</sup>	8.1	(8.2) <sup>F</sup>	(8.1) <sup>P</sup>	6.2	4.9	4.6	4.1	
9	FS	4.2 <sup>F</sup>	FSH	4.5	3.7	3.2 <sup>F</sup>	4.2 <sup>H</sup>	5.0	5.1	6.2	5.7	5.5	6.3	5.2	5.4	6.2	6.4	5.9	6.4	[6.2] <sup>A</sup>	6.0	(6.1) <sup>P</sup>	4.7	5.3	
10	FS	4.8 <sup>F</sup>	A	4.5	3.6 <sup>F</sup>	3.9 <sup>F</sup>	A	A	A	A	A	A	A	6.6	7.9 <sup>P</sup>	[7.4] <sup>A</sup>	6.9	7.2	(8.6) <sup>P</sup>	(7.3) <sup>R</sup>	6.2	5.5 <sup>F</sup>	FS	FS	
11	FSH	(5.5) <sup>F</sup>	4.7 <sup>F</sup>	4.9	4.0 <sup>F</sup>	4.0	3.7	4.3	5.5	(5.5) <sup>S</sup>	A	A	6.1	[5.8] <sup>A</sup>	5.6	6.5	7.3	7.6	S	(7.0) <sup>S</sup>	A	4.6	A	F	
12	4.4 <sup>F</sup>	4.5 <sup>F</sup>	FHS	4.8 <sup>F</sup>	3.3	3.1 <sup>F</sup>	3.9	5.3 <sup>S</sup>	A	A	A	5.5 <sup>J</sup>	5.2 <sup>P</sup>	5.5	5.9	[7.2] <sup>A</sup>	8.6	(8.1) <sup>P</sup>	(8.4) <sup>S</sup>	A	A	4.6	A	F	
13	F	F	(4.9) <sup>F</sup>	[3.5] <sup>M</sup>	2.1 <sup>F</sup>	2.4 <sup>F</sup>	4.4	6.5	C	C	C	C	C	C	C	C	C	C	C	5.2	5.5 <sup>H</sup>	5.7	(6.5) <sup>S</sup>	5.7 <sup>F</sup>	
14	5.0	4.7 <sup>H</sup>	5.8 <sup>S</sup>	5.5 <sup>F</sup>	3.4	3.6 <sup>F</sup>	6.2 <sup>F</sup>	(6.6) <sup>S</sup>	5.6	A	A	A	5.8	[6.7] <sup>A</sup>	7.6	8.2	8.6	8.6	S	8.0	S	8.3	5.2	4.5	5.6
15	5.8	4.2 <sup>F</sup>	4.1	3.8	3.8	[4.9] <sup>F</sup>	4.3	5.2	6.3 <sup>P</sup>	6.0	4.8	5.7	5.5	[6.4] <sup>M</sup>	7.4	7.2	6.0	6.5	6.9	S	S	5.1	3.9	3.6	
16	4.0 <sup>S</sup>	(3.8) <sup>A</sup>	3.7	3.8 <sup>F</sup>	3.6	4.0 <sup>F</sup>	[4.7] <sup>M</sup>	5.4 <sup>J</sup>	5.3 <sup>J</sup>	[5.7] <sup>A</sup>	6.1	5.9	[6.0] <sup>A</sup>	6.0	7.8	8.1	8.3 <sup>J</sup>	8.9 <sup>P</sup>	9.2	8.1	8.1	6.7	6.1	5.9 <sup>F</sup>	5.8 <sup>F</sup>
17	5.7 <sup>F</sup>	[5.4] <sup>F</sup>	5.1	(5.0) <sup>F</sup>	FS	FSH	4.5	6.1	5.9	C	C	C	C	5.9	6.7	7.3	7.4	8.3 <sup>F</sup>	6.7	(8.9) <sup>P</sup>	7.7	5.9	(5.7) <sup>A</sup>	5.5	
18	(4.8) <sup>A</sup>	(4.0) <sup>P</sup>	F	BF	4.4 <sup>F</sup>	4.4 <sup>J</sup>	4.8 <sup>F</sup>	5.7 <sup>J</sup>	4.9	[5.3] <sup>A</sup>	5.7	5.7	5.3	[5.7] <sup>A</sup>	6.1	7.0	7.4	7.2	7.9	8.6 <sup>S</sup>	5.5 <sup>S</sup>	5.3	4.8	(4.7) <sup>F</sup>	
19	4.7 <sup>S</sup>	A	A	FS	5.2 <sup>F</sup>	FSH	4.3	5.4	5.9	A	A	A	A	A	A	A	6.4	6.5	6.8 <sup>P</sup>	S	S	6.0 <sup>H</sup>	4.9 <sup>P</sup>	A	
20	A	5.1 <sup>F</sup>	4.5 <sup>J</sup>	3.6 <sup>F</sup>	3.5 <sup>F</sup>	4.3	6.1	A	A	A	A	A	A	A	5.7	5.7	[6.3] <sup>A</sup>	6.9	8.3	A	A	A	5.0	F	
21	5.6 <sup>F</sup>	5.5 <sup>F</sup>	[5.5] <sup>P</sup>	5.5 <sup>F</sup>	(5.1) <sup>F</sup>	3.9 <sup>F</sup>	[5.2] <sup>A</sup>	6.5 <sup>P</sup>	A	A	5.1	5.2	[6.0] <sup>A</sup>	6.9	8.3	(9.9) <sup>S</sup>	10.2	C	C	8.2	6.8	5.5 <sup>H</sup>	5.2	4.9 <sup>H</sup>	
22	4.3	4.4 <sup>F</sup>	F	4.7 <sup>F</sup>	F	F	5.4	SH	5.2	4.9	[5.7] <sup>C</sup>	6.5 <sup>J</sup>	[6.2] <sup>C</sup>	5.8	(7.1) <sup>P</sup>	7.1	7.4	S	7.7	8.9 <sup>J</sup>	7.7 <sup>S</sup>	5.6	5.8 <sup>F</sup>	5.1 <sup>F</sup>	
23	(5.3) <sup>F</sup>	FS	F	F	FS	3.9 <sup>P</sup>	4.2	A	A	A	A	A	5.3	5.8	6.7	7.6	8.4 <sup>P</sup>	7.7	[7.2] <sup>C</sup>	6.7	4.8	4.5	[5.0] <sup>A</sup>	5.4 <sup>S</sup>	
24	5.7 <sup>F</sup>	4.9 <sup>F</sup>	FS	3.2 <sup>J</sup>	3.1 <sup>H</sup>	3.2 <sup>F</sup>	4.2	5.2 <sup>J</sup>	5.7 <sup>P</sup>	5.5	[5.4] <sup>A</sup>	5.4	5.8	A	A	A	6.2	S	S	A	A	A	A	3.9	
25	A	A	A	4.4 <sup>F</sup>	F	3.9 <sup>F</sup>	4.4 <sup>J</sup>	A	A	A	5.8 <sup>P</sup>	5.8 <sup>J</sup>	6.7	6.8 <sup>J</sup>	[7.0] <sup>M</sup>	7.3	(8.9) <sup>P</sup>	9.0	8.2	S	5.7 <sup>H</sup>	5.4	5.1	4.7	
26	(4.8) <sup>F</sup>	[5.0] <sup>F</sup>	5.3 <sup>F</sup>	5.4 <sup>F</sup>	4.6 <sup>F</sup>	4.3	4.5	4.7	7.0	6.0	5.9 <sup>J</sup>	5.9	5.6	6.0 <sup>J</sup>	5.9	6.3	7.5 <sup>J</sup>	A	6.0 <sup>J</sup>	A	6.0 <sup>J</sup>	5.7	[5.6] <sup>A</sup>	(5.5) <sup>F</sup>	
27	F	FS	F	4.9 <sup>F</sup>	(4.8) <sup>F</sup>	3.8 <sup>F</sup>	3.6	7.5 <sup>F</sup>	S	6.5	6.4	6.5	[7.8] <sup>A</sup>	9.1 <sup>P</sup>	(9.2) <sup>S</sup>	7.3	7.7 <sup>S</sup>	[7.4] <sup>C</sup>	7.0 <sup>S</sup>	6.6 <sup>J</sup>	6.6 <sup>J</sup>	6.5 <sup>J</sup>	(6.7) <sup>P</sup>	6.2 <sup>S</sup>	
28	5.4	(5.1) <sup>H</sup>	4.6 <sup>F</sup>	4.8	4.1	4.6	5.5	7.3 <sup>J</sup>	6.9	[6.2] <sup>M</sup>	5.5	A	A	A	A	6.6	6.7	(8.9) <sup>S</sup>	[8.0] <sup>P</sup>	7.0	[6.2] <sup>M</sup>	5.3	(5.6) <sup>P</sup>	FS	
29	5.4 <sup>F</sup>	FS	4.7 <sup>F</sup>	(4.8) <sup>F</sup>	[4.6] <sup>F</sup>	4.5	3.9	4.9	5.3	6.2	6.8	5.8	A	A	7.5	8.8	7.9	6.5	(6.6) <sup>P</sup>	7.9	6.5	5.9	5.6	5.8	
30	5.6	5.7 <sup>P</sup>	4.8 <sup>H</sup>	5.3	4.7	4.0	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	5.6 <sup>K</sup>	5.6 <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	5.6 <sup>K</sup>	4.6 <sup>K</sup>	4.5 <sup>K</sup>	5.5 <sup>K</sup>	6.4 <sup>K</sup>	[5.1] <sup>A</sup>	3.8 <sup>F</sup>	4.8 <sup>F</sup>	(4.0) <sup>P</sup>	
31																									
Mean	5.2	4.9	4.7	4.5		4.6	5.7	5.7	5.7	5.7	5.7	5.8	5.9	6.3	6.9	7.2	7.5	7.4	7.3	6.9	6.2	5.5	5.2	5.0	
Median	5.2	4.9	4.7	4.7	3.8	3.9	4.4	5.4	5.6	5.7	5.7	5.7	5.8	6.0	7.0	7.2	7.4	7.2	7.2	7.2	6.7	6.1	5.5	5.2	
Count	21	23	20	25	24	25	28	23	20	17	14	15	20	21	24	27	29	23	23	21	24	27	26	21	

Sweep 0.2 Mc to 2.0 Mc in 1.5 min

Manual  Automatic

Y 1



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

Jun. 1953

rpF2

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	300	(300)F	(310)F	(310)F	(350)F	(250)F	230	(230)P	230	A	A	A	B	A	A	(250)P	A	250	S	260P	310	360	340	350F	
2	(310)F	(310)F	(350)F	A	F	(340)F	(310)F	(240)F	(320)P	290	340	300	300	A	A	A	310	300	(270)P	320	(330)F	300S	(350)F	(310)F	
3	370P	340	310	(350)F	230	(290)A	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	
4	A	A	(320)A	240K	(280)A	(330)A	310H	290K	260K	U	A	A	A	A	A	310K	310K	(300)P	A	A	A	A	A	A	
5	(350)FH	A	FS	(240)F	330K	310K	270K	260K	U	A	A	B	U	U	U	U	310	300	250P	220	260P	(310)A	(350)F	A	
6	A	240	(240)F	F	A	260F	350H	310	310	A	A	A	U	U	U	330	(320)A	300	(280)A	260	(320)F	270	300	(310)F	
7	(310)F	(310)F	(310)F	(310)F	(290)F	270	250	250	C	C	C	C	C	U	U	U	290	260	260	(280)S	310	310	330	300	
8	(300)F	(300)F	(300)F	300	290	280	230	260P	270	250	A	B	A	U	U	340	320	300P	290	(240)P	250	270	300	300	
9	FS	(350)F	FSH	320	300	270F	250H	240	U	U	U	U	U	U	U	320	270	290	250	(270)A	290	(270)F	310	290	
10	FS	(310)F	A	A	(300)F	SF	A	A	A	A	A	A	A	A	340	(340)A	330	330	(250)P	280	310F	FS	FS	FS	
11	FSH	(320)F	290	280	(260)F	(250)B	250	250	U	(310)S	A	A	A	U	U	350	330	290	S	(230)F	(280)S	320	300	(320)A	
12	(340)F	(300)F	FHS	250F	250	260F	250	250S	A	A	A	A	A	U	U	370	(330)A	290	(260)B	A	A	350	A	F	
13	F	F	(240)F	(280)F	(320)F	340F	280	240	C	C	C	C	C	C	C	C	C	C	C	300	300H	(290)F	270H	(350)F	
14	330	(320)F	330F	230F	300	(340)F	290F	(230)S	250	A	A	A	U	U	U	300	290	S	290	S	240	290	300	SF	
15	370	(340)A	300	350	A	FH	270	270	250P	250	U	U	U	U	U	280	330	340	300	S	S	210	250	A	
16	350S	(320)A	(300)B	(260)F	270	(280)F	(280)A	(280)J	A	A	U	310	(350)A	390	330	290	(310)J	310P	250	270	260	300	310S	310F	
17	330F	(320)A	300	(230)F	FS	FSH	270	260	240	C	C	C	C	400	310	340	330	300P	(280)A	(250)P	220	220	A	A	
18	A	(320)P	F	FB	(240)F	(240)F	240F	(240)F	230	(260)A	300	300	A	A	A	290	300	280	270	250S	260S	300	310	(310)F	
19	A	A	A	FS	320F	FSH	250	280	230	A	A	A	A	A	A	A	310	290	300P	S	S	250H	250P	A	
20	A	250F	(280)F	(260)F	260	240	A	A	A	A	A	A	A	U	U	A	A	A	A	A	A	A	A	F	
21	(300)F	(310)F	(280)C	(250)F	(270)F	(260)F	(260)A	270P	A	A	U	U	A	320	320	(330)S	320	C	C	220	250	270H	300	280H	
22	290	(270)F	F	(270)F	F	F	230	SH	220	260	C	B	C	U	(290)F	290	330	S	250	(250)J	230S	A	A	300E	
23	(320)F	FS	F	F	FS	270P	220	A	A	A	A	A	U	A	350	300	280P	250	(240)C	220	250	300	(340)A	380E	
24	(300)F	(280)F	FS	(220)F	300H	270F	240	(220)F	(310)P	250	A	A	A	A	A	A	350	S	S	A	A	A	A	A	
25	A	A	A	290E	F	(250)F	A	A	A	A	A	A	350P	A	A	300	(270)F	250	S	270H	270	340	A	A	
26	(320)F	(300)F	270F	280	260F	230	230	250	260	240	A	U	U	U	U	300	(260)F	A	A	A	A	A	(340)F	A	
27	F	FS	F	(280)F	(260)F	240	280F	240	S	250	A	A	A	(270)S	260	300S	(280)C	260S	(250)F	(260)F	(260)F	(260)F	250S	280H	
28	350	(300)F	(270)H	300	300	250	280	(230)F	240	A	U	A	A	A	A	A	A	A	(270)P	(260)B	240	(270)A	300	(330)F	
29	(270)F	FS	(260)F	(280)F	(260)F	250	230	240	310	270	U	U	A	A	300	300	280	290	(300)P	250	290	280	380	330	
30	360	320P	350H	300	310	250	280	A	A	A	A	A	A	A	(380)K	340	U	U	U	300K	230K	350E	280E	A	
31																									
Mean Value	330	320	300	280	270	260	260	260	260	270	310	320	320	340	320	310	300	290	270	250	270	290	310	320	
3σ Value	370	320	300	280	290	260	250	250	260	260	320	310	300	320	320	300	310	290	260	250	270	290	310	310	
Count	19	22	19	25	23	24	27	23	15	11	4	5	5	7	15	21	24	21	22	20	22	24	23	17	

rpF2

Lat. 35° 12.6' N  
Long. 139° 37.1' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

K'F2

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	290	290	310 A	(270)M	270M	240A	(230)A	220	220	A	A	A	250A	A	A	250A	320A	250	220	230	280A	(330)M	270	300	
2	330F	300A	340A	(300)	(270)M	250A	220	240	280A	280	340	300	300	A	A	A	310	300	250	300A	250	250	260AM	350	
3	280A	260	300A	240K	210	270A	A	A	A	A	A	B	A	A	A	A	(330)A	A	A	A	A	A	A	A	
4	A	350M	(300)A	240K	(270)M	300K	230K	290K	250K	280K	A	A	350K	310K	300K	300K	310K	300K	A	A	A	A	A	280H	
5	280H	(260)A	250K	210K	300K	270K	250K	260K	290K	(360)A	440A	380K	350K	370K	370K	340K	300	300	270	250	210	230	270	330	
6	A	A	230	210	220AF	(240)A	260A	240H	310	A	A	A	340	310	300	320A	(310)A	300	(260)A	230	240	250A	(250)A	310A	
7	280AF	220	250	250	240	220	250	250	C	C	C	C	370	310	290	310	260	280	240	250	250	290	290	250	
8	250H	250	270	260	260	220	220	260	250	250	290	B	A	460	340	300	300	290	260	220	200A	200	250A	250	
9	300	260	240H	250	(270)M	240A	240H	240	330	300	300	310	290	350	390	320	270	290	250	(250)A	250A	220	260A	260A	
10	(210)A	300A	330A	(280)A	240	240A	A	A	A	A	A	A	A	340	320	(320)A	330	310	240	230A	200	250	310F	270F	
11	270	250F	230A	220A	210A	220	230	230	290	300	A	A	300	(340)M	370	350	300	270	240	-210	230	250	260	(300)A	
12	330	280A	250H	230	220	240	230	240A	A	A	A	A	300	320	370	(320)A	270	250	210	A	(330)M	(300)A	280F		
13	270	280F	210F	(260)A	300	270	280	240	C	C	C	C	C	C	C	C	C	C	C	(270)M	250H	240	240	230A	
14	290A	260H	260A	220	280	340AF	230	230	250	A	A	A	360	(340)M	330A	300	280	290	240	230	210	200A	270	270	
15	310	(300)A	280	(330)A	330	(250)A	250	250	(250)M	250	300	330	350	(320)A	300	270	330	320	290	250	200	200A	240	340A	
16	340	(300)A	260	230	250	240	(260)M	270	A	A	290	310	C	(340)M	380	310	290	240	240	230	220	230	290A	300	
17	300A	(280)A	(250)M	220	240F	260M	(260)L	250	240	C	C	C	A	A	A	290	290	280	280	(270)A	200A	200	240	A	
18	A	320	280	240	210	220	240	220	230	(260)M	300	300	A	A	A	A	A	300	280	300	200	270	240	270A	
19	A	A	A	250F	240F	220	250	280	230	A	A	A	A	A	A	310	(350)A	(340)M	A	A	A	A	A	A	
20	A	250	280	240	200	240	220	A	A	A	A	A	A	A	A	300	300	260	(230)C	200	200A	210M	250	230H	
21	270A	300A	240	230	230	250F	(260)M	270H	A	A	350	490	(400)A	320	300	300	300	260	(230)C	200	200A	210M	250	230H	
22	(260)A	230F	270A	250	250	220	230	200	200	(250)M	290	400	(380)C	360	290	270	310	280A	250	220	200	300A	(300)A	270F	
23	280F	290	300	310F	200F	240	200	A	A	A	A	A	350	(350)A	350	290	270	250	(240)C	220	210	240	(300)A	350	
24	300F	250F	290A	200AF	260H	250	210	200	310	250	(320)A	390A	A	A	A	A	350	270	240	A	A	A	A	A	
25	A	A	A	230	240	220H	A	A	A	(360)A	330	330	330	A	A	300	250	250	240	200	200H	240	260	270	
26	270H	250	240	210	220	210	200	240A	260	240	A	330	340	310	320	300	260	A	A	A	300A	(240)M	(280)A		
27	(210)A	200FS	250F	240	230	200A	260	230	230	250	A	A	A	A	250	260	300	(280)C	260	240	220	210	210	210H	
28	330	250H	240	240	260	220	230	220	240	(280)A	310	A	A	A	A	A	A	A	250H	220	240	(240)M	230	250	
29	240	300A	250	240	200A	200	220	230	300	270	250	270	A	A	300	290	250	270	290	240	230	220	(280)A	270	
30	270	280	280H	240	250	230	280	A	A	A	A	340K	340K	A	380K	340K	360K	370K	300K	200K	250K	290K	250F	(390)A	
31																									
Mean Value	290	280	260	250	240	240	240	240	260	270	320	340	340	350	320	310	300	280	280	250	230	230	250	270	280
Median Value	280	280	260	240	240	240	230	240	250	260	300	330	340	340	310	300	300	280	280	250	230	220	240	260	270
Count	24	27	29	30	30	30	27	24	19	14	13	13	17	17	21	25	28	27	26	24	25	26	27	25	

Y 3

Manual  Automatic

Sweep 0.5 Mc to 2.0 Mc in 1.5 min

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 12.5' N  
Long. 139° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

f<sub>o</sub>F1

Jun. 1953

Day	00	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	Q	A	A	A	A	A	A	A	A	A	A	A					
2						Q	A	3.7J	A	A	4.5J	A	A	A	A	A	A	A	A	A				
3						A	A	2.9	A	A	A	4.1	4.0	A	A	4.0	A	A	A	A				
4						Q	A	3.7	4.0	4.1	A	A	4.2	4.3	[4.2]A	4.1	4.1	A	A					
5						L	A	3.5	3.8	4.2	4.2	4.3J	4.3	4.3	4.5	[4.2]B	4.0	4.0	3.3	Q				
6						A	A	Q	L	A	A	A	A	4.3	A	A	A	4.0J	A					
7						L	A	3.5L	C	C	C	C	A	4.2	4.2	4.3J	[4.2]A	4.1	Q					
8						Q	A	3.7	L	A	A	4.5	A	A	4.3	4.0	A	A	A					
9						Q	A	L	4.2	4.1	4.2	4.3J	4.4	[4.4]A	4.3	4.2H	3.9	3.8	3.6					
10						A	A	A	A	A	A	A	A	A	4.5A	A	A	3.8	3.4					
11						Q	A	Q	4.4	A	A	A	A	A	A	4.3	4.0	[3.8]A	3.6					
12						Q	A	A	A	A	A	A	4.4	[4.4]A	4.4A	A	A	A	A					
13						3.4	A	3.6	C	C	C	C	C	C	C	C	C	C	C					
14						Q	A	3.8J	3.8	A	A	A	A	A	A	A	A	A	3.4	3.0				
15						Q	A	Q	A	4.2J	4.2	4.5A	4.5	A	A	4.3	4.2	3.9	A	L				
16						A	A	A	A	A	A	A	A	A	A	A	A	A	A					
17						L	A	3.6	4.1	C	C	C	4.4	4.4A	[4.2]A	4.1	4.0J	A						
18						Q	A	Q	A	A	A	A	A	A	A	4.1	A	A	A					
19						3.5	A	3.9	A	A	A	A	A	A	A	A	4.3J	4.0	L					
20						Q	A	A	A	A	A	A	A	A	A	A	A	A	A					
21						A	A	A	A	A	A	4.6	A	A	A	A	4.2	3.9	C					
22						L	A	Q	Q	A	4.3	5.0J	[4.8]C	4.5	A	A	A	A	A					
23						Q	A	A	A	A	A	A	4.5	A	A	4.3	4.1	3.9	C	L				
24						Q	A	Q	4.1	4.2	A	A	A	A	A	A	A	3.9F	A	A				
25						A	A	A	A	A	A	A	A	A	A	A	4.1A	3.9H	3.7	L				
26						Q	A	4.0	4.2	[4.6]A	4.9	5.0	[4.8]A	4.5	4.4	A	A	A						
27						Q	A	4.0	A	A	A	A	A	A	A	A	A	A	A					
28						3.2	L	L	L	A	A	A	A	A	A	A	A	A	A					
29						L	A	A	4.2	4.2	A	A	A	A	4.3	5.1	4.0	3.9	3.6	A				
30						A	A	A	A	A	A	4.1	A	A	A	4.1J	3.9	3.6	3.6	Q				
31																								
Mean						3.4	3.6	4.1	4.2	4.3	4.5	4.5	4.4	4.4	4.4	4.3	4.1	3.9	3.5	3.0				
Median						3.4	3.7	4.1	4.2	4.3	4.5	4.4	4.4	4.4	4.4	4.2	4.1	3.9	3.6	3.0				
Value						3	11	9	7	7	9	9	9	9	10	14	13	15	8	1				
Count																								

f<sub>o</sub>F1

Sweep 0.5 Mc to 20.0 Mc in 1.5 min

Manual  Automatic

Y 4

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

IONOSPHERIC DATA

Lat. 31° 12.5' N  
Long. 130° 37.7' E

Yamagawa

1953

1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1							A	Q	A	A	A	A	A	A	A	A	A	A	A					
2							Q	240	A	A	A	A	A	A	A	A	A	A	A	A				
3							A	A	A	A	A	240	A	A	A	260	A	A	A	A				
4							Q	240	200	200	A	A	190	200	[220]A	230	220	A	A					
5							220	220	200	240	220	[220]A	210	210	200	[200]B	200	230	220	Q				
6							A	Q	260	A	A	A	A	A	A	A	A	A	A					
7							220	210	C	C	C	C	A	A	180	(250)A	A	A	200A	Q				
8							Q	230	240	A	A	(260)A	A	A	A	200	210	A	A					
9							Q	210	250A	200	210	[190]A	170	[180]A	200	190H	210	220	230A					
10							A	A	A	A	A	A	A	A	A	A	A	A	220	200A				
11							Q	Q	240	A	A	A	A	A	A	A	200	230	[230]A	230A				
12							Q	A	A	A	A	A	250A	A	A	A	A	A	A	A				
13							220	240	C	C	C	C	C	C	C	C	C	C	C	A				
14							Q	A	210	A	A	A	A	A	A	A	A	A	A	200	220			
15							Q	Q	A	B	180	[210]A	240A	A	A	A	250A	220	250A	[220]A	200			
16							A	A	A	A	A	A	A	A	A	A	A	A	A	A				
17							200	200	C	C	C	C	C	C	C	C	A	A	A	A				
18							Q	Q	A	A	A	A	A	A	A	A	180	A	A	A				
19							200	(250)A	A	A	A	A	A	A	A	A	A	A	A	210	290			
20							Q	A	A	A	A	A	A	A	A	A	A	A	A	A				
21							A	A	A	A	200	200	A	A	A	A	A	330	200	C				
22							210	Q	Q	A	200	A	C	180	A	A	A	A	A	A				
23							Q	A	A	A	A	A	(250)A	A	A	A	230	240A	200	[200]C	200			
24							Q	Q	200	240A	A	A	A	A	A	A	A	A	A	A				
25							A	A	A	A	A	A	A	A	A	A	A	A	300H	200	200			
26							Q	A	220	220	[230]A	240A	A	A	A	A	230	A	A	A				
27							Q	230A	A	A	A	A	A	A	A	A	A	A	C	A				
28							200	200A	210	A	A	A	A	A	A	A	A	A	A	A				
29							200	[200]A	210	206	A	A	A	A	A	190	200	200	200	200	A			
30							A	A	A	A	A	A	230	A	A	A	200	200	200	200	0			
31																								
Mean Value							210	220	220	210	220	220	220	190	210	210	210	210	210	220				
Minimum Value							200	220	210	200	220	220	220	200	200	200	220	200	200	200	200			
Count							8	12	12	6	6	6	6	7	6	7	2	9	13	11				4

Sweep  $0.8$  Mc to  $2.0$  Mc in  $1.5$  min

Manual  Automatic



The Radio Research Laboratories  
Koganei-machi, Kitakama-gun, Tokyo, Japan

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

Jun. 1953

f<sub>o</sub>E

DAY	00	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	2.6	2.8	3.1	3.2	[3.3]B	3.4	3.4	3.4	3.1	2.9	2.7	2.1						
2						A	2.2	2.6	3.0	A	A	3.2	J	A	A	A	A	A						
3						A	B	2.8	3.1	3.3	3.3	3.2	3.3	3.3	3.3	3.2	3.0	2.5	2.1					
4						1.7	2.2	2.9	3.2	3.2	3.3	A	B	B	B	3.0	3.0	A						
5						2.0	S	S	S	[3.3]A	3.4	[3.3]B	3.2	3.2	3.2	3.2	2.8	2.6	2.3	A				
6						A	A	2.8	[3.0]A	3.2	A	A	A	A	A	A	A	A	A					
7						2.0	2.4	C	C	C	C	S	3.1	3.1	3.0	2.8	[2.6]A	2.5						
8						A	2.4	2.4	3.0	[3.2]A	3.4	3.4	3.4	A	A	A	A	A						
9						A	2.7	A	A	A	3.4	B	3.2	3.4	3.0	2.9	2.7	2.4						
10						A	A	2.7	2.9	3.1	3.1	3.3	3.5	3.4	3.1	3.0	[2.5]A	2.0						
11						A	2.3	2.7	2.9	3.2	3.2	A	A	A	2.8	3.0	[2.6]A	2.3						
12						B	A	A	A	3.2	[3.2]A	3.2	3.2	3.2	3.0	2.8	2.8	A						
13						1.9	2.3	C	C	C	C	C	C	C	C	C	C	2.2						
14						A	2.4	2.7	A	A	A	A	A	A	A	3.2	[3.0]A	2.8	2.2	A				
15						1.8	2.4	2.7	A	A	A	3.2	3.2	3.4	3.2	3.0	2.8	2.2	A					
16						1.7	[2.2]A	2.6	3.0	3.0	3.2	3.2	3.5	3.4	3.2	3.0	2.8	2.4	2.0					
17						2.0	2.5	H	2.8	C	C	C	C	3.5	3.4	3.1	2.8	2.7	2.3					
18						A	2.6	2.7	3.2	F	A	B	3.3	A	A	A	A	A	A					
19						A	2.4	2.8	3.0	3.1	3.4	A	A	A	A	A	A	2.9	2.3					
20						A	2.2	J	2.8	A	A	A	3.4	3.0	3.2	[3.1]B	3.0	2.8	2.2					
21						A	A	3.0	3.0	3.1	3.3	3.4	B	3.5	3.6	3.4	3.0	A	C					
22						A	2.5	2.6	A	A	A	C	3.5	3.6	3.2	A	A	2.4						
23						2.0	2.4	3.0	A	A	A	A	A	3.3	[3.4]A	3.5	3.1	2.6	C	A				
24						1.4	2.1	2.9	3.2	3.4	3.4	3.4	3.4	3.4	3.2	3.0	3.1	2.8	2.2	1.7				
25						1.7	A	A	A	A	A	A	A	S	A	A	A	A	2.4	A				
26						1.7	A	A	A	A	A	A	A	A	B	A	3.0	2.6	2.3					
27						1.6	A	A	A	A	A	A	B	3.2	A	A	A	C	A					
28						A	A	B	3.0	3.2	3.2	3.3	3.2	3.1	3.1	A	A	A						
29						1.9	[2.3]A	2.7	[3.0]A	3.3	[3.2]A	3.2	3.2	A	A	3.0	[2.6]A	2.3	A					
30						A	A	A	3.0	3.2	B	A	A	3.3	A	A	3.0	2.8	A	A				
31																								
Mean Value						1.8	2.4	2.7	3.0	3.2	3.3	3.3	3.3	3.3	3.3	3.1	3.0	2.7	2.3	1.9				
Median Value						1.8	2.4	2.8	3.0	3.2	3.3	3.3	3.3	3.3	3.3	3.1	3.0	2.7	2.3	1.8				
Count						13	19	20	17	16	16	17	20	16	20	20	20	19	19	2				

f<sub>o</sub>E

Group 0.2 Mc in 2.0 Mc in 1.5 min  Manual  Automatic

Y 6



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 12.5' N  
Long. 139° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

3 E

Jun. 1953

Day	00	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	100	100	100	100	100	100	100	100	100	100	100	100						
2							A	100	100	100	A	A	A	A	A	A	A	A	A	A					
3							A	100	100	100	100	100	100	100	100	100	100	100	100	100					
4							100	100	100	100	100	100	100	100	100	100	100	100	100	100					
5							120	110	100	100	100	100	100	100	100	100	100	100	100	100					
6							A	100	A	A	100	A	A	A	A	A	A	A	A	A					
7							100	100	C	C	C	S	100	100	100	100	100	100	100	100					
8							A	100	100	100	100	100	100	100	100	100	100	100	100	100					
9							A	130A	A	A	A	100	90	100	90	100	100	100	100	100					
10							A	A	100	100	100	100	100	100	100	100	100	100	100	100					
11							A	90	100	100	100	100	100	100	100	100	100	100	100	100					
12							B	A	A	A	100	100	100	100	100	100	100	100	100	100					
13							120	100	C	C	C	C	C	C	C	C	C	C	C	C					
14							A	120AF	90	A	A	A	A	A	A	A	100F	100	100	100					
15							100	100	100	A	A	100	100	100	100	100	100	100	100	100					
16							100	100	100	C	C	C	C	C	C	C	100	100	100	100					
17							100	100	100	C	C	C	C	C	C	C	100	100	100	100					
18							A	100	100	100	100	100	100	100	100	100	100	100	100	100					
19							A	100	100	100	100	100	100	100	100	100	100	100	100	100					
20							A	100	100	A	A	A	100	100	100	100	100	100	100	100					
21							A	110	100	100	100	100	100	100	100	100	100	100	100	100					
22							A	100	100	100	A	A	C	100	100	100	100	100	100	100					
23							100	100	100	A	A	A	A	100	100	100	100	100	100	100					
24							120B	100	100	100	100	100	100	100	100	100	100	100	100	100					
25							100	A	A	A	A	A	A	A	S	A	A	A	A	90					
26							A	A	A	A	A	A	A	100	100	100	100	100	100	100					
27							100	A	A	A	A	A	B	100	A	A	A	A	C	A					
28							A	A	100	100	100	100	100	100	100	100	100	100	100	100					
29							100	100F	100	100	100	100	100	100	100	100	100	100	100	100					
30							A	100	100	100	100	100	100	100	100	100	100	100	100	100					
31																									
Mean Value							110	100	100	100	100	100	100	100	100	100	100	100	100	100					
Median Value							100	100	100	100	100	100	100	100	100	100	100	100	100	100					
Count							12	24	22	17	17	18	19	23	17	19	19	19	17	19					

Y7

Sweep 0.5 Mc to 2.0 Mc in 1/5 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.6' N  
Long. 130° 37.7' E

**Yamagawa**

**IONOSPHERIC DATA**

fEs

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	4.8	3.9	4.1	5.6	3.8	4.2	5.5	5.5	5.2	5.6	7.8	6.4	7.4	9.6	9.3	13.4	10.0	7.6	6.8	5.7	4.4	5.3	4.6	3.9	
2	5.6	5.5	6.2	5.9	2.5	3.9Y	4.5	4.3	5.1	4.2	4.2	5.2	5.4	9.0	6.6	8.6	6.8	7.4	4.7	6.0	4.4	1.9	8.6	4.1	
3	4.8	3.9	5.4	5.6F	2.4	3.2	4.6	7.0	7.8	6.0	6.4	G	5.2	5.4	7.6	G	6.4	10.8	8.6	7.2	6.0	10.2	8.6	5.6	
4	4.5	4.0	7.0	3.3	3.3	3.3	3.1	4.2	4.3	G	8.1	9.3	4.5Y	5.2	4.8	7.0	4.4	7.6	12.4	9.4	7.2	6.0	6.1	7.2	
5	7.2	6.7	3.0	3.5	3.4	3.0	G	S	G	5.2	4.8	4.2	4.6	G	3.6	G	3.6	3.4	3.0	3.2	3.1	6.1	2.8	5.5	
6	5.8	6.6Y	5.6	2.8	4.1	6.2F	4.3F	3.9	4.8	5.5	7.0	7.2	7.4	5.7	6.0	8.0	9.2	3.7	7.6	3.1	2.8	5.9	3.5F	5.0	
7	4.3	2.4	2.6	2.2	2.6	2.4	3.0	3.4	C	C	C	C	5.2	3.9	4.8	5.3	4.9	4.2	4.8	2.7	2.6	4.3	2.4	2.0	
8	2.1	E	E	E	E	E	G	G	3.0	5.4	8.7	4.9	6.7Y	5.6	4.6	4.2	6.0	6.8	4.2	3.3	3.6	2.0	2.4	2.0	
9	3.0	2.6	1.2	5.0F	5.5	3.3	4.1	3.8	4.6	4.8F	4.7F	7.3	G	5.2	6.2F	5.4	6.7	4.9	5.3	7.5	5.6	4.4	3.2	5.8	
10	4.2	4.0	6.1	4.2	3.1	3.7	6.0	6.3	9.4	11.6	16.4	19.1	18.6	4.4	8.5	9.8	5.0	G	4.2	4.4	2.3	4.2	3.1	2.5	
11	3.1	1.9	2.2	2.0	1.8	2.6	2.2	3.0	4.8	5.5	8.1	7.3	7.4	7.3	5.4	4.8	4.8	6.0	3.8	3.4	2.8	4.0	4.0	7.6	
12	3.8	5.0	6.7	4.1	2.1	3.7	4.1	5.8	6.0	7.2	8.0	6.2	5.2	5.0	5.4	9.4	6.8	7.2	6.6	7.6	6.1	7.2	6.0	7.2	
13	7.0	3.6	4.0	10.3	2.2	E	2.9	4.3	C	C	C	C	C	C	C	C	C	C	C	4.6	3.2	2.6	2.0	3.8Y	2.4
14	3.6	2.5	6.1	4.0F	3.8F	4.1F	5.2	4.4	4.3	6.3	6.8	15.1	8.2	9.9	10.9	6.7	8.1	4.8	3.7	3.0	2.6	2.4	4.9	5.7	
15	5.4	4.9	4.8	4.6	4.7	3.2	G	4.5	7.4	5.8	4.0	6.2	6.2	9.0	6.6	4.6	5.8	4.4	4.3	2.4	3.1	2.6	3.7	4.0	
16	3.4	6.6	5.6	2.7	2.8	5.6	8.6	5.6	7.0	8.9	5.6	6.0	7.6	5.7	7.5F	8.5	7.4	5.2	5.2	4.8	3.9	5.6	5.6	4.7	
17	5.7	6.0	5.7	5.4	2.2	E	G	G	G	C	C	C	C	C	5.0	5.4	6.2	3.8	5.2	5.8	1.8	2.2	5.6	5.0	
18	7.4	5.6	4.0	5.4	3.8	3.0Y	3.8	6.1	7.3	10.7	5.7	7.2	5.6	11.7	9.2	6.7	6.3	6.9	6.2	5.8	4.4	4.7	2.4	4.0F	
19	6.2F	6.0F	6.0F	3.9	3.8	5.4	3.4	5.0	5.0	6.2	9.3	8.9	8.7	10.3	10.5	8.2S	4.5	3.8	5.7	4.5F	4.5	5.9	5.3	5.5	
20	6.1	6.8	6.0	4.4	4.2	3.0	4.0	8.0	8.6	15.2	14.1	14.6	15.2	14.8	6.2	7.6	9.1	9.2	9.0	7.5	11.6	8.4	6.8	2.9	
21	4.4	4.4	3.6	6.0	5.8F	4.3F	7.0	5.7	9.2	14.4F	7.6	G	7.8	6.3	6.3	5.4	4.6	3.7	C	3.6	1.9	1.8	2.4	4.1	
22	4.1	3.8	3.8	4.1	7.8	6.0	3.1	3.1	3.7	3.4	4.2	4.6	C	G	5.2	6.2	6.0	5.6	6.0	5.0	4.8	5.7	6.8	4.4	
23	4.3	5.7	7.0	4.2	3.4	6.0F	3.8	7.4F	9.4F	16.6	13.3Y	10.1F	6.8	6.5	5.0	4.5	4.8	4.1	C	2.0	E	2.4	6.6	4.0	
24	5.6	5.4	3.3	3.4	2.2	3.0	G	6.8	3.6	4.5	8.4	5.9	6.3	14.2	11.6	11.4	6.4	5.6	6.0	7.3	7.4	9.0	6.7	6.6	
25	5.4	6.3	7.3	6.0	4.0	6.2	4.7	7.7	8.5	8.2	7.4	7.2	6.2	7.0	11.8	7.4	6.4	5.0	6.0	3.4	3.0	7.4	5.1	3.3	
26	4.6	3.0	2.2	2.5	2.4	2.0	3.1Y	5.9	4.6	4.8	7.0	4.2	3.5	6.4	4.4	G	7.2	13.5	9.6	7.4F	5.9S	7.4	4.4	7.7	
27	3.8	3.7	3.2	3.0	1.8	3.5	3.0	5.0	6.2F	13.6	11.0	6.1	9.2	10.1	6.6	5.3	5.8	C	6.8	4.8	3.6	2.2	3.1	3.1	
28	3.8	2.1	2.6	2.6	3.0	2.0	2.6	2.8	G	7.2	5.5	9.2	8.2	13.2	11.4	10.0Y	7.3	7.0	5.7	5.5	7.4	2.8	2.4	2.6	
29	2.1	4.7Y	3.0	2.6	2.8	2.5	2.5	4.4	4.2	4.2	6.7	7.6	9.4	8.8	4.6	5.8	3.9	2.8	3.0	3.9	3.5	3.5	5.2	2.5	
30	2.9	2.4	2.4	E	E	2.2	4.4	5.4	10.2	15.6	14.6	6.8	8.0	10.0	8.2	3.9	G	G	2.5	2.0	6.0	3.4F	4.4	5.6F	
31																									
Mean Value	4.6	4.5	4.5	4.3	3.4	3.8	4.1	5.2	6.2	7.9	8.0	7.9	7.5	8.0	7.0	7.1	6.1	6.0	5.8	4.8	4.4	4.7	4.7	4.6	4.6
Median Value	4.4	4.2	4.0	4.0	3.0	3.2	3.6	5.0	5.0	6.0	7.4	6.8	6.8	6.5	6.3	6.2	6.0	5.2	5.7	4.6	3.8	4.4	4.6	4.2	4.2
Count	30	30	30	30	30	30	30	29	28	27	27	27	27	29	29	29	29	29	28	28	30	30	30	30	30

fEs

Manual  Automatic

Sweep 0.8 Mc to 2.0 Mc in 1.5 min

Y 8

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 35° 12.6' N  
Long. 139° 37.7' E

Yamagawa

IONOSPHERIC DATA

135° E Mean Time

(M3000)F2

Jun. 1953

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	3.2	(3.0)F	(3.0)F	(3.1)F	(2.8)F	(3.4)F	3.5	(3.6)F	3.7	(3.4)F	A	B	B	A	A	(3.6)F	3.2	3.5	S	3.4P	3.1	2.9	2.9	2.8F	
2	(2.7)F	(2.8)F	3.0	A	F	(2.9)F	3.0	(3.7)F	2.9	3.2	3.0	3.2	3.2	(3.0)A	2.7	(3.1)F	3.2	3.2	(3.2)P	3.0	(2.9)F	3.2	(2.8)F	(2.7)F	
3	2.7P	2.9	3.0	2.9	3.7	3.2K	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	B <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	2.9K	(3.4)A	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	3.2K	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	
4	A <sup>K</sup>	2.7K	(3.2)A	3.6K	(3.2)A	2.9K	3.0H	3.3K	3.3K	3.4K	A <sup>K</sup>	A <sup>K</sup>	2.9P	3.1K	3.1K	3.2K	3.0K	(3.3)F	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	2.9K	3.0K	(3.2)F	
5	(2.8)F	3.2F	(3.5)F	(3.5)F	3.0K	3.1K	3.4K	3.4K	3.5K	A <sup>K</sup>	A <sup>K</sup>	2.9K	2.9K	2.8K	2.9K	3.1K	3.0	3.1	3.4P	3.7	3.3P	3.0	(2.9)F	A	
6	A	A	3.6	(3.5)F	F	A	3.2F	2.9H	3.2	3.0	A	A	3.0	3.1	3.1	3.1	(3.2)A	3.3	(3.3)A	3.3	(2.9)F	3.3	3.1	(3.0)F	
7	(3.0)F	(3.0)F	(3.0)F	(3.2)F	(3.2)F	3.3	3.6	3.4	C	C	C	C	3.0	3.2	3.3	3.1	3.4	3.4	3.3	(3.3)F	3.1	3.0	3.0	3.1	
8	3.1H	(3.1)F	3.0	3.1	3.2	3.2	3.7	3.4P	3.3	3.6	A	B	A	2.7	3.0	3.1	3.1P	3.1	(3.4)F	(3.6)F	3.4	3.2	3.2	3.2	
9	FS	(3.3)F	F5H	3.1	3.2	3.3F	3.5H	3.7	3.1	3.3	3.3	3.2	3.3	3.1	2.8	3.2	3.4	3.4	3.6	(3.4)A	3.2	(3.2)F	3.2	3.2	
10	FS	(3.1)F	A	A	(3.1)F	SF	A	A	A	A	A	A	A	3.0	3.0P	(3.0)A	3.0	3.0	(3.6)P	(3.4)F	3.1	3.1F	FS	FS	
11	F5H	(3.0)F	3.1F	3.1	(3.4)F	3.5	3.5	3.5P	3.4	(3.0)F	A	A	3.3	(3.2)A	3.0	2.9	3.0	3.3	S	(3.6)F	(3.2)F	3.0	3.1	(3.0)A	
12	(3.0)F	(3.2)F	F5H	3.5F	3.4	3.5F	3.5	3.5P	A	A	A	A	3.3P	3.2	2.8	(3.0)A	3.2	(3.5)P	(3.4)F	A	A	3.0	A	F	
13	F	F	(3.5)F	(3.2)A	(3.0)F	2.9F	3.3	3.6	C	C	C	C	C	C	C	C	C	C	3.0	3.1H	3.2	(3.2)F	3.3F	2.9	
14	3.0	3.1H	3.0F	3.6F	3.2	(3.0)F	3.2F	(3.5)F	3.7	A	A	A	3.0	(3.0)A	3.1	3.2	3.3	S	3.2	S	3.6	3.1	3.1	SF	
15	2.7	2.9F	3.1	3.0	3.1	(3.2)F	3.4	3.3	3.3P	3.6	3.3	3.2	3.1	(3.2)A	3.2	3.2	3.1	2.9	3.0	S	S	3.7	3.6	3.2	
16	3.05	(3.0)A	3.1	(3.4)F	3.3	(3.2)F	(3.3)A	(3.4)F	A	A	A	3.4	3.1	(3.0)A	2.8	3.0	3.2	(3.1)F	3.1P	3.6	3.3	3.1*	3.1F	3.1F	
17	2.9F	(3.0)A	3.1	(3.5)F	FS	F5H	3.4	3.4	3.7	C	C	C	C	2.8	3.1	2.9	3.0	3.1P	(3.3)A	(3.5)F	3.7	3.7	(3.4)A	3.1	
18	(3.0)A	(3.0)P	F	BF	(3.5)F	(3.7)F	3.5F	(3.6)F	3.7	(3.5)A	3.3	3.2	A	A	3.0	3.4	3.2	3.4	3.3	3.4F	3.4F	3.0	3.0	(3.1)F	
19	2.95	A	A	F5	2.9F	F5H	3.5	3.4	3.8	A	A	A	A	A	A	A	3.1	3.0P	3.4	A	S	3.4H	3.8P	A	
20	A	3.5F	(3.2)F	(3.6)F	(3.4)F	3.4	A	A	A	A	A	A	A	A	A	3.2	3.0	(3.0)A	3.1	3.4	A	A	3.4	F	
21	(3.2)F	(3.0)F	(3.2)F	(3.4)F	(3.3)F	(3.5)F	(3.4)F	3.3P	A	A	A	3.2	2.6	(2.8)A	3.1	3.1	(2.8)F	3.1	C	C	3.6	3.4	3.3H	3.1	
22	3.3	(3.2)F	F	(3.3)F	F	F	3.7	SH	3.6	3.3	(3.1)C	(2.9)F	(2.9)C	2.9	(3.2)P	3.2	3.1	S	3.6	(3.7)F	3.7F	3.4	3.2F	3.0F	
23	(3.0)F	FS	F	F	FS	3.4P	3.6	A	A	A	A	A	A	3.0	2.9	3.1	3.2P	3.5	(3.6)C	3.7	3.5	3.2	(3.0)A	2.8F	
24	(3.2)F	(3.2)F	SF	(3.9)F	3.2H	3.4F	3.6	(4.2)F	(3.1)P	3.6	(3.2)A	2.9	3.1	A	A	A	2.9	S	S	A	A	A	A	3.0	
25	A	A	A	3.1F	F	(3.4)H	A	A	A	A	2.9P	(3.0)F	3.1	A	A	3.1	(3.3)P	3.6	3.5	S	3.2H	3.2	2.8	3.0	
26	(3.0)F	(3.0)F	3.0F	3.3F	3.4F	3.7	3.5	3.7	3.6	3.6	(3.1)F	3.2	3.3	(3.1)F	3.2	3.1	(3.6)F	A	A	A	3.1	(3.0)A	(2.9)F	A	
27	F	FS	F	(3.1)F	(3.1)F	(3.0)F	3.6	3.2F	S	3.6	(3.2)A	2.8	(3.0)A	3.1P	(3.3)F	3.5	3.0F	(3.2)C	3.5F	(3.4)F	(3.3)F	(3.4)P	3.5F	3.2H	
28	2.9	(3.0)H	(3.3)H	3.1	3.1	3.5	3.1	(3.5)F	3.6	(3.4)A	3.2	A	A	A	A	A	3.1	(3.2)F	(3.4)F	3.7	(3.4)A	2.9	(2.9)F	FS	
29	(3.3)F	FS	(3.2)F	(3.2)F	(3.4)F	3.6	3.5	3.4	3.2	3.5	3.5	3.5	A	A	3.2	3.2	3.2	3.3	(3.0)P	3.5	3.1	3.3	2.7	3.0	
30	2.8	3.1P	2.8H	3.2	3.2	3.5	3.4	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	A <sup>K</sup>	3.0K	A <sup>K</sup>	A <sup>K</sup>	(2.9)K	3.2K	3.1K	3.0K	3.2K	3.7K	(3.2)A	2.8F	3.3F	(2.8)F	
31																									
Mean Value	3.0	3.1	3.2	3.3	3.2	3.3	3.4	3.5	3.4	3.4	3.2	3.1	3.1	3.0	3.1	3.1	3.2	3.2	3.3	3.5	3.5	3.2	3.1	3.1	3.0
Median Value	3.0	3.1	3.1	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.2	3.1	3.0	3.1	3.1	3.1	3.1	3.2	3.4	3.4	3.4	3.2	3.1	3.1	3.0
Count	21	23	20	25	24	25	26	23	18	15	13	14	18	19	23	26	29	23	23	20	24	27	26	21	

Sheep 0.5 Mc to 2.0 Mc in 1.5 min  Manual  Automatic

The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.5' N  
Long. 130° 37.7' E

# Yamagawa

## IONOSPHERIC DATA

fminF

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	2.9A	2.4A	[2.6A]	2.7A	2.1A	2.3A	4.3A	2.8	3.2	4.9A	A	A	6.6A	A	A	7.2A	[6.4A]	5.5A	6.8A	3.3A	3.9A	3.5A	1.7	2.9A	
2	3.0A	2.9A	3.2A	[2.8A]	2.4A	1.3	2.2	2.9	4.0A	4.8A	4.7	4.8A	5.3A	[6.0A]	6.6A	8.5A	5.5A	6.5A	3.5A	[3.0A]	2.4A	1.6	2.6A	3.1A	
3	2.7A	2.8A	2.6A	3.4A	2.2A	2.2A	[2.6A]	2.9	5.0A	A	A	3.6	4.0	A	A	3.5	[5.2A]	A	A	A	5.4A	A	A	A	
4	A	3.1A	[2.8A]	2.6A	[2.0A]	1.5	1.7	2.7	2.9	3.5	A	A	3.6	3.7	4.6A	3.8	3.6	4.8A	A	A	4.6A	1.7	3.3A	A	
5	1.6	4.5A	1.4	1.0	1.4	1.5	2.3	3.1S	3.2	3.8	3.6	4.5	3.9	3.7	3.6	4.4	3.1	2.8	2.6	2.1	2.0A	2.1A	2.0A	A	
6	A	3.2A	2.0A	2.8A	[2.9A]	3.0A	2.4	2.4	3.7A	5.3A	A	4.6A	3.6	3.7	4.3A	5.8A	8.9A	3.7	[3.1A]	2.5A	1.1A	3.7A	2.8A	[2.7A]	
7	2.6A	1.0	1.6F	1.2	1.2	1.6	2.2	2.6	C	C	C	C	4.5A	3.7	4.0	4.4A	4.3A	3.5A	3.0	2.0A	1.7	1.6	1.5	1.5	
8	1.5	1.6	1.6	1.4	1.4	1.4	2.2	3.0	3.0	4.4A	4.6A	4.2	4.8A	4.7A	3.4	3.8	5.3A	5.6A	3.5A	2.7A	[2.4A]	2.0A	2.4A	1.7	
9	1.7	1.6	1.0	2.4A	2.4A	2.0A	1.9	2.7	3.7	3.4	3.6	4.4A	3.5	4.6A	3.5	3.4	3.4	2.7	A	A	4.2A	2.6A	2.2A	3.2A	
10	2.4A	[2.6A]	2.8A	[2.2A]	1.7	2.3A	A	A	A	A	A	A	A	4.5	4.5A	[4.4A]	4.3A	2.8	A	3.9A	1.6	1.6	2.9A	1.6F	
11	1.6	1.0	1.8	1.8	1.8	1.8	2.4	2.8	3.0	4.2A	A	A	4.7A	[4.6A]	4.5A	3.2	3.6	3.9A	[2.8A]	1.6	2.4A	2.1A	3.0A	[2.9A]	
12	2.8A	2.3A	2.9A	1.9	1.5	1.5	1.5	1.5	A	A	A	6.0A	4.1	4.6A	4.4A	[4.9A]	5.4A	4.6A	4.1A	A	A	3.5A	[2.6A]	1.6F	
13	1.6	[1.3A]	1.0	[1.1A]	1.2	E	2.2	2.6	C	C	C	C	C	C	C	C	C	C	3.8A	1.7	1.6	1.7	1.6	1.8	
14	2.4A	1.6	3.0A	2.8A	2.8A	2.7A	1.7	2.9	3.2	A	A	A	4.8A	[5.7A]	6.1A	4.9A	4.7A	4.0A	2.2	2.2	1.6	[2.0A]	2.3A	1.7	
15	3.6A	3.6A	1.6	2.7A	3.2A	2.2A	2.1	2.8	5.1A	4.6	3.4	4.5A	4.0	[4.4A]	4.8A	3.9	3.9A	3.6A	A	A	1.8	[2.2A]	2.6A	3.3A	
16	2.4A	[2.2A]	2.0A	2.0A	1.5	1.5	[2.9A]	4.3A	5.5A	[5.2A]	4.8A	4.7A	[4.6A]	4.5A	5.2A	4.4A	6.4A	4.2A	4.4A	4.0A	2.1A	2.0A	3.8A	4.2A	
17	3.8A	[3.4A]	3.0A	3.2A	1.7F	1.6F	2.1	2.6	3.1	C	C	C	C	4.1	4.4A	6.0A	3.8A	4.3A	6.1A	5.6A	[3.6A]	1.5	[3.4A]	5.2	
18	[4.1A]	3.0A	1.4	2.4A	1.1	2.4A	1.8	2.7	4.0A	[4.2A]	4.3A	4.4A	4.9A	[5.2A]	5.5A	A	4.7A	5.8A	2.8	4.5A	3.4A	1.6	1.7	2.2A	
19	4.1A	A	A	1.8	1.5	1.9	2.1	3.6A	3.8A	A	A	A	A	A	A	A	4.4A	3.0	3.3A	1.8	2.5A	1.6	2.3A	A	
20	A	3.4A	1.9	1.6	1.4	1.4	2.4	A	A	A	A	A	A	A	4.6A	5.0A	[5.5A]	6.0A	7.8A	A	A	A	A	2.3A	
21	2.7A	[2.8A]	2.8A	2.8A	2.4A	2.2A	[3.0A]	3.8A	A	A	A	3.6	3.7	[4.3A]	4.9A	5.2A	4.5A	3.6	2.9	[2.4A]	1.9	[1.6A]	1.4	1.3	1.6
22	2.6A	1.3	2.5A	2.7A	3.4A	2.8A	2.0	2.5	3.0	4.0A	3.7	4.8	[4.3A]	3.8	4.5A	5.6A	5.5A	5.6A	6.0A	3.5A	1.9	A	A	1.6F	
23	1.7F	1.7	2.0A	3.0A	3.6F	1.0	2.6	A	A	A	A	A	4.3A	5.4A	4.5A	3.9	3.9A	3.4	[2.7A]	2.0A	1.8	1.4	[2.2A]	3.0A	
24	4.4A	2.5F	1.9	[1.7A]	1.5	1.8	1.8	2.1	3.0	4.0	[4.4A]	4.9A	5.4A	A	A	A	4.8A	3.0	4.6A	A	A	A	A	3.6A	
25	A	A	A	1.7	1.7	1.6	4.5A	A	A	4.8A	4.9A	4.9A	5.8A	6.7A	[6.0A]	5.2A	4.1A	3.5	2.8	2.2	2.0A	2.8A	2.0A	2.1A	
26	1.7	2.2A	1.0	1.3	1.7	1.3	2.6	3.7A	3.6A	3.9	5.6A	4.4	4.6A	4.4A	4.0	4.5A	A	A	A	4.8A	4.8A	2.9A	[3.0A]	A	
27	3.2A	1.8F	2.8A	1.8	1.4	2.0A	A	3.4A	5.0A	5.3A	6.3A	5.5A	[6.8A]	8.2A	5.3A	4.5A	4.8A	[4.4A]	4.1A	3.0A	2.4A	1.5	1.7	1.6	
28	1.8	1.6	1.5	1.6	1.5	1.6	2.0	[2.5A]	3.0	[3.8A]	4.6A	A	A	A	6.3A	6.3A	5.4A	4.7A	5.2A	[3.6A]	1.9	1.7	1.7	1.7F	
29	1.6	[1.6A]	1.7	1.6	[1.4A]	1.1	2.4	3.8A	3.5	3.6	4.3A	4.5A	A	A	3.5	4.8A	3.2	2.8	2.4	3.0A	2.6A	1.7	2.5A	1.6	
30	1.1	E	1.7	1.1	1.1	E	2.8A	A	A	A	A	3.8	A	A	4.6A	3.3	3.2	2.8	2.5	2.0	2.4A	1.5	1.6	3.5A	
31																									
Mean Value	2.5	2.3	2.1	2.1	1.9	1.9	2.4	3.0	3.7	4.3	4.4	4.5	4.7	4.8	4.7	4.8	4.7	4.1	3.9	3.0	2.6	2.2	2.3	2.5	
Median Value	2.5	2.2	2.0	2.0	1.7	1.6	2.2	2.8	3.6	4.2	4.4	4.5	4.6	4.6	4.5	4.5	4.6	3.9	3.4	2.7	2.4	2.0	2.2	2.3	
Count	26	27	28	30	30	30	28	24	21	17	15	17	22	21	24	26	28	27	24	23	26	26	26	27	

fminF

Sweep — 2.8 — Mc to 2.2 — 0.5 — Mc in 1.5 — min

Manual  Automatic

Y 10



The Radio Research Laboratories  
Koganei-machi, Kitatama-gun, Tokyo, Japan

Lat. 31° 12.6' N  
Long. 130° 37.7' E

Yamagawa

IONOSPHERIC DATA

f<sub>min</sub>E

Jun. 1953

135° E Mean Time

Day	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1b	17	14	10	10	10	15	15	16	16	17	18	19	18	14	16	15	15	16	15	16	16	16	15
2	15	E	12	14	E	10	11	14	14	14	15	17	18	18	22	20	18	18	11	12	16	17	13	16
3	12	11	10	10	10	10	14	16	16	17	21	23	25	24	16	16	16	14	16	18	16	16	16	15
4	14	17	15	15	15	15	15	15	17	16	16	23	24	24	24	17	21	16	16	16	17	14	14	16
5	16	10	10	10	10	10	18	[18]S	17	16	18	28	22	25	26	18	16	16	11	14	13	14	15	13
6	12	12	10	E	E	E	14	14	15	15	16	15	15	15	16	18	16	16	14	14	14	15	15F	16
7	11	10	10	10	10	10	16	18	C	C	C	C	33S	22	22	22	22	16	17	15	17	17	16	17
8	16	E	E	E	E	E	17	16	15	15	16	16	16	16	16	17	16	14	14	18	17	17	16	17
9	17	16	10	10	10	10	14	14	15	14	14	14	15	16	15	16	15	15	14	15	16	16	16	15
10	16	12	E	E	E	E	16	16	17	15	15	14	15	18	16	16	18	16	17	15	17	14	16	16
11	16	09	10	10	10	10	14	18	10	16	23	20	19	22	21	25	18	14	12	14	14	16	16	14
12	14	14	15	15	15	15	15	15	16	14	16	16	16	16	16	16	16	15	14	14	16	16	16	14
13	12	10	E	E	E	E	16	16	C	C	C	C	C	C	C	C	C	C	14	13	15	16	16	16
14	E	E	09	E	E	E	E	E	10	15	15	15	15	15	16	15	15	15	15	12	12	15	15	14
15	10	E	E	E	E	E	E	15	14	24	23	17	16	17	17	16	15	14	12	15	15	15	15	16
16	15	15	15	14	13	14	14	14	16	16	16	15	16	16	16	15	16	15	14	12	15	15	15	15
17	15	15	E	15	17	E	16	16	15	C	C	C	C	21	17	17	16	16	14	14	14	17	17	17
18	16	09	E	E	E	E	11	14	16	17	17	16	16	15	17	15	16	16	12	16	16	16	16	15F
19	11F	E	E	E	E	09	12	12	15	15	18	22	23	30S	24	16	16	14	12	11F	15	16F	18	15
20	16	15	14	16	15	14	16	16	16	16	16	22	24	24	18	17	16	17	11	14	15	16	16	16
21	16	11	E	09	09	E	14	15	15	14	16	16	19	17	16	16	17	14	[15]9	16	16	17	17	16
22	14	E	12	11	12	11	12	15	14	16	15	16	[17]C	18	20	20	18	16	16	11	15	14	12	14
23	13	10	10	10	10	10	14	14	16	16	16	19	24	24	23	16	15	14	[14]C	14	E	14	14	14
24	16	15	15	15	15	15	15	15	15	15	15	16	17	17	16	15	14	14	11	16	16	16	16	16
25	11	12	E	E	E	E	16	15	15	15	18	16	26	40S	28	20	18	16	16	16	14	16	16	16
26	15	16	09	E	E	E	E	11	16	14	16	20	29	20	30	20	20	15	15	12	12	14F	11	14
27	10	10	10	10	10	14	10	14	16	17	25	31	35	25	30	24	21	[18]C	15	15	15	15	15	15
28	17	16	16	16	16	14	14	14	17	16	15	16	17	18	18	17	15	12	11	12	15	16	17	17
29	19	16	E	E	E	11	10	14	14	15	20	16	21	17	16	16	17	16	12	12	16	16	16	16
30	E	08	17	E	E	E	12	14	16	15	17	18	16	24	20	18	15	15	15	14	14	16	16	16
31																								
Mean	14	13	12	12	12	12	14	15	15	16	17	18	20	20	20	17	17	15	14	14	15	15	15	15
Median	15	12	10	10	10	10	14	15	16	15	16	16	18	18	17	17	16	15	14	14	15	16	16	16
Value	30	30	30	30	30	30	30	30	28	27	27	27	28	29	29	29	29	29	30	30	30	30	30	30
Count																								

Manual  Automatic

Group 2-8 Mc to 20.0 Mc in 15 min

Y11



IONOSPHERIC DATA IN JAPAN FOR JUNE 1953

電波觀測報告 第5卷 第6号

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(不許複製非売品)

編 集 兼  
發 行 人

好 川 得 太 郎  
東京都北多摩郡小金井町小金井新田一之久保573

發 行 所

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電 話 国分寺 138, 139, 151

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